

PROPOSED
BUILD-OUT FOR:

AspenDental

GAITHERSBURG, MARYLAND

SYMBOLS LEGEND

DETAIL CALLOUT REFERENCE

DETAIL NUMBER
AREA INCLUDED IN
DETAIL

SHEET NUMBER ON
WHICH DETAIL IS
LOCATED

INTERIOR ELEVATION REFERENCE

DIRECTION OF VIEW
ELEVATION NUMBER

SHEET NUMBER OF
ELEVATIONS

REVISIONS

CLASSIFIES WHICH SEQUENCE THE
CHANGES BELONG TO
(ISSUE DATES ARE LISTED ON SHEET
BORDERS & SHEET INDEX)

REVISION
AD 1

ADDENDUM
CB 1

CONSTRUCTION
BULLETIN

GRAPHICALLY
OUTLINES CHANGES

SECTION CUT REFERENCE

DIRECTION OF CUT
DETAIL NUMBER

SHEET NUMBER ON
WHICH DETAIL IS
LOCATED

VIEW NAME

DETAIL NUMBER
SCALE: 1/8" = 1'-0"

DETAIL SCALE
SHEET NUMBER ON WHICH
DETAIL IS LOCATED

KEYED NOTE

NOTE NUMBER
(SEE KEYNOTE LEGEND -
SAME SHEET)

POINTS TO LOCATION
AFFECTED BY NOTE

ELEVATION MARKER

ITEM OR OBJECT BEING
DEFINED

FLOOR LINE
100'-0"

ELEVATION

SITE PLAN

NOT TO SCALE - FOR REFERENCE ONLY

ROUTE 355 NORTH FREDERICK AVENUE

PHI APPROVAL: SP-8848-2021

EXISTING CONSERVATION EASEMENT

TENANT LOCATION

LOCATION MAP

Indian Restaurant

Costco Wholesale

Gaithersburg Library

Olden Mill Apartment

McDonald's

mbach Sushi

Station Park

Garway Apartments

100 CAMELOT DRIVE

BUILDING LOCATION

PROJECT CONTACTS

CITY OF GAITHERSBURG

PLANNING & CODE ADMINISTRATION
31 S SUMMIT AVE
GAITHERSBURG, MD 20877
P: (301) 258-6330

LANDLORD

MATAN, INC.
CONTACT: PETE IRELAND
100 CAMELOT DRIVE
4600 WEDGEWOOD BLVD
FREDERICK, MD 21703
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PLUMBING & FIRE PROTECTION

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OWNER / CONST. MANAGER

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ELECTRICAL

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PROJECT INFORMATION

PROJECT NAME

ASPEN DENTAL

PROJECT ADDRESS

715 PROGRESS WAY
GAITHERSBURG, MD 20877

PROJECT USE

DENTAL OFFICE - BUSINESS (B)

APPLICABLE CODES

2021 INTERNATIONAL BUILDING CODE
2021 INTERNATIONAL MECHANICAL CODE
2021 INTERNATIONAL FUEL GAS CODE
2021 INTERNATIONAL PLUMBING CODE
2021 INTERNATIONAL ENERGY CONSERVATION CODE
2021 INTERNATIONAL FIRE CODE
2020 NATIONAL ELECTRICAL CODE

USE & OCCUPANCY CLASSIFICATION

OCCUPANCY CLASSIFICATION

BUSINESS GROUP B

OCCUPANCY SEPARATION

MULTI-TENANT BUILDING
FIRE BARRIER FIRE RESISTANCE RATING - 1 HR

BUILDING SIZE

PROPOSED TENANT IMPROVEMENT 3,506 S.F.

BUILDING CONDITION

NEW CONSTRUCTION

TYPE OF CONSTRUCTION

TYPE OF CONSTRUCTION

TYPE II(B)

SEISMIC CATEGORY

CATEGORY A

ALTERATION LEVEL

N/A

INTERIOR FINISHES

WALLS & CEILINGS

INTERIOR WALL & CEILING FINISH CLASS - "B"

FIRE PROTECTION SYSTEMS

AUTOMATIC SPRINKLER SYSTEM

YES - SCOPE DRAWINGS PROVIDED FOR REFERENCE
TO BE A DEFERRED SUBMITTAL BY LOCAL FIRE
PROTECTION ENGINEER OR CONTRACTOR

FIRE ALARM & DETECTION SYSTEM

YES - SCOPE DRAWINGS PROVIDED FOR REFERENCE
TO BE A DEFERRED SUBMITTAL BY LOCAL FIRE ALARM
ENGINEER OR CONTRACTOR

EMERGENCY RESPONDER RADIO COVERAGE

PER SECTION 916.1, EMERGENCY RESPONSE RADIO COVERAGE SHALL BE PROVIDED IN ALL NEW BUILDINGS IN ACCORDANCE WITH THE
INTERNATIONAL FIRE CODE (IFC) SECTION 510.

MEANS OF EGRESS

OCCUPANT LOADS

ROOM OR SPACE DESIGNATION	CLASSIFICATION OCCUPANCY FOR USE	FLOOR AREA (S.F.)	DENSITY SF/PERSON	OCCUPANT LOAD BY CALCULATION	OCCUPANT LOAD BY ACTUAL NO.	OCCUPANT LOAD BY COMBINATION	ROOM OR SPACE TOTAL	OCCUPANTS ACCOUNTED FOR IN OTHER SPACES
1ST FLOOR	BUSINESS	3,506	150 GROSS	23.4	-	-	24	-

EXIT DISTANCE

300' EXIT DISTANCE

EXIT WIDTH

REQUIRED: 3.6'
PROVIDED: 72"

COMMON PATH OF TRAVEL

100' TRAVEL DISTANCE

NO. OF EXITS

2 EXITS

ACCESSIBILITY

ACCESSIBLE ENTRANCES

1

ACCESSIBLE EXITS

2

PLUMBING FIXTURE COUNT

SANITARY FIXTURES

OCCUPANCY		WATER CLOSETS			LAVATORIES		DRINK FOUNTAINS		SERVICE SINK	
TYPE	CAPACITY	FACTORS	# M. FIX.	# F. FIX.	FACTORS	# FIX.	FACTORS	# FIX.	FACTORS	# FIX.
B - GROUP (BUSINESS)	24 PERSONS	1/25	0.48	0.48	1/40	0.6	1/100	0.24	1	1
PROVIDED FIXTURES			1 WC	1 WC		2		0*		1

* = TENANT TO PROVIDE BOTTLED WATER FILLER IN LIEU OF ELECTRIC WATER COOLER

SHEET INDEX

NUMBER	SHEET NAME / DESCRIPTION	REVIEW DATE	SHEET ISSUE DATE	LATEST SHEET REVISION	
				NUMBER	DATE
GENERAL					
T1.0	TITLE SHEET	JUNE 23, 2026	JULY 21, 2026		
T1.01	PLAN REVIEW COMMENTS ONLY	-	JULY 21, 2026		
T1.1	PROJECT INFORMATION & RESPONSIBILITY MATRIX	JUNE 23, 2026	JULY 21, 2026		
T2.0	LANDLORD WORK LETTER	JUNE 23, 2026	JULY 21, 2026		
T3.0	EGRESS AND ACCESSIBILITY PLAN	JUNE 23, 2026	JULY 21, 2026		
ARCHITECTURAL					
A0.1	SPECIFICATIONS	JUNE 23, 2026	JULY 21, 2026		
A1.1	FIRST FLOOR PLAN	JUNE 23, 2026	JULY 21, 2026		
A5.0	ENLARGED PLANS, INTERIOR ELEVATIONS & DETAILS	JUNE 23, 2026	JULY 21, 2026		
A5.1	INTERIOR DETAILS - CASEWORK	JUNE 23, 2026	JULY 21, 2026		
A5.2	INTERIOR DETAILS - FRAMING & SLAB	JUNE 23, 2026	JULY 21, 2026		
A5.3	INTERIOR DETAILS - X-RAY	JUNE 23, 2026	JULY 21, 2026		
A5.4	INTERIOR DETAILS - EQUIPMENT	JUNE 23, 2026	JULY 21, 2026		
A5.5	TREATMENT ROOM PERSPECTIVES	JUNE 23, 2026	JULY 21, 2026		
A6.1	DOOR SCHEDULE & ELEVATIONS	JUNE 23, 2026	JULY 21, 2026		
A6.2	ROOM FINISH SCHEDULE & PLAN	JUNE 23, 2026	JULY 21, 2026		
A7.1	REFLECTED CEILING PLAN & DETAILS	JUNE 23, 2026	JULY 21, 2026		
COLD FORMED STEEL					
CF53.1	SECTIONS	JUNE 23, 2026	JULY 21, 2026		
CF53.2	SECTIONS	JUNE 23, 2026	JULY 21, 2026		
CF55.1	DETAILS	JUNE 23, 2026	JULY 21, 2026		
CF55.2	DETAILS	JUNE 23, 2026	JULY 21, 2026		
PLUMBING					
P0.1	LEGEND AND SPECIFICATIONS	JUNE 23, 2026	JULY 21, 2026		
P0.2	SPECIFICATIONS AND GENERAL SCHEDULES	JUNE 23, 2026	JULY 21, 2026		
P1.U	UNDERGROUND PLAN	JUNE 23, 2026	JULY 21, 2026		
P1.1	FIRST FLOOR PLAN	JUNE 23, 2026	JULY 21, 2026		
P1.2	FLOOR PLAN - AIR AND VACUUM PIPING	JUNE 23, 2026	JULY 21, 2026		
P2.0	ISOMETRICS AND SCHEDULES	JUNE 23, 2026	JULY 21, 2026		
P3.0	DETAILS	JUNE 23, 2026	JULY 21, 2026		
P3.1	DETAILS	JUNE 23, 2026	JULY 21, 2026		
P4.0	SCHEDULES	JUNE 23, 2026	JULY 21, 2026		
U1.1	UNDERGROUND UTILITY RISER PLAN AND DETAIL	JUNE 23, 2026	JULY 21, 2026		
FIRE PROTECTION					
FP0.1	SPECIFICATIONS, SCHEDULES, AND DETAILS	JUNE 23, 2026	JULY 21, 2026		
FP1.1	SPRINKLER PLAN	JUNE 23, 2026	JULY 21, 2026		
HVAC					
H0.1	LEGEND AND SPECIFICATIONS	JUNE 23, 2026	JULY 21, 2026		
H1.1	FIRST FLOOR PLAN	JUNE 23, 2026	JULY 21, 2026		
H3.0	DETAILS	JUNE 23, 2026	JULY 21, 2026		
H4.0	SCHEDULES	JUNE 23, 2026	JULY 21, 2026		
ELECTRICAL					
E0.1	LEGEND, GENERAL SCHEDULES & ONELINE	JULY 21, 2026	JULY 21, 2026		
E0.2	SPECIFICATIONS	JULY 21, 2026	JULY 21, 2026		
E0.3	SPECIFICATIONS	JULY 21, 2026	JULY 21, 2026		
E1.1L	FLOOR PLAN - LIGHTING	JULY 21, 2026	JULY 21, 2026		
E1.1LV	FLOOR PLAN - LOW VOLTAGE	JULY 21, 2026	JULY 21, 2026		
E1.1P	FLOOR PLAN - POWER	JULY 21, 2026	JULY 21, 2026		
E2.0	DETAILS	JULY 21, 2026	JULY 21, 2026		
E3.0	DETAILS	JULY 21, 2026	JULY 21, 2026		

EXCEL

Always a Better Plan

100 Camelot Drive
Fond du Lac, WI 54935
920-926-9800
excelengineer.com

COLLABORATION

PROJECT INFORMATION

PROPOSED BUILD-OUT FOR:
ASPEN DENTAL
715 PROGRESS WAY STE TBD • GAITHERSBURG, MD 20877

PROFESSIONAL SEAL

SHEET DATES

SHEET ISSUE JULY 21, 2026

REVISIONS

JOB NUMBER

260222300

SHEET NUMBER

T1.0



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PLAN REVIEW COMMENTS ONLY

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COLLABORATION

AspenDental

EXHIBIT D

Landlord's Work

Landlord and Tenant have agreed to the following plans and specifications for the Premises all prepared by Bignell, Watkins and Hasser Architects and dated January 14, 2026 (collectively, the "Landlord's Approved Plans"): (i) Architectural Drawings, Sheet Numbers CS-1, CS-2, CS-3, CR-1, CR-2, CR-3, A0.1, A0.2, A0.3, A0.4, A1.1, A1.2, A1.3, A1.4, A2.1, A3.1, A3.2, A3.3, A3.4, A3.5, A3.6, A3.7, A4.1, A6.1, and A6.2; (ii) Structural Drawings, Sheet Numbers S0.1, S0.2, S0.3, S0.4, S1.1, S1.2, S5.1, S5.2, S5.11, S5.12, S5.13, and S5.14; (iii) Electrical Drawings, Sheet Number E001, E201, E301, E401, E501, and E502; (iv) Mechanical Drawings, Sheet Numbers M001, M002, M201, and M401; and (v) Plumbing Drawings, Sheet Numbers P001, P201, P202, P301, and P401. Landlord, or its designated agent, shall perform the work with respect to the Premises set forth in Landlord's Approved Plans (such work is referred to herein as "Landlord's Plans Scope of Work"). In addition to Landlord's Plans Scope of Work, Landlord has agreed to perform the work set forth in Item Nos. 1 - 4 below in the Premises and/or the Building, as applicable (such work, together with Landlord's Plans Scope of Work, is collectively referred to as "Landlord's Work"). Landlord reserves the right to substitute materials of equal quality for Landlord's Work and to make any changes to the Landlord's Approved Plans necessitated by field conditions and/or governmental authorities.

1. Water Service: Water service to be 1"-1 ½" with a residual pressure of 60-75psi at a residual flow of 35 GPM downstream of any meter, sub-meter, RPZ or PRV. Water line shall be stubbed to an exact location determined by Landlord in the Premises with shut off valve installed for tenant to distribute. If booster pump is required the Landlord shall provide an adequately sized "Goulds-Aquavar ABII variable speed constant pressure system" booster pump;
2. Telephone/High Speed Service: Two inch (2") minimum conduit with pull string and other hardware as required by the telephone company from the nearest telephone service facility and terminating on a plywood backer at a location in the Premises determined by Landlord. Two inch (2") minimum conduit with pull string and other hardware as required by the local high speed/fiber company from the nearest point of service and terminating on a plywood backer at a location in the Premises determined by Landlord;
3. Perimeter walls of the Premises shall be furred out with either 2" hat channel or 2 x 4 studs. All Perimeter walls shall be insulated with an R value of R-19 or applicable per local building codes. Exterior walls shall have a functioning vapor barrier installed. (If applicable to climate) Tenant will install all drywall; and
4. The Premises demising walls shall be constructed with six inch (6") twenty gauge (20 ga) metal studs spaced @ 16" on center from floor to underside of roof deck. 6" insulation shall be installed for sound attenuation. No drywall on Tenant's side of wall shall be installed.

Miscellaneous Provisions Applicable to Landlord's Work:

- Landlord's Work shall be done at Landlord's sole cost and expense. Landlord's Work shall be completed, in all material respects, in accordance with all applicable governing codes, in a good and workmanlike manner, utilizing new, Building standard materials.
- Landlord shall send bi-weekly construction/ progress reports. Reports are to be sent once bi weekly to the Tenant. The reports are to include pictures along with the weekly tasks that were completed.
- Landlord shall provide Tenant with a written construction schedule for Landlord's Work at least thirty (30) days before commencement of construction.
- Landlord shall remove trash and unused construction materials upon completion of Landlord's Work.
- Upon completion of Landlord's Work, Landlord will provide Tenant with the names and addresses of the general contractor and the other contractors, subcontractors, suppliers and vendors involved in Landlord's Work.
- Landlord agrees to hang banners provided by Tenant, which banners are subject to Landlord's reasonable review and approval, at the commencement of construction as allowed by the local signage codes.
- Landlord shall provide access to the sign facade from the interior of the Premises for Tenant's sign installation, including, but not limited to, access to accommodate attachment of the signs to the Building and electrical service. Landlord will also provide the roof penetration to allow access for power to Tenant's signage if access is not available through the interior of the Premises.

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PROFESSIONAL SEAL

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THRESHOLDS

1. FLOORS (OR LANDING(S)) ARE NOT MORE THAN 1/2" LOWER THAN THE TOP OF THE THRESHOLD OF THE DOORWAY.
2. PER 303.3 CHANGE IN LEVEL BETWEEN 1/4" AND 1/2" IS REVEALED AT A GRADIENT NOT TO EXCEED 1:2
3. DOORMATS ARE SECURELY ATTACHED (ANCHORED OR RECESSED) AND HAVE A LEVEL LOOP. LEVEL CUT/JUNCT PILE WITH PILE NOT EXCEEDING 1/2" IN HEIGHT.
4. EXPOSED EDGES OF DOORMAT(S) ARE FASTENED TO FLOOR SURFACES AND HAVE TRIM ALONG THE ENTIRE LENGTH OF THE EXPOSED EDGE.

1. MINIMUM OF 3'-0" IN WIDTH, 6-8" IN HEIGHT

2. OPENS A MINIMUM OF 90 DEGREES
3. CLEAR WIDTH OF THE DOORWAY IS 32" MINIMUM.
4. DOUBLE DOORS / AUTOMATIC DOORS AT LEAST ONE DOOR MUST COMPLY WITH 1, 2 AND 3 ABOVE.
5. BOTTOM 10" OF DOOR HAS A SMOOTH, UNINTERRUPTED SURFACE THAT ALLOWS DOOR TO BE OPENED BY A WHEELCHAIR FOOTREST WITHOUT CREATING A TRAP OR HAZARDOUS CONDITION.

NOTE: WHERE NARROW FRAME DOORS ARE USED A 10" HIGH SMOOTH PANEL MUST BE INSTALLED ON THE PUSH SIDE BOTTOM OF THE DOOR WHICH WILL ALLOW THE DOOR TO BE OPENED BY A WHEELCHAIR FOOTREST WITHOUT CREATING A TRAP OR HAZARDOUS CONDITION.
6. EFFORT TO OPERATE DOORS IS WITHIN PRESSURES ALLOWED. INTERIOR DOORS 5 POUNDS MAXIMUM PRESSURE TO OPERATE. FIRE DOORS SEE APPROPRIATE ADMINISTRATIVE AUTHORITY.
7. TWO DOORS IN A SERIES PROVIDE A MINIMUM OF 48" CLEAR SPACE FROM ANY DOOR, IN ANY POSITION.

1. EXIT DOORS ARE OPERABLE FROM THE INSIDE WITHOUT THE USE OF A KEY OR ANY SPECIAL KNOWLEDGE OR EFFORT.
2. LATCHING AND LOCKING DOORS THAT ARE HAND OPERATED ARE OPERABLE WITH A SINGLE EFFORT (EX. LEVER TYPE, PANIC BARS OR PUSH-PULL TYPE).
3. OPENING HARDWARE IS NO HIGHER THAN 48 ABOVE FINISH FLOOR.
4. DOOR CLOSER SHALL BE ADJUSTED SO THAT FROM AN OPEN POSITION OF 90 DEGREES, THE TIME REQUIRED TO MOVE THE DOOR TO AN OPEN POSITION OF 12 DEGREES SHALL BE 5 SECONDS MINIMUM.

5. HANDLES, PULL, LATCHES, LOCKS AND OTHER OPERATING DEVICES ON ACCESSIBLE DOORS SHALL HAVE A SHAPE THAT IS EASY TO GRASP WITH ONE HAND AND DOES NOT REQUIRE TIGHT GRASPING, TIGHT PINCHING, OR TWISTING OF THE WRIST TO OPERATE LEVER OPERATED MECHANISMS, PUSH-TYPE MECHANISMS, AND U-SHAPED HANDLES ARE ACCEPTABLE DESIGNS. WHEN SLIDING DOORS ARE FULLY OPEN, OPERATING HARDWARE SHALL BE EXPOSED AND USABLE FROM BOTH SIDES. HARDWARE REQUIRED FOR ACCESSIBLE DOOR PASSAGE SHALL BE MOUNTED NO HIGHER THAN 48 INCHES AFF.	1. MINIMUM 30"x48" CLEAR SPACE IS PROVIDED IN FRONT OF LAVATORY THAT ALLOWS FORWARD APPROACH. 2. REQUIRED CLEAR SPACE ADJOINS OR OVERLAPS AN ACCESSIBLE ROUTE AND EXTENDS A MAXIMUM OF 19" UNDERNEATH THE LAVATORY. 3. 34" MAXIMUM HEIGHT OF RIM OR COUNTER ABOVE FLOOR SURFACE
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GENERAL: REGARDLESS OF THE OCCUPANT LOAD, THERE SHALL BE A FLOOR OR LANDING ON EACH SIDE OF A DOOR.

1. FLOOR OR LANDING ON EACH SIDE OF THE DOOR IS LEVEL AND CLEAR.
2. LEVEL AREA IN THE DIRECTION OF THE DOOR SWING IS A MINIMUM OF 60" IN LENGTH.
3. LEVEL AREA OPPOSITE THE DIRECTION OF THE DOOR SWING IS A MINIMUM OF 42-48" IN LENGTH, DEPENDING UPON DIRECTION OF APPROACH AND EXISTENCE OF LATCH AND CLOSER.
4. SURFACE SLOPE OF THE LEVEL AREA DOES NOT EXCEED 1:50 GRADIENT (2%).
5. MINIMUM STRIKE SIDE CLEARANCE ON PULL SIDE OF DOOR IS PROVIDED AT LANDING PER LOCAL ACCESSIBILITY STANDARDS.
6. MINIMUM LATCH SIDE CLEARANCE ON PUSH SIDE OF DOOR IS PROVIDED AT LANDING PER LOCAL ACCESSIBILITY STANDARDS.

1. THE INTERNATIONAL SYMBOL OF ACCESSIBILITY IS INSTALLED ON THE WALL ADJACENT TO THE LATCH SIDE OF THE DOOR. THE BORDER DIMENSIONS OF THIS PICTOGRAM SHALL BE A MINIMUM OF 6" IN HEIGHT.

- NOTE:** WHERE THERE IS NO WALL SPACE ON THE LATCH SIDE, INCLUDING AT DOUBLE LEAF DOORS, SIGNS SHALL BE PLACED ON THE NEAREST ADJACENT WALL, PREFERABLY.
2. VERBAL DESCRIPTION AS TO RESTROOM USAGE (I.E. MENS RESTROOM, ETC.) IS PLACED DIRECTLY BELOW THE SYMBOL OF ACCESSIBILITY.
3. THE CHARACTERS AND BACKGROUND OF THE SIGN IS EGGSHELL, MATTE OR OTHER NON-GLARE FINISH AND THE COLOR AND CONTRAST OF THE SIGN DISTINCTIVELY CONTRASTS WITH THE COLOR AND CONTRAST OF THE WALL.
- NOTE:** THE REQUIRED COLOR OR THE SYMBOL OF ACCESSIBILITY CONSISTS OF A WHITE FIGURE ON A BLUE BACKGROUND. HOWEVER, THE APPROPRIATE ENFORCEMENT AGENCY MAY APPROVE SPECIAL SIGNS TO COMPLIMENT DECOR WHEN SUCH SIGNS PROVIDE ADEQUATE DIRECTION TO INDIVIDUALS WITH DISABILITIES.
4. SIGNS ARE CENTERED ON THE WALL 60" AFF AND 8" FROM EDGE OF SIGN TO EDGE OF DOOR FRAME.
5. LETTERS AND NUMERALS ARE RAISED 1/32" ARE SANSERIF UPPERCASE CHARACTERS AND ARE ACCOMPANIED BY GRADE 2 BRAILLE. CHARACTERS ARE A MINIMUM 5/8" HIGH AND A MAXIMUM OF 2" HIGH.
6. MOUNTING LOCATION ALLOWS A PERSON TO APPROACH WITHIN 3" OF THE SIGNAGE WITHOUT ENCOUNTERING PROTRUDING OBJECTS OR STANDING WITHIN THE SWING OF A DOOR.
7. SIGNS CONTAINING TACTILE CHARACTERS SHALL BE LOCATED SO THAT A CLEAR FLOOR AREA OF 36" X 18" MINIMUM, CENTERED ON THE TACTILE CHARACTERS, IS PROVIDED BEYOND THE ARC OF ANY DOOR SWING THE CLOSED POSITION AND 45 DEGREE OPEN POSITION.

1. ACCESSIBLE UNITS SHALL BE IDENTIFIED BY THE INTERNATIONAL SYMBOL OF ACCESSIBILITY.
2. EXCEPT AT DOORS, THE MINIMUM CLEAR WIDTH OF AN ACCESSIBLE ROUTE IN THIS FACILITY IS 36".
3. ENTRY DOOR HAS PUSH AND PULL FUNCTION (NO LATCHING DEVICE) WITH CLOSER.
4. SUFFICIENT SPACE FOR WHEELCHAIR MEASURING 30"x48" TO ENTER ROOM AND PERMIT THE DOOR TO CLOSE IS PROVIDED.
5. A CLEAR SPACE OF SUFFICIENT SIZE TO INSCRIBE A 60" DIAMETER CIRCLE IS PROVIDED WITHIN THE SANITARY FACILITY ROOM.
6. 60" SPACE IS CLEAR OF OBJECTS FROM THE FLOOR TO A HEIGHT OF 27".
7. CLEAR FLOOR SPACE FOR WATER CLOSETS SHALL COMPLY WITH LOCAL ACCESSIBILITY STANDARDS. CLEAR FLOOR SPACE MAY BE ARRANGED TO ALLOW EITHER A RIGHT HANDED OR A LEFT HANDED APPROACH.
8. 18" BETWEEN CENTER OF WATER CLOSET AND SIDE-WALL CORNER
9. TOILET SEATS SHALL NOT BE SPRUNG TO RETURN TO A LIFTED POSITION.

10. TOP OF TOILET SEAT IS 17"-19" FROM FLOOR SURFACE.
11. FLUSH VALVE IS ON WIDE SIDE OF TOILET AREA
12. 44" MAXIMUM FROM FLOOR TO FLUSH VALVE
13. 5 LB. MAXIMUM FORCE TO OPERATE FLUSH VALVE
14. WALLS WITHIN COMPARTMENT ARE SMOOTH, HARD AND NONABSORBENT TO 48 IN HEIGHT AND ARE NOT ADVERSELY AFFECTED BY MOISTURE.
15. FLOOR SURFACES OF TOILET ROOM ARE SMOOTH, HARD AND NON-ABSORBENT. BASE SHALL EXTEND UPWARD A MINIMUM OF 6" ONTO WALLS.
16. SIDE GRAB BAR IS A MINIMUM OF 42" LONG.
17. THE FORWARD END OF THE GRAB BAR IS LOCATED A MINIMUM OF 54" FROM THE BACK WALL.
18. SIDE GRAB BAR BEGINS A MAXIMUM OF 12" FROM THE REAR WALL.
19. REAR GRAB BAR IS A MINIMUM 36" LONG WITH THE ADDITIONAL LENGTH PROVIDED ON THE TRANSFER SIDE OF THE WALL CLOSET.
20. REAR GRAB BAR BEGINS A MAXIMUM OF 6" FROM THE CORNER OF THE WALL ON THE TOILET SIDE.
21. DIAMETER OF THE GRAB BAR(S) IS 1 1/4" - 1 1/2" OR SHAPE PROVIDES EQUIVALENT GRIPPING SURFACE.
22. CLEARANCE BETWEEN THE GRAB BAR(S) AND WALL IS 1 1/2" AND PARALLEL TO FLOOR (FOR TANK TYPE TOILETS, 36" MAY BE ALLOWED IF TANK OBSTRUCTS PLACEMENT OF BAR).
23. GRAB BARS ARE MOUNTED AT 33" MIN. - 36" MAX. TO TOP OF BAR.
24. BARS ARE SMOOTH WITH A MINIMUM RADIUS OF 1/8".
25. MINIMUM STRUCTURAL STRENGTH OF GRAB BAR(S) WILL SUPPORT A 250 LB. POINT LOAD.
26. GRAB BARS DO NOT ROTATE WITHIN THEIR FITTINGS.

1. MINIMUM 30"x48" CLEAR SPACE IS PROVIDED IN FRONT OF LAVATORY THAT ALLOWS FORWARD APPROACH.
2. REQUIRED CLEAR SPACE ADJOINS OR OVERLAPS AN ACCESSIBLE ROUTE AND EXTENDS A MAXIMUM OF 19" UNDERNEATH THE LAVATORY.
3. 34" MAXIMUM HEIGHT OF RIM OR COUNTER ABOVE FLOOR SURFACE
4. 29" MINIMUM CLEARANCE FROM BOTTOM OF APRON TO THE FLOOR

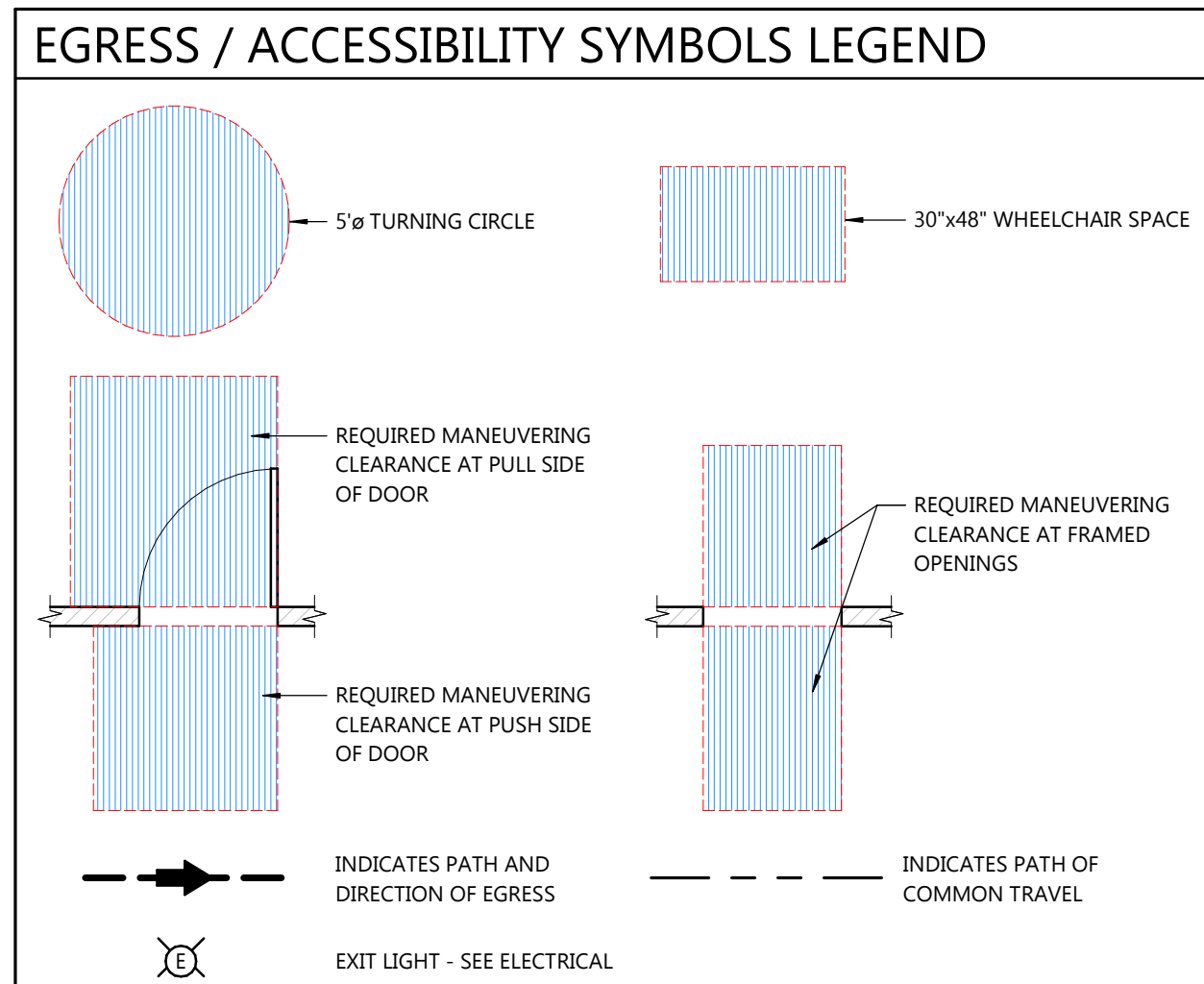
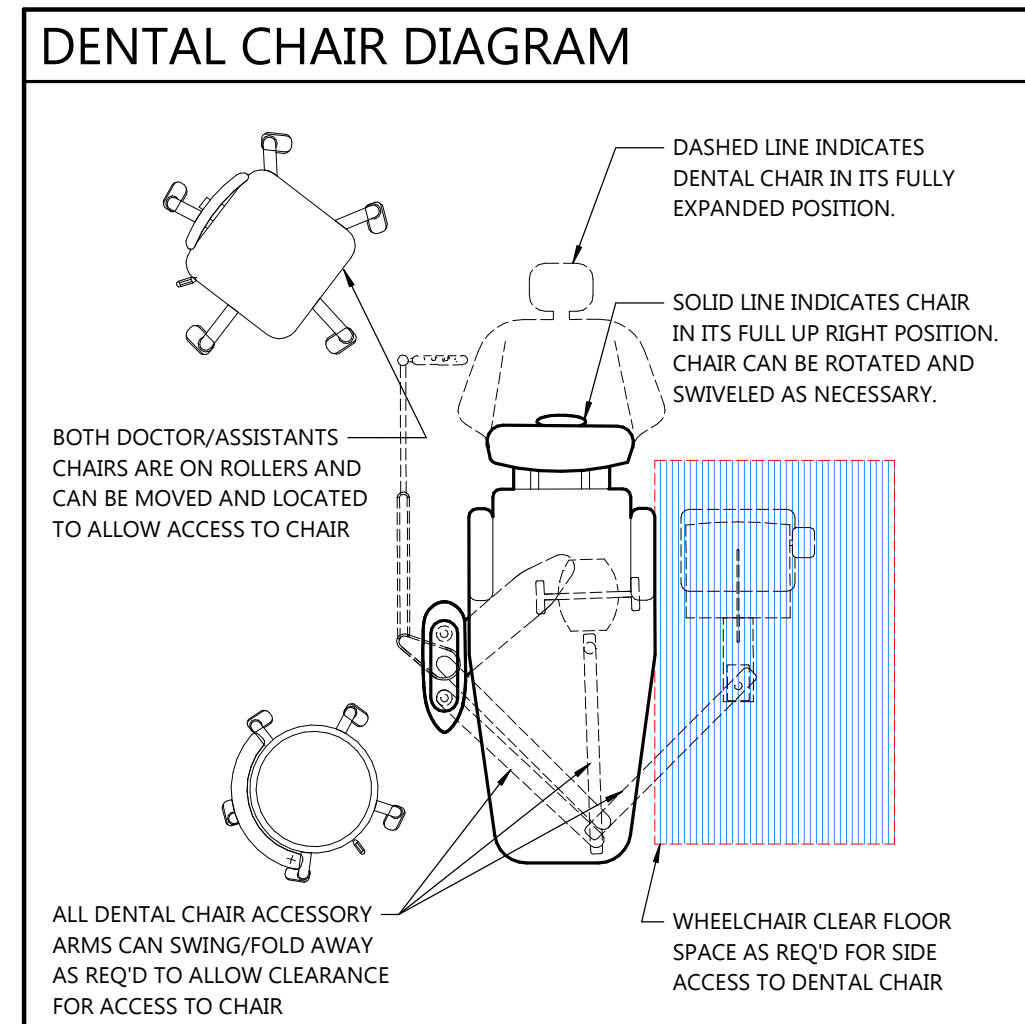
6. TO CLEARANCE UNDER LAVATORY IS A MINIMUM OF 9" HIGH, 30" WIDE, AND EXTENDS A MINIMUM OF 17" IN DEPTH FROM THE FRONT OF THE LAVATORY.
7. DRAIN AND HOT WATER PIPING IS INSULATED OR CONFIGURED TO PREVENT CONTACT.
8. THERE ARE NO SHARP OR ABRASIVE ELEMENTS UNDER LAVATORY.
9. FAUCETS ARE LEVER TYPE, ELECTRONICALLY ACTIVATED OR APPROVED SELF CLOSING VALVES (MIN. 10 SECONDS OPEN FLOW).
10. FAUCETS ARE OPERABLE WITH ONE HAND AND DO NOT REQUIRE TIGHT GRASPING, PINCHING OR TWISTING OF THE WRIST.
11. 5 LB. MAXIMUM FORCE REQUIRED TO ACTIVATE CONTROLS.

1. 30" WIDE x 48" DEEP MINIMUM CLEAR ACCESS IN FRONT OF FIXTURE (ONE FIXTURE ONLY REQUIRED).
2. ONE FULL UNOBSTRUCTED SIDE OF THE CLEAR FLOOR OR GROUND SPACE ADJOINS OR OVERLAPS AN ACCESSIBLE ROUTE OR ADJOINS ANOTHER WHEELCHAIR CLEAR FLOOR SPACE.

4. 5 LB. MAXIMUM PRESSURE TO OPERATE FLUSH VALVE
5. FLOOR SURFACES ARE SMOOTH, HARD AND NON-ABSORBENT EXTENDING UPWARD A MINIMUM OF 6" ONTO THE WALLS
6. WALLS WITHIN 24" OF FRONT AND SIDES OF URINAL ARE SMOOTH, HARD AND NON-ABSORBENT TO 48" IN HEIGHT AND ARE NOT ADVERSELY AFFECTED BY MOISTURE.

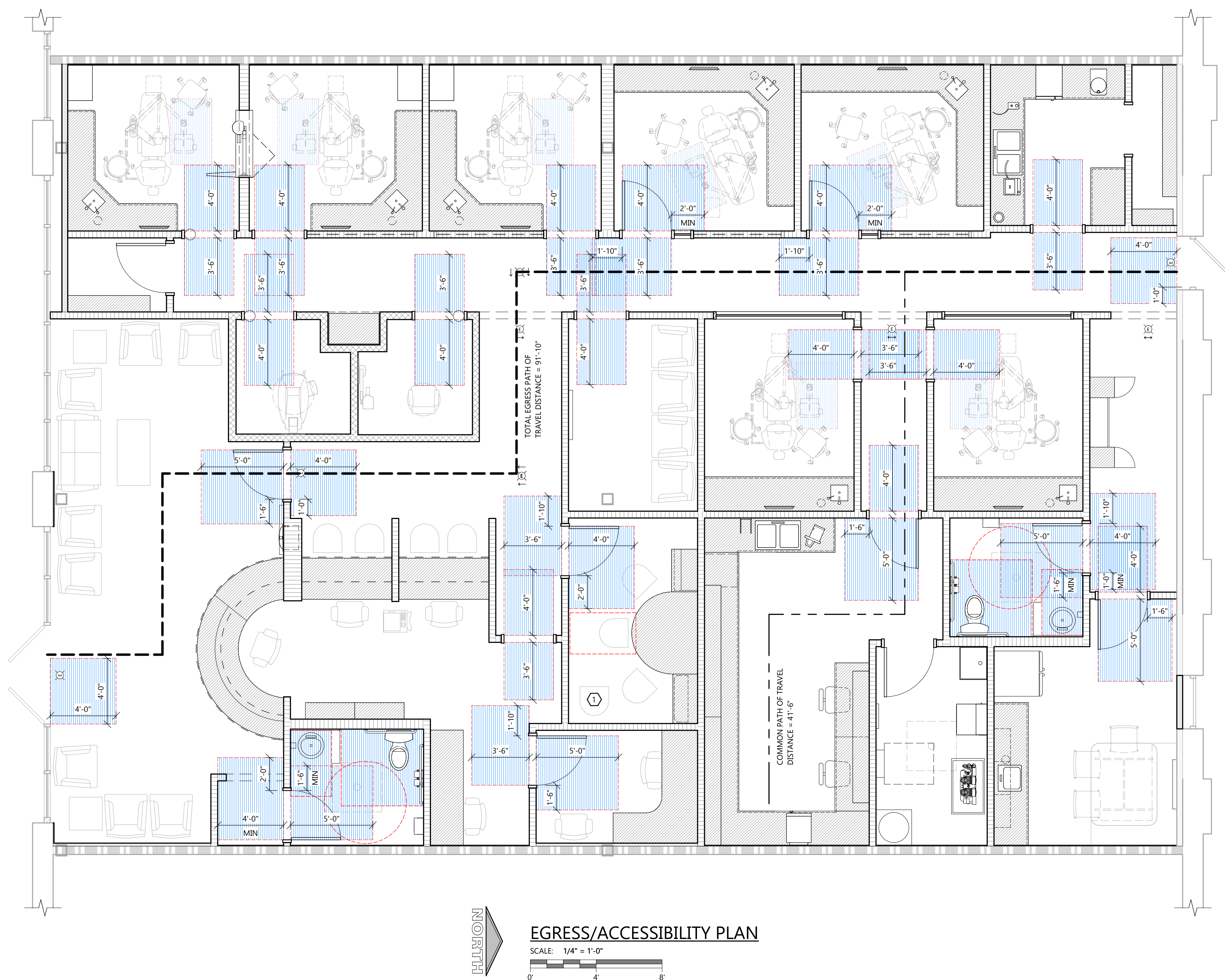
1. MINIMUM 30x48 CLEAR FLOOR OR GROUND SPACE IS PROVIDED TO ALLOW FORWARD OR PARALLEL APPROACH TO ACCESSORIES.
2. ONE FULL UNOBSTRUCTED SIDE OF THE CLEAR FLOOR OR GROUND SPACE ADJOINS OR OVERLAPS A ACCESSIBLE ROUTE OR ADJOINS ANOTHER WHEELCHAIR CLEAR FLOOR SPACE
3. MIRRORS IS MOUNTED WITH THE BOTTOM OF THE REFLECTIVE SURFACE EDGE NO HIGHER THAN 4' AND WITH THE TOP OF THE REFLECTIVE SURFACE EDGE NO LOWER THAN 74" AFF.
4. OPERABLE PARTS (INCLUDING COUN SLOT) OF ALL FIXTURES OR ACCESSORIES ARE LOCATED A MAX OF 40" ABOVE FLOOR (I.E. SOAP DISPENSERS, TOWELS, TOILET SEAT COVERS, AUTO-DRYERS, SANITARY NAPKIN DISPENSERS, WASTE RECEPTACLES, ETC.).
5. CONTROLS AND OPERATING MECHANISMS ARE OPERABLE WITH ONE HAND AND DO NOT REQUIRE GRASPING, PINCHING OR TWISTING OF THE WRIST.
6. THE FORCE TO ACTIVATE CONTROLS IS 5 LB. MAXIMUM.

1. ACCESSIBLE COAT HOOKS PROVIDED WITHIN THE ROOM SHALL ACCOMMODATE A FORWARD REACH OR SIDE REACH COMPLYING W/ LOCAL ACCESSIBILITY STANDARDS.
2. WHERE SHELVES ARE PROVIDED, A PORTION OF SHELVING SHALL BE MOUNTED AT 40" MIN. AND 48" MAX. AFF



1 CHAIR SHALL BE RELOCATED AS NECESSARY TO ALLOW ACCESS FOR WHEELCHAIR SPACE

1. STAFF WILL BE AVAILABLE TO ASSIST ANY PERSON(S) WITH DISABILITY TO MANEUVER AROUND THE FACILITY AS REQ'D PER THAT PATRON'S REQUEST
2. CONTRACTOR TO COORDINATE EXIT LIGHT LOCATIONS WITH LOCAL INSPECTION AND FIRE MARSHAL PRIOR TO INSTALL



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

ARCHITECTURAL SPECIFICATIONS

DIVISION 00 PROCUREMENT AND CONTRACTING

00 72 00 GENERAL CONDITIONS

- A. THE AIA GENERAL CONDITIONS A201 LATEST EDITION IS A PART OF THESE DOCUMENTS. COPIES ARE ON FILE AT THE OFFICE OF EXCEL ENGINEERING, INC.

00 73 16 INSURANCE REQUIREMENTS

- A. PRIOR TO COMMENCEMENT OF WORK, THE CONTRACTOR SHALL SUBMIT TO THE OWNER CERTIFICATE OF INSURANCE FOR NOT LESS THAN THE FOLLOWING LIMITS:
1. WORKER'S COMPENSATION AND EMPLOYERS LIABILITY:
 - a. PER STATUTORY LIMITS
 2. COMMERCIAL GENERAL LIABILITY:
 - a. GENERAL AGGREGATE: \$2,000,000
 - b. PRODUCTS AND COMPLETED OPERATIONS AGGREGATE: \$2,000,000
 - c. PERSONAL AND ADVERTISING INJURY: \$1,000,000
 - d. EACH OCCURRENCE: \$1,000,000
 - e. CONTRACTOR SHALL LIST EXCEL ENGINEERING, INC. AS ADDITIONAL INSURED.

DIVISION 01 GENERAL REQUIREMENTS

01 11 00 SUMMARY OF WORK

- A. THE PLANS AND SPECIFICATIONS ARE INTENDED TO GIVE A DESCRIPTION OF THE WORK. NO DEVIATION FROM THE PLANS AND SPECIFICATIONS SHALL BE MADE WITHOUT THE WRITTEN CONSENT OF EXCEL ENGINEERING, INC. THE CONTRACTOR IS TO CLARIFY ANY DISCREPANCIES WITH EXCEL ENGINEERING, INC. PRIOR TO BIDDING. THE CONTRACTOR SHALL VISIT THE SITE TO VERIFY EXISTING CONDITIONS AND ACCESS TO THE WORK AREA.
- B. REFERENCE TO "GENERAL CONTRACTOR" OR "GC" IN THE CONSTRUCTION DOCUMENTS IS INTENDED TO REPRESENT THE CONTRACTOR RESPONSIBLE FOR OVERALL CONSTRUCTION AND COORDINATION OF THE WORK. THE "GC" COULD BE A GENERAL CONTRACTOR, CONSTRUCTION MANAGER OR ANY OTHER CONTRACTOR RESPONSIBLE FOR THE OVERALL PROJECT. IT IS THE RESPONSIBILITY OF THE GC TO ASSIGN RESPONSIBILITY FOR ALL WORK.

01 25 13 PRODUCT SUBSTITUTION PROCEDURES

- A. REFERENCE TO MATERIALS OR SYSTEMS HEREIN BY NAME, MAKE OR CATALOG NUMBER IS INTENDED TO ESTABLISH A QUALITY STANDARD, AND NOT TO LIMIT COMPETITION. THE WORDS "OR APPROVED EQUIVALENT" ARE IMPLIED FOLLOWING EACH BRAND NAME/MODEL NUMBER UNLESS STATED OTHERWISE. "OR APPROVED EQUIVALENT" MATERIALS SHALL BE APPROVED BY EXCEL ENGINEERING, INC. PRIOR TO BIDS BEING ACCEPTED AND ACCEPTANCE FOR USE. PROVIDE A LETTER FROM THE MANUFACTURER CERTIFYING THAT THE PRODUCT MEETS OR EXCEEDS THE SPECIFIED PRODUCT.

01 31 00 PROJECT MANAGEMENT AND COORDINATION

- A. THE CONTRACTOR HAS THE SOLE RESPONSIBILITY FOR AND SHALL HAVE CONTROL OF CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, AND SAFETY PRECAUTIONS AND PROCEDURES USED TO CONSTRUCT THE WORK.
- B. THE CONTRACTOR SHALL FURNISH ALL LABOR, MATERIAL (INCLUDING TAXES) AND EQUIPMENT AS NECESSARY TO COMPLETE THE WORK. PERMITS SHALL BE OBTAINED AND PAID FOR BY THE RESPECTIVE CONTRACTOR, INCLUDING TEMPORARY OCCUPANCY PERMIT IF REQUIRED.
- C. AUTOCAD FILES OF CONSTRUCTION DOCUMENTS MAY BE OBTAINED BY CONTACTING EXCEL ENGINEERING, INC. REVIT FILES WILL NOT BE MADE AVAILABLE. AUTOCAD FILE REQUESTS SHALL BE EMAILED TO EXCEL PROJECT MANAGER AND PROJECT ASSISTANT AND SHALL INCLUDE THE FOLLOWING INFORMATION:
1. THE ASPEN GROUP PROJECT NAME
 2. EXCEL ENGINEERING PROJECT NUMBER
 3. SHEET NUMBERS REQUESTED
- D. AUTOCAD FILES REQUEST SHALL BE MADE TO:
1. PROJECT MANAGER: (JAY JOHNSON — jay.j@excelengineer.com)
 2. PROJECT ASSISTANT: (archrevit@excelengineer.com)
- E. AUTOCAD FILES WILL BE SENT BY METHOD OF EXCEL ENGINEERING, INC. CHOOSING AS SOON AS POSSIBLE.
- F. AUTOCAD FILES SHALL NOT BE USED FOR COMPONENT SUBMITTALS OR SHOP DRAWINGS. SUBMITTALS AND SHOP DRAWINGS USING EXCEL ENGINEERING, INC. CAD FILES WILL BE RETURNED REJECTED AND UN-REVIEWED.
- G. ALL "REQUEST FOR INFORMATION" (RFI) SHALL BE MADE THROUGH THE GENERAL CONTRACTOR / CONSTRUCTION MANAGER FOR LOGGING AND TRACKING PURPOSES. RFIS SHALL BE SUBMITTED TO THE ASPEN GROUP CONSTRUCTION MANAGER. RFIS SHALL BE SUBMITTED ON AN ARCHITECT APPROVED FORM, NUMBER SEQUENCE AND INCLUDE THE FOLLOWING INFORMATION:
1. THE ASPEN GROUP PROJECT NAME
 2. EXCEL ENGINEERING PROJECT NUMBER
 3. DIVISION OF CONSTRUCTION REFERENCED
 4. POTENTIAL SCHEDULE IMPACTS
 5. POTENTIAL COST IMPACTS OF ANY SUGGESTED ALTERNATES FROM THE CONSTRUCTION DOCUMENTS

01 32 00 SCHEDULING OF WORK

- A. THE CONTRACTOR SHALL OBTAIN THE OWNER'S APPROVAL OF THE CONSTRUCTION SCHEDULE PRIOR TO PROCEEDING WITH THE WORK.

01 33 23 SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES

- A. SUBMIT FOR APPROVAL ARCHITECTURAL, CIVIL, STRUCTURAL, HVAC, PLUMBING, FIRE PROTECTION AND ELECTRICAL SHOP DRAWINGS, PRODUCT DATA, TEST RESULTS AND SAMPLES INDICATED IN THE CONSTRUCTION ADMINISTRATION SUBMITTAL LIST (CASL). SEE DISCIPLINE SPECIFICATIONS FOR DISCIPLINE SPECIFIC CASL.
- B. SHOP DRAWING SUBMITTALS SHALL BE MADE TO THE ASPEN GROUP FOR APPROVAL PRIOR TO FABRICATION AND INSTALLATION.
- C. SUBMITTALS SHALL BE MADE BY ELECTRONIC SUBMISSION IN PORTABLE DOCUMENT FORMAT (PDF) UNLESS NOTED OTHERWISE. WHEN HARD COPY SUBMISSIONS ARE REQUIRED, COORDINATE WITH THE ASPEN GROUP PRIOR TO SUBMISSION.
- D. SUBMITTALS SHALL BE MADE TO THE ASPEN GROUP.
- E. SUBMITTAL SHALL BE MADE USING APPROVED SUBMITTAL FORM CONTAINING AT MINIMUM THE FOLLOWING INFORMATION:
1. THE ASPEN GROUP PROJECT NAME
 2. EXCEL ENGINEERING PROJECT NUMBER
 3. SUBMITTAL DIVISION OF CONSTRUCTION
 4. MATERIAL SUPPLIER / SUB CONTRACTOR
 5. SUBMITTAL DESCRIPTION (i.e. CONCRETE MIX DESIGN)
- F. SUBMITTALS SHALL BE REVIEWED AND STAMPED BY THE CONTRACTOR PRIOR TO SUBMITTING FOR APPROVAL. CONTRACTOR SHALL COMPLETE ALL FIELD VERIFICATIONS PRIOR TO SUBMITTAL SUBMISSION.
- G. SUBMITTALS MUST BE 100% COMPLETE AND IN ONE (1) PACKAGE FOR THE ITEM BEING SUBMITTED. NON-COMPLETE SUBMITTALS WILL BE RETURNED TO THE CONTRACTOR WITHOUT COMMENT AND STAMPED "REJECTED-RESUBMIT". CONTRACTORS WHO KNOWINGLY WANT TO SUBMIT NON-COMPLETE SUBMITTALS OR BREAK SINGLE SYSTEM SUBMITTALS INTO MULTIPLE SUBMITTALS WILL BE RESPONSIBLE TO ARRANGE WITH THE ASPEN GROUP PRIOR TO SUBMITTING THE SUBMITTAL(S), AND TO COMPENSATE THE ASPEN GROUP FOR THE EXTRA WORK INVOLVED.
- H. SHOP DRAWINGS SHALL CLEARLY INDICATE SPECIFIC MODEL BEING PROVIDED WHERE CUT SHEETS SHOW MULTIPLE MODELS.
- I. FAILURE TO SUBMIT SHOP DRAWINGS SHALL NOT RELIEVE THE CONTRACTOR FROM PROVIDING THE SPECIFIED EQUIPMENT AND MATERIALS.
- J. PHYSICAL SAMPLES FOR FINISHES ARE TO BE SUBMITTED TO THE ASPEN GROUP FOR APPROVAL PRIOR TO INSTALLATION.
- K. BUILDING COMPONENTS REQUIRING SUBMISSION "FOR RECORD" TO THE AUTHORITY HAVING JURISDICTION REQUIRE SEALED AND SIGN HARD COPIES, PROVIDE THREE (3) HARD COPIES WITH WET SEAL AND ORIGINAL SIGNATURE.
- L. TEST RESULTS SHALL BE SUBMITTED FOR REVIEW WITHIN 24 HOURS OF COMPLETION OF TEST.
- M. CONTRACTOR SHALL ALLOW 10 WORKING DAYS IN SCHEDULE FOR A/E TO REVIEW SUBMITTALS. IF SUBMITTALS REQUIRE AN EXPEDITED REVIEW PROCESS, CONTACT THE ASPEN GROUP PRIOR TO SUBMITTING THE SUBMITTAL(S) TO MAKE THE APPROPRIATE ARRANGEMENT.
- N. SUBMITTALS REQUIRING RESUBMISSION SHALL HAVE CHANGES MADE TO A PREVIOUSLY REVIEWED SUBMITTAL DENOTED WITH REVISION CLOUDS AND TAGS IDENTIFYING CHANGES.
- O. ARCHITECTURAL CONSTRUCTION ADMINISTRATION SUBMITTAL LIST:
1. MANUFACTURED STONE (404)
 2. ROUGH CARPENTRY MATERIALS (604)
 3. INTERIOR FINISH CARPENTRY MATERIALS (604)
 4. FIBERGLASS REINFORCED PANELING (604)
 5. PENETRATION FIRE STOPPING (704)
 6. SEALANTS (704)
 7. HOLLOW METAL DOORS AND FRAMES (804)
 8. FLUSH WOOD DOORS (804)
 9. ALUMINUM FRAMED ENTRANCES AND STOREFRONTS (804)
 10. DOOR HARDWARE (804)
 11. GLAZING (804)
 12. DRYWALL STUDS (904)
 13. GYPSUM BOARD (904)
 14. TILING (904)
 15. RESILIENT BASE AND ACCESSORIES
 16. WALL COVERING (904)
 17. PAINTING SYSTEMS (904)
 18. SIGNAGE (1004)
 19. FIRE EXTINGUISHERS (1004)
 20. TOILET ACCESSORIES (1004)
 21. CABINET AND MILLWORK (1204)

- P. STRUCTURAL AND ARCHITECTURAL PLANS SHOW DIMENSIONS AND ELEVATIONS TO SIGNIFICANT WORKING POINTS. SHOP DRAWING DETAILERS AND SUPPLIERS ARE RESPONSIBLE FOR THE DETERMINATION OF ALL DIMENSIONS, PITCHES, ELEVATIONS, ETC., BEYOND THOSE NOTED AS NECESSARY TO THOROUGHLY DETAIL / FABRICATE THEIR WORK. CONTACT THE ASPEN GROUP WITH ANY DISCREPANCIES FOUND.
- Q. IN NO CASE SHALL CHANGES BE MADE TO WORK SHOWN OR PROCEDURE SPECIFIED ON STRUCTURAL PLANS UNLESS FIRST APPROVED IN WRITING BY THE ASPEN GROUP. REVIEW OF SHOP DRAWINGS BY THE ASPEN GROUP DOES NOT CONSTITUTE ACCEPTANCE OF A DESIGN CHANGE. PROPOSED CHANGES BY CONTRACTOR MUST BE SUBMITTED IN RFI FORMAT AND MUST BE APPROVED IN THE SAME MANNER. CONTRACTOR REQUESTING CHANGE MAY BE BILLED ON A TIME AND EXPENSE BASIS BY THE ASPEN GROUP FOR ALL REDESIGN WORK, FOR ALL NEW SKETCHES PREPARED, AND FOR ALL ADDITIONAL REVIEW TIME RELATED TO THE CHANGES.

01 40 00 QUALITY REQUIREMENTS

- A. IN AS MUCH AS THE SPECIFICATIONS ARE BRIEF, THE CONTRACTOR SHALL PROVIDE WORKMANSHIP THAT IS NEAT, SECURE AND OF THE BEST QUALITY WITH THE BEST POSSIBLE APPEARANCE AND UTILITY MEETING ALL APPLICABLE STANDARDS. FAULTY WORK SHALL BE REPAIRED OR REPLACED AT NO COST TO THE OWNER. INDUSTRY STANDARDS SHALL BE USED AS THE GUIDE FOR QUALITY OF MATERIALS AND WORKMANSHIP.

01 41 00 REGULATORY REQUIREMENTS

- A. ALL APPLICABLE FEDERAL, STATE, AND LOCAL CODES, ORDINANCES AND REGULATIONS, INCLUDING THE REQUIREMENTS OF THE AMERICAN WITH DISABILITIES ACT (A.D.A.) ARE MADE PART OF THESE SPECIFICATIONS AND SHALL BE COMPLIED WITH AS FAR AS THEY APPLY TO WORK UNDER THIS CONTRACT.

01 45 00 QUALITY CONTROL

- A. NOTIFY ARCHITECT ONE WEEK IN ADVANCE TO SCHEDULE FINAL COMPLIANCE WALK-THRU. PRIOR TO THIS WALK THRU, PROVIDE THE ARCHITECT WITH THE FIRE PROTECTION SYSTEM TEST REPORT AND A COPY OF THE ELEVATOR INSPECTION REPORT AS APPLICABLE. ALL COMPONENT SUBMITTALS SHOULD BE FILED AND AVAILABLE FOR REVIEW AT THE WALK THRU. THE BUILDING SHALL BE COMPLETE AND ALL SYSTEMS OPERATIONAL AT THE TIME OF THE WALK THRU. IF THE ARCHITECT IS REQUIRED TO MAKE ADDITIONAL VISITS DUE TO NON-COMPLIANCE, THEY WILL BE CHARGED TO THE REQUESTING CONTRACTOR.

01 52 00 CONSTRUCTION FACILITIES

- A. THE CONTRACTOR SHALL FURNISH TEMPORARY OFFICE, TOILET FACILITIES, WORKING TELEPHONE, ELECTRICITY, HEAT, WATER AND FIRE EXTINGUISHERS AS REQUIRED FOR COMPLETION OF THE WORK UNLESS THE OWNER HAS AGREED IN WRITING TO FURNISH OR WAIVE ANY OF THE ABOVE ITEMS.

01 53 00 TEMPORARY CONSTRUCTION

- A. THE CONTRACTOR SHALL FURNISH TEMPORARY BRACING OF ALL BUILDING ELEMENTS DURING CONSTRUCTION. TEMPORARY BRACING SYSTEMS SHALL BE DESIGNED TO WITHSTAND CODE DESIGN LOADS. CONTRACTOR SHALL RETAIN SERVICES OF A PROFESSIONAL ENGINEER TO DESIGN AND SUPERVISE BRACING INSTALLATION IF THEY DO NOT HAVE THE EXPERTISE REQUIRED.

01 71 00 FIELD ENGINEERING

- A. THE CONTRACTOR SHALL PROVIDE ALL LAYOUT AS REQUIRED, COMPETENT FULLTIME ON SITE SUPERVISION, AND BROOM CLEANING OF CONSTRUCTION SITE INCLUDING DUMPSTERS FOR REFUSE DISPOSAL. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL SAFETY ON SITE AND PROTECTION OF SITE PER LOCAL, STATE AND FEDERAL REQUIREMENTS.

01 78 00 CLOSEOUT SUBMITTALS

- A. THE CONTRACTOR SHALL FURNISH "AS-BUILT" DRAWINGS REFLECTING ALL CHANGES DURING CONSTRUCTION. PROVIDE TWO (2) COPIES OF OPERATING AND MAINTENANCE MANUALS TO OWNER FOR ALL FURNISHED EQUIPMENT.

01 78 36 WARRANTIES

- A. THE CONTRACTOR SHALL GUARANTEE ALL WORKMANSHIP AND MATERIALS FOR A PERIOD OF ONE YEAR AFTER SUBSTANTIAL COMPLETION OF THE PROJECT. FURNISH MANUFACTURER'S WRITTEN WARRANTIES FOR SPECIFIED EQUIPMENT STATING EFFECTIVE WARRANTY DATE.

DIVISION 02 EXISTING CONDITIONS

02 41 19 SELECTIVE STRUCTURAL DEMOLITION

- A. CONDUCT DEMOLITION AND DEBRIS REMOVAL OPERATIONS TO INSURE MINIMUM INTERFERENCE WITH ROADS, STREETS, WALKS, AND OTHER ADJACENT OCCUPIED AND USED FACILITIES.
- B. IT IS UNKNOWN WHETHER HAZARDOUS MATERIALS WILL BE ENCOUNTERED, DO NOT DISTURB, IMMEDIATELY NOTIFY ARCHITECT AND OWNER.
- C. DEMOLISH AND REMOVE EXISTING CONSTRUCTION ONLY TO THE EXTENT REQUIRED BY NEW CONSTRUCTION AND AS SHOWN ON THE DEMOLITION PLANS. USE METHODS REQUIRED TO COMPLETE THE WORK WITHIN LIMITATIONS OF GOVERNING REGULATIONS.
- D. EXCEPT FOR ITEMS OR MATERIALS INDICATED TO BE REUSED, SALVAGED, REINSTALLED OR TO REMAIN OWNER'S PROPERTY, REMOVE DEMOLISHED MATERIALS FROM PROJECT SITE AND LEGALLY DISPOSE OF THEM IN AN EPA APPROVED LANDFILL.

DIVISION 03 CONCRETE

03 30 00 CAST-IN-PLACE CONCRETE

- A. DESIGN AND CONSTRUCTION OF ALL CAST-IN-PLACE CONCRETE WORK SHALL CONFORM TO ACI 318 BUILDING CODE AND CRSI MANUAL OF STANDARD PRACTICE.
- B. CONCRETE SLAB CONSTRUCTION TO BE PROVIDED PER MORE STRINGENT REQUIREMENTS OF GEOTECHNICAL REPORT OR CONSTRUCTION DOCUMENTS.
- C. DESIGN MIXES SHALL BE IN ACCORDANCE WITH ASTM C94.
1. GROUP A — FOOTINGS, GRADE BEAMS, AND TIE BEAMS.
 - a. EXPOSURE CLASS: ACI 318 (F0)
 - b. MINIMUM COMPRESSIVE STRENGTH: 3000 PSI AT 28 DAYS
 - c. MAXIMUM WATER/CEMENT RATIO: NONE
 - d. MAXIMUM AGGREGATE SIZE: 1 1/2"
 - e. AIR CONTENT: N/A
 2. GROUP B — INTERIOR SLABS ON GRADE AND HOUSEKEEPING PADS (6" THICKNESS OR LESS).
 - a. EXPOSURE CLASS: ACI 318 (F0)
 - b. MINIMUM COMPRESSIVE STRENGTH: 3500 PSI AT 28 DAYS
 - c. MAXIMUM WATER/CEMENT RATIO: NONE
 - d. MAXIMUM AGGREGATE SIZE: 3/4"
 - e. AIR CONTENT: N/A
 3. GROUP C — INTERIOR SLABS ON GRADE AND HOUSEKEEPING PADS (GREATER THAN 6" THICKNESS).
 - a. EXPOSURE CLASS: ACI 318 (F0)
 - b. MINIMUM COMPRESSIVE STRENGTH: 4000 PSI AT 28 DAYS
 - c. MAXIMUM WATER/CEMENT RATIO: NONE
 - d. MAXIMUM AGGREGATE SIZE: 1 1/2"
 - e. AIR CONTENT: N/A
 4. GROUP D — INTERIOR WALLS, PIERS, COLUMNS, BEAMS, AND STRUCTURAL SLABS.
 - a. EXPOSURE CLASS: ACI 318 (F0)
 - b. MINIMUM COMPRESSIVE STRENGTH: 4000 PSI AT 28 DAYS
 - c. MAXIMUM WATER/CEMENT RATIO: NONE
 - d. MAXIMUM AGGREGATE SIZE: 3/4"
 - e. AIR CONTENT: N/A
 5. GROUP E — INTERIOR CONCRETE FILLED METAL DECK AND PRECAST TOPPINGS.
 - a. EXPOSURE CLASS: ACI 318 (F0)
 - b. MINIMUM COMPRESSIVE STRENGTH: 4000 PSI AT 28 DAYS
 - c. MAXIMUM WATER/CEMENT RATIO: NONE
 - d. MAXIMUM AGGREGATE SIZE: 3/4"
 - e. AIR CONTENT: N/A
 6. GROUP F — INTERIOR CONCRETE FILLED METAL PAN STAIRS AND LANDINGS.
 - a. EXPOSURE CLASS: ACI 318 (F0)
 - b. MINIMUM COMPRESSIVE STRENGTH: 4000 PSI AT 28 DAYS
 - c. MAXIMUM WATER/CEMENT RATIO: NONE
 - d. MAXIMUM AGGREGATE SIZE: 1/2"
 - e. AIR CONTENT: N/A
 7. GROUP G — EXTERIOR WALLS, PIERS, COLUMNS, BEAMS, AND STRUCTURAL SLABS.
 - a. EXPOSURE CLASS: ACI 318 (F2)
 - b. MINIMUM COMPRESSIVE STRENGTH: 4500 PSI AT 28 DAYS
 - c. MAXIMUM WATER/CEMENT RATIO: 0.45
 - d. MAXIMUM AGGREGATE SIZE: 3/4"
 - e. AIR CONTENT: 6.0% (+/- 1.5%) AT POINT OF DELIVERY
 8. GROUP H — ALL EXTERIOR CONCRETE EXPOSED TO FREEZING, THAWING, AND DEICING SALTS (I.E. EXPOSED WALLS, PIERS, ETC. THAT IS ABUTTED UP TO PAVED SURFACES WHERE DEICING SALTS MAY BE USED)
 - a. EXPOSURE CLASS : ACI 318 (F3)
 - b. MINIMUM COMPRESSIVE STRENGTH: 5000 PSI AT 28 DAYS
 - c. MAXIMUM WATER/CEMENT RATIO: 0.40
 - d. MAXIMUM AGGREGATE SIZE: 3/4"
 - e. AIR CONTENT: 6.0% (+/- 1.5%) AT POINT OF DELIVERY
 9. SLUMP LIMIT SHALL BE 4" (+/- 1").
 10. SLUMP LIMIT SHALL BE 8" (+/- 1") FOR CONCRETE WITH VERIFIED SLUMP OF 2" TO 4" BEFORE ADDING HIGH-RANGE WATER-REDUCING ADMIXTURE OR PLASTICIZING ADMIXTURE.
 11. ALL CONCRETE EXPOSED TO WEATHER SHALL BE AIR-ENTRAINED WITH AIR CONTENT SPECIFIED IN DESIGN MIX GROUPS ABOVE. NO OTHER ADMIXTURES SHALL BE USED WITHOUT APPROVAL OF EXCEL ENGINEERING, INC. CALCIUM CHLORIDE SHALL NOT BE USED.

12. CEMENTITIOUS MATERIALS: LIMIT PERCENTAGE, BY WEIGHT, OF CEMENTITIOUS MATERIALS OTHER THAN PORTLAND CEMENT IN CONCRETE WITH EXPOSURE CLASS (F3) AS FOLLOWS:
 - a. FLY ASH OR OTHER POZZOLANS: 25 PERCENT BY MASS
 - b. SLAG CEMENT: 50 PERCENT BY MASS
 - c. TOTAL OF FLY ASH OR OTHER POZZOLANS, SLAG CEMENT: 50 PERCENT BY MASS, WITH FLYASH OR POZZOLANS NOT EXCEEDING 25 PERCENT BY MASS
 - d. TOTAL OF FLY ASH OR OTHER POZZOLANS: 35 PERCENT BY MASS WITH FLY ASH OR POZZOLANS NOT EXCEEDING 25 PERCENT BY MASS
- D. PLACE SLABS ON GRADE WITH CONSTRUCTION JOINT OR SAW JOINT AS INDICATED ON THE PLANS. SAW CUT TO BE DONE AS SOON AS POSSIBLE, BUT NO LATER THAN 24 HOURS AFTER CONCRETE IS PLACED. ALL INTERIOR SLABS TO HAVE A TROWEL FINISH AND ALL EXTERIOR SLABS TO HAVE A LIGHT BROOM FINISH UNLESS NOTED OTHERWISE. MAINTAIN FLOOR LEVEL AT WALLS AND PITCH SURFACES UNIFORMLY TO DRAINS. ALL CONCRETE IS TO BE CURED FOR 7 DAYS. FLOORS TO BE STAINED, TO RECEIVE AN ASHFORD SEALER, OR TO RECEIVE ANOTHER FINISH THAT IS NOT COMPATIBLE WITH CURING COMPOUNDS ARE TO BE WET CURED OR CURED WITH AN ARMORLON TRANSGUARD 4000 WET CURE COVER PER MANUFACTURER'S SPECIFICATION. EXTERIOR SLABS SHALL BE SEPARATED FROM BUILDINGS WITH CONTINUOUS 1/2" FIBER EXPANSION JOINT AND/OR 1/4" FIBER EXPANSION JOINT AT DECORATIVE MASONRY UNITS. INTERIOR SLABS SHALL BE SEPARATED FROM FOUNDATION WALLS AND PIERS WITH FORM RELEASE AGENT, 15 LB. FELT OR AS DETAILED ON PLANS.
- E. THE SLAB-ON-GRADE FLOOR FLATNESS/LEVELNESS SHALL MEET TO THE FOLLOWING CRITERIA:
 1. TOP OF FLOOR ELEVATION SHALL BE WITHIN 3/4" OF DESIGN ELEVATION IN ACCORDANCE TO ACI 117 TOLERANCES.
 2. THE SPECIFIED OVERALL VALUE FOR THE FLOOR FLATNESS/LEVELNESS PER ACI 117 AND ASTM E1155 IS AS FOLLOWS:
 - a. NONCRITICAL MECHANICAL ROOMS, NONPUBLIC AREAS, AND PARKING - FF20 / FL15.
 - b. CARPETED AREAS IN COMMERCIAL OFFICE, INDUSTRIAL BUILDING - FF25 / FL20.
 - c. THIN-SET FLOORING, WAREHOUSE, POLISHED CONCRETE - FF35 / FL25.
 - d. WAREHOUSE WITH AIR-PALLET USE, ICE RINKS - FF45 / FL35.
 - e. CRITICAL AREAS AS INDICATED ON PLAN - > FF50 / >FL50.
 3. THE MINIMUM LOCAL VALUE FOR THE FLOOR FLATNESS/LEVELNESS SHALL NOT BE LESS THAN 67% OF THE SPECIFIED OVERALL VALUE.
 4. CONTRACTOR SHALL REPLACE AREAS THAT DO NOT MEET THESE CRITERIA.
- F. THE SLAB-ON-GRADE FLOOR FLATNESS FOR SUPER FLAT FLOORS IN NARROW AISLE WAREHOUSES AND AREAS WITH DEFINED TRAFFIC FLOORS SHALL MEET THE FOLLOWING CRITERIA:
 1. THE SPECIFIED FLOOR FLATNESS SHALL BE F MIN. 100.
 2. SUPER FLAT FLOORS SHALL BE PLACED BY CONTINUOUS STRIP POURING. JOINT LOCATIONS SHALL BE PLACED AS INDICATED ON PLANS.
 3. SUPER FLAT FLOORS SHALL BE TESTED FOR COMPLIANCE USING A VEHICLE SIMULATION TESTING PROCEDURE. TESTING PROCEDURE AND AGENCY PERFORMING SIMULATION SHALL BE APPROVED BY OWNER'S REPRESENTATIVE PRIOR TO START OF SLAB-ON-GRADE CONSTRUCTION.
 4. AREAS NOT MEETING THE SPECIFIED FLOOR FLATNESS SHALL BE REPAIRED BY GRINDING IF POSSIBLE. IF COMPLIANCE BY GRINDING IS NOT POSSIBLE CONTRACTOR SHALL REPLACE AREAS THAT DO NOT MEET CRITERIA.
- G. BACKFILLING OF FOUNDATIONS:



Always a Better Plan

100 Camelot Drive
Fond du Lac, WI 54935
920-926-9800
excelengineer.com

COLLABORATION

AspenDental

PROJECT INFORMATION

PROPOSED BUILD-OUT FOR:
ASPEN DENTAL
715 PROGRESS WAY STE TBD • GAITHERSBURG, MD 20877

PROFESSIONAL SEAL

SHEET DATES

SHEET ISSUE JULY 21, 2026

REVISIONS

JOB NUMBER

260222300

SHEET NUMBER

A0.1

MILLWORK NOTES

ALL MILLWORK SHOWN HATCHED IS NOT IN CONTRACT & IS TO BE PART OF SEPARATE PACKAGE PROVIDED BY OWNERS MILLWORK VENDOR. GC SHALL BE RESPONSIBLE FOR COORDINATING DELIVERY OF MILLWORK AND PROVIDING AND INSTALLING ALL REQUIRED UTILITIES FOR A COMPLETE WORKING SYSTEM UNLESS NOTED OTHERWISE, TYP.

EXIST. ALUM. WINDOW
GYP. BD.
RETURN SILL

EXIST. WALL ASSEMBLY

SILL PROFILE

FLOOR PLAN KEYNOTES

- 1

WALL MOUNTED LCD TV. GC TO PROVIDE APPROPRIATE BLK'G AT 72" AFF TV SHALL NOT PROTRUDE INTO SPACE MORE THAN 4" MAX. SEE DETAIL 11/A5.2
- 2

LOCKERS
- 3

SHELVING BY MILLWORK VENDOR
- 4

SOFFIT ABOVE - REFER TO SHEET A7.1
- 5

ALUMINUM FRAMED TRANSOM LIGHT ABOVE. SEE AL-3 ON SHEET A6.1 AND ADDITIONAL INFO
- 6

ALUMINUM FRAMED TRANSOM LIGHT ABOVE. SEE AL-2 ON SHEET A6.1 AND ADDITIONAL INFO
- 7

FILING CABINETS
- 8

8' SHELVES
- 9

WALL MOUNTED LCD TV GC TO PROVIDE APPROPRIATE BLK'G AT 60" AFF TV SHALL NOT PROTRUDE INTO SPACE MORE THAN 4" MAX. SEE DETAIL 11/A5.2
- 10

ARTICULATOR RACK
- 11

PLASTER CART
- 12

WALL MOUNTED DATA RACK BY TAG I.T. GC TO PROVIDE BLOCKING - SEE DETAIL 13/A5.2
- 13

ELECTRICAL PANEL
- 14

PHONE BOARD
- 15

BOTTLE FILLING STATION - SEE DETAIL 11/A5.0
- 16

REFRIGERATOR BY OTHERS
- 17

EQUIPMENT BY OTHERS
- 18

(4) FIRE EXTINGUISHER BY TENANT -SEE DETAIL 9/A5.0
- 19

EXISTING EXTERIOR BUILDING SHELL WALL, TYP.
- 20

PLUMB. CONTRACTOR TO COORDINATE. CLEARANCES REQ'D FOR ADMI SUPPLIED EQUIPMENT PRIOR TO INSTALLING WATER HEATER / MOP SINK
- 21

WATER DISTILLER
- 22

TENANT'S CONTRACTOR TO COORDINATE ALL EQUIPMENT BLOCKING & UTILITIES PRIOR TO INSTALLING 5/8" GYP. BD. - GYP. BD. TO BE TAPE AND SANDED TO ACCEPT TENANT'S WALL FINISHES
- 23

40" AFF CPU STAND UP STATION
- 24

WALL MOUNTED LCD TV. GC TO PROVIDE APPROPRIATE BLK'G AT 50" AFF TV SHALL NOT PROTRUDE INTO SPACE MORE THEN 4" MAX. SEE DETAIL 11/A5.2
- 25

APPROXIMATE LOCATION OF UTILITY CENTER. REFER TO ELEC. AND PLBG DRAWINGS -SEE DETAIL 1/A5.2
- 26

TENANT'S GC TO PROVIDE AND INSTALL MASTER LOCK. S401D WALL-MOUNTED KEY STORAGE BOX ON EXTERIOR OF BUILDING AT 48" TO CENTER. PLACE AT RIGHT OF LEFT OF DOOR (PREFERRED LOCATION TO BE ON LATCH SIDE OF DOOR)
- 27

EXISTING 1 HOUR FIRE BARRIER TENANT DEMISING WALL. CONTRACTOR TO VERIFY WALL RATING WITH SHELL DOCUMENTS AND PROVIDE CORRECT FIRE TREATED BLOCKING & FIRE CAULK AT ALL PENETRATIONS TO MAINTAIN RATING AS REQ'D. CONTRACTOR TO INSTALL 1 LAYER(S) 5/8" GYP. BD. ON TENANT SIDE. GYP. BD. TO BE TAPED AND SANDED TO ACCEPT TENANT'S WALL FINISHES. SEE SHEET XT4.0 & SHEET XT4.1 FOR FIRE WALL JOINTS & PENETRATIONS.
- 28

SEE AL-1 ALUMINUM ELEVATION ON SHEET A6.1 FOR ADDITIONAL INFO
- 29

SEE AL-4 ALUMINUM ELEVATION ON SHEET A6.1 FOR ADDITIONAL INFO
- 30

PROVIDE HOLDRITE 50-SWHP-WM WALL MOUNTED EQUIPMENT PLATFORM. SEE DETAIL 12/A5.2 FOR BACKING. - SEE PLUMBING FOR MORE INFORMATION
- 31

GC TO VERIFY IF A KNOX BOX IS EXISTING. IF NOT, LANDLORD IS TO PROVIDE AND COORDINATE LOCATION WITH FIRE MARSHAL
- 32

GYP. BOARD BY TENANT - GYP. TO EXTEND TO DECK AT PERIMETER WALLS. SEE DETAIL 1/A1.1
- 33

INSTALL FRP (FIBER-REINFORCED PLASTIC) BEHIND THE SINK AND PLASTER AREA FROM FLOOR TO CEILING.
- 34

GC TO VERIFY REAR DOOR HARDWARE HAS ADAMS RITE 4590 LATCH PADDLE DEVICE & TO PROVIDE IF IT DOES NOT.
- 35

TAPER FLOOR BACK TO DRAIN (TYP.)
- 36

INFILL WINDOW OPENING WITH STUD FRAMING, BATT INSULATION, & GYP. BD. TO FULL HEIGHT AS REQ'D TO MATCH ADJACENT WALLS
- 37

BLACK SPANDREL GLAZING (FULL HEIGHT) BY TENANT'S GC.
- 38

5' SHELVES
- 39

2'-6" SHELVES
- 40

8" ø MIRROR SUPPLIED BY TAG TO BE MOUNTED FOR OPERATOR'S USE. GC TO COORDINATE EXACT LOCATION WITH TENANT.
- 41

SEE AL-2A ALUMINUM ELEVATION ON SHEET A6.1 FOR ADDITIONAL INFO
- 42

SEE AL-5 ALUMINUM ELEVATION ON SHEET A6.1 FOR ADDITIONAL INFO
- 43

APPROXIMATE EXTENTS OF EXISTING RIBBON SLAB. GC TO VERIFY IN FIELD.
- 44

WRAP COLUMN IN BREAK METAL. PAINT TO MATCH ADJACENT WALL/STOREFRONT.
- 45

HOLD STUD FRAMING TIGHT TO COLUMN AS POSSIBLE.
- 46

EXISTING PERIMETER FURRING WALL.
- 47

PERMANENTLY LOCK DOOR & TACK WELD SHUT TO FRAME. INFILL DOOR WITH STUD FRAMING AND GYP BOARD AS REQUIRED TO MATCH ADJACENT WALL.

1 GYP @ PERIMETER WALLS
A1.1 NOT TO SCALE

PARTITION TYPES

TOP TRACK PER CFS SHEETS

CEILING AS SCHEDULED

SOUND BATT INSULATION

MTL FRAMING @ 16" OC

• REFER TO CFS SHEETS

5/8" TYPE "X" GYP BD. BOTH SIDES

BASE AS SCHEDULED

STEEL CHANNEL

FINISHED FLOOR AS SCHEDULED

SOUND ATTENUATION PARTITION TYPES

A 3 5/8" METAL STUD FRAMING

A1 6" METAL STUD FRAMING

A2 8" METAL STUD FRAMING

TOP TRACK PER CFS SHEETS

CEILING AS SCHEDULED

SOUND BATT INSULATION

MTL FRAMING @ 16" OC

• REFER TO CFS SHEETS

(2) LAYERS 5/8" GYP BD INSIDE INTRA-ORAL ROOM

(1) LAYER 5/8" GYP BD

BASE AS SCHEDULED

STEEL CHANNEL

FINISHED FLOOR AS SCHEDULED

X-RAY WALL PARTITION TYPES

B 3 5/8" METAL STUD FRAMING

TOP TRACK PER CFS SHEETS

CEILING AS SCHEDULED

SOUND BATT INSULATION

MTL FRAMING @ 16" OC

• REFER TO CFS SHEETS

(1) LAYERS 5/8" GYP BD INSIDE PANORAMIC ROOM OVER 1/16" LEAD LINING TO 8'-0" AFF

(1) LAYER 5/8" GYP BD

BASE AS SCHEDULED

STEEL CHANNEL

FINISHED FLOOR AS SCHEDULED

X-RAY WALL PARTITION TYPES

C 3 5/8" METAL STUD FRAMING

EXISTING ROOF DECK

EXISTING WALL/ COLUMN

CEILING AS SCHEDULED

HOLD MTL. FURRING STUDS @ 16" OC TIGHT TO EXISTING CONSTRUCTION BY LANDLORD (STUD SIZE MAY BE ADJUSTED WHERE NOTED)

5/8" GYP ROOM SIDE TO 12'-0" AFF UNLESS CODE REQUIRES TO DECK

BASE AS SCHEDULED

FINISHED FLOOR AS SCHEDULED

FURRING WALL TYPES

D1 3 5/8" METAL STUD FRAMING

NOTES:

1. WALL THICKNESSES SHOWN ON PLAN AS NOMINAL:

- 5" = 4 7/8"
- 5 1/2" = 5 1/8"
- 6 1/2" = 6 5/8"
- 7 1/4" = 7 1/4"
- 8" = 7 7/8"

2. SOUND BATT INSULATION TO HAVE A FLAME SPREAD OF 25 OR LESS AND SMOKE DEVELOPMENT OF 450 OR LESS

3. GYP. BD. WALL FINISH TO RETURN TO ALL DOOR & WINDOW FRAMES. PROVIDE FINISH J TRIM & SEALANT AT FRAME (TYP.).

4. HOLD ALL GYP BOARD 1/2" OFF CONCRETE SLAB

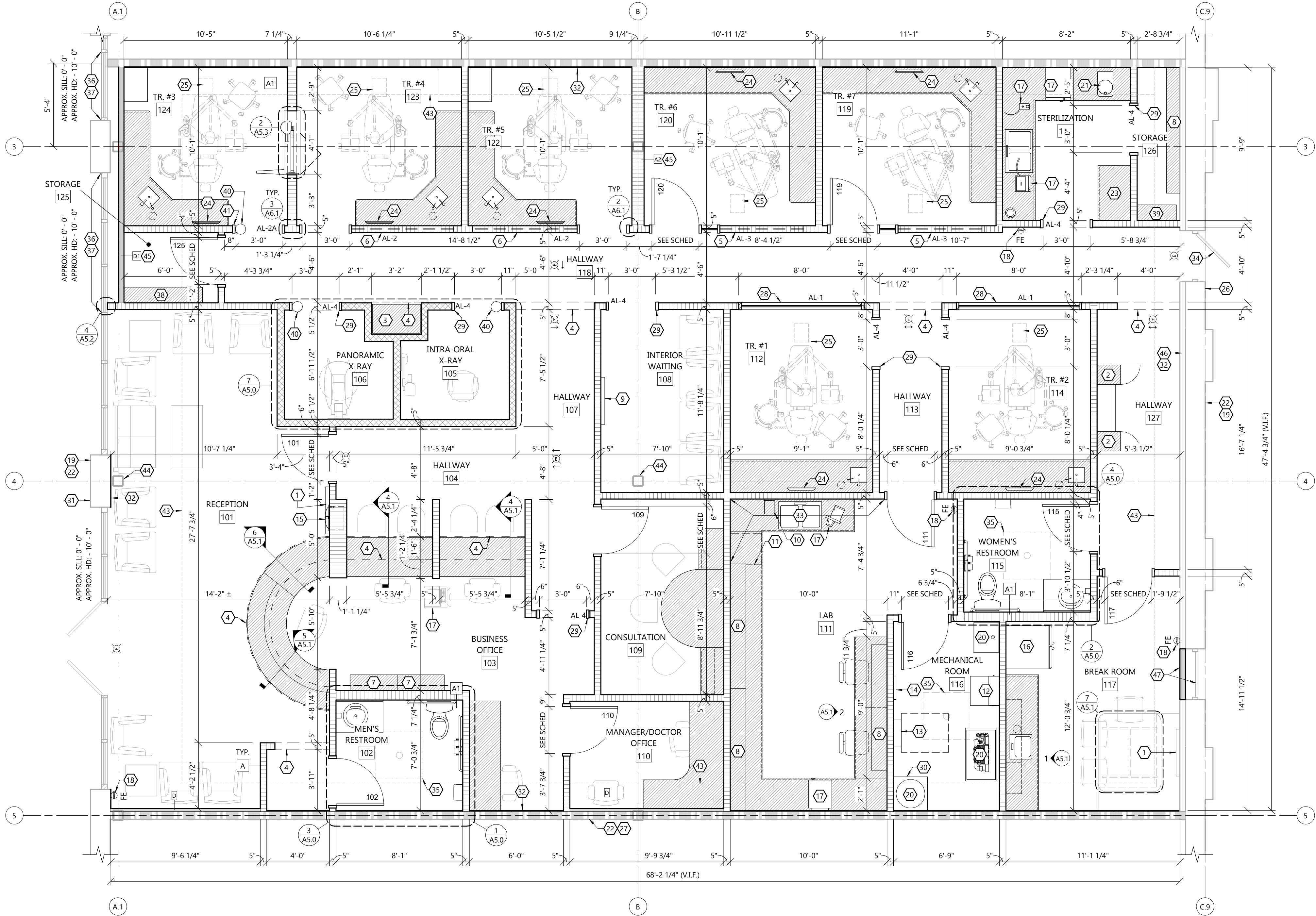
5. SEE PLAN FOR ALL WALL TYPES REQUIRING LEAD LINING

B.O. STRUCTURE HEIGHT:
HIGH SIDE APPROX. 17'-10 1/2" AFF
LOW SIDE APPROX. 16'-5 1/2" AFF

B.O. DECK HEIGHT:
HIGH SIDE APPROX. 19'-10 1/2" AFF
LOW SIDE APPROX. 18'-5 1/2" AFF

JOIST SPACING:
STEEL - APPROX. 5'-4" OC

NOTE:
INFORMATION BASED ON SHELL PLANS. GC TO VERIFY ALL CONDITIONS IN FIELD.



FIRST FLOOR PLAN

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

ARCHITECTURAL FIRST FLOOR PLAN

EXCEL

Always a Better Plan

100 Camelot Drive
Fond du Lac, WI 54935
920-926-9800
excelengineer.com

COLLABORATION

AspenDental

PROJECT INFORMATION

PROPOSED BUILD-OUT FOR:
ASPEN DENTAL
715 PROGRESS WAY STE TBD • GAITHERSBURG, MD 20877

PROFESSIONAL SEAL

SHEET DATES

SHEET ISSUE JULY 21, 2026

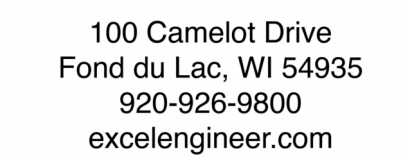
REVISIONS

JOB NUMBER

260222300

SHEET NUMBER

A1.1



AspenDental

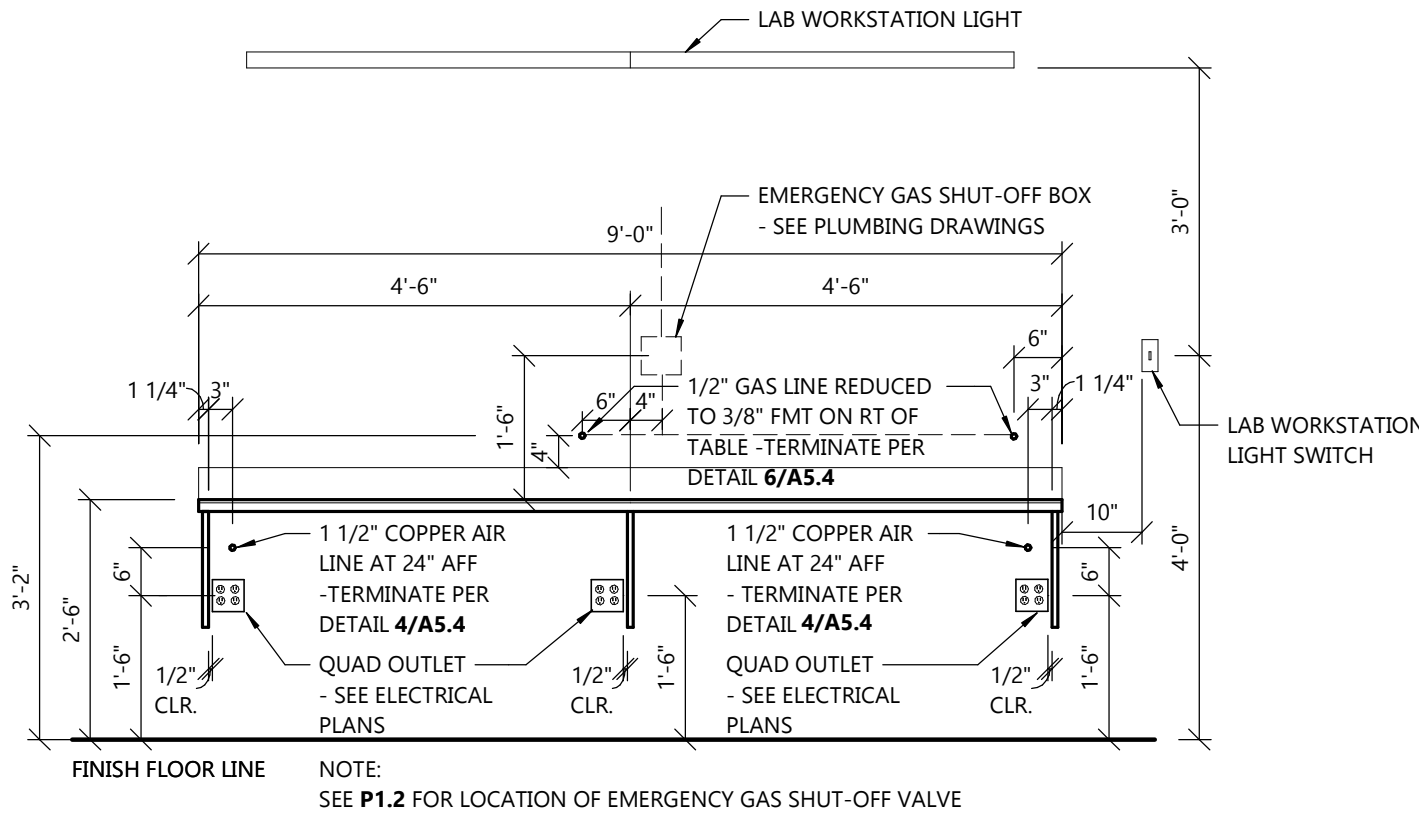
PROPOSED BUILD-OUT FOR:
ASPEN DENTAL
715 PROGRESS WAY STE TBD • GAITHERSBURG, MD 20877

A5.0

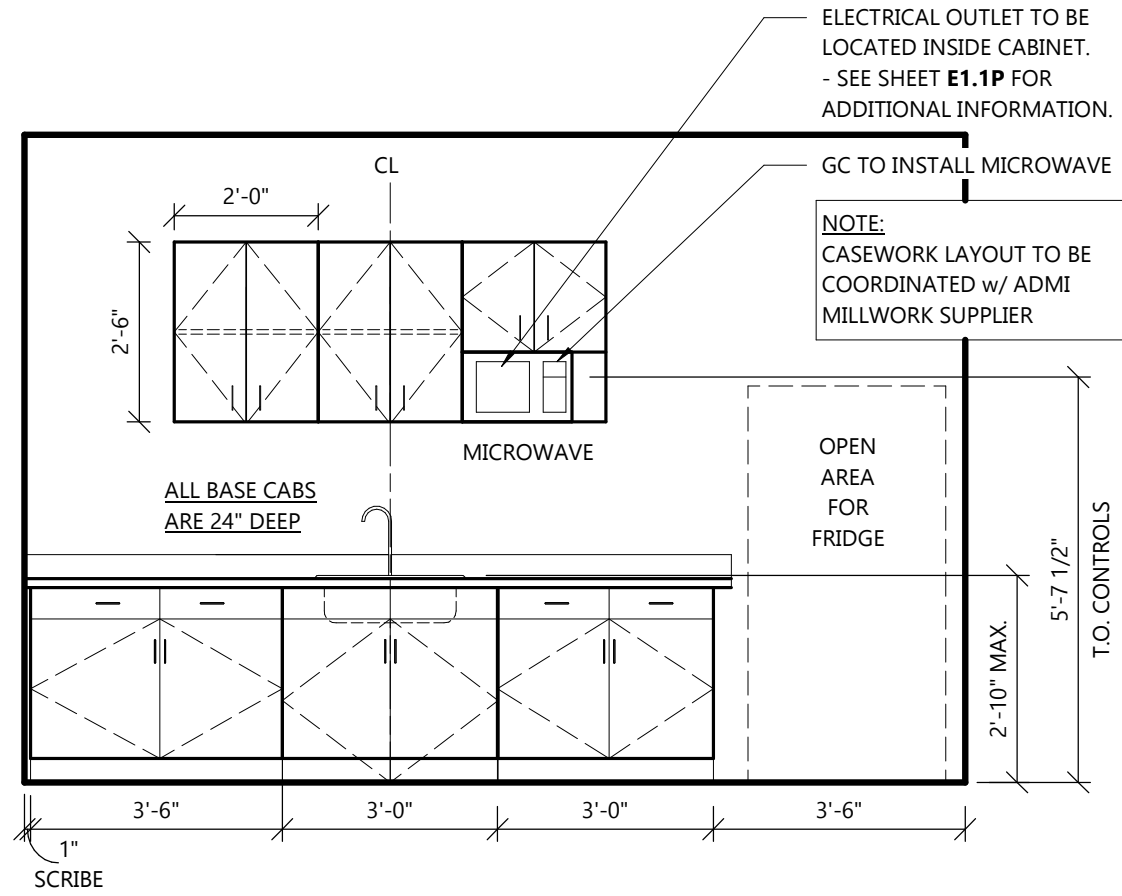
A5.0 SCALE: 3/4" = 1'-0"

A5.0 SCALE: 1/4" = 1'-0"

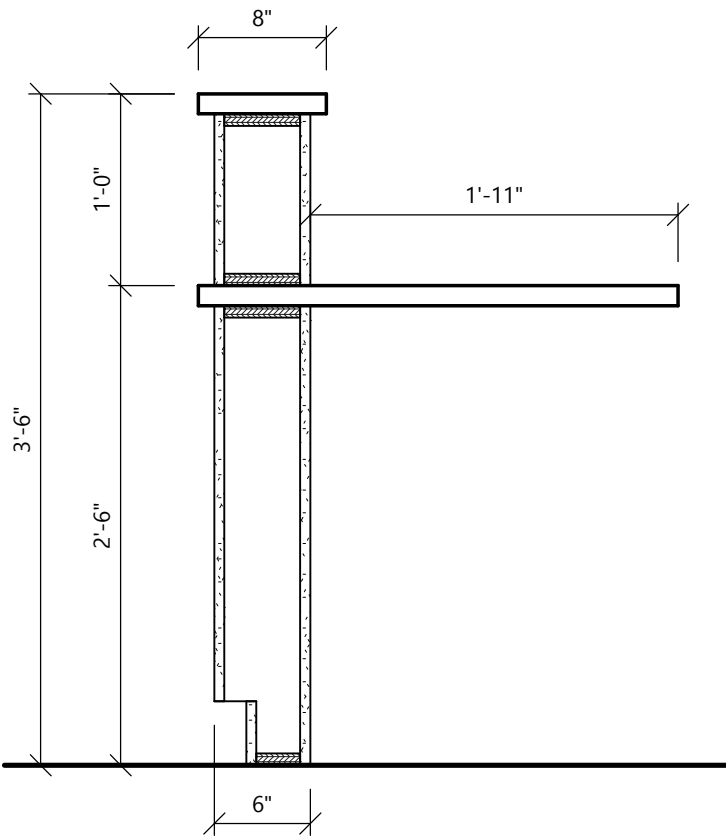
ARCHITECTURAL ENLARGED PLANS, INTERIOR ELEVATIONS & DETAILS



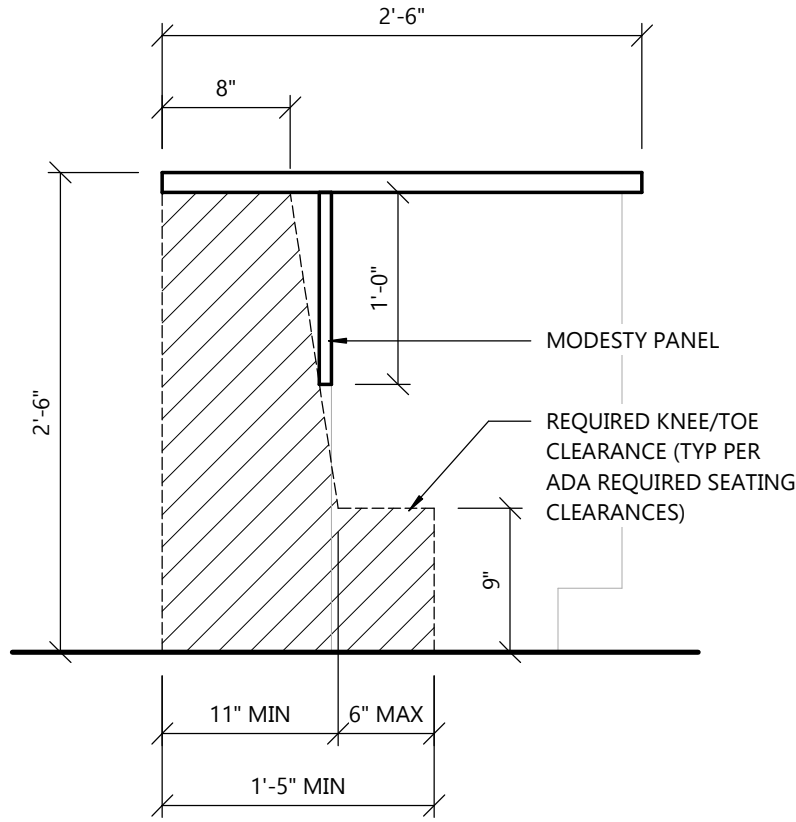
2
A5.1
ELEVATION - LAB WORKSTATION
SCALE: 1/2" = 1'-0"



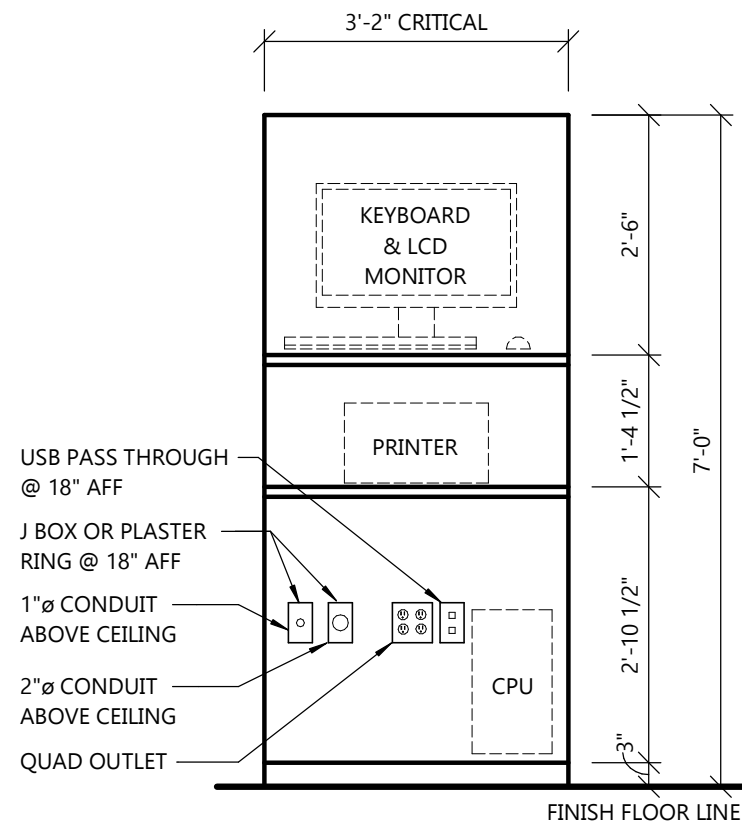
1
A5.1
ELEVATION - BREAK ROOM
SCALE: 3/8" = 1'-0"



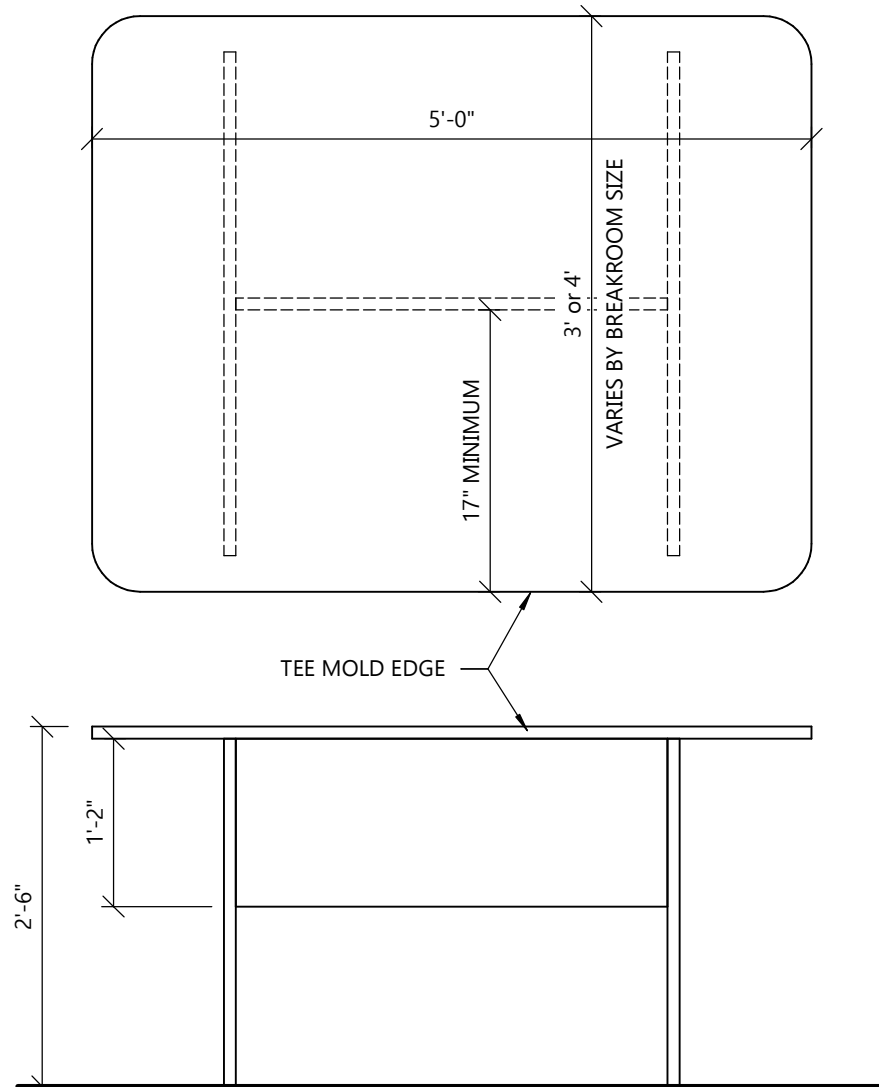
5
A5.1
RECEPTION STAND UP CHECK-IN
SCALE: 1" = 1'-0"



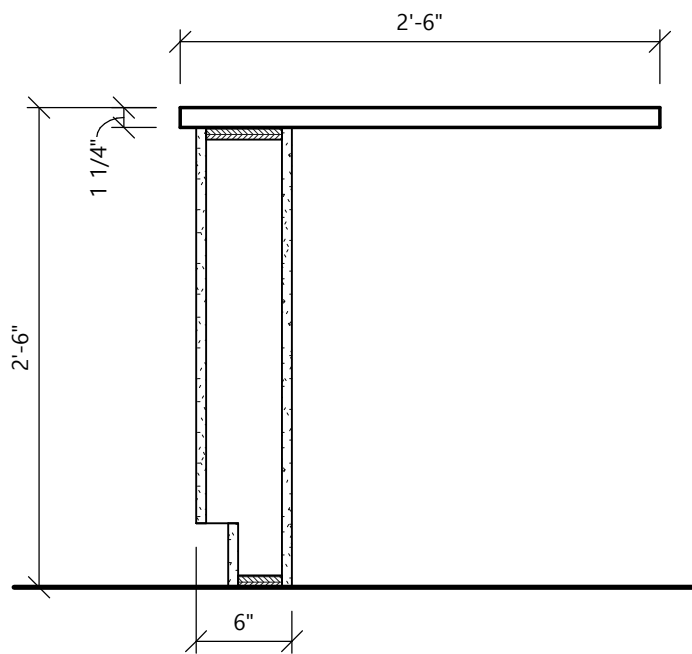
4
A5.1
BUSINESS OFFICE SIT DOWN CHECK-OUT
SCALE: 1" = 1'-0"



3
A5.1
ELEVATION - X-RAY ALCOVE
SCALE: 1/2" = 1'-0"



7
A5.1
BREAK ROOM TABLE
SCALE: 3/4" = 1'-0"



6
A5.1
RECEPTION ACCESS. CHECK-IN
SCALE: 1" = 1'-0"



Always a Better Plan

100 Camelot Drive
Fond du Lac, WI 54935
920-926-9800
excelengineer.com

COLLABORATION

AspenDental

PROJECT INFORMATION

PROPOSED BUILD-OUT FOR:
ASPEN DENTAL
715 PROGRESS WAY STE TBD • GAITHERSBURG, MD 20877

PROFESSIONAL SEAL

SHEET DATES

SHEET ISSUE JULY 21, 2026

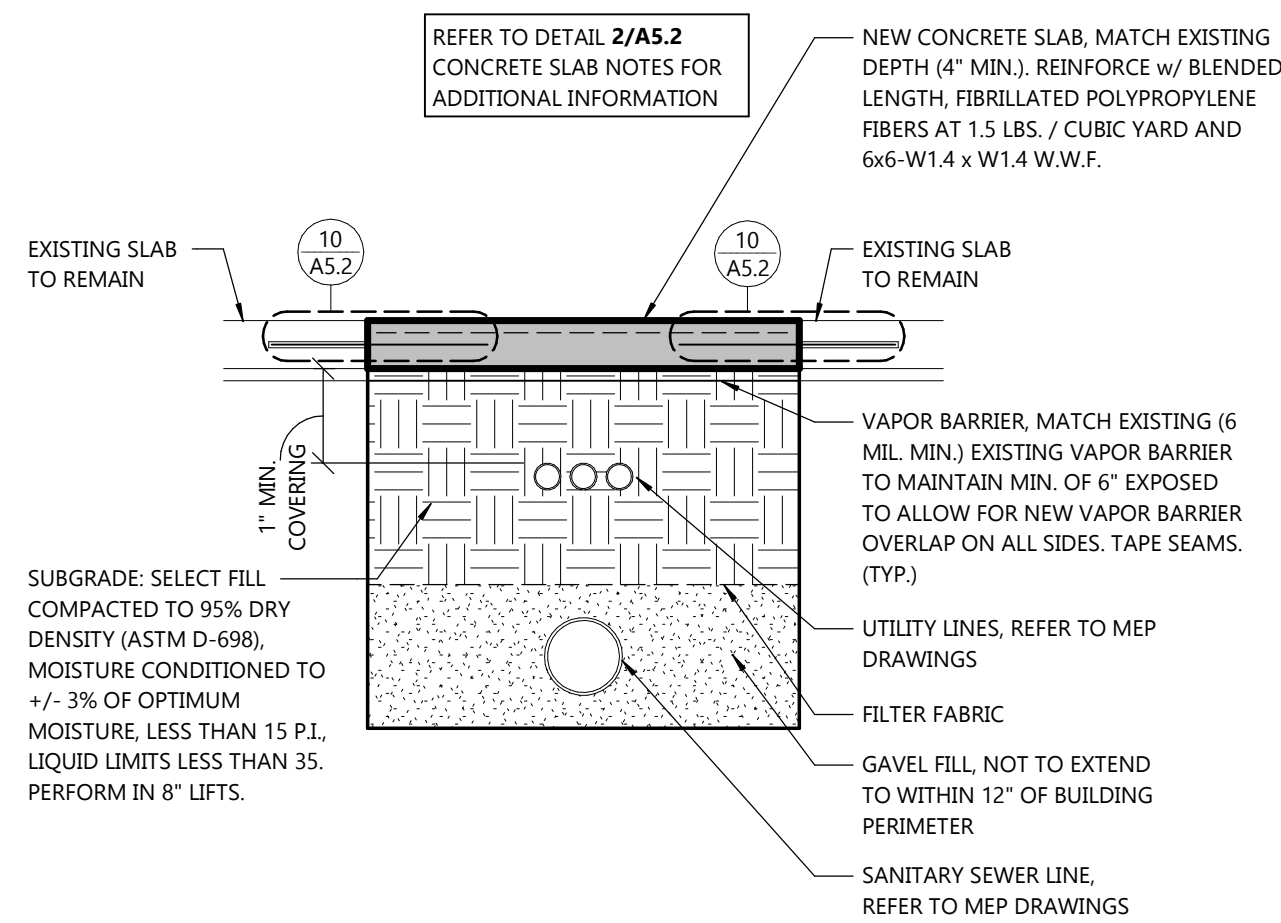
REVISIONS

JOB NUMBER

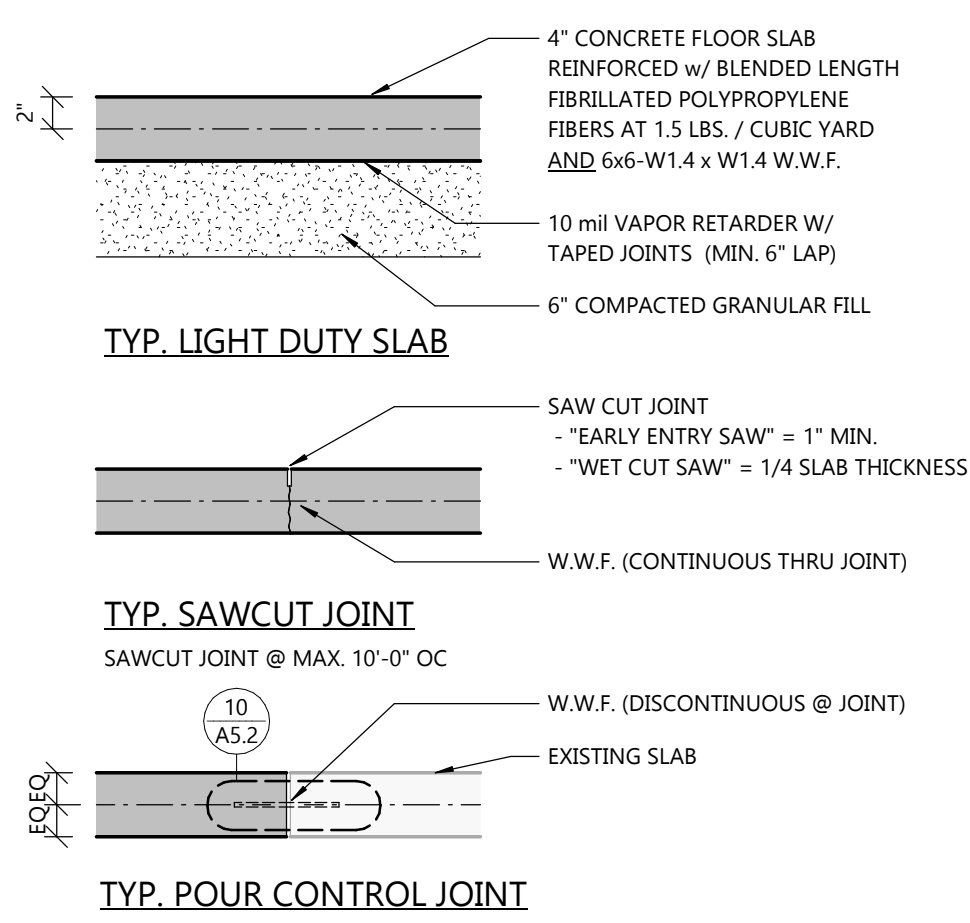
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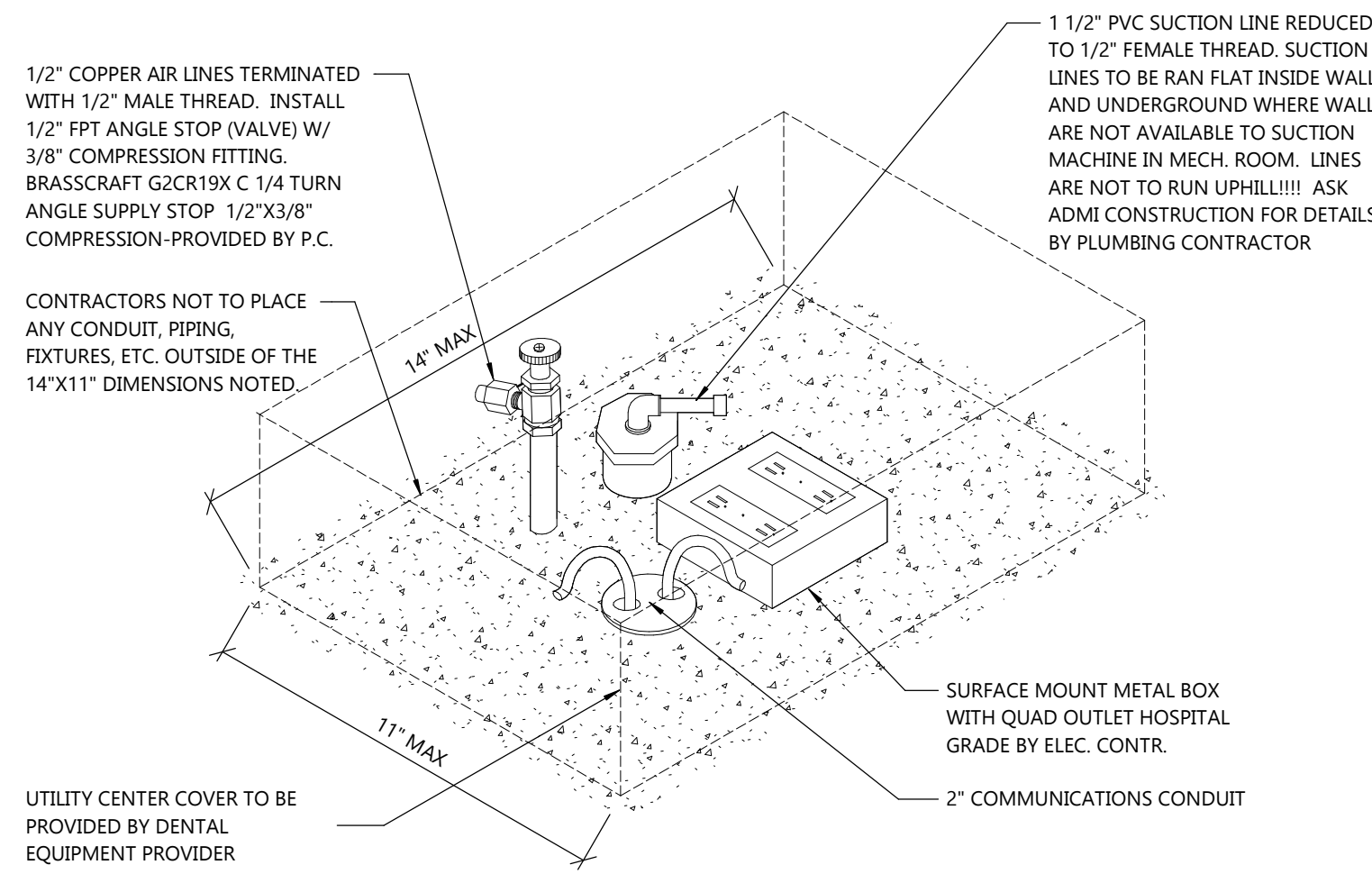
A5.1



3 TRENCH DETAIL
A5.2 SCALE: 3/4" = 1'-0"

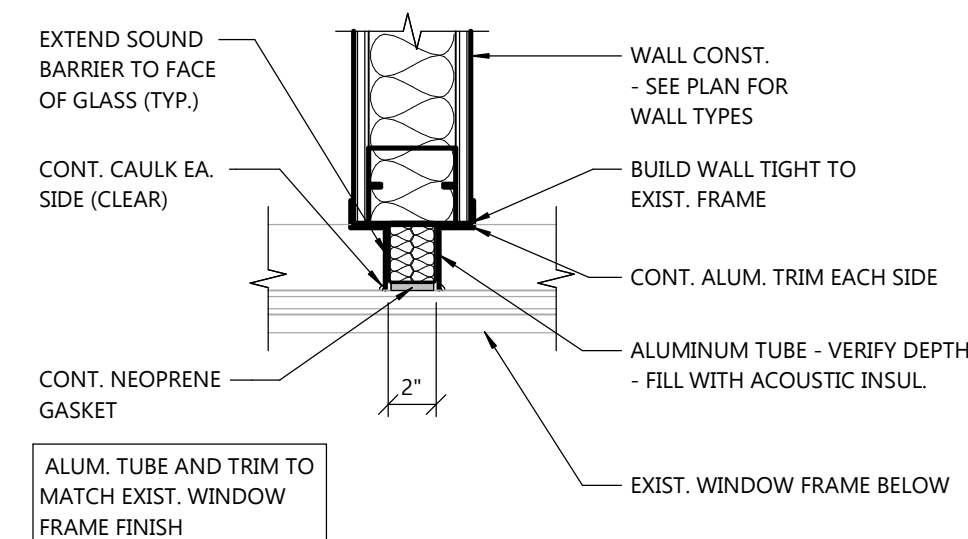


2 SLAB DETAIL
A5.2 SCALE: 1" = 1'-0"

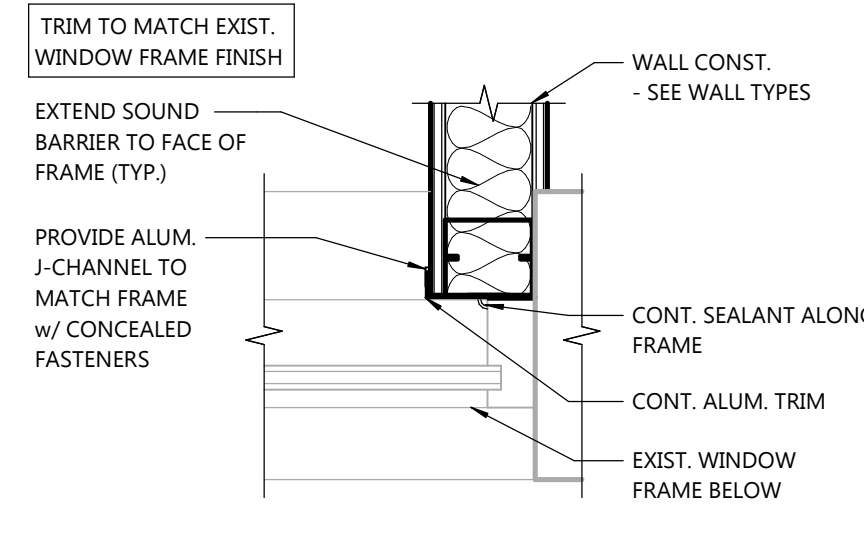


1 UTILITY CENTER DETAIL
A5.2 SCALE: 1/4" = 1'-0"

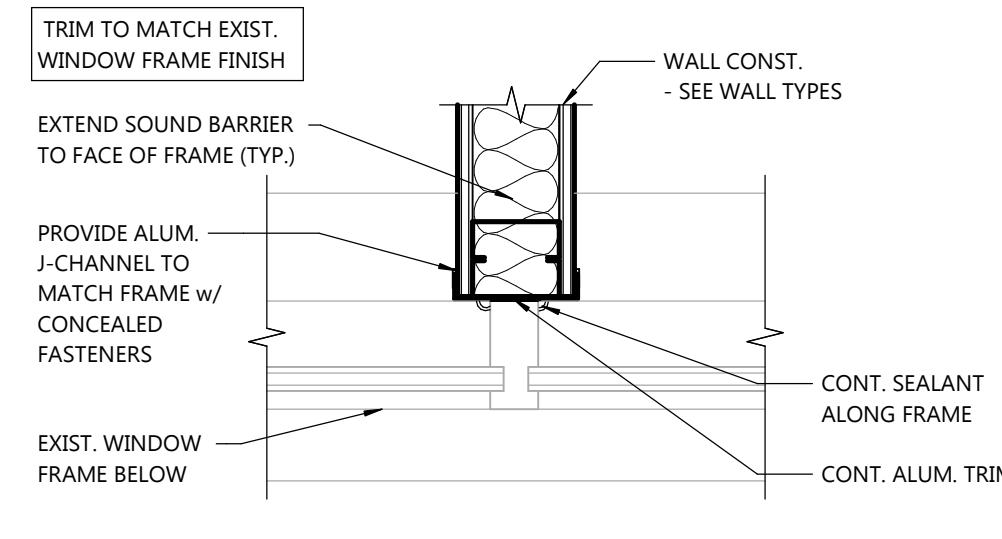
NOT ALL DETAILS MAY BE USED IN THIS PROJECT



6 WALL CLOSURE DETAIL
A5.2 SCALE: 1 1/2" = 1'-0"

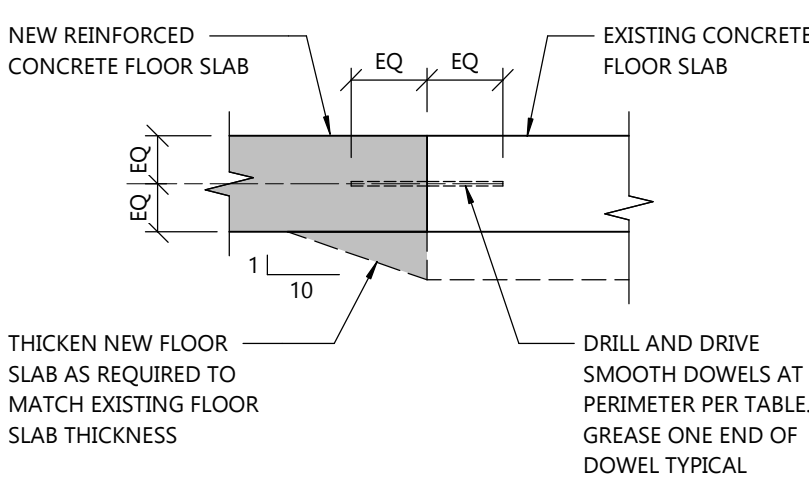


5 WALL CLOSURE DETAIL
A5.2 SCALE: 1 1/2" = 1'-0"

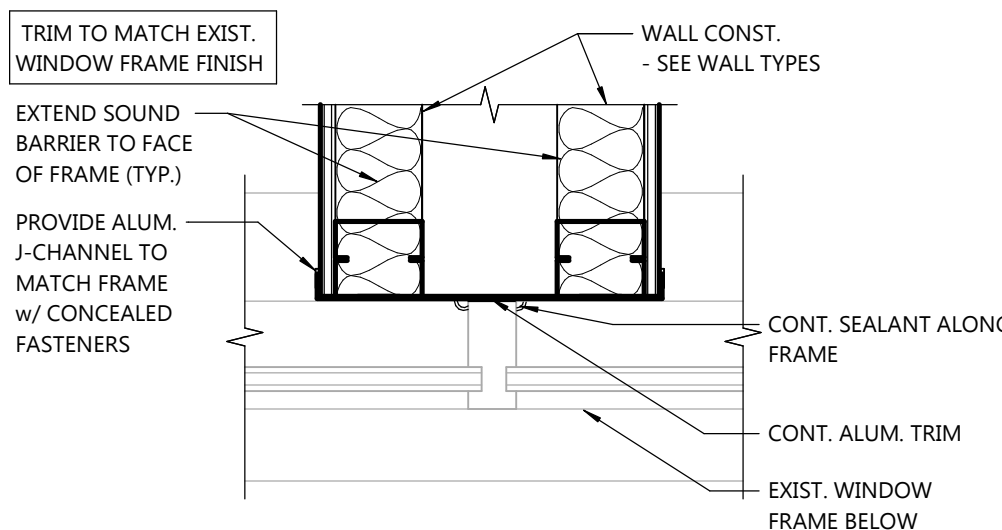


4 WALL CLOSURE DETAIL
A5.2 SCALE: 1 1/2" = 1'-0"

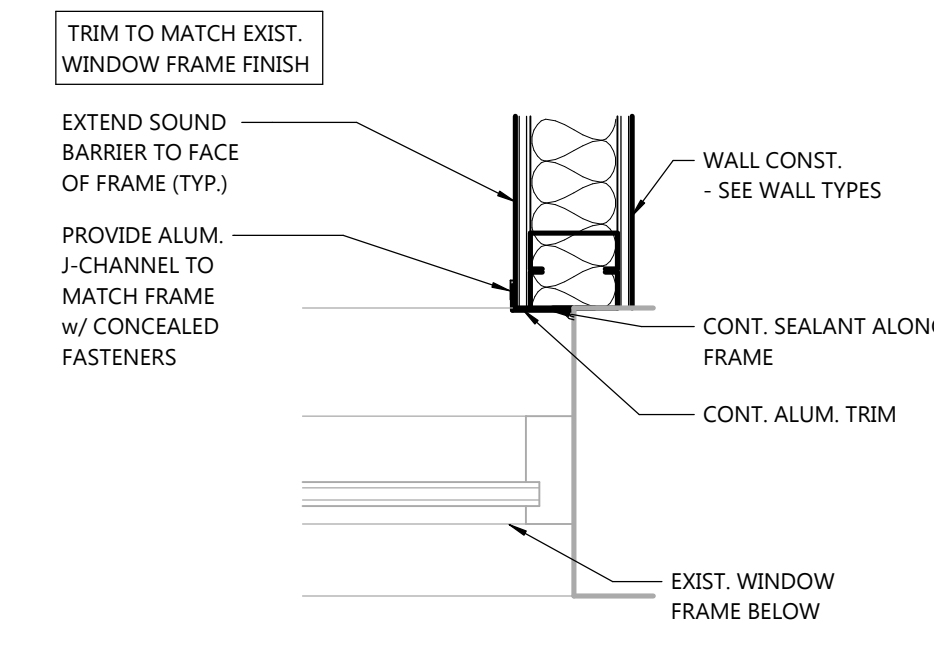
SMOOTH DOWEL SIZE & SPACING (PER ACT 302)			
SLAB DEPTH (IN.)	DIAMETER (IN.)	TOTAL LENGTH (IN.)	SPACING (IN.)
4	1/2	12	12
5	5/8	12	12
6	3/4	16	12
7	7/8	16	12
8	1	18	12
9	1 1/8	18	12
>= 10	1 1/4	20	12



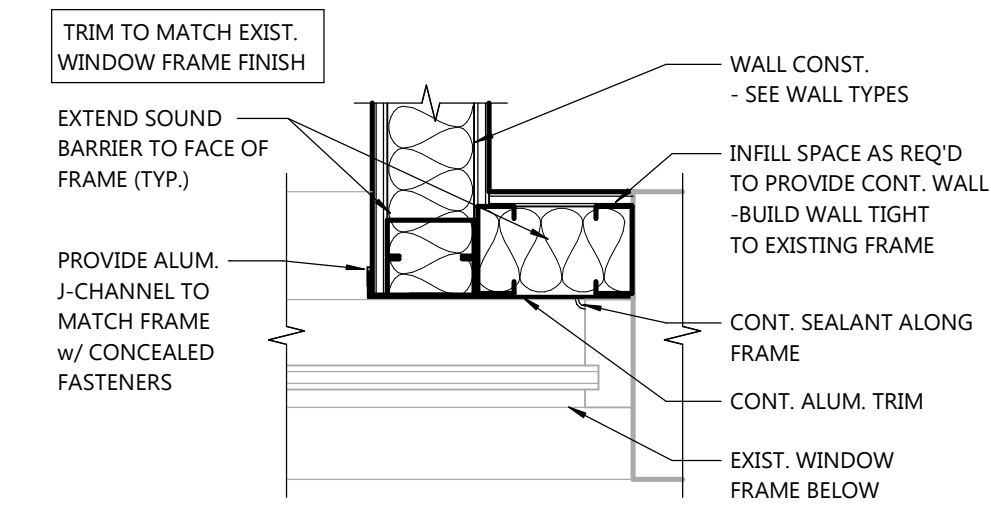
10 NEW TO EXISTING SLAB JOINT DETAIL
A5.2 SCALE: 1" = 1'-0"



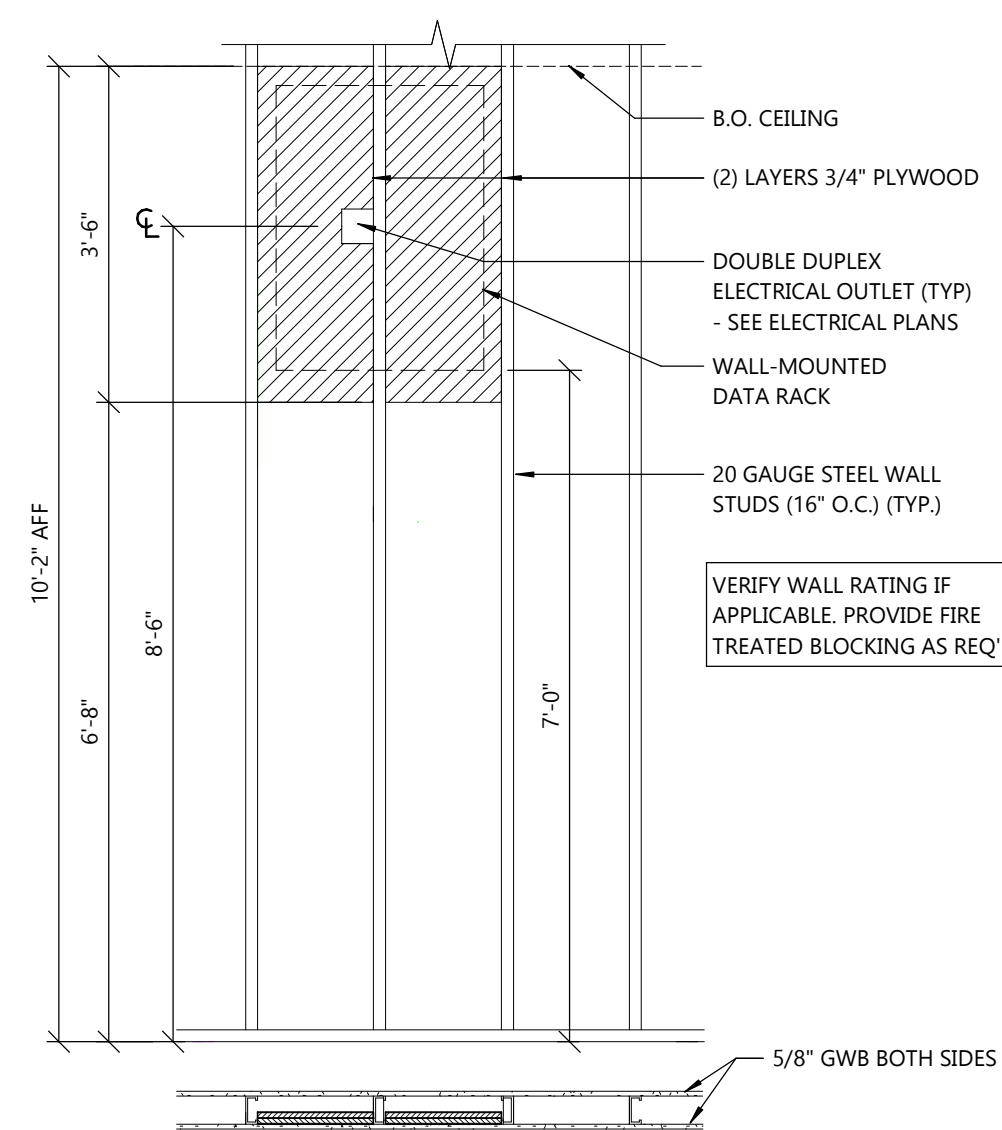
9 WALL CLOSURE DETAIL
A5.2 SCALE: 1 1/2" = 1'-0"



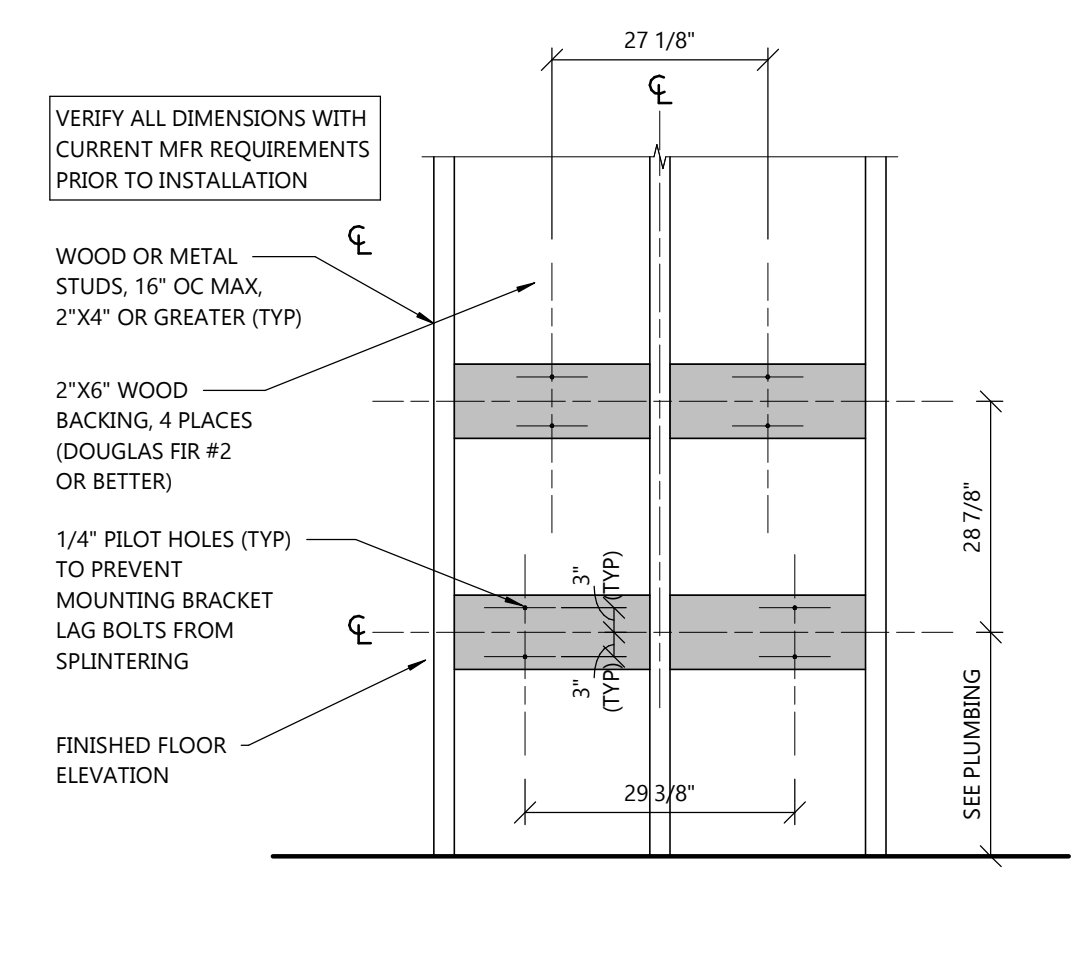
8 WALL CLOSURE DETAIL
A5.2 SCALE: 1 1/2" = 1'-0"



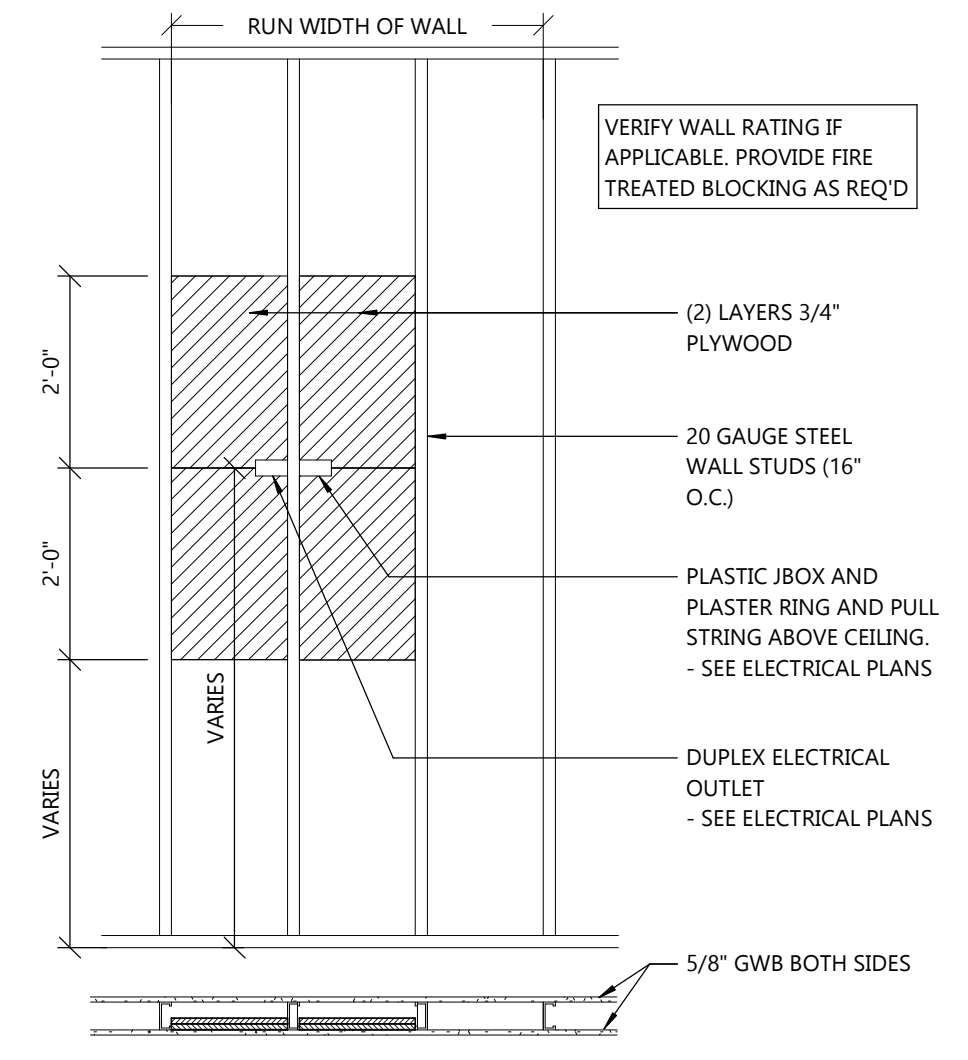
7 WALL CLOSURE DETAIL
A5.2 SCALE: 1 1/2" = 1'-0"



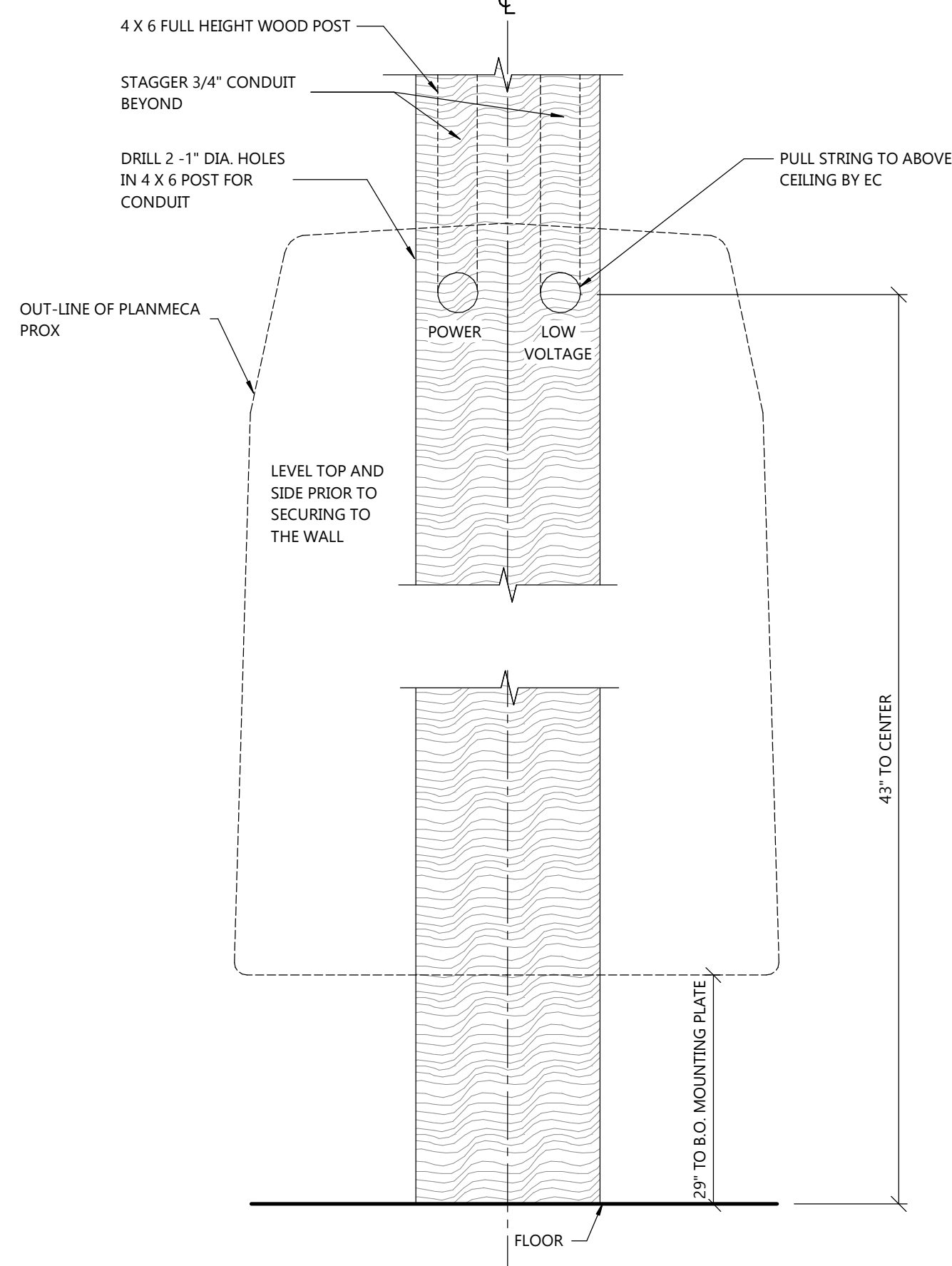
13 DATA RACK BLOCKING
A5.2 SCALE: 1/2" = 1'-0"



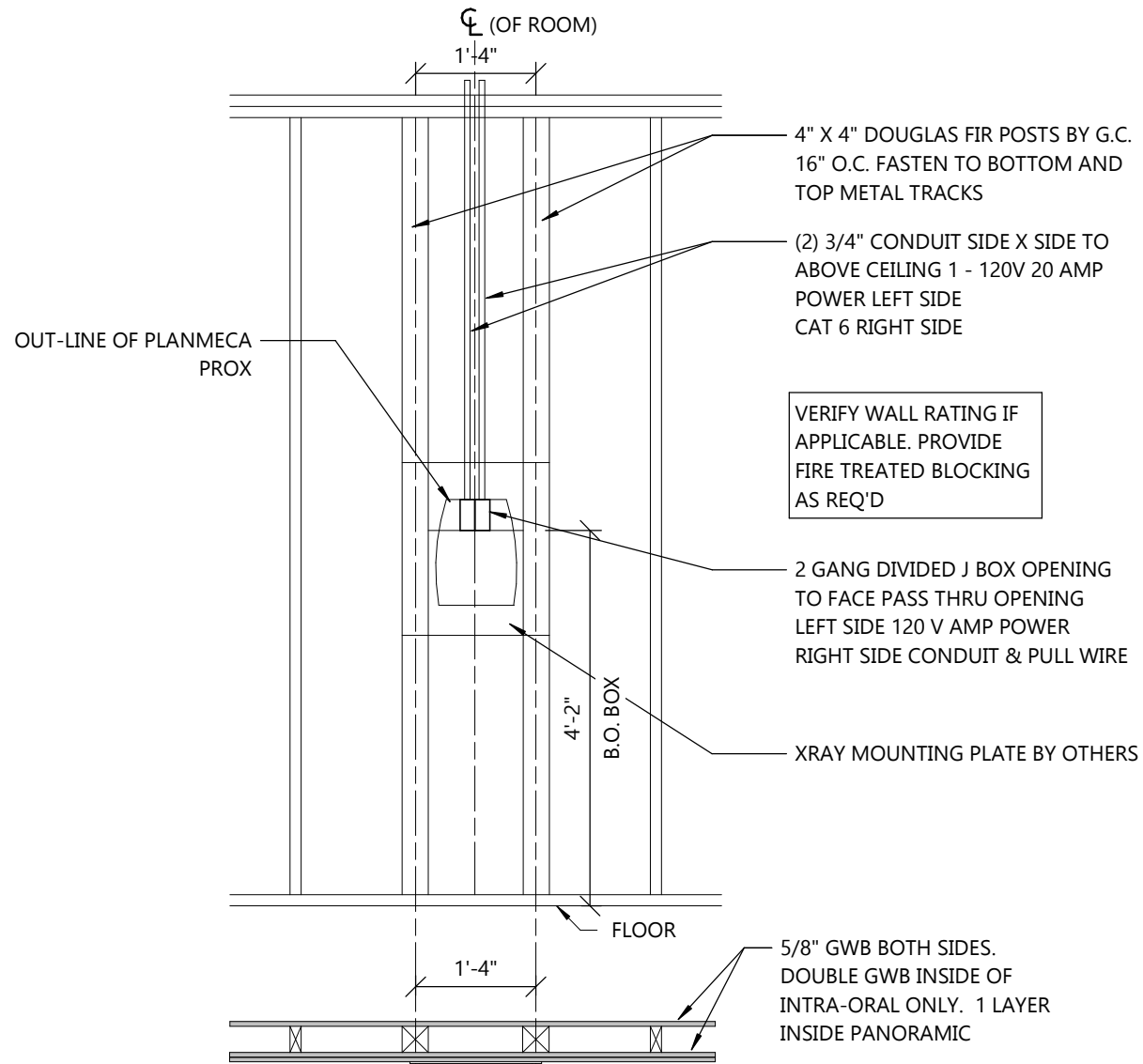
12 WATER HEATER BLOCKING DETAIL
A5.2 SCALE: 1/2" = 1'-0"



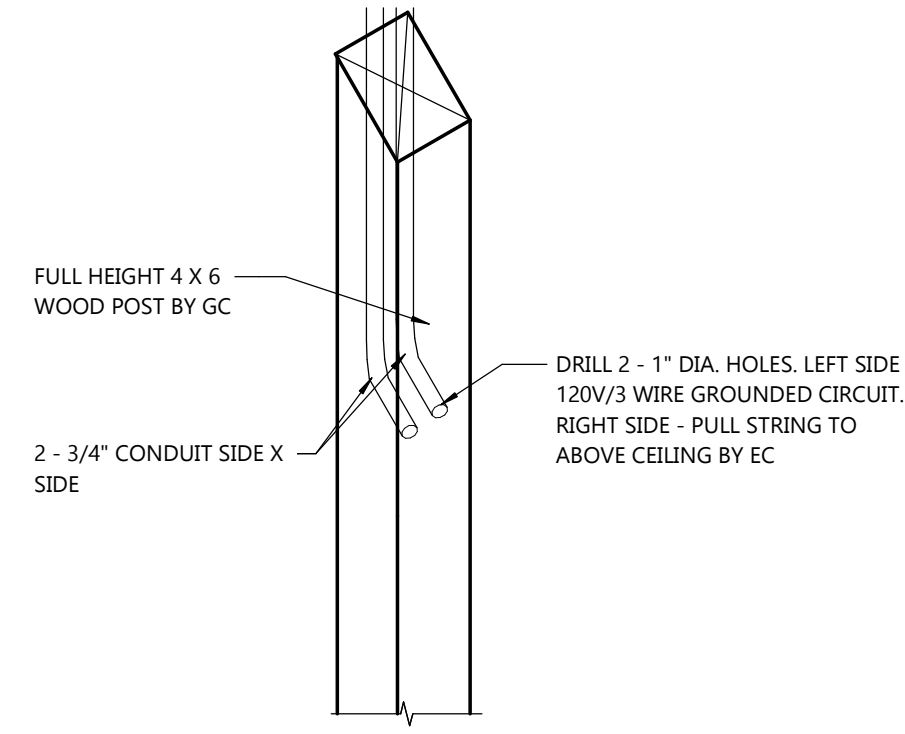
11 FLAT SCREEN TV SUPPORT
A5.2 SCALE: 1/2" = 1'-0"



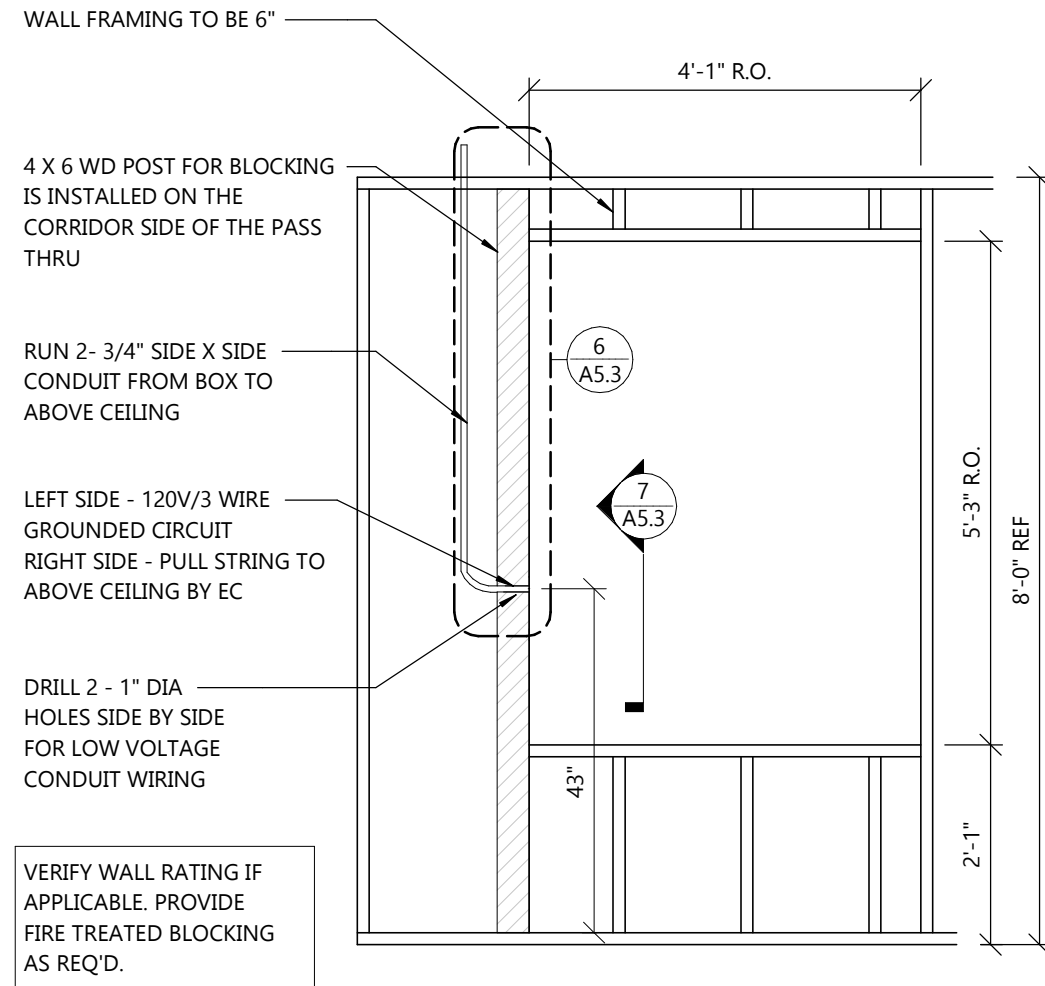
7 PASS THRU X-RAY PLATE DETAIL
A5.3 SCALE: 6" = 1'-0"



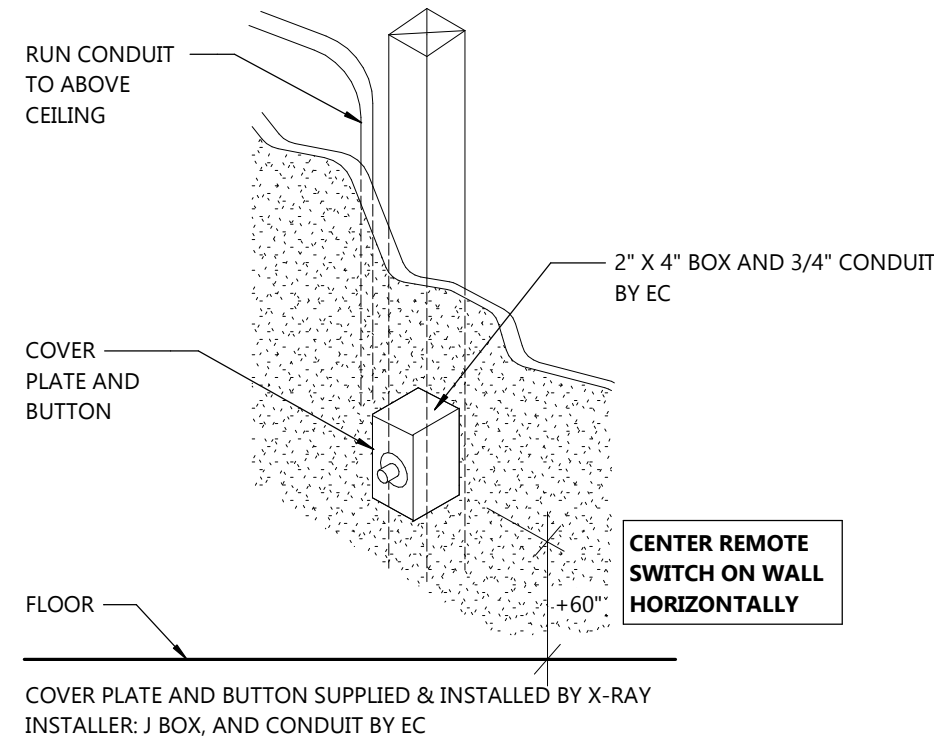
3 PLANMECA PRO X X-RAY SUPPORT
A5.3 SCALE: 1/2" = 1'-0"



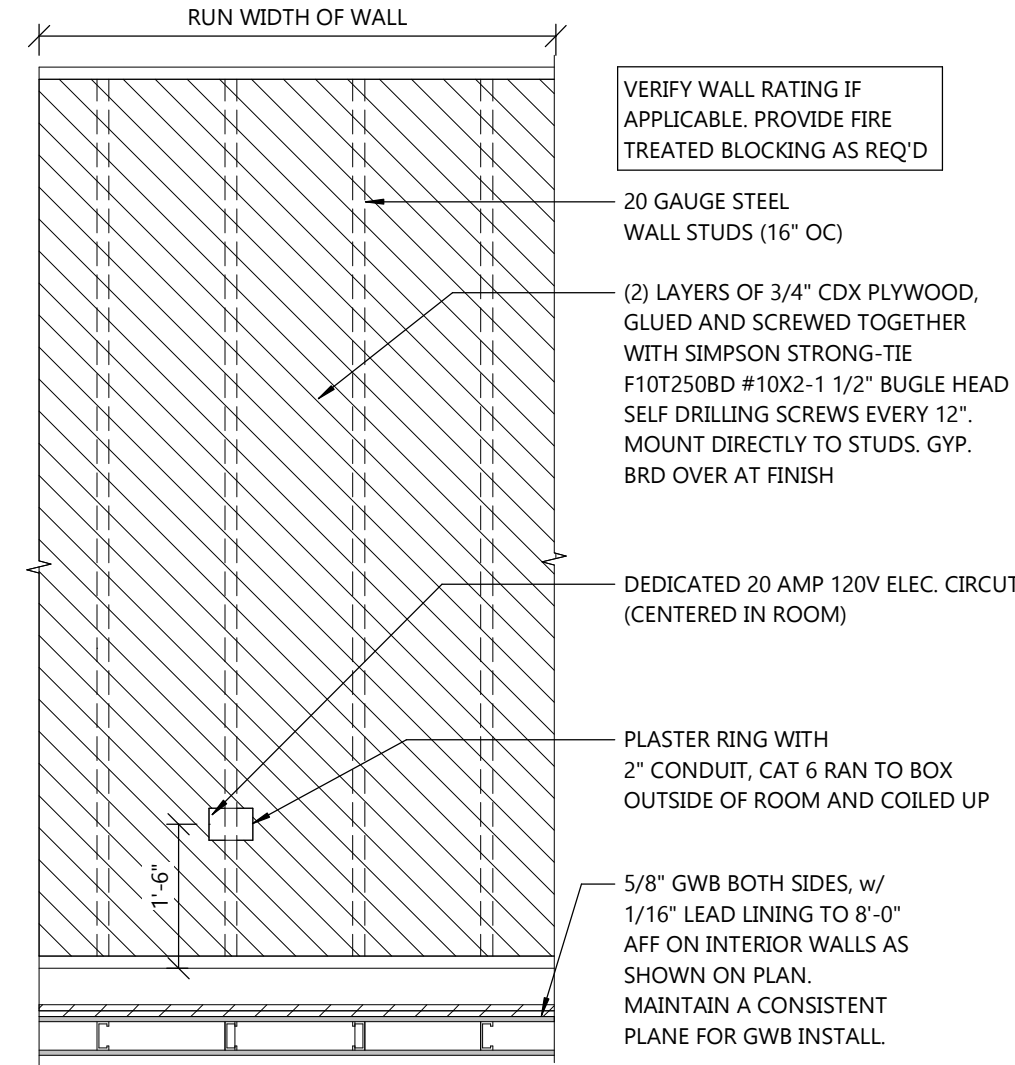
6 PLANMECA PRO X PASS THRU X-RAY ISOMETRIC
A5.3 SCALE: 1 1/2" = 1'-0"



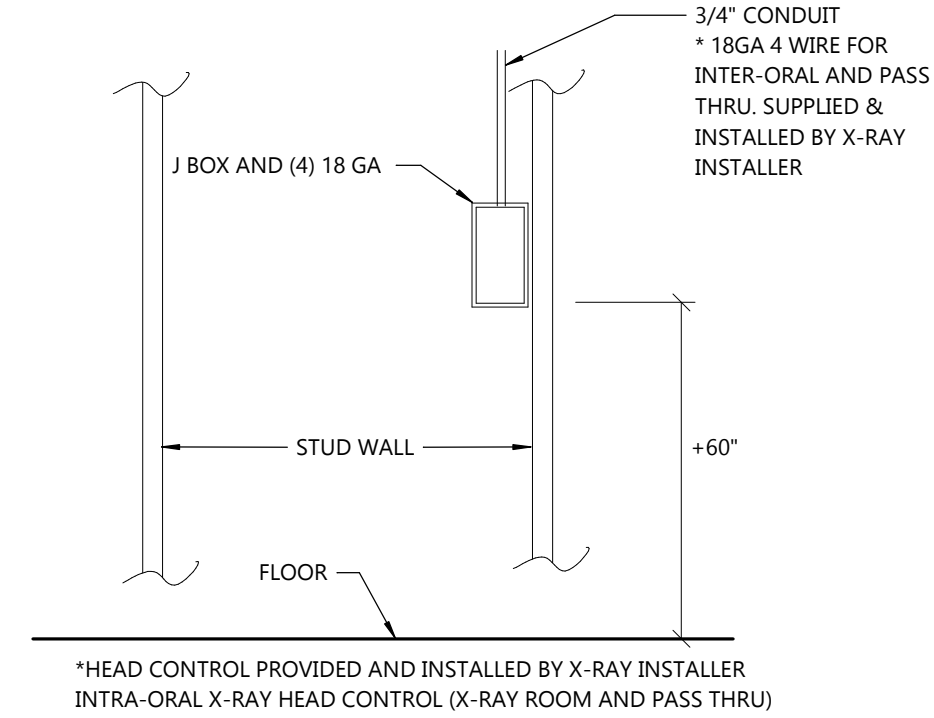
2 PLANMECA PRO X
A5.3 SCALE: 1/2" = 1'-0"



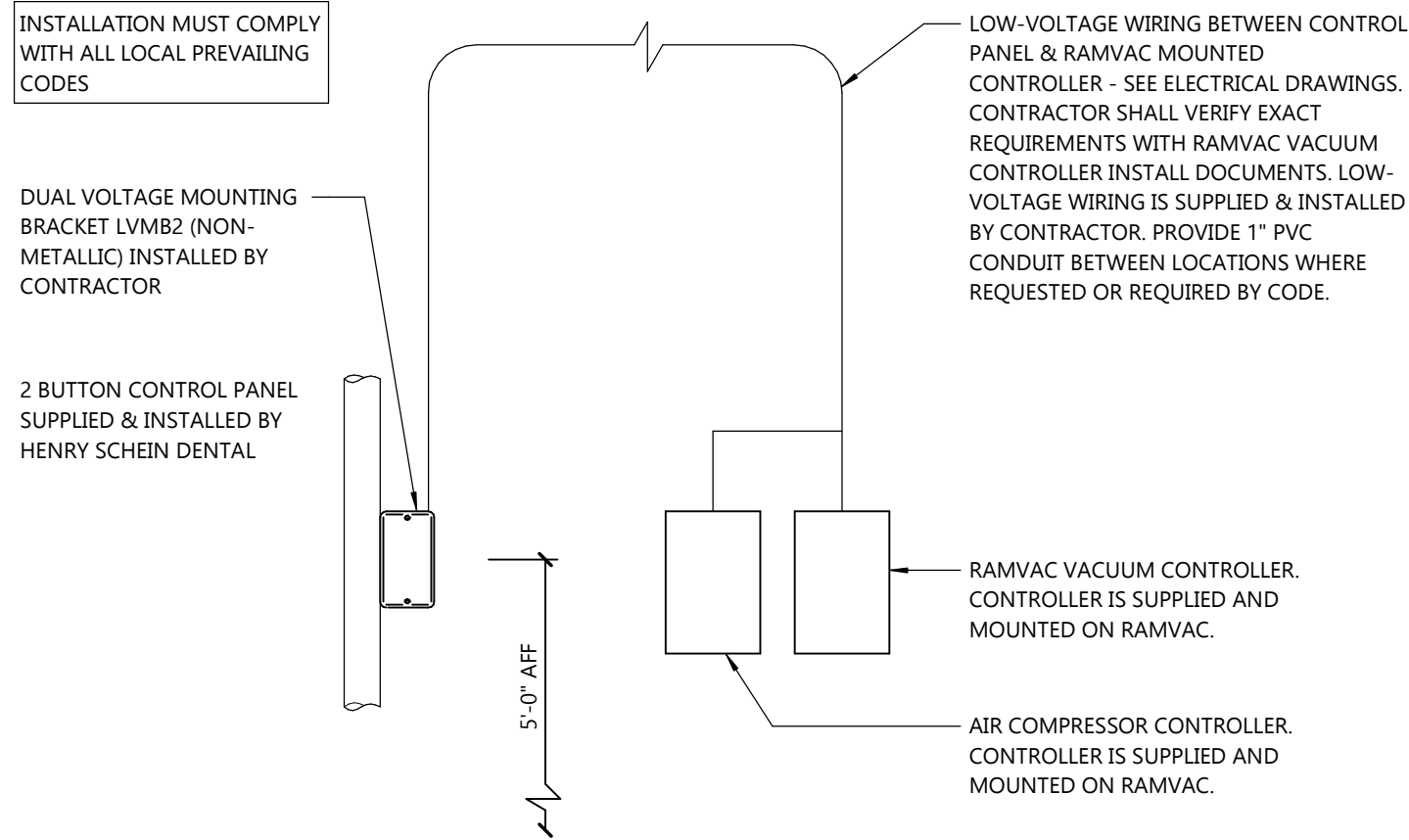
5 PAN/CBCT X-RAY REMOTE SWITCH
A5.3 SCALE: 1/4" = 1'-0"



1 PANORAMIC X-RAY SUPPORT
A5.3 SCALE: 1/2" = 1'-0"



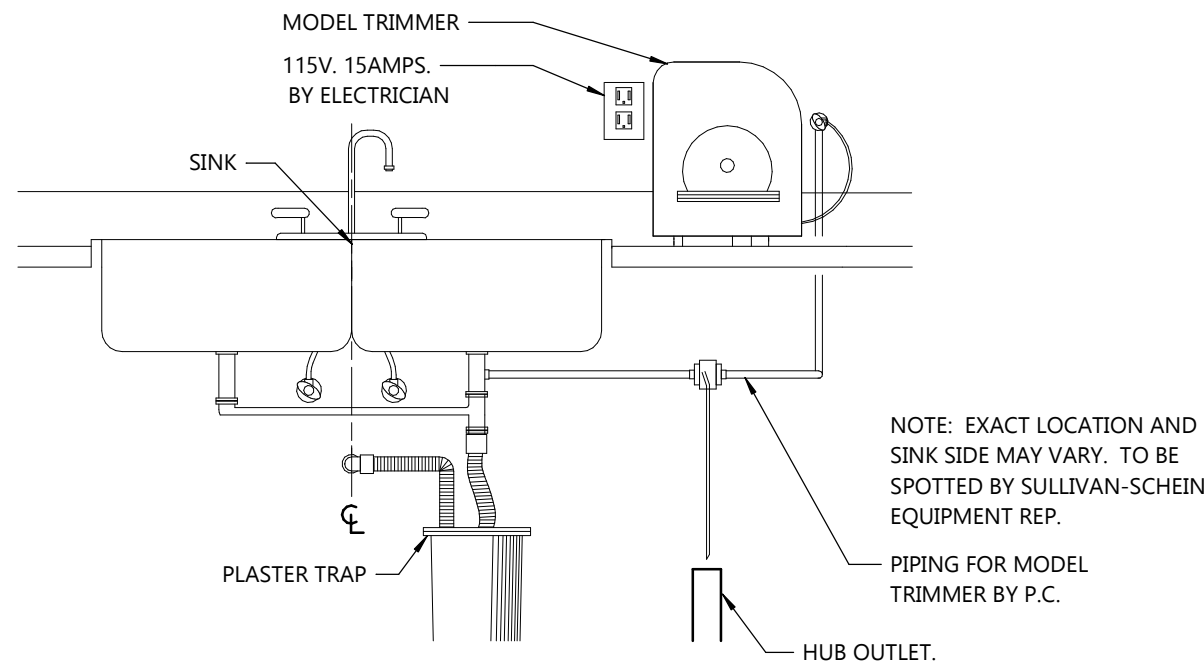
4 INTRA ORAL X-RAY HEAD CONTROL
A5.3 SCALE: 1/4" = 1'-0"



3
A5.4

2 BUTTON CONTROL PANEL

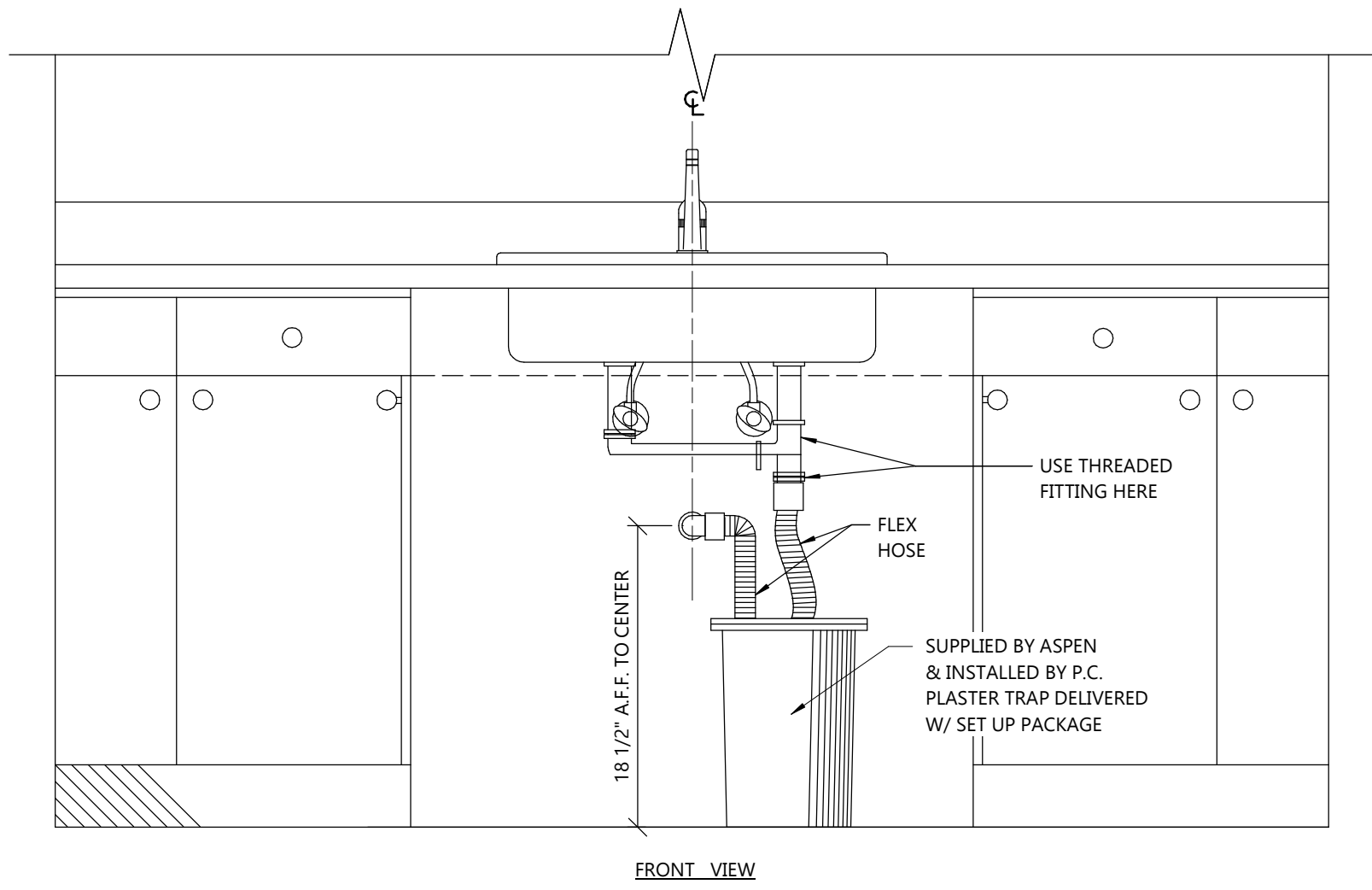
SCALE: 1/2" = 1'-0"



2
A5.4

MODEL TRIMMER

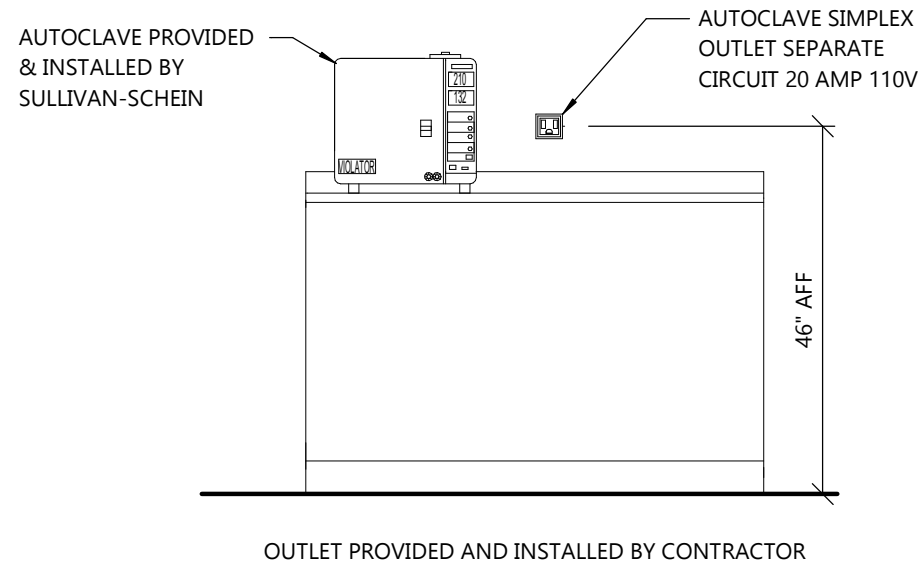
NOT TO SCALE



1
A5.4

PLASTER TRAP

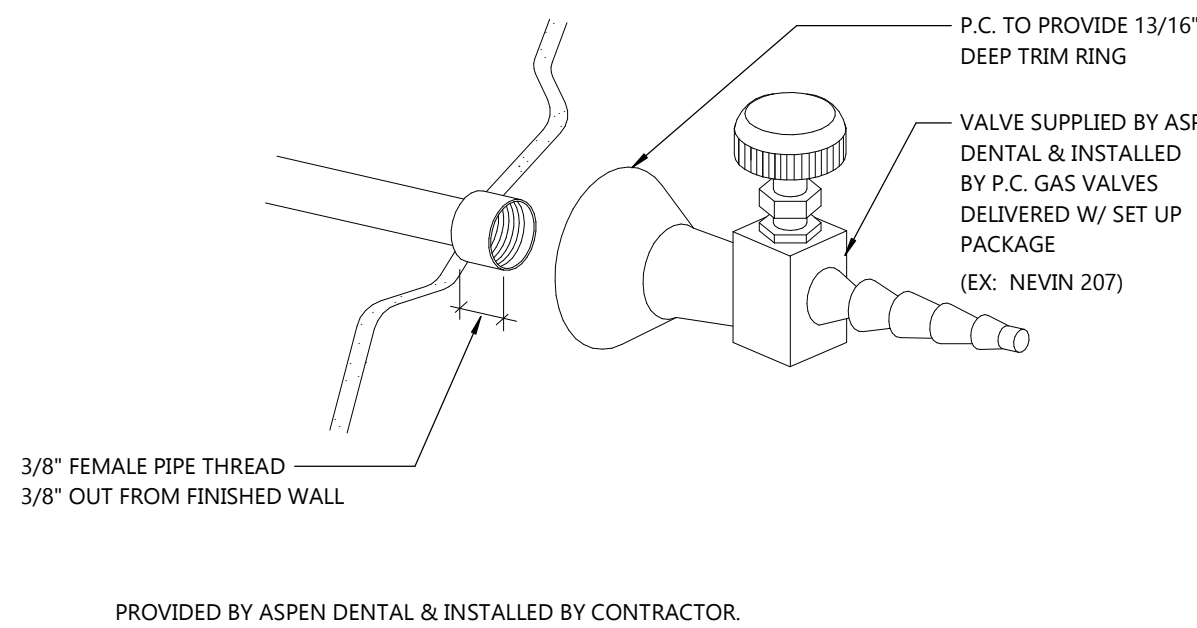
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6
A5.4

AUTOCLAVE OUTLET

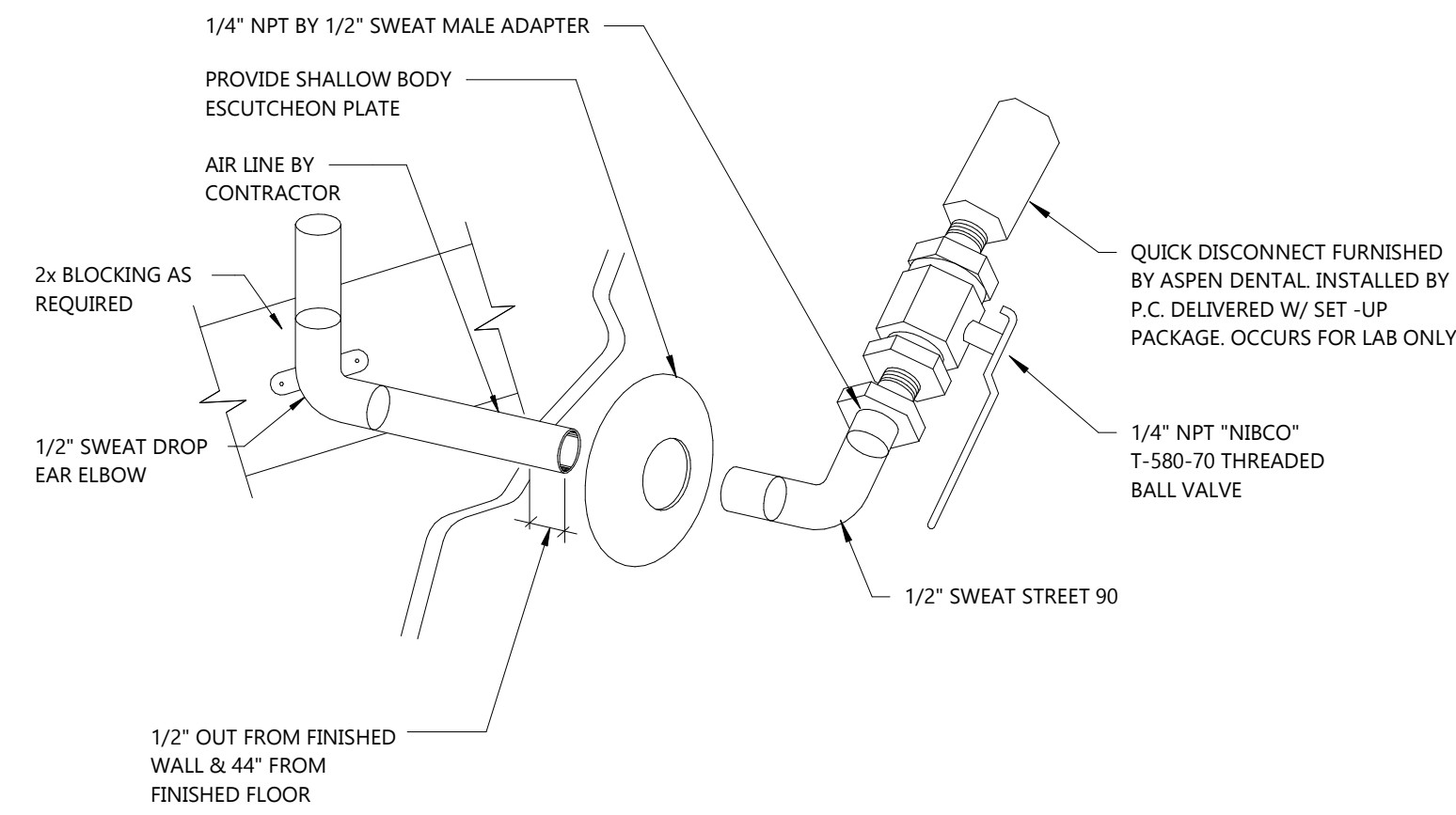
SCALE: 1/2" = 1'-0"



5
A5.4

LAB GAS VALVE

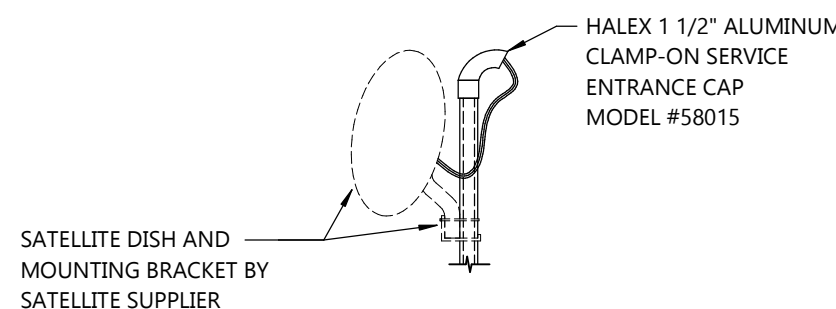
NOT TO SCALE



4
A5.4

AIR VALVE

NOT TO SCALE

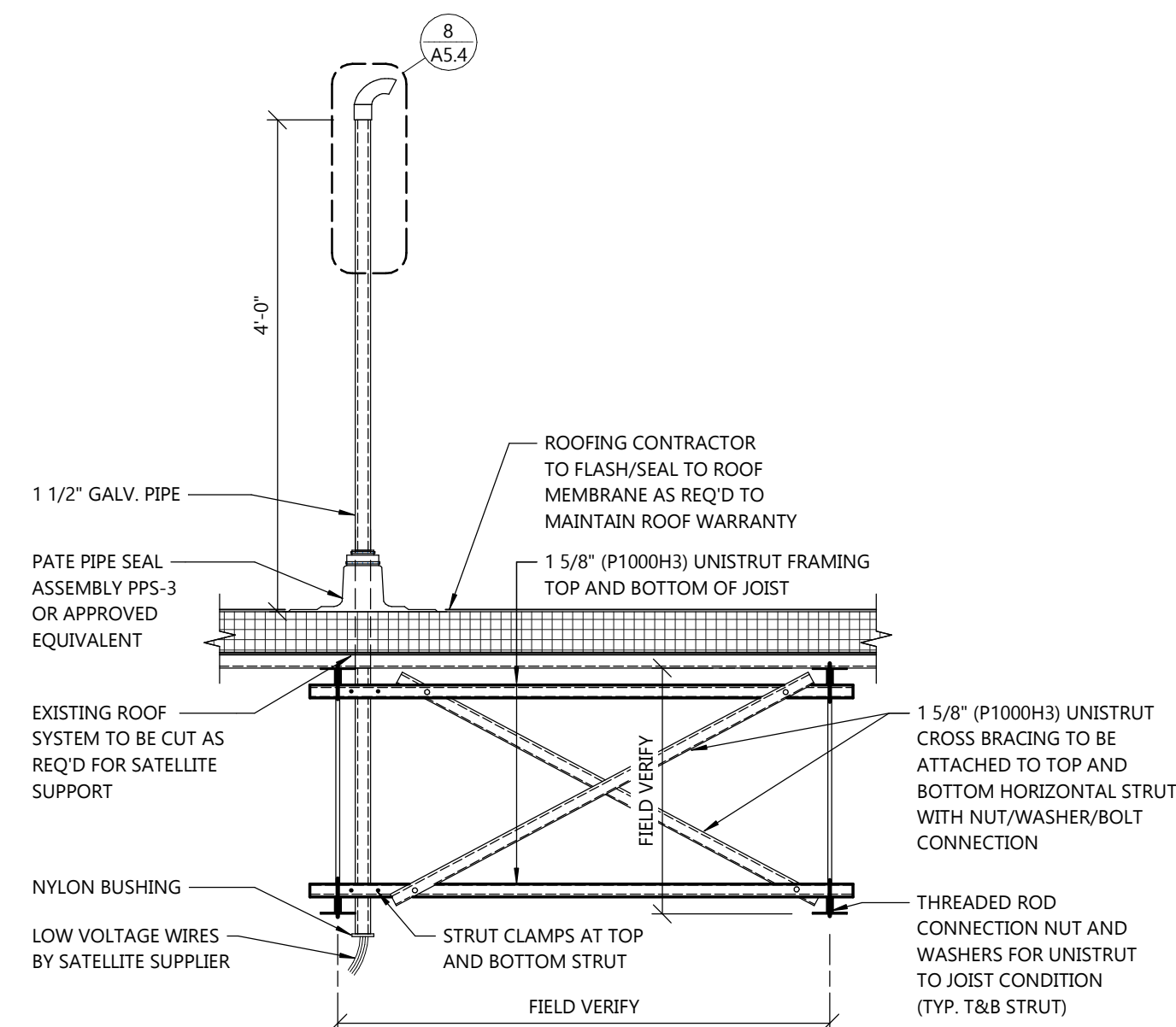
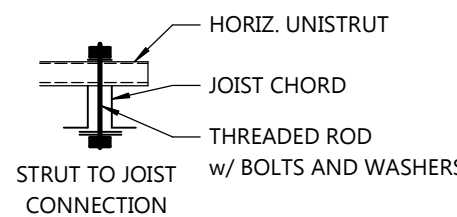


8
A5.4

SATELLITE CONNECTION TO PIPE

SCALE: 3/4" = 1'-0"

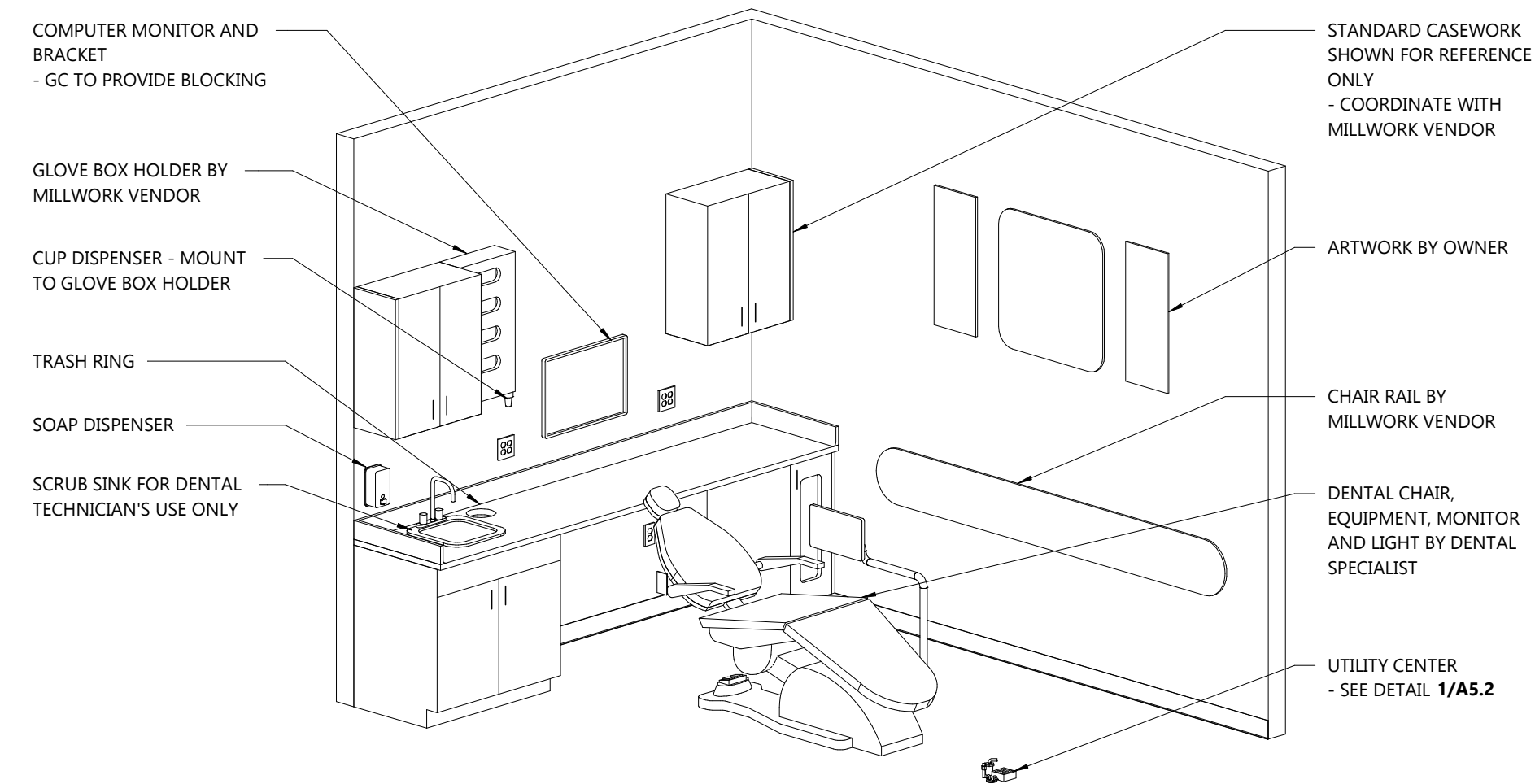
UNISTRUT FRAMING TO BE INSTALLED AT JOIST PANEL POINT NEAREST TO LOCATION INDICATED BY TENANT. FRAMING MAY BE MOVED SLIGHTLY SO THAT CONN. OF STRUT TO JOIST CAN OCCUR AT METAL DECK HIGH FLUTE LOCATION.



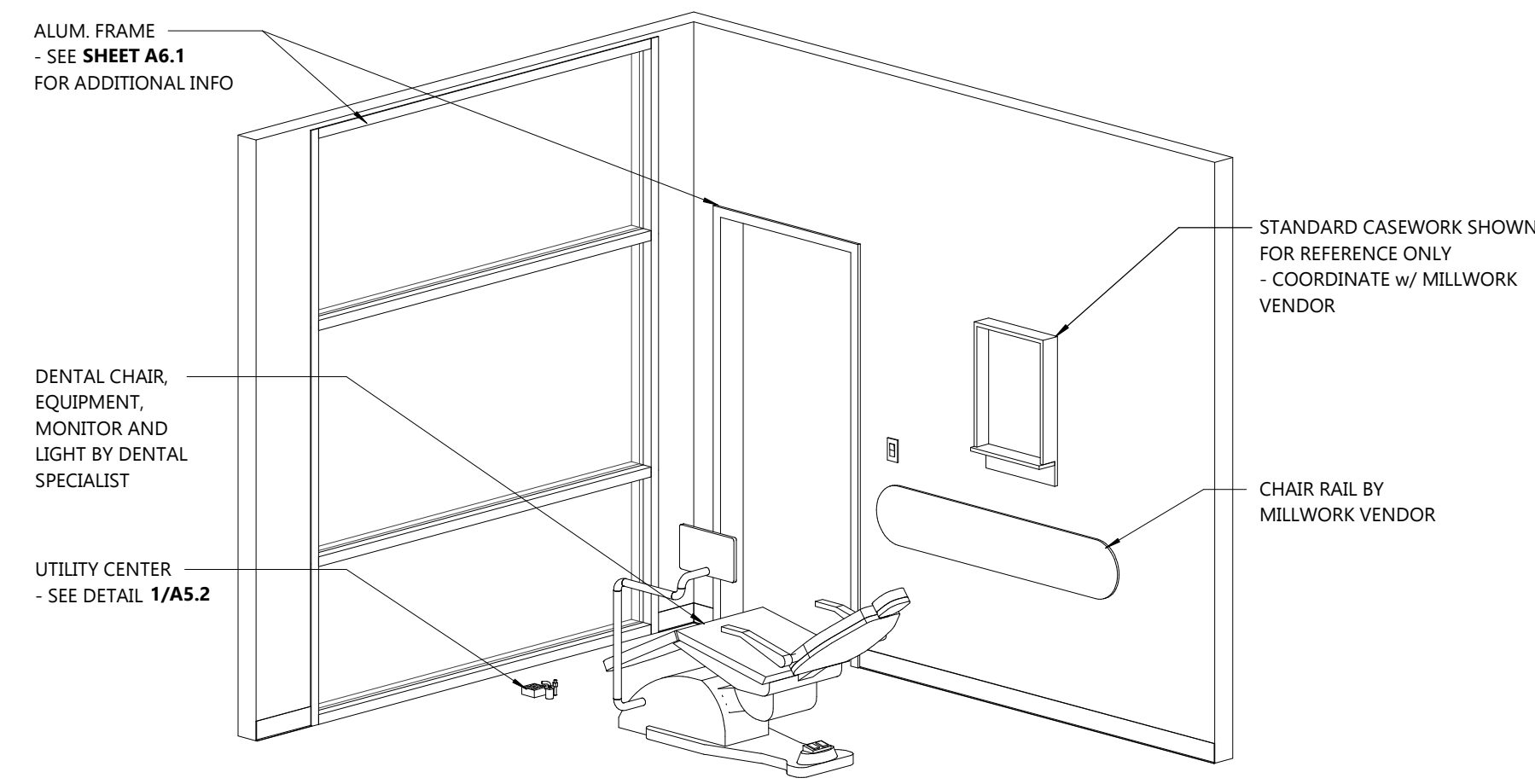
7
A5.4

SATELLITE SUPPORT DETAIL

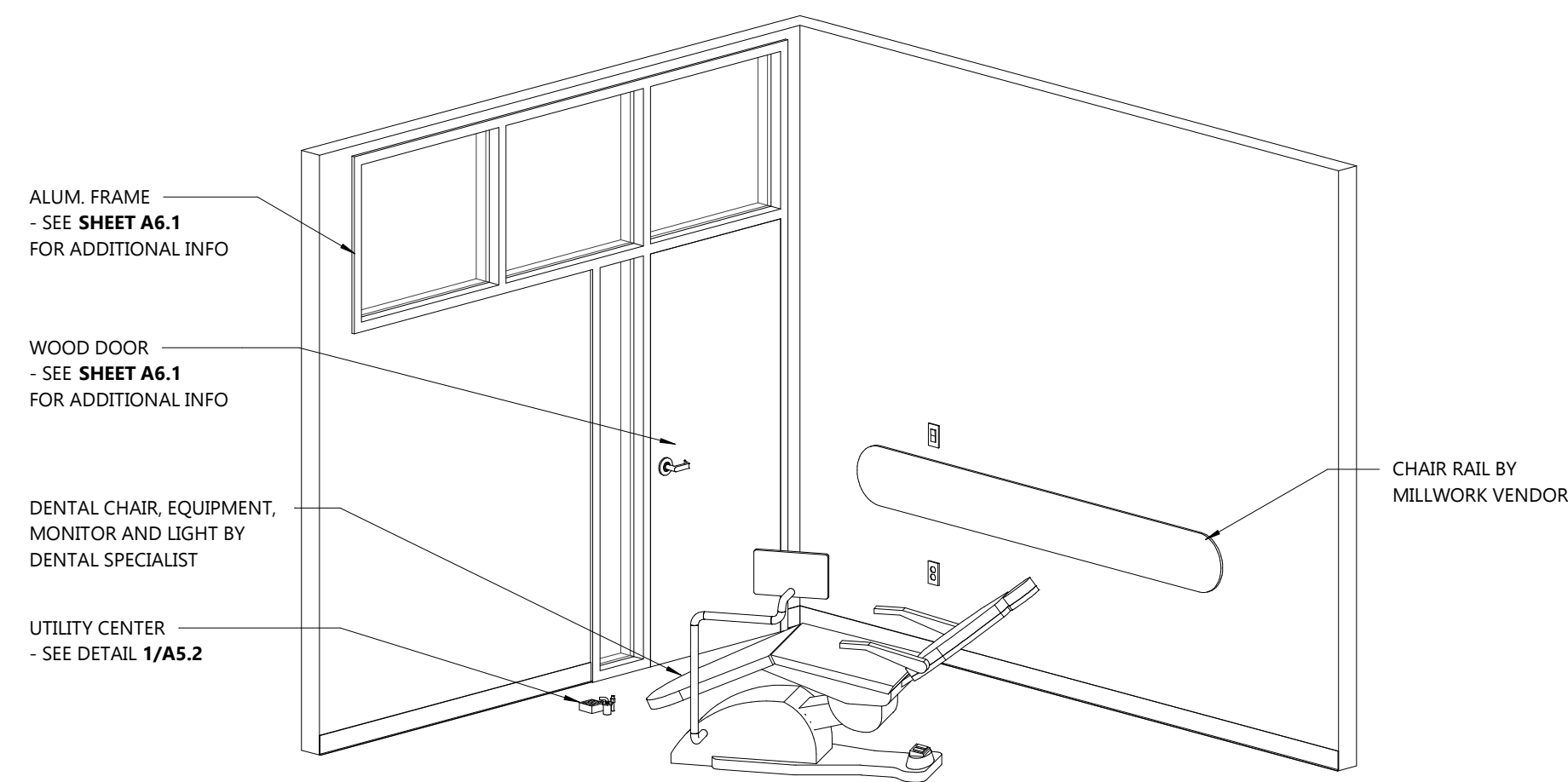
SCALE: 3/4" = 1'-0"



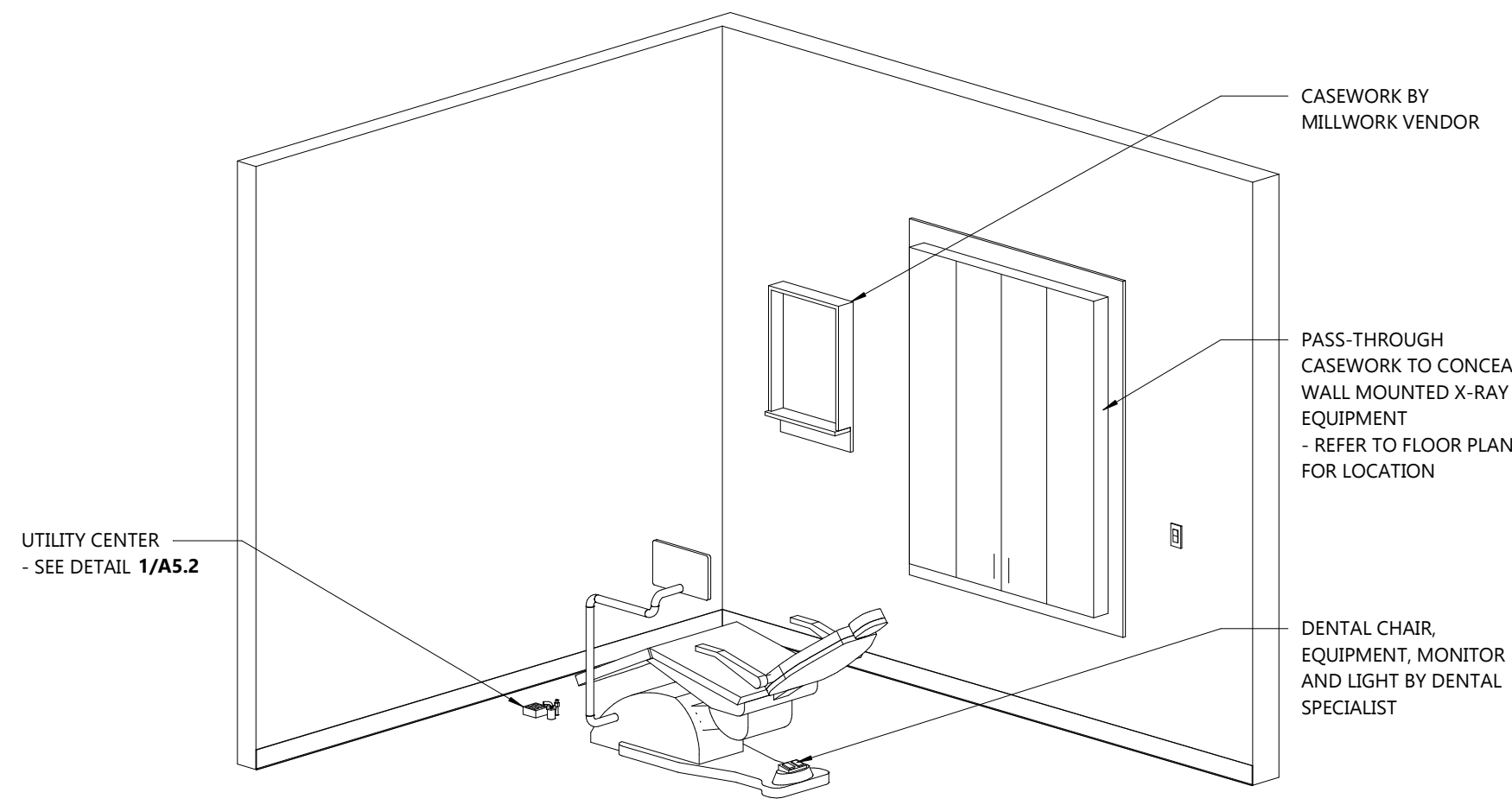
2 DENTURE TR - SINK SIDE PERSPECTIVE
A5.5 SCALE:



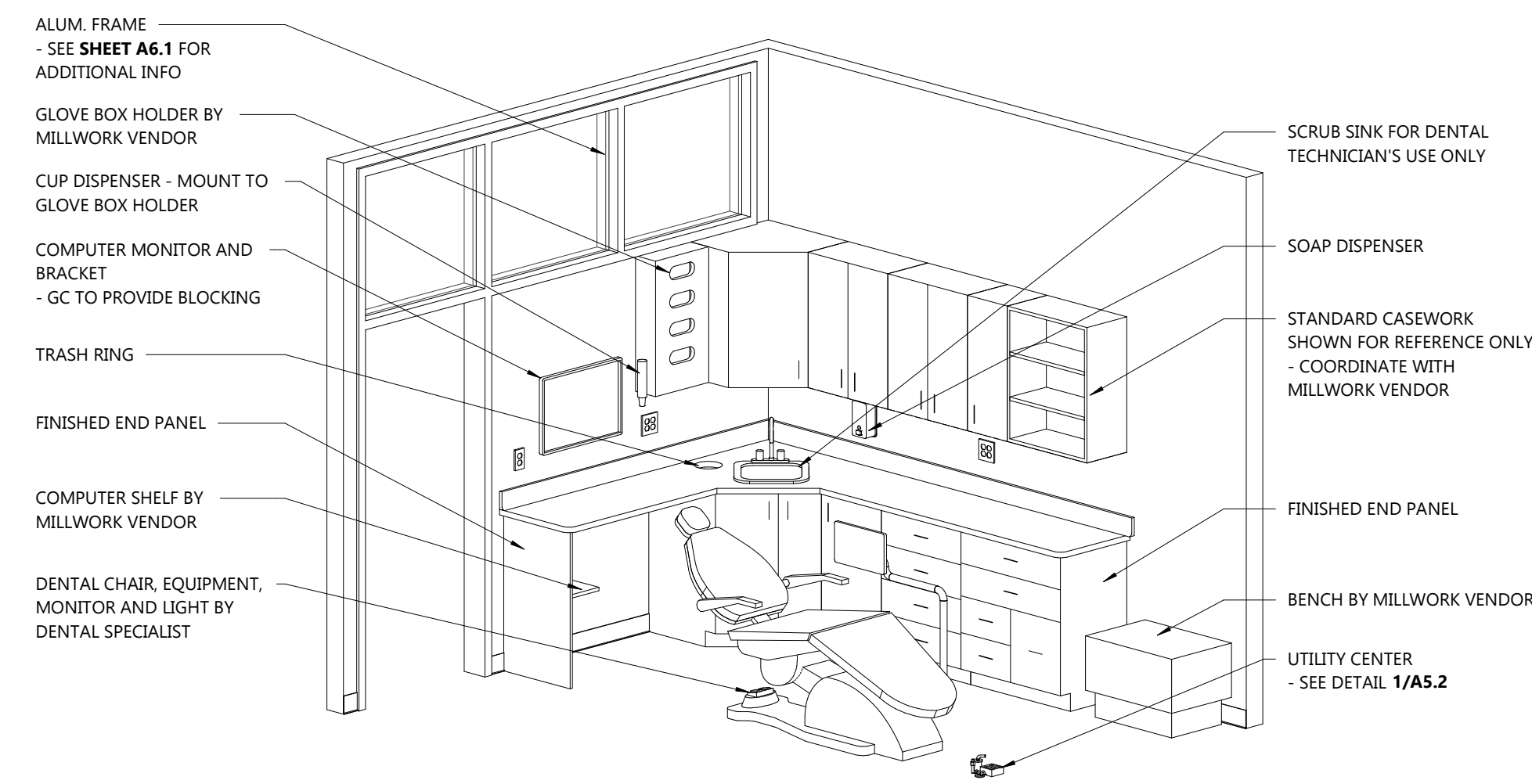
1 DENTURE TR - ENTRANCE SIDE PERSPECTIVE
A5.5 SCALE:



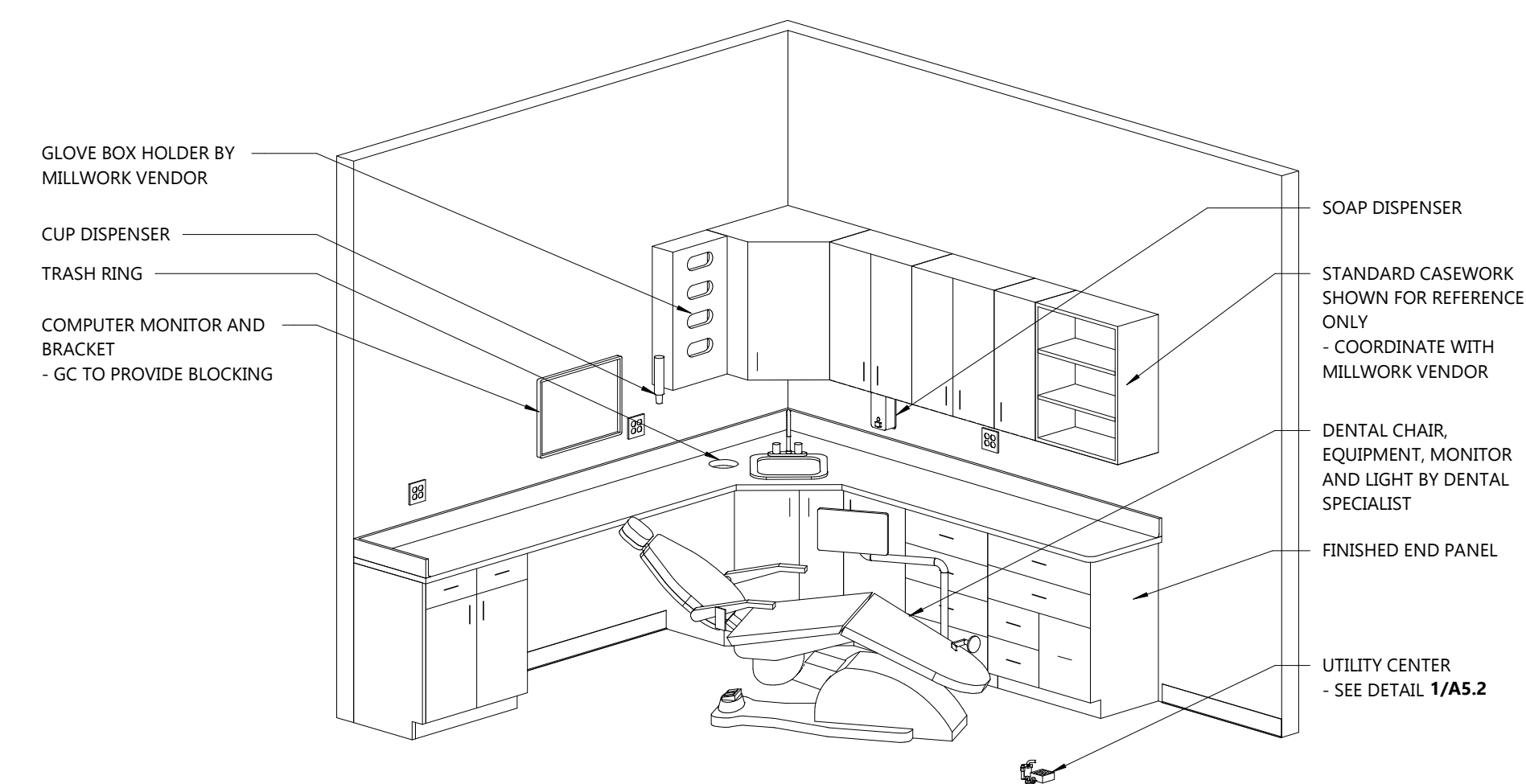
5 TR WITH DOOR - ENTRANCE SIDE PERSPECTIVE
A5.5 SCALE:



4 OPEN TR - ENTRANCE SIDE PERSPECTIVE
A5.5 SCALE:

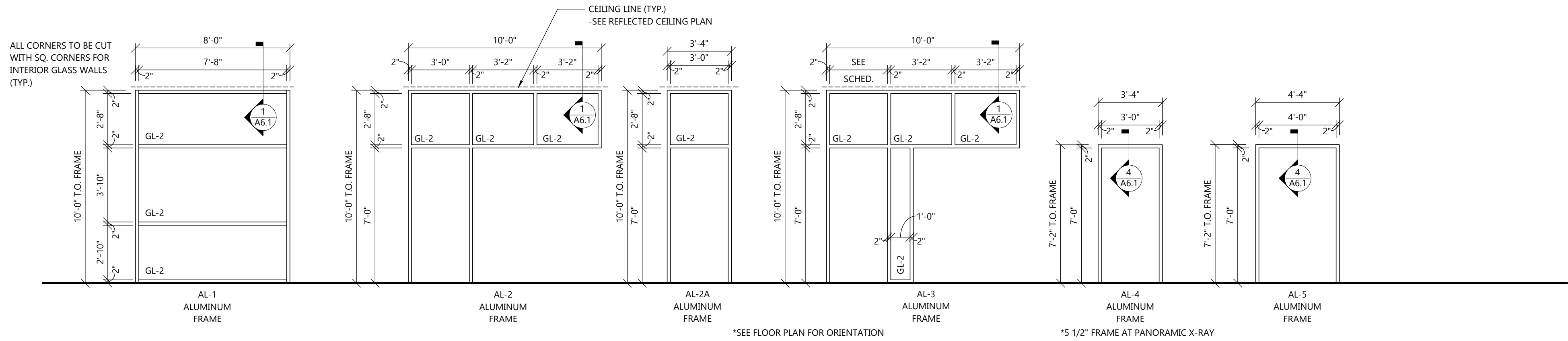
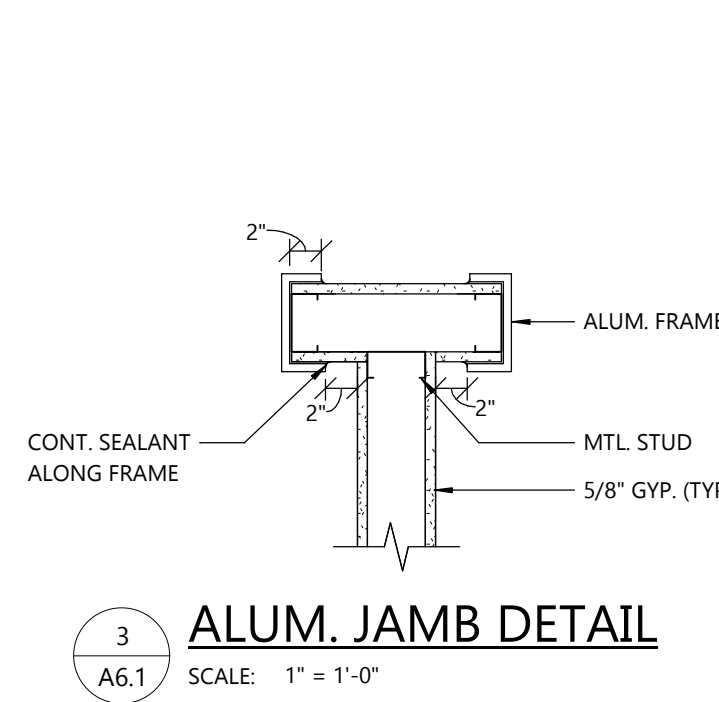
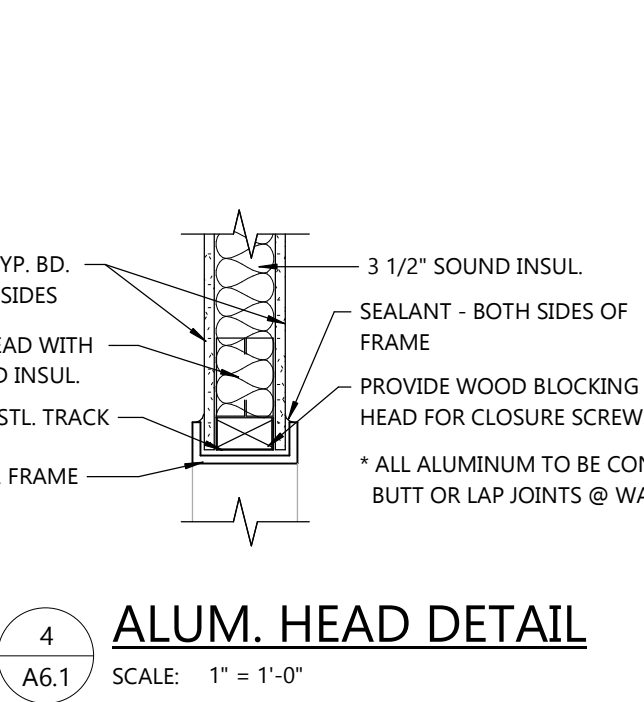
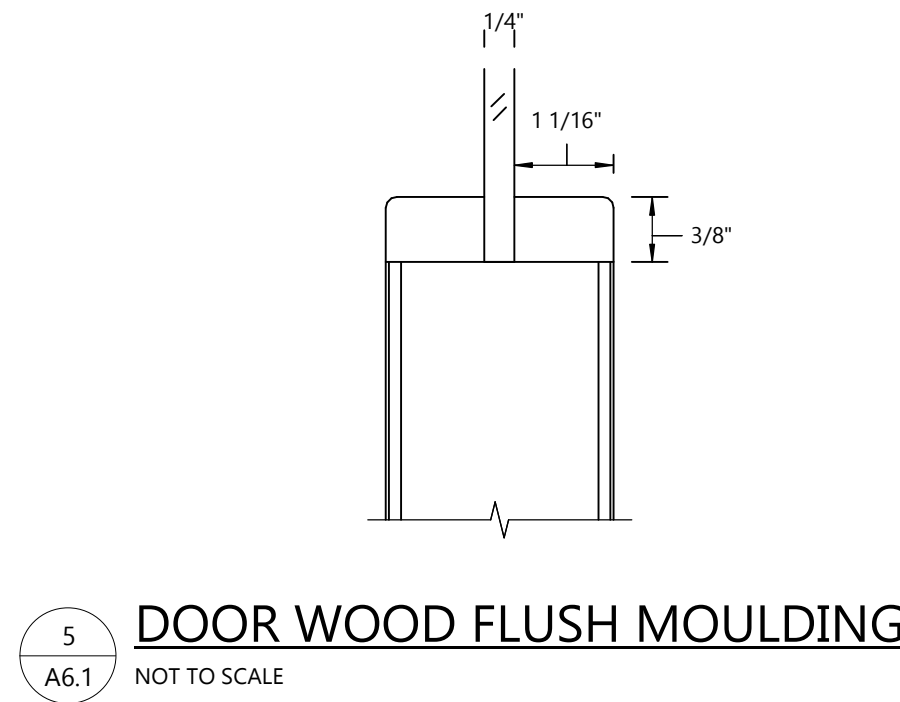
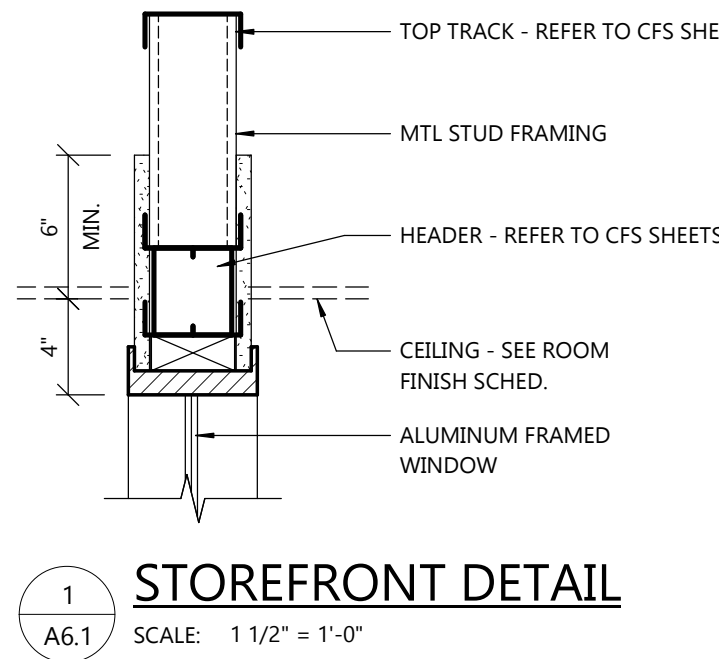
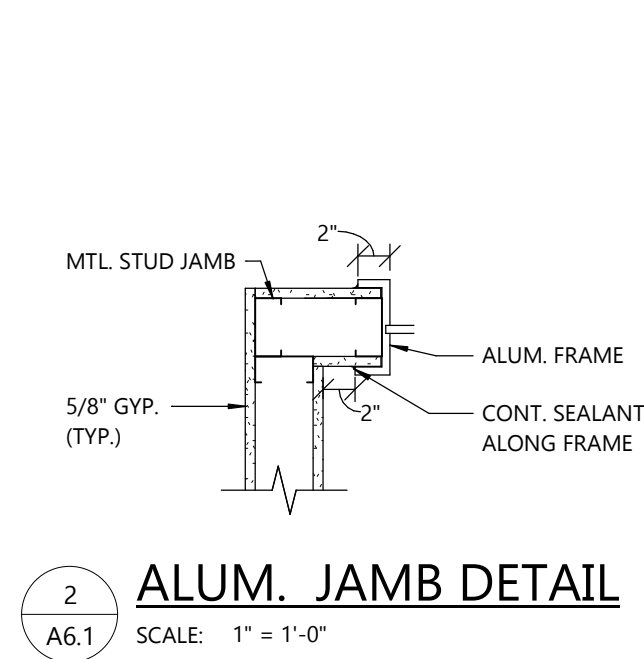
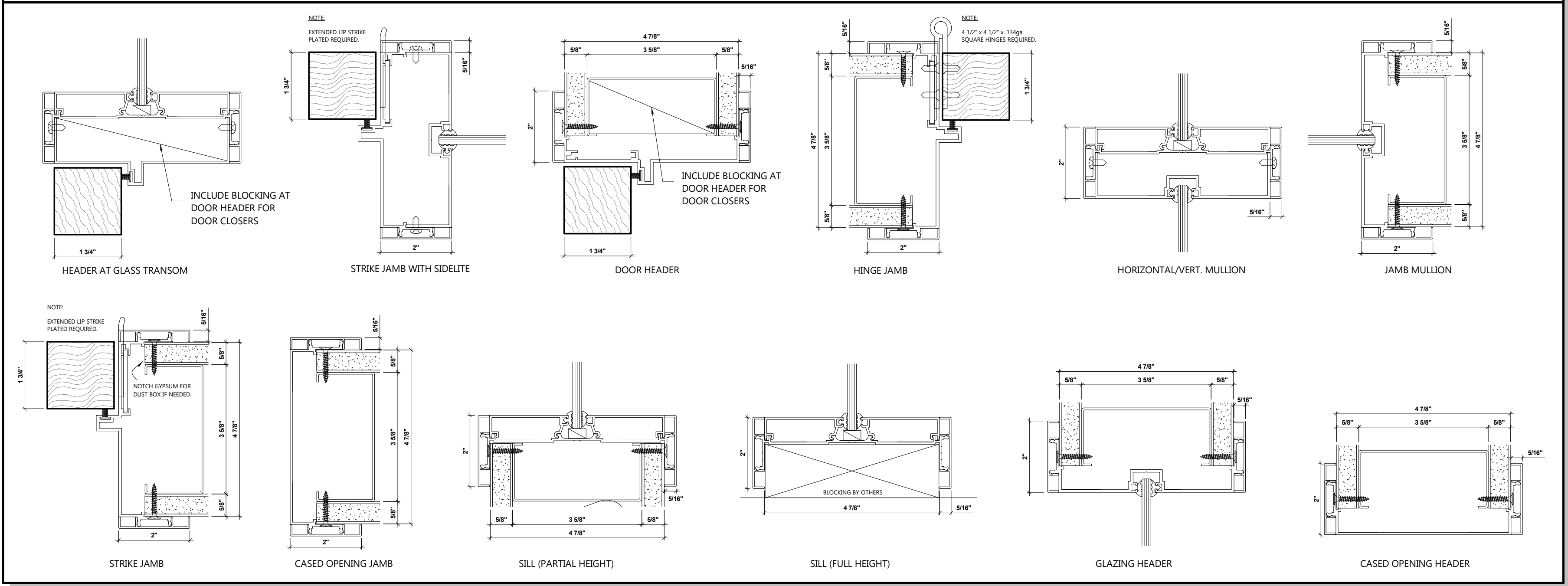


3 OPEN TR - SINK SIDE PERSPECTIVE
A5.5 SCALE:



6 TR WITH DOOR - SINK SIDE PERSPECTIVE
A5.5 SCALE:

WILSON PARTITIONS FRAME DETAILS

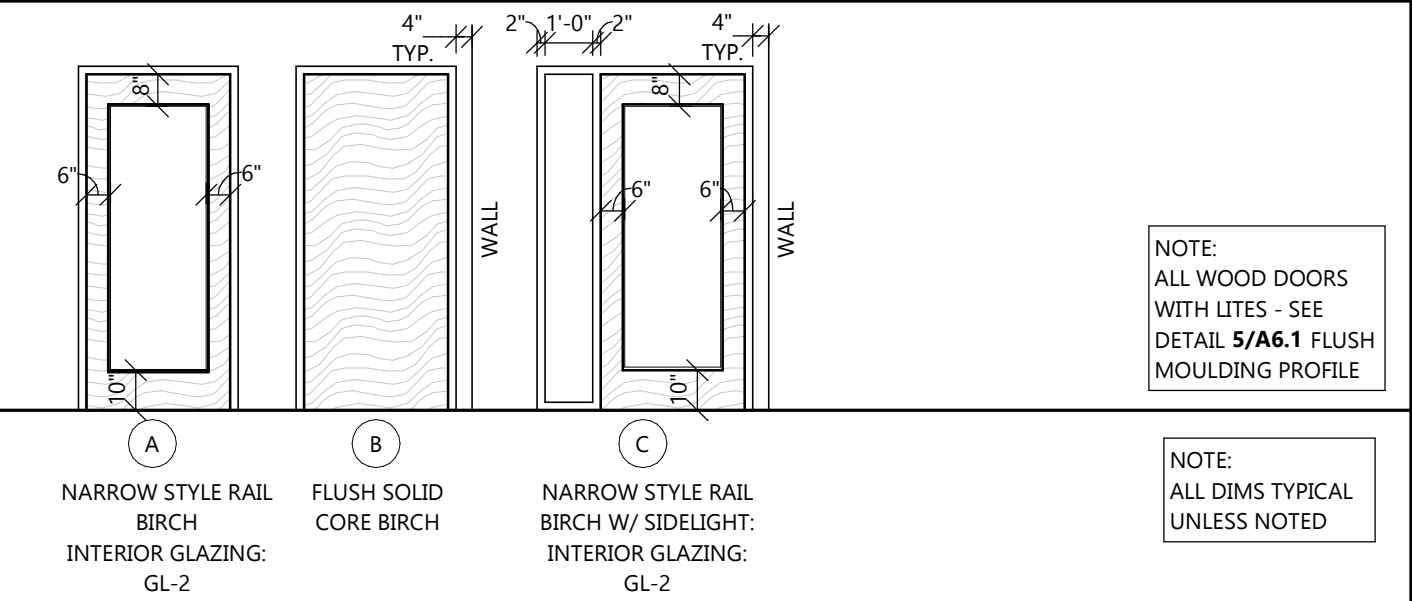


ALUMINUM FRAME ELEVATIONS

DOOR SCHEDULE

DOOR NUMBER	DOOR SIZE			DOOR		FRAME		HARDWARE		REMARKS
	WIDTH	HEIGHT	THICKNESS	TYPE	FINISH	TYPE	FINISH	TYPE	PASSAGE LOCKSET	
101	3'-0"	7'-0"	1 3/4"	A	SEE SHEET A6.2 & NOTE BELOW	A	SEE SHEET A6.2	1	●	UNDERCUT 1"
102	3'-0"	7'-0"	1 3/4"	B		A		2	●	
109	3'-0"	7'-0"	1 3/4"	A		A		3	●	
110	3'-0"	7'-0"	1 3/4"	B		A		3	●	
111	3'-0"	7'-0"	1 3/4"	A		A		3	●	
115	3'-0"	7'-0"	1 3/4"	B	SEE SHEET A6.2	A	SEE SHEET A6.2	2	●	UNDERCUT 1"
116	3'-0"	7'-0"	1 3/4"	B		A		1	●	
117	3'-0"	7'-0"	1 3/4"	B		A		3	●	
119	3'-0"	7'-0"	1 3/4"	C		A		3	●	
120	3'-0"	7'-0"	1 3/4"	C		A		3	●	
125	3'-0"	7'-0"	1 3/4"	B	SEE SHEET A6.2	A	SEE SHEET A6.2	3	●	UNDERCUT 1"

DOOR TYPES



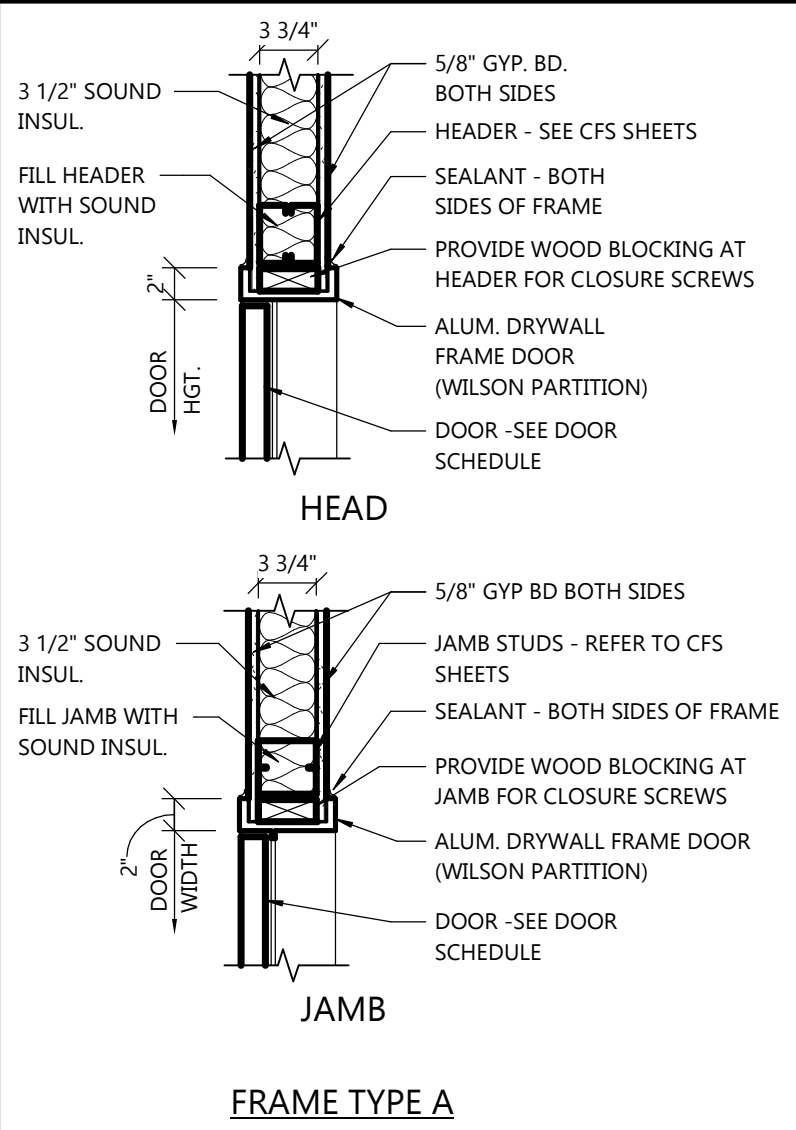
DOOR/FRAME TYPE SPECIFICATIONS

FRAMES: WILSON PARTITIONS ALUMINUM FRAME OR EQUAL (SEE DOOR SCHEDULE ABOVE FOR DOOR SIZES)
WILSON PARTITIONS ALUMINUM FRAME WITH 12" SIDELIGHT OR EQUAL (SEE DOOR SCHEDULE ABOVE FOR DOOR SIZES)
DOORS: MASONITE ARCHITECTURAL DOOR; (SEE DOOR SCHEDULE ABOVE FOR SIZES & SHEET A6.2 FOR DOOR FINISHES)
- FULL LITE DOORS TO BE PER SCL SPECIFICATIONS

HARDWARE TYPES (NOT ALL TYPES MAY BE USED, REFER TO DOOR SCHEDULE ABOVE)

SET 1 LEVER: HAGER 3500 SERIES WITHNELL HINGES: MCKINNEY, MPB79 4 1/2" x 4 1/2", 1 1/2 PAIR PER DOOR CLOSER: HAGER 5200 - ALM; WALL STOP: ROCKWOOD 406 - US26D	SET 3 LEVER: HAGER 3500 SERIES WITHNELL HINGES: MCKINNEY, MPB79 4 1/2" x 4 1/2", 1 1/2 PR. PER DOOR WALL STOP: ROCKWOOD 406 - US26D
SET 2 LEVER: ACCENTRA (VALE), ALUP102 - 626 HINGES: MCKINNEY, MPB79 4 1/2" x 4 1/2", 1 1/2 PAIR PER DOOR CLOSER: HAGER 5200 - ALM; WALL STOP: ROCKWOOD 409 - US26D; RESTROOM SIGNAGE (SEE SHEET A5.0)	SET 4 SLIDING DOOR HARDWARE: JOHNSON SLIDING BYPASS DOOR HARDWARE - 200SD FLUSH PULL CUPS: HAGER 2630 US26D OR EQUAL

FRAME TYPES



GLAZING SCHEDULE

GLAZING SHALL MEET THE FOLLOWING STANDARDS AND GUIDELINES AS APPLICABLE FOR EACH TYPE:
-ASTM E 1300, ASTM C 1036, ASTM C 1048, ASTM E 774
-GANA GLAZING MANUAL
-SIGMA TM-3000 VERTICAL GLAZING GUIDELINES

GL-2: CLEAR FLOAT GLASS, TEMPERED

LITE: TYPE I, CLASS I, QUALITY Q3 FLOAT GLASS, KIND FT (FULLY TEMPERED), CONDITION A, 1/4" THICK

GENERAL DOOR / HARDWARE NOTES

- HARDWARE LOCK KEYING: HARDWARE SUPPLIER TO PROVIDE LOCK SCHEDULE, KEY DIAGRAM AND HAVE A REPRESENTATIVE GO OVER BUILDING KEYING DIRECT W/ OWNER-LANDLORD AND TENANT. KEYS TO BE HANDED DIRECT TO OWNER/TENANT.
- ALL CYLINDERS TO BE SCHLAGE HEAVY DUTY 'D' SERIES FULL SIZE W/ INTERCHANGEABLE CORES. NO SUBSTITUTIONS.
- FINAL CORES TO BE COORDINATED W/ OWNER-LANDLORD & TENANT.
- ALL HOLLOW METAL DOORS/FRAMES SHALL BE WELDED - NO KNOCK DOWN FRAMES PERMITTED UNLESS SPECIFICALLY NOTED.
- ALL HARDWARE TO BE AMERICANS WITH DISABILITIES ACT (ADA) COMPLIANT
- ALL TOILET ROOM DOORS TO HAVE A CLOSER AND PRIVACY LOCK
- PROPER EXIT HARDWARE IS REQUIRED ON ALL EXIT AND EXIT ACCESS DOORS. DEAD BOLT HARDWARE SHALL COMPLY WITH REQUIREMENTS OF THE STATE/LOCAL BUILDING CODE. ALL FINISHES TO BE BID AS 626 SATIN CHROME FINISH, UNLESS NOTED OTHERWISE.
- ENTRY DOORS TO HAVE PASSAGE/ENTRY LOCKSET W/ CLOSER, COORDINATE W/ TENANT.
- AT RATED ROOMS, HARDWARE SUPPLIER TO PROVIDE PROPER LOCKS, CLOSERS, ETC. TO MEET CODE.
- HARDWARE SUPPLIER TO PROVIDE DOOR STOPS AT ALL DOORS. (IE WALL STOP, FLOOR STOP). THESE STOPS TO BE PROVIDED IN THIS ORDER WITH WALL STOPS AS PREFERRED APPLICATION. SEE HARDWARE SCHEDULE FOR NOTES.
- DOOR HARDWARE SHALL BE CAPABLE OF OPERATION WITH THE USE OF ONE (1) HAND AND SHALL NOT REQUIRE TIGHT PINCHING, TIGHT GRASPING OR TWISTING OF THE WRIST TO OPERATE. IF PROVIDED AT EXTERIOR PROVIDE READILY VISIBLE PERMANENT SIGNAGE ON OR ADJACENT TO DOOR STATING: THIS DOOR TO REMAIN UNLOCKED WHEN BUILDING IS OCCUPIED - SEE SHEET A5.0 FOR SIGN DETAILS. LEVER OR PADDLE DEADBOLTS RELEASES ARE ACCEPTABLE. DOOR THRESHOLD SHALL NOT EXCEED 1/2" IN HEIGHT. THRESHOLD EXCEEDING 1/4" IN HEIGHT SHALL HAVE A 1:2 BEVEL. DOOR CLOSERS SHALL MEET OPENING FORCE AND SWEEP PERIOD REQUIREMENTS.
- PROVIDE TACTILE EXIT SIGNAGE AT ALL EXIT DOORS -SEE SHEET A5.0
- CONTRACTOR TO SUBMIT DETAILED HARDWARE SCHEDULE WITH COMPLETE CUT-SHEETS TO OWNER FOR FINAL APPROVAL.
- EXTERIOR HARDWARE AS SELECTED BY OWNER TO BE HAGER 4500 SERIES WITH 45NL. OUTSIDE TRIM IS US26D FINISH OR EQUI. DEADBOLT LOCK IF REQUIRED SHAL BE OPERATED BY KEY OUTSIDE AND THUMBTURN INSIDE (EXT. DOOR LOCATIONS ONLY). REUSE EXISTING IF APPLICABLE.
- ALL CLOSERS NOTED IN HARDWARE SETS ABOVE TO BE MOUNTED ON INTERIOR ROOM SIDE.

EXCEL

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100 Camelot Drive
Fond du Lac, WI 54935
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excelengineer.com

COLLABORATION

AspenDental

PROJECT INFORMATION

PROPOSED BUILD-OUT FOR:
ASPEN DENTAL
715 PROGRESS WAY STE TBD • GAITHERSBURG, MD 20877

PROFESSIONAL SEAL

SHEET DATES

SHEET ISSUE JULY 21, 2026

REVISIONS

REVISIONS

JOB NUMBER

260222300

SHEET NUMBER

A6.1

ROOM FINISH SCHEDULE							
ROOM NUMBER	ROOM NAME	FLOOR	BASE	WALLS	CEILING	CEILING HEIGHT	REMARKS
101	RECEPTION	LVT-1/WOC	B1		C1	10'-2"	1.
102	MEN'S RESTROOM	LVT-1	B2	ACROVYN/PT#3	C1	10'-2"	2.
103	BUSINESS OFFICE	CPT	B1		C1	10'-2"	1.
104	HALLWAY	LVT-1	B1	PT#4	C1	10'-2"	
105	INTRA-ORAL X-RAY	LVT-1	B1		C1	10'-2"	1.
106	PANORAMIC X-RAY	LVT-1	B1		C1	10'-2"	1.
107	HALLWAY	LVT-1	B1	PT#4	C1	10'-2"	
108	INTERIOR WAITING	CPT	B1	PT#3	C1	10'-2"	
109	CONSULTATION	CPT	B1		C1	10'-2"	1.
110	MANAGER/DOCTOR OFFICE	CPT	B1		C1	10'-2"	1.
111	LAB	LVT-1	B1	FRP#2/PT#1	C1	10'-2"	4.
112	TR. #1	LVT-1	B1		C1	10'-2"	1.
113	HALLWAY	LVT-1	B1	PT#4	C1	10'-2"	
114	TR. #2	LVT-1	B1		C1	10'-2"	1.
115	WOMEN'S RESTROOM	LVT-1	B2	ACROVYN/PT#3	C1	10'-2"	2.
116	MECHANICAL ROOM	CONC	B1	FRP#1/PT#1	C1	10'-2"	3.
117	BREAK ROOM	LVT-1	B1	PT#4	C1	10'-2"	
118	HALLWAY	LVT-1	B1		C1	10'-2"	1.
119	TR. #7	LVT-1	B1		C1	10'-2"	1.
120	TR. #6	LVT-1	B1		C1	10'-2"	1.
121	STERILIZATION	LVT-1	B1	PT#3	C1	10'-2"	
122	TR. #5	LVT-1	B1		C1	10'-2"	1.
123	TR. #4	LVT-1	B1		C1	10'-2"	1.
124	TR. #3	LVT-1	B1		C1	10'-2"	1.
125	STORAGE	LVT-1	B1	PT#4	C1	10'-2"	
126	STORAGE	LVT-1	B1	PT#4	C1	10'-2"	
127	HALLWAY	LVT-1	B1		C1	10'-2"	1.

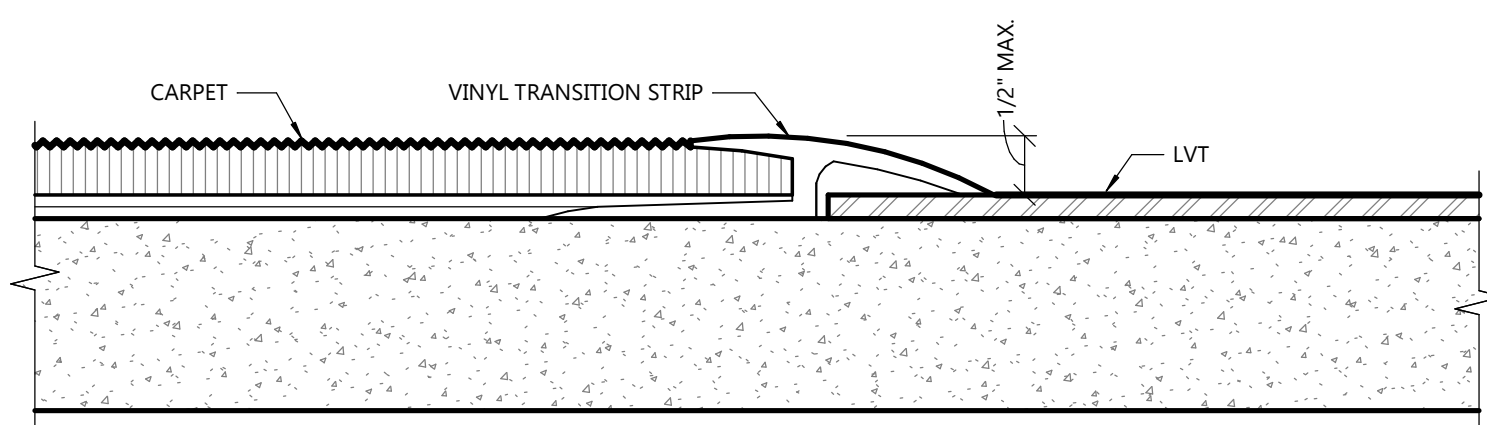
ROOM FINISH REMARKS:

- SEE FINISH PLAN FOR WALL FINISHES IN THIS ROOM
- (ACROVYN) PROVIDE SARATOGA SERIES (SHADOW PAPYRUS #1610) ACROVYN WALL SYSTEM TO 42" AFF INCLUDE 4" BASE, 2 VERTICAL SEAMS/CORNERS & 2" TOP CAP. REMAINDER OF WALL TO BE PAINTED PT#3. GRAIN TO BE INSTALLED VERTICALLY
- (FRP#1) PROVIDE FRP TO 42" AFF ON ALL WALLS & PAINT THE REMAINDER OF WALL ABOVE PT#1; FRP SPECIFICATION: CRANE COMPOSITES GLASBORO WHITE OR EQUAL
- (FRP#2) PROVIDE FRP FROM FLOOR TO CEILING - SEE PLAN FOR LOCATION FRP SPECIFICATION: CRANE COMPOSITES GLASBORO WHITE OR EQUAL

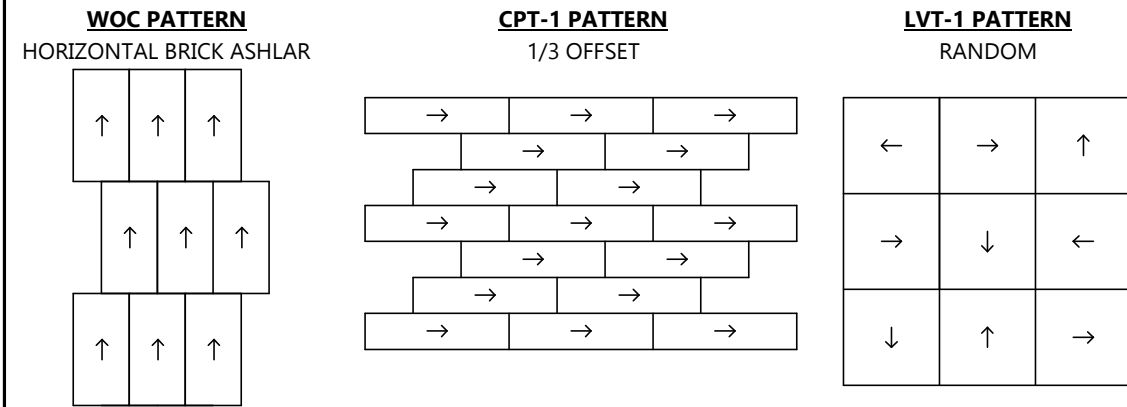
GENERAL ROOM FINISH NOTES

- INTERIOR WALL & CEILING FINISHES SHALL COMPLY W/IBC 803.9. 803.9 INTERIOR FINISH REQUIREMENTS BASED ON GROUP. INTERIOR WALL AND CEILING FINISH SHALL HAVE A FLAME SPREAD INDEX NOT GREATER THAN THAT SPECIFIED IN TABLE 803.9 FOR THE GROUP AND LOCATION DESIGNATED. INTERIOR WALL AND CEILING FINISH MATERIALS, OTHER THAN TEXTILES, TESTED IN ACCORDANCE WITH NFPA 286 AND MEETING THE ACCEPTANCE CRITERIA OF SECTION 803.1.2.1, SHALL BE PERMITTED TO BE USED WHERE A CLASS A CLASSIFICATION IN ACCORDANCE WITH ASTM E 84 IS REQUIRED.
- EXIT ENCLOSURES & EXIT PASSAGEWAYS - CLASS B
- INTERIOR FINISH MATERIALS CORRIDORS, ROOMS & ENCLOSED SPACES - CLASS C INTERIOR FINISH MATERIALS
- ALL GYP. BOARD SURFACES SHALL BE LEVEL 4 GRADE FINISH AND GYP. BD. SURFACES SHALL BE TAPED, MUDDED AND PRIMED TO ACCEPT TENANT FINISHES. COORDINATE FINAL FINISH MATERIAL AND COLORS WITH FINISH PLAN. SPRAYED ON PAINT AND BACK ROLL FOR TEXTURE. WALL FINISH TO BE MAINTAINED OVER ENTIRE WALL SURFACE FROM THE FLOOR TO A MIN. OF 6" ABOVE FINISH CEILING HEIGHT. COORDINATE WITH SUPPLIED BASE TYPE/ HT.
- ALL EXPOSED BLOCK WALLS SHALL BE PREPPED, BLOCK FILLER/ PRIMER APPLIED AND FINISHED WITH TWO (2) COATS PAINT.
- PAINT EXPOSED STRUCTURE, MECHANICAL, AND ELECTRICAL EQUIPMENT TO MATCH COLOR OF THE ADJACENT WALLS (EXCEPT FACTORY FINISHED FIXTURES).
- FLOOR FINISH MATERIALS SHALL BE COORDINATED WITH TENANT AND INSTALLED PER PLANS.
- ALL MTL. STUD FRAMED SOFFITS TO HAVE DIAGONAL BRACING AS REQUIRED FOR STABILITY AND GYP. BD. ALL SIDES TO MIN. 6" ABOVE ADJACENT FINISH CLG. HEIGHT.
- ALL CEILING GRIDS SHALL BE CENTERED IN EACH ROOM UNLESS OTHERWISE NOTED, SEE REFLECTED CEILING PLAN.
- ALL ELECTRICAL AND MECHANICAL FIXTURES TO BE INSTALLED WITHIN CEILING SHALL BE CENTERED ON CEILING TILE UNLESS NOTED OTHERWISE, SEE MEP DRAWINGS.
- ANY LOCATION GYP. BD. CONTACTING DISSIMILAR MATERIAL PROVIDE SEALANT JOINT PRIOR TO PAINT/ FINISH MATERIAL, TYP.
- PROVIDE THE FOLLOWING AT WALL TO FRAME/ GLASS TERMINATION. ALIGN NEW WALL WITH CENTER OF EXIST. WINDOW MULL TYPICAL. STEP WALL AT WINDOW SILL/ HEAD. PROVIDE VINYL 'J' TRIM CLOSURE TO WINDOW FRAME TYPICAL. PROVIDE CONT. SEALANT JOINT. PROVIDE BREAK MTL. CLOSURE TO MATCH WINDOW FRAME AT FACE OF WALL EXPOSED TO FRONT OF STORE FRONT.
- AT HOLLOW METAL OR ALUMINUM FRAMES (IE: WINDOW/ DOORS) PLACED IN GYP BD WALL ASSEMBLIES. RETURN GYP. BD. TO FRAME, PROVIDE PLASTIC 'J' CHANNEL AND SEALANT TYP. ENTIRE FRAME.
- IF GYP. BD. IS STOPPED SHORT OF STRUCTURE ABOVE. INSULATION CONTRACTOR TO PROVIDE STRAPPING AT 24" O/C VERTICAL TO PREVENT INSULATION SLUMPING.
- FLOORING CONTRACTOR TO PROVIDE COLOR MATCHED CAULK TO FLOOR TILE FINISH (IE: CERAMIC, LVT) AT ALL FLOOR DRAINS, CLEAN OUTS, AND DOOR FRAMES.

FLOOR TRANSITION DETAIL



FLOORING PATTERNS



DOOR COLOR:

MASONITE DOOR COMPANY
TYPE: VENEER 5, ROTARY BIRCH SELECT WHITE
COLOR: CLEAR COAT
DOORS TO BE FACTORY PRE-FINISHED

ROLLER SHADES

MANUAL ROLLER SHADES PROVIDED BY G.C.
FOR ALL EXTERIOR WINDOWS. SEE **SHEET T1.1**
FOR MORE INFORMATION

HOLLOW METAL DOOR & FRAME PAINT:

DOOR & WINDOW FRAME
SHERWIN WILLIAMS DTM ACRYLIC DEEP BASE + (2) COATS SEMI-GLOSS
1 GAL MIX

BAC COLORANT	OZ	32	64	128
B1-BLACK	-	56	1	1
N1-RAW UMBER	-	7	-	-
R2-MAROON	-	11	-	-
Y3-DEEP GOLD	-	52	1	1

CEILING

C1	MATERIAL: MANUF: ITEM:	24"x24" ACOUSTICAL PANEL CEILING ARMSTRONG DUNE #1774	* ALL CEILING HEIGHTS ARE AS STATED OR 2" ABOVE WINDOWS
*ALL CEILING HEIGHTS TO BE VERIFIED TO ALLOW REQ'D CLEARANCES FOR ALL M.E.P. FIXTURES. HOLD CEILINGS AS TIGHT AS POSSIBLE. CONTACT EXCEL ENGINEERING INC. IF ANY ISSUES OCCUR WITH CEILING HEIGHTS. *ANY CEILING TILE ALTERNATES TO BE SUBMITTED TO TAG FOR APPROVAL. *CEILING GRID TO BE 15/16" PRELUDE XL, COLOR: WHITE, 7300 SERIES. *GRID TO BE CENTERED IN ALL ROOMS.			

WALL COVERINGS

SHERWIN WILLIAMS - SHERWIN WILLIAMS PRO-MAR 200 PAINT IN EGGSHELL FINISH.
-ALL WALLS TO HAVE (1) COAT PRIMER & (2) COATS PAINT (MIN.)
PT#1 SW7005 PURE WHITE
PT#2 SW7602 INDIGO BATIK
PT#3 SW7619 LABRADORITE
PT#4 SW6248 JUBILEE

*UNDERSIDE OF ALL HEADERS & SOFFITS
TO BE PT#1 U.N.O.

FLOORING

NOTES:

- TAG WILL DIRECT PURCHASE ALL FLOORING THROUGH A NATIONAL ACCOUNT. SEE **SHEET T1.1** FOR ADDITIONAL INFORMATION
- SEE CONTRACT SCHEDULE FOR REQUIRED MATERIAL ORDER DATES
- SEE TAG'S CONSTRUCTION CLEAN SPEC. FOR FLOOR CARE OF RECEPTION + OFFICE (LVT) AREAS.

CPT CARPET TILE:
KICHAWK MACRO BLOOM II
SIZE: 12"x36"
COLOR: GT474-975 FELTED FRINGE STONE

WOC WALK OFF CARPET:
MANNINGTON CHARGE WALK-OFF TILE
SIZE: 18"x36"
COLOR: VECTOR 14362

LVT-1 VINYL TILE:
ARMSTRONG TERRA ASTANA LVT
SIZE: 18"x18"
COLOR: #5T547 (CLEO)

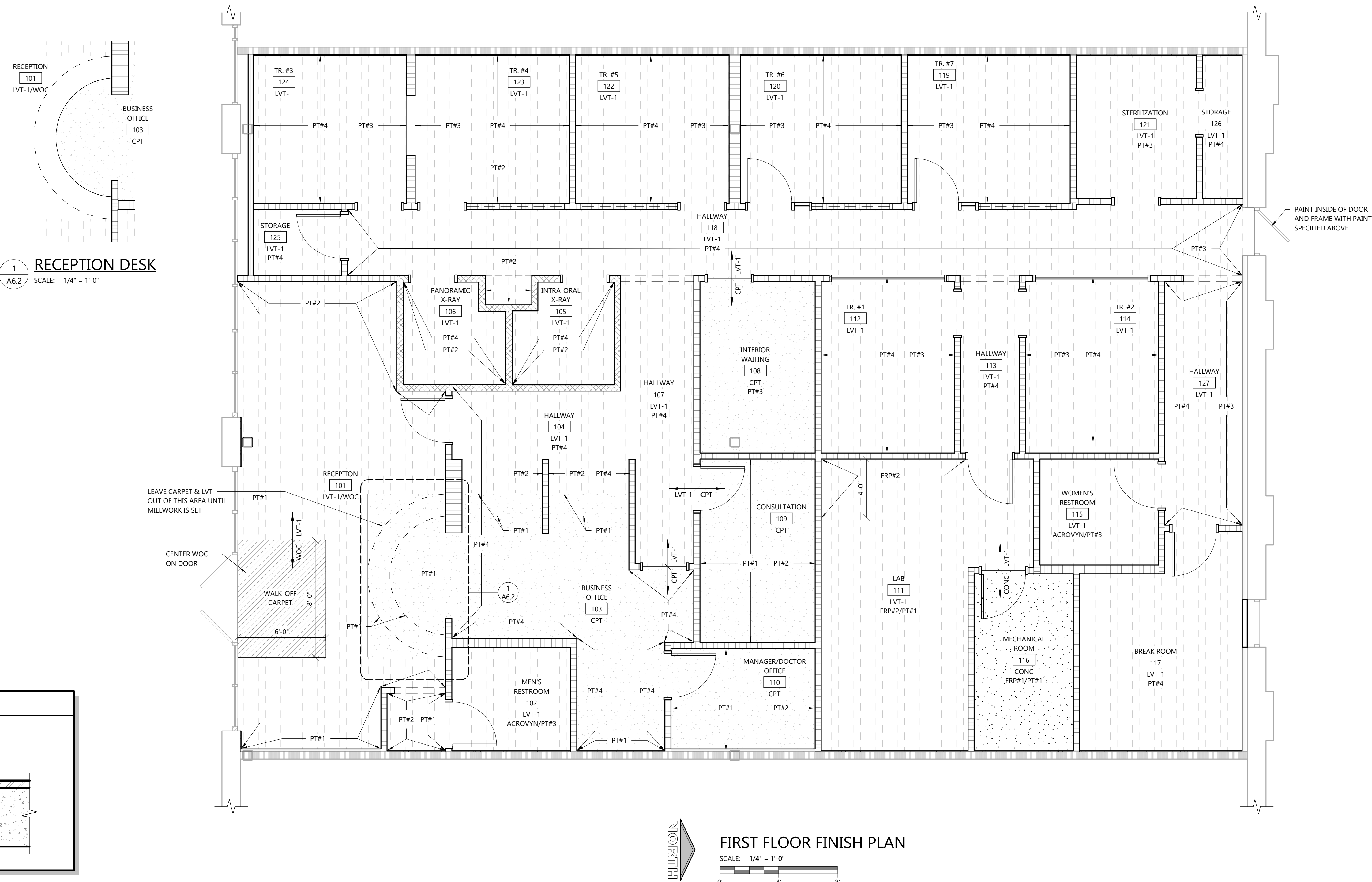
B1 BASE:
ROPPE
4"x1/8"x48" COVE BASE
#123 CHARCOAL

B2 BASE:
4" ACROVYN BASE

CONC SEALED CONCRETE
3 COATS
NOTE: LEAVE ALL EXTRA TILES IN MECHANICAL ROOM AT END OF JOB

TRANSITIONS THROUGHOUT:
ROPPE
COLOR: #123 CHARCOAL

NOTE: BEFORE THE FLOORING INSTALLATION TAKES PLACE THE FOLLOWING MOISTURE LIMITS MUST BE ACHIEVED:
LVT AREAS 98% RH OR 8 LBS. MVER; CARPET TILE AREAS 85% RH OR 8 LBS MVER. THESE TESTS SHOULD BE CONDUCTED IN STRICT ACCORDANCE WITH THE LATEST EDITION OF ASTM F-2010 & ASTM F-1869.



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excelengineer.com

COLLABORATION

AspenDental

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PROFESSIONAL SEAL

SHEET DATES

SHEET ISSUE JULY 21, 2026

REVISIONS

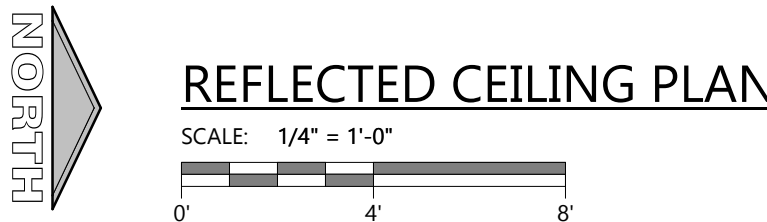
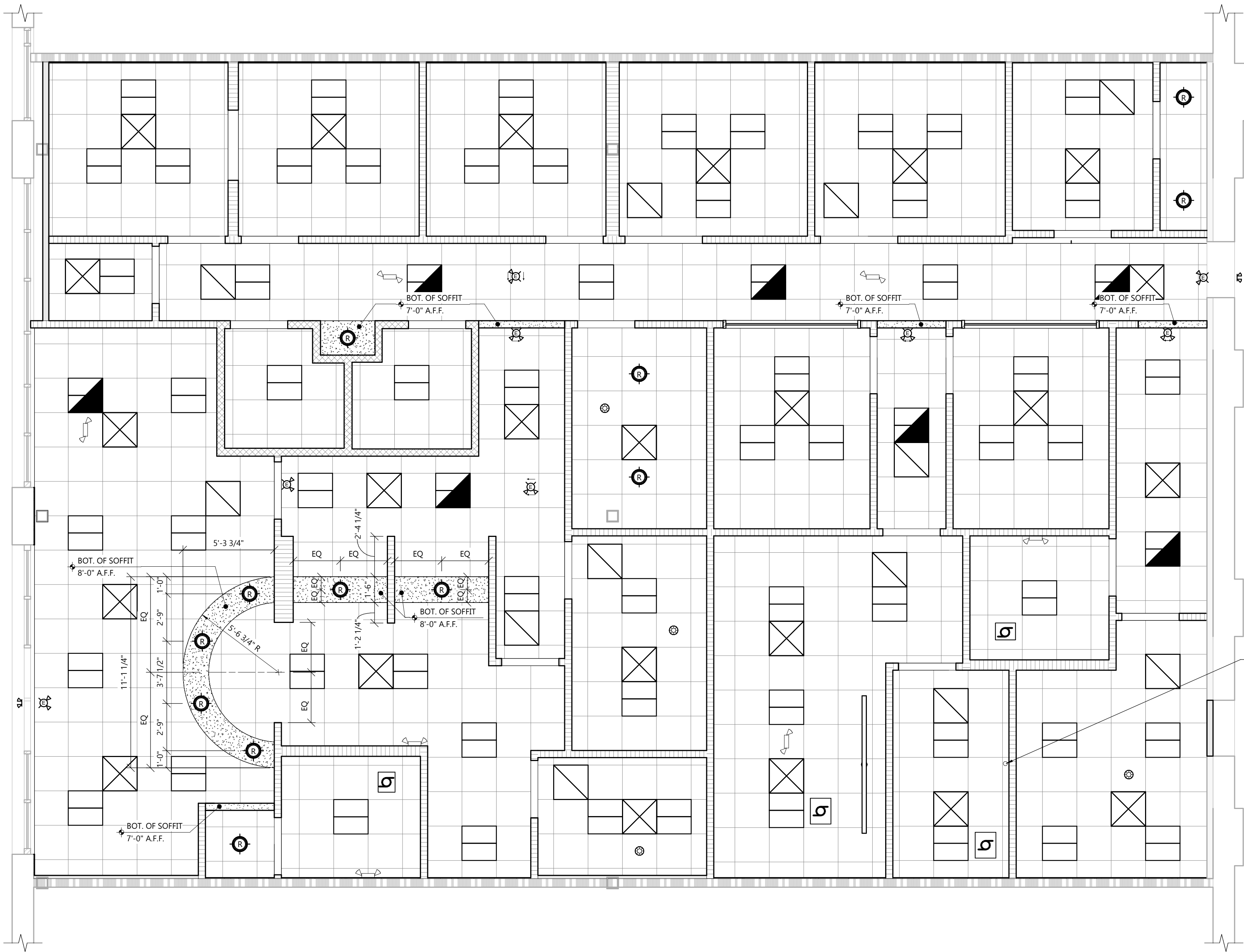
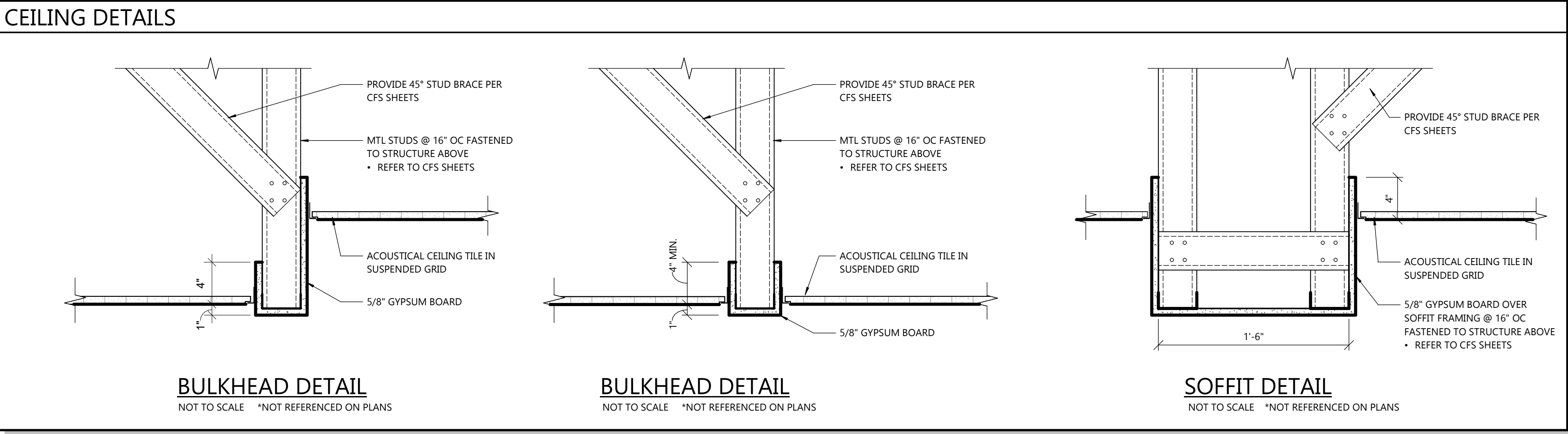
JOB NUMBER

260222300

SHEET NUMBER

A6.2

CEILING LEGEND	
	SEE ROOM FINISH SCHEDULE ON SHEET A6.2 FOR HEIGHTS, CENTER GRID IN ALL ROOMS.
	GYPSUM BOARD CEILING
	EXHAUST FAN
	SUPPLY AND RETURN GRILLES - SEE HVAC DRAWINGS
	2x2 LED LAY-IN TROFFER PROVIDED BY OWNER - SEE ELEC.
	6" LED DOWN LIGHT PROVIDED BY OWNER
	OCCUPANCY SENSOR - SEE ELEC.
	EXIT LIGHT - PROVIDED BY OWNER
	BATTERY BACK-UP EGRESS LIGHTING - PROVIDED BY OWNER
	EXIT LIGHT W/ BATTERY BACK-UP EGRESS LIGHTING - PROVIDED BY OWNER
LIGHTING NOTE: GENERAL SWITCH LOCATIONS & WIRING TO BE DETERMINED BY LIGHTING CONTRACTOR PER LOCAL CODE AND TO BE APPROVED BY ADML ALL CEILING & LIGHT SUPPORT WIRES TO BE HUNG FROM TOP CHORD OF JOIST SYSTEM.	
RECESSED FIXTURE NOTE: GC TO PROVIDE "TENTING" AT ALL RECESSED CAN FIXTURES AS REQUIRED BY THE MANUFACTURERS WRITTEN INSTRUCTIONS INSURING THAT NO INSULATION TOUCHES THE FIXTURES.	
NOTE: SEE ROOM FINISH SCHEDULE FOR CEILING FINISH & HEIGHT	



Excel

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COLLABORATION

AspenDental

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PROFESSIONAL SEAL

SHEET DATES

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REVISIONS

JOB NUMBER 260222300

SHEET NUMBER **A7.1**

Diagram illustrating the components and specifications for a wall section:

- TOP OF WALL**
+ 11'-0" MAX A.F.F.
- 2**
5.1
- TOP TRACK**
REFER TO 3/3.1 FOR REQUIREMENTS
- BRIDGINGS REQUIRED IF UNSHEATHED FULL HEIGHT**
3
5.1
- WALL STUD**
REFER TO PARTIAL HEIGHT WALL SCHEDULE
- 1 5/8" WALLS:**
162T125-33
- 3 5/8" WALLS:**
362T125-33
- 6" WALLS:**
600T125-33
- 4**
5.1
- FINISHED FLOOR**

SCALE: N.T.S.

$$\frac{2}{3.1}$$

TOP OF WALL
 + 11'-0" MAX. A.F.F.

2
 5.1

TOP TRACK
 REFER TO 3/3.1 FOR REQUIREMENTS

WALL STUD
 REFER TO PARTIAL
 HEIGHT WALL SCHEDULE

SEE SCH

HEADER:
 REFER TO PARTIAL
 HEIGHT OPENING SCHEDULE

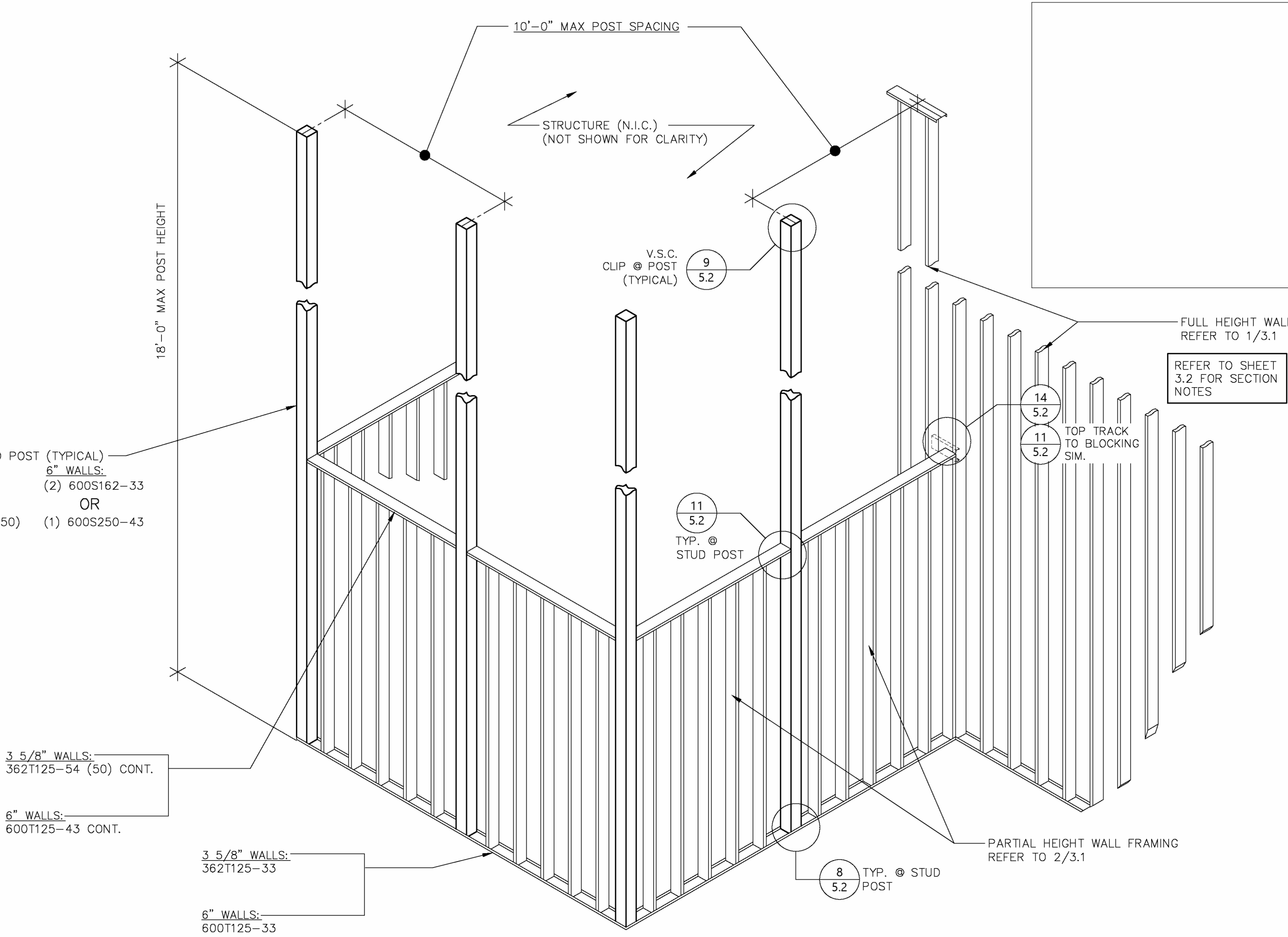
SEE SCH

OPENING (N.I.C.)

JAMBS BEYOND:
 REFER TO PARTIAL
 HEIGHT OPENING SCHEDULE

FINISHED FLOOR

SCALE: N.T.S.

$$\frac{2A}{3.1}$$


SCALE: NOT TO SCALE

3
3.1



PROJECT INFORMATION

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ASPEN DENTAL

715 PROGRESS WAY STE TBD • GAITHERSBURG, MD 20877

PROFESSIONAL SEAL

SHEET DATES

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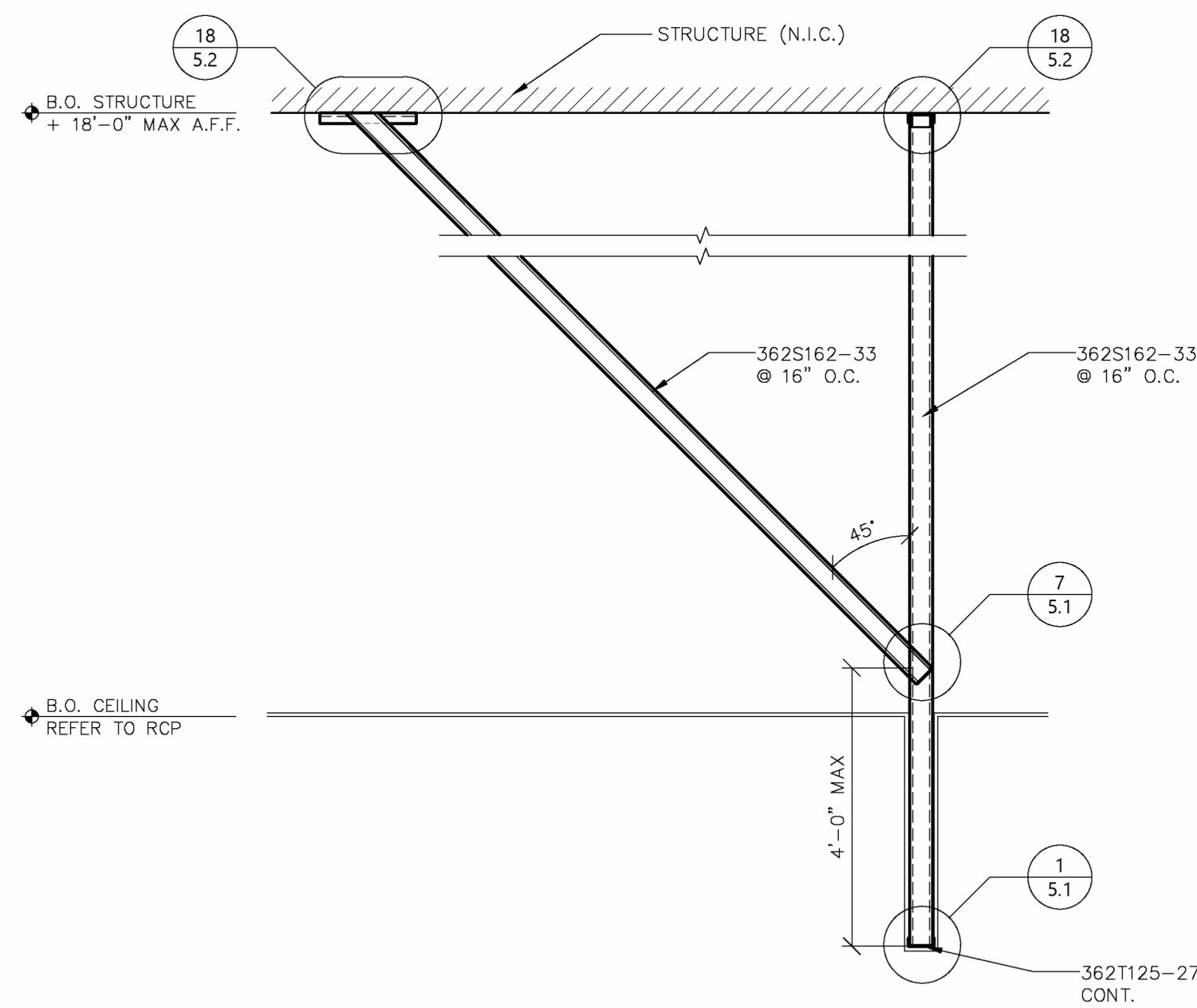
JOB NUMBER

260222300

SHEET NUMBER

CFS3.1

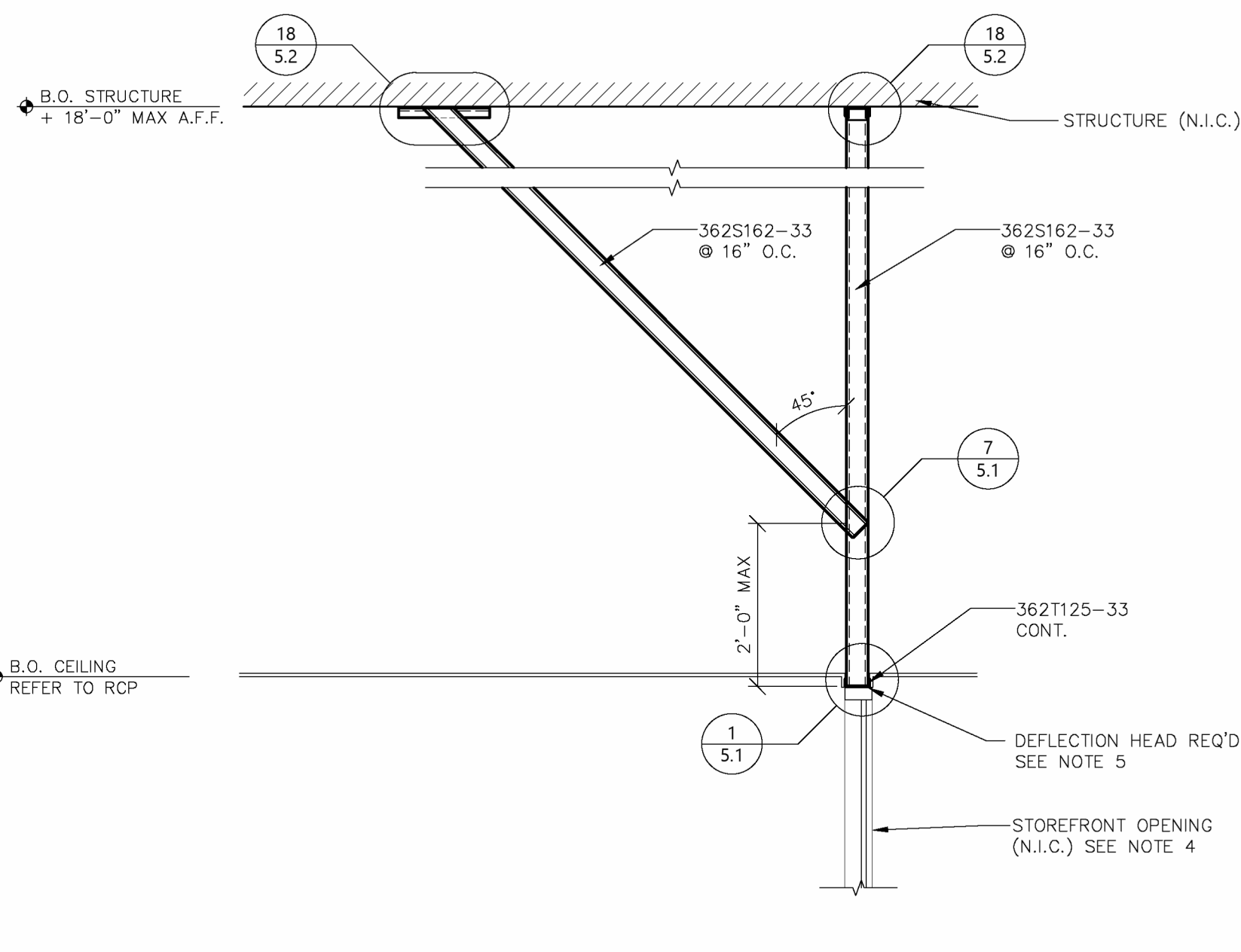
COLD FORMED STEEL SECTIONS



BULKHEAD FRAMING

SCALE: N.T.S.

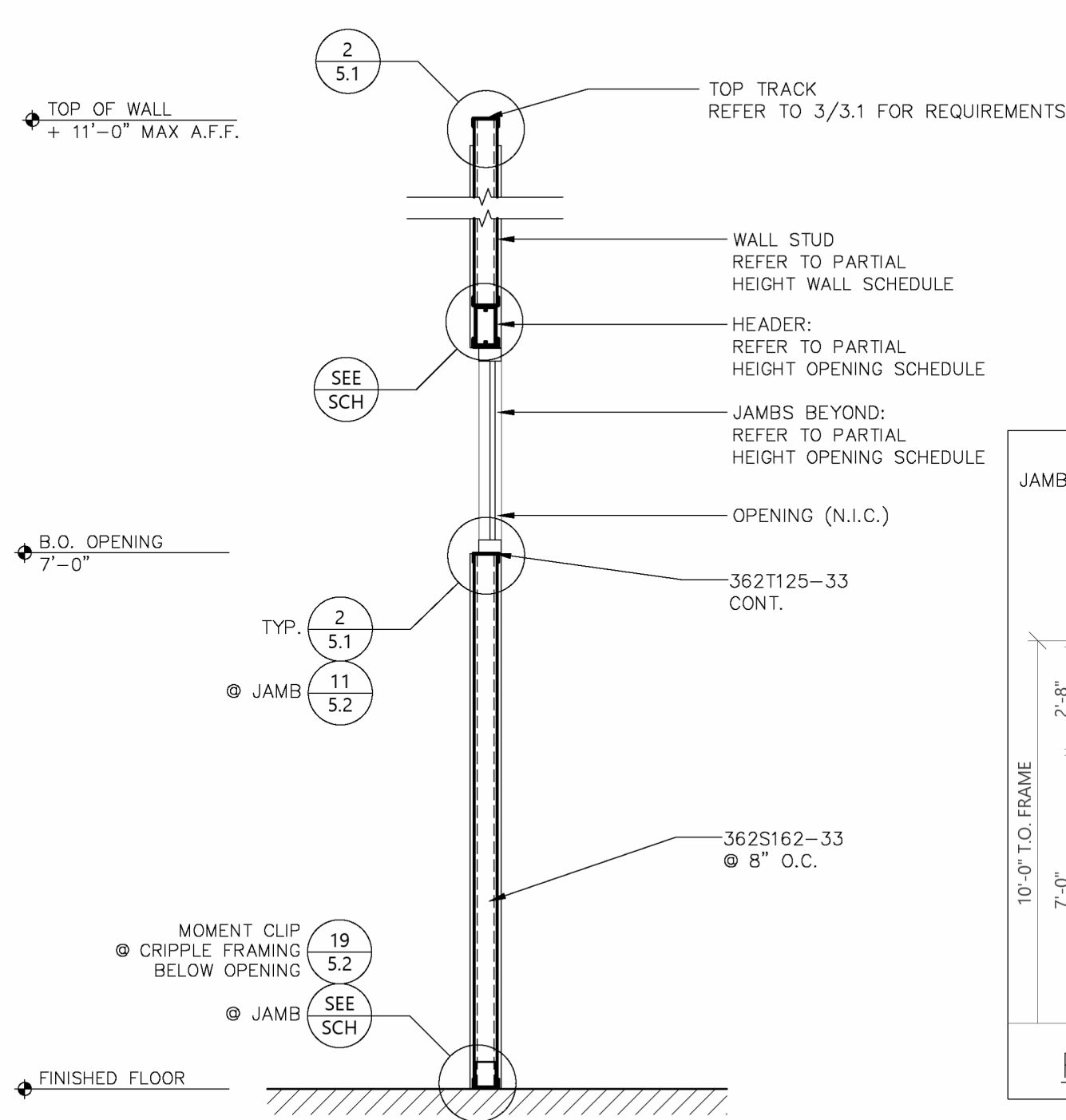
4
3.2



BULKHEAD FRAMING @ GLAZING

SCALE: N.T.S.

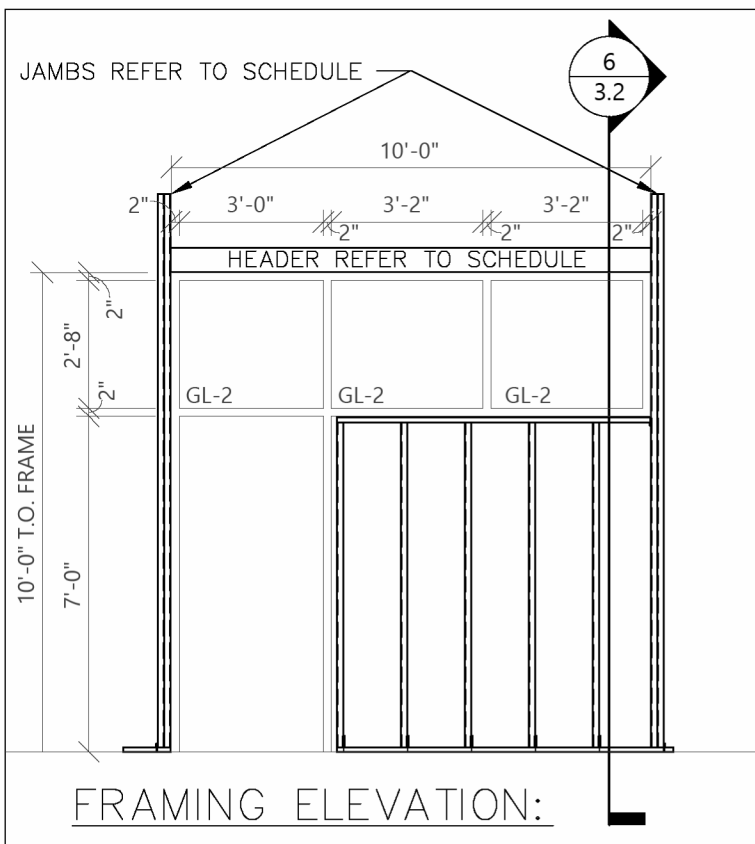
5
3.2



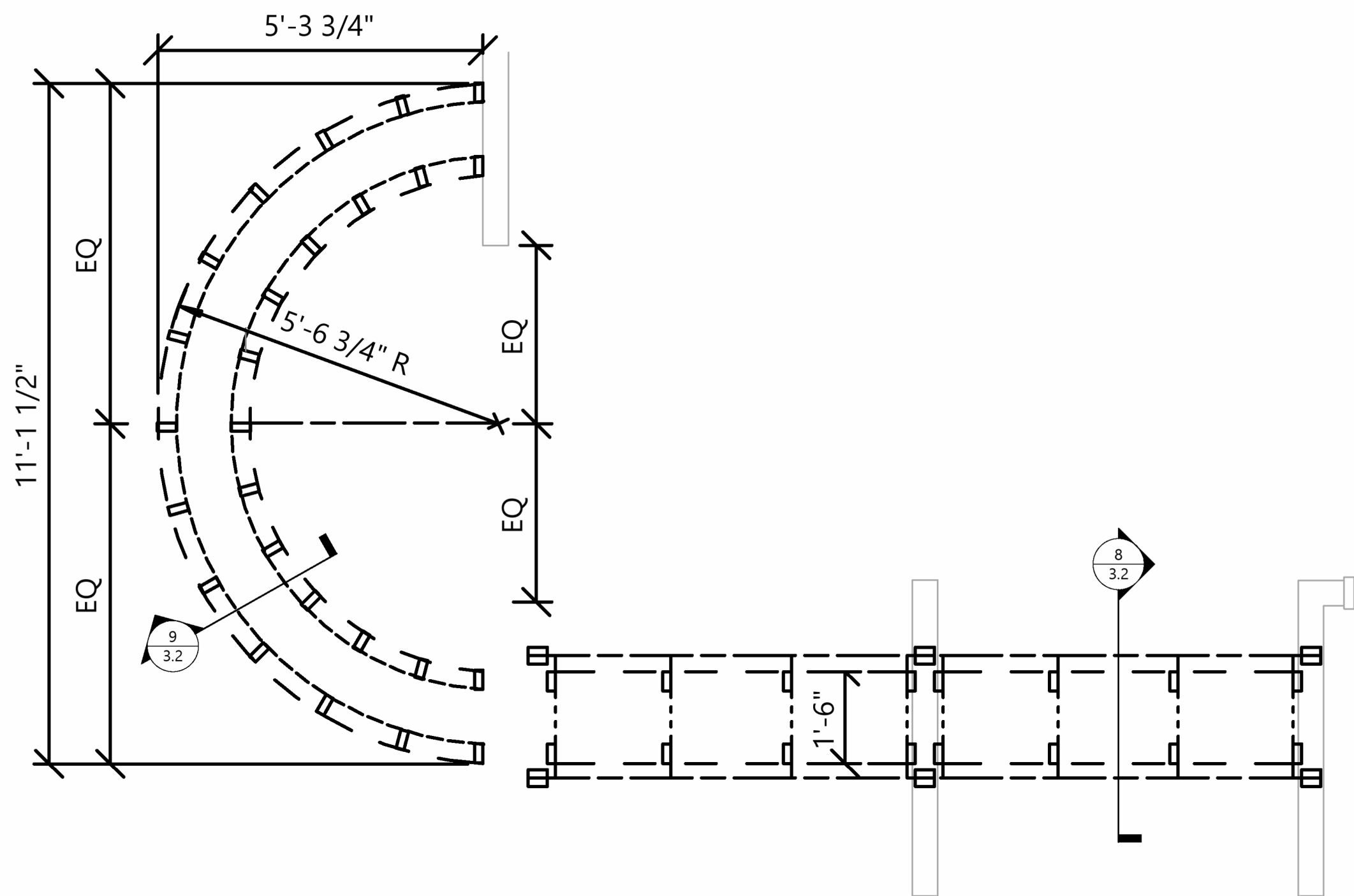
@ AL-2 & AL-3 OPENINGS

SCALE: N.T.S.

6
3.2



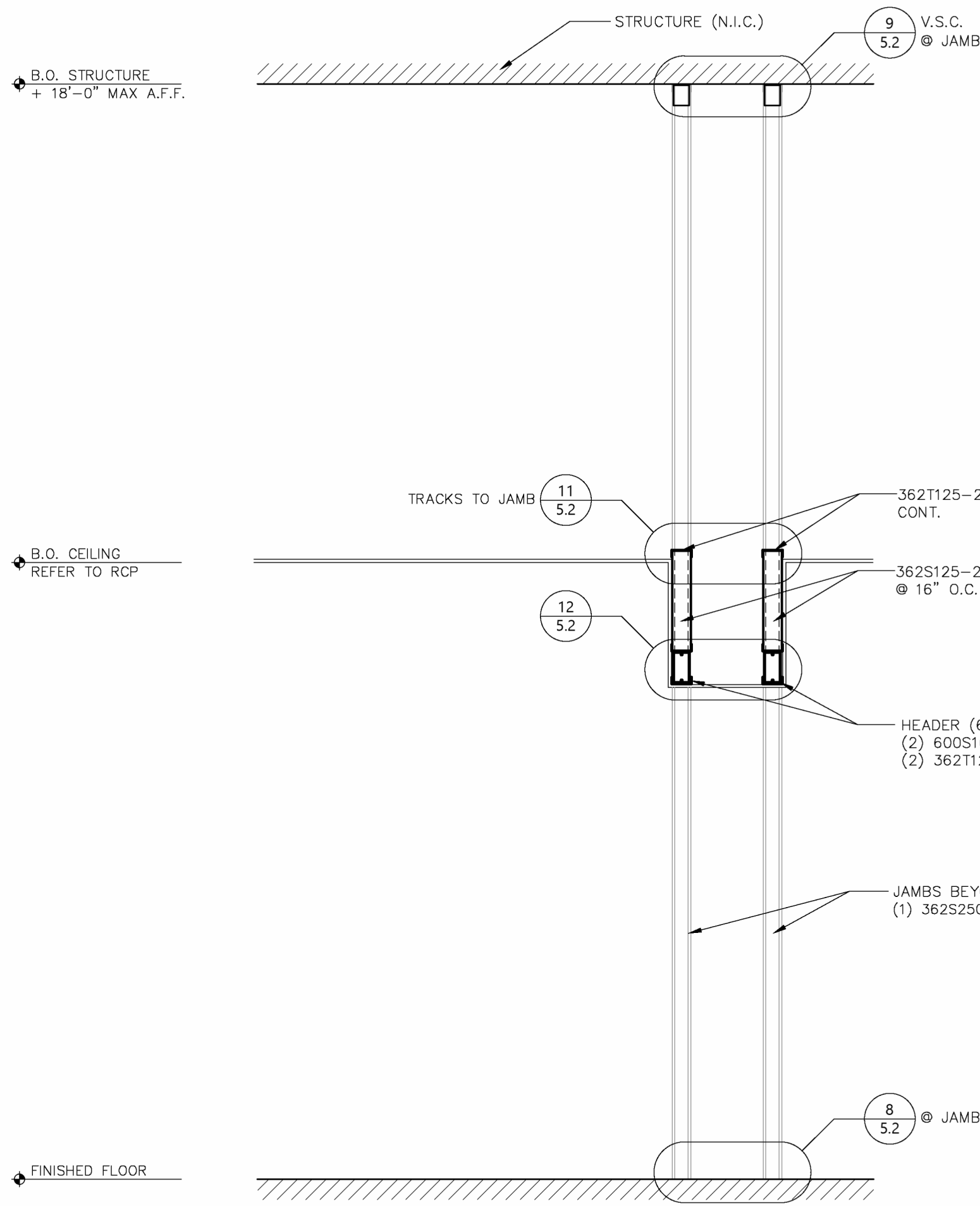
- SECTION NOTES:
- 1) ALL TRACK TO BE 1 1/4" FLANGE x 33 MIL. U.N.O.
 - 2) REFER TO SHEET C2 FOR APPROVED FASTENERS (P.D.F.'s, SCREWS, CONCRETE ANCHORS, ETC.)
 - 3) DIMENSIONS & ELEVATIONS ON EXCEL SHOP DRAWINGS ARE FOR REFERENCE ONLY, REFERENCE ARCHITECTURAL & STRUCTURAL.
 - 4) A. CURTAINWALLS ARE ASSUMED TO SPAN VERTICALLY WITH LOAD TRANSFER THROUGH THE VERTICAL MULLIONS. STUD FRAMING HAS BEEN DESIGNED UTILIZING CALCULATED MULLION LOADS PER PROJECT DESIGN CRITERIA. PROVIDE JAMB STUDS IN ACCORDANCE WITH STANDARD CONSTRUCTION PRACTICE.
B. STOREFRONTS ARE ASSUMED TO SPAN VERTICALLY WITH LOAD TRANSFER THROUGH ANY INTERNAL VERTICAL MULLIONS. STOREFRONTS ARE ALSO ASSUMED TO BE ATTACHED ALONG THE LENGTH OF OUTSIDE VERTICAL MULLIONS.
C. WINDOWS HAVE BEEN DESIGNED ASSUMING TRIBUTARY LOAD DISTRIBUTION TO HEADER, SILL & JAMB ELEMENTS.
 - 5) TO PROVIDE FOR VERTICAL MOVEMENT (PER PROJECT SPECIFICATIONS) A DEFLECTION HEAD BY WINDOW MANUFACTURER WILL BE REQUIRED WHERE NOTED.
 - 6) PROJECT ENGINEER TO VERIFY ALL CONNECTION LOCATIONS TO STRUCTURE. (SPECIFICALLY BEAM BOTTOM FLANGE SUPPORTS, IF DETAILED)
 - 7) ALL HEADER & SILL MEMBERS MUST SPAN ENTIRE LENGTH OF OPENING W/O SPLICES.
 - 8) SECTION PROPERTIES USED IN THIS SUBMITTAL ARE THOSE PUBLISHED BY SSMA/ SFIA/ CSSA.



RADIUS CEILING PLAN

SCALE: N.T.S.

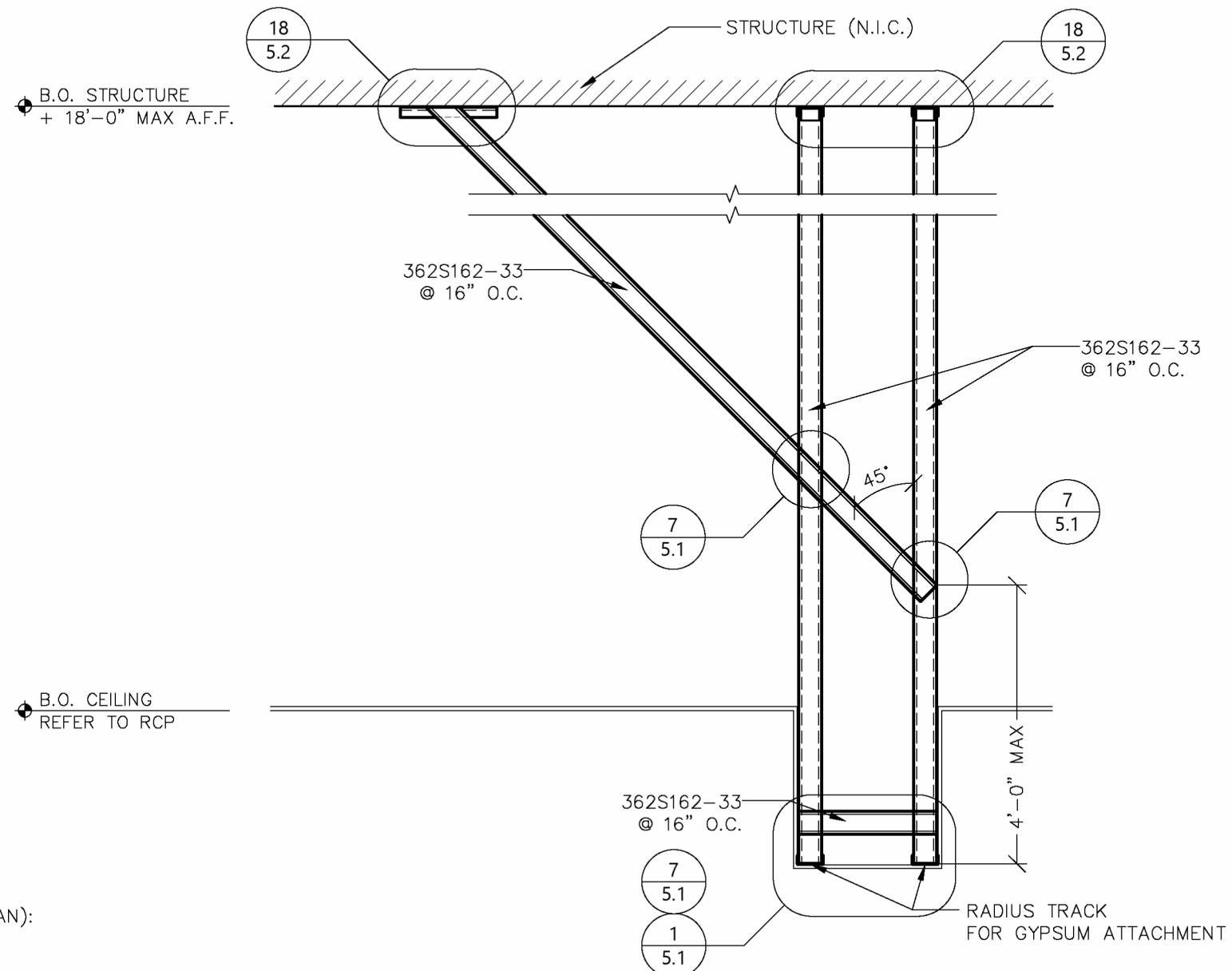
7
3.2



CEILING SOFFIT FRAMING

SCALE: N.T.S.

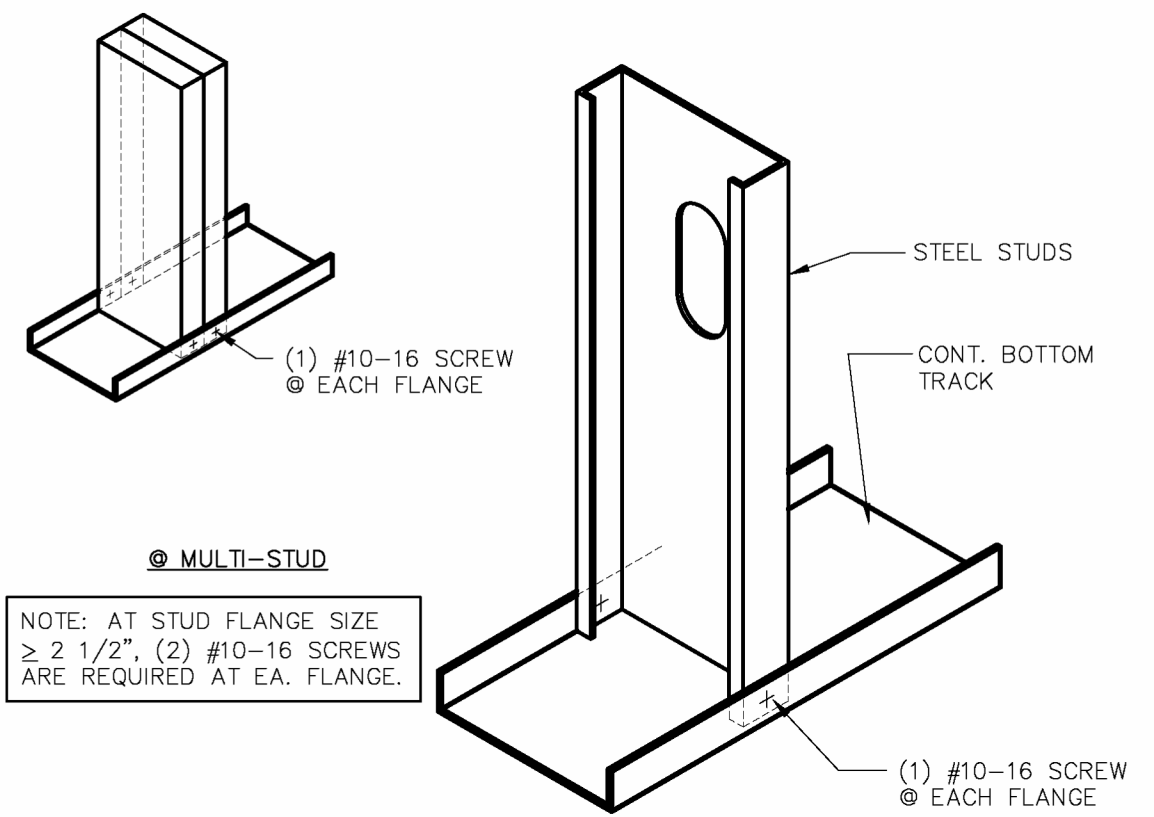
8
3.2



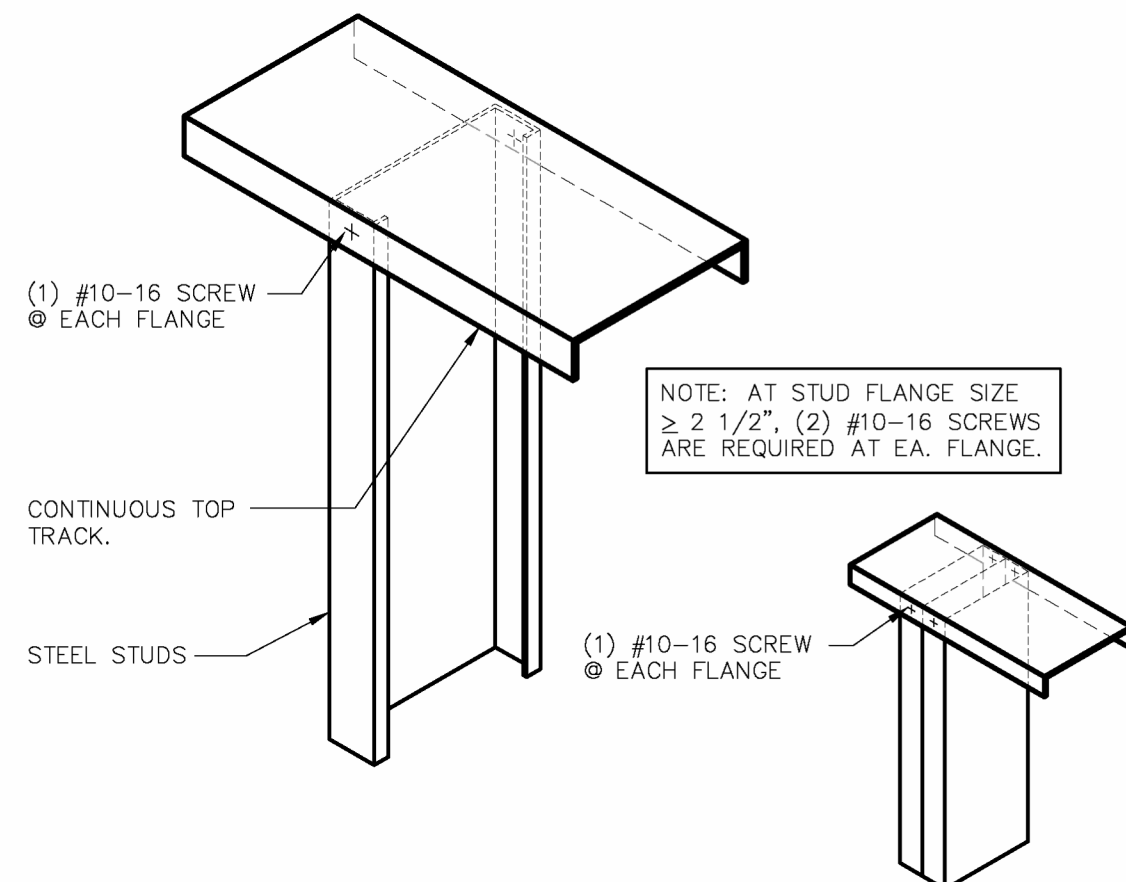
RADIUS BULKHEAD FRAMING

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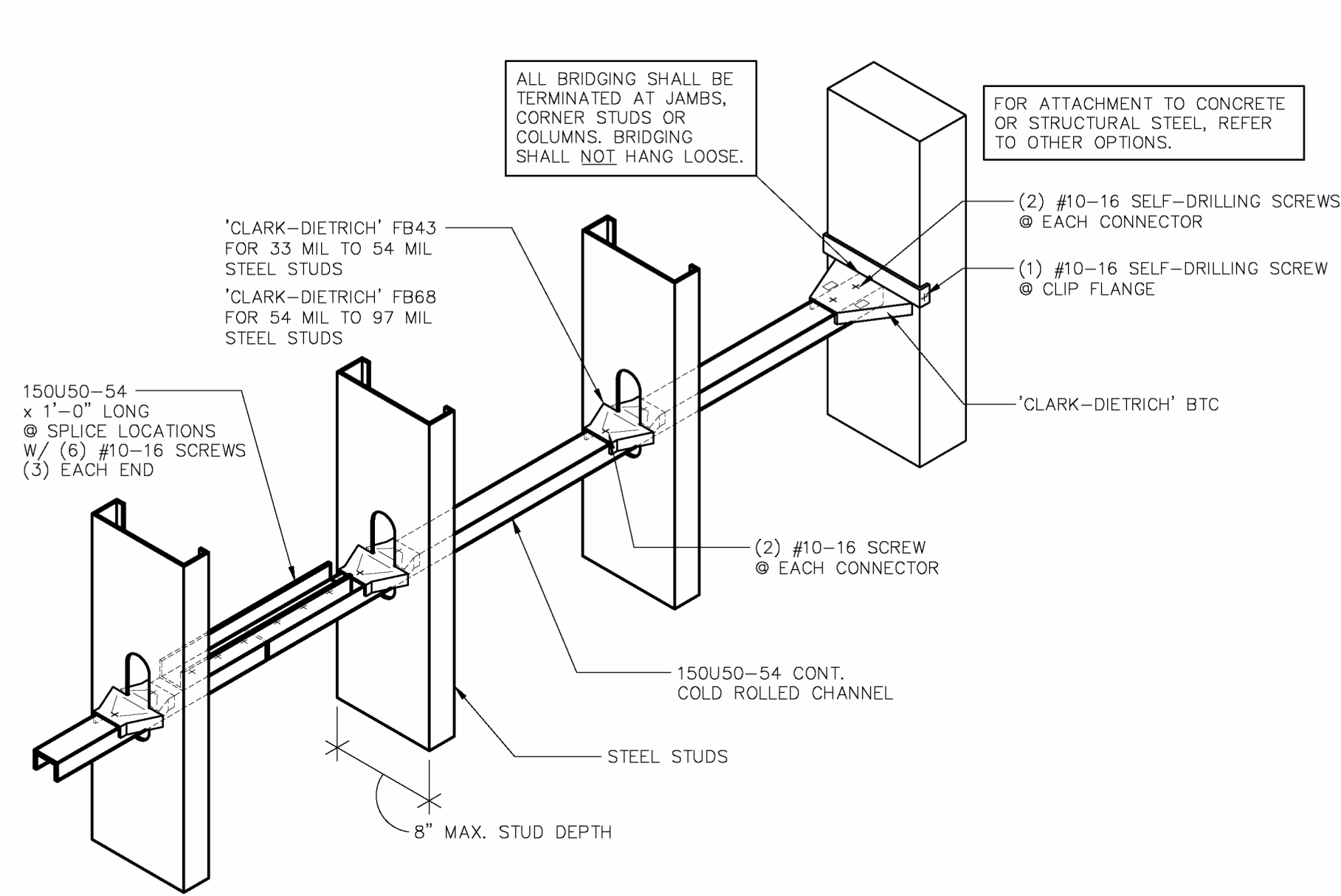
9
3.2



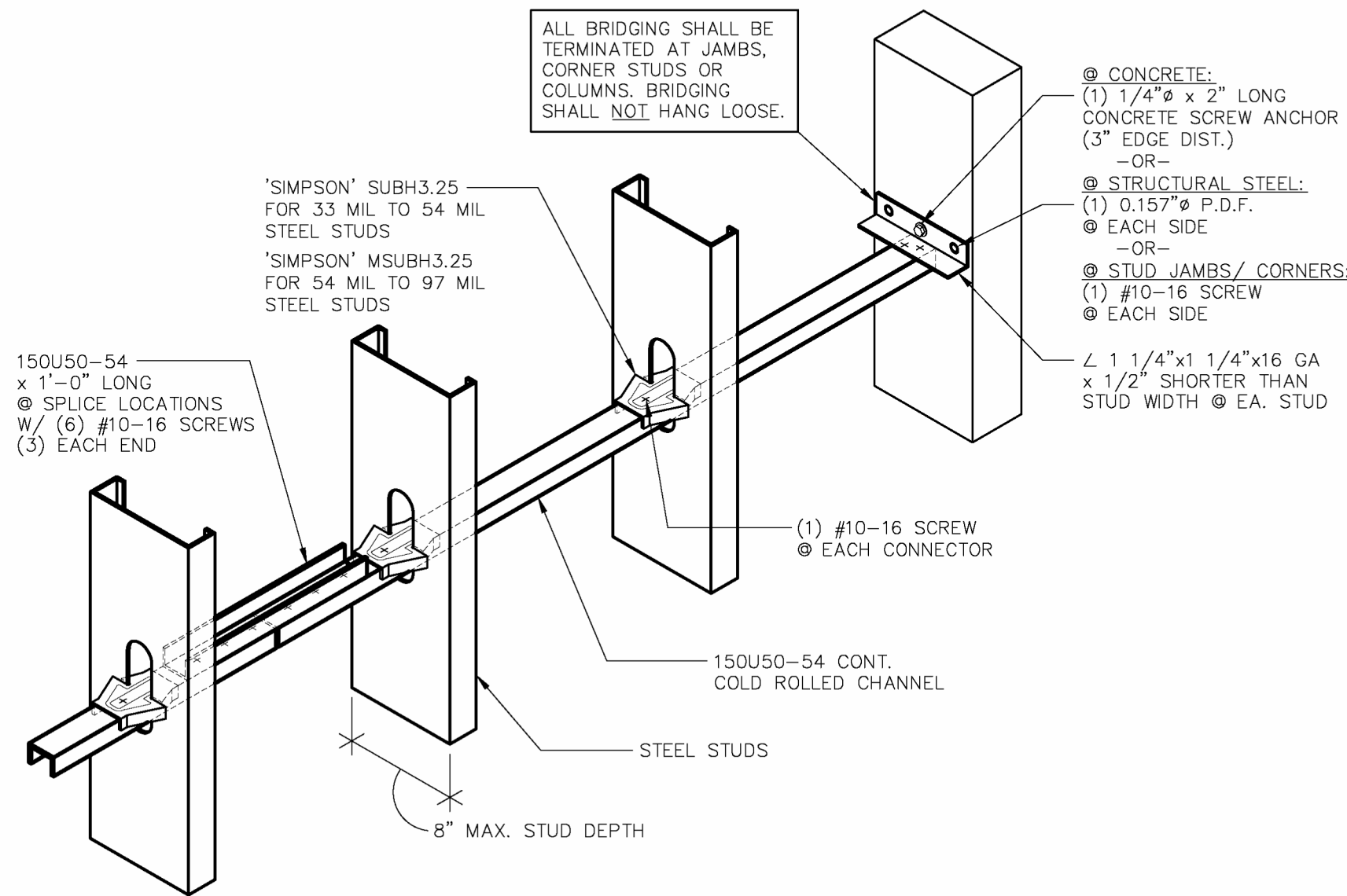
STUD TO TRACK CONNECTION 1 5.1



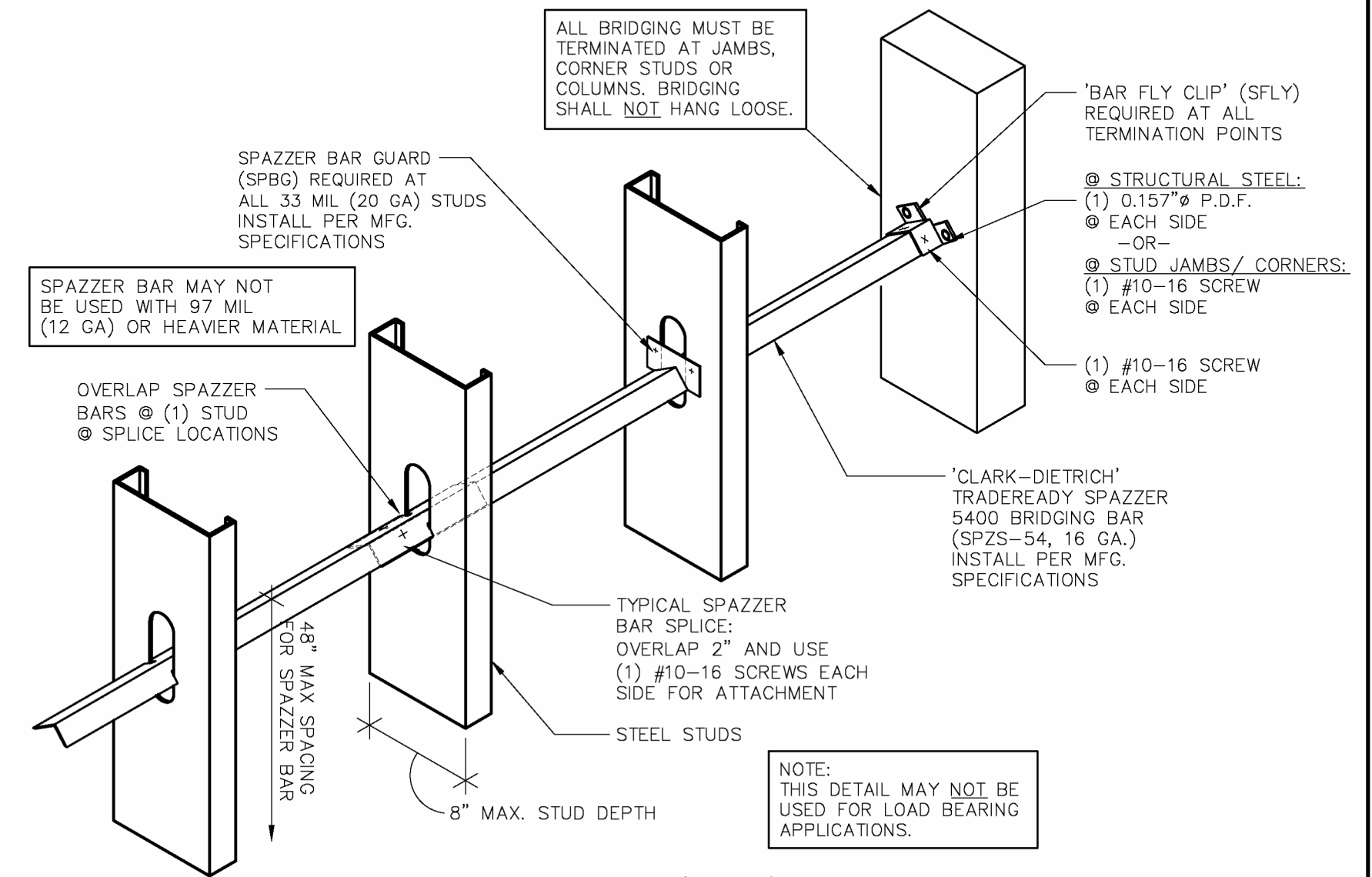
STUD TO TRACK CONNECTION 2 5.1



SCREWED CLARK DIETRICH CLIP OPTION



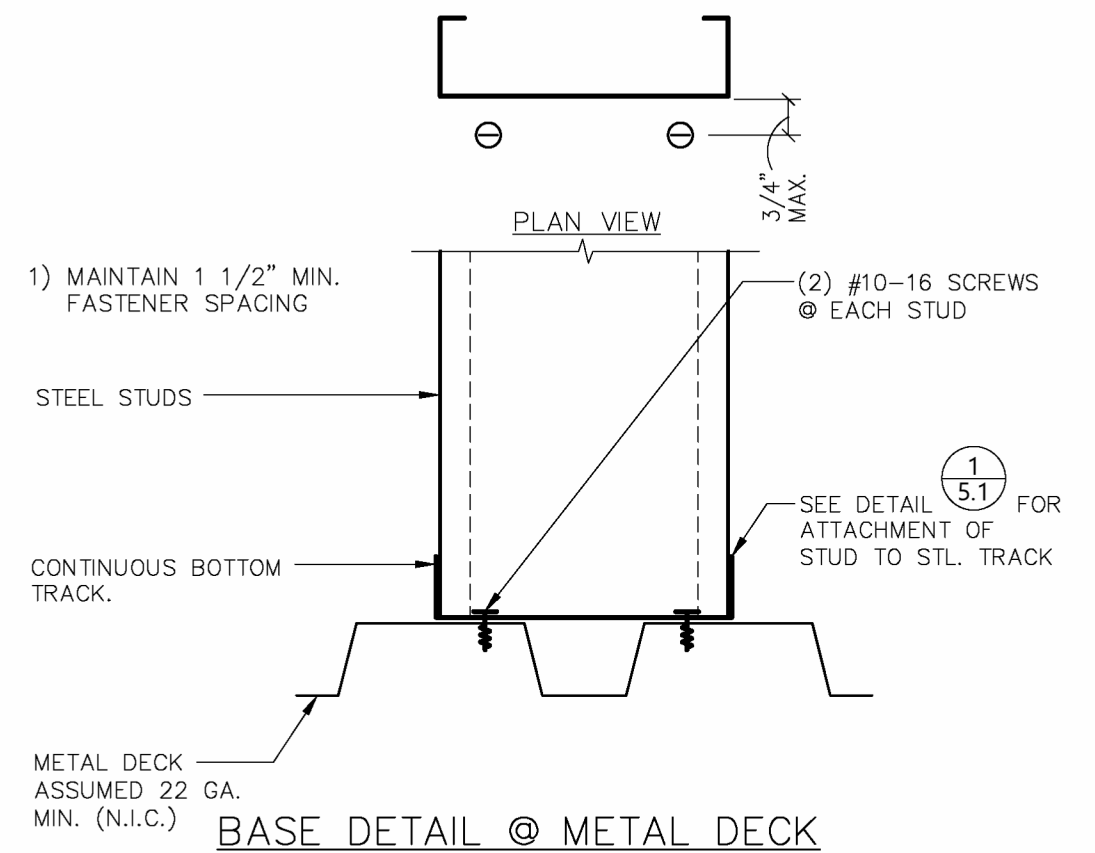
SCREWED SIMPSON CLIP OPTION



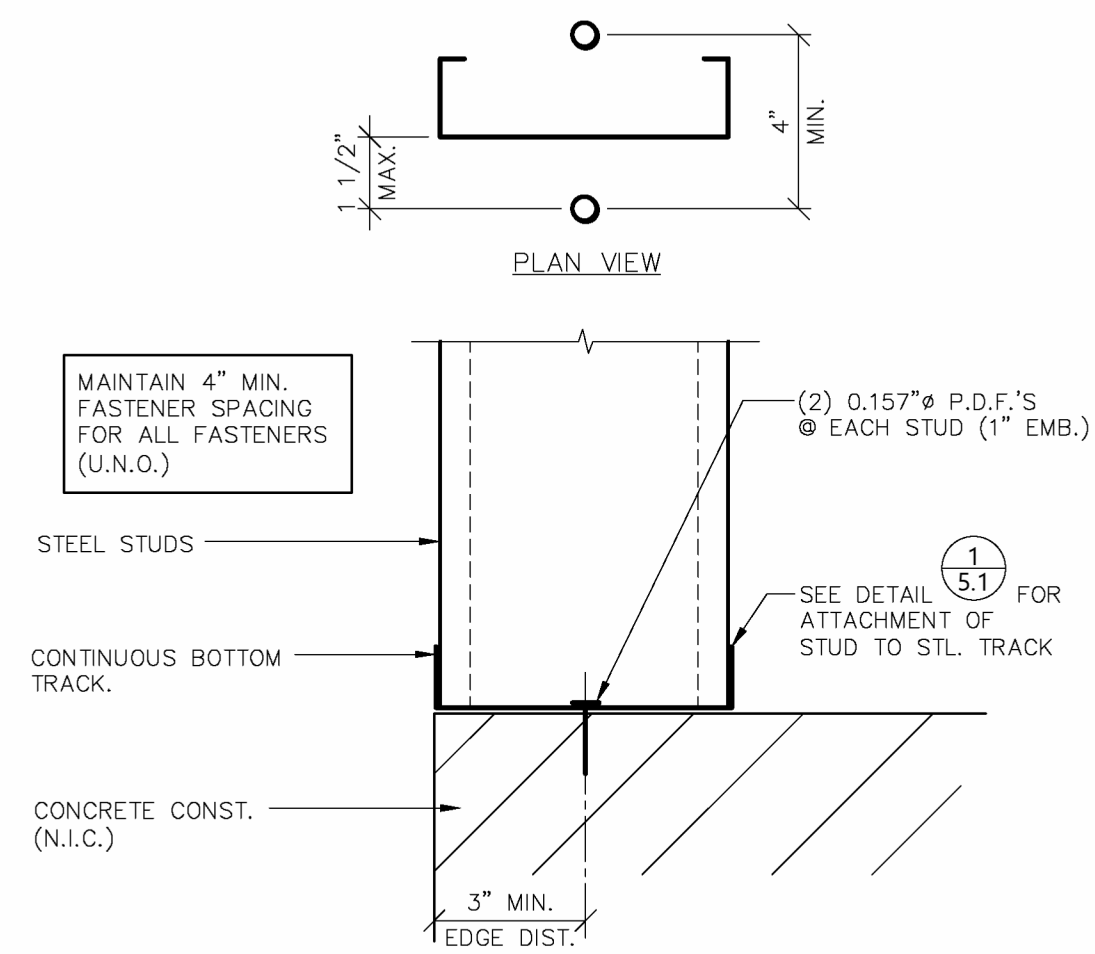
SPAZZER BAR (5400) OPTION

ALL BRIDGING VERTICAL SPACING @ 48" O.C. MAX. (U.N.O.)

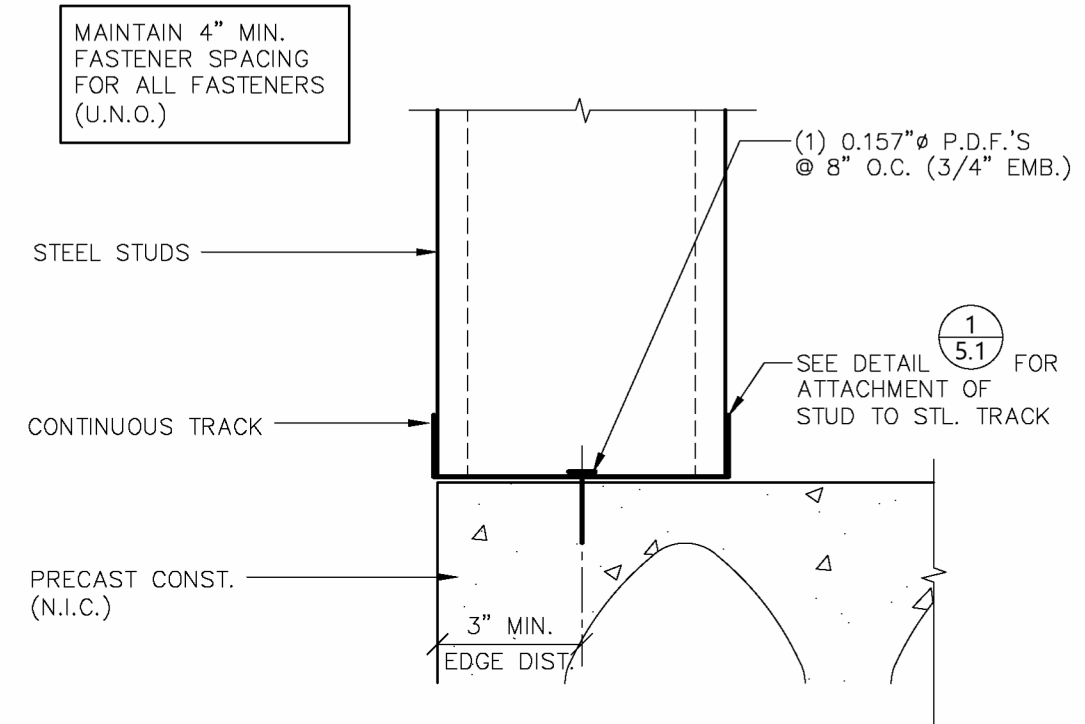
BRIDGING ATTACHMENT OPTIONS 3 5.1



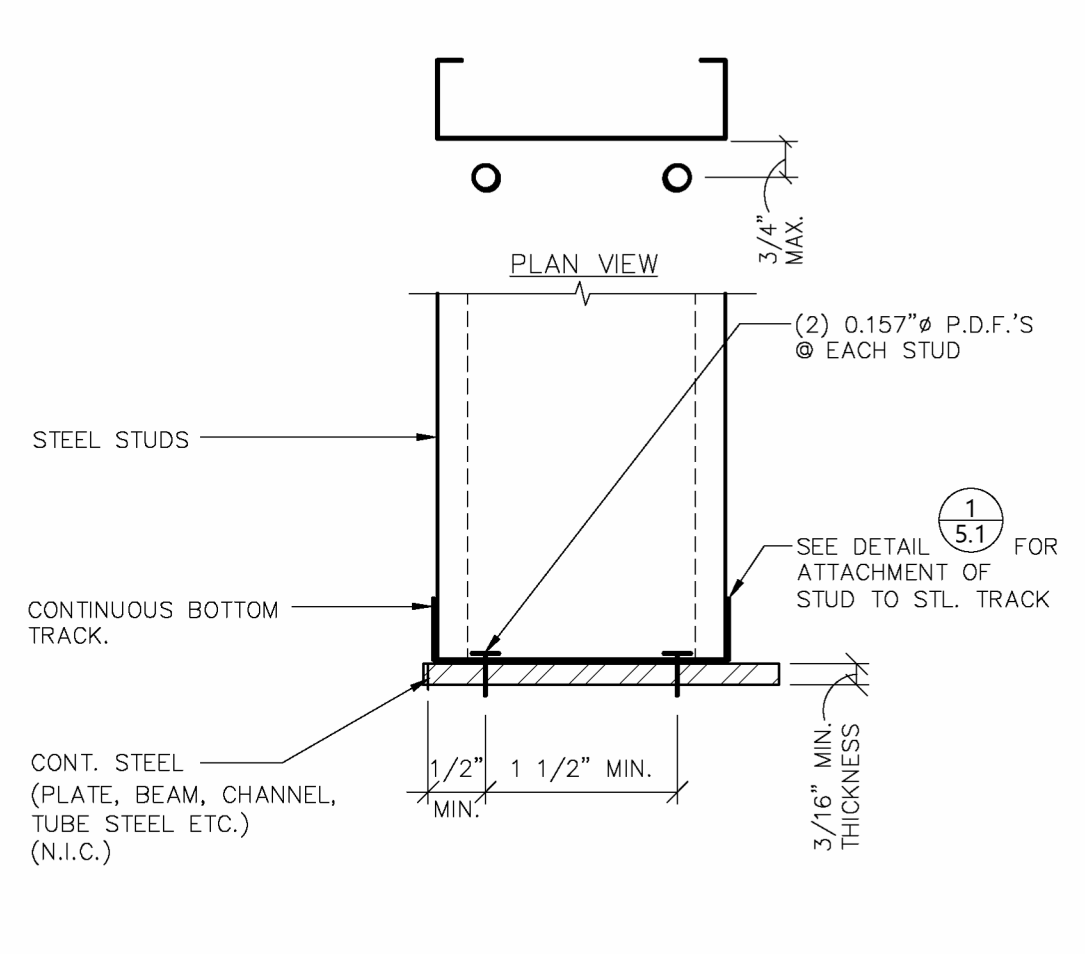
BASE DETAIL @ METAL DECK



BASE DETAIL @ CONCRETE

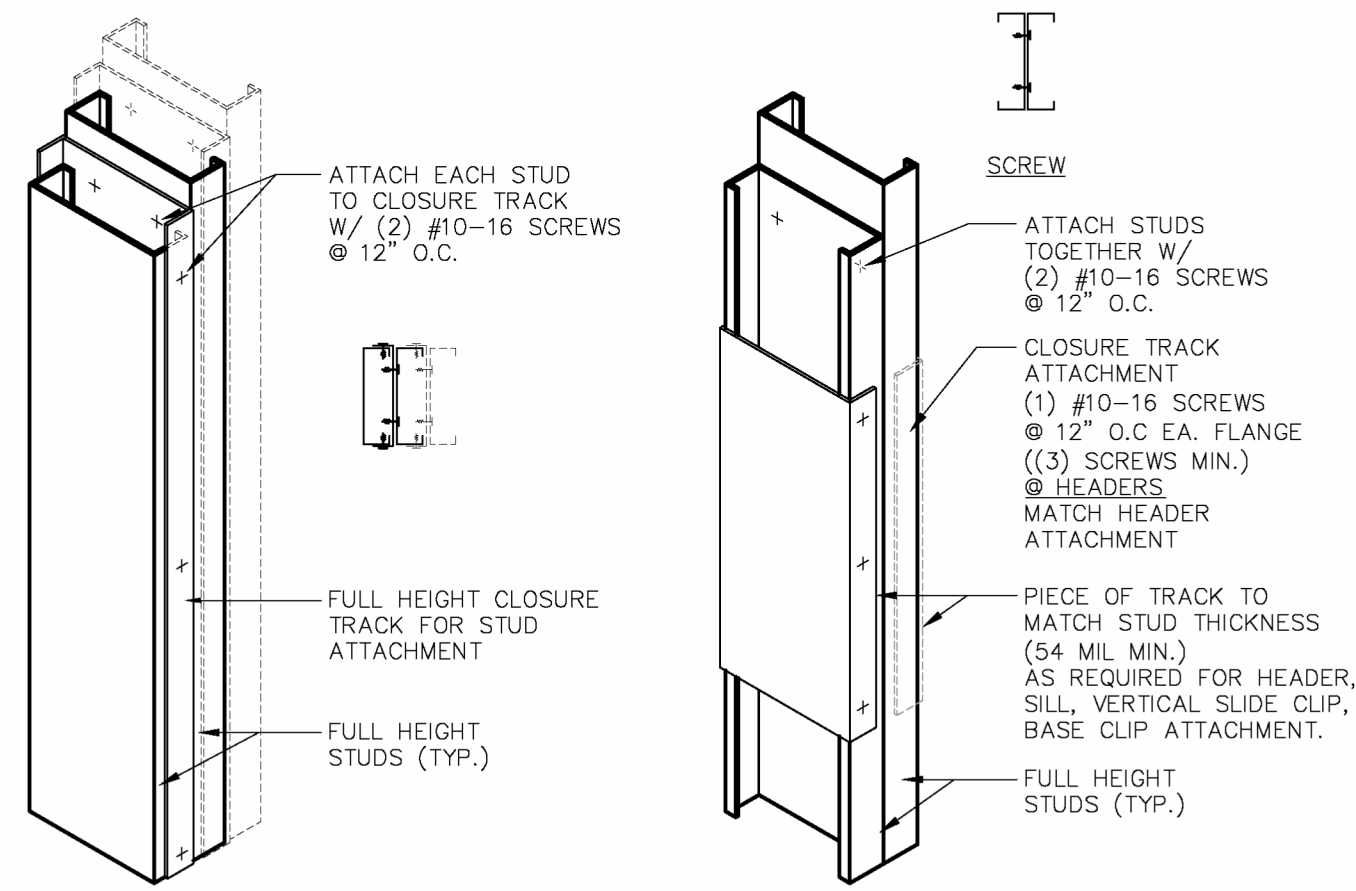


BASE DETAIL @ PRECAST



BASE DETAIL @ STRUCTURAL STEEL

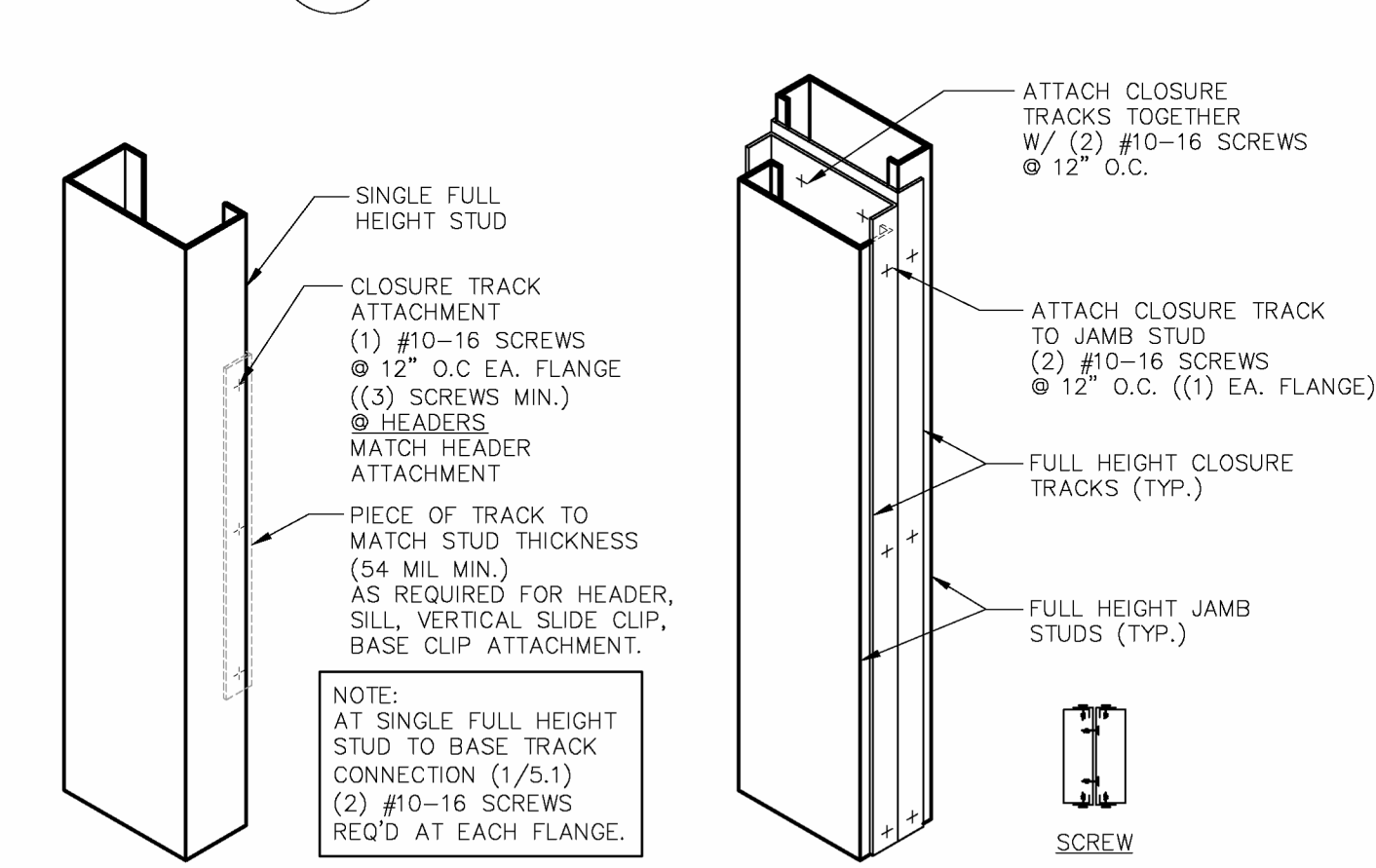
TYPICAL BASE DETAILS 4 5.1



WEB-TO-LIP (SCREWED)

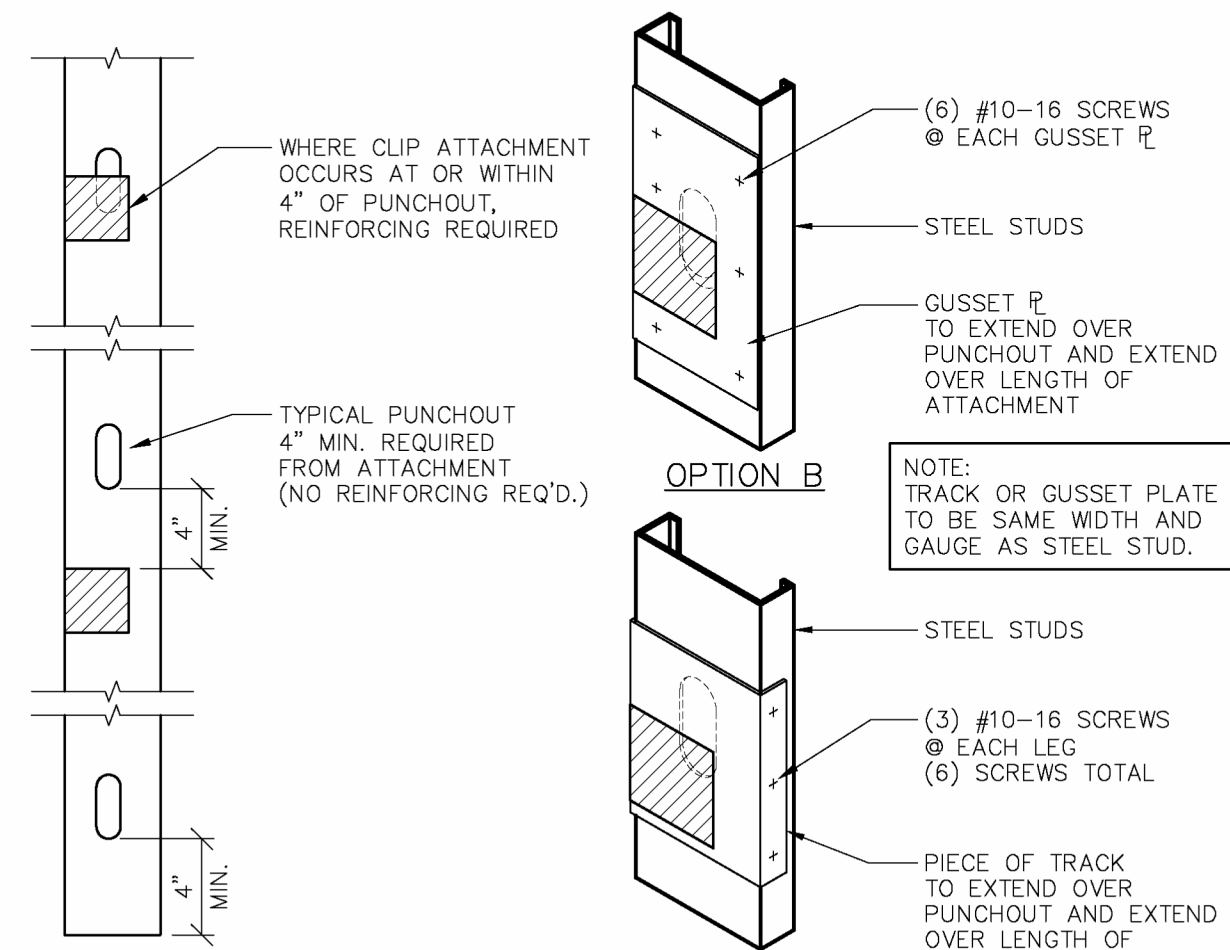
BACK-TO-BACK ('BTB') (SCREWED)

STUD CONFIGURATION 5 5.1

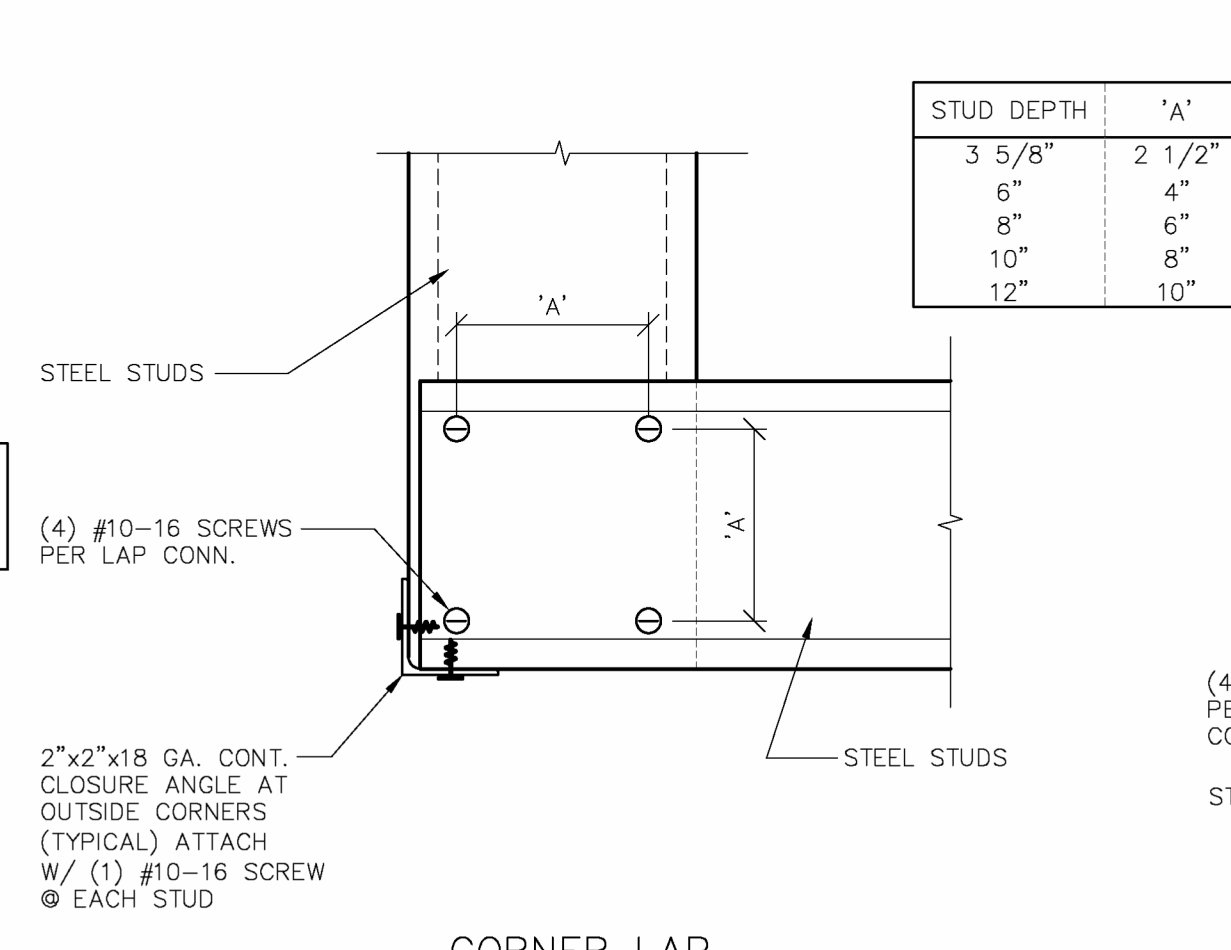


SINGLE STUD

BOXED - SCREW OPTION (SCREWED)



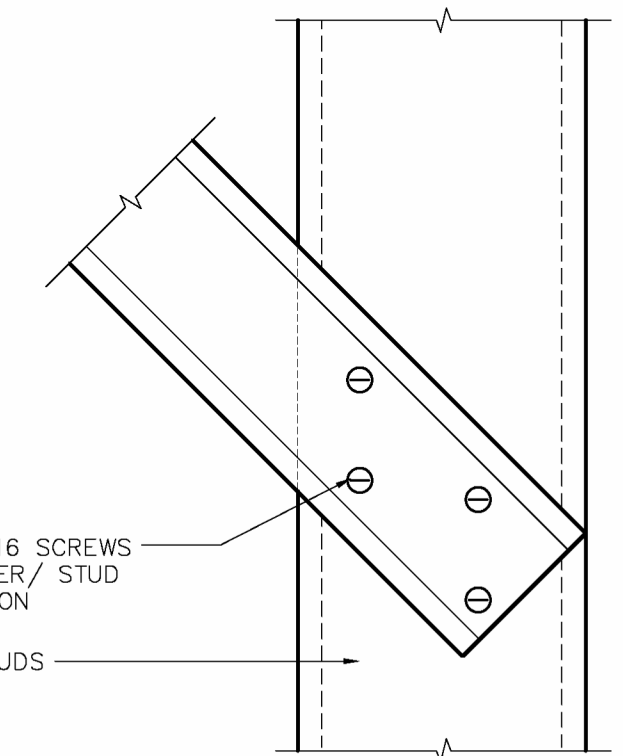
PUNCHOUT REINFORCING 6 5.1



CORNER LAP

LAP CONNECTIONS 7 5.1

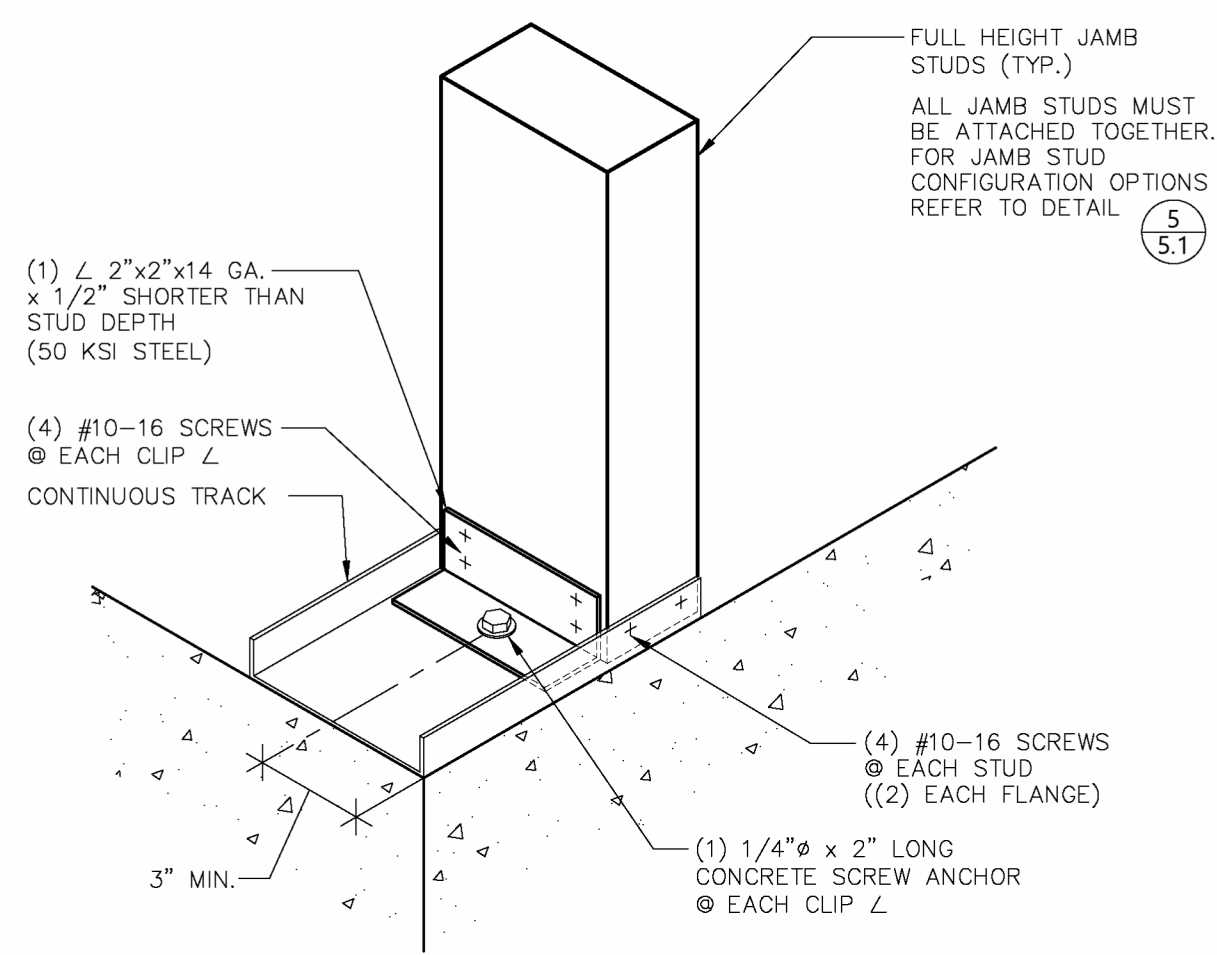
STUD DEPTH	'A'
3 5/8"	2 1/2"
6"	4"
8"	6"
10"	8"
12"	10"



DIAGONAL LAP

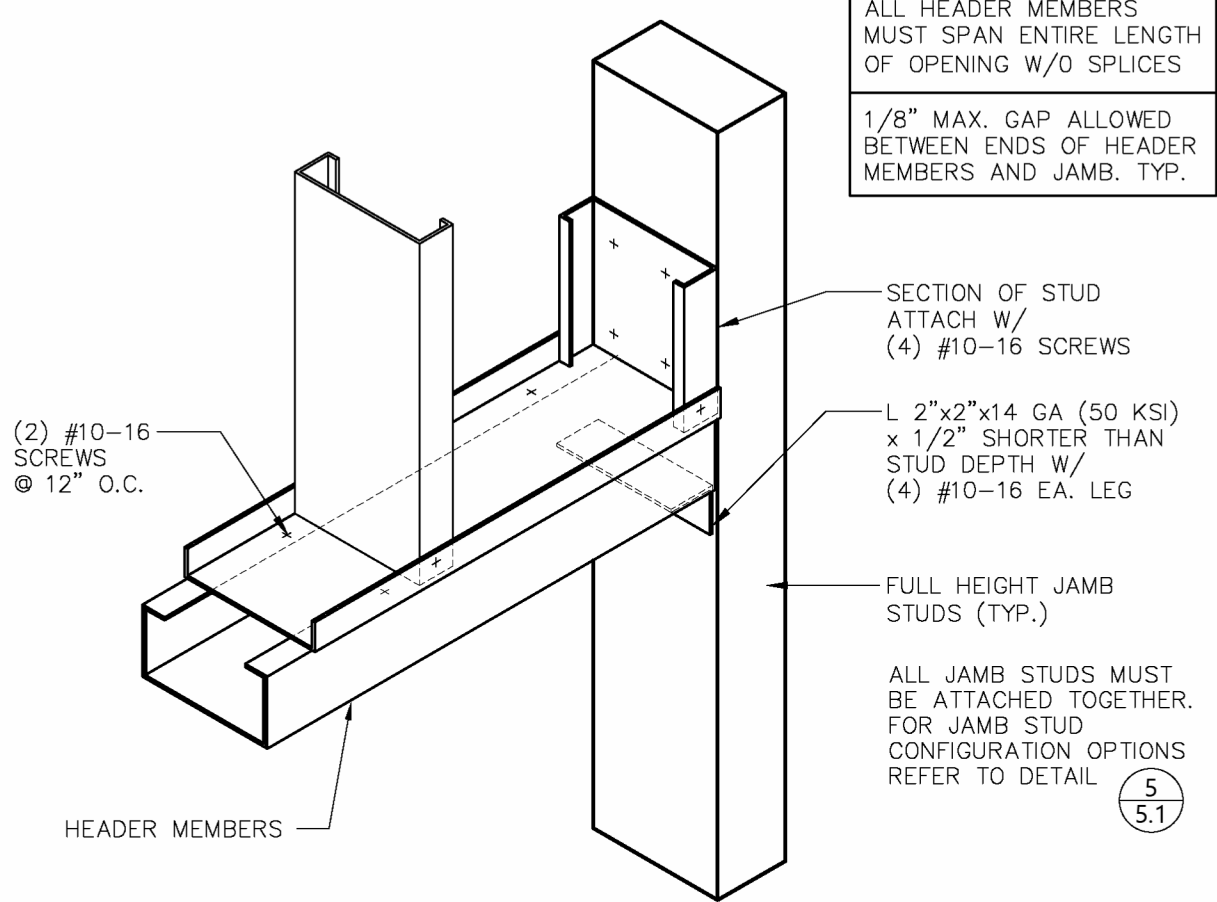
COLD FORMED STEEL DETAILS

NO.	DESCRIPTION



JAMB BASE DETAIL

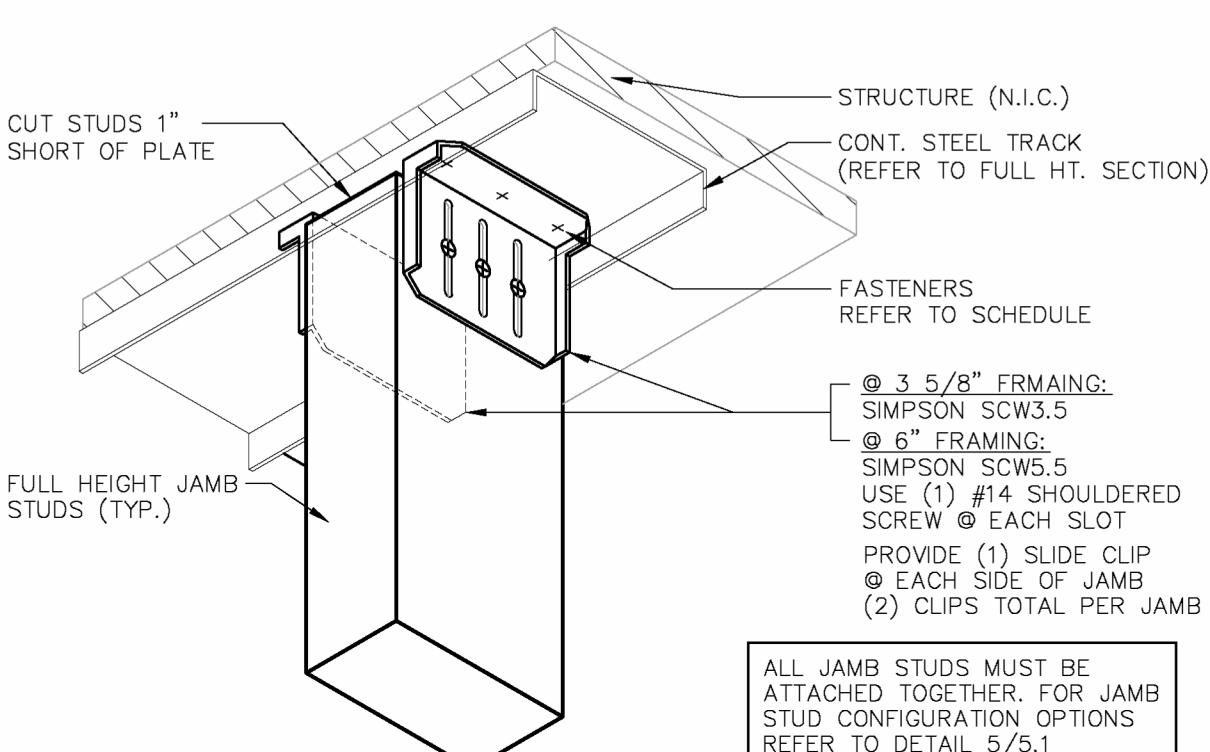
8
5.2



HEADER - JAMB DETAIL

13
5.2

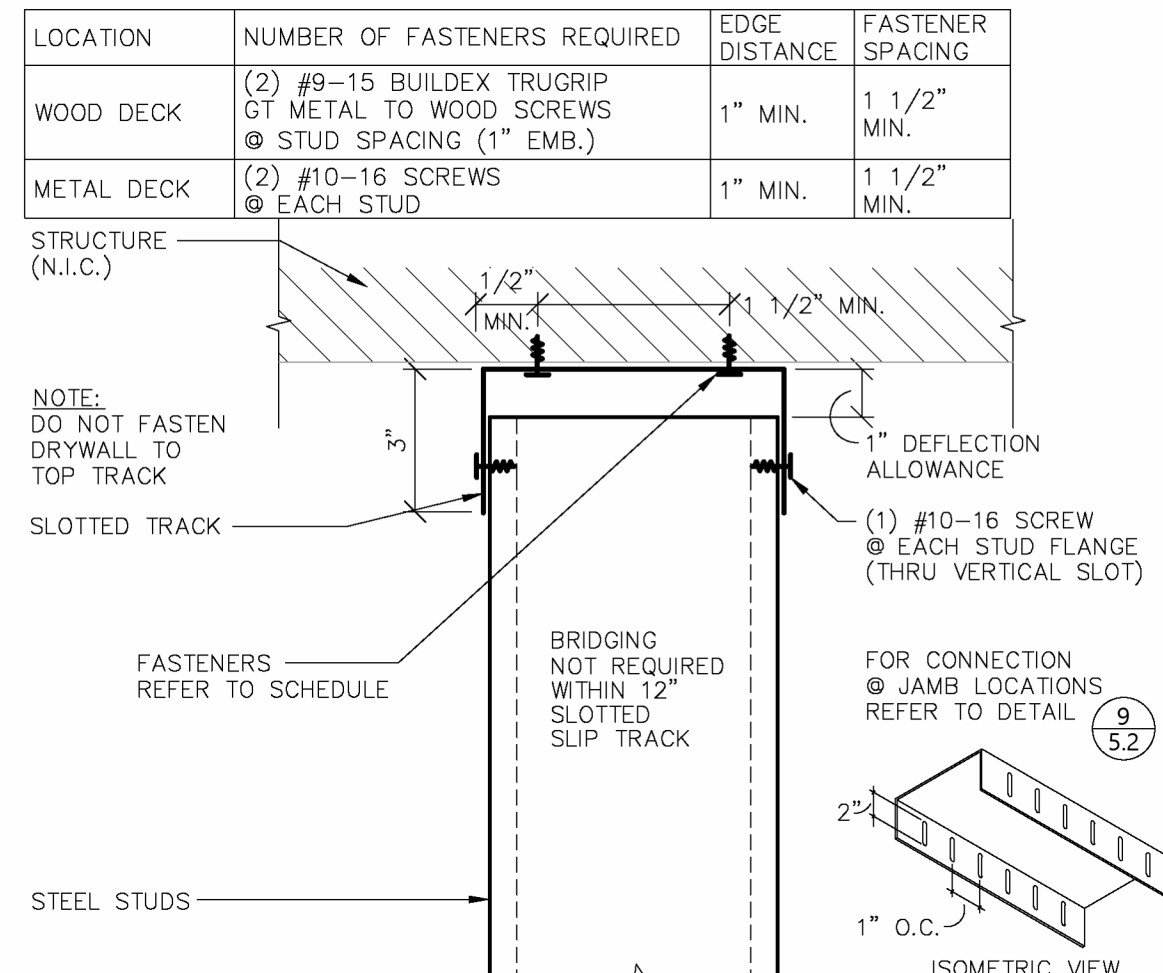
LOCATION	NUMBER OF FASTENERS REQUIRED	EDGE DISTANCE	FASTENER SPACING
WOOD DECK	(3) #9-15 BUILDEX TRUGRIP GT METAL TO WOOD SCREWS @ EACH CLIP (1" EMB.)	1" MIN.	1 1/2" MIN.
METAL DECK	(3) #10-16 SCREWS @ EACH CLIP	1" MIN.	1 1/2" MIN.



V.S.C. DETAIL @ JAMB

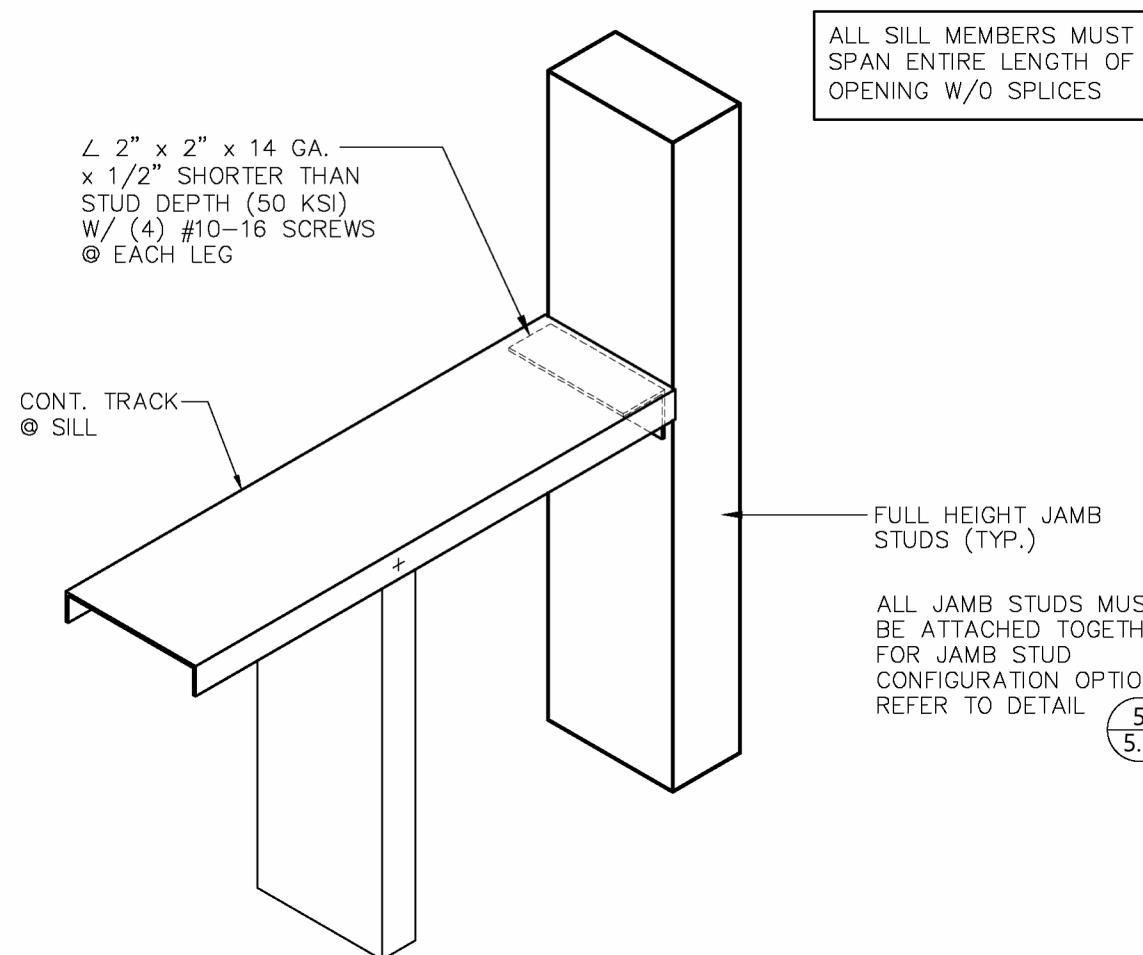
(V.S.C. = VERTICAL SLIDE CLIP)
(INSTALL PER MANUFACTURER SPECIFICATIONS)

9
5.2



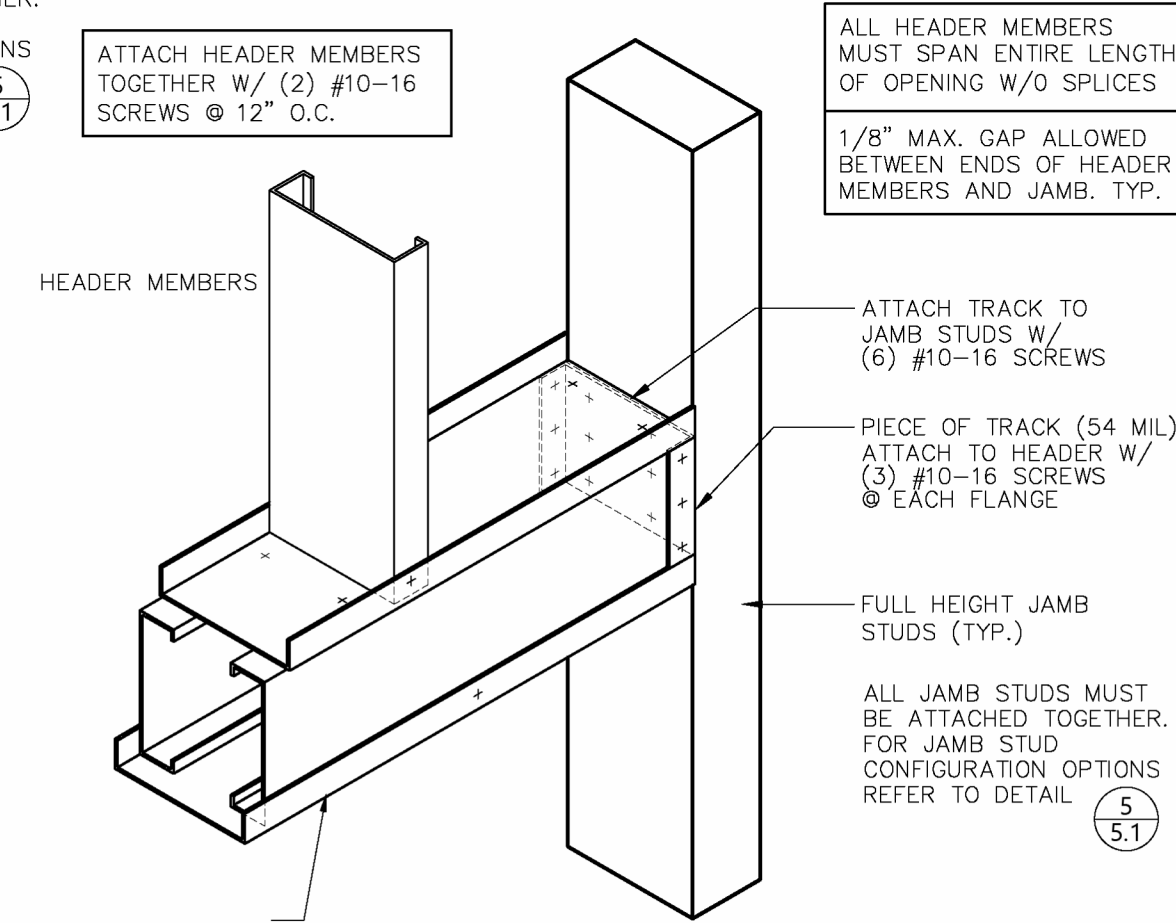
SLOTTED TRACK TO STEEL BEAM

10
5.2



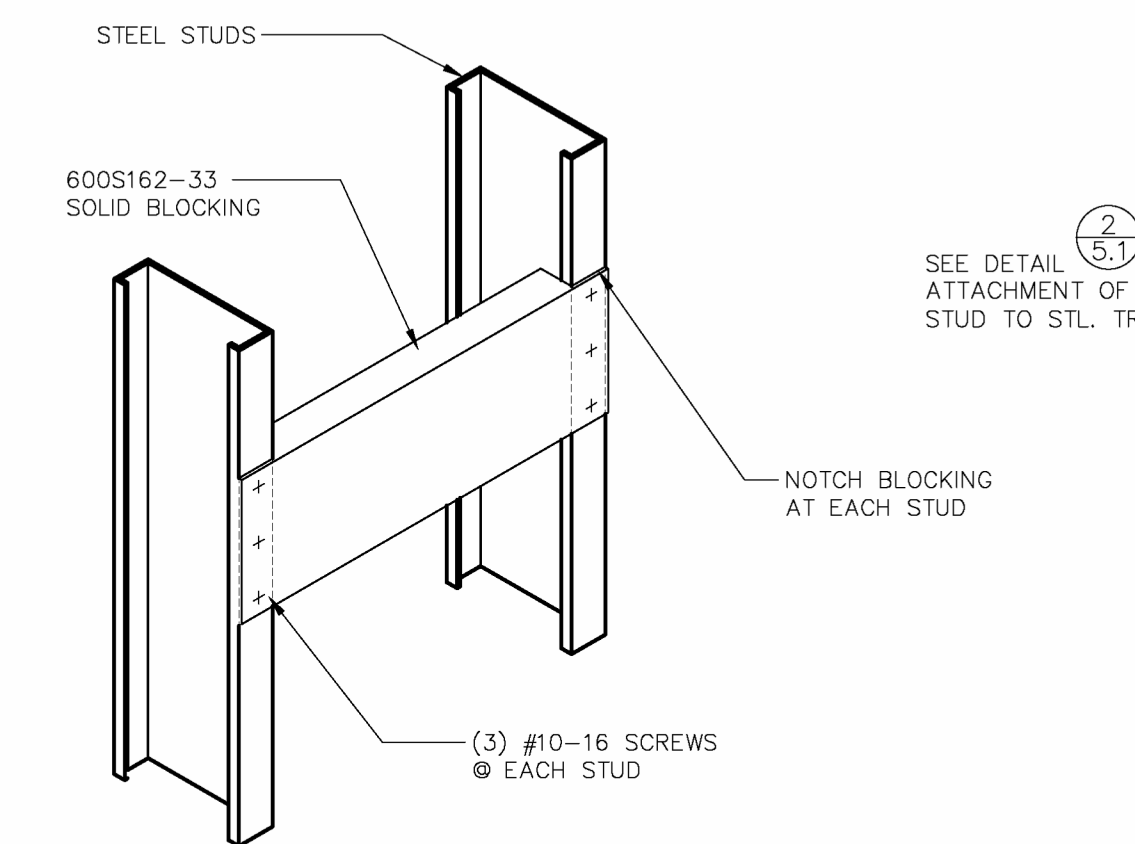
SILL - JAMB DETAIL

11
5.2



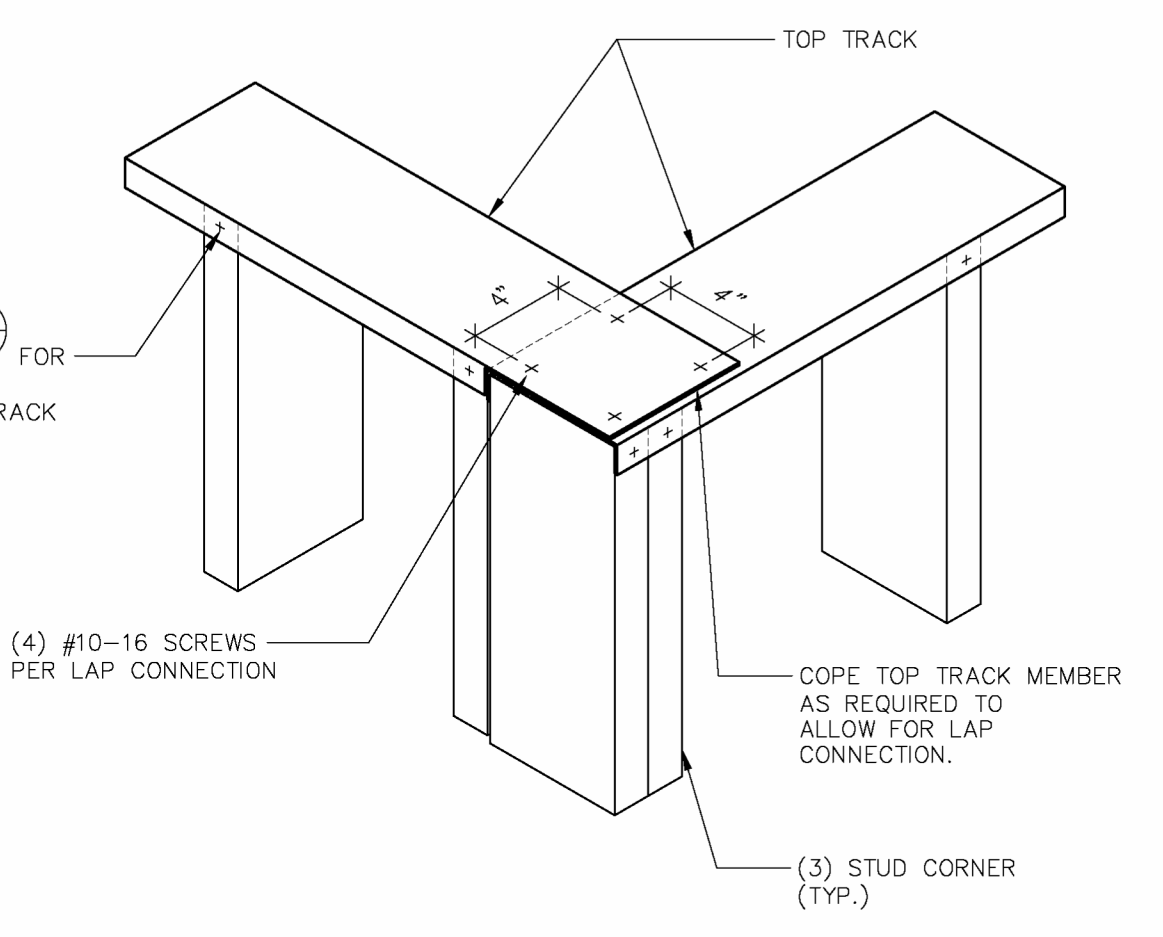
HEADER - JAMB DETAIL

12
5.2



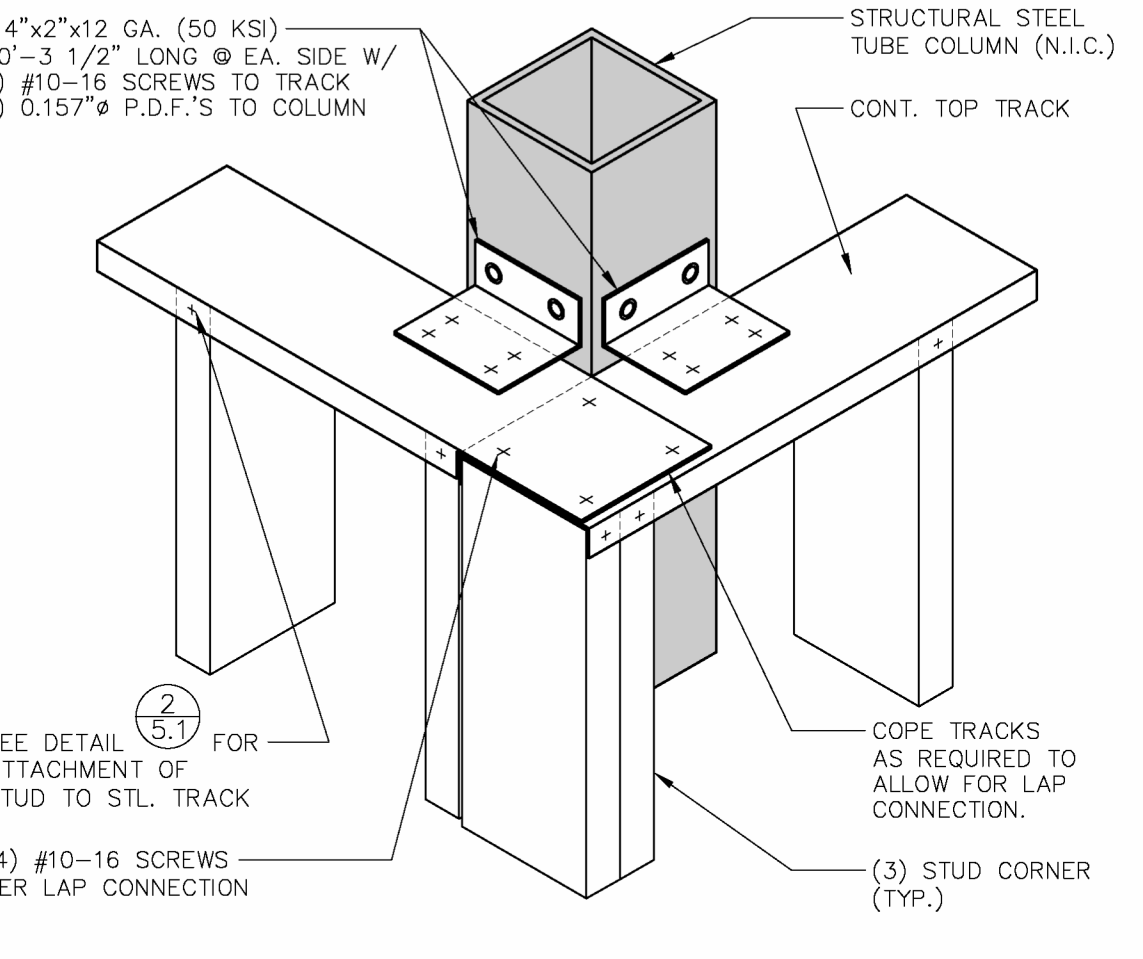
BLOCKING DETAIL

14
5.2



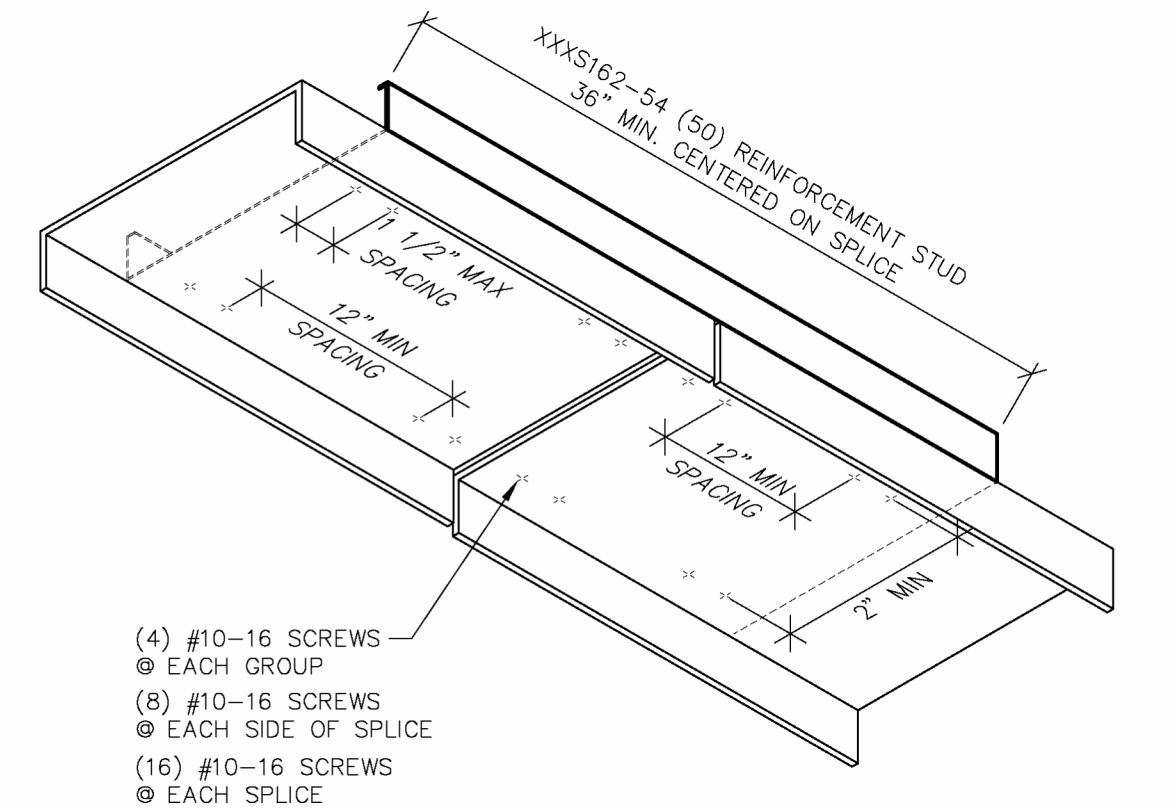
TOP TRACK CORNER DETAIL

15
5.2



TRACK - COLUMN DETAIL

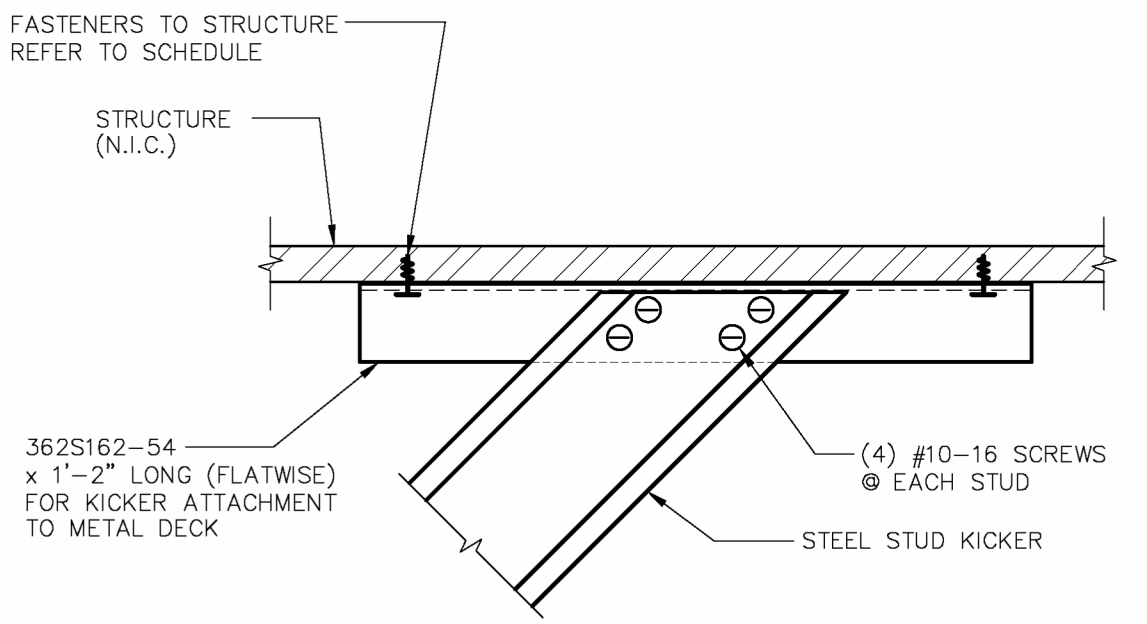
16
5.2



14GA TOP TRACK SPLICE DETAIL

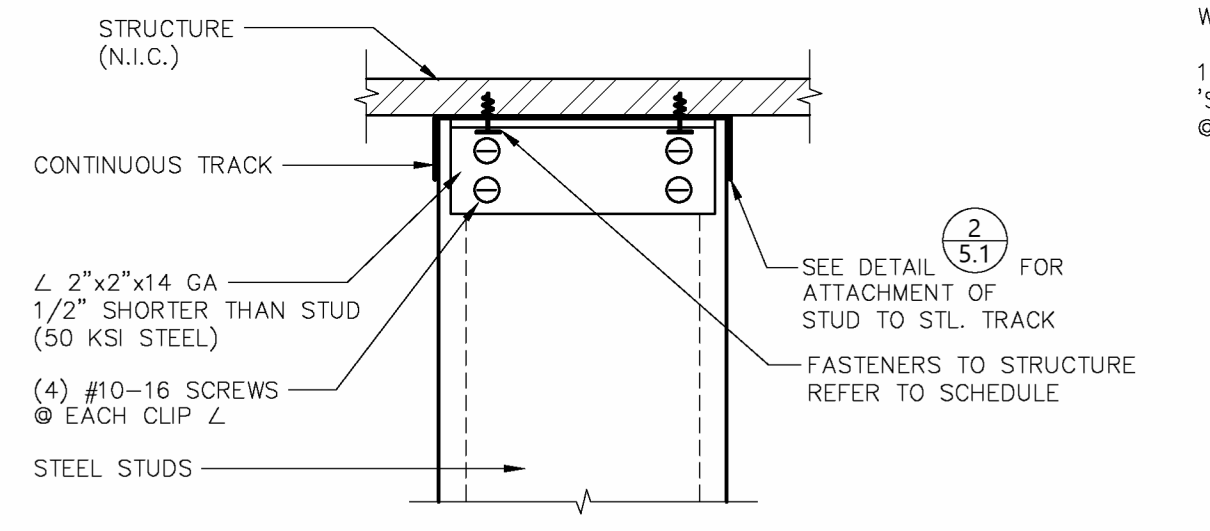
17
5.2

LOCATION	NUMBER OF FASTENERS REQUIRED	EDGE DISTANCE	FASTENER SPACING
WOOD DECK	(4) #9-15 BUILDEX TRUGRIP GT METAL TO WOOD SCREWS @ EACH CLIP (1" EMB.)	1" MIN.	1 1/2" MIN.
METAL DECK	(4) #10-16 SCREWS @ EACH CLIP	1" MIN.	1 1/2" MIN.



BRACED FRAME CONNECTIONS TO STRUCTURE

18
5.2



MOMENT BASE DETAIL

INSTALL PER MANUFACTURER SPECIFICATIONS

19
5.2

PLUMBING SPECIFICATIONS

DIVISION 22 PLUMBING

22 05 00 BASIC PLUMBING REQUIREMENTS

- A. SEE DIVISION 00 PROCUREMENT AND CONTRACTING AND DIVISION 01 GENERAL REQUIREMENT FOR ADDITIONAL REQUIREMENTS.
- B. PLUMBING CONTRACTOR SHALL VERIFY REQUIREMENTS FOR TEMPORARY WATER WITH GENERAL CONTRACTOR AND INCLUDE IN HIS SCOPE OF WORK WHEN DIRECTED BY G.C.. INSTALL IN ACCORDANCE WITH ALL CODE AND OSHA REQUIREMENTS FOR CONSTRUCTION PROJECTS.
- C. SUBSTITUTIONS
- SEE DIVISION 01 23 00 PRODUCT SUBSTITUTION PROCEDURES FOR ADDITIONAL REQUIREMENTS.
 - CONTRACTOR SHALL PROVIDE ALL SUPPORTING DATA AND ASSUME THE BURDEN OF PROOF THAT ANY SUBSTITUTE IS EQUIVALENT AS TO APPEARANCE, CONSTRUCTION, CAPACITY, AND PERFORMANCE. THE JUDGMENT OF EQUIVALENCY SHALL BE MADE BY THE ENGINEER AT THE TIME OF SHOP DRAWING REVIEW, NOT DURING BIDDING.
 - WHERE SUBSTITUTE EQUIPMENT REQUIRES REDESIGN OF ANY PART OF THE PROJECT, THE COST OF REDESIGN AND ADDITIONAL COSTS OF THE WORK SHALL BE PAID BY THE CONTRACTOR. REDESIGN SHALL BE SUBJECT TO THE APPROVAL OF THE AUTHORITIES HAVING JURISDICTION OVER THE WORK INCLUDING THE ARCHITECT/ ENGINEER. CONTRACTOR SHALL ASSUME ALL COORDINATION RESPONSIBILITIES FOR SUBSTITUTE EQUIPMENT INCLUDING COORDINATION ACROSS TRADES AND COORDINATION OF PREVIOUSLY REVIEWED AND APPROVED SHOP DRAWING SUBMITTALS, SHOULD THESE SHOP DRAWINGS BE AFFECTED BY THE SUBSTITUTED EQUIPMENT.
- D. SHOP DRAWINGS, PRODUCT DATA, TEST RESULTS AND SAMPLE SUBMITTALS:
- SEE DIVISION 01 33 23 SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES FOR ADDITIONAL REQUIREMENTS
 - PLUMBING CONSTRUCTION ADMINISTRATION SUBMITTAL LIST:
 - PIPING
 - PIPE IDENTIFICATION
 - FIXTURES
 - INSULATION
 - HANGERS
 - DRAINS AND CLEANOUTS
 - VALVES
 - BACKFLOW PREVENTERS
 - WATER HEATERS
 - PUMPS
 - SEWAGE EJECTORS
 - PROJECT CLOSEOUT
 - PROVIDE PLUMBING EQUIPMENT OPERATING AND MAINTENANCE MANUALS TO THE OWNER PER IECC C303.3 AND C408.2.5.1.
 - PROVIDE RECORD DRAWINGS TO THE OWNER IN AUTOCAD FORMAT.
- E. FINISHING AND PAINTING
- SEE DIVISION 09 91 00 FINISH AND PAINTING FOR ADDITIONAL REQUIREMENTS.
 - PREPARE EXPOSED PIPE, FITTINGS, SUPPORTS, AND ACCESSORIES FOR FINISH PAINTING IN ROOMS THAT WILL HAVE CEILING AND STRUCTURE PAINTED.
 - COORDINATE WORK WITH THE PAINTER, SO THAT ALL EQUIPMENT IS INSTALLED PRIOR TO PAINTING. P.C. SHALL PAINT ITEMS IF NOT IN PLACE PRIOR TO NORMAL ROUTINE PAINTING.
 - IF FINISH BECOMES RUSTED, CORRODED, SCRATCHED, OR FLAKED DURING STORAGE OR INSTALLATION, REFINISH THE EQUIPMENT TO THE SATISFACTION OF THE OWNER.
 - WHERE THE PLUMBING CONTRACTOR IS REQUIRED TO PAINT, THE PAINTING SHALL BE DONE IN ACCORDANCE WITH THE PAINTING PORTION OF THE ARCHITECTURAL SPECIFICATION.
- F. DETAILS AND SCHEDULES ARE SHOWN TO AID THE CONTRACTOR AND ARE NOT MEANT TO BE INCLUSIVE OF ALL DEVICES. PROVIDE REQUIRED EQUIPMENT AND ACCESSORIES FOR A COMPLETE INSTALLATION.
- G. INSTALL ALL EQUIPMENT PER MANUFACTURER'S INSTALLATION INSTRUCTIONS AND REQUIREMENTS. PROVIDE ADDITIONAL WORK AND MATERIALS AS REQUIRED.
- H. PROVIDE ALL STATE AND LOCAL PERMITS AND ANY OTHER RELATED FEES.
- I. REGULATORY REQUIREMENTS
- PROVIDE CERTIFICATE OF COMPLIANCE FROM AUTHORITY HAVING JURISDICTION INDICATING APPROVAL BACKFLOW PREVENTION DEVICES TESTING AND INSTALLATION.
 - PERFORM WORK PER ALL LOCAL AND STATE CODES, ORDINANCES AND REGULATIONS HAVING JURISDICTION.
- J. COORDINATE INSTALLATION OF PLUMBING WORK WITH THE OTHER CONTRACTORS TO AVOID CONFLICTS WITH OTHER WORK.
- K. VERIFY CONNECTION REQUIREMENTS FOR EQUIPMENT FURNISHED BY OTHERS WITH FINAL SHOP DRAWINGS.
- L. CUTTING AND PATCHING
- PROVIDE ALL CUTTING AND PATCHING NECESSARY FOR PLUMBING WORK INSTALLATION UNLESS THIS WORK IS IDENTIFIED TO BE THE WORK OF OTHER CONTRACTORS. PATCHING SHALL MATCH ADJACENT SURFACES. CORE DRILL OR SAW, CUT OPENINGS THROUGH EXISTING CONCRETE.
 - P.C. SHALL PROVIDE SAWCUTTING, EXCAVATION, AND BACKFILL OF EXISTING FLOORS AS REQUIRED FOR INSTALLATION OF NEW UNDERGROUND PIPING. P.C. SHALL PROVIDE CONCRETE AND REINFORCING PER FLOOR SLAB SPECIFICATIONS IN REMOVED AREA OF THICKNESS TO MATCH EXISTING (FIELD VERIFY). PROVIDE DOWELS INTO EXISTING FLOOR SLAB. DOWEL DIAMETER SHALL BE MINIMUM ONE EIGHTH OF FLOOR SLAB THICKNESS. DOWEL LENGTH SHALL BE 12" FOR SLABS LESS THAN 6" THICK, 16" FOR SLABS 6-7" THICK, 18" FOR SLABS 8-9" THICK, AND 20" FOR SLABS GREATER THAN 9" THICK. DOWELS SHALL BE SPACED 12" O.C. AND PENETRATION IN EXISTING SLAB SHALL BE HALF THE LENGTH.
- M. FIRE RATED INTERIOR WALL AND FLOOR PIPE PENETRATIONS
- SLEEVE REQUIRED FOR PENETRATION OF CONCRETE AND MASONRY WALLS AND FLOORS.
 - SEAL OPENING AROUND PIPE WITH A UL APPROVED FIRE-STOP SYSTEM HAVING AN F-RATING NOT LESS THAN THE HOURLY RATING OF THE ASSEMBLY BEING PENETRATED.
 - PROVIDE FIRE-RESISTIVE JOINT SYSTEM PRODUCTS BY THE SAME MANUFACTURER AS BEING USED ON THE REMAINDER OF THE PROJECT (COORDINATE WITH GC/C/M).
 - WHERE A SLEEVE IS REQUIRED, FURNISH AND INSTALL SLEEVES FOR NEW DRYWALL WALLS AND CONCRETE WALLS AND FLOORS. FURNISH SLEEVES TO THE MASON CONTRACTOR FOR INSTALLATION IN NEW MASONRY WALLS.
 - PROVIDE UL ASSEMBLY PENETRATION NUMBER TO AHJ COMPLIANT WITH BUILDING UL ASSEMBLY 30 DAYS PRIOR TO INSTALLATION IF REQUIRED BY AHJ.
- N. SEALANTS
- PLUMBING CONTRACTOR SHALL PROVIDE ALL SEALANTS WHERE JOINT IS HIDDEN AND WHERE JOINT IS EXPOSED IN MECHANICAL ROOM.
 - SEALANT CONTRACTOR SHALL PROVIDE SEALANTS AT ALL EXPOSED LOCATIONS IN FINISHED ROOMS.
- O. ESCUTCHEONS
- INSTALL ONE-PIECE (TWO PIECE FOR EXISTING PIPING) POLISHED CHROME PLATED STEEL ESCUTCHEONS AT PENETRATIONS EXPOSED IN FINISHED ROOMS (ROOMS WHICH DON'T HAVE UNFINISHED CONCRETE FLOORS).
 - ESCUTCHEONS WITH SPRINGS FOR WALL AND CEILING LOCATIONS.
 - ID TO CLOSELY FIT AROUND PIPE/INSULATION, OD THAT COMPLETELY COVERS THE OPENING.
 - ESCUTCHEONS REQUIRED IN CABINETS AND CASEWORK.
- P. PROJECT COMPLETION
- CLEAN FIXTURES AND EQUIPMENT AND LEAVE IN PROPER WORKING CONDITION AT THE TIME OF FINAL CLEAN-UP.
 - REMOVE, CLEAN AND REPLACE AERATORS AFTER FLUSHING WATER PIPING.
 - PROVIDE OPERATING INSTRUCTIONS FOR A TOTAL OF TWO (2) HOURS. MAINTAIN A RECORD OF OPERATING INSTRUCTION PERIODS AND OBTAIN OWNER SIGNOFF THAT INSTRUCTIONS HAVE BEEN COMPLETED.
- Q. ACCESS
- FURNISH ACCESS PANELS OF ADEQUATE SIZE TO PERMIT SERVICE OF EQUIPMENT, VALVES, OR OTHER SPECIALTIES WHICH REQUIRE MAINTENANCE OR ADJUSTMENT WHICH ARE INSTALLED BEHIND WALLS OR ABOVE NON-LAYIN CEILING SURFACES.
 - PANELS SHALL BE SUITABLE FOR INSTALLATION IN THE MATERIAL FORMING THE FINISHED SURFACE, WITH FLANGED FLUSH METAL FRAME, FLUSH HINGED STEEL DOOR, FLUSH SCREWDRIVER OPERATED LATCH.
 - PANELS UL LISTED TO CONFORM TO THE FIRE RATING OF THE SURFACE INSTALLED IN.
 - TURN ACCESS PANEL OVER TO CONTRACTOR SKILLED IN THE CONSTRUCTION OF THE SURFACES INVOLVED FOR INSTALLATION.
 - ARCHITECT TO APPROVE ACCESS PANEL LOCATION PRIOR TO INSTALLATION OF EQUIPMENT REQUIRING ACCESS.
 - COORDINATE WITH THE OTHER CONTRACTORS AND WHEREVER PRACTICAL, GROUP DEVICES IN SUCH A MANNER SO AS TO MINIMIZE PANELS.

22 05 19 METERS AND GAUGES

- A. PRESSURE GAUGES AND THERMOMETERS
- MANUFACTURERS: TRECRIC, U.S. GAUGE, ASHCROFT, MARSH, WEISS, WEKSLER.
 - PRESSURE GAUGES
 - GENERAL PURPOSE: TRECRIC 600CB P8F CERTIFIED LEAD FREE CAST ALUMINUM CASE, PHOSPHOR BRONZE BOURDON TUBE, TRECRIC 872-1PBF LEAD FREE BRASS PRESSURE SNUBBER.
 - GAUGE COCK: APOLLO 77FLF-100 LEAD FREE FULL PORT THREADED BRASS VALVE, 150 PSI SWP, 400 DEG F MAXIMUM TEMPERATURE.
 - STEM THERMOMETERS:
 - GENERAL PURPOSE: TRECRIC BX9, ASTM E1, ORGANIC SPIRIT LIQUID FILL, CAST ALUMINUM CASE WITH EPOXY FINISH, CAST ALUMINUM ADJUSTABLE JOINT WITH POSITIVE LOCKING DEVICE, 9" SCALE, 3/4" NPT BRASS STEM, WITH EXTENSIONS AS REQUIRED FOR INSULATION.
 - PROVIDE THERMOWELL FOR ALL THERMOMETERS. BRASS IN COPPER TUBING. SIZE AND INSERTION LENGTH FOR APPLICATION. PROVIDE HEAT TRANSFER MEDIUM.
 - SCALE RANGES AND MINIMUM INCREMENT AS FOLLOWS:
 - COLD WATER: 0-100 PSIG/ 1 PSIG; 0-100 DEG F/ 1 DEG F
 - HOT WATER: 0-100 PSIG/ 1 PSIG; 0-160 DEG F/ 2 DEG F
 - EXTEND NIPPLES TO ALLOW INSULATION CLEARANCE.
 - INSTALL WHERE READ FROM NORMAL OPERATING LEVEL.
 - CALIBRATE FOR ACCURACY.

22 05 29 PIPE AND EQUIPMENT HANGERS AND SUPPORTS

- A. MANUFACTURERS: B-LINE, EMPIRE INDUSTRIES, GLOBAL PIPE HANGER PRODUCTS, GRINNEL, NATIONAL PIPE HANGER, UNI STRUT.
- B. PROVIDE SEISMIC-RESTRAINT HANGERS AND SUPPORTS FOR PIPING AND EQUIPMENT AND OBTAIN APPROVAL FROM AUTHORITIES HAVING JURISDICTION.
- C. ANGLES, CHANNELS, AND BEAMS: ASTM A36 AND A572 AS REQUIRED.
- D. HANGERS SHALL NOT BE ATTACHED TO JOIST BRIDGING.
- E. ATTACHMENT TO METAL DECK: HANGERS MAY BE ANCHORED TO METAL FLOOR/ROOF DECK IF ALL THE FOLLOWING CONDITIONS ARE MET:
 - MAXIMUM HANGER LOAD OF 50 LBS.
 - ANCHORED TO BOTTOM OF DECK FLUTES, NOT UPPER FLUTE.
 - ANCHOR LENGTH SHALL EXCEED DECK DEPTH.
- F. PIPE HANGERS/SUPPORTS
- SEE DETAILS ON PLANS FOR ADDITIONAL PIPE HANGER SPECIFICATIONS.
 - SEE SCHEDULE ON PLANS FOR HANGER SPACING.
 - CONFORM TO ASME B31.9 AND MANUFACTURER'S STANDARDIZATION SOCIETY (MSS) SP-58-2009.
- G. MATERIALS
- V BOTTOM CLEVIS HANGER: MSS SP-58 TYPE 1, B-LINE FIGURE B3106 AND FIGURE B3106V PRE-GALVANIZED PLASTIC PIPE SUPPORT CHANNEL FOR PEX PIPING TO INCREASE HANGER SPACING.
- H. INSTALL HANGERS AND SUPPORTS SO PIPING LIVE AND DEAD LOADS AND STRESSES FROM MOVEMENT WILL NOT BE TRANSMITTED TO CONNECTED EQUIPMENT. ADJUST HANGERS TO DISTRIBUTE LOADS EQUALLY ON ATTACHMENTS AND TO PROVIDE INDICATED PIPE SLOPES.
- G. STRUT SYSTEM
- COMPLY WITH THE LATEST REVISION OF MFMA STANDARDS PUBLICATION NUMBER MFMA-3, "METAL FRAMING STANDARDS PUBLICATION".
 - INSTALL STRUT IN ACCORDANCE WITH MFMA-102 "GUIDELINES FOR THE USE OF METAL FRAMING"; IN ACCORDANCE WITH EQUIPMENT MANUFACTURER'S RECOMMENDATIONS, AND WITH RECOGNIZED INDUSTRY PRACTICES.
 - COLD FORMED LOW CARBON STEEL METAL FRAMING CHANNEL STRUT: B-LINE TYPE B CHANNEL.
 - 1-5/8 INCHES WIDE IN VARYING HEIGHTS AND WELDED COMBINATIONS AS REQUIRED TO MEET LOAD CAPACITIES.
 - MANUFACTURER'S STANDARD FINISH OR PLAIN FINISH.
- H. PROVIDE SUPPORT FOR UTILITY METERS IN ACCORDANCE WITH REQUIREMENTS OF UTILITY COMPANIES.

22 05 53 MECHANICAL IDENTIFICATION

- A. NAMEPLATES
- MANUFACTURERS: MARKING SERVICES, BRADY B-1, AND SETON SETONFLEX.
 - 3/4" HIGH, 1/16" THICK PLASTIC WITH ENGRAVED WHITE LETTERS ON BLACK BACKGROUND COLOR, SCREW OR ADHESIVE MOUNTING.
 - PROVIDE AT STARTERS.
- B. VALVE TAGS
- MANUFACTURERS: MARKING SERVICES, W.H. BRADY, AND SETON NAME PLATE COMPANY.
 - 1-1/2" DIAMETER 20 GAUGE BRASS TAG WITH STAMPED BLACK LETTERS. ATTACH WITH S765 #6 SOLID BRASS BEAD CHAIN.
 - PROVIDE TYPEWRITTEN LETTER SIZE CHART.
 - COORDINATE VALVE TAG NOMENCLATURE/NUMBERING SEQUENCE/STARTING NUMBER WITH OWNER PRIOR TO ORDERING TAGS.
 - ALL VALVES SHALL BE TAGGED EXCEPT DRAIN VALVES AND FIXTURE STOPS.
- C. SIGNAGE
- MANUFACTURERS: W.H. BRADY, M/ SAFETY SIGN AND SETON NAME PLATE COMPANY.
 - PLASTIC SIGN, MIN 4" SIDE X 2" HIGH, 1/16" THICK LAMINATE PLASTIC WITH ENGRAVED LETTERS. TWO HOLES PUNCHED, WITH VALVE CHAIN. WHITE BACKGROUND W/ RED LETTERS.
 - PROVIDE AT MAIN WATER SHUTOFF VALVE IN ASPEN DENTAL MECHANICAL ROOM.
- D. PIPE IDENTIFICATION
- INDOOR SELF-ADHESIVE PIPE MARKERS
 - MANUFACTURERS: MARKING SERVICES MS-900, BRADY B-736, SETON OPTI-CODE.
 - FLEXIBLE PVC FILM WITH PRESSURE SENSITIVE ACRYLIC ADHESIVE BACKING WITH PRINTED MARKINGS.
 - SECURE WITH 2" WIDE TAPE WITH ARROWS INDICATING FLOW.
 - COLOR, OVERALL SIZE AND LETTER HEIGHT SHALL CONFORM TO ASME A13.1 - 2007 "SCHEME FOR THE IDENTIFICATION OF PIPING SYSTEMS".
 - IDENTIFY PIPE SERVICE, FLOW DIRECTION, AND PRESSURE.
 - IDENTIFICATION SYSTEM SHALL MATCH CURRENT SYSTEM IN THE BUILDING. WHERE NONE EXISTS, PROVIDE PER SPECIFICATIONS.
 - NOMENCLATURE TO MATCH NAME ON DRAWING LEGEND.
 - LOCATIONS
 - LOCATE TO FACE GREATEST POINT OF VISIBILITY. ALL ADJACENT LABELS TO BE INSTALLED NEATLY IN A ROW.
 - LOCATE IDENTIFICATION NOT-TO EXCEED 50 FEET FOR EXPOSED PIPING.
 - LOCATE IDENTIFICATION NOT-TO EXCEED 25 FEET FOR PIPING ABOVE CEILINGS.
 - MINIMUM ONE LOCATION PER ROOM.
 - INSTALL IDENTIFICATION AFTER PIPING AND INSULATION IS COMPLETE TO ENSURE MAXIMUM VISIBILITY OF THE IDENTIFICATION SYSTEM.
 - BEHIND ACCESS PANELS AND ALL OTHER ACCESSIBLE POINTS OF SERVICE.
 - NEAR LOCATIONS WHERE PIPES PENETRATE WALLS, FLOORS OR CEILINGS.
 - NEAR EACH VALVE AND CONTROL DEVICE.
 - AT EACH MAJOR PIECE OF EQUIPMENT.

22 07 00 INSULATION

- A. GENERAL
- SEE INSULATION SCHEDULES ON PLANS FOR ADDITIONAL INFORMATION.
 - INSULATION, INSULATION SYSTEMS AND JACKETS SHALL MEET UL-723/ASTM E84 REQUIREMENTS OF MAX. FIRE HAZARD CLASSIFICATION OF 25; AND MAX. FLAME SPREAD, FUEL CONTRIBUTED, AND SMOKE DEVELOPED OF 50 WHEN INSTALLED IN RETURN AIR PLENUMS.
 - INSTALL MATERIALS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS AND MICA PUBLICATION "COMMERCIAL AND INDUSTRIAL STANDARDS", 2011 SEVENTH EDITION.
 - CONTINUE INSULATION WITHOUT INTERRUPTIONS THROUGH WALLS AND FLOOR PENETRATIONS AND HANGERS.
 - REPAIR INSULATION ON EXISTING PIPING WHICH IS DAMAGED DUE TO CONNECTING OF NEW PIPING. MAINTAIN EXISTING VAPOR BARRIER INTEGRITY.
- B. FIBERGLASS (F.G.) INSULATION
- RIGID PIPING:
 - O.C. FIBERGLAS PIPE INSULATION, KNAUF EARTHWOOL PIPE INSULATION, JOHN'S MANVILLE MICRO-LOK.
 - SINGLE OR DOUBLE ADHESIVE SELF-SEALING LAP SYSTEM FOR LONGITUDINAL JOINT, PRESSURE SENSITIVE BUTT STRIP SEALS, ALL SERVICE JACKET VAPOR BARRIER COVERING.
 - 3.5-5.5 LB./CU.FT., R=4.3 / NOMINAL INCH AT 75 DEG F.
 - MAX. 850 DEG F, JACKET MAX 150 DEG F, 0.02 PERM.
 - COMPRESSIVE STRENGTH AT 10% DEFORMATION 125 LB./S.F.
 - VALVES, FITTINGS, AND FLANGE COVERS:
 - ZESTON 2000/300 SERIES, CEELCO 300 SERIES, PROTO LOSMOKE PVC JACKET
 - HIGH IMPACT 30 MIL WHITE PVC WITH PRECUT FIBERGLASS INSERTS. MAX TEMP 150 DEG
- C. ELASTOMERIC FOAM INSULATION
- SEAL BUTT JOINTS WITH ADHESIVE.
 - PIPE
 - MANUFACTURERS: AEROFLEX AEROCCEL SSPT, K-FLEX INSUL-LOCK DS, ARMACELL AP/ARMAFLEX BLACK LAPSAL.
 - EPDM/PVC BASE ELASTOMERIC FOAM MATERIAL
 - DUAL TAPE CLOSURE
 - MAX. 'K' VALUE 0.245 AT 75 DEG F
 - MAX. CONTINUOUS TEMPERATURE 220 DEG F
 - MAX. 0.05 PERM PER ASTM E96
 - MAX. FIRE/SMOKE DEVELOPED OF 25/50 PER ASTM E84 FOR UP TO 2" THICK.
 - PROVIDE MANUFACTURER PREFORMED INSULATION OVER VALVES AND FITTINGS
 - FIELD CUTTING AND GLUING LONGITUDINAL JOINT NOT PERMITTED.
- D. PIPE INSULATION REQUIREMENTS
- INSULATE ENTIRE PIPING SYSTEM INCLUDING VALVES AND FITTINGS PER MICA INSULATION STANDARDS PLATES 10 THRU 18.
 - SEAL ALL INSULATION ENDS.

22 10 00 EXCAVATION AND BACKFILL

- A. P.C. SHALL EXCAVATE AND BACKFILL TRENCHES FOR PLUMBING WORK.
- B. PROTECT TREES, PLANTS, LAWNS, AND OTHER FEATURES REMAINING AS PORTION OF FINAL LANDSCAPING.
- C. PROTECT BENCHMARKS, EXISTING STRUCTURES, FENCES, SIDEWALKS, PAVING, AND CURBS FROM EXCAVATING EQUIPMENT AND VEHICULAR TRAFFIC.
- D. MAINTAIN, PROTECT, AND TEMPORARILY SUPPORT ABOVE AND BELOW GRADE UTILITIES WHICH ARE TO REMAIN.
- E. PROVIDE AND MAINTAIN ALL FENCING, BARRICADES, SIGNS, WARNING LIGHTS, AND/OR OTHER EQUIPMENT NECESSARY TO KEEP ALL EXCAVATION PITS AND TRENCHES AND THE ENTIRE SUBGRADE AREA SAFE UNDER ALL CIRCUMSTANCES AND AT ALL TIMES. NO EXCAVATION SHALL BE LEFT UNATTENDED WITHOUT ADEQUATE PROTECTION.
- F. ELEVATIONS SHOWN ON THE PLANS ARE SUBJECT TO SUCH REVISIONS AS MAY BE NECESSARY TO FIT FIELD CONDITIONS.
- G. EXCAVATING
- CUT TRENCHES SUFFICIENTLY WIDE TO ENABLE INSTALLATION AND ALLOW INSPECTION. REMOVE WATER OR MATERIALS THAT INTERFERE WITH WORK.
 - DO NOT INTERFERE WITHIN 45 DEGREE BEARING SPLAY OF FOUNDATIONS.
 - EXCAVATE MINIMUM 4" BELOW BOTTOM OF PIPE IF STONE GREATER THAN 1" OR BEDROCK IS ENCOUNTERED.

- REMOVE UNSTABLE AREAS OF SUBGRADE BELOW PIPE TO MINIMUM 24" BELOW PIPE OR TO STABLE MATERIAL. BACKFILL WITH PEA GRAVEL, LIMESTONE SCREENINGS, OR EQUIVALENT AND COMPACT TO DENSITY EQUAL TO REQUIREMENTS FOR SUBSEQUENT BACKFILL MATERIAL.
 - STOCKPILE EXCAVATED MATERIAL IN AREA DESIGNATED ON SITE AND REMOVE EXCESS MATERIAL NOT BEING USED FROM SITE.
- H. BEDDING AND BACKFILL:
- LINES PASSING UNDER FOUNDATIONS:
 - INSTALL WITH MINIMUM OF 1-1/2 INCH CLEARANCE TO CONCRETE AND ENSURE THERE IS NO DISTURBANCE OF BEARING SOIL.
 - BACKFILL WITH COMPACTED ENGINEER FILL PER GEOTECH REPORT.
 - MECHANICALLY COMPACT BEDDING AND BACKFILL TO PREVENT SETTLEMENT. THE INITIAL COMPACTED LIFT TO NOT EXCEED 24" COMPACTED TO 95% DENSITY PER MODIFIED PROCTOR TEST (ASTM D-1557), SUBSEQUENT LIFTS UNDER PAVEMENTS, CURBS, WALKS AND STRUCTURES ARE NOT TO EXCEED 12" AND BE COMPACTED TO 95% DENSITY PER MODIFIED PROCTOR TEST. IN ALL OTHER AREAS WHERE CONSTRUCTION ABOVE THE EXCAVATION IS NOT ANTICIPATED WITHIN 2 YEARS, MECHANICALLY COMPACT BACKFILL IN LIFTS NOT EXCEEDING 24" TO 90% DENSITY PER MODIFIED PROCTOR TEST.
- MAINTAIN OPTIMUM MOISTURE CONTENT OF FILL MATERIALS TO ATTAIN REQUIRED COMPACTION DENSITY.
 - DRAIN/VACUUM PIPING
 - BEDDING: WHERE OVEREXCAVATED, BRING BACK TO BOTTOM OF PIPE ELEVATION WITH DRY SAND, GRAVEL, PEA GRAVEL, WASHED STONE OR CRUSHED STONE PASSING A 3/4" SIEVE.
 - BACKFILL TO A DEPTH OF 12" OVER THE PIPE WITH SAND, CRUSHED STONE THAT PASSES A 1" SIEVE. PLACE IN WELL TAMPED MAXIMUM 6" LAYERS FOR LENGTH OF SEWER AND WIDTH OF TRENCH.
- COMPRESSED AIR PIPING (BELOW FLOOR)
 - BEDDING: WHERE OVEREXCAVATED, BRING BACK TO BOTTOM OF PIPE ELEVATION WITH DRY SAND, PEA GRAVEL OR WASHED STONE PASSING A 3/4" SIEVE.
 - BACKFILL TO A DEPTH OF 12" OVER THE PIPE WITH SAND, PEA GRAVEL OR WASHED STONE THAT PASSES A 3/4" SIEVE. PLACE IN WELL TAMPED MAXIMUM 6" LAYERS FOR LENGTH OF WATER PIPE AND WIDTH OF TRENCH.
 - BACKFILL ABOVE 12" ABOVE THE PIPE.
 - UNDER EXISTING AND FUTURE UTILITIES, AND BUILDINGS: GRANULAR MATERIALS, PIT RUN SAND, GRAVEL, OR CRUSHED STONE, FREE FROM LARGE STONES, ORGANIC, AND FROZEN MATERIALS.
- DIRECT SURFACE WATER AWAY FROM STOCKPILE SITE TO PREVENT EROSION OR DETERIORATION OF MATERIALS. REMOVE STOCKPILE, LEAVE AREA IN A CLEAN AND NEAT CONDITION. GRADE SITE SURFACE TO PREVENT FREESTANDING SURFACE WATER.

22 11 00 WATER PIPING AND VALVES

- A. PIPING
- SEE PIPE SCHEDULE ON PLANS FOR ADDITIONAL INFORMATION.
- B. PIPING INSTALLATION
- DRAWINGS AND DIAGRAMS SHOW SIZE AND APPROXIMATE LOCATION OF PIPING. THE DRAWINGS SHALL NOT BE SCALED TO DETERMINE EXACT LOCATION. PROVIDE ADDITIONAL OFFSETS TO COORDINATE WITH INSTALLATION REQUIREMENTS OF OTHER SYSTEMS.
 - ROUTE ABOVE GROUND PIPING IN ORDERLY MANNER, PARALLEL TO BUILDING STRUCTURE. OFFSET PIPE CONNECTIONS AT EQUIPMENT TO ALLOW FOR SERVICE, SUCH AS REMOVAL OF THE EQUIPMENT.
 - INSTALL IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
 - INSTALL PIPING TO CONSERVE BUILDING SPACE AND NOT INTERFERE WITH USE OF SPACE AND OTHER WORK. GROUP PIPING WHENEVER PRACTICAL AT COMMON ELEVATIONS.
 - INSTALL PIPING TO ALLOW FOR EXPANSION AND CONTRACTION WITHOUT STRESSING PIPE, JOINTS, OR CONNECTED EQUIPMENT WITH RESPECT TO THE BUILDING AND PLUMBING SYSTEM.
 - PROVIDE CLEARANCE FOR INSTALLATION OF INSULATION AND ACCESS TO VALVES.
 - DO NOT ROUTE PIPING ABOVE THE MAINS AND BOTTOM CONNECTIONS FOR TAKEOFFS TO EQUIPMENT BELOW THE MAINS. USE LONG RADIUS ELBOWS FOR ALL 90 DEGREE ELBOWS.
 - INSTALL VALVE STEM BETWEEN THE VERTICAL (UPRIGHT) OR HORIZONTAL POSITION.
 - DO NOT SUPPORT WEIGHT OF PIPING ON VALVE.
 - PIPING INSTALLED IN EXTERIOR WALLS SHALL BE INSTALLED ON THE ROOM SIDE OF EXTERIOR WALL INSULATION AND ONLY WHEN APPROVED BY THE ENGINEER. WHEREVER POSSIBLE, AVOID ROUTING DOMESTIC WATER SUPPLY PIPING IN EXTERIOR WALLS.
- C. PIPING TESTING
- EACH TEST MUST BE WITNESSED BY THE OWNER'S REPRESENTATIVE. IF LEAKS ARE FOUND, REPAIR THE AREA WITH NEW MATERIALS AND REPEAT THE TEST. DO NOT INSULATE PIPE UNTIL IT HAS BEEN SUCCESSFULLY TESTED.
 - MEASURE AND RECORD TEST PRESSURE AT THE HIGH POINT IN THE SYSTEM.
 - TEST WATER DISTRIBUTION SYSTEM WITH POTABLE WATER UNDER A WATER PRESSURE OF 100 PSIG OR THE WORKING PRESSURE OF THE SYSTEM (WHICHEVER IS GREATER) FOR A PERIOD OF (4) HOURS. IF LOCAL AUTHORITIES REQUIRE MORE STRINGENT TESTING, CONTRACTOR SHALL COMPLY WITH THOSE REQUIREMENTS.
 - WHERE NEW PIPING IS AN EXTENSION OF THE EXISTING SYSTEM, TEST THE NEW PIPING PRIOR TO CONNECTION TO THE EXISTING SYSTEM.
- D. WATER PIPING BALANCING
- VERIFY THAT SUFFICIENT WATER FLOW, PRESSURE AND TEMPERATURE ARE AVAILABLE AT EACH OUTLET AND EQUIPMENT CONNECTION.
 - BALANCE CIRCULATING HOT WATER SYSTEM TO ENSURE PROPER CIRCULATION OF HOT WATER IN THE SYSTEM WITH HOT WATER AVAILABLE TO ALL FIXTURES AND CONNECTIONS.
- E. FLUSH AND DISINFECT DOMESTIC WATER SUPPLY SYSTEM AS FOLLOWS:
- FILL PIPING WITH POTABLE WATER AND ALLOW TO STAND FOR 24 HOURS.
 - FLUSH EACH OUTLET BEGINNING WITH OUTLET CLOSEST TO BUILDING CONTROL VALVE AND THEN EACH SUCCESSIVE OUTLET IN THE SYSTEM.
 - FLUSH EACH OUTLET MINIMUM 1 MINUTE AND UNTIL WATER APPEARS CLEAR AT THE OUTLET.
 - FILL SYSTEM WITH WATER/CHLORINE SOLUTION OF 50 PPM OF CHLORINE AND LET STAND FOR 24 HOURS, OR 200 PPM FOR 3 HOURS.
 - FLUSH WITH POTABLE WATER.
 - REPEAT DISINFECTION IF BACTERIOLOGICAL CONTAMINATION EXISTS.
 - PERFORM WATER QUALITY TEST IF REQUIRED BY LOCAL AUTHORITIES.
 - IF LOCAL AUTHORITIES REQUIRE MORE STRINGENT FLUSHING AND DISINFECTION, CONTRACTOR SHALL COMPLY WITH THOSE REQUIREMENTS.
- F. VALVES
- MANUFACTURERS: NIBCO, APOLLO, KEYSTONE, CENTERLINE, DEZURIK, CRANE, MUELLER, POWELL, VIEGA, GRINNELL, SIOUX CHIEF. LISTING OF MODEL NUMBER DOES NOT PRECLUDE OTHER ACCEPTABLE MANUFACTURERS FROM PROVIDING EQUIVALENT VALVES.
 - PROVIDE BRONZE VALVE FOR COPPER PIPE.
 - SHUTOFF VALVES 1" AND SMALLER
 - PEX BALL VALVE
 - APOLLO 77X SERIES
 - BRONZE THREE PIECE BODY, CHROME PLATED BRASS BALL, FULL PORT, TEFLON SEATS AND STUFFING BOX RING, LEVER HANDLE WITH VALVE EXTENSIONS FOR INSULATED PIPING, CRIMP JOINT ENDS, 200 PSI WOG, NSF 61 LISTED.
 - SHUTOFF VALVES 2" AND SMALLER
 - BRONZE BALL VALVE
 - SOLDERED: NIBCO S-685-66-LF.
 - PRESS FITTING: VIEGA SERIES 2970-72L OR SERIES 2971-72L
 - TWO PIECE, CHROME PLATED BRASS OR STAINLESS STEEL BALL, FULL PORT, REINFORCED PTFE SEATS AND STUFFING BOX RING, LEVER HANDLE WITH LOCKABLE HANDLE AND VALVE STEM EXTENSIONS FOR INSULATED PIPING, 250 PSI, NSF 61 ANNEX G LISTED.
 - MANUAL BALANCE VALVES 2" AND SMALLER
 - BELL & GOSSETT A-54B-RV, CALEATI, NIBCO, FLOWSET, ARMSTRONG, AND JMI HYDRONIC ENGINEERING); BRONZE BODY WITH CALIBRATED BRASS ORIFICE OR VENTURI, MEMORY STOP, SOLDERED ENDS AND PRESSURE TAPS. 125 PSIG RATING AT 240 DEG F, NSF 61 ANNEX G LISTED LEAD FREE.
 - INSTALL 5 PIPE DIAMETERS DOWNSTREAM AND 2 PIPE DIAMETERS UPSTREAM OF A FITTING.
 - DRAIN VALVES: SHUTOFF VALVE WITH THREADED CAP. PROVIDE FOR COMPLETE SYSTEM DRAINAGE, NSF 61 LISTED.
 - SPRING LOADED CHECK VALVES
 - 2" AND SMALLER:
 - THREADED: NIBCO MODEL 480-Y-LF
 - BRONZE BODY, THE SEAT AND DISC, STAINLESS STEEL SPRING, CLASS 125, NSF 61 ANNEX G LISTED LEAD FREE.

22 11 23 NATURAL GAS PIPING AND ACCESSORIES

- A. COORDINATE INSTALLATION OF GAS SERVICE WITH GAS UTILITY. CONTACT GAS UTILITY TO ARRANGE SERVICE AND ASSIST OWNER IN APPLYING FOR NEW SERVICE.
- B. PIPING
- INSTALL, INSPECT, TEST, AND PURGE GAS PIPING IN CONFORMANCE WITH NFPA 54, UTILITY COMPANY AND ALL OTHER GOVERNING CODES.
 - MAKE BRANCH CONNECTIONS TO THE MAIN FROM THE TOP OR SIDE.
 - PAINT EXTERIOR GAS PIPING NOT LOCATED ON THE ROOF WITH TWO (2) COATS RUST RESISTANT PAINT, COLOR TO MATCH ADJACENT SURFACE.
- C. GAS VALVES
- UL LISTED FOR USE AS NATURAL GAS SHUTOFF.

LEGEND

NOTE: ALL SYMBOLS SHOWN MAY NOT APPEAR ON DRAWINGS.

SYM.	ABBR.	IDENTIFICATION	SYM.	ABBR.	IDENTIFICATION
PIPING ACCESSORIES					
	CO	CLEAN OUT			PIPING CAP
	WCO	WALL CLEAN OUT			UNION
	FCO	FLOOR CLEAN OUT (FLUSH)			THERMOMETER
	BFP	BACKFLOW PREVENTER			PRESSURE GAUGE
	PRV	PRESSURE REDUCING VALVE		HB	HOSE BIBB
		SHUTOFF VALVE		RD	ROOF DRAIN
		BALANCE ASSEMBLY (ON PLAN VIEWS)		OF	OVERFLOW DRAIN
		BALANCE VALVE (IN DETAILS)		HD	HUB DRAIN
		AUTOMATIC BALANCE VALVE		HD-R	HUB DRAIN WITH REDUCER
		THERMOSTATIC BALANCE VALVE		FD	FLOOR DRAIN
		CHECK VALVE			FIXTURE UNIT (WATER SUPPLY, WASTE)
		GLOBE VALVE			TEST CONNECTION
	WHA	WATER HAMMER ARRESTOR			
PIPING					
	CW	COLD HARD WATER PIPING		ST	STORM PIPING
	HW	HOT WATER PIPING		OF	OVERFLOW CONDUCTOR PIPING
	HWR	HOT WATER RETURN PIPING		V	VENT PIPING
	S	COLD SOFT WATER PIPING		G	GAS PIPING
	NP-CW	NON-POTABLE WATER PIPING		AIR	AIR PIPING
	SA	SANITARY WASTE PIPING		V	VACUUM PIPING
MISCELLANEOUS					
	EL	ELEVATION			DETAIL OR SECTION NUMBER SHEET NUMBER
ABBREVIATIONS					
	AFF	ABOVE FINISHED FLOOR		OC	ON CENTER
	AFG	ABOVE FINISHED GRADE		PC	PLUMBING CONTRACTOR
	BJ	BETWEEN JOISTS		RC	REFRIGERATION CONTRACTOR
	EC	ELECTRICAL CONTRACTOR		RI	ROUGH-IN
	FPC	FIRE PROTECTION CONTRACTOR		TJ	THROUGH JOISTS
	GC	GENERAL CONTRACTOR / CONSTRUCTION MANAGER		TTS	TIGHT TO STRUCTURE
	HC	HVAC CONTRACTOR		TYP	TYPICAL
	IE	INVERT ELEVATION		VTR	VENT THROUGH ROOF
	NIC	NOT IN CONTRACT		WP	WEATHER PROOF
	NTS	NOT TO SCALE			
FIRE RATED WALLS					
		FIRE - 1 HOUR			FIRE - 3 HOUR
		FIRE - 2 HOUR			FIRE - 4 HOUR

Always a Better Plan

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COLLABORATION

AspenDental

PROJECT INFORMATION

PROPOSED BUILD-OUT FOR:

ASPEN DENTAL

715 PROGRESS WAY STE TBD • GAITHERSBURG, MD 20877

PROFESSIONAL SEAL

SHEET DATES

SHEET ISSUE JULY 21, 2026

REVISIONS

JOB NUMBER

260222300

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PLUMBING SPECIFICATIONS (CONT.)

2.

BALL VALVES (MANUFACTURERS: NIBCO 585/580-70UL, WATTS B6000UL): BRONZE BODY, THREADED ENDS, CHROME PLATED BRONZE BALL, FULL/CONVENTIONAL PORT, TEFLON SEAT, BLOWOUT-PROOF STEM, TWO-PIECE CONSTRUCTION, 150 PSIG WORKING PRESSURE.
3.

PROVIDE A MAIN GAS LINE SHUTOFF VALVE IMMEDIATELY AFTER THE METER CONNECTION.
- D.

GAS PRESSURE REGULATORS
1.

CAST IRON BODY, ALUMINUM SPRING CASE, ALUMINUM ORIFICE, BUNA-N DIAPHRAGM, INTERNAL RELIEF VALVE SET TO RELIEVE AT 7-10" W.C. ABOVE NORMAL OUTLET PRESSURE SETTING OF 7" WC., TOPCOAT ENAMEL.
2.

SENSUS MODELS 496
3.

FOR REGULATORS INSTALLED INDOORS, PIPE THE RELIEF VALVE VENT FULL SIZE TO THE OUTSIDE OF THE BUILDING AT A NON-HAZARDOUS LOCATION. INCREASE VENT SIZE ONE PIPE SIZE IF VENT LENGTH EXCEEDS 10 FEET. TERMINATE WITH AN ELBOW DOWN WITH A SCREEN OVER THE OPENING. DO NOT COMBINE VENTS.
4.

MAXITROL 325 SERIES WITH VENT LIMITER ARE PERMITTED FOR INDOOR APPLICATIONS WHERE SUPPLYING LESS THAN 300,000 BTUH.
5.

FOR REGULATORS INSTALLED OUTDOORS, POSITION THE REGULATOR SO THE RELIEF VALVE VENT IS FACING DOWN OR INSTALL ELBOW FACING DOWN A MINIMUM 10 FEET FROM AN OUTSIDE AIR INTAKE AND 5 FEET FROM A GAS FLUE DISCHARGE.

22 13 00 DRAIN PIPING AND VALVES

- A.

PIPING INSTALLATION
1.

INSTALL IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
2.

FIELD VERIFY EXISTING AND PROPOSED SEWER ELEVATIONS AND SIZES AND NOTIFY THE OWNER'S REPRESENTATIVE IN WRITING OF ANY VARIATION OF THE ELEVATIONS BEFORE BEGINNING ANY SEWER AND BUILDING DRAIN WORK.
3.

DRAWINGS AND DIAGRAMS SHOW SIZE AND APPROXIMATE LOCATION OF PIPING. THE DRAWINGS SHALL NOT BE SCALED TO DETERMINE EXACT LOCATION. PROVIDE ADDITIONAL OFFSETS TO COORDINATE WITH INSTALLATION REQUIREMENTS OF OTHER SYSTEMS.
4.

ROUTE ABOVE GROUND PIPING IN ORDERLY MANNER, PARALLEL TO BUILDING STRUCTURE. OFFSET PIPE CONNECTIONS AT EQUIPMENT TO ALLOW FOR SERVICE, SUCH AS REMOVAL OF THE EQUIPMENT.
5.

INSTALL PIPING TO CONSERVE BUILDING SPACE AND NOT INTERFERE WITH USE OF SPACE AND OTHER WORK. GROUP PIPING WHENEVER PRACTICAL AT COMMON ELEVATIONS.
6.

INSTALL PIPING TO ALLOW FOR EXPANSION AND CONTRACTION WITHOUT STRESSING PIPE, JOINTS, OR CONNECTED EQUIPMENT WITH RESPECT TO THE BUILDING AND PLUMBING SYSTEM.
7.

PROVIDE CLEARANCE FOR INSTALLATION OF INSULATION AND ACCESS TO VALVES.
8.

DO NOT ROUTE PIPING ABOVE TRANSFORMERS, PANELBOARDS, SWITCHBOARDS OR OTHER ELECTRICAL DISTRIBUTION EQUIPMENT.
9.

PROVIDE NON-CONDUCTING DIELECTRIC CONNECTIONS WHEREVER JOINTING DISSIMILAR METALS.
10.

PROVIDE NO-HUB ADAPTER ON PVC PIPE WHERE USING NO-HUB COUPLINGS.
11.

SLOPE SANITARY PIPE 2" AND SMALLER 1/4" PER FOOT; 3" AND LARGER PIPING 1/8" PER FOOT.
12.

RUN ALL DRAIN LINES FROM EQUIPMENT OVERFLOW RECEIVERS, ETC. TO FLOOR / HUB DRAINS. DRAIN LINES SHALL BE HARD DRAWN COPPER INSTALLED WITH A MINIMUM OF 1/8" PER FOOT SLOPE. NO DRAIN LINE SHALL BE SMALLER THAN 3/4". INSTALL A TEE AT EACH ELBOW OF CONDENSATE DRAIN PIPING WITH A CLEANOUT PLUG ON THE BLIND TEE.
- B.

SANITARY DRAIN PIPING TESTING: TEST DRAIN AND VENT PIPING PER CODE REQUIREMENTS.
- C.

AIR ADMITTANCE VALVES NOT PERMITTED.
- D.

BACKWATER VALVE (SEWER - 3", 4" OR 6")
1.

RECTORSEAL CLEAN CHECK OR EQUIVALENT PVC BACKWATER VALVE WITH ACCESS SLEEVE.
2.

PROVIDE FLOOR CLEANOUT OR CLEANOUT TO GRADE ASSEMBLY FOR SLEEVE SIZE.

22 15 00 COMPRESSED AIR PIPING

- A.

PIPING INSTALLATION
1.

DRAWINGS AND DIAGRAMS SHOW SIZE AND APPROXIMATE LOCATION OF PIPING. THE DRAWINGS SHALL NOT BE SCALED TO DETERMINE EXACT LOCATION. PROVIDE ADDITIONAL OFFSETS TO COORDINATE WITH INSTALLATION REQUIREMENTS OF OTHER SYSTEMS.
2.

ROUTE PIPING IN ORDERLY MANNER, PARALLEL TO BUILDING STRUCTURE. OFFSET PIPE CONNECTIONS AT EQUIPMENT TO ALLOW FOR SERVICE, SUCH AS REMOVAL OF THE EQUIPMENT.
3.

INSTALL PIPING TO CONSERVE BUILDING SPACE AND NOT INTERFERE WITH USE OF SPACE AND OTHER WORK. GROUP PIPING WHENEVER PRACTICAL AT COMMON ELEVATIONS.
4.

PROVIDE CLEARANCE FOR ACCESS TO VALVES AND FITTINGS.
5.

PROVIDE NON-CONDUCTING DIELECTRIC CONNECTIONS WHEREVER JOINTING DISSIMILAR METALS.
6.

USE ONLY NEW MATERIAL, FREE OF DEFECTS, RUST AND SCALE, AND MEETING THE LATEST REVISION OF THE ASTM SPECIFICATIONS.
7.

PREPARE EXPOSED UNFINISHED PIPE, FITTINGS, SUPPORTS, AND ACCESSORIES FOR FINISH PAINTING.
8.

SLOPE PIPING AND ARRANGE SYSTEMS TO DRAIN AT LOW POINTS.
9.

ALL TAKEOFFS SHALL BE FROM THE TOP OF THE PIPING.
10.

USE ECCENTRIC FITTINGS FOR CHANGES IN HORIZONTAL PIPE SIZES TO MAINTAIN BOTTOM OF PIPE LEVEL. CONCENTRIC FITTINGS MAY BE USED FOR CHANGES IN VERTICAL PIPE SIZES.
11.

INSTALL VALVE STEM BETWEEN THE VERTICAL (UPRIGHT) OR HORIZONTAL POSITION.
12.

DO NOT SUPPORT WEIGHT OF PIPING ON VALVE.
- B.

PIPING PRESSURE TESTS
1.

EACH TEST MUST BE WITNESSED BY THE OWNER'S REPRESENTATIVE. IF LEAKS ARE FOUND, REPAIR THE AREA WITH NEW MATERIALS AND REPEAT THE TEST.
2.

TEST THE SYSTEM WITH AIR TO THE PRESSURE SETTING OF THE RELIEF VALVE FOR AN 8 HOUR DURATION.
3.

WHERE MULTIPLE NEW PIPE BRANCHES ARE EXTENDED FROM AN EXISTING MAIN, TEST THE EXISTING MAIN AND NEW BRANCHES AT 1.5 TIMES THE SYSTEM OPERATING PRESSURE IN LIEU OF THE PRESSURE ABOVE.
4.

WHERE NEW PIPING IS AN EXTENSION OF THE EXISTING SYSTEM, TEST THE NEW PIPING PRIOR TO CONNECTION TO THE EXISTING SYSTEM.
5.

REMOVE RELIEF VALVE DURING TESTS.
6.

RELIEVE PRESSURE IN SYSTEM AFTER PRESSURE TESTS.
- C.

UNIONS AND FLANGES
1.

COPPER PIPE 2" AND SMALLER: BRONZE, SOLDERED JOINTS.
- D.

VALVES
1.

MANUFACTURERS: NIBCO, APOLLO, HAMMOND, MILWAUKEE, KEYSTONE, CENTERLINE, DEZURIK, CRANE, MUELLER, POWELL, AND GRINNELL.
2.

MAIN PIPING
- a.

BALL VALVES 2" AND SMALLER:
- 1).

NIBCO MODEL T-585-70
- 2).

TWO PIECE, FULL PORT, THREADED ENDS, BRONZE BODY.
- 3).

CHROME PLATED BRASS BALL, TEFLON SEATS AND STUFFING BOX RING, LEVER HANDLE; 600 PSI WOG.
3.

VALVES TO EQUIPMENT
- a.

TWO PIECE, FULL PORT, THREADED ENDS BRONZE BODY.
- b.

CHROME PLATED BRASS BALL, TEFLON SEATS AND STUFFING BOX RING, LEVER HANDLE, SAFETY VENT FOR PRESSURE RELIEF OF DOWNSTREAM PIPING TO EQUIPMENT; 600 PSI WOG.
- c.

BALL VALVES 1" AND SMALLER: NIBCO MODEL T-585-70-5V

22 40 00 PLUMBING FIXTURES

- A.

FIXTURES
1.

SEE SCHEDULES FOR ADDITIONAL INFORMATION.
2.

LIKE FIXTURE TYPE (FAUCETS, WATER CLOSETS, LAVS) SHALL BE THE PRODUCT OF THE SAME MANUFACTURER.
3.

SAFETY COVERS OVER EXPOSED WASTE AND SUPPLY PIPING AT ADA ACCESSIBLE FIXTURES SHALL BE LAV-GUARD BY TRUEBRO OR EQUIVALENT.
- B.

SAFING
1.

SAFING MATERIAL SHALL BE WATERPROOF WHEN SUBJECTED TO 2 FEET OF HYDROSTATIC HEAD WHEN TESTED IN ACCORDANCE WITH ASTM C1306 OR ASTM D4068, AND SHALL BE RECOGNIZED BY THE MANUFACTURER AS A SAFING MATERIAL.
2.

FLOOR DRAINS
- a.

NOT REQUIRED FOR AREAS OVER UNEXCAVATED PORTIONS OF A BUILDING.
- b.

FURNISH AND INSTALL SAFING MATERIAL EXTENDING MINIMUM 12" FROM THE DRAIN.
- C.

INSTALLATION
1.

INSTALL IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
2.

PROVIDE CHROME PLATED RIGID SUPPLIES TO FIXTURES WITH STOPS, REDUCERS, AND ESCUTCHEONS UNLESS OTHERWISE NOTED IN SCHEDULES AND DETAILS.
3.

SEAL FIXTURES TO WALL AND FLOOR SURFACES WITH MILDEW-RESISTANT SILICONE SEALANT, COLOR TO MATCH FIXTURE.
4.

INSTALL BARRIER-FREE FIXTURES IN COMPLIANCE WITH LOCAL CODES AND FEDERAL ADA ACCESSIBILITY GUIDELINES.
5.

EXPOSED TRAPS, PIPING, AND ESCUTCHEONS SHALL BE CHROME PLATED BRASS UNLESS OTHERWISE NOTED IN SCHEDULES AND DETAILS.
6.

ADJUST LAVATORY THERMOSTATIC MIXING VALVE TO 105 DEG F MAXIMUM OUTLET TEMPERATURE.

PIPE SCHEDULE

SERVICE	LOCATION	COPPER										PEX		PVC			CAST IRON		STEEL																
		C12200 TUBE					FITTINGS					JOINTS		PIPE		FITTINGS		JOINTS		PIPE & FITTINGS		JOINTS													
		ASTM B42 TYPE L HARD DRAWN	ASTM B88 TYPE L HARD DRAWN	ASTM B42 TYPE K ANNEALED TUBING	ASTM B88 TYPE K ANNEALED TUBING	ASTM B819 TYPE K MEDICAL GAS TUBING	ANSI B16.15, B16.18, B16.23, B16.26, B16.29, B16.32	ASTM B-88 CDA 89833 CAST OR ASTM B-75 C12200 WROOT COPPER ALLOY GROOVED FITTING (6)	ANSI B16.22 WROUGHT COPPER AND BRONZE	LEAD FREE SOLDER	ASTM B32 AWS A5.8 BCUP SILVER BRAZE (1)	COLD PRESS. MECH. JOINT (5)	ASTM B32 GRADE 957A SOLDER	ASTM F976, F977, F2023	NSF P171 CL-R	ASTM F2023	ASTM F1807	PER MFR REQUIREMENTS (1)	SCH. 40 PRESSURE RATED ASTM D1785	SCH. 80 PRESSURE RATED ASTM D1785	SCH. 40 NON-PRESS. RATED ASTM D1784, D2665	DMV NON-PRESS. RATED ASTM F891	ASTM D2665	ASTM F1866	ASTM D2466	ASTM D2467	ASTM F656 SOLVENT WELD, ASTM D2564 SOLVENT CEMENT	HUBLESS ASTM A888, CISEPI 301	BELL AND SPIGOT ASTM A74 SERVICE WEIGHT	ASTM C1277, CISEPI 310 STD. S.S. CLAMP & SHIELD, ASTM C564 RUBBER GASKET.	BLACK STEEL	ANSI B16.3 MALLEABLE IRON, CLASS 150	COLD PRESS MECHANICAL JOINT	THREADED	
WATER	ABOVE GROUND	X	X			X	X		X	X		X	X			X	X																		
SANITARY, SEWER, DRAIN, WASTE AND VENT	BELOW GROUND			X	X	X							X	X	X	X																			
	UNDER BUILDING																		X	X								X	X	X					
AIR	ABOVE GROUND	X							X		X							X											X	X	X				
	BELOW GROUND				X			X	X																										
VACUUM	DISTRIBUTION																	X					(2)	(2)	X										
GAS	EQUIPMENT CONNECTIONS																		X					X	X										
	ABOVE GROUND																														X	X	(4)		X

- ALL MATERIALS SHALL COMPLY WITH LATEST VERSION OF LISTED STANDARD. ALL IMPORTED MATERIAL SHALL BE CERTIFIED BY A DOMESTIC THIRD PARTY FOR COMPLIANCE WITH STANDARD.
- (1) NO JOINT'S PERMITTED UNDERGROUND
- (2) PROVIDE PRESSURIZED DEEP SOCKET LONG SWEEP AND WYE TYPE PATTERN FITTINGS. NO SHORT SWEEP 90'S OR TEES PERMITTED.
- (4) VIEGA MEGAPRESS FITTING COMPLYING WITH ASTM A420 OR ASME B16.3. EPDM SEAL FOR WATER APPLICATIONS, HNBR SEAL FOR GAS.
- 10 YEAR WARRANTY IN MATERIAL AND WORKMANSHIP. INSTALL PER MFR INSTALLATION INSTRUCTIONS.
- (5) INSTALL PER MANUFACTURER'S INSTRUCTIONS. 50 YEAR WARRANTY AGAINST MANUFACTURING DEFECTS.
- (6) INSTALL PER MANUFACTURER'S INSTRUCTIONS. 10 YEAR WARRANTY AGAINST MANUFACTURING DEFECTS.

INSULATION SCHEDULE

SERVICE	LOCATION	INSULATION TYPE (1)	JACKET	PIPE SIZE
CW	GENERAL BUILDING	RIGID F.G. OR ELAST. FOAM (10)	NR	1/2" 1/2"
	IN WALLS	ELASTOMERIC FOAM	NR	1/2" 1/2"
CW (PEX AND CPVC)	ALL	NR	NR	NR NR
HW, HWR	GENERAL BUILDING	RIGID F.G. OR ELAST. FOAM (10)	NR	1" 1 1/2"
HW NOT ON RECIRC. LOOP	GENERAL BUILDING	RIGID F.G. OR ELAST. FOAM (10)	NR	1" 1"
HW BRANCH	IN WALLS	ELASTOMERIC FOAM	NR	1/2" 1/2"

- NR = NOT REQUIRED
- COLD WATER = HARD, SOFT, IRRIGATION, HOSE STATION, ETC. AT ALL PRESSURES.
- HOT WATER = WATER SYSTEMS OPERATING AT TEMPERATURES GREATER THAN 105 DEG F AT ALL PRESSURES.
- (1) WHERE INSULATION IS PROVIDED ON PIPING INSULATE METERS, VALVES, BACKFLOW PREVENTERS AND ALL INLINE EQUIPMENT.
- (10) INSULATION NOT REQUIRED FOR EXPOSED FINAL PIPING CONNECTIONS TO FIXTURES.

NOTE:

- P.C. SHALL PROVIDE PRODUCT SUBMITTALS TO ADMM FOR REVIEW AND APPROVAL IF PEX PIPE IS USED IN LIEU OF COPPER.



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PROFESSIONAL SEAL

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DENTAL EQUIPMENT COORDINATION:

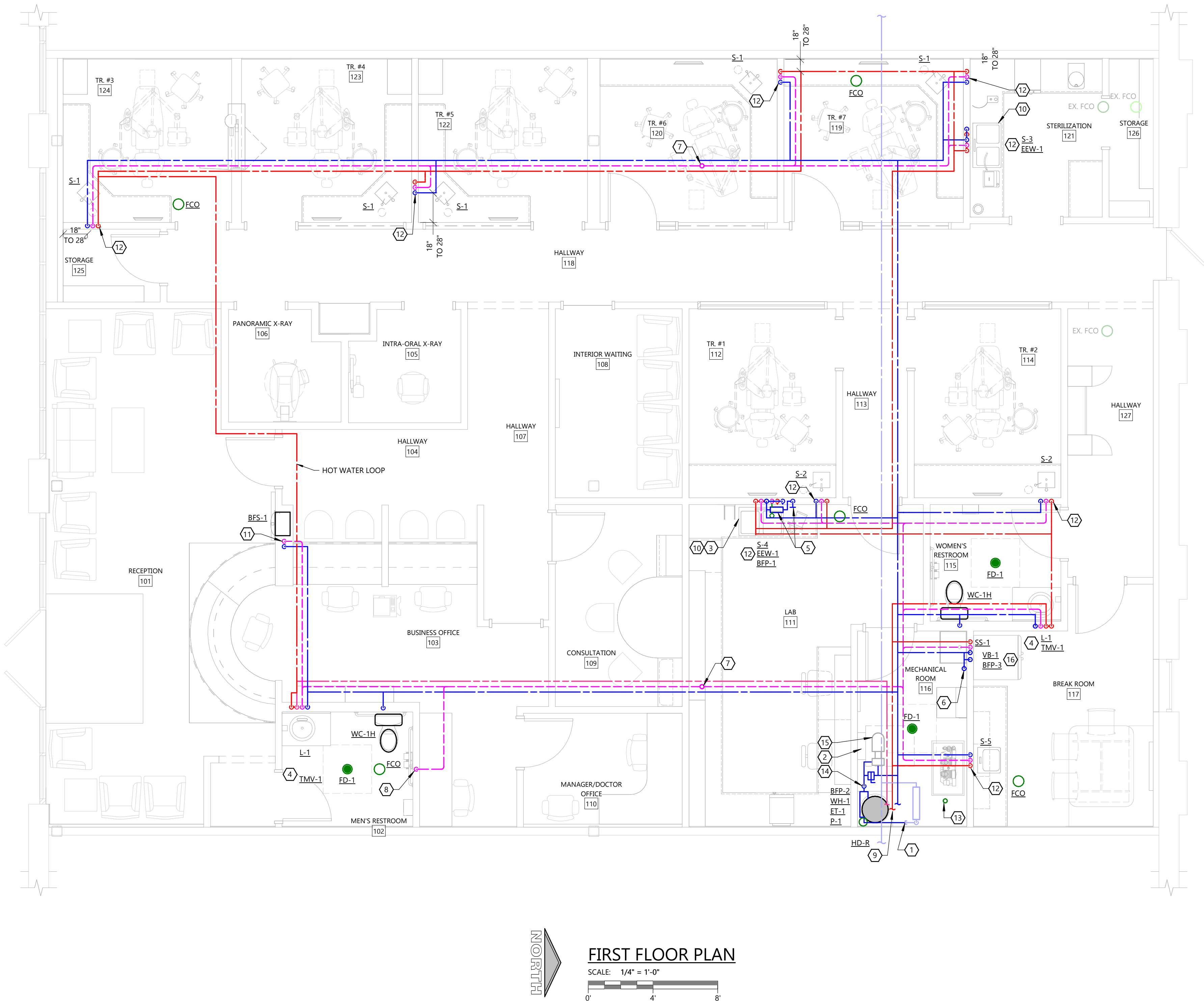
- PLUMBING CONTRACTOR SHALL VERIFY TYPE AND LOCATION OF ALL DENTAL EQUIPMENT, ROUGH-IN DIMENSIONS, AND REQUIRED PLUMBING CONNECTIONS. PLUMBING CONTRACTOR SHALL FURNISH AND INSTALL ALL FLOOR FIXTURES, FLOOR DRAINS, HUB DRAINS, WATER CLOSETS, LAVATORIES AND FLOOR SINKS. DENTAL EQUIPMENT SUPPLIER SHALL FURNISH AND INSTALL ALL FIXTURES IDENTIFIED ON THEIR PLANS (WITH THE EXCEPTION OF THOSE IDENTIFIED ABOVE). DENTAL EQUIPMENT SUPPLIER SHALL INSTALL ALL DENTAL EQUIPMENT AND PROVIDE ALL FIXTURE TRAPS, SUPPLIES AND STOPS, ISOLATION VALVES, MIXING VALVES, ETC. AND MAKE FINAL CONNECTIONS TO DENTAL EQUIPMENT. PLUMBING CONTRACTOR SHALL MAKE FINAL CONNECTION TO AIR COMPRESSOR AND VACUUM SYSTEM. VERIFY ALL EQUIPMENT CONNECTIONS WITH ADMM AND DENTAL EQUIPMENT SUPPLIER PRIOR TO INSTALLATION. PROVIDE ADDITIONAL CONNECTIONS AS REQUIRED. COORDINATE ALL WORK ACCORDINGLY.

GENERAL NOTES:

- PROVIDE ADDITIONAL BFP'S AS REQUIRED AT EQUIPMENT CONNECTIONS NOT SHOWN. FIELD VERIFY LOCATIONS AND REQUIREMENTS WITH EQUIPMENT CUT SHEETS.
- SINK FAUCETS SHALL BE INSTALLED WITH CONTROL AT THE LEFT, AND SPRAYER AT THE RIGHT OF THE SPOUT.
- REFER TO SHEET U1.1 PRIOR TO ROUGH-IN OF FIXTURES.
- PIPE SIZES PROVIDED BY LANDLORD SHALL MATCH ISOMETRIC OF THESE DOCUMENTS. FIELD VERIFY AND COORDINATE WORK.
- ALL PIPING IS TO BE CONCEALED. IF BUILDING CONSTRUCTION DOES NOT PERMIT CONCEALING PIPING, LOCATIONS AND ROUTING ARE TO BE APPROVED BY ARCHITECT/OWNER PRIOR TO INSTALLATION.

KEYNOTES:

- CONNECT NEW DOMESTIC WATER TO EXISTING DOMESTIC COLD WATER TERMINATION AS PROVIDED BY LANDLORD. FIELD VERIFY EXACT ROUTING FROM EXISTING METER TERMINATION. G.C. SHALL SET UP ACCOUNT WITH LOCAL UTILITY & INSTALL UTILITY METER. ACCOUNT SHALL BE TRANSFERRED TO ADMM AT A LATER DATE.
- COORDINATE WITH ELECTRICAL CONTRACTOR TO MAINTAIN CODE REQUIRED CLEARANCES AROUND ELECTRICAL EQUIPMENT.
- PLASTER TRAP ASSEMBLY FURNISHED BY SULLIVAN-SCHNEID AND INSTALLED BY THE PLUMBING CONTRACTOR ON THE SINK WASTE LINE. USE THREADED FITTINGS FOR DRAIN ASSEMBLY. SEE DETAIL 1/A5.4.
- ROUTE 1/2" CW FROM COLD WATER STOP UNDER LAVATORY TO AUTOMATIC TRAP PRIMER (TP-2) VALVE. ROUTE 1/2" CW FROM VALVE INTO WALL AND ROUTE UNDERFLOOR TO FLOOR DRAIN CONNECTIONS. SEE DETAIL 4/P3.0.
- PIPE 1/2" CW SUPPLY FROM SINK TO BFP-1 INSIDE CABINET BELOW SINK. PIPE IN WALL FROM BFP TO 44" A.F.F. FOR CONNECTION TO MODEL TRIMMER. TERMINATE WITH 3/8" COMPRESSION STOP. INSTALL IN ACCORDANCE WITH LOCAL CODES. PROVIDE 2" HUB DRAIN (HD) INSIDE CABINET. DISCHARGE BFP TO HD VIA AIR GAP. ELIMINATE BFP AND HD IF PERMITTED BY AUTHORITY HAVING JURISDICTION. SEE DETAILS 2/A5.4 & 5/P3.0.
- 1/2" CW PIPING TO TRAP PRIMER (TP-1). ROUTE 1/2" CW PIPING DOWN WALL TO UNDERFLOOR. CONNECT PIPING UNDERFLOOR TO FLOOR DRAIN ASSEMBLY. SEE TRAP PRIMER DETAIL 5/P3.0.
- EXTEND 3" VENT UP TO VTR. COORDINATE VTR LOCATION WITH MECHANICAL CONTRACTOR AND EXISTING EQUIPMENT SERVING ADJACENT TENANT SPACE. ADJUST VTR LOCATION AS REQUIRED TO MAINTAIN A MINIMUM OF 20" CLEARANCE.
- ROUTE 3" VENT UP FROM SANITARY DRAIN SERVING CIRCUIT VENT AND CONNECT TO VENT PIPING ABOVE CEILING. VENT SHALL SERVE AS BUILDING MAIN VENT.
- SEE WATER HEATER DETAIL 7/P3.0.
- INSTALL EEW-1 IN THIRD HOLE OF SINK. SEE EEW DETAIL 9/P3.0.
- PROVIDE HUB DRAIN CONNECTION AT 16" A.F.F. AND WATER VALVE 20" A.F.F. OUT OF BES-1. ROUGH IN CLEARANCE AREA. SEE BOTTLE FILLING STATION DETAIL 9/A5.0 FOR MORE INFORMATION.
- EXTEND WATER SUPPLY PIPING INSIDE CABINET. TERMINATE WITH SUPPLY STOP. EXPOSED PIPING SHALL BE COPPER. SEE ANGLE STOP DETAIL FOR MORE INFORMATION.
- CONNECT RAM-VAC TO 3" TRAPPED WASTE FROM UNDERGROUND.
- PROVIDE SV-1 WITH BYPASS AT 5' A.F.F.. NO FIXTURES SHALL CONNECT TO CW UPSTREAM OF THIS VALVE. PROVIDE SIGN WHICH READS "WATER SHUTOFF". SEE WATER SERVICE DETAIL FOR MORE INFORMATION.
- PRESSURE BOOSTER PUMP W/ EXPANSION TANK ABOVE CEILING PROVIDED BY LANDLORD PER MINIMUM 60 PSIG WORK LETTER REQUIREMENT. P.C. SHALL FIELD VERIFY OUTLET PRESSURE SETTING AND ADJUST AS REQUIRED TO MATCH WATER CALCULATIONS ON SHEET P2.0.
- REFRIGERATOR - FURNISHED BY OTHERS, INSTALLED BY P.C. CONNECT TO VB-1 AND PROVIDE BFP-3. VERIFY LOCATION WITH OWNER PRIOR TO ROUGH-IN.



FIRST FLOOR PLAN

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



PLUMBING FIRST FLOOR PLAN

DENTAL EQUIPMENT COORDINATION:

- PLUMBING CONTRACTOR SHALL VERIFY TYPE AND LOCATION OF ALL DENTAL EQUIPMENT, ROUGH-IN DIMENSIONS, AND REQUIRED PLUMBING CONNECTIONS. PLUMBING CONTRACTOR SHALL FURNISH AND INSTALL ALL FLOOR FIXTURES, FLOOR DRAINS, HUB DRAINS, WATER CLOSETS, LAVATORIES AND FLOOR SINKS. DENTAL EQUIPMENT SUPPLIER SHALL FURNISH AND INSTALL ALL FIXTURES IDENTIFIED ON THEIR PLANS (WITH THE EXCEPTION OF THOSE IDENTIFIED ABOVE). DENTAL EQUIPMENT SUPPLIER SHALL INSTALL ALL DENTAL EQUIPMENT AND PROVIDE ALL FIXTURE TRAPS, SUPPLIES AND STOPS, ISOLATION VALVES, MIXING VALVES, ETC. AND MAKE FINAL CONNECTIONS TO DENTAL EQUIPMENT. PLUMBING CONTRACTOR SHALL MAKE FINAL CONNECTION TO AIR COMPRESSOR AND VACUUM SYSTEM. VERIFY ALL EQUIPMENT CONNECTIONS WITH ADM AND DENTAL EQUIPMENT SUPPLIER PRIOR TO INSTALLATION. PROVIDE ADDITIONAL CONNECTIONS AS REQUIRED. COORDINATE ALL WORK ACCORDINGLY.

GENERAL NOTES:

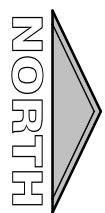
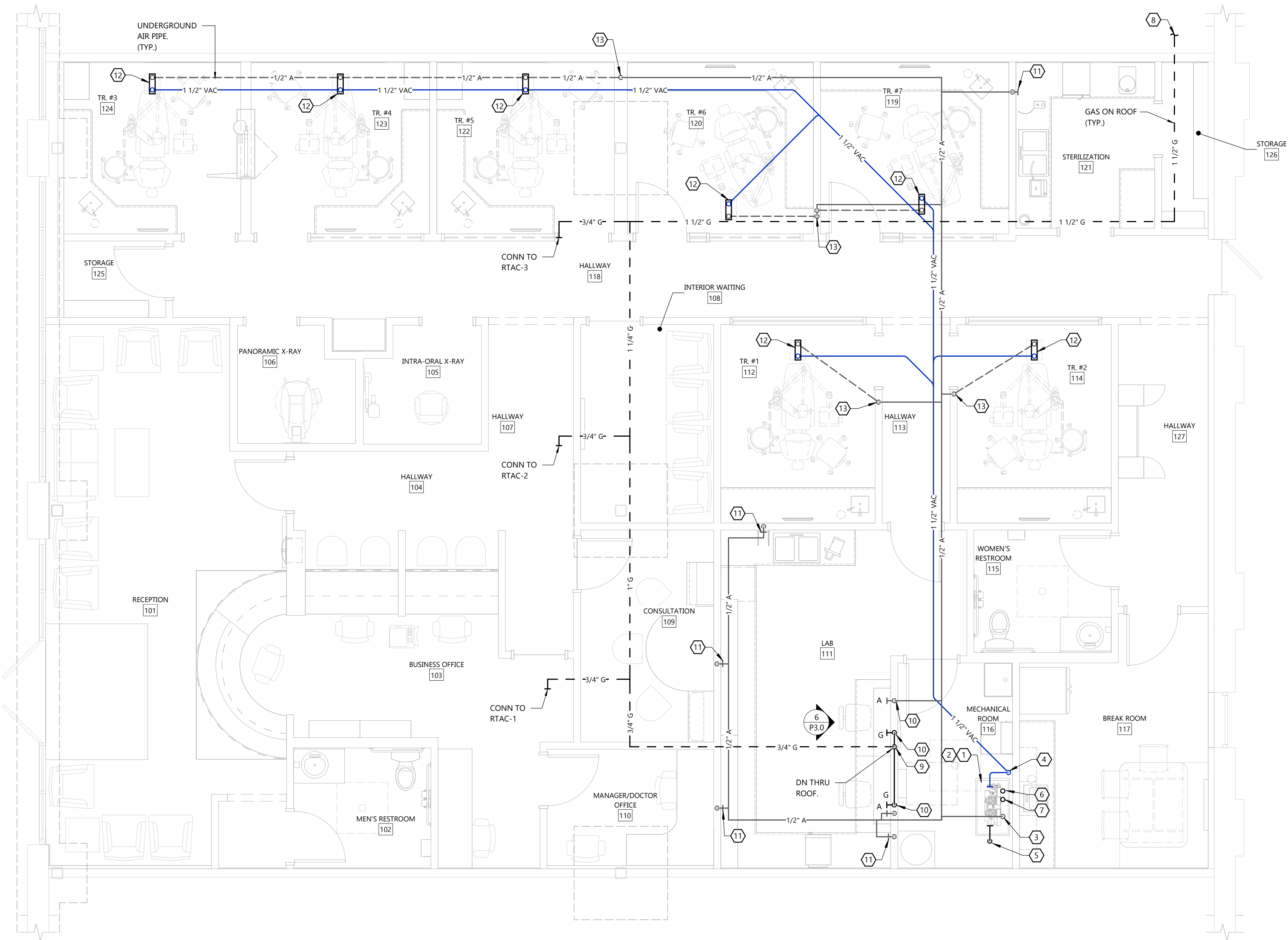
- ALL VACUUM LINES SHALL BE INSTALLED BELOW SLAB UNLESS OTHERWISE NOTED.
- TERMINATE COMPRESSED AIR LINES PER DENTAL EQUIPMENT DETAILS.
- COMPRESSED AIR SHALL BE INSTALLED ABOVE CEILING UNLESS OTHERWISE NOTED.
- FINAL CONNECTIONS TO AIR COMPRESSOR AND VACUUM SYSTEM BY PLUMBING CONTRACTOR.
- REFER TO SHEET U1.1 PRIOR TO ROUGH-IN OF FIXTURES.
- TERMINATION OF 1 1/2" VACUUM LINES TO BE REDUCED TO 1/2" FEMALE THREAD TYPICAL. FOR ALL UTILITY CENTERS, TERMINATION OF 1/2" AIR LINES TO BE 1/2" MALE THREAD WITH 3/8" COMPRESSION FITTING TYPICAL. ALL PLUMBING AND ELECTRICAL FOR UTILITY CENTER SHALL BE CONTAINED WITHIN 12" X 12" AREA IN FLOOR. SEE DENTAL EQUIPMENT DRAWINGS FOR FURTHER INFORMATION.
- ALL PIPING IS TO BE CONCEALED. IF BUILDING CONSTRUCTION DOES NOT PERMIT CONCEALING PIPING, LOCATIONS AND ROUTING ARE TO BE APPROVED BY ARCHITECT/OWNER PRIOR TO INSTALLATION.
- PAINT EXTERIOR GAS PIPING NOT LOCATED ON ROOF WITH TWO (2) COATS OF RUST RESISTANT PAINT, COLOR TO MATCH ADJACENT SURFACE. SEE SPECIFICATION SECTION 22 11 23 NATURAL GAS PIPING AND ACCESSORIES FOR MORE INFORMATION.

KEYNOTES:

- AIR COMPRESSOR TO BE FURNISHED AND INSTALLED BY THE OWNER'S EQUIPMENT PROVIDER.
- VACUUM EQUIPMENT TO BE FURNISHED AND INSTALLED BY THE OWNER'S EQUIPMENT PROVIDER. UNIT CONTAINS INTEGRAL AMALGAM SEPARATOR.
- ROUTE 1/2" COMPRESSED AIR LINE ABOVE CEILING AND TRANSITION TO HORIZONTAL FOR DISTRIBUTION. VERIFY LINE SIZE AND CAPACITY REQUIREMENTS WITH TENANT AND EQUIPMENT MANUFACTURER PRIOR TO INSTALLATION.
- ROUTE 1 1/2" VACUUM PIPING DOWN BELOW FLOOR FOR DISTRIBUTION.
- ROUTE VACUUM DISCHARGE TO ADJACENT 3" HUB DRAIN AS SHOWN ON SHEET P1.1. DISCHARGE IN ACCORDANCE WITH PLUMBING CODE. SEE RAM-VAC DETAIL FOR MORE INFORMATION.
- CONNECT 2" PVC TO VACUUM HEADS AND ROUTE TO V.T.R. TERMINATE ABOVE ROOF WITH GOOSENECK FITTING. DO NOT JOIN WITH SANITARY VENT. MAINTAIN ALL CODE REQUIRED CLEARANCES ON THE ROOF. COORDINATE VTR LOCATIONS WITH MECHANICAL EQUIPMENT. SEE RAM-VAC DETAIL FOR MORE INFORMATION.
- ROUTE 1" PVC UP TO ABOVE SUSPENDED CEILING FOR FRESH AIR INTAKE FOR AIR COMPRESSOR. INSTALL AT TIME OF DENTAL EQUIPMENT INSTALLATION. DO NOT JOIN WITH SANITARY VENT. SEE RAM-VAC DETAIL FOR MORE INFORMATION.
- ROUTE GAS PIPING ON ROOF 40' WEST AND DOWN EXTERIOR WALL TO METER. COORDINATE METER INSTALLATION WITH UTILITY. METER PROVIDED BY UTILITY. G.C. SHALL SET UP ACCOUNT & COORDINATE METER INSTALLATION WITH LOCAL UTILITY. ACCOUNT SHALL BE TRANSFERRED TO ADM AT A LATER DATE.
- ROUTE NEW 3/4" GAS LINE DOWN IN WALL TO RECESSED SHUTOFF BOX WITH VALVE. PROVIDE "WATTS" APU-9 10"x10" SPRING FIT ACCESS PANEL. LABEL AS "GAS SHUTOFF". ROUTE GAS TO LAB WORK STATIONS AND PROVIDE 1/2" BRANCH LINES TO INDIVIDUAL LAB STATIONS. VERIFY ROUGH-IN LOCATION WITH TENANT REPRESENTATIVE. SEE LAB WORK STATION ELEVATION 6/P3.0. PROVIDE GAS PRESSURE REGULATOR AND EXTERIOR VENT IF REQUIRED PER OWNER FURNISHED EQUIPMENT (COORDINATE WITH OWNER AS REQUIRED).
- PROVIDE 1/2" GAS LINE AND 1/2" AIR LINE STUBBED OUT AT LAB WORK STATION ELEVATION (SEE DETAIL 6/P3.0). PLUMBING CONTRACTOR TO MAKE FINAL CONNECTIONS.
- PROVIDE 1/2" COMPRESSED AIR CONNECTION AT 44" A.F.F. SEE AIR VALVE DETAIL ON SHEET A5.4 FOR ADDITIONAL REQUIREMENTS.
- PROVIDE 1 1/2" VACUUM CONNECTION AND 1/2" COMPRESSED AIR CONNECTION TO UTILITY CENTER. STUB PIPING UP THROUGH FLOOR TO UTILITY CENTER ENCLOSURE FOR TERMINATION BY OWNER'S EQUIPMENT PROVIDER. SEE UTILITY CENTER DETAIL ON SHEET A5.2. PROVIDE CLOSED CELL INSULATION BETWEEN THE COPPER PIPING AND CONCRETE FLOOR.
- ROUTE 1/2" COMPRESSED AIR PIPING DOWN THRU WALL AND BELOW FLOOR FOR DISTRIBUTION. PROVIDE CLOSED CELL INSULATION BETWEEN THE COPPER PIPING AND CONCRETE FLOOR.

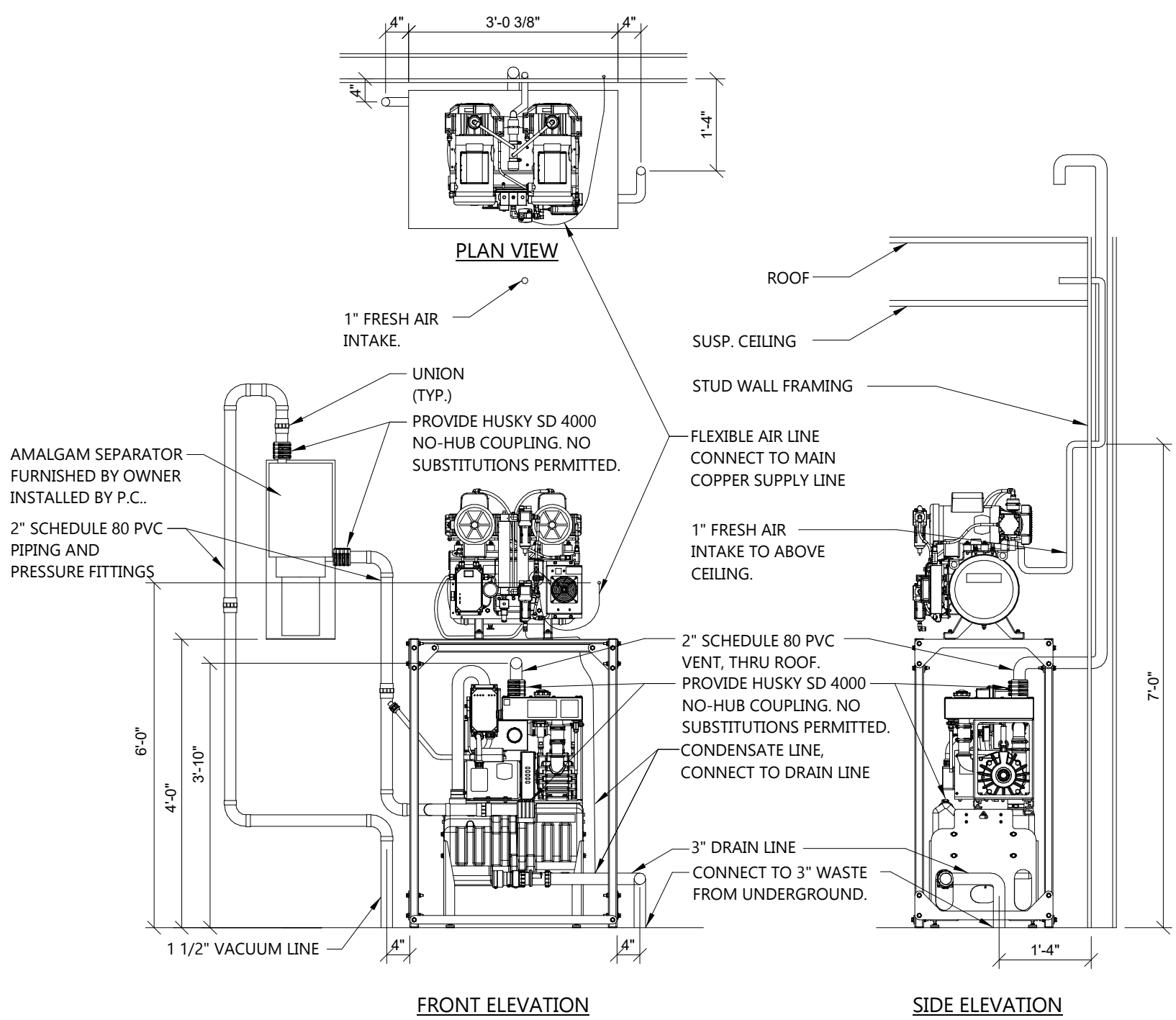
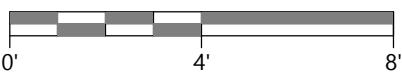
GAS LOAD SUMMARY

ITEM	MBH INPUT	REQUIRED PRESSURE
RTAC-1	110	7" W.C.
RTAC-2	67	7" W.C.
RTAC-3	67	7" W.C.
LAB	2.4	7" W.C.
Total	246.4	
- GAS PRESSURE AT METER = 7" W.C.		



FLOOR PLAN - AIR AND VACUUM PIPING

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



RAM-VAC DETAIL

NOT TO SCALE

PLUMBING FLOOR PLAN - AIR AND VACUUM PIPING



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WATER CALCULATIONS

WATER PRESSURE DATA

1	ASSUMED STATIC PRESSURE AT MAIN	60 PSIG
2	ASSUMED RESIDUAL PRESSURE AT MAIN	50 PSIG
3	ASSUMED RESIDUAL FLOW AT MAIN	1000 GPM
4	BUILDING FIXTURE UNITS	39.9 F.U.
5	PREDOMINATE FLUSH TYPE	TANK
6	CONTINUOUS FLOW GPM	100 GPM
7	BUILDING DEMAND	123.6 GPM
8	RESIDUAL PRESSURE AT BUILDING DEMAND	59.8 PSIG
9	SAFETY FACTOR	3 PSIG
10	PRESSURE AVAILABLE FOR DOMESTIC USE	56.8 PSIG

WATER SERVICE AND DISTRIBUTION SIZING DATA

11	ELEVATION OF RESIDUAL TEST HYDRANT	100.00 FEET
12	ELEVATION OF WATER METER	105.00 FEET
13	ELEVATION DIFFERENCE TEST HYDRANT TO METER	5.00 FEET
14	WATER METER SIZE	1 INCHES
15	DEVELOPED LENGTH MAIN TO METER	240 FEET
16	WATER SERVICE SIZE	3 INCHES

PRESSURE AVAILABLE AFTER METER

17	PRESSURE DROP BETWEEN MAIN AND METER	1.98 PSIG/100'
18	FRICTION PRESSURE LOSS BETWEEN MAIN AND METER	4.7 PSIG
19	ELEVATION PRESSURE LOSS BETWEEN MAIN AND METER	2.2 PSIG
20	METER PRESSURE LOSSES	6 PSIG
21	BACKFLOW PREVENTER PRESSURE LOSS	23 PSIG
22	PRESSURE AVAILABLE AFTER METER	20.9 PSIG
23	PRESSURE SETTING OF BOOSTER PUMP	70 PSIG
24	AVAILABLE BUILDING WATER PRESSURE	70.0 PSIG

WATER DISTRIBUTION SIZING - COLD WATER

A	AVAILABLE BUILDING WATER PRESSURE	70.0 PSIG
B	START POINT TAG (SEE ISOMETRIC FOR TAG LOCATION)	
C	DIST. PREVIOUS START POINT TO THIS START POINT	
D	UNIFORM LOSS PREV. START POINT TO THIS START POINT	
E	PIPE PRESSURE DROP FROM METER TO START POINT	
F	CONTROLLING FIXTURE:	ID:

ROOM NAME & NO.	ID:	STERILIZATION 121
PRESSURE REQUIRED		
G	ELEV. DIFF. BETW. METER AND CONTROLLING FIXTURE	30 PSIG
H	PRESSURE LOSS DUE TO WATER SOFTENER	0 PSIG
I	PRESSURE LOSS DUE TO MIXING VALVE	0 PSIG
J	PRESSURE AVAILABLE FOR PIPING PRESSURE DROP	38.7 PSIG
K	DEVELOPED LENGTH START PT. TO CONTR. FIXTURE	55 FEET
L	EQUIVALENT LENGTH START PT. TO CONTR. FIXTURE	83 FEET
M	PRESSURE AVAILABLE FOR UNIFORM LOSS	46.91 PSIG/100'

METER	Pipe size	WSFU	A	WSFU
EEW-1	1/2	5	0 FT	5
STERILIZATION 121	3/4	16.5	46.91 PSIG/100'	16.5
	1	31	0.0 PSIG	31
	1 1/4	58		58
	1 1/2	107		107
	2	260		260
	2 1/2	469		469
	3	752		752
	4	1792		1792

WATER DISTRIBUTION SIZING - HOT WATER

A	AVAILABLE BUILDING WATER PRESSURE	70.0 PSIG
B	START POINT TAG (SEE ISOMETRIC FOR TAG LOCATION)	
C	DIST. PREVIOUS START POINT TO THIS START POINT	
D	UNIFORM LOSS PREV. START POINT TO THIS START POINT	
E	PIPE PRESSURE DROP FROM METER TO START POINT	
F	CONTROLLING FIXTURE:	ID:

ROOM NAME & NO.	ID:	STERILIZATION 121
PRESSURE REQUIRED		
G	ELEV. DIFF. BETW. METER AND CONTROLLING FIXTURE	30 PSIG
H	PRESSURE LOSS DUE TO WATER SOFTENER	0 PSIG
I	PRESSURE LOSS DUE TO MIXING VALVE	0 PSIG
J	PRESSURE AVAILABLE FOR PIPING PRESSURE DROP	38.7 PSIG
K	DEVELOPED LENGTH START PT. TO CONTR. FIXTURE	130 FEET
L	EQUIVALENT LENGTH START PT. TO CONTR. FIXTURE	195 FEET
M	PRESSURE AVAILABLE FOR UNIFORM LOSS	19.85 PSIG/100'

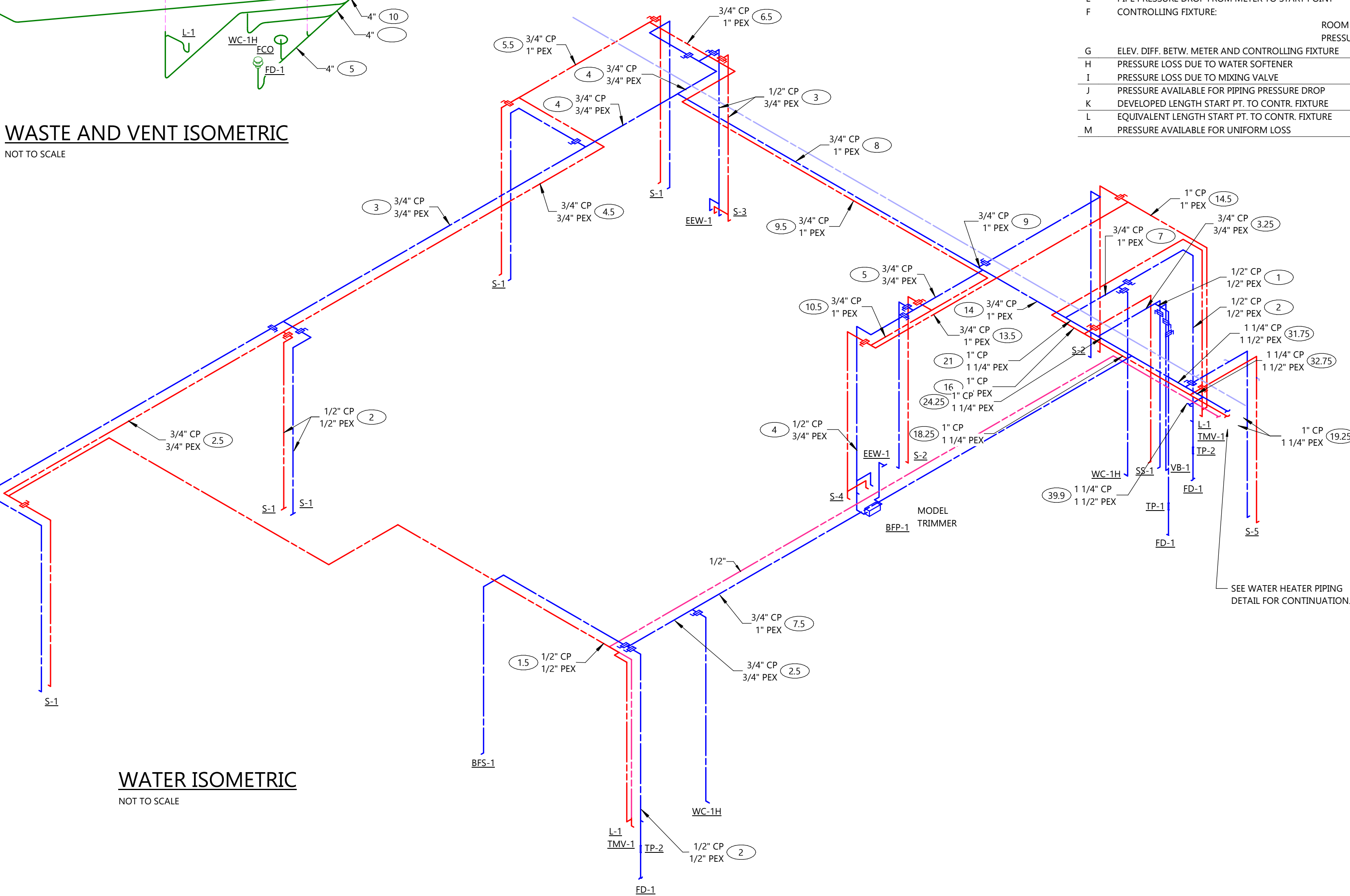
METER	Pipe size	WSFU	A	WSFU
EEW-1	1/2	5	120 FT	5
STERILIZATION 121	3/4	16.5	19.85 PSIG/100'	16.5
	1	31	23.8 PSIG	31
	1 1/4	58		58
	1 1/2	107		107
	2	260		260
	2 1/2	469		469
	3	752		752
	4	1792		1792

FIXTURE UNITS

NO.	FIXTURE	UNITS	WASTE TOTAL	TRAP SIZE	COLD WATER UNITS	BRANCH SIZE	HOT WATER UNITS	BRANCH SIZE	TOTAL WATER UNITS	TOTAL
1	BOTTLING STATION	1	1	1 1/4"	0.5	0.5	1/2"	-	0.5	0.5
3	FLOOR DRAIN- 3"	5	15	3"	-	-	-	-	-	-
1	HUB DRAIN- 3"	5	5	2"	-	-	-	-	-	-
1	HUB OUTLET- 2"	3	3	2"	-	-	-	-	-	-
1	RAM-VAC	5	5	3"	-	-	-	-	-	-
2	LAV	1	2	1 1/4"	1.5	3	1/2"	1.5	3	1/2"
7	SINK- S-1 & 2	2	14	1 1/2"	1	7	1/2"	1	7	1/2"
2	SINK- S-3 & 4	2	4	1 1/2"	3	6	1/2"	3	6	1/2"
1	SINK- S-5	2	2	1 1/2"	1	1	1/2"	1	1	1/2"
1	SINK- SERVICE- 2"	2	2	2"	2.25	2.25	1/2"	2.25	2.25	1/2"
2	WATER CLO- TANK	4	8	-	5	10	1/2"	-	5	10
3	TRAP PRIMER	-	-	-	0.5	1.5	1/2"	-	0.5	1.5
1	MODEL TRIMMER	-	-	-	1	1	1/2"	-	1	1
26	TOTAL		61		32.75		19.25		39.9	

WASTE AND VENT ISOMETRIC

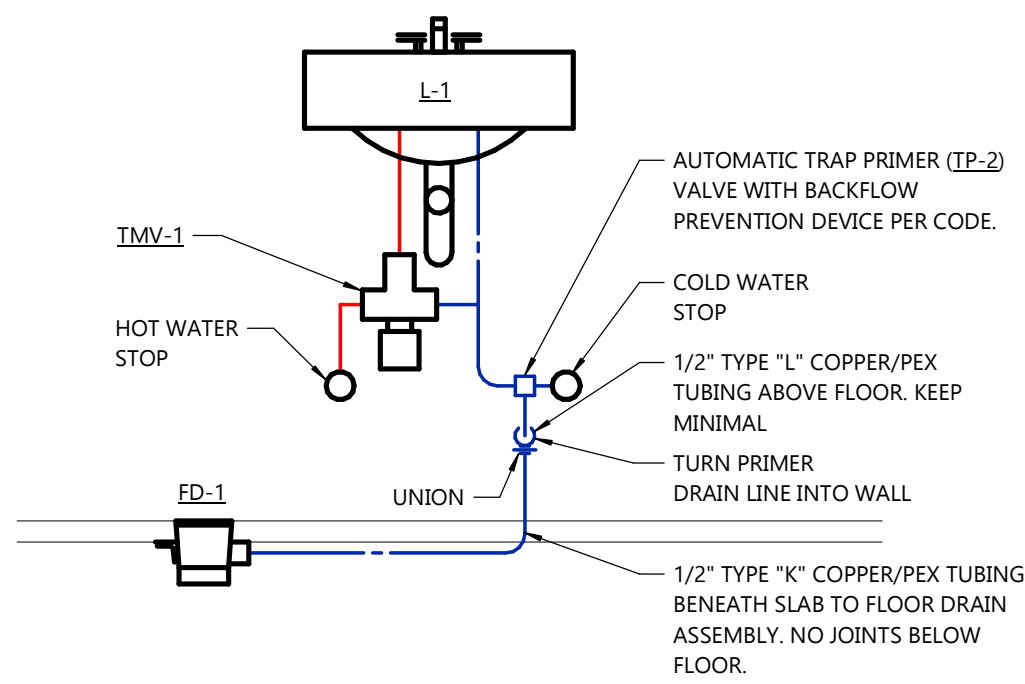
NOT TO SCALE



WATER ISOMETRIC

NOT TO SCALE

PLUMBING ISOMETRICS AND SCHEDULES



4 TRAP PRIMER-2 DETAIL
P3.0 NOT TO SCALE

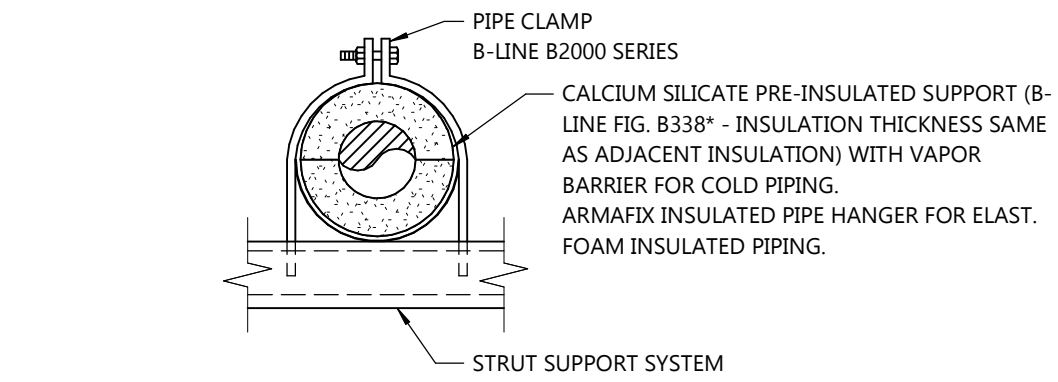
PIPE SIZE	STEEL					COPPER					MIN. ROD	
	WATER	VAPOR	NAT. GAS	WATER	VAPOR	WATER	VAPOR	PVC	PEX		METAL PIPE	PLASTIC PIPE
1/4" - 1/2"	7"	8"	8"	6"	5"	6"	5"	4"	3/2"		3/8"	3/8"
3/4"	7"	9"	8"	5"	7"	4"	3/2"	3/8"	3/8"		3/8"	3/8"
1"	7"	9"	8"	6"	8"	4"	3/2"	3/8"	3/8"		3/8"	3/8"
1 1/4"	7"	9"	10"	7"	9"	4"	3/2"	3/8"	3/8"		3/8"	3/8"
1 1/2"	9"	12"	10"	8"	10"	4"	3/2"	3/8"	3/8"		3/8"	3/8"
2"	10"	12"	10"	8"	11"	4"	3/2"	3/8"	3/8"		3/8"	3/8"
2 1/2"	11"	12"	10"	9"	12"	4"	3/2"	3/8"	3/8"		3/8"	3/8"
3"	12"	12"	10"	10"	12"	4"	3/2"	3/8"	3/8"		3/8"	3/8"
4"	12"	12"	10"	12"	12"	4"	-	3/8"	3/8"		3/8"	3/8"
6"	12"	12"	10"	12"	12"	4"	-	3/8"	3/8"		3/8"	3/8"
8"	12"	12"	-	-	-	4"	-	1/2"	3/8"		3/8"	3/8"
10"	12"	12"	-	-	-	4"	-	1/2"	3/8"		3/8"	3/8"
12"	12"	12"	-	-	-	4"	-	5/8"	3/8"		3/8"	3/8"
14"	12"	12"	-	-	-	4"	-	5/8"	3/8"		3/8"	3/8"
16"	12"	12"	-	-	-	4"	-	3/4"	3/8"		3/8"	3/8"
MAX VERT. (1)	15'	15'	-	10'	10'	10'	4'	-	-		-	-

(1) SUPPORT AT MINIMUM EVERY FLOOR LEVEL OR SPACING LISTED.
MSS = MANUFACTURER'S STANDARDIZATION SOCIETY
- INSTALL ADDITIONAL HANGERS WITHIN 12" OF ELBOWS AND TEES AND AT CONCENTRATED LOADS, INCLUDING VALVES, FLANGES AND STRAINERS 2 1/2" AND LARGER.

MAX. HANGER ROD CAPACITY	MAX. LOAD (1)
3/8"	600#
1/2"	1,100#
5/8"	1,800#
3/4"	2,700#

(1) MAX. LOAD IS WEIGHT ALLOWED PER EACH ROD.

3 PIPE SUPPORT AND HANGER ROD SCHEDULE
P3.0 NOT TO SCALE

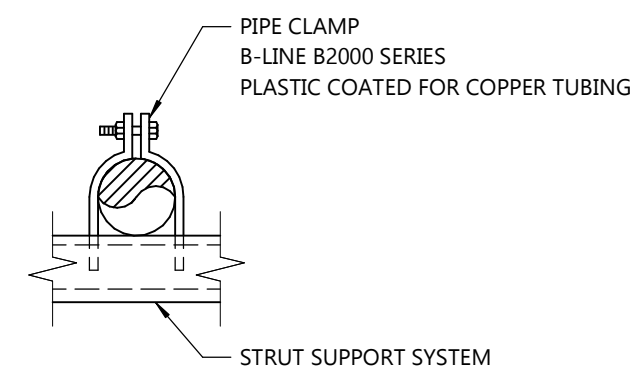


GAUVANIZED CARBON STEEL SHIELD - MSS SP-58 TYPE 40 (B-LINE FIG. 3153 WITH LOC TABS) SECURE BOTH ENDS WITH ZESTON 5 MIL PVC Z-TAPE II WITH 2" OVERLAP.

INSULATION (THICKNESS AND TYPE PER SCHEDULE) (TYP)

CALCIUM SILICATE PRE-INSULATED SUPPORT (B-LINE FIG. B338" - INSULATION THICKNESS SAME AS ADJACENT INSULATION) WITH VAPOR BARRIER FOR COLD PIPING. ARMAFIX INSULATED PIPE HANGER FOR ELAST. FOAM INSULATION PIPING.

2 INSULATED PIPE HANGER DETAILS
P3.0 NOT TO SCALE



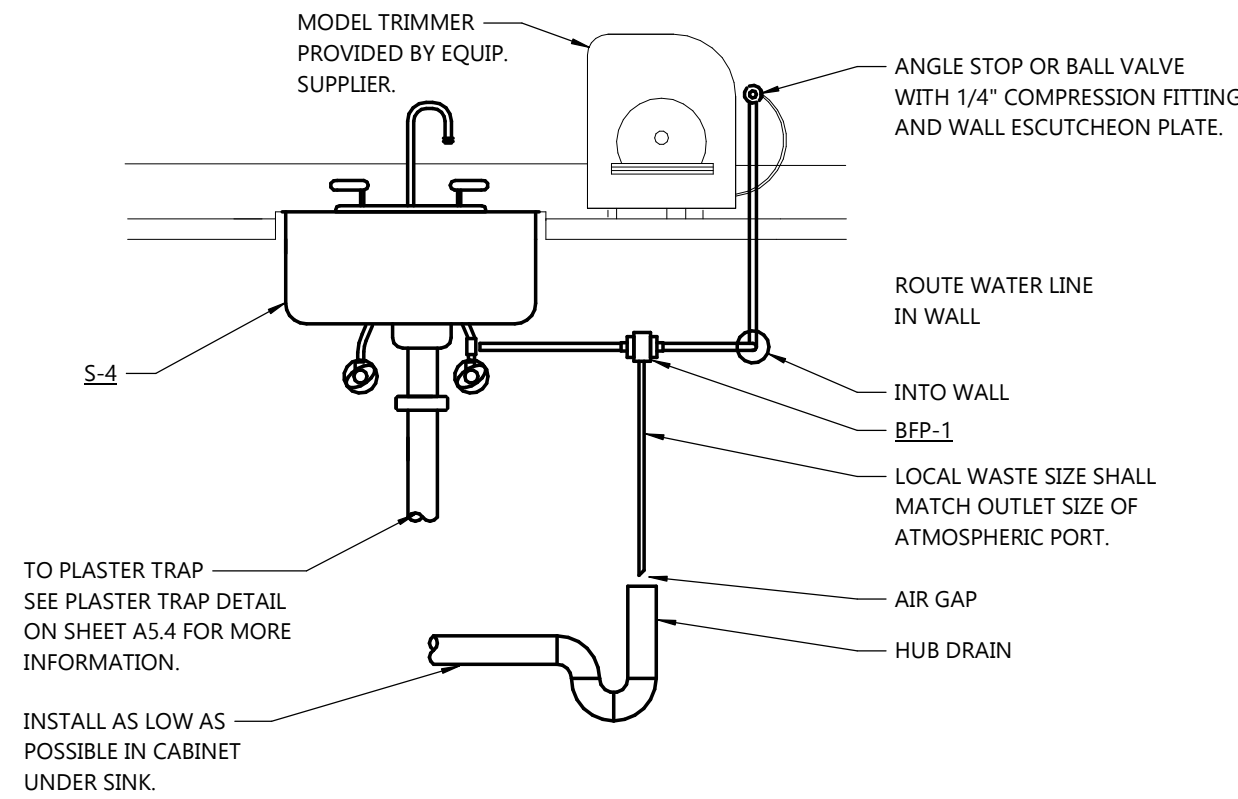
HANG FROM BEAM CLAMPS, CONCRETE INSERTS, UNI-STRUT, STRUCTURAL STEEL OR WALL BRACKET. (TYP)

THREADED MILD STEEL BLACK OR ZINC PLATED FINISH, THREADED ROD. (TYP)

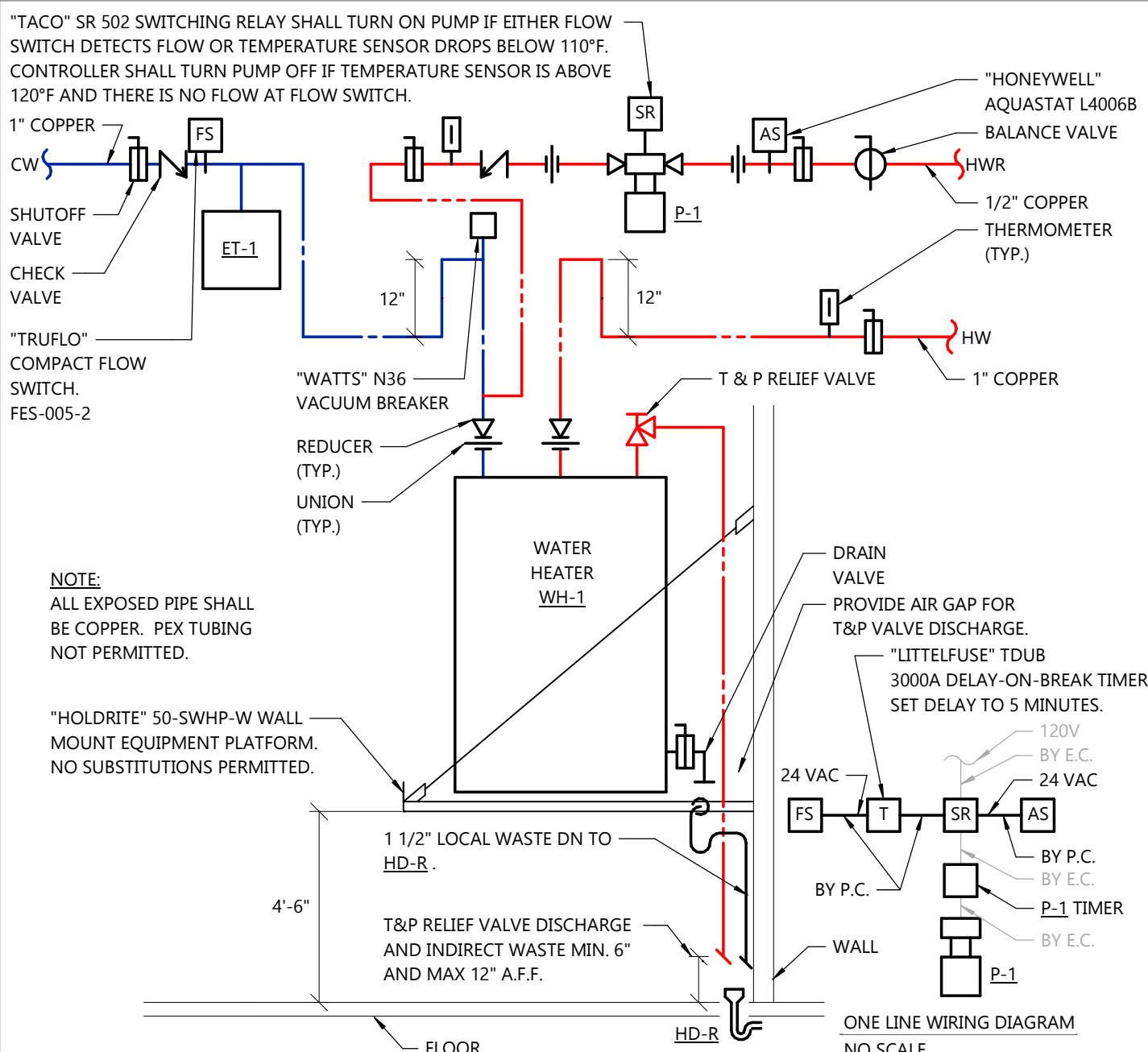
8" AND SMALLER: CARBON STEEL ADJUSTABLE BAND HANGER MSS SP-58 TYPE 10 (B-LINE FIG. 200). PLASTIC COATED FOR COPPER TUBING (B-LINE FIG. 200C).

ALL SIZES: CARBON STEEL STANDARD CLEVIS HANGER MSS SP-58 TYPE 1 (B-LINE FIG. B3100). PLASTIC COATED FOR COPPER TUBING (B-LINE FIG. B3100C).

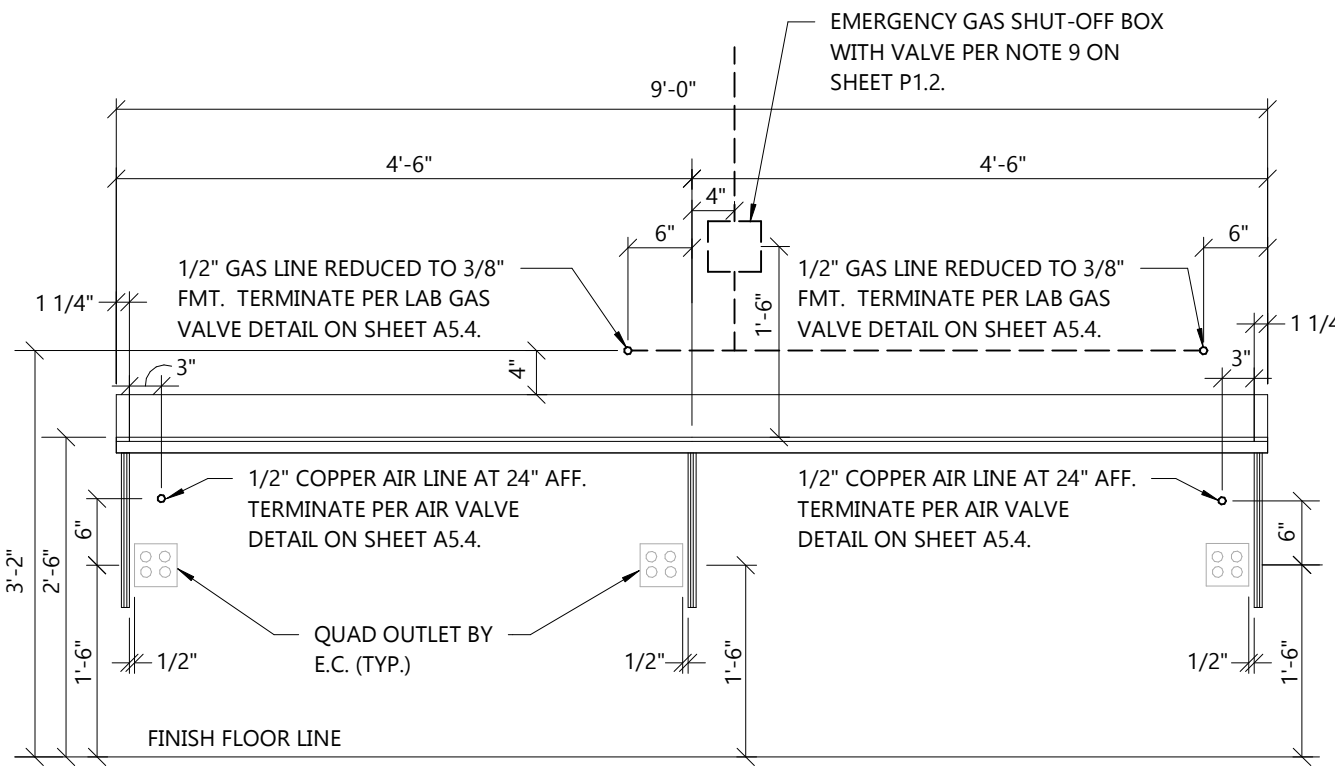
1 UNINSULATED PIPE HANGER DETAIL
P3.0 NOT TO SCALE



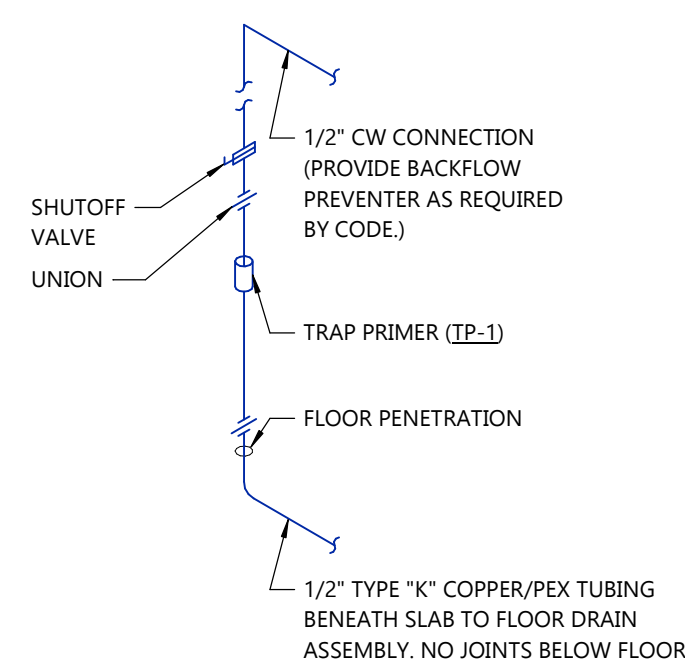
8 MODEL TRIMMER PIPING DETAIL
P3.0 NOT TO SCALE



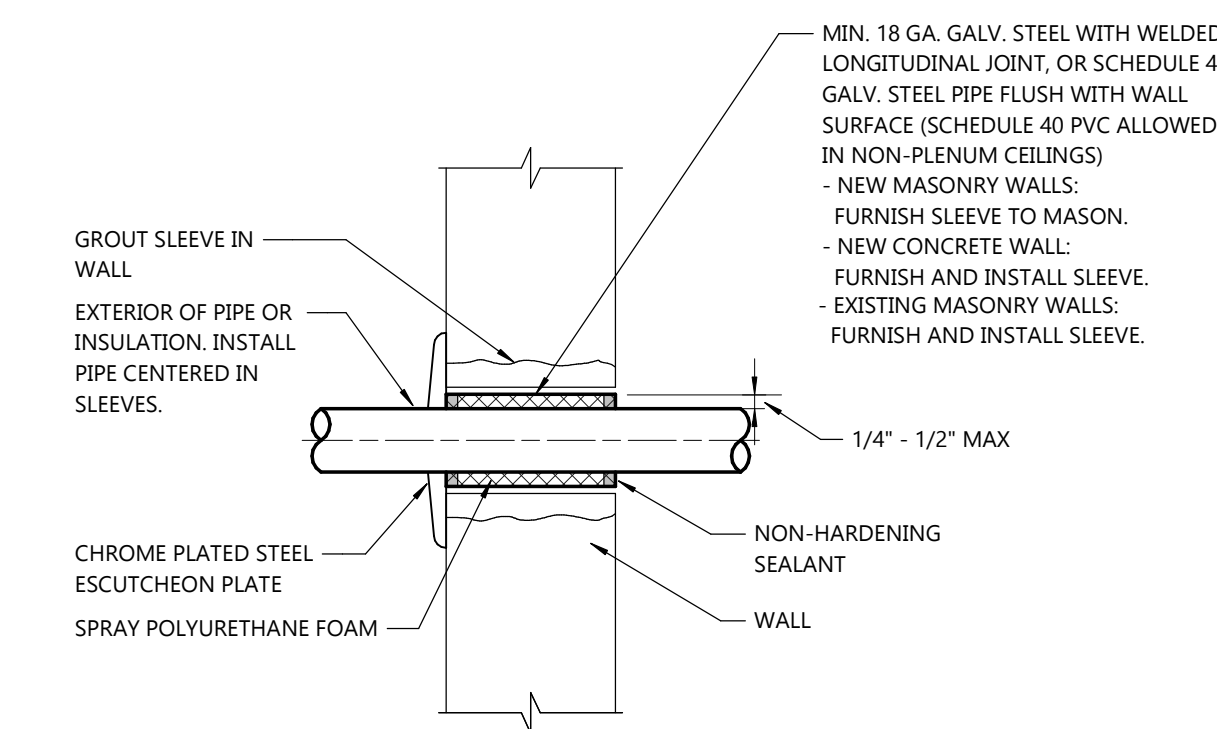
7 WATER HEATER PIPING DETAIL
P3.0 NOT TO SCALE



6 LAB WORK STATION ELEVATION
P3.0 NOT TO SCALE



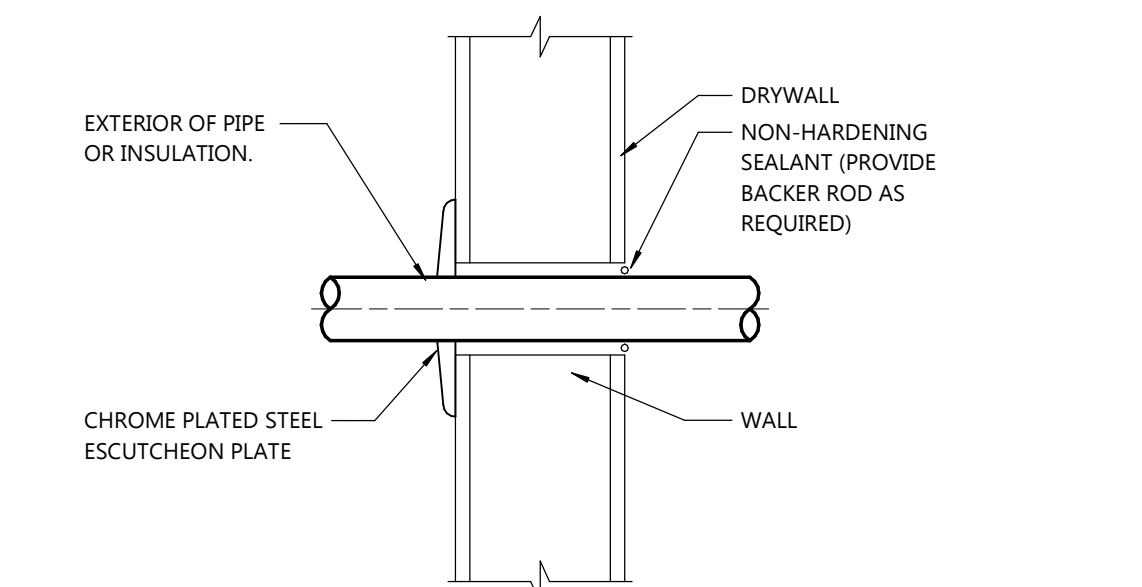
5 TRAP PRIMER-1 DETAIL
P3.0 NOT TO SCALE



EXPOSED IN FINISHED ROOMS

CONCEALED SIDE OF WALL, EXPOSED IN MECH. EQUIP. ROOM, OR OUTDOORS

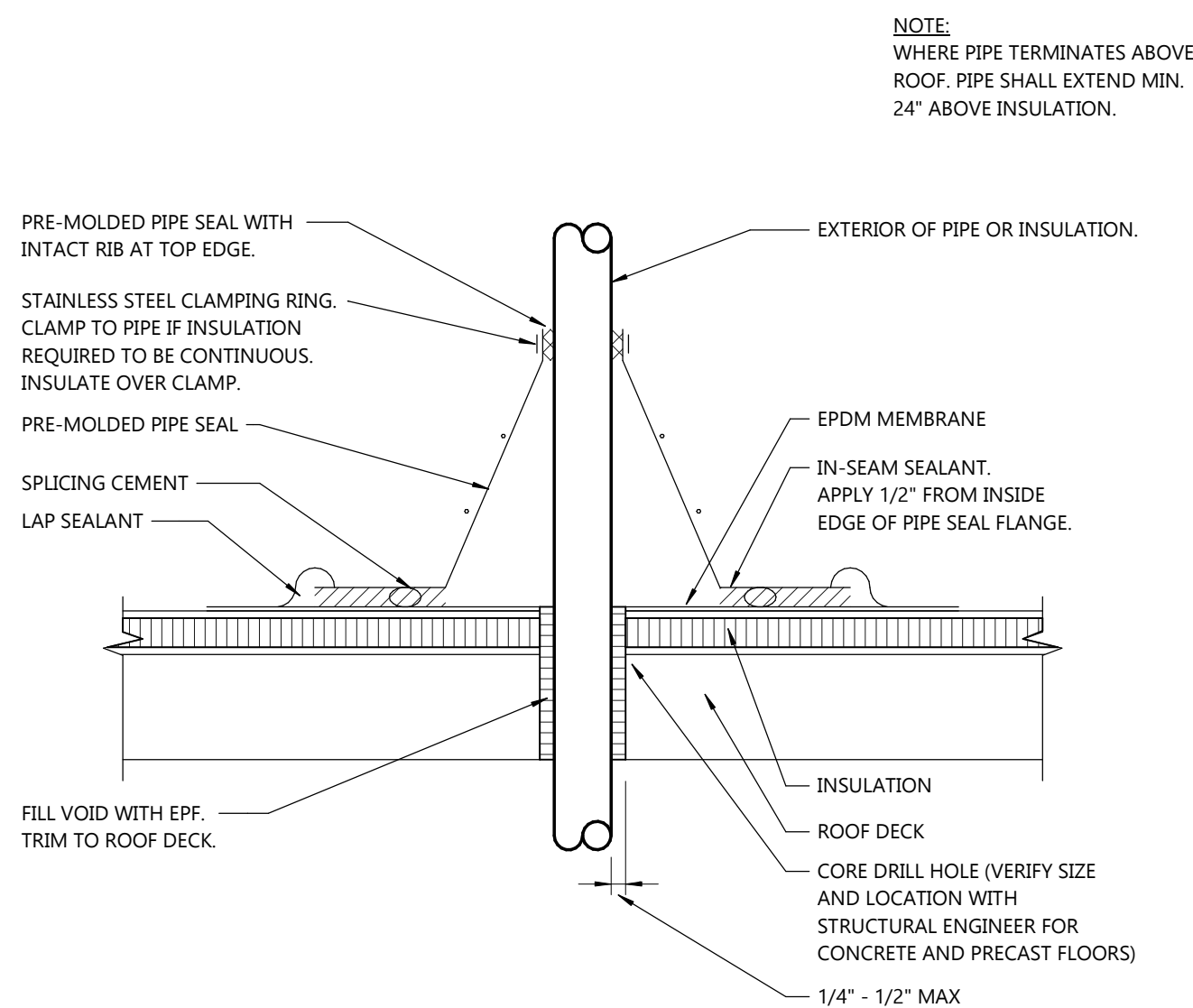
12 PIPE PENETRATION THRU MASONRY OR CONCRETE WALL
P3.0 NOT TO SCALE



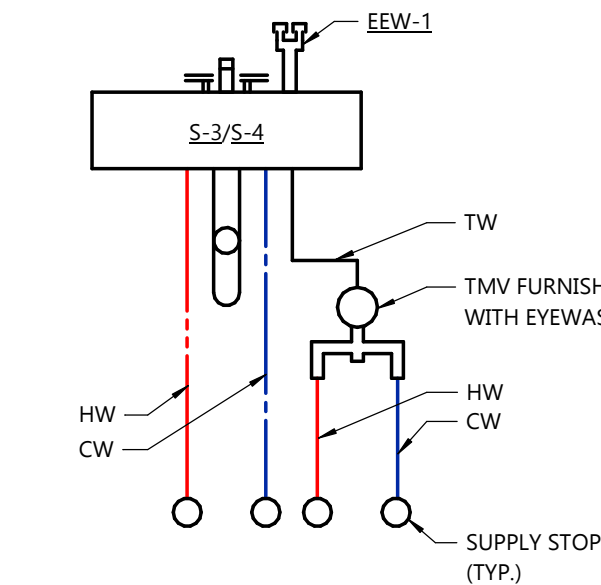
EXPOSED IN FINISHED ROOMS

CONCEALED SIDE OF WALL, EXPOSED IN MECH. EQUIP. ROOM, OR OUTDOORS

11 PIPE PENETRATION THRU STUD WALL
P3.0 NOT TO SCALE

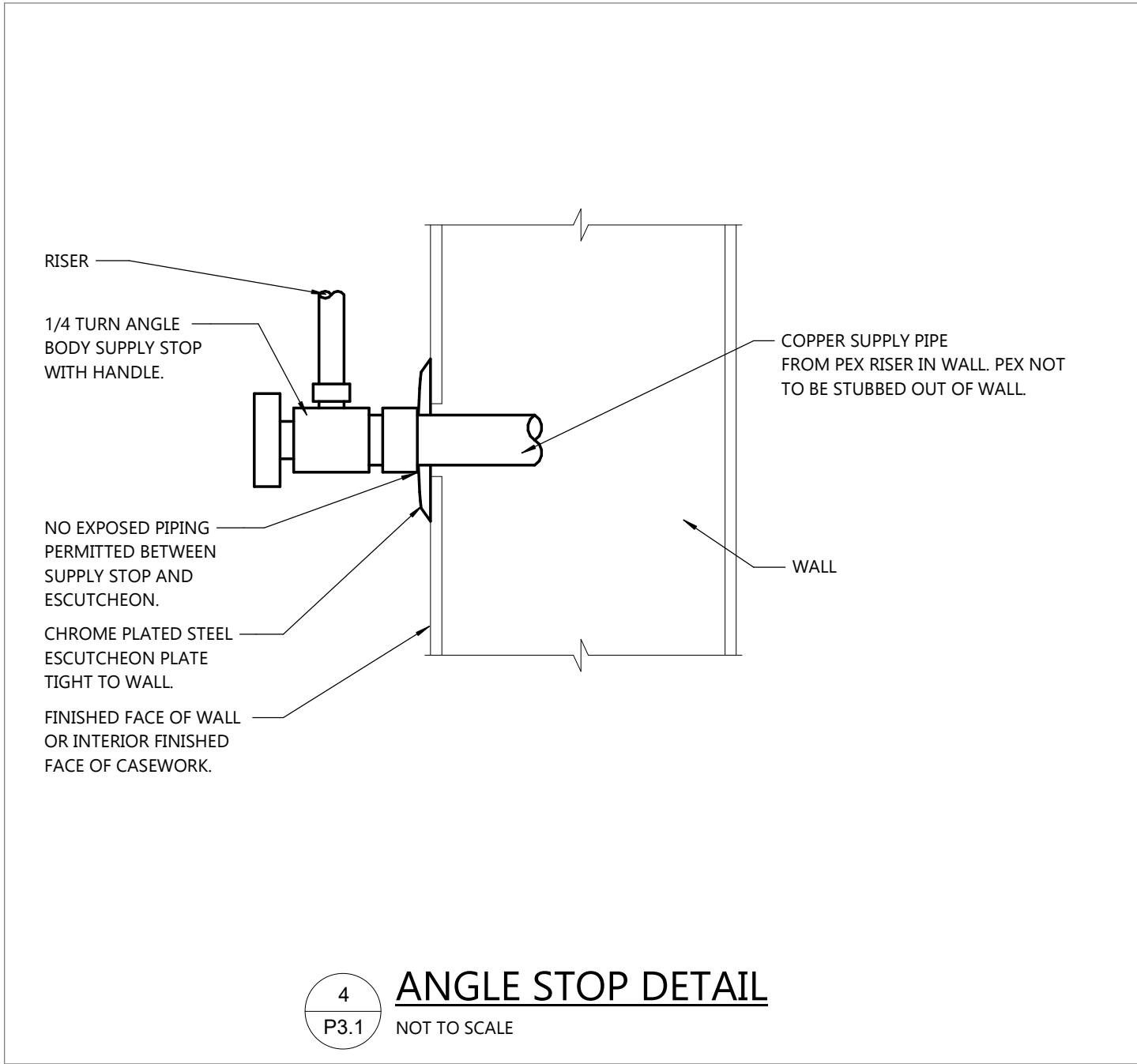


10 ROOF PIPE BOOT PENETRATION DETAIL
P3.0 NOT TO SCALE

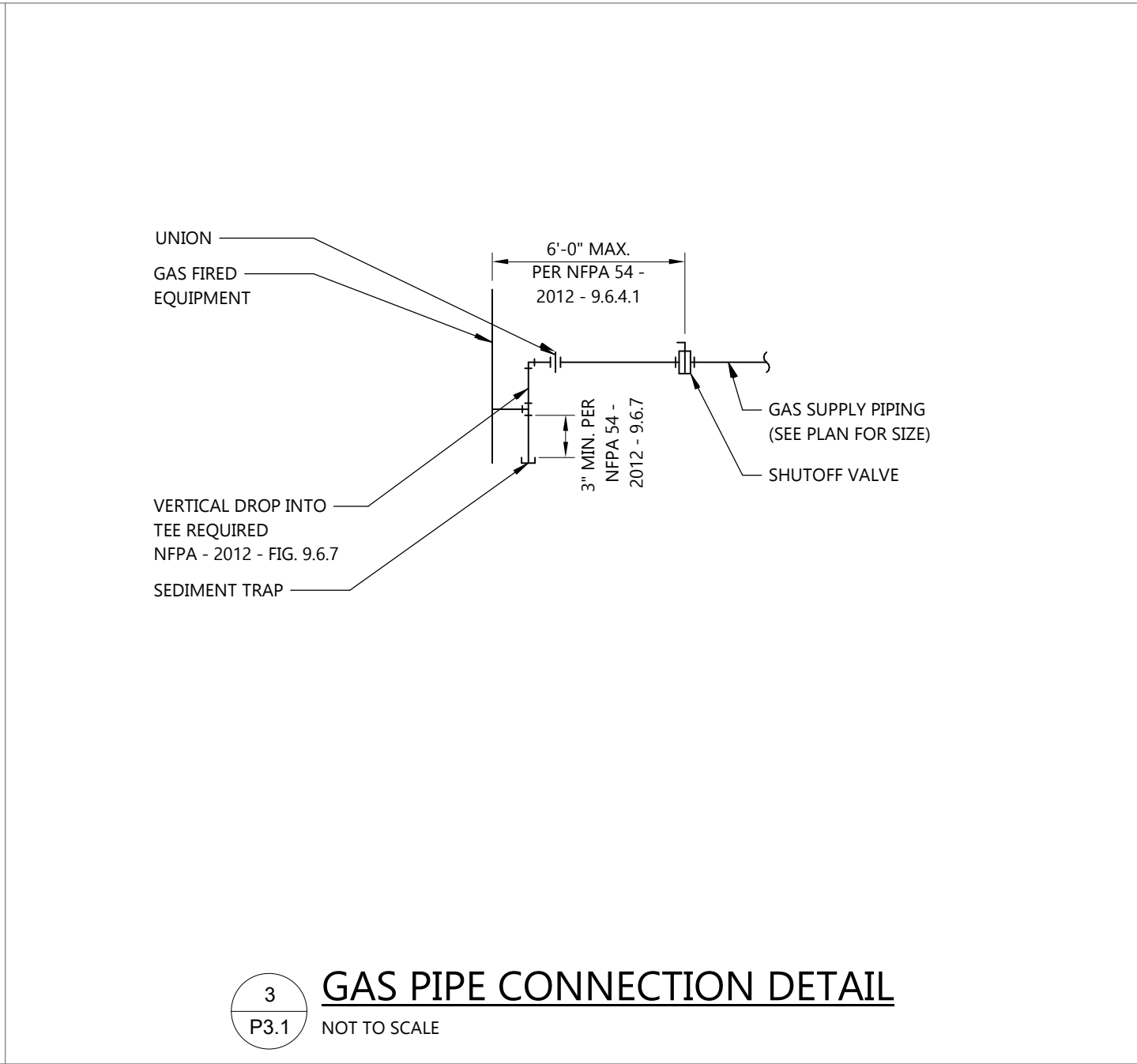


9 EEW DETAIL
P3.0 NOT TO SCALE

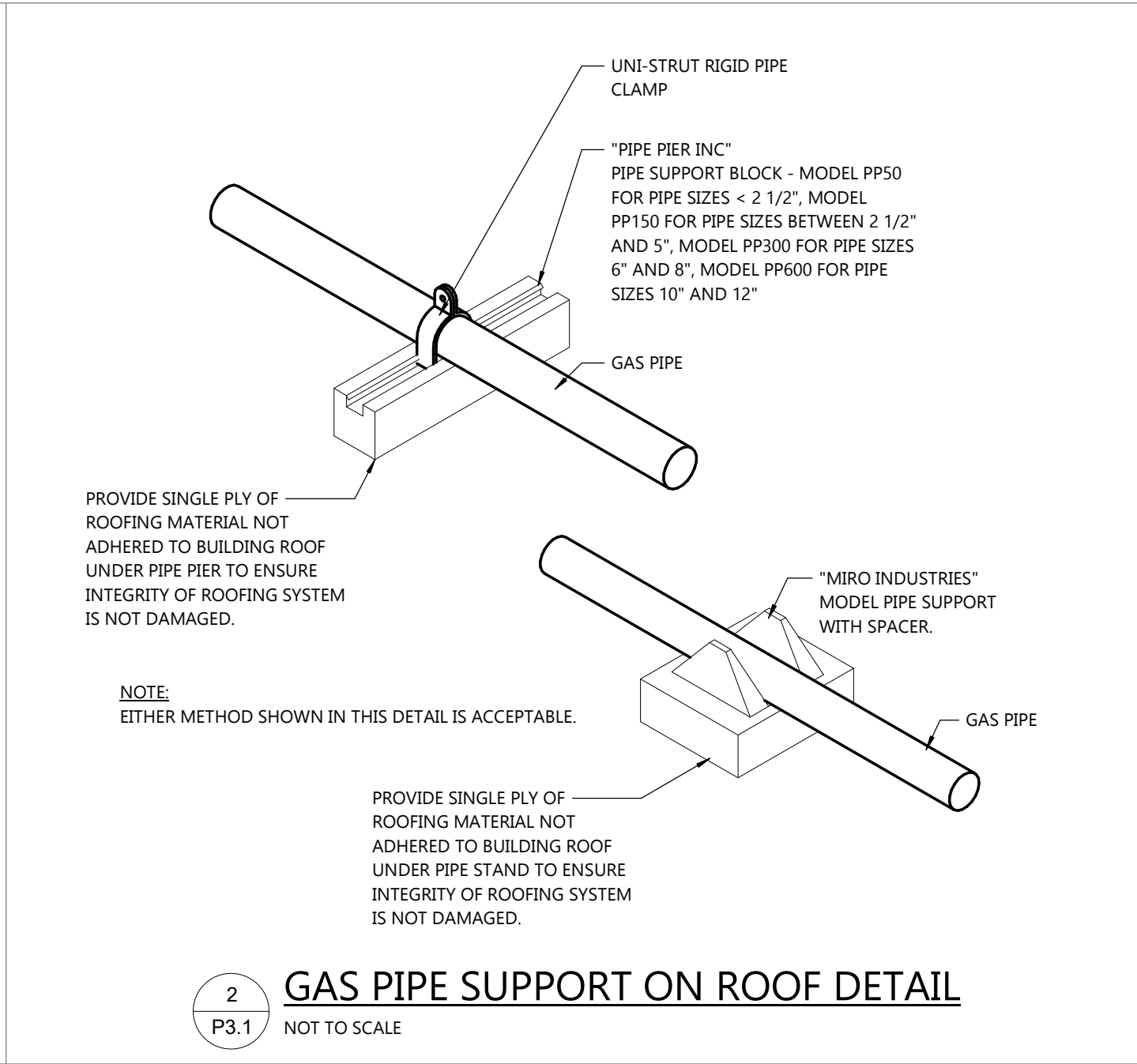
NO.	DESCRIPTION



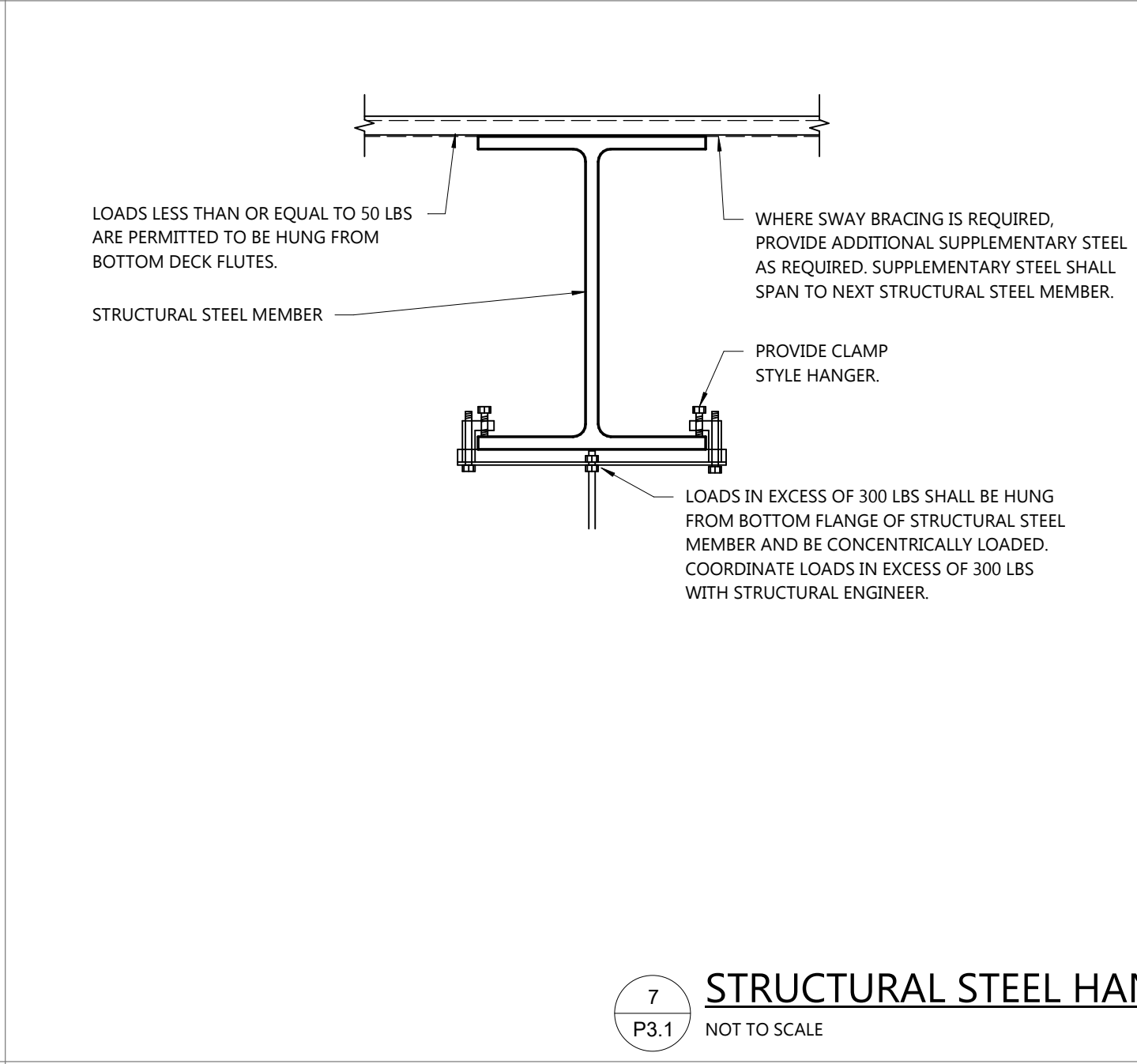
4
P3.1
ANGLE STOP DETAIL
NOT TO SCALE



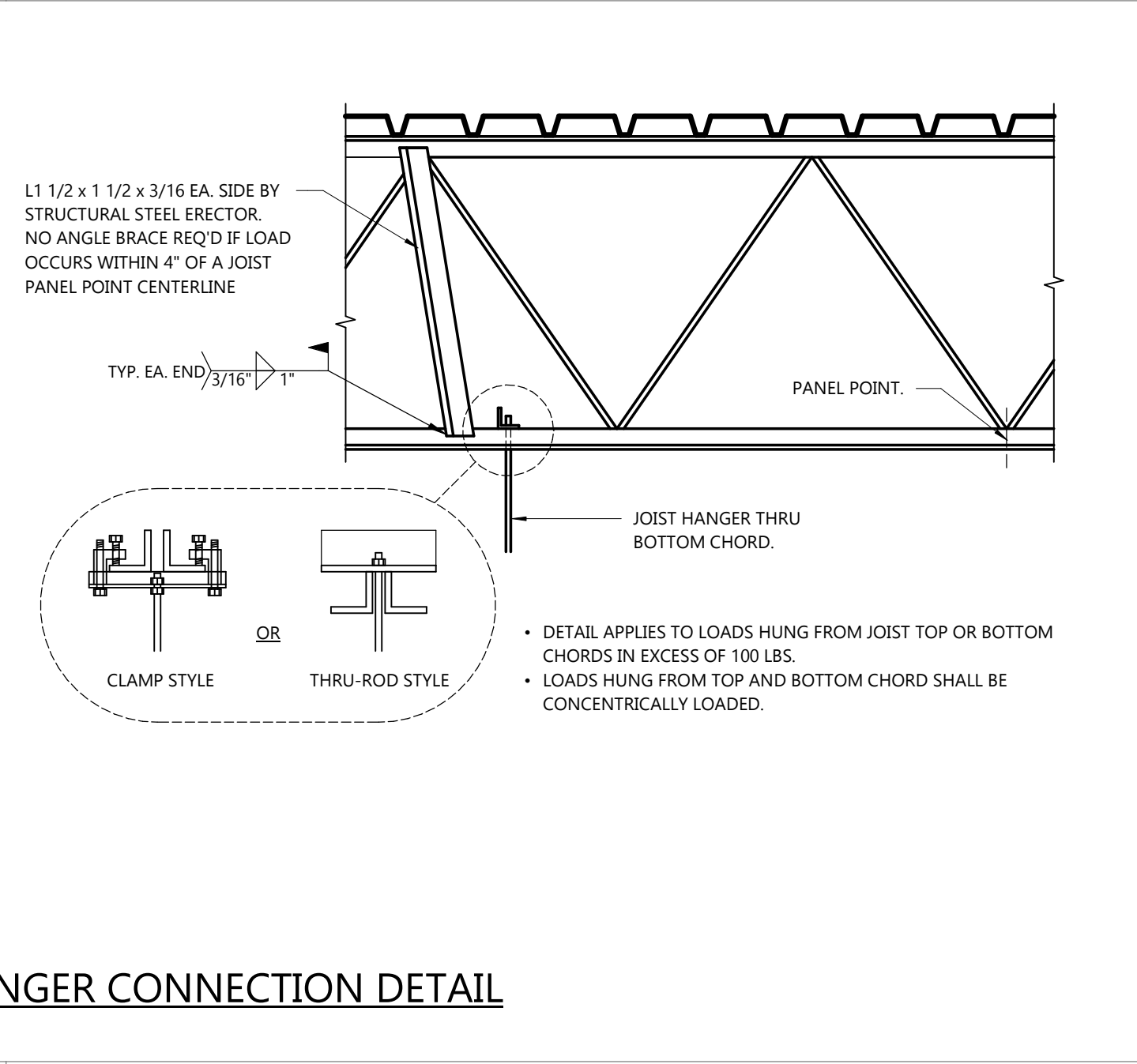
3
P3.1
GAS PIPE CONNECTION DETAIL
NOT TO SCALE



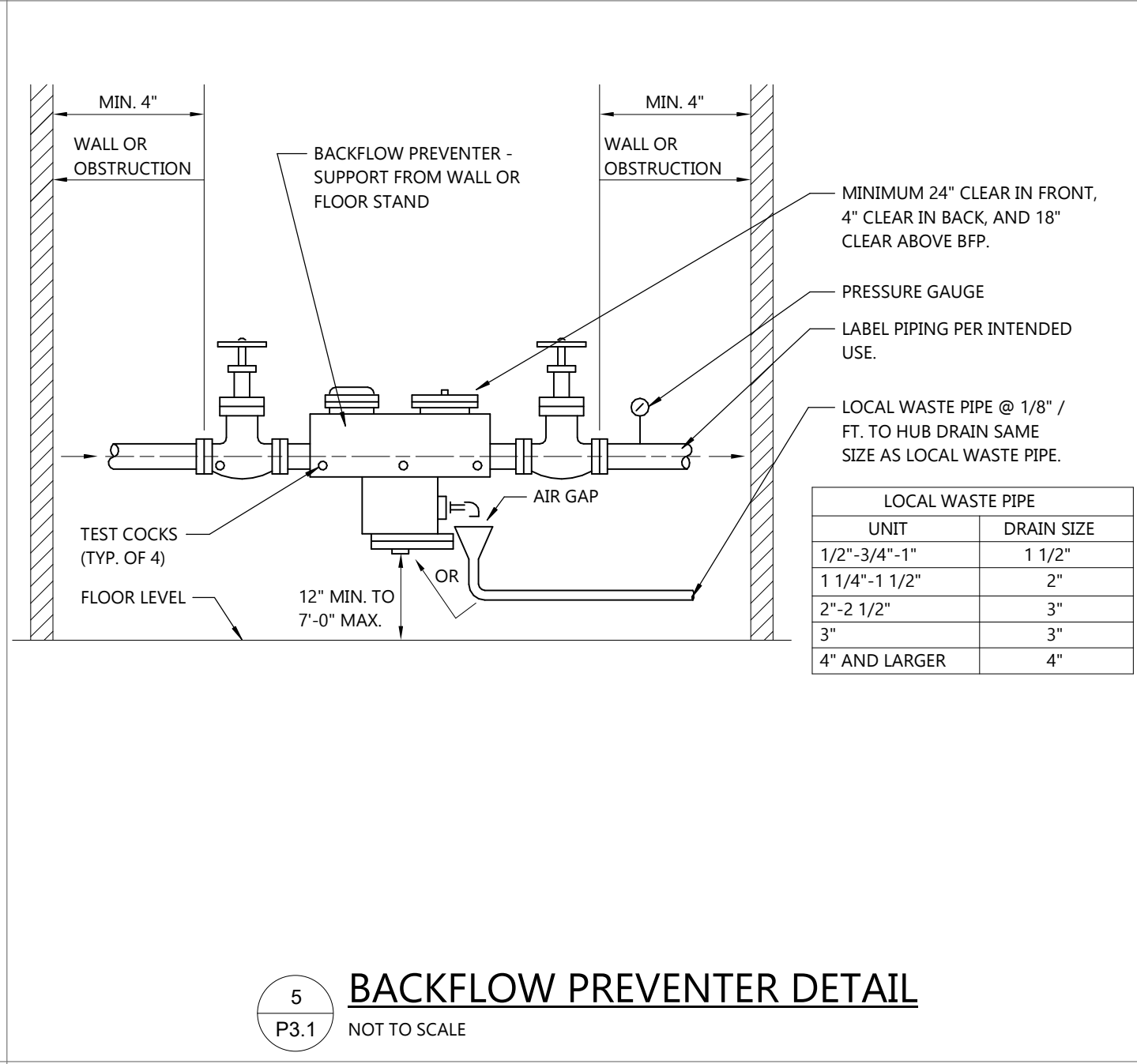
2
P3.1
GAS PIPE SUPPORT ON ROOF DETAIL
NOT TO SCALE



7
P3.1
STRUCTURAL STEEL HANGER CONNECTION DETAIL
NOT TO SCALE



5
P3.1
BACKFLOW PREVENTER DETAIL
NOT TO SCALE



9
P3.1
WATER SERVICE DETAIL
NOT TO SCALE

TRAP PRIMER SCHEDULE (T.P.)					
NO.	LOCATION	CONN. SIZE	MODEL	REMARKS	SUPPLIED BY
1	MECH.	1/2"	P2-500	"PRECISION PLUMBING PRODUCTS"	TENANT G.C.
2	TOILET	3/8"	PRO1-ULP500	"PRECISION PLUMBING PRODUCTS"	TENANT G.C.

VALVE BOX SCHEDULE (VB)

NO.	SERVICE	MOUNTING	VALVE	BOX MATERIAL	WATER INLET SIZE	WATER OUTLET SIZE	DRAIN SOCKET SIZE	MODEL	REMARKS
1	ICE MAKER	RECESSED	1/4 TURN	PLASTIC	1/2" COLD	3/8" COMP.	2"	37687	OATEY

- ACCEPTABLE MANUFACTURERS: OATEY, SIOUX CHIEF, SYMMONS, GUY GRAY.
- ABS PLASTIC BOX AND FRAME, GALVANIZED STEEL MOUNTING BRACKET, BRASS VALVE BODY, INTEGRAL WATER HAMMER ARRESTOR AND TRIM.
- BOX SHALL BE RATED FOR THE WALL SYSTEM IN WHICH IT IS INSTALLED.

WATER CLOSET SCHEDULE (W.C.)

NO.	MT'G	FLUSH TYPE	GPF	BOWL MFR/MODEL	RIM HT. A.F.F.	PIPING CONNECTION	FLUSH VALVE TYPE	FLUSH VALVE/ SUPPLY STOP MFR/MODEL	SEAT	SUPPLIED BY
1H	FLOOR	TANK	1.6	MANSFIELD 137-160	16-1/2"	HANDLE STOP	-	BRASSCRAFT OCR1912AZX C	CHURCH 9400SSCT	TENANT G.C.

- ACCEPTABLE MANUFACTURERS:
- SUPPLY STOPS: BRASSCRAFT, CHICAGO, KOHLER, DEARBORN, KEENEY, MCGUIRE
- WATER SAVING 1.6 GPF, SIPHON JET ELONGATED VITREOUS CHINA WATER CLOSET BOWL WITH WHITE SOLID PLASTIC OPEN FRONT SEAT WITH SELF-SUSTAINING CHECK HINGE.
- TANK WATER CLOSETS: CLOSE-COUPLED WITH VITREOUS CHINA TANK AND COVER, FLUSH ASSEMBLY AND ANGLE SUPPLY.
- FLOOR SET WATER CLOSETS WITH BOLT CAPS.
- CONTROLS FOR ADA ACCESSIBLE FIXTURES SHALL BE ON THE OPEN SIDE.

CLEANOUT SCHEDULE

SYM.	LOCATION	SIZES	BODY MAT'L	PLUG MAT'L	ACCESS COVER MAT'L	FIGURE	REMARKS	SUPPLIED BY
FCO	FINISHED ROOMS W/O CARPET (1)	2" - 6"	C.I.	PVC	N.B.	-	Z-1400 "ZURN"	TENANT G.C.
FCO	FINISHED ROOMS WITH CARPET (1)	2" - 6"	C.I.	PVC	N.B.	CARPET MARKER	Z-1400-CM "ZURN"	TENANT G.C.

- RECESSED TAPER THREAD PLUG WITH SLOTTED RECESS.
(1) FINISHED ROOMS ARE ROOMS WITH CARPET OR FLOOR TILE OR ROOMS ACCESSIBLE BY A DOOR LESS THAN 42" WIDE.

DRAIN SCHEDULE

SYM.	TYPE	APPLICATION	OUTLET SIZE	BODY MAT'L	STRAINER/TOP MAT'L	SIZE	MISC.	MODEL	REMARKS	SUPPLIED BY
FD-1	FLOOR	PEDESTRIAN TRAFFIC	2"-3" (1)	CAST IRON	N. B. "TYPE S"	5" DIA	TRAP PRIMER CONN.	ZN-415-S-DP-P	"ZURN" (2)	TENANT G.C.
HD	HUB DRAIN	INDIRECT WASTE	(1)	-	-	-	STUB 2" A.F.F.	-	-	TENANT G.C.

- (1) AS NOTED ON DRAWINGS
(2) DECORATIVE POLISHED TOP NOT REQUIRED IN MECHANICAL ROOM.

BACKFLOW PREVENTER / VACUUM BREAKER SCHEDULE (B.F.P.)

SYM.	LOC.	GPM	MAX. P.D. (PSI)	SIZE	TYPE	MAX. HAZ.	BFP/VB PRESS.	APPLICATION	ASSE STD.	MODEL	REMARKS	SUPPLIED BY
BFP-1	LAB	2.0	4.0	1/2"	BFP W/ INT. ATM. VENT	LOW	CONTIN.	MODEL TRIMMER	1012	9D (1)	"WATTS"	TENANT G.C.
BFP-2	MECH	24.0	13.0	1 1/4"	REDUCED PRESS. PRINCIPLE BFP	HIGH	CONTIN.	WATER SERVICE	1013	LF009	"WATTS"	TENANT G.C.
BFP-3	117	1.0	10.0	3/8"	BFP FOR CARB. BEVERAGES	-	-	ICE MACHINE	1022	SD-3	"WATTS"	TENANT G.C.

- ACCEPTABLE MANUFACTURERS: WATTS, CONBRACO, AMES.
(1) P.C. SHALL VERIFY SCHEDULED BFP IS ADEQUATE FOR HAZARD LEVEL WITH PLUMBING INSPECTOR. USE SCHEDULED BFP UNLESS PLUMBING INSPECTOR CLASSIFIES AS HIGHER OR LOWER HAZARD. P.C. SHALL INSTALL BFP IN ACCORDANCE WITH MFRS RECOMMENDATIONS AND CODE CLEARANCE REQUIREMENTS. RELOCATE/ROUTUE AS REQUIRED IF LOCATION SHOWN ON PLAN DOES NOT MEET REQUIREMENTS. PROVIDE ALL NECESSARY DRAIN PIPING, ETC. FOR A COMPLETE INSTALLATION.

SOLENOID VALVE SCHEDULE (SV)

NO.	SERVICE	VOLTAGE	OPERATION	SIZE	MANUFACTURER	MODEL
1	TENANT WATER SERVICE	110V	NORMALLY CLOSED	(1)	GC VALVES	NS211YF02C7HJ2

- ACCEPTABLE MANUFACTURERS: GC VALVES, ASCO
- LEAD FREE BRASS OR STAINLESS STEEL BODY. VALVE SHALL BE NSF/ANSI 372 COMPLIANT.
(1) PROVIDE SIZE VALVE TO MATCH TENANT WATER SERVICE SIZE.

ELECTRICAL/STARTER/DISCONNECT SCHEDULE

SYM.	LOCATION	ELECTRICAL DATA					STARTER		ACCESS-		DISCONNECT		REMARKS	SUPPLIED BY
		HP	KW	AMPS	VOLT	PH.	TYPE	LOCATION	FURN. BY	ORIES	DIS-CONNECT	FURN. BY		
BFS-1	SEE DWG	-	-	5.0	120	1	INTEG	INTEGRAL	EM	-	NR	EC	REC.	TENANT G.C.
WH-1	MECH.	-	3.0	-	208	1	INTEG	INTEGRAL	EM	-	R	EC	-	TENANT G.C.
P-1	MECH.	-	0.04	-	120	1	(1)	MECH RM	PC	-	NR	-	-	TENANT G.C.

- STARTER TYPE:
INTEG = INTEGRAL: PROVIDED INTEGRAL WITH EQUIPMENT.
RELAY = UL LISTED MOTOR RATED RELAY WITH SEPARATE ENTRANCES FOR INPUT AND OUTPUT CONTACTS, AND LED STATUS INDICATOR.

- FURNISHED BY:
EM = EQUIPMENT MANUFACTURER
PC = PLUMBING CONTRACTOR
EC = ELECTRICAL CONTRACTOR
HC = HEATING CONTRACTOR
DISCONNECT:
NR = NOT REQUIRED
R = REQUIRED
REMARKS:
REC. = RECEPTACLE

- ACCEPTABLE MANUFACTURERS: ALLEN BRADLEY, CUTLER HAMMER, SQUARE D, GENERAL ELECTRIC.
- VERIFY VOLTAGE AND PHASE WITH ELECTRICAL CONTRACTOR BEFORE ORDERING EQUIPMENT.
(1) SWITCHING RELAY AND TIMER. SEE ONE LINE WIRING DIAGRAM ON SHEET P3.0 FOR ADDITIONAL INFORMATION.

BOTTLE FILLING STATION SCHEDULE (B.F.S.)

NO.	RECESS	CAP (GPH)	BARRIER FREE	NUMBER OF BASINS	CONTROL	RATED WATTS	FULL LOAD AMPS	MODEL	REMARKS	SUPPLIED BY
1	YES	8.0	YES	-	SENSOR	370	5.0	LZW5M8K	ELKAY	TENANT G.C.

- PROVIDE WITH 1-1/4" WITH C.O. PLUG (MCGUIRE 8872), AND ANGLE WATER STOP WITH HANDLE (BRASSCRAFT OCR192X C).
- CAPACITY BASED ON 50 DEGREE F WATER IN AMBIENT TEMPERATURE OF 90 DEGREES F.

WATER HEATER SCHEDULE (W.H.)

NO.	LOC.	TYPE	MOUNTING	SIZE DIA. X HT.	COMM. TANK WARR.	KW	VOLTAGE/ PHASE	AMPS	REC. GPH	TANK SIZE GAL	MODEL	REMARKS	SUPPLIED BY
1	MECH	COMM.	PLATFORM	17.75" x 45.5"	3 YR (2)	3.0/3.0 (1)	208/1	14.4	12.0	30	ELD30	"RHEEM" (3)	TENANT G.C.

- RECOVERY BASED ON 100 DEGREE F TEMPERATURE RISE, GLASS LINING, 100 PSIG T&P RELIEF VALVE SETTING, 150 PSIG WORKING PRESSURE.
(1) ELEMENTS WIRED FOR NON-SIMULTANEOUS OPERATION
(2) P.C. SHALL BE RESPONSIBLE FOR REGISTRATION OF WATER HEATER FOR WARRANTY PURPOSES.
(3) PROVIDE "TACO" SR 502 SWITCHING RELAY, "TRUFLO" FES-005-2 COMPACT FLOW SWITCH, AND "HONEYWELL" L4006B AQUASTAT. SEE WATER HEATER PIPING DETAIL FOR MORE INFORMATION.

CIRCULATING PUMP SCHEDULE (P.)

NO.	SERVICE	FLUID TEMP F	GPM	HEAD (FT)	RPM	MOTOR H.P.	TYPE	MODEL	REMARKS	SUPPLIED BY
1	HOT WATER CIRC	120	3	5	2800	39 WATT	IN-LINE	NBF-8	"B & G" (1)	TENANT G.C.

- LEAD FREE BRONZE BODY.
(1) PROVIDE "INTERMATIC" MODEL ST01 DIGITAL 7-DAY SWITCH TIMER TO CONTROL PUMP OPERATION.
SET TIMER TO PROVIDE POWER TO PUMP 30 MINUTES BEFORE OFFICE OPENING, AND REMOVE POWER 60 MINUTES AFTER OFFICE CLOSING.

EMERGENCY EYE WASH SCHEDULE (E.E.W.)

NO.	MOUNTING	THERMOSTATIC MIXING VALVE	OPERATION	BACKFLOW PREVENTER	VALVE & TRIM MAT'L	MODEL	REMARKS	SUPPLIED BY
1	SINK	(1)	HAND	(2)	BRASS	EW1022BP-TMV	WATER SAVER	TENANT G.C.

- DECK MOUNTED EMERGENCY EYEWASH WITH DUST COVERS, HAND OPERATED, 8" UNDERCOUNTER HOSE.
(1) TM6020 TMV FURNISHED BY P.C.. TMV MEETS ANSI Z358.1.
(2) IN LINE DUAL CHECK BACKFLOW PREVENTER FURNISHED BY MANUFACTURER.

EXPANSION TANK SCHEDULE (E.T.)

NO.	MOUNTING	TANK TYPE	CONN. SIZE	TANK CAP. (GAL.)	ACCEPT. CAPACITY (GAL.)	PRECHARGE PRESSURE (PSIG)	WORKING PRESS (PSIG)	DIA.	HEIGHT	WEIGHT FILLED (LBS.)	MODEL	REMARKS	SUPPLIED BY
1	PIPE	DIAPHRAGM	3/4"	2.1	1.0	(1)	150	9"	12"	16	WH 8	"FLEXCON"	TENANT G.C.

- (1) VERIFY WATER PRESSURE PRIOR TO INSTALLATION. SET PRECHARGE PRESSURE TO STATIC PRESSURE IN STREET.

LAVATORY SCHEDULE (L.)

NO.	MOUNTING	OVERALL SIZE	FAUCET CENTERS	LAV MODEL	DRAIN (1)		SUPPLY STOP		FAUCET		SUPPLIED BY
					TYPE	MODEL	TYPE	MODEL	TYPE	MODEL	
1	(2)	(2)	4"	(2)	(2)	(2)	HANDLE	BRASSCRAFT KTCR19X C/1-12A C	WRIST BLADE	AM. STD. 7500.175	TENANT G.C.

- ACCEPTABLE MANUFACTURERS:
- DRAINS AND TRAPS: KOHLER, DEARBORN, KEENEY, MCGUIRE, BRASSCRAFT.
- STOPS AND SUPPLIES: KOHLER, BRASSCRAFT, DEARBORN, KEENEY, MCGUIRE.
- CARRIERS AND SUPPORTS: ANCON, JOSAM, SMITH, WADE, ZURN.
- ALL MODEL NUMBERS BASED ON KOHLER UNLESS INDICATED OTHERWISE.
- VITREOUS CHINA LAVS, 1-1/4" 17 GAUGE "P" TRAP WITH CLEANOUT PLUG (MCGUIRE 8872), BUSHING ON END OF OUTLET TUBE, WALL FLANGE.
- WALL HUNG LAVS WITH BACKSPLASH.
- FAUCETS WITH VANDAL RESISTANT AERATOR.
(1) PROVIDE TRUEBRO MODEL #102 INSULATION KIT.
(2) BASIN, STRAINER AND TAILPIECE FURNISHED BY MILLWORK CONTRACTOR, INSTALLED BY P.C.

SERVICE SINK SCHEDULE (S.S.)

NO.	MOUNTING	BASIN			MODEL	FAUCET		MFR/MODEL	SUPPLIED BY
		MAT'L	SIZE	RIM GUARD		PIPING EXPOSURE	BACKFLOW PREVENTER		
1	WALL	POLYPROPYLENE	23x25x15	-	MUSTEE 14CP	DECK MOUNT	WATTS N9-CD (2)	(1)	TENANT G.C.

- (1) FAUCET, SUPPLY HOSES AND P-TRAP FURNISHED WITH BASIN BY MANUFACTURER.
(2) ASSE 1052 LISTED.

SINK SCHEDULE (S.)

NO.	COMPARTMENT NO. DEPTH		SINK		MODEL	NO. HOLES	FAUCET				MODEL	SUPPLIED BY	
			OVERALL SIZE				REACH	HEIGHT	HANDLE	FINISH			SPRAY
1	1	(4)	(4)	(4)	(4)	2	5"	10"	SINGLE	CHROME	NO	DELTA 1903-DST	TENANT G.C.
2	1	(4)	(4)	(4)	(4)	2	5"	10"	SINGLE	CHROME	NO	DELTA 1903-DST	TENANT G.C.
3	2	(4)	(4)	(4)	(4)	3	8"	8.875"	SINGLE	CHROME	YES	KOHLER K-7508	TENANT G.C.
4	2	(4)	(4)	(4)	(4)	3	8"	8.875"	SINGLE	CHROME	YES	KOHLER K-7508 (1)	TENANT G.C.
5	1	(4)	(4)	(4)	(4)	2	5"	10"	SINGLE	CHROME	NO	DELTA 1903-DST (3)	TENANT G.C.

- ACCEPTABLE MANUFACTURERS:
- STOPS AND SUPPLIES: KOHLER, BRASSCRAFT, DEARBORN, KEENEY, MCGUIRE.
- DRAINS AND TRAPS: KOHLER, DEARBORN, KEENEY, MCGUIRE, BRASSCRAFT.
- SELF-RIMMING 20 GA. 302 S.S. SINK. ANGLE SUPPLIES WITH HANDLE STOPS (BRASSCRAFT KTCR19X C/1-12A C). PROVIDE EACH COMPARTMENT WITH STAINLESS STEEL STRAINER AND TAILPIECE (ELKAY UK-35B), AND 1-1/2" 17 GAUGE "P" TRAP W/ CLEANOUT (MCGUIRE 8912).
- VERIFY SINK CUTOUT SIZE WILL FIT IN COUNTERTOP WITH CABINET SHOP DRAWINGS PRIOR TO ORDERING.
(1) INSTALL PLASTER TRAP FURNISHED BY SULLIVAN-SCHEN.
(2) PROVIDE TRUEBRO MODEL #102 INSULATION KIT.
(4) BASIN FURNISHED BY MILLWORK CONTRACTOR, INSTALLED BY P.C..

THERMOSTATIC MIXING VALVE SCHEDULE (T.M.V.)

NO.	SERVICE	INLETS	OUTLET	ACT. P.D. (PSI)	MAX. FLOW (GPM)	ACTUAL FLOW (GPM)	TEMP. SETTING (°F)	MODEL	REMARKS	SUPPLIED BY
1	LAVATORY	3/8"	3/8"	25	4.0	1.5	105	LFUSG-B-M2	"WATTS" (1)	TENANT G.C.

- ACCEPTABLE MANUFACTURERS: SYMMONS, WATTS, POWERS, ZURN.
- PROVIDE WITH CHECK STOPS, REMOVABLE CARTRIDGE WITH STRAINER, STAINLESS STEEL PISTON, AND SOLID WAX HYDRAULIC PRINCIPLE THERMOSTAT.
(1) LISTED FOR ASSE 1070 USE.



Always a Better Plan

100 Camelot Drive
Fond du Lac, WI 54935
920-926-9800
excelengineer.com

COLLABORATION

AspenDental

PROJECT INFORMATION

PROPOSED BUILD-OUT FOR:
ASPEN DENTAL
715 PROGRESS WAY STE TBD • GAITHERSBURG, MD 20877

PROFESSIONAL SEAL

SHEET DATES

SHEET ISSUE JULY 21, 2026

REVISIONS

JOB NUMBER

260222300

SHEET NUMBER

P4.0



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SOIL TESTING NOTE:

- G.C. SHALL HIRE A SOIL TESTING AGENCY TO PERFORM A COMPACTION TEST OF LANDLORD DELIVERED PAD DURING & AFTER UNDERGROUND UTILITY INSTALLATION. G.C. SHALL NOT INSTALL UNDERGROUND UTILITIES IN LANDLORD DELIVERED PAD UNTIL COMPACTION REPORTS HAVE BEEN RECEIVED FROM THE LANDLORD, AND PROPER COMPACTION HAS BEEN MET. ALL REPORTS SHALL BE SUBMITTED TO ADML.

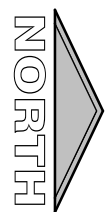
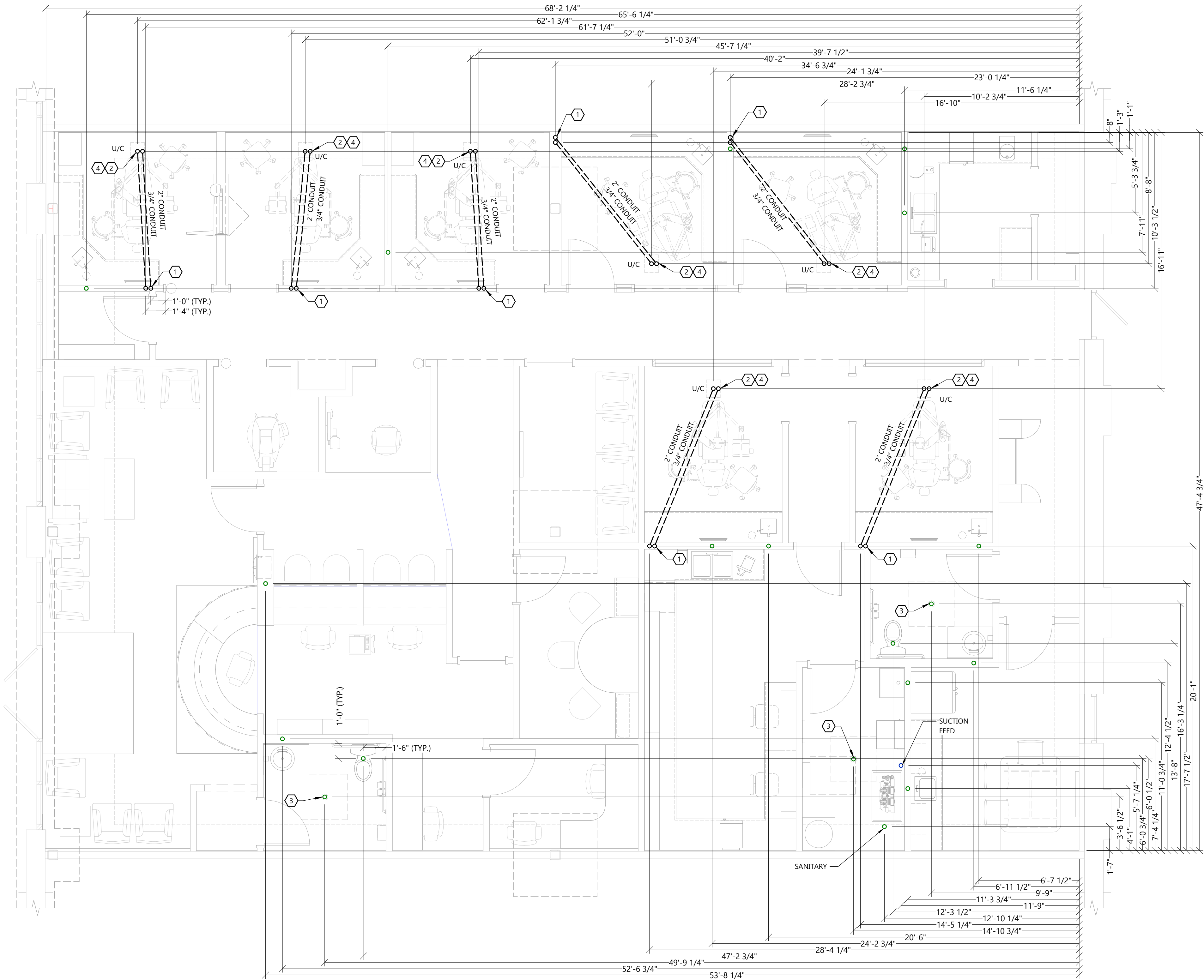
GENERAL NOTES:

- ALL DIMENSIONS ARE TAKEN OFF THE FINISHED FACE OF THE PERIMETER WALL, AND MEASURED TO FIXTURE LOCATION AND/OR CENTER OF WALL PARTITIONS.
- ALL VACUUM LINES SHALL BE ROUTED UNDERGROUND WHENEVER POSSIBLE. P.C. MAY USE ANY WALL OR KNEEWALL UNTIL THERE IS NO MORE WALL. AT THAT POINT THE VACUUM SHALL DROP UNDERGROUND.

U/C = UTILITY CENTER

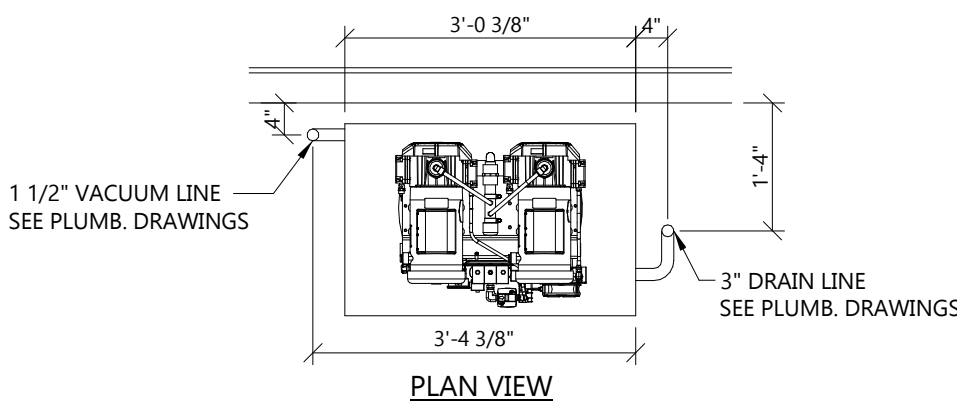
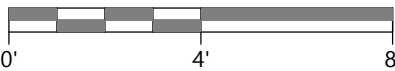
KEYNOTES:

- POWER TO BE BROUGHT UNDER COUNTER THROUGH 3/4" POWER CONDUIT. 2" DATA CONDUIT TO BE RUN UNDERGROUND. (REFER TO ELECTRICAL DRAWINGS & DETAILS 3/E2.0 & 4/E2.0)
- POWER TO BE BROUGHT THROUGH 3/4" POWER CONDUIT. 2" DATA CONDUIT TO BE RUN UNDERGROUND. (REFER TO ELECTRICAL DRAWINGS)
- TAPER FLOOR TOWARDS FLOOR DRAIN.
- SEE UTILITY CENTER DETAIL ON SHEET A5.2 FOR ADDITIONAL REQUIREMENTS.



UNDERGROUND UTILITY RISER PLAN

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



RAM-VAC DETAIL

NOT TO SCALE

PLUMBING UNDERGROUND UTILITY RISER PLAN AND DETAIL

DESIGN CRITERIA

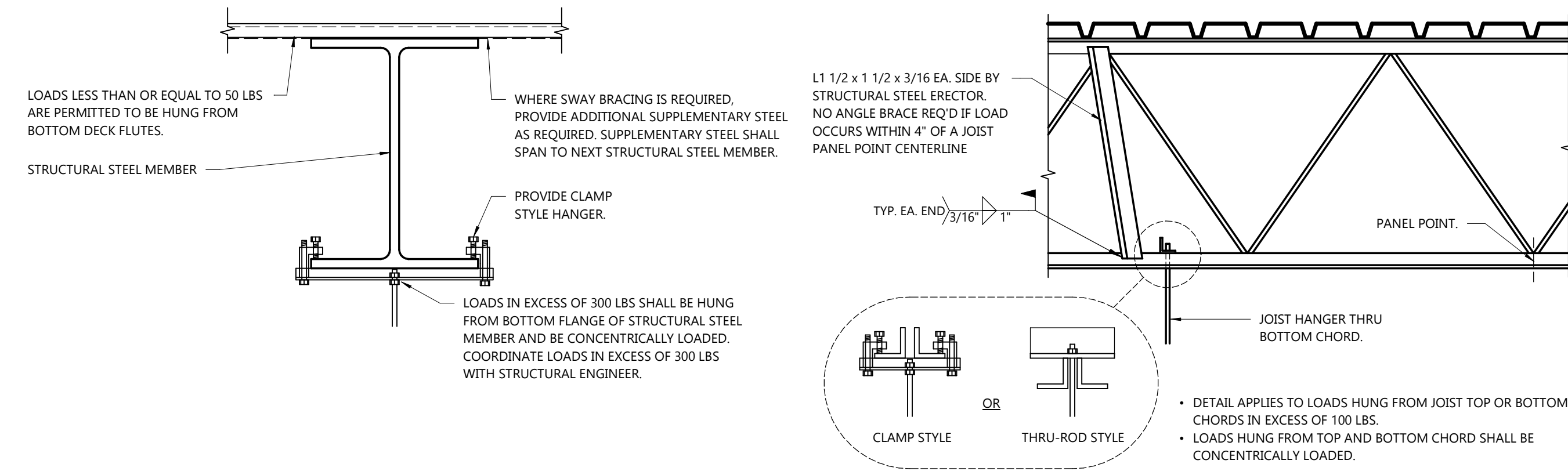
DESIGNATION	SYSTEM TYPE	HAZARD/ COMMODITY	MINIMUM DENSITY	REMOTE AREA	HOSE ALLOWANCE
LH	WET	LIGHT HAZARD (1)	0.10 GPM/S.F.	1,500 S.F. (2)	100 GPM
OG1	WET	ORDINARY GROUP 1 (1)	0.15 GPM/S.F.	1,500 S.F. (2)	250 GPM

- CONTRACTOR SHALL VERIFY DESIGN CRITERIA.
(1) QUICK RESPONSE HEADS.
(2) REDUCE REMOTE AREA FOR AREAS WITH QUICK RESPONSE SPRINKLERS AS PERMITTED BY NFPA 13 VERSION ADOPTED BY AHJ.
SEE REFLECTED ARCH PLAN FOR CEILING HEIGHTS.

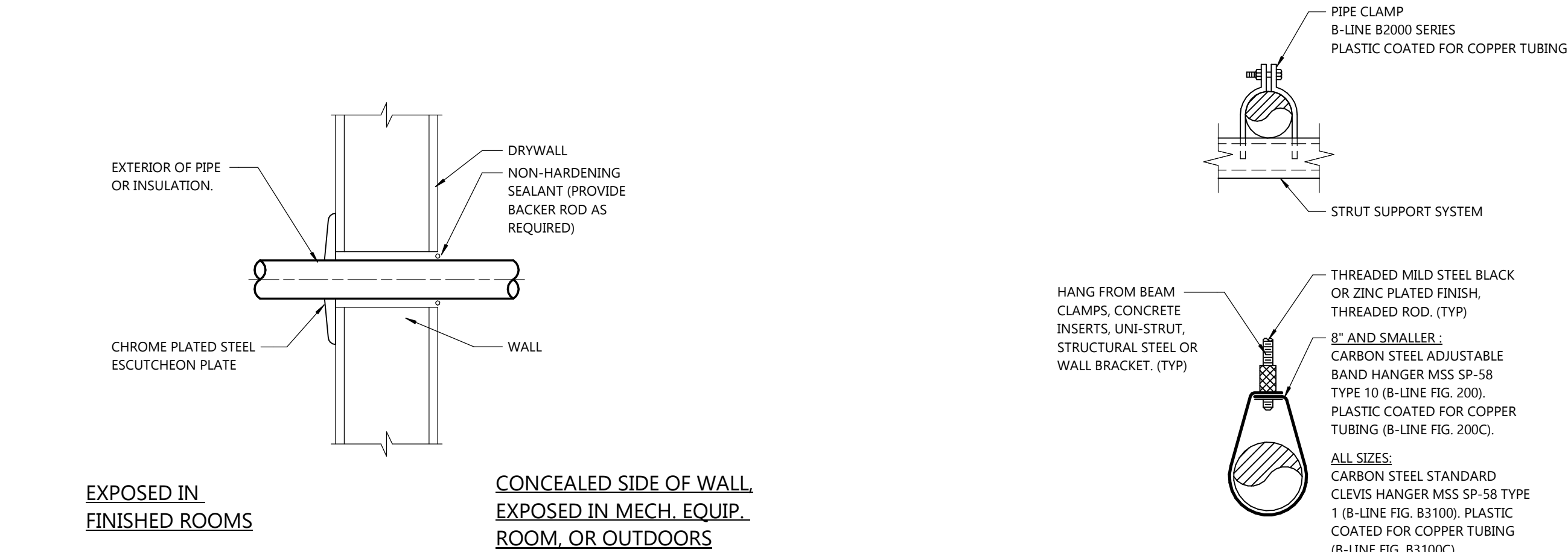
SPRINKLER REQUIREMENTS

TAG	APPLICATION	SYSTEM TYPE	MOUNTING	BODY MAT'L	ELEMENT	SPRINKLER FINISH	ESCUTCHEON TYPE	ESCUTCHEON MAT'L/COLOR	TEMPERATURE CLASSIFICATION	CENTER OF TILE (1)
A	ROOM WITH CEILING	WET	PENDENT	BRASS	GLASS BULB	WHITE	SEMI-RECESSED	(2)	ORDINARY	YES

- ALL TEMPERATURES AS LISTED UNLESS OTHERWISE REQUIRED BY NFPA.
- SIDEWALL SPRINKLERS ARE ACCEPTABLE IN LIEU OF PENDENT WHERE APPLICABLE.
(1) CENTER OF TILE LOCATION ESTABLISHED AFTER CEILING GRID IS INSTALLED.
(2) MATCH SPRINKLER FINISH.

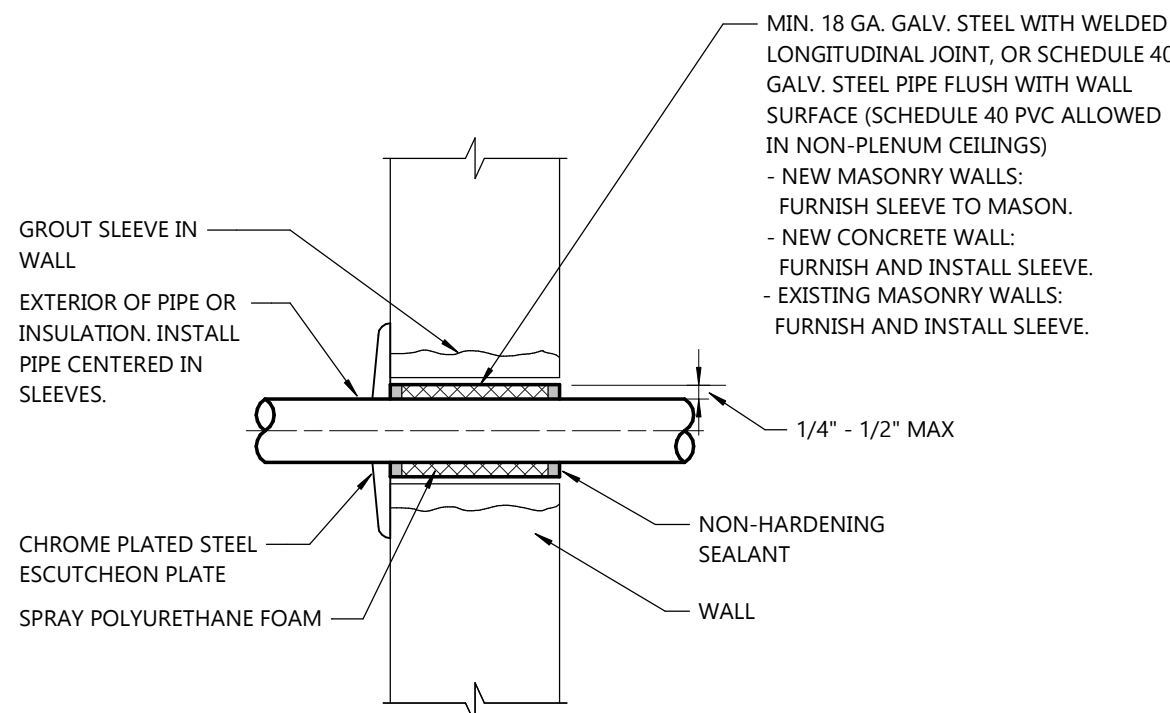


1
FP0.1
STRUCTURAL STEEL HANGER CONNECTION DETAIL
NOT TO SCALE



3
FP0.1
PIPE PENETRATION THRU STUD WALL
NOT TO SCALE

2
FP0.1
UNINSULATED PIPE HANGER DETAIL
NOT TO SCALE



4
FP0.1
PIPE PENETRATION THRU MASONRY OR CONCRETE WALL
NOT TO SCALE

FIRE PROTECTION SPECIFICATIONS

DIVISION 21 FIRE PROTECTION

21 05 00 BASIC FIRE PROTECTION REQUIREMENTS

- SEE DIVISION 00 PROCUREMENT AND CONTRACTING AND DIVISION 01 GENERAL REQUIREMENT FOR ADDITIONAL REQUIREMENTS.
- SHOP DRAWINGS, PRODUCT DATA, TEST RESULTS AND SAMPLE SUBMITTALS:
 - SEE DIVISION 01 33 23 SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES FOR ADDITIONAL REQUIREMENTS
 - FIRE PROTECTION CONSTRUCTION ADMINISTRATION SUBMITTAL LIST:
 - ALL SCHEDULED EQUIPMENT
 - SPRINKLER SYSTEM/FIRE PROTECTION
 - HANGERS
 - PIPE IDENTIFICATION
 - PROVIDE "AS-BUILT" DRAWINGS TO THE OWNER IN AUTOCAD FORMAT.
- FINISHING AND PAINTING
 - SEE DIVISION 09 91 00 FINISH AND PAINTING FOR ADDITIONAL REQUIREMENTS.
 - PREPARE EXPOSED PIPE, FITTINGS, SUPPORTS, AND ACCESSORIES FOR FINISH PAINTING IN ROOMS THAT WILL HAVE CEILING AND STRUCTURE PAINTED.
 - COORDINATE WORK WITH THE PAINTERS SO THAT ALL EQUIPMENT IS INSTALLED PRIOR TO PAINTING. F.P.C. SHALL PAINT ITEMS IF NOT IN PLACE PRIOR TO NORMAL ROUTINE PAINTING.
 - IF FINISH BECOMES RUSTED, CORRODED, SCRATCHED, OR FLAKED DURING STORAGE OR INSTALLATION, REFINISH THE EQUIPMENT TO THE SATISFACTION OF THE OWNER.
- INSTALL ALL EQUIPMENT PER MANUFACTURER'S INSTALLATION INSTRUCTIONS AND REQUIREMENTS. PROVIDE ADDITIONAL WORK AND MATERIALS AS REQUIRED.
- DETAILS AND SCHEDULES ARE SHOWN TO AID THE CONTRACTOR AND ARE NOT MEANT TO BE INCLUSIVE OF ALL DEVICES. PROVIDE REQUIRED EQUIPMENT AND ACCESSORIES FOR A COMPLETE INSTALLATION.
- COORDINATE WORK WITH OTHER CONTRACTORS AND MAKE ADJUSTMENTS TO THE FIRE PROTECTION SYSTEM INSTALLATION WHERE IT WILL BE INSTALLED IN CLOSE PROXIMITY TO THE WORK OF OTHER TRADES. IF THE FPC INSTALLS WORK BEFORE COORDINATING IT WITH OTHER TRADES SO AS TO CAUSE INTERFERENCE WITH WORK OF OTHER TRADES, THE FPC SHALL MAKE NECESSARY CHANGES IN THE WORK TO CORRECT THE CONDITION WITHOUT EXTRA CHARGES.
- PROVIDE ALL CUTTING AND PATCHING NECESSARY FOR FIRE PROTECTION WORK INSTALLATION UNLESS THIS WORK IS IDENTIFIED TO BE THE WORK OF OTHER CONTRACTORS. PATCHING SHALL MATCH ADJACENT SURFACES. CORE DRILL OR SAW-CUT OPENINGS THROUGH EXISTING CONCRETE.
- FIRE RATED INTERIOR WALL AND FLOOR PIPE PENETRATIONS
 - SLEEVE REQUIRED FOR PENETRATION OF CONCRETE AND MASONRY WALLS AND FLOORS.
 - SEAL OPENING AROUND PIPE WITH A UL APPROVED FIRE-STOP SYSTEM HAVING AN F-RATING NOT LESS THAN THE HOURLY RATING OF THE ASSEMBLY BEING PENETRATED.
 - WHERE A SLEEVE IS REQUIRED, FURNISH AND INSTALL SLEEVES FOR NEW DRYWALL WALLS AND CONCRETE WALLS AND FLOORS. FURNISH SLEEVES TO THE MASON CONTRACTOR FOR INSTALLATION IN NEW MASONRY WALLS. PROVIDE SLEEVE AND GROUT SLEEVE IN EXISTING MASONRY WALLS.

- SEALANTS
 - FIRE PROTECTION CONTRACTOR SHALL PROVIDE ALL SEALANTS WHERE JOINT IS HIDDEN AND WHERE JOINT IS EXPOSED IN MECHANICAL ROOM.
 - SEALANT CONTRACTOR SHALL PROVIDE SEALANTS AT ALL EXPOSED LOCATIONS IN FINISHED ROOMS.
- ESCUTCHEONS
 - INSTALL ONE-PIECE (TWO PIECE FOR EXISTING PIPING) POLISHED CHROME PLATED STEEL ESCUTCHEONS AT PENETRATIONS EXPOSED IN FINISHED ROOMS (ROOMS WHICH DON'T HAVE UNFINISHED CONCRETE FLOORS).
 - ESCUTCHEONS WITH SPRINGS FOR WALL AND CEILING LOCATIONS.
 - ID TO CLOSELY FIT AROUND PIPE/INSULATION, OD THAT COMPLETELY COVERS THE OPENING.
 - ESCUTCHEONS REQUIRED IN CABINETS AND CASEWORK.
- PROVIDE A COMPLETE DESIGN/BUILD FIRE PROTECTION SYSTEM FOR THE PROPOSED PROJECT.
- FIRE PROTECTION CONTRACTOR SHALL BE LICENSED BY THE STATE IN WHICH THE PROJECT IS LOCATED TO FURNISH AND INSTALL FIRE PROTECTION SYSTEMS.
- CONTRACTOR SHALL COMPLETE DESIGN AND SUBMIT FOR APPROVAL TO AUTHORITIES HAVING JURISDICTION WITHIN 60 DAYS OF CONTRACT AWARD. CONSTRUCTION REWORK COSTS INCURRED BY OTHER CONTRACTORS DUE TO FAILURE BY FPC TO OBTAIN APPROVAL IN A TIMELY MANNER SHALL BE BORNE BY THE FIRE PROTECTION CONTRACTOR.
- CONTRACTOR SHALL BE RESPONSIBLE FOR DESIGNING AND SIZING THE DISTRIBUTION SYSTEMS BY HYDRAULIC CALCULATION, AND SHALL PROVIDE THE NECESSARY ENGINEERING DRAWINGS AND CALCULATIONS TO OBTAIN ACCEPTANCE OF ALL AUTHORITIES HAVING JURISDICTION.
- IF THE CONTRACTOR'S FIRE PROTECTION DESIGN REQUIRES ANY MODIFICATIONS OR ADDITIONS TO THE BUILDING IN ORDER TO MEET THE SPRINKLER SYSTEM REQUIREMENTS, THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE COST OF MODIFICATIONS OR ADDITIONS OR SHALL SPECIFICALLY NOTE IN THE BID THE WORK REQUIRED.
- CONTRACTOR SHALL BE RESPONSIBLE FOR ALL MUNICIPAL AND/OR STATE SUBMITTAL AND PLAN REVIEW FEES.
- DRAWINGS INDICATING NEW FIRE PROTECTION SYSTEMS TO BE INSTALLED WITH PIPE SIZES, ETC., AND COPY OF SYSTEMS HYDRAULIC CALCULATIONS SHALL BE SUBMITTED TO THE FOLLOWING FOR REVIEW:
 - EXCEL ENGINEERING
 - NUMBER OF PRINTS AS REQUIRED TO LOCAL FIRE DEPARTMENT AUTHORITY.
 - NUMBER OF PRINTS AS REQUIRED TO OWNER'S INSURING AUTHORITY.
- THE REQUIREMENTS OF MUNICIPAL AND STATE CODES, LAWS, ORDINANCES AND REGULATIONS, AND NFPA ARE MADE PART OF THESE SPECIFICATIONS AND SHALL BE COMPLIED WITH AS FAR AS THEY APPLY TO THE WORK.
- LEAVE SYSTEM IN PROPER WORKING CONDITION AT THE TIME OF FINAL CLEAN-UP.
 - PROVIDE OPERATING INSTRUCTIONS FOR A TOTAL OF TWO (2) HOURS. MAINTAIN A RECORD OF OPERATING INSTRUCTION PERIODS.
- AVAILABLE WATER FLOW DATA
 - FPC IS RESPONSIBLE FOR VERIFYING AND OBTAINING WATER FLOW TEST DATA FOR DESIGN. TESTS TO BE REPRESENTATIVE OF HIGH WATER USE PERIODS.
- TESTS AND INSPECTIONS
 - CONTRACTOR SHALL BE RESPONSIBLE FOR TESTING AND CERTIFICATION OF SYSTEMS AND ORDERING INSPECTIONS AS REQUIRED BY AUTHORITIES HAVING JURISDICTION.
 - ALL TESTS SHALL BE CONDUCTED IN THE PRESENCE OF AND TO THE SATISFACTION OF THE OWNER OR AN AUTHORIZED REPRESENTATIVE.
 - INSPECTIONS SHALL BE MADE BY THE OWNER'S AUTHORIZED REPRESENTATIVE AND INSPECTORS HAVING JURISDICTION.

21 05 29 SUPPORTS AND HANGERS

- PROVIDE PIPE HANGERS AND SUPPORTS IN COMPLIANCE WITH NFPA 13.
- HANGERS SHALL NOT BE ATTACHED TO JOIST BRIDGING.
- ATTACHMENT TO METAL DECK: HANGERS MAY BE ANCHORED TO METAL FLOOR/ROOF DECK IF ALL THE FOLLOWING CONDITIONS ARE MET:
 - MAXIMUM HANGER LOAD OF 50 LBS.
 - ANCHORED TO BOTTOM OF DECK FLUTES, NOT UPPER FLUTE.
 - ANCHOR LENGTH SHALL EXCEED DECK DEPTH.
- FIRE RATED INTERIOR WALL AND FLOOR PIPE PENETRATIONS
 - SLEEVE REQUIRED FOR PENETRATION OF CONCRETE AND MASONRY WALLS AND FLOORS.
 - SEAL OPENING AROUND PIPE WITH A UL APPROVED FIRE-STOP SYSTEM HAVING AN F-RATING NOT LESS THAN THE HOURLY RATING OF THE ASSEMBLY BEING PENETRATED.
 - WHERE UL FIRE-STOP SYSTEM REQUIRES A SLEEVE, FURNISH AND INSTALL SLEEVES FOR NEW DRYWALL WALLS, AND CONCRETE WALLS AND FLOORS. FURNISH SLEEVES TO THE MASON CONTRACTOR FOR INSTALLATION IN NEW MASONRY WALLS. PROVIDE SLEEVE AND GROUT SLEEVE IN EXISTING MASONRY WALLS.
- SEALANTS
 - FIRE PROTECTION CONTRACTOR SHALL PROVIDE ALL SEALANTS WHERE JOINT IS HIDDEN AND WHERE JOINT IS EXPOSED IN MECHANICAL ROOM.
 - SEALANT CONTRACTOR SHALL PROVIDE SEALANTS AT ALL EXPOSED LOCATIONS IN FINISHED ROOMS.
- ESCUTCHEONS
 - INSTALL ONE-PIECE (TWO PIECE FOR EXISTING PIPING) POLISHED CHROME PLATED STEEL ESCUTCHEONS AT PENETRATIONS EXPOSED IN FINISHED ROOMS (ROOMS WHICH DON'T HAVE UNFINISHED CONCRETE FLOORS).
 - ESCUTCHEONS WITH SPRINGS FOR WALL AND CEILING LOCATIONS.
 - ID TO CLOSELY FIT AROUND PIPE, OD THAT COMPLETELY COVERS THE OPENING.

21 05 53 IDENTIFICATION

- PROVIDE IDENTIFICATION PER NFPA 13.

21 13 13 PIPING

- DESIGN REQUIREMENTS: ALL SYSTEM COMPONENTS SHALL BE RATED FOR THE MAXIMUM WORKING PRESSURE TO WHICH THEY ARE EXPOSED BUT NOT LESS THAN 175 PSIG.
- PIPE AND FITTINGS: PROVIDE PER NFPA 13.
- INSTALL PIPE AND FITTINGS IN ACCORDANCE WITH NFPA 13, MANUFACTURERS INSTALLATION INSTRUCTIONS AND RECOGNIZED INDUSTRY PRACTICES.
- INSTALL PIPING LEVEL, TAKING INTO ACCOUNT DRAINAGE REQUIREMENTS. PIPING SHALL NOT FOLLOW ROOF PITCH WHERE PITCH CHANGES.
- INSTALL PIPING PARALLEL TO WALLS AND CEILINGS AND AT HEIGHTS WHICH DO NOT OBSTRUCT WINDOWS, DOORWAYS, STAIRWAYS, OR PASSAGEWAYS. OFFSET OR REROUTE PIPING TO CLEAR INTERFERENCES WHICH DEVELOP IN THE FIELD.
- INSTALL PIPING TO CONSERVE BUILDING SPACE AND NOT INTERFERE WITH USE OF SPACE. CONCEAL PIPING WITHIN WALLS AND CHASES OR ABOVE CEILINGS.
- COORDINATION
 - COORDINATE LOCATIONS OF PIPING WITH PIPING, DUCTWORK, CONDUIT AND EQUIPMENT OF OTHER CONTRACTORS.
 - REVIEW DRAWINGS FOR EXACT LOCATION OF PIPE SPACES, CEILING HEIGHTS, CEILING GRID, LIGHT FIXTURES AND GRILLES BEFORE INSTALLING PIPING.
 - INSTALL WITH SUFFICIENT CLEARANCES FOR INSTALLATION OF OTHER CONTRACTOR'S WORK.
 - PIPING SHALL NOT OBSTRUCT SERVICE CLEARANCES REQUIRED FOR EQUIPMENT.
 - PIPING SHALL NOT BE INSTALLED BELOW OR WITHIN 45 DEG OF LIGHT EDGE.
 - DO NOT ROUTE PIPING ABOVE TRANSFORMERS, PANELBOARDS, SWITCHBOARDS OR OTHER ELECTRICAL DISTRIBUTION EQUIPMENT.
- PROVIDE PROTECTIVE SLEEVE COVERING WHERE COPPER OR STEEL PIPING IS EMBEDDED IN MASONRY OR CONCRETE.
 - PROVIDE CLEARANCE FOR ACCESS TO VALVES AND PIPING SPECIALTIES.
 - PREPARE EXPOSED PIPE, FITTINGS, SUPPORTS, AND ACCESSORIES NOT PREFINISHED, READY FOR FINISH PAINTING.
 - PIPING SYSTEM LEAK TESTS

- CONDUCT PRESSURE TEST WITH WATER. IF LEAKS ARE FOUND, REPAIR THE AREA WITH NEW MATERIALS AND REPEAT THE TEST.
- TEST PIPING IN SECTIONS OR ENTIRE SYSTEM AS REQUIRED BY SEQUENCE OF CONSTRUCTION. DO NOT CONCEAL PIPE UNTIL IT HAS BEEN SUCCESSFULLY TESTED. PROVIDE TEMPORARY RESTRAINTS AT FITTINGS OR EXPANSION JOINTS IF REQUIRED FOR THE ADDITIONAL PRESSURE LOAD UNDER TEST. ENTIRE TEST MUST BE WITNESSED BY THE DIVISION'S REPRESENTATIVE.
- USE CLEAN WATER AND REMOVE AIR FROM THE PIPING BEING TESTED WHERE POSSIBLE. MEASURE AND RECORD TEST PRESSURE AT THE HIGH POINT IN THE SYSTEM.
- TEST SYSTEM AT 175 PSI FOR 2 HOURS SHOWING NO LEAKAGE.
- ALL PRESSURE TESTS ARE TO BE DOCUMENTED ON NFPA CONTRACTOR'S MATERIAL AND TEST CERTIFICATE FORMS.

21 13 15 SPECIALTIES

- DRAIN (BALL) VALVES
 - MANUFACTURERS: NIBCO, APOLLO, CRANE, HAMMOND, WATTS.
 - NIBCO 585-70HC OR EQUIVALENT BRONZE TWO PIECE BODY, STAINLESS STEEL BALL AND TRIM, FULL PORT, LEVER HANDLE, THREADED ENDS.
 - PROVIDE DRAIN VALVES AT ALL LOW AND TRAPPED AREAS OF SYSTEM AND WHERE REQUIRED TO DRAIN RISERS. PROVIDE 3/4" HOSE CONNECTION WITH CAP AT EACH DRAIN CONNECTION.
- INSPECTOR'S TEST CONNECTION
 - NFPA 13 COMPLETE WITH TEST AND DRAIN VALVES, SIGHT GLASS, 3/4" HOSE CONNECTION, AND SMOOTH BORE CORROSION RESISTANT ORIFICE GIVING A FLOW EQUIVALENT TO ONE SPRINKLER.
 - PROVIDE INSPECTOR'S TEST CONNECTION FROM MOST REMOTE END OF SYSTEM.

21 13 17 AUTOMATIC SPRINKLER SYSTEMS

- SYSTEM DESCRIPTION
 - PROVIDE AUTOMATIC SPRINKLER SYSTEM TO PROTECT BUILDING AREA INDICATED.
 - SYSTEM DESIGN SHALL CONFORM TO SYSTEM SCHEDULE ON THE DRAWINGS, AND COMPLY WITH NFPA 13 AND REQUIREMENTS OF LOCAL AUTHORITIES HAVING JURISDICTION.
 - UL LISTED AND LABELED SYSTEM COMPONENTS RATED FOR 175 PSIG MINIMUM OPERATING PRESSURE.
 - INCLUDE INSIDE AND OUTSIDE HOSE STREAMS IN THE DESIGN OF THE HYDRAULICALLY CALCULATED SPRINKLER SYSTEMS.
 - SIMILAR COMPONENT ITEMS SHALL BE BY THE SAME MANUFACTURER.
- SPRINKLERS
 - MANUFACTURERS: VIKING, CENTRAL, TYCO.
 - SEE SCHEDULE ON PLANS.
- INSTALLATION
 - INSTALL SPRINKLER HEADS TO MISS ALL LIGHTS, GRILLES AND ANY OTHER CEILING OBSTRUCTIONS.
 - APPLY PAPER COVER OVER SPRINKLER HEADS WHERE CEILING IS TO BE PAINTED OR SPRAYED. REMOVE PROTECTIVE PAPER COVER AFTER PAINTING OR SPRAYING IS COMPLETED.
 - PROVIDE MOUNTABLE METAL BOX OF SPARE HEADS WITH PROPER WRENCH FOR HEAD REPLACEMENT.

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PROJECT INFORMATION

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PROFESSIONAL SEAL

FIRE PROTECTION
DRAWINGS ARE SCOPE IN
NATURE. FIRE PROTECTION
CONTRACTOR SHALL
SUBMIT AND STAMP FINAL
DESIGN DRAWINGS AS
REQUIRED BY AUTHORITIES
HAVING JURISDICTION.

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GENERAL NOTES:

- SEE ARCHITECTURAL PLANS FOR ADDITIONAL INFORMATION.
- PIPING SHALL BE CONCEALED WHEREVER POSSIBLE. WHERE NOT POSSIBLE, LOCATIONS AND ROUTING SHALL BE APPROVED BY ARCHITECT/OWNER PRIOR TO INSTALLATION.

INDICATES DESIGN CRITERIA DESIGNATION (SEE SCHEDULE)
INDICATES SPRINKLER DESIGNATION (SEE SCHEDULE)

PROJECT INFORMATION

PROPOSED BUILD-OUT FOR:
ASPEN DENTAL
7115 PROGRESS WAY STE TBD • GAITHERSBURG, MD 20877

PROFESSIONAL SEAL

FIRE PROTECTION DRAWINGS ARE SCOPE IN NATURE. FIRE PROTECTION CONTRACTOR SHALL SUBMIT AND STAMP FINAL DESIGN DRAWINGS AS REQUIRED BY AUTHORITIES HAVING JURISDICTION.

SHEET DATES

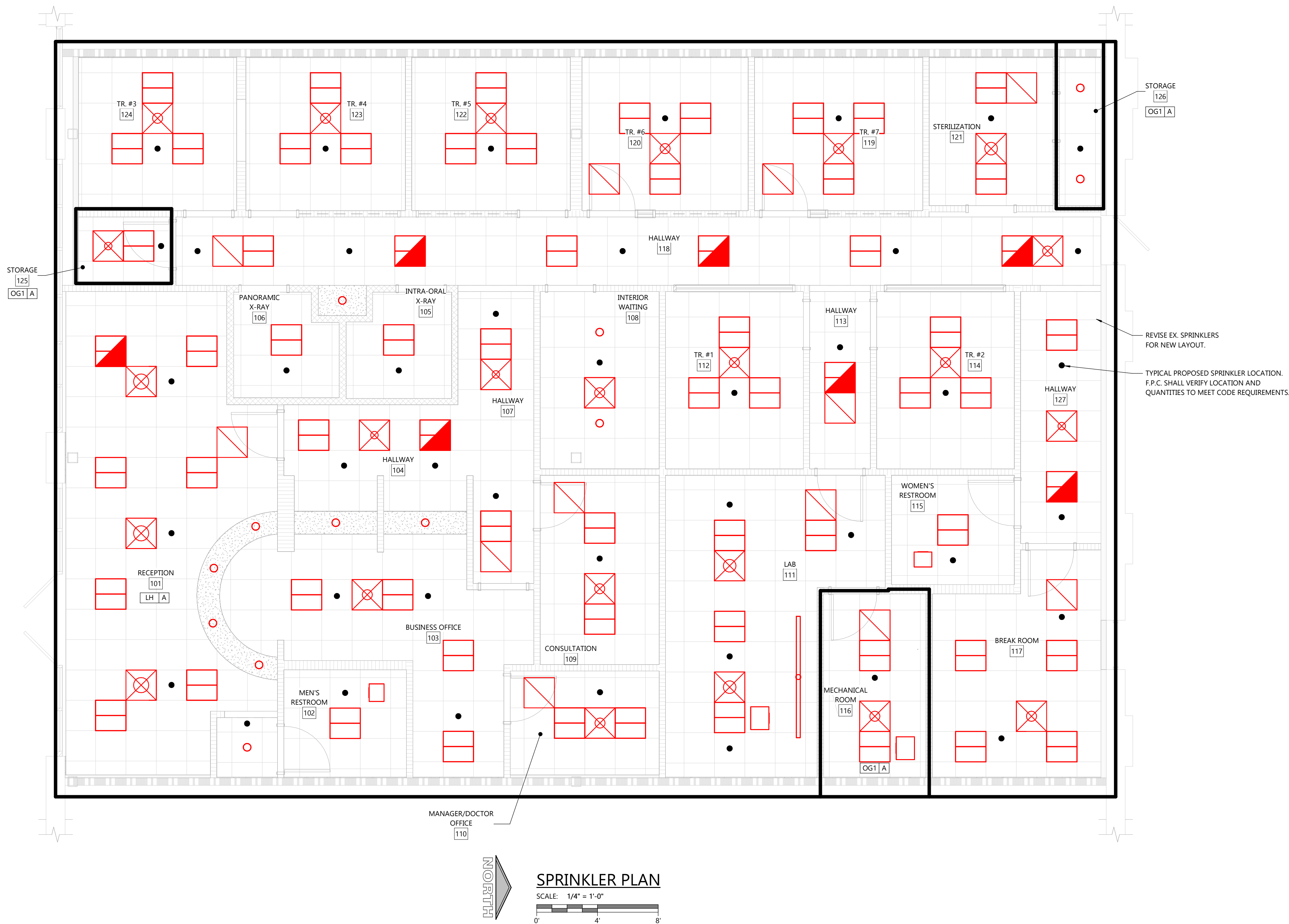
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HVAC SPECIFICATIONS

DIVISION 23 HVAC

23 05 00 BASIC HVAC REQUIREMENTS

- A. SEE DIVISION 00 PROCUREMENT AND CONTRACTING AND DIVISION 01 GENERAL REQUIREMENT FOR ADDITIONAL REQUIREMENTS.
- B. HVAC CONTRACTOR SHALL VERIFY REQUIREMENTS FOR TEMPORARY HEATING WITH GENERAL CONTRACTOR AND INCLUDE IN HIS SCOPE OF WORK WHEN DIRECTED BY G.C. INSTALL IN ACCORDANCE WITH ALL CODE AND OSHA REQUIREMENTS FOR CONSTRUCTION PROJECTS.
- C. SUBSTITUTIONS
- SEE DIVISION 01 23 00 PRODUCT SUBSTITUTION PROCEDURES FOR ADDITIONAL REQUIREMENTS.
 - CONTRACTOR SHALL PROVIDE ALL SUPPORTING DATA AND ASSUME THE BURDEN OF PROOF THAT ANY SUBSTITUTE IS EQUIVALENT AS TO APPEARANCE, CONSTRUCTION, CAPACITY, AND PERFORMANCE. THE JUDGMENT OF EQUIVALENCY SHALL BE MADE BY THE ENGINEER AT THE TIME OF SHOP DRAWING REVIEW, NOT DURING BIDDING.
 - WHERE SUBSTITUTE EQUIPMENT REQUIRES REDESIGN OF ANY PART OF THE PROJECT, THE COST OF REDESIGN AND ADDITIONAL COSTS OF THE WORK SHALL BE PAID BY THE CONTRACTOR. REDESIGN SHALL BE SUBJECT TO THE APPROVAL OF ALL AUTHORITIES HAVING JURISDICTION OVER THE WORK INCLUDING THE ARCHITECT/ENGINEER.
 - CONTRACTOR SHALL ASSUME ALL COORDINATION RESPONSIBILITIES FOR SUBSTITUTE EQUIPMENT INCLUDING COORDINATION ACROSS TRADES AND COORDINATION OF PREVIOUSLY REVIEWED AND APPROVED SHOP DRAWING SUBMITTALS. SHOULD THESE SHOP DRAWINGS BE AFFECTED BY THE SUBSTITUTE EQUIPMENT.
- D. SHOP DRAWINGS, PRODUCT DATA, TEST RESULTS, PROJECT CLOSEOUT DOCUMENTS
- SEE DIVISION 01 33 23 SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES FOR ADDITIONAL REQUIREMENTS
 - CONSTRUCTION ADMINISTRATION SUBMITTAL LIST:
 - DUCTWORK
 - DUCTWORK ACCESSORIES
 - INSULATION
 - GRILLES
 - FANS
 - ROOFTOP AIR CONDITIONING UNITS.
 - TEST AND BALANCE REPORT
 - PROJECT CLOSEOUT
 - PROVIDE HVAC EQUIPMENT OPERATING AND MAINTENANCE MANUALS TO THE OWNER PER IECC C408.1.1 AND C408.3.2.2.
 - AS-BUILT DRAWINGS SHALL BE MARKED ON A FINAL SET OF DRAWINGS WHICH INCLUDES ALL REVISIONS. DETAILS AND SCHEDULES ARE SHOWN TO AID THE CONTRACTOR AND ARE NOT MEANT TO BE INCLUSIVE OF ALL DEVICES. PROVIDE REQUIRED EQUIPMENT AND ACCESSORIES FOR A COMPLETE INSTALLATION.
 - INSTALL ALL EQUIPMENT PER MANUFACTURER'S INSTALLATION INSTRUCTIONS AND REQUIREMENTS. PROVIDE ADDITIONAL WORK AND MATERIALS AS REQUIRED.
 - COORDINATE INSTALLATION OF HVAC WORK WITH THE OTHER CONTRACTORS TO AVOID CONFLICTS WITH OTHER WORK.
 - PROVIDE ALL CUTTING AND PATCHING NECESSARY FOR HVAC WORK INSTALLATION UNLESS THIS WORK IS IDENTIFIED TO BE THE WORK OF OTHER CONTRACTORS. PATCHING SHALL MATCH ADJACENT SURFACES.
- I. PROJECT COMPLETION
- INSTALL CLEAN SET OF FILTERS IN ALL UNITS AT TIME OF TESTING AND BALANCING.
 - CLEAN GRILLES AND EQUIPMENT AND LEAVE IN PROPER WORKING CONDITION AT THE TIME OF FINAL CLEAN-UP.

23 05 13 MOTORS AND ELECTRICAL WORK

- A. MOTORS
- MANUFACTURERS: GENERAL ELECTRIC, LOUIS ALLIS, MARATHON, AND BALDOR.
 - MOTORS LESS THAN 250 WATTS: EQUIPMENT MANUFACTURER'S STANDARD AND NEED NOT CONFORM TO THESE SPECIFICATIONS.
 - OPEN DRIP-PROOF TYPE EXCEPT TOTALLY ENCLOSED FAN COOLED FOR THE FOLLOWING MOTORS:
 - EXTERIOR LOCATIONS
 - WHERE NOTED ON EQUIPMENT SCHEDULES
 - DESIGN FOR CONTINUOUS OPERATION IN 40 DEGREES C ENVIRONMENT AND FOR TEMPERATURE RISE IN ACCORDANCE WITH NEMA MG 1 LIMITS.
 - SINGLE PHASE POWER (SQUIRREL CAGE MOTORS) WITH STARTING TORQUE EXCEEDING ONE FOURTH OF FULL LOAD TORQUE AND STARTING CURRENT UP TO SIX TIMES FULL LOAD CURRENT. CLASS A (50 DEGREES C TEMPERATURE RISE); INSULATION, MINIMUM 1.0 SERVICE FACTOR, PRELUBRICATED SLEEVE OR BALL BEARINGS, AUTOMATIC RESET OVERLOAD PROTECTOR.
 - THREE PHASE POWER (SQUIRREL CAGE MOTORS) WITH STARTING TORQUE BETWEEN 1 AND 1-1/2 TIMES FULL LOAD TORQUE AND STARTING CURRENT SIX TIMES FULL LOAD CURRENT. NEMA DESIGN B MOTOR AND INSULATION SYSTEM. MINIMUM 1.15 SERVICE FACTOR FOR OPEN DRIP-PROOF MOTORS, 1.0 (MINIMUM) FOR OTHER TYPES. MINIMUM 85% NOMINAL POWER FACTOR UNDER RATED LOAD CONDITIONS. GREASE LUBRICATED ANTI-FRICTION BALL BEARINGS, RATED FOR MINIMUM AFNMA 5 L-10 LIFE OF 200,000 HOURS.
- B. STARTERS
- SEE ELECTRICAL STARTER DISCONNECT SCHEDULE ON PLANS.

23 07 00 INSULATION

- A. GENERAL
- SEE INSULATION SCHEDULES ON PLANS FOR ADDITIONAL INFORMATION.
 - INSULATION, INSULATION SYSTEM AND JACKETS SHALL MEET UL-723/ASTM E84 REQUIREMENTS OF MAX. FIRE HAZARD CLASSIFICATIONS OF 25, AND MAX. FLAME SPREAD, FUEL CONTRIBUTED, AND SMOKE DEVELOPED OF 50.
 - INSTALL MATERIALS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS AND MICA PUBLICATION "NATIONAL COMMERCIAL AND INDUSTRIAL STANDARDS", 2011 SEVENTH EDITION.
 - CONTINUE INSULATION WITHOUT INTERRUPTIONS THROUGH WALLS AND FLOOR PENETRATIONS AND HANGERS.
- B. FIBERGLASS (F.G.) INSULATION
- FLEX F.G.:
 - O.C. SOFTR DUCT WRAP, KNAUF FRIENDLY FEEL DUCT WRAP, CERTAINTED SOFTCOUCH, JOHNS MANVILLE MICROLITE EQ FSK DUCT WRAP.
 - GLASS FIBER INSULATION FACTORY LAMINATED TO FRK/PSK VAPOR RETARDER. LISTED THICKNESS IS NOMINAL.
 - 0.75 LB./CU. FT., R=3.3 / NOMINAL INCH AT 75 DEG F.
 - MAX. 250 DEG F, JACKET MAX 150 DEG F, 0.02 PERM.
- C. DUCT INSULATION REQUIREMENTS
- INSULATE FITTINGS, JOINTS, FLANGES, FLEXIBLE CONNECTIONS, DAMPERS, AND IN-LINE ACCESSORIES WITHOUT INTERNAL LINING/INSULATION WITH SAME MATERIAL AND THICKNESS AS SPECIFIED FOR THE DUCT SYSTEM. STOP AND POINT INSULATION AROUND ACCESS DOORS AND DAMPER OPERATORS TO ALLOW OPERATION WITHOUT DISTURBING WRAPPING.

23 31 13 DUCTWORK

- A. PERFORM WORK IN ACCORDANCE WITH THE LATEST EDITIONS OF SMACNA - HVAC DUCT CONSTRUCTION STANDARDS.
- B. GENERAL
- PAINT THE INSIDE OF ALL DUCTS VISIBLE THROUGH GRILLES IN ROOMS WITH CEILINGS WITH DULL BLACK PAINT.
 - CERTAIN VERTICAL AND HORIZONTAL OFFSETS ARE INDICATED IN DUCTS TO INDICATE THE GENERAL POSITION RELATIONSHIP OF THE DUCTWORK SYSTEMS. PROVIDE ADDITIONAL OFFSETS AS REQUIRED TO COORDINATE WITH THE INSTALLATION OF OTHER SYSTEMS, CEILINGS AND STRUCTURE. THE DRAWINGS SHALL NOT BE SCALED TO DETERMINE EXACT LOCATION OF DUCTWORK.
 - PROVIDE TEMPORARY CLOSURES OF METAL OR TAPED POLYETHYLENE ON OPEN DUCTWORK TO PREVENT CONSTRUCTION DUST FROM ENTERING DUCTWORK SYSTEM.
 - LOCATE DUCTS WITH SUFFICIENT SPACE AROUND EQUIPMENT TO ALLOW NORMAL OPERATING AND MAINTENANCE ACTIVITIES.
 - INCREASE DUCT SIZES GRADUALLY, NOT EXCEEDING 15 DEGREES WHENEVER POSSIBLE. 30 DEGREE MAXIMUM.
 - ROUND DUCTS MAY BE SUBSTITUTED FOR RECTANGULAR IF SIZED IN ACCORDANCE WITH ASHRAE TABLES OF EQUIVALENT RECTANGULAR AND ROUND DUCTS.
- C. ROUND DUCTWORK
- CONCEALED BRANCH DUCTWORK TO GRILLES AND DIFFUSERS MAY BE LONGITUDINAL LOCKSEAM. ALL OTHER ROUND DUCTWORK SHALL BE SPIRAL LOCKSEAM WITH FITTINGS AND COUPLINGS MINIMUM 2 GAUGES HEAVIER THAN DUCT.
- D. FLEXIBLE DUCTWORK
- MANUFACTURERS: THERMAFLEX, FLEXMASTER, CLEVALEX.
 - UL 181 LISTED CLASS 1 FACTORY FABRICATED FLEXIBLE AIR DUCT, COMPLY WITH NFPA 90A, FLAME SPREAD OF 25 OR LESS, SMOKE DEVELOPED RATING OF 50 OR LESS.
 - MINIMUM PRESSURE RANGE -1/2" TO 4" W.C., TEMPERATURE RANGE 0-200 DEG F.
 - ACOUSTIC THERMAFLEX M-KE OR G-KM, FLEXMASTER TYPE 1 OR 6
 - POLYETHYLENE, SPUNBOUND NYLON OR CHLORINATED POLYETHYLENE LINER.
 - DUCTWORK TO HAVE TESTED ACOUSTICAL PERFORMANCE NOT LESS THAN 2 DB LESS THAN THE TYPES SPECIFIED.
 - SEMI-RIGID FLEXIBLE ALUMINUM DUCTWORK NOT PERMITTED.
 - SUPPLY DUCTWORK SHALL BE INSULATED WITH FIBERGLASS INSULATION, MINIMUM R VALUE 4, WITH VAPOR BARRIER JACKET WITH MAXIMUM 0.10 PERM RATING.
 - CONNECT TO SUPPLY DUCTWORK BY SLIDING CORE OVER COLLAR, TAPE JOINT WITH MINIMUM 3 WRAPS OF TAPE, AND APPLY METAL BAND CLAMP OR PANDUIT. FOR INSULATED DUCTWORK, PULL INSULATION AND OUTER JACKET BACK INTO POSITION, AND TAPE WITH MINIMUM 3 WRAPS OF TAPE BETWEEN FLEX DUCT AND DUCT INSULATION.
 - CONNECT TO GRILLES AND RETURN AND TRANSFER DUCTWORK WITH METAL BAND CLAMP OR PANDUIT.
 - MAXIMUM LENGTH FROM DUCTWORK TO GRILLES OR SLOTS 8'-0" WITH ONE 90 DEG ELBOW.
 - DO NOT RUN THROUGH WALLS OR PARTITIONS.
- E. DUCTWORK SEALANTS
- MANUFACTURERS: HARDCAST SURE-GRIP 404 SOLVENT BASED DUCT SEALANT OR EQUIVALENT.
 - SYNTHETIC RUBBER RESIN BASE.
 - 20 TO 200 DEG F.
 - PRESSURE CLASSES UP TO 10" W.C., MEETING SEAL CLASS A.

- MAXIMUM FLAME SPREAD OF 25, SMOKE DEVELOPED OF 50.
 - APPLY MINIMUM 20-MIL THICK WET FILM AT TEMPERATURES BETWEEN 35-100 DEG F.
- HARDCAST ALUMA-GRIP 701 OR EQUIVALENT PRESSURE SENSITIVE DUCT JOINT ROLLED SEALANT MAY BE USED IN PLACE OF MASTIC. SEALANT SHALL COMPLY WITH THE FOLLOWING:
- MILL FINISH ALUMINUM SUBSTRATE WITH GRAY ADHESIVE.
 - MINIMUM 30 MIL THICK
 - MIN. 17 LB PER LINEAR INCH PEEL STRENGTH
 - MAX FLAME SPREAD OF 25, MAX SMOKE DEVELOPED OF 50 WHEN TESTED IN ACCORDANCE WITH ASTM G-53.
 - VOC: 0 G/L, COMPLIANT WITH LEE SCQM/D RULE 1168.
 - PRESSURE CLASSES UP TO 10" W.C.
- F. DUCT CLEANING
- PROTECT DUCTWORK AGAINST ENTRY OF FOREIGN MATTER DURING CONSTRUCTION. PROVIDE TEMPORARY END CAPS AND SEALS. PROVIDE TEMPORARY FILTERS OVER RETURN OR EXHAUST AIR INLETS IF DUCTWORK IS USED DURING CONSTRUCTION.
 - REMOVE ALL DIRT AND FOREIGN MATTER AND CLEAN DIFFUSERS, REGISTERS, AND GRILLES BEFORE OPERATING FANS.
- G. SEALING DUCT PENETRATIONS
- THRU NON-RATED WALLS WHERE DRYWALL, CONCRETE, OR MASONRY EXTENDS TO STRUCTURE, FILL VOID BETWEEN DUCT AND WALL WITH MINERAL WOOL AND CAULK BOTH SIDES WITH NON-HARDENING CAULK.

23 33 00 DUCTWORK ACCESSORIES

- A. GENERAL - ALL DUCT ACCESSORIES SHALL BE CONSTRUCTED OF SAME MATERIAL AS DUCTWORK BEING INSTALLED IN.
- B. TURNING VANES
- MANUFACTURERS: AERO/DYNE CO. H.E.P., HART & COOLEY, UNITED MCGILL, SEMCO.
 - RECTANGULAR DUCTWORK: AIRFLOW TURNING VANES IN ACCORDANCE WITH SMACNA FIG. 2-3 AND 2-4. VANE RADIUS AS PROVIDED BY AERO/DYNE H.E.P. OR 4-1/2 INCHES WITH A 3-1/2 INCH SPACING.
 - ROUND DUCTWORK: TWO-PIECE MITERED, MINIMUM 20 GAUGE.
- C. CONTROL DAMPER INSTALLATION
- DAMPER SECTIONS AND MULTIPLE SECTION ASSEMBLIES MUST BE COMPLETELY SQUARE AND FREE FROM RACKING, TWISTING, OR BENDING.
 - FOLLOW MANUFACTURER'S INSTRUCTIONS FOR INSTALLATION OF CONTROL DAMPERS.
 - INSTALL EXTENDED SHAFT OR JACKSHAFT PER MANUFACTURER'S INSTRUCTIONS.
 - PROVIDE A VISIBLE INDICATION OF DAMPER POSITION ON THE DRIVE SHAFT END.
 - AFTER INSTALLATION OF LOW-LEAKAGE DAMPERS WITH SEALS, CAULK BETWEEN FRAME AND DUCT OR OPENING TO PREVENT LEAKAGE AROUND PERIMETER OF DAMPER.
- D. MANUAL VOLUME DAMPERS
- MANUFACTURERS: RUSJIN, VENT PRODUCTS, UNITED MCGILL.
 - DAMPERS WITH EXTENDED SHAFTS AND QUADRANTS, OPERATOR WITH LOCKING DEVICE, POSITION INDICATOR, AND ELEVATED PLATFORM FOR EXTERNALLY INSULATED DUCTWORK.
 - EVERY SUPPLY, RETURN AND EXHAUST GRILLE SHALL HAVE EITHER A VOLUME DAMPER IN THE BRANCH DUCT OR AT THE GRILLE WHERE SHOWN. IF ONE IS NOT SHOWN, CONTRACTOR SHALL PROVIDE VOLUME DAMPER IN DUCT IF DUCT IS ACCESSIBLE. OTHERWISE AT THE GRILLE.
 - RECTANGULAR DAMPERS WHICH DO NOT EXCEED 12" HIGH OR 36" WIDE: BUTTERFLY DAMPER, MINIMUM 22 GAUGE. SHAFT ALONG ENTIRE LENGTH OF DAMPER FOR DAMPERS EXCEEDING 18" IN WIDTH.
 - RECTANGULAR DAMPERS GREATER THAN 12" HIGH OR 36" WIDE: MULTI-BLADE DAMPER WITH CONNECTING LINKAGE TO CONTROL FROM A SINGLE POINT. BLADES MINIMUM 16 GAUGE WITH OPPOSED BLADE ACTION.
 - ROUND DAMPERS: MINIMUM 20 GAUGE BUTTERFLY DAMPER.
- E. TAKE-OFF FITTINGS
- MANUFACTURERS: FLEXMASTER, UNITED MCGILL.
 - ROUND BRANCH TAKE-OFFS TO MULTIPLE GRILLES SHALL BE CONICAL.
 - RECTANGULAR BRANCH TAKE-OFFS TO MULTIPLE GRILLES SHALL BE PER DUCT FITTING DETAIL ON PLANS.
 - ROUND TAKE-OFFS TO INDIVIDUAL GRILLES AND SLOT DIFFUSERS: ONE PIECE SPIN-IN WITH INTEGRAL FACTORY INSTALLED LOCKING TYPE BALANCING DAMPERS.
- F. DUCT ACCESS DOORS
- MANUFACTURERS: CESCO, FLEXMASTER, VENT PRODUCTS, KEES, UNITED MCGILL, SEMCO, DUCTMATE.
 - HINGE, LATCHES, HANDLES, AND RUBBER GASKET IN FRAME. 1" INSULATED DOUBLE WALL CONSTRUCTION FOR DOORS IN LINED OR EXTERNALLY INSULATED DUCTWORK. ATTACHMENT CABLES FOR SPIN-IN UNITS. DOOR SUITABLE FOR DUCT STATIC PRESSURE CLASS.
 - DOOR SIZE 2" LESS THAN THE WIDTH OF THE DUCT (MAX. DOOR SIZE 24"X 24" (24" DIA).
 - ROUND DUCTWORK: 16 GAUGE ROLLED SHEET METAL HINGED ACCESS DOOR WITH BUCKLE LOCKS.
 - PROVIDE AT:
 - MOTOR OPERATED AND BACKDRAFT DAMPERS
 - UPSTREAM SIDE OF TURNING VANES IN RETURN AND EXHAUST DUCTWORK
 - AT ANY DEVICE IN THE DUCT WHICH REQUIRES MAINTENANCE, SERVICE OR CLEANING.
 - USE HINGED ACCESS DOORS WHERE POSSIBLE. USE CAM OPERATED REMOVABLE DOORS WHERE SPACE PREVENTS THE OPENING OF A HINGED MODEL.
- G. FLEXIBLE CONNECTIONS
- MANUFACTURERS: VENTFABRICS, DURO-DYNE.
 - MATERIAL, BOLTED SECURELY TO THE EQUIPMENT AND CONNECTING DUCTWORK WITH #16 GAUGE GALVANIZED IRON BAND (LOOP) CLAMPS BOLTED TIGHT TO MAKE AN AIRTIGHT CONNECTION. MINIMUM 6" WIDE.
 - PROVIDE AT INLET AND OUTLET OF ALL ROOFTOP UNITS AND FANS IN ACCORDANCE WITH SMACNA FIGURE 2-19.
 - CONVENTIONAL INTERIOR: VENTGLAS, -20 TO 200 DEG F, 30 OZ. PER SQUARE YARD GLASS FABRIC DOUBLE COATED WITH NEOPRENE, UL 214 APPROVED.
- H. BACKDRAFT DAMPERS
- MANUFACTURERS: RUSJIN, VENT PRODUCTS.
 - ALUMINUM FRAME AND BLADE CONSTRUCTION WITH BLADE AND EDGE SEALS. LEAKAGE LESS THAN 12 CFM PER SQ. FT. AT 1/2" W.G., COUNTERBALANCE TO OPEN AT APPROXIMATELY 1/8" STATIC PRESSURE.

23 90 00 TEMPERATURE CONTROLS

- A. ALL PRODUCTS USED IN THIS INSTALLATION SHALL BE NEW, CURRENTLY UNDER MANUFACTURE, AND SHALL BE APPLIED IN STANDARD OFF THE SHELF PRODUCTS. THIS INSTALLATION SHALL NOT BE USED AS A TEST SITE FOR ANY NEW PRODUCTS UNLESS EXPLICITLY APPROVED BY THE ENGINEER IN WRITING. SPARE PARTS SHALL BE AVAILABLE FOR AT LEAST 5 YEARS AFTER COMPLETION OF THIS CONTRACT.
- B. ELECTRICAL COMPONENTS, DEVICES, AND ACCESSORIES: LISTED AND LABELED AS DEFINED IN NFPA 70, ARTICLE 100, BY A TESTING AGENCY ACCEPTABLE TO AUTHORITIES HAVING JURISDICTION, AND MARKED FOR INTENDED USE.
- C. LABOR AND MATERIALS FOR THE CONTROL SYSTEM SPECIFIED SHALL BE WARRANTED FREE FROM DEFECTS FOR A PERIOD OF 12 MONTHS AFTER FINAL COMPLETION AND ACCEPTANCE. CONTROL SYSTEM FAILURES DURING THE WARRANTY PERIOD SHALL BE ADJUSTED, REPAIRED, OR REPLACED AT NO ADDITIONAL COST OR REDUCTION IN SERVICE TO THE OWNER.
- D. POWER SUPPLIES: UL LISTED TRANSFORMERS WITH CLASS 2 CURRENT-LIMITING TYPE OR OVERCURRENT PROTECTION; LIMIT CONNECTED LOADS TO 80 PERCENT OF RATED CAPACITY. DC POWER SUPPLY SHALL MATCH OUTPUT CURRENT AND VOLTAGE REQUIREMENTS AND BE FULL-WAVE RECTIFIER TYPE.
- E. POWER LINE FILTERING: INTERNAL OR EXTERNAL TRANSIENT VOLTAGE AND SURGE SUPPRESSION.
- F. THERMOSTAT INSTALLATION
- INSTALL ALL THERMOSTATS IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
 - ROOM THERMOSTATS SHALL BE INSTALLED ON CONCEALED JUNCTION BOXES PROPERLY SUPPORTED BY THE WALL. FRAMING WITH CONDUIT STUB TO ABOVE THE CEILING.
 - COORDINATE LOCATION OF THERMOSTATS WITH PLANS AND ROOM DETAILS BEFORE INSTALLATION.
 - ALL WIRES ATTACHED TO THERMOSTAT SHALL BE AIR SEALED IN THEIR RACEWAYS OR IN THE WALL TO STOP AIR TRANSMITTED FROM OTHER AREAS AFFECTING SENSOR READINGS.
- G. ELECTRICAL WIRING AND CONNECTION INSTALLATION
- ALL CONTROL AND INTERLOCK WIRING SHALL COMPLY WITH NATIONAL AND LOCAL ELECTRICAL CODES AND ELECTRICAL SPECIFICATION. WHERE THE REQUIREMENTS OF THIS SECTION DIFFER WITH THOSE IN THE ELECTRICAL SPECIFICATIONS, THE MORE STRINGENT REQUIREMENTS SHALL TAKE PRECEDENCE.
 - ALL NEC CLASS 1 (LINE VOLTAGE) WIRING SHALL BE UL LISTED IN APPROVED RACEWAY PER NEC AND ELECTRICAL SPECIFICATIONS.
 - SEE ELECTRICAL SPECIFICATIONS FOR CONDUIT REQUIREMENTS.
 - ALL LOW-VOLTAGE WIRING SHALL MEET CLASS 2 REQUIREMENTS. (LOW-VOLTAGE POWER CIRCUITS SHALL BE SUB-FUSED WHEN REQUIRED TO MEET CLASS 2 CURRENT-LIMIT).
 - ALL WIRING IN MECHANICAL, ELECTRICAL, OR SERVICE ROOMS AND WHERE SUBJECT TO DAMAGE SHALL BE INSTALLED IN RACEWAY.
 - WHERE NEC CLASS 2 (CURRENT-LIMITED) WIRES ARE IN CONCEALED AND ACCESSIBLE LOCATIONS, APPROVED CABLES NOT IN RACEWAYS MAY BE USED PROVIDED THAT CABLES ARE UL LISTED FOR THE INTENDED APPLICATION. DO NOT INSTALL CLASS 2 WIRING IN RACEWAY, BOXES AND PANELS CONTAINING CLASS 1 WIRING.
 - SUPPORT CABLES AND RACEWAYS FROM STRUCTURAL MEMBERS. CABLES AND RACEWAYS SHALL NOT BE SUPPORTED BY DUCTWORK, ELECTRICAL RACEWAYS, PIPING, OR CEILING SUSPENSION SYSTEMS. SECURE AND SUPPORT CABLE AT INTERVALS NOT EXCEEDING 30 INCHES AND NOT MORE THAN 6 INCHES FROM CABINETS, BOXES, FITTINGS, OUTLETS, RACKS, FRAMES, AND TERMINALS.
 - INSTALL WIRING IN SLEEVES WHERE IT PASSES THROUGH WALLS AND FLOORS. MAINTAIN FIRE RATING AT ALL PENETRATIONS.
 - SIZE OF WIRE AND RACEWAY SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR, AND BE PER THE MANUFACTURER'S RECOMMENDATION AND NEC REQUIREMENTS.
 - FLEXIBLE METAL RACEWAYS ARE NOT PERMITTED OVER 6 FEET.

23 90 10 SEQUENCE OF OPERATION

- A. ROOFTOP AIR CONDITIONING UNITS
- PROVIDE A HONEYWELL VISION PRO TH8320R1003 SEVEN DAY PROGRAMMABLE HEATING/COOLING THERMOSTAT CAPABLE OF 2 STAGES OF HEATING AND 2 STAGES OF COOLING (CONVENTIONAL), WITH ECONOMIZER/TIME OF DAY OUTPUT.
 - SET FAN SETTING TO "ON" FOR FAN TO RUN CONTINUOUSLY IN OCCUPIED PERIODS, AND TO RUN WITH EQUIPMENT OPERATION DURING UNOCCUPIED PERIODS.

- SET INSTALLER SETUP NUMBERS TO MATCH INSTALLED SYSTEM IN ADDITION TO THE FOLLOWING (CONTACT ENGINEER WITH ANY QUESTIONS REGARDING ANY SETUP NUMBERS):
 - 101 APPLICATION: COMMERCIAL
 - 306 EXTENDED FAN RUN TIME IN HEAT: 60 SECONDS.
- ECONOMIZER PACKAGE PROVIDED WITH ROOFTOP UNIT. MONITOR FAULT DETECTION AND DIAGNOSTICS SYSTEM FOR FAULTS.
- MOUNT AND WIRE ALL CONTROL WIRING ASSOCIATED WITH THE ROOFTOP AND PROVIDE ANY ADDITIONAL DEVICES NECESSARY FOR A COMPLETE OPERATIONAL SYSTEM.

23 95 00 TESTING, ADJUSTING AND BALANCING

- A. QUALITY ASSURANCE
- PERFORM TOTAL SYSTEM BALANCE IN ACCORDANCE WITH AABC NATIONAL STANDARDS FOR FIELD MEASUREMENT AND INSTRUMENTATION, TOTAL SYSTEM BALANCE OR NEBB PROCEDURAL STANDARDS FOR TESTING, BALANCING AND ADJUSTING OF ENVIRONMENTAL SYSTEMS, AND ASHRAE STANDARD 111.
 - THE TESTING, ADJUSTING AND BALANCING (TAB) CONTRACTOR SHALL BE AN INDEPENDENT COMPANY SPECIALIZING IN THE TESTING, ADJUSTING, AND BALANCING OF SYSTEMS WITH MINIMUM THREE YEARS EXPERIENCE AND NOT ASSOCIATED WITH THE SUPPLIERS OF EQUIPMENT OR THE INSTALLING CONTRACTOR.
 - PERFORM WORK UNDER SUPERVISION OF AABC CERTIFIED TEST AND BALANCE ENGINEER OR NEBB CERTIFIED TESTING, BALANCING AND ADJUSTING SUPERVISOR.
- B. SUBMITTALS
- CONTRACTOR SHALL SUBMIT THE FINAL TESTING AND BALANCING REPORT PRIOR TO PROJECT COMPLETION AND IN ADVANCE OF DATE OF OCCUPANCY. SUBMIT REPORTS ON AABC NATIONAL STANDARDS FOR TOTAL SYSTEM BALANCE OR NEBB FORMS.
 - SUBMIT THE DESIGN AND ACTUAL DATA FOR EACH SCHEDULED PIECE OF EQUIPMENT: MODEL, SUPPLY, RETURN, AND OUTSIDE AIR FLOWS; STATIC PRESSURE PROFILES OF AIR HANDLING UNIT COMPONENTS AND ALL FANS; FAN RPM, BHP, AMPERAGE; FAN AND MOTOR SHEAVE, DIAMETER, BORE AND MAKE; BELT SIZE AND QUANTITY; MOTOR SHEAVE CENTER LINE AND OPERATOR DISTANCE; ROOM AIR FLOW.
- C. INSTALLATION TOLERANCES
- AIR HANDLING SYSTEMS: ADJUST SUPPLY SYSTEMS TO WITHIN PLUS OR MINUS 5 PERCENT OF DESIGN AND RETURN AND EXHAUST SYSTEMS TO PLUS OR MINUS 10 PERCENT OF DESIGN.
 - AIR OUTLETS AND INLETS: ADJUST TOTAL AIR FLOW TO SPACE TO WITHIN PLUS 10 PERCENT AND MINUS 5 PERCENT OF DESIGN.
 - ADJUST OUTLETS AND INLETS IN SPACE TO WITHIN PLUS OR MINUS 10 PERCENT OF DESIGN.
- D. AIR SYSTEM BALANCE
- VARY TOTAL SYSTEM AIR QUANTITIES BY ADJUSTING FAN SPEEDS. VARY BRANCH AIR QUANTITIES BY DAMPER REGULATION.
 - ADJUST SETTINGS ON DIRECT DRIVE FANS WITH ECM MOTORS AS REQUIRED TO ACHIEVE DESIGN AIRFLOW.
 - ADJUST OUTSIDE AIR, RETURN AIR, AND EXHAUST AIR AUTOMATIC DAMPERS FOR DESIGN CONDITIONS.
 - TEST AIR HANDLING UNITS AT MINIMUM AND 100% OUTSIDE AIR.
- E. FANS WITH FIXED MOTOR SHEAVES - TEST THE FAN EQUIPMENT. IF THE DESIGN CONDITIONS ARE NOT OBTAINED, CALCULATE THE FINAL FIXED MOTOR SHEAVE AND/OR BELTS REQUIRED TO OBTAIN DESIGN CONDITIONS. HEATING CONTRACTOR SHALL OBTAIN THE FINAL FIXED MOTOR SHEAVE AND BELT(S) FROM THE FAN MANUFACTURER AND TURN THEM OVER TO THE TAB CONTRACTOR FOR INSTALLATION.

LEGEND

NOTE: ALL SYMBOLS SHOWN MAY NOT APPEAR ON DRAWINGS.

SYM.	ABBR.	IDENTIFICATION	SYM.	ABBR.	IDENTIFICATION
		DUCT (RISE/DROP)			SA OR OA DUCT DOWN OR AWAY
		RADIUS ELBOW			EA DUCT DOWN OR AWAY
		SQUARE ELBOW WITH TURNING VANES			RA DUCT DOWN OR AWAY
		SQUARE ELBOW WITHOUT TURNING VANES		VD	VOLUME DAMPER
		SQUARE OR RECTANGULAR BRANCH TAKEOFF		BDD	BACKDRAFT DAMPER
		RECTANGULAR TO ROUND TAKEOFF		MOD	MOTOR OPERATED DAMPER
		TEE WITH TURNING VANES		DSD	DUCT SMOKE DETECTOR
		ROUND TO ROUND CONICAL TAKEOFF		FD	FIRE DAMPER
		ECCENTRIC TRANSITION		SD	SMOKE DAMPER
		CONCENTRIC TRANSITION		FSD	FIRE/SMOKE DAMPER
		SQUARE TO ROUND TRANS.		SG	SUPPLY GRILLE
		DUCT CAP		EG, RG, TG	(EX)HAUST / (R)ETURN / (T)RANSFER GRILLE
		ALD ACOUSTICALLY LINED DUCT		UCD	UNDERCUT DOOR (BY GC)
		SA SUPPLY AIR DUCT UP		DTG (D.F.)	DTG DOOR TRANSFER GRILLE
		OA OUTSIDE AIR DUCT UP		FC	FLEXIBLE CONNECTION
		RA RETURN AIR DUCT UP		AD	ACCESS DOOR
		EA EXHAUST AIR DUCT UP			
MISCELLANEOUS AND CONTROLS					
		DETAIL OR SECTION NUMBER SHEET NUMBER			STATIC PRESS. SENSOR
		HUMIDISTAT / HUMID. SENSOR			SLAB TEMPERATURE SENSOR
		THERMOSTAT / TEMP. SENSOR			COMBINATION STARTER
		VFD VARIABLE FREQUENCY DRIVE			MANUAL STARTER
		AFF ABOVE FINISHED FLOOR			OC ON CENTER
		AFG ABOVE FINISHED GRADE			PC PLUMBING CONTRACTOR
		AP ACCESS PANEL			RAO RETURN AIR OPENING
		BJ BETWEEN JOISTS			TAO TRANSFER AIR OPENING
		BOD BOTTOM OF DUCT			EAO EXHAUST AIR OPENING
		BOG BOTTOM OF GRILLE			TCC TEMPERATURE CONTROL CONTRACTOR
		EC ELECTRICAL CONTRACTOR			TCP TEMPERATURE CONTROL PANEL
		GC GENERAL CONTRACTOR / CONSTRUCTION MANAGER			TJ THRU JOISTS
		HC HVAC CONTRACTOR			TYP. TYPICAL
		IMP INSULATED METAL PANEL			TTS TIGHT TO STRUCTURE
		NIC NOT IN CONTRACT			TV TURNING VANES
		NTS NOT TO SCALE			WWM WELDED WIRE MESH
PIPING					
		SHUTOFF VALVE			PRV PRESS. REDUCING VALVE
		BALANCE VALVE			SRV SAFETY RELIEF VALVE
		CHECK VALVE			STEAM TRAP
		COMBINATION VALVE			ANCHOR
		STRAINER			GUIDE
		DRAIN VALVE			PIPING BOTTOM TAKE-OFF
		GLOBE VALVE			PIPING TOP TAKE-OFF
		THERMOMETER			PIPE DOWN OR AWAY
		PG PRESSURE GAUGE			PIPE UP
		GAUGE COCK			PIPING CAP
		TCV TEMP. CONTROL VALVE			UNION/FLANGE
		TEST CONNECTION			PIPE PITCH DOWN
		MAV MANUAL AIR VENT			CONCENTRIC REDUCER
		FM FLOW METER			ECCENTRIC REDUCER
		FLOW CONTROL / SHUTOFF VALVE			FC FLEXIBLE CONNECTION
		FLOW CONTROL VALVE			BF BLIND FLANGE
		GEO-S/GEO-R GEOTHERMAL SUPPLY/RETURN			HWS/HWR HOT WATER SUPPLY/RETURN
		CTS/CTR COOLING TOWER WATER SUPPLY/RETURN			GS/GR GLYCOL SUPPLY/RETURN
		MU MAKEUP WATER			RWS/RWR RADIANT WATER SUPPLY/RETURN
		LPS/LPC LOW PRESSURE STEAM/CONDENSATE			SMS/SMR SNOW MELT SUPPLY/RETURN
		HPS/HPC HIGH PRESSURE STEAM/CONDENSATE			FOS/FOR FUEL OIL SUPPLY/RETURN
		PC PUMPED CONDENSATE			BF BOILER FEED
		G/LP NATURAL GAS/LP GAS			CF CHEMICAL FEED
		D DRAIN			CA COMPRESSED AIR
		CHWS/CHWR CHILLED WATER SUPPLY/RETURN			V VENT
FIRE RATED WALLS					
		FIRE - 1 HOUR			FIRE - 3 HOUR
		FIRE - 2 HOUR			FIRE - 4 HOUR

HVAC LEGEND AND SPECIFICATIONS

Always a Better Plan

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COLLABORATION

AspenDental

PROJECT INFORMATION

PROPOSED BUILD-OUT FOR:
ASPEN DENTAL
715 PROGRESS WAY STE 1BD • GAITHERSBURG, MD 20877

PROFESSIONAL SEAL

SHEET DATES

SHEET ISSUE JULY 21, 2026

REVISIONS

JOB NUMBER

260222300

SHEET NUMBER

H0.1



Always a Better Plan

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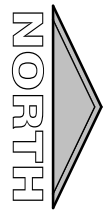
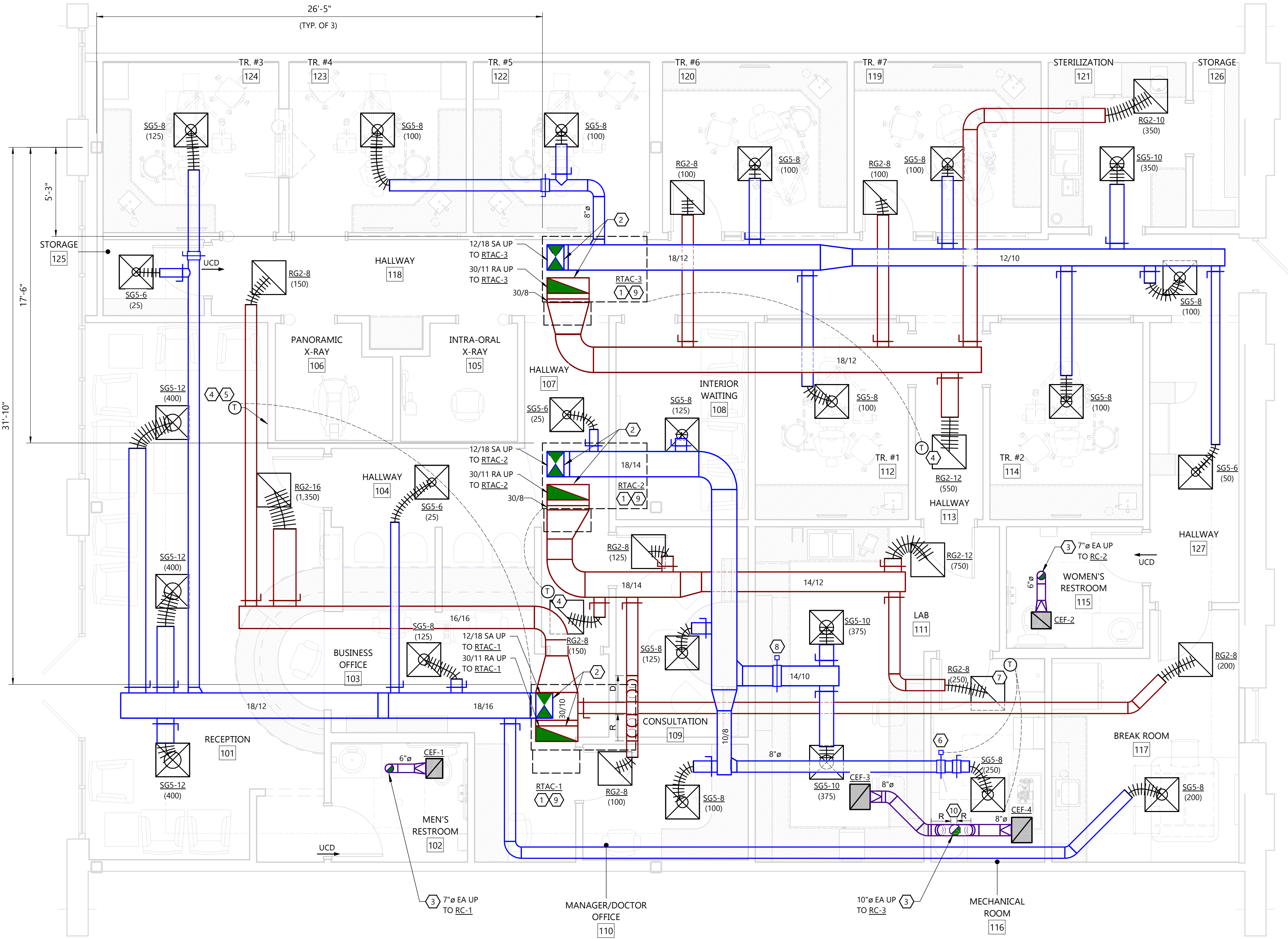
H1.1

GENERAL NOTES

- MAKE TRANSITION FROM DUCTWORK SIZES SHOWN ON THE DRAWINGS TO EQUIPMENT DUCT CONNECTION SIZES. VERIFY EQUIPMENT CONNECTION SIZES IN THE FIELD. ACTUAL EQUIPMENT SIZES SHALL TAKE PRECEDENCE OVER SIZES SHOWN ON PLANS.
- IF DUCT SYSTEMS ARE USED FOR TEMPORARY HEAT, PROVIDE TEMPORARY FILTERS AT RETURN AIR OPENINGS AND INSTALL FILTERS IN THE UNITS EQUIVALENT TO THE EFFICIENCY OF THE SPECIFIED FILTERS FOR THE UNIT. IF PROPER EFFICIENCY FILTERS ARE NOT INSTALLED IN UNIT, UNIT AND ALL DUCTWORK DOWNSTREAM OF UNIT SHALL BE CLEANED BEFORE TEST AND BALANCE.
- COORDINATE GRILLE LOCATIONS WITH FINAL REFLECTED CEILING PLAN AND CORRESPONDING LIGHTING CONFIGURATION.
- BALANCE REPORT REQUIRED FOR FINAL APPROVAL. SEE SECTION 23 95 00 TESTING, ADJUSTING, AND BALANCING SPECIFICATIONS ON SHEET H0.1 FOR DETAILS.

KEYNOTES

- 1 ROOF TOP UNIT FOR NEW TENANT CONSTRUCTION. SEE RTAC SCHEDULE ON SHEET H4.0 & T2.0 FOR RESPONSIBILITY OF INSTALLATION.
- 2 TRANSITION FROM RTAC SUPPLY AND RETURN DUCT SIZES TO SIZE SHOWN ON PLAN. TRANSITION SIZE IN VERTICAL IF TRANSITION CAN MEET SPECIFICATIONS, OTHERWISE TRANSITION AFTER ELBOW. PROVIDE TURNING VANES IN DUCT ELBOWS OR TEES.
- 3 COORDINATE BUILDING PENETRATION WITH LANDLORD. PROVIDE GRAVITY BACK DRAFT DAMPER BELOW ROOF DECK. EXHAUST OUTLET LOCATION MUST BE AT LEAST 10'-0" AWAY FROM ANY OUTSIDE AIR INTAKE.
- 4 MOUNT PROGRAMMABLE THERMOSTAT AT 48" A.F.F. IN LOCATIONS AS SHOWN, UNLESS LOCAL CODE AUTHORITY WILL ALLOW A MOUNTING HEIGHT OF 60" A.F.F. THERMOSTATS SHALL BE HONEYWELL VISION PRO 8000 SERIES PROGRAMMABLE THERMOSTAT.
- 5 PROVIDE A LOCKING COVER MODEL #CG511A1000 FOR THE THERMOSTAT LOCATED IN THE RECEPTION AREA. TURN OVER LOCKBOX KEYS TO ASPEN DENTAL MANAGEMENT UPON JOB COMPLETION.
- 6 MOTOR OPERATED DAMPER WITH 120V, 2 POSITION SPRING RETURN, NORMALLY OPEN DAMPER ACTUATOR TO SERVE MECHANICAL ROOM. DAMPER: "GREENHECK" MODEL VCDR-53 OR EQUIVALENT ACTUATOR: "BELIMO" MODEL TFB120 OR EQUIVALENT
- 7 HONEYWELL MODEL T651A OR EQUIVALENT REVERSE ACTING THERMOSTAT FURNISHED BY HVAC CONTRACTOR. CONDUIT AND WIRING PROVIDED BY ELECTRICAL CONTRACTOR. REFER TO SHEET E1.1P. TURN ON FAN AND CLOSE MECHANICAL ROOM MOTOR OPERATED DAMPER ON A RISE IN SPACE TEMPERATURE ABOVE SETPOINT. MOUNT THERMOSTAT AT 48" A.F.F. IN LOCATION AS SHOWN, UNLESS LOCAL CODE AUTHORITY WILL ALLOW A MOUNTING HEIGHT OF 60" A.F.F.
- 8 MOTOR OPERATED DAMPER WITH 120V, 2 POSITION, SPRING RETURN, NORMALLY OPEN DAMPER ACTUATOR WIRED TO WALL SWITCH BY E.C. TO CLOSE DAMPER WHEN SWITCH IS "ON" DAMPER: "GREENHECK" MODEL VCDR-53 OR EQUIVALENT ACTUATOR: "BELIMO" MODEL TFB120 OR EQUIVALENT
- 9 CONTRACTOR SHALL PROVIDE INTEGRAL WATER-LEVEL MONITORING DEVICE IN THE PRIMARY DRAIN PAN TO SHUT OFF THE EQUIPMENT PER IMC 307.2.3.1.
- 10 EXHAUST AIR DUCT UP AT 45 DEG. INTO EXHAUST AIR DUCT UP TO ROOF CAP.

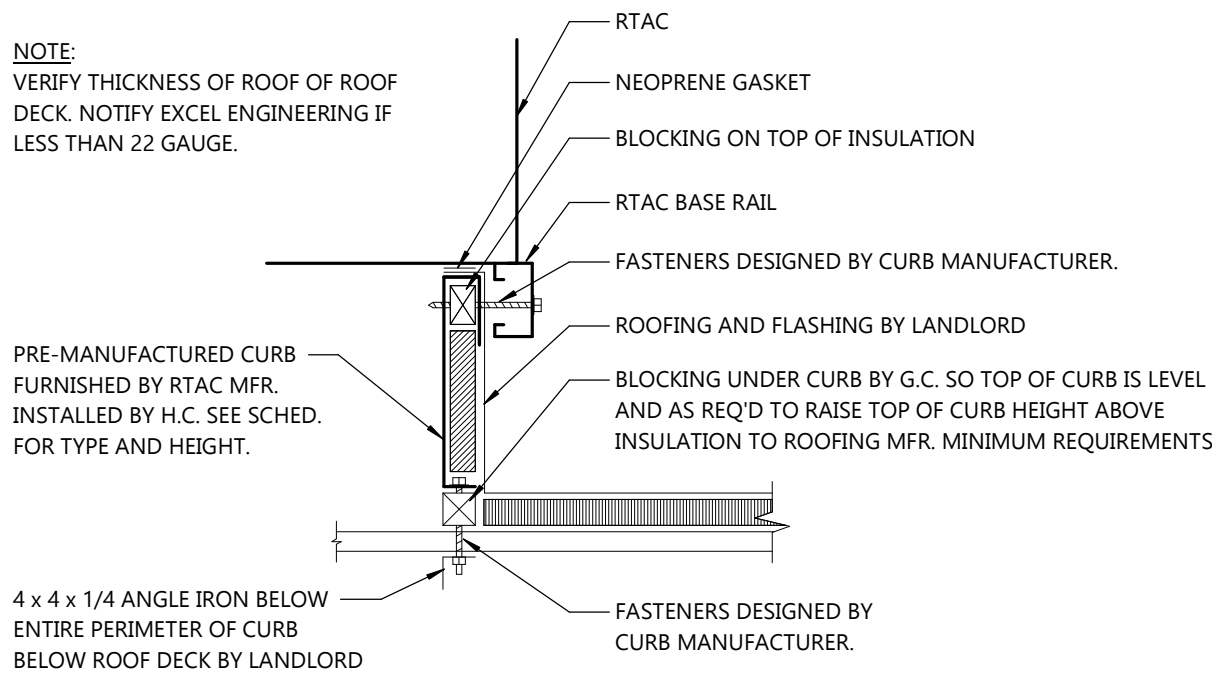


FIRST FLOOR PLAN

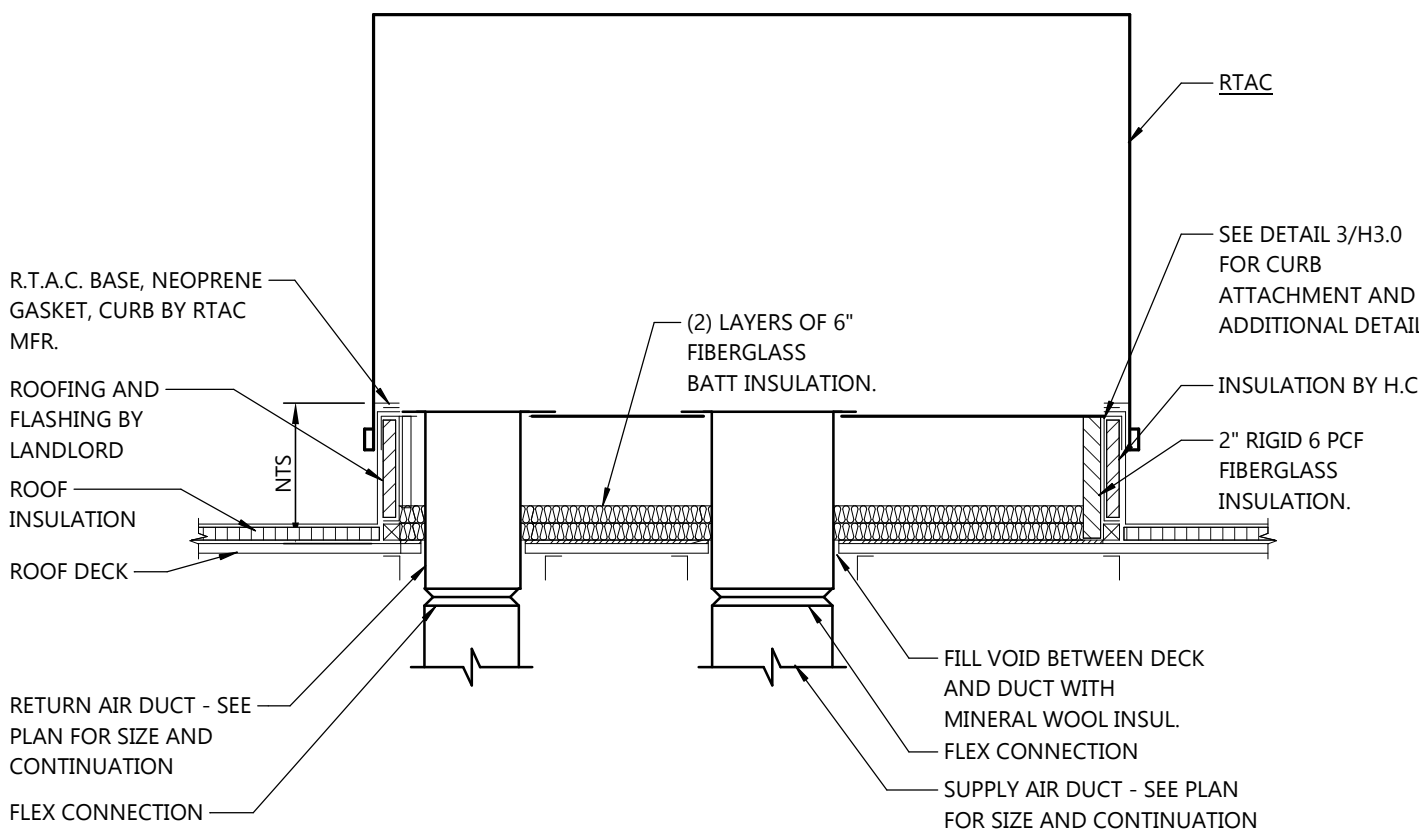
SCALE: 1/4" = 1'-0"



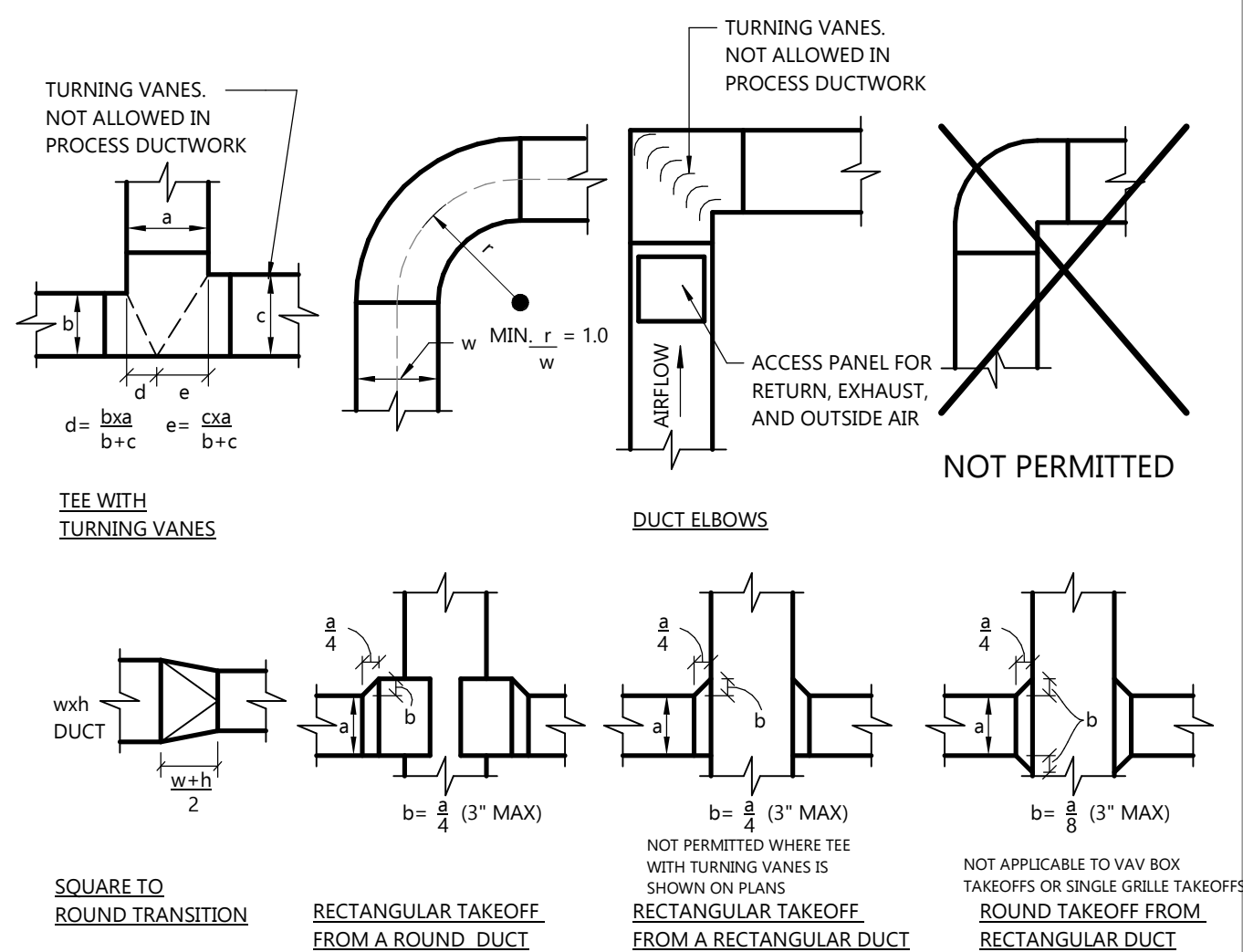
HVAC FIRST FLOOR PLAN



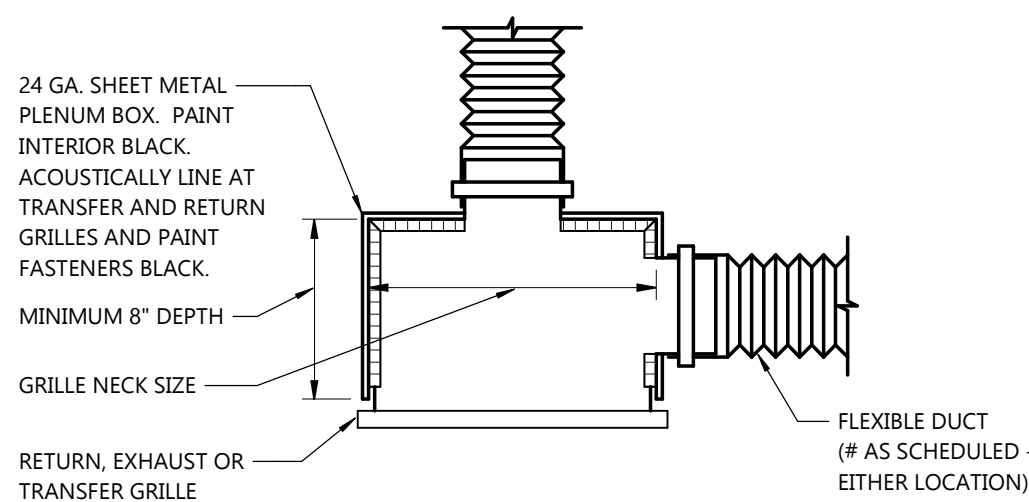
3 RTAC AND CURB ATTACHMENT DETAIL
H3.0 NOT TO SCALE



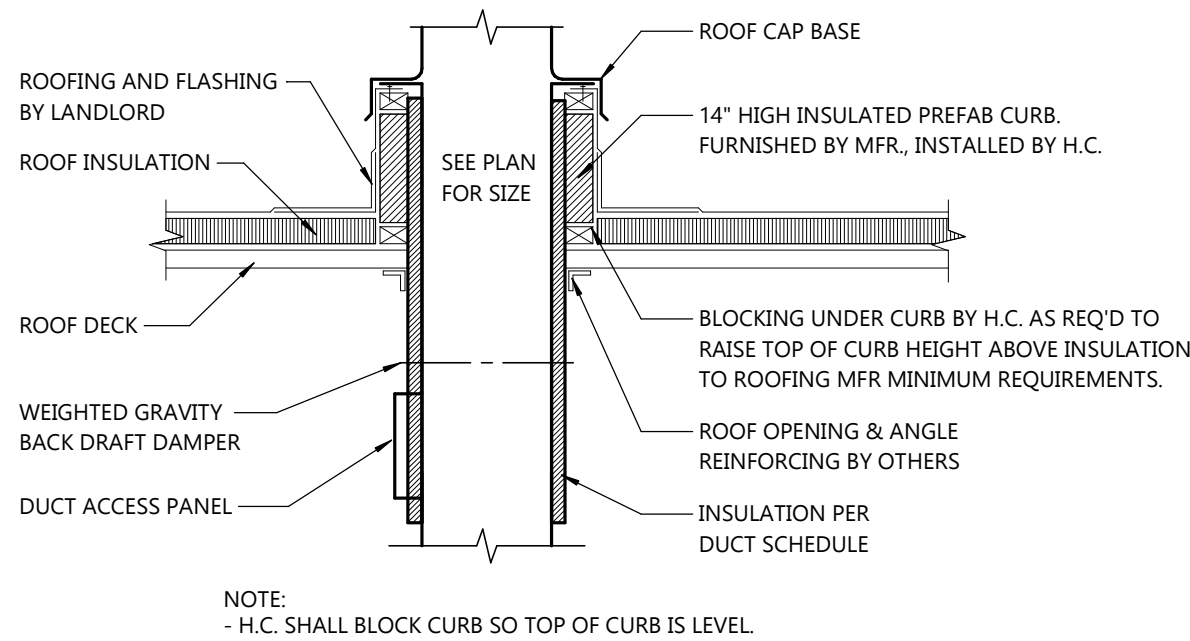
2 TYPICAL RTAC AND CURB DETAIL
H3.0 NOT TO SCALE



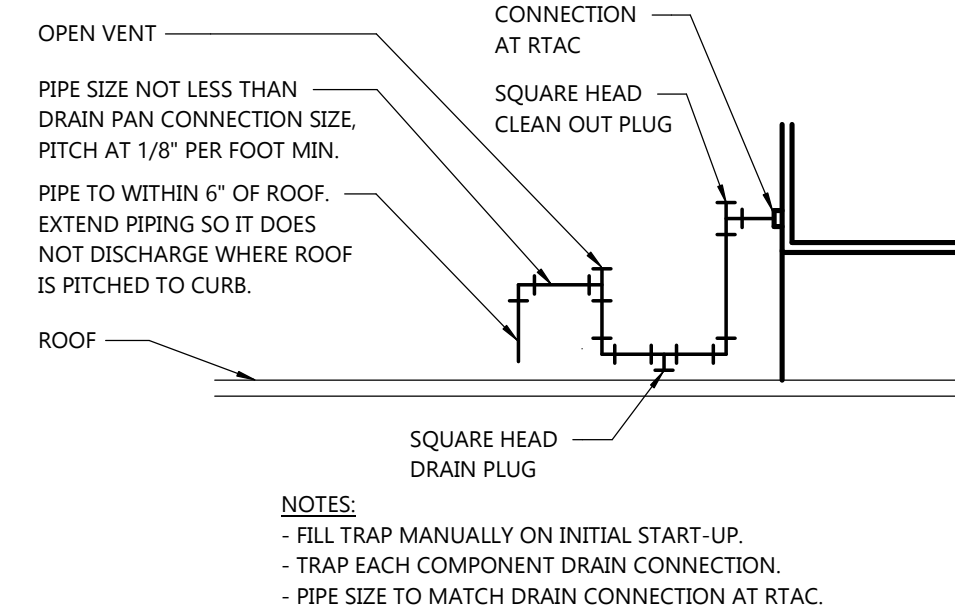
1 DUCT FITTING DETAILS
H3.0 NOT TO SCALE



6 GRILLE PLENUM BOX DETAIL
H3.0 NOT TO SCALE



5 ROOF CAP AND CURB DETAIL
H3.0 NOT TO SCALE



4 RTAC CONDENSATE DRAIN TRAP PIPING DETAIL
H3.0 NOT TO SCALE

UNITS WITH COVER PLATE IN BASEPAN

Step 1 — Mount the Cover Plate

The cover plate is located in the compressor compartment of the unit, directly below the control box (see Fig. 1). Remove the blank cover plate from the unit. Discard the blank cover plate but reserve the screws. Depending on the number of connectors required, select either the (3) hole or the (4) hole cover plate. Adhere the gasket to the underside of the selected cover plate. Attach the desired bulkhead connectors to the cover plate (see Table 3) and then, using the reserved screws, attach the cover plate with the bulkhead connectors to the opening in the basepan.

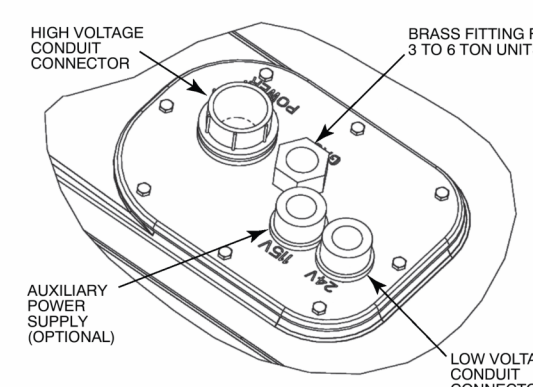


Fig. 1 — Thru-Base Gas Connection Fittings (Four Hole Cover Plate Shown)

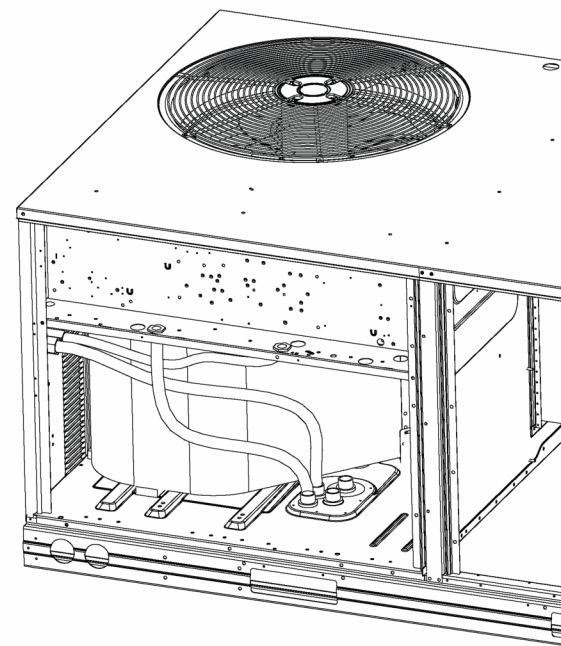


Fig. 2 — Typical Conduit Installation

Table 3 — Hole Size Requirements		
COUPLING SIZE	USAGE	REQUIRED HOLE SIZE (MAX. PRE-PUNCHED)
1/2-in.	24-v control wiring	7/8-in. (22.2 mm)
1/2-in.	115-v accessory wiring	7/8-in. (22.2 mm)
3/4-in.	High-voltage power wiring and accessory convenience outlet wiring (5 to 6 ton units)	1 1/8-in. (29.0 mm)
1/2-in. NPT	Gas line	1 1/8-in. (29.0mm)

Step 2 — Run Wiring and Connect Conduit

IMPORTANT: Liquid-tight conduit must be used on outdoor appliances.

NOTE:
-CAP AND SEAL ANY UNUSED FITTINGS.

7 THRU-BASE CONNECTION DETAIL
H3.0 NOT TO SCALE



Always a Better Plan

100 Camelot Drive
Fond du Lac, WI 54935
920-926-9800
excelengineer.com

COLLABORATION

AspenDental

PROJECT INFORMATION

PROPOSED BUILD-OUT FOR:
ASPEN DENTAL
715 PROGRESS WAY STE TBD • GAITHERSBURG, MD 20877

PROFESSIONAL SEAL

SHEET DATES

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DUCTWORK AND DUCTWORK INSULATION SCHEDULE

SERVICE		LOCATION	DUCT MAT'L	SMACNA PRESS. CLASS	INSULATION		INSUL JACKET
					RECTANGULAR DUCT	ROUND DUCT	
SUPPLY	SINGLE ZONE SYSTEMS	CONCEALED	GALV. ST.	+1"	1.5" FLEX. F.G.	1.5" FLEX. F.G.	N.R.
RETURN	UPSTREAM OF FAN	CONCEALED	GALV. ST.	-1"	1.5" FLEX. F.G.	1.5" FLEX. F.G.	N.R.
EXHAUST	DOWNSTREAM OF FAN	CONCEALED	GALV. ST.	+1"	1.5" FLEX. F.G. (1)	1.5" FLEX. F.G. (1)	N.R.

N.R. = NOT REQUIRED

EXPOSED = VISIBLE FROM OCCUPIED SPACE.

CONCEALED = HIDDEN FROM VIEW BY WALLS AND CEILINGS.

MATERIALS:

GALV. STEEL: ASTM A653, LOCK FORMING QUALITY, 1.25 OUNCES/ S.F. ZINC COATING (G90 IN ACCORDANCE WITH ASTM A90 BOTH SIDES).

- ALL JOINTS, LONGITUDINAL AND TRANSVERSE SEAMS AND CONNECTIONS IN DUCTWORK SHALL BE SEALED PER 2021 IECC 403.12.2.1.

(1) INSULATE FROM 18" UPSTREAM OF THE BACKDRAFT DAMPER TO THE POINT WHERE THE DUCT EXITS THE BUILDING.

ELECTRICAL/STARTER/DISCONNECT SCHEDULE

SYM.	ELECTRICAL DATA				STARTER		FURN. BY	AUX. CONTACT	ACCESS-ORIES	SMOKE DETECTOR	DISCONNECT		REMARKS			
	HP	KW	AMPS	MCA	MOP	VOLT PH.					TYPE	LOCATION		DIS-CONNECT	FURN. BY	
RTAC-1	-	-	-	31.0	45	208	3	INTEG.	INTEGRAL	EM	-	-	-	3R	EM (4)	-
RTAC-2	-	-	-	26.0	30	208	3	INTEG.	INTEGRAL	EM	-	-	-	3R	EM (4)	-
RTAC-3	-	-	-	22.0	30	208	3	INTEG.	INTEGRAL	EM	-	-	-	3R	EM (4)	-
CEF-1	-	0.02	-	-	-	120	1	(1)	(1)	EC	-	-	-	R	EM	-
CEF-2	-	0.02	-	-	-	120	1	(1)	(1)	EC	-	-	-	R	EM	-
CEF-3	-	0.06	-	-	-	120	1	(2)	(2)	EC	-	-	-	R	EM	-
CEF-4	-	0.06	-	-	-	120	1	(3)	(3)	EC	-	-	-	R	EM	-

STARTER TYPE:

INTEG. = INTEGRAL: PROVIDED INTEGRAL WITH EQUIPMENT.

FURNISHED BY:

EM = EQUIPMENT MANUFACTURER

HC = HEATING CONTRACTOR

EC = ELECTRICAL CONTRACTOR

ACCESSORIES:

HOA = HAND-OFF-AUTO

PL =LED PILOT LIGHT

PB = PUSH BUTTON

DISCONNECT:

NR= NOT REQUIRED

R = REQUIRED

3R = NEMA 3R

REMARKS:

REC.=RECEPTACLE

- VERIFY VOLTAGE AND PHASE WITH ELECTRICAL CONTRACTOR BEFORE ORDERING EQUIPMENT.

(1) POWER ROUTED THRU INTERIOR LIGHTING CONTRACTOR BY E.C. SEE ELECTRICAL PLANS.

(2) LOCAL WALL SWITCH PROVIDED BY E.C. TO TURN ON FAN.

(3) FAN WIRED TO REVERSE ACTING THERMOSTAT BY E.C.

(4) DISCONNECT FACTORY MOUNTED AND PREWIRED BY EQUIPMENT MANUFACTURER.

CABINET EXHAUST FAN SCHEDULE (C.E.F.)

NO.	AREA SERVED	TYPE	CFM	S.P. " W.C.	RPM	MOTOR WATTS	MOTOR TYPE	MAX. SONES	DUCT COLLAR SIZE (IN.)	MODEL	REMARKS
1	TOILET RM	CEILING	100	0.38	1,078	19	ECM	3	8 X 8	SP-A390-VG (3)	"GREENHECK"
2	TOILET RM	CEILING	100	0.38	1,078	19	ECM	3	8 X 8	SP-A390-VG (3)	"GREENHECK"
3	LAB	CEILING	300	0.5	1,135	63	ECM	4.5	8 X 8	SP-A510-VG (3)	"GREENHECK"
4	MECH RM	CEILING	300	0.5	1,135	63	ECM	4.5	8 X 8	SP-A510-VG (3)	"GREENHECK"

- ACCEPTABLE MANUFACTURERS: GREENHECK, COOK, PENN-BARRY, CARNES.

- SUPPORT FROM STRUCTURE, ISOLATE FAN AND ASSOCIATED DUCTWORK.

- PROVIDE WITH FACTORY MOUNTED POTENTIOMETER DIAL, INTERNAL PLUG-IN DISCONNECT AND BACKDRAFT DAMPER

(3) PROVIDE WHITE ALUMINUM GRILLE.

ROOF CAP SCHEDULE (R.C.)

NO.	SERVICE	TYPE	THROAT	CFM	APD.	SCREEN	DAMPER	MODEL	REMARKS
1	EXHAUST	FLAT	7	100	0.01	BIRD	NO	RCC-7 (1)	"GREENHECK"
2	EXHAUST	FLAT	7	100	0.01	BIRD	NO	RCC-7 (1)	"GREENHECK"
3	EXHAUST	FLAT	10	600	0.09	BIRD	NO	GRS-10 (1)	"GREENHECK"

- ACCEPTABLE MANUFACTURERS: GREENHECK, CARNES

(1) PROVIDE 14" HIGH ROOF CURB.

ROOFTOP AIR CONDITIONING UNIT SCHEDULE (R.T.A.C.)

NO.	NOM. TONS	SUPPLY FAN		EXT. SP.	DRIVE TYPE	MOTOR BHP	MOD. TYPE	RELIEF		FAN	COOLING				HEATING				OUTSIDE AIR	SMOKE DETECTOR	CURB		MCA	MOP	VOLT/ PHASE	EFFICIENCY			WEIGHT (LBS.)	MODEL	REMARKS	
		CFM	OA CFM					BAR.	NO.		EAT DB / WB	MBH CAP.	AMB. TEMP F	NO. COMPR.	NO. STAGES	KW	MBH IN	MBH OUT			NO. STAGES	HEIGHT BY MFR.				TYPE	MIN. CODE	UNIT RATING				TEST PROC.
1	5	1,700	250	1	DIRECT	1.17	-	X	-	-	80/67	53.3	110	1	1	-	110	88	2	ECON (2)	NO (1)	14"	STANDARD	31.0	45	208/3	13.4 SEER2	13.4 SEER2	ARI 210/240	850	48FE	CARRIER (4)/(5)
2	4	1,375	175	1	DIRECT	0.87	-	X	-	-	80/67	44.1	110	1	1	-	67	54	2	ECON (2)	NO (1)	14"	STANDARD	26.0	30	208/3	13.4 SEER2	13.4 SEER2	ARI 210/240	850	48FE	CARRIER (4)/(5)
3	3	1,100	175	1	DIRECT	0.54	-	X	-	-	80/67	31.0	110	1	1	-	67	54	2	ECON (2)	NO (1)	14"	STANDARD	22.0	30	208/3	13.4 SEER2	13.4 SEER2	ARI 210/240	850	48FE	CARRIER (4)/(5)

- ROOFTOP UNITS ARE PRE-ORDERED AND SUPPLIED BY THE ASPEN GROUP (TAG). SELECTIONS ARE SENT BY TAG TO THE G.C. FOR DISTRIBUTION TO THE H.C.

- SEE MOTOR SPECIFICATIONS FOR MOTOR REQUIREMENTS.

- PROVIDE WITH 2" ASHRAE STD 52.2 MERV 8 I.A. FILTERS

- RTAC DESIGNED TO PREVENT RAIN INTRUSION INTO THE AIRSTREAM WHEN TESTED AT DESIGN AND NO AIRFLOW PER SECTION 58 OF UL 1995.

- PROVIDE UNIT MOUNTED NEMA 3R DISCONNECT, STAINLESS STEEL HEAT EXCHANGER, LIQUID-TIGHT THRU UNIT BASE ELECTRICAL CONNECTION, HINGED ACCESS PANELS AND HINGED DOOR FOR ECONOMIZER.

(1) DUCT SMOKE DETECTOR IS NOT REQUIRED PER IMC 606.2.1 AS RETURN AIR FLOW DOES NOT EXCEED 2,000 CFM IN ANY LOCATION AND SYSTEMS DO NOT SHARE COMMON SUPPLY OR RETURN AIR DUCTS.

(2) PROVIDE ULTRA LOW LEAK CODE COMPLIANT ECONOMIZER WITH FAULT DETECTION, ENTHALPY CONTROL AND BAROMETRIC RELIEF.

(4) PROVIDE WITH HAIL GUARD FOR CONDENSING COILS.

(5) PROVIDE EPOXY COATED CONDENSER COIL TO PROVIDE PROTECTION IN COASTAL ENVIRONMENTS.

SUPPLY GRILLE SCHEDULE (S.G.)

NO.	TYPE	CFM RANGE	NECK/ FACE SIZE	INLET DUCT DIA.	MAT'L	VOL. DMPR	FINISH	FRAME	THROW	MODEL	REMARKS
5-6	LOUVER	0-75	24 X 24	6"	ALUM.	(1)	WHITE	LAY-IN	4-WAY	TMS-AA	"TITUS"
5-8	LOUVER	76-275	24 X 24	8"	ALUM.	(1)	WHITE	LAY-IN	4-WAY	TMS-AA	"TITUS"
5-10	LOUVER	276-375	24 X 24	10"	ALUM.	(1)	WHITE	LAY-IN	4-WAY	TMS-AA	"TITUS"
5-12	LOUVER	376-550	24 X 24	12"	ALUM.	(1)	WHITE	LAY-IN	4-WAY	TMS-AA	"TITUS"
5-14	LOUVER	551-750	24 X 24	14"	ALUM.	(1)	WHITE	LAY-IN	4-WAY	TMS-AA	"TITUS"

- ACCEPTABLE MANUFACTURERS: TITUS, PRICE, KRUEGER, CARNES, SHOEMAKER.

- NOT ALL SUPPLY GRILLES SCHEDULED ARE USED ON THE PROJECT.

- PROVIDE R-6 MOLDED BACKED INSULATION BLANKET.

- BRANCH DUCT SIZE TO GRILLE SHALL BE SAME SIZE AS NECK UNLESS OTHERWISE NOTED.

(1) VOLUME DAMPER AT THE GRILLE INDICATED BY A "D" AFTER THE GRILLE DESIGNATION. EXAMPLE: SG5D-6 IS SG5-6 WITH A DAMPER.

RETURN GRILLE SCHEDULE (R.G.)

NO.	TYPE	MAX. CFM	NECK/ FACE SIZE	FLEX. DUCT. DIA.	MAT'L	VOL. DMPR	FINISH	FRAME	MODEL	REMARKS
2-6	EGG CRATE	75	24 X 24	6"	ALUM.	(1)	WHITE	LAY-IN (3)	50F (5)	"TITUS"
2-8	EGG CRATE	250	24 X 24	8"	ALUM.	(1)	WHITE	LAY-IN (3)	50F (5)	"TITUS"
2-10	EGG CRATE	450	24 X 24	10"	ALUM.	(1)	WHITE	LAY-IN (3)	50F (5)	"TITUS"
2-12	EGG CRATE	750	24 X 24	12"	ALUM.	(1)	WHITE	LAY-IN (3)	50F (5)	"TITUS"
2-14	EGG CRATE	1,100	24 X 24	14"	ALUM.	(1)	WHITE	LAY-IN (3)	50F (5)	"TITUS"
2-16	EGG CRATE	1,600	24 X 24	16"	ALUM.	(1)	WHITE	LAY-IN (3)	50F (5)	"TITUS"
2-18	EGG CRATE	2,200	24 X 24	18"	ALUM.	(1)	WHITE	LAY-IN (3)	50F (5)	"TITUS"

- ACCEPTABLE MANUFACTURERS: TITUS, PRICE, KRUEGER, CARNES, SHOEMAKER.

- NOT ALL RETURN GRILLES SCHEDULED ARE USED ON THE PROJECT.

- PROVIDE MIN. 8" DEEP PLENUM BOX AT ALL RETURN GRILLES (TYP.)

- BRANCH DUCT SIZE TO GRILLE SHALL BE SAME SIZE AS NECK UNLESS OTHERWISE NOTED.

(1) VOLUME DAMPER AT THE GRILLE INDICATED BY A "D" AFTER THE GRILLE DESIGNATION. EXAMPLE: RG2D-6 IS RG2-6 WITH A DAMPER.

(3) SURFACE MOUNT BORDER WITH NO SCREW HOLES FOR LAY-IN APPLICATION.

(5) 1/2 X 1/2 X 1/2 CORE



- COORDINATE FIXTURE LOCATIONS, CEILING COMPATIBILITY AND TRIM TYPE WITH ARCHITECT'S REFLECTED CEILING GRID. MAKE ADJUSTMENTS TO LAYOUT AS REQUIRED.

REMARKS:

OCFL = OWNER FURNISHED, CONTRACTOR INSTALLED.

(1) PROVIDE CADDY T-GRID BOX HANGER AND 4" BOX FOR MOUNTING. VERIFY STEM LENGTH TO MOUNT BOTTOM OF FIXTURE AT 7"-0" AFF.

(2) ALL MOUNTING STEMS SUPPLIED BY OWNER.

(3) LIGHT HOUSING FOR "B" FIXTURE PROVIDED BY EC. HOUSING TO BE COOPER H750T.

NOTE:
ALL LIGHT FIXTURES LISTED ON THE SCHEDULE ABOVE WILL BE FURNISHED BY OWNER AND INSTALLED BY E.C.
E.C. SHALL PROVIDE ALL NECESSARY MOUNTING ACCESSORIES, HARDWARE HANGARS, SWITCHES, ETC THAT ARE NOT SUPPLIED
WITH FIXTURE/DEVICE UNLESS OTHERWISE NOTED IN THE ABOVE SCHEDULE.

BRANCH CIRCUIT FEEDER SCHEDULE		
AMP / POLE	CONDUIT SIZE	CONDUCTORS & GROUNDING CONDUCTOR SIZES
15A/1P OR 15A/2P	1/2"	(2) #12 & #12 GND
20A/1P OR 20A/2P	1/2"	(2) #12 & #12 GND
15A/3P OR 20A/3P	3/4"	(3) #12 & #12 GND
25A/1P OR 25A/2P	3/4"	(2) #10 & #10 GND
30A/1P OR 30A/2P	3/4"	(2) #10 & #10 GND
25A/3P OR 30A/3P	3/4"	(3) #10 & #10 GND
35A/1P OR 35A/2P	3/4"	(2) #10 & #10 GND
40A/1P OR 40A/2P	1"	(2) #8 & #10 GND
35A/3P OR 40A/3P	1"	(3) #8 & #10 GND
45A/1P OR 45A/2P	1"	(2) #8 & #10 GND
45A/3P OR 50A/3P	1"	(3) #8 & #10 GND
50A/1P OR 50A/2P	1"	(2) #8 & #10 GND
60A/1P OR 60A/2P	1"	(2) #6 & #8 GND
60A/3P	1-1/4"	(3) #6 & #8 GND
70A/3P OR 80A/3P	1-1/4"	(3) #4 & #8 GND
90A/3P	1-1/2"	(3) #3 & #8 GND
100A/3P OR 110A/3P	1-1/2"	(3) #2 & #6 GND
125A/3P	1-1/2"	(3) #1 & #6 GND

— PROVIDE BRANCH CIRCUIT FEEDERS AS NOTED ABOVE UNLESS NOTED OTHERWISE.

PANELBOARD: A			
LOCATION:	MECHANICAL ROOM 116	VOLTS:	120/208 WYE
SUPPLY FROM:	UTILITY	PHASES:	3
MOUNTING:	SURFACE	WIRES:	4
ENCLOSURE:	NEMA 1	A.I.C. RATING:	22,000(1)
		MAINS TYPE:	MLO
		BUS RATING:	400A
		MCB RATING:	
NOTES:			
SEE BRANCH CIRCUIT FEEDER SCHEDULE FOR FEEDER DESIGNATIONS.			
(1) CONTRACTOR SHALL VERIFY AVAILABLE FAULT CURRENT PRIOR TO ORDERING EQUIPMENT.			
(2) DENOTES CIRCUIT EXISTING WITH WIRES COILED IN VICINITY OF PANELBOARD. FINAL CONNECTION OF SUFF LIGHTING BY TENANT E.C.			
(G) PREFIX / SUFFIX DENOTES GFI TYPE BREAKER.			

NOTE: ALL SYMBOLS SHOWN MAY NOT APPEAR ON DRAWINGS. ALL MOUNTING HEIGHTS ARE TYPICAL UNLESS NOTED OTHERWISE.

<u>SYM.</u>	<u>IDENTIFICATION</u>	<u>SYM.</u>	<u>IDENTIFICATION</u>
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LIGHTING RECESSED, SURFACE, OR PENDANT MOUNTED LIGHT FIXTURE WALL MOUNTED LIGHT FIXTURE MOUNT 7'-0" AFF. OR 8" ABOVE MIRROR RECESSED, SURFACE MOUNTED, OR CHAIN HUNG LIGHT FIXTURE PENDANT FIXTURE EXTERIOR WALL MOUNTED OR INTERIOR WALL WASH FIXTURE SINGLE HEAD POLE TWIN HEAD POLE MOUNTED FIXTURE		EMERGENCY LIGHT MOUNT 11'-0" AFF. TO TOP OR 8" BELOW CEILING, WHICHEVER IS LOWER RECESSED CEILING LIGHT EXIT LIGHT OCCUPANCY SENSOR WALL MOUNTED SURFACE SENSOR WITH SWITCH D = DIMMER DUAL LEVEL/CIRCUIT OCCUPANCY SENSOR WITH SWITCH PHOTO CONTROL	
WIRING DEVICES			
SINGLE POLE SWITCH. MOUNT 46" AFF. TO CENTER, 3 = 3 WAY, 4 = 4 WAY, P = PILOT, D = DIMMER, K = KEYED DUAL LEVEL SWITCH. MOUNT 46" AFF. TO CENTER SEE DETAIL LOW VOLTAGE SWITCH. MOUNT 46" AFF. TO CENTER SIMPLE RECEPTACLE. MOUNT 18" AFF. TO CENTER DUPLEX RECEPTACLE. MOUNT 18" AFF. TO CENTER DOUBLE DUPLEX RECEPTACLE. MOUNT 18" AFF. TO CENTER GFI PROTECTED DUPLEX RECEPTACLE. MOUNT 18" AFF. TO CENTER GFI PROTECTED DOUBLE DUPLEX RECEPTACLE. MOUNT 18" AFF. TO CENTER DUPLEX RECEPTACLE MOUNT VERTICALLY 6" ABOVE BACKPLASH TO CENTER. IF NO BACKPLASH MOUNT 6" ABOVE COUNTER GFI PROTECTED DUPLEX RECEPTACLE MOUNT VERTICALLY 6" ABOVE BACKPLASH TO CENTER. IF NO BACKPLASH MOUNT 6" ABOVE COUNTER		MW POWER RECEPTACLE MOUNT 18" AFF. TO CENTER SWITCH BOTTOM HALF OF RECEPTACLE, TOP HALF UNSWITCHED SPECIAL OUTLET JUNCTION BOX SWITCH BOTTOM HALF OF GFI PROTECTED RECEPTACLE, TOP HALF UNSWITCHED DUPLEX RECEPTACLE SURFACE MOUNTED CLG = CEILING/SOFT MOUNTED BLANK BOX 4" EXTRA DEEP BOX, SINGLE GANG RING, BLANKPLATE, 1" C STUB INTO ACCESSIBLE SPACE, MOUNT 6" AFF. TO CENTER ABOVE COUNTER BLANK BOX, 4" EXTRA DEEP BOX, SINGLE GANG RING, BLANKPLATE, 1" C STUBBED INTO ACCESSIBLE SPACE, MOUNT 6" ABOVE BACKPLASH TO CENTER COMBINATION FLOOR OUTLET/BLANK JUNCTION BOX - WIREMOLD - RESOURCE RFB/SERIES OR EQUIVALENT, 1" C STUB INTO ACCESSIBLE SPACE	
MOTORS / MOTOR CONTROL / EQUIPMENT			
DISCONNECT FURNISHED BY EC F = NON-FUSIBLE NON-COMBINATION STARTER COMBINATION STARTER SURFACE MOUNTED PANELBOARD RECESSED PANELBOARD		MANUAL STARTER MOTOR CONNECTION MOTOR CONNECTION REQUIRING REMOTE STARTER/VFD EQUIPMENT CONNECTION SURFACE MOUNTED RACEWAY	
FIRE ALARM / LIFE SAFETY			
STROBE. MOUNT 84" AFF. TO TOP OR 6" BELOW CEILING WHICHEVER IS LOWER SPEAKER. CEILING MOUNTED W = WALL MOUNTED HORN/STROBE. MOUNT 84" AFF. TO TOP OR 6" BELOW CEILING WHICHEVER IS LOWER SPEAKER/STROBE. MOUNT 84" AFF. TO TOP OR 6" BELOW CEILING WHICHEVER IS LOWER HORN (COLUMNAR). MOUNT 84" AFF. TO TOP OR 6" BELOW CEILING WHICHEVER IS LOWER PULL STATION. MOUNT 46" AFF. TO CENTER HEAT DETECTOR SMOKE DETECTOR DUCT SMOKE DETECTOR ELEVATOR SMOKE DETECTOR SMOKE DETECTOR WITH SOUNDER BASE CARBON MONOXIDE DETECTOR		MAGNETIC DOOR HOLDER SPRINKLER FLOW SWITCH SPRINKLER TAMPER SWITCH SPRINKLER BELL FIRE ALARM CONTROL PANEL FIRE ALARM ANNUNCIATOR PANEL AREA OF REFUGE STATION AREA OF REFUGE LIGHTING AREA OF REFUGE MASTER PANEL EMERGENCY COMMUNICATIONS MASTER EMERGENCY COMMUNICATIONS STATION	
MISCELLANEOUS			
CONDUIT STUB THROUGH WALL BUSHED EACH END CONDUIT WITH BUSHING ON END ELECTRICAL HOMERUN. CIRCUIT AS SHOWN SHARED ELECTRICAL HOMERUN WHEN WIRE TAG HAS (*) ASTRISK PRECEDING PANEL-CIRCUIT INFO RELAY CIRCUIT ITEMS AND/OR DEVICES CIRCUITED TOGETHER ITEMS AND/OR DEVICES CIRCUITED TOGETHER, BUT SWITCHED SEPARATELY		PUSHBUTTON, PROVIDE JUNCTION BOX AND CONDUIT. MOUNT AT SWITCH HEIGHT GROUND ROD EXO-THERMIC WELD CONNECTION NURSE CALL PULL CORD LIGHT NURSE CALL DOME DETAIL OR SECTION NUMBER SHEET NUMBER	
ABBREVIATIONS			
AC ABOVE COUNTER AFF. ABOVE FINISHED FLOOR AFG ABOVE FINISHED GRADE DISC DISCONNECT DW DISHWASHER EC ELECTRICAL CONTRACTOR ELEV ELEVATION EM EMERGENCY EXT EXISTING TO REMAIN EWC ELECTRIC WATER COOLER FPC FIRE PROTECTION CONTRACTOR GC GENERAL CONTRACTOR/CONSTRUCTION MANAGER GDSP GARBAGE DISPOSAL GFI GROUND FAULT CIRCUIT INTERRUPTER		HC HVAC CONTRACTOR IG ISOLATED GROUND LCP LIGHTING CONTROL PANEL NL NIGHT LIGHT NTS NOT TO SCALE OC ON CEILING PC PLUMBING CONTRACTOR PNL PANELBOARD REF REFRIGERATOR UC UNDER COUNTER UNO UNLESS NOTED OTHERWISE 3R NEMA 3R 4X NEMA 4X WT WATER TIGHT XFMR TRANSFORMER	
FIRE RATED WALLS FIRE - 1 HOUR FIRE - 2 HOUR FIRE - 3 HOUR FIRE - 4 HOUR			
SECURITY			
DOOR CONTACT ELECTRIC STRIKE CARD READER REQUEST TO EXIT INTERCOM		KEY PAD LED INDICATOR LIGHT FINGER PRINT SCANNER DOOR ALARM CAMERA	
COMMUNICATION			
WALL MOUNTED SPEAKER LOCAL VOLUME CONTROL		CEILING MOUNTED SPEAKER TELEVISION OUTLET MOUNT 18" AFF. TO CENTER	



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PROFESSIONAL SEAL

SHEET ISSUE JULY 21, 2026

RELATIONS

REVISIONS

JOB NUMBER

260222300

SHEET NUMBER

E0.1

ELECTRICAL SPECIFICATIONS

DIVISION 26 ELECTRICAL

00 72 00. GENERAL CONDITIONS

- A. SEE SHEET A0.1.

01 11 00 GENERAL REQUIREMENT

- A. SEE SHEET A0.1.
- B. IN AS MUCH AS THE SPECIFICATIONS ARE BRIEF, THE CONTRACTOR SHALL PROVIDE WORKMANSHIP THAT IS OF THE BEST QUALITY WITH THE BEST POSSIBLE APPEARANCE AND UTILITY. FAULTY WORK SHALL BE REPAIRED OR REPLACED AT NO COST TO THE OWNER. INDUSTRY STANDARDS SHALL BE USED AS THE GUIDE FOR QUALITY OF MATERIALS AND WORKMANSHIP.
- C. ENTIRE INSTALLATION SHALL BE PREPARED IN A FIRST-CLASS WORKMANLIKE MANNER. THE COMPLETED SYSTEMS SHALL BE FULLY OPERATIONAL. ACCEPTANCE BY OWNER SHALL BE A CONDITION OF THE CONTRACT. ALL WORK SHALL BE COORDINATED WITH OTHER TRADES IN ORDER TO AVOID INTERFERENCES OR DISPUTES AMONG RESPECTIVE TRADES.
- D. ELECTRICAL CONTRACTOR SHALL THOROUGHLY FAMILIARIZE HIMSELF WITH THE PLANS (ARCHITECTURAL, MEP, EQUIPMENT SUPPLIER DRAWINGS, LANDLORD DRAWINGS, ETC.) AND SHALL VERIFY EXISTING CONDITIONS AT THE SITE.
- E. THE ELECTRICAL CONTRACTOR'S CONTRACT SHALL INCLUDE BUT NOT BE LIMITED TO THE FOLLOWING: WIRING, CONDUIT, PANELBOARDS, TRANSFORMERS, SWITCHES, RECEPTACLES, TIME CLOCK, JUNCTION BOXES AND LABORS.
- F. ELECTRICAL CONTRACTOR IS RESPONSIBLE TO PROVIDE ANY AND ALL ITEMS NECESSARY TO COMPLETE THIS PROJECT AS DRAWN.
- G. ELECTRICAL CONTRACTOR SHALL FURNISH AND INSTALL ALL ELECTRICAL EQUIPMENT AND WIRING IN ACCEPTANCE WITH THE LANDLORD'S DESIGN CRITERIA.

09 91 00 FINISH AND PAINTING

- A. PREPARE EXPOSED CONDUIT, FITTINGS, SUPPORTS, AND ACCESSORIES FOR FINISH PAINTING IN ROOMS THAT WILL HAVE CEILING AND STRUCTURE PAINTED.
- B. E.C. SHALL PROVIDE A FACTORY OR FIELD APPLIED PRIME AND FINISH COAT OF COLOR SELECTED BY THE OWNER'S REPRESENTATIVE TO ALL ROOF MOUNTED EQUIPMENT AND OTHER EXTERIOR MATERIALS, INCLUDING SUPPORT HARDWARE.
- C. COORDINATE WORK WITH THE PAINTERS SO THAT ALL EQUIPMENT IS INSTALLED PRIOR TO PAINTING. E.C. SHALL PAINT ITEMS IF NOT IN PLACE PRIOR TO NORMAL ROUTINE PAINTING.
- D. IF FINISH BECOMES RUSTED, CORRODED, SCRATCHED, OR FLAKED DURING STORAGE OR INSTALLATION, REFINISH THE EQUIPMENT TO THE SATISFACTION OF THE OWNER.
- E. WHERE THE ELECTRICAL CONTRACTOR IS REQUIRED TO PAINT, THE PAINTING SHALL BE DONE IN ACCORDANCE WITH THE PAINTING PORTION OF THE ARCHITECTURAL SPECIFICATION.

26 05 01 BASIC ELECTRICAL REQUIREMENTS

- A. SHOP DRAWINGS:
- SEE SPECIFICATIONS ON SHEET A0.1 FOR ADDITIONAL REQUIREMENTS AND SUBMISSION PROCEDURES
 - INCLUDE OUTLINE AND GENERAL ARRANGEMENT DRAWINGS, DATA SHEETS AND WIRING DIAGRAMS.
 - SHOP DRAWINGS SHALL CLEARLY INDICATE SPECIFIC MODEL, BEING PROVIDED WHERE CUT SHEETS SHOW MULTIPLE MODELS.
 - FAILURE TO SUBMIT SHOP DRAWINGS SHALL NOT RELIEVE THE CONTRACTOR FROM PROVIDING THE SPECIFIED EQUIPMENT AND MATERIALS.
- B. DETAILS AND SCHEDULES ARE SHOWN TO AID THE CONTRACTOR AND ARE NOT MEANT TO BE INCLUSIVE OF ALL DEVICES. PROVIDE REQUIRED EQUIPMENT AND ACCESSORIES FOR A COMPLETE INSTALLATION.
- C. INSTALL ALL EQUIPMENT PER MANUFACTURER'S INSTALLATION INSTRUCTIONS AND REQUIREMENTS. PROVIDE ADDITIONAL WORK AND MATERIALS AS REQUIRED.
- D. THE CONTRACTOR HAS THE SOLE RESPONSIBILITY FOR AND SHALL HAVE CONTROL OF CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, AND SAFETY PRECAUTIONS AND PROCEDURES USED TO CONSTRUCT THE WORK.
- E. COORDINATE INSTALLATION OF ELECTRICAL WORK WITH THE OTHER CONTRACTORS TO AVOID CONFLICTS WITH OTHER WORK.
- F. MAINTAIN MAXIMUM HEADROOM AND SPACE CONDITION AT ALL POINTS IN THE BUILDING. WHERE HEADROOM OR SPACE CONDITIONS APPEAR INADEQUATE, NOTIFY ARCHITECT/ENGINEER BEFORE PROCEEDING WITH THE INSTALLATION.
- G. COMPLY WITH THE REQUIREMENTS OF NFPA: NATIONAL, STATE AND LOCAL ELECTRICAL CODES AND LOCAL UTILITY REGULATIONS.
- H. MATERIAL SHALL BEAR U.L. AND/OR OTHER APPROVED AGENCY LISTING.
- I. INSTALL MOTOR STARTERS FURNISHED BY HVAC AND PLUMBING CONTRACTORS, AND WIRE FROM THE POWER SOURCE TO THE STARTER AND FROM THE STARTER TO THE MOTOR.
- J. VERIFY ELECTRICAL SIZE AND CONNECTION REQUIREMENTS FOR EQUIPMENT FURNISHED BY OTHERS WITH FINAL SHOP DRAWINGS.
- K. PROVIDE ALL CUTTING AND PATCHING NECESSARY FOR ELECTRICAL WORK INSTALLATION UNLESS THIS WORK IS IDENTIFIED TO BE THE WORK OF OTHER CONTRACTORS. PATCHING SHALL MATCH ADJACENT SURFACES. CORE DRILL OR SAW-CUT OPENINGS THROUGH EXISTING CONCRETE.
- L. PROJECT COMPLETION
- CLEAN FIXTURES AND EQUIPMENT AND LEAVE IN PROPER WORKING CONDITION AT THE TIME OF FINAL CLEAN-UP.
 - MAKE RECORD DRAWINGS ON A FINAL SET OF DRAWINGS WHICH INCLUDES ALL REVISIONS.
- M. LOCATION
- THE ARCHITECT SHALL RESERVE THE RIGHT TO MAKE OUTLET POSITION CHANGES UP TO 10' BEFORE INSTALLATION.
 - DO NOT LOCATE OUTLETS OR EQUIPMENT WHERE THE USEFULNESS AND/OR OPERATION WILL BE AFFECTED BY THE WORK OF OTHER TRADES, DOOR SWING, COUNTER, EQUIPMENT, ETC.
- N. ACCESS
- INSTALL EQUIPMENT, JUNCTION BOXES, PULL BOXES AND ACCESSORIES TO PERMIT ACCESS WITHOUT RELOCATING INSTALLED OR YET TO BE INSTALLED EQUIPMENT.
 - ACCESS PANELS
 - FURNISH ACCESS PANELS OF ADEQUATE SIZE TO PERMIT SERVICE OF CONCEALED DEVICES. PANELS SHALL BE SUITABLE FOR INSTALLATION IN THE MATERIAL FORMING THE FINISHED SURFACE WITH FLUSH METAL FRAME, FLUSH HINGED STEEL DOOR, FLUSH SCREWDRIVER OPERATED LATCH.
 - PANELS UL LISTED TO CONFORM TO THE FIRE RATING OF THE SURFACE INSTALLED IN.
 - TURN ACCESS PANEL OVER TO CONTRACTOR SKILLED IN THE CONSTRUCTION OF THE SURFACES INVOLVED FOR INSTALLATION.
 - ARCHITECT TO APPROVE ACCESS PANEL LOCATION PRIOR TO INSTALLATION OF EQUIPMENT REQUIRING ACCESS.
 - COORDINATE WITH THE OTHER CONTRACTORS AND WHEREVER PRACTICAL, GROUP DEVICES IN SUCH A MANNER SO AS TO MINIMIZE PANELS.
- O. ELECTRICAL CONTRACTOR TO PROVIDE PULL WIRE IN EMPTY CONDUIT FOR TELEPHONE OR AS REQUIRED BY LOCAL PHONE COMPANY.
- P. ALL NEW MATERIALS, WORKMANSHIP AND EQUIPMENT SHALL BE GUARANTEED FOR ONE YEAR AFTER SYSTEM ACCEPTANCE.
- Q. ALL WIRING SHALL BE IN CONDUIT AS REQUIRED BY LOCAL CODE AND SHALL BE CONCEALED WHERE POSSIBLE. WHERE EXPOSED, RUN IN STRAIGHT LINES PARALLEL AND/ OR PERPENDICULAR TO BUILDING LINES.
- R. ELECTRICAL CONTRACTOR SHALL INCLUDE ALL MISCELLANEOUS ITEMS REQUIRED TO COMPLETE THE WORK.
- S. ELECTRICAL CONTRACTOR SHALL NOT SCALE DRAWINGS FOR DIMENSIONS BUT SHALL CONTACT THE OWNER'S REPRESENTATIVE REGARDING ANY DIMENSIONAL DATA REQUIRED AND SHALL VERIFY EXACT LOCATION AND MOUNTING HEIGHTS OF ALL FIXTURES, NOT SPECIFIED ON DRAWINGS OR DETAILS WITH OWNER'S REPRESENTATIVE PRIOR TO INSTALLATION.
- T. ELECTRICAL CONTRACTOR SHALL INSTALL ALL FIXTURES FURNISHED BY OWNER. ELECTRICAL CONTRACTOR SHALL FURNISH ALL LAMPS AND MISCELLANEOUS HARDWARE TO COMPLETE INSTALLATION. EC IS RESPONSIBLE TO REPLACE ANY NON-WORKING FIXTURES. ALL SUCH INSTALLATION AND HOOK-UPS ARE BY ELECTRICAL CONTRACTOR.
- U. ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE TO INSTALL OR REMOVE AND REPLACE AS NECESSARY ALL DAMAGED LIGHT FIXTURE LENSES, DOWNERS, BAFFLES, HOUSINGS, ETC. RECEIVED ON JOB IN DAMAGED OR DEFECTIVE CONDITION WITH REPLACEMENT UNITS.
- V. ELECTRICAL CONTRACTOR TO PROVIDE CIRCUIT "LOCK-ON" CLIPS AND INSTALL SAME ON THE FOLLOWING CIRCUITS: WATER HEATER, NIGHT / EMERGENCY LIGHTING, PHONE, AND COMPUTERS.
- W. ELECTRICAL CONTRACTOR SHALL BALANCE THE LOADS ACROSS ALL PHASES AND SHALL PROVIDE A CIRCUIT DIRECTORY WITH TYPED CIRCUIT DESIGNATION CARD UNDER PLASTIC COVER ON THE INSIDE OF EACH PANEL DOOR. ELECTRICAL CONTRACTOR SHALL ALSO FURNISH AND INSTALL NAMEPLATES ON ALL DISCONNECT SWITCHES AND PANELS. ALL NEW ELECTRICAL MATERIALS, PRODUCTS AND EQUIPMENT (INCLUDING ALL COMPONENTS THEREOF) SHALL BEAR THE UNDERWRITER'S LABORATORIES LABEL AND MEET THE APPROPRIATE ASTM, NEC AND NEMA STANDARDS.
- X. THE ELECTRICAL CONTRACTOR IS RESPONSIBLE TO PROVIDE A TEMPORARY LIGHTING AND POWER SYSTEM (WITH GROUND FAULT PROTECTION) FOR THE WORK OF ALL TRADES DURING CONSTRUCTION AND SHALL REMOVE THE SAME PRIOR TO THE COMPLETION OF THE PROJECT.

26 05 19 LOW VOLTAGE POWER CONDUCTORS AND CABLES (600V AND LESS)

- A. TYPE AND SIZE
- NO. 10 & 12: SOLID OR STRANDED COPPER, 600V, THHN/THWN.
 - NO. 8 TO 3: STRANDED COPPER, 600V, THHN/THWN.
 - NO. 2 TO 4/0: STRANDED COPPER, 600V, THHN/THWN.
 - 250 KCMIL AND LARGER: STRANDED COPPER, 600V, XHHW.
 - MINIMUM BRANCH CIRCUIT WIRE SIZE NO. 12.
 - CONTROL WIRING: STRANDED COPPER, MINIMUM NO. 12.
 - GREEN INSULATION, COPPER STRANDED EQUIPMENT GROUND.
 - TYPE AC OR MC CABLE IS ACCEPTABLE WHERE ALLOWED BY STATE AND LOCAL CODES AND LOCAL AUTHORITY HAVING JURISDICTION.

- TYPE AC OR MC CABLE UTILIZED IN ALL PATIENT CARE AREAS SHALL COMPLY WITH THE "REDUNDANT GROUND" REQUIREMENTS OF NEC 517.13(A) AND (B).
 - WIRING UTILIZED IN ALL PATIENT CARE AREAS SHALL MEET THE REQUIREMENTS OF ARTICLE 517 OF THE NEC. ALL EXAM AND TREATMENT ROOMS SHALL BE CONSIDERED PATIENT CARE AREAS.
- B. NEUTRALS AND GROUNDS SHALL BE COLOR CODED PER NEC.
- C. WIRE COLORS
- 120/208-VOLTSYSTEM: PHASE-A (BLACK), PHASE-B (RED), PHASE-C (BLUE).
- D. TWO PERCENT VOLTAGE DROP AT PANELBOARDS AND THREE PERCENT FOR BRANCH CIRCUITS FOR FIVE PERCENT VOLTAGE DROP PER NEC.
- E. PROVIDE GROUND CONDUCTOR(S) WITH EVERY BRANCH CIRCUIT AND EVERY FEEDER.
- F. PROVIDE A SEPARATE GROUND CONDUCTOR AND A SEPARATE NEUTRAL CONDUCTOR WHEN AN INDIVIDUAL RECEPTACLE OR PIECE OF EQUIPMENT IS SHOWN WITH AN INDIVIDUAL HOMERUN.
- G. PROVIDE A SEPARATE NEUTRAL CONDUCTOR FOR EACH LIGHTING BRANCH CIRCUIT THAT SERVES ELECTRONIC FLUORESCENT BALLASTS AND SOLID-STATE LED DRIVERS OR PROVIDE A NEUTRAL CONDUCTOR ONE SIZE LARGER THAN THE LARGEST SOURCE CONDUCTOR WHEN THE NEUTRAL IS SHARED.
- H. TESTING: ALL CIRCUITS SHALL BE TESTED FOR PROPER OPERATION AND FUNCTION. REPAIR ALL NON-WORKING, NEWLY-INSTALLED, CIRCUITS.

26 22 00 LOW VOLTAGE TRANSFORMERS (600V AND LESS)

- A. MANUFACTURERS
- SQUARE D.
 - CUTLER-HAMMER
 - SIEMENS
 - GENERAL ELECTRIC
- B. TRANSFORMER CRITERIA:
- UL LISTED AND CONFORM TO REQUIREMENTS OF ANSI/NFPA 70.
 - PRIMARY AND SECONDARY WINDINGS: COPPER
 - EFFICIENCY SHALL MEET OR EXCEED DEPARTMENT OF ENERGY STANDARDS.
 - RATE OF RISE: 150 DEGREE C TEMPERATURE RISE ABOVE 40 DEGREE C AMBIENT.
 - INSULATION CLASS: 220 DEGREES CELSIUS CLASS 115 DEGREES CELSIUS MAXIMUM RISE ABOVE 40 DEGREES CELSIUS FOR TRANSFORMERS 15 KILOVOLTAMPS (KVA) OR SMALLER; 220 DEGREES CELSIUS CLASS 80 DEGREES CELSIUS MAXIMUM RISE ABOVE 40 DEGREES CELSIUS FOR TRANSFORMERS LARGER THAN 15 KVA.
 - MAXIMUM IMPEDANCE: 5.75%.
 - NUMBER OF TAPS: MANUFACTURER'S STANDARD
- C. MOUNTING
- SUITABLE FOR TRAPEZE AND WALL BRACKET MOUNTING.
 - PROVIDE ALL NECESSARY MOUNTING HARDWARE, BRACKETS, AND RODS FOR INSTALLING TRANSFORMERS.
- D. MANUFACTURER'S STANDARD PAINT OVER CORROSION-RESISTANT PRETREATMENT AND PRIMER.
- E. PROVIDE SPRING PRESSURE CONNECTIONS. CLIPPED OR SLIT WASHERS ARE ACCEPTABLE. PROVIDE ANTI-OXIDIZING AGENTS ON TERMINATIONS.
- F. PROVIDE LUGS RATED FOR COPPER CONDUCTORS. LUGS SHALL BE EITHER SILVER OR TIN PLATED.

26 05 29 HANGERS AND SUPPORTS

- A. CONDUIT HANGERS, ATTACHMENTS, AND SUPPORTS
- PROVIDE PROPER FITTINGS AND SUPPORT SUITABLE FOR AMBIENT/ENVIRONMENTAL CONDITIONS AND SERVICE DUTY.
 - ATTACH TO STRUCTURAL COMPONENTS TO NOT JEOPARDIZE STRUCTURAL INTEGRITY.
 - PROVIDE ANGLES, CHANNELS, AND BEAMS AS REQUIRED.
- B. BACKBOARDS
- 3/4" PLYWOOD PAINTED ON BOTH SIDES AND EDGES WITH TWO COATS OF WHITE ENAMEL PAINT TO MOUNT EQUIPMENT WHERE SHOWN.
 - SUPPORT WITH PAINTED OR GALVANIZED STEEL CHANNEl.
- C. ELECTRICAL CONTRACTOR IS RESPONSIBLE TO PROVIDE ANY AND ALL BLOCKING, CHAINS, HANGERS, ETC AS REQUIRED TO SUPPORT LIGHTING SYSTEMS.

26 05 30 CONDUIT

- A. RMC
- ALLOWED FOR ALL SIZES INSIDE ABOVE GRADE.
 - REQUIRED FOR ALL SIZES OF OUTDOOR ABOVE GRADE, BELOW GRADE AND IN CONCRETE SLAB.
 - REQUIRED WHERE CALLED OUT ON PLANS.
 - GALVANIZED RIGID STEEL WITH GALVANIZED RIGID STEEL FITTINGS, T-THREADED WATERTIGHT.
- B. ELECTRIC METALLIC TUBING (EMT)
- ALLOWED FOR INSIDE ABOVE GRADE CONDUIT 2" AND SMALLER.
 - STEEL SET SCREW OR COMPRESSION TYPE FITTINGS WITH INSULATED THROAT.
 - CAST METAL SET SCREW FITTINGS NOT ALLOWED.
- C. PVC
- USE FOR LOW VOLTAGE CABLING ONLY CONCRETE, UNDER FLOOR SLABS, OR IN EARTH WHEN PERMITTED BY CODE AND LOCAL ORDINANCES
 - MINIMUM SIZE 3/4".
 - SCHEDULE 40 PVC.
- D. FLEXIBLE
- MINIMUM SIZE 1/2".
 - MAXIMUM LENGTH 36" FOR CONNECTION TO HVAC EQUIPMENT
 - MAXIMUM LENGTH 72" FOR CONNECTION TO FIXTURES IN TILE CEILINGS.
 - STEEL FITTINGS WITH INSULATED THROAT, UL LISTED.
- E. FITTINGS
- FITTING MATERIAL SHALL MATCH CONDUIT MATERIAL UNLESS OTHERWISE NOTED IN PLANS AND SPECIFICATIONS OR WITH WRITTEN APPROVAL BY ENGINEER.
- F. INSTALLATION
- CONCEAL ALL CONDUIT IN FINISHED AREAS.
 - ROUTE CONDUIT IN ORDERLY MANNER, LEVEL, PARALLEL AND AT RIGHT ANGLES TO BUILDING STRUCTURE.
 - ALL CONDUIT UNDERGROUND OR IN CONCRETE SHALL BE RIGID CONDUIT. ALL OTHER CONDUIT MAY BE EMT
 - DRAWINGS AND DIAGRAMS SHOW SIZE AND APPROXIMATE LOCATION OF CONDUIT. THE DRAWINGS ARE DIAGRAMMATIC AND SHALL NOT BE SCALED TO DETERMINE EXACT LOCATION. PROVIDE ADDITIONAL OFFSETS AS REQUIRED FOR FIELD CONDITIONS.
 - INSTALL UL APPROVED EXPANSION FITTINGS COMPLETE WITH GROUNDING JUMPERS WHERE CONDUITS CROSS BUILDINGS EXPANSION JOINTS AND IN LONG CONDUIT RUNS WHERE DIFFERENTIAL EXPANSION OR CONTRACTION WOULD CAUSE BENDING OR SEPARATION.
 - INSTALL CONDUIT WITH ADEQUATE DRAINAGE.
 - PROVIDE PULL STRING IN ALL EMPTY CONDUITS.
 - WHEN REQUIRED BY STATE AND LOCAL CODES AND ORDINANCES, PROVIDE SEPARATE CONDUIT/RACEWAY FOR FIRE ALARM AND TELECOMMUNICATION SYSTEMS.
 - ROUTE CONDUIT ABOVE LAY-IN SUSPENDED CEILINGS SO AS NOT TO INTERFERE WITH TILE REMOVAL.
 - INSTALL FLEXIBLE STEEL CONDUIT DROPS FROM INDEPENDENT JUNCTION BOX MOUNTED ABOVE CEILING TO RECESSED LIGHT FIXTURES.
 - SECURE CONDUITS WITH AT LEAST ONE CORROSION PROOF MALLEABLE ALLOY STRAP OR HANGER EVERY 8 FT. DO NOT USE PERFORATED STRAPPING.
 - PROVIDE UL LISTED FIRE-WALL PENETRATIONS WHEN CONDUIT PASS THROUGH A FIRE RATED WALL.

26 05 33 BOXES

- G. FLUSH INTERIOR 4" SQUARE STEEL BOXES WITH RAISED COVERS AND SQUARE CUT CORNERS. PROVIDE BOXES RATED FOR THROUGH FEED.
- H. PROVIDE CAST BOXES FOR EXTERIOR USE DEVICES. PROVIDE COVERS WITH GASKETS.
- I. JUNCTION AND SPICE BOXES SHALL HAVE GALVANIZED SCREW COVERS AND BE NOT LESS THAN CODE DIMENSIONS. THROUGH-WALL AND BACK-TO-BACK BOXES NOT ALLOWED.
- J. OUTLET AND JUNCTION BOXES USED AS SURFACE METAL RACEWAY SHALL BE MANUFACTURED BY THE SURFACE METAL RACEWAY MANUFACTURER TO BE COMPATIBLE WITH THE RACEWAY USED.
- K. VERIFY LOCATION PRIOR TO ROUGH-IN. MATCH THE HEIGHT OF EXISTING DEVICES FOR INSTALLATIONS IN ADDITIONS TO EXISTING FACILITIES.

26 05 35 PENETRATIONS

- A. SLEEVES
- FURNISH RIGID CONDUIT SLEEVES FOR CABLES PASSING THROUGH MASONRY, CONCRETE, OR OTHER SIMILAR CONSTRUCTION.
 - EXTEND SLEEVES COMPLETELY THROUGH CONSTRUCTION. EXTEND 1" ABOVE FLOORS. EXTEND 3" ABOVE THE FLOOR IN MECHANICAL ROOMS AND OTHER AREAS WHERE WATER MAY ACCUMULATE.
 - SLEEVES FOR CONDUITS 4" AND SMALLER: TWO SIZES LARGER THAN CONDUIT.
 - FURNISH SLEEVE TO MASON FOR MASONRY WALLS.
 - FURNISH, INSTALL, AND GROUT SLEEVE IN EXISTING MASONRY AND NEW CONCRETE WALLS.
 - SLEEVE NOT REQUIRED FOR DRYWALL WALLS OR CORE DRILLED HOLE IN CONCRETE WALL.
- B. NON-FIRE RATED INTERIOR WALL AND FLOOR PENETRATIONS: FILL VOID BETWEEN CONDUIT AND SLEEVE, CONCRETE, OR DRYWALL WITH EXPANDING POLYURETHANE FOAM. CAULK BETWEEN CONDUIT AND SLEEVE OR WALL WITH NON-HARDENING CAULK.
- C. FIRE RATED INTERIOR WALL AND FLOOR PENETRATIONS: SEAL OPENING AROUND PIPE WITH A UL APPROVED FIRE-STOP SYSTEM HAVING AN F-RATING NOT LESS THAN THE HOURLY RATING OF THE ASSEMBLY BEING PENETRATED.
- D. CONTRACTOR SHALL USE CAUTION PRIOR TO MAKING PENETRATIONS AS TO NOT DISTURB ANY EXISTING UTILITIES THAT MIGHT BE PRESENT IN EXISTING WALLS, CEILINGS OR FLOORS. THIS CONTRACTOR IS RESPONSIBLE FOR LOCATING EXISTING UTILITIES IN EXISTING WALLS, CEILINGS OR FLOORS.
- E. SEAL ALL RACEWAY, CABLE AND CONDUIT PENETRATIONS THROUGH ALL WALLS IN THE ELECTRICAL ROOM(S).

26 05 53 IDENTIFICATION FOR ELECTRICAL SYSTEMS

- A. ENGRAVED LABELS: ENGRAVED 3-LAYER PHENOLIC LABEL WITH BLACK LETTERS ON WHITE MATERIAL, UNLESS OTHER COLORS ARE CALLED OUT ON THE DRAWINGS OR DETAILS. LABELS MINIMUM 3/4" HIGH AND 3" LONG. LABELS MAY BE ATTACHED WITH DOUBLE BACKED ADHESIVE TAPE UNLESS INDICATED OTHERWISE. LABELS REQUIRED AT:
- PANELBOARDS:
 - MOUNT IDENTIFICATION LABEL AT THE TOP OF THE FRONT COVER. MOUNT ON THE INSIDE OF DOOR FOR RECESSED PANELBOARDS.
 - FAULT CURRENT AMPERE RATING
 - PROVIDE TYPEWRITTEN DIRECTORY ACCURATELY INDICATING ROOMS AND/OR EQUIPMENT BEING SERVED AS REQUIRED BY NEC.
 - DISCONNECTS: LABEL EQUIPMENT THAT IT SERVES.

26 24 16 PANELBOARDS

- A. MANUFACTURER:
- EATON CUTLER HAMMER
 - GENERAL ELECTRIC
 - ITE -- SIEMENS
 - SQUARE D
- B. CABINET
- NEMA 1 CABINET, OR AS LISTED IN PANEL SCHEDULES, CODE GAUGE STEEL CONSISTING OF A BOX WITH A REMOVABLE FRONT WITH HINGED DOOR AND LATCH.
 - FABRICATE WITH STRAIGHT EDGES AND SQUARE CORNERS.
 - BOXES SHALL BE MINIMUM 20" WIDE.
 - MANUFACTURER'S STANDARD FINISH, PRIME COAT AND BAKED ENAMEL FINISH.
 - RECESSED DOUBLE TUB PANELBOARDS SHALL HAVE TUBS OF THE SAME HEIGHT.
- C. PROVIDE A NAMEPLATE LISTING OF THE PANEL TYPE AND NUMBER OF PROTECTIVE AND SWITCHING DEVICES AND RATINGS.
- D. BUS BARS FOR THE MAINS SHALL BE COPPER SIZED IN ACCORDANCE WITH UL STANDARDS. INCLUDE FULL SIZE NEUTRAL BARS UNLESS OTHERWISE NOTED. PROVIDE GROUND BUS.
- E. NEUTRAL BUSSING SHALL HAVE ONE LUG FOR EVERY BRANCH CIRCUIT THAT THE PANELBOARD IS CAPABLE OF SUPPORTING.
- F. BUS SPACES FOR FUTURE SWITCHING AND PROTECTIVE DEVICES FOR THE MAXIMUM DEVICES AND SWITCHES THAT THE PANELBOARD CAN ACCOMMODATE.
- G. CIRCUIT BREAKERS:
- UNLESS INDICATED OTHERWISE, CIRCUIT BREAKERS SHALL BE PLUG-ON, INDIVIDUALLY REPLACEABLE, THERMAL-MAGNETIC, AUTOMATIC FREE TRIPPING, SEPARATELY INDICATING "ON", "TRIPPED", AND "OFF". AMBIENT COMPENSATED AT 40 DEGREES C, SINGLE, DOUBLE, OR TRIPLE POLE, AS REQUIRED BY THE PANEL SCHEDULES.
 - CIRCUIT BREAKERS INDICATED AS MULTIPLE POLE SHALL BE COMMON TRIP.
 - SHUNT TRIP BREAKERS SHALL HAVE INTEGRAL RELAYS.

26 27 26 WIRING DEVICES

- A. MANUFACTURERS: COOPER, HUBBELL, LEVITON AND PASS & SEYMOUR.
- B. COLOR
- SWITCH AND RECEPTACLE COLORS SHALL BE WHITE.
 - COVER PLATE COLORS SHALL BE WHITE.
- C. WALL SWITCHES
- 20-AMPERE LEVITON 1221-2 SINGLE POLE, 1223-2 THREE-WAY AND 1224-2 FOUR-WAY.
 - SEE LEGEND FOR MOUNTING HEIGHTS.
- D. DIMMERS:
- 0-10V DIMMER
 - 20 AMPERE SLIDE DIMMER WITH INTEGRAL ON/OFF SWITCH. DIMMER SHALL BE RATED FOR A LED LOAD OF 1200 WATTS MINIMUM, COOPER SF10P OR COOPER DF10P.
 - 120V DIMMER
 - SINGLE POLE SLIDE DIMMER WITH INTEGRAL ON/OFF SWITCH. DIMMER SHALL BE RATED FOR LED LOAD OF 300 WATTS MINIMUM. COOPER SAL6P.
 - PROVIDE COLOR CHANGE KIT AS NECESSARY TO MEET DEVICE COLOR SPECIFICATIONS.
 - CONTRACTOR SHALL VERIFY WITH THEIR SUPPLIER(S) ALL DIMMERS AND DIMMABLE FIXTURES ARE 100% COMPATIBLE.
- E. RECEPTACLES:
- ALL TREATMENT ROOMS SHALL BE CONSIDERED PATIENT CARE SPACES.
 - DUPLEX GROUNDED RECEPTACLES: 20 AMPERE SPECIFICATION GRADE, LEVITON 5362.
 - DUPLEX GROUNDED RECEPTACLES IN PATIENT CARE AREAS: 20 AMPERE SPECIFICATION GRADE, LEVITON T8300.
 - GFCl RECEPTACLES: 20-AMPERE HUBBELL SPECIFICATION GRADE WITH LOCK OUT CAPABILITY UPON GFCl FAILURE.
 - GFCl RECEPTACLES IN PATIENT CARE AREAS: 20-AMPERE HUBBELL HOSPITAL GRADE WITH LOCK OUT CAPABILITY UPON GFCl FAILURE.
 - USB CHARGER DUPLEX RECEPTACLE, 20 AMPERE WITH 2 USB 3 AMP CHARGING PORTS, LEVITON TS832
 - RECEPTACLES UTILIZED IN BUSINESS OFFICES, CORRIDORS, WAITING ROOMS AND THE LIKE IN CLINICS, MEDICAL AND DENTAL OFFICES, AND OUTPATIENT FACILITIES SHALL BE MARKED "TAMPER-RESISTANT" PER NEC.
 - EXTERIOR RECEPTACLES SHALL BE MARKED "WEATHER-RESISTANT" PER NEC.
 - ALL CONVENIENCE OUTLETS SHALL FLUSH MOUNTED.
 - SEE LEGEND FOR MOUNTING HEIGHTS.
 - NO CONVENIENCE RECEPTACLES SHALL BE LOCATED ON CERAMIC TILE OR MIRRORED SURFACE UNLESS SPECIFICALLY REQUIRE BY LOCAL CODES.
 - REVIEW RECEPTACLE LAYOUT WITH OWNER PRIOR TO ROUGH-IN.
 - VERIFY ACTUAL LOCATION OF EQUIPMENT WITH OWNER PRIOR TO ROUGH-IN.
 - MAKE CONNECTIONS THROUGH THE USE OF PIG-TAILS.
- F. COVER PLATE
- INTERIOR: WHITE.
 - EXTERIOR: WEATHER-PROOF, GASKETED, LIFT COVER. RECEPTACLE COVER SHALL ALLOW CONTINUED USE WHEN COVER IS CLOSED.
- G. BLANK, TELEVISION AND TELEPHONE OUTLETS: 4" SQUARE EXTRA DEEP BOX, SINGLE GANG RING AND BLANK COVER PLATE. PROVIDE CONDUIT FROM EACH BOX INTO AN ACCESSIBLE SPACE. TERMINATE CONDUIT WITH INSULATED CONNECTORS ON BOTH ENDS.

26 27 27 OCCUPANCY SENSORS / VACANCY SENSORS

- A. MANUFACTURERS: COOPER, HUBBELL, LEVITON, SENSOR SWITCH, & THE WATT STOPPER.
- COLOR: SHALL BE THE SAME COLOR AS WIRING DEVICES. REFERENCE SPECIFICATION SECTION 26 27 26.
 - SHALL BE FROM THE SAME MANUFACTURER AS THE WIRING DEVICES.
- B. SENSOR TECHNOLOGY
- ULTRASONIC (US).
 - RESTROOMS
 - HALLWAYS
 - PASSIVE INFRARED (PIR).
 - STORAGE ROOMS
 - DUAL TECHNOLOGY (PASSIVE INFRARED & ULTRASONIC).
 - OFFICES
 - CONFERENCE ROOMS
 - CLASSROOMS
 - OTHER SPACES
- C. SENSOR PERFORMANCE
- INFRARED:
 - UTILIZE MULTIPLE SEGMENTED LENS, WITH INTERNAL GROOVES TO ELIMINATE DUST AND RESIDUE BUILD-UP.
 - ULTRASONIC:
 - UTILIZE AN OPERATING FREQUENCY OF 32 KHZ OR 40 KHZ THAT SHALL BE CRYSTAL CONTROLLED TO OPERATE WITHIN PLUS OR MINUS 0.005% TOLERANCE. UTILIZE DOPPLER SHIFT ULTRASONIC DETECTION TECHNOLOGY.
 - DUAL TECHNOLOGY:
 - UTILIZE MULTIPLE SEGMENTED LENS, WITH INTERNAL GROOVES TO ELIMINATE DUST AND RESIDUE BUILD-UP.
 - UTILIZE AN OPERATING FREQUENCY OF 32 KHZ OR 40 KHZ THAT SHALL BE CRYSTAL CONTROLLED TO OPERATE WITHIN PLUS OR MINUS 0.005% TOLERANCE.
 - INCORPORATE DOPPLER SHIFT ULTRASONIC AND PASSIVE INFRARED MOTION DETECTION TECHNOLOGIES. PRODUCTS THAT REACT TO NOISE OR AMBIENT SOUND SHALL NOT BE CONSIDERED.
 - SENSOR DEVICES SHALL HAVE EITHER INTEGRAL DUAL RELAYS OR CONTROL, SEPARATE DUAL RELAY POWER PACKS TO ACHIEVE DUAL LEVEL LIGHTING WHEN DUAL LEVEL CONTROL IS INDICATED.
 - INTEGRAL ADJUSTABLE LIGHT LEVEL SENSOR WITH CAPACITY TO CONTROL ONE OR MORE RELAY WHEN THE SELECTED ADEQUATE DAYLIGHT IS PRESENT.
 - UTILIZE ZERO CROSSING CIRCUITRY WHICH INCREASES RELAY LIFE AND SENSORS LONGEVITY.
 - SHOULD POWER BE INTERRUPTED AND SUBSEQUENTLY RESTORED, SETTINGS AND PARAMETERS SAVED IN PROTECTED MEMORY SHALL NOT BE LOST.
 - SENSORS SHALL BE SIZED FOR THE ROOM THEY SERVE BY MANUFACTURER'S VENDOR OR COVER 1,500 SQUARE FEET WITH STANDARD LENS AND UP TO 90 LINEAR FEET WITH LONG RANGE LENS FOR WALKING MOTION WHEN MOUNTED AT A CEILING HEIGHT OF 12 FEET.
 - INDEPENDENT SENSITIVITY ADJUSTMENTS AND LED DISPLAY FOR EACH SENSING TECHNOLOGY.
 - SENSOR SHALL HAVE STANDARD 5 YEAR WARRANTY AND BE UL LISTED.
- D. CONTROL STRATEGIES
- AUTOMATIC CONTROLS SHALL BE MANUAL ON, OR SHALL TURN ON NOT MORE THAN 50% OF THE OF THE CONTROLLED LAMPS WITH THE REMAINING LAMPS BEING CONTROLLED MANUALLY.
 - EXCEPTION: PUBLIC CORRIDORS, STAIRWAYS, RESTROOMS, PRIMARY ENTRANCES AND LOBBIES SHALL HAVE FULL ON AUTOMATIC CONTROLS.
 - AUTOMATIC CONTROLS SHALL TURN LIGHTS OFF WITHIN 30 MINUTES OF ALL OCCUPANTS LEAVING THE SPACE.
 - RETRIGGER TIME DELAY: ONLY ONE MOTION IS NECESSARY TO TURN ON THE LIGHTS WITHIN 5 SECONDS AFTER TURNING OFF.

- E.C. SHALL INCLUDE TIME IN HIS BID TO WORK WITH THE OWNER AND MANUFACTURER TO DETERMINE THE PROPER TIME AND SENSOR SETTINGS FOR EACH SENSOR IN THE SPACES IN WHICH THEY OPERATE. INCLUDE TIME IN BID TO HAVE THE MANUFACTURER'S REPRESENTATIVE ON SITE AND REVIEW THE JOB TO DETERMINE WHAT THE EXPECTED EQUIPMENT SETTINGS SHOULD BE.

26 28 16 ENCLOSED DISCONNECT SWITCHES

- A. ELECTRICAL COMPONENTS, DEVICES, AND ACCESSORIES: LISTED AND LABELED AS DEFINED IN NFPA 70, ARTICLE 100, BY A TESTING AGENCY ACCEPTABLE TO AUTHORITIES HAVING JURISDICTION, AND MARKED FOR INTENDED USE.
- B. NONFUSIBLE SWITCH: TYPE GD WITH LOCKABLE HANDLE.
- C. FUSIBLE SWITCH: TYPE HD WITH CLIPS TO ACCOMMODATE FUSES. HANDLE LOCKABLE IN OPEN AND CLOSED POSITION. HANDLE INTERLOCKED WITH COVER IN CLOSED POSITION WITH INTERLOCK BYPASS.
- F. LABEL EACH ENCLOSURE WITH ENGRAVED METAL OR LAMINATED-PLASTIC NAMEPLATE MOUNTED WITH CORROSION-RESISTANT SCREWS.
- G. INSTALL EQUIPMENT GROUNDING CONNECTIONS FOR SWITCHES AND CIRCUIT BREAKERS WITH GROUND CONTINUITY TO MAIN ELECTRICAL GROUND BUS.
- H. DEMONSTRATE PRODUCT CAPABILITY AND COMPLIANCE WITH REQUIREMENTS AFTER INSTALLATION AND AFTER ELECTRICAL CIRCUITRY HAS BEEN ENERGIZED.
- PERFORM VISUAL AND MECHANICAL INSPECTION AND ELECTRICAL TEST. CERTIFY COMPLIANCE WITH TEST PARAMETERS.
 - CORRECT MALFUNCTIONING UNITS, ON-SITE WHERE POSSIBLE, AND RETEST TO DEMONSTRATE COMPLIANCE.



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ELECTRICAL SPECIFICATIONS

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28 31 10 DIGITAL, ADDRESSABLE FIRE ALARM SYSTEM

- A. THIS SPECIFICATION IS A DESIGN BUILD PERFORMANCE BASED SPECIFICATION. THE CONTRACT DOCUMENTS ARE TO RELAY THE MINIMUM DESIGN INTENT. IT IS THE CONTRACTORS RESPONSIBILITY TO PROVIDE A COMPLETE APPROVED AND OPERABLE SYSTEM.

B. IN THE EVENT OF ANY INCONSISTENCY, CONFLICT, OR AMBIGUITY BETWEEN OR AMONG THE REQUIREMENTS OF THE CONTRACT DOCUMENTS, THE MORE STRINGENT REQUIREMENT SHALL TAKE PRECEDENCE WITH NO ADDITIONAL COST TO THE OWNER.

C. MANUFACTURERS: SIMPLEXGRINNELL, EDWARDS SYSTEM TECHNOLOGY, NOTIFIER, SIEMENS, HONEYWELL, GAMEWELL, GE, HOCHIKI

D. CONTRACTOR SHALL PROVIDE ALL REQUIRED STATE SUBMITTALS FOR FIRE ALARM INSTALLATION, AND INCLUDE ALL ASSOCIATED PLAN APPROVAL FEES.

E. FIRE ALARM CONTRACTOR IS RESPONSIBLE FOR FINAL DESIGN AND LAYOUT OF DEVICES TO MEET CODE.

F. QUALITY ASSURANCE
 - EQUIPMENT AND INSTALLATION SHALL CONFORM TO THE NFPA 72, NEC, AND LOCAL AUTHORITIES HAVING JURISDICTION.
 - ALL FIRE ALARM EQUIPMENT AND INSTALLATION SHALL COMPLY WITH THE AMERICANS WITH DISABILITIES ACT (ADA) REQUIREMENTS.
 - ALL TECHNICIANS PERFORMING WORK ON THIS PROJECT SHALL BE FACTORY TRAINED AND AT MINIMUM, NICET LEVEL TWO CERTIFIED IN FIRE ALARM SYSTEMS. THE SYSTEM'S VENDOR MUST EMPLOY FACTORY TRAINED TECHNICIANS AND MAINTAIN A SERVICE ORGANIZATION WITHIN 100 MILES OF THE JOB SITE, HAVE A MINIMUM OF 10 YEARS EXPERIENCE SERVICING FIRE ALARM SYSTEMS AND PROVIDE 24 HOUR EMERGENCY SERVICE.
 - ALL FIRE SUPPRESSION DEVICES THAT REQUIRE CONNECTION TO THE FIRE ALARM CONTROL PANEL SHALL BE COORDINATED WITH THE GENERAL CONTRACTOR AND FIRE SUPPRESSION CONTRACTOR AND INCORPORATED INTO THE BID.

G. PROJECT CLOSEOUT
 - THE COMPLETED SYSTEM SHALL BE TESTED IN ACCORDANCE WITH NFPA STANDARD 72H. PROVIDE A CERTIFIED TEST REPORT FROM THE MANUFACTURER'S REPRESENTATIVE THAT THE SYSTEM COMPLIES WITH NFPA AND STATE CODES.
 - PROVIDE A "FIRE ALARM SYSTEM RECORD OF COMPLETION" PER NFPA 72, CHAPTER 4.
 - SEE "BASIC ELECTRICAL REQUIREMENTS" FOR OPERATING INSTRUCTION REQUIREMENTS.
 - THE EQUIPMENT AND WIRING SHALL BE WARRANTED TO BE FREE FROM ELECTRICAL AND MECHANICAL DEFECTS FOR A PERIOD OF ONE (1) YEAR. THE YEAR SHALL COMMENCE UPON COMPLETE INSTALLATION AND SUCCESSFUL START-UP OF THE SYSTEM.

H. SYSTEM WIRING
 - SEE SCHEMATICS AND DETAILS ON DRAWINGS FOR ADDITIONAL REQUIREMENTS.
 - THE SYSTEM WIRING AND INSTALLATION SHALL BE IN COMPLIANCE WITH APPLICABLE CODES, PROJECT DRAWINGS AND AS REQUIRED BY THE MANUFACTURER. ALL WIRING SHALL BE COLOR CODED, TAGGED AND CHECKED TO ASSURE THAT IT IS FREE FROM SHORTS AND GROUNDS. PROVIDE RECORD DRAWINGS OF INSTALLATION.
 - PROVIDE DUCT SEAL COMPOUND AT EACH SMOKE DETECTOR TO SEAL THE CONDUIT.
 - WHEN CONDUIT AND/OR JUNCTION BOXES ARE REQUIRED BY LOCAL ORDINANCES OR AHJ, PAINT THE BOX COVERS AND CONDUIT BODIES RED AND LABEL "F.A."
 - WHEN REMOTE POWER SUPPLIES ARE REQUIRED, POWER SUPPLIES ARE TO BE MOUNTED IN MECHANICAL ROOMS OR OTHER AREAS ADJACENT TO PANELBOARDS AND WHERE EASILY ACCESSIBLE. PROVIDE BATTERY BACK-UP FOR EACH REMOTE POWER SUPPLY. PROVIDE ONE DEDICATED 120 VOLT BRANCH CIRCUIT PER POWER SUPPLY. INCLUDE COST OF BRANCH CIRCUITS IN BID.

J. FIRE ALARM CONTROL PANEL (FACP)
 - FACP (PROVIDED AS PART SHELL BUILD OUT). CONTRACTOR SHALL FIELD VERIFY MANUFACTURERE AND PROVIDE NEW FIRE ALARMAS DEVICES THAT ARE COMPATIBLE WITH EXISTING FACP.

K. DEVICES
 - STROBE:
 - SHALL BE COMPATIBLE WITH EXISTING FACP.
 - UL LISTED VANDAL RESISTANT SOLID STATE XENON FLASHTUBE CAPABLE OF EITHER CEILING OR WALL MOUNTING.
 - PYRAMIDAL SHAPED LEXAN LENS WITH "FIRE" LETTERING VISIBLE FROM A 180 DEGREE FIELD OF VIEW.
 - CANDELA REQUIREMENTS DETERMINED BY CONTRACTOR'S VENDOR.
 - STROBE LOCATION ON PLAN IS APPROXIMATE. THE INDICATOR SHALL BE VISIBLE FROM ALL USABLE SPACES WITHIN THE ROOM. MOUNT VISUAL INDICATOR WHERE IT DOES NOT CONFLICT WITH OTHER WALL FINISHES OR EQUIPMENT.
 - PROVIDE SYNCHRONIZED STROBES WHERE THREE OR MORE STROBES CAN BE VIEWED FROM ONE LOCATION OR WHERE INDICATED BY AHJ.
 - HORN/ STROBE :
 - SHALL BE COMPATIBLE WITH EXISTING FACP.
 - STROBE AS SPECIFIED ABOVE WITH A COMMON ENCLOSURE FOR THE HORN DEVICE.
 - SOUND OUTPUT LEVELS DETERMINED BY CONTRACTOR'S VENDOR.
 - EXTERNAL: PROVIDE WEATHERPROOF AUDIBLE / VISIBLE SIGNAL EQUIVALENT TO FARR-LARM SERIES 3300 AT EXTERIOR OF BUILDING NEAR SIAMESE CONNECTION. SHIELD SHALL STATE "WHEN ALARM SOUNDS CALL POLICE OR FIRE DEPARTMENT" OR SIMILAR VERBIAGE.
 - ADDRESSABLE PULL STATIONS:
 - SHALL BE COMPATIBLE WITH EXISTING FACP.
 - U.L. LISTED.
 - COMMUNICATE THE STATION'S STATUS (ALARM/NORMAL) TO THE CONTROL PANEL OVER TWO WIRES WHICH ALSO PROVIDE POWER TO THE PULL STATION.
 - MECHANICALLY LATCH UPON OPERATION AND REMAIN SO UNTIL MANUALLY RESET BY OPENING WITH A KEY COMMON TO ALL SYSTEMS LOCKS AND CONTROL PANEL.
 - DOUBLE ACTION AND IDENTIFIED FOR LOCAL USE BY RAISED WHITE LOCAL LETTERING.
 - HINGED FRONT TO A BACKPLATE ASSEMBLY.
 - CAPABLE OF FIELD PROGRAMMING ITS "ADDRESS" LOCATION ON AN ADDRESSABLE SIGNALING LINE CIRCUIT.
 - SMOKE DETECTORS:
 - SHALL BE COMPATIBLE WITH EXISTING FACP.
 - SMOKE SENSORS SHALL BE SOLID STATE PHOTOELECTRIC SMOKE DENSITY MEASURING DEVICES HAVING NO SELF-CONTAINED ALARM SET POINT (FIXED THRESHOLD) AND SHALL COMMUNICATE ACTUAL CHAMBER VALUES TO THE SYSTEM CONTROL PANEL.
 - SMOKE SENSORS AND BASES SHALL BE LISTED TO UL STANDARD 268 AND DOCUMENTED COMPATIBLE WITH THE CONTROL EQUIPMENT TO WHICH THEY ARE CONNECTED, AND FOR BOTH CEILING AND WALL MOUNT APPLICATIONS.
 - EACH SENSOR WILL BE CAPABLE OF SENSING UP TO (7) SENSITIVITY LEVELS RANGING BETWEEN .6% AND 4.0%.
 - PHOTOELECTRIC SENSOR SHALL HAVE A FINE 30 MESH INSECT SCREEN.
 - SENSOR ELECTRONICS SHALL BE COMPLETELY SHIELDED TO PROTECT AGAINST FALSE ALARMS FROM EMI AND RFI.
 - SMOKE DETECTORS SHALL NOT BE INSTALLED UNTIL FINAL ROOM FINISHES AND CARPETING HAVE BEEN COMPLETED, OR PROTECT BY A PLASTIC BAG TO PREVENT DUST ENTERING THE SMOKE DETECTOR.
 - HEAT DETECTORS:
 - SHALL BE COMPATIBLE WITH EXISTING FACP.
 - SENSOR SHALL BE A COMBINATION RATE OF RISE/FIXED TEMPERATURE SENSOR. U.L. LISTED AS A RATE COMPENSATED HEAT DETECTOR.
 - EACH SENSOR CAPABLE OF OPERATING AT A SELECTABLE RATE OF RISE OPERATION OF 15 OR 20 DEGREES FAHRENHEIT PER MINUTE AND IS SELF-RESTORABLE.
 - EACH SENSOR CAPABLE OF FIXED TEMPERATURE OPERATION SELECTABLE FOR EITHER 117 OR 135 DEGREES FAHRENHEIT, INDEPENDENT OF THE RATE OF RISE SETTING.
 - EACH SENSOR CONFIGURABLE FOR UTILITY MONITORING AND CAPABLE OF SENSING TEMPERATURE BETWEEN 32 AND 158 DEGREES FAHRENHEIT.

L. SYSTEM OPERATION
 - PROVIDE REQUIRED PROGRAMMING. VENDOR SHALL MEET WITH THE OWNER TO DETERMINE IF THERE ARE ANY EXTRAORDINARY PROGRAMMING CIRCUMSTANCES.
 - SMOKE DETECTION OPERATION:
 - CONTROL PANEL SHALL MAKE THE ALARM DECISION FOR EACH SENSOR.
 - CONTROL PANEL SHALL DETERMINE THE CONDITION OF EACH SENSOR BY COMPARING THE SENSOR VALUE TO THE STORED VALUES.
 - CONTROL PANEL SHALL MAINTAIN A MOVING AVERAGE OF THE SENSORS' SMOKE CHAMBER VALUE TO AUTOMATICALLY COMPENSATE (MOVE THE THRESHOLD) FOR DUST AND DIRTY CONDITIONS THAT COULD AFFECT DETECTION OPERATIONS. THE SYSTEM SHALL AUTOMATICALLY MAINTAIN A CONSTANT SMOKE OBSCURATION SENSITIVITY FOR EACH SENSOR (VIA THE FLOATING THRESHOLD) BY COMPENSATING FOR ENVIRONMENTAL FACTORS.
 - THE SYSTEM SHALL AUTOMATICALLY INDICATE WHEN AN INDIVIDUAL SENSOR NEEDS CLEANING. WHEN A SENSOR'S AVERAGE VALUE REACHES A PREDETERMINED VALUE, A "DIRTY SENSOR" TROUBLE CONDITION SHALL BE AUDIBLY AND VISUALLY INDICATED AT THE CONTROL PANEL. THE LED ON THE SENSOR BASE SHALL GLOW STEADY. IF A "DIRTY SENSOR" IS LEFT UNATTENDED, AND ITS AVERAGE VALUE INCREASES TO A SECOND PREDETERMINED VALUE, AN "EXCESSIVELY DIRECT SENSOR" TROUBLE CONDITION SHALL BE INDICATED AT THE CONTROL PANEL. TO PREVENT FALSE ALARMS, THESE "DIRTY" CONDITIONS SHALL IN NO WAY DECREASE THE AMOUNT OF SMOKE OBSCURATION NECESSARY FOR SYSTEM ACTIVATION.
 - CONTROL PANEL SHALL CONTINUOUSLY PERFORM AN AUTOMATIC SELF-TEST ROUTINE ON EACH SENSOR WHICH WILL FUNCTIONALLY CHECK SENSOR ELECTRONICS AND ENSURE THE ACCURACY OF THE VALUES BEING TRANSMITTED TO THE CONTROL PANEL. ANY SENSOR THAT FAILS THIS TEST SHALL INDICATE A "SELF TEST ABNORMAL" TROUBLE CONDITION.
 - THE ACTIVATION OF ANY SYSTEM SMOKE DETECTOR IN ALL PUBLIC AND COMMON AREAS SHALL INITIATE AN ALARM VERIFICATION OPERATION WHEREBY THE PANEL WILL RESET THE ACTIVATED DETECTOR AND WAIT FOR A SECOND ALARM ACTIVATION. IF, WITHIN ONE MINUTE AFTER RESETTING, A SECOND ALARM IS REPORTED FROM THE SAME OR ANY OTHER SMOKE DETECTOR, THE SYSTEM SHALL PROCESS THE ALARM AS DESCRIBED PREVIOUSLY. IF NO SECOND ALARM OCCURS WITHIN ONE MINUTE, THE SYSTEM IS TO RESUME NORMAL OPERATION. THE ALARM VERIFICATION OPERATION IS TO BE U.L. LISTED.
 - ALARM ACTIVATION
 - ANY INITIATION OF SMOKE DETECTORS, PULL STATIONS OR FLOW SWITCHES SHALL PUT THE SYSTEM INTO GENERAL ALARM CONDITIONS.
- b. EXTERNAL AUDIBLE / VISIBLE SIGNAL AT FIRE DEPARTMENT CONNECTION SHALL ONLY ALARM ON FLOW SWITCH INITIATION.

c. ALL AUDIBLE ALARM INDICATING APPLIANCES SHALL SOUND UNTIL SILENCED BY THE ALARM SILENCE SWITCH AT THE CONTROL PANEL. SIGNALS SHALL NOT BE SILENCED DURING ALARM SILENCE INHIBIT MODE.

d. XENON STROBES SHALL DISPLAY A CONTINUOUS PATTERN UNTIL SYSTEM IS RESET.

4. RTAC/AHU SHUT DOWN (ROOFTOP AIR CONDITIONING UNIT/AIR HANDLING UNIT)
 - NEW RTAC: RETURN AIR SMOKE DETECTOR AND INTERLOCK TO SHUTDOWN RTAC BY RTAC MANUFACTURER. PROVIDE AN ADAPTER MODULE WITH ADDRESS TO MONITOR THE DUCT TYPE SMOKE DETECTOR.
 - EC SHALL COORDINATE DUCT SMOKE DETECTOR INSTALLATION WITH THE HVAC CONTRACTOR. FURNISH THE APPROPRIATE MOUNTING BRACKETS, CLEARANCES AND SAMPLING TUBE LENGTH TO PROVIDE AN APPROVED INSTALLATION.

5. SPRINKLER SYSTEM
 - EXISTING.

6. MOUNTING HEIGHTS
 - FIRE PULL STATION, STROBES AND COMBINATION HORN/STROBE DEVICES: SEE FLOOR PLANS LEGEND FOR MOUNTING HEIGHTS.
 - FIRE ALARM REMOTE ANNUNCIATOR PANEL-48" TO BOTTOM
 - FIRE ALARM CONTROL PANEL - MOUNT SUCH THAT THE TOP OF THE FIRE ALARM CONTROL PANEL IS NOT HIGHER THAN 72".
 - FLOOR PLAN GRAPHIC, ADJACENT TO FIRE ALARM ANNUNCIATORS.

7. INTERCONNECTION OF FIRE ALARM TO OTHER SYSTEMS
 - THE FIRE ALARM SYSTEM SHALL BE INTERCONNECTED TO THE FOLLOWING SYSTEMS:
 - ALARM DIALER FOR CONNECTION TO OFF-SITE MONITORING.
 - TO ACCOMMODATE JOB SITE CHANGES, THE TYPE OF "OFF-SITE MONITORING" IS TO BE ON SITE CONFIGURABLE TO PROVIDE EITHER A "REVERSE POLARITY", "LOCAL ENERGY", "SHUNT" OR DRY CONTACT CONNECTION.

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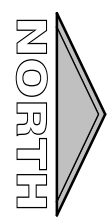
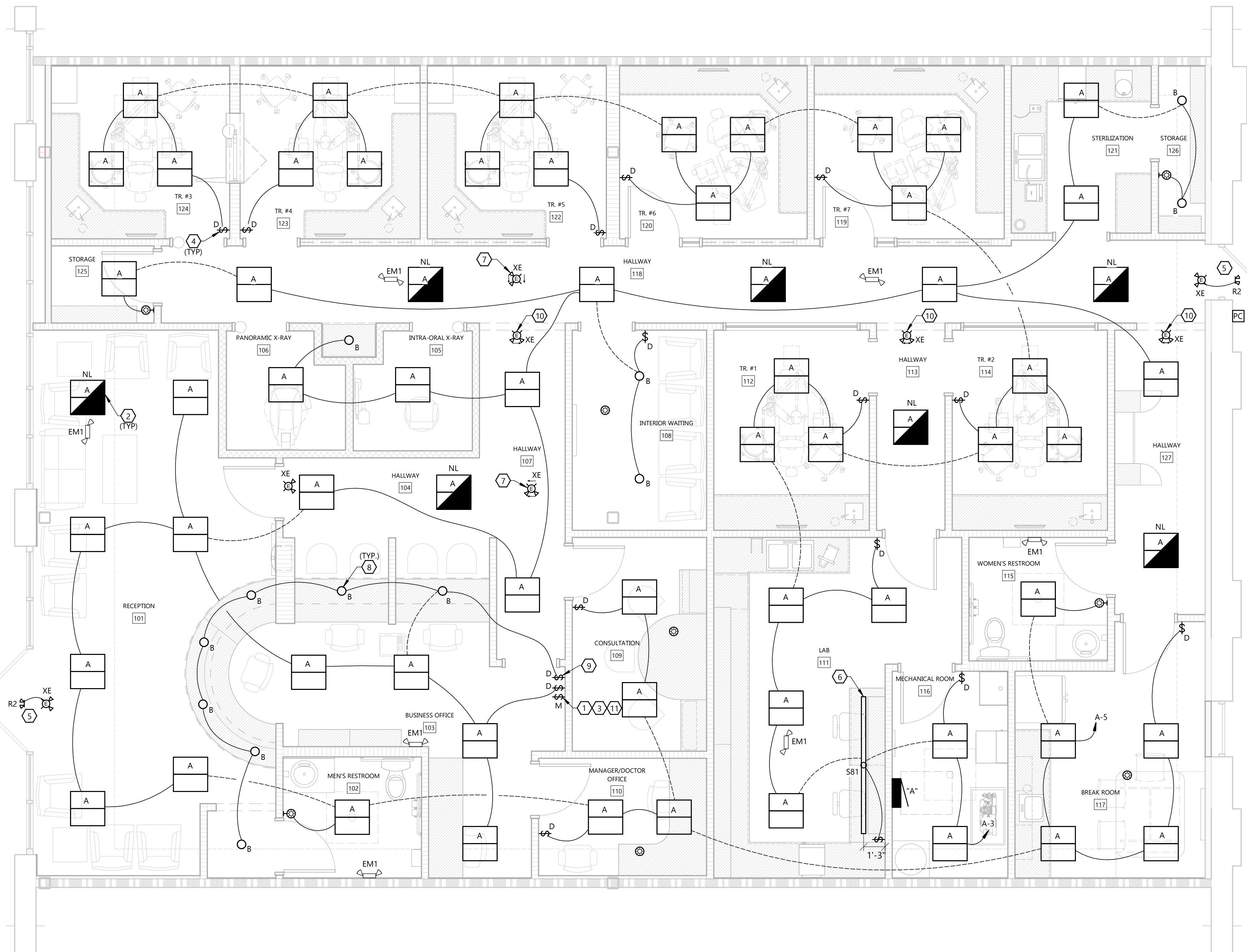
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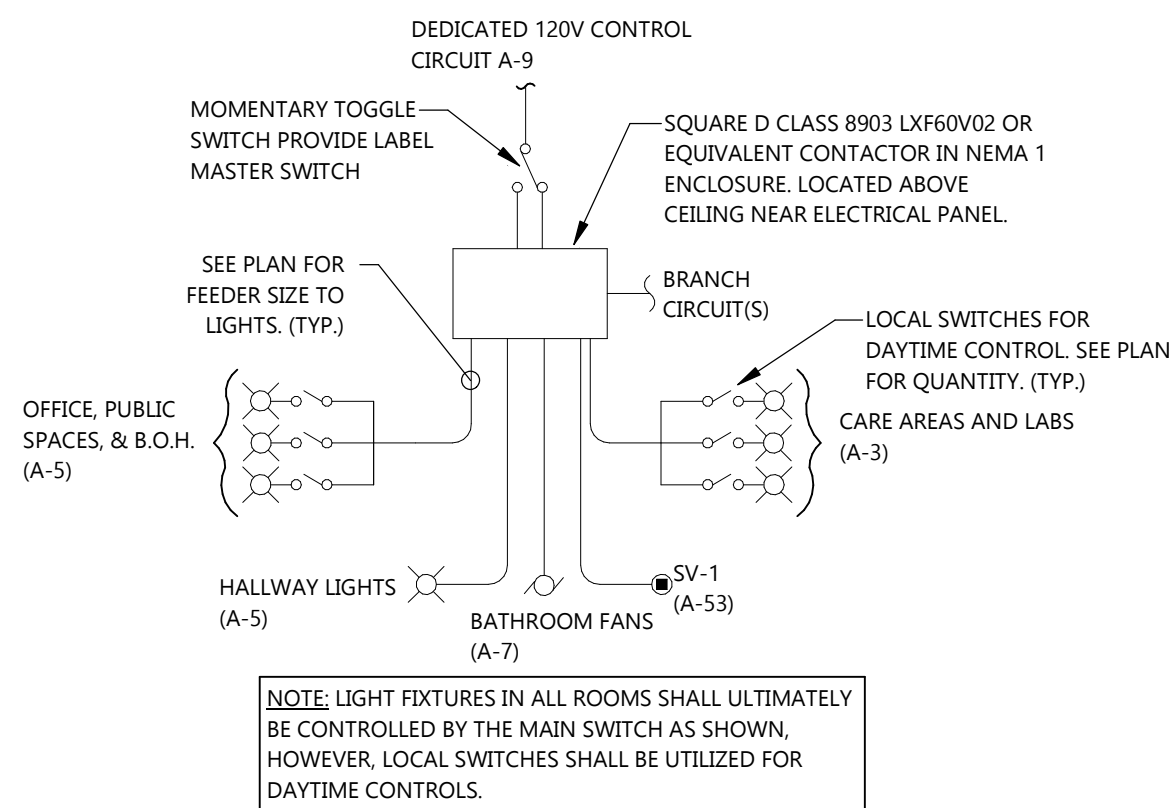
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FLOOR PLAN - LIGHTING

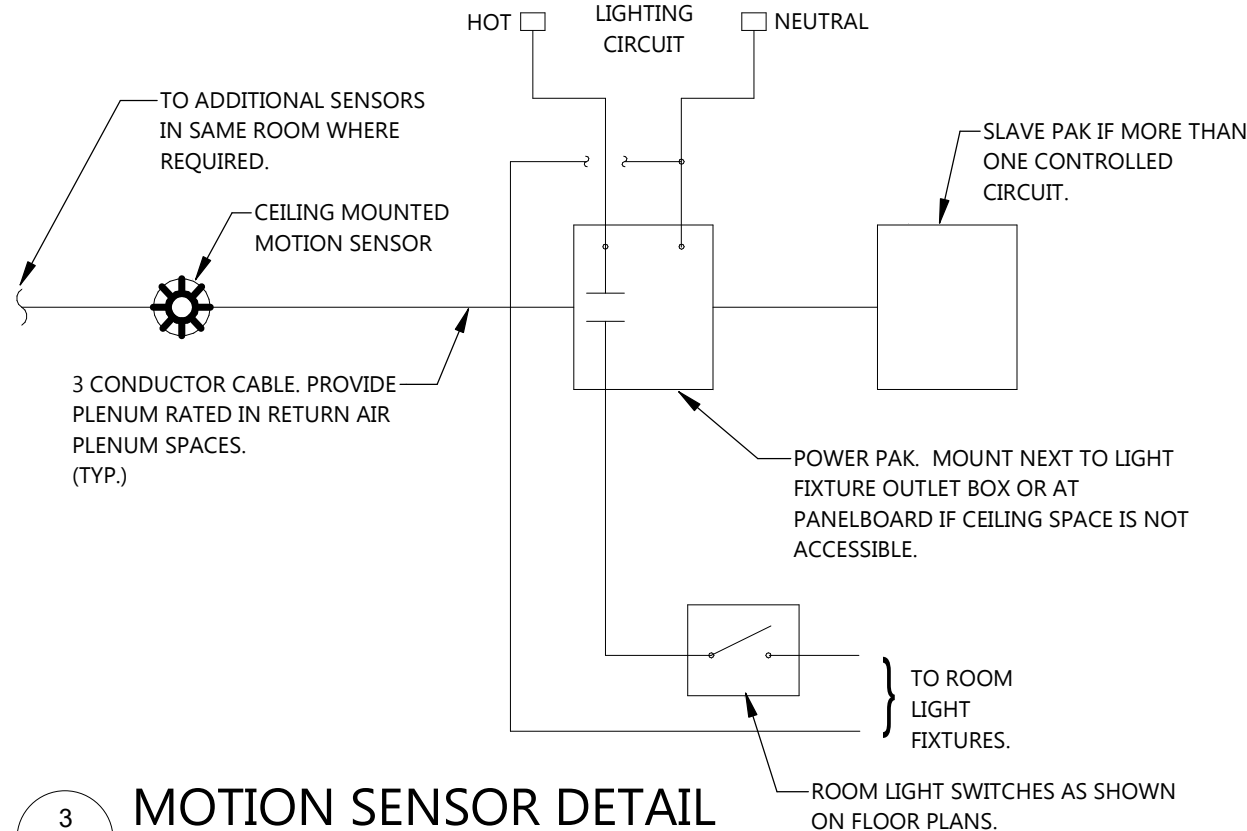
SCALE: 1/4" = 1'-0"
0' 4' 8'



NOTE: LIGHT FIXTURES IN ALL ROOMS SHALL ULTIMATELY BE CONTROLLED BY THE MAIN SWITCH AS SHOWN, HOWEVER, LOCAL SWITCHES SHALL BE UTILIZED FOR DAYTIME CONTROLS.

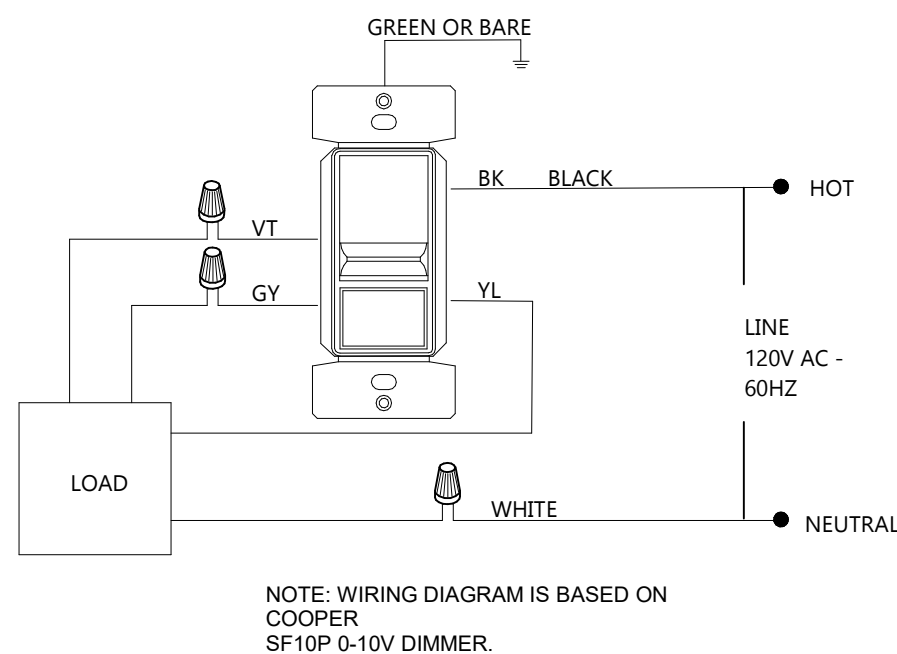
4 INTERIOR LIGHTING CONTROL DETAIL

E1.1L NOT TO SCALE



3 MOTION SENSOR DETAIL

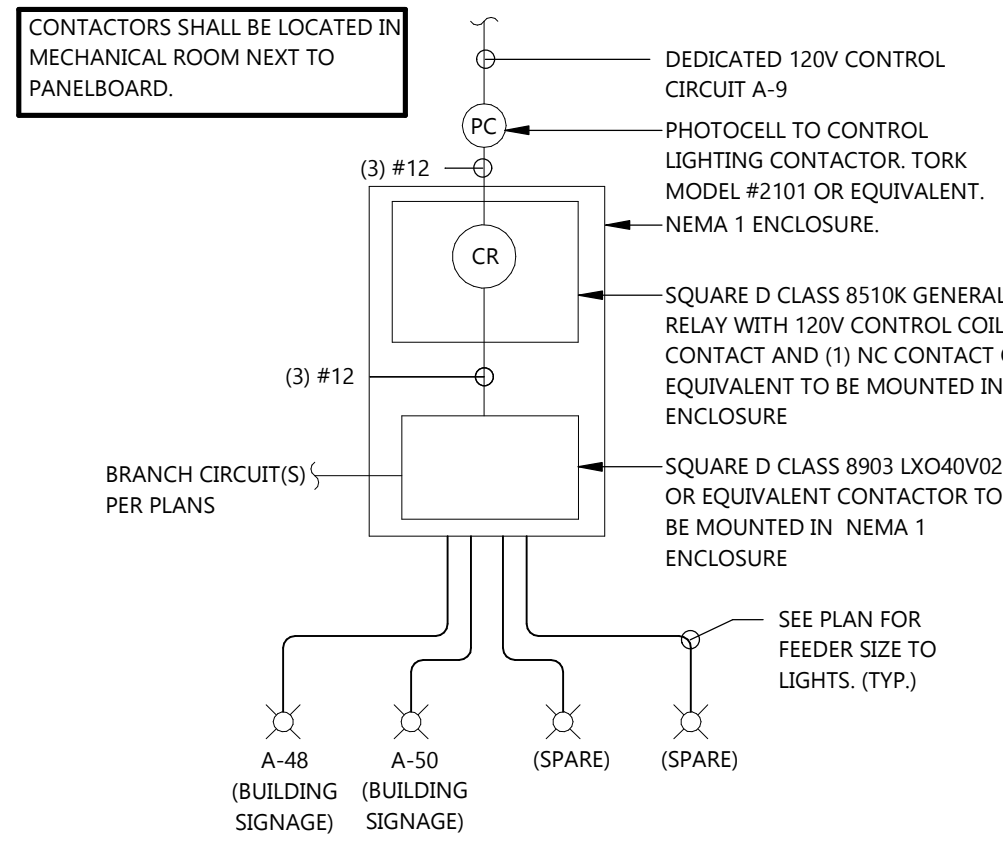
E1.1L NOT TO SCALE



NOTE: WIRING DIAGRAM IS BASED ON COOPER SF10P 0-10V DIMMER.

2 0-10V DIMMER WIRING DIAGRAM

E1.1L NOT TO SCALE



CONTACTORS SHALL BE LOCATED IN MECHANICAL ROOM NEXT TO PANELBOARD.

DEDICATED 120V CONTROL CIRCUIT A-9
PHOTOCELL TO CONTROL LIGHTING CONTACTOR, TORK MODEL #2101 OR EQUIVALENT, NEMA 1 ENCLOSURE.
SQUARE D CLASS 8510K GENERAL PURPOSE RELAY WITH 120V CONTROL COIL AND (1) NO CONTACT AND (1) NC CONTACT OR EQUIVALENT TO BE MOUNTED IN NEMA 1 ENCLOSURE
SQUARE D CLASS 8903 LXQ40V02 OR EQUIVALENT CONTACTOR TO BE MOUNTED IN NEMA 1 ENCLOSURE
SEE PLAN FOR FEEDER SIZE TO LIGHTS. (TYP.)

BRANCH CIRCUIT(S) PER PLANS
A-48 (BUILDING SIGNAGE)
A-50 (BUILDING SIGNAGE)
(SPARE)
(SPARE)

1 EXTERIOR LIGHTING AND SIGNAGE CONTROL DETAIL

E1.1L NOT TO SCALE

LIGHTING PLAN GENERAL NOTES

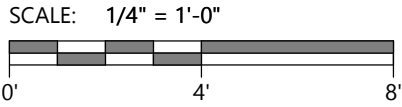
- FIXTURE SHADING INDICATES THAT FIXTURE SHALL BE ON NIGHT LIGHT CIRCUIT.
- VERIFY ALL EXPOSED CONDUIT ROUTING WITH ARCHITECT/ENGINEER WHERE CONDUIT IS EXPOSED IN FINISHED ROOMS.
- E.C. SHALL PROVIDE ALL APPURTENANCES AND ACCESSORIES INCLUDING, BUT NOT LIMITED TO, PHOTOCELLS, CONTACTORS, SWITCHES, HANGERS, ETC., IN ORDER TO PROVIDE A COMPLETE AND OPERABLE SYSTEM.
- COORDINATE FIXTURE LOCATIONS AND MOUNTING ASSEMBLIES WITH OTHER TRADES AND TYPE OF CONSTRUCTION TO ENSURE ADEQUATE MOUNTING.
- ALL TYPE "XE" AND "EM1" EMERGENCY LIGHTS WITH 90 MINUTE BATTERY BACK-UP. BATTERY CHARGER TO BE CIRCUITED TO UNSWITCHED LEG OF LOCAL LIGHT CIRCUIT.
- ALL WALL MOUNTED EMERGENCY LIGHTS 8'-0" AFF.
- SEE ARCHITECTURAL REFLECTED CEILING AND ELEVATION PLANS FOR LOCATION OF ALL LIGHTING FIXTURES. LOCATE FIXTURES IN ACCORDANCE WITH CEILING AND ELEVATION PLANS.

LIGHTING PLAN KEYNOTES

- 1 SEE INTERIOR LIGHTING CONTROL DETAIL #4/E1.1L FOR SWITCHING SCHEMES.
- 2 CIRCUIT NIGHT LIGHT UNSWITCHED TO CIRCUIT A-1.
- 3 PROVIDE SWITCH BANK AT 48" A.F.F.
- 4 PROVIDE 0-10V SLIDE DIMMER WITH ON/OFF SWITCH, PER SPECIFICATIONS FOR ALL DIMMERS CONTROLLING "A" FIXTURES. SEE 0-10V DIMMER WIRING DIAGRAM #2/E1.1L.
- 5 WIRE REMOTE EXTERIOR EGRESS EMERGENCY HEADS FROM EXIT LIGHT BATTERY AS SHOWN, IF EXTERIOR EGRESS EMERGENCY LIGHTING IS NOT ALREADY EXISTING.
- 6 MOUNT BOTTOM OF FIXTURE AT 7'-0" A.F.F.
- 7 PROVIDE EXIT AS DOUBLE FACE.
- 8 LIGHT HOUSING FOR "B" FIXTURE TO BE PROVIDED BY EC. HOUSING TO BE COOPER H750T.
- 9 PROVIDE SLIDE DIMMER WITH ON/OFF SWITCH PER SPECIFICATIONS. TYPICAL ALL DIMMERS CONTROLLING "B" FIXTURES.
- 10 MOUNT EXIT LIGHT TO FACE OF SOFFIT.
- 11 MASTER SWITCH TO BE COLORED FOR IDENTIFICATION PROPOSES.



FLOOR PLAN - LOW VOLTAGE



LOW VOLTAGE GENERAL NOTES

- ALL DATA CABLE SHALL BE CAT6.
- ALL COAXIAL CABLE SHALL BE RG6 (QUAD SHIELDED).
- ALL DATA AND COAXIAL CABLES SHALL HAVE MINIMUM 10' SERVICE COIL ABOVE CEILING, 2' MINIMUM COILED IN UTILITY BOX, AND 20' COILED AT DATA RACK.
- HOME RUN ALL DATA AND COAXIAL CABLES TO DATA RACK LOCATED IN THE (MECHANICAL ROOM) UNLESS OTHERWISE NOTED.
- CLEARLY LABEL ALL CABLES AT BOTH ENDS.
- VERIFY ALL EXPOSED CONDUIT ROUTING WITH ARCHITECT/ENGINEER WHERE CONDUIT IS EXPOSED IN FINISHED ROOMS.
- ALL RACEWAYS (CONDUITS, PULL STRINGS, WOOD CHASES) ARE FURNISHED AND INSTALLED BY THE ELECTRICAL CONTRACTOR OR MILLWORK CONTRACTOR.
- ONELINE DIAGRAMS AND RISER DIAGRAMS ARE DIAGRAMMATIC REPRESENTATION TO AID THE CONTRACTOR IN UNDERSTANDING THE FUNCTION AND OPERATION OF THE SYSTEMS. E.C. SHALL REVIEW THE ONELINES, RISERS AND FLOOR PLANS FOR THE EXACT QUANTITIES AND LOCATION OF ALL EQUIPMENT. E.C. SHALL FURNISH AND INSTALL ALL EQUIPMENT SHOWN ON ANY OR ALL OF THESE DIAGRAMS AND DRAWINGS. DETAILED WIRING DIAGRAMS SHOWING ACTUAL WIRING FOR THE SYSTEMS FURNISHED SHALL BE A PART OF THE SHOP DRAWING SUBMITTAL.
- DEVICE LOCATIONS MAY BE DISTORTED FOR CLARITY. LOCATED DEVICES SYMMETRICALLY WITH THE ARCHITECTURAL ELEMENTS.
- CONTRACTOR SHALL COORDINATE WITH THE OTHER TRADES TO VERIFY SPACES ARE CLEAR OF OBSTRUCTIONS. MAINTAIN MAXIMUM HEADROOM AND SPACE CONDITION AT ALL POINTS IN THE BUILDING. WHERE HEADROOM OR SPACE CONDITIONS APPEAR INADEQUATE, NOTIFY ARCHITECT/ENGINEER BEFORE PROCEEDING WITH THE INSTALLATION.
- FURNISH OTHER TRADES ADVANCE INFORMATION ON LOCATIONS AND SIZES OF PIPING, DUCTWORK, EQUIPMENT, FRAMES, BOXES, SLEEVE AND OPENINGS NEEDED FOR WORK. FURNISH INFORMATION AND SHOP DRAWINGS TO PERMIT TRADES AFFECTED TO INSTALL THEIR WORK PROPERLY AND WITHOUT DELAY.
- SEE HVAC AND PLUMBING PLANS FOR LOCATIONS OF HEATING, VENTILATING, AIR CONDITIONING AND PLUMBING EQUIPMENT. DO NOT REFERENCE ELECTRICAL DRAWINGS FOR EXACT LOCATION.
- SCHEDULE REQUIRED POWER, TELEPHONE, OR DATA OUTAGES IN OCCUPIED AREAS OF THE BUILDING WITH THE OWNER. CONTRACTOR SHALL WORK UNTIL SERVICE IS RESTORED. OUTAGE WORK SHALL BE DONE AFTER OR BEFORE NORMAL WORKING HOURS, ON WEEKENDS OR HOLIDAYS.

COORDINATE LOCATION OF ALL EXPOSED CONDUIT WITH OWNER PRIOR TO INSTALLATION

LOW VOLTAGE PLAN KEYNOTES

- ONE (1) DATA CABLE BETWEEN PANORAMIC X-RAY UNIT TO JUNCTION BOX IN DIGITAL ALCOVE AND TO FOUR (4) DATA CABLES TO DATA RACK.
- PROVIDE ONE (1) 10FT HDMI CABLE PER RESPONSIBILITY MATRIX FROM COMPUTER TO MONITOR. CONTRACTOR TO VERIFY LENGTH IN FIELD PRIOR TO INSTALL SO THERE IS MINIMUM 2' SLACK AT EACH END.
- TWO (2) 25FT HDMI CABLES PER RESPONSIBILITY MATRIX BETWEEN UTILITY CENTER AND COMPUTER WORK STATION. INSTALL IN 2" UNDERGROUND CONDUIT. CONDUIT FURNISHED AND INSTALLED BY ELECTRICAL CONTRACTOR. SEE DETAIL #3 OR #4/ SHEET E2.0 AS NOTED IN FLOOR PLANS. CONTRACTOR TO VERIFY LENGTH IN FIELD PRIOR TO INSTALL SO THERE IS MINIMUM 2' SLACK AT EACH END.
- FOUR (4) COAX CABLES BETWEEN DATA RACK AND SATELLITE DISH. ALL ROOF PENETRATIONS ARE BY GENERAL CONTRACTOR. SATELLITE DISH FURNISHED AND INSTALLED BY ASPEN DENTAL MANAGEMENT INC.
- PROVIDE 1" CONDUIT IN WALL TO ACCESSIBLE CEILING. SEE DETAIL #3/ SHEET E2.0.
- THREE (3) DATA CABLES FROM MECHANICAL ROOM DEMARK TO DATA RACK. INSTALL ABOVE CEILING.
- 2" CONDUIT BELOW FINISHED GRADE PROVIDED BY ELECTRICAL CONTRACTOR. SEE ELECTRICAL PLANS FOR MORE INFORMATION.
- ROUTE ONE (1) COAX CABLE ABOVE CEILING FROM DATA RACK TO LOW VOLTAGE JUNCTION UNDER COUNTER AND THEN RUN THROUGH 2" UNDERGROUND CONDUIT TO UTILITY CENTER. SEE DETAIL #1/ SHEET A5.2 FOR UTILITY CENTER INFORMATION.
- ONE (1) 10FT HDMI CABLE PER RESPONSIBILITY MATRIX BETWEEN COMPUTER WORK STATION AND WALL MOUNT VIEW SCREEN. CONDUIT FURNISHED AND INSTALLED BY ELECTRICAL CONTRACTOR. CONTRACTOR TO VERIFY LENGTH IN FIELD PRIOR TO INSTALL SO THERE IS MINIMUM 2' SLACK AT EACH END.
- ROUTE DATA THROUGH SAME JUNCTION BOX AS SHOWN ON E1.1P. SEE KEYED NOTE 18 ON E1.1P.
- EC TO PROVIDE FLUSH MOUNT NON-METALLIC LOW VOLTAGE RING. AND ROUTE (2)18/3 WIRE FROM LOW VOLTAGE RING LOCATION TO MECHANICAL ROOM AND COIL 60" ON EACH END. SEE DETAIL #3/ SHEET A5.4. CONTROL PANEL PROVIDED BY EQUIPMENT SUPPLIER.
- EC TO PROVIDE CONTROL WIRES WITH 6'-0" OF COIL ON EACH END BETWEEN JUNCTION BOXES. SEE DETAIL #4/ SHEET A5.3.
- EC TO PROVIDE JUNCTION BOX FOR X-RAY CONTROL BOX ASSEMBLY. SEE DETAIL #5/ SHEET A5.3.
- ROUTE ONE (1) COAX CABLE ABOVE CEILING FROM DATA RACK TO LOW VOLTAGE JUNCTION BEHIND TV.
- ALL ELECTRICAL BACK BOXES IN THIS AREA SHALL BE LEAD LINED. SEE DETAIL #10/E2.0 FOR MORE INFORMATION.
- PROVIDE CAT6 CABLE FROM DATA RACK AND COIL 5FT OF CABLE ABOVE CEILING FOR WIFI. VERIFY EXACT LOCATION WITH OWNER PRIOR TO ROUGH IN.
- E.C. TO PROVIDE BACK BOX WITH C2G SNAP-IN A/B FEMALE KEYSTONE INSERT MODULE AND TRIPP LITE 2-PORT SINGLE-GANG KEYSTONE WALL PLATE, ANTI-BACTERIA, IVORY MATTE FOR USB PASS THROUGH AT 55" A.F.F.
- E.C. TO PROVIDE FLUSH MOUNT NON-METALLIC LOW VOLTAGE RING FOR USB PASS THROUGH AT 18" A.F.F.
- E.C. TO PROVIDE TRIPP LITE 6FT USB CABLE HI-SPEED GOLD SHIELDED USB 2.0 A/B/MALE/MALE FOR CONNECTION TO X-RAY COMPUTER.

LEGEND

NOTE: ALL SYMBOLS SHOWN MAY NOT APPEAR ON DRAWINGS.

SYM.	IDENTIFICATION
COMMUNICATION	
▶	DATA OUTLET PROVIDE DEDICATED CAT6 HOME RUN FROM DATA RACK FOR EACH SYMBOL SHOWN UNLESS OTHERWISE NOTED.
▷	COAX OUTLET PROVIDE DEDICATED QUAD SHIELDED RG6 COAX HOME RUN FROM DATA RACK FOR EACH SYMBOL SHOWN.
Ⓜ	UTILITY CENTER FURNISHED BY G.C.



Always a Better Plan

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COLLABORATION

AspenDental

PROJECT INFORMATION

PROPOSED BUILD-OUT FOR:
ASPEN DENTAL
715 PROGRESS WAY STE 1BD • GAITHERSBURG, MD 20877

PROFESSIONAL SEAL

SHEET DATAS

SHEET ISSUE JULY 21, 2026

REVISIONS

JOB NUMBER

260222300

SHEET NUMBER

E1.1LV

RESPONSIBILITY MATRIX (LV)

ITEM	DESCRIPTION	FURNISHED BY	PRODUCT INFO	SUPPLIER INFO	REMARKS
CONDUITS/CHASES/BOXES	PER PLAN	GC/EC	-	-	
DATA CABLES	CAT6	GC/EC	-	-	
COAX	RG6 (QUAD SHIELDED)	GC/EC	-	-	
HDMI CABLE	PER PLAN	GC/EC	10' LENGTH 25' LENGTH TYPE A MELE CONNECTORS CL2/CL3 JACKET HIGH SPEED CATEGORY 2	-	
ROOF PENETRATION	PER PLAN	GC	-	-	

FURNISHED BY:
LV = LOW VOLTAGE CONTRACTOR
EC = ELECTRICAL CONTRACTOR
ADMI = ASPEN DENTAL MANAGEMENT INC
GC = GENERAL CONTRACTOR

DIVISION 27 COMMUNICATIONS

27 05 00. TELECOMMUNICATION PREMISE WIRING

- INSTALLER QUALIFICATIONS: AN EXPERIENCED INSTALLER WHO IS A REGISTERED COMMUNICATION DISTRIBUTION DESIGNER CERTIFIED BY THE BUILDING INDUSTRY CONSULTING SERVICE INTERNATIONAL.
- QUALITY CONTROL:
 - COMPLY WITH NFPA 70.
 - ELECTRICAL COMPONENTS, DEVICES, AND ACCESSORIES: LISTED AND LABELED AS DEFINED IN NFPA 70, ARTICLE 100, BY A TESTING AGENCY ACCEPTABLE TO AUTHORITIES HAVING JURISDICTION, AND MARKED FOR INTENDED USE.
 - SYSTEM REQUIREMENTS: COORDINATE THE FEATURES OF MATERIALS AND EQUIPMENT SO THEY FORM AN INTEGRATED SYSTEM. MATCH COMPONENTS AND INTERCONNECTIONS FOR OPTIMUM FUTURE PERFORMANCE.
 - CONTRACTOR SHALL TEST EACH CABLE TO INSURE THAT THE INSTALLATION MEETS EIA/TIA STANDARDS. THREE COPIES OF THIS REPORT SHALL BE PROVIDED TO THE OWNER AS PART OF RECORD DRAWINGS.
- ABBREVIATIONS:
 - EIA - ELECTRONIC INDUSTRIAL ALLIANCE
 - IDC - INTERNATIONAL DATA CORPORATION
 - IDF - INTERMEDIATE DISTRIBUTION FRAME (CLOSET)
 - IDF - MAIN DISTRIBUTION FRAME (CLOSET)
 - PVC - POLYVINYL CHLORIDE
 - STP - SHIELDED TWISTED PAIR (CABLE)
 - TIA - TELECOMMUNICATION INDUSTRY ASSOCIATION
 - UTP - UNSHIELDED TWISTED PAIR (CABLE)
- RACEWAYS AND BOXES: FURNISHED AND INSTALLED BY ELECTRICAL CONTRACTOR.
- BRANCH CABLES:
 - TWISTED-PAIR CABLES, CONNECTORS, AND TERMINAL EQUIPMENT: LISTED AS COMPLYING WITH CATEGORIES 6 OF EIA/TIA-568-A.
 - CONDUCTORS: SOLID COPPER.
 - COLOR: BLUE
 - UTP CABLE: COMPLY WITH EIA/TIA-568-A. FOUR THERMOPLASTIC-INSULATED, INDIVIDUALLY TWISTED PAIRS OF CONDUCTORS; NO. 24 AWG. COLOR-CODED; ENCLOSED IN PVC JACKET.
 - UTP PLENUM CABLE: LISTED FOR USE IN AIR-HANDLING SPACES. FEATURES ARE AS SPECIFIED ABOVE, EXCEPT MATERIALS ARE MODIFIED AS REQUIRED FOR LISTING.
 - CABLE LABELS: SELF-ADHESIVE VINYL OR VINYL-CLOTH WRAPAROUND TAPE MARKERS, MACHINE PRINTED WITH ALPHANUMERIC CABLE DESIGNATIONS.
- WIRING METHOD:
 - INSTALL WIRING IN RACEWAY AND CABLE TRAY EXCEPT WITHIN CONSOLES, CABINETS, DESKS, AND COUNTERS EXCEPT IN ACCESSIBLE CEILING SPACES AND IN GYPSUM BOARD PARTITIONS WHERE CABLE WIRING METHOD MAY BE USED.

- USE UL-LISTED PLENUM CABLE FOR ALL LOCATIONS.
- CONCEAL RACEWAY AND WIRING EXCEPT IN UNFINISHED SPACES.
- USE TECHNIQUES, PRACTICES, AND METHODS THAT ARE CONSISTENT WITH EIA/TIA-568 RATING OF COMPONENTS AND THAT ENSURE CATEGORY PERFORMANCE LEVEL FOR THE COMPLETED AND LINKED SIGNAL PATHS, END TO END.
- DO NOT DAMAGE CONDUCTORS, SHIELD, OR JACKET.
- DO NOT BEND CABLE IN HANDLING OR IN INSTALLING TO SMALLER RADII THAN MINIMUMS RECOMMENDED BY MANUFACTURER.
- PULL CABLES WITHOUT EXCEEDING CABLE MANUFACTURER'S RECOMMENDED PULLING TENSIONS.
- SECURE AND SUPPORT CABLE AT INTERVALS NOT EXCEEDING 30 INCHES (760 MM) AND NOT MORE THAN 6 INCHES (150 MM) FROM CABINETS, BOXES, FITTINGS, OUTLETS, RACKS, FRAMES, AND TERMINALS.
- SEPARATION OF WIRES: COMPLY WITH EIA/TIA-569 RULES FOR SEPARATING UNSHIELDED COPPER COMMUNICATION AND DATA-PROCESSING EQUIPMENT CABLES FROM POTENTIAL EMI SOURCES, INCLUDING ELECTRICAL POWER LINES AND EQUIPMENT.
- MAKE SPLICES, TAPS, AND TERMINATIONS ONLY AT INDICATED OUTLETS, TERMINALS, AND CROSS-CONNECT AND PATCH PANELS.
- USE SPLICE AND TAP CONNECTORS COMPATIBLE WITH MEDIA TYPES.
- SYSTEM LABELING:
 - USE A UNIQUE, THREE-SYLLABLE ALPHANUMERIC DESIGNATION FOR EACH CABLE, AND LABEL CABLE AND JACKS, CONNECTORS, AND TERMINALS TO WHICH IT CONNECTS WITH THE SAME DESIGNATION. USE LOGICAL AND SYSTEMATIC DESIGNATIONS FOR FACILITY'S ARCHITECTURAL ARRANGEMENT.
 - FIRST SYLLABLE IDENTIFIES AND LOCATES WIRING CLOSET OR EQUIPMENT ROOM WHERE CABLE ORIGINATES.
 - SECOND SYLLABLE IDENTIFIES AND LOCATES CROSS-CONNECT OR PATCH-PANEL FIELD IN WHICH CABLE TERMINATES.
 - THIRD SYLLABLE DESIGNATES TYPE OF MEDIA (COPPER OR FIBER) AND POSITION OCCUPIED BY CABLE PAIRS OR FIBERS IN THE FIELD.
 - WORKSTATION: LABEL CABLES WITHIN OUTLET BOXES.
 - DISTRIBUTION CABINETS: LABEL EACH UNIT AND FIELD WITHIN THAT UNIT.
 - WITHIN CONNECTOR FIELDS, IN WIRING CLOSETS AND EQUIPMENT ROOMS: LABEL EACH CONNECTOR AND EACH DISCRETE UNIT OF CABLE-TERMINATING AND CONNECTING HARDWARE CABLES: GENERAL: LABEL EACH CABLE WITHIN 4 INCHES (100 MM) OF EACH TERMINATION AND TAP, WHERE IT IS ACCESSIBLE IN A CABINET OR JUNCTION OR OUTLET BOX, AND ELSEWHERE AS INDICATED.
 - EXPOSED CABLES AND CABLES IN CABLE TRAYS AND WIRE TROUGHS: LABEL EACH CABLE AT INTERVALS NOT EXCEEDING 15 FEET (4.5 M).
 - CABLE SCHEDULE: POST IN PROMINENT LOCATION IN EACH MDF AND IDF. LIST INCOMING AND OUTGOING CABLES AND THEIR DESIGNATIONS, ORIGINS, AND DESTINATIONS. PROTECT WITH CLEAR PLASTIC COVER. PROVIDE ELECTRONIC COPY OF FINAL COMPREHENSIVE SCHEDULES FOR PROJECT, IN SOFTWARE AND FORMAT SELECTED BY OWNER OR OWNER'S IT STAFF.

COLLABORATION

AspenDental

PROJECT INFORMATION

PROPOSED BUILD-OUT FOR:
ASPEN DENTAL
715 PROGRESS WAY STE TBD • GAITHERSBURG, MD 20877

PROFESSIONAL SEAL

SHEET DATES

SHEET ISSUE JULY 21, 2026

REVISIONS

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E1.1P

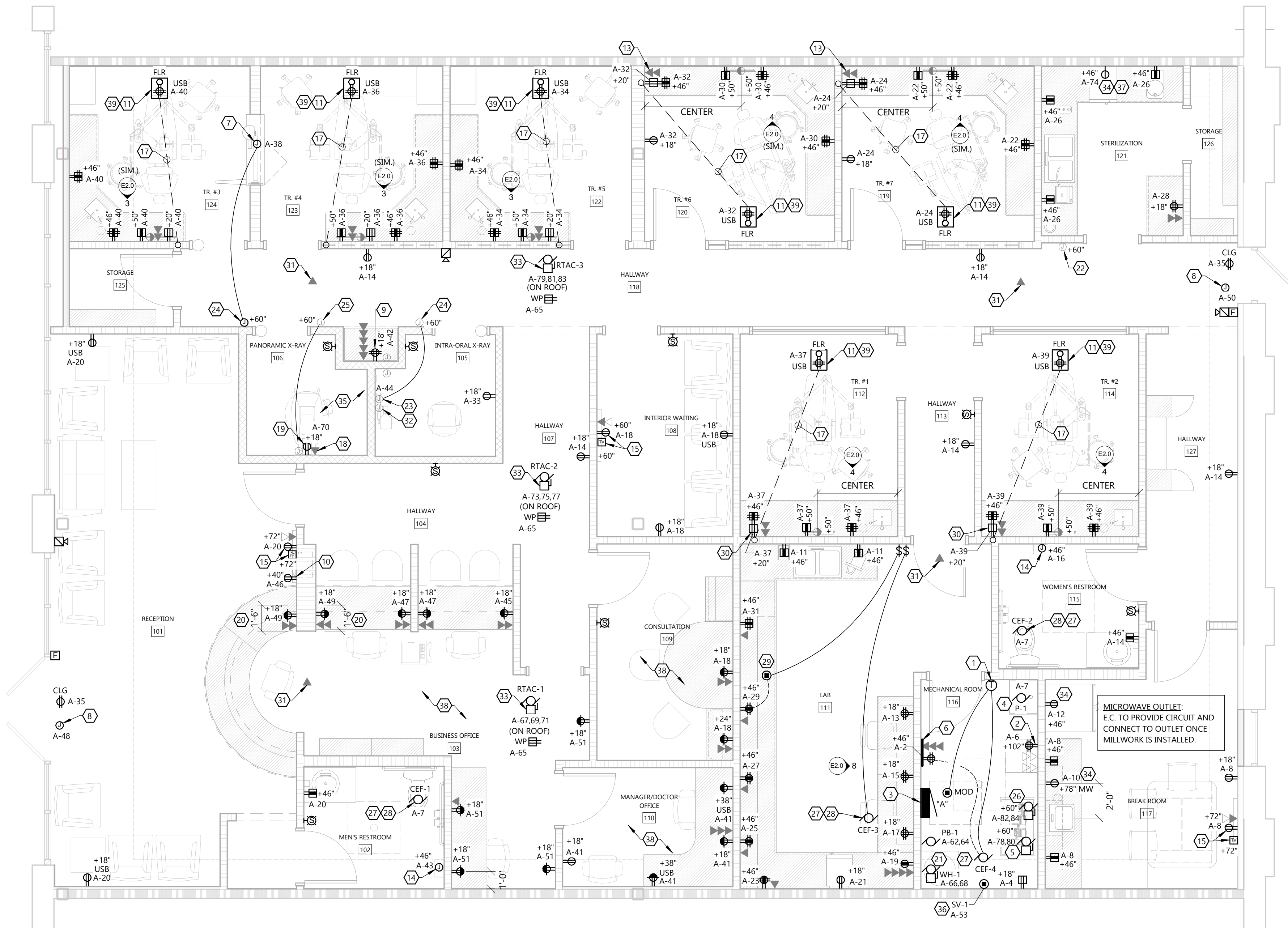
POWER PLAN KEYNOTES

- REVERSE ACTING THERMOSTAT (HONEYWELL T651A) TURN ON FAN AND CLOSE MECHANICAL ROOM MOTOR OPERATED DAMPER ON A RISE IN SPACE TEMPERATURE ABOVE SET POINT. THERMOSTAT FURNISHED BY HEATING CONTRACTOR REFER TO SHEET H1.1 FOR MORE INFORMATION AND MOUNTING HEIGHT. CONDUIT AND WIRING PROVIDED BY E.C.
- PROVIDE 120V, 1Ø, 20 AMP DOUBLE DUPLEX RECEPTACLES FOR EQUIPMENT IN DATA RACK. SEE DATA RACK BLOCKING DETAIL ON SHEET A5.2 FOR MORE INFORMATION.
- NEW ELECTRICAL SERVICE PER ONELINE DIAGRAM. PROVIDE NEW CIRCUIT BREAKERS AS SHOWN IN PANEL SCHEDULES AND PER SPECIFICATIONS.
- PROVIDE DISCONNECT IN MECH. ROOM ADJACENT TO PUMP FOR SERVICE. PROVIDE POWER FROM SWITCHING RELAY TO TIMESWITCH TO PUMP PER DETAIL. L.V. WIRING PROVIDED BY P.C. SEE WATER HEATER DETAIL ON P3.0 AND DETAIL #3/E3.0 FOR MORE INFORMATION.
- PROVIDE SQUARE D 1.0KVA BUCK BOOST TRANSFORMER, MODEL NUMBER 1546F FOR RAM VAC LOCATED NEAR PANEL. SEE DETAIL #4/E3.0 FOR WIRING DIAGRAM. PROVIDE 20A BLADED DISCONNECT TO SERVE RAM VAC. SEE DETAIL #5/E2.0 FOR LOCATION. E.C. SHALL VERIFY VOLTAGE TO CONNECTION TO RAM VAC IS 230V.
- PROVIDE TELEPHONE BACKBOARD SEE TELEPHONE BOARD DETAIL ON SHEET E2.0.
- FURNISH AND INSTALL JUNCTION BOXES FOR PASS-THROUGH X-RAY CONTROL WIRING. SEE DETAIL #6/SHEET E2.0.
- FURNISH AND INSTALL AND MAKE FINAL CONNECTIONS TO OWNER SIGNAGE. PROVIDE 120V, 1Ø, 20 AMP CIRCUIT FOR SIGNAGE. FIELD VERIFY EXACT ROUGH-IN LOCATION. PROVIDE PHOTOCELL FOR CONTROL. SEE EXTERIOR LIGHTING CONTROL DETAIL SHEET E1.1L. COORDINATE WITH OWNER / LANDLORD. SEE DETAIL #9/E2.0 FOR SIGN J-BOX/ROOF PENETRATION DETAIL.
- PROVIDE 120V, 1Ø, 20 AMP QUAD RECEPTACLE FOR X-RAY COMPUTER AND CONTROLS. SEE DETAIL #3/ SHEET A5.1.
- BOTTLE FILLING STATION. SEE DETAIL #1/SHEET E3.0 FOR MORE INFORMATION. PROVIDE GFI PROTECTION VIA GFI PROTECTED BREAKER AS NOTED IN PANEL SCHEDULE.
- SEE DETAIL #1/ SHEET A5.2 FOR ROUGH-IN REQUIREMENTS.
- NOT USED.
- RECEPTACLES AND J-BOXES TO BE NO LESS THAN 4" AND NO MORE THAN 18" OFF CORNER.
- ELECTRICAL CONTRACTOR SHALL PROVIDE ELECTRIC HAND DRYER JUNCTION BOX AND ASSOCIATED 120V, 1Ø, 20 AMP CIRCUIT. TOP OF CONTROLS AND AIR DISCHARGE TO BE A MAXIMUM OF 48" A.F.F. DRYER SHALL BE EQUIVALENT TO SURFACE MOUNTED HAND DRYER EXCEL DRYER, INC. XLERATOR MODEL #XL-BW SUPPLIED AND INSTALLED BY G.C.
- FURNISH AND INSTALL DUPLEX RECEPTACLE AND PLASTER RING WITH PULL STRING TO ABOVE CEILING AT HEIGHT SHOWN ON PLANS FOR PLASMA TV.
- NOT USED.
- 2" CONDUIT BELOW FINISHED GRADE. USE UNDERGROUND LAYOUT DRAWING SHEET U1.1 FOR EXACT CONDUIT LOCATION.
- INSTALL JUNCTION BOX OR PLASTER RING WITH 2" CONDUIT RUN TO ABOVE CEILING. REFER TO DETAIL #1/SHEET E2.0.
- PROVIDE 120V, 20 AMP RECEPTACLE TO SERVE X-RAY EQUIPMENT. ELECTRICAL CONTRACTOR TO SUPPLY MALE END. COORDINATE RECEPTACLE AND CONNECTION REQUIREMENTS WITH EQUIPMENT PROVIDER (NEMA 5-20R). LEAVE MALE END TAPED TO OUTLET. REFER TO DETAIL #1/SHEET E2.0.
- LOCATE RECEPTACLE AND DATA OUTLET WITHIN DIMENSIONS SHOWN.
- FURNISH AND INSTALL 2ØBV, 1Ø, 20 AMP, NEMA 1 DISCONNECT FOR WATER HEATER ABOVE CEILING. PROVIDE ELECTRICAL CONNECTIONS TO WATER HEATER IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS. COORDINATE MOUNTING LOCATION WITH EQUIPMENT IN ROOM.
- ELECTRICAL CONTRACTOR SHALL FLUSH MOUNT NON-METALLIC LOW VOLTAGE RING. ROUTE (2)18/3 WIRE FROM LOW VOLTAGE RING LOCATION TO MECHANICAL ROOM AND COIL 60" ON EACH END. SEE DETAIL #4/ SHEET A5.4. CONTROL PANEL PROVIDED BY EQUIPMENT SUPPLIER.
- FURNISH AND INSTALL CIRCUIT AND CONDUIT WITH PULL STRING. CONTROL WIRE FURNISHED BY OTHERS. SEE DETAIL #2/SHEET E2.0.
- PROVIDE JUNCTION BOX AND CONDUIT WITH PULL STRING. CONTROL WIRE FURNISHED BY OTHERS. SEE DETAIL #4/ SHEET A5.3.
- PROVIDE JUNCTION BOX FOR X-RAY CONTROL BOX ASSEMBLY. SEE DETAIL # 5/ SHEET A5.3.
- PROVIDE SQUARE D 1.5KVA BUCK BOOST TRANSFORMER, MODEL NUMBER 1546F FOR AIR COMPRESSOR LOCATED NEAR PANEL. SEE DETAIL #4/E3.0 FOR WIRING DIAGRAM. PROVIDE 30A BLADED DISCONNECT TO SERVE AIR COMPRESSOR. SEE DETAIL #5/E2.0 FOR LOCATION. E.C. SHALL VERIFY VOLTAGE AT CONNECTION TO AIR COMPRESSOR IS 230V.
- FANS ARE TO BE FURNISHED AND INSTALLED BY THE HEATING CONTRACTOR AND WIRED BY THE ELECTRICAL CONTRACTOR. SEE FAN SCHEDULE FOR ADDITIONAL INFORMATION.

ALL WIRING IN PATIENT CARE SPACES SHALL MEET ALL THE REQUIREMENTS OF ARTICLE 517. ALL TREATMENTS ROOMS SHALL BE CONSIDERED PATIENT CARE SPACES

COORDINATE LOCATION OF ALL EXPOSED CONDUIT WITH OWNER PRIOR TO INSTALLATION

ELECTRICAL FLOOR PLAN - POWER

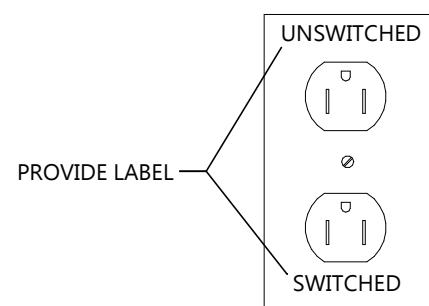


FLOOR PLAN - POWER

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



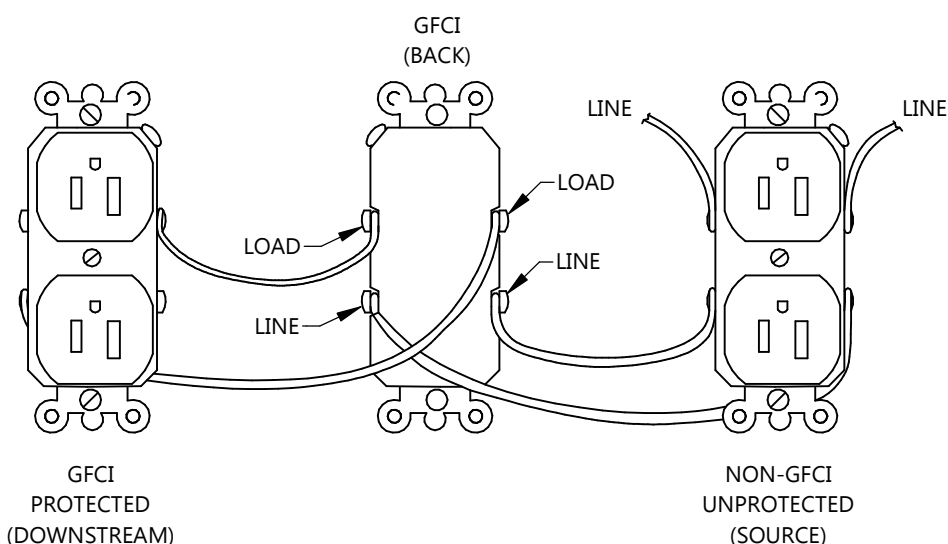
TIMECLOCK AND CONTRACTORS SHALL BE LOCATED IN MECHANICAL ROOM NEXT TO PANELBOARD.



SWITCH BOTTOM HALF OF RECEPTACLE. ONLY TOP HALF TO BE UNSWITCHED.

SWITCHED RECEPT. DETAIL

NOT TO SCALE



GFCI RECEPTACLE WIRING DIAGRAM

NOT TO SCALE

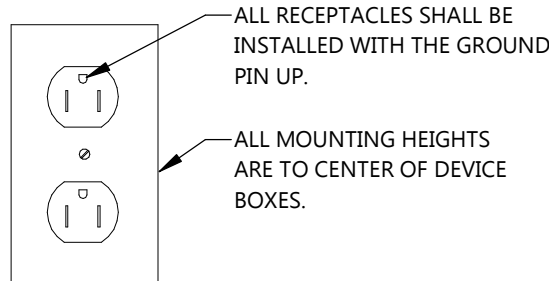
NEC
517.13 (A) All branch circuits serving patient care areas shall be provided with an effective ground-fault current path by installation in a metal raceway system, or a cable having a metallic armor or sheath assembly. The metal raceway system, or metallic cable armor, or sheath assembly shall itself qualify as an equipment grounding conductor in accordance with 250.118

517.13 (B) Insulated Equipment Grounding Conductor.
(1) General. The following shall be directly connected to an insulated copper equipment grounding conductor that is installed with the branch circuit conductors in the wiring method as provided in 517.13(A).
(1) The grounding terminals of all receptacles.
(2) Metal boxes and enclosures containing receptacles.
(3) All non-current-carrying conductive surfaces of fixed electrical equipment likely to become energized that are subject to personal contact, operating at over 100 volts.

Exception: An insulated equipment bonding jumper that directly connects to the equipment grounding conductor is permitted to connect the box and receptacle(s) to the equipment grounding conductor.

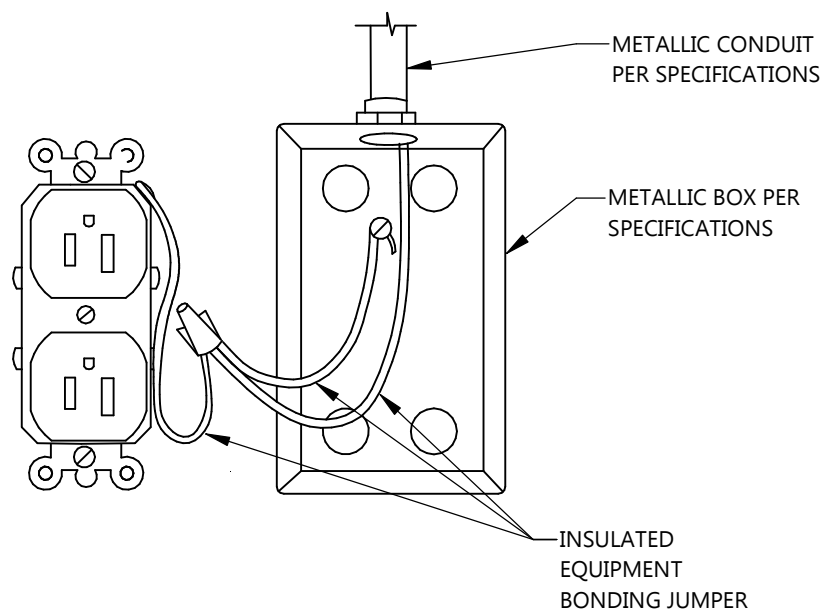
PATIENT CARE AREA RECEPTACLE GROUNDING

NOT TO SCALE



TYPICAL RECEPTACLE INSTALLATION DETAIL

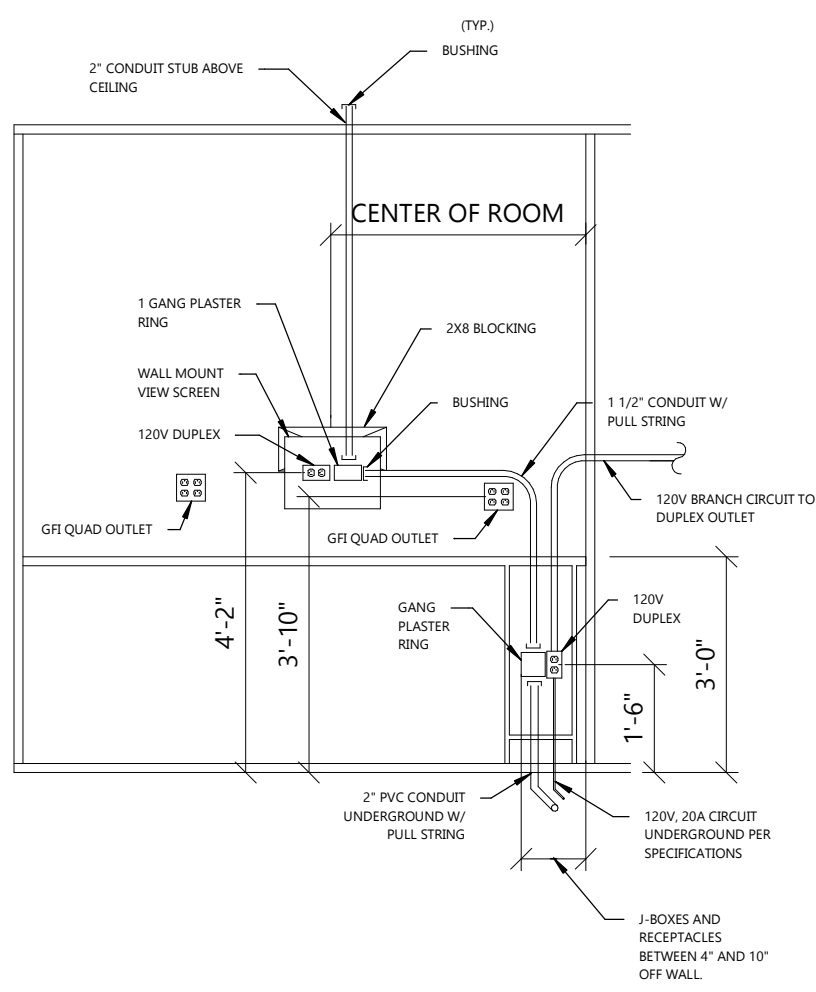
NOT TO SCALE



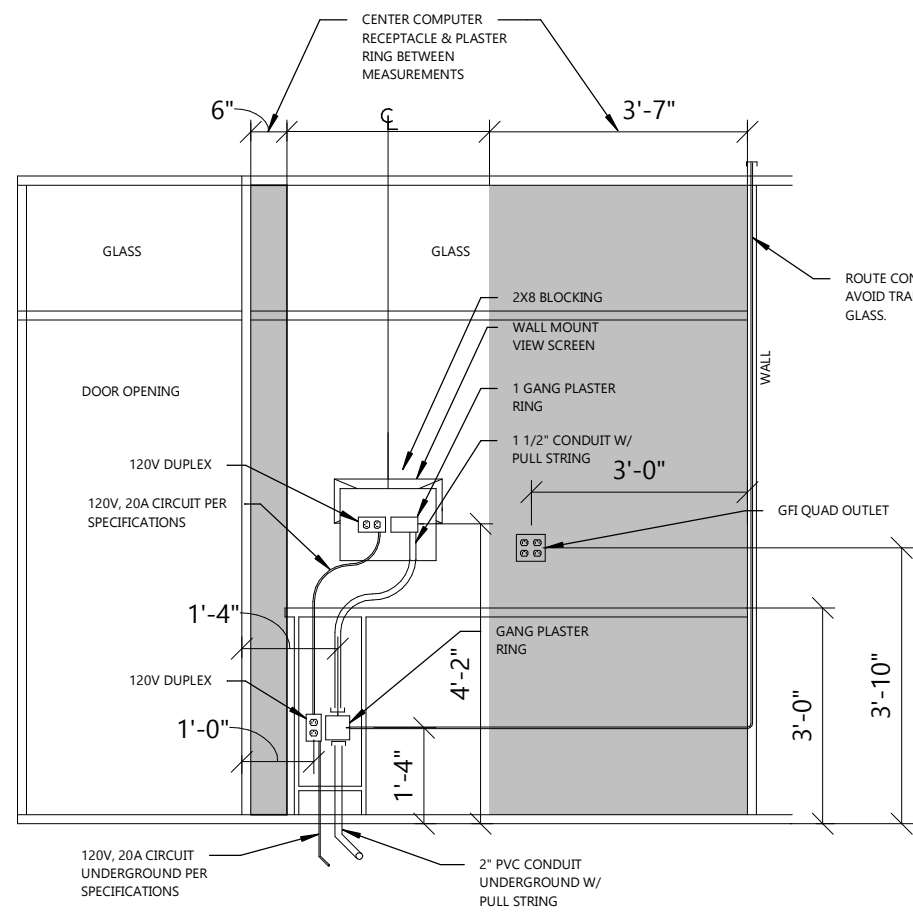
- ROUTE CIRCUIT THROUGH CONTACTOR. SEE DETAIL ON E1.1L.
- MOTOR OPERATED DAMPER WITH 120V, 2 POSITION, SPRING RETURN, NORMALLY OPEN DAMPER PROVIDED BY H.C. E.C. SHALL PROVIDE WALL SWITCH AND WIRE FROM SWITCH TO ACTUATOR TO CLOSE DAMPER WHEN SWITCH IS "ON".
- RECEPTACLES AND J-BOXES SHALL BE NO LESS THAN 4" AND NO MORE THAN 10" OFF CORNER.
- PROVIDE DATA OUTLET IN CEILING FOR WIFI. VERIFY EXACT LOCATION WITH OWNER PRIOR TO ROUGH IN.
- INSTALL JUNCTION BOX OR PLASTER RING WITH 3/4" CONDUIT TO ABOVE CEILING. REFER TO DETAIL #2/SHEET E2.0.
- INTEGRAL DISCONNECT PROVIDED WITH RTAC.
- PROVIDE GFI PROTECTION VIA GFI PROTECTED BREAKER AS NOTED IN PANEL SCHEDULE.
- ALL ELECTRICAL BACK BOXES IN THIS AREA SHALL BE LEAD LINED. SEE DETAIL #10/E2.0 FOR MORE INFORMATION.
- WATER SHUT-OFF SOLENOID FURNISHED AND INSTALL BY P.C. AND WIRED BY E.C. SOLENOID SHALL BE WIRED AND CONTROLLED THROUGH MASTER SWITCH CONTACTOR. REFER TO INTERIOR LIGHTING CONTROL DETAIL FOR MORE INFORMATION.
- PROVIDE SIMPLEX OUTLET.
- SWITCH. BOTTOM HALF OF RECEPTACLES THIS ROOM. RECEPTACLES SHALL BE CONTROLLED BY TIMECLOCK. SEE SWITCHED RECEPT/LIGHTING CONTROL DETAIL ON E1.1P FOR MORE INFORMATION.
- PROVIDE MEDICAL GRADE MICRO USB OUTLET

POWER GENERAL NOTES

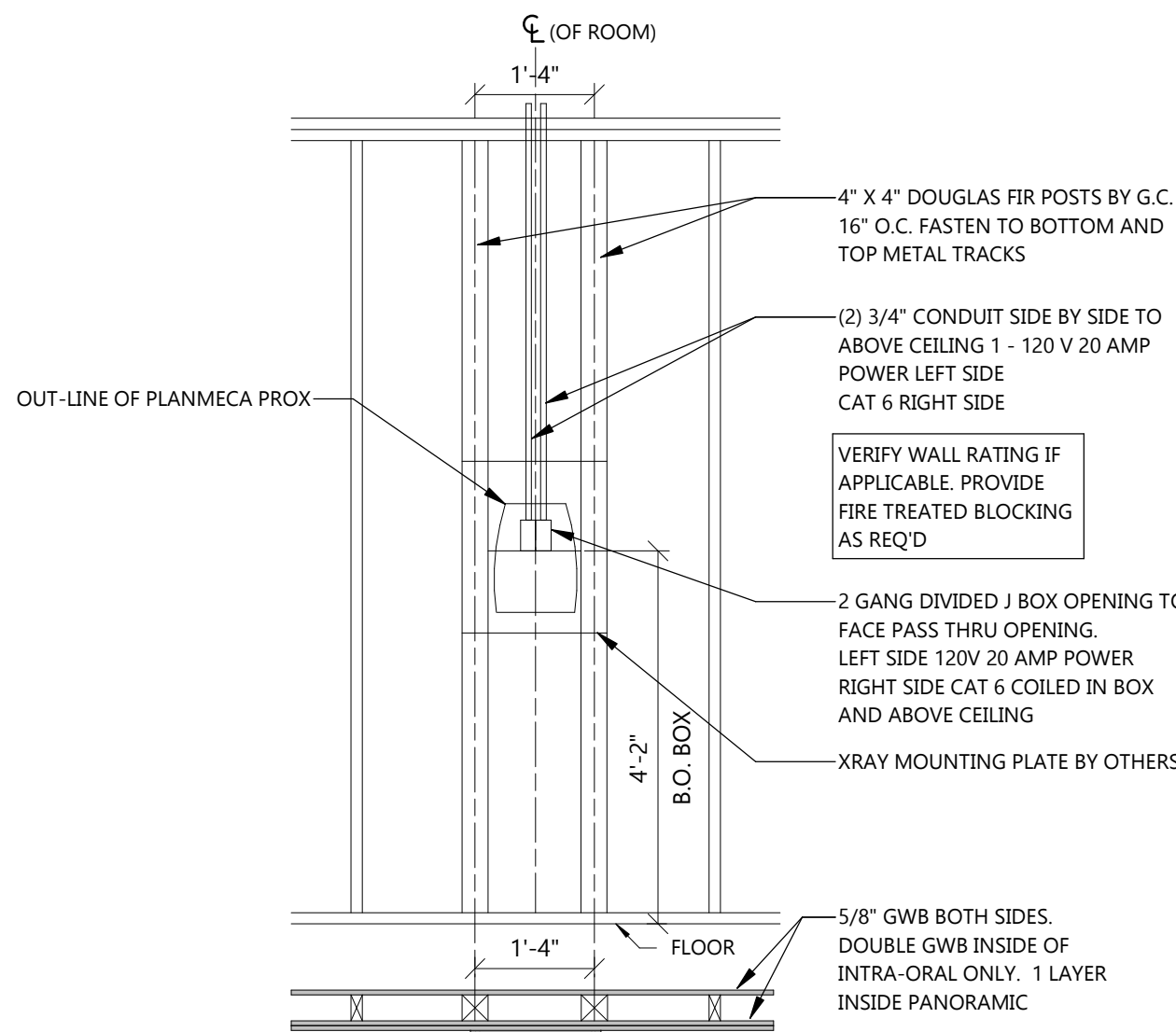
- ALL CONDUITS STUBBED OUT OF BUILDING SHALL BE PER CONDUIT PENETRATION DETAIL/SHEET E3.0.
- VERIFY ALL EXPOSED CONDUIT ROUTING WITH ARCHITECT/ENGINEER WHERE CONDUIT IS EXPOSED IN FINISHED ROOMS.
- PROVIDE GFI PROTECTION FOR ALL SINGLE-PHASE RECEPTACLES IN THE FOLLOWING LOCATIONS: BATHROOMS, KITCHENS, ROOFS, SERVING WATER COOLERS, WITHIN 6'-0" OF A SINK, AND ALL OTHER WET LOCATIONS.
- COORDINATE ALL RECEPTACLE, DATA AND TELEPHONE PORT LOCATIONS WITH FURNITURE LAYOUT AND OWNER'S FURNITURE SUPPLIER PRIOR TO ROUGH-IN.
- COORDINATE THE VOLTAGE, AMPERAGE, PHASE, CONNECTION TYPE, ROUGH-IN LOCATION, ETC. OF ALL EQUIPMENT WITH THE CONTRACTOR INSTALLING THE EQUIPMENT.
- FIRE ALARM SYSTEM INSTALLATION AND WIRING SHALL BE PER NFPA REGULATIONS AND LOCAL FIRE DISTRICT REQUIREMENTS.
- REFER TO ASPEN DENTAL MANAGEMENT, INC. UNDERGROUND LAYOUT DRAWING FOR EXACT LOCATION(S) OF ALL UNDERGROUND UTILITIES.
- ALL ITEMS OR DEVICES SHOWN "DARKER" ARE NEW LOW VOLTAGE DEVICES. ALL ITEMS OR DEVICES SHOWN "LIGHTER" ARE POWER DEVICES. POWER DEVICES ARE SHOWN FOR REFERENCE ONLY. REFER TO POWER SHEETS FOR MORE INFORMATION.



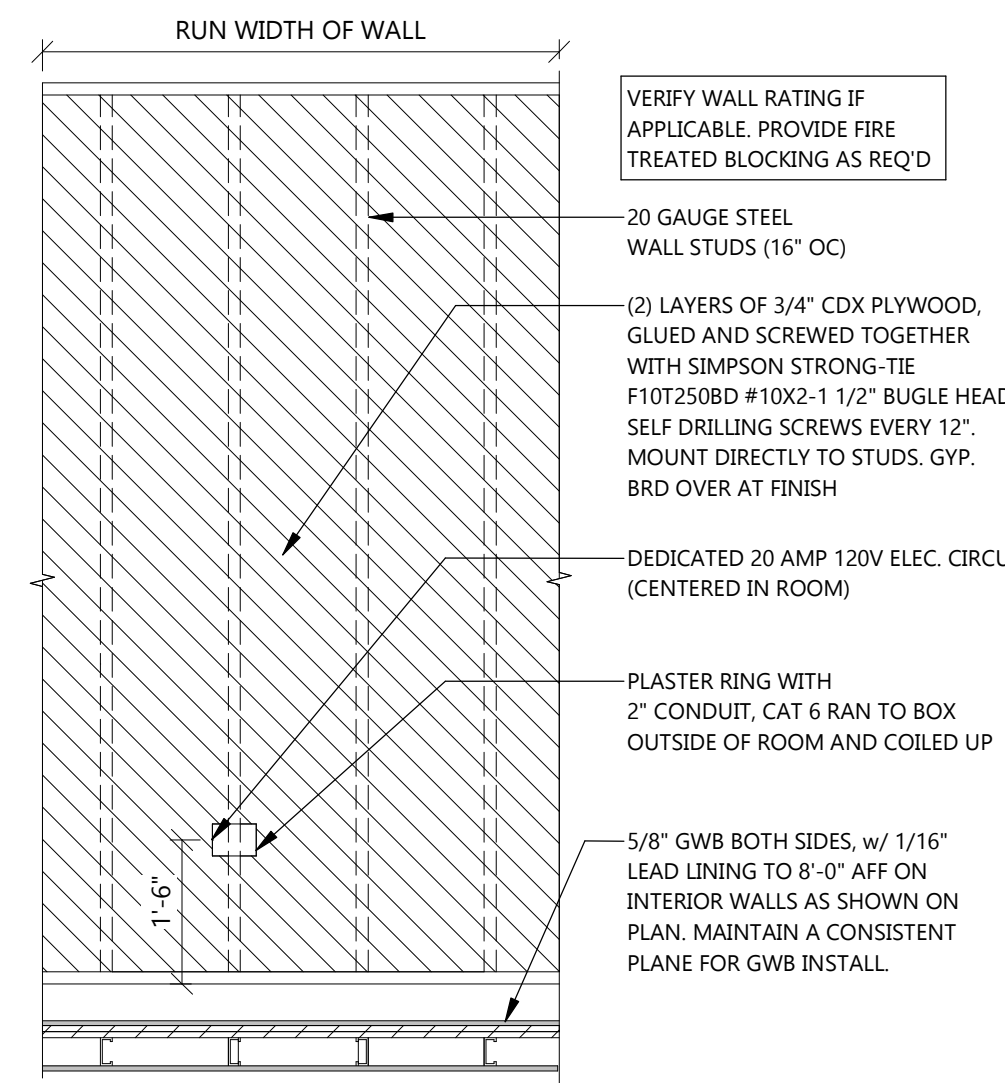
4 TREATMENT ROOM ELEVATION 1
E2.0 NOT TO SCALE



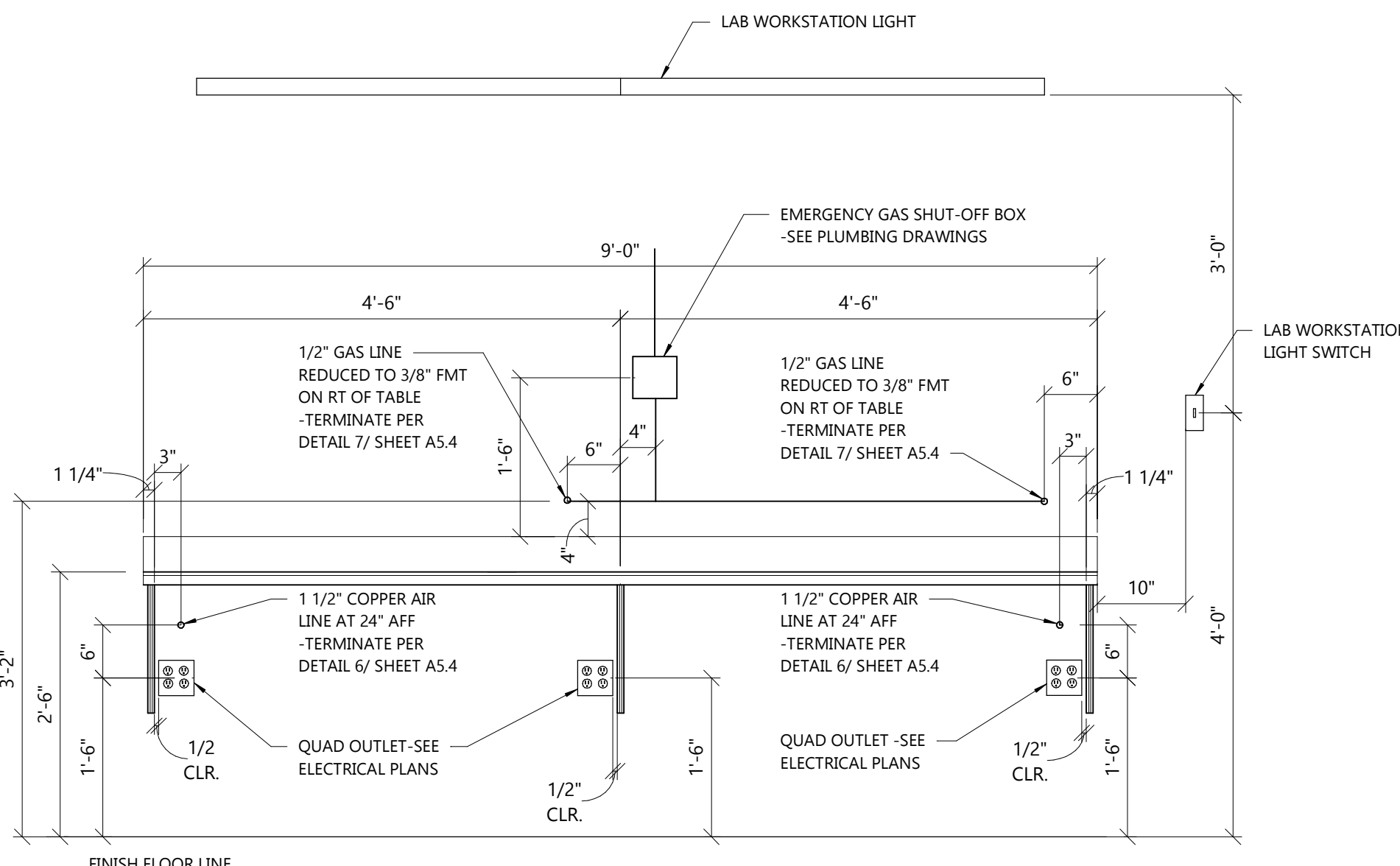
3 TREATMENT ROOM ELEVATION 2
E2.0 NOT TO SCALE



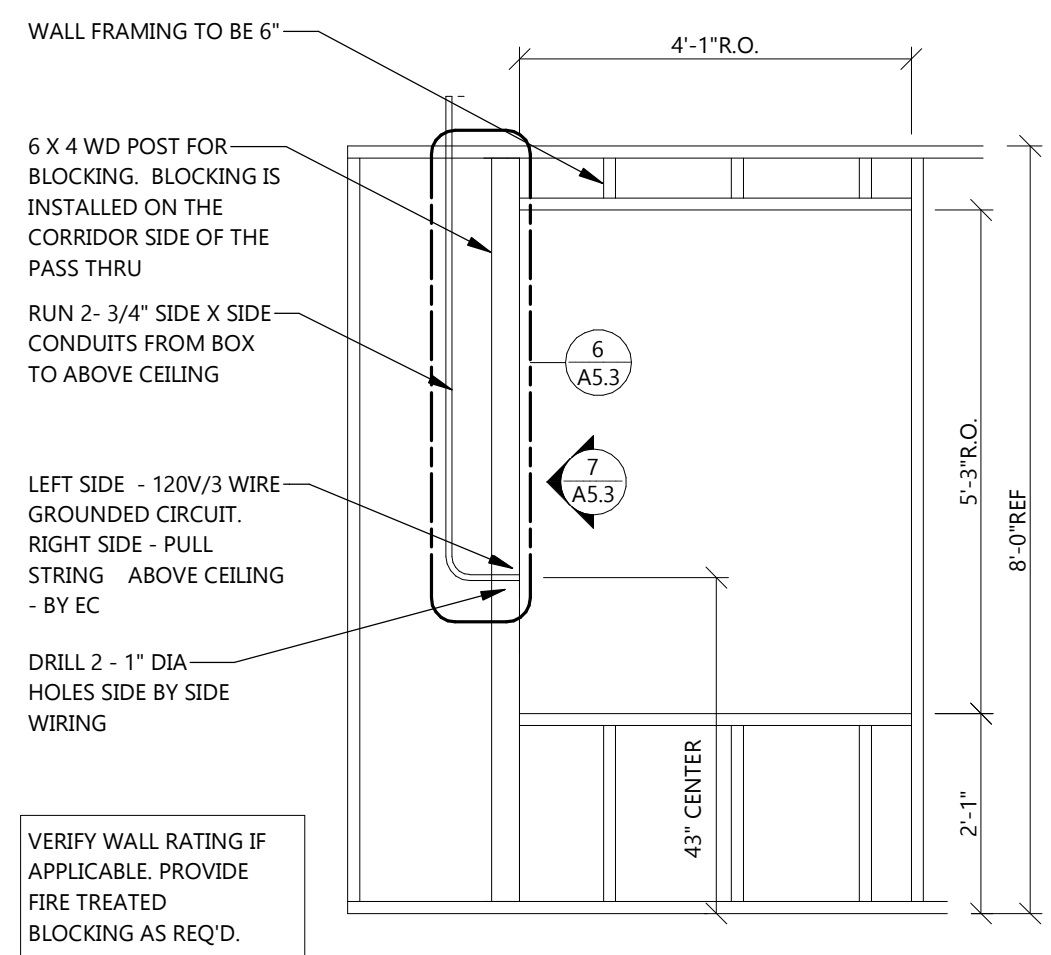
2 PLANMECA PRO X-RAY SUPPORT
E2.0 NOT TO SCALE



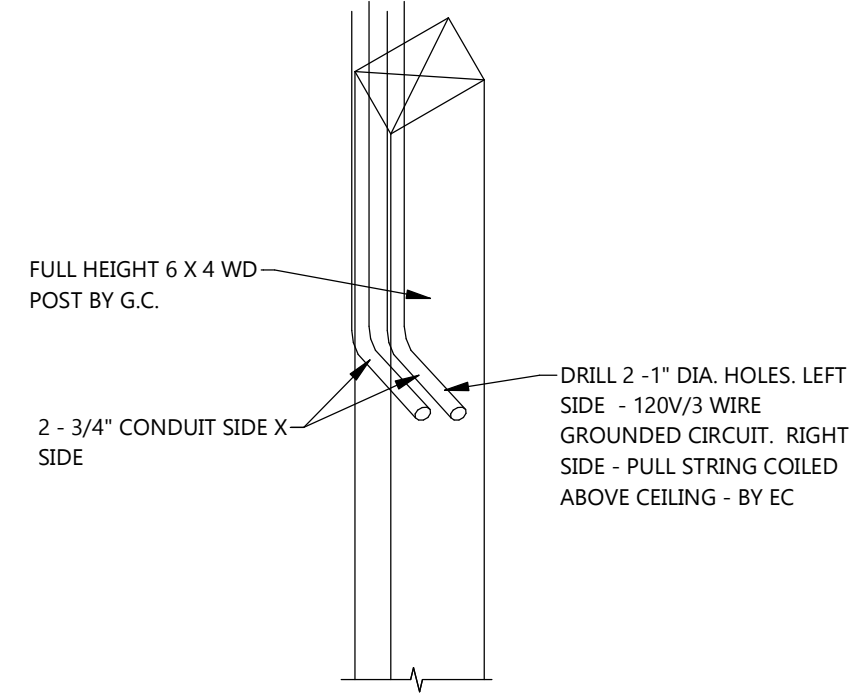
1 PANORAMIC BLOCKING DETAIL
E2.0 NOT TO SCALE



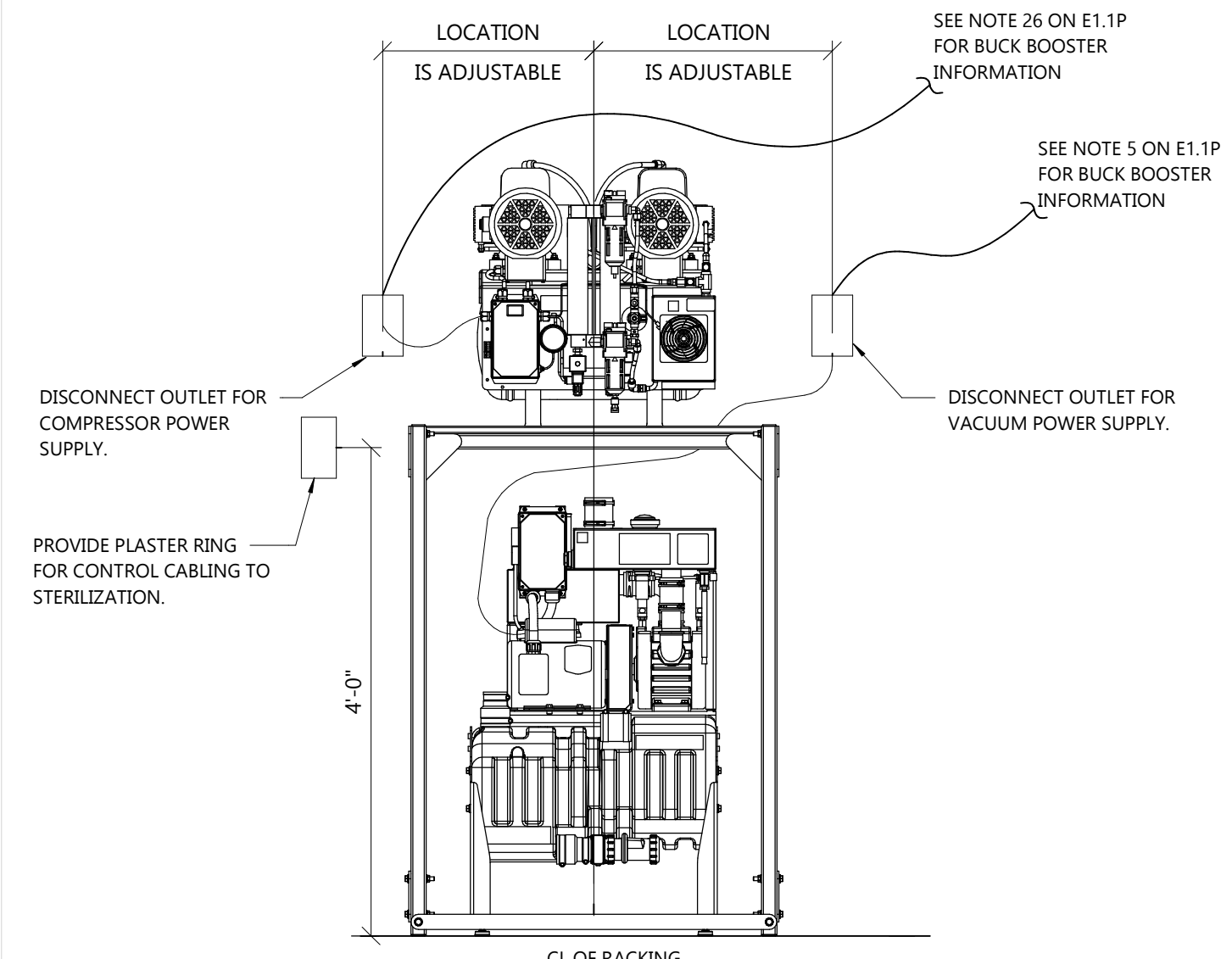
8 LAB WORK STATION
E2.0 NOT TO SCALE



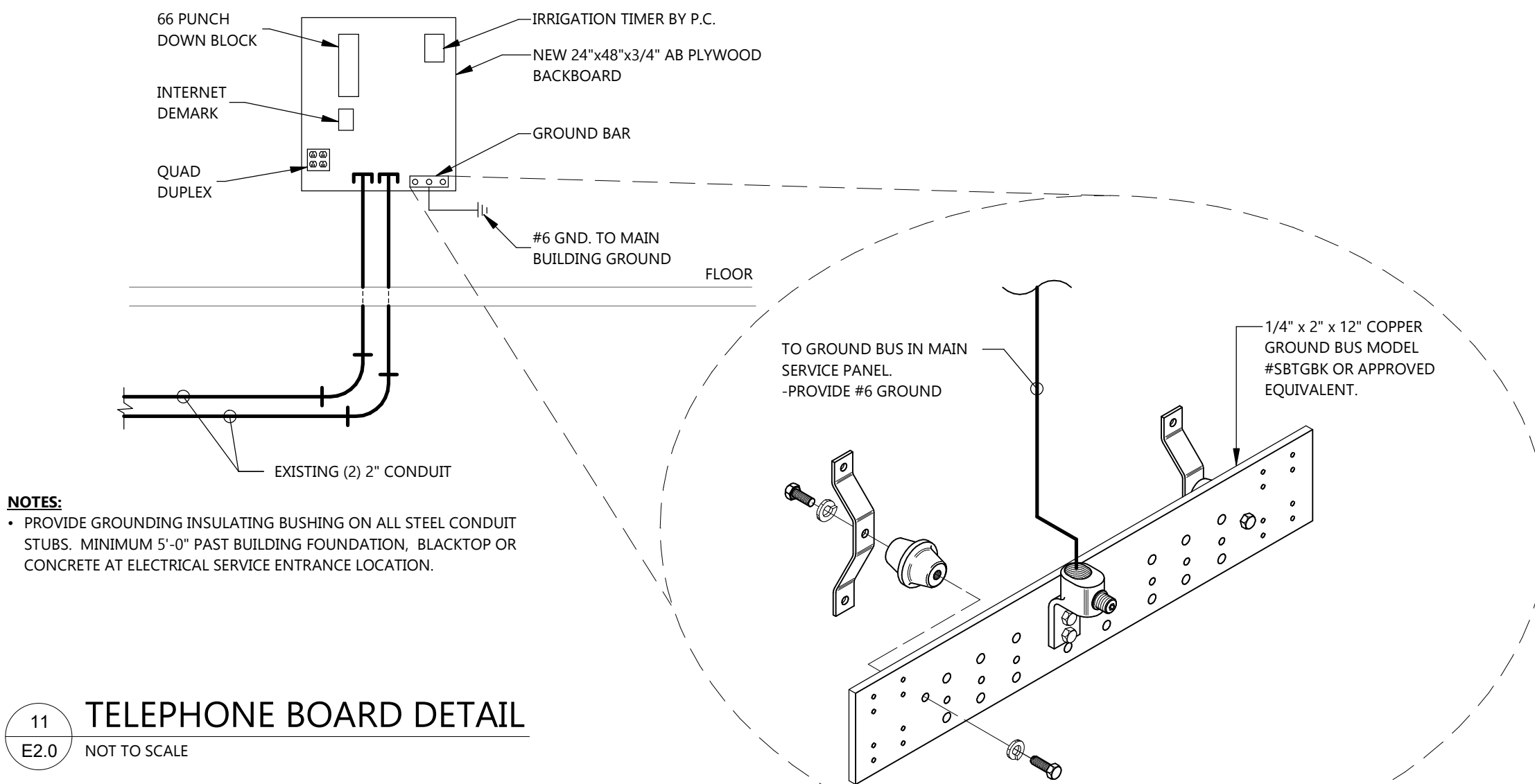
7 PASS THRU X-RAY
E2.0 NOT TO SCALE



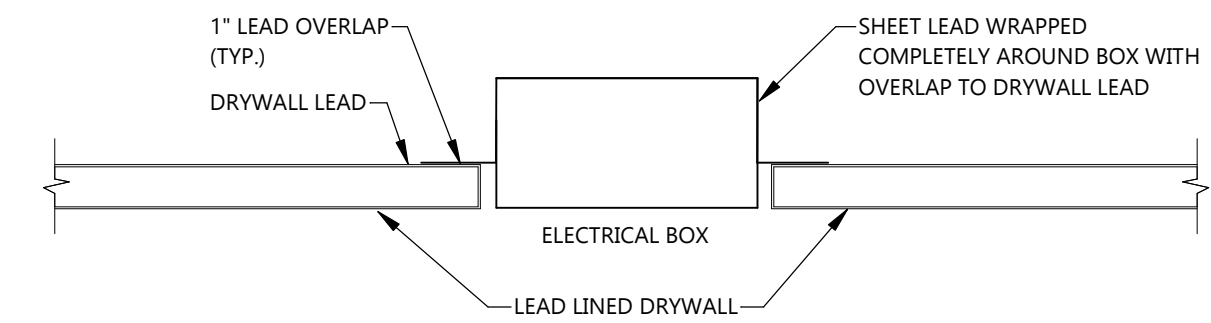
6 PASS THRU X-RAY ISOMETRIC
E2.0 NOT TO SCALE



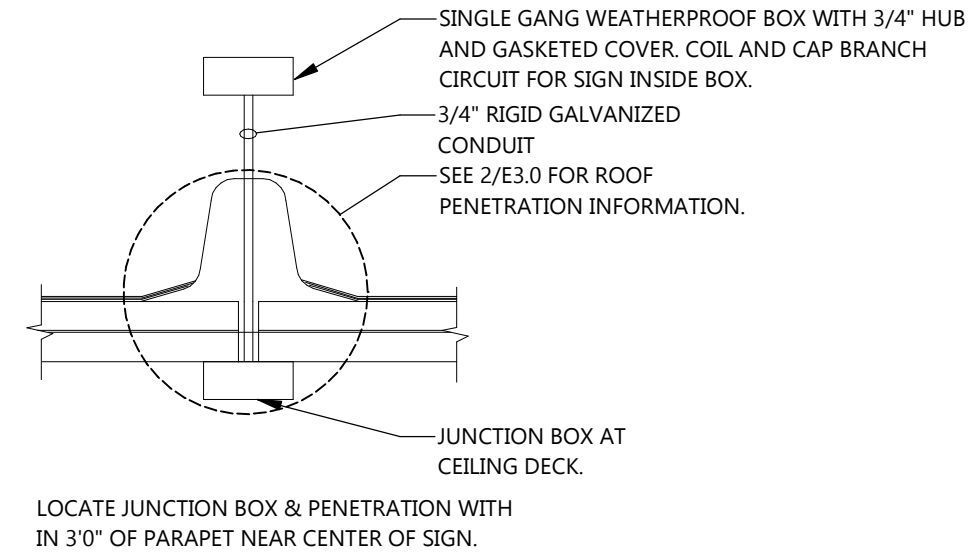
5 COMPRESSOR / VACUUM RACK DETAIL
E2.0 NOT TO SCALE



11 TELEPHONE BOARD DETAIL
E2.0 NOT TO SCALE



10 LEAD LINED BACK BOX DETAIL
E2.0 NOT TO SCALE



9 SIGN J-BOX/ROOF PENETRATION DETAIL
E2.0 NOT TO SCALE



Excel

Always a Better Plan

100 Camelot Drive
Fond du Lac, WI 54935
920-926-9800
excelengineer.com

COLLABORATION

AspenDental

PROJECT INFORMATION

PROPOSED BUILD-OUT FOR:
ASPEN DENTAL
715 PROGRESS WAY STE TBD • GAITHERSBURG, MD 20877

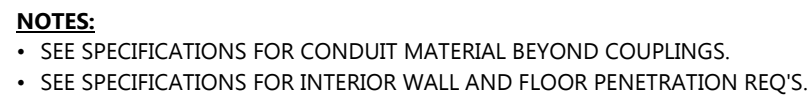
PROFESSIONAL SEAL

SHEET DATES	
SHEET ISSUE	JULY 21, 2026
REVISIONS	

JOB NUMBER
260222300

SHEET NUMBER

E2.0

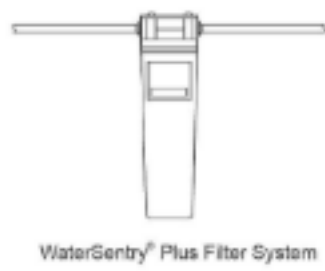


2
E3.0

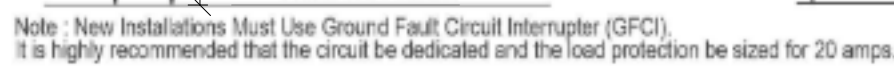


Elkay EZH2O In-Wall Bottle Filling Station
Filtered 8 GPH Stainless
Model LZWSM8K

- **Refrigerant Control:** Refrigerant R-134a is controlled by accurately calibrated capillary tube.
- **Temperature Control:** Easily accessible enclosed adjustable thermostat is factory preset. Requires no adjustment other than for altitude requirements.



BOTTLE FILLER SPECIFICATIONS



In keeping with our policy of continuing product improvement, Elkar reserves the right to change product specifications without notice. Please visit elkar.com for the most current version of Elkar product specification sheets. This specification describes an Elkar product with design, quality, and functional benefits to the user. When making a comparison of other producers' offerings, be certain these features are not overlooked.

Elkay REV 07262018
LZW5M8K

2222 Camden Court
Oak Brook, IL 60523

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LZWSM8K_spec.pdf

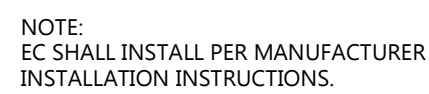
1 BOTTLE FILLING STATION

E3.0 NOT TO SCALE



- PROVIDE BOXES FOR ALL DETECTORS PER MANUFACTURER'S REQUIREMENTS.

5 ADDRE
E3.0 NOT TO SCALE



4 SQUARE D BUCK BOOST WIRING DIAGRAM

E3.0 NOT TO SCALE

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