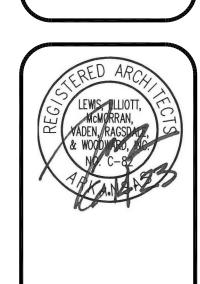
ELLIOTT • MCMORRAN • VAD RAGSDALE • WOODWARD • INCORPORA: 501.223.9302 • WWW.LEMYRW.COM



RENOVATIONS AND ADDITIONS BEEBE SCHOOL DISTRICT





ADDITIONS AND RENOVATIONS BEEBE DAY CARE BEEBE SCHOOL DISTRICT

BEEBE, ARKANSAS

As-Builts
CSUSA
11/29/2023

INDEX OF DRAWINGS

T1.1 TITLE SHEET

ARCHITECTURAL

A0.1 OVERALL KEY PLAN

A1.1 ENLARGED PLANS, DETAILS AND SCHEDULES

A1.2 CANOPY DETAILS

MECHANICAL

MP1.1 FLOOR PLAN - MECHANICAL

ELECTRICAL

E1.1 FLOOR PLAN - ELECTRICAL

E2.1 ELECTRICAL SPECIFICATIONS

CERTIFICATION STATEMENT:

I HEREBY CERTIFY THAT THESE PLANS AND SPECIFICATIONS HAVE BEEN PREPARED BY ME, OR UNDER MY SUPERVISION. I FURTHER CERTIFY THAT TO THE BEST OF MY KNOWLEDGE THESE PLANS AND SPECIFICATIONS ARE AS REQUIRED BY LAW AND IN COMPLIANCE WITH THE "ARKANSAS FIRE PREVENTION CODE" FOR THE STATE OF ARKANSAS.

Jm 6.14.23

PROJECT INFORMATION DRAWINGS AND PROJECT MANUAL APPROVED AND IDENTIFIED AS PARTS OF THE OFFICIAL CONTRACT DOCUMENTS

OWNER: BEEBE SCHOOL DISTRICT

FACILITY: BEEBE SCHOOL DISTRICT

LOCATION: BEEBE, ARKANSAS

BY: ______

DATE: _____

ARCHITECT: LEWIS ARCHITECTS AND ENGINEERS

ADDRESS: 11225 HURON LANE, SUITE 104, LITTLE ROCK, ARKANSAS 72211

BY: ______

DATE: _____

CONSTRUCTION MANAGER: __NABHOLZ

ADDRESS: _____

BY: _____

DATE: _____

PROJECT NUMBER: ______ 23055

DRAWINGS AND PROJECT MANUAL DATED: _______ 2023 05-26

LEGENDS AND ABBREVIATIONS SYMBOL LEGEND MATERIAL LEGEND CONCRETE BLOCK (SECTION) CONCRETE BLOCK (PLAN) CONCRETE (SECTION) 122 ROOM NUMBER 9'−4" ← CEILING HEIGHT WOOD ROUGH WOOD FINISHED RIGID INSULATION BLANKET INSULATION WOOD FINISHED **ABBREVIATIONS** ABOVE FINISH FLOOR NOT TO SCALE ALUMINUM THRESHOLD FIRE EXTINGUISHER REQUIRED CONC CONCRETE SEALED CONCRETE CONT CONTINUOUS SHEET DETAIL

STORAGE

TYPICAL

F.F.E FINISH FLOOR ELEVATION

FIRE EXTINGUISHER CABINET

A.F.G. ABOVE FINISH GRADE

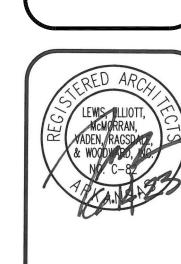
FLOOR

MT METAL THRESHOLD

FV FIELD VERIFY



RENOVATIONS
AND ADDITIONS
BEEBE SCHOOL DISTRICT
BEEBE, ARKANSAS



DATE: 2023 04-25
PROJECT NO: 23055
DRAWN BY: JAP
REVISION:

A0.1

2 of 3

VERIFY EXISTING CONDITIONS PRIOR

TO BID

Grab bars: (Locate as shown on drawings.) Bradley drawings. Mount at 34" above floor using mounting ki block walls. Mirror: (Locate as shown on drawings.) Bradley M reflective surface at 40" above the floor. Use stainless

expansion shield masonry anchors (plastic anchors are Coat hooks: Bradley Model 9115 with concealed faster

WC WATER CLOSET - STANDARD 15" A.F.F. to SEAT CWC CHILDREN'S WATER CLOSET 12" A.F.F. to SEAT COAT HOOK 42" to BOTTOM TOILET PAPER AND SOAP DISPENSERS ARE TO BE PROVIDED BY THE OWNER. TOILET PAPER DISPENSER ARE TO BE INSTALLED AT 14" AFF (UNLESS NOTED OTHERWISE). THE OPERATION

CTP

GENERAL NOTES

MARK DESCRIPTION

CGB-36 GRAB BAR - 36"

CGB-42 GRAB BAR - 42"

GB-36 GRAB BAR - 36"

GB-42 GRAB BAR - 42"

HCWC H.C. WATER CLOSET

MIRROR - 2' wide x 3' tall

INTERIOR STUD WALLS SHALL BE 35%" AND HAVE FRAMING MEMBERS AT 16" O.C., UNLESS NOTED OTHERWISE. ANY WALL NOT SUFFICIENTLY BRACED BY INTERSECTING WALLS SHALL BE BRACED TO STRUCTURE OR FLOOR ABOVE WITH METAL STUD KICKERS (APPROX. 45°±) AT 48" O.C. MAXIMUM. EXTEND WALL FINISH TO 8" ABOVE HIGHEST ADJACENT CEILING (APPROX. 10'-0") UNO

CHILDREN'S LAVATORY

DISPENSER (N.I.C.)

TOILET PAPER DISPENSER (N.I.C

CHILDREN'S TOILET PAPER

SINK - COUNTER MOUNTED

LAVATORY

31" A.F.F. to COUNTER TOP

34" A.F.F. to COUNTER TOP

19" A.F.F. to CENTERLINE

14" A.F.F. to CENTERLINE

34" A.F.F. to COUNTER TOP

2. ALL DOORS NOT DIMENSIONED SHALL BE LOCATED AS FOLLOWS: STUD WALLS:

TOILET ACCESSORY SCHEDULE

MOUNTING HEIGHT

20" A.F.F. to CENTERLINE

20" A.F.F. to CENTERLINE

34" A.F.F. to CENTERLINE

34" A.F.F. to CENTERLINE

17" A.F.F. to SEAT

40" A.F.F. to BOTTOM OF REFLECTIVE SURFACE

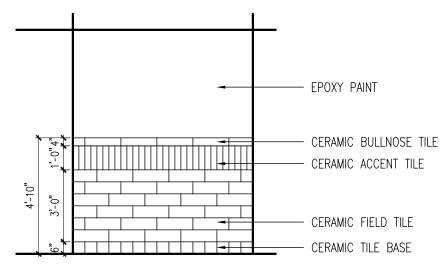
AND SPIGOT PORTION OF SOAP DISPENSERS SHALL BE INSTALLED AT 35" AFF (UNLESS NOTED OTHERWISE). CONTRACTOR TO COORDINATE AND VERIFY

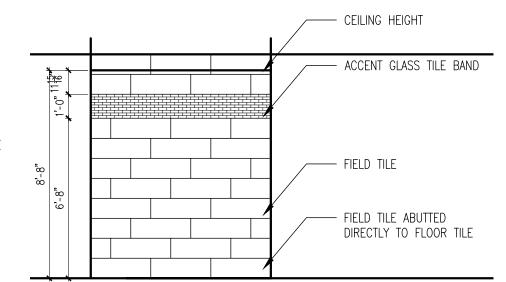
ADJACENT TO INTERSECTING WALLS, OR 4" FROM INTERSECTING WALLS, OR

CENTERED BETWEEN INTERSECTING WALLS

- FOR SOUND TRANSFER CONTROL, FILL ALL STUD WALLS WITH SOUND ATTENUATION BLANKETS. SEE PLANS FOR DESCRIPTION OR SPECIFIC WALL CONDITIONS REQUIRING FURTHER SOUND CONTROL. INSTALL BATT INSULATION ON ALL CEILINGS AROUND PERIMETER OF ROOMS EXTENDING 2'-0" FROM ALL INTERIOR WALLS.
- 4. PROVIDE 2x WOOD FOR BLOCKING WHERE BLOCKING IS REQUIRED
- ALL NEW DOORS SHALL BE 3070 SOLID CORE WOOD FLUSH PANEL DOORS (1-3/4" THICK) SET IN 5-3/4" HOLLOW METAL FRAMES WITH 2" FACES ON SIDES AND HEAD. PROVIDE PRIVACY SET WITH KEYED ACCESS ON CLASSROOM SIDE OF DOORS. FREE EGRESS FROM TOILET ROOMS.
- 6. WALLS CLOSED TO ROOF ASSEMBLY WITH METAL STUD FRAMING. STUD FRAMING SPACED AT 1'-4" ON CENTER. STUD FRAMING RECEIVES & GYPSUM PANELS ON ONE SIDE

THIS WALL PARTITION IS SHOWN ON THE FLOOR PLAN WITH -----





WALL TILE PATTERN - A

WALL TILE PATTERN - B

2.2 PORCELAIN FLOOR TILE

2.2.1 PT-1 and PTB-1 – "Chiado II – Loring" Sizes: 12" x 24" and 3" x 12"

2.3 CERAMIC WALL TILE

2.3.1 <u>CT-1 – "Colori – White"</u>

Size: 10" x 30"

CT-2 – "Catch - Ice"

Sizes: 6" x 18", 4" x 16" and 6" x 6" Cove Base

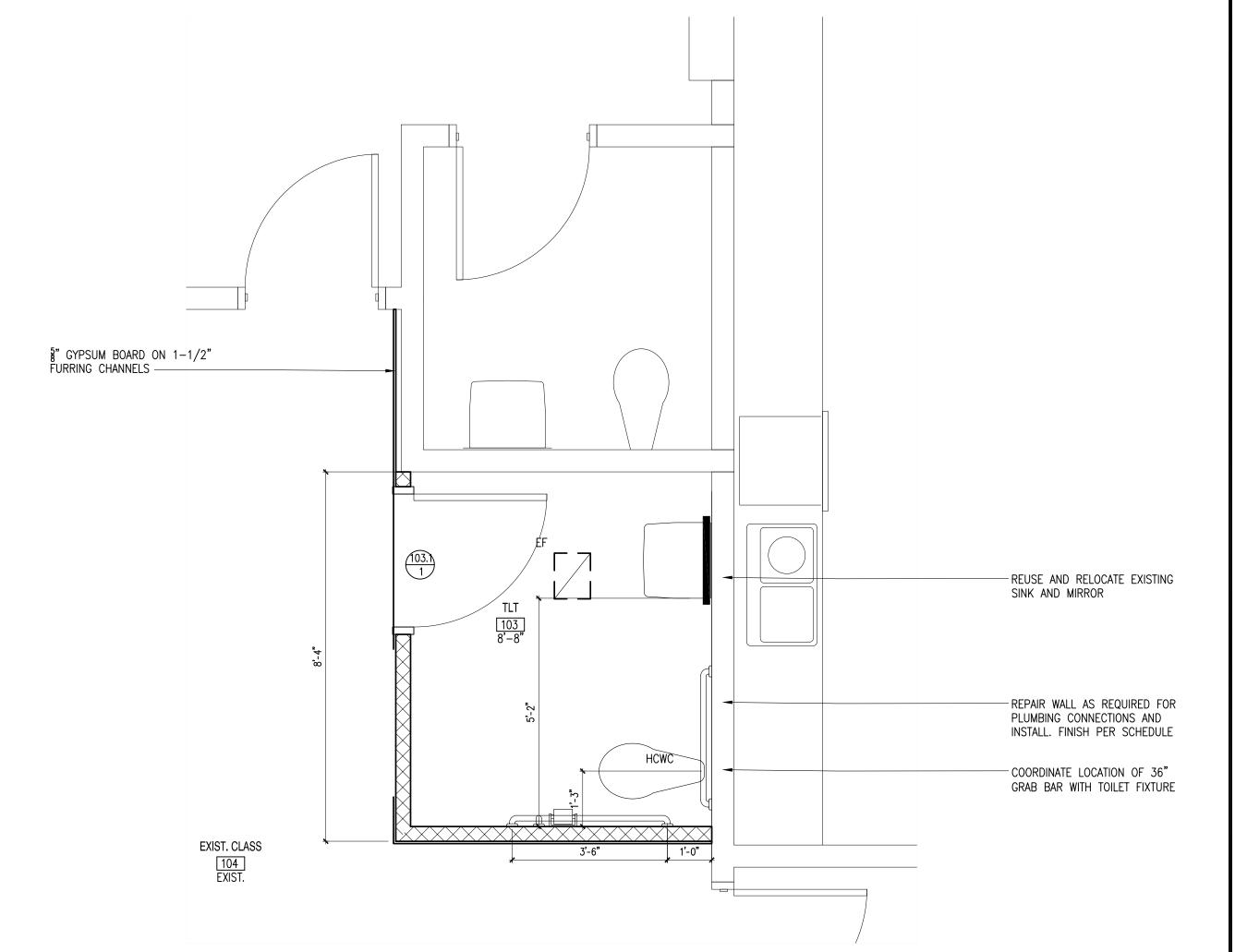
<u>CT-3 – "Euphoria – Ore Arrow"</u>

Size: 3" x 12"

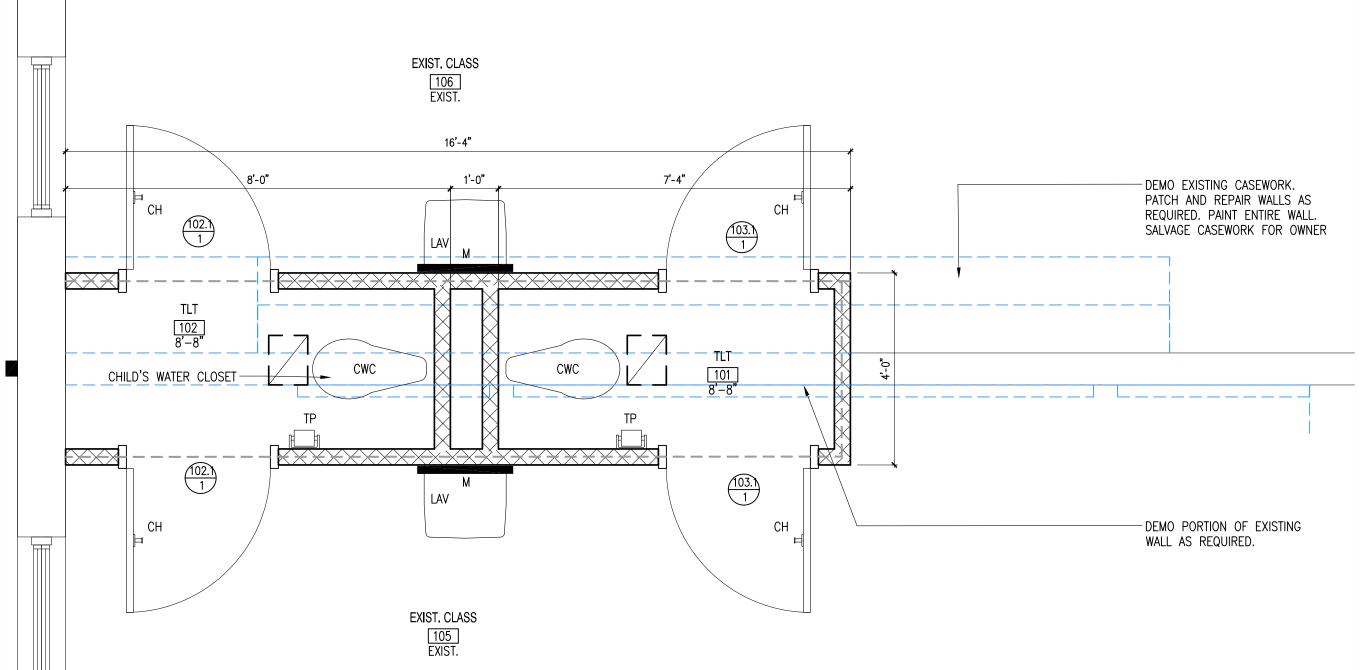
GT-1 – "Charisma - Wise"

Size: 11" x 12" Mesh

INTERIOR FINISH SCHEDULE								MATERIAL KEY		
ROOM IDENTIFICATION F		FLOOR	BASE	WALLS	CEILING			MARK	DESCRIPTION	
ROOM NAME	NUMBER	MARK	MARK	MARK	MARK	REMARKS	FLOOR	PT-1	PORCELAIN TILE	
ΞΤ	101	PT-1	CTB-1	CT-2/CT-3/P2	LAY-1	REFER TO CERAMIC WALL TILE PATTERN A	1 의			
ET	102	PT-1	CTB-1	CT-2/CT-3/P2	LAY-1	REFER TO CERAMIC WALL TILE PATTERN A	1			
ΞT	103	PT-1	CTB-1	CT-1/GT-1/P-2	LAY-1	REFER TO CERAMIC WALL TILE PATTERN B ON WET WALL ONLY ABUT WALL TILE DIRECTLY TO FLOOR TILE. USE COORDINATING COVE BASE & EPOXY PAINT ON REMAINING THREE WALLS	BASE	RB-1	RUBBER COVE BASE-MATCH EXIST.	
	104	-	RB-1	PT-1/P-2	EX-1		∃ ₩		CERAMIC TILE BASE	
	105	-	RB-1	PT-1/P-2	EX-1			NONE	NO BASE	
EXIST. CLASS	106	-	RB-1	PT-1/P-2	EX-1		MALL	D.4	DAINT OFMI OLOGO	
								P-1	PAINT - SEMI-GLOSS	
							∃≸	P-2	PAINT - EPOXY	
								G1-1	CERAMIC WALL TILE	
								CT-2	CERAMIC WALL TILE	
							1	CT-3	CERAMIC ACCENT WALL TILE	
								GT-1	GLASS ACCENT TILE	
							<u> </u> ©	LAY-1	VINYL FACE GYP LAY-IN CEILING	
							CEILING	EX-1	CUT AND REPAIR EXISTING LAY-IN AS REQUIRED FOR NEW WALL INSTAI	









PART ONE - GENERAL

1.1 DESCRIPTION

- A. Work included: Furnish and deliver to the job site all wood doors, factory prefinished, indicated on the Drawings, specified herein, or needed for a complete and proper installation.
- B. <u>Related work described elsewhere:</u>

1.	Installing Wood Doors Standard Steel Frames	Section 06 20 00 Section 08 11 00
3.	Door Hardware	Section 08 71 00
4.	Glazing	Section 08 80 00

1.2 QUALITY ASSURANCE

A. Qualifications of manufacture: All wood doors shall meet the requirements of the industry standard WDMA I.S.1-A or AWS classifications. Fire doors shall also bear the UL label for the designated rating.

1.3 SUBMITTALS

General: Comply with the provisions of Section 01 33 23.

under this Section.

- Product data: Within 30 calendar days after award of Contract, submit:
 - 1. Complete materials list showing all items proposed to be furnished and delivered
 - Sufficient data to demonstrate that all such items meet or exceed the specified
 - requirements. 3. A copy of the guarantee proposed to be furnished.

1.4 WARRANTY

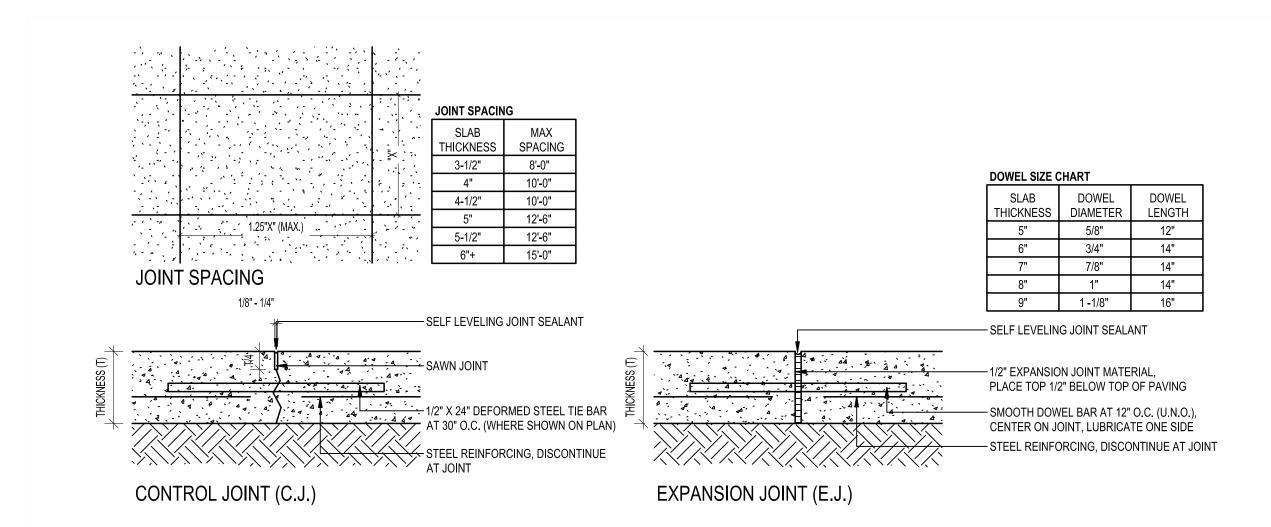
A. Upon delivery of the doors of this Section to the job site, and as a condition of their acceptance, deliver to the Architect two copies of an agreement written on the door manufacturer's standard form, signed by the door manufacturer and the Contractor agreeing to replace or repair defective doors which have warped (bow, cup, or twist) or which show photographing of construction below in wood veneer faces, as defined in WDMA Standard Door Warranty, except the WDMA provision for refunding the price received by the door manufacturer for any defective door shall not apply. The warranty shall also include refinishing and reinstalling which may be required due to repair or replacement of defective doors. Warranty shall be in effect for the lifetime of the building.

2.1 GENERAL

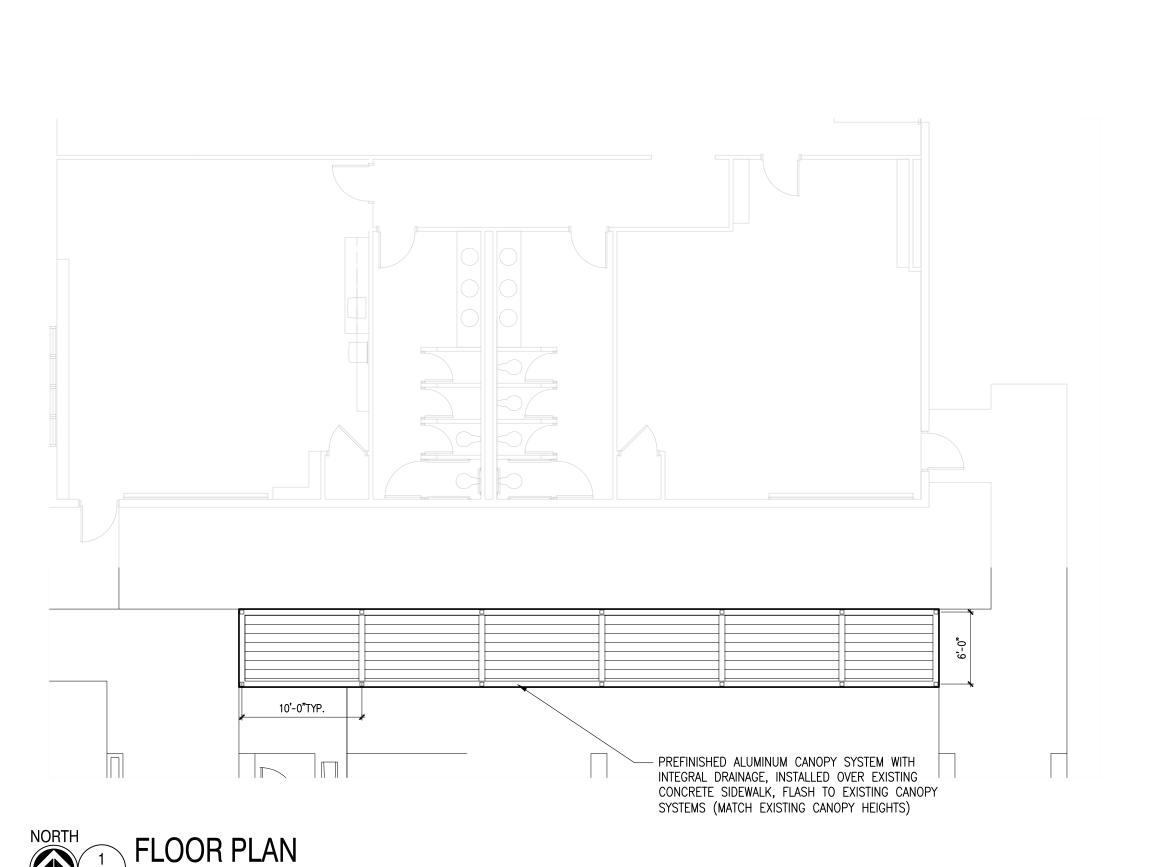
- A. <u>Manufacturer:</u> All doors are to be manufactured by Graham Wood Doors, Mason City, Iowa or approved equal. Size and thickness as shown on the Drawings.
- B. <u>Face</u>: Premium grade, rotary cut, select white birch with matching veneers on all vertical stiles. 1/50" veneer thickness, grade A veneer. All doors shall be factory prefinished. Finish shall be as selected by the Architect from the manufacturers standard finishes.
- C. <u>Rails:</u> 1-1/8" minimum top and bottom rails. 1-3/8" minimum hinge and lock stiles. Stiles and rails shall be laminated strand lumber. Stiles are to have a minimum 1/4" solid edge to match face veneer. Tape veneer not allowed.
- D. <u>Fixed Panels:</u> All transom and plenum panels shall have continuous matched grain with the operating door veneer.
- E. <u>Standards:</u> Doors to meet or exceed WDMA Industry Standard I.S. 1-A Series Type P.C. for non-fire rated doors, Type FD 1-1/2, 1, or 3/4 for fire rated doors, and type SR for sound

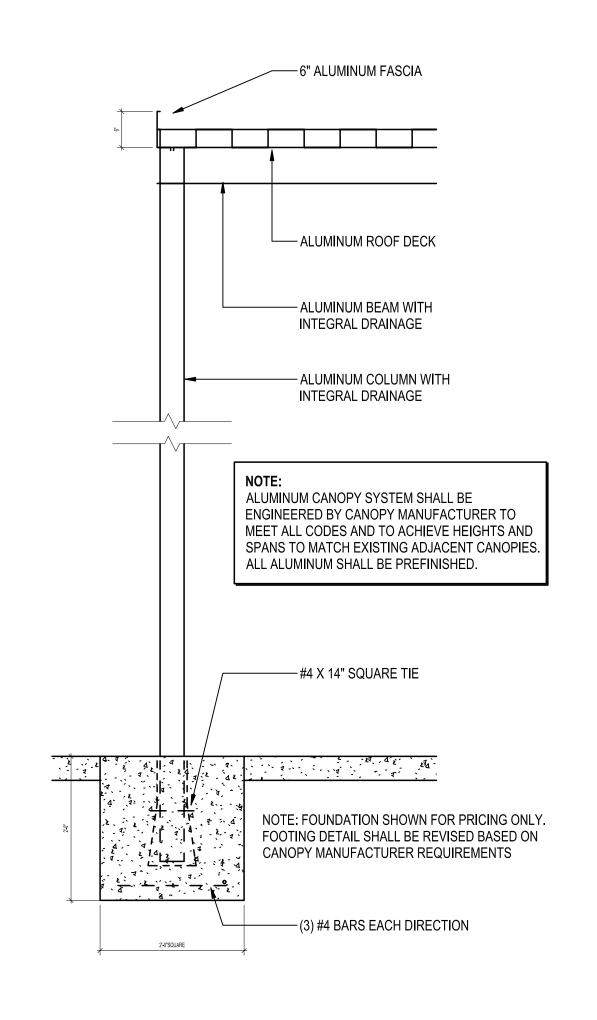
2.2 NON-FIRE RATED WOOD DOORS

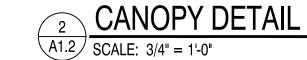
A. PC5 Particleboard Core. Core shall be fully bonded. Drop-in cores not allowed.











VERIFY EXISTING CONDITIONS PRIOR

TO BID

3 of 3

PLUMBING SPECIFICATIONS

- WATER CLOSET AMERICAN STANDARD "BABY DEVORO" #2315.228 1.28 GPF SIPHON ACTION ROUND FRONT BOWL, #2165LK 1/2"I.P.S. x 3/8"O.D. LOOSE KEY STOPS WITH 3/8" O.D. C.P. RISERS, BOLT CAPS, CHURCH 1580C SEAT WITH CHECK HINGE, SELF-SUSTAIN FEATURE AND STAINLESS STEEL HINGE POST, WITH 4019.828 TANK COMPLETE WITH COUPLING COMPONENTS AND TRIM
- WATER CLOSET (BARRIER FREE) AMERICAN STANDARD "MADERA" #3043.001 1.6GPF SIPHON JET, ELONGATED BOWL, 1-1/2" TOP SPUD, BOLT CAPS, CHURCH #9400SSC <u>SEAT</u> WITH CHECK HINGE, SELF-SUSTAIN FEATURE AND STAINLESS STEEL HINGE POSTS, WITH SLOAN REGAL 111-SMO XL OPTIMA, 1.6 GPF BATTERY-OPERATED SIDE SENSOR <u>FLUSH VALVE</u>. TOP OF RIM AT 16-1/2" AFF. TOTAL HEIGHT IS 17-3/4" AFF.
- LAVATORY, BARRIER FREE AMERICAN STANDARD "LUCERNE" #0355.012M, 20" X 18" WALL HUNG, MCGUIRE #155WC OFFSET OPEN GRID DRAIN, #2165LK 1/2"I.P.S. x 3/8"O.D. LOOSE KEY STOPS WITH 3/8" O.D. C.P. RISERS, DELTA #501LF-HDF FAUCET WITH SINGLE LEVER AND MCGUIRE #8872 - 1-1/4" CAST BRASS P-TRAP WITH CLEAN OUT. PROVIDE WADE #W-510-NR LAVATORY <u>CARRIER</u> AT STUD WALLS.

 <u>TOP OF SINK APRON AT 27" AFF.</u> PROVIDE LEONARD #170-LF-BP ASSE 1070 TEMPERED WATER MIXING VALVE MOUNTED ADJACENT TO SUPPLY STOPS. REFER TO DETAIL ON PLUMBING DRAWINGS.
- <u>FLOOR DRAIN</u> WADE #W-1102STD6 2" TRAP SIZE, CAST IRON FLOOR DRAIN WITH 6" DIAMETER NICKEL BRONZE STRAINER, FLANGE, INTEGRAL REVERSIBLE CLAMPING COLLAR, SEEPAGE OPENINGS, VANDAL-PROOF SCREWS, 2" DEEP-SEAL TRAP. PROVIDE WITH PRO-SET "TRAP GUARD" #TG33-WADE TRAP SEAL PROTECTOR IN LIEU OF TRAP PRIMER.
- TANKLESS ELECTRIC WATER HEATER EEMAX #SPEX3208, ELECTRIC TANKLESS WATER HEATER, 208V., 3.0kW, 14.6 AMPS, 3/8" INLET/OUTLET CONNECTIONS, 0.5 GPM FLOW RESTRICTOR, REPLACEABLE CARTRIDGE **TWH-2** ELEMENT. REFER TO DETAIL ON PLANS.

PLUMBING GENERAL NOTES

CONTRACTOR TO FURNISH AND INSTALL:

ESCUTCHEONS SECURE AND TIGHT TO WALL.

- A. SHUT-OFF VALVES ON ALL WATER AND GAS LINES PER SPECIFICATIONS. SHOCK ABSORBERS FOR SNAP-ACTION VALVES. ALL VALVES, TRIM AND TRAPS NECESSARY TO CONNECT OUTLETS PROPERLY.
- CONTRACTOR TO INSURE THAT ALL LINES ARE FLUSHED FREE OF FOREIGN MATTER BEFORE MAKING FINAL CONNECTIONS.
- ALL PIPES AND RELATED ROUGH-IN MATERIAL ARE TO BE RUN UNEXPOSED UNDER FLOORS, IN WALLS AND ABOVE FINISHED CEILINGS WHERE POSSIBLE UNLESS NOTED OTHERWISE IN SPECIFICATIONS OR DRAWINGS.
- ROUGH-IN FOR FLUSH VALVES SHALL BE ON THE RIGHT-HAND SIDE OF THE FIXTURE (ALL BARRIER-FREE WATER CLOSETS SHALL BE ROUGHED-IN FOR FLUSH VALVE HANDLE OR TANK TRIP LEVER ON LAVATORY SIDE OR FOR HANDLE OR TRIP LEVER OPPOSITE SIDE WALL WITH GRAB BAR, AS APPLIES). ROUGH-IN FOR LAVATORIES AND SINKS SHALL BE ON THE RIGHT FOR COLD AND THE LEFT FOR HOT. NOTE: INSTALL FLUSH VALVES PLUMB IN BOTH DIRECTIONS WITH
- ALL WATER PIPING INSTALLED IN THE ATTIC SPACE SHALL BE ROUTED BELOW LAY-IN CEILING INSULATION. IN AREAS WHERE CEILING INSULATION IS NOT INSTALLED THE MAXIMUM HEIGHT FOR WATER LINES SHALL BE 1'-0" ABOVE FINISH
- COORDINATE ALL VENTS THROUGH ROOF WITH ROOFING CONTRACTOR.
- DUE TO THE SMALL SCALE OF THESE DRAWINGS, IT IS NOT POSSIBLE TO INDICATE ALL OFFSETS, FITTINGS AND ACCESSORIES WHICH MAY BE REQUIRED. THE CONTRACTOR SHALL INVESTIGATE THE STRUCTURAL AND FINISH CONDITIONS AFFECTING THE WORK AND SHALL COORDINATE AND ARRANGE HIS WORK ACCORDINGLY.
- CONTRACTOR SHALL FIRESTOP PER SPECIFICATIONS ALL GAS, WATER, SOIL AND VENT PIPING THAT PENETRATE ANY RATED WALLS. VERIFY FIRE RATED WALL LOCATIONS WITH ARCHITECTURAL PLANS.
- CONTRACTOR SHALL COORDINATE WITH ELEC. CONTRACTOR AND AVOID ANY WATER LINE INSTALLATION ABOVE
- ELECTRIC GEAR AND/OR APPARATUS.
- PROVIDE VALVE IDENTIFICATION LEGENDS PER PLANS AND SPECIFICATIONS.
- MAINTAIN 10'-0" CLEARANCE FROM FRESH AIR INTAKES (SEE HVAC PLANS). OFFSET VENTS THRU ROOF AS REQUIRED.
- CONTRACTOR SHALL ENDEAVOR TO INSTALL BELOW SLAB SANITARY AND ACID WASTE PIPING (WHERE APPLICABLE) BELOW THE BOTTOM OF FOOTINGS, GRADE BEAMS, ETC. SLEEVE ALL LINES ROUTED THRU FOOTINGS, STEM WALLS AND GRADE BEAMS. COORDINATE WITH STRUCTURAL ENGINEER FOR PREFERRED LOCATIONS.
- AT CHASES INSTALL FULL SIZE COLD WATER HEADERS WITH FULL SIZE AIR CHAMBERS. SEE PLANS FOR SIZES AND AIR CHAMBER LOCATIONS.
- PAINT ALL EXPOSED SANITARY SEWER, VENT, WATER AND GAS PIPING, INTERIOR AND EXTERIOR
- WHERE PIPES PENETRATE CEILING IN FINISHED SPACES THE CONTRACTOR SHALL COORDINATE WITH CEILING INSTALLER AND PROVIDE PAINTED ESCUTCHEONS SIZED APPROPRIATELY FOR PIPE INSULATION (IF ANY).
- CONTRACTOR SHALL PROVIDE PHOTOS OF ALL UNDERGROUND PLUMBING TO ARCHITECT AND OWNER. AS-BUILTS SHALL CLEARLY INDICATE ALL CLEANOUTS

PLUMBING LEGEND

	DOMESTIC COLD WATER
	DOMESTIC HOT WATER
	DOMESTIC HOT WATER RETURN
W	COLD WATER BELOW SLAB OR GRADE
ss	SANITARY SEWER PIPING BELOW SLAB OR GRADI
	SANITARY VENT PIPING
	PRESSURE REDUCING/REGULATING VALVE
	GATE VALVE / BALL VALVE / CHECK VALVE / UNIO
0 0	FLOOR CLEANOUT (NON-TILE AND TILE FLOORS)
	PIPE SLEEVE THRU RATED WALL OR FOOTING
	CONNECT TO EXISTING
R1	— RISER DIAGRAM
P3.1	— LOCATION SHEET NUMBER
1-	— DETAIL (PLAN) REFERENCE NUMBER
P-1	— LOCATION SHEET NUMBER
	KEYED NOTE

ABBREVIATIONS

CW	COLD WATER	SIM.	SIMILAR
HW	HOT WATER	HWR	HOT WATER RETURN (RECIRC.)
DV	DALL MALVE	EXIST.	EXISTING
BV	BALL VALVE	F.U.	FIXTURE UNIT
GV	GATE VALVE	DWV	DRAIN WASTE AND VENT SYSTEM
COTG.	CLEANOUT TO GRADE		
FCO.	FLOOR CLEANOUT	CWV	COMBINATION WASTE AND VENT
WCO.	WALL CLEANOUT	FL	FLOWLINE
VTR	VENT THRU ROOF	INV.	INVERT
UNO	UNLESS NOTED OTHERWISE	AFF.	ABOVE FINISHED FLOOR
N.I.C.	NOT IN CONTRACT	AFG.	ABOVE FINISHED GRADE
		AAV.	AIR ADMITTANCE VAI VE

3/4"C CONCEALED

CONDUIT, WIRE AND FINAL-SEAL-TITE CONNECTION
BY ELEC CONTRACTOR.

TANKLESS WATER HEATER DETAIL

(WIRING AS SPECIFICED)

INLINE FLOW CONTROL.

- LOOSE KEY STOPS w/RISERS.

IN WALL -

FLUSH SWITCH OUTLET BOX

WITH BAKELITE LABEL "WATER

AND FINAL HEATER LOCATION.

(EQUAL TO HUBBELL 1222 SWITCH WITH HBL1795 WP PLATE.)

COORDINATE LOCATION WITH MILLWORK

HEATER" BY ELEC. CONTR'R.

MECHANICAL EQUIPMENT SCHEDULE

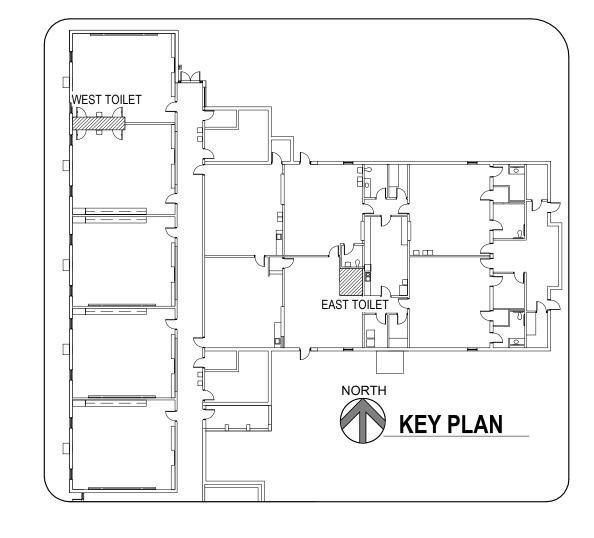
COOK GEMINI GC-146 CEILING MOUNTED EXHAUST FAN, 75 CFM, AT O.3" S.P., 1.3 SONES, 32 WATTS, 120V, BACKDRAFT DAMPER, FACTORY MOUNTED VARIABLE SPEED CONTROLLER, WHITE ALUMINUM CEILING GRILLE, ISOLATOR KIT.

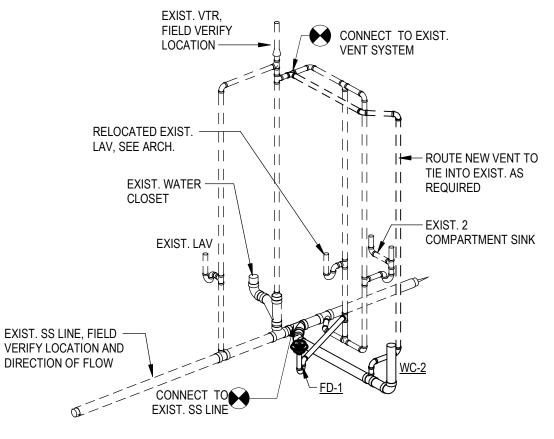
SEQUENCE OF OPERATION

- EXHAUST FANS
 - EF-1, 2, 3
 SHALL BE ACTIVATED BY LIGHT SWITCH IN CORRESPONDING

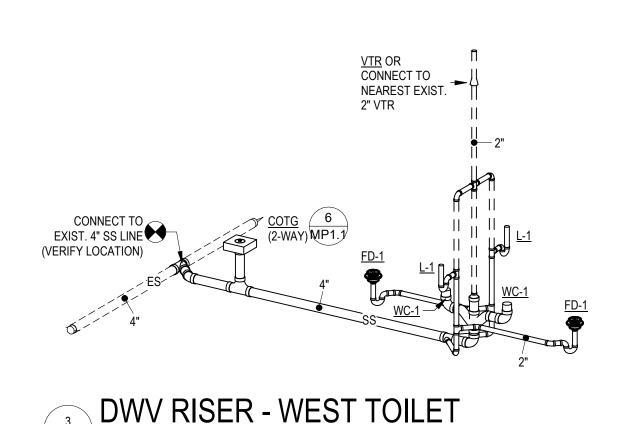
MECHANICAL GENERAL NOTES

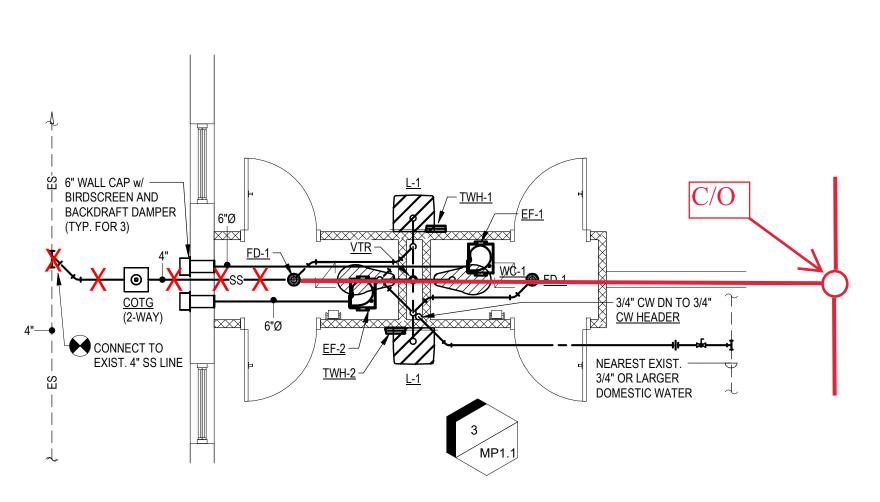
- DUE TO THE SMALL SCALE OF THIS DRAWING, IT IS NOT POSSIBLE TO INDICATE ALL OFFSETS, FITTINGS AND ACCESSORIES WHICH MAY BE REQUIRED. THE CONTRACTOR SHALL INVESTIGATE THE STRUCTURAL AND FINISH CONDITIONS AFFECTING THE WORK AND SHALL COORDINATE AND ARRANGE HIS WORK ACCORDINGLY.
- EXHAUST DUCTWORK SHALL BE UNINSULATED, UNLESS OTHERWISE
- VERIFY WITH EXISTING CEILING FOR EXACT LOCATION OF EXHAUST
- COORDINATE LOCATION OF DUCTS AND DIFFUSERS WITH STRUCTURAL FRAMING MEMBER. OFFSET DUCTS AS REQUIRED TO CLEAR STRUCTURAL MEMBERS.
- COORDINATE LOCATIONS AND ELEVATION OF DUCT RUNS WITH PLUMBING AND ELECTRICAL CONTRACTORS.
- COORDINATE EQUIPMENT ELECTRICAL REQUIREMENTS WITH ELECTRICAL CONTRACTOR.



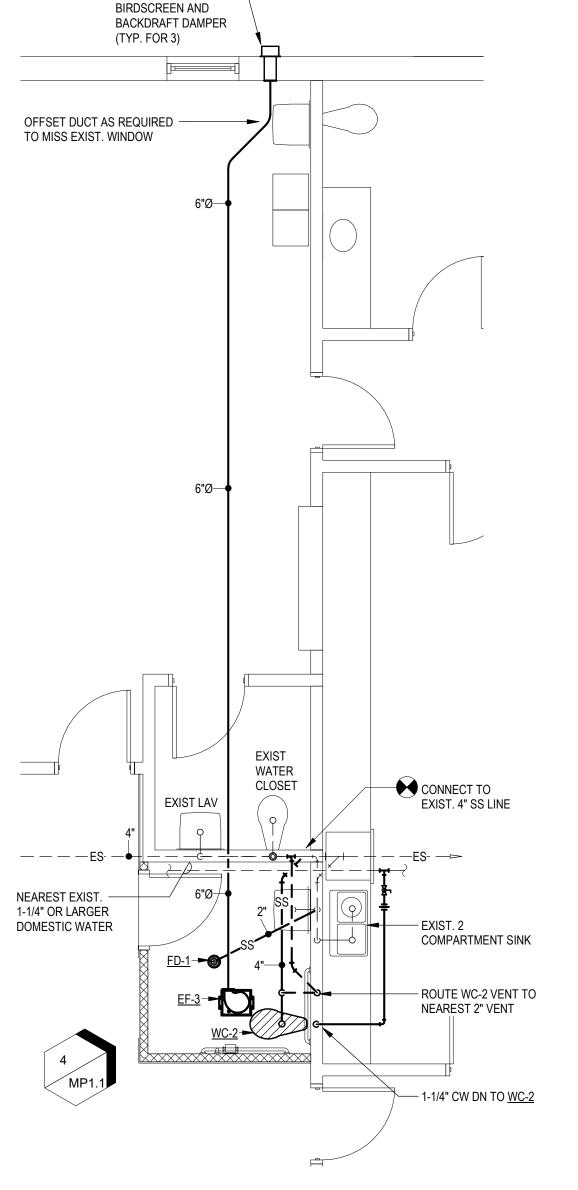












RENOVATIONS AND ADDITIONS

2023 04-25

23055

PROJECT NO:

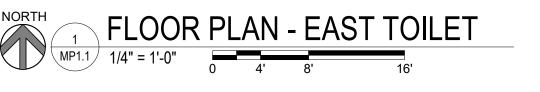
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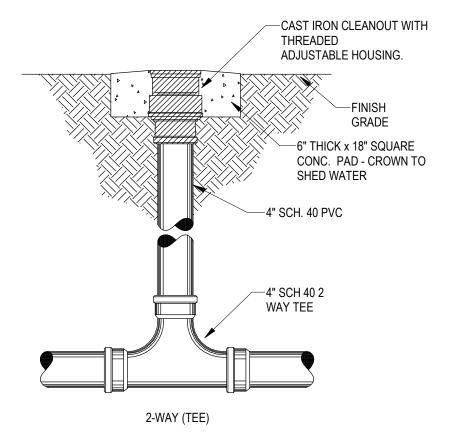
DRAWN BY:

REVISION:

6" WALL CAP w/ —





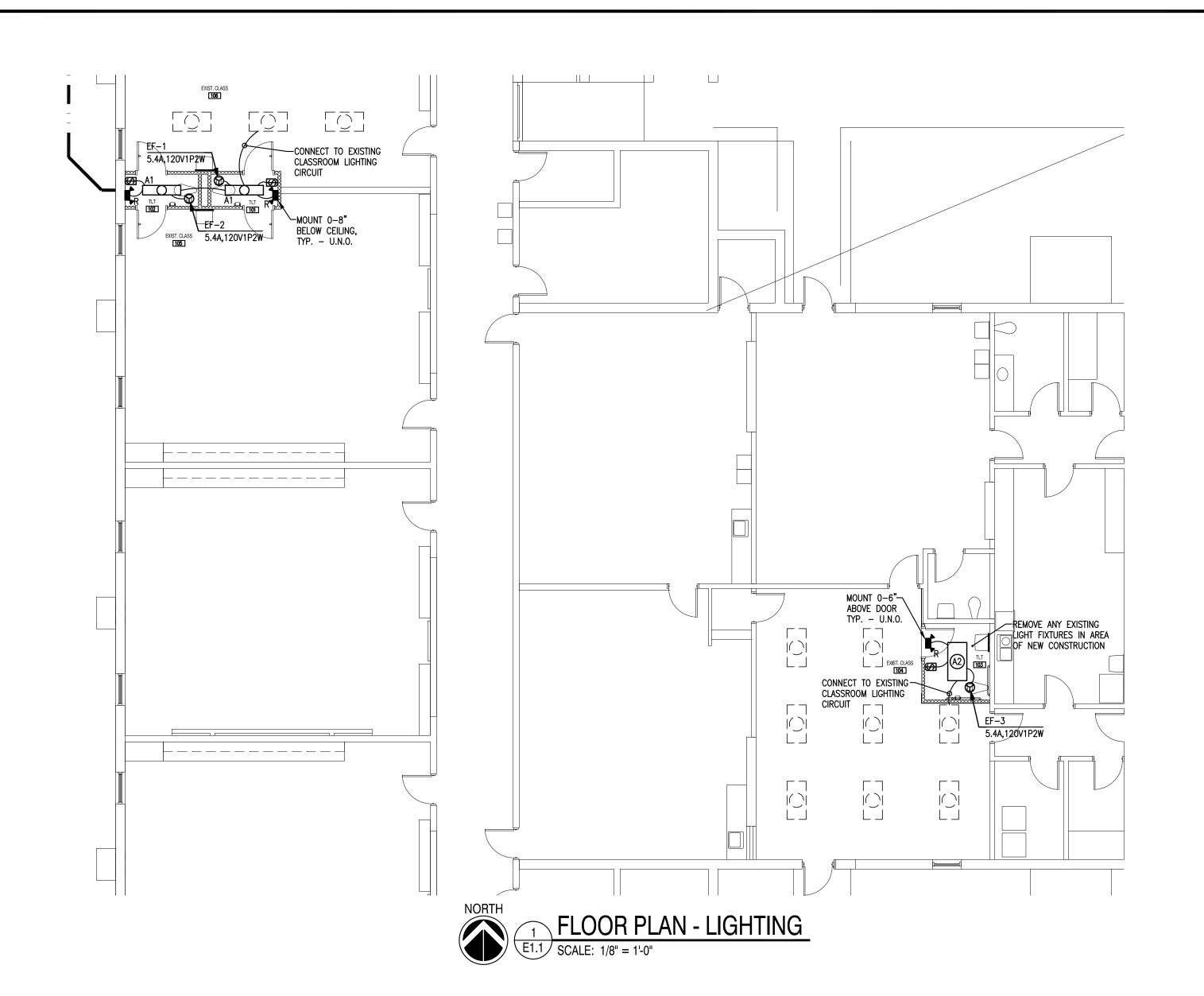


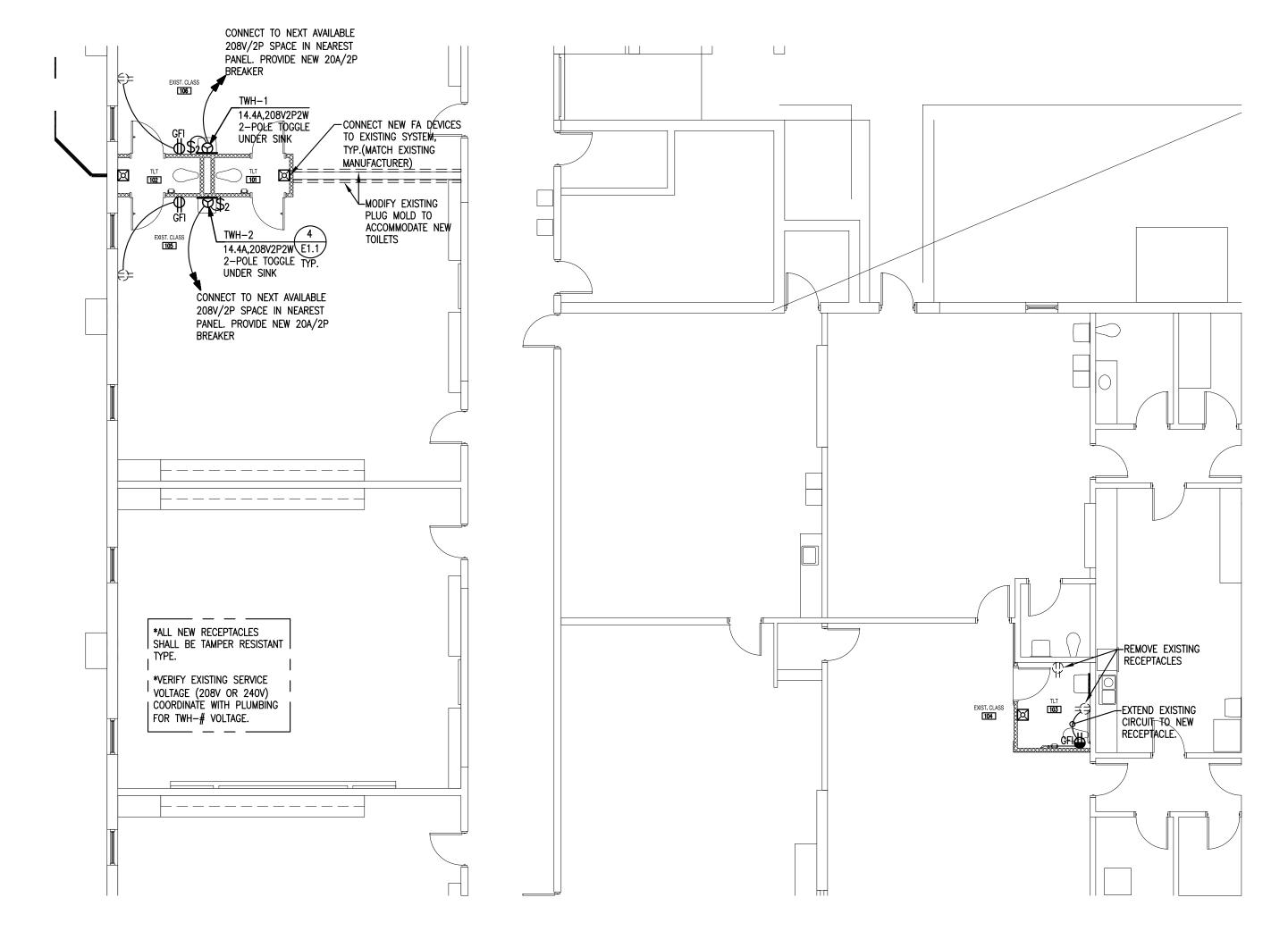












ELECTRICAL LEGEND

WALL-MOUNT EMERGENCY EGRESS BATTERY LIGHT - REFER TO SCHEDULE

HEIGHT: [+18", IN REGARDS TO RECEPTACLES, IS TO THE CENTERLINE OF BOX]

WIRE DESIGNATIONS - HOT, SWITCH, NEUTRAL, GROUND, ISOLATED GROUND, RESPECTIVELY.

FIRE ALARM, STROBE ONLY, 80" A.F.F.

WP - WEATHERPROOF (3R)
NS - NON-SWITCHED
EM - INDICATES EMERGENCY EGRESS FIXTURE

1G/1G - SINGLE GANG BOX / SINGLE GANG RING

*- DASHED INDICATES EXISTING OR BELOW GRADE AS NOTED

OCCUPANCY SENSOR - FLUSH WALL LIGHT SWITCH @ +48"AFF TO TOP OF SWITCH

TAMPER RESISTANT RECEPTACLE, DUPLEX - 18" A.F.F. UNLESS NOTED OTHERWISE.

TAMPER RESISTANT DUPLEX ABOVE COUNTER RECEPTACLE, COORDINATE WITH MILLWORK HEIGHT [TYPICALLY, +6" TO BOTTOM OF BOX FROM COUNTERTOP HEIGHT — U.N.O.]

INDICATES GROUND FAULT CIRCUIT INTERRUPTER TYPE
INDICATES TAMPER-RESISTANT TYPE
INDICATES ISOLATED GROUND TYPE (PROVIDE SEPARATE NEUTRALS/GROUNDS ON ALL "IG" CIRCUITS)

SWITCH - SINGLE POLE, 4'-0" A.F.F. \$2 TWO-POLE TOGGLE DISC. SWITCH-MTD AS NOTED

WIRE IN CONDUIT-CEILING OR WALL | -- - WIRE IN CONDUIT - UNDERFLOOR. (SEE REQ'S IN SPECS)

AC - ABOVE COUNTER

HP - HORSEPOWER
C - CONDUIT ("EMT" OR "RIGID" AS SPECIFIED)

WM - SURFACE MOUNTED RACEWAY (WIREMOLD)

SB - INDICATES INTERACTIVE DISPLAY BOARD

A.F.F. - INDICATES ABOVE FINISHED FLOOR

A.F.G. - INDICATES ABOVE FINISHED GRADE

B.F.G. - INDICATES BELOW FINISHED GRADE

N.F.D.S. - NON-FUSIBLE DISCONNECT SWITCH

F.D.S. - FUSIBLE DISCONNECT SWITCH

AV - INDICATES AUDIO/VISUAL DEVICE

PVC - ELECT GRADE PVC CONDUIT (SCH. AS NOTED)

HOMERUN TO PANEL TO CONDUIT STUB/SLEEVE WEATHERHEAD - SIZE AS NOTED ON PLANS

SYMBOL DESCRIPTION

\$

ABBREVIATIONS:

TC - TIME CLOCK LC - LIGHTING CONTACTOR

FA - FIRE ALARM

EWC - ELECTRIC WATER COOLER

WG - WIRE PROTECTIVE GUARD

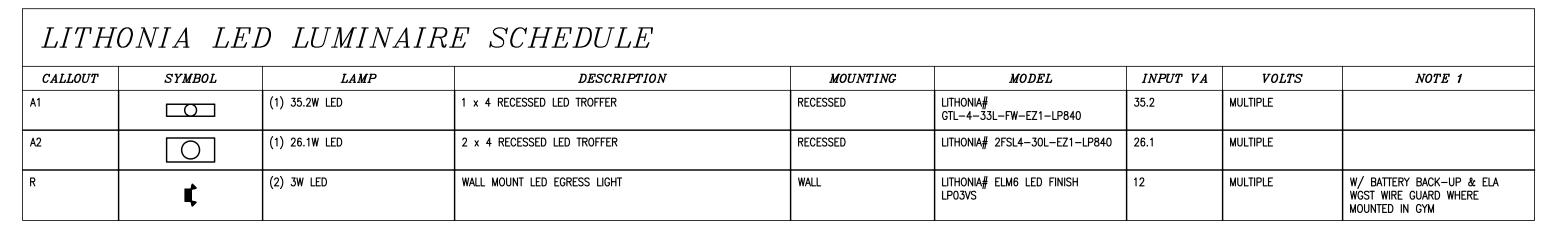
ER - EXISTING RELOCATED

U.N.O. - UNLESS NOTED OTHERWISE

LIGHT FIXTURE - REFER TO SCHEDULE, TYPICAL

FLOOR PLAN - POWER & SYSTEMS

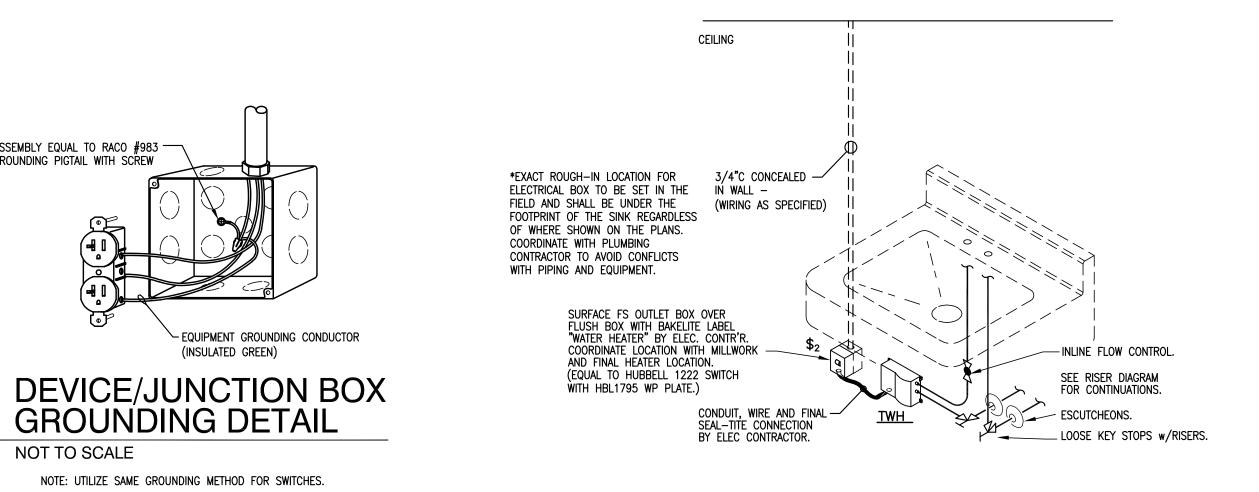
E1.1 SCALE: 1/8" = 1'-0"



ASSEMBLY EQUAL TO RACO #983 -

GROUNDING PIGTAIL WITH SCREW

NOT TO SCALE



WATER HEATER CONNECTION DETAIL

NOTE: WALL MOUNTED LAVATORY SHOWN.
INSTALLATION IS TYPICAL FOR ALL
TANKLESS WATER HEATER LOCATIONS.

1.1.1.2 THE SCOPE OF THE WORK SHALL INCLUDE THE GENERAL LISTINGS AS SHOWN BELOW IN ADDITION TO WHICH THIS CONTRACTOR SHALL FURNISH AND INSTALL ALL REQUIRED CONDUIT. WIRE. FITTINGS. BOXES. CONNECTORS. HANGERS. SUPPORTS. SLEEVES. AND OTHER SUCH EQUIPMENT, ITEMS, AND APPURTENANCES AS MAY BE REQUIRED FOR A COMPLETE AND OPERATIVE SYSTEM OR SYSTEMS, INCLUDING ALL PARTS AUXILIARY TO THE SYSTEM OR SYSTEMS WHETHER OR NOT SPECIFICALLY SET FORTH HEREIN AND/OR SHOWN ON THE

1.2 APPLICABLE GENERAL SPECIFICATIONS AND REGULATIONS

1.2.1THE GENERAL CONDITIONS, SUPPLEMENTARY CONDITIONS, AND OTHER PERTINENT DOCUMENTS AS ISSUED BY THE ARCHITECT, ARE A PART OF THESE SPECIFICATIONS AND SHALL BE COMPLIED WITH IN EVERY RESPECT.

1.2.2ALL ELECTRICAL WORK AND EQUIPMENT, IN WHOLE OR IN PART, SHALL CONFORM TO THE APPLICABLE PORTIONS OF THE LATEST EDITION OF THE FOLLOWING ORDINANCES, CODES, AND REGULATIONS IN EFFECT ON THE DATE OF INVITATION FOR BIDS, WHICH SHALL FORM A PART OF THIS SPECIFICATION.

- A. NATIONAL ELECTRICAL CODE
- B. NATIONAL FIRE PROTECTION ASSOCIATION RECOMMENDED PRACTICE C. LOCAL, CITY AND STATE CODES AND ORDINANCES

1.2.3IN CASE OF DIFFERENCE BETWEEN BUILDING CODES. SPECIFICATIONS. STATE LAWS, LOCAL ORDINANCES, INDUSTRY STANDARDS, AND UTILITY COMPANY REGULATIONS AND THE CONTRACT DOCUMENTS, THE MOST STRINGENT SHALL GOVERN.

1.2.4NON-COMPLIANCE: SHOULD THE SUBCONTRACTOR PERFORM ANY WORK THAT DOES NOT COMPLY WITH THE REQUIREMENTS OF THE APPLICABLE BUILDING CODES, STATE LAWS, LOCAL ORDINANCES, INDUSTRY STANDARDS AND UTILITY COMPANY REGULATIONS, HE SHALL BEAR ALL COST ARISING FROM CORRECTING THE DEFICIENCIES.

1.3 FEE, PERMITS, AND INSPECTIONS

HAVING JURISDICTION.

1.3.1ALL REQUIRED FEES, PERMITS AND INSPECTIONS SHALL BE OBTAINED AND PAID FOR BY THE ELECTRICAL SUBCONTRACTOR FOR ALL ELECTRICAL WORK. 1.3.2THIS SUBCONTRACTOR SHALL UPON COMPLETION OF HIS WORK, FURNISH A

CERTIFICATE OF FINAL INSPECTION TO THE ARCHITECT FROM THE INSPECTION DEPARTMENT

1.3.3SHOULD ANY PART OF THE DRAWINGS OR SPECIFICATIONS BE FOUND TO BE IN CONFLICT WITH APPLICABLE CODES OR ORDINANCES, THE CONTRACTOR SHALL NOTIFY THE ARCHITECT BEFORE SUBMITTING HIS BID. AFTER ENTERING INTO THE CONTRACT. THE CONTRACTOR SHALL COMPLETE ALL WORK NECESSARY TO MEET THE REQUIREMENTS OF ALL CODES OR ORDINANCES WITHOUT ADDITIONAL EXPENSE TO THE OWNER.

1.4 INSPECTION 1.4.1THE CONTRACTOR SHALL NOTIFY THE ARCHITECT WHEN THE WORK REACHES 2.1 LIGHT FIXTURES

- THE FOLLOWING STAGES OF CONSTRUCTION, SO THAT INSPECTION OF THE WORK MAY BE ACCOMPLISHED PRIOR TO THE COVERING UP OF THESE ITEMS:
- A. ALL UNDERGROUND OR UNDER SLAB ITEMS IN PLACE AND TESTED, BUT NOT COVERED.
- B. INTERIOR ITEMS PRIOR TO BEING CONCEALED. C. TESTS.

1.4.2THE CONTRACTOR SHALL GIVE TO THE PROPER AUTHORITIES ALL REQUISITE NOTICES RELATING TO THE WORK UNDER HIS CHARGE, SHALL AFFORD ALL AUTHORIZED INSPECTORS EVERY FACILITY FOR INSPECTION AND ALL VIOLATIONS OF THE LAW SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

1.4.3ALL MATERIALS AND EACH PART OR DETAIL OF THE ELECTRICAL WORK SHALL BE SUBJECT AT ALL TIMES TO OBSERVATION BY THE ENGINEER, AND THE CONTRACTOR SHALL BE HELD STRICTLY TO THE TRUE INTENT OF THE ELECTRICAL SPECIFICATIONS IN REGARD TO QUALITY OF MATERIALS, WORKMANSHIP, AND THE DILIGENT EXECUTION OF THE CONTRACT. SUCH OBSERVATION MAY INCLUDE MILL, PLANT, OR SHOP. THE ENGINEER SHALL BE ALLOWED ACCESS TO ALL PARTS OF THE WORK AND SHALL BE FURNISHED WITH SLICH ASSISTANCE AND INFORMATION BY THE CONTRACTOR AS IS REQUIRED TO MAKE A COMPLETE AND DETAILED OBSERVATION.

1.5 SUBMITTALS

1.5.1 CONTRACTOR SHALL PROVIDE SHOP DRAWINGS AND REQUIRED FIELD DRAWINGS AS REQUIRED OR INSTRUCTED BY THE ARCHITECT DEVIATION FROM THE DRAWINGS AND SPECIFICATIONS SHALL BE CALLED TO THE ATTENTION OF THE ARCHITECT IN WRITING AT THE TIME OF SUBMISSION OF SHOP DRAWINGS. THE ENGINEER'S APPROVAL OF ANY DRAWINGS SHALL NOT RELEASE THE SUBCONTRACTOR FROM RESPONSIBILITY FOR SUCH DEVIATIONS. THE SUBCONTRACTOR SHALL CHECK THE WORK DESCRIBED BY THE CATALOG DATA WITH THE ENGINEER'S CONTRACT DOCUMENTS FOR DEVIATION AND ERRORS. ALL SHOP DRAWINGS SUBMITTED SHALL BEAR SIGNED CERTIFICATION THAT THE CONTRACTOR HAS CAREFULLY CHECKED SHOP DRAWINGS AND FOUND THEM TO BE CORRECT AND THAT THEY COMPLY WITH PLANS AND SPECIFICATIONS. THE ARCHITECT WILL NOT REVIEW ANY SHOP DRAWINGS WHICH ARE NOT ACCOMPANIED BY THIS CERTIFICATION.

1.5.2THE CONTRACTOR SHALL FURNISH ELECTRONIC SHOP DRAWINGS. SHOP DRAWINGS ARE REQUIRED EVEN THOUGH THE EQUIPMENT IS AS SPECIFIED.

1.5.3ALL SUBMITTALS SHALL GIVE COMPLETE CATALOG DATA FOR EVERY MANUFACTURED ITEM OF EQUIPMENT AND ALL COMPONENTS TO BE USED.

1.5.4WHERE EQUIPMENT REQUIRING DIFFERENT ARRANGEMENT OF CONNECTIONS FROM THOSE SHOWN IS APPROVED, IT SHALL BE THE RESPONSIBILITY OF THE SUBCONTRACTOR TO INSTALL THE FOUIPMENT TO OPERATE PROPERLY AND IN HARMONY WITH THE INTENT OF THE CONTRACT DOCUMENTS, AND TO MAKE ALL CHANGE IN THE WORK REQUIRED BY THE DIFFERENT ARRANGEMENT OF CONNECTIONS.

1.5.5SUBMITTALS SHALL BE SUBMITTED NOT LATER THAN THIRTY (30) DAYS AFTER AWARDING OF THE CONTRACT AND BEFORE BEGINNING THE FABRICATION OF ANY MATERIAL OR THE INSTALLATION OF ANY EQUIPMENT. FAILURE TO SUBMIT IN THIS PERIOD SHALL CONSTITUTE GROUNDS FOR REJECTING THE SUBSTITUTION. THE CONTRACTOR MAY BE REQUESTED TO INSTALL PROPOSED SUBSTITUTION ADJACENT TO ITEM SPECIFIED FOR REVIEW BY THE ARCHITECT OR THE OWNER.

1.5.6THE SUBCONTRACTOR SHALL CORRECT THE SHOP DRAWINGS, TO CONFORM TO ANY CORRECTIONS AND/OR CHANGES REQUESTED BY THE ENGINEER.

1.5.7ELECTRICAL SUBMITTALS MUST BE TYPEWRITTEN AND FACTORY APPROVED. LONG HAND SUBMITTALS AND FIELD SKETCHES WILL NOT BE ACCEPTED. SUBMITTALS SHALL INDICATE PROPER NUMBERING SEQUENCE OF ALL CIRCUIT BREAKERS. SUBMITTALS NOT REFLECTING THE SEQUENCE WILL BE RETURNED WITHOUT FURTHER CONSIDERATION.

1.5.8SHOULD A SUBSTITUTION BE APPROVED FOR USE IN LIEU OF THAT SPECIFIED AND SHOULD THE SUBSTITUTE MATERIAL PROVE DEFECTIVE OR OTHERWISE UNSATISFACTORY, IN JUDGEMENT OF THE ENGINEER, FOR THE SERVICE REQUIRED WITHIN THE GUARANTY PERIOD. THE CONTRACTOR SHALL REPLACE THE MATERIAL OR EQUIPMENT AS ORIGINALLY SPECIFIED WITHOUT ADDITIONAL COST TO THE OWNER.

1.5.9IF SUBMITTALS ARE "NOT APPROVED" OR MARKED "REVISE AND RESUBMIT". THE COMPLETE PACKAGE MUST BE CORRECTED AND RETURNED FOR REVIEW. PARTIAL SUBMITTALS, INCLUDING ONLY THE ITEMS NOT APPROVED, ARE NOT ACCEPTABLE.

1.5.10 THE CONTRACTOR SHALL PROVIDE SHOP DRAWINGS FOR ALL COMPONENTS TO BE PROVIDED. 1.6 INTENT

1.6.1THE INTENT OF THE ELECTRICAL DRAWINGS AND SPECIFICATIONS IS THAT THE SUBCONTRACTOR SHALL FURNISH ALL LABOR AND MATERIALS, EQUIPMENT AND TRANSPORTATION NECESSARY FOR THE PROPER EXECUTION OF THE WORK UNLESS SPECIFICALLY NOTED OTHERWISE. THE WORK OF THIS SUBCONTRACTOR AS RELATED TO THE OTHER TRADES IS SHOWN IN ITS MAJORITY ON THE DRAWINGS, BUT THIS SUBCONTRACTOR SHALL THOROUGHLY EXAMINE THE DRAWINGS AND SPECIFICATIONS RELATING TO OTHER TRADES IN ORDER TO INCLUDE ALL NECESSARY WORK IN HIS BID. NO ADDITIONAL PAYMENTS SHALL BE CONSIDERED FOR FAILURE TO PROPERLY INTERPRET THE RESPONSIBILITY TO OTHER TRADES. THE SUBCONTRACTOR SHALL DO ALL THE WORK SHOWN ON THE DRAWINGS AND DESCRIBED IN THE SPECIFICATIONS AND ALL INCIDENTAL WORK CONSIDERED NECESSARY TO COMPLETE THE WORK READY FOR USE, OCCUPANCY, AND OPERATION BY THE OWNER. THE ARCHITECT RESERVES THE RIGHT TO MAKE ANY REASONABLE CHANGES IN THE LOCATIONS INDICATED WITHOUT COST TO THE OWNER.

1.6.2IF THERE BE CONFLICTING VARIANCE BETWEEN THE DRAWINGS AND SPECIFICATIONS, THE PROVISIONS OF THE MOST STRINGENT SHALL CONTROL. IN CASE OF CONFLICT BETWEEN THE GENERAL CONDITIONS OF THE CONTRACT OR ANY MODIFICATIONS THEREOF AND THE ELECTRICAL SPECIFICATION, THE ELECTRICAL SPECIFICATION SHALL CONTROL.

1.7 SITE INSPECTION

1.7.1THIS CONTRACTOR SHALL VISIT THE SITE BEFORE SUBMITTING A BID ON THE WORK AND SHALL THOROUGHLY ACQUAINT HIMSELF WITH CONDITIONS TO BE MET AND THE WORK TO BE ACCOMPLISHED. FAILURE TO COMPLY WITH THIS SHALL NOT CONSTITUTE GROUNDS FOR ANY ADDITIONAL PAYMENT IN CONNECTION WITH REMOVING OR MODIFYING ANY PART OF THE EXISTING INSTALLATION OR INSTALLING ANY NEW WORK.

1.8 CONSTRUCTION DRAWINGS

1.8.1AT THE COMPLETION OF THIS PROJECT THE CONTRACTOR SHALL PROVIDE THE OWNER TWO (2) SETS OF PLANS SHOWING ALL PIPING SYSTEMS, CONTROL SYSTEMS, FIXTURES AND FQUIPMENT INSTALLED BY THIS CONTRACTOR. THESE DRAWINGS SHALL BE CORRECT IN EVERY DETAIL AND SHALL INCORPORATE ALL CHANGES MADE IN THE COURSE OF THE CONDUCT OF THE CONSTRUCTION. THESE DRAWINGS SHALL BE PREPARED IN SUCH A MANNER AS TO ENABLE THE OWNER TO PROPERLY OPERATE, MAINTAIN AND REPAIR BOTH EXPOSED AND CONCEALED WORK.

1.9 UTILITIES, LOCATIONS, AND ELEVATIONS

1.9.1LOCATIONS AND ELEVATIONS OF THE VARIOUS UTILITIES, INCLUDED WITHIN THE SCOPE OF THIS WORK, HAVE BEEN OBTAINED FROM UTILITY MAPS AND/OR OTHER SUBSTANTIALLY RELIABLE SOURCES AND ARE OFFERED SEPARATE FROM THE CONTRACT DOCUMENTS AS A GENERAL GUIDE ONLY, WITHOUT GUARANTEES AS TO ACCURACY. THIS CONTRACTOR SHALL EXAMINE THE SITE AND SHALL VERIFY TO HIS OWN SATISFACTION THE LOCATION AND ELEVATION OF ALL UTILITIES AND SHALL ADEQUATELY INFORM HIMSELF OF THEIR RELATION TO THE WORK BEFORE ENTERING INTO A CONTRACT.

1.10 SOIL CONDITIONS 1.10.1 THIS SPECIFICATION AND THE DRAWINGS IN NO WAY IMPLY AS TO THE CONDITIONS OF THE SOIL TO BE ENCOUNTERED. WHEN EXCAVATING MAY BE REQUIRED IN EXECUTION OF THE WORK, THIS CONTRACTOR AGREES THAT HE HAS INFORMED HIMSELF REGARDING CONDITIONS AFFECTING THE WORK AND LABOR AND MATERIALS REQUIRED, WITHOUT RECOURSE TO ANY REPRESENTATION AS TO SOIL CONDITIONS THAT MAY APPEAR, OR SEEM TO BE IMPLIED, IN ANY PORTION OF THE CONTRACT DOCUMENTS.

1.11 CUTTING AND PATCHING

1.11.1 THIS CONTRACTOR SHALL DO ALL CUTTING AND PATCHING MADE NECESSARY BY HIS WORK, BUT IN NO CASE SHALL HE CUT THROUGH OR INTO ANY STRUCTURAL MEMBER WITHOUT WRITTEN PERMISSION OF THE ARCHITECTS. THIS CONTRACTOR SHALL FURNISH AND PAY FOR THE INSTALLATION OF ALL SLEEVES REQUIRED FOR HIS WORK.

1.12 EQUIPMENT FURNISHED UNDER OTHER SECTIONS 1.12.1 THIS CONTRACTOR SHALL FURNISH ALL NECESSARY MATERIAL AND LABOR FOR THE CONNECTION TO THE MECHANICAL AND ELECTRICAL SYSTEMS OF ALL FIXTURES AND EQUIPMENT REQUIRING SUCH CONNECTIONS, AND WHICH FIXTURES AND EQUIPMENT ARE

FURNISHED BY THE OWNER OR ARE SPECIFIED UNDER OTHER SECTION OF THESE SPECIFICATIONS. IF ANY SUCH FIXTURES OR EQUIPMENT ARE NOT DELIVERED PRIOR TO FINAL ACCEPTANCE, THE SERVICES SHALL BE CAPPED OR PLUGGED AT WALLS OR FLOORS AS DIRECTED, AND SHALL BE LEFT READY FOR FUTURE CONNECTION.

1.13.1 IF INSPECTIONS OR TESTS SHOW DEFECTS SUCH DEFECTIVE WORK OR MATERIAL SHALL BE REPLACED AND INSPECTIONS AND TESTS REPEATED. ALL REPAIRS SHALL BE MADE WITH

<u>PART TWO - PRODUCTS</u>

2.1.1CONTRACTOR SHALL FURNISH, INSTALL AND ADJUST COMPLETE AND READY TO OPERATE EACH AND EVERY LIGHT FIXTURE SHOWN AND SCHEDULED ON THE DRAWINGS.

- A. THIS CONTRACTOR SHALL EXERCISE EXTREME CARE IN LAYING OUT HIS WORK SO AS TO INSURE THAT CEILING OUTLETS ARE LOCATED SYMMETRICALLY WITHIN THE AREA AND WITH RESPECT TO AIR CONDITIONING, HEATING, AND VENTILATING OUTLETS, TILE PATTERNS, FINISHES, ETC. ANY ERRORS SHALL BE CORRECTED AT NO ADDITIONAL COST. THIS CONTRACTOR SHALL CHECK WITH THE CEILING CONTRACTOR FOR TYPE OF CEILING AND ORDER FIXTURES THAT ARE COMPATIBLE WITH CEILING MATERIAL AS REQUIRED TO SUPPORT FIXTURES. SEE REFLECTED CEILING PLAN FOR EXACT LOCATION OF FIXTURES.
- THE ORIENTATION OF LIGHT FIXTURES IN THE SAME SPACE SHALL MATCH AND BE APPROVED BY ARCHITECT. CONTRACTOR SHALL POWER 0-10V LOW-VOLTAGE WIRING TO ALL FIXTURES
- THROUGHOUT CIRCUIT WHETHER SHOWN OR NOT. D. OCCUPANCY SENSOR AND LIGHTING CONTROL MANUFACTURERS SPECIFIED SHALL

PROVIDE LAYOUT SHOP DRAWINGS PRIOR TO BEGINNING WORK. 2.2 CONDUCTORS 2.2.1THE DRAWINGS REFLECT SIZES FOR COPPER CONDUCTORS (NO ALUMINUM).

CONDUCTORS SHALL BE TESTED FOR OPENS AND GROUNDS BEFORE ENERGIZING. SUITABLE

INCLUDED. IN NO CASE SHALL WIRE BE SMALLER THAN #12 A.W.G. ALL BRANCH CIRCUIT

LUGS FOR ALUMINUM TO COPPER CONNECTIONS AT PANELS, MOTORS, ETC., SHALL BE

WIRING SHALL BE SOLID N.E.C. TYPE THWN OR THHN FOR SIZE #10 AND SMALLER, WITH THHN WHERE FLUORESCENT FIXTURE CHANNEL IS USED AS A WIREWAY. ALL FEEDER WIRE SHALL BE TYPE THHN 90°C TO ALL PANELS AND MOTORS OF ONE HORSEPOWER AND ABOVE. ALUMINUM WIRE SHALL NOT BE USED.

2.2.2INSULATION RESISTANCE TESTS SHALL BE MADE IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE IN THE PRESENCE OF THE ARCHITECT OR HIS REPRESENTATIVE. AND THE RESULTS FILED WITH THE ARCHITECT AND ENGINEER BEFORE FINAL ACCEPTANCE. 2.2.3IF CONDUCTORS ARE LARGER THAN SET SCREW TERMINAL PROVISIONS IN PANELBOARDS, SWITCHES, ETC., CONTRACTOR SHALL FURNISH BURNDY TYPE YE-P COMPRESSION ADAPTORS OR AYP CONNECTORS AS REQUIRED. ADAPTOR SHALL MATCH ALUMINUM OR COPPER AS REQUIRED. CUTTING STRANDS OF CONDUCTORS WILL NOT BE ALLOWED

2.3 CONDUIT

2.3.1CONDUIT BELOW GRADE SHALL BE SCHEDULE 40 PVC WITH RIGID 90° ELBOWS, RIGID STEEL OR IMC. INTERIOR BRANCH CIRCUITS ABOVE FLOOR SLAB SHALL BE EMT. EXTERIOR EXPOSED CONDUIT SHALL BE GALVANIZED RIGID STEEL (RSC) ONLY.

- A. ELECTRICAL METALLIC TUBING SHALL BE EMPLOYED FOR ALL BRANCH CIRCUITS. (ROUTE ALL BRANCH CIRCUITS ABOVE GRADE UNLESS SPECIFICALLY SHOWN OR NOTED OTHERWISE.)
- B. ALL STEEL CONDUIT SHALL BE GALVANIZED INSIDE AND OUT, AND ALUMINUM CONDUIT MAY BE USED ONLY WHEN SOFT NOSED FISH TAPES ARE USED TO PREVENT SCORING. NO CONDUIT OR E.M.T. SMALLER THAN THREE QUARTER INCH
- (3/4") IPS SHALL BE USED UNLESS NOTED OTHERWISE. C. THE CONDUIT SYSTEM SHALL BE ELECTRICALLY CONTINUOUS FOR GROUNDING PURPOSES. BOND ACROSS ALL INSULATING BUSHINGS.
- PROVIDE FOUR 3/4" EMPTY CONDUIT FROM EACH FLUSH MOUNTED BRANCH PANEL BOARD TO THE ATTIC OR JOIST SPACE. FLEXIBLE METAL CONDUIT SHALL NOT BE SMALLER THAN 1/2" EXCEPT AS ALLOWED IN ARTICLE 350-3 OF N.E.C. CONTRACTOR SHALL NOT USE LENGTHS LONGER THAN 6' AND SHALL BE SUPPORTED AS PER 350-4 N.E.C. FLEXIBLE METAL CONDUIT SHALL NOT BE USED TO GO FROM LIGHT FIXTURE TO LIGHT FIXTURE. CONTRACTOR SHALL SECURELY ANCHOR OUTLET BOX ABOVE EACH GROUP OF FIXTURES AND THEN
- INSTALL FLEXIBLE CONDUIT TO EACH FIXTURE. CONDUIT 1" AND SMALLER BELOW SLAB SHALL BE INSTALLED 6" BELOW COMPACTED FILL. CONDUIT LARGER THAN 1" SHALL BE 18" BELOW COMPACTED FILL.
- G. ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR INSTALLATION OF ALL CONDUIT INCLUDING POWER AND ALL MECHANICAL CONTROL SYSTEMS. H. INSTALL 3/4" EMT FROM ALL T-STAT LOCATIONS TO 6" ABOVE CEILING. VERIFY
- LOCATION WITH MECHANICAL CONTRACTOR. FEEDERS AND BRANCH CIRCUITS INSTALLED OUTSIDE OF BUILDING SLAB SHALL BE A MINIMUM OF 24" BELOW FINISHED GRADE.
- SEE SECTION 3 FOR SUPPORT AND SECURING OF CONDUIT.
- K. MC AND NM CABLES ARE NOT ACCEPTABLE.

2.4.1INSULATED BUSHINGS MUST BE PROVIDED FOR ALL CONDUCTORS NUMBER FOUR (#4) AND LARGER WHEN ENTERING OR LEAVING A CONDUIT. ALL RIGID STEEL CONDUIT WITHOUT INSULATED BUSHINGS SHALL HAVE MALLEABLE IRON BUSHINGS.

2.4.2COUPLINGS. WHETHER THREADLESS OR NOT. SHALL BE RUN UP TIGHT TO ASSURE ELECTRICAL CONTINUITY. CONDUIT THREADS MUST BE DEVOID OF NON-CONDUCTIVE COATINGS, AND CONNECTORS MUST BE WATERTIGHT WHERE BURIED IN CONCRETE OR FILL. 2.4.30UTLET, PULL, AND JUNCTION BOXES SHALL BE OF SUFFICIENT SIZES TO PROPERLY NEST THE CONDUCTORS PASSING IN AND OUT. SIZE AND GAUGE SHALL NOT BE SMALLER THAN THAT REQUIRED BY THE NATIONAL ELECTRICAL CODE. ALL NON-WEATHERPROOF OUTLET BOXES SHALL BE GALVANIZED STEEL. ALL FREE-STANDING WEATHERPROOF OUTLET BOXES SHALL BE CAST ALUMINUM, HUB OR HUBLESS, EQUAL TO KILLARK FS SERIES. PULL AND JUNCTION BOXES SHALL BE AS NOTED ON PLANS.

2.4.4SET SCREW AND INDENTER FITTINGS ARE NOT ALLOWED.

2.5.1FUSES OF 600A CAPACITY AND BELOW SERVING CIRCUIT BREAKER PANELS SHALL BE BUSSMAN KTN OR KTS LIMITRON FAST ACTING FUSE. FUSES OF GREATER CAPACITY SHALL BE BUSSMAN DUAL ELEMENT FRN AND FRS FUSTRONS.

2.6.1SAFETY SWITCHES SHALL CONFORM TO GOVERNING INDUSTRY NEMA STANDARDS, HEAVY DUTY. THEY SHALL BE LISTED BY UNDERWRITERS LABORATORIES, INC., WHERE APPLICABLE. ALL SAFETY SWITCHES SHALL BE FRONT OPERATED WITH FACTORY

ENAMEL FINISHES. ALL SWITCHES SHALL BE EITHER NEMA TYPE 1A OR 3R, DEPENDING ON MOISTURE CONDITIONS OR DIRECT EXPOSURE TO EXTERIOR CONDITIONS. FURNISH COMPLETE WITH EQUIPMENT GROUND KITS.

2.7 DEVICES AND PLATES 2.7.1DEVICES SHALL BE EQUAL TO AS FOLLOWS UNLESS NOTED OTHERWISE ON

SWITCH, SINGLE POLE (S), LEVITON CS120-2* SWITCH, DOUBLE POLE (S2), LEVITON CS220-2*

SWITCH, THREE WAY (S3), LEVITON CS320-2* SWITCH, FOUR WAY, (S4) LEVITON CS420-2*

SWITCH, SINGLE POLE, PILOT LIGHT (SP), LEVITON 1221-PLR SWITCH, INTERCHANGEABLE (SIC), ARROW HART QST91* OR QST93* RECEPTACLE, DUPLEX, LEVITON 5342*

RECEPTACLE, HOSPITAL GRADE, TAMPER-RESISTANT, 8300-SG*

RECEPTACLE, HOSPITAL GRADE, GFCI, TAMPER RESISTANT, GFWT2-HG*

RECEPTACLE, DUPLEX, WP, G5362-WT* WITH TAYMAC MX4280S COVER RECEPTACLE, GROUND FAULT INTERRUPTER, LEVITON 7899-SG*

RECEPTACLE, ISOLATED GROUND, LEVITON 5362-IG* WITH LEVITON ENGRAVED COVER RECEPTACLE, COMMERCIAL GRADE, TAMPER-RESISTANT, 5362-SG* RECEPTACLE, COMMERCIAL GRADE, GFCI, TAMPER RESISTANT, G5362-WT*

2.7.2PLATES: ALL NON-WEATHERPROOF COVERPLATES SHALL BE LEVITON NYLON PLATES. COLOR AS NOTED BY ARCHITECT. PROVIDE HORIZONTAL OR VERTICAL GANG PLATES WHERE MORE THAN ONE DEVICE IS CONCURRENT AT THE SAME ELEVATION OR LOCATION. FURNISH BLANK PLATES FOR OUTLETS WITHOUT A DEVICE. ALL NON-WEATHERPROOF COVERPLATES THROUGHOUT PROJECT SHALL BE OF THE SAME MATERIAL, COLOR, FINISH AND DESIGN AND SHALL MATCH ANY EXISTING DEVICE COVERPLATES AS DIRECTED BY ARCHITECT.

A. BLANK WEATHERPROOF COVER PLATES SHALL BE CAST ALUMINUM WITH RUBBER

GASKET EQUAL TO KILLARK FSBC SERIES. 2.7.3SWITCHES FOR USE ON 277 VOLT SYSTEM, GROUPED IN OUTLET BOXES SHALL HAVE A PERMANENTLY INSTALLED SHIELD AS DIRECTED BY N.E.C. 380-8. 2.7.4HEIGHTS: SWITCHES SHALL BE INSTALLED AT 46" CENTERLINE TO FINISH FLOOR ON STRIKE SIDE OF DOORS. RECEPTACLES AND OTHER OUTLETS ARE AT EIGHTEEN INCHES (18") CENTERLINE TO FINISH FLOOR UNLESS NOTED OTHERWISE ON THE DRAWINGS. WHERE RECEPTACLES OCCUR WHERE BUILT-IN CABINETS OR TABLE TOPS EXIST, THEY SHALL BE INSTALLED ABOVE WORKING SURFACES AS DIRECTED. ALL RECEPTACLES TO HAVE

2.7.5ALL FLOOR OUTLETS TO BE INSTALLED FROM AN APPROVED SHOP DRAWING. LOCATIONS SHOWN FOR BIDDING PURPOSES ONLY. FLOOR BOXES SHALL BE WIREMOLD RFB6-OG UNLESS INDICATED OTHERWISE ON PLANS. 2.7.6PROVIDE METALLIC (FINISH SELECTED BY ARCHITECT) CARPET FLANGES FOR OR APPROVED EQUAL

- FLOOR BOXES IN CARPET AREAS. 2.7.7ALL OF THE FOLLOWING RECEPTACLES SHALL BE GFCI TYPE: A. RECEPTACLES IN BATHROOMS OR WITHIN 6'-0" OF A SINK, EXTERIOR WR TYPE, AND
- B. RECEPTACLES FOR ELECTRIC WATER COOLERS SHALL BE ON GFCI BREAKER. C. FEED THROUGH PROTECTION OF OUTLETS IS NOT ALLOWED.

2.7.8ALL EXTERIOR OUTLETS AND KITCHEN STUB-UP OUTLETS SHALL BE WEATHERPROOF BOXES.

2.8 CIRCUIT BREAKER/PANELBOARDS

GROUNDING SLOTS BELOW PARALLEL SLOTS.

AS REQUIRED BY NEC.

2.8.1FURNISH AND INSTALL CIRCUIT BREAKER PANELBOARDS AS INDICATED IN PANELBOARD SCHEDULE. PANELBOARDS SHALL BE OF A DEAD FRONT SAFETY TYPE EQUIPPED WITH THERMAL MAGNETIC MOLDED CASE CIRCUIT BREAKERS. PANELBOARDS SHALL BE AS MANUFACTURED BY SQUARE D. USE BOLT ON BREAKERS ONLY. TWO SECTION PANELBOARDS SHALL BE OF EQUAL SIZE IN BOTH SECTIONS.

2.8.2PANELBOARD DOORS SHALL HAVE A CYLINDER TUMBLER TYPE LOCK, AND ALL DOORS SHALL BE KEYED ALIKE, BUT DIFFERENT FROM TELEPHONE CABINETS. ON DOORS MORE THAN 48 INCHES HIGH. PROVIDE A THREE POINT CATCH AND LOCK: FOR DOUBLE TUB PANELBOARDS PROVIDE TWO REVERSE ACTING DOORS MOUNTED. A COMPLETE TYPED CIRCUIT DIRECTORY SHALL BE PROVIDED, ON THE INSIDE OF EACH DOOR IDENTIFYING EACH CIRCUIT AND LOAD FED BY THAT CIRCUIT. ALL BOXES SHALL BE FACTORY PAINTED GRAY.

2.8.3CIRCUIT BREAKERS SHALL BE QUICK-MAKE, QUICK-BREAK, THERMAL MAGNETIC TRIP INDICATING, AND HAVE COMMON TRIP ON ALL MULTIPOLE BREAKERS. HANDLE TIES WILL NOT BE ACCEPTED. ALL PANELBOARDS AND CIRCUIT BREAKERS SHALL BE FULLY RATED TO AIC RATING AS

NOTED ON DRAWINGS. (NO SERIES RATING ALLOWED.) 2.8.4ALL SUB-FEED BREAKERS SHALL BE CONNECTED TO LINE SIDE OF MAIN

PANEL SCHEDULE. FACTORY REARRANGED SEQUENCE WILL NOT BE ACCEPTED. SEE SECTION 2.8.6EACH PANELBOARD SHALL BE LABELED WITH A BAKELITE NAME TAG

2.10. EACH CIRCUIT SHALL BE IDENTIFIED BY NUMBERS FURNISHED BY FACTORY AS 1 THRU 42 OR 1 THRU 84 IN 2 SECTION PANELBOARDS. ANY CHANGE OR ALTERATION IN NUMBERING SHALL BE CORRECTED BY CONTRACTOR AT HIS EXPENSE. 2.8.7MAIN CIRCUIT BREAKERS "MCB" SHALL BE SEPARATE VERTICALLY FACTORY MOUNTED ON BUS BARS AND NOT "BACK-FED" BRANCH STYLE. SERVICE ENTRANCE MAIN BREAKERS

INDICATING VOLTAGES. PHASE. AND WIRE. AND PANELBOARD IDENTIFICATION. SEE SECTION

2.9 GROUNDING

SHALL ALSO HAVE BARRIERS TO COMPLY WITH UL 67 AND NEC 230.

2.9.1 THE SERVICE ENTRY EQUIPMENT, INCLUDING SWITCHBOARD FRAME AND GROUNDING BUS AND ALL OUTGOING FEEDER AND/OR MOTOR SUPPLY CONNECTIONS SHALL BE PERMANENTLY AND EFFECTIVELY GROUNDED AS REQUIRED PER ARTICLE 250.50 OF THE NATIONAL ELECTRIC CODE. THE GROUNDING ELECTRODE SYSTEM SHALL CONSIST OF THE FOLLOWING:

- A. 1" METAL WATER PIPE WITH CONNECTION WITHIN 5'0" OF POINT OF ENTRY TO
- B. CONCRETE ENCASED REBAR. C. METAL FRAME OF THE BUILDING OR STRUCTURE.
- D. 3/4" X 10'0" GROUND ROD. E. GROUND RING CONSISTING OF 20'0" OF #2 AWG BASE COPPER CONDUCTOR. USE BURNDY BAR CONNECTOR OR CADWELL TO ATTACH TO WATER LINE. CONTRACTOR TO VERIFY THAT THE RESISTANCE TO GROUND IS LESS THAN 25 OHMS. GROUND WIRE TO PANEL SHALL BE IN PVC. ALL CONNECTION SHALL BE VISIBLY INSPECTED

AND APPROVED BY ENGINEER. 2.10 NAME PLATES

2.11 SYSTEMS CONDUIT

2.10.1 ALL ELECTRICAL EQUIPMENT, TIMER SWITCHES, SAFETY SWITCHES, STARTERS, PANELS, AND TRANSFORMERS SHALL HAVE BLACK AND WHITE LAMINATED BAKELITE NAMEPLATES SECURELY FASTENED TO DEVICE.

- A. NAMEPLATE SIZE SHALL BE 1-1/2" X 4" WITH BEVELED EDGES AND 1/4" LETTERS. (PHENOLIC)
- B. NAMEPLATE SHALL INCLUDE PANEL OR EQUIPMENT DESIGNATION. INCLUDE AMPERAGE, VOLTAGE, PHASE AND WIRE FOR THE PANELS, AND "PANEL FED FROM" FOR THE EQUIPMENT. (ATTACH WITH RIVETS/SCREWS)

2.11.1 ALL CONDUIT SHALL BE LEFT SEALED AGAINST MOISTURE COLLECTION, AND A NUMBER SIXTEEN (#16) GAUGE GALVANIZED PULL WIRE LEFT BETWEEN EACH BOX OR OUTLET FOR THE INSTALLER." PROVIDE A MINIMUM OF 1" EMT TO ALL SYSTEMS BOXES TO INCLUDE, BUT NOT LIMITED TO: TELECOM, DATA, VOICE, VIDEO, AUDIO, SECURITY, SURVEILLANCE AND FIBER. (FIRE ALARM AND INTERCOM SHALL BE 3/4" EMT MINIMUM.)

<u>PART THREE – EXECUTION</u>

3.1 EQUIPMENT AND MATERIAL

3.1.1 IN ORDER TO ESTABLISH STANDARDS OF QUALITY, THE ENGINEER HAS, IN THE DETAILED SPECIFICATIONS REFERRED TO CERTAIN PRODUCTS BY NAME AND CATALOG NUMBER. THIS PROCEDURE IS NOT TO BE CONSTRUED AS ELIMINATING FROM COMPETITION OTHER PRODUCTS OF EQUIVALENT OR BETTER QUALITY BY OTHER MANUFACTURERS WHERE FULLY SUITABLE IN DESIGN. WHERE MULTIPLE MANUFACTURING SOURCES ARE SHOWN ON THE DRAWINGS OR HEREIN SPECIFIED, THE SUBCONTRACTOR SHALL LIMIT HIS BID TO ONE OF THOSE MANUFACTURERS.

3.1.2 THE SUBCONTRACTOR SHALL ABIDE BY THE ENGINEER'S JUDGEMENT WHEN PROPOSED SUBSTITUTE MATERIALS OR ITEMS OF EQUIPMENT ARE JUDGED TO BE UNACCEPTABLE AND SHALL FURNISH THE SPECIFIED MATERIAL OR ITEM OF EQUIPMENT IN SUCH CASE. ALL PROPOSALS FOR SUBSTITUTION SHALL BE SUBMITTED IN WRITING BY THE GENERAL CONTRACTOR AND NOT BY THE ELECTRICAL SUBCONTRACTOR OR MATERIAL SUPPLIERS. THE ENGINEER WILL APPROVE OR DISAPPROVE PROPOSED SUBSTITUTION IN WRITING WITHIN A REASONABLE TIME AND, IF ANY REQUEST FOR A SUBSTITUTION IS REJECTED, THE CONTRACTOR SHALL AUTOMATICALLY FURNISH MATERIAL SPECIFIED. NO SUBSTITUTE MATERIALS SHALL BE USED UNLESS APPROVED IN WRITING.

A. DELIVERY AND STORAGE: EQUIPMENT AND MATERIALS SHALL BE DELIVERED TO THE SITE AND STORED IN ORIGINAL CONTAINERS, SUITABLY SHELTERED FROM THE

ELEMENTS. ALL ITEMS SUBJECT TO MOISTURE DAMAGE (SUCH AS COILS OF DRY TRANSFORMERS) SHALL BE STORED IN DRY, HEATED SPACES.

B. PROTECTION: EQUIPMENT SHALL BE TIGHTLY COVERED AND PROTECTED AGAINST DAMAGE OR THEFT. AT THE COMPLETION OF THE WORK, FIXTURES, EQUIPMENT, AND MATERIALS SHALL BE CLEANED AND POLISHED THOROUGHLY AND TURNED OVER TO THE OWNER IN A CONDITION SATISFACTORY TO THE DAMAGE OR DEFECTS DEVELOPING BEFORE ACCEPTANCE OF THE WORK SHALL BE MADE GOOD AT NO EXPENSE TO THE OWNER.

C. MANUFACTURER'S DIRECTIONS: SHALL BE FOLLOWED COMPLETELY IN THE DELIVERY, STORAGE, PROTECTION AND INSTALLATION OF ALL EQUIPMENT AND MATERIALS. THE ELECTRICAL SUBCONTRACTOR SHALL PROMPTLY NOTIFY THE ARCHITECT IN WRITING OF ANY CONFLICT BETWEEN ANY REQUIREMENTS OF THE CONTRACT DOCUMENTS AND THE MANUFACTURER'S DIRECTIONS AND SHALL OBTAIN THE ARCHITECT'S WRITTEN INSTRUCTIONS BEFORE PROCEEDING WITH THE WORK. SHOULD THIS SUBCONTRACTOR PERFORM ANY WORK THAT DOES NOT COMPLY WITH THE MANUFACTURER'S DIRECTIONS OR SUCH WRITTEN INSTRUCTION OF THE ARCHITECT HE SHALL BEAR ALL COSTS ARISING IN CONNECTION WITH CORRECTING THE DEFICIENCIES.

3.2.1THIS SUBCONTRACTOR SHALL COMPARE THE ELECTRICAL DRAWINGS AND SPECIFICATIONS WITH THE DRAWINGS AND SPECIFICATIONS OF ALL OTHER TRADES, AND SHALL REPORT ANY DISCREPANCIES TO THE ARCHITECT AND OBTAIN FROM HIM WRITTEN INSTRUCTION FOR CHANGES NECESSARY IN THE ELECTRICAL WORK. THE ELECTRICAL WORK SHALL BE INSTALLED IN COOPERATION WITH OTHER TRADES INSTALLING INTER-RELATED WORK. BEFORE INSTALLATION, THE SUBCONTRACTOR SHALL MAKE PROPER PROVISION TO AVOID INTERFERENCES IN A MANNER APPROVED BY THE ENGINEER, ALL CHANGES REQUIRED IN THE WORK OF THE CONTRACTOR CAUSED BY HIS NEGLECT TO DO SO SHALL BE MADE BY HIM AT

ANCHOR BOLTS, SLEEVES, INSERTS AND SUPPORTS SHALL BE INSTALLED BY THIS SUBCONTRACTOR WHERE REQUIRED. ANY EXPENSE RESULTING FROM THE LOCATION OF SUCH APPURTENANCES SHALL BE BORNE BY THE ELECTRICAL SUBCONTRACTOR. SLOTS, CHASES, OPENINGS, AND RECESSES: SLOTS, CHASES, OPENINGS, AND RECESSES THROUGH FLOORS, WALLS, CEILINGS, AND ROOFS, AS SPECIFIED, WILL BE PROVIDED BY THE ELECTRICAL SUBCONTRACTOR IN THE PROPER MATERIAL, AND HE SHALL PROPERLY COORDINATE THE LOCATION. NO STRUCTURAL MEMBER SHALL BE DISTURBED IN ANY MANNER WITHOUT WRITTEN PERMISSION OF THE ARCHITECT.

3.3 PENETRATION WALL/FLOOR FIRESTOP

3.6 OPERATION AND MAINTENANCE INSTRUCTIONS

3.2 COORDINATION

3.3.1ALL FIRE WALLS, FIRE BARRIERS, FIRE PARTITIONS, UPPER FLOORS OF MULTI-STORY BUILDINGS WHERE PIPE OR DUCTS PASS THROUGH, INTO, OR OUT OF, SHALL BE PROTECTED BY AN APPROVED PENETRATION FIRESTOP SYSTEM INSTALLED AS TESTED IN ACCORDANCE WITH ASTM E 814, WITH A MINIMUM POSITIVE PRESSURE DIFFERENTIAL OF 0.01 INCH OF WATER AND SHALL HAVE AN F RATING OF NOT LESS THAT THE REQUIRED FIRE-RESISTANCE RATING OF THE WALL PENETRATED. A UL APPROVED FIRESTOP SYSTEM SHALL BE AS SPECIFIED BY 3M FIRE PROTECTION PRODUCTS, SPECSEAL FIRESTOP PRODUCTS,

3.4.1THIS CONTRACTOR SHALL FURNISH AND INSTALL ALL CONDUIT, WIRE CABINETS, WEATHERHEADS, ETC., AS REQUIRED BY LOCAL UTILITY COMPANY FOR METERING PURPOSES. CONTRACTOR SHALL VERIFY WITH UTILITY THE TYPE, LOCATION, AND GENERAL REQUIREMENTS FOR METERING. 3.5 SERVICE

3.5.1THE CONTRACTOR SHALL ARRANGE WITH THE UTILITY COMPANIES FOR THE ELECTRICAL AND THE TELECOM SERVICE AS SHOWN, PAYING ALL CHARGES PERTAINING THERETO. THE CONTRACTOR SHALL OBTAIN THE CONSENT OF EACH SERVING UTILITY COMPANY FOR THE ELECTRICAL AND TELECOM SERVICE CONNECTIONS SHOWN FOR THE PROJECT. EACH UTILITY SHALL BE REQUESTED BY THE CONTRACTOR TO EXAMINE THE CONTRACT DOCUMENTS AND REPLY IN WRITING THEIR CONSENT TO SERVICE. THIS CONTRACTOR SHALL FURNISH AND INSTALL ALL MATERIAL REQUIRED BY LOCAL UTILITY COMPANY FOR METERING.

3.5.2THE ELECTRICAL SERVICE ENTRANCE WILL BE INSTALLED BY THIS SUBCONTRACTOR AS SHOWN AND DETAILED ON THE DRAWINGS. THE ELECTRICAL SERVICE CHARACTERISTICS ARE TO BE AS SHOWN ON THE DRAWINGS, AND CONDUCTORS SHALL BE CODE TYPE THHN OR THWN INSTALLED IN RIGID CONDUIT OR AS NOTED. 3.5.3UNDERGROUND TELECOM SERVICE SHALL BE INSTALLED BY UTILITY SERVING

FACILITY. CONTRACTOR SHALL PAY ALL COST ASSOCIATED WITH SERVICE AS REQUIRED BY THE

TELECOM COMPANY, REFER TO RISER DIAGRAM FOR SPECIFIC DETAILS AND PROVIDE (2) 2"C

3.5.4CONTRACTOR SHALL PAY ALL COSTS, FURNISH ALL MATERIAL, LABOR, DRAWINGS, ETC., AS REQUIRED BY UTILITY COMPANIES FOR RELOCATION OF EXISTING TELECOM AND ELECTRIC SERVICE. CONTRACTOR SHALL PAY ALL ADDITIONAL COSTS FOR UNDERGROUND SERVICE, PAD MOUNTED TRANSFORMER AND PAD.

3.6.1 PROVIDE COMPLETE OPERATION AND MAINTENANCE INSTRUCTIONS ON ALL EQUIPMENT AND INSTRUCT OWNER'S REPRESENTATIVE IN THEIR OPERATION.

2.8.5ALL CIRCUIT BREAKERS SHALL BE IN PROPER SEQUENCE ACCORDING TO 3.7.1THE CONTRACTOR SHALL REMOVE HIS TOOLS, MACHINERY, DEBRIS, ETC. FROM THE PREMISES WHEN HIS PART OF THE WORK IS FINISHED. HE SHALL LEAVE THE PREMISES FREE OF ALL OBSTRUCTIONS AND HINDRANCES.

3.8.1THE ELECTRICAL SUBCONTRACTOR SHALL WARRANT ALL EQUIPMENT FURNISHED AND WORK PERFORMED UNDER THE ELECTRICAL SUBCONTRACT FOR A PERIOD OF ONE (1) YEAR FROM THE DATE OF WRITTEN ACCEPTANCE OF THE WORK. THIS GUARANTEE SHALL COVER ALL PATCHING, REFINISHING, ETC., REQUIRED TO RESTORE THE FAULTY CONDITION AT NO ADDITIONAL EXPENSE TO THE OWNER.

3.9 EXCAVATION FOR UTILITIES 3.9.1EXISTING UTILITIES ENCOUNTERED IN EXCAVATING FOR THIS CONTRACT SHALL BE RELOCATED OUTSIDE THE BUILDING LINES AS DIRECTED BY THE ARCHITECT.

3.9.2EACH CONTRACTOR SHALL PERFORM ALL EXCAVATIONS OF EVERY DESCRIPTION AND OF WHATEVER SUBSTANCES ENCOUNTERED, TO THE DEPTHS INDICATED ON THE DRAWINGS AND REQUIRED FOR THE INSTALLATION OF HIS PORTION OF THE UTILITIES. SYSTEMS. WHEREVER POSSIBLE, ALL EXTERIOR LINES SHALL BE INSTALLED WITH A MINIMUM OF 24" OF COVER, UNLESS SHOWN OTHERWISE. ALL EXCAVATED MATERIALS NOT REQUIRED FOR FILL OR BACKFILL SHALL BE REMOVED AND WASTED AS DIRECTED BY THE ARCHITECT ALL EXCAVATIONS SHALL BE MADE BY OPEN CUT. THE BANKS OF TRENCHES SHALL BE KEPT AS NEARLY VERTICAL AS PRACTICABLE AND WHERE REQUIRED SHALL BE PROPERLY SHEETED AND BRACED. ROCK SHALL BE EXCAVATED TO A MINIMUM OVERDEPTH OF 4" BELOW THE TRENCH DEPTHS SPECIFIED. THE OVERDEPTH ROCK EXCAVATION SHALL BE BACKFILLED WITH LOOSE, MOIST EARTH, THOROUGHLY TAMPED. ALL GRADING IN THE VICINITY OF EXCAVATIONS SHALL BE CONTROLLED TO PREVENT SURFACE GROUND WATER FROM FLOWING INTO THE EXCAVATIONS. ANY WATER ACCUMULATED IN THE EXCAVATIONS SHALL BE REMOVED BY PUMPING. OR BY OTHER APPROVED METHOD.

3.9.3THE TRENCHES SHALL BE CAREFULLY BACKFILLED WITH THE EXCAVATED MATERIALS APPROVED FOR BACKFILLING, OR OTHER APPROVED MATERIAL FREE FROM LARGE CLODS OF EARTH OR STONES. THE BACKFILL SHALL BE IN LAYERS, MOISTENED AND TAMPED. ANY TRENCHES WHERE SETTLEMENT OCCURS SHALL BE REOPENED FOR PROPER COMPACTION.

3.10.1 THE ELECTRICAL SUBCONTRACTOR IS COMPLETELY RESPONSIBLE FOR HOW ALL HIS WORK IS PERFORMED: SAFETY, IN. ON. OR ABOUT THE JOB SITE: METHODS OF WORK PERFORMANCE; AND TIMELINESS IN SUCH PERFORMANCE. IN THE EVENT HE IS UNSATISFIED WITH THE PERFORMANCE AND/OR COOPERATION OF OTHER TRADES, HE SHALL SET FORTH SUCH COMPLAINTS IN WRITING FOR THE ARCHITECT'S REVIEW. IN NO EVENT SHALL THIS SUBCONTRACTOR EXPECT TO BE SPECIFICALLY DIRECTED IN THE PROTECTION OF PERSONNEL OR MATERIAL BY THE OWNER, ARCHITECTS, OR ENGINEER.

3.11 BRANCH CIRCUIT WIRING

120V CONTROL WIRING.

3.11.1 ALL BRANCH CIRCUIT WIRING SHALL BE INSTALLED IN CONFORMANCE WITH THE NATIONAL ELECTRICAL CODE. CONDUCTORS SHALL BE CODE TYPE THW OR THHN. FOR ALL RUNS FROM LOW VOLTAGE PANELS WHERE THE FIRST OUTLET IS NOT MORE THAN FIFTY FEET (50') TO THE PANELBOARDS, USE MINIMUM NUMBER TWELVE (#12) AWG; FOR RUNS FIFTY-ONE TO EIGHTY (51' TO 80') TO THE FIRST OUTLET, USE NUMBER TEN (#10) AWG; FOR RUNS OVER EIGHTY FEET (80'), USE NUMBER EIGHT (#8) AWG UNLESS OTHERWISE NOTED. BRANCH CIRCUIT COLOR CODED AS FOLLOWS: PHASE "A" BLACK; PHASE "B" RED; PHASE "C" BLUE; SWITCH LEGS YELLOW OR ORANGE ON BROWN; GROUNDING - GREEN. ALL JOINTS SHALL BE TWISTED AND INSERTED INTO A SCOTCHLOK INSULATED CONNECTOR. PROVIDE GROUND WIRE IN ALL BRANCH CIRCUITS.

3.11.2 THIS SUBCONTRACTOR IS WARNED TO ADHERE STRICTLY TO THE CIRCUITRY SHOWN ON THE PLANS TO ACHIEVE OPTIMUM SYSTEM BALANCE. FAILURE TO PROPERLY CIRCUIT ACCORDING TO PLANS SHALL RESULT IN REWIRING AS DIRECTED AT NO ADDITIONAL COST TO

3.11.3 ALL PARALLEL CONDUCTORS SHALL BE OF THE SAME LENGTH, OF THE SAME CONDUCTOR MATERIAL, CIRCULAR - MIL AREA, SAME INSULATION TYPE AND TERMINATED IN THE SAME MANNER. NO PARALLEL CONDUCTORS SMALLER THAN #1/0 ARE ACCEPTABLE. 3.12 ELECTRICAL WIRING

3.12.1 THE ELECTRICAL WIRING FOR THE MECHANICAL EQUIPMENT SEPARATED INTO TWO

MOTOR OR APPROPRIATE TERMINALS ON THE EQUIPMENT. THIS ALSO INCLUDES ALL

MAIN WIRING DIVISIONS: (1) POWER WIRING BY ELECTRICAL CONTRACTOR, AND (2) CONTROL WIRING BELOW 120V BY THE MECHANICAL CONTRACTOR. POWER WIRING SHALL BE THE ENERGY SOURCE AND INCLUDE INSTALLATION OF CIRCUIT PROTECTIVE DEVICES, MOTOR STARTERS OR CONTROLLERS, CONDUIT, WIRING AND SAFETY DISCONNECTS FROM THE POWER SUPPLY. AND TERMINATION AT THE

B. CONTROL WIRING SHALL COMPRISE ALL WIRING NOT INCLUDED IN POWER WIRING AND BELOW 120V. THIS WIRING SHALL SPECIFICALLY INCLUDE ALL AUTOMATIC TEMPERATURE CONTROL WIRING, SAFETY INTERLOCKING WIRING, P.B. STARTING, PILOT LIGHT. ETC.: THAT IS NOT INCLUDED AS PART OF PRE-WIRED EQUIPMENT BUT NECESSARY FOR THE PROPER OPERATION AND SAFETY OF THE EQUIPMENT. ALL CONDUIT. BOXES, ETC., REQUIRED FOR CONTROL WIRING SHALL BE PROVIDED AND INSTALLED BY THE ELECTRICAL CONTRACTOR.

3.13 MOTOR CONNECTIONS

3.14 TEMPORARY CONSTRUCTION POWER

3.15 WORKMANSHIP

3.13.1 WHEREVER EQUIPMENT IS SHOWN REQUIRING ELECTRICAL CONNECTION AS SPECIFIED, ALL WIRING SHALL BE FURNISHED AND INSTALLED UNDER THIS SECTION OF THE SPECIFICATIONS. STARTING SWITCHES, PROTECTIVE DEVICES, AND OTHER MEANS FOR THE OPERATION AND CONTROL OF EQUIPMENT SHALL BE FURNISHED UNDER THE VARIOUS SECTIONS AND INSTALLED UNDER THE ELECTRICAL SECTION UNLESS SPECIFICALLY NOTED OTHERWISE ON THE DRAWINGS.

3.13.2 ADDITIONAL DISCONNECTS REQUIRED BY THE NATIONAL ELECTRICAL CODE SHALL BE FURNISHED, INSTALLED AND CONNECTED UNDER THE ELECTRICAL SECTION. MOTOR TERMINAL OR EQUIPMENT CONNECTION SHALL TERMINATE IN A JUNCTION BOX OR DISCONNECT ADJACENT TO THE EQUIPMENT.

3.13.3 INSTALL APPROXIMATELY TWELVE INCHES (12") MAXIMUM OF FLEXIBLE CONDUIT AT FINAL CONNECTION OF EQUIPMENT. FOR MOTORS OR EQUIPMENT IN EXTERIOR DAMP/WET LOCATIONS, USE POLYVINYL CHLORIDE JACKETED FLEXIBLE METALLIC CONDUIT.

3.14.1 THIS CONTRACTOR SHALL FURNISH AND INSTALL TEMPORARY CONSTRUCTION POWER WIRING AS REQUIRED TO PROVIDE SUFFICIENT POWER AND LIGHTING FOR ALL CONSTRUCTION NEEDS. TEMPORARY ELECTRICAL SERVICE SHALL BE OBTAINED IN THE NAME OF THE GENERAL CONTRACTOR AND IT WILL BE THE GENERAL CONTRACTOR'S RESPONSIBILITY TO PAY ALL POWER COMPANY CHARGES. THE TEMPORARY SERVICE SHALL BE OBTAINED FROM THE LOCAL UTILITY COMPANY. ALL RECEPTACLES SHALL BE GROUNDING TYPE. PROVIDE TEMPORARY LIGHTING AS REQUIRED OR DIRECTED BY THE ARCHITECT FOR ADEQUATE ILLUMINATION FOR CONSTRUCTION PURPOSE.

ALL CONDUITS SHALL BE THOROUGHLY SWABBED OUT BEFORE PULLING WIRE; ALL ENDS OF CONDUIT SHALL BE FREE OF BURRS OR DEFECTS.

- A. BENDS SHALL BE MADE WITH AN APPROVED BENDER, AND NO CONDUIT SHALL BE INSTALLED WITH CRIMPS OR INDENTERS. WHERE APPLICABLE, FACTORY FORMED LONG RADIUS ELLS ARE RECOMMENDED
- ELECTRICAL RACEWAYS SHALL BE CONCEALED WHERE POSSIBLE. ALL CONDUIT RUNS SHALL BE GROUPED WHERE POSSIBLE, PROPERLY SUPPORTED BY APPROVED CONDUIT OR PIPE HANGERS AND RUN PARALLEL OR PERPENDICULAR TO BUILDING LINES. WHERE SURFACE MOUNTED PANELBOARDS ARE UTILIZED, CONTRACTOR SHALL MOUNT ALL CONDUITS ABOVE AND BELOW PANEL TO UNITSTRUT CHANNELS WITH P2900 SERIES UNIVERSAL CLAMPS OR EQUAL. CONDUIT SHALL BE ARRANGED IN A NEAT AND ORDERLY MANNER. FAILURE TO COMPLY WITH THE ABOVE WILL RESULT IN
- REPLACEMENT WITHOUT ADDITIONAL COST TO THE OWNER. C. ALL CONDUIT SHALL BE SUPPORTED WITH CAST "C" CLAMPS, "U" STRAPS OR RING HANGERS. ATTACHED TO RODS AND/OR PLATES TO PREVENT SAG AND UNDUE STRAIN. PERFORATED STRAPS OR WIRE WILL NOT BE PERMITTED.
- D. CADDIE CLIPS SHALL NOT BE ATTACHED TO CEILING GRID WIRE. E. ALL CONDUIT TO BE SUPPORTED EVERY 10' AND WITHIN 3' FROM OUTLET BOXES. CONDUIT SHALL BE ATTACHED TO SUPPORT WITH CLAMPS OR CADDIE CLIPS. WIRE IS

3.16 ROOFING FLASHING

NOT ACCEPTABLE.

3.16.1 WHERE ELECTRICAL ITEMS PENETRATE THE ROOFING, THE CONTRACTOR SHALL COORDINATE LOCATION AND SIZE AS REQUIRED FOR FACTORY VENT FLASHING ASSEMBLY TO BE FURNISHED AND INSTALLED BY THE ROOFING CONTRACTOR IN STRICT ACCORDANCE WITH THE ROOF MANUFACTURER'S RECOMMENDATION.

3.16.2 IF SINGLE PLY MEMBRANE ROOF IS USED, CONTRACTOR SHALL USE FACTORY PIPE FLASHING ASSEMBLY AS RECOMMENDED BY ROOFING MANUFACTURER. COORDINATE LOCATIONS WITH ROOFING CONTRACTOR.

3.17 NOISE AND VIBRATION CONTROL 3.17.1 THE ELECTRICAL SYSTEMS AS INSTALLED SHALL BE FREE FROM OBJECTIONABLE NOISE OR VIBRATION. THE CONTRACTOR SHALL ISOLATE MOTOR STARTERS, CONDUITS, FIXTURE BALLAST, TRANSFORMERS, EQUIPMENT, ETC., AS DIRECTED OR REQUIRED SO AS TO INSURE AN ACCEPTABLE NOISE LEVEL FREE FROM OBJECTIONABLE VIBRATION.

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2023 06-15 DATE: PROJECT NO: DRAWN BY: REVISION: