

Fig. 304.3.2
T-Shaped Turning Space

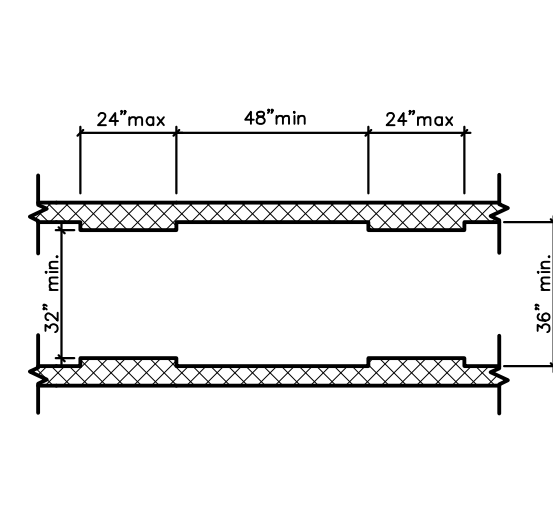


Fig. 403.5.1
Clear Width of an Accessible Route

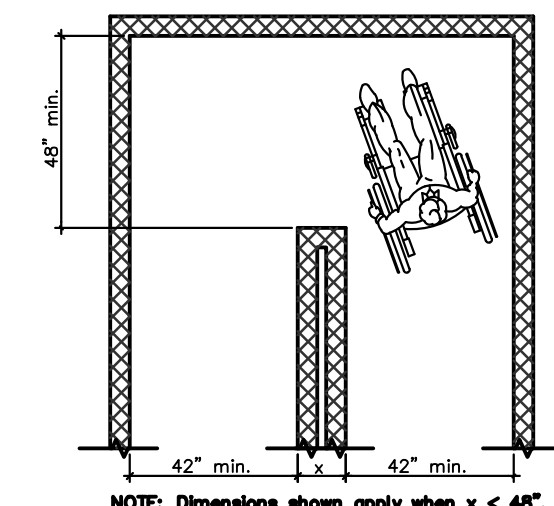


Fig. 403.5.2
Clear Width at turn

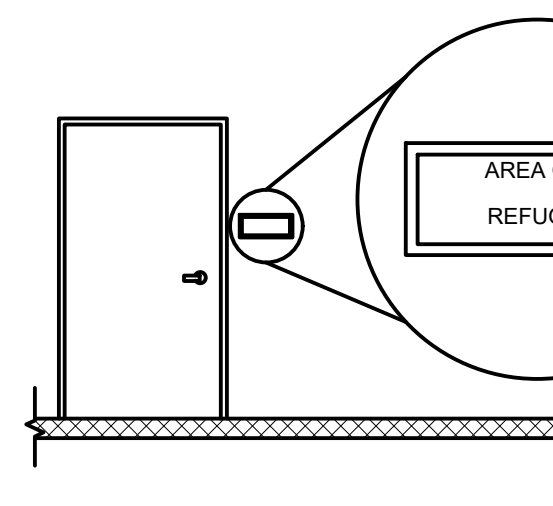
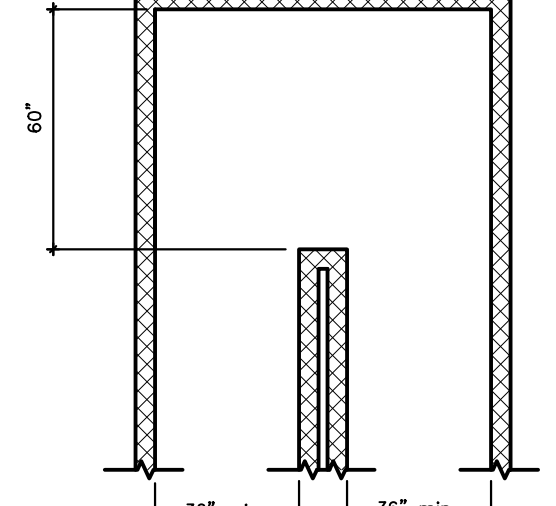


Fig. 703.4.1
Height of Tactile Characters Above Finish Floor or Ground

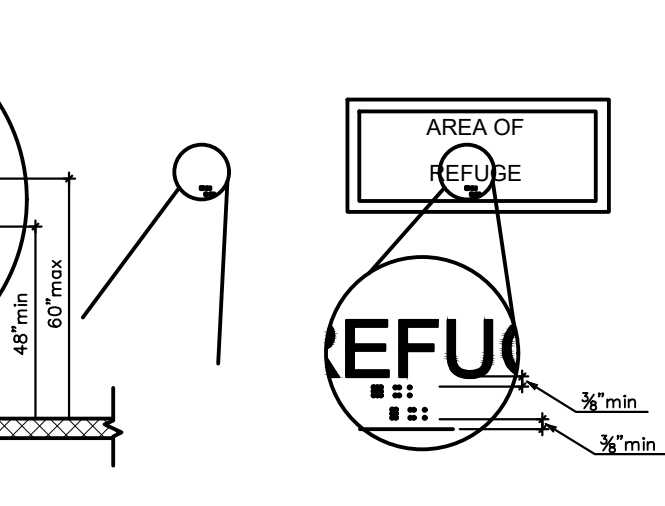


Fig. 703.3.2
Position of Braille

Measurement Range	Minimum in Inches Maximum in Inches
Dot Base Diameter	0.059" (1.5 mm) to 0.063" (1.6 mm)
Distance between two dots in the same cell	0.090" (2.3 mm) to 0.100 (2.5 mm)
Distance between corresponding dots in adjacent cells	0.241 (6.1 mm) to 0.300 (7.6 mm)
dot height	0.025 (0.6 mm) to 0.037 (0.9 mm)
Distance between corresponding dots from one cell directly below	0.395 (10 mm) to 0.400 (10.2 mm)

Table 703.3.1
Braille Dimensions

MANEUVERING, TURNING &
CLEAR FLOOR SPACE

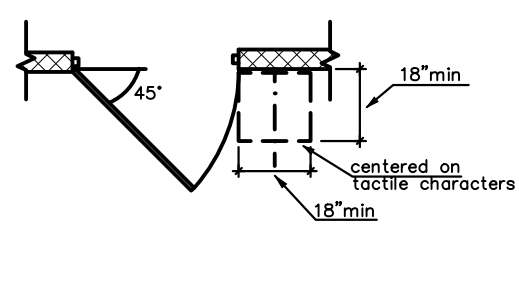


Fig. 703.4.2
Location of Tactile Signs at Doors

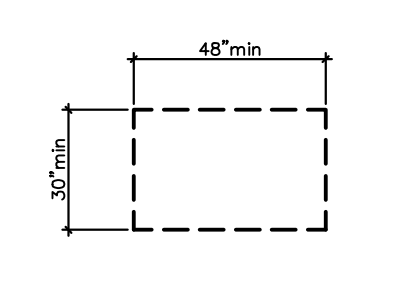


Fig. 305.3
Clear Floor or Ground Space

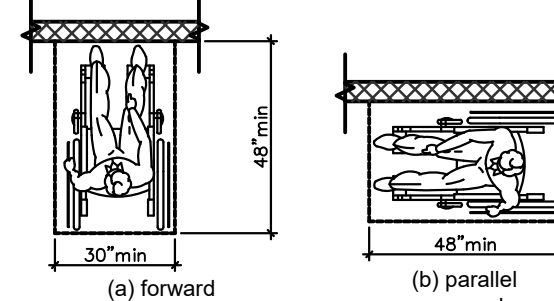


Fig. 305.5
Position of Clear Floor or Ground Space

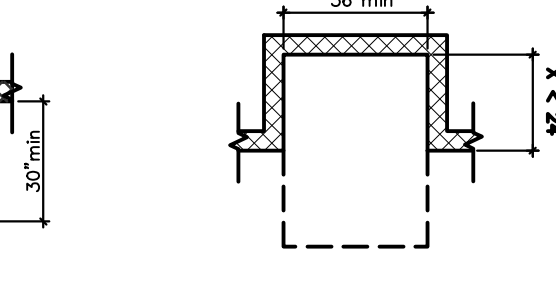


Fig. 305.7.1
Maneuvering Clearance in an Alcove, Forward Approach

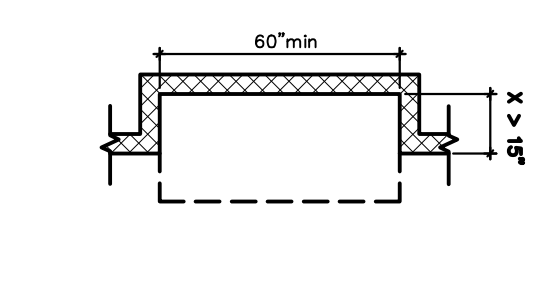


Fig. 305.7.2
Maneuvering Clearance in an Alcove, Parallel Approach

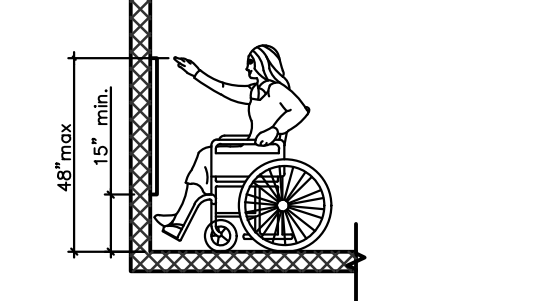


Fig. 308.2.1
Unobstructed Forward Reach

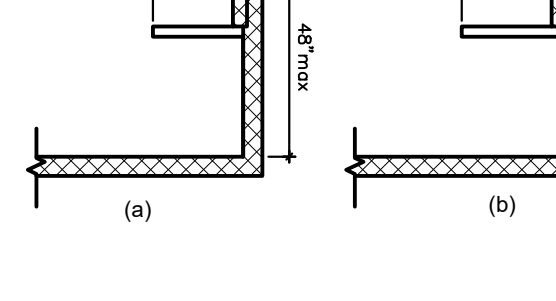


Fig. 308.2.2
Obstructed High Forward Reach

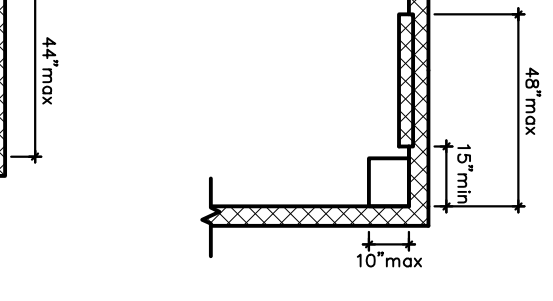


Fig. 308.3.1
Unobstructed Side Reach

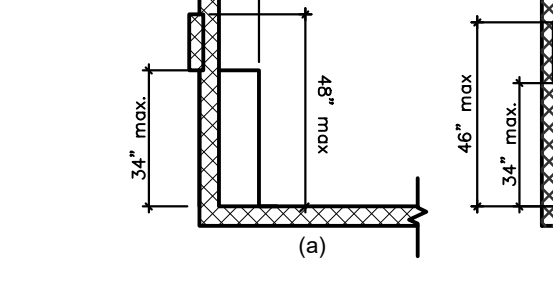


Fig. 308.3.2
Obstructed High Side Reach

SEATING CLEARANCE, CLEAR FLOOR SPACE, APPROACHES, ALCOVES, & REACH RANGES

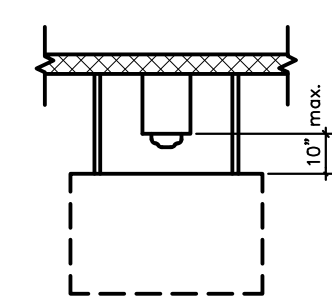


Fig. 704.2.1.1
Parallel Approach to Telephone

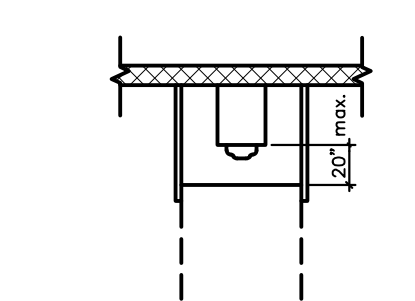


Fig. 704.2.1.2
Forward Approach to Telephone

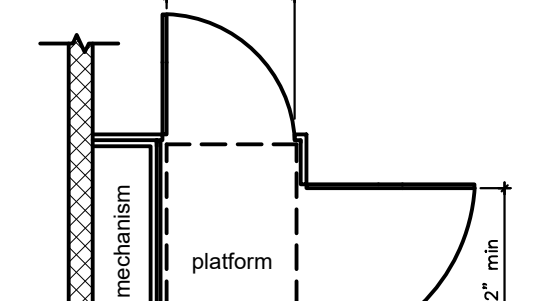


Fig. 410.6
Platform Lift Doors and Gate

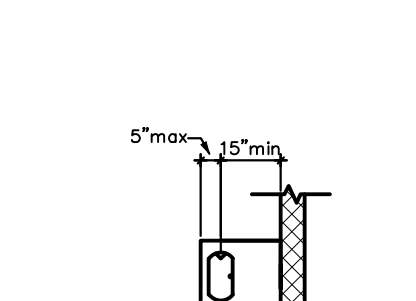


Fig. 602.5
Drinking Fountain Spout Location

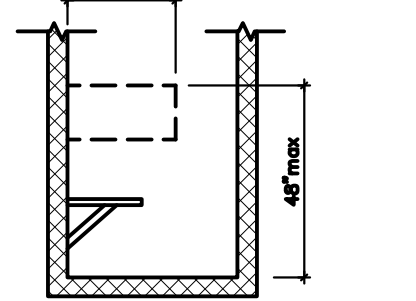


Fig. 604.5.2
(a) with seat (elevation)

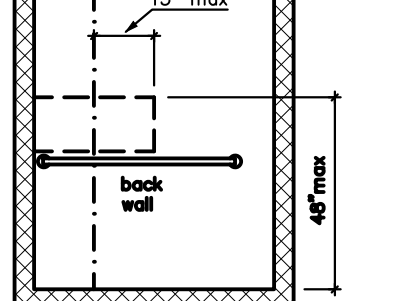


Fig. 604.5.2
(b) with seat (elevation)

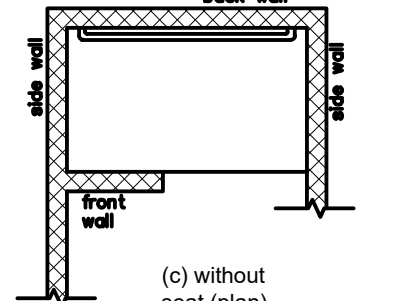


Fig. 608.5.3
Alternate Roll-In Type Shower Compartment Control Location

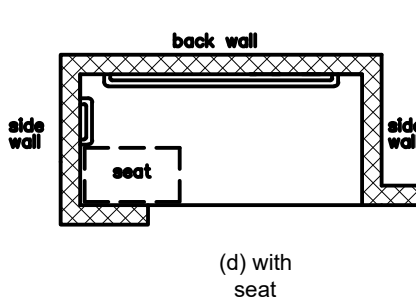


Fig. 610.2
(a) removable in-tub seat

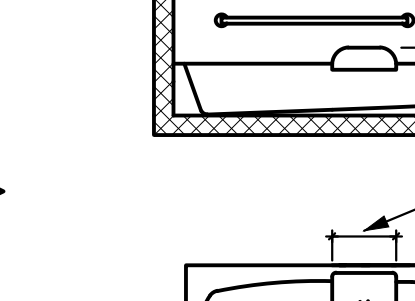


Fig. 610.2
(b) permanent seat

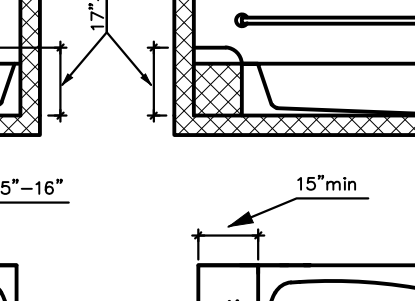


Fig. 609.3
(a) projecting objects

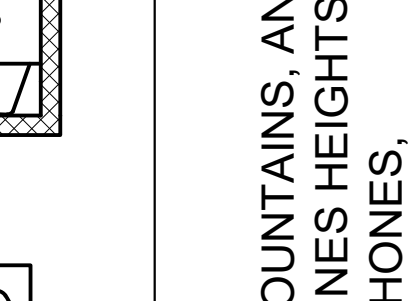


Fig. 609.3
(b) recessed objects

WATER FOUNTAINS, AND SERVING LINES HEIGHTS AT PHONES,

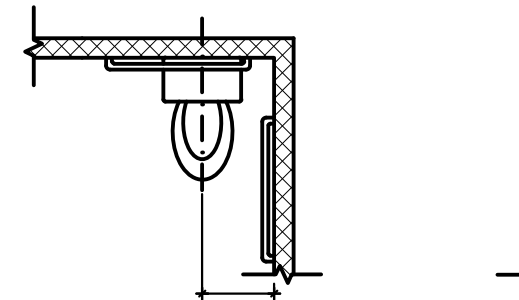


Fig. 604.2
(a) wheelchair accessible water closets

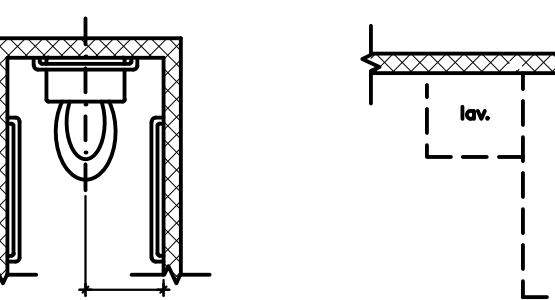


Fig. 604.2
(b) ambulatory accessible water closets

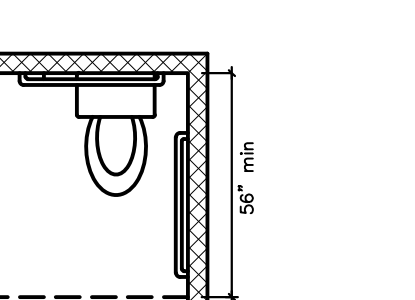


Fig. 604.3.1
Size of Clearance at Water Closets

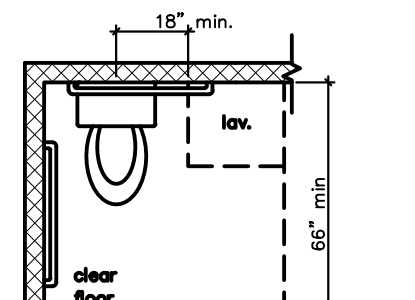


Fig. 604.3.2
(Exception) Overlap of Water Closet Clearance in (Residential Units)

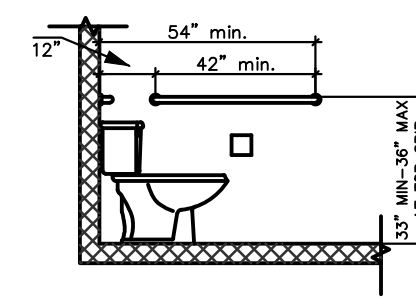


Fig. 604.5.1
Side Wall Grab Bar at Water Closets

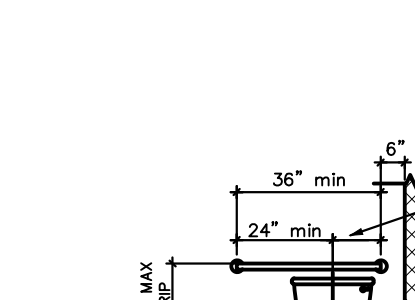


Fig. 604.5.2
Rear Wall Grab Bar at Water Closets

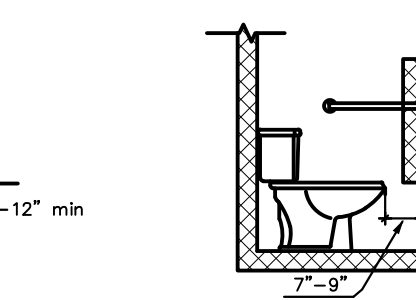


Fig. 604.7
Dispenser Outlet Location

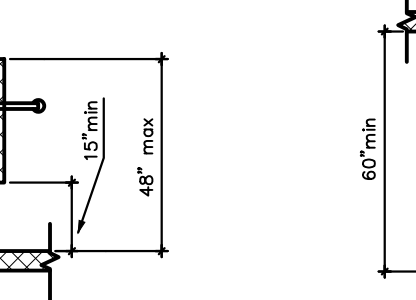


Fig. 604.8.2
Ambulatory Accessible Toilet Compartment

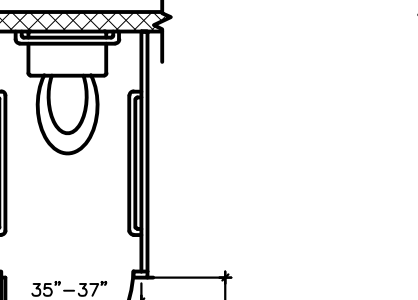


Fig. 605.2
(a) wall hung type

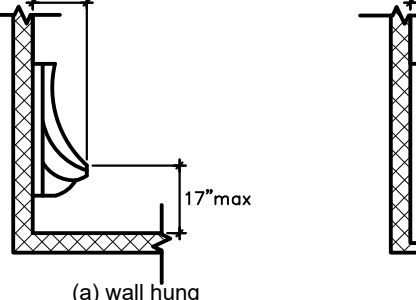


Fig. 605.2
(b) stall type

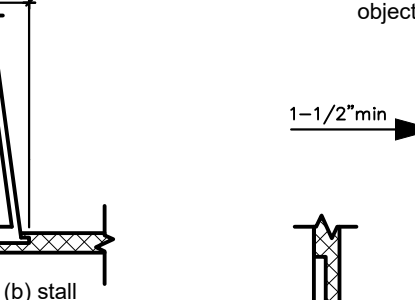


Fig. 609.3
(a) projecting objects

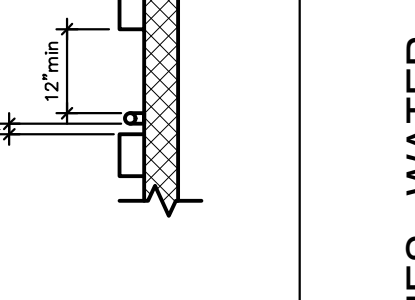


Fig. 609.3
(b) recessed objects

LAVATORIES, WATER CLOSETS & TOILET STALLS

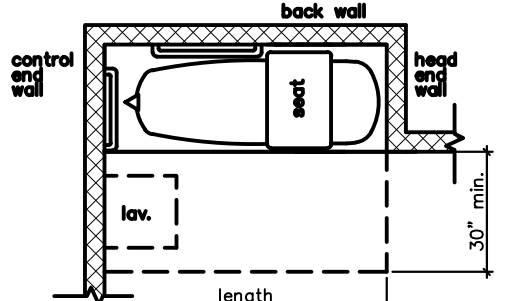


Fig. 607.2
(a) removable in-tub seat

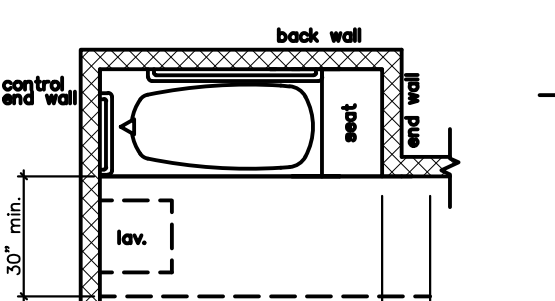


Fig. 607.2
(b) permanent seat

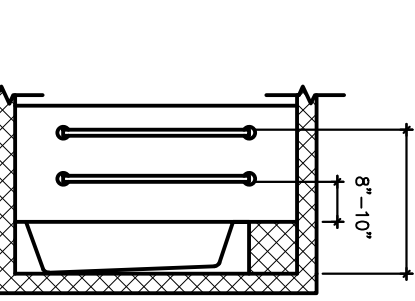


Fig. 607.4.1
(a) elevation

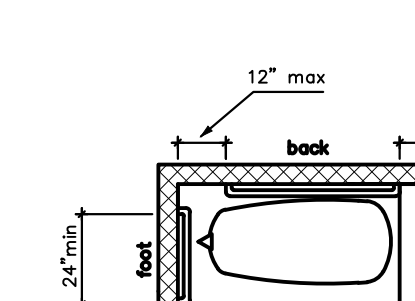


Fig. 607.4.1
(b) plan

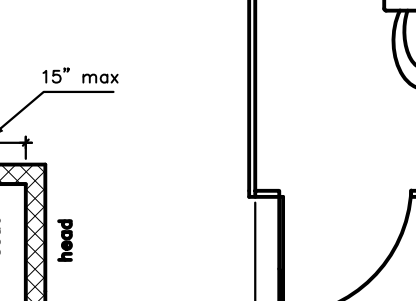


Fig. 604.8.1.1
(a) adult wall hung water closet

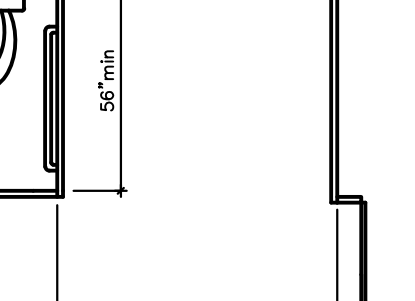


Fig. 604.8.1.1
(b) adult floor mounted water closet and children's water closet

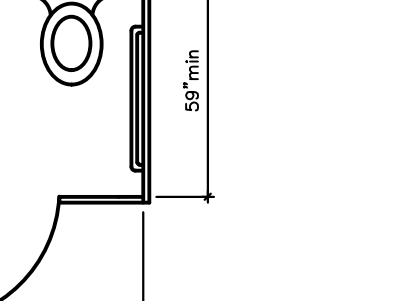


Fig. 610.3.1
Rectangular Shower Seat

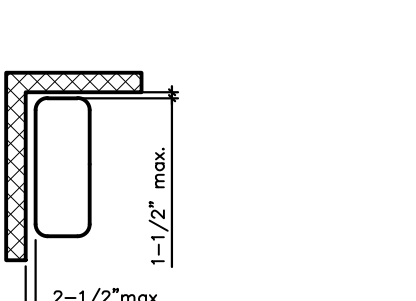


Fig. 610.3.2
L-Shaped Shower Seat

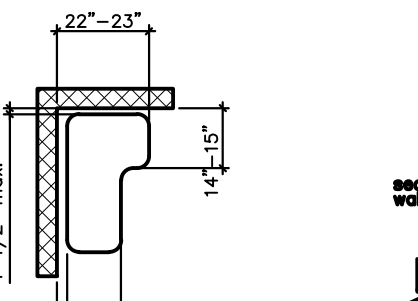


Fig. 608.3.1
(a) elevation adult

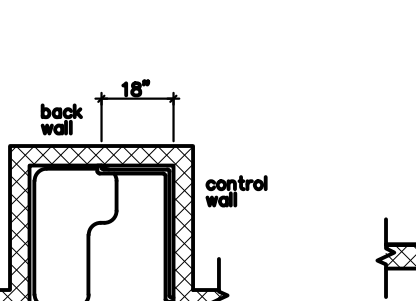


Fig. 604.8.1.4
(b) plan

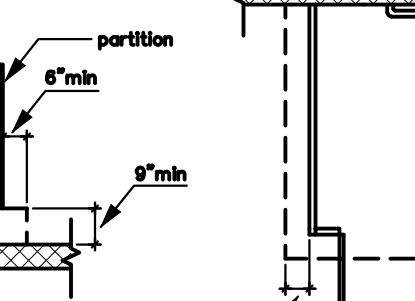


Fig. 604.8.1.4
(c) plan

SINKS AND BATH TUBS WITH AND WITHOUT SEATS

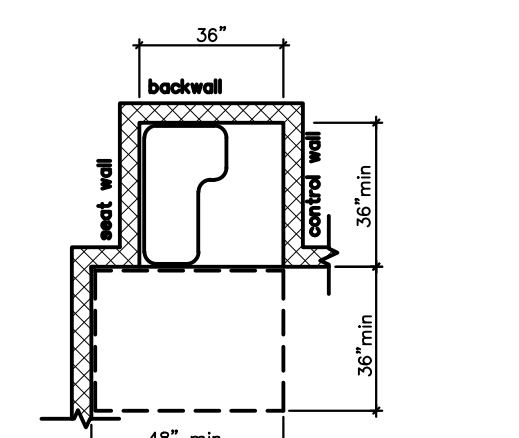


Fig. 608.2.1
Shower Size and Clearances 36\"/>

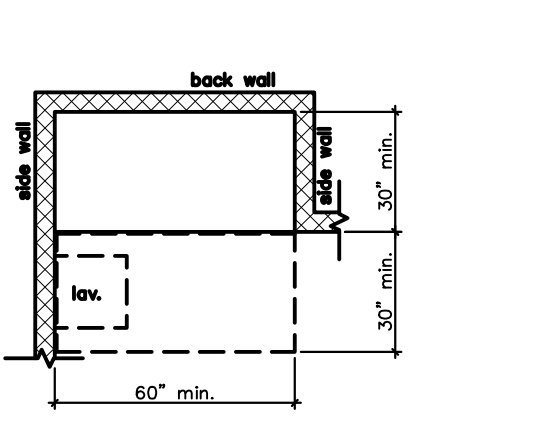


Fig. 608.2.2
Standard Roll-In Type Shower Compartment Size and Clearance

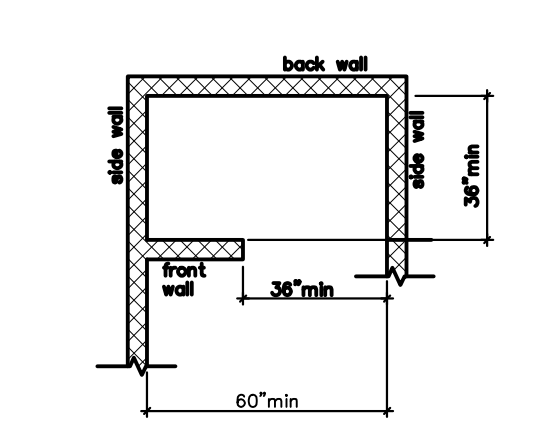


Fig. 608.2.3
Alternate Roll-In Type Shower Compartment Size and Clearance

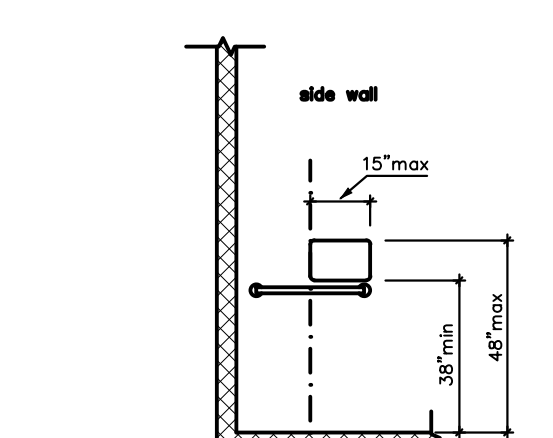


Fig. 608.5.1
Transfer Type Shower Compartment Control Location

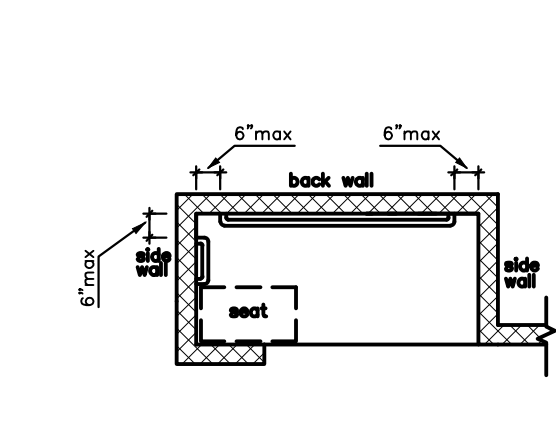


Fig. 608.3.3
Grab Bars for Alternate Roll-In Type Showers

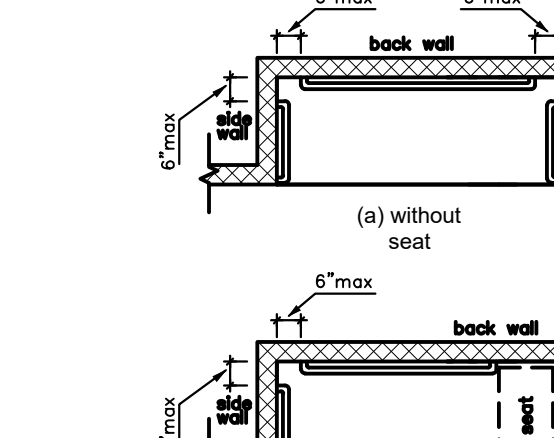


Fig. 608.3.2
(a) without seat

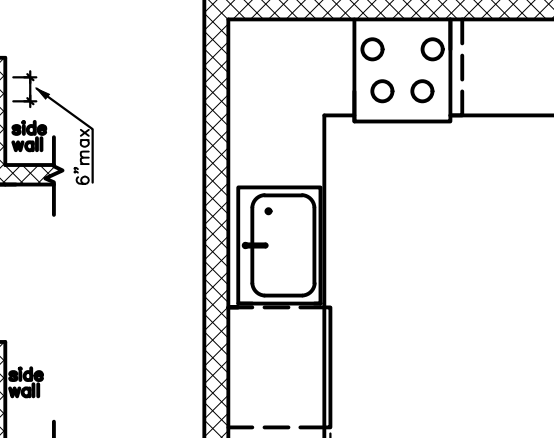


Fig. 608.3.2
(b) with seat

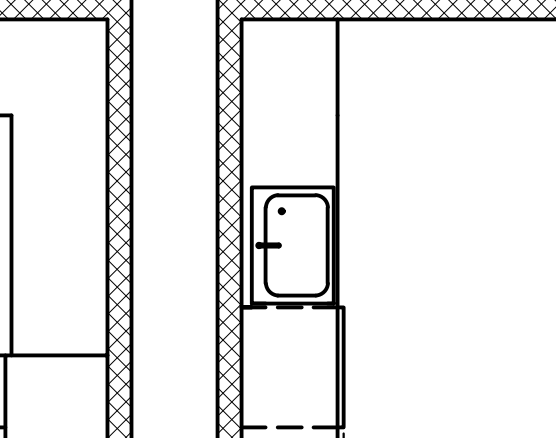


Fig. 804.2.2
(a) U-Shaped Kitchens

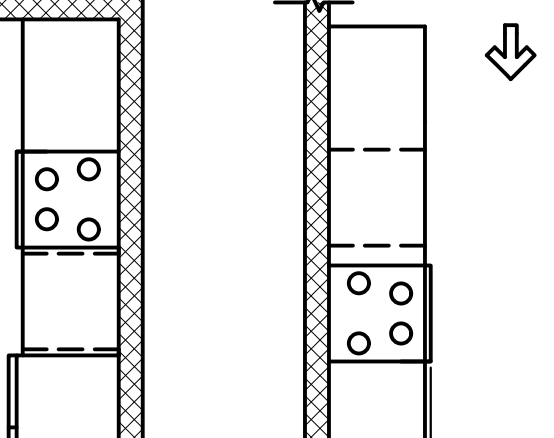


Fig. 804.2.2
(b) U-Shaped Kitchens

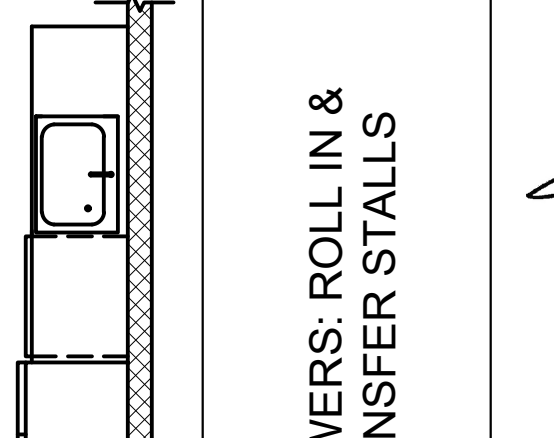


Fig. 804.2.1
Pass Through Kitchens

SHOWERS: ROLL IN & TRANSFER STALLS



ARCHITECTURE PLANNING INTERIOR DESIGN
15810 PARK TEN PLACE, SUITE 300
HOUSTON, TEXAS 77084
713-465-4650
www.sligroup.com

BAGEL BEE

400 W. DAVIS, SUITE 110
CONROE, TX 77301



PROJECT NUMBER: 8981

ISSUED FOR CLIENT APPROVAL	DATE
ISSUED FOR BIDDING	05/11/26
ISSUED FOR PERMIT	05/11/26
ISSUED FOR CONSTRUCTION	

REVISIONS		
MARK	DESCRIPTION	DATE

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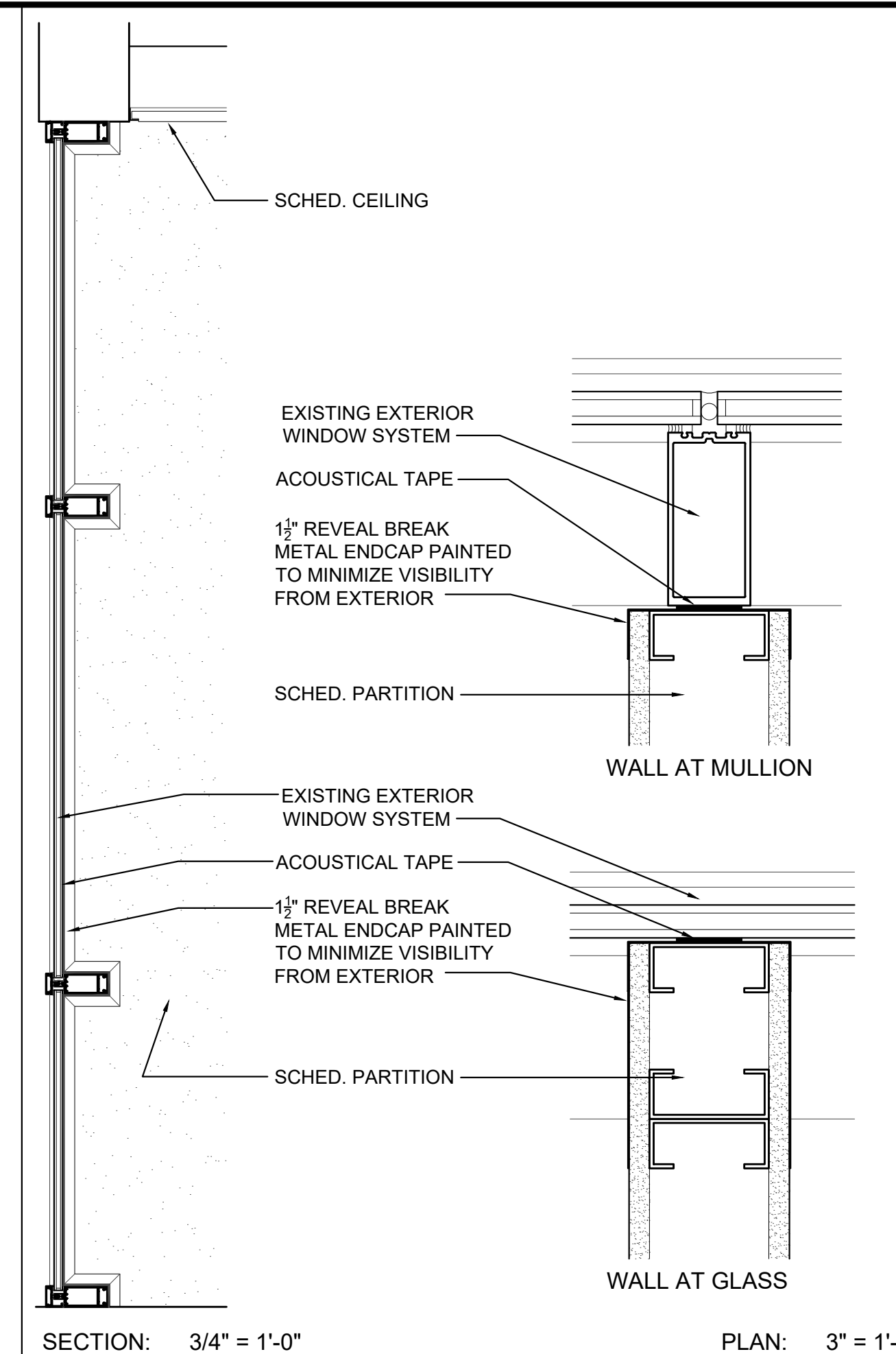
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BAGEL BEE



**400 W. DAVIS, SUITE 110
CONROE, TX 77301**

PRODUCT NUMBER: **8981**



02 DETAIL AT EXTERIOR WINDOW
SCALE: AS NOTED

PLAN: 3" = 1'-0"

FIRST FLOOR DOOR SCHEDULE

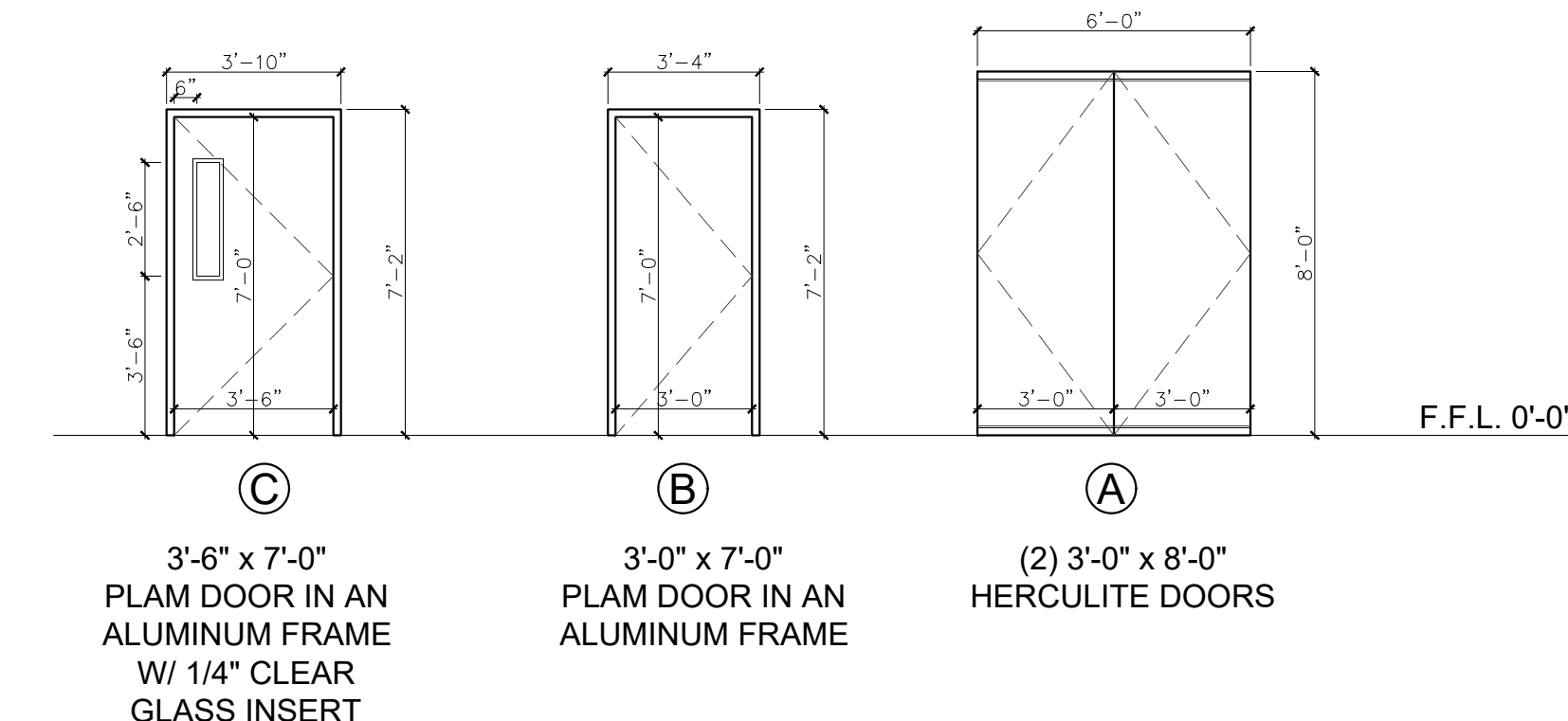
DOOR #	LOCATION		DOOR			FRAME		HARDWARE		NOTES
	FROM	TO	HAND	TYPE	FINISH	TYPE	FINISH	SET	FINISH	
200	COMMON CORRIDOR	ENTRY 200	LHR/RHR	A	GLASS	STAINLESS	POLISHED STAINLESS	01	626	
201	SERVICE 202	PREP LINE 204	LH / BI-DIR	C	PLAM	ALUM	CLEAR ANOID. ALUM.	03	626	
202	PREP LINE 204	OFFICE 203	LH	B	PLAM	ALUM	CLEAR ANOID. ALUM.	02	626	

HW SET #01 (Double Herculite Door)
2 ea. Top Pivot - (by supplier)
2 ea. Intermediate Pivot - (by supplier)
2 ea. Bottom Pivot - (by supplier)
1 ea. Threshold - (by supplier)
2 ea. Push and pull bar set (by supplier)
1 set Weatherstripping - (by s.f. mfr.)
2 ea. Closer - (by supplier)
1 ea. Lock AT BOTTOM RAIL - (by supplier)

HW SET #02 (Office Passage Set)
1 1/2 pr. Butts - HAGER BB1279 - 4 1/2 x 4 - FINISH: US26D
1 ea. Passage set - HAGER-ARCHER LEVER 2510
SERIES FINISH: US26D
1 ea. Floor Stop - HAGER 242F - FINISH: US26D

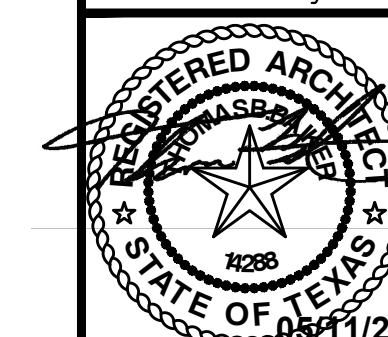
HW SET #03 (Double Acting Passage Set)
1 1/2 pr. HAGER - 511 CAMTROL DOUBLE ACTING HEAD
AND FLOOR PIVOTS - FINISH: US26D
2 ea. PUSH PLATE - HAGER-A30S-SQUARE CORNER
BEVELED FINISH: US26D

****PANIC BAR OPTIONS: 4500 SERIES (RIM/HEAVY DUTY), 4700 SERIES (RIM/LIGHT COMMERCIAL)
AND 4500 SERIES (VERTICAL ROD/HEAVY DUTY)
****ALL MAGLOCKS AND KEYFOB HARDWARE BY OWNER****
****LEVER OPTIONS: Withnell OR Archer****
****FINISHES: US3,US10B, US26D ****



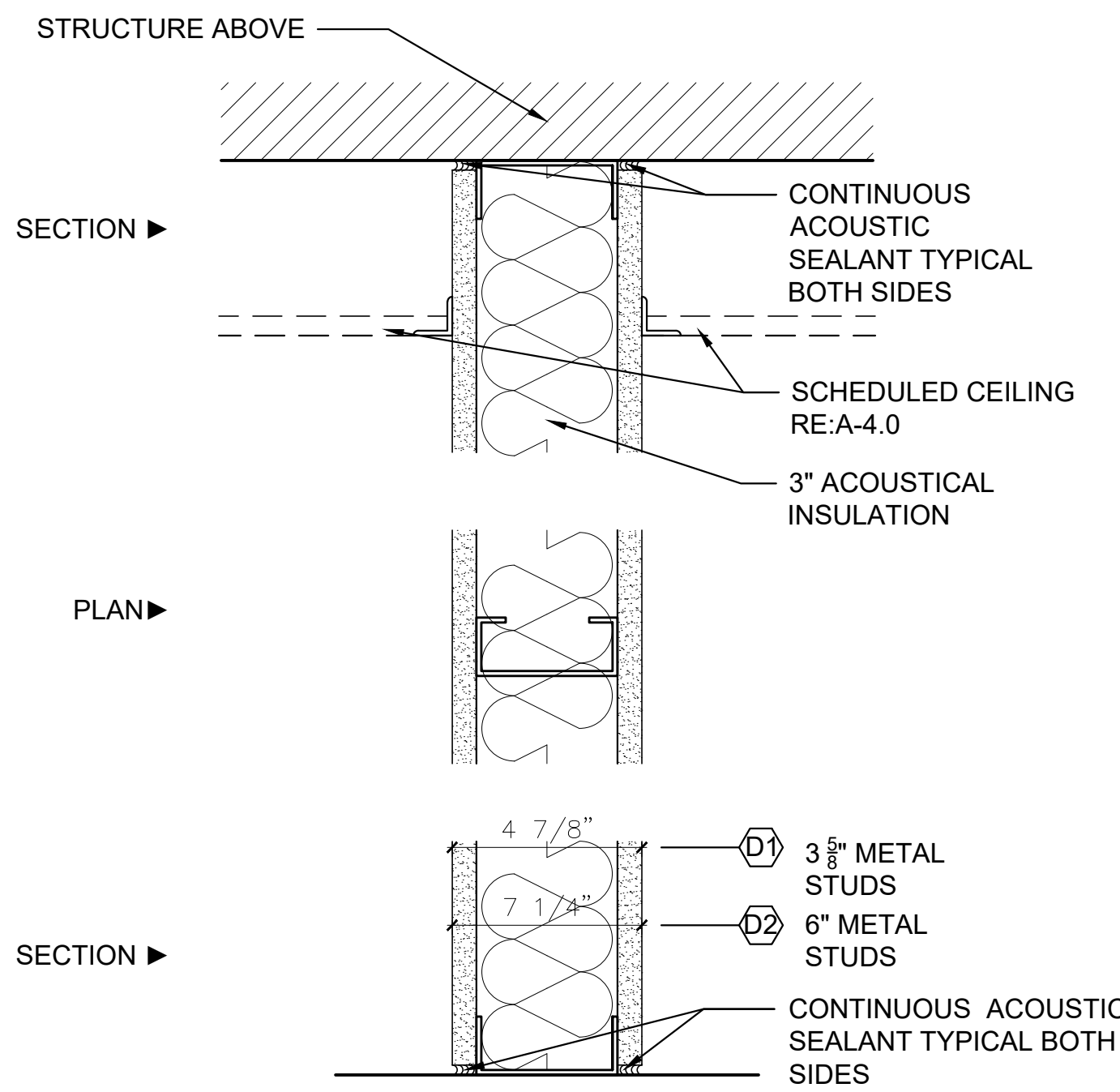
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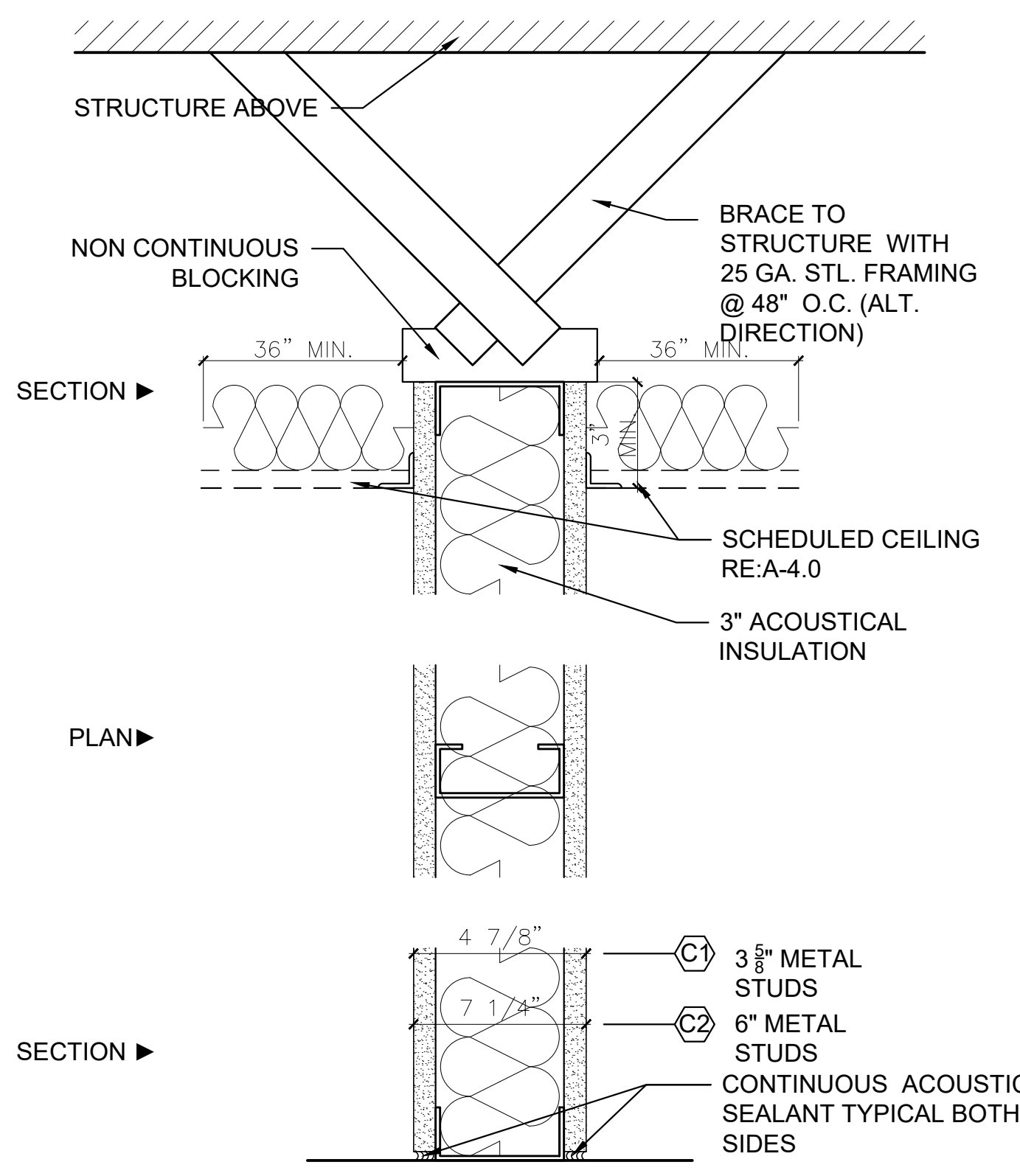
DRAWING TITLE
DOOR/WIN./HARD. SCHEDULE

DRAWN BY	CM	SHEET NO. A-2.00
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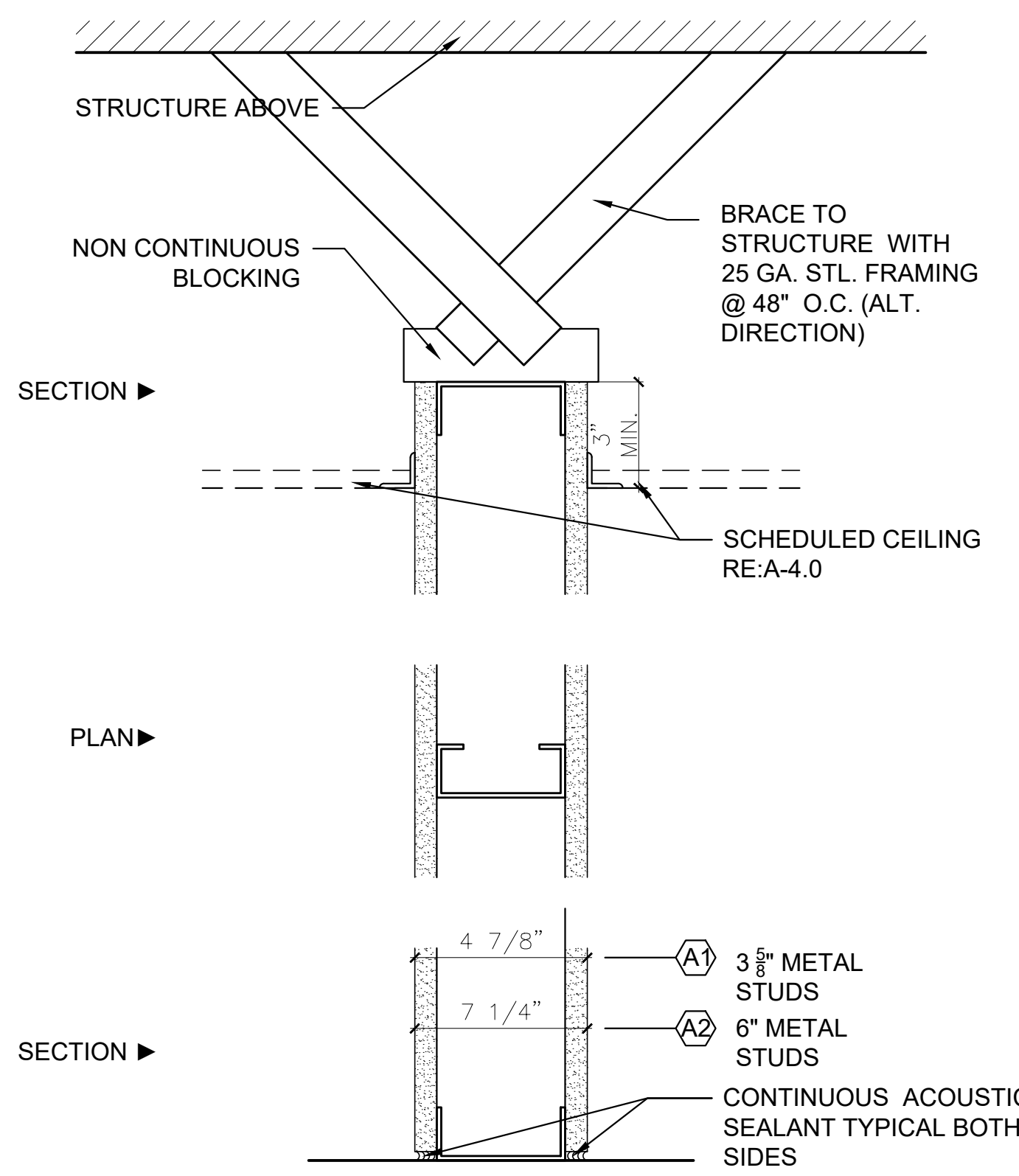
PARTITION TYPE D:
 20 GA. METAL STUDS @ 16" O.C.
 WITH ONE LAYER OF 5/8" GYPSUM BOARD EACH SIDE
 AND 3" FIBERGLASS ACOUSTICAL INSULATION FULL
 HEIGHT

PARTITION TYPE: **D** SCALE: 3" = 1'-0"



PARTITION TYPE C:
 25 GA. METAL STUDS @ 16" O.C.
 WITH ONE LAYER OF 5/8" GYPSUM BOARD EACH SIDE
 AND 3" FIBERGLASS ACOUSTICAL INSULATION FULL
 HEIGHT

PARTITION TYPE: **C** SCALE: 3" = 1'-0"



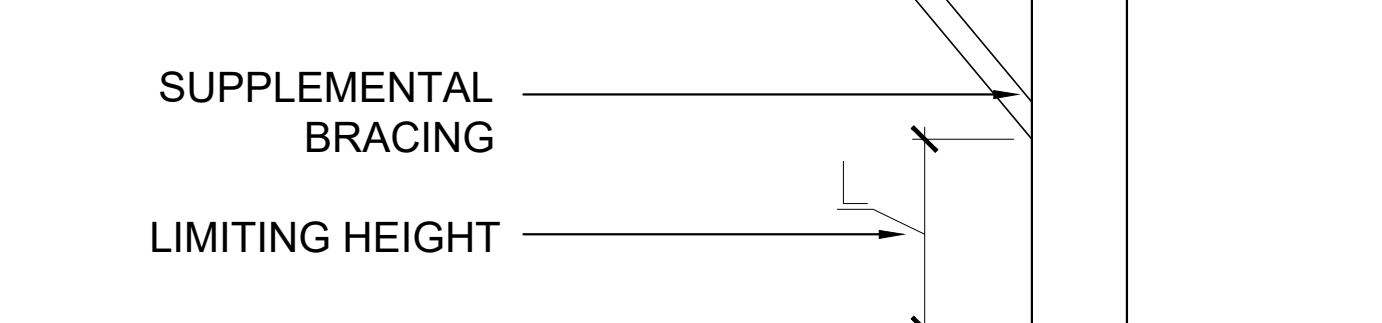
PARTITION TYPE A:
 25 GA. METAL STUDS @ 16" O.C.
 WITH ONE LAYER OF 5/8" GYPSUM BOARD EACH SIDE

PARTITION TYPE: **A** SCALE: 3" = 1'-0"

THE ALPHANUMERIC DESIGNATION IN EACH PARTITION TYPE SYMBOL DESCRIBES THE PARTITION CONSTRUCTION, THICKNESS, AND FIRE RATING, IF REQUIRED.

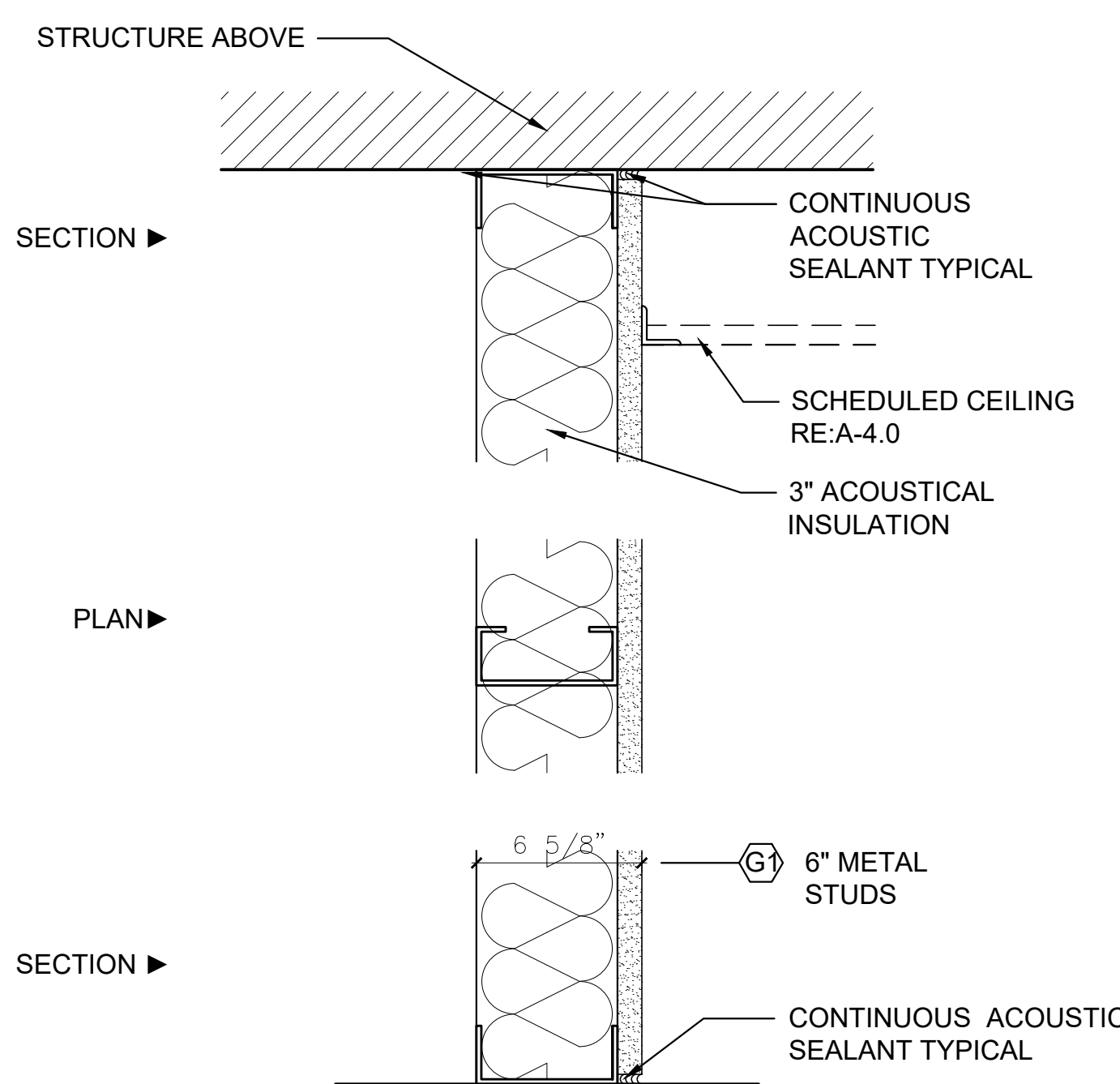
WHERE FIRE RESISTIVE GYPSUM WALLBOARD CONSTRUCTION IS INDICATED. PROVIDE "TYPE X" GYPSUM WALLBOARD AND PROVIDE SEALANT AT PERIMETER AND ALL PENETRATIONS, TYPICAL BOTH SIDES OF PARTITION.

UNDERWRITERS LABORATORY AND OTHER TESTING AGENCY DESIGNATIONS INDICATED FOR FIRE RESISTIVE CONSTRUCTION ARE GIVEN FOR PURPOSES OF DESCRIBING CONSTRUCTION REQUIREMENTS ONLY AND ARE NOT INTENDED TO LIMIT MANUFACTURERS OF MATERIALS. COMPLY WITH THE CONSTRUCTION REQUIREMENTS OF THE INDICATED DESIGN. LIMITING HEIGHTS GIVE THE MAXIMUM UNSUPPORTED HEIGHT FOR THAT PARTITION TYPE BASED ON A DEFLECTION CRITERIA RATIO OF L/240. WHERE FLOOR TO STRUCTURE HEIGHT OF PARTITION EXCEEDS THE INDICATED LIMITING HEIGHT, PROVIDE SUPPLEMENTAL BRACING TO THE STRUCTURE OVERHEAD AS REQUIRED TO MAINTAIN DEFLECTION RATIO WITHIN L/240.



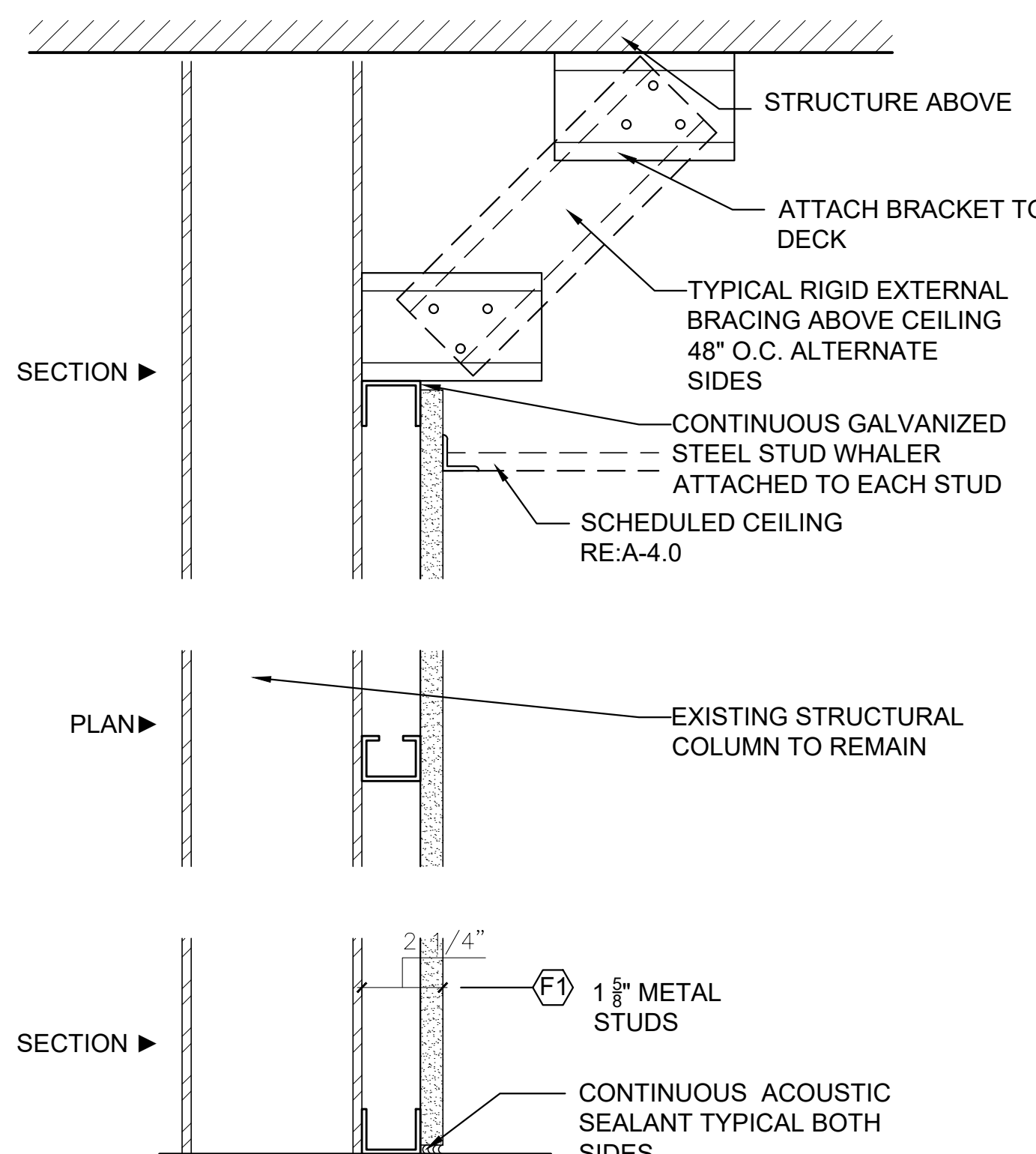
FOR PARTITION WITH "BRITTLE" FINISHES SUCH AS PLASTER AND CERAMIC TILE, DESIGN PARTITION SYSTEM TO MAINTAIN DEFLECTION RATIO WITHIN L/360. SUSPENDED CEILING SHALL NOT BE CONSIDERED AS BRACING. PROVIDE DUROCK CEMENT BOARD AS SUBSTRATE FOR APPLICATION OF CERAMIC TILE. PROVIDE GREENBOARD IN ALL RESTROOMS, JANITOR CLOSETS AND BEHIND WATER FOUNTAINS. STC RATINGS FOR SOUND WALLS ARE BASED ON LABORATORY TESTED ASSEMBLIES AND DO NOT NECESSARILY INDICATE THE ACTUAL STC RATING OF THE COMPLETED WORK.

GENERAL NOTES SCALE: N.T.S.



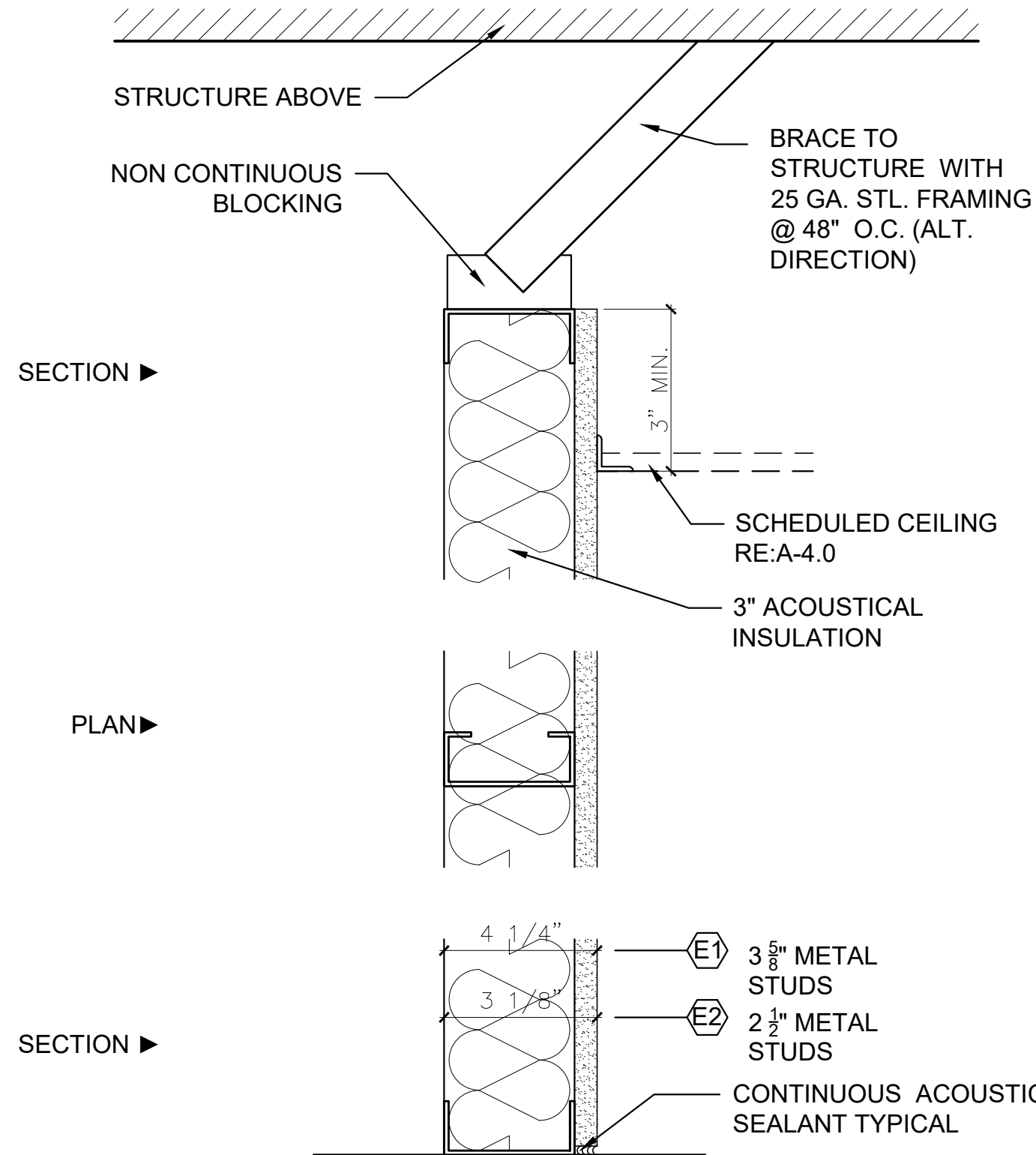
PARTITION TYPE G:
 20 GA. METAL STUDS @ 16" O.C. WITH ONE LAYER OF 5/8" GYPSUM BOARD ON ONE SIDE WITH 3" FIBERGLASS ACOUSTICAL INSULATION FULL HEIGHT.

PARTITION TYPE: **G** SCALE: 3" = 1'-0"



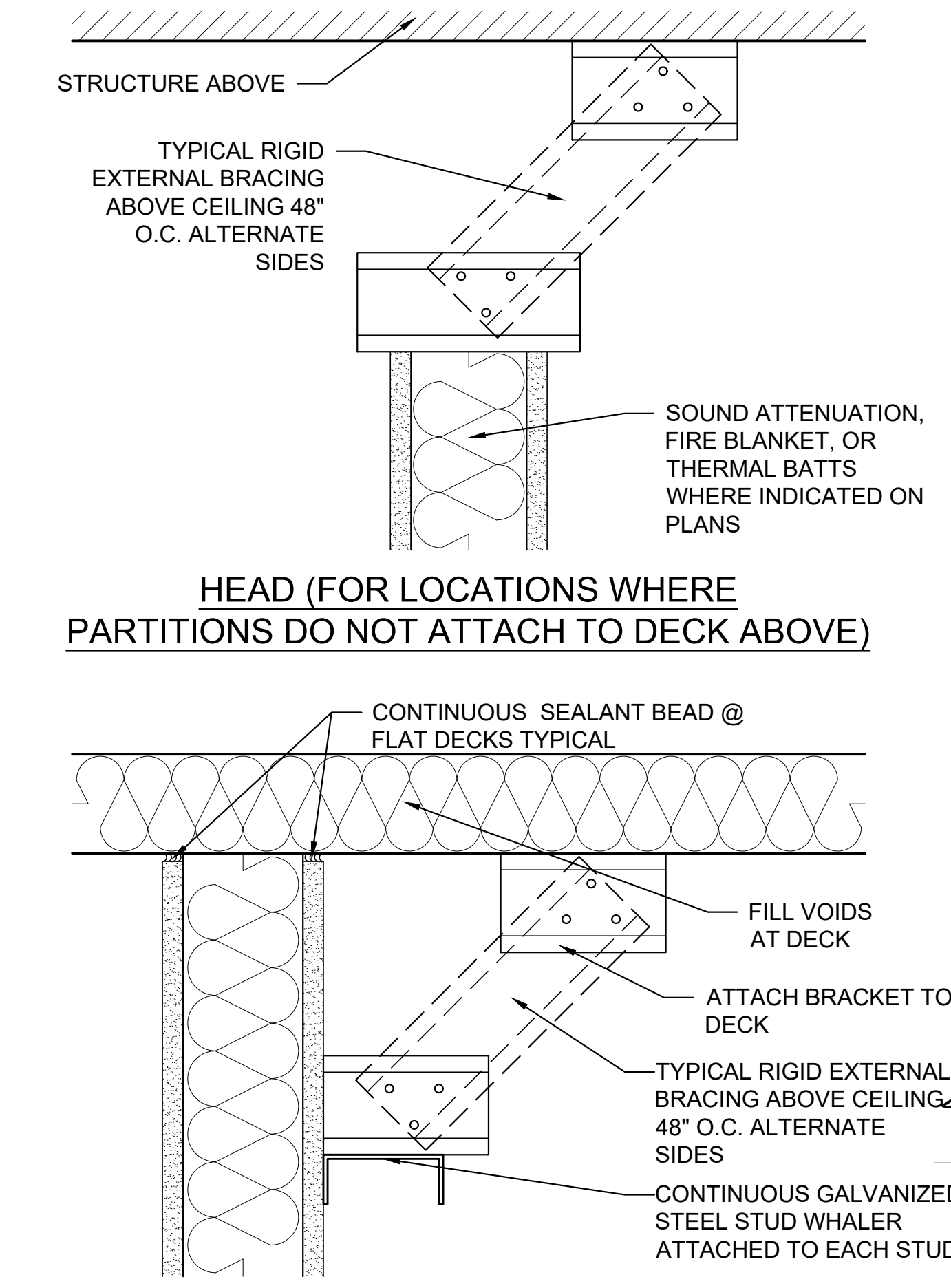
PARTITION TYPE D:
 25 GA. METAL STUDS @ 16" O.C.
 WITH ONE LAYER OF 5/8" GYPSUM BOARD EACH SIDE
 AND 3" FIBERGLASS ACOUSTICAL INSULATION FULL
 HEIGHT

PARTITION TYPE: **F** SCALE: 3" = 1'-0"



PARTITION TYPE E:
 25 GA. METAL STUDS @ 16" O.C. WITH ONE LAYER OF 5/8" GYPSUM BOARD ON ONE SIDE WITH 3" FIBERGLASS ACOUSTICAL INSULATION FULL HEIGHT.

PARTITION TYPE: **E** SCALE: 3" = 1'-0"



BRACE DETAIL SCALE: N.T.S.

SLI DESIGN, INC.
 ARCHITECTURE | DESIGN | CONSTRUCTION
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 HOUSTON, TEXAS 77084
 713-465-4650
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BAGEL BEE
 400 W. DAVIS, SUITE 110
 CONROE, TX 77301
 PROJECT NUMBER: 8981

ISSUED FOR CLIENT APPROVAL	DATE
ISSUED FOR BIDDING	05/11/26
ISSUED FOR PERMIT	05/11/26
ISSUED FOR CONSTRUCTION	

REVISIONS		
MARK	DESCRIPTION	DATE

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REGISTERED ARCHITECT
 STATE OF TEXAS
 12298
 05/11/26

DRAWING TITLE		SHEET NO.
INTERIOR PARTITIONS		
DRAWN BY	CM	
CHECKED BY	TB	A-3.00
APPROVED BY	TB	



ARCHITECTURE PLANNING INTERIOR DESIGN
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BAGEL BEE



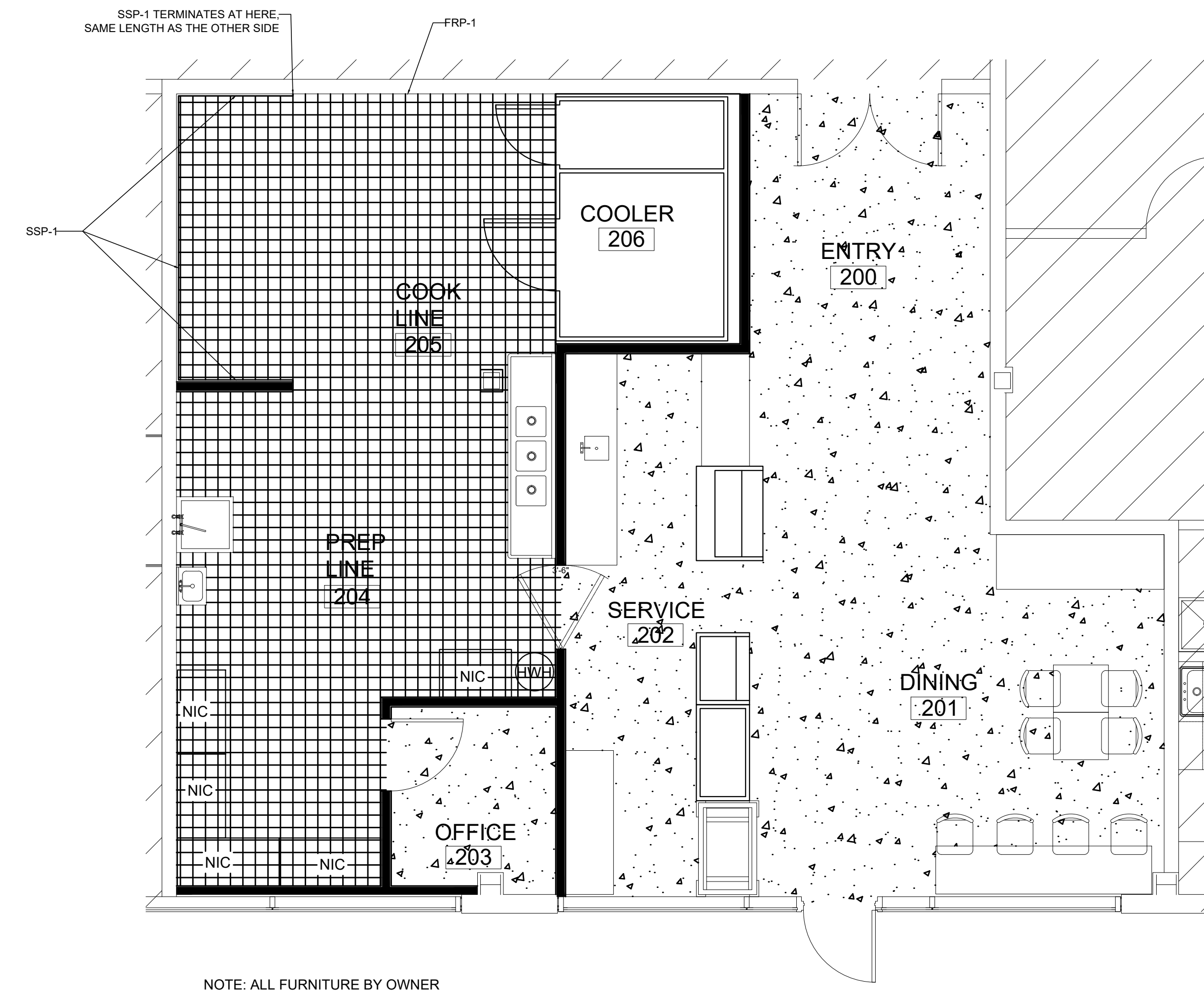
**400 W. DAVIS, SUITE 110
 CONROE, TX 77301**

PROJECT NUMBER: **8981**

MATERIAL LEGEND						
FLOOR						
CODE	MFG	SERIES	COLOR	ITEM #	SIZE	NOTES
FT-1	ARIZONA TILE	QUARRY COLONIAL	GREY		6" X 6"	
CF-1		POLISHED CONCRETE	NATURAL GRAY			
GR-1	CUSTOM	PRISM SCG	SADDLE BROWN			1/8" THICKNESS
BASE						
CODE	MFG	SERIES	COLOR	ITEM #	SIZE	NOTES
TB-1	ARIZONA TILE	QUARRY COLONIAL	GREY		6" X 6"	
RB-1	FLEXCO	WALLFLOWERS	ARCTIC WHITE	029	4" COVE	COIL MATERIAL
WALLS						
CODE	MFG	SERIES	COLOR	ITEM #	SIZE	NOTES
PA-1	SHERWIN WILLIAMS	EMERALD INTERIOR ACRYLIC LATEX	SNOWBOUND	SW-7004		1 COAT PRIMER, 2 COATS ACRYLIC LATEX, EGGSHELL FINISH
PA-2	SHERWIN WILLIAMS	INDUSTRIAL WATERBORNE ACRYLIC DRYFALL PAINT	IRON ORE	SW-7069		FLAT FINISH
WT-1	ARIZONA TILE	PALOMA	ALABASTER		3" X 6"	GLOSSY
FRP-1			WHITE			
SSP-1		STAINLESS STEEL PANEL				18 GA FLOOR-TO-CEILING, PROVIDE TRIM AT PANEL JOINTS AND CORNERS
GR-2	PENDING EVELYN CONFIRMATION					1/8" THICKNESS
PLASTIC LAMINATE						
CODE	MFG	SERIES	COLOR	ITEM #	SIZE	NOTES
PL-1	WILSONART	HD LAMINATE	RALEIGH WALNUT	17015K-67		DOOR AND CABINETRY
STONE / SOLID SURFACE						
CODE	MFG	SERIES	COLOR	ITEM #	SIZE	NOTES
ST-1	ARIZONA TILE	DELLA TERRA QUARTZ	GEMSTONE BEIGE-N		126" X 63"	3CM SINGLE LAYER
CEILING						
CODE	MFG	SERIES	COLOR	ITEM #	SIZE	NOTES
C-1	ARMSTRONG	FRAMEALL-DRYWALL GRID				
C-2	OPEN TO STRUCTURE ABOVE		PA-2			PAINT ALL DUCT WORK, CONDUIT, STRUCTURE, ETC. WITH PA-2 AT OPEN CEILING
C-3	ARMSTRONG	KITCHEN ZONE			2'X4'	PRELUDE XL 15/16" EXPOSED T, CEILING TILE #672
C-4	ARMSTRONG	FINE FISSURED			2'X4'	PRELUDE XL 15/16" EXPOSED T, CEILING TILE #1729

ROOM FINISH SCHEDULE								
NO.	ROOM	FLOOR	BASE	WALL ▶	WALL ▲	WALL ◀	WALL ▼	CEILING
200	ENTRY	CF-1	RB-1	PA-1	PA-1	PA-1	OPEN	C-2
201	DINING	CF-1	RB-1	PA-1	PA-1	OPEN	EXISTING STOREFRONT	C-2
202	SERVICE	CF-1	RB-1	OPEN	WT-1	WT-1	EXISTING STOREFRONT	C1
203	OFFICE	CF-1	RB-1	PA-1	PA-1	PA-1	PA-1	C-4
204	PREP LINE	FT-1	TB-1	FRP-1	FRP-1	FRP-1	FRP-1	C-5
205	COOK LINE	FT-1	TB-1	N/A	SSP-1/FRP-1	SSP-1	SSP-1	C-5

GENERAL NOTES	
NO.	DESCRIPTION
1	Submit a 12"x12" sample of all wall finishes to SLI for approval
2	Provide shop drawings for all plastic laminate case goods
3	All carpet/VCT transitions to be flush
4	Rubber transition strips to be installed all other transitions; ceramic to VCT
5	Rubber transition strips to be installed all other transitions; rubber tile to glue down carpet
6	All grout lines to be sealed
7	All wall covering material supplied and installed by SLI
8	Reno TX Schluter material transition strips to be installed between ceramic tile and glue-down carpet
9	All VCT to be sealed with 3-5 coats of wax, buff between coats
10	Any remaining material to be given to client as attic stock



The information, ideas, designs, details, layouts, techniques, features, arrangements, plans, sequences, dimensions, allowances, tolerances, conceptions, specifications, intentions, technology or embodiments, as illustrated, arranged, displayed, noted, recorded, indicated, represented, disclosed, evidenced, detailed or otherwise reduced to tangible form hereon, either expressly, inherently or by implication, are the confidential and proprietary information of SLI Design, Inc., and shall not be used for any purpose other than the specific project or undertaking identified on the drawing title block or legend for which they are and have been prepared by SLI Design, Inc. Any other reproduction, disclosure or use of any portion of the confidential and proprietary information of SLI Design, Inc., shall be a breach of the obligation of confidence created by the acceptance of this drawing from SLI Design, Inc. for a specific project and Contract. Any copying, duplicating, reproducing, utilization, alteration, modification, revision or change to this drawing, is expressly prohibited unless done with the prior written consent or approval of SLI Design, Inc., and shall not be undertaken without receipt of such prior written approval. This drawing is loaned by SLI Design, Inc., for the limited purpose of complying with a specific Contract. The drawing remains the property of SLI Design, Inc., and shall be returned upon request or completion of the contract, unless specifically authorized by Contract, under which it was loaned.

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DRAWING TITLE INTERIOR FINISH PLAN	
DRAWN BY XX	SHEET NO.
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APPROVED BY XX	

01 FLOOR PLAN
 SCALE: 1/4" = 1'-0"

PLUMBING SPECIFICATIONS

DOMESTIC WATER PIPING - COPPER TUBE AND FITTINGS

A. HARD COPPER TUBE: ASTM B 88, TYPE L (ASTM B 88M, TYPE B) WATER TUBE, DRAIN TEMPER.

- CAST-COPPER SOLDER-JOINT FITTINGS: ASME B16.18, PRESSURE FITTINGS.
- WROUGHT-COPPER SOLDER-JOINT FITTINGS: ASME B16.22, WROUGHT-COPPER PRESSURE FITTINGS.
- BROZNE FLANGES: ASME B16.24, CLASS 150, WITH SOLDER-JOINT ENDS.
- COPPER UNIONS: MSS J-SP-23, CAST-COPPER-ALLOY, HEXAGONAL-STOCK BODY, WITH BALL-AND-SOCKET, METAL-TO-METAL SEATING SURFACES, AND SOLDER-JOINT OR THREADED ENDS.

B. SOFT COPPER TUBE: ASTM B 88, TYPE K (ASTM B 88M, TYPE A) AND ASTM B 88, TYPE L (ASTM B 88M, TYPE B) WATER TUBE, ANNEALED TEMPER. COPPER SOLDER-JOINT FITTINGS: ASME B16.22, WROUGHT-COPPER PRESSURE FITTINGS. COPPER PRESSURE-SEAL-JOINT FITTINGS: ASME B16.22, WROUGHT-COPPER PRESSURE FITTINGS.

- MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE PRODUCTS BY ONE OF THE FOLLOWING:
 - NIBCO INC.
 - VEGA; PLUMBING AND HEATING SYSTEMS.
- NPS 2 (DN 50) AND SMALLER: WROUGHT-COPPER FITTING WITH EPDM-RUBBER O-RING SEAL IN EACH END.
- NPS 3 AND NPS 4 (DN 80 AND DN 100): CAST-BRONZE OR WROUGHT-COPPER FITTING WITH EPDM-RUBBER O-RING SEAL IN EACH END.

C. DIELECTRIC FITTINGS: GENERAL REQUIREMENTS: ASSEMBLY OF COPPER ALLOY AND FERROUS MATERIALS WITH SEPARATING NONCONDUCTIVE INSULATING MATERIAL. INCLUDE END CONNECTIONS COMPATIBLE WITH PIPES TO BE JOINED.

D. DRAWING PLANS, SCHEMATICS, AND DIAGRAMS INDICATE GENERAL LOCATION AND ARRANGEMENT OF DOMESTIC WATER PIPING. INDICATED LOCATIONS AND ARRANGEMENTS ARE USED TO SIZE PIPE AND CALCULATE FRICTION LOSS, EXPANSION, AND OTHER DESIGN CONSIDERATIONS. INSTALL PIPING AS INDICATED UNLESS DEVIATIONS TO LAYOUT ARE APPROVED ON COORDINATION DRAWINGS.

E. INSTALL COPPER TUBING UNDER BUILDING SLAB ACCORDING TO CDA'S "COPPER TUBE HANDBOOK".

F. INSTALL SHUTOFF VALVE IMMEDIATELY UPSTREAM OF EACH DIELECTRIC FITTING. G. INSTALL DOMESTIC WATER PIPING LEVEL WITH 0.125 PERCENT SLOPE DOWNWARD TOWARD DRAIN AND FLOOR.

H. INSTALL PIPING CONCEALED FROM VIEW AND PROTECTED FROM PHYSICAL CONTACT BY BUILDING OCCUPANTS UNLESS OTHERWISE INDICATED AND EXCEPT IN EQUIPMENT ROOMS AND SERVICE STAIRWAYS.

I. INSTALL PIPING INDICATED TO BE EXPOSED AND PIPING IN EQUIPMENT ROOMS AND SERVICE AREAS AT RIGHT ANGLES OR PARALLEL TO BUILDING WALLS. DIAGONAL RUNS ARE PROHIBITED UNLESS SPECIFICALLY INDICATED OTHERWISE.

J. INSTALL PIPING ABOVE ACCESSIBLE CEILING TO ALLOW SUFFICIENT SPACE FOR CEILING PANEL REMOVAL, AND COORDINATE WITH OTHER SERVICES OCCUPYING THAT SPACE.

K. INSTALL SPRING ADJUNCT TO EQUIPMENT AND SPECIALTIES TO ALLOW SERVICE AND MAINTENANCE.

L. INSTALL PIPING TO PERMIT VALVE SERVING. M. INSTALL WIPERS, UNIONS, COUPLERS, AND VALVES WITH PRESSURE RATINGS THE SAME AS OR HIGHER THAN SYSTEM PRESSURE RATING USED IN APPLICATIONS BELOW UNLESS OTHERWISE INDICATED.

N. INSTALL PIPING FREE OF SAGS AND BENDS. O. INSTALL FITTINGS FOR CHANGES IN DIRECTION AND BRANCH CONNECTIONS. P. INSTALL UNIONS IN COPPER TUBING AT FINAL CONNECTION TO EACH PIECE OF EQUIPMENT, MACHINE, AND SPECIALTY.

Q. INSTALL SLEEVES FOR PIPING PENETRATIONS OF WALLS, CEILING, AND FLOORS. R. INSTALL ESCUTOCHONS FOR PIPING PENETRATIONS OF WALLS, CEILING, AND FLOORS.

S. INSTALL SHUTOFF VALVE CLOSE TO WATER MAIN ON EACH BRANCH AND RISER SERVING PLUMBING FIXTURES OR EQUIPMENT, AND ON EACH BRANCH AND RISER ON EACH WATER SUPPLY TO PLUMBING FIXTURES THAT DO NOT HAVE SUPPLY STOPS. USE BALL VALVES FOR PIPING NPS 2 (DN 50) AND SMALLER. USE GATE VALVES FOR PIPING NPS 2-1/2 (DN 65) AND LARGER.

T. HANGER AND SUPPORT INSTALLATION: SUPPORT VERTICAL PIPING AND TUBING AT BASE AND AT EACH FLOOR. U. ROD DIAMETERS MAY BE REDUCED ONE SIZE FOR DOUBLE-ROD HANGERS, TO A MINIMUM OF 3/8 INCH (10 MM).

V. INSTALL HANGERS FOR COPPER TUBING WITH THE FOLLOWING MAXIMUM HORIZONTAL SPACING AND MINIMUM ROD DIAMETERS:

- NPS 3/4 (DN 20) AND SMALLER: 60 INCHES (1500 MM) WITH 3/8-INCH (10-MM) ROD.
- NPS 1 AND NPS 1-1/4 (DN 25 AND DN 32): 72 INCHES (1800 MM) WITH 3/8-INCH (10-MM) ROD.
- NPS 1-1/2 AND NPS 2 (DN 40 AND DN 50): 96 INCHES (2400 MM) WITH 3/8-INCH (10-MM) ROD.
- NPS 2-1/2 (DN 65): 108 INCHES (2700 MM) WITH 1/2-INCH (13-MM) ROD.
- NPS 3 TO NPS 5 (DN 80 TO DN 125): 10 FEET (3 M) WITH 1/2-INCH (13-MM) ROD.
- NPS 6 (DN 150): 10 FEET (3 M) WITH 5/8-INCH (16-MM) ROD.
- NPS 8 (DN 200): 10 FEET (3 M) WITH 3/4-INCH (19-MM) ROD.

W. INSTALL SUPPORTS FOR VERTICAL COPPER TUBING EVERY 10 FEET (3 M).

X. FIELD QUALITY CONTROL PERFORM TESTS AND INSPECTIONS. PIPING INSPECTIONS:

- DO NOT ENCLOSE, COVER, OR PUT PIPING INTO OPERATION UNTIL IT HAS BEEN INSPECTED AND APPROVED BY AUTHORITIES HAVING JURISDICTION.
- DURING INSTALLATION, NOTIFY AUTHORITIES HAVING JURISDICTION AT LEAST ONE DAY BEFORE INSPECTION MUST BE MADE. PREPARE TESTS SPECIFIED BELOW IN PRESENCE OF AUTHORITIES HAVING JURISDICTION.
- ROUGH-IN-INSPECTION: ARRANGE FOR INSPECTION OF PIPING BEFORE CONCRETE OR CLOSING-IN AFTER ROUGH-IN AND BEFORE SETTING FIXTURES.
- FINAL INSPECTION: ARRANGE FINAL INSPECTION BY AUTHORITIES HAVING JURISDICTION TO OBSERVE TESTS SPECIFIED BELOW AND TO ENSURE COMPLIANCE WITH REQUIREMENTS.
- REINSPECTION: IF AUTHORITIES HAVING JURISDICTION FIND THAT PIPING WILL NOT PASS TESTS OR INSPECTIONS, MAKE REQUIRED CORRECTIONS AND ARRANGE FOR REINSPECTION.
- PREPARE INSPECTION REPORTS AND HAVE THEM SIGNED BY AUTHORITIES HAVING JURISDICTION.

Y. PIPING TESTS:

- FILL DOMESTIC WATER PIPING. CHECK COMPONENTS TO DETERMINE THAT THEY ARE NOT AIR BOUND AND THAT PIPING IS FULL OF WATER.
- TEST FOR LEAKS AND DEFECTS IN NEW PIPING AND PARTS OF EXISTING PIPING THAT HAVE BEEN ALTERED, EXTENDED, OR REPAIRED. IF TESTING IS PERFORMED IN SEGMENTS, SUBMIT A SEPARATE REPORT FOR EACH TEST, COMPLETE WITH DIAGRAM OF PORTION OF PIPING TESTED.
- LEAK NEAR, ALTERED, EXTENDED, OR REPLACED DOMESTIC WATER PIPING UNCOVERED AND UNCONCEALED UNTIL IT HAS BEEN TESTED AND APPROVED. EXPOSE WORK THAT WAS COVERED OR CONCEALED BEFORE IT WAS TESTED.
- CAP AND SUBJECT PIPING TO STATIC WATER PRESSURE OF 50 PSIG (345 KPA) ABOVE OPERATING PRESSURE, WITHOUT EXCEEDING PRESSURE RATING OF PIPING SYSTEM MATERIALS. ISOLATE TEST SOURCE AND ALLOW TO STAND FOR FOUR HOURS. LEAKS AND LOSS IN TEST PRESSURE CONSTITUTE DEFECTS THAT MUST BE REPAIRED.
- REPAIR LEAKS AND DEFECTS WITH NEW MATERIALS AND RETEST PIPING OR PORTION THEREOF UNTIL SATISFACTORY RESULTS ARE OBTAINED.
- PREPARE REPORTS FOR TESTS AND FOR CORRECTIVE ACTION REQUIRED.

Z. DOMESTIC WATER PIPING WILL BE CONSIDERED DEFECTIVE IF IT DOES NOT PASS TESTS AND INSPECTIONS.

AA. PREPARE TEST AND INSPECTION REPORTS.

AB. CLEAN AND DISINFECT POTABLE AND NON-POTABLE DOMESTIC WATER PIPING AS FOLLOWS:

- CURSE NEW PIPING AND PARTS OF EXISTING PIPING THAT HAVE BEEN ALTERED, EXTENDED, OR REPAIRED BEFORE USING.
- USE PURGING AND DISINFECTING PROCEDURES PRESCRIBED BY AUTHORITIES HAVING JURISDICTION; IF METHODS ARE NOT PRESCRIBED, USE PROCEDURES DESCRIBED IN EITHER AWWA C651 OR AWWA C652 OR FOLLOW PROCEDURES DESCRIBED BELOW:
 - FLUSH PIPING SYSTEM WITH CLEAN, POTABLE WATER UNTIL DIRTY WATER DOES NOT APPEAR AT OUTLETS.
 - FLUSH SYSTEM WITH CLEAN, POTABLE WATER UNTIL NO CHLORINE IS IN WATER COMING FROM SYSTEM AFTER THE STANDING TIME.
 - SUBMIT WATER SAMPLES IN STERILE BOTTLES TO AUTHORITIES HAVING JURISDICTION. REPEAT PROCEDURES IF BIOLOGICAL EXAMINATION SHOWS CONTAMINATION.

AC. UNDER-BUILDING-SLAB, DOMESTIC WATER PIPING, NPS 2 (DN 50) AND SMALLER, SHALL BE THE FOLLOWING:

- SOFT COPPER TUBE, ASTM B 88, TYPE L (ASTM B 88M, TYPE B); WROUGHT-COPPER SOLDER-JOINT FITTINGS, AND BRAZED JOINTS.

AD. ABOVEGROUND DOMESTIC WATER PIPING, NPS 2 (DN 50) AND SMALLER, SHALL BE THE FOLLOWING:

- HARD COPPER TUBE, ASTM B 88, TYPE L (ASTM B 88M, TYPE B); WROUGHT-COPPER SOLDER-JOINT FITTINGS, AND SOLDERED JOINTS.
- COPPER PRESS FITTINGS: AT THE CONTRACTOR'S OPTION ON THE DOMESTIC HOT AND COLD WATER PIPING, COILING COIL, CONDENSATE DRAIN IN COPPER LINES 1/2" DIAMETER UP THROUGH 2-1/2" DIAMETER MECHANICAL PRESS 1-1/2" DIAMETER AND FITTINGS INCLUDING THE SMART CONNECTION FEATURE OPTION TO ENSURE THAT UNPRESSURED FITTING WILL EASILY AND RELIABLY DETECTED DURING PRESSURE TESTING AS MANUFACTURER BY VEGA, NIBCO AND APOLLO PRESS WILL BE ACCEPTABLE PROVIDED THE FITTING MANUFACTURER'S RECOMMENDED CHIPPING TOOL, WITH PROPERLY SIZED REPLACEABLE JAWS ARE UTILIZED RIGID TOOL COMPANY. INSTALLATION WILL BE IN ACCORDANCE WITH MANUFACTURER'S APPROVED PUBLISHED GUIDELINES.

AE. ABOVEGROUND DOMESTIC WATER PIPING, NPS 2-1/2 TO NPS 4 (DN 65 TO DN 100), SHALL BE OF THE FOLLOWING:

- HARD COPPER TUBE, ASTM B 88, TYPE L (ASTM B 88M, TYPE B); CAST-COPPER SOLDER-JOINT FITTINGS, AND SOLDERED JOINTS.
- GALVANIZED-STEEL PIPE; GROOVED-JOINT, GALVANIZED-STEEL-PIPE APPURTENANCES, AND GROOVED JOINTS.

AH. DRAWINGS INDICATE VALVE TYPES TO BE USED. WHERE SPECIFIC VALVE TYPES ARE NOT INDICATED, THE FOLLOWING REQUIREMENTS APPLY:

- SHUTOFF DUTY: USE BALL VALVES FOR PIPING NPS 2 (DN 50) AND SMALLER. USE GATE VALVES WITH FLANGED ENDS FOR PIPING NPS 2-1/2 (DN 65) AND LARGER.
- THROTTLING DUTY: USE BALL VALVES FOR PIPING NPS 2 (DN 50) AND SMALLER. USE BALL VALVES WITH FLANGED ENDS FOR PIPING NPS 2-1/2 (DN 65) AND LARGER.
- HOT-WATER CIRCULATION VALVES: CALIBRATED BALANCING VALVES.
- DRAIN DUTY: HOSE-END DRAIN VALVES.

AI. USE CHECK VALVES TO MAINTAIN CORRECT DIRECTION OF DOMESTIC WATER FLOW TO AND FROM EQUIPMENT.

AJ. IRON GROOVED-END VALVES MAY BE USED WITH GROOVED-END PIPING.

AK. WATER HAMMER ARRESTERS

- MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE PRODUCTS BY ONE OF THE FOLLOWING:
 - A. AMTROL, INC.
 - B. JOSAM COMPANY.
 - C. WFAF, INC.
 - D. PIP INC.
 - E. SIOUX CHIEF MANUFACTURING COMPANY, INC.
 - F. DIVISION OF SMITH INDUSTRIES, INC.
 - G. TYLER PIPE, WADE DIV.
 - H. WAITS DRAMAQUE PRODUCTS INC.
- STANDARD: ASSE 101 OR PDI-WH201.
- PIPE: COPPER SUEB (C) MATERIALS; UNIONS: COPPER SUEB (C) MATERIALS.
- SIZES: ASSE 1010, SIZES AA AND A THROUGH F OR PDI-WH 201, SIZES A THROUGH F.

INSTALL WATER HAMMER ARRESTERS IN WATER PIPING ACCORDING TO PDI-WH 201. INSTALL AIR VENTS AT HIGH POINTS OF WATER PIPING. INSTALL DRAIN PIPING AND DISCHARGE OUT FLOOR DRAIN.

SANITARY WASTE AND STORM PIPING

A. HUB-AND-SPOUT, CAST-IRON SOIL PIPE AND FITTINGS

- PIPE AND FITTINGS: ASTM A 74, SERVICE CLASS(E).
- GASKETS: ASTM C 564, RUBBER.

B. HUBLESS, CAST-IRON SOIL PIPE AND FITTINGS

- PIPE AND FITTINGS: ASTM A 888 OR CSPR 301.
- STANDARD: ASME A112.31, CAST-IRON SOIL PIPE FOR CLEANOUT TEST TEST.
- NAME: SAME AS CONNECTED DRAINAGE PIPING.
- CLOSURE: HUBLESS-STEEL WITH SEAL.

C. DRAWING PLANS, SCHEMATICS, AND DIAGRAMS INDICATE GENERAL LOCATION AND ARRANGEMENT OF PIPING SYSTEMS. INDICATED LOCATIONS AND ARRANGEMENTS ARE USED TO SIZE PIPE AND CALCULATE FRICTION LOSS, EXPANSION, PUMP SIZING, AND OTHER DESIGN CONSIDERATIONS. INSTALL PIPING AS INDICATED UNLESS DEVIATIONS TO LAYOUT ARE APPROVED ON COORDINATION DRAWINGS.

D. INSTALL PIPING CONCEALED LOCATIONS UNLESS OTHERWISE INDICATED AND EXCEPT IN EQUIPMENT ROOMS AND SERVICE AREAS.

E. INSTALL PIPING INDICATED TO BE EXPOSED AND PIPING IN EQUIPMENT ROOMS AND SERVICE AREAS AT RIGHT ANGLES OR PARALLEL TO BUILDING WALLS. DIAGONAL RUNS ARE PROHIBITED UNLESS SPECIFICALLY INDICATED OTHERWISE.

F. INSTALL PIPING ABOVE ACCESSIBLE CEILING TO ALLOW SUFFICIENT SPACE FOR CEILING PANEL REMOVAL.

G. INSTALL PIPING TO PERMIT VALVE SERVING.

H. INSTALL PIPING AT INDICATED SLOPES.

I. INSTALL PIPING FREE OF SAGS AND BENDS.

J. MAKE CHANGES IN DIRECTION FOR SOIL AND WASTE, DRAINAGE AND VENT PIPING USING APPROPRIATE BRANCHES, BENDS, AND LONG-TURN FITTINGS.

K. INSTALL CARBON-STEEL PIPE HANGERS FOR HORIZONTAL PIPING IN CORROSION-RESISTANT ENVIRONMENTS.

L. ASSEMBLE OPEN DRAIN FITTINGS AND INSTALL WITH TOP OF HUB 2 INCHES (51 MM) ABOVE FINISHED FLOOR.

M. INSTALL INSULATION MATERIALS, ACCESSORIES, AND FINISHES WITH SMOOTH, STRAIGHT, AND EVEN SURFACES; FREE OF VOID THROUGHOUT THE LENGTH OF PIPING INCLUDING FITTINGS, VALVES, AND SPECIALTIES.

N. INSTALL INSULATION MATERIALS, FORMS, VAPOR BARRIERS OR RETARDERS, JACKETS, AND THICKNESSES REQUIRED FOR EACH ITEM OF PIPE SYSTEM AS SPECIFIED IN INSULATION SYSTEM SCHEDULES.

O. INSTALL ACCESSORIES COMPATIBLE WITH INSULATION MATERIALS AND SUITABLE FOR THE SERVICE. INSTALL ACCESSORIES THAT DO NOT CORRODE, SOFTEN, OR OTHERWISE ATTACK INSULATION OR JACKETS IN EITHER HOT OR COLD SERVICE.

P. INSTALL MULTIPLE LAYERS OF INSULATION WITH LONGITUDINAL AND END SEAMS STAGGERED. DO NOT WELD BRACKETS, CLIPS, OR OTHER ATTACHMENT DEVICES TO PIPING, FITTINGS, AND ATTACHMENTS.

Q. KEEP INSULATION MATERIALS DRY DURING APPLICATION AND FINISHING.

R. INSTALL TANKS FOR ACCESSIBLE WATER TANK-TYPE WITH INSULATION MATERIALS, MANUFACTURER'S WRITTEN INSTRUCTIONS TO MAINTAIN VAPOR SEAL.

S. REMOVE SEDIMENT AND DEBRIS FROM DRAINS.

T. REMOVE SEDIMENT AND DEBRIS FROM DRAINS.

U. INSPECT DRAINAGE AND VENT PIPING ACCORDING TO PROCEDURES OF AUTHORITIES HAVING JURISDICTION OR, IN ABSENCE OF PUBLISHED PROCEDURES, AS FOLLOWS:

- TEST FOR LEAKS AND DEFECTS IN NEW PIPING AND PARTS OF EXISTING PIPING THAT HAVE BEEN ALTERED, EXTENDED, OR REPAIRED. IF TESTING IS PERFORMED IN SEGMENTS, SUBMIT SEPARATE REPORT FOR EACH TEST, COMPLETE WITH DIAGRAM OF PORTION OF PIPING TESTED.
- LEAK UNCOVERED AND UNCONCEALED NEAR, ALTERED, EXTENDED, OR REPLACED DRAINAGE AND VENT PIPING UNTIL IT HAS BEEN TESTED AND APPROVED. EXPOSE WORK THAT WAS COVERED OR CONCEALED BEFORE IT WAS TESTED.
- REPAIR LEAKS AND DEFECTS WITH NEW MATERIALS AND RETEST PIPING, OR PORTION THEREOF, UNTIL SATISFACTORY RESULTS ARE OBTAINED.

AB. CAP AND SUBJECT PIPING TO STATIC-WATER PRESSURE OF 50 PSIG (345 KPA) ABOVE OPERATING PRESSURE, WITHOUT EXCEEDING PRESSURE RATING OF PIPING SYSTEM MATERIALS. ISOLATE TEST SOURCE AND ALLOW TO STAND FOR FOUR HOURS. LEAKS AND LOSS IN TEST PRESSURE CONSTITUTE DEFECTS THAT MUST BE REPAIRED.

AC. REPAIR LEAKS AND DEFECTS WITH NEW MATERIALS AND RETEST PIPING, OR PORTION THEREOF, UNTIL SATISFACTORY RESULTS ARE OBTAINED.

AD. PREPARE REPORTS FOR TESTS AND REQUIRED CORRECTIVE ACTION.

AF. ABOVEGROUND, SOIL AND WASTE PIPING 6" AND SMALLER SHALL BE ANY OF THE FOLLOWING:

- SERVICE CLASS, CAST-IRON SOIL PIPE AND FITTINGS; GASKETS; AND GASKETED JOINTS.
- HUBLESS, CAST-IRON SOIL PIPE AND FITTINGS HEAVY-DUTY HUBLESS-PIPING COUPLINGS; AND COUPLED JOINTS.

AG. ABOVEGROUND, SOIL AND WASTE PIPING 8" AND LARGER SHALL BE ANY OF THE FOLLOWING:

- SERVICE HEIGHT (SV) HUB AND SPOUT CAST IRON SOIL PIPE FITTINGS

AH. ABOVEGROUND, VENT PIPING 6" AND SMALLER SHALL BE ANY OF THE FOLLOWING:

- HUBLESS, CAST-IRON SOIL PIPE AND FITTINGS; CSPR HUBLESS-PIPING COUPLINGS; AND COUPLED JOINTS.

AI. ABOVEGROUND, VENT PIPING 8" AND LARGER SHALL BE ANY OF THE FOLLOWING:

- SERVICE CLASS, CAST-IRON SOIL PIPE AND FITTINGS; GASKETS; AND GASKETED JOINTS.
- SOLID WALL PVC PIPE, PVC SOCKET FITTINGS, AND SOLVENT-CEMENTED JOINTS

CLEANOUTS

A. EXPOSED METAL CLEANOUTS:

- MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE PRODUCTS BY ONE OF THE FOLLOWING:
 - JOSAM COMPANY, JOSAM DIV.
 - SMITH, JAY R. MFG. CO.; DIVISION OF SMITH INDUSTRIES, INC.
 - ZURN PLUMBING PRODUCTS GROUP; SPECIFICATION DRAINAGE OPERATION STANDARD: ASME A112.31, CAST-IRON SOIL PIPE FOR CLEANOUT TEST TEST.
 - NAME: SAME AS CONNECTED DRAINAGE PIPING.
 - BODY MATERIAL: HUB-AND-SPOUT, CAST-IRON SOIL PIPE T-BRANCH AS REQUIRED TO MATCH CONNECTED PIPING.
 - CLOSURE: COUNTERSUNK PLUG.
 - PIPE PLUG SIZE: SAME AS OR NOT MORE THAN ONE SIZE SMALLER THAN CLEANOUT SIZE.
 - CLOSURE: STAINLESS-STEEL PLUG WITH SEAL.
- METAL FLOOR CLEANOUTS:
 - MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE PRODUCTS BY ONE OF THE FOLLOWING:
 - JOSAM COMPANY: JOSAM DIV.
 - SMITH, JAY R. MFG. CO.; DIVISION OF SMITH INDUSTRIES, INC.
 - A. MIFAB, INC.
 - STANDARD: ASME A112.36.2M FOR THREADED, ADJUSTABLE HOUSING CLEANOUT.
 - SIZE: SAME AS CONNECTED BRANCH.
 - TYPE: ADJUSTABLE HOUSING THREADED, ADJUSTABLE HOUSING.
 - APPROVED ON COORDINATION DRAWINGS.
 - CLOSURE: NOT REQUIRED.
 - CLAMP DETECTION: THREADED.
 - CLOSURE: BRASS FLUSH WITH STRAIGHT THREADS AND GASKET.
 - ADJUSTABLE HOUSING MATERIAL: CAST IRON WITH SET-SCREWS OR OTHER DEVICE.
 - FRAME AND COVER MATERIAL, AND FINISH: ROUGH BRONZE.
 - FRAME AND COVER ABOVE ACCESSIBLE CEILING TO ALLOW SUFFICIENT SPACE FOR CEILING PANEL REMOVAL.
 - RISE: ASTM A 74, SERVICE CLASS, CAST-IRON DRAINAGE PIPE FITTING AND RISER TO CLEANOUT.
 - STANDARD: ASME A112.31.
 - NAME: SAME AS CONNECTED BRANCH.
 - HOUSING: STAINLESS-STEEL.
 - CLOSURE: STAINLESS-STEEL WITH SEAL.
 - RISER: STAINLESS-STEEL DRAINAGE PIPE FITTING TO CLEANOUT.

C. CAST-IRON WALL CLEANOUTS:

- MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE PRODUCTS BY ONE OF THE FOLLOWING:
 - JOSAM COMPANY: JOSAM DIV.
 - SMITH, JAY R. MFG. CO.; DIVISION OF SMITH INDUSTRIES, INC.
 - TYLER PIPE, WADE DIV.
 - ZURN PLUMBING PRODUCTS GROUP; SPECIFICATION DRAINAGE OPERATION STANDARD: ASME A112.36.2M, INCLUDE WALL ACCESS.
 - SIZE: SAME AS CONNECTED DRAINAGE PIPING.
 - HUB-AND-SPOUT, CAST-IRON SOIL PIPE T-BRANCH AS REQUIRED TO MATCH CONNECTED PIPING.
 - CLOSURE: COUNTERSUNK OR RAISED-HOOD, BRASS PLUG.
 - APPROVED ON COORDINATION DRAWINGS.
 - NAME: SAME AS CONNECTED DRAINAGE PIPING.
 - WALL ACCESS: ROUND, STAINLESS-STEEL COVER PLATE WITH SCREW.
 - WALL ACCESS: ROUND, STAINLESS-STEEL WALL-INSTALLATION FRAME AND COVER.
- INSTALL CLEANOUTS IN ABOVEGROUND PIPING AND BUILDING DRAIN PIPING ACCORDING TO THE FOLLOWING, UNLESS OTHERWISE INDICATED:
 - SIZE SAME AS DRAINAGE PIPING (10" NPS 4 (DN 100), USE NPS 4 (DN 100) FOR LARGER DRAINAGE PIPING UNLESS LARGER CLEANOUT IS INDICATED).
 - LOCATE AT EACH CHANGE IN DIRECTION OF PIPING GREATER THAN 45 DEGREES.
 - LOCATE AT MINIMUM INTERVAL OF 50 FEET (15 M) FOR PIPING NPS 4 (DN 100) AND SMALLER AND 100 FEET (30 M) FOR LARGER PIPING.
 - LOCATE AT BASE OF EACH VERTICAL SOIL AND WASTE STACK.

D. FLOOR CLEANOUTS FOR PIPING BELOW FLOORS, INSTALL CLEANOUT DECK PLATES WITH TOP FLUSH WITH FINISHED FLOOR.

F. FOR CLEANOUTS LOCATED IN CONCEALED PIPING, INSTALL CLEANOUT WALL ACCESS COVERS, OF TYPES INDICATED WITH FRAME AND COVER FLUSH WITH FINISHED WALL.

G. INSTALL FLOOR DRAINS AT LOW POINTS OF SURFACE AREAS TO BE DRAINED. SET GRATES OF DRAINS FLUSH WITH FINISHED FLOOR, UNLESS OTHERWISE INDICATED.

H. INSTALL FLASHING ASSEMBLIES ON SANITARY STACK VENTS AND VENT STACKS THAT EXTEND THROUGH ROOF.

I. ASSEMBLE OPEN DRAIN FITTINGS AND INSTALL WITH TOP OF HUB 2 INCHES (51 MM) ABOVE FINISHED FLOOR.

J. INSTALL DEEP-SEAL TRAPS ON FLOOR DRAINS AND OTHER WASTE OUTLETS, IF INDICATED.

K. INSTALL FLOOR-DRAIN, TRAP-SEAL PRIMER FITTINGS ON INLET TO FLOOR DRAINS THAT REQUIRE TRAP-SEAL PRIMER CONNECTION.

L. EXCEPTION: FITTING MAY BE OMITTED IF TRAP HAS TRAP-SEAL PRIMER CONNECTION.

M. SIZE: SAME AS FLOOR DRAIN INLET.

N. INSTALL CARBON-STEEL PIPE HANGERS FOR HORIZONTAL PIPING IN CORROSION-RESISTANT ENVIRONMENTS.

O. ASSEMBLE OPEN DRAIN FITTINGS AND INSTALL WITH TOP OF HUB 2 INCHES (51 MM) ABOVE FINISHED FLOOR.

P. INSTALL INSULATION MATERIALS, ACCESSORIES, AND FINISHES WITH SMOOTH, STRAIGHT, AND EVEN SURFACES; FREE OF VOID THROUGHOUT THE LENGTH OF PIPING INCLUDING FITTINGS, VALVES, AND SPECIALTIES.

Q. INSTALL INSULATION MATERIALS, FORMS, VAPOR BARRIERS OR RETARDERS, JACKETS, AND THICKNESSES REQUIRED FOR EACH ITEM OF PIPE SYSTEM AS SPECIFIED IN INSULATION SYSTEM SCHEDULES.

R. INSTALL ACCESSORIES COMPATIBLE WITH INSULATION MATERIALS AND SUITABLE FOR THE SERVICE. INSTALL ACCESSORIES THAT DO NOT CORRODE, SOFTEN, OR OTHERWISE ATTACK INSULATION OR JACKETS IN EITHER HOT OR COLD SERVICE.

S. INSTALL MULTIPLE LAYERS OF INSULATION WITH LONGITUDINAL AND END SEAMS STAGGERED. DO NOT WELD BRACKETS, CLIPS, OR OTHER ATTACHMENT DEVICES TO PIPING, FITTINGS, AND ATTACHMENTS.

T. KEEP INSULATION MATERIALS DRY DURING APPLICATION AND FINISHING.

U. INSTALL TANKS FOR ACCESSIBLE WATER TANK-TYPE WITH INSULATION MATERIALS, MANUFACTURER'S WRITTEN INSTRUCTIONS TO MAINTAIN VAPOR SEAL.

V. REMOVE SEDIMENT AND DEBRIS FROM DRAINS.

W. REMOVE SEDIMENT AND DEBRIS FROM DRAINS.

X. INSPECT DRAINAGE AND VENT PIPING ACCORDING TO PROCEDURES OF AUTHORITIES HAVING JURISDICTION OR, IN ABSENCE OF PUBLISHED PROCEDURES, AS FOLLOWS:

- TEST FOR LEAKS AND DEFECTS IN NEW PIPING AND PARTS OF EXISTING PIPING THAT HAVE BEEN ALTERED, EXTENDED, OR REPAIRED. IF TESTING IS PERFORMED IN SEGMENTS, SUBMIT SEPARATE REPORT FOR EACH TEST, COMPLETE WITH DIAGRAM OF PORTION OF PIPING TESTED.
- LEAK UNCOVERED AND UNCONCEALED NEAR, ALTERED, EXTENDED, OR REPLACED DRAINAGE AND VENT PIPING UNTIL IT HAS BEEN TESTED AND APPROVED. EXPOSE WORK THAT WAS COVERED OR CONCEALED BEFORE IT WAS TESTED.
- REPAIR LEAKS AND DEFECTS WITH NEW MATERIALS AND RETEST PIPING, OR PORTION THEREOF, UNTIL SATISFACTORY RESULTS ARE OBTAINED.

AB. CAP AND SUBJECT PIPING TO STATIC-WATER PRESSURE OF 50 PSIG (345 KPA) ABOVE OPERATING PRESSURE, WITHOUT EXCEEDING PRESSURE RATING OF PIPING SYSTEM MATERIALS. ISOLATE TEST SOURCE AND ALLOW TO STAND FOR FOUR HOURS. LEAKS AND LOSS IN TEST PRESSURE CONSTITUTE DEFECTS THAT MUST BE REPAIRED.

AC. REPAIR LEAKS AND DEFECTS WITH NEW MATERIALS AND RETEST PIPING, OR PORTION THEREOF, UNTIL SATISFACTORY RESULTS ARE OBTAINED.

AD. PREPARE REPORTS FOR TESTS AND REQUIRED CORRECTIVE ACTION.

PLUMBING PIPING INSULATION

A. INSULATION MATERIALS

- PRODUCTS SHALL NOT CONTAIN ASBESTOS, LEAD, MERCURY, OR MERCURY COMPOUNDS.
- PRODUCTS THAT COME IN CONTACT WITH STAINLESS STEEL SHALL HAVE A LEACHABLE CHLORIDE CONTENT OF LESS THAN 50 PPM WEIGHTED ACCORDING TO ASTM A 871.

B. FOAM INSULATION MATERIALS SHALL NOT USE CFC OR HCFC BLOWING AGENTS IN THE MANUFACTURING PROCESS.

C. MINERAL-FIBER, PREFORMED PIPE INSULATION:

- PRODUCTS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE THE FOLLOWING:
 - TEKTEC, CO.
 - JOHNS MANVILLE, MORO-K.
 - WAFIP INSULATION: PRODUCT NUMBER 1000-REBREE PIPE INSULATION.
 - MANSON INSULATION: ASTM ALEY-K.
 - OWENS CORNING, FIBERGLAS PIPE INSULATION.
 - PIPER INSULATION (454 DEGREE C) MATERIALS: MINERAL OR GLASS FIBERS BONDED WITH THERMOSETTING RESIN. COMPLY WITH ASTM C 547, TYPE I, GRADE A, WITH FACTORY-APPLIED ASA-SL. FACTORY-APPLIED JACKET REQUIREMENTS ARE SPECIFIED IN FACTORY-APPLIED JACKETS' ARTICLE.

D. MINERAL-FIBER INSULATING CEMENT: COMPLY WITH ASTM C 195.

- PRODUCTS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE THE FOLLOWING:
 - RAMCO INSULATION, INC.; SUPER-SIK.

E. MINERAL-FIBER, HYDRAULIC-SETTING INSULATING AND FINISHING CEMENT: COMPLY WITH ASTM C 449.

- PRODUCTS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE THE FOLLOWING:
 - RAMCO INSULATION, INC.; RAMCO-TE 1200 AND QUIK-COTE.

F. ADHESIVES:

- MINERAL-FIBER SHALL BE COMPATIBLE WITH INSULATION MATERIALS, JACKETS, AND SUBSTRATES AND FOR BONDING INSULATION TO ITSELF AND TO SURFACES TO BE INSULATED, UNLESS OTHERWISE INDICATED.
- MINERAL-FIBER ADHESIVE: COMPLY WITH MIL-A-3316C, CLASS 2, GRADE A.
 - CHILDERS BRAND, SPECIALTY CONSTRUCTION BRANDS, INC., A BUSINESS OF H. B. FULLER COMPANY; CP-30.
 - EAGLE BRIDGES - MARATHON INDUSTRIES; 225.
 - FOSTER BRAND, SPECIALTY CONSTRUCTION BRANDS, INC., A BUSINESS OF H. B. FULLER COMPANY; 65-85/85-70.
 - MON-ECO INDUSTRIES, INC.; 22-25.

G. ASU ADHESIVE, AND FSX JACKET ADHESIVE, COMPLY WITH MIL-A-3316C, CLASS 2, GRADE A FOR BONDING INSULATION TO LATERALS AND ARRANGEMENTS WERE USED IN THE FOLLOWING:

- PRODUCTS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE ONE OF THE FOLLOWING:
 - CHILDERS BRAND, SPECIALTY CONSTRUCTION BRANDS, INC., A BUSINESS OF H. B. FULLER COMPANY; CP-30.
 - EAGLE BRIDGES - MARATHON INDUSTRIES; 225.
 - FOSTER BRAND, SPECIALTY CONSTRUCTION BRANDS, INC., A BUSINESS OF H. B. FULLER COMPANY; 65-85/85-70.
 - MON-ECO INDUSTRIES, INC.; 22-25.

H. MASTICS: MATERIALS SHALL BE COMPATIBLE WITH INSULATION MATERIALS, JACKETS, AND SUBSTRATES, COMPLY WITH MIL-PRC 48656, TYPE II FOR INDOOR APPLICATIONS. USE MASTICS THAT HAVE A VOC CONTENT OF 50 G/L OR LESS WHEN CALCULATED ACCORDING TO 40 CFR 59, SUBPART D (EPA METHOD 24).

I. VAPOR-BARRIER MASTIC: SOLVENT BASED; SUITABLE FOR INDOOR USE ON BELOW-AMBIENT SERVICES.

- PRODUCTS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE ONE OF THE FOLLOWING:
 - CHILDERS BRAND, SPECIALTY CONSTRUCTION BRANDS, INC., A BUSINESS OF H. B. FULLER COMPANY; CP-30.
 - MON-ECO INDUSTRIES; 501.
 - FOSTER BRAND, SPECIALTY CONSTRUCTION BRANDS, INC., A BUSINESS OF H. B. FULLER COMPANY; 30-35.
 - MON-ECO INDUSTRIES, INC.; 55-10.

ELECTRICAL SPECIFICATIONS

ELECTRICAL CONDUCTORS

- A. MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE PRODUCTS BY ONE OF THE FOLLOWING: ALCAN PRODUCTS CORPORATION; AMERICAN INSULATED WIRE CORP.; GENERAL CABLE CORPORATION; SENATOR CABLE COMPANY; SOUTHWIRE COMPANY.
B. CONDUCTOR INSULATION: COMPLY WITH NEMA WC 70 FOR TYPES THW, THHN, THHW, UF, USE, AND XHHW.
C. CONDUCTOR TYPE: COMPLY WITH NEMA WC 70 FOR TYPES THW, THHN, THHW, UF, USE, AND XHHW.
D. CONDUCTOR TYPE: COMPLY WITH NEMA WC 70 FOR TYPES THW, THHN, THHW, UF, USE, AND XHHW.
E. FEEDERS CONCEALED IN CEILING, WALLS, PARTITIONS, AND CRAWLSPACES: TYPE THHN-THHN, SINGLE CONDUCTORS IN RACEWAY.
F. FEEDERS CONCEALED IN CONCRETE, BELOW SLABS-ON-GRADE, AND UNDERGROUND: TYPE THHN-THHN, SINGLE CONDUCTORS IN RACEWAY.
G. FEEDERS CONCEALED IN CEILING, WALLS, PARTITIONS, AND CRAWLSPACES: TYPE THHN-THHN, SINGLE CONDUCTORS IN RACEWAY.
H. FEEDERS CONCEALED IN CONCRETE, BELOW SLABS-ON-GRADE, AND UNDERGROUND: TYPE THHN-THHN, SINGLE CONDUCTORS IN RACEWAY.
I. FEEDERS CONCEALED IN CEILING, WALLS, PARTITIONS, AND CRAWLSPACES: TYPE THHN-THHN, SINGLE CONDUCTORS IN RACEWAY.
J. FEEDERS CONCEALED IN CONCRETE, BELOW SLABS-ON-GRADE, AND UNDERGROUND: TYPE THHN-THHN, SINGLE CONDUCTORS IN RACEWAY.
K. FEEDERS CONCEALED IN CEILING, WALLS, PARTITIONS, AND CRAWLSPACES: TYPE THHN-THHN, SINGLE CONDUCTORS IN RACEWAY.
L. FEEDERS CONCEALED IN CONCRETE, BELOW SLABS-ON-GRADE, AND UNDERGROUND: TYPE THHN-THHN, SINGLE CONDUCTORS IN RACEWAY.
M. FEEDERS CONCEALED IN CEILING, WALLS, PARTITIONS, AND CRAWLSPACES: TYPE THHN-THHN, SINGLE CONDUCTORS IN RACEWAY.
N. FEEDERS CONCEALED IN CONCRETE, BELOW SLABS-ON-GRADE, AND UNDERGROUND: TYPE THHN-THHN, SINGLE CONDUCTORS IN RACEWAY.
O. FEEDERS CONCEALED IN CONCRETE, BELOW SLABS-ON-GRADE, AND UNDERGROUND: TYPE THHN-THHN, SINGLE CONDUCTORS IN RACEWAY.
P. FEEDERS CONCEALED IN CONCRETE, BELOW SLABS-ON-GRADE, AND UNDERGROUND: TYPE THHN-THHN, SINGLE CONDUCTORS IN RACEWAY.
Q. FEEDERS CONCEALED IN CONCRETE, BELOW SLABS-ON-GRADE, AND UNDERGROUND: TYPE THHN-THHN, SINGLE CONDUCTORS IN RACEWAY.
R. FEEDERS CONCEALED IN CONCRETE, BELOW SLABS-ON-GRADE, AND UNDERGROUND: TYPE THHN-THHN, SINGLE CONDUCTORS IN RACEWAY.
S. FEEDERS CONCEALED IN CONCRETE, BELOW SLABS-ON-GRADE, AND UNDERGROUND: TYPE THHN-THHN, SINGLE CONDUCTORS IN RACEWAY.
T. FEEDERS CONCEALED IN CONCRETE, BELOW SLABS-ON-GRADE, AND UNDERGROUND: TYPE THHN-THHN, SINGLE CONDUCTORS IN RACEWAY.
U. FEEDERS CONCEALED IN CONCRETE, BELOW SLABS-ON-GRADE, AND UNDERGROUND: TYPE THHN-THHN, SINGLE CONDUCTORS IN RACEWAY.
V. FEEDERS CONCEALED IN CONCRETE, BELOW SLABS-ON-GRADE, AND UNDERGROUND: TYPE THHN-THHN, SINGLE CONDUCTORS IN RACEWAY.
W. FEEDERS CONCEALED IN CONCRETE, BELOW SLABS-ON-GRADE, AND UNDERGROUND: TYPE THHN-THHN, SINGLE CONDUCTORS IN RACEWAY.
X. FEEDERS CONCEALED IN CONCRETE, BELOW SLABS-ON-GRADE, AND UNDERGROUND: TYPE THHN-THHN, SINGLE CONDUCTORS IN RACEWAY.
Y. FEEDERS CONCEALED IN CONCRETE, BELOW SLABS-ON-GRADE, AND UNDERGROUND: TYPE THHN-THHN, SINGLE CONDUCTORS IN RACEWAY.
Z. FEEDERS CONCEALED IN CONCRETE, BELOW SLABS-ON-GRADE, AND UNDERGROUND: TYPE THHN-THHN, SINGLE CONDUCTORS IN RACEWAY.

GROUNDING

- A. INSULATED CONDUCTORS: COPPER WIRE OR CABLE INSULATED FOR 600 V UNLESS OTHERWISE REQUIRED BY APPLICABLE CODE OR AUTHORITIES HAVING JURISDICTION.
B. BARE COPPER CONDUCTORS: 1. SOLID CONDUCTORS: ASTM B 3. 2. STRANDED CONDUCTORS: ASTM B 8. 3. BONDING CABLE: 28 AWG, 14 STRANDED OF NO. 17 AWG CONDUCTOR, 1/4 INCH (6 MM) IN DIAMETER.
C. GROUNDING BUS: PREDRILLED RECTANGULAR BARS OF ANNEALED COPPER, 1/4 BY 4 INCHES (6 BY 100 MM) IN CROSS SECTION, WITH 9/32-INCH (2.14-MM) HOLES SPACED 1-1/8 INCHES (28 MM) APART. STAND-OFF INSULATORS FOR MOUNTING SHALL COMPLY WITH UL 891 FOR USE IN SWITCHBOARDS, 600 V. LEXAN, IMPULSE TESTED AT 5000 V.
D. CONNECTORS: LISTED AND LABELED BY AN NRTL ACCEPTED TO AUTHORITIES HAVING JURISDICTION FOR APPLICATION AND USED FOR SPECIFIC TYPES, SIZES, AND COMBINATIONS OF CONDUCTORS AND OTHER ITEMS CONNECTED.
E. BOLTED CONNECTORS FOR CONDUCTORS AND PIPES: COPPER OR COPPER ALLOY, PRESSURE TIGHT WITH AT LEAST TWO BOLTS.
F. WELDED CONNECTORS: EXOTHERMIC-WELDING KITS OF TYPES RECOMMENDED BY KIT MANUFACTURER FOR MATERIALS BEING JOINED AND INSTALLATION CONDITIONS.
G. BUS-BAR CONNECTORS: MECHANICAL TYPE, CAST SILICON BRONZE, SOLDERLESS COMPRESSION-TYPE WIRE TERMINALS, AND LONG-BARREL, TWO-BOLT CONNECTION TO GROUND BUS BAR.
H. CONDUCTORS: INSTALL SOLID CONDUCTOR FOR NO. 8 AWG AND SMALLER, AND STRANDED CONDUCTORS FOR NO. 6 AWG AND LARGER.
I. ISOLATED GROUNDING CONDUCTORS: GREEN-COLORED INSULATION WITH CONTINUOUS YELLOW STRIPE. ON FEEDERS WITH ISOLATED GROUND, IDENTIFY GROUNDING CONDUCTOR WHERE VISIBLE TO NORMAL INSPECTION, WITH ALTERNATING BANDS OF GREEN AND YELLOW TAPE, WITH AT LEAST THREE BANDS OF GREEN AND TWO BANDS OF YELLOW.
J. CONDUCTOR TERMINATIONS AND CONNECTIONS: PIPE AND EQUIPMENT GROUNDING CONDUCTOR TERMINATIONS: BOLTED CONNECTORS, UNDERGROUND CONNECTIONS: WELDED CONNECTORS EXCEPT AT TEST WELLS AND AS OTHERWISE INDICATED. CONNECTIONS TO GROUND RODS AT TEST WELLS: BOLTED CONNECTIONS, CONNECTIONS TO STRUCTURAL STEEL: WELDED CONNECTORS.
K. EQUIPMENT GROUNDING: INSTALL INSULATED EQUIPMENT GROUNDING CONDUCTORS TO COMPLY WITH THE NEC AND AS INDICATED ON THE DRAWINGS.

ELECTRICAL HANGERS AND SUPPORTS

- A. COMPLY WITH NECA 1 AND NECA 101 FOR APPLICATION OF HANGERS AND SUPPORTS FOR ELECTRICAL EQUIPMENT AND SYSTEMS EXCEPT IF REQUIREMENTS IN THIS SECTION ARE STRICTER. MAXIMUM SUPPORT SPACING AND MINIMUM HANGER ROD SIZE FOR RACEWAY SPACE SUPPORTS FOR EMT, IMC, AND RMC AS SCHEDULED IN NECA 1, WHERE ITS TABLE 1 LISTS MAXIMUM SPACINGS LESS THAN STATED IN NFPA 70. MINIMUM ROD SIZE SHALL BE 1/4 INCH (6 MM) IN DIAMETER. MULTIPLE RACEWAYS OR CABLES: INSTALL TRAPEZOIDAL TYPE SUPPORTS FABRICATED WITH STEEL SLOTTED OR OTHER SUPPORT SYSTEM, SIZING SO CAPACITY CAN BE INCREASED BY AT LEAST 25 PERCENT IN FUTURE WITHOUT EXCEEDING SPECIFIED DESIGN LOAD LIMITS. SECURE RACEWAYS AND CABLES TO THESE SUPPORTS WITH TWO-BOLT CONDUIT CLAMPS, SPRING-STEEL CLAMPS DESIGNED FOR SUPPORTING SINGLE CONDUCTORS WITHOUT BOLTS MAY BE USED FOR 1-1/2-INCH (38-MM) AND SMALLER RACEWAYS SERVING BRANCH CIRCUITS AND COMMUNICATION SYSTEMS ABOVE SUSPENDED CEILING AND FOR FASTENING RACEWAYS TO TRAPEZE SUPPORTS.
B. SUPPORT INSTALLATIONS: COMPLY WITH NECA 1 AND NECA 101 FOR INSTALLATION REQUIREMENTS EXCEPT AS SPECIFIED IN THIS ARTICLE.
C. RACEWAY SUPPORT METHODS: IN ADDITION TO METHODS DESCRIBED IN NECA 1, EMT, IMC, AND RMC MAY BE SUPPORTED BY OPENINGS THROUGH STRUCTURE MEMBERS, AS PERMITTED IN NFPA 70.
D. STRENGTH OF SUPPORT ASSEMBLIES: WHERE NOT INDICATED, SELECT SIZES OF COMPONENTS SO STRENGTH WILL BE ADEQUATE TO CARRY PRESENT AND FUTURE STATIC LOADS WITHIN SPECIFIED LOADING LIMITS. MINIMUM STATIC DESIGN LOAD USED FOR STRENGTH DETERMINATION SHALL BE WEIGHT OF SUPPORTED COMPONENTS PLUS 200 LB (90 KG).
E. MOUNTING AND ANCHORAGE OF SURFACE-MOUNTED EQUIPMENT AND COMPONENTS: ANCHOR AND FASTEN ELECTRICAL ITEMS AND THEIR SUPPORTS TO BUILDING STRUCTURE ELEMENTS BY THE FOLLOWING METHODS UNLESS OTHERWISE INDICATED BY CODE: 1. TO WOOD: FASTEN WITH LAG SCREWS OR THROUGH BOLTS. 2. TO NEW CONCRETE: BOLT TO CONCRETE INSERTS. 3. TO MASONRY: APPROVED TOGGLE-TYPE BOLTS ON HOLLOW MASONRY UNITS AND EXPANSION ANCHOR FASTENERS ON SOLID MASONRY. 4. TO EXISTING CONCRETE: EXPANSION ANCHOR FASTENERS. 5. INSTEAD OF EXPANSION ANCHORS, POWER-ACTUATED DRIVEN THREADED STUDS PROVIDED WITH LOCK WASHERS AND NUTS MAY BE USED IN EXISTING STANDARD-WEIGHT CONCRETE 4 INCHES (100-MM) THICK OR GREATER. DO NOT USE FOR STEEL: WELDED THREADED STUDS COMPLYING WITH AWS D1.1/D1.1M, WITH LOCK WASHERS AND NUTS OR BEAM CLAMPS (MSS TYPE 19, 21, 23, 25, OR 27) COMPLYING WITH MSS SP-68. 7. TO LIGHT STEEL: SHEET METAL SCREWS. 8. DRILL HOLES FOR EXPANSION ANCHORS IN CONCRETE AT LOCATIONS AND TO DEPTHS THAT AVOID REINFORCING BARS.

ELECTRICAL CONDUIT

- A. METAL CONDUIT AND TUBING MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE PRODUCTS BY ONE OF THE FOLLOWING: AFC CABLE SYSTEMS, INC. 2. ALFLEX INC. 3. ALLEED TUBE & CONDUIT; A TYCO INTERNATIONAL LTD. CO. 4. ANAVET ELECTRICAL, INC.; ANACONDA METAL HOSE. 5. ELECTRI-FLEX CO. 6. MAVERICK TUBE CORPORATION. 7. O-Z/GEENEY; A UNIT OF GENERAL SIGNAL. 8. WHEATLAND TUBE COMPANY.
B. RIGID STEEL CONDUIT: ANSIC 380.
C. ALUMINUM RIGID CONDUIT: ANSIC 380.5.
D. IMC: ANSIC 380.6.
E. PVC-COATED STEEL CONDUIT: PVC-COATED RIGID STEEL CONDUIT. COMPLY WITH NEMA 90.
F. COATING THICKNESS: 0.040 INCH (1 MM), MINIMUM.
G. EMT: ANSIC 380.3.
H. PVC-ZIP-COATED STEEL.
I. IMC: FLEXIBLE STEEL CONDUIT WITH PVC JACKET.
J. FITTINGS FOR CONDUIT INCLUDING ALL TYPES AND FLEXIBLE AND LIQUIDTIGHT, EMT, AND CABLE: NEMA 90. LISTED FOR TYPE AND SIZE RACEWAY WITH WHICH USED, AND FOR APPLICATION AND ENVIRONMENT IN WHICH INSTALLED.
1. FITTINGS FOR EMT: STEEL SET-SCREW OR COMPRESSION TYPE; DIE-CAST IS NOT ACCEPTABLE.
2. COATING FOR FITTINGS FOR PVC-COATED CONDUIT: MINIMUM THICKNESS, 0.040 INCH (1 MM), WITH OVERLAPPING SLEEVES PROTECTING THREADED JOINTS.
L. JOINT COMPOUNDS AND GULF-SEALING STEEL WITH SHIP-ON-IN CABLE CONNECTOR ASSEMBLIES, AND COMPOUNDED FOR USE TO LUBRICATE AND PROTECT THREADED RACEWAY JOINTS FROM CORROSION AND ENHANCE THEIR CONDUCTIVITY.
M. METAL METAL ACCESS, PULL, AND JUNCTION BOXES: NEMA 1 FB 1, GALVANIZED, CAST IRON WITH GASKETED COVER.
N. SHEET METAL ACCESS, PULL, AND JUNCTION BOXES: NEMA 1 FB 1, FERROUS ALLOY, TYPE FD, WITH GASKETED COVER.
O. CAST-METAL OUTLET AND DEVICE BOXES: NEMA 1 FB 1, FERROUS ALLOY, TYPE FD, WITH GASKETED COVER.
P. METAL METAL ACCESS, PULL, AND JUNCTION BOXES: NEMA 1 FB 1, GALVANIZED, CAST IRON WITH GASKETED COVER.
Q. HINGED-COVER ENCLOSURES: NEMA 250, TYPE 1, WITH CONTINUOUS HINGE COVER WITH FLUSH LATCH, UNLESS OTHERWISE INDICATED.
1. METAL ENCLOSURES: STEEL, FINISHED INSIDE AND OUT WITH MANUFACTURER'S STANDARD ENAMEL.
A. IN STANDARD PARTITIONS, WHERE 1/2" AND 3/4" CONDUITS ARE EMPLOYED: 4" SQUARE BY 2-1/8" DEEP BOXES WITH 1-1/8" G-ANG OR 2-GANG PLASTER COVERS SHALL BE USED, NO. 4SD-SPL.
B. IN THIN PARTITIONS MEASURING 3-1/2" OR LESS: 4" SQUARE BY 1-1/2" DEEP BOXES WITH 1-1/8" G-ANG OR 2-GANG PLASTER COVERS SHALL BE USED, NO. 4SD-SPL.
C. IN STANDARD PARTITIONS, WHERE CONDUITS OF A SIZE GREATER THAN 3/4" ARE EMPLOYED: 4" SQUARE BY 2-1/8" DEEP BOXES WITH 1-1/8" G-ANG OR 2-GANG PLASTER COVERS SHALL BE USED, NO. 4SD-SPL.
R. METAL METAL ACCESS, PULL, AND JUNCTION BOXES: NEMA 1 FB 1, GALVANIZED, CAST IRON WITH GASKETED COVER.
S. HINGED-COVER ENCLOSURES: NEMA 250, TYPE 1, WITH CONTINUOUS HINGE COVER WITH FLUSH LATCH, UNLESS OTHERWISE INDICATED.
1. METAL ENCLOSURES: STEEL, FINISHED INSIDE AND OUT WITH MANUFACTURER'S STANDARD ENAMEL.
A. IN STANDARD PARTITIONS, WHERE 1/2" AND 3/4" CONDUITS ARE EMPLOYED: 4" SQUARE BY 2-1/8" DEEP BOXES WITH 1-1/8" G-ANG OR 2-GANG PLASTER COVERS SHALL BE USED, NO. 4SD-SPL.
B. IN THIN PARTITIONS MEASURING 3-1/2" OR LESS: 4" SQUARE BY 1-1/2" DEEP BOXES WITH 1-1/8" G-ANG OR 2-GANG PLASTER COVERS SHALL BE USED, NO. 4SD-SPL.
C. IN STANDARD PARTITIONS, WHERE CONDUITS OF A SIZE GREATER THAN 3/4" ARE EMPLOYED: 4" SQUARE BY 2-1/8" DEEP BOXES WITH 1-1/8" G-ANG OR 2-GANG PLASTER COVERS SHALL BE USED, NO. 4SD-SPL.
T. HINGED-COVER ENCLOSURES: NEMA 250, TYPE 1, WITH CONTINUOUS HINGE COVER WITH FLUSH LATCH, UNLESS OTHERWISE INDICATED.
1. METAL ENCLOSURES: STEEL, FINISHED INSIDE AND OUT WITH MANUFACTURER'S STANDARD ENAMEL.
A. IN STANDARD PARTITIONS, WHERE 1/2" AND 3/4" CONDUITS ARE EMPLOYED: 4" SQUARE BY 2-1/8" DEEP BOXES WITH 1-1/8" G-ANG OR 2-GANG PLASTER COVERS SHALL BE USED, NO. 4SD-SPL.
B. IN THIN PARTITIONS MEASURING 3-1/2" OR LESS: 4" SQUARE BY 1-1/2" DEEP BOXES WITH 1-1/8" G-ANG OR 2-GANG PLASTER COVERS SHALL BE USED, NO. 4SD-SPL.
C. IN STANDARD PARTITIONS, WHERE CONDUITS OF A SIZE GREATER THAN 3/4" ARE EMPLOYED: 4" SQUARE BY 2-1/8" DEEP BOXES WITH 1-1/8" G-ANG OR 2-GANG PLASTER COVERS SHALL BE USED, NO. 4SD-SPL.
U. CABINETS: 1. NEMA 250, TYPE 1, GALVANIZED-STEEL BOX WITH REMOVABLE INTERIOR PANEL AND REMOVABLE FRONT, FINISHED INSIDE AND OUT WITH MANUFACTURER'S STANDARD ENAMEL. 2. HINGED DOOR IN FRONT COVER WITH FLUSH LATCH AND CONCEALED HINGE. 3. KEY LATCH TO MATCH PANELBOARDS. 4. METAL BARRIERS TO DIMENSIONS OF DIFFERENT SYSTEMS AND VOLTAGE. 5. ACCESSORY FEET WHERE REQUIRED FOR FREESTANDING EQUIPMENT.
V. OUTDOOR: APPLY RACEWAY PRODUCTS AS SPECIFIED BELOW, UNLESS OTHERWISE INDICATED: 1. EXPOSED CONDUIT: RIGID STEEL CONDUIT, EMT, RMC, UNDERGROUND CONDUIT. 2. UNDERGROUND CONDUIT: RVC, TYPE EPC-40-PVC, DIRECT BURIED. 3. CONNECTION TO VIBRATING EQUIPMENT (INCLUDING TRANSFORMERS AND HYDRAULIC, PNEUMATIC, ELECTRIC SOLENOID, OR MOTOR-DRIVEN EQUIPMENT): LFMC. 4. BOXES AND ENCLOSURES, ABOVE GROUND: NEMA 250, TYPE 3R.
W. COMPLY WITH THE FOLLOWING INDOOR APPLICATIONS, UNLESS OTHERWISE INDICATED: 1. EXPOSED, NOT SUBJECT TO PHYSICAL DAMAGE: EMT. 2. EXPOSED, NOT SUBJECT TO PHYSICAL DAMAGE: EMT. 3. EXPOSED AND SUBJECT TO SEVERE PHYSICAL DAMAGE: RIGID STEEL CONDUIT, INCLUDES RACEWAYS IN THE FOLLOWING LOCATIONS: LOADING DOCK, CORRIDORS USED FOR TRAFFIC OF MECHANIZED CARTS, FORK-LIFTS, AND PALLET-HANDLING UNITS, MECHANICAL ROOMS. 4. CONCEALED IN CEILING AND INTERIOR WALLS AND PARTITIONS: EMT. 5. CONNECTION TO VIBRATING EQUIPMENT (INCLUDING TRANSFORMERS AND HYDRAULIC, PNEUMATIC, ELECTRIC SOLENOID, OR MOTOR-DRIVEN EQUIPMENT): FMC, EXCEPT USE LPMC IN DAMP OR WET LOCATIONS. 6. DAMP OR WET LOCATIONS: RIGID STEEL CONDUIT. 7. RACEWAYS FOR OPTICAL FIBER OR COMMUNICATIONS CABLE IN SPACES USED FOR ENVIRONMENTAL AIR: PLENUM-TYPE, OPTICAL FIBER/COMMUNICATIONS CABLE RACEWAY, EMT. 8. RACEWAYS FOR OPTICAL FIBER OR COMMUNICATIONS CABLE RISERS IN VERTICAL SHAFTS: RISER-TYPE, OPTICAL FIBER/COMMUNICATIONS CABLE RACEWAY, EMT. 9. RACEWAYS FOR CONCEALED GENERAL PURPOSE DISTRIBUTION OF OPTICAL FIBER OR COMMUNICATIONS CABLE: GENERAL-PURPOSE, OPTICAL FIBER/COMMUNICATIONS CABLE RACEWAY, RISER-TYPE, OPTICAL FIBER/COMMUNICATIONS CABLE RACEWAY, EMT. 10. BOXES AND ENCLOSURES: NEMA 250, TYPE 1, EXCEPT USE NEMA 250, TYPE 4X, STAINLESS STEEL IN DAMP OR WET LOCATIONS.
X. MINIMUM RACEWAY SIZE: 1/2-INCH (16-MM) TRADE SIZE.
Y. RACEWAY FITTINGS: COMPATIBLE WITH RACEWAYS AND SUITABLE FOR USE AND LOCATION. 1. RIGID AND INTERMEDIATE STEEL CONDUIT: USE THREADED RIGID CONDUIT FITTINGS, UNLESS OTHERWISE INDICATED. 2. PVC EXTERNALLY COATED, RIGID STEEL CONDUITS: USE ONLY FITTINGS LISTED FOR USE WITH THAT MATERIAL. PATCH AND SEAL ALL JOINTS, NOTCHES, AND SCRAPS IN PVC COATING AFTER INSTALLING CONDUITS AND FITTINGS. USE SEALANT RECOMMENDED BY FITTING MANUFACTURER.
Z. INSTALLATION: COMPLY WITH NECA 1 FOR INSTALLATION REQUIREMENTS APPLICABLE TO PRODUCTS SPECIFIED EXCEPT WHERE REQUIREMENTS ON DRAWINGS OR IN THIS ARTICLE ARE STRICTER.
AA. KEEP RACEWAYS AT LEAST 6 INCHES (150 MM) AWAY FROM PARALLEL RUNS OF FLUES AND STEAM OR HOT-WATER PIPES. INSTALL HORIZONTAL RACEWAY RUNS ABOVE WATER AND STEAM PIPING.
AB. COMPLETE RACEWAY INSTALLATION BEFORE STARTING CONDUITOR INSTALLATION.
AC. SUPPORT RACEWAYS AS SPECIFIED IN "HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS."
AD. ARRANGE STUB-UPS SO CURVED PORTIONS OF BENDS ARE NOT VISIBLE ABOVE THE FINISHED FLOOR.
AE. INSTALL NO MORE THAN THE EQUIVALENT OF THREE 90-DEGREE BENDS IN ANY CONDUIT RUN EXCEPT FOR COMMUNICATIONS CONDUITS, FOR WHICH FEWER BENDS ARE ALLOWED.
AF. CONCEAL CONDUIT AND EMT WITH FINISHED WALLS, CEILING, AND FLOORS, UNLESS OTHERWISE INDICATED.
AG. RACEWAYS EMBEDDED IN SLABS: 1. RUN CONDUIT LARGER THAN 1/2-INCH (27-MM) TRADE SIZE, PARALLEL OR AT RIGHT ANGLES TO MAIN REINFORCEMENT, WHERE AT RIGHT ANGLES TO REINFORCEMENT, PLACE CONDUIT CLOSE TO SLAB SUPPORT. 2. ARRANGE RACEWAYS TO CROSS BUILDING EXPANSION JOINTS AT RIGHT ANGLES WITH EXPANSION FITTINGS. 3. CHANGE FROM EMT TO RIGID, TYPE EPC-40-PVC, RIGID STEEL CONDUIT, OR IMC BEFORE RISING ABOVE THE FLOOR.
AH. THREADED CONDUIT JOINTS, EXPOSED TO WET, DAMP, CORROSIVE, OR OUTDOOR CONDITIONS, APPLY LISTED COMPOUND TO THREADED RACEWAY JOINTS BEFORE MAKING UP JOINTS, FOLLOW COMPOUND MANUFACTURER'S WRITTEN INSTRUCTIONS.
AI. RACEWAY TERMINATIONS AT LOCATIONS SUBJECT TO MOISTURE OR VIBRATION: USE RELIABLE BUSHINGS TO PROTECT CONDUITS, INCLUDING CONDUITS SMALLER THAN NO. 4 AWG.
AJ. INSTALL PULL WIRES IN EMPTY RACEWAYS. USE POLYPROPYLENE OR MONOPOLYMER PLASTIC LINE WITH NOT LESS THAN 200-LB (90-KG) TENSILE STRENGTH. LEAVE AT LEAST 12 INCHES (305 MM) OF SLACK AT EACH END OF PULL WIRE.
AK. RACEWAYS FOR OPTICAL FIBER AND COMMUNICATIONS CABLE: INSTALL RACEWAYS, METALLIC AND NONMETALLIC, RIGID AND FLEXIBLE, AS FOLLOWS: 1. 3/4-INCH (19-MM) TRADE SIZE AND SMALLER: INSTALL RACEWAYS IN MAXIMUM LENGTHS OF 50 FEET (15 M). 2. 1-INCH (25-MM) TRADE SIZE AND LARGER: INSTALL RACEWAYS IN MAXIMUM LENGTHS OF 75 FEET (23 M). 3. INSTALL WITH A MAXIMUM OF TWO 90-DEGREE BENDS OR EQUIVALENT FOR EACH LENGTH OF RACEWAY UNLESS DRAWINGS SHOW STRICTER REQUIREMENTS. SEPARATE LENGTHS WITH PULL OR JUNCTION BOXES OR TERMINATIONS AT DISTRIBUTION FRAMES OR CABINETS WHERE NECESSARY TO COMPLY WITH THESE REQUIREMENTS.
AL. INSTALL RACEWAY SEALING FITTINGS AT SUITABLE, APPROVED, AND ACCESSIBLE LOCATIONS AND FILL THEM WITH LISTED SEALING COMPOUND. FOR CONCEALED RACEWAYS, INSTALL EACH FITTING IN A FLUSH STEEL BOX WITH A BLANK COVER PLATE HAVING A FINISH SIMILAR TO THAT OF ADJACENT PLATES OR SURFACES. INSTALL RACEWAY SEALING FITTINGS AT THE FOLLOWING POINTS: 1. WHERE CONDUITS PASS FROM WARM TO COLD LOCATIONS, SUCH AS BOUNDARIES OF REFRIGERATED SPACES. 2. WHERE OTHERWISE REQUIRED BY NFPA 70.

TRANSFORMERS

- A. SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE PRODUCTS BY ONE OF THE FOLLOWING: ACME ELECTRIC CORPORATION; POWER DISTRIBUTION PRODUCTS DIVISION; EATON ELECTRICAL INC.; CUTLER-HAMMER PRODUCTS; GENERAL ELECTRIC COMPANY; SIEMENS ENERGY & AUTOMATION, INC. SQUARE-DUTY. SQUARE D; SCHNEIDER ELECTRIC.
B. GENERAL TRANSFORMER REQUIREMENTS: DESCRIPTION: FACTORY-ASSEMBLED AND -TESTED, AIR-COOLED UNITS FOR 60-HZ SERVICE. GRAIN-ORIENTED, NON-GRANULATED SILICON STEEL. CONTINUOUS WINDINGS WITHOUT SPIICES EXCEPT FOR TAPS. INTERNAL COIL CONNECTIONS: BRAZED OR PRESSURE TIE. COIL MATERIAL: COPPER.
C. COMPLY WITH NEMA ST 20, AND LIST AND LABEL AS COMPLYING WITH UL 1561, ONE LED PER PHASE.
D. ENCLOSURE: VENTILATED, NEMA 250, TYPE 3R, CORE AND COIL SHALL BE ENCAPSULATED WITHIN RESIN COMPOUND, SEALING OUT MOISTURE AND AIR.
E. ENCLOSURE: VENTILATED, NEMA 250, TYPE 3R, CORE AND COIL SHALL BE ENCAPSULATED WITHIN RESIN COMPOUND, SEALING OUT MOISTURE AND AIR.
F. TRANSFORMER ENCLOSURE FINISH: COMPLY WITH NEMA 250, FINISH COLOR: GRAY.
G. TAPS FOR TRANSFORMERS SMALLER THAN 7.5 KVA: ONE 5 PERCENT TAP ABOVE NORMAL FULL CAPACITY.
H. TAPS FOR TRANSFORMERS 7.5 TO 24 KVA: ONE 5 PERCENT TAP ABOVE AND ONE 5 PERCENT TAP BELOW NORMAL FULL CAPACITY.
I. TAPS FOR TRANSFORMERS 25 KVA AND LARGER: TWO 2.5 PERCENT TAPS ABOVE AND TWO 2.5 PERCENT TAPS BELOW NORMAL FULL CAPACITY.
J. INSULATION CLASS: 220 DEG C, UL-COMPONENT-RECOGNIZED INSULATION SYSTEM WITH A MAXIMUM OF 115 DEG C RISE ABOVE 40 DEG C AMBIENT TEMPERATURE.
K. ENERGY EFFICIENCY: FOR TRANSFORMERS RATED 15 KVA AND LARGER, COMPLYING WITH DOE-2016 10 KTR PART 431.
L. K-FACTOR RATING: TRANSFORMERS INDICATED TO BE K-FACTOR RATED SHALL COMPLY WITH UL 1561 METAL BOX TYPES: CAST METAL, FULLY ADJUSTABLE, RECTANGULAR. SMALL SHEET METAL PULL AND JUNCTION BOXES: NEMA OS 1. CAST-METAL ACCESS, PULL, AND JUNCTION BOXES: NEMA FB 1, GALVANIZED, CAST IRON WITH GASKETED COVER.
M. ELECTROSTATIC SHIELDING: EACH WINDING SHALL HAVE AN INDIVIDUAL, SINGLE, FULL-WIDTH COPPER ELECTROSTATIC SHIELD ARRANGED TO MINIMIZE INTERFERING CAPACITANCE, ARRANGE COIL LEADS AND TERMINAL STRIPS TO MINIMIZE CAPACITIVE COUPLING BETWEEN INPUT AND OUTPUT TERMINALS, INCLUDE SPECIAL TERMINAL FOR GROUNDING AND SHIELD EFFECTIVENESS: CAPACITANCE BETWEEN PRIMARY AND SECONDARY WINDINGS: NOT TO EXCEED 133 PICOFARADS OVER A FREQUENCY RANGE OF 400 KHZ TO 100 MHz. MINIMUM ATTENUATION: MINIMUM OF MINUS 120 DB AT 0.5 TO 100 KHZ. MINIMUM OF MINUS 65 DB AT 1.5 TO 100 KHZ. NORMAL-MODE NOISE ATTENUATION: MINIMUM OF MINUS 52 DB AT 1.5 TO 100 KHZ.
N. FUNGUS PROOFING: PERMANENT FUNGICIDAL TREATMENT FOR COIL AND CORE.
O. LUG RATING: ALL LUG CONNECTIONS SHALL BE RATED FOR CONNECTION OF 75 DEG C INSULATION CONDUCTORS.
PANELBOARDS
A. ENCLOSURES: FLUSH- AND SURFACE-MOUNTED CABINETS, RATED FOR ENVIRONMENTAL CONDITIONS AT INSTALLED LOCATION, INDOOR DRY AND CLEAN LOCATIONS: NEMA 250, TYPE 1, OUTDOOR LOCATIONS: NEMA 250, TYPE 3R. WET OR DAMP INDOOR LOCATIONS: NEMA 250, TYPE 4X, STAINLESS STEEL.
B. FRONT: SECURED TO BOX WITH CONCEALED TRIM CLAMPS. FOR SURFACE-MOUNTED FRONTS, MATCH BOX DIMENSIONS; FOR FLUSH-MOUNTED FRONTS, OVERLAP BOX.
C. HINGED FRONT COVER: ENTIRE FRONT TRIM HINGED TO BOX AND WITH STANDARD DOOR WITHIN 1/8" TOLERANCE FROM COVER.
D. FINISHES: 1. ANEELS AND TRIM: GALVANIZED STEEL, FACTORY FINISHED IMMEDIATELY AFTER CLEANING AND PRETREATING WITH MANUFACTURER'S STANDARD TWO-COAT, BAKED-ON FINISH CONSISTING OF PRIME COAT AND THERMOSETTING TOPCOAT.
E. BACK BOXES: GALVANIZED STEEL.
F. FUNGUS PROOFING: PERMANENT FUNGICIDAL TREATMENT FOR OVERCURRENT PROTECTIVE DEVICES AND OTHER COMPONENTS.
G. DIRECTORY CARD: INSIDE PANELBOARD DOOR, MOUNTED IN TRANSPARENT CARD HOLDER.
H. INCOMING MAINS LOCATION: TOP AND BOTTOM.
I. PHASE, NEUTRAL AND GROUND BUSSES: MATERIAL: THIN-PLATED ALUMINUM OR HARD-BRASS COPPER, 98 PERCENT CONDUCTIVITY. CONFIGURATION 5-200 AND 100-100. EQUIPMENT FOR FEEDER AND BRANCH-CIRCUIT EQUIPMENT GROUNDING CONDUITS: BONDED TO BOX.
J. CONDUCTOR CONNECTORS: SUITABLE FOR USE WITH CONDUCTOR MATERIAL AND SIZES. MATERIAL: THIN-PLATED ALUMINUM OR HARD-BRASS COPPER, 98 PERCENT CONDUCTIVITY. MAIN AND NEUTRAL LUGS: COMPRESSION LUGS AND BUS-COMPRESSION LUGS. TERMINATORS: COMPRESSION TYPE, FEED-THROUGH LUGS. COMPRESSION TYPE, SUITABLE FOR USE WITH CONDUCTOR MATERIAL. LOCATE AT POSITIVE END OF BUS FROM INCOMING LUGS OR MAIN DEVE. RATED FOR CONNECTION OF 75 DEG C INSULATED CONDUCTORS.
K. PANELBOARD SHORT-CIRCUIT CURRENT RATING: FULLY RATED TO INTERRUPT SYMMETRICAL SHORT-CIRCUIT CURRENT AVAILABLE AT TERMINALS.
L. LIGHTING AND APPLIANCE BRANCH-CIRCUIT PANELBOARDS: MATERIAL: THIN-PLATED ALUMINUM OR HARD-BRASS COPPER, 98 PERCENT CONDUCTIVITY. GENERAL DESCRIPTION: STRAIGHT BLADE, FEED-THROUGH TYPE. COMPLY WITH NEMA WD 1, NEMA MD 6, UL 498, AND UL 943, CLASS A, AND INCLUDE INDICATOR LIGHT THAT IS LIGHTED WHEN DEVICE IS TRIPPED AND UNLIT WHEN DEVICE IS RESET. SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE ONE OF THE FOLLOWING: 1. LEVITON; 16341-1W (SINGLE), 16362-1W (DUPLEX). 2. ANY EQUAL, BY ABOVE LISTED MANUFACTURERS.
M. SNAP SWITCHES, COMPLY WITH NEMA WD 1 AND UL 20. SWITCHES, 120/277 V, 20 A: PRODUCTS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE ONE OF THE FOLLOWING: 1. LEVITON; 5621-2W (SINGLE POLE), 5622-2 (TWO POLE), 5623-2 (THREE WAY) 2. ANY EQUAL, BY ABOVE LISTED MANUFACTURERS.
N. WALL-BOX DIMMERS, DIMMER SWITCHES: MODULAR, FULL-WAVE, SOLID-STATE TYPES WITH INTEGRAL, QUIET ON-OFF SWITCHES, WITH AUDIBLE FREQUENCY AND EM/RFI SUPPRESSION FILTERS. CONTROL: CONTINUOUSLY ADJUSTABLE SLIDER, WITH SINGLE-POLE OR THREE-WAY SWITCHING. COMPLY WITH UL 1472. 1. INCANDESCENT LAMP DIMMERS: 120 V; CONTROL SHALL FOLLOW SQUARE-LAW DIMMING CURVE. ON-OFF SWITCH POSITIONS SHALL BYPASS DIMMER MODULE. 2000 W; DIMMERS SHALL REQUIRE NO DERATING WHEN GANGED WITH OTHER DEVICES. 2. FLUORESCENT LAMP DIMMER SWITCHES: MODULAR; COMPATIBLE WITH DIMMER BALLASTS; TRIM POTENTIOMETER (ADJUSTABLE). 3. DIMMER SWITCHES: DIMMER-BALLAST COMBINATION. CAPABLE OF CONSISTENT DIMMING WITH LOW END NOT GREATER THAN 20 PERCENT OF FULL BRIGHTNESS. 3. ACCEPTABLE MANUFACTURERS: LUTRON, LEVITON.
O. VACANCY/OCCUPANCY SENSORS, WALL-SWITCH SENSORS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE ONE OF THE FOLLOWING: 1. LUTRON; MS-B102. (PROGRAMMED FOR VACANCY OR OCCUPANCY OPERATION AS SHOWN) 2. ANY EQUAL, BY NOVATAS, WATTSTOPPER, LEVITON OR SENSOARY SWITCH.
DESCRIPTION: DUAL TECHNOLOGY TYPE, 120/277 V, ADJUSTABLE TIME DELAY UP TO 20 MINUTES, 180-DEGREE FLEW OF VIEW, WITH A MINIMUM COVERAGE AREA OF 900 SQ. FT. (81 SQ. M). MANUAL-ON/AUTO-OFF OR AUTO-ON TO 50%/AUTO-OFF.
I. WALL PLATES, SINGLE AND COMBINATION TYPES TO MATCH CORRESPONDING WIRING DEVICES. PLATE-SECURING SCREWS: METAL WITH HEAD COLOR TO MATCH PLATE FINISH. 1. MATERIAL FOR FINISHED SPACES: SMOOTH, HIGH-IMPACT THERMOPLASTIC 0.035-INCH- (3/4-MM-) THICK. 2. MATERIAL FOR UNFINISHED SPACES: SMOOTH, HIGH-IMPACT THERMOPLASTIC. 3. MATERIAL FOR DAMP LOCATIONS: THERMOPLASTIC WITH SPRING-LOADED LIFT COVER, AND LISTED AND LABELED FOR USE IN WET LOCATIONS. 4. WET-LOCATION, WEATHERPROOF COVER PLATES: NEMA 250, COMPLYING WITH TYPE 3R WEATHER-RESISTANT, THERMOPLASTIC WITH LOCKABLE COVER.
DEVICE MOUNTING HEIGHTS
IN GENERAL, UNLESS OTHERWISE NOTED ON THE ARCHITECTURAL DRAWINGS OR THE ELECTRICAL DRAWINGS, MOUNTING HEIGHTS SHALL BE AS FOLLOWS: (HEIGHTS SHOWN ARE ABOVE FINISHED FLOOR TO CENTER LINE OF OUTLET)
WALL SWITCHES 48 INCHES
ELECTRICAL VOICE/DATA OUTLETS 18 INCHES
CLOCK OUTLETS 90 INCHES
RECEPTACLES (MOUNTED ABOVE A COUNTER) 42 INCHES
FIRE ALARM PULL STATIONS 42 INCHES
FIRE ALARM SYSTEM AUDIO/VISUAL STROBES 80 INCHES
FIRE ALARM SYSTEM VISUAL STROBES 80 INCHES
WALL MOUNTED TELEPHONE 42 INCHES
START TYPE (PREHEAT, RAMP START, INSTANT START, ETC.) FOR FLUORESCENT AND COMPACT FLUORESCENT LUMINAIRES.
5. ANS BALLAST TYPE (MBS, MS7, ETC.) FOR HD LUMINAIRES.
6. COT AND CRI FOR ALL LUMINAIRES.
D. ELECTROMAGNETIC-INTERFERENCE FILTERS: FACTORY INSTALLED TO SUPPRESS CONDUCTED ELECTROMAGNETIC-INTERFERENCE AS REQUIRED BY MIL-STD-461E. FABRICATE LIGHTING FIXTURES WITH ONE FILTER ON EACH BALLAST INDICATED TO REQUIRE A FILTER.

BALLASTS

- A. BALLASTS FOR LINEAR FLUORESCENT LAMPS, GENERAL REQUIREMENTS FOR ELECTRONIC BALLASTS: 1. COMPLY WITH UL 935 AND WITH ANSI C82.11. 2. DESIGNED FOR TYPE AND QUANTITY OF LAMP SERVED. 3. BALLASTS SHALL BE DESIGNED FOR BALLAST FULL LIGHT OUTPUT UNLESS ANOTHER BF, DIMMER, OR BR-LEVEL CONTROL IS INDICATED. 4. SOUND RATING: CLASS 1. 5. TOTAL HARMONIC DISTORTION RATING: LESS THAN 10 PERCENT. 6. TRANSIENT VOLTAGE PROTECTION: IEEE C62.41.1 AND IEEE C62.41.2, CATEGORY A OR BETTER. 7. OPERATING FREQUENCY: 42 KHZ OR HIGHER. 8. LAMP CURRENT GREST FACTOR: 1.7 OR LESS. 9. BF: 0.05 OR HIGHER UNLESS OTHERWISE INDICATED. 10. POWER FACTOR: 0.95 OR HIGHER. 11. PARALLEL LAMP CIRCUITS: MULTIPLE LAMP BALLASTS SHALL COMPLY WITH ANSI C82.11 AND BE CONNECTED TO MAINTAIN FULL LIGHT OUTPUT ON SURVIVING LAMPS IF ONE OR MORE LAMPS FAIL.
B. LUMINAIRE CONTROLLED BY OCCUPANCY SENSORS SHALL HAVE PROGRAMMED-START BALLASTS.
C. ELECTRONIC PROGRAMMED-START BALLASTS FOR 18 AND 25 T5HO LAMPS: COMPLY WITH ANSI C82.11 AND THE FOLLOWING: 1. LAMP END-OF-LIFE DETECTION AND SHUTDOWN CIRCUIT FOR T5 DIAMETER LAMPS. 2. AUTOMATIC LAMP STARTING AFTER LAMP REPLACEMENT.
D. ELECTROMAGNETIC BALLASTS: COMPLY WITH ANSI C82.1; ENERGY SAVING, HIGH-POWER FACTOR, CLASS P, AND HAVING AUTOMATIC-RESET THERMAL PROTECTION.
E. BALLAST MANUFACTURER CERTIFICATION: INDICATED BY LABEL.
F. SINGLE BALLASTS FOR MULTIPLE LIGHTING FIXTURES: FACTORY WIRED WITH BALLAST ARRANGEMENTS AND BUNDLED EXTENSION WIRING TO SUIT FINAL INSTALLATION CONDITIONS WITHOUT MODIFICATION OR REMWIRING IN THE FIELD.
G. BALLASTS FOR COMPACT FLUORESCENT LAMPS: DESCRIPTION: ELECTRONIC-PROGRAMMED RAMP-START TYPE, COMPLYING WITH UL 935 AND WITH ANSI C 82.11, DESIGNED FOR TYPE AND QUANTITY OF LAMP INDICATED. BALLAST SHALL BE DESIGNED FOR FULL LIGHT OUTPUT UNLESS DIMMER OR BR-LEVEL CONTROL IS INDICATED. 1. LAMP END-OF-LIFE DETECTION AND SHUTDOWN CIRCUIT. 2. AUTOMATIC LAMP STARTING AFTER LAMP REPLACEMENT. 3. SOUND RATING: CLASS 1. 4. TOTAL HARMONIC DISTORTION RATING: LESS THAN 20 PERCENT. 5. TRANSIENT VOLTAGE PROTECTION: IEEE C62.41.1 AND IEEE C62.41.2, CATEGORY A OR BETTER. 6. OPERATING FREQUENCY: 20 KHZ OR HIGHER. 7. LAMP CURRENT GREST FACTOR: 1.7 OR LESS. 8. BF: 0.05 OR HIGHER UNLESS OTHERWISE INDICATED. 9. POWER FACTOR: 0.95 OR HIGHER. 10. INTERFERENCE: COMPLY WITH 47 CFR 18, CH. 1, SUBPART C, FOR LIMITATIONS ON ELECTROMAGNETIC AND RADIO-FREQUENCY INTERFERENCE FOR NONCONSUMER EQUIPMENT.
FLUORESCENT LAMPS
A. T8 RAPID-START LAMPS, RATED 32 W MAXIMUM, NOMINAL LENGTH OF 48 INCHES (1220 MM), 2900 INITIAL LUMENS (MINIMUM), CRI 85 (MINIMUM), COLOR TEMPERATURE 3000 K, AND AVERAGE RATED LIFE 20,000 HOURS UNLESS OTHERWISE INDICATED.
B. T8 RAPID-START LAMPS, RATED 17 W MAXIMUM, NOMINAL LENGTH OF 24 INCHES (610 MM), 1300 INITIAL LUMENS (MINIMUM), CRI 85 (MINIMUM), COLOR TEMPERATURE 3000 K, AND AVERAGE RATED LIFE OF 20,000 HOURS UNLESS OTHERWISE INDICATED.
C. T5 RAPID-START LAMPS, RATED 28 W MAXIMUM, NOMINAL LENGTH OF 45.2 INCHES (1150 MM), 2900 INITIAL LUMENS (MINIMUM), CRI 85 (MINIMUM), COLOR TEMPERATURE 3000 K, AND AVERAGE RATED LIFE OF 20,000 HOURS UNLESS OTHERWISE INDICATED.
D. T5HO RAPID-START, HIGH-OUTPUT LAMPS, RATED 54 W MAXIMUM, NOMINAL LENGTH OF 45.2 INCHES (1150 MM), 5000 INITIAL LUMENS (MINIMUM), CRI 85 (MINIMUM), COLOR TEMPERATURE 4100 K, AND AVERAGE RATED LIFE OF 20,000 HOURS UNLESS OTHERWISE INDICATED.
E. COMPACT FLUORESCENT LAMPS: 4-PIN, CRI 80 (MINIMUM), COLOR TEMPERATURE 3000 K, AVERAGE RATED LIFE OF 10,000 HOURS AT THREE HOURS OPERATION PER START, AND SUITABLE FOR USE WITH DIMMING BALLASTS UNLESS OTHERWISE INDICATED. 1. 13 W T4, DOUBLE OR TRIPLE TUBE, RATED 900 INITIAL LUMENS (MINIMUM). 2. 18 W T4, DOUBLE OR TRIPLE TUBE, RATED 1200 INITIAL LUMENS (MINIMUM). 3. 26 W T4, DOUBLE OR TRIPLE TUBE, RATED 1800 INITIAL LUMENS (MINIMUM). 4. 32 W T4, TRIPLE TUBE, RATED 2400 INITIAL LUMENS (MINIMUM). 5. 42 W T4, TRIPLE TUBE, RATED 3200 INITIAL LUMENS (MINIMUM). 6. 57 W T4, TRIPLE TUBE, RATED 4300 INITIAL LUMENS (MINIMUM). 7. 70 W T4, TRIPLE TUBE, RATED 5200 INITIAL LUMENS (MINIMUM).
LED LAMPS
A. MINIMUM LUMENS PER SCHEDULED FIXTURE.
B. MINIMUM ALLOWABLE EFFICACY OF 85 LM/W.
C. MATCH BOX DIMENSIONS; FOR FLUSH-MOUNTED FRONTS, OVERLAP BOX.
D. RATED LAMP LIFE OF 50,000 HOURS TO L70.
E. DIMMABLE FROM 100 PERCENT TO 1 PERCENT OF MAXIMUM LIGHT OUTPUT.
F. INTERNAL DIMMING: 1. BULL SHAPE COMPLYING WITH ANSI C87.9. 2. LAMP BASE COMPLYING WITH ANSI C81.61 OR IEC 60061-1.
WIRING DEVICES
A. MANUFACTURERS: 1. COPPER WIRING DEVICES. 2. HUBBELL INCORPORATED; WIRING DEVICE-KELLUMS 3. LEVITON MFG. COMPANY INC. 4. PASS & SEMOUR/LEGARD; WIRING DEVICES & ACCESSORIES
B. ALL WIRING DEVICES TO BE WHITE OR COLOR AS SELECTED BY ARCHITECT.
C. STRAIGHT BLADE RECEPTACLES: CONVENIENCE RECEPTACLES, 125 V, 20 A: COMPLY WITH NEMA WD 1, NEMA MD 6 CONFIGURATION 5-200 AND 100-100. EQUIPMENT: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE ONE OF THE FOLLOWING: 1. LEVITON; 16341-1W (SINGLE), 16362-1W (DUPLEX). 2. ANY EQUAL, BY ABOVE LISTED MANUFACTURERS.
D. ISOLATED-GROUND, DUPLEX CONVENIENCE RECEPTACLES, 125 V, 20 A: COMPLY WITH NEMA WD 1, NEMA MD 6, UL 498, AND UL 943, CLASS A, AND INCLUDE INDICATOR LIGHT THAT IS LIGHTED WHEN DEVICE IS TRIPPED AND UNLIT WHEN DEVICE IS RESET. SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE ONE OF THE FOLLOWING: 1. LEVITON; 16362-1W. 2. ANY EQUAL, BY ABOVE LISTED MANUFACTURERS. DESCRIPTION: STRAIGHT BLADE, EQUIPMENT GROUNDING CONTACTS SHALL BE CONNECTED ONLY TO THE GREEN GROUNDING SCREW TERMINAL OF THE DEVICE AND WITH INHERENT ELECTRICAL ISOLATION FROM MOUNTING STRAP. ISOLATION SHALL BE INTEGRAL TO RECEPTACLE CONSTRUCTION AND NOT DEPENDENT ON REMOVABLE PARTS.
E. GPO RECEPTACLES: GENERAL DESCRIPTION: STRAIGHT BLADE, FEED-THROUGH TYPE. COMPLY WITH NEMA WD 1, NEMA MD 6, UL 498, AND UL 943, CLASS A, AND INCLUDE INDICATOR LIGHT THAT IS LIGHTED WHEN DEVICE IS TRIPPED AND UNLIT WHEN DEVICE IS RESET. SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE ONE OF THE FOLLOWING: 1. LEVITON; 7899-W. 2. ANY EQUAL, BY ABOVE LISTED MANUFACTURERS.
F. SNAP SWITCHES, COMPLY WITH NEMA WD 1 AND UL 20. SWITCHES, 120/277 V, 20 A: PRODUCTS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE ONE OF THE FOLLOWING: 1. LEVITON; 5621-2W (SINGLE POLE), 5622-2 (TWO POLE), 5623-2 (THREE WAY) 2. ANY EQUAL, BY ABOVE LISTED MANUFACTURERS.
G. WALL-BOX DIMMERS, DIMMER SWITCHES: MODULAR, FULL-WAVE, SOLID-STATE TYPES WITH INTEGRAL, QUIET ON-OFF SWITCHES, WITH AUDIBLE FREQUENCY AND EM/RFI SUPPRESSION FILTERS. CONTROL: CONTINUOUSLY ADJUSTABLE SLIDER, WITH SINGLE-POLE OR THREE-WAY SWITCHING. COMPLY WITH UL 1472. 1. INCANDESCENT LAMP DIMMERS: 120 V; CONTROL SHALL FOLLOW SQUARE-LAW DIMMING CURVE. ON-OFF SWITCH POSITIONS SHALL BYPASS DIMMER MODULE. 2000 W; DIMMERS SHALL REQUIRE NO DERATING WHEN GANGED WITH OTHER DEVICES. 2. FLUORESCENT LAMP DIMMER SWITCHES: MODULAR; COMPATIBLE WITH DIMMER BALLASTS; TRIM POTENTIOMETER (ADJUSTABLE). 3. DIMMER SWITCHES: DIMMER-BALLAST COMBINATION. CAPABLE OF CONSISTENT DIMMING WITH LOW END NOT GREATER THAN 20 PERCENT OF FULL BRIGHTNESS. 3. ACCEPTABLE MANUFACTURERS: LUTRON, LEVITON.
H. VACANCY/OCCUPANCY SENSORS, WALL-SWITCH SENSORS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE ONE OF THE FOLLOWING: 1. LUTRON; MS-B102. (PROGRAMMED FOR VACANCY OR OCCUPANCY OPERATION AS SHOWN) 2. ANY EQUAL, BY NOVATAS, WATTSTOPPER, LEVITON OR SENSOARY SWITCH.
DESCRIPTION: DUAL TECHNOLOGY TYPE, 120/277 V, ADJUSTABLE TIME DELAY UP TO 20 MINUTES, 180-DEGREE FLEW OF VIEW, WITH A MINIMUM COVERAGE AREA OF 900 SQ. FT. (81 SQ. M). MANUAL-ON/AUTO-OFF OR AUTO-ON TO 50%/AUTO-OFF.
I. WALL PLATES, SINGLE AND COMBINATION TYPES TO MATCH CORRESPONDING WIRING DEVICES. PLATE-SECURING SCREWS: METAL WITH HEAD COLOR TO MATCH PLATE FINISH. 1. MATERIAL FOR FINISHED SPACES: SMOOTH, HIGH-IMPACT THERMOPLASTIC 0.035-INCH- (3/4-MM-) THICK. 2. MATERIAL FOR UNFINISHED SPACES: SMOOTH, HIGH-IMPACT THERMOPLASTIC. 3. MATERIAL FOR DAMP LOCATIONS: THERMOPLASTIC WITH SPRING-LO

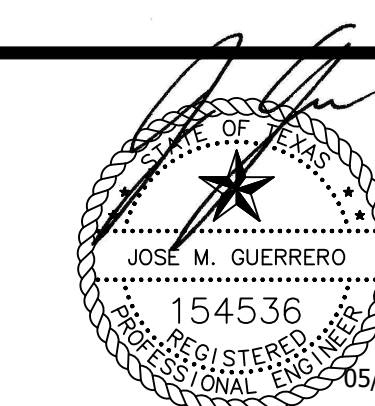


ISSUED FOR CLIENT APPROVAL	DATE
ISSUED FOR BIDDING	05/08/2026
ISSUED FOR PERMIT	05/08/2026
ISSUED FOR CONSTRUCTION	

REVISIONS

MARK	DESCRIPTION	DATE
	90% REVIEW SET	2026/04/07
	PERMIT AND BID SET	2026/05/08

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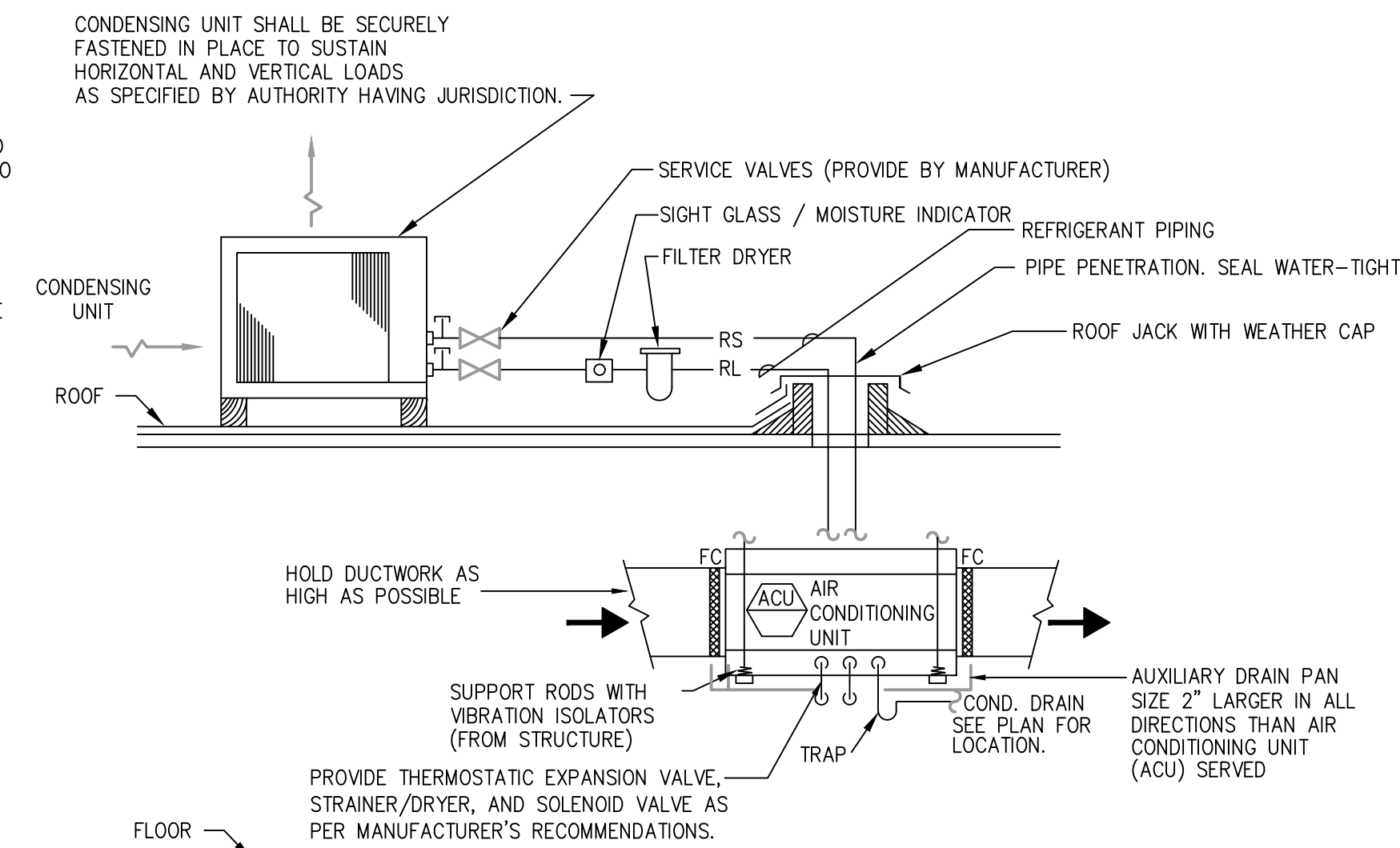
DRAWING TITLE
MECHANICAL DETAILS

SHEET NO.

M3.01

NOTES:

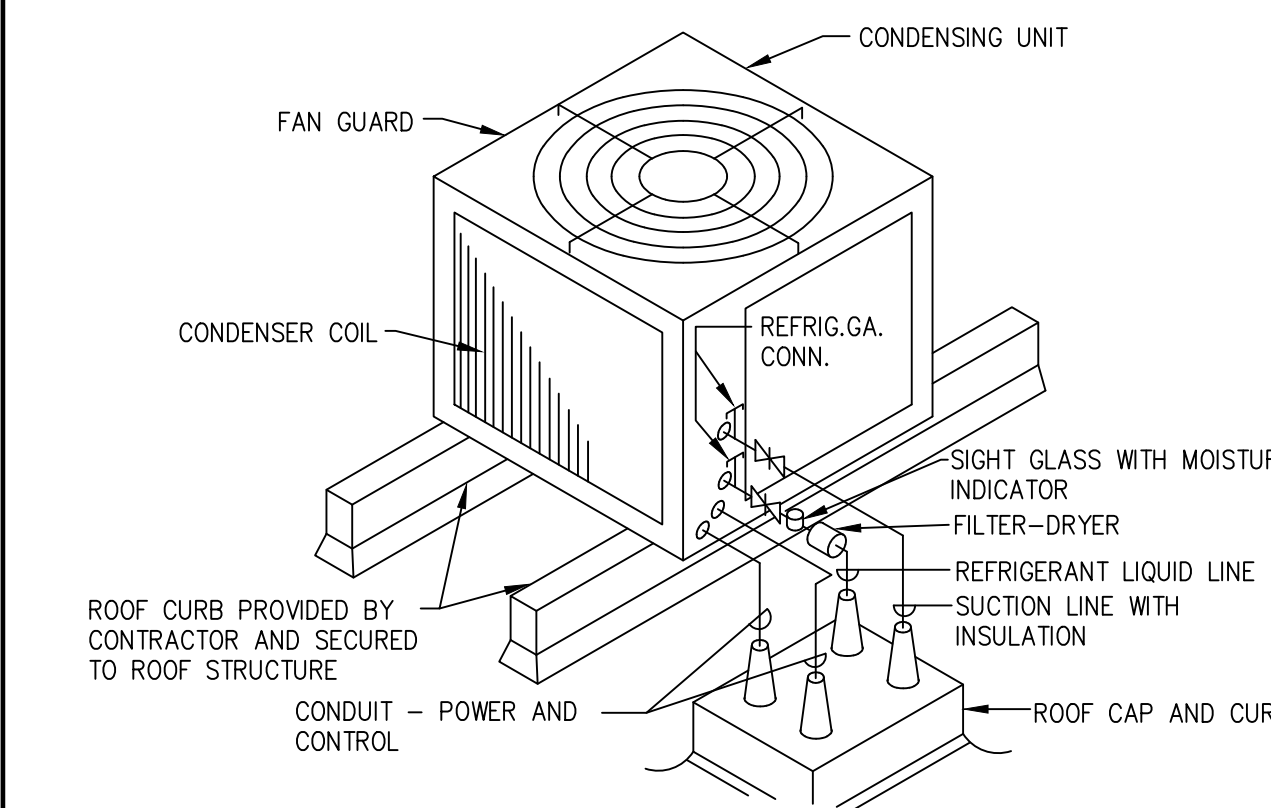
- AIR CONDITIONING UNIT TO BE INSTALLED AS HIGH AS POSSIBLE COORDINATE ACU LOCATION WITH STRUCTURAL AND ARCHITECTURAL ELEMENTS TO MAINTAIN REQUIRED ACCESS TO MOTORS, FILTERS, VALVES, AND ACCESS TO PANEL ON UNIT. CONTRACTOR SHALL BE RESPONSIBLE FOR KEEPING WORKING CLEARANCES FREE OF PIPING, CONDUIT, DUCTS, AND OTHER OBSTRUCTIONS.
- PROVIDE FLEXIBLE CONNECTION AT FAN COIL UNIT DISCHARGE & RETURN AIR PLENUM. REFRIGERANT LINES SIZED AS PER MANUFACTURER RECOMMENDATIONS. COORDINATE PIPE ROUTING WITH FILTER REMOVAL ACCESS. PITCH LINES IN DIRECTION OF REFRIGERANT FLOW TO FACILITATE OIL RETURN TO COMPRESSOR.
- REFRIGERANT LINES SHALL BE TYPE "L" HARD DRAWN "ACR" TUBING THAT HAS BEEN CLEANED AND CAPPED FOR REFRIGERATION SERVICE. FITTINGS SHALL BE WROUGHT COPPER AND SHALL BE INSTALLED WITH SILVER SOLDER JOINTS.
- SUCTION LINE INSULATION SHALL BE EQUAL TO ARMSTRONG JACKET HAVING STRAPS AT 12" ON CENTER. INSTALL INSULATION AND METAL JACKET PER MANUFACTURER'S RECOMMENDATIONS.
- PROVIDE CONDUCTIVITY SWITCH IN AUXILIARY DRAIN PAN TO DE-ENERGIZE FAN COIL UNIT WHEN WATER IS DETECTED IN AUXILIARY DRAIN PAN.
- PRIOR TO EQUIPMENT INSTALLATION FINAL LOCATIONS SHALL BE APPROVED BY THE OWNER OR PROJECT ARCHITECT.



A/C SYSTEM W/ HORZ. AIR HANDLING + ROOF MOUNTED CONDENSING UNIT. TYPICAL. 01

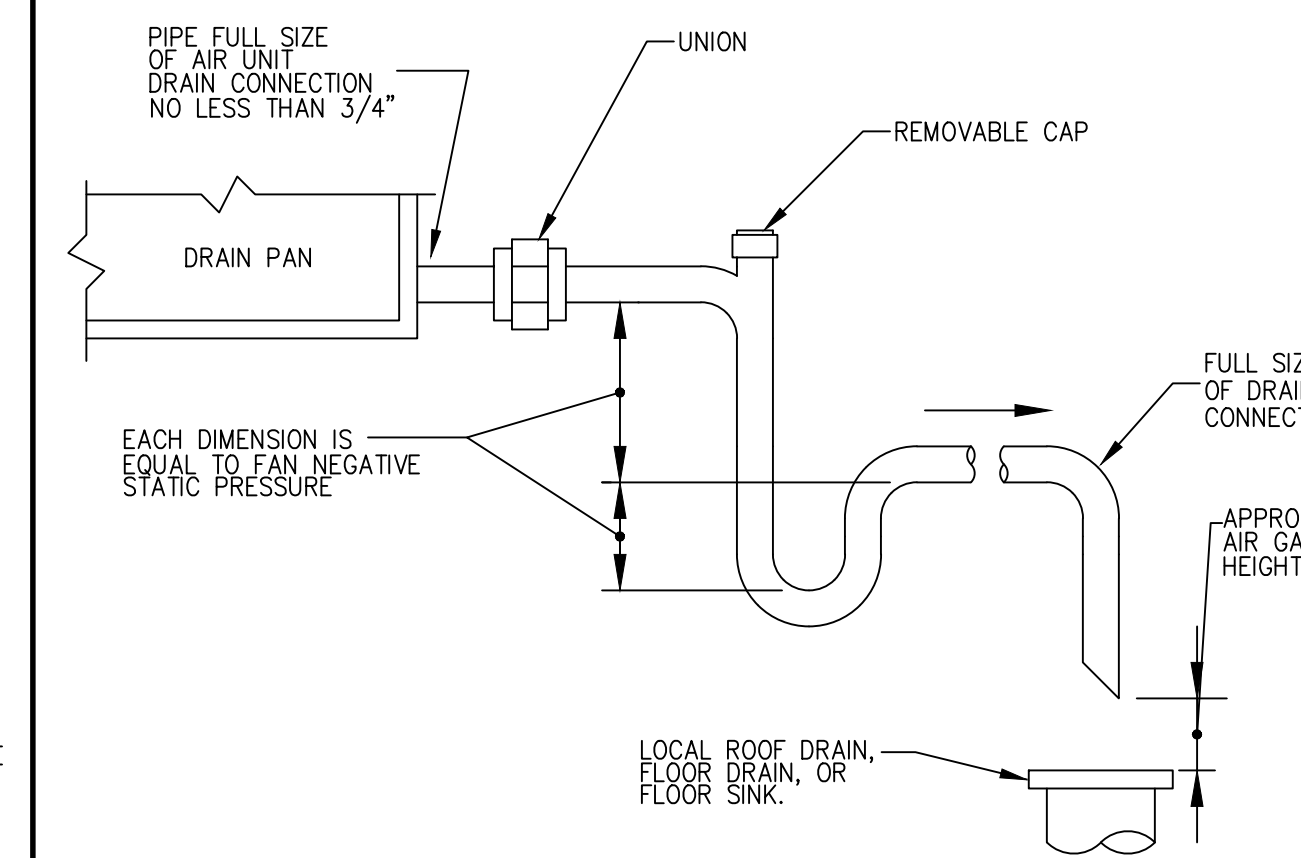
SCALE: NONE

NOTE: ROOF CURB TO BE PROVIDED BY MECHANICAL CONTRACTOR AND ALL FLASHING AND ROOFING TO BE PERFORMED BY CERTIFIED ROOFING CONTRACTOR. UNIT TO BE SECURED TO CURB USING INTEGRAL ATTACHMENT POINTS ON BOTTOM OF UNIT.



ROOFTOP CONDENSING UNIT 03

SCALE: NONE



NOTE:

- LOCATE TRAPS SA AS TO BE ACCESSIBLE FOR CLEANING.
- TO DETERMINE OFFSET, SUBTRACT SCHEDULED E.S.P. FROM T.S.P. THEN ADD 1".
- ROUTE TO NEAREST SANITARY DRAIN.

CONDENSATE DRAIN 02

SCALE: NONE

FOR QUESTIONS, CALL
FERNANDO JIMENEZ - ZIYAD DABOU - SERGIO CAMARILLO
reg126@captiveaire.com

PHONE: (346) 330-2007 FAX: 919-516-8746

HOOD INFORMATION - JOB#8656497

HOOD NO	TAG	MODEL	MANUFACTURER	LENGTH	MAX COOKING TEMP	TYPE	APPLIANCE DUTY	DESIGN CFM/FT	TOTAL EDH CFM	EXHAUST PLENUM (RISER(S))						HOOD CONSTRUCTION	HOOD CONFIG		
										WIDTH	LENG	HEIGHT	DIA	CFM	VEL		SP	END TO	ROW
1		R024 ND-2	CAPTIVEAIRE	7' 11"	600 DEG	1	HEAVY	202	1600			4"	14"	1600	1487	-0.612"	430 SS WHERE EXPOSED	ALONE	ALONE

HOOD INFORMATION

HOOD NO	TAG	FILTER(S)				LIGHT(S)				UTILITY CABINET(S)				FIRE SYSTEM PIPING	HOOD HANGING WEIGHT
		TYPE	QTY	HEIGHT	LENGTH	EFFICIENCY @ 7 MICRONS	QTY	TYPE	WIRE GUARD	LOCATION	SIZE	FIRE SYSTEM	ELECTRICAL		
1		CAPTRATE SOLO FILTER	5	20"	16"	85% SEE FILTER SPEC	2	RECESSED ROUND	NO					YES	454 LBS

HOOD OPTIONS

HOOD NO	TAG	OPTION
1		FIELD WRAPPER 18.00" HIGH FRONT, LEFT, RIGHT. BACKSPLASH 80.00" HIGH X 96.00" LONG 430 SS VERTICAL. LEFT SIDESPLASH 80.00" HIGH X 80.00" LONG 430 SS VERTICAL. LEFT END STANDOFF (FINISHED) 1" WIDE 60" LONG INSULATED. RIGHT VERTICAL END PANEL 27" TOP WIDTH, 21" BOTTOM WIDTH, 80" HIGH INSULATED 430 SS.

WALL-MOUNT UTILITY CABINET

HOOD NO	LOCATION	SIZE	UTILITY CABINET(S)				WEIGHT
			TYPE	SIZE	MODEL #	QUANTITY	
1	WALL MNT	12"x30"x30"	TANK FS	4.0/4.0	SC-31110MA	1 LIGHT 1 FAN	340.00 LBS

EXHAUST FAN INFORMATION - JOB#8656497

FAN UNIT NO	TAG	QTY	FAN UNIT MODEL #	MANUFACTURER	CFM	ESP	RPM	MOTOR ENCL	HP	BHP	PHASE	VOLT	FLA	DISCHARGE VELOCITY	WEIGHT (LBS)	SONES
1	KEF-1	1	USB150D-RM	CAPTIVEAIRE	1600	2.000	1623	ODP, PREMIUM	1.500	0.9230	3	208	4.4	1112 FPM	372	18.4

DOAS/RTU FAN SCHEDULE - JOB#8656497

FAN UNIT NO	TAG	QTY	DOAS/RTU MODEL #	MANUFACTURER	BLOWER	TOTAL CFM	MAX OUTSIDE AIR CFM	RETURN AIR CFM	WEIGHT (LBS)	ESP	HP	ELECTRICAL INFORMATION										REHEAT INFORMATION				ELECTRIC HEAT INFORMATION				A2L MINIMUM ROOM VOLUME			NOTES					
												PHASE	VOLT	MCA	MOCP	OUTSIDE AIR		LEAVING AIR		CAPACITY		IEER	ISMRE2	DISCHARGE		CAPACITY		MOISTURE REMOVAL RATE	DSGN. KW'S	MAX. KW'S	VOLTS	AMPS		TEMP RISE	ROOM AREA (FT2)	AIRFLOW (CFM)	HEIGHT (FT)	
																DB	WB	DB	WB	DP	TOTAL			SENS.	DB	WB	DESIRE											MAX
2	DOAS-1	1	CAS-HVAC-E.402-15-10T-DOAS	CAPTIVEAIRE	1SP-1	1280	1280	0	1500	0.750	1.50	3	208	103.7A	110A	88.4F	79.8F	53.4F	53.4F	53.4F	118.2 MBH	48.7 MBH	14.2	6.2	75.0F	62.0F	30.9 MBH	71.9 MBH	61.4 LBS/HR	25	40	208	96.2	58 F	345.1	621	7.2	1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18

NOTES:

- INVERTER SCROLL COMPRESSOR WITH INTEGRATED OIL SENSOR. DIGITAL OR STAGED SCROLL NOT AN APPROVED EQUAL
- DIRECT DRIVE PLENUM BLOWER. BELT DRIVEN BLOWERS ARE NOT ACCEPTABLE
- INTEGRATED MONITORING VIA CELLULAR CONNECTION BY MANUFACTURER
- REFRIGERATION PRESSURE MONITORING ON HIGH AND LOW PRESSURE SIDE OF SYSTEM INCLUDED THROUGH DIGITAL INTERFACE
- EC MOTOR CONDENSING FANS
- ELECTRONIC EXPANSION VALVE. TXV NOT ACCEPTABLE
- SUCTION LINE ACCUMULATOR
- FACTORY COMMISSIONING WITH 5 YEAR PARTS WARRANTY
- AVERAGING INTAKE, EVAP AND DISCHARGE TEMPERATURE SENSORS (DISCHARGE SENSOR TO BE FACTORY MOUNTED WITHIN UNIT)
- SUPPLY CFM MONITORING INTEGRAL TO UNIT WITH CFM MEASUREMENT INCLUDED THROUGH DIGITAL INTERFACE
- FULLY MODULATING HOT GAS REHEAT
- LOW AMBIENT COOLING OPERATION DOWN TO 0F
- HALL GUARD FOR CONDENSING COIL
- 1" EXTERIOR DUAL-WALL CONSTRUCTION W/ R-4.3 INSULATION-MINIMUM 24GA EXTERIOR W/ 18GA BASE
- SIDE DISCHARGE/NO RETURN
- SINGLE POINT POWER CONNECTION FOR UNIT & ELECTRIC HEATER
- MINIMUM ROOM AREA ASSUMED 7.2' SUPPLY DIFFUSER HEIGHT AND IS CALCULATED PER UL60335-2-40 4TH ED. VALUES BASED ON FACTORY CHARGE. ACTUAL SITE CHARGE MAY DIFFER.

SCALE: N.T.S.



2603 Southwest Frwy, Ste 170, Stafford, TX 77477
Tel: (713) 840-0177 / Firm Reg. No: 5638

PM	MECH	ELEC	PLBG	CHCK
JG	THV	JG	BM	JG



ARCHITECTURE PLANNING INTERIOR DESIGN

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www.sligroup.com

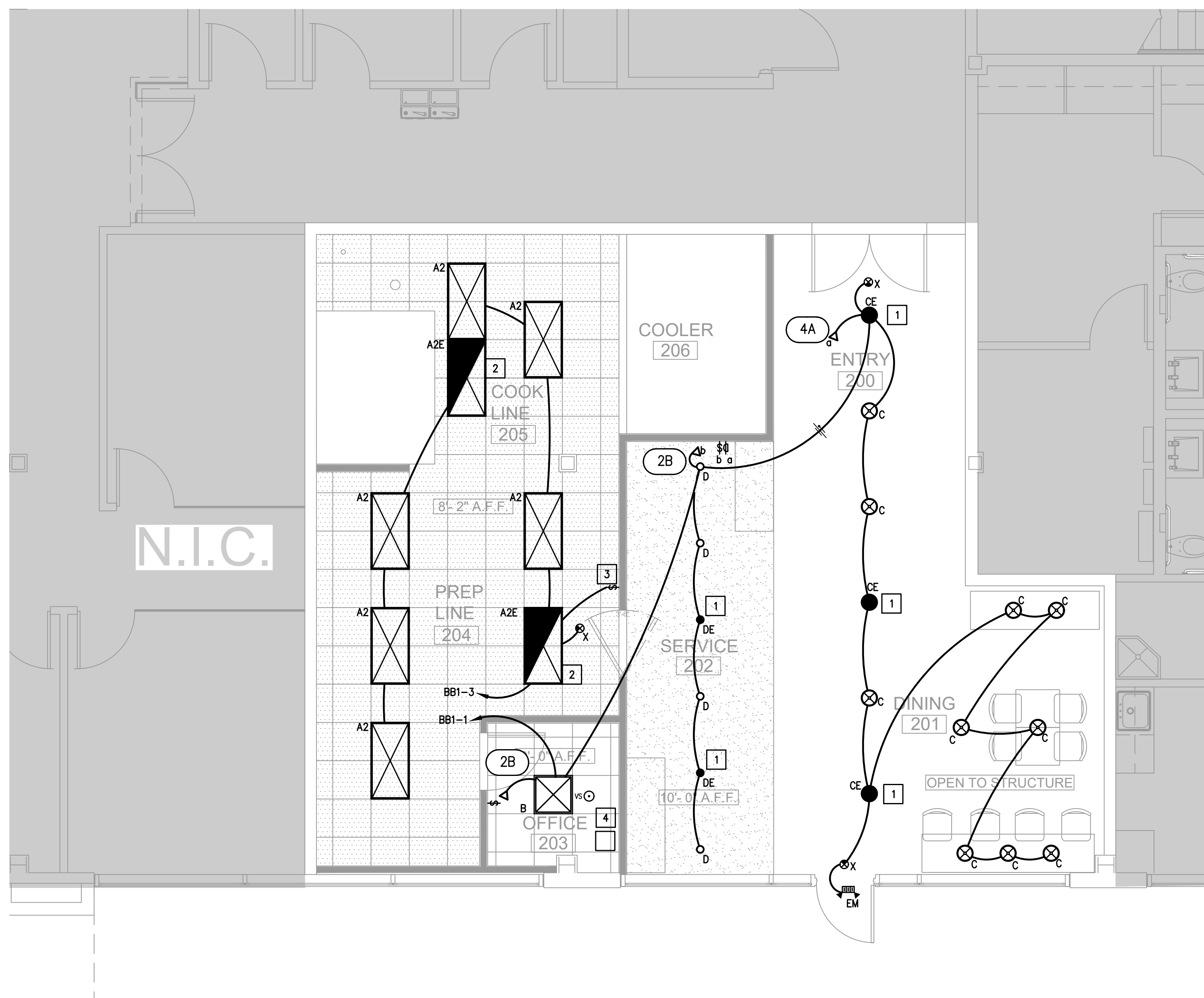
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BAGEL BEE



400 W. DAVIS, SUITE 110
CONROE, TX 77301

E/B/E Project Number : 26049.00



ELECTRICAL LIGHTING KEYED NOTES:

- 1 CROSS HATCHING INDICATES EMERGENCY LIGHTING. CONNECT TO FLOOR EMERGENCY LIGHTING CIRCUIT. VERIFY LOAD DOES NOT EXCEED 1900V.A. PER 20A., 120V. CIRCUIT. FIXTURE TO RUN CONTINUOUSLY AND UN-SWITCHED.
- 2 CROSS HATCHING INDICATES EMERGENCY LIGHTING. CONNECT TO FLOOR EMERGENCY LIGHTING CIRCUIT. VERIFY LOAD DOES NOT EXCEED 1900V.A. PER 20A., 120V. CIRCUIT. PROVIDE RELAY SO THAT FIXTURE IS SWITCHED UNDER NORMAL OPERATIONS.
- 3 PROVIDE ON/OFF TOGGLE SWITCH AT THIS LOCATION.
- 4 PROVIDE A 250VA, 90-MINUTE INVERTER FOR ALL EM LIGHT FIXTURES. REFER TO LIGHT FIXTURE SCHEDULE FOR ADDITIONAL INFORMATION. COORDINATE EXACT LOCATION ABOUT CEILING PRIOR TO COMMENCEMENT OF WORK.

ELECTRICAL LIGHTING CONTROL NOTES:

- 1. TIMECLOCK TO BE INTERMATIC ET2100 SERIES WITH TWO INDEPENDENT OUTPUTS AND HOLIDAY FUNCTION.
TIME CLOCK FEATURES:
A. 365-DAY PROGRAMMABLE CLOCK WITH 48 ON/OFF FEATURES.
B. AUTOMATIC DAYLIGHT SAVING TIME (DST) ON/OFF ADJUSTMENT.
C. NON-VOLATILE EEPROM MEMORY FOR LIFETIME PROGRAMMING PROTECTION.
D. TEMPORARY OVERRIDE OR PERMANENT MANUAL OVERRIDE AVAILABLE VIA CONTROL BUTTONS.
E. ADDITIONAL MODE OF OPERATION ALLOWS FOR ON/OFF BUTTONS TO BECOME A 2 HOUR OVERRIDE CONTROL.
F. 100-HOUR SUPERCAPACITOR ELIMINATES BATTERY DEPENDENCY.
G. 50 HOLIDAY BLOCKS WITH SCHEDULES.
- 2. CIRCUIT TO BE CONTROLLED BY TIMECLOCK OUTPUT
BB1-7 SIGN

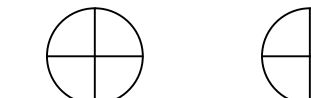
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REVISIONS		
MARK	DESCRIPTION	DATE
	90% REVIEW SET	2026/04/07
	PERMIT AND BID SET	2026/05/08

The information, ideas, designs, details, layouts, techniques, features, arrangements, plans, sequences, dimensions, allowances, tolerances, conceptions, specifications, intentions, technology or embodiments, as illustrated, arranged, displayed, noted, recorded, indicated, represented, disclosed, evidenced, detailed or otherwise reduced to tangible form herein, either expressly, inherently or by implication, are the confidential and proprietary information of SLI Design, Inc., and shall not be used for any purpose other than the specific project or undertaking identified on the drawing title block or legend for which they are and have been prepared by SLI Design, Inc. Any other reproduction, disclosure or use of any portion of the confidential and proprietary information of SLI Design, Inc., shall be a breach of the obligation of confidence created by the acceptance of this drawing from SLI Design, Inc. for a specific project or Contract. Any copying, duplicating, reproducing, utilization, alteration, modification, revision or change to this drawing, is expressly prohibited unless done with the prior written consent or approval of SLI Design, Inc., and shall not be undertaken without receipt of such prior written approval. This drawing is loaned by SLI Design, Inc., for the limited purpose of complying with a specific Contract. The drawing remains the property of SLI Design, Inc., and shall be returned upon request or completion of the contract, unless specifically authorized by Contract, under which it was loaned.

01 ELECTRICAL LIGHTING PLAN - LEVEL 01
SCALE: 1/4"=1'-0"

TRUE NORTH PLAN NORTH

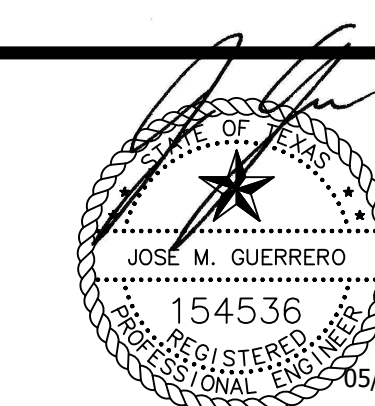


SCALE: 1/4"=1'-0"



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Tel: (713) 840-0177 / Firm Reg. No: 5638

PM	MECH	ELEC	PLBG	CHCK
JG	THV	JG	BM	JG



DRAWING TITLE
ELECTRICAL LIGHTING PLAN

SHEET NO.

E1.01

GENERAL NOTES:

- ALL CONTRACT DOCUMENTS (SPECIFICATIONS AND DRAWINGS), I.E., ARCHITECTURAL, STRUCTURAL, MECHANICAL, PLUMBING, FIRE PROTECTION AND ELECTRICAL ARE COMPLEMENTARY AND MUST BE USED IN COMBINATION TO OBTAIN COMPLETE CONSTRUCTION INFORMATION.
- ALL CONFLICTS, WHICH MAY PREVENT THE COMPLETION OF WORK AS INTENDED, SHALL BE BROUGHT TO THE ARCHITECT'S ATTENTION. THE CONTRACTOR SHALL NOT PROCEED WITH ANY RELATED WORK UNTIL ALL CONFLICTS ARE RESOLVED AND THE CLARIFYING INFORMATION IS ISSUED TO THE CONTRACTOR BY THE ARCHITECT.
- IT IS THE INTENTION OF THESE DRAWINGS TO CALL FOR FINISHED WORK, I.E., FULLY ADJUSTED, TESTED, AND READY FOR OPERATION. WHEREVER THE WORD "PROVIDE" IS USED, IT SHALL MEAN, "FURNISH AND INSTALL COMPLETE AND READY FOR USE."
- THE PLUMBING DRAWINGS ARE DIAGRAMMATIC AND DO NOT NECESSARILY SHOW EVERY COMPONENT AND/OR ACCESSORY REQUIRED FOR A COMPLETE INSTALLATION. THE CONTRACTOR SHALL INCLUDE SUCH ITEMS AS ARE REQUIRED TO ENSURE THAT THE ENTIRE SYSTEM IS FUNCTIONING IN COMPLIANCE WITH APPLICABLE CODES, ACCEPTED INDUSTRY STANDARDS, AND MANUFACTURER'S INSTALLATION REQUIREMENTS/RECOMMENDATIONS UPON COMPLETION OF THE WORK.
- ALL CUTTING, DRILLING AND PATCHING OF WALLS, FLOORS, AND/OR STRUCTURAL MEMBERS FOR THE INSTALLATION OF THE PLUMBING AND FIRE PROTECTION SYSTEMS SHALL BE PROVIDED. STRUCTURAL COMPONENTS SHALL NOT BE CUT, DRILLED OR MODIFIED IN A WAY WITHOUT THE STRUCTURAL ENGINEER'S REVIEW AND PRIOR WRITTEN APPROVAL.
- PROVIDE NFPA APPROVED FIRE STOPPING WHERE PIPES PENETRATE FIRE RATED FLOORS AND WALLS.

PLUMBING NOTES:

- ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH 2009 INTERNATIONAL PLUMBING CODE.
- ALL SOIL AND WASTE PIPING SHALL BE INSTALLED AT A MAXIMUM OF 1/8" (1%) PER FOOT GRADE UNLESS INDICATED OTHERWISE ON THE DRAWINGS.
- PIPING AND/OR EQUIPMENT SHALL NOT BE SUPPORTED FROM STRUCTURAL MEMBERS WITHOUT PRIOR REVIEW AND APPROVAL FROM THE STRUCTURAL ENGINEER.
- CONTRACTOR IS PROHIBITED FROM USING LEAD-BASED SOLDER.
- PROVIDE ONE (1) TRAP PRIMER VALVE FOR EACH FLOOR DRAIN WITHOUT A CONSTANT SOURCE OF WATER SUPPLY TO MAINTAIN TRAP SEAL. PRIMER VALVE SHALL BE LOCATED IN AN ACCESSIBLE AREA AND CONNECTED TO THE NEAREST 3/4" COLD WATER LINE SERVING A FIXTURE.
- BACK FLOW PREVENTER ASSEMBLY SHALL BE INSTALLED IN AN ACCESSIBLE LOCATION (APPROXIMATELY 4'-0" A.F.F.). PIPE RELIEF VALVE DISCHARGE PIPING TO NEAREST FLOOR DRAIN. DO NOT INSTALL ABOVE FINISHED CEILINGS.
- DOUBLE CHECK VALVE ASSEMBLY SHALL BE INSTALLED IN AN ACCESSIBLE LOCATION (APPROXIMATELY 4'-0" A.F.F.). DO NOT INSTALL ABOVE FINISHED CEILINGS.
- ALL PLUMBING FIXTURES AND EQUIPMENT SHALL CONFORM TO ALL APPLICABLE ENERGY CONSERVATION CODES.
- ALL PIPING, VALVES, AND ACCESSORIES SERVING EQUIPMENT SHALL CONFORM TO ALL APPLICABLE ENERGY CONSERVATION CODES.
- ANCILLARY SYSTEMS NOT ASSOCIATED WITH EQUIPMENT SHALL NOT BE INSTALLED SO AS TO INHIBIT SERVICING AND/OR REMOVAL OF SAID EQUIPMENT.
- STERILIZE DOMESTIC WATER PIPING SYSTEM IN ACCORDANCE WITH STATE AND LOCAL CODES, AND BASE BUILDING SPECIFICATIONS.
- CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING AN ON-SITE FLOW TEST AT THE NEAREST FIRE HYDRANT. THE RESULTS OF THIS TEST SHALL BE SUBMITTED TO THE ENGINEER OF RECORD UPON COMPLETION OF THE TEST.

FIRE PROTECTION NOTES:

- PROVIDE A COMPLETE FULLY AUTOMATIC WET PIPE SYSTEM HYDRAULICALLY CALCULATED IN ACCORDANCE WITH THE STATE FIRE MARSHAL AND THE LATEST EDITION N.F.P.A. 13, 14, AND REQUIREMENTS OF ALL LOCAL AUTHORITIES HAVING JURISDICTION.
- ALL FIRE PROTECTION EQUIPMENT, I.E. PIPING, VALVES, FITTINGS AND ACCESSORIES, ETC. SHALL BE RATED FOR A MAXIMUM WORKING PRESSURE OF 250 PSI.
- PROVIDE PRESSURE REDUCING VALVES AT ALL SPRINKLER SYSTEM AND FIRE DEPARTMENT HOSE CONNECTIONS WHERE PRESSURES EXCEED 175 PSIG IN ACCORDANCE WITH CODE REQUIREMENTS. CONTRACTOR SHALL FIELD PRESSURE TEST SYSTEM AND DETERMINE WHERE PRESSURE REDUCING VALVES ARE REQUIRED.
- USE PIPING AND FITTINGS FOR FIRE SUPPRESSION SYSTEMS WHICH ARE APPROVED FOR USE BY UNDERWRITERS' LABORATORIES AND FACTORY MUTUAL SYSTEM ANDS OF THE FOLLOWING TYPES; AND IN ACCORDANCE WITH NFPA, LOCAL CODES ALL AUTHORITIES HAVING JURISDICTION.
 - o) BLACK STEEL PIPING: MANUFACTURED TO SATISFY ASTM STANDARDS A53 OR A135.
- ALL SPRINKLER PIPING SHALL BE INSTALLED SO THAT ALL PORTIONS OF THE SYSTEM CAN BE DRAINED BACK THROUGH THE DRAIN VALVE WHERE REQUIRED. PROVIDE DRAIN VALVES FOR ALL TRAPPED PORTIONS OF THE SYSTEM.
- ALL FIRE EQUIPMENT THREADS SHALL CONFORM TO LOCAL FIRE DEPARTMENT STANDARDS.
- ALL CONTROL VALVES - CHECK VALVES AND FLOW ALARM SWITCHES LOCATED ABOVE FINISHED CEILING SHALL BE ACCESSIBLE AND HAVE A NOTIFICATION MARKING TAG AS REQUIRED FOR INSPECTION VERIFICATION.
- CONTRACTOR SHALL COORDINATE INSTALLATION OF ALL PLUMBING/SPRINKLER PIPING TO MAINTAIN PROPER CLEARANCES OVER AREA.

PLUMBING LEGEND

SYMBOL	DESCRIPTION
---	SANITARY SEWER PIPING
----	VENT PIPING
----	DOMESTIC COLD WATER
----	DOMESTIC HOT WATER
----	DOMESTIC HOT WATER RETURN
----	EXISTING SANITARY SEWER PIPING
----	EXISTING VENT PIPING
----	EXISTING DOMESTIC COLD WATER
----	EXISTING HOT WATER
----	EXISTING HOT WATER RETURN
----	NEW CONNECTION TO EXISTING
----	ABOVE FINISHED FLOOR
----	BELOW FLOOR
----	GATE VALVE
----	CHECK VALVE
----	PRESSURE RELIEF VALVE
----	UNION
----	PRESSURE GAUGE
----	THERMOMETER
----	CONDENSATE DRAIN LINE
----	EXISTING
----	ITEMS TO BE REMOVED
----	ELBOW UP
----	ELBOW RISE OR DN. THROUGH SLAB
----	FLOOR CLEANOUT
----	CLEANOUT
----	FLOOR DRAIN

DISREGARD LEGEND ITEMS NOT INDICATED ON DRAWINGS

PIPING MATERIAL SCHEDULE

PIPING FUNCTION	PIPING MATERIAL
SANITARY WASTE BELOW GRADE	SCHEDULE 40 PVC
SANITARY WASTE ABOVE GROUND	NO-HUB CAST IRON
SANITARY VENT	NO-HUB CAST IRON
DOMESTIC HOT & COLD WATER	COPPER, TYPE "L" HARD DRAWN
FIRE SPRINKLER ABOVE GROUND	BLACK STEEL SCHEDULE 40

NOTE:
NO HUB COUPLING SHALL HAVE A SHIELD CONSTRUCTED OF 304 CORRUGATED STAINLESS STEEL WITH A MINIMUM THICKNESS OF .016. COUPLING SIZE 1-1/2" 4" SHALL HAVE FOUR (4) BANDS: APPROVED MANUFACTURES HUSKY SD 4000 AND MISSION. NO TWO BANDS ARE ACCEPT

SHOCK ARRESTOR SCHEDULE

SYMBOL	DESCRIPTION	P.D.I. FIXTURE UNIT RATING	TYPE NO. PPP
SA-A	SHOCK ARRESTOR	1-11	SC-500
SA-B	SHOCK ARRESTOR	12-32	SC-750
SA-C	SHOCK ARRESTOR	33-60	SC-1000
SA-D	SHOCK ARRESTOR	61-113	SC-1250

PLUMBING FIXTURE AND CONNECTION SCHEDULE

SYMBOL	DESCRIPTION	SIZE OF CONNECTION					REMARKS	WATER CONSERVATION
		TRAP	SS	SV	CW	HW		
SK-1X	3-COMP. SINK	----	3"	2"	1/2"	1/2"	3 COMPARTMENT SINK & (2) FAUCET SPEC AND FURNISHED BY OWNER, ROUGH-IN AND HOOK-UP BY PLUMBING CONTRACTOR PROVIDE INDIRECT WASTE TO FLOOR SINK WITH 2" AIR GAP, 3/4" HOT AND COLD WATER CONNECTION WITH GATE VALVES 10" A.F.F. DRAINAGE PIPING SHALL BE COPPER TYPE K	
SK-2X	SERVICE SINK	----	3"	2"	1/2"	1/2"	UTILITY SINK & (1) FAUCET SPEC AND FURNISHED BY OWNER, ROUGH-IN AND HOOK-UP BY PLUMBING CONTRACTOR PROVIDE INDIRECT WASTE TO FLOOR SINK WITH 2" AIR GAP, 3/4" HOT AND COLD WATER CONNECTION WITH GATE VALVES 10" A.F.F. DRAINAGE PIPING SHALL BE COPPER TYPE K	
HS-1X	HAND SINK	3"	2"	2"	1/2"	1/2"	NEW HAND SINK & (1) FAUCET BY OWNER. CONTRACTOR TO INSTALL. ROUGH-IN AND HOOK-UP BY PLUMBING CONTRACTOR 1/2" HOT AND COLD WATER CONNECTION WITH GATE VALVES 26" A.F.F.	
HS-2X	HAND SINK	3"	2"	2"	1/2"	1/2"	NEW HAND SINK & (1) FAUCET BY OWNER. CONTRACTOR TO INSTALL. ROUGH-IN AND HOOK-UP BY PLUMBING CONTRACTOR 1/2" HOT AND COLD WATER CONNECTION WITH GATE VALVES 26" A.F.F.	
FD-1	FLOOR DRAIN	3"	3"	3"	1/2"	-	J.R. SMITH FIGURE NO. 2631C-12 OR APPROVED EQUAL 12"x12" PAINTED CAST IRON FLOOR DRAIN WITH SEDIMENT BUCKET, 1/2" GRATE, SIZE AS NOTED ON PLANS, CLAMPING UNIT, TRAP PRIMER TAP AND DEEP SEAL TRAP.	
FS-1	FLOOR SINK	3"	3"	2"	-	-	J.R. SMITH MODEL NO. 3141-12, 12"x12" SQUARE DURACOATED CAST IRON BODY WITH BOTTOM OUTLET NICKEL BRONZE 12"x12" HALF GRATE AND ACID RESISTANT ENAMEL INTERIOR AND ALUMINUM BUCKET, QUAD CLOSE TRAP SEAL. OUTLET SIZE AS SHOWN ON DRAWINGS.	
WF-1	WATER FILTER	-	-	-	3/4"	-	AQUA PURE MODEL NO AP717	
BEP-1	BACKFLOW PREVENTER	-	-	-	SEE PLAN	-	WATTS No. LF7C. 1/4" BACKFLOW PREVENTER WITH LEAD FREE CAST COPPER SILICON ALLOY BODY.	
BEP-2	BACKFLOW PREVENTER	-	-	-	SEE PLAN	-	WATTS No. LF909-SMALL. 1" BACKFLOW PREVENTER WITH AIR GAP FITTING 909-AG-F.	
ATP-1	AUTOMATIC TRAP PRIMER	-	-	-	1/2"	-	PRECISION PRODUCTS "PRIME-RITE" TRAP PRIMER MODEL # PR-500 WITH SS-8 DISTRIBUTION UNIT.	
IMV-1	THERMOSTATIC MIXING VALVE	-	-	-	1/2"	-	SYMMONS NO #8-210-CK THERMOSTATIC MIXING VALVE CONSTRUCTION SHALL BE ROUGH BRASS AND BRONZE WITH BRASS AND STAINLESS STEEL FLOW CONTROL COMPONENTS, WITH INTEGRAL CHECKS AND VALVES. 360 DEGREES HANDLE ADJUSTMENT FOR TEMPERATURE SELECTION. @ 110 F. MAX (SINK)	
TS-1	TIME SWITCH	-	-	-	3/4"	-	TORK ELECTROMECHANICAL 24 HOUR TIME SWITCH POWERED BY A SELF STARTING SYNCHRONOUS MOTOR. INSTALL ON WALL ADJACENT TO CIRCULATING PUMP. COORDINATE WITH ELECTRICAL AND PROVIDE FOR 120V/1/60 HZ POWER REQUIREMENT.	

WATER HEATER SCHEDULE

MARK	SERVICE	STORAGE IN GALLONS	RECOVERY AT 100° RISE	ELECTRICAL	ELEMENT WATTS	MAKE AND MODEL
EW-1	ELECTRIC WATER HEATER	40	50 GPH	240/19/60HZ	15 KW	A.O. SMITH MODEL NO. DSE-40A SINGLE ELEMENT OPERATION

PUMP SCHEDULE

MARK	LOCATION	SERVICE	GPM	HEAD FT.	MIN. EFF.	HP	VOLTS/Ø	MAKE AND MODEL
HWC-1	CEILING	DOMESTIC HOT WATER	8	6	--	1/12	120/1Ø	GRUNDFOS PRODUCT UP 15-29 SU/LC-59896776, 1-1/4" FLANGED, INLINE TYPE PRODUCT TO MEET OR EXCEED THE REQUIREMENTS OF CURRENT IECC MOTOR EFFICIENCY RATINGS.



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E/B/E Project Number : 26049.00

ISSUED FOR CLIENT APPROVAL	DATE
ISSUED FOR BIDDING	05/08/2026
ISSUED FOR PERMIT	05/08/2026
ISSUED FOR CONSTRUCTION	

MARK	DESCRIPTION	DATE
	90% REVIEW SET	2026/04/07
	PERMIT AND BID SET	2026/05/08

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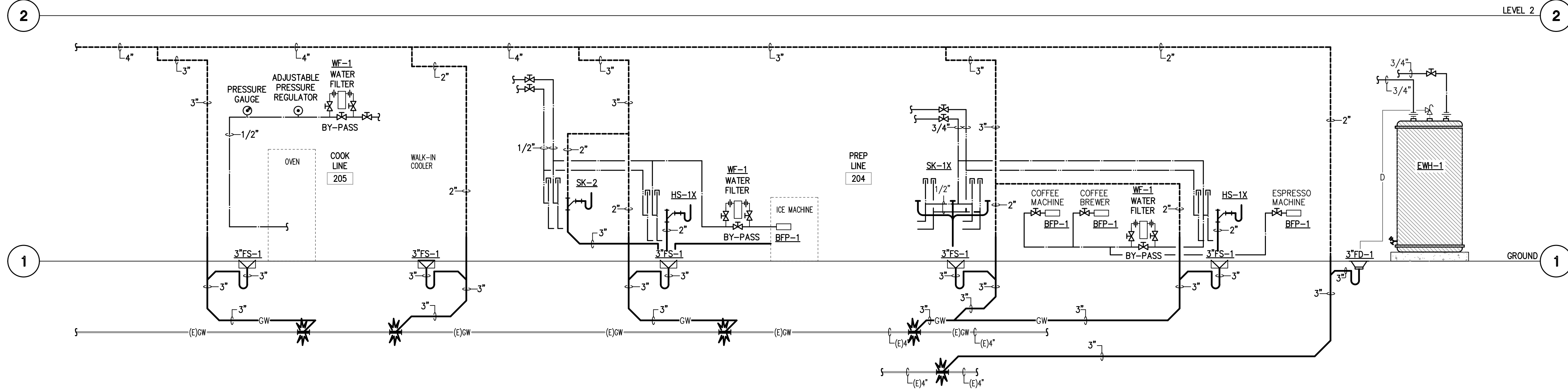
P0.01

SCALE: N.T.S.

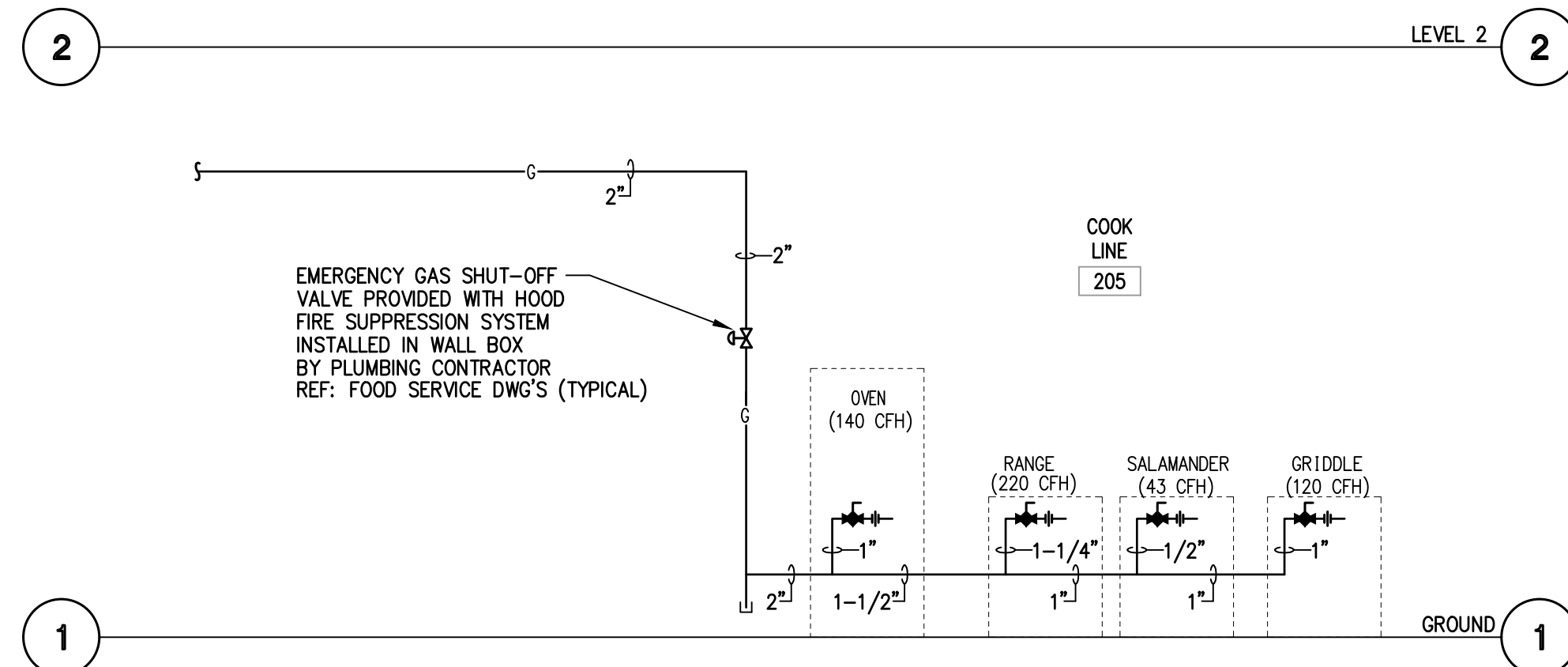
EIBIE Mechanical Electrical Plumbing
CONSULTING ENGINEERS

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Tel: (713) 840-0177 / Firm Reg. No: 5638

PM	MECH	ELEC	PLBG	CHK
JG	THV	JG	BM	JG



01 PLUMBING RISER DIAGRAM - SANITARY
SCALE: NONE



02 PLUMBING RISER DIAGRAM - NATURAL GAS
SCALE: NONE



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PM	MECH	ELEC	PLBG	CHCK
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