

An Addition Benton County Justice Center Bentonville, Arkansas

Project No. 2311

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Volume 1 of 2

PROPOSAL FORM
GENERAL CONDITIONS
SPECIFICATIONS

FOR FURNISHING LABOR AND
MATERIALS FOR:
CONSTRUCTION OF

AN ADDITION
BENTON COUNTY JUSTICE CENTER
BENTONVILLE, ARKANSAS

HIGHT JACKSON ASSOCIATES PA
ARCHITECT, A.I.A.
ROGERS, ARKANSAS

PROJECT #2311

APRIL 28, 2025

PROJECT MANUAL FOR CONSTRUCTION OF
AN ADDITION
BENTON COUNTY JUSTICE CENTER
BENTONVILLE, ARKANSAS

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SECTION 00 11 16

INVITATION TO BID

PART 1 GENERAL

1.1 SEALED BIDS ADDRESSED TO:

Benton County, A Subdivision of the State of Arkansas
Benton County Administration Building
215 W. Central Avenue, Suite 304
Bentonville, AR 72712

for the construction of an Addition for Benton County Justice Center
located on 1301 Melissa Drive, Bentonville, AR 72712

1.2 TYPE OF BID:

One proposal for the entire project including General Construction, Mechanical, Plumbing, and Electrical.

1.3. DEADLINE AND PLACE FOR RECEIPT OF BIDS:

May 22, 2025, at 2:00 PM local time

Attn: Shannon Maki
Benton County Administration Building
215 East Central, Ste. 304
Bentonville, Arkansas

1.4. BID FORM AND SUBMISSION:

Forms furnished in this document. Submit in a clearly identified, sealed, opaque envelope.

1.5. CONSTRUCTION DOCUMENTS:

Drawings and Project Manual may be examined at the following locations:

HIGHT.JACKSON.ASSOCIATES.PA
5201 Village Parkway, Suite 300
Rogers, AR 72758
Phone: 479 464-4965
Fax: 479-464-8324

A & B Reprographics, Inc.
3204 Moberly Lane
Bentonville, AR 72712
Phone: 479-271-7922
Fax: 479-271-7948

Tri-State Area Contractors Association, Inc.
1216 Illinois Ave
Joplin, MO 64801
Phone: 417-627-9392
Fax: 417-621-0360

The Builders' Association
521 S. Ingram Mill
Springfield, MO 65806
Phone: 417-883-6044
Fax: 417-883-9403

00 11 16-1

Southwest Construction News
5031 S. 33rd West Avenue, Suite 200
Tulsa, OK 74107
Phone: 918-493-5066
Fax: 918-493-5069

1.6. PROCUREMENT OF DOCUMENTS:

Bona Fide General Contractors may obtain up to three (3) sets of Specifications and Drawings and Subcontractors may obtain one (1) set of Specifications and Drawings from the Architect's office upon deposit of \$100.00 per set. Deposit checks to be made out to HIGHT JACKSON ASSOCIATES P.A. 100% of the deposit will be refunded to bidders who return the documents at least ten (10) days prior to the specified bid date if they do not intend to bid the project; or if a bona-fide bid is received, 100% of the deposit will be refunded upon return of the documents in good condition whether the bidder was successful in obtaining the work or not. **FAILURE TO BID OR RETURN THE DOCUMENTS IN ACCORDANCE WITH THE ABOVE INSTRUCTIONS WILL RESULT IN FORFEITURE OF THE FULL AMOUNT OF THE DEPOSIT.**

As an option, Bona Fide General Contractors and subcontractors may obtain an electronic copy of Specifications and Drawings without deposit via Hight Jackson Associates Dropbox. Please call Hight Jackson Associates office for instructions.

NOTE: BIDDERS ARE DISCOURAGED FROM DOWNLOADING BID DOCUMENTS FROM PLAN DISTRIBUTION OR PLAN REVIEW ROOM WEBSITES. IF BIDDERS CHOOSE TO DOWNLOAD BID DOCUMENTS, THEY MUST CONTACT HIGHT JACKSON ASSOCIATES AND GIVE BIDDER'S INFORMATION FOR RECORD PURPOSES. IT WILL BE THE BIDDER'S RESPONSIBILITY TO OBTAIN SUPPLEMENTAL INSTRUCTIONS OR ADDENDUMS PRIOR TO BID DATE.

PLEASE NOTE THAT ANY PERSON OR COMPANY INTENDING TO PROVIDE A PROPOSAL FOR THIS PROJECT SHALL NOTIFY THE ARCHITECT'S OFFICE AND LIST CONTACT INFORMATION

- 1.7. The words vendor, bidder, offerer, company, proposer and contractor may be used synonymously in this document.
- 1.8. BID SECURITY:
Bid security in the amount of five percent of the Proposal must accompany each proposal in accordance with the "Proposal Procedures".
- 1.9. WITHDRAWAL OF BIDS:
No bid may be withdrawn for a period of thirty (30) days subsequent to date of the opening of proposal without consent of the Owner.

00 11 16-2

1.10. AWARD AND/OR REJECTION OF BIDS:

The Owner reserves the right to award the project in any manner that is deemed in his best interest, or to reject any or all bids and to waive any irregularities. Proposals which fail to comply fully with any provision of the Project Manual and other Contract Documents may be considered invalid and may not receive consideration.

1.11 In accordance with Act 150 of 1965, as amended, all bidders shall conform to requirements of the Arkansas State Licensing Law for contractors.

1.12. PRE-BID MEETING

A. A formal pre-bid meeting and walk-through of the project are scheduled as follows:

1. **May 15, 2025, at 2:00 PM local time at the project site:
1301 Melissa Drive, Bentonville, AR 72712**
2. The purpose of this walk-through is to make all bidders aware of the extent of work to be performed and existing conditions. Bidders should make every effort to review drawings prior to this date and make notes of questions about the full scope of work required in contract documents.
3. Bidders are highly encouraged to attend this meeting.

PART 2 NOT USED

PART 3 NOT USED

END OF INVITATION TO BID

00 11 16-3

SECTION 00 21 16

PROPOSAL PROCEDURE

PART 1 GENERAL

1.1 PROPOSAL INSTRUCTIONS

- A. Should a proposer find discrepancies in, or omissions from the drawings, or documents, or should he be in doubt as to their meaning, he shall at once notify the Architect, who will send written instructions to all Proposers. Neither Owner nor Architect will be responsible for any oral instruction. Transmit pre-bid questions to Architect, using the RFI Form, found at the end of this Section. "RFI" will be answered and returned to bidder. If answer warrants change to contract documents during bidding, it will be listed in an addendum.
- B. Proposals shall be made upon the PROPOSAL FORM (or exact copy thereof) found bound into these specifications. Fill in all blanks on the Proposal Form. Changes in the proposal must be explained or noted over the signature of the Proposer. Signatures shall be in longhand by a principal duly authorized to sign contracts, or an officer of the company legally authorized to sign all documents on behalf of the company. Proof of such authorization should be on file with Architect or be included with the bid form. If proposal is by a corporation, the signature shall be accompanied by the corporate seal impression. Proposals shall contain neither alterations nor recapitulation of work to be done.
- C. No oral or telephonic proposals or modifications will be considered. No telegraphic proposals will be considered, but modification by telegraph of proposals already submitted will be considered if received prior to time set for proposal opening. All proposals received will be publicly opened and read aloud.
- D. Any addenda issued during the time of preparation of proposals are to be acknowledged in the Proposal Form and in closing a contract; they will become a part thereof.

1.2 SUBMISSION OF BID

- A. Before submitting his proposal, each Proposer shall carefully examine all documents pertaining to the work, shall visit site and fully inform himself as to all existing conditions under which the work will be performed. Submission of a proposal will be considered presumptive evidence that the Proposer is fully aware of the conditions of the work, requirements of the Contract Documents, pertinent state and local codes, conditions of labor and material markets, and has made allowances in his proposal for all work and all contingencies.

- B. Bids must be submitted on or before date and time specified for bid opening to the place of receiving indicated on Proposal for Lump Sum Contract form. Each bid is to be placed in a separate opaque envelope, completely and properly identified, including the following information:
- PROPOSAL FOR (State category of the Work)
 - NAME OF PROJECT
 - PROJECT NUMBER
 - ADDRESS OF PROJECT
 - BID OPENING DATE AND TIME
 - NAME OF BIDDER
 - STATE CONTRACTOR'S LICENSE NUMBER
- C. Enclose along with the proposal, the required proposal security.
- D. Deliver proposal to the place of receiving indicated on Proposal for Lump Sum Contract.
- E. Late bids will not be considered under any circumstances
- F. Failure to sign bid will result in disqualification. The person signing the bid should show title or authority to bind his/her firm to a contract. The signature must be in ink. The bid must be completed in ink or typed.

1.3 PROPOSAL SECURITY

- A. Proposal Security, consisting of a bid bond, certified check or cashier check on a solvent bank, must be enclosed with each proposal in the amount of not less than five percent (5%) of the largest combined Bid in his Base Proposal. **Bid bond, certified check or cashier check are to be originals. No copies will be accepted.**
- B. Proposal Security shall be made payable, without condition, to Benton County, a subdivision of the State of Arkansas, as a guarantee that the bidder, if awarded the contract, will promptly execute the formal contract in accordance with the proposal and as required by other Contract Documents, and that he will furnish good and sufficient bonds for the faithful performance of same. Proposal Securities of the three lowest bidders in each category of work will be retained until the contract is awarded or other disposition is made thereof. Proposal Security of all bidders shall be returned promptly after the canvas of proposals.
- C. Performance Bond and Labor and Material Payment Bond, Statutory Bond, will be required in an amount of 100% of the contract amount. Such bonds shall be in such a form as required by the Owner and with such sureties as the Owner may approve.
- D. Furnish Owner, through the Architect, with two (2) copies of the signed "Contractor's and Resident Local Agents Affidavit of Qualification" found at the end of this section. *(This form is not required until award of contract.)*

- E. Contractor's Resident Local Agents Affidavit of Qualification shall not be required for submittal prior to bidding but will be required prior to signing of contract.
- F. Copies of the Contract Form and approved Bond Forms may be inspected at the Architect's office.

1.4 ALTERNATE PRICES

- A. Each Proposer is required to bid on all alternates included in the Proposal Form; except that should he desire not to bid an alternate he may insert the words "no bid" in the space provided for prices for such alternate. In such case, if it is determined to use such an alternate, the fact that the cost of the type of method bid in the proposal may be lower than that chosen shall not constitute the basis of a claim by the Proposer that the contract shall be awarded to him. If an alternate price called for involves no change in price, Proposer shall so indicate by writing the words "no change" in the space provided.

1.5 LICENSING / BIDDING REQUIREMENTS

- A. Contractor is required to meet all state laws concerning bidding requirements in the state for which the job is being constructed. Each Contractor is required to have a Contractor's License according to the Contractor's Licensing Act of the Arkansas State Licensing Law for Contractors. The Contractor shall indicate on his bid, his current license number as issued by the Contractor's Licensing Board. The license must be current day of bidding and throughout length of project.
 - 1. Proposals must be submitted in compliance with requirements of Arkansas State Contractor's Licensing Law. Bidders who submit proposals in excess of \$50,000 must submit evidence of having an Arkansas State Contractor's license before their bids will be considered.
- B. Subcontractor licensing in the State of Arkansas.
 - 1. Subcontractors who submit proposals more than \$50,000.00 must have a current Arkansas State Contractor's License.
 - a. As a condition to performing construction work for and in the State of Arkansas, all prime contractors shall use no other subcontractors when the subcontractors' portion of the project is Fifty Thousand Dollars (\$50,000.00) or more, except those licensed by the Contractors Licensing Board and qualified in:
 - 1. Mechanical, indicative of heating, air-conditioning, ventilation, and refrigeration.
 - 2. Plumbing.
 - 3. Electrical, indicative of wiring and illuminating fixtures; and
 - 4. Roofing and sheet metal work, indicative of roofing application.
 - b. In the event the prime contractor is qualified and licensed by the Contractors Licensing Board, he may use his own forces to perform those tasks listed in this section as subcontractors in one (1) or more of the trades listed.
 - 2. The prime contractor shall place the names of each subcontractor in a blank space to be provided on the Form of Proposal of his bid. It shall be mandatory that the a)

mechanical, b) plumbing, c) electrical and d) roofing and sheet metal subcontractors named on the Form of Proposal by the prime contractor awarded a contract under the provision of this Act be given contracts by the prime contractor in keeping with their proposals to perform the items for which they were named. **If the prime contractor is performing the work for the trade listed, they must list their own company in the space provided.**

- C. Your attention is called to the state law(s) requiring all specialty contractors bidding as subcontractors must be licensed by the State of Arkansas. Also, they must be licensed the day they bid the project.

1.6 TRENCHING AND EXCAVATION SYSTEMS

- A. Act 291 of 1993 requires the inclusive in all bids for public works projects a separate price pay item for trench or excavation safety systems if trench or excavation which equals or exceeds five (5) feet in depth, the agency, county, municipality, school district, local taxing unit or improvement district shall require before an award of the contract. Failure to do so, the agency, etc., shall declare the bid fails to comply fully with the requirements and shall be deemed invalid as a non-responsive bid. You must make an entry on the Bid Form in the place provided in order for your bid to be considered a qualified bid. If trenching is not required, show as \$0.00 Dollars in space provided on proposal form. **You must make an entry on the proposal form in the space provided in order for your bid to be considered a qualified bid.**

1.7 AWARD OF CONTRACTS

- A. Contract will be awarded as soon as possible to the responsible Proposer submitting the lowest acceptable proposal (i.e. combination of Base Proposal and accepted alternates) provided.
1. Evidence of the experience qualifications and financial responsibility of the bidder and his subcontractors, and the time of completion are all acceptable to the Owner.
 2. The total of acceptable proposals is within the financial budget for the project.
 3. The Owner reserves the right to reject any or all proposals, to accept or reject alternate proposals and unit prices, and to waive all technicalities concerning the proposals received when it may be in his best interest to do so.

1.8 TIME OF COMPLETION

- A. The Contractor agrees, if awarded the contract to complete project no later than the project completion date as listed on the Proposal Form.

The Undersigned further agrees that, from the compensation otherwise to be paid, the Owner may retain the dollar amount as listed on the Proposal Form for each day thereafter that the Contract remains incomplete, as defined in Article. 9.8 of the General Conditions of the contract, which sum is agreed upon as the proper measure of liquidated damages which the Owner will sustain per diem by the failure of the Undersigned to

complete the work at the time stipulated, and this amount is not to be construed as in any sense a penalty.

1.9 CONTRACT

- A. If he be notified of the acceptance of his proposal within thirty (30) calendar days of the time set for opening of proposals, the Undersigned agrees to execute a contract for the above work for the above stated compensation in the form of the Standard Form of Agreement between Owner and Contractor, Document No. A101, as issued by the American Institute of Architects, current edition within seven (7) calendar days of the receipt of such notification.

1.10 OBLIGATION OF BIDDER

- A. At the time of opening of bids each Bidder will be presumed to have inspected the site and the means of access and transportation required, and to have read and to be thoroughly familiar with the Drawings, Specifications, bidding documents and contract documents, including all Addenda. The failure or omission of any Bidder to examine any form, instrument or document, or to inform himself of conditions relating to the construction of the project, shall in no way relieve any Bidder from any obligation in respect to his bid.
- B. ALL CONTRACTORS MUST BE LICENSED ON THE DAY OF THE BID SUBMITTAL.

1.11 QUALIFICATIONS OF BIDDER

- A. Contractor Pre-qualification: Contractor shall be a recognized general contractor, skilled and experienced in the type of construction required, and equipped to perform workmanship in accordance with recognized standards. Include completed AIA Document A305 (copy available at Architect's office) with proposal. Contractor will not be required to provide Pre-qualification Document A305 if he has performed and completed work of similar size and nature for a project designed and administrated by Hight Jackson Associates within the past Five (5) years.
- B. Owner may make such investigations as he deems necessary to determine the ability of Bidder to perform the work and Bidder shall furnish to the Owner all such information and data for this purpose as the Owner may request. Owner reserves the right to reject any bid if evidence submitted by, or investigation of, such Bidder fails to satisfy the Owner that such Bidder is properly qualified to carry out the obligations of the Contract and to complete the work contemplated therein.

1.12 LAWS AND REGULATIONS

- A. The bidder's attention is directed to the fact that all applicable Federal and state Laws, and the rules and regulations of all authorities having jurisdiction over construction of the project shall apply to the contract throughout, and they will be deemed to be included in the contract the same as though herein written out in full.
- B. Pursuant to Arkansas Code Annotated § 22-9-203, the State encourages all small, minority, and women business enterprises to submit bids for capital improvements. Encouragement is also given to all general contractors that in the event they subcontract portions of their work, consideration is given to the identified groups.

1.13 SITE VISITS

- A. Visits to the site by Bidders may be made only by appointment with the Owner through the Architect. 479-464-4965

PART 2 NOT USED

PART 3 NOT USED

END OF SECTION

00 21 16-6

CONTRACTORS AND RESIDENT OR NON-RESIDENT LOCAL AGENT'S

AFFIDAVIT OF QUALIFICATIONS

Comes now _____, hereinafter
called "CONTRACTOR" and _____
hereinafter called "RESIDENT OR NON-RESIDENT LOCAL AGENT", and after being duly
sworn states under oath and under penalty of perjury that they have independently examined the
status of the bonding company providing the performance bond for the contract entered into
between CONTRACTOR and BENTON COUNTY, ARKANSAS, on the _____
day of _____, 20_____, and state that each has independently examined
the status of the proposed bonding company and states that the proposed bonding company is
qualified and authorized to do business in the State of Arkansas.

The RESIDENT OR NON-RESIDENT LOCAL AGENT further affirms that he is
licensed by the Arkansas Insurance Commissioner to represent the surety company executing the
bond and files herewith the agent's power of attorney as his authority.

FURTHER AFFIANTS SAITH NOT.

CONTRACTOR

RESIDENT LOCAL AGENT

00 21 16-7

REQUEST FOR INFORMATION FORM

SUBMIT TO: HIGHT JACKSON ASSOCIATES PA
5201 W. VILLAGE PARKWAY, SUITE 300
ROGERS, AR 72758
PHONE: (479) 464-4965
Email: lsmith@hjarch.com

PROJECT: An Addition for Benton County Justice Center, Bentonville, Arkansas.

PROJECT #: 2311

RFI # _____ DATE SUBMITTED: _____

REQUIRED ANSWER DATE: _____

REQUESTING CONTRACTOR'S NAME: _____

Requesting Contractor's email address or fax #: _____

All requests must include the associated reference such as drawing #, spec section, room #, column line location, etc.

REFERENCE:

REPLY:

Lorrie Smith

DATE: _____

CC: RFI file

00 21 16-8

An Addition
Benton County Justice Center
Bentonville, Arkansas

00 42 13
PROPOSAL FOR LUMP SUM CONTRACT

PLACE: Benton County Administration Building, Suite 304, Bentonville, AR 72712

DATE & TIME: May 22, 2025, at 2:00 PM local time

PROJECT: An Addition for Benton County Justice Center, Bentonville, AR

PROPOSAL OF

(Hereinafter called the "Bidder")

A Corporation, organized and existing under the laws of the State of _____

A Partnership consisting of _____

An individual trading as _____

TO: BENTON COUNTY ARKANSAS

Gentlemen:

The undersigned, in compliance with your invitation for bids for the construction of an Addition for Benton County Justice Center, Bentonville, Arkansas, having examined the plans and specifications with related documents, and having visited the site of the proposed work within the past Fourteen (14) days, and being familiar with all the conditions surrounding the construction of the proposed project, including the availability of materials and labor, hereby propose to furnish all labor, materials, supplies, plants, etc., and to construct the project in accordance with the contract documents within the time set forth therein and at the prices stated herein, to cover all general construction work, including plumbing, mechanical and electrical. These prices are to cover all expenses incurred in performing the work required under the contract documents of which this proposal is a part.

I/We acknowledge receipt of the following Addenda:

(Arkansas public bid statutory requirement: Bidder must acknowledge all addenda issued by addendum number)

# _____	Dated _____
# _____	Dated _____
# _____	Dated _____
# _____	Dated _____

Base Bid Proposal for General Construction:

DOLLARS (\$) _____)

(Arkansas public bid statutory requirement: Bidder must enter bid amount in numerical format)

00 42 13-1

An Addition
Benton County Justice Center
Bentonville, Arkansas

In compliance with Act 291 of 1993 the following separate pay item is included in the base bid:
TRENCHING OR EXCAVATION SAFETY SYSTEMS:

DOLLARS (\$) _____)

(Arkansas bidding law requirement: Bidder must enter amount. If amount is \$0.00, then enter amount as \$0.00)

UNIT PRICES:

UNIT PRICE NO. 1: Rock excavation and off site disposal per Specifications, Section 31 23 00.

_____ DOLLARS per cu.yd.in place (_____)

UNIT PRICE NO. 2: Provide, place & compact engineered fill as specified in Section 31 23 00.
(Price shall also be for credit if fill called for is not required as determined
by soils engineer)

_____ DOLLARS per trucked cu.yd.(_____)

UNIT PRICE NO. 3: Excavation, removal and off site disposal of existing earth.
(Price shall also be for credit if earth removal called for is not required as
determined by soils engineer)

_____ DOLLARS per trucked cu.yd.(_____)

UNIT PRICE NO. 4: Credit price to Owner for use of suitable on-site fill in lieu of imported
engineered fill if approved by Architect and Geotechnical Engineer.

_____ DOLLARS per cu. yd.(_____)

COMPLETION TIME:

The Contractor agrees, if awarded the contract to complete project no later than **August 7, 2026.**

Liquidated damages in the amount of Five Hundred Dollars (\$500.00) per calendar day for delay
beyond that time will be paid by the Contractor except for extensions of time granted under the
General and Supplementary Conditions.

In submitting this bid, it is understood that the right is reserved by the Owner to reject any or all
bids. No bid shall be withdrawn for a period of thirty (30) days subsequent to the opening of
bids without the consent of the Owner.

00 42 13-2

I (or we) submit the names of the subcontractors I (or we) propose to use, and the State Contractors' License Number (If Applicable), as follows:

SUBCONTRACTORS NAME

STATE CONTRACTOR'S
LICENSE NO.

A. Plumbing

Is the amount of the Plumbing work \$50,000.00 or more? Yes____ No____
If yes, list plumbing subcontractor and license number above.

B. Mechanical

Is the amount of the Mechanical work \$50,000.00 or more? Yes____ No____
If yes, list mechanical subcontractor and license number above.

C. Electrical

Is the amount of the Electrical work \$50,000.00 or more? Yes____ No____
If yes, list electrical subcontractor and license number above.

D. Roofing & Sheet Metal

Is the amount of the Roofing & Sheet Metal work \$50,000.00 or more? Yes____ No____
If yes, list roofing and sheet metal subcontractor and license number above.

Item A. and B. may be separate or combined under one mechanical contract, if so stated above.
(Arkansas public bid statutory requirement: Bidder must enter subcontractors name in blanks above along with license number unless amount of subcontract is less than \$20,000.00.)

CONDITIONS:

- A. It is agreed that if awarded the Contract, a period of time not to exceed thirty (30) days shall be allowed the Owner in which to determine the manner in which to award or not award the contract.
- B. It is further agreed that if awarded the contract, the undersigned will execute the contract and commence work within Seven (7) calendar days, and will fully complete the work ready to use, not later than the time stipulated.

00 42 13-3

DECLARATION:

- A. The Undersigned hereby declares that he has carefully examined the Invitation and Instructions for Proposals, the Drawings and Specifications, has visited the actual location of the work and has consulted his sources of supply, and has satisfied himself as to all quantities and conditions, and understands that in signing this proposal, he waives all right to pleas of any misunderstanding regarding the same.
- B. It is the intent of the requirement to visit the site within Fourteen (14) days of bid opening that the bidder familiarize himself/herself with the existing building, review existing conditions, and that his bid reflects same.

FIRM

BY

(Arkansas public bid statutory requirement: Bidder must sign in space provided above)

PRINTED NAME & TITLE

TITLE

DATE

NOTE: If bidder is a corporation, indicate state of incorporation, under the Firm's Signature, and if a partnership, give full names of all partners.

Arkansas State Contractor's License No.

(Arkansas public bid statutory requirement: Bidder must provide current State Contractor's number)

00 42 13-4

SECTION 00 72 00

GENERAL CONDITIONS OF THE CONTRACT

PART 1 GENERAL

1.1 SCOPE OF WORK

- A. The work included under these Specifications consists of furnishing all items, materials, operations, or methods listed, mentioned, indicated, or scheduled on the drawings and/or in these Specifications, including all labor, materials, equipment, transportation, temporary facilities, services and incidental necessary and required for the construction and completion of the project named in the title page in accordance with contract documents.

1.2 FORM OF SPECIFICATIONS

- A. General Conditions and Division 1 (General Requirements) apply to every Division (1 through 33 of these Specifications.
- B. These Specifications are of abbreviated form and contain incomplete sentences. Omissions of words or phrases such as “the Contractor shall” “shall be”, “as noted on the drawings”, “according to the drawings”, “a”, “an”, “the”, and “all” are intentional. Omitted words and phrases shall be supplied by inference in the same manner as they are when a “note” occurs on the drawings.
- C. All specification instructions are directed to the Contractor and the inclusion of any work by mention, note, or itemization, however brief, implies the Contractor shall provide same, unless specifically directed otherwise. Where a specific Contractor is named, he shall be responsible for and provide work so designated.
- D. In specifying an item by manufacturer’s name and/or catalog number, such item is to be provided complete with all the standard devices and accessories as indicated in the latest edition of the manufacturer’s catalog or brochure published at date of invitation to submit proposal, unless specifically stated otherwise.

1.3 AIA GENERAL CONDITIONS

- A. AIA Document A201-2017:
“GENERAL CONDITIONS OF THE CONTRACT FOR CONSTRUCTION”, 2017 EDITION, 15 Articles, hereinafter referred to as the “AIA General Conditions”, is hereby made a part of this specification, a copy of which is herein attached. Contractor shall consult this document and become intimately familiar with its contents before submitting his proposal.

END OF SECTION

00 72 00-1

AIA® Document A201® – 2017

General Conditions of the Contract for Construction

for the following PROJECT:

(Name and location or address)

An Addition to Benton County Justice Center
Bentonville, AR

THE OWNER:

(Name, legal status and address)

Benton County, A Subdivision of the State of Arkansas
Bentonville, AR

THE ARCHITECT:

(Name, legal status and address)

Hight Jackson Associates PA
Rogers, Arkansas

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14	TERMINATION OR SUSPENSION OF THE CONTRACT
15	CLAIMS AND DISPUTES

ADDITIONS AND DELETIONS:

The author of this document has added information needed for its completion. The author may also have revised the text of the original AIA standard form. An *Additions and Deletions Report* that notes added information as well as revisions to the standard form text is available from the author and should be reviewed. A vertical line in the left margin of this document indicates where the author has added necessary information and where the author has added to or deleted from the original AIA text.

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

For guidance in modifying this document to include supplementary conditions, see AIA Document A503™, Guide for Supplementary Conditions.

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ARTICLE 1 GENERAL PROVISIONS

§ 1.1 Basic Definitions

§ 1.1.1 The Contract Documents

The Contract Documents are enumerated in the Agreement between the Owner and Contractor (hereinafter the Agreement) and consist of the Agreement, Conditions of the Contract (General, Supplementary and other Conditions), Drawings, Specifications, Addenda issued prior to execution of the Contract, other documents listed in the Agreement, and Modifications issued after execution of the Contract. A Modification is (1) a written amendment to the Contract signed by both parties, (2) a Change Order, (3) a Construction Change Directive, or (4) a written order for a minor change in the Work issued by the Architect. Unless specifically enumerated in the Agreement, the Contract Documents do not include the advertisement or invitation to bid, Instructions to Bidders, sample forms, other information furnished by the Owner in anticipation of receiving bids or proposals, the Contractor's bid or proposal, or portions of Addenda relating to bidding or proposal requirements.

§ 1.1.2 The Contract

The Contract Documents form the Contract for Construction. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations, or agreements, either written or oral. The Contract may be amended or modified only by a Modification. The Contract Documents shall not be construed to create a contractual relationship of any kind (1) between the Contractor and the Architect or the Architect's consultants, (2) between the Owner and a Subcontractor or a Sub-subcontractor, (3) between the Owner and the Architect or the Architect's consultants, or (4) between any persons or entities other than the Owner and the Contractor. The Architect shall, however, be entitled to performance and enforcement of obligations under the Contract intended to facilitate performance of the Architect's duties.

§ 1.1.3 The Work

The term "Work" means the construction and services required by the Contract Documents, whether completed or partially completed, and includes all other labor, materials, equipment, and services provided or to be provided by the Contractor to fulfill the Contractor's obligations. The Work may constitute the whole or a part of the Project.

§ 1.1.4 The Project

The Project is the total construction of which the Work performed under the Contract Documents may be the whole or a part and which may include construction by the Owner and by Separate Contractors.

§ 1.1.5 The Drawings

The Drawings are the graphic and pictorial portions of the Contract Documents showing the design, location and dimensions of the Work, generally including plans, elevations, sections, details, schedules, and diagrams.

§ 1.1.6 The Specifications

The Specifications are that portion of the Contract Documents consisting of the written requirements for materials, equipment, systems, standards and workmanship for the Work, and performance of related services.

§ 1.1.7 Instruments of Service

Instruments of Service are representations, in any medium of expression now known or later developed, of the tangible and intangible creative work performed by the Architect and the Architect's consultants under their respective professional services agreements. Instruments of Service may include, without limitation, studies, surveys, models, sketches, drawings, specifications, and other similar materials.

§ 1.1.8 Initial Decision Maker

The Initial Decision Maker is the person identified in the Agreement to render initial decisions on Claims in accordance with Section 15.2. The Initial Decision Maker shall not show partiality to the Owner or Contractor and shall not be liable for results of interpretations or decisions rendered in good faith.

§ 1.2 Correlation and Intent of the Contract Documents

§ 1.2.1 The intent of the Contract Documents is to include all items necessary for the proper execution and completion of the Work by the Contractor. The Contract Documents are complementary, and what is required by one shall be as binding as if required by all; performance by the Contractor shall be required only to the extent consistent with the Contract Documents and reasonably inferable from them as being necessary to produce the indicated results.

§ 1.2.1.1 The invalidity of any provision of the Contract Documents shall not invalidate the Contract or its remaining provisions. If it is determined that any provision of the Contract Documents violates any law, or is otherwise invalid or unenforceable, then that provision shall be revised to the extent necessary to make that provision legal and enforceable. In such case the Contract Documents shall be construed, to the fullest extent permitted by law, to give effect to the parties' intentions and purposes in executing the Contract.

§ 1.2.2 Organization of the Specifications into divisions, sections and articles, and arrangement of Drawings shall not control the Contractor in dividing the Work among Subcontractors or in establishing the extent of Work to be performed by any trade.

§ 1.2.3 Unless otherwise stated in the Contract Documents, words that have well-known technical or construction industry meanings are used in the Contract Documents in accordance with such recognized meanings.

§ 1.3 Capitalization

Terms capitalized in these General Conditions include those that are (1) specifically defined, (2) the titles of numbered articles, or (3) the titles of other documents published by the American Institute of Architects.

§ 1.4 Interpretation

In the interest of brevity the Contract Documents frequently omit modifying words such as "all" and "any" and articles such as "the" and "an," but the fact that a modifier or an article is absent from one statement and appears in another is not intended to affect the interpretation of either statement.

§ 1.5 Ownership and Use of Drawings, Specifications, and Other Instruments of Service

§ 1.5.1 The Architect and the Architect's consultants shall be deemed the authors and owners of their respective Instruments of Service, including the Drawings and Specifications, and retain all common law, statutory, and other reserved rights in their Instruments of Service, including copyrights. The Contractor, Subcontractors, Sub-subcontractors, and suppliers shall not own or claim a copyright in the Instruments of Service. Submittal or distribution to meet official regulatory requirements or for other purposes in connection with the Project is not to be construed as publication in derogation of the Architect's or Architect's consultants' reserved rights.

§ 1.5.2 The Contractor, Subcontractors, Sub-subcontractors, and suppliers are authorized to use and reproduce the Instruments of Service provided to them, subject to any protocols established pursuant to Sections 1.7 and 1.8, solely and exclusively for execution of the Work. All copies made under this authorization shall bear the copyright notice, if any, shown on the Instruments of Service. The Contractor, Subcontractors, Sub-subcontractors, and suppliers may not use the Instruments of Service on other projects or for additions to the Project outside the scope of the Work without the specific written consent of the Owner, Architect, and the Architect's consultants.

§ 1.6 Notice

§ 1.6.1 Except as otherwise provided in Section 1.6.2, where the Contract Documents require one party to notify or give notice to the other party, such notice shall be provided in writing to the designated representative of the party to whom the notice is addressed and shall be deemed to have been duly served if delivered in person, by mail, by courier, or by electronic transmission if a method for electronic transmission is set forth in the Agreement.

§ 1.6.2 Notice of Claims as provided in Section 15.1.3 shall be provided in writing and shall be deemed to have been duly served only if delivered to the designated representative of the party to whom the notice is addressed by certified or registered mail, or by courier providing proof of delivery.

§ 1.7 Digital Data Use and Transmission

The parties shall agree upon written protocols governing the transmission and use of, and reliance on, Instruments of Service or any other information or documentation in digital form.

§ 1.8 Building Information Models Use and Reliance

Any use of, or reliance on, all or a portion of a building information model without agreement to written protocols governing the use of, and reliance on, the information contained in the model shall be at the using or relying party's sole risk and without liability to the other party and its contractors or consultants, the authors of, or contributors to, the building information model, and each of their agents and employees.

ARTICLE 2 OWNER

§ 2.1 General

§ 2.1.1 The Owner is the person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The Owner shall designate in writing a representative who shall have express authority to bind the Owner with respect to all matters requiring the Owner's approval or authorization. Except as otherwise provided in Section 4.2.1, the Architect does not have such authority. The term "Owner" means the Owner or the Owner's authorized representative.

§ 2.1.2 The Owner shall furnish to the Contractor, within fifteen days after receipt of a written request, information necessary and relevant for the Contractor to evaluate, give notice of, or enforce mechanic's lien rights. Such information shall include a correct statement of the record legal title to the property on which the Project is located, usually referred to as the site, and the Owner's interest therein.

§ 2.2 Evidence of the Owner's Financial Arrangements

§ 2.2.1 Prior to commencement of the Work and upon written request by the Contractor, the Owner shall furnish to the Contractor reasonable evidence that the Owner has made financial arrangements to fulfill the Owner's obligations under the Contract. The Contractor shall have no obligation to commence the Work until the Owner provides such evidence. If commencement of the Work is delayed under this Section 2.2.1, the Contract Time shall be extended appropriately.

§ 2.2.2 Following commencement of the Work and upon written request by the Contractor, the Owner shall furnish to the Contractor reasonable evidence that the Owner has made financial arrangements to fulfill the Owner's obligations under the Contract only if (1) the Owner fails to make payments to the Contractor as the Contract Documents require; (2) the Contractor identifies in writing a reasonable concern regarding the Owner's ability to make payment when due; or (3) a change in the Work materially changes the Contract Sum. If the Owner fails to provide such evidence, as required, within fourteen days of the Contractor's request, the Contractor may immediately stop the Work and, in that event, shall notify the Owner that the Work has stopped. However, if the request is made because a change in the Work materially changes the Contract Sum under (3) above, the Contractor may immediately stop only that portion of the Work affected by the change until reasonable evidence is provided. If the Work is stopped under this Section 2.2.2, the Contract Time shall be extended appropriately and the Contract Sum shall be increased by the amount of the Contractor's reasonable costs of shutdown, delay and start-up, plus interest as provided in the Contract Documents.

§ 2.2.3 After the Owner furnishes evidence of financial arrangements under this Section 2.2, the Owner shall not materially vary such financial arrangements without prior notice to the Contractor.

§ 2.2.4 Where the Owner has designated information furnished under this Section 2.2 as "confidential," the Contractor shall keep the information confidential and shall not disclose it to any other person. However, the Contractor may disclose "confidential" information, after seven (7) days' notice to the Owner, where disclosure is required by law, including a subpoena or other form of compulsory legal process issued by a court or governmental entity, or by court or arbitrator(s) order. The Contractor may also disclose "confidential" information to its employees, consultants, sureties, Subcontractors and their employees, Sub-subcontractors, and others who need to know the content of such information solely and exclusively for the Project and who agree to maintain the confidentiality of such information.

§ 2.3 Information and Services Required of the Owner

§ 2.3.1 Except for permits and fees that are the responsibility of the Contractor under the Contract Documents, including those required under Section 3.7.1, the Owner shall secure and pay for necessary approvals, easements, assessments and charges required for construction, use or occupancy of permanent structures or for permanent changes in existing facilities.

§ 2.3.2 The Owner shall retain an architect lawfully licensed to practice architecture, or an entity lawfully practicing architecture, in the jurisdiction where the Project is located. That person or entity is identified as the Architect in the Agreement and is referred to throughout the Contract Documents as if singular in number.

§ 2.3.3 If the employment of the Architect terminates, the Owner shall employ a successor to whom the Contractor has no reasonable objection and whose status under the Contract Documents shall be that of the Architect.

§ 2.3.4 The Owner shall furnish surveys describing physical characteristics, legal limitations and utility locations for the site of the Project, and a legal description of the site. The Contractor shall be entitled to rely on the accuracy of information furnished by the Owner but shall exercise proper precautions relating to the safe performance of the Work.

§ 2.3.5 The Owner shall furnish information or services required of the Owner by the Contract Documents with reasonable promptness. The Owner shall also furnish any other information or services under the Owner's control and relevant to the Contractor's performance of the Work with reasonable promptness after receiving the Contractor's written request for such information or services.

§ 2.3.6 Unless otherwise provided in the Contract Documents, the Owner shall furnish to the Contractor one copy of the Contract Documents for purposes of making reproductions pursuant to Section 1.5.2.

§ 2.4 Owner's Right to Stop the Work

If the Contractor fails to correct Work that is not in accordance with the requirements of the Contract Documents as required by Section 12.2 or repeatedly fails to carry out Work in accordance with the Contract Documents, the Owner may issue a written order to the Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, the right of the Owner to stop the Work shall not give rise to a duty on the part of the Owner to exercise this right for the benefit of the Contractor or any other person or entity, except to the extent required by Section 6.1.3.

§ 2.5 Owner's Right to Carry Out the Work

If the Contractor defaults or neglects to carry out the Work in accordance with the Contract Documents and fails within a ten-day period after receipt of notice from the Owner to commence and continue correction of such default or neglect with diligence and promptness, the Owner may, without prejudice to other remedies the Owner may have, correct such default or neglect. Such action by the Owner and amounts charged to the Contractor are both subject to prior approval of the Architect and the Architect may, pursuant to Section 9.5.1, withhold or nullify a Certificate for Payment in whole or in part, to the extent reasonably necessary to reimburse the Owner for the reasonable cost of correcting such deficiencies, including Owner's expenses and compensation for the Architect's additional services made necessary by such default, neglect, or failure. If current and future payments are not sufficient to cover such amounts, the Contractor shall pay the difference to the Owner. If the Contractor disagrees with the actions of the Owner or the Architect, or the amounts claimed as costs to the Owner, the Contractor may file a Claim pursuant to Article 15.

ARTICLE 3 CONTRACTOR

§ 3.1 General

§ 3.1.1 The Contractor is the person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The Contractor shall be lawfully licensed, if required in the jurisdiction where the Project is located. The Contractor shall designate in writing a representative who shall have express authority to bind the Contractor with respect to all matters under this Contract. The term "Contractor" means the Contractor or the Contractor's authorized representative.

§ 3.1.2 The Contractor shall perform the Work in accordance with the Contract Documents.

§ 3.1.3 The Contractor shall not be relieved of its obligations to perform the Work in accordance with the Contract Documents either by activities or duties of the Architect in the Architect's administration of the Contract, or by tests, inspections or approvals required or performed by persons or entities other than the Contractor.

§ 3.2 Review of Contract Documents and Field Conditions by Contractor

§ 3.2.1 Execution of the Contract by the Contractor is a representation that the Contractor has visited the site, become generally familiar with local conditions under which the Work is to be performed, and correlated personal observations with requirements of the Contract Documents.

§ 3.2.2 Because the Contract Documents are complementary, the Contractor shall, before starting each portion of the Work, carefully study and compare the various Contract Documents relative to that portion of the Work, as well as the information furnished by the Owner pursuant to Section 2.3.4, shall take field measurements of any existing conditions related to that portion of the Work, and shall observe any conditions at the site affecting it. These

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obligations are for the purpose of facilitating coordination and construction by the Contractor and are not for the purpose of discovering errors, omissions, or inconsistencies in the Contract Documents; however, the Contractor shall promptly report to the Architect any errors, inconsistencies or omissions discovered by or made known to the Contractor as a request for information in such form as the Architect may require. It is recognized that the Contractor's review is made in the Contractor's capacity as a contractor and not as a licensed design professional, unless otherwise specifically provided in the Contract Documents.

§ 3.2.3 The Contractor is not required to ascertain that the Contract Documents are in accordance with applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, but the Contractor shall promptly report to the Architect any nonconformity discovered by or made known to the Contractor as a request for information in such form as the Architect may require.

§ 3.2.4 If the Contractor believes that additional cost or time is involved because of clarifications or instructions the Architect issues in response to the Contractor's notices or requests for information pursuant to Sections 3.2.2 or 3.2.3, the Contractor shall submit Claims as provided in Article 15. If the Contractor fails to perform the obligations of Sections 3.2.2 or 3.2.3, the Contractor shall pay such costs and damages to the Owner, subject to Section 15.1.7, as would have been avoided if the Contractor had performed such obligations. If the Contractor performs those obligations, the Contractor shall not be liable to the Owner or Architect for damages resulting from errors, inconsistencies or omissions in the Contract Documents, for differences between field measurements or conditions and the Contract Documents, or for nonconformities of the Contract Documents to applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities.

§ 3.3 Supervision and Construction Procedures

§ 3.3.1 The Contractor shall supervise and direct the Work, using the Contractor's best skill and attention. The Contractor shall be solely responsible for, and have control over, construction means, methods, techniques, sequences, and procedures, and for coordinating all portions of the Work under the Contract. If the Contract Documents give specific instructions concerning construction means, methods, techniques, sequences, or procedures, the Contractor shall evaluate the jobsite safety thereof and shall be solely responsible for the jobsite safety of such means, methods, techniques, sequences, or procedures. If the Contractor determines that such means, methods, techniques, sequences or procedures may not be safe, the Contractor shall give timely notice to the Owner and Architect, and shall propose alternative means, methods, techniques, sequences, or procedures. The Architect shall evaluate the proposed alternative solely for conformance with the design intent for the completed construction. Unless the Architect objects to the Contractor's proposed alternative, the Contractor shall perform the Work using its alternative means, methods, techniques, sequences, or procedures.

§ 3.3.2 The Contractor shall be responsible to the Owner for acts and omissions of the Contractor's employees, Subcontractors and their agents and employees, and other persons or entities performing portions of the Work for, or on behalf of, the Contractor or any of its Subcontractors.

§ 3.3.3 The Contractor shall be responsible for inspection of portions of Work already performed to determine that such portions are in proper condition to receive subsequent Work.

§ 3.4 Labor and Materials

§ 3.4.1 Unless otherwise provided in the Contract Documents, the Contractor shall provide and pay for labor, materials, equipment, tools, construction equipment and machinery, water, heat, utilities, transportation, and other facilities and services necessary for proper execution and completion of the Work, whether temporary or permanent and whether or not incorporated or to be incorporated in the Work.

§ 3.4.2 Except in the case of minor changes in the Work approved by the Architect in accordance with Section 3.12.8 or ordered by the Architect in accordance with Section 7.4, the Contractor may make substitutions only with the consent of the Owner, after evaluation by the Architect and in accordance with a Change Order or Construction Change Directive.

§ 3.4.3 The Contractor shall enforce strict discipline and good order among the Contractor's employees and other persons carrying out the Work. The Contractor shall not permit employment of unfit persons or persons not properly skilled in tasks assigned to them.

§ 3.5 Warranty

§ 3.5.1 The Contractor warrants to the Owner and Architect that materials and equipment furnished under the Contract will be of good quality and new unless the Contract Documents require or permit otherwise. The Contractor further warrants that the Work will conform to the requirements of the Contract Documents and will be free from defects, except for those inherent in the quality of the Work the Contract Documents require or permit. Work, materials, or equipment not conforming to these requirements may be considered defective. The Contractor's warranty excludes remedy for damage or defect caused by abuse, alterations to the Work not executed by the Contractor, improper or insufficient maintenance, improper operation, or normal wear and tear and normal usage. If required by the Architect, the Contractor shall furnish satisfactory evidence as to the kind and quality of materials and equipment.

§ 3.5.2 All material, equipment, or other special warranties required by the Contract Documents shall be issued in the name of the Owner, or shall be transferable to the Owner, and shall commence in accordance with Section 9.8.4.

§ 3.6 Taxes

The Contractor shall pay sales, consumer, use and similar taxes for the Work provided by the Contractor that are legally enacted when bids are received or negotiations concluded, whether or not yet effective or merely scheduled to go into effect.

§ 3.7 Permits, Fees, Notices and Compliance with Laws

§ 3.7.1 Unless otherwise provided in the Contract Documents, the Contractor shall secure and pay for the building permit as well as for other permits, fees, licenses, and inspections by government agencies necessary for proper execution and completion of the Work that are customarily secured after execution of the Contract and legally required at the time bids are received or negotiations concluded.

§ 3.7.2 The Contractor shall comply with and give notices required by applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities applicable to performance of the Work.

§ 3.7.3 If the Contractor performs Work knowing it to be contrary to applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, the Contractor shall assume appropriate responsibility for such Work and shall bear the costs attributable to correction.

§ 3.7.4 Concealed or Unknown Conditions

If the Contractor encounters conditions at the site that are (1) subsurface or otherwise concealed physical conditions that differ materially from those indicated in the Contract Documents or (2) unknown physical conditions of an unusual nature that differ materially from those ordinarily found to exist and generally recognized as inherent in construction activities of the character provided for in the Contract Documents, the Contractor shall promptly provide notice to the Owner and the Architect before conditions are disturbed and in no event later than 14 days after first observance of the conditions. The Architect will promptly investigate such conditions and, if the Architect determines that they differ materially and cause an increase or decrease in the Contractor's cost of, or time required for, performance of any part of the Work, will recommend that an equitable adjustment be made in the Contract Sum or Contract Time, or both. If the Architect determines that the conditions at the site are not materially different from those indicated in the Contract Documents and that no change in the terms of the Contract is justified, the Architect shall promptly notify the Owner and Contractor, stating the reasons. If either party disputes the Architect's determination or recommendation, that party may submit a Claim as provided in Article 15.

§ 3.7.5 If, in the course of the Work, the Contractor encounters human remains or recognizes the existence of burial markers, archaeological sites or wetlands not indicated in the Contract Documents, the Contractor shall immediately suspend any operations that would affect them and shall notify the Owner and Architect. Upon receipt of such notice, the Owner shall promptly take any action necessary to obtain governmental authorization required to resume the operations. The Contractor shall continue to suspend such operations until otherwise instructed by the Owner but shall continue with all other operations that do not affect those remains or features. Requests for adjustments in the Contract Sum and Contract Time arising from the existence of such remains or features may be made as provided in Article 15.

§ 3.8 Allowances

§ 3.8.1 The Contractor shall include in the Contract Sum all allowances stated in the Contract Documents. Items covered by allowances shall be supplied for such amounts and by such persons or entities as the Owner may direct, but the Contractor shall not be required to employ persons or entities to whom the Contractor has reasonable objection.

- § 3.8.2 Unless otherwise provided in the Contract Documents,
- .1 allowances shall cover the cost to the Contractor of materials and equipment delivered at the site and all required taxes, less applicable trade discounts;
 - .2 Contractor's costs for unloading and handling at the site, labor, installation costs, overhead, profit, and other expenses contemplated for stated allowance amounts shall be included in the Contract Sum but not in the allowances; and
 - .3 whenever costs are more than or less than allowances, the Contract Sum shall be adjusted accordingly by Change Order. The amount of the Change Order shall reflect (1) the difference between actual costs and the allowances under Section 3.8.2.1 and (2) changes in Contractor's costs under Section 3.8.2.2.

§ 3.8.3 Materials and equipment under an allowance shall be selected by the Owner with reasonable promptness.

§ 3.9 Superintendent

§ 3.9.1 The Contractor shall employ a competent superintendent and necessary assistants who shall be in attendance at the Project site during performance of the Work. The superintendent shall represent the Contractor, and communications given to the superintendent shall be as binding as if given to the Contractor.

§ 3.9.2 The Contractor, as soon as practicable after award of the Contract, shall notify the Owner and Architect of the name and qualifications of a proposed superintendent. Within 14 days of receipt of the information, the Architect may notify the Contractor, stating whether the Owner or the Architect (1) has reasonable objection to the proposed superintendent or (2) requires additional time for review. Failure of the Architect to provide notice within the 14-day period shall constitute notice of no reasonable objection.

§ 3.9.3 The Contractor shall not employ a proposed superintendent to whom the Owner or Architect has made reasonable and timely objection. The Contractor shall not change the superintendent without the Owner's consent, which shall not unreasonably be withheld or delayed.

§ 3.10 Contractor's Construction and Submittal Schedules

§ 3.10.1 The Contractor, promptly after being awarded the Contract, shall submit for the Owner's and Architect's information a Contractor's construction schedule for the Work. The schedule shall contain detail appropriate for the Project, including (1) the date of commencement of the Work, interim schedule milestone dates, and the date of Substantial Completion; (2) an apportionment of the Work by construction activity; and (3) the time required for completion of each portion of the Work. The schedule shall provide for the orderly progression of the Work to completion and shall not exceed time limits current under the Contract Documents. The schedule shall be revised at appropriate intervals as required by the conditions of the Work and Project.

§ 3.10.2 The Contractor, promptly after being awarded the Contract and thereafter as necessary to maintain a current submittal schedule, shall submit a submittal schedule for the Architect's approval. The Architect's approval shall not be unreasonably delayed or withheld. The submittal schedule shall (1) be coordinated with the Contractor's construction schedule, and (2) allow the Architect reasonable time to review submittals. If the Contractor fails to submit a submittal schedule, or fails to provide submittals in accordance with the approved submittal schedule, the Contractor shall not be entitled to any increase in Contract Sum or extension of Contract Time based on the time required for review of submittals.

§ 3.10.3 The Contractor shall perform the Work in general accordance with the most recent schedules submitted to the Owner and Architect.

§ 3.11 Documents and Samples at the Site

The Contractor shall make available, at the Project site, the Contract Documents, including Change Orders, Construction Change Directives, and other Modifications, in good order and marked currently to indicate field changes and selections made during construction, and the approved Shop Drawings, Product Data, Samples, and similar required submittals. These shall be in electronic form or paper copy, available to the Architect and Owner, and delivered to the Architect for submittal to the Owner upon completion of the Work as a record of the Work as constructed.

§ 3.12 Shop Drawings, Product Data and Samples

§ 3.12.1 Shop Drawings are drawings, diagrams, schedules, and other data specially prepared for the Work by the Contractor or a Subcontractor, Sub-subcontractor, manufacturer, supplier, or distributor to illustrate some portion of the Work.

§ 3.12.2 Product Data are illustrations, standard schedules, performance charts, instructions, brochures, diagrams, and other information furnished by the Contractor to illustrate materials or equipment for some portion of the Work.

§ 3.12.3 Samples are physical examples that illustrate materials, equipment, or workmanship, and establish standards by which the Work will be judged.

§ 3.12.4 Shop Drawings, Product Data, Samples, and similar submittals are not Contract Documents. Their purpose is to demonstrate how the Contractor proposes to conform to the information given and the design concept expressed in the Contract Documents for those portions of the Work for which the Contract Documents require submittals. Review by the Architect is subject to the limitations of Section 4.2.7. Informational submittals upon which the Architect is not expected to take responsive action may be so identified in the Contract Documents. Submittals that are not required by the Contract Documents may be returned by the Architect without action.

§ 3.12.5 The Contractor shall review for compliance with the Contract Documents, approve, and submit to the Architect, Shop Drawings, Product Data, Samples, and similar submittals required by the Contract Documents, in accordance with the submittal schedule approved by the Architect or, in the absence of an approved submittal schedule, with reasonable promptness and in such sequence as to cause no delay in the Work or in the activities of the Owner or of Separate Contractors.

§ 3.12.6 By submitting Shop Drawings, Product Data, Samples, and similar submittals, the Contractor represents to the Owner and Architect that the Contractor has (1) reviewed and approved them, (2) determined and verified materials, field measurements and field construction criteria related thereto, or will do so, and (3) checked and coordinated the information contained within such submittals with the requirements of the Work and of the Contract Documents.

§ 3.12.7 The Contractor shall perform no portion of the Work for which the Contract Documents require submittal and review of Shop Drawings, Product Data, Samples, or similar submittals, until the respective submittal has been approved by the Architect.

§ 3.12.8 The Work shall be in accordance with approved submittals except that the Contractor shall not be relieved of responsibility for deviations from the requirements of the Contract Documents by the Architect's approval of Shop Drawings, Product Data, Samples, or similar submittals, unless the Contractor has specifically notified the Architect of such deviation at the time of submittal and (1) the Architect has given written approval to the specific deviation as a minor change in the Work, or (2) a Change Order or Construction Change Directive has been issued authorizing the deviation. The Contractor shall not be relieved of responsibility for errors or omissions in Shop Drawings, Product Data, Samples, or similar submittals, by the Architect's approval thereof.

§ 3.12.9 The Contractor shall direct specific attention, in writing or on resubmitted Shop Drawings, Product Data, Samples, or similar submittals, to revisions other than those requested by the Architect on previous submittals. In the absence of such notice, the Architect's approval of a resubmission shall not apply to such revisions.

§ 3.12.10 The Contractor shall not be required to provide professional services that constitute the practice of architecture or engineering unless such services are specifically required by the Contract Documents for a portion of the Work or unless the Contractor needs to provide such services in order to carry out the Contractor's responsibilities for construction means, methods, techniques, sequences, and procedures. The Contractor shall not be required to provide professional services in violation of applicable law.

§ 3.12.10.1 If professional design services or certifications by a design professional related to systems, materials, or equipment are specifically required of the Contractor by the Contract Documents, the Owner and the Architect will specify all performance and design criteria that such services must satisfy. The Contractor shall be entitled to rely upon the adequacy and accuracy of the performance and design criteria provided in the Contract Documents. The Contractor shall cause such services or certifications to be provided by an appropriately licensed design professional,

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whose signature and seal shall appear on all drawings, calculations, specifications, certifications, Shop Drawings, and other submittals prepared by such professional. Shop Drawings, and other submittals related to the Work, designed or certified by such professional, if prepared by others, shall bear such professional's written approval when submitted to the Architect. The Owner and the Architect shall be entitled to rely upon the adequacy and accuracy of the services, certifications, and approvals performed or provided by such design professionals, provided the Owner and Architect have specified to the Contractor the performance and design criteria that such services must satisfy. Pursuant to this Section 3.12.10, the Architect will review and approve or take other appropriate action on submittals only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents.

§ 3.12.10.2 If the Contract Documents require the Contractor's design professional to certify that the Work has been performed in accordance with the design criteria, the Contractor shall furnish such certifications to the Architect at the time and in the form specified by the Architect.

§ 3.13 Use of Site

The Contractor shall confine operations at the site to areas permitted by applicable laws, statutes, ordinances, codes, rules and regulations, lawful orders of public authorities, and the Contract Documents and shall not unreasonably encumber the site with materials or equipment.

§ 3.14 Cutting and Patching

§ 3.14.1 The Contractor shall be responsible for cutting, fitting, or patching required to complete the Work or to make its parts fit together properly. All areas requiring cutting, fitting, or patching shall be restored to the condition existing prior to the cutting, fitting, or patching, unless otherwise required by the Contract Documents.

§ 3.14.2 The Contractor shall not damage or endanger a portion of the Work or fully or partially completed construction of the Owner or Separate Contractors by cutting, patching, or otherwise altering such construction, or by excavation. The Contractor shall not cut or otherwise alter construction by the Owner or a Separate Contractor except with written consent of the Owner and of the Separate Contractor. Consent shall not be unreasonably withheld. The Contractor shall not unreasonably withhold, from the Owner or a Separate Contractor, its consent to cutting or otherwise altering the Work.

§ 3.15 Cleaning Up

§ 3.15.1 The Contractor shall keep the premises and surrounding area free from accumulation of waste materials and rubbish caused by operations under the Contract. At completion of the Work, the Contractor shall remove waste materials, rubbish, the Contractor's tools, construction equipment, machinery, and surplus materials from and about the Project.

§ 3.15.2 If the Contractor fails to clean up as provided in the Contract Documents, the Owner may do so and the Owner shall be entitled to reimbursement from the Contractor.

§ 3.16 Access to Work

The Contractor shall provide the Owner and Architect with access to the Work in preparation and progress wherever located.

§ 3.17 Royalties, Patents and Copyrights

The Contractor shall pay all royalties and license fees. The Contractor shall defend suits or claims for infringement of copyrights and patent rights and shall hold the Owner and Architect harmless from loss on account thereof, but shall not be responsible for defense or loss when a particular design, process, or product of a particular manufacturer or manufacturers is required by the Contract Documents, or where the copyright violations are contained in Drawings, Specifications, or other documents prepared by the Owner or Architect. However, if an infringement of a copyright or patent is discovered by, or made known to, the Contractor, the Contractor shall be responsible for the loss unless the information is promptly furnished to the Architect.

§ 3.18 Indemnification

§ 3.18.1 To the fullest extent permitted by law, the Contractor shall indemnify and hold harmless the Owner, Architect, Architect's consultants, and agents and employees of any of them from and against claims, damages, losses, and expenses, including but not limited to attorneys' fees, arising out of or resulting from performance of the Work,

provided that such claim, damage, loss, or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself), but only to the extent caused by the negligent acts or omissions of the Contractor, a Subcontractor, anyone directly or indirectly employed by them, or anyone for whose acts they may be liable, regardless of whether or not such claim, damage, loss, or expense is caused in part by a party indemnified hereunder. Such obligation shall not be construed to negate, abridge, or reduce other rights or obligations of indemnity that would otherwise exist as to a party or person described in this Section 3.18.

§ 3.18.2 In claims against any person or entity indemnified under this Section 3.18 by an employee of the Contractor, a Subcontractor, anyone directly or indirectly employed by them, or anyone for whose acts they may be liable, the indemnification obligation under Section 3.18.1 shall not be limited by a limitation on amount or type of damages, compensation, or benefits payable by or for the Contractor or a Subcontractor under workers' compensation acts, disability benefit acts, or other employee benefit acts.

ARTICLE 4 ARCHITECT

§ 4.1 General

§ 4.1.1 The Architect is the person or entity retained by the Owner pursuant to Section 2.3.2 and identified as such in the Agreement.

§ 4.1.2 Duties, responsibilities, and limitations of authority of the Architect as set forth in the Contract Documents shall not be restricted, modified, or extended without written consent of the Owner, Contractor, and Architect. Consent shall not be unreasonably withheld.

§ 4.2 Administration of the Contract

§ 4.2.1 The Architect will provide administration of the Contract as described in the Contract Documents and will be an Owner's representative during construction until the date the Architect issues the final Certificate for Payment. The Architect will have authority to act on behalf of the Owner only to the extent provided in the Contract Documents.

§ 4.2.2 The Architect will visit the site at intervals appropriate to the stage of construction, or as otherwise agreed with the Owner, to become generally familiar with the progress and quality of the portion of the Work completed, and to determine in general if the Work observed is being performed in a manner indicating that the Work, when fully completed, will be in accordance with the Contract Documents. However, the Architect will not be required to make exhaustive or continuous on-site inspections to check the quality or quantity of the Work. The Architect will not have control over, charge of, or responsibility for the construction means, methods, techniques, sequences or procedures, or for the safety precautions and programs in connection with the Work, since these are solely the Contractor's rights and responsibilities under the Contract Documents.

§ 4.2.3 On the basis of the site visits, the Architect will keep the Owner reasonably informed about the progress and quality of the portion of the Work completed, and promptly report to the Owner (1) known deviations from the Contract Documents, (2) known deviations from the most recent construction schedule submitted by the Contractor, and (3) defects and deficiencies observed in the Work. The Architect will not be responsible for the Contractor's failure to perform the Work in accordance with the requirements of the Contract Documents. The Architect will not have control over or charge of, and will not be responsible for acts or omissions of, the Contractor, Subcontractors, or their agents or employees, or any other persons or entities performing portions of the Work.

§ 4.2.4 Communications

The Owner and Contractor shall include the Architect in all communications that relate to or affect the Architect's services or professional responsibilities. The Owner shall promptly notify the Architect of the substance of any direct communications between the Owner and the Contractor otherwise relating to the Project. Communications by and with the Architect's consultants shall be through the Architect. Communications by and with Subcontractors and suppliers shall be through the Contractor. Communications by and with Separate Contractors shall be through the Owner. The Contract Documents may specify other communication protocols.

§ 4.2.5 Based on the Architect's evaluations of the Contractor's Applications for Payment, the Architect will review and certify the amounts due the Contractor and will issue Certificates for Payment in such amounts.

§ 4.2.6 The Architect has authority to reject Work that does not conform to the Contract Documents. Whenever the Architect considers it necessary or advisable, the Architect will have authority to require inspection or testing of the

Work in accordance with Sections 13.4.2 and 13.4.3, whether or not the Work is fabricated, installed or completed. However, neither this authority of the Architect nor a decision made in good faith either to exercise or not to exercise such authority shall give rise to a duty or responsibility of the Architect to the Contractor, Subcontractors, suppliers, their agents or employees, or other persons or entities performing portions of the Work.

§ 4.2.7 The Architect will review and approve, or take other appropriate action upon, the Contractor's submittals such as Shop Drawings, Product Data, and Samples, but only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents. The Architect's action will be taken in accordance with the submittal schedule approved by the Architect or, in the absence of an approved submittal schedule, with reasonable promptness while allowing sufficient time in the Architect's professional judgment to permit adequate review. Review of such submittals is not conducted for the purpose of determining the accuracy and completeness of other details such as dimensions and quantities, or for substantiating instructions for installation or performance of equipment or systems, all of which remain the responsibility of the Contractor as required by the Contract Documents. The Architect's review of the Contractor's submittals shall not relieve the Contractor of the obligations under Sections 3.3, 3.5, and 3.12. The Architect's review shall not constitute approval of safety precautions or of any construction means, methods, techniques, sequences, or procedures. The Architect's approval of a specific item shall not indicate approval of an assembly of which the item is a component.

§ 4.2.8 The Architect will prepare Change Orders and Construction Change Directives, and may order minor changes in the Work as provided in Section 7.4. The Architect will investigate and make determinations and recommendations regarding concealed and unknown conditions as provided in Section 3.7.4.

§ 4.2.9 The Architect will conduct inspections to determine the date or dates of Substantial Completion and the date of final completion; issue Certificates of Substantial Completion pursuant to Section 9.8; receive and forward to the Owner, for the Owner's review and records, written warranties and related documents required by the Contract and assembled by the Contractor pursuant to Section 9.10; and issue a final Certificate for Payment pursuant to Section 9.10.

§ 4.2.10 If the Owner and Architect agree, the Architect will provide one or more Project representatives to assist in carrying out the Architect's responsibilities at the site. The Owner shall notify the Contractor of any change in the duties, responsibilities and limitations of authority of the Project representatives.

§ 4.2.11 The Architect will interpret and decide matters concerning performance under, and requirements of, the Contract Documents on written request of either the Owner or Contractor. The Architect's response to such requests will be made in writing within any time limits agreed upon or otherwise with reasonable promptness.

§ 4.2.12 Interpretations and decisions of the Architect will be consistent with the intent of, and reasonably inferable from, the Contract Documents and will be in writing or in the form of drawings. When making such interpretations and decisions, the Architect will endeavor to secure faithful performance by both Owner and Contractor, will not show partiality to either, and will not be liable for results of interpretations or decisions rendered in good faith.

§ 4.2.13 The Architect's decisions on matters relating to aesthetic effect will be final if consistent with the intent expressed in the Contract Documents.

§ 4.2.14 The Architect will review and respond to requests for information about the Contract Documents. The Architect's response to such requests will be made in writing within any time limits agreed upon or otherwise with reasonable promptness. If appropriate, the Architect will prepare and issue supplemental Drawings and Specifications in response to the requests for information.

ARTICLE 5 SUBCONTRACTORS

§ 5.1 Definitions

§ 5.1.1 A Subcontractor is a person or entity who has a direct contract with the Contractor to perform a portion of the Work at the site. The term "Subcontractor" is referred to throughout the Contract Documents as if singular in number and means a Subcontractor or an authorized representative of the Subcontractor. The term "Subcontractor" does not include a Separate Contractor or the subcontractors of a Separate Contractor.

§ 5.1.2 A Sub-subcontractor is a person or entity who has a direct or indirect contract with a Subcontractor to perform a portion of the Work at the site. The term "Sub-subcontractor" is referred to throughout the Contract Documents as if singular in number and means a Sub-subcontractor or an authorized representative of the Sub-subcontractor.

§ 5.2 Award of Subcontracts and Other Contracts for Portions of the Work

§ 5.2.1 Unless otherwise stated in the Contract Documents, the Contractor, as soon as practicable after award of the Contract, shall notify the Owner and Architect of the persons or entities proposed for each principal portion of the Work, including those who are to furnish materials or equipment fabricated to a special design. Within 14 days of receipt of the information, the Architect may notify the Contractor whether the Owner or the Architect (1) has reasonable objection to any such proposed person or entity or (2) requires additional time for review. Failure of the Architect to provide notice within the 14-day period shall constitute notice of no reasonable objection.

§ 5.2.2 The Contractor shall not contract with a proposed person or entity to whom the Owner or Architect has made reasonable and timely objection. The Contractor shall not be required to contract with anyone to whom the Contractor has made reasonable objection.

§ 5.2.3 If the Owner or Architect has reasonable objection to a person or entity proposed by the Contractor, the Contractor shall propose another to whom the Owner or Architect has no reasonable objection. If the proposed but rejected Subcontractor was reasonably capable of performing the Work, the Contract Sum and Contract Time shall be increased or decreased by the difference, if any, occasioned by such change, and an appropriate Change Order shall be issued before commencement of the substitute Subcontractor's Work. However, no increase in the Contract Sum or Contract Time shall be allowed for such change unless the Contractor has acted promptly and responsively in submitting names as required.

§ 5.2.4 The Contractor shall not substitute a Subcontractor, person, or entity for one previously selected if the Owner or Architect makes reasonable objection to such substitution.

§ 5.3 Subcontractual Relations

By appropriate written agreement, the Contractor shall require each Subcontractor, to the extent of the Work to be performed by the Subcontractor, to be bound to the Contractor by terms of the Contract Documents, and to assume toward the Contractor all the obligations and responsibilities, including the responsibility for safety of the Subcontractor's Work that the Contractor, by these Contract Documents, assumes toward the Owner and Architect. Each subcontract agreement shall preserve and protect the rights of the Owner and Architect under the Contract Documents with respect to the Work to be performed by the Subcontractor so that subcontracting thereof will not prejudice such rights, and shall allow to the Subcontractor, unless specifically provided otherwise in the subcontract agreement, the benefit of all rights, remedies, and redress against the Contractor that the Contractor, by the Contract Documents, has against the Owner. Where appropriate, the Contractor shall require each Subcontractor to enter into similar agreements with Sub-subcontractors. The Contractor shall make available to each proposed Subcontractor, prior to the execution of the subcontract agreement, copies of the Contract Documents to which the Subcontractor will be bound, and, upon written request of the Subcontractor, identify to the Subcontractor terms and conditions of the proposed subcontract agreement that may be at variance with the Contract Documents. Subcontractors will similarly make copies of applicable portions of such documents available to their respective proposed Sub-subcontractors.

§ 5.4 Contingent Assignment of Subcontracts

§ 5.4.1 Each subcontract agreement for a portion of the Work is assigned by the Contractor to the Owner, provided that

- .1 assignment is effective only after termination of the Contract by the Owner for cause pursuant to Section 14.2 and only for those subcontract agreements that the Owner accepts by notifying the Subcontractor and Contractor; and
- .2 assignment is subject to the prior rights of the surety, if any, obligated under bond relating to the Contract.

When the Owner accepts the assignment of a subcontract agreement, the Owner assumes the Contractor's rights and obligations under the subcontract.

§ 5.4.2 Upon such assignment, if the Work has been suspended for more than 30 days, the Subcontractor's compensation shall be equitably adjusted for increases in cost resulting from the suspension.

§ 5.4.3 Upon assignment to the Owner under this Section 5.4, the Owner may further assign the subcontract to a successor contractor or other entity. If the Owner assigns the subcontract to a successor contractor or other entity, the Owner shall nevertheless remain legally responsible for all of the successor contractor's obligations under the subcontract.

ARTICLE 6 CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTORS

§ 6.1 Owner's Right to Perform Construction and to Award Separate Contracts

§ 6.1.1 The term "Separate Contractor(s)" shall mean other contractors retained by the Owner under separate agreements. The Owner reserves the right to perform construction or operations related to the Project with the Owner's own forces, and with Separate Contractors retained under Conditions of the Contract substantially similar to those of this Contract, including those provisions of the Conditions of the Contract related to insurance and waiver of subrogation.

§ 6.1.2 When separate contracts are awarded for different portions of the Project or other construction or operations on the site, the term "Contractor" in the Contract Documents in each case shall mean the Contractor who executes each separate Owner-Contractor Agreement.

§ 6.1.3 The Owner shall provide for coordination of the activities of the Owner's own forces and of each Separate Contractor with the Work of the Contractor, who shall cooperate with them. The Contractor shall participate with any Separate Contractors and the Owner in reviewing their construction schedules. The Contractor shall make any revisions to its construction schedule deemed necessary after a joint review and mutual agreement. The construction schedules shall then constitute the schedules to be used by the Contractor, Separate Contractors, and the Owner until subsequently revised.

§ 6.1.4 Unless otherwise provided in the Contract Documents, when the Owner performs construction or operations related to the Project with the Owner's own forces or with Separate Contractors, the Owner or its Separate Contractors shall have the same obligations and rights that the Contractor has under the Conditions of the Contract, including, without excluding others, those stated in Article 3, this Article 6, and Articles 10, 11, and 12.

§ 6.2 Mutual Responsibility

§ 6.2.1 The Contractor shall afford the Owner and Separate Contractors reasonable opportunity for introduction and storage of their materials and equipment and performance of their activities, and shall connect and coordinate the Contractor's construction and operations with theirs as required by the Contract Documents.

§ 6.2.2 If part of the Contractor's Work depends for proper execution or results upon construction or operations by the Owner or a Separate Contractor, the Contractor shall, prior to proceeding with that portion of the Work, promptly notify the Architect of apparent discrepancies or defects in the construction or operations by the Owner or Separate Contractor that would render it unsuitable for proper execution and results of the Contractor's Work. Failure of the Contractor to notify the Architect of apparent discrepancies or defects prior to proceeding with the Work shall constitute an acknowledgment that the Owner's or Separate Contractor's completed or partially completed construction is fit and proper to receive the Contractor's Work. The Contractor shall not be responsible for discrepancies or defects in the construction or operations by the Owner or Separate Contractor that are not apparent.

§ 6.2.3 The Contractor shall reimburse the Owner for costs the Owner incurs that are payable to a Separate Contractor because of the Contractor's delays, improperly timed activities or defective construction. The Owner shall be responsible to the Contractor for costs the Contractor incurs because of a Separate Contractor's delays, improperly timed activities, damage to the Work or defective construction.

§ 6.2.4 The Contractor shall promptly remedy damage that the Contractor wrongfully causes to completed or partially completed construction or to property of the Owner or Separate Contractor as provided in Section 10.2.5.

§ 6.2.5 The Owner and each Separate Contractor shall have the same responsibilities for cutting and patching as are described for the Contractor in Section 3.14.

§ 6.3 Owner's Right to Clean Up

If a dispute arises among the Contractor, Separate Contractors, and the Owner as to the responsibility under their respective contracts for maintaining the premises and surrounding area free from waste materials and rubbish, the Owner may clean up and the Architect will allocate the cost among those responsible.

ARTICLE 7 CHANGES IN THE WORK

§ 7.1 General

§ 7.1.1 Changes in the Work may be accomplished after execution of the Contract, and without invalidating the Contract, by Change Order, Construction Change Directive or order for a minor change in the Work, subject to the limitations stated in this Article 7 and elsewhere in the Contract Documents.

§ 7.1.2 A Change Order shall be based upon agreement among the Owner, Contractor, and Architect. A Construction Change Directive requires agreement by the Owner and Architect and may or may not be agreed to by the Contractor. An order for a minor change in the Work may be issued by the Architect alone.

§ 7.1.3 Changes in the Work shall be performed under applicable provisions of the Contract Documents. The Contractor shall proceed promptly with changes in the Work, unless otherwise provided in the Change Order, Construction Change Directive, or order for a minor change in the Work.

§ 7.2 Change Orders

§ 7.2.1 A Change Order is a written instrument prepared by the Architect and signed by the Owner, Contractor, and Architect stating their agreement upon all of the following:

- .1 The change in the Work;
- .2 The amount of the adjustment, if any, in the Contract Sum; and
- .3 The extent of the adjustment, if any, in the Contract Time.

§ 7.3 Construction Change Directives

§ 7.3.1 A Construction Change Directive is a written order prepared by the Architect and signed by the Owner and Architect, directing a change in the Work prior to agreement on adjustment, if any, in the Contract Sum or Contract Time, or both. The Owner may by Construction Change Directive, without invalidating the Contract, order changes in the Work within the general scope of the Contract consisting of additions, deletions, or other revisions, the Contract Sum and Contract Time being adjusted accordingly.

§ 7.3.2 A Construction Change Directive shall be used in the absence of total agreement on the terms of a Change Order.

§ 7.3.3 If the Construction Change Directive provides for an adjustment to the Contract Sum, the adjustment shall be based on one of the following methods:

- .1 Mutual acceptance of a lump sum properly itemized and supported by sufficient substantiating data to permit evaluation;
- .2 Unit prices stated in the Contract Documents or subsequently agreed upon;
- .3 Cost to be determined in a manner agreed upon by the parties and a mutually acceptable fixed or percentage fee; or
- .4 As provided in Section 7.3.4.

§ 7.3.4 If the Contractor does not respond promptly or disagrees with the method for adjustment in the Contract Sum, the Architect shall determine the adjustment on the basis of reasonable expenditures and savings of those performing the Work attributable to the change, including, in case of an increase in the Contract Sum, an amount for overhead and profit as set forth in the Agreement, or if no such amount is set forth in the Agreement, a reasonable amount. In such case, and also under Section 7.3.3.3, the Contractor shall keep and present, in such form as the Architect may prescribe, an itemized accounting together with appropriate supporting data. Unless otherwise provided in the Contract Documents, costs for the purposes of this Section 7.3.4 shall be limited to the following:

- .1 Costs of labor, including applicable payroll taxes, fringe benefits required by agreement or custom, workers' compensation insurance, and other employee costs approved by the Architect;
- .2 Costs of materials, supplies, and equipment, including cost of transportation, whether incorporated or consumed;

- .3 Rental costs of machinery and equipment, exclusive of hand tools, whether rented from the Contractor or others;
- .4 Costs of premiums for all bonds and insurance, permit fees, and sales, use, or similar taxes, directly related to the change; and
- .5 Costs of supervision and field office personnel directly attributable to the change.

§ 7.3.5 If the Contractor disagrees with the adjustment in the Contract Time, the Contractor may make a Claim in accordance with applicable provisions of Article 15.

§ 7.3.6 Upon receipt of a Construction Change Directive, the Contractor shall promptly proceed with the change in the Work involved and advise the Architect of the Contractor's agreement or disagreement with the method, if any, provided in the Construction Change Directive for determining the proposed adjustment in the Contract Sum or Contract Time.

§ 7.3.7 A Construction Change Directive signed by the Contractor indicates the Contractor's agreement therewith, including adjustment in Contract Sum and Contract Time or the method for determining them. Such agreement shall be effective immediately and shall be recorded as a Change Order.

§ 7.3.8 The amount of credit to be allowed by the Contractor to the Owner for a deletion or change that results in a net decrease in the Contract Sum shall be actual net cost as confirmed by the Architect. When both additions and credits covering related Work or substitutions are involved in a change, the allowance for overhead and profit shall be figured on the basis of net increase, if any, with respect to that change.

§ 7.3.9 Pending final determination of the total cost of a Construction Change Directive to the Owner, the Contractor may request payment for Work completed under the Construction Change Directive in Applications for Payment. The Architect will make an interim determination for purposes of monthly certification for payment for those costs and certify for payment the amount that the Architect determines, in the Architect's professional judgment, to be reasonably justified. The Architect's interim determination of cost shall adjust the Contract Sum on the same basis as a Change Order, subject to the right of either party to disagree and assert a Claim in accordance with Article 15.

§ 7.3.10 When the Owner and Contractor agree with a determination made by the Architect concerning the adjustments in the Contract Sum and Contract Time, or otherwise reach agreement upon the adjustments, such agreement shall be effective immediately and the Architect will prepare a Change Order. Change Orders may be issued for all or any part of a Construction Change Directive.

§ 7.4 Minor Changes in the Work

The Architect may order minor changes in the Work that are consistent with the intent of the Contract Documents and do not involve an adjustment in the Contract Sum or an extension of the Contract Time. The Architect's order for minor changes shall be in writing. If the Contractor believes that the proposed minor change in the Work will affect the Contract Sum or Contract Time, the Contractor shall notify the Architect and shall not proceed to implement the change in the Work. If the Contractor performs the Work set forth in the Architect's order for a minor change without prior notice to the Architect that such change will affect the Contract Sum or Contract Time, the Contractor waives any adjustment to the Contract Sum or extension of the Contract Time.

ARTICLE 8 TIME

§ 8.1 Definitions

§ 8.1.1 Unless otherwise provided, Contract Time is the period of time, including authorized adjustments, allotted in the Contract Documents for Substantial Completion of the Work.

§ 8.1.2 The date of commencement of the Work is the date established in the Agreement.

§ 8.1.3 The date of Substantial Completion is the date certified by the Architect in accordance with Section 9.8.

§ 8.1.4 The term "day" as used in the Contract Documents shall mean calendar day unless otherwise specifically defined.

§ 8.2 Progress and Completion

§ 8.2.1 Time limits stated in the Contract Documents are of the essence of the Contract. By executing the Agreement, the Contractor confirms that the Contract Time is a reasonable period for performing the Work.

§ 8.2.2 The Contractor shall not knowingly, except by agreement or instruction of the Owner in writing, commence the Work prior to the effective date of insurance required to be furnished by the Contractor and Owner.

§ 8.2.3 The Contractor shall proceed expeditiously with adequate forces and shall achieve Substantial Completion within the Contract Time.

§ 8.3 Delays and Extensions of Time

§ 8.3.1 If the Contractor is delayed at any time in the commencement or progress of the Work by (1) an act or neglect of the Owner or Architect, of an employee of either, or of a Separate Contractor; (2) by changes ordered in the Work; (3) by labor disputes, fire, unusual delay in deliveries, unavoidable casualties, adverse weather conditions documented in accordance with Section 15.1.6.2, or other causes beyond the Contractor's control; (4) by delay authorized by the Owner pending mediation and dispute resolution; or (5) by other causes that the Contractor asserts, and the Architect determines, justify delay, then the Contract Time shall be extended for such reasonable time as the Architect may determine.

§ 8.3.2 Claims relating to time shall be made in accordance with applicable provisions of Article 15.

§ 8.3.3 This Section 8.3 does not preclude recovery of damages for delay by either party under other provisions of the Contract Documents.

ARTICLE 9 PAYMENTS AND COMPLETION

§ 9.1 Contract Sum

§ 9.1.1 The Contract Sum is stated in the Agreement and, including authorized adjustments, is the total amount payable by the Owner to the Contractor for performance of the Work under the Contract Documents.

§ 9.1.2 If unit prices are stated in the Contract Documents or subsequently agreed upon, and if quantities originally contemplated are materially changed so that application of such unit prices to the actual quantities causes substantial inequity to the Owner or Contractor, the applicable unit prices shall be equitably adjusted.

§ 9.2 Schedule of Values

Where the Contract is based on a stipulated sum or Guaranteed Maximum Price, the Contractor shall submit a schedule of values to the Architect before the first Application for Payment, allocating the entire Contract Sum to the various portions of the Work. The schedule of values shall be prepared in the form, and supported by the data to substantiate its accuracy, required by the Architect. This schedule, unless objected to by the Architect, shall be used as a basis for reviewing the Contractor's Applications for Payment. Any changes to the schedule of values shall be submitted to the Architect and supported by such data to substantiate its accuracy as the Architect may require, and unless objected to by the Architect, shall be used as a basis for reviewing the Contractor's subsequent Applications for Payment.

§ 9.3 Applications for Payment

§ 9.3.1 At least ten days before the date established for each progress payment, the Contractor shall submit to the Architect an itemized Application for Payment prepared in accordance with the schedule of values, if required under Section 9.2, for completed portions of the Work. The application shall be notarized, if required, and supported by all data substantiating the Contractor's right to payment that the Owner or Architect require, such as copies of requisitions, and releases and waivers of liens from Subcontractors and suppliers, and shall reflect retainage if provided for in the Contract Documents.

§ 9.3.1.1 As provided in Section 7.3.9, such applications may include requests for payment on account of changes in the Work that have been properly authorized by Construction Change Directives, or by interim determinations of the Architect, but not yet included in Change Orders.

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§ 9.3.1.2 Applications for Payment shall not include requests for payment for portions of the Work for which the Contractor does not intend to pay a Subcontractor or supplier, unless such Work has been performed by others whom the Contractor intends to pay.

§ 9.3.2 Unless otherwise provided in the Contract Documents, payments shall be made on account of materials and equipment delivered and suitably stored at the site for subsequent incorporation in the Work. If approved in advance by the Owner, payment may similarly be made for materials and equipment suitably stored off the site at a location agreed upon in writing. Payment for materials and equipment stored on or off the site shall be conditioned upon compliance by the Contractor with procedures satisfactory to the Owner to establish the Owner's title to such materials and equipment or otherwise protect the Owner's interest, and shall include the costs of applicable insurance, storage, and transportation to the site, for such materials and equipment stored off the site.

§ 9.3.3 The Contractor warrants that title to all Work covered by an Application for Payment will pass to the Owner no later than the time of payment. The Contractor further warrants that upon submittal of an Application for Payment all Work for which Certificates for Payment have been previously issued and payments received from the Owner shall, to the best of the Contractor's knowledge, information, and belief, be free and clear of liens, claims, security interests, or encumbrances, in favor of the Contractor, Subcontractors, suppliers, or other persons or entities that provided labor, materials, and equipment relating to the Work.

§ 9.4 Certificates for Payment

§ 9.4.1 The Architect will, within seven days after receipt of the Contractor's Application for Payment, either (1) issue to the Owner a Certificate for Payment in the full amount of the Application for Payment, with a copy to the Contractor; or (2) issue to the Owner a Certificate for Payment for such amount as the Architect determines is properly due, and notify the Contractor and Owner of the Architect's reasons for withholding certification in part as provided in Section 9.5.1; or (3) withhold certification of the entire Application for Payment, and notify the Contractor and Owner of the Architect's reason for withholding certification in whole as provided in Section 9.5.1.

§ 9.4.2 The issuance of a Certificate for Payment will constitute a representation by the Architect to the Owner, based on the Architect's evaluation of the Work and the data in the Application for Payment, that, to the best of the Architect's knowledge, information, and belief, the Work has progressed to the point indicated, the quality of the Work is in accordance with the Contract Documents, and that the Contractor is entitled to payment in the amount certified. The foregoing representations are subject to an evaluation of the Work for conformance with the Contract Documents upon Substantial Completion, to results of subsequent tests and inspections, to correction of minor deviations from the Contract Documents prior to completion, and to specific qualifications expressed by the Architect. However, the issuance of a Certificate for Payment will not be a representation that the Architect has (1) made exhaustive or continuous on-site inspections to check the quality or quantity of the Work; (2) reviewed construction means, methods, techniques, sequences, or procedures; (3) reviewed copies of requisitions received from Subcontractors and suppliers and other data requested by the Owner to substantiate the Contractor's right to payment; or (4) made examination to ascertain how or for what purpose the Contractor has used money previously paid on account of the Contract Sum.

§ 9.5 Decisions to Withhold Certification

§ 9.5.1 The Architect may withhold a Certificate for Payment in whole or in part, to the extent reasonably necessary to protect the Owner, if in the Architect's opinion the representations to the Owner required by Section 9.4.2 cannot be made. If the Architect is unable to certify payment in the amount of the Application, the Architect will notify the Contractor and Owner as provided in Section 9.4.1. If the Contractor and Architect cannot agree on a revised amount, the Architect will promptly issue a Certificate for Payment for the amount for which the Architect is able to make such representations to the Owner. The Architect may also withhold a Certificate for Payment or, because of subsequently discovered evidence, may nullify the whole or a part of a Certificate for Payment previously issued, to such extent as may be necessary in the Architect's opinion to protect the Owner from loss for which the Contractor is responsible, including loss resulting from acts and omissions described in Section 3.3.2, because of

- .1 defective Work not remedied;
- .2 third party claims filed or reasonable evidence indicating probable filing of such claims, unless security acceptable to the Owner is provided by the Contractor;
- .3 failure of the Contractor to make payments properly to Subcontractors or suppliers for labor, materials or equipment;
- .4 reasonable evidence that the Work cannot be completed for the unpaid balance of the Contract Sum;

- .5 damage to the Owner or a Separate Contractor;
- .6 reasonable evidence that the Work will not be completed within the Contract Time, and that the unpaid balance would not be adequate to cover actual or liquidated damages for the anticipated delay; or
- .7 repeated failure to carry out the Work in accordance with the Contract Documents.

§ 9.5.2 When either party disputes the Architect's decision regarding a Certificate for Payment under Section 9.5.1, in whole or in part, that party may submit a Claim in accordance with Article 15.

§ 9.5.3 When the reasons for withholding certification are removed, certification will be made for amounts previously withheld.

§ 9.5.4 If the Architect withholds certification for payment under Section 9.5.1.3, the Owner may, at its sole option, issue joint checks to the Contractor and to any Subcontractor or supplier to whom the Contractor failed to make payment for Work properly performed or material or equipment suitably delivered. If the Owner makes payments by joint check, the Owner shall notify the Architect and the Contractor shall reflect such payment on its next Application for Payment.

§ 9.6 Progress Payments

§ 9.6.1 After the Architect has issued a Certificate for Payment, the Owner shall make payment in the manner and within the time provided in the Contract Documents, and shall so notify the Architect.

§ 9.6.2 The Contractor shall pay each Subcontractor, no later than seven days after receipt of payment from the Owner, the amount to which the Subcontractor is entitled, reflecting percentages actually retained from payments to the Contractor on account of the Subcontractor's portion of the Work. The Contractor shall, by appropriate agreement with each Subcontractor, require each Subcontractor to make payments to Sub-subcontractors in a similar manner.

§ 9.6.3 The Architect will, on request, furnish to a Subcontractor, if practicable, information regarding percentages of completion or amounts applied for by the Contractor and action taken thereon by the Architect and Owner on account of portions of the Work done by such Subcontractor.

§ 9.6.4 The Owner has the right to request written evidence from the Contractor that the Contractor has properly paid Subcontractors and suppliers amounts paid by the Owner to the Contractor for subcontracted Work. If the Contractor fails to furnish such evidence within seven days, the Owner shall have the right to contact Subcontractors and suppliers to ascertain whether they have been properly paid. Neither the Owner nor Architect shall have an obligation to pay, or to see to the payment of money to, a Subcontractor or supplier, except as may otherwise be required by law.

§ 9.6.5 The Contractor's payments to suppliers shall be treated in a manner similar to that provided in Sections 9.6.2, 9.6.3 and 9.6.4.

§ 9.6.6 A Certificate for Payment, a progress payment, or partial or entire use or occupancy of the Project by the Owner shall not constitute acceptance of Work not in accordance with the Contract Documents.

§ 9.6.7 Unless the Contractor provides the Owner with a payment bond in the full penal sum of the Contract Sum, payments received by the Contractor for Work properly performed by Subcontractors or provided by suppliers shall be held by the Contractor for those Subcontractors or suppliers who performed Work or furnished materials, or both, under contract with the Contractor for which payment was made by the Owner. Nothing contained herein shall require money to be placed in a separate account and not commingled with money of the Contractor, create any fiduciary liability or tort liability on the part of the Contractor for breach of trust, or entitle any person or entity to an award of punitive damages against the Contractor for breach of the requirements of this provision.

§ 9.6.8 Provided the Owner has fulfilled its payment obligations under the Contract Documents, the Contractor shall defend and indemnify the Owner from all loss, liability, damage or expense, including reasonable attorney's fees and litigation expenses, arising out of any lien claim or other claim for payment by any Subcontractor or supplier of any tier. Upon receipt of notice of a lien claim or other claim for payment, the Owner shall notify the Contractor. If approved by the applicable court, when required, the Contractor may substitute a surety bond for the property against which the lien or other claim for payment has been asserted.

§ 9.7 Failure of Payment

If the Architect does not issue a Certificate for Payment, through no fault of the Contractor, within seven days after receipt of the Contractor's Application for Payment, or if the Owner does not pay the Contractor within seven days after the date established in the Contract Documents, the amount certified by the Architect or awarded by dispute resolution, then the Contractor may, upon seven additional days' notice to the Owner and Architect, stop the Work until payment of the amount owing has been received. The Contract Time shall be extended appropriately and the Contract Sum shall be increased by the amount of the Contractor's reasonable costs of shutdown, delay and start-up, plus interest as provided for in the Contract Documents.

§ 9.8 Substantial Completion

§ 9.8.1 Substantial Completion is the stage in the progress of the Work when the Work or designated portion thereof is sufficiently complete in accordance with the Contract Documents so that the Owner can occupy or utilize the Work for its intended use.

§ 9.8.2 When the Contractor considers that the Work, or a portion thereof which the Owner agrees to accept separately, is substantially complete, the Contractor shall prepare and submit to the Architect a comprehensive list of items to be completed or corrected prior to final payment. Failure to include an item on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents.

§ 9.8.3 Upon receipt of the Contractor's list, the Architect will make an inspection to determine whether the Work or designated portion thereof is substantially complete. If the Architect's inspection discloses any item, whether or not included on the Contractor's list, which is not sufficiently complete in accordance with the Contract Documents so that the Owner can occupy or utilize the Work or designated portion thereof for its intended use, the Contractor shall, before issuance of the Certificate of Substantial Completion, complete or correct such item upon notification by the Architect. In such case, the Contractor shall then submit a request for another inspection by the Architect to determine Substantial Completion.

§ 9.8.4 When the Work or designated portion thereof is substantially complete, the Architect will prepare a Certificate of Substantial Completion that shall establish the date of Substantial Completion; establish responsibilities of the Owner and Contractor for security, maintenance, heat, utilities, damage to the Work and insurance; and fix the time within which the Contractor shall finish all items on the list accompanying the Certificate. Warranties required by the Contract Documents shall commence on the date of Substantial Completion of the Work or designated portion thereof unless otherwise provided in the Certificate of Substantial Completion.

§ 9.8.5 The Certificate of Substantial Completion shall be submitted to the Owner and Contractor for their written acceptance of responsibilities assigned to them in the Certificate. Upon such acceptance, and consent of surety if any, the Owner shall make payment of retainage applying to the Work or designated portion thereof. Such payment shall be adjusted for Work that is incomplete or not in accordance with the requirements of the Contract Documents.

§ 9.9 Partial Occupancy or Use

§ 9.9.1 The Owner may occupy or use any completed or partially completed portion of the Work at any stage when such portion is designated by separate agreement with the Contractor, provided such occupancy or use is consented to by the insurer and authorized by public authorities having jurisdiction over the Project. Such partial occupancy or use may commence whether or not the portion is substantially complete, provided the Owner and Contractor have accepted in writing the responsibilities assigned to each of them for payments, retainage, if any, security, maintenance, heat, utilities, damage to the Work and insurance, and have agreed in writing concerning the period for correction of the Work and commencement of warranties required by the Contract Documents. When the Contractor considers a portion substantially complete, the Contractor shall prepare and submit a list to the Architect as provided under Section 9.8.2. Consent of the Contractor to partial occupancy or use shall not be unreasonably withheld. The stage of the progress of the Work shall be determined by written agreement between the Owner and Contractor or, if no agreement is reached, by decision of the Architect.

§ 9.9.2 Immediately prior to such partial occupancy or use, the Owner, Contractor, and Architect shall jointly inspect the area to be occupied or portion of the Work to be used in order to determine and record the condition of the Work.

§ 9.9.3 Unless otherwise agreed upon, partial occupancy or use of a portion or portions of the Work shall not constitute acceptance of Work not complying with the requirements of the Contract Documents.

§ 9.10 Final Completion and Final Payment

§ 9.10.1 Upon receipt of the Contractor's notice that the Work is ready for final inspection and acceptance and upon receipt of a final Application for Payment, the Architect will promptly make such inspection. When the Architect finds the Work acceptable under the Contract Documents and the Contract fully performed, the Architect will promptly issue a final Certificate for Payment stating that to the best of the Architect's knowledge, information and belief, and on the basis of the Architect's on-site visits and inspections, the Work has been completed in accordance with the Contract Documents and that the entire balance found to be due the Contractor and noted in the final Certificate is due and payable. The Architect's final Certificate for Payment will constitute a further representation that conditions listed in Section 9.10.2 as precedent to the Contractor's being entitled to final payment have been fulfilled.

§ 9.10.2 Neither final payment nor any remaining retained percentage shall become due until the Contractor submits to the Architect (1) an affidavit that payrolls, bills for materials and equipment, and other indebtedness connected with the Work for which the Owner or the Owner's property might be responsible or encumbered (less amounts withheld by Owner) have been paid or otherwise satisfied, (2) a certificate evidencing that insurance required by the Contract Documents to remain in force after final payment is currently in effect, (3) a written statement that the Contractor knows of no reason that the insurance will not be renewable to cover the period required by the Contract Documents, (4) consent of surety, if any, to final payment, (5) documentation of any special warranties, such as manufacturers' warranties or specific Subcontractor warranties, and (6) if required by the Owner, other data establishing payment or satisfaction of obligations, such as receipts and releases and waivers of liens, claims, security interests, or encumbrances arising out of the Contract, to the extent and in such form as may be designated by the Owner. If a Subcontractor refuses to furnish a release or waiver required by the Owner, the Contractor may furnish a bond satisfactory to the Owner to indemnify the Owner against such lien, claim, security interest, or encumbrance. If a lien, claim, security interest, or encumbrance remains unsatisfied after payments are made, the Contractor shall refund to the Owner all money that the Owner may be compelled to pay in discharging the lien, claim, security interest, or encumbrance, including all costs and reasonable attorneys' fees.

§ 9.10.3 If, after Substantial Completion of the Work, final completion thereof is materially delayed through no fault of the Contractor or by issuance of Change Orders affecting final completion, and the Architect so confirms, the Owner shall, upon application by the Contractor and certification by the Architect, and without terminating the Contract, make payment of the balance due for that portion of the Work fully completed, corrected, and accepted. If the remaining balance for Work not fully completed or corrected is less than retainage stipulated in the Contract Documents, and if bonds have been furnished, the written consent of the surety to payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by the Contractor to the Architect prior to certification of such payment. Such payment shall be made under terms and conditions governing final payment, except that it shall not constitute a waiver of Claims.

§ 9.10.4 The making of final payment shall constitute a waiver of Claims by the Owner except those arising from

- .1 liens, Claims, security interests, or encumbrances arising out of the Contract and unsettled;
- .2 failure of the Work to comply with the requirements of the Contract Documents;
- .3 terms of special warranties required by the Contract Documents; or
- .4 audits performed by the Owner, if permitted by the Contract Documents, after final payment.

§ 9.10.5 Acceptance of final payment by the Contractor, a Subcontractor, or a supplier, shall constitute a waiver of claims by that payee except those previously made in writing and identified by that payee as unsettled at the time of final Application for Payment.

ARTICLE 10 PROTECTION OF PERSONS AND PROPERTY

§ 10.1 Safety Precautions and Programs

The Contractor shall be responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the performance of the Contract.

§ 10.2 Safety of Persons and Property

§ 10.2.1 The Contractor shall take reasonable precautions for safety of, and shall provide reasonable protection to prevent damage, injury, or loss to

- .1 employees on the Work and other persons who may be affected thereby;

- .2 the Work and materials and equipment to be incorporated therein, whether in storage on or off the site, under care, custody, or control of the Contractor, a Subcontractor, or a Sub-subcontractor; and
- .3 other property at the site or adjacent thereto, such as trees, shrubs, lawns, walks, pavements, roadways, structures, and utilities not designated for removal, relocation, or replacement in the course of construction.

§ 10.2.2 The Contractor shall comply with, and give notices required by applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities, bearing on safety of persons or property or their protection from damage, injury, or loss.

§ 10.2.3 The Contractor shall implement, erect, and maintain, as required by existing conditions and performance of the Contract, reasonable safeguards for safety and protection, including posting danger signs and other warnings against hazards; promulgating safety regulations; and notifying the owners and users of adjacent sites and utilities of the safeguards.

§ 10.2.4 When use or storage of explosives or other hazardous materials or equipment, or unusual methods are necessary for execution of the Work, the Contractor shall exercise utmost care and carry on such activities under supervision of properly qualified personnel.

§ 10.2.5 The Contractor shall promptly remedy damage and loss (other than damage or loss insured under property insurance required by the Contract Documents) to property referred to in Sections 10.2.1.2 and 10.2.1.3 caused in whole or in part by the Contractor, a Subcontractor, a Sub-subcontractor, or anyone directly or indirectly employed by any of them, or by anyone for whose acts they may be liable and for which the Contractor is responsible under Sections 10.2.1.2 and 10.2.1.3. The Contractor may make a Claim for the cost to remedy the damage or loss to the extent such damage or loss is attributable to acts or omissions of the Owner or Architect or anyone directly or indirectly employed by either of them, or by anyone for whose acts either of them may be liable, and not attributable to the fault or negligence of the Contractor. The foregoing obligations of the Contractor are in addition to the Contractor's obligations under Section 3.18.

§ 10.2.6 The Contractor shall designate a responsible member of the Contractor's organization at the site whose duty shall be the prevention of accidents. This person shall be the Contractor's superintendent unless otherwise designated by the Contractor in writing to the Owner and Architect.

§ 10.2.7 The Contractor shall not permit any part of the construction or site to be loaded so as to cause damage or create an unsafe condition.

§ 10.2.8 Injury or Damage to Person or Property

If either party suffers injury or damage to person or property because of an act or omission of the other party, or of others for whose acts such party is legally responsible, notice of the injury or damage, whether or not insured, shall be given to the other party within a reasonable time not exceeding 21 days after discovery. The notice shall provide sufficient detail to enable the other party to investigate the matter.

§ 10.3 Hazardous Materials and Substances

§ 10.3.1 The Contractor is responsible for compliance with any requirements included in the Contract Documents regarding hazardous materials or substances. If the Contractor encounters a hazardous material or substance not addressed in the Contract Documents and if reasonable precautions will be inadequate to prevent foreseeable bodily injury or death to persons resulting from a material or substance, including but not limited to asbestos or polychlorinated biphenyl (PCB), encountered on the site by the Contractor, the Contractor shall, upon recognizing the condition, immediately stop Work in the affected area and notify the Owner and Architect of the condition.

§ 10.3.2 Upon receipt of the Contractor's notice, the Owner shall obtain the services of a licensed laboratory to verify the presence or absence of the material or substance reported by the Contractor and, in the event such material or substance is found to be present, to cause it to be rendered harmless. Unless otherwise required by the Contract Documents, the Owner shall furnish in writing to the Contractor and Architect the names and qualifications of persons or entities who are to perform tests verifying the presence or absence of the material or substance or who are to perform the task of removal or safe containment of the material or substance. The Contractor and the Architect will promptly reply to the Owner in writing stating whether or not either has reasonable objection to the persons or entities

proposed by the Owner. If either the Contractor or Architect has an objection to a person or entity proposed by the Owner, the Owner shall propose another to whom the Contractor and the Architect have no reasonable objection. When the material or substance has been rendered harmless, Work in the affected area shall resume upon written agreement of the Owner and Contractor. By Change Order, the Contract Time shall be extended appropriately and the Contract Sum shall be increased by the amount of the Contractor's reasonable additional costs of shutdown, delay, and start-up.

§ 10.3.3 To the fullest extent permitted by law, the Owner shall indemnify and hold harmless the Contractor, Subcontractors, Architect, Architect's consultants, and agents and employees of any of them from and against claims, damages, losses, and expenses, including but not limited to attorneys' fees, arising out of or resulting from performance of the Work in the affected area if in fact the material or substance presents the risk of bodily injury or death as described in Section 10.3.1 and has not been rendered harmless, provided that such claim, damage, loss, or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself), except to the extent that such damage, loss, or expense is due to the fault or negligence of the party seeking indemnity.

§ 10.3.4 The Owner shall not be responsible under this Section 10.3 for hazardous materials or substances the Contractor brings to the site unless such materials or substances are required by the Contract Documents. The Owner shall be responsible for hazardous materials or substances required by the Contract Documents, except to the extent of the Contractor's fault or negligence in the use and handling of such materials or substances.

§ 10.3.5 The Contractor shall reimburse the Owner for the cost and expense the Owner incurs (1) for remediation of hazardous materials or substances the Contractor brings to the site and negligently handles, or (2) where the Contractor fails to perform its obligations under Section 10.3.1, except to the extent that the cost and expense are due to the Owner's fault or negligence.

§ 10.3.6 If, without negligence on the part of the Contractor, the Contractor is held liable by a government agency for the cost of remediation of a hazardous material or substance solely by reason of performing Work as required by the Contract Documents, the Owner shall reimburse the Contractor for all cost and expense thereby incurred.

§ 10.4 Emergencies

In an emergency affecting safety of persons or property, the Contractor shall act, at the Contractor's discretion, to prevent threatened damage, injury, or loss. Additional compensation or extension of time claimed by the Contractor on account of an emergency shall be determined as provided in Article 15 and Article 7.

ARTICLE 11 INSURANCE AND BONDS

§ 11.1 Contractor's Insurance and Bonds

§ 11.1.1 The Contractor shall purchase and maintain insurance of the types and limits of liability, containing the endorsements, and subject to the terms and conditions, as described in the Agreement or elsewhere in the Contract Documents. The Contractor shall purchase and maintain the required insurance from an insurance company or insurance companies lawfully authorized to issue insurance in the jurisdiction where the Project is located. The Owner, Architect, and Architect's consultants shall be named as additional insureds under the Contractor's commercial general liability policy or as otherwise described in the Contract Documents.

§ 11.1.2 The Contractor shall provide surety bonds of the types, for such penal sums, and subject to such terms and conditions as required by the Contract Documents. The Contractor shall purchase and maintain the required bonds from a company or companies lawfully authorized to issue surety bonds in the jurisdiction where the Project is located.

§ 11.1.3 Upon the request of any person or entity appearing to be a potential beneficiary of bonds covering payment of obligations arising under the Contract, the Contractor shall promptly furnish a copy of the bonds or shall authorize a copy to be furnished.

§ 11.1.4 Notice of Cancellation or Expiration of Contractor's Required Insurance. Within three (3) business days of the date the Contractor becomes aware of an impending or actual cancellation or expiration of any insurance required by the Contract Documents, the Contractor shall provide notice to the Owner of such impending or actual cancellation or expiration. Upon receipt of notice from the Contractor, the Owner shall, unless the lapse in coverage arises from an act or omission of the Owner, have the right to stop the Work until the lapse in coverage has been cured by the

procurement of replacement coverage by the Contractor. The furnishing of notice by the Contractor shall not relieve the Contractor of any contractual obligation to provide any required coverage.

§ 11.2 Owner's Insurance

§ 11.2.1 The Owner shall purchase and maintain insurance of the types and limits of liability, containing the endorsements, and subject to the terms and conditions, as described in the Agreement or elsewhere in the Contract Documents. The Owner shall purchase and maintain the required insurance from an insurance company or insurance companies lawfully authorized to issue insurance in the jurisdiction where the Project is located.

§ 11.2.2 Failure to Purchase Required Property Insurance. If the Owner fails to purchase and maintain the required property insurance, with all of the coverages and in the amounts described in the Agreement or elsewhere in the Contract Documents, the Owner shall inform the Contractor in writing prior to commencement of the Work. Upon receipt of notice from the Owner, the Contractor may delay commencement of the Work and may obtain insurance that will protect the interests of the Contractor, Subcontractors, and Sub-Subcontractors in the Work. When the failure to provide coverage has been cured or resolved, the Contract Sum and Contract Time shall be equitably adjusted. In the event the Owner fails to procure coverage, the Owner waives all rights against the Contractor, Subcontractors, and Sub-subcontractors to the extent the loss to the Owner would have been covered by the insurance to have been procured by the Owner. The cost of the insurance shall be charged to the Owner by a Change Order. If the Owner does not provide written notice, and the Contractor is damaged by the failure or neglect of the Owner to purchase or maintain the required insurance, the Owner shall reimburse the Contractor for all reasonable costs and damages attributable thereto.

§ 11.2.3 Notice of Cancellation or Expiration of Owner's Required Property Insurance. Within three (3) business days of the date the Owner becomes aware of an impending or actual cancellation or expiration of any property insurance required by the Contract Documents, the Owner shall provide notice to the Contractor of such impending or actual cancellation or expiration. Unless the lapse in coverage arises from an act or omission of the Contractor: (1) the Contractor, upon receipt of notice from the Owner, shall have the right to stop the Work until the lapse in coverage has been cured by the procurement of replacement coverage by either the Owner or the Contractor; (2) the Contract Time and Contract Sum shall be equitably adjusted; and (3) the Owner waives all rights against the Contractor, Subcontractors, and Sub-subcontractors to the extent any loss to the Owner would have been covered by the insurance had it not expired or been cancelled. If the Contractor purchases replacement coverage, the cost of the insurance shall be charged to the Owner by an appropriate Change Order. The furnishing of notice by the Owner shall not relieve the Owner of any contractual obligation to provide required insurance.

§ 11.3 Waivers of Subrogation

§ 11.3.1 The Owner and Contractor waive all rights against (1) each other and any of their subcontractors, sub-subcontractors, agents, and employees, each of the other; (2) the Architect and Architect's consultants; and (3) Separate Contractors, if any, and any of their subcontractors, sub-subcontractors, agents, and employees, for damages caused by fire, or other causes of loss, to the extent those losses are covered by property insurance required by the Agreement or other property insurance applicable to the Project, except such rights as they have to proceeds of such insurance. The Owner or Contractor, as appropriate, shall require similar written waivers in favor of the individuals and entities identified above from the Architect, Architect's consultants, Separate Contractors, subcontractors, and sub-subcontractors. The policies of insurance purchased and maintained by each person or entity agreeing to waive claims pursuant to this section 11.3.1 shall not prohibit this waiver of subrogation. This waiver of subrogation shall be effective as to a person or entity (1) even though that person or entity would otherwise have a duty of indemnification, contractual or otherwise, (2) even though that person or entity did not pay the insurance premium directly or indirectly, or (3) whether or not the person or entity had an insurable interest in the damaged property.

§ 11.3.2 If during the Project construction period the Owner insures properties, real or personal or both, at or adjacent to the site by property insurance under policies separate from those insuring the Project, or if after final payment property insurance is to be provided on the completed Project through a policy or policies other than those insuring the Project during the construction period, to the extent permissible by such policies, the Owner waives all rights in accordance with the terms of Section 11.3.1 for damages caused by fire or other causes of loss covered by this separate property insurance.

§ 11.4 Loss of Use, Business Interruption, and Delay in Completion Insurance

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The Owner, at the Owner's option, may purchase and maintain insurance that will protect the Owner against loss of use of the Owner's property, or the inability to conduct normal operations, due to fire or other causes of loss. The Owner waives all rights of action against the Contractor and Architect for loss of use of the Owner's property, due to fire or other hazards however caused.

§11.5 Adjustment and Settlement of Insured Loss

§ 11.5.1 A loss insured under the property insurance required by the Agreement shall be adjusted by the Owner as fiduciary and made payable to the Owner as fiduciary for the insureds, as their interests may appear, subject to requirements of any applicable mortgagee clause and of Section 11.5.2. The Owner shall pay the Architect and Contractor their just shares of insurance proceeds received by the Owner, and by appropriate agreements the Architect and Contractor shall make payments to their consultants and Subcontractors in similar manner.

§ 11.5.2 Prior to settlement of an insured loss, the Owner shall notify the Contractor of the terms of the proposed settlement as well as the proposed allocation of the insurance proceeds. The Contractor shall have 14 days from receipt of notice to object to the proposed settlement or allocation of the proceeds. If the Contractor does not object, the Owner shall settle the loss and the Contractor shall be bound by the settlement and allocation. Upon receipt, the Owner shall deposit the insurance proceeds in a separate account and make the appropriate distributions. Thereafter, if no other agreement is made or the Owner does not terminate the Contract for convenience, the Owner and Contractor shall execute a Change Order for reconstruction of the damaged or destroyed Work in the amount allocated for that purpose. If the Contractor timely objects to either the terms of the proposed settlement or the allocation of the proceeds, the Owner may proceed to settle the insured loss, and any dispute between the Owner and Contractor arising out of the settlement or allocation of the proceeds shall be resolved pursuant to Article 15. Pending resolution of any dispute, the Owner may issue a Construction Change Directive for the reconstruction of the damaged or destroyed Work.

ARTICLE 12 UNCOVERING AND CORRECTION OF WORK

§ 12.1 Uncovering of Work

§ 12.1.1 If a portion of the Work is covered contrary to the Architect's request or to requirements specifically expressed in the Contract Documents, it must, if requested in writing by the Architect, be uncovered for the Architect's examination and be replaced at the Contractor's expense without change in the Contract Time.

§ 12.1.2 If a portion of the Work has been covered that the Architect has not specifically requested to examine prior to its being covered, the Architect may request to see such Work and it shall be uncovered by the Contractor. If such Work is in accordance with the Contract Documents, the Contractor shall be entitled to an equitable adjustment to the Contract Sum and Contract Time as may be appropriate. If such Work is not in accordance with the Contract Documents, the costs of uncovering the Work, and the cost of correction, shall be at the Contractor's expense.

§ 12.2 Correction of Work

§ 12.2.1 Before Substantial Completion

The Contractor shall promptly correct Work rejected by the Architect or failing to conform to the requirements of the Contract Documents, discovered before Substantial Completion and whether or not fabricated, installed or completed. Costs of correcting such rejected Work, including additional testing and inspections, the cost of uncovering and replacement, and compensation for the Architect's services and expenses made necessary thereby, shall be at the Contractor's expense.

§ 12.2.2 After Substantial Completion

§ 12.2.2.1 In addition to the Contractor's obligations under Section 3.5, if, within one year after the date of Substantial Completion of the Work or designated portion thereof or after the date for commencement of warranties established under Section 9.9.1, or by terms of any applicable special warranty required by the Contract Documents, any of the Work is found to be not in accordance with the requirements of the Contract Documents, the Contractor shall correct it promptly after receipt of notice from the Owner to do so, unless the Owner has previously given the Contractor a written acceptance of such condition. The Owner shall give such notice promptly after discovery of the condition. During the one-year period for correction of Work, if the Owner fails to notify the Contractor and give the Contractor an opportunity to make the correction, the Owner waives the rights to require correction by the Contractor and to make a claim for breach of warranty. If the Contractor fails to correct nonconforming Work within a reasonable time during that period after receipt of notice from the Owner or Architect, the Owner may correct it in accordance with Section 2.5.

§ 12.2.2.2 The one-year period for correction of Work shall be extended with respect to portions of Work first performed after Substantial Completion by the period of time between Substantial Completion and the actual completion of that portion of the Work.

§ 12.2.2.3 The one-year period for correction of Work shall not be extended by corrective Work performed by the Contractor pursuant to this Section 12.2.

§ 12.2.3 The Contractor shall remove from the site portions of the Work that are not in accordance with the requirements of the Contract Documents and are neither corrected by the Contractor nor accepted by the Owner.

§ 12.2.4 The Contractor shall bear the cost of correcting destroyed or damaged construction of the Owner or Separate Contractors, whether completed or partially completed, caused by the Contractor's correction or removal of Work that is not in accordance with the requirements of the Contract Documents.

§ 12.2.5 Nothing contained in this Section 12.2 shall be construed to establish a period of limitation with respect to other obligations the Contractor has under the Contract Documents. Establishment of the one-year period for correction of Work as described in Section 12.2.2 relates only to the specific obligation of the Contractor to correct the Work, and has no relationship to the time within which the obligation to comply with the Contract Documents may be sought to be enforced, nor to the time within which proceedings may be commenced to establish the Contractor's liability with respect to the Contractor's obligations other than specifically to correct the Work.

§ 12.3 Acceptance of Nonconforming Work

If the Owner prefers to accept Work that is not in accordance with the requirements of the Contract Documents, the Owner may do so instead of requiring its removal and correction, in which case the Contract Sum will be reduced as appropriate and equitable. Such adjustment shall be effected whether or not final payment has been made.

ARTICLE 13 MISCELLANEOUS PROVISIONS

§ 13.1 Governing Law

The Contract shall be governed by the law of the place where the Project is located, excluding that jurisdiction's choice of law rules.

§ 13.2 Successors and Assigns

§ 13.2.1 The Owner and Contractor respectively bind themselves, their partners, successors, assigns, and legal representatives to covenants, agreements, and obligations contained in the Contract Documents. Except as provided in Section 13.2.2, neither party to the Contract shall assign the Contract as a whole without written consent of the other. If either party attempts to make an assignment without such consent, that party shall nevertheless remain legally responsible for all obligations under the Contract.

§ 13.2.2 The Owner may, without consent of the Contractor, assign the Contract to a lender providing construction financing for the Project, if the lender assumes the Owner's rights and obligations under the Contract Documents. The Contractor shall execute all consents reasonably required to facilitate the assignment.

§ 13.3 Rights and Remedies

§ 13.3.1 Duties and obligations imposed by the Contract Documents and rights and remedies available thereunder shall be in addition to and not a limitation of duties, obligations, rights, and remedies otherwise imposed or available by law.

§ 13.3.2 No action or failure to act by the Owner, Architect, or Contractor shall constitute a waiver of a right or duty afforded them under the Contract, nor shall such action or failure to act constitute approval of or acquiescence in a breach thereunder, except as may be specifically agreed upon in writing.

§ 13.4 Tests and Inspections

§ 13.4.1 Tests, inspections, and approvals of portions of the Work shall be made as required by the Contract Documents and by applicable laws, statutes, ordinances, codes, rules, and regulations or lawful orders of public authorities. Unless otherwise provided, the Contractor shall make arrangements for such tests, inspections, and approvals with an independent testing laboratory or entity acceptable to the Owner, or with the appropriate public authority, and shall bear all related costs of tests, inspections, and approvals. The Contractor shall give the Architect

timely notice of when and where tests and inspections are to be made so that the Architect may be present for such procedures. The Owner shall bear costs of tests, inspections, or approvals that do not become requirements until after bids are received or negotiations concluded. The Owner shall directly arrange and pay for tests, inspections, or approvals where building codes or applicable laws or regulations so require.

§ 13.4.2 If the Architect, Owner, or public authorities having jurisdiction determine that portions of the Work require additional testing, inspection, or approval not included under Section 13.4.1, the Architect will, upon written authorization from the Owner, instruct the Contractor to make arrangements for such additional testing, inspection, or approval, by an entity acceptable to the Owner, and the Contractor shall give timely notice to the Architect of when and where tests and inspections are to be made so that the Architect may be present for such procedures. Such costs, except as provided in Section 13.4.3, shall be at the Owner's expense.

§ 13.4.3 If procedures for testing, inspection, or approval under Sections 13.4.1 and 13.4.2 reveal failure of the portions of the Work to comply with requirements established by the Contract Documents, all costs made necessary by such failure, including those of repeated procedures and compensation for the Architect's services and expenses, shall be at the Contractor's expense.

§ 13.4.4 Required certificates of testing, inspection, or approval shall, unless otherwise required by the Contract Documents, be secured by the Contractor and promptly delivered to the Architect.

§ 13.4.5 If the Architect is to observe tests, inspections, or approvals required by the Contract Documents, the Architect will do so promptly and, where practicable, at the normal place of testing.

§ 13.4.6 Tests or inspections conducted pursuant to the Contract Documents shall be made promptly to avoid unreasonable delay in the Work.

§ 13.5 Interest

Payments due and unpaid under the Contract Documents shall bear interest from the date payment is due at the rate the parties agree upon in writing or, in the absence thereof, at the legal rate prevailing from time to time at the place where the Project is located.

ARTICLE 14 TERMINATION OR SUSPENSION OF THE CONTRACT

§ 14.1 Termination by the Contractor

§ 14.1.1 The Contractor may terminate the Contract if the Work is stopped for a period of 30 consecutive days through no act or fault of the Contractor, a Subcontractor, a Sub-subcontractor, their agents or employees, or any other persons or entities performing portions of the Work, for any of the following reasons:

- .1 Issuance of an order of a court or other public authority having jurisdiction that requires all Work to be stopped;
- .2 An act of government, such as a declaration of national emergency, that requires all Work to be stopped;
- .3 Because the Architect has not issued a Certificate for Payment and has not notified the Contractor of the reason for withholding certification as provided in Section 9.4.1, or because the Owner has not made payment on a Certificate for Payment within the time stated in the Contract Documents; or
- .4 The Owner has failed to furnish to the Contractor reasonable evidence as required by Section 2.2.

§ 14.1.2 The Contractor may terminate the Contract if, through no act or fault of the Contractor, a Subcontractor, a Sub-subcontractor, their agents or employees, or any other persons or entities performing portions of the Work, repeated suspensions, delays, or interruptions of the entire Work by the Owner as described in Section 14.3, constitute in the aggregate more than 100 percent of the total number of days scheduled for completion, or 120 days in any 365-day period, whichever is less.

§ 14.1.3 If one of the reasons described in Section 14.1.1 or 14.1.2 exists, the Contractor may, upon seven days' notice to the Owner and Architect, terminate the Contract and recover from the Owner payment for Work executed, as well as reasonable overhead and profit on Work not executed, and costs incurred by reason of such termination.

§ 14.1.4 If the Work is stopped for a period of 60 consecutive days through no act or fault of the Contractor, a Subcontractor, a Sub-subcontractor, or their agents or employees or any other persons or entities performing portions

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of the Work because the Owner has repeatedly failed to fulfill the Owner's obligations under the Contract Documents with respect to matters important to the progress of the Work, the Contractor may, upon seven additional days' notice to the Owner and the Architect, terminate the Contract and recover from the Owner as provided in Section 14.1.3.

§ 14.2 Termination by the Owner for Cause

§ 14.2.1 The Owner may terminate the Contract if the Contractor

- .1 repeatedly refuses or fails to supply enough properly skilled workers or proper materials;
- .2 fails to make payment to Subcontractors or suppliers in accordance with the respective agreements between the Contractor and the Subcontractors or suppliers;
- .3 repeatedly disregards applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of a public authority; or
- .4 otherwise is guilty of substantial breach of a provision of the Contract Documents.

§ 14.2.2 When any of the reasons described in Section 14.2.1 exist, and upon certification by the Architect that sufficient cause exists to justify such action, the Owner may, without prejudice to any other rights or remedies of the Owner and after giving the Contractor and the Contractor's surety, if any, seven days' notice, terminate employment of the Contractor and may, subject to any prior rights of the surety:

- .1 Exclude the Contractor from the site and take possession of all materials, equipment, tools, and construction equipment and machinery thereon owned by the Contractor;
- .2 Accept assignment of subcontracts pursuant to Section 5.4; and
- .3 Finish the Work by whatever reasonable method the Owner may deem expedient. Upon written request of the Contractor, the Owner shall furnish to the Contractor a detailed accounting of the costs incurred by the Owner in finishing the Work.

§ 14.2.3 When the Owner terminates the Contract for one of the reasons stated in Section 14.2.1, the Contractor shall not be entitled to receive further payment until the Work is finished.

§ 14.2.4 If the unpaid balance of the Contract Sum exceeds costs of finishing the Work, including compensation for the Architect's services and expenses made necessary thereby, and other damages incurred by the Owner and not expressly waived, such excess shall be paid to the Contractor. If such costs and damages exceed the unpaid balance, the Contractor shall pay the difference to the Owner. The amount to be paid to the Contractor or Owner, as the case may be, shall be certified by the Initial Decision Maker, upon application, and this obligation for payment shall survive termination of the Contract.

§ 14.3 Suspension by the Owner for Convenience

§ 14.3.1 The Owner may, without cause, order the Contractor in writing to suspend, delay or interrupt the Work, in whole or in part for such period of time as the Owner may determine.

§ 14.3.2 The Contract Sum and Contract Time shall be adjusted for increases in the cost and time caused by suspension, delay, or interruption under Section 14.3.1. Adjustment of the Contract Sum shall include profit. No adjustment shall be made to the extent

- .1 that performance is, was, or would have been, so suspended, delayed, or interrupted, by another cause for which the Contractor is responsible; or
- .2 that an equitable adjustment is made or denied under another provision of the Contract.

§ 14.4 Termination by the Owner for Convenience

§ 14.4.1 The Owner may, at any time, terminate the Contract for the Owner's convenience and without cause.

§ 14.4.2 Upon receipt of notice from the Owner of such termination for the Owner's convenience, the Contractor shall

- .1 cease operations as directed by the Owner in the notice;
- .2 take actions necessary, or that the Owner may direct, for the protection and preservation of the Work; and
- .3 except for Work directed to be performed prior to the effective date of termination stated in the notice, terminate all existing subcontracts and purchase orders and enter into no further subcontracts and purchase orders.

§ 14.4.3 In case of such termination for the Owner's convenience, the Owner shall pay the Contractor for Work

properly executed; costs incurred by reason of the termination, including costs attributable to termination of Subcontracts; and the termination fee, if any, set forth in the Agreement.

ARTICLE 15 CLAIMS AND DISPUTES

§ 15.1 Claims

§ 15.1.1 Definition

A Claim is a demand or assertion by one of the parties seeking, as a matter of right, payment of money, a change in the Contract Time, or other relief with respect to the terms of the Contract. The term "Claim" also includes other disputes and matters in question between the Owner and Contractor arising out of or relating to the Contract. The responsibility to substantiate Claims shall rest with the party making the Claim. This Section 15.1.1 does not require the Owner to file a Claim in order to impose liquidated damages in accordance with the Contract Documents.

§ 15.1.2 Time Limits on Claims

The Owner and Contractor shall commence all Claims and causes of action against the other and arising out of or related to the Contract, whether in contract, tort, breach of warranty or otherwise, in accordance with the requirements of the dispute resolution method selected in the Agreement and within the period specified by applicable law, but in any case not more than 10 years after the date of Substantial Completion of the Work. The Owner and Contractor waive all Claims and causes of action not commenced in accordance with this Section 15.1.2.

§ 15.1.3 Notice of Claims

§ 15.1.3.1 Claims by either the Owner or Contractor, where the condition giving rise to the Claim is first discovered prior to expiration of the period for correction of the Work set forth in Section 12.2.2, shall be initiated by notice to the other party and to the Initial Decision Maker with a copy sent to the Architect, if the Architect is not serving as the Initial Decision Maker. Claims by either party under this Section 15.1.3.1 shall be initiated within 21 days after occurrence of the event giving rise to such Claim or within 21 days after the claimant first recognizes the condition giving rise to the Claim, whichever is later.

§ 15.1.3.2 Claims by either the Owner or Contractor, where the condition giving rise to the Claim is first discovered after expiration of the period for correction of the Work set forth in Section 12.2.2, shall be initiated by notice to the other party. In such event, no decision by the Initial Decision Maker is required.

§ 15.1.4 Continuing Contract Performance

§ 15.1.4.1 Pending final resolution of a Claim, except as otherwise agreed in writing or as provided in Section 9.7 and Article 14, the Contractor shall proceed diligently with performance of the Contract and the Owner shall continue to make payments in accordance with the Contract Documents.

§ 15.1.4.2 The Contract Sum and Contract Time shall be adjusted in accordance with the Initial Decision Maker's decision, subject to the right of either party to proceed in accordance with this Article 15. The Architect will issue Certificates for Payment in accordance with the decision of the Initial Decision Maker.

§ 15.1.5 Claims for Additional Cost

If the Contractor wishes to make a Claim for an increase in the Contract Sum, notice as provided in Section 15.1.3 shall be given before proceeding to execute the portion of the Work that is the subject of the Claim. Prior notice is not required for Claims relating to an emergency endangering life or property arising under Section 10.4.

§ 15.1.6 Claims for Additional Time

§ 15.1.6.1 If the Contractor wishes to make a Claim for an increase in the Contract Time, notice as provided in Section 15.1.3 shall be given. The Contractor's Claim shall include an estimate of cost and of probable effect of delay on progress of the Work. In the case of a continuing delay, only one Claim is necessary.

§ 15.1.6.2 If adverse weather conditions are the basis for a Claim for additional time, such Claim shall be documented by data substantiating that weather conditions were abnormal for the period of time, could not have been reasonably anticipated, and had an adverse effect on the scheduled construction.

§ 15.1.7 Waiver of Claims for Consequential Damages

The Contractor and Owner waive Claims against each other for consequential damages arising out of or relating to this Contract. This mutual waiver includes

- .1 damages incurred by the Owner for rental expenses, for losses of use, income, profit, financing, business and reputation, and for loss of management or employee productivity or of the services of such persons; and
- .2 damages incurred by the Contractor for principal office expenses including the compensation of personnel stationed there, for losses of financing, business and reputation, and for loss of profit, except anticipated profit arising directly from the Work.

This mutual waiver is applicable, without limitation, to all consequential damages due to either party's termination in accordance with Article 14. Nothing contained in this Section 15.1.7 shall be deemed to preclude assessment of liquidated damages, when applicable, in accordance with the requirements of the Contract Documents.

§ 15.2 Initial Decision

§ 15.2.1 Claims, excluding those where the condition giving rise to the Claim is first discovered after expiration of the period for correction of the Work set forth in Section 12.2.2 or arising under Sections 10.3, 10.4, and 11.5, shall be referred to the Initial Decision Maker for initial decision. The Architect will serve as the Initial Decision Maker, unless otherwise indicated in the Agreement. Except for those Claims excluded by this Section 15.2.1, an initial decision shall be required as a condition precedent to mediation of any Claim. If an initial decision has not been rendered within 30 days after the Claim has been referred to the Initial Decision Maker, the party asserting the Claim may demand mediation and dispute resolution without a decision having been rendered. Unless the Initial Decision Maker and all affected parties agree, the Initial Decision Maker will not decide disputes between the Contractor and persons or entities other than the Owner.

§ 15.2.2 The Initial Decision Maker will review Claims and within ten days of the receipt of a Claim take one or more of the following actions: (1) request additional supporting data from the claimant or a response with supporting data from the other party, (2) reject the Claim in whole or in part, (3) approve the Claim, (4) suggest a compromise, or (5) advise the parties that the Initial Decision Maker is unable to resolve the Claim if the Initial Decision Maker lacks sufficient information to evaluate the merits of the Claim or if the Initial Decision Maker concludes that, in the Initial Decision Maker's sole discretion, it would be inappropriate for the Initial Decision Maker to resolve the Claim.

§ 15.2.3 In evaluating Claims, the Initial Decision Maker may, but shall not be obligated to, consult with or seek information from either party or from persons with special knowledge or expertise who may assist the Initial Decision Maker in rendering a decision. The Initial Decision Maker may request the Owner to authorize retention of such persons at the Owner's expense.

§ 15.2.4 If the Initial Decision Maker requests a party to provide a response to a Claim or to furnish additional supporting data, such party shall respond, within ten days after receipt of the request, and shall either (1) provide a response on the requested supporting data, (2) advise the Initial Decision Maker when the response or supporting data will be furnished, or (3) advise the Initial Decision Maker that no supporting data will be furnished. Upon receipt of the response or supporting data, if any, the Initial Decision Maker will either reject or approve the Claim in whole or in part.

§ 15.2.5 The Initial Decision Maker will render an initial decision approving or rejecting the Claim, or indicating that the Initial Decision Maker is unable to resolve the Claim. This initial decision shall (1) be in writing; (2) state the reasons therefor; and (3) notify the parties and the Architect, if the Architect is not serving as the Initial Decision Maker, of any change in the Contract Sum or Contract Time or both. The initial decision shall be final and binding on the parties but subject to mediation and, if the parties fail to resolve their dispute through mediation, to dispute resolution.

§ 15.2.6 Either party may file for mediation of an initial decision at any time, subject to the terms of Section 15.2.6.1.

§ 15.2.6.1 Either party may, within 30 days from the date of receipt of an initial decision, demand in writing that the other party file for mediation. If such a demand is made and the party receiving the demand fails to file for mediation within 30 days after receipt thereof, then both parties waive their rights to mediate or pursue dispute resolution proceedings with respect to the initial decision.

§ 15.2.7 In the event of a Claim against the Contractor, the Owner may, but is not obligated to, notify the surety, if any, of the nature and amount of the Claim. If the Claim relates to a possibility of a Contractor's default, the Owner may, but is not obligated to, notify the surety and request the surety's assistance in resolving the controversy.

§ 15.2.8 If a Claim relates to or is the subject of a mechanic's lien, the party asserting such Claim may proceed in accordance with applicable law to comply with the lien notice or filing deadlines.

§ 15.3 Mediation

§ 15.3.1 Claims, disputes, or other matters in controversy arising out of or related to the Contract, except those waived as provided for in Sections 9.10.4, 9.10.5, and 15.1.7, shall be subject to mediation as a condition precedent to dispute resolution.

§ 15.3.2 The parties shall endeavor to resolve their Claims by mediation which, unless the parties mutually agree otherwise, shall be administered by the American Arbitration Association in accordance with its Construction Industry Mediation Procedures in effect on the date of the Agreement. A request for mediation shall be made in writing, delivered to the other party to the Contract, and filed with the person or entity administering the mediation. The request may be made concurrently with the filing of dispute resolution proceedings but, in such event, mediation shall proceed in advance of dispute resolution proceedings, which shall be stayed pending mediation for a period of 60 days from the date of filing, unless stayed for a longer period by agreement of the parties or court order.

§ 15.3.3 Either party may, within 30 days from the date that mediation has been concluded without resolution of the dispute or 60 days after mediation has been demanded without resolution of the dispute, demand in writing that the other party file for dispute resolution. If such a demand is made and the party receiving the demand fails to file for dispute resolution within 60 days after receipt thereof, then both parties waive their rights to dispute resolution proceedings with respect to the initial decision.

§ 15.3.4 The parties shall share the mediator's fee and any filing fees equally. The mediation shall be held in the place where the Project is located, unless another location is mutually agreed upon. Agreements reached in mediation shall be enforceable as settlement agreements in any court having jurisdiction thereof.

(Paragraphs deleted)

Additions and Deletions Report for

AIA® Document A201® – 2017

This Additions and Deletions Report, as defined on page 1 of the associated document, reproduces below all text the author has added to the standard form AIA document in order to complete it, as well as any text the author may have added to or deleted from the original AIA text. Added text is shown underlined. Deleted text is indicated with a horizontal line through the original AIA text.

Note: This Additions and Deletions Report is provided for information purposes only and is not incorporated into or constitute any part of the associated AIA document. This Additions and Deletions Report and its associated document were generated simultaneously by AIA software at 11:15:10 ET on 04/28/2025.

PAGE 1

An Addition to Benton County Justice Center
Bentonville, AR

...

Benton County, A Subdivision of the State of Arkansas
Bentonville, AR

...

Hight Jackson Associates PA
Rogers, Arkansas

PAGE 2

Arbitration
8.3.1, 15.3.2, 15.4

...

Bidding Requirements

...

Binding-Dispute Resolution

PAGE 3

Claims Subject to Arbitration
15.4.1

PAGE 7

Rules and Notices for Arbitration
15.4.1

PAGE 24

§ 8.3.1 If the Contractor is delayed at any time in the commencement or progress of the Work by (1) an act or neglect of the Owner or Architect, of an employee of either, or of a Separate Contractor; (2) by changes ordered in the Work; (3) by labor disputes, fire, unusual delay in deliveries, unavoidable casualties, adverse weather conditions documented in accordance with Section 15.1.6.2, or other causes beyond the Contractor's control; (4) by delay authorized by the Owner pending mediation and ~~binding~~-dispute resolution; or (5) by other causes that the Contractor asserts, and the Architect determines, justify delay, then the Contract Time shall be extended for such reasonable time as the Architect may determine.

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If the Architect does not issue a Certificate for Payment, through no fault of the Contractor, within seven days after receipt of the Contractor's Application for Payment, or if the Owner does not pay the Contractor within seven days after the date established in the Contract Documents, the amount certified by the Architect or awarded by binding dispute resolution, then the Contractor may, upon seven additional days' notice to the Owner and Architect, stop the Work until payment of the amount owing has been received. The Contract Time shall be extended appropriately and the Contract Sum shall be increased by the amount of the Contractor's reasonable costs of shutdown, delay and start-up, plus interest as provided for in the Contract Documents.

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The Contract shall be governed by the law of the place where the Project is located, excluding that jurisdiction's choice of law rules. ~~If the parties have selected arbitration as the method of binding dispute resolution, the Federal Arbitration Act shall govern Section 15.4.~~

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The Owner and Contractor shall commence all Claims and causes of action against the other and arising out of or related to the Contract, whether in contract, tort, breach of warranty or otherwise, in accordance with the requirements of the binding-dispute resolution method selected in the Agreement and within the period specified by applicable law, but in any case not more than 10 years after the date of Substantial Completion of the Work. The Owner and Contractor waive all Claims and causes of action not commenced in accordance with this Section 15.1.2.

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§ 15.2.1 Claims, excluding those where the condition giving rise to the Claim is first discovered after expiration of the period for correction of the Work set forth in Section 12.2.2 or arising under Sections 10.3, 10.4, and 11.5, shall be referred to the Initial Decision Maker for initial decision. The Architect will serve as the Initial Decision Maker, unless otherwise indicated in the Agreement. Except for those Claims excluded by this Section 15.2.1, an initial decision shall be required as a condition precedent to mediation of any Claim. If an initial decision has not been rendered within 30 days after the Claim has been referred to the Initial Decision Maker, the party asserting the Claim may demand mediation and binding-dispute resolution without a decision having been rendered. Unless the Initial Decision Maker and all affected parties agree, the Initial Decision Maker will not decide disputes between the Contractor and persons or entities other than the Owner.

...

§ 15.2.5 The Initial Decision Maker will render an initial decision approving or rejecting the Claim, or indicating that the Initial Decision Maker is unable to resolve the Claim. This initial decision shall (1) be in writing; (2) state the reasons therefor; and (3) notify the parties and the Architect, if the Architect is not serving as the Initial Decision Maker, of any change in the Contract Sum or Contract Time or both. The initial decision shall be final and binding on the parties but subject to mediation and, if the parties fail to resolve their dispute through mediation, to binding-dispute resolution.

...

§ 15.2.6.1 Either party may, within 30 days from the date of receipt of an initial decision, demand in writing that the other party file for mediation. If such a demand is made and the party receiving the demand fails to file for mediation within 30 days after receipt thereof, then both parties waive their rights to mediate or pursue binding-dispute resolution proceedings with respect to the initial decision.

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§ 15.3.1 Claims, disputes, or other matters in controversy arising out of or related to the Contract, except those waived as provided for in Sections 9.10.4, 9.10.5, and 15.1.7, shall be subject to mediation as a condition precedent to binding dispute resolution.

§ 15.3.2 The parties shall endeavor to resolve their Claims by mediation which, unless the parties mutually agree otherwise, shall be administered by the American Arbitration Association in accordance with its Construction Industry

Mediation Procedures in effect on the date of the Agreement. A request for mediation shall be made in writing, delivered to the other party to the Contract, and filed with the person or entity administering the mediation. The request may be made concurrently with the filing of binding-dispute resolution proceedings but, in such event, mediation shall proceed in advance of binding-dispute resolution proceedings, which shall be stayed pending mediation for a period of 60 days from the date of filing, unless stayed for a longer period by agreement of the parties or court order. If an arbitration is stayed pursuant to this Section 15.3.2, the parties may nonetheless proceed to the selection of the arbitrator(s) and agree upon a schedule for later proceedings.

§ 15.3.3 Either party may, within 30 days from the date that mediation has been concluded without resolution of the dispute or 60 days after mediation has been demanded without resolution of the dispute, demand in writing that the other party file for binding-dispute resolution. If such a demand is made and the party receiving the demand fails to file for binding-dispute resolution within 60 days after receipt thereof, then both parties waive their rights to binding dispute resolution proceedings with respect to the initial decision.

...

§ 15.4 Arbitration

~~§ 15.4.1 If the parties have selected arbitration as the method for binding dispute resolution in the Agreement, any Claim subject to, but not resolved by, mediation shall be subject to arbitration which, unless the parties mutually agree otherwise, shall be administered by the American Arbitration Association in accordance with its Construction Industry Arbitration Rules in effect on the date of the Agreement. The Arbitration shall be conducted in the place where the Project is located, unless another location is mutually agreed upon. A demand for arbitration shall be made in writing, delivered to the other party to the Contract, and filed with the person or entity administering the arbitration. The party filing a notice of demand for arbitration must assert in the demand all Claims then known to that party on which arbitration is permitted to be demanded.~~

~~§ 15.4.1.1 A demand for arbitration shall be made no earlier than concurrently with the filing of a request for mediation, but in no event shall it be made after the date when the institution of legal or equitable proceedings based on the Claim would be barred by the applicable statute of limitations. For statute of limitations purposes, receipt of a written demand for arbitration by the person or entity administering the arbitration shall constitute the institution of legal or equitable proceedings based on the Claim.~~

~~§ 15.4.2 The award rendered by the arbitrator or arbitrators shall be final, and judgment may be entered upon it in accordance with applicable law in any court having jurisdiction thereof.~~

~~§ 15.4.3 The foregoing agreement to arbitrate and other agreements to arbitrate with an additional person or entity duly consented to by parties to the Agreement, shall be specifically enforceable under applicable law in any court having jurisdiction thereof.~~

§ 15.4.4 Consolidation or Joinder

~~§ 15.4.4.1 Subject to the rules of the American Arbitration Association or other applicable arbitration rules, either party may consolidate an arbitration conducted under this Agreement with any other arbitration to which it is a party provided that (1) the arbitration agreement governing the other arbitration permits consolidation, (2) the arbitrations to be consolidated substantially involve common questions of law or fact, and (3) the arbitrations employ materially similar procedural rules and methods for selecting arbitrator(s).~~

~~§ 15.4.4.2 Subject to the rules of the American Arbitration Association or other applicable arbitration rules, either party may include by joinder persons or entities substantially involved in a common question of law or fact whose presence is required if complete relief is to be accorded in arbitration, provided that the party sought to be joined consents in writing to such joinder. Consent to arbitration involving an additional person or entity shall not constitute consent to arbitration of any claim, dispute or other matter in question not described in the written consent.~~

~~§ 15.4.4.3 The Owner and Contractor grant to any person or entity made a party to an arbitration conducted under this Section 15.4, whether by joinder or consolidation, the same rights of joinder and consolidation as those of the Owner and Contractor under this Agreement.~~

Certification of Document's Authenticity

AIA® Document D401™ – 2003

I, _____, hereby certify, to the best of my knowledge, information and belief, that I created the attached final document simultaneously with its associated Additions and Deletions Report and this certification at 11:15:10 ET on 04/28/2025 under Order No. 2114451452 from AIA Contract Documents software and that in preparing the attached final document I made no changes to the original text of AIA® Document A201™ – 2017, General Conditions of the Contract for Construction, other than those additions and deletions shown in the associated Additions and Deletions Report.

(Signed)

(Title)

(Dated)

AIA® Document A101® – 2017 Exhibit A

Insurance and Bonds

This Insurance and Bonds Exhibit is part of the Agreement, between the Owner and the Contractor, date not known at this time)

for the following **PROJECT:**
(Name and location or address)

An Addition
Benton County Justice Center
Bentonville, AR

THE OWNER:
(Name, legal status and address)

Benton County, A Subdivision of the State of Arkansas
Bentonville, AR 72712

THE CONTRACTOR:
(Name, legal status and address)

To be determined

TABLE OF ARTICLES

- A.1 GENERAL**
- A.2 OWNER'S INSURANCE**
- A.3 CONTRACTOR'S INSURANCE AND BONDS**
- A.4 SPECIAL TERMS AND CONDITIONS**

ARTICLE A.1 GENERAL

The Owner and Contractor shall purchase and maintain insurance, and provide bonds, as set forth in this Exhibit. As used in this Exhibit, the term General Conditions refers to AIA Document A201™–2017, General Conditions of the Contract for Construction.

ARTICLE A.2 OWNER'S INSURANCE

§ A.2.1 General

Prior to commencement of the Work, the Owner shall secure the insurance, and provide evidence of the coverage, required under this Article A.2 and, upon the Contractor's request, provide a copy of the property insurance policy or policies required by Section A.2.3. The copy of the policy or policies provided shall contain all applicable conditions, definitions, exclusions, and endorsements.

§ A.2.2 Liability Insurance

The Owner shall be responsible for purchasing and maintaining the Owner's usual general liability insurance.

ADDITIONS AND DELETIONS:

The author of this document has added information needed for its completion. The author may also have revised the text of the original AIA standard form. An *Additions and Deletions Report* that notes added information as well as revisions to the standard form text is available from the author and should be reviewed. A vertical line in the left margin of this document indicates where the author has added necessary information and where the author has added to or deleted from the original AIA text.

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

This document is intended to be used in conjunction with AIA Document A201®–2017, General Conditions of the Contract for Construction. Article 11 of A201®–2017 contains additional insurance provisions.

§ A.2.3 Required Property Insurance

§ A.2.3.1 Unless this obligation is placed on the Contractor pursuant to Section A.3.3.2.1, the Owner shall purchase and maintain, from an insurance company or insurance companies lawfully authorized to issue insurance in the jurisdiction where the Project is located, property insurance written on a builder's risk "all-risks" completed value or equivalent policy form and sufficient to cover the total value of the entire Project on a replacement cost basis. The Owner's property insurance coverage shall be no less than the amount of the initial Contract Sum, plus the value of subsequent Modifications and labor performed and materials or equipment supplied by others. The property insurance shall be maintained until Substantial Completion and thereafter as provided in Section A.2.3.1.3, unless otherwise provided in the Contract Documents or otherwise agreed in writing by the parties to this Agreement. This insurance shall include the interests of the Owner, Contractor, Subcontractors, and Sub-subcontractors in the Project as insureds. This insurance shall include the interests of mortgagees as loss payees.

§ A.2.3.1.1 Causes of Loss. The insurance required by this Section A.2.3.1 shall provide coverage for direct physical loss or damage, and shall not exclude the risks of fire, explosion, theft, vandalism, malicious mischief, collapse, , or windstorm. The insurance shall also provide coverage for ensuing loss or resulting damage from error, omission, or deficiency in construction methods, design, specifications, workmanship, or materials.

§ A.2.3.1.2 Specific Required Coverages. *The insurance required by this Section A.2.3.1 shall provide coverage for loss or damage to falsework and other temporary structures, and to building systems from testing and startup. The insurance shall also cover debris removal, including demolition occasioned by enforcement of any applicable legal requirements, and reasonable compensation for the Architect's and Contractor's services and expenses required as a result of such insured loss, including claim preparation expenses.*

§ A.2.3.1.3 Unless the parties agree otherwise, upon Substantial Completion, the Owner shall continue the insurance required by Section A.2.3.1 or, if necessary, replace the insurance policy required under Section A.2.3.1 with property insurance written for the total value of the Project that shall remain in effect until expiration of the period for correction of the Work set forth in Section 12.2.2 of the General Conditions.

§ A.2.3.1.4 Deductibles and Self-Insured Retentions. If the insurance required by this Section A.2.3 is subject to deductibles or self-insured retentions, the Owner shall be responsible for all loss not covered because of such deductibles or retentions.

§ A.2.3.2 Occupancy or Use Prior to Substantial Completion. The Owner's occupancy or use of any completed or partially completed portion of the Work prior to Substantial Completion shall not commence until the insurance company or companies providing the insurance under Section A.2.3.1 have consented in writing to the continuance of coverage. The Owner and the Contractor shall take no action with respect to partial occupancy or use that would cause cancellation, lapse, or reduction of insurance, unless they agree otherwise in writing.

NOTE: Builders Risk Policies commonly include some kind of occupancy exclusion. Agents would need to have that removed if the building is going to be occupied at any time during construction. EITHER INCLUDE OR ADVISE OWNER TO DISCUSS WITH INSURANCE.

THE CONTRACTOR SHALL MAINTAIN BUILDERS' RISK INSURANCE AND SHALL FILE CERTIFICATES OF INSURANCE WITH THE OWNER AS REQUIRED. The limits of such insurance shall be not less than the following:

1. Property Insurance (Builders' risk shall be purchased and maintained by the Contractor. Furnish Owner with a copy of the policy. Contractor shall notify Owner at least 15 days before policy is terminated.

§ A.2.3.3 Insurance for Existing Structures

If the Work involves remodeling an existing structure or constructing an addition to an existing structure, the Owner shall purchase and maintain, until the expiration of the period for correction of Work as set forth in Section 12.2.2 of the General Conditions, "all-risks" property insurance, on a replacement cost basis, protecting the existing structure against direct physical loss or damage from the causes of loss identified in Section A.2.3.1, notwithstanding the undertaking of the Work. The Owner shall be responsible for all co-insurance penalties.

(Paragraphs deleted)

ARTICLE A.3 CONTRACTOR'S INSURANCE AND BONDS

§ A.3.1 General

§ A.3.1.1 Certificates of Insurance. The Contractor shall provide certificates of insurance acceptable to the Owner evidencing compliance with the requirements in this Article A.3 at the following times: (1) prior to commencement of the Work; (2) upon renewal or replacement of each required policy of insurance; and (3) upon the Owner's written request. An additional certificate evidencing continuation of commercial liability coverage, including coverage for completed operations, shall be submitted with the final Application for Payment and thereafter upon renewal or replacement of such coverage until the expiration of the periods required by Section A.3.2.1 and Section A.3.3.1. The certificates will show the Owner as an additional insured on the Contractor's Commercial General Liability and excess or umbrella liability policy or policies.

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User Notes:

(1097936745)

§ A.3.1.2 Deductibles and Self-Insured Retentions. The Contractor shall disclose to the Owner any deductible or self-insured retentions applicable to any insurance required to be provided by the Contractor.

§ A.3.1.3 Additional Insured Obligations. To the fullest extent permitted by law, the Contractor shall cause the commercial general liability coverage to include (1) the Owner, the Architect, and the Architect's consultants as additional insureds for claims caused in whole or in part by the Contractor's negligent acts or omissions during the Contractor's operations; and (2) the Owner as an additional insured for claims caused in whole or in part by the Contractor's negligent acts or omissions for which loss occurs during completed operations. The additional insured coverage shall be primary and non-contributory to any of the Owner's general liability insurance policies and shall apply to both ongoing and completed operations. To the extent commercially available, the additional insured coverage shall be no less than that provided by Insurance Services Office, Inc. (ISO) forms CG 20 10 07 04, CG 20 37 07 04, and, with respect to the Architect and the Architect's consultants, CG 20 32 07 04.

§ A.3.1.4 Waiver of Subrogation the Commercial General Liability and Automobile Liability policies shall each contain a waiver of subrogation in favor of the Owner, Architect, and their officers, directors, Board Members, employees and agents.

§ A.3.1.5 Subcontractors, Contractor shall cause each subcontractor to purchase and maintain insurance of the types and amounts specified as a minimum. Limits of such coverage may be reduced only upon written agreement of Owner. Contractor shall provide to the Owner copies of certificates evidencing coverage for each subcontractor. Subcontractor's commercial general liability and business automobile liability insurance shall name Owner and Architect as additional insured and have the Waiver of subrogation endorsement added in accord with Article A.3.

§ A.3.1.6 These certificates and the insurance policies required by this Article A.3 shall contain a provision afforded under the policies will not be canceled or allowed to expire until at least 30 days prior written notice has been given to the Owner. Information concerning reduction of coverage on account of revised limits or claims paid under the General Aggregate, or both, shall be furnished by the Contractor with reasonable promptness in accordance with the Contractor's information and belief.

§ A.3.1.7 Failure to file certificates or acceptance by the Owner or Architect of certificates of insurance which do not indicate the specified coverage shall in no way relieve the contractor of his responsibility for maintaining insurance as specified above.

§ A.3.2 Contractor's Required Insurance Coverage

§ A.3.2.1 The Contractor shall purchase and maintain the following types and limits of insurance from an insurance company or insurance companies lawfully authorized to issue insurance in the jurisdiction where the Project is located. The Contractor shall maintain the required insurance until the expiration of the period for correction of Work as set forth in Section 12.2.2 of the General Conditions, unless a different duration is stated below:

(If the Contractor is required to maintain insurance for a duration other than the expiration of the period for correction of Work, state the duration.)

§ A.3.2.2 Commercial General Liability

§ A.3.2.2.1 Commercial General Liability insurance for the Project written on an occurrence form with policy limits of not less than Three Million Dollars (\$ 3,000,000.00) each occurrence, Four Million Dollars (\$ 4,000,000.00) general aggregate, and Four Million Dollars (\$ 4,000,000.00) aggregate for products-completed operations hazard, providing coverage for claims including

- .1 damages because of bodily injury, sickness or disease, including occupational sickness or disease, and death of any person;
- .2 personal injury and advertising injury;
- .3 damages because of physical damage to or destruction of tangible property, including the loss of use of such property;
- .4 bodily injury or property damage arising out of completed operations; and
- .5 the Contractor's indemnity obligations under Section 3.18 of the General Conditions.

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§ A.3.2.2.2 The Contractor's Commercial General Liability policy under this Section A.3.2.2 shall not contain an exclusion or restriction of coverage for the following:

- .1 Claims by one insured against another insured, if the exclusion or restriction is based solely on the fact that the claimant is an insured, and there would otherwise be coverage for the claim.
- .2 Claims for property damage to the Contractor's Work arising out of the products-completed operations hazard where the damaged Work or the Work out of which the damage arises was performed by a Subcontractor.
- .3 Claims for bodily injury other than to employees of the insured.
- .4 Claims for indemnity under Section 3.18 of the General Conditions arising out of injury to employees of the insured.
- .5 Claims or loss excluded under a prior work endorsement or other similar exclusionary language.
- .6 Claims or loss due to physical damage under a prior injury endorsement or similar exclusionary language.
- .7 Claims related to residential, multi-family, or other habitational projects, if the Work is to be performed on such a project.
- .8 Claims related to roofing, if the Work involves roofing.
- .9 Claims related to exterior insulation finish systems (EIFS), synthetic stucco or similar exterior coatings or surfaces, if the Work involves such coatings or surfaces.
- .10 Claims related to earth subsidence or movement, where the Work involves such hazards.
- .11 Claims related to explosion, collapse and underground hazards, where the Work involves such hazards.

§ A.3.2.3 Automobile Liability covering vehicles owned, and non-owned vehicles used, by the Contractor, with policy limits of not less than Three Million Dollars (\$ 3,000,000) per accident, for bodily injury, death of any person, and property damage arising out of the ownership, maintenance and use of those motor vehicles along with any other statutorily required automobile coverage.

§ A.3.2.4 The Contractor may achieve the required limits and coverage for Commercial General Liability and Automobile Liability through a combination of primary and excess or umbrella liability insurance, provided such primary and excess or umbrella insurance policies result in the same or greater coverage as the coverages required under Section A.3.2.2 and A.3.2.3, and in no event shall any excess or umbrella liability insurance provide narrower coverage than the primary policy. The excess policy shall not require the exhaustion of the underlying limits only through the actual payment by the underlying insurers.

§ A.3.2.5 Workers' Compensation at statutory limits.

§ A.3.2.6 Employers' Liability with policy limits not less than One Million Dollars (\$ 1,000,000.00) each accident, One Million Dollars (\$ 1,000,000.00) each employee, and One Million Dollars (\$ 1,000,000.00) policy limit.

§ A.3.2.7 Jones Act, and the Longshore & Harbor Workers' Compensation Act, as required, if the Work involves hazards arising from work on or near navigable waterways, including vessels and docks

§ A.3.2.8 If the Contractor is required to furnish professional services as part of the Work, the Contractor shall procure Professional Liability insurance covering performance of the professional services, with policy limits of not less than One Million Dollars (\$ 1,000,000.00) per claim and One Million Dollars (\$ 1,000,000.00) in the aggregate.

§ A.3.2.9 Contractor shall procure Pollution Liability insurance, with policy limits of not less than One Million Dollars (\$ 1,000,000.00) per claim and One Million Dollars (\$ 1,000,000.00) in the aggregate.

(Paragraphs deleted)

§ A.3.3 Contractor's Other Insurance Coverage

§ A.3.3.1 Insurance selected and described in this Section A.3.3 shall be purchased from an insurance company or insurance companies lawfully authorized to issue insurance in the jurisdiction where the Project is located. The Contractor shall maintain the required insurance until the expiration of the period for correction of Work as set forth in Section 12.2.2 of the General Conditions, unless a different duration is stated below:

(If the Contractor is required to maintain any of the types of insurance selected below for a duration other than the expiration of the period for correction of Work, state the duration.)

§ A.3.3.2 The Contractor shall purchase and maintain the following types and limits of insurance in accordance with Section A.3.3.1.

(Select the types of insurance the Contractor is required to purchase and maintain by placing an X in the box(es) next to the description(s) of selected insurance. Where policy limits are provided, include the policy limit in the appropriate fill point.)

- ☒ **§ A.3.3.2.1** Property insurance of the same type and scope satisfying the requirements identified in Section A.2.3, which, if selected in this section A.3.3.2.1, relieves the Owner of the responsibility to purchase and maintain such insurance except insurance required by Section A.2.3.1.3 and Section A.2.3.3. The Contractor shall comply with all obligations of the Owner under Section A.2.3 except to the extent provided below. The Contractor shall disclose to the Owner the amount of any deductible, and the Owner shall be responsible for losses within the deductible. Upon request, the Contractor shall provide the Owner with a copy of the property insurance policy or policies required. The Owner shall adjust and settle the loss with the insurer and be the trustee of the proceeds of the property insurance in accordance with Article 11 of the General Conditions unless otherwise set forth below:

(Where the Contractor's obligation to provide property insurance differs from the Owner's obligations as described under Section A.2.3, indicate such differences in the space below. Additionally, if a party other than the Owner will be responsible for adjusting and settling a loss with the insurer and acting as the trustee of the proceeds of property insurance in accordance with Article 11 of the General Conditions, indicate the responsible party below.)

- ☒ **§ A.3.3.2.4** Insurance for physical damage to property while it is in storage and in transit to the construction site on an "all-risks" completed value form.

- ☒ **§ A.3.3.2.5** Property insurance on an "all-risks" completed value form, covering property owned by the Contractor and used on the Project, including scaffolding and other equipment.

- ☐ **§ A.3.3.2.6 Other Insurance**
(List below any other insurance coverage to be provided by the Contractor and any applicable limits.)

Coverage

Limits

§ A.3.4 Performance Bond and Payment Bond

(Paragraphs deleted)

Payment and Performance Bonds shall be AIA Document A312™, Payment Bond and Performance Bond, or contain provisions identical to AIA Document A312™, current as of the date of this Agreement.

§ A.3.4 Revised Language:

Contractor shall pay premium for and furnish Two (2) copies of a Performance Bond, and a Labor and Material Payment Bond in full amount of the contract sum to cover faithful performance of the contract and payment of all obligations arising thereunder, within seven (7) calendar days after signing contract. Furnish bonds in accordance with application laws of the State of Arkansas. Labor and Material Payment Bond coverage for project shall be maintained for a period of not less than one (1) year after substantial completion. A Warranty Bond shall be furnished in full amount of the contract sum to cover faithful performance of the contract and payment of all obligations for an additional year beyond Labor and Material Payment Bond coverage.

§ A.3.4.1 Furnish Owner, through the Architect, with two (2) copies each of required bonds.

§ A.3.4.2 Furnish Owner, through the Architect, with two (2) copies of the signed "Contractor's and Resident Local Agents Affidavit of Qualification, attached.

§ A.3.4.3 The Contractor shall require the attorney-in-fact who executes the required bonds on behalf of the surety to affix thereto a certified and current copy.

ARTICLE A.4 SPECIAL TERMS AND CONDITIONS

Special terms and conditions that modify this Insurance and Bonds Exhibit, if any, are as follows:

None

SECTION 00 73 00

SUPPLEMENTARY GENERAL CONDITIONS

PART 1 SUPPLEMENTARY GENERAL CONDITIONS

1.1 GENERAL

- A. Where any Articles of the AIA General Conditions Document A201-2017 are supplemented hereby, the provision of such Articles remains in effect with supplemental provisions added thereto. Where any Article is amended, voided or superseded hereby, the provisions of such article that are not so amended voided or superseded remain in effect.
- B. Where provisions of the General Conditions relate in general to the work of the Contractor and Subcontractor, these paragraphs are modified in Division 1, GENERAL REQUIREMENTS of the specifications.
- C. Should conflict occur between these Special Provisions and the General Conditions, the requirements of the Special Provisions shall take precedence.

PART 2 AMENDMENTS TO THE GENERAL CONDITIONS

ARTICLE 1 GENERAL PROVISION

Add the following paragraphs:

- 1.1.7.1 Upon request, Contractor who is awarded the project will be furnished free of charge the following number of sets of working drawings and specifications.

General Contractor	5 sets
Mechanical Contractor	1 sets
Electrical Contractor	1 sets
Plumbing Contractor	1 sets
- 1.1.7.3 Accompanying these Specifications are Drawings, which jointly with these Specifications are intended to explain each other and describe and coordinate the work to be performed under Contract.

Add the following paragraphs:

- 1.2.2.1. The Specifications are divided and the Drawings are numbered, each under headings set forth in the Specifications Index and in the Enumeration of Drawings below, such headings indicating the division of responsibility between contracts. The General Contract includes all work indicated under the headings CIVIL, ARCHITECTURAL, STRUCTURAL, MECHANICAL, ELECTRICAL, AND PLUMBING. However, the divisions created by the above headings shall not alleviate any contractor or subcontractor from work to be performed by him that is specifically indicated by the

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Drawings or in the division of Specifications of other contracts, for each contractor shall fully familiarize himself with all of the drawings and specifications for this project before submitting his proposal.

- 1.2.4. Should a discrepancy be found among the contract documents, request interpretation from the Architect, before proceeding with the work. Should an error, inconsistency or omission later be found in the drawings or specifications, or between drawings and specifications, or between drawing divisions, Contractor is deemed to have estimated on the more expensive way of doing work unless he shall have asked for and obtained a written decision before submission of proposal as to which method of materials will be required. Contractor shall notify Architect if any of these situations occur, and gain approval before proceeding. Reference used in these specifications to the Architect shall mean Hight-Jackson Associates PA.
- 1.2.5. Before submitting his proposal, each bidder shall check his set(s) of Specifications and Drawings and advise the Architect if any sheets are missing.
- 1.2.6. Do not scale drawings for dimensions. Accurately lay out such work from dimensions indicated on architectural drawings unless such is found in error. Consult Architect for any interpretations concerning locations of equipment.
- 1.2.7. If there is a discrepancy between drawings and specifications, consult Architect for clarification. Otherwise the more stringent requirement shall take precedent.
- 1.2.8. Consult Drawings for miscellaneous items of each trade and provide same as indicated.

Add the following paragraphs:

- 1.4.1 When a word, such as “approved”, “proper”, “satisfactory”, “alternate”, and “as directed” is used, it implies such reference is to the architect’s specific approval and directions.
- 1.4.2 “Provide” means furnish and install.

Edit the following paragraph:

- 1.7 Digital Data Use Transmission, revise AIA Document E203-2013 to C106-2013

Delete the following paragraph:

- 1.8 Building Information Models Use and Reliance to be deleted in its entirety.

ARTICLE 2 OWNER

Add the following sentence:

2.3.2 Paragraph 2.3.2 is modified with the following addition: Where the word “Architect” appears in each Division of the Specifications, it refers to the Architect or to the Owner as applicable

ARTICLE 3 CONTRACTOR

Add the follow subparagraphs:

- 3.3.4 Contractor notify his Subcontractors, Owner, and all Contractors and Subcontractors under the Owner when he is ready for them to install their portions of the work and see that they comply with any reasonable period of time. Neither enclose nor cover any piping, wiring ducts, equipment or other items until proper tests and inspection have been made by Architect and/or proper authorities.
- 3.3.5 Notify Architect to inspect any work when placing of subsequent work would prevent observation of previous work.
- 3.3.6 Contractor shall take charge of and assume general responsibility for proper protection of building during construction. He shall further provide substantial enclosures at all openings as necessary for protection, including doors with locks.
- 3.3.7 Each Contractor assumes responsibility for his materials stored on the premises.
- 3.4.1 ORDERS FOR MATERIALS. Paragraph 3.4.1.is modified with the following additions:
 - 3.4.1.1 Place material orders immediately following materials submittal approval. Furnish evidence of orders to Architect upon request.
 - 3.4.1.2 Place orders contingent upon selection of colors and finishes, approval of shop drawings and samples by Architect.
 - 3.4.1.3 Include with monthly request for payment and progress schedule a report of materials purchased and date materials are scheduled for delivery.

Add the following paragraphs:

- 3.4.2 Paragraph is modified with the addition: Proposals for substitutions of material, equipment, or methods shall be submitted no later than thirty days from date of written Notice to Proceed, authorizing performance of the Contract. Include a list of all materials, which he proposes to substitute for materials specified. Proposals for substitution shall be accompanied by such technical data, as the Architect may need in order to compare the proposed material with the material that was specified. No

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substitutions shall be made until written permission is given by the Architect at the direction of the Owner.

- 3.4.4 Where a material is mentioned in the Specifications by trade name or manufacturer's name, the same is not preference for said material, but the intention of using said name is to establish a type of quality of material. Material of other trade names or of other manufacturers which is in the opinion of the architect, equivalent or better in type or quality will be accepted by the Architect on behalf of the Owner only as provided in Section 01 60 00.
- 3.4.5 Before submitting proposal, Contractor, his Subcontractors and Material Suppliers observe Drawings and Specifications, and should any material and/or its installation be indicated or specified in a manner not approved by the Material Manufacturer, or specified item has been discontinued, notify Architect and receive his instructions. The Contractor shall provide other equivalent materials suitable for the installation as selected by Architect, or if not discovered until after installation. Contractor shall replace materials with such other equivalent suitable and selected materials, and in either event, at no added cost to Owner.

Add the following paragraphs:

- 3.5.1.1 Warranty all work to be free from defects in materials and workmanship for a period of one year from the date of Substantial Completion, except where a different time period is specifically prescribed. Contractor will promptly correct such defects to the state of condition originally required by the contract documents at contractor's expense.
- 3.5.1.2 Warranty period for all equipment and material shall not begin until the date of Substantial Completion. Contractor will promptly correct such defects to the state of condition originally required by the contract documents at contractor's expense during the warranty period.
- 3.5.2.1 When, at any time during the warranty period, work is considered defective by either Owner or Architect, immediately:
- A. Place such defective work into satisfactory condition, free from faults and defects and in conformance with contract requirements.
 - B. Make good all damage to work, including contents thereof and grounds, developing within warranty period when such damage is due to use of materials and labor not conforming to contract requirements.
 - C. Make good all work disturbed in fulfillment of contract obligations during warranty period. If work of other contractors is disturbed in the process of fulfilling contract, restore such work to its original condition and warranty such restored work.

- 3.5.3 Upon failure by contractor to proceed promptly to comply with terms of any warranty under the contract, Owner shall have such work performed as necessary to fulfill warranties, and contractor shall pay Owner such sums as expended to fulfill such warranty.
- 3.5.4 Work required for fulfillment of warranties embraced under the contract shall be performed at no additional expense to Owner.
- 3.5.5 Unless other specifically prescribed in warranty, normal wear and tear and results of accidents not chargeable to contractor are excluded from the requirements of this Article.
- 3.5.6 Prior to expiration of the one-year warranty period, the Architect will conduct an inspection of the project and create a punch list for items found to be deficient. Contractor will be required to be present. The Architect will set a date by which the deficient items are to be corrected. Contractor will return punch list to Architect, initialing completed each completed item. Note that contractor will remain responsible for repair and or replacement of items with warranties extending beyond one year as called for in individual specification sections or on drawings.

Add the following paragraph:

- 3.6.1 Materials and equipment incorporated into this project will be required to follow the Guidelines of Arkansas Sales Tax and such taxes shall be included in bidder's proposals. Contractors shall include Social Security Taxes, State Unemployment compensation Insurance and all other items of like nature.

Add the following paragraphs:

- 3.9.1.1 The superintendent shall be employed as full time and be in attendance at the project site during performance of the work. Superintendent shall have a minimum of 10 years of construction experience. Five (5) years of that experience shall have been in the capacity of a project superintendent on similar type projects. If the superintendent is unknown to the Architect, a resume shall be submitted for review and approval to qualify in this capacity. The Owner retains the right to accept or reject proposed superintendent prior to signing of contract. General Contractors not having such a person available for the project are discouraged from bidding project.
- 3.9.4 The superintendent assigned to the project at the beginning of construction will remain as superintendent for the entire duration of construction period. The superintendent shall provide duties per general conditions and remain on site for the entire duration of the project, including completion of all punch list items. The only circumstances that would permit replacement of the superintendent are prolonged illness, resignation of the superintendent from the company, or death. If one of the preceding circumstances should occur, the Contractor shall state in writing to the Owner the reason for replacement, send qualification statement of the proposed project superintendent, and

obtain approval from the Owner and Architect. The replacement superintendent shall possess the minimum requirements set forth in paragraph 3.9.2.

- 3.15.1.2 The Contractor shall replace broken or scratched glass, clean fixtures, remove dust, dirt, spots, marks, labels, stains, foreign paint and other blemishes from all finish work, unless more exactly specified, clean all floors and floor coverings, clean and polish hardware.

ARTICLE 4. ARCHITECT

- 4.1.1 Paragraph 4.1.1 is modified with the following addition: Where the word "Architect" appears in each Division of the Specifications, it refers to the Architect or to the Owner as applicable.

ARTICLE 5. SUBCONTRACTORS

Paragraph 5.2.2 of the General Conditions Add the following:

- 5.2.2.1.1 Submit list of proposed subcontractors to Architect prior to, or at time of pre-construction conference. Subcontractors listed shall not be released from their contract or replaced without notification and approval of Owner.

ARTICLE 6. CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTORS

Add the following paragraph:

- 6.2.6 Contractor shall assume general coordination and direction of the project. Each Contractor shall cooperate with other Contractors on the Work and install his work in sequence to facilitate and not delay the installation of such other contractors. The Architect is neither the coordinator nor the expeditor of the work of the various contractors.

ARTICLE 7. CHANGES IN THE WORK

- 7.3.3 Delete in its entirety and substitute the following:

- 7.3.3 The value of any extra work or change performed by Contractor using his own forces shall be determined in one or more of the following ways:
1. By estimate and acceptance of a lump sum, computed as follows:
 - a. Net cost of materials.
 - b. State and local sales tax.
 - c. Net placing cost.
 - d. W.C. insurance premium and FICA tax.
 - e. Overhead and profit, 15% x (a + b + c + d).
 - f. Allowable bond premium.
 - g. Total Cost = a + b + c + e + f.

Credit for work omitted, which was included in original contract, shall be computed on the same basis, except that Contractor may retain 7% of overhead and profit percentage, computed on above basis.

2. By unit prices named in contract or subsequently agreed upon. (Unit price will include contractor's profit and overhead, insurance and bond, and quantification of amount of material by third party.)
3. By cost and percentage or by cost and a fixed fee, to be computed according to above formula.

Contractor shall be required, if called upon, to furnish original bills and payrolls and support of statement with proper affidavits. Burden of proof of costs rests upon Contractor.

Add the following paragraph:

- 7.3.3.1 The value of any such extra work or change performed by a subcontractor shall be determined by the subcontractor computing his cost as outlined in subparagraph 7.3.3 (a. through e.), to which cost the Contractor shall add an overhead and profit charge of 5% plus allowable bond premium.

ARTICLE 8. TIME

- 8.1.2 Delete: "The date of commencement of the Work is the date established in the Agreement" and add the following:
Add: "The date of commencement of the Work is the date established in the written Notice to Proceed. Do not begin work prior to receipt of written Notice to Proceed authorizing performance of the contract. The official Notice to Proceed will be issued by the Owner."
- 8.3.1 Delete the words "unusual delay in deliveries, unavoidable casualties".
- 8.3.1 Paragraph 8.3.1 of the GENERAL CONDITIONS is amended with addition of the following paragraphs:
- 8.3.1.1 Extension of time for completion of the work on account of rainfall, snow, or cold weather during the contract time will be subject to approval by the Architect and as provided in Section 01 29 76. Request for extension of time is to be submitted with each Request for Payment. Request for extension of time is to be submitted in writing within Thirty (30) days of the occurrence. If Contractor fails to submit request, time extension will not be approved for the pay period.
- 8.3.1.2 If it is not possible to obtain certain materials when needed and the Contractor submits evidence that he issued purchase orders and/or subcontracts immediately following execution of the Contract with the Owner and that he and his subcontractors have made every reasonable effort to obtain the materials when or

before needed, delays in completion due to inability to obtain such materials will be acknowledged as being “beyond the Contractor’s control”.

8.3.2 Add the following paragraphs:

Any claim for extension of time shall be made in writing to the Owner/Architect not more than Seven (7) days after commencement of the delay, otherwise, it shall be waived. In case of a continuing delay only one claim is necessary. In case of claims for extensions of time because of adverse weather, such extensions of time shall be granted only when such adverse weather prevented the execution of major items of Work as defined in paragraph 8.3.2.4 on normal working days and exceeds the number of anticipated days. The following are considered reasonable anticipated days of adverse weather on a monthly basis and shall be included in the contract time.

January	11 days	July	6 days
February	10 days	August	6 days
March	8 days	September	4 days
April	7 days	October	5 days
May	5 days	November	7 days
June	6 days	December	8 days

8.3.2.3 Adverse weather days, beyond each of the monthly totals will be allowed to extend contract time, without additional cost, only if approved and authorized by the Architect, and the Owner.

8.3.2.4 An adverse weather day is defined as a day where at least four (4) hours of work on a principal unit of work (critical path) underway, between the hours of 7:00 AM and 6:00 PM cannot be completed because of weather conditions beyond control of the contractor.

8.3.2.5 Extension of time will be subjected to approval by the Owner/Architect and as provided in Section 01 29 76.

ARTICLE 9. PAYMENTS AND COMPLETION

9.3.1 Paragraph 9.3.1 of the General Conditions is deleted. Add the following:

9.3.1 On or before the date established for submittal of each progress payment, the Contractor shall submit to the Architect an itemized Application for Payment for operations prepared in accordance with the schedule of values. Such application shall be notarized and supported by data supporting the Contractors’ right to payment such as copies of requisitions from Subcontractors and materials suppliers, and reflecting retainage if provided for elsewhere in the Contract Documents. Refer to Section 01 29 76 for additional provisions.

9.3.1.1 Paragraph 9.3.1.1 of the General Conditions is deleted.

Add the following Subparagraph:

9.3.1.1 In making partial payments for the work, there shall be retained **Five (5%) percent** of the estimated amount for labor and materials until final completion and acceptance of all work covered in the contract. Retainage shall be paid to the Contractor in the final payment if all conditions of the contract documents have been met.

9.3.2 Paragraph 9.3.2 is modified with the following addition:

9.3.2.1 **PAYMENT APPLICATIONS FOR MATERIALS STORED OFF SITE.**
Payments will only be processed for materials stored off site that are stored in a bonded warehouse. Payment claims for materials stored off site must be accompanied with an itemized list of materials establishing value, proof that the materials are insured, and a receipt of storage from a bonded warehouse. Upon payment of materials stored, title to the material shall be to the Owner. All expenses incurred in storage of materials will be paid by the Contractor.

9.6 Section 9.6 is amended with the following addition:

9.6.9 **LIQUIDATED DAMAGES.** If the Contractor fails to complete the work within the time agreed in this contract, or any agreed extension thereof, he shall pay to the Owner as liquidated damages, fixed or agreed, and not as a penalty, the sum as stipulated on Proposal Form for each calendar day of delay of the work, which sum shall be withheld by the Owner from payments due to be made to the Contractor by the Owner under the terms of the contract.

Delete Paragraph 9.8.1 and replace with the following:

9.8.1 The date of substantial completion of the work or designated portion thereof is the date certified by the Architect when construction is sufficiently complete in accordance with the Contract Documents, so the Owner can occupy or utilize the work or designated portion thereof for the use for which it is intended without sacrificing the quality of services or having to significantly modify operations from intended usage as per design, as expressed in the Contract Documents.

Delete Paragraphs 9.8.2 through 9.8.5 and replace with the following paragraphs:

9.8.2 When the Contractor considers that the Work, or a portion thereof which the Owner agrees to accept separately, is substantially complete, the Contractor shall prepare and submit to the Architect a comprehensive list of items to be completed or corrected. The contractor shall notify Architect ten (10) days prior to the date on which the building will be ready for final inspection. The Contractor shall proceed promptly to complete and correct items on his list. Submit written certification that Contract Documents have been reviewed, Work has been inspected, and that Work is complete in accordance with Contract Document and ready for Architect/Engineer's final punch. Provide submittals to Architect / Engineer that are required by any governing body or other authorities. Upon receipt of the Contractor's list, the Architect will

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perform a punch and determine by observation whether the Work or designated portion thereof is substantially complete. Failure to include an item on the final list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents. Significant amounts of incomplete work found during the inspection shall be grounds for ceasing the inspection. Minor adjustments and corrections to work shall not be considered cause for discontinuing final inspection. When the Architect determines that Work or designated portion thereof is substantially complete, he will prepare a Certificate of Substantial Completion which shall establish the date of Substantial Completion; establish responsibilities of the Owner and Contractor for security, maintenance, heat, utilities, insurance, subsequent damage to the Work. Should all work not be completed at the time substantial completion is set, the Certificate of Substantial Completion shall fix the time within which the Contractor shall finish all items on the list accompanying the Certificate. Warranties required by the Contract Documents shall commence on the date of Substantial Completion of the Work or designated portion thereof unless otherwise provided in the Certificate of Substantial Completion. The Certificate of Substantial Completion shall be submitted to the Owner and Contractor for their written acceptance of responsibilities assigned to them in such Certificate.

- 9.8.3 Upon Substantial Completion of the Work or designated portion thereof, receipt of closeout documents called for in Section 01 77 00 and upon final application by the Contractor and certification by the Architect, the Owner shall make payment, reflecting adjustment in retainage, if any, for such Work or portion thereof as provided in the Contract Documents. The final application for payment will not be approved for payment by the Architect until the "CLOSEOUT" documents are provided to and reviewed by the Architect by the Contractor. These documents are to be complete in every respect with no exclusions or exceptions. Closeout documents shall be delivered to the Architect no later than thirty (30) calendar days from Date of Substantial completion.

ARTICLE 11 INSURANCE AND BONDS

Add the following paragraph:

- 11.6 Refer to AIA Document A101 - 2017 Exhibit A for additional Insurance and Bond requirements.

ARTICLE 13 MISCELLANEOUS PROVISIONS.

- 13.1 Section 11.3 is amended as follows:
The contract shall be governed by the law of the place where the project is located, excluding jurisdiction's choice of law.
- 13.4.1 Add statement after first sentence:
Testing and inspections are to be paid for by the Contractor unless otherwise provided as stated in individual specification sections.

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Second sentence - Change the beginning of the statement “Unless otherwise provided” to read: “Unless otherwise provided for in individual specification sections or on drawings,”

- 13.4.4. The words “and Owner” shall be added to Subparagraph 13.5.4. The Owner shall have all of the rights which the Architect would have had under these changed Articles and Subparagraphs.

Add the following paragraph:

- 13.4.7 For soils testing and observation, contractors will be required to employ the services of the same geotechnical engineering company as that listed in Section 02 32 00, Earthwork. If no previous soils investigation has been performed, architect to approve Contractor’s intended selection prior to Notice-to-Proceed.

ARTICLE 15. CLAIMS AND DISPUTES

Modify the following paragraphs:

- 15.1.6.2 If adverse weather conditions are the basis for a Claim for additional time, such Claim shall be documented by date accompanying each payment request, substantiating that weather conditions were abnormal for the period of time, could not have been reasonably anticipated and had an adverse effect on the scheduled construction beyond anticipated weather days as stated in 8.3.2 of General Conditions.
- 15.3.2 Delete the last sentence of this paragraph.
- Add the following sentence:
- 15.3.4 If mediation proves unsuccessful the dispute will be handled in Benton County, AR, Court of Law.
- 15.4 ARBITRATION. All references to arbitration will be deleted from contract document AIA 201 General Conditions of the Contract for Construction, and specifically paragraphs 15.4.1; 15.4.1.1; 15.4.2; 15.4.3; 15.4.4; 15.4.4.1; 15.4.4.2; 15.4.4.3.

END OF SECTION

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SECTION 01 00 00

GENERAL REQUIREMENTS AND PROCEDURES

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. General intention.
- B. General Method of Procedure.
- C. Applicable State and Local Law
- D. Fire Protection Verification
- E. Restoration.
- F. Erosion Control.

1.2 GENERAL INTENTION

- A. Contractor shall completely prepare site for building operations, including demolition of existing items where noted, furnish labor and materials and perform work for an Addition for Benton County Justice Center, Bentonville, AR, as required by drawings and specifications.
- B. Visits to the site by Bidders may be made only by appointment with the Owner through the Architect.
- C. In some instances, it may have been impracticable to detail all items in specifications or on drawings because of variances in manufacturer's methods or of multiple methods of achieving specified results. In such instances Contractor will be required to furnish all labor, materials, drawings, services and connections necessary to produce systems or equipment which are completely installed, functional, and ready for operation by personnel in accordance with their use. Contractor and each subcontractor is to perform work to comply with standard practices of his or her trade or profession.
- D. Offices of HIGHT/JACKSON/ASSOCIATES/P.A., as Architects, will render certain technical services during construction. Such services shall be considered as advisory to the Owner and shall not be construed as expressing or implying a contractual act of the Owner without affirmations by the Owner or his duly authorized representative.

1.3 GENERAL METHOD OF PROCEDURE

- A. Working space and space available for storing materials shall be verified with the Owner prior to construction.

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- B. Workmen are subject to rules of the Owner applicable to their conduct.
- C. Execute work so as to interfere as little as possible with normal functioning of Owner as a whole, including operations of utility services, fire protection systems and any existing equipment, and with work being done by others. Use of equipment and tools that transmit vibrations and noises through the existing building structure, are to be limited to the time that the building is not occupied. Do not store materials and equipment in other than assigned areas.
- D. Contractor shall furnish Architect with a schedule of approximate phasing dates on which the Contractor intends to accomplish work in each specific area of site, building or portion thereof.
- E. If work is scheduled to be performed on Saturdays, Sundays or holidays the Contractor shall provide written notification to the Architect indicating dates on which work will be performed. Notification shall be a minimum of 48 hours before the work date commences.
- F. Building will be occupied during performance of work, but areas of alterations will be vacated as required. Contractor shall take all measures and provide all material necessary for protecting existing equipment and property in affected areas of construction against dust and debris, so that equipment and affected areas to be used in Owner operations will not be hindered. Contractor shall permit access to Owner personnel through construction areas. Contractor to provide temporary means of protected access to all occupied areas of alteration during the construction period.
- G. When an area of the building is turned over to Contractor, Contractor shall accept entire responsibility thereof.
- H. Contractor shall maintain in operating condition existing fire protection and alarm equipment. In connection with fire alarm equipment Contractor shall make arrangements for pre-inspection of site with Fire Department.
- I. Existing Utilities: Before construction can begin, contractor shall have all existing underground utility line locations in affected construction area verified and located by one-call service, if this service exists. In addition consult Owner and/or utility companies. In Arkansas the one-call phone number is 1 800-482-8998. Contractor is to provide written proof that contact with utility companies and any private utilities such as telephone companies that the Owner may have contracted with. Provide a statement that contact has been made with Owner's personnel, all utility companies, and that all utility lines have been located to the best of their knowledge and ability. It shall be the responsibility of the contractor to relocate all existing utilities which conflict with the proposed improvements shown on the drawings.

- J. Utilities Services: Maintain existing utility services for building at all times. Provide temporary facilities, labor, materials, equipment, connections, and utilities to assure uninterrupted services. Where necessary to cut existing water, steam, gases, sewer, air pipes, or conduits, wires, cables, etc., of utility services or of fire protection systems and communications systems (except telephone), they shall be cut and capped at suitable places where shown; or, in absence of such indication, where directed by Architect/Engineer.
1. All such work required in connection with telephone systems shall be done by Owner's Telephone Company at Contractor's expense.
 2. No utilities service such as water, gas, steam, sewers or electricity, or fire protection systems and communications systems may be interrupted without prior approval of Owner.
 3. Contractor shall submit a request to interrupt any such services to Owner 48 hours in advance of proposed interruption. Request shall state reason, date, exact time of, and approximate duration of such interruption.
- K. Abandoned Lines: Any service line and items such as wires, cables, conduits, ducts, pipes and the like, and their hangers or supports, which are to be abandoned but are not required to be entirely removed, shall be sealed, capped or plugged. The lines shall not be capped in finished areas, but shall be removed and sealed, capped or plugged in ceiling, within furred spaces, in unfinished areas, or within walls or partitions, so that they are completely behind the finished surfaces.
- L. To minimize interference of construction activities with flow of traffic comply with the following:
1. Keep roads, walks and entrances to the grounds, to parking and to occupied areas of buildings clear of construction materials, debris and standing construction equipment and vehicles.
- M. Protection: Provide following protective measures:
1. Wherever existing roof surfaces are disturbed they shall be protected against water infiltration. In case of leaks, they shall be repaired immediately upon discovery.
 2. Temporary protection against damage to all portions of existing structures and grounds where work is to be done, materials handled and equipment moved and/or relocated.
 3. Protection of interior of existing structures at all times, from damage, dust and weather inclemency. Wherever work is performed, floor surfaces that are to remain in place shall be adequately protected prior to starting work, and this protection shall be maintained intact until all work in the area is completed.
 4. Dampen debris to keep down dust and provide temporary dust proof barrier partitions in existing structures where necessary. Equip barrier partitions with hinged doors for access. Blank off ducts and diffusers to prevent circulation of dust into occupied areas during construction.
- N. Staging and construction traffic
1. To be discussed and determined at preconstruction meeting.

1.4 APPLICABLE STATE LAWS

- A. Contractor and all subcontractors of all trades present on site shall comply with state and local laws and ordinances while present on public property.
- B. **Absolutely no tobacco or e-cigarette use is permitted in building or on the project site.**

1.5 FIRE PROTECTION VERIFICATION

- A. Contractor to be responsible for verifying existing fire alarm and fire sprinkler system (if systems currently exist) and coordinating with new addition or remodel as required by current state and local building code requirements.
- B. If any changes to the contract during construction occurs that involves work to any addition, or remodel, of this project, or work in an adjacent building, Contractor to be responsible for verifying and adding onto, altering or updating existing fire alarm or fire sprinkler system to meet state and local current code requirements and verified by representative of the local fire department having jurisdiction.

1.6 RESTORATION

- A. Remove, cut, alter, replace, patch and repair existing work as necessary to install new work. Except as otherwise shown or specified, do not cut, alter or remove any structural work, and do not disturb any ducts, plumbing, steam, gas, or electric work without approval of Architect/Engineer. Existing work (walls, ceilings, partitions, floors, mechanical and electrical work, lawns, paving, roads, walks, etc.) disturbed or removed as a result of performing required new work, shall be patched, repaired, reinstalled, or replaced with new work, and refinished and left in as good condition as existed before commencing work. Existing work to be altered or extended and that is found to be defective in any way, shall be reported to the Architect before it is disturbed. Materials and workmanship used in restoring work shall conform in type and quality to that of original existing construction, except as otherwise shown or specified.
- B. Upon completion of contract, deliver work complete and undamaged. Damage caused by Contractor or Contractor's workmen to existing structures, grounds, and utilities or work done by others shall be repaired by Contractor and left in as good condition as existed prior to damaging.
 - 1. At Contractor's own expense, Contractor shall immediately restore to service and repair any damage caused by Contractor's workmen to existing piping and conduits, wires, cables, etc., of utility services or of fire protection systems and communications systems (except telephone) which are indicated on drawings, and which are not scheduled for discontinuance or abandonment.
 - 2. Restoration work required for damage to telephone systems shall be done by Owner's Telephone Company at the Contractor's expense.

- C. Consequential damage to Owner's existing equipment or building contents in the existing building or on site because of work being performed will be replaced at Contractor's expense.
- D. Consequential damage to existing building or site components as a result of work being performed will be repaired or replaced at Contractor's expense.

1.7 EROSION CONTROL

- A. The site work contractor is to comply with the provisions of the Arkansas Water and Air Pollution Control Act (Act 274 of 1949, as amended, AR Ann. 8-4-101 et seq.), and the Federal Clean Water Act 33 U.S.C. 1251 et seq. which safeguards the storm water runoff to all receiving waters, i.e., streams, lakes and oceans by limiting effluent, erosion and other conditions. Application for permitting and monitoring requirements will be required through the state where the work is being performed. State of Arkansas, Storm Water Section NPDES, PO Box 8913, Little Rock, AR 72214 Phone 501/-682-0628.

PART 2 PRODUCTS Not Used.

PART 3 EXECUTION Not Used.

END OF SECTION

01 00 00-5

SECTION 01 11 00

SUMMARY OF WORK

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Contract Description.
- B. Description of the work.
- C. Owner supplied Products.
- D. Contractor use of site and premises.
- E. Work sequence.
- F. Site security and encumbrances.
- G. Owner occupancy.
- H. Permits and fees

1.2 CONTRACT DESCRIPTION

- A. Contract Type: Stipulated Price, AIA document A101-2017.

1.3 DESCRIPTION OF THE WORK

- A. The work under this contract will include all work as shown on drawings and specifications and shall include all work required to complete the project **with exception of the following:**
 - 1. Millwork as noted in courtrooms.
 - 2. Breakroom appliances
 - 3. Furniture in holding areas
 - 4. Kitchen equipment supplied by Owner except for items noted otherwise on drawings. Plumbing, mechanical, and electrical rough-in and final connections to be provided in contract.
 - 5. Furniture
- B. Items noted NIC (Not in Contract), will be supplied and installed by Owner.
- C. Contractor is responsible for familiarizing himself with the entire project; for expediting and completing all phases of the project in accordance with the Contract Documents; and is solely responsible for work completed by other trades under his contract.

01 11 00-1

D. Contractor is responsible for coordinating items furnished and installed by owner.

1.4 OWNER SUPPLIED PRODUCTS

A. Owner's Responsibilities:

1. Arrange for and deliver Owner reviewed Shop Drawings, Product Data, and Samples, to Contractor.
2. Arrange and pay for Product delivery to site.
3. On delivery, inspect Products jointly with Contractor.
4. Submit claims for transportation damage and replace damaged, defective, or deficient items.
5. Arrange for manufacturers' warranties, inspections, and service.

B. Contractor's Responsibilities:

1. Review Owner reviewed Shop Drawings, Product Data, and Samples. Verify owner supplied products fit where product is to be installed or placed.
2. Receive and unload Products at site; inspect for completeness or damage jointly with Owner.
3. Handle, store, install and finish Products.
4. Repair or replace items damaged after receipt.

C. Products supplied to site and installed by Owner's direct hire installer/contractor:

1. Courtroom Millwork
2. TV's
3. Residential Appliances
4. Furniture

1.5 CONTRACTOR USE OF SITE AND PREMISES

- A. Limit use of site and premises to allow construction and remodeling in accordance with contract and construction documents.

1.6 WORK SEQUENCE

- A. Construct Work in stages to accommodate Owner's occupancy requirements. Coordinate construction schedule and operations with Owner and Architect.
- B. Properly prepare all work to receive subsequent work or finish. Notify Architect if any work is unsatisfactory to receive such subsequent work or finish and receive his instructions before proceeding. Failure to make such notification by trade applying work over unsatisfactory materials will constitute his acceptance or responsibility for making the necessary corrections.
- C. Contractor to take photographs of Critical areas of work and other items as deemed necessary when asked to do so by Architect/Engineer. Refer to Section 01 32 33.

1.7 SITE SECURITY

- A. Contractor is responsible for securing the site at all times to prevent loss of property or injury to persons present at site. Such responsibility shall remain with the Contractor until all work is completed.
- B. Refer to Section 01 50 00 for temporary construction fencing requirements.

1.8 SITE ENCUMBRANCES

- A. Contractor will remove and/or relocate all interfering concrete slabs, driveways, curbs, walks, trees, footings, etc., prior to construction.
- B. Contractor shall maintain utilities in operation on temporary basis till near the end of construction when finished utilities shall be completed.
- C. Contractor will cut grass and weeds before starting of project and dispose of same.
- D. Provide barriers at drip line of trees to keep traffic off of root system. Trim branches to clear equipment.

1.9 ACCESS TO PROPERTY

- A. All personnel entering the site must submit an Application for Access form and will undergo a background check. No felons will be allowed to access any secure areas of the building or site. Access Form will be provided by the Owner after the contract is awarded.
- B. Please note the following:
 - 1. No personnel onsite until they have cleared the background check.
 - 2. Commercial vehicles ONLY within the secured area of the site. Personal vehicles will be required to park outside the gates in areas designated by the owner.
 - 3. All vehicles on County Property are subject to search at any time.
 - 4. Daily bag checks will be required.
 - 5. A deputy will be onsite at all times during construction. Contractor will be required to coordinate working hours with the owner.
- C. Access for workmen and delivery of materials and equipment to immediate construction working areas within the existing building is to be coordinated with the Owner. Provide unobstructed access to building areas required to remain in operation. Use hoist or lift wherever practical to move equipment and materials to levels above the ground floor. Hoist or lift is to be removed from premises at completion of construction.
- D. Access by Contractor and his personnel through occupied portions of buildings is not permitted within the occupied building area except along designated routes verified by the Owner.

1.10 OWNER OCCUPANCY

- A. Building will be occupied during performance of work, but areas of alterations will be vacated as required. Contractor shall take all measures and provide all material necessary for protecting existing equipment and property in affected areas of construction against dust and debris, so that equipment and affected areas to be used in Owner operations will not be hindered. Contractor shall permit access to Owner personnel through construction areas. Contractor to provide temporary means of protected access to all occupied areas of alteration during the construction period.

1.11 PERMITS AND FEES

- A. Contractor to be responsible for verifying and obtaining written list of all permits, fees, etc. from local, county, state, and federal (if applicable) governing bodies that will apply to this project. Contractor is responsible for paying for these permits and fees.
- B. Building Permit - Contractor secure and pay for city building permit if required by City.
- C. Special Permits/Fees – Contractor and/or subcontractors shall be responsible for securing and paying for all special permits, licenses and fees that may be required by local, state, or federal laws as may be applicable to the review, installation or certification of their systems and materials or required for installation of such materials.
- D. Connection Fees - Contractor and/or subcontractors shall be responsible for securing and paying for all fees and associated costs for review of, and connection to public utility services.

PART 2 PRODUCTS Not Used.

PART 3 EXECUTION Not Used.

END OF SECTION

01 11 00-4

SECTION 01 22 13

MEASUREMENT AND PAYMENT

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Measurement and payment criteria applicable to portions of the Work performed under a unit price payment method.
- B. Defect assessment and nonpayment for rejected work.

1.2 AUTHORITY

- A. Measurement methods delineated in the individual specification sections complement the criteria of this section. In the event of conflict, the requirements of the individual specification section govern.
- B. Take all measurements and compute quantities. The Architect/Engineer will verify measurements and quantities.
- C. Assist by providing necessary equipment, workers, and survey personnel as required.

1.3 UNIT QUANTITIES SPECIFIED

- A. All labor and material shall be provided as shown in construction documents, unless otherwise noted. Pricing for unit quantities referenced in the individual specification sections are for bidding and in cases of unusual conditions of change in scope of work.
- B. If the actual Work requires more or fewer quantities than those quantities indicated, provide the required quantities at the unit sum/prices contracted. Quantities and measurements supplied or placed into the work shall be verified by a third party and approved by the Architect/Engineer prior to proceeding with work. The cost for work performed by the third party to verify quantities shall be paid for by Contractor, unless noted otherwise.
- C. Each Unit Price shall include all costs incurred to the contractor for the particular item the Unit Price provides for.

1.4 MEASUREMENT OF QUANTITIES

- A. Measurement Devices:
 - 1. Weigh Scales: Inspected, tested and certified by the applicable state Weights and Measures department within the past year.
 - 2. Platform Scales: Of sufficient size and capacity to accommodate the conveying vehicle.

- 3. Metering Devices: Inspected, tested and certified by the applicable State department within the past year.
- B. Measurement by Weight: Concrete reinforcing steel, rolled or formed steel or other metal shapes will be measured by handbook weights. Welded assemblies will be measured by handbook or scale weight.
- C. Measurement by Volume: Measured by cubic dimension using mean length, width and height or thickness.
- D. Measurement by Area: Measured by square dimension using mean length and width or radius.
- E. Linear Measurement: Measured by linear dimension, at the item centerline or mean chord.
- F. Stipulated Sum/Price Measurement: Items measured by weight, volume, area, or linear means or combination, as appropriate, as a completed item or unit of the Work.

1.5 PAYMENT

- A. Payment Includes: Full compensation for all required labor, Products, tools, equipment, plant, transportation, services and incidentals; erection, application or installation of an item of the Work; overhead and profit.
- B. Final payment for Work governed by unit prices will be made on the basis of the actual measurements and quantities accepted by the Architect/Engineer multiplied by the unit sum/price for Work which is incorporated in or made necessary by the Work.

1.6 DEFECT ASSESSMENT

- A. Replace the Work, or portions of the Work, not conforming to specified requirements.
- B. If, in the opinion of the Architect/Engineer, it is not practical to remove and replace the Work, the Architect/Engineer will direct one of the following remedies:
 - 1. The defective Work may remain, but the unit sum/price will be adjusted to a new sum/price at the discretion of the Architect/Engineer.
 - 2. The defective Work will be partially repaired to the instructions of the Architect/Engineer, and the unit sum/price will be adjusted to a new sum/price at the discretion of the Architect/Engineer.
- C. The individual specification sections may modify these options or may identify a specific formula or percentage sum/price reduction.
- D. The authority of the Architect/Engineer to assess the defect and identify payment adjustment is final.

1.7 NONPAYMENT FOR REJECTED PRODUCTS

- A. Payment will not be made for any of the following:
1. Products wasted or disposed of in a manner that is not acceptable.
 2. Products determined as unacceptable before or after placement.
 3. Products not completely unloaded from the transporting vehicle.
 4. Products placed beyond the lines and levels of the required Work.
 5. Products remaining on hand after completion of the Work.
 6. Loading, hauling, and disposing of rejected Products.

1.8 SCHEDULE OF UNIT PRICES

- A. Item: Rock Removal, Section 31 23 16.
- B. Item: Trench Rock Removal, Section 31 23 33
- C. Item: Engineered Fill, Section 31 23 00.
- D. Item: Engineered Fill Where Trench Rock is Removed, Section 31 23 33
- E. Item: Earth Removal, Section 31 23 00.
- F. Item: Credit to Owner for use of on-site fill, Section 31 23 00.
- G. Item: Shot Rock Fill, Section 31 23 00.
- H. Item: Controlled Low Strength Material (CLSM) / Flowable Fill, Section 31 23 00

PART 2 PRODUCTS Not Used.

PART 3 EXECUTION Not Used.

END OF SECTION

01 22 13-3

SECTION 01 26 00

MODIFICATION REQUIREMENTS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Submittals.
- B. Documentation of change in Contract Sum/Price and Contract Time.
- C. Change procedures.
- D. Construction Change Directive.
- E. Stipulated Sum change order.
- F. Unit price change order.
- G. Time and material change order.
- H. Execution of change orders.
- I. Correlation of Contractor submittals.

1.2 RELATED SECTIONS

- A. Document 00 72 00 - General Conditions - AIA: Governing requirements for changes in the Work, in Contract Sum/Price, and Contract Time.
- B. Document 00 73 00 - Supplementary General Conditions - AIA: Percentage allowances for Contractor's overhead and profit.
- C. Section 01 33 00 - Submittals: Schedule of values.
- D. Section 01 60 00 - Material and Equipment: Product options and substitutions.
- E. Section 01 77 00 - Contract Closeout: Project record documents.

1.3 SUBMITTALS

- A. Submit the name of the individual authorized to receive change documents, and be responsible for informing others in Contractor's employ or Subcontractors of changes to the Work.
- B. Change Order Forms: AIA G701. Change Order.

01 26 00-1

1.4 DOCUMENTATION OF CHANGE IN CONTRACT SUM/PRICE AND CONTRACT TIME

- A. Maintain detailed records of work done on a time and material basis. Provide full information required for evaluation of proposed changes, and to substantiate costs of changes in the Work.
- B. Document each quotation for a change in cost or time with sufficient data to allow evaluation of the quotation.
- C. Provide additional data to support computations:
 - 1. Quantities of products, labor, and equipment.
 - 2. Taxes, insurance, and bonds.
 - 3. Overhead and profit.
 - 4. Justification for any change in Contract Time.
 - 5. Credit for deletions from Contract, similarly documented.
- D. Support each claim for additional costs, and for work done on a time and material basis, with additional information:
 - 1. Origin and date of claim.
 - 2. Dates and times work was performed, and by whom.
 - 3. Time records and wage rates paid.
 - 4. Invoices and receipts for products, equipment, and subcontracts, similarly documented.

1.5 CHANGE PROCEDURES

- A. The Architect/Engineer will advise of minor changes in the Work not involving an adjustment to Contract Sum/Price or Contract Time as authorized by AIA A201, 2017 Edition, Paragraph 7.4 by issuing a Field Order, AIA Form G708, Supplemental Instructions, AIA Form G710 or Hight Jackson Associates Architect's Supplemental Instructions.
- B. The Architect/Engineer may issue a Proposal Request which includes a detailed description of a proposed change with supplementary or revised Drawings and specifications and change in Contract Time for executing the change with a stipulation of any overtime work required. Contractor will prepare and submit an estimate within 10 calendar days unless instructed otherwise.
- C. The Contractor may propose a change by submitting a request for change to the Architect/Engineer, describing the proposed change and its full effect on the Work, with a statement describing the reason for the change, and the effect on the Contract Sum/Price and Contract Time with full documentation. Document any requested substitutions in accordance with Section 01 60 00.

1.6 CONSTRUCTION CHANGE DIRECTIVE

- A. Architect/Engineer may issue a document, signed by the Owner, instructing the Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order.
- B. The document will describe changes in the Work and will designate method of determining any change in Contract Sum/Price or Contract Time.
- C. Promptly execute the change in Work.

1.7 STIPULATED SUM CHANGE ORDER

- A. Based on Proposal Request and Contractor's fixed price quotation or Contractor's request for a Change Order as approved by Architect/Engineer.

1.8 UNIT PRICE CHANGE ORDER

- A. For predetermined unit prices and quantities, the Change Order will be executed on a fixed unit price basis.
- B. For unit costs or quantities of units of work which are not predetermined, execute Work under a Construction Change Directive.
- C. Changes in Contract Sum/Price or Contract Time will be computed as specified for Time and Material Change Order.

1.9 TIME AND MATERIAL CHANGE ORDER

- A. Submit itemized account and supporting data after completion of change, within time limits indicated in the Conditions of the Contract.
- B. Architect/Engineer will determine the change allowable in Contract Sum/Price and Contract Time as provided in the Contract Documents.
- C. Maintain detailed records of work done on a Time and Material basis.
- D. Provide full information required for evaluation of proposed changes, and to substantiate costs for changes in the Work.

1.10 EXECUTION OF CHANGE ORDERS

- A. Execution of Change Orders: Architect/Engineer will issue Change Orders for signatures of parties as provided in the Conditions of the Contract.

1.11 CORRELATION OF CONTRACTOR SUBMITTALS

- A. Promptly revise Schedule of Values and Application for Payment forms to record each authorized Change Order as a separate line item and adjust the Contract Sum/Price.
- B. Promptly revise progress schedules to reflect any change in Contract Time, revise sub schedules to adjust times for other items of work affected by the change and resubmit.
- C. Promptly enter changes in Project Record Documents.

PART 2 PRODUCTS Not Used.

PART 3 EXECUTION Not Used.

END OF SECTION

01 26 00-4

SECTION 01 29 76

APPLICATIONS FOR PAYMENT

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Procedures for preparation and submittal of applications for payment.

1.2 RELATED SECTIONS

- A. Document 00 72 00 - General Conditions - AIA: Progress payments and final payments.
- B. Section 00 73 00 - Supplementary General Conditions
- C. Section 01 31 00 - Coordination and meetings:
- D. Section 01 32 36 – Construction Progress Schedules: Submittal procedures.
- E. Section 01 77 00 - Contract Closeout: Final payment.

1.3 FORMAT

- A. AIA G702 - Application and Certificate for Payment and AIA G703 - Continuation Sheet.
- B. For each item, provide a column for listing each of the following:
 - 1. Item Number.
 - 2. Description of work.
 - 3. Scheduled Values.
 - 4. Previous Applications.
 - 5. Work in Place and Stored Materials under this Application.
 - 6. Authorized Change Orders Listed separately.
 - 7. Total Completed and Stored to Date of Application.
 - 8. Percentage of Completion.
 - 9. Balance to Finish.
 - 10. Retainage.

1.4 PREPARATION OF APPLICATIONS

- A. Present required information in typewritten form or on electronic media printout.
- B. Execute certification by signature of authorized officer.
- C. Use data from approved Schedule of Values. Provide dollar value in each column for each line item for portion of work performed and for stored Products.

01 29 76-1

- D. List each authorized Change Order as an extension on AIA G703 - Continuation Sheet, listing Change Order number and dollar amount as for an original item of Work.
- E. Prepare Application for Final Payment as specified in Section 01 77 00.

1.5 SUBMITTAL PROCEDURES

- A. Submit Application for Payment.
- B. Submit **updated** construction schedule with each Application for Payment.
- C. Submit Certificate of Insurance for items stored off-site with each Application for Payment.
- D. Submit delays caused as a result of adverse weather, strikes, etc. Include backup with each pay application. Provide project superintendent's weather log for project with each pay application. If no delay days occurred during the last pay period provide statement on transmittal or letter stating that no delay days occurred. Delay days for Saturday and Sunday and Holidays will not be approved unless prior notice has been given and accepted by Architect. Approved delay days will not result in an increase in completion time unless days exceed anticipated delay days as set forth under Supplementary General Conditions.
 - 1. Submit as part of the pay application a monthly updated CPM work schedule as required in Section 01 32 36.
 - 2. Updated and currently in force proof of insurance. (The proof of insurance needs to only be filed during the month of renewal, however, a lapsed Insurance Certificate will result in Pay Application being held as incomplete)
 - 3. Failure to submit any of the above required items will result in pay application being held until submissions are complete.
- E. Payment Period: Submit at intervals stipulated in the Agreement.

1.6 SUBSTANTIATING DATA

- A. When Architect/Engineer requires substantiating information, submit data justifying dollar amounts in question.
- B. Provide one copy of data with a cover letter for each copy of submittal. Show application number and date, and line item by number and description.
- C. Include the following with the application when substantiating data is asked for:
 - 1. Current available construction photographs of item in question.
 - 2. Record documents for review by the Owner which will be returned to the contractor.
 - 3. Affidavits attesting to off-site stored products.
 - 4. Construction progress schedules revised and current.
 - 5. Other data and information as required or asked for by Architect.

- D. Partial Lien Waivers: Contractor will be required to submit partial lien waiver accompanying payment request.

1.7 PROOF OF INSURANCE FOR MATERIALS STORED OFF SITE.

- A. Payments will only be processed for materials stored off site that are stored in a bonded or insured warehouse. If materials are stored off site on a secure open-air site, material must be insured. Payment claims for materials stored off site must be accompanied with an itemized list of materials establishing value, proof that the materials are insured, and a receipt of storage from a bonded warehouse. Upon payment of materials stored, title to the material shall be to the Owner. All expenses incurred in storage of materials will be paid by the contractor.

1.8 RETAINAGE

- A. In making partial payments for the work, there shall be retained **Five (5%) percent** of the estimated amount for labor and materials until final completion and acceptance of all work covered in the contract. Retainage shall be paid to the Contractor in the final payment if all conditions of the contract documents have been met including completed close-out documents and as-built drawings

PART 2 PRODUCTS Not Used.

PART 3 EXECUTION Not Used.

END OF SECTION

SECTION 01 31 00

COORDINATION AND MEETINGS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Coordination and project conditions.
- B. Pre-construction meeting.
- C. Field engineering
- D. Progress meetings.
- E. Pre-installation meetings.
- F. Equipment electrical characteristics and components.
- G. Examination.
- H. Preparation.
- I. Schedule and Reports

1.2 COORDINATION AND PROJECT CONDITIONS

- A. Coordinate scheduling, submittals, and Work of the various sections of the Project Manual to ensure an efficient and orderly sequence of installation of interdependent construction elements, with provisions for accommodating items installed later.
- B. Verify utility requirements and characteristics of operating equipment are compatible with building utilities. Coordinate work of various sections having interdependent responsibilities for installing, connecting to, and placing in service, such equipment.
- C. Coordinate space requirements, supports, and installation of mechanical and electrical Work which are indicated diagrammatically on Drawings. Follow routing shown for pipes, ducts, and conduit, as closely as practicable; place runs parallel with lines of building. Utilize spaces efficiently to maximize accessibility for other installations, for maintenance, and for repairs.
- D. In finished areas except as otherwise indicated, conceal pipes, ducts, and wiring within the construction. Coordinate locations of fixtures and outlets with finish elements.

01 31 00-1

- E. Coordinate completion and cleanup of Work of separate sections in preparation for Substantial Completion and for portions of Work if designated for Owner's partial occupancy.
- F. After Owner occupancy of premises, coordinate access to site for correction of defective Work and Work not in accordance with Contract Documents, to minimize disruption of Owner's activities.

1.3 FIELD ENGINEERING

- A. Contractor shall locate and protect survey control and reference points.
- B. Control datum for survey is shown on Drawings.
- C. Verify setbacks and easements; confirm drawing dimensions and elevations.
- D. Provide field engineering services. Establish elevations, lines, and levels, utilizing recognized engineering survey practices.

1.4 PRECONSTRUCTION MEETING

- A. Owner, through Architect/Engineer will schedule a meeting after Notice of Award.
- B. The Contractor shall conduct meeting.
- C. Attendance Required: Owner, Architect/Engineer, Prime Contractor, Major Subcontractors, Representatives of Governmental or other regulating Agencies.
- D. Agenda:
 - 1. Execution of Owner-Contractor Agreement.
 - 2. Submission of executed bonds and insurance certificates.
 - 3. Submission of list of Subcontractors, schedule of values, and progress schedule.
 - 4. Designation of personnel representing the parties in Contract, and the Architect/Engineer.
 - 5. Procedures and processing of field decisions, submittals, substitutions, applications for payments, proposal request, and Change Order procedures.
 - 6. Scheduling and coordination of prime contractors.
 - 7. Inspection procedures.
 - 8. Shop drawings and Submittals, Grouping of Submittals
 - 9. Critical areas of the work
 - 10. Reports, testing and scheduling activities of a Geotechnical Engineer.
 - 11. Use of premises by Owner and Contractor.
 - 12. Owner's requirements and occupancy.
 - 13. Construction facilities and controls.
 - 14. Temporary utilities.
 - 15. Procedures for maintaining record documents (As-Builts).
 - 16. Requirements for start-up of equipment.

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17. Inspection and acceptance of equipment put into service during construction period.
18. Contract closeout procedures, Substantial Completion, Final inspection, warranties, and manuals.
19. Other items as deemed necessary by the Architect or owner.

- E. Contractor to record minutes and distribute copies within two days after meeting to participants, with copies to Architect/Engineer, Owner, participants, and those affected by decisions made.

1.5 PROGRESS MEETINGS

- A. Contractor will schedule and administer meetings with assistance of Architect throughout progress of the Work at biweekly intervals unless different interval is approved by Architect.
- B. Contractor will schedule and make arrangements for meetings, prepare agenda with copies for participants, preside at meetings. Schedule comments from Architect on agenda. Architect to approve schedule.
- C. Contractor shall provide written copies of previous items of discussion, resolution of same, and any new outstanding issues to be addressed.
- D. Attendance is required by the following people:
 1. General Contractor's Project Manager and Job Superintendent
 2. Project Manager and Field Foreman for each trade currently working on the site.
 3. Project Manager of any trade who will be mobilizing on site during the next thirty (30) days.
 4. Representative of Major Suppliers
 5. Owner/Architect/Engineer as appropriate to address agenda items.
- E. Agenda:
 1. Review minutes of previous meetings.
 2. Review of Work progress.
 3. Field observations, problems, and decisions.
 4. Identification of problems which impede planned progress.
 5. Review of submittals schedule and status of submittals.
 6. Review of off-site fabrication and delivery schedules.
 7. Maintenance of progress schedule.
 8. Corrective measures to regain projected schedules.
 9. Planned progress during succeeding work period.
 10. Coordination of projected progress.
 11. Maintenance of quality and work standards.
 12. Effect of proposed changes on progress schedule and coordination.
 13. Contractor to present outline work schedule for the next month.
 14. Other business relating to Work.

- F. Contractor to record minutes and distribute copies within two days after meeting to participants, with copies to Architect/Engineer, Owner, participants, and those affected by decisions made.

1.6 PRE-INSTALLATION MEETING

- A. When required in individual specification sections, convene a pre-installation meeting at the site prior to commencing work of the section.
- B. Require attendance of parties directly affecting, or affected by, work of the specific section.
- C. Notify Architect/Engineer four days in advance of meeting date.
- D. Prepare agenda and preside at meeting:
 - 1. Review conditions of installation, preparation and installation procedures.
 - 2. Review coordination with related work.
- E. Attendance Required: Contractor's Project Manager, Job superintendent, major Subcontractors and suppliers, Owner, Architect/Engineer, as appropriate to agenda topics for each meeting.

1.7 PROGRESS REPORTS

- A. The Contractor shall submit monthly progress reports to the Architect, attached to his request for payment, showing each major item of the work, the current percentage of completion, and whether ahead or behind schedule. Any delays beyond the contractor's control, such as adverse weather conditions, strikes, etc., that delay the project completion are to be documented and submitted each month along with the progress report. Orders for all materials, except those requiring a decision by the Owner, must be placed within thirty (30) days after award of the contract and evidence of such orders furnished to the Architect. For order of materials requiring Owner decision, such as color, texture, etc; these orders will be placed as soon as possible after selection. Contractor is responsible for notifying the Architect when delaying selection will cause delays in completion. These requirements will be considered mandatory prior to any approval of monthly pay request by the Architect.
- B. Include the following items as additional requirements of the monthly report.
 - 1. Updated schedule
 - 2. All meeting minutes for month
 - 3. Updated submittal schedule
 - 4. RFI log (all logs should contain date submitted to Architect, Date returned and Status)

1.8 OWNER'S ACCESS TO CONSTRUCTION

- A. In addition to the Architect, the Owner shall be allowed to provide on-site representation as he deems necessary. Contractor and all subcontractors are to allow access to this (these) Individual(s) identified during the pre-construction conference, or by later correspondence from the Architect.

Note: The Architect shall remain the sole responsible party for making selections, determining colors and/or textures, and directing changes in the scope or corrections to the work covered by this contract. **NO EXCEPTIONS!**

PART 2 PRODUCTS Not Used.

PART 3 EXECUTION Not Used.

END OF SECTION

01 31 00-5

SECTION 01 32 33

CONSTRUCTION PHOTOGRAPHS & DOCUMENTATION

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Photography.
- B. Electronic Photographic Digital Images
- C. Technique.
- D. Submittals.

1.2 RELATED SECTIONS

- A. Section 01 11 00 - Summary of Work: Stages of the Work.
- B. Section 01 77 00 - Contract Closeout: Project record documents.

1.3 PHOTOGRAPHY

- A. Have available a digital camera of sufficient quality to produce photographs of site and construction throughout progress of work when required or asked for by Architect or Owner. Contractor must have means of electronically transferring images from job site and office via e-mail to Architect/Engineer.
- B. If an Architect elects to view an observation such as footing or slab preparation via photos taken by Contractor, placement will not take place until Architect/Engineer reviews and issues observation and comment of photos.
- C. Take photographs of critical areas asked of the Architect/Engineer.
Such areas might be:
 - 1. Excavations.
 - 2. Foundations.
 - 3. Structural framing.
 - 4. Enclosure of building.
 - 5. Other items as asked for.

1.4 IMAGES

- A. Full color.
- B. Size: Appropriate to show detail required.

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C. Identify each image in electronic file name. Identify name of Project, and date of view.

D. Deliver electronic images to Architect immediately for his/her review and retention in job files.

1.5 VIEWS

A. Consult with Architect/Engineer for instructions on views required.

1.6 SUBMITTALS

A. Deliver e-mail images for each requested installation.

PART 2 PRODUCTS Not Used.

PART 3 EXECUTION Not Used.

END OF SECTION

SECTION 01 32 36

CONSTRUCTION PROGRESS SCHEDULES

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Format.
- B. Content.
- C. Revisions to schedules.
- D. Submittals.

1.2 RELATED SECTIONS

- A. Section 01 11 00 - Summary of Work: Work sequence.
- B. Section 01 29 76 - Applications for Payment: Application for payment.
- C. Section 01 33 00 - Submittals: Shop drawings, product data,

1.3 FORMAT

- A. Prepare schedules as a horizontal bar chart with separate bar for each major portion of Work or operation, identifying first workday of each week.
- B. Scale and Spacing: To provide space for notations and revisions.
- C. Sheet Size: Multiples of 11 x 17 inches.

1.4 CONTENT

- A. Show complete sequence of construction by activity, with dates for beginning and completion of each element of construction.
- B. Identify each item by specification section number.
- C. Identify work of separate stages, and other logically grouped activities.
- D. Show critical path for sequencing of trades and materials.
- E. Show accumulated percentage of completion of each item, and total percentage of Work completed, as of the first day of each month.

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- F. Coordinate content with schedule of values specified in Section 01 29 76.

1.5 REVISIONS TO SCHEDULES

- A. Indicate progress of each activity to date of submittal, and projected completion date of each activity.
- B. Identify activities modified since previous submittal, major changes in scope, and other identifiable changes. Show on schedule by either variation of shading or patterns so the difference is apparent.
- C. Provide narrative report to define problem areas, anticipated delays, and impact on Schedule and report corrective action taken or proposed and its effect.
- D. Provide separate schedule of submittal dates for shop drawings, product data, and samples, including dates when submittals will be required from Architect. Show decision dates for selection of finishes.

1.6 SUBMITTALS

- A. Submit initial schedules on or before pre-construction conference. After review, resubmit required revised data within ten (10) days.
- B. Submit revised Progress Schedules with each Application for Payment. Pay request will not be processed without revised schedule submittal. Submit one copy for each copy of the Application for payment.
- C. Submit a computer generated horizontal bar chart with separate lines for each section of Work, identifying first work day of each week.
- D. Show complete sequence of construction by activity, identifying Work of separate stages and other logically grouped activities. Indicate the early and late start, early and late finish, float dates, and duration.
- E. Indicate estimated percentage of completion for each item of Work at each submission.
- F. Indicate submittal dates required for shop drawings, product data, samples, and product delivery dates, including those furnished by Owner and required by Allowances.
- G. Show critical path if sequence of work is dependant on certain items or trades completing their work in order for the project to be completed on time.

1.7 DISTRIBUTION

- A. Distribute copies of reviewed schedules to Project site file, Subcontractors, suppliers, and other concerned parties.

B. Instruct recipients to promptly report, in writing, problems anticipated by projections indicated in schedules.

PART 2 PRODUCTS Not Used.

PART 3 EXECUTION Not Used.

END OF SECTION

01 32 36-3

SECTION 01 33 00

SUBMITTALS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Submittal procedures.
- B. Proposed Products list.
- C. Product Data.
- D. Shop Drawings.
- E. Samples.
- F. Design data.
- G. Test reports.
- H. Certificates.
- I. Manufacturer's instructions.
- J. Manufacturer's field reports.
- K. Warranties
- L. Erection drawings.

1.2 RELATED SECTIONS

- A. Section 01 40 00 - Quality Control: Manufacturers' field services and reports.
- B. Section 01 77 00 - Contract Closeout: Contract warranties, bonds, manufacturers' certificates, and closeout submittals.

1.3 REFERENCES

- A. AGC (Associated General Contractors of America) publication "The Use of CPM in Construction - A Manual for General Contractors and the Construction Industry".

1.4 GENERAL SUBMITTAL PROCEDURES

- A. Transmit each submittal with AIA Form G810. Or Architect/Engineer accepted form.

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- B. Sequentially number the transmittal form. Revise submittals with original number and a sequential alphabetic suffix.
- C. Identify Project, Contractor, Subcontractor or supplier, pertinent drawing and detail number, and specification section number, as appropriate.
- D. Apply Contractor's stamp signed or initialed certifying that review, approval, verification of Products required, field dimensions, adjacent construction Work, and coordination of information is in accordance with the requirements of the Work and Contract Documents. **Contractor shall review submittal before submitting to Architect.** Architect will not review submittal until Contractor has shown proof of review.
- E. **Group submittals of like type together such as Plumbing submittals, HVAC submittals, Masonry submittals, Structural submittals, etc.** Review of single submittals of like types will be subject to delay until remaining submittals related to that being submitted are received by Architect.
- F. Architect will review submittals and if applicable, forward to consultant(s) for review. Upon review, Architect or consultant shall stamp each set of submittals indicated review status or required action, if any. This stamp in no way relieves the Contractor of meeting the requirements and/or intent of the specifications. Architect's review of shop drawings and submittals is for intent and general compliance with contract documents. All other criteria are the sole responsibility of the General Contractor and his supplier.
- G. Schedule submittals to expedite the Project and deliver to Architect/Engineer at business address. Coordinate submission of related items.
- H. Where colors and/or patterns are to be selected, or specifications include cash allowances by Architect, request such selections and materials in ample time for procurement.
- I. For each submittal for review, allow 15 days excluding delivery time to and from the Contractor. However, Architect will make every effort to return submittals in a timely manner.
- J. Identify variations from Contract Documents and Product or system limitations which may be detrimental to successful performance of the completed Work.
- K. Provide space for Contractor and Architect/Engineer review stamps on front of submittal, minimum space of 4" x 8" on right hand border.
- L. When revised for resubmission, identify all changes made since previous submission. Similar procedure is to be followed when resubmitting.
- M. Distribute copies of reviewed submittals as appropriate. Instruct parties to promptly report any inability to comply with requirements.
- N. Submittals not requested will not be recognized or processed.

1.5 ELECTRONIC SUBMITTAL PROCEDURE

- A. **All product data sheets, shop drawings, and miscellaneous submittal information are to be submitted electronically via email, FTP site, or other acceptable electronic submittal means. Please note that at Architect's discretion for large shop drawing submittals, a hard copy would need to be submitted along with electronic submittal. Architect will advise contractor of such submittals.**
1. Contractor shall perform initial review and have comments and review stamp included on electronic submittal or shop drawings. **Please note that this is mandatory. Submittals and shop drawings will not be reviewed by Architect until Contractor reviews them and notes any comments or corrections required.**
 2. Submit for Architect's review.
 3. After review, electronic copy will be sent back to Contractor with any comments and markups, including review stamp status. If comments require re-submittal of all or partial original submittals or shop drawings, correct and resend for final approval or for Architect's record copy.
 4. Contractor to list specification section related to each item submitted. This shall include product data and shop drawings.
- B. Items to be included in electronic submittals (As required by each product or item specification section):
1. Product data
 2. Shop drawings
 3. Design data
 4. Test reports
 5. Certificates
 6. Manufacturer's instructions
 7. Warranties
 8. Erection drawings
 9. Any other information pertinent to a product or item.

1.6 PRODUCT DATA

- A. Product Data for Review:
1. Submitted to Architect for review for the limited purpose of checking for conformance with information given and the design concept expressed in the contract documents.
 2. After review, provide copies and distribute in accordance with SUBMITTAL PROCEDURES article above and for record documents purposes described in Section 01 77 00 - CONTRACT CLOSEOUT.
- B. Product Data for Information:
1. Submitted electronically for the Architect/Engineer's knowledge as contract administrator or for the Owner.
- C. Product Data for Project Closeout:
1. Submitted for the Owner's benefit during and after project completion.

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- D. Mark each copy to identify applicable products, models, options, and other data.
Supplement manufacturers' standard data to provide information specific to this Project.
- E. Indicate Product utility and electrical characteristics, utility connection requirements, and location of utility outlets for service for functional equipment and appliances.
- F. After review distribute in accordance with the Submittal Procedures article above and provide copies of record documents described in Section 01 77 00 - CONTRACT CLOSEOUT.

1.7 SHOP DRAWINGS

- A. Shop Drawings for Review:
 - 1. Submitted to Architect/Engineer for review for the limited purpose of checking for conformance with information given and the design concept expressed in the contract documents.
 - 2. After review, produce copies and distribute in accordance with SUBMITTAL PROCEDURES article above and for record documents purposes described in Section 01 77 00 - CONTRACT CLOSEOUT.
- B. Shop Drawings for Information:
 - 1. Submitted electronically for the Architect/Engineer's knowledge as contract administrator or for the Owner.
- C. Shop Drawings for Project Closeout:
 - 1. Submitted for the Owner's benefit during and after project completion.
- D. Indicate special utility and electrical characteristics, utility connection requirements, and location of utility outlets for service for functional equipment and appliances.

1.8 SAMPLES

- A. Samples for Review:
 - 1. Submit actual samples to Architect/Engineer for review for the limited purpose of checking for conformance with information given and the design concept expressed in the contract documents.
- B. Samples for Information:
 - 1. Submit actual samples for the Architect/Engineer's knowledge as contract administrator or for the Owner.
- C. Samples for Selection:
 - 1. Submitted to Architect/Engineer for aesthetic, color, or finish selection.
 - 2. Submit samples of finishes from the full range of manufacturers' current standard colors, textures, and patterns for Architect/Engineer selection.

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3. After review, produce duplicates and distribute them in accordance with SUBMITTAL PROCEDURES article above and for record documents purposes described in Section 01 77 00 - CONTRACT CLOSEOUT.
- D. Submit samples to illustrate functional and aesthetic characteristics of the Product, with integral parts and attachment devices. Coordinate sample submittals for interfacing work.
- E. Include identification on each sample, with full Project information.
- F. Submit the number of samples specified in individual specification sections; one of which will be retained by Architect/Engineer.
- G. For each job-finished material (i.e. Masonry, Stucco, concrete, paint and other finishes), prepare a sample panel as called for in individual sections. Obtain Architect's approval before installing balance of such work. Architect may require additional panels or samples. Contractor shall follow same procedure for Architect's approval. Subsequent work shall be in accordance with the approved sample panels.
- H. Reviewed samples which may be used in the Work are indicated in individual specification sections.
- I. Samples will not be used for testing purposes unless specifically stated in the specification section.

1.9 DESIGN DATA

- A. Submit electronically for the Architect/Engineer's knowledge as contract administrator or for the Owner.
- B. Submit information for the limited purpose of assessing conformance with information given and the design concept expressed in the contract documents.

1.10 TEST REPORTS

- A. Submit for the Architect/Engineer's knowledge as contract administrator or for the Owner. All test reports are to immediately be sent to Architect for his/her review.
- B. Submit test reports for information for the limited purpose of assessing conformance with information given and the design concept expressed in the contract documents.

1.11 CERTIFICATES

- A. When specified in individual specification sections, submit certification by the manufacturer, installation/application Subcontractor, or the Contractor to Architect/Engineer, in quantities specified for Product Data.

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- B. Indicate material or Product conforms to or exceeds specified requirements. Submit supporting reference data, affidavits, and certifications as appropriate.
- C. Certificates may be recent or previous test results on material or Product but must be acceptable to Architect/Engineer.

1.12 MANUFACTURER'S INSTRUCTIONS

- A. When specified in individual specification sections, submit printed instructions for delivery, storage, assembly, installation, start-up, adjusting, and finishing, to Architect/Engineer for delivery to Owner in quantities specified for Product Data. A copy of such information will be included in the appropriate section of Close-Out Documents.
- B. Indicate special procedures, perimeter conditions requiring special attention, and special environmental criteria required for application or installation.

1.13 MANUFACTURER'S FIELD REPORTS

- A. Submit reports for the Architect/Engineer's benefit as contract administrator or for the Owner.
- B. Submit report within 15 days of observation to Architect/Engineer for information.
- C. Submit information for the limited purpose of assessing conformance with information given and the design concept expressed in the contract documents.

1.14 WARRANTIES

- A. Submit product or system warranty for each product submitted on. Warranties shall accompany shop drawings and submittals. The warranty must be at least to a minimum specified in individual sections, but not less than one year from date of substantial completion. Warranties will also be required as part of record documents. Refer to Section 01 77 00.

1.15 ERECTION DRAWINGS

- A. Submit electronic drawings for the Architect/Engineer's benefit as contract administrator or for the Owner.
- B. Submit information for the limited purpose of assessing conformance with information given and the design concept expressed in the contract documents.
- C. Data indicating inappropriate or unacceptable Work may be subject to action by the Architect/Engineer or Owner.

PART 2 PRODUCTS Not Used.

PART 3 EXECUTION Not Used.

END OF SECTION

01 33 00-7

An Addition
Benton County Justice Center
Bentonville, Arkansas

SECTION 01 35 16

ALTERATION PROJECT PROCEDURES

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Products and installation for patching and extending Work.
- B. Transition and adjustments.
- C. Repair of damaged surfaces, finishes, and cleaning.

1.2 RELATED SECTIONS

- A. Section 01 73 29 - Cutting and Patching:
- B. Section 01 50 00 - Construction Facilities and Temporary Controls: Temporary enclosures, protection of installed work, and cleaning during construction.
- C. Section 02 41 19 - Minor Demolition for Remodeling: Removal and storage of products to be reinstalled by this section.

PART 2 PRODUCTS

2.1 PRODUCTS FOR PATCHING AND EXTENDING WORK

- A. New Materials: As specified in product sections; match existing Products and work for patching and extending work.
- B. Type and Quality of Existing Products: Determine by inspecting and testing products where necessary, referring to existing Work as a standard.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify that demolition is complete and areas are ready for installation of new Work.
- B. Beginning of restoration Work means acceptance of existing conditions.

3.2 PREPARATION

- A. Cut, move, or remove items as necessary for access to alterations and renovation Work. Replace and restore at completion.

- B. Remove unsuitable material not marked for salvage, such as rotted wood, corroded metals, and deteriorated masonry and concrete. Replace materials as specified for finished Work.
- C. Remove debris and abandoned items from area and from concealed spaces.
- D. Prepare surface and remove surface finishes to provide for proper installation of new work and finishes.
- E. Close openings in exterior surfaces to protect existing work from weather and extremes of temperature and humidity. Insulate ductwork and piping to prevent condensation in exposed areas.

3.3 INSTALLATION

- A. Coordinate work of alterations and renovations to expedite completion to accommodate Owner occupancy.
- B. Remove, cut, and patch Work in a manner to minimize damage and to provide a means of restoring Products and finishes to specified condition in accordance with Section 01 73 29.
- C. Refinish visible existing surfaces to remain in renovated rooms and spaces, to specified condition for each material, with a neat transition to adjacent finishes in accordance with Section 01 73 29.
- D. In addition to specified replacement of equipment and fixtures restore existing plumbing, and electrical systems to full operational condition.
- E. Recover and refinish Work that exposes mechanical and electrical work exposed accidentally during the work.
- F. Install Products as specified in individual sections.
- G. Any utility line serving existing mechanical or building equipment that is to remain in operation and is required to be temporarily removed because of the remodeling process or interference with new items to be installed shall be logically re-routed to provide continued utility service to the effected equipment. It will be the contractor's responsibility to obtain Architect's approval and coordinate rerouting and reconnection to equipment. There will be no extra cost involved with the removal, rerouting, and reconnection of these utility lines.

3.4 TRANSITIONS

- A. Where new Work abuts or aligns with existing, perform a smooth and even transition. Patch Work to match existing adjacent Work in texture and appearance.

- B. When finished surfaces are cut so that a smooth transition with new Work is not possible, terminate existing surface along a straight line at a natural line of division and make recommendation to Architect/Engineer.

3.5 ADJUSTMENTS

- A. Where removal of partitions or walls results in adjacent spaces becoming one, rework floors, walls, and ceilings to a smooth plane without breaks, steps, or bulkheads.
- B. Where a change of plane of 1/4 inch or more occurs, submit recommendation for providing a smooth transition for Architect/Engineer review.
- C. Fit work at penetrations of surfaces as specified in Section 01 73 29.

3.6 REPAIR OF DAMAGED SURFACES

- A. Patch or replace portions of existing surfaces that are damaged, lifted, discolored, or showing other imperfections.
- B. Repair substrate prior to patching finish.

3.7 FINISHES

- A. Finish surfaces as specified in individual Product sections.
- B. Finish patches to produce uniform finish and texture over entire area. When the finish cannot be matched, refinish entire surface to nearest intersections.

3.8 CLEANING

- A. In addition to cleaning specified in Section 01 77 00, clean Owner-occupied areas of work.

END OF SECTION

01 35 16-3

SECTION 01 40 00

QUALITY CONTROL

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Quality assurance - control of installation.
- B. Cleaning during construction
- C. Tolerances
- D. Protection
- E. References and standards.
- F. Mockup.
- G. Inspecting and testing laboratory services.
- H. Architect/Engineer Construction Observation Notices
- I. Required Special Inspections
- J. Required Pre-Installation Meetings
- K. Manufacturers' field services.
- L. Tobacco Use
- M. Grading Certification

1.2 RELATED SECTIONS

- A. Section 01 33 00 - Submittals: Submission of manufacturers' instructions and certificates.
- B. Section 01 60 00 - Material and Equipment: Requirements for material and product quality.
- C. Section 01 75 00 - Starting of Systems.

01 40 00-1

1.3 CRAFTMANSHIP

- A. Each trade is to perform work and install products, following best standards of their industry. Work not in conformance with industry standards and quality will not be tolerated and will be subject to rejection.

1.4 QUALITY ASSURANCE - CONTROL OF INSTALLATION

- A. Monitor quality control over suppliers, manufacturers, Products, services, site conditions, and workmanship, to produce Work of specified quality.
- B. Furnish, apply, install, connect, erect, clean, and condition manufactured articles, materials, and equipment per manufacturer's printed directions, unless otherwise indicated or specified. Comply with manufacturers' instructions, including each step-in sequence.
- C. Should manufacturers' instructions conflict with Contract Documents, request clarification from Architect/Engineer before proceeding.
- D. Comply with specified standards as minimum quality for the Work except where more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.
- E. Perform Work by persons qualified to produce required and specified quality.
- F. Verify that field measurements are as indicated on shop drawings or as instructed by the manufacturer.
- G. Secure Products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion, or disfigurement. All attachment devices and materials shall be required to secure materials together or to other materials and to secure work of other trades.
- H. Manufacturer's printed directions must be on the job prior to and during installation of materials and equipment.
- I. Make allowance for ample expansion and contraction for all building components subject to same.
- J. Each trade shall provide sleeves, recesses and openings in their work as required to receive work from other trades.
- K. Make field check of actual building dimensions before fabricating products.
- L. Where proper fit of work depends upon close tolerances of manufactured products, furnish manufacturer with necessary templates to insure proper fit of all components.

- M. Install materials only when conditions of temperature, moisture, humidity, and condition of adjacent building components are conducive to achieving the best installation on results.
- N. Erect, install and secure building components in a structurally sound and appropriate manner. Where necessary, temporarily brace, shore, or otherwise support members until final connection or installation. Brace walls and other structural elements to prevent damage by wind and construction operations. Leave temporary bracing, shoring or other structural supports in place as long as necessary for safety and until the structure is strong enough to withstand all loads involved.
- O. Where construction consists of a series of courses of units, assemble units in best acceptable manner to provide structurally sound installation, waterproof where exposed to exterior. Accurately plumb and level all courses and verify levels of frequent courses with instruments.
- P. Handle materials in a manner to prevent scratching, abrading, distortion, chipping, breaking or other disfigurement.
- Q. Unless indicated, fabricate, and install materials true to line, plumb and level. Leave finished surfaces smooth and flat or of smooth contour where indicated, free from wrinkles, warps, scratches, dents, and other imperfections.
- R. Provide a quality of workmanship not less than the commercially accepted standards of that trade.
- S. Where obviously of best practice, furnish materials in longest practical lengths and largest practical sizes to avoid unnecessary jointing. Make all joints secure.
- T. Where fabrics, plastics and other such items join, make seams tight, secure and inconspicuous.
- U. Scribe and/or otherwise neatly fit materials to adjoining materials.
- V. Consult Architect for mounting height or position of any unit not specifically located.
- W. Mix no more materials than can be used before materials begin to “set”. Mix no partially “set” batch with another. Clean tools and appliances prior to mixing materials to avoid contamination.
- X. Conduct work in a manner to avoid injury to previously placed work.
- Y. Do not disturb materials requiring curing time until appropriate curing time has transpired.

Z. Vertical & Horizontal Penetrations and Sleeves:

1. Contractor is responsible for the layout, placement and identification of all necessary sleeves or penetrations needed to complete his work.
2. All penetrations are to be fire stopped (where penetrating smoke and fire rated barriers) and sealed watertight prior to completion of contractor's work.
3. All vertical sleeves or penetrations are to extend one and one half (1 ½") above the floor, slab, or housekeeping pad and be sealed watertight.

AA. Coordinate plumbing fixtures and valves with all toilet accessories to obtain proper clearances and meet ADA Guidelines at accessible locations.

BB. Contractor to be responsible for coordinating items or equipment provided by owner so that proper space and clearances are provided in newly installed work. Notify the owner if conflicts are found.

CC. During construction, if any material or product is damaged, it shall be repaired to the Architect's satisfaction. If the repair is not satisfactory, the material or product will be replaced at no additional cost to owner.

DD. Where masonry is installed, all vertical and horizontal joints align according to bond types. Where differing masonry types are installed in same wall, joints are to align between each masonry unit type unless noted otherwise.

EE. Where electrical conduit & wire, plumbing piping, fire sprinkler piping and mechanical ductwork are exposed, each trade is to install items neatly and coordinated with work of other trades. Where multiple electrical conduits or pipes protrude through walls or space, they are to be evenly spaced apart and routed in the same plane. **Do not install below finished ceiling elevation unless approved.** At exposed structure locations conduit to exit wall at top of wall at coursing directly below roof supporting bond beam. Ductwork shall be routed logically and will be installed to provide neat, clean, and aligned appearance, both vertically and horizontally.

FF. Any exposed exterior or interior plywood sheathing to be covered with temporary or permanent weather barrier within 24 hours following sheathing installation to prevent exposure to moisture or sunlight. Gypsum sheathing is to be covered with temporary or permanent weather barrier within minimum time allowed by sheathing manufacturer.

GG. No plywood roof components will be left exposed to moisture and sunlight. Weather barriers are to be installed immediately following installation of roof deck.

HH. Schedule work so that installed weather barriers at roofs and walls are not exposed to moisture, wind, or sunlight any longer than what the weather barrier manufacturer allows. Replace any weather barrier damaged by these elements.

- II. No items including millwork and ceiling grid are to be installed against or on walls prior to the final coat of paint being applied.

1.5 CLEANING DURING CONSTRUCTION

- A. Contractor to keep building and site reasonably free of debris during construction, including mud and dirt inside building. Provide means for keeping mud and clay off floors that are to remain unfinished or clear sealed only.
- B. If a floor sweep product is used, use only a wax base product. **Oil base products are not to be used.** Verify with floor covering and adhesive suppliers and obtain approval of floor sweep product so that warranty is not jeopardized.

1.6 DUST CONTROL DURING CONSTRUCTION

- A. Contractor to keep dust on site to a minimum the entire duration of construction by means of regular watering. This will include dust created by grading operations, vehicular traffic, and wind. Also comply with SWPPP requirements.
- B. Contractor to sprinkle work with water during demolition operations to minimize dust. Provide hoses and water connections for this purpose.

1.7 MATERIALS STORAGE

- A. Limit site storage for construction materials in a central, secured area, within the boundaries of construction area. Assume full responsibility for protection of same.

1.8 APPROPRIATE MATERIALS

- A. No materials containing asbestos fibers shall be allowed in any construction materials used in this project. General Contractor shall provide written certification to this effect at the end of the project. Certification shall be included in the project close-out documents. Refer to Section 02 26 23.

1.9 TOLERANCES

- A. Monitor fabrication and installation tolerance control of products to produce acceptable Work. Do not permit tolerance to accumulate.
- B. Comply with manufacturers' tolerances. Should manufacturers' tolerances conflict with Contract Documents, request clarification from Architect/Engineer before proceeding.
- C. Adjust products to appropriate dimensions; position before securing products in place.

1.10 PROTECTION

- A. Protect installed materials to prevent damage until substantial completion and comply with individual specification sections pertaining to protection of finished products.
- B. No gypsum board, batt insulation, or materials prone to damage by moisture, mold and/or mildew will be installed prior to enclosing and drying in of building.
- C. During construction, if any material is damaged after installation because of moisture, mold and/or mildew, it shall be replaced immediately.
- D. Prior to installation and/or application of interior finishes, the building will be completely enclosed, dried in and conditioned continually to meet minimum temperature and humidity requirements for finished product installation/application.

1.11 REFERENCES AND STANDARDS

- A. For products or workmanship specified by association, trade, or other consensus standards, comply with requirements of the standard, except when more rigid requirements are specified or are required by applicable codes. The contractor is to be familiar with all standards pertaining to project.
- B. Conform to reference standards at date of invitation to bidders.
- C. Obtain copies of standards when required by the Contract Documents.
- D. Maintain copy at project site during submittals, planning, and progress of the specific work, until Substantial Completion.
- E. Should specified reference standards conflict with Contract Documents, request clarification from the Architect/Engineer before proceeding.
- F. Neither the contractual relationship, duties, nor responsibilities of the parties in Contract nor those of the Architect/Engineer shall be altered by the Contract Documents by mention or inference otherwise in any reference document.

1.12 REFERENCES

- A. Reference to technical society, organization or body is made in these specifications in accordance with but not limited to the following:
 - DBA ARKANSAS DEPARTMENT OF BUILDING AUTHORITY MINIMUM STANDARDS & CRITERIA
 - AIA AMERICAN INSTITUTE OF ARCHITECTS
 - ACI AMERICAN CONCRETE INSTITUTE
 - ADA THE AMERICANS WITH DISABILITIES ACT
 - AEC ARKANSAS ENERGY CODE
 - AFGG ARKANSAS FUEL GAS CODE

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AFPC	ARKANSAS FIRE PREVENTION CODE
AIEE	AMERICAN INSTITUTE OF ELECTRICAL ENGINEERS
AISC	AMERICAN INSTITUTE OF STEEL CONSTRUCTION
AMC	ARKANSAS MECHANICAL CODE
APC	ARKANSAS PLUMBING CODE
ASHRAE	AMERICAN SOCIETY OF HEATING, REFRIGERATING, AND AIR- CONDITIONING ENGINEERS, INC.
ASME	AMERICAN SOCIETY OF MECHANICAL ENGINEERS
ASTM	AMERICAN SOCIETY FOR TESTING MATERIALS
AWSC	AMERICAN WELDING SOCIETY CODE
AWI	ARCHITECTURAL WOODWORK INSTITUTE
IBC	INTERNATIONAL BUILDING CODE
NBFU	NATIONAL BOARD OF FIRE UNDERWRITERS
NBS	NATIONAL BUREAU OF STANDARDS
NEC	NATIONAL ELECTRIC CODE
NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
OSHA	OCCUPATIONAL SAFETY & HEALTH ACT OF 1970
UL	UNDERWRITERS' LAB

1.13 MOCK-UP

- A. Tests will be performed under provisions identified in this section and identified in the respective product specification sections.
- B. Accepted mock-ups shall be a comparison standard for the remaining Work.
- C. Where mock-up has been accepted by Architect/Engineer and is specified in product specification sections to be removed; remove mock-up and clear area when directed to do so.
- D. Wall Mock-Ups: Construct mock-ups of wall assemblies in “cut-away view, showing each step and material or the assembly (i.e., Stud wall, sheathing, weather barrier, thru-wall membrane flashing, cavity insulation system, and wall finish material). Also show typical weather barrier installation(s) at wall openings.

1.14 TESTING SERVICES

- A. Furnish materials and equipment that have been properly inspected and tested in accordance with accepted industry standards. Make field or laboratory tests where specified herein, the costs of such being paid for by the contractor, unless specifically stated otherwise. **FOR TESTING PAID FOR BY CONTRACTOR, THE PROPOSED TESTING LABORATORY/ENGINEER MUST BE APPROVED BY THE ARCHITECT NO LATER THAN 10 DAYS PRIOR TO BID OPENING.** If certain tests are to be paid for by others, the General Contractor will remain responsible for scheduling and coordinating their tests at appropriate times.

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- B. Should such test or visual observation indicate failure of the materials or construction to meet requirements of the drawings and or specification, Contractor is to make additional tests as directed by the Architect, until compliance has been achieved. If such work should fail to comply, Contractor shall replace it at his expense. Charges for this additional testing will be paid for by the Contractor.
- C. Testing and source quality control may occur on or off the project site. Perform off-site testing as required by the Architect/Engineer or the Owner.
- D. Reports will be submitted by the independent firm to the Architect/Engineer and Contractor at the same time, indicating observations and results of tests and indicating compliance or noncompliance with Contract Documents.
- E. Cooperate with independent firm; furnish samples of materials, design mix, equipment, tools, storage, safe access, and assistance by incidental labor as requested.
 - 1. Make arrangements with independent firm and pay for additional samples and tests required for Contractor's use.
- F. Testing does not relieve Contractor to perform Work to contract requirements.

1.15 NOTICE FOR ARCHITECT/ENGINEER OBSERVATION

- A. Whenever specifications require the contractor to have any part of the work observed and approved by the Architect, THE CONTRACTOR SHALL GIVE THE ARCHITECT A MINIMUM 48 HOUR NOTICE as to when that part of the work will be ready for observation. No part of weekends or holidays shall be counted as part of the required hours of notice. If the schedule of work has changed after notification, immediately notify Architect to inform him of change. The following is a partial list of items requiring Construction Observation. This is a general listing; your specific project may not contain some of the items listed. Refer to each individual specification section for additional observation requirements:
 - 1. **Sanitary Sewer Line:** 24 hr 10' standpipe, proper bedding, proper clearances from water lines
 - 2. **Domestic Water Line:** 24 hr city wall pressure or 75 psi air pressure test, proper bedding, proper clearance from sanitary sewer lines.
 - 3. **Footing Inspections:** Count rebar and sizes, clearances, clean trenches, proper supports, proper clearances for drain lines & conduit.
 - 4. **Cast In Place Concrete:** (retaining walls, stem walls, pedestals) water stops are in place, count rebar and size.
 - 5. **Slab on Grade:** vapor barrier, taping, extension to adjacent pours, wire mesh placement, proper supports, concrete slab depth, termite spray application (dyed)
 - 6. **Floor or Roof Deck:** structural engineer / architect is to inspect welds and side-lap fasteners.
 - 7. **Slab on Deck:** wire mesh placement, proper supports, block-outs
 - 8. **Wall and Above Ceiling:** correct insulation, mechanical and electrical engineers are to inspect conduits, ducts etc. prior to closing in walls.

9. **Masonry:** Mason to prepare mock sample for review prior to starting masonry on job site
10. **Gas Line:** 15psi, 24hr or as required by governing jurisdiction if more stringent.
11. **Through Wall Flashing:** Inspection of surfaces, laps, termination bar installed and sealed, alignment with masonry face.

1.16 REQUIRED SPECIAL INSPECTIONS

- A. The contractor will arrange with testing company, special inspections in accordance with Chapter 17 of the International Building Code. Contractor is to pay for special inspections.

1.17 REQUIRED PRE-INSTALLATION MEETINGS

- A. When noted in individual Specification Sections, on-site pre-installation meetings will be scheduled and held by the Contractor prior to installation of system, product or material. Installation of items is not to begin until meeting is held. Each specification Section should state the people that are required to attend each meeting.

1.18 MANUFACTURERS' FIELD SERVICES

- A. When specified in individual specification sections, require material or Product suppliers or manufacturers to provide qualified staff personnel to observe site conditions, conditions of surfaces and installation, quality of workmanship, start-up of equipment, test, adjust and balance of equipment as applicable, and to initiate instructions when necessary.
- B. Submit qualifications of observer to Architect/Engineer 30 days in advance of required observations.
- C. Report observations and site decisions or instructions given to applicators or installers that are supplemental or contrary to manufacturers' written instructions.
- D. Refer to Section 01 33 00 - SUBMITTALS, MANUFACTURERS' FIELD REPORTS article.

1.19 TOBACCO USE

- A. **Absolutely no tobacco or e-cigarette use is permitted inside new or existing building areas throughout construction of project.**

1.20 FINISH GRADING AND SITE STRUCTURE PLACEMENT CERTIFICATION

- A. Contractor to provide and pay for the services a surveyor licensed in the state which the work is to be performed, approved by the Architect, to certify that finish grade elevations and building and site structure locations are as per drawings and specifications. The Civil Engineer of record would be the preferred Surveyor, but not mandatory. Criteria for verification shall be, but not limited to the following:
 - 1. Finish elevation of grading about perimeter of building, finish spot elevations shown on grading plan, and general site grading.
 - 2. Finish elevations of paving areas, sidewalks, handicapped ramp slopes, finished floor elevation of new building(s), and other site structures.
 - 3. Location of new building(s), walls and other site structures.
 - 4. Finish elevations shall be checked by string line at not more than 50 feet on center. Tolerance of not more than 0.10 feet will be permitted.
- B. Any items found out of compliance with the drawings and specifications are to be identified, stated, and shown as to how it differs from intended elevation and/or location. All spot elevations are to be shown on a grading plan submitted by a surveyor.
- C. Items found out of compliance with the drawings and specifications will be subject to rework or adjustment as determined by the Architect and certified by Surveyor as corrected. Provide a letter and drawing from surveyor stating and showing that grades and locations are within tolerances per specifications.
- D. Final certification, showing all items within tolerances shall be submitted to and approved by Architect before Final payment will be released. Certification shall also be included for project closeout, Section 01 77 00.

PART 2 PRODUCTS Not Used.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify that existing site conditions and substrate surfaces are acceptable for subsequent Work. Beginning new Work means acceptance of existing conditions.
- B. Verify that existing substrate is capable of structural support or attachment of new work being applied or attached.
- C. Examine and verify specific conditions described in individual specification sections.
- D. Verify that utility services are available, of the correct characteristics, and in the correct locations.

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3.2 PREPARATION

- A. Clean substrate surfaces prior to applying the next material or substance.
- B. Seal cracks or openings of substrate prior to applying the next material or substance.
- C. Apply manufacturer required or recommended substrate primer, sealer, or conditioner prior to applying any new material or substance in contact or bond.

END OF SECTION

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SECTION 01 50 00

CONSTRUCTION FACILITIES AND TEMPORARY CONTROLS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Temporary Utilities: Electricity, lighting, heat, ventilation, telephone service, water, and sanitary facilities.
- B. Temporary Controls: Barriers, enclosures and fencing, protection of the Work, and water control.
- C. Construction Facilities: Access roads, parking, progress cleaning, project signage, and temporary buildings.
- D. Temporary Equipment

1.2 RELATED SECTIONS

- A. Section 01 77 00 - Contract Closeout: Final cleaning.

1.3 TEMPORARY ELECTRICITY

- A. Cost: By Contractor; provide and pay for power service required from utility source. Provide enough power and voltage/phase sufficient for construction needs of any and all trades during course of construction. Contractor shall continue to pay for this temporary service until project is substantially complete as determined by Architect and/or Owner.
- B. Provide power outlets for construction operations, with branch wiring and distribution boxes located as required. Provide flexible power cords as required.
- C. Provide main service disconnect and over current protection and meter at convenient location.
- D. Permanent convenience receptacles may be utilized during construction. Damage done to receptacles and cover plates during construction period shall be repaired and or replaced.
- E. Provide adequate distribution equipment, wiring, and outlets to provide single phase branch circuits for power and lighting.

1.4 TEMPORARY LIGHTING FOR CONSTRUCTION PURPOSES

- A. Provide and maintain incandescent lighting for construction operations to achieve a minimum lighting level of 2 watt/sq ft.

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- B. Provide and maintain 1 foot candle of lighting to exterior staging and storage areas after dark for security purposes.
- C. Provide and maintain 5 foot candles of lighting to interior work areas after dark for security purposes.
- D. Provide branch wiring from power source to distribution boxes with lighting conductors, pigtails, and lamps as required.
- E. Maintain lighting and provide routine repairs.
- F. Permanent building lighting may be utilized during construction.

1.5 TEMPORARY HEATING

- A. Contractor is to provide and pay for heating devices and heat from electric utility or gas utility as needed to maintain specified conditions for construction operations until project is substantially complete as determined by Architect and/or Owner. Contractor to make ready permanent heating system to supply heat to building as soon as system is tested and operational and pay for operation of permanent heating system until project is substantially complete as determined by Architect and/or Owner. Prior to operation of permanent equipment for temporary heating purposes, verify that installation is approved for operation, equipment is lubricated and filters are in place. Provide and pay for operation, maintenance, and regular replacement of filters and worn or consumed parts. Contractor is to double filter at return air during construction. Refer to Specification Division 23 for additional requirements during construction. Contractor shall continue to pay for this temporary service until project is accepted by owner. **Warranty period shall not begin until Certificate of Substantial Completion is issued.**
- B. Maintain minimum ambient temperature between 50 and 70 degrees F during working hours and 35 degrees F at other times in areas where construction is in progress, unless indicated otherwise in product sections.

1.6 TEMPORARY COOLING

- A. Owner's new, cooling plant may be used when it becomes available. Extend and supplement with temporary cooling devices as needed to maintain specified conditions for construction operations. Warranty period shall not begin until Certificate of Substantial Completion is issued.
- B. Prior to operation of permanent equipment for temporary cooling purposes, verify that installation is approved for operation, equipment is lubricated and filters are in place. Provide and pay for operation, maintenance, and regular replacement of filters and worn or consumed parts.

- C. Just prior to turning building or portions of building over to owner, contractor will replace all filters on equipment that was used for temporary ventilation, heat, or cooling during construction. Double-filter at return air during construction.
- D. Maintain maximum ambient temperature of 80 degrees F in areas where construction is in progress, unless indicated otherwise in specifications.

1.7 TEMPORARY VENTILATION

- A. Ventilate enclosed areas to achieve curing of materials, to dissipate humidity, and to prevent accumulation of dust, fumes, vapors, or gases.
- B. Utilize existing ventilation equipment as they become available. Extend and supplement equipment with temporary fan units as required to maintain clean air for construction operations.

1.8 TELEPHONE SERVICE

- A. Contractor to have cellular telephone service at time of project mobilization.
- A. Equipment to remain in operation until project substantial completion is issued.

1.9 COMPUTER E-MAIL SERVICE

- A. Provide on-site computer with e-mail and printer/scanner capabilities.
- B. Equipment to remain in operation until project substantial completion is issued.

1.10 TEMPORARY WATER SERVICE

- A. At earliest possible date provide, maintain and pay for suitable quality water service required for construction operations at time of project mobilization. Contractor shall continue to pay for this temporary service until project is substantially complete as determined by Architect and/or Owner.

1.11 TEMPORARY SANITARY FACILITIES

- A. Provide and maintain the required facilities and enclosures. Existing and new facility use is not permitted. Provide at time of project mobilization. Maintain disposal service on a weekly basis and more often as required.

1.12 BARRIERS

- A. Provide barriers to prevent unauthorized entry to construction areas and to protect existing facilities and adjacent properties from damage from construction operations.

- B. Provide barricades and covered walkways if required per International Building Code Section 3306 and as required by governing authorities for public right-of-way and for public access to existing buildings.
- C. Provide protection for plants designated to remain. Replace damaged plants.
- D. Protect non-owned vehicular traffic, stored materials, site, and structures from damage.

1.13 FENCING

- A. Construction: Commercial grade chain link fence.
- B. Provide a minimum 8-foot-high fence around construction site per requirements of International Building Code Section 3306; equip with vehicular and pedestrian gates with locks. The contractor shall be responsible for compliance with this requirement.

1.14 WATER CONTROL

- A. Grade site to drain. Maintain excavations free of water. Provide, operate, and maintain pumping equipment. Remove ice and snow as necessary for safety and proper execution of work.
- B. Protect site from puddling or running water.
- C. The contractor is to comply with the provisions of the Arkansas Water and Air Pollution Control Act (Act 472 of 1949, as amended, AR Ann. 8-4-101 et seq.), and the Federal Clean Water Act [33 U.S.C. 1251 et seq.]

1.15 EXTERIOR ENCLOSURES

- A. Provide temporary weather tight closure of exterior openings to accommodate acceptable working conditions and protection for Products, to allow for temporary heating and maintenance of required ambient temperatures identified in individual specification sections, and to prevent entry of unauthorized persons. Provide access doors with self-closing hardware and locks.
- B. Provide temporary partitions to separate work areas from Owner occupied areas, to prevent penetration of dust and moisture into Owner occupied areas, and to prevent damage to existing materials and equipment.
- C. Temporary Construction: Framing with contractor's option of reinforced polyethylene, plywood, or gypsum board sheet materials unless more specifically called for on drawings, with closed joints and sealed edges at intersections with existing surfaces.
- D. Paint solid surfaces exposed to view from Owner occupied areas.

1.16 PROTECTION OF INSTALLED WORK

- A. Protect installed Work and provide special protection where specified in individual specification sections.
- B. Provide temporary and removable protection for installed Products. Control activity in immediate work area to prevent damage.'
- C. Provide protective coverings at walls, top of cavity walls, projections, jambs, sills, and soffits of openings.
- D. Protect finished floors, stairs, and other surfaces from traffic, dirt, wear, damage, or movement of heavy objects, by protecting with durable sheet materials.
- E. Prohibit traffic or storage upon waterproofed or roofed surfaces. If traffic or activity is necessary, obtain recommendations for protection from waterproofing or roofing material manufacturer.
- F. Prohibit traffic from landscaped areas.
- G. In cold weather, protect work from damage from frost and freezing. In hot weather, protect work from rapid drying out.
- H. Protect previously placed work by suitable coverings or other protection during installation of subsequent work. Immediately clean off any foreign materials accidentally deposited on finished surfaces and where such would stain, corrode, or otherwise disfigure work.
- I. Support no runways, ramps, or construction equipment on, nor transport over any items or assemblies subject to displacement, disfigurement, or other damage to finished surfaces.
- J. Brace all construction to prevent damage or failure from wind.

1.17 SECURITY

- A. Provide security and facilities to protect Work, and existing facilities, and Owner's operations from unauthorized entry, vandalism, or theft.
- B. Coordinate with Owner's security program.

1.18 ACCESS ROADS

- A. Provide and maintain access to fire hydrants, free of obstructions.

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- B. Provide means of removing mud from vehicle wheels before entering streets. Streets shall be cleaned on a regular basis of mud and gravel soiled as a result of construction activities. Local requirements shall also be followed in maintaining cleanliness of streets.
- C. Existing on-site roads may be used for construction traffic. Contractor will be responsible for repairing any damage to existing roads as a result of construction traffic. Road inspection shall be conducted prior to beginning construction by Owner, Architect, and Contractor.

1.19 PARKING

- A. Arrange for or Provide temporary gravel surface parking areas to accommodate construction personnel.
- B. When site space is not adequate, arrange for additional off-site parking.
- C. Do not allow vehicle parking on existing pavement.
- D. Coordinate parking for workers with owner.

1.20 PROGRESS CLEANING AND WASTE REMOVAL

- A. Maintain areas free of waste materials, debris, and rubbish. Maintain site in a clean and orderly condition.
- B. Remove debris and rubbish from pipe chases, plenums, attics, crawl spaces, and other closed or remote spaces, prior to enclosing the space.
- C. Broom and vacuum clean interior areas prior to start of surface finishing and continue cleaning to eliminate dust.
- D. Collect and remove waste materials, debris, and rubbish from site weekly, or more often if needed, and dispose off-site.
- E. Open free fall chutes are not permitted. Terminate closed chutes into appropriate containers with lids.

1.21 PROJECT IDENTIFICATION

- A. Provide 8 feet wide x 4 feet high project sign as shown in the attachments to this specification. Place where directed by Architect. Erect sign no later than two weeks after notice to proceed. Specific information to be included on the sign to be provided by the Architect after the contract is awarded. Provide four (4) colors as noted on the job sign diagram shown in Appendix "A" at end of specification book. Colors must not deviate in any way from those called for, or the sign will be repainted at no cost to the owner. Color sample chips are available at the Architect's Office.

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- B. No other signs are allowed without Owner permission except those required by law.

1.22 FIELD OFFICES AND SHEDS

- A. Office: For use by Contractor and Architect/Engineer, Weather tight, with lighting, electrical outlets, phone facsimile machine, heating, cooling, and Janitor service, and equipped with minimum 2 chairs, marker board/chalkboard, drawing rack, and drawing display table. Adequate size trailer will also be acceptable. The Field Office is to remain the property and/or responsibility of the Contractor.
- B. It shall be the Contractor's responsibility to secure placement for field office staging and material storage areas either on or off site for the accomplishment of the construction and to pay any associated fees.

1.23 TEMPORARY EQUIPMENT

- A. Contractor is to provide temporary elevators, hoists, walks, ramps, ladders, runways, scaffolding, shoring, bracing, and other equipment required for proper progress of project work.
- B. Each subcontractor is to provide proper equipment necessary to perform and complete work associated with his trade.

1.24 REMOVAL OF UTILITIES, FACILITIES, AND CONTROLS

- A. Remove temporary utilities, equipment, facilities, materials, and all other temporary items prior to Substantial Completion inspection.
- B. Clean and repair damage caused by installation or use of temporary work.
- C. Restore existing and permanent facilities used during construction to original or specified condition as indicated on drawings and specifications.

PART 2 PRODUCTS Not Used.

PART 3 EXECUTION Not Used.

END OF SECTION

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SECTION 01 60 00

MATERIAL AND EQUIPMENT

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Products.
- B. Transportation and handling.
- C. Storage and protection.
- D. Product options.
- E. Substitutions.

1.2 RELATED SECTIONS

- A. Section 01 40 00 - Quality Control: Product quality monitoring.

1.3 PRODUCTS

- A. Do not use materials and equipment removed from existing premises, except as specifically permitted by the Contract Documents.
- B. Provide interchangeable components of the same manufacturers for components being replaced.

1.4 TRANSPORTATION AND HANDLING

- A. Transport and handle Products in accordance with manufacturer's instructions.
- B. Promptly inspect shipments to ensure that Products comply with requirements, quantities are correct, and Products are undamaged.
- C. Provide equipment and personnel to handle Products by methods to prevent soiling, disfigurement, or damage.

1.5 STORAGE AND PROTECTION

- A. Store and protect Products in accordance with manufacturers' instructions.
- B. Store with seals and labels intact and legible.

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- C. Store sensitive Products in weather tight, climate controlled, enclosures in an environment favorable to Product.
- D. For exterior storage of fabricated Products, place on sloped supports above ground.
- E. Provide bonded or insured off-site storage and protection when site does not permit on-site storage or protection.
- F. Cover Products subject to deterioration with impervious sheet covering. Provide ventilation to prevent condensation and degradation of Products.
- G. Store loose granular materials on solid flat surfaces in a well-drained area. Prevent mixing with foreign matter.
- H. Provide equipment and personnel to store Products by methods to prevent soiling, disfigurement, or damage.
- I. Arrange storage of Products to permit access for inspection. Periodically inspect to verify Products are undamaged and are maintained in acceptable condition.

1.6 PRODUCT OPTIONS

- A. Products Specified by Reference Standards or by Description Only: Any Product meeting those standards or description.
- B. Products Specified by Naming One or More Manufacturers: Products of manufacturers named and meeting specifications, no options or substitutions allowed.
- C. Products Specified by Naming One or More Manufacturers with a Provision for Substitutions: Submit a request for substitution for any manufacturer not named in accordance with the following article.

1.7 ALTERNATE SUBSTITUTIONS

- A. In general, these Specifications identify the required materials and equipment by naming one or more manufacturer's brand, model, catalog number and/or other identification; the first-named manufacturer's product used as the basis for design; other named brands considered acceptable for the application by Architect. Alternate brand manufacturers named must furnish products consistent with the specifications for the first-named product, as determined by Architect. Base Proposal shall include only those brands named, except as hereinafter provided.
 - 1. Submit product data and specifications.
 - 2. Submit color samples if color selection is required or specified.
 - 3. Provide a list of locations and contacts with telephone numbers of local installations.
 - 4. Provide qualifying comparison, comparing specifications of specified product to proposed substitution.

If any of these items are not provided, proposed substitution will be rejected.

- B. Where materials or equipment are described but not named, provide required first-quality items, adequate in every respect for the intended use, such items subject to Architect's approval prior to procurement.
- C. Prior to receipt of proposals, should Contractor wish to incorporate in Base Proposal brands of products other than those named in Specifications, **he shall submit written request for substitution with required information to Architect not later than ten (10) days prior to date Bids are due.** Architect will consider requests and items. If proposed substitution is approved, it will be listed in an addendum issued to principal Proposers.
- D. After execution of Owner-Contractor Agreement, alternate substitution of product brands for those named in Specifications will be considered, only if (1) request is received within thirty (30) calendar days after Contract date and request includes statement showing credit due Owner, if any; if substitution product is used, (2) Owner requests consideration be given to substitute brands, (3) Proposer provides qualifying comparison, comparing specifications of specified product to proposed alternate substitution. If this is not provided, the proposed substitution will be rejected. The Architect/Engineer will notify Contractor in writing of decision to accept or reject request.
- E. Document each request with complete data substantiating compliance of proposed Substitution with Contract Documents. Materials and equipment proposed for substitution shall be acceptable by Architect to that specified in regard to construction, efficiency, utility, aesthetic design, and color. The Architect's decision shall be final and without further recourse. The physical size of substitute brand shall not be larger than the space provided for it. Requests must be accompanied by full description and technical data, in two copies, including manufacturer's name, model, catalog number, photographs or cuts, physical dimensions, operating characteristics, and any other information necessary for comparison.
- F. Substitutions may be considered when a Product becomes unavailable through no fault of the Contractor.
- G. A request constitutes a representation that the Bidder/Contractor:
 - 1. Has investigated proposed Product and determined that it meets or exceeds the quality level of the specified Product.
 - 2. Will provide the same warranty for the Substitution as for the specified Product.
 - 3. Will coordinate installation and make changes to other Work which may be required for the Work to be complete with no additional cost to Owner.
 - 4. Waives claims for additional costs or time extension which may subsequently become apparent.
 - 5. Will reimburse Owner and Architect/Engineer for review or redesign services associated with re-approval by authorities if required.

H. Substitutions will not be considered when they are indicated or implied on shop drawing or product data submittals, without separate written request, specifications section states that no substitutions are allowed for a specific material or item, or when acceptance will require revision to the Contract Documents.

PART 2 PRODUCTS Not Used.

PART 3 EXECUTION Not Used.

END OF SECTION

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SECTION 01 73 29

CUTTING AND PATCHING

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Requirements and limitations for cutting and patching of Work.

1.2 RELATED SECTIONS

- A. Section 01 33 00 - Submittals.
- B. Section 01 11 00 - Summary of Work: Work by Owner or by separate Contractors.
- C. Section 01 35 16 - Alteration Project Procedures: Cutting and patching for alterations work.
- D. Section 01 60 00 - Material and Equipment: Product options and substitutions.
- E. Section 07 84 13 - Fire stopping.
- F. Individual Product Specification Sections:
 - 1. Cutting and patching incidental to work of the section.
 - 2. Advance notification to other sections of openings required in work of those sections.
 - 3. Limitations on cutting structural members.

1.3 SUBMITTALS

- A. Submit written request in advance of cutting or alteration which affects:
 - 1. Structural integrity of any element of Project.
 - 2. Integrity of weather exposed or moisture resistant element.
 - 3. Efficiency, maintenance, or safety of any operational element.
 - 4. Visual qualities of sight exposed elements.
 - 5. Work of Owner or separate Contractor.
- B. Include in request:
 - 1. Identification of Project.
 - 2. Location and description of affected Work.
 - 3. Necessity for cutting or alteration.
 - 4. Description of proposed Work and Products to be used.
 - 5. Alternatives to cutting and patching.
 - 6. Effect on work of Owner or separate Contractor.
 - 7. Written permission of affected separate Contractor.
 - 8. Date and time work will be executed.

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PART 2 PRODUCTS

2.1 MATERIALS

- A. Primary Products: Those required for original installation.
- B. Product Substitution: For any proposed change in materials, submit request for substitution described in Section 01 60 00.

PART 3 EXECUTIONS

3.1 EXAMINATION

- A. Examine existing conditions prior to commencing Work, including elements subject to damage or movement during cutting and patching.
- B. After uncovering existing Work, assess conditions affecting performance of work.
- C. Beginning of cutting or patching means acceptance of existing conditions.

3.2 PREPARATION

- A. Provide temporary support to ensure structural integrity of the Work. Provide devices and methods to protect other portions of the Project from damage.
- B. Provide protection from elements for areas which may be exposed by uncovering work.
- C. Maintain excavations free of water.

3.3 CUTTING

- A. Execute cutting and fitting including excavation and fill if required, to complete the Work.
- B. Remove and replace defective or nonconforming work.
- C. Remove samples of installed work for testing when requested.
- D. Provide openings in the Work for penetration of mechanical and electrical work.
- E. Employ skilled and experienced installer to perform cutting for weather exposed and moisture resistant elements, and sight exposed surfaces.
- F. Cut rigid materials using masonry saw or core drill. Pneumatic tools not allowed without prior approval.

3.4 PATCHING

- A. Execute patching to complement adjacent Work. Match with existing finish where exposed to view unless noted otherwise.
- B. Fit Products together to integrate with other Work.
- C. Execute work by methods to avoid damage to other Work, and which will provide appropriate surfaces to receive patching and finishing.
- D. Employ skilled and experienced installer to perform patching for weather exposed and moisture resistant elements, and sight exposed surfaces.
- E. Restore work with new Products in accordance with requirements of Contract Documents.
- F. Fit work airtight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.
- G. At penetrations of fire rated walls, partitions, ceiling, or floor construction, completely seal voids with fire resistant material in accordance with Section 07 84 00 to full thickness of the penetrated element.
- H. Refinish surfaces to match adjacent finish. For continuous surfaces, refinish to nearest intersection or natural break. For an assembly, refinish the entire unit.

END OF SECTION

01 73 29-3

SECTION 01 75 00

STARTING OF SYSTEMS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Starting systems.
- B. Demonstration and instructions.
- C. Testing, adjusting, and balancing.

1.2 RELATED SECTIONS

- A. Section 01 40 00 - Quality Control: Manufacturers field reports.
- B. Section 01 77 00 - Contract Closeout: System operation and maintenance data and extra materials.
- C. Division 23 – Heating, Ventilation, and Air Conditioning

1.3 STARTING SYSTEMS

- A. Coordinate schedule for start-up of various equipment and systems.
- B. Notify Architect/Engineer seven days prior to start-up of each item.
- C. Verify that each piece of equipment or system has been checked for proper lubrication, drive rotation, belt tension, control sequence, and for conditions which may cause damage.
- D. Verify tests, meter readings, and specified electrical characteristics agree with those required by the equipment or system manufacturer.
- E. Verify that wiring and support components for equipment are complete and tested.
- F. Execute start-up under supervision of applicable manufacturer's representative or Contractors' personnel in accordance with manufacturers' instructions and requirements.
- G. When specified in individual specification Sections, require manufacturer to provide authorized representative to be present at site to inspect, check, and approve equipment or system installation prior to start-up, and to supervise placing equipment or system in operation.

01 75 00-1

- H. Submit a written report in accordance with Section 01 33 00 that equipment or system has been properly installed and is functioning correctly.

1.4 DEMONSTRATION AND INSTRUCTIONS

- A. Demonstrate operation and maintenance of Products to Owner's personnel two weeks prior to date of final inspection.
- B. Demonstrate Project equipment and instruct the owner's representative by a qualified manufacturers' representative who is knowledgeable about the Project.
- C. For equipment or systems requiring seasonal operation, perform demonstrations for other season within six months.
- D. Utilize operation and maintenance manuals as the basis for instruction. Review contents of manual with Owners' personnel in detail to explain all aspects of operation and maintenance.
- E. Demonstrate start-up, operation, control, adjustment, troubleshooting, servicing, maintenance, and shutdown of each item of equipment at agreed time, at equipment location.
- F. Prepare and insert additional data in operations and maintenance manuals when the need for additional data becomes apparent during instruction.
- G. The amount of time required for instruction on each item of equipment and system is specified in individual sections.
- H. Contractor to provide recording of all training sessions with Owner personnel. A copy of the recorded training sessions is to be given to the Owner included in the closeout documents.

1.5 TESTING, ADJUSTING, AND BALANCING

- A. The Contractor will employ services of an independent firm to perform testing, adjusting, and balancing. Contractor shall pay for services.
- B. The independent firm will perform the services specified in Division 23.
- C. Reports will be submitted by the independent firm to the Architect/Engineer indicating observations and results of tests and indicating compliance or noncompliance with the requirements of the Contract Documents.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTIONS

Not Used.

END OF SECTION

01 75 00-2

SECTION 01 77 00

CONTRACT CLOSEOUT

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Closeout procedures.
- B. Final cleaning.
- C. Adjusting.
- D. Project record documents.
- E. Operation and maintenance data.
- F. Spare parts and maintenance Products.
- G. Warranties and Guarantees.
- H. Maintenance service.

1.2 RELATED SECTIONS

- A. Section 01 50 00 - Construction Facilities and Temporary Controls: Progress cleaning.
- B. Section 01 75 00 - Starting of Systems: System start-up, testing, adjusting, and balancing.

1.3 CLOSEOUT PROCEDURES

- A. Contractor shall notify Architect ten (10) days prior to the date on which the building will be ready for final inspection and prepare his own punch list of items to complete to meet contract documents. Such notice shall not be made until completion of all items is assured, and has submitted completed punch list items to Architect. Architect will not schedule inspection for punch list until Contractor's completed punch list is received and each item is initialed by contractor as complete.
- B. Incomplete work found during the inspection shall be grounds for ceasing the inspection. Final inspection shall be resumed again only upon completion of work.
- C. Minor adjustments and corrections to work shall not be considered cause for discontinuing final inspection.

01 77 00-1

- D. Upon receipt of punch list prepared by Architect, the Contractor will immediately make necessary corrections to work as required for final completion of the project.
- E. Submit written certification that Contract Documents have been reviewed, Work has been inspected, and that Work is complete in accordance with Contract Documents and ready for Architect/Engineer's review.
- F. Provide submittals to Architect / Engineer that are required by any governing or other authorities.
- G. Submit final Application for Payment identifying total adjusted Contract Sum, previous payments, and sum remaining due. The final application for payment will not be approved for payment by the Architect until the "COMPLETE CLOSEOUT" documents are provided to and reviewed by the Architect by the Contractor.
- H. Owner will occupy all portions of the building as specified in Section 01 11 00.

1.4 FINISHING

- A. Adjust doors, drawers, hardware, appliances, motors, valves, controls, and other equipment for proper operation.
- B. Seal exterior joints between materials to form a waterproofed and airtight enclosure.
- C. Clean surface using appropriate materials and methods that will thoroughly clean but not damage materials and their finishes.

1.5 REPAIRS

- A. Unless Architect grants permission to repair any defective work, remove from project any work not in accordance with Contract Documents. Permission to repair any such work shall not constitute a waiver of Architect's right to require complete removal of defective work if repair operation does not restore quality and appearance of member of surface to Architect's satisfaction. If permission is granted, repair according to Architect's directions.

1.6 COMPLETED WORK

- A. Completed work shall find materials structurally sound, free from scratches, abrasions, distortions, chips, breaks, blisters, holes, splits, or other disfigurement considered as imperfections for the specific material.
- B. Completed surfaces shall be thoroughly clean and free from foreign materials and stains.
- C. Contractor is to install, connect, service and operate permanent systems at earliest practical dates, unless otherwise directed by Architect.

01 77 00-2

- D. Contractor is to provide Certification that finish grades and site structures placement is as per drawings and specifications. Refer to Section 01 40 00.

1.7 FINAL CLEANING

- A. Execute final cleaning prior to final project assessment.
- B. Clean interior and exterior glass, surfaces exposed to view; remove temporary labels, stains and foreign substances, polish transparent and glossy surfaces, vacuum carpeted and soft surfaces.
- C. Clean equipment and fixtures to a sanitary condition with cleaning materials appropriate to the surface and material being cleaned.
- D. Clean permanent filters or replace disposable filters of operating equipment.
- E. Clean debris from roofs, gutters, downspouts, and drainage systems.
- F. Clean site; sweep paved areas, rake clean landscaped surfaces.
- G. Remove waste and surplus materials, rubbish, and construction facilities from the site.

1.8 ADJUSTING

- A. Adjust operating products and equipment to ensure smooth and unhindered operation.
- B. Adjust windows, doors, drawers, hardware, appliances, motors, valves, controls, and other equipment for proper operation.

1.9 PROJECT RECORD DOCUMENTS

- A. Maintain on site one set of the following record documents; record actual revisions to the Work:
 - 1. Drawings.
 - 2. Specifications.
 - 3. Addenda.
 - 4. Change Orders and other modifications to the Contract.
 - 5. Reviewed Shop Drawings, Product Data, and Samples.
 - 6. Manufacturer's instruction for assembly, installation, and adjusting.
- B. Ensure entries are complete and accurate, enabling future reference by Owner.
- C. Store record documents separate from documents used for construction.
- D. Record information concurrent with construction progress.

- E. Specifications: Legibly mark and record at each product section description of actual products installed, including the following:
 - 1. Manufacturer's name and product model and number.
 - 2. Product substitutions or alternates utilized.
 - 3. Changes made by Addenda and modifications. (Actual sections of addendum items may be pasted into specification in appropriate locations.)
- F. Record Drawings and Shop Drawings: Legibly mark each item to record actual construction including:
 - 1. Measured depths of foundations in relation to finish floor datum.
 - 2. Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent marker (i.e. new building, property line, etc.).
 - 3. Measured locations of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of the Work.
 - 4. Field changes of dimension and detail.
 - 5. Details not on original Contract drawings.
 - 6. Changes made by Addenda and modifications. (Actual sections of addendum items may be pasted onto drawings in appropriate locations.)
- G. Submit to Architect in electronic media, **two (2) Flash Drives**, containing **Record Documents as described in this section** and scanned **As-Built drawings in PDF format**, properly marked to show field modifications. **These shall include both Drawings and Specifications.** For videos asked for, provide videos on separate DVDs or Flash Drives
- H. Submit to Architect as part of closeout documents in printed media, **one set of Record Documents, one hard copy set of Record Drawings (As-Built Drawings),**
- I. Submit **one set** of three-ring binders containing **only** manufacturer **warranties and guarantees** for each product and system provided under this contract. Provide installer and manufacturer warranty department phone numbers and contact person if available for each product and system.
- J. All paper copies of closeout items to be scanned and copied to the electronic media.

1.10 CLOSEOUT DOCUMENTS

- A. Prepare Flash Drive titled "CLOSEOUT DOCUMENTS", title of project, and subject matter.
- B. Submit two (2) complete Sets of closeouts and As-Built drawings in electronic format, within 60 days after final inspection.
- C. Organize closeout contents, logically organized into sections as described below.

GENERAL (section tab)

Contents:

1. A Directory, listing names, addresses, and telephone numbers of Architect / Engineer, Contractor, Subcontractors, and major equipment suppliers.
2. Executed original of occupancy permit
3. Punch Lists showing items signed off as completed by Contractor.
4. Contractor's "Asbestos Free" certification letter stating that no materials have been placed in the building containing asbestos material.
5. Contractors "storm water pollution" certification letter stating that the work has been performed in compliance with the requirements of the Arkansas Water and Air Pollution Control Act and the Federal Clean Water Act.

LIEN WAIVERS (section tab)

Lien Waivers must demonstrate that the project is free of any debt or claim from any subcontractor, supplier or vendor and that the project is free and clear with the exception of monies owed the General Contractor. All subcontractors and suppliers must have been completely paid with the exception of the percentage of monies owed by the General Contractor, or payment a bond posted for each sub-contractor and supplier for whom a balance is owed. For this project, the amount is not to exceed Five percent (5%) of their contract. Lien waiver submitted from each subcontractor and supplier is to show amount they are still owed. **These requirements are mandatory conditions to qualify for final payment.**

Contents:

1. AIA G706A - CONTRACTOR'S AFFIDAVIT OF RELEASE OF LIENS
2. AIA G706 - CONTRACTOR'S AFFIDAVIT OF PAYMENT OF DEBTS AND CLAIMS
3. AIA G707 - CONSENT OF SURETY TO FINAL PAYMENT
4. Final Lien Release from each subcontractor and supplier.

WARRANTIES / GUARANTEES / BONDS (section tab)

- A. Provide notarized copy. Execute and assemble transferable warranty documents from Subcontractors, suppliers, and manufacturers. Submit warranties prior to final Application for Payment. For items of Work delayed beyond date of Substantial Completion, provide updated submittal within 10 days after acceptance, listing date of acceptance as start of warranty period.
- B. Provide manufacturer **warranties and guarantees** for each product and system provided under this contract. Provide installer and manufacturer warranty department phone numbers and contact person if available for each product and system. This is a general listing; your specific project may not contain some of the items listed.

Contents:

1. General Contractor's Statement of Warranty
2. All manufacturer's warranties and guaranties stipulated or implied on equipment and products (i.e., carpet wear, prefinished metal finish, etc.)
3. One-year warranty from each subcontractor

01 77 00-5

4. Termite Protection Warranty (Five-Year)
5. Executed membrane Roofing Guarantee (Twenty-Year NDL), two-year installer's warranty.
6. FM 1-90 roof uplift compliance letter from roofer.
7. Fluid-applied weather barrier (Five-Year)
8. Wood interior door: Lifetime warranty
9. Aluminum door construction: Lifetime warranty
10. Glazing warranty
11. Continuous hinges warranty: (manufacturer's lifetime warranty)
12. Lockset warranty: Cylindrical: 10-year
13. Exit device: Three-years.
14. Door closers: 30-years
15. Suspended ceilings: 30-year limited system performance Warranty
16. Luxury Vinyl Tile: 10-year warranty
17. Millwork: 10-year warranty)
18. Modular carpet warranty: (Refer to specific Specification Section)
19. Fiber Reinforced Plastic (FRP): One-year warranty
20. Special coatings: 5-year warranty
21. Toilet Partitions: Twenty-Five (25) year warranty
22. Window Shades: 25-year standard manufacturer's warranty
23. Hot Water Tank Warranty: (Refer to specific Specification Section and/or water heater schedule on drawings)
24. HVAC Manufacturers Warranties-(Contractor to fill out equipment warranty and registration cards and mail into manufacturer. Provide a copy of each warranty in the closeout manual.

1.11 OPERATION / MAINTENANCE DOCUMENTS

- A. Submit data on Flash Drive.
- B. Organize each individual section with printed title "OPERATION / MAINTENANCE DOCUMENTS", title of project, and subject matter.
- C. Submit one set of volumes, within 10 days after final inspection.
- D. Subdivide contents, logically organized into sections as described below, with tab titling each section. Prepare a Table of Contents for each system or material description identified as follows:

MECHANICAL (section tab)

Contents:

1. Directory, listing names, addresses, and telephone numbers of Subcontractors, and major equipment suppliers.
2. Operation and maintenance instructions, arranged by system. Identify the following:
 - a. Significant design criteria.
 - b. List of equipment.
 - c. Parts list for each component.

- d. Operating instructions.
- e. Maintenance instructions for equipment and systems.
- f. Maintenance instructions for finishes, including recommended cleaning methods and materials, and special precautions identifying detrimental agents.
- g. Video on flash drive of each equipment and system training session.
- 3. Project documents and certificates, including the following:
 - a. Shop drawings and product data.
 - b. Air balance and test reports - see specifications.
 - c. Certificates.
 - d. Start up report on all major equipment items (See Division 23 of Specifications)
 - e. Copies of registration and warranty cards on major equipment initiating warranty time dated the date of substantial completion and mailed by contractor as required.

ELECTRICAL (section tab)

Contents:

- 1. Directory, listing names, addresses, and telephone numbers of Subcontractors, and major equipment suppliers.
- 2. Operation and maintenance instructions, arranged by system. Identify the following:
 - a. Significant design criteria.
 - b. List of fixtures, equipment and switch gear.
 - c. Parts list for each component.
 - d. Operating instructions.
 - e. Maintenance instructions for equipment and systems.
 - f. Maintenance instructions for finishes, including recommended cleaning methods and materials, and special precautions identifying detrimental agents.
 - g. Video on flash drive of each equipment and system training session.
- 3. Project documents and certificates, including the following:
 - a. Shop drawings and product data.
 - b. Electrical System Test Report - see specifications
 - c. Certificates / Warranties.
 - d. Start up report
 - e. Copies of registration cards on major equipment initiating warranty time dated the date of substantial completion and mailed by contractor as required.

MISCELLANEOUS EQUIPMENT & MATERIALS (section tab)

Contents:

- 1. Directory, listing names, addresses, and telephone numbers of Subcontractors, and major equipment or materials suppliers.
- 2. Operation and maintenance instructions for equipment arranged by system and subdivided by specification section. Identify the following:
 - a. Significant design criteria.
 - b. List of equipment.
 - c. Parts list for each component.
 - d. Operating instructions.
 - e. Maintenance instructions for equipment and systems.

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- f. Maintenance instructions for finishes, including recommended cleaning methods and materials, and special precautions identifying detrimental agents.
- 3. Finish material schedule including the following:
 - a. Listing of all materials
 - b. Manufacturers of each material.
 - c. Color or finish supplied on each material.
- 4. Project documents and certificates, including the following:
 - a. Shop drawings and product data.
 - b. Material Maintenance instructions and recommendations.
 - c. Wear, finish, or misc. guarantees

1.12 SPARE PARTS AND MAINTENANCE PRODUCTS

- A. Provide spare parts, maintenance, and extra products in quantities specified in individual specification sections.
- B. Deliver to project site and place in location as directed by Owner; obtain receipt prior to final payment.

1.13 CLOSEOUT SUBMITTAL LIST

The following is a list of submittals required by this section. It includes but is not necessarily limited to the following:

- All warranties guarantees and bonds as listed above.
- Record Drawings and Shop Drawings - Provide one set of All Shop Drawings, and two sets of Record Drawings per section 1.9.
- A Directory, listing names, addresses, and telephone numbers of Architect / Engineer, Contractor, Subcontractors, and major equipment suppliers.
- Executed original of occupancy permit
- Copy of Architect's and consultant's punch list(s) with the project manager's initials beside each item signifying that each item has been corrected.
- Contractor's "Asbestos Free" certification letter.
- Contractor's "storm water pollution" certification letter
- Contractor's "concrete placement" drawings identifying the area placed, the time and date of the placement and weather conditions.
- Finish grading and site structure placement certification
- Letter or proof stating SWPPP has been terminated for this contract from state environmental office and responsibility transferred to Building Contractor.
- AIA G706A - CONTRACTOR'S AFFIDAVIT OF RELEASE OF LIENS
- AIA G706 - CONTRACTOR'S AFFIDAVIT OF PAYMENT OF DEBTS AND CLAIMS
- AIA G707 - CONSENT OF SURETY TO FINAL PAYMENT
- Final Lien Release from each subcontractor and supplier.
- General Contractor's Statement of Warrantee
- Inspection Report from Roofing Manufacturer's Representative.
- Third Party Special Inspection Reports
- Copy of HVAC Manufacturers Warranties and registration (Originals filled out and sent to manufacturer.)

01 77 00-8

- MECHANICAL, ELECTRICAL & MISCELLANEOUS EQUIPMENT
 - a. Directory, listing names, addresses, and telephone numbers of Subcontractors, and major equipment suppliers.
 - b. Design criteria.
 - c. List of equipment.
 - d. Parts lists
 - e. Operating instructions.
 - f. Maintenance instructions
 - g. Shop drawings and product data.
 - h. test reports.
 - i. Certificates.
 - j. Startup report.
- Finish material schedule including the following:
 - a. Listing of all materials
 - b. Manufacturers of each material.
 - c. Color or finish supplied on each material.
- Owner receipt of spare parts and maintenance products. Contractor will provide list, naming all spare material, items and parts as specified in individual sections or on drawings. The contractor will deliver spare material, items and parts to the owner and ask him to sign list as proof that all items have been provided as listed.

PART 2 PRODUCTS Not Used.

PART 3 EXECUTION Not Used.

END OF SECTION

01 77 00-9

SECTION 02 26 23

ASBESTOS PRECAUTIONS AND PROCEDURES

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Contractors responsibilities concerning asbestos containing materials (ACM) in the existing building or systems where work is to occur.
- B. Contractor's responsibilities concerning asbestos in materials, products, and equipment used in the construction project.

1.2 DISCOVERY OF ASBESTOS CONTAINING MATERIALS (ACM)

- A. ACM's are not known to be present in the existing building or system where work is to occur.
- B. During the construction project, the contractor shall notify the Owner and the Architect of any portion of the work which the Contractor knows or has reason to believe contains asbestos. The Contractor shall take necessary precautions to prevent damage and release of asbestos fibers to the air.
- C. Any asbestos abatement procedures shall be performed by the Owner under a separate contract.

1.3 ASBESTOS CONTAINING MATERIALS AND PRODUCTS

- A. All building construction materials, products, and equipment used in the project shall be asbestos free.
- B. The Contractor shall be responsible for verifying with suppliers and manufacturers that construction materials, products, and equipment used in completion of the project are asbestos free.
- C. The Contractor shall provide certification (typewritten, signed and dated) to the Owner indicating that asbestos free materials, products, and equipment were used in completion of the work.

PART 2 PRODUCTS Not Used

PART 3 EXECUTION Not Used

END OF SECTION

02 26 23-1

SECTION 02 32 00

GEOTECHNICAL SOILS REPORT

PART 1 GENERAL

1.1 SUMMARY

- A. A soils investigation report has been prepared for the site of this work by GTS, Inc., Consultants, 1911 North Shiloh Drive, Fayetteville, AR 72704, hereinafter referred to as the Soil Engineer.
- B. Availability: The soils investigation report is bound in this specification for reference only.
- C. Use of data:
 - 1. This report was obtained only for the Architect's use in design and is not a part of the Contract Documents. The report is available for bidders' information but is not a warranty of subsurface conditions.
 - 2. Bidders should visit the site and acquaint themselves with all existing conditions. Prior to bidding, bidders may make their own subsurface investigations to satisfy themselves as to site and subsurface conditions, but all such investigations, shall be performed only under time schedules and arrangements approved in advance by the Architect.
 - 3. If a conflict should occur between the soil report and Section 31 23 00, the information in Section 31 23 00 shall govern.

PART 2 PRODUCTS Not Used

PART 3 EXECUTIONS

3.1 SUMMARY

- A. Contractor shall follow the design for this work indicated by the drawings. Include all labor, equipment, and materials including borrow and disposal of waste, to accomplish final grades shown on drawings and specified herein.
- B. Adjustment of work: Re-adjust all work performed that does not meet technical or design requirements but make no deviations from the Contract Documents without specific and written approval from the Architect.

END OF SECTION

02 32 00-1

Geotechnical Engineering Report

Benton County JJC Addition

1301 Melissa Drive
Bentonville, Benton County, Arkansas
GTS Project No. 24-15130

September 27, 2024



Prepared For:

Hight Jackson Associates PA

5201 West Village Parkway, Suite 300
Rogers, Arkansas 72758



www.gtsconsulting.net

September 27, 2024

Hight Jackson Associates PA
5201 West Village Parkway, Suite 300
Rogers, Arkansas 72758

Attention: Brian T. Jackson, P.E. (President)

RE: Geotechnical Engineering Report
Benton County JJC Addition
1301 Melissa Drive
Bentonville, Benton County, Arkansas
GTS Project No. 24-15130

Mr. Jackson:

This report provides the results of the subsurface exploration, laboratory testing and geotechnical engineering analysis performed for a planned addition to the existing Benton County Juvenile Justice Center located in Bentonville, Arkansas. The approximate boundaries of the project site are shown in Figure 1 within this report.


We appreciate the opportunity to be of assistance to you on this project. We encourage retaining GTS, Inc. to be involved in any pre-bid and pre-construction meetings to allow GTS, Inc. to discuss the following findings and recommendations.

Please contact us if further explanation or clarification is required for portions of the report.

Sincerely,



Certificate of Authority No. 1251, Expires 12/31/2025


Jeremy Hoffman
Geotechnical Associate

Copies to: Addressee (bjackson@hjarch.com; rsnyder@hjarch.com;))



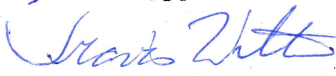

Travis Willis, P.E.
Arkansas No. 18963
9-27-24

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PROJECT DESCRIPTION and INFORMATION

Introduction

Our services were performed in accordance with GTS, Inc. (GTS) Proposal No. GTS124156, authorized by Brian T. Jackson, P.E. with Hight Jackson Associates PA on August 21, 2024. The intent of the authorized scope of services was to explore the subsurface soil/rock conditions at the project site in order to prepare recommendations for the planned development.

The Scope of Work provided in this report pertains to an addition to the existing Benton County Juvenile Justice Center which will also includes associated pavement areas. Our currently authorized scope of services included evaluating the subsurface conditions at nine (9) boring locations, identified as Borings B-1 through B-9. Borings B-2 through B-5 were located within the planned building addition footprint and advanced to depths of about 13 ½ to 15 feet below existing grade. Borings B-1 and B-6 through B-9 were located in the planned pavement areas and advanced to depths of about 6 ½ feet below existing grade. Soil samples obtained from the borings were brought to our laboratory for further testing and analysis.

Our currently authorized scope of geotechnical engineering services is concluded with the issuance of this Geotechnical Engineering Report.

Project Site

The project site is located on the grounds of the existing Benton County Juvenile Justice Center (JJC), which has a real property address of 1301 Melissa Drive in Bentonville, Arkansas. The general boundaries of the project site evaluated in this report are outlined in yellow in Figure 1 on the following page.

The project site is located within a land parcel identified as Parcel No. 01-16721-000 by Benton County, Arkansas, which has a total footprint area of approximately 51.78 acres. Based on topographic information available from Google Earth, the project site is flat, with less than 3 feet of topographic relief in approximately 400 feet of horizontal distance from west to east.

Based on a cursory review of historic satellite imagery, the existing JJC building was constructed sometime around 2012. Prior to this construction, the site appears to have been utilized as a laydown yard and/or stockpiling area for the Benton County Road Department which is located immediately south of the project site.



Figure 1: General Boundaries of the Project Site

Planned Development

Our current understanding of the project is based on email correspondence between Mr. Robert Snyder with Hight Jackson Associates PA and GTS, Inc. (GTS), that took place on August 7, 2024, which included the following document:

- **Sheet A1.0 from a set of preliminary site plans titled “An Addition for Benton County JJC”, dated July 26, 2024, and prepared by Hight Jackson Associates PA.**

It is our understanding that development at the site will include constructing an approximately 30,000 square foot, one story addition to the south and west sides of the existing building. GTS anticipates that the addition will be constructed utilizing structural steel framing with a concrete slab-on-grade.

Structural loading information was not provided to GTS prior to the issuance of this proposal. Therefore, we have necessarily assumed maximum column loads of 75 kips, maximum wall loads of 2.5 kips per lineal foot, and maximum slab loading of 100 pounds per square foot.

Planned Pavements

Paved parking and drive areas are planned to the west of the new addition as well as an expansion to the existing parking lot on the east side of the project site. Specific traffic loading information was not available prior to the issuance of this report. However, we anticipate that the traffic will predominantly consist of passenger vehicle traffic with occasional garbage/delivery truck traffic.

In lieu of using project specific pavement loading, we necessarily assumed traffic loading to calculate the pavement sections shown in this report. The assumed traffic loading conditions should be evaluated by the design team prior to use of the pavement sections provided in this report.

Planned Site Grading

This report uses the terms “existing grade” and “finished subgrade”. Existing grade describes the site elevations at the time of our field drilling and sampling. “Finished subgrade” is used in this report to describe the future design elevation of the soil within the addition and pavement areas upon completion of grading.

A grading plan was also not provided to GTS prior to the issuance of this report. Assuming that the addition will match the final floor elevation of the existing facility, cut and fill depths of up to 3 feet are currently anticipated to meet the finished subgrade elevations at the planned development.

If our assumptions about structural loading, pavement loading, and/or site grading vary greatly from the finalized site plans, GTS should be provided with the finalized loading and site grading information to verify and potentially amend the recommendations presented in this report.

SUMMARY of SUBSURFACE FINDINGS

Site Geology

Based on the results of our borings and available geologic maps, the project site is underlain by a geologic unit known as the Pitkin Limestone, Fayetteville Shale, and Batesville Sandstone formation (Mpfb). The following description of this unit was obtained from the Stratigraphic Summary of Arkansas (Arkansas Geological Commission IC-36, 2004).

The Pitkin Limestone is usually represented by a fine to coarse grained, oolitic, bioclastic limestone. Sequences of black shale interbedded with the limestone are noted in the eastern outcrop area; minor chert is sometimes found near either the top or the bottom of the interval; and minor sandstone has been reported near the top of the unit in the northwest. The average thickness is about 50 feet in the west and about 200 feet in the east.

The Fayetteville Shale is a black, fissile, concretionary, clay shale. Dark gray, fine-grained limestones commonly interbed with the shales in north central Arkansas. The Fayetteville Shale is considered to rest conformably on the Batesville Sandstone (and Hindsville Sandstone). The Fayetteville Shale ranges in thickness from 10 to 400 feet.

The Batesville Sandstone is an often flaggy, fine- to coarse-grained, cream-colored to brown sandstone with thin shales. The basal contact is unconformable and often marked by a chert (Boone Formation) conglomerate. The thickness of the Batesville Sandstone is quite variable, ranging from a feather edge to over 200 feet. The thickest sections are in Independence County.

Surface

The site surface at our boring locations consisted of a combination of asphalt pavement, crushed gravel, and grass cover with an approximately 3- to 4-inch-thick associated root mat. The asphalt pavement was measured to be between about 1 to 4 inches in thickness, where encountered, and the crushed gravel was between about 1 to 3 inches in thickness. The general site conditions are represented in the photos shown below and on the following page.



Photo 1: General Site Conditions Near Boring B-3, Facing East



Photo 2: General Site Conditions Near Boring B-5, Facing North



Photo 3: General Site Conditions Near Boring B-7, Facing East

Subsurface Soils

Existing and Possible Fill Soils

Existing fill as well as possible fill materials were identified underlying the existing pavement, grass cover, and crushed gravel at each boring location – these materials will be referred to as existing fill throughout the remainder of this report. The encountered existing fill materials were highly variable in terms of composition and consisted of a combination of gravels and sands, each containing variable clay, silt, sand, and gravel content (including chert and limestone fragments). The existing fill materials extended to depths of about 2 to 5 feet, an average depth of about 3 feet, below existing grade.

The existing fill materials had moderate to high, but generally moderate, shear strength during drilling and sampling. Standard Penetration Test (SPT) N-values of 10 to 77 blows per foot (bpf) of penetration were recorded within the existing fill materials. Additionally, a SPT N-value of 50 blows per 2 inches of penetration was recorded within the existing fill at Boring B-8. However, we anticipate this recorded N-value (and the 77 bpf recorded at Boring B-4) was likely due to a large cobble or boulder of chert encountered at the boring location.

Stratum I – Lean Clays

Presumed native lean clay soils were encountered immediately beneath the existing fill material at each boring location. The Stratum I soils contained variable amounts of sand and extended to depths of about 8 ½ feet below existing grades at Borings B-2 through B-5; and to the terminal depth of all other boring locations (about 6 ½ feet below existing grades).

The native lean clays had low to moderate shear strength during drilling and sampling. Standard Penetration Test (SPT) N-values of 2 to 17 bpf were recorded within the Stratum I soils.

Stratum II – Fat Clays

Native fat clay soils were encountered beneath the Stratum I soils at Borings B-2 through B-5, only. The Stratum II soils contained variable amounts of sand content and extended to depths of about 13 to 13 ½ below existing grades, where encountered.

The Stratum II soils had generally low to moderate, but generally moderate, shear strength during drilling and sampling. SPT N-values of 6 to 15 bpf were recorded within this stratum.

Stratum III – Shale and Limestone

Shale and limestone bedrock were encountered underlying the Stratum II soils at Borings B-2 through B-5. These materials extended to the terminal depths of the boring locations at depths of about 13 ½ to 15 feet below existing grade.

The Stratum III soils had high shear strength during drilling and sampling. SPT N-values of 50 blows per 5 inches to 1 inch of penetration were recorded within this stratum.

Auger Refusal/Hard Drilling Conditions

For the purposes of this report, “hard drilling conditions” are defined as any depth within a boring where a blow-count of 30 or more was achieved for any 6-inch increment or less during SPT sampling or where an N-value of 50 bpf or greater was encountered. Hard drilling conditions were generally encountered within the Stratum III materials beginning at depths of about 13 to 13 ½ feet below existing grades at Borings B-2 through B-5. It should be noted that hard drilling was also encountered at depths of about 6 inches to 1 foot within the existing fill material at Borings B-8 and B-4, respectively. As previously mentioned, we anticipate this is likely due to relatively large cobbles or boulders of chert located within the existing fill material at these depths.

Auger refusal material was also encountered at Boring B-3 at a depth of about 13 ½ feet below existing grade. The depths to where hard drilling and auger refusal material were encountered during drilling and sampling at the project site are summarized in Table 1 on the following page. Borings where hard drilling and auger refusal were not encountered have been omitted from Table 1.

Table 1: Depths to Hard Drilling Conditions

Boring Number	Depths to Hard Drilling Conditions (feet below existing grades)	Depths to Auger Refusal (feet below existing grades)
B-2	14	Not Encountered
B-3	13 ½	13 ½
B-4	1 and 14 ½	Not Encountered
B-5	13 ½	Not Encountered
B-8	0 ½	Not Encountered

Water Measurements

Water observations were made by the drill crew while drilling and immediately after completion of the borings. Free groundwater was not observed at any of the performed boring locations during or at completion of the field exploration.

The depths to water are intended as isolated measurements of groundwater levels at the time of drilling. Perched water could develop between the existing fill and less permeable native soils or at the soil-rock interface. Longer-term observations in piezometers or observation wells sealed from the influence of surface water are often required to define groundwater levels in these soil types. The installation and periodic measurement of monitoring wells would be required to establish seasonal piezometric surfaces below this project site.

GEOTECHNICAL ENGINEERING ANALYSIS

Geotechnical Considerations

Existing Fill

As described above, existing fill materials were encountered underlying the surficial grass cover, pavements, and crushed gravel and extended to depths of about 2 to 5 feet below existing grade at all boring locations. The existing fill material predominantly consisted of a combination of gravels and sands containing varying amounts of silt, clay, sand, and gravel (both chert and limestone). The fill materials appeared to consist of soils likely placed during construction of the existing Benton County JJC facility and/or placed when the site was utilized as a laydown yard/stockpiling area for the nearby Benton County Road Department.

The placement and compaction history of the existing fill is currently unknown to GTS. Based on the composition of the fill materials as well as in-place shear strength of the fill materials, the existing fill appears to have been placed in a controlled manner, with some areas also likely being subjected to years of heavy truck traffic.

However, because there can be variations in the thickness, quality, and composition of existing fill and the potential for unsuitable materials to be buried in or under the existing fill (such as cobbles and boulders), it should be recognized that there is assumed risk of unpredictable settlement and structural performance associated with constructing shallow foundations and on-grade slabs over existing fill. This risk cannot be eliminated unless the full depth of the existing fill is removed and replaced with approved fill. **Due to this risk, and the weak native soils encountered underlying the fill materials at Borings B-4 and B-5, we recommend the existing and possible fill materials be removed and replaced within the planned building footprint.**

Pavements span weak zones much more effectively than concentrated foundation loading or floor slab loading. Also, clients/owners typically have a higher tolerance for cracks developing in pavements as compared to building structures. As a cost-saving measure, the existing fill may be left in place within the planned paving areas, as long as the owner acknowledges the inherent risks noted above. However, it should be noted that low strength soils were also encountered below the existing fill materials at Boring B-1. As such, it is likely that the existing fill will need to be removed full depth in portions of the pavement areas to meet the mass grading requirements discussed later in this report.

If the Owner elects to leave a portion of the existing fill materials in-place in the pavement areas, pavements could be constructed atop new fill placed above existing fill provided the subgrade soils are stable at the time of mass grading and pavement construction and are generally free of deleterious material. However, the Client/Owner should understand that some premature surface distress and increased maintenance may occur in future improved areas supported above the existing fill. Again, this risk cannot be eliminated without completely removing and

replacing the existing fill in the development areas with new fill, but the risk can be reduced if partially left in-place by performing thorough testing and evaluation of the existing fill during construction.

Regardless as to whether if the existing fill is left in place within pavement areas, we recommend that a minimum of 1 foot of new select fill be placed beneath the planned pavements in order to establish more uniform subgrade support.

Low-Strength Soils

Low-strength soils (SPT N-values of 6 bpf or less) were encountered at Borings B-1, B-4, and B-5, only. The apparent depths of these low strength soils encountered at our boring locations are shown in Table 2 below. Borings where low-strength soils were not encountered were omitted from the table.

Table 2: Depths of Low-Shear-Strength Soils at Boring Locations

Boring Number	Depths of Weak Soils (feet below <u>existing</u> grades)	Recorded N-values (blows per foot)	USCS Classification
B-1	2 to 5	6, 5	CL
B-4	3 ½ to 5	2	CL
B-5	3 ½ to 5 and 8 ½ to 10	6 / 6	CL / CH

These soils in their current state are not adequate for the support of any new fills, pavements, floor slabs or foundations. These soils, when encountered near the surface, should be removed full depth as discussed in the Mass Grading section of this report.

Expansive Soils

Fat clay soils were encountered at Borings B-2, B-3, B-4, and B-5, beginning at a depth of about 8 ½ feet below existing grade. Fat clays are prone to volume changes (defined as potential vertical movement (PVM)) with variations in moisture content. Based on the results of our laboratory classification testing, the depths where these soils were encountered at the boring locations, as well as our current assumptions about site grading plans; we estimate that the PVM will amount to 1 inch or less within the building addition footprint – it is our experience that this is within typical building tolerances.

Foundation Recommendations

Based on the subsurface conditions encountered at the boring locations, and taking into account the assumed site grading, a footing foundation system may be used to support the planned building structure. The footing foundations should be designed as conventional, footing

foundations supported directly on the native, stiff to very stiff lean clay soils (Stratum I) and/or new select fill material.

Shallow foundations for the planned addition structure may be designed using the information provided in Table 3 on the following page.

Table 3: Shallow Foundation Recommendations

Maximum Net Allowable Bearing Pressure (psf)	Bearing Soil Description	Depth to Bearing Soils
2,000 (continuous)	Native, Stiff to Very Stiff Clays (Stratum I) or on Tested and Approved <u>Select</u> Fill *	Expected within 18 inches of final grade after mass grading recommendations are followed.
2,500 (spread, column)		
* The recommended bearing soils should be relatively undisturbed and have moderate shear strength. Foundations may also be supported on <u>select</u> fill placed and compacted above the recommended bearing materials. In addition, flowable fill may also be poured atop suitable bearing materials to backfill foundation over-excavations, if needed.		

An allowable passive pressure of 750 psf may be used for footings cast directly against near-vertical sides in tested and approved, new select fill or for select fill compacted against the vertical footing face. Passive resistance for exterior footings should be neglected in the upper 2 feet of the soil profile unless pavement is constructed directly against the building exterior. We recommend an ultimate coefficient of sliding friction of 0.32 for the interaction between the base of footing and soil bearing material. No safety factors have been applied to these values.

Total long-term and differential movement of shallow foundations, designed and constructed as recommended in this report and per the Mass Grading Recommendations section of this report, are estimated to be less than 1 inch and ¾ inch in 50 feet, respectively.

Foundation Construction Recommendations

General Dimensions

Continuous formed and isolated column foundations should have minimum widths of 18 inches and 30 inches, respectively. A minimum foundation depth of 18 inches below lowest adjoining grades should be used to protect against frost heave.

Allowable Backfill Materials

Approved select fill material, aggregate base course, and flowable fill (i.e., “lean concrete”) may be used to backfill foundation over-excavations, if required, to reach suitable bearing soils in the

building addition footprint. We recommend all foundation over-excavations be backfilled with similar material. Specifications regarding these materials are shown in the Geotechnical Report Requirements and Specifications section of this report.

Evaluation of Supporting Material and Overexcavation Recommendations

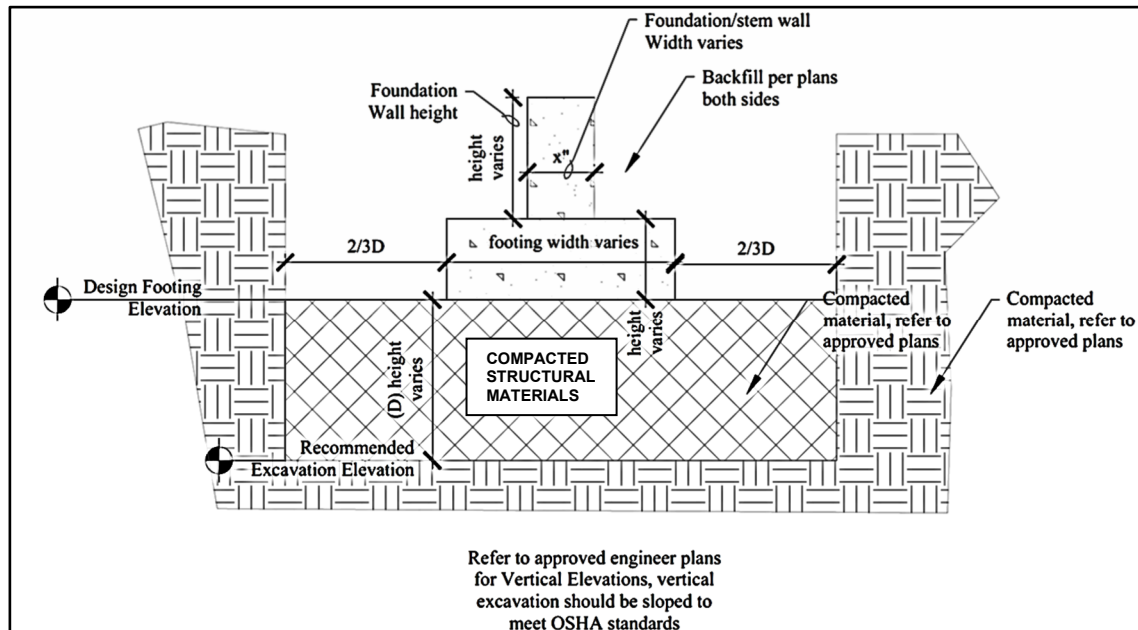
Foundation excavations should be cleaned of loose soils, debris, and water. Soils exposed at plan bearing depths should be evaluated by GTS prior to placement of approved backfill, reinforcing bar, and concrete. Relatively frequent control joints should be installed within any masonry or other movement-sensitive walls.

Where newly placed and compacted fill material is exposed at plan bottom of foundation elevations, we recommend the fill be re-compacted with a jumping jack or similar type of compaction equipment and field-tested for in-place density and moisture content immediately before placement of reinforcing bar and concrete. We recommend that the approved soil fill material be tested for in-place density at each column location and every 25 linear feet of continuous foundation trench. The fill may be scarified, moisture conditioned and recompacted in place to reach the project specifications.

Where weak and unstable soils are encountered in the bottom of foundation trench excavations, these weak and unsuitable soils should be removed from the foundation trenches full-depth. After unsuitable soils are removed from the foundation trenches and stable soils are encountered, approved fill material may be placed as recommended in the Geotechnical Report Requirements and Specifications of this report.

If select fill material or aggregate base is used to backfill foundation trench over-excavations, the over-excavation should extend at least 8 inches beyond the footing perimeter for every 12 inches of depth below the bottom of footing, per Figure 2. Select fill material and aggregate base should be placed and compacted as recommended in the Geotechnical Report Requirements and Specifications of this report.

If flowable fill is used to backfill foundation trenches or if trenches are overpoured full-depth with concrete, the trenches do not need to extend beyond the footing perimeter as shown in Figure 2. Flowable fill should be placed as soon as possible after foundation trench over-excavations are completed and the foundations have been evaluated for bearing suitability. Flowable fill should be field sampled and laboratory tested for strength every day of placement.



Stress and Bearing Interactions with Existing Building Foundations

As-built information has not been provided to GTS regarding the existing building's foundation type and foundation bearing depth. GTS assumes the existing building is supported on a shallow foundation system bearing within 3 feet below existing top of adjoining ground elevations.

Care should be taken during any excavation adjacent to existing foundations to not disturb any existing foundation bearing materials. It is recommended, where possible, that temporary excavations below existing footings not extend below an imaginary plane extending out and down from outside edge of existing footings at a slope of approximately 1 Horizontal to 1 Vertical (1H:1V). Even with these criteria, excavations extending below the level of the existing foundations should be backfilled the same day they are excavated. Where this is impractical, shoring or underpinning of existing foundations may be required.

Some overlap in stress distribution from new and existing footings may occur, which may cause minor movement of the existing footings and supported structures. Maintaining a clear distance at least equal to the width of the new column spread footings between the edges of the new and existing footings could significantly reduce this risk. Connections between the new and existing structures should be designed to allow for the anticipated differential movement which may be as high as the total anticipated settlement (1 inch) for the new canopy foundations.

Floor Slab-On-Grade Design

Based on the understood site grading and after preparing the building subgrade as recommended in the Mass Grading Recommendations section of this report, we expect that the existing fill as well as any low-strength soils will be completely removed and the floor slabs will be supported on at least 1 foot of new select fill constructed atop stable native soils. Concrete floor slabs constructed as slab-on-grade and supported on subgrade prepared as recommended in this report can be designed using a modulus of subgrade reaction (k) value of 125 pounds per square inch, per inch.

We recommend that a minimum of 4 inches of free draining gravel or sand be placed beneath the slab-on-grade to act as a capillary break. This layer is termed a “subbase” layer. To be effective as a capillary break, the subbase should have a maximum of 5 percent by dry weight passing the No. 200 sieve. The modulus of subgrade reaction value applies to the top of the subbase layer. The top of the subbase should be compacted using a vibratory plate.

If rutting of the subbase layer is a concern for concrete placement, the subbase layer may be topped with an additional 2 to 4 inches of gravel or sand having sufficient fines to allow compaction. The optional topping layer is termed the “base” layer. The base layer, if used, should be compacted to a minimum of 95 percent Standard Proctor Value (ASTM D698) at a workable moisture content that allows the density to be achieved. The base layer should have a percent passing the No. 100 sieve ranging from 10 to 30 percent by dry weight. ARDOT Class 7 aggregate base material may be used as the base layer.

A vapor barrier having a minimum thickness of 10 millimeters (mil) is recommended immediately below the concrete unless otherwise recommended by the finished flooring manufacturer or other members of the design team.

The general components of a floor slab, inclusive of the optional base course, are shown in Figure 3. The shown reinforcing steel location provides general guidance only. The location and composition of reinforcing steel should be determined by a structural engineer.

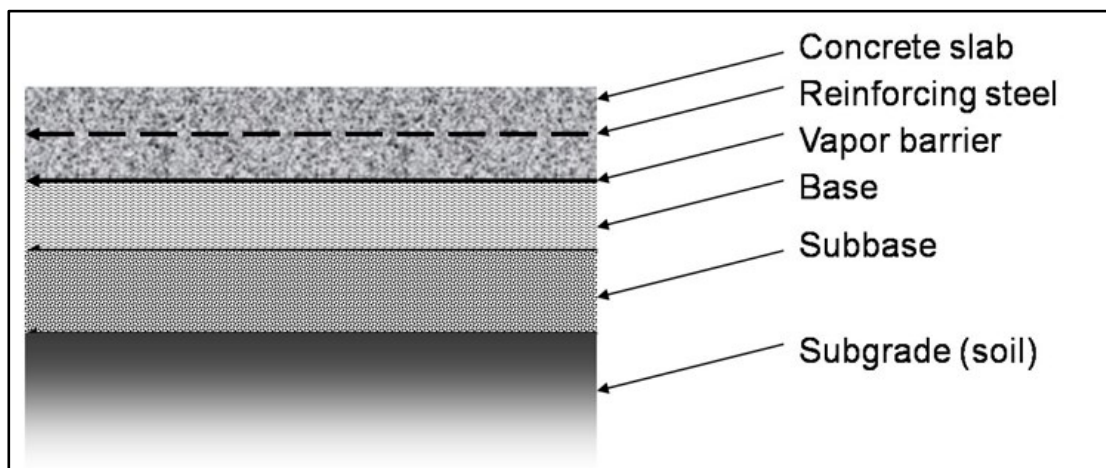


Figure 3: General Floor Slab-on-Grade Section

IBC Site Classification

Based on our knowledge of the regional geology, the subsurface conditions encountered at the boring locations as well as the assumed site grading, the subsurface conditions are consistent with a Site Class C per the International Building Code (IBC), 2021 Edition.

The following mapped acceleration parameters may be used in design for the planned new structure.

- S_s : 0.152 g
- S_1 : 0.089 g
- F_a : 1.3
- F_v : 1.5
- S_{DS} : 0.132 g
- S_{D1} : 0.089 g
- PGA_m : 0.094 g

These values were obtained using online seismic design maps and tools provided by the Structural Engineers Association of California (SEAOC/OSHPD) at <https://seismicmaps.org> for ASCE7-16.

The 2021 International Building Code (IBC) uses a site profile extending to a depth of 100 feet for seismic site classification. The deepest boring performed at this site was extended to a maximum depth of approximately 15 feet below existing grade. The subsurface conditions below the boring depth to 100 feet were estimated based on our experience and knowledge of geologic conditions of the general area. Additional deeper borings or geophysical testing may be performed to confirm the conditions below the current boring depth. These supplemental services could be provided upon request.

MASS GRADING RECOMMENDATIONS

Stripping of Surface Materials

Mass grading should extend a minimum of 5 feet outside of the addition footprint and 2 feet behind back of curb in any pavement areas, in all directions.

At a minimum, surface organics and silt-based soils (topsoil) should be removed from the planned areas of new development. Based on the subsurface conditions encountered at the boring locations, we estimate a stripping depth of about 6 inches, or less. This depth does not include the depth to stump and grub any existing trees. The topsoil material may be stockpiled and reused for landscaping, at the discretion of the design team.

Existing pavements, gravels, curblines, or other structures associated with the previously existing structures should be removed full depth. Excavations to remove these structures should be backfilled as recommended in this report. The pavement and concrete may be crushed, stockpiled, and reused as fill material, at the discretion of the design team.

It is our experience that properties with existing and pre-existing structures have a higher potential for encountering unknown conditions during mass grading and construction. These conditions include backfilled basements, trash pits, concrete foundations and underground utilities associated with the previous structures.

Buried utility lines should also be relocated or abandoned, as necessary. Excavations after removing buried utilities should be backfilled with new select fill as recommended in this report. Abandoned utility lines should be grouted and plugged.

Recommended Undercuts

As previously discussed, we recommend removing any existing fill materials as well as any underlying low-strength native soils from the planned addition footprint. **Based on the subsurface conditions encountered at the boring locations, we anticipate undercut depths of about 2 to 5 feet below existing grade will likely be required to remove the low-strength soils and existing fill materials full depth from the building addition footprint.** The depths of low strength soils and existing fill materials could be greater away from our boring locations.

In addition to the undercuts to remove the low-strength soils and existing fill materials, we recommend that the on-site soils be undercut to a minimum depth of 1 foot below design finished subgrade elevations in the addition footprint as well as the planned paving areas and replacing them with new, select fill for improved and more uniform support of the floor slabs and new pavements. We expect that this recommended select fill layer will already be constructed once the recommendations above are implemented.

General Mass Grading Recommendations

After stripping surface materials, completing the recommended undercuts to remove the low-strength soils and existing fill materials, completing cuts for grading, and before placing new select fill, the exposed soils should be evaluated for stability by GTS.

The exposed soils should be evaluated for stability through proofrolling with a loaded, tandem-axle dump truck weighing at least 25 tons. If the exposed soils are stable, they are suitable for directly supporting the placement and compaction of new approved fill material up to plan finished grades. If the excavations for the planned structure will be too steep, limited by size, and/or inaccessible to proofrolling equipment, GTS should test and evaluate the exposed soils by using hand probes, cone penetrometer tests, and dynamic cone penetrometer tests.

Where unstable soils are identified by proofrolling or other methods, they should be scarified, moisture conditioned, and compacted, or removed and replaced full depth with new select fill if they cannot be stabilized in place.

If the prepared subgrade should become saturated, desiccated, frozen, or otherwise damaged prior to construction of the floor slab and pavement section, the affected subgrade material should be scarified, moisture conditioned, and compacted prior to placing the aggregate base course. Final conditioning of the finished subgrade should be performed immediately prior to placement of the floor slab aggregate base course material. Potential instabilities when on-site soils at the undercut depth are moist to wet are considered in the Weather and Instability Related Considerations section.

Weather and Instability Related Considerations

Soil instability is directly related to the moisture within and below the exposed soils. When moist to wet, the exposed subgrade soils will likely be unstable. If the exposed soils are unstable, they may be scarified, allowed to dry, and recompact to achieve stability if the construction timeframe and prevailing weather conditions allow. Even with adequate time and weather, stable subgrade may not be achievable if the thickness of the unstable soil is greater than 1 to 1 ½ feet. Alternatively, unstable soils could be undercut and replaced full depth with new fill.

Other methods of ground improvement could include cement treatment, removal of unstable materials and replacement with granular fill (with or without geogrid or geotextile), etc. The appropriate method of improvement, if required, would be dependent on factors such as schedule, weather, the size of the area requiring ground improvement, and the nature of the instability. More detailed recommendations can be provided during construction as the need for ground improvement occurs.

Fill Placement

Lifts of fill material required to reach the planned finish subgrade elevations should be composed of tested and approved fill material and placed per the specifications shown in this report. Fill should be placed in near-horizontal lifts beginning in areas requiring the deepest amount of fill. The fill should be benched into the native soils each lift. Fill should not be placed on frozen, saturated, desiccated, or unstable soils.

We recommend that fill material placed within the building addition footprint consist of select fill material. Additionally, select fill material or flowable fill material may be used as foundation footing backfill material. We recommend fill material placed within the uppermost 1 foot of the pavement subgrade consist of select fill having a minimum laboratory CBR value of at least 8.0.

The requirements to meet for a select fill material, aggregate base material and flowable fill material are provided in the Geotechnical Report Requirements and Specifications section of this report.

Re-Use of On-Site Soils as Fill

Portions of the existing fill materials are anticipated to be suitable for reuse as select fill material, provided the materials meet the requirements outlined in this report and no deleterious materials are present. Additionally, all rock fragments must be crushed into fragments less than 3 inches in any dimension before reuse as fill material or during compaction breakdown.

The on-site, native lean clay soils (Stratum I) are also anticipated to be suitable for reuse as select fill material. However, we anticipate these soils will require stockpiling and drying time before being suitable for reuse as fill. It is our experience that the reuse of lean clay soils as select fill materials is highly dependent on the experience of the contractor and the weather conditions at the time of mass grading.

The on-site, native fat clay soils (Stratum II) should not be reused as fill in areas of new development, but given their depth, they will likely not be encountered/excavated.

The underlying shale and limestone bedrock (Stratum III) is also anticipated to be suitable for reuse as select fill material, provided all rock fragments are crushed into fragments less than 3 inches in any dimension before reuse as fill material or during compaction breakdown.

Soil classifications discussed in this report are based on approximately 2-inch diameter samples obtained during our field sampling. This type of sampling follows industry standards; however, this type of sampling can under- or over-estimate the amount of gravel within a soil formation.

Both on-site soils and imported fill should also be tested and approved prior to use as fill on this site. Imported fill containing rock will need to be screened or crushed into pieces no greater than 3 inches in any dimension prior to reuse.

Utility Trench Backfill

All trench excavations should be made with sufficient working space to permit construction including backfill placement and compaction. Utility trenches are a common source of water infiltration and migration. If utility trenches are backfilled with relatively clean granular material, they should be capped with at least 18 inches of cohesive fill to reduce the infiltration and conveyance of surface water through the trench backfill.

Grading and Drainage

During construction, grades should be developed to direct surface water flow away from or around the site. Exposed subgrades should be sloped to provide positive drainage so that saturation of the subgrade is avoided. Surface water should not be permitted to accumulate on the site to reduce the potential for strength loss of the subgrade soils.

Final grades should be sloped away from the building on all sides to promote effective drainage and prevent water from ponding. Downspouts should discharge water a minimum of 10 feet beyond the footprint of the building. This can be accomplished by using splash-blocks and downspout extensions. As an alternative, the drains could be designed to discharge to a storm water collection system. Also, the interface between the building and pavements or sidewalks should be effectively sealed to prevent water from infiltrating into the floor slab-on-grade subgrade.

If water collects in excavations, we anticipate that sump pits and suction pumps could be used to alleviate the water. The need for dewatering and dewatering system design should be based on the actual subsurface water conditions encountered at the time of construction.

Rock Excavation Potential

We expect that the majority of the existing fill material and the native Strata I and II soils can be excavated using conventional soil excavation equipment. However, rock excavation means and methods may be intermittently required throughout this project site to penetrate the underlying shale and limestone beginning at depths of about 13 ½ to 14 ½ feet below existing grades if deep utility excavation are needed.

The depths where rock excavation techniques are anticipated to be required generally correspond with the depths of hard drilling conditions. In general, track hoes and dozers with rock excavation attachments are expected to be required below the depths where we encountered hard drilling. Greater rock excavation effort is expected in limited access excavations, such as for foundations and utility trenches.



Temporary Excavations

Temporary excavations may be required during grading and site development operations. The contractor, by their contract, is usually responsible for designing and constructing stable, temporary excavations and should shore, slope, or bench the sides of the excavations as required to maintain stability of the excavation sides and bottom. All excavations should comply with applicable local, state, and federal safety regulations, including the current Occupational Safety and Health Administration (OSHA) Excavation and Trench Safety Standards.

PAVEMENTS

Pavement Support Recommendations

Based on the anticipated site grading scheme and preparing the pavement subgrade as recommended in the Mass Grading Recommendations in this report, we expect that the pavement subgrade materials will consist of a minimum 1-foot-thick layer of new select fill having laboratory California Bearing Ratio (CBR) value of 8.0 or greater.

Pavement Design Recommendations

No pavement loading design guidance has been provided to GTS by the design team. Therefore, the pavement sections provided in this report are based on an assumed Equivalent Single Axle Loading (ESAL) of about 50,000 for light-duty pavement sections (car and passenger truck), about 200,000 for medium-duty pavement sections (drive lanes for passenger cars and light trucks and fire lanes), and about 500,000 for heavy-duty pavement sections (drive lanes with frequent delivery/garbage trucks, fire lanes, and dumpster areas). A factor of 1.5 was used to convert flexible ESALs to rigid pavement ESALs. These values should be evaluated by the design team for appropriateness for this project site and intended pavement use.

A design modulus of subgrade reaction (k) of 125 pounds per square inch, per inch, was used for the design of the rigid pavements. A design California Bearing Ratio (CBR) of 5.0 was used for the design of flexible pavements, based on an average of the top 2 feet of pavement subgrade, including new fill and in-situ soils. The pavement sections assume adequate drainage will be provided to allow removal of water from the pavement structure in 24 hours or less.

The recommended flexible and rigid pavement sections are shown in Tables 4 and 5 below and on the following page.

Table 4: Flexible Pavement Section Recommendations

Flexible Pavement Section:	Asphalt Surface Course (inches)	Aggregate Base Course (Class 7) (inches)	Design Traffic
Light-Duty	3	6	automobile parking areas
Medium-Duty	3	8	drive lanes for automobiles and occasional delivery/garbage truck traffic
<i>Specification¹</i>	<i>Section 407-1</i>	<i>Section 303</i>	

¹ Standard Specification for Highway Construction, Arkansas Department of Transportation, Edition of 2014.

Table 5: Jointed, Plain Unreinforced Rigid Pavement Section Recommendations

Rigid Pavement Section	4,000 psi Portland Cement Concrete (inches)	Aggregate Class 7 Base Course (inches)	Design Traffic
Light-Duty	5	4	car and passenger truck
Medium-Duty	6	4	drive lanes for passenger cars and light trucks and fire lanes
Heavy-Duty	8	4	dumpster pads
<i>Specification</i>	<i>Section 501¹</i>	<i>Section 303¹</i>	

¹ Standard Specification for Highway Construction, Arkansas Department of Transportation, Edition of 2014.

The pavement design for the new roadways associated with this development were calculated using the AASHTO Guide for Design of Pavement Structures, 1993 edition. The recommended asphalt pavement section is typical of local construction practices for similar projects over the past 10 years. It should be noted that there could be some decreased performance and life span for the new asphalt pavement if actual traffic loading is higher than anticipated and particularly if there is heavy truck traffic. Arkansas references most asphalt specifications on the 1993 AASHTO guide which is largely based on highway traffic, which is why it was used in this design.

Several national asphalt associations and states have developed alternate design guides for asphalt parking lots, several of which are guided by the increased stresses placed on a parking lot pavement due to slower traffic speeds, increased turning traffic, and long durations of static loads. The use of several of these alternate methods will provide a thicker pavement section for the same design traffic and pavement subgrade, which would increase the life expectancy of the pavement. It should be noted that several of these design methods will require a minimum of two layers of asphalt pavement (surface and binder/base courses) for both structural support and long-term rideability. The minimum pavement sections required to ensure that proper placement and compaction is achieved during construction often lead to parking lots that can support much more traffic than the design traffic, particularly for lightly loaded parking lots. If requested, GTS can provide a design based on these alternate methods.

GEOTECHNICAL REPORT REQUIREMENTS and SPECIFICATIONS

Unless otherwise stated, the recommendations contained in this report are based on the compaction specifications and material types noted in Table 6, Table 7, and the following paragraphs.

Table 6: Recommended Soil Compaction

Type of Material	Moisture-Density Specification	Minimum Dry Density (percentage of proctor)	Range from Optimum Moisture Content (%)
Soil Fill Material – Addition Footprint and Pavements	ASTM D1557 (Standard Proctor)	98	-2 to +2
Soil Fill Material – Outside of Addition Footprint and Pavements	ASTM D698 (Standard Proctor)	95	-2 to +2
ARDOT Class 7 Aggregate Base Course	ASTM D1557 (Modified Proctor)	95	Adequate to Achieve Compaction
Flowable Fill Material	AHTD Section 206	Not applicable	

Table 7: Soil Fill Material Requirements

Type of Soil Fill	Location/Use	Maximum LL	Maximum PI	USCS Classifications
Select	All Areas	40 ^A	18 ^A	GM, GC, GP, SC CL, Shale, Limestone, Chert

^A Plasticity requirements may be waived provided that the fill has a minimum of 65% retained on the No. 200 sieve.

Fill material should have a maximum nominal aggregate size of 3 inches or less after placement and compaction. If there are questions regarding the effectiveness of compaction equipment breaking down the material, a test pad should be constructed using the rock fill material and observed by GTS during compaction.

Fill needed for site grading should be placed in loose lifts not exceeding 9 inches in thickness (compacted lift thickness of approximately 6 to 7 inches). We recommend the fill be tested for density every lift during site grading, with a minimum of one test every 2,500 square feet of building area and every 10,000 square feet in pavement area.

Fill placed in the top 1-foot of pavement subgrade should have a minimum CBR value of 8.

Where select soil fill or aggregate base course is used to backfill foundation trench overexcavations up to plan bottom of foundation elevation, the fill should be tested each lift, at each column location, and every 25 linear feet of continuous foundation trench. Additionally, we recommend testing the fill for in-place density immediately before the placement of reinforcing bar and concrete.

Flowable fill, if used to backfill foundation overexcavations, should have a minimum compressive strength of 400 psi, and should be tested for compressive strength each day of placement.

The recommended moisture content and compaction of the fill should be maintained until fills are completed and floor slabs are constructed.

SUBSURFACE EXPLORATION and PROCEDURES

The subsurface exploration consisted of performing nine (9) borings, identified as Borings B-1 through B-9. Borings B-2 through B-5 were located within the planned building addition footprint and advanced to depths of about 13 ½ to 15 feet below existing grade. Borings B-1 and B-6 through B-9 were located in planned pavement areas and advanced to depths of about 6 ½ feet below existing grade.

The boring locations were established in the field by GTS using a recreation-grade hand-held GPS unit. The approximate locations are shown on the Boring Location Diagrams in Appendix A of this report. The locations of the borings should be considered accurate only to the degree implied by the methods used to define them. The results of the borings are provided in Appendix A.

The borings were drilled with a track-mounted Geoprobe 7822 DT drill rig. Disturbed samples and estimates of the in-situ shear strength of the soil and weathered rock were obtained using an automatic-hammer-driven split-barrel sampler in general accordance with the Standard Penetration Test at the boring locations.

An automatic SPT-hammer was used to advance the split-barrel sampler in the boreholes. A significantly greater efficiency is achieved with the automatic hammer compared to the conventional safety hammer operated with a cathead and rope. This higher efficiency has an appreciable effect on the SPT-N value. The effect of the automatic hammer's efficiency has been considered in the interpretation and analysis of the subsurface information for this report.

The soil and rock samples obtained in the field were sealed to reduce moisture loss and taken to the GTS soil laboratory for further examination, testing, and classification.

Field logs were prepared during the drilling and sampling of the borings. These logs report sampling methods, sampling intervals, soil, rock, and groundwater conditions, and notes regarding soil, rock, and drilling conditions observed between sample depths. The final boring logs, included in this report, have been prepared based on the field logs and have been modified, where appropriate, based on the results of the laboratory test results.

LABORATORY TESTING and PROCEDURES

The soil samples were examined in the field by an experienced geotechnical engineer and classified based on the soil's texture and plasticity, in accordance with the Unified Soil Classification System. The estimated Unified Soil Classification System group symbols are shown on the boring logs.

Hand penetrometer tests were performed on select intact cohesive samples. Unfactored hand penetrometer test values are shown on the boring logs as filled squares.

The laboratory testing was performed by GTS in general accordance with the American Society for Testing and Materials (ASTM) test designations shown in the table below and the results are shown on the boring logs and are provided in Appendix B.

Table 8: Laboratory Test Method Designations

Laboratory Test	Test Designation	Method (if applicable)
Moisture Content of Soil and Rock	ASTM D2216-10	Method A
Visual Classification of Soil Types	ASTM D2488	
USCS Classification	ASTM D2487	
Atterberg Limits	ASTM D4318	Method A
Sieve Analysis	ASTM D6913	Method A

GEOTECHNICAL REPORT LIMITATIONS

The recommendations contained in this report are based on our interpretation of subsurface conditions encountered at the discrete boring locations. Variations between the subsurface conditions anticipated in this report and actual project site conditions may occur away from the boring locations.

If significant differences between the findings of the borings and site conditions are observed, GTS, Inc. should be contacted to assess the variation and, if necessary, reevaluate the recommendations contained in this report.

ENVIRONMENTAL EXCLUSION

A Geotechnical Engineering Report assesses the engineering properties of soil and rock. No environmental assessment of a project site is performed during a geotechnical exploration. If the owner is concerned about the potential for environmental hazards at the project site, additional studies should be performed by GTS, Inc.

APPENDIX A

Boring Location Diagrams

Boring Logs

Soil Classification Legend

Rock Classification Legend



Boring Location Diagram – With Site Plan Overlay



Boring Location Diagram – Aerial Imagery Taken 9/13/2019

LOG OF BORING NO.B-1

Benton County JJC Addition
1301 Melissa Drive,
Bentonville Benton County, Arkansas

GTS, Inc.

Geotechnical & Testing Services

Fayetteville, AR

Project No.: 24-15130

Location: Shown attached Boring Location Diagram

DEPTH, FT	SYMBOL	SAMPLES	SAMPLE No.	RECOVERY (in.)	DESCRIPTION OF MATERIAL	USCS	%<#200	HAND PENETROMETER, TSF ■ LAB. COHESION, TSF ▲ 0.4 0.8 1.2 1.6 WATER CONTENT, % ● PL ——— LL 20 40 60 80	BLOWS PER FT
0			1	8	EXISTING FILL - a combination of silty gravel and clayey gravel with sand brown and red, with chert and limestone fragments	FILL			23
2.5			2	9	LEAN CLAY medium stiff, tan and gray	CL			6
			3	8					5
5			4	7	- stiff, tan, brown, and red below about 5 feet				8
7.5					BOTTOM OF BORING AT ABOUT 6½ FEET				
10									
12.5									
15									
17.5									

COMPLETION DEPTH: 6.5 ft.

DATE: 9/17/2024

RIG: Geoprobe 7822DT, Track-Mounted, Auto Hammer Assisted

DEPTH TO WATER: DURING DRILLING: Dry

AT COMPLETION: Dry

AT 24 HOURS: Backfilled



LOG OF BORING NO.B-2

Benton County JJC Addition
1301 Melissa Drive,
Bentonville Benton County, Arkansas

GTS, Inc.

Geotechnical & Testing Services

Fayetteville, AR

Project No.: 24-15130

Location: Shown on attached Boring Location Diagram

DEPTH, FT	SYMBOL	SAMPLES	SAMPLE No.	RECOVERY (in.)	DESCRIPTION OF MATERIAL	USCS	%<#200	HAND PENETROMETER, TSF ■ LAB. COHESION, TSF ▲ 0.4 0.8 1.2 1.6 WATER CONTENT, % • PL LL 20 40 60 80	BLOWS PER FT
0					Surface Description= Asphalt Pavement = 4 Inches				
			1	12	ASPHALT = 4 Inches				
					EXISTING FILL - predominantly clayey gravel with sand gray, red, and brown, with chert fragments	FILL			10
2.5			2	14	POSSIBLE FILL - predominantly clayey sand with gravel gray, red, and brown, with chert fragments	FILL			14
			3	12	LEAN CLAY, with sand stiff to very stiff, brown and tan				
5			4	10		CL			11
									13
7.5									
			5	6	FAT CLAY very stiff, brown and gray				
10						CH			15
12.5									
			6	4	SHALE soft, moderately weathered, gray and tan	ROCK			50/2"
15					BOTTOM OF BORING AT ABOUT 14 FEET				
17.5									

COMPLETION DEPTH: 14.17 ft.

DEPTH TO WATER: DURING DRILLING: Dry

DATE: 9/16/2024

AT COMPLETION: Dry

RIG: Geoprobe 7822DT, Track-Mounted, Auto Hammer Assisted

AT 24 HOURS: Backfilled

LOG OF BORING NO.B-3

Benton County JJC Addition
1301 Melissa Drive,
Bentonville Benton County, Arkansas

GTS, Inc.

Geotechnical & Testing Services

Fayetteville, AR

Project No.: 24-15130

Location: Shown on attached Boring Location Diagram

DEPTH, FT	SYMBOL	SAMPLES	SAMPLE No.	RECOVERY (in.)	DESCRIPTION OF MATERIAL	USCS	%<#200	HAND PENETROMETER, TSF ■ LAB. COHESION, TSF ▲ 0.4 0.8 1.2 1.6 WATER CONTENT, % ● PL LL 20 40 60 80	BLOWS PER FT
0					Surface Description= Grass Cover Root Mat = 3 Inches				
			1	10	EXISTING FILL - predominantly silty gravel with sand brown, with chert and limestone fragments	FILL		●	39
2.5			2	12	POSSIBLE FILL - predominantly clayey gravel with sand brown and red, with chert fragments below 2 feet	FILL		●	26
			3	3				●	46
5			4	10	LEAN CLAY, with sand very stiff, brown and gray	CL		● ■	17
7.5									
10			5	12	FAT CLAY very stiff, brown and gray	CH		● — ■	15
12.5									
15			6	1	LIMESTONE soft, moderately weathered, brown and gray	ROCK		●	50/1"
17.5					AUGER REFUSAL AT ABOUT 13½ FEET				

COMPLETION DEPTH: 13.58 ft.

DEPTH TO WATER: DURING DRILLING: Dry

DATE: 9/16/2024

AT COMPLETION: Dry

RIG: Geoprobe 7822DT, Track-Mounted, Auto Hammer Assisted

AT 24 HOURS: Backfilled

LOG OF BORING NO.B-4

Benton County JJC Addition
1301 Melissa Drive,
Bentonville Benton County, Arkansas

GTS, Inc.

Geotechnical & Testing Services

Fayetteville, AR

Project No.: 24-15130

Location: Shown on attached Boring Location Diagram

DEPTH, FT	SYMBOL	SAMPLES	SAMPLE No.	RECOVERY (in.)	DESCRIPTION OF MATERIAL	USCS	%<#200	HAND PENETROMETER, TSF ■ LAB. COHESION, TSF ▲ 0.4 0.8 1.2 1.6 WATER CONTENT, % • PL LL 20 40 60 80	BLOWS PER FT
0					Surface Description= Crushed Gravel = 3 Inches				
			1	10	<u>CRUSHED GRAVEL</u> = 3 INCHES EXISTING FILL - predominantly silty sandy gravel gray and tan, with chert and limestone fragments	FILL		●	77
2.5			2	6	POSSIBLE FILL - predominantly clayey gravel with sand red and brown, with chert fragments	FILL		●	13
			3	8	LEAN CLAY, with sand very soft to medium stiff, brown, tan, and gray	CL		●	2
5			4	11				● ■	7
7.5									
			5	5	FAT CLAY stiff, gray and brown	CH		●	9
10									
12.5									
			6	6	SHALE very soft, differentially weathered, gray and tan	ROCK		●	28 50/5"
15					BOTTOM OF BORING AT ABOUT 15 FEET				
17.5									

COMPLETION DEPTH: 14.92 ft.

DEPTH TO WATER: DURING DRILLING: Dry

DATE: 9/17/2024

AT COMPLETION: Dry

RIG: Geoprobe 7822DT, Track-Mounted, Auto Hammer Assisted

AT 24 HOURS: Backfilled

LOG OF BORING NO.B-5

Benton County JJC Addition
1301 Melissa Drive,
Bentonville Benton County, Arkansas

GTS, Inc.

Geotechnical & Testing Services

Fayetteville, AR

Project No.: 24-15130

Location: Shown on attached Boring Location Diagram

DEPTH, FT	SYMBOL	SAMPLES SAMPLE No.	RECOVERY (in.)	DESCRIPTION OF MATERIAL	USCS	%<#200	HAND PENETROMETER, TSF ■ LAB. COHESION, TSF ▲ 0.4 0.8 1.2 1.6 WATER CONTENT, % ● PL LL	BLOWS PER FT
0				Surface Description= Asphalt Pavement = 1 Inch				
		1	7	ASPHALT = 1 Inch EXISTING FILL - predominantly clayey gravel with sand red and brown, with chert fragments	FILL			12
2.5		2	10	LEAN CLAY medium stiff, brown and gray		89		7
		3	7					6
5				- stiff below about 5 feet	CL			
		4	9					8
7.5								
		5	8	FAT CLAY medium stiff, brown and tan		93		6
10					CH			
12.5								
		6	7	SHALE soft, moderately weathered, gray and tan	ROCK			50/2"
15				BOTTOM OF BORING AT ABOUT 14 FEET				
17.5								

COMPLETION DEPTH: 14.17 ft.

DEPTH TO WATER: DURING DRILLING: Dry

DATE: 9/17/2024

AT COMPLETION: Dry

RIG: Geoprobe 7822DT, Track-Mounted, Auto Hammer Assisted

AT 24 HOURS: Backfilled

LOG OF BORING NO.B-6

Benton County JJC Addition
1301 Melissa Drive,
Bentonville Benton County, Arkansas



Fayetteville, AR

Project No.: 24-15130

Location: Shown on attached Boring Location Diagram

DEPTH, FT	SYMBOL	SAMPLES	SAMPLE No.	RECOVERY (in.)	DESCRIPTION OF MATERIAL	USCS	%<#200	HAND PENETROMETER, TSF ■ LAB. COHESION, TSF ▲ 0.4 0.8 1.2 1.6 WATER CONTENT, % • PL LL	BLOWS PER FT
0					Surface Description= Crushed Gravel = 3 Inches				
			1	4	CRUSHED GRAVEL = 3 Inches EXISTING FILL - predominantly silty sandy gravel gray and tan, with chert and limestone fragments	FILL			23
2.5			2	6	POSSIBLE FILL - predominantly clayey gravel with sand red and tan, with chert fragments	FILL			8
			3	4	LEAN CLAY, with sand very stiff to stiff, brown and gray	CL			12
5			4	7					10
7.5					BOTTOM OF BORING AT ABOUT 6½ FEET				
10									
12.5									
15									
17.5									

COMPLETION DEPTH: 6.5 ft.

DATE: 9/17/2024

RIG: Geoprobe 7822DT, Track-Mounted, Auto Hammer Assisted

DEPTH TO WATER: DURING DRILLING: Dry

AT COMPLETION: Dry

AT 24 HOURS: Backfilled



LOG OF BORING NO.B-7

Benton County JJC Addition
1301 Melissa Drive,
Bentonville Benton County, Arkansas

GTS, Inc.

Geotechnical & Testing Services

Fayetteville, AR

Project No.: 24-15130

Location: Shown on attached Boring Location Diagram

DEPTH, FT	SYMBOL	SAMPLES	SAMPLE No.	RECOVERY (in.)	DESCRIPTION OF MATERIAL	USCS	%<#200	HAND PENETROMETER, TSF ■	LAB. COHESION, TSF ▲	WATER CONTENT, % ●	BLOWS PER FT
					Surface Description= Crushed Gravel = 3 Inches			0.4 0.8 1.2 1.6		PL LL	
0					CRUSHED GRAVEL = 3 Inches						
			1	9	EXISTING FILL - predominantly silty sandy gravel gray and tan, with chert and limestone fragments	FILL		●			30
2.5			2	7	POSSIBLE FILL - predominantly clayey gravel with sand red and brown, with chert fragments	FILL			●		22
			3	3	LEAN CLAY, with gravel stiff, brown and gray, with chert fragments and silt seams	CL		●			9
5			4	5	LEAN CLAY stiff, brown and gray	CL				●	8
7.5					BOTTOM OF BORING AT ABOUT 6½ FEET						
10											
12.5											
15											
17.5											

COMPLETION DEPTH: 6.5 ft.

DEPTH TO WATER: DURING DRILLING: Dry

DATE: 9/17/2024

AT COMPLETION: Dry

RIG: Geoprobe 7822DT, Track-Mounted, Auto Hammer Assisted

AT 24 HOURS: Backfilled



LOG OF BORING NO.B-8

Benton County JJC Addition
1301 Melissa Drive,
Bentonville Benton County, Arkansas

GTS, Inc.

Geotechnical & Testing Services

Fayetteville, AR

Project No.: 24-15130

Location: Shown on attached Boring Location Diagram

DEPTH, FT	SYMBOL	SAMPLES SAMPLE No.	RECOVERY (in.)	DESCRIPTION OF MATERIAL	USCS	%<#200	HAND PENETROMETER, TSF LAB. COHESION, TSF 0.4 0.8 1.2 1.6 WATER CONTENT, % PL LL	BLOWS PER FT
0				Surface Description= Crushed Gravel = 1 Inch				
		1	2	<u>CRUSHED GRAVEL</u> = 1 Inch				
				<u>EXISTING FILL</u> - predominantly silty gravelly sand tan and gray, with chert fragments and boulders	FILL			50/2"
2.5		2	5	<u>POSSIBLE FILL</u> - predominantly clayey gravel with sand brown, tan, and red, with chert and limestone fragments	FILL			16
		3	6					10
5		4	7	<u>LEAN CLAY</u> stiff, brown	CL			2.25 8
7.5				BOTTOM OF BORING AT ABOUT 6½ FEET				
10								
12.5								
15								
17.5								

COMPLETION DEPTH: 6.5 ft.

DATE: 9/17/2024

RIG: Geoprobe 7822DT, Track-Mounted, Auto Hammer Assisted

DEPTH TO WATER: DURING DRILLING: Dry

AT COMPLETION: Dry

AT 24 HOURS: Backfilled



LOG OF BORING NO.B-9

Benton County JJC Addition
1301 Melissa Drive,
Bentonville Benton County, Arkansas



Fayetteville, AR

Project No.: 24-15130

Location: Shown on attached Boring Location Diagram

DEPTH, FT	SYMBOL	SAMPLES	SAMPLE No.	RECOVERY (in.)	DESCRIPTION OF MATERIAL	USCS	%<#200	HAND PENETROMETER, TSF ■ LAB. COHESION, TSF ▲ 0.4 0.8 1.2 1.6 WATER CONTENT, % • PL LL 20 40 60 80	BLOWS PER FT
0					Surface Description= Crushed Gravel = 3 Inches				
			1	9	CRUSHED GRAVEL = 3 Inches POSSIBLE FILL - predominantly clayey gravel with sand tan and gray, with chert fragments	FILL			21
2.5			2	6	LEAN CLAY stiff to very stiff, gray	CL	90		12
			3	4					12
5			4	3	- brown and tan below about 5 feet				12
7.5					BOTTOM OF BORING AT ABOUT 6½ FEET				
10									
12.5									
15									
17.5									

COMPLETION DEPTH: 6.5 ft.

DATE: 9/17/2024

RIG: Geoprobe 7822DT, Track-Mounted, Auto Hammer Assisted

DEPTH TO WATER: DURING DRILLING: Dry

AT COMPLETION: Dry

AT 24 HOURS: Backfilled



SOIL CLASSIFICATION LEGEND

APPARENT CONSISTENCY OF COHESIVE SOILS (PECK, HANSON & THORNBURN 1974, AASHTO 1988)				
Descriptor	SPT N ₆₀ (blows/foot)*	Pocket Penetrometer, Qp (tsf)	Torvane (tsf)	Field Approximation
Very Soft	< 2	< 0.25	< 0.12	Easily penetrated several inches by fist
Soft	2 – 4	0.25 – 0.50	0.12 – 0.25	Easily penetrated several inches by thumb
Medium Stiff	5 – 7	0.50 – 1.0	0.25 – 0.50	Penetrated several inches by thumb w/moderate effort
Stiff	8 – 12	1.0 – 2.0	0.50 – 1.0	Readily indented by thumbnail
Very Stiff	12 – 30	2.0 – 4.0	1.0 – 2.0	Indented by thumb but penetrated only with great effort
Hard	> 30	> 4.0	> 2.0	Indented by thumbnail with difficulty

* Using SPT N₆₀ is considered a crude approximation for cohesive soils.

APPARENT DENSITY OF COHESIONLESS SOILS (AASHTO 1988)	
Descriptor	SPT N ₆₀ Value (blows/foot)
Very Loose	0 – 3
Loose	4 – 8
Medium Dense	9 – 29
Dense	30 – 49
Very Dense	≥ 50

MOISTURE (ASTM D2488-06)	
Descriptor	Criteria
Dry	Absence of moisture, dusty, dry to the touch, well below optimum moisture content (per ASTM D698 or D1557)
Moist	Damp but no visible water
Wet	Visible free water, usually soil is below water table, well above optimum moisture content (per ASTM D698 or D1557)

PERCENT OR PROPORTION OF SOILS (ASTM D2488-06)	
Descriptor	Criteria
Trace	Particles are present but estimated < 5%
Few	5 – 10%
Little	15 – 25%
Some	30 – 45%
Mostly	50 – 100%
Percentages are estimated to nearest 5% in the field. Use "about" unless percentages are based on laboratory testing.	

SOIL PARTICLE SIZE (ASTM D2488-06)	
Descriptor	Size
Boulder	> 12 inches
Cobble	3 to 12 inches
Gravel - Coarse Fine	¾ inch to 3 inches No. 4 sieve to ¾ inch
Sand - Coarse Medium Fine	No. 10 to No. 4 sieve (4.75mm) No. 40 to No. 10 sieve (2mm) No. 200 to No. 40 sieve (.425mm)
Silt and Clay ("fines")	Passing No. 200 sieve (0.075mm)

UNIFIED SOIL CLASSIFICATION SYSTEM (ASTM D2488)				
Major Division			Group Symbol	Description
Coarse Grained Soils (more than 50% retained on #200 sieve)	Gravel (50% or more retained on No. 4 sieve)	Clean Gravel	GW	Well-graded gravels and gravel-sand mixtures, little or no fines
			GP	Poorly graded gravels and gravel-sand mixtures, little or no fines
		Gravel with fines	GM	Silty gravels and gravel-sand-silt mixtures
			GC	Clayey gravels and gravel-sand-clay mixtures
	Sand (> 50% passing No. 4 sieve)	Clean sand	SW	Well-graded sands and gravelly sands, little or no fines
			SP	Poorly-graded sands and gravelly sands, little or no fines
		Sand with fines	SM	Silty sands and sand-silt mixtures
			SC	Clayey sands and sand-clay mixtures
Fine Grained Soils (50% or more passing #200 sieve)	Silt and Clay (liquid limit < 50)		ML	Inorganic silts, rock flour and clayey silts
			CL	Inorganic clays of low-medium plasticity, gravelly, sandy & lean clays
			OL	Organic silts and organic silty clays of low plasticity
	Silt and Clay (liquid limit > 50)		MH	Inorganic silts and clayey silts
			CH	Inorganic clays or high plasticity, fat clays
			OH	Organic clays of medium to high plasticity
			Highly Organic Soils	



GRAPHIC SYMBOL LEGEND		
SPT		Standard Penetration Test (2" OD), ASTM D1586
GRAB		Grab Sample
ST		Shelby Tube, ASTM D1587 (pushed)
AUGER		Boring Advanced Through Drilling
CORE		Rock coring

ROCK CLASSIFICATION LEGEND

WEATHERING DESCRIPTORS FOR INTACT ROCK (USBR, 2001)						
Descriptor	Chemical Weathering-Discoloration-Oxidation		Mechanical Weathering and Grain Boundary Conditions	Texture and Solutioning		General Characteristics
	Body of Rock	Fracture Surfaces		Texture	Solutioning	
Fresh	No discoloration, not oxidized	No discoloration or oxidation	No separation, intact (tight)	No change	No solutioning	Hammer rings when crystalline rocks are struck
Slightly Weathered	Discoloration or oxidation limited to surface or short distance from fractures; some feldspar crystals are dull	Minor or complete discoloration or oxidation of most surfaces	No visible separation, intact (tight)	Preserved	Minor leaching of some soluble minerals may be noted	Hammer rings when crystalline rocks are struck; body of rock not weakened
Moderately Weathered	Discoloration or oxidation extends from fractures usually throughout; Fe-Mg minerals are "rusty," feldspar crystals are "cloudy"	All fracture surfaces are discolored or oxidized	Partial separation of boundaries visible	Generally preserved	Soluble minerals may be mostly leached	Hammer does not ring when rock is struck; body of rock is slightly weakened
Intensely Weathered	Discoloration or oxidation throughout; all feldspars and Fe-Mg minerals are altered to clay to some extent or chemical alteration produces in-situ disaggregation	All fracture surfaces are discolored or oxidized; surfaces are friable	Partial separation; rock is friable; granitics are disaggregated in semi-arid conditions	Altered by chemical disaggregation such as via hydration or argillation	Leaching of soluble minerals may be complete	Dull sound when struck with hammer; usually can be broken with moderate to heavy manual pressure or by light hammer blow; rock is significantly weakened
Decomposed	Discolored or oxidized throughout, but resistant minerals such as quartz may be unaltered; all feldspars and Fe-Mg minerals are completely altered to clay		Complete separation of grain boundaries (disaggregation)	Resembles a soil; partial or complete remnant rock structure may be preserved; leaching of soluble minerals usually complete		Can be granulated by hand; resistant minerals such as quartz may be present as "stringers" or "dikes"

RELATIVE STRENGTH OF INTACT ROCK	
Descriptor	Uniaxial Compressive Strength (psi)
Extremely Hard	> 30,000
Very Hard	14,500 – 30,000
Hard	7,000 – 14,500
Moderately Hard	3,500 – 7,000
Soft	700 – 3,500
Very Soft	150 – 700
Extremely Soft	< 150

BEDDING SPACING (modified USBR, 2001)	
Descriptor	Thickness or Spacing
Massive	> 10 feet
Very thickly bedded	3 to 10 feet
Thickly bedded	1 to 3 feet
Moderately bedded	3-5/8 inches to 1 foot
Thinly Bedded	1-1/4 inches to 3-5/8 inches
Very thinly bedded	3/8 inch to 1-1/4 inches
Laminated	< 3/8 inch

CORE RECOVERY CALCULATION (%)
= $\frac{\text{length of recovered core pieces}}{\text{total length of core run}} \times 100\%$

RQD CALCULATION (%)
= $\frac{\text{length of intact core pieces} > 4 \text{ in}}{\text{total length of core run (inches)}} \times 100\%$



ROCK HARDNESS (modified USBR, 2001)	
Descriptor	Criteria
Extremely hard	Cannot be scratched with pocket knife or sharp pick; can only be chipped with repeated heavy hammer blows
Very hard	Cannot be scratched with pocket knife or sharp pick; breaks with repeated heavy hammer blows
Hard	Can be scratched with pocket knife or sharp pick with heavy pressure; heavy hammer blows required to break specimen
Moderately hard	Can be scratched with pocket knife or sharp pick with light or moderate pressure; breaks with moderate hammer blows
Moderately soft	Can be grooved 1/16 inch with pocket knife or sharp pick with moderate or heavy pressure; breaks with light hammer blow or heavy hand pressure
Soft	Can be grooved or gouged with pocket knife or sharp pick with light pressure; breaks with light to moderate hand pressure
Very soft	Can be readily indented, grooved, or gouged with fingernail, or carved with pocket knife; breaks with light hand pressure

APPENDIX B

Results of Laboratory Classification Testing

GTS, Inc.

Geotechnical & Testing Services

1915 North Shiloh Drive
Fayetteville, Arkansas 72704

Office: (479) 521-7645

Office Locations

Fayetteville, Arkansas
Little Rock, Arkansas
Fort Smith, Arkansas
Tulsa, Oklahoma
Dallas, Texas

PROJECT: Benton County JJC
Addition

DATE: 9/24/2024

JOB NO: 24-15130

BORING NO.	B-5	SIEVE SIZE	PERCENT PASSING
		3.00"	100.0%
SAMPLE NO.	S-2	1.50"	100.0%
		1.00"	100.0%
		3/4"	100.0%
DEPTH (FT)	2-3.5	3/8"	100.0%
		No. 4	100.0%
		No. 10	100.0%
PLASTIC LIMIT	15	No. 40	96.6%
		No. 200	89.1%

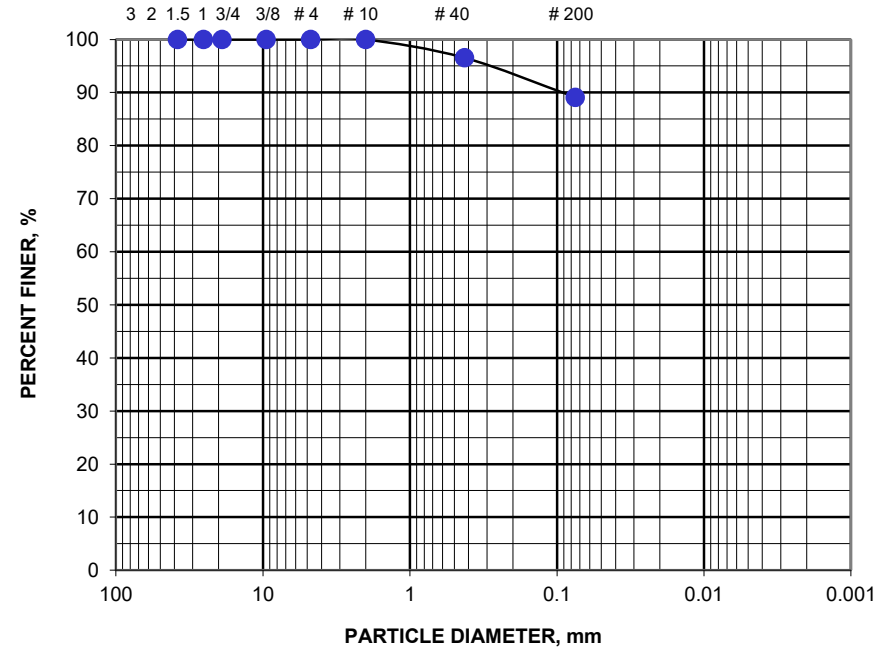
LIQUID LIMIT	29	PLASTICITY INDEX	14	MOISTURE CONTENT (%)	24.1
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VISUAL DESCRIPTION	brown and gray
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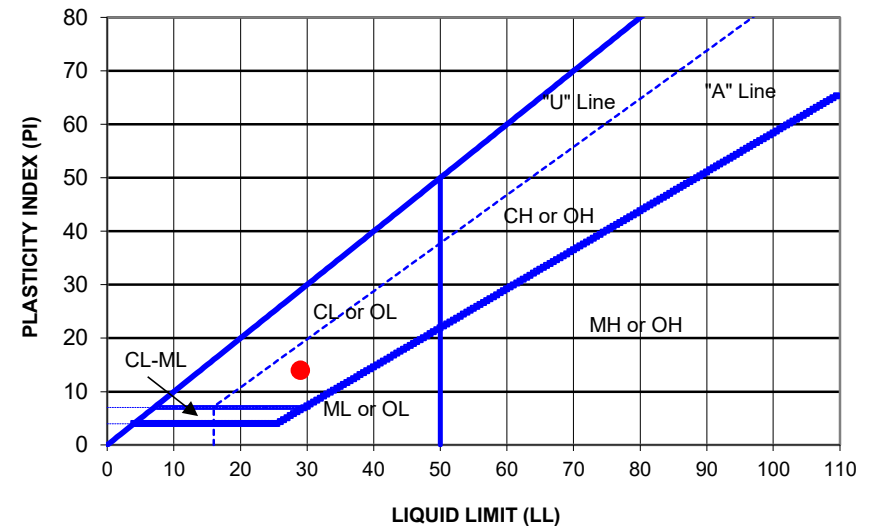
ASTM DESCRIPTION	AASHTO CLASSIFICATION	AASHTO GI
Lean Clay, CL	A-6	11

GRAIN SIZE DISTRIBUTION CURVE

U.S. STANDARD SIEVE OPENINGS IN INCHES & STANDARD SIEVE NUMBERS



PLASTICITY CHART



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Addition

DATE: 9/24/2024

JOB NO: 24-15130

BORING NO.	B-5	SIEVE SIZE	PERCENT PASSING
		3.00"	100.0%
SAMPLE NO.	S-5	1.50"	100.0%
		1.00"	100.0%
		3/4"	100.0%
DEPTH (FT)	8.5-10	3/8"	100.0%
		No. 4	99.4%
		No. 10	98.8%
PLASTIC LIMIT	16	No. 40	98.4%
		No. 200	93.0%

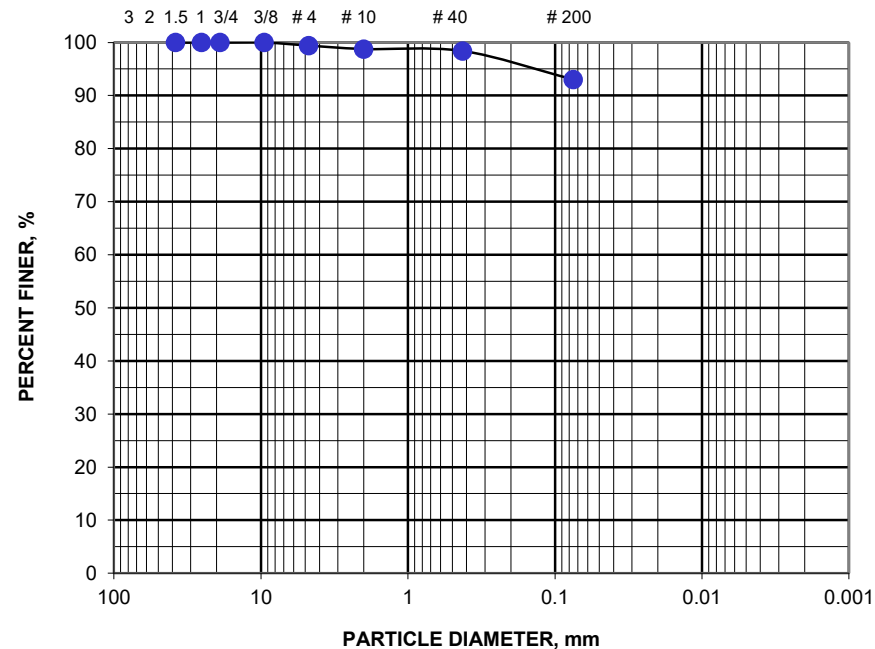
LIQUID LIMIT	57	PLASTICITY INDEX	41	MOISTURE CONTENT (%)	26.5
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VISUAL DESCRIPTION	brown and tan
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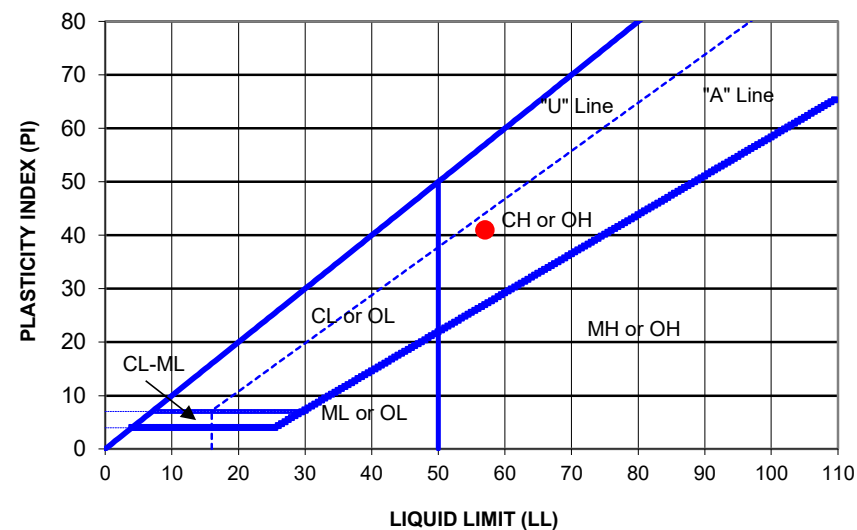
ASTM DESCRIPTION	AASHTO CLASSIFICATION	AASHTO GI
Fat Clay, CH	A-7-6	41

GRAIN SIZE DISTRIBUTION CURVE

U.S. STANDARD SIEVE OPENINGS IN INCHES & STANDARD SIEVE NUMBERS



PLASTICITY CHART



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Geotechnical & Testing Services

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Fayetteville, Arkansas 72704

Office: (479) 521-7645

Office Locations

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Fort Smith, Arkansas
Tulsa, Oklahoma
Dallas, Texas

PROJECT: Benton County IJC
Addition

DATE: 9/24/2024

JOB NO: 24-15130

BORING NO.	B-9	SIEVE SIZE	PERCENT PASSING
		3.00"	100.0%
SAMPLE NO.	S-2	1.50"	100.0%
		1.00"	100.0%
		3/4"	100.0%
DEPTH (FT)	2-3.5	3/8"	100.0%
		No. 4	100.0%
		No. 10	99.0%
PLASTIC LIMIT	15	No. 40	96.0%
		No. 200	90.1%

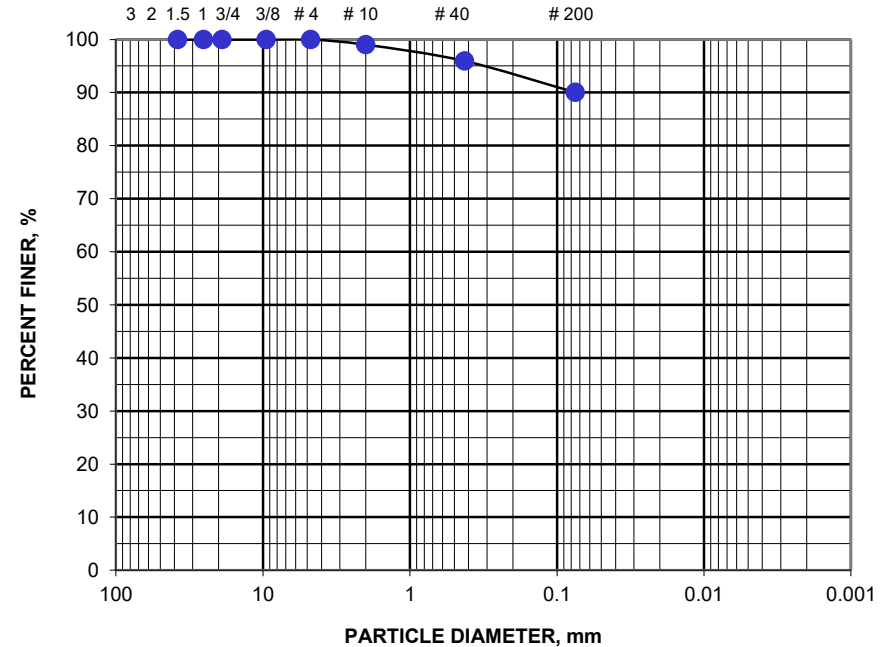
LIQUID LIMIT	44	PLASTICITY INDEX	29	MOISTURE CONTENT (%)	19.4
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VISUAL DESCRIPTION	gray
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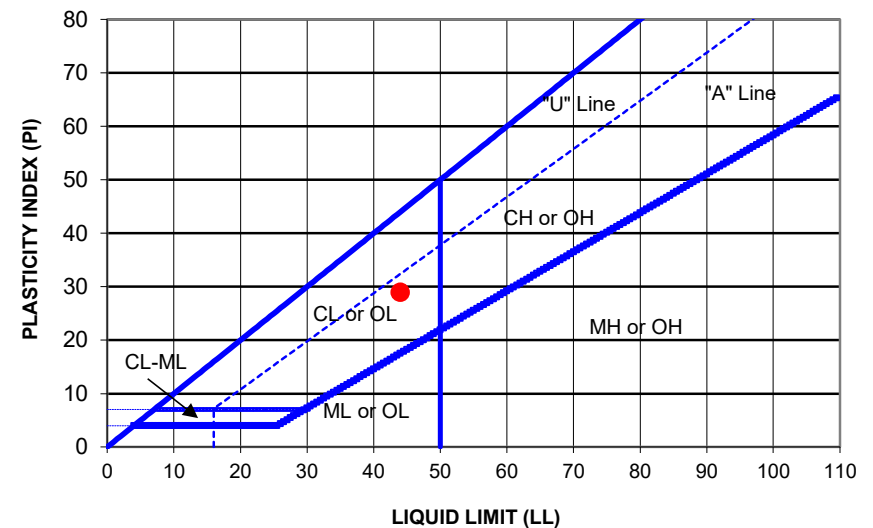
ASTM DESCRIPTION	AASHTO CLASSIFICATION	AASHTO GI
Lean Clay, CL	A-7-6	26

GRAIN SIZE DISTRIBUTION CURVE

U.S. STANDARD SIEVE OPENINGS IN INCHES & STANDARD SIEVE NUMBERS



PLASTICITY CHART



SECTION 02 32 01

SITE AND SUBSURFACE INVESTIGATION BY CONTRACTOR

PART I GENERAL

1.1 SECTION INCLUDES

- A. Surface reconnaissance and evaluation of existing site conditions.
- B. Sub-surface evaluation by contractor's chosen method of investigation.

1.2 RELATED SECTIONS

- A. Sections 00 72 00 - General Conditions.
- B. Section 00 73 00 - Supplementary conditions.

PART 2 GENERAL

2.1 EXECUTION

- A. The Contractor is responsible for having a thorough knowledge of all Drawings, Specifications, General and Supplementary Conditions, and other Contract Documents. Failure to acquaint himself with this knowledge does not relieve him of the responsibility for performing his work in a manner acceptable to the Owner. No additional compensation will be allowed because of conditions that occur due to the failure by the Contractor to familiarize himself and all work with this knowledge.
- B. The Contractor shall be responsible for determining the existing conditions of the site and shall thoroughly examine all factors reasonably available to him, including but not limited to the Drawings, Specifications, geotechnical report, site boundary and topography, site conditions, site history, local information, and seasonal weather conditions. Geotechnical report data is not considered all conclusive and it is the Contractor's responsibility to further investigate site conditions as he determines necessary. The Contractor shall be totally responsible for acceptance of the site and preparation of the site to the proper grade and compaction requirements as indicated by the Contract Documents including Construction Drawings and Specifications. Any construction performed by the Contractor on the project will constitute acceptance of the site.

END OF SECTION

02 32 01-1

SECTION 02 41 19

MINOR DEMOLITION FOR REMODELING

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Removal of designated building equipment and fixtures.
- B. Removal of designated construction.
- C. Disposal of materials.
- D. Identification of utilities.
- E. Refer to items as indicated on drawings.

1.2 RELATED SECTIONS

- A. Section 01 11 00 - Summary of Work: Work sequence, Owner's continued occupancy.
- B. Section 01 35 16 - Alteration Project Procedures: Re-installation of removed and stored products.
- C. Section 01 50 00 - Construction Facilities and Temporary Controls: Temporary enclosures, dust control barricades, security at Owner occupied areas, and cleanup during construction.
- D. Section 01 77 00 - Contract Closeout: Project record documents.

1.3 SUBMITTALS FOR CLOSEOUT

- A. Section 01 77 00 - Contract Closeout: Procedures for submittals.
- B. Project Record Documents: Accurately record actual locations of capped utilities, subsurface obstructions, and other items field verified as different from construction documents.

1.4 REGULATORY REQUIREMENTS

- A. Conform to applicable code for demolition work, dust control, products requiring electrical disconnection and re-connection.
- B. Obtain required permits from the authorities.
- C. Do not close or obstruct egress width to any building or site exit.

02 41 19-1

- D. Do not disable or disrupt building fire or life safety systems without 2 days prior written notice to Owner.
- E. Conform to procedures applicable when hazardous or contaminated materials are discovered.

1.5 SCHEDULING

- A. Section 01 33 00 - Submittals, 01 32 36 Progress Schedules: Work schedule.
- B. Schedule Work to coincide with new construction.
- C. Describe demolition removal procedures and schedule.
- D. Perform noisy work when the building is unoccupied.

1.6 PROJECT CONDITIONS

- A. Conduct demolition to minimize interference with adjacent and occupied building areas.
- B. Cease operations immediately if the structure appears to be in danger and notify Architect/Engineer. Do not resume operations until directed.

PART 2 PRODUCTS Not Used

PART 3 EXECUTION

3.1 PREPARATION

- A. After date of Notice to Proceed, Contractor to assume responsibility for structures and items to be demolished and removed until such work is completed to the satisfaction of the Owner's representative. After work is started on any building or structure, work shall continue without interruption until complete.
- B. Provide, erect, and maintain temporary barriers and partitions at locations as required and indicated.
- C. Erect and maintain weatherproof closures for exterior openings.
- D. Erect and maintain temporary partitions to prevent the spread of dust, odors, and noise to permit continued Owner occupancy.
- E. Protect existing materials and items which are not to be demolished.
- F. Prevent movement of structure; provide bracing and shoring.

- G. Notify affected utility companies before starting work and comply with their requirements.
- H. Mark location and termination of utilities.
- I. Provide appropriate temporary signage including signage for exit or building egress. Do not close or obstruct existing building fire exits.

3.2 DEMOLITION

- A. Disconnect remove and / or cap designated utilities within demolition areas.
- B. Demolish in an orderly and careful manner. Protect existing supporting structural members.
- C. Remove demolished materials from site except where specifically noted otherwise. Do not burn or bury materials on site.
- D. Remove materials as Work progresses. Upon completion of Work, leave areas in clean condition.
- E. Remove temporary Work.
- F. Wherever a cutting torch or other equipment that may cause a fire is used, provide, and maintain fire extinguishers nearby ready for immediate use. All possible users shall be instructed in the use of the extinguishers.
- G. Hydrants shall be accessible at all times. No debris shall be permitted to accumulate.

3.3 CLEAN UP

- A. On completion of work of this section and after removal of all debris, site shall be left in drainable, clean condition satisfactory to Owner's Representative. Clean-up shall include disposal of all items and materials not required to be salvaged as well as all debris and rubbish resulting from demolition operations.

END OF SECTION

02 41 19-3

SECTION 03 11 00

CONCRETE FORM WORK

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. All concrete and related items required to complete the building, provide off-sets, bulkheads, recesses, openings, chases, etc., and install any inserts, sleeves, etc., required by other trades.

1.2 RELATED WORK SPECIFIED ELSEWHERE:

- A. Concrete: Section 03 30 00
- B. Concrete Reinforcement: Section 03 21 00

1.3 WORK INSTALLED BUT FURNISHED BY OTHER SECTIONS:

- A. Built-in anchors, inserts and bolts for connection of other materials.
- B. Built-in sleeves, thimbles, dovetail slots, and water-stops.

1.4 DEFINITIONS:

- A. Architectural Concrete Surfaces: Formed surfaces where appearance is of major importance.
- B. Non-Architectural Concrete Surfaces: Formed surfaces where appearance is not of major importance.

1.5 QUALITY ASSURANCE:

- A. Design Criteria:
 - 1. General: Conform to ACI 347-Current Edition Chapter 1, Design.
 - 2. Plywood: Conform to tables for form design in APA Form V 345- Current Edition, including strength.
- B. Requirements of Regulatory Agencies: Erect forms to meet the requirements of the Local Building Code.
- C. Allowable Tolerances:
 - 1. Non-Architectural Concrete: Conform to ACI 347- Current Edition.
- D. Contractor shall assume full responsibility for earthwork, or an existing structure used as a form and such form work must meet all requirements of this section.

03 11 00-1

1.6 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. On delivery to the job site, place materials in area protected from weather.
- B. Store materials above ground on framework or blocking and cover with protective waterproof covering providing for adequate air circulation or ventilation.
- C. Handle materials to prevent damage.

PART 2 PRODUCTS

2.1 MATERIALS:

- A. Conform to ACI 347- Current Edition, Chapter 3, Materials and Form Work.

2.2 LUMBER:

- A. Softwood framing lumber: Kiln dried, PS 20-70.
- B. Boards less than 1 1/2" thick, used for basic forms and form liners: Kiln dried.
- C. Grade marked by grading rules agency approved by American Lumber Standards Committee.
- D. Light framing or studs for plywood forms, 2 in. to 4 inches in width and thickness, construction grade.

2.3 PLYWOOD:

- A. Exterior type softwood plywood, PS 1-66.
- B. Each panel stamped or branded indicating veneer grades, species, type and identification.
- C. Wood faced plywood for architectural concrete surfaces. Panel veneer grades: A-C. Mill-oiled sides and mill-sealed edges of panels.

2.4 CORNER FORMERS:

- A. Profile type: chamfered face.
- B. Material: Wood

2.5 TIES:

- A. Material: Carbon Steel
- B. Type: Snap ties

03 11 00-2

- C. Depth of break back: 1 inch
- D. Maximum diameter: 1/4 inch

2.6 FORM COATINGS:

- A. Plywood and wood forms shall be sealed against absorption of moisture from the concrete with an approved non-staining form oil or sealer.
- B. Form sealer, lacquer or any form of release agents containing wax, oil, or other materials that would interfere with adhesion shall not be used on form work for concrete which is to receive exposed aggregate coatings.

PART 3 EXECUTION:

3.1 GENERAL

- A. The design, engineering, bracing and construction of form work shall be the responsibility of the Contractor.
- B. Form work shall conform to shapes, lines and dimensions of members as shown on contract plans and shall be sufficient to prevent mortar leakage and to maintain position and shape during and after placing of concrete. Form work for exposed surfaces shall be constructed of undamaged materials that will result in an unblemished, flush surface when removed.
- C. Shoring and bracing of form work shall be adequate to resist all construction loads, wet concrete, stored and lateral loads due to earthwork. Shoring and bracing of elevated slabs shall remain in place until the concrete has reached a minimum compressive strength of 3,500 psi.
- D. Preparation of forms. Edges of exposed concrete work, exterior and interior shall be pointed up to present a good square appearance.
- E. Provide temporary openings in framework for concrete placement.
- F. Removal of forms is subject to weather conditions after concrete is poured. Remove formwork in manner to ensure complete safety of structure. Do not place building materials on slabs until they are strong enough to carry the imposed load. The contractor shall decide when to remove and accept full responsibility for their removal.
- G. Do not run reinforcement, corner protection angles, or related fixed metal items, embedded in or bonded into concrete through expansion joints. Provide filler strips for expansion joints between slabs on grade and all joints between slabs on grade and vertical surfaces. Construct joints 1/2 inch wide and full depth of slab unless noted otherwise.

END OF SECTION

03 11 00-3

SECTION 03 21 00

CONCRETE REINFORCEMENT

PART 1 GENERAL

1.1 Section Includes:

- A. All steel reinforcement, mesh, dowels, and related items to comply with drawings and specifications including materials, labor, and equipment to complete the building and work shown.
- B. Observation and Required Special Inspections

1.2 RELATED WORK SPECIFIED ELSEWHERE:

- A. Section 01 40 00 – Quality Control: Required Special Inspections
- B. Section 03 11 00 - Concrete Form Work: Section
- C. Section 03 30 00 - Cast-In-Place Concrete
- D. Section 04 22 00 - Concrete Unit Masonry

1.3 QUALITY ASSURANCE:

- A. Acceptable Manufacturers: Regularly engaged in manufacture of steel bar and welded wire fabric reinforcing.
- B. Installer Qualifications:
 - 1. Three years experience in installation of steel bar and welded wire fabric reinforcing.
- C. Requirements of Regulatory Agencies: Conform to requirements of local Building Code.
- D. Allowable Tolerances:
 - 1. Fabrication:
 - a. Sheared length: + or - 1 inch
 - b. Stirrups, ties and spirals: + or - 1/2 inch
 - c. All other bends: + or - 1 inch
 - 2. Placement:
 - a. Concrete cover to form surfaces: + or - 1/4 inch
 - b. Minimum spacing between bars: + or - 1/4 inch
 - c. Top bars in slabs and beams:
 - (1) Members 8 inches deep or less: + or - 1/4 inch
 - (2) Members more than 8 inches, but not over 2 feet deep: + or - 1/2 inch
 - (3) Members more than 2 ft. deep: + or - 1 inch
 - d. Crosswise of members: Spaced evenly within 2 inches of stated separation.

03 21 00-1

- e. Lengthwise of members: + or - 2 inches.
- 3. Maximum bar movement to avoid interference with other reinforcing steel, conduits, or embedded items: 1 bar diameter.

1.4 SHOP DRAWINGS:

- A. Comply with Section 01 33 00.
- B. Show sizes and dimensions for fabrications and placing of reinforcing steel and bar supports.
- C. Indicate bar schedule, stirrup spacing, and diagrams of bend bars.
- D. All detailing, fabrication and erection of reinforcing bars shall comply with the A.C.I. Manual of Standard Practice for Detailing Reinforced Concrete Structures. (A.C.I. 315).ACI 315R- 18 is titled "Guide to Presenting Reinforcing Steel Design Details."
- E. Manufacturer's Literature: Manufacturer's specifications and installation instructions for splice devices.

1.5 PRODUCT DELIVERY, STORAGE, AND HANDLING:

- A. Deliver reinforcement to project site in bundles marked with durable tags indicating bar size and length.
- B. Handle and store materials to prevent contamination.

PART 2 PRODUCTS

2.1 MATERIALS

- A. REINFORCING STEEL. Reinforcing steel for concrete shall be deformed, clean, free from rust and new. It shall conform to ASTM Standard A 615 and shall be Grade 60 for bars No. 4 and larger and Grade 40 for No. 3 bars and smaller.
- B. SMOOTH STEEL DOWEL BARS. Plain steel dowel bars for reinforcing concrete slab joints shall meet the requirements of ASTM A 615, Grade 60. These plain round dowel bars shall be free from burrs or other deformations restricting slippage in the concrete.
 - 1. Smooth Dowel bars shall be held in position parallel to the surface and centerline of the slab by a metal assembly of sufficient strength and anchorage to prevent displacement during the paving operations. Immediately prior to placement of concrete, each bar shall be field coated for a minimum distance of 2 inches greater than half the length of the bar with an approved lubricant. Lubricated ends of adjacent bars shall be on alternating sides of the slab joint.

- C. WIRE FABRIC. Wire fabric shall be electrically-welded wire fabric of cold-drawn wire (70,000 psi yield point) of the diameter and spacing required and shall conform to ASTM Standard A 185. Welded wire fabric or mesh shall be of gauge and mesh shown on plans and shall conform to "Standard Specifications for Welded Steel Wire Fabric for Concrete REINFORCEMENT: (ASTM A1064-Current Edition). Furnish mesh in flat sheets. ASTM A1064/A1064M – 17 is titled "Standard Specification for Carbon-Steel Wire and Welded Wire Reinforcement, Plain and Deformed, for Concrete."
- D. TIE WIRE: FS-QQ-W-461, annealed steel, black, 16 gauge minimum
- E. BAR & WIRE MESH SUPPORTS: Conform to "Bar Support Specifications", CRSI Manual of Standard Practice. Metal bolsters required. No bricks or CMU allowed. Bars supports used over or against concrete surfaces which are exposed shall be plastic protected. The plastic shall have a thickness of 3/32" or greater at points of contact with the form work. The plastic shall extend upward on the wire to a point at least 1/2" above the form work. Provide following support types (CRSI Designation):
1. Woven Wire Mesh: Type "SBU", linear, longest length possible.
 2. Steel reinforcement bars: Type "SBU", length as required to fit in trench and properly support bars.
 3. Note: "SBU" type supports to have two (2) bottom runners and one (1) top runner, all continuous.
- F. DIAMOND PLATE DOWEL SYSTEM: Provide Diamond Dowel System manufactured by PNA construction technologies, "Speed Plate" System by SIKKA Corp. or approved alternate. Plates are manufactured from steel certified to meet ASTM A36 (1/4" and 3/8") or ASTM A108 (3/4")
1. Install at all construction joints at building slabs-on-grade.
 2. Provide diamond plate thickness as follows, depending on slab thickness:
 - a. 1/4" (6mm) – typically used in 4"- 6" slab depths
 - b. 3/8" (10 mm) – typically used in 7"- 8" slab depths
 - c. 3/4" (20 mm) – typically used in 9" plus slab depths
- G. FIBER REINFORCEMENT Refer to Section 03 30 00.

PART 3 EXECUTION

3.1 FABRICATION

- A. In accord with CRSI Manual of Standard Practice.

3.2 INSTALLATION:

- A. Placements:
1. Bar Supports: CRSI Placing Reinforcing Bars (current edition).
 2. Reinforcing Bars: CRSI Supports for Reinforcement Used in Concrete (current edition). Support footing reinforcement bars with SBU type supports. Space at no more than 4'-0" on center. Support reinforcement bars at each footing corner and

03 21 00-3

- intersection. **Rebar chairs will not be acceptable.** For large double layer reinforcement pad footing mats, provide doubling of the SBU supports.
3. Details shall be in accordance with "Building Code Requirements for Structural Concrete" (ACI 318-Current Edition)
 4. **Place sufficient length supports for wire mesh concrete slab reinforcement no more than 3'-0" on center, or stagger at 2'-0" on center. Do not cut supports into small lengths.** Do not extend support through control joints.
 5. Install #4 reinforcement hoops around slab penetrations 3" or larger in diameter. This would include, but not be limited to plumbing pipes, electrical conduit, floor drains, electrical floor boxes, etc.
 6. Where groups of electrical conduits exceed 3" in diameter, install #4 reinforcement hoops around groups, or provide straight #4 bars around linear groups.
- B. Steel Adjustment:
1. Move within allowable tolerances to avoid interference with other reinforcing steel, conduits, or embedded items.
 2. Do not move bars beyond allowable tolerances without concurrence of Architect/Engineer.
 3. Do not heat, bend, or cut bars without concurrence of Architect/Engineer.
- C. Concrete covering over reinforcement shall be not less than the following:
1. Where concrete is deposited directly against earth: 3"
 2. Where formed concrete surface will be exposed to weather or ground: 2"
 3. Where formed concrete surface will not be exposed to weather or ground: for walls and slabs: 3/4"
 4. For beams, girders, and columns: 1-1/2"
 5. All covering: Nominal bar diameter
- D. Splices:
1. Lap splices: Tie securely with wire to prevent displacement of splices during placement of concrete.
 2. Splice devices: Install in accordance with manufacturer's written instructions.
 3. Welding: Do not weld reinforcement.
 4. Do not splice bars except at locations shown on drawings without concurrence of Architect/Engineer.
- E. Wire Fabric:
1. Install in longest practicable length.
 2. Lap adjoining pieces one full mesh minimum, and lace splices with 16-gauge wire.
 3. Do not make end laps midway between supporting beams, or directly over beams of continuous structures.
 4. Offset end laps in adjacent widths to prevent continuous laps.
 5. Do not continue wire fabric through control joints

F. Diamond Plate Dowel System:

1. Install Diamond Plate Dowel System, following manufacturer's instructions.
2. Provide diamond plate dowel spacing as follows, depending on slab thickness:
 - a. 4" -6" slab thickness: 1/4" thick at 18" O.C.
 - b. 7" -8" slab thickness: 3/8" thick at 18" O.C.

3.3 CLEANING:

- A. Remove dirt, grease, oil, loose mill scale, excessive rust, and foreign matter that will reduce bond with concrete.

3.4 . PROTECTION DURING CONCRETING:

- A. Keep reinforcing steel in proper position during concrete placement.

3.5 OBSERVATION AND SPECIAL INSPECTIONS

- A. Reinforcement and placement shall be observed by the Architect/Engineer prior to placing concrete. Inspection of reinforcement for conformance to the construction documents shall be completed by the designated third-party Special Inspector.

3.6 INSTALLATION OF MISCELLANEOUS ITEMS:

- A. Contractor shall coordinate and check that all work required to be embedded in concrete is in place prior to pouring. Placement of such work is to be done without disturbing reinforcement in place.

END OF SECTION

03 21 00-5

SECTION 03 30 00

CAST-IN-PLACE CONCRETE

PART 1 GENERAL

1.1 SCOPE:

- A. This Contractor shall furnish all material and labor necessary to complete execution of all concrete portions of this project, including the following items and other items of concrete or cement work which may be essential to complete that portion of the work as shown on the contract drawings and as hereinafter specified.
 - 1. Footings, foundations and structural members as shown
 - 2. Concrete finish floor slabs.
 - 3. All concrete steps, landings, walks, curbs, etc.
 - 4. Interior trenching in existing concrete floors.
 - 5. Non-Shrink and Epoxy Grout
 - 6. Concrete Accessories
 - 7. Concrete Floor Densifier/Hardener
 - 8. Concrete Minimum Finish Tolerances & Standards
 - 9. Concrete Slab Moisture Mitigation
 - 10. Observation and Required Special Inspections
 - 11. Concrete Mix Design Submittal Form

1.2 RELATED WORK SPECIFIED ELSEWHERE:

- A. Section 01 40 00 – Quality Control: Required Special Inspections
- B. Section 03 11 00 - Concrete Form Work
- C. Section 03 21 00 - Concrete Reinforcement
- D. Section 04 22 00 Concrete Unit Masonry
- E. Section 09 91 00 - Painting
- F. Section 31 23 00 - Structural Excavation, Backfill and Compaction
- G. Section 32 16 00 - Walks and Curbs

1.3 QUALITY ASSURANCE:

- A. Standards: Provisions of American Concrete Institute "Building Code Requirements for Structural Concrete" (ACI 318-Current Edition). American Concrete Institute "Specifications for Structural Concrete" (ACI 301-Current Edition), Concrete Reinforcing Steel Institute "Manual of Standard Practice" (Current Edition), American

03 30 00-1

Concrete Institute "Guide to Presenting Reinforcing Steel Design Details" (ACI 315-Current Edition) and " Guide to Formwork for Concrete" (ACI 347-Current Edition) are adopted except that where additional or more stringent requirements are required by these specifications.

- B. Tests: As listed in Standard Practice for Sampling Freshly Mixed Concrete ASTM C 172-Current Edition.
- C. Control Joints and Expansion Joints: Follow Provisions of American Concrete Institute concerning maximum area for placement of expansion and control joints unless shown or noted otherwise on drawings and specifications. If contractor requests adjustments to control joint placement or additional control joints and/or expansion joints, consult Architect prior to concrete placement.
- D. **Slabs must be replaced that have a crack(s) with a width of 0.05" or greater. In high visibility areas all cracks in slabs will be subject to replacement of slab sections at the discretion of the Architect.**

1.4 SUBMITTALS:

- A. Test Reports: Reports of concrete compression, yield, and slump tests.
- B. Certificates:
 - 1. Manufacturer's certification that materials meet specification requirements.
 - 2. Material content per cubic yard of each class of concrete furnished:
 - a. Dry weights of cement.
 - b. Saturated surface-dried weights of fine and coarse aggregate.
 - c. Quantities, type and name of admixtures.
 - d. Weight of water.
 - 3. Ready-mix delivery tickets, ASTM C 94-Current Edition.
- C. Fully completed concrete mix design submittal form found at the end of this section for each type of concrete to be placed.

1.5 PRODUCT AND ENGINEERING DATA:

- A. Submit data for design mixes, proposed admixtures, etc. per Section 01 33 00.
- B. The Contractor shall be responsible for checking quantities and dimensions in accordance with contract drawings and field conditions. Where discrepancies in dimensions are noted, the Contractor shall notify the Architect of such discrepancies and corrected dimensions noted on submittal drawings.
- C. Contract drawings receive precedence over shop drawings unless authorized in writing.
- D. Shop drawings furnished for reinforcing steel shall contain fabrication details as well as placement drawings which are to be used in conjunction with contract drawings.

03 30 00-2

- E. Detailing and fabrication of reinforcing shall conform to " Guide to Presenting Reinforcing Steel Design Details", (ACI 315-Current Edition).

1.6 PRODUCT DELIVERY, STORAGE, AND HANDLING:

- A. Cement: Store in weather tight enclosures and protect against dampness, contamination, and warehouse set. Any cement damaged by moisture, or which fails to meet any of the specified requirements shall be rejected and removed from the work.
- B. Aggregates:
 - 1. Stockpile to prevent excessive segregation, or contamination with other materials or other sizes of aggregates.
 - 2. Use only one supply source for each aggregate stockpile.
- C. Mixing: Ready-mixed concrete shall be mixed and delivered in accordance with Standard Specifications for Ready-Mixed Concrete" (ASTM C94-Current Edition).

1.7 ENVIRONMENTAL REQUIREMENTS:

- A. Allowable Concrete Temperatures
 - 1. Cold Weather: Minimum 40 degrees. With temperatures lower than 40 degrees, approval by the Architect shall be required.
 - 2. Hot Weather: Maximum 90 degrees F.
- B. Do not place concrete during rain, sleet, or snow unless protection is provided which is approved by Architect.

1.8 CONCRETE SLAB MOISTURE MITIGATION:

- A. It will be the responsibility of the Contractor to obtain moisture levels at or below the required percentages as required for installation of all floor covering products by the time the products are ready to be installed. If moisture levels are not reached at the scheduled time to install floor coverings, the Contractor will pursue other means to meet floor covering moisture requirements at no additional cost to owner. This will not be a reason to delay project completion.

1.9 CERTIFICATION

- A. Ready Mix concrete batch plant to be NRMCA (National Ready Mixed Concrete Association) certified. Submit proof of certification with submittals.
- B. Concrete Flatwork Finishers to be ACI certified. Submit proof of certification to the Architect for approval.

PART 2 PRODUCTS

2.1 MATERIALS

A. Concrete:

1. Portland Cement: Type 1 Portland, meeting "Standard Specifications for Portland Cement", (ASTM C150-Current Edition) shall be used.
2. Aggregates: All aggregates shall be limestone, clean, hard strong and durable particles free of chemicals or foreign material that may affect the bonding of cement paste and shall conform to "Specifications for Concrete Aggregates" (ASTM C33-Current Edition). Coarse aggregate gradation shall be within the limits of 1 inch to No. 4 standard sieve analysis. Alternate aggregate materials must be reviewed and approved by the architect.
3. Mixing Water: Water shall be fresh, clean, and potable.
4. Slump: 5 inch maximum: plus, tolerance 0 inches, minus tolerance 2 inches.
5. Mix proportioning: To produce 28-day minimum compressive strength of moist cured laboratory samples. Provide the following minimum compressive strengths at listed locations unless noted otherwise in other specification sections or on drawings:
 - a. 3000 psi for all footing and foundation stem walls.
 - b. 3000 psi for all exterior sidewalk/stoop/patio locations.
 - c. 3500 psi for all interior slabs-on-grade.
 - e. 3000 psi for all other concrete items
 - f. 4000 psi for heavy duty dumpster pad and concrete pavement repairs
 - g. 3500 psi for concrete drainage structures and trickle channels

B. Curing Material: Products and material as required to apply and maintain slab in moist condition during curing period per this specification. Constant water sprinkling or water curing covers kept wet are acceptable.

1. Under no circumstances are chemical curing compounds to be used in slabs on grade unless prior approval is obtained from the Architect.
2. Do not use polyethylene vapor barrier or similar membrane for curing membranes when water curing in areas where exposed concrete finish is scheduled.

C. Curing Material: Chemical curing products: AmeriPolish PCA curing agent, manufactured by AmeriPolish Architectural Concrete Products, (800) 592-9320. 1100-CLEAR, manufactured by W.R. Meadows Inc, (800)342-5976. L&M CURE, manufactured by Laticrete (800)243-4788. The contractor is to verify with floor covering manufacturers that they will warrant their product if a curing agent is applied where the floor covering is to be installed.

C. Below-slab vapor barrier shall be as specified in Section 07 10 00, but no less than 15 mils thick.

D. Reinforcement: See Section 03 21 00

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2.2 CONCRETE FLOOR DENSIFIER/HARDENER AND SEALER

- A. Penetrating Hardener/Densifier: (Clear liquid reactive lithium-silicate based.)
 - 1. Retroplate 99 by Advanced Floor Products.
 - 2. Consolideck LS, by Prosoco.
 - 3. 3D HS, by Ameripolish
 - 4. Approved alternate by other manufacturer specified herein.
- B. Clear Sealer: Refer to specification 09 91 00 Paint & Finishing

2.3 MIXES:

- A. Proportions: Ready-mix concrete shall meet "Specifications for Ready-Mixed Concrete" (ASTM C94-94). Proportions of concrete shall produce the required strength and be workable to the extent that it can be worked into the corners and angles of forms and around reinforcement. Collection of excess free water on the surface will not be permitted nor a segregation of the materials in the mixture.
- B. Free surface moisture on aggregates shall be included as part of the mixing water.
- C. Water-cement ratios for project concrete mix shall be such that the relationship between the required strength and water-cement ratio of ingredients used has been previously established by reliable tests and data. Copies of previous test data, along with design mix data shall be submitted to the Architect by the Contractor for approval. Where such data is not available or is insufficient, water-cement ratios shall meet the requirements of Table 4.2.2 of ACI 318-Current Edition. Cementitious content shall be the total weight of all Portland cement and fly ash in a given mix.
- D. Admixtures shall comply with the ASTM Specifications for Chemical Admixtures. (ASTM C494-Current Edition).
 - 1. Mid-Range Water Reducing Admixture: Mira 110, manufactured by Grace Concrete Products, 877-423-6491, Master Builders Polyheed 1720, manufactured by BASF or approved alternate product. Non-chloride, non-corrosive. Admixture to meet ASTM C494 Type A & F requirements. Comply with manufacturer's instructions for dosage. Admixture to be incorporated with mix at batch plant.
 - a. other admixtures may be used as a concrete mix component only with approval of the Architect.
 - b. Use all admixtures in accordance with recommendations of the manufacturer.
 - 2. For concrete containing HRWR admixture (super- plasticizer) when approved by Architect: slump shall be 6"-8".
 - 3. In no case shall the use of the admixtures produce a compressive strength less than that specified in this section.
 - 4. Fly ash (Type C or F per ASTM C618) may be used as an admixture in concrete which is not exposed to view and does not require surface finish. Use of only one

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type of fly ash throughout the project shall be permitted. Such areas are limited to footings, below grade foundation walls, filled masonry voids, etc. The use of fly ash as an admixture **shall not be permitted** in concrete where surface finish is required. Such areas as floor slabs, exposed concrete walls, exposed concrete structure, etc., shall not be poured with concrete containing fly ash. Other admixtures may be used only with the approval of the Architect. Each delivery record shall indicate mix design. Concrete will be subject to rejection if mix design is not called out on invoice at time of delivery.

5. All concrete installed at the exterior on a permanent basis shall be air entrained. Interior slabs shall not contain air entrainment. If admixture is desired, obtain approval through Architect.
6. Air-entraining admixture if used, shall meet "Specifications for Air-Entraining Admixtures" (ASTM C260-Current Edition) and shall produce air content by volume between 5 to 7%.

- E. Use same Portland cement manufacturer throughout project for all interior concrete. Portland cement manufacturer may be different for exterior concrete but must be the same Portland cement manufacturer for all exterior concrete.

2.4 NON-SHRINK AND EPOXY GROUT

- A. Non-Shrink Grout, Non-Metallic Grout: Factory premixed grout conforming to CRD-C-621-80, "Corps of Engineers Specification for Non-Shrink Grout".
1. Acceptable Manufacturers:
 - a. EUCO NS, the Euclid Chemical Company
 - b. SonogROUT, Sonneborn-Contech
 - c. Masterflow 713, Master Builders
 - d. DuragROUT, L & M Construction Chemical Co.
- B. Epoxy Grout: Structural epoxy adhesive conforming to ASTM C881.
1. Acceptable Manufacturers:
 - a. Sikadur 32 Hi-Mod by Sika Corporation
 - b. Sonneborn Epogel by Chemrex, Inc.
 - c. Epcon C6 by ITW Ramset/Redhead
 - d. Hilti HY-200

2.5 ACCESSORIES

- A. Pre-cast Concrete Wheel Stops: Furnish and install, as shown on the drawings, a pre-cast concrete wheel stop at each designated parking space where no cast-in-place curb or turn-down sidewalk occurs. Anchor units as shown on drawings.
- B. Bentonite Waterstops: Surface applied Bentonite waterstop to be Volclay RX Waterstop by American Colloid Company or approved alternate.

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PART 3 EXECUTION

3.1 OBSERVATIONS AND SPECIAL INSPECTIONS

- A. All reinforced concrete construction shall be performed under the personal supervision of the Building Superintendent. This superintendent shall keep a record of all concrete poured on the job. The record shall show in detail the area placed, the time and date of the placement and weather conditions which existed at the time of the placement. Upon completion of the work, this record of Concrete Placement shall be included in the close out documents.
- B. The Contractor shall plan his work so that adequate time is allowed for the Architect to properly observe all embedded work prior to actual placement of concrete. The Contractor shall notify the Architect of his intent to placement at least 24 hours prior to the time that he estimates the work will be ready for observation. The Contractor shall not place any reinforced concrete without the approval of the Architect.
- C. Contractor shall plan work and coordinate with independent testing lab to be present on-site throughout concrete placement.
- D. Inspection of concrete and concrete preparation for conformance to the construction documents and IBC shall be completed by the designated third-party Special Inspector.

3.2 INSTALLATION:

- A. Placing Concrete:
 - 1. Convey concrete from mixer to final position by method which will prevent separation or loss of material.
 - 2. Maximum time permitted before a placement of concrete after adding mixture water shall be as follows:
 - a. Air temperature above 78 degrees F. - 60 minutes.
 - b. Air temperature below 78 degrees F. - 90 minutes.
 - 3. Concrete shall not be placed until an observation by the Architect has been made and reinforcement placement, vapor barrier, etc., is approved.
 - 4. Excavations for footing shall be free of debris, loose dirt, mud and water just prior to placing of concrete.
 - 5. All forms shall be clean of debris and all embedded items shall be in place and secured prior to concrete placement.
 - 6. Wood forms shall be sprinkled with water and wet when concrete is placed, but pooling of water in forms is to be prevented.
 - 7. Maximum height of concrete free fall, 3 feet.

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8. Regulate rate of placement so concrete remains plastic and flows into position.
9. Deposit concrete in continuous operation until panel or section is completed.
10. **Concrete Placement Tolerances & Standards:**
 - a. Submit proposed slab pouring plan for review and approval by Architect prior to forming. For purposes of planning layout, approximately 5,000 to 7,000 sq.ft. is the maximum area allowed. Pending crew size and equipment larger square foot pour areas may be allowed by Architect. Provide diamond plate dowels at construction joints between placements. Refer to Section 03 21 00.
 - b. **Control joints:** Saw cuts are to be performed within 12 hours after finishing. Use 1/8" thick blade, cutting no less than **1/3** of the slab thickness, unless noted otherwise.
 - c. Place control joints for concrete slabs (slab-on-grade and elevated concrete slabs) no more than 8'-0" o.c. each way.
 - i. For other concrete slab thicknesses, refer to structural drawings for control joint spacing.
 - d. **Note: Other placement methods may be considered only with approval of Architect.**
11. Concrete Slab Levelness and Flatness:
 - a. Levelness: FL=35 for polished slabs. FL=20 for non-polished slabs.
 - b. Flatness: FF = 50 for polished slabs. FF = 25 for non-polished slabs
 - c. In areas with floor drains, maintain finished floor level elevation at walls and slope surfaces uniformly to drains.
12. Place concrete in horizontal layers, 18 inches maximum thickness.
13. For concrete on grade or fill, sub-grades shall be properly prepared and maintained as specified previously. Where concrete is placed in direct contact with the earth, the subgrade material shall be wet but not muddy at time of placement.
14. Under all slabs, provide crushed stone choked off with fines per specification Section 31 23 00, meeting ASTM C33-Current Edition, which shall be leveled and compacted. A vapor barrier, as specified in Section 07 10 00 and shown on the drawings shall be placed under all interior slabs-on-grade.
15. Removal of forms. Do not remove forms until concrete has hardened sufficiently to support its own weight and imposed construction loads. Remove forms in such manner as to ensure the complete safety of the structure and to prevent spalling or chipping of concrete. When removing forms, conform to the following:
 - a. Non-Weight Supporting Forms: Form work for columns, walls, sides of beams and other parts not supporting the weight of the concrete may be removed as soon as concrete has hardened sufficiently to resist damage from removal operations, but in no case sooner than 24 hours.
 - b. Weight Supporting Forms: Do not remove form work for beam soffits, supported slabs or other parts which support the weight of concrete until concrete has

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reached 75% of its specified 28-day strength based on the lab cured concrete cylinder tests, but no sooner than 7 days.

16. Wall tie treatment. Wall ties shall be broken off after forms are removed and sealed against water penetration.
17. Slope all concrete floors to trench, or floor drains from corners of room, or as shown on drawings. Provide total slope of 1/2", unless noted otherwise on drawings.
18. Follow procedures as listed below for placement and routing of pipes, sleeves, and electrical conduit:
(If any of these items are not met, pouring of concrete will not be allowed until corrected.)
 - a. **Do not** route groups of conduit, pipes or sleeves above footings, unless noted to do so. If conflict occurs, consult Architect/Engineer.
 - b. **Do not** route conduit, pipes, and sleeves below bearing walls when running parallel with wall.
 - c. Limit width of conduit, pipes and sleeves not to exceed 3'-0" in width as it passes under wall footing. As much as possible, align the items perpendicular to the footing as it passes below footing.
 - d. Provide a minimum spacing of 2'-0" between conduit or pipe groups as items pass under footings.
 - e. **Do not** route conduits, pipe or sleeves under or through column footings or pad footings unless prior approval is given by Architect/Engineer.
 - f. At elevated slab work, conduits will not limit slab depth to any less than one half of an inch of the total thickness. Conduits will not be within one inch of any reinforcing materials.
 - g. The top of all conduits, sanitary drain pipe, water supply pipe, etc. shall be installed at or below bottom of concrete slab where slab is on grade.
 - h. Where in-slab electrical floor boxes occur, the conduit shall slope down to below-slab elevation as soon as possible on exterior sides of floor box.

B. Consolidating Concrete at Steel Reinforcement:

1. Use mechanical vibrating equipment for consolidation.
2. Vertically insert and remove hand-held vibrators having minimum 1" diameter at points 18 inches to 30 inches apart.
3. Do not use vibrators to transport concrete in forms.
4. Minimum vibrator speed, 3600 rpm.
5. Vibrate concrete minimum amount required for consolidation, 3 to 5 seconds maximum.

C. Construction Joints:

1. Clean and roughen the surface of concrete and remove laitance.
2. Wet concrete surface and flush with neat cement grout before placing additional concrete.
3. Construction Joints for slabs on ground (floor joints) shall be plate dowel system. Plate dowel system sleeves shall be attached to 2 x wood members matching the

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- depth of the slab for removal and reuse with steel stakes @ 2'-0" o.c. Form boards must have clean smooth top surface so finishing machines can pass over the top of the form.
4. Construction Joints for elevated slabs shall be a straight edge pour stop. 2 x wood members matching the depth of the slab secured to the metal deck. Wire mesh is not to continue through the form board. Form boards must have clean smooth top surface so finishing machines can pass over the top of the form.
- D. Plate Dowel System: Provide Diamond Dowel System manufactured by PNA construction technologies, "Speed Plate" System by Sika. or approved alternate. Refer to Section 03 21 00.
1. Install at all slab on grade construction joints.
- E. Expansion joints: Expansion joint filler, where indicated, shall meet "Specifications for pre-formed Expansion Joint Fillers for Concrete Paving and Structural Construction, Non-extruding and Resilient, Non-bituminous. (ASTM D1752-Type 1). Provide "Zip Strip" type filler so that top ½" can be provided for sealant installation.
- F. Isolation Joint Material:
1. Provide ½" thick closed cell foam material, separating steel or concrete columns from concrete slab at slabs-on-grade and at elevated slabs to prevent bonding and cracking of concrete from structure movement. Hold down from top of slab ½" and fill with sealant.
 2. At perimeter steel edge angles and other floor or wall penetrations where steel angles or framing exists, apply bituminous material on steel where concrete is to be placed to create bond breaker.
- G. Column Block-Outs:
1. Unless noted otherwise on drawings, provide round blockouts created by a "Sonotube form" section or other means. **Diamond shaped blockouts will not be accepted.**
 2. Provide same Portland Cement manufacturer and mix design for concrete fill in column block-outs as surrounding concrete slab.
- H. Finishing:
1. Floor Finish
 - a. Edge forms and intermediate screed strips shall be placed accurately to give the desired elevations and contours. Strike-off templates or straight edges shall be used to give all floor slabs an even surface. Screeds are to be of such type not to interfere with reinforcing.
 - b. Troweled finishes shall be applied to floors where concrete is the walking surface, or to have floor coverings. Troweling shall begin after all surface water has disappeared naturally and surface has wood floated to a plane smooth surface. Initial troweling shall be done after concrete has hardened sufficiently to prevent excess fines from working to surface, to produce a smooth surface free from defects and a final troweling shall be done after sufficient hardening to remove trowel marks and give a hard, dense smooth surface. Drying shall be natural. The use of "dryers" by dusting cement or sand is not permitted.

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- c. Floors to receive tile or other bonded cementitious finishes shall, after wood floating to a smooth plane surface, be roughened with stiff brushes before final set.
 - d. All exterior concrete ramps, stairs, and landing slabs shall have a light broom finish of sufficient texture to prevent slipping.
 - 2. Walks: See Section 32 16 00
 - 3. Exposed Concrete Surfaces
 - a. Areas not receiving special coatings shall be wetted and rubbed with carborundum bricks or other abrasive to give a smooth finish with a uniform color and texture. All edges shall be eased to give a good appearance.
 - b. Areas receiving special coatings shall be free from imperfections such as voids and protrusions and shall be finished to a smooth and level surface.
 - I. Curing: Provisions shall be made for maintaining all concrete surfaces in a continuously moist condition immediately following finishing operations for a period of seven days by one of the following methods when exposed or immediately following removal of forms:
 - 1. Sprinkling
 - 2. Absorptive fabric kept continuously wet.
 - 3. Maintain concrete within 40 degrees F. temperature range while curing for length of time shown below:
 - a. Three (3) days for footings.
 - b. Seven (7) days for flatwork.
 - 4. Chemical curing will be considered only when water curing is not practical, such as threat of freezing weather conditions. Unless specified otherwise in this specification section, **absolutely no chemical curing** is to occur on slab areas that are to receive carpet, resilient and synthetic floor coverings, or any other specified floor covering that prohibits chemical curing in their requirements.
 - J. Patching: After removal of forms, all honeycomb areas, voids, air pockets, tie holes and surface cracks shall be immediately patched.
 - K. Application of Floor Densifier/Hardener:
 - 1. Apply to interior concrete slabs and exterior porch or patio areas scheduled to be exposed to view.
 - 2. Apply per manufacturer's instruction to all exposed trowelled concrete floor areas and other areas as called out on finish schedule. Product to be applied as soon after curing period as manufacturer's instructions allow. Application must be smooth and even. No excess application or puddling of the product will be allowed.
 - a. Clean floors where densifier/hardener is applied with manufacturers cleaners.
- 3.3 TRENCHING OF EXISTING INTERIOR CONCRETE FLOORS
- Unless noted otherwise, provide the following:
- A. Sawcut concrete where trenching is required and remove all debris.
 - B. Fill trench with 4" of ½" or less clean washed gravel base and tamp tightly into place in no more than 8-inch lifts.

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- C. Place 15 mil vapor barrier per Section 07 10 00 over gravel base. Provide 12 inches long standard no.4 rebar, drilled and friction-set 4 inches into sides of existing cut concrete slab at maximum spacing of 24 inches o.c. **Place continuous strip of bentonite along each side of trench at top of vapor barrier.**
- D. Place 6 x 6"-W1.4 x W1.4 WWF and pour minimum 4" thick, 3,500 p.s.i. concrete. Finish as required for exposed finish of for floor finish scheduled to be installed.
- E. Provide sawcut control joints at no more than 8'-0" on center.

3.4 ACCEPTANCE OF CONCRETE:

- A. Concrete not meeting the strength requirements of these specifications shall be tested at critical locations designated by the Architect by a laboratory approved by the Architect. These tests shall be at the Contractor's expense. Such tests performed shall be in accordance with the Building Code Requirements for Structural Concrete: (ACI 318-Current Edition). If these tests still indicate below required strengths, or if inconclusive, then the Contractor shall proceed at his own expense as follows:

Remove and replace or reconstruct all under strength concrete in an approved manner or perform load tests in accordance with the "Building Code Requirements for Structural Concrete" (ACI 318-Current Edition). If load test results are not acceptable then Contractor shall remove and replace or reconstruct all designated under strength concrete to meet requirements of these specifications.

- B. Concrete improperly placed, cured, reinforced, damaged or not meeting testing tolerances shall be considered potentially deficient and shall be tested and replaced if necessary, in accordance with Paragraph a) above.
- C. Concrete not meeting the tolerances of "Recommended Practice for Concrete Formwork: (ACI 347) and concrete not formed as shown on plans shall be considered as not acceptable and shall be removed and replaced by Contractor at his own expense unless Architect permits patching and repairing of such work. Finished repair work shall meet criteria mentioned above or shall be removed and replaced.

3.5 TESTING AND SAMPLING:

- A. Slump Tests: A minimum of two (2) slump tests shall be made each day concrete is placed with one (1) test being made at the time test cylinders are made. Slump tests are to be made in accordance with " Standard Test Method for Slump of Hydraulic-Cement Concrete" (ASTM C-143-Current Edition). Where slump exceeds five inches (5") or the average 28 day strength of the three (3) test specimens falls below the strength specified for the class of concrete tested, or below proportional minimum seven (7) day strengths, (80 percent of specified 28 day strength) the proportions, water content or temperature conditions shall be changed to secure the required properties, and, at the discretion of the Architect, portions of the structure containing such concrete shall be removed and replaced, or reinforced as necessary. No concrete below 3" slump shall be accepted.

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Follow guidelines of ASTM C94 for water added to mix on site. Do not exceed design specifications.

- B. Strength Tests. The compression strength test shall be performed in accordance with "Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens" (ASTM C39-Current Edition). Samples for concrete cylinders shall be made in accordance with "Method of Sampling Fresh Concrete" (ASTM C172-Current Edition), and test cylinders shall be prepared, and laboratory cured in accordance with "Method of Making and Curing Concrete Compression and Flexure Test in the Field" (ASTM C31-Current Edition).
- C. Cylinders. Five (5) cylinders from the same batch shall be prepared by a certified technician for each 50 cubic yards or fraction thereof placed, but not less than four (4) cylinders for each day of concrete operations shall be made. **Location of batch as to placement on the subject and supplier mix ID# shall be noted on report, and cylinders so designated. Maximum and minimum initial curing temperatures as recorded per ASTM C31 shall be included in this report.** No tests shall be required for sidewalks. One (1) cylinder shall be tested at seven (7) days and three (3) at 28 days. **If cylinder break is lower than required, the testing company to contact Contractor and Architect immediately for direction. The remaining cylinder shall be maintained in proper curing conditions until specified 28-day compressive strength has been affirmed.**
- D. A minimum of nine (9) cylinders shall be tested for each class of concrete used on the project and the average of any three (3) consecutive strength tests at 28 days shall be equal to or greater than the specified strength with no test less than 500psi below the design strength.
- E. The contractor shall bear expense of all testing by a Laboratory approved by the Architect prior to award of the contract. Testing results shall be sent directly to the Architect's office, Contractor, and the Concrete Producer. Architect is to be notified of high slump concrete or low early strength (<75% of design at 7 days) immediately.
- F. Floor Flatness and Floor Levelness test shall be performed in accordance with "Standard Test Method for determining FF Floor Flatness and FL Floor Levelness Numbers" (ASTM E1155- Current Edition) for entire interior slab on grade.
- G. Floor Flatness test shall be performed in accordance with "Standard Test Method for determining FF Floor Flatness Numbers" (ASTM E1155- Current Edition) for entire elevated slab.

END OF SECTION

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CONCRETE MIX DESIGN SUBMITTAL FORM
(Section 03 30 00 - Cast-in-Place Concrete)

Submitted Mix Design

Date Submitted: _____

Location and Type (pump or chute) of Placement

Concrete Information

Supplier Mix Design #: _____

Design Strength (f'c), psi _____

Water/Cementitious Ratio _____

Total Air Content, % _____

(Entrapped or Entrained) _____

Density: _____

Wet, pcf _____

Dry, pcf _____

Slump: _____

Without WR, in. _____

With WE, in. _____

Admixture Information

		ASTM Designation	Product & Manufacturer	Dosage (oz/cy)
Water Reducing				
Accelerating				
Retarding				

Architect's Approval _____

Structural Engineer's Approval _____

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Mix Design Proportions Per Cubic Yard

	Identification (Type, size, source)	Weight (lbs)	Density (SSD)	Volume (cubic ft)	% Aggregate Absorption
Cement					
Fly Ash					
C.A. #1					
C.A. #2					
C.A. #3					
F.A. #1					
F.A. #2					
Water					
% Air					
	Totals				

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Coarse and Fine Aggregate Gradation

Sieve Size	% Passing Each Sieve (All sieve sizes must be entered)					Combined% Passing	Combined % Retained	
	C.A. #1	C.A. #2	C.A. #3	F.A. #1	F.A. #2		Cumulative	Individual
1-1/2"								
1"								
3/4"								
1/2"								
3/8"								
#4								
#8								
#16								
#30								
#50								
#100								
#200								
% of Vol.								

Required Attachments and Supplemental Documentation

_____ Portland Cement mill test
 report/certification
 _____ Fly ash mill test
 report/certification
 _____ Separate aggregate gradation reports including all required sieve sizes
 Note: * All gradation reports shall be dated within 60 days of submittal
 * Separate gradation reports required for each coarse and fine
 aggregate material in the
 mix
 _____ Product data for all admixtures including, but not limited
 to:
 * WR
 * Set retarder
 * Set accelerator

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* Air entrainer

Concrete compressive strength data used for standard deviation
calculations

Concrete Supplier Information

Supplier Name: _____
Technical Contact: _____ Cell # _____
Sales Contact: _____ Cell # _____

Primary Plant:

Location: _____
Miles from Site: _____
Travel Time to Site: _____
NRMCA Certified (Y/N): _____
AHTD Certified (Y/N): _____
Batch Mixing Typer (Dry/Central Mix): _____

Secondary Plant:

Location: _____
Miles from Site: _____
Travel Time to Site: _____
NRMCA Certified (Y/N): _____
AHTD Certified (Y/N): _____
Batch Mixing Typer (Dry/Central Mix): _____

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SECTION 03 48 43

ARCHITECTURAL PRE-CAST CONCRETE TRIM

Part 1 GENERAL

1.1 REFERENCES:

- A. Pre-stressed Concrete Institute MNL 117 "Manual for Quality Control for Plants and Production of Architectural Pre-cast Concrete Products."
- B. Pre-stressed Concrete Institute's "Architectural Pre-cast Concrete Design Manual, 2nd Edition".
- C. ASTM standards as stated herein.

1.2 SUMMARY

- A. This specification covers all labor, materials and services for the furnishing and setting of the integrally colored architectural pre-cast concrete units as indicated on the drawings and specifications herein.
- B. The Fabricator shall have a minimum of 5 years successful experience in fabrication of architectural pre-cast concrete units, similar to units required for this project. Fabricator must adhere to procedures outlined in PCI MNL-117 and the PCI Design Manual (2nd Edition) that are applicable to the manufacturing of Architectural Pre-cast Concrete trim pieces.
- C. The setting contractor shall unload, store, protect, and install as covered by this Specification and shall provide and install all anchors and accessories for same. The setting contractor shall have a minimum of 3 years successful experience in erection of architectural pre-cast concrete units similar to units required for this project.

1.3 SUBMITTALS: Submit the following in accordance with Conditions of Contract and Division 1 Specification Sections.

- A. Fabricator information as listed above under section 1.2-B if the proposed fabricator is not listed as a qualified manufacturer.
- B. Shop Drawings:
 - 1. Prepared by an experienced professional detailer showing complete information for fabrication and installation of pre-cast concrete units.
 - a. Show layout, dimensions, and identification of each pre-cast unit corresponding to sequence and procedure of installation.
 - b. Make design modifications only as necessary to meet field conditions and to ensure proper fitting of the work and only as acceptable to the Architect.

2. The Fabricator shall submit the shop drawings to the General Contractor who shall verify all drawing dimensions and coordinate the shop drawings with field conditions and other trades. The General Contractor shall submit the shop drawings to the Architect for approval. The Fabricator shall not start production until the shop drawings are approved by the Architect and General Contractor in writing.

C. Samples

1. Minimum size - 6" x 6" x 2" to illustrate the quality, color, and surface finish texture.
2. Color: To be selected from manufacturer's standard colors.
3. Texture: Smooth, dense, fine-grained texture achieved by lightly sandblasting to thoroughly remove all surface cement paste.

1.4 DELIVERY, STORAGE, AND HANDLING.

- A. Deliver pre-cast concrete units to project site in such quantities and at such times to assure continuity of installation. Store units at project site to prevent cracking, distortion, warping, staining, or other physical damage and so that markings are visible. Lift and support units only at designated lifting or supporting points as shown on final shop drawings.

PART 2 PRODUCTS

2.1 FORMWORK

- A. Provide forms and, where required, form-facing materials of metal, plastic, wood, or other acceptable material that is nonreactive with concrete and will produce required finish surfaces per the approved sample. Maintain form work to provide completed pre-cast concrete trim units within specified fabrication tolerances.

2.2 REINFORCEMENT

- A. All pre-cast concrete units shall be reinforced with new billet steel reinforcing bars, as necessary for safe handling, setting and structural stress, and the size of the reinforcing shall be specified with a minimum area of steel equal to one quarter of one percent of the cross section area. If the surfaces are to be exposed to the weather, the reinforcement shall be galvanized or epoxy coated when covered with less than 2 inches of material for bars larger than 5/8 inch and 1-1/2 inches for bars 5/8 inch or smaller. The material covering in all cases shall be at least twice the diameter of the bars.
1. Reinforcing Bars: ASTM A 615, Grade 60, deformed.
 2. Epoxy-Coated Reinforcing Bars: ASTM A 775.
 3. Galvanized Reinforcing Bars: ASTM A 767, Class II (2.0 oz. zinc PSF), hot-dip galvanized after fabrication and bending.
 4. Welded Wire Fabric: ASTM A 185.
- B. For exposed-to-view concrete surfaces, where legs of supports are in contact with forms, provide supports with legs that are plastic protected (CRSI, Class I) or stainless steel protected (CRSI, Class 2).

2.3 CONCRETE MATERIALS

- A. Portland Cement: ASTM C 150, Type I or Type III, Color to be white or gray as required to achieve proper color as determined by the Architect.
- B. Coarse Aggregate: ASTM C 33, Color to be white. Darker aggregates may be used as long as the proper color mix is achieved as determined by the Architect.
- C. Fine Aggregate: ASTM C 33, Color to be white. Darker aggregates may be used as long as the proper color mix is achieved as determined by the Architect.
- D. Pigments: ASTM C 979; Inorganic, non-fading, resistant to lime and other alkalis. Pigments not to exceed 10% of the cement weight.
- E. Water: Potable, free from foreign materials in amounts harmful to concrete or cast in steel.
- F. Air-Entraining Admixture: ASTM C 260.
- G. Water-Reducing, Retarding, or Accelerating Admixtures: ASTM C 494, type as selected by Fabricator and containing not more than 0.1 percent chloride ions.

2.4 CONNECTION MATERIALS

- A. Anchors - Non-corrosive; galvanized, brass or stainless steel type 304.
- B. Finish of Other Steel Units (Plates, braces, etc.): Units exposed to weather to be hot-dip galvanized after fabrication, ASTM A 153; Units not exposed to weather to be painted with one coat of rust-inhibitive primer; threaded inserts cast into pre-cast units, hot-dip galvanized, electro-galvanized, or cadmium plated.

2.5 PROPORTIONING AND DESIGN OF MIXES

- A. Unless otherwise noted, all the pre-cast units on the project will be the same color and of the same mix design. Design mixes may be prepared by independent testing facility or by qualified pre-cast manufacturing plant personnel, at pre-cast fabricator's option.
- B. Mix Properties: Standard-weight concrete consisting of specified Portland cement, aggregates, pigments, admixtures, and water to produce the following properties;
 - 1. Compressive Strength: Minimum 5000 psi at 28 days using 6" x 12" cylinders per ASTM C39-86.
 - 2. Total Air Content: Not less than 4% nor more than 7%.
 - 3. Water Absorption: Not to exceed 5% by weight when tested per ASTM C 642.
 - 4. Color: As selected by Architect per the approved pre-cast concrete sample.

2.6 MORTAR

- A. Provide all setting mortar in standard gray mortar as specified for brick work.
- B. Rake out top ½" of mortar for installation of polyurethane sealant.

2.7 FABRICATION

- A. Tolerances of Finished Units: In accordance with Pre-stressed Concrete Institute MNL 117 "Manual for Quality Control for Plants and Production of Architectural Pre-cast Concrete Products and Pre-stressed Concrete Institute's "Architectural Pre-cast Concrete Design Manual, 2nd Edition".
- B. Fabricate units straight, smooth, and true to size and shape, with exposed edges and corners formed or stoned to a minimum radius unless otherwise indicated.
- C. Testing: Tests to be performed by a certified testing laboratory. Testing is to be paid for by the Fabricator. Results are to be kept on file for at least two years and submitted upon Architect's request. No testing is required on projects where the total volume of concrete is under 25 CF.
 - 1. Perform one set of 6" x 12" cylinder tests for every 500 cubic feet of concrete placed.
 - 2. Perform one absorption test for every 500 cubic feet of concrete placed.
- D. Curing: Cure units in a warm, moist, totally enclosed curing room for a minimum of 20 hours.
- E. Cast-In Items: Fabricator to provide reglets, slots, holes, inserts, and other accessories in units to receive dowels, reglets, waterstops, flashings, anchors and other similar work as indicated.
- F. Surface Finish: Remove all surface cement paste by means of acid etching or lightly sandblasting to provide a smooth, dense, fine-grained texture with no streaks or blotches. Texture and quality of finish to be generally equal to the approved sample when viewed in direct daylight at a 10 foot distance.
- G. Color: The color shall be generally equal to the approved sample when viewed in direct daylight at a 10 foot distance. Color variation between pieces shall be minimal.

PART 3 EXECUTION

3.1 INSTALLATION

- A. Anchorages: The Setting Contractor is to provide loose steel plates, clip angles, seat angles, anchors, dowels, clamps, hangers, and other miscellaneous loose steel shapes not provided by other trades, necessary for securing pre-cast units to supporting and/or adjacent members.

- B. Do not install any pre-cast units that have any defects that exceed the acceptable PCI MNL-117 tolerances for dimensions and color if installation would result in unsatisfactory performance or appearance in the opinion of the Architect.
- C. Install pre-cast concrete members plumb, level, and in alignment in accordance with PCI MNL-117 erection tolerances and the contract documents. Provide temporary supports and bracing as required to maintain position, stability, and alignment as members are being permanently connected.
- D. Protect the pre-cast units from discoloration and staining when washing down the surrounding masonry by covering the pre-cast units with plastic sheeting and/or by thoroughly soaking them with clear water to prevent dirty wash down water from being absorbed into them. If dirty wash down water gets on the pre-cast, hose it off immediately with clear water.
- E. Patching: The repair of chipped or damaged pre-cast shall be done with materials and instructions furnished by the Fabricator. The pre-cast shall show no obvious repairs or imperfections other than minimal color variations when viewed with the unaided eye under good typical day lighting at a 20 foot distance.
- F. Cleaning: Before caulking, the face of all pre-cast shall be scrubbed with a fiber brush, using mild detergent and water and shall then be thoroughly rinsed with clean running water. Any mortar on the face of the pre-cast shall be removed. No acids or prepared cleaners shall be used without the approval of the pre-cast Fabricator.

3.2 PERFORMANCE REQUIREMENTS

- A. Applicable standards for inspection and quality control shall be PCI MNL - 117 "Manual for Quality Control for Plants and Production of Architectural Pre-cast Concrete Products" and PCI's "Architectural Pre-cast Concrete Design Manual, 2nd Edition".
- B. The Architectural Pre-cast Concrete units shall show no obvious repairs or imperfections other than minimal color variations when viewed with the unaided eye at a 20 foot distance in good typical daylight illumination.
- C. Any unacceptable pre-cast units that can not be repaired to the Architect's satisfaction in accordance with the aforementioned criteria are deemed unacceptable and are to be replaced by the Contractor.

END OF SECTION

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SECTION 04 05 13

MORTAR

PART 1 GENERAL

1.1 SUMMARY

- A. Examine all Drawings, General Conditions, Supplementary Conditions, and General Requirements which are part of this Contract. Furnish all labor, materials, and equipment necessary for masonry mortar.

1.2 RELATED SECTIONS

- A. Section 04 21 13: Brick Masonry
- B. Section 04 22 00: Concrete Unit Masonry

1.3 REFERENCES

- A. American Society for Testing and Materials (ASTM-most recent issue)
 - 1. ASTM C94, Specification for Ready-Mixed Concrete
 - 2. ASTM C109 Specification for Compressive Strength of Hydraulic Cement Mortars.
 - 3. ASTM C143, Test Method for Slump of Hydraulic Cement Concrete
 - 4. ASTM C144, Specification for Aggregate for Masonry Mortar
 - 5. ASTM C150, Specification for Portland Cement
 - 6. ASTM C207, Specification for Hydrated Lime for Masonry Purposes
 - 7. ASTM C270, Specification for Mortar for Unit Masonry
 - 8. ASTM C404, Specification for Aggregates for Masonry Grout
 - 9. ASTM C476, Specification for Grout for Masonry
 - 10. ASTM C780, Standard Test Method for Preconstruction and Construction Evaluation of Mortars for Plain and Reinforced Unit Masonry
 - 11. ASTM C1019, Specification for Method of Sampling and Testing Grout
 - 12. ASTM C1142, Specification for Ready-Mixed Mortar for Unit Masonry
 - 13. ASTM C1329, Specification for Mortar Cement
 - 14. ASTM C1714, Specification for Pre-Blended Dry Mortar Mix for Unit Masonry
 - 15. TMS 402/602 Building Code Requirements and Specifications for Masonry Structures.
- B. TMS 402/602 Masonry Code: Recommended Practices and Guide Specifications for Cold Weather Masonry Construction and Hot Weather Masonry Construction .

1.4 SUBMITTALS

- A. Comply with Section 01 33 00.

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- B. Submit Certification of mortar components and type for pre-blended masonry mortars such as “Spec Mix” or other approved manufacturers, dated within 12 months of contract date.

1.5 GENERAL REQUIREMENTS

- A. Deliver materials in unbroken bags or containers, plainly marked and labeled with Manufacturer's name, brand and mortar type.
- B. Storage of Materials
 - 1. Cement and hydrated lime: Stored in a manner to afford ready access for inspection and in suitable building to protect material from dampness. Insure protection against inclusion of foreign materials in cements and limes. **MASONRY CEMENT WILL NOT BE ALLOWED IN MORTAR.**
 - 2. Aggregates - use only clean, dry materials. Use no frozen materials.
- C. Build in all sheet metal work, anchors, anchor bolts, hangers, sleeves, thimbles, frames, structural members, etc. as shown and as required for other trades.
- D. Environmental Requirements: See Section 04 22 00 for temperature and laying restrictions.
 - 1. Cold Weather Requirements
 - a. Comply with TMS 402/602 Masonry Code - Recommended Practices and Guide Specifications for Cold Weather Masonry Construction.
 - b. When the ambient air temperature is below 40 degrees F, heat mixing water to maintain mortar temperature between 40 degrees F and 120 degrees F until placed. When the ambient air temperature is below 32 degrees F and holding, dropping, or predicted to drop below 32 degrees, no mortar is to be mixed.
 - 2. Hot Weather Requirements
 - a. Comply with TMS 402/602 Masonry Code - Recommended Practices and Guide Specifications for Hot Weather Masonry Construction.
- E. Remove any materials that have partially hardened or set. **DO NOT USE.**
- F. Build in door and window frames and their anchors. Slush steel door frame jambs and heads full of mortar. Slush cells full of mortar where excessive cutting for conduit or other devices has weakened masonry.

PART 2 PRODUCTS

2.1 MATERIALS

- A. The mortar for all masonry, block, and brick shall meet the minimum requirements of the International Building Code.

- B. Mortar shall conform to the minimum proportion requirements given in Table II of ASTM C270, based on 28-day laboratory testing ONLY. Select mortar type based on the criteria below:
 - 1. Type "S": For walls in contact with earth or below grade, and load-bearing interior and exterior walls.
 - 2. Type "S": For load-bearing interior and exterior walls above grade.
 - 3. Type "N": For non-load-bearing walls no higher than 20'-0".
 - 4. Use Type "S" for non-load-bearing walls higher than 20'-0".
 - 5. Use Type 'N' only for masonry veneer.
- C. Pigment should NOT exceed 10 percent of the weight of Portland cement. Limit carbon black, if used, to 2 percent of the total allowed color additive.
- D. The mortar for all masonry shall be standard gray color, color pigmented mortar where exposed to view, match existing color where final appearance will be exposed mortar. Use standard gray color in other areas.
- E. Provide only pre-mixed mortar of types specified manufactured by "Spec-Mix" or approved alternate substitution. **Mixing of any mortar on-site will not be allowed.**
- F. Use same manufacturer's products throughout project.
- G. Use of anti-freeze compound or other additives are not to be used without written approval of the Architect.
- H. Bond Beams and cells with vertical reinforcement shall be filled with 2000 psi grout - NOT MORTAR.

2.2 MORTAR MATERIALS

- A. Portland Cement: ASTM C150, normal. Type I or III; gray color. Fly ash, slag, and pozzolans are NOT permitted as substitutes for Portland Cement.
 - 1. For pigmented mortars, use premixed, colored cements of formulation required to produce color indicated, or if not indicated, as selected from manufacturer's standard formulations. Pigments shall not exceed 5 percent of cement by weight for mineral oxides nor 1 percent for carbon black.
- B. Hydrated Lime: ASTM C 207, Type S, and UBC 21-13 hydrated lime for masonry purposes.
 - 1. Manufactured by Chemstar or approved equal.
 - 2. For pigmented mortars, use colored Portland cement-lime mix of formulation required to produce color indicated, or if not indicated, as selected from manufacturer's standard formulations. Pigments shall not exceed 10 percent of Portland cement by weight for mineral oxides nor 2 percent for carbon black.

- C. Aggregate for Mortar: ASTM C 144; except for joints less than 1/4-inch (6.5 mm), use aggregate graded with 100 percent passing the No. 16 (1.18 mm) sieve.
 - 1. Colored-Mortar Aggregates: Natural-colored sand or ground marble, granite, or other sound stone, as required to match Architect's sample.
- D. Aggregate for Grout: ASTM C404 with 100 percent passing the 3/8" (9.5mm) sieve.
- E. Mortar Pigments: Natural and synthetic iron oxides and chromium oxides, compounded for use in mortar mixes. Use only pigments with a record of satisfactory performance in masonry mortars.
- F. Admixtures: NOT permitted unless approved by the Structural Engineer of Record, prior to construction.
 - 1. Calcium Chloride is NOT permitted in mortar. Admixtures and other chemicals containing Thiocyanates, Calcium Chloride or more than 0.1 percent chloride ions are NOT permitted.
- G. Water: Potable

PART 3 EXECUTION

3.1 EXAMINATION

- A. Examine conditions with installer present, for compliance with requirements for installation tolerances and other specific conditions, and miscellaneous conditions affecting performance of unit masonry.
- B. Examine rough-in and built-in construction to verify actual locations of piping and other penetrations prior to installation.

3.2 INSTALLATION

- A. Maintain an ambient temperature of the materials in contact with the mortar, of NOT less than 40 degrees F, unless otherwise required by TMS 402/602. Maintain this temperature limitation at every area and elevation of weather enclosures, when used.
- B. Lay solid brick-sized masonry units with completely filled bed and head joints; butter ends with sufficient mortar to fill head joints and shove into place. DO NOT slush head joints.
- C. Lay hollow concrete masonry units with full mortar coverage on horizontal and vertical face shells. Bed webs in mortar in starting course on footings, piers, columns, and pilasters, and where adjacent to cells or cavities which are to be reinforced or filled with grout. For starting course on footings where cells are not grouted, spread out full mortar bed including areas under cells.

- D. In existing construction, maintain joint widths shown, to match existing coursing, except for minor variations required to maintain bond alignment. If not shown, lay walls to match existing or 3/8" joints.
- E. Cut joints flush for masonry walls that are to be concealed or to be covered by other materials, unless otherwise indicated.
- F. Remove masonry units disturbed after lying; clean and reset in fresh mortar. DO NOT pound corners or jambs to shift adjacent stretcher units that have been set in position. If adjustments are required, remove units, clean off mortar and reset in fresh mortar.
- G. Grouting: DO NOT place grout until the entire height of masonry to be grouted has attained sufficient strength to resist grout pressure.
- H. Refer to Section 04 22 00 for maximum allowable grouting heights.

3.3 MIXING OF MORTAR

- A. Machine mix in an approved type of mixer in which quantity can be accurately and uniformly controlled. Only small batches of mortar may be mixed at one time. Mixing time is not less than five (5) minutes and not less than three (3) minutes after water has been added. If hydrated lime is used, use dry-mixed method (optional) of first consistently mixing hydrated lime into putty.
- B. Dry Blended in Silos: Mixing shall be done using a continuous, self-cleaning mixer mounted at the apex of the silo. The water flow valve shall be set to provide desired workability.
- C. Keep all mixers and equipment clean. Do not deposit mortar on the ground.

3.4 WORKMANSHIP

- A. Mortar having stood for more than one hour shall not be used or re-tempered.
- B. Lay no masonry when danger of freezing conditions exists before mortar sets.

END OF SECTION

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SECTION 04 21 13

BRICK MASONRY

PART 1 GENERAL

1.1 SCOPE:

- A. Examine all Drawings, Specifications, General Conditions, Supplementary General Conditions, and General Requirements which are part of this Contract. Furnish all labor, material, tools, equipment, scaffolding, and other items necessary to complete all masonry work, with all inclusions, inserts and provisions for inclusion, connection, or passage by other Trades.

1.2. RELATED SECTIONS

- A. Section 04 05 13: Mortar
- B. Section 05 50 00: Metal Fabrications-Loose lintels, anchor bolts, and steel bearing plates where anchored to, or bear on masonry:
- C. Section 07 10 00: Waterproofing and Damp Proofing Through-wall membrane flashing system
- D. Section 07 62 00: Flashings and Sheet Metal
- E. Section 07 19 00: Water Repellent Coatings
- F. Section 07 92 00: Sealants
- G. Section 08 11 13: Hollow Metal Doors & Frames

1.3 REFERENCES

- A. ASTM A153 – Zinc Coating (Hot Dip)
- B. ASTM C67 – Test Methods of Sampling and testing Brick and Structural Clay Tile.
- C. ASTM E 835 / E835M – Guide for Dimensional Coordination of Structural Clay Units, Concrete Masonry Units, and Clay Flue Linings.

1.4 MOCK-UP SAMPLE PANEL

- A. Before commencing any work, Contractor shall erect a 4' x 4' panel of face brick with correct mortar color. Lay brick in pattern to simulate wall pattern. The panel is NOT PART OF BUILDING and is to remain in place until removal is authorized by the

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Architect. The contractor shall have sufficient brick on site to erect two panels if necessary.

- B. Panel face shall show mortar, bond, widths, and tooling of joints.
- C. Approval of Architect is required before proceeding with any part of the building.
- D. Panel is to remain in place until completion of the work.
- E. Construct mock-up panel in “cut-away” view, exposing all wall assembly components. Refer to Section 01 40 00 Quality Control-Mock-Ups.

PART 2 PRODUCTS

2.1 MATERIALS

- A. Brick to be ASTM C652, or ASTM C216 grade SW, Type FBS (ASTM C216 & ASTM C652).
- B. Face Brick: All face brick shall be of utility type (3 5/8" x 3 5/8" x 11 5/8") to match existing.
- C. Face Brick: Match existing size, color blend, and texture. Architect to approve
- D. All face brick shall be laid in accordance with the standards of Brick Institute of America.
- E. Common brick for back-up shall be of sound #1 common brick.
- F. **Brick Anchoring System to Stud Wall:** 2X-Hook 3/16" diameter clip hook ties, HB-213-2X S.I.S. with HB-213 washer, 14 gage adjustable anchor manufactured by Hohmann & Barnard, Inc., or approved equal. Screw to studs with corrosion resistant screws approved by manufacturer. Screws to be minimum #10 self-tapping, copolymer coated, and weld clip to steel structure. Secure to back-up walls at 16" o.c. vertically and 16" o.c. horizontally. Finish to be hot dipped galvanized, 1.50 oz. per sq., ft. Provide “Pencil Rod”, 9 gage, continuous reinforcement at brick with Seismiclip Interlock System attached to each wall tie. Install at 16" o.c. vertically.
- G. **Brick Veneer Anchoring System to CMU Walls:** Provide LoxAll Adjustable Joint reinforcement in masonry wall coursing with 2X-Hook 3/16" diameter clip hook ties and 270-2X Ladder Eye-Wire horizontal reinforcing manufactured by Hohmann & Barnard, Inc., or approved alternate in CMU coursing at 16" O.C. vertically. Weld eyes at max. 16" o.c. to receive adjustable hook ties. Provide “Pencil Rod”, 9 gage, continuous reinforcement at brick with Seismiclip Interlock System or approved equal attached to each hook tie. Install at 16" o.c. vertically.
- H. All ties to be placed so as not to exceed 16" vertically and 16" on center.

- I. Cavity Wall Flashing System: Mortar Net "Totalflash" masonry flashing system, or equivalent through wall system components by Hohmann & Barnard. See Section 07 10 00.
- J. Weep Vents:
 - a. Manufactured by Mortar Net, ½" thick, size as required to match brick head dimension. Refer to Section 07 10 00.
 - b. Install at 24" o.c. horizontally.
 - c. Provide ventilation vents at top of wall in same location and centering as weep vents. Where shelf angles are installed, provide ventilation vents just below angle and offset one course so that vents do not align with weeps above.

PART 3 EXECUTIONS

3.1 GENERAL REQUIREMENTS

- A. Deliver and store on the site, face brick, sufficient in quantity for the entire job, and secure approval of Architect before placing any of same in the work.
- B. Lay no units having a film of water or frost on their surfaces.
- C. Lay no masonry when temperature is below 40 degrees F. without Architect's permission. Such permission shall not relieve the Contractor of the responsibility for the work, however. If permitted to work below 40 degrees F., but above 32 degrees F., make provisions to heat and dry materials and protect work from freezing during the installation and curing period. No masonry is to be laid when temperatures are holding, dropping or are predicted to go below 32 degrees F. unless heated protection is provided during installation and curing period and has been approved by Architect.
- D. Build in bolts, ties, other metal anchors, sleeves, miscellaneous metals, and wood nailing strips as necessary to secure masonry together or to other materials. Use no continuous wood nailing strips.
- E. Build in steel lintels, bearing plates and flashings in contact with masonry. Bed flashing in mortar.
- F. Close up any recesses after pipes, ducts, conduits, and other items are in and have been inspected by Architect and/or other proper authorities and do all patching after other trades have completed their work.
- G. Cut exposed masonry with masonry saw to produce clean-cut edges.
- H. At end of each workday or shut down period cover walls with strong waterproof membrane overlapping walls 12" minimum on each side and securely anchor in place.
- I. Use a full height story pole at all corners. Level first and frequent courses with instrument.

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- J. Carefully ship and stack upon delivery to avoid chipping. Do not stack directly on ground.
- K. Cutting and Patching: Consult other trades in advance and make provisions for installation of their work to avoid unnecessary cutting and patching. Do all cutting with a power saw designed for the purpose.
- L. Fully butter head and bed joints prior to laying.

3.2 WORKMANSHIP

- A. Lay all masonry in full bed of mortar, plumb and true to line with accurately spaced course and reveals. Keep bond plumb throughout, with head points of alternate courses in straight vertical lines.
- B. Provide tooled, concave joints where brick will be left exposed as a finished product, unless specifically called out to be otherwise. Verify and match existing joint strike if brick is adjoining existing brick.
- C. Where fresh masonry adjoins previously set masonry, clean, roughen, and lightly wet the set masonry before joining with the new.
- D. Where stop-offs are necessary in horizontal runs, rake back the unfinished work for joining the new work. Toothing is not permitted unless approved by the Architect.
- E. Initial rate of absorption (IRA) of the units is determined by the laboratory method described in Section 9 of Test Methods C67. IRA in the field depends on the moisture content of the masonry unit and is determined in accordance with Section 14 of Test Methods C67. Units having an average field IRA exceeding 30 g/min -30 sq. in. (30 g/min-194 cm squared) should have their IRA reduced below 30 g/min-30 sq.in. prior to laying. It is preferable to wet masonry units thoroughly 3 to 24 hrs prior to their use so as to allow time for moisture to become distributed throughout the unit except when in judgment of Architect the temperature is too low. No freshly wet masonry units or those having film of water or frost on surface shall be laid.
- F. Horizontal & Vertical Face Joints: Use tooled joints, approximately 1/4" deep and 3/8" wide.
- G. Construction/Control Joints: Construction/Control joints shall be spaced as shown on the drawings, but space no more than 24'-0" o.c. and no more than 12'-0' from corners. Provide backer rod and caulk joints in accordance with Section 07 92 00.
- H. Bond Pattern: Face Brick to be laid in running bond pattern.
- I. If brick sills are to be installed, slope minimum 15 percent unless shown otherwise.

- J. Where masonry is installed, all vertical and horizontal joints to align according to bond types. Where differing masonry types are installed in same wall, joints are to align between each masonry unit type unless noted otherwise.

3.3 MASONRY WEEPS & CAVITY-WALL FLASHING MEMBRANE TERMINATION

- A. It will be the responsibility of the Contractor and the Mason to coordinate installation elevation of all weeps and cavity wall flashing membrane termination in masonry walls at specified locations. Adjust as needed to terminate above concrete walks. Where masonry cavity walls occur at slab-on grade conditions, locate weeps one brick course below finished floor elevation unless items such as a sidewalk, etc, interferes, in which case the weeps would be located at finished floor elevation. Continue through-wall flashing between weep elevation changes, keeping waterproofing integrity. Finish grade to be a minimum 2" below weeps. **WEEPS ARE TO REMAIN EXPOSED. DO NOT COVER WEEPS WITH SOIL, FLASHING, CONCRETE, OR ROOFING MATERIAL.**

3.4 CLEANING

- A. Remove excess materials, mortar droppings. Remove mortar droppings on connecting or adjoining work before its final set.
- B. Exposed Masonry: At completion of work, point holes in joints of exposed exterior masonry surfaces, completely fill with mortar, tool properly. After pointing has set, hardened, wet exposed masonry surfaces. Clean soiled surfaces with a solution which will not harm masonry or adjacent materials equal to Sure Klean 600 manufactured by ProSoCo, Inc. Cleaner must be approved by brick manufacturer. Apply with stiff fiber brush, leave masonry clean, free of mortar daubs, with tight mortar joints throughout. Immediately after cleaning, rinse masonry surfaces with clear water. **DO NOT USE PRESSURE SPRAY WASHER TO CLEAN OR RINSE OFF MASONRY.**
- C. Protect all other trade's work and other items set into wall.
- D. Remove, replace defective materials, correct defective workmanship, and leave masonry clean.
- E. Replace defective mortar. Match adjacent work.
- F. Remove excess mortar and smears.
- G. Use non-metallic tools in cleaning operations.

3.5 WATER REPELLANT COATING:

- A. At completion of cleaning, apply water repellent coating. Refer to Section 07 19 00, Water Repellent Coating.

- B. Application is to be done only with approval of the Architect and may be delayed for an extended period due to time of year or weather conditions.

END OF SECTION

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An Addition
Benton County Justice Center
Bentonville, Arkansas

SECTION 04 22 00

CONCRETE UNIT MASONRY

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:

1. Concrete masonry units.
2. Reinforcement, anchorages, and accessories.
3. Procedure and preparation for exposed concrete floors
4. Observation and Required Special Inspections
5. Mockup panel

B. Products Installed but not Furnished Under this Section:

1. Section 03 21 00 - Concrete Reinforcement
2. Section 05 50 00 - Metal Fabrications: Loose steel lintels.
3. Section 07 62 00 - Sheet Metal Flashings and Trim.

C. Related Sections:

1. Section 01 40 00 – Quality Control: Required Special Inspections
2. Section 03 30 00- Cast-In-Place Concrete
3. Section 04 05 13 – Mortar
4. Section 07 19 00 - Water Repellent Coating
5. Section 07 27 26 – Fluid-Applied Weather Barrier System
6. Section 07 92 00 - Joint Sealers: Rod and sealant at control joints.
7. Section 09 91 00- Painting and Finishing.
8. Section 09 97 26 - Special Coatings

1.2 REFERENCES

- A. ASTM C90 - Hollow Load-Bearing Concrete Masonry Units.
- B. ASTM C145 - Solid Load-Bearing Concrete Masonry Units.
- C. TMS 402/602 Masonry Code - Recommended Practices and Guide Specifications for Hot & Cold Weather Masonry Construction.
- D. ASTM A153 – Zinc Coating (Hot Dip)

1.3 PERFORMANCE REQUIREMENTS

- A. Provide unit masonry that develops the following installed compressive strengths (fm) at 28 days.
1. For Concrete Unit Masonry: As follows, based on net area:
 - a. $F'm = 2000 \text{ psi (13.1 Mpa)}$.

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1.4 SUBMITTAL

- A. Submit samples of actual units to be used for Architect's approval.
- B. Submit to Architect the insulation type proposed.
- C. Submit mix design for concrete grout

1.5 MOCK-UP SAMPLE PANEL

- A. Before commencing any work, Contractor shall erect a 4' x 4' panel of each type of CMU specified with correct mortar color. Lay in pattern to simulate wall pattern. The panel is NOT PART OF THE BUILDING and is to remain in place until removal is authorized by the Architect. The contractor shall have sufficient material on site to erect two panels if necessary.
- B. Panel face shall show mortar, bond, widths, and tooling of joints.
- C. Approval of Architect is required before proceeding with any part of the building.
- D. Panel is to remain in place until completion of the work.
- E. Construct mock-up panel in "cut-away" view, exposing all wall assembly components. Refer to Section 01 40 00 Quality Control-Mock-Ups.

1.6 ENVIRONMENTAL REQUIREMENTS

- A. Cold Weather Requirements: Hot and Cold Weather Masonry Construction Guide - Recommended Practices and Specifications for Cold Weather Masonry Construction.
- B. Lay no masonry when the temperature is below 40 degrees F. without Architect's permission. Such permission shall not relieve the Contractor of responsibility for the work, however. If permitted to work below 40 degrees F., but above 32 degrees F., make provisions to heat and dry materials and protect work from freezing during the installation and curing period. No masonry is to be laid when temperatures are holding, dropping or are predicted to go below 32 degrees F. unless heated protection is provided during installation and curing period and has been approved by the Architect.
- C. External exposed CMU: Provide units with integral water repellent

1.7 PRE-INSTALLATION MEETING

- A. The Contractor will schedule and conduct a pre-installation meeting **prior to construction of cmu walls**. Those attending are to include Contractor, Architect, Owner, Structural Engineer, mason, cmu grout-mix representative and 3rd party special inspector. Items to be discussed are as follows but are not limited to these:
 - 1. Schedule

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2. Installation of rebar
3. Required grout mix design strength.
4. Frequency of testing and inspections
5. Placement of grout
6. Construction height of CMU walls
7. Control joints and corners
8. Other items associated with cmu wall construction.

PART 2 PRODUCTS

2.1 CONCRETE MASONRY UNITS

- A. Hollow Load Bearing Units: ASTM C90:
 1. Common CMU: Light weight (ASTM C331) above grade; normal weight (ASTM C33) below grade.
- B. Solid Load-Bearing Units: ASTM C145, Grade N, Type 1:
 1. Common CMU: Light weight (ASTM C331) above grade; normal weight (ASTM C33) below grade.
- C. Masonry Units: Modular units sized as required to achieve details shown; provide special units for bond beams, control and expansion joints, and lintels.
 1. Common CMU: Where indicated on drawings.
- D. Quality Control: All standard masonry units shall be manufactured by one manufacturer and shipped from the same plant. All units are subject to inspection and rejection by the Architect for defects such as excessive porous surface, chipped corners, irregular faces or sizes, etc. Sample units submitted shall be retained and shall set the standard for quality expected. Meeting ASTM C90 minimum requirements is not considered to be adequate in the areas mentioned.
- E. All Bullnose CMU called for on drawings to have 1" radius bullnose unless otherwise noted.
- F. Fire Resistance Classification: CMU walls and partitions shall have fire resistance ratios as indicated on the drawings. Units shall be of minimum equivalent thickness (ASTM C140) specified for the fire rating and corresponding aggregate type.

2.2 REINFORCEMENT AND ANCHORAGES

- A. **CMU Horizontal Joint Reinforcement:** Install horizontal joint reinforcement 16 inches on center, except space at 8 inches in parapet walls and below finished floor, or where otherwise indicated on Drawings. 120 Truss or 220 Ladder-Mesh LoxAll design, manufactured by Hohmann & Barnard, Inc., or approved alternate. Minimum 9-gauge welded steel wire; hot-dip galvanized after fabrication to 1.5 oz. Per ASTM A153 Class B-2 for use in exterior walls, mill galvanized wire for interior walls. Reinforcement width to be 1 1/2 to 2 inches less than wall thickness.

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- B. Provide reinforcement with receiver eyes for brick veneer. See Section 04 21 13.
- C. Miscellaneous Masonry Anchors: Fabricated from 16 gage steel sheet or 3/8 inch steel rod, 1.5 oz. hot-dip galvanized after fabrication.
- D. Construction/Control Joints: Construction/Control joints shall be spaced as shown on the drawings. Caulk joints in accordance with Section 07 92 00. Unless shown otherwise less than 24'-0" on center, space joints for CMU veneer no more than 24'-0" on center along same plane. Provide control joints at corners no more than 12'-0" from corner or closer if shown on drawings.. Coordinate locations with Architect and Structural Engineer.

2.3 ACCESSORIES

- A. Joint Filler: Closed cell foam, oversized 50 percent; self-expanding joints.
- B. Preformed Control Joint Filler:
 - 1. VS Series by Hohmann & Barnard, Inc.
 - 2. No. 2901 by Wire Bond.
- C. Cavity Wall Flashing System: thru wall system components by Hohmann & Barnard, See Section 07 10 00.
- D. Reinforcing Bar Positioners:
 - 1. D/A 811; Dur-O-Wal, Inc.
 - 2. D/A 816; Dur-O-Wal, Inc.
 - 3. No. 376 Rebar Positioner; Heckman Building Products, Inc.
 - 4. #RB Rebar Positioner; Hohmann & Barnard, Inc
 - 5. #RB-Twin Rebar Positioner; Hohmann & Barnard, Inc.
 - 6. Double O-Ring Rebar Positioner; Masonry Reinforcing Corporation of America
 - 7. O-Ring rebar Positioner; Masonry Reinforcing Corporation of America.
 - 8. Hot-dip galvanized after fabrication.

2.4 CONCRETE GROUT OR SPEC MIX GROUT

- A. Concrete grout to be produced at a ready-mix batch plant, capable of producing specified concrete grout or spec mix grout, each as listed below.
- B. Concrete Grout:
 - 1. Portland Cement: Type I Portland, meeting "Standard Specifications for Portland Cement", (ASTM C150-Current Edition) shall be used.
 - 2. Aggregates: All aggregates shall be clean, hard strong and durable particles free of chemicals or foreign material that may affect the bonding of cement paste and shall conform to "Specifications for Concrete Aggregates" (ASTM C33). Nominal maximum aggregate size for concrete grout shall be 3/8" diameter.

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3. Mixing Water: Water shall be fresh, clean and potable.
4. Slump: 9 inch maximum: plus tolerance 1 inch, minus tolerance 1 inch.
5. Mix proportioning: To produce 28 day minimum compressive strength of moist cured laboratory samples, 2,000 psi at all locations.

C. Spec Mix Grout:

1. Spec Mix Core Fill Grout, Coarse (CF-02), preblended product containing cementitious materials and dried aggregates to meet ASTM C 476 and CSA A179.
2. Packaging: 80lb packages or 3,000lb bulk bags for use in Spec Mix silo system.
3. Mixing Water: Water shall be fresh, clean and potable.
4. Slump: 9 inch maximum: plus tolerance 1 inch, minus tolerance 1 inch.
5. Mix proportioning: To produce 28 day minimum compressive strength of moist cured laboratory samples, 2,000 psi at all locations.

PART 3 EXECUTION

3.1 PREPARATION

- A. Verify items provided by other sections of work are properly sized and located.
- B. Establish lines, levels, and coursing. Protect from disturbance.
- C. Provide temporary bracing during erection of masonry work. Maintain in place until building structure provides permanent bracing.

3.2 COORDINATION WITH OTHER TRADES

- A. It will be a requirement of this section to verify and coordinate work with other trades and specification sections. Do not begin work on concrete slabs on grade or elevated concrete slabs until minimum strength and cure time has been reached.
- B. Procedure and preparation for exposed concrete floors**
 1. Where sealed concrete floors are scheduled, floor areas at the base of CMU walls are to be protected from concrete and mortar droppings during construction of CMU walls. Floors at base of CMU walls are to be cleaned at the end of each work day, free of concrete and mortar droppings.
 2. Any equipment used on slabs to be sealed, diaper equipment to prevent fluid leak stains and utilizing tire socks to prevent tire marks.

3.3 COURSING

- A. Place masonry to lines and levels indicated.
- B. Maintain masonry courses to uniform width. Make vertical and horizontal joints equal and of uniform thickness.

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- C. Lay concrete masonry units in running bond. Course one block unit and one mortar joint to equal 8 inches vertically. Form flush mortar joints where joint will be covered by other construction. **Mortar joints on concealed areas where fluid applied cavity wall weather barrier is to be applied must be fully filled with no voids, holes, or cracks, struck flush with the face of CMU.** **Provide tooled, concave joints** where wall will be left exposed and painted, or is a finished product, unless specifically called out to be otherwise.

3.4 PLACING AND BONDING

- A. Lay solid concrete masonry units with completely filled bed and head joints; butter ends with sufficient mortar to fill head joints and shove into place. Do not slush head joints. Remove excess mortar.
- B. Lay hollow concrete masonry units with full mortar coverage on horizontal and vertical face shells. Bed webs in mortar in starting course on footings and foundation walls and in all courses of piers, columns and pilasters, and where adjacent to cells or cavities to be reinforced or filled with concrete or grout. For starting courses on footings where cells are not grouted, spread out full mortar bed, including areas under cells.
- C. Fully bond intersections, and external and internal corners.
- D. Do not shift or tap masonry units after mortar has taken initial set. Where adjustment must be made, remove mortar and replace.
- E. Perform job site cutting with proper tools to provide straight unchipped edges. Take care to prevent breaking masonry unit corners or edges.
- F. Isolate masonry partitions from vertical structural framing members with a control joint.
- G. Where masonry is installed, all vertical and horizontal joints to align according to bond types. Where differing masonry types are installed in same wall, joints are to align between each masonry unit type unless noted otherwise.

3.5 TOLERANCES

- A. Tolerances to conform to requirements of TMS 402/602 and below, whichever is more stringent.:
1. Alignment of Pilasters: Maximum 1/4 inch from true line.
 2. Variation from Unit to Adjacent Unit: 1/32 inch.
 3. Variation from Plane of Wall: 1/4 inch in 10 feet and 1/2 inch in 20 feet.
 4. Variation from Plumb: 1/4 inch per story non-cumulative.
 5. Variation from Level Coursing: 1/8 inch in 3 feet; 1/4 inch in 10 feet; 1/2 inch maximum.
 6. Variation of Joint Thickness: 1/8 inch in 3 feet.

3.6 REINFORCEMENT AND ANCHORAGES

- A. Install horizontal joint reinforcement 16 inches on center, except space at 8 inches in parapet walls and below finished floor, or where otherwise indicated on Drawings.
- B. Place masonry joint reinforcement in first and second horizontal joints above and below openings. Extend 24 inches minimum each side of opening. Place joint reinforcement continuous in first and second joint below top of wall.
- C. Lap joint reinforcement ends minimum 6 inches. Discontinue at control joints. Extend 24 inches minimum each side of openings. Place reinforcing bars supported and secured against displacement. Maintain position within 1/2 inch of true dimension.
- D. Cells that contain vertical reinforcing are to be grouted full. Lap vertical reinforcing a minimum of 48 bar diameters and ensure bar is positioned in the cell as indicated on the structural plans. **Fill cells in 5'-4" lifts maximum**. Power vibrate grout in each cell full height of each lift. Maximum diameter of power vibrator for grout consolidation is 3/4". Maximum allowable CMU height for installing grout in cells is **5'-4"** or to course immediately below bond beam, whichever is lower. Contractor's option to grout to course immediately below bond beams and provide 4" tall block outs at interior walls and standard size block outs on exterior side of CMU for visual confirmation by 3rd party special inspector that cells are grouted.
- E. Bar Positioners: As vertical reinforcing is being placed, the use of reinforcing bar positioners for correct bar positioning in the wall is required. Install at each bar, locating at maximum 8'-0" o.c vertical, and/or at each bar splice point.
- F. Verify that anchorages embedded in concrete or attached to structural steel members are properly placed.
- F. Reinforce joint corners and intersections with strap anchors 16 inches on center.

3.7 LINTELS

- A. Install loose steel lintels as scheduled.
- B. Install reinforced unit masonry lintels over openings where steel or pre-cast concrete lintels are not scheduled. Construct lintels using concrete fill and reinforcing. Maintain minimum 8 inch bearing on each side of opening.
- C. Use reinforcing bars of one piece lengths only.
- D. Place and consolidate grout fill without disturbing reinforcing. Allow lintels to reach strength before removing temporary supports as affirmed by laboratory compressive strength testing of field-cast grout prisms.

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3.8 CONTROL JOINTS

- A. Do not continue horizontal joint reinforcing thru control joints. Continue bond beams across control joints by use of "Slip Joints" as detailed on plans. Ensure use of asphalt paper wrap to create bond break. 3/4" diameter x 24" dowels with expansion cap at each bond beam at each control joint.
- B. Install preformed control joint filler at locations indicated on Drawings. Space no further than 24'-0" o.c. or less if shown on drawings. Provide control joints at corners no more than 12'-0" or closer if shown on drawings. Use proper size material to create sealant joint space; See Section 07 92 00 for sealant performance.

3.9 BUILT-IN WORK

- A. As work progresses, build in metal door frames, fabricated metal frames, window frames, wood nailing strips, anchor bolts, plates, and other items to be built in the work supplied by other Sections.
- B. Build in items plumb and level.
- A. Bed anchors of metal door and glazed frames in mortar joints. Fill masonry cores with grout minimum 12 inches horizontally from framed openings.
- B. Build in door and window frames and their anchors. Slush steel door frame jambs and heads full of mortar. Slush cells full of mortar where excessive cutting for conduit or other devices has weakened masonry
- E. Do not build-in organic materials subject to deterioration.

3.10 CUTTING AND FITTING

- A. Cut and fit for chases, pipes, conduit, sleeves, and grounds. Cooperate with other Sections of work to provide correct size, shape, and location.
- B. Obtain approval prior to cutting or fitting any area not indicated or where appearance or strength of masonry work may be impaired.
- C. **Do not** thin CMU walls to accommodate plumbing piping, electrical conduit of other items routed in CMU walls. Consult Architect if conditions are found that do not allow proper installation of CMU.

3.11 TESTING CMU CONCRETE GROUT OR SPEC MIX GROUT

- A. Strength Tests:
 - 1. Testing per ASTM C 1019.
 - 2. Three (3) test specimens shall constitute one (1) sample. A strength test shall be the average of the strengths of the specimen tested at the age specified.

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3. Slump to be 9 inches, plus or minus one inch.
4. Specimens shall be tested at 7 and 28 days.
5. The compression strength will be considered satisfactory if the average of three consecutive tests of the grout is equal to or greater than the specified strength and no individual strength test falls below the specified strength by more than 500 psi..

B. Frequency: Minimum of Two (2) times a week from start of production.

C. Testing Laboratory: The testing laboratory, in addition to meeting requirements of ASTM E-329, and must be an approved laboratory competent to perform cement physical testing. All tests must be performed in strict accordance with the applicable ASTM standard.

D. Distribution of Results of Tests: Within 24 hours of results of tests, copies of the results shall be submitted to the Architect, Contractor, masonry contractor, and the grout supplier if applicable.

E. Test mix design prior to beginning construction of CMU walls. The compressive strength test of the laboratory mix design must meet or exceed the specified 28 day design compressive strength of **2,000** psi grout unless noted otherwise.

F. Contractor shall bear costs for all masonry testing.

3.12 CLEANING

A. Remove excess materials, mortar droppings. Remove mortar droppings on connecting or adjoining work before its final set.

B. Exposed Masonry: At completion of work, point holes in joints of exposed masonry surfaces, completely fill with mortar, tool properly. After pointing has set, hardened, wet exposed masonry surfaces. Clean soiled surfaces with a non-acidic solution which will not harm masonry or adjacent materials equal to Sure Klean 600 at brick, and Custom Masonry Cleaner at CMU, as manufactured by ProSoCo, Inc. Cleaner must be approved by masonry manufacturer. Apply with stiff fiber brush, leave masonry clean, free of mortar daubs, with tight mortar joints throughout. Immediately after cleaning, rinse masonry surfaces with clear water. **DO NOT USE PRESSURE SPRAY WASHER TO CLEAN OR RINSE OFF MASONRY.**

1. Mockup to be cleaned with same cleaner and methods as finished work to confirm compatibility.

C. Protect all other trade's work and other items set into wall.

D. Remove, replace defective materials, correct defective workmanship, and leave masonry clean.

E. Replace defective mortar. Match adjacent work.

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- F. Remove excess mortar and smears.
- G. Use non-metallic tools in cleaning operations.

3.13 WATERPROOFING

- A. At completion of cleaning, apply waterproof coating at exposed exterior CMU walls and where called for unless noted otherwise. Refer to Section 09 97 26, Special Coatings.

3.14 AIR / MOISTURE BARRIERS

- A. Prior to installation of veneer at cavity wall construction with CMU backup, or metal panel system with CMU backup, apply Liquid-Applied Cavity Wall Moisture/ Air Barrier on all CMU walls where concealed in cavity wall. Refer to Section 07 27 26, Fluid Applied Weather Barrier System.

3.15 PROTECTION

- A. Maintain protective boards at exposed external corners which may be damaged by construction activities.
- B. Provide protection without damaging completed work.
- C. At day's end, cover unfinished walls to prevent moisture infiltration. Secure cover down to prevent blow-off and maintain protection for fresh masonry work.

3.16 OBSERVATION AND SPECIAL INSPECTIONS

- A. CMU placement and CMU reinforcement and placement shall be periodically observed by the Architect/Engineer during laying of CMU units. Inspection of CMU placement and CMU reinforcement and placement for conformance to the construction documents shall be completed by the designated third party Special Inspector at a minimum frequency of two (2) times per week from start of production.
- B. Special Inspector Qualifications: As required per TMS 402/602

END OF SECTION

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SECTION 05 12 23

STRUCTURAL STEEL

PART 1 GENERAL

1.1 SUMMARY

- A. This section shall cover the furnishing, fabrication, erection and connection of all structural steel complete.

1.2 WORK INCLUDED & FURNISHED

- A. All labor, tools, materials, scaffolding, bracing, cranes, hoist, and other construction equipment required for the completion of the structure.
- B. Preparation of shop drawings.
- C. Furnishing and fabrication of all structural steel and miscellaneous metal work including beams, columns base plates, cap plates, bearing plates, angles, struts, bracing, girts, girders, connection material, fasteners, anchor bolts, shims, loose lintels, stiffeners, hangers, brackets, rods, and welding material.
- D. Shop and field painting.
- E. Shop and field connections including temporary bracing.
- F. Section 01 40 00 – Quality Control: Required Special Inspections

1.3 QUALITY ASSURANCE

- A. Fabricator's Qualifications: **A qualified fabricator that is AISC Certified for conventional steel building structures. If fabricator is not an AISC certified plant, then the fabricator must meet the protocol for special inspection requirements of IBC, Section 1704, paragraphs 1704.2.5 and 1704.2.5.1.** Documentation that one of the above requirements is met must be submitted to the Architect before starting shop drawings.

1.4 RELATED SECTIONS

- A. Section 01 40 00 – Required Special Inspections
- B. Section 03 30 00- Cast-in-Place Concrete
- C. Section 05 50 00 - Metal Fabrications

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1.5 FURNISHED BUT INSTALLED ELSEWHERE

- A. Anchor Bolts, Loose Bearing Plates: Refer to Sections 2 and 7d of AISC Code of Standard Practice.
- B. Loose Lintels: Refer to Section 7f of AISC Code of Standard Practice.

1.6 STANDARDS

- A. Structural Steel fabrication, connections, detailing and erection shall be in accordance with the specifications for the "Design Fabrication and Erection of the AISC Manual of Steel Construction, unless indicated otherwise in these specifications or on plans.
- B. All structural steel shall conform to standard specifications for structural steel, ASTM A36, except:
 - 1. Wide Flanges and WT Tees - ASTM A992, $F_y=50$ ksi
 - 2. Structural steel tubing - ASTM A500, $F_y=50$ ksi.
 - 3. Structural Steel Pipe - ASTM A501, $F_y=35$ ksi.
 - 4. Anchor Rods – ASTM F1554, Grade 36
 - 5. Headed Stud Anchors - ASTM A108, $F_y=50$ ksi.
 - 6. High Strength Bolts – ASTM A325

1.7 SHOP DRAWINGS

- A. Comply with Section 01 33 00. When corrections are required, reproducibles will be returned noting such. Drawings will then be corrected and resubmitted until final approval is received. Items not noted as requiring corrections may be fabricated after return of a previous submittal even though drawings shall be such that corrections noted on one sheet that affect another drawing will be transmitted and made on all sheets and also resubmitted.
- B. The Contractor will be responsible for checking quantities and dimensions in accordance with contract drawings. Where discrepancies in dimensions are noted, the Contractor shall notify the Architect of such discrepancies and corrected dimensions then will be furnished by the Architect. Contractor shall coordinate any dimension changes or additions with fabricator.
- C. Contract drawings receive precedence over shop drawings unless authorized in writing. Approval of shop drawings does not grant authorization of change to contract.
- D. Standard AWS symbols shall be used and shown for all welded connection details for both shop and field welds. Joint reference numbers as noted in part 4 of 7th Edition of AISC "Manual of Steel Construction" shall be shown where full strength welds are required.
- E. All splices and connections, both shop and field, shall be detailed on shop drawings.

1.8 PRODUCT HANDLING

- A. Delivery of materials to be installed under other sections:
 - 1. Anchor bolts and other anchorage devices which are embedded in cast-in-place concrete or masonry construction shall be delivered to the project site in time to be installed before the start of cast-in-place concrete operations or masonry work.
 - 2. Provide setting drawings, templates, and directions for the installation of the anchor bolts.
- B. Storage of Materials
 - 1. Structural steel members which are stored at the project site shall be above ground on platforms, skids or other supports.
 - 2. Steel shall be protected from corrosion.
 - 3. Other materials shall be stored in a weather-tight and dry place, until ready for use in the work.
 - 4. Packaged materials shall be stored in their original unbroken package or container.

1.9 COOPERATION WITH OTHER WORK

- A. Fabricator shall punch all necessary holes and provide the connection material required for the attachment of miscellaneous items, such as nailers, hangers and mechanical equipment framing. Contractor shall coordinate such work with all plans.

1.10 WORKMANSHIP

- A. All welding, both shop and field welding, shall be made by welders qualified by tests as prescribed in the "Code for Welding in Building Construction" (AWS D1.1-Current Edition).
- B. All fabrication and erection work shall be performed by skilled workmen, working under experienced supervision.

1.11 UNIT PRICES

- A. Provide for two (2) tons of miscellaneous beams, channels, and angles in addition to the steel framing shown on the plans and details.

PART 2 PRODUCTS

2.1 MATERIALS

- A. All structural steel shall meet the specifications for "Structural Steel" (ASTM A36). Except wide flanges and tees shall conform to ASTM A992, $F_y=50$ ksi, steel tubes shall conform to ASTM A500, Grade C, $F_y=50$ KSI, and steel pipe shall conform to ASTM A501.

- B. Filler Metal for Welding shall conform to one of the following:
1. Manual Shielded Metal Arc Welding - E70 Series of the "Specifications for Mild Steel covered Welding Electrodes" (AWS A51-Current Edition).
 2. Submerged Arc Welding - F70 AWS-flux Series of the "Specifications for Bare Mild Steel Electrodes and Fluxes for Submerged Arc Welding" AWS 5.17-96.
- C. Bolts
1. High Strength Bolts shall be A325 bolts meeting the requirements of "Specification for Structural Joints Using ASTM A325 or A490 Bolts", including suitable nuts and plain hardened washers.
 2. Other bolts shall conform to "Specification for Low-Carbon Steel Externally and Internally Threaded Standard Fasteners" (ASTM A307).

2.2 CONNECTIONS

- A. Type
1. Unless indicated and detailed otherwise on plans, all connections shall be detailed and designed by the fabricator as unrestrained flexible connections described as Type 2 construction in Section A2.2 of the most current edition of the AISC manual of Steel Construction, but provisions must be made for excessive eccentric connections. All connections shall be in accordance with Part 4 and Part 5 of the above cited AISC Manual.
2. Bolted Connections
- a. All bolted connections, unless noted otherwise, shall be A325 high strength steel bolts, nuts and harden washers, conforming to the "Specification for Structural Joints Using ASTM A325 or A490 Bolts".
 - b. All bolted connections, unless noted otherwise, shall be of bearing type with threads included in the shear planes. These bolts shall be snug tightened. The snug-tight condition is defined as the tightness attained by a few impacts of an impact wrench or the full effort of a man using an ordinary spud wrench.
 - c. Bolts, nuts and washers shall conform to Tables 1 and 5 of Specifications and Commentary for "Structural Joints, Using ASTM A325 or A490 Bolts" of Current Edition of AISC Manual of Steel Construction.
 - d. Bolted parts shall be fitted tightly together before bolt installation.
 - e. All bolts shall have one nut and a hardened washer under the turning element.
 - f. When surface of bolted part in contact with nut or bolt head exceeds a slope of 1:20 with respect to a plane normal to the bolt axis, smooth beveled washers shall be used.
 - g. Bolt assembly and contact surfaces shall be free from scale, burrs, dirt and other foreign matter which might prevent solid seating.
 - h. Minimum bolt size, unless noted otherwise, shall be 5/8" in diameter. Adequate "stick through" for bolts must be provided in accordance with section C2 and Table 6, pages 5-201 and 5-202 of reference cited in part c) of the section.
 - i. All bolts at the column cap plates shall be installed with the bolt on top and the nut below the cap plate.

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3. Welded
 - a. Minimum size of fillet weld permitted shall be 3/16", unless noted otherwise.
 - b. All surfaces to be welded shall be free from loose scale, slag, rust, grease, paint and other foreign materials.
 - c. All welding shall be in accordance with AWS "Structural Welding Code" (AWS D1.1-Current Edition) and as illustrates and described in "Welded Joints" in Part 4 of the 7th edition of the AISC Manual of Steel Construction.
 - d. Shop welding and field welding shall be performed by a certified welder in accordance with AWS D1.1-2000, licensed in the State of Arkansas.

PART 3 EXECUTIONS

3.1 FABRICATION

A. Connections and Splices

1. Shop connections and splices may be bolted or welded.
2. All holes for bolts shall be punched or drilled without ragged or torn edges. Finished holes for bolts shall be 1/16 inch larger than nominal diameter of the bolt.

B. Metal Preparation

1. All metal shall be properly prepared before shop connections are made in accordance with welding and bolting requirements of these specifications, AISC and AWS standards.
2. All completed members shall be straight, without kinks, twists, bulges, bends and open joints.
3. Shearing, punching and cutting of materials shall be without torn or ragged edges.
4. Holes too small to meet above requirements shall be enlarged without distortion to the metal by reaming.
5. Bolted parts, when assembled, shall be fabricated so that the bolts will enter without distortion.
6. Compression members shall have milled or sawed shop ends and joints.
7. Open holes necessary for connection of other work shall be provided at time of fabrication. Contractor shall coordinate work with that of other trades.
8. Grind all factory or field welds where exposed to achieve smooth consistent surface. Field-apply primer (or galvanized paint if metal is galvanized) immediately following grinding.

C. Painting

1. All steel work except that encased in concrete or otherwise noted, shall receive one shop coat of a rust inhibitive paint meeting Federal Specification TT-P-636 with a minimum dry paint film thickness of 2.0 mils.
2. All metal shall be free of dirt, grease, rust, mill scale, oil and other foreign material, and shall be wire brushed before painting.

D. Tolerances

1. Fabrication tolerances shall be in accordance with AISC Manual of Steel Construction- Current Edition.

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3.2 ERECTION

A. Precautions

1. The Contractor shall take necessary precautions to secure all steel against movement during erection and that bracing as noted in the remainder of this section of the specifications is installed.

B. Base Connections

1. Anchor rods shall be placed and accurately located in footings, piers, and walls in advance of column erection.
2. Column bases shall be set level, using steel shims on four corners and grouted solid to ensure full bearing contact on foundation or support material.
 - a. Grout shall be a minimum of 1" thick, high strength, non-metallic, non-shrink, damp packed consistency construction grout.
3. Column bases are designed as unrestrained and all columns require temporary bracing until all framing and erection work is secure and in place.

C. Field Connections

1. Field connections may be either welded or bolted.
2. As erection work progresses, all steel work shall be secured and fastened with either temporary or permanent connections.
3. Bolts exposed to weathering or to earth shall be dipped in a rust inhibitive paint prior to installation.
4. Gas cutting: Field correcting of fabrication by gas cutting shall not be permitted on any major member in the structural framing without prior approval of the Architect.
5. All beams with or without bearing plates shall be set in 1 to 1 mix of sand and Portland cement so as to ensure full contact bearing.

D. Bracing - All structural steel shall be braced, guyed and stayed to prevent lateral or vertical movement against construction loads, dead loads, wind forces and erection forces. Such bracing shall remain in place until secured and all exterior walls are in place.

E. Field Painting

1. Damage of shop paint or exposed rusted metal spots shall be cleaned and painted before erection. Paint shall be same as applied by fabricator.
2. After erection, all steel exposed to earth or weather shall be painted with a 2nd coat of rust inhibitive paint.
3. After erection, all abrasions or damaged paint marks, including bolts, nuts and welds, shall be touched up with shop paint by the erector.
4. See Section 09 91 00 for finish coats required.

F. Tolerances - Erection tolerances shall conform to part b) of section 7 of AISC "Code of Standard Practice for Steel Buildings and Bridges", as stated in the 7th Edition of AISC Manual of Steel Construction or most current edition.

3.3 IMPROPER FIT OF STEEL WORK

- A. All framing or connections that do not properly fit, or are not located according to plans, shall be modified or replaced at contractor's expense. Contractor shall submit to the Architect drawings and proposals for modifications and replacement, for approval. No work shall proceed until approval is received, but temporary shoring and bracing shall be placed until approved corrections are made.

3.4 SPECIAL INSPECTIONS

- A. Inspection of Steel structure placement and connections for conformance to the construction documents and the IBC shall be completed by the designated third party Special Inspector.

END OF SECTION

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SECTION 05 21 00

OPEN WEB STEEL JOISTS

PART 1 GENERAL

1.1 SCOPE

- A. This section shall cover the furnishing, fabrication, erection and connection of all steel joists complete.
- B. Work Included and Furnished
 - 1. All labor, tools, materials, scaffolding, bracing cranes, hoists and other construction equipment required for the completion of the roof and floor structures in accordance with drawings and these specifications.
 - 2. Preparation of shop drawings.
 - 3. Furnishing of all steel joists including bridging, bearing plates, bracing, anchors, headers, joist extensions, shims, welding material and bolting material.
 - 4. Shop and field painting.

1.2 RELATED SECTIONS

- A. Section 01 40 00 – Required Special Inspections

1.3 STANDARDS

- A. Open web steel joist materials and fabrication, connections, anchorage, detailing and erection shall be in accordance with the latest Edition of "Standard Specifications and Load Tables" as published by the Steel Joist Institute, except where additional or more stringent requirements are noted here in these specifications. Fabricator must have SJI certification.

1.4 SHOP DRAWINGS

- A. Shop drawings shall be submitted by the Contractor to the Architect and approval received prior to fabrication. Submit as per Section 01 33 00. When corrections are required, copies shall be returned noting such corrections. Fabrication may be done on items not requiring correction even though drawings must be returned.
- B. Steel joist fabricator shall submit a certificate of compliance with the IBC, Sec, 1704, (copy to be included in the close out documents as part of the shop drawing submittal.
- C. Shop drawings must be signed and stamped by a registered structural engineer licensed in the state project is being constructed.
- D. The Contractor shall be responsible for checking of quantities and dimensions before submittals.

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- E. Contract drawings receive precedence over shop drawings unless authorized otherwise in writing.
- F. All connections, including those made in the field, shall be shown and detailed. Welds shall be indicated with American Welding Society symbols.
- G. All materials incorporated into fabrication shall be noted as to grade.

1.5 WORKMANSHIP

- A. All fabrication and erection work shall be performed by skilled workmen working under experienced supervision.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Provide joists as shown on drawings, manufactured by Vulcraft or approved alternate.

PART 3 EXECUTIONS

3.1 FABRICATION

- A. All joists shall be manufactured in accordance with requirements of Steel Joist Institute or requirements of American Institute of Steel Construction. Manufacturing companies who are not members of these Institutes shall submit certification that steel joists furnished meet requirements of Steel Joist Institute previously noted in these specifications prior to fabrication.
- B. All joists shall be painted with one shop coat of red or gray primer of type specified in Steel Joist Institute "Standard Specification and Load Tables".
- C. Joists shall be cambered in accordance with recommended camber as noted in Section 4.7 of Steel Joist Institute "Standard Specification and Load Tables" unless noted otherwise on plans.

3.2 ERECTION

- A. Spacing
 - 1. Joists shall be spaced and located according to contract plans.
- B. Bearing and Anchorage
 - 1. Joists shall have a minimum bearing of 4 inches on concrete or masonry and shall be anchored thereto by bolting or welding.

2. Joists bearing on steel shall have a minimum bearing length of 2 1/2 inches and shall be bolted or welded thereto.
3. Joists parallel to walls shall be anchored directly to the wall at lines of bridging. Both top and bottom chords shall be anchored.
4. Joists with welded connections shall be welded on each side with 1/8" x 2-1/2" fillet welds. *Or as shown on the structural plans.* Roof joists shall be welded with 2-1/2 inch long fillet welds each side of joist.

C. Bridging

1. Bridging shall be of size and type indicated on the shop drawings. Bridging shall be installed as soon as joists have been erected and before application of any construction load or service loads.
2. Bridging shall be welded at top and bottom chords, unless noted otherwise.
3. Bridging shall be connected to wall, column or beams at end of bridging lines.
4. In certain locations special bridging conditions may exist to coordinate with ductwork, specialty items, etc. Indicate these bridging conditions on shop drawings.

D. Extensions and Strut Bracing

1. Strut bracing to beam flanges shall be provided where noted on plans.

E. Framing for Openings

1. See details on structural drawings.

3.3 FIELD PAINTING

- A. Damage of shop coat or rusted or exposed metal shall be cleaned, wire brushed and painted before erection with same paint applied by fabricator.
- B. All abrasion or damaged paint marks, including weld areas, shall be touched up with shop paint after erection.

3.4 SPECIAL INSPECTIONS

- A. Inspection of steel joist placement and connections for conformance to the construction documents and the IBC shall be completed by the designated third party Special Inspector.

END OF SECTION

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SECTION 05 31 23

METAL DECKING - ROOF

PART 1 GENERAL

1.1 SCOPE

- A. This section shall cover all furnishing, fabrication, connection and erection of steel roof deck complete.

1.2 WORK INCLUDED AND FURNISHED

- A. All labor, tools, materials, scaffolding, bracing hoists and other construction equipment required for the complete erection and installation of roof deck.
- B. Shop drawings showing complete erection details shall be submitted in quadruplicate to the Architect for approval before fabrication is begun.
- C. Furnishing of steel deck, accessories and clips necessary for the completed deck, including rubber type and closures.
- D. Shop and field painting.

1.3 RELATED SECTIONS

- A. Section 01 40 00 – Quality Control: Required Special Inspections
- B. Section 05 12 23: Structural Steel
- C. Section 05 21 00: Open Web Steel Joists
- D. Section 05 50 00: Metal Fabrications

1.4 STANDARDS

- A. Design properties shall be computed in strict accordance with the latest edition of "Specifications for the Design of Light Gage Structural Members" of the AISI. Steel decking shall meet SDI Specifications and Certification.

PART 2 PRODUCTS

2.1 MATERIALS

- A. Roof deck shall be manufactured from steel conforming to A-1008 having a minimum yield value of 33,000 P.S.I.

- B. Steel roof deck as installed shall be capable of supporting a total load of 50 P.S.F. with a maximum bending stress of 20,000 P.S.I. with a maximum deflection of L/240 of the span for a live load of 30 P.S.F., but in no case shall properties of the deck be less than that indicated on plans or herein these specifications.
- C. Deck shall be steel sheets with a shop coat of primer.
- D. Steel Deck Types
 - 1. **1 ½" Steel Deck:** Deck shall have continuous integral ribs 1 1/2" deep, spaced no more than 6 1/4" on center. Ribs at bearing points shall be commonly referred to as "wide rib". Gauge of material shall be as noted on contract plans, but in no case shall be less than 22 gauge, 'B' deck.

PART 3 EXECUTION

3.1 INSTALLATION

- A. General: Install roof deck units and accessories in accordance with manufacturer's recommendations and shop drawings.
- B. Placing Roof Deck Units.
 - 1. Position roof deck units on supporting steel framework and adjust to final position with ends bearing on supporting members and accurately aligned end to end before being permanently fastened.
 - 2. Lap ends not less than 2 1/2 inches. Laps shall occur at a support.
 - 3. Do not stretch or compress the side lap interlocks.
 - 4. Place deck units flat and square, and secure to adjacent framing without warp or deflection.
- C. Fastening Deck Units
 - 1. Secure roof deck units to supporting members with 5/8" diameter puddle welds at spacing as noted in structural notes on structural drawings.
 - 2. Welding to conform to AWS D1.1-Current Edition.
 - 3. Side laps fasteners shall be as noted on the structural drawings and spaced evenly between each support.
- D. Cutting and Fitting
 - 1. Cut and fit roof deck units and accessories around projections through roof decking.
 - 2. Make cuts neat, square, and trim.
 - 3. Cut openings in roof deck true to dimensions using metal saws, drills or cutting torches.
 - 4. Do not use cutting torches where a finished appearance is required.
- E. Closure Strips: Install closure strips at all open uncovered ends and edges of roof decking, and in voids between decking and other construction.

- F. All erection work shall be coordinated with other trades to provide the necessary vents, hangers, openings, etc. required.
- G. After installation, deck shall be a continuous, clean, dry surface ready for roofing materials.
- H. Architect and structural engineer shall observe the finished roof deck prior to placing of covering materials.

3.2 JOINT SEALING

- A. Remove dust, dirt, and moisture from joint surfaces.
- B. Apply sealant in accordance with manufacturer's instructions.

3.3 TOUCH-UP PAINTING

- A. Wire brush, clean and paint scarred areas, welds, and rust spots on top and bottom surfaces of decking units and supporting steel members.
- B. Touch-up shop painted surfaces with same paint used in shop, and apply as recommended by manufacturer.
- C. Touch-up paint shall match existing paint in exposed areas.

3.4 SPECIAL INSPECTIONS

- A. Inspection of steel deck placement and connections for conformance to the construction documents and the IBC shall be completed by the designated third party Special Inspector.

END OF SECTION

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SECTION 05 40 00

COLD-FORMED METAL FRAMING

PART 1 GENERAL

1.1 SUMMARY

- A. Furnish labor and materials for installation of all load bearing metal stud walls, metal floor joist, and metal roof joist framing as indicated on drawings and specified herein.

1.2 RELATED WORK SPECIFIED ELSEWHERE:

- A. Quality Control - Section 01 40 00: Required Special Inspections
- B. Submittals: Section 01 33 00
- C. Insulation: Section 07 21 00
- D. Clips and Bracing: Structural Drawings
- E. Metal Studs: Section 09 22 16
- F. Drywall: Section 09 29 00

1.3 REFERENCES

- A. AISI - Standard for Cold-Formed Steel Framing General Provisions.
- B. AISI - North American Specification (NASPEC) for the Design of Cold-Formed Steel Structural Members – Current Edition.
- C. ASTM A 653 - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) by the Hot-Dip Process.
- D. ASTM A 780 - Standard Practice for Repair of Damaged and Uncoated Areas of Hot-Dip Galvanized Coatings.
- E. ASTM A 1003 - Standard Specification for Steel Sheet, Carbon, Metallic- and Nonmetallic-Coated for Cold-Formed Framing Members.
- F. ASTM C 1513 - Standard Specification for Steel Tapping Screws for Cold-Formed Steel Framing Connections.
- G. ASTM E 84 - Standard Test Method for Surface Burning Characteristics of Building Materials.
- H. ASTM E 90 - Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements.

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- I. ASTM E 119 - Standard Test Methods for Fire Tests of Building Construction and Materials.
- J. ASTM E 413 - Classification for Rating Sound Insulation.
- K. GA-600 - Fire Resistance Design Manual.

1.4 DESIGN REQUIREMENTS

- A. Design steel in accordance with American Iron and Steel Institute Publication "Specification for the Design of Cold-Formed Steel Structural Members" or the North American Specification for the Design of Cold-Formed Steel Structural members, except as otherwise shown or specified.
- B. Design loads: As indicated on the Architectural and Structural drawings.
- C. Design framing system to accommodate deflection of primary building structure and construction tolerances.
- D. Fire-Test-Response Characteristics: For fire-resistance-rated assemblies that incorporate non-load-bearing steel framing, provides materials and construction identical to those tested in assembly indicated according to ASTM E119 by an independent testing laboratory, and by UL 263. Products used in the assembly shall carry a classification label from the testing laboratory.

1.5 SUBMITTALS

- A. Submit under provisions of Section 01 33 00.
- B. Submit manufacturer's product literature and data sheets for specified products.
- C. Manufacturer's certification of product compliance with codes and standards.

1.6 QUALITY ASSURANCE

- A. Contractor shall provide effective, full time quality control over all fabrication and erection complying with the pertinent codes and regulations of government agencies having jurisdiction.
- B. Contractor to conduct pre-installation meeting to verify project requirements, substrate conditions, and manufacturer's installation instructions.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Notify manufacturer of damaged materials received prior to installing.
- B. Deliver materials in manufacturer's original, unopened, undamaged containers with identification labels intact.
- C. Store materials protected from exposure to rain, snow or other harmful weather conditions, at temperature and humidity conditions per the recommendations of ASTM C754 section 8.

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PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Acceptable Manufacturers:
 - 1. ClarkDietrich Building Systems, 9100 Pointe Drive, Suite 210, West Chester, OH. Phone: 513-870-1100. www.clarkdietrich.com, info@clarkdietrich.com.
 - 2. Other manufacturers as referenced in this section for specific products.
- B. Requests for substitutions will be considered in accordance with provisions of Section 01 60 00.
- C. All products to be manufactured by current members of the Steel Stud Manufacturers Association (SSMA), Steel Framing Industry Associates (SFIA), or the Certified Steel Stud Association (CSSA).
- D. All studs and/or joists and accessories shall be of the type, size, gauge and spacing shown on the drawings. Exterior studs and load bearing studs shall have a 1-5/8" flange with 1/2" return lip.
- E. All framing members shall be formed from steel, corresponding to the requirements of ASTM A653, with minimum yield strength of 33 ksi. All studs shall be galvanized.
- F. Where fire blocking is required or called for on drawings, provide blocking equal to prefabricated fire blocking manufactured by Metal-Lite, Inc., Placentia, CA (800) 886-6824. Provide blocking same width as metal stud.
 - 1. Provide where stud frame bypasses floors and where studs bypass roof.
 - 2. For draft-stopping with mineral wool refer to specification section 07 84 00.

2.2 MATERIALS

- A. Steel: Galvanized Steel meeting or exceeding the requirements of ASTM A 1003.
 - 1. Coating: Galvanized G60 (Z180) coating minimum, complying with ASTM A1003.
- B. Fasteners: Self-drilling, self-tapping screws; complying with ASTM C 1513 - Standard Specification for Steel Tapping Screws for Cold-Formed Steel Framing Connections.
- C. Touch-Up Paint: Complying with ASTM A 780 - Standard Practice for Repair of Damaged and Uncoated Areas of Hot-Dip Galvanized Coatings.

2.3 FRAMING ACCESORIES: Provide accessories as required in this project.

- A. Flat Strapping for Backing Strip.
- B. Flat Strapping and bridging for lateral bracing.
- C. L-Angles.

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- D. SwiftClip Fixed Connection Angles.
- E. Deflection Slip Connectors: “Verticlip” Series, manufactured by Steel Network, Inc, or approved alternate. Provide clip as required for each situation to compensate for deflection of structure.
- G. Z-furring or Z-channel (manufactured by MBA metal framing)
 - 1. Size 1-1/2”, 43 mils (18 ga)
 - a. Exterior stud walls with finish metal wall panel. Locate Z-furring vertically at 16” o.c. attached to each stud with #8 TEK screws at 12” o.c. max.
- H. Cantilevered Wall System: Pony Wall by Clark Dietrich
 - 1. Pony Wall Heavy
 - 2. Stud Material: Structural Grade 50 Type H, 50ksi, 16GA, 0.0566” design thickness, 0.0538” minimum thickness. Structural Grade 50 Type H, 50ksi, 12GA, 0.1017” design thickness, 0.0966” minimum thickness. (Select this for Heavy)
 - 3. Base Plate Material: ASTM A36 3/8” thick hot rolled steel. ASTM A36 1/2” thick hot rolled steel. (Select this for Heavy)
 - 4. Base Plate Anchor: (4) 1/2” Hilti KB1 Expansion Anchor embed 3 5/8”
 - 5. Finish Height of wall system: Maximum 4’-0”
 - a. PW48 at 30” o.c.

PART 3 EXECUTIONS

3.1 FABRICATION

- A. Prior to fabrication of framing, the contractor shall submit fabrication and erection drawings to the Architect to obtain approval.
- B. Method of construction may be either piece by piece (stick built), or by fabrication into panels either on or off the site.
- C. Prefabricated panels shall be square, with components attached in a manner to prevent racking and to minimize distortion while lifting.
- D. All framing components shall be cut squarely for attachment to perpendicular members, or, as required, for an angular fit against abutting members.
- E. Axially loaded studs shall be installed in a manner which will ensure that their ends are positioned against abutting members.
- F. Fastening of components shall be with welding or with minimum 1 #8 screw both sides of flange. Welds shall conform to the requirements of AWS D.1.1, AWS D.1.3 and AISI Manual Section 4.2. All welds shall be touched up using zinc-rich paint. Wire tying will not be permitted.

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- G. Cutting of steel framing members may be accomplished with a saw or shear. Torch cutting of load bearing studs will not be permitted.
- H. Install headers in all openings in axially loaded walls that are larger than the stud spacing in the wall. Form headers as shown on drawings.
- I. Unless shown otherwise on drawings, brace top of metal stud walls to structure above at max. 4'-0" O.C. with minimum 20 gauge stud bracing.
- J. Insulation equal to that specified elsewhere shall be provided in all double-jamb studs and doubled headers not accessible to insulation contractors.
- K. Care should be taken to allow for additional studs at intersections, corners, doors, windows, steel joists, diagonal bracing and as called for in the shop drawings.

3.2 ERECTION (AXIAL LOAD-BEARING).

- A. Runners shall be securely anchored to the supporting structure as shown on the drawings.
- B. Complete, uniform and level bearing support shall be provided for the bottom runner.
- C. Abutting lengths of runner shall be butt-welded or spliced.
- D. Studs shall be plumbed, aligned and securely attached to flanges of both upper and lower runners.
- E. Framing of wall openings shall include headers and supporting studs as shown on the drawings.
- F. Temporary bracing, where required, shall be provided until erection is completed.
- G. Resistance to bending and rotation about the minor axis shall be provided by gypsum board and gypsum sheathing as per manufacturer's recommendations. If diaphragm rated materials is used, it must be installed prior to loading the wall. At load-bearing walls, channel bridging shall be provided at 4'-0" for the full height of the wall. Bridging shall be screwed to each stud.
- H. Diagonally braced stud walls, as indicated on the structural drawings shall be provided at locations designated as "shear walls" for frame stability and lateral load resistance. Additional studs, when necessary, shall be positioned as indicated on drawings to resist the vertical components. 16 gauge top runner track shall also be provided at diagonally braced stud walls.
- I. Splices in studs shall not be permitted.
- J. See Structural Drawings for the locations of the "Verticlip SLB Series" slide clip as manufactured by Steel Network or approved alternate. Coordinate with stud size.

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- K. See Structural Drawings for the locations of the “Stiff Clip LB Series” stationary clip as manufactured by Steel Network or approved alternate. Coordinate with stud size.
- L. Coordinate stud wall bracing placement to work with installation of ductwork, piping, etc.

3.3 SPECIAL INSPECTIONS

- A. Inspection of cold formed steel for conformance to the construction documents and the IBC shall be completed by the designated third party Special Inspector.

END OF SECTION

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SECTION 05 50 00

METAL FABRICATIONS

PART 1 GENERAL

1.1 SUMMARY

- A. Furnish labor and materials for installation of miscellaneous metal products as indicated on plans and/or specified herein.

1.2 INTEGRATION WITH OTHER TRADES

- A. Each Trade shall provide all items necessary to be built into masonry, concrete, tile, etc., prior to when needed. Contractor is to be responsible for coordination and scheduling of such items.

1.3 RELATED WORK SPECIFIED ELSEWHERE

- A. Section 01 40 00 – Quality Control: Required Special Inspections
- B. Section 03 30 00: Cast-in-Place Concrete:
- C. Section 09 91 00: Painting and Finishing

1.4 QUALITY

- A. Welders: Use only certified welders in accordance with AWS D1.1-Current Edition., licensed in the State of Arkansas
- B. Codes and Standards
 - 1. "Specification for the Design, Fabrication, and Erection of Structural Steel for Buildings", A.I.S.C.
 - 2. "Code for Welding in Building Construction", American Welding Society.
 - 3. Applicable codes and ordinances.

1.5 SHOP DRAWINGS

- A. Comply with requirements of Section 01 33 00.

PART 2 PRODUCTS

2.1 METALS

- A. Metals shall conform to applicable ASTM specifications, including but not limited to:
 - 1. Steel wide flanges and tees ASTM A992 with 50 KSI yield strength
 - 2. Standard steel pipe ASTM A501

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3. Steel tubing ASTM A500, Grade C
4. Steel plate ASTM A36
5. Other Structural Steel ASTM A36
6. Bolts ASTM A307
7. Anchor Rods – ASTM F1554, Grade 36
8. Exterior steel angle lintels and exposed steel plates and bent plates – Galvanized finish, hot dipped, ASTM 385/385M-15, grade 65.

2.2 PAINT

- A. Primer paint: Manufacturer's standard, compatible with finish coat paint specified in Section 09 91 00.
- B. Dissimilar metals shall be protected from galvanic action by coating with one coat of zinc chromate primer prior to assembly.

2.3 MISCELLANEOUS ANCHORS:

- A. Furnish anchor rods and miscellaneous anchors as required except where such items are specified in other sections of these specifications, or where customarily furnished with the items to be attached.

2.4 MISCELLANEOUS ITEMS

- A. Furnish and install where shown in accordance with drawings and details other items of miscellaneous metals except where same are specified in other sections of these specifications. These items to include, but not be limited to:
 1. Slip angles, stiffener channels, equipment frames, legs, supports, etc.
 2. All other materials, not specifically described, but required for a complete and proper installation.

PART 3 EXECUTION

3.1 QUALITY CONTROL

- A. All material shall be new, of the best quality, and subject to the approval of the Architect.
- B. Weld or rivet permanent connections; do not use screws or bolts where they can be avoided.
- C. Fastenings shall be concealed where practical, and heads countersunk where required. Use lock washers to prevent loosening.
- D. Provide holes and connections for the work of other trades.
- E. Welds in flat surfaces, where exposed in finished rooms, or where noted shall be ground smooth and exposed corners or edges shall be rounded where practicable.

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- F. All items shall be properly located, set level, plumb, square and in alignment, and shall be securely attached.
- G. Grind all factory or field welds where exposed to achieve smooth consistent surface. Field-apply primer (or galvanized paint if metal is galvanized) immediately following grinding. Paint all exposed steel per section 09 91 00.
- H. Provide galvanized finish on exterior, exposed angle lintels, exposed steel plates and steel bent plates unless noted otherwise, Provide galvanized finish on other items where specified and called for.

3.2 TOUCH-UP PAINTING

- A. Wire brush, clean and paint scarred areas, welds, and rust spots on top and bottom surfaces of decking units and supporting steel members.
- B. Touch-up shop painted surfaces with same paint used in shop, and apply as recommended by manufacturer.
- C. Touch-up galvanized welded areas with Galvilite By ZRC Products Company, or approved equal.

3.3 SPECIAL INSPECTIONS

- A. Inspection of miscellaneous metal placement and connections for conformance to the construction documents and the IBC shall be completed by the designated third party Special Inspector.

END OF SECTION

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SECTION 05 51 30

ALUMINUM ACCESS LADDERS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Aluminum access ladders.

1.2 RELATED SECTIONS

- A. Section 05 5 00 – Metal Fabrications: Fasteners and installation requirements used to attach ladders to structure.

1.3 REFERENCES

- A. AA – Aluminum Association.
- B. ASTM B 209 - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate.
- C. ASTM B 221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes.
- D. OSHA 1910.27 – Fixed Ladders.

1.4 SUBMITTALS

- A. Submit under provisions of Section 01 33 00.
- B. Product Data: Manufacturer's data sheets on each product.
- C. Shop Drawings:
 - 1. Detail fabrication and erection of each ladder indicated. Include plans, elevations, sections, and details of metal fabrications and their connections.
 - 2. Provide templates for anchors and bolts specified for installation under other Sections.
 - 3. Provide reaction loads for each hanger and bracket.
- D. Qualification Data:
 - 1. Refer to Quality Assurance provisions for submittal requirements evidencing experience, certifications and resources.

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- E. Selection Samples: For each finish specified, two complete sets of color chips representing manufacturer's full range of available colors.
- F. Verification Samples: For each finish specified, two samples, minimum size 6 inches (150 mm) square, represent actual product color.

1.5 QUALITY ASSURANCE

- A. Manufacturer Qualifications: A firm experienced in producing aluminum metal ladders similar to those indicated for this Project.
 - 1. Record of successful in-service performance.
 - 2. Sufficient production capacity to produce required units.
 - 3. Professional engineering competent in design and structural analysis to fabricate ladders in compliance with industry standards and local codes.
- B. Installer Qualifications: Competent and experienced firm capable of selecting fasteners and installing ladders to attain designed operational and structural performance.
- C. Product Qualification: Product design shall comply with OSHA 1910.27 minimum standards for ladders.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Store products in manufacturer's unopened packaging until ready for installation.

1.7 PROJECT CONDITIONS

- A. Field Measurements: Verify dimensions by field measurement before fabrication.
 - 1. Established Dimensions: Where field measurements cannot be made without delaying the Work, indicate established dimensions on shop drawing submittal and proceed with fabrication.

1.8 WARRANTY

- A. A Manufacturer has responsibility for an extended Corrective Period for work of this Section for a period of 5 years commencing on the date of substantial completion of the product against all the conditions indicated below, and when notified in writing from Owner, manufacturer shall promptly and without inconvenience and cost to Owner correct said deficiencies.
 - 1. Defects in materials and workmanship.
 - 2. Deterioration of material and surface performance below minimum OSHA standards as certified by independent third party testing laboratory. Ordinary wear and tear, unusual abuse or neglect excepted.

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3. Within the warranty period, the manufacturer shall, at its option, repair, replace, or refund the purchase price of defective ladder.
- B. Manufacturer shall be notified immediately of defective products, and be given a reasonable opportunity to inspect the goods prior to return. Manufacturer will not assume responsibility, or compensation, for unauthorized repairs or labor. Manufacturer makes no other warranty, expressed or implied, to the merchantability, fitness for a particular purpose, design, sale, installation, or use, of the ladder; and shall not be liable for incidental or consequential damages, losses of or expenses, resulting from the use of ladder products.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Acceptable Manufacturer: O’Keeffe’s, Inc.; 100 N Hill Drive, Suite 12, Brisbane, CA 94005. Toll Free Tel: (888) 653-3333. Tel: (415) 824-4900. Fax: (415) 824-5900. Email: info@okeeffes.com. Web: <http://www.okeeffes.com>.
- B. Requests for substitutions will be considered in accordance with the provisions of Section 01 60 00.

2.2 APPLICATIONS/SCOPE

- A. Fixed Access Ladder:
 1. Tubular Rail Low Parapet Access Ladder with Platform and Return.
 - a. Model 503 as manufactured by O’Keeffe’s Inc.

2.3 FINISHES

- A. Mill finish. As extruded.

2.4 MATERIALS

- A. Aluminum Sheet: Alloy 5005-H34 to comply with ASTM B209.
- B. Aluminum Extrusions: Alloy 6063-T6 to comply with ASTM B221.

2.5 FABRICATION

- A. Rungs: Not less than 1-1/4 inches (32 mm) in section and 18-3/8 inches (467mm) long, formed from tubular aluminum extrusions. Squared and deeply serrated on all sides.

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1. Rungs shall withstand a 1,500 pound (454 kg) load without deformation or failure.
- B. Channel Side Rails: Not less than 1/8 inch (3 mm) wall thickness by 3 inches (76 mm) wide.
- C. Heavy Duty Tubular Side Rails: Assembled from two interlocking aluminum extrusions no less than 1/8 inch (3 mm) wall thickness by 3 inches (76 mm) wide. Construction shall be self-locking stainless steel fasteners, full penetration TIG welds and clean, smooth and burr-free surfaces.
- D. Walk-Through Rail and Roof Rail Extension: Not less than 3 feet 6 inches (1067 mm) above the landing and shall be fitted with deeply serrated, square, tubular grab rails.
- E. Landing Platform: 1-1/2 inches (38 mm) or greater diameter, tubular aluminum guardrails and decks of serrated aluminum treads.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Coordinate anchorages. Furnish setting drawings, templates, and anchorage structural loads for fastener resistance.
- B. Do not begin installation until supporting structure is complete and ladder installation will not interfere with supporting structure work.
- C. If supporting structure is the responsibility of another installer, notify Architect of unsatisfactory supporting work before proceeding.

3.2 INSTALLATION

- A. Install in accordance with manufacturer's instructions and in proper relationship with adjacent construction.

3.3 PROTECTION

- A. Protect installed products until completion of project.
- B. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION

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SECTION 06 10 00

ROUGH CARPENTRY

PART 1 GENERAL

1.1 SUMMARY

- A. Furnish and install all wood framing members, stripping, blocking, grounds, pressure treated wood, fire treated wood, equipment curbs and cants, and other miscellaneous.

1.2 PRODUCT HANDLING

- A. Protection:
 - 1. Store all materials in such a manner as to ensure proper ventilation and drainage, and to protect against damage and the weather. Store in a well-ventilated building where not exposed to extreme changes of temperature and humidity.
 - 2. Keep all materials clearly identified with all grade marks legible. Keep all damaged material clearly identified as damages, and store separately to prevent its inadvertent use.
 - 3. Do not allow installation of damaged or otherwise non-complying material.
 - 4. Use all means necessary to protect the installed work and materials of all other trades.
 - 5. Protect all metal products with adequate waterproof outer wrappings.
 - 6. Use extreme care in off-loading of lumber to prevent damage, splitting, and breaking of materials.

1.3 ECOLOGICAL PRESERVATION

- A. Contractor will not use old growth Western Red Cedar, Sitka Spruce, Western Hemlock, Pacific Fir, or Coastal Redwood unless it is recycled. Only upon written request, under unusual circumstances, will use of any of these species be considered by Architect.

PART 2 PRODUCTS

2.1 MATERIALS

- A. All materials herein specified: The best of their respective grades, conforming to grading rules of lumber association under which they are produced, thoroughly seasoned or kiln dried. Protect and cover in shipment and on job site.
- B. Framing lumber and miscellaneous blocking - No. 2 Grade Douglas Fir, or Southern Pine, S4S in conformance with ASTM 245- 69 grading, or as otherwise specified on plans.
- C. Pressure treated wood:
 - 1. Use arsenic-free pressure treated lumber, Copper Azole Type-B (CA-B), Alkaline Copper Quat (ACQ), or approved equivalent product conforming to American Wood Preservers Association standards for use above ground in all places where lumber is used in contact with masonry work and concrete. Where used with roofing, at roof curbs, parapet caps,

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- roof edge member or roof cant strips, whether noted on plans or not, type MCA treatment is acceptable.
2. Use minimum 0.40 Lbs./Cu. Ft. retention for ground contact lumber, and 0.25 for above ground applications.
 3. Pressure treated wood shall leave no apparent odor or stain in the completed work.
 4. Fasteners shall be stainless steel or hot-dipped, galvanized conforming to ASTM A-153.
- D. Fire treated wood: All concealed lumber, wood products and wood materials used in construction that are to remain as part of the finished work, shall be fire retardant treated, Pyro-Guard manufactured by Hoover Treated Wood Products, PO Box 7807, Pine Bluff, AR 71611 (501)247-3511, or approved alternate. Flameproof treatment shall be tested to produce a flame spread of 25 or less as determined by Underwriters Laboratories in the extended 30 minute duration of ASTM E-84, "Standard Test Method for Surface Burning Characteristics of Building Materials.". Provide with 20 year manufacturer's warranty.
1. For IBC type I and type II construction, concealed lumber used for blocking in attachment of handrails, toilet accessories, markerboards, etc. is not required to be fire treated.
 2. Isolate metal materials coming in contact with Fire treated wood with 30# felt.
- E. Plywood and Lumber:
1. Plywood to meet performance standards for its type as described in Product Standard PS 1 for Douglas Fir plywood. Provide exterior type plywood for permanently exposed plywood in outdoor applications.
 2. Provide lumber for structural carpentry using the following species provided grade for each is not lower than minimum shown:
Fir, Douglas – WCLIB, Standard
Pine, Southern Yellow - SPIB Rules, No. 2 Common
 3. Pressure treat concealed wood including lumber, grounds, nailers, blocking, backing, rough framing, and lumber in contact with the ground, in contact with concrete or masonry within 24" of the ground, installed on or above roof deck, and as required, complying with published standards or the American Wood Preserver's Association.
 4. Plywood not otherwise specified or not on the drawings: Douglas Fir or Southern Yellow Pine panels, C-D grade for concealed applications and A-C grade for exposed applications, meeting US product standard PS1. Furnish plywood for underlayment using underlayment grade with exterior glue.
 5. Exterior Plywood: APA CDX, exposure 2 with exterior glue thickness as called for. Butt joint and tongue & groove. See drawings.
 6. Interior Plywood: Thickness & type indicated on drawings;
APA A-A INT, where exposed two sides and painted finished is called for.
APA N-N INT, where exposed two sides and stained or natural finish is called for.
APA A-D INT, where exposed one side (ie. shelving, panel boards, etc.)
- F. Plywood Floor Decking: 1 1/8" thick "Plytanium Plywood Sturd-I-Floor", Tongue and Groove 4'-8' plywood panels, southern pine,, manufactured by Georgia Pacific.
- a. Exposure 1, fire classification III or C, Fire Spread Rating-76-200, smoke developed index of 450.
 - b. Warranty: 2 year limited warranty.

- G. Backer Board: Provide at roof side of all metal stud roof parapet walls.
1. Backer board to be 5/8" thickness, type X.
 2. Roofing installer is responsible for providing any required priming for adhesion of roofing membrane.
 3. Protect the backer board from moisture and weather per manufacturer's recommendations.
 4. Acceptable products:
 - a. DensDeck Prime Roof Board by Georgia Pacific
 - b. Securock Gypsum –Fiber Roof Board by USG
- H Exterior Sheathing Board: Refer to Section 09 29 00 Drywall.

PART 3 EXECUTION

3.1 WORKMANSHIP

- A. Framing: Frame, fit closely, set framing according to required lines, levels and secure rigidly in place.
- B. Grounds and Blocking: Provide wood grounds and blocking of size and shape required to secure other work or equipment in place. **NO METAL STRAPPING WILL BE ACCEPTED AS A SUBSTITUTE FOR WOOD BLOCKING.** Set grounds true to line, level or plumb and well secured in place. Wood blocking or nailer on steel framing shall be bolted thereto. Provide solid grounds blocking in walls for wall hung or attached items and equipment (i.e. cabinets, countertop brackets and supports, wall mounted hardware, coat hooks, toilet accessories, etc.) Also provide wood blocking in walls and/or ceilings for all owner-provided items. Verify and coordinate with owner actual locations.
- C. Nails, spikes, screws and other anchoring items shall be of the approved size and type to secure the member in place if not called out on drawings.
- D. If approved by Architect, fir dimensional lumber and fir plywood may be used in lieu of pressure treated wood in concealed areas unless pressure treated wood is required by code. If pressure treated wood is used, secure with 304 or 316 stainless steel fasteners or other corrosive-resistant fasteners approved for use with pressure treated wood and approved by manufacturer. Install 30# felt paper over metal substrates or coat with bituminous material prior to installation of pressure treated wood products.
- E. Metal products in contact with pressure-treated wood must be corrosion resistant. Examples include flashing, termite shields, fasteners (e.g. nails, screws, and bolts), and all connecting hardware (e.g. joist hangers, straps, hinges, post anchors, and truss plates). Provide non corrosive separation material between such as felt paper, bituminous material, etc.
- F. Install weather-resistant barrier equal to Tyvek Commercial Wrap over exterior side of all plywood sheathing. Where abutting to other types of exterior sheathing board, extend beyond plywood sheathing a minimum of 6 inches.

- G. Defective materials shall be removed from the job site and replaced with acceptable materials at no additional cost to the Owner.
- H. Draft Stopping:
 - 1. Install 2 x stud depth wood draft stop blocking between studs where balloon framing occurs, installing at elevated floors and at roof plane where studs continue beyond floor or roof plane.

3.2 PROTECTION OF INSTALLED PRODUCT

- A. Any exposed exterior or interior plywood sheathing to be covered with temporary or permanent weather barrier within 24 hours following sheathing installation to prevent exposure to moisture or sunlight. Gypsum sheathing to be covered with temporary or permanent weather barrier within minimum time allowed by sheathing manufacturer.
- B. Schedule work so that wood framing for roof and exterior walls are covered with decking or sheathing as soon as possible to prevent weathering and warpage of framing materials.

3.3 GRADE STAMPS

- A. Framing lumber: Identify all framing lumber by the grade stamp of the Southern Pine Inspection Bureau.
- B. Plywood: Identify all plywood as to species, grade, and glue type by the stamp of the American Plywood Association.
- C. Other: Identify all other materials of this Section by the appropriate stamp of the agency listed in the reference standards.

3.4 CLEAN UP

- A. Keep the premises in a neat, safe, and orderly condition at all times during execution of this portion of the work. Clean up and remove from site the debris, cut ends, and sawdust.

END OF SECTION

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SECTION 06 20 23

FINISH CARPENTRY

PART 1 GENERAL

1.1 SUMMARY

- A. Furnish and install items of finish carpentry and miscellaneous millwork, including all finish trim; fitting and installing all wood doors and frames; installing all finish hardware, and construction of job-built shelving.
- B. Hardwood Veneer Plywood

1.2 RELATED WORK

- A. Section 06 10 00 - Rough Carpentry
- B. Section 08 14 16 - Wood Doors
- C. Section 08 71 00 - Finish Hardware
- D. Section 08 81 00 - Glass and Glazing
- E. Section 09 91 00 – Finishes

1.3 SHOP DRAWINGS

- A. Submit complete shop drawings for Architect's approval prior to fabrication of any millwork or trim.

1.4 REFERENCES

- A. Comply with State of Arkansas Adopted ADA Accessible Guidelines in regard to accessible or handicapped features.

1.5 FIELD DIMENSIONS & COORDINATION

- A. The millwork manufacturer is responsible for details and dimensions set in accordance with field measurements. The Contractor and the Millwork Supplier shall coordinate and correct any discrepancies prior to fabrication or placement of any work.
- B. Coordinate clearances of door hardware items with lites and lite frames.

1.6 PRODUCT HANDLING AND DELIVERY

- A. Contractor and Millwork Supplier are to coordinate all phases of the work provided in under this section to insure timely delivery and setting after building is sufficiently dry and climate controlled to protect the work.

PART 2 PRODUCTS

2.1 FINISH WOOD MATERIALS:

- A. All interior trim which is to be stained shall be oak unless otherwise shown on drawings.
- B. When painted, material shall be close grained, smooth surface, suitable for painting. Species to be Poplar or other similar closed grain species with Architect's approval.
- C. All materials shall be of select material, with no splits, knots, or other defects.

2.2 LAMINATED PLASTICS

- A. Furnish laminated plastic as detailed on drawings in strict accordance with manufacturer's recommendations. Joints shall not be located in random fashion and entire, one piece application shall be used wherever possible. Provide plastic edges where shown. Laminated plastic: "Formica", "Pionite", "Nevamar", "Wilson Art", or alternate approved by Architect. Color, pattern and finish shall be as selected by Architect.

2.3 HARDWOOD VENEER PLYWOOD

- A. ANSI Grade B, rotary cut oak veneer.
- B. Face to be stained. Color to be selected by Architect.

PART 3 EXECUTION

3.1 WORKMANSHIP

- A. Frame, fit closely, and set accurately to required lines, levels, and secure rigidly in place.
- B. All interior trim is to be sanded smooth at job so that no sand marks, scratches, blemishes, etc., are noticeable after finish is applied.
- C. All interior trim against concrete or masonry or solid backings is to have hollow backs.
- D. Joints are to be mitered or angled to conceal shrinkage. Butt joints are not acceptable.
- E. Trim and moldings are to be set with finish nails, screws or glue, where required. All fastening devices are to be set and holes filled with similar material not noticeable after finish.

3.2 FINISH HARDWARE: See Section 08 71 00.

- A. Installation only by this section. Cut, fit, and install without marring or injuring work. Examine hardware at completion of work; test, oil, grease, adjust, and perform all necessary work to insure correct operation.
- B. Doorknobs, pulls, kick plates, push plates, etc., are to be fitted and installed before finishing, then removed and re- installed after finish work is completed.

3.3 WOOD DOORS: See Section 08 14 16

- A. Installation only under this section. Fit, hang, trim as required.
- B. Provide the following clearances:

Sides	1/16"
Top	1/16"
Base (with threshold)	3/16"
Base (without threshold)	3/8 "

- C. Install hardware as specified. Locksets and latches to have centers at 38" above finish floor unless otherwise stated. Coordinate location of locks with approved Hardware Schedule.

END OF SECTION

SECTION 07 10 00

WATERPROOFING AND DAMPPROOFING

PART 1 GENERAL

1.1 SUMMARY

- A. Furnish labor and materials to complete waterproofing and dampproofing shown and specified.
- B. Section Includes:
 - 1. Horizontal joint waterproofing
 - 2. Cavity wall flashing system
 - 3. Below-slab vapor barrier

1.2 RELATED SECTIONS

- A. Section 03 30 00 – Cast-In-Place Concrete
- B. Section 04 22 00 – Concrete Unit Masonry
- C. Section 05 40 00 – Cold Formed Metal Framing
- D. Section 07 62 00 – Flashing and Sheet Metal
- E. Section 09 29 00 – Drywall-Sheathing

1.3 SUBMITTALS

- A. Comply with Section 01 33 00.

1.4 WARRANTY

- A. The Contractor must guarantee all materials and workmanship for a minimum period of two (2) years from the date of Substantial Completion of the building unless longer warranty periods are specified for individual specified products.
- B. The Contractor will, at any time within the two (2) year period, remedy all leaks of any nature in any part of the building due to the use of faulty materials and/or workmanship, without additional cost to the Owner. The Contractor shall further reimburse the Owner for any damage occasioned by such leaks.
- C. The Contractor is cautioned to supplement the work, described in this section of the specifications, by any means necessary to permit the above guarantee, which he will be called upon to make as an obligation of the Contract.

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PART 2 PRODUCTS

2.1 MATERIALS:

- A. Horizontal expansion joint waterproofing of exterior slabs or slabs on grade: Tremco Vulkem #45 SSL Sealant as manufactured by Tremco, W.R. Meadows, Inc., or approved alternate. Color to be coordinated with Architect.
- B. Horizontal expansion Joint Filler: Asphalt impregnated expansion joint material. Provide “Zip Strip” type filler so that top ½” can be removed for sealant installation.
- C. Cavity wall flashing system:
 - 1. Cavity Wall Flashing System:
 - a. Through-Wall Flashing: Flex-Flash flashing polyester scrim reinforced, minimum 40-mils thick, self-adhering, pressure sensitive clear no drool adhesive membrane formulated with Dupont “Evaloy” Kee, manufactured by Holmann & Barnard, Inc.. Provide with all available preformed shapes (i.e. corners, level changes, end dams, stop ends, etc.) as needed to fit job conditions. Apply Primer-SA by HB where installed on exterior sheathing and/or CMU.
 - b. Drainage & Vents: Mortar Net Drainage & Vent System or Mortar Trap & Weep Vent by HB.
 - c. Termination Bar: Provide continuous aluminum or stainless-steel termination bar where membrane terminates on wall sheathing or substrate. Secure to substrate with screws meeting manufacturer detailing.
 - d. Drip Edge: Not required. Terminate membrane flashing at front masonry edge. Flex-flash should be extended beyond the wall face and cut flush with the brick.
 - e. Sealant: Provide sealant at termination bar and where thru wall flashing ends overlap, inside and outside corners and any other type of soft joints. Verify compatibility of sealant with any adjacent materials. HB Sealant, Dow Corning 790 & 791 with 1200 prime coat. Silaflex-1A with #260-205 primer or Sonolastic NPI with #733 primer.
 - 2. Alternate manufacturers with equal or better product may submit product data to Architect for approval, following requirements of Section 01 60 00.
 - a. “TotalFlash” system by Mortar Net USA Ltd, is an approved alternate system, Drainage and weep vents must be provided in addition to the built-in drainage mat.
- D. Weep and Ventilation Vents:
 - 1. QV- Quadro Vent by HB, or Weepvent by Mortar Net, ½” thick, size as required to match brick head dimension.
 - 2. Install at 24” o.c. horizontally for brick veneer, 32 o.c. horizontally for CMU veneer.
 - 3. Provide ventilation vents at top of wall in same location and centering as weep vents.
 - 4. Confirm Color with Architect for each masonry color used.
- E. Mortar Collection Material:
 - 1. Mortar Trap by HB, or MortarNet by Mortar Net, or approved alternate.
 - 2. Thickness as required to fill cavity. Install just above thru-wall flashing in cavity at bottom of walls and above window and door openings per manufacturer’s instructions.

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F. Underslab Moisture Barrier: 15 mil thick virgin polyethylene, Approved Products and Manufacturers:

- “Stego Wrap Class A”, vapor barrier (15-mil) by Stego Industries, LLC, 877-464-7834, www.stegoindustries.com
 - Vaporguard by Reef Industries, 713-507-4250, www.reefindustries.com
 - Moistop Ultra 15 by Fortifiber, 800-773-4777, www.fortifiber.com
 - Perminator HP 15 mil by WR Meadows, 800-342-5976, www.wrmeadows.com
1. Use High Density Polyethylene Tape with pressure sensitive adhesive. Minimum width 4 inches. Sealing tape shall be coated with a high tack natural rubber adhesive.
 2. Waterproofing adhesive or mastic equal to Stego Mastic shall be a high quality, long lasting, asphalt-based material and shall be applied in accordance with its manufacturer’s specification. Waterproofing adhesive shall be compatible for use with the vapor barrier and shall meet the applicable standards for the intended use. The installation contractor shall submit the product specification for Architect’s review and approval prior to using the product.
 3. References
 - a. ASTM E 1745-09 Standard Specification for Plastic Water Vapor Retarders Used in Contact with Soil or Granular Fill Under Concrete Slabs.
 - b. ASTM E 154-99 (2005) Standard Test Methods for Water Vapor Retarders Used in Contact with Earth Under Concrete Slabs, on Walls, or as Ground Cover.
 - c. ASTM E 96-05 Standard Test Methods for Water Vapor Transmission of Materials.
 - d. ASTM F 1249-06 Standard Test Method for Water Vapor Transmission Rate Through Plastic Film and Sheeting Using a Modulated Infrared Sensor.
 - e. ASTM E 1643-09 Selection, Design, Installation, and Inspection of Water Vapor Retarders Used in Contact with Earth or Granular Fill Under Concrete Slabs.
 4. American Concrete Institute (ACI):
 - a. ACI 302.2R-06 Guide for Concrete Slabs that Receive Moisture-Sensitive Flooring Materials.
 5. Vapor barrier must have all of the following qualities:
 - a. Permeance of less than 0.01 Perms [$\text{grains}/(\text{ft}^2 \cdot \text{hr} \cdot \text{inHg})$] as tested in accordance with ASTM E 1745 Section 7.
 - b. Other performance criteria:
 - i. Strength: ASTM E 1745 Class A.
 - ii. Thickness: 15 mils minimum
 6. Quality control/assurance (Submit the following for Architect’s approval):
 - a. Summary of test results as per paragraph 8.3 of ASTM E 1745.
 - b. Manufacturer’s samples, literature.
 - c. Manufacturer’s installation instructions for placement, seaming and penetration repair instructions.

G. Refer to Section 07 19 00 for brick and exposed CMU damp-proofing.

PART 3 EXECUTION

3.1 WORKMANSHIP:

A. Horizontal expansion joint waterproofing:

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1. All horizontal expansion joints shall be 1/2 inch asphalt impregnated expansion joint material with “zip-strip” feature. Insulation-type material will not be acceptable. Install to provide 1/2" depth below finish surface and apply sealant as called for above.

B. Expansion joint Filler:

1. All vertical expansion joints shall be 1/2 inch asphalt impregnated expansion joint material. Not Insulation. The top 1/2 inch of material shall be omitted and joint filled with caulking as specified in Section 07 92 00. All caulking shall be installed flush with wall surface.

C. Cavity Wall Flashing System:

1. The installer shall be knowledgeable of system installation. Contractor to have product representative on site when installation begins to verify correct installation procedures are being performed.
2. Contractor to inspect each installed section of flashing system and approve before covering with veneer.
3. Install Flashing/Drainage System in accordance with manufacturer's installation instructions.
4. Install cavity wall flashing system at base of exterior masonry cavity walls and above doors and window openings where located in exterior masonry cavity walls and where shown on drawings. Extend flashing flush with outside face of masonry veneer.
5. Prior to installation of wall flashing, prime substrate where wall flashings are to be installed with product approved by manufacturer.
6. Where installed at stud walls, secure to sheathing with continuous galvanized metal or stainless steel termination bar and set in adhesive.
7. Where installed at CMU walls, secure with continuous galvanized metal or stainless steel termination bar and set in adhesive.
8. Install preformed shapes at corners, changes in elevation, etc. provide end dams and end stops where required per manufacturer's instruction. Provide preformed transitions where transitioning from grade to top of walk or drive.
9. Replace any damaged membrane prior to installation of masonry veneer.
10. Coordinate installation in veneer with weeps and drainage material.
11. At brick veneer cavity walls, grout solid below grade, turn out at bed joint at least one brick course below finished floor, or 4" (1/2 course) below finished floor for CMU veneer unless shown otherwise on drawings. Install above all window and door openings at masonry cavity walls and where shown on drawings.
12. Just prior to laying of masonry veneer, install mortar collection material.
13. Install weep joints at brick head joints, 24" o.c. (horizontally), at CMU head joints at 32" o.c. (horizontally).
14. If masonry is to receive paint, stain, or special coating, weep vents and drainage vents are not to be coated. Protect as required during coating process.

D. Below-Slab Vapor Barrier (15 mil below-slab):

1. Prepare surfaces in accordance with manufacturers instructions.
2. Installation shall be in accordance with manufacturer's instructions and ASTM E 1643. All lap joints and areas to be sealed shall be free from dirt, dust, and moisture. Sealing tape shall be applied in temperatures ranging from 41°F to 122 °F or according to its

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- manufacturer specification. Where inconsistencies occur between the project plans and specification and ASTM E1643, the project plans and specification shall govern.
3. Unroll vapor barrier with the longest dimension parallel with the direction of the pour.
 4. Lap vapor barrier over footings and seal to foundation walls or top of footings with manufacturer approved sealant.
 5. Overlap joints 6 inches and seal with manufacturer's tape.
 6. Seal all penetrations (including pipes) with manufacturer's pipe boot and sealant.
 7. No penetration of the vapor barrier is allowed except for reinforcing steel and permanent utilities.
 8. Repair damaged areas by cutting patches of vapor barrier, overlapping damaged area 6 inches and taping all four sides with tape.
 9. Pipe/Conduit Boots and Penetration Sealing:
 - a) Cut a piece of vapor barrier. Width: minimum 12 inches Length: one and one-half times the pipe circumference
 - b) With scissors, cut slits half the width of the vapor barrier.
 - c) Wrap boot around pipe and tape onto pipe, completely taping the base to vapor barrier using the polyethylene tape.
 - d) Install mastic around and through groups of conduit, grade stakes or piping, which cannot be sealed by taping. Seal to vapor barrier. As an allowable alternate method of penetration sealing in lieu of taping, mastic may be used to seal around single penetrations such as pipe, conduit, floor drains, etc. Confirm that the material mastic is installed at is compatible with the mastic prior to application.
 10. Seal vapor barrier to top of footings with mastic where vapor barrier terminates at perimeter or interior footings. When vapor barrier terminates at concrete or CMU walls, seal with mastic. Do not apply mastic above top of finished slab elevation.

END OF SECTION

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SECTION 07 19 00

WATER REPELLENT COATING

PART I GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Water repellent coating to exterior masonry surfaces.
- B. Related Sections:
 - 1. Section 04 21 13 - Brick Masonry

1.2 SUBMITTALS

- A. Comply with requirements of Section 01 33 00.

1.3 QUALITY ASSURANCE

- A. Applicator: Acceptable to coating manufacturer.
- B. Field Sample: Apply coating to field sample described for material water repellent is to be applied to.

1.4 ENVIRONMENTAL REQUIREMENTS

- A. Follow manufacturer's recommendations for temperature range in which coating may be applied.
- B. Comply with National Volatile Organic Compound Emission Standards for Architectural coatings, Rule 40 CFR, Part 59, established by Environmental Protection Agency for VOC limits unless stricter local regulations are required.

1.5 GUARANTEE/WARRANTY:

- A. Provide 10-year warranty for water repellent coating on brick guaranteeing the installation waterproof and watertight, except for structural cracks or opening caused by settling, expansion or contraction.
- B. Warranty Period: 10 years from date of Substantial Completion. Non-prorated labor and materials.

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PART 2 PRODUCTS

2.1 ACCEPTABLE MANUFACTURER/PRODUCT

- A. Brick application:
 - 1. Siloxane WB Concentrate by ProSoCo.
 - 2. Prime-a-Pell 200. Manufacturer: Chemprobe Corporation.

2.2 SUBSTITUTIONS

- A. Refer to Specification Section 01 60 00 for product substitution requests.
- B. No substitution will be accepted 10 days prior to bid date.

PART 3 EXECUTION

3.1 INSPECTION

- A. Verify joint sealants are installed and cured.
- B. Beginning of installation means acceptance of substrate.

3.2 PREPARATION

- A. Remove loose particles and foreign matter.
- B. Remove oil or foreign substance with a cleaning agent which will not affect coating.
- C. Scrub and rinse surfaces with water and let dry.
- D. Protect adjacent surfaces not scheduled to receive coating.
- E. If applied on unscheduled surfaces, remove immediately, by approved method.
- F. Protect landscaping, property, and vehicles from over spray and drift.

3.3 APPLICATION

- A. Delay work until masonry mortar is cured for seven days and weather forecast calls for hot, dry conditions. Follow manufacturer's directions for masonry cure periods before applying water repellent.
- B. Apply coating (**minimum 2 coats**) in accordance with manufacturer's instructions, using appropriate method and coverage rate.

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C. Application:

1. Surface must be clean and dry.
2. Air temperature must be 50° F or higher during application.
3. Re-pointing shall be allowed to dry for 72 hrs. minimum before application.
4. All caulking and sealant work must be done prior to application and have a minimum of 12 hours of curing time or until set.
5. All alkali or efflorescence to be cleaned and/or treated prior to application.
6. Material to be applied with a 12" rundown.
7. Mask off other finish materials, aluminum storefronts, windows, glass, etc. that are not scheduled to receive water repellent coating.
8. Coverage must meet or exceed normal coverage rates stated by the manufacturer.
9. Application may be low pressure sprayer (less than 200 psi or lower as recommended by manufacturer.,

END OF SECTION

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SECTION 07 21 00

INSULATION

PART 1 GENERAL

1.1 SUMMARY

- A. Furnish all labor, material, equipment, and services necessary for and reasonably incidental to complete insulation as called for below.

1.2 SUBMITTALS

- A. Comply with requirements of Section 01 33 00.

1.3 QUALITY CONTROL

- A. All packages and containers of foam plastic and foam plastic ingredients shall bear the label of an approved agency showing either the flame spread rating and smoke developed rating of the product at the thickness tested or the use for which the product has been listed.
- B. All foam plastics or foam plastic cores in manufactured assemblies used in building construction shall comply with NFPA 285 and NFPA 286. Provide technical evaluation reports and/or engineering judgments relative to NFPA wall assemblies.
- C. The edge or face of each piece of foam plastic insulation shall bear the label of an approved agency. The label shall contain the manufacturer's or distributor's identification, model number, serial number or definitive information describing the product or materials performance characteristics and approved agency's identification.
- D. Insulating materials, concealed as installed shall have a flame spread rating of not more than 25 and a smoke developed rating of not more than 450. Insulating materials exposed as installed shall have a flame spread rating of not more than 25 and a smoke developed rating of not more than 450.

PART 2 PRODUCTS

2.1 MATERIALS:

- A. Fiberglass batt type as manufactured by Owens Corning, Certainteed, Johns Manville or approved equal of thickness or R-value as shown on drawings, un-faced, meeting smoke and flame spread rating as specified this section. All concealed and exposed insulation to meet minimum flame spread and smoke development ratings per this specification and governing code requirements.

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- B. Sound Attenuation Batts: 3 1/2" thick, un-faced fiberglass "Sonobatts", manufactured by Owens Corning, or approved alternate.
1. Provide sound attenuation batts in all stud walls unless noted otherwise.
- C. Aluminum Faced, Polyisocyanurate Foam Insulation: ASTM C1289, Type 1 and Class 2, rigid, cellular, polyisocyanurate thermal insulation, bonded to glass fiber reinforced aluminum facers on both sides. Heavy embossed 12 mil facer with aluminum reflective surface on exposed side.
1. Basis of Design: ECOMAXci FR from Rmax, A Business Unit of Sika Corporation.
 2. Flame Spread Index and Smoke per ASTM E84:
 - a. Flame Spread
 - b. Smoke: 450 or less
 3. Compressive Strength per ASTM D1621: 20 psi
 4. Aged R-Value per ASTM C518: R-6.0 minimum at thickness of 1 inch
 5. Required Insulation Thickness and R-Value: As indicated on the drawings.
 6. Exterior usage in NFPA 285 wall assembly
- D. Stone Wool thermal Insulation with vapor retarder facing:
1. Basis of Design: Rockwool SmartRock as manufactured by Roxul USA, 4594 Cayce Road, Byhalia, MS 38611.
 2. Flame Spread of 15 or less and Smoke Developed to be 20 or less.
 3. Thickness and R-value: 2 inches/R 8.4
 4. Facing: Humidity-dependent vapor retarder. ICC ES AC528 and AC566 compliant.
 5. Monolithic Density, ASTM C303: Minimum 4.3 lbs./ft³.
 6. Linear Shrinkage, ASTM C356: 0.6 percent at 1200°F.
 7. Corrosiveness to Steel, ASTM C1617: Passes.
 8. Reaction to Moisture, Mineral Wool Insulation:
 - a. Water Vapor absorption, ASTM C1104: 0.16 percent by volume.
 - b. Water Vapor Transmission, ASTM E96: 27 perms.
 - c. Fungi Resistance, ASTM C1338: Passes.
- E. Rigid Roof Insulation: Refer to individual roofing sections for description or insulation.

2.2 ACCESSORIES:

- A. Unfaced Batt Insulation Fasteners: Approved Manufacturer- Midwest Fasteners, Inc., 450 Richard St., Miamisburg, OH 45342 PH: (800) 852-8352 Fax: (937) 866-4174
Email: sales@midwestfasteners.com
1. Adhesively attached spindle-type anchors with washers for batt insulation. Plate formed from perforated galvanized carbon-steel sheet, 0.030 inch thick by 2 inches square, welded to projecting steel spindle with a diameter of 0.105 inch and length capable of holding insulation of thickness indicated securely in position with 1-1/2 inch square or diameter self-locking washers complying with the following:
 1. Washers formed from 0.016 inch thick galvanized steel sheet, with beveled edge for increased stiffness, sized as required to hold insulation securely in place.
 2. Where anchors are located in ceiling plenums provide capped self-locking washers incorporating a spring steel insert to ensure permanent retention of cap.\

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3. Provide spindle length as required for insulation thickness.
- B. Anchor Adhesive: Approved Manufacturer/Product: IHA-177 fastener adhesive, Midwest Fasteners, Inc. 450 Richard St., Miamisburg, OH 45342 PH: (800) 852-8352 Fax: (937) 866-4174
Email: sales@midwestfasteners.com
 1. Product with demonstrated capability to bond insulation anchors securely to substrates indicated without damaging insulation, fasteners, and substrates.
- C. Stone Wool thermal Insulation Accessories
 1. Provide all accessories for a complete installation.
 2. Anchors must be approved by Security Wall Manufacturer.
 3. Vapor Tape per manufacturer's recommendations for installation in security wall panels

PART 3 EXECUTION

3.1 WORKMANSHIP

- A. Batt Insulation between metal studs

Friction-fit insulation between studs after cover material has been installed on one side of the cavity. When unfaced insulation is used, and in applications without a cover material or where the stud depth is larger than the insulation thickness, use Spindle-type anchors and washers as specified and adhered to inside face of sheathing or substrate at 1'-0" o.c.-staggered. When faced insulation is used, the attachment flanges may be taped to the face of metal stud prior to applying the interior finish.

 1. Provide supplementary support to hold the product in place until finish surface is applied when insulation is installed in heights over 8 feet.
 2. Coordinate to assure electrical conduits and water piping are held to the interior face side of the wall.
 3. Unless other types of insulation is called for, install minimum 6" thick batt insulation above ceilings where noted. Provide complete thermal seal between exterior and conditioned space.
 4. Unless noted otherwise and in addition to locations called for on drawings and in specifications, batt insulation shall be installed in exterior wall studs separating conditioned space from non-conditioned spaces. Provide the following minimum R values:
 - a. R-19 at nominal 6" stud walls.
 - b. R-11 at nominal 3-5/8" stud walls.
- B. Fiberglass wall insulation and sound attenuation batts shall be friction fit, with electrical conduits and water piping held to the interior face side of the wall. When unfaced insulation is used, and in applications without a cover material or where the stud depth is larger than the insulation thickness, use wire or metal straps to hold insulation in place, maximum spacing 2'-0" o.c.
 1. Install tight to sides of studs.

07 21 00-3

C. Rigid Cavity Wall Insulation

1. Install tight to substrate. Panels are secured in place with wall tie system. Refer to Sections 04 21 13 for masonry wall tie product information.
2. Joints to be butted tight to each other at ends and sides.

D. Rigid Fiberglass Insulation Board

1. Install and adjust panels to lines and levels to provide accurate alignment and reveal widths as detailed.
2. Provide an adhesive compatible with panel and substrate behind. Install panels using adhesive applied continuously across the back of the panel according to the manufacturer's recommendation. Core shall make continuous contact with substrate after installation.

E. Steel Wool Insulation installed at security wall panels:

1. Install vapor-retarder-faced thermal insulation with vapor retarder facing the interior.
2. Where required to fit around electrical boxes, pipes, wiring, ductwork, obstructions, or in panels that are less than a standard width, lay insulation on flat, rigid surface with vapor retarder facing up and cut with a serrated knife.
3. Mechanically fasten insulation to substrate using plastic insulation anchors or alternative option in compliance with manufacturer's instructions. Mechanical fasteners must be approved by the security panel manufacturer
4. Tape all seams between insulation boards and adjacent substrates, and over fastener heads with tape as recommended by manufacturer to provide an airtight installation.

END OF SECTION

07 21 00-4

SECTION 07 27 26

FLUID-APPLIED WEATHER BARRIER SYSTEM

PART 1 - GENERAL

1.1 SUMMARY:

- A. Work of this section includes window and door flashing, air and water-resistive barrier membrane system, and accessory materials for application to exterior building envelope substrates unless indicated otherwise on the drawings and specifications.
- B. Related work:
 - 1. 03 30 00 - Cast in Place Concrete
 - 2. 04 22 00 - Concrete Unit Masonry
 - 3. 06 10 00 - Rough Carpentry
 - 4. 07 62 00 - Sheet Metal flashing
 - 5. 07 92 00 - Joint Sealants
 - 6. 08 11 13 - Hollow Metal Doors & Frames
 - 7. 08 43 13 - Alum Storefronts, Curtain walls, and Fixed Units
 - 8. 09 29 00 - Drywall: Exterior Sheathing

1.2 PERFORMANCE REQUIREMENTS:

- A. Performance requirements: Comply with the specified performance requirements and characteristics as herein specified.
- B. Performance description:
 - 1. The building envelope shall be constructed with a continuous, air and water-resistive barrier to control water and air leakage into and out of the conditioned space.
 - 2. Joints, penetrations and paths of water and air infiltration shall be made watertight and airtight.
 - 3. System shall be capable of withstanding positive and negative combined wind, stack and HVAC pressures on the envelope without damage or displacement.
 - 4. System shall be installed in an airtight and flexible manner, allowing for the relative movement of systems due to thermal and moisture variations.

1.3 SUBMITTALS:

- A. Product data: Submit manufacturer's product data including membrane and accessory material types, technical and test data, composition, descriptions and properties, installation instructions and substrate preparation requirements.
- B. Shop Drawings: Provide Installation Guideline Illustrations.

1.4 QUALITY ASSURANCE:

- A. Applicable standards, as referenced herein: ASTM International (ASTM).

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- B. Manufacturer's qualifications: Air and water-resistive barrier systems shall be manufactured and marketed by a firm with a minimum of five (5) years experience in the production and sales of air and water-resistive barrier system. Manufacturers proposed for use, but not named in these specifications, shall submit evidence of ability to meet all requirements specified, and include a list of projects of similar design and complexity completed within the past five years.
- C. Installer's qualifications: The installer shall demonstrate qualifications to perform the work of this section by submitting the following:
 - 1. Verification that installer has been trained by and is approved to perform work as herein specified by air and water-resistive barrier system manufacturer.
 - 2. A firm experienced in applying similar materials on similar size and scoped projects.
 - 3. Evidence of proper equipment and trained field personnel to successfully complete the project.
- D. Inspection and testing: Cooperate and coordinate with the Owner's inspection and testing agency. Do not cover installed products or assemblies until they have been inspected, tested and approved.
- E. Sole source: Obtain materials from a single manufacturer.
- F. Regulations: Provide products which comply with all state and local regulations controlling use of volatile organic compounds (VOC).
- G. Pre-installation conference: Prior to beginning installation of air and water-resistive barrier system, hold a pre-installation conference to review work to be accomplished.
 - 1. Contractor, Architect, installing subcontractor, membrane system manufacturer's representative, and all subcontractors who have materials penetrating membrane system or finishes covering membrane system shall be present.
 - 2. Contractor shall notify Architect at least seven days prior to time for conference.
 - 3. Contractor shall record minutes of meeting and distribute to attending parties.
 - 4. Agenda: As a minimum discuss:
 - a. Surface preparation.
 - b. Substrate condition and pretreatment.
 - c. Minimum curing period.
 - d. Special details and sheet flashing.
 - e. Sequence of construction, responsibilities, and schedule for subsequent operations.
 - f. Installation procedures.
 - g. Inspection procedures.
 - h. Protection and repair procedures.
 - i. Review and approval of all glazing applications.
 - 5. Applicator to prepare a mockup of system at an opening, showing all aspects of the weather barrier system.
- H. Mock-up:
 - 1 Prior to installation of the weather and air barrier system a field-constructed mock-up shall be applied to verify details and tie-ins, to demonstrate the required installation.

- a. Construct a typical exterior wall section, 8 feet long and 8 feet wide, incorporating back-up wall, cladding, window, door frame, sill, penetrations, insulation, flashing and any other critical junction.
- b. Allow 72 hours for inspection and testing of mock-up before proceeding with weather and air barrier work.
- c. Coordinate construction of mockups to permit inspection by Architect of air barrier before beginning installation.
- d. Approved, undamaged mock-up must remain as part of the work.

1.5 DELIVERY, STORAGE, AND HANDLING:

- A. Deliver materials and products in labeled packages. Store and handle in strict compliance with manufacturer's instructions and recommendations. Protect from damage, weather, excessive temperatures and construction operations. Remove damaged material from site and dispose of in accordance with applicable regulations.
- B. Protect air and water-resistive barrier components from freezing and extreme heat.
- C. Sequence deliveries to avoid delays, and to minimize on-site storage.

1.6 PROJECT CONDITIONS:

- A. Weather conditions: Perform work only when existing and forecasted weather conditions are within the limits established by the manufacturer of the materials used.
 1. Apply at surface and ambient temperatures recommended by the manufacturer. See manufacturer's product data sheets for best practices.
 2. Proceed with installation only when the substrate construction and preparation work are complete and in condition to receive the membrane system.
 3. Exposure limitations: Schedule work to ensure that air and water-resistive barrier system is covered and protected from UV exposure within 180 days of installation. If air and water-resistive barrier membrane system cannot be covered within 180 days after installation, apply temporary UV protection as recommended by membrane manufacturer.

1.7 WARRANTY:

- A. Manufacturer's warranty requirements: Submit manufacturer's written warranty stating that installed air and water-resistive barrier materials are watertight, free from defects in material and workmanship, and agreeing to replace defective materials and components.
- B. Warranty period: Five years from Date of Substantial Completion.

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PART 2 – PRODUCTS

2.1 MANUFACTURER:

- A. PROSOCO, Inc, 3741 Greenway Circle, Lawrence, KS 66046. Phone (800) 255-4255; Fax: (800) 877-2700. E-mail: CustomerCare@prosoco.com
- B. Approved Alternate: AirShield LMP, manufactured by W.R. Meadows (800)-342-5976
- C. Substitutions: Comply with Section 01 60 00.

2.2 R-GUARD GYPPRIME WATER BASED PRIMER FOR RAW GYPSUM BOARD EDGES:

- A. PROSOCO R-GUARD® PorousPrep or equivalent by W.R. Meadows.

Description: PROSOCO R-Guard® PorousPrep seals the dry, cut edges of gypsum wall boards exposed in rough openings for windows and doors. PorousPrep brushes on easily and efficiently. Its glue-like viscosity reduces rundown and potential for spills. PorousPrep usually dries in less than 30 to 60 minutes when applied to dry surfaces. The sealed edge is a perfect surface for easy application of R-Guard Joint & Seam Filler or FastFlash.

- B. Characteristics:
 - 1. Form: light blue viscous liquid, mild odor
 - 2. Specific Gravity: 1.02
 - 3. pH: 9.0
 - 4. Weight per Gallon: 8.49 pounds
 - 5. Active Content: 16 percent
 - 6. Total Solids: 16 percent ASTM-D-2369
 - 7. Volatile Organic Content (VOC): less than 100 grams per Liter
 - 8. Flash point: greater than 212 degrees Fahrenheit (greater than 100 degrees Celsius) ASTM-D-3278
 - 9. Freeze Point: 32 degrees Fahrenheit (0 degrees Celsius)
 - 10. Shelf Life: 2 years in tightly sealed, unopened container
 - 11. VOC: Less than 100 grams per liter.

2.3 R-GUARD JOINT & SEAM FILLER FIBER REINFORCED FILL COAT AND SEAM FILLER:

- A. Acceptable product: PROSOCO R-GUARD® Joint & Seam Filler or equivalent by W.R. Meadows.
- B. Description: Joint & Seam Filler is a high modulus, gun-grade, crack and joint filler, adhesive and detailing compound that combines the best silicone and polyurethane properties. This single-component, 99% solids, fiber-reinforced, Silyl-Terminated-Poly-Ether (STPE) is easy to gun, spread and tool.
- C. Characteristics:
 - 1. Thickness: Apply according to manufacturer's instructions. See product data sheet.
 - 2. Hardness: Shore A, 45-50 when tested in accordance with ASTM C661.

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3. Water vapor permeability: Minimum 14 perms when tested in accordance with ASTM E-96.
4. Tensile strength: 225 psi when tested in accordance with ASTM D412.
5. Lap shear strength: 275 psi when tested in accordance with ASTM D1002.
6. Elongation at break: 275% when tested in accordance with ASTM D412.
7. Peel strength: 30 pli when tested in accordance with ASTM D1781.
8. Shrinkage: None.
9. Form: pale red, gun-grade sealant
10. Specific gravity: 1.40 to 1.50
11. pH: not applicable
12. Weight per gallon: 11.8 pounds
13. Active content: 99 percent
14. Total solids: 99 percent
15. Volatile organic content (VOC): 30 grams per Liter, maximum
16. Flash point: no data
17. Freeze point: no date
18. Shelf life: 1 year in tightly sealed, unopened container

2.4 R-GUARD FASTFLASH® LIQUID-APPLIED FLASHING MEMBRANE

- A. Acceptable product: PROSOCO R-GUARD® FastFlash® or equivalent by W.R. Meadows.
- B. Description: FastFlash® is a gun-grade waterproofing, adhesive and detailing compound that combines the best of silicone and polyurethane properties. This single component, 99% solids, Silyl-Terminated-Poly-Ether (STPE) is easy to gun, spread and tool to produce a highly durable, seamless, elastomeric flashing membrane in rough openings of structural walls.
- C. Characteristics:
 1. Thickness: Apply according to manufacturer's instructions.
 2. Water vapor permeability: Minimum 14 perms when tested in accordance with ASTM E96.
 3. Water penetration (cyclical static air pressure difference): No uncontrolled water penetration when tested in accordance with ASTM E547.
 4. Hardness: Shore A, 40-45 when tested in accordance with ASTM C661.
 5. Tensile strength: 180 psi when tested in accordance with ASTM D412.
 6. Elongation at break: 400% when tested in accordance with ASTM D412.
 7. Peel strength: 25 pli when tested in accordance with ASTM D1781.
 8. Form: Brick Red, Gun Grade Sealant.
 9. Specific gravity: 1.45 to 1.60
 10. pH: not applicable
 11. Weight per gallon: 12.5 pounds
 12. Active content: 99 percent
 13. Total solids: 99 percent
 14. Volatile organic content (VOC): 30 grams per Liter, maximum
 15. Flash point: no data
 16. Freeze point: no data
 17. Shelf life: 1 year in tightly sealed, unopened container

2.5 R-GUARD SPRAY WRAP MVP (MAXIMUM VAPOR PERMEABILITY) AIR AND WATER-RESISTIVE BARRIER

- A. Acceptable product: PROSOCO R-GUARD® MVP or AirShield LMP, manufactured by W.R. Meadows
- B. Description: SPRAY WRAP MVP is a fluid-applied air and water-resistive barrier that stops air and water leakage in cavity wall, masonry veneer construction, as well as in stucco, EIFS and most other building wall assemblies. Once on the substrate, the easily applied liquid quickly dries into a rubberized, highly durable, water-resistant, vapor-permeable membrane.
- C. Characteristics:
 - 1. Thickness: Apply in accordance with manufacturer's instructions. See product data sheet.
 - 2. Air infiltration: Less than 0.004 cfm per square foot (0.02 L/s/sq m) when tested in accordance with ASTM E2178 or ASTM E283.
 - 3. Air Barrier Assembly: pass when tested in accordance with ASTM E2357.
 - 4. Water vapor permeability: Minimum 17 perms when tested in accordance with ASTM E96.
 - 5. Structural performance: Air and water-resistive barrier system shall withstand positive and negative wind pressure loading when tested in accordance with ASTM E330.
 - 6. Water penetration (static pressure): No uncontrolled water penetration when tested in accordance with ASTM E331.
 - 7. Tensile strength: Greater than 15 psi or exceeds strength of substrate when tested in accordance with ASTM C297.
 - 8. Nail Sealability: pass when tested in accordance with ASTM D1970.
 - 9. Flexibility: pass when tested in accordance with ASTM D522.
 - 10. Form: thin, milky batter-like mixture
 - 11. Specific gravity: greater than 1.31
 - 12. pH: 7.5 to 10.0
 - 13. Weight per gallon: 12.2 pounds
 - 14. Active content: no data
 - 15. Total solids: 68 to 72 percent by volume, ASTM-D-2369
 - 16. Volatile organic content (VOC): less than 18 grams per Liter
 - 17. Flash point: not applicable
 - 18. Freeze point: 32 degrees Fahrenheit (0 degrees Celsius)
 - 19. Shelf life: 2 years in tightly sealed, unopened container

2.5 R-GUARD AIRDAM® AIR AND WATERPROOF SEALANT FOR WINDOWS AND DOORS:

- A. Acceptable product: PROSOCO R-GUARD® AirDam®
- B. Description: AirDam® is a medium modulus sealant that combines the best silicone and polyurethane properties. This single component, 98% solids Silyl-Terminated-Poly-Ether (STPE) is easy to gun and tool in all weather conditions. AirDam® cures quickly to produce a durable, high performance, high movement elastomeric interior air sealant
- C. Characteristics:
 - 1. Hardness: Shore A, 20-25 when tested in accordance with ASTM C661.
 - 2. Tensile strength: 110 psi when tested in accordance with ASTM D412.

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3. Elongation at break: 1300% when tested in accordance with ASTM D412.
4. Peel strength: 30 pli when tested in accordance with ASTM D1781.
5. Type: Type S, Grade NS, Class 50 when tested in accordance with ASTM C920.
6. Shrinkage: None.
7. Form: heavy white paste, mild odor
8. Specific gravity: 1.3 to 1.4
9. pH: not applicable
10. Weight per gallon: 11.648 pounds
11. Active content: 98 percent
12. Total solids: 98 percent
13. Volatile organic content (VOC): 30 grams per Liter, maximum
14. Flash point: greater than 200 degrees Fahrenheit (greater than 93 degrees Celsius)
15. Freeze point: not applicable
16. Shelf life: 1 year in tightly sealed, unopened container

- D. Backer rod: Compressible, closed cell rod stock as recommended by manufacturer for compatibility with sealant. Provide size and shape of rod to control joint depth.

PART 3 - EXECUTION

3.1 EXAMINATION:

- A. Verify that surfaces and conditions are ready to accept the Work of this section. Notify design professionals in writing of any discrepancies. Commencement of the Work or any parts thereof shall mean acceptance of the prepared substrates.
- B. All surfaces must be sound, clean and free of grease, dirt, excess mortar or other contaminants. Fill or bridge damaged surfaces, voids or gaps larger than one-half (1/2) inch with mortar, wood, metal, sheathing or other suitable material, as necessary. Fill voids and gaps measuring one-half (1/2) inch or less with R-GUARD Joint & Seam Filler as necessary to ensure continuity.
 1. Surfaces to receive R-GUARD MVP may be dry or damp. Do not apply to surfaces which are sufficiently wet to transfer water to the skin when touched. Surfaces must be protected from rain for 2 hours following application.
 2. Surfaces to receive FastFlash[®], Joint & Seam Filler, and AirDam[®] may be dry, damp or wet to the touch. Brush away any standing water which may be present before application. The products will tolerate rain immediately after application
- C. Where curing materials are used they must be clear resin based without oil, wax or pigments
- D. Condition materials to room temperature prior to application to facilitate extrusion and handling.
- E. Prior to installation of veneer at cavity wall construction or metal wall panels with CMU and/or exterior gypsum board sheathing backup, apply fluid-applied moisture barrier on all walls where concealed behind masonry veneer, metal wall panels, or similar material where a cavity is created unless called out otherwise.

3.2 SURFACE PREPARATION:

- A. Air, water-resistive and waterproofing membrane and accessories may be applied to green concrete 16 hours after removal of forms.

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- B. Refer to manufacturer's product data sheets for requirements for condition of and preparation of substrates.
 - 1. Surfaces shall be sound and free of voids, spalled areas, loose aggregate and sharp protrusions.
 - 2. Remove contaminants such as grease, oil and wax from exposed surfaces.
 - 3. Remove dust, dirt, loose stone and debris.
 - 4. Use repair materials and methods that are acceptable to manufacturer of the air and water-resistive barrier system.
 - 5. The PROSOCO R-GUARD® product line includes several options for preparing structural walls to receive the primary air and water resistive barrier. Refer to manufacturer's product data sheets and R-GUARD Installation Guidelines for additional information.
- C. Exterior sheathing:
 - 1. Ensure that sheathing is properly installed with ends, corners and edges properly fastened.
 - 2. Mechanical fasteners used to secure sheathing boards or penetrate sheathing boards shall be set flush with sheathing, fastened and spotted with R-GUARD Joint & Seam Filler and fastened into solid backing.
 - 3. Consolidate and seal the cut edges of gypsum wall boards exposed in rough openings for windows and doors at corners. The treated edge provides a suitable surface for application of R-GUARD Joint & Seam Filler fiber-reinforced coat and seam treatment.
- D. Masonry and concrete substrates:
 - 1. Mortar joints on concealed areas where fluid applied cavity wall weather barrier is to be applied must be fully filled with no voids, holes, or cracks, struck flush with the face of CMU.
 - 2. Mechanically remove loose mortar fins, mortar accumulations and protrusions, and debris.

3.3 INSTALLATION OF JOINT TREATMENT(PREPARE):

- A. Before applying complete weather barrier system, read "Preparation" and "Safety Information" sections in the Manufacturer's Product Data Sheet for PROSOCO R-GUARD® MVP. Refer to the Product Data Sheet for additional information about application.
- B. Apply R-GUARD Joint & Seam Filler for seams, joints, cracks, gaps, primed rough gypsum edges at sheathing, rough openings:
 - 1. Fill or repair cracks larger than one-half inch.
 - 2. Fill surface defects and over driven fasteners with R-GUARD Joint & Seam Filler.
 - 3. Using a dry knife, trowel or spatula, tool and spread the product. Spread one inch beyond seam at each side to manufacturer's recommended thickness. See product data sheet.
 - 4. Allow to skin before installing other waterproofing or air barrier components.
 - 5. Apply in accordance with manufacturer's Application Guideline illustrations.

3.4 R-GUARD FASTFLASH® FLASHING AT WINDOWS, DOORS, OPENINGS AND PENETRATIONS (PREPARE):

- A. Apply R-GUARD FastFlash® over surfaces prepared with R-GUARD Joint & Seam Filler to seal and waterproof rough openings:
 - 1. Apply a thick bead of R-GUARD FastFlash® over any visible gaps in the prepared rough opening.
 - 2. Immediately press and spread the wet product into gaps.
 - 3. Allow treated surface to skin.
 - 4. Starting at the top, apply a thick bead of R-GUARD FastFlash® in a zigzag pattern to the structural wall surrounding the rough opening.
 - 5. Spread the wet product to create an opaque, monolithic flashing membrane which surrounds the rough opening and extends 4 to 6 inches over the face of the structural wall. Apply and spread additional product as needed to create an opaque, monolithic flashing membrane free of voids and pin holes.
 - 6. Apply additional product in a zigzag pattern over a structural framing inside the rough opening.
 - 7. Apply R-GUARD FastFlash® within temperature and weather limitations as required by manufacturer.
 - 8. Apply R-GUARD FastFlash® to perimeters, sills and adjacent sheathing and building face, in accordance with manufacturer's product data sheet and R-GUARD Installation Guidelines illustrations.
 - 9. Extend flashing onto building face 4 to 6 inches.
 - 10. Install preparation products in accordance with manufacturer's Application Guideline illustrations.

3.5 R-GUARD AIR & WATER-RESISTIVE BARRIER INSTALLATION (PROTECT)

- A. Apply appropriate R-GUARD air and water-resistive barrier to a clean, dry substrate within temperature and weather limitations as required by manufacturer.
 - 1. Apply to recommended thickness. Proper thickness is achieved when coating is opaque.
 - 2. Allow product to cure and dry.
 - 3. Inspect membrane before covering. Repair any punctures, translucent or damaged areas by applying additional material.
 - 4. Specifier Note: If air or surface temperature exceed 95 degrees Fahrenheit (35 degrees Celsius), apply to shaded surfaces and before daytime air and surface temperatures reach their peak.
 - 5. On CMU wall construction back roll as necessary to ensure there are no pinholes, voids or gaps in the membrane.

3.6 R-GUARD FLASHING TRANSITIONS (TRANSITION)

- A. Apply R-GUARD Joint & Seam Filler and R-GUARD FastFlash® as a liquid flashing membrane to waterproof the transitions in rough opening and between dissimilar materials.
 - 1. Fill any voids between the top of the flashing leg and the vertical wall with R-GUARD Joint & Seam Filler. Tool to direct water from the vertical wall to the flashing.
 - 2. Apply a generous bead of FastFlash® to the top edge of the flashing leg.
 - 3. Spread the wet products to create a monolithic "cap-flash" flashing membrane extending 2 inches up the vertical face of the structural wall and 1 inch over the flashing membrane extending. Apply additional product as needed to achieve a void

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and pinhole free surface. This “liquid termination bar” helps secure the flashing and ensures positive drainage from the wall surface to the flashing.

4. Allow treated surfaces to skin before installing other wall assembly, waterproofing or air barrier components.

3.7 R-GUARD AIRDAM® AIR AND WEATHER BARRIER SEALANT FOR WINDOWS AND DOORS INSTALLATION

- A. Install R-GUARD AirDam® with professional grade caulking gun in continuous beads without air gaps or air pockets.
 1. Apply R-GUARD AirDam® to a clean, dry or damp surface
 2. Install Backer rod: Compressible, closed cell rod stock as recommended by manufacturer for compatibility with sealant. Provide size and shape of rod to control joint depth
 3. Install AirDam® to provide uniform, continuous ribbons without gaps or air pockets, with complete wetting of the joint bond surfaces.
 4. Tool sealant immediately to ensure complete wetting of joint bond surface and to produce a smooth, concave joint profile flush with the edges of the adjacent surfaces. Where horizontal and vertical surfaces meet, tool sealant to create a slight cove so as to not trap moisture or debris.
 5. Do not allow materials to overflow onto adjacent surfaces. Prevent staining of adjacent surfaces.
 6. Remove excess and misplaced materials as work progresses. Clean the adjoining surfaces to remove misplaced materials, without damage to adjacent surfaces or finishes.

3.8 CURING AND DRYING

- A. Complete drying times vary with temperature, humidity and surface conditions. Protect from rain or freezing until completely dry. At 70°F (21°C) and 50% relative humidity, R-GUARD MVP dries to touch and can be over coated in 2-4 hours.

END OF SECTION

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SECTION 07 42 13

METAL WALL PANELS

PART 1 GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specifications, apply to this Section.

1.2 SUMMARY AND RELATED REQUIREMENTS

- A. This section includes the following:
 - 1. Concealed fastener metal wall panels
- B. Related Sections include the following:
 - 1. Division 7 Section "Sheet Metal Flashings and Trims" for copings, flashings and other sheet metal work not part of the metal wall panel assemblies.
 - 2. Division 7 Section "Joint Sealants" for field-applied sealants not otherwise specified in this Section
- C. American Architectural Manufacturer's Association (AAMA):
 - 1. AAMA 620 - Voluntary Specification for High Performance Organic Coatings on Coil Coated Architectural Aluminum Substrates.
 - 2. AAMA 621 - Voluntary Specification for High Performance Organic Coatings on Coil Coated Architectural Hot Dipped Galvanized (HDG) and Zinc-Aluminum Coated Steel Substrates.
- D. ASTM International (ASTM):
 - 1. ASTM A 653/A 653M - Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
 - 2. ASTM A 666 - Standard Specification for Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar.
 - 3. ASTM A 755/A 755M - Specification for Steel Sheet, Metallic Coated by the Hot-Dip Process and Prepainted by the Coil-Coating Process for Exterior Exposed Building Products.
 - 4. ASTM A 792/A 792 M - Standard Specification for Steel Sheet, 55 % Aluminum-Zinc Alloy-Coated by the Hot-Dip Process.
 - 5. ASTM B 209 - Specification for Aluminum and Aluminum Alloy Sheet and Plate.
 - 6. ASTM C 754 - Specification for Installation of Steel Framing Members to Receive Screw Attached Gypsum Panel Products.

1.3 PERFORMANCE REQUIREMENTS

- A. General: Provide metal wall panel assemblies meeting performance requirements as determined by application of specified tests by a qualified testing agency on manufacturer's standard assemblies.

- B. Air Infiltration: When installed over Insulated Composite Backup Panels or Metal Liner Panels, maximum 0.06 cfm/sq. ft. (0.3 L/s per sq. m) per ASTM E 283 at a static-air-pressure difference of 1.57 lbf/sq. ft. (75 Pa), using minimum 10-by-10 foot (3050-by-3050 mm) test panel that includes side joints.
- C. Water Penetration, Static Pressure: When installed over Insulated Composite Backup Panels or Metal Liner Panels, no uncontrolled water penetration per ASTM E 331 at a minimum static differential pressure of 6.24 lbf/sq. ft. (299 Pa), using minimum 10-by-10 foot (3050-by-3050 mm) test panel that includes side joints.
- D. Thermal Movements: Allow for thermal movements from variations in both ambient and internal temperatures. Accommodate movement of support structure caused by thermal expansion and contraction.
- E. Wall systems that incorporate foam plastic insulation must be tested by the foam plastic supplier in accordance with NFPA-285.

1.4 SUBMITTALS

- A. Product Data: Include construction details, material descriptions, dimensions of Individual components and profile, and finishes for each type of factory fabricated metal wall panels and accessories.
- B. Shop Drawings: Show fabrication and installation layouts of wall panels; details of edge conditions, joints panel profiles, corners, anchorages, trim, flashings, closures, and accessories and special details.
- C. Samples for Initial Selection: For each type of metal wall panel indicated with factory applied color finishes.
 - 1. Include similar samples of trim and accessories involving color selection.
- D. Samples for Verification: For each type of exposed finish required, prepare on samples of size as indicated below.
 - 1. Metal Wall Panel: 12 inches long by actual panel width. Include fasteners, battens, closures, and any other accessories.
 - 2. Trim and Closures: 12 inches long. Include fasteners and other exposed accessories.
 - 3. Accessories: 12 inch long samples of each type of accessory.

1.5 MOCK-UP SAMPLE PANEL

- A. Before commencing any work, Contractor shall erect a 4' x 6' panel of each metal panel type. Panel is NOT PART OF BUILDING and is to remain in place until removal is authorized by the Architect.
- B. Panel face shall show all trim accessories and flashings.
- C. Approval of Architect is required before proceeding with any part of the building.

- D. Panel is to remain in place until completion of the work.
- E. Construct mock-up panel in “cut-away” view, exposing all wall assembly components. Refer to Section 01 40 00 Quality Control-Mock-Ups.

1.6 QUALITY ASSURANCE

- A. Manufacturer/Source: Provide metal wall panel and panel accessories from a single manufacturer.
- B. Manufacturer Qualifications: Approved manufacturer listed in this Section with minimum 10 years experience in manufacture of similar products in successful use in similar applications.
- C. Approval of Comparable Products: Submit in accordance with project substitution requirements, within time allowed for substitution review.
- D. Wall Systems Installer Qualifications: Experienced Installer with minimum of 5 years experience with successfully completed projects of a similar nature and scope.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Deliver components, sheets, metal wall panels, and other manufactured items so as not to be damaged or deformed. Package metal wall panels for protection during transportation and handling.
- B. Unload, store and erect metal wall panels in a manner to prevent bending, warping, twisting, and surface damage.
- C. Stack metal wall panels on platforms or pallets, covered with suitable weathertight and ventilated covering. Store metal wall panels to ensure dryness. Do not store metal wall panels in contact with other materials that might cause staining, denting, or other surface damage.

1.8 PROJECT CONDITIONS

- A. Field Measurements: Verify locations of wall framing and opening dimensions by field measurements before metal wall panel fabrication and indicate measurements on Shop Drawings.
 - 1. Established Dimensions: Where field measurements cannot be made without delaying the work, either establish framing and opening dimensions and proceed with fabricating metal wall panels without field measurements, or allow for field-trimming of panels. Coordinate wall construction to ensure that actual building dimensions, locations of structural members, and openings correspond to established dimensions.

1.9 WARRANTY

- A. Material Warranty: Panels shall have a two (2) year manufacturer's warranty for repair or replacement due to panel failure or workmanship, including structural performance failure.
- B. Finish Warranty: Panel finish shall have a manufacturer's 20 year finish warranty.
- C. All warranties shall begin at date of Substantial Completion.

PART 2 PRODUCTS

2.1 PREFINISHED METAL WALL PANELS

- A. Manufacturer: CENTRIA Architectural Systems; Moon Township, PA 15108-2944. Tel: (800)759-7474. Tel: (412)299-8000. Fax: (412)299-8317. Email: info@CENTRIA.com. Web: www.CENTRIA.com. Request for substitution must match existing panel profile and finish.
- B. Metal Wall Panels, General: Factory-formed, concealed fastener panels with interconnecting side joints, fastened to supports with concealed fasteners, with factory-applied sealant in side laps when required to meet performance requirements.
- C. Basis of Design Product: CENTRIA, CS-260.
 - 1. Panel Coverage: 12 inches (305 mm).
 - 2. Panel Height: 0.875 inch (22 mm).
- D. Finish: Match Existing Wall Panels
- E. Trim and flashing shall be fabricated from the same material type and finish as the wall panels.
- F. Accessories: Provide manufacturer's standard accessories of the following type designed and manufactured and finished to match wall panels.
 - 1. Fabricated corner flashings for outside and inside corners.
 - 2. Wall cap of profile and size indicated.
 - 3. Fabricated base flashing.
 - 4. Fabricated window flashing.

2.2 MISCELLANEOUS MATERIALS

- A. Fasteners: Concealed fasteners shall be carbon steel with 100NR Dyna-Coat coating.
- B. Accessories: Except as indicated as work of another specification section, provide components required for a complete metal wall panel system, including trim, and copings. Match materials/finishes of preformed panels.

2.2 PANEL FABRICATION: PERFORMANCES

- A. General: Fabricate and finish panels and accessories at the factory to the greatest extent possible, by manufacturer's standard procedures and processed, and as required to fulfill indicated performance requirements which have been demonstrated by factory testing. Comply with indicated profile and dimensional requirements.
- B. Metal Gauges: Thickness required for structural performances, but not less than manufacturer's recommended minimum for profiles and applications indicated, and not less than 22 Gauge, for exterior panels.
- C. Apply bituminous coating or other permanent separation materials on concealed panel surfaces where panels would otherwise be in direct contact with substrate materials which are non-compatible or could result in corrosion or deterioration of either material or finishes.
- D. Condensation: Fabricate panels for control of condensation, including vapor inclusion of seals and provisions for breathing, venting, weeping and draining.

PART 3 EXECUTIONS

3.1 INSTALLATION

- A. General: Comply with panel fabricator's and material manufacturer's instructions and recommendations for installation, as applicable to project conditions and supporting substrates. Anchor panels and other components of the work securely in place, with provisions for thermal/structural movement.
- B. Install panels with concealed fasteners per manufacturer's recommendations.
- C. Panel end closures shall be installed, closures to be metal only, NO foam closures are to be used. Secure per manufacturer's instructions. Seal completely around perimeter of each closure to provide weathertight fit.
- D. Installation Tolerances: Shim and align panel units within installed tolerances of 1/4" in 20'-0" on level/plumb/slope and location/line as indicated, and within 1/8" of adjoining faces and of alignment of matching profiles.

3.2 CLEANING AND PROTECTION

- A. Damaged Units: Replace panels and other components of the work which have been damaged or have deteriorated beyond successful repair by means of finish touch-up or similar minor repair procedures.
- B. Cleaning: Remove temporary protective coverings and strippable films (if any) as each panel is installed. Upon completion of panel installation, clean finished surfaces as recommended by panel manufacturer, and maintain in clean condition during construction.

END OF SECTION

07 42 13-5

SECTIONS 07 46 21

PREFORMED METAL SOFFIT PANEL SYSTEM

PART 1 GENERAL

1.1 SUMMARY

- A. Section includes:
 - 1. Preformed, pre-finished, metal soffit panels.

1.2 RELATED SECTIONS:

- A. Section 05 41 00 - Cold Formed Framing
- B. Section 09 22 16 - Non-Load Bearing Metal Stud Wall Framing

1.3 SYSTEM DESCRIPTION

- A. Performance Requirements:
 - 1. Wind Load: Refer to Structural Drawings.
 - 2. Deflection: L/180.

1.4 SUBMITTALS

- A. Product Data: Submit per requirements of Section 01 33 00 through Contractor to Architect.
 - 1. Include manufacturer's descriptive literature for each system component, including connection and attachment details.
 - 2. Include finish information and color samples.

1.5 FINISH WARRANTY

- A. Provide a 20 year manufacturer's Kynar 500 finish warranty. Submit warranty information with submittals and provide certificate at closeout.

2.1 MANUFACTURERS

- A. Soffit Panels
 - 1. Artisan I Series, L-12 with beads by MBCI
 - 2. Pac-Clad Flush Panel, 11", by Petersen Aluminum
 - 3. FW-12 Panel, by Berridge
 - 4. Approved alternate

2.2 MATERIALS AND COMPONENTS

- A. Soffit Panels:
 - 1. Material: 24 gauge galvanized steel, 1.25 oz. coating (G90).
 - 2. Concealed anchorage.
 - 3. Continuous length across width of soffit.
 - 4. Type: perforated or solid type panels as called for on drawings.
- B. Accessories: Prefabricated corners, trim, metal closures, and other units necessary to fabricate and install panel system as indicated on drawings.
- C. Miscellaneous Materials: Provide manufacturer's standard fasteners, sealants, adhesives, or other materials required for system installation.

2.3 FABRICATION

- A. Fabricate panels to fit application and provide watertight installation. Include provision for expansion control among system components and between panel system and adjacent dissimilar materials.
- B. Each panel shall be one continuous length. Laps or joints will not be permitted.
- C. Components shall be fabricated to the greatest extent possible in the factory, ready for field assembly.

2.4 FINISH

- A. Two-coat Kynar 500 finish system:
 - 1. One coat epoxy base primer.
 - 2. One coat 70% Kynar 500 coating; Fluoropon by DeSoto or Duranar by PPG.
- B. Colors:
 - 1. Panel color(s) to be selected from a minimum of eight (8) standard colors.

PART 3 EXECUTION

3.1 DELIVERY AND STORAGE

- A. Material shall be delivered to the site in a dry and undamaged condition and unloaded per the manufacturer's instructions. The installer shall inspect materials for damage and stains upon their arrival at the site. Materials shall be stored out of contact with the ground in weathertight coverings to keep them dry per the manufacturer's recommendations. Storage accommodations shall provide air circulation and protection from surface staining.

3.2 INSPECTION

- A. The installer shall examine the building to verify that the structure is ready for panel installation.
- B. All structural supports shall be in place and all sag rods, diagonal bracing and connections shall be tightened before work proceeds.
- C. Field-check dimensions and check support alignment with a taut string or wire; support misalignment will cause panel "oil-canning".
- D. Do not proceed until unsatisfactory conditions are corrected.

3.3 INSTALLATION AND ERECTION

Install metal panels, fasteners, trim and related items in conformance with approved drawings and performance requirements as set by manufacturer.

- A. Protect installed panels from abuse by other trades. The general contractor shall be responsible for protecting the panels from wet cement, plaster, painting operations, etc.
- B. Isolate panel system from dissimilar metals or corrosive substrates using bituminous coating, two coats.

3.4 DAMAGED MATERIAL AND CLEANING

- A. Replace damaged panels and other components of work which cannot be repaired by finish touch-up or similar minor repair.
- B. To prevent rust staining, remove immediately from finished surfaces any filings caused by drilling or cutting.
- C. Wipe down each area after erection is complete for final acceptance.

END OF SECTION

SECTION 07 54 23

THERMOPLASTIC OLEFIN MEMBRANE ROOFING SYSTEM (TPO)

PART 1 GENERAL

1.1 SUMMARY

- A. Furnish and install fully adhered elastomeric sheet roofing system over metal deck, including:
 - 1. Roofing manufacturer's requirements for the specified warranty.
 - 2. Preparation of roofing substrates.
 - 3. Insulation.
 - 4. Thermoplastic Olefin membrane roofing.
 - 5. Metal roof edging and copings.
 - 6. Flashings.
 - 7. Walkway pads.
 - 8. Roof drains
 - 9. Kitchen hood exhaust fan grease protection
 - 10. Other roofing-related items specified or indicated on the drawings or otherwise necessary to provide a complete weatherproof roofing system.
- B. Disposal of debris and construction waste is the responsibility of Contractor. Perform disposal in manner complying with all applicable federal, state, and local regulations.
- C. Comply with the published recommendations and instructions of the roofing membrane manufacturer.
- D. Commencement of work by the Contractor shall constitute acknowledgement by the Contractor that this specification can be satisfactorily executed, under the project conditions and with all necessary prerequisites for warranty acceptance by roofing membrane manufacturer. No modification of the Contract Sum will be made for failure to adequately examine the Contract Documents or the project conditions.

1.2 REFERENCES

- A. Referenced Standards: These standards form part of this specification only to the extent they are referenced as specification requirements.
- B. ASTM C 1289 - Standard Specification for Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board; 2004.
- C. ASTM C 1549 - Standard Test Method for Determination of Solar Reflectance Near Ambient Temperature Using a Portable Solar Reflectometer; 2004.
- D. ASTM D 638 - Standard Test Method for Tensile Properties of Plastics; 2003.
- E. ASTM D 1004 - Standard Test Method for Initial Tear Resistance of Plastic Film and Sheeting; 2003.
- F. ASTM D 1079 - Standard Terminology Relating to Roofing, Waterproofing, and Bituminous Materials; 2005a.

- G. ASTM D 6878 - Standard Specification for Thermoplastic Polyolefin Based Sheet Roofing; 2003.
- H. CAN-ULC-S770 - Standard Test Method Determination of L-Term Thermal Resistance Of Closed-Cell Thermal Insulating Foams; 2003.
- I. FM 1-28 - Design Wind Loads; Factory Mutual System; 2002.
- J. FM 1-29 - Roof Deck Securement and Above Deck Roof Components; Factory Mutual System; 2005.
- K. PS 1 - Construction and Industrial Plywood; 1995.
- L. PS 20 - American Softwood Lumber Standard; 2005.
- M. SPRI ES-1 - Wind Design Standard for Edge Systems Used with Low Slope Roofing Systems; 2003. (ANSI/SPRI ES-1).

1.3 DEFINITIONS

- A. Roofing Terminology: Refer to ASTM D 1079 for definition of terms related to roofing work not otherwise defined in the section.
- B. LTTR: Long Term Thermal Resistance, as defined by CAN-ULC S770.

1.4 SUBMITTALS

- A. Product Data:
 - 1. Provide membrane manufacturer's printed data sufficient to show that all components of roofing system, including insulation and fasteners, comply with the specified requirements and with the membrane manufacturer's requirements and recommendations for the system type specified; include data for each product used in conjunction with roofing membrane.
 - 2. Where UL or FM requirements are specified, provide documentation that shows that the roofing system to be installed is UL-Classified or FM-approved, as applicable; include data itemizing the components of the classified or approved system.
 - 3. Installation Instructions: Provide manufacturer's instructions to installer, marked up to show exactly how all components will be installed; where instructions allow installation options, clearly indicate which option will be used.
- B. Shop Drawings: For roofing system. Include plans, elevations, sections, details, and attachments to other Work.
 - 1. Flashings and membrane terminations.
 - 2. Insulation fastening patterns.
 - 3. Sheet layout with perimeter and corner defined.
- C. Specimen Warranty: Submit prior to starting work.
- D. Installer Qualifications: Letter from manufacturer attesting that the roofing installer meets the specified qualifications.

- E. Pre-Installation Notice: Copy to show that manufacturer's required Pre Installation Notice (PIN) has been accepted and approved by the manufacturer.
- F. Executed Warranty.
- G. Membrane must be Energy Star rated.

1.5 QUALITY ASSURANCE

- A. No private label products or products manufactured by second party are allowed.
 - 1. All roofing membrane products must be manufactured by Roofing Manufacturer.
- B. Applicator Qualifications: Roofing installer shall have the following:
 - 1. Current GAF Master or Master Select Contractor status.
 - 2. At least five years experience in installing specified roofing system.
 - 3. Capability to provide payment and performance bond to building owner.
- C. Contractor providing work under this section will install work specified in this section with their company's own installers, employed by the company. Subcontracting of installation will not be allowed.
- D. Pre-Installation Conference: Before start of roofing work, Contractor shall hold a meeting to discuss the proper installation of materials and requirements to achieve the warranty.
 - 1. Require attendance with all parties directly influencing the quality of roofing work or affected by the performance of roofing work.
 - 2. Notify Architect well in advance of meeting.

1.6 DELIVERY, STORAGE AND HANDLING

- A. Deliver products in manufacturer's original containers, dry and undamaged, with seals and labels intact and legible.
- B. Store materials clear of ground and moisture with weather protective covering.
- C. Keep combustible materials away from ignition sources.

1.7 PROJECT/SITE CONDITIONS

- A. Environmental Requirements:
 - 1. Do not apply roofing membrane during inclement weather or when air temperature may fall below 40 degrees F.
 - 2. Do not apply roofing membrane to damp or frozen deck surface.
 - 3. Do not expose materials vulnerable to water or sun damage in quantities greater than can be weather proofed during same day.

1.8 ROOFING CONTRACTOR'S QUALIFICATIONS

- A. Contractor shall submit written statement authorized by the roofing system manufacturer to be certified to install the specified manufacturer's materials and has been certified for two consecutive years.
- B. The contractor shall use adequate amounts of such qualified workmen who are thoroughly trained in the crafts and techniques required to properly install the type of roofing system proposed for use and other work required to complete the work specified and within the specified time.
- C. The contractor shall have a superintendent having five (5) years experience installing the roof system specified, who is familiar with the requirements of this project, on the job at all times when roofing system work is in progress.

1.9 ROOFING MANUFACTURER INSPECTION

- A. Final inspection by roofing manufacturer's representative is mandatory prior to substantial completion. **Architect to be notified a minimum of 24 hours prior to manufacturer's inspection and be performed in his presence.**
- B. Written proof of final inspection by roofing manufacturer's representative is to be included in closeout documents.
- C. **It will be mandatory** that the final roof inspection report containing items to be corrected be sent to Architect for his records.
- D. Upon date of Substantial Completion, a **No Dollar Limit Warranty** will be issued and begin for a Twenty (20) year period for the total system warranty. **No exceptions.** .

1.10 PRE-ROOFING MEETING AGENDA

- A. Verifying roof type and insulation thickness with roofing sub.
- B. Warranty: 2 year-installer 20 year NDL-manufacturer
- C. Manufacturer's scheduled inspection for warranty-Notification of Architect
 - 1. Warranty period does not start until date of Substantial Completion
 - 2. Distribution of inspection review to Architect
- D. Areas of concern:
 - 1. Covering over top of parapet walls with roofing membrane
 - 2. Temporary sealing of roofing membrane against walls until parapet wall membrane flashing or reglets are installed
 - 3. Installation of welded sub-flashing pieces at parapet corners
 - 4. Installation of crickets at equipment curbs
 - 5. Turning up roofing membrane to top of equipment curbs.

6. Sealing of roof penetrations at membrane
7. Keeping roof clean after roofing is installed (trash, screws, nails, etc.)
8. Positive slope all areas
9. Connections to existing roof

E. Schedule of installation for each area of building.

1.11 WARRANTY

- A. Comply with all warranty procedures required by manufacturer, including notifications, scheduling, and inspections.
- B. Warranty: GAF Diamond Pledge 20 -Year NDL Warranty covering membrane, roof insulation, and membrane materials and accessories.
 1. Limit of Liability: No dollar limitation.
 2. Scope of Coverage: Repair leaks in the roofing system caused by:
 - a. Ordinary wear and tear of the elements.
 - b. Manufacturing defect in GAF brand materials.
 - c. Defective workmanship used to install these materials.
 - d. Damage due to winds up to 55 mph (88 km/h).
- C. Roof flashings, metal work and expansion joint covers shall be covered under installer's two (2) year warranty.
- D. In addition to Mfg's Warranty, a Company 2-year Guarantee from the installer (included in this specification) shall be delivered to the Owner as a condition of Acceptance.
- E. Roofer will provide a letter stating the roof system meets or exceeds 1-90 uplift design requirements.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Roofing System: GAF, Incl, Parsippany, NJ. www.GAF.com. (973-628-3884)
 1. Roofing systems manufactured by others are acceptable provided the roofing system is completely equivalent in materials and warranty conditions and the manufacturer meets the following qualifications:
 - a. Specializing in manufacturing the roofing system to be provided.
 - b. Minimum ten years of experience manufacturing the roofing system to be provided.
 - c. Able to provide a no dollar limit, single source roof system warranty that is backed by corporate assets in excess of one billion dollars.
 - d. ISO 9002 certified.
 - e. Able to provide isocyanate insulation that is produced in own facilities.
 - f. Roofing systems manufactured by the companies listed below are acceptable provided they are completely equivalent in materials and warranty conditions:
 - g. Able to provide membrane that is produced in own facilities.
- B. Manufacturer of Insulation and Cover Boards: Same manufacturer as roof membrane.

- C. Manufacturer of Metal Roof Edging:
 - 1. Metal roof edging products by manufacturers other than roofing manufacturer are acceptable but must be approved by roofing manufacturer.
 - 2. Field- or shop-fabricated metal roof edgings are acceptable but must be covered under the scope of the roofing membrane system no dollar limit warranty.
- D. Acceptable alternate manufacturers (Must meet guideline requirements as specified this section)
 - 1. Johns Manville JM TPO, 717 17th Street, Denver, CO 80202 (800) 922-5922
 - 2. Carlisle Syntec Sure-Weld TPO, PO Box 7000, Carlisle, PA 17013, 800-479-6832
 - 3. Elevate .060 mil TPO, 26 Century Blvd., Nashville, TN 37214, 800-428-4442.
- E. Substitution Procedures: See Instructions to Bidders.
 - 1. Submit evidence that the proposed substitution complies with the specified requirements. Comply with Section 01 60 00.

2.2 ROOFING SYSTEM DESCRIPTION

- A. Roofing System:
 - 1. Membrane: Thermoplastic olefin (TPO).
 - 2. Thickness: .060 mil
 - 3. Membrane Attachment: Fully Adhered.
 - 4. Slope: 1/4 inch per foot by means of sloped roof deck and tapered insulation, refer to drawings.
 - 5. Comply with applicable local building code requirements.
 - 6. Provide assembly having Underwriters Laboratories, Inc. (UL) Class A Fire Hazard Classification.
 - 7. Provide assembly complying with Factory Mutual Corporation (FM) Roof Assembly Classification, FM DS 1-28 and 1-29, and meeting minimum requirements of FM 1-90 wind uplift rating.
- B. Insulation:
 - 1. Total R Value: 20 minimum.
 - 2. Tapered: Slope as indicated; provide minimum R-value at thinnest point; place tapered layer on top.
 - 3. Base Layers: Polyisocyanurate foam board, non-composite.
 - a. Attachment: Mechanically fastened.
 - 4. Top Layer: Where shown and required: 1/4"/foot tapered Polyisocyanurate foam board, non-composite.
 - a. Attachment: Adhesive attachment

2.3 TPO MEMBRANE MATERIALS

- A. Membrane: Flexible, heat weldable sheet composed of thermoplastic polyolefin polymer and ethylene propylene rubber; complying with ASTM D 6878, with polyester weft inserted reinforcement and the following additional characteristics:
 - 1. Thickness: 0.060 inch (1.52 mm) plus/minus 10 percent, with coating thickness over reinforcement of 0.024 inch (0.61 mm) plus/minus 10 percent.
 - 2. Sheet Width: Provide sheets of width necessary to accommodate batten spacing

- required by manufacturer for project conditions.
3. Puncture Resistance: 380 lbf (1174 N), minimum, when tested in accordance FTM 101C Method 2031.
 4. Solar Reflectance: 0.81, minimum, when tested in accordance with ASTM C 1549.
 5. Color: White.
 6. Acceptable Product: Energy Guard TPO by GAF.
- B. Formable Flashing: Non-reinforced, flexible, heat weldable sheet, composed of thermoplastic polyolefin polymer and ethylene propylene rubber.
1. Thickness: 0.060 inch (1.52 mm) plus/minus 10 percent.
 2. Tensile Strength: 1550 psi (10.7 MPa), minimum, when tested in accordance with ASTM D 638 after heat aging.
 3. Elongation at Break: 650 percent, minimum, when tested in accordance with ASTM D 638 after heat aging.
 4. Tearing Strength: 12 lbf (53 N), minimum, when tested in accordance with ASTM D 1004 after heat aging.
 5. Color: White.
 6. Acceptable Product: EverGuard Detailing Membrane by GAF.
- E. Tape Flashing 6 inch (140 mm) nominal wide TPO membrane laminated to cured rubber polymer seaming tape, overall thickness 0.045 inch (1.6 mm) nominal; EverGuard Cover Tape by GAF.
- F. Pourable Sealer: One Part Pourable Sealer by GAF.
- G. Bonding Adhesive: Neoprene and SBR rubber blend, formulated for compatibility with the membrane other substrate materials, including masonry, wood, and insulation facings; TPO Solvent Based Bonding Adhesive 1121 by GAF.
- H. Seam Plates: Steel with barbs and Galvalume coating; corrosion-resistance complying with FM 4470.
- I. Termination Bars: Aluminum bars with integral caulk ledge; 1.3 inches (33 mm) wide by 0.10 inch (2.5 mm) thick; Termination Bar by GAF.
- J. Cut Edge Sealant: Synthetic rubber-based, for use where membrane reinforcement is exposed; Everguard TPO Cut Edge Sealant by GAF.
- K. General Purpose Sealant: EPDM-based, one part, white general purpose sealant; Flex Seal Caulk Grade by GAF.
- L. Molded Flashing Accessories: Unreinforced TPO membrane pre-molded to suit a variety of flashing details, including pipe boots, inside corners, outside corners, etc.; Vent Boot Pipe Flashing by GAF.
- M. Roof Walkway Pads: Non-reinforced TPO walkway pads, 0.130 inch (3 mm) by 30 inches (760 mm) by 50 feet (15.24 m) long with patterned traffic bearing surface; TPO Walkway Rolls by GAF.

2.4 ROOF INSULATION AND COVER BOARDS

- A. Polyisocyanurate Board Insulation: Closed cell polyisocyanurate foam with black glass reinforced mat laminated to faces, complying with ASTM C 1289 Type II Class 1, with the following additional characteristics:
 - 1. Thickness: 3.5" + 1/4" per foot tapered iso where shown on drawings.
 - a. Insulation Joints must be staggered.
 - 2. Size: 48 inches (1220 mm) by 96 inches (2440 mm), nominal.
 - a. Exception: Insulation to be attached using adhesive or asphalt may be no larger than 48 inches (1220 mm) by 48 inches (1220 mm), nominal.
 - 3. R-Value (LTTR):
 - a. 1.5" = 8.6 LTTR
 - 2.0" = 11.4 LTTR
 - 2.5" = 14.4 LTTR
 - 2.8" = 16.2 LTTR
 - 3.0" = 17.4 LTTR
 - 3.5" = 20.5 LTTR
 - 4.0" = 23.6 LTTR
 - 4.5" = 26.6 LTTR
 - 4. Compressive Strength: 20 psi (138 kPa) when tested in accordance with ASTM C 1289.
 - 5. Ozone Depletion Potential: Zero; made without CFC or HCFC blowing agents.
 - 6. Recycled Content: 19 percent post-consumer and 15 percent post-industrial, average.
 - 7. Acceptable Product: EnergyGuard Polyisocyanurate Insulation by GAF.
- B. Insulation Fasteners: Type and size as required by roof membrane manufacturer for roofing system and warranty to be provided; use only fasteners furnished by roof membrane manufacturer.

2.5 METAL ACCESSORIES

- A. Metal Roof Edging and Fascia: Continuous metal edge member serving as termination of roof membrane and retainer for metal fascia; watertight with no exposed fasteners; mounted to roof edge nailer. 24 gauge steel with kynar finish. Designer to select color.
- B. Parapet Copings: Formed metal coping with galvanized steel anchor/support cleats for capping any parapet wall; watertight, maintenance free, without exposed fasteners; butt type joints with concealed splice plates; mechanically fastened as indicated; 24 gauge steel with Kynar finish. Designer to select color.

2.6 ACCESSORY MATERIALS

- A. Wood Nailers: PS 20 dimension lumber, Structural Grade No. 2 or better Southern Pine, Douglas Fir; or PS 1, APA Exterior Grade plywood; pressure preservative treated.
 - 1. Width: 3-1/2 inches (90 mm), nominal minimum, or as wide as the nailing flange of the roof accessory to be attached to it.
 - 2. Thickness: Same as thickness of roof insulation.

2.7 MISCELLANEOUS ACCESSORIES

- A. Roofing Fasteners: Galvanized or non-ferrous type, size, and style as required to suit application.
- B. Mechanical Fasteners for Insulation: Appropriate to purpose intended and approved by Factory Mutual; length required for thickness of material; with metal washers. Type as required to fastening into metal deck.
- C. Grease Protection: Provide “G2 Grease Guard” around kitchen exhaust fan for Shelf Life exhaust hood, provided by Facilitec Southwest, Fort Worth, TX, Phone:(866) 466-3339, “Grease Gutter”, manufactured by Omni Containment Systems, 1501 Commerce Drive Elgin, IL 60123 Phone (847) 468-1772, or approved alternate.
 - 1. Size and type to coordinate with exhaust fan.
 - 2. Provide deflective flashing at fan curb as required by manufacturer.
 - 3. Grease protection system shall be designed so that grease containment material layers can be replaced.

PART 3 EXECUTION

3.1 GENERAL

- A. Install roofing, insulation, flashings, and accessories in accordance with roofing manufacturer's published instructions and recommendations for the specified roofing system. Where manufacturer provides no instructions or recommendations, follow good roofing practices and industry standards. Comply with federal, state, and local regulations.
- B. Obtain all relevant instructions and maintain copies at project site for duration of installation period.
- C. Do not start work until Pre-Installation Notice has been submitted to manufacturer as notification that this project requires a manufacturer's warranty.
- D. Perform work using competent and properly equipped personnel.
- E. Temporary closures, which ensure that moisture does not damage any completed section of the new roofing system, are the responsibility of the applicator. Completion of flashings, terminations, and temporary closures shall be completed as required to provide a watertight condition.
- F. Install roofing membrane only when surfaces are clean, dry, smooth and free of snow or ice; do not apply roofing membrane during inclement weather or when ambient conditions will not allow proper application; consult manufacturer for recommended procedures during cold weather. Do not work with sealants and adhesives when material temperature is outside the range of 60 to 80 degrees F (15 to 25 degrees C).
- G. Protect adjacent construction, property, vehicles, and persons from damage related to roofing work; repair or restore damage caused by roofing work.
 - 1. Protect from spills and overspray from bitumen, adhesives, sealants and coatings.
 - 2. Particularly protect metal, glass, plastic, and painted surfaces from bitumen,

- adhesives, and sealants within the range of wind-borne overspray.
3. Protect finished areas of the roofing system from roofing related work traffic and traffic by other trades.
- H. Until ready for use, keep materials in their original containers as labeled by the manufacturer.
 - I. Consult membrane manufacturer's instructions, container labels, and Material Safety Data Sheets (MSDS) for specific safety instructions. Keep all adhesives, sealants, primers and cleaning materials away from all sources of ignition.

3.2 EXAMINATION

- A. Examine roof deck to determine that it is sufficiently rigid to support installers and their mechanical equipment and that deflection will not strain or rupture roof components or deform deck. Observe and verify deck is not damaged prior to insulation installation.
- B. Verify that surfaces and site conditions are ready to receive work. Correct defects in the substrate before commencing with roofing work.
- C. Examine roof substrate to verify that it is properly sloped to drains.
- D. Verify that the specifications and drawing details are workable and not in conflict with the roofing manufacturer's recommendations and instructions; start of work constitutes acceptable of project conditions and requirements.

3.3 PREPARATION

- A. Take appropriate measures to ensure that fumes from adhesive solvents are not drawn into the building through air intakes.
- B. Prior to proceeding, prepare roof surface so that it is clean, dry, and smooth, and free of sharp edges, fins, roughened surfaces, loose or foreign materials, oil, grease and other materials that may damage the membrane.
- C. Fill all surface voids in the immediate substrate that are greater than 1/4 inch (6 mm) wide with fill material acceptable insulation to membrane manufacturer.
- D. Seal, grout, or tape deck joints, where needed, to prevent bitumen seepage into building.
- E. The total extent of preparation shall include the above and comply with the membrane manufacturer's recommendations.

3.4 INSULATION AND COVER BOARD INSTALLATION

- A. Install insulation in configuration and with attachment method(s) specified in PART 2, under Roofing System.
- B. Install only as much insulation as can be covered with the completed roofing system before the end of the day's work or before the onset of inclement weather.
- C. Lay roof insulation in courses parallel to roof edges.

- D. Neatly and tightly fit insulation to all penetrations, projections, and nailers, with gaps not greater than 1/4 inch (6 mm). Fill gaps greater than 1/4 inch (6 mm) with acceptable insulation. Do not leave the roofing membrane unsupported over a space greater than 1/4 inch (6 mm).
- E. Mechanical Fastening: Using specified fasteners and insulation plates engage fasteners through insulation into deck to depth and in pattern required by Factory Mutual for FM Class specified in PART 2 and membrane manufacturer, whichever is more stringent.

3.5 THERMOPLASTIC OLEFIN MEMBRANE INSTALLATION

- A. Beginning at low point of roof, place membrane without stretching over substrate and allow to relax at least 30 minutes before attachment or splicing; in colder weather allow for longer relax time.
- B. Lay out the membrane pieces so that field and flashing splices are installed to shed water.
- C. Install membrane without wrinkles and without gaps or fishmouths in seams; bond and test seams and laps in accordance with membrane manufacturer's instructions and details.
- D. Install membrane adhered to the substrate, with edge securement as specified.
- E. Adhered Membrane: Bond membrane sheet to substrate using membrane manufacturer's recommended bonding material, application rate, and procedures.
- F. Edge Securement: Secure membrane at all locations where membrane terminates or goes through an angle change greater than 2 in 12 inches (1:6) using mechanically fastened reinforced perimeter fastening strips, plates, or metal edging as indicated or as recommended by roofing manufacturer.
 - 1. Exceptions: Round pipe penetrations less than 18 inches (460 mm) in diameter and square penetrations less than 4 inches (200 mm) square.
 - 2. Metal edging is not merely decorative; ensure anchorage of membrane as intended by roofing manufacturer.

3.6 FLASHING AND ACCESSORIES INSTALLATION

- A. Install flashings, including laps, splices, joints, bonding, adhesion, and attachment, as required by membrane manufacturer's recommendations and details.
- B. Metal Accessories: Install metal edgings, gravel stops, and copings in locations indicated on the drawings, with horizontal leg of edge member over membrane and flashing over metal onto membrane.
 - 1. Follow roofing manufacturer's instructions.
 - 2. Remove protective plastic surface film immediately before installation.
 - 3. Install water block sealant under the membrane anchorage leg.
 - 4. Flash with manufacturer's recommended flashing sheet unless otherwise indicated.
 - 5. Where single application of flashing will not completely cover the metal flange, install additional piece of flashing to cover the metal edge.
 - 6. If the roof edge includes a gravel stop and sealant is not applied between the laps in

- the metal edging, install an additional piece of self-adhesive flashing membrane over the metal lap to the top of the gravel stop; apply seam edge treatment at the intersections of the two flashing sections.
7. When the roof slope is greater than 1:12, apply seam edge treatment along the back edge of the flashing.
- C. Flashing at Walls, Curbs, and Other Vertical and Sloped Surfaces: Install weathertight flashing at all walls, curbs, parapets, curbs, skylights, and other vertical and sloped surfaces that the roofing membrane abuts to; extend flashing at least 8 inches (200 mm) high above membrane surface.
1. Use the longest practical flashing pieces.
 2. Evaluate the substrate and overlay and adjust installation procedure in accordance with membrane manufacturer's recommendations.
 3. Complete the splice between flashing and the main roof sheet with specified splice adhesive before adhering flashing to the vertical surface.
 4. Provide termination directly to the vertical substrate as shown on roof drawings.
- D. Roof Drains:
1. Taper insulation around drain to provide smooth transition from roof surface to drain. Use specified pre-manufactured tapered insulation with facer or suitable bonding surface to achieve slope; slope not to exceed manufacturer's recommendations.
 2. Position membrane, then cut a hole for roof drain to allow 1/2 to 3/4 inch (12 to 19 mm) of membrane to extend inside clamping ring past drain bolts.
 3. Make round holes in membrane to align with clamping bolts; do not cut membrane back to bolt holes.
 4. Apply sealant on top of drain bowl where clamping ring seats below the membrane
 5. Install roof drain clamping ring and clamping bolts; tighten clamping bolts to achieve constant compression.
- E. Flashing at Penetrations: Flash all penetrations passing through the membrane; make flashing seals directly to the penetration.
1. Pipes, Round Supports, and Similar Items: Flash with specified pre-molded pipe flashings wherever practical; otherwise use specified self-curing elastomeric flashing.
 2. Pipe Clusters and Unusual Shaped Penetrations: Provide penetration pocket at least 2 inches (50 mm) deep, with at least 1 inch (25 mm) clearance from penetration, sloped to shed water.
 3. Structural Steel Tubing: If corner radii are greater than 1/4 inch (6 mm) and longest side of tube does not exceed 12 inches (305 mm), flash as for pipes; otherwise, provide a standard curb with flashing.
 4. Flexible and Moving Penetrations: Provide weathertight gooseneck set in sealant and secured to deck, flashed as recommended by manufacturer.
 5. High Temperature Surfaces: Where the in-service temperature is, or is expected to be, in excess of 180 degrees F (82 degrees C), protect the elastomeric components from direct contact with the hot surfaces using an intermediate insulated sleeve as flashing substrate as recommended by membrane manufacturer.

- F. After constructing pitch pans for conduit and piping penetrating roof system, fill pitch pans with pourable sealer to completely waterproof penetrations.

3.7 FINISHING AND WALKWAY INSTALLATION

- A. Install walkways at access points to the roof, around rooftop equipment that may require maintenance, and where indicated on the drawings.
- B. Walkway Pads: Adhere to the roofing membrane, spacing each pad at minimum of 1.0 inch (25 mm) and maximum of 3.0 inches (75 mm) from each other to allow for drainage.
 - 1. If installation of walkway pads over field fabricated splices or within 6 inches (150 mm) of a splice edge cannot be avoided, adhere another layer of flashing over the splice and extending beyond the walkway pad a minimum of 6 inches (150 mm) on either side.
 - 2. Prime the membrane, remove the release paper on the pad, press in place, and walk on pad to ensure proper adhesion.

3.8 FIELD QUALITY CONTROL

- A. Inspection by Manufacturer: Provide final inspection of the roofing system by a Technical Representative employed by roofing system manufacturer specifically to inspect installation for warranty purposes (i.e. not a sales person).
- B. Perform all corrections necessary for issuance of warranty.
- C. **NEW ROOFING SYSTEM SHALL NOT ALLOW PONDING WATER.**

Architectural details are graphic in nature and do not show actual scale installation of roofing layers or flashing. Cut and/or taper wood blocking at roof edges along gutter side or at scuppers so that no ponding exists. Taper roofing insulation at perimeter of roof drains to allow proper drainage of surrounding roof, free of ponding.

3.9 CLEANING

- A. Clean all contaminants generated by roofing work from building, roof membrane, flashing, and surrounding areas, including bitumen, adhesives, sealants, clay, dirt and coatings.
- B. Repair or replace building components and finished surfaces damaged or defaced due to the work of this section; comply with recommendations of manufacturers of components and surfaces.
- C. Remove leftover materials, trash, debris, equipment from project site and surrounding areas.

3.10 PROTECTION

- A. Where construction traffic must continue over finished roof membrane, provide durable protection and replace or repair damaged roofing to original condition.

3.11 EXISTING ROOFING SYSTEM

- A. Patch all areas of existing roof surfaces disturbed during re-flashing, mechanical work, or other areas needing repair. Match surface conditions. Owner's representative to inspect and approve all work and entire roof surface prior to acceptance. Level areas where ponding water previously occurred. Work at existing work must meet the requirements of existing warranty.

END OF SECTION

COMPANY LETTERHEAD

CERTIFICATE OF GUARANTEE FROM INSTALLER

We, _____
(Name of Company or Contractor) agree to maintain the roofing and flashing on the below mentioned building for the period indicated. This agreement is to render the roof and the flashing waterproof subject to the conditions outlined below.

OWNER OF BUILDING _____

Location of Building _____

City _____ Roof Area _____ square feet _____

This Guarantee effective this _____ day of _____, 20_____, for the term of two (2) years from this date, provided any defects result from defective material or workmanship and are not caused by other mechanics, fire, accidents, or by nature over which we have no control.

It is understood and agreed that the Contractor will not be responsible for leaks or failure in the roofing system or flashing due to sustained winds in excess of speeds stated in manufacturer's warranty, distortion of the foundation on which the roofing rests, excessive hail storms, or any other conditions over which we have no control as stated in manufacturer's exclusions.

Signed _____
Name of Company

By _____

Position _____

Company is a _____
Corp./Partnership/Individual

NOTARY PUBLIC

Registered in the State of _____

SEAL

NOTE: Roof system manufacturer's NDL Twenty (20) year warranty from the manufacturer is to be submitted in addition to the guarantee from the installer found on this form. Manufacturer's Warranty is mandatory - **NO EXCEPTIONS.**

SECTION 07 62 00

SHEET METAL FLASHING AND TRIM

PART 1 GENERAL

1.1 SCOPE:

- A. The work required under this specification includes all labor, materials, equipment and services necessary for and reasonably incidental to the completion of all metal flashing and counterflashings, wall flashings, parapet cap flashing, joint covers, crickets, and other metal work required to complete the job.

1.2 RELATED SECTIONS

- A. Section 07 54 13: Thermoplastic Membrane Roofing
- B. Section 07 62 10: Gutters and Downspouts
- C. Section 07 92 00: Sealants

1.3 WORKMANSHIP

- A. All workmanship shall be in accordance with plans, with the various sections uniform, and sections accurately fitted and rigidly secured. All exposed edges shall be seamed, and all work shall be neatly fitted to the framework, with necessary ribs or stiffeners and other reinforcements required to make all sections rigid and substantial. This section to comply with SMACNA Standards.
- B. Proper allowance shall be made in all cases for expansion and contraction, with the vertical joints not secured directly but constructed weather and watertight to allow members to slide freely. Joint covers shall be installed over all joints.

PART 2 PRODUCTS

2.1 MATERIALS

- A. All sheet metal shall be pre- finished steel unless noted otherwise, not less than 24 gauge, and shall be compatible to other materials they may be in contact with. No dissimilar metals will be used together.
- B. Fasteners shall be non-rusting materials which are not subject to galvanic action. Fasteners shall be of proper length and spacing to assure secure attachment, fit and alignment. Furnish and install continuous clip at cap flashing. Provide pre-finished fasteners, matching pre-finished flashing color.

07 62 00-1

- C. In general all exposed flashing is pre-finished material, but where exposed galvanized iron flashings occurs, paint grip materials shall be used.
- D. Where flashing shown must be fabricated into watertight multi-sided slopes, use paint grip material with soldered joints.
 - 1. Solder: Half and half solder made from virgin lead and tin shall conform to the Standard Specifications of the ASTM, E-32, latest edition.
 - 2. Flux: All galvanized sheet metal shall have non- corrosive acid used as a flux.
 - 3. All exposed paint grip galvanized material shall be painted color as selected by Architect.
- E. Pre-finished flashing to be shop formed sections out of material supplied by the metal roofing manufacturer with same color selection available.
- F. Flashing and Trim: Cap Flashing and Counterflashing - 24 gauge prefinished steel. Pitchpocket - two (2") inches deep, 24 galvanized iron. All flashing and trim located in areas which are visually exposed shall be prefinished unless noted otherwise.
- G. Provide cap and parapet flashing in minimum lengths of 10 feet or more between joints.

2.2 FINISH:

- A. Pre-finished Trim and Flashing: Finish: Factory applied Kynar 500. Color: To be selected by Architect.

PART 3 EXECUTION

3.1 INSTALLATION

- A. Install work watertight, without waves, warps, buckles, fastening stresses or distortion, allowing for expansion or contraction.

3.2 FLASHING:

- A. Flash walls, etc., as detailed. Flashing shall be of material and gauge as specified on plans. All walls flashing, crickets, counterflashings, etc., shall be installed in accordance with SMACNA standards and in conformance with details shown or implied on plans.
- B. Counterflashing generally shall be in 10'-0" lengths. Counterflashing shall be free from longitudinal joints. End joints in counterflashing generally shall not be soldered. Flashing to be installed with masonry, no saw cut installations will be allowed.
- C. On counterflashings, the ends of one (1) length shall fit into a pocket on the adjacent length which has been formed by soldering a skirter lining on the back of the adjoining member. Counterflashings must be bent to the required shape before being placed.
- D. Provide splices for cap flashing as shown on drawings.

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- E. Provide flexible flashing with stainless steel band clamp for pipe roof penetrations.
- F. Secure all cap flashings with continuous cleats on both sides of parapets. Lap cleat sections minimum 2 inches. Secure to wood nailers with screws at minimum 16 inches on center.

3.3 WORKMANSHIP

- A. Fasteners shall be concealed anchors of compatible materials.
- B. Metal surfaces shall be formed and applied in strict accordance with SMACNA sheet metal working standards.
- C. No perforations of metal surfaces shall be made except as shown on details for flashing, closures, trim, etc.
- D. All exposed edges shall be seamed and all work shall be neatly fitted to the framework, with necessary ribs or stiffeners and other reinforcement required to make all sections rigid and substantial.
- E. Install work watertight, without waves, warps, buckles, fastening stresses or distortion, allowing for expansion and contraction.

END OF SECTION

07 62 00-3

SECTION 07 62 10

GUTTERS AND DOWNSPOUTS

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:

1. Pre-finished steel gutters and downspouts, with expansion joints.

B. Related Sections:

1. Section 07 54 23 – TPO Roofing
2. Section 07 62 00 - Sheet Metal Flashing and Trim
3. Section 07 92 000 - Sealants

1.2 REFERENCES

A. American Society for Testing and Materials (ASTM):

1. ASTM A2244 - Color Change Quality.
2. ASTM D659-80 - Chalking.
3. ASTM A525 - General Requirements for Steel Sheet, Zinc-Coated (Galvanized) by the Hot-Dip Process.
4. ASTM D2794 - Impact Resistance
5. ASTM D968 - Abrasion
6. ASTM D1737 or D522 - Formability
7. ASTM G23 - Weather-Meter Test. No peeling, blistering, cracking, or loss of adhesion

B. Sheet Metal and Air Conditioning Contractor's National Association (SMACNA):

1. SMACNA - Architectural Sheet Metal Manual

1.5 SUBMITTALS

A. Comply with requirements of Section 01 33 00.

B. Submit shop drawings showing fabrication, shapes, and dimensions. Provide material and finish data.

1.4 QUALITY ASSURANCE

A. Conform to Drawings for nominal sizing of components for rainfall intensity determined by a storm occurrence of 1 in 5 years.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Stack performed materials to prevent twisting, bending, or abrasion, and to aid ventilation. Slope to drain.

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- B. Prevent contact with materials during storage which may cause discoloration, staining, or damage.

PART 2 PRODUCTS

2.1 MATERIALS

- A. Pre-finished Steel: 24 gage core steel, color as selected. When pre-finished metal fascia is used, the pre-finished material color selection is to be from same selection of metal roof manufacturer.

2.2 COMPONENTS

- A. Gutters and Downspouts: SMACNA Rectangular style profile; detailed as shown on drawings.
- B. Provide end caps, downspout outlets, gutter and downspout straps, screens/strainers and other accessory components in profiles to suit gutters and downspouts.

2.3 ACCESSORIES

- A. Anchorage Devices: Straps to SMACNA requirements.
- B. Gutter and Downspout Supports: Straps.
- C. Protective Back Coating: FF TT-C-494, bituminous.
- D. Screens and Downspouts Strainers: Same basic metal as gutter. Screen - fabricated of 1/4" hardware cloth. Strainers are fabricated of galvanized wire, inserted into outlet tubes and held in place by friction.

2.4 FABRICATION

- A. Form gutters and downspouts of size and profile indicated on Drawings.
- B. Field measure site conditions prior to fabricating work.
- C. Fabricate with required connection pieces.
- D. Form sections square, true, and accurate in size, in maximum possible lengths and free of distortion or defects detrimental to appearance or performance. Allow for expansion at joints.
- E. Hem exposed edges of metal.
- F. Place sealant at pre-finished metal joints. Remove all excess material, wipe and wash joints clean.

G. Fabricate gutter and downspout accessories; construct watertight.

2.5 FINISHING

A. Two-coat Kynar 500 finish system:

1. One coat epoxy base primer.
2. One coat 70% Kynar 500 coating; Fluoropon by DeSoto or Duranar by PPG.

B. Colors:

1. Manufacturer's standard, color to be selected.

C. Warranty: Manufacturer's standard 20 year.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify that surfaces are ready to receive work and conditions are as acceptable.
- B. Beginning of installation means acceptance of existing conditions and substrate.

3.2 INSTALLATION

- A. Install gutters, downspouts, and accessories. Install gutter hangers at 2'-0" o.c. and at each expansion and control joint. Install expansion joints at 50'-0" max. Unless noted otherwise.
- B. Joint lengths with formed seams constructed watertight. Flash and seal gutters to downspouts and accessories. Construct expansion joints as detailed on Drawings.
- C. Apply bituminous protective backing on surfaces in contact with dissimilar materials.
- D. Seal metal joints watertight. Install sealant in inside surface of gutters at each joint. After sealing, wash metal clean with solution and rinse with water.
- E. Attach downspouts with straps on 48" centers.
- F. Install screens and strainers on gutters and downspouts. One screen per downspout.

END OF SECTION

07 62 10-3

SECTION 07 84 00

FIRESTOPPING

PART 1 GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification Section, apply to work specified in this section.

1.2 DEFINITIONS

- A. Firestopping: Material or combination of materials used to retain integrity of fire-rated construction by maintaining an effective barrier against the spread of flame, smoke, and hot gases through penetrations in, or construction joints between, fire rated wall and floor assemblies.

1.3 GENERAL DESCRIPTION OF THE WORK OF THIS SECTION

Only tested firestop systems shall be used in specific locations as follows:

- A. Penetrations for the passage of duct, cable, cable tray, conduit, piping, electrical busways and raceways through fire-rated vertical barriers (walls and partitions).
- B. Gaps between the top of walls and ceilings or roof assemblies.
- C. Openings and penetrations in fire-rated partitions or walls containing fire doors.
- D. Openings around structural members which penetrate walls.

1.4 RELATED WORK OF OTHER SECTIONS

- A. Coordinate work of this section with work of other sections as required to properly execute the work and as necessary to maintain satisfactory progress of the work of other sections, including:
 - 1. Section 07 92 00 - Joint Sealers
 - 2. Section 09 29 00 - Gypsum Drywall Systems
 - 3. Section 21 13 01 - Fire Suppression Sprinkler Systems
 - 4. Section 22 01 00 – Plumbing
 - 5. Section 23 01 00 - Basic Mechanical Materials and Methods
 - 6. Section 23 07 13 - Mechanical Insulation
 - 7. Section 26 00 10 - Basic Electrical Materials and Methods

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1.5 REFERENCES

- A. Test Requirements: ASTM E 814, "Standard Method of Fire Tests of Through Penetration Fire Stops"
- B. Test Requirements: UL 1479, "Fire Tests of Through-Penetration Firestops"
- C. Test Requirements: UL 2079, "Tests for Fire Resistance of Building Joint Systems"
- D. Underwriters Laboratories (UL) of Northbrook, IL publishes tested systems in their "FIRE RESISTANCE DIRECTORY" that is updated annually.
 - 1. UL Fire Resistance Directory:
 - a. Firestop Devices (XHJI)
 - b. Fire Resistance Ratings (BXRH)
 - c. Through-Penetration Firestop Systems (XHEZ)
 - d. Fill, Voids, or Cavity Material (XHHW)
 - e. Forming Materials (XHKU)
 - f. Joint Systems (XHBN)
 - g. Perimeter Fire Containment Systems (XHDG)
 - 2. Alternate Systems: "Omega Point Laboratories Directory" (updated annually).
- E. Test Requirements: ASTM E 1966, "Standard Test Method for Fire Resistive Joint Systems"
- F. Test Requirements: ASTM E 2307, "Standard Test Method for Determining Fire Resistance of Perimeter Fire Barrier Systems Using Intermediate-Scale, Multi-story Test Apparatus"
- G. Inspection Requirements: ASTM E 2174, "Standard Practice for On-site Inspection of Installed Fire Stops"
- H. ASTM E 84, "Standard Test Method for Surface Burning Characteristics of Building Materials"
- I. ASTM G 21, "Standard Practice for Determining Resistance of Synthetic Polymeric Materials to Fungi"
- J. International Firestop Council Guidelines for Evaluating Firestop Systems Engineering Judgments
- K. All major building codes: IBC
- L. Arkansas Fire Prevention Codes: 2021, three volumes
- M. NFPA 70 - National Electric Code

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1.6 QUALITY ASSURANCE

- A. Fire-Test-Response Characteristics: Provide through-penetration fire stop systems and fire-resistive joint systems that comply with specified requirements of tested systems.
- B. Firestop System installation must meet requirements of ASTM E 814, UL 1479 or UL 2079 tested assemblies that provide a fire rating equal to that of construction being penetrated.
- C. Proposed firestop materials and methods shall conform to applicable governing codes having local jurisdiction.
- D. Firestop Systems do not reestablish the structural integrity of load bearing partitions/assemblies or support live loads and traffic. The installer shall consult the structural engineer prior to penetrating any load bearing assembly.
- E. For those firestop applications that exist for which no qualified tested system is available through a manufacturer, an engineering judgment derived from similar qualified tested system designs or other tests will be submitted to local authorities having jurisdiction for their review and approval prior to installation. Engineering judgment documents must follow requirements set forth by the International Firestop Council.
- F. Source Limitations: Obtain firestop products and systems from a single manufacturer.

1.7 SUBMITTALS

- A. Submit Product Data: Manufacturer's specifications and technical data for each material including the composition and limitations, documentation of qualified tested firestop systems to be used and manufacturer's installation instructions to comply with Section 01 33 00.
- B. Manufacturer's engineering judgment identification number and document details when no qualified tested system is available for an application. Engineering judgment must include both project name and contractor's name who will install firestop system as described in document.
- C. Submit material safety data sheets and certificates of compliance provided with product delivered to jobsite.

1.8 INSTALLER QUALIFICATIONS

- A. Engage an experienced Installer who is certified, licensed, or otherwise qualified by the firestopping manufacturer as having been provided the necessary training to install manufacturer's products per specified requirements. A supplier's willingness to sell its firestopping products to the contractor or to an Installer engaged by the contractor does not in itself confer qualification on the buyer.

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- B. Installation Responsibility: Assign installation of through-penetration firestop systems and fire-resistive joint systems in project to a single firestop specialty contractor.
- C. The work is to be installed by a contractor with at least one of the following qualifications:
 - Hilti Accredited Firestop Specialty Contractor
 - UL Approved Contractor
 - FM 4991 Approved Contractor
- D. Firm with not less than 3 years experience with firestop installation.
- E. Successfully completed not less than 3 comparable scale projects using similar systems.

1.9 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials undamaged in manufacturer's clearly labeled, unopened containers, identified with brand, type, and UL label where applicable.
- B. Coordinate delivery of materials with scheduled installation date to allow minimum storage time at jobsite.
- C. Store materials under cover and protect from weather and damage in compliance with manufacturer's requirements, including temperature restrictions.
- D. Comply with recommended procedures, precautions or remedies described in material safety data sheets as applicable.
- E. Do not use damaged or expired materials.

1.10 PROJECT CONDITIONS

- A. Do not use materials that contain flammable solvents.
- B. Schedule installation of firestopping after completion of penetrating item installation but prior to covering or concealing of openings.
- C. Verify existing conditions and substrates before starting work. Correct unsatisfactory conditions before proceeding.
- D. Weather conditions: Do not proceed with installation of firestop materials when temperatures exceed the manufacturer's recommended limitations for installation printed on product label and product data sheet. For non-water resistant firestop materials, protect from exposure to water -- firestop materials that are water resistant shall be protected until fully cured.

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- E. During installation, provide masking and drop cloths to prevent firestopping materials from contaminating any adjacent surfaces.

PART 2 PRODUCTS

2.1 FIRESTOPPING, GENERAL

- A. Provide firestopping composed of components that are compatible with each other, the substrates forming openings, and the items, if any, penetrating the firestopping under conditions of service and application, as demonstrated by the firestopping manufacturer based on testing and field experience.
- B. Provide components for each firestopping system that are needed to install fill material. Use only components specified by the firestopping manufacturer and approved by the qualified testing agency for the designated fire-resistance-rated systems.
- C. Firestopping Materials are either “cast-in-place” (integral with concrete placement) or “post installed.” Provide cast-in-place firestop devices prior to concrete placement.

2.2 ACCEPTABLE MANUFACTURERS

- A. Subject to compliance with penetration firestop systems (XHEZ), joint systems (XHBN), and perimeter firestop systems (XHDG) listed in Volume 2 of the UL Fire Resistance Directory; provide products of the following manufacturers as identified below:
 - 1. Hilti, Inc., Tulsa, Oklahoma
800-879-8000/www.us.hilti.com
 - 2. 3M, Inc.
 - 3. STI
 - 4. Provide products from the above acceptable manufacturers; *Refer to Section 01 60 00 for Product or Manufacturer Substitutions.*

B. Source all firestop products from a single-source manufacturer.

2.3 MATERIALS

- A. Use only firestop products that have been UL 1479, ASTM E 814 or UL 2079, ASTM E 1966, ASTM E 2307 tested for specific fire-rated construction conditions conforming to construction assembly type, penetrating item type, annular space requirements, and fire-rating involved for each separate instance.
- B. Pre-installed firestop devices for use with noncombustible and/or combustible pipes (closed and open systems), conduit, and/or cable bundles penetrating concrete floors, the following products are acceptable:
 - 1. Hilti CP 680P or CP 680M Cast-In Place Firestop Devices:
 - a. Add Aerator adapter when used in conjunction with an Aerator (Sovent system)
 - b. Add metal deck adapter kit if utilizing CP 680P or M on corrugated metal deck.

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- c. Add height extension if utilizing CP 680P or M in concrete slabs thicker than 8”.
 - d. Add Hilti Water Module (2” up to 6”) to achieve UL W-Rating
 - e. Add Hilti TOP SEAL (1/2” up to 2”) to achieve UL W-Rating
- 2. Hilti CP 681 Tub Box Kit for use with bathtub installations.
- 3. Hilti Toilet Flange for use with floor outlet water closets.
- 4. Hilti coupling sleeve for use with floor, shower, or general purposes drains
- 5. Hilti CFS-DID Drop-in device for use with cored holes.
- C. Pre-installed firestop devices containing built-in self-sealing intumescent inserts for use with data and communication cabling which allow for cable adds or changes without the need to remove or replace any firestop materials, the following product is acceptable:
 - 1. Hilti CP 653 Speed Sleeve
 - 2. Hilti CFS-CC Cable Collar for use in renovation work with existing cables.
- D. Sealants, caulking materials, or foams for use with non-combustible items including steel pipe, copper pipe, rigid steel conduit and electrical metallic tubing (EMT), the following products are acceptable:
 - 1. Hilti FS-ONE Intumescent Firestop Sealant
 - 2. Hilti CFS-SIL SL: Self Leveling Silicone
 - 3. Hilti CP 620 Fire Foam
 - 4. Hilti CP 606 Flexible Firestop Sealant
 - 5. Hilti CFS-SIL GG: Gun Grade Silicone
- E. Sealants or caulking materials for use with sheet metal ducts, the following products are acceptable:
 - 1. Hilti CFS-SIL GG: Gun Grade Silicone
 - 2. Hilti CP 606 Flexible Firestop Sealant
 - 3. Hilti FS-ONE Intumescent Firestop Sealant
- F. Sealants, caulking or spray materials for use with fire-rated construction joints and other gaps, the following products are acceptable:
 - 1. Hilti CFS-SP WB Firestop Spray
 - 2. Hilti CFS-SIL GG: Gun Grade Silicone
 - 3. Hilti CP 606 Flexible Firestop Sealant
 - 4. Hilti CFS-SIL SL: Self Leveling Silicone
- G. Pre-formed mineral wool designed to fit flutes of metal profile deck and gap between top of wall and metal profile deck as a backer for spray material, the following products are acceptable:
 - 1. Hilti CP 777 Speed Plugs
 - 2. Hilti CP 767 Speed Strips
- H. Intumescent sealants, caulking materials for use with combustible items (penetrants consumed by high heat and flame) including insulated metal pipe, PVC jacketed, flexible cable or cable bundles and plastic pipe, the following products are acceptable:
 - 1. Hilti FS-ONE Intumescent Firestop Sealant

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2. Hilti CFS-PL Firestop Plug

- I. Foams, intumescent sealants, or caulking materials for use with flexible cable or cable bundles, the following products are acceptable:
 - 1. Hilti FS-ONE Intumescent Firestop Sealant
 - 2. Hilti CP 620 Fire Foam
 - 3. Hilti CFS-SIL GG: Gun Grade Silicone
 - 4. Hilti CP 606 Flexible Firestop Sealant
- J. Non-curing, re-penetrable intumescent putty or foam materials for use with flexible cable or cable bundles, the following products are acceptable:
 - 1. Hilti CP 618 Firestop Putty Stick
 - 2. Hilti-PL Firestop Plug
- K. Wall-opening protective materials for use with UL listed metallic and specified nonmetallic outlet boxes, the following products are acceptable:
 - 1. Hilti CFS-P PA Firestop Putty Pad
 - 2. Hilti Firestop Box Insert
 - 3. Hilti CFS-BL Firestop Block
- L. Firestop collar or wrap devices attached to assembly around combustible plastic pipe (closed and open piping systems), the following products are acceptable:
 - 1. Hilti CP 643 N Firestop Collar
 - 2. Hilti CP 644 Firestop Collar
 - 3. Hilti CP 648E Endless Wrap Strips
 - 4. Hilti CP 648S Single Wrap Strips
- M. Materials used for large openings and complex penetrations made to accommodate cable trays and bundles, multiple steel and copper pipes, electrical busways in raceways, the following products are acceptable:
 - 1. Hilti CP 637 Firestop Mortar
 - 2. Hilti CFS-BL Firestop Block
 - 3. Hilti CP 620 Fire Foam
 - 4. Hilti CP 675T Firestop Board
- N. Non curing, re-penetrable materials used for large size/complex penetrations made to accommodate cable trays and bundles, multiple steel and copper pipes, electrical busways in raceways, the following products are acceptable:
 - 1. Hilti CFS-BL Firestop Block
 - 2. Hilti CP 675T Firestop Board
- O. Sealants or caulking materials used for openings between structurally separate sections of wall and floors, the following products are acceptable:
 - 1. Hilti CFS-SP WB Firestop Spray
 - 2. Hilti CFS-SIL GG: Gun Grade Silicone
 - 3. Hilti CP 606 Flexible Firestop Sealant

07 84 00-7

4. Hilti CFS-SIL SL: Self Leveling Silicone

- P. Provide a firestop system with a "F" Rating as determined by UL 1479 or ASTM E814 which is equal to the time rating of construction being penetrated.
- Q. Provide a firestop system with an Assembly Rating as determined by UL 2079 or ASTM E 1966 which is equal to the time rating of construction joint assembly.

PART 3 EXECUTION

3.1 PREPARATION

- A. Verification of Conditions: Examine areas and conditions under which work is to be performed and identify conditions detrimental to proper or timely completion.
 - 1. Verify penetrations are properly sized and in suitable condition for application of materials.
 - 2. Surfaces to which firestop materials will be applied shall be free of dirt, grease, oil, rust, laitance, release agents, water repellents, and any other substances that may affect proper adhesion.
 - 3. Provide masking and temporary covering to prevent soiling of adjacent surfaces by firestopping materials.
 - 4. Comply with the firestop manufacturer's recommendations for temperature and humidity conditions before, during and after installation of firestopping.
 - 5. Do not proceed until unsatisfactory conditions have been corrected.

3.2 COORDINATION

- A. Coordinate construction of openings, penetrations, and construction joints to ensure that the firestop systems are installed according to specified requirements.
- B. Coordinate sizing of sleeves, openings, core-drilled holes, or cut openings to accommodate through-penetration fire stop systems. Coordinate construction and sizing of joints to ensure that fire-resistive joint systems are installed according to specified requirements.
- C. Coordinate firestopping with other trades so that obstructions are not placed in the way prior to installation of the firestop systems.
- D. Do not cover up through-penetration and joint firestop system installations that will become concealed behind other construction until each installation has been examined by the building inspector, per requirements of Building Codes.

3.3 INSTALLATION

- A. Regulatory Requirements: Install firestop materials in accordance with UL or Intertek approved systems.

07 84 00-8

- B. Manufacturer's Instructions: Comply with manufacturer's instructions for installation of through-penetration and construction joint materials.
 - 1. Seal all holes or voids made by penetrations to ensure an air and water-resistant seal.
 - 2. Consult with mechanical engineer, project manager, and damper manufacturer prior to installation of UL firestop systems that might hamper the performance of fire dampers as it pertains to duct work.
 - 3. Protect materials from damage on surfaces subjected to traffic.

3.4 FIELD QUALITY CONTROL

- A. Examine sealed penetration areas to ensure proper installation before concealing or enclosing areas.
- B. Keep areas of work accessible until inspection by applicable code authorities.
- C. Inspection of through-penetration firestopping shall be performed in accordance with ASTM E 2174, "Standard Practice for On-Site Inspection of Installed Fire Stops" or other recognized standard.
- D. Perform under this section patching and repairing firestopping caused by cutting or penetrating of existing firestop systems already installed by other trades.
- E. Manufacturer's Field Services: During initial installation, firestop manufacturer should be present to ensure proper installation/application.

3.5 IDENTIFICATION & DOCUMENTATION

- A. The firestop contractor is to supply documentation in the form of the Hilti CFS-DM Documentation Manager
The FTP is to include:
 - 1. Architectural details
 - 2. Firestop affidavit
 - 3. Firestop system snapshot
 - 4. Installation log
 - 5. Firestop systems
 - 6. IFC guidelines for Engineering Judgments
 - 7. Product Information of utilized products
 - 8. All other relevant documentation
 - 9. Building code excerpts
- B. Copies (electronic) of the FTP are to be provided to the general contractor, architect, inspector & owner at the completion of the project.

07 84 00-9

- C. Identify through-penetration firestop systems with self-adhesive, preprinted labels. Attach labels permanently to surfaces of penetrated construction on both sides of each firestop system installation where labels will be visible to anyone seeking to remove penetrating items or firestop systems. Include the following information on labels:
 - 1. Installer/Contractor's name, address, and phone number.
 - 2. Date of installation.
 - 3. Through-Penetration firestop system and manufacturer's name.

3.6 ADJUSTING AND CLEANING

- A. Remove equipment, materials and debris, leaving area in undamaged, clean condition.
- B. Clean all surfaces adjacent to sealed holes and joints to be free of excess firestop materials and soiling as work progresses.

END OF SECTION

07 84 00-10

SECTION 07 92 00

JOINT SEALANTS

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Preparing sealant substrate surfaces.
 - 2. Concrete slab control joint filler
 - 3. Sealant and backings
 - 4. Sill Sealer (Sealant between bottom of exterior stud track and substrate.)

1.2 RELATED SECTIONS

- A. Section 03 30 00: Cast-In-Place Concrete
- B. Section 04 21 13: Brick Masonry
- C. Section 04 22 00: Concrete Unit Masonry
- D. Section 06 41 16: Cabinetwork & Shelving
- E. Section 07 62 10: Gutters & Downspouts
- F. Section 07 84 00: Firestopping
- G. Section 08 11 13: Hollow Metal Doors & Frames
- H. Section 08 43 13: Aluminum Storefront, Doors, and Exterior Fixed Units
- I. Section 08 81 00: Glass & Glazing
- J. Section 09 29 00: Drywall
- K. Section 09 78 00: FRP Panels
- L. Section 32 16 00: Walks and Curbs

1.3 SUBMITTALS

- A. Comply with requirements of Section 01 33 00.

1.4 REFERENCES

- A. American Society for Testing and Materials (ASTM):
 - 1. ASTM D1056 - Flexible Cellular Materials - Sponge or Expanded Rubber.
 - 2. ASTM C1087 - Sealant Compatibility with Glazing Materials and Accessories.
 - 3. ASTM D1565 - Flexible Cellular Materials - Vinyl Chloride Polymers and Copolymers (Open Cell Foam).
 - 4. ASTM C920 - Elastomeric Joint Sealants.

07 92 00-1

- B. Sealing and Waterproofer Institute(SWI):
 - 1. SWI - Sealant and Caulking Guide Specifications.

1.5 ENVIRONMENTAL REQUIREMENTS

- A. Do not install solvent curing sealants in enclosed building spaces.
- B. Maintain temperature and humidity recommended by sealant manufacturer during and after installation.

1.6 SEQUENCING AND SCHEDULING

- A. Coordinate work of this Section with all Sections referencing this Section.

1.7 WARRANTY

- A. The Contractor must guarantee weathertightness for a period of two (2) years from the date of Substantial Completion of the building.
- B. The Contractor will, at any time within the two (2) year period, remedy all leaks of any nature in any part of the building due to the use of faulty materials and/or workmanship under this section, without additional cost to the Owner. The Contractor shall further reimburse the Owner for any damage occasioned by such leaks.
- C. The Contractor is cautioned to supplement the work, described in this section of the specifications, by any means necessary to permit the above guarantee, which he will be called upon to make as an obligation of the Contract.
- D. Provide **Silicone sealant #3** manufacturer's twenty (20) year warranty. All other sealants to have manufacturer's minimum ten (10) year warranty provided.
- E. Butyl Rubber Sill Sealer: Provide subcontractor and manufacturers One (1) year warranty from date of substantial completion.

PART 2 PRODUCTS

2.1 SEALANT MATERIALS

- A. Polymer or Polyurethane Sealants:
 - 1. **Polyurethane Sealant #1:** ASTM C920, Type M, Grade NS, Class 25.
 - 2. ASTM C719, ASTM D412, ASTM C661, ASTM C679 and ASTM C510
 - 3. Polyurethane Sealant approved manufacturers:
 - a. MasterSeal NP-150 by BASF.
 - b. **Note: A two-part sealant with custom color availability are to be provided where sealants are installed in exterior walls and interior walls with painted finishes so that color matches each finish color. Architect to approve color all sealant color matches.**

07 92 00-2

2. **Polymer or Polyurethane Sealant #2:** ASTM C920, Type S, Grade P, Class 25.
 - a. Titebond “Weathermaster” , self leveling, manufactured by Franklin International.
 - b. MasterSeal SL1 or SL2 by BASF.
 - c. Sikaflex 1c SL or 2c SL by Sika
 - d. Approved alternate
 - e. Provide standard color selections. **Architect to approve color.**

B. Silicone Sealant:

1. **Silicone Sealant #1:** ASTM C920, Type S, Grade NS, Class 25, mildew resistant.
 - a. Sanitary 1702 by General Electric Silicone Products Division.
 - b. 786 by Dow Corning Corporation.
2. **Silicone Sealant #2:** Dow Corning No. 795 Silicone building sealant or approved alternate
3. **Silicone Sealant #3:** Dow Corning No. **756** Silicone building sealant, Dow Corning Corporation, P.O. Box 994, Midland, MI 48686-0994; (800) 248-2481; www.dowcorning.com/construction.
 - a. Single-Component, Nonsag, Neutral-Curing Silicone Joint Sealant, ASTM C 920, Type S, Grade NS, Class 50, for Use NT; SWRI validation.
 - b. Type: One-component, ultra-low modulus, neutral-cure silicone rubber sealant; *Dow Corning®* 756 Silicone Building Sealant, as manufactured by Dow Corning Corporation.
4. **Note: Silicone sealants #2 and #3 to have custom color availability, matching adjacent material where installed. Architect to approve color match.**
5. Acceptable Alternate Silicone Sealant Manufacturers: GE Sealants

C. Concrete Slab Control Joint Filler:

1. 2-part polyurea, Versaflex SL/85, rapid curing, manufactured by Versaflex, Inc., 87 Shawnee Avenue, Kansas City, KS 66105 (913) 321-9000.
2. 2-part polyurea, PE85, manufactured by Hi-Tech Systems, 1190 N. Del Rio Place, Ontario, CA 91764 (909)945-5530
3. Approved alternate

D. Sill Sealer:

1. Butyl rubber, continuous under bottom track of exterior stud walls.

E. Security Sealant:

1. “Sikadur” 31 high modulus gel epoxy mortar mix, manufactured by Sika Corp.

F. Provide fire rated sealant, where installed in fire rated walls. Refer to section 07 84 00.

2.2 ACCESSORIES

- A. Primer: Non-staining, clear type, recommended by sealant manufacturer to suit application.
- B. Joint Cleaner: Non-corrosive and non-staining type, recommended by sealant manufacturer; compatible with joint forming materials.

07 92 00-3

- C. Joint Filler: Polyethylene foam rod, oversized 30% to 50%
- D. Bond Breaker: Pressure sensitive tape recommended by sealant manufacturer to suit application.
- E. Backer Seal: "Greyflex" backer seal, manufactured by Emseal Joint Systems, LTD (800) 526-8365. No substitutions will be accepted.

2.3 SEALANT COLORS

- A. Colors to be selected from manufacturer's standard color selection for each type of sealant specified with exception of two-part polyurethane sealants and silicone sealants, which are to match finishes as stated in 2.1 A & B. Architect to approve color matches.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify that surfaces and joint openings are ready to receive work and field measurements are as shown on Drawings and recommended by the manufacturer.
- B. Beginning of installation means installer accepts existing substrates

3.2 PREPARATION

- A. Clean and prime joints in accordance with manufacturer's instructions.
- B. Remove loose materials and foreign matter which might impair adhesion of sealant.
- C. Verify that joint backing and release tapes are compatible with sealant.
- D. Protect elements surrounding work of this Section from damage or disfiguration.

3.3 INSTALLATION

- A. Install sealant in accordance with manufacturer's instructions.
- B. Measure joint dimensions and size materials to achieve required width/depth ratios.
- C. Install joint backing rods to achieve neck dimension no greater than 1/3 the joint width. For joints 1/2" to 7/8", install backer seal prior to installing backer rod material install backer seal and backer rods as required to keep a uniform depth along entire joint.
- D. Install bond breaker where joint backing is not used.

07 92 00-4

- E. Apply sealant within recommended temperature ranges. Consult manufacturer when sealant cannot be applied within recommended temperature ranges. In no case, allow the depth of sealant be less than ½”.
- F. Install sealant free of air pockets, foreign embedded matter, ridges, and sags.
- G. Tool joints concave.
- H. Interior sealants are not to be installed until building is tempered by HVAC system and temperature will remain constant. **DO NOT PAINT POLYURETHANE AND SILICONE SEALANTS.** Do not install sealants in walls or floors where paint, stain, etc is scheduled to be applied until after finishes are applied unless sealants are masked off during coating process.
- I. Concrete slab control joint filler:
 - 1. Use only at concrete floors which **do not** receive any floor coverings or polished concrete finish.
 - 2. Prior to final seal coat, install joint filler flush with top of slab. Remove any excess filler.

3.4 SCHEDULE

- A. General Exterior Construction (Non-stone or masonry construction):
 - 1. Polyurethane Sealant #1
- B. Horizontal Exterior Locations:
 - 1. Polyurethane Sealant #2
- C. Masonry Exterior Locations:
 - 1. Silicone Sealant #3
- D. General Interior Construction:
 - 1. Polyurethane Sealant #1 (All wall control joints.)
- E. Plumbing Fixtures:
 - 1. Silicone Sealant #1.
- F. Horizontal Interior Locations:
 - 1. Polyurethane Sealant #2.
- G. Aluminum Storefront and Aluminum Windows:
 - 1. Silicone Sealant #2
- H. Concrete Slab Control Joint Filler
 - 1. All control joints for slab-on-grade and elevated slabs where no finish or floor coverings are scheduled.

07 92 00-5

I. Butyl Rubber

1. Continuous bead below bottom track of exterior stud walls and below metal thresholds.

J. Security Sealant:

1. Typical for all seals within the secure perimeter in all security walls. Use at all joints in mechanical, electrical and plumbing fixtures, at joints where the CMU wall meets the concrete floor slab in all cells and day rooms as noted on the drawings and elsewhere as noted on the drawings. Epoxy shall be installed such that a 45 degree angle is created from the face of the metal to the wall. Any opening gap wider than 1/4" shall be enclosed by steel, then the remaining gap shall be sealed with epoxy.

END OF SECTION

07 92 00-6

SECTION 08 11 13

HOLLOW METAL DOORS AND FRAMES

PART 1 GENERAL

1.1 SUMMARY

- A. Furnish labor and materials to complete Hollow Metal Doors, Hollow metal frames, and related items as shown and specified.

1.2 RELATED SECTIONS

- A. Section 04 22 00 - Concrete Unit Masonry
- B. Section 08 14 16 - Wood Doors.
- C. Section 08 71 00 – Finish Hardware
- D. Section 08 43 13 - Aluminum Storefront, Doors, and Exterior Fixed Units.
- E. Section 08 81 00 – Glass and Glazing
- E. Section 09 29 00 – Drywall
- F. Division 26 - Electrical Requirements.

1.3 SUBMITTALS

- A. Comply with requirements of Section 01 33 00.
- B. Shop Drawings: Submit prior to fabrication for approval of Architect detailed shop drawings, showing all doors, frames, other miscellaneous materials. Shop drawings to show all locations of reinforcement for door hardware in doors and frames.

1.4 REFERENCES

- A. Comply with State of Arkansas Adopted ADA Accessible Guidelines in regard to accessible or handicapped features.

PART 2 PRODUCTS

2.1 MATERIALS

- A. Hollow Metal Frames -

08 11 13-1

1. Manufactured by Steelcraft, Ceco, Curries or Amweld, or approved alternate, constructed of cold rolled steel, commercial quality, annealed and temper passed. All frames, interior, exterior: 16 gauge all openings 3'-6" or less, and 14 gauge for all openings over 3'-6".
 2. Exterior Frames: **Fleming** or approved alternate, special galvanized, paintable. Field paint all doors and frames.
 3. Heavy Duty Hollow Metal Door: Fleming or approved alternate, Steel-Stiffened, painted.
 4. Frames:
 - a. All frames shall be a one piece unit type with head and jambs completely mitered and face joints continuously welded in their entirety and ground smooth. Inside corners to be caulked prior to painting. The use of tenons or bent tabs is not acceptable. Where transoms and sidelights are required, frames: shop assembled for a proper fit, then shipped in largest size units permitted by shipping restriction. Mullions: assembled by sliding two sections together with continuous welded interior guides. Screwed on mullion covers and visible seams, not acceptable. All seams ground smooth. All exposed welding tabs ground smooth.
 - b. No KD type frames shall be permitted.
 5. Provide concealed reinforcements, drilled and tapped, to receive hardware. Hinge reinforcements: 10 gauge with top hinge high frequency usage hinge reinforcement, 10 gauge angle stiffener welded to both sides of the frame and hinge reinforcement. Lock reinforcement: spring type stabilizer to hold lock in place. Lock and surface applied hardware reinforcement 10 gauge. Clip angles: spot welded to bottom of each frame for anchoring to floor. Mortar 14 gauge anchors, one per each 2' of height, per jamb of a type to suit conditions and requirements. All other reinforcement for hardware to be minimum 10 gauge.
 6. Frames where Underwriter Labeled doors are used: carry Underwriter Label frame.
 7. Provide three (3) rubber silencers on strike side of all frames.
 8. All exposed screws to be countersunk using flathead screws, flush with surface.
- B. Hollow Metal Doors:
1. Non-label and label steel doors: to be completely flush design with lights, louvers, etc., as required on schedule doors as manufactured by Ceco, Amweld, Steelcraft, Curries, Mesker, Dittco, Truscon, or approved equal. Provide **type "A" series** doors with flush door light frames where lights are called for on drawings.
 2. Exterior Doors: Fleming or approved alternate, 'D' Series, special galvanized, flush design, paintable. Field paint.
 3. Construction: Doors shall be constructed of 18 gauge sheets for interior applications, and 16 gauge for exterior applications. Leveled steel formed and rigidly connected and reinforced inside with continuous vertical interlocking 24-gauge stiffeners. All doors shall be continuously arc welded vertically where the two outer sheets are joined on edges and dressed smooth.
 4. All exterior doors shall be insulated and sound deadened with super-core expanded foam or approved alternate.
 5. Provide and properly locate required reinforcement in door for all door mounted hardware.
 6. For door leaf 3'-6" to 4'-0" or wider, provide preparation for 2 pairs butt hinges or continuous hinge as specified.

- C. Doors and frames shall be prepared to receive hardware as specified in section 08 71 00 and glass of type, size, and shape as shown on drawings. Use reinforcing plates welded to inner face of frames for all hardware.
- D. All exterior doors to receive aluminum thresholds. Supply with added aluminum spacer on exterior side if required. Threshold to be type and style to match details if shown on plans, but in no case on plans, no more than 1/2" in height with transition slope not to exceed 1:2 to meet Arkansas Architectural Barriers Law and Americans with Disabilities Act Guidelines.
- E. Coordinate frame throat sizes with wall thicknesses where frames are installed in stud and drywall partitions.
- F. Provide three (3) rubber door silencers for each single leaf door frame, and two (2) door silencers for each double leaf door frame.

PART 3 EXECUTION

3.1 COORDINATION

- A. Coordinate location and installation of reinforcement for all scheduled door hardware items attached to hollow metal doors and frames.

3.2 FRAME ANCHORING

- A. Provide proper anchors for wall type frames are to be installed in.
- B. Hollow metal door frame jambs and heads are to be slushed full of mortar. Refer to Section 04 22 00 Concrete Masonry Units.

3.3 FINISHES

- A. All surfaces to be job finished shall be thoroughly cleaned, removing all rust, scales, grease, etc.
- B. All exterior hollow metal doors and frames: Given shop coat of rust resistant prime paint oven baked.

3.4 STORAGE AND ERECTION

- A. Carefully store frames in an upright position, not on ground, protected from moisture and weather. Frames and doors that are dented or sprung, before, during, or after installation will not be accepted.

END OF SECTION

08 11 13-3

SECTION 08 14 16

WOOD DOORS

PART 1 GENERAL

1.1 SCOPE:

- A. Furnish and install wood doors as shown and as specified herein. Doors are to be of type, size, and design shown and scheduled on drawings.

1.2 RELATED WORK:

- A. Section 08 71 00 – Hardware
- B. Section 08 81 00 - Glass & Glazing
- C. Section 09 91 00 - Finishes

1.3 QUALITY REQUIREMENT:

- A. All wood doors shall meet N.W.W.D.A. Industry Standard 1-A and Architectural Woodwork Institute Section 1300-G-3, Type FPC-7.

1.4 SUBMITTALS

- A. Comply with requirements of Section 01 33 00.
- B. Submit shop drawings in accordance with General Requirements. Include full size molding section detail for light and louver installation. Show glazing material, louver type and thickness, and face veneer grade and species.

1.5 REFERENCES

- A. Comply with State of Arkansas Adopted ADA Accessible Guidelines in regard to accessible or handicapped features.

1.6 DELIVERY

- A. Package in heavy Kraft paper or polyethylene bags. Deliver and store in areas of Temperature and humidity such as will not adversely affect doors.
- B. Doors shall be packaged in individual cartons.

1.7 PROTECTION

- A. Protect work from damage until final acceptance.

08 14 16-1

1.8 WARRANTY

- A. Manufacturer to provide lifetime warranty for interior duration, and two (2) year warranty for exterior duration.
- B. Door warp tolerance shall not exceed 1/4" in any section of the door.
- C. Stile, rail and core "telegraphing" shall not exceed 1/100" in any 3" span.

PART 2 PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

- A. Masonite
- B. Oshkosh Architectural Door Company.
- C. VT Industries

2.2 MATERIALS

- A. Doors shall be 1 3/4" thick, 5 or 7 ply, solid core, stain grade, plain sliced oak. Paint grade may be used where called for on finish schedule. Top and bottom rails to be 1 1/8" min. width, stiles 1 3/8" min. Width prior to field fitting. Core shall be wood particle core meeting ANSI A208.1, Grade 1-LD-1, or 1-LD-2 with a 28-32 lb density, and type II adhesive. Veneer shall be provided on side edges and shall match species of face veneer. Where a pair of doors are called for, face veneer shall be book-matched grain. Provide mineral composition core when fire rating is required.
- B. Contractor's Option: As an option to job finishing doors as per Section 09 91 00, contractor may provide pre-finished doors from manufacturer. If contractor selects pre-finished option, stain color will be custom.

2.3 FABRICATION

- A. Fabricate premium type doors in accordance with requirements of WDMA Quality Standards (SCLC-5 or 7) unless specifically indicated otherwise.
- B. Fabricate fire rated doors in accordance with requirements of Underwriter's Laboratories (UL).
- C. Provide doors with edge strips, of wood species to match face veneers.
- D. Make cutouts and provide stops for glass.
- E. Pairs of doors shall be products of a manufacturer who can furnish such doors without astragals and meet the UL requirements.

08 14 16-2

- F. Pre-fit doors at factory with 1/8 inch tolerance on each vertical face, 1/8 inch tolerance at top, and 1/2 inch at bottom, except where undercuts are scheduled.
- G. Machine doors for hardware as required by Hardware Schedule listed in Section 08 71 00, which will be supplied together with all necessary templates for hardware requiring door preparation.
- H. Steel frame shop drawings will be furnished showing location and size of hardware preparation.
- I. Bevel strike edge of single acting doors 1/8 inch in 2 inches. Radius strike edge of double acting swing doors, 2-1/8 inches.
- J. All fire rated doors shall be factory prepped to receive hardware and glazing.
- K. Pre-finish doors at factory with clear WDMA System #6 finish.

PART 3 EXECUTION

3.1 INSTALLATION AND WORKMANSHIP:

- A. Install doors plumb and true to operate without bind or drag with 1/8" clearance top and sides. Provide 3/4" undercut at bottom unless indicated otherwise.
- B. Doors damaged before or after hanging will be replaced.
- C. All edge and end surfaces will be sealed with two (2) coats of door manufacturer's standard sealer before final hanging. **This includes top and bottom ends.**
- D. All necessary refitting or adjustment shall be the Contractor's responsibility during the guarantee period.
- E. Provide moldings and glass stops of same species as face veneers.
- F. If called for, louvers to be installed into properly prepared openings.
- G. Pre-machine bevel on vertical edges of single doors or meeting stiles of pairs of doors.
- H. Coordinate door light location with door hardware to assure no conflicts occur.
- I. For door leaf 3'-6" to 4'-0" or wider, provide preparation for 2 pairs butt hinges or continuous hinge as specified.

3.2 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. Deliver: Protect doors at all times. Deliver doors to site after plaster and cement are dry And building has reached average prevailing relative humidity of locality.

08 14 16-3

- B. Storage: Stack flat on 2 x 4 lumber, laid 12” from ends and across center. Under bottom door and over top of stack provide plywood or corrugated cardboard to protect door surface. Store doors in area where there will be no great variation in heat, dryness and humidity.
- C. Handling: Do not drag doors across one another.

3.3 INSPECTION

- A. Verify that door frames are of type required for door and are installed as required for proper installation of doors. Do not install doors in frames which would hinder the operation of the doors.

SPECIAL NOTE:

THERE CAN BE NO GLASS OR GLASS KITS IN DOORS THAT WILL INTERFERE WITH THE MOUNTING OF ANY FINISH HARDWARE. ENOUGH STILE AND RAIL MUST EXIST SO THAT NO SHIMS ARE NEEDED.

END OF SECTION

08 14 16-4

SECTION 08 31 13

CEILING / WALL ACCESS PANELS

PART 1 GENERAL

1.1 SUMMARY

- A. Provide all labor, materials and equipment necessary for the furnishing and installation of access panels as required in gypsum board ceilings and walls and in masonry walls for mechanical or electrical equipment access. Provide proper model for panels installed in materials other than gypsum board.

1.2 SUBMITTALS

- A. Comply with Section 01 33 00.

PART 2 PRODUCTS

2.1 MANUFACTURER/MODEL

- A. Nystrom Model NT (masonry), Model RW (Stud and gypsum board), Model NP (E.I.F.S. and Plaster)
- B. Substitutions: Subject to compliance with requirements, one of the following may be substituted for that specified.
 - 1. Karp
 - 2. J.L. Industries
 - 3. Approved alternate.
- C. Provide fire rated models of type required where installed in fire rated ceilings and walls or where called for on drawings.
- D. Panel size as needed for application, unless called out on drawings. Panel size and locations are to be approved by Architect prior to installation.

2.2 CONSTRUCTION

- A. Galvanized bonderized 16 ga. steel door and 16 ga. frame.
- B. Continuous piano hinge.
- C. Key operated cylinder lock by access panel manufacturer, unless otherwise noted.
- D. Panel finish: Prep for field paint.

PART 3 EXECUTION

3.1 PREPARATION

- A. Verify that rough openings are correctly installed to receive panels.
- B. Make necessary preparation of surrounding materials to accept panel installation.
- C. Coordinate locations and sizes of required access panels with Architect for approval.

3.2 INSTALLATION

- A. Install panels in accordance with manufacturer's instructions and provide concealed framing as required to properly install access panel.
- B. Adjust panel operation and locking mechanism to ensure all features of access panel operate smoothly.

3.3 FINISH

- A. Paint panel per Section 09 91 00.
- B. Recessed perimeter grooves of panels installed in gypsum board walls or ceilings to be clean and free of drywall mud prior to painting. Gypsum board infill and perimeter of panel to be flush with gypsum board finish surrounding panel.

END OF SECTION

08 31 13-2

An Addition
Benton County Justice Center
Bentonville, Arkansas

SECTION 08 34 63

DETENTION SECURITY HOLLOW METAL DOORS & FRAMES

PART 1 GENERAL

1.1 SUMMARY

- A. GENERAL DESCRIPTION: this section includes information regarding the steel detention doors and frames, sidelight and borrowed light frames, and their accessories needed in the juvenile detention holding area and any support areas.
- B. THE GENERAL PROVISIONS of the Contract including General and Supplementary Conditions, Division 1 General Requirements, and Instructions to Bidders apply to the Work included in this Division.
- C. DEFINITIONS
 - 1. Uncoated Steel Sheet Thicknesses: Indicated as the minimum thicknesses.
 - 2. Metallic-Coated Steel Sheet Thicknesses: Indicated as the minimum thicknesses of uncoated base metals.
 - 3. Stainless-Steel Sheet Thicknesses: Indicated as the specified thicknesses for which over- and under-thickness tolerances apply, according to ASTM A480 / A480M.
 - 4. Nominal Surface of Floor Covering: Top surface of floor; for resilient tile and carpet, nominal surface of floor covering is defined as top of concrete slab.

1.2 REFERENCES

- A. ASTM A1008 / A1008M Standard Specification for Steel, Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, Solution Hardened, and Bake Hardenable; latest edition.
- B. ASTM A1011 / A1011M Standard Specification for Steel, Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, and Ultra-High Strength; latest edition.
- C. ASTM A653/ A653M, Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; latest edition.
- D. ASTM A666 Standard Specification for Annealed or Cold-Worked Austenitic Stainless-Steel Sheet, Strip, Plate and Flat Bar; latest edition.
- E. ASTM B117 Standard Practice for Operating Salt Spray (Fog) Apparatus; latest edition.
- F. ASTM C143 / C143M Standard Test Method for Slump of Hydraulic-Cement Concrete; latest edition.

- G. ASTM D610 Standard Practice for Evaluating Degree of Rusting on Painted Steel Surfaces; latest edition.
- H. ASTM D714 Standard Test Method for Evaluating Degree of Blistering of Paints; latest edition.
- I. ASTM D1735 Standard Practice for Testing Water Resistance of Coatings Using Water Fog Apparatus; latest edition.
- J. ASTM E488 / E448M Standard Test Methods for Strength of Anchors in Concrete Elements; latest edition.
- K. ASTM F1450 Standard Test Methods for Hollow Metal Swinging Door Assemblies for Detention and Correctional Facilities; latest edition.
- L. ASTM F1577-05 Standard Test Methods for Detention Locks for Swinging Doors; latest edition.
- M. ASTM A240 / A240M, Standard Specification for Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels and for General Applications; latest edition
- N. AWS D1.3 / D1. 3M, Structural Welding Code – Sheet Steel; latest edition.
- O. ANSI / NAAMM / HMMA Hollow Metal Manual, all sections; latest edition.
- P. NAAMM HMMA 850-00 Fire-Rated Hollow Metal Doors and Frames; latest edition.
- Q. ANSI / NAAMM / HMMA 863 – Guide Specifications for Detention Security Hollow Metal Doors and Frames; latest edition.
- R. NFPA 80 Standard for Fire Doors and Other Opening Protectives; latest edition.
- S. NFPA 105 Standard for Smoke Door Assemblies and Other Opening Protectives; latest edition.
- T. ANSI / NFPA 252 Standard Methods for Fire Test of Door Assemblies; latest edition.
- U. ANSI / NFPA 257 Standard on Fire Test for Window and Glass Block Assemblies; latest edition.
- V. ANSI/UL 10B, Standard for Fire Tests of Door Assemblies; latest edition.
- W. ANSI/UL 10C, Standard for Positive Pressure Fire Tests of Door Assemblies; latest edition.

- X. ANSI / UL 752 Standard for Bullet-Resisting Equipment; latest edition.
- Y. SSPC – PAINT 20 Zinc-Rich Primers (Type I, Inorganic, and Type II, Organic); latest edition.
- Z. SSPC – SP1 Solvent Cleaning; latest edition.
- AA. NGA / GANA – Glazing Manual; latest edition.

1.3 SUBMITTALS

- A. Product Data: Include construction details, material descriptions, core descriptions, label compliance, fire-resistance rating, and finishes for each type of detention door and frame specified.
- B. Shop Drawings: For detention doors and frames. Include conditions at openings, details of construction, dimensions of profiles, and details of joints and connections. Show anchorage and accessories. Include fastener types, sizes and spacing. Identify each detention door and frame using same reference numbers for openings as those on Drawings.
- C. Coordination Drawings: Drawings of each opening, including detention door and frame, drawn to scale and coordinating detention door hardware. Show the following:
 - 1. Locations, dimensions, and profiles of detention door hardware reinforcements.
 - 2. Locations and installation details of detention door hardware.
 - 3. Elevations of each detention door design type showing dimensions, locations of detention door hardware, and preparations for power, signal, and electrified and pneumatic control systems.
 - 4. Details of each detention frame type.
 - 5. Details of mortar boxes in detention frames for hardware and communication devices.
- D. Oversize Construction Certification: For detention door assemblies required to be fire rated and exceeding limitations of labeled assemblies, submit certification of a testing agency acceptable to authorities having jurisdiction that each detention door and frame assembly has been constructed to comply with design, materials, and construction equivalent to requirements for labeled construction.
- E. Close Out Documents - Refer to Section 01 77 00 for the General requirements for Contract Close-out.

1.4 QUALITY ASSURANCE

A. QUALIFICATIONS

1. QUALIFICATION OF MANUFACTURERS of Security Hollow Metal

Manufacturers: Security hollow metal manufacturing firms who have not been pre-qualified, shall have not less than five (5) years continuous successful experience with manufacturing hollow metal. These firms shall now be actively engaged in the manufacture of security hollow metal doors and frames of the type required for this project. Fabrication methods and product quality shall meet or exceed standards set by the Hollow Metal Manufacturers Association, (HMMA), a division of the National Association of Architectural Metal Manufacturers (NAAMM) and be tested in accordance with ASTM F 1450.

- a. Submittal Requirements: In addition to a written request for substitutions, prior to bid, provide details of each type door and frame showing door construction, face stiffening, insulation, and top hinge reinforcements. Provide a list of 10 facilities of similar scope and size where the product has been installed for a minimum of 5 years. Provide the following information on the 10 facilities:
 - 1) List name and location of installation.
 - 2) Date of occupancy by Owner.
 - 3) Owner's representative to contact and telephone number.
 - 4) Name of DEC, Construction Manager or General Contractor, and Architect including names of contacts and phone numbers.
 - 5) The manufacturer shall also submit an audited and certified financial statement indicating a consolidated net worth of \$1,000,000.
 - 6) Provide performance data and tests: All security hollow-metal door manufacturers shall submit to the Architect / Consultant evidence of compliance with ASTM F1450 and HMMA 863. Test reports and documentation shall be in accordance with ASTM F1450.
 - a) Test Specimens: Test doors shall be 3'-0" W x 7'-0" H with 100 square inch vision panel, 4" x 25" clear opening, positioned generally as shown in ASTM F1450, figure 3. Test doors and frames shall be prepared for hardware as specified in ASTM F 1450, Section 6 "Specimen Preparation".
 - b) Testing Procedures: Test doors and frames shall be furnished with hardware in accordance ASTM F1450, Section 6 – "Specimen Preparation". Latch throw of the lock shall not exceed 1". Assemblies shall be tested in accordance with procedures outlined in ASTM F1450, 7.2 – "Door Assembly Impact Test".
 - c) Door Static Load Test: Doors shall be tested in accordance with procedures outlined in ASTM F1450, 7.3 – "Door Static Load Test".
 - d) Door Rack Test: Doors shall be tested in accordance with procedures outlined in ASTM F1450, 7.4 – "Door Rack Test".
 - e) Performance Criteria for load testing shall be in accordance with applicable paragraphs of ASTM F1450, Section 7 – "Procedures".

- f) Glass Stop Test: A rectangular view window test frame shall be constructed with a glass opening size of 28" x 33" (+1"). The frame shall be constructed of commercial quality steel meeting ASTM standard A366 or A569, 12-gauge maximum. Refer to HMMA 863, Figure 5, for test frame configuration.
 - g) A steel plate of 3/8" minimum thickness shall be glazed in place using the specified glass stop.
 - h) The test frame assembly shall then be rigidly fixed in the vertical position with the removable glass stop on the opposite side of the 3/8" plate from the impact ram.
 - i) A target on the side of the 3/8" plate shall be marked in one corner no more than 6" away from the stops.
 - j) Using the door ram pendulum system specified in ASTM F1450, Figure 2 deliver four hundred (400) impacts of 200 Ft-lbs. each, on the target area. Removable glass stops and the 3/8" plate shall remain firmly in place so that removal cannot be accomplished without removing the retaining screws. There shall be no more than one (1) broken screw in the assembly after impact test.
 - k) Fire rated doors and frames shall be provided for those openings indicated in the schedule as requiring fire protection ratings. Such doors and frames shall be constructed as tested in accordance with ASTM E2074, UL-10B or NFPA-252 and labeled by a recognized testing agency having a factory inspection service.
 - l) Substitution after the bid date will not be allowed.
 - m) Approval of a Hollow Metal Manufacturer does not relieve that company from fully complying with the product as specified.
- 2. Installer Qualifications: An authorized representative of detention door and frame manufacturer for installation of units required for this Project.
 - 3. Source Limitations: Obtain detention doors and frames through one source from a single manufacturer.

B. CERTIFICATIONS

- 1. Welding: Qualify procedures and personnel according to the following:
- 2. AWS D1.3 / D1.3M, "Structural Welding Code--Sheet Steel."
- 3. Fire-Rated Detention Door Assemblies: Assemblies complying with NFPA 80 that are listed and labeled, by a testing and inspecting agency acceptable to authorities having jurisdiction, for fire ratings indicated, based on testing according to NFPA 252 or UL 10B.
- 4. Test Pressure: Test at atmospheric pressure.
- 5. Oversize Fire-Rated Detention Door Assemblies: For units exceeding sizes of tested assemblies, provide certification by a testing agency acceptable to authorities having jurisdiction that detention doors comply with standard construction requirements for tested and labeled, fire-rated detention door assemblies except for size.
- 6. Temperature-Rise Rating: If indicated, provide detention doors that have a temperature- rise rating of 450 deg F (250 deg C) maximum in 30 minutes of fire exposure.

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7. Fire-Rated Detention Sidelight and Borrowed-Light Frames: Assemblies complying with NFPA 80 that are listed and labeled, by a testing and inspecting agency acceptable to authorities having jurisdiction, for fire ratings indicated, based on testing according to NFPA 257.
8. Smoke-Control Detention Door Assemblies: Comply with NFPA 105.

1.5 SYSTEM DESCRIPTION

A. EXTENT OF WORK - As identified in the drawings and schedules as it relates to this section.

B. DESIGN / PERFORMANCE REQUIREMENTS

1. Detention Doors: Provide detention doors and frames that comply with Security Grade 1, according to the latest edition of ASTM F1450, as determined by testing manufacturer's standard products representing those indicated for this Project.
2. Detention Sidelight and Borrowed-Light Frames: Provide detention vision frames that comply with ASTM F1592 and removable glazing stop test according to HMMA 863, based on testing manufacturer's standard units.
3. General Materials
 - a. Hot-Rolled Steel Sheet: ASTM A1011 / A1011M Standard Specification for Steel, Carbon, (0.15 Maximum Percent)
 - b. Cold-Rolled Steel Sheet: ASTM A1008 / A1008M, CS (Commercial Steel)
 - c. Metallic-Coated Steel Sheet: ASTM A653 / A653M zinc-coated (galvanized) or zinc-iron alloy-coated (galvannealed) by hot dipped Process
 - d. Stainless-Steel Sheet: ASTM A240 / A240M, austenitic stainless steel, Type 304
 - e. Steel Plates, Shapes, and Bars: ASTM A1008 / A1008M
 - f. Concealed Bolts: ASTM A307, Grade A, unless otherwise indicated.
 - g. Post-installed Expansion Anchors in Concrete: With capability to sustain, without failure, a load equal to 4 times the load imposed, as determined by testing per ASTM E488 / E488M, conducted by a qualified independent testing agency.
 - 1) Corrosion Protection: Carbon-steel components zinc plated to comply with ASTM B633, Class Fe/Zn 5 (0.005 mm) for Class SC 1 service condition (mild).
 - 2) Corrosion Protection: Stainless-steel components complying with ASTM F593 and ASTM F594, Alloy Group 1 or 2 (ASTM F836M, Alloy Group 1 or 4) for bolts and nuts; ASTM A666 or ASTM A276 / A276M, Type 304 or 316, for anchors.
 - 3) Corrosion Protection: Components fabricated from nickel-copper-alloy rods complying with ASTM B164 for UNS No. N04400 alloy.
 - h. Powder-Actuated Fasteners in Concrete: Fastener system of type suitable for application indicated, fabricated from corrosion-resistant materials, with clips or other accessory devices for attaching detention frames of type indicated.
 - i. Embedded Plate Anchors: Fabricated from mild steel shapes and plates, minimum 3/16-inch (4.8 mm) thick; with minimum 1/2-inch- (12.7-mm-) diameter headed studs welded to back of plate.
 - j. Welding Rods and Bare Electrodes: Select according to AWS specifications for metal alloy welded.

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- k. Detention Door, Sidelight and Borrowed-Light Glazing: Comply with "Security Glazing" Specification.
 - l. Grout: Comply with ASTM C476, with a slump of 4 inches (102 mm) for detention frames built into masonry, 8 to 11 inches (200 to 280 mm) for detention frames installed in concrete as measured according to ASTM C143 / C143M.
 - m. Epoxy Filler: Bondo or other substitution acceptable to the Architect.
 - n. Electrical Conduit:
 - 1) Raceways: Circular raceways shall be ½" minimum diameter U.L. approved rigid steel conduit or electrical metallic tubing (EMT), galvanized inside and outside.
 - 2) Raceway Fittings: Fittings and couplings for conduit shall be galvanized or cadmium plated compatible with conduit materials. Fittings for rigid conduit shall be threaded.
- 1.6 OWNER'S INSTRUCTIONS AND MAINTENANCE - Refer to Section 01 77 00 for the General requirements for Contract Close-out.
- A. Tool Kit: Provide twelve (12) bits for use with security fasteners, each packaged in a compartmented kit configured for easy handling and storage.

PART 2 PRODUCTS

2.1 MATERIALS / EQUIPMENT

A. DETENTION DOORS

- 1. General: Provide flush-design detention doors, 2 inches (50 mm) thick, of seamless hollow construction, unless otherwise indicated. Construct detention doors with smooth, flush surfaces without visible joints or seams on exposed faces or stile edges.
 - a. Joints
 - 1) Visible joints or seams around glazed, louvered panel inserts are permitted.
 - 2) For single-acting swinging detention doors, bevel both vertical edges 1/8 inch in 2 inches (3 mm in 50 mm).
 - b. Metallic Core Construction: Provide the following core construction welded to both detention door faces:
 - 1) Steel-Stiffened Core: 0.042-inch- (1.0-mm-) thick, steel vertical stiffeners extending full-door height, with vertical webs spaced not more than 4 inches (102 mm) apart, spot welded to face sheets a maximum of 3 inches (76 mm) o.c. Fill spaces between stiffeners with insulation of minimum 0.6-lb/cu. ft. (9.6-kg/cu. m) density.
 - 2) Truss-Stiffened Core: 0.013-inch- (0.3-mm-) thick steel, truncated triangular stiffeners extending between face sheets and for full height and width of door; with stiffeners welded to face sheets not more than 3 inches (76 mm) o.c. vertically and 2-3/4 inches (70 mm) horizontally. Fill spaces between stiffeners with insulation of minimum 0.6-lb/cu. ft. (9.6-kg/cu. m) density.
 - 3) Fire Detention Door Cores: As required to provide fire-protection and temperature-rise ratings indicated.

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- c. Vertical Edge Channels: 0.123-inch- (3.1-mm-) thick, continuous steel channel extending full-door height at each vertical edge, with webs of channels flush with door edges; welded to top and bottom channels to create a fully welded perimeter channel.
- d. Top and Bottom Channels: 0.123-inch- (3.1-mm-) thick metal channel spot welded, not more than 4 inches (102 mm) o.c., to face sheets.
 - 1) Reinforce tops and bottoms of detention doors with inverted horizontal channels of same material as face sheet so flanges of channels are even with bottom and top edges of face sheets.
 - 2) Close top edge with 0.074-inch- (1.8-mm-) thick closing channel of same material as face sheet; welded so webs of channels are flush with top door edges.
 - 3) Close bottom edge with 0.074-inch- (1.8-mm-) thick closing channel of same material as face sheet; welded so webs of channels are flush with bottom door edges.
- e. Hardware Reinforcement: Fabricate reinforcing plates from same material as detention door face sheets to comply with the following minimum thicknesses:
 - 1) Full-Mortise Hinges and Pivots: 0.187 inch (4.7 mm) thick.
 - 2) Maximum-Security Surface Hinges: 12 Ga. 10" channel with 3/8" x 1" x 6" back- up at each hinge.
 - 3) Strike Reinforcements: 0.187 inch (4.7 mm) thick.
 - 4) Slide-Device Hanger Attachments: As recommended by device manufacturer.
 - 5) Lock Fronts, Concealed Holders, and Surface-Mounted Closers: 0.093 inch (2.3 mm) thick.
 - 6) All Other Surface-Mounted Hardware: 0.093 inch (2.3 mm) thick.
 - 7) Lock Pockets: 0.123 inch (3.1 mm) thick at secure side; welded to face sheet.
- f. Frames shall be mortised, reinforced, drilled and tapped for all template hardware only, in accordance with the final approved hardware schedule and templates provided by the hardware supplier.
- g. Loose Glazing Stops: Loose glazing stops shall be pressed steel angles, no less than 1 1/4" X 1 1/4" X 10 gauge.
 - 1) Angle tops shall be mitered and tight fitting at the corner joints and secured in place with 1/4-28 special hardened tamperproof button head machine screws spaced 8" o.c. maximum.
 - 2) The frame underneath the glazing stops and the inside of the glazing stop shall be chemically treated for maximum paint adhesion and painted with a rust-inhibitive primer prior to installation in the frame.
- h. Hardware Enclosures: Provide enclosures and junction boxes for electrically operated detention door hardware, interconnected with UL-approved, 1/2-inch- (12.7-mm-) diameter conduit and connectors.
- i. Enclosures for mechanical paracentric locks with lock mountings. Provide unitized pocket preparation which after fabrication, forms a one-piece box that provides for the lock mounting plate to be recessed into the door such that, when secured in place, the mounting plate outside surface is flush with the door face sheet.

- 1) Lock preparation shall be constructed from 0.123-inch (3.1 mm) steel, punched for keying options as required, and drilled and tapped to receive lock mounting plate.
 - 2) Finished preparation shall be a unitized lock pocket which completely surrounds the lock and is securely welded to both face sheets and the perimeter edge channel.
 - 3) Provide 0.067 inch (1.7 mm) enclosed lock bolt keeper in edge of door for jamb mounted locks.
 - j. Interior Steel Detention Door Face Sheets: Fabricated from cold-rolled steel sheets, metallic-coated steel sheets, or stainless-steel sheets where indicated, and other metal components from hot- or cold-rolled steel sheets.
 - 1) Security Grade 1: 14-gauge thick steel, 0.094-inch (2.4-mm) nominal-thickness.
 - k. Exterior Steel Detention Door Face Sheets: Fabricated from metallic-coated steel sheets, and other metal components from hot- or cold-rolled steel sheets.
 - 1) Security Grade 1: 14-gauge thick steel, A60 Galvanized or galvanealed.
 - j. Astragals: As required by NFPA 80 to provide fire ratings indicated.
2. MANUFACTURERS: Unless pre-approved prior to bidding, provide products by one of the following:
- a. American Steel Products; Swainsboro, GA, <http://www.amsteelpro.com/>
 - b. Claborn Manufacturing; Tanner, AL, <https://clabornmanufacturing.com/>
 - c. G-S Company; Baltimore, MD, <https://www.g-sco.com/>
 - d. Slate Security Systems; Hartselle, AL, <https://www.slatesystems.com/security>
 - e. Sweeper Metal Fabricators, Corp; Drumright, OK, <https://www.sweepermetal.com/>
 - f. Trussbilt, LLC; Huron, SD, <http://www.trussbilt.com/index.php>
 - g. Willo Products, Inc.; Decatur, AL, <https://willoproducts.com/>

B. DETENTION FRAMES

1. General: Fabricate detention frames of full-welded unit construction, with corners mitered, reinforced, and continuously welded full depth and width of detention frame. Knockdown frames are not acceptable.
 - a. Interior Steel Detention Frames: Fabricated from cold-rolled steel sheets, metallic-coated steel sheets or stainless-steel sheets for stainless-steel detention doors, and other metal components from hot- or cold-rolled steel sheets.
 - 1) Security Grade 1: 12-gauge thick steel.
 - b. Exterior Steel Detention Frames: Fabricated from metallic-coated steel sheets, and other metal components from hot- or cold-rolled steel sheets.
 - 1) Security Grade 1: 12-gauge thick steel, A60 galvanized, or galvanealed.
 - c. Hardware Reinforcement: Fabricate reinforcing plates from same material as detention frame to comply with the following minimum thickness:
 - 1) Full-Mortise Hinges and Pivots: 3/16" x full width of jamb x 10" in length.
The top hinge shall be additionally reinforced with 3/16" formed angle welded both to hinge reinforcing and frame face.
 - 2) Strikes, Flush Bolts, and Closers: 0.187 inch (4.7 mm) thick.

- 3) Surface-Mounted Hardware: 0.167 inch (4.2 mm) thick.
- d. Hardware Enclosures: Provide enclosures and junction boxes for electrically operated detention door hardware, and frame mounted communication devices interconnected with UL-approved, minimum ½" diameter conduit and connectors.
 - 1) Provide enclosures with access for conduit, tapped holes for hardware and internal fastener protection so fasteners will seat after frame is grouted full.
 - 2) Electrical access boxes will not be permitted except at hardware pockets or communication mortar boxes. Provide knock-out at top and bottom of each box to accept conduit.
 - 3) Lock pockets for jamb mounted locks: Provide 0.123 inch (3.1 mm) thick steel enclosure with:
 - a) Surface mounted cover, minimum 0.187 inch (4.7 mm) thick steel plate with uniform beveled edges secured with a minimum of 8 flathead security screws.
 - b) Secure lock to frame or pocket in accordance with lock manufacturer's recommendations for each lock type.
 - c) Provide concealed lock front preparation with frame rabbet cutout only to allow passage of latch bolt and deadbolt actuator. Lock front and case are not exposed.
 - d) Provide key access ports at locks keyed two sides or side opposite the door swing. Size key access port to accommodate paracentric keys on a key ring.
 - e) Provide conduit between electric lock pocket and door position switch and between back-to-back communication boxes where scheduled for each frame. All other conduit will be field installed.
- e. Mullions and Transom Bars: Provide closed or tubular mullions and transom bars where indicated. Fasten mullions and transom bars at crossings and to jambs by butt welding. Reinforce joints between detention frame members with concealed clip angles or sleeves of same metal and thickness as detention frame.
- f. Head Reinforcement: Leave vertical mullions in detention frames open at top for grouting.
- g. Grout Holes: Provide grout holes in frames to be installed post applied in concrete or CMU wall openings. Weld 0.093-inch back reinforcing plate with 1-3/8" diameter hole to inside of frame. Flush cover plate, same gauge as frame, to be shipped loose for field installation after frame is grouted full. Weld cover plate to frame and grind smooth for a seamless finish.
- h. Supports and Anchors: After fabricating, galvanize units to be built into exterior walls according to ASTM A153 / A153M, Class B.
- i. Jamb Anchors: Weld jamb anchors to detention frames near hinges and directly opposite on strike jamb as required to secure detention frames to adjacent construction. Locate jamb anchors at 16" on center and as follows:
 - a) Detention Door Frames: One additional anchor for each 16 inches (406 mm) or fraction thereof more than 40 inches (1016 mm) in height.
 - b) Detention Sidelight and Borrowed-Light Frames: One additional anchor for each 16 inches (406 mm) or fraction thereof more than 40 inches (1016 mm) in height.

- c) Masonry Type: Adjustable, corrugated or perforated, strap-and-stirrup anchors to suit detention frame size; formed of same material and thickness as detention frame; with strap not less than 2 inches (50 mm) wide by 10 inches (250 mm) long with hole in strap for vertical wall reinforcing.
- d) Post-installed Expansion Anchors for In-Place Concrete or Masonry: Minimum 1/2-inch- (12.7-mm-) diameter concealed bolts with expansion shields or inserts. Provide conduit spacer from detention frame to wall, welded to detention frame. Reinforce detention frames at anchor locations.
- j. Floor Anchors: Provide floor anchors for each jamb and mullion that extends to floor, formed of same material and thickness as detention frame, and as follows:
 - a) Monolithic Concrete Slabs: Clip-type anchors, with two holes to receive fasteners, welded to bottom of jambs and mullions with at least four spot welds per anchor.
- k. Rubber Door Silencers: Except on weather-stripped detention doors, drill stops in strike jambs to receive three silencers on single-detention-door frames and drill head jamb stop to receive two silencers on double-detention-door frames. Install plastic plugs to keep holes clear during construction.
- l. Grout Guards: Provide grout guards of same material as detention frame, welded to detention frame at back of hardware cutouts and glazing-stop screw and silencer preparations to close off interior of openings and prevent mortar or other materials from obstructing hardware operation or installation.
- 2. Manufacturers: See 2.01, A, 2.

C. STOPS AND MOLDINGS

- 1. General: Provide stops and moldings around glazed panels where indicated.
 - a. Removable stops
 - 1) Frame Stops for Detention Doors: Minimum 5/8 inch, unless otherwise indicated.
 - 2) Frame Stops for Detention Sidelights and Borrowed Lights: Minimum 5/8 inch high, unless otherwise indicated.
 - 3) Glazing stops shall be 1 1/4" x 1 1/4" x 10 gauge.
 - b. Fixed Detention Door Moldings: Formed from 0.123-inch- (3.1-mm-) thick sheet, of same material as detention door face sheets, spot welded to face sheets a maximum of 5 inches (127 mm) o.c.
 - c. Fixed Detention Frame Moldings: Formed integral with detention frames, unless otherwise indicated. Form corners with butted or mitered hairline joints.
 - d. Stops for Security Glazing: Formed from 0.123-inch- (3.1-mm-) thick, pressed-steel angle. Form corners with mitered hairline joints. Secure with 1/4-28 pinned torx button head security machine screws spaced uniformly not more than 8 inches (229 mm) o.c. and not more than 2 inches (51 mm) from each corner.
 - e. Deliver frames to project site with stops temporarily secured with standard screws. Ship security screws (plus 10% spare) in appropriate containers labeled and tagged to match detention frames.
 - f. Coordinate rabbet width between fixed and removable stops with type of glass or panel and type of installation indicated.
- 2. Manufacturers: See 2.01, A, 2.

2.2 FINISHES

A. METALLIC-COATED STEEL FINISHES

1. GENERAL

- a. Surface Preparation: Clean surfaces with non-petroleum solvent so surfaces are free of oil and other contaminants. After cleaning, apply a conversion coating suited to organic coating to be applied over it. Clean welds, mechanical connections, and abraded areas and apply galvanizing repair paint specified below to comply with ASTM A 780.
 - 1) Galvanizing Repair Paint: High-zinc-dust-content paint for regalanizing welds in steel, complying with SSPC-Paint 20.
 - 2) Factory Priming for Field-Painted Finish: Apply shop primer specified below immediately after surface preparation and pretreatment. Apply a smooth coat of even consistency to provide a uniform dry film thickness of not less than 0.7 mils (0.02 mm).
 - 3) Shop Primer: Manufacturer's or fabricator's standard, fast-curing, lead- and chromate-free primer complying with ANSI A250.10 acceptance criteria; recommended by primer manufacturer for zinc-coated steel; compatible with substrate and field-applied finish paint system indicated; and providing a sound foundation for field-applied topcoats despite prolonged exposure.

2. STEEL SHEET FINISHES

- a. Surface Preparation: Clean surfaces to comply with SSPC-SP 1, "Solvent Cleaning"; remove dirt, oil, grease, or other contaminants that could impair paint bond. Remove mill scale and rust, if present, from uncoated steel, complying with SSPC-SP 3, "Power Tool Cleaning," or SSPC-SP 6/NACE No. 3, "Commercial Blast Cleaning."
- b. Factory Priming for Field-Painted Finish: Apply shop primer specified below immediately after surface preparation and pretreatment. Apply a smooth coat of even consistency to provide a uniform dry film thickness of not less than 0.7 mils (0.02 mm).
- c. Shop Primer: Manufacturer's or fabricator's standard, fast-curing, corrosion-inhibiting, lead- and chromate-free, universal primer complying with ANSI A250.10 acceptance criteria; compatible with substrate and field-applied finish paint system indicated; and providing a sound foundation for field-applied topcoats despite prolonged exposure

2.3 FABRICATION

A. Shop Assembly

1. Fabricate detention doors and frames rigid, neat in appearance, and free of defects, warp, or buckle. Accurately form metal to required sizes and profiles, with minimum radius for thickness of metal. Weld exposed joints continuously; grind, fill, dress, and make smooth, flush, and invisible. Where practical, fit and assemble units in manufacturer's plant. To ensure proper assembly at Project site, clearly identify work that cannot be permanently factory assembled before shipment.
 - a. Exterior Detention Doors: Provide weep-hole openings in bottom of detention doors to permit entrapped moisture to escape. Seal joints in top edges of detention

- doors against water penetration.
- b. Fabricate detention doors and frames to comply with manufacturing tolerances indicated in HMMA 863.
- 2. Continuously weld detention frame corners, with contact edges closed tight and faces mitered.
- 3. Fabricate multiple-opening detention frames with mullions that have closed tubular shapes and with no visible seams or joints.
- 4. Exposed Fasteners: Provide countersunk security fasteners for exposed screws and bolts, unless otherwise indicated.
- 5. Hardware Preparation: Factory-prepare detention doors and frames to receive mortised hardware, including cutouts, reinforcement, mortising, drilling, and tapping, according to final door hardware schedule and templates provided by detention door hardware supplier. Comply with applicable requirements in DHI A115 Series for detention door and frame preparation for door hardware.
 - a. Reinforce detention doors and frames to receive surface-mounted door hardware. Drilling and tapping may be done at Project site.
 - b. Locate door hardware as indicated or, if not indicated, according to HMMA 863, "Guide Specifications for Detention Security Hollow Metal Doors and Frames."
- 6. Factory-cut openings in detention doors for accessories.
- 7. Welding: Weld components to comply with referenced AWS standard. Weld before finishing components to greatest extent possible. Remove weld spatter and welding oxides from exposed surfaces by descaling or grinding.
- 8. Glazing Channels: Provide minimum clearances for thickness and type of glass indicated, according to GANA's "Glazing Manual."
- 9. Security Fasteners: Fabricate detention doors and frames using security fasteners with head style appropriate for fabrication requirements, strength, and finish of adjacent materials, except that a maximum of two different sets of tools shall be required to operate security fasteners for Project. Provide stainless-steel security fasteners in stainless-steel materials, exterior doors and frames and interior doors and frames located in wet areas.

B. Quality control

- 1. Owner may select one detention door at random from detention doors delivered to Project and have it cut in half or otherwise taken apart for verification that construction complies with requirements.
 - a. Should examination disclose door construction at variance from that specified, the door manufacturer shall, upon direction of the Architect-Engineer, replace all doors shipped to the project, as of the date of inspection, with doors constructed in conformance with project specifications. Under conditions of non-conformity, the door manufacturer shall pay for the destroyed door, replacement doors and related labor.
 - b. Should examination prove the door was constructed in conformance with the specifications, the Owner will pay to replace the destroyed door and related labor.

PART 3 EXECUTION

3.1 EXAMINATION OF SITE

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of detention doors and frames.
 - 1. Examine rough ins for embedded and built-in anchors to verify actual locations of detention frame connections before detention frame installation.
- B. For the record, prepare written report, endorsed by Installer, listing conditions detrimental to performance of detention doors and frames.
- C. Inspect built-in and cast-in anchor installations before installing detention frames to verify that anchor installations comply with requirements. Prepare inspection reports.
 - 1. Remove and replace anchors where inspections indicate that they do not comply with specified requirements. Re-inspect after repairs or replacements are made.
- D. Perform additional inspections to determine compliance of replaced or additional work. Prepare inspection reports.

3.2 DELIVERY, STORAGE AND HANDLING

- A. Packing, Shipping, Handling, and Unloading
 - 1. Deliver detention doors and frames palletted, to provide protection during transit and Project-site storage.
 - 2. Deliver detention frames with two removable spreader bars across bottom of frames, tack welded to jambs and mullions.
- B. Storage and Protection
 - 1. Inspect detention doors and frames, on delivery, for damage. Minor damage may be repaired provided refinished items match new work and are approved by Architect; otherwise, remove and replace damaged items as directed.
 - 2. Store detention doors and frames under cover at building site. Place units in a vertical position with heads up, spaced by blocking, on minimum 4-inch- (100-mm-) high wood blocking. Avoid using non-vented plastic or canvas shelters that could create a humidity chamber.
 - a. If wrappers on detention doors become wet, remove cartons immediately. Provide minimum 1/4-inch (6-mm) space between each stacked detention door to permit air circulation.

2.3 PREPARATION

- A. JOB CONDITIONS
 - 1. Verify locations of detention doors and frames with those indicated on Coordination Drawings.
 - 2. Proceed with installation only after unsatisfactory conditions have been corrected.

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- B. Prior to installation and with spreaders removed, adjust detention frames for squareness, alignment, twist, and plumb to the following tolerances:
1. Squareness: Plus or minus 1/16 inch (1.6 mm), measured at door rabbet on a line 90 degrees from jamb and perpendicular to frame head.
 2. Alignment: Plus or minus 1/16 inch (1.6 mm), measured at jambs on a horizontal line parallel to plane of face.
 3. Twist: Plus or minus 1/16 inch (1.6 mm), measured at opposite face corners of jambs on parallel lines, and perpendicular to plane of door rabbet.
 4. Plumbness: Plus or minus 1/16 inch (1.6 mm), measured at jambs on a perpendicular line from head to floor.

3.4 CONSTRUCTION

A. CONSTRUCTION / INSTALLATION

1. General: Install detention doors and frames plumb, rigid, properly aligned, and securely fastened in place, complying with Drawings, Coordination Drawings, DHI A115.IG, and manufacturer's written recommendations.
2. Detention Frames: Install detention frames for detention doors, transoms, sidelights, borrowed lights and other openings, of sizes and profiles indicated.
 - a. Set masonry anchorage devices where required for securing detention frames to in-place concrete or masonry construction.
 - 1) Set anchorage devices opposite each anchor location according to details on Shop Drawings and anchorage device manufacturer's written instructions.
Leave drilled holes rough, not reamed, and free of dust and debris.
 - b. Embedment-Masonry-Type Jamb Anchors: Weld wall angle anchors to embedded steel plates to match locations of detention frame angle anchors. Remove jamb faces from detention frames and set detention frames into opening until detention frame anchors contact and match embedded anchors. Weld detention frame anchors to embedded anchors with 1-inch- (25-mm-) long welds at each end of angle. Reinstall jamb faces of detention frames.
 - c. Post-installed Expansion Jamb Anchors: After bolt is tightened, weld bolt head to provide non-removable condition. Grind, dress, and finish smooth welded bolt head.
 - d. Floor anchors may be set with powder-actuated fasteners instead of post-installed expansion anchors if so indicated on Shop Drawings.
 - e. Placing Detention Frames: Set detention frames accurately in position; plumbed, aligned, and braced securely until permanent anchors are set. After wall construction is complete, remove temporary braces and spreaders, leaving surfaces smooth and undamaged.
 - 1) At fire-rated openings, install detention frames according to NFPA 80.
 - 2) Field splice only at approved locations. DEC shall weld, grind, and finish as required to conceal evidence of splicing on exposed faces.
 - 3) Install detention frames with removable stops located on secure (non-inmate) side of opening.

- f. Assemble detention frames fabricated in sections. Install angle splices at each corner, of same material and thickness as detention frame, and extend at least 4 inches (102 mm) on both sides of joint.
- g. Continuously weld and finish smooth joints between faces of abutted, multiple-opening, detention frame members.
- h. Field Welding: Comply with the following requirements:
 - 1) Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
 - 2) Obtain fusion without undercut or overlap.
 - 3) Remove welding flux immediately.
 - 4) At exposed connections, finish exposed welds and surfaces smooth and blended so no roughness shows after finishing and contour of welded surface matches that of adjacent surface.
- i. Grout:
 - 1) Fill space between detention frames and concrete or masonry with grout. Install grout in lifts and take other precautions, including bracing detention frames, to ensure that detention frames are not deformed or damaged by grout forces. If a light consistency grout (greater than 5.0 inch slump in accordance with ASTM C 143) is to be used, special precautions shall be taken in the field by the Installer to protect tapped holes, electrical knock-outs, lock pockets, grout guards, junction boxes, etc., in the frames.
 - 2) If post-applied detention frames are utilized, fill space between frames and steel with flowable grout. Special precautions shall be taken in the field by the Installer to protect tapped holes, electrical knockouts, lock pockets, grout guards, junction boxes, etc., in the frames.
- 3. Swinging Detention Doors: Fit non-fire-rated detention doors accurately in their respective detention frames, with the following clearances:
 - a. Between Doors and Frames at Jambs and Head: 1/8 inch (3.2 mm).
 - b. Between Edges of Pairs of Doors: 1/8 inch (3.2 mm).
 - c. At Door Sills with Threshold: 1/8 inch over threshold.
 - d. At Door Sills without Threshold: 5/8 inch (15.9 mm).
- 4. Fire-Rated Detention Doors: Install with clearances as specified in NFPA 80.
- 5. Smoke-Control Detention Doors: Install according to NFPA 105.
- 6. Comply with installation tolerances indicated in HMMA 863.
- 7. Glazing: Comply with installation requirements in "Security Glazing" Specification unless otherwise indicated.

2.5 COORDINATION WITH OTHER WORK

- A. Coordinate installation of anchorages for detention frames. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.

2.6 FIELD QUALITY CONTROL

- A. Inspect installed products to verify compliance with requirements. Prepare inspection reports and indicate compliance with and deviations from the Contract Documents.
- B. Remove and replace detention work where inspections indicate that work does not comply with specified requirements.
- C. Perform additional inspections to determine compliance of replaced or additional work. Prepare inspection reports.
- D. Prepare field quality-control certification that states installed products and their installation comply with requirements in the Contract Documents.

2.7 ADJUSTING, CLEANING, AND PROTECTION OF WORK

- A. Final Adjustments: Check and readjust operating hardware items just before final inspection. Leave work in complete and proper operating condition. Remove and replace defective work, including detention doors and frames that are warped, bowed, or otherwise unacceptable.
- B. Clean grout and other bonding material off detention doors and frames immediately after installation.
- C. Prime-Coat Touchup: Immediately after erection, sand smooth rusted or damaged areas of prime coat and apply touchup of compatible air-drying primer.
- D. After finishing smooth field welds, apply air-drying primer.
- E. Galvanized Surfaces: Clean field welds, bolted connections, and abraded areas and repair galvanizing to comply with ASTM A780 / A780M.

END OF SECTION

SECTION 08 43 13

ALUMINUM STOREFRONT, DOORS, AND EXTERIOR FIXED UNITS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Aluminum Storefront System, aluminum doors, accessories.
- B. Anchors, brackets, brake metal, and attachments.
- C. Door hardware.

1.2 RELATED SECTIONS

- A. Section 07 92 00 - Joint Sealers: Perimeter sealant.
- B. Section 08 71 00 - Finish Hardware: Cylinders.
- C. Section 08 81 00 - Glazing.
- D. Division 26 - Electrical Requirements

1.3 REFERENCES

- A. ANSI/ASTM E283 - Rate of Air Leakage through Exterior Windows and Doors.
- B. ANSI/ASTM E330 - Structural Performance of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference.
- C. FS TT-P-31-Paint, Oil: Iron Oxide, Ready Mixed, Red and Brown.
- D. FS-TT-P-641 - Primer Coating; Zinc Dust-Zinc Oxide (for Galvanized Surfaces).
- E. Comply with State of Arkansas Adopted ADA Accessible Guidelines in regard to accessible or handicapped features.

1.4 SUBMITTALS

- A. Submit through General Contractor to Architect.
- B. Product Data: Submit manufacturer's installation instructions.
- C. Shop Drawings: Include system and component dimensions; components within assembly; framed opening requirements and tolerances; anchorage and fasteners; glass; door hardware requirements; and affected related work.

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1.5 PERFORMANCE

- A. Each type of window system shall be designed and engineered by the manufacturer to meet or exceed the wind load criteria for the applicable building code with jurisdiction, based on the size, shape, performance and location of each window unit. Manufacturer shall provide all internal stiffeners, blocking, attachments, etc., as may be required to provide a complete system.
- B. Design Wind Loads:
 - 1. Ultimate Design Wind Speed: 120 MPH
 - 2. Nominal Design Wind Speed: 93 MPH
 - 3. Exposure Category: B
 - 4. Internal Pressure Coefficient: +/- 0.18

1.6 QUALITY ASSURANCE

- A. Manufacturer of aluminum storefront or system shall have minimum of Ten (10) years experience in the manufacturing and installation of the system. Any substitutions shall follow requirements of Specification Section 01 60 00.
- B. Installer Qualifications: The installer shall have successful experience with installation of the same or similar units required for this project and other projects of similar size and scope for a minimum of ten (10) years.
- C. Source Limitations: Obtain aluminum framed storefront systems through one source from a single manufacturer, as well as other framing systems involved in complete building framing package.

1.7 WARRANTY

- A. Aluminum storefront system: manufacturer's two (2) year warranty.
- B. Aluminum entrances: Manufacturer's two (2) year warranty from date of substantial completion. In addition, welded door corner construction shall be supported with a Limited Lifetime Construction Warranty for the life of the door.
- C. Aluminum Storefront Installer's Warranty: Installer shall provide a five (5) year warranty covering air and water leakage, system failure. Installer will provide signed copy of installer's warranty found at the end of this specification section.

1.8 DOOR HARDWARE/KEYING MEETING

- A. Prior to ordering of hardware items, Contractor shall arrange meeting between, hardware supplier, Owner, and Architect to review and verify door hardware submittals and keying suggestions. This review meeting shall be considered as the submittal review. Any changes

shall be incorporated in the hardware submittals and then resubmitted to Contractor and Architect as **record copy**. Contractor to notify all parties one (1) week prior to meeting date.

1.9 PRE-INSTALLATION CONFERENCE

- A. Prior to aluminum storefront installation, Contractor will schedule pre-installation conference to review aluminum storefront system(s) and installation procedures. Required attendance shall include Contractor, aluminum storefront supplier and installer, Installer's foreman, aluminum storefront manufacturer's representative, and Architect. Owner may also attend if he desires. Contractor shall conduct conference in collaboration with manufacturer's representative.
- B. An actual mockup of a typical aluminum storefront installation shall be performed on site by installer immediately following the conference to assure proper installation methods and procedures are followed.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Kawneer Company, Inc.
- B. Tubelite
- C. YKK
- D. OldCastle Building Envelope

2.2 EXTERIOR ALUMINUM STOREFRONT SYSTEM

- A. Framing: Shall be extruded aluminum flush glazed framing system Tri-Fab 451T451 "Center-Plane" with Kawneer "IsoLock" thermal break with a 1/4" separation consisting of a two-part chemically curing, high density polyurethane, which is mechanically and adhesively joined to aluminum storefront sections or similar systems by other named manufacturers.
 - 1. Thermal break shall be designed in accordance with AAMA TIR-A8 and tested in accordance with AAMA 505.
- B. Doors: Shall be wide stile in sizes as indicated on drawings. Model 500 as manufactured by Kawneer or similar by other named manufacturers
- C. Finishes: Frame #1 shall be class I Anodized Aluminum (clear)
- D. Provide water deflector and high performance thermally broken "high performance" sill supplied by manufacturer. Provide bellows-type flexible expansion joint material at all sill flashing expansion joints.

- E. Provide water deflectors at each end of intermediate horizontal members, installed per framing manufacturer's installation instructions. Provide "L" profile end dams at each end of extruded sill flashing. Extruded sill flashing should be an integral part of the storefront framing system. Set in manufacturer approved sealant, seal all penetrations accordingly per manufacturer's instructions.
- F. Brake Metal: .125, .090 and .062 thick extruded aluminum, sizes as required for details and conditions as called for on drawings. Manufacturer to provide detailing at mullions for integral appearance. Match finish and color of storefront system.
- G. Provide 1" insulated glass. Refer to Section 08 81 00.

2.3 INTERIOR ALUMINUM STOREFRONT SYSTEM

- A. Framing: Shall be extruded aluminum flush glazed framing system Tri-Fab 451 "Center-Plane" with non-thermal as manufactured by Kawneer or similar systems by other named manufacturers.
- B. Doors: Shall be wide stile in sizes as indicated on drawings. Model 500 as manufactured by Kawneer or similar by other named manufacturers.
- C. Finishes: Frame #1 shall be class I Anodized Aluminum (clear)
- D. Brake Metal: .125 thick aluminum, sizes as required for details and conditions. Manufacturer to provide detailing at mullions for integral appearance. Match finish and color of storefront system.
- E. Provide ¼" glass. Refer to Section 08 81 00.

2.4 HARDWARE

Product Quality: Hardware items are to be ANSI Grade 1 Certification and are to be supplied by aluminum door supplier unless noted otherwise.

- A. Closers:
 - 1. Heavy duty surface closer, independently hung, with adjustable back check and 100 degree hold-open at exterior doors; slim line half covers, Standard Sprayed Aluminum Finish.
 - a. LCN 4040XP Spring Cush
 - b. Dorma
 - c. Norton
 - d. Russwin
 - e. Yale
 - g. Substitutions must be approved prior to bid
 - 2. Cover to be screw-attached to closer body in at least two locations on top and bottom of closer.

- B. Continuous Hinges:
1. 780-224HD continuous aluminum hinge, manufactured by Roton, Markar, or approved alternate.
 2. Warranty: Manufacturer's lifetime warranty.
- C. Door Exit Device:
1. Panic Device:
Manufacturer and Product: (All exit devices are cylinder doggable)
 - a. Von Duprin 99 Series (Von Duprin 99EL Series where retractable latch exit device is called for)
 - b. Dorma 9000 Series
 - c. Approved alternate.
 2. Provide Delayed Egress function where called for in hardware sets
- D. Push/Pulls: Shall be Style CO-9/CPH as manufactured by Kawneer or approved alternate. Match storefront finish.
- E. Weather-stripping:
1. Head and Jamb: Replaceable wool, or polypropylene, or nylon wool pile with aluminum strip backing, recessed in frame; AAMA 701.2.
 2. At exterior door applications, provide weather-stripping as required at door perimeters and where double doors meet in center to provide watertight seal.
 3. Sill: Semi-rigid polymeric material on aluminum anodized to match door; EPDM sweep strip; 38-560 by Kawneer or similar by other named manufacturers.
- F. Threshold:
- (Threshold height not to exceed ½" to meet ADAAG guidelines.)
1. Model 896N, 5" deep, manufactured by National Guard Products, or approved alternate, ADA compliant panic threshold.
 2. Extruded aluminum, mill finish, neoprene seal, for exterior doors only.
 3. Where "square back" type threshold is called for, provide ADA compliant panic with square back. These types are to be used where backing up to terrazzo, ceramic tile, or other similar floor materials.
- G. Door Shoe (with Rain Drip & Brush Sweep)
1. 95WH Series by National Guard Products or approved alternate.
 - a. Color to match door finish.
 - b. Provide Door Shoe assembly at each exterior door leaf.
- H. Drip Cap
1. 1 ½" tall x 2 ½" deep, anodized aluminum
 2. National Guard Series 16 or approved alternate.
 2. Approved alternate
- I. Drip Strip
1. ¾" wide x 1 ½" deep, aluminum.
 2. Model 17, manufactured by National Guard Products or approved alternate.

J. Floor Stop:

1. Rockwood Model 463. Drill 1" dia. X 2 3/4" deep hole. Replaceable rubber bumper with torx-type screw. Epoxy grout stem into place.
2. Approved alternate.

K. Security Access System for security controlled doors

1. Panic Device: Provide Von Duprin with electric latch retraction and cylinder dogging capability
2. Power Supply: Von Duprin PS914-2RS power supply with battery backup, installed in accessible, concealed location. Power supply to be capable of powering two latches, located no more than 200 feet from the power supply.
3. Power Transfer: Von Duprin Model EPT-10 power transfer door-to-frame transfer device or approved alternate.
4. Reader Control Device: By owner
5. Electrician to provide conduit for all low voltage control wiring as required from access control device junction box to power supply and to panic device. Conceal all conduit in walls, ceilings, doorframes, etc. Wiring is to be provided by door access control contractor. Refer to electrical drawings and door/hardware schedule for locations.
6. Electrician and hardware supplier to coordinate with door access control contractor

L. Accessible Automatic Door Openers (Horton Automatics, Corpus Cristi, Texas)

1. Automatic: Pushbutton switch actuates door opening; door closes after time delay expires. Opening and closing force, measured 1" (25.4mm) out from lock stile of the door, not to exceed 15 pounds (67N) of force to stop the door when operating in either direction. Operator to include the following variable adjustments so as to comply with ANSI Standard A156:19: Opening speed – 4 to 6 seconds; Closing speed – 4 to 6 seconds.
3. Coordinate location of pushbutton switch w/ Electrical drawings.

2.5 HARDWARE FINISHES

- A. Aluminum Hardware items to match storefront finish.
- B. Painted Hardware items to match storefront finish color.

PART 3 EXECUTION

3.1 PREPARATION

- A. Prep all doors and aluminum storefront members to accept and support specified and scheduled hardware items.

3.2 FABRICATION

- A. Fabricate doors and frames allowing for minimum clearances and shim spacing around perimeter of assembly, yet enabling installation.
- B. Rigidly fit and secure joints and corners. Make joints and connections flush, hairline, and weatherproof.
- C. Develop drainage holes with moisture pattern to exterior.
- D. Prepare components to receive anchor devices. Fabricate anchorage items.
- E. Arrange fasteners, attachments, and jointing to ensure concealment from view.
- F. Prepare components with internal reinforcement for door hardware.
- G. All exposed screws to be countersunk using flathead screws, flush with surface.

3.3 EXECUTION

- A. Verify wall openings are ready to receive work of this Section.
- B. Beginning of installation means acceptance of existing conditions.

3.4 INSTALLATION

- A. Install doors, frames, glazing, and hardware called for in accordance with manufacturer's instructions.
- B. Use anchorage devices to securely attach frame assembly to structure.
- C. Align assembly plumb and level, free of warp or twist. Maintain assembly dimensional tolerances, aligning with adjacent work.
- D. Install sill flashings and end dams.
- E. Pack fibrous insulation in shim spaces at perimeter of assembly to maintain continuity of thermal barrier.
- F. Install hardware using templates provided. Refer to Section 08 71 00 for cylinders and installation requirements.
- G. Install perimeter flashings for storefront fabrications PRIOR TO storefront installation.
- H. Install perimeter sealant, backing materials, and installation requirements in accordance with Section 07 92 00. Provide sealant DO NOT INSTALL SEALANT AT SILL DRAINAGE HOLES AND SLOTS.

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- I. Adjust operating hardware and touch panels.
- J. Closers to have through-bolt connections at door and frame.
- K. Wiring for devices requiring electrical power shall be concealed within aluminum frame and doors.
- L. Cut thresholds at door jamb around stops or jamb trim.

3.5 TOLERANCES

- A. Variation from Plane: 0.03 inches per foot maximum or 0.25 inches per 30 feet whichever is less.
- B. Misalignment of Two Adjoining Members Abutting in Plane: 0.015 inches.

3.9 DOOR HARDWARE SCHEDULE

A. Note the following:

- 1. All aluminum door hinges are to be continuous hinges
- 2. Panic devices are to be “doggable” (unless door is fire rated).
- 3. Provide heavy-duty floor stops at all exterior doors unless noted otherwise on schedule.
- 4. All exterior doors to have weatherstripping set capable of keeping blowing rain out of building.
- 5. All exterior doors to have ADA closers, ADA threshold, door shoes and drip caps.
- 6. Set exterior thresholds in full bed of butyl caulk.

B. Hardware Sets:

S1: Rim Mount Panic Device with Exit Only Function, Continuous Hinge, Closer, Heavy Duty Exterior Floor Stop

S2: Rim Mount Panic Device with Exit Only Function, ADA Door Operator, Continuous Hinge, Closer, Heavy Duty Exterior Floor Stop

S3: Vertical Rod Exit Device with Pull trim at each Leaf, Cylinder at active leaf (by others), ADA Door Operator at Active Leaf, Continuous Hinges, Heavy Duty Floor Stops, Closers

S4: Vertical Rod Exit Device with Pull Trim at each Leaf, ADA Door Operator at Active Leaf, Continuous Hinges, Overhead Stops with Closers

S5: Rim Mount Panic Device with Exit Only Function, ADA Door Operator, Continuous Hinge, Overhead Closer with Stop

S6: Rim Mount Panic Device with Exit Only Function, Continuous Hinge, Overhead Closer with Stop

S7: Rim Mount Panic Device with Electric latch retraction and Pull Trim, continuous hinge,
Wall Stop, Closer, Power Supply, Owner Provided Access Device.

S8: Rim Mount Panic Device with Electric latch retraction and Pull Trim, continuous hinge,
Heavy Duty Floor Stop, Closer, Power Supply, Owner Provided Access Device.

S9: Push/Pull, Closer, Wall Stop

END OF SECTION

COMPANY LETTERHEAD

CERTIFICATE OF GUARANTEE FROM INSTALLER

08 43 13-9

An Addition
Benton County Justice Center
Bentonville, Arkansas

We, _____
(Name of Company or Contractor) agree to warranty aluminum storefront system on the below mentioned building for the period indicated. This agreement is to render the aluminum storefront system subject to the conditions outlined below.

OWNER OF BUILDING _____

Location of Building _____

City _____ Roof Area _____ square feet _____

This Guarantee effective this _____ day of _____, 20_____, for the term of FIVE (5) years from this date, provided any air and water leakage and system defects result from defective material or workmanship and are not caused by other mechanics, fire, accidents, or by nature over which we have no control.

It is understood and agreed that the Contractor will not be responsible for leaks or failure of the aluminum storefront system due to sustained winds in excess of speeds stated in manufacturer's warranty, or any other conditions over which we have no control as stated in manufacturer's exclusions.

Signed _____
Name of Company

By _____

Position _____

Company is a _____
Corp./Partnership/Individual

NOTARY PUBLIC

Registered in the State of _____

SEAL

NOTE: Aluminum storefront system manufacturer's Two (2) year system warranty and Two (2) year door construction warranty from the manufacturer is to be submitted in addition to the guarantee from the installer found on this form. Manufacturer's Warranty is mandatory - **NO EXCEPTIONS.**

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SECTION 08 56 19

PASS-THRU WINDOWS

PART 1 GENERAL

1.1 SUMMARY

- A. This section includes the specifications for furnishing and installing transaction windows.

1.2 SUBMITTALS AND SHOP DRAWINGS

- A. Comply with Section 01 33 00.

1.3 RELATED SECTIONS

- A. Section 07 92 00, Sealants

1.4 REFERENCES

- A. ASTM A 240 – Heat-Resisting Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels.
- B. ASTM A 653 – Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
- C. ASTM B 209 – Aluminum and Aluminum-Alloy Sheet and Plate.
- D. ASTM B 221 – Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes.
- E. ASTM C 1048 – Heat-Treated Flat Glass--Kind HS, Kind FT Coated and Uncoated Glass.

1.5 QUALITY ASSURANCE

- A. Warranty: Submit manufacturer's standard warranty

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Interbank-Exchange, LLC, PO Box 632, Black Canyon City, AZ 85324. Phone: (866) 286-4400, email: sales@interbank-equipment.com, website: <http://www.drive-thruequipment.com>
- B. Submit alternates per section 01 11 00. Alternates must match the frame depths as shown on window details.

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2.2 TRANSACTION/TICKET WINDOW

- A. Transaction/ticket window with sidelights and transoms.
 - 1. Frame: Clear anodized aluminum frame, 1 3/4" x 4"
 - 2. Base: Solid Stainless Steel sloped to the exterior face. Approximately 2" x 12" x width of window.
 - 3. Fasteners: As recommended by manufacturer.
 - 4. Glazing: 1/4-inch tempered glass, clear
 - 5. Speaker: 6" round Speak-through factory installed.
 - 6. Silicone Glazing Sealant: Dow Corning 999A.
 - 7. Size: window is to be custom sized as shown on drawings.
 - 8. Assembly: Factory assembled, factory glazed.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Examine areas to receive windows. Notify Architect of conditions that would adversely affect installation or subsequent use. Do not proceed with installation until unsatisfactory conditions are corrected.

3.2 PREPARATION

- A. Ensure openings to receive windows are plumb, level, square, accurately aligned, correctly located, and in tolerance.

3.3 INSTALLATION

- A. Install windows in accordance with manufacturer's instructions.
- B. Install windows plumb, level, square, true to line, and without warp or rack.
- C. Install window components weathertight.
- D. Anchor windows securely in place. Use attachment methods permitting adjustment for construction tolerances, irregularities, alignment, and expansion and contraction.
- E. Separate aluminum from other metal surfaces with bituminous coatings or other means approved by Architect.
- F. Joint Sealants: Install joint sealants as specified in Section 07 92 00.
- G. Repair minor damages to finish in accordance with manufacturer's instructions and as approved by Architect.
- H. Remove and replace damaged components that cannot be successfully repaired as determined by Architect.

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3.4 CLEANING

- A. Clean windows promptly after installation in accordance with manufacturer's instructions.
- B. Remove excess joint sealant in accordance with sealant manufacturer's instructions.
- C. Do not use harsh cleaning materials or methods that would damage glazing or finish.

3.5 PROTECTION

- A. Protect installed windows to ensure that, except for normal weathering, windows will be without damage or deterioration at time of substantial completion.

END OF SECTION

08 56 19-3

SECTION 08 62 23

TUBULAR DAYLIGHTING DEVICES

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Tubular daylighting devices and accessories for installation in new JDC Holding Area and replacement of skylights at existing JDC Holding Areas.

1.2 RELATED SECTIONS

- A. Section 07 62 00 – Flashing and Sheet Metal: Metal curb flashings.

1.3 REFERENCES

- A. ASTM B 209 - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate.
- B. ASTM E 84 - Standard Test Method for Surface Burning Characteristics of Building Materials.
- C. ASTM A 463/A 463M - Standard Specification for Steel Sheet, Aluminum Coated, by the Hot Dip Process.
- D. ASTM A 653/A 653M - Standard Specification for Steel Sheet, Zinc Coated (Galvanized), by the Hot Dip Process.
- E. ASTM A 792/A 792M – Standard Specification for Steel Sheet, 55% Aluminum-Zinc Alloy-Coated by the Hot-Dip Process.
- F. ASTM E 108 - Standard Test Methods for Fire Tests of Roof Coverings.
- G. ASTM E 283 - Test Method for Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen.
- H. ASTM E 308 - Standard Practice for Computing the Colors of Objects by Using the CIE System.
- I. ASTM E 330 - Structural Performance of Exterior Windows, Curtain Walls and Doors.

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- J. ASTM E 547 - Test Method for Water Penetration of Exterior Windows, Skylights, Doors and Curtain walls by Cyclic Air Pressure Difference.
- K. ASTM E 1886 - Standard Test Method for Performance of Exterior Windows, Curtain Walls, Doors, and Impact Protective Systems Impacted by Missile(s) and Exposed to Cyclic Pressure Differentials.
- L. ASTM E 1996 - Standard Specification for Performance of Exterior Windows, Curtain Walls, Doors, and Impact Protective Systems Impacted by Windborne Debris in Hurricane.
- M. ASTM D 635 - Test Method for Rate of Burning and/or Extent of Time of Burning of Self-Supporting Plastics in a Horizontal Position.
- N. ASTM D 1929 - Test Method for Ignition Properties of Plastics.
- O. ASTM D 2843 – Standard Test Method for Density of Smoke from the Burning or Decomposition of Plastics.
- P. ASTM F 1642 – Standard Test Method for Glazing and Glazing Systems Subject to Airblast Loading.
- Q. ASTM F 2912 – Standard Specification for Glazing and Glazing Systems Subject to Airblast Loading.
- R. AAMA/WDMA/CSA 101/LS.2/A440 - Standard/Specification for Windows, Doors, and Unit Skylights; 2011.
- S. FM Standard 4431 - The Approval Standard for Skylights.
- T. CFR 47 - Code of Federal Regulations (CFR) Rules & Regulations for FCC, FCC Part 15 - Radio Frequency Devices, Subpart B - Unintentional Radiators, Section 15.107 - Conducted Limits, and 15.109 - Radiated Emission Limits
- U. ANSI C63.4-2014 - American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz
- V. GSA-TS01-2003: Standard Test Method for Glazing and Window Systems Subject to Dynamic Overpressure Loadings.
- W. Unified Facilities Criteria (UFC) 4-010-01, Change October 2013, DoD Minimum Antiterrorism Standards for Buildings,
- X. ICC-ES AC-16 - Acceptance Criteria for Plastic Skylights; 2008.

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- Y. Florida Building Code TAS 201 – Impact Test Procedures.
- Z. Florida Building Code TAS 202 – Criteria for Testing Impact and Non Impact Resistant Building Envelope Components Using Uniform Static Air Pressure Loading.
- AA. Florida Building Code TAS 203 – Criteria for Testing Products Subject to Cyclic Wind Pressure Loading.
- BB. IBC Section 1710 - Load Test Procedure for Wind Load Testing on Rooftop Daylight Collecting System - Structural Performance Testing - Devised by ATI PE); 2012.
- CC. IBC Section 2606.7.2 – Installation – Diffuser Fall Out Test (Devised by PE); 2012.
- DD. OSHA 29 CFR - 1910.23 (e)(8) (Guarding Requirements for Skylights); 1926 Subpart M (Fall Protection); 1926.501(b)(4)(i); 1926.501(i)(2); 1926.501(b)(4)(ii).
- EE. California State OSHA Fall Protection Code of Regulations, Title 8, Section 3212 (e)(1).
- FF. European Parliament Directive - Restriction of Hazardous Substances (RoHS) - Directive 2011/65/EU Annex II including amendment (EU) 2015/863 (RoHS 3)

1.4 PERFORMANCE REQUIREMENTS

- A. Daylight Reflective Tubes: Spectralight Infinity with INFRAREDuction Technology combines ultra-high Visible Light reflectance with Ultra-low Infrared (IR) reflectance. Patented spectrally-selective optical surface yields an average total- and specular-reflectance greater than 99.5% percent for the Visible Light spectrum (400 nm to 700 nm) providing maximized visible light transmission and less than 25% reflectance for Infrared (IR) heat wavelengths (750 nm to 2500 nm) for minimized heat transmission, resulting in a spectrally-selective Total Solar Spectrum (250 nm to 2500 nm) reflectance less than 37 percent, as measured using a Perkin Elmer Lambda 1050 spectrophotometer with a Universal Reflectance Accessory. Color: a* and b* (defined by CIE L*a*b* color model) shall not exceed plus 2 or be less than minus 2 as determined in accordance to ASTM E 308.
- B. 290 DS Tubular Skylight
 - 1. AAMA/WDMA/CSA 101/IS2/A440, Class CW-PG70 size tested 14 inch (350 mm), Type TDDCC.
 - a. Air Infiltration Test: Air infiltration will not exceed 0.30 cfm/sf aperture with a pressure delta of 1.57 psf across the tube when tested in accordance with ASTM E 283.
 - b. Water Resistance Test:
 - 1) Passes water resistance; no uncontrolled water leakage with a pressure differential of 10.7 psf (512 Pa) or 15 percent of the

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design load (whichever is greater) and a water spray rate of 5 gallons/hour/sf for 24 minutes when tested in accordance with ICC-ES AC-16, ASTM E 547 and ASTM E 331.

- c. Uniform Load Test: All units tested with a safety factor of (3) for positive pressure and (2) for negative pressure, acting normal to plane of roof in accordance with ASTM E 330.
 - 1) No breakage, permanent damage to fasteners, hardware parts, or damage to make system inoperable or cause excessive permanent deflection of any section when tested at a Positive Load of 150 psf (7.18 kPa) or Negative Load of 60 psf (2.87 kPa) in accordance with ICC AC-16 Section A, or Negative Load of 70 psf (3.35 kPa) if tested per ICC AC-16 Section B.

- C. Existing Skylights: Field Verify existing Conditions. Provide with curb mounted cap for existing roof penetrations.

1.5 SUBMITTALS

- A. Submit under provisions of Section 01 30 00.
- B. Product Data: Manufacturer's data sheets on each product to be used, including:
 - 1. Preparation instructions and recommendations.
 - 2. Storage and handling requirements and recommendations.
 - 3. Data sheets showing roof dome assembly, flashing base, reflective tubes, diffuser assembly, and accessories.
 - 4. Installation requirements.
- C. Shop Drawings. Submit shop drawings showing layout, profiles and product components, including rough opening and framing dimensions, anchorage, roof flashings and accessories.
- D. Test Reports: Independent testing agency or evaluation service reports verifying compliance with specified performance requirements.

1.6 QUALITY ASSURANCE

- A. Manufacturer Qualifications: All primary products specified in this section will be supplied by a single manufacturer with a minimum of twenty years experience in the top lighting industry. Secondary products shall be acceptable to the primary manufacturer.
- B. Installer Qualifications: All products shall be installed by a single installer with a minimum of five years demonstrated experience, with adequate equipment, skilled workers, and practical experience to meet the project schedule.

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- C. Skylights shall conform with authorities having jurisdiction and be designed to meet design criteria of the project location and the following:
 - 1. Skylights must be certified by NFRC.
 - 2. Skylights must be Tested and labeled in accordance with AAMA/WDMA/CSA 101/I.S.2/A440.
 - 3. Skylights must have Factory Mutual (FM) Approval Class Number 4431.
 - 4. On projects which fall under the jurisdiction of the Florida Building Code, Skylights are required to have a current Florida Building Code (FBC) Number to meet the High Velocity Hurricane Zone (HVHZ) requirements and are required for acceptance of Work specified in this section. Skylight must comply with the jurisdictional code body's submittal data and supporting drawings and documentation. Where the code body's acceptance criteria differs from these specifications regarding components and hardware, the code body's requirements shall govern.
 - 5. Meet or exceed OSHA 200 pound (90 kg) Drop Tests expressed in 29 CFR 1910.23(e)(8)
 - 6. Skylights shall provide minimum 69 psf (3.30 kPa) design load.
- D. Pre-Installation Meeting: Contractor shall convene a pre-installation meeting on the project site minimum one week before beginning work of this Section. The meeting shall include the Architect or Owner's Representative and representatives of all related trades to:
 - 1. Coordinate between the at least the following trades.
 - a. Roofing to install the flashing and skylight.
 - 2. Verify project requirements and site logistics.
 - 3. Assess integrity of the roofing system and building structure.
 - 4. Review manufacturer's installation instructions and warranty requirements.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Deliver products in manufacturer's original containers, dry, undamaged, seals and labels intact.
- B. Store products in manufacturer's unopened packaging until ready for installation.

1.8 PROJECT CONDITIONS

- A. Coordinate delivery schedule with the Contractor and project schedule to minimize on site storage.
- B. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.
- C. Store materials in a dry area, protected from freezing, staining, contamination or damage.

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1.9 WARRANTY

- A. Daylighting Device: Manufacturer's standard warranty for 10 years.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Acceptable Manufacturer: Solatube International, Inc.; 2210 Oak Ridge Way, Vista, CA 92081. Tel. Toll Free: 888-765-2882. Tel: (760) 477-1120. Fax: (760) 597-4488. Email: commsales@solatube.com. Web: www.solatube.com.
- B. Requests for substitutions will be considered in accordance with provisions of Section 01600.

2.2 TUBULAR DAYLIGHTING DEVICES

- A. Tubular Daylighting Devices General: Transparent roof-mounted skylight dome and self-flashing curb, reflective tube, and ceiling level diffuser assembly, transferring sunlight to interior spaces; complying with ICC AC-16.
- B. Brighten Up Series: Solatube Model 290 DS: 14 Inch (350 mm) Daylighting System:
 - 1. Model:
 - a. Solatube Model 290 DS
 - 2. Capture Zone:
 - a. Roof Dome Assembly: Transparent, UV and impact resistant dome with flashing base supporting dome and top of tube.
 - 1) Outer Dome Glazing: Type DA, 0.125 inch (3.25 mm) minimum thickness impact resistant injection molded acrylic classified as CC2 material; UV inhibiting (100 percent UV C, 100 percent UV B and 98.5 percent UV A), impact modified acrylic blend.
 - (a) Raybender 3000: Variable prism optic molded into outer dome to capture low angle sunlight and limit high angle sunlight.
 - 2) Acrylic Dome Plus Shock Inner Dome Glazing: Type DAI, Inner dome is 0.115 inch (2.9 mm) minimum thickness classified as CC1 material. High impact resistant injection molded acrylic required for high velocity wind zones.
 - 3) Tube Ring: Attached to top of base section; 0.090 inch (2.3 mm) nominal thickness injection molded high impact acrylic; to prevent thermal bridging between base flashing and tubing and channel condensed moisture out of tubing.
 - 4) Dome Seal: Polyethylene foam seal, black, 0.13 inch (3.2 mm) thick by 14.62 (371 mm) diameter, 2 PCF polyethylene foam.

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- 5) LightTracker Reflector, made of aluminum sheet, thickness 0.015 inch (0.4 mm) with Spectralight Infinity. Positioned in the dome to capture low angle sunlight.
- b. Dome Options:
 - 1) Dome Edge Protection Band: Type PB, for fire rated Class A, B or C roof applications. Aluminized steel nominal thickness of 0.028 inches (0.7 mm).
- c. Flashings:
 - 1) Roof Flashing Base:
 - (a) One Piece: One piece, seamless, leak-proof flashing functioning as base support for dome and top of tube. Sheet steel, corrosion resistant conforming to ASTM A 653/A 653M or ASTM A 463/A 463M or ASTM A792/A 792M, 0.028 inch (0.7 mm) plus or minus .006 inch (.015 mm) thick.
 - d. Curbs: Metal Insulated Roof Curb: Corrosion resistant 18 Gauge hot-dipped galvanized steel conforming to ASTM A 653 G90 with continuous welded seams, integrated base plate for water tightness and extra strength, lined with 1-1/2 inch fiberglass fireproof sound attenuating thermal insulation, factory installed 2 by 2 treated wood nailer secured to top ledge of curb. Curb designed for single-ply roofing, lightweight fill or tapered insulation low slope roof types.
 - 1) CXX Metal insulated curb with a custom curb height as determined by the installer.
 - 2) Flashing Options:
 - (a) Metal Roof Flashing Kit: Type MR, includes Butyl tape, flashing screws, speed nuts, corner washers and polyurethane sealant.
3. Transfer Zone:
 - a. Extension Tubes: Aluminum sheet, thickness 0.015 inch (0.4 mm).
 - 1) Reflective Tubes:
 - (a) Reflective Extension Tube: Type EXX with total length of run as indicated on the Drawings.
 - (b) Interior Finish: Spectralight Infinity with INFRAREDuction Technology combining ultra-high Visible Light reflectance with Ultra-low Infrared (IR) reflectance.
 - (c) Color: a* and b* (defined by CIE L*a*b* color model) shall not exceed plus 2 or be less than minus 2 as determined in accordance to ASTM E 308.
 - 2) Tube Options
 - (a) Extension Tube Angle Adapter: Provide manufacturer's standard adapters for applications requiring:
 - (1) Type A1 one 0 to 90 degree extension tube angle adapter.
 - (2) Type A2 two 0 to 90 degree extension tube angle adapters.

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- (b) Thermal Insulation Panel: Type TIP, high-performance dual-glazed, tube insulation system.
- 4. Delivery Zone:
 - a. Ceiling Ring: Injection molded impact resistant acrylic. Nominal thickness is 0.110 inches (2.8 mm).
 - b. Square Diffuser Assemblies for Tubes Penetrating Ceilings: Ceiling mounted box transitioning from round tube to square ceiling assembly, supporting light transmitting surface at bottom termination of tube 14 inches by 14 inches (356 mm by 356 mm) square diffuser opening.
 - 1) Square JustFrost Decorative Fixture: Type L9, frosted acrylic plastic lens classified as a CC2 material lens (nominal thickness is 0.16 inches (4 mm)), and decorative metal fasteners.

2.3 ACCESSORIES

- A. Fasteners: Same material as metals being fastened, non-magnetic steel, non-corrosive metal of type recommended by manufacturer, or injection molded nylon.
- B. Suspension Wire: Steel, annealed, galvanized finish, size and type for application and ceiling system requirement.
- C. Sealant: Polyurethane or copolymer based elastomeric sealant as provided or recommended by manufacturer.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Do not begin installation until substrates have been properly prepared.
- B. Examine openings, substrates, structural support, anchorage, and conditions for compliance with requirements for installation tolerances and other conditions.
- C. If substrate and rough opening preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.2 PREPARATION

- A. Clean surfaces thoroughly prior to installation.
- B. Coordinate requirements for power supply, conduit and wiring.
- C. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

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3.3 INSTALLATION

- A. Install in accordance with manufacturer's printed instructions.
- B. Coordinate installation with substrates, air and vapor retarders, roof insulation, roofing membrane, and flashing to ensure that each element of the Work performs properly and that finished installation is weather tight.
 - 1. Install flashing to produce weatherproof seal with curb and overlap with roofing system termination at top of curb.
 - 2. Provide thermal isolation when components penetrate or disrupt building insulation. Pack fibrous insulation in rough opening to maintain continuity of thermal barriers.
 - 3. Coordinate attachment and seal of perimeter air and vapor barrier material.
- C. Where metal surfaces of tubular unit skylights will contact incompatible metal or corrosive substrates, including preservative-treated wood, provide permanent separation as recommended by manufacturer
- D. Align device free of warp or twist, maintain dimensional tolerances.
- E. After installation of first unit, field test to determine adequacy of installation. Conduct water test in presence of Owner, Architect, or Contractor, or their designated representative. Correct if needed before proceeding with installation of subsequent units.
- F. Inspect installation to verify secure and proper mounting. Test each fixture to verify operation, control functions, and performance. Correct deficiencies.

3.4 CLEANING

- A. Clean exposed surfaces according to manufacturer's written instructions. Touch up damaged metal coatings and finishes. Remove excess sealants, glazing materials, dirt, and other substances.

3.5 PROTECTION

- A. Protect installed products until completion of project.
- B. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION

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SECTION 08 71 00

FINISH DOOR HARDWARE

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Door hardware.
 - 2. Miscellaneous finish hardware.
 - 3. Lock guards
- B. Related Sections:
 - 1. Section 08 11 13 - Hollow Metal Doors and Frames.
 - 2. Section 08 14 16 - Wood Doors.
 - 3. Section 08 43 13 - Aluminum Storefront, Doors, and Exterior Fixed Units

1.2 SUBMITTALS

- A. Comply with Section 01 33 00.
- B. Submit through Contractor to Architect. Prior to submitting, contact Architect to discuss door hardware/keying meeting. If Architect elects, submittal will be reviewed at time of meeting. Supplier will make corrections as a result of meeting and distribute record copies to Architect and Contractor.
- C. Hardware Schedule: Submit final hardware schedule organized by "sets", to indicate specifically product to be furnished for each item required on each door.
- D. Templates: Furnish templates to each fabricator of doors and frames, as required for preparation to receive hardware.

1.3 DOOR HARDWARE/KEYING MEETING

- A. Prior to ordering of hardware items, Contractor shall arrange meeting between, hardware supplier, Owner, and Architect to review and verify door hardware submittals and keying suggestions. This review meeting shall be considered as the submittal review. Any changes shall be incorporated in the hardware submittals and then resubmitted to Contractor and Architect as **record copy**. Contractor to notify all parties one (1) week prior to meeting date.

1.4 PRE-INSTALLATION MEETING

- A. Prior to installation of hardware items, Contractor shall arrange meeting between hardware installer, hardware supplier, and factory representatives of locks, locksets, exit devices, closers and specialty hardware items in order to review the installation requirements and procedures.

1.5 REFERENCES

- A. Comply with State of Arkansas Adopted ADA Accessible Guidelines in regard to accessible or handicapped features for all door hardware items used on this project.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Product Quality: Hardware items are to be ANSI Grade 1 Certification.

2.2 HINGES

- A. Manufacturers:
 - 1. Stanley
 - 2. Hagar
 - 3. Approved alternate
- B. Material:
 - 1. Provide full mortise-type hinges with stainless steel pins, except steel pins with steel hinges; non-removable for exterior and public interior exposure, non-rising for non-security exposure, flat button with matching plugs. Provide stainless steel hinges on exterior applications.
 - 2. Ball-bearing Function: Swaged, inner leaf beveled, square corners.
- C. CONTINUOUS HINGES
 - 1. Roton, model 780-224 HD series.
 - 2. Warranty: Manufacturer's lifetime warranty.

2.3 LOCKS, LATCHES, AND BOLTS

- A. Manufacturers:
 - 1. Schlage 'ND' Vandlgard Series – Cylindrical lockset with Rhodes style lever handle. Provide "LV" Vandlgard Series – Mortise lockset with Rhodes style lever handle where mortise lock set is noted in the hardware set.
 - 2. Approved Alternate Manufacturers:
 - a. Corbin Russwin
 - b. Best Locks
 - c. Approved alternate. Refer to Section 01 60 00.

3. Note: Locksets and lock cylinders for aluminum doors are provided under this section.
4. Warranty: ND Series Cylindrical (10-Years); L Series Mortise (3-year)

B. Materials:

1. Strikes: Wrought box strikes, with extended lip for latch bolts, except open strike plates may be used in wood frames. Provide dustproof strikes for foot bolts.
2. Locks: Cylindrical locksets equipped with 6-pin tumbler; with interchangeable cores and keyed alike. Provide 2-3/4" backset. Provide three keys for each lock.

2.4 DOOR CONTROL DEVICES

A. Panic Device:

Manufacturer and Product:

1. Von Duprin XP99 Series
2. Corbin Russwin 5000 Series
3. Sargent 80 Series
3. Approved alternate.
4. Warranty: Provide minimum three (3) year manufacturer's warranty.
5. Unless called for otherwise, or where a fire door occurs, all panic devices will be cylinder doggable.
6. Provide with 30 Second Delayed Egress where noted in hardware sets.

B. Closers:

1. Interior Doors:
 - a. LCN 1460 Series
 - b. Approved alternate
 - c. Warranty: Provide minimum 30 year warranty for closer operation.
 - d. Provide with stop where noted on hardware sets
 - e. Install per 3.2.E
2. Exterior Doors:
 - a. LCN 4040XP-Spring Cush Series.
 - b. Dorma 8900 Series
 - c. Approved alternate.
 - d. Warranty: Provide minimum 30 year warranty for closer operation.\
 - e. Provide with Stop where noted in hardware sets
 - f. Install per 3.2.E
4. Provide with a minimum of ten (10) year manufacturer's warranty.
5. Provide all brackets and spacers necessary for all door and frame conditions.

C. Security Access Controlled Doors:

1. Power Supply: Von Duprin PS902, provided by hardware supplier
2. Electric Strike: Von Duprin #6111, Fail Secure
4. Reader Control Device: Provided by access control subcontractor

5. Electrician to provide conduit for all low voltage control wiring as required from access control device junction box to power supply and to panic device. Conceal all conduit in walls, ceilings, doorframes, etc. Wiring is to be provided by door access control contractor. Refer to electrical drawings and door/hardware schedule for locations.
6. Electrician and hardware supplier to coordinate with door access control contractor

D. Materials:

1. Provide grey rubber exposed resilient parts.
2. Any floor stop other than that specified will not be accepted.
3. All closer cylinders to be cast iron.

2.5 MISCELLANEOUS HARDWARE

A. Silencers: Provide in metal door frames, unless not permitted for fire rating, or unless bumper-type weather-stripping is provided; three for each single door frame, two for double-door frame.

1. 3M
2. Hager
3. Glynn Johnson
4. Approved alternate.

B. Door Flush Bolt:

1. Rockwood #555 12"
2. H.B. Ives #458
3. Glynn-Johnson FB6
3. Approved alternate.

C. Pull and Push Manufacturers:

1. Rockwood model 111 x 70C pull plate (.125" thick x 4" x 16" plate with 10" pull); model 73C push (.125" thick x 4" x 16")
2. Where hardware set calls for a long Pull: Ives 9266F, 36" length.
2. Approved alternate.

D. Threshold:

(Threshold height not to exceed ½" to meet ADAAG guidelines.)

1. Model 896N, 5" deep, manufactured by National Guard Products, or approved alternate, ADA compliant panic threshold
2. Extruded aluminum, mill finish, neoprene seal, for exterior doors only.
3. Provide saddle-type threshold where threshold is called for at interior locations.
4. Where "square back" type threshold is to be provided, provide ADA compliant threshold, #415 series square back with #700EN stop strip. This type is to be used where backing up to ceramic tile, or other similar floor materials. Provide width as needed for door frame width.

- E. Weatherstripping:
 - 1. Model 135N series, aluminum with neoprene seal, manufactured by National Guard or approved alternate.
 - 2. Provide with natural anodized finish.
 - 3. Provide other models as required to coordinate with special door hardware items.
- F. Frame-mounted Door Stop Manufacturers & Product:
 - 1. *Glynn-Johnson Series 90, surface mounted
 - 2. Dorma Series 900
 - 3. Approved alternate.
- G. Floor Stop:
 - 1. Exterior - Rockwood Model 463. Drill 1" dia. X 2 3/4" deep hole. Replaceable rubber bumper with torx-type screw. Epoxy grout stem into place.
 - 2. Interior – Rockwood 441 Series with dome
 - 2. Approved alternate.
- H. Sweep
 - 1. 198 Series by National Guard Products or approved alternate.
 - a. Neoprene sweep with natural anodized aluminum trim. Size as required to cover door undercut.
- I. Door Shoe (with Rain Drip & Brush Sweep)
 - 1. 95WH Series by National Guard Products or approved alternate.
 - a. Provide with natural anodized finish.
 - b. Provide Door Shoe assembly at each exterior door leaf.
- J. Wall Stop
 - 1. Trimco #1205
 - 2. Ives #WS443
 - 3. Glynn-Johnson #WB35
 - 4. Approved alternate.
- K. Latch/Lock Guard
 - 1. Nominal 10 inches long, 13 gauge stainless steel manufactured by Ives or approved alternate.
 - 2. Secure to door and frame per manufacturer's instruction for vandal-proof installation.
 - 3. Provide stainless steel, US32D finish.
 - 4. Provide type as required for door and lockset type.
- L. Drip Cap
 - 1. 2 1/2" wide x 1 1/2" deep, anodized aluminum.
 - 2. Model 16A, manufactured by National Guard Products or approved alternate.
- M. Drip Strip
 - 1. 3/4" wide x 1 1/2" deep, aluminum.
 - 2. Model 17, manufactured by National Guard Products or approved alternate.

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N. Automatic Door Bottom

1. Model 683 Heavy Duty Mortise manufactured by National Guard Products, or approved alternate manufacturer.

O. Sound Gaskets:

1. Self adhesive silicone gasketing, Bulb shape by National Guard Products or approved alternate

2.6 FINISH

- A. All exposed interior hardware and door control devices to be furnished with US26D Finish. Exterior hardware finish to be US32D.
- B. Painted hardware items to match color of door control devices.

2.7 FABRICATION

- A. Finish and Base Material Designations: Number indicate BHMA Code or nearest traditional U. S. commercial finish. US26D & US32D or equivalent.

PART 3 EXECUTION

3.1 COORDINATION

- A. Hardware supplier to verify and coordinate door and frame preparation, including required reinforcement in hollow metal doors and frames for hardware attachment.

3.2 INSTALLATION

- A. Hardware Mounting Heights: Door and Hardware Institute Recommended Locations for Builders Hardware for Standard Steel Doors and Frames, except as otherwise indicated.
- B. Install each hardware item to comply with manufacturer's instructions and recommendations.
- C. Door closers and frame-mounted overhead stops shall be installed to frames, using machine thread type screws. Holes shall be tapped in hollow metal frames to accept threaded screws. Screws shall be of a size as recommended by hardware manufacturer.
- D. All other hardware items mounted to door shall be required to be mounted to door with appropriate through bolts for wood doors and machine thread type screws for hollow metal doors. Holes shall be tapped in hollow metal door reinforcement to accept threaded screws. Screws shall be of a size as recommended by hardware manufacturer.
- E. Door closers and frame-mounted overhead stops at all **exterior and interior doors** shall have through-bolt connections at door. Exposed head of bolt shall be of a flush, smooth type.

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- F. **'TEK' TYPE SCREWS ARE NOT TO BE USED.** Use fasteners provided by hardware supplier for each corresponding hardware device for door and frame type and as specified in this specification.
- G. Install each hardware item per manufacturer's instructions. If any item fails to operate properly because of improper installation, it shall be the installer's responsibility to correct. If item continues to malfunction or if Contractor or Architect suspects any hardware item to be defective, hardware supplier shall examine item in question. If Supplier determines item is defective, he shall replace item at no extra cost to owner.
- H. Thresholds to be cut around jamb stops for snug fit to door jambs.

3.3 ADJUSTING

- A. Hardware Adjustment: Return to project one month after Owner's occupancy, and adjust hardware for proper operation and function.

3.4 KEYING

- A. Locksets and cylinders are to be master keyed. Prepare and submit a detailed list of complete keying recommendations to the Architect, which will be discussed during keying meeting. Coordinate desired keying schedule with owner prior to submitting of keying recommendation. Furnish three (3) keys for each individual lock in addition to three (3) master keys.
- B. Each key for entire project to be stamped for identification.
- C. Provide construction keying for all exterior locks. When project is substantially complete, disable all construction keying.

3.5 TYPICAL DOOR HARDWARE FOR EXTERIOR AND INTERIOR DOORS

- A. Each leaf of all exterior hollow metal doors, unless noted otherwise, is to receive the following hardware items:
 - 1. ADA Accessible closer.
 - 2. Continuous hinges
 - 3. Weatherstripping set
 - 4. ADA Threshold (Set in butyl rubber sealant)
 - 5. Door shoe
 - 6. Drip cap

B. Each leaf of all interior doors, unless noted otherwise, is to receive the following hardware items:

1. Three butt hinges for doors up to 3' 4".
2. Provide three silencers for single leafs, two silencers for double leafs.

C. HARDWARE SETS:

Set #1: Passage Latch Set, Overhead Closer with Stop.

Set #2: Passage Latch Set with Occupancy Deadbolt, Wall Stop

Set #3: Pair of Vertical Rod Exit Devices, Cylinder at active leaf (by others), Long Door Pull at each Leaf, Closers, Wall Stops

Set #4: Long Door Pulls (2 per leaf), Closers, Wall Stops

Set #5: Rim Mount Exit Device with 30 Second Delayed Egress and Exit Only Trim, Continuous Hinge, Closer, Heavy Duty Floor Stop

Set #6: Storeroom Lock Set, Closer, Wall Stop, Electric Strike and Power Supply for owner Provided Access Device

Set #7: Mortise Storeroom Lock Set, Closer, Wall Stop, Electric Strike and Power Supply for owner Provided Access Device

Set #8: Passage Latch Set, Closer, Wall Stop, Automatic Door Bottom, Sound Gasketing

Set #9: Dual Swing Hinges – coordinate with wall and trim installation

Set #10: Storeroom Lock Set, Overhead Stop

Set #11: Rim Mount Exit Device with keyed lever trim, Closer, Continuous Hinge, Heavy Duty Exterior Floor Stop, Electric Strike and Power Supply for owner Provided Access Device

Set #12: Privacy Lock Set, Wall Stop

Set #13: Office Lock Set, Overhead Stop

Set #14: Office Lock Set, Wall Stop

Set #15: Storeroom Lock Set, Heavy Duty Floor Stop, Closer, Lock Guard

Set #16: Mortise Storeroom Lock Set, Electric Strike and Power Supply for owner Provided Access Device

Set #17: Passage Latch Set, Wall Stop, Closer

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Set #18: Mortise Institutional Lock Set, Continuous Hinge, Heavy Duty Floor Stop, Closer, Lock Guard

Set #19: Mortise Institutional Lock Set, Continuous Hinge, Wall Stop, Closer

Set #20: Rim Mount Exit Device with 30 Second Delayed Egress and Exit Only Trim, Overhead Closer with Stop

Set #21: Rim Mount Exit Device with 30 Second Delayed Egress and Lever trim, Closer, Wall Stop

Set #22: Rim Mount Exit Device with Exit Only Function, Closer, Continuous Hinge, Heavy Duty Exterior Floor Stop, Lock Guard

Set #23: Storeroom Lock Set, Wall Stop

Set #24: Storeroom Lock Set, Overhead Stop, Electric Strike and Power Supply for owner Provided Access Device

Set #25: Push/Pull, Closer, Wall Stop

Set #26: Passage Latch Set, Wall Stop, Automatic Door Bottom

Set #27: Office Lock Set, Wall Stop, Automatic Door Bottom

Set #28: Office Lock Set, Wall Stop, Automatic Door Bottom, Sound Gasketing

Set #29: Passage Latch Set, Overhead Stop, Automatic Door Bottom

Set #30: Rim Mount Exit Device with Lever Trim, Closer, Wall Stop

Set #31: Storeroom Lockset at Active Leaf, Dummy Lever Trim at Inactive Leaf, Manual Flush Bolt with Cover, Overhead Stops.

Set #32: Passage Latch Set, Wall Stop

END OF SECTION

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SECTION 08 71 63

DETENTION EQUIPMENT HARDWARE

PART 1 GENERAL REQUIREMENTS

1.1 SCOPE

- A. The work required under this section consists of furnishing and installing all locks, key cylinders, key switches, hinges, knobs, bumpers and related items necessary to complete the work indicated on the Drawings and described in this specification, including but not necessarily limited to the following:
 - 1. Electrical and Mechanical Security Hardware for Swinging Doors.
 - 2. Miscellaneous Hardware for Security Doors
 - 3. Hardware Schedule for Security Doors.

1.2 CONDITIONS

- A. Contractor shall furnish all labor, materials, tools, equipment, and perform all work and services necessary for or incidental to the furnishing and installation, complete of security door locking devices as shown on drawings and as specified in accordance with provisions of the contract documents and completely coordinated with the work of all other trades.
- B. Although such work is not specifically shown or specified, furnish and install all supplementary or miscellaneous items, appurtenances and devices incidental to or necessary for a sound, secure and complete installation.

1.3 SUBMITTALS

- A. Product Data: Manufacturer's printed product data and cut sheets indicating product characteristics, performance and limiting criteria.
- B. Shop Drawings: For each type of hardware item: Include plans, wiring diagrams, method of construction, installation and attachment details and other information necessary to show compliance with requirements.
- C. Hardware schedule coordinated with doors, frames, and related work to ensure proper size, thickness, hand and function of door hardware.
 - 1. Hardware Schedule Content: Based on hardware indicated, organize schedule into "hardware sets" indicating complete designations of every item required for each door or opening. Include the following information:
 - a. Type, style, function, size, and finish of each hardware item.
 - b. Name and manufacturer of each item.
 - c. Fastenings and other pertinent information.
 - d. Location of each hardware set cross-referenced to indications on Drawings both on floor plans and in door and frame schedule.

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- e. Door numbers and frame types in schedule to match door numbers and frame types shown on Drawings.
 - f. Explanation of all abbreviations, symbols, and codes contained in schedule.
 - g. Mounting locations for hardware.
 - h. Door and frame sizes and materials.
2. Submittal Sequence: Submit schedule at earliest possible date, particularly where acceptance of Hardware Schedule must precede fabrication of other work that is critical in the Project construction schedule. Include with schedule the product data, shop drawings of other work affected by door hardware, and other information essential to the coordinated review of schedule.
3. Keying Schedule: It shall be the responsibility of the DEC to schedule a keying meeting with the Owner and Architect/Consultant to determine keying requirements of the Owner for preparation of a key schedule. Submit a separate detailed schedule, indicating clearly how the Owner's final instructions on keying of locks, has been fulfilled.
4. Fire Rated Openings: Provide hardware for fire-rated openings in compliance with NFPA Standard 80. This requirement takes precedence over other requirements for such hardware. Provide only hardware which has been tested and listed by UL and bears appropriate label or symbol for the types and sizes of doors required and compliance with the requirements of the required label and function of the opening wherever possible.
- D. Operating/Maintenance Manuals: Furnish O&M Manuals for all security hardware and all security locking devices. These manuals shall include instructions for the care of the materials, parts list to aid the Owner in ordering replacement parts, as well as instructions for contacting the appropriate personnel not only during the warranty period, but also beyond. The Detention Equipment Contractor must have full time employees trained in the maintenance and repair of this equipment. Manuals shall also include "as built" shop drawings of all components.

E. WARRANTY

- 1. Warrant materials furnished under this Section to be free from defects in material and workmanship for a period of one (1) year from substantial completion.
- 2. Installation workmanship shall be warranted for a period of one (1) year from substantial completion.

PART 2 PRODUCTS

2.1 MATERIALS/ EQUIPMENT

A. MISCELLANEOUS HARDWARE FOR SECURITY DOORS

1. MANUFACTURERS: Except as otherwise specified herein, the equipment and materials of Miscellaneous Hardware For Security Doors shall be products manufactured by one of the listed manufacturers:
 - a. Hinges: A/C, Southern Folger, Portland, Northwest Specialty Hardware
 - b. Strikes: A/C, Southern Folger, R. R. Brink
 - c. Pulls: A/C, Southern Folger, R. R. Brink, Stanley, Northwest Specialty Hardware
 - d. Door Position Switches: Southern Folger, Sentrol, A/C
 - e. Door Closers: LCN
 - f. Door Stops: A/C, Glynn Johnson, Northwest Specialty Hardware
 - g. Thresholds: Reese, National Guard Products and Pemko
 - h. Weather-strip: Reese, National Guard Products and Pemko
 - i. Rain Drips: Reese, National Guard Products and Pemko
 - j. Smoke Seal: Reese, National Guard Products and Pemko
 - k. Silencers: Ives
2. Hinges (equal to Southern 204FMSS)
 - a. Full Mortise Detention Hinges shall be 4-1/2" x 4-1/2" x 0.188" thick investment cast 304 stainless steel with hospital tips and integral studs on both leaves. Pins shall be hardened stainless or alloy steel, concealed and non-removable. Each hinge shall be supplied with eight (8) 1/4-20 flat head machine screws. All hinges shall be US32D finished.
 - b. Furnish three hinges for door through 84-inches in height and one additional hinge for each additional 30-inches of height or fraction thereof. Furnish three hinges for doors through 36-inches in width and one additional hinge for each additional 12-inches of width or fraction thereof.
 - c. Except where otherwise indicated, hinges shall be mortised, 4-1/2" x 4-1/2", cast steel or stainless steel, ball bearing, with pins made non-removable by a concealed hardened roll pin. All hinges shall be furnished with 1/4-20 TORX FHMS.
 - d. Hinges shall be certified, by an independent testing lab, to meet or exceed the cycle requirements of ASTM F1758, Grade 1A.
 - e. Hinges furnished for use on labeled fire doors shall also comply with the requirements of NFPA 80.
3. Strikes: All locks and latches shall be furnished with manufacturer's standard strikes complete with dust boxes. Where monitor strikes are specified, provide strikes as appropriate for the lock specified. All monitor strikes shall be designed to fit within a 2" face frame without protruding beyond the 2" frame depth. All strikes shall form a fully concealed pocket.

4. Fasteners:
 - a. Manufacturer hardware to conform to published templates, generally prepared for machine screw installation. Do not provide hardware, which has been prepared for self-tapping of sheet metal screws.
 - b. Furnish screws for installation with each hardware item. All exposed screw heads, whether door is open or closed, shall be Torx (with security stud) flat-head or oval head screws except as otherwise indicated. Screws shall be finished to match the applied hardware item. Other types of security screws are unacceptable unless specifically approved by the Architect-Consultant.
5. Pull:
 - a. Grip Type Door Pulls (equal to Southern 212C) shall be cast of brass or bronze with satin finish of approximately US26D unless specified otherwise in hardware schedule. Approximate overall length, 8-11/16"; handhold, 5-1/4"; grip clearance, 1-1/2"; attachment holes, 7-3/4" o.c. Provide two (2) 3/8-16 x 5/8" oval head screws.
 - b. Flush Type Door Pulls (equal to Southern 214S) shall be cast of brass or bronze with satin finish of approximately US26D unless specified otherwise in hardware schedule. Size 4" x 5" x 1/8" x pocket rip 1" deep. Provide four (4) 1/4-20 x 3/8" flat head screws.
6. Door Position Switch: Southern 200MRS-TB; AT 6200; SENTROL 2767:
 - a. Recessed Magnetic Door Position Switches – Triple Biased shall be a five-reed switch magnet mortised type assembly used for remotely monitoring the door status/position. The device shall be triple-bias for tamper resistance.
 - b. The device shall be moisture resistant and fit within a 2" hollow metal jamb. The device shall be field adjustable on 2 axis and supplied with a 3' vinyl jacketed lead wire and a 3 pin Molex connector. The device shall be all steel construction. The switch and magnet shall be encased in epoxy resin.
7. High Security Closer (LCN #4210/4510 series):
 - a. Closer shall be surface mounted with security screws at all exposed locations and shall have fully adjustable spring tension. Closers shall have cast iron cylinders and two separately adjustable non-critical valves for closing speed and latching speed, plus a third valve for adjusting the hydraulic backcheck. A smooth molded case cover shall conceal the closer body. Closer to be located on the side of door/frame farthest from inmate contact. Maximum opening clearance shall be 180-degrees. Parallel arm shall be used. Provide finish of standard powder coated aluminum. Closer to be provided at all rated openings.
8. Wall or Floor Mounted Door Stops (Equal to Ives FS18L, AT 650)
 - a. Stops shall be a tamper resistant device that is embedded into the wall or floor with an epoxy resin adhesive. Bumper shall be 2" diameter x 3-1/2" long and made from a non-hazardous silicone elastomer, 80 durometer. The

threaded and grooved steel mounting shank shall be 5/8" in diameter and embedded into the bumper at least half the length of the bumper. Mounting shank shall extend 2-1/2" beyond the bumper bottom for embedding into the wall or floor. The location of the floor bumper shall not be closer than 24" from hinge and a maximum of 8" from wall. For cell door applications, wall- mount the door bumper 8" off the floor and 12" from edge of door when in the opened position. If this condition cannot be achieved, contact the Architect for instructions. All floor mounted stops to be installed following application of final sealant coat, to be coordinated with the Construction Manager.

9. Thresholds: Provide thresholds as specified in "Security Hardware Schedule", at exterior openings, and where required on security doors per details. All doors into rated stairways shall be provided with Reese S204A thresholds (or approved equal).
10. Weather stripping:
 - a. Provide gasketing equal to Reese 797B at all 20 minute fire rated openings installed per manufacturer's recommendations. All fire or smoke rated stairs doors shall be provided with Reese 797B head and jamb gasketing and Pemko 315CN sill sweeps (or approved equal).
 - b. Provide weather stripping at all exterior doors equal to Reese 701A plus DS78A at all heads and jambs (and astragals if pairs) at all exterior doors installed per manufacturers recommendations.
 - c. Provide drip edges equal to Reese R199A and R201A at all exterior openings installed per manufacturer recommendations.
11. Door Silencers (Ives #SR64) shall be standard resilient type and removable for replacement.

B. Mechanical and Electrical Locking mechanisms to match existing system and be compatible with current equipment.

C. Keying and Keys to match existing system.

PART 3 EXECUTION

3.1 EXAMINATION OF SITE

- A. Examine and inspect all surfaces, anchors, and grounds that are to receive materials, fixtures, assemblies, and equipment specified herein. Check location, "rough in", and field dimensions prior to beginning work. Report all unsatisfactory conditions in writing to the Architect-Engineer and Construction Manager.
- B. Do not begin installation until all unsatisfactory conditions have been corrected.

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- C. Verify all dimensions and be responsible for their correctness. No extra compensation will be allowed for differences between actual measurements and the dimensions indicated on the drawings.

3.2 DELIVERY, STORAGE AND HANDLING

- A. Packing and Marking: Each piece of security hardware furnished under this Section shall be packaged and marked according to the hardware set and door number listed in the approved hardware schedule.
- B. Deliver all components cartoned or crated to provide protection during transit and job storage.
- C. Inspect all components upon delivery for damage. Damages may be repaired, provided the repaired items are equal in all respects to new work and acceptable to the Architect- Engineer; otherwise, remove and replace damaged items as directed.
- D. Store all components in a locked storage area for all components deemed necessary by the Detention Equipment Contractor. Do not store any materials directly on the ground or concrete. Provide adequate ventilation and protection to ensure materials are kept dry, clean and secure. Store all materials in the manner and order as prescribed by the Detention Equipment Contractor and/or manufacturer.

3.3 CONSTRUCTION

A. CONSTRUCTION / INSTALLATION

- 1. Install security materials and accessories in accordance with the final shop drawings, manufacturer's data, and as herein specified.
 - a. Provide manufacturer's supervision of installation, including testing and interfacing of systems.
- 2. Install all components and complete system as indicated and in accordance with manufacturer's recommendations and instructions.
- 3. Nuts of all bolted work shall be drawn tight and threads battered or welded. Bolting may be used in the installation of detention equipment provided that the nuts are not accessible to inmates or exposed to view. Bolts shall be special oval head or flat head Torx security type. Other types of security bolts are unacceptable unless specifically approved by the Architect-Engineer. Provide two sets of wrenches for each size bolt used.

3.4 ADJUSTING, CLEANING, AND PROTECTION OF WORK

- A. Final Adjustments: Prior to final inspection check and re-adjust all components to operate within their designed capacity. All components shall be adjusted and tested to verify correct operation prior to final inspection.
- B. All devices shall be tested for specified and manufacturer described operation.
- C. All tests required by local agencies shall be performed.
- D. All tests required by Owner and Owner's representative shall be performed.
- E. Systems not meeting the minimum level of acceptability as defined in the test procedures shall be repaired and retested.
- F. Provide documentation of test procedures and results.
- G. Equipment manufacturer's representative shall certify that the systems are installed and operate as specified.
- H. All costs to test and retest systems shall be the responsibility of the Detention Equipment Contractor.

PART 4 SCHEDULES

GENERAL NOTES:

- Provide smoke gasket equal to Reese # 797B and closer equal to LCN 4210/4510T at all rated door openings.
- Provide a doorstop equal to Ives FS18L at all door openings unless otherwise instructed by the Architect / Consultant.
- Provide threshold and weather-strip equal to Reese S204A, 701A/DS78A and rain drips at exterior door openings.

4.1 HARDWARE SETS

Set J1: Hinge, Lock, Cylinder, Closer, Electronic Locking/Release (coordinate and match existing system), Raised Pull, Recessed Pull, Silencers

Set J2: Hinge, Lock Cylinder, Closer, Electronic Locking/Release (coordinate and match existing system), Raised Pull, Recessed Pull, Threshold, Rain Drop, Weatherstripping, Door Sweep

Set J3: Hinges, Lock, Bolt Keeper, Closer

END OF SECTION

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SECTION 08 71 65

SECURITY SCREWS

PART 1 GENERAL

1.1 SCOPE

- A. The Contractor shall furnish all labor, materials, tools, equipment, and services for all security screws as indicated in accord with provision or intent of Contract Documents.
- B. Completely coordinate with work of all other trades.
- C. Although such work is not specifically indicated, furnish and install all supplementary or miscellaneous items, appurtenances and devices incidental to or necessary for a sound, secure and complete installation.

1.2 SHOP DRAWINGS

- A. Per Supplementary General Conditions

1.3 COORDINATION

- A. Coordinate work and scheduling of the work of this section with other trades for anchorage and location.

1.4 INSPECTION

- A. Examine all sub-surfaces to receive work and report in writing to General Contractor, with a copy to the company, any conditions detrimental to work. Failure to observe this injunction constitutes a waiver to any subsequent claims to the contrary and will make this Contractor responsible for any corrections the company may require. Commencement of work will be construed as acceptance of all sub-surfaces.

1.5 DELIVERY AND STORAGE

- A. Deliver all manufactured materials in original containers bearing manufacturer's name and brand. Use only one (1) brand for material throughout job. Store materials within building in locations directed by General Contractor.

PART 2 MATERIALS

2.1 SECURITY SCREWS

- A. All exposed fasteners in the detention areas, including fasteners used in fabrication of project components, shall be Security Screws as specified herein, unless the component or location is specifically excluded by inclusion on the list below.

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B. Excluded Items and Locations:

1. Mechanical, electrical, generator, or electronic equipment rooms, including roof mounted equipment.
2. Control rooms and their attendant equipment in those rooms, except control panels.
3. Above suspended ceilings, behind access panels and within pipe or duct chases.
4. Moveable furnishings, storage shelving, cabinet hardware.
5. All areas not within the secure perimeter of the facility.

C. All security screws shall be operable by tools produced for use on the specified security screws by manufacturer or other fabricators licensed by them.

D. Security screw head style and plating shall be selected as appropriate for installation requirements strength and finish of adjacent materials except all screws in painted materials shall be stainless steel. Size and shape variation shall be such that no more than 12 different tools/wrenches are required for all security screws on project.

E. Types Allowed:

1. Pinned "Allen" head.
2. Pinned "Torx" head.

F. Provide six complete sets of tools required for all security screws on the project.

2.2 SOURCES

A. Security screws may be obtained through the following dealers:

1. Sentry Security
Fasteners Inc.
Peoria, IL
Telephone: (309)693-2800
2. Riteloc Company
Freeport, NY
Telephone: (516)378-1020
3. Holo-Krome Company
West Hartford, CT
Telephone: (203)523-5235
4. Tamper-Pruf Screws, Inc.
Paramount, CA
Telephone: (213)531-9364
5. Camcar Division of Textron, Inc.
Rockford, IL
Telephone: (815)226-7721

6. Safety Socket Screw Corporation
Chicago, IL
Telephone: (312)763-2020
7. Bryce Fastener Company, Nc.
2924 Western Ave.
Seattle, WA
Telephone: (1-800)542-7031

PART 3 EXECUTION

3.1 INSTALLATION

- A. Installation shall be made in accordance with the manufacturer's instructions.
- B. Check and adjust all operating mechanisms to ensure proper function in accordance to the manufacturer's recommendation.

3.2 CLEAN UP

- A. Per Supplementary General Conditions.

END OF SECTION

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SECTION 08 81 00

GLASS AND GLAZING

PART 1 GENERAL

1.1 SUMMARY

- A. Furnish all labor, materials, tools, equipment, services, operations and incidentals necessary to install, complete in every respect, all glass, glazing, and related work as indicated on Drawings and specified.

1.2 RELATED WORK DESCRIBED ELSEWHERE

- A. Glass and glazing, as required under various Sections of these Specifications including, but not limited to:
 - 1. Hollow Metal Work: Section 08 11 13.
 - 2. Wood Doors: Section 08 14 16.
 - 3. Aluminum Storefront: Section 08 43 13
- B. Installation materials specified in Sealants and Caulking: Section 07 92 00.

1.3 REFERENCES

- A. ASTM C1048 "Standard Specification for Heat Treated Flat Glass – Kind HS, Kind FT Coated and Uncoated Glass."
- B. ASTM C1279 "Standard Test Method for Non-Destructive Photoelastic Measurement of Edge and Surface Stresses in Annealed, Heat-Strengthened, and Fully Tempered Glass" Requirements.

1.4 SUBMITTALS

- A. General: Comply with the provision of Section 01 33 00.
- B. Product Data: Within 30 calendar days after award of the Contract, submit:
 - 1. Complete materials list showing all items proposed to be furnished and installed under this Section.
 - 2. Sufficient data to demonstrate that all such materials meet or exceed the specified requirements.
- C. Shop Drawings:
 - 1. Submit detailed shop and installation drawings of all work under this Section to Architect for approval prior to ordering materials.
 - 2. Indicate glass sizes, thickness, glazing details and where mirrors are to be installed in the building.

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3. Shop Drawings shall include engineering data on the Aluminum Entry/Storefront and other glazing systems, including the size and spacing of setting blocks under the glass and wind load.

1.5 FIELD MEASUREMENTS

- A. Accurately field measure all openings to receive glass and cut glass to correspond to each measured opening. The General Contractor and Glazing Contractor shall be responsible for overall coordination and accuracy of the Field Measurements.

1.6 PRODUCT HANDLING

- A. Protection: Use all means necessary to protect the materials of this Section before, during, and after installation and to protect the work and materials of all other trades.
- B. Replacement: In the event of damage, immediately make all repairs and replacements necessary to the approval of the Architect and at no additional cost to the Owner.

1.7 GUARANTEE

- A. Contractor shall furnish a written guarantee covering all mirror silvering from defects in material and workmanship for a period of five years from date of final acceptance of the building.
- B. All glazing work performed under this Section shall be guaranteed against defects in materials and workmanship for a period of one year from date of final acceptance of the building. This guarantee, however, shall not cover accidental breakage of glass subsequent to acceptance except where breakage is due directly to defective materials and/or inferior workmanship.
- C. All sealed insulating glass shall be warranted against failure of the air seal for a period of ten (10) years from the date of substantial completion.

PART 2 PRODUCTS

2.1 GLASS

- A. General: Glass is called for by "type" (i.e. Insulated, wire, etc.) on Details and Schedules in the Drawings. The "types" are defined herein.
- B. Tempered Glass: Provide Tempered Glass where called for on the Drawings or in these Specifications, and where such tempering would be required under provisions of the International Building Code, latest edition, or other applicable laws and regulations.
- C. Heat Strengthened Glass: Unless Tempered glass is required by code, glass at exterior walls shall be heat treated to have a surface compression between 3,500 and 7,500 psi to increase its strength to resist impact, mechanical loads and thermal stress breakage.

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- D. All glass shall conform to the requirements of Federal Specification DD-G-451c, or as indicated with individual glass types.
- E. Unless noted otherwise, Glass will be manufactured by Vitro (formerly PPG), Guardian Glass or approved alternate. Each light shall bear the manufacturer's label designating the type and thickness of glass. "AFPC V2 2701.1 "Each unit of tempered glass shall be permanently identified by the manufacturer. The identification shall be etched or ceramic fired on the glass and be visible when the unit is glazed. Tempered spandrel glass is exempted from permanent labeling. This type of glass shall be identified with a removable paper label by the manufacturer.
- F. Individual glazed areas in hazardous locations shall meet requirements CPSC 16, CFR Part 1201.
- G. Size: Sizes of glass indicated on Drawings are approximate, actual sizes of glass shall be taken from actual frames. Labels shall remain on glass until after inspection by the Architect.
 - 1. Actual design sizing shall be the responsibility of the glass manufacturer. Sizes indicated herein and on the Drawings are approximate only. Where required, the manufacturer's recommended changes shall be made. Note all such changes or revisions on the Shop Drawings submitted for approval.

2.2 GLASS TYPES

- A. Single Thickness Plate Glass: Shall be 1/4" thick clear glazing quality float glass.
- B. Tempered/Safety Glazing: Shall be 1/4" thick clear Tuf-flex Tempered Safety Glass to meet the requirements of Federal Specifications DD-G-1403B, ANSI Z97, 1-1984 and the Federal Standard 15 CFR 1201.
- C. Laminated (shatter resistant) Glass: Shall be 7/16" thick clear composed of 3/16"(5mm) clear float glass, 0.06" clear PVB and 3/16"(5mm) clear float glass. Cat II (CPSC 16 CFR 1201, ANSI Z97.1) and UL972
- D. Insulated Glazing: Shall be 1" thick Thermopane Insulating Glass as follows:
 - 1. Low-E Glass:
 - a. Solarban 60 (2) match existing tint 1/4"(6mm), 1/2" Air Space, Clear 1/4"(6mm). Manuf. By Vitro
 - b. Sunguard SN 68 (2) match existing tint 1/4"(6mm), 1/2" Air Space, Clear 1/4"(6mm). Manuf. By Guardian.
 - c. SHGC= 0.30 - 0.32
 - d. U value= 0.29

2.3 GLAZING COMPOUNDS AND SEALANTS

- A. General: Use glazing compounds and preformed glazing sealant approved for the particular application as described herein and shown on the Drawings or specified in the Related Work referenced in Paragraph 1 b) of the Section, unless otherwise noted.
- B. Glazing Compound shall be GE SILGLAZE, clear or neutral color, unless approved otherwise by the Architect.
- C. Setting Blocks and Gaskets shall be extruded hard neoprene, clear or neutral color unless noted otherwise.
- D. Tape shall be polyisobutylene base elastic compound with gauze reinforcement, equal to Presstite 162 Elastic Compound Tape, clear or neutral color unless noted otherwise.
- E. Sealants used for glazing shall be G.E. Silicone, Dow-Corning Silicone Structural Sealant, or as approved by the Architect. Silicone shall be clear or neutral color as approved by Architect.

2.4 GLAZING ACCESSORIES

- A. Provide all glazing accessories required to supplement those accessories which accompany the items to be glazed, and as needed to provide a complete installation, including glazing points, clips, shims, angles, beads, settling blocks, and spacer strips. Use ferrous metal, which will be exposed in the finished work, which has a finish that will not corrode or stain while in service.
- B. Provide 3M film where noted at interior glazing.

2.5 INSPECTION

- A. Examine the areas and conditions under which work of this Section will be installed. Correct conditions detrimental to the proper and timely completion of the Work. Do not proceed until unsatisfactory conditions have been corrected.
- B. Verify all field dimension openings prior to glass fabrication and cutting. Cut pieces to fit actual opening sizes.

PART 3 EXECUTION

3.1 INSTALLATION

- A. General:
 - 1. All glass shall be accurately cut or sized to fit openings and locations and shall be set by skilled glazers. Extreme care shall be exercised in sizing the insulating glass to allow recommended clearances around glass.
 - 2. Cut and install glass with any visible lines or waves running in horizontal direction.

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3. Fix movable and operating items securely, or in a closed, locked position until glazing compound has thoroughly set.
4. Use insulating units which do not have corners or edges ground, nipped, cut, or fitted after leaving the factory. Do not subject units to springing, forcing, or twisting during setting. Handle so as not to strike the setting frames or other objects.
5. Use beads or stops furnished with the items to be glazed to secure the glass in place.
6. Items to be glazed shall be shop-glazed or field-glazed with glass of the quality and thickness specified.

3.2 GLASS SETTING

- A. Wood Doors and Wood Frames: Field glaze all wood doors and wood frames with glazing sealant and flush solid wood stops as indicated on Drawings. (Metal stops where required for fire rating)
 1. Use sufficient glazing sealant to insure a complete seal between glass and stop.
 2. After stops have been installed and pulled up tight, trim bead of sealant resulting from setting operations away from face of glass. Retouch damaged compound after glazing.
- B. Aluminum Doors, Frames, Storefront and Windows:
 1. All openings shall be field-glazed in strict conformance with aluminum door frame and window manufacturer's written instructions.
 2. Install glass types as indicated on Drawings and described in this Section.
 3. Extruded EPDM elastomeric glazing gaskets shall be supplied with each aluminum door, frame or window by the manufacturer.
 4. All installations shall be completely watertight when finished.

3.3 REPLACEMENT AND CLEANING

- A. Replacement: Glass broken or glass damaged before completion of the building operations shall be replaced with glass of the like kind and quality at no cost to the Owner.
- B. Cleaning: Upon completion of all construction work and approval of all glazing installations, remove from the glass surfaces, surrounding framing materials and mirrors all labels, sealant and caulking compound smears, spots, etc. Do not use cleaning materials or agents which will damage glass or surrounding surfaces. After cleaning, wash all glass and mirrors completely.

END OF SECTION

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SECTION 09 22 16

NON-STRUCTURAL METAL FRAMING

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Non-load bearing metal studs and accessories for wall assemblies.
- B. Wood Blocking for wall-mounted items.
- C. Area Separation
- D. Draft Stopping

1.2 RELATED SECTIONS

- A. Section 05 40 00 - Cold-Formed Metal Framing.
- B. Section 07 92 00 Joint Sealants-Sill Sealer below bottom track at exterior walls
- C. Section 09 29 00 - Drywall: Gypsum interior sheathing.

1.3 REFERENCES

- A. AISI - Standard for Cold-Formed Steel Framing General Provisions.
- B. AISI - North American Specification (NASPEC) for the Design of Cold-Formed Steel Structural Members - 2001.
- C. ASTM A 653 - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) by the Hot-Dip Process.
- D. ASTM A 780 - Standard Practice for Repair of Damaged and Uncoated Areas of Hot-Dip Galvanized Coatings.
- E. ASTM A 1003 - Standard Specification for Steel Sheet, Carbon, Metallic- and Nonmetallic-Coated for Cold-Formed Framing Members.
- F. ASTM C 645 - Standard Specification for Nonstructural Steel Framing Members - 2006.
- G. ASTM C 754 - Standard Specification for Installation of Steel Framing Members to Receive Screw-Attached Gypsum Panel Products.
- H. ASTM C 1513 - Standard Specification for Steel Tapping Screws for Cold-Formed Steel Framing Connections.
- I. ASTM E 84 - Standard Test Method for Surface Burning Characteristics of Building Materials.

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- J. ASTM E 90 - Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements.
- K. ASTM E 119 - Standard Test Methods for Fire Tests of Building Construction and Materials.
- L. ASTM E 413 - Classification for Rating Sound Insulation.
- M. GA-600 - Fire Resistance Design Manual.

1.4 DESIGN REQUIREMENTS

- A. Design steel in accordance with American Iron and Steel Institute Publication "Specification for the Design of Cold-Formed Steel Structural Members" or the North American Specification for the Design of Cold-Formed Steel Structural members, except as otherwise shown or specified.
- B. Design loads: As indicated on the Architectural Drawings. 5 PSF minimum design lateral load is required for interior walls by the building code. Shaftwall framing minimum design lateral load is typically 5 - 15 PSF.
- C. Design framing systems to withstand design loads without deflections greater than the following:
 - 1. Interior Non-Load Bearing Walls: Lateral deflection of: $L/240$. (*for gyp. bd.*)
 - 2. Interior Non-Load Bearing Walls: Lateral deflection of: $L/360$. (*cer. tile & mas. veneer*)
- D. Design framing system to accommodate deflection of primary building structure and construction tolerances.
- E. Responsibilities: For fire-resistance-rated assemblies that incorporate non-load-bearing steel framing, provide materials and construction identical to those tested in assembly indicated, according to ASTM E 119 by, and displaying a classification label from, an independent testing agency acceptable to the authority having jurisdiction.
 - 1. Construct fire-resistance-rated partitions in compliance with tested assembly requirements indicated in drawings.
 - 2. Rated assemblies to be substantiated, from applicable testing using the proposed products, by Contractor.
 - 3. Both metal framing & wallboard manufacturers must submit written confirmation that they accept the other manufacturer's product as a suitable component in the assembly. Acceptance is as follows:
 - a. If installation of both products is proper, no adverse effect will result in the performance of one manufacturer's product by the other's products.
 - b. Combining products can be substantiated by required assembly tests.

1.5 SUBMITTALS

- A. Submit under provisions of Section 01 33 00.
- B. Submit manufacturer's product literature and data sheets for specified products.

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C. Manufacturer's certification of product compliance with codes and standards.

1.6 QUALITY ASSURANCE

- A. Contractor shall provide effective, full time quality control over all fabrication and erection complying with the pertinent codes and regulations of government agencies having jurisdiction.
- B. Contractor to conduct pre-installation meeting to verify project requirements, substrate conditions, and manufacturer's installation instructions.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Notify manufacturer of damaged materials received prior to installing.
- B. Deliver materials in manufacturer's original, unopened, undamaged containers with identification labels intact.
- C. Store materials protected from exposure to rain, snow or other harmful weather conditions, at temperature and humidity conditions per the recommendations of ASTM C754 section 8.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Acceptable Manufacturers:
 - 1. ClarkDietrich Building Systems, 9100 Pointe Drive, Suite 210, West Chester, OH. Phone: 513-870-1100. www.clarkdietrich.com, info@clarkdietrich.com.
 - 2. Other manufacturers as referenced in this section for specific products.
- B. Requests for substitutions will be considered in accordance with provisions of Section 01 60 00.
- C. All products to be manufactured by current members of the Steel Stud Manufacturers Association (SSMA), Steel Framing Industry Associates (SFIA), or the Certified Steel Stud Association (CSSA).

2.2 MATERIALS

- A. Steel: Galvanized Steel meeting or exceeding the requirements of ASTM A 1003.
 - 1. Coating: Galvanized G60 (Z180) coating minimum or equivalent, complying with ASTM C 645. **Stud finish MUST be hot dipped galvanized. Galvanneal finish is not acceptable. G60 must be used at all EXTERIOR locations. G40 finish is allowed at interior locations.**

2.3 COMPONENTS

- A. Nonstructural Studs:
 - 1. Flange Length: 1 1/4 inch (32mm) 125 flange.
 - 2. Web Depth: As indicated on drawings.
 - 3. Minimum Material Thickness: Gauge as required by stud legend shown on drawings.

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4. Punch Outs: 12 inches (305mm) from base and every 48 inches (1219mm) thereafter.
- B. Nonstructural Track: Cold-Formed galvanized steel runner tracks
 1. Flange Length: 1 1/4 inch (32 mm) T125 flange.
 2. Web: Track web to match stud web size.
 3. Minimum Material Thickness: Unless noted otherwise on drawings match stud gauge.
 4. Minimum Material Thickness: Track thickness to match wall stud thickness.
- C. Deflection Track: Cold-Formed Deep Leg Runner Slotted Slip Track.
 1. Leg Length: 2 inch (51 mm) T200 flange.
 2. Leg Length: 2 1/2 inch (63 mm) T250 flange.
 3. Leg Length: 3 inch (76mm) T300 flange.
 4. Leg Length: 3 1/2 inch (89 mm) T350 flange.
 5. Leg Length: As required by design.
 6. Minimum Material Thickness: As required by design.
 7. Minimum Yield Strength: 33ksi (227 MPa) (for 33mils through 118mils).
 8. Minimum Yield Strength: 50ksi (345 MPa) (optional for 54mils and up).
 9. Minimum Yield Strength: As required by design.
- D. U-Channel (CRC Cold Rolled Channel):
- E. Furring Channel: Furring existing walls and suspended ceiling applications.
 1. Size: 087F125-30 7/8 inch (22mm) Furring Channel 30mils (20ga Drywall).
 2. Size: 087F125-33 7/8 inch (22mm) Furring Channel 33mils (20ga Structural).
 3. Size: 150F125-30 1 1/2 inch (38mm) Furring Channel 30mils (20ga Drywall).
 4. Size: 150F125-33 1 1/2 inch (38mm) Furring Channel 33mils (20ga Structural).
- F. Framing Accessories: Provide accessories as required in this project.
 1. Flat Strapping for Backing Strip.
 2. Flat Strapping and bridging for lateral bracing.
 3. L-Angles.
 4. SwiftClip Fixed Connection Angles.
 5. Deflection Slip ConnectorsClarkDietrich™ Building Systems-Deflection Clips: Fast Strut™ / Fast Top™ Clips / FastClip™ Slide Clips / QuickClip™ / Slide Clip™ (SD), or approved alternate. Provide clip as required for each situation to compensate for deflection of structure.
- G. Fire or Draft Stop Blocking: Where fire or draft stop blocking is required or called for under this section or called for on drawings, provide blocking equal to prefabricated fire blocking manufactured by Metal-Lite, Inc., Placentia, CA (800) 886-6824. Provide blocking same width as metal stud.
 1. As an option to the prefabricated metal blocking, mineral wool fire safing may be provided. Refer to Section 07 84 00 Firestopping.
- H. Fasteners: Self-drilling, self-tapping screws; complying with ASTM C 1513 - Standard Specification for Steel Tapping Screws for Cold-Formed Steel Framing Connections.
- I. Touch-Up Paint: Complying with ASTM A 780 - Standard Practice for Repair of Damaged and Uncoated Areas of Hot-Dip Galvanized Coatings.

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PART 3 EXECUTION

3.1 INSPECTION

- A. Inspect supporting substrates and structures for compliance of proper conditions for installation and performance of the cold-formed structural framing.

3.2 PREPARATION

- A. Prepare attachment surfaces so that they are plumb, level, and in proper alignment for accepting the cold-formed structural framing.

3.3 COORDINATION WITH OTHER TRADES

- A. It will be a requirement of this section to verify and coordinate work with other trades and specification sections. Do not begin work on concrete slabs on grade or elevated concrete slabs until minimum strength and cure time has been reached.

3.3 FABRICATION

- A. Prior to fabrication of framing, submit product submittal sheets to the architect or engineer to obtain approval.
- B. Framing components may be preassembled into panels prior to erecting. Prefabricate panels so they are square, with components attached in a manner which prevents racking and minimizes distortion during lifting and transport.
- C. Cut all framing components square for attachment to perpendicular members or as required for an angular fit against abutting members.
- D. Plumb, align and securely attach studs to flanges of both upper and lower runners, except that in the case of interior, non-load bearing walls where studs need not be attached to upper or lower runners.
- E. Splices in members other than top and bottom runner track are not permitted.
- F. Provide temporary bracing where required, until erection is complete. Fastening of components shall be with welding or with minimum 1 #8 screw both sides of flange. Welds shall conform to the requirements of AWS D.1.1, AWS D.1.3 and AISI Manual Section 4.2. All welds shall be touched up using zinc-rich paint. Wire tying will not be permitted.
- G. Cutting of steel framing members may be accomplished with a saw or shear. Torch cutting of load bearing studs will not be permitted.
- H. Install headers in all openings in axially loaded walls that are larger than the stud spacing in the wall. Form headers as shown on drawings.
- I. Unless shown otherwise on drawings, brace top of metal stud walls to structure above at max. 4'-0" O.C. with minimum 20 gauge stud bracing.

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- J. Insulation equal to that specified elsewhere shall be provided in all double jamb studs and doubled headers not accessible to insulation contractors.
- K. Care should be taken to allow for additional studs at intersections, corners, doors, windows, steel joists, diagonal bracing and as called for in the shop drawings.

3.4 INSTALLATION – DEFLECTION TRACKS AND DEFLECTION SLIDE CLIPS

- A. Unless noted otherwise, deflection tracks are to be installed at top of interior and exterior walls terminating directly below and/or attaching to beams joists, roof or floor deck, purlins, or other items subject to deflection.
- B. Provide deflection slip connectors attached to stud walls from structure where studs extend vertically past a structural item such as but not limited to a beam or elevated floor edge angle.

3.5 SILL SEALER

- A. Install continuous bead of sill sealer as specified in Section 07 92 00 below bottom tracks of all exterior stud walls.

3.6 FIRE OR DRAFT STOP BLOCKING

- A. Install fire or draft stop blocking at roof plane where studs pass by roofs to form parapets. Install between each stud.

3.7 PROTECTION

- A. Protect installed products until completion of project.
- B. Touch-up, repair or replace damaged products before substantial completion of final installation.

END OF SECTION

09 22 16-6

SECTION 09 29 00

DRYWALL

PART 1 GENERAL

1.1 SUMMARY

- A. Furnish materials and labor to complete installation of all interior drywall and miscellaneous metal trim items as indicated on plans and specified herein.
- B. Gypsum board surface texturing
- C. Exterior sheathing board
- D. Reveal Moldings
- E. Wood Blocking

1.2 SUBMITTALS

- A. Comply with requirements of Section 01 33 00.

1.3 RELATED SECTIONS

- A. Section 05 40 00 - Cold Formed Framing
- B. Section 07 27 26 – Fluid-Applied Weather Barrier System
- C. Section 09 22 16 – Non-Load Bearing Metal Stud Wall Framing
- D. Section 09 91 00 - Painting.

1.4 REFERENCES

- A. ASTM C1396-Standard specification for gypsum board
- B. ASTM E90- Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements (ISO 140, Part 3)

09 29 00-1

PART 2 PRODUCTS

2.1 MATERIALS:

- A. All gypsum board shall be type "X" fire code, manufactured by Gold Bond, USG, or CertainTeed. Thickness as indicated on drawings. Provide water-resistant in damp areas and where called for. All gyp board shall be installed in accordance with manufacturer's printed instructions and as specified herein. Use water resistant materials in shower areas.
- B. Exterior Sheathing Board
 - 1. Exterior stud walls - 1/2" weather resistant sheathing board, in lengths as long as practical to minimize joints. Product to be Dens-Glass Exterior Sheathing manufactured by Georgia-Pacific, GlasRoc Sheathing manufactured by CertainTeed, "Securock" "Glass Mat Sheathing manufactured by USG, "GreenGlass" fiberglass-faced Gypsum sheathing, manufactured by Temple-Inland, or approved alternate product and manufacturer.
- C. Gypsum board thickness
 - 1. Unless noted otherwise in this specification or on drawings, gypsum board thickness to be 5/8".
- D. Reveal moldings (Fry Reglet or approved alternate.)
 - 1. Where new gypsum board terminates at existing CMU, provide series "DRMF", 1/2" wide reveal. Depth to be gypsum board thickness.
 - 2. Where new gypsum board terminates at new CMU, provide series "DRMZ", 1/2" wide reveal. Depth to be gypsum board thickness.
 - 3. Where new gypsum board terminates at existing gypsum board, provide series "DRM", 1/2" wide reveal. Depth to be gypsum board thickness.
 - 4. Finish to be chemical finish, capable of receiving paint.

PART 3 EXECUTION

3.1 INSTALLATION:

- A. Painted Gypsum Board:
 - 1. Attachment to be by screws 12 inch o.c. in the field and 8 inch o.c. along vertical abutting edges, and 7 inch o.c. on ceiling areas. Type 'X' shall be attached 7 inch o.c. edges, ends, and field.
 - 2. All taping and texture shall be done in accordance to printed instructions as supplied by Gold Bond and approved by the Architect. All texture shall be approved by the Architect before proceeding with the work.
 - 3. At metal stud sound walls with multiple layers of gypsum board on one or both sides, each layer is to be taped and floated to deck. Outer layer to be finished as well. At deck, cut gypsum board to fit profile of deck. Seal joint at deck with continuous bead of polyurethane sealant.
 - 4. Provide metal "J" mold where edge of gypsum board abuts a different material or edge of gypsum board is to remain exposed.
 - 5. All painted gypsum board will be textured per this specification unless noted otherwise.

09 29 00-2

6. Suspended drywall framing shall be attached to structure with No. 12 gauge hanger wires spaced not more than 2'-0" on center in one direction and 2'-0" on center in the other.

B. Exterior Sheathing Board

1. Wall sheathing shall be attached with electric-driven screwdriver with screws no closer than 3/8" from edges and ends. Apply sheathing in lengths as long as practical to minimize horizontal joints. Keep horizontal joints as high on wall as possible.

C. Stud Framing

1. Align floor and ceiling tracks to assure plumb partition. Secure the track with suitable fasteners at 24" O.C. maximum. Stud spacing to be 16" o.c. for door and window openings up to 4'-0" wide, reinforcing shall occur through use of a 20 gauge stud screw attached to frame anchors. On openings 4'-0" wide and over, use 2-20 gauge studs back to back against frame and securely attached.

3.2 GYPSUM BOARD SURFACE TEXTURING:

- A. Where exposed to view, provide light "orange peel" gypsum compound texture on gypsum board surfaces and where called for on drawings unless noted otherwise.
 1. Provide two 2' x 2' mockup boards with both light orange peel finish for Architect's and Owner's review and approval.
- B. Wall to have level 4 finish or better.
- C. **Do not** texture on surfaces scheduled to receive vinyl wall covering or Dry Erase Coating.
- D. Texture to be uniform on walls throughout building.
- E. Contractor to apply orange peel texturing to sample mockup panel and be approved by Architect prior to any further application

3.3 CONTROL JOINTS

- A. Galvanized metal control joint, Model 093 by USG or approved alternate.
- B. Control joints are to be provided at approximately 30'-0" o.c. horizontally and vertically at wall, ceiling, light coves and furrdown installations. Joints should be located at corner of door or window heads if spacing allows and where shown or called for on drawings. These shall be considered minimum requirements.
- C. Drywall contractor will repair any cracks in drywall for the one-year warranty period.

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3.4 WOOD BLOCKING

- A. Install 2 x wood blocking in walls where concealed behind drywall for anchoring of wall-mounted items such as (but not limited to) wall mounted door hardware, TV brackets, etc. **Metal plate backing will not be accepted for anchoring of wall-mounted items.**
- B. Provide blocking treated for fire resistance where required by code and as specified or called for.

3.5 CLEAN-UP

- A. The Contractor shall be responsible for complete clean up on his contract at completion of same.

END OF SECTION

09 29 00-4

SECTION 09 31 13

CERAMIC TILE/PORCELAIN TILE

PART 1 GENERAL

1.1 SUMMARY

- A. Section 03 30 00 - Cast-In Place Concrete: Concrete slab moisture mitigation
- B. Furnish all materials, labor, tools, equipment, services, operations and incidentals necessary to complete all ceramic tile work as indicated in the drawings and specified.
- C. Pre-Install meeting

1.2 RELATED SECTIONS:

- A. Gypsum Drywall Systems: Section 09 29 00.
- B. Wall Tile Backer Board: Section 09 29 00
- C. Sealing of Joints: Section 07 92 00

1.3 QUALITY ASSURANCE:

- A. Standards: Comply with standards specified in this section.
- B. Subcontractor / supplier providing work under this section will install work specified in this section with their company's own installers, employed by the company. **Subcontracting of installation will not be allowed unless approved by Architect prior to bid.**
- C. Qualifications of Manufacturer: Products used in the work of this section shall be produced by manufacturer regularly engaged in manufacture of similar items and with a history of successful production.
- D. Qualifications of Installers: Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this section.

1.4 SUBMITTALS:

- A. Submit through Contractor to Architect, comply with Section 01 33 00.
- B. Manufacturers' Data: As soon as possible after award of the Contract, submit:
 - 1. Complete materials list of all items proposed to be furnished and installed under this section, including manufacturer's recommended installation procedures.

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2. Manufacturers' specifications and other data required to demonstrate compliance with the specified requirements.

1.5 SAMPLES:

- A. Contractor shall submit samples of all ceramic and porcelain tile to be used on this work.

1.6 GUARANTEE:

- A. All work under this section shall be guaranteed free from defects in material and workmanship for a period of one (1) year from date of final acceptance.

1.7 PRE-INSTALL MEETING:

- A. Prior to tile installation, Contractor will schedule a meeting with the tile installer, Owner and Architect.
- B. Items for discussion will be topics such as expectations, tile patterns, verification of tile and grout colors, special conditions, and other items as deemed necessary.

PART 2 PRODUCTS

2.1 MATERIALS:

- A. Tile: Tile shall be Standard Grade in accordance with applicable requirements of the tile Council of North America (TCNA) 137.1-(current edition). Furnish a properly executed certificate of grade in the standard form of Master Grade Certificate. Tile shall be delivered to the work in the manufacturer's unopened package sealed with standard grade certificates, and shall be branded with or have sealed within the shipping marks and other designations corresponding to the information given on the executed certificate of grade.
- B. Unless specifically called for, tile shall be equal to those described below as manufactured by: Dal Tile, The American Olean Tile Company, Trinity Tile Company, or approved alternate.

2.2 TILE TYPES:

The following tiles as manufactured by the Company listed, shall be the standard of equality design and color. Other manufacturers must meet or exceed the tile NOTED in each case and be approved by Architect. Appearance will be a definite factor in selection.

- A. Wall Tile: Trinity Tile Wall Tile Collection – U281 White Ice Matte
 1. Provide 3” x 6” glazed wall tile with 6” x 6” universal glazed cove base, 2” x 6” radius cap, and 3” x 6” glazed bullnose, Trinity Tile, price group 1.
- B. Floor Tile
 1. Daltile “Astronomy”, 12” x 24” porcelain floor tile, color: Orion AT71

- C. Edge Trim: Provide “Schiene” series or “Reno-U” series metal edge and transition strips manufactured by Schluter or approved alternate. Install “Schiene” series at all locations where tile transitions to a different flooring material or “Reno-U” series where tile transitions to concrete floor.

2.3 MORTAR

- A. Mortar/Adhesive: Tile wall-installation
 - 1. Manufacturer/Product:
 - a. Mapei KB/KL or Ultraflex LFT
 - b. Laticrete #272 Premium Floor-N-Wall thin-set mortar with #333 super flexible additive, or Laticrete 4XLT, meeting ANSI A108.1A, A108.1B, A108.1C, A118.4, A118.11, and A118.15.
 - c. Approved alternate
- B. Mortar/Adhesive for tile slab-on-grade concrete floor-installation
 - 1. Manufacturer/Product:
 - a. Mapei KB/KL or Ultraflex LFT
 - b. Laticrete #272 Premium Floor-N-Wall thin-set mortar with #333 super flexible additive, or Laticrete 4XLT, meeting ANSI A108.1A, A108.1B, A108.1C, A118.4, A118.11, and A118.15.
 - c. Approved alternate

2.4 GROUT

- A. Following setting and curing of installed floor and wall tile, grout joints with epoxy grout for tile installation on interior walls and floors:
 - 1. Manufacturer/Product:
 - a. Mapei Kerapoxy CQ, meeting ANSI A118.3.
 - b. Laticrete Spectralock Pro Premium, meeting ANSI A118.3.
 - c. Approved alternate.
- B. Cure installed tile as per manufacturer’s written instructions prior to installation of grout.
- C. Water shall be fresh, clean and free from deleterious amounts of acid, alkali, or any organic matter.
- D. Grout color as selected by Architect from Mapei or Laticrete standard color selection. In room where more than one grout type is used, color grout shall be consistent throughout.
- E. Sealants for Tile:
 - 1. 100 percent silicone sealant, Mapei “Mapesil T” silicone sealant, Laticrete “Latisil” silicone sealant, or approved alternate.
 - 2. Provide sealant in place of grout where wall tile butts hollow metal or aluminum door and window frames.

2.4 GROUT SEALER

- A. Water-based grout sealer, "Ultracare" manufactured by Mapei, (800)426-2734, Aqua Mix Grout Sealer manufactured by Custom Building Products, 800-272-8786, or approved alternate.

PART 3 EXECUTION

3.1 INSPECTION:

- A. Examine the areas and conditions under which work of this section will be installed. Correct conditions detrimental to the proper and timely completion of the work.
- B. Calcium Chloride Moisture and pH Testing is required to be performed to the floor prior to tile installation. Perform test following industry standards. Architect to be notified of results as soon as results are ready.
- C. Do not begin work until surfaces scheduled to receive tile are acceptable. Surfaces shall be true with maximum variation not exceeding 1/8" in eight feet.
- D. Coordinate wall tile layout with ceiling installer to assure there will be no gaps between finished ceiling and wall tile.

3.2 INSTALLATION:

- A. General:
 - 1. Thoroughly mix all materials and install mortar, tile and grout as per the manufacturer's written instructions.
 - 2. All tile shall be set, grouted and cleaned in accordance with Tile Council of North America Specifications for Installation of Ceramic Tile for adhesive and grout specified and ANSI A108.1 A-C, A108.4-.13, A118.1-.10 and A136.1 (current addition).
 - 3. At stud walls, thin-set wall tile will be installed over cement board. Refer to Section 09 29 00.
 - 4. At CMU walls, thin-set wall tile will be installed to cement board, attached to CMU to provide smooth, uniform substrate for flush tile installation.
- B. Tile shall be neatly cut for proper fitting around all fixtures, pipe, accessories, etc. Rub cut edges with an abrasive stone to bring edge of glaze slightly back from body of tile. Where pipes pass through tile occurring on walls thoroughly caulk with sealant to completely seal around opening. Sealant shall be clear or match color of tile.
- C. Floor levelness uniformity at wall perimeter where floor tile is to be installed shall be verified prior to floor and wall tile being installed. Where floor is not uniform at perimeter walls, install floor leveling product compatible with tile and concrete so that perimeter is uniform about the perimeter of the room or area.

- D. When grout has thoroughly cured, apply minimum 2 coats grout sealer per manufacturer's instructions. Clean sealer from tile.
- E. Where tile is installed over cement board substrate, align with control joints and fill tile joints where control joints occur with polyurethane sealant, custom colored to match grout color.

3.3 CLEANING AND PROTECTION:

- A. All work shall be thoroughly cleaned when completed.
- B. Contractor shall protect the work of other trades and shall be held responsible for any damage thereto.
- B. Protect tile surfaces for a minimum of 48 hours until tile is firmly set.
- C. Seal grout with clear approved sealer.

END OF SECTION

09 31 13-5

SECTION 09 51 00

ACOUSTICAL TILE CEILINGS

PART 1 GENERAL

1.1 DESCRIPTION

- A. Furnish labor, materials, tools, equipment, scaffolding devices and incidentals necessary or required to install all acoustical tile ceilings and suspension system where shown or scheduled on the drawings.

1.2 RELATED WORK

- A. Gypsum Wallboard: Section 09 29 00
- B. Air Distribution Systems: Division 23
- C. Lighting: Division 26

1.3 REFERENCES:

- A. ASTM E1264 – Classification For Acoustic Ceilings
- B. ASTM E84 – Surface Burning Characteristics
- C. ASTM C367 – Strength Properties of Prefabricated Architectural Acoustical Tile or Lay-In Ceiling Panels
- D. ASTM C423 – Sound Absorption
- E. ASTM C636 – Standard Practice for Installation of Metal Suspensions Systems for Acoustical Tile and Lay-In Panels
- F. ASTM E1414 – Sound Attenuation
- G. 2010 Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions for Indoor Sources. Using Environmental Chambers – Version 1.1 – California
- H. ASTM C518-10 – Thermal Transmission Properties

1.4 SUBMITTALS:

- A. Comply with Requirements of Section 01 33 00.
- B. Submit through Contractor to Architect:

09 51 00-1

1.5 SAMPLES

- A. Submit one 6 inch x 6 inch piece of each type of acoustical tile to Architect for approval.
- B. Label tile with manufacturer's name, light reflection and noise reduction coefficient, flame spread rating and locations to be installed.
- C. Submit a sample of adequate size to show all component parts of the suspension assembly, including perimeter angles. .

1.6 ACOUSTICAL PERFORMANCE

- A. Acoustical ceiling tiles to have a minimum noise reduction coefficient (NRC) rating of 0.75 and a minimum ceiling attenuation class (CAC) rating of 35.

1.7 GUARANTEE

- A. Acoustical ceiling boards shall have a manufacturer's limited system performance warranty against warping, shrinking or sagging, for minimum Thirty (30) years from date of final acceptance of the building. Grid system to be carry a manufacturer's Thirty (30) year guarantee.
- B. All work under this section shall be guaranteed free from defects in materials and workmanship for a period of one (1) year from date of final acceptance of the building, except where longer periods of time are specified.
- C. If during the material guarantee period, shrinkage, buckling or warping of acoustical ceiling occurs, tighten all joints, replace defective acoustical boards as required to maintain tight, neat ceiling.

PART 2 PRODUCTS

2.1 MATERIAL

- A. Acoustical Tile Ceiling

AC-1

Acoustical tile ceilings as called for on plans to be exposed grid system, 24" x 48" x 3/4" non-combustible, mineral fiber, white ceiling board with factory applied white vinyl washable latex paint. USG Mars-fine textured acoustical panels, Armstrong or approved alternate, Class 'A', flame spread of 25. NRC rating: 0.75 CAC rating: 35. Panels contain a broad spectrum antimicrobial additive on the face and back of the panel that provides resistance against the growth of mold and mildew.

AC-2

Acoustical tile ceilings as called for on plans to be exposed grid system, non-combustible, mineral fiber, white ceiling board with factory applied white vinyl washable latex paint. Class 'A', flame spread of 25. 24" x 48" x 1.3" USG Square Edge Mars high NRC/high CAC fine textured panels by Armstrong, or approved alternate. NRC rating: 0.95 CAC rating: 30. Panels contain a broad spectrum antimicrobial additive on the face and back of the panel that provides resistance against the growth of mold and mildew.

- B. All suspended ceilings systems shall be grid system as manufactured by USG-Donn DX-24, Armstrong or approved equal manufacturer. Provide Donn ZXLA or approved equal for areas where vinyl covered gypsum board lay-in panels are called for. Components shall be formed from cold rolled steel, electrozinc coated and prepainted white. Main tee shall be double web design, .020 gauge, 1 1/2" in height. Wall angle shall be hemmed edge .024 gauge for galvanized grids. Equals: Chicago Metallic 200 series, Prelude 15/16" exposed tee system by Armstrong World Industries, Inc, or approved alternate.
- C. Provide hold down clips on all fire rated ceilings, vestibules where ceiling tile is installed, and on other areas where called for.
- D. Drywall Suspension System: Suspended gypsum board ceilings are to DGL or DGLW drywall suspension system by USG Interiors. Components shall be manufacturer's standard components and installed in strict accordance with manufacturer's specifications.

PART 3 EXECUTION

3.1 HANDLING OF MATERIALS

- A. Deliver materials to job in manufacturer's original containers, properly store and protect before, during and after installation. Damaged or defective materials shall be removed and replaced.

3.2 EXAMINATION OF EXISTING CONDITIONS

- A. Contractor shall be responsible for examination and acceptance of all surfaces and conditions affecting installation of suspension system and acoustical ceilings. Unsatisfactory conditions shall be corrected before proceeding with the work.
- B. Start no work until glazing is complete, exterior openings closed in, cement work, plastering or other wet work is completed and dried out. **HVAC SYSTEM MUST BE IN PLACE AND PROPERLY OPERATING BEFORE ANY CEILING TILE IS INSTALLED**
- C. Uniform temperature of 60 degrees F. minimum shall be maintained before, during and after acoustical material installation. Humidity level shall not be any more that what is required by manufacturer's instructions for installation.

09 51 00-3

3.3 INSTALLATION OF SUSPENDED SYSTEMS

- A. Exposed grid suspension system:
 - 1. Wall molding shall be attached to all perimeter walls in accordance with manufacturer's recommendations.
 - 2. Main runners shall be attached to structure with No. 12 gauge hanger wires spaced not more than 4'-0" on center in one direction and 4'-0" on center in the other.
 - 3. Suspended drywall tees or framing shall be attached to structure with No. 12 gauge hanger wires spaced not more than 2'-0" on center in one direction and 2'-0" on center in the other.
 - 4. Cross tees shall be installed at 24" on center and mechanically fastened to main runners.
 - 5. The suspension system shall be installed to permit border units of the greatest possible size, but no less than 4" wide.
 - 6. All members shall be aligned for true, level surface and straight lines.

3.4 INSTALLATION OF ACOUSTICAL TILE CEILINGS

- A. Install units to sub-surfaces from set out points and to pattern shown. Verify location of work of other trades so their items occur within a whole unit or at joints as shown. Make cutouts for recessed items provided by other trades.
- B. Provide additional hangers at two adjacent corners of 2'x 4' light fixtures. Provide two at each strip fixture or incandescent fixture.
- C. Install units in place, fitting snugly. Provide spacers or hold-down clips where required and within 12' of exterior doors.
- D. Paint all rivets exposed to view to match suspension system finish. After installation, clean any soiled surfaces. Replace any damaged units.
- E. **Coordination with Ceramic Wall Tile:** Ceiling installer shall coordinate with ceramic tile installer to assure when wall tile extends to finished ceiling, there is no gap between tile and ceiling.
- F. **EXTRA STOCK:** At project completion, provide one additional box of each type of acoustical unit specified, for maintenance use by the owner. These tiles are not to be used to replace tiles damaged as a result of failure of other items under warranty (i.e. roofing systems, HVAC systems, etc.)

3.5 CLEANING

- A. Following installation, clean soiled and discolored surfaces of units.
- B. Remove and replace units which are damaged or improperly installed. Do not use owner's extra stock for replacing damaged ceiling tiles damaged during construction and damage resulting from failed building components or assemblies during the warranty period.

END OF SECTION

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SECTION 09 57 53

ACOUSTICAL SECURITY CEILING SYSTEMS

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:

1. This specification covers the material, installation, and related requirements for the Metal Plank Ceiling System – including all necessary Acoustical Insulation, Suspension Systems, and Fasteners.

1.2 REFERENCES

A. GENERAL

1. Comply with applicable requirements of the following, except where more stringent requirements are indicated by building codes.

B. ASTM (American Society for Testing and Materials)

1. ASTM C636, Recommended Practice for Installation of Metal Suspension System for Acoustical Tile and Lay-In Panels.

C. CISCA Ceiling Systems Installation Handbook.

1.3 QUALITY ASSURANCE

- A. Manufacturers' Qualifications: Firm with manufacturing and delivery capacity required for the project, shall have successfully completed at least ten (10) projects within the past five (5) years, utilizing systems, materials, and techniques as herein specified.
- B. Fabricator must own and operate its own manufacturing facilities for all metal components. Systems consisting of components from a variety of Manufacturers will not be considered or accepted.
- C. Manufacturer/Fabricator must own and operate its own painting and finishing facility to assure single source responsibility and quality control.
- D. Installer's Qualifications: Firm with not less than three (3) years of successful experience in the installation of systems similar to those required by this project and acceptable to the Manufacturer of the System.

1.4 SUBMITTALS

- A. After award of contract, standard Shop Drawings shall be submitted and approved prior to fabrication of the Metal Planks or their structural supports.
- B. Product Data: Submit Manufacturer's:
 - 1. Product data
 - 2. Installation Instructions
- C. Shop Drawings: Submit Shop Drawings for fabrication and installation of Cel•Line® Metal Plank Acoustical Security Ceiling System.
- D. Samples:
 - 1. A 1' x 1' assembled sample of each Ceiling Panel and its Suspension System shall be submitted for approval.
- E. Closeout Submittals
 - 1. Provide Manufacturer's Cleaning and Maintenance Instructions
 - 2. Warranty Documents
 - 3. Manufacturer's certification of compliance with the acoustical performance required as described in this specification.

1.5 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. Deliver Panels and all System Hardware to the job site in Manufacturer's original packaging, unopened and undamaged, just prior to installation.
- B. Avoid warpage and damage by storing Panels and all System Hardware above floor, flat and in a dry, humidity and temperature controlled interior location.
- C. Follow Manufacturer's instructions and exercise care during off loading, handling and installation to avoid damage and marring of finishes.

1.6 WARRANTY

- A. Furnish Manufacturer's:
 - 1. Warranty that materials furnished will perform as specified for a period of not less than one (1) year from date of material shipment when installed in accordance with Manufacturer's recommendations.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Basis of Design: Cel•Line® Metal Plank Acoustical Security Ceiling System shall be manufactured by Gordon, Inc. For all inquiries contact, Gordon, Inc., 5023 Hazel Jones Road, Bossier City, LA 71111, (800) 747-8954.

- B. The listed Manufacturer shall not be construed as closing specifications to other prospective Manufacturers, but rather as establishing a level of quality in a metal system. Other systems may be submitted for approval, as provided for in the specifications. Companies desiring to submit a proposal shall submit all descriptive information of the system proposed including photographs and Typical Shop Drawings

2.2 PRODUCT CONSTRUCTION

A. Product Components:

1. Metal Plank Ceilings: The Metal Plank System is to be fabricated and installed in accordance with the Manufacturer's approved Shop Drawings. Metal Planks shall be factory formed from minimum 18 Gauge perforated galvanized (minimum A60) steel. Planks shall be formed 18" wide in lengths of up to 12'-0" as shown on Reflected Ceiling Plans. Vertical legs of Metal Planks are to be factory formed so that Panels overlap tightly to provide positive self-alignment with adjacent Panels.
2. Metal Plank Suspension: Perimeter Angles and Main Tee Runners shall be factory fabricated from 14 Gauge factory finished galvanized (minimum A60) steel. Angles and Tees shall be factory pre-punched to receive Fasteners. Angles shall be fastened to all abutting vertical surfaces through the use of drilled in anchors or other approved Fasteners at a minimum of 16" O.C. Tee sections shall be suspended by 14 Gauge 1-1/2" x 1-1/2" galvanized slotted Angles bolted to Main Tees at minimum of 5'-0" O.C., hung from structural members or drilled in anchors of appropriate type and dimension as approved by the Architect. Panels shall be securely fastened to all Angles and Tee sections with (steel rivets) (Torx® security fasteners) of appropriate dimension (painted to match Panels) minimum 6" O.C.
 - a. Acoustical Material: The inside surface of all perforated Ceiling Panels shall be covered with Class A fiberglass Insulation wrapped in black Fire-Retardant Poly. Insulation shall be of sufficient thickness and density to provide the acoustical requirements as outlined herein.
 - b. Lights and Air: All light and air units are to be system compatible and sized so as to fit into and trim off full module opening in Ceiling System and shall be independently supported from above by installing trade.
 - c. Access Doors: All security Access Doors to be installed in the Metal Security Ceiling System shall be supplied by the Metal Security Ceiling System Manufacturer in quantities indicated on the Architectural Drawings or as approved by the Architect.
 - d. Fasteners: All exposed Fasteners shall be tamper-proof and shall be a minimum No. 12 size. Fasteners for securing the Wall Molding to the wall are to be selected and furnished by the Contractor and approved by the Architect/Engineer.

B. Product Performance:

1. Accessibility: Suspended Metal Plank Ceiling Systems shall be designed and installed to resist access to the plenum area. System compatible hinged locking downward accessible Doors are to be provided in locations indicated on architectural Reflected Ceiling Plans. Access Doors are to be sized so as to fit into and trim off full module opening in Ceiling System.
2. Acoustical Requirements: The perforated Ceiling Systems shall provide a Noise Reduction Coefficient (NRC) of no less than 0.80 when tested in accordance with ASTM C423-84a in an E-400 mounting as defined in ASTM E795-83.

2.3 FINISHES

A. Metal Planks and Related Suspension:

1. The Metal Planks shall have a factory-applied white super-durable polyester powder coating finish. Finish to be applied after perforation to ensure coating of perforated holes. Panels shall be coated to a minimum thickness of 2.0 mils on the finish side.
2. Prior to painting, galvanized steel surfaces shall be cleaned, rinsed, and properly treated to receive the powder coating finish.
3. Finish to achieve the following performance characteristics:
 - a. Salt Spray per ASTM B-117 – 1,000 hours PASS at less than 1/8” from score.
 - b. Humidity Resistance per ASTM D-2247 – 1,000 hours PASS at less than 1/8” from score.

2.4 FABRICATION

- A. The Ceiling Contractor shall verify all dimensions, elevations, and job site conditions before fabrication commences.

PART 3 EXECUTION

3.1 EXAMINATION AND PREPARATION

- A. Examination of Surfaces: Installer must examine conditions under which work is to be performed and must notify Contractor in writing of unsatisfactory conditions.
- B. Verify that field measurements and block-out dimensions are as shown on Shop Drawings.
- C. Clean surfaces thoroughly prior to installation.
- D. Prepare surfaces using the methods recommended by the Manufacturer to achieving the best result for the project conditions.

3.2 INSTALLATION

- A. General: Comply with Manufacturer's printed instructions, governing regulations for Seismic Codes, Local Building Codes, and the Ceiling & Interior Systems Construction Association Standards applicable to work.
- B. Install in accordance with ASTM C636 and CISCA guidelines, in layouts as reflected on the approved Shop Drawings, all in compliance with the Manufacturer's Installation Instructions.
 - 1. The Suspension System and Wall Moldings shall be installed plumb and level.
 - 2. Start installation of Metal Plank at location as shown on Reflected Ceiling Plans. Slide Metal Plank along Perimeter Angle to create a ship lapped joint between adjoining Panels. Ensure self-aligning legs overlap each other. **Side stitch Panels together along ship lapped Panel joints with self-tapping fasteners per approved Shop Drawings or at a minimum of 24" O.C.**
 - 3. In order to achieve secure and tightly engaged Panel joint details, Panels must be installed progressively from the start Panel through the closure Panel. Except for the openings for light, air, fire protection, or access shown on the Reflected Ceiling Plans, all openings or cut outs required in the Ceiling Planks shall be field cut by the trades requiring the openings.

3.3 CLEANING

- A. Follow Manufacturer's cleaning instructions for specified finish.

3.4 PROTECTION

- A. Care should be taken during the remainder of construction to protect the Metal Security Ceiling System from damage.
- B. Damage to Finished Work: Finished units of the Metal Security Ceiling System shall be without damage. Damage shall be repaired by the Contractor at the expense of the party damaging the material, as in accordance with the contract requirements.

END OF SECTION

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SECTION 09 65 00

RESILIENT FLOORING

PART 1 PRODUCTS

1.1 SUMMARY:

- A. Section includes:
 - 1. Resilient base
 - 2. Luxury Vinyl Tile

1.2 RELATED SECTIONS:

- A. Section 03 30 00 - Cast-In Place Concrete: Floor substrate surface and Concrete slab moisture mitigation
- B. Section 06 41 16 – Cabinet Work & Shelving
- C. Section 09 68 00 - Carpeting.
- D. Section 06 10 00 - Rough Carpentry: Floor substrate surface.

1.3 SUBMITTALS:

- A. Comply with Requirements of Section 01 33 00.
- B. Submit through General Contractor to Architect:
 - 1. Samples: Provide properly identified, actual samples of each material for approval and color selection prior to installation.
 - 2. Operation and Maintenance Data: Include maintenance procedures, recommended maintenance materials, and suggested schedule for cleaning, stripping and re-waxing.

1.4 QUALITY ASSURANCE:

- A. Regulatory Requirements: Conform to applicable code for flame/fuel/smoke rating requirements in accordance with ASTM E84.
- B. Subcontractor / supplier providing work under this section will install work specified in this section with their company's own installers, employed by the company. **Subcontracting of installation will not be allowed unless approved by Architect prior to bid.**

1.5 ENVIRONMENTAL REQUIREMENTS:

- A. Store materials for three days prior to installation in area of installation to achieve temperature stability.

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- B. Maintain ambient temperature required by adhesive manufacturer three days prior to, during and 48 hours after installation of materials.

1.6 WARRANTY:

- A. Rubber Base: Provide manufacturer's one-year warranty.
- B. Luxury Vinyl Flooring: Provide 15 year limited wear warranty.

PART 2 PRODUCTS

2.1 MATERIAL

A. Luxury Vinyl Tile

1. LVT 1:

- a. Interface, Brushed Lines, Style No. A016 luxury vinyl tile
- b. ASTM F1700 Class III printed vinyl tile
- c. Wear layer thickness: 22 mil
- d. Size: Nominal 25 cm x 1m
- e. Finish: Ceramor
- f. Installation: Glue down
- g. Color: Paraffin

2. LVT 2:

- a. Interface, Brushed Lines, Style No. A016 luxury vinyl tile
- b. ASTM F1700 Class III printed vinyl tile
- c. Wear layer thickness: 22 mil
- d. Size: Nominal 25 cm x 1m
- e. Finish: Ceramor
- f. Installation: Glue down
- g. Color: Galena

B. Coved Rubber Base

- 1. Johnsonite/Tarkett "Traditional" coved wall base, Approved Alternate
- 2. ASTM F-1861, Type TP or better, group 1 (solid); 4" high, 1/8" thickness; class C fire resistance, with matching pre-molded outside corner units; top-set coved base; color as selected by Architect. Pre-molded corner units to match exactly, rubber base color selected. **"Preformed" outside corners will not be allowed. Pre-molded outside corners must be provided.**
- 3. Provide base material in continuous rolls.
- 4. Adhesive: Porous surfaces: Tarkett #960 Acrylic Cove base Adhesive; Non-porous surfaces: Tarkett #945 Contact Bond Adhesive. Provide adhesives for approved alternate products as approved by manufacturer for each substrate application.

2.2 ACCESSORIES:

A. Edge Strips:

1. LVT to Carpet: LVT reducer, LVT125, Mill finish, manufactured by Powerhold
2. LVT to Concrete: Bevel Reducer Cap, LVT406, Etched Aluminum, Manufactured by Powerhold

B. Subfloor Filler: White premix latex; type recommended by flooring material manufacturer.

PART 3 EXECUTION

3.1 EXAMINATION:

- A. Verify concrete floors are dry and clean and meet acceptance for installation per manufacturer's requirements. Moisture testing of concrete slabs is required to be performed in strict accordance with ASTM F2170 to determine in-situ Relative Humidity (RH) prior to resilient floor covering installation. Perform test following industry standards.
 1. Maximum acceptable moisture emission rate for concrete sub floors (unless flooring manufacturer requires more stringent rate):
 - a. LVT – not exceed 90% RH, and pH between 7.0 and 9.0Do not proceed until satisfactory conditions have been achieved. Test reports are to be sent to Architect.
- B. Due to the many additives being used in or on concrete slabs. A bond test is to be performed prior to actual installation of resilient flooring to determine adhering quality. Some treatments could repel adhesive.
- C. Beginning of installation means acceptance of existing substrate and site conditions.
- D. Where new resilient material is to be installed over existing concrete floor, prepare surface as required to receive new resilient flooring material.

3.2 PREPARATION:

- A. Areas to receive flooring material will be clean, fully enclosed, weathertight and temperature maintained at 65 degrees F for a minimum of three days before installation begins and 48 hours after installation. This also includes adhesives, which will be conditioned in same manner.
- B. Cleaning: Immediately prior to installation of the work of this section, vacuum clean substrate. Thoroughly clean substrate and remove all wax, oil, grease, paint, varnish hardeners, and other items which would adversely affect the bond of the adhesive.
- C. Apply adhesive only to bare concrete substrates that are sound, smooth, dry and clean. Remove all existing adhesive residues, dirt, dust, paint, curing and sealing compounds and other foreign materials by use of mechanical means only, such as scraping, bead blasting,

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grinding or sanding. Be sure to follow all local, state and federal regulations for mechanical removal. Adhesive cannot be used over substrates that have been chemically cleaned.

- D. Remove subfloor edges and bumps. Fill low spots, cracks, joints, holes and other defects with subfloor filler. Transitions at construction joints or adjoining slabs to be smooth and uniform.
- E. Apply, trowel and float filler to leave smooth, flat, hard surface.
- F. Prohibit traffic until filler is cured.

3.3 INSTALLATION

A. ADHESIVE APPLICATION

1. Substrate preparation, moisture and alkalinity testing must comply with ASTM F710, industry standards, and floor-covering manufacturer's guidelines. The installation site must be acclimated with HVAC in operation. The floor and room temperature, as well as flooring materials and adhesive, must be maintained at 65°- 95° F, and the humidity below 65% for 48 hours prior to, during, and after the testing and installation. Follow the flooring manufacturer's guidelines for installation for proper adhesive application rate. Tiles and vinyl plank can be installed over non-porous substrates by allowing the adhesive to dry completely before placing flooring. Flooring should be rolled with a 100 lb. roller, ensuring 100% contact with adhesive. Loss of adhesion can result if the flooring is not installed within the working time of the adhesive.

B. LUXURY VINYL FLOORING:

1. The building's permanent HVAC system must be on and maintained consistently at a range of 65° - 85° F (20° - 29° C) for at least 7 days prior to, during and after installation. Complete any necessary floor prep.
2. Ensure moisture tests have been conducted and the results do not exceed 90% in-situ relative humidity when tested according to ASTM F 2170. PH of concrete sub-floor needs to be between 7 & 10.
3. Do not stack more than 5 cartons high.
4. Flooring material and adhesive must be acclimated to the installation area for a minimum of 48 hours prior to installation.
5. Use a 1/16" wide x 1/32" deep x 1/32" apart (U) notch trowel only (unless using S150-95 Spray Adhesive where no trowel is required)
6. Material should always be visually inspected prior to installation. Any material installed with visual defects will not be considered a legitimate claim as it pertains to labor cost.
7. Make sure all material is from the same batch number. Install tiles running in same direction (arrows on back of tile).
8. Ensure that all recommendations for sub-floor and jobsite conditions are met prior to beginning installation. Once the installation is started, you have accepted those conditions.
9. Plank products should have a minimum of 6-8" seam stagger. Working out of multiple boxes at a time is recommended.

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10. Roll the plank/tile with a 3 section 100 lb. roller. Re-roll the entire glued floor area with the 100 lb. roller within the working time of the adhesive. Continue to roll the floor throughout the working day to ensure a proper bond.

C. BASE MATERIAL:

1. Areas to receive base will be clean, fully enclosed, weathertight and temperature maintained at 65 degrees F for a minimum of three days before installation begins and 48 hours prior to and after installation. This also includes adhesives, which will be conditioned in same manner. Use only Adhesive that is approved by rubber base manufacturer for specific substrate application.
2. Coiled wall base will be uncoiled and laid out flat for at least 24 hours at 65 degrees.
3. Installer to verify substrate rubber base is to be adhered to and coordinate with other trades. Do not install epoxy paint where rubber base is to be installed.
4. Fit joints tight and vertical. Maintain minimum measurement of 18 inches between joints. Install continuous rolls with as few joints as possible. Use pre-molded corner units.
5. Install base on solid backing. Bond tight to wall and floor surfaces.
6. Scribe to fit door frames and other interruptions.
7. Install pre-molded corner units on all outside corners. Do not extend continuous base around outside corners unless approved by Architect.
8. Base will be mitered at all inside corners.
9. Pieces of base less than 8" not allowed.
10. Install at toe space at base of all cabinets unless otherwise shown.

3.4 PROTECTION

- A. Prohibit traffic on floor finish for 48 hours after installation.

3.5 EXTRA STOCK

- A. Provide one carton of Luxury Vinyl Flooring for each color used.

3.6 CLEANING AND FINISHING:

- A. Mop with cleaning solution, rinse, and let dry. Do not flood floor.

END OF SECTION

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SECTION 09 67 26

EPOXY RESINOUS FLOORING

PART 1 GENERAL

1.1 QUALIFICATIONS

- A. Contractor shall be an established firm regularly engaged in manufacturing and installation of specified polymer floor systems for the past 10 years. Installer must be an approved epoxy floor finish installer of the companies specified. Contractor shall have completed at least five (5) projects of similar size and complexity.

1.2 RELATED SECTIONS

- A. Section 03 30 00 - Cast-In Place Concrete: Concrete slab moisture mitigation

1.3 SUBMITTALS

- A. Comply with Section 01 33 00.

1.4 MOCKUP

- A. Provide a 4' x 4' mockup showing texture, color and trim edges finishes for Architect's approval. This may be displayed on min. 3/4" plywood panel or small room as designated by Architect. Adjustment of the degree of slip resistance may be required to satisfy owner's requirements. Architect to also be notified when first installation begins.

1.5 DELIVERY, STORAGE AND HANDLING

- A. Material shall be delivered to job site and checked by flooring contractor for completeness and shipping damage prior to job start.
- B. Material shall be stored in a dry, enclosed area protected from exposure to moisture. Temperature of storage area shall be maintained to meet manufacturer's recommendations.

1.6 JOB CONDITIONS

- A. Concrete substrate shall have cured 30 days utilizing a curing membrane. Concrete subfloor on or below grade shall have a minimum 10 mil vapor barrier installed beneath and at the perimeter of the slab. Concrete shall have a light steel trowel finish.
- B. Applicator will test and approve substrate for acceptable moisture content prior to applying epoxy system.

- C. Job area to be free of other trades during and for a period of 24 hours after floor installation.
- D. Protection of finished floor from damage by subsequent trades shall be the responsibility of the General Contractor.

1.7 APPROVED INSTALLERS

- A. Desco, (installer & manufacturer) Cole Isbell, 501-786-5446
- B. Pro Inco (installer), Tnemec Epoxy Flooring (manufacturer) Dave Patterson, 913-422-8001
- C. Epoxy Coating Specialists (installer), Tennant Epoxy Flooring (manufacturer) Luke McNeil, 816-642-1892
- D. Substitutions must be approved prior to bid. Installed work in local area must be viewed by the Architect as part of substitution review.

PART 2 MATERIALS

2.1 MATERIAL DESCRIPTION

- A. Epoxy Floor Type EF-1: A nominal 3/16" thick epoxy flooring with an "orange peel" SR Copolymer Top Coat surface finish, semi-gloss, Quartz 'Cremona' Series, Trowelled on application by Desco.
- B. Zinc termination strip: Continuous zinc strip installed at top of coved base and where epoxy flooring transitions to another flooring material, furnished and installed by specified companies. Provide continuous bead of polyurethane sealant along top of cove base termination strip. Where installed in kitchens and other clean areas, termination strip must comply with local and state health department regulations.
- C. All resins and sealers are to be **non-yellowing**.

2.2 COLORS

- A. Colors shall be custom as selected by Architect.

PART 3 EXECUTION

3.1 INSPECTION

- A. Calcium Chloride Moisture and pH Testing is required to be performed to the floor prior to epoxy installation. Perform test following industry standards. Do not proceed until satisfactory conditions have been achieved.

3.2 SURFACE PRIMING

- A. All properly prepared substrates shall be primed using appropriate manufacturer's penetrating primers with strict adherence to application instructions.

3.3 MATERIAL INSTALLATION

- A. Floor installation shall strictly adhere to manufacturer's written instructions and directions.
- B. Provide integral 4" high, 1 inch cove base with epoxy material as indicated on drawings. Terminate at zinc strip, installed prior to installation of epoxy base.
- C. Provide slip resistant "orange peel" with SR Copolymer top coat finish on epoxy floors. Provide smooth finish for coved base, extending out from wall 6". No silica is to be used on epoxy floors unless approved by Architect. Terminate with Schluter aluminum termination strip where epoxy meets with different flooring materials or concrete slab. A ¼" vertical maximum transition is allowed.
- D. Immediately following completion of epoxy flooring system, the floor shall be covered with adequate material to protect from damage. Remove prior to final inspection.
- E. All trash and debris shall be properly disposed of and arrangement shall be made to remove all unused material from the job site.

END OF SECTION

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SECTION 09 68 00

CARPETING

PART 1 GENERAL

1.1 DESCRIPTION:

- A. Provide all carpeting and accessories complete, in place, as shown on the drawings, specified herein, and needed for a proper and complete installation.

1.2 RELATED SECTIONS

- A. Section 03 30 00 - Cast-In Place Concrete: Concrete slab moisture mitigation

1.3 QUALITY ASSURANCE:

- A. Qualifications of manufacturer: Products used in the work of this section shall be produced by manufacturers regularly engaged in manufacture of similar items and with a history of successful production.
- B. Qualifications of installers: Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this section.
- C. Subcontractor / supplier providing work under this section will install work specified in this section with their company's own installers, employed by the company.
Subcontracting of installation will not be allowed unless approved by Architect prior to bid.

1.4 REFERENCES

- A. ASTM D2859 - Standard Test Method for Flammability of Finished Textile Floor Covering Materials.
- B. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials.
- C. CRI 104 - Standard for Installation of Commercial Textile Floor-covering Materials; Carpet and Rug Institute.

1.5 SUBMITTALS:

- A. General: Comply with the provisions of Section 01 33 00.

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- B. Product data: As soon as possible after award of the Contract, submit:
1. Complete materials list of all items proposed to be furnished and installed under this section.
 2. Manufacturer's specifications and other data required to demonstrate compliance with specified requirements.
 3. Shop drawings showing location of all seams and location and types of all carpet material and accessories.
 4. Samples of the following carpet products and of exposed edge accessories available from the proposed manufacturer within the specified allowance qualities.
 5. Manufacturer's recommended installation procedures.
- C. The manufacturer's recommended installation procedures, will become the basis for inspection and accepting or rejecting actual installation procedures used on the work.
1. Dealers/Installers must follow manufacturer's procedures for installation, using the recommended glues, seam sealers, and floor sealers (if needed).

PART 2 PRODUCTS

2.1 MANUFACTURERS:

A. CPT 1

1. Manufacturer/Product: J&J, Elemental 7683
2. Color: 2758 Draftsman
3. Backing: Nexus Modular
4. Product Construction: Fiber Type: ; Encore SD Ultima Nylon
5. Face Weight: 18 oz./sy (minimum)
6. Pile Density: 8717 oz./cy
7. Gauge: 1/12
8. Installation Methods: Glue down
9. Standard Size: 24"x24"
10. Warranties: Lifetime
11. Testing Specifications - Flooring Radiant Panel: Class 1
12. Testing Specifications - Smoke Density: Less than 450 flaming (ASTM E 662)
13. Testing Specifications - Static Test: Less than 3 kv (AATCC-134)

B. CPT2

1. Manufacturer/Product: J&J, Incognito Walk-off 7069
2. Color: 1837 Operative
3. Backing: Nexus Modular
4. Fiber Type: Encore Sb
5. Face Weight: 29 oz./sy
6. Pile Density: 8717 oz./sy
7. Gauge: 1/12
8. Installation Methods: Glue down
9. Standard Size: 24"x24"
10. Warranties: Lifetime
11. Testing Specifications - Flooring Radiant Panel: Class 1
12. Testing Specifications - Smoke Density: Less than 450 flaming (ASTM E 662)
13. Testing Specifications - Static Test: Less than 3 kv (AATCC-134)

2.2 MATERIALS

- A. All materials shall be new.
- B. All carpet shall be of first quality, of American manufacture and permanently mothproofed by manufacturer. Carpet must also have static controlled capabilities.
- C. All modular carpet to have high performance reinforced vinyl composite closed cell polymer backing as a minimum requirement. Modular secondary backing for the useful life of the original installation against product failure from:
 1. Tuft Bind (edge ravel, yarn pulls, zippering)
 2. Delamination
 3. Moisture Penetration
 4. Dimensional Stability
- D. Edge Trim: Provide anodized metal edge and transition strips manufactured by Powerhold or approved alternate. "LVT125, LVT 130, LVT150, LVT160" where carpet transitions to VCT or LVT; "LVT160, LVT425, 406, 404, 405, 407" where carpet transitions to concrete or resin epoxy flooring. NOTE: Product number to be selected for specific thickness of flooring specified.

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2.3. ADHESIVES:

- A. Modular Carpet: Provide self adhering or manufacturer-approved adhesive, recommended by carpet manufacturer, compatible with carpet specified and provided, for releasable installation.
- B. Provide letter with carpet submittal, stating that adhesive for each type of carpet provided is approved by manufacturer for substrate in which it is applied.

PART 3 EXECUTION

3.1 INSPECTION:

- A. Examine the areas and conditions under which work of this section will be performed. Correct conditions detrimental to the proper and timely completion of the work. Do not proceed until satisfactory conditions have been achieved.
- B. Calcium Chloride Moisture and ph Testing is required to be performed to the floor prior to carpet installation. Perform test following industry standards.
 - 1. Maximum acceptable moisture emission rate for concrete sub floors (unless carpet manufacturer requires more stringent rate):
 - a. Carpet – 3 lbs/1,000 sq. ft. per 24 hours or lessDo not proceed until satisfactory conditions have been achieved.

3.2 SURFACE PREPARATION:

- A. Cleaning: Immediately prior to installation of the work of this section, thoroughly clean all substrate and remove all wax, oil, grease, paint, varnish hardeners, and other items which would adversely affect the bond of the adhesive.
- B. Slabs must be thoroughly cured, and free of curing agents, hydrostatic pressure, excessive alkali as determined by manufacturer, and moisture.
- C. Smoothing: Make all substrate level and free from irregularities. Assure one constant floor height after carpet is installed, grinding high spots and filling in low spots as required.

3.3 PRODUCT HANDLING:

- A. Protection: Use all means necessary to protect the materials of this section before, during and after installation and to protect the work and materials of all other trades.
- B. Replacement: In the event of damage, immediately make all repairs and replacements needed at no additional cost to the Owner.

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3.4 INSTALLATION:

A. General:

1. Install carpeting and accessories in strict accordance with the manufacturer's recommendations.
2. Align the lines of broadloom carpet as woven, using no fill strips less than 16" in width, laying all carpet in same direction.

B. Cleaning up: In addition to the requirements of Section 01 77 00, thoroughly clean all carpet surfaces prior to final acceptance of the carpeted areas by the Owner.

3.5 PROTECTION:

- #### A. Provide a heavy non-staining paper or plastic walkway as required over carpeting in direction of foot traffic, maintaining intact until carpeted space is accepted by the Owner.

3.6 ATTIC STOCK:

- #### A. Provide one additional box of carpet tile of each color and type for attic stock.

END OF SECTION

09 68 00-5

SECTION 09 78 00

FIBER REINFORCED PLASTIC COATED PANELS

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:

1. Glass fiber reinforced plastic (FRP) coated panels as wall finish.

1.2 SUBMITTALS:

A. Comply with Requirements of Section 01 33 00.

B. Submit through Contractor to Architect:

1. Samples: Provide properly identified, actual samples of material for approval and color selection, accompanying submittal.

1.3 WARRANTY:

A. One-year from date of substantial completion.

PART 2 PRODUCTS

2.1 FRP PANELS

A. Product Type: 3/32" Glasbord FRP Paneling system by Crane Composites, 23525 W Eames Street, Channahon, IL 60410 sales@cranecomposites.com Ph: 800.435.0080|Fax: 815.467.8666

B. Substitutions: Comply with Section 01 60 00

1. Panels: Embossed FRP, Class A.

a. Flame spread 0-25

b. Smoke Development < 450

2. Color: White

B. Trim: Standard trim pieces by Crane Composites.

Profile



Division
Bar



Inside
Corner



Outside
Corner



Cap
CP

09 78 00-1

DB IC OC

1. Battens: DB
2. Inside Corners: IC.
3. Outside Corners: OC
4. Top, Bottom & Edge Cap: CP

C. Attachments Materials:

1. Mechanical Fasteners: Countersunk screws or Nylon drive rivets.
2. Adhesive: Crane Titebond GreenChoice Advanced Polymer Adhesive.
3. Sealant: Crane Composites ColorRite Silicone Caulk, color matched to panel color

PART 3 EXECUTION

3.1 INSTALLATION

A. FRP Panels: Coordinate scheduling with Section 09 91 00.

1. Install FRP panel vertically, resting 1/4" minimum above finished base.
 - a. Apply adhesive beads to face of substrate and back of panels.
 - b. Mechanically attach panel edges with countersunk screws.
 - c. Apply 'J' mold trim to top of panel before placing panel. Use bead of sealant to hold trim piece.
 - d. Leave 1/8 to 1/4 inch space at panel edges joint; fill with sealant.
 - e. Adhesive apply flat batten strips and inside and outside corners.
 - f. Install FRP panels behind hollow metal door and window frames so that frame wraps over panel.

3.2 CLEANING

- A. Remove all excess adhesive from panels and trim immediately.
- B. Replace all damaged or discolored components.
- C. Clean all completed walls as per manufacturer's instructions.

3.3 SCHEDULE

- A. Install minimum 4'x4' panels on gypsum board walls at mop sink location.
- B. Wall Panels: Where shown on drawings 4'-0" wide panels x longest length available in order to cover wall from base to ceiling.

END OF SECTION

09 78 00-2

SECTION 09 84 00

SECURITY WALL SYSTEMS

PART 1 GENERAL

1.1 SUMMARY

- A. This section includes Security Wall System in the new Juvenile Sleeping Cells and Courtroom Holding Cells.

1.2 REFERENCES

- A. Comply with applicable requirements of the following, except where more stringent requirements are indicated by building codes.
- B. ASTM (American Society for Testing and Materials)
 - 1. B209 Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate
 - 2. ASTM A366/A366M Standard Specification of Commercial Steel (CS) Sheet, Carbon (0.15 Maximum Percent) Cold-Rolled
 - 3. ASTM A666 Standard Specification for Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate and Flat Bar
 - 4. ASTM A240/A240M Standard Specification for Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels and for General Applications
 - 5. E84 Standard Test Method for Surface Burning Characteristics of Building Materials

1.3 QUALITY ASSURANCE

- A. Manufacturer: Firm with manufacturing and delivery capacity required for the project, shall have successfully completed at least ten (10) projects within the past five (5) years, utilizing systems, materials, and techniques as herein specified.
- B. Fabricator must own and operate its own manufacturing facilities for all metal components. "Stick Built" or "Kit of Parts Systems" consisting of components from a variety of Manufacturers will not be considered or accepted.
- C. Manufacturer/Fabricator must own and operate its own painting and finishing facility to assure single source responsibility and quality control.
- D. Testing Agency Qualifications: An independent testing agency, acceptable to authorities having jurisdiction, with the experience and capability to conduct testing indicated, as documented according to ASTM E 548.

09 84 00-1

1.4 SUBMITTALS

- A. Product Data: Submit Manufacturer's technical data and brochures for each type of specified system required.
 - 1. All products furnished shall have a flame spread classification of 0-25 for a Class A or Class 1 rating in accordance with ASTM E84. 2
- B. Shop Drawings shall show dimensions, sizes, thickness, alloys, finishes, joining, attachments, and relationship of adjoining work.
- C. Samples: 1. Submit a minimum 12'' X 12'' nominal piece of each type of metal, finished as specified, and accessories.
- D. Certification: 1. Submit letter of certification from Manufacturer of Security Wall System attesting that product complies with specified requirements, including finish, as specified

1.5 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. All materials shall be protected during fabrication, shipment, site storage, and erection to prevent damage to the finished work from other trades. Store accessories inside a well-ventilated area, away from uncured concrete and masonry, and protected from the weather, moisture, soiling, abrasion, extreme temperatures, and humidity

1.6 WARRANTY

- A. Furnish Manufacturer's:
 - 1. Warranty that materials furnished will perform as specified for a period of not less than one (1) year from date of material shipment when installed in accordance with Manufacturer's recommendations.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Basis of Design: AcoustiCel™ Security Wall System shall be manufactured by Gordon, Inc. For all inquiries contact, Gordon, Inc., 5023 Hazel Jones Road, Bossier City, LA 71111, (800) 747-8954.
- B. The listed Manufacturer shall not be construed as closing Specifications to other prospective Manufacturers, but rather as establishing a level of quality in a metal system. Other systems may be submitted for approval, as provided for in the specifications. Companies desiring to submit a proposal shall submit all descriptive information of the system proposed including photographs and Shop Drawings of at least three (3) projects similar in detail and scope.

2.2 PRODUCT CONSTRUCTION

A. System Description:

1. AcoustiCel™ Security Wall System including suspension components and acoustical components, shall be provided as a complete package of this work.

B. Materials:

1. Mounting Accessories

- a. General: Provide metals free from surface blemishes where it is exposed to view in finished unit. Surfaces that exhibit pitting, seam marks, roller marks, stains, discolorations, or other imperfections on finished units are not acceptable. All metal shall be of the highest-grade commercial type.
- b. J-Mount Trim provided for bottom of Plank Panels are fabricated in the same metal and finish as the Plank Panels.
- c. Z-Lock Trim provided for top of Plank Panels are fabricated in the same metal and finish as the Plank Panels.
- d. End Caps provided for sides, where exposed, and are fabricated in the same metal and finish as the Plank Panels.
- e. Security Fasteners to be finished to match Wall Panels and Trims.

C. Metal AcoustiCel™ Panels

1. The Plank Panels shall be fabricated of smooth aluminum (.125")
2. Plank Panel Sizes:
 - a. Lengths: Up to 144"
 - b. Widths: 24"
 - c. Flush Panels with no perforations
 - d. Rockwool insulation to be provided under specification section 07 21 00

2.3 FINISHES

- A. Factory finishing is to be supplied from standard colors. Factory finish is a 5-stage pretreatment with dried-in-place conversion coating followed by an AAMA 2604 compliant powder coating for aluminum or galvanized steel systems.

PART 3 EXECUTION

3.1 EXAMINATION AND PREPARATION

- A. Examine building structure scheduled to receive Security Wall System for unevenness or irregularities that would affect quality and execution of work.
- B. Prepare surfaces using the methods recommended by the Manufacturer to achieve the best result for the project conditions

09 84 00-3

3.2 INSTALLATION

- A. General: Comply with Manufacturer's printed instructions and governing regulations applicable to work.
- B. Tolerances: Install Security Wall System with maximum permissible deviation from plumb, level, or line of 1/8" in 4'-0"

3.3 CLEANING

- A. Follow Manufacturer's cleaning instructions for specified finish.

3.4 PROTECTION

- A. Care should be taken during the remainder of construction to protect the Metal Security Wall System from damage.
- B. Damage to Finished Work: Finished units of the Metal Security Wall System shall be without damage. Damage shall be repaired by the Contractor at the expense of the party damaging the material, as in accordance with the contract requirements.

END OF SECTION

09 84 00-4

SECTION 09 91 00

PAINTING AND FINISHING

PART 1 GENERAL

1.1 SUMMARY

- A. The work to be completed under this heading includes all labor, materials, equipment, and services necessary and reasonably incidental for painting throughout the building, both exterior and interior, for all wood, metal, masonry, or other surfaces as specified, to make a thoroughly complete job in every respect.
- B. Term "exposed" used herein refers to surfaces exposed at exterior of building and surfaces visible within building unless specifically called out. Materials in pipe chases, pipe tunnels and concealed above finish ceiling shall not be considered "exposed".
- C. Items included but not limited to - Exposed concrete surfaces (as called for on the interior finish schedule. Exposed concrete masonry units, interior and exterior. Exposed ferrous metals at exterior and interior of building not specified to receive factory applied finish of baked-on enamel. Concealed ferrous metals, except for fasteners and electrical and mechanical items, shall have minimum of one coat of corrosion-resistant paint. Exposed aluminum: galvanized steel roof vents, exhaust fans, grilles and registers shall not be painted unless otherwise designated.
- D. Exposed insulated piping, ductwork and mechanical equipment shall be painted unless supplied from the factory with a finish coat in compliance with building decor and this specification.
- E. Exposed wood, hardboard and plywood surfaces unless otherwise designated shall be painted or stained. Walls requiring patching or showing defects shall be painted in their entirety.
- F. There shall be no painting of copper, prefinished aluminum, or other finished metal, except iron.
- G. **Refer to section 09 29 00 for gypsum board surface texturing.**

1.2 SUBMITTALS

- A. Comply with requirements of Section 01 33 00.

1.3 ENVIRONMENTAL REQUIREMENTS

- A. Follow manufacturer's recommendations for temperature range in which coatings may be applied.

09 91 00-1

- B. Comply with National Volatile Organic Compound Emission Standards for Architectural coatings, Rule 40 CFR, Part 59, established by Environmental Protection Agency for VOC limits unless stricter local regulations are required.

1.4 PAINTING AND FINISHING PRE-INSTALLATION MEETING

- A. Prior to any wall or ceiling preparation, Contractor will schedule a pre-installation meeting. Required attendance will be Contractor or CM, Architect, Painter and drywall finisher, and suspended ceiling installer Contractor to conduct meeting.
- B. Discussion items:
 - 1. Gypsum board texturing and mockups
 - 2. Paint application.
 - 3. Protection of floors and surrounding finished items and finishes.
 - 4. Progression of installation following application of finished coat of paint. (i.e. switch and receptacle covers, millwork light fixtures, etc.)
 - 5. Accent painting clarification.
 - 6. Finishing of hollow metal doors and frames. (spray finish, not brushed.)
 - 7. Transparent finishes for woodwork, wood doors, etc.
 - 8. Other discussion items

PART 2 PRODUCTS

2.1 MATERIALS

- A. All paint and stain shall be manufactured by Benjamin Moore, Pittsburg or Sherwin Williams as specified.
 - 1. Other manufacturers listed below are approved, but must meet or exceed specifications for each type of paint or stain as specified in this specification.
 - a. Glidden
 - b. Kelly-Moore
 - c. Kwal.
 - 2. Substitutions: Comply with Specification Section 01 60 00.
 - 3. All colors shall be as selected by the Architect if not called out on drawings or specifications.
- B. All paint materials shall be delivered to the job in original unbroken manufacturer's packages with the labels intact and be kept in a locked room to which the Architect shall have access at all times.
- C. All materials shall be the best of their respective kinds and thoroughly mixed in the proper proportions to secure the best results.

2.2 SAMPLE PANELS

- A. After painters' materials have been approved and before any painting or finishing is done, submit panels as follows:

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1. Panels showing color and texture of finish coat.
 2. Panels showing clear finishes.
- B. Panels to show color: Composition board, 4 inch by 11 inch by 1/8 inch to show each color selected.
- C. Panel to show transparent finishes: Wood of same species and grain pattern as wood approved for use, 4 inch by 11 inch face by 1/4 inch thick minimum, and where both flat and edge grain will be exposed, 11 inches long by sufficient size (two by two inch minimum or actual wood member) to show complete finish. Panels shall show each type of finish specified.
- D. Attach labels to each panel stating where material is to be used, mfg. of finish material, and color or number of finish.

2.3 PAINTING AND FINISHING SCHEDULE

- A. **Paint Schedule provides for minimum two-coat application in addition to primer or filler coat.** Additional coat may be required for certain items to give complete coverage and uniform appearance. Omit primer for items shop primed.

2.4 EXTERIOR FINISHING SCHEDULE:

- A. Ferrous Metal:
- 1st Coat: Benjamin Moore HP Acrylic Metal Primer HP1100,
Sherwin Williams B66W00310 – Pro Industrial Pro-Cryl Universal Acrylic Primer
PPG/Pittsburgh Pitt-Tech Plus DTM Primer/Finish 4020-1000
- 2nd & 3rd Coat: Benjamin Moore HP DTM Acrylic Metal Enamel HP3000, gloss,
Sherwin Williams B66W00311 – Sher-Cryl HPA High Performance Acrylic Gloss Coating
PPG/Pittsburg Pitt-Tech Plus EP DTM Acrylic Gloss 90-1510
- B. Galvanized Metal:
- 1st Coat: Benjamin Moore HP Acrylic Metal Primer HP1100
Sherwin Williams B66W00310 – Pro Industrial Pro-Cryl Universal Acrylic Primer
PPG/Pittsburgh Pitt-Tech Plus DTM Primer/Finish 4020-1000
- 2nd & 3rd Coat: Benjamin Moore HP DTM Acrylic Metal Enamel Gloss HP3000
Sherwin Williams B66W00311 – Sher-Cryl HPA High Performance Acrylic Gloss Coating
PPG/Pittsburg Pitt-Tech Plus EP DTM Acrylic Gloss 90-1510
1. Paint inside galvanized surfaces of guttering.

C. Concrete & Concrete Masonry Unit:

1. Painted Finish: Refer to Section 09 97 26 - Special Coatings.
2. Clear Water Repellent Finish: refer to section 07 19 00 – Water Repellent Coatings

2.5 INTERIOR FINISHING SCHEDULE:

A. Ferrous Metals:

- 1st Coat: Benjamin Moore HP Acrylic Metal Primer HP1100
Sherwin Williams B66W00310 – Pro Industrial Pro-Cryl Universal Acrylic Primer
PPG/Pittsburgh Pitt-Tech Plus DTM Primer/Finish 4020-1000
- 2nd and 3rd Coat: Benjamin Moore Command Waterborne Acrylic Urethane Satin V392
Sherwin Williams B53W01150 – Pro Industrial Waterbased Alkyd Urethane Enamel Semi-Gloss
PPG/Pittsburg HPC Rust Preventative Alkyd 4306-0110

B. Exposed Overhead Steel (dry-fall type):

- Spot Prime: Benjamin Moore HP Acrylic Metal Primer HP1100
Sherwin Williams B66W00310 – Pro Industrial Pro-Cryl Universal Acrylic Primer
PPG/Pittsburgh Pitt-Tech Plus DTM Primer/Finish 4020-1000
- 1st & 2nd Coats: Benjamin Moore N110 “Super Kote 5000” Dry Fall Acrylic Latex Flat Finish.
Sherwin Williams B42W00181 – Pro Industrial Waterborne Acrylic Dryfall Flat
PPG/Pittsburg “Speedhide Super Tech” 6-725XI Water-based Dry-Fog Flat Latex
1. Apply over primed finish.

C. Gypsum Board: After application of approved texture.

- 1st Coat: Benjamin Moore 354 “Super Hide” ZERO VOC Interior Latex Primer
Sherwin Williams B28WJ0901 – Wasatch Interior Latex Hi Hide Primer
PPG/Pittsburg “Speedhide” 6-2 Interior Latex Sealer
- 2nd & 3rd Coat: Benjamin Moore 537 Ultra Spec 500 Interior Low Sheen Finish
Sherwin Williams B20W02651 - ProMar® 200 Zero VOC Interior Latex Eg-Shel
PPG/Pittsburg “Speedhide” Zero Interior Latex Eggshell 6-5310

D. Wood (Painted):

- 1st Coat: Benjamin Moore INSL-X Prime All AP1000 Multi Surface Latex Primer Sealer
Sherwin Williams B79W00450 – Multi-Purpose Waterbased Acrylic-Alkyd Primer
PPG/Pittsburg Seal Grip Primeline Fast Dry Latex Undercoater 17-9517

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2nd & 3rd Coat: Benjamin Moore Command Waterborne Acrylic Urethane Satin V3921X
Sherwin Williams B53W01151- Pro Industrial Waterbased Alkyd Urethane Enamel Semi-Gloss
PPG/Pittsburg HPC Rust Preventative Alkyd 4306-0110

D. Concrete Unit Masonry/Concrete (other than epoxy coating):

1st Coat: Benjamin Moore 571 - Ultra Spec Masonry High-Build Block Filler
Sherwin Williams B25W00025 - PrepRite® Block Filler
PPG/Pittsburg "Speedhide" Interior/Exterior Masonry HI Fill Latex Block Filler 6-15XI

2nd & 3rd Coat: Benjamin Moore 537 "Ultra Spec 500" Interior Zero VOC Low Sheen Finish
Sherwin Williams B20W02651 - ProMar® 200 Zero VOC Interior Latex Eg-Shel
PPG/Pittsburg "Speedhide" Zero Interior Latex Eggshell 6-5310

1. 4th Coat: Will be required on accent colors for adequate coverage, same type as 3rd coat.

2. Back roll both filler and paint coats to ensure good coverage.

E. Epoxy Coatings for CMU:

1st Coat: Benjamin Moore 571 - Ultra Spec Masonry High-Build Block Filler
Sherwin Williams B25W00025 - PrepRite® Block Filler
PPG/Pittsburg "Speedhide" Interior/Exterior Masonry HI Fill Latex Block Filler 6-15XI

2nd & 3rd Coat Benjamin Moore HP3410/ HP3420 HP Pre-Catalyzed Waterborne Epoxy Semi-Gloss/ Eggshell
Sherwin Williams K45W00151 – Pro Industrial PreCatalyzed Waterbased Epoxy Eg-Shel
PPG/Pittsburg "Pitt-Glaze" WB1 Pre-Catalyzed Waterborne Acrylic Epoxy 16-510, Semi-gloss Finish

Acceptable

Alternate: Benjamin Moore Ultra Spec "Scuff-X" Satin N486, Semi-gloss N487.

1. Finish coating shall have a vitreous-hard, tile-like surface with high resistance to impact, abrasion, stain chemical and acid corrosion and with a flame spread rating of not more than 15 when tested in accordance with ASTM Standard Specification E-84-61. Application on all surfaces shall be in solid color to be selected by the Architect or as listed on drawings or specifications.

F. Epoxy Coatings for Gypsum Board:

1st Coat: Benjamin Moore 354 "Super Hide" Zero VOC Interior Latex Primer
Sherwin Williams B28WJ0901 – Wasatch Interior Latex Hi Hide Primer
PPG/Pittsburg "Speedhide" 6-2 Interior Latex Sealer

2nd & 3rd Coat Benjamin Moore HP3410/ HP3420 HP Pre-Catalyzed Waterborne Epoxy Semi-Gloss/ Eggshell

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Sherwin Williams K45W00151 – Pro Industrial PreCatalyzed
Waterbased Epoxy Eg-Shel
PPG/Pittsburg “Pitt-Glaze” WB1 Pre-Catalyzed Waterborne Acrylic
Epoxy 16-510, Semi-gloss Finish

Acceptable

Alternate: Benjamin Moore Ultra Spec “Scuff-X” Satin N486, Semi-gloss N487.

1. Finish coating shall have a vitreous-hard, tile-like surface with high resistance to impact, abrasion, stain chemical and acid corrosion and with a flame spread rating of not more than 15 when tested in accordance with ASTM Standard Specification E-84-61. Application on all surfaces shall be in solid color to be selected by the Architect or as listed on drawings or specifications.

G. Concrete Floors (Sealer)

1. Clear Sealer
 - a. Two coats –MasterKure CC 250SB by BASF, semi-gloss, or approved alternate.

PART 3 EXECUTION

3.1 MATERIAL AND SPACE CONDITIONS

- A. Do not apply to wet or damp surfaces. Wait a minimum of 30 days or more as required by paint manufacturer before applying to new concrete or masonry. Follow manufacturer's procedures to apply appropriate coatings prior to 30 days to other substrate surfaces. Painter is required to test new concrete or masonry for moisture content prior to beginning of painting with a certified digital PH testing meter approved by Architect. If moisture content is above manufacturer's minimum, surface must be allowed to dry to within levels required by paint manufacturer.
- B. Interior of building must be dried in prior to painter primer application. Do not begin painting of surface when temperature is at or below or temperature is predicted to drop below that required by paint manufacturer before required paint drying period.

3.2 SURFACE PREPARATION

- A. General: Temporarily remove items interfering with surface to be painted for complete painting of such items and adjacent areas.
 1. See other sections of the specifications for requirements for surface conditions and prime coat.
 2. Surfaces to be finished shall be dry, clean, smooth and prepared as specified.
 3. Materials and methods used for cleaning shall be compatible with the substrate and specified finish. Remove any residue remaining from cleaning agents used.
 4. Method of surface preparation is optional provided results of finish painting produce solid even color and texture specified.

- B. Wood: Sand to a smooth even surface and then dust off.
1. Where transparent finish is specified, finish sanding shall be with 220 grit sandpaper. Wipe surface with a tack rag prior to applying finish.
 2. Surface to be painted with an opaque finish shall have all knots, sap and pitch streaks coated with knot sealer before applying any coat of paint. Apply two coats of knot sealer over large knots.
 3. Surfaces showing raised grain shall be sanded smooth between each coat.
 4. After application of prime or first coat of stain, fill all cracks, nail and screw holes, depressions and similar defects with patching compound. Sand to make smooth and flush with surrounding surface.
 5. Before applying finish coat, reapply patching compound if required, and lightly sand surface to remove surface blemishes.
- C. Steel and Iron:
1. Remove oil, grease, soil, drawing and cutting compounds, flux and other detrimental foreign matter by use of solvents, emulsions, cleaning compounds, or by steam cleaning.
 2. Verify that all factory or field welds where exposed have been grinded to achieve smooth consistent surface and that primer has been applied on bare steel. Apply appropriate filler material where voids occur at welds and finish to achieve smooth consistent surface.
 3. Remove loose mill scale, rust, and paint, by hand or power tool cleaning, except where high temperature aluminum paint is used, the surface shall be prepared in accordance with the manufacturer's instructions.
 4. Fill all dents, holes and similar voids and depressions in flat exposed surfaces of hollow steel doors and frames, access panels, roll-up steel doors and similar items specified to have semi-gloss or gloss finish with patching compound. Finish flush with adjacent surfaces.
 5. Spot prime all abraded and damaged areas in shop prime coat which expose the bare metal, with same type of paint used for prime coat. Feather edge of spot prime as required to produce smooth finish coat. Spot prime all abraded and damaged areas which exposed the bare metal of factory finished items with paint as recommended by the manufacturer.
- D. Zinc-coated (Galvanized, Metal, Terne-Plate, Zinc, Lead, Aluminum, Copper and Copper Alloys): Prep galvanized surfaces specified to be painted per paint manufacturer's instructions. Surfaces specified to be painted shall be cleaned of all grease, oil and other deterrents to paint adhesion, with toluene, xylene or similar solvents.
1. Spot prime all abraded and damaged areas of zinc-coating which expose the bare metal, using zinc rich paint on hot-dip zinc-coated items and zinc dust primer on all others.
 2. Spot prime, with red lead prime, all abraded and damaged areas of terne-plate which exposed the base metal.

- E. Masonry, Concrete, Cement Plaster and Stucco: Remove all dust, dirt, oil, grease efflorescence, form release agents, laitance, and other deterrents to paint adhesion.
 - 1. Use emulsion type cleaning agents to remove oil, grease, paint and similar products. The use of solvents, acid, or steam is not permitted.
 - 2. Remove all loose mortar in masonry work.
 - 3. Replace mortar and fill all open joints, holes, cracks and depressions with patching compound, finished flush with adjacent surface, with texture to match texture of adjacent surface.
 - 4. Concrete floors to be stained or sealed shall be etched and prepped per manufacturer's instructions. Allow required time to dry between applications.
 - 5. Concrete shall have all broken and spalled edges repaired with patching compound to match adjacent surfaces. Remove projections to level of adjacent surface by grinding or similar methods.
- F. Gypsum Plaster and Drywall: Remove efflorescence, loose and chalking plaster. Remove dust, dirt, and other deterrents to paint adhesion.
 - 1. Fill holes, cracks, and other depressions with patching compound, finished flush with adjacent surface, with texture to match texture of adjacent surface.

3.3 APPLICATIONS

- A. Start of surface preparation or painting will be construed as acceptance of the surface as satisfactory for the application of materials.
- B. Unless otherwise specified, paint shall be applied in three coats, prime, body, and finish.
- C. Before application of body and finish coats, surfaces shall be prepped and primed, except as otherwise specified. For primers to be used for field application, see **PRIMERS** paragraph in this specification.
- D. Additional field applied prime coats over shop or factory applied prime coats are not required, except for exterior steel which shall have a field applied prime coat in addition to the shop prime coat.
- E. Retouch damaged and abraded painted surfaces before applying succeeding coats.
- F. Apply each coat evenly and in full covering body.
- G. Not less than 48 hours shall elapse between application of succeeding coats except as allowed by the manufacturer's printed instructions, and approved by the Architect.
- H. Finish painted surfaces shall have solid even color, free from runs, lumps, brush marks, laps, or other defects.
- I. To prevent items from sticking in the shut position, operable items such as access doors and panels, window sashes rolling doors, and similar items shall not be painted when in the closed position.

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- J. Painted or otherwise finished surfaces of wood doors, including top and bottom edges, which are cut for fitting or for other reasons shall be given two coats of primer.
- K. Surfaces of finishing woodwork, except shop fabricated or assembled millwork and surfaces specified to have varnish, stain or natural finish shall be given one coat of primer as soon as delivered to the site.
- L. Back prime and seal ends of exterior woodwork, and edges of exterior plywood specified to be finished. Primer shall be same kind of primer specified for exposed face surface.
- M. Prime rebates for stop and face glazing of wood, and for face glazing of steel.
- N. Paint is to be applied by brush, or roller on all surfaces except metal. SPRAY PAINTING MUST BE USED ON METAL SURFACES AND IS SUBJECT TO THE FOLLOWING:
 - 1. Spray painting will be allowed if occupied portion of the building completely sealed off and approved by the Architect.
 - 2. Painting materials specifically required by the manufacturer to be applied by spraying shall be so applied.
 - 3. In areas, where paint is applied by spray, all items specified in Article, Work Not To Be Painted, motors, controls, telephone, and electrical equipment, and similar items shall be masked, or enclosed with polyethylene, or similar air tight material with all edges and seams continuously sealed.

3.4 PRIMERS:

- A. After surface preparation, apply prime coat to various materials as follows: NOTE: Prime coat is not required for acrylic emulsion and latex emulsion finish.
 - 1. Steel and iron: Red lead primer
 - 2. Zinc-Coated Steel and Iron: Zinc dust primer.
 - 3. Aluminum: Zinc chromate primer.
 - 4. Lead and Terne Metal: Red lead primer.
 - 5. Copper and Copper Alloys: Zinc chromate primer
 - 6. Exterior Wood: Oil base primer.
 - 7. Interior Wood: (except for transparent finish: Enamel undercoat, thinned as recommended by the manufacturer.
 - 8. Gypsum Plaster Block Filler: Pigmented sealer, except use latex emulsion for alkyd flat finish.
 - 9. Cement plaster, Concrete, and Masonry: Latex emulsion except use two coats of latex primer when substrate has aged less than six months.
 - 10. Drywall: Latex primer, except use pigmented sealer in shower, dressing and locker rooms.

3.5 EXTERIOR FINISHES:

- A. On properly prepared and primed surfaces, apply the following finish coats. Prime coat is not required for acrylic emulsion finish.
 - 1. Wood: Two coats of specified paint generally on exposed surfaces, except where transparent finish is specified and as follows:
 - a. Two coats of exterior specified paint on plywood, wood siding and similar surfaces.
 - b. Do not apply finish coats on surfaces concealed after installation, top and bottom edges of wood doors and sash, or on edges on wood framed insect screens.
 - c. That portion of the sash runs of double hung wood windows, concealed by the sash when in a closed position, shall receive two coats of boiled linseed oil mixed with not more than 1/4 pint of dryer per gallon.
 - 2. Metal: Two coats of specified paint.
 - a. **NOTE: All metal surfaces to receive paint shall be spray applied!**
 - 3. Concrete, Concrete Masonry Units: Refer to Section 09 97 26, Special Coatings.

3.6 INTERIOR FINISHES

- A. On properly prepared and primed surface, apply the following finish coats. Prime coat is not required on concrete for floor enamel finish.
 - 1. Metal Work: Apply two coats of specified paint on exposed surfaces, including surfaces of ferrous metal louvers and ferrous metal hardware, except as follows:
 - a. Two coats of high gloss sheen specified paint on specified surfaces, color as selected.
 - b. Omit body and finish coats on surfaces concealed after installation
 - c. **NOTE: All metal surfaces to receive paint shall be spray applied. No exceptions!**
 - 2. Plaster: One coat of latex sealer plus two coats of latex satin on exposed surfaces.
 - 3. Drywall: One coat of latex sealer plus two coats of specified paint on exposed surfaces.
 - 4. Masonry and Concrete Walls: One coat of specified paint over block filler on surfaces where scheduled.
 - a. Third coat will be required on surfaces where accent colors are scheduled for adequate coverage.
 - 5. Dry-Fall Paint Application: Apply over pre-primed surfaces. If steel surfaces are not primed, apply compatible primer for metal surface for dry-fall paint.

3.7 SPECIAL APPLICATIONS

- A. Unless noted otherwise, all exposed piping, conduit, ductwork, etc., exposed on interior of rooms shall be painted, matching color of walls or ceiling item is attached or adjacent to.

B. Epoxy Paint

1. Application of epoxy coating under this heading shall be done by trained applicators who are experienced in the use of the specific materials to be applied. Coating shall be applied in such quantity as will result in a dry film thickness of minimum 4 to 6 mils in uniform solid color or colors as selected. Floors and other adjacent surfaces which are not to be coated shall be protected during application, and special coating applicator shall clean and repair any adjacent surfaces damaged by his work.
2. Coordinate termination of epoxy paint with installation of rubber base. No epoxy paint is to be applied where rubber base is to be installed.

3.8 TRANSPARENT FINISHES ON WOOD

A. General:

1. Open grained wood such as oak, walnut, ash and mahogany shall be filled with a paste wood filler, colored as required to achieve finish specified. Thin filler accordance with manufacturer's instructions as required for application. Remove excess filler, wipe as clean as possible, allow to dry and sand lightly with 220 grit sandpaper.
2. Stain shall be of type and color required to achieve finish specified. Stains may be used when transparent finishes are specified to change the color of sapwood to match heartwood, and to enhance or even the color of the wood as required to match the finish specified. Varnish or polyurethane type stains will not be allowed.
3. Sealers shall be polyurethane, same as used for top coats, thinned with thinner recommended by the manufacturer at the rate of about one part of thinner to four parts of polyurethane. Sealer may be omitted where pigmented, penetrating, or wiping stains containing resins are used.
4. Sealers and polyurethane shall be sanded between coats. Allow manufacturer's recommended drying time before sanding, but in no case less than 24 hours (36 hours in damp or muggy weather). Sanding shall be done using 220 grit sandpaper. Sand enough to scarify the surface to assure good adhesion of the subsequent coat to level roughly applied sealer and to knock off the "whiskers" of any raised grain as well as dust pinnacles. Sanding blocks shall be used for between coat sanding.
5. Finish application shall be done only in clean areas and in still air. Before finishing, the area shall be vacuumed and dusted. Immediately before applying finish, the surfaces shall be wiped down with a tack rag.

B. Stain Finish: Apply in successive coats as follows:

1. One coat of stain.
2. One coat of sealer.
3. Two coats of satin polyurethane finish.

C. Natural Finish: Apply in successive coats as follows:

1. One coat of sealer.
2. Two coats of satin polyurethane finish.

Note: Individual specification sections or notes on drawings may call for finishes or prefinished items different from what is specified in this section (i.e. factory finished;

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factory stained, etc.). Unless otherwise called for, abide by those finishes as noted or specified on drawings or specification sections.

3.9 SCAFFOLDS

- A. This Contractor shall provide all ladders, scaffolds, staging, etc., required for the proper execution of the work.

3.10 PROTECTION:

- A. Protect all work from paint droppings and spattering by use of masking, drop cloths, removal of items or by other approved methods.

3.11 EXTRA STOCK:

- A. Provide minimum one full gallon of each type and each color of paint specified and used on project. Each paint container to be properly labeled, identifying type and color.

3.12 CLEAN UP

- A. Upon completion, clean paint from all hardware, glass and other surfaces and items not required to be painted.
- B. Before final inspection, any work which has become damaged or discolored shall be touched up or refinished in a manner to produce solid even color and finish texture, free from defects.

END OF SECTION

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SECTION 09 97 26

SPECIAL COATINGS

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:

1. Masonry Weatherproofing System: Cementitious Waterproofing Coat with Decorative Acrylic Finish Coat.
2. Protection of weeps, drainage and ventilation vents during coating application.

B. Related Sections:

1. Section 04 22 00 - Concrete Unit Masonry.

1.2 REFERENCES

A. American Society for Testing & Materials (ASTM):

1. ASTM D968 - Abrasion Resistance of Organic Coatings by the Falling Abrasive Tester.
2. ASTM D822 - Operating Light and Water Exposure Apparatus (Carbon Arc Type) for Testing Paint, Varnish, Lacquer, and Related Products.
3. ASTM G26 - Operating Light-Exposure Apparatus (Carbon Arc Type) With and Without Water for Exposure of Nonmetallic Materials.

1.3 QUALITY ASSURANCE

A. Applicator Qualifications: Properly trained and approved by the weatherproofing system manufacturer and have authorization to offer specified warranty. Submit installer letter of certification, signed by Technical Representative of system manufacturer.

B. Field Sample:

1. Apply masonry weatherproofing system to sample concrete block panel.
2. Reflect proposed color, texture, and workmanship.
3. Obtain acceptance of completed section from Architect before beginning work.

C. Pre-installation Conference:

1. General Contractor shall arrange meeting no less than seven days prior to starting work.
2. Attendance:
 - a. General Contractor
 - b. Coating Contractor
 - c. Architect/Owner's Representative
 - d. Coating Manufacturer Representative/Distributor.
3. Agenda:
 - a. Substrate condition.

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- b. Sequence and method of application of coating system.

1.4 SUBMITTALS

- A. Comply with Section 01 33 00.

1.5 PROJECT CONDITIONS

- A. Environmental Requirements:

1. Do not apply on frozen or frost-filled surfaces.
2. Do not apply if temperature is below 40 degrees F. or expected to fall below 40 degrees F within 24 hours.
3. Protect material from freezing.
4. Protect surfaces from rapid drying where windy, hot, and dry conditions exist.
5. Protect from precipitation for 24 hours after application.
6. Avoid applying material during rapid and extreme changes in temperature to prevent thermal shock cracks during the curing process.
7. The following conditions may require damping the surface prior to and during application.
 - a. Wind-caused rapid drying of surface.
 - b. Excessive surface temperature
 - c. Excessive air temperature
 - d. Direct sun
 - e. Low humidity.

1.6 WARRANTY

- A. Provide five year material and labor warranty to cover:
 1. Waterproofing above grade.
 2. Bonding.
 3. Weathering.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Subject to compliance with requirements, provide coatings of the following manufacturers:
 1. Master Builder Solutions by BASF (formerly Thoro System Products)
- B. Substitutions: Must be submitted to the Architect for review prior to bidding.

2.2 CEMENTITIOUS WATERPROOFING AND ACRYLIC FINISH COATINGS

- A. Master Builder Solutions, by Sika USA
 1. Sika Thoroseal 581 (Cementitious Waterproofing Coating)
 2. Sika Thorocoat C250 (Acrylic Finish Coating)

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2.3 MIXING

- A. If premixing is required, stir in strict accordance with printed instructions of manufacturer. Use approved mechanical mixer. Do not use frozen, caked, or lumped materials.

PART 3 EXECUTION

3.1 EXAMINATION AND PREPARATION

- A. Examination:
 - 1. Examine substrate to which finely textured coating is to be applied. Do not proceed if unsatisfactory conditions exist which hamper proper application.
 - 2. Beginning of application means acceptance of substrate condition.
- B. Preparation:
 - 1. Surfaces to receive system shall be free of defects such as honeycombs, form marks, tie holes, concrete dropping, laitance, dirt, dust, grease, form release treatments, efflorescence, curing compounds, paint and any other foreign material.
- C. Patch all cracks and holes with Master Builder Solutions MasterEmaco N424 prior to application of Cementitious Waterproofing Coating.
- D. Beginning of application means acceptance of substrate.

3.2 MASONRY WEEP VENT, DRAINAGE VENT AND VENTILATION VENT PROTECTION

- A. Weep vents, drainage vents and ventilation vents are not to be coated. Protect as required during coating process.

3.3 APPLICATION

- A. General:
 - 1. Waterproof exterior walls with cementitious waterproofing coating. Ensure surface is thoroughly cured before starting finish application (48-72 hours under normal conditions)
 - 2. Acrylic Coating:
 - a. After Cementitious Waterproofing Coating has been applied and cured, apply Acrylic coating. Apply material at a rate recommended by manufacturer, directly as it comes from the can.
 - b. Apply material by brush, roller, plaster type sprayer, or low pressure sprayer.
 - c. Back roll brushed or sprayed material; cross roll roller-applied material.
 - d. Finish material so that brush and roller strokes are on one direction

3.4 FIELD QUALITY CONTROL

- A. Unless noted otherwise, all exterior CMU masonry surfaces shall receive complete and thorough coverage of specified masonry weatherproofing. Color to be selected by Architect.
- B. Maintain schedule of application of system in field office for Owner/Architect's review.

3.5 EXTRA STOCK

- A. Provide minimum one gallon of each color of special coating used on project. Each container to be properly labeled, identifying color.

END OF SECTION

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An Addition
Benton County Justice Center
Bentonville, Arkansas

SECTION 10 14 00

IDENTIFYING DEVICES

PART 1 GENERAL

1.1 SUMMARY

- A. Provide all labor, materials, fabrications and coordination required to install complete, in place interior signage, and exterior building signage.

1.2 QUALITY ASSURANCE

- A. Qualifications of Manufacturer: Products used in the work of this Section shall be produced by manufacturers regularly engaged in manufacture of similar items and with a history of successful production acceptable to the Architect.

1.3 SUBMITTALS

- A. Comply with requirements of Section 01 33 00.
- B. Manufacturers must submit 3 references showing products for projects completed within the last 6 years.
- C. Submit manufacturer's technical data and installation for each type of sign required.
- D. Submit shop drawings listing sign size, letterform and letter heights.
- E. Submit one full size sample sign of type, style and color specified, including method of attachment. If approved, the sample will become part of the job.
- F. The manufacturer's recommended installation procedures, when approved by the Architect, will become the basis for inspecting and accepting or rejecting actual installation procedures used on the Work.

1.4 SIGN TYPE DESCRIPTION

- A. Signage shall consist of room number and room function to meet the requirements of the Americans with Disabilities Act (ADA).

1.5 PRODUCT HANDLING

- A. Protection: Use all means necessary to protect materials of this Section before, during and after installation and to protect installed work and materials of all other trades.
- B. Replacements: In the event of damage, immediately make all repairs and replacements necessary to the approval of the Architect and at no additional cost to the Owner.

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1.6 REFERENCES

- A. Comply with State of Arkansas Adopted ADA Accessible Guidelines in regard to accessible or handicapped features.

PART 2 PRODUCTS

2.1 ROOM IDENTIFICATION:

- A. Provide products from Mohawk Sign Systems, Inc.® P.O. Box 966, Schenectady, NY 12301-0966. 518/ 370-3433 or FAX 518/ 370-3332, equivalent by Archway Graphic Designs, Little Rock, AR, Best Sign Systems, Montrose, CO, or approved alternate substitution.
- B. Substitutions: Other manufacturers must submit their signage products to the Architect 10 days prior to the bid date for approval to be considered for substitution.
- C. Colors: Architect to select colors from manufacturer's standard color selection.

2.2 GRAPHIC PROCESS

- A. All signs shall be manufactured using Graphic Process Series 200A - Sand Carved® using Format D.
 - 1. Tactile characters shall be raised the required 1/32" inches from sign face. Glue-on letters or etched backgrounds are not acceptable.
 - 2. All text shall be accompanied by Grade 2 braille with domed dots. Braille shall be separated 1/2" from the corresponding raised characters or symbols. Grade 2 braille translation to be provided by signage manufacturer.
 - 3. All letters, numbers and/or symbols shall contrast with their background, either light characters on a dark background or dark characters on a light background. Characters and background shall have a non-glare finish.
- B. Plaque material shall be Special Purpose SP125 decorative thermosetting high pressure laminate. Material to be 1/8" thick laminate with a melamine resin surface and a phenolic resin core which provides resistance to abrasion, stains, alcohol, solvents, boiling water, and heat. The material shall be NEMA rated and have flammability and smoke values that meet the standards for flammability of interior materials.
- C. Background color as selected by architect from manufacturer's actual color samples.
- D. Letterform shall be Gill Sans upper case letters and numbers
- E. Size of letters and numbers shall be as follows:
 - 1. Room numbers shall be 1".
 - 2. Lettering for room ID signs shall be 5/8" or as noted.
 - 3. Symbol size shall be 4".
 - 4. Standard Grade 2 braille shall be 1/2" below copy.
 - 5. Corners: 1/2" radius

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F. Copy position: As indicated on drawings.

G. Exterior Signs at Storefront Windows

1. 1/16" thick phenolic plastic plaque
2. Mount to exterior at upper right corner
3. Number to identify interior room number
4. 1.5" H x 4" W with 1" Numeral
5. Plaque color to be white, numeral to be black
6. Apply with exterior grade adhesive tape
7. Manufactured by Seton

2.3 SIGN DESIGN

A. Refer to drawings for sign types.

PART 3 EXECUTION

3.1 INSPECTION

A. Examine the areas, conditions and surfaces where work of this Section will be performed. Correct conditions detrimental to the proper and timely completion of the Work. Do not proceed until unsatisfactory conditions have been corrected.

3.2 SURFACE PREPARATION

A. Cleaning: Immediately prior to installation of the work of this Section, thoroughly clean all substrata and remove all oil, grease, paint, varnish hardeners, and other items which would adversely affect the bond of adhesive.

B. Smoothing: Make all substrata level and free from irregularities.

3.3 INSTALLATION

A. Install all graphic materials and identifying devices in strict accordance with the approved shop drawings and the manufacturer's instructions.

B. Signs shall be mounted using vinyl tape and silastic adhesive. Mechanical for Exterior signage. Unless noted otherwise, all signs shall be mounted 60" from the floor to the top of the sign on the latch side. Center of sign is to be 9" from doorframe or room opening and edge of sign. Installer user assumes responsibility for suitable installation of the signs.

3.4 CLEANING UP

A. Thoroughly clean all graphics and identifying devices after installation and prior to final acceptance by the Owner. Use only those cleaning materials and methods recommended by the respective manufacturers.

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3.5 PROTECTION

- A. Provide any and all necessary protective measures or materials to insure that graphic materials and identifying devices are not damaged prior to acceptance by Owner. Replacement or repairs caused by such damage shall be corrected immediately at this Contractor's expense.

3.6 COORDINATION

- A. Throughout construction of substrate surfaces, use all means necessary to ensure proper and adequate provision for concealed support devices, and for finished openings, to receive the work of this Section.

END OF SECTION

10 14 00-4

SECTION 10 14 53

SITE SIGNAGE

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Installation of traffic control signs.

1.2 RELATED REQUIREMENTS

- A. Section 03 30 33 – Cast-In-Place Concrete
- B. U. S. Department of Transportation, Federal Highway Administration’s “Manual on Uniform Traffic Control Devices” (MUTCD).
- C. Construction Drawings.

PART 2 PRODUCTS

- 2.1 SIGNS – MUTCD classification is shown in parentheses. Signs manufactured by Seton or approved alternate product. Refer to Civil Drawings for signs to be provided.

2.2 SIGN LEGEND

- A. Reflective legend material shall comply with Federal Highway Administration standards regarding color, reflectively and durability.

2.3 SIGN PANELS

- A. Sheet aluminum sign panel material shall be approximately .080” thick aluminum complying with ASTM B209, alloy 6061-T6.

2.4 POSTS

- A. “U” channel galvanized steel posts with galvanized sign-mounting hardware for each sign. Posts shall have a weight of not less than 2-lb per ft. Set steel posts inside 6”, galvanized steel pipe bollard, filled with concrete. Pipe is to extend to within 2” of bottom of sign.

PART 3 EXECUTION

3.1 INSTALLATION

- A. Install posts and pipe in 18-in. round x 24-in. deep concrete foundations. Concrete shall comply with Section 03 30 00. Set posts vertical and plumb with bottom of sign at 6'-5" above finish grade. Mount signs in accordance with manufacturer's instructions.

END OF SECTION

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SECTION 10 21 14

SOLID PLASTIC TOILET COMPARTMENTS

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes

1. Furnish, deliver and install all Toilet Partitions as indicated on the drawings and as required by actual conditions at the building. The Toilet Partitions shall include the furnishing of all necessary screws, special screws, bolts, special bolts, expansion shields and all other devices necessary for the proper installation and application of the Toilet Partitions.

B. Related Sections

1. Section: 10 28 13 Washroom Accessories

1.2 REFERENCES

A. Standard

1. All Toilet Partitions must be scheduled, supplied and installed in accordance with: Local Building Code, ANSI (American National Standards Institute), ADA (Americans with Disabilities Act). In all cases the above references shall be taken to mean the latest edition of that particular standard including all revisions.
2. NFPA 286

1.3 SUBMITTALS

A. General Requirements

1. Make all submittals in accordance with Section: 01 33 00

B. Product Data

1. Submit (2) copies of product sheets and/or catalogue cuts, of all products listed in the shop drawings.

C. Samples

1. Upon request, a returnable sample of the Toilet Partitions shall be submitted to the Architect for approval not later than (10) days after requested. All samples must be properly identified including: name of supplier, and name of manufacturer.

D. Operations and Maintenance Data

1. At completion of the job, furnish to the owner (2) copies of an Owners Operation and Maintenance Manual. The Manual shall consist of a hard cover three ring binder with the project name in the front. Include in the manual the following information: Maintenance instructions, Catalogue pages for each product, Name/Address and phone number of the Manufacturer and their Sales Agent, Copy of the final shop drawings.

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1.4 QUALITY ASSURANCE

A. Substitutions

1. Proposed substitutions must comply with Section 01 60 00.

B. Supplier Qualifications

1. Toilet Partition shop drawings and Toilet Partitions shall be procured from a source of supply approved by the Consultant/Owner/Architect. Supplier is responsible for the complete Toilet Partition subcontract.

1.5 DELIVERY, STORAGE AND HANDLING

A. Marking and Packaging

1. Toilet Partitions must be delivered to the job site in the manufacturers' original packages and marked to correspond with the approved shop drawings.

B. Delivery

1. Toilet Partitions must be delivered in an amount of time deemed appropriate by the Consultant/Owner.

1.6 WARRANTY

A. Written Guarantee

1. The Toilet Partition manufacturer shall guarantee all Solid Plastic Toilet Partitions by written certification, for a period of 25 years against breakage, delamination, and corrosion of solid plastic parts. Warranty is for manufacturer's material only and does not include installation errors, improper usage or vandalism.

1.7 MAINTENANCE

A. Maintenance

1. Upon request, at completion of the project, the Toilet Partition supplier may be required to brief Owner's maintenance staff regarding proper care of Toilet Partitions, such as: required lubrications, adjustments, cleaning, etc...

PART 2 PRODUCTS

2.1 PRODUCTS

A. Solid Plastic overhead braced toilet partition and urinal system manufactured by PSiSC

1. Approved Alternate manufacturers:
 - a. Scranton Products - Hiny Hiders
 - b. ASI Accurate Partitions Corporation
 - c. General Partitions
 - d. Hadrian

- B. Only those manufacturer's names and product numbers listed herein, are approved for use on this project. All other manufacturers must request approval as per Section 01 60 00.

2.2 MATERIALS

- A. Construction Features: Doors, panels and pilasters shall be polypropylene or polyethylene solid plastic. The material's self-lubricating surface is resistant to marking and can be maintained effectively with ordinary household cleaners. Material is ideal for toilet partition installations, especially in high abuse environments.
 - 1. Materials must pass NFPA 286 fire test standards.
- B. Doors: Shall be (25mm) 1" thick by (1397mm) 55" high straight cut with fine radius edges.
- C. Panels: Shall be (25mm) 1" thick by (1397mm) 55" high straight cut with fine radius edges.
- D. Urinal panel: 24" deep x 42" high. **Provide floor-to ceiling mount pilaster at end.**
- E. Pilasters: Shall be (25mm) 1" thick by (2083mm) 82" high straight cut with fine radius edges. Urinal pilaster height is to be coordinated with ceiling height.
- F. Headrail: Shall be 32mm (1.25") by 44mm (1.75") extruded anodized aluminum with anti-grip design. Wall thickness to be 1.5mm (0.060") and shall be securely attached to wall and pilasters with manufacturer's fittings in such a way as to make a rigid installation. All joints in headrails shall be made at a pilaster.
- G. Pilaster Fastening Method: Pilasters shall be securely and rigidly fastened to the floor on vertically adjustable floor brackets. The floor fastening shall be concealed and protected by a 4" (102mm) high stainless steel pilaster shoe. One full-height continuous aluminum channel shall be used at the pilaster to panel connection. Three heavy-duty aluminum brackets shall be used at the pilaster to wall connection.
- H. Hardware & Fittings: Doors shall be equipped with a full-height continuous 16-gauge stainless steel hinge with a stainless steel hinge pin, door latch, and bumper/coat hook. Door at accessible stall to have additional bumper on exterior side.

2.3 FINISH

- A. Doors, panels, and pilasters shall be constructed of matte finished polypropylene or gloss finished polyethylene with uniform color throughout. Color to be selected from manufacturer's standard colors.

PART 3 EXECUTION

3.1 EXAMINATION

A. Site Preparation

1. The contractor must examine all site conditions that would prevent the proper application and installation of Toilet Partitions. Any defect must be immediately identified and corrected, prior to the installation of the Toilet Partitions.
2. Take site dimensions affecting this work. Verify correct spacing of plumbing fixtures.

3.2 INSTALLATION

A. Mounting Locations

1. All Toilet Partitions must be mounted according to Manufacturers standard locations and those specified on the drawings.

3.3 FIELD QUALITY CONTROL

A. Inspection

1. After installation has been completed, provide for a site inspection of all Toilet Partitions to determine that all items have been supplied and installed as per the enclosed details. Also, check the operation and adjustment of all Toilet Partitions. Any discrepancies, or malfunctioning product, must be reported to the Architect immediately.

3.4 ADJUSTMENT AND CLEANING

A. Final Preparation

1. At final completion, Toilet Partitions shall be left clean and free from disfigurement. Make all final adjustments. Where Toilet Partitions are found defective, repair or replace or otherwise correct as directed.

B. Properly dispose of packing and waste created from installation of partition system.

3.5 PROTECTION

A. Site Protection

1. The Contractor must provide for the proper protection of all Toilet Partitions until the owner accepts the project as complete.

3.6 TOILET PARTITION SCHEDULE

A. Schedule

1. Provide Toilet Partitions as specified in all above sections and as per the detailed Architectural Drawings.

END OF SECTION

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SECTION 10 26 41

BULLET-RESISTANT FIBERGLASS COMPOSITE

PART 1 GENERAL

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Section includes bullet resistant fiberglass panels.

1.2 REFERENCES

- A. American Society for Testing and Materials:

- 1. ASTM E119-98 Standard Test for One-Hour Fire-Rating of Building Construction and Materials

- B. International Organization for Standardization:

- 1. ISO 9001:2015 Quality Management System

- C. Small Business Administration:

- 1. SBA Small Business Size Standard D.

- D. Underwriters Laboratories:

- 1. UL 752 Specifications and Ammunition, 11th Edition, Standard for Bullet Resisting Equipment published September 9, 2005, revised December 21, 2006, Level 1

- E. The United States Department of State:

- 1. The International Traffic in Arms Regulations (ITAR) American Welding Society (AWS): AWS D1.1 - Structural Welding Code - Steel.

1.3 SUBMITTALS

- A. Submit under provisions of Section 01 33 23 - Shop Drawings, Product Data & Samples.

- B. Product Data:

- 1. Product Data: Include specifications, brochures, and samples.
 - 2. Design Data: Bullet resistance analysis design calculations for specific project conditions, certifying system conformance to specified performance requirements.
 - 3. Verification Samples: For each finish product specified, two samples, minimum size 6 inches (150 mm) square representing actual product, color,

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and patterns.

4. Test Reports: Certified test reports showing compliance with specified performance characteristics and physical properties.
- C. Certificates: Submit printed data to indicate compliance with following requirements.
1. UL LISTING Verification and UL752 Current Test Results as provided by Underwriters Laboratories.
 2. ASTM E119-98 One-Hour Fire Rating of Building Construction and Materials.
 3. Manufacturer's third-party certificate of registration with ISO 9001:2015.
 4. Manufacturer's U.S. Dept. of State ITAR Statement of Registration.
 5. Manufacturer's SBA Profile verifying small business status by the SBA.
- Closeout submittals: Warranty documents, issued and executed by manufacturer of systems, countersigned by Contractor.

1.4 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing products of the type specified with a minimum documented experience of five years.
- B. Installer Qualifications: Company specializing in installation of products specified with minimum three years documented experience.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials in manufacturer's unopened, undamaged packaging, with manufacturer's labels intact.

1.6 SEQUENCING

- A. Ensure that locating templates and other information required for installation of products of this section are furnished to affected trades in time to prevent interruption of construction progress.

1.7 PROJECT CONDITIONS

- A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's recommended limits.
- B.

2.1 BULLET RESISTANT COMPOSITE PANELS

- A. Composite Panels: Bullet Resistant Fiberglass Composite. FRP composite panel manufactured using multiple layers of starch-oil woven roving ballistic grade fiberglass cloth impregnated with a thermoset polyester resin and compressed into flat rigid sheets.

1. Composite panels shall be of the "non ricochet type" intended to permit the encapture and retention of an attacking projectile lessening the potential of a random injury or lateral penetration.
2. Material will meet ASTM E119 one-hour fire resistance when installed in a non- bearing steel stud wall with 5/8-inch fire code gypsum on the exterior and with 5/8- inch (16 mm) fire code gypsum over the FRP panel on the inside.
3. Panels conforming to UL 752 Rating level as follows:
 - a. UL Level I.
 - b. UL Level 2.
 - c. UL Level 3.
 - d. UL Level 4.
 - e. UL Level 5.
 - f. UL Level 7.
 - g. UL Level 8.
4. Panels conforming to National Institute of Justice (N.I.J) 0108.01 Threat Level Rating as follows:
 - a. N.I.J Level I.
 - b. N.I.J Level IA-A.
 - c. N.I.J Level II.
 - d. N.I.J Level III-A.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Do not begin installation until openings and installing surfaces have been properly prepared.
 1. Verify openings are in accordance with approved shop drawings.
 2. Verify that supports have been installed in accordance with the Drawings.
- B. If preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.2 PREPARATION

- A. Clean surfaces thoroughly prior to installation.
- B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

3.3 INSTALLATION

- A. Install products in accordance with approved submittals, manufacturer's instructions and requirements of UL 752.
 - 1. Install equipment plumb, level, rigid and in true alignment.
 - 2. Use proper anchoring devices. Exposed anchor holes shall be used for anchors.
 - 3. Install hardware as required for a complete installation.
 - 4. Where applicable, install fire-rated assemblies in accordance with NFPA 80.
 - 5. Adjust operating parts for proper operation, non-binding.
 - 6. Joints shall be reinforced by a back-up layer of bullet resistive material.
 - 7. Bullet resistance of the joint, as reinforced, shall be at least equal to that of the panel.
 - 8. Minimum width of reinforcing layer at joint shall be 4 inches (2 inches on each panel or a 2-inch minimum overlap).
- B. Installation Tolerances: Do not exceed the following installation tolerances:
 - 1. Squareness: Plus or minus 1/16 inch (1.6 mm) measured on a line, 90 degrees from one jamb, at the upper corner of the frame at the other jamb.
 - 2. Alignment: Plus or minus 1/16 inch (1.6 mm) measured on jambs on a horizontal line parallel to the plane of the wall.
 - 3. Twist: Plus or minus 1/16 inch (1.6 mm) measured at face corners of jambs on parallel lines perpendicular to the plane of the wall.
 - 4. Plumb: Plus or minus 1/16 inch (1.6 mm) measured on the jamb at the floor.

3.4 PROTECTION

- A. Protect installed products until completion of project.
- B. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION

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An Addition
Benton County Justice Center
Bentonville, Arkansas

SECTION 10 28 13

TOILET AND BATH ACCESSORIES

PART 1 GENERAL

1.1 SUMMARY

- A. The work to be completed under this heading consists of furnishing all labor, materials, equipment and services necessary for and reasonably incidental to the furnishing and application of all miscellaneous items as shown and as specified.
- B. All items shall be delivered in sound condition, properly installed and shall be clean, undamaged, and in proper working order.

1.2 SUBMITTALS

- A. Comply with requirements of Section 01 33 00.

1.3 REFERENCES

- A. Comply with State of Arkansas Adopted ADA Accessible Guidelines in regard to accessible or handicapped features.

PART 2 PRODUCTS

2.1 OWNER FURNISHED TOILET ACCESSORIES:

- A. Owner will furnish soap dispensers, tissue dispensers, paper towel dispensers, and sanitary napkin disposals. These items are to be installed by contractor.

2.2 TOILET ACCESSORIES:

- A. Mop Racks: (One for each mop or service sink shown on drawings.)
 - 1. Stainless steel, satin finish; anti-slip mop holders with spring loaded, rubber cam w/3 holders.
 - a. Bobrick Washroom Equipment, Inc., Model B-223 x 24
 - b. Bradley Corp. Model 9953.
 - c. Approved alternate.
- B. Pre-manufactured Wall Mounted Mirrors: (One at each wall-hung lavatory.)
 - 1. Standard Stainless Steel Mirrors:
 - a. Surface mounted, center over each lavatory, 304 stainless steel, satin finish frame with No. 1 quality ¼" glass, mirror warranted against silver spoilage for 15yrs. Galvanized steel back, 18"x36". Secure to concealed wall hanger with theft-resistant mounting. Mounting height as scheduled on Drawings.
 - b. Acceptable Products:

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Bobrick Washroom Equipment, Inc. - Model B-290-1836
Bradley Corporation, Model 780-1836

- C. Grab Bar-Toilet Rooms: (One set at each handicapped water closet.)
1. 18 gage stainless steel; 1 1/2" diameter, safety grip surface; concealed mounting. One at each handicapped water closet.
 - a. Model No. B6806.99 x 42, B6806.99 x 36 & B6806.99 x 18 by Bobrick.
 - b. Model No. 8122-00142, 8122-00136 & 8122-00118 by Bradley.
 - c. Or approved alternate.
- D. Hand Dryer (refer to enlarged floor plans for location and quantity.)
1. Automatic operation, surface mounted installation, white finish, 120V, 500 watt.
 - a. "Xlerator "XL" series, high speed, manufactured by Excel Dryer, 357 Chestnut Street, East Longmeadow, MA 01028 Ph: (413) 525-4531.
 - b. Approved alternate
 2. Colors to be selected from manufacturer's standard selections.
 3. Provide five (5) year limited warranty.

PART 3 EXECUTION

3.1 FABRICATION:

- A. Stamped names or labels on exposed faces of toilet accessory units are not permitted. Wherever locks are required for particular type of accessory, provide same keying throughout project. Furnish two keys for each lock, properly identified.
- B. Surface Mounted Accessories: Fabricate units with tight seams and joints, exposed edges rolled. Hang doors or access panels with continuous piano hinge or minimum of two 1 1/2" pin hinges of same metal as unit cabinet. Provide concealed anchorage wherever possible.

3.2 INSTALLATION:

- A. Install toilet accessory units in accordance with manufacturer's instructions, using fasteners appropriate to substrate and recommended by manufacturer of unit.
- B. Install units at location and heights as shown on drawings. Install as to comply with all national, state, and local codes and regulations. Units shall be plumb and level, firmly anchored.
- C. If mirrors are installed on ceramic tile, coordinate tile pattern and layout to accommodate mirrors. Mirror to be installed on single plane.
- D. Molly-type anchors are not acceptable for securing accessories to walls or partitions. Secure to gypsum board partitions with screws anchored in wood blocking. Anchor accessories to masonry walls with screws set in epoxy.

3.3 ADJUSTING AND CLEANING:

- A. Adjust toilet accessories for proper operation and verify that mechanisms function smoothly.
- B. Clean and polish all exposed surfaces after removing protective coatings.

END OF SECTION

SECTION 10 44 00

FIRE EXTINGUISHERS & CABINETS

PART 1 GENERAL

1.1 SUMMARY

- A. Work under this heading consists of furnishing all labor, materials, equipment and services necessary to install fire extinguisher and cabinets as shown or called out on drawings.

1.2 SUBMITTALS

- A. Comply with requirements of Section 01 33 00.

PART 2 PRODUCTS

2.1 MATERIALS

- A. Furnish where called for on drawings, semi-recessed, enameled steel case with "Larsen-Loc" door latching mechanism, solid door, with red fire handle plate, Larsen 2409-6R, J.L. Industries 1017, or approved alternate. Where fire rated cabinets are called for, provide FS-2409-6R by Larsen, J.L. Industries, or approved equal. Verify semi-recessed cabinet will fit in provided wall thickness. Break-glass doors will be acceptable only if approved company has no equal to "Larsen-Loc".
- B. Furnish multi-purpose dry chemical extinguisher, Larsen MP10, J.L. Industries Cosmic 10E, or approved equal in each fire extinguisher cabinet.
- C. Provide extinguishers with wall mounted brackets where called for on drawings.

PART 3 EXECUTION

3.1 INSTALLATION:

- A. Accurately locate all items, install level, plumb, and true. See Plans for required locations. Rigidly attach to the supporting surfaces in the manner recommended by the manufacturer. Install cabinet as required to provide 48" from finished floor to extinguisher handle.

END OF SECTION

10 44 00-1

ALUMINUM CANOPIES

SECTION 10 73 16

PART 1 – GENERAL

1.1 WORK INCLUDED

- A. Furnish a complete extruded aluminum canopy systems including labor as shown and detailed on the drawings for the following type:
 - 1. Walkway Cover
 - 2. Wall Hung Aluminum Canopies

1.2 RELATED WORK

- A. Section 03 30 00 – Cast-In-Place Concrete
- B. Section 05 12 00 - Structural Steel
- B. Section 07 92 00 - Sealants
- C. Division 26 - Electrical Work

1.3 REFERENCES

- A. The Aluminum Association (AA):
 - 1. The Aluminum Design Manual 2000, Specifications & Guidelines for Aluminum Structures.
- B. American Architectural Manufacturers Association (AAMA):
 - 1. AAMA 611, Voluntary Specification for Anodized Architectural Aluminum.
 - 2. AAMA 2603, Voluntary Specification, Performance Requirements and Test Procedures for Pigmented Organic Coatings on Aluminum Extrusions and Panels.
 - 3. AAMA 2604, Voluntary Specification, Performance Requirements and Test Procedures for High Performing Organic Coatings on Aluminum Extrusions and Panels.
 - 4. AAMA 2605, Voluntary Specification, Performance Requirements and Test Procedures for Superior Performing Organic Coatings on Aluminum Extrusions and Panels.
- C. American Society of Civil Engineers (ASCE):
 - 1. ASCE 7, Minimum Design Loads for Buildings and Other Structures.
- D. American Society for Testing and Materials (ASTM):
 - 1. ASTM B 209, Specification for Aluminum and Aluminum- Alloy Sheet and Plate.
 - 2. ASTM B 221, Specification for Aluminum and Aluminum- Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes.

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3. ASTM C 150, Specification for Portland Cement.
4. ASTM C 404, Specification for Aggregates for Masonry Grout.

E. American Welding Society (AWS):

1. ANSI/AWS D1.2, Structural Welding Code - Aluminum.

1.4 SYSTEM DESCRIPTION

A. Design Requirements:

1. Each canopy shown on drawings is to be engineered by manufacturer's registered engineer.
2. Engineering to include entire canopy system including footings.
3. Design Walkways in accordance with The Aluminum Design Manual, current
4. Comply with the wind requirements of ASCE 7 and IBC 2012 edition.
5. Provide an all welded extruded aluminum system complete with internal drainage. Non-welded systems are not acceptable.
6. Provide expansion joints to accommodate temperature changes of 120 degrees F. Provide expansion joints with no metal to metal contact.

B. Performance Requirements:

1. Grout: Compressive strength of 2000 psi, minimum.
2. Concrete: Compressive strength of 3000 psi, minimum.

1.5 SUBMITTALS

- A. Comply with Section 01 33 00.
- B. Furnish complete shop drawings bearing the seal of a registered engineer showing the required live and wind loads of the project.
- C. Submit samples of the finish and color selections.
- D. Submit manufacture's brochures and product data.

1.6 QUALITY ASSURANCE

- A. Manufacturer Qualifications: At least ten years experience in the design, fabrication, and erection of extruded aluminum canopy systems.
- B. Installation shall be done by the manufacturer of the aluminum canopy to assure a single source responsibility for the work.

1.7 WARRANTY

- A. Provide one year warranty against defects in materials, workmanship and installation.

PART 2 – MATERIALS

2.1 MANUFACTURERS

- A. *AVAddek* walkway cover systems and canopies submitted, 9201 Winkler Drive, Houston, Texas 77017, 713-944-0988.
- B. Dittmer Architectural Aluminum, 1006 Shepard Road, Winter Springs, FL 32708-2018. Ph.: (800) 822-1755
- C. Peachtree Protective Covers, Inc., 1477 Rosedale Drive, Hiram, GA 30141, 770-439-2120, fax 770-439-2122.
- D. Canopy Solutions LLC, 2260-L Dickinson Avenue, Dickinson, Texas 77539, Phone: 713-510-3800
- E. Substitutions: Comparable products of other manufacturers will be considered under standard substitution procedures.

2.2 COMPONENTS

- A. All components shall be 6061-T6 or 6005-T5 Alloy extruded aluminum
 - 1. Canopy structural design will be the responsibility of the canopy company. All component sizes shown and detailed on drawings are desired sizes. Canopy manufacturer to verify sizes will work with design engineering requirements and make adjustments if greater sizes are needed.
- B. Columns, beams, and deck shall be sized as shown on the drawings and shall meet the engineering requirements of the project. In the event that component sizes are different than those listed in paragraph A. Price the greater size component.
- C. Deck shall be 2-3/4" x 6" Self-Mating deck and shall meet the engineering requirements of the project. In the event that component sizes are different than those listed in paragraph A. Price the greater size component.
- D. All bolts and fasteners shall be stainless steel or finished to match adjacent components and sized by canopy engineer.
- E. Beams are open at top to drain canopy system internally into columns.
- F. Beams and columns are not part of canopy drainage system to be sealed water tight.

2.3 FINISHES

- A. Factory Finishing: Finish designations prefixed by AA comply with system established by the AAMA for designating aluminum finishes, selection of colors as determined by owner from manufacturer's selection.

Deck, Columns, & Structure:

- 1. Class II, Anodic Finish: AA-M12C22A31 (Mechanical Finish: nonspecular as fabricated; Chemical Finish: etched, medium matte; Anodic Coating: Architectural Class II, coating 0.4 mils to 0.7 mils thick), Complying with AAMA 611.

- B. Fascia:

- 1. Kynar 500 finish, selected from manufacturer's standard color selection

- C. Fasteners shall be concealed as much as is possible. Material shall be stainless steel or specially coated to provide for long life durability.

2.4 CANOPY TYPE

- A. Wal Mount Canopies above doors where shown
- B. Barral Vault Canopy at main entrance

PART 3 – EXECUTION

3.1 FABRICATION

- A. All welding shall be in compliance with AWS 1.2. The certification of each welder shall be available to verify compliance. Columns and beams shall be heli-arc welded.
- B. The canopy deck is to have welded end closures at the deck terminations.
- C. Canopy shall be designed to drain through beams to columns with water tight connections
- D. Flashing shall be .040 aluminum fabricated to prevent leakage between the canopy and adjacent structures.

3.2 INSTALLATION

- A. Install the canopy in strict accordance with the manufacturer's recommendations.
- B. Erect canopy after concrete and masonry work in vicinity is completed and washed down.
- C. Install columns and beams straight and true.
- D. Install rain caps over draining sections of the deck.

- E. Finish the concrete around the columns to assure a uniform quality of workmanship and appearance with the adjacent surrounding concrete work.
- F. Below-grade column water discharge: Provide per typical manufacturer's detail. Connect to sub-drainage piping.
- F. Install flashing as required.
- G. Care shall be taken to prevent damage or scratching during installation.
- H. Thoroughly clean canopy after installation.

END OF SECTION

SECTION 12 24 15

WINDOW SHADES

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Manually operated, roll-up fabric interior window shades including mounting and operating hardware.

1.2 RELATED SECTIONS

- A. Section 05 40 00 – Cold Formed Metal Framings
- B. Section 06 10 00 - Rough Carpentry.
- C. Section 07 90 00 - Joint Protection.
- D. Section 09 21 16 – Gypsum Board Shaft Wall Assemblies
- E. Section 09 22 16 – Non-Structural Metal Framing
- F. Section 09 29 00 – Drywall
- G. Section 09 51 00 – Acoustical Tile Ceilings

1.3 REFERENCES

- A. NFPA 70 - National Electrical Code.
- B. NFPA 701-99 - Fire Tests for Flame-Resistant Textiles and Films.
- C. GREENGUARD Environmental Institute Children & Schools
- D. US Green Building Council

1.4 SUBMITTALS

- A. Submit under provisions of Section 01 33 00
- B. Product Data: Manufacturer's data sheets on each product specified, including:
 - 1. Preparation instructions and recommendations.
 - 2. Installation and maintenance instructions.
 - 3. Styles, material descriptions, dimensions of individual components, profiles, features, finishes and operating instructions.
 - 4. Storage and handling requirements and recommendations.

5. Mounting details and installation methods.

- C. Shop Drawings: Plans, elevations, sections, product details, installation details, operational clearances, wiring diagrams and relationship to adjacent work.
- D. Window Treatment Schedule: For all roller shades. Use same room designations as indicated on the Drawings, field verified window dimensions, quantities, type of shade, controls, fabric, and color, and include opening sizes and key to typical mounting details.
- E. Selection Samples: For each finish product specified, two complete sets of shade cloth options and aluminum finish color samples representing manufacturer's full range of available colors and patterns.
- F. Verification Samples: For each finish product specified, two complete sets of shade components, unassembled, demonstrating compliance with specified requirements. Shade fabric sample and aluminum finish sample as selected, representing actual product, color, and patterns. Mark face of material to indicate interior faces.
- G. Maintenance Data: Methods for maintaining roller shades, precautions regarding cleaning materials and methods, instructions for operating hardware and controls.
- H. Manufacturer's Certificates: Certify products meet or exceed specified requirements.

1.5 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Obtain roller shades through one source from a single manufacturer with a minimum of twenty years experience in manufacturing products comparable to those specified in this section.
- B. NFPA Flame-Test: Passes NFPA 701. Materials tested shall be identical to products proposed for use.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Do not deliver window shades until building is enclosed and construction within spaces where shades will be installed is substantially complete.
- B. Deliver products in manufacturer's original, unopened, undamaged containers with labels intact.
- C. Label containers and shades according to Window Shade Schedule.
- D. Store products in manufacturer's unopened packaging until ready for installation.

1.7 SEQUENCING

- A. Ensure that locating templates and other information required for installation of products of this section are furnished to affected trades in time to prevent interruption of construction progress.
- B. Ensure that products of this section are supplied to affected trades in time to prevent interruption of construction progress.

1.8 PROJECT CONDITIONS

- A. Install roller shades after finish work and ambient temperature, humidity and ventilation conditions are maintained at levels recommended for project upon completion.

1.9 WARRANTY

- A. Hardware and Shade Fabric: Draper's standard twenty-five year limited warranty.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Basis of Design: Draper, Inc., which is located at: 411 S. Pearl P. O. Box 425 ; Spiceland, IN 47385-0425; Toll Free Tel: 800-238-7999; Tel: 765-987-7999; Email: request info; Web: www.draperinc.com
- B. Acceptable Manufacturers: MechoSystems, Inc., Springs Window Fashions, Inc.
- C. Requests for substitutions will be considered in accordance with provisions of Section 01 60 00

2.2 MANUALLY OPERATED WINDOW SHADES

- A. Manually Operated Window Shades with Independent Control: Manually operated, vertical roll-up, fabric window shade with components necessary for complete installation; Manual FlexShade as manufactured by Draper, Inc.
 - 1. Operation: Bead chain and clutch operating mechanism allowing shade to stop when chain is released. Designed never to need adjustment or lubrication. Provide limit stops to prevent shade from being raised or lowered too far.
 - a. Clutch mechanism: Fabricated from high carbon steel and molded fiberglass reinforced polyester or injected molded nylon. White or Black color as selected by Architect.
 - b. Bead chain loop: Stainless steel bead chain hanging at side of window.
 - c. Idler Assembly: Provide roller idler assembly of molded nylon with adjustable or spring-loaded length idler pin to facilitate easy installation, and removal of shade for service.
 - d. Bead Chain Hold Down: P-Clip (standard).

2. Roller Tube: Fabricated from extruded aluminum, galvanized steel, or enameled steel. Diameter, wall thickness, and material selected by manufacturer to accommodate shade type and size. Fabric connected to the roller tube with LSE (low surface energy) double sided adhesive specifically developed to attach coated textiles to metal. Adhesive attachment to eliminate horizontal impressions in fabric.
3. Shade slat: Slat encased in heat seamed hem.
4. Mounting:
 - a. Mounting brackets.
 - b. Endcaps and fascia.
5. Brackets: Plated stamped steel. Provide size compatible with roller size.
 - a. Mount to jamb
6. Endcaps: Stamped steel with universal design suitable for mounting to ceiling, wall, and jamb. Provide size compatible with roller size.
 - a. Endcap covers: To match fascia color.
7. Fascia: L shaped aluminum extrusion to conceal shade roller and hardware.
 - a. Attachment: Snaps onto endcaps without requiring exposed fasteners of any kind. Fascia can be mounted continuously across two or more shade bands. No notching is required.
 - b. Shape: Square Fascia Panel.
 - c. Color: Architect to select from manufacturer's standard colors palate

2.3 FABRIC

A. Light-Filtering Fabrics

1. SheerWeave Series SW2400 by Phifer: VOC Emissions: GREENGUARD Children & Schools -certified as a low emitting fabric. Manufacturer to supply GREENGUARD Children & Schools certificate. 500 denier fiberglass, vinyl coated and woven into a 2 x 2 basket weave. Fire rating: NFPA 701. Bacteria and Fungal Resistance: ASTM G 21 and ASTM G 22. Series SW2400, 3 percent open, .019 inches thick.

B. Color and pattern: As selected by Architect from manufacturer's standard range.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Do not begin installation until substrates have been properly prepared.
- B. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.2 PREPARATION

- A. Coordinate requirements for blocking and structural supports to ensure adequate means for installation of window shades.

3.3 INSTALLATION

- A. Install in accordance with manufacturer's instructions.
- B. Install roller shades level, plumb, square, and true. Allow proper clearances for window operation hardware. Install the following items to conceal roller and operating mechanism. Do not use exposed fasteners.
 - 1. Fascias
 - 2. Closure panels.
 - 3. Endcaps.
- C. Position shades level, plumb, and at proper height relative to adjacent construction. Secure with fasteners recommended by manufacturer.
- D. Position so that fascia front aligns with plane of interior gypsum wall board finish.

3.4 TESTING AND DEMONSTRATION

- A. Test window shades to verify that interface to other building systems and other operating components are functional. Correct deficiencies.
 - 2. Chain and clutch.
- B. Demonstrate operation of shades to Owner's designated representatives.

3.5 PROTECTION

- A. Protect installed products until completion of project.
- B. Touch-up, repair or replace damaged products before Substantial Completion.

3.6 SCHEDULES

- A. Refer to Drawings for shade types and locations.

END OF SECTION

