



CITY OF WEST MEMPHIS
RECREATION CENTER
ST HWY 191/I-40 SERV
West Memphis, AR 72301

CURRENT ISSUE: ISSUE FOR PERMIT
ISSUE DATE: 2026-05-01

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CONSTRUCTION PURPOSES



Client
City of West Memphis
205 Redding St. West
Memphis, AR 72301

DRAWING ISSUE

NO.	DATE	DESCRIPTION
1	2025-02-01	ISSUE FOR SCHEDULED DESIGN
2	2025-04-01	ISSUE FOR PERMIT
3	2026-05-01	ISSUE FOR PERMIT

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CONSULTANT

JOB INFO

CITY OF WEST MEMPHIS
RECREATION CENTER
ST HWY 191/I-40 SERV
West Memphis, AR 72301

JOB No.: WESCIT00561

SHEET TITLE

COVER PAGE

SHEET NUMBER

G-000



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PROJECT INFORMATION

SCOPE OF WORK:
NEW CONSTRUCTION OF A RECREATION CENTER WITH NATATORIUM, COURTS, CONCESSIONS, OFFICES AND RESTROOMS.

AUTHORITIES HAVING JURISDICTION:
CITY OF WEST MEMPHIS BUILDING DEPARTMENT AND FIRE DEPARTMENT

APPLICABLE CODES:
BUILDING CODE: 2021 ARKANSAS FIRE PREVENTION CODE VOL. II (BUILDING)
ENERGY CODE: 2014 ARKANSAS ENERGY CODE
MECHANICAL CODE: 2021 ARKANSAS MECHANICAL CODE
ELECTRICAL CODE: 2020 NATIONAL ELECTRICAL CODE
PLUMBING CODE: 2018 ARKANSAS PLUMBING CODE AND ARKANSAS GAS CODE
FIRE CODE: 2021 ARKANSAS FIRE PREVENTION CODE VOL. I (FIRE)
ACCESSIBILITY: 2010 ADA STANDARDS

BUILDING ADDRESS:
ST HWY 191/40 SERV, West Memphis, AR 72301

BUILDING NUMBER:
1 OF 1

BUILDING HEIGHT:
37'-8 1/4"

NUMBER OF STORES:
1 STORY

CONDITIONED	TYPE	AREA
		83,108 SF
UNCONDITIONED		4,495 SF
TOTAL GROSS		87,603 SF

VICINITY MAP



BUILDING OCCUPANCY AND CONSTRUCTION

OCCUPANCY CLASSIFICATION (IBC SECTION 302):
NON-SEPARATED MIXED USE

A-4 ASSEMBLY (PRIMARY USE)
A-2 ASSEMBLY
A-3 ASSEMBLY
B BUSINESS
S STORAGE

H2 HAZARD

CONSTRUCTION TYPE (IBC TABLE 601):
TYPE I-B

ALLOWABLE HEIGHT/STORIES ABOVE GRADE PLANE (IBC TABLE 501.3 & 504.4)

HEIGHT: 7 FT
STORIES: 1 (PER 507.4 RESTRICTIONS)

ALLOWABLE BUILDING AREA (IBC TABLE 506.2)
BASED ON THE MOST RESTRICTIVE USE FOR NON-SEPARATED MIX USE

AREA (SPRINKLERED): 36,000 SF
FRONTAGE INCREASE: N/A
TOTAL ALLOWABLE: UNLIMITED PER SEC 507.4

REQUIRED SEPARATION OF OCCUPANCIES (IBC TABLE 508.6)

OCCUPANCY TYPE	ADJACENT OCCUPANCY	REQUIRED SEPARATION (HOURS)
H2	A-2,2	3
H2	B	2

FIRE RESISTANCE REQUIREMENTS

FIRE RESISTANCE REQUIREMENTS FOR ALL BUILDING ELEMENTS (IBC TABLE 601)

BUILDING ELEMENT	FIRE RATING (HOURS)	UL ASSEMBLY
PRIMARY STRUCTURAL FRAME	0	N/A
BEARING WALLS		
EXTERIOR	0	N/A
INTERIOR	0	N/A
NON-BEARING WALLS & PARTITIONS		
EXTERIOR	0	N/A
INTERIOR	0	N/A
FLOOR CONSTRUCTION & ASSOCIATED SECONDARY STRUCTURAL MEMBERS:		
FLOOR CONSTRUCTION & ASSOCIATED SECONDARY STRUCTURAL MEMBERS	0	N/A
ROOF CONSTRUCTION & ASSOCIATED SECONDARY STRUCTURAL MEMBERS	0	N/A

FIRE PROTECTION (IBC SECTION 901, 906.1 & 907.2.1)
AUTOMATIC FIRE SPRINKLER SYSTEM REQUIRED & PROVIDED. RE: SHEET XXXXXXX
PORTABLE FIRE EXTINGUISHERS REQUIRED & PROVIDED. RE: SHEET 0410
FIRE ALARM DETECTION SYSTEM
MANUAL FIRE ALARM BOXES: NOT REQUIRED

FIRE RESISTANCE RATING REQUIREMENTS FOR EXTERIOR WALLS (IBC TABLE 705.5)

FIRE SEPARATION (FEET)	FIRE RESISTANCE (HOURS)
X ≥ 30'	H OCC = 0 HR A,B,S-E OCC = 0 HR

MAXIMUM AREA OF EXTERIOR WALL OPENINGS (IBC TABLE 705.6)

FIRE SEPARATION (FEET)	DEGREE OF OPENING PROTECTION	ALLOWABLE PERCENT:
X ≥ 30'	UNPROTECTED, SPRINKLERED	NO LIMIT

CONCEALED SPACES (SECTION 710)
DRAFTSTOPPING NOT REQUIRED IN NON-COMBUSTIBLE CONSTRUCTION AND BUILDINGS EQUIPPED WITH AUTOMATIC SPRINKLER SYSTEM.
FIRE RESISTING (718.2)
CONCEALED WALL SPACES (718.2.2)
DRAFTSTOPPING IN FLOORS NOT REQUIRED (718.3)
DRAFTSTOPPING IN ATTICS NOT REQUIRED (718.4)

CORRIDOR FIRE RESISTANCE RATING (TABLE 1002.2)

OCCUPANCY	OCCUPANCY LOAD SERVED BY CORRIDOR	REQUIRED FIRE RATING
A	> 30	WITH SPRINKLER = 0 HR

PLUMBING FIXTURE COUNTS - BUILDING

MINIMUM FIXTURES REQUIRED ARE CALCULATED BASED ON 50% MALE AND 50% FEMALE OCCUPANTS

ASSEMBLY
1,195 OCCUPANTS = 598 MALE, 598 FEMALE

STORAGE
5 OCCUPANTS = 3 MALE, 3 FEMALE

CLASSIFICATION	DESCRIPTION	WATER CLOSET		LAVATORIES		SHOWERS	DRINKING FOUNTAINS	SERVICE SINKS
		MALE	FEMALE	MALE	FEMALE			
ASSEMBLY CODE REQ'S	INDOOR SPORTING EVENTS	FIRST 1,500 = 1/175	FIRST 1,500 = 1/140	1/200	1/150	--	1/1,000	1
FIXTURES REQUIRED		7.97	14.95	2.99	3.99	--	1.20	1
STORAGE CODE	CHEMICAL STORAGE ROOMS	1/100	1/100	1/100	1/100	--	1/1,000	1
FIXTURES REQUIRED		.03	.03	.03	.03	--	.01	1
TOTAL FIXTURES REQUIRED		8	15	4	5	--	2	2
TOTAL FIXTURES PROVIDED		15+2*	15	11+2*	11	--	4	2

NOTES:
* UNSEX RESTROOMS

PLUMBING FIXTURE COUNTS - POOL

IBC SECTION 609
MINIMUM FIXTURES REQUIRED ARE CALCULATED BASED ON 50% MALE AND 50% FEMALE OCCUPANTS

2,000 OCCUPANTS = 1,000 MALE, 1,000 FEMALE

FIXTURES REQUIRED	WATER CLOSET		LAVATORIES		CLEANSING SHOWERS		RINSE SHOWERS	
	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE
TOTAL FIXTURES PROVIDED*	--	--	--	--	3	3	1	1

NOTES:
* SEE SECTION ABOVE FOR TOTAL WATER CLOSETS AND LAVATORIES PROVIDED
** 7/18/2017/2007: 76 +1
*** 2/26/2017/2007: 92 +1

ENERGY CODE

CLIMATE ZONE:
3

INTERNATIONAL ENERGY CONSERVATION CODE REQUIREMENTS:

	CODE DESIGN REQUIREMENTS	PROPOSED DESIGN VALUES
WINDOWS	U-FACTOR: ≤ 0.50	U-FACTOR: SHGC: 0.13
	VISIBLE LIGHT TRANSMISSION: U-FACTOR: ≤ 0.65	VISIBLE LIGHT TRANSMISSION: U-FACTOR:
DOORS	U-FACTOR: U-FACTOR:	U-FACTOR:
OVERHEAD DOOR	METAL BUILDING	METAL BUILDING
WALL INSULATION	R-VALUE: R-13 + R-3 CONTIGUOUS INSULATION OR EQUIVALENT	R-VALUE: X
	METAL BUILDING	METAL BUILDING
ROOF INSULATION	R-VALUE: R-15 W/ 6.5 THERMAL BLOCKS	R-VALUE: X
	METAL BUILDING	METAL BUILDING

NOTE: R-VALUES LISTED ARE MINIMUMS. U-FACTORS LISTED ARE MAXIMUMS

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205 Redding St. West Memphis, AR 72301

DRAWING ISSUE

NO.	DATE	DESCRIPTION
1	2024-07-15	ISSUE FOR DESIGN DEVELOPMENT
2	2024-07-15	2024-07-15 THE DATE OF THE LAST CONSTRUCTION DOCUMENT PROCESSING

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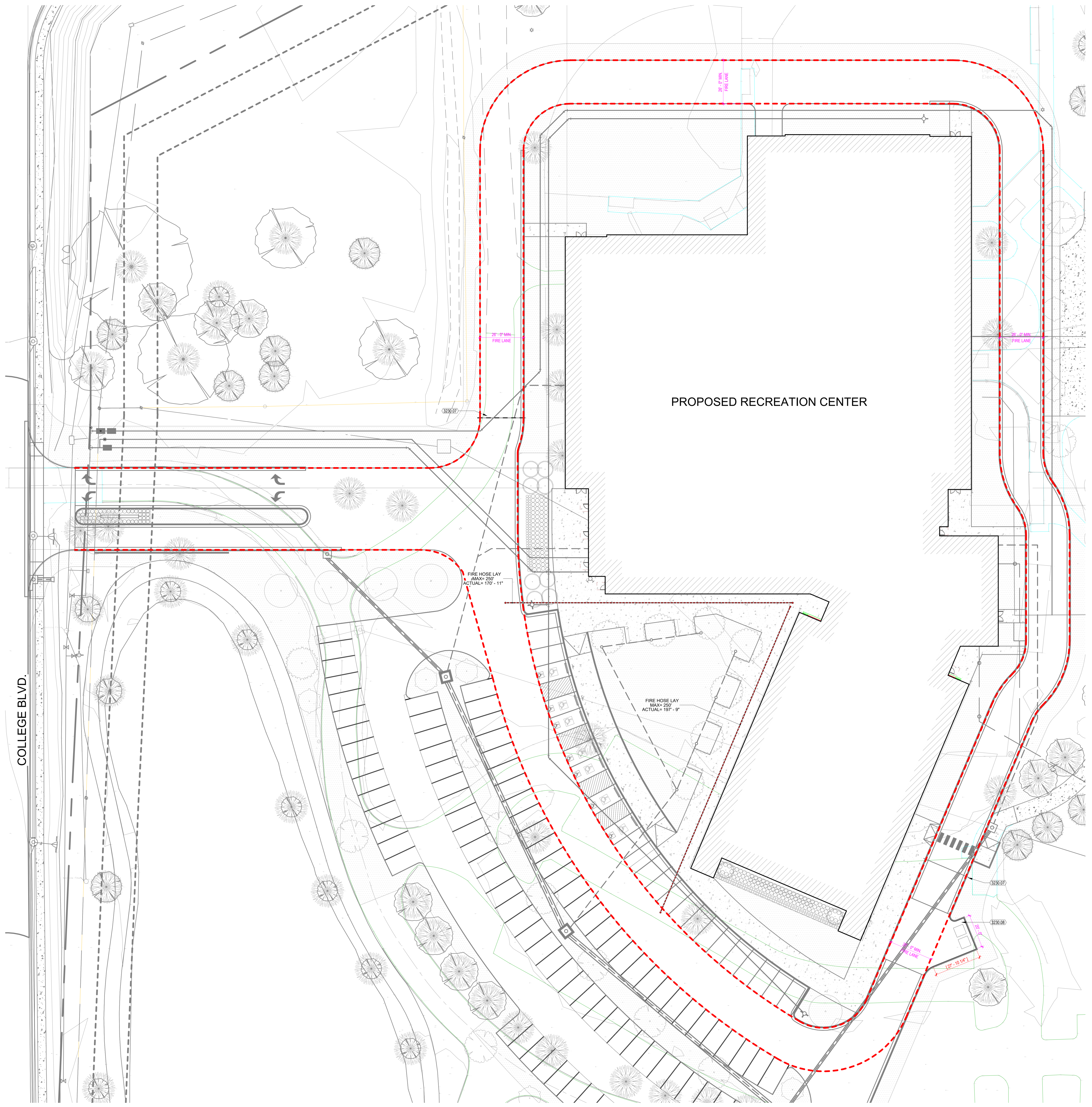
JOB No.: WESCIT00561

SHEET TITLE

CODE ANALYSIS

SHEET NUMBER

G-010



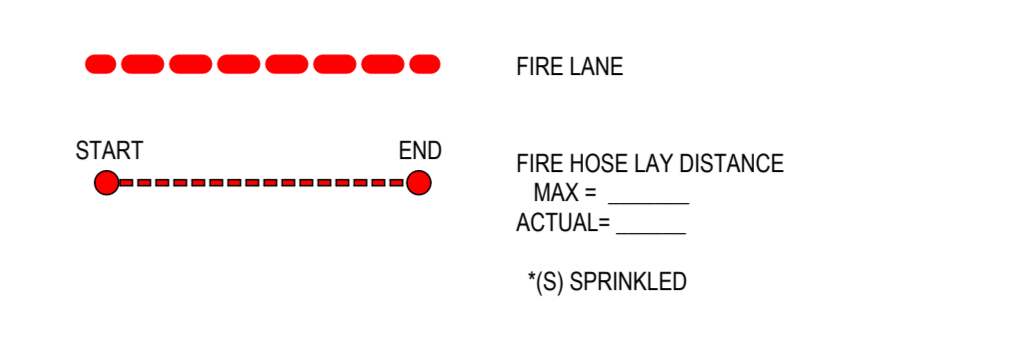
COLLEGE BLVD.

PROPOSED RECREATION CENTER

GENERAL NOTES - FIRE HOSE LAY

1. ANY DIMENSIONS INDICATED ON THIS PLAN ARE FOR LIFE SAFETY REVIEW ONLY AND SHOULD NOT BE USED FOR CONSTRUCTION PURPOSES OR SIZES.
2. FIRE ACCESS ROADS TO MEET ALL APPLICABLE REQUIREMENTS OF APPENDIX D OF THE INTERNATIONAL FIRE CODE.
3. REFER TO CIVIL DRAWINGS FOR LOCATIONS OF EXISTING AND PROPOSED FIRE HYDRANTS.

LEGEND - FIRE HOSE LAY



KEYNOTES

NOTE: KEYNOTE NUMBERING IS FOR ORGANIZATIONAL PURPOSES ONLY AND NOT INTENDED TO REFER TO A SPECIFIC CSI DIVISION

NUMBER	DESCRIPTION
3230.07	EMERGENCY BREAKAWAY GATE RE. LANDSCAPE
3230.08	ASPHALT DUMPSTER PAD

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205 Redding St. West Memphis, AR 72301

DRAWING ISSUE

NO.	DATE	DESCRIPTION
1	2024.07.15	ISSUE FOR DESIGN DEVELOPMENT
2	2024.08.15	FOR THE CITY OF WEST MEMPHIS
3	2024.09.15	FOR THE CITY OF WEST MEMPHIS

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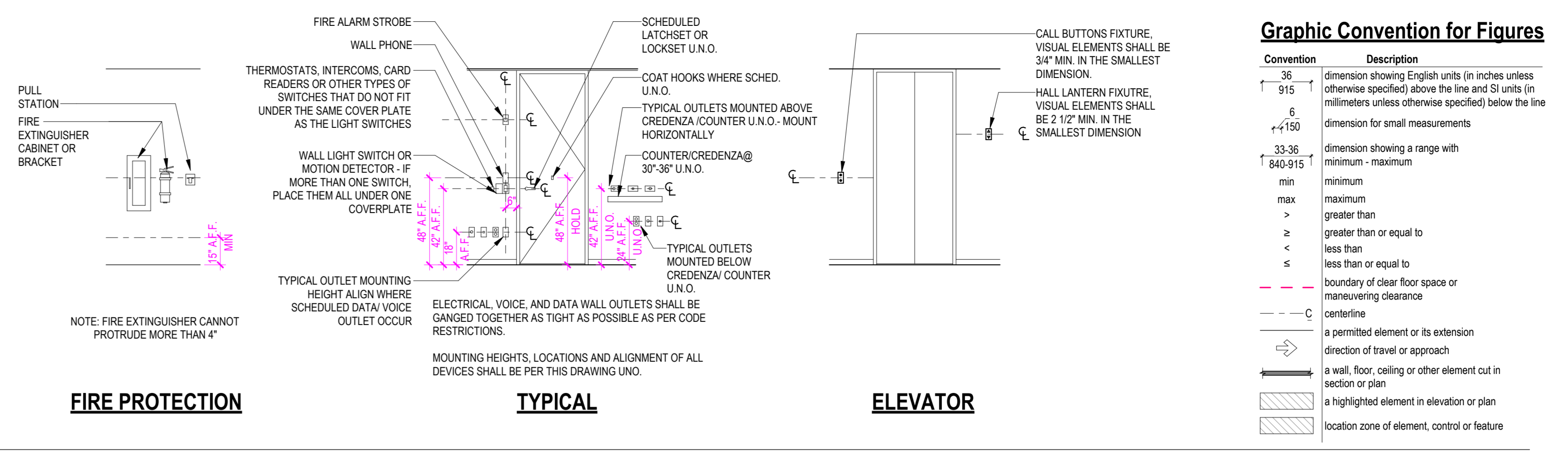
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SHEET TITLE

FIRE ACCESS PLAN

SHEET NUMBER

G-011



City of West Memphis
205 Redding St. West Memphis, AR 72301

DRAWING ISSUE

NO.	DATE	DESCRIPTION
1	08/15/24	ISSUE FOR PERMITS
2	08/15/24	ISSUE FOR PERMITS
3	08/15/24	ISSUE FOR PERMITS
4	08/15/24	ISSUE FOR PERMITS
5	08/15/24	ISSUE FOR PERMITS
6	08/15/24	ISSUE FOR PERMITS
7	08/15/24	ISSUE FOR PERMITS
8	08/15/24	ISSUE FOR PERMITS
9	08/15/24	ISSUE FOR PERMITS
10	08/15/24	ISSUE FOR PERMITS

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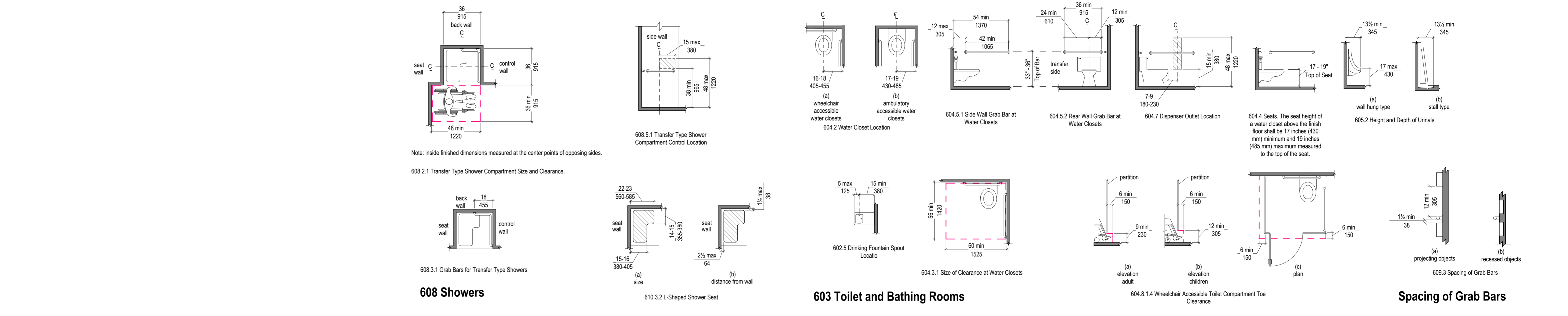
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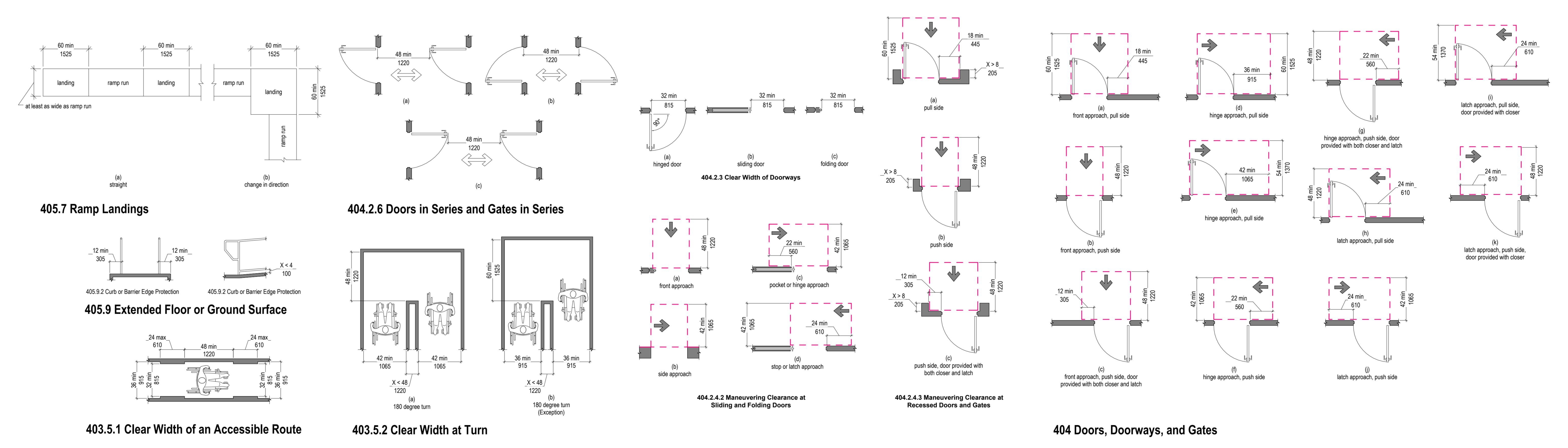
ADA STANDARDS

SHEET NUMBER

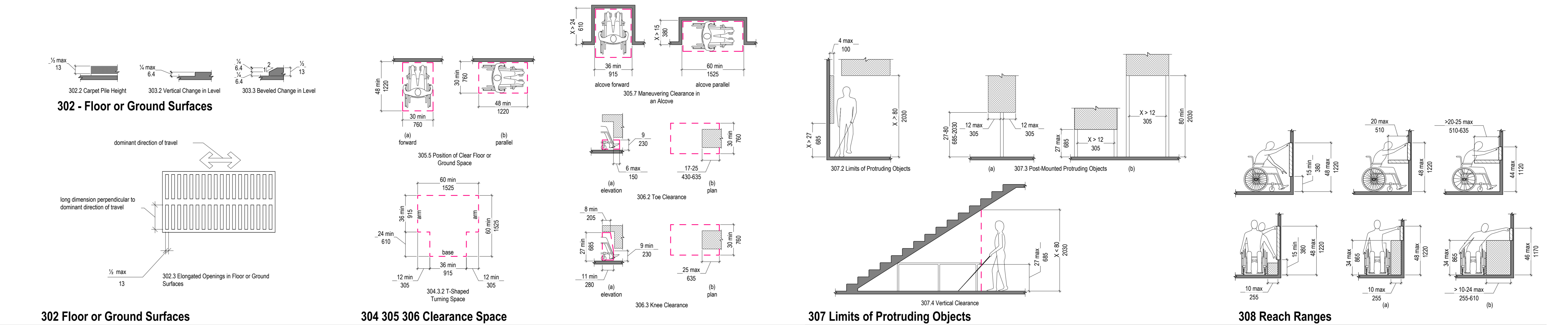
G-020



CHAPTER 6: PLUMBING ELEMENTS AND FACILITIES



CHAPTER 4: ACCESSIBLE ROUTES



CHAPTER 3: BUILDING BLOCKS

Division 21: AUTOMATIC SPRINKLER SYSTEM

1. GENERAL INSTRUCTIONS

A. GENERAL REQUIREMENTS

Requirements under Division 01 and the general and supplementary conditions of these specifications shall apply to this section and division. Where the requirements of this section and division exceed those of Division 01, this section and division take precedence. Become thoroughly familiar with all its contents as to requirements that affect this division, section, or both. Work required under this division includes all material, equipment, appliances, transportation, services, and labor required to complete the entire system as required by the drawings and specifications or reasonably inferred to be necessary to facilitate the function of each system as indicated by the design and the equipment specified.

The specifications and drawings for the project are complementary, and any portion of work described in one shall be provided as if described in both. In the event of discrepancies, notify the Engineer and request clarification prior to proceeding with the work involved.

Drawings are graphic representations of the work upon which the contract is based. They show the materials and their relationship to one another, including sizes, shapes, locations, and connections. They convey the scope of work, indicating the intended general arrangement of the systems without showing all of the exact details to elevations, offsets, control lines, and other installation requirements. Use the drawings as a guide when laying out the work and to verify that materials and equipment will fit in the designated spaces, and which when installed per manufacturers' requirements, will ensure a complete, coordinated, satisfactory, and properly operating system.

B. DEFINITIONS

Division: References contained in this specification follow the numbering system defined in the Construction Specifications Institute (CSI) MasterFormat 2004 Edition. Specific Divisions 01 through 13 provided with this project may reference the CSI MasterFormat 1995 Edition. The corresponding division references between the 2004 Edition and 1995 Edition are as follows:

1995 Edition	Division 15
Division 21 – Fire Suppression	Division 15
Division 22 – Plumbing	Division 15
Division 23 – HVAC	Division 15
Division 24 – Electrical	Division 16
Division 27 – Communications	Division 16
Division 28 – Electronic Safety and Security	Division 16

Furnish: to supply and deliver to the project site, ready for unloading, unpacking, assembly, installation and similar operations."

Install: "to perform all operations at the project site including, but not limited to, the actual unloading, unpacking, assembling, erecting, placing, anchoring, applying, working to dimension, finishing, cutting, protecting, cleaning, testing, commissioning, starting up and similar operations, complete, and ready for the intended use."

Provide: "to furnish and install, complete and ready for the intended use."

Furnished by Owner (or Owner-Furnished) or Furnished by Others: "an item furnished by the Owner or under other divisions or contracts, and installed under the requirements of this division, complete and ready for its intended use, including all items and services incidental to the work and necessary for proper installation and operation. Include the installation under the warranty required by this division."

Engineer: Where referenced in this division, "Engineer" is the Engineer of Record and the Design Professional for this work under this division, and is a consultant, and an authorized representative in the General and/or Supplementary Conditions. When used in this division, Engineer means increased involvement by and obligations to the Engineer, in addition to involvement by and obligations to the Architect.

AHJ: The local code and/or inspection agency (Authority) Having Jurisdiction over this work.

NRTL: Nationally recognized testing laboratory, as defined and listed by OSHA in 29 CFR 1910.7 (e.g., UL, ETL, CSA), and acceptable to the AHJ over this project. Nationally recognized testing laboratories and standards listed are used only to represent the characteristics required and are not intended to restrict the use of other NRTLs that are acceptable to the AHJ and standards that meet the specified criteria.

Substitution: Changes in products, materials, equipment, and methods of construction from those required by the Contract Documents and proposed by Contractor. Substitutions include Value Engineering proposals.

- Substitutions for Cause: Changes proposed by Contractor that are required due to changed Project conditions, such as unavailability of product, regulatory changes, or unavailability of required warranty terms.
- Substitutions for Convenience: Changes proposed by Contractor or Owner that are not required in order to meet other Project Requirements but may offer advantage to Contractor or Owner.

The terms "approved equal," "equivalent," or "equal" are used synonymously and shall mean "accepted by or acceptable to the Engineer as equivalent to the item or manufacturer specified." The term "approved" shall mean labeled, listed, or both, by an NRTL, and acceptable to the AHJ over this project.

C. PREBID SITE VISIT

Prior to submitting bid, visit the site of the proposed work and become fully informed as to the conditions under which the work is to be done. Failure to comply with this requirement shall not be considered sufficient justification to request or obtain extra compensation over and above the contract price.

D. MATERIAL AND WORKMANSHIP

Use new material, equipment, and apparatus under this contract unless otherwise stated herein, of best quality normally used for the purpose in good commercial practice, and free from defects. Install material and equipment in accordance with the manufacturer's installation instructions. Model numbers listed in the specifications or shown on the drawings are not necessarily intended to designate the required item, written descriptions of the item govern model numbers.

Pipe, pipe fittings, pipe specialties and valves shall be manufactured in plants located in the United States or certified to meet the specified ASTM and ANSI standards.

Work performed under this contract shall provide a neat and "workmanlike" appearance when completed, to the satisfaction of the Architect and Engineer. Workmanship shall be the finest possible by experienced mechanics. Installations shall comply with applicable codes and laws.

The complete installation shall function as designed and intended with respect to efficiency, capacity, noise level, etc. Abnormal noise caused by rattling equipment, piping, or devices, and squeaks in rotating components shall not be acceptable. Materials and equipment shall be of commercial specification grade in quality.

Remove from the premises waste material present as a result of work, including cartons, crating, paper, stickers, and/or excavation material not used in backfitting, etc. Clean equipment installed under this contract to present a neat and clean installation at the termination of the work.

Repair or replace public and private property damaged as a result of work performed under this contract to the satisfaction of authorities and regulations having jurisdiction. Provide all safety signs, guards, and warning signs required for the performance of the work and for the safety of the public.

E. MANUFACTURERS

In other articles where lists of manufacturers are introduced, subject to compliance with requirements, provide products by one of the manufacturers specified. Where a list is provided, manufacturers are listed alphabetically and not in accordance with any ranking or preference.

Where manufacturers are not listed, provide products subject to compliance with requirements from manufacturers that have been actively involved in manufacturing the specified product for not less than 5 years.

F. CODES AND STANDARDS

Work performed under this contract shall, at a minimum, be in conformance with building and fire codes for the national, state and local codes having jurisdiction. Equipment furnished and associated installation work performed under this contract shall be in strict compliance with current applicable codes adopted by the local AHJ, including any amendments and standards, as set forth by the following:

- National Fire Protection Association (NFPA) 13
- National Fire Protection Association (NFPA) 72
- Underwriters Laboratories (UL)
- Rules and regulations of public utilities and municipal departments affected by connection of services.
- Other national standards and codes where applicable.

Where the contract documents exceed the requirements of the referenced codes, standards, etc., the contract documents shall take precedence. Where conflicts between various codes, ordinances, rules, and regulations exist, comply with the most stringent.

Promptly bring all conflicts observed between codes, ordinances, rules, regulations, referenced standards, and these documents to the attention of the Architect and Engineer for final resolution. Contractor will be held responsible for any violation of the law.

Procure and pay for permits and licenses required for the accomplishment of the work herein described. Where required, obtain, pay for, and furnish certificates of inspection to Owner.

G. COORDINATION

Coordinate work with that of other trades so that the various components of the systems are installed at the proper time, will fit the available space, and will allow proper service access to those items requiring maintenance. Components installed without regard to the above shall be relocated at no additional cost to the Owner.

H. SUBSTITUTIONS

Materials, products, equipment, and systems described in the Bidding Documents establish a standard of required function, dimension, appearance and quality to be met by the proposed substitution. The base bid shall include only the products from manufacturers specifically named in the drawings and specifications. To request a substitution, request the Substitution Request Form From the Architect or Engineer. Complete and send the Substitution Request Form for each material, product, equipment, or system that is proposed to be substituted. The burden of proof of the merit of the proposed substitution is upon the proposer.

Unless stated otherwise in writing to the Engineer by the Contractor, Contractor warrants to the Engineer, Architect, and Owner the following:

- Proposed substitution has been fully investigated and determined to meet or exceed the specified Work in all respects unless stated otherwise in the substitution request.
- Proposed substitution is consistent with the Contract Documents and will produce indicated results, including functional clearances, maintenance service, and sourcing of replacement parts.
- Proposed substitution has received necessary approvals of authorities having jurisdiction.
- Same warranty will be furnished for proposed substitution as for specified Work.
- If accepted substitution fails to perform as required, Contractor shall replace substitute material or system with that originally specified and bear costs incurred thereby.

Coordination, installation and changes in the Work as requested for accepted substitution will be complete in all respects.

No substitutions will be considered unless the Substitution Request Form is completed and attached with the appropriate substitution documentation. No substitution will be considered prior to receipt of bids unless written request for approval to bid has been received by the Engineer at least ten (10) calendar days prior to the date for receipt of bids.

If the proposed substitution is approved prior to receipt of bids, such approval will be stated in an addendum. Bidders shall not rely upon approvals made in any other way. Verbal approval will not be given. No substitutions will be considered after the contract is awarded unless specifically provided in the contract documents.

I. SUBMITTALS

Assemblies and submittals for review shop drawings, material lists, manufacturer product literature for equipment to be furnished, and items requiring coordination between contractors under this contract. Provide submittals in sufficient detail to demonstrate compliance with these Contract Documents and the design concept. If the size of equipment furnished makes necessary any change in location or configuration, submit a shop drawing showing the proposed layout.

Transmit submittals as early as required to support the project schedule. Allow for ten (10) business days review time for each submittal review after receipt by Engineer, not including transmission time by Architect. Only resubmit those sections requested for resubmittal.

Minimum NICET Water Based System Layout Level III technician must prepare sprinkler plans and calculations. Where required by the AHJ, Contractor is responsible for obtaining licensure, professional engineer stamp and signature, or NICET certification number and signature, on shop drawing submittal. The Engineer will not provide professional engineer stamp or signature on submittals.

Submittals shall contain the project name, applicable specification section, submittal date, equipment identification acronym as used on the drawings, and the Contractor's review stamp. The stamp shall certify that the submittal has been checked by the Contractor, complies with the drawings and specifications, and is coordinated with other trades. Manufacturer product literature shall include shop drawings, product data, performance sheets, samples and other submittals required by this division, highlight, mark, list, or indicate the materials, performance criteria, and accessories that are being proposed. General product catalog data not specifically noted to be part of the specified product will be rejected and returned without review.

Submittals and shop drawings shall not contain the firm name, logo, seal, or signature of the Engineer. They shall not be copies of the work product of the Engineer. If the Contractor desires to use elements of such product, refer to paragraph "Electronic Drawing Files" for procedures to be used.

Review and approval of submittals by the Engineer shall not relieve the Contractor from responsibility for errors in dimensions, details, size of members, quantities, omissions of components or fittings, coordination of electrical requirements, or for coordinating items with existing building conditions. Proceed with the procurement and installation of equipment only after receiving approved shop drawings relative to each item.

Drawings shall be produced using Computer Aided Design. Hand drawn documents will not be reviewed or approved.

Provide the quantity of submittals required by Division 01. If not indicated and hard-copy sets are provided, submit a minimum of six (6) copies. Refer to Division 01 for acceptance of electronic submittals for this project. For electronic submittals, Contractor shall submit the documents in accordance with the procedures specified in Division 01. Contractor shall notify the Architect and Engineer that the submittals have been posted. If electronic submittal procedures are not defined in Division 01, Contractor shall include the website, user name, and password information needed to access the submittals. For submittals sent by e-mail, Contractor shall copy the designated representatives of the Architect and Engineer. Contractor shall allow for the Engineer review time as specified above in the construction schedule. Contractor shall submit only the documents required to purchase the materials and/or equipment in the electronic submittal.

Shop drawings shall meet the requirements of NFPA 13 for working level drawings and shall include the following in a single submittal. Note partial submittals may be returned without review:

- Working plans including but not limited to, plan drawings of the complete overhead sprinkler system that indicates the relationships of sprinkler piping and sprinklers to all other overhead items, including ceiling grid and tops, light fixtures, diffusers, registers, grilles, ductwork, structure, soffits, protrusions, etc. Location of risers, piping, etc., shall be as shown on Contract Documents, inconspicuous as possible, and shall fulfil all functional requirements. Current water supply information, system design basis, and flow and pressure demand shall be noted on drawings.
- Details and sections as required to define and clarify the design.
- Hydraulic calculations considering each hydraulic placard shown on plans.
- Product data for all fire sprinkler system components. Clearly indicate components to be used where multiple components appear on the same page.
- Separate submittals according to individual specification sections. Catalog data shall be properly bound, identified, indexed, and tabbed in a 3-ring binder or submitted in a single PDF file. Each submittal plan or model number shall be clearly marked and accessories indicated. Label the catalog data with the equipment identification acronym or number as used on the drawings and include performance curves, capacities, sizes, weights, materials, finishes, wiring diagrams, electrical requirements and deviations from specified equipment or materials. For equipment with motor starters or VFDs, include short circuit current ratings. Clearly indicate components to be used where multiple components appear on the same page. Shop drawings will be returned without review if information is illegible or if the above requirements are not met.

J. ELECTRONIC DRAWINGS

Contractor may request an electronic version of the contract drawing set in AutoCAD format from the Engineer for a fee of \$250. Contact the Architect for written authorization. Contact the Engineer for the release agreement form and specify the saving method and drawing format. Allow up to ten (10) working days for electronic file delivery after authorization and release agreements are completed and delivered to the Engineer.

K. RECORD DRAWINGS (AS-BUILT DRAWINGS)

During progress of the work in this division, Contractor shall maintain an accurate record of all changes made during the installation of the system. Upon completion of the work, accurately transfer all record information to three identical sets of the approved shop drawings. Insert one set into each copy of the Operations and Maintenance Instructions manual described below.

See Division 01 and General Conditions for additional information.

L. OPERATION AND MAINTENANCE INSTRUCTIONS

During the course of construction, collect and compile a complete brochure of equipment furnished and installed on this project. Include operational and maintenance instructions, manufacturer's catalog sheets, wiring diagrams, parts lists, approved submittals and shop drawings, warranties, and descriptive literature as furnished by the equipment manufacturer. Include an inside cover sheet that lists the project name, date, Owner, Architect, Engineer, General Contractor, Sub-Contractor, and an index of contents.

Submit three copies of literature bound in permanent binders, and labeled separating equipment types to the Architect, for Engineer's review, at the termination of the work. Paper clips, staples, rubber bands, loose-leaf binding, and mailing envelopes are not considered permanent binders. Final approval of systems installed under this contract shall be withheld until this equipment brochure is received and deemed complete by the Architect and Engineer. Save required literature shipped with the equipment list for inclusion in this brochure.

Literature shall contain the following items:

- Identification clearly visible on or through the cover, the name of the project, and description "Fire Sprinkler System Manual".

- Neatly typed index at front with all emergency information clearly identified.
- Complete list of all system components with manufacturer's names, catalog numbers, and all data for ordering parts.
- One copy of the as-built record drawings as described above.
- All information required to secure emergency repairs or service.
- Test reports and certificates including "Contractor's Material and Test Certificate(s) for Underground Piping" and "Contractor's Material and Test Certificate(s) for Above Ground Piping" as described in NFPA 13.

Refer to Division 01 for acceptance of electronic manuals for this project. For electronic manuals, refer to paragraph "Submittals" for requirements.

M. QUALIFICATIONS

Contractor shall be approved and licensed for installation of fire protection systems. The work done under this section shall be performed only by a Contractor whose artisans are experienced and regularly engaged in the installation of fire protection systems.

Installation of devices shall be performed or supervised by a National Institute for Certification of Engineering Technologies (NICET) Water Based System Level III or higher technician. Submit copies of the certification for employees through shop drawing submittals.

N. WARRANTIES

Warrant each system and each element thereof against all defects due to faulty workmanship, design, or material for a period of 12 months from date of Substantial Completion, unless specific items are needed to carry a longer warranty in the construction documents or manufacturer's standard warranty exceeds 12 months. Remove all defects, occurring within the warranty periods, as stated in the General Conditions and Division 01.

Warranties shall include labor and material, including travel expenses. Make repairs or replacements without any additional costs to the Owner, and to the satisfaction of the Owner, Architect, and Engineer.

Perform the remedial work promptly, upon written notice from the Engineer or Owner.

At the time of Substantial Completion, deliver to the Owner all warranties, in writing and properly executed, including term limits for warranties extending beyond the one year period, each warranty instrument being addressed to the Owner and stating the commencement date and term.

O. SCOPE

Provide a wet-pipe, automatic fire sprinkler system for the area of work shown on the drawings. The fire sprinkler system shall be an automatic system coordinated with building structure and systems. Interconnect the fire sprinkler alarm devices to the fire alarm system or fire sprinkler monitoring panel as required.

Provide dry pipe fire protection system for non-heated spaces and other areas of building subject to freezing including the loading docks and canopies, mansards, and balconies. Portions of systems subject to freezing or temperatures below 40° F shall be protected against freezing as required by NFPA 13. The Contractor shall be responsible for repairs and for all costs incurred from damage caused by freezing of the fire protection system.

Provide all fire sprinkler alarm devices including waterflow alarm and valve tamper switches for all system control valves. Provide a notification appliance acceptable to the AHJ on the exterior of the building at 8'-0" above finished grade, adjacent to the fire department connection. Coordinate all wiring and conduit for a complete and functional installation.

System shall, at a minimum, be in accordance with the adopted edition of NFPA 13, 24, Underwriters Laboratories (UL), and must be acceptable to the Owner's Insurer, the AHJ, and all applicable local, state and national codes and standards. Where the contract documents exceed the requirements of the referenced codes, standards, etc., the contract documents shall take precedence.

Work shall include, but shall not necessarily be limited to the following:

- All underground piping (which pertains to the fire sprinkler system) as indicated on the drawings, including all required pipe, valves, etc., as well as the required preparatory and finishing work such as trenching, backfilling, and pavement replacement. Provide thrust block, supervised post indicating valve, and valve pit as required or shown on drawings.
- Connection to city main shall be a wet tap and shall include all required fittings, valves, meter valves, backflow preventers, backflow preventer vault, etc. Provide backflow prevention equipment as required by local codes.
- Design and installation of a complete wet-pipe, automatic fire sprinkler system for the area of work shown on the drawings or specified herein.
- Portions of systems subject to freezing or temperatures below 40 degrees F shall be protected against freezing as required by NFPA 13. The Contractor shall be responsible for repairs and all costs incurred from damage caused by freezing of the fire protection system.
- Provide overhead sprinkler system for freezers and cooler boxes. Sprinklers within coolers and freezers shall be of the dry pendente type unless noted otherwise.
- Install the fire sprinkler monitoring panel adjacent to the sprinkler riser as indicated on the drawings. Coordinate the connection of all installed fire sprinkler alarm devices.

P. SYSTEM DESIGN

Contractor shall verify design criteria and rating hazards with the Owner's Insurer prior to designing the system. Water supply test data shall be as noted on Contract Documents. Water supply test shall not be conducted more than 12 months prior to the submittal of sprinkler shop drawings. When required by Contract Documents, low test costs and arrangements for shall be the responsibility of the Contractor.

Submit hydraulic calculations and plan, including a supply and demand graph. All hydraulic reference points and area of application shall appear on the plan. Contractor shall verify minimum safety factor requirements with the AHJ. Demand shall not be less than 5 PSI below the supply at the demand point.

Protect entire area of work with a wet-type sprinkler system designed in accordance with NFPA 13 unless noted otherwise. Design system for Light Hazard, 0.10 gpm/SF over the hydraulically remote 1500 SF area. include minimum 100 gpm hose allowance added at the base of riser.

Protect mechanical and electrical areas/rooms with a wet-type sprinkler system designed in accordance with NFPA 13. Design system for Ordinary Hazard Group 1, 0.1 gpm/SF over the hydraulically remote 1000 SF area. include minimum 250 gpm hose allowance added at the base of riser.

Protect storage areas/rooms with a wet-type sprinkler system designed in accordance with NFPA 13. Design system for Ordinary Hazard Group 2, 0.20 gpm/SF over the hydraulically remote 1500 SF area. include minimum 250 gpm hose allowance added at the base of riser.

Unless noted otherwise on Contract Documents, the Contractor shall be fully responsible for the hydraulic calculations, the final system design, and the layout of all components of the system as required for approval by the Owner's Insurer and the AHJ.

The Contractor shall be fully responsible for coordinating system layout with other contractors. Changes to system design due to lack of coordination shall be paid for by the Contractor.

Designs requiring cutting of structural members for passage of sprinkler pipes or hangers shall not be accepted without the Architect and Structural Engineer's written approval. Any excessive requirements of this type shall be identified during the bid period.

Sprinkler spacing shall conform to NFPA 13. Extended coverage sprinklers shall not be used in unfinished (shell) spaces.

The hydraulic area of operation shall be increased by 30% without revising the density for areas with sloped ceilings with a pitch exceeding 1 in 6 (16.7% slope) in accordance with NFPA 13.

The hydraulic area of operation shall be increased by 30% without revising the density for dry-pipe and double interlock pre-action systems in accordance with NFPA 13.

The hydraulic area of operation may not be reduced as allowed by NFPA 13 for areas utilizing quick response sprinklers in unfinished shell spaces.

For all other areas, the hydraulic area of operation shall not be reduced as allowed by NFPA 13 for areas utilizing quick response sprinklers unless specifically approved by the Engineer via a formally submitted RFI.

2. MATERIALS AND INSTALLATION

A. BUILDING OPERATION

Comply with the schedule of operations as outlined in the architectural portions of this specification. Coordinate work requiring interruption of building operation at a time when the building is not in operation and only with written approval of building Owner and/or tenant. Arrange alternate operation of building operation with the Owner and/or tenant a minimum of seven (7) days in advance of work.

B. PIPING AND COMPONENTS

Underground piping shall be cement lined ductile iron or other approved or listed material, installed in accordance with NFPA and FM standards, fire main shall include all required fittings and valves.

Sprinkler piping 2-1/2 inch and larger must be Schedule 10 or Schedule 40 black steel. Threaded sprinkler piping 2 inch and smaller must be Schedule 40 black steel. Roll-ground sprinkler piping 2 inch and smaller must be Schedule 10 or Schedule 40 black steel. Pipes must have welded, threaded, or mechanically joined fittings, based on the pipe material and size per NFPA 13 requirements.

Acceptable alternatives to Schedule 10 and Schedule 40 pipe shall be mechanically to standards recognized by NFPA 13. Pipe must have a corrosion resistance rating of 13 or greater. Climp-type couplings are not permitted. Threadable threaded pipe with corrosion resistance less than 10 is not permitted.

All piping on the exterior of the building and/or exposed to the elements must be externally galvanized or painted. Internally galvanized piping is not approved.

Provide an automatic air release valve at an accessible location on the highest point of each wet-pipe sprinkler system, ECS model PAV-W or AGF Model 790AAV.

C. SPRINKLERS

Sprinklers in areas with gypsum board ceilings shall be one of the following:

- Chrome-plated, recessed type with chrome-plated escutcheons.

Sprinklers in areas with suspended acoustical ceilings shall be one of the following:

- Chrome-plated, recessed type with chrome-plated escutcheons.

Sprinklers in areas with exposed piping may be pendant or upright types with drop brass finish.

Provide quick response sprinklers in all light hazard areas.

Coordinate sprinkler temperature rating near heat-producing sources in accordance with NFPA 13.

D. SERVICE ENTRANCE AND SPRINKLER RISER

Locate fire protection service entrance where indicated on the drawings. Equip the service with a UL listed and USC approved backflow preventer assembly, minimum double-check assembly, or as required by the AHJ. Service entrance shall include indicating control valves with supervisory systems.

Equip sprinkler system riser with an approved indicating control valve with tamper switch, waterflow alarm switch, notification appliance, check valve, system drain terminating outdoors, gauges, and fire department connection with check valve. Each riser shall meet NFPA 13 standards and requirements for acceptable valve arrangements. Separate control valve and check valve may be omitted if backflow preventer is located at the service entrance and building is protected with a single riser.

Permanently attach a hydraulic placard indicating location and basis of design (discharge density, number of operating sprinklers, minimum operating pressure, and system demand) to the riser for hydraulically designed systems.

Provide a general information sign at the riser to indicate system design basis and information relevant to the inspection, testing, and maintenance requirements, as required by NFPA 13. Sign shall include name and location of the building, name of installing contractor, occupancy and commodity classification(s), water supply information, presence of high piled storage, planned maximum height of storage, presence of solid shelving, planned aisle walk, presence of flammable/combustible liquids, presence of hazardous materials, location of air release valves(s), location of auxiliary drains and low-point drains on dry-pipe and pre-action systems (if present), original results of main drain flow test, original results of dry-pipe and pre-action valve test (if present), pressure and location of antifreeze systems and fill valves, and presence of nitrogen (where used to allow for increased systems).

Signs and placards shall be permanently-engraved or stamped weatherproof metal or rigid plastic. Secure signs with corrosion-resistant wire, chain, or screws.

Provide all control valve supervisory switches, waterflow alarm switches, and sprinkler system equipment panels requiring interconnection to the fire alarm system. Provide a line secure type automatic dialer (Ademco or equal) and related telephone wiring for remote monitoring of fire sprinkler alarm devices and operation of the notification appliance.

Provide rough brass Siamese fire department connection with two individual type drop clapper valves and drain, located on building wall where indicated on the drawings. Fire department connection shall be complete with all low-type brass hose, hose meter caps with chains. Hose threads shall be compatible with local fire department specifications. Provide check valve sized per NFPA 13 with 3/4 inch ball drop drain piped to the exterior of the building. Fire department connection shall be permanently labeled "SIAMENIC SPRINKLER FIRE DEPARTMENT CONNECTION".

Provide a cabinet containing spare sprinklers and appropriate wrench(es) per NFPA 13 at the fire sprinkler system service entrance area.

3. EXECUTION

A. GENERAL

Install, program, and test all new equipment identified in this contract and revise existing equipment as noted.

The installation supervisor shall be on the job site during the entire installation. The installation supervisor shall maintain marked up copies of the drawings at the job site showing as-built conditions. These drawings shall be updated daily and available for Owner review.

B. INSTALLATION

Excavation, trenching and backfilling shall be in accordance with requirements of the excavation and backfill section of the plumbing specifications.

Conceal piping in areas having ceilings, other than the underside of the roof deck. Piping in areas without ceilings may be exposed but kept at a minimum distance from the deck. All piping shall be clean and free of rust. Install system such that all piping is rigidly secured and supported. All ductwork, lights, structural members and main runs of piping shall take precedence over sprinkler piping. Cutting of structural members for passage of sprinkler pipes or hangers shall not be permitted.

All horizontal piping in ceiling space shall be at an elevation above and air outlets to allow for access to light fixtures and air outlets without removing horizontal piping. Route all sprinkler piping and provide all offsets, bends, and elbows around all mechanical, electrical, and structural members as required.

Where exposed piping passes through finish work, install chrome plate (or other finish acceptable to the architect) split-wall plates or escutcheons to fit snugly around the piping. Provide at each penetration to assure effectiveness of construction as a fire stop where piping is concealed or installed in unfinished areas.

All openings for piping shall be anticipated and indicated on the approved shop drawings. Any additional cutting of openings must be written approval of the Architect.

Route piping parallel to major building lines.

Do not route piping above electrical equipment.

Do not connect more than one sprinkler to a one inch outlet unless hydraulic calculations are included to verify performance.

Installation shall allow for suitable drainage of systems to meet with the approval of the AHJ. Provide access panels as required. All drain locations requiring access panels shall be approved by the Architect prior to installation.

Sprinklers in suspended ceilings shall be not less than 6-inches from the grid in all directions.

Sprinklers in suspended ceilings shall be 1 foot from the grid in both directions or centered in ceiling lines. Sprinkler locations in finished areas shall be approved by Architect prior to installation.

C. SEISMIC CONTROLS FOR MEFP SYSTEMS

Seismic Protection Criteria: III
Risk/Occupancy Category: Contractor's Seismic Engineer to Determine.
Site Soil Category: Contractor's Seismic Engineer to Determine.
Seismic Design Category: Determined from ASCE 7.
Component Importance Factor: Determined from ASCE 7.

The Contractor shall be responsible for determining the requirements for seismic bracing of mechanical, electrical, and plumbing systems. Seismic protection criteria used to determine seismic bracing requirements of all mechanical, electrical and plumbing systems shall be determined by the applicable code adopted in the project jurisdiction. Where not already determined within the contract documents, the Contractor shall be responsible for contracting a licensed professional engineer to establish building site class, seismic design category, seismic zone or any other criteria necessary to determine the requirements for seismic bracing on mechanical, electrical and/or plumbing systems.

Seismic bracing of the protection systems shall be installed in strict accordance with the provisions of NFPA 13.

The Contractor shall submit the following shop drawing information to the AHJ and the Engineer for review and approval:

- Seismic analysis listing all applicable seismic design criteria.
- Descriptive catalog data of seismic bracing materials.
- Shop drawings showing bracing type and location.
- Installation details of all bracing steel.
- Calculations showing that the seismic restraints meet the seismic requirements.

Shop drawings and calculations shall be signed and sealed by a registered professional engineer, licensed in the state of the project and employed by the manufacturer of the seismic bracing products. Calculations shall include dead loads, static seismic loads and capacity of materials utilized for connections.

Seismic bracing, restraints, isolators, and isolation materials shall be of the same manufacturer and shall be certified by the manufacturer. Approved manufacturers are: AmberBooth Company, Inc., B-Line/Tolco, Kinetics Noise Control, Inc., Loos & Company, Inc., Mason Industries, Inc., Uni-strut, or Vibro-Acoustics. Each device shall have a pre-approved number from California OSHPD or other recognized government agency showing maximum restraint ratings.

Seismic bracing measures to be applied to fire sprinkler equipment/systems shall be installed in strict accordance with all applicable local, state, and/or federal codes as well as a manufacturer's requirements. The most stringent criteria shall apply. All anchor connections to structure for support of the sprinkler, regardless of the need for seismic restraints, shall be shown on shop drawings.

Shop drawings and calculations shall be signed and sealed by a registered professional engineer, licensed in the state of the project and employed by the manufacturer of the seismic bracing products. Calculations shall include dead loads, static seismic loads and capacity of materials utilized for connections.

Seismic bracing, restraints, isolators, and isolation materials shall be of the same manufacturer and shall be certified by the manufacturer. Approved manufacturers are: AmberBooth Company, Inc., B-Line/Tolco, Kinetics Noise Control,