AUSTIN POLICE ASSOCIATION
OFFICE BUILDING RENOVATION

PERMIT SET

03/09/2026

ARCHITECT:
BEATX ARCHITECTS, LLC.
106 E 6th St. STE 900-140
Austin, TX 78701
P: (305) 807-3800

MEP CONSULTANT:
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BUILDING APPROVAL

This stamp serves as a means of building approval and does not include other disciplines.

Austin
Approved
Date 04/01/2026

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BEAtx architects

REGISTERED ARCHITECT
SOFIA M. RAMOS
21599
STATE OF TEXAS

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APA-OFFICE BUILDING RENOVATION

5817 WILCAB RD.
AUSTIN, TEXAS 78721

SHEET TITLE :
COVER

REVISIONS :

#	Description:	Date:

SUBMITTAL:
PERMIT SET

SCALE :

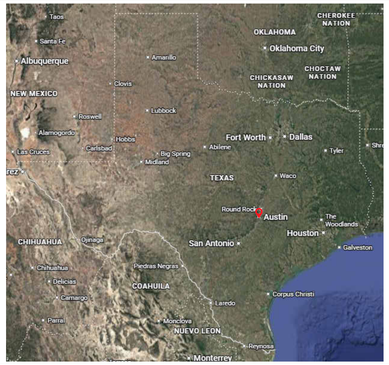
DATE :
03/09/2026

PROJECT NUMBER :
25003

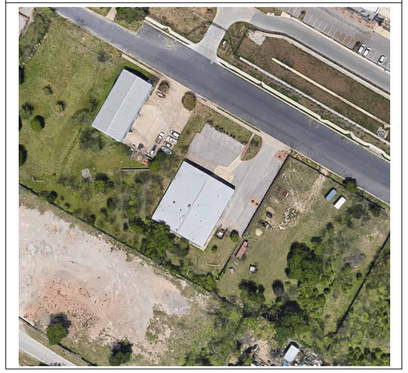
DRAWN BY : A.G.
CHECKED BY : S.R.

SHEET NO. :
A-001

LOCATION MAP (STATE)



LOCATION MAP (LOCAL)



SCOPE OF WORK

Updates and repairs to the existing office building for the Austin Police Association.

Interior renovations to existing office space.

Add Alternate No. 1 - Storefront Door in Lieu of Garage Door
Replace existing overhead garage door with aluminum storefront door and glazing assembly to match the existing storefront system. Work includes framing modifications, glazing, hardware, and related finishes required for a complete installation.

Add Alternate No. 2 – Demolition of Kitchen Equipment
Provide demolition and removal of existing kitchen equipment by Workman Commercial Construction, including disconnection and removal from the building. Coordinate with Owner and Contractor for scheduling and disposal.

CODE ANALYSIS

OCCUPANCY CLASSIFICATION: GROUP B & A-3
TYPE OF CONSTRUCTION: TYPE IIB
TOTAL EXISTING CONDITIONED AREA: 9,114 SF
TOTAL ALLOWABLE AREA: 9,500 SF
PROPOSED USE: REMAIN AS IS: OFFICE & TRAINING SPACE
LEGAL JURISDICTION: AUSTIN, TRAVIS COUNTY, TEXAS

APPLICABLE BUILDING CODES:

· INTERNATIONAL BUILDING CODE (IBC), 2024 EDITION
· ~~INTERNATIONAL~~ PLUMBING CODE (IPC), 2024 EDITION → UNIFORM
· ~~INTERNATIONAL~~ MECHANICAL CODE (IMC), 2024 EDITION
· INTERNATIONAL ENERGY CONSERVATION CODE (IECC), 2024 EDITION
· NATIONAL ELECTRICAL CODE (NEC), 2023 EDITION
· INTERNATIONAL FIRE CODE, 2024 EDITION
· TEXAS ACCESSIBILITY STANDARDS(TAS), 2012
· AMERICANS WITH DISABILITIES ACT (ADA), 2010
· 2024 INTERNATIONAL EXISTING BUILDING CODE (IEBC)

ABBREVIATIONS

Key Name	ABBREVIATION - COMMENT
AC	AIR CONDITIONING
AD	AREA DRAIN
AFF	ABOVE FINISH FLOOR
AGGR	AGGREGATE
ALT	ALTERNATE
ALUM	ALUMINUM
APPROX	APPROXIMATE
ARCH	ARCHITECTURAL
ASF	ABOVE STRUCTURAL FLOOR
AVG	AVERAGE
B/ or BO	BOTTOM OF
BD	BOARD
BITUM	BITUMINOUS
BLDG	BUILDING
BSMT	BASEMENT
CAB	CABINET
CEM	CEMENT
CFM	CUBIC FEET PER MINUTE
CL	CENTER LINE
CLG	CEILING
CLR	CLEAR
CMU	CONCRETE MANSONRY UNIT
COD	CO DETECTOR
COL	COLUMN
CONC	CONCRETE
CONST	CONSTRUCTION
CONT	CONTINUOUS
CPT	CARPET
CT	CERAMIC TILE
D	DEEP
DBL	DOUBLE
DEPT	DEPARTMENT
DIA	DIAMETER
DIM	DIMENSION
DL	DEAD LOAD
DN	DOWN
DS	DOWNSPOUT
DW	DISHWASHER
DWG	DRAWING
EA	EACH
EL	ELEVATION
ELEC	ELECTRICAL
ELEV	ELEVATOR
EMER	EMERGENCY
EQ	EQUAL
EQPT	EQUIPMENT
EXIST	EXISTING
EXT	EXTERIOR
FDTN	FOUNDATION
FL	FLOOR DRAIN
FP	FIRE PLACE
FURN	FURNACE
G DISP	GARBAGE DISPOSAL
GA	GAGE or GAUGE
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GYP BD	GYPSUM BOARD
HC	HOLLOW CORE
HM	HOLLOW METAL
HORIZ	HORIZONTAL
HPT	HIGH POINT

ABBREVIATIONS

Key Name	ABBREVIATION - COMMENT
HT	HEIGHT
INCL	INCLUDED
INSUL	INSULATION
JT	JOINT
KS	KITCHEN SINK
L CL	LINEN CLOSET
LAM	LAMINATE
LAV	LAVATORY
LL	LIVE LOAD
LPT	LOW POINT
LV	LOW VOLTAGE
MASY	MASONRY
MAX	MAXIMUM
MC	MEDICINE CABINET
MECH	MECHANICAL
MFR	MANUFACTURER
MIN	MINIMUM
MISC	MISCELLANEOUS
MO	MASONRY OPENING
MTL	METAL
MW	MICROWAVE
NIC	NOT IN CONTRACT
NO	NUMBER
NOM	NOMINAL
NTS	NOT TO SCALE
OC	ON CENTER
OSD	OPEN SITE DRAIN
PAN	PANTRY
PL	PLATE
PLAM	PLASTIC LAMINATE
PT	PAINT
QT	QUARRY TILE
R	RADIUS
REF	REFRIGERATOR
REQD	REQUIRED
REV	REVISION
RNG	RANGE
RO	ROUGH OPENING
SC	SOLID CORE
SD	SMOKE DETECTOR
SF	SQUARE FEET
SH	SHELF
SST	STAINLESS STEEL
ST	STAINED
STD	STANDARD
STL	STEEL
T&G	TONGUE AND GROOVE
THK	THICKNESS
TYP	TYPICAL
UNO	UNLESS NOTED OTHERWISE
VERT	VERTICAL
VIF	VERIFY IN FIELD
W	WIDE
W/D	WASHER / DRYER
WC	WATER CLOSET
WD	WOOD
WH	WATER HEATER
WIC	WALK-IN CLOSET
WP	WATERPROOF
WWF	WELDED WIRE FABRIC

GENERAL NOTES:

1. NEW WORK TO COMPLY WITH NEW CODE REQUIREMENTS - IBC 2024
2. REFER TO DRAWINGS AND SPECIFICATIONS FOR COMPLETE CONTRACT DOCUMENTS.
3. ALL WORK TO BE PERFORMED SHALL COMPLY WITH THE REQUIREMENTS OF THE INTERNATIONAL BUILDING CODE (IBC) 2024 EDITION, AS ADOPTED BY THE CITY OF AUSTIN, INCLUDING APPLICABLE PROVISIONS FOR EXISTING BUILDINGS AND ALTERATIONS.
4. WRITTEN DIMENSIONS ON THESE DRAWINGS SHALL HAVE PRECEDENCE OVER SCALED DIMENSIONS. DO NOT SCALE DRAWINGS. ALL DIMENSIONS SHALL BE CONSIDERED "NOMINAL" UNLESS
NOTED OTHERWISE. NOTED DIMENSIONS SHALL HAVE PREFERENCE OVER SCALED DRAWINGS. DIMENSIONS ON LARGE SCALED DRAWINGS OR DETAILS SHALL PREVAIL OVER SMALLER SCALED DRAWINGS.
5. CONTRACTOR SHALL VERIFY AND BE RESPONSIBLE FOR ALL DIMENSIONS AND CONDITIONS ON THE JOB. THE ARCHITECT/ENGINEER (A/E) SHALL BE NOTIFIED BEFORE PROCEEDING WITH THE WORK OF ANY DISCREPANCIES IN THE CONTRACT DOCUMENTS AND CONDITIONS ON THESE DRAWINGS AND/OR ALL OBVIOUS ERRORS AND OMISSIONS.
6. CONTRACTOR SHALL PROMPTLY NOTIFY THE A/E OF THE EXISTENCE OF ANY OBSERVED VARIATIONS BETWEEN THE CONTRACT DOCUMENTS AND ANY APPLICABLE CODES OR ORDINANCES
7. THE CONTRACTOR IS TO EXERCISE CARE DURING THE DEMOLITION AND REMOVAL TO ASSURE THAT ITEMS SCHEDULED FOR DEMOLITION AND REMOVAL ARE PROPERLY REMOVED SO AS TO MINIMIZE DAMAGE TO THE SURROUNDING AREA. ITEMS SCHEDULED TO BE RELOCATED OR TO REMAIN, INCLUDING BUT NOT LIMITED TO EXISTING MECHANICAL, ELECTRICAL AND LIGHTING EQUIPMENT, ARE TO BE PROTECTED FROM DAMAGE. ALL SCHEDULED ITEMS THAT ARE CALLED FOR IN THE CONTRACT DOCUMENTS TO BE REMOVED ARE TO BE REMOVED FROM THE SITE BY THE CONTRACTOR AND DISPOSED OF AS REQUIRED BY LOCAL AND STATE CODES AND AS REQUIRED BY AUTHORITIES HAVING JURISDICTION.
8. THE CONTRACTOR SHALL NOTIFY THE ARCHITECT BEFORE CUTTING OF ANY EXISTING PILE/GRADE BEAM SUPPORTED STRUCTURAL FLOOR SLAB.
9. THE CONTRACTOR IS TO PROVIDE SECURITY BARRIERS AND OTHER APPLICABLE DEVICES AS REQUIRED BY THE CONTRACT DOCUMENTS AND/OR LOCAL AND STATE CODES AND REGULATIONS. PLACEMENT OF SAFETY DEVICES IS TO TAKE PLACE IN A MANNER SO AS NOT TO DISRUPT THE OPERATIONS OF THE BUILDING. THE CONTRACTOR'S SCOPE OF WORK FOR THIS PROJECT SHALL INCLUDE PATCHING ANY DAMAGED SURFACES TO MATCH EXISTING IN MATERIAL, TEXTURE AND FINISH AND PAINT ALL SURFACES AFFECTED BY THE NEW CONSTRUCTION. THOSE AFFECTED ITEMS SHALL BE REPLACED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.
10. OWNER SHALL OCCUPY PREMISES DURING CONSTRUCTION PERIOD TO CONDUCT NORMAL OPERATIONS. G. C. SHALL COOPERATE WITH THE OWNER IN SCHEDULING OPERATIONS TO MINIMIZE
CONFLICT AND TO FACILITATE OWNER USAGE DURING OCCUPANCY, CONTRACTOR SHALL PROVIDE:
    1. CONTINUOUS OPERATION OF HVAC AND ELECTRICAL SYSTEMS.
    2. SECURITY FOR/FROM CONSTRUCTION OPERATIONS AND STORAGE
    3. PROTECTION AND SAFETY FROM CONSTRUCTION OPERATIONS.
11. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND NOTIFY THE ARCHITECT OF ANY EXISTING DISCREPANCIES PRIOR TO PROCEEDING WITH THE WORK.
12. GENERAL CONTRACTOR OR BUILDER AS WELL AS ALL SUBCONTRACTORS INVOLVED IN THE CONSTRUCTION OF THIS PROJECT SHALL WORK UNDER A OWNER PROVIDED BUILDING PERMIT AND
FOLLOW THE RESPECTIVE BUILDING CODES AND ORDINANCE OF THE OFFICE ISSUING THE PERMIT.
13. DETAILS AND SECTIONS SHOWN IN THE CONSTRUCTION DOCUMENTS ARE INTENDED TO BE TYPICAL AND TO APPLY TO ANY SIMILAR SITUATION ELSEWHERE IN THE PROJECT, EXCEPT OTHERWISE INDICATED.
14. ALL COLORS AND PATTERNS OF FINISHES AND OTHER MATERIALS OF DESIGN SHALL BE APPROVED OR SELECTED BY THE OWNER/ ARCHITECT.
15. GENERAL CONTRACTOR TO BE RESPONSIBLE FOR DAILY TRASH REMOVAL AND PICK-UP.
16. ALL UNDERGROUND UTILITIES AFFECTED MUST BE VERIFIED BY GENERAL CONTRACTOR AS TO EXACT LOCATIONS AND COORDINATED THROUGHOUT ALL PHASES OF CONSTRUCTION.
17. GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR ALL SUB-CONTRACTORS WORKING AT THE SITE AND FOR ALL COORDINATION OF WORK. THE MECHANICAL, PLUMBING AND ELECTRICAL CONTRACTOR SHALL FULLY COORDINATE ALL EQUIPMENT WITH THE OTHER TRADES. THESE CONTRACTORS SHALL BE RESPONSIBLE FOR FINAL HOOK- UP OF ALL EQUIPMENT NOT FURNISHED BY THEM, BUT REQUIRING THE SAME FOR FINAL COMPLETION.
18. GENERAL CONTRACTORS TO BE RESPONSIBLE FOR SECURITY OF ALL MATERIALS AT JOB SITE UNTIL FINAL ACCEPTANCE OF WORK BY OWNER.
19. PENETRATIONS THROUGH RATED WALLS AND FLOORS SHALL BE SEALED WITH MATERIAL ACCEPTABLE OF PREVENTING THE PASSAGE OF FLAMES AND HOT GASSES WHEN SUBJECTED TO THE REQUIREMENT OF THE TEST STANDARD SPECIFIC FOR THE STOPS UL 1479
20. ALL INSTALLATIONS SHALL BE OF GOOD WORKMANSHIP AND AS PER MANUFACTURERS' RECOMMENDATIONS.
21. UNLESS, OTHERWISE NOTED, PROVIDE ALL MISCELLANEOUS FASTENERS, FASTENERS HARDWARE AND ACCESSORIES AS REQUIRED FOR COMPLETE INSTALLATION EVEN THOUGH SUCH ITEMS MAY HAVE NOT BEEN SPECIFICALLY MENTIONED IN THE DRAWINGS AND SPECIFICATIONS. NOTIFY THE ARCHITECT OF ANY REVISIONS OR ADDITIONAL INFORMATION OBTAINED FROM THE MANUFACTURER OR SPECIFIED MATERIALS OR EQUIPMENT WHICH MAY AFFECT THE CONTRACT TIME, COST OR QUALITY OF WORK.
22. QUALITY STANDARDS: ALL WORKMANSHIP AND MATERIALS SHALL BE GUARANTEED FOR A PERIOD OF ONE YEAR FROM THE DATE OF CERTIFICATE OCCUPANCY UNLESS SPECIFIED FOR A LONGER PERIOD OF TIME ON SPECIFIED ITEMS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPLACING OR PREPARING HIS OWN DEFECTIVE WORK AS WELL AS PAY THE COSTS INCIDENTAL THERETO INCLUDING DAMAGE TO OTHER WORK, FURNISHINGS OR EQUIPMENT.
23. INSURANCE: PRIOR TO THE COMMENCEMENT OF WORK. THE GENERAL CONTRACTOR SHALL DELIVER TO THE OWNER CERTIFICATES OF INSURANCE FOR BOTH COMPREHENSIVE GENERAL LIABILITY, WORKMANS' COMPENSATION AND AUTOMOBILE LIABILITY INCLUDING THE TOTAL AMOUNT OF COVERAGE AND CONDITIONS STIPULATED BY THE OWNER.
24. GENERAL CONTRACTOR SHALL PROVIDE ALL LABOR, MATERIALS AND SERVICES REQUIRED FOR A COMPLETE AND OPERATIONAL SPACE IN ACCORDANCE WITH DRAWING AND SPECIFICATIONS.
25. REFER TO DEMOLITION NOTES FOR DEMOLITION REQUIREMENTS AND REFER TO CONSULTANTS' NOTES FOR ADDITIONAL REQUIREMENTS RELATED TO EACH CONSULTANTS SPECIALITY, INCLUDING, BUT NOT LIMITED TO, STRUCTURAL, MECHANICAL, ELECTRICAL, PLUMBING AND IRRIGATION.
26. GENERAL CONTRACTOR SHALL PROVIDE ALL OF THE REQUIRED METAL FRAMING, PRESSURE TREATED WOOD BLOCKING AND PLYWOOD BACKING NECESSARY, CONCRETE SLAB, CONCRETE BLOCK OR METAL PARTITIONS FOR THE SUPPORT OF ALL EQUIPMENT, SUSPENDED LIGHT FIXTURES, DEMISING WALLS, LIGHT TRACKS, VALANCES, CABINETRY/ MILL WORK, PLUMBING FIXTURES AND ACCESSORIES FOR EXACT LOCATION COORDINATE WITH OWNER/ ARCHITECT.
27. GENERAL CONTRACTOR SHALL PROTECT EXISTING FACILITIES, STRUCTURES AND UTILITY MUST BE VERIFIED AS TO EXACT LOCATIONS SO AS NO INTERFERENCE SHALL BE CAUSED. DAMAGE THAT MAY BE CAUSED BY GENERAL CONTRACTOR AND SUB- CONTRACTOR TO ANY TO THE ABOVE MENTIONED SHALL BE REPAIRED BY HIM AND LEFT IN AS GOOD CONDITION AS EXISTED PRIOR TO DAMAGE.
28. ALL NEW CONSTRUCTION ADJACENT OR ABUTTING ANY EXISTING FINISHES SHALL BLEND TO MEET THE EXISTING CONDITIONS AND THERE SHALL NOT BE ANY ABRUPT CHANGES IN SURFACES OR UNFINISHED SURFACES.
29. EXISTING GROUND FLOOR CONCRETE SLAB IN ALL AREAS WITH NEW FLOOR FINISHES TO BE TESTED FOR MOISTURE INTRUSION PRIOR TO THE INSTALLATION OF NEW FLOOR FINISHES. IF THE MOISTURE TESTS DO NOT MEET THE REQUIREMENTS OF THE PRODUCT WARRANTIES, GC SHALL PROVIDE A VAPOR BARRIER THROUGHOUT THE SPACE TO ENSURE COMPLIANCE.

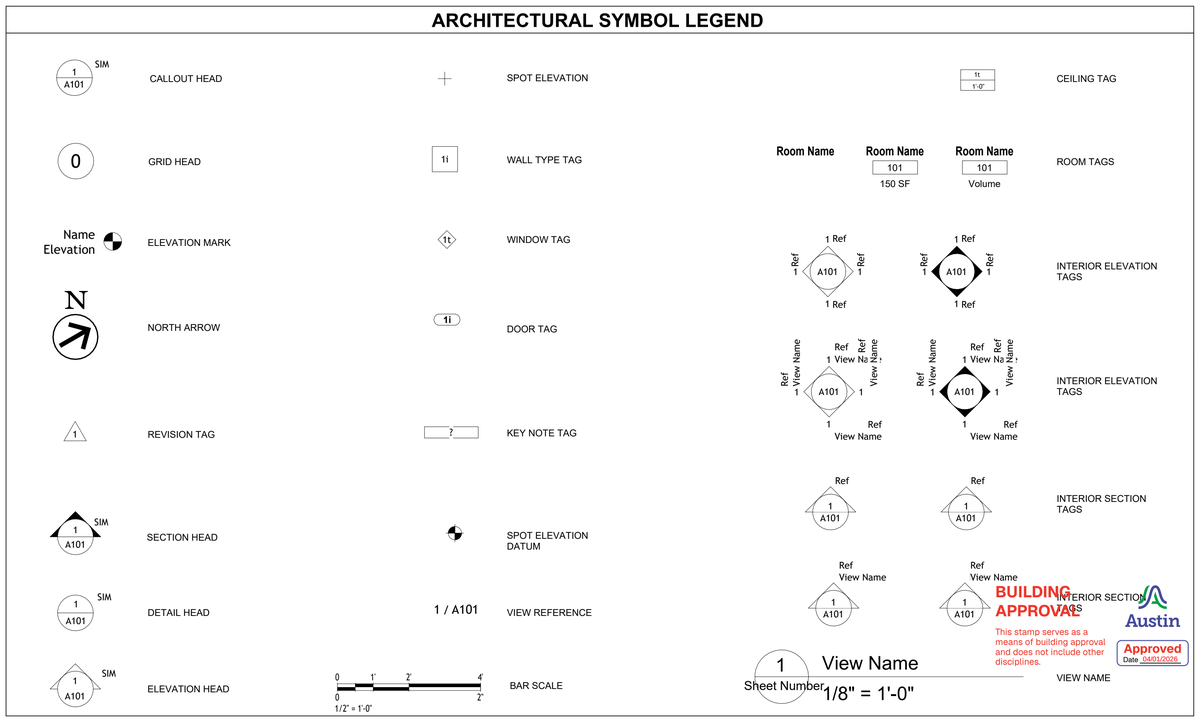
ARCHITECTURAL SHEET...

SHEET NO.	SHEET NAME
GENERAL	
A-001	COVER
A-002	GENERAL INFORMATION
A-003	ACCESIBILITY NOTES
ARCHITECTURAL - DEMOLITION	
AD-201	GROUND LEVEL AND REFLECTED CEILING DEMOLITION PLANS
ARCHITECTURAL - LIFE SAFETY	
LS-101	FIRST LEVEL - LIFE SAFETY PLAN
ARCHITECTURAL	
A-100	SITE PLAN
A-201	GROUND FLOOR PLAN AND REFLECTED CEILING PLAN
A-401	SECTIONS
A-501	SCHEDULES AND DOOR DETAILS
INTERIOR DESIGN	
ID-210	ENLARGED GROUND FLOOR PLAN
ID-211	INTERIOR ELEVATIONS
ID-212	INTERIOR ELEVATIONS
ID-213	INTERIOR ELEVATIONS
ID-214	INTERIOR ELEVATIONS

MEP SHEET INDEX

SHEET NO.	SHEET NAME
MECHANICAL	
MEP0.0	MEP GENERAL NOTES
M0.1	MECHANICAL SYMBOLS
M0.2	MECHANICAL GENERAL NOTES
M0.3	MECHANICAL SHEET SPECS
M0.4	MECHANICAL SHEET SPECS
M0.5	MECHANICAL SHEET SPECS
MD1.1	MECHANICAL DEMOLITION
M1.1	MECHANICAL HVAC PLAN
M2.1	MECHANICAL SCHEDULES
M2.3	MECHANICAL DETAILS
ELECTRICAL	
E0.1	ELECTRICAL SYMBOLS
E0.2	ELECTRICAL GENERAL NOTES
E0.3	ELECTRICAL GENERAL NOTES
ED1.1	ELECTRICAL DEMOLITION
E1.1	ELECTRICAL PLAN
E5.1	ELECTRICAL ONE LINE DIAGRAM
E6.1	ELECTRICAL SCHEDULES
E8.1	ELECTRICAL COMCHECK
PLUMBING	
P0.0	PLUMBING NOTES AND SYMBOLS
P0.1	PLUMBING SHEET SPECS
P0.2	PLUMBING SHEET SPECS
PD1.1	PLUMBING DEMOLITION
P1.1	PLUMBING LAYOUT
P2.3	PLUMBING SCHEDULES

ARCHITECTURAL SYMBOL LEGEND



BUILDING APPROVAL
This stamp serves as a means of building approval and does not include other disciplines.
Austin
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BEAtx architects

REGISTERED ARCHITECT SOFIA M. RAMOS 31599 STATE OF TEXAS

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TX Lic. # AR31599

APA-OFFICE BUILDING RENOVATION

5817 WILCAB RD.
AUSTIN, TEXAS 78721

SHEET TITLE :
GENERAL INFORMATION

REVISIONS :

#	Description:	Date:

SUBMITTAL:
PERMIT SET

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

DATE :
03/09/2026

PROJECT NUMBER :
25003

DRAWN BY : A.G.
CHECKED BY : S.R.

SHEET NO. :
A-002

3. TEXAS ACCESSIBILITY STANDARDS CH.3:

301 GENERAL:

301.1 SCOPE

THE PROVISIONS OF CHAPTER 3 SHALL APPLY WHERE REQUIRED BY CHAPTER 2 OR WHERE REFERENCED BY A REQUIREMENT IN THIS DOCUMENT.

302 FLOOR OR GROUND SURFACES:

302.1 GENERAL

FLOOR AND GROUND SURFACES SHALL BE STABLE, FIRM, AND SLIP RESISTANT AND SHALL COMPLY WITH 302.

EXCEPTIONS:
1.WITHIN ANIMAL CONTAINMENT AREAS, FLOOR AND GROUND SURFACES SHALL NOT BE REQUIRED TO BE STABLE, FIRM, AND SLIP RESISTANT.

2. *AREAS OF SPORT ACTIVITY* SHALL NOT BE REQUIRED TO COMPLY WITH 302.

ADVISORY 302.1 GENERAL:
A STABLE SURFACE IS ONE THAT REMAINS UNCHANGED BY CONTAMINANTS OR APPLIED FORCE, SO THAT WHEN THE CONTAMINANT OR FORCE IS REMOVED, THE SURFACE RETURNS TO ITS ORIGINAL CONDITION. A FIRM SURFACE RESISTS DEFORMATION BY EITHER INDENTATIONS OR PARTICLES MOVING ON ITS SURFACE. A SLIP-RESISTANT SURFACE PROVIDES SUFFICIENT FRICTIONAL COUNTER FORCE TO THE FORCES EXERTED IN WALKING TO PERMIT SAFE AMBULATION.

302.2 CARPET

CARPET OR CARPET TILE SHALL BE SECURELY ATTACHED AND SHALL HAVE A FIRM CUSHION, PAD, OR BACKING OR NO CUSHION OR PAD. CARPET OR CARPET TILE SHALL HAVE A LEVEL LOOP, TEXTURED LOOP, LEVEL CUT PILE, OR LEVEL CUT/UNCUT PILE TEXTURE. PILE HEIGHT SHALL BE ½ INCH (13 MM) MAXIMUM. EXPOSED EDGES OF CARPET SHALL BE FASTENED TO FLOOR SURFACES AND SHALL HAVE TRIM ON THE ENTIRE LENGTH OF THE EXPOSED EDGE. CARPET EDGE TRIM SHALL COMPLY WITH 303.

ADVISORY 302.2 CARPET:
CARPETS AND PERMANENTLY AFFIXED MATS CAN SIGNIFICANTLY INCREASE THE AMOUNT OF FORCE (ROLL RESISTANCE) NEEDED TO PROPEL A WHEELCHAIR OVER A SURFACE. THE FIRMER THE CARPETING AND BACKING, THE LOWER THE ROLL RESISTANCE. A PILE THICKNESS UP TO ½ INCH (13 MM) (MEASURED TO THE BACKING, CUSHION, OR PAD) IS ALLOWED, ALTHOUGH A LOWER PILE PROVIDES EASIER WHEELCHAIR MANEUVERING. IF A BACKING, CUSHION OR PAD IS USED, IT MUST BE FIRM, PREFERABLY, CARPET PAD SHOULD NOT BE USED BECAUSE THE SOFT PADDING INCREASES ROLL RESISTANCE.

302.3 OPENINGS

OPENINGS IN FLOOR OR GROUND SURFACES SHALL NOT ALLOW PASSAGE OF A SPHERE MORE THAN ½ INCH (13 MM) DIAMETER EXCEPT AS ALLOWED
IN 407.4.3, 409.4.3, 410.4, 810.5.3 AND 810.10. ELONGATED OPENINGS SHALL BE PLACED SO THAT THE LONG DIMENSION IS PERPENDICULAR TO THE DOMINANT DIRECTION OF TRAVEL.

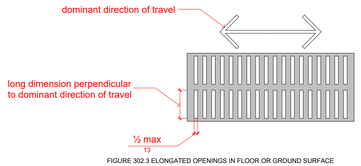

FIGURE 302.3 ELONGATED OPENINGS IN FLOOR OR GROUND SURFACE

303 CHANGES IN LEVEL:

303.1 GENERAL

WHERE CHANGES IN LEVEL ARE PERMITTED IN FLOOR OR GROUND SURFACES, THEY SHALL COMPLY WITH 303.

EXCEPTIONS:
1. ANIMAL CONTAINMENT AREAS SHALL NOT BE REQUIRED TO COMPLY WITH 303.

2. *AREAS OF SPORT ACTIVITY* SHALL NOT BE REQUIRED TO COMPLY WITH 303.

303.2 VERTICAL

CHANGES IN LEVEL OF ¼ INCH (6.4 MM) HIGH MAXIMUM SHALL BE PERMITTED TO BE VERTICAL.

FIGURE 303.2 VERTICAL CHANGE IN LEVEL

303.3 BEVELED

CHANGES IN LEVEL BETWEEN ¼ INCH (6.4 MM) HIGH MINIMUM AND ½ INCH (13 MM) HIGH MAXIMUM SHALL BE BEVELED WITH A SLOPE NOT STEEPER THAN 1:2.

ADVISORY 303.3 BEVELED:
A CHANGE IN LEVEL OF ½ INCH (13 MM) IS PERMITTED TO BE ¼ INCH (6.4 MM) VERTICAL PLUS ¼ INCH (6.4 MM) BEVELED. HOWEVER, IN NO CASE MAY THE COMBINED CHANGE IN LEVEL EXCEED ½ INCH (13 MM). CHANGES IN LEVEL EXCEEDING ½ INCH (13 MM) MUST COMPLY WITH 405 (RAMPS) OR 406 (CURB RAMPS).

FIGURE 303.3 BEVELED CHANGE IN LEVEL

303.4 RAMPS

CHANGES IN LEVEL GREATER THAN ½ INCH (13 MM) HIGH SHALL BE RAMPED, AND SHALL COMPLY WITH 405 OR 406.

304 TURNING SPACE:

304.1 FLOOR OR GROUND SURFACES

TURNING *SPACE* SHALL COMPLY WITH 304.

304.2 FLOOR OR GROUND SURFACES

FLOOR OR GROUND SURFACES OF A TURNING *SPACE* SHALL COMPLY WITH 302. CHANGES IN LEVEL ARE NOT PERMITTED.

EXCEPTION:
SLOPES NOT STEEPER THAN 1:48 SHALL BE PERMITTED.

ADVISORY 304.2 FLOOR OR GROUND SURFACE EXCEPTION:
AS USED IN THIS SECTION, THE PHRASE "CHANGES IN LEVEL" REFERS TO SURFACES WITH SLOPES AND TO SURFACES WITH ABRUPT RISE EXCEEDING THAT PERMITTED IN SECTION 303.3. SUCH CHANGES IN LEVEL ARE PROHIBITED IN REQUIRED CLEAR FLOOR AND GROUND SPACES, TURNING SPACES, AND IN SIMILAR SPACES WHERE PEOPLE USING WHEELCHAIRS AND OTHER MOBILITY DEVICES MUST PARK THEIR MOBILITY AIDS SUCH AS IN WHEELCHAIR SPACES, OR MANEUVER TO USE ELEMENTS SUCH AS AT DOORS, FIXTURES, AND TELEPHONES. THE EXCEPTION PERMITS SLOPES NOT STEEPER THAN 1:48.

304.3 SIZE

TURNING *SPACE* SHALL COMPLY WITH 304.3.1 OR 304.3.2.

304.3.1 CIRCULAR SPACE

THE TURNING *SPACE* SHALL BE A *SPACE* OF 60 INCHES (1525 MM) DIAMETER MINIMUM. THE *SPACE* SHALL BE PERMITTED TO INCLUDE KNEE AND TOE CLEARANCE COMPLYING WITH 306.

304.3.2 T-SHAPED SPACE

THE TURNING *SPACE* SHALL BE A T-SHAPED *SPACE* WITHIN A 60 INCH (1525 MM) SQUARE MINIMUM WITH ARMS AND BASE 36 INCHES (915 MM) WIDE MINIMUM. EACH ARM OF THE T SHALL BE CLEAR OF OBSTRUCTIONS 12 INCHES (305 MM) MINIMUM IN EACH DIRECTION AND THE BASE SHALL BE CLEAR OF OBSTRUCTIONS 24 INCHES (610 MM) MINIMUM.
THE *SPACE* SHALL BE PERMITTED TO INCLUDE KNEE AND TOE CLEARANCE COMPLYING WITH 306 ONLY AT THE END OF EITHER THE BASE OR ONE ARM.

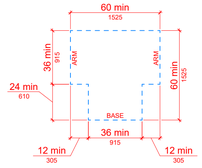

FIGURE 304.3.2 T-SHAPED TURNING SPACE

304.4 DOOR SWING

DOORS SHALL BE PERMITTED TO SWING INTO TURNING *SPACES*.

305 CLEAR FLOOR OR GROUND SPACE:

305.1 GENERAL

CLEAR FLOOR OR GROUND *SPACE* SHALL COMPLY WITH 305.

305.2 FLOOR OR GROUND SURFACES

FLOOR OR GROUND SURFACES OF A CLEAR FLOOR OR GROUND *SPACE* SHALL COMPLY WITH 302. CHANGES IN LEVEL ARE NOT PERMITTED.

EXCEPTION:
SLOPES NOT STEEPER THAN 1:48 SHALL BE PERMITTED.

305.3 SIZE

THE CLEAR FLOOR OR GROUND *SPACE* SHALL BE 30 INCHES (760 MM) MINIMUM BY 48 INCHES (1220 MM) MINIMUM.

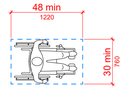

FIGURE 305.3 CLEAR FLOOR OR GROUND SPACE

305.4 KNEE AND TOE CLEARANCE

UNLESS OTHERWISE SPECIFIED, CLEAR FLOOR OR GROUND *SPACE* SHALL BE PERMITTED TO INCLUDE KNEE AND TOE CLEARANCE COMPLYING WITH 306.

305.5 POSITION

UNLESS OTHERWISE SPECIFIED, CLEAR FLOOR OR GROUND *SPACE* SHALL BE POSITIONED FOR EITHER FORWARD OR PARALLEL APPROACH TO AN *ELEMENT*.

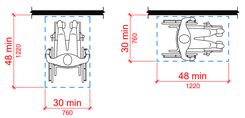

FIGURE 305.5 POSITION OF CLEAR FLOOR OR GROUND SPACE

305.6 APPROACH

ONE FULL UNOBSTRUCTED SIDE OF THE CLEAR FLOOR OR GROUND *SPACE* SHALL ADJOIN AN *ACCESSIBLE* ROUTE OR ADJOIN ANOTHER CLEAR FLOOR OR GROUND *SPACE*.

305.7 MANEUVERING CLEARANCE

WHERE A CLEAR FLOOR OR GROUND *SPACE* IS LOCATED IN AN ALCOVE OR OTHERWISE CONFINED ON ALL OR PART OF THREE SIDES, ADDITIONAL MANEUVERING CLEARANCE SHALL BE PROVIDED IN ACCORDANCE WITH 305.7.1 AND 305.7.2.

305.7.1 FORWARD APPROACH

ALCOVES SHALL BE 36 INCHES (915 MM) WIDE MINIMUM WHERE THE DEPTH EXCEEDS 24 INCHES (610 MM).

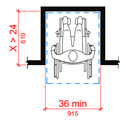

FIGURE 305.7.1 MANEUVERING CLEARANCE IN AN ALCOVE, FORWARD APPROACH

305.7.2 PARALLEL APPROACH

ALCOVES SHALL BE 60 INCHES (1525 MM) WIDE MINIMUM WHERE THE DEPTH EXCEEDS 15 INCHES (380 MM).

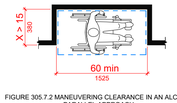

FIGURE 305.7.2 MANEUVERING CLEARANCE IN AN ALCOVE, PARALLEL APPROACH

306 KNEE AND TOE CLEARANCE:

306.1 GENERAL

WHERE *SPACE* BENEATH AN *ELEMENT* IS INCLUDED AS PART OF CLEAR FLOOR OR GROUND *SPACE* OR TURNING *SPACE*, THE *SPACE* SHALL COMPLY WITH 306. ADDITIONAL *SPACE* SHALL NOT BE PROHIBITED BENEATH AN *ELEMENT* BUT SHALL NOT BE CONSIDERED AS PART OF THE CLEAR FLOOR OR GROUND *SPACE* OR TURNING *SPACE*.

ADVISORY 306.1 GENERAL:
CLEARANCES ARE MEASURED IN RELATION TO THE USABLE CLEAR FLOOR SPACE, NOT NECESSARILY TO THE VERTICAL SUPPORT FOR AN ELEMENT. WHEN DETERMINING CLEARANCE UNDER AN OBJECT FOR REQUIRED TURNING OR MANEUVERING SPACE, CARE SHOULD BE TAKEN TO ENSURE THE SPACE IS CLEAR OF ANY OBSTRUCTIONS.

306.2 TOE CLEARANCE

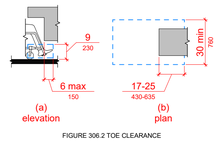

FIGURE 306.2 TOE CLEARANCE

306.2.1 GENERAL

SPACE UNDER AN *ELEMENT* BETWEEN THE FINISH FLOOR OR GROUND AND 9 INCHES (230 MM) ABOVE THE FINISH FLOOR OR GROUND SHALL BE CONSIDERED TOE CLEARANCE AND SHALL COMPLY WITH 306.2.

306.2.2 MAXIMUM DEPTH

TOE CLEARANCE SHALL EXTEND 25 INCHES (635 MM) MAXIMUM UNDER AN *ELEMENT*.

306.2.3 MINIMUM REQUIRED DEPTH

WHERE TOE CLEARANCE IS REQUIRED AT AN *ELEMENT* AS PART OF A CLEAR FLOOR *SPACE*, THE TOE CLEARANCE SHALL EXTEND 17 INCHES (430 MM) MINIMUM UNDER THE *ELEMENT*.

306.2.4 ADDITIONAL CLEARANCE

SPACE EXTENDING GREATER THAN 6 INCHES (150 MM) BEYOND THE AVAILABLE KNEE CLEARANCE AT 9 INCHES (230 MM) ABOVE THE FINISH FLOOR OR GROUND SHALL NOT BE CONSIDERED TOE CLEARANCE.

306.2.5 WIDTH

TOE CLEARANCE SHALL BE 30 INCHES (760 MM) WIDE MINIMUM.

306.3 KNEE CLEARANCE

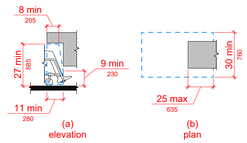

FIGURE 306.3 KNEE CLEARANCE

306.3.1 GENERAL

SPACE UNDER AN *ELEMENT* BETWEEN 9 INCHES (230 MM) AND 27 INCHES (685 MM) ABOVE THE FINISH FLOOR OR GROUND SHALL BE CONSIDERED KNEE CLEARANCE AND SHALL COMPLY WITH 306.3.

306.3.2 MAXIMUM DEPTH

KNEE CLEARANCE SHALL EXTEND 25 INCHES (635 MM) MAXIMUM UNDER AN *ELEMENT* AT 9 INCHES (230 MM) ABOVE THE FINISH FLOOR OR GROUND.

306.3.3 MINIMUM REQUIRED DEPTH

WHERE KNEE CLEARANCE IS REQUIRED UNDER AN *ELEMENT* AS PART OF A CLEAR FLOOR *SPACE*, THE KNEE CLEARANCE SHALL BE 11 INCHES (280 MM) DEEP MINIMUM AT 9 INCHES (230 MM) ABOVE THE FINISH FLOOR OR GROUND, AND 8 INCHES (205 MM) DEEP MINIMUM AT 27 INCHES (685 MM) ABOVE THE FINISH FLOOR OR GROUND.

306.3.4 CLEARANCE REDUCTION

BETWEEN 9 INCHES (230 MM) AND 27 INCHES (685 MM) ABOVE THE FINISH FLOOR OR GROUND, THE KNEE CLEARANCE SHALL BE PERMITTED TO REDUCE AT A RATE OF 1 INCH (25 MM) IN DEPTH FOR EACH 6 INCHES (150 MM) IN HEIGHT.

306.3.5 WIDTH

KNEE CLEARANCE SHALL BE 30 INCHES (760 MM) WIDE MINIMUM.

307 PROTRUDING OBJECTS:

307.1 GENERAL

PROTRUDING OBJECTS SHALL COMPLY WITH 307.

307.2 PROTRUSION LIMITS

OBJECTS WITH LEADING EDGES MORE THAN 27 INCHES (685 MM) AND NOT MORE THAN 80 INCHES (2030 MM) ABOVE THE FINISH FLOOR OR GROUND SHALL PROTRUDE 4 INCHES (100 MM) MAXIMUM HORIZONTALLY INTO THE *CIRCULATION PATH*.

EXCEPTION:
HANDRAILS SHALL BE PERMITTED TO PROTRUDE 4 ½ INCHES (115 MM) MAXIMUM.

ADVISORY 307.2 PROTRUSION LIMITS:
WHEN A CANE IS USED AND THE ELEMENT IS IN THE DETECTABLE RANGE, IT GIVES A PERSON SUFFICIENT TIME TO DETECT THE ELEMENT WITH THE CANE BEFORE THERE IS BODY CONTACT. ELEMENTS LOCATED ON CIRCULATION PATHS, INCLUDING OPERABLE ELEMENTS, MUST COMPLY WITH REQUIREMENTS FOR PROTRUDING OBJECTS. FOR EXAMPLE, AWNINGS AND THEIR SUPPORTING STRUCTURES CANNOT REDUCE THE MINIMUM REQUIRED VERTICAL CLEARANCE. SIMILARLY, CASEMENT WINDOWS, WHEN OPEN, CANNOT ENCROACH MORE THAN 4 INCHES (100 MM) INTO CIRCULATION PATHS ABOVE 27 INCHES (685 MM).

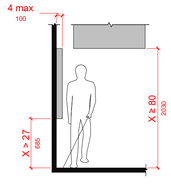

FIGURE 307.2 LIMITS OF PROTRUDING OBJECTS

307.3 POST-MOUNTED OBJECTS

FREE-STANDING OBJECTS MOUNTED ON POSTS OR PYLONS SHALL OVERHANG *CIRCULATION PATHS* 12 INCHES (305 MM) MAXIMUM WHEN LOCATED 27 INCHES (685 MM) MINIMUM AND 80 INCHES (2030 MM) MAXIMUM ABOVE THE FINISH FLOOR OR GROUND. WHERE A SIGN OR OTHER OBSTRUCTION IS MOUNTED BETWEEN POSTS OR PYLONS AND THE CLEAR DISTANCE BETWEEN THE POSTS OR PYLONS IS GREATER THAN 12 INCHES (305 MM), THE LOWEST EDGE OF SUCH SIGN OR OBSTRUCTION SHALL BE *27* INCHES (685 MM) MAXIMUM OR 80 INCHES (2030 MM) MINIMUM ABOVE THE FINISH FLOOR OR GROUND.

EXCEPTION:
THE SLOPING PORTIONS OF HANDRAILS SERVING STAIRS AND *RAMPS* SHALL NOT BE REQUIRED TO COMPLY WITH 307.3.

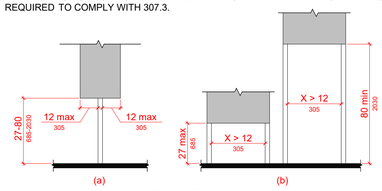

FIGURE 307.3 POST-MOUNTED PROTRUDING OBJECTS

307.4 VERTICAL CLEARANCE

VERTICAL CLEARANCE SHALL BE 80 INCHES (2030 MM) HIGH MINIMUM. GUARDRAILS OR OTHER BARRIERS SHALL BE PROVIDED WHERE THE VERTICAL CLEARANCE IS LESS THAN 80 INCHES (2030 MM) HIGH. THE LEADING EDGE OF SUCH GUARDRAIL OR BARRIER SHALL BE LOCATED 27 INCHES (685 MM) MAXIMUM ABOVE THE FINISH FLOOR OR GROUND.

EXCEPTION:
DOOR CLOSERS AND DOOR STOPS SHALL BE PERMITTED TO BE 78 INCHES (1980 MM) MINIMUM ABOVE THE FINISH FLOOR OR GROUND.

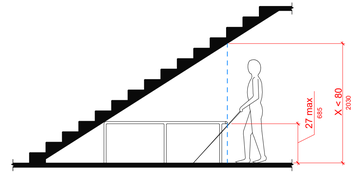

FIGURE 307.4 VERTICAL CLEARANCE

307.5 REQUIRED CLEAR WIDTH

PROTRUDING OBJECTS SHALL NOT REDUCE THE CLEAR WIDTH REQUIRED FOR *ACCESSIBLE* ROUTES.

308 REACH RANGES:

308.1 GENERAL

REACH RANGES SHALL COMPLY WITH 308.

ADVISORY 308.1 GENERAL:
THE FOLLOWING TABLE PROVIDES GUIDANCE ON REACH RANGES FOR CHILDREN ACCORDING TO AGE WHERE BUILDING ELEMENTS SUCH AS COAT HOOKS, LOCKERS, OR OPERABLE PARTS ARE DESIGNED FOR USE PRIMARILY BY CHILDREN. THESE DIMENSIONS APPLY TO EITHER FORWARD OR SIDE REACHES. ACCESSIBLE ELEMENTS AND OPERABLE PARTS DESIGNED FOR ADULT USE OR CHILDREN OVER AGE 12 CAN BE LOCATED OUTSIDE THESE RANGES BUT MUST BE WITHIN THE ADULT REACH RANGES REQUIRED BY 308.

CHILDRENS REACH RANGES			
FORWARD OR SIDE REACH	**AGES 3 AND 4**	**AGES 5 THROUGH 8**	**AGES 9 THROUGH 12**
HIGH (MAXIMUM)	36 IN (915 MM)	40 IN (1015 MM)	44 IN (1120 MM)
LOW (MINIMUM)	20 IN (510 MM)	18 IN (455 MM)	16 IN (405 MM)

308.2 FORWARD REACH

308.2.1 UNOBSTRUCTED

WHERE A FORWARD REACH IS UNOBSTRUCTED, THE HIGH FORWARD REACH SHALL BE 48 INCHES (1220 MM) MAXIMUM AND THE LOW FORWARD REACH SHALL BE 15 INCHES (380 MM) MINIMUM ABOVE THE FINISH FLOOR OR GROUND.

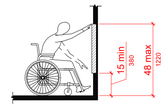

FIGURE 308.2.1 UNOBSTRUCTED FORWARD REACH

308.2.2 OBSTRUCTED HIGH REACH

WHERE A HIGH FORWARD REACH IS OVER AN OBSTRUCTION, THE CLEAR FLOOR *SPACE* SHALL EXTEND BENEATH THE *ELEMENT* FOR A DISTANCE NOT LESS THAN THE REQUIRED REACH DEPTH OVER THE OBSTRUCTION. THE HIGH FORWARD REACH SHALL BE 48 INCHES (1220 MM) MAXIMUM WHERE THE REACH DEPTH IS 20 INCHES (510 MM) MAXIMUM. WHERE THE REACH DEPTH EXCEEDS 20 INCHES (510 MM), THE HIGH FORWARD REACH SHALL BE 44 INCHES (1120 MM) MAXIMUM AND THE REACH DEPTH SHALL BE 25 INCHES (635 MM) MAXIMUM.

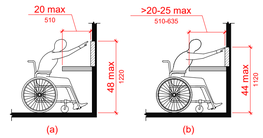

FIGURE 308.2.2 OBSTRUCTED HIGH FORWARD REACH

308.3 SIDE REACH

308.3.1 UNOBSTRUCTED

WHERE A CLEAR FLOOR OR GROUND *SPACE* ALLOWS A PARALLEL APPROACH TO AN *ELEMENT* AND THE SIDE REACH IS UNOBSTRUCTED, THE HIGH SIDE REACH SHALL BE 48 INCHES (1220 MM) MAXIMUM AND THE LOW SIDE REACH SHALL BE 15 INCHES (380 MM) MINIMUM ABOVE THE FINISH FLOOR OR GROUND.

EXCEPTIONS:
1. AN OBSTRUCTION SHALL BE PERMITTED BETWEEN THE CLEAR FLOOR OR GROUND *SPACE* AND THE *ELEMENT* WHERE THE DEPTH OF THE OBSTRUCTION IS 10 INCHES (255 MM) MAXIMUM.

2. *OPERABLE PARTS* OF FUEL DISPENSERS SHALL BE PERMITTED TO BE 54 INCHES (1370 MM) MAXIMUM MEASURED FROM THE SURFACE OF THE *VEHICULAR WAY* WHERE FUEL DISPENSERS ARE INSTALLED ON EXISTING CURBS.

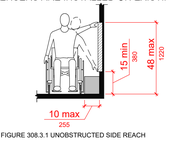

FIGURE 308.3.1 UNOBSTRUCTED SIDE REACH

308.3.2 OBSTRUCTED HIGH REACH

WHERE A CLEAR FLOOR OR GROUND *SPACE* ALLOWS A PARALLEL APPROACH TO AN *ELEMENT* AND THE HIGH SIDE REACH IS OVER AN OBSTRUCTION, THE HEIGHT OF THE OBSTRUCTION SHALL BE 34 INCHES (865 MM) MAXIMUM AND THE DEPTH OF THE OBSTRUCTION SHALL BE 24 INCHES (610 MM) MAXIMUM. THE HIGH SIDE REACH SHALL BE 48 INCHES (1220 MM) MAXIMUM FOR A REACH DEPTH OF 10 INCHES (255 MM) MAXIMUM. WHERE THE REACH DEPTH EXCEEDS 10 INCHES (255 MM), THE HIGH SIDE REACH SHALL BE 46 INCHES (1170 MM) MAXIMUM FOR A REACH DEPTH OF 24 INCHES (610 MM) MAXIMUM.

EXCEPTIONS:
1. THE TOP OF WASHING MACHINES AND CLOTHES DRYERS SHALL BE PERMITTED TO BE 36 INCHES (915 MM) MAXIMUM ABOVE THE FINISH FLOOR.

2. *OPERABLE PARTS* OF FUEL DISPENSERS SHALL BE PERMITTED TO BE 54 INCHES (1370 MM) MAXIMUM MEASURED FROM THE SURFACE OF THE *VEHICULAR WAY* WHERE FUEL DISPENSERS ARE INSTALLED ON EXISTING CURBS.

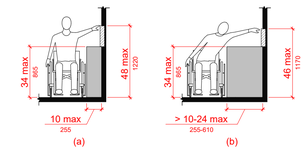

FIGURE 308.3.2 OBSTRUCTED HIGH SIDE REACH

309 OPERABLE PARTS:

309.1 GENERAL

OPERABLE PARTS SHALL COMPLY WITH 309.

309.2 CLEAR FLOOR SPACE

A CLEAR FLOOR OR GROUND *SPACE* COMPLYING WITH 305 SHALL BE PROVIDED.

309.3 HEIGHT

OPERABLE PARTS SHALL BE PLACED WITHIN ONE OR MORE OF THE REACH RANGES SPECIFIED IN 308.

309.4 OPERATION

OPERABLE PARTS SHALL BE OPERABLE WITH ONE HAND AND SHALL NOT REQUIRE TIGHT GRASPING, PINCHING, OR TWISTING OF THE WRIST. THE FORCE REQUIRED TO ACTIVATE *OPERABLE PARTS* SHALL BE 5 POUNDS (22.2 N) MAXIMUM.

EXCEPTION:
GAS PUMP NOZZLES SHALL NOT BE REQUIRED TO PROVIDE *OPERABLE PARTS* THAT HAVE AN ACTIVATING FORCE OF 5 POUNDS (22.2 N) MAXIMUM.

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APA-OFFICE BUILDING RENOVATION

5817 WILCAB RD.
AUSTIN, TEXAS 78721

SHEET TITLE :
ACCESIBILITY NOTES

REVISIONS :

#	Description:	Date:

SUBMITTAL:
PERMIT SET

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

DATE :
03/09/2026

PROJECT NUMBER :
25003

DRAWN BY : A.G.
CHECKED BY : S.R.

SHEET NO. :
A-003

BUILDING APPROVAL
This stamp serves as a means of building approval and does not include other disciplines.

Austin
Approved
Date 04/01/2026

REFLECTED CEILING LEGEND

	DESCRIPTION
	A/C SUPPLY GRILLE
	A/C RETURN GRILLE
	EXHAUST FAN
	2'X4' ARCHITECTURAL TROFFER
	4" RECESSED ROUND LIGHTING

CEILING FINISH LEGEND

TYPE	
	ACT - ACOUSTICAL TILE 2X4
	ACT - ACOUSTICAL TILE 2X2

CODED NOTES

CODED NOTE	NOTE TEXT
①	DEMO FLOOR DAMAGED TILES ONLY
②	DEMO EXISTING WINDOW
③	SHIFT EXISTING DOOR
④	DEMO EXISTING DOOR AND FRAME IN ITS ENTIRETY INCLUDING ALL HARDWARE. DEMO PORTION OF WALL FOR NEW DOUBLE DOOR
⑤	REMOVE EXISTING FLOORING, PREP FOR NEW FLOORING (CARPET OR VINYL TILE)
⑥	REMOVE EXISTING TILE FLOORING AND ADHESIVE. PREPARE EXISTING CONCRETE SLAB FOR EXPOSED FINISH
⑦	DEMO EXISTING BAR
⑧	DEMO PORTION OF WALL FOR NEW DOOR
⑨	REMOVE ALL CEILING, LIGHTS, AND SPEAKERS IN THIS AREA
⑩	DEMOLISH EXISTING TOILETS, LAVATORIES, ACCESSORIES, AND PLUMBING IN AREA INDICATED. PROVIDE TEMPORARY OR PERMANENT CAPS AT ALL ABADONED LINES. INFILL AND FINISH OPENINGS TO MATCH ADJACENT FINISHES
⑪	DEMO EXISTING WALLS AND FINISH, IF EXISTING LOAD CONDITIONS SHOULD BE DISCOVERED, A&E TEAM TO EVALUATE PRIOR TO DEMOLITION
⑫	EXISTING DOOR TO REMAIN. REMOVE DETERIORATED SEALANT AND RESEAL WITH EXTERIOR-GRADE SEALANT PER MANUFACTURER RECOMMENDATIONS. TYP.
⑬	AD ALT #2 KITCHEN DEMO. ONLY TO PROCEED WITH WRITTEN OWNER APPROVAL

LEGEND

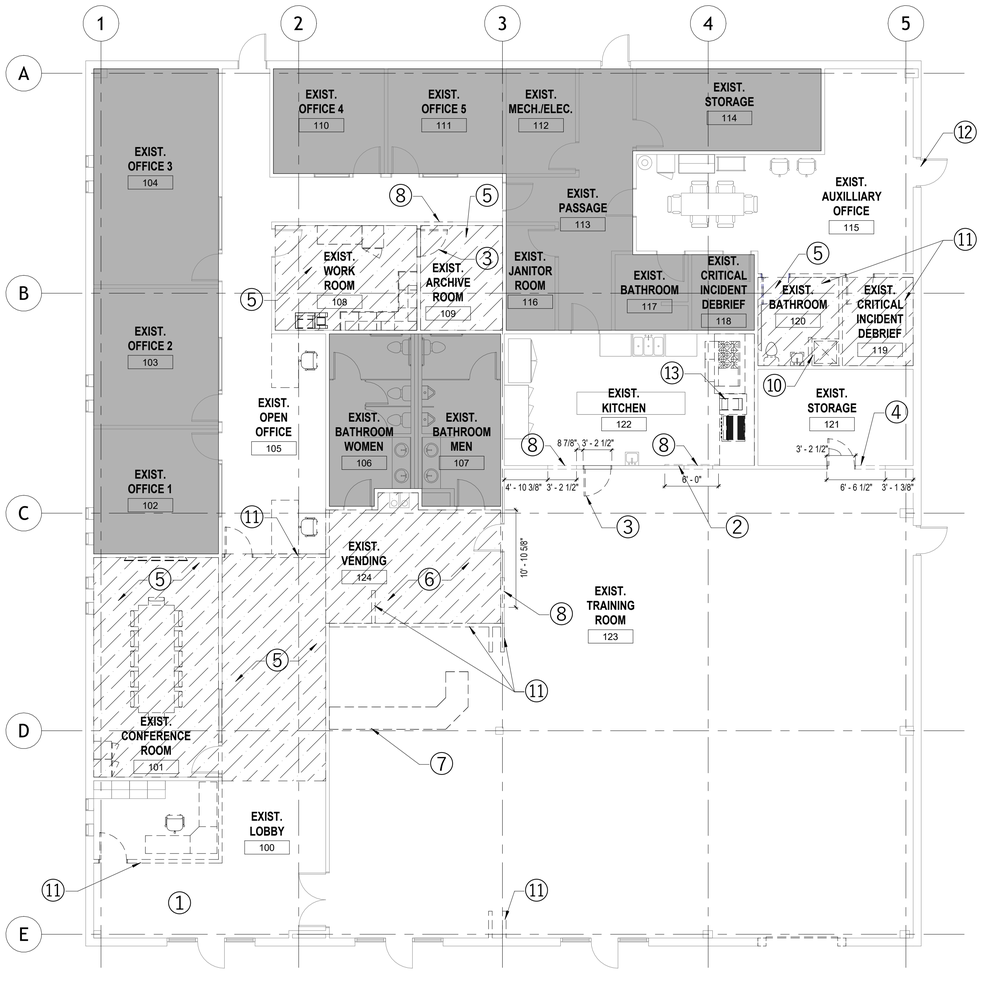
———	EXISTING TO REMAIN
– – – –	EXISTING TO BE DEMOLISHED, REMOVED, OR RELOCATED
	EXISTING CEILING, DIFFUSERS, SPEAKERS, AND LIGHTS TO BE REMOVED
	EXISTING FLOOR TO BE REMOVED

GENERAL NOTES

- REFER TO INITIAL MOLD ASSESSMENT. REPLACE CEILING TILES 2 FT IN ALL DIRECTIONS FROM AFFECTED AREA.
- ALL DIMENSIONS AND FIXTURES TO BE V.I.F.
- ALL FURNITURE & EQUIPMENT LISTED AS DEMO IS TO BE STORED AND REUSED BY OWNER. OWNER TO SELF-PERFORM DEMO WORK IN THE FOLLOWING AREAS: EXISTING SHELVING STORAGE IN THE EXISTING WORK ROOM AND EXISTING BAR.

SHADING LEGEND

	NON-SHADED AREA DENOTES NEW CONSTRUCTION
	SHADED AREAS DENOTES EXISTING TO REMAIN

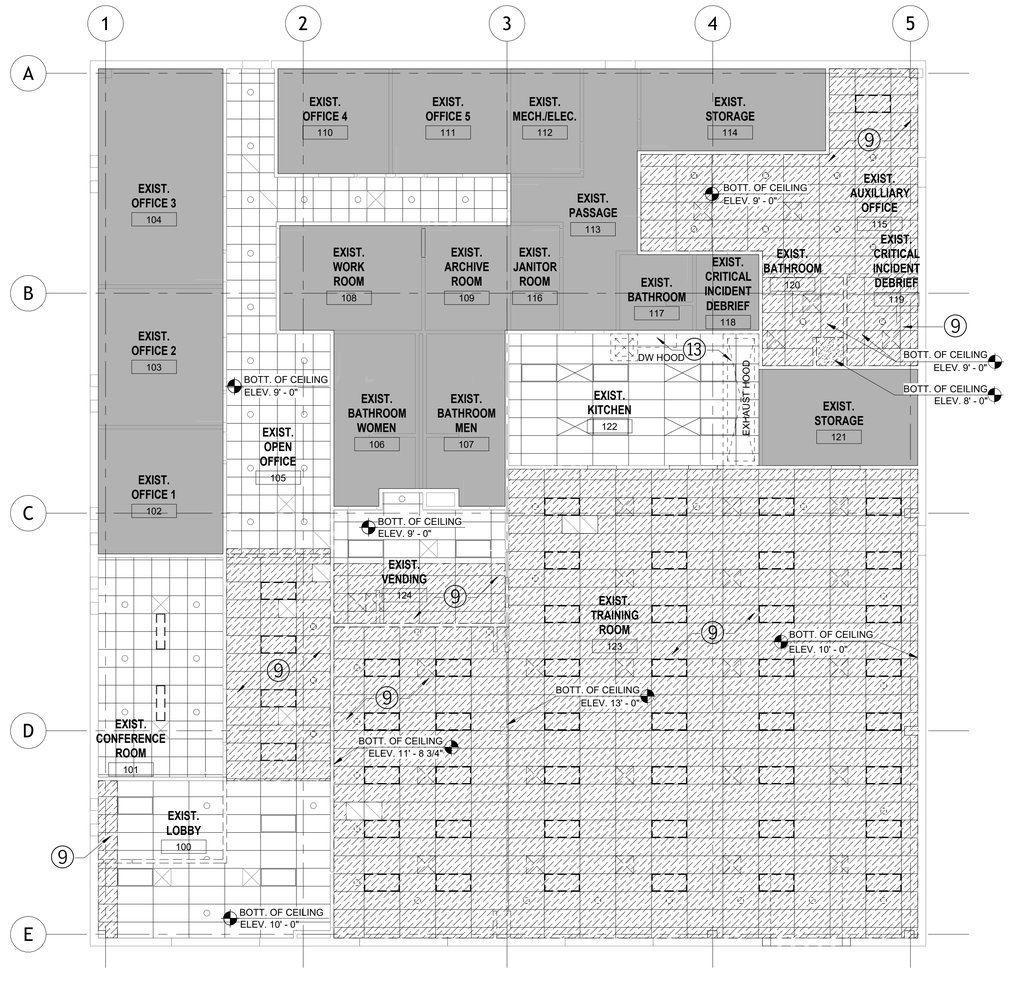


1 AD-201 FIRST FLOOR DEMO PLAN

1/8" = 1'-0"

N

0 6' 12' 24'



2 AD-201 FIRST FLOOR CEILING DEMO PLAN

1/8" = 1'-0"

N

0 6' 12' 24'

BUILDING APPROVAL

This stamp serves as a means of building approval and does not include other disciplines.

Austin Approved Date 04/01/2026

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BEAtx architects

REGISTERED ARCHITECT SOFIA M. RAMOS 31599 STATE OF TEXAS

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TX Lic. # ARB1599

APA-OFFICE BUILDING RENOVATION

5817 WILCAB RD.
AUSTIN, TEXAS 78721

SHEET TITLE :
GROUND LEVEL AND REFLECTED CEILING DEMOLITION PLANS

REVISIONS :

#	Description:	Date:

SUBMITTAL:
PERMIT SET

SCALE :
As indicated

DATE :
03/09/2026

PROJECT NUMBER :
25003

DRAWN BY : A.G.
CHECKED BY : S.R.

SHEET NO. :

AD-201

1 LS-101 FIRST FLOOR LIFE SAFETY PLAN

3/16" = 1'-0"

Area Schedule (Life Safety)

(DETERMINED IN ACCORDANCE WITH TABLE 1004.5 OF THE IBC, 2024)

Image	Name	Area	Occupancy Clasification	Occupant Load Factor	Allowed Occupancy
	EXIST. TRAINING ROOM	2388 SF	Assembly (Unconcentrated) (Tables and chairs)	15 SF net	160
	EXIST. LOBBY	455 SF	Business	150 SF gross	4
	NEW VESTIBULE	115 SF	Business	150 SF gross	1
	NEW PODCAST OFFICE	649 SF	Business	150 SF gross	5
	EXISTING WORK ROOM	185 SF	Business	25 SF gross	8
	NEW BREAK ROOM/COPY ROOM	107 SF	Business	150 SF gross	1
	CORRIDOR	864 SF	Business	150 SF gross	6
	OPEN OFFICE - 2 WORK STATIONS	342 SF	Business	35 SF gross	10
	EXIST. KITCHEN	411 SF	Business	150 SF gross	3
	EXIST. STORAGE	186 SF	Storage	300 SF	1
	SMALL TRAINING ROOM	792 SF	Educational (Concentrated) (Classroom Areas)	20 SF gross	40
Grand total: 11		6495 SF			239

Egress Travel Distance

Path Name	Travel Distance
Path 1.1	71' - 0"
Path 1.2	53' - 4"
Path 1.3	56' - 2"
Path 1.4	42' - 10"
Path 1.5	54' - 5"
Path 1.6	29' - 1"
Path 1.7	30' - 8"
Path 1.8	37' - 4"

A - Assembly (A3)

B - Business

E - Educational

S - Storage

SYMBOL LEGEND

- FURTHEST POINT FROM EXIT
- POINT OF BUILDING EXIT
- EXIT SIGN (CEILING)
- EXIT SIGN (WALL)
- EMERGENCY LIGHT / EXIT COMBO
- EMERGENCY LIGHT
- EMERGENCY LIGHT 2X2 LAY-IN
- EMERGENCY LIGHT DOWN LIGHT
- FIRE EXTINGUISHER (SURFACE)
- FIRE EXTINGUISHER (SIMI-RECESSED)
- FIRE EXTINGUISHER (RECESSED)
- FIRE EXTINGUISHER TYPE TAG K = KITCHEN GREASE FIRE G = ABC - 2A 10B C MIN. GENERAL USE
- SPRINKLER HEAD
- FIRE STROBE (CEILING)
- FIRE STROBE (WALL)
- FIRE ALARM PULL STATION
- SMOKE DETECTOR
- PATH OF EGRESS / DIRECTION ARROW
- 1 HOUR RATED WALL / PARTITION
- 2 HOUR RATED WALL / PARTITION
- 3 HOUR RATED WALL / PARTITION
- 4 HOUR RATED WALL / PARTITION

EXIT CAPACITY / EXITING SYMBOL

FIRE ALARM NOTE:

FIRE ALARM NOT REQUIRED PER NFPA 101.38.3.4.1

· BUILDING IS ONE STORY.

· OCCUPANCY IS LESS THAN 300 ON THE DISCHARGE LEVEL.

· NO OCCUPANTS ABOVE AR BELOW THE LEVEL OF EXIT DISCHARGE.

FLAME SPREAD:

NON-SPRINKLED	CLASSIFICATION
INTERIOR EXIT STAIRWAYS, INTERIOR EXIT RAMPS AND PASSAGEWAYS	A or B
CORRIDORS AND ENCLOSURE FOR EXIT ACCESS STAIRWAYS AND EXIT ACCESS RAMPS	A or B
ROOMS AND ENCLOSED SPACES	A, B or C

NOTE:

1. CLASS A INTERIOR WALL AND CEILING FINISH - FLAME SPREAD INDEX, 0-25 (NEW APPLICATION); SMOKED DEVELOPED INDEX, 0-450

2. CLASS B INTERIOR WALL AND CEILING FINISH - FLAME SPREAD INDEX, 26-75 (NEW APPLICATION); SMOKE DEVELOPED INDEX, 0-450.

3. CLASS C INTERIOR WALL AND CEILING FINISH - FLAME SPREAD INDEX, 76-200 (NEW APPLICATION); SMOKE DEVELOPED INDEX, 0-450.

SHADING LEGEND

- NON-SHADED AREA DENOTES NEW CONSTRUCTION
- SHADED AREAS DENOTES EXISTING TO REMAIN

BUILDING APPROVAL

This stamp serves as a means of building approval and does not include other disciplines.

Austin

Approved
Date 04/01/2026

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REGISTERED ARCHITECT SOFIA M. RAMOS 31599 STATE OF TEXAS

Sofia M. Ramos R.A.
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APA-OFFICE BUILDING RENOVATION

5817 WILCAB RD.
AUSTIN, TEXAS 78721

SHEET TITLE :
FIRST LEVEL - LIFE SAFETY PLAN

REVISIONS :

#	Description:	Date:

SUBMITTAL:
PERMIT SET

SCALE :
As indicated

DATE :
03/09/2026

PROJECT NUMBER :
25003

DRAWN BY : A.G.
CHECKED BY : S.R.

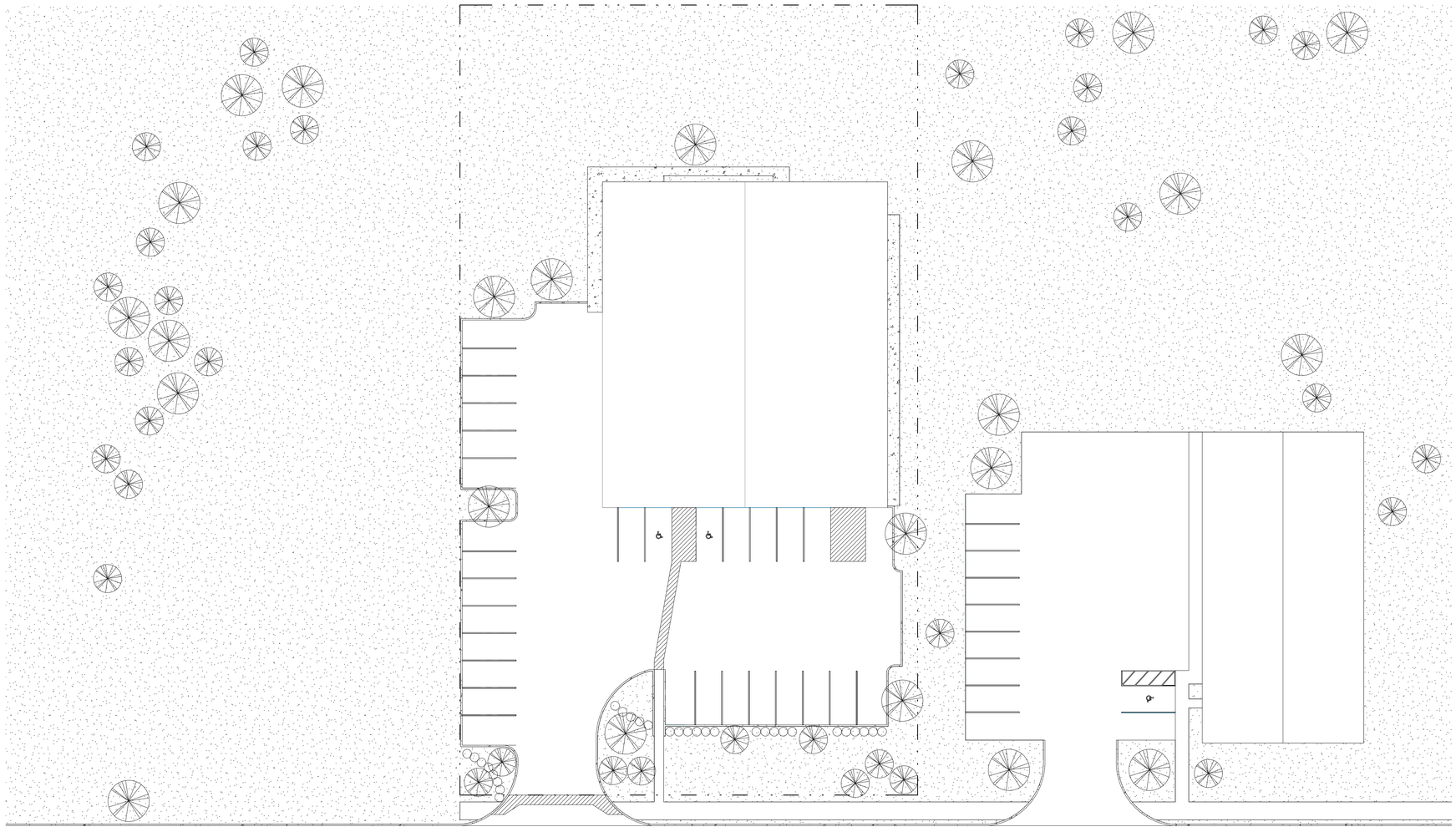
SHEET NO. :
LS-101

GENERAL NOTES

SITE PLAN FOR REFERENCE ONLY. NO SITE OR EXTERIOR WORK IN SCOPE. INTERIOR RENOCATIONS ONLY.

LINE TYPE LEGEND

PROPERTY BOUNDARY



WILCAB RD

1 A-100 SITE PLAN
1" = 20'-0"

N

0 20' 40' 80'

BUILDING APPROVAL

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Austin
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APA-OFFICE BUILDING RENOVATION

5817 WILCAB RD.
AUSTIN, TEXAS 78721

SHEET TITLE :
SITE PLAN

REVISIONS :

#	Description:	Date:

SUBMITTAL:
PERMIT SET

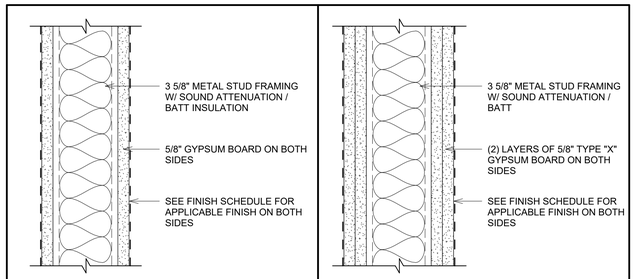
SCALE :
1" = 20'-0"

DATE :
03/09/2026

PROJECT NUMBER :
25003

DRAWN BY : A.G.
CHECKED BY : S.R.

SHEET NO. :
A-100



P-1 3-5/8" STUD PARTITION WITH SOUND ATTENUATION / BATT INSULATION: UL DES. U-419. STUD AND GYPSUM BOARD TO EXTEND TO ROOF DECK ABOVE.

WALL ASSEMBLY DETAILS

SCALE 3" = 1'-0"

P-2 3 5/8" STUD PARTITION 2 HR. FIRE RATING: UL DES. U-419. STUD AND GYPSUM BOARD TO EXTEND TO ROOF DECK ABOVE.

WALL ASSEMBLY DETAILS

SCALE 3" = 1'-0"

REFLECTED CEILING LEGEND

	DESCRIPTION	INSTALLATION	NOTE
	A/C SUPPLY GRILLE	ROOF MOUNTED	REFER TO MECH. DWGS.
	A/C SUPPLY GRILLE	CEILING MOUNTED	REFER TO MECH. DWGS.
	A/C RETURN GRILLE	CEILING MOUNTED	REFER TO ELEC. DWGS.
	EXHAUST FAN	CEILING MOUNTED	REFER TO ELEC. DWGS.
	2'X4' ARCHITECTURAL TROFFER	LAY-IN	REFER TO ELEC. DWGS.
	LINEAR FIXTURE	SUSPENDED	REFER TO ELEC. DWGS.
	4" RECESSED ROUND LIGHTING	RECESSED	REFER TO ELEC. DWGS.

CEILING FINISH LEGEND

	TYPE	LOCATION	ROOM #	SQ. FT.
	ACT - ACOUSTICAL TILE 2X4	EXIST. TRAINING ROOM, SMALL TRAINING ROOM	123, 125	3196
	ACT - ACOUSTICAL TILE 2X2	NEW LOBBY, CORRIDOR	100, 105	334
	EXPOSED TO STRUCTURE	NEW PODCAST OFFICE	115	649

CODED NOTES

CODED NOTE	NOTE TEXT
①	NEW VINYL TILE. REFER TO ID-210
②	NEW CARPET TILE. REFER TO ID-211
③	SHIFT EXISTING DOOR
④	REPLACE WINDOW WITH DOOR
⑤	NEW DOUBLE DOOR
⑥	RE-SEAL EXTERIOR DOOR
⑦	REPAIR AND REPLACE DAMAGED TILES
⑧	NEW DOOR
⑨	NEW DOOR AND SIDELIGHT
⑩	NEW PARTITION TO BE IN LINE WITH EXISTING

GENERAL NOTES

REFER TO INITIAL MOLD ASSESSMENT. REPLACE CEILING TILES 2 FT IN ALL DIRECTIONS FROM AFFECTED AREA.

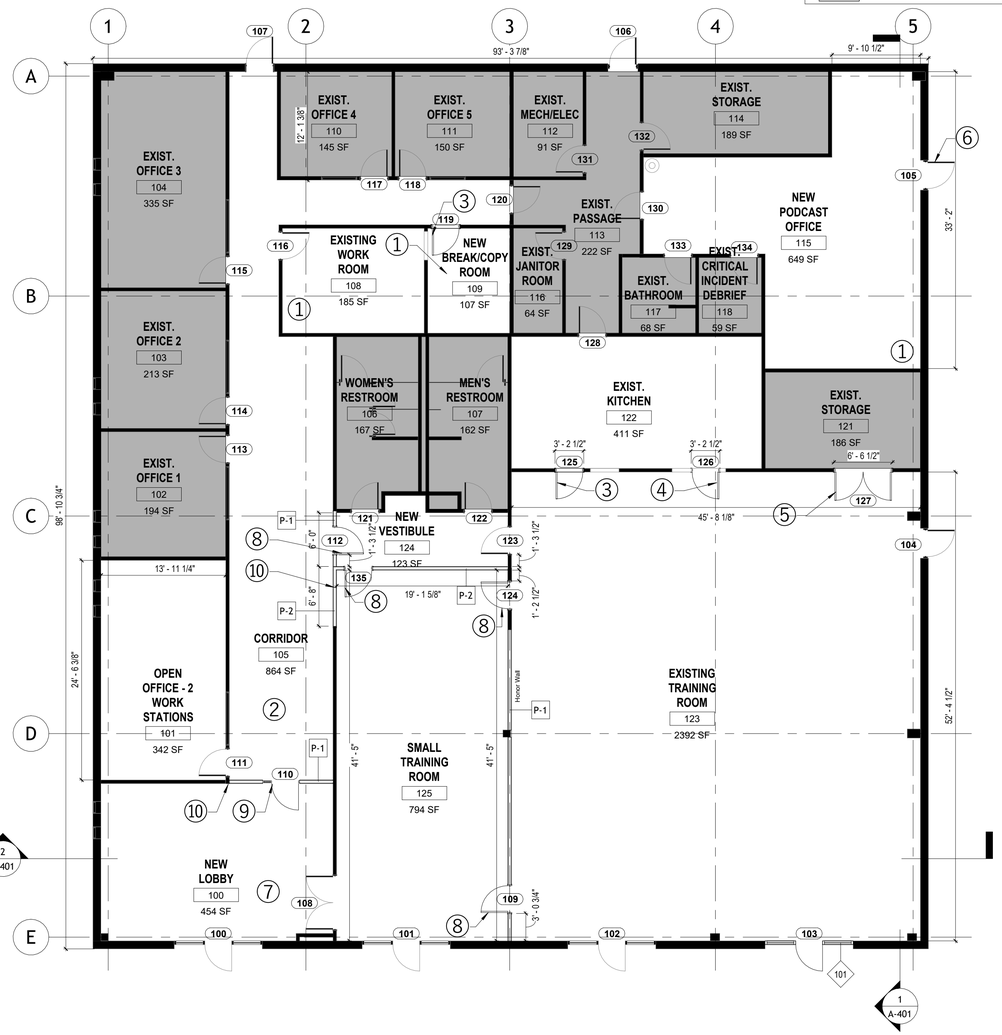
DIMENSIONS TO BE VERIFIED IN FIELD.

SHADING LEGEND

NON-SHADED AREA DENOTES NEW CONSTRUCTION

SHADED AREAS DENOTES EXISTING TO REMAIN

EXISTING WALLS, DOORS, AND WINDOWS TO REMAIN



1 A-201 FIRST FLOOR PLAN

1/8" = 1'-0"

N

0 6' 12' 24'

2 A-201 FIRST FLOOR CEILING PLAN

1/8" = 1'-0"

N

0 6' 12' 24'

BUILDING APPROVAL

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Sofia M. Ramos R.A.
TX Lic. # ARCH 31599

APA-OFFICE BUILDING RENOVATION

5817 WILCAB RD.
AUSTIN, TEXAS 78721

SHEET TITLE :
GROUND FLOOR PLAN AND REFLECTED CEILING PLAN

REVISIONS :

#	Description:	Date:

SUBMITTAL:
PERMIT SET

SCALE :
As indicated

DATE :
03/09/2026

PROJECT NUMBER :
25003

DRAWN BY : A.G.
CHECKED BY : S.R.

SHEET NO. :

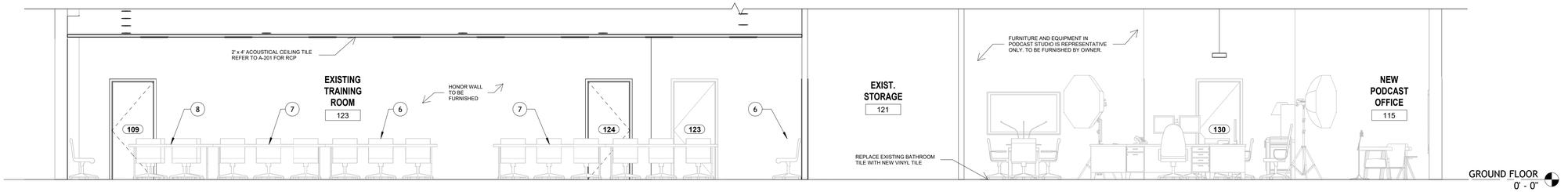
A-201

FURNITURE SCHEDULE

ITEM #	DESCRIPTION	COMPANY/MANUF.	MODEL	MATERIAL	LOCATION		QTY.	COST
					ROOM #	ROOM NAME		
1	LOUNGE GUEST CHAIR	ULINE	H-9066	FABRIC, STEEL	100	NEW LOBBY	4	210.00
2	DOWNTOWN OFFICE TABLE	ULINE	H-10053	LAMINATE, PVC, STEEL	105, 108	CORRIDOR, EXISTING WORK ROOM	2	670.00
3	MESH TASK CHAIR	ULINE	H-3642	MESH	105, 108	CORRIDOR, EXISTING WORK ROOM	16	165.00
4	LEATHER FASHION CHAIR	ULINE	H-4120	LEATHER, STEEL	125	SMALL TRAINING ROOM	30	225.00
5	CAPEN EXECUTIVE DESK	BYBLIGHT (HOME DEPOT)	BB-JW075 3QP	WOOD, METAL	125	SMALL TRAINING ROOM	12	227.83
6	PADDED STACK CHAIRS	ULINE	H-10259	FABRIC, PLASTIC	123	EXISTING TRAINING ROOM	100	90.00
7	8FT X 2.3FT PORTABLE FOLDING PICNIC TABLE	HOMGARDEN (WALMART)		HDPE, STEEL	123	EXISTING TRAINING ROOM	24	59.01
8	6FT X 2.3FT PORTABLE FOLDING PICNIC TABLE	HOMGARDEN (WALMART)		HDPE, STEEL	123	EXISTING TRAINING ROOM	6	57.57
9	DESIGNER STORAGE CREDENZA	ULINE	H-11671	LAMINATE, PVC	125	SMALL TRAINING ROOM	1	695.00
10	MAGNETIC PORCELAIN DRY ERASE BOARD 6' X 4'	ULINE	H-2568	PORCELAIN	125	SMALL TRAINING ROOM	2	430.00
11	98" TV	TCL (BEST BUY)	98Q651G	LED	125	SMALL TRAINING ROOM	1	1299.99
12	DOWNTOWN STORAGE CABINET	ULINE	H-9189	LAMINATE, PVC	105	CORRIDOR	1	540.00

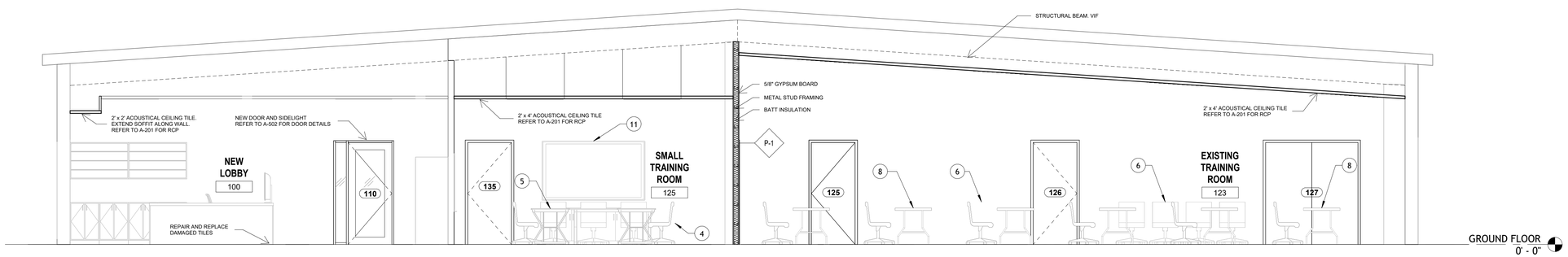
GENERAL NOTES

DASHED LINES REPRESENT BEAM LOCATION. TO BE CONFIRMED ON SITE.



1 A-401 CROSS SECTION

1/4" = 1'-0"



2 A-401 CROSS SECTION

1/4" = 1'-0"

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Sofia M. Ramos R.A.
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APA-OFFICE BUILDING RENOVATION

5817 WILCAB RD.
AUSTIN, TEXAS 78721

SHEET TITLE :
SECTIONS

REVISIONS :

#	Description:	Date:

SUBMITTAL:
PERMIT SET

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

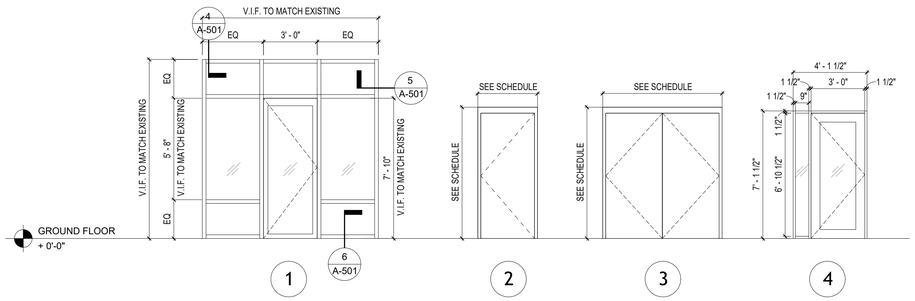
DATE :
03/09/2026

PROJECT NUMBER :
25003

DRAWN BY : A.G.
CHECKED BY : S.R.

SHEET NO. :

A-401



DOOR AND WINDOW LEGEND

GENERAL NOTES

1. CONTRACTOR SHALL FIELD VERIFY ALL OPENINGS PRIOR TO MANUFACTURING WINDOWS, DOORS, LOUVERS, ETC.

2. FOR ALUMINUM DOORS IN MASONRY WALLS, DIMENSIONS INDICATED ARE FOR BASIS OF DESIGN ONLY. CONTRACTOR SHALL COORDINATE ROUGH OPENING REQUIREMENTS (INCLUDING WIDTHS OF DOOR, FRAME, AND NECESSARY SHIMS) WITH DOOR AND FRAME MANUFACTURER PRIOR TO CONSTRUCTING OPENING.

3. FOR PAIRS OF DOORS, WIDTH OF ACTIVE LEAF SHALL BE MINIMUM 36 INCHES.

4. ALL HOLLOW METAL DOORS AND FRAMES SHALL BE PAINTED. INTERIOR DOORS (AND INTERIOR FACE OF EXTERIOR DOORS) SHALL BE PAINTED.

5. ALL ALUMINUM FRAMES SHALL BE FINISHED TO MATCH COLOR OF HOLLOW METAL FRAMES.

6. FOR DOOR HARDWARE FINISHES SEE SPECIFICATIONS.

7. REFER TO SPECIFICATIONS SECTION 088000 FOR GLASS/GLAZING TYPES.

8. ALL WOOD DOORS SHALL BE SOLID CORE WOOD UNLESS NOTED OTHERWISE.

9. ALL INTERIOR HOLLOW METAL FRAMES TO BE LOCATED WITH 4" OFFSET TO DOOR SWING SIDE OF WALL - UNLESS NOTED OTHERWISE.

10. SEE SPECIFICATIONS FOR DOOR HARDWARE SET DETAILS.

11. ALL LOUVERS SHALL HAVE DRAINABLE BLADES AND BIRD SCREENS.

12. ALL LOUVER CHANNEL FRAMES SHALL BE CAULKED AND WATER TIGHT.

13. SCOPE OF WORK FOR AREAS TO BE PAINTED INCLUDES THE LOBBY, BOARDROOM, AND TRAINING ROOM. ALL OTHER AREAS TO BE PAINTED AND SELF PERFORMED BY OWNER.

ABBREVIATIONS

AL	ALUMINUM	FNSH	FINISH	HM	HOLLOW METAL	MATL	MATERIAL	LG	LAMN. GLASS	PO	POWER OPERATED
CLR	CLEAR	GLZ	GLAZING	IG	IMPACT GLAZING	MTL	METAL	WD	WOOD	PLAM	SOLID CORE PLASTIC LAMINATE
COL	COLOR	HGT	HEIGHT	WG	WIRED GLASS	TEMP	TEMPERED	STL	STEEL		

WINDOW SCHEDULE

MARK	TYPE	WIDTH	HEIGHT	FRAME MATERIAL	GLZ	Comments
101	1	TO MATCH EXISTING	TO MATCH EXISTING	H.M.		ADD-ALT TO BE APPROVED BY OWNER

FINISH LEGEND

VB: VINYL BASE
PT-1: PAINT TO MATCH EXISTING
ACT-1: 2X2 TILE
ACT-2: 2X4 TILE
CPT: CARPET TILE
VCT: VINYL COMPOSITE TILE

DOOR SCHEDULE

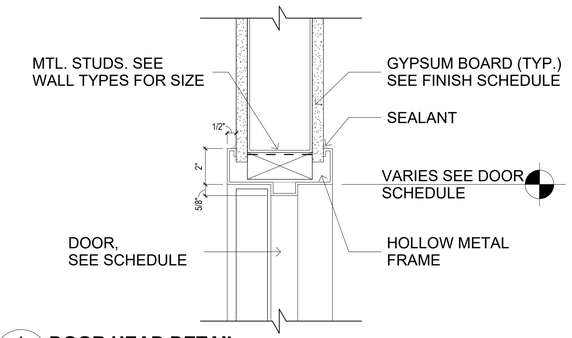
MARK	ROOM NAME	DOOR SIZE WIDTH	DOOR SIZE HEIGHT	DOOR TYPE	DOOR MATERIAL	FRAME MATERIAL	DETAIL HEAD	DETAIL JAMB	DETAIL SILL	HARDWARE SET NO.	FIRE RAITING	COMMENTS
100	EXISTING RECEPTION/LOBBY	3' - 0"	7' - 10"									EXISTING CURTAIN WALL DOOR
101	NEW BOARD ROOM	3' - 0"	7' - 10"									EXISTING CURTAIN WALL DOOR
102	EXISTING TRAINING ROOM	3' - 0"	7' - 10"									EXISTING CURTAIN WALL DOOR
103	EXISTING TRAINING ROOM	3' - 0"	7' - 10"	1	ALUM/GL	AL	4/S-501	5/A-501	6/A-501	04		AD ALT #1. NOT CURRENTLY IN SCOPE, ONLY TO PROCEED WITH WRITTEN OWNER APPROVAL.
104	EXISTING TRAINING ROOM	3' - 0"	7' - 0"									EXISTING TO REMAIN
105	NEW PODCAST STUDIO	3' - 0"	7' - 0"									EXISTING TO REMAIN
106	HALLWAY	3' - 0"	7' - 0"									EXISTING TO REMAIN
107	HALLWAY	3' - 0"	7' - 0"									EXISTING TO REMAIN
108	NEW BOARD ROOM	6' - 0"	7' - 0"									EXISTING TO REMAIN
109	NEW BOARD ROOM	3' - 0"	7' - 0"	2	PLAM	H.M.	1/A-501	2/A-501	3/A-501	01		
110	CORRIDOR	3' - 0"	7' - 0"	4	PLAM	H.M.	1/A-501	2/A-501	3/A-501	02		
111	NEW OFFICE	3' - 0"	7' - 0"									EXISTING TO REMAIN
112	NEW RESTROOM VESTIBULE	3' - 0"	7' - 0"	2	PLAM	H.M.	1/A-501	2/A-501	3/A-501	01		
113	OFFICE	3' - 0"	7' - 0"									EXISTING TO REMAIN
114	OFFICE	3' - 0"	7' - 0"									EXISTING TO REMAIN
115	OFFICE	3' - 0"	7' - 0"									EXISTING TO REMAIN
116	FLEX SPACE	3' - 0"	7' - 0"									EXISTING TO REMAIN
117	EXISTING OFFICE	3' - 0"	7' - 0"									EXISTING TO REMAIN
118	EXISTING OFFICE	3' - 0"	7' - 0"									EXISTING TO REMAIN
119	NEW PRINTER/ COPY ROOM	3' - 0"	7' - 0"	2	PLAM	H.M.	1/A-501	2/A-501	3/A-501	01		SHIFT LOCATION OF EXISTING DOOR
120	HALLWAY	3' - 0"	7' - 0"									EXISTING TO REMAIN
121	EXISTING BATHROOM	3' - 0"	7' - 0"									EXISTING TO REMAIN
122	EXISTING BATHROOM	3' - 0"	7' - 0"									EXISTING TO REMAIN
123	NEW RESTROOM VESTIBULE	3' - 0"	7' - 0"									EXISTING TO REMAIN
124	NEW BOARD ROOM	3' - 0"	7' - 0"	2	PLAM	H.M.	1/A-501	2/A-501	3/A-501	01		
125	EXISTING KITCHEN	3' - 0"	7' - 0"	2	PLAM	H.M.	1/A-501	2/A-501	3/A-501	01	1HR	
126	EXISTING KITCHEN	3' - 0"	7' - 0"	2	PLAM	H.M.	1/A-501	2/A-501	3/A-501	01	1HR	
127	EXISTING STORAGE ROOM	6' - 4"	7' - 0"	3	PLAM	H.M.	1/A-501	2/A-501	3/A-501	03		
128	EXISTING KITCHEN	3' - 0"	7' - 0"									EXISTING TO REMAIN
129	EXISTING ROOM	3' - 0"	7' - 0"									EXISTING TO REMAIN
130	NEW PODCAST STUDIO	3' - 0"	7' - 0"									EXISTING TO REMAIN
131	EXISTING ROOM	3' - 0"	7' - 0"									EXISTING TO REMAIN
132	EXISTING ROOM	3' - 0"	7' - 0"									EXISTING TO REMAIN
133	EXISTING ROOM	3' - 0"	7' - 0"									EXISTING TO REMAIN
134	EXISTING ROOM	3' - 0"	7' - 0"									EXISTING TO REMAIN

FINISH SCHEDULE

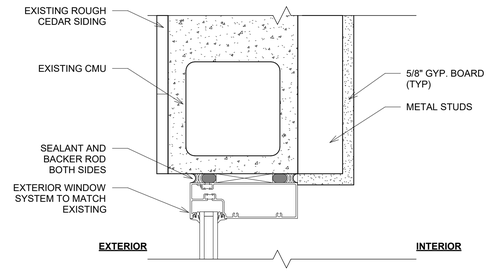
ROOM NUMBER	ROOM NAME	FLOOR	BASE	WALL NORTH	WALL SOUTH	WALL WEST	WALL EAST	CEILING	CEILING HEIGHT	COMMENTS
100	NEW LOBBY	EXISTING TO REMAIN	EXISTING TO REMAIN	PT-1	PT-1	PT-1	PT-1	ACT-1	9' - 0"	
101	OPEN OFFICE - 2 WORK STATIONS	CPT	VB	PT-1	PT-1	PT-1	PT-1	ACT-1	9' - 0"	
102	EXIST. OFFICE 1									
103	EXIST. OFFICE 2									
104	EXIST. OFFICE 3									
105	CORRIDOR	CPT	VB	PT-1	PT-1	PT-1	PT-1	ACT-1	9' - 0"	
106	WOMEN'S RESTROOM									
107	MEN'S RESTROOM									
108	EXISTING WORK ROOM	VCT	VB	PT-1	PT-1	PT-1	PT-1	EXISTING TO REMAIN	9' - 0"	
109	NEW BREAK/COPY ROOM	VCT	VB	PT-1	PT-1	PT-1	PT-1	EXISTING TO REMAIN	9' - 0"	
110	EXIST. OFFICE 4									
111	EXIST. OFFICE 5									
112	EXIST. MECH/ELEC									
113	EXIST. PASSAGE									
114	EXIST. STORAGE									
115	NEW PODCAST OFFICE	CONC.	VB	PT-1	PT-1	PT-1	PT-1	EXP		
116	EXIST. JANITOR ROOM									
117	EXIST. BATHROOM									
118	EXIST. CRITICAL INCIDENT DEBRIEF									
121	EXIST. STORAGE									
122	EXIST. KITCHEN									
123	EXISTING TRAINING ROOM									
124	NEW VESTIBULE	CONC.	VB	PT-1	PT-1	PT-1	PT-1	EXISTING TO REMAIN	9' - 0"	
125	SMALL TRAINING ROOM	CONC.	VB	PT-1	PT-1	PT-1	PT-1	ACT-2	10' - 0"	

HARDWARE SPECIFICATIONS

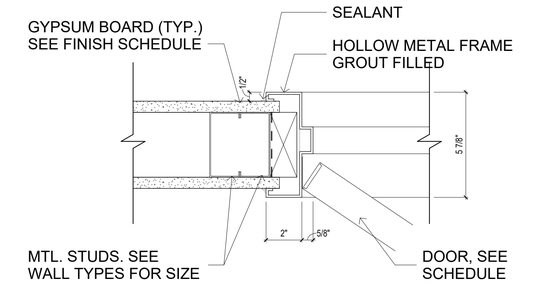
HW SET 01	INTERIOR, SINGLE DOOR, SOLID	3-HINGE SET	CYLINDRICAL LOCKSET - PASSAGE FUNCTION	SURFACE DOOR CLOSER		WALL STOP	SILENCER
HW SET 02	INTERIOR, SINGLE DOOR, WD & GLASS DOOR	3-HINGE SET	RIM TYPE PANIC HARDWARE	SURFACE DOOR CLOSER		WALL STOP	SILENCER
HW SET 03	INTERIOR, DOUBLE DOOR, SOLID	6-HINGE SET	CYLINDRICAL LOCKSET-STOREROOM LOCK	SURFACE DOOR CLOSER	FLUSH BOLTS	WALL STOPS	SILENCERS
HW SET 04	EXTERIOR STOREFRONT DOOR	HARDWARE BY MANUFACTURER. ALUMINUM THRESHOLD, DOOR SWEEP & WEATHERSTRIPPING					



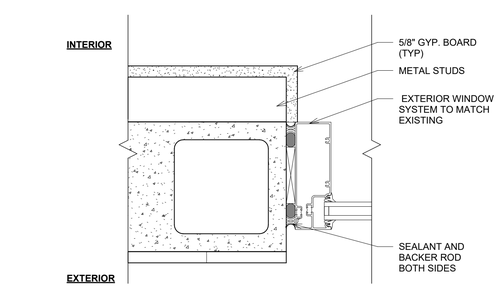
1 A-501 **DOOR HEAD DETAIL**
SCALE 3" = 1'-0"



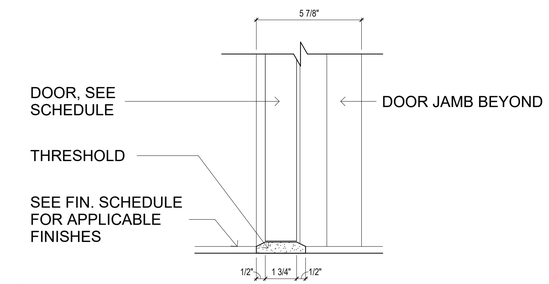
4 A-501 **WINDOW HEAD DETAIL**
SCALE 3" = 1'-0"



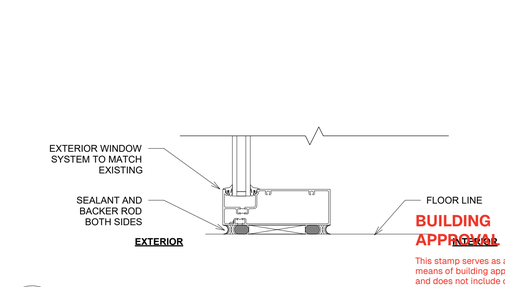
2 A-501 **DOOR JAMB DETAIL**
SCALE 3" = 1'-0"



5 A-501 **WINDOW JAMB DETAIL**
SCALE 3" = 1'-0"



3 A-501 **DOOR SILL DETAIL**
SCALE 3" = 1'-0"



6 A-501 **WINDOW SILL DETAIL**
SCALE 3" = 1'-0"

BUILDING APPROVAL
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Austin
Approved
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APA-OFFICE BUILDING RENOVATION

5817 WILCAB RD.
AUSTIN, TEXAS 78721

SHEET TITLE :
SCHEDULES AND DOOR DETAILS

REVISIONS :

#	Description:	Date:

SUBMITTAL:
PERMIT SET

SCALE :
As indicated

DATE :
03/09/2026

PROJECT NUMBER :
25003

DRAWN BY : A.G.
CHECKED BY : S.R.

SHEET NO. :
A-501

1 ID-210 ENLARGED FIRST FLOOR PLAN

3/16" = 1'-0"

N

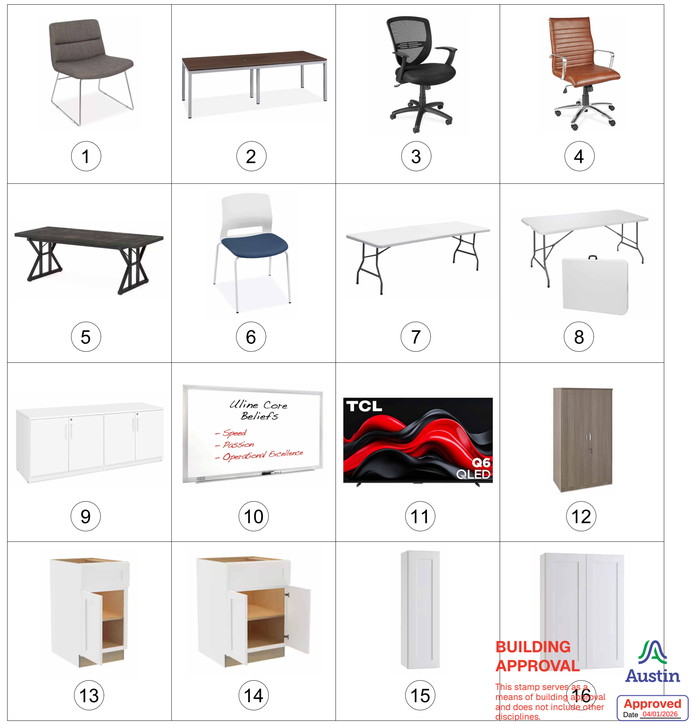
0 4' 8' 16'

FLOOR SCHEDULE

LEGEND	DESCRIPTION	MANUFACTURER	MODEL	COLOR	LOCATION ROOM #	LOCATION ROOM NAME	QTY.
	REFINISHED CONCRETE FLOOR. TO BE SELF PERFORMED BY OWNER				115, 123, 124, 125	NEW PODCAST OFFICE, EXIST. TRAINING ROOM, NEW VESTIBULE, NEW BOARD ROOM	3807 SF
	NEW VINYL TILE	HOME DECORATORS COLLECTION	WATERPROOF CLICK LOCK LUXURY VINYL PLANK FLOORING. 12 MIL X 7 IN. W X 48 IN. L	HEMLOCK HICKORY	108, 109, 115	FLEX SPACE, NEW BREAK ROOM/COPY ROOM, NEW PODCAST OFFICE	470 SF
	EXISTING PORCELAIN TILE TO REMAIN				100	NEW LOBBY	452 SF
	NEW CARPET TILE	TO MATCH EXISTING	TO MATCH EXISTING	TO MATCH EXISTING	105, 101	CORRIDOR, OPEN OFFICE - 2 WORK STATIONS	631 SF

FURNITURE SCHEDULE

ITEM #	DESCRIPTION	COMPANY/MANUF.	MODEL	MATERIAL	LOCATION ROOM #	LOCATION ROOM NAME	QTY.	COST
1	LOUNGE GUEST CHAIR	ULINE	H-9066	FABRIC, STEEL	100	NEW LOBBY	4	210.00
2	DOWNTOWN OFFICE TABLE	ULINE	H-10053	LAMINATE, PVC, STEEL	105, 108	CORRIDOR, EXISTING WORK ROOM	2	670.00
3	MESH TASK CHAIR	ULINE	H-3642	MESH	105, 108	CORRIDOR, EXISTING WORK ROOM	16	165.00
4	LEATHER FASHION CHAIR	ULINE	H-4120	LEATHER, STEEL	125	SMALL TRAINING ROOM	30	225.00
5	CAPEN EXECUTIVE DESK	BYBLIGHT (HOME DEPOT)	BB-JW075 3QP	WOOD, METAL	125	SMALL TRAINING ROOM	12	227.83
6	PADDED STACK CHAIRS	ULINE	H-10259	FABRIC, PLASTIC	123	EXISTING TRAINING ROOM	100	90.00
7	8FT X 2.3FT PORTABLE FOLDING PICNIC TABLE	HOMGARDEN (WALMART)		HDPE, STEEL	123	EXISTING TRAINING ROOM	24	59.01
8	6FT X 2.3FT PORTABLE FOLDING PICNIC TABLE	HOMGARDEN (WALMART)		HDPE, STEEL	123	EXISTING TRAINING ROOM	6	57.57
9	DESIGNER STORAGE CREDENZA	ULINE	H-11671	LAMINATE, PVC	125	SMALL TRAINING ROOM	1	695.00
10	MAGNETIC PORCELAIN DRY ERASE BOARD 6' X 4'	ULINE	H-2568	PORCELAIN	125	SMALL TRAINING ROOM	2	430.00
11	98" TV	TCL (BEST BUY)	98Q651G	LED	125	SMALL TRAINING ROOM	1	1299.99
12	DOWNTOWN STORAGE CABINET	ULINE	H-9189	LAMINATE, PVC	105	CORRIDOR	1	540.00
13	18" PLYWOOD BASE KITCHEN CABINET	HOME DECORATORS COLLECTION	B18L-NPW	PLYWOOD	109	NEW BREAK/COPY ROOM	1	349.63
14	24" PLYWOOD BASE KITCHEN CABINET	HOME DECORATORS COLLECTION	B24-NPW	PLYWOOD	109	NEW BREAK/COPY ROOM	2	442.30
15	18" PLYWOOD WALL KITCHEN CABINET	HOME DECORATORS COLLECTION	W1836L-NPW		109	NEW BREAK/COPY ROOM	1	314.87
16	24" PLYWOOD WALL KITCHEN CABINET	HOME DECORATORS COLLECTION	W2436-NPW		109	NEW BREAK/COPY ROOM	2	403.86



BUILDING APPROVAL

This stamp serves as a means of building approval and does not include other disciplines.

Austin

Approved

Date 04/01/2026

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REGISTERED ARCHITECT SOFIA M. RAMOS 31599 STATE OF TEXAS

Sofia M. Ramos R.A.
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APA-OFFICE BUILDING RENOVATION

5817 WILCAB RD.
AUSTIN, TEXAS 78721

SHEET TITLE :
ENLARGED GROUND FLOOR PLAN

REVISIONS :

#	Description:	Date:

SUBMITTAL:
PERMIT SET

SCALE :
As indicated

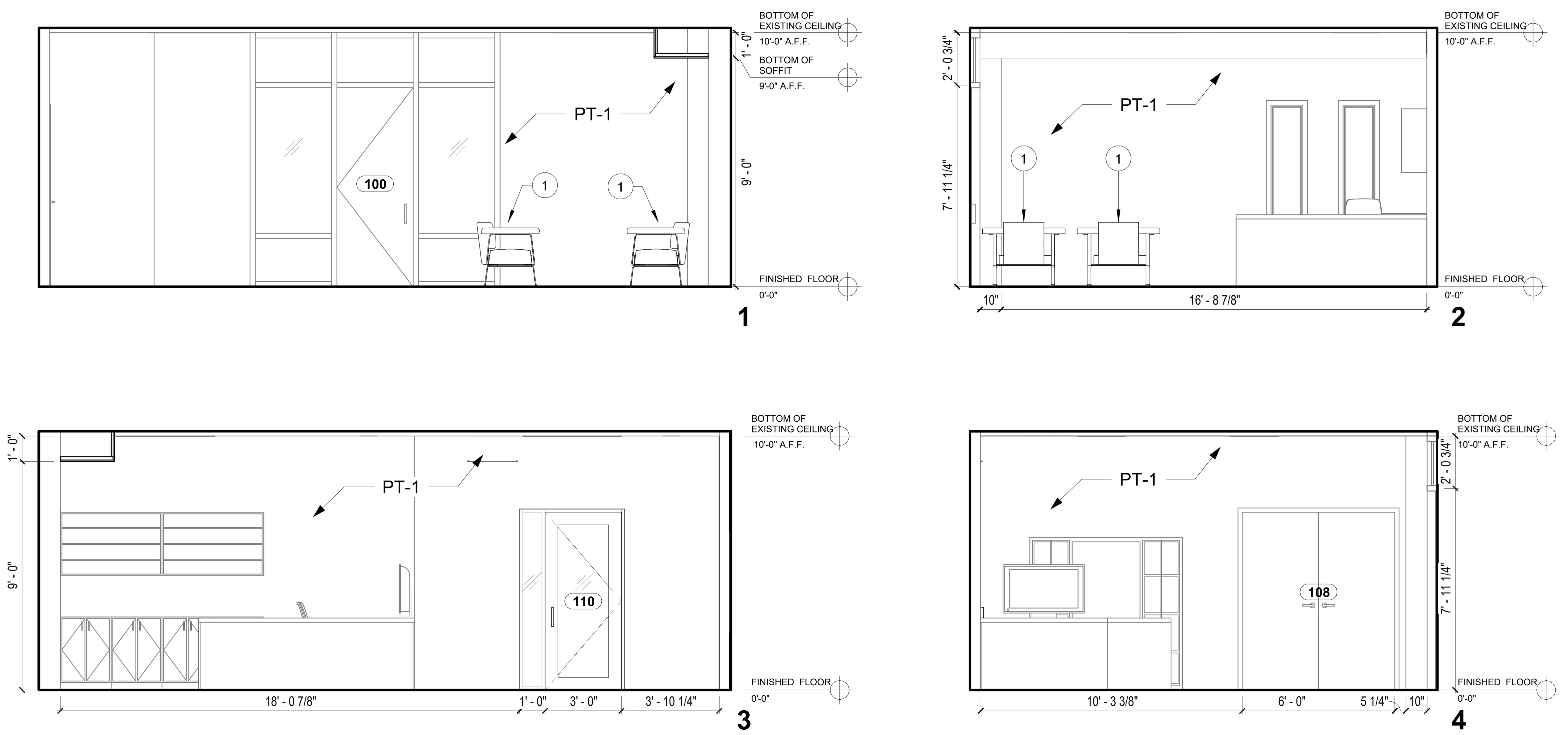
DATE :
03/09/2026

PROJECT NUMBER :
25003

DRAWN BY : A.G.
CHECKED BY : S.R.

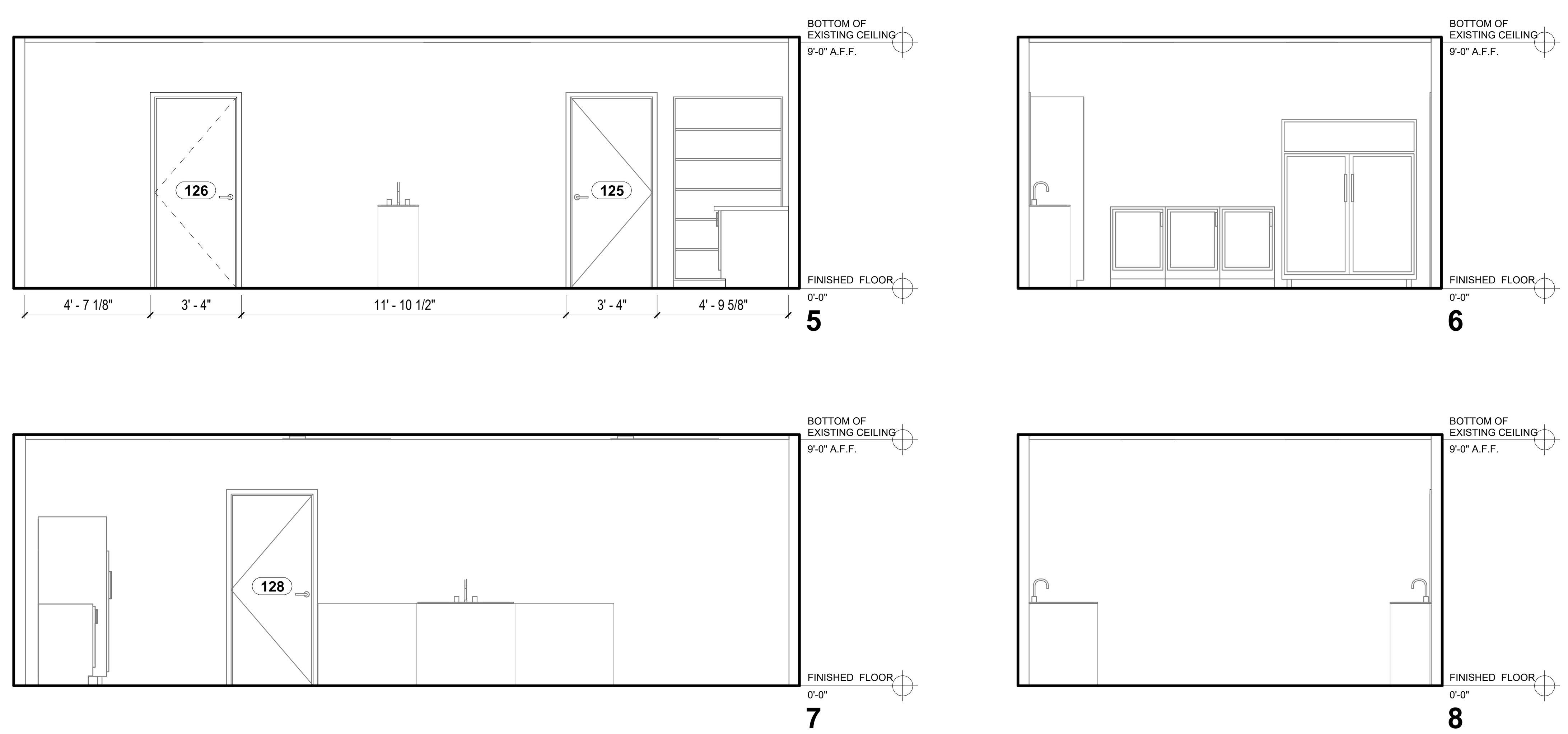
SHEET NO. :

ID-210



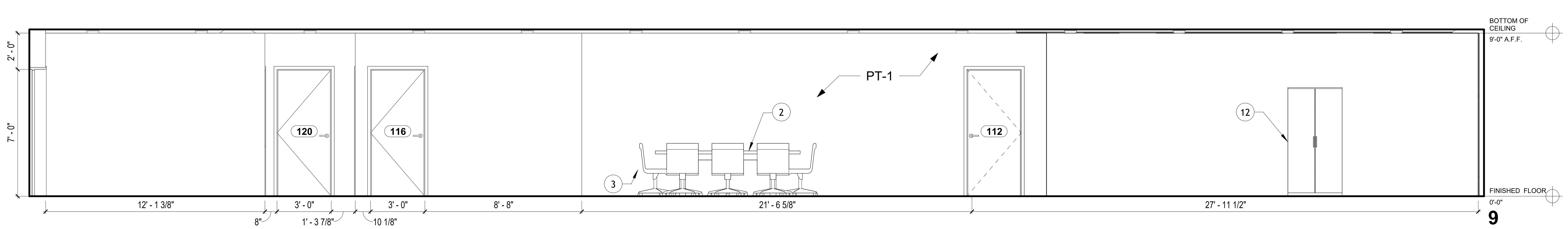
1 ID-211 LOBBY INTERIOR ELEVATIONS

1/4" = 1'-0"



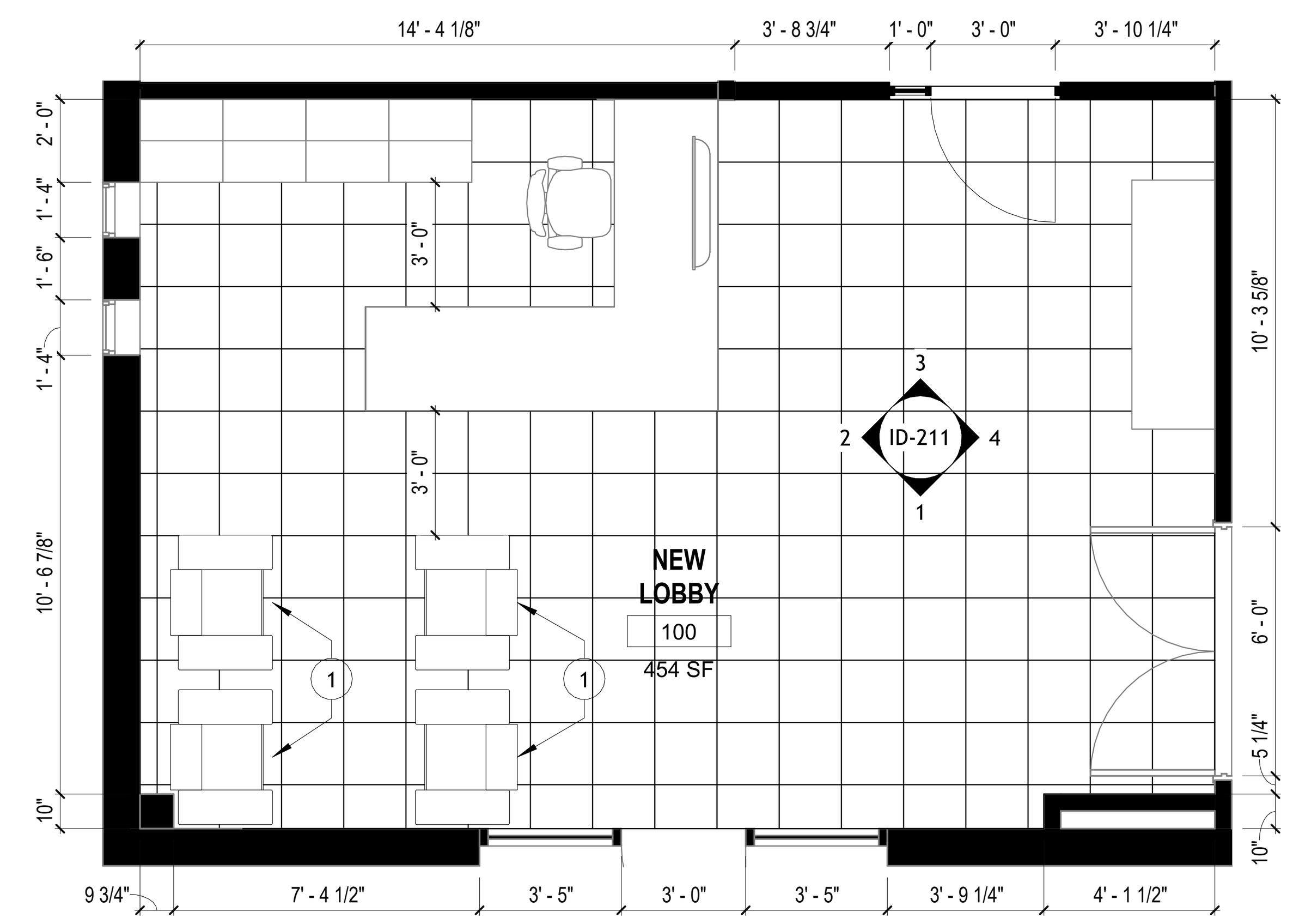
2 ID-211 KITCHEN INTERIOR ELEVATIONS

1/4" = 1'-0"



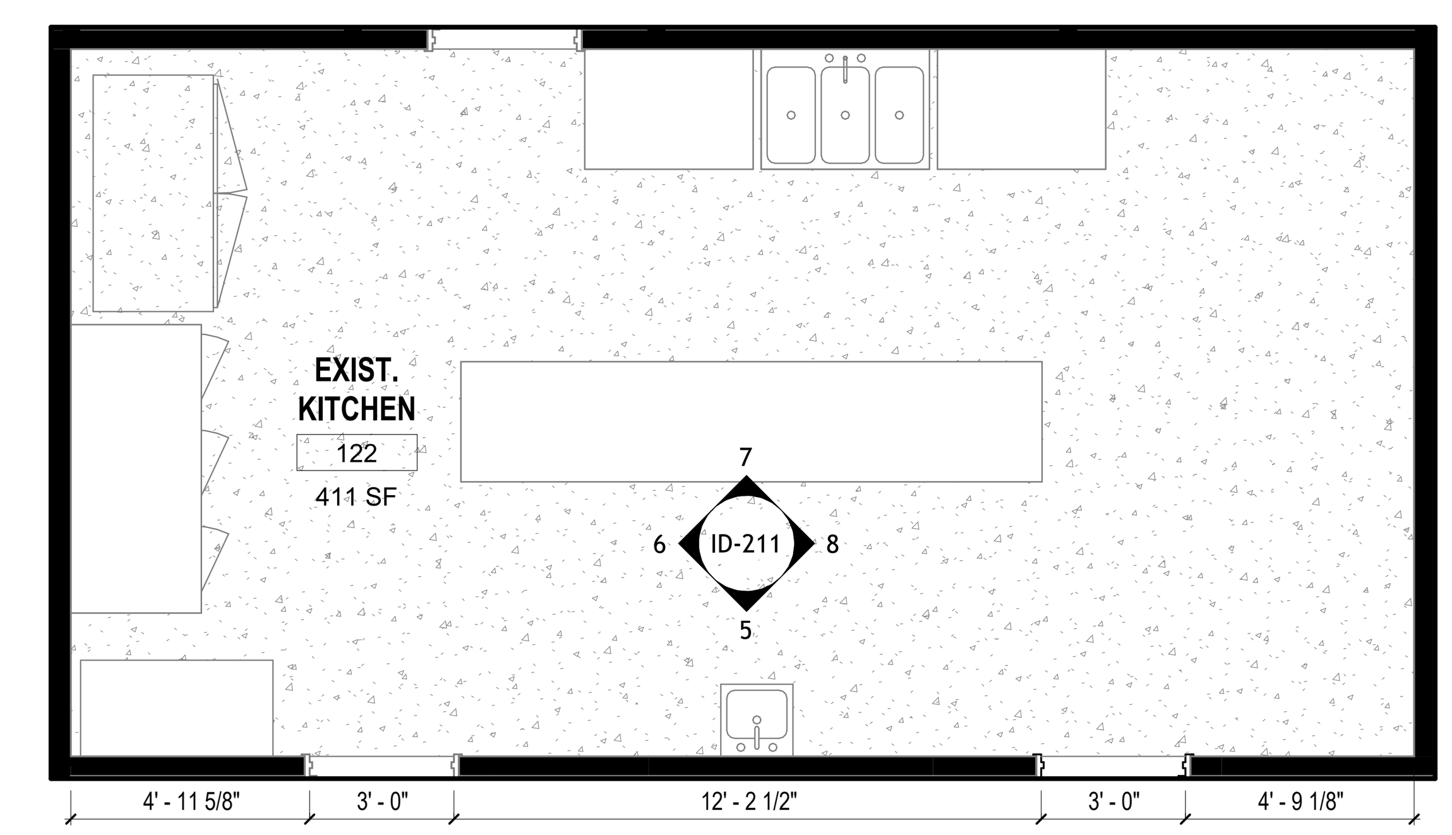
3 ID-211 CORRIDOR INTERIOR ELEVATION

1/4" = 1'-0"



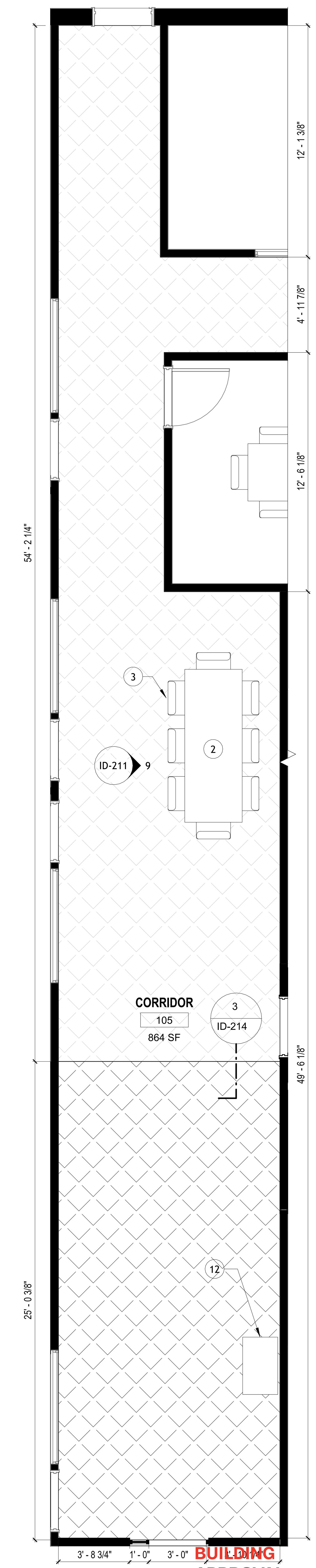
4 ID-211 ENLARGED LOBBY PLAN

1/4" = 1'-0"



5 ID-211 ENLARGED KITCHEN PLAN

1/4" = 1'-0"



6 ID-211 ENLARGED CORRIDOR PLAN

1/4" = 1'-0"

BUILDING APPROVAL
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Austin Approved Date 04/01/2026

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APA-OFFICE BUILDING RENOVATION

5817 WILCAB RD.
AUSTIN, TEXAS 78721

SHEET TITLE : INTERIOR ELEVATIONS

REVISIONS :

#	Description:	Date:

SUBMITTAL: PERMIT SET

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

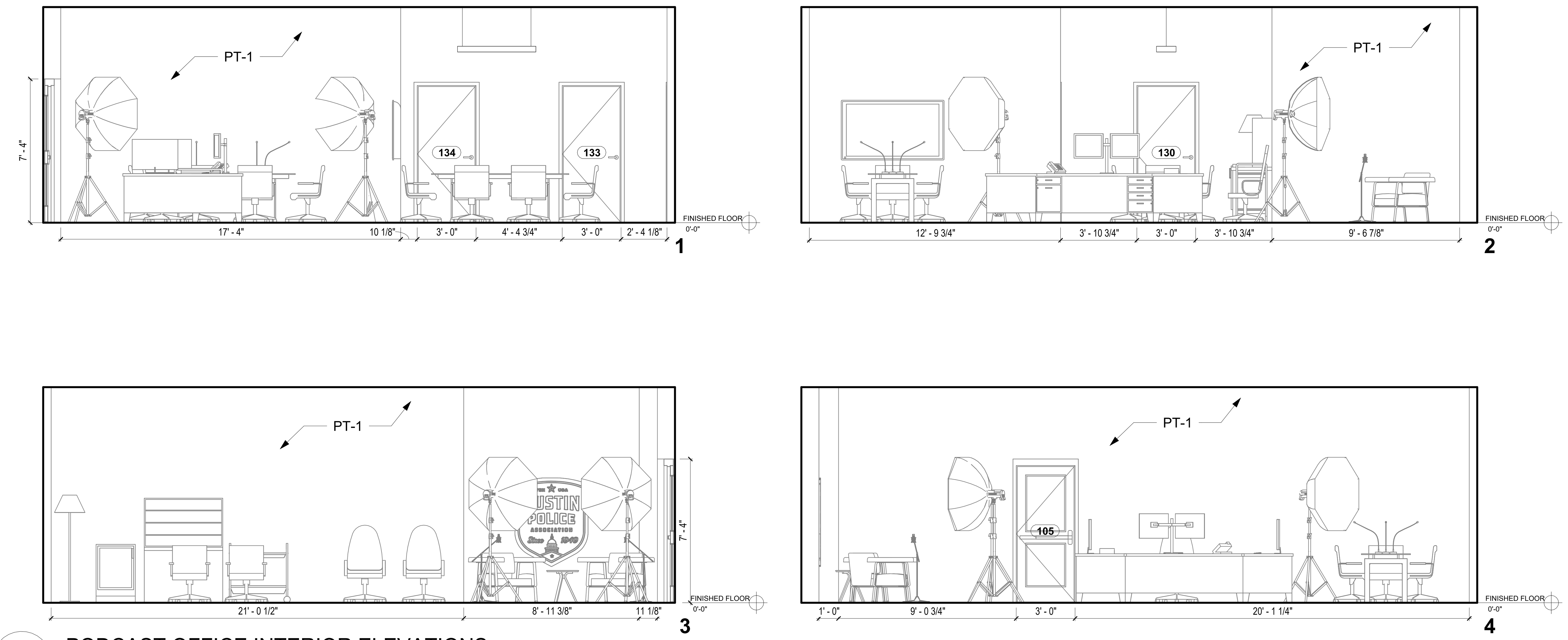
DATE : 03/09/2026

PROJECT NUMBER : 25003

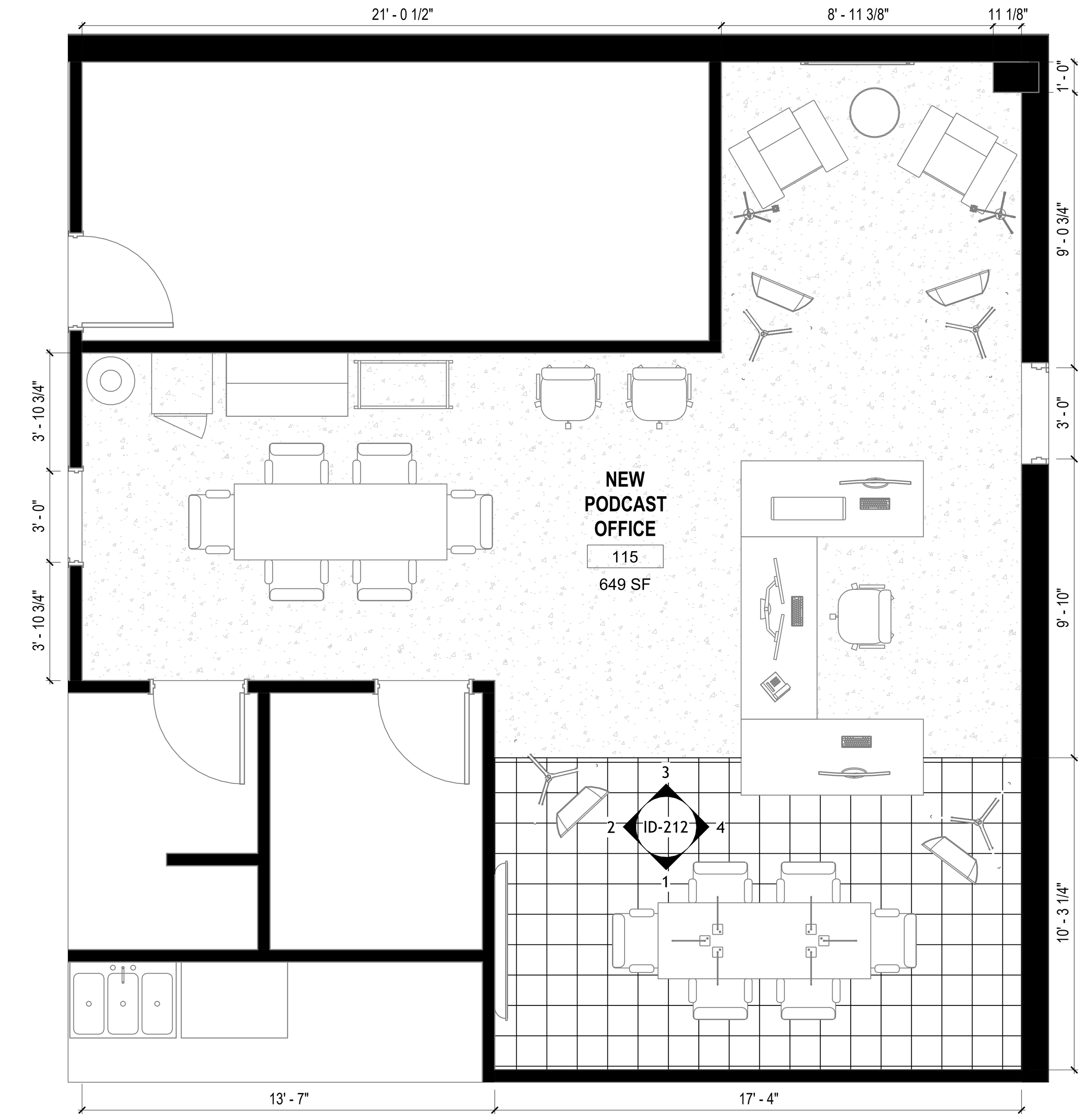
DRAWN BY : A.G.

CHECKED BY : S.R.

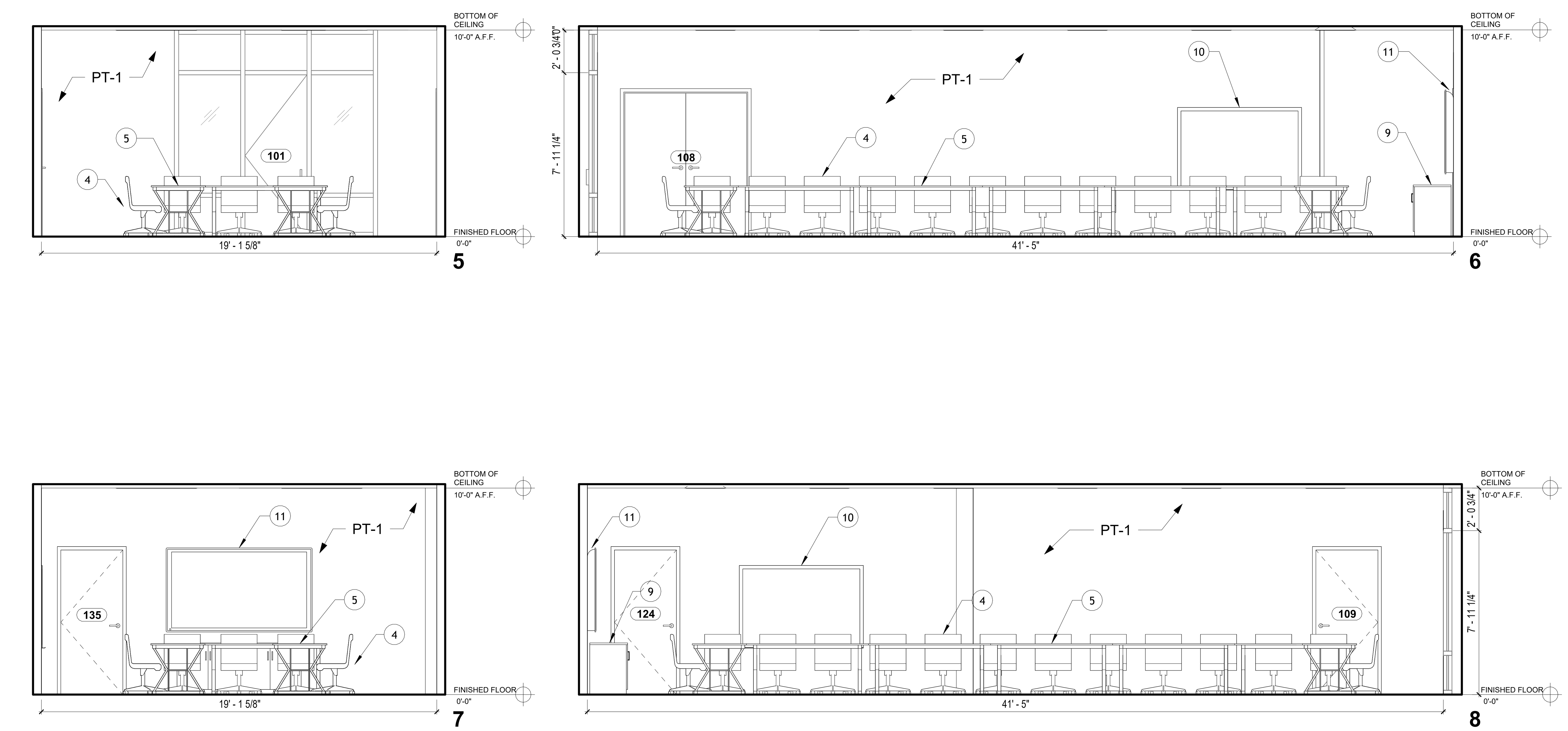
SHEET NO. : ID-211



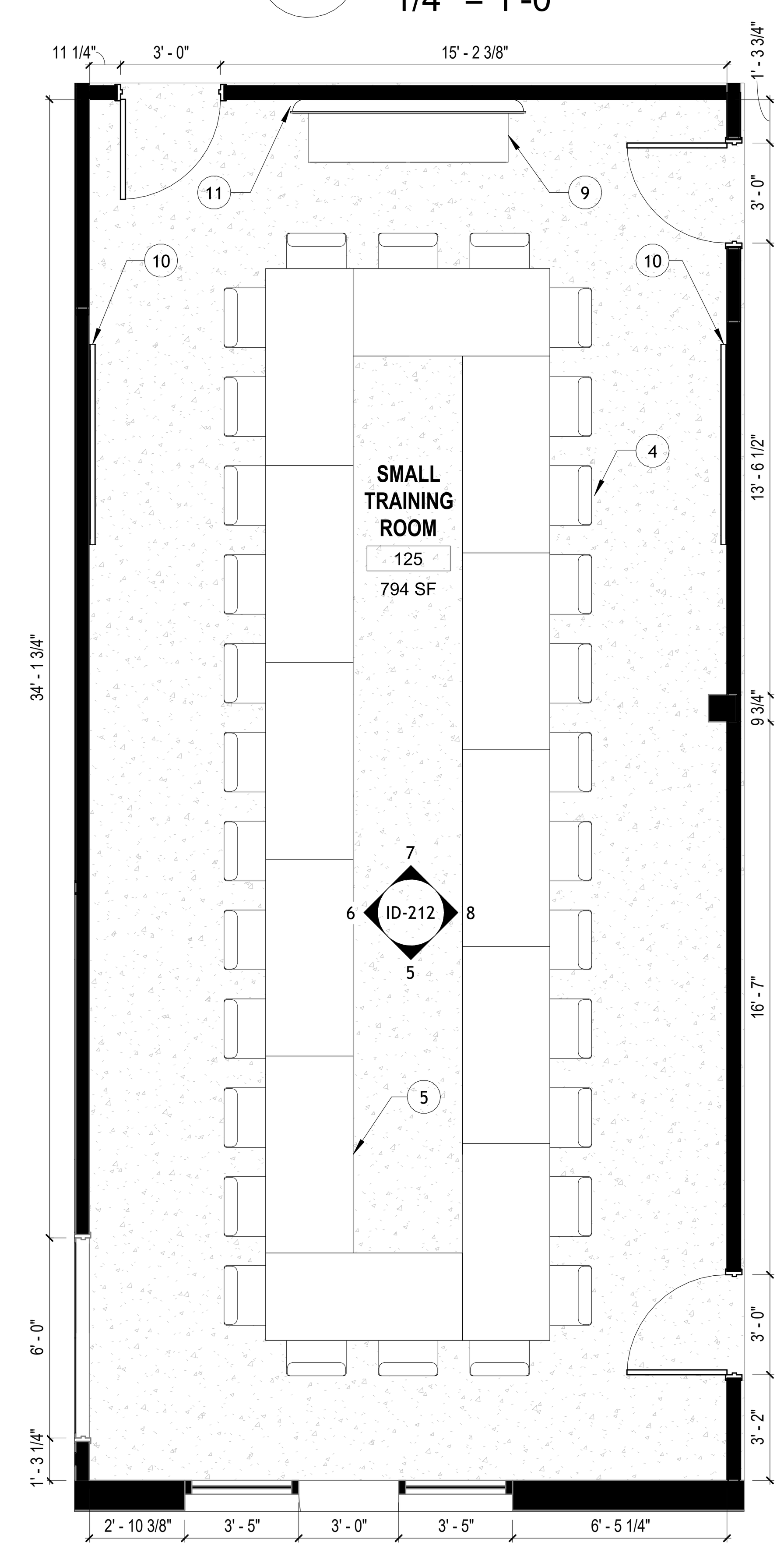
1 ID-212 PODCAST OFFICE INTERIOR ELEVATIONS
1/4" = 1'-0"



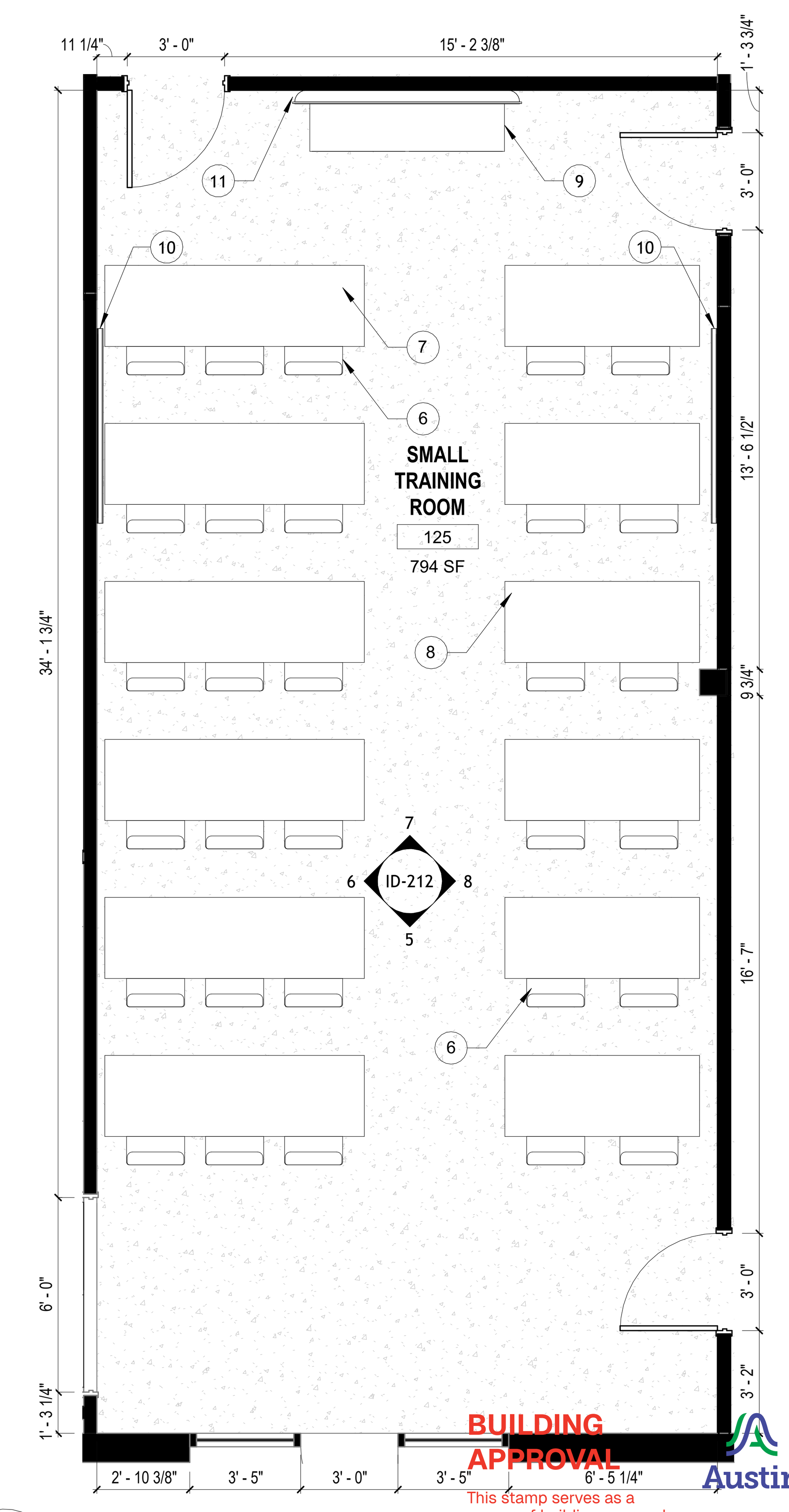
2 ID-212 ENLARGED PODCAST OFFICE PLAN
1/4" = 1'-0"



3 ID-212 SMALL TRAINING ROOM INTERIOR ELEVATIONS
1/4" = 1'-0"



4 ID-212 ENLARGED SMALL TRAINING ROOM PLAN
1/4" = 1'-0"



5 ID-212 SMALL TRAINING ROOM ALTERNATE
1/4" = 1'-0"

BUILDING APPROVAL
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Sofia M. Ramos R.A
TX LIC. #: A R31599

APA-OFFICE BUILDING RENOVATION
5817 WILCAB RD.
AUSTIN, TEXAS 78721

SHEET TITLE :
INTERIOR ELEVATIONS

REVISIONS :

#	Description:	Date:

SUBMITTAL:
PERMIT SET

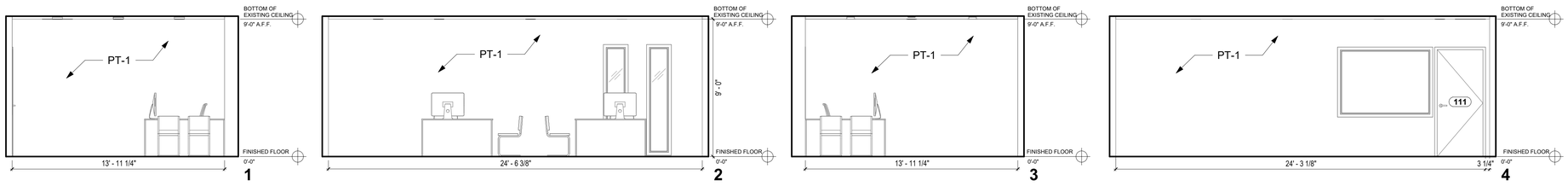
SCALE :
1/4" = 1'-0"

DATE :
03/09/2026

PROJECT NUMBER :
25003

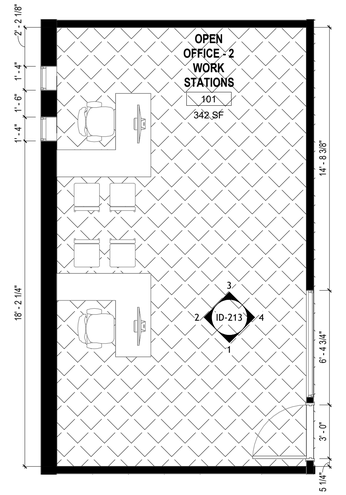
DRAWN BY : A.G.
CHECKED BY : S.R.

SHEET NO. :
ID-212



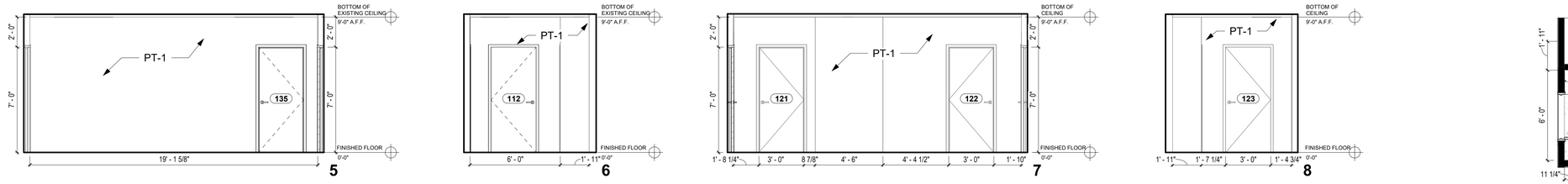
1 ID-213 OPEN OFFICE - 2 WORK STATIONS INTERIOR ELEVATIONS

1/4" = 1'-0"



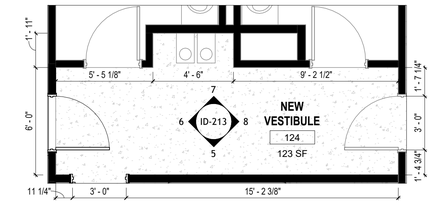
2 ID-213 OPEN OFFICE - 2 WORK STATIONS PLAN

1/4" = 1'-0"



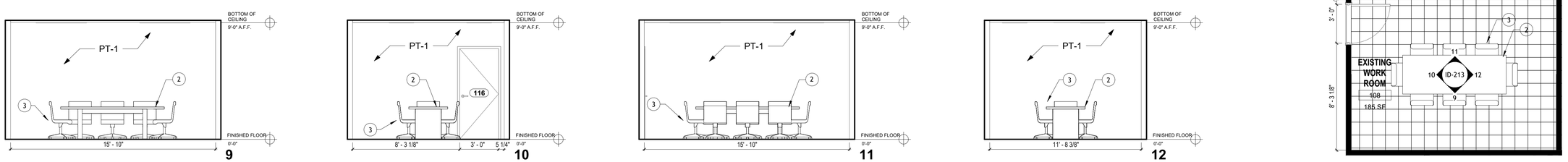
3 ID-213 VESTIBULE INTERIOR ELEVATIONS

1/4" = 1'-0"



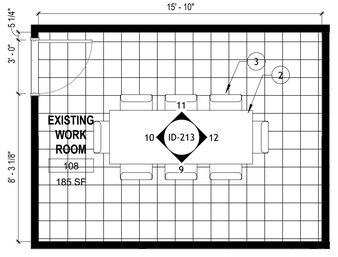
4 ID-213 ENLARGED VESTIBULE PLAN

1/4" = 1'-0"



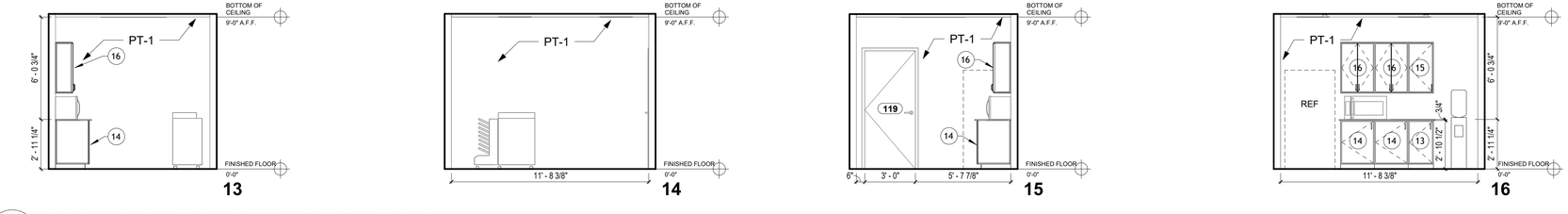
5 ID-213 WORK ROOM INTERIOR ELEVATIONS

1/4" = 1'-0"



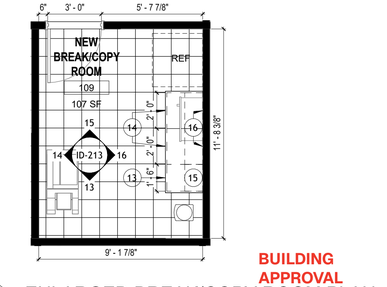
6 ID-213 ENLARGED WORK ROOM PLAN

1/4" = 1'-0"



7 ID-213 BREAK/COPY ROOM INTERIOR ELEVATIONS

1/4" = 1'-0"



8 ID-213 ENLARGED BREAK/COPY ROOM PLAN

1/4" = 1'-0"

BUILDING APPROVAL
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Austin Approved Date 04/01/2026

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TX Lic.# ARCH 31599

APA-OFFICE BUILDING RENOVATION

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AUSTIN, TEXAS 78721

SHEET TITLE :
INTERIOR ELEVATIONS

REVISIONS :

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PERMIT SET

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

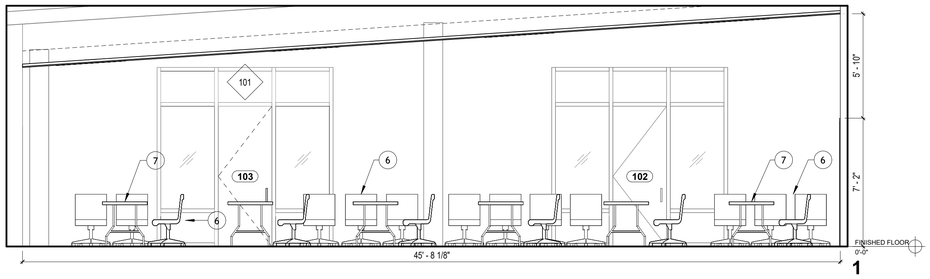
DATE :
03/09/2026

PROJECT NUMBER :
25003

DRAWN BY : A.G.
CHECKED BY : S.R.

SHEET NO. :

ID-213



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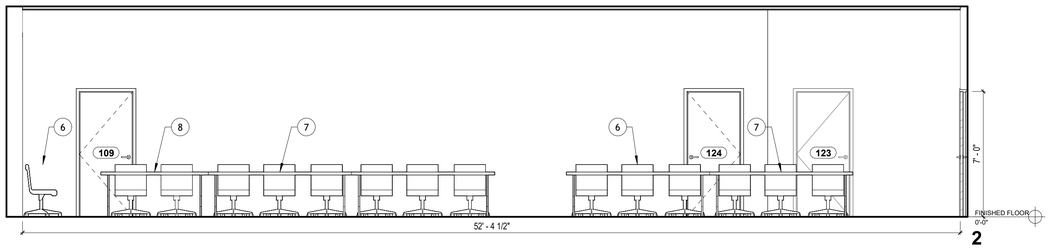

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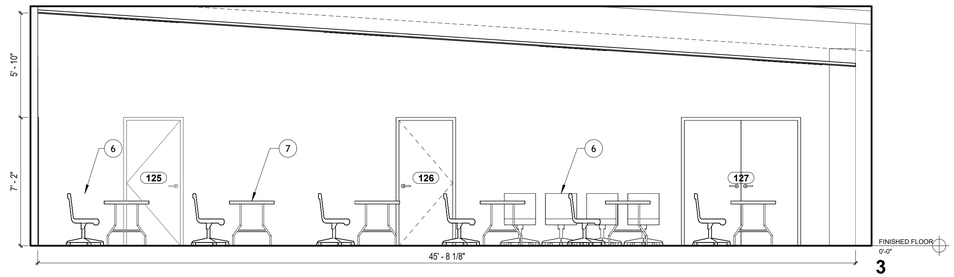

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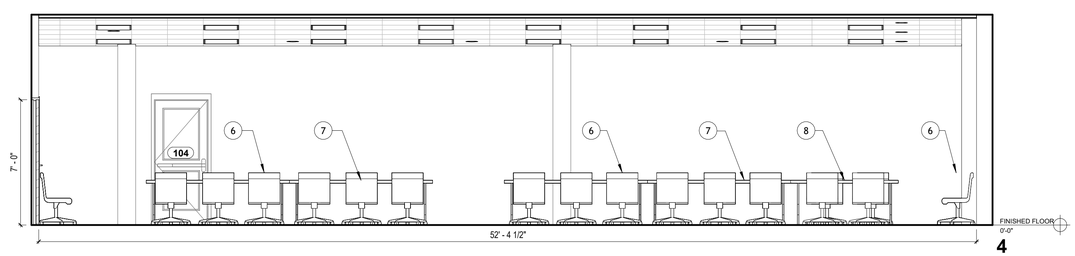
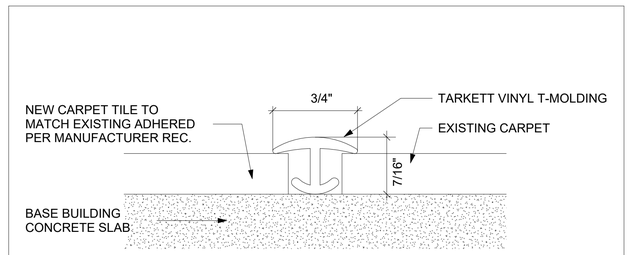


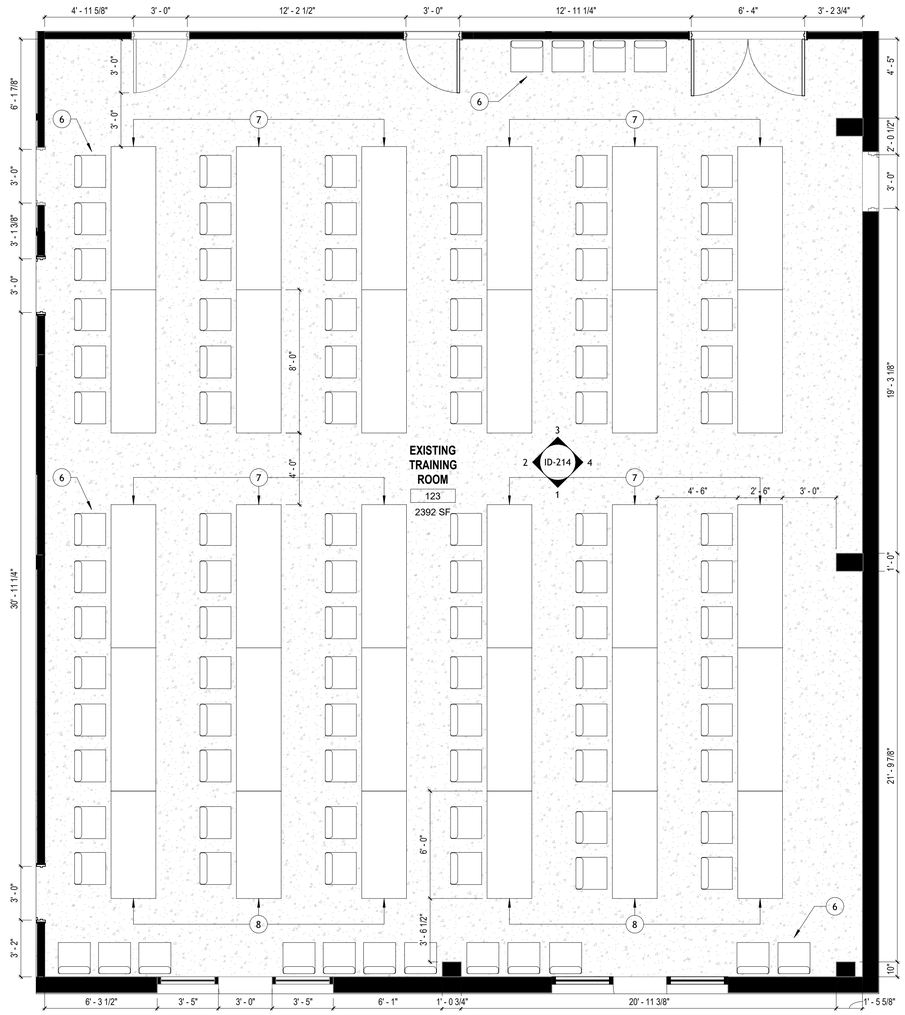
4

1 ID-214 TRAINING ROOM INTERIOR ELEVATIONS

1/4" = 1'-0"



3 ID-214 FLOOR CONNECTION DETAIL



2 ID-214 ENLARGED TRAINING ROOM PLAN

1/4" = 1'-0"

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DRAWN BY : A.G.
CHECKED BY : S.R.

SHEET NO. :

ID-214

MEP GENERAL CONDITIONS

1. IT IS THE INTENT OF THE CONTRACT DOCUMENTS TO PROVIDE AN INSTALLATION COMPLETE IN EVERY RESPECT. WORK SHALL BE EXECUTED IN A WORKMANLIKE MANNER AND SHALL INCLUDE ALL LABOR, MATERIALS, AND SUPERVISION ESSENTIAL TO PROVIDE COMPLETE FUNCTIONING SYSTEMS AS DESCRIBED IN THE CONTRACT DOCUMENTS. IN THE EVENT THAT ADDITIONAL DETAILS OR SPECIAL CONSTRUCTION IS REQUIRED FOR WORK INDICATED, IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO PROVIDE SAME AS WELL AS TO PROVIDE MATERIAL AND EQUIPMENT USUALLY FURNISHED WITH SUCH SYSTEMS OR REQUIRED TO COMPLETE THE INSTALLATION AT NO EXPENSE TO THE OWNER.
2. DEVIATIONS TO THE INTENDED DESIGN OR THE SCOPE OF THE WORK MUST BE APPROVED BY THE ENGINEER PRIOR TO COMMENCING WORK. FAILURE TO DO SO MAY RESULT IN THE WORK TO BE REMOVED AT NO COST TO THE OWNER.
3. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH ALL APPLICABLE LOCAL CODES, STANDARDS, AND AMENDMENTS AND/OR OTHER AUTHORITIES THAT MAY HAVE JURISDICTION PERTAINING TO THE WORK. IN ADDITION, ALL WORK SHALL CONFORM TO THE STANDARDS AND PRACTICES OF THE OWNER.
4. ALL EQUIPMENT INSTALLED ON THIS PROJECT SHALL BE NEW AND UNUSED UNLESS NOTED OTHERWISE. THE CONTRACTOR SHALL REMOVE ALL SHIPPING LABELS, DIRT, PAINT SPOTS, GREASE, AND STAINS FROM ALL EQUIPMENT. DEBRIS SHALL BE REMOVED AS IT ACCUMULATES. UPON COMPLETION OF HIS WORK, THE CONTRACTOR SHALL CLEAN ALL EQUIPMENT. NO LOOSE PARTS OR SCRAPS OF EQUIPMENT SHALL BE LEFT ON THE PREMISES.
5. ALL MATERIALS SALVAGED FOR THE OWNER SHALL BE STORED BY CONTRACTOR UNTIL END OF PROJECT THEN RETURNED TO THE OWNER.
6. ALL WORK SHALL BE GUARANTEED AGAINST DEFECTIVE MATERIALS AND WORKMANSHIP FOR A PERIOD OF ONE (1) YEAR AFTER THE DATE AS DEFINED BY THE CONTRACT. THE CONTRACTOR SHALL REPAIR OR REPLACE, AT HIS/HER OWN EXPENSE WHEN ORDERED TO DO SO, ALL WORK THAT MAY DEVELOP DEFECTS IN MATERIAL OR WORKMANSHIP WITHIN SAID PERIOD OF TIME. ALL EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S PUBLISHED RECOMMENDATIONS FOR SERVICE INTENDED, AS INTERPRETED BY THE ENGINEER. THE INSTALLATION OF ALL EQUIPMENT SHALL BE MADE BY EXPERIENCED CRAFTSMAN IN A NEAT, WORKMANLIKE MANNER. ALL MATERIALS, TOOLS, COSTS, AND SERVICES NECESSARY TO COMPLETELY INSTALL ALL WORK SHALL BE PROVIDED BY THE CONTRACTOR.
7. ALL SAFETY EXPOSURES OR VIOLATIONS SHALL BE RECTIFIED IMMEDIATELY BY THE CONTRACTOR. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING PROTECTION OF PERSONS AND PROPERTY, PROVIDING SAFE WORKING CONDITIONS THROUGHOUT THE WORK PROGRESS, PROVIDING TEMPORARY COVERINGS FOR OPENINGS THROUGH WALLS OR FLOORS, AND PROVIDING TEMPORARY BARRIERS, PARTITIONS AND/OR DUST BARRIERS WHERE REQUIRED TO MAINTAIN OSHA AND THE OWNER'S SAFETY STANDARDS AND TO PREVENT DAMAGE TO PROPERTY. ALL AREAS ADJACENT TO THE CONSTRUCTION AREA OR AFFECTED BY THE CONSTRUCTION MUST BE PROTECTED FROM DAMAGE, CLEANED, AND RESTORED TO THE ORIGINAL CONDITION AT NO ADDITIONAL EXPENSE TO THE OWNER. THE CONTRACTOR SHALL PROVIDE PROTECTIVE CLOTHING AND EYEWEAR FOR ALL PERSONNEL WHO ARE REQUIRED TO HANDLE HAZARDOUS CHEMICAL PRODUCTS OR WORK IN HAZARDOUS LOCATIONS.
8. DO NOT DISTURB ASBESTOS CONTAINING MATERIALS (ACM). IF ACM ARE ENCOUNTERED OR SUSPECTED DURING THE COURSE OF WORK, THE CONTRACTOR SHALL IMMEDIATELY CONTACT THE OWNER AND ACCOMMODATE FURTHER NECESSARY ABATEMENT BY THE OWNER. ASBESTOS ABATEMENT SHALL OCCUR PRIOR TO CONTRACTOR COMMENCING OR CONTINUING DEMOLITION OR CONSTRUCTION OPERATIONS.
9. CONTRACTOR SHALL DIRECT ALL QUESTIONS TO THE OWNER. THE CONTRACTOR SHALL VERIFY ALL WORKING CONDITIONS SUCH AS STARTING TIME, NOISE AND VIBRATION LIMITATIONS, CONFINED SPACE, ETC. THROUGH THE OWNER AND APPROVAL SHALL BE RECEIVED TO START WORK.
10. THE CONTRACTOR SHALL VISIT THE JOBSITE AND VERIFY THE SCOPE OF WORK REQUIRED INCLUDING ALL EXISTING CONDITIONS, LOCATIONS, DIMENSIONS, AND QUANTITIES AS SHOWN AND NOTED ON THE DRAWINGS AND THE EXTENT AND EFFECT OF EXISTING SYSTEMS. NOTIFY THE OWNER IF ANY OF THE WORK CANNOT BE SAFELY ACCESSED.
11. THE CONTRACTOR SHALL ENSURE FULL COORDINATION WITH OTHER TRADES AND CONTRACTORS TO ACCOMPLISH THE WORK AS SHOWN AND NOTED IN THESE CONTRACT DOCUMENTS. THE CONTRACTOR SHALL COMPARE THE DRAWINGS OF OTHER TRADES AND REPORT ANY DISCREPANCIES TO THE OWNER.
12. NOT ALL EXISTING UTILITIES ARE SHOWN FOR CLARITY OF THE DRAWING. THE CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS AND SHALL PERFORM FIELD MEASUREMENTS PRIOR TO FABRICATION AND/OR PURCHASE OF ANY MATERIAL. CONTACT THE OWNER SHOULD EXISTING CONDITIONS BE DIFFERENT FROM THE DESIGN DRAWINGS. CONFLICTS ARISING DUE TO LACK OF COORDINATION SHALL BE THE RESPONSIBILITY AND AT THE EXPENSE OF THE CONTRACTOR.
13. THE CONTRACTOR SHALL SECURE AND PAY FOR ALL PERMITS, LICENSES, CLEARANCES AND CERTIFICATES FROM THE OWNER AND LOCAL AUTHORITIES HAVING JURISDICTION AS REQUIRED PRIOR TO THE COMMENCEMENT OF THE WORK.
14. THE CONTRACTOR SHALL TRAIN HIS/HER EMPLOYEES AND SUBCONTRACTORS AS REQUIRED BY THE OWNER, IN THE RECOGNITION AND AVOIDANCE OF UNSAFE CONDITIONS, AND IN THE REGULATIONS AND HAZARDS WHICH APPLY TO THE AREA IN WHICH THE WORK WILL TAKE PLACE.
15. ANY REQUIRED CHANGES TO THE DRAWINGS RESULTING FROM THE ACCEPTANCE OF ALTERNATIVES AND/OR SUBSTITUTIONS ARE THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE SUBMITTED TO THE OWNER FOR APPROVAL.
16. SUBMITTALS
    A. ALL SUBMITTALS SHALL BE REVIEWED BY THE CONTRACTOR PRIOR TO SUBMITTING TO THE ENGINEER. ALL SUBMITTALS NOT REVIEWED BY THE CONTRACTOR WILL BE RETURNED WITHOUT REVIEW. AFTER REVIEW HAS BEEN COMPLETED, SUBMIT A COPY OF EACH SUBMITTAL TO THE OWNER WITH THE APPROVAL SEAL OF THE ENGINEER AND THE CONTRACTOR. SUBMITTALS SHALL BE APPROVED PRIOR TO STARTING ANY WORK.
    B. SUBMIT MATERIAL SAFETY DATA SHEETS AND MANUFACTURER'S CURRENT RECOMMENDED METHOD OF INSTALLATION TO THE OWNER FOR ALL MATERIALS USED TO PERFORM THE WORK INDICATED BY THESE DOCUMENTS. ALL CHEMICALS OR CHEMICAL COMPOUNDS PROPOSED FOR USE ON THE PROPERTY INCLUDING, BUT NOT LIMITED TO PAINT THINNERS, SOLVENTS, ADHESIVES, SEALANTS, CLEANING COMPOUNDS, EPOXIES, ETC. MUST BE APPROVED BY THE OWNER.
    C. PROVIDE PRODUCT DATA SUBMITTALS ON ALL MAJOR EQUIPMENT, COMPONENTS, AND MATERIALS SPECIFIED IN THESE PLANS FOR ENGINEER'S AND OWNER'S REVIEW AND ACCEPTANCE PRIOR TO INSTALLATION. SUBMIT CATALOG DATA SHOWING MANUFACTURER'S NAME AND CONTACT INFORMATION, ALL STANDARD FEATURES, AMPERAGE, VOLTAGE, A/C RATINGS, DIMENSIONS, WEIGHTS, LISTINGS & PRODUCT LABELS, MATERIAL TYPES, FINISHES AND CLEARLY INDICATING WHICH OPTIONAL FEATURES WILL BE PROVIDED. EACH SUBMITTAL SHALL INCLUDE A COPY OF THE RELEVANT EQUIPMENT OR MATERIALS SCHEDULE ON THE PLANS WITH EACH LINE ITEM MARKED COMPLIES OR DOES NOT COMPLY WITH THE REQUIREMENTS.
        C1. WHERE MULTIPLE SIZES ARE LISTED, INDICATE SIZES TO BE USED.
        C2. WHERE MULTIPLE PRODUCTS ARE SHOWN ON THE SAME PAGE, INDICATE WHICH PRODUCTS TO BE USED.
        C3. INCLUDE ALL RELEVANT ELECTRICAL DIAGRAMS INCLUDING SCHEMATIC AND INTERCONNECTION DIAGRAMS FOR POWER, SIGNAL, AND CONTROL WIRING.
    D. PROVIDE SHOP DRAWINGS SHOWING ALL DUCTWORK, PIPING AND CONDUIT 2" AND ABOVE, AND ALL MAJOR EQUIPMENT AND HOUSEKEEPING PADS. THE USE OF REPRODUCTIONS OF THESE CONTRACT DRAWINGS BY ANY CONTRACTOR, SUBCONTRACTOR, ERECTOR, FABRICATOR OR MATERIAL SUPPLIER, IN LIEU OF THE PREPARATION OF SHOP DRAWINGS IS FORBIDDEN. SHOP DRAWINGS RECEIVED BEARING THE ENGINEER'S TITLE AND SEAL SHALL BE PROMPTLY REJECTED.
    E. ALL SUBMITTALS SHALL BE PROVIDED IN PDF FORMAT.
17. SHOULD ANY ERRORS, OMISSIONS, CONFLICTS, OR AMBIGUITIES EXIST IN THE DRAWINGS, THE CONTRACTOR SHALL BRING THESE TO THE ATTENTION OF THE OWNER IMMEDIATELY FOR ADJUSTMENT IN WRITING BEFORE SIGNING THE CONTRACT OR PROCEEDING WITH THE WORK. OTHERWISE, HE/SHE SHALL AT HIS/HER OWN EXPENSE, SUPPLY THE PROPER MATERIALS AND LABOR TO MAKE GOOD ANY DAMAGE OR DEFECT CAUSED BY SUCH UNINTENTIONAL ERROR.
18. CONTRACTOR SHALL CHECK ALL CONTRACT DOCUMENTS, FIELD CONDITIONS AND DIMENSIONS FOR ACCURACY, AND CONFIRM THAT THE WORK IS BUILDABLE AS SHOWN AND MEETS ALL APPLICABLE CODES BEFORE PROCEEDING WITH CONSTRUCTION. IF THERE ARE ANY QUESTIONS REGARDING THESE OR OTHER COORDINATION ISSUES, THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING A CLARIFICATION FROM THE OWNER BEFORE PROCEEDING WITH THE WORK IN QUESTION OR RELATED WORK.
19. THE CONTRACTOR SHALL NOT FABRICATE OR INSTALL ITEMS AS SHOWN ON THE DRAWINGS IF THERE ARE DISCREPANCIES OR CONFLICTS BETWEEN THE EXISTING CONDITIONS AND THE INFORMATION SHOWN ON THE DRAWINGS UNTIL SUCH DISCREPANCIES HAVE BEEN RESOLVED. PRIOR TO FABRICATION OR INSTALLATION, THE CONTRACTOR SHALL IMMEDIATELY CALL SUCH DISCREPANCIES OR CONFLICTS TO THE ATTENTION OF THE OWNER AND THE ENGINEER.
20. ALL WORK NOTED "NIC" OR "NOT IN CONTRACT" IS TO BE ACCOMPLISHED BY ANOTHER CONTRACTOR AND IS NOT TO BE PART OF THE CONSTRUCTION AGREEMENT.
21. IN CASES OF A DIFFERENCE BETWEEN THE MINIMUM REQUIREMENTS OF THE VARIOUS LAWS, CODES, AUTHORITIES, AND THE DOCUMENTS; THE WORK SHALL MEET THE GREATER OR MORE STRINGENT REQUIREMENTS.
22. THE SEQUENCE OF CONSTRUCTION AND ANY SERVICE OUTAGES SHALL BE SCHEDULED AND COORDINATED WITH THE OWNER.
23. WORK AREAS SHALL BE KEPT CONTINUOUSLY, AT ALL TIMES, FREE OF DEBRIS AND NON-HAZARDOUS MATERIAL TO THE SATISFACTION OF THE OWNER. ALL EXISTING PIPING AND CONDUITS SHALL HAVE TEMPORARY PROTECTION DURING CONSTRUCTION. THE CONTRACTOR SHALL COORDINATE STORAGE OF MATERIALS, PARKING OF VEHICLES, AND RESTRICTIONS OF WORK WITH THE OWNER. AFTER PROJECT COMPLETION, THE SITE SHALL BE CLEANED UP AND RESTORED TO ITS ORIGINAL CONDITION OR BETTER PRIOR TO THE START OF THE PROJECT TO THE SATISFACTION OF THE OWNER.
24. THE DRAWINGS ARE DIAGRAMMATIC ONLY AND DO NOT GIVE FULLY DIMENSIONED LOCATIONS OF VARIOUS ELEMENTS OF WORK OR INDICATE ALL OFFSETS THAT MAY BE REQUIRED. DETERMINE EXACT LOCATIONS FROM FIELD MEASUREMENTS. MAKING ADJUSTMENTS TO FIELD CONDITIONS IS CONSIDERED A PART OF THE WORK REQUIRED.
25. WRITTEN DIMENSIONS SHALL TAKE PRECEDENCE OVER SCALED DIMENSIONS.
26. CONTRACT CLOSEOUT: INCLUDE THE FOLLOWING:
    A. RECORD DRAWINGS
        A.1. THE CONTRACTOR SHALL MAINTAIN TWO SETS OF CONSTRUCTION DRAWINGS ON SITE AT ALL TIMES SO THAT ALL CHANGES BETWEEN THE DRAWINGS AND THE ACTUAL CONSTRUCTION CAN BE NOTED ON THE DRAWINGS. THIS INCLUDES ALL DEVIATIONS FROM THE ORIGINAL CONTRACT. THE CONTRACTOR SHALL INDICATE ALL CHANGES FROM THE ORIGINAL PLANS MADE DURING THE INSTALLATION OF THE WORK IN RED INK ON TWO SETS OF PRINTS. AT THE END OF CONSTRUCTION, THE CONTRACTOR SHALL SIGN AND DATE THE DRAWINGS CERTIFYING THAT THEY ARE AN ACCURATE REFLECTION OF THE ACTUAL CONSTRUCTION.
    F. A.2. DELIVER RECORD DRAWINGS REFLECTING THE FINAL AS-BUILT CONDITION TO THE OWNER IN AUTOCAD OR REVIT FORMAT AFTER PROJECT COMPLETION. NOTE THAT THE FINAL INVOICE FOR THE CONTRACT WILL NOT BE PAID BY THE OWNER UNTIL RECORD DRAWINGS ARE RECEIVED.
    G. OPERATIONS AND MAINTENANCE DATA: SUBMIT O&M DATA IN PDF FORMAT WITH COVER PAGE AND INDEX. INCLUDE THE FOLLOWING FOR EACH PIECE OF EQUIPMENT: MAINTENANCE INSTRUCTIONS, PARTS LIST, OPERATING INSTRUCTIONS, WARRANTY DOCUMENTS AND FINAL APPROVED SUBMITTAL.
    H. TEST & BALANCE REPORTS IN PDF FORMAT.

MEP GENERAL CONDITIONS (CONT.)

27. ALL STRUCTURAL ENGINEERING AS IT PERTAINS TO ATTACHING MEP ELEMENTS INCLUDING BUT NOT LIMITED TO EQUIPMENT, PIPE, DUCTWORK AND CONDUIT TO THE BUILDING STRUCTURE AND ROOF SHALL BE PROVIDED BY THE CONTRACTOR'S STRUCTURAL ENGINEER UNLESS NOTED OTHERWISE. DESIGN SHALL INCLUDE SUPPORTS AND WIND-LOADING RESTRAINTS FOR ALL MEP ELEMENTS INSTALLED ON THE ROOF. DESIGN SHALL ALSO INCLUDE DESIGN OF SEISMIC RESTRAINTS FOR ALL HANGERS AND SUPPORTS OF MEP ELEMENTS. CONTRACTOR SHALL SUBMIT DESIGN REACTION FORCES TO THE PROJECT STRUCTURAL ENGINEER FOR REVIEW.
28. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CUTTING AND PATCHING WORK AS REQUIRED TO INSTALL THE SYSTEMS AS SHOWN ON THE DRAWINGS. ANY CUTTING THRU STRUCTURAL MEMBERS OR FLOORS SHALL FIRST BE APPROVED BY THE OWNER AND STRUCTURAL ENGINEER. ALL PATCHING AT WALLS SHALL BE THE SAME MATERIAL AS THE WALL AND TOUCHED UP WITH PAINT. ALL NEW WALL AND FLOOR PENETRATIONS SHALL BE MADE AT 90 DEGREE ANGLES. THERE SHALL BE NO DRILLING INTO THE FLOOR FROM ABOVE OR BELOW WITHOUT FIRST CONTACTING THE OWNER, AND STRUCTURAL ENGINEER.
29. PRIOR TO ANY CUTTING OR TRENCHING, VERIFY WITH OWNER, UTILITY COMPANIES, AND LANDLORD THAT ALL AVAILABLE INFORMATION IS KNOWN REGARDING UNDERGROUND OBSTRUCTIONS. TAKE CAUTION WHEN TRENCHING NOT TO DISTURB ANY EXISTING UTILITIES. NOTIFY OWNERS REPRESENTATIVE IMMEDIATELY UPON UNCOVERING UNKNOWN UTILITIES FOR FURTHER DIRECTION.
30. CONTRACTOR TO PROVIDE START-UP SUPPORT SERVICES FOR ALL NEW SYSTEMS AND EQUIPMENT, AS WELL AS TRAINING SERVICES FOR THE OWNER'S MAINTENANCE PERSONNEL IN THE USE OF THESE SYSTEMS AND EQUIPMENT. CONTRACTOR SHALL ALSO ASSIST TEST & BALANCE CONTRACTOR AS REQUIRED.
31. CONTRACTOR TO COORDINATE FINAL INSPECTION OF THE WORK WITH THE OWNER AND ENGINEER, AND DEMONSTRATE PROPER FUNCTIONALITY OF ALL NEW SYSTEMS.
32. CONTRACTOR TO COORDINATE ALL SYSTEM OUTAGES WITH THE OWNER; PROVIDE MINIMUM TWO WEEKS NOTICE.

GENERAL MEP NOTES

1. ALL NEW OPENINGS THROUGH FLOORS, ROOF, STRUCTURAL WALLS, AND STRUCTURAL MEMBERS (WHERE APPROVED BY THE OWNER) AND INSTALLATION OF ROOF-MOUNTED EQUIPMENT SHALL BE COORDINATED WITH THE ARCHITECT AND DESIGNED BY THE STRUCTURAL ENGINEER. PENETRATIONS THROUGH SHEAR WALLS ARE PROHIBITED.
2. DUCT, PIPE AND CONDUIT ROOF PENETRATIONS:
    2.A. ALL DUCT, PIPE, AND CONDUIT ROOF PENETRATIONS SHALL BE THROUGH AN INSULATED, FACTORY-MANUFACTUREDFULLY-WELDED GALVANIZED STEEL ROOF CURBS. CURBS MUST EXTEND 14" ABOVE THE FINISHED SURFACE OF THE ROOF AND SHALL BE SLOPED TO MATCH ROOF, SHALL MATCH ROOF MANUFACTURER’S REQUIREMENTS, AND SHALL BE INSTALLED TO MAINTAIN ROOF WARRANTY. ATTACH CURB TO ROOF PER STRUCTURAL ENGINEER'S DESIGN. IF DESIGN IS NOT INCLUDED IN PROJECT STRUCTURAL ENGINEER'S SCOPE, THE DESIGN SHALL BE PERFORMED BY THE CONTRACTOR'S LICENSED STRUCTURAL ENGINEER.
    2.B. ENTIRE ASSEMBLY SHALL BE DESIGNED TO WITHSTAND ALL IBC AND ASCE-7 WINDLOADING REQUIREMENTS FOR BUILDINGS LESS THAN 60' HIGH. THIS SPECIFICALLY APPLIES TO THE ATTACHMENT TO THE ROOF AND THE REQUIRED RESTRAINTS NECESSARY TO COMPLY WITH IBC AND ASCE-7, AS WELL AS ASSOCIATED DUCTWORK, PIPING, AND EQUIPMENT PLATFORMS ABOVE THE ROOF.
    2.C. CONTRACTOR SHALL PROVIDE STAINLESS STEEL FLASHING TO SEAL BETWEEN THE DUCT / PIPE AND THE ROOF CURB.
    2.D. FLUES AND VENT STACKS SHALL MAINTAIN CLEARANCE FROM COMBUSTIBLE CONSTRUCTION AND INSULATED ASSEMBLIES IN ACCORDANCE WITH THE VENT MANUFACTURER'S INSTRUCTIONS. TOP WITH BIRD PROOF FLUE CAP.
    2.E. THE WEIGHT OF ALL DUCTS PENETRATING THE ROOF SHALL BE SUPPORTED FROM BELOW-ROOF STRUCTURE, NOT AT THE ROOF CURB.
    2.F. COORDINATE LOCATIONS OF EXISTING AND NEW ROOF PENETRATIONS TO MINIMIZE NUMBER OF OPENINGS. ELECTRICAL AND REFRIGERANT LINES ARE TO USE THE SAME PENETRATIONS WHERE POSSIBLE.
    2.G. COORDINATE ALL ROOF WORK WITH OWNERS ROOFING CONTRACTOR TO MAINTAIN THE WARRANTY.
3. PIPE AND CONDUITS PENETRATING FIRE-RATED FLOORS AND WALLS:
    3.A. A UL-RATED FIRESTOP SYSTEM SHALL BE INSTALLED AT ALL PIPE PENETRATIONS THROUGH SMOKE AND/OR FIRE-RATED FLOORS AND WALLS. FIRESTOP SYSTEM SHALL BE SUITABLE FOR THE FLOOR AND WALL TYPE, MATERIALS OF CONSTRUCTION, AND PIPE MATERIALS; RATINGS SHALL MATCH FIRE BARRIER RATINGS. ONLY PRODUCTS BY A SINGLE MANUFACTURER SHALL BE USED ON THE PROJECT; APPROVED MANUFACTURERS ARE STI, 3M AND HILTI. INSTALLERS SHALL BE CERTIFIED BY THE FIRESTOP SYSTEM MANUFACTURER. CONTRACTOR TO PROVIDE INVENTORY OF ALL PENETRATIONS.
    3.B. PIPE WEIGHT SHALL BE SUPPORTED AT THE FLOOR OR FROM HANGERS TO EITHER SIDE OF THE WALL OR FLOOR; PIPE WEIGHT SHALL NOT BE SUPPORTED BY THE WALL.
    3.C. INSULATION AND VAPOR BARRIER SHALL BE CONTINUOUS THROUGH THE PENETRATION.
    3.D. FLOOR PENETRATIONS SHALL BE SEALED WATER TIGHT AT THE TOP OF THE FLOOR.
4. PIPE AND CONDUITS PENETRATING NON-FIRE RATED FLOORS AND WALLS INCLUDING SLAB ON GRADE:
    4.A. WEIGHT SHALL BE SUPPORTED AT THE FLOOR OR FROM HANGERS ABOVE OR BELOW THE FLOOR. PIPE WEIGHT SHALL NOT BE SUPPORTED BY THE WALL.
    4.B. INSULATION AND VAPOR BARRIER SHALL BE CONTINUOUS THROUGH THE FLOOR.
    4.C. FLOOR PENETRATION SHALL BE SLEEVED WITH MINIMUM 16 GA. GALVANIZED STEEL EXTENDING 2" ABOVE THE SLAB AND SEALED WATER TIGHT.
    4.D. WHERE FLOOR OR WALL PENETRATIONS ARE EXPOSED IN OCCUPIED SPACES, ESCUTCHEON PLATES SHALL BE INSTALLED TO COVER THE OPENING.
    4.E. PENETRATIONS THROUGH EXTERIOR WALLS TO BE SEALED WATERTIGHT.
5. NO ASBESTOS CONTAINING MATERIALS SHALL BE USED IN ANY OF THE NEW CONSTRUCTION.
6. ALL INSULATING MATERIALS AND ALL MATERIALS USED IN PLENUMS SHALL BE PLENUM RATED AND SHALL CONFORM TO ASTM E 84, HAVING A MAXIMUM FLAME SPREAD OF <25 AND A MAXIMUM SMOKE DEVELOPED RATING OF <50.
7. EQUIPMENT SCHEDULED ON THE DRAWINGS IS BASED UPON EQUIPMENT OF MANUFACTURER NOTED. EQUIPMENT FROM ANOTHER MANUFACTURER MAY BE USED PROVIDED THAT THE CONTRACTOR SUBMIT PROOF THAT THE EQUIPMENT TO BE USED IS EQUAL TO OR BETTER THAN THAT SCHEDULED ON THE DRAWINGS AND IS APPROVED BY THE OWNER AND ENGINEER. PRICE SPECIFIED ITEM AS WELL AS PROPOSED SUBSTITUTION.
8. INVERTER READY MOTORS SHALL BE PROVIDED WITH AEGIS SHAFT GROUNDING RING, COOLBLUE INDUCTIVE ABSORBERS, OR CERAMIC BEARINGS AND CLASS F 105° C RISE INSULATION. REFERENCE NEMA MG1 PART 31.
9. PROVIDE TEFC MOTORS FOR ALL WET LOCATIONS AND ALL OUTDOOR LOCATIONS.
10. LOCATION OF NEW EQUIPMENT IS APPROXIMATE WHERE SHOWN. IF THERE IS A CONFLICT WITH AN EQUIPMENT LOCATION SHOWN ON THE PLANS, DO NOT PROCEED UNTIL THE ENGINEER APPROVES A NEW LOCATION.
11. INSTALL ALL NEW EQUIPMENT WITH MANUFACTURER-RECOMMENDED CLEARANCES ON ALL SIDES FOR SERVICE AND MAINTENANCE AS WELL AS REMOVAL OF INDIVIDUAL COMPONENTS WITHOUT REMOVING THE ENTIRE UNIT. PROVIDE NEC-REQUIRED CLEARANCE IN FRONT OF LINE VOLTAGE CONTROL PANELS; MINIMUM 3'.
12. DUCTWORK, PIPING, CONDUIT, CABLING, ETC. SHOWN ON EACH PLAN IS RUN ABOVE THE CEILING ON THE FLOOR WHERE IT IS SHOWN UNLESS OTHERWISE NOTED.
13. DUCTWORK, PIPING, CONDUIT, CABLING, ETC. SHOWN ON DRAWINGS SHALL BE COORDINATED WITH AIR DISTRIBUTION DEVICES, SPECIAL CEILING, FLOOR, AND STRUCTURE CONSTRUCTION, ETC. PROVIDE ADDITIONAL RISES AND DROPS TO THOSE INDICATED ON THE DRAWINGS AS REQUIRED TO COORDINATE WITH ARCHITECTURAL, STRUCTURAL OR MEP ELEMENTS SHOWN ON THE CONTRACT DOCUMENTS. ALL UTILITIES SHALL BE ROUTED IN AN ORDERLY MANNER, GROUPED TOGETHER WHEREVER POSSIBLE, AND LOCATED SO AS TO CONSERVE BUILDING SPACE.
14. COORDINATION OF ALL TRADES IN CEILING SPACES TO ALLOW AN 8-INCH CLEAR PLANE FOR LOCATION OF LIGHTS IS OF UTMOST IMPORTANCE TO MAXIMIZE FUTURE FLEXIBILITY. REALIZING THAT THIS IS NOT POSSIBLE IN ALL CASES, DUE TO CEILING ELEVATION AND STRUCTURAL LIMITATIONS, MAXIMUM EFFORT SHALL BE GIVEN TO MAINTAINING THE 8-INCH LIGHTING PLANE UNLESS NOTED OTHERWISE.
15. MAINTAIN MINIMUM VERTICAL CLEARANCE OF 7'-6" FROM THE FLOOR TO THE BOTTOM OF DUCTWORK , PIPING, AND ASSOCIATED HANGERS AND SUPPORTS UNLESS NOTED OTHERWISE ON THE PLANS.
16. POWDER ACTUATED FASTENERS ARE NOT ALLOWED.
17. PROVIDE AND INSTALL MINIMUM $2\frac{1}{2}$" LONG X $\frac{3}{4}$" WIDE ENGRAVED PHENOLIC PLASTIC EQUIPMENT TAGS, BLACK LETTERS ON WHITE BACKGROUND, FOR ALL EQUIPMENT TO MATCH TAGS INDICATED ON PLANS. IF EXISTING TAGS ARE PRESENT EITHER FROM THE MANUFACTURER OR EXISTING CONDITIONS, COVER OR PAINT OVER THE OLD TAG AS REQUIRED TO ELIMINATE CONFLICTING TAG NAMES. LABEL THERMOSTATS TO MATCH UNIT DESIGNATION. INDICATE ELECTRICAL PANEL AND CIRCUIT BREAKER NUMBER IDENTIFICATION ON NAMEPLATE IN SMALLER LETTERS IN PARENTHESES.
18. U.N.O, PROVIDE CONCRETE HOUSEKEEPING PADS FOR ALL FLOOR MOUNTED MEP EQUIPMENT. INCLUDING EQUIPMENT MOUNTED ON VIBRATION ISOLATORS, BASE RAILS AND CONCRETE INERTIA BASES. CONTRACTOR TO COORDINATE LOCATIONS AND SIZES. REFER TO DETAIL ON THIS SHEET.
19. THE CONTRACTOR SHALL CONSULT THE ARCHITECTURAL, STRUCTURAL, ELECTRICAL, MECHANICAL, AND OTHER DRAWINGS RELATED TO THIS PROJECT FOR ADDITIONAL WORK TO BE PROVIDED.

GENERAL M & P PIPING NOTES

1. PIPING IS NOT PERMITTED ABOVE ELECTRICAL AND TELECOMMUNICATIONS ROOMS.
2. INSTALL ISOLATION VALVES AT ALL PIPING BRANCH TAPS (WATER, AIR, STEAM, ETC.). INCLUDE A UNION AT ALL THREADED VALVES TO ALLOW REMOVAL OR ADJUSTMENT.
3. FLUSH AND CLEAN ALL NEWLY INSTALLED CHILLED WATER, CONDENSER WATER, HEATING WATER, AND STEAM PIPING AND STRAINERS PRIOR TO PUTTING SYSTEMS INTO SERVICE. CONTRACTOR TO SUBMIT FLUSHING PLAN, INCLUDING PLAN DRAWINGS, PROPOSED EQUIPMENT AND CHEMICALS. VERIFY MINIMUM 10 FPS FLUSHING VELOCITIES WILL BE ACHIEVED IN ALL PIPE SIZES ND LINES. DO NOT FLUSH THROUGH EQUIPMENT. PROVIDE BYPASSES AND CONNECTIONS AS REQUIRED.
4. INSTALL VALVES IN TOP HALF OF HORIZONTAL PIPING WITH VALVE STEMS INCLINED AT A MINIMUM OF 30 DEGREES OR ONE FLANGE BOLT HOLE ABOVE HORIZONTAL TO MINIMIZE DEBRIS COLLECTING AROUND THE VALVE STEM.
5. WHEN JOINING DISSIMILAR METALS USE DIELECTRIC NIPPLES OR DIELECTRIC COUPLINGS FOR PIPING 2" AND SMALLER. USE DIELECTRIC FLANGE KITS ON LARGER PIPING. DIELECTRIC UNIONS ARE NOT ALLOWED. FOR PIPING SYSTEMS CONVEYING FLAMMABLE MATERIALS WHICH ARE REQUIRED BY CODE TO BE GROUNDED, INSTALL JUMPERS ACROSS DIELECTRIC FITTINGS AND FLANGES TO ENSURE A CONTINUOUS ELECTRICAL PATH.
6. PROVIDE PIPE HANGERS OR SUPPORTS PER THE BUILDING CODE AND ANSI/MSS SP-58 FOR ROD SIZES AND SPACING, AND IN ACCORDANCE WITH THE VIBRATION ISOLATION SCHEDULE..
    A. PROVIDE COATED OR COPPER PLATED HANGERS AND SUPPORTS FOR COPPER PIPING.
    B. PLACE HANGER WITHIN TWELVE INCHES OF EACH HORIZONTAL ELBOW.
    C. SUPPORTS, HANGERS, AND ASSOCIATED ATTACHMENTS TO STRUCTURAL SHALL BE DESIGNED BY THE CONTRACTOR'S STRUCTURAL ENGINEER. SUBMIT SHOP DRAWINGS AND CALCULATIONS STAMPED BY PROFESSIONAL ENGINEER FOR ALL INDIVIDUAL HANGER LOADS OVER 500 LBS. CALCULATIONS SHALL INCLUDE A 20% SAFETY FACTOR.
    D. ALL HANGER RODS SHALL HAVE A DOUBLE NUT ABOVE AND BELOW THE CLEVIS HANGER OR TRAPEZE STRUCTURAL MEMBER.
    E. ANCHORS TO BE INSTALLED IN EXISTING CONCRETE SHALL BE AN UNDERCUT STYLE, SUITABLE FOR BOTH CRACKED AND NON-CRACKED CONCRETE. ANCHORS SHALL BE TYPE 304 STAINLESS STEEL IN UNCONDITIONED SPACES AND GALVANIZED CARBON STEEL IN CONDITIONED SPACES, HILTI TYPE HDA OR EQUAL.
    F. PIPE WEIGHT TO INCLUDE WEIGHT OF WATER AND INSULATION FOR CALCULATIONS.
7. INERTIA BASES: INSTALL IN ACCORDANCE WITH THE VIBRATION ISOLATION SCHEDULE.
8. APPLY ADHESIVE PLASTIC PIPE MARKERS WITH INFORMATION INDICATING FLOW DIRECTION ARROW AND FLUID IN PIPE. INSTALL IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. APPLY ON NEW PIPING AT 20 FT. INTERVALS AND AT EACH CHANGE IN DIRECTION.
9. PROVIDE REDUCERS AT PIPING CONNECTIONS AS REQUIRED.
10. PROVIDE AUTOMATIC HIGH POINT AIR VENTS AND LOW POINT MANUAL DRAINS. ROUTE AIR VENT DISCHARGE TO NEAREST FLOOR DRAIN.
11. BRANCH PIPING SADDLE TAPS IN NEW PIPE SHALL BE LESS THAN 50% OF THE MAIN LINE SIZE.
12. HOT TAPS ARE NOT ALLOWED UNLESS APPROVED BY THE OWNER. HOT TAPS SHALL BE LESS THAN 50% OF THE MAIN LINE SIZE AND SHALL BE MADE IN THE TOP HALF OF HORIZONTAL PIPING. TURN COUPON OVER TO THE OWNER UPON COMPLETION OF EACH HOT TAP TO CONFIRM THAT IT IS NOT LOST IN THE PIPING SYSTEM.
13. EXPANSIVE SOILS: SUPPORT UNDER-SLAB PIPING FROM THE SLAB ABOVE AND ISOLATE FROM MOVEMENT OF THE EXPANSIVE SOIL. USE FLEX JOINT TO CONNECT TO SITE PIPING OUTSIDE OF THE BUILDING.
14. PRESSURE TEST ALL PIPING SYSTEMS PER APPLICABLE BUILDING AND ASME CODES.
15. PUMPS:
    A. USE ECCENTRIC REDUCERS FLAT ON TOP AT ALL HORIZONTAL PUMP SUCTION CONNECTIONS UNLESS NOTED OTHERWISE.
    B. INCLUDE FLEX CONNECTORS AT ALL FLANGED PUMP CONNECTIONS EQUAL TO METRAFLEX "CABLESPHERE" WITH CABLE CONTROL UNITS.
    C. PROVIDE SUCTION DIFFUSER ON END SECTION PUMP INLETS.
16. THERMAL EXPANSION (SYSTEMS 140F AND ABOVE):
    A. INSTALL FLEXIBLE U-BENDS EQUAL TO FLEX-HOSE TRI-FLEX LOOP. NO BELLOWS JOINTS ALLOWED.
    B. INSTALL ANCHORS AND GUIDES WHERE SHOWN ON THE PLANS. ATTACHMENT TO BUILDING STRUCTURE TO BE DESIGNED BY THE STRUCTURAL ENGINEER.
    C. TO COMPENSATE FOR VERTICAL PIPE EXPANSION WHERE THE BOTTOM OF THE PIPE IS FIXED, THE FIRST THREE PIPE HANGERS AFTER THE 90 DEG ELL AT THE TOP OF THE RISER SHALL HAVE SPRING ISOLATORS WITH 2" DEFLECTION.
17. VALVES:
    A. ISOLATION OR OPEN/CLOSE: 2" & BELOW - FULL-PORT BALL; >2" - LUG BODY BUTTERFLY
    B. BALANCING, ALL SIZES: BALL OR LUG BODY BUTTERFLY WITH MEMORY STOPS; GLOBE WHERE SPECIFICALLY SHOWN ON THE PLANS.
    C. GATE AND GLOBE VALVES TO BE RISING STEM TYPE.
    D. FURNISH VALVES WITH EXTENDED STEM FOR USE IN INSULATED PIPING.
    E. CONTROL VALVE BYPASS VALVE: GLOBE VALVE SIZED TO MATCH CONTROL VALVE.
    F. ALL VALVES TO BE THREADED, FLANGED OR GROOVED; NO SOLDER ENDS.
    G. ALL BUTTERFLY VALVES SHALL BE RATED FOR DEAD END SERVICE.
    E. FURNISH CHAIN-WHEEL OPERATORS FOR VALVES 6 INCHES AND LARGER MOUNTED OVER 8 FEET ABOVE FLOOR.
    F. LOCATE EQUIPMENT ISOLATION VALVES MINIMUM 7' AFF TO ALLOW ADEQUATE ROOM FOR EQUIPMENT SERVICE/REMOVAL/REPLACEMENT.
18. CHECK VALVES:
    A. INSTALL WAFER CHECK VALVES AT VERTICAL PUMP DISCHARGE.
    B. INSTALL SWING CHECK VALVES IN HORIZONTAL PIPING ONLY.
    C. INSTALL CHECK VALVES WITH 5 DIAMETERS STRAIGHT LENGTH UPSTREAM.
    D. SIZE CHECK VALVES FOR 3-8 FPS VELOCITY.
19. STRAINERS:
    A. INCLUDE A SINGLE PRESSURE GAUGE WITH TAPS ON BOTH SIDES OF THE STRAINER TO INDICATE PRESSURE DROP ACROSS THE STRAINER.
    B. INCLUDE BLOWDOWN VALVE WITH PIPE PLUG.
    C. WHERE THERE IS A BYPASS AROUND A PUMP, INSTALL THE STRAINER UPSTREAM OF SPLIT. IF A SUCTION DIFFUSER IS USED, ALSO INSTALL A WYE STRAINER IN THE BYPASS.
    D. WYE-STRAINERS SHALL BE INSTALLED WITH THE WYE BELOW 45 DEG IN HORIZONTAL PIPE OR IN DOWNWARD FLOW IN VERTICAL PIPING.
    E. PROVIDE ADEQUATE SPACE FOR REMOVAL OF STRAINER BASKETS.

MEP RESPONSIBILITY MATRIX

	FURNISH	INSTALL	POWER	CONTROL
			120V & UP	24V
MECHANICAL EQUIPMENT HOUSEKEEPING PADS	MC	MC		
ELECTRICAL EQUIPMENT HOUSEKEEPING PADS	EC	EC		
INERTIA BASES	MC	MC		
HANGERS & SUPPORTS, INCLUDING DESIGN	ALL	ALL		
DUCT SMOKE DETECTORS	MC	MC	EC	CC/FA
VFD'S - FWE	FWE	FWE	EC	CC
VFD'S - NOT FWE	MC	EC	EC	CC
STARTERS, DISCONNECTS - FWE	FWE	FWE	EC	CC
STARTERS, DISCONNECTS - NOT FWE	EC	EC	EC	CC
HEAT TRACE	MC	MC	EC	
HVAC TERMINAL UNITS (120V W/ 24V XFMR)	MC	MC	EC	CC
VALVES WITH ACTUATORS	CC	MC	EC	CC
DAMPERS - FWE - PACKAGED EQUIPMENT	FWE	FWE		FWE
DAMPERS - FWE - AHU'S	FWE	FWE		CC
DAMPERS - SEPARATE FROM EQUIPMENT	CC	MC		CC

NOTES:

1. FOLLOW THE RESPONSIBILITIES SHOWN ABOVE UNLESS NOTED OTHERWISE ON THE PLANS.
2. ABBREVIATIONS

FWE: FURNISHED WITH EQUIPMENT
ALL: ALL CONTRACTORS, BY DISCIPLINE
FA: FIRE ALARM CONTRACTOR
MC: MECHANICAL CONTRACTOR
EC: ELECTRICAL CONTRACTOR
CC: CONTROLS CONTRACTOR

DEMOLITION NOTES

EACH CONTRACTOR SHALL VERIFY DEMOLITION SCOPE OF WORK WITH THE GENERAL CONTRACTOR AND OWNER PRIOR TO REMOVAL OF ANY EXISTING MEP ELEMENTS SHOWN ON THE PLANS TO BE REMOVED. ROOF, WALLS, AND FLOORS AFFECTED BY DEMOLITION ARE TO BE PATCHED/REPAIRED TO MATCH EXISTING STRUCTURE. PIPES, DUCTS, OR CONDUIT IN THE FLOOR, EMBEDDED IN CONCRETE, OR OTHERWISE INACCESSIBLE ARE TO BE CUT OFF AND SEALED BELOW OR WITHIN FLOOR OR WALL LEVEL. CONFIRM THE EXTENT OF DEMOLITION WITH THE GENERAL CONTRACTOR PRIOR TO BID AND INCLUDE IN BID PROPOSAL AS DIRECTED.OWNER WILL DECONTAMINATE ALL EQUIPMENT, DUCTWORK, PIPING AND ASSOCIATED COMPONENTS, WHERE REQUIRED, PRIOR TO CONTRACTOR CUTTING AND REMOVING THESE MATERIALS.

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G2LG ENGINEERS

SHEET TITLE : MEP NOTES
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MECHANICAL APPROVAL
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MECHANICAL ONE-LINE DIAGRAM

- SIDEWALL REGISTER TAP
- BRANCH DUCT TAP (w/ SMACNA 45° FITTING) — VD
- SPIN-IN DUCT TAP — VD
- CONICAL DUCT TAP
- AIR INTAKE
- PROCESS EXHAUST
- CHILLED WATER — C C
- HEATING COIL — H C
- FAN
- PRIMARY FILTER (30%) — AF
- SECONDARY FILTER (85%) — FF
- FINAL FILTER — F F
- PRE-FILTER (30%) — A F
- AIR OUTLET w/ HEPA FILTER (99.99%) — HEPA
- AIR OUTLET w/ ULPA FILTER (99.999%) — ULPA
- HUMIDIFIER

MECHANICAL ONE-LINE DIAGRAM

- DIRECTION OF FLOW
- DUCT SIZE, FIRST FIGURE IS SIDE SHOWN (DIMENSIONS ARE CLEAR INSIDE, U.N.O.) — 24/12
- CONCENTRIC DUCT REDUCER
- ECCENTRIC DUCT REDUCER
- SQUARE DUCT TO ROUND DUCT
- DUCT CAP
- ROUND DUCT DOWN
- ROUND DUCT UP
- RECTANGULAR RETURN DUCT DOWN
- RECTANGULAR RETURN DUCT UP
- RECTANGULAR SUPPLY DUCT DOWN
- RECTANGULAR SUPPLY DUCT UP
- FLEXIBLE DUCT TO DIFFUSER DROP
- CHANGE OF ELEVATION UP OR DOWN IN DIRECTION OF AIRFLOW — D, R
- DUCT LINING (ie. FIRE, ACOUSTICAL, THERMAL) AS SPECIFIC
- RADIUS ELBOW (45° & 90°)
- RECTANGULAR ELBOW (45° & 90°)
- RECTANGULAR 90° SPLIT — VD, VD
- RECTANGULAR TEE SPLIT (NO VOLUME DAMPER REQUIRED ON EQUAL SPLITS) — VD, VD
- RADIUS TEE SPLIT — VD, VD

MECHANICAL TWO-LINE DIAGRAM

- DUCT TRANSITION (SQUARE TO ROUND)
- DUCT CAP
- 90° RECTANGULAR TURNING VANE
- SOUND ATTENUATOR
- TRANSFER DUCT w/ INTERNAL LINING
- RECTANGULAR 90° SPLIT
- RECTANGULAR TEE SPLIT (NO VOLUME DAMPER REQUIRED ON EQUAL SPLITS)
- RADIUS TEE SPLIT
- SIDEWALL REGISTER TAP
- BRANCH DUCT TAP (w/ SMACNA 45° FITTING) — VD
- SPIN-IN DUCT TAP — VD
- CONICAL DUCT TAP
- INTERNAL DUCT LINING
- CHANGE OF ELEVATION (RISE OR DROP) IN DIRECTION OF AIRFLOW — R, D

MECHANICAL TWO-LINE DIAGRAM

- DIRECTION OF FLOW
- DUCT SIZE, FIRST FIGURE IS SIDE SHOWN (DIMENSIONS ARE INSIDE CLEAR) — 30x12
- SHORT ROUND ELBOW (45° & 90°) CENTERLINE RADIUS = 1.0 * WIDTH
- LONG ROUND ELBOW (45° & 90°) CENTERLINE RADIUS = 1.5 * WIDTH
- RECTANGULAR ELBOW (45° & 90°)
- RECTANGULAR/ROUND RETURN DUCT UP
- RECTANGULAR/ROUND RETURN DUCT DOWN
- RECTANGULAR/ROUND EXHAUST DUCT UP
- RECTANGULAR/ROUND EXHAUST DUCT DOWN
- RECTANGULAR/ROUND SUPPLY DUCT UP
- RECTANGULAR/ROUND SUPPLY DUCT DOWN
- FLEXIBLE DUCT DIFFUSER DROP
- LONG RADIUS TEE SPLIT 90°
- SHORT RADIUS TEE SPLIT 90°
- RECTANGULAR TEE SPLIT (NO VOLUME DAMPER REQUIRED ON EQUAL SPLITS)
- DUCT SPLIT 90° TEE
- CONCENTRIC REDUCER, DUCT TRANSITION (ROUND TO ROUND, SQUARE TO SQUARE)
- (ROUND TO SQUARE, SQUARE TO ROUND)
- ECCENTRIC REDUCER, DUCT TRANSITION (ROUND TO ROUND, SQUARE TO SQUARE)
- (ROUND TO SQUARE, SQUARE TO ROUND)

GENERAL SYMBOLS

- SECTION/DETAIL CALL OUT — #; DRAWING TITLE; SECTION OR DETAIL NO.; FLOOR PLAN; 1/8" = 1'-0"; SCALE OF SECTION, DETAIL OR DRAWING
- CROSS SECTION CALL OUT — DIRECTION OF CUTTING PLANE; LONGITUDINAL OR CROSS SECTION NO.; # / M-#; SHEET NO. ON WHICH SECTION IS DRAWN
- DETAIL REFRENCE CALL OUT — DETAIL NO.; # / M#-#; SHEET ON WHICH DETAIL IS DRAWN
- ELEVATION CALL OUT — SURFACE SHOWN IN ELEVATION; ELEVATION NO.; # / M#-#; SHEET ON WHICH ELEVATION IS DRAWN
- ENLARGED CALL OUT — DETAIL NO.; #/M#-#; AREA OF ENLARGED DETAIL; SHEET ON WHICH ENLARGED DETAIL IS DRAWN
- INDICATED PLAN NORTH — NORTH
- NEW CONSTRUCTION KEYED NOTE — #
- REVISION NUMBER — #
- POINT OF CONNECTION
- POINT OF DEMARCATION/ DISCONNECT
- DIRECTION OF FLOW ARROW
- SLOPE ARROW W/ PERCENTAGE — 1%
- RISER DESIGNATION — PIPING TYPE; P / 1; RISER NUMBER
- PIPE CONTINUATION, SINGLE LINE
- PIPE CONTINUATION, DOUBLE LINE

DRAWING SCHEDULE

NUMBER	TITLE
M0.0	MEP GENERAL NOTES
M0.1	MECHANICAL SYMBOLS
M0.2	MECHANICAL GENERAL NOTES
M0.3	MECHANICAL SHEET SPECS
M0.4	MECHANICAL SHEET SPECS
M0.5	MECHANICAL SHEET SPECS
M1.1	MECHANICAL HVAC PLAN
M2.1	MECHANICAL SCHEDULES
M2.3	MECHANICAL DETAILS

FANS

- CENTRIFUGAL
- PLUG
- AXIAL FLOW/PROPELLER
- ROOF MOUNTED EXHAUST
- ROOF MOUNTED OUTSIDE AIR INTAKE
- ROOF MOUNTED LOUVERED VENTILATION HOOD
- ROOF MOUNTED SUPPLY

GRILLES, REGISTERS, & DIFFUSERS

- DUCTED EXHAUST/RETURN REGISTER, CEILING
- RETURN GRILLE TO CEILING PLENUM
- SUPPLY DIFFUSER, CEILING
- SUPPLY DIFFUSER, CEILING, THERMAFUSER
- EXHAUST/RETURN GRILLE OR REGISTER, SIDEWALL
- SUPPLY GRILLE OR REGISTER, SIDEWALL
- SLOT DIFFUSER
- SLOT DIFFUSER - CONTINUOUS
- HEPA FILTERS

DAMPERS

- COMBINATION FIRE/SMOKE DAMPER
- FIRE DAMPER
- SMOKE DAMPER
- MANUAL DAMPER
- MOTORIZED DAMPER — M
- BACKDRAFT DAMPER — D

MECHANICAL DEVICES

- TEMPERATURE SENSOR — TS
- HUMIDITY SENSOR — HS
- CO2 SENSOR — CO
- TEMPERATURE & CO2 SENSOR — TC
- TEMPERATURE & HUMIDITY SENSOR — TH
- THERMOSTAT — T
- HUMIDISTAT — H

MECHANICAL TAGS

EQUIPMENT TAG

- TYPE/MARK (SEE SCHEDULE) — X-1
- EXISTING EQUIPMENT TO REMAIN — (E)X-1
- EXISTING EQUIPMENT TO BE RELOCATED — (R)X-1

DIFFUSER TAG

- TYPE — X | 500 — CFM
- NECK SIZE — X" — TYP. X — No. OF DIFFUSERS

LINETYPE LEGEND

- DEMOLITION (D) — 20Ø DEMO
- EXISTING TO REMAIN (E) — 20Ø EX.
- NEW WORK — 20Ø SA

MECHANICAL APPROVAL

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GENERAL MECHANICAL NOTES

1. COORDINATE LOCATION OF AIR DEVICES WITH ARCHITECTURAL REFLECTED CEILING PLANS. TO ACHIEVE THE BEST COMBINATION OF PERFORMANCE AND AESTHETICS, THE FINAL LOCATIONS OF AIR DEVICES SHALL BE DETERMINED FROM THE ARCHITECTURAL REFLECTED CEILING PLANS. NO CHANGES TO AIR DEVICE LOCATIONS SHALL BE MADE WITHOUT PRIOR APPROVAL OF THE ARCHITECT AND ENGINEER. SPRAY PAINT INTERIOR OF DUCTWORK BEHIND OR ABOVE AIR DEVICES TO 12" INSIDE DUCTWORK OPENING WITH FLAT BLACK PAINT TO OBSCURE DUCT INTERIOR. LOCATE LOUVERED RETURN GRILLE BLADES SUCH THAT VISION INTO DUCT INTERIOR IS RESTRICTED.
2. ALL DUCT SIZES ARE INSIDE CLEAR DIMENSIONS IN INCHES.
3. BALANCING DAMPERS ARE REQUIRED AT ALL SUPPLY, RETURN, AND EXHAUST BRANCH CONNECTIONS. REMOTE DAMPER OPERATOR FOR ALL DAMPERS LOCATED ABOVE HARD OR INACCESSIBLE CEILINGS.
4. FLEX DUCT AND ROUND CONNECTIONS TO MAIN DUCT OR BRANCH DUCTS SHALL BE MADE VIA SPIN-IN OR DOVE-TAILED CONICAL TAPS WITH DAMPERS. ALL RECTANGULAR DUCT BRANCHES TAP TO BE MADE WITH 45 DEG SMACNA TAP FITTING.
5. ROUTE ALL SUPPLY AIR DUCT TIGHT TO STRUCTURE UNLESS OTHERWISE NOTED. MAKE TRANSITIONS FLAT ON TOP.
6. FURNISH AND INSTALL ALL MITERED ELBOWS WITH TURNING VANES. RADIUSED RECTANGULAR ELBOWS SHALL HAVE CENTER LINE RADIUS TO WIDTH RATIO (R/W) OF 1.5 UNLESS OTHERWISE SPECIFIED. ALL ROUND ELBOWS SHALL HAVE A CENTERLINE RADIUS TO DIAMETER RATIO (R/D) OF 1.5 UNLESS SHORT RADIUS ELBOWS ARE CALLED FOR ON THE PLANS IN WHICH CASE THE R/D RATIO SHALL BE 1.0.
7. FLEXIBLE DUCTS SHALL NOT EXCEED 5' IN LENGTH. DUCT SHALL HAVE AN INTERNAL DIMENSION EQUAL TO THE CONNECTING ROUND DUCT DIMENSION.
8. INSULATE EXTERIOR OF ALL SUPPLY AIR DIFFUSERS.
9. FLEXIBLE COLLARS SHALL BE FURNISHED AND INSTALLED AT ALL CONNECTIONS BETWEEN VIBRATING EQUIPMENT (FANS, AIR HANDLERS, ROOFTOP UNITS, ETC.) AND DUCTS OR CASINGS. ALSO FURNISH AND INSTALL FLEXIBLE CONNECTIONS WHERE DUCTS CROSS BUILDING EXPANSION JOINTS.
10. LINED RETURN AIR TRANSFER BOOTS SHALL BE INSTALLED THROUGH WALLS AS REQUIRED TO PROVIDE A CONTINUOUS RETURN AIR PATH TO THE AIR HANDLING UNITS.
11. PROVIDE FIRE DAMPERS, SMOKE DAMPERS, AND COMBINATION FIRE/SMOKE DAMPERS WHERE SHOWN ON THE PLANS AND WHERE DUCTWORK PENETRATES FLOORS, FIRE WALLS AND HVAC CHASES REQUIRING PROTECTION IF NOT OTHERWISE SHOWN. ALL FIRE DAMPERS SHALL HAVE A 1.5 HOUR RATING UNLESS NOTED OTHERWISE. ENDS OF DAMPER SHAFTS SHALL BE SCORED TO INDICATE OPEN/CLOSED POSITION. PROVIDE FSD'S WITH OPTIONAL NO-FLOW RATED DUCT SMOKE DETECTOR. INSTALL FD'S, SD'S AND FSD'S IN STRICT ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS IN ORDER TO MAINTAIN THEIR UL LISTING. PROVIDE, INSTALL AND LABEL MINIMUM 14" X 14" DUCT ACCESS DOORS WITHIN 12" OF ALL FD, SD, AND FSD LOCATIONS.
12. INSTALL WALL LOUVERS AND CONNECTING DUCTWORK PER MANUFACTURER'S INSTRUCTIONS. PITCH BOTTOM OF CONNECTING DUCT OR PLENUM TO OUTSIDE WHERE IT CONNECTS TO THE LOUVER SO THAT ANY MOISTURE CARRYOVER WILL DRAIN TO OUTSIDE. INSTALL 12" WIDE ACCESS DOOR HALF THE HEIGHT OF THE DUCT, MINIMUM 12" HIGH, WITHIN 6" OF THE LOUVER UNLESS NOTED OTHERWISE ON THE PLANS.
13. DUCTWORK AND ROOFTOP EQUIPMENT ACCESSORIES SHALL BE SECURED TO STRUCTURE TO WITHSTAND THE SAME WIND LOADING REQUIREMENTS AS THE ROOF CURB AND EQUIPMENT.
14. SUBMIT SAMPLES OF CONTRACTOR-FABRICATED WELDED DUCT SYSTEMS.
15. INSULATE HOT WATER COIL CASING AT EACH VAV TERMINAL UNIT.
16. INSTALL A NEW SET OF AIR FILTERS ON ALL APPLICABLE EQUIPMENT AT COMPLETION OF PROJECT.
17. COORDINATE HOUSEKEEPING PAD HEIGHTS WITH CONDENSATE P-TRAP.
18. PROVIDE SECONDARY CONDENSATE DRAIN PAN AND FLOAT SWITCH FOR EQUIPMENT WITH COOLING COILS SUSPENDED ABOVE CEILING, WITH FLOAT SWITCH WIRED TO SHUT OFF UNIT.
19. AN NEBB, TABB, OR AABC CERTIFIED CONTRACTOR SHALL BALANCE ALL AIRSIDE AND WATERSIDE SYSTEMS, INCLUDING ROOM PRESSURE CASCADE DIFFERENTIAL PRESSURES, TO WITHIN +10%/-5% OF THE QUANTITIES AND FLOWRATES SHOWN ON THE DRAWINGS. FURNISH A CERTIFIED TESTING AND BALANCING REPORT TO THE ENGINEER FOR REVIEW AND APPROVAL.
20. PROVIDE AND INSTALL A LABEL ON THE CEILING GRID OR WALL DIRECTLY UNDER OR ADJACENT TO ALL CONCEALED MECHANICAL EQUIPMENT, ISOLATION VALVES, AND CONTROL DEVICES. THE LABEL SHALL CONTAIN EQUIPMENT TAG NUMBER AND POWER SOURCE (IF APPLICABLE), ISOLATION VALVE SIZE AND SYSTEM, OR CONTROL ELEMENT IDENTIFICATION NUMBER.

GENERAL MECHANICAL DEMO NOTES

1. EXISTING EQUIPMENT, DUCTWORK & PIPING LOCATIONS AND SIZES HAVE BEEN OBTAINED FROM ORIGINAL CONSTRUCTION DRAWINGS AND FIELD INVESTIGATIONS AND ARE SCHEMATIC IN NATURE. FIELD VERIFY LOCATIONS AND SIZES.
2. ITEMS SHOWN LIGHT ARE EXISTING TO REMAIN. ITEMS SHOWN BOLD AND DASHED ARE EXISTING TO BE REMOVED.
3. DEMOLITION OF ALL PIPING AND DUCTWORK SHALL INCLUDE ALL SUPPORTS, HANGERS, INSULATION, THERMOSTATS, AND FIRE DAMPERS UNLESS OTHERWISE NOTED.
4. REMOVE ALL HVAC, CHILLED WATER, HEATING WATER, STEAM, AND STEAM CONDENSATE SYSTEMS IN THEIR ENTIRETY, INCLUDING MATERIALS AND APPURTENANCES, UNLESS NOTED OTHERWISE ON THE PLANS. WHERE CONTRACT DRAWINGS INDICATE SPECIFIC MATERIALS OR DEVICES TO BE REMOVED, THIS IS TO BE UNDERSTOOD AS AN AID IN IDENTIFYING MECHANICAL SYSTEMS, NOT A LIMIT TO THE SCOPE.
5. REMOVE MECHANICAL EQUIPMENT AND RETURN TO OWNER FOR RIGHT OF FIRST REFUSAL. DELIVER ACCEPTED ITEMS TO OWNER DESIGNATED LOCATION. ITEMS NOT KEPT BY OWNER SHALL BE STORED AND DISPOSED OF OFF SITE ACCORDING TO LOCAL REGULATIONS.
6. REFER TO ELECTRICAL DRAWINGS FOR INFORMATION ON ELECTRICAL DEMO.
7. THE CONTRACTOR IS RESPONSIBLE FOR THE PROTECTION OF ALL EXISTING UTILITIES AND FINISHES NOT BEING REPLACED OR REMOVED.

GENERAL CONTROLS NOTES

1. ACTUATORS (UNLESS NOTED OR SHOWN OTHERWISE ON THE PLANS):
   A. MODULATING ACTUATORS TO FAIL IN PLACE (AS IS).
   B. TWO-POSITION ACTUATORS SHALL FAIL AS SHOWN ON PLANS.
   C. CONTROL SIGNAL: 4-20mA
2. CONTROLS CONTRACTOR TO REVIEW ELECTRICAL DRAWINGS FOR ADDITIONAL BAS INTEGRATION REQUIREMENTS INCLUDING PROVISIONS IN DDC PANEL LOCATIONS AND POWER.
3. BAS CONTROL PANELS AND SYSTEM COMPONENTS TO MEET APPROPRIATE UL LISTING.
4. NOTIFY ENGINEER IF VFD COMMUNICATIONS CARDS ARE NOT COMPATIBLE WITH CHOSEN BAS.
5. PROVIDE DIFFERENTIAL PRESSURE SENSORS IN LIEU OF CT'S FOR FAN RUN STATUS UNLESS OTHERWISE NOTED.
6. ALL NEW THERMOSTATS SHOWN SHALL BE ELECTRONIC, PROGRAMMABLE TYPE CAPABLE OF TIME-OF-DAY SCHEDULING WITH MINIMUM OF 7 DAY PROGRAMS AND 4 CYCLES PER DAY, AUTOMATIC HEATING/COOLING CHANGEOVER, AND SETPOINT CONTROL. INVLUDE WIFI CAPABILITY WHERE SHOWN ON PLANS.
7. EACH VAV TERMINAL UNIT AND FAN COIL UNIT SHALL BE CONTROLLED BY A SEPARATE TEMPERATURE SENSOR/THERMOSTAT.
8. ALL WALL MOUNTED ROOM THERMOSTATS SHALL BE LOCATED 48" A.F.F. SO LONG AS OBSTRUCTIONS ARE 20" DEEP OR LESS. ALL OTHER CONDITIONS TO BE REVIEWED. THEY SHALL BE CENTERED ADJACENT TO LIGHT SWITCHES WHERE BOTH OCCUR IN THE SAME LOCATION. WHERE LOCATED ON COLUMN, THERMOSTAT SHALL BE CENTERED. TEMPERATURE SENSORS SHALL BE MOUNTED AT 70" A.F.F. SENSORS MOUNTED ON EXTERIOR COLUMNS SHALL BE MOUNTED ON INSULATED BASES. CONFIRM EXACT LOCATIONS OF THERMOSTATS WITH OWNER. THE MECHANICAL CONTRACTOR IS TO COORDINATE WITH THE OWNER AND PROGRAM ALL THERMOSTATS TO OWNER'S SPECIFIC SCHEDULE (IF APPLICABLE).

MEP GENERAL NOTES

REF. MEP00 MEP GENERAL NOTES FOR ADDITIONAL INFORMATION.

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23 00 00 - GENERAL MECHANICAL REQUIREMENTS

1. GENERAL
1.1. SUMMARY
1.1.1. SECTION INCLUDES:
1.1.2. GENERAL REQUIREMENTS.
1.1.3. DEFINITIONS.
1.1.4. CONTRACTOR QUALIFICATIONS.
1.1.5. SAFETY.
1.1.6. QUALITY CONTROL.
1.1.7. SUBMITTALS.
1.1.8. SUBSTITUTIONS.
1.1.9. SUSTAINABLE DESIGN.
1.1.10. DELIVERY, STORAGE, AND HANDLING.
1.1.11. SEQUENCING AND SCHEDULING.
1.1.12. UTILITY CONNECTIONS AND PERMITS.
1.1.13. COMPLETION OF WORK.
1.1.14. GUARANTEE AND WARRANTIES.
1.1.15. MAINTENANCE AND SERVICE.
1.1.16. PROJECT RECORD DOCUMENTS.
1.1.17. MAINTENANCE DOCUMENTS AND INSTRUCTIONS.
1.1.18. DIELECTRIC FITTINGS.
1.1.19. ASBESTOS.
1.1.20. DEMOLITION.
1.1.21. ROUGH-IN.
1.1.22. MECHANICAL INSTALLATIONS.
1.1.23. CUTTING AND PATCHING.
1.1.24. EARTHWORK.
1.1.25. SAMPLE ELECTRICAL COORDINATION SUBMITTAL FORM.

1.2. GENERAL REQUIREMENTS
1.2.1. IT IS THE INTENT OF THE CONTRACT DOCUMENTS TO PROVIDE AN INSTALLATION COMPLETE IN EVERY RESPECT. WORK SHALL BE EXECUTED IN A WORKMANLIKE MANNER AND SHALL INCLUDE ALL LABOR, MATERIALS, AND SUPERVISION ESSENTIAL TO PROVIDE COMPLETE FUNCTIONING SYSTEMS AS DESCRIBED IN THE CONTRACT DOCUMENTS.
1.2.2. CONFLICT RESOLUTION: WHERE CONFLICTS MAY EXIST BETWEEN THE MINIMUM REQUIREMENTS OF VARIOUS LAWS, CODES, AUTHORITIES, AND/OR WITHIN THE CONTRACT DOCUMENTS, THE HIGHER QUALITY, GREATER QUANTITY, MORE RESTRICTIVE AND/OR MORE EXPENSIVE REQUIREMENT SHALL BE THE BASIS OF CONTRACTOR PRICING AND THE CONTRACTOR SHALL NOTIFY THE ENGINEER FOR THE RESOLUTION OF THE ISSUE PRIOR TO EXECUTING THE WORK IN QUESTION.
1.2.3. SHOULD ANY ERRORS, OMISSIONS, CONFLICTS, OR AMBIGUITIES EXIST IN THE DRAWINGS, THE CONTRACTOR SHALL BRING THESE TO THE ATTENTION OF THE ENGINEER IMMEDIATELY FOR ADJUSTMENT IN WRITING BEFORE SIGNING THE CONTRACT OR PROCEEDING WITH THE WORK. OTHERWISE, HE SHALL AT HIS OWN EXPENSE, SUPPLY THE PROPER MATERIALS AND LABOR TO MAKE GOOD ANY DAMAGE OR DEFECT CAUSED BY SUCH UNINTENTIONAL ERROR.
1.2.4. CONTRACTOR IS RESPONSIBLE FOR CHECKING ALL CONTRACT DOCUMENTS, FIELD CONDITIONS AND DIMENSIONS FOR ACCURACY, AND CONFIRMING THAT THE WORK IS BUILDABLE AS SHOWN AND MEETS ALL APPLICABLE CODES BEFORE PROCEEDING WITH CONSTRUCTION. IF THERE ARE ANY QUESTIONS REGARDING THESE OR OTHER COORDINATION ISSUES, THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING A CLARIFICATION FROM THE ENGINEER BEFORE PROCEEDING WITH THE WORK IN QUESTION OR RELATED WORK.
1.2.5. FIELD CONDITIONS: THE CONTRACTOR IS RESPONSIBLE FOR VISITING THE JOBSITE AND VERIFYING THE SCOPE OF WORK REQUIRED INCLUDING ALL EXISTING CONDITIONS, LOCATIONS, DIMENSIONS, AND QUANTITIES AS SHOWN AND NOTED ON THE DRAWINGS AND THE EXTENT AND EFFECT OF EXISTING SYSTEMS.
1.2.6. DEVIATIONS TO THE INTENDED DESIGN OR THE SCOPE OF THE WORK MUST BE APPROVED BY THE PROJECT ENGINEER PRIOR TO COMMENCING WORK. FAILURE TO DO SO MAY RESULT IN THE WORK TO BE REMOVED AT NO COST TO THE OWNER.
1.2.7. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH ALL APPLICABLE LOCAL CODES, STANDARDS, AND AMENDMENTS AND/OR OTHER AUTHORITIES THAT MAY HAVE JURISDICTION PERTAINING TO THE WORK. IN ADDITION, ALL WORK SHALL CONFORM TO THE STANDARDS AND PRACTICES OF THE OWNER.
1.2.8. COORDINATION:
1.2.9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ENSURING FULL COORDINATION WITH OTHER TRADES AND CONTRACTORS TO ACCOMPLISH THE WORK AS SHOWN AND NOTED IN THESE CONTRACT DOCUMENTS.
1.2.10. THE CONTRACTOR SHALL NOT PURCHASE, FABRICATE OR INSTALL ITEMS AS SHOWN ON THE DRAWINGS IF THERE ARE DISCREPANCIES OR CONFLICTS BETWEEN THE EXISTING CONDITIONS AND THE INFORMATION SHOWN ON THE DRAWINGS UNTIL SUCH DISCREPANCIES HAVE BEEN RESOLVED.
1.2.11. DUCTWORK, PIPING, CONDUIT, CABLING, ETC. SHOWN ON DRAWINGS SHALL BE COORDINATED WITH AIR DISTRIBUTION DEVICES, SPECIAL CEILING, FLOOR, AND STRUCTURE CONSTRUCTION, ETC. PROVIDE ADDITIONAL RISES AND DROPS TO THOSE INDICATED ON THE DRAWINGS AS REQUIRED TO COORDINATE WITH ARCHITECTURAL, STRUCTURAL OR MEP ELEMENTS SHOWN ON THE CONTRACT DOCUMENTS. ALL UTILITIES SHALL BE ROUTED IN AN ORDERLY MANNER, GROUPED TOGETHER WHEREVER POSSIBLE, AND LOCATED SO AS TO CONSERVE BUILDING SPACE. DUCTWORK, PIPING, CONDUIT, CABLING, ETC. SHOWN ON EACH PLAN IS RUN ABOVE THE CEILING ON THE FLOOR WHERE IT IS SHOWN UNLESS OTHERWISE NOTED.
1.2.12. COORDINATE LOCATIONS OF NEW AND EXISTING ROOF PENETRATIONS TO MINIMIZE NUMBER OF OPENINGS. ROOF PENETRATIONS SHALL BE MADE WITHIN ROOF CURB. ELECTRIC AND REFRIGERANT LINES TO USE SAME PENETRATIONS WHERE POSSIBLE.
1.2.13. RECORD DRAWINGS: THE CONTRACTOR SHALL MAINTAIN THEIR SET OF CONSTRUCTION DRAWINGS ON SITE AT ALL TIMES SO THAT ALL CHANGES BETWEEN THE DRAWINGS AND THE ACTUAL CONSTRUCTION CAN BE NOTED ON THE DRAWINGS. THIS INCLUDES ALL DEVIATIONS FROM THE ORIGINAL CONTRACT. AT THE END OF CONSTRUCTION, THE CONTRACTOR SHALL SIGN AND DATE THE DRAWINGS CERTIFYING THAT THEY ARE AN ACCURATE REFLECTION OF THE ACTUAL CONSTRUCTION. RECORD DRAWINGS ARE TO BE DELIVERED TO THE OWNER. NOTE THAT THE FINAL INVOICE FOR THE CONTRACT WILL NOT BE PAID BY THE OWNER UNTIL FINAL RECORD DRAWINGS ARE RECEIVED.
1.2.14. ALL WORK NOTED "NIC" OR "NOT IN CONTRACT" IS TO BE ACCOMPLISHED BY ANOTHER CONTRACTOR AND IS NOT TO BE PART OF THE CONSTRUCTION AGREEMENT.

1.3. CONTRACTOR QUALIFICATIONS
1.3.1. GENERAL: THE FIRMS THAT PERFORM THE INSTALLATION OF THE WORK UNDER THIS DIVISION OF SPECIFICATIONS SHALL BE ONE THAT MAINTAINS AN ESTABLISHED, EXPERIENCED ORGANIZATION WITH A PERMANENT, MANNED OFFICE WITHIN A RADIUS OF 150 MILES OF THE PROJECT LOCATION.
1.3.2. CONTRACTOR'S PROFICIENCY: THE FIRM'S PROFICIENCY IN THE INSTALLATION, START_UP, ADJUSTMENT AND MAINTENANCE OF SPECIFIED SYSTEMS SHALL HAVE BEEN DEMONSTRATED BY THE SUCCESSFUL PERFORMANCE OF WORK ON AT LEAST THREE SYSTEMS AS SPECIFIED HEREIN IN THE LAST THREE YEARS.
1.3.3. SAFETY
1.3.4. CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE SAFETY STANDARDS INCLUDING, BUT NOT LIMITED TO OSHA STANDARDS AND OWNER'S REQUIREMENTS.
1.3.5. WORK AREAS SHALL BE KEPT CONTINUOUSLY, AT ALL TIMES, FREE OF DEBRIS AND NON-HAZARDOUS MATERIAL TO THE SATISFACTION OF THE PROJECT COORDINATOR. AFTER PROJECT COMPLETION, THE SITE SHALL BE CLEANED UP AND RESTORED TO ITS CONDITION OR BETTER PRIOR TO THE START OF THE PROJECT TO THE SATISFACTION OF THE PROJECT COORDINATOR.

1.4. QUALITY CONTROL
1.4.1. COMPLY WITH MANUFACTURERS' INSTRUCTIONS, INCLUDING EACH STEP IN SEQUENCE.
1.4.2. SHOULD MANUFACTURERS' INSTRUCTIONS CONFLICT WITH CONTRACT DOCUMENTS, REQUEST CLARIFICATION FROM ENGINEER BEFORE PROCEEDING.

1.5. SUBMITTALS
1.5.1. CONTRACTOR SHALL PROVIDE PRODUCT DATA SUBMITTALS, IN .PDF FORMAT, ON ALL MAJOR EQUIPMENT, COMPONENTS, AND MATERIALS SPECIFIED IN THESE PLANS FOR ENGINEER'S AND OWNER'S REVIEW AND ACCEPTANCE PRIOR TO INSTALLATION.
1.5.2. EACH SUBMITTAL SHALL INCLUDE THE PROJECT TITLE, ARCHITECT, ENGINEER, CONTRACTOR'S NAMES, SPECIFICATION SECTION NUMBER AND TITLE, SUBMITTAL NUMBER FOR TRACKING AND SHALL BE LIMITED TO A SINGLE DIVISION 23 SPECIFICATION SECTION.
1.5.3. CONTRACTOR REVIEW: THE CONTRACTOR SHALL CHECK DATA CAREFULLY TO ENSURE COMPLIANCE WITH THESE SPECIFICATIONS PRIOR TO SUBMITTING.
1.5.4. SUBMITTAL DATA FOR SECTION 23 00 00 - GENERAL MECHANICAL REQUIREMENTS:
1.5.5. SHOP DRAWINGS: THE CONTRACTING TEAM SHALL CREATE SHOP DRAWINGS NECESSARY TO INSTALL THE MECHANICAL SYSTEMS PER THE CONTRACT DOCUMENTS. SHOP DRAWINGS SHALL BE SUBMITTED TO THE AE TEAM FOR REVIEW PRIOR TO PURCHASING OR INSTALLATION OF MATERIALS.
1.5.6. SUBMITTAL DATA FOR OTHER DIVISION 23 SPECIFICATION SECTIONS SHALL INCLUDE:
1.5.7. COMPLIANCE DATA: INDICATING THE PRODUCT'S COMPLIANCE WITH STANDARDS REFERENCED IN THESE SPECIFICATIONS.
1.5.8. PUBLISHED LITERATURE: INDICATE DIMENSIONS, WEIGHTS, CAPACITIES, RATINGS, HORSEPOWER, GAGES, AND FINISHES OF MATERIALS, AND ELECTRICAL CHARACTERISTICS AND CONNECTION REQUIREMENTS.
1.5.9. PERFORMANCE DATA: PERFORMANCE DATA INCLUDING FAN CURVES, PUMP CURVES, AND EQUIPMENT OUTPUT CAPACITIES COMPLETE WITH RATING CONDITIONS AS SCHEDULED ON CONTRACT DRAWINGS.
1.5.10. SOUND POWER LEVEL DATA: EQUIPMENT SOUND POWER LEVEL AT 63, 125, 250, 500, 1000, 2000, 4000, AND 8000 HZ OCTAVE BAND CENTER FREQUENCIES PLUS DB A WEIGHTED SOUND LEVEL.
1.5.11. ELECTRICAL REQUIREMENTS: POWER SUPPLY WIRING INCLUDING WIRING DIAGRAMS FOR INTERLOCK AND CONTROL WIRING, CLEARLY INDICATING FACTORY-INSTALLED AND FIELD-INSTALLED WIRING.
1.5.12. SHOP DRAWINGS: INDICATE ASSEMBLY, UNIT DIMENSIONS, WEIGHT LOADING, REQUIRED CLEARANCES, CONSTRUCTION DETAILS, FIELD CONNECTION DETAILS, AND ELECTRICAL CHARACTERISTICS AND CONNECTION REQUIREMENTS.
1.5.13. MANUFACTURER'S INSTRUCTIONS: INCLUDE INSTALLATION INSTRUCTIONS.
1.5.14. CALCULATIONS: DESIGN AND/OR DESIGN CALCULATIONS WHERE REQUIRED IN OTHER DIVISION 23 SECTIONS.

1.6. SUBSTITUTIONS
1.6.1. BASIS OF DESIGN: MODEL NUMBERS INDICATED ON THE DRAWINGS ARE THE BASIS OF DESIGN. THE CONTRACTOR MAY REQUEST SUBSTITUTION OF EQUAL EQUIPMENT FROM ALTERNATE MANUFACTURERS PROVIDED SAID EQUIPMENT MEETS ALL REQUIREMENTS OF THE PLANS AND SPECIFICATIONS, HAS LIKE ELECTRICAL CHARACTERISTICS (E.G., SAME VOLTAGE, PHASE, FUSING/CIRCUIT BREAKER REQUIREMENTS, SINGLE OR MULTIPLE POINTS OF CONNECTION AS INDICATED ON THE ELECTRICAL DRAWINGS), AND WILL FIT IN THE AVAILABLE SPACES IN THE BUILDING AS SHOWN.
1.6.2. IF THE CONTRACTOR CHOOSES TO PROVIDE EQUIPMENT WHICH MEETS ALL REQUIREMENTS, BUT HAS DIFFERENT CONNECTION SIZES AND/OR LOCATIONS, DIFFERENT WEIGHT OR FOOTPRINT, OR ELECTRICAL CHARACTERISTICS (ETC.), THEY SHALL BEAR ALL COSTS ASSOCIATED WITH THE INSTALLATION OF THAT SUBSTITUTION INCLUDING AE TEAM LABOR TO MODIFY THE DESIGN DOCUMENTS. ALL REQUIRED MODIFICATIONS SHALL BE COORDINATED WITH THE ENGINEER, THE GENERAL CONTRACTOR, AND AFFECTED SUBCONTRACTORS OF OTHER TRADES.
1.6.3. SUBSTITUTIONS: **SUBSTITUTIONS OF SPECIFIED ITEMS WILL BE CONSIDERED UNTIL 10 DAYS PRIOR TO BID OPENING**.

1.7. DELIVERY, STORAGE, AND HANDLING
1.7.1. PACKING AND SHIPPING: DELIVER PRODUCTS TO THE PROJECT IN MANUFACTURER'S ORIGINAL SHIPPING PACKAGING, PROPERLY IDENTIFIED WITH ALL INFORMATION NEEDED FOR IDENTIFICATION.
1.7.2. STORAGE AND PROTECTION: DURING CONSTRUCTION MAINTAIN ALL DELIVERED MATERIALS AND EQUIPMENT IN AN ORDERLY MANNER AND PROTECT FROM DAMAGE.

1.8. SEQUENCING AND SCHEDULING
1.8.1. CAREFULLY EXAMINE THE SITE, CIVIL, STRUCTURAL, ARCHITECTURAL, PLUMBING, HVAC, CONTROLS, FIRE PROTECTION, AND ELECTRICAL DRAWINGS AND SPECIFICATIONS. COORDINATE ALL WORK WITH OTHER DISCIPLINES TO AVOID CONFLICTS AND DELAY OF INSTALLATION SCHEDULE.

1.9. UTILITY CONNECTIONS AND PERMITS
1.9.1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SECURING AND PAYING FOR ALL PERMITS, LICENSES, CLEARANCES AND CERTIFICATES FROM THE OWNER AND LOCAL AUTHORITIES HAVING JURISDICTION AS REQUIRED PRIOR TO THE COMMENCEMENT OF THE WORK.
1.9.2. PRIOR TO ANY CUTTING OR TRENCHING, VERIFY WITH OWNERS REP., UTILITY COMPANIES, AND LANDLORD THAT ALL AVAILABLE INFORMATION IS KNOWN REGARDING UNDERGROUND OBSTRUCTIONS. TAKE CAUTION WHEN TRENCHING NOT TO DISTURB ANY EXISTING UTILITIES. NOTIFY OWNERS REPRESENTATIVE IMMEDIATELY UPON UNCOVERING UNKNOWN UTILITIES FOR FURTHER DIRECTION.

1.10. COMPLETION OF WORK
1.10.1. EXECUTE FINAL CLEANING PRIOR TO FINAL INSPECTION.
1.10.2. REMOVE WASTE AND SURPLUS MATERIALS, RUBBISH, AND CONSTRUCTION FACILITIES FROM THE SITE.
1.10.3. CONTRACTOR TO PROVIDE START-UP AND COMMISSIONING SERVICES FOR ALL NEW SYSTEMS AND EQUIPMENT, AS WELL AS TRAINING SERVICES FOR THE OWNER'S MAINTENANCE PERSONNEL IN THE USE OF THESE SYSTEMS AND EQUIPMENT. ADJUST OPERATING PRODUCTS AND EQUIPMENT TO ENSURE SMOOTH AND CORRECT OPERATION.
1.10.4. AT THE COMPLETION, AN INSPECTION SHALL BE MADE AND THE ENTIRE SYSTEM SHALL BE SHOWN TO BE IN SPECIFIED WORKING CONDITION. A TEST AND BALANCE REPORT APPROVED BY THE ENGINEER AND A SET OF SPECIFICATIONS AND DRAWINGS WITH ALL FIELD MARKUPS WILL BE AVAILABLE DURING THE INSPECTION.

1.11. GUARANTEE AND WARRANTIES
1.11.1. ALL DIVISION 23 - HEATING, VENTILATING, AND AIR_CONDITIONING (HVAC) WARRANTY PERIODS BEGIN AT SUBSTANTIAL COMPLETION, OR THE DATE SPECIFIED IN THE OWNER-CONTRACTOR AGREEMENT.
1.11.2. WARRANTIES: PROVIDE MANUFACTURER'S EQUIPMENT WARRANTIES PRIOR TO FINAL INSPECTION. LENGTH OF WARRANTY PERIOD SHALL BE AS SPECIFIED IN INDIVIDUAL DIVISION 23 SPECIFICATION SECTIONS.
1.11.3. GUARANTEE: ALL EQUIPMENT AND MATERIALS FURNISHED AND ALL WORK PERFORMED UNDER THIS DIVISION OF SPECIFICATIONS SHALL BE GUARANTEED TO BE FREE OF DEFECTIVE MATERIALS AND WORKMANSHIP FOR A PERIOD OF ONE YEAR FROM THE DATE SPECIFIED IN A ABOVE. UPON NOTICE FROM THE OWNER OF FAILURE OF ANY PART OF THE GUARANTEED EQUIPMENT DURING THE GUARANTEE PERIOD, THE AFFECTED PART OR PARTS SHALL BE PROMPTLY REPLACED WITH NEW PARTS BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER. ALL LABOR REQUIRED TO PERFORM GUARANTEE SHALL BE INCLUDED AS PART OF THE COMPLETE GUARANTEE WARRANTY.

1.12. MAINTENANCE AND SERVICE
1.12.1. MAINTENANCE: THE CONTRACTOR SHALL MAINTAIN ALL SYSTEMS INSTALLED UNDER THIS SECTION OF SPECIFICATIONS FOR ONE YEAR FROM DATE OF ENGINEER'S [ARCHITECT'S] FINAL CERTIFICATE.

1.13. PROJECT RECORD DOCUMENTS
1.13.1. MAINTAIN ON SITE ONE SET OF THE FOLLOWING RECORD DOCUMENTS; RECORD ACTUAL REVISIONS TO THE WORK:
1.13.2. DRAWINGS.
1.13.3. SPECIFICATIONS.
1.13.4. ADDENDA.
1.13.5. CHANGE ORDERS AND OTHER MODIFICATIONS TO THE CONTRACT.
1.13.6. REVIEWED SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES.
1.13.7. MANUFACTURER'S INSTRUCTION FOR ASSEMBLY, INSTALLATION, AND ADJUSTING.
1.13.8. CONTRACT CLOSE_OUT RECORD DOCUMENTS: PREPARE CONSTRUCTION RECORD DOCUMENTS, IN AUTOCAD OR REVIT FILES PROVIDED BY THE ENGINEER, TO INCLUDE ALL ADDENDA AND CHANGE ORDERS.

1.14. MAINTENANCE DOCUMENTS AND INSTRUCTIONS
1.14.1. MAINTENANCE TRAINING: AFTER PLACING SYSTEMS IN OPERATION, PROVIDE 2 MEMBERS OF OWNER'S MAINTENANCE STAFF WITH 16 HOURS OF OPERATION AND MAINTENANCE TRAINING FOR ALL SYSTEMS INCLUDED IN THIS SECTION OF SPECIFICATIONS.
1.14.2. MAINTENANCE MANUALS: ONE HARD COPY AND ONE .PDF BOUND AND INDEXED OPERATING AND MAINTENANCE MANUALS SHALL BE PREPARED BY THE CONTRACTOR AND DELIVERED TO OPERATING PERSONNEL.

2. PRODUCTS

3. EXECUTION
3.1. ASBESTOS
3.1.1. NO ASBESTOS CONTAINING MATERIALS SHALL BE USED IN ANY OF THE NEW CONSTRUCTION.

3.2. DEMOLITION
3.2.1. GENERAL: PROVIDE DEMOLITION OF EXISTING MECHANICAL WORK IN REMODELED AREAS OF THE EXISTING BUILDING AND AS DESCRIBED ON THE DRAWINGS. DISPOSE OF REMOVED EQUIPMENT AND MATERIALS IN A WAY TO MAXIMIZE RECYCLING CONTENT.
3.2.2. SALVAGE EQUIPMENT AND MATERIALS: EXISTING EQUIPMENT AND MATERIALS DESIGNATED FOR SALVAGE BACK TO THE OWNER OR REINSTALLATION SHALL BE TESTED FOR PROPER OPERATION PRIOR TO REMOVAL FROM ITS INSTALLED LOCATION.
3.2.3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE COORDINATION OF THE DEMOLITION OF EXISTING WORK AND THE DEMOLITION PROVIDED BY THE G.C.
3.2.4. CONTRACTOR SHALL COORDINATE WITH THE G.C. ANY EXISTING EQUIPMENT REQUIRED TO BE LEFT INTACT.
3.2.5. EACH CONTRACTOR SHALL VERIFY SCOPE OF WORK WITH THE G.C. FOR THE REMOVAL OF ALL EXISTING FIRE PROTECTION, PLUMBING FIXTURES, PIPING, HVAC UNITS, REFRIGERANT RECAPTURE, EXHAUST FANS, ETC. AND ASSOCIATED ROOF CURBS NOT BEING REUSED ON THIS PROJECT, UNLESS SPECIFICALLY NOTED OTHERWISE.
3.2.6. THE CONTRACTOR MUST VERIFY WITH THE LANDLORD ALL PRESUMED ABANDONED EQUIPMENT, PIPES, DUCTWORK, AND EQUIPMENT PRIOR TO REMOVAL.
3.2.7. ALL EXTRANEOUS ITEMS IN THE SPACE OR ON THE ROOF NOT APPLICABLE TO THE NEW WORK MUST BE REMOVED AN ROOF/WALL/FLOOR PATCHED/REPAIRED TO MATCH EXISTING STRUCTURE.
3.2.8. EXISTING ABANDONED PIPES, DUCTS, OR EQUIPMENT IN THE FLOOR, EMBEDDED IN CONCRETE, OR OTHERWISE INACCESSIBLE SHALL BE CUT OFF AND SEALED BELOW OR WITHIN FLOOR OR WALL WHEN THEY SHALL NOT BE REUSED IN THIS PROJECT. IF REQUIRED BY LANDLORD OR CODES, ABANDONED PIPING AND/OR DUCTWORK MUST BE REMOVED TO POINT OF ORIGIN. CONFIRM THE EXTENT OF DEMOLITION WITH THE G.C. PRIOR TO BID AND INCLUDE IN BID PROPOSAL AS DIRECTED BY THE G.C.

3.3. MECHANICAL INSTALLATIONS
3.3.1. GENERAL: INSTALLATION SHALL BE AS SPECIFIED IN INDIVIDUAL DIVISION 23 SPECIFICATION SECTIONS AND IN ACCORDANCE WITH APPROVED MANUFACTURER'S INSTALLATION INSTRUCTIONS. CONFLICT BETWEEN MANUFACTURER'S PRINTED INSTRUCTIONS AND THESE SPECIFICATIONS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER.
3.3.2. EQUIPMENT: ALL EQUIPMENT INSTALLED ON THIS PROJECT SHALL BE NEW AND UNUSED UNLESS NOTED OTHERWISE.
3.3.3. INSTALLATION: INSTALL SYSTEMS, MATERIALS, AND EQUIPMENT TO CONFORM TO APPROVED SUBMITTAL DATA, INCLUDING COORDINATION DRAWINGS, TO GREATEST EXTENT POSSIBLE. CONFORM TO ARRANGEMENTS INDICATED BY THE CONTRACT DOCUMENTS, RECOGNIZING THAT PORTIONS OF THE WORK ARE SHOWN ONLY IN DIAGRAMMATIC FORM. WHERE COORDINATION REQUIREMENTS CONFLICT WITH INDIVIDUAL SYSTEM REQUIREMENTS, REFER CONFLICT TO THE ENGINEER.
3.3.3.1. WHERE MOUNTING HEIGHTS ARE NOT DETAILED OR DIMENSIONED, INSTALL SYSTEMS, MATERIALS, AND EQUIPMENT TO PROVIDE THE MAXIMUM HEADROOM POSSIBLE.
3.3.3.2. INSTALL SYSTEMS, MATERIALS, AND EQUIPMENT GIVING RIGHT_OF_WAY PRIORITY TO SYSTEMS REQUIRED TO BE INSTALLED AT A SPECIFIED SLOPE.
3.3.3.3. COORDINATE CONNECTION OF MECHANICAL SYSTEMS WITH EXTERIOR UNDERGROUND AND OVERHEAD UTILITIES AND SERVICES. COMPLY WITH REQUIREMENTS OF GOVERNING REGULATIONS, FRANCHISED SERVICE COMPANIES, AND CONTROLLING AGENCIES. PROVIDE REQUIRED CONNECTION FOR EACH SERVICE.
3.3.3.4. INSTALL MECHANICAL EQUIPMENT TO FACILITATE SERVICING, MAINTENANCE, AND REPAIR OR REPLACEMENT OF EQUIPMENT COMPONENTS. AS MUCH AS PRACTICAL, CONNECT EQUIPMENT FOR EASE OF DISCONNECTING, WITH MINIMUM OF INTERFERENCE WITH OTHER INSTALLATIONS.
3.3.4. CLEANING:
3.3.4.1. UPON COMPLETION OF INSTALLATION, PIPING, DUCTS, AND EQUIPMENT SHALL BE THOROUGHLY CLEARED OF DIRT, GREASE, RUST AND OIL, PRIMED WHERE NECESSARY, AND LEFT READY FOR PAINTING. VACUUM CLEAN THE INSIDE AND OUTSIDE OF PLENUMS AND EQUIPMENT CABINETS.
3.3.5. PAINTING AND FINISHING:
3.3.5.1. CONTRACTOR SHALL CLEAN, SPOT PRIME, AND ENTIRELY REPAINT, WITH ORIGINAL COLOR ANY FACTORY FINISHED EQUIPMENT WHICH HAS RUSTED OR BEEN DAMAGED.
3.3.6. LUBRICATION AND PACKING:
3.3.6.1. LUBRICATE EQUIPMENT WITH CORRECT GRADE, TYPE, AND QUANTITY OF LUBRICATION BEFORE PLACING EQUIPMENT INTO SERVICE. DAMAGES CAUSED BY NOT PROVIDING PROPER LUBRICATION SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE.

END OF SECTION 230000

23 33 00 - AIR DUCT ACCESSORIES

1. GENERAL
1.1. SUMMARY
1.1.1. SECTION INCLUDES:
1.1.2. BACKDRAFT AND PRESSURE RELIEF DAMPERS.
1.1.3. BAROMETRIC RELIEF DAMPERS.
1.1.4. MANUAL VOLUME DAMPERS.
1.1.5. CONTROL DAMPERS.
1.1.6. FIRE DAMPERS.
1.1.7. CEILING RADIATION DAMPERS.
1.1.8. SMOKE DAMPERS.
1.1.9. COMBINATION FIRE AND SMOKE DAMPERS.
1.1.10. TURNING VANES.
1.1.11. DUCT-MOUNTED ACCESS DOORS.
1.1.12. DUCT ACCESS PANEL ASSEMBLIES FOR FIRE-RATED DUCT SYSTEMS.
1.1.13. FLEXIBLE CONNECTORS.
1.1.14. DUCT ACCESSORY HARDWARE.

1.2. ACTION SUBMITTALS
1.2.1. PRODUCT DATA: FOR EACH TYPE OF PRODUCT.

1.3. CLOSEOUT SUBMITTALS
1.3.1. OPERATION AND MAINTENANCE DATA: FOR AIR DUCT ACCESSORIES TO INCLUDE IN OPERATION AND MAINTENANCE MANUALS.

1.4. MAINTENANCE MATERIAL SUBMITTALS
1.4.1. FURNISH EXTRA MATERIALS THAT MATCH PRODUCTS INSTALLED AND THAT ARE PACKAGED WITH PROTECTIVE COVERING FOR STORAGE AND IDENTIFIED WITH LABELS DESCRIBING CONTENTS.
1.4.2. FUSIBLE LINKS: FURNISH QUANTITY EQUAL TO 10 PERCENT OF AMOUNT INSTALLED.

2. PRODUCTS
2.1. PERFORMANCE REQUIREMENTS
2.1.1. COMPLY WITH NFPA 90A AND NFPA 90B.
2.1.2. COMPLY WITH SMACNA'S "HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE" FOR ACCEPTABLE MATERIALS, MATERIAL THICKNESSES, AND DUCT CONSTRUCTION METHODS UNLESS OTHERWISE INDICATED. SHEET METAL MATERIALS SHALL BE FREE OF PITTING, SEAM MARKS, ROLLER MARKS, STAINS, DISCOLORATIONS, AND OTHER IMPERFECTIONS.

2.2. BACKDRAFT AND PRESSURE RELIEF DAMPERS - GENERAL COMMERCIAL DUTY
2.2.1. DESCRIPTION: GRAVITY BALANCED, 24 GA. GALV. FRAME, SINGLE PIECE BLADES W/SEALS, 6" THINK MAX., PARALLEL OPERATION., ADJUSTABLE TENSION RETURN SPRING, AND SYNTHETIC PIVOT BUSHINGS.
2.2.2. PERFORMANCE:
2.2.2.1. MAXIMUM AIR VELOCITY: 1500 FPM.
2.2.2.2. MAXIMUM SYSTEM PRESSURE: 2 INCHES WG.
2.2.2.3. AMCA CERTIFICATION: TEST AND RATE IN ACCORDANCE WITH AMCA 511.
2.2.2.4. LEAKAGE:
2.2.2.4.1. CLASS I: LEAKAGE SHALL NOT EXCEED 4 CFM/SQ. FT. AGAINST 1-INCH WG DIFFERENTIAL STATIC PRESSURE.
2.2.3. ACCESSORIES:
2.2.3.1. ADJUSTMENT DEVICE TO PERMIT SETTING FOR VARYING DIFFERENTIAL STATIC PRESSURE.
2.2.3.2. COUNTERWEIGHTS AND SPRING-ASSIST KITS FOR VERTICAL AIRFLOW INSTALLATIONS.
2.2.3.3. SCREEN MOUNTING:
2.2.3.3.1. FRONT OR REAR MOUNTED IN SLEEVE.
2.2.3.3.1.1. SLEEVE THICKNESS: 20 GAUGE MINIMUM.
2.2.3.3.1.2. SLEEVE LENGTH: 6 INCHES MINIMUM.
2.2.3.4. SCREEN MATERIAL: ALUMINUM.
2.2.3.5. SCREEN TYPE: BIRD.
2.2.3.6. 90-DEGREE STOPS.

2.3. 2.3MANUAL VOLUME DAMPERS
2.3.1. STANDARD, STEEL, MANUAL VOLUME DAMPERS:
2.3.1.1. PERFORMANCE:
2.3.1.1.1. LEAKAGE RATING CLASS III: LEAKAGE NOT EXCEEDING 40 CFM/SQ. FT. AGAINST 1-INCH WG DIFFERENTIAL STATIC PRESSURE.
2.3.1.2. CONSTRUCTION:
2.3.1.2.1. LINKAGE OUT OF AIRSTREAM.
2.3.1.2.2. SUITABLE FOR HORIZONTAL OR VERTICAL AIRFLOW APPLICATIONS.
2.3.1.3. FRAMES:
2.3.1.3.1. HAT-SHAPED, 16-GAUGE-THICK, GALVANIZED SHEET STEEL.
2.3.1.3.2. MITERED AND WELDED CORNERS.
2.3.1.3.3. FLANGES FOR ATTACHING TO WALLS AND FLANGELESS FRAMES FOR INSTALLING IN DUCTS.
2.3.1.4. BLADES:
2.3.1.4.1. MULTIPLE OR SINGLE BLADE.
2.3.1.4.2. PARALLEL- OR OPPOSED-BLADE DESIGN.
2.3.1.4.3. STIFFEN DAMPER BLADES FOR STABILITY.
2.3.1.4.4. GALVANIZED STEEL; 16 GAUGE THICK.
2.3.1.5. BLADE AXLES: GALVANIZED STEEL.
2.3.1.6. BEARINGS:
2.3.1.6.1. MOLDED SYNTHETIC.
2.3.1.6.2. DAMPERS MOUNTED WITH VERTICAL BLADES TO HAVE THRUST BEARING AT EACH END OF EVERY BLADE.
2.3.1.7. TIE BARS AND BRACKETS: GALVANIZED STEEL.
2.3.1.8. LOCKING DEVICE TO HOLD DAMPER BLADES IN A FIXED POSITION WITHOUT VIBRATION.

2.4. TURNING VANES

MANUFACTURED TURNING VANES FOR METAL DUCTS: FABRICATE CURVED

MECHANICAL APPROVAL

APPROVED

This stamp serves as a means of mechanical approval and does not include other disciplines.

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G2LG ENGINEERS

SHEET TITLE : MECHANICAL SHEET SPECS

REVISIONS :

SUBMITTAL: ISSUED FOR PERMIT

SCALE :

DATE : 2/27/2026

PROJECT NUMBER : 25003

DRAWN BY : CHECKED BY :

SHEET NO. : M0.3

BLADES OF GALVANIZED SHEET STEEL; SUPPORT WITH BARS PERPENDICULAR TO BLADES SET; SET INTO VANE RUNNERS SUITABLE FOR DUCT MOUNTING.
2.4.2. GENERAL REQUIREMENTS: COMPLY WITH SMACNA'S "HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE"; FIGURE 4-3, "VANES AND VANE RUNNERS," AND FIGURE 4-4, "VANE SUPPORT IN ELBOWS."
2.4.3. VANE CONSTRUCTION:
2.4.3.1. SINGLE WALL FOR DUCTS UP TO 48 INCHES WIDE AND DOUBLE WALL FOR LARGER DIMENSIONS.

2.5. REMOTE DAMPER OPERATORS
2.5.1. DESCRIPTION: CABLE SYSTEM DESIGNED FOR REMOTE MANUAL DAMPER ADJUSTMENT, SS CABLE, RECESSED WALL BOX W/COVER PLATE, OR CONCEALED CABLE TUCKED INTO AIR DEVICE.

2.6. DUCT-MOUNTED ACCESS DOORS
2.6.1. DUCT-MOUNTED ACCESS DOORS: FABRICATE ACCESS PANELS IN ACCORDANCE WITH SMACNA'S "HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE"; FIGURE 7-2 (7-2M), "DUCT ACCESS DOORS AND PANELS," AND FIGURE 7-3, "ACCESS DOORS - ROUND DUCT." MINIMUM SIZE 18X18 OR 324 SQ. IN.

2.7. DUCT ACCESS PANEL ASSEMBLIES FOR FIRE-RATED DUCT SYSTEMS
2.7.1. ACCESS PANELS USED IN COOKING APPLICATIONS:
2.7.1.1. LABELED COMPLIANT TO NFPA 96 FOR GREASE DUCT ACCESS DOORS.
2.7.1.2. LABELED IN ACCORDANCE WITH UL 1978 BY AN NRTL.
2.7.1.3. PANEL AND FRAME: MINIMUM THICKNESS 16-GAUGE CARBON STEEL, FASTENERS: CARBON STEEL. PANEL FASTENERS SHALL NOT PENETRATE DUCT WALL, GASKET: COMPLY WITH NFPA 96, GREASE-TIGHT, HIGH-TEMPERATURE CERAMIC FIBER, RATED FOR MINIMUM 2000 DEG F, MINIMUM PRESSURE RATING: 10 INCHES WG POSITIVE OR NEGATIVE.

2.8. FLEXIBLE CONNECTORS
2.8.1. FIRE-PERFORMANCE CHARACTERISTICS: ADHESIVES, SEALANTS, FABRIC MATERIALS, AND ACCESSORY MATERIALS SHALL HAVE FLAME-SPREAD INDEX NOT EXCEEDING 25 AND SMOKE-DEVELOPED INDEX NOT EXCEEDING 50 WHEN TESTED IN ACCORDANCE WITH ASTM E84. MATERIALS: FLAME-RETARDANT OR NONCOMBUSTIBLE FABRICS, COATINGS AND ADHESIVES: COMPLY WITH UL 181, CLASS 1.

2.9. MATERIALS
2.9.1. GALVANIZED SHEET STEEL: COMPLY WITH ASTM A653/A653M.
2.9.1.1. GALVANIZED COATING DESIGNATION: G90.
2.9.1.2. EXPOSED-SURFACE FINISH: MILL PHOSPHATIZED.
2.9.2. STAINLESS STEEL SHEETS: COMPLY WITH ASTM A480/A480M, TYPE 304, AND HAVING A NO. 2 FINISH.
2.9.3. ALUMINUM SHEETS: COMPLY WITH ASTM B209, ALLOY 3003, TEMPER H14; WITH MILL FINISH FOR CONCEALED DUCTS AND STANDARD, ONE-SIDE BRIGHT FINISH FOR EXPOSED DUCTS.
2.9.4. EXTRUDED ALUMINUM: COMPLY WITH ASTM B221, ALLOY 6063, TEMPER T6.
2.9.5. REINFORCEMENT SHAPES AND PLATES: GALVANIZED-STEEL REINFORCEMENT WHERE INSTALLED ON GALVANIZED SHEET METAL DUCTS; COMPATIBLE MATERIALS FOR ALUMINUM AND STAINLESS STEEL DUCTS.
2.9.6. TIE RODS: GALVANIZED STEEL, 1/4-INCH MINIMUM DIAMETER FOR LENGTHS 36 INCHES OR LESS; 3/8-INCH MINIMUM DIAMETER FOR LENGTHS LONGER THAN 36 INCHES.

3. EXECUTION
3.1. INSTALLATION
3.1.1. INSTALL DUCT ACCESSORIES IN ACCORDANCE WITH APPLICABLE DETAILS IN SMACNA'S "HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE" FOR METAL DUCTS.
3.1.2. INSTALL DUCT ACCESSORIES OF MATERIALS SUITED TO DUCT MATERIALS; USE GALVANIZED-STEEL ACCESSORIES IN GALVANIZED-STEEL AND FIBROUS-GLASS DUCTS, STAINLESS STEEL ACCESSORIES IN STAINLESS STEEL DUCTS, AND ALUMINUM ACCESSORIES IN ALUMINUM DUCTS.
3.1.3. SET DAMPERS TO FULLY OPEN POSITION BEFORE TESTING, ADJUSTING, AND BALANCING.
3.1.4. INSTALL TEST HOLES AT FAN INLETS AND OUTLETS AND ELSEWHERE AS INDICATED AND AS NEEDED FOR TESTING AND BALANCING.
3.1.5. INSTALL FIRE AND SMOKE DAMPERS IN ACCORDANCE WITH UL LISTING AND MANUFACTURER'S INSTRUCTIONS.
3.1.6. INSTALL DUCT ACCESS DOORS ON SIDES OF DUCTS TO ALLOW FOR INSPECTING, ADJUSTING, AND MAINTAINING ACCESSORIES AND EQUIPMENT AT THE FOLLOWING LOCATIONS:
3.1.6.1. ON BOTH SIDES OF DUCT COILS.
3.1.6.2. UPSTREAM FROM DUCT FILTERS.
3.1.6.3. AT OUTDOOR-AIR INTAKES AND MIXED-AIR PLENUMS.
3.1.6.4. AT DRAIN PANS AND SEALS.
3.1.6.5. ADJACENT TO AND CLOSE ENOUGH TO FIRE OR SMOKE DAMPERS, TO RESET OR REINSTALL FUSIBLE LINKS. ACCESS DOORS FOR ACCESS TO FIRE OR SMOKE DAMPERS HAVING FUSIBLE LINKS SHALL BE PRESSURE RELIEF ACCESS DOORS AND SHALL BE OUTWARD OPERATION FOR ACCESS DOORS INSTALLED UPSTREAM FROM DAMPERS AND INWARD OPERATION FOR ACCESS DOORS INSTALLED DOWNSTREAM FROM DAMPERS.
3.1.6.6. FOR GREASE DUCTS, INSTALL AT LOCATIONS AND SPACING AS REQUIRED BY NFPA 96.
3.1.6.7. CONTROL DEVICES REQUIRING INSPECTION.
3.1.6.8. ELSEWHERE AS INDICATED.
3.1.7. INSTALL ACCESS DOORS WITH SWING AGAINST DUCT STATIC PRESSURE.
3.1.8. LABEL ACCESS DOORS INDICATE THE PURPOSE OF ACCESS DOOR.
3.1.9. INSTALL FLEXIBLE CONNECTORS TO CONNECT DUCTS TO EQUIPMENT.
3.1.10. FOR FANS DEVELOPING STATIC PRESSURES OF 5 INCHES WG AND MORE, COVER FLEXIBLE CONNECTORS WITH LOADED VINYL SHEET HELD IN PLACE WITH METAL STRAPS.
3.1.11. INSTALL DUCT TEST HOLES WHERE REQUIRED FOR TESTING AND BALANCING PURPOSES.

3.2. FIELD QUALITY CONTROL
3.2.1. TESTS AND INSPECTIONS:
3.2.1.1. OPERATE DAMPERS TO VERIFY FULL RANGE OF MOVEMENT.
3.2.1.2. INSPECT LOCATIONS OF ACCESS DOORS AND VERIFY THAT SIZE AND LOCATION OF ACCESS DOORS ARE ADEQUATE TO PERFORM REQUIRED OPERATION.
3.2.1.3. OPERATE FIRE, SMOKE, AND COMBINATION FIRE AND SMOKE DAMPERS TO VERIFY FULL RANGE OF MOVEMENT AND THAT PROPER HEAT-RESPONSE DEVICE IS INSTALLED.
3.2.1.4. INSPECT TURNING VANES FOR PROPER AND SECURE INSTALLATION AND VERIFY THAT VANES DO NOT MOVE OR RATTLE.
3.2.1.5. OPERATE REMOTE DAMPER OPERATORS TO VERIFY FULL RANGE OF MOVEMENT OF OPERATOR AND DAMPER.
END OF SECTION 233300

23 31 13 - METAL DUCTS

1. GENERAL
1.1. SUMMARY
1.1.1. SECTION INCLUDES:
1.1.1.1. SINGLE-WALL RECTANGULAR DUCTS AND FITTINGS.
1.1.1.2. DOUBLE-WALL RECTANGULAR DUCTS AND FITTINGS.
1.1.1.3. SINGLE-WALL ROUND[AND FLAT-OVAL] DUCTS AND FITTINGS.
1.1.1.4. DOUBLE-WALL ROUND[AND FLAT-OVAL] DUCTS AND FITTINGS.
1.1.1.5. SHEET METAL MATERIALS.
1.1.1.6. DUCT LINER.
1.1.1.7. SEALANTS AND GASKETS.
1.1.1.8. HANGERS AND SUPPORTS.

1.2. SUBMITTALS
1.2.1. PRODUCT DATA: FOR EACH TYPE OF THE PRODUCTS LISTED IN THIS SPECIFICATION
1.2.2. SHOP DRAWINGS:
1.2.2.1. FABRICATION, ASSEMBLY, AND INSTALLATION, INCLUDING PLANS, ELEVATIONS, SECTIONS, COMPONENTS, AND ATTACHMENTS TO OTHER WORK.
1.2.2.2. FACTORY- AND SHOP-FABRICATED DUCTS AND FITTINGS.
1.2.2.3. DUCT LAYOUT INDICATING SIZES, ELEVATIONS, CONFIGURATION, LINER MATERIAL, STATIC-PRESSURE CLASSES, DAMPERS, TURNING VANES, ACCESS DOORS, EQUIPMENT LOCATIONS, PANELS, AND PENETRATIONS THRU ALL PARTITIONS.

2. PRODUCTS
2.1. SINGLE-WALL RECTANGULAR DUCTS AND FITTINGS - SEE DUCT SCHEDULE.
2.2. SINGLE-WALL ROUND DUCTS AND FITTINGS - SEE DUCT SCHEDULE.
2.3. SHEET METAL MATERIALS - SEE DUCT SCHEDULE.
2.4. FABRIC DUCT - SEE DUCT SCHEDULE

2.5. 2.7SEALANT AND GASKETS - SEE DUCT SCHEDULE.

2.6. HANGERS AND SUPPORTS - SEE DUCT SCHEDULE.

3. EXECUTION
3.1. 3.1DUCT INSTALLATION
3.1.1. DRAWING PLANS, SCHEMATICS, AND DIAGRAMS INDICATE GENERAL LOCATION AND ARRANGEMENT OF DUCT SYSTEM. INDICATED DUCT LOCATIONS, CONFIGURATIONS, AND ARRANGEMENTS WERE USED TO SIZE DUCTS AND CALCULATE FRICTION LOSS FOR AIR-HANDLING EQUIPMENT SIZING AND FOR OTHER DESIGN CONSIDERATIONS. INSTALL DUCT SYSTEMS AS INDICATED UNLESS DEVIATIONS TO LAYOUT ARE APPROVED ON SHOP DRAWINGS AND COORDINATION DRAWINGS.
3.1.2. INSTALL DUCTS IN ACCORDANCE WITH SMACNA'S "HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE" UNLESS OTHERWISE INDICATED.
3.1.3. UNLESS OTHERWISE INDICATED, INSTALL DUCTS VERTICALLY AND HORIZONTALLY, AND PARALLEL AND PERPENDICULAR TO BUILDING LINES.
3.1.4. INSTALL DUCTS CLOSE TO WALLS, OVERHEAD CONSTRUCTION, COLUMNS, AND OTHER STRUCTURAL AND PERMANENT ENCLOSURE ELEMENTS OF BUILDING.
3.1.5. INSTALL DUCTS WITH A MINIMUM CLEARANCE OF 1 INCH, PLUS ALLOWANCE FOR INSULATION THICKNESS AND ACCESS TO ACCESSORIES AND CONTROLS DEVICES.
3.1.6. MAINTAIN MINIMUM VERTICAL CLEARANCE OF 7'6” FROM THE FLOOR TO THE BOTTOM OF DUCTWORK, AND ASSOCIATED HANGERS AND SUPPORTS UNLESS NOTED OTHERWISE ON THE PLANS.
3.1.7. ROUTE DUCTS TO AVOID PASSING THROUGH TRANSFORMER VAULTS AND ELECTRICAL EQUIPMENT ROOMS AND ENCLOSURES.
3.1.8. ROUTE DUCTS TO AVOID PASSING ABOVE ELECTRICAL PANELS, TRANSFORMERS, IT AND SERVER EQUIPMENT.
3.1.9. WHERE DUCTS PASS THROUGH NON-FIRE-RATED INTERIOR PARTITIONS AND EXTERIOR WALLS AND ARE EXPOSED TO VIEW, COVER THE OPENING BETWEEN THE PARTITION AND DUCT OR DUCT INSULATION WITH SHEET METAL FLANGES OF SAME METAL THICKNESS AS THE DUCT. OVERLAP OPENINGS ON FOUR SIDES BY AT LEAST 1-1/2 INCHES.
3.1.10. ALL DUCT ROOF PENETRATIONS SHALL BE THROUGH INSULATED, FACTORY-MANUFACTURED FULLY-WELDED GALVANIZED STEEL ROOF CURBS. THE WEIGHT OF ALL DUCTS PENETRATING THE ROOF SHALL BE SUPPORTED FROM BELOW-ROOF STRUCTURE, NOT AT THE ROOF CURB.
3.1.11. INSTALL FIRE, COMBINATION FIRE/SMOKE, AND SMOKE DAMPERS WHERE INDICATED ON DRAWINGS AND AS REQUIRED BY CODE, AND BY LOCAL AUTHORITIES HAVING JURISDICTION. COMPLY WITH REQUIREMENTS IN OTHER DIVISION 23 SECTIONS FOR FIRE AND SMOKE DAMPERS AND SPECIFIC INSTALLATION REQUIREMENTS OF THE DAMPER UL LISTING.
3.1.12. PROTECT DUCT INTERIORS FROM MOISTURE, CONSTRUCTION DEBRIS AND DUST, AND OTHER FOREIGN MATERIALS BOTH BEFORE AND AFTER INSTALLATION.
3.1.13. BRANCH CONNECTIONS: USE LATERAL OR CONICAL BRANCH CONNECTIONS.

3.2. INSTALLATION OF EXPOSED DUCTWORK
3.2.1. PROTECT DUCTS EXPOSED IN FINISHED SPACES FROM BEING DENTED, SCRATCHED, OR DAMAGED.
3.2.2. TRIM DUCT SEALANTS FLUSH WITH METAL. CREATE A SMOOTH AND UNIFORM EXPOSED BEAD. DO NOT USE TWO-PART TAPE SEALING SYSTEM.
3.2.3. GRIND WELDS TO PROVIDE SMOOTH SURFACE FREE OF BURRS, SHARP EDGES, AND WELD SPLATTER. WHEN WELDING STAINLESS STEEL WITH A NO. 3 OR 4 FINISH, GRIND THE WELDS FLUSH, POLISH THE EXPOSED WELDS, AND TREAT THE WELDS TO REMOVE DISCOLORATION CAUSED BY WELDING.
3.2.4. MAINTAIN CONSISTENCY, SYMMETRY, AND UNIFORMITY IN ARRANGEMENT AND FABRICATION OF FITTINGS, HANGERS AND SUPPORTS, DUCT ACCESSORIES, AND AIR OUTLETS.
3.2.5. REPAIR OR REPLACE DAMAGED SECTIONS AND FINISHED WORK THAT DOES NOT COMPLY WITH THESE REQUIREMENTS.

3.3. ADDITIONAL INSTALLATION REQUIREMENTS FOR TYPE 1 COMMERCIAL KITCHEN GREASE HOOD EXHAUST DUCT
3.3.1. INSTALL DUCTS IN ACCORDANCE WITH NFPA 96, "VENTILATION CONTROL AND FIRE PROTECTION OF COMMERCIAL COOKING OPERATION"; SMACNA'S "HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE"; AND SMACNA'S "KITCHEN VENTILATION SYSTEMS AND FOOD SERVICE EQUIPMENT FABRICATION AND INSTALLATION GUIDELINES" UNLESS OTHERWISE INDICATED.
3.3.2. INSTALL ALL DUCTS WITHOUT DIPS AND TRAPS THAT MAY HOLD GREASE, AND SLOPED A MINIMUM OF 2 PERCENT TO DRAIN GREASE BACK TO THE HOOD.
3.3.3. ALL DUCTS EXPOSED TO VIEW SHALL BE DOUBLE-WALL CONSTRUCTION AS PER THE DUCT SCHEDULE ON THE PLANS. ALL DUCTS CONCEALED FROM VIEW SHALL BE SINGLE-WALL EXTERNALLY INSULATED AS PER DUCT SCHEDULE ON THE PLANS.
3.3.4. ALL JOINTS SHALL BE WELDED AND SHALL BE TELESCOPING, BELL, OR FLANGE JOINT AS PER NFPA 96.
3.3.5. INSTALL FIRE-RATED ACCESS PANEL ASSEMBLIES AT EACH CHANGE IN DIRECTION AND AT MAXIMUM INTERVALS OF 20 FEET OR AS REQUIRED BY LOCAL CODE REQUIREMENTS IN HORIZONTAL DUCTS, AND AT EVERY FLOOR FOR VERTICAL DUCTS, OR AS INDICATED ON DRAWINGS.
3.3.6. DO NOT PENETRATE FIRE-RATED ASSEMBLIES EXCEPT AS ALLOWED BY APPLICABLE BUILDING CODES AND AUTHORITIES HAVING JURISDICTION.

3.4. ADDITIONAL INSTALLATION REQUIREMENTS FOR EXHAUST DUCTS SERVING COMMERCIAL DISHWASHERS AND OTHER HIGH-HUMIDITY LOCATIONS
3.4.1. INSTALL DISHWASHER EXHAUST DUCTS AND OTHER EXHAUST DUCTS FROM WET, HIGH-HUMIDITY LOCATIONS WITHOUT DIPS AND TRAPS THAT MAY HOLD WATER. SLOPE DUCTS A MINIMUM OF 2 PERCENT BACK TO DISHWASHER OR TOWARD DRAIN.
3.4.2. PROVIDE A DRAIN POCKET AT EACH LOW POINT AND AT THE BASE OF EACH RISER WITH A 1-INCHTRAPPED COPPER DRAIN FROM EACH DRAIN POCKET TO OPEN SITE FLOOR DRAIN.
3.4.3. DO NOT LOCATE LONGITUDINAL SEAMS ON BOTTOM OF DUCT.

3.5. DUCT SEALING
3.5.1. SEAL DUCTS AS SCHEDULED ON THE PLANS.

3.6. HANGER AND SUPPORT INSTALLATION
3.6.1. COMPLY STRUCTURAL ENGINEERS REQUIREMENTS, DUCT SCHEDULE, AND WITH SMACNA'S "HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE," CHAPTER 5, "HANGERS AND SUPPORTS."

3.7. PAINTING
3.7.1. PAINT INTERIOR OF METAL DUCTS THAT ARE VISIBLE THROUGH REGISTERS AND GRILLES AND THAT DO NOT HAVE DUCT LINER. APPLY ONE COAT OF FLAT, BLACK, LATEX PAINT OVER A COMPATIBLE GALVANIZED-STEEL PRIMER.

3.8. FIELD QUALITY CONTROL
3.8.1. PERFORM TESTS AND INSPECTIONS.
3.8.2. LEAKAGE TESTS:
3.8.2.1. COMPLY WITH SMACNA'S "HVAC AIR DUCT LEAKAGE TEST MANUAL." SUBMIT A TEST REPORT FOR EACH TEST.
3.8.2.2. TEST THE FOLLOWING SYSTEMS:
3.8.2.3. DUCTS WITH A POSITIVE OR NEGATIVE PRESSURE CLASS HIGHER THAN 3-INCH WG: TEST REPRESENTATIVE DUCT SECTIONS TOTALING NO LESS THAN 25 PERCENT OF TOTAL INSTALLED DUCT AREA FOR EACH DESIGNATED PRESSURE CLASS.
3.8.3. DUCT SYSTEM WILL BE CONSIDERED DEFECTIVE IF IT DOES NOT PASS TESTS AND INSPECTIONS.
3.9. DUCT SCHEDULE
3.9.1. REFER TO THE DUCT SCHEDULE ON THE PLANS FOR DUCT CONSTRUCTION REQUIREMENTS.

END OF SECTION 233113

23 23 00 - REFRIGERANT PIPING

1. GENERAL
1.1. SUBMITTALS
1.1.1. PRODUCT DATA: FOR EACH TYPE OF VALVE, REFRIGERANT PIPING, AND PIPING SPECIALTY.

1.2. CLOSEOUT SUBMITTALS
1.2.1. OPERATION AND MAINTENANCE DATA: FOR REFRIGERANT VALVES AND PIPING SPECIALTIES TO INCLUDE IN MAINTENANCE MANUALS.
1.3. QUALITY ASSURANCE
1.3.1. COMPLY WITH ASHRAE 15, "SAFETY CODE FOR REFRIGERATION SYSTEMS."
1.3.2. COMPLY WITH ASME B31.5, "REFRIGERATION PIPING AND HEAT TRANSFER COMPONENTS."

2. PRODUCTS - SEE PIPING SCHEDULE
2.1. --

3. EXECUTION
3.1. 3.1PIPING APPLICATIONS
3.1.1. SUCTION LINES NPS 1-1/2 AND SMALLER FOR CONVENTIONAL AIR-CONDITIONING APPLICATIONS: COPPER, TYPE ACR, ANNEALED-TEMPER TUBING AND WROUGHT-COPPER FITTINGS WITH BRAZED OR SOLDERED JOINTS.
3.1.2. HOT-GAS AND LIQUID LINES, AND SUCTION LINES FOR HEAT-PUMP APPLICATIONS:
3.1.2.1. NPS 1-1/2 AND SMALLER: COPPER, TYPE ACR, ANNEALED-TEMPER TUBING AND WROUGHT-COPPER FITTINGS WITH BRAZED OR SOLDERED JOINTS.
3.1.2.2. NPS 2 TO NPS 4: COPPER, TYPE L, DRAWN-TEMPER TUBING AND WROUGHT-COPPER FITTINGS WITH BRAZED OR SOLDERED JOINTS.
3.1.3. SAFETY-RELIEF-VALVE DISCHARGE PIPING: COPPER, TYPE L, DRAWN-TEMPER TUBING AND WROUGHT-COPPER FITTINGS WITH SOLDERED JOINTS.

3.2. VALVE AND SPECIALTY APPLICATIONS
3.2.1. INSTALL VALVES, INDICATORS, STRAINERS, ETC. AS REQUIRED BY MANUFACTURER'S INSTALLATION INSTRUCTIONS.

3.3. PIPING INSTALLATION
3.3.1. INSTALL AND SIZE PIPING IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
3.3.2. INSTALL REFRIGERANT PIPING ACCORDING TO ASHRAE 15.
3.3.3. INSTALL PIPING IN CONCEALED LOCATIONS UNLESS OTHERWISE INDICATED AND EXCEPT IN EQUIPMENT ROOMS AND SERVICE AREAS.
3.3.4. INSTALL PIPING INDICATED TO BE EXPOSED AND PIPING IN EQUIPMENT ROOMS AND SERVICE AREAS AT RIGHT ANGLES OR PARALLEL TO BUILDING WALLS. DIAGONAL RUNS ARE PROHIBITED UNLESS SPECIFICALLY INDICATED OTHERWISE.
3.3.5. INSTALL PIPING ABOVE ACCESSIBLE CEILINGS TO ALLOW SUFFICIENT SPACE FOR CEILING PANEL REMOVAL.
3.3.6. INSTALL PIPING ADJACENT TO MACHINES TO ALLOW SERVICE AND MAINTENANCE.
3.3.7. INSTALL PIPING FREE OF SAGS AND BENDS.
3.3.8. INSTALL FITTINGS FOR CHANGES IN DIRECTION AND BRANCH CONNECTIONS.
3.3.9. INSTALL PIPING AS SHORT AND DIRECT AS POSSIBLE, WITH A MINIMUM NUMBER OF JOINTS, ELBOWS, AND FITTINGS.
3.3.10. ARRANGE PIPING TO ALLOW INSPECTION AND SERVICE OF REFRIGERATION EQUIPMENT. INSTALL VALVES AND SPECIALTIES IN ACCESSIBLE LOCATIONS TO ALLOW FOR SERVICE AND INSPECTION. INSTALL ACCESS DOORS OR PANELS IF VALVES OR EQUIPMENT REQUIRING MAINTENANCE IS CONCEALED BEHIND FINISHED SURFACES.
3.3.11. INSTALL REFRIGERANT PIPING IN PROTECTIVE CONDUIT WHERE INSTALLED BELOWGROUND.
3.3.12. INSTALL REFRIGERANT PIPING IN RIGID OR FLEXIBLE CONDUIT IN LOCATIONS WHERE EXPOSED TO MECHANICAL INJURY.
3.3.13. WHEN BRAZING OR SOLDERING, REMOVE SOLENOID-VALVE COILS AND SIGHT GLASSES; ALSO REMOVE VALVE STEMS, SEATS, AND PACKING, AND ACCESSIBLE INTERNAL PARTS OF REFRIGERANT SPECIALTIES. DO NOT APPLY HEAT NEAR EXPANSION-VALVE BULB.
3.3.14. INSTALL SLEEVES FOR PIPING PENETRATIONS OF WALLS, CEILINGS, AND FLOORS
3.3.15. INSTALL SLEEVE SEALS FOR PIPING PENETRATIONS OF CONCRETE WALLS AND SLABS.
3.3.16. INSTALL ESCUTCHEONS FOR PIPING PENETRATIONS OF WALLS, CEILINGS, AND FLOORS.
3.4. PIPE JOINT CONSTRUCTION
3.4.1. REAM ENDS OF PIPES AND TUBES AND REMOVE BURRS.
3.4.2. REMOVE SCALE, SLAG, DIRT, AND DEBRIS FROM INSIDE AND OUTSIDE OF PIPE AND FITTINGS BEFORE ASSEMBLY.
3.4.3. SOLDERED JOINTS: CONSTRUCT JOINTS ACCORDING TO ASTM B 828 OR CDA'S "COPPER TUBE HANDBOOK."
3.4.4. BRAZED JOINTS: CONSTRUCT JOINTS ACCORDING TO AWS'S "BRAZING HANDBOOK," CHAPTER "PIPE AND TUBE."
3.4.4.1. USE TYPE BCUP (COPPER-PHOSPHORUS) ALLOY FOR JOINING COPPER SOCKET FITTINGS WITH COPPER PIPE.
3.4.4.2. USE TYPE BAG (CADMIUM-FREE SILVER) ALLOY FOR JOINING COPPER WITH BRONZE OR STEEL.
3.4.5. THREADED JOINTS: THREAD STEEL PIPE WITH TAPERED PIPE THREADS ACCORDING TO ASME B1.20.1. CUT THREADS FULL AND CLEAN USING SHARP DIES. REAM THREADED PIPE ENDS TO REMOVE BURRS AND TO RESTORE FULL ID. JOIN PIPE FITTINGS AND VALVES AS FOLLOWS:
3.4.5.1. APPLY APPROPRIATE TAPE OR THREAD COMPOUND TO EXTERNAL PIPE THREADS UNLESS DRY-SEAL THREADING IS SPECIFIED.
3.4.5.2. DAMAGED THREADS: DO NOT USE PIPE OR PIPE FITTINGS WITH THREADS THAT ARE CORRODED OR DAMAGED. DO NOT USE PIPE SECTIONS THAT HAVE CRACKED OR OPEN WELDS.

3.5. INSTALLATION OF HANGERS AND SUPPORTS
3.5.1. INSTALL THE FOLLOWING PIPE ATTACHMENTS:
3.5.1.1. ADJUSTABLE STEEL CLEVIS HANGERS FOR INDIVIDUAL HORIZONTAL RUNS LESS THAN 20 FEET LONG.
3.5.1.2. ROLLER HANGERS AND SPRING HANGERS FOR INDIVIDUAL HORIZONTAL RUNS 20 FEET OR LONGER.
3.5.1.3. PIPE ROLLER: MSS SP-58, TYPE 44 FOR MULTIPLE HORIZONTAL PIPING 20 FEET OR LONGER, SUPPORTED ON A TRAPEZE.
3.5.1.4. SPRING HANGERS TO SUPPORT VERTICAL RUNS.
3.5.1.5. COPPER-CLAD HANGERS AND SUPPORTS FOR HANGERS AND SUPPORTS IN DIRECT CONTACT WITH COPPER PIPE.
3.5.2. INSTALL HANGERS FOR COPPER TUBING, WITH MAXIMUM HORIZONTAL SPACING AND MINIMUM ROD DIAMETERS, TO COMPLY WITH MSS-58, LOCALLY ENFORCED CODES, AND AUTHORITIES HAVING JURISDICTION REQUIREMENTS, WHICHEVER ARE MOST STRINGENT.
3.5.3. SUPPORT HORIZONTAL PIPING WITHIN 12 INCHES OF EACH FITTING.
3.5.4. SUPPORT VERTICAL RUNS OF COPPER TUBING TO COMPLY WITH MSS-58, LOCALLY ENFORCED CODES, AND AUTHORITIES HAVING JURISDICTION REQUIREMENTS, WHICHEVER ARE MOST STRINGENT.

3.6. FIELD QUALITY CONTROL
3.6.1. PERFORM THE FOLLOWING TESTS AND INSPECTIONS:
3.6.1.1. COMPLY WITH ASME B31.5, CHAPTER VI.
3.6.1.2. TEST REFRIGERANT PIPING, SPECIALTIES, AND RECEIVERS. ISOLATE COMPRESSOR, CONDENSER, EVAPORATOR, AND SAFETY DEVICES FROM TEST PRESSURE IF THEY ARE NOT RATED ABOVE THE TEST PRESSURE.
3.6.1.3. TEST HIGH- AND LOW-PRESSURE SIDE PIPING OF EACH SYSTEM SEPARATELY AT NOT LESS THAN THE PRESSURES INDICATED IN "PERFORMANCE REQUIREMENTS" ARTICLE.
3.6.1.3.1. FILL SYSTEM WITH NITROGEN TO THE REQUIRED TEST PRESSURE.
3.6.1.3.2. SYSTEM SHALL MAINTAIN TEST PRESSURE AT THE MANIFOLD GAGE THROUGHOUT DURATION OF TEST.
3.6.1.3.3. TEST JOINTS AND FITTINGS WITH ELECTRONIC LEAK DETECTOR OR BY BRUSHING A SMALL AMOUNT OF SOAP AND GLYCERIN SOLUTION OVER JOINTS.
3.6.1.3.4. REMAKE LEAKING JOINTS USING NEW MATERIALS, AND RETEST UNTIL SATISFACTORY RESULTS ARE ACHIEVED.
3.6.2. PREPARE TEST AND INSPECTION REPORTS.

3.7. SYSTEM CHARGING
3.7.1. CHARGE SYSTEM USING THE FOLLOWING PROCEDURES:
3.7.1.1. INSTALL CORE IN FILTER DRYERS AFTER LEAK TEST BUT BEFORE EVACUATION.
3.7.1.2. EVACUATE ENTIRE REFRIGERANT SYSTEM WITH A VACUUM PUMP TO 500 MICROMETERS. IF VACUUM HOLDS FOR 12 HOURS, SYSTEM IS READY FOR CHARGING.
3.7.1.3. BREAK VACUUM WITH REFRIGERANT GAS, ALLOWING PRESSURE TO BUILD UP TO 2 PSIG.
3.7.1.4. CHARGE SYSTEM WITH A NEW FILTER-DRYER CORE IN CHARGING LINE.

3.8. ADJUSTING
3.8.1. ADJUST THERMOSTATIC EXPANSION VALVE TO OBTAIN PROPER EVAPORATOR SUPERHEAT.
3.8.2. ADJUST HIGH- AND LOW-PRESSURE SWITCH SETTINGS TO AVOID SHORT CYCLING IN RESPONSE TO FLUCTUATING SUCTION PRESSURE.
3.8.3. ADJUST SET-POINT TEMPERATURE OF AIR-CONDITIONING OR CHILLED-WATER CONTROLLERS TO THE SYSTEM DESIGN TEMPERATURE.
3.8.4. PERFORM THE FOLLOWING ADJUSTMENTS BEFORE OPERATING THE REFRIGERATION SYSTEM, ACCORDING TO MANUFACTURER'S WRITTEN INSTRUCTIONS:
3.8.4.1. OPEN SHUTOFF VALVES IN CONDENSER WATER CIRCUIT.
3.8.4.2. VERIFY THAT COMPRESSOR OIL LEVEL IS CORRECT.
3.8.4.3. OPEN COMPRESSOR SUCTION AND DISCHARGE VALVES.
3.8.4.4. OPEN REFRIGERANT VALVES EXCEPT BYPASS VALVES THAT ARE USED FOR OTHER PURPOSES.
3.8.4.5. CHECK OPEN COMPRESSOR-MOTOR ALIGNMENT AND VERIFY LUBRICATION FOR MOTORS AND BEARINGS.
3.8.5. REPLACE CORE OF REPLACEABLE FILTER DRYER AFTER SYSTEM HAS BEEN ADJUSTED AND AFTER DESIGN FLOW RATES AND PRESSURES ARE ESTABLISHED.

END OF SECTION 232300

MECHANICAL APPROVAL
This stamp serves as a means of mechanical approval and does not include other disciplines.
APPROVED

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23 33 46 - FLEXIBLE DUCTS

1. GENERAL
 1.1. SUMMARY
  1.1.1. SECTION INCLUDES:
   1.1.1.1. NON-INSULATED FLEXIBLE DUCTS.
   1.1.1.2. INSULATED FLEXIBLE DUCTS.

 1.2. SUBMITTALS
  1.2.1. PRODUCT DATA: FOR EACH TYPE OF PRODUCT.

2. PRODUCTS - SEE DUCT SCHEDULE
 2.1. ASSEMBLY DESCRIPTION
  2.1.1. COMPLY WITH SMACNA'S "HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE" FOR ACCEPTABLE MATERIALS, MATERIAL THICKNESSES, AND DUCT CONSTRUCTION METHODS UNLESS OTHERWISE INDICATED. SHEET METAL MATERIALS SHALL BE FREE OF PITTING, SEAM MARKS, ROLLER MARKS, STAINS, DISCOLORATIONS, AND OTHER IMPERFECTIONS.

3. EXECUTION
 3.1. INSTALLATION
  3.1.1. INSTALL FLEXIBLE DUCTS ACCORDING TO APPLICABLE DETAILS IN SMACNA'S "HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE" FOR METAL DUCTS AND IN NAIMA AH116, "FIBROUS GLASS DUCT CONSTRUCTION STANDARDS," FOR FIBROUS-GLASS DUCTS.
  3.1.2. INSTALL IN INDOOR APPLICATIONS ONLY. FLEXIBLE DUCTWORK SHOULD NOT BE EXPOSED TO UV LIGHTING.
  3.1.3. CONNECT TERMINAL UNITS TO SUPPLY DUCTS WITH MAXIMUM 12-INCH LENGTHS OF FLEXIBLE DUCT. DO NOT USE FLEXIBLE DUCTS TO CHANGE DIRECTIONS.
  3.1.4. CONNECT DIFFUSERS OR LIGHT TROFFER BOOTS TO DUCTS DIRECTLY OR WITH MAXIMUM 60-INCH LENGTHS OF FLEXIBLE DUCT.
  3.1.5. CONNECT FLEXIBLE DUCTS TO METAL DUCTS WITH CLAMPS OR ADHESIVE PLUS SHEET METAL SCREWS.
  3.1.6. INSTALLATION:
   3.1.6.1. INSTALL DUCTS FULLY EXTENDED.
   3.1.6.2. DO NOT BEND DUCTS ACROSS SHARP CORNERS.
   3.1.6.3. BENDS OF FLEXIBLE DUCTING SHALL NOT EXCEED A MINIMUM OF ONE DUCT DIAMETER.
   3.1.6.4. AVOID CONTACT WITH METAL FIXTURES, WATER LINES, PIPES, OR CONDUITS.
   3.1.6.5. INSTALL FLEXIBLE DUCTS IN A DIRECT LINE, WITHOUT SAGS, TWISTS, OR TURNS.
  3.1.7. SUPPORTING FLEXIBLE DUCTS:
   3.1.7.1. SUSPEND FLEXIBLE DUCTS WITH BANDS 1-1/2 INCHES WIDE OR WIDER AND SPACED A MAXIMUM OF 48 INCHES APART. MAXIMUM CENTERLINE SAG BETWEEN SUPPORTS SHALL NOT EXCEED 1/2 INCH PER 12 INCHES.
   3.1.7.2. INSTALL EXTRA SUPPORTS AT BENDS PLACED APPROXIMATELY ONE DUCT DIAMETER FROM CENTER LINE OF THE BEND.
   3.1.7.3. DUCTS MAY REST ON CEILING JOISTS OR TRUSS SUPPORTS. SPACING BETWEEN SUPPORTS SHALL NOT EXCEED THE MAXIMUM SPACING PER MANUFACTURER'S WRITTEN INSTALLATION INSTRUCTIONS.
   3.1.7.4. VERTICALLY INSTALLED DUCTS SHALL BE STABILIZED BY SUPPORT STRAPS AT A MAXIMUM OF 72 INCHES O.C.

END OF SECTION 233346

23 37 13.13 - AIR DIFFUSERS

1. GENERAL
 1.1. SUMMARY
  1.1.1. SECTION INCLUDES:
   1.1.1.1. AIR DIFFUSERS.

 1.2. ACTION SUBMITTALS
  1.2.1. PRODUCT DATA: FOR EACH TYPE OF PRODUCT.
  1.2.2. DATA SHEET: INDICATE MATERIALS OF CONSTRUCTION, FINISH, AND MOUNTING DETAILS; AND PERFORMANCE DATA INCLUDING THROW AND DROP, STATIC-PRESSURE DROP, AND NOISE RATINGS.
  1.2.3. DIFFUSER SCHEDULE: INDICATE DRAWING DESIGNATION, ROOM LOCATION, QUANTITY, MODEL NUMBER, SIZE, AND ACCESSORIES FURNISHED.

2. PRODUCTS
 2.1. AIR DIFFUSERS - SEE AIR DEVICE SCHEDULE

3. EXECUTION
 3.1. INSTALLATION
  3.1.1. INSTALL DIFFUSERS LEVEL AND PLUMB.
  3.1.2. CEILING-MOUNTED OUTLETS AND INLETS: DRAWINGS INDICATE GENERAL ARRANGEMENT OF DUCTS, FITTINGS, AND ACCESSORIES. AIR OUTLET AND INLET LOCATIONS HAVE BEEN INDICATED TO ACHIEVE DESIGN REQUIREMENTS FOR AIR VOLUME, NOISE CRITERIA, AIRFLOW PATTERN, THROW, AND PRESSURE DROP. MAKE FINAL LOCATIONS WHERE INDICATED, AS MUCH AS PRACTICAL. FOR UNITS INSTALLED IN LAY-IN CEILING PANELS, LOCATE UNITS IN THE CENTER OF PANEL. WHERE ARCHITECTURAL FEATURES OR OTHER ITEMS CONFLICT WITH INSTALLATION, NOTIFY ARCHITECT FOR A DETERMINATION OF FINAL LOCATION.
  3.1.3. INSTALL DIFFUSERS WITH AIRTIGHT CONNECTIONS TO DUCTS AND TO ALLOW SERVICE AND MAINTENANCE OF DAMPERS, AIR EXTRACTORS, AND FIRE DAMPERS.

 3.2. ADJUSTING
  3.2.1. AFTER INSTALLATION, ADJUST DIFFUSERS TO AIR PATTERNS INDICATED, OR AS DIRECTED, BEFORE STARTING AIR BALANCING.

END OF SECTION 233713.13

23 37 13.23 - REGISTERS AND GRILLES

1. GENERAL
 1.1. SUMMARY
  1.1.1. SECTION INCLUDES:
   1.1.1.1. REGISTERS AND GRILLES.

 1.2. ACTION SUBMITTALS
  1.2.1. PRODUCT DATA: FOR EACH TYPE OF PRODUCT.
   1.2.1.1. DATA SHEET: INDICATE MATERIALS OF CONSTRUCTION, FINISH, AND MOUNTING DETAILS; AND PERFORMANCE DATA INCLUDING THROW AND DROP, STATIC-PRESSURE DROP, AND NOISE RATINGS.
   1.2.1.2. REGISTER AND GRILLE SCHEDULE: INDICATE DRAWING DESIGNATION, ROOM LOCATION, QUANTITY, MODEL NUMBER, SIZE, AND ACCESSORIES FURNISHED.

2. PRODUCTS
 2.1. REGISTERS AND GRILLES - SEE AIR DEVICE SCHEDULE

3. EXECUTION
 3.1. INSTALLATION
  3.1.1. INSTALL REGISTERS AND GRILLES LEVEL AND PLUMB.
  3.1.2. OUTLETS AND INLETS LOCATIONS: DRAWINGS INDICATE GENERAL ARRANGEMENT OF DUCTS, FITTINGS, AND ACCESSORIES. AIR OUTLET AND INLET LOCATIONS HAVE BEEN INDICATED TO ACHIEVE DESIGN REQUIREMENTS FOR AIR VOLUME, NOISE CRITERIA, AIRFLOW PATTERN, THROW, AND PRESSURE DROP. MAKE FINAL LOCATIONS WHERE INDICATED, AS MUCH AS PRACTICAL. FOR UNITS INSTALLED IN LAY-IN CEILING PANELS, LOCATE UNITS IN THE CENTER OF PANEL. WHERE ARCHITECTURAL FEATURES OR OTHER ITEMS CONFLICT WITH INSTALLATION, NOTIFY ENGINEER FOR A DETERMINATION OF FINAL LOCATION.
  3.1.3. INSTALL REGISTERS AND GRILLES WITH AIRTIGHT CONNECTIONS TO DUCTS AND TO ALLOW SERVICE AND MAINTENANCE OF DAMPERS, AIR EXTRACTORS, AND FIRE DAMPERS.

 3.2. ADJUSTING
  3.2.1. AFTER INSTALLATION, ADJUST REGISTERS AND GRILLES TO AIR PATTERNS INDICATED, OR AS DIRECTED, BEFORE STARTING AIR BALANCING.

END OF SECTION 233713.23

23 81 26 - SPLIT-SYSTEM AIR-CONDITIONERS

1. GENERAL
 1.1. SUMMARY
  1.1.1. SECTION INCLUDES DX SPLIT-SYSTEM AIR-CONDITIONING AND HEAT-PUMP UNITS CONSISTING OF SEPARATE EVAPORATOR-FAN AND COMPRESSOR-CONDENSER COMPONENTS.
 1.2. SUBMITTALS
  1.2.1. PRODUCT DATA: FOR EACH TYPE OF PRODUCT INDICATED. INCLUDE RATED CAPACITIES, OPERATING CHARACTERISTICS, AND FURNISHED SPECIALTIES AND ACCESSORIES. INCLUDE PERFORMANCE DATA IN TERMS OF CAPACITIES, OUTLET VELOCITIES, STATIC PRESSURES, SOUND POWER CHARACTERISTICS, MOTOR REQUIREMENTS, AND ELECTRICAL CHARACTERISTICS. INCLUDE OPERATION AND MAINTENANCE MANUALS.
 1.3. WARRANTY - PROVIDE MANUFACTURER'S STANDARD WARRANTY.

2. PRODUCTS
 2.1. GENERAL REQUIREMENTS

 2.2. INDOOR UNITS
  2.2.1. UNIT CONFIGURATION, CAPACITIES AND CHARACTERISTICS ARE SCHEDULED ON THE PLANS. INCLUDING REQUIREMENTS FOR CASINGS, FANS, DRIVES, AND MOTORS, COILS, REFRIGERANT CIRCUIT COMPONENTS, AIR FILTRATION, GAS FURNACES, DAMPERS, ELECTRICAL POWER CONNECTIONS, CONTROLS, ROOF CURBS, AND ACCESSORIES.

 2.3. GAS FURNACES
  2.3.1. DESCRIPTION: INDIRECT-FIRED, FACTORY ASSEMBLED, PIPED, AND WIRED; COMPLYING WITH ANSI Z21.47/CSA 2.3 AND NFPA 54.
  2.3.2. CSA APPROVAL: DESIGNED AND CERTIFIED BY AND BEARING LABEL OF CSA.
  2.3.3. HIGH-ALTITUDE KIT: FOR PROJECT ELEVATIONS MORE THAN 2000 FEET ABOVE SEA LEVEL.

 2.4. OUTDOOR UNITS
  2.4.1. AIR-COOLED, COMPRESSOR-CONDENSER COMPONENTS:
   2.4.1.1. CASING: STEEL, FINISHED WITH BAKED ENAMEL IN MANUFACTURER'S STANDARD COLOR, WITH REMOVABLE PANELS FOR ACCESS TO CONTROLS, WEEP HOLES FOR WATER DRAINAGE, AND MOUNTING HOLES IN BASE. PROVIDE BRASS SERVICE VALVES, FITTINGS, AND GAGE PORTS ON EXTERIOR OF CASING.
   2.4.1.2. COMPRESSOR: HERMETICALLY SEALED WITH CRANKCASE HEATER AND MOUNTED ON VIBRATION ISOLATION DEVICE. COMPRESSOR MOTOR SHALL HAVE THERMAL- AND CURRENT-SENSITIVE OVERLOAD DEVICES, START CAPACITOR, RELAY, AND CONTACTOR.
    2.4.1.2.1. COMPRESSOR TYPE: SCROLL.
    2.4.1.2.2. REFRIGERANT: SEE SCHEDULE. COMPLY WITH CURRENT NATIONAL AND LOCAL REGULATIONS.
    2.4.1.2.3. REFRIGERANT COIL: COPPER TUBE, WITH MECHANICALLY BONDED ALUMINUM FINS AND LIQUID SUBCOOLER. COMPLY WITH ARI 206/110.
   2.4.1.3. HEAT-PUMP COMPONENTS: REVERSING VALVE AND LOW-TEMPERATURE-AIR CUTOFF THERMOSTAT.
   2.4.1.4. FAN: ALUMINUM-PROPELLER TYPE, DIRECTLY CONNECTED TO MOTOR.
   2.4.1.5. MOTOR: PERMANENTLY LUBRICATED, WITH INTEGRAL THERMAL-OVERLOAD PROTECTION.
   2.4.1.6. LOW AMBIENT KIT: AS SCHEDULED ON THE DRAWINGS.
   2.4.1.7. MOUNTING BASE: AS SCHEDULED ON THE DRAWINGS.

 2.5. CONTROLS
  2.5.1. INSTALL REMOTE TEMPERATURE SENSOR WHERE INDICATED ON PLAN. PROVIDE MASTER THERMOSTAT IN OFFICE LOCATION FOR PROJECT.
  2.5.2. PROVIDE ECONOMIZER CONTROLS WHERE INDICATED, AS WELL AS DEMAND CONTROL VENTILATION CONTROLLER. CONFIGURE PER MANUFACTURER'S RECOMMENDATION.
  2.5.3. THERMOSTAT: WALL-MOUNTED THERMOSTAT OR SENSOR WITH THE FOLLOWING FEATURES TO CONTROL COMPRESSOR AND EVAPORATOR FAN.
   2.5.3.1. HEAT-COOL-OFF SWITCH.
   2.5.3.2. FAN ON-AUTO SWITCH.
   2.5.3.3. FAN-SPEED SWITCH.
   2.5.3.4. AUTOMATIC CHANGEOVER.
   2.5.3.5. ADJUSTABLE DEADBAND.
   2.5.3.6. EXPOSED SET POINT.
   2.5.3.7. EXPOSED INDICATION.
   2.5.3.8. DEGREE F INDICATION.
  2.5.4. SAFETY CONTROL OPERATION:
   2.5.4.1. SMOKE DETECTORS: STOP FAN AND CLOSE OUTDOOR-AIR DAMPER IF SMOKE IS DETECTED. PROVIDE ADDITIONAL CONTACTS FOR ALARM INTERFACE TO FIRE-ALARM CONTROL PANEL.
   2.5.4.2. FIRESTATS: STOP FAN AND CLOSE OUTDOOR-AIR DAMPER IF AIR GREATER THAN 130 DEG F ENTERS UNIT. PROVIDE ADDITIONAL CONTACTS FOR ALARM INTERFACE TO FIRE-ALARM CONTROL PANEL.
   2.5.4.3. FIRE-ALARM CONTROL PANEL INTERFACE: PROVIDE CONTROL INTERFACE TO COORDINATE WITH FIRE-ALARM SYSTEM.
    2.5.4.3.1. DEFROST CONTROL FOR CONDENSER COIL: PRESSURE DIFFERENTIAL SWITCH TO INITIATE DEFROST SEQUENCE.
  2.5.5. SUPPLY FAN OPERATION:
   2.5.5.1. OCCUPIED PERIODS: RUN FAN CONTINUOUSLY.
   2.5.5.2. UNOCCUPIED PERIODS: CYCLE FAN TO MAINTAIN SETBACK TEMPERATURE.
  2.5.6. REFRIGERANT CIRCUIT OPERATION:
   2.5.6.1. OCCUPIED PERIODS: CYCLE OR STAGE COMPRESSORS TO MATCH COMPRESSOR OUTPUT TO COOLING LOAD TO MAINTAIN DISCHARGE TEMPERATURE. CYCLE CONDENSER FANS TO MAINTAIN MAXIMUM HOT-GAS PRESSURE. OPERATE LOW-AMBIENT CONTROL KIT TO MAINTAIN MINIMUM HOT-GAS PRESSURE.
   2.5.6.2. UNOCCUPIED PERIODS: CYCLE COMPRESSORS AND CONDENSER FANS FOR HEATING TO MAINTAIN SETBACK TEMPERATURE.
  2.5.7. ELECTRIC-HEATING-COIL OPERATION:
   2.5.7.1. OCCUPIED PERIODS: MODULATE COIL TO MAINTAIN DISCHARGE TEMPERATURE.
   2.5.7.2. UNOCCUPIED PERIODS: ENERGIZE COIL TO MAINTAIN SETBACK TEMPERATURE.
   2.5.7.3. OPERATE SUPPLEMENTAL ELECTRIC HEATING COIL WITH COMPRESSOR FOR HEATING WITH OUTDOOR TEMPERATURE BELOW 25 DEG F .
  2.5.8. FIXED MINIMUM OUTDOOR-AIR DAMPER OPERATION:
   2.5.8.1. OCCUPIED PERIODS: OPEN TO PROVIDE THE PERCENTAGE OUTSIDE AIR SCHEDULED ON THE DRAWINGS.
   2.5.8.2. UNOCCUPIED PERIODS: CLOSE THE OUTDOOR-AIR DAMPER.
  2.5.9. ECONOMIZER OUTDOOR-AIR DAMPER OPERATION:
   2.5.9.1. OCCUPIED PERIODS: OPEN TO 10 PERCENT FIXED MINIMUM INTAKE, AND MAXIMUM 100 PERCENT OF THE FAN CAPACITY. CONTROLLER SHALL PERMIT AIR-SIDE ECONOMIZER OPERATION WHEN OUTDOOR AIR IS LESS THAN [**60 DEG F**]. USE [**OUTDOOR-AIR TEMPERATURE**] TO ADJUST MIXING DAMPERS.[**START RELIEF-AIR FAN WITH END SWITCH ON OUTDOOR-AIR DAMPER.**] DURING ECONOMIZER CYCLE OPERATION, LOCK OUT COOLING.
   2.5.9.2. UNOCCUPIED PERIODS: CLOSE OUTDOOR-AIR DAMPER AND OPEN RETURN-AIR DAMPER.
  2.5.10. CARBON DIOXIDE SENSOR OPERATION (IF PRESENT ON DRAWINGS):
   2.5.10.1. OCCUPIED PERIODS: RESET MINIMUM OUTDOOR-AIR RATIO DOWN TO ZERO % AIRFLOW AND OPEN OUTDOOR AIR DAMPER AS NECESSARY TO MAINTAIN MAXIMUM 1000-PPM CONCENTRATION.
   2.5.10.2. UNOCCUPIED PERIODS: CLOSE OUTDOOR-AIR DAMPER AND OPEN RETURN-AIR DAMPER.

 2.6. CAPACITIES AND CHARACTERISTICS
  2.6.1. UNIT CONFIGURATION, CAPACITIES, AND CHARACTERISTICS ARE SCHEDULED ON THE PLANS.

3. EXECUTION
 3.1. INSTALLATION
  3.1.1. INSTALL UNITS LEVEL AND PLUMB.
  3.1.2. INSTALL EVAPORATOR-FAN COMPONENTS USING MANUFACTURER'S STANDARD MOUNTING DEVICES SECURELY FASTENED TO BUILDING STRUCTURE.
  3.1.3. INSTALL COMPRESSOR-CONDENSER COMPONENTS ON SUPPORTS THAT CORRELATE TO THEIR LOCATION ON THE DRAWINGS. ROOF: ROOF CURB RAILS WITH UNITS ANCHORED TO SUPPORTS WITH REMOVABLE, CADMIUM-PLATED FASTENERS. GROUND-MOUNTED: CAST-IN-PLACE CONCRETE EQUIPMENT BASE(S).
  3.1.4. INSTALL TUBING TO ALLOW ACCESS TO UNIT.

 3.2. FIELD QUALITY CONTROL
  3.2.1. MANUFACTURER'S FIELD SERVICE: ENGAGE A FACTORY-AUTHORIZED SERVICE REPRESENTATIVE TO INSPECT, TEST, AND ADJUST COMPONENTS, ASSEMBLIES, AND EQUIPMENT INSTALLATIONS, INCLUDING CONNECTIONS.
  3.2.2. PERFORM TESTS AND INSPECTIONS.
   3.2.2.1. MANUFACTURER'S FIELD SERVICE: ENGAGE A FACTORY-AUTHORIZED SERVICE REPRESENTATIVE TO INSPECT COMPONENTS, ASSEMBLIES, AND EQUIPMENT INSTALLATIONS, INCLUDING CONNECTIONS, AND TO ASSIST IN TESTING.
  3.2.3. TESTS AND INSPECTIONS:
   3.2.3.1. LEAK TEST: AFTER INSTALLATION, CHARGE SYSTEM AND TEST FOR LEAKS. REPAIR LEAKS AND RETEST UNTIL NO LEAKS EXIST.
   3.2.3.2. OPERATIONAL TEST: AFTER ELECTRICAL CIRCUITRY HAS BEEN ENERGIZED, START UNITS TO CONFIRM PROPER MOTOR ROTATION AND UNIT OPERATION.
   3.2.3.3. TEST AND ADJUST CONTROLS AND SAFETIES. REPLACE DAMAGED AND MALFUNCTIONING CONTROLS AND EQUIPMENT.
  3.2.4. REMOVE AND REPLACE MALFUNCTIONING UNITS AND RETEST AS SPECIFIED ABOVE.
  3.2.5. PREPARE TEST AND INSPECTION REPORTS.

 3.3. STARTUP SERVICE
  3.3.1. ENGAGE A FACTORY-AUTHORIZED SERVICE REPRESENTATIVE TO PERFORM STARTUP SERVICE.
  3.3.2. COMPLETE INSTALLATION AND STARTUP CHECKS ACCORDING TO MANUFACTURER'S WRITTEN INSTRUCTIONS.

 3.4. DEMONSTRATION
  3.4.1. ENGAGE A FACTORY-AUTHORIZED SERVICE REPRESENTATIVE TO TRAIN OWNER'S MAINTENANCE PERSONNEL TO ADJUST, OPERATE, AND MAINTAIN UNITS.
  3.4.2. INCLUDE TIME IN BID FOR ASSISTING OWNER'S AGENT IN PROVIDING FUNCTIONAL TESTING.

END OF SECTION 238126

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SHEET TITLE : MECHANICAL SHEET SPECS

REVISIONS :

SUBMITTAL: ISSUED FOR PERMIT

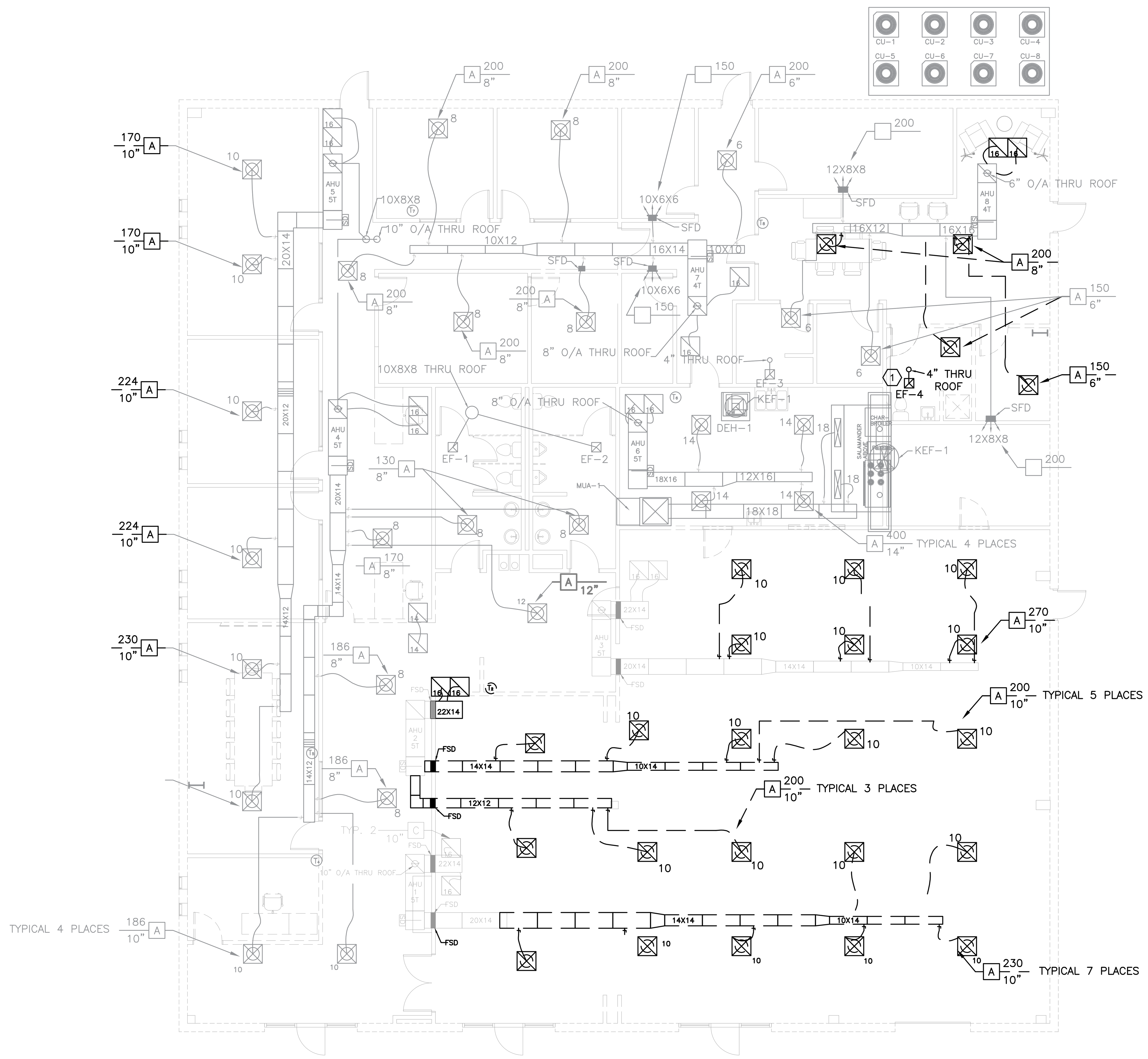
SCALE :

DATE : 2/27/2026

PROJECT NUMBER : 25003

DRAWN BY : CHECKED BY :

SHEET NO. : M0.5



1 MECHANICAL DEMOLITION

1/8" = 1'-0"

0 4' 8' 16'

NORTH

GENERAL NOTES:

A. CONTRACTOR TO VERIFY ALL EXISTING CONDITIONS PRIOR TO BID.

B. REFER TO ONE-LINES AND DETAILS FOR ADDITIONAL INFORMATION ON COMPONENTS.

C. COORDINATE DEMOLITION WORK WITH NEW WORK PLAN.

KEY NOTES (X)

1. DEMOLISH EXISTING EXHAUST FAN AND ASSOCIATED DUCTWORK THROUGH ROOF. COORDINATE WITH ROOF WARRANTY HOLDER TO SEAL EXISTIG EXHAUST DUCT OPENING THROUGH ROOF WEATHERPROOF

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SHEET TITLE : MECHANICAL DEMOLITION

REVISIONS :

SUBMITTAL: ISSUED FOR PERMIT

SCALE :

DATE : 2/27/2026

PROJECT NUMBER : 25003

DRAWN BY : CHECKED BY :

SHEET NO. : MD1.0

GENERAL NOTES:

A. CONTRACTOR TO VERIFY ALL EXISTING CONDITIONS PRIOR TO BID.

B. REFER TO ONE-LINES AND DETAILS FOR ADDITIONAL INFORMATION ON COMPONENTS.

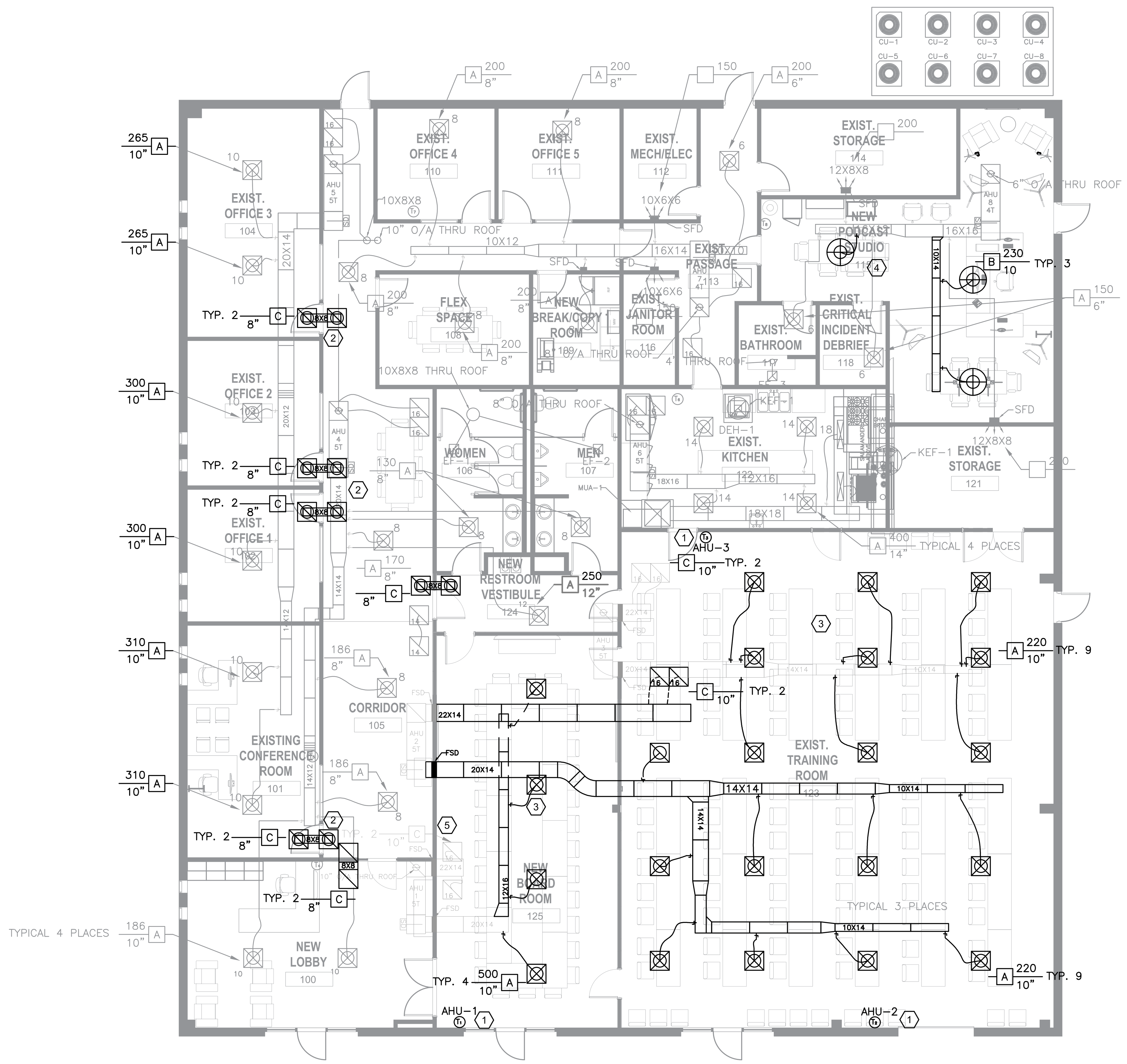
C. INSTALL BALANCING DAMPERS ON ALL NEW DIFFUSERS.

D. CONTRACTOR SHALL PROVIDE TEST AND BALANCE FOR ALL DIFFUSERS WITH AIRFLOW SHOWN IN VOLD. SUBMIT TEST AND BALANCE REPORT TO ENGINEER FOR APPROVAL.

E. ALL THERMOSTATS AND SENSORS SHOWN IN APPROXIMATE LOCATIONS. COORDINATE THE EXACT LOCATIONS WITH ARCHITECT.

MECHANICAL PLAN NOTES (X)

1. INSTALL THERMOSTATS IN TRINING AND BOARD ROOM. COORDINATE FINAL LOCATION WITH ARCHITECT
2. INSTALL NEW JUMPER BOOT BETWEEN PERIMETER SPACE AND CORRIDOR. REFER TO DETAIL 1/M2.3 FOR ADDITIONAL INFORMATION.
3. RELOCATE EXISTING DIFFUSERS WHERE APPLICABLE TO LOCATION SHOWN ON PLAN.
4. EXPOSED DUCTWORK INSULATION TO MATCH EXISTING.
5. INSTALL NEW COMBINATION FIRE SMOKE DAMPER ON DUCTWORK WHERE SHOWN ON PLANS. TIE IN TO EXISTING FIRE ALARM PANEL AS REQUIRED. MATCH POWER SOURCE TYPE FOR DEMOLISHED FIRE SMOKE DAMPERS



1 MECHANICAL PLAN
1/8" = 1'-0"
NORTH
0 4' 8' 16'

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SHEET TITLE : MECHANICAL PLAN

REVISIONS :

SUBMITTAL: ISSUED FOR PERMIT

SCALE :

DATE : 2/27/2026

PROJECT NUMBER : 25003

DRAWN BY : CHECKED BY :

SHEET NO. : M1.0

DUCTWORK INSULATION SCHEDULE

SYSTEM DESIGNATION	DESCRIPTION	PRODUCTS	K	SERVICE TEMPERATURES		NOMINAL THICKNESS	INSTALLED R-VALUE	REMARKS
				MIN (DEG. F)	MAX (DEG. F)			
DWF	FLEXIBLE DUCT WRAP GLASS FIBER ASTM C1290, TYPE III	OWENS CORNING SOFTR DUCT WRAP TYPE 75	0.30	0	250	2.2	6.0	
						3.0	8.3	
DWCCF	CLOSED-CELL ELASTOMERIC FOAM DUCT WRAP ASTM C534, TYPE II	ARMACELL AP ARMAFLEX FS	0.25	-20	220	2.0	8.0	

DUCTWORK JACKET SCHEDULE

SYSTEM DESIGNATION	DESCRIPTION	MANUFACTURER	REMARKS
FSK	ALUMINUM-FOIL, FIBERGLASS-REINFORCED SCRIM WITH KRAFT-PAPER OR POLYETHYLENE (FSP) BACKING. WATER VAPOR PERMEANCE = 0.02 PERM. MAX PER ASTM E96 AND PUNCTURE RESISTANCE OF 25 UNITS MAX. PER ASTM C 1136. JACKETING SHALL BE FACTORY-APPLIEDSHALL MEET ALL REQUIREMENTS UNDER ASTM C 1136, TYPE II AND IV.	OWENS-CORNING FSK-25	

NOTES:

1. K-FACTOR UNITS ARE BTU*IN/HR*FT^2*°F TESTED AT MEAN TEMPERATURE 75 °F
2. PROVIDE PRODUCT LISTED OR ENGINEER PRE-APPROVED EQUAL, APPLIES TO ALL PRODUCTS LISTED IN SCHEDULE.
3. ALL PRODUCTS TO BE INSTALLED PER THE MANUFACTURER'S RECOMMENDATIONS.
4. ALL INSULATING MATERIALS SHALL CONFORM TO ASTM E 84, HAVING A MAXIMUM FLAME SPREAD RATING OF 25 AND A MAXIMUM SMOKE DEVELOPMENT RATING OF 50.
5. FIBERGLASS NOMINAL THICKNESS IS OUT OF BOX THICKNESS. REQUIRED R-VALUE SHALL BE INSTALLED R-VALUE.
6. INSULATION PRODUCTS THAT COME IN CONTACT WITH STAINLESS STEEL SHALL HAVE A LEACHABLE CHLORIDE CONTENT OF LESS THAN 50 PPM WHEN TESTED ACCORDING TO ASTM C871. INSULATION MATERIALS FOR USE ON AUSTENITIC STAINLESS STEEL SHALL BE QUALIFIED AS ACCEPTABLE ACCORDING TO ASTM C795.

DUCT SCHEDULE

DUCT WORK ID	SERVICE	MATERIAL TYPE, PRESSURE CLASS	JOINT TYPE	SEAL CLASS	INSULATION - JACKET TYPE		REMARKS
					INTERIOR CONCEALED	INTERIOR UNCOND.	
SA (RECT)	SUPPLY AIR RECTANGULAR DUCT	GALVANIZED SHEET METAL PER SMACNA +2" W.G.	PER SMACNA	A	DWF-FSK R ≥ 6.0	DWCCF R ≥ 8.0	
SA (ROUND)	SUPPLY AIR ROUND DUCT	GALVANIZED SHEET METAL PER SMACNA +2" W.G.	PER SMACNA	A	DWF-FSK R ≥ 6.0	DWCCF R ≥ 8.0	
RA (RECT)	RETURN AIR RECTANGULAR DUCT	GALVANIZED SHEET METAL PER SMACNA -3" W.G.	PER SMACNA	A	DWF-FSK R ≥ 6.0	DWCCF R ≥ 8.0	
RA (ROUND)	RETURN AIR ROUND DUCT	GALVANIZED SHEET METAL PER SMACNA -3" W.G.	PER SMACNA	A	DWF-FSK R ≥ 6.0	DWCCF R ≥ 8.0	
SA/RA (FLEX)	FINAL AIR DEVICE CONNECTIONS	PREINSULATED FLEXIBLE ROUND DUCT	N / A	A	R >6.0	N/A	FLEXIBLE DUCT RUNS SHALL BE A MAXIMUM OF 5 FEET, 12 INCH MAX FOR PRIMARY DUCT CONN. TO TERMINAL UNITS. MATCH PRESSURE RATING OF ASSOCIATED DUCTWORK.

NOTES:

1. ALL DUCT SIZES INDICATE INSIDE CLEAR DIMENSIONS IN INCHES.
2. ALL METAL DUCT SHALL BE CONSTRUCTED PER SMACNA STANDARDS. METAL TAPE SHALL NOT BE ALLOWED AS METAL DUCT SEALANT UNLESS SPECIFICALLY NOTED OTHERWISE. SEAL ALL DUCTS IN ACCORDANCE WITH SMACNA SEAL CLASS A, INCLUDING ALL JOINTS, SEAMS, AND ALL APPLICABLE WALL PENETRATIONS UNLESS NOTED OTHERWISE. SEALANT SHALL BE WATER BASED UNLESS SUSCEPTIBLE TO CONDENSATION OR WATER EXPOSURE. SOLVENT BASED SEALANT SHALL BE USED IN THAT CASE.
3. PROVIDE PRODUCTS LISTED OR ENGINEER PRE-APPROVED EQUAL, APPLIES TO ALL PRODUCTS LISTED IN SCHEDULE.
4. INSULATION:
   A. INSULATION ABREVIATIONS: DWF- FLEXIBLE DUCT WRAP, DWR - RIGID DUCT WRAP, DLF - FLEXIBLE DUCT LINER, DWCCF - CLOSED CELL FOAM DUCT WRAP. REFER TO DUCT INSULATION SCHEDULE
   B. JACKET ABBREVIATIONS: FSK - FOIL SCRIM KRAFT JACKET. REFER TO DUCT INSULATION SCHEDULE FOR DETAILED INFORMATION.
   C. DUCT LINER SHALL BE USED FOR NOISE REDUCTION ONLY, IN DUCTS WITH VELOCITIES < 1500 FPM, AND FOR A MAXIMUM 10' LENGTH UNLESS NOTED OTHERWISE ON THE PLANS. DUCT LINER SHALL NOT BE USED ON DUCT CONNECTED TO FAN DISCHARGE OR DUCTS IN INTERIOR UNCONDITIONED SPACES OR EXTERIOR DUCT.
   D. INSULATION R-VALUES ARE INSTALLED R-VALUES.
   E. INSULATION PRODUCTS THAT COME IN CONTACT WITH STAINLESS STEEL SHALL HAVE A LEACHABLE CHLORIDE CONTENT OF LESS THAN 50 PPM WHEN TESTED ACCORDING TO ASTM C871. INSULATION MATERIALS FOR USE ON AUSTENITIC STAINLESS STEEL SHALL BE QUALIFIED AS ACCEPTABLE ACCORDING TO ASTM C795.
5. INSTALLATION: ALL DUCT SHALL BE INSTALLED IN ACCORDANCE WITH SMACNA HVAC DUCT CONSTRUCTION STANDARDS AND MANUFACTURER'S RECOMMENDATIONS. ALL FACTORY-FABRICATED DUCTS MUST BE INSTALLED BY INSTALLERS CERTIFIED BY THE MANUFACTURER TO DO SO.
6. ALL MATERIALS USED IN PLENUMS SHALL CONFORM TO ASTM E84, HAVING A MAXIMUM FLAME SPREAD RATING OF 25 AND A MAXIMUM DEVELOPED SMOKE RATING OF 50.
7. FURNISH AND INSTALL ALL MITERED ELBOWS WITH TURNING VANES. RADIUSED RECTANGULAR ELBOWS SHALL HAVE CENTER LINE RADIUS TO WIDTH RATIO (R/W) OF 1.5 UNLESS OTHERWISE SPECIFIED. ALL ROUND ELBOWS SHALL HAVE A CENTERLINE RADIUS TO DIAMETER RATIO (R/D) OF 1.5 UNLESS SHORT RADIUS ELBOWS ARE CALLED FOR ON THE PLANS IN WHICH CASE THE R/D RATIO SHALL BE 1.0.
8. SPACE CLASSIFICATIONS
   A. INTERIOR CONCEALED REFERS TO CONDITIONED UNOCUPPIED SPACES AND RETURN AIR PLENUMS.
   B. INTERIOR EXPOSED REFERS TO CONDITIONED OCCUPIED SPACES.
   C. INTERIOR UNCONDITIONED SPACES INCLUDES ABOVE CEILING SPACES IN DUCTED RETURN APPLICATIONS, VENTILATED ATTICS, CRAWL SPACES, MECHANICAL AND ELECTRICAL ROOMS, ETC.
   D. EXTERIOR REFERS TO EXPOSED TO WEATHER.
9. ALL DUCT SUPPORTS SHALL BE FURNISHED AND INSTALLED PER SMACNA HVAC DUCT CONTRUCTION STANDARDS. **POWDER-ACTUATED FASTENERS ARE NOT ALLOWED.**
10. ALL DUCTWORK DESIGNED FOR 3" W.C AND ABOVE AND ALL DUCTWORK LOCATED OUTDOORS SHALL BE LEAK TESTED IN ACCORDANCE WITH THE SMACNA HVAC AIR DUCT LEAKAGE TEST MANUAL. REPRESENTATIVE SECTIONS TOTALLING NO LESS THAN 25% OF THE TOTAL INSTALLED DUCT AREA FOR THE DESIGNATED PRESSURE CLASS, SELECTED BY THE BUILDING OWNER OR THE ENGINEER, SHALL BE TESTED. POSITIVE PRESSURE LEAKAGE TESTING IS ACCEPTABLE FOR NEGATIVE PRESSURE DUCTWORK.

MECHANICAL APPROVAL

APPROVED Date 03/30/2026

This stamp serves as a means of mechanical approval and does not include other disciplines.

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SHEET TITLE : MECHANICAL SCHEDULES

REVISIONS :

SUBMITTAL: ISSUED FOR PERMIT

SCALE :

DATE : 2/27/2026

PROJECT NUMBER : 25003

DRAWN BY : CHECKED BY :

SHEET NO. : M2.1

EXISTING DX SPLIT SYSTEM SCHEDULE

INDOOR UNIT	TAG		(E) AHU-1	(E) AHU-2	(E) AHU-3	(E) AHU-4	(E) AHU-5	(E) AHU-6	(E) AHU-7	(E) AHU-8
	GENERAL	MANUFACTURER	CARRIER	CARRIER	CARRIER	CARRIER	CARRIER	CARRIER	CARRIER	CARRIER
		MODEL	FB4CNF060	FB4CNF060	FB4CNF060	FB4CNF060	FB4CNF060	FB4CNF060	FB4CNF048	FB4CNF048
		TYPE	VARIABLE SPEED	VARIABLE SPEED	VARIABLE SPEED	VARIABLE SPEED	VARIABLE SPEED	VARIABLE SPEED	VARIABLE SPEED	VARIABLE SPEED
		SERVICE								
		ORIENTATION	CEILING MOUNTED	CEILING MOUNTED	CEILING MOUNTED	CEILING MOUNTED	CEILING MOUNTED	CEILING MOUNTED	CEILING MOUNTED	CEILING MOUNTED
		TOTAL AIRFLOW (CFM)	2,000	2,000	2,000	2,000	1,750	2,000	1,600	1,400
		OUTSIDE AIRFLOW (CFM)	195	250	250		120		176	130
		% OUTSIDE AIR	10%	13%	13%		7%		11%	
		UNIT WEIGHT (LBS)	175	175	175	175	175	175	157	157
	ELECTRIC HEAT	KW AT DESIGN VOLTAGE	10.0	10.0	5.0	8.0	10.0		10.0	8.0
	ELECTRICAL DATA	VOLTS / PHASE	240/1	240/1	240/1	240/1	240/1	240/1	240/1	240/1
		MIN. CIRCUIT AMPS	58.5	58.5	33.5	48.5	58.5	7.0	58.5	48.5
		MAX. OVERCURRENT PROTECTION	60	60	35	50	60	15	60	50
OUTDOOR UNIT	TAG		(E) CU-1	(E) CU-2	(E) CU-3	(E) CU-4	(E) CU-5	(E) CU-6	(E) CU-7	(E) CU-8
	GENERAL	MAKE	CARRIER	CARRIER	CARRIER	CARRIER	CARRIER	CARRIER	CARRIER	CARRIER
		MODEL	24ABB360	24ABB360	25HBC360A	25HBC360A	24ABB360	25HBC360A	25HBC348	25HBC348
		SERVICE	(E) AHU-1	(E) AHU-2	(E) AHU-3	(E) AHU-4	(E) AHU-5	(E) AHU-6	(E) AHU-7	(E) AHU-8
		TYPE	ELECTRIC COOLING	ELECTRIC COOLING	ELECTRIC COOLING	ELECTRIC COOLING	ELECTRIC COOLING	ELECTRIC COOLING	ELECTRIC COOLING	ELECTRIC COOLING
		TYPE	HEAT PUMP	HEAT PUMP	HEAT PUMP	HEAT PUMP	HEAT PUMP	HEAT PUMP	HEAT PUMP	HEAT PUMP
		NOMINAL TONS (ARI STD. COND.)	5.0	5.0	5.0	5.0	5.0	5.0	4.0	4.0
		MIN. # OF COMPRESSOR STAGES	VARIABLE SPEED	VARIABLE SPEED	VARIABLE SPEED	VARIABLE SPEED	VARIABLE SPEED	VARIABLE SPEED	VARIABLE SPEED	VARIABLE SPEED
		UNIT WEIGHT (LBS)	158	158	158	158	158	158	153	153
	ELECTRICAL DATA	VOLTS / PHASE	230/1	230/1	230/1	230/1	230/1	230/1	230/1	230/1
		MIN. CIRCUIT AMPS	34.2	34.2	34.2	34.2	34.2	34.5	26.2	26.2
		MAX. OVERCURRENT PROTECTION	50	50	50	50	50	50	40	40

AIR DEVICES SCHEDULE

MARK	GROUP	TYPE / PATTERN	BORDER / MOUNT	CONSTRUCTION	MANUFACTURER MODEL	MANUFACTURER MODEL	NOTES
A	24" X 24" CEILING SUPPLY AIR	360 DEGREE HORIZONTAL	LAY-IN CEILING	STEEL, PAINTED WHITE	TITUS TMS	PRICE	EXISTING DIFFUSERS ARE EXISTING TO BE RELOCATED
B	ROUND DIFFUSER	2 DISCHARGER PATTERNS	DUCT MOUNTED/ SUSPENDED	STEEL, PAINTED WHITE	TITUS TMR		
C	RETURN AIR REGISTERS	24"X24" PERF. RETURN	CEILING	STEEL, PAINTED WHITE	PRICE	PDDR	RELOCATE EXISTING DIFFUSERS WHERE APPLICABLE

NOTES:

1. PROVIDE MAKE AND MODEL SPECIFIED OR ENGINEER APPROVED SUBSTITUTE.
2. COORDINATE AIR DEVICE COLOR SELECTION WITH ARCHITECT.
3. ALL 24" X 24" CEILING MOUNTED SUPPLY AND RETURNS IN GYP OR PLASTER CEILINGS SHALL BE INSTALLED WITH A LAY-IN PLASTER FRAME EQUAL TO TITUS MODEL TRM OR PRICE MODEL SPF.
4. ALL ADJUSTABLE LINEAR SUPPLY AIR DEVICES IN GYP OR PLASTER CEILING SHALL BE INSTALLED WITH A LAY-IN PLASTER FRAME EQUAL TO TITUS MODEL PF-TBD.

VENTILATION RATE CALCULATION

SPACE	OCCUPANCY CLASSIFICATION	AREA (SF)	OCCUPANCY (QTY PEOPLE)	PEOPLE OA FLOW (CFM/PERSON)	AREA OA FLOW (CFM/SF)	CALCULATED OA FLOW (CFM)	REMARKS
102-Exist Office 1	OFFICE SPACE	169	2	5	0.06	20	
103-Exist Office 2	OFFICE SPACE	195	2	5	0.06	20	
104-Exist Office 3	OFFICE SPACE	312	4	5	0.06	40	
101-Exist Conference Room	OFFICE SPACE	312	4	5	0.06	40	
					AHU 5 TOTAL	120	
125-New Board Room	CONFERENCE ROOM	779	30	5	0.06	195	
					AHU 1 TOTAL	195	
123-Exist Training Room	OFFICE SPACE	2,340	72	5	0.06	500	
					AHU-2 AND AHU 3 TOTAL	500	
115-New Podcast Studio	OFFICE SPACE	649	18	5	0.06	130	
					AHU-8 TOTAL	130	

NOTES:

1. VENTILATION FLOW RATE CALCULATIONS BASED ON 2024 UMC TABLE 403.3 MINIMUM VENTILATION RATES

MECHANICAL APPROVAL

This stamp serves as a means of mechanical approval and does not include other disciplines.

APPROVED

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G2LG ENGINEERS

SHEET TITLE : MECHANICAL SCHEDULES

REVISIONS :

SUBMITTAL: ISSUED FOR PERMIT

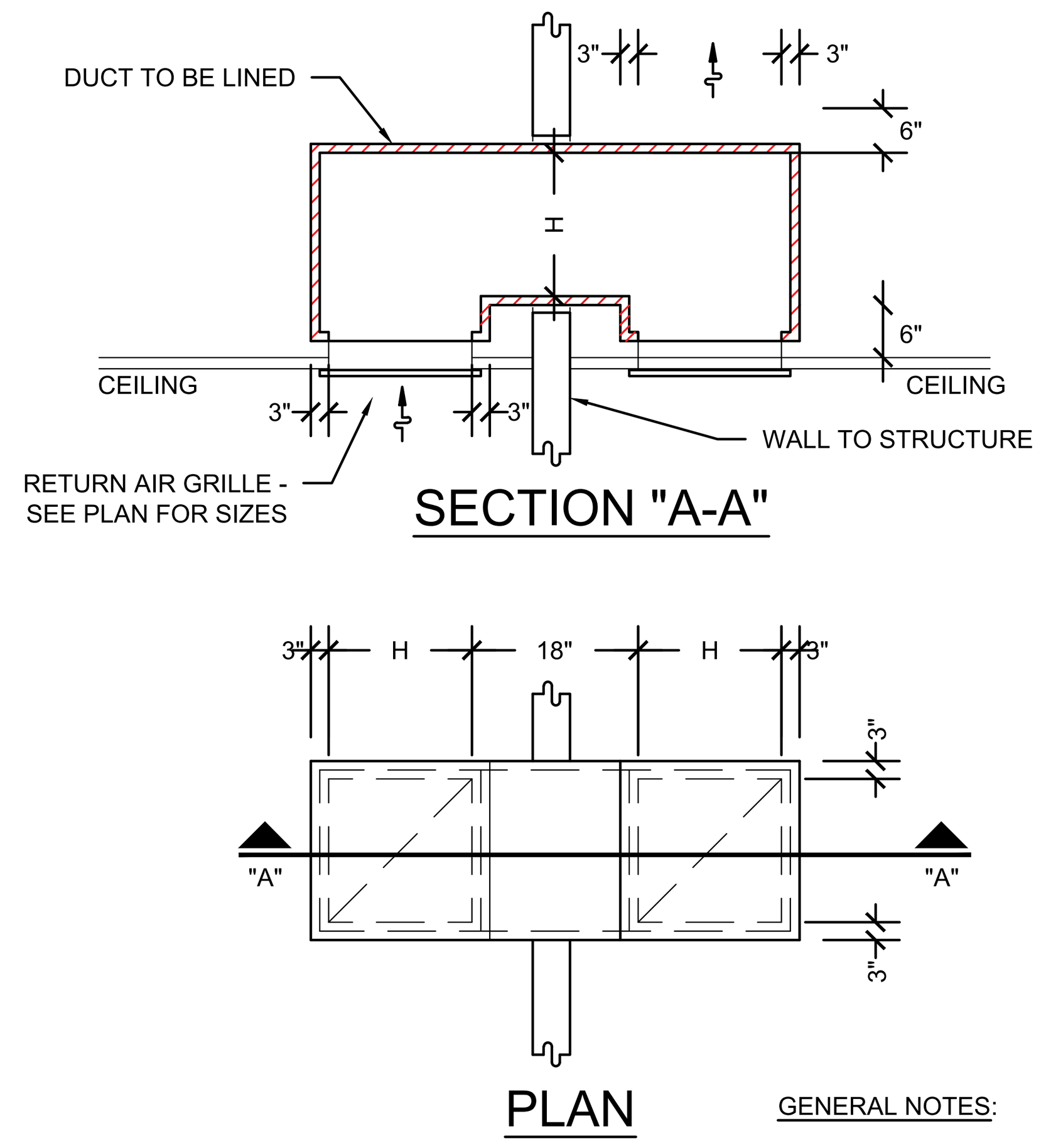
SCALE :

DATE : 2/27/2026

PROJECT NUMBER : 25003

DRAWN BY : CHECKED BY :

SHEET NO. : M2.2

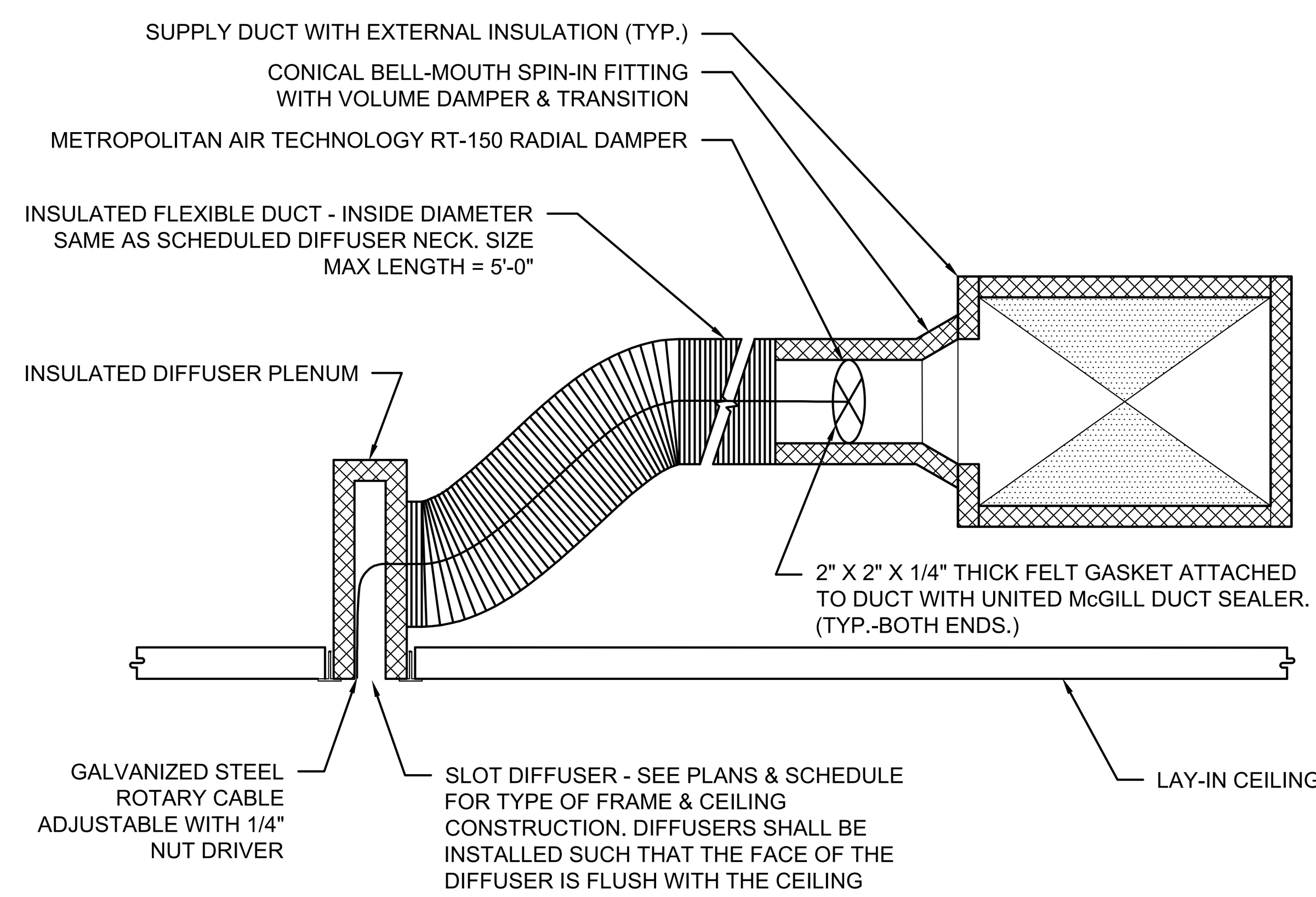


GENERAL NOTES:

W AND H ARE CLEAR INSIDE DIMENSIONS. SEE PLANS FOR DUCT SIZES.

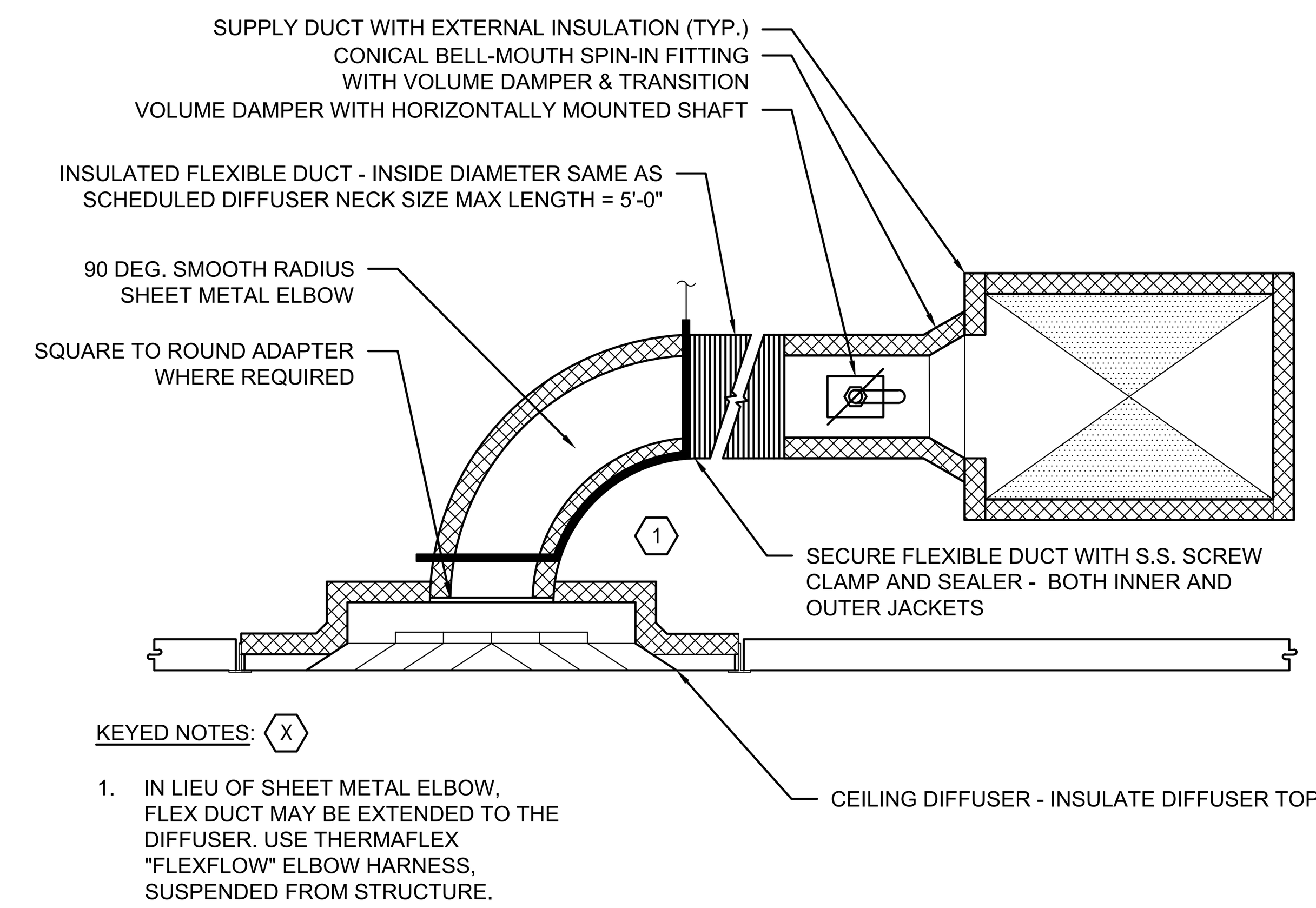
1 "Z" RETURN AIR TRANSFER BOOT

N.T.S.



2 SUPPLY AIR SLOT DIFFUSER WITH REMOTE REGULATOR

N.T.S.



KEYED NOTES: (X)

1. IN LIEU OF SHEET METAL ELBOW, FLEX DUCT MAY BE EXTENDED TO THE DIFFUSER. USE THERMAFLEX "FLEXFLOW" ELBOW HARNESS, SUSPENDED FROM STRUCTURE.

3 CEILING DIFFUSER CONNECTION

N.T.S.

MECHANICAL APPROVAL

APPROVED

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SHEET TITLE : MECHANICAL DETAILS

REVISIONS :

SUBMITTAL: ISSUED FOR PERMIT

SCALE :

DATE : 2/27/2026

PROJECT NUMBER : 25003

DRAWN BY : CHECKED BY :

SHEET NO. : M2.3

MECHANICAL ABBREVIATIONS

DESCRIPTION	AAB	DESCRIPTION	AAB
ABOVE CEILING	A/C	HUB DRAIN	HD
ABOVE FINISHED FLOOR	AFF	INCHES PER HOUR	IN/HR
ABOVE GRADE, GROUND	AG	INDIRECT DRAIN/ RECEPTOR	ID
ACCESS PANEL	AP	INDIRECT WASTE	IW
ACRYLONITRILE BUTADIENE STYTENE	ABS	INVERT ELEVATION	IE
AIR ADMITTANCE VALVE	AAV	LAVATORY	LAV
ARCHITECT	ARCH	MAN HOLE	MH
AUTHORITY HAVING JURISDICTION	AHJ	MAXIMUM	MAX
BACKFLOW PREVENTER	BFP	MECHANICAL	MECH
BELOW FINISHED FLOOR	BFF	MINIMUM	MIN
BELOW FLOOR	B/F	MIXING VALVE	MV
BELOW GRADE/ GROUND	BG	MOP SINK	MS
BELOW SLAB	B/S	NORMALLY CLOSED	NC
BOTTOM OF PIPE	BOP	NORMALLY OPEN	NO
BRAKE HORSEPOWER	BHP	NOT IN CONTRACT	NIC
BRITISH THERMAL UNIT	BTUH	NOT TO SCALE	NTS
BTUH (THOUSANDS)	MBH	EXISTING TO BE PROTECTED IN PLACE	(P)
CAST IRON	CI	POLYETHYLENE	PE
CELCIUS	C	POLYETHYLENE CROSS-LINKED	PEX
CHILLED WATER RETURN	CHWR	POLYVINYL CHLORIDE	PVC
CHILLED WATER SUPPLY	CHWS	POLYVYLIDENE FLOURIDE/ DIOFLOURIDE	PVDF
CHLORINATED POLYVINYL CHLORIDE	CPVC	POUND	LB
CLEANOUT	CO	POUNDS PER SQUARE INCH	PSI
CLEANOUT, FLOOR	FCO	POUNDS PER SQUARE INCH ABSOLUTE	PSIA
CLEANOUT, GRADE	GCO	POUNDS PER SQUARE INCH GAUGE	PSIG
CLEANOUT, GRADE TWO-WAY	DGCO	PRESSURE DROP	PD
CLEANOUT, WALL	WCO	PRESSURE REDUCING VALVE	PRV
CLEANOUT, YARD	YCO	PUMP, BOOSTER	BP
CLEANOUT, YARD TWO-WAY	DYCO	PUMP, CHILLED WATER	CHWP
CONDENSER RETURN	CWR	PUMP, CIRCULATION	CP
CONDENSER SUPPLY	CWS	PUMP, HOT WATER	HWP
COPPER	CU	REDUCED PRESSURE ZONE	RPZ
CUBIC FEET	CF	EXISTING TO BE RELOCATED	(R)
CUBIC FEET PER HOUR	CFH	REVOLUTION PER MINUTE	RPM
CUBIC FEET PER MINUTE	CFM	SCHEDULE	SCH
EXISTING TO BE DEMOLISHED/ REMOVED	(D)	SHOWER	SH
DEGREE	D	SINK	SK
DIAMETER	DIA	SQUARE FEET	SF
DRAIN, AREA	AD	STRUCTURAL	STRUC
DRAIN, FLOOR	FD	TEMPERATURE	TEMP
DRAIN, ROOF PRIMARY	RD	TEMPERATURE, ENTERING WATER	EWT
DRAIN, ROOF SECONDARY	SRD	TEMPERATURE, LEAVING WATER	LWT
ELECTRICAL	ELEC	THERMOSTATIC MIXING VALVE	TMV
ELEVATION	ELEV	TOP OF PIPE	TOP
EXISTING	EXIST, (E)	TRAP PRIMER	TP
FAHRENHEIT	F	TYPICAL	TYP
FAT, OIL, AND GAS	FOG	ULTRAVIOLET	UV
FOOT/ FEET	FT	UNDERGROUND	UG
FEET PER MINUTE	FPM	UNIT, AIR HANDLING	AHU
FEET PER SECOND	FPS	UNIT, FAN COIL	FC
FIXTURE UNIT	FU	UNLESS NOTED OTHERWISE	UNO
FLEXIBLE	FLEX	UP/ DOWN	UP/DN
FLOOR	FLR	VACUUM BREAKER	VB
FLOOR DRAIN	FD	VALVE FLOW COEFFICIENT	CV
FLOOR SINK	FS	VENT THRU ROOF	VTR
FUTURE	(F)	WATER GAUGE	WG
GALLON	GAL	WATER CLOSET	WC
GALLONS PER HOUR	GPH	WATER HAMMER ARRESTOR	WHA
GALLONS PER MINUTE	GPM	WATER, OIL, AND GAS	WOG
HEAD IN FEET	FTHD		
HEAD IN INCHES WATER COLUMN	INWC	ELECTRICAL	
HEATING HOT WATER RETURN	HWR	VOLTAGE	V, VOLT
HEATING HOT WATER SUPPLY	HWS	WATTAGE	W, WATT
HEATING, VENTILATION, AIR CONDITIONING	HVAC	KILOWATT	KW
HORSEPOWER	HP	PHASE	PH
HOUR	HR	AMPERE	A, AMP

CODE AND REGULATORIES ABBREVIATIONS

DESCRIPTION	AAB	DESCRIPTION	AAB
AMERICAN NATIONAL STANDARDS	ANSI	INTERNATIONAL ENERGY CONSERVATION CODE	IECC
AMERICAN SOCIETY OF CIVIL ENGINEERS	ASCE	INTERNATIONAL FIRE CODE	IFC
AMERICAN SOCIETY OF HEATING, REFRIGERATING AND AIR-CONDITIONING ENGINEERS	ASHRAE	INTERNATIONAL FUEL GAS CODE	IFGC
AMERICAN SOCIETY OF MECHANICAL ENGINEERS	ASME	INTERNATIONAL MECHANICAL CODE	IMC
AMERICAN SOCIETY OF PLUMBING ENIGNEERS	ASPE	INTERNATIONAL PLUMBING CODE	IPC
AMERICAN SOCIETY OF SANITARY ENGINEERING	ASSE	INTERNATIONAL RESIDENTIAL CODE	IRC
AMERICAN SOCIETY OF TESTING AND MATERIALS	ASTM	NATIONAL ELECTRICAL CODE	NEC
AMERICAN WATER WORKS ASSOCIATION	AWWA	NATIONAL FIRE PROTECTION ASSOCIATION	NFPA
CAST IRON SOIL PIPE INSTITUTE	CISPI	UNIFORM BUILDING CODE	UBC
FACTORY MUTAL	FM	UNIFORM FIRE CODE	UFC
INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS	IEEE	UNIFORM PLUMBING CODE	UPC
INTERNATIONAL ASSOCIATION OF PLUMBING AND MECHANICAL OFFICIALS	IAPMO	UNDERWRITERS LABORATORIES	UL
INTERNATIONAL BUILDING CODE	IBC		

VALVES

ANGLE GATE

ANGLE GLOBE

BALANCING

BALL

BELLOWS SEAL GLOBE

BUTTERFLY

DIAPHRAGM

GAS COCK

GAUGE COCK

GATE

GLOBE

NEEDLE

PLUG

PRESSURE REDUCING

PRESSURE RELIEF

PRESSURE-TEMPERATURE RELIEF

QUICK OPENING

CHECK

ALARM CHECK

SPRING CHECK

SWING CHECK

BALL CHECK

BACK FLOW PREVENTER, DOUBLE CHECK TYPE

BACK FLOW PREVENTER, REDUCED PRESSURE ZONE TYPE

PIPING SPECIALITIES

AIR SEPARATOR

AIR VENT, AUTOMATIC W/SERVICE VALVE

AIR VENT, AUTOMATIC W/SERVICE VALVE

AIR VENT, MANUAL

ALIGNMENT GUIDE (PIPE SLEEVE)

AQUASTAT

ANCHOR

BACKWATER VALVE

EXPANSION JOINT

EXPANSION LOOP

FILTER

FLEX CONNECTION

FLOWMETER, ORIFICE

FLOW SWITCH

FLOW METER, INSERTION

FLOW METER, VENTURI

HEAT EXCHANGER, LIQUID

HEAT TRANSFER SURFACE (INDICATE TYPE)

METER

PITCH OF PIPE, RISE (R) OR DROP (D)

PRESSURE GAUGE AND COCK

PRESSURE SWITCH

PUMP, CIRCULATING

PUMP SUCTION DIFFUSER

STRAINER, WYE

STRAINER W/ BLOW DOWN

STRAINER, DUPLEX

TEST PLUG

THERMOMETER

THERMOMETER IN WELL

THERMOMETER WELL ONLY

THRUST BLOCK

WATER HAMMER ARRESTER

PNEUMATIC THERMOSTAT

VACUUM BREAKER

PURGE PORT

PIPING TYPE

WATER

DOMESTIC COLD WATER	CW	
DOMESTIC HOT WATER, 140°F,60°C	HW	
DOMESTIC HOT WATER RETURN	HWR	
HOT WATER (TEMPERATURE INDICATED)	200°S	200°
HOT WATER RETURN (TEMP. INDICATED)	200°R	200°
DEIONIZED WATER	D.I.	D.I.
DISTILLED WATER	DIST	DIST
COLD SOFT WATER	CSW	CSW
HOT SOFT WATER	HSW	HSW
CHILLED DRINKING WATER SUPPLY	DWS	DWS
CHILLED DRINKING WATER RETURN	DWR	DWR

DRAINS & VENTS

STORM DRAIN, RAINWATER DRAIN	SD	SD
OVERFLOW STORM DRAIN	OD	OD
SOIL, WASTE OR SANITARY SEWER	SAN	SAN
GREASE WASTE	GW	GW
INDIRECT DRAIN	D	D
CONDENSATE DRAIN	CD	CD
VENT	V	
ATMOSPHERIC VENT (STEAM, HOT VAPOR)	ATV	ATV
SUB-SOIL DRAIN, FOOTING DRAIN (PERFORATED PIPE)	SSD	SSD

PLUMBING NOTES

1. **CONTRACTOR SHALL REVIEW AND ADHERE TO ALL NOTES LOCATED IN THE MEP SHEET SET.**
2. PROVIDE PIPING MATERIALS AND FACTORY-FABRICATED PIPING PRODUCTS OF SIZES, TYPES, PRESSURE RATINGS, AND CAPACITIES AS INDICATED. WHERE NOT INDICATED, PROVIDE PROPER SELECTION AS DETERMINED BY INSTALLER TO COMPLY WITH INSTALLATION REQUIREMENTS. PROVIDE SIZES, AND TYPES MATCHING PIPING AND EQUIPMENT CONNECTIONS; PROVIDE FITTINGS OF MATERIALS WHICH MATCH PIPE MATERIALS USED IN SOIL, AND VENT PIPING SYSTEMS.
3. NOT ALL PIPE SIZES ARE SHOWN ON PLANS FOR CLARITY. REFER TO RISER DIAGRAMS FOR PIPING SIZES.
4. COORDINATE FIRE ALARM CONNECTIONS TO FIRE PROTECTION SYSTEM WITH FIRE PROTECTION CONTRACTOR.
5. INSTALL PIPING TO ALLOW FOR EXPANSION AND CONTRACTION WITHOUT STRESSING PIPE, JOINTS, OR CONNECTED EQUIPMENT.
6. SLEEVE FOUNDATION BEAM PENETRATIONS WITH SCH. 40 STEEL PIPE SLEEVE OF 2" LARGER DIAMETER.
7. DOMESTIC WATER SYSTEMS:
   - 7.1. STOP VALVES SHALL BE **TWO OR THREE PIECE** BRONZE BALL VALVES WITH STAINLESS STEEL BALLS AND TEFLON PACKING AND GASKETS.
   - 7.2. HANGERS SHALL BE B-LINE MODEL B3104 FOR STEEL PIPE OR B-LINE MODEL B3104CT FOR COPPER TUBE.
   - 7.3. ALL PLUMBING EQUIPMENT CONNECTIONS SHALL BE MADE WITH UNIONS/FLANGES AND VALVES SO THAT THE CONNECTED EQUIPMENT CAN BE REMOVED WITHOUT OBSTRUCTION.
   - 7.4. INSTALL SHUT-OFF VALVES AT EACH BRANCH SERVING A RESTROOM OR FIXTURE GROUPING. INSTALL HOT AND COLD WATER SHUT-OFF VALVES AND SHOCK ARRESTORS ACCESSIBLY AT EACH FIXTURE BATTERY. COORDINATE ACCESS PANEL LOCATIONS WITH ARCHITECT.
   - 7.5. POTABLE WATER SYSTEMS SHALL BE DISINFECTED PRIOR TO USE PER CODE.
   - 7.6. UPON COMPLETION OF A SECTION OR OF THE ENTIRE WATER SUPPLY SYSTEM, IT SHALL BE TESTED AND PROVED TIGHT UNDER A WATER PRESSURE OF 125 PSIG FOR 2 HOURS. THE WATER USED FOR THE TEST SHALL BE OBTAINED FROM A POTABLE SOURCE OF SUPPLY.
8. SANITARY WASTE AND VENT SYSTEMS:
   - 8.1. HANGERS FOR HORIZONTAL SANITARY PIPING SHALL BE EXPANSION RING OR CLEVIS TYPE SPACED NO MORE THAN 5 FEET APART. VERTICAL PIPE PASSING THROUGH SLABS SHALL BE SUPPORTED WITH B-LINE MODEL B3373 FOR STEEL PIPE OR B-LINE MODEL B3373CT FOR COPPER TUBE. EACH HORIZONTAL JOINT IS ADEQUATELY SUPPORTED ON ONE SIDE OF THE JOINT WITHIN 12" OF THE JOINT. HANGERS ARE INSTALLED ON BOTH SIDES OF EACH NO HUB JOINT WITHIN 12" OF THE JOINTS AND OFFSETS ARE RESTRAINED IN AN APPROVED MANNER. (ABOVE SLAB ONLY)
   - 8.2. UNIFORM PLUMBING CODE: BUILDING DRAIN PIPING 4" DIAMETER AND LARGER SHALL BE RUN AT A MINIMUM SLOPE OF 1/8" PER LINEAR FOOT. BUILDING DRAIN PIPING LESS THAN 4" DIAMETER SHALL BE RUN AT A MINIMUM SLOPE OF 1/4" PER LINEAR FOOT.
   - 8.3. PROVIDE TRAP PRIMER ON ALL FLOOR DRAINS. LOCATE TRAP PRIMERS EXPOSED IN MECHANICAL ROOMS, OR IN WET WALL OF RESTROOMS. PROVIDE TRAP PRIMER ACCESS PANEL IN WALL OF A COLOR TO MATCH WALL. COORDINATE LOCATION WITH PLUMBING FIXTURES AND TILE PATTERNS.
   - 8.4. INSULATE EXPOSED LAVATORY P-TRAPS TO MEET ADA REQUIREMENTS.
   - 8.5. PLUMBING CONTRACTOR SHALL COORDINATE WITH GENERAL CONTRACTOR ON FLOOR CONSTRUCTION FOR RECEIVING DRAINS TO REQUIRED INVERT ELEVATIONS AND PROPER FLOOR SLOPE TO DRAIN LOCATIONS.

PIPE FITTINGS

CAPPED TEE

PITCH DOWN IN DIRECTION OF ARROW

BLIND FLANGE

PIPE CAP

INDICATES TIE-IN BETW. EXIST. AND NEW

ELBOW, TURN-DOWN

ELBOW, TURN-UP

FLANGE JOINT

REDUCER, CONCENTRIC

REDUCER, ECCENTRIC

BUSHING

UNION, SCREWED

UNION, FLANGED

VCR FITTING WITH CAP

BALL JOINT

PLUGGED PIPE

COUPLING (JOINT)

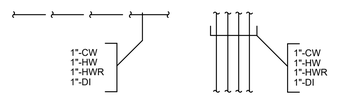
CROSSING (HIGHER PIPE / LOWER PIPE)

TEE

TEE, OUTLET DOWN

TEE, OUTLET UP

PIPING LABELING



FLOW IN DIRECTION OF ARROW

CONTINUATION, SINGLE LINE

ROUND CONTINUATION, DOUBLE LINE

RECTANGULAR CONTINUATION, DOUBLE LINE

RISER DESIGNATION (PIPING TYPE: P; RISER NUMBER: 1)

DRAWING SCHEDULE

NUMBER	TITLE
P0.0	PLUMBING NOTES AND SYMBOLS
P0.1	PLUMBING SHEET SPECS
P0.2	PLUMBING SHEET SPECS
PD1.1	PLUMBING DEMOLITION
P1.1	PLUMBING LAYOUT
P2.3	PLUMBING SCHEDULES

ALL PLUMBING SHALL BE IN ACCORDANCE WITH CITY OF AUSTIN ADOPTED PLUMBING CODES

THE GRANTING OF A PERMIT FOR, OR APPROVAL OF THESE PLANS AND SPECIFICATIONS SHALL NOT BE CONSTRUED TO BE A PERMIT FOR, OR APPROVAL OF ANY VIOLATION OF ANY OF THE PROVISIONS OF THE CURRENTLY ADOPTED PLUMBING CODE OR ANY OTHER ORDINANCES OF THE CITY OF AUSTIN.

PLUMBING APPROVAL

This stamp serves as a means of plumbing approval and does not include other disciplines.

Austin
Approved
Date 03/25/2026

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SHEET TITLE :
PLUMBING NOTES AND SYMBOLS

REVISIONS :

SUBMITTAL:
ISSUED FOR PERMIT

SCALE :

DATE :
2/27/2026

PROJECT NUMBER :
25003

DRAWN BY : CHECKED BY :

SHEET NO. :
P0.0

22 00 00 - PLUMBING GENERAL REQUIREMENTS

1. CODE REQUIREMENTS

1.1. THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE REQUIREMENTS OF LAWS, RULES, REGULATIONS, CODES STANDARDS, AND ORDINANCES OF FEDERAL, STATE, AND LOCAL AUTHORITIES HAVING JURISDICTION, AND ALL EQUIPMENT AND MATERIALS SHALL COMPLY WITH SAID AUTHORITIES WHETHER INDICATED ON THE CONTRACT DOCUMENTS OR NOT.

1.2. ALL WORK SHALL BE PERFORMED PER:

1.2.1. 2024 UNIFORM PLUMBING CODE CODE - WITH LOCAL CITY OF AUSTIN AMENDMENTS

1.2.2. 2024 UNIFORM BUILDING CODE

1.2.3. 2024 UNIFORM FIRE CODE

1.2.4. 2024 UNIFORM MECHANICAL CODE

1.2.5. 2024 INTERNATIONAL PLUMBING CODE

1.2.6. 2024 INTERNATIONAL FUEL GAS CODE

1.2.7. 2024 INTERNATIONAL BUILDING CODE

1.2.8. 2024 INTERNATIONAL FIRE CODE

1.2.9. 2024 INTERNATIONAL MECHANICAL CODE

1.3. THE PUBLICATIONS AND STANDARDS OF THE FOLLOWING AUTHORITIES, IN ADDITION TO THOSE SPECIFIED IN RELATED SUPPLEMENTARY CONDITIONS, SHALL BE OBSERVED DURING CONSTRUCTION AND ARE REFERENCED IN THE DOCUMENTATION BY THE ABBREVIATIONS NOTED:

1.3.1. AMERICAN NATIONAL STANDARDS - ANSI

1.3.2. AMERICAN SOCIETY OF CIVIL ENGINEERS - ASCE

1.3.3. AMERICAN SOCIETY OF HEATING, REFRIGERATION AND AIR CONDITIONING ENGINEERS - ASHRE

1.3.4. AMERICAN SOCIETY OF MECHANICAL ENGINEERS - ASME

1.3.5. AMERICAN SOCIETY OF PLUMBING ENGINEERS - ASPE

1.3.6. AMERICAN SOCIETY OF SANITARY ENGINERINGS - ASSE

1.3.7. AMERICAN SOCIETY FOR TESTING AND MATERIALS - ASTM

1.3.8. AMERICAN WATER WORKS ASSOCIATION - AWWA

1.3.9. AMERICANS WITH DISABILITIES ACT - ADA

1.3.10. CAST IRON SOIL PIPE INSTITUTE - CISPI

1.3.11. FACTORY MUTUAL - FM

1.3.12. INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS - IEEE

1.3.13. INTERNATIONAL ASSOCIATED OF PLUMBING AND MECHANICAL OFFCIALS - IAPMO

1.3.14. NATIONAL ELECTRICAL CODE - NEC

1.3.15. NATIONAL FIRE PROTECTION ASSOCIATION - NFPA

1.3.16. UNDERWRITER'S LABORATORY - UL

1.3.17. OCCUPATIONAL SAFETY AND HEALTH ACT - OSHA

2. GENERAL REQUIREMENTS

2.1. CONFLICT RESOLUTION: WHERE CONFLICTS MAY EXIST BETWEEN THE MINIMUM REQUIREMENTS OF VARIOUS LAWS, CODES, AUTHORITIES, AND/OR WITHIN THE CONSTRUCTION DOCUMENTS, THE HIGHER QUALITY, GREATER QUANTITY, MORE RESTRICTIVE AND/OR MORE EXPENSIVE REQUIREMENT SHALL BE THE BASIS OF CONTRACTOR PRICING AND THE CONTRACTOR SHALL NOTIFY THE ARCHITECT/ENGINEER AND OWNER'S REPRESENTATIVE FOR THE RESOLUTION OF THE ISSUE PRIOR TO EXECUTING WORK IN QUESTION.

2.2. SHOULD ANY ERRORS, OMISSIONS, OR AMBIGUITIES EXIST IN THE DRAWINGS, THE CONTRACTOR SHALL BRING THESE TO THE ATTENTION OF THE ENGINEER IMMEDIATELY FOR ADJUSTMENT IN WRITING BEFORE SIGNING THE CONTRACT OR PROCEEDING WITH WORK. OTHERWISE, HE SHALL AT HIS OWN EXPENSE, SUPPLY THE PROPER MATERIALS AND LABOR TO MAKE GOOD ANY DAMAGE OR DEFECT CAUSED BY SUCH UNINTENTIONAL ERROR.

2.3. CONTRACTOR IS RESPONSIBLE FOR CHECKING ALL CONTRACT DOCUMENTS, FIELD CONDITIONS AND DIMENSIONS FOR ACCURACY, AND CONFIRMING THAT THE WORK IS BUILDABLE AS SHOWN AND MEETS ALL APPLICABLE CODES BEFORE PROCEEDING WITH CONSTRUCTION. IF THERE ARE ANY QUESTIONS REGARDING THESE OR OTHER COORDINATION ISSUES, THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING A CLARIFICATION FROM THE ARCHITECT/ENGINEER BEFORE PROCEEDING WITH THE WORK IN QUESTION OR RELATED WORK.

2.4. CONTRACTOR SHALL DIRECT ALL QUESTIONS TO THE OWNER'S PROJECT COORDINATOR. THE CONTRACTOR SHALL VERIFY ALL WORKING CONDITIONS SUCH AS START TIMES, NOISE AND VIBRATION LIMITATIONS, CONFINED SPACE, ETC. THROUGH THE PROJECT COORDINATOR AND APPROVAL SHALL BE RECEIVED TO START WORK.

2.5. DEVIATION TO THE INTENDED DESIGN OR THE SCOPE OF WORK MUST BE APPROVED BY THE PROJECT ENGINEER PRIOR TO COMMENCING WORK. FAILURE TO DO SO MAY RESULT IN THE WORK TO BE REMOVED AT NO COST TO THE OWNER.

2.6. DISPOSE OF DEBRIS, TRASH, AND HAZARDOUS MATERIALS IN ACCORDANCE WITH ALL APPLICABLE CODES.

2.7. WORK AREAS SHALL BE KEPT CONTINUOUSLY, AT ALL TIMES, FREE OF DEBRIS AND NON-HAZARDOUS MATERIAL TO THE SATISFACTION OF THE PROJECT COORDINATOR. ALL EXISTING PIPING AND CONDUITS SHALL HAVE TEMPORARY PROJECTION DURING CONSTRUCTION. THE CONTRACTOR SHALL COORDINATE STORAGE OF MATERIALS, PARKING OF VEHICLES, AND RESTRICTIONS OF WORK WITH THE PROJECT COORDINATOR. AFTER PROJECT COMPLETION, THE SITE SHALL BE CLEANED UP AND RESTORED TO ITS CONDITION OR BETTER PRIOR TO THE START OF THE PROJECT TO THE SATISFACTION OF THE PROJECT COORDINATOR.

3. SCOPE OF WORK

3.1. THE SCOPE OF WORK SHALL INCLUDE COMPLETE PROVISIONS FOR PLUMBING SYSTEMS TO FIXTURES, DEVICES, APPLIANCES, AND EQUIPMENT SHOWN ON THE CONSTRUCTION DOCUMENTS.

3.1.1. PROVISIONS INCLUDE, BUT ARE NOT LIMITED TO, ALL SUPPLIES, MATERIALS, EQUIPMENT, TOOLS AND LABOR.

3.1.2. PROVISIONS ALSO INCLUDE ALL MISCELLANEOUS MATERIALS REQUIRED TO COMPLETE THE WORK SHOWN INCLUDING, BUT NOT LIMITED TO, SUPPORTS, HANGERS, ANGLE STOPS, VALVES, SLEEVES, SEALS, EQUIPMENT PADS, WAX CONNECTIONS, GRIDS, STRAINER, P-TRAPS, TAGS, LABELS, SIGNS, AND MARKERS.

3.1.3. THE CONSTRUCTION DOCUMENTS INCLUDE ALL PLANS, ELEVATIONS, DETAILS, DIAGRAMS, SCHEDULES, AND NOTES ON THE DRAWINGS AND THE WRITTEN SPECIFICATIONS INCLUDING ANY ITEMS MENTIONED IN EITHER THE SPECIFICATIONS OR ON THE DRAWINGS BUT NOT IN THE OTHER.

3.1.4. WHERE USED ON THE PLANS AND IN THE SPECIFICATIONS AND WHERE NOT SPECIFICALLY NOTED OTHERWISE, THE TERM "PROVIDE" AND THE TERM "INSTALL" SHALL MEAN FURNISH, INSTALL, CONNECT AND TEST.

3.1.5. UNLESS EXPLICITLY NOTED "BY OTHERS" OR "EXISTING", ALL ITEMS SHOWN GRAPHICALLY OR SPECIFIED BY NOTES AND DETAILS ON THE PLANS SHALL BE FURNISHED, INSTALLED, CONNECTED, AND TESTED AS NEEDED.

3.2. ADDITIONALLY, THE SCOPE OF WORK SHALL INCLUDE

3.2.1. APPLICATION FOR TEMPORARY AND PERMANENT PLUMBING SYSTEMS, PERMITTING, INSPECTION, AND PAYMENT OF ALL ASSOCIATED FEES.

3.2.2. TESTING AND COMMISSIONING OF PLUMBING SYSTEMS.

3.2.3. EQUIPMENT RENTAL

3.2.4. TEMPORARY CONSTRUCTION WATER SUPPLY AND DEWATERING.

3.2.5. PROVISIONS FOR MAINTAINING THE FUNCTIONALITY OF EXISTING TO REMAIN BUILDING COLD WATER, HOT WATER AND HOT WATER RETURN, SANITARY SEWER AND VENT, PRIMARY AND SECONDARY STORM DRAIN, PLUMBING FIXTURES AND EQUIPMENT SYSTEMS THAT WILL BE AFFECTED BY THE WORK.

4. SUBMITTALS

4.1. PRODUCT DATA: SUBMIT CATALOG DATA SHOWING MANUFACTURER'S NAME AND CONTACT INFORMATION, ALL STANDARD FEATURES, PLUMBING CONNECTION SIZES, LOCATIONS, FLOW REQUIREMENTS, PRESSURE REQUIREMENTS, WATER QUALITY REQUIREMENTS, ELECTRICAL AMPERAGE, VOLTAGE, POWER, DIMENSIONS, CLEARANCES, WEIGHTS, LISTINGS & PRODUCT LABELS, MATERIAL TYPES, FINISHES AND CLEARLY INDICATING WHICH OPTIONAL FEATURES WILL BE PROVIDED.

4.2. WHERE MULTIPLE SIZES ARE LISTED, INDICATE SIZES TO BE USED.

4.3. WHERE MULTIPLE PRODUCTS ARE SHOWN ON THE SAME PAGE, INDICATE WHICH PRODUCTS TO BE USED.

4.4. WHERE MULTIPLE ACCESSORIES/OPTIONS ARE SHOWN, INDICATE ALL APPLICABLE ACCESSORIES/OPTIONS

22 00 00 - PLUMBING GENERAL REQUIREMENTS (CONT.)

4.5. EQUIPMENT DRAWINGS: MANUFACTURER OR CONTRACTOR PREPARED DRAWINGS SHOWING ALL RELEVANT DIMENSIONS, WEIGHTS, ELECTRICAL, MECHANICAL & PLUMBING CONNECTION REQUIREMENTS, CONDUIT ENTRY POINTS, ASSEMBLY REQUIREMENTS, LIFTING REQUIREMENTS, LIFTING POINTS, REQUIRED CLEARANCES. INCLUDE PLAN VIEWS & ELEVATIONS.

4.6. INCLUDE ALL RELEVANT PLUMBING DIAGRAMS INCLUDING SCHEMATIC DIAGRAMS FOR COLD WATER, HOT WATER AND HOT WATER RETURN, NATURAL GAS, SANITARY SEWER AND VENT SYSTEMS, SIGNAL, AND CONTROL WIRING.

5. COORDINATION

5.1. THE CONTRACTOR SHALL CONSULT THE ARCHITECTURAL, CIVIL, STRUCTURAL, MECHANICAL, FIRE PROTECTION, ELECTRICAL AND OTHER DRAWINGS RELATED TO THIS PROJECT FOR ADDITIONAL WORK TO BE PROVIDED.

5.2. ALL PLUMBING SYSTEM SHUTDOWNS SHALL BE COORDINATED IN WRITING WITH OWNER ONE (1) WEEK (MIN) PRIOR TO THE SHUTDOWN.

5.3. COOPERATE FULLY WITH THE OWNER OR HIS REPRESENTATIVE DURING CONSTRUCTION OPERATIONS TO MINIMIZE CONFLICTS AND TO FACILITATE OWNER USAGE SO AS NOT TO INTERFERE WITH THE OWNER'S OPERATIONS.

5.4. THE DRAWINGS ARE DIAGRAMMATIC. THEY DO NOT SHOW ALL PIPING, FITTINGS, VALVES, ACCESSORIES, FIXTURES AND EQUIPMENT IN THEIR EXACT DIMENSIONED LOCATIONS AND/OR ELEVATIONS. THE CONTRACTOR MUST CAREFULLY REVIEW THE ARCHITECTURAL, STRUCTURAL MECHANICAL, ELECTRICAL, FIRE PROTECTION, AND SPECIAL SYSTEMS PLANS TO IDENTIFY CONFLICTS AND AREAS THAT REQUIRE COORDINATION.

5.5. PRIOR TO COMMENCE OF ANY WORK THE PLUMBING CONTRACTOR SHALL PRODUCE SHOP DRAWINGS.

5.5.1. SHOP DRAWINGS ARE REQUIRED TO SHOW EXACT LOCATIONS AND ELEVATIONS OF ALL PIPING, VALVES AND ACCESSORIES.

5.5.2. CONSTRUCTION DOCUMENTS SHALL NOT BE CONSIDERED SHOP DRAWINGS.

5.5.3. SHOP DRAWINGS SHALL BE FULLY COORDINATED WITH ALL DISCIPLINES ON THE PROJECT.

5.6. COORDINATE PLUMBING SYSTEMS EQUIPMENT ROUGH-IN WITH FURNITURE, MILLWORK, SIGNS, MECHANICAL, ELECTRICAL AND FIRE PROTECTION SYSTEMS, ARCHITECTURAL AND STRUCTURAL ELEMENTS, AND THE OWNER'S REPRESENTATIVE. MINOR CHANGES IN PLUMBING EQUIPMENT LOCATIONS AND LAYOUT THAT ARE REQUIRED BY SITE CONDITIONS OR ORDERED BY THE DESIGN TEAM PRIOR TO PERFORMANCE OF WORK SHALL BE MADE BY THE CONTRACTOR WITHOUT ADDITIONAL CHARGES TO THE OWNER.

5.7. MAINTAIN REQUIRED NEC WORKING SPACE AND DEDICATED EQUIPMENT SPACE AROUND ALL PLUMBING EQUIPMENT, CONTROLS PANELS, ETC THAT ARE SUBJECT TO MAINTENANCE, TESTING, OR USER INTERFACE. COORDINATE WITH OTHER TRADES. IF CLEARANCE CANNOT BE PROVIDED, THE CONTRACTOR SHALL NOTIFY THE ENGINEER PRIOR TO ROUGH-IN.

5.8. COORDINATE COLOR SELECTIONS FOR ACCESS PANELS AND ALL DEVICE PLATES WITH ARCHITECT.

6. DELIVERY AND STORAGE

6.1. STORE ALL PLUMBING SYSTEMS EQUIPMENT/MATERIALS IN CLEAN, DRY SPACE LOCATED ABOVE GRADE. PROTECT FROM DIRT, WATER, CONSTRUCTION DEBRIS, TRAFFIC, FREEZE, AND DETERIORATION FROM SUN LIGHT.

6.2. MAINTAIN FACTORY WRAPPING OR PROVIDE APPROPRIATE COVER FOR ALL LARGE PLUMBING EQUIPMENT. FOLLOW ALL MANUFACTURER RECOMMENDATIONS FOR HUMIDITY AND MAX/MIN TEMPERATURES FOR STORING PLUMBING EQUIPMENT.

7. QUALIFICATIONS

7.1. MANUFACTURER: COMPANY SPECIALIZING IN MANUFACTURING PRODUCTS SHOWN ON THE CONSTRUCTION DOCUMENTS WITH MINIMUM THREE YEARS DOCUMENTED EXPERIENCE

7.2. INSTALLER: A STATE LICENSED PLUMBER WITH DOCUMENTED EXPERIENCE INSTALLING ALL EQUIPMENT SPECIFIED HERE IN SHALL DIRECTLY SUPERVISE ALL WORK. WHERE NOTED IN THE SPECIFICATIONS, REQUIRED BY CODE, OR REQUIRED BY THE MANUFACTURER, INSTALLER SHALL BE A MANUFACTURER TRAINED AND/OR CERTIFIED INSTALLER OF THE SPECIFIC PRODUCT TO BE INSTALLED.

7.3. WHERE TESTING IS REQUIRED BY THE CONSTRUCTION DOCUMENTS, EQUIPMENT MANUFACTURER, OR CODE; TESTING SHALL BE PERFORMED BY AN AGENCY WITH DOCUMENTED EXPERIENCE AND PROPERLY CALIBRATED, FULLY FUNCTIONING EQUIPMENT, AND IS ACCEPTABLE TO THE AUTHORITY HAVING JURISDICTION.

8. QUALITY ASSURANCE

8.1. UNLESS OTHERWISE APPROVED, ALL EQUIPMENT SHALL BE NEW, PROPERLY DESIGNED, FROM A REPUTABLE MANUFACTURER MEETING THE SPECIFICATION QUALIFICATIONS, IN COMPLIANCE WITH THE SPECIFICATION REQUIREMENTS, AND IN FULL WORKING ORDER.

8.2. WHERE TWO OR MORE ITEMS OF THE SAME CLASS OF EQUIPMENT ARE REQUIRED, THESE ITEMS SHALL BE PRODUCTS OF A SINGLE MANUFACTURER; HOWEVER, THE COMPONENT PARTS OF THE ITEM NEED NOT BE THE PRODUCTS OF THE SAME MANUFACTURER UNLESS STATED IN THE TECHNICAL SECTION.

8.3. LISTING AND LABELING: WHERE REQUIRED, ALL ELECTRICAL COMPONENTS, DEVICES, AND ACCESSORIES SHALL BE LISTED AND LABELED AS DEFINED IN NFPA 70, ARTICLE 100, BY A TESTING AGENCY ACCEPTABLE TO AUTHORITIES HAVING JURISDICTION AND MARKED FOR THE INTENDED USE. TESTING AGENCY SHALL BE UL UNLESS NOTED OTHERWISE OR PRE-APPROVED BY OWNER AND AHJ.

8.4. ALL EQUIPMENT USED FOR TESTING SHALL BE IN FULL WORKING ORDER AND CALIBRATED PER THE MANUFACTURER'S RECOMMENDATIONS.

9. IDENTIFICATION

9.1. PROVIDE APPROPRIATE TAGS, LABELS AND WARNING SIGNS FOR ALL FIXTURES, EQUIPMENT, PIPING, FITTINGS, VALVES, AND ACCESSORIES. PROVIDE BURIED WARNING LABEL FOR ALL UNDERGROUND PIPING. WARNING LABELS SHALL BE DETECTABLE FOR ALL NON METALLIC PIPING.

10. GENERAL REQUIREMENTS - PIPING

10.1. VERIFY LOCATION AND ELEVATIONS FOR ALL EXISTING PLUMBING PIPING PRIOR START OF ANY WORK. NOTIFY OWNER, ARCHITECT, ENGINEER OF ANY DISCREPANCIES FROM CONSTRUCTION DOCUMENTS AND FIELD VERIFICATION.

10.2. DO NOT ENCLOSE, COVER, OR PUT PIPING INTO OPERATION UNTIL IT IS INSPECTED AND APPROVED BY AUTHORITIES HAVING JURISDICTION.

10.3. PVC SHALL NOT TO BE USED IN THE FOLLOWING LOCATIONS:

10.3.1. HVAC PLENUMS OR IN EXTERIOR LOCATIONS WHERE EXPOSED TO SUNLIGHT; COATINGS OR WRAPS ARE NOT ALLOWED IN THESE LOCATIONS.

10.3.2. DOMESTIC WATER SUPPLY SYSTEMS INSIDE OF THE BUILDING.

10.4. ALL EXTERIOR PLUMBING PIPING SHALL BE INSTALLED BELOW THE FROST LEVEL WITH MINIMUM COVER OF 24 INCHES, A MINIMUM 24 INCHES OF COVER SHALL BE PROVIDED UNLESS OTHERWISE INDICATED.

10.5. ALL TRENCHES SHALL BE BACKFILLED TO A POINT AT LEAST 12 INCHES ABOVE TOP OF PIPE WITH SAND. ALL BACKFILL ABOVE SAND SHALL NOT HAVE CLODS OF EARTH OR STONE LARGER THAN 1 1/2" DIAMETER.

10.6. TRENCHES SHALL BE BACKFILLED IN ONE FOOT LAYERS, MOISTENED AND TAMPED.

10.7. ROUTE PIPING IN ORDERLY MANNER AND MAINTAIN GRADIENT. ROUTE PARALLEL AND PERPENDICULAR TO WALLS.

10.8. GROUP PIPING WHENEVER PRACTICAL AT COMMON ELEVATIONS.

10.9. INSTALL PIPING TO MAINTAIN HEADROOM WITHOUT INTERFERING WITH USE OF SPACE OR TAKING MORE SPACE THAN NECESSARY.

10.10. INSTALL PIPING TO ALLOW FOR EXPANSION AND CONTRACTION WITHOUT STRESSING PIPE, JOINTS, OR CONNECTED EQUIPMENT.

10.11. PROVIDE CLEARANCE IN HANGERS AND FROM STRUCTURE AND OTHER EQUIPMENT FOR INSTALLATION OF INSULATION AND ACCESS TO VALVES AND FITTINGS.

10.12. ACCESS PANELS SHALL BE PROVIDED FOR ALL NON ACCESSIBLE VALVES. COORDINATE LOCATION, SIZE, COLOR WITH OWNER/ARCHITECT.

10.13. INSTALL FIRE STOPPING AT FIRE RATED CONSTRUCTION PERIMETERS AND OPENINGS CONTAINING PENETRATING SLEEVES AND PIPING.

10.14. INSTALL UNIONS DOWNSTREAM OF VALVES AND AT EQUIPMENT OR APPARATUS CONNECTIONS.

10.15. INSTALL NON-CONDUCTING DIELECTRIC CONNECTIONS WHEREVER JOINTING DISSIMILAR METALS.

10.16. INSTALL SLEEVE PIPES PASSING THROUGH PARTITIONS, WALLS AND FLOORS.

10.17. INSTALL VALVES WITH STEMS UPRIGHT OR HORIZONTAL, NOT INVERTED.

10.18. PROTECT PIPING SYSTEMS FROM ENTRY OF FOREIGN MATERIALS BY TEMPORARY COVERS, COMPLETING SECTIONS OF THE WORK, AND ISOLATING PART OF COMPLETED SYSTEM.

10.19. INSTALL PIPING PENETRATING ROOFED AREAS TO MAINTAIN INTEGRITY OF ROOF ASSEMBLY.

22 05 16 - EXPANSION FITTINGS AND LOOPS

1. GENERAL

1.1.CODE REFERENCES

1.1.1. AMERICAN SOCIETY OF MECHANICAL ENGINEERS:

1.1.1.1. ASME B31.9 - BUILDING SERVICES PIPING.

1.1.1.2. ASME SECTION IX - BOILER AND PRESSURE VESSEL CODE - WELDING AND BRAZING QUALIFICATIONS.

1.2.AMERICAN WELDING SOCIETY:

1.2.1. AWS D1.1 - STRUCTURAL WELDING CODE - STEEL.

1.3.DESIGN REQUIREMENTS

1.3.1. PROVIDE STRUCTURAL WORK AND EQUIPMENT REQUIRED FOR EXPANSION AND CONTRACTION OF PIPING. VERIFY ANCHORS, GUIDES, AND EXPANSION JOINTS PROVIDE AND ADEQUATELY PROTECT SYSTEM.

1.3.2. EXPANSION COMPENSATION DESIGN CRITERIA:

1.3.2.1. INSTALLATION TEMPERATURE: **70** DEGREES F.

1.3.2.2. DOMESTIC HOT WATER: **140** DEGREES F.

1.3.2.3. SAFETY FACTOR: **30** PERCENT.

2. PRODUCTS

2.1. FLEXIBLE PIPE CONNECTORS

2.1.1. STEEL PIPING: STAINLESS STEEL INNER HOSE, DOUBLE BRAIDED STAINLESS STEEL EXTERIOR SLEEVE, 200 PSIG WOG AND 250 DEGREES F, FLANGED, THREADED WITH UNION OR WELDED JOINTS. MAXIMUM OFFSET 1 INCH ON EACH SIDE OF INSTALLED CENTER LINE.

2.1.2. COPPER PIPING: BRONZE INNER HOSE, BRAIDED BRONZE EXTERIOR SLEEVE, 200 PSIG WOG AND 250 DEGREES F, FLANGED, THREADED WITH UNION OR WELDED JOINTS. MAXIMUM OFFSET 1 INCH ON EACH SIDE OF INSTALLED CENTER LINE.

2.2. EXPANSION JOINTS

2.2.1. STAINLESS STEEL BELLOWS TYPE: 3 INCH AND SMALLER STEEL PIPE, PRESSURE RATING 200 PSIG WOG AND 250 DEGREES F, MAXIMUM COMPRESSION 3 INCH, MAXIMUM EXTENSION 1/4 INCH, FLANGED, THREADED OR WELDED JOINTS.

2.2.2. EXTERNAL RING CONTROLLED STAINLESS STEEL BELLOWS TYPE: STEEL PIPING 3 INCH AND LARGER, 200 PSIG WOG AND 250 DEGREES F, 1-1/4 INCH MAXIMUM COMPRESSION, 3/8 INCH MAXIMUM EXTENSION, 5/16 INCH MAXIMUM OFFSET, FLANGED JOINT WITH INTERNAL FLOW LINER.

2.2.3. DOUBLE SPHERE, FLEXIBLE COMPENSATORS: STEEL PIPING 2 INCH AND LARGER TEFLON BODY, WORKING PRESSURE 150 PSI, 225 DEGREES F, MAXIMUM COMPRESSION 1-1/8 INCH, MAXIMUM ELONGATION 7/8 INCH, MAXIMUM OFFSET 7/8 INCH, MAXIMUM ANGULAR MOVEMENT 45 DEGREES, TAPPED STEEL FLANGES, GALVANIZED FLANGES OR GALVANIZED UNIONS. CONTROL RODS.

2.2.4. TWO-PLY BRONZE BELLOWS TYPE: COPPER PIPING 2 INCH AND SMALLER, BRONZE WITH ANTI-TORQUE DEVICE, LIMIT STOPS, INTERNAL GUIDES PRESSURE RATING 200 PSI WOG AND 250 DEGREES, MAXIMUM COMRPESSION 3 INCHES, MAXIMUM EXTENSION 1/4 INCH, SOLDERED JOINTS.

2.2.5. LOW PRESSURE COMPENSATORS WITH TWO-PLY BRONZE BELLOWS: COPPER OR STEEL PIPING 2 INCH AND SMALLER, WORKING PRESSURE 80 PSIG, MAXIMUM TEMPERATURE 250 DEGREES F, MAXIMUM COMPRESSION 1/2 INCH, MAXIMUM EXTENSION 5/32 INCH, SOLDERED JOINTS.

2.2.6. COPPER WITH PACKED SLIDING SLEEVE: COPPER OR STEEL PIPING 2 INCH AND LARGER, MAXIMUM TEMPERATURE 225 DEGREES F, FLANGED OR THREADED JOINTS,

2.3. ACCESSORIES

2.3.1. PIPE ALIGNMENT GUIDES: TWO PIECE WELDED STEEL WITH ENAMEL PAINT, BOLTED, WITH SPIDER TO FIT STANDARD PIPE, FRAME WITH FOUR MOUNTING HOLES, CLEARANCE FOR MINIMUM 1 INCH THICK INSULATION, MINIMUM 3 INCH TRAVEL.

2.3.2. SWIVEL JOINTS: FABRICATED STEEL, BRONZE, DUCTILE IRON OR CAST STEEL BODY, DOUBLE BALL BEARING RACE, FIELD LUBRICATED, WITH RUBBER OR BUNA-N O-RING SEALS.

3. EXECUTION

3.1. INSTALLATION

3.1.1. INSTALL WORK IN ACCORDANCE WITH **ASME B31.9**.

3.1.2. INSTALL FLEXIBLE PIPE CONNECTORS ON PIPES CONNECTED TO EQUIPMENT SUPPORTED BY VIBRATION ISOLATION. PROVIDE LINE SIZE FLEXIBLE CONNECTORS.

3.1.3. INSTALL FLEXIBLE CONNECTORS AT RIGHT ANGLES TO DISPLACEMENT. INSTALL ONE END IMMEDIATELY ADJACENT TO ISOLATED EQUIPMENT AND ANCHOR OTHER END. INSTALL IN HORIZONTAL PLANE UNLESS INDICATED OTHERWISE.

3.1.4. RIGIDLY ANCHOR PIPE TO BUILDING STRUCTURE. PROVIDE PIPE GUIDES TO DIRECT MOVEMENT ONLY ALONG AXIS OF PIPE. ERECT PIPING SO STRAIN AND WEIGHT IS NOT ON CAST CONNECTIONS OR APPARATUS.

3.1.5. PROVIDE SUPPORT AND ANCHORS FOR CONTROLLING EXPANSION AND CONTRACTION OF PIPING. PROVIDE LOOPS, PIPE OFFSETS, AND SWING JOINTS, OR EXPANSION JOINTS [**WHERE REQUIRED**] [**AS INDICATED ON DRAWINGS**]. REFER TO SECTION 220529 FOR PIPE HANGER INSTALLATION REQUIREMENTS.

3.1.6. PROVIDE GROOVED PIPING SYSTEMS WITH MINIMUM ONE JOINT PER INCH PIPE DIAMETER INSTEAD OF FLEXIBLE CONNECTOR SUPPORTED BY VIBRATION ISOLATION. GROOVED PIPING SYSTEMS NEED NOT BE ANCHORED.

3.1.7. PROVIDE EXPANSION LOOPS AS INDICATED ON DRAWINGS.

3.1.8. FURNISH INSPECTION SERVICES BY FLEXIBLE PIPE MANUFACTURER'S REPRESENTATIVE FOR FINAL INSTALLATION AND CERTIFY INSTALLATION IS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS AND CONNECTORS ARE PERFORMING SATISFACTORILY.

22 05 23 - GENERAL DUTY VALVE FOR PLUMBING

1. GENERAL

1.1. ASTM INTERNATIONAL

1.1.1. ASTM D1785 - STANDARD SPECIFICATION FOR POLY VINYL CHOLORIDE (PVC) PLASTIC PIPE, SCHEDULES 40, 80 AND 120.

1.1.2. ASTM D4101 - STANDARD SPECIFICATION FOR PROPYLENE INJECTION AND EXTRUSION MATERIALS.

1.2. MANUFACTURERS STANDARDIZATION SOCIETY OF THE VALVE AND FITTING INDUSTRY:

1.1.1. MSS SP 67 - BUTTERFLY VALVES

1.1.2. MSS SP 70 - CAST IRON GATE VALVES, FLANGED AND THREADED ENDS

1.1.3. MSS SP 71 - CAST IRON SWING CHECK VALVES, FLANGED AND THREADED ENDS

1.1.4. MSS SP 78 - CAST IRON PLUG VALVES, FLANGED AND THREADED ENDS

1.1.5. MSS SP 80 - BRONZE GATE, GLOBE, ANGLE AND CHECK VALVES.

1.1.6. MSS SP 110 - BALL LVES THREADED, SOCKET-WELDING, SOLDER JOINT, GROOVED AND FLARED ENDS.

2. PRODUCTS

2.1. GATE VALVES

2.1.1. 2 INCHES AND SMALLER: MSS SP 80, CLASS 125, BRONZE BODY, BRONZE TRIM, THREADED BONNET, NON-RISING STEM, HAND-WHEEL, INSIDE SCREW, SOLID WEDGE DISC, ALLOY SEAT RINGS, SOLDER OR THREADED ENDS.

2.1.2. 2-1/2 INCHES AND LARGER: MSS SP 70, CLASS 125, CAST IRON BODY, BRONZE TRIM, BOLTED BONNET, NON-RISING STEM, HAND-WHEEL, OUTSIDE SCREW AND YOKE, SOLID WEDGE DISC WITH BRONZE SEAT RINGS, FLANGED ENDS. FURNISH CHAIN-WHEEL OPERATORS FOR VALVES 6 INCHES AND LARGER MOUNTED OVER 8 FEET ABOVE FLOOR.

2.2. BALL VALVES

2.2.1. 2 INCHES AND SMALLER: MSS SP 110, CLASS 150, BRONZE, TWO PIECE BODY, TYPE 316 STAINLESS STEEL BALL, FULL PORT, TEFLON SEATS, BLOW-OUT PROOF STEM, SOLDER OR THREADED ENDS WITH UNION, LEVER HANDLE.

2.2.2. 2 INCHES AND SMALLER: 150 PSI AT 73 DEGREES F WATER TEMPERATURE, MAXIMUM SERVICE TEMPERATURE: 140 DEGREES F ASTM D1785 PVC BODY AND BALL, DOUBLE LEVER HANDLE, EPDM SEALS, TEFLON SEATS, FULL PORT, DOUBLE UNION TYPE WITH SOCKET OR THREADED ENDS.

2.2.3. 2 INCHES AND SMALLER: 150 PSI AT 73 DEGREES F WATER TEMPERATURE, MAXIMUM SERVICE TEMPERATURE: 210 DEGREES F, ASTM D1785 CPVC BODY AND BALL,

DOUBLE LEVER HANDLE, EPDM SEALS, TEFLON SEATS, FULL PORT, DOUBLE UNION TYPE WITH SOCKET OR THREADED ENDS.

2.2.4. 2 INCHES AND SMALLER: 150 PSI AT 73 DEGREES F WATER TEMPERATURE, MAXIMUM SERVICE TEMPERATURE: 180 DEGREES F, ASTM D4101 BLACK POLYPROPYLENE BODY AND BALL, DOUBLE LEVER HANDLE, EPDM SEALS, TEFLON SEATS, FULL PORT, DOUBLE UNION TYPE WITH SOCKET OR THREADED ENDS.

2.3. PLUG VALVES

2.3.1. 2 INCHES AND SMALLER: MSS SP 78, CLASS 150, SEMI-STEEL CONSTRUCTION, ROUND PORT, FULL PIPE AREA, PRESSURE LUBRICATED, TEFLON PACKING, THREADED ENDS. FURNISH ONE PLUG VALVE WRENCH FOR EVERY TEN PLUG-VALVES WITH MINIMUM OF ONE WRENCH.

2.3.2. 2-1/2 INCHES AND LARGER: MSS SP 78, CLASS 150, SEMI-STEEL CONSTRUCTION, ROUND PORT, FULL PIPE AREA, PRESSURE LUBRICATED, TEFLON PACKING, FLANGED ENDS. FURNISH WRENCH-OPERATED OR WORM GEAR-OPERATED.

2.4. BUTTERFLY VALVES

2.4.1. 2-1/2 INCHES AND LARGER: MSS SP 67, CLASS 150, BODY: CAST OR DUCTILE IRON,[WAFER LUG OR GROOVED ENDS, STAINLESS STEEL STEM, EXTENDED NECK, STAINLESS STEEL DISC, EPDM SEAT, INFINITE POSITION LEVER HANDLE WITH MEMORY STOP, HAND-WHEEL AND GEAR DRIVE, FURNISH GEAR OPERATORS FOR VALVES 8 INCHES AND LARGER, AND CHAIN-WHEEL OPERATORS FOR VALVES MOUNTED OVER 8 FEET ABOVE FLOOR.

2.4.2. 2 INCHES THROUGH 10 INCHES: 150 PSI AT 73 DEGREES F WATER TEMPERATURE, MAXIMUM SERVICE TEMPERATURE: 140 DEGREES F, TWO] PIECE BODY, ASTM D1785 PVC, LUG TYPE FLANGE FACING, DISC ENCAPSULATED WITH EPDM, STAINLESS STEEL SHAFT, LOCKING LEVER HANDLE.

2.4.3. 2 INCHES THROUGH 10 INCHES: 150 PSI AT 73 DEGREES F WATER TEMPERATURE, MAXIMUM SERVICE TEMPERATURE 210 DEGREES F, [ONE] [TWO] PIECE BODY, ASTM D1785 CPVC, LUG TYPE FLANGE FACING, DISC ENCAPSULATED WITH EPDM, STAINLESS STEEL SHAFT, LOCKING LEVER HANDLE.

2.5. HORIZONTAL SWING CHECK VALVES:

2.5.1. 2 INCHES AND SMALLER: MSS SP 80, CLASS 150, BRONZE BODY AND CAP, BRONZE SEAT, TEFLON DISC, SOLDER OR THREADED ENDS.

2.5.2. 2-1/2 INCHES AND LARGER: MSS SP 71, CLASS 125, CAST IRON BODY, BOLTED CAP, BRONZE OR CAST IRON DISC, RENEWABLE DISC SEAL AND SEAT, FLANGED ENDS.

2.5.3. 2-1/2 INCHES AND LARGER: MSS SP 71, CLASS 125], CAST IRON BODY, BRONZE SWING DISC, RENEWABLE DISC SEAL AND SEAT, FLANGED ENDS, OUTSIDE LEVER AND SPRING.

2.6. SPRING LOADED CHECK VALVES:

2.6.1. 2 INCHES AND SMALLER: MSS SP 80, CLASS 250 , BRONZE BODY, IN-LINE SPRING LIFT CHECK, SILENT CLOSING, TEFLON DISC, INTEGRAL SEAT, SOLDER OR THREADED ENDS.

2.6.2. 2-1/2 INCHES AND LARGER: MSS SP 71, CLASS 125 , GLOBE STYLE, CAST IRON BODY, BRONZE SEAT, CENTER GUIDED BRONZE DISC, STAINLESS STEEL SPRING AND SCREWS, FLANGED ENDS.

3. EXECUTION

3.1. INSTALLATION

3.1.1. INSTALL VALVES WITH STEMS UPRIGHT OR HORIZONTAL, NOT INVERTED.

3.1.2. INSTALL BRASS MALE ADAPTERS EACH SIDE OF VALVES IN COPPER PIPED SYSTEM. SOLDER ADAPTERS TO PIPE.

3.1.3. INSTALL 3/4 INCH BALL VALVES WITH CAP FOR DRAINS AT MAIN SHUT-OFF VALVES, LOW POINTS OF PIPING, BASES OF VERTICAL RISERS, AND AT EQUIPMENT.

3.1.4. INSTALL VALVES WITH CLEARANCE FOR INSTALLATION OF INSULATION AND ALLOWING ACCESS.

3.1.5. PROVIDE ACCESS WHERE VALVES AND FITTINGS ARE NOT ACCESSIBLE.

3.2. VALVE APPLICATIONS

3.2.1. INSTALL SHUTOFF AND DRAIN VALVES AT LOCATIONS INDICATED ON DRAWINGS IN ACCORDANCE WITH THIS SECTION.

3.2.2. INSTALL BALL, BUTTERFLY OR GATE VALVES FOR SHUT-OFF AND TO ISOLATE EQUIPMENT, PART OF SYSTEMS, OR VERTICAL RISERS.

3.2.3. INSTALL BALL, BUTTERFLY OR GLOBE VALVES FOR THROTTLING, BYPASS, OR MANUAL FLOW CONTROL SERVICES.

3.2.4. INSTALL SPRING LOADED CHECK VALVES ON DISCHARGE OF WATER PUMPS.

3.2.5. INSTALL LEVER AND SPRING CHECK VALVES ON DISCHARGE OF PUMPS IN PUMPED SANITARY OR PUMPED STORM WATER PIPING.

3.2.6. INSTALL LUG END BUTTERFLY VALVES ADJACENT TO EQUIPMENT WHEN FUNCTIONING TO ISOLATE EQUIPMENT.

3.2.7. INSTALL BALL, BUTTERFLY OR GATE VALVES IN DOMESTIC WATER SYSTEMS FOR SHUT-OFF SERVICE.

3.2.8. INSTALL BALL AND BUTTERFLY VALVES IN DOMESTIC WATER SYSTEMS FOR THROTTLING SERVICE.

A. INSTALL BALL AND GATE VALVES IN SANITARY SYSTEMS FOR SHUT-OFF SERVICE.

B. INSTALL BALL AND GATE VALVES IN STORM WATER SYSTEMS FOR SHUT-OFF SERVICE.

22 05 29 - HANGERS AND SUPPORTS FOR PLUMBING

1. SUPPORT HORIZONTAL PIPING AS SCHEDULE.

2. INSTALL HANGERS WITH MINIMUM 1/2 INCH SPACE BETWEEN FINISHED COVERING AND ADJACENT WORK.

3. PLACE HANGERS WITHIN 12 INCHES OF EACH HORIZONTAL ELBOW.

4. USE HANGERS WITH 1-1/2 INCH MINIMUM VERTICAL ADJUSTMENT.

5. SUPPORT VERTICAL PIPING AT EVERY FLOOR.

6. WHERE PIPING IS INSTALLED IN PARALLEL AND AT SAME ELEVATION, PROVIDE MULTIPLE PIPE OR TRAPEZE HANGERS.

7. SUPPORT RISER PIPING INDEPENDENTLY OF CONNECTED HORIZONTAL PIPING.

8. DESIGN HANGERS FOR PIPE MOVEMENT WITHOUT DISENGAGEMENT OF SUPPORT PIPE.

9. PRIME COAT EXPOSED STEEL HANGERS AND SUPPORTS. HANGERS AND SUPPORTS LOCATED IN CRAWL SPACE, PIPE SHAFTS, AND SUSPENDED CEILING SPACES ARE NOT CONSIDERED EXPOSED.

10. PROVIDE CLEARANCE IN HANGERS AND FROM STRUCTURE AND OTHER EQUIPMENT FOR ISNTALLATION OF ON INSULATION.

11. INSTALL FIRESTOPPING MATERIAL AT FIRE RATED CONSTRUCTION PERIMETERS AND OPENINGS CONTAINING PENETRATING SLEEVES, PIPING AND OTHER ITEMS, REQUIRING FIRESTOPPING.

12. APPLY FIRESTOPPING MATERIAL IN SUFFICIENT THICKNESS TO ACHIEVE REQUIRED FIRE AND SMOKE RATING.

13. HANGER SCHEDULE

PIPE TYPE	MAXIMUM HANGER SPACING	MINIMUM ROD DIAMETER
ABS	4 FEET	3/8 INCH
ALUMINUM	10 FEET	1/2 INCH
CAST IRON	5 FEET	5/8 INCH
CAST IRON-10 FT LENGTH	10 FEET	5/8 INCH
CPVC - 1 INCH & SMALLER	3 FEET	1/2 INCH
CPVC - 1-1/4 INCH & LARGER	4 FEET	1/2 INCH
COPPER 1 INCH & SMALLER	6 FEET	1/2 INCH
COPPER 1-1/4 INCH & UP	10 FEET	1/2 INCH
FIBERGLASS	4 FEET	1/2 INCH
GLASS	8 FEET	1/2 INCH
PEX (BARE)	32 INCHES	1/2 INCH
PEX (PEX-a SUPPORT)	6 FEET	1/2 INCH
POLYBUTYLENE	2.7 FEET	3/8 INCH
POLYPROPYLENE	4 FEET	3/8 INCH
PVC	4 FEET	3/8 INCH
STEEL 3 INCH & SMALLER	12 FEET	1/2 INCH
STEEL 4 INCH & LARGER	12 FEET	5/8 INCH

22 10 00 - PLUMBING PIPING

DOMESTIC WATER PIPING

1. ALL MATERIALS USED IN POTABLE WATER SYSTEMS SHALL MEET THE REQUIREMENTS OF NSF/ANSI 14 AND NSF/ANSI 61 AS APPLICABLE.

2. A WATER HAMMER ARRESTOR SHALL BE PROVIDE FOR EACH INDIVIDUAL OR BANK OF FLUSH VALVE FIXTURES. WATER HAMMER SHALL BE PROVIDED WITH ACCESSIBLE ISOLATION VALVE.

3. ALL HOT WATER AND HOT WATER RETURN CROSS MAIN AND BRANCH PIPING SHALL BE INSULATED.

4. PRIOR TO START OF WORK, VERIFY THAT SYSTEM IS COMPLETE, FLUSHED AND CLEAN.

5. VERIFY PH OF WATER TO BE TREATED IS BETWEEN 7.4 AND 7.6 BY ADDING ALKALI (CAUSTIC SODA OR SODA ASH) OR ACID (HYDROCHLORIC).

6. INJECT DISINFECTANT, FREE CHLORINE IN LIQUID, POWDER AND TABLET OR GAS FORM, THROUGHOUT SYSTEM TO OBTAIN RESIDUAL FROM 50 TO 80 mg/L.

7. BLEED WATER FROM OUTLETS TO OBTAIN DISTRIBUTION AND TEST FOR DISINFECTANT RESIDUAL AT MINIMUM 15 PERCENT OF OUTLETS.

8. MAINTAIN DISINFECTANT IN SYSTEM FOR 24 HOURS.

9. FLUSH DISINFECTANT FROM SYSTEM UNTIL RESIDUAL CONCENTRATION IS EQUAL TO INCOMING WATER OR 1.0 mg/L.

10. TAKE SAMPLE NO SOONER THAT 24 HOURS AFTER FLUSHING, FROM 10 PERCENT OF OUTLETS AND FROM WATER ENTRY, AND ANALYZE WITH AWWA C651.

SANITARY SEWER & VENT

1. DURING INSTALLATION, NOTIFY AUTHORITIES HAVING JURISDICTION AT LEAST 24 HOURS BEFORE INSPECTION MUST BE MADE. PERFORM TESTS SPECIFIED BELOW IN PRESENCE OF AUTHORITIES HAVING JURISDICTION.

1.1. ROUGHING-IN INSPECTION: ARRANGE FOR INSPECTION OF PIPING BEFORE CONCEALING OR CLOSING-IN AFTER ROUGHING-IN AND BEFORE SETTING FIXTURES.

1.2. FINAL INSPECTION: ARRANGE FOR FINAL INSPECTION BY AUTHORITIES HAVING JURISDICTION TO OBSERVE TESTS SPECIFIED BELOW AND TO ENSURE COMPLIANCE WITH REQUIREMENTS.

2. REINSPECTION: IF AUTHORITIES HAVING JURISDICTION FIND THAT PIPING WILL NOT PASS TEST OR INSPECTION, MAKE REQUIRED CORRECTIONS AND ARRANGE FOR REINSPECTION.

3. REPORTS: PREPARE INSPECTION REPORTS AND HAVE THEM SIGNED BY AUTHORITIES HAVING JURISDICTION.

4. TEST SANITARY SEWER AND VENT PIPING ACCORDING TO PROCEDURES OF AUTHORITIES HAVING JURISDICTION OR, IN THE ABSENSE OF PUBLISHED PROCEDURES, AS FOLLOWS:

4.1. TEST FOR LEAKS AND DEFECTS IN NEW PIPING AND PARTS OF EXISTING PIPING THAT HAVE BEEN ALTERED, EXTENDED, OR REPAIRED.

4.1.1. IF TESTING IS PERFORMED IN SEGMENTS, SUBMIT SEPARATE REPORT FOR EACH TEST, COMPLETE WITH DIAGRAM OF PORTION OF PIPING TESTED.

4.2. LEAVE UNCOVERED AND UNCONCEALED NEW, ALTERED, EXTENDED, OR REPLACED WASTE AND VENT PIPING UNTIL IT HAS BEEN TESTED AND APPROVED.

4.2.1. EXPOSE WORK THAT WAS COVERED OR CONCEALED BEFORE IT WAS TESTED.

4.3. ROUGHING-IN PLUMBING TEST PROCEDURE: TEST WASTE AND VENT PIPING EXCEPT OUTSIDE LEADERS ON COMPLETION OF ROUGHING-IN.

4.3.1. CLOSE OPENINGS IN PIPING SYSTEM AND FILL WITH WATER TO POINT OF OVERFLOW, BUT NOT LESS THAN 10-FOOT HEAD OF WATER.

4.3.2. FROM 15 MINUTES BEFORE INSPECTION STARTS TO COMPLETION OF INSPECTION, WATER LEVEL MUST NOT DROP.

4.3.3. INSPECT JOINTS FOR LEAKS.

4.4. FINISHED PLUMBING TEST PROCEDURE: AFTER PLUMBING FIXTURES HAVE BEEN SET AND TRAPS FILLED WITH WATER, TEST CONNECTIONS AND PROVE THEY ARE GASTIGHT AND WATERTIGHT.

4.4.1. PLUG VENT-STACK OPENINGS ON ROOF AND BUILDING DRAINS WHERE THEY LEAVE BUILDING. INTRODUCE AIR INTO PIPING SYSTEM EQUAL TO PRESSURE OF 1-INCH WG.

4.4.2. USE U-TUBE OR MANOMETER INSERTED IN TRAP OF WATER CLOSET TO MEASURE THIS PRESSURE.

4.4.3. AIR PRESSURE MUST REMAIN CONSTANT WITHOUT INTRODUCING ADDITIONAL AIR THROUGHOUT PERIOD OF INSPECTION.

4.4.4. INSPECT PLUMBING FIXTURE CONNECTIONS FOR GAS AND WATER LEAKS.

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

4.4.6. PREPARE REPORTS FOR TESTS AND REQUIRED CORRECTIVE ACTION.

4.4.7. SUPPORT CAST IRON PIPING AT EVERY JOINT.

4.5. TEST FORCE-MAIN PIPING ACCORDING TO PROCEDURES OF AUTHORITIES HAVING JURISDICTION OR, IN ABSENCE OF PUBLISHED PROCEDURES, AS FOLLOWS:

4.5.1. LEAVE UNCOVERED AND UNCONCEALED NEW, ALTERED, EXTENDED, OR REPLACED FORCE-MAIN PIPING UNTIL IT HAS BEEN TESTED AND APPROVED.

4.5.1.1. EXPOSE WORK THAT WAS COVERED OR CONCEALED BEFORE IT WAS TESTED.

4.5.2. CAP AND SUBJECT PIPING TO STATIC-WATER PRESSURE OF 50 PSIG ABOVE OPERATING PRESSURE, WITHOUT EXCEEDING PRESSURE RATING OF PIPING SYSTEM MATERIALS.

4.5.2.1. ISOLATE TEST SOURCE AND ALLOW TO STAND FOR FOUR HOURS.

4.5.2.2. LEAKS AND LOSS IN TEST PRESSURE CONSTITUTE DEFECTS THAT MUST BE REPAIRED.

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

4.5.4. PREPARE REPORTS FOR TESTS AND REQUIRED CORRECTIVE ACTION.

STORM DRAIN

1. TEST STORM DRAINAGE PIPING ACCORDING TO PROCEDURES OF AUTHORITIES HAVING JURISDICTION OR, IN ABSENCE OF PUBLISHED PROCEDURES, AS FOLLOWS:

1.1. TEST FOR LEAKS AND DEFECTS IN NEW PIPING AND PARTS OF EXISTING PIPING THAT HAVE BEEN ALTERED, EXTENDED, OR REPAIRED.

1.1.1. IF TESTING IS PERFORMED IN SEGMENTS, SUBMIT SEPARATE REPORT FOR EACH TEST, COMPLETE WITH DIAGRAM OF PORTION OF PIPING TESTED.

1.2. LEAVE UNCOVERED AND UNCONCEALED NEW, ALTERED, EXTENDED, OR REPLACED STORM DRAINAGE PIPING UNTIL IT HAS BEEN TESTED AND APPROVED.

1.2.1. EXPOSE WORK THAT WAS COVERED OR CONCEALED BEFORE IT WAS TESTED.

1.3. TEST PROCEDURE:

1.3.1. TEST STORM DRAINAGE PIPING, EXCEPT OUTSIDE LEADERS,] ON COMPLETION OF ROUGHING-IN.

1.3.2. CLOSE OPENINGS IN PIPING SYSTEM AND FILL WITH WATER TO POINT OF OVERFLOW, BUT NOT LESS THAN 10-FOOT HEAD OF WATER. FROM 15 MINUTES BEFORE INSPECTION STARTS UNTIL COMPLETION OF INSPECTION, WATER LEVEL MUST NOT DROP. INSPECT JOINTS FOR LEAKS.

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

1.5. PREPARE REPORTS FOR TESTS AND REQUIRED CORRECTIVE ACTION.

2. TEST FORCE-MAIN PIPING ACCORDING TO PROCEDURES OF AUTHORITIES HAVING JURISDICTION OR, IN ABSENCE OF PUBLISHED PROCEDURES, AS FOLLOWS:

2.1. LEAVE UNCOVERED AND UNCONCEALED NEW, ALTERED, EXTENDED, OR REPLACED FORCE-MAIN PIPING UNTIL IT HAS BEEN TESTED AND APPROVED.

2.1.1. EXPOSE WORK THAT WAS COVERED OR CONCEALED BEFORE IT WAS TESTED.

2.2. CAP AND SUBJECT PIPING TO STATIC-WATER PRESSURE OF 50 PSIG ABOVE OPERATING PRESSURE, WITHOUT EXCEEDING PRESSURE RATING OF PIPING SYSTEM MATERIALS.

2.2.1. ISOLATE TEST SOURCE AND ALLOW TO STAND FOR FOUR HOURS. LEAKS AND LOSS IN TEST PRESSURE CONSTITUTE DEFECTS THAT MUST BE REPAIRED.

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

2.4. PREPARE REPORTS FOR TESTS AND REQUIRED CORRECTIVE ACTION.

3. PIPING WILL BE CONSIDERED DEFECTIVE IF IT DOES NOT PASS TESTS AND INSPECTIONS.

4. PREPARE TEST AND INSPECTION REPORTS. SUBMIT FOR ENGINEER REVIEW AND APPROVAL.

ALL PLUMBING SHALL BE IN ACCORDANCE WITH CITY OF AUSTIN ADOPTED PLUMBING CODES

THE GRANTING OF A PERMIT FOR, OR APPROVAL OF THESE PLANS AND SPECIFICATIONS SHALL NOT BE CONSTRUED TO BE A PERMIT FOR, OR APPROVAL OF ANY VIOLATION OF ANY OF THE PROVISIONS OF THE CURRENTLY ADOPTED PLUMBING CODE OR ANY OTHER ORDINANCES OF THE CITY OF AUSTIN

PLUMBING APPROVAL

This stamp serves as a means of plumbing approval and does not include other disciplines.

Austin

Approved

Date 03/25/2026

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SHEET TITLE :
PLUMBING SHEET SPECS

REVISIONS :

SUBMITTAL:
ISSUED FOR PERMIT

SCALE :

DATE :
2/27/2026

PROJECT NUMBER :
25003

DRAWN BY : CHECKED BY :

SHEET NO. :
P0.1

NATURAL GAS

1. COMPLY WITH NFPA 54 FOR INSTALLATION AND PURGING OF NATURAL-GAS PIPING.
2. INSTALL PRESSURE GAGE UPSTREAM AND DOWNSTREAM OF EACH SERVICE REGULATOR.
3. VERIFY FINAL EQUIPMENT LOCATIONS FOR ROUGHING-IN.
4. COMPLY WITH REQUIREMENTS IN SECTIONS SPECIFYING GAS-FIRED APPLIANCES AND EQUIPMENT FOR ROUGHING-IN REQUIREMENTS.
5. DRIPS AND SEDIMENT TRAPS: INSTALL DRIPS AT POINTS WHERE CONDENSATE MAY COLLECT, INCLUDING SERVICE-METER OUTLETS. LOCATE WHERE ACCESSIBLE TO PERMIT CLEANING AND EMPTYING. DO NOT INSTALL WHERE CONDENSATE IS SUBJECT TO FREEZING.
   - 5.1. CONSTRUCT DRIPS AND SEDIMENT TRAPS USING TEE FITTING WITH BOTTOM OUTLET PLUGGED OR CAPPED. USE NIPPLE A MINIMUM LENGTH OF 3 PIPE DIAMETERS, BUT NOT LESS THAN 3 INCHES LONG AND SAME SIZE AS CONNECTED PIPE. INSTALL WITH SPACE BELOW BOTTOM OF DRIP TO REMOVE PLUG OR CAP.
6. EXTEND RELIEF VENT CONNECTIONS FOR SERVICE REGULATORS, LINE REGULATORS, AND OVERPRESSURE PROTECTION DEVICES TO OUTDOORS AND TERMINATE WITH WEATHERPROOF VENT CAP.
7. CONCEAL PIPE INSTALLATIONS IN WALLS, PIPE SPACES, UTILITY SPACES, ABOVE CEILINGS, BELOW GRADE OR FLOORS, AND IN FLOOR CHANNELS UNLESS INDICATED TO BE EXPOSED TO VIEW.
8. CONCEALED LOCATION INSTALLATIONS: EXCEPT AS SPECIFIED BELOW, INSTALL CONCEALED NATURAL-GAS PIPING AND PIPING INSTALLED UNDER THE BUILDING IN CONTAINMENT CONDUIT CONSTRUCTED OF STEEL PIPE WITH WELDED JOINTS AS DESCRIBED IN PART 2. INSTALL A VENT PIPE FROM CONTAINMENT CONDUIT TO OUTDOORS AND TERMINATE WITH WEATHERPROOF VENT CAP.
   - 8.1. ABOVE ACCESSIBLE CEILINGS: NATURAL-GAS PIPING, FITTINGS, VALVES, AND REGULATORS MAY BE INSTALLED IN ACCESSIBLE SPACES WITHOUT CONTAINMENT CONDUIT.
   - 8.2. IN FLOORS: INSTALL NATURAL-GAS PIPING WITH WELDED OR BRAZED JOINTS AND PROTECTIVE COATING IN CAST-IN-PLACE CONCRETE FLOORS. COVER PIPING TO BE CAST IN CONCRETE SLABS WITH MINIMUM OF 1-1/2 INCHES OF CONCRETE. PIPING MAY NOT BE IN PHYSICAL CONTACT WITH OTHER METALLIC STRUCTURES SUCH AS REINFORCING RODS OR ELECTRICALLY NEUTRAL CONDUCTORS. DO NOT EMBED PIPING IN CONCRETE SLABS CONTAINING QUICK-SET ADDITIVES OR CINDER AGGREGATE.
   - 8.3. IN FLOOR CHANNELS: INSTALL NATURAL-GAS PIPING IN FLOOR CHANNELS. CHANNELS MUST HAVE COVER AND BE OPEN TO SPACE ABOVE COVER FOR VENTILATION.
   - 8.4. IN WALLS OR PARTITIONS: PROTECT TUBING INSTALLED INSIDE PARTITIONS OR HOLLOW WALLS FROM PHYSICAL DAMAGE USING STEEL STRIKER BARRIERS AT RIGID SUPPORTS.
     - 8.4.1. EXCEPTION: TUBING PASSING THROUGH PARTITIONS OR WALLS DOES NOT REQUIRE STRIKER BARRIERS.
   - 5.5. PROHIBITED LOCATIONS:
   - 5.6. DO NOT INSTALL NATURAL-GAS PIPING IN OR THROUGH CIRCULATING AIR DUCTS, CLOTHES OR TRASH CHUTES, CHIMNEYS OR GAS VENTS (FLUES), VENTILATING DUCTS, OR DUMBWAITER OR ELEVATOR SHAFTS.
   - 5.7. DO NOT INSTALL NATURAL-GAS PIPING IN SOLID WALLS OR PARTITIONS.
6. USE ECCENTRIC REDUCER FITTINGS TO MAKE REDUCTIONS IN PIPE SIZES. INSTALL FITTINGS WITH LEVEL SIDE DOWN.
7. CONNECT BRANCH PIPING FROM TOP OR SIDE OF HORIZONTAL PIPING.
8. INSTALL UNIONS IN PIPES NPS 2 AND SMALLER, ADJACENT TO EACH VALVE, AT FINAL CONNECTION TO EACH PIECE OF EQUIPMENT. UNIONS ARE NOT REQUIRED AT FLANGED CONNECTIONS.
9. DO NOT USE NATURAL-GAS PIPING AS GROUNDING ELECTRODE.
10. INSTALL STRAINER ON INLET OF EACH LINE-PRESSURE REGULATOR AND AUTOMATIC OR ELECTRICALLY OPERATED VALVE.
11. VALVE INSTALLATION
   - 11.1. INSTALL MANUAL GAS SHUTOFF VALVE FOR EACH GAS APPLIANCE AHEAD OF CORRUGATED STAINLESS-STEEL TUBING, ALUMINUM, OR COPPER CONNECTOR.
   - 11.2. INSTALL UNDERGROUND VALVES WITH VALVE BOXES.
   - 11.3. INSTALL REGULATORS AND OVERPRESSURE PROTECTION DEVICES WITH MAINTENANCE ACCESS SPACE ADEQUATE FOR SERVICING AND TESTING.
   - 11.4. INSTALL EARTHQUAKE VALVES ABOVEGROUND OUTSIDE BUILDINGS ACCORDING TO LISTING.
   - 11.5. INSTALL ANODE FOR METALLIC VALVES IN UNDERGROUND PE PIPING.

22 30 00 - PUMPS

1. GENERAL
   - 1.1. PROVIDE SHOP DRAWINGS FOR BOOSTER PUMPS
     - 1.1.1. INCLUDE PLANS, ELEVATIONS, SECTION AND MOUNTING/ATTACHMENT DETAILS.
     - 1.1.2. INCLUDE DETAILS FOR EQUIPMENT ASSEMBLIES. INDICATE WEIGHTS, LOADS, REQUIRED CLEARANCES, METHOD OF FIELD ASSEMBLY, COMPONENTS, AND LOCATION AND SIZE OF EACH FIELD CONNECTION.
     - 1.1.3. INCLUDE DIAGRAMS FOR POWER, SIGNAL, AND CONTROL DRAWINGS.
   - 1.2. COORDINATE SIZES AND LOCATIONS OF CONCRETE BASES WITH ACTUAL EQUIPMENT PROVIDED.
2. PRODUCTS
   - 2.1. SEE PLUMBING SCHEDULES FOR PRODUCT INFORMATION.
3. EXECUTION
   - 3.1. INSTALL PUMPS ON CAST-IN-PLACE CONCRETE EQUIPMENT BASE(S) AS SHOWN ON DRAWINGS.
   - 3.2. COMPLY WITH VIBRATION ISOLATION AND SEISMIC CONTROL DEVICES.
   - 3.3. SUPPORT CONNECTED WATER PIPING SO WEIGHT OF PIPING IS NOT SUPPORTED BY PUMPS.
   - 3.4. ENGAGE A FACTORY AUTHORIZED SERVICE REPRESENTATIVE TO PERFORM START UP SERVICE.
   - 3.5. ENGAGE A FACTORY AUTHORIZED SERVICE REPRESENTATIVE TO TRAIN OWNER'S MAINTENANCE PERSONAL TO ADJUST, OPERATE, AND MAINTAIN PUMPS.

22 30 00 - WATER HEATERS

1. GENERAL
   - 1.1. CONFORM TO ASME SECTION VIII FOR CONSTRUCTION OF WATER HEATERS. PROVIDE BOILERS REGISTERED WITH NATIONAL BOILER AND PRESSURE VESSEL INSPECTORS.
   - 1.2. WATER HEATER EQUIPMENT EFFICIENCY SHALL AT A MINIMUM MEET ASHRAE 90.1.
   - 1.3. WATER HEATER MANUFACTURER SHALL PROVIDE VERIFICATION OF MINIMUM 3 YEARS EXPERIENCE IN MANUFACTURING PRODUCTS AND WITH SERVICE FACILITIES WITHIN 100 MILES OF PROJECT.
   - 1.4. INSTALLING COMPANY SHALL HAVE MINIMUM 3 YEARS DOCUMENTED EXPERIENCE IN PERFORMING WATER HEATER INSTALLATION WORK.
   - 1.5. WATER HEATER SHALL BE ACCEPTED ON SITE IN ORIGINAL LABELED CARTONS AND INSPECTED FOR DAMAGE.
   - 1.6. PROTECT TANKS WITH TEMPORARY INLET AND OUTLET CAPS. MAINTAIN CAPS IN PLACE UNTIL INSTALLATION.
   - 1.7. MINIMUM 5 YEARS MANUFACTURER WARRANTY FOR DOMESTIC WATER HEATER AND STORAGE TANKS.
2. PRODUCTS
   - 2.1. SEE PLUMBING SCHEDULES FOR PRODUCT INFORMATION.
3. EXECUTION
   - 3.1. INSTALLATION
     - 3.1.1. MAINTAIN MANUFACTURER'S RECOMMEND CLEARANCES AROUND AND OVER WATER HEATERS.
     - 3.1.2. INSTALL WATER HEATERS ON CONCRETE HOUSEKEEPING PAD, MINIMUM 4 INCHES HIGH AND 6 INCHES LARGER THAN WATER HEATER BASE ON EACH SIDE.
     - 3.1.3. REFER TO WATER HEATER DETAILS FOR ALL REQUIRED PIPING ACCESSORIES TO BE
     - 3.1.4. INSTALL DISCHARGE PIPING FROM RELIEF VALVES AND DRAIN VALVES TO NEAREST FLOOR DRAIN.
     - 3.1.5. INSTALL WATER HEATER TRIM AND ACCESSORIES FURNISHED LOOSE FOR FIELD MOUNTING.
     - 3.1.6. INSTALL ELECTRICAL DEVICES FURNISHED LOOSE FOR FIELD MOUNTING.
     - 3.1.7. INSTALL CONTROL WIRING BETWEEN WATER HEATER CONTROL PANEL AND FIELD MOUNTED CONTROL DEVICES.
     - 3.1.8. CONNECT NATURAL GAS PIPING ACCORDING TO NFPA 54.
     - 3.1.9. CONNECT PROPANE PIPING ACCORDING TO NFPA 58.
     - 3.1.10. CONNECT FUEL OIL PIPING ACCORDING TO NFPA 31.

22 40 00 - PLUMBING FIXTURES

1. GENERAL
   - 1.1. INSTALL LEVEL AND PLUMB ACCORDING TO ROUGHING-IN DRAWINGS
   - 1.2. INSTALL ALL HANDICAPPED/ELDERLY ACCESSIBLE PLUMBING FIXTURES AT MOUNTING HEIGHT ACCORDING TO ICC/ANSI A117.1.
   - 1.3. OPERATE AND ADJUST ALL PLUMBING FIXTURE CONTROLS. ADJUST WATER PRESSURE TO PRODUCE PROPER FLOW.
   - 1.4. INSTALL FRESH BATTERIES IN BATTERY-POWERED, ELECTRONIC-SENSOR MECHANISMS.
   - 1.5. CLEAN ALL PLUMBING FIXTURES AND FITTINGS WITH MANUFACTURERS RECOMMENDED CLEANING METHODS AND MATERIALS.
   - 1.6. INSTALL PROTECTIVE COVERING ON ALL PLUMBING FIXTURES DURING CONSTRUCTION.
   - 1.7. DO NOT ALLOW USE OF PLUMBING FIXTURES FOR TEMPORARY FACILITIES UNLESS APPROVED IN WRITING BY OWNER.
2. PRODUCTS
   - 2.1. SEE PLUMBING SCHEDULES FOR PRODUCT INFORMATION
3. EXECUTION
   - 3.1. INSTALLATION
     - 3.1.1. WATER-CLOSET
       - 3.1.1.1. INSTALL FLOOR MOUNTED WATER CLOSETS ON BOWL TO DRAIN CONNECTING FITTINGS TO ATTACHMENTS TO PIPING OR BUILDING SUBSTRATE.
       - 3.1.1.2. INSTALL ACCESSIBLE, WALL MOUNTED WATER CLOSETS AT MOUNTING HEIGHT FOR HANDICAPPED/ELDERLY, ACCORDING TO ICC/ANSI A117.1.
     - 3.1.2. URINALS
       - 3.1.2.1. INSTALL WALL HUNG, BACK OUTLET URINAL ONTO WASTE FITTINGS SEALS AND ATTACHED TO SUPPORTS.
       - 3.1.2.2. INSTALL WALL HUNG, BACK-OUTLET URINALS WITH TUBULAR WASTE PIPING ATTACHED TO SUPPORTS.
       - 3.1.2.3. INSTALL TRAP-SEAL LIQUID IN WATERLESS URINALS.
     - 3.1.3. LAVATORIES
       - 3.1.4.1. INSTALL SUPPORTS, AFFIXED TO BUIDLING SUBSTRATE, FOR ALL WALL MOUNTED LAVATORIES.
       - 3.1.4.2. INSTALL WALL FLANGES OR ESCUTCHEONS AT PIPING WALL PENETRATIONS IN EXPOSED, FINISHED LOCATIONS. USE DEEP-PATTERN ESCUTCHEONS IF REQUIRED TO CONCEAL PROTRUDING FITTINGS.
       - 3.1.4.3. SEAL JOINTS BETWEEN LAVATORIES, COUNTERS, AND WALLS USING SANITARY-TYPE, ONE-PART, MILDEW-RESISTANT SILICONE SEALANT. MATCH SEALANT COLOR TO FIXTURE COLOR.
       - 3.1.4.4. INSTALL PROTECTIVE SHIELDING PIPE COVERS AND ENCLOSURES ON EXPOSED SUPPLIES AND WASTE PIPING OF ACCESSIBLE LAVATORIES.
     - 3.1.5. SINKS
       - 3.1.5.1. INSTALL SUPPORTS, AFFIXED TO BUILDING SUBSTRATE, FOR WALL-HUNG SINKS.
       - 3.1.5.2. SET FLOOR-MOUNTED SINKS IN LEVELING BED OF CEMENT GROUT.
       - 3.1.5.3. INSTALL WATER-SUPPLY PIPING WITH STOP ON EACH SUPPLY TO EACH SINK FAUCET.
         - 3.1.5.3.1. EXCEPTION: USE BALL OR GATE VALVES IF SUPPLY STOPS ARE NOT SPECIFIED WITH SINK.
         - 3.1.5.3.2. INSTALL STOPS IN LOCATIONS WHERE THEY CAN BE EASILY REACHED FOR OPERATION.
       - 3.1.5.4. INSTALL WALL FLANGES OR ESCUTCHEONS AT PIPING WALL PENETRATIONS IN EXPOSED, FINISHED LOCATIONS. USE DEEP-PATTERN ESCUTCHEONS IF REQUIRED TO CONCEAL PROTRUDING FITTINGS.
       - 3.1.5.5. SEAL JOINTS BETWEEN SINKS AND COUNTERS, FLOORS, AND WALLS USING SANITARY-TYPE, ONE-PART, MILDEW-RESISTANT SILICONE SEALANT. MATCH SEALANT COLOR TO FIXTURE COLOR.
       - 3.1.5.6. INSTALL PROTECTIVE SHIELDING PIPE COVERS AND ENCLOSURES ON EXPOSED SUPPLIES AND WASTE PIPING OF ACCESSIBLE SINKS.
     - 3.1.6. SHOWERS
       - 3.1.6.1. ASSEMBLE SHOWER COMPONENTS ACCORDING TO MANUFACTURERS' WRITTEN INSTRUCTIONS.
       - 3.1.6.2. INSTALL WATER-SUPPLY PIPING WITH STOP ON EACH SUPPLY TO EACH SHOWER FAUCET.
         - 3.1.6.2.1. EXCEPTION: USE BALL OR GATE VALVES IF SUPPLY STOPS ARE NOT SPECIFIED WITH SHOWER.
         - 3.1.6.2.2. INSTALL STOPS IN LOCATIONS WHERE THEY CAN BE EASILY REACHED FOR OPERATION.
       - 3.1.6.3. INSTALL SHOWER FLOW-CONTROL FITTINGS WITH SPECIFIED MAXIMUM FLOW RATES IN SHOWER ARMS.
       - 3.1.6.4. SET SHOWER RECEPTORS IN LEVELING BED OF CEMENT GROUT.
       - 3.1.6.5. INSTALL WALL FLANGES OR ESCUTCHEONS AT PIPING WALL PENETRATIONS IN EXPOSED, FINISHED LOCATIONS. USE DEEP-PATTERN ESCUTCHEONS IF REQUIRED TO CONCEAL PROTRUDING FITTINGS.
       - 3.1.6.6. SEAL JOINTS BETWEEN SHOWERS AND FLOORS AND WALLS USING SANITARY-TYPE, ONE-PART, MILDEW-RESISTANT SILICONE SEALANT.
     - 3.1.7. DRINKING FOUNTAINS
       - 3.1.7.1. INSTALL AT HEIGHT REQUIRED BY AUTHORITIES HAVING JURISDICTION.
       - 3.1.7.2. SET PEDESTAL DRINKING FOUNTAINS ON FLOOR.
       - 3.1.7.3. INSTALL OFF-THE-FLOOR CARRIER SUPPORTS, AFFIXED TO BUILDING SUBSTRATE, FOR WALL-MOUNTED FIXTURES.
       - 3.1.7.4. INSTALL WATER-SUPPLY PIPING WITH SHUTOFF VALVE ON SUPPLY TO EACH FIXTURE TO BE CONNECTED TO DOMESTIC-WATER DISTRIBUTION PIPING. USE BALL OR GATE VALVE. INSTALL VALVES IN LOCATIONS WHERE THEY CAN BE EASILY REACHED FOR OPERATION.
       - 3.1.7.5. INSTALL TRAP AND WASTE PIPING ON DRAIN OUTLET OF EACH FIXTURE TO BE CONNECTED TO SANITARY DRAINAGE SYSTEM.
       - 3.1.7.6. INSTALL WALL FLANGES OR ESCUTCHEONS AT PIPING WALL PENETRATIONS IN EXPOSED, FINISHED LOCATIONS. USE DEEP-PATTERN ESCUTCHEONS WHERE REQUIRED TO CONCEAL PROTRUDING FITTINGS.
       - 3.1.7.7. SEAL JOINTS BETWEEN FIXTURES AND WALLS USING SANITARY-TYPE, ONE-PART, MILDEW-RESISTANT, SILICONE SEALANT. MATCH SEALANT COLOR TO FIXTURE COLOR.
       - 3.1.7.8. ADJUST FIXTURE FLOW REGULATORS FOR PROPER FLOW AND STREAM HEIGHT.
     - 3.1.8.

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PLUMBING APPROVAL
This stamp serves as a means of plumbing approval and does not include other disciplines.
Austin
Approved
Date 03/25/2026

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SHEET TITLE : PLUMBING SHEET SPECS

REVISIONS :

SUBMITTAL: ISSUED FOR PERMIT

SCALE :

DATE : 2/27/2026

PROJECT NUMBER : 25003

DRAWN BY : CHECKED BY :

SHEET NO. : P0.2

GENERAL NOTES:

A. CONTRACTOR TO VERIFY ALL EXISTING CONDITIONS BEFORE BID. INCLUDE ALL COSTS IN BID.

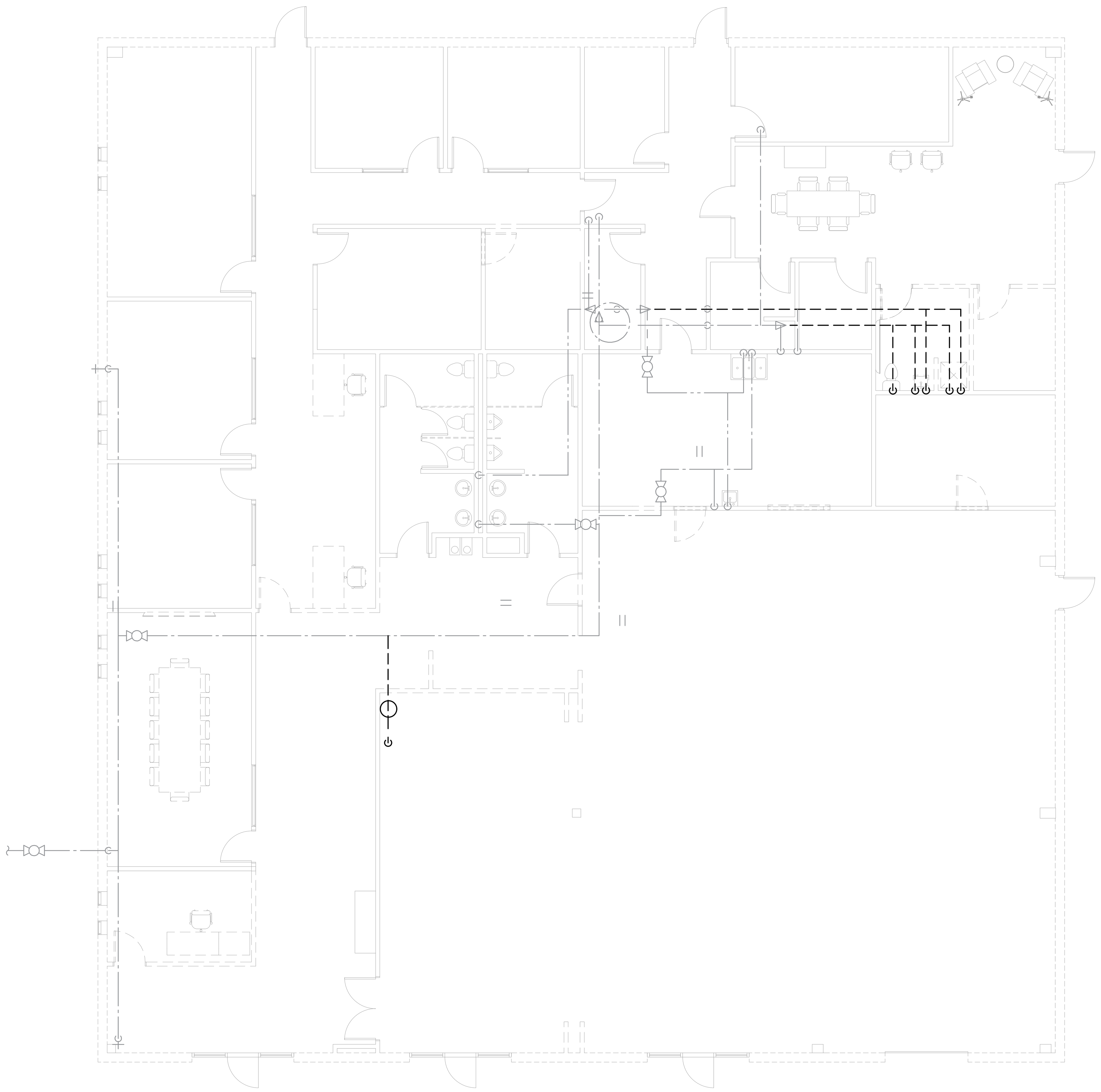
B. COORDINATE DEMOLITION SCOPE WITH NEW WORK.

C. EXISTING DIMENSIONS AND SIZING ARE TAKEN FROM LIMITED SITE WORK. FIELD VERIFY EXISTING DIMENSIONS AND ROUTING BEFORE COMMENCING DEMOLITION.

D. CAP LINES THAT ARE PARTIALLY DEMOLISHED.

PLUMBING KEYED NOTES: (X)

1. DEMOLISH EXISITING FLOOR MOUNTED SUMP PUMP.

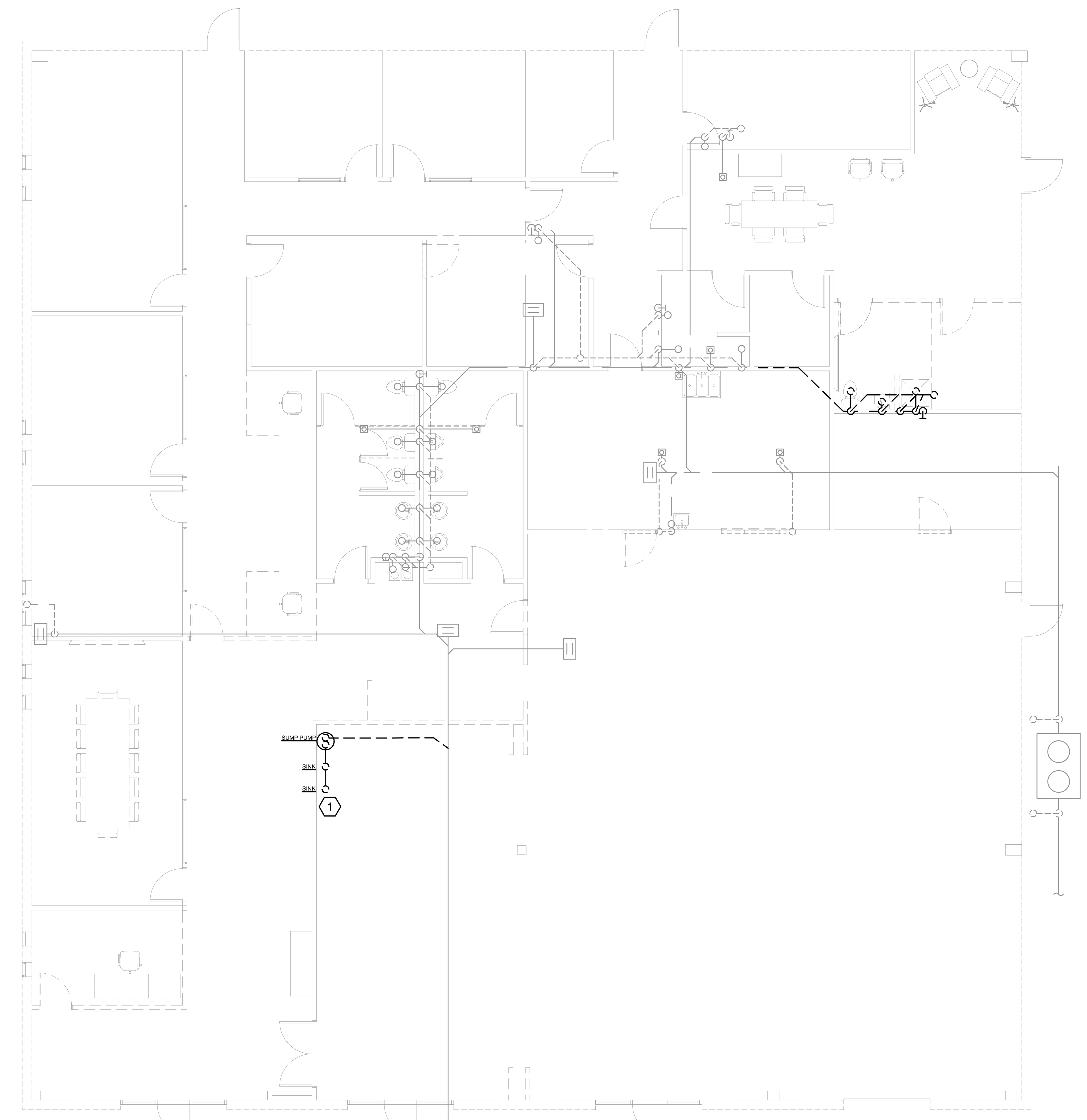


NORTH

1 HYDRONIC PLUMBING DEMOLITION

1/8" = 1'-0"

0 4' 8' 16'



NORTH

2 SANITARY PLUMBING DEMOLITION

1/8" = 1'-0"

0 4' 8' 16'

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SHEET TITLE :
PLUMBING DEMOLITION

REVISIONS :

SUBMITTAL:
ISSUED FOR PERMIT

SCALE :

DATE :
2/27/2026

PROJECT NUMBER :
25003

DRAWN BY : CHECKED BY :

SHEET NO. :
PD1.1

GENERAL NOTES:

A. CONTRACTOR TO VERIFY ALL EXISTING CONDITIONS BEFORE BID. INCLUDE ALL COSTS IN BID.

B. PROVIDE ALL PLUMBING FIXTURES WITH STOP VALVES.

C. INSULATE ALL EXPOSED SUPPLY (CW/HW) WATER PIPING.

D. FIRE CAULK AROUND ALL PIPES PENETRATING FIRE RATED PARTITIONS.

E. NOT ALL PIPE SIZES ARE SHOWN FOR CLARITY. REFER TO RISER DIAGRAM FOR ADDITIONAL SIZES.

F. TRAP ALL NEW HUB DRAINS WITH LAV TAILPIECE TRAP PRIMER FROM ADJACENT LAVATORY OR SINK.

PLUMBING KEYED NOTES: (X)

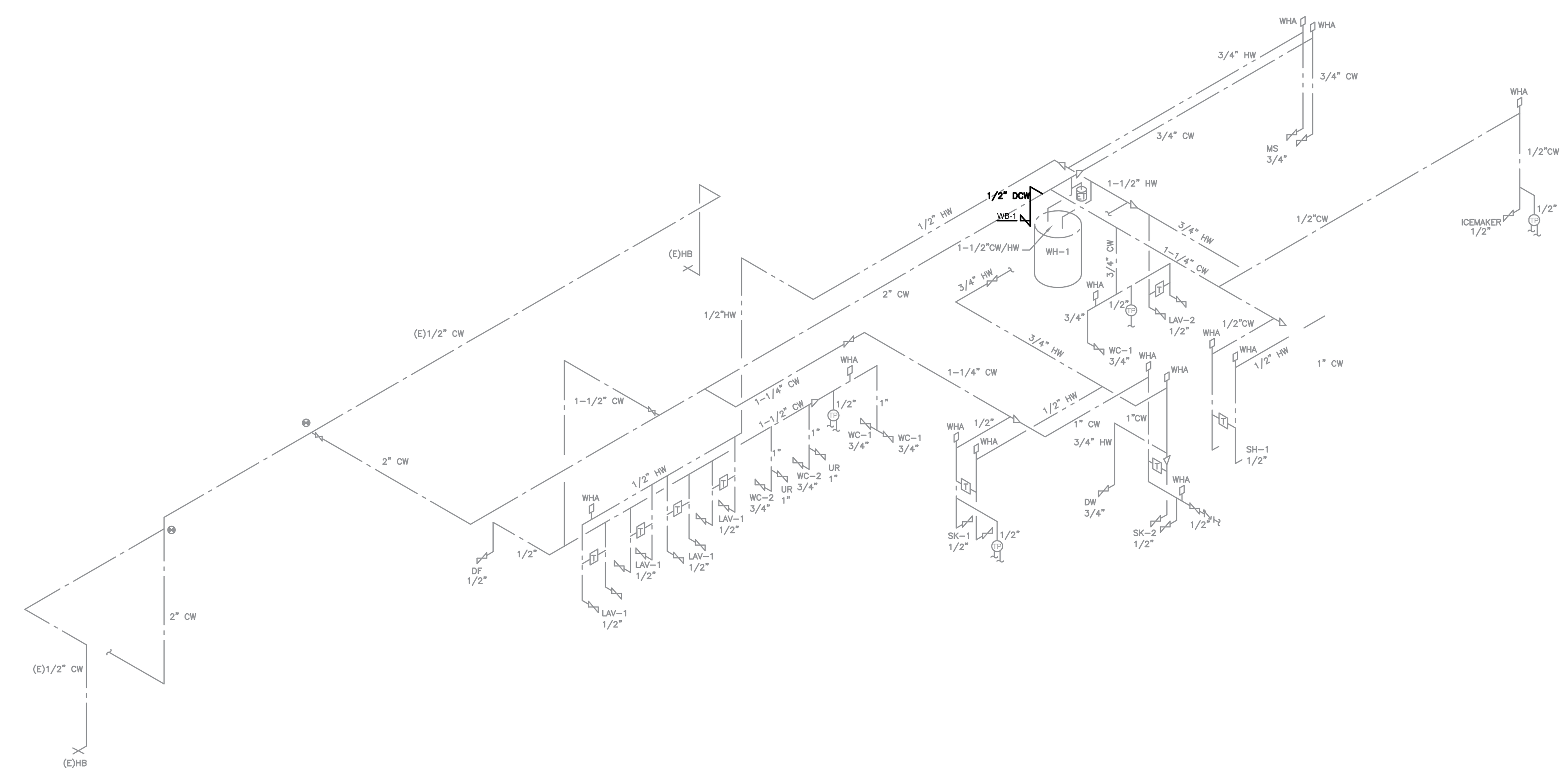
1. REPLACE EXISTING BROKEN HUB DRAIN GRATE. COORDINATE FINISH WITH ARCHITECT

NORTH

1 ENLARGED HYDRONIC PLUMBING LAYOUT

1/4" = 1'-0"

0 2' 4' 8'



2 ENLARGED HYDRONIC PLUMBING ISOMETRIC

NOT TO SCALE

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SHEET TITLE : **PLUMBING LAYOUT**

REVISIONS :

SUBMITTAL: ISSUED FOR PERMIT

SCALE :

DATE : 2/27/2026

PROJECT NUMBER : 25003

DRAWN BY : CHECKED BY :

SHEET NO. : **P1.1**

PLUMBING PIPE SCHEDULE

PIPING ID	SERVICE	SIZE	MATERIAL TYPE	FITTING TYPE	JOINT TYPE	INSULATION TYPE	VALVES	REMARKS
DCW	DOMESTIC COLD WATER (ABOVE GRADE)	ALL SIZES	TYPE L COPPER HARD DRAWN TUBING ASTM B88	WROUGHT COPPER FITTINGS PER ASME B16.22	SOLDER 95% TIN, 5% SILVER PER ASTM B32, LEAD FREE	1/2" CF TO PREVENT CONDENSATION	2" AND BELOW: BA-1	LEAD-FREE VIEGA PROPRESS OR EQUAL ALLOWED FOR CU PIPING 4" AND BELOW; EPDM O-RINGS
		3" AND UNDER INDOORS ONLY	ENGEL-METHOD CROSS LINKED POLYETHYLENE (PEX-a) ASTMF876/877	ENGINEERED POLYMER ASTM F1960 OR LEAD-FREE BRASS	COLD EXPANSION WITH PEX REINFORCING RING	N/A	2-1/2" AND LARGER: BF-1	SEE PEX NOTES BELOW.

NOTES:

1. INSULATION TYPE: GF - GLASS FIBER, CG - CELLULAR GLASS, CF - FLEXIBLE ELASTOMERIC CELLULAR FOAM
2. INSULATION JACKET TYPE
   A. INTERIOR CONCEALED LOCATIONS: ALL SERVICE JACKET: (ASJ)
   B. INTERIOR EXPOSED LOCATIONS: PVC ABOVE 8' AFF, ALUMINUM (ALJ) BELOW 8' AFF
   C. EXTERIOR LOCATIONS: ALUMINUM (ALJ)
3. ALL PLUMBING MATERIALS TO MEET PLUMBING CODE REQUIREMENTS. ALL DOMESTIC WATER SUPPLY PIPING, FITTINGS AND COMPONENTS TO MEET NSF 14 REQUIREMENTS.
4. PROVIDE SELF-REGULATING HEAT TRACING SYSTEM AND CONTROLS FOR FREEZE PROTECTION OF PIPING AND ACCESSORIES IN EXTERIOR AND INTERIOR UNCONDITIONED SPACES WHERE SHOWN ON THE PLANS. INSULATE PER MANUFACTURER'S INSTRUCTIONS BUT NOT LESS THAN THICKNESSES SHOWN ON THE SCHEDULE.
5. PROVIDE PRODUCT LISTED OR ENGINEER PRE-APPROVED EQUAL, APPLIES TO ALL PRODUCTS LISTED IN SCHEDULE.
6. ALL MATERIALS USED IN POTABLE WATER SYSTEMS SHALL MEET THE REQUIREMENTS OF NSF/ANSI 14 AND NSF/ANSI 61 AS APPLICABLE.
7. INSTALL ALL PRODUCTS PER THE MANUFACTURERS RECOMMENDATIONS.
8. ALL PIPING IS TO BE SUPPORTED PER ANSI B31.9, ASME B31.1, MSS SP-58 AND MSS SP-69 AND MANUFACTURER'S INSTRUCTIONS.
9. CLEAN AND FLUSH ALL NEWLY INSTALLED PIPING AND STRAINER / FILTERS WITH SYSTEM APPROPRIATE MATERIAL PRIOR TO PUTTING SYSTEM INTO OPERATION. DISINFECT POTABLE WATER SYSTEMS PER CODE.
10. PEX PIPING:
    A. ALL PEX PIPING TO BE UPONOR OR EQUAL
    B. PEX SHALL NOT BE EXPOSED OR STORED IN DIRECT SUNLIGHT, NEAR SEALING COMPOUNDS OR PETROLEUM BASED PROCDUCTS. MAX WATER TEMP IS 180ºF
    C. INSTALL AND SUPPORT PER MANUFACTURER'S INSTRUCTIONS.
    D. INSTALL PEX WITH COPPER STUB-OUTS FOR FIXTURE CONNECTIONS.
    E. USE PRESSURE-SENSITIVE ACRYLIC ADHESIVE PIPE LABELS ON PEX PIPING.
    F. WHERE CALLED FOR ON THE PLANS, HEAT TRACING FOR DHW TEMPERATURE MAINTENANCE SHALL HAVE AUTOMATIC THERMOSTATIC CONTROL TO LIMIT TEMPERATURE TO 140F MAX. SECURE HEAT TRACING TO PEX PIPING WITH CABLE TIES; ADHESIVE TAPE IS NOT PERMITTED.
11. PVC, CPVC AND CAST IRON PIPE AND FITTINGS SHALL BE BY CHARLOTTE PIPE OR EQUAL.
12. PVC SHALL NOT TO BE USED IN THE FOLLOWING LOCATIONS:
    A. HVAC PLENUMS OR IN EXTERIOR LOCATIONS WHERE EXPOSED TO SUNLIGHT; COATINGS OR WRAPS ARE NOT ALLOWED IN THESE LOCATIONS.
    B. DOMESTIC WATER SUPPLY SYSTEMS INSIDE OF THE BUILDING.
13. PIPING SYSTEMS SHALL BE TESTED IN ACCORDANCE WITH THE APPLICABLE CODES AND LOCAL AHJ.
14. WHEN JOINING DISIMILAR METALS USE DIELECTRIC NIPPLES OR COUPLINGS, OR DIELECTRIC FLANGE KITS ON LARGER PIPING. DIELCTRIC UNIONS ARE NOT ALLOWED.

VALVES

BA-1 BALL VALVE: 600 PSI WOG TWO PIECE LEAD-FREE BRASS OR BRONZE, FULL PORT BALL VALVE, ASTM B584, THREADED ENDS, STAINLESS STEEL BALL, TEFLON SEATS AND STUFFING BOX RING, BLOWOUT PROOF STEM (EXTENDED STEM FOR INSULATED LINES). APOLLO 77 SERIES OR EQUAL.

BA-2 BALL VALVE: 600 PSI WOG TWO PIECE BRONZE FULL PORT BALL VALVE, ASTM B584, THREADED ENDS, STAINLESS STEEL BALL, TEFLON SEATS AND STUFFING BOX RING, BLOWOUT PROOF STEM, UL-RATED FOR NATURAL GAS AND FLAMMABLE LIQUIDS. APOLLO 80-100 SERIES OR EQUAL.

BF-1 BUTTERFLY VALVE: 200 PSI BI-DIRECTIONAL DEAD-END SERVICE WITHOUT A DOWNSTREAM FLANGE REQUIRED, LEAD-FREE DUCTILE IRON LUG BODY, ALUMINUM BRONZE DISC, EPDM SEAT, 10-POSITION LEVER HANDLE (GEAR OPERATOR FOR VALVES LARGER THAN 8"), EXTENDED NECK FOR INSULATED LINES. NIBCO LD-2000 OR EQUAL.

GA-1 GATE VALVE: CL. 150 CARBON STEEL GATE VALVE, RISING STEM, FLANGE END, ASTM A216 GR. WCB, UL-RATED FOR NATURAL GAS AND FLAMMABLE LIQUIDS SHUT OFF.

PLUMBING FIXTURE SCHEDULE

MARK	DESCRIPTION	FIXTURE		VALVE/FAUCET		CONNECTIONS				REMARKS
		MFR	MODEL	MFR	MODEL	WASTE	VENT	CW	HW	
WB	WATER BOX	OATEY	39140	-	-	-	-	3/8"	-	METAL WATER OUTLET BOX WITH QUARTER TURN VALVE AND INTEGRAL WATER HAMMER ARRESTOR.

NOTES:

1. PROVIDE MANUFACTURER AND MODEL LISTED OR ENGINEER APPROVED EQUAL.
2. PROVIDE ALL FIXTURES WITH ALL APPROPRIATE ACCESSORIES TO COMPLETE INSTALLATION.
3. COORDINATE FIXTURE COLORS WITH ARCHITECT.
4. COORDINATE TRIP LEVER LOCATION WITH OPEN SIDE, ON ADA COMPLIANT WATER CLOSETS.
5. INSULATE ALL EXPOSED DRAIN AND WATER PIPING UNDER LAVATORY AND SINKS PER ADA REQUIREMENTS.
6. INSTALL MV MIXING VALVE BELOW EACH HAND SINK OR LAVATORY WITH MAXIMUM DELIVERY TEMPERATURE SET TO 110 DEGREES FAHRENHEIT.
7. INSTALL WATER FILTER WF-1 DOWNSTREAM OF RPZA WITH FACTORY DECK MOUNTED FAUCET PER FACTORY INSTRUCTIONS.

PIPE INSULATION / JACKET SCHEDULE

INSULATION SYSTEM DESIGNATION	INSULATION					REMARKS
	DESCRIPTION	PRODUCTS	K	SERVICE TEMPERATURES MIN	SERVICE TEMPERATURES MAX	
CF	FLEXIBLE ELASTOMERIC CELLULAR, ASTM C534	ARMACELL AP ARMAFLEX	0.27	-70	220	INSULATION SHALL BE 25/50 COMPLIANT

JACKET SYSTEM DESIGNATION	JACKET DESCRIPTION	JACKET MANUFACTURER	REMARKS
ASJ	ALL SERVICE JACKET - JACKET IS TO CONSIST OF A WHITE KRAFT PAPER FACING WITH AN ALUMINUM FOIL SUBSTRATE. WATER VAPOR PERMEANCE = 0.02 PERM. MAX PER ASTM E96 AND A PUNCTURE RESISTANCE OF 50 BEACH MAX. PER ASTM D781. JACKETING SHALL BE FACTORY APPLIED OR APPLIED PER MANUFACTURE RECOMMENDATIONS. ASJ IS TO MEET ALL REQUIREMENTS UNDER ASTM C 1136.	OWENS-CORNING SSL II SELF-SEALING LAP JACKETING SYSTEM	

NOTES:

1. K-FACTOR UNITS ARE BTU*IN/HR*FT^2*^{o}F TESTED AT 75 ^{o}F
2. PROVIDE PRODUCT LISTED OR ENGINEER PRE-APPROVED EQUAL, APPLIES TO ALL PRODUCTS LISTED IN SCHEDULE.
3. INSTALL ALL PRODUCTS PER THE MANUFACTURER'S RECOMMENDATIONS.
4. ALL INSULATING MATERIALS SHALL CONFORM TO ASTM E 84, HAVING A MAXIMUM FLAME SPREAD RATING OF 25 AND A MAXIMUM SMOKE DEVELOPMENT RATING OF 50.
5. FURNISH AND INSTALL PIPE LABELS ON ALL PIPING PER ASME AND ANSI A13.1.
6. DETAIL INCLUDES 8" INSULATION ON WATER HEATER DISCHARGE, INSULATION UP TO HEAT TRAP ON COLD SIDE, AND EXPANSION TANK.
7. ROOF DRAINS INSULATED HORIZONTAL AND VERTICAL WITH 1/2" INSULATION.

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SHEET TITLE :
PLUMBING SCHEDULES

REVISIONS :

SUBMITTAL:
ISSUED FOR PERMIT

SCALE :

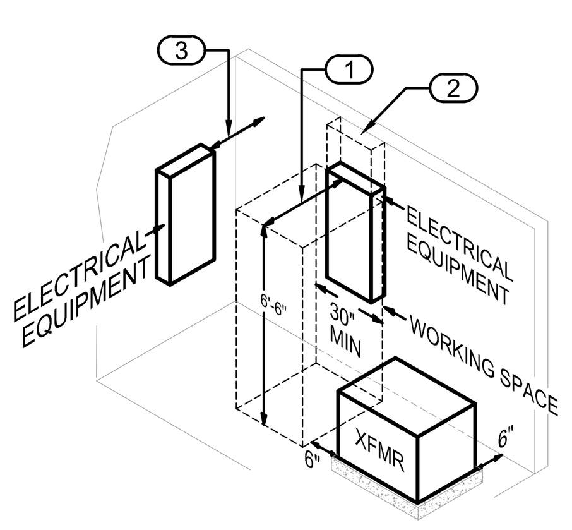
DATE :
2/27/2026

PROJECT NUMBER :
25003

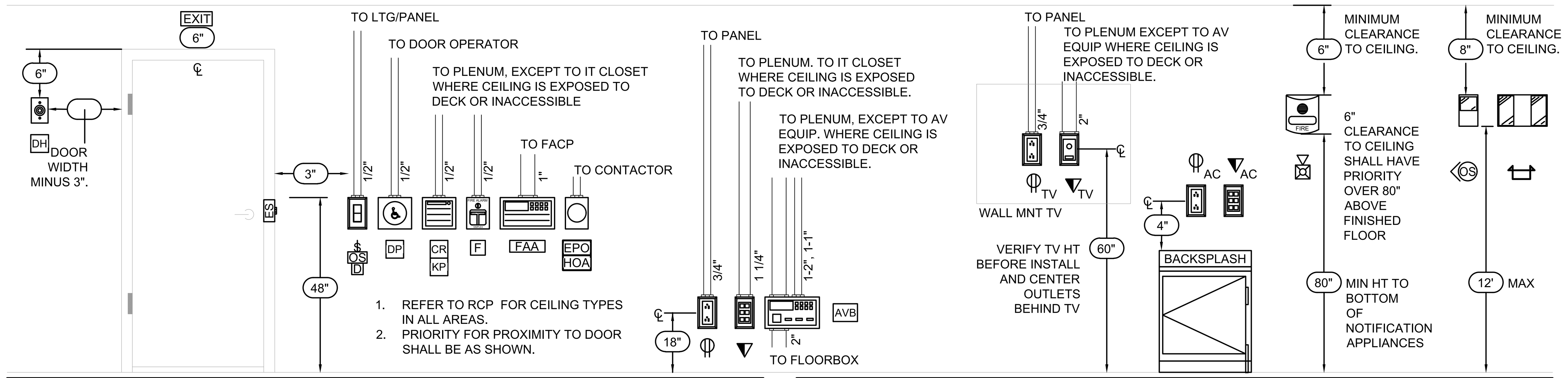
DRAWN BY : CHECKED BY :

SHEET NO. :
P2.3

ELECTRICAL EQUIPMENT CLEARANCE REQUIREMENTS



KEYED NOTES:
1. 3' (0-150V TO GND),3.5' (151V-600V TO GND), 4' (OVER 150V WITH EXPOSED LIVE PARTS ON OTHER SIDE).
2. DEDICATED EQUIPMENT SPACE SHALL BE KEPT CLEAR TO 6FT ABOVE EQUIPMENT OR TO STRUCTURE OF ALL BUT CONDUIT SERVING EQUIPMENT.
3. MIN OFF SET SHALL BE DEPTH OF EQUIPMENT ON PERPENDICULAR WALL



BID NOTES

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL SCOPE OF WORK UNLESS EXPLICITLY NOTED OTHERWISE. WHERE WORK IS NOTED TO BE BY SPECIALIST CONTRACTOR SUCH AS FIRE ALARM CONTRACTOR, THIS WORK SHALL BE PART OF THE CONTRACT UNLESS EXPLICITLY NOTED OTHERWISE.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REVIEWING THE COMPLETE CONTRACT DOCUMENTS AS SOME SCOPE REQUIRING ELECTRICAL WORK SUCH AS HVAC CONTROL POWER, CONTROL POWER TRANSFORMERS, DAMPERS, FLUSH VALVES, LIFT STATIONS, ETC MAY BE SHOWN ON OTHER DISCIPLINES' PLANS.
3. PRIOR TO BID, THE GENERAL CONTRACTOR (GC), ELECTRICAL, AND SPECIAL SYSTEMS CONTRACTORS SHALL COORDINATE THE PROJECT SCOPE TO VERIFY THAT ALL WORK AND EQUIPMENT NECESSARY FOR THE OPERATION OF THE IT, FIRE ALARM, SECURITY, A/V, AND OTHER SCOPE ARE INCLUDED IN THE BID.
4. THE GC SHALL COORDINATE WITH THE MECHANICAL, CONTROLS, PROCESS, PLUMBING, AND ELECTRICAL CONTRACTOR TO CONFIRM THAT ALL ELECTRICAL WORK AND EQUIPMENT NECESSARY FOR THE HVAC CONTROLS SYSTEM, AUTOMATIC FLUSH VALVES, ETC IS INCLUDED IN THE BID.
5. WHERE THE CONTRACT DOCUMENTS ARE UNCLEAR OR DO NOT SPECIFY WHO IS RESPONSIBLE FOR THE SCOPE, THE GC SHALL BE RESPONSIBLE FOR DELEGATION OF THE PROJECT SCOPE AND VERIFICATION THAT ALL SUB CONTRACTORS ARE AWARE OF WHICH COMPONENTS OF THE SCOPE ARE IN THEIR CONTRACT.
6. THE SPECIFICATION REQUIREMENTS SHOWN ON THIS PAGE ARE PROVIDED TO GIVE A GENERAL CONCEPT OF THE PROJECT REQUIREMENTS. MORE DETAILED REQUIREMENTS ARE SHOWN ON THE PLANS AND IN THE WRITTEN SPECIFICATIONS.

NAMEPLATE REQUIREMENTS

ELECTRICAL PANELS

PANEL L1
208/120V, 3PH, 4W
225A, FED FROM H1
VIA XFMR T-L1

EQUIPMENT CONTROLS

CWP-VFD
208/120V, 3PH, 4W
5HP, FED FROM L1

RECEPTACLES

PNL # CKT

J-BOXES

PWR	IT	FIRE
L1#1 120V	COM	FA NAC
NO PAINT	ORANGE COVER	RED COVER

SYMBOL NOTATIONS USED

a$2

SPECIFICATION NOTES:
2 = DOUBLE POLE
3 = THREE WAY
4 = FOUR WAY
D = DIMMER
EP = EXPLOSION PROOF
H = HORSEPOWER RATED
K = KEY OPERATED
LV = LOW VOLTAGE
M = MANUAL MOTOR STARTER
P = PILOT LIGHT
T = TIMER

SWITCHING INSTRUCTIONS:
LOWER CASE LETTER DESIGNATES A SWITCHLEG, LETTER WILL BE SHOWN NEXT TO EACH FIXTURE CONTROLLED BY SWITCH

AC L1#1 GFI — PANEL NAME & CIRCUIT NUMBER

SPECIFICATION NOTES:
GFI = INTEGRAL GROUND FAULT TRIP MODULE
IG = ISOLATED GROUND
MG = MARINE GRADE
TL = TWIST-LOCK
WP = WEATHER RESISTANT RECEPTACLE WITH METAL WEATHERPROOF WHILE IN USE COVER

MOUNTING REQUIREMENTS:
48" = MOUNT AT 48 INCHES ABOVE FINISHED FLOOR
AC = MOUNT ABOVE COUNTER 4" ABOVE BACK-SPLASH

A a L1#1 E/NL R:
- LUMINAIRE TAG, REFER TO SCHEDULE
- LOWER CASE LETTER INDICATES SWITCHLEG (WHERE APPLICABLE)
- PANEL NAME & CIRCUIT NUMBER
- E INDICATES BACK UP POWERED
- NL INDICATES NIGHT LIGHT
- RELOCATED FIXTURE

SITE ELECTRICAL

SITE WIRING
- CIRCUIT WIRING
- UNDERGROUND CIRCUIT WIRING
- EXISTING UNDERGROUND
- MULT-CONDUIT UNDERGROUND (CONCRETE ENCASED WHERE NOTED)
- UE — UNDERGROUND HV/MV UTILITY LINE
- OE — OVERHEAD HV/MV UTILITY LINE
- UT — UNDERGROUND TELECOM SERVICE
- STUB UP / TURN DOWN

EXTERIOR ABOVE GRADE EQUIPMENT
- TRANSFORMER PAD
- POLE MOUNTED TRANSFORMER
- UTILITY POLE
- EQUIPMENT MOUNTING RACK
- MV PAD MOUNT SWITCH
- COMMUNICATIONS SERVICE ENCLOSURE

EXTERIOR IN GRADE EQUIPMENT
- PB IN GRADE 600V PULL BOX
- CP IN GRADE COMMUNICATIONS PULL BOX
- EM ELECTRICAL MANHOLE
- CM COMMUNICATIONS MANHOLE
- MVPB UNDERGROUND UTILITY PULL BOX

DRAWING SCHEDULE

NUMBER	TITLE
E0.1	ELECTRICAL SYMBOLS
E0.2	ELECTRICAL GENERAL NOTES
E0.3	ELECTRICAL GENERAL NOTES
ED1.1	ELECTRICAL DEMOLITION
E1.1	ELECTRICAL PLAN
E5.1	ELECTRICAL ONE LINE DIAGRAM
E6.1	ELECTRICAL SCHEDULES
E8.1	ELECTRICAL COMCHECK

LIGHTING

LIGHTING SYMBOLOGY GENERAL NOTES
1. USING THE LUMINAIRE TAG FOR REFERENCE, REFER TO THE LUMINAIRE (FIXTURE) SCHEDULE FOR THE DESCRIPTION OF EACH FIXTURE TYPE.
2. REFER TO THE ARCHITECTURAL REFLECTED CEILING PLANS FOR ADDITIONAL INFORMATION ABOUT LUMINAIRES, THE CEILING, MOUNTING HEIGHTS, ETC.

- LUMINAIRE TAG, REFER TO SCHEDULE
- LOWER CASE LETTER INDICATES SWITCHLEG (WHERE APPLICABLE)
- NUMBER INDICATES DAY LIGHTING CONTROL GROUP

EXIT LIGHTING
- EXIT SIGN - SINGLE FACE
- EXIT SIGN - DUAL FACE

SPECIFICATIONS
1. EDGE LIT, LED EXIT SIGNS.
2. INTEGRAL 90 MIN BATTERY PACK
3. SELF DIAGNOSTIC
4. INTEGRAL TEST SWITCH

- DUAL HEAD EMERGENCY LT WITH INTEGRAL BATTERY PACK
- E/NL EMERGENCY/EGRESS LIGHTING SHOWN HATCHED AND/OR TAGGED WITH "E" (AS IN "AE") UNSWITCHED WHERE NOTED NL

1. EMERGENCY/EGRESS LIGHTING SHALL USE SELF CONTAINED BATTERY PACKS, UNO.
2. INTEGRAL 90 MIN BATTERY PACK
3. SELF DIAGNOSTIC
4. INTEGRAL TEST SWITCH

- (X) LIGHTING CONTROL TAG (SEE LIGHTING CONTROL MATRIX)

LIGHTING CONTROLS

WALL SWITCHES
- $ SINGLE POLE, SINGLE THROW SWITCH
- $2 TWO POLE, SINGLE THROW
- $3 SINGLE POLE, DOUBLE THROW 3-WAY
- $4 TWO POLE, DOUBLE THROW 4-WAY
- D SLIDE DIMMER, COMMERCIAL GRADE
- $TS TIME SWITCH, 60 MIN. OVERRIDE U.N.O.

OCCUPANCY/VACANCY SENSORS
- OS OCC WALL MOUNTED W/ PUSHBUTTON
- OS OCC AIMABLE WALL MOUNTED
- OS OCC 360° CEILING MOUNTED, CNTR IN RM
- VS VAC WALL MOUNTED W/ PUSHBUTTON
- VS VAC AIMABLE WALL MOUNTED
- VS VAC 360° CEILING MOUNTED, CNTR IN RM
- DS DAYLIGHT SENSOR
- DS DOOR FRAME SWITCH

AUTOMATED CONTROLS
- LC LIGHTING CONTACTOR
- PC PHOTOCELL
- TC TIMECLOCK
- LCP LIGHTING CONTROL PANEL
- LCS LIGHTING CONTROL STATION
- WDP WALL MOUNTED DIMMER PANNEL

EQUIPMENT CONTROLLERS

DISCONNECTS AND OCPD
- CB ENCLOSED CIRCUIT BREAKER
- DISCONNECT SWITCH
- $H HORSE POWER RATED TOGGLE SWITCH
- $M MANUAL MOTOR STARTER W/ OVERLOADS
- DISCONNECT MOUNTED ON UNISTRUT

MOTOR AND EQUIPMENT CONTROLS
- MAGNETIC STARTER - FVNR U.N.O.
- COMBINATION STARTER & DISCONNECT
- MAGNETIC CONTACTOR (LTG CONTACTOR)
- VFD VARIABLE FREQUENCY DRIVE
- EPO EMERGENCY POWER OFF PUSHBUTTON
- HOA "HAND-OFF-AUTO" CONTROL SELECTOR

SPECIAL SYSTEMS

TELECOM OUTLETS & DEVICES
- DATA OUTLET
- COMINATION DATA AND VOICE OUTLET
- VOICE OUTLET
- FLOOR MOUNTED DATA OUTLET
- AVB AUDIO VIDEO INPUT JACK BOX
- WAP WIRELESS ACCESS POINT
- AV A/V OUTLET BOX
- TV TV/CATV OUTLET

FIRE ALARM AND (VOICE/ MASS) NOTIFICATION DEVICES
- HORN
- COMBINATION HORN/STROBE
- COMBINATION SPEAKER/STROBE
- S SPEAKER, WALL MOUNT — C - CEILING MOUNT — WP - WEATHERPROOF
- cd VISUAL ONLY, CEILING MOUNTED, CLEAR LENS, cd=CANDELA RATING/SETTING
- cd VISUAL ONLY, WALL MOUNTED, CLEAR LENS, cd=CANDELA RATING/SETTING
- cd MNS, CEILING MOUNTED, AMBER LENS, cd=CANDELA RATING/SETTING
- cd MNS, WALL MOUNTED, AMBER LENS, cd=CANDELA RATING/SETTING
- W cd C COMBINATION SPEAKER/VISUALS, CEILING MOUNTED, AMBER AND CLEAR LENS, cd=CANDELA RATING/SETTING, W=WATTAGE
- W cd COMBINATION SPEAKER/VISUALS, WALL MOUNTED, AMBER AND CLEAR LENS, cd=CANDELA RATING/SETTING, W=WATTAGE
- W cd WP COMBINATION SPEAKER/VISUALS, WALL MOUNTED, WEATHERPROOF, AMBER AND CLEAR LENS, cd=CANDELA RATING/SETTING, W=WATTAGE

FIRE DETECTION DEVICES
- F MANUAL PULL STATION
- S AREA SMOKE DETECTOR
- S SB AREA SMOKE DETECTOR WITH SOUNDER BASE
- CARBON MONOXIDE DETECTOR
- AREA HEAT DETECTOR
- S DUCT MOUNTED SMOKE DETECTOR
- H HOOD FIRE SUPPRESSION SYSTEM RELAY
- VS VALVE SUPERVISORY SWITCH
- WF WATER FLOW SWITCH

FIRE ALARM SYSTEM CONTROLS
- FACP FIRE DETECTION & ALARM CONTROL PNL
- MNS MASS NOTIFICATION SYSTEM
- NAC NOTIFICATION CIRCUIT EXPANSION PNL
- FAA FACP REMOTE ANNUNCIATOR PANEL
- LOC LOCAL OPERATOR CONSOLE
- HFS KITCHEN HOOD FIRE SUPPRESSION PNL
- AC ADDRESSABLE OUTPUT CONTROL MODULE
- MOTORIZED SMOKE FIRE DAMPER
- LT LOW TEMPERATURE SWITCH
- MM MONITOR MODULE

ACCESS CONTROL (ACS) & INTRUSION DETECTION SYSTEMS
- CR CARD READER FOR CAC SMART CARD
- KP KEY PAD
- P1 CONCEALED DOOR POSITION SWITCH
- P2 OVERHEAD DOOR POSITION SWITCH
- REX REQUEST TO EXIT
- E1 ELECTRIFIED EXIT PUSH BAR
- DP DOOR OPEN PUSHBUTTON
- CCTV CCTV CAMERA, INFRASTRUCTURE ONLY

ABBREVIATIONS

A.	AMPERE	LOTO	LOCK OUT TAG OUT
AC	ABOVE COUNTER	LTG	LIGHT OR LIGHTING
AFF	ABOVE FINISHED FLOOR	MCB	MAIN CIRCUIT BREAKER
AIC	AMP INTERRUPTING CAPACITY	MCC	MOTOR CONTROL CENTER
A/V	AUDIO VISUAL	MCP	MOTOR CIRCUIT PROTECTOR
ATS	AUTOMATIC TRANSFER SWITCH	MIN	MINIMUM
BLDG	BUILDING	MH	METAL HALIDE
C	CONDUIT	MLO	MAIN LUGS ONLY
CKT	CIRCUIT	MNS	MASS NOTIFICATION SYSTEM
CM	CONTROL MODULE	MRS	MOTOR RATED SWITCH
CONN	CONNECT OR CONNECTION	MSB	MAIN SWITCH BOARD
CT	CURRENT TRANSFORMER	MTD	MOUNTED
DIM	DIMENSION	MTS	MANUAL TRANSFER SWITCH
EA	EACH	MV	MEDIUM VOLTAGE
EC	ELECTRICAL CONTRACTOR	N.I.C.	NOT IN CONTRACT
EF	EXHAUST FAN	NL	NIGHT LIGHT (UNSWITCHED)
ELEC	ELECTRIC,ELECTRICAL	NTS	NOT TO SCALE
EMER	EMERGENCY	Ø	PHASE
EPO	EMERGENCY POWER OFF	OL	OVERLOAD
EWC	ELECTRIC WATER COOLER	OE	OVER HEAD ELECTRIC
FACP	FIRE ALARM CONTROL PANEL	PS	PULL STRING
FLA	FULL LOAD AMPS	RECPT	RECEPTACLE
FS	FLOW SWITCH	RGS	RIGID GALVANIZED STEEL
FSD	FIRE SMOKE DAMPER	SPD	SURGE PROTECTION DEVICE
GC	GENERAL CONTRACTOR	TS	TAMPER SWITCH
GFI	GROUND FAULT INTERRUPTER	TYP.	TYPICAL
GND	GROUND	UG	UNDERGROUND
HOA	HAND-OFF-AUTO	UNO	UNLESS NOTED OTHERWISE
HP	HORSEPOWER	V	VOLTAGE
HPS	HIGH PRESSURE SODIUM	WH	WATER HEATER
HTR	HEATER	WP	WEATHER PROOF
J-BOX	JUNCTION BOX	WR	WEATHER RATED
KCM	THOUSAND CIRCULAR MILLS	XFMR	TRANSFORMER

RECEPTACLES

RECEPTACLES
- SIMPLEX RECEPTACLE
- DUPLEX RECEPTACLE
- QUADRAPLEX RECEPTACLE
- FLOOR MOUNTED RECEPTACLE
- CEILING MOUNTED RECEPTACLE
- SPECIAL PURPOSE RECEPTACLE
- SWITCHED RECEPTACLE - 1/2 SWITCHED
- SWITCHED QUAD RECEPT. - 1/2 SWITCHED
- USB RECEPTACLE

ELECTRICAL ONE LINE

ONE LINE
- MOLDED/INSULATED CASE BREAKER
- DRAWOUT CIRCUIT BREAKER, AIR TYPE
- DRAWOUT CIRCUIT BREAKER, VAC TYPE
- THERMAL OVERLOAD
- FUSED DISCONNECT SWITCH
- FUSE, HOLDER & PULLER
- POTENTIAL TRANSFORMER
- CURRENT TRANSFORMER
- CT ENCLOSURE
- TENANT SUBMETER
- UTILITY METER
- SPD SURGE PROTECTION DEVICE
- GEN GENERATOR REMOTE ANNUNCIATION PNL
- MOTOR, "X" INDICATING HORSE POWER
- AUTOMATIC TRANSFER SWITCH
- ST SHUNT TRIP (K=KIRK KEY INTERLOCK, RT=REMOT TRIP)
- K KIRK-KEY

ELECTRICAL EQUIPMENT

DISTRIBUTION EQUIPMENT
- ELECTRICAL BRANCH PANEL
- TRANSFORMER
- J JUNCTION BOX
- FB# FLOORBOX
- SURFACE RACEWAY
- EQUIP MOUNTED ON CHANNEL RACK

ALL ELECTRICAL SHALL BE IN ACCORDANCE WITH CITY OF AUSTIN ELECTRICAL CODES The granting of a permit for, approval of these plans shall not be construed to be a permit for, or approval of, any violation of the provisions of the currently adopted electrical code or any other ordinances of the City of Austin.

ELECTRICAL APPROVAL
CITY OF AUSTIN APPROVED Date 04/13/2026 FOUNDED 1839
This stamp serves as a means of electrical approval and does not include other disciplines.

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SHEET TITLE : ELECTRICAL SYMBOLS

REVISIONS :

SUBMITTAL: ISSUED FOR PERMIT

SCALE :

DATE : 2/27/2026

PROJECT NUMBER : 25003

DRAWN BY : CHECKED BY :

SHEET NO. : E0.1

26 00 00 - ELECTRICAL GENERAL CONDITIONS

CODE REQUIREMENTS

1. THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE REQUIREMENTS OF LAWS, RULES, REGULATIONS, CODES STANDARDS, AND ORDINANCES OF FEDERAL, STATE, AND LOCAL AUTHORITIES HAVING JURISDICTION, AND ALL EQUIPMENT AND MATERIALS SHALL COMPLY WITH SAID AUTHORITIES WHETHER INDICATED ON THE CONTRACT DOCUMENTS OR NOT.
2. ALL WORK SHALL BE PERFORMED PER:
   - 2.1. 2024 INTERNATIONAL ENERGY CONSERVATION CODE - IECC WITH LOCAL CITY AMENDMENTS
   - 2.2. THE LATEST EDITION OF THE AUSTIN ENERGY DESIGN CRITERIA MANUAL AS OF PERMITTING DATE
   - 2.3. 2024 NATIONAL ELECTRICAL CODE - NEC WITH LOCAL CITY AMENDMENTS
   - 2.4. NATIONAL FIRE PROTECTION ASSOCIATION - NFPA
3. THE PUBLICATIONS AND STANDARDS OF THE FOLLOWING AUTHORITIES, IN ADDITION TO THOSE SPECIFIED IN RELATED PROJECT DOCUMENTS, SHALL BE OBSERVED DURING CONSTRUCTION AND ARE REFERENCED IN THE DOCUMENTATION BY THE ABBREVIATIONS NOTED:
   - 3.1. UNITED STATES OF AMERICA STANDARDS INSTITUTE - USASI
   - 3.2. INSTITUTE OF ELECTRICAL AND ELECTRONIC ENGINEERS - IEEE
   - 3.3. NATIONAL ELECTRICAL CODE - NEC
   - 3.4. NATIONAL FIRE PROTECTION ASSOCIATION - NFPA
   - 3.5. UNDERWRITER'S LABORATORY - UL
   - 3.6. NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION - NEMA
   - 3.7. CERTIFIED BALLAST MANUFACTURERS - CBM
   - 3.8. AMERICAN SOCIETY FOR TESTING AND MATERIALS - ASTM
   - 3.9. OCCUPATIONAL SAFETY AND HEALTH ACT - OSHA
   - 3.10. INTERNATIONAL CODES BY THE INTERNATIONAL CODE COUNCIL
     - 3.10.1. INTERNATIONAL BUILDING CODE - IBC
     - 3.10.2. INTERNATIONAL ENERGY CODE - IECC
4. UNLESS NOTED OTHERWISE, EQUIPMENT AND DEVICES SHALL BE MOUNTED PER ADA AND TAS REQUIREMENTS.
   - 4.1. OPERABLE DEVICES (SWITCHES, CARD READERS, ETC) AT OR BELOW 48" AFF.
   - 4.2. RECEPTACLES, TELEPHONE AND DATA OUTLETS AT 18" AFF (15" MIN TO BOTTOM OF DEVICE), UNO.

SCOPE OF WORK

1. THE SCOPE OF WORK SHALL INCLUDE COMPLETE PROVISIONS FOR ELECTRICAL POWER DISTRIBUTION TO ALL LIGHTING, DEVICES, APPLIANCES, AND EQUIPMENT SHOWN ON THE CONSTRUCTION DOCUMENTS.
   - 1.1. PROVISIONS INCLUDE, BUT ARE NOT LIMITED TO, ALL SUPPLIES, MATERIALS, EQUIPMENT, TOOLS AND LABOR.
   - 1.2. PROVISIONS ALSO INCLUDE ALL MISCELLANEOUS MATERIALS REQUIRED TO COMPLETE THE WORK SHOWN INCLUDING, BUT NOT LIMITED TO, SUPPORTS, HANGERS, RACEWAYS, BOXES, SLEEVES, SEALS, EQUIPMENT PADS, WIRING CONNECTORS, TERMINALS, LABELS, SIGNS, AND MARKERS.
   - 1.3. THE CONSTRUCTION DOCUMENTS INCLUDE ALL PLANS, ELEVATIONS, DETAILS, DIAGRAMS, SCHEDULES, AND NOTES ON THE DRAWINGS.
   - 1.4. WHERE USED ON THE PLANS AND IN THE SPECIFICATIONS AND WHERE NOT SPECIFICALLY NOTED OTHERWISE, THE TERM "PROVIDE" AND THE TERM "INSTALL" SHALL MEAN FURNISH, INSTALL, CONNECT AND TEST.
   - 1.5. UNLESS EXPLICITLY NOTED "BY OTHERS" OR "EXISTING", ALL ITEMS SHOWN GRAPHICALLY OR SPECIFIED BY NOTES AND DETAILS ON THE PLANS SHALL BE FURNISHED, INSTALLED, CONNECTED, AND TESTED AS NEEDED. "BY OTHERS" IS IMPLIED TO BE OTHER SUB-CONTRACTORS.
2. ADDITIONALLY, THE SCOPE OF WORK SHALL INCLUDE
   - 2.1. APPLICATION FOR TEMPORARY AND PERMANENT ELECTRICAL SERVICE, PERMITTING, INSPECTION, AND PAYMENT OF ALL ASSOCIATED FEES.
   - 2.2. TESTING AND COMMISSIONING OF ELECTRICAL SYSTEMS.
   - 2.3. EQUIPMENT RENTAL.
   - 2.4. TEMPORARY CONSTRUCTION POWER AND LIGHTING.
   - 2.5. PROVISIONS FOR MAINTAINING THE FUNCTIONALITY OF EXISTING TO REMAIN BUILDING COMMUNICATIONS, FIRE ALARM, SECURITY/ACCESS CONTROL, PUBLIC ADDRESS, AND BELL SYSTEMS THAT WILL BE AFFECTED BY THE WORK.
   - 2.6. COMPUTER BASED SHORT CIRCUIT COORDINATION STUDY AND ARC FLASH HAZARD ANALYSIS SHALL BE PERFORMED BY A STATE REGISTERED PROFESSIONAL ENGINEER AND PROVIDED BY PANEL MANUFACTURER THROUGH THE ELECTRICAL CONTRACTOR. STUDY TO INCLUDE AT A MINIMUM, EXECUTIVE SUMMARY OF FINDINGS, TIME CURRENT CURVES, ONE-LINE MODEL, ELECTRICAL DISTRIBUTION RECOMMENDATIONS, AND ARC FLASH WARNING LABELS.
     - 2.6.1. SHORT CIRCUIT STUDY TO COMPLY WITH IEEE 399 AND IEEE 551.
     - 2.6.2. COORDINATION STUDY TO COMPLY WITH IEEE 242 AND IEEE 399.
     - 2.6.3. ARC FLASH ANALYSIS TO COMPLY WITH IEEE 1584 AND NFPA 70E.

SUBMITTALS

1. PRODUCT DATA: SUBMIT CATALOG DATA SHOWING MANUFACTURER'S NAME AND CONTACT INFORMATION, ALL STANDARD FEATURES, AMPERAGE, VOLTAGE, AIC RATINGS, DIMENSIONS, WEIGHTS, LISTINGS & PRODUCT LABELS, MATERIAL TYPES, FINISHES AND CLEARLY INDICATING WHICH OPTIONAL FEATURES WILL BE PROVIDED.
   - 1.1. WHERE MULTIPLE SIZES ARE LISTED, INDICATE SIZES TO BE USED.
   - 1.2. WHERE MULTIPLE PRODUCTS ARE SHOWN ON THE SAME PAGE, INDICATE WHICH PRODUCTS TO BE USED.
2. SHOP DRAWINGS (WHERE APPLICABLE): MANUFACTURER OR CONTRACTOR PREPARED DRAWINGS SHOWING ALL RELEVANT DIMENSIONS, WEIGHTS, ELECTRICAL & MECHANICAL CONNECTION REQUIREMENTS, CONDUIT ENTRY POINTS, ASSEMBLY REQUIREMENTS, LIFTING REQUIREMENTS, LIFTING POINTS, REQUIRED CLEARANCES. INCLUDE PLAN VIEWS & ELEVATIONS.
   - 2.1. INCLUDE ALL RELEVANT ELECTRICAL DIAGRAMS INCLUDING SCHEMATIC AND INTERCONNECTION DIAGRAMS FOR POWER, SIGNAL, AND CONTROL WIRING.

COORDINATION

1. THE CONTRACTOR SHALL CONSULT THE ARCHITECTURAL, CIVIL, STRUCTURAL, MECHANICAL AND OTHER DRAWINGS RELATED TO THIS PROJECT FOR ADDITIONAL WORK TO BE PROVIDED.
2. ALL POWER OUTAGES SHALL BE COORDINATED IN WRITING WITH OWNER ONE (1) WEEK (MIN) PRIOR TO THE OUTAGE.
3. COOPERATE FULLY WITH THE OWNER OR HIS REPRESENTATIVE DURING CONSTRUCTION OPERATIONS TO MINIMIZE CONFLICTS AND TO FACILITATE OWNER USAGE SO AS NOT TO INTERFERE WITH THE OWNER'S OPERATIONS.
4. THE DRAWINGS ARE DIAGRAMMATIC. THEY DO NOT SHOW SWITCHES, POWER AND DATA

26 00 00 - ELECTRICAL GENERAL CONDITIONS (CONT.)

DELIVERY AND STORAGE

1. STORE ALL ELECTRICAL/SPECIAL SYSTEMS EQUIPMENT/MATERIALS IN CLEAN, DRY SPACE LOCATED ABOVE GRADE. PROTECT FROM DIRT, WATER, CONSTRUCTION DEBRIS, TRAFFIC, FREEZE, AND DETERIORATION FROM SUN LIGHT.
2. MAINTAIN FACTORY WRAPPING OR PROVIDE APPROPRIATE COVER FOR ALL LARGE ELECTRICAL EQUIPMENT. FOLLOW ALL MANUFACTURER RECOMMENDATIONS FOR HUMIDITY AND MAX/MIN TEMPERATURES FOR STORING ELECTRICAL EQUIPMENT.

QUALIFICATIONS

1. MANUFACTURER: COMPANY SPECIALIZING IN MANUFACTURING PRODUCTS SHOWN ON THE CONSTRUCTION DOCUMENTS WITH MINIMUM THREE YEARS DOCUMENTED EXPERIENCE.
2. INSTALLER: A STATE LICENSED ELECTRICIAN WITH DOCUMENTED EXPERIENCE INSTALLING ALL EQUIPMENT SPECIFIED HERE IN SHALL DIRECTLY SUPERVISE ALL WORK. WHERE NOTED IN THE SPECIFICATIONS, REQUIRED BY CODE, OR REQUIRED BY THE MANUFACTURER, INSTALLER SHALL BE A MANUFACTURER TRAINED AND/OR CERTIFIED INSTALLER OF THE SPECIFIC PRODUCT TO BE INSTALLED.
3. WHERE TESTING IS REQUIRED BY THE CONSTRUCTION DOCUMENTS, EQUIPMENT MANUFACTURER, OR CODE; TESTING SHALL BE PERFORMED BY AN AGENCY WITH DOCUMENTED EXPERIENCE AND PROPERLY CALIBRATED, FULLY FUNCTIONING EQUIPMENT, THAT IS A MEMBER OF THE INTERNATIONAL ELECTRICAL TESTING ASSOCIATION, MANUFACTURER CERTIFIED, OR IS A NATIONALLY RECOGNIZED TESTING LABORATORY (NRTL), AND IS ACCEPTABLE TO THE LOCAL AUTHORITY HAVING JURISDICTION (AHJ).

QUALITY ASSURANCE

1. UNLESS OTHERWISE APPROVED, ALL EQUIPMENT SHALL BE NEW, PROPERLY DESIGNED, FROM A REPUTABLE MANUFACTURER MEETING THE SPECIFICATION QUALIFICATIONS, IN COMPLIANCE WITH THE SPECIFICATION REQUIREMENTS, AND IN FULL WORKING ORDER.
2. WHERE TWO OR MORE ITEMS OF THE SAME CLASS OF EQUIPMENT ARE REQUIRED, THESE ITEMS SHALL BE PRODUCTS OF A SINGLE MANUFACTURER; HOWEVER, THE COMPONENT PARTS OF THE ITEM NEED NOT BE THE PRODUCTS OF THE SAME MANUFACTURER UNLESS STATED IN THE TECHNICAL SECTION.
3. LISTING AND LABELING: WHERE REQUIRED, ALL ELECTRICAL COMPONENTS, DEVICES, AND ACCESSORIES SHALL BE LISTED AND LABELED AS DEFINED IN NFPA 70, ARTICLE 100, BY A TESTING AGENCY ACCEPTABLE TO LOCAL AUTHORITIES HAVING JURISDICTION AND MARKED FOR THE INTENDED USE. TESTING AGENCY SHALL BE UL UNLESS NOTED OTHERWISE OR PRE-APPROVED BY OWNER AND LOCAL A.H.J.
4. ALL EQUIPMENT USED FOR TESTING SHALL BE IN FULL WORKING ORDER AND CALIBRATED PER THE MANUFACTURER'S RECOMMENDATIONS.
5. IF CONFLICTS BETWEEN THE SPECIFICATIONS AND DRAWINGS OCCUR, THE HIGHER QUALITY OR QUANTITY SHALL BE PROVIDED AND INSTALLED. WHEN CONFLICTS EXIST, CONTRACTOR SHALL PROVIDE A WRITTEN REQUEST FOR CLARIFICATION FROM THE ENGINEER. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY ADDITIONAL EXPENSES INCURRED AS A RESULT OF THE CONTRACTOR'S FAILURE TO OBTAIN CLARIFICATION.

INSTALLATION

1. THE CONTRACTOR SHALL PROVIDE CONCRETE HOUSEKEEPING PADS FOR ALL FLOOR MOUNTED ELECTRICAL EQUIPMENT. THE CONCRETE SHALL PROTRUDE AT LEAST 3" PAST THE EDGE OF THE ELECTRICAL EQUIPMENT ON ALL SIDES. THE CONCRETE PAD SHALL BE 6" TALL AND CONTAIN A 1/2" CHAMFER ON ALL SIDES. PROVIDE A MINIMUM OF 3000PSI CONCRETE AND #4 REBAR OR AS RECOMMENDED BY THE STRUCTURAL ENGINEER.
2. NO FOREIGN SYSTEMS SUCH AS PIPING, DUCT WORK, ETC SHALL BE INSTALLED ABOVE ELECTRICAL EQUIPMENT.
3. PROVIDE SLEEVES FOR PENETRATIONS THROUGH WALLS/FLOORS. SEAL ALL OPENINGS. USE FIRE-RATED SEALANT FOR OPENINGS IN RATED FLOORS AND WALLS.

26 05 19 - CONDUCTORS AND CABLES (600V AND LESS)

GENERAL REQUIREMENTS

1. ALL BUILDING WIRING (THHN/THWN) SHALL BE INSULATED COPPER CONDUCTORS RUN FROM LOAD TO SOURCE INSIDE RACEWAY OR NM CABLE ROUTED THROUGH WOODEN MEMBERS AS ALLOWED BY NEC ARTICLE 334, CONTINUOUS (WITHOUT SPLICES) BETWEEN JUNCTION AND PULL BOXES.
2. ALL SINGLE POLE CIRCUITS SHALL HAVE A DEDICATED NEUTRAL CONDUCTOR ROUTED TO THE SOURCE PANEL.
3. FIELD VERIFY WHETHER A NEUTRAL IS REQUIRED FOR ALL TWO AND THREE POLE CIRCUITS. FOR ALL LOADS EXCEPT MOTORS, A NEUTRAL IS ASSUMED TO BE REQUIRED UNLESS FIELD DETERMINED TO BE UNNECESSARY.
4. ALL POWER & CONTROL WIRING ROUTED THROUGH RETURN AIR PLENUMS SHALL BE PLENUM RATED.
5. UP TO 3-20A CIRCUITS MAY SHARE A RACEWAY FOR HOMERUNS WHERE SUITABLE & PER NEC CONDUIT FILL RULES.
6. 120V, 20A. HOME RUNS LONGER THAN 100' AND 277V, 20A. HOME RUNS LONGER THAN 150' SHALL BE #10 MIN.
7. PROVIDE COLOR CODING FOR ALL WIRING IN ACCORDANCE WITH LOCAL ADOPTED CODE OR OWNER'S REQUIREMENTS. IF THIS PROJECT DOES NOT HAVE LOCAL REQUIREMENTS OR OWNER STANDARDS, ALL WIRING SHALL BE COLOR-CODED AS FOLLOWS:

	208Y/120 VOLT SYSTEM	480/277 VOLT SYSTEM
NEUTRAL:	WHITE	GRAY
PHASE A OR L1	RED	BROWN
PHASE B OR L2	BLACK	YELLOW
PHASE C OR L3	BLUE	PURPLE
GROUND	GREEN	GREEN
ISOLATED GROUND	GREEN W/YELLOW TRACER	GREEN W/YELLOW TRACER

BUILDING WIRE

1. CONDUCTOR: SOFT DRAWN COPPER, 98% CONDUCTIVITY.
2. INSULATION RATING: 600V, 90°C
3. INSULATION MATERIAL: NM CABLE WHERE ALLOWED BY NEC ARTICLE 334. IN SPACES WHERE NM CABLE IS NOT ALLOWED, USE THHN,THWN IN CONDUIT. USE XHHW CONDUCTORS AND CONDUIT WHERE INSTALLED IN UNDERGROUND CONDUIT.
4. CONDUCTORS #8 AWG AND LARGER SHALL BE STRANDED.
5. CONDUCTORS #10 AWG SHALL BE SOLID OR STRANDED. FINAL CONNECTION SHALL BE MADE WITH WIRE TYPE CONSISTENT WITH UL LISTING AND MANUFACTURER REQUIREMENTS FOR EQUIPMENT, FIXTURE, AND/OR DEVICE.
6. CONDUCTORS #12 SHALL BE SOLID.
7. FEEDER CONDUCTORS #1/0 AND LARGER ARE ALLOWED TO BE ALUMINUM WITH ENGINEER'S APPROVAL.

METAL CLAD CABLE

1. CONDUCTOR: SOFT DRAWN COPPER, 98% CONDUCTIVITY.
2. INSULATION: 600V, 90°C, THHN/THWN U.N.O.
3. ARMOR: STEEL OR ALUMINUM; INTERLOCKED METAL TAPE.
4. ALL HOME RUNS SHALL BE IN CONDUIT (NOT MC CABLE) FROM PANEL TO FIRST WIRING DEVICE, OR TO JUNCTION BOX LOCATED IN ACCESSIBLE CEILING SPACE ABOVE FIRST WIRING DEVICE.
5. ALL SWITCH BOXES SHALL BE PROVIDED WITH CONDUIT TO JUNCTION BOX ABOVE ACCESSIBLE CEILING TO ALLOW FOR FUTURE MODIFICATION.
6. MC CABLE SHALL NOT BE USED FOR CONNECTING TO DEDICATED RECEPTACLES OR PIECES OF EQUIPMENT.
7. NO EXPOSED MC CABLE WILL BE ALLOWED.

CONNECTORS AND TERMINATIONS

1. PROVIDE FACTORY-FABRICATED, METAL CONNECTOR OF THE SIZE, RATING, MATERIAL, TYPE AND CLASS REQUIRED BY EQUIPMENT MANUFACTURER AND THE NEC.
2. CONNECTORS SHALL BE INSULATED TO 600V AND CONDUCTING COMPONENTS SHALL MATCH MATERIAL OF WIRING (COPPER U.N.O.)
3. TERMINAL LUGS FOR WIRES #6 AWG AND SMALLER SHALL BE SOLDERLESS, COMPRESSION TYPE COPPER.
4. TERMINAL LUGS FOR #4 AWG AND LARGER SHALL BE COMPRESSION TYPE COPPER WITH INSULATING SEALING COLLARS.
5. ALL TERMINALS, LUGS AND BUS JOINTS SHALL BE TIGHTENED PER THE MANUFACTURER'S TORQUE REQUIREMENTS. PROVIDE TORQUE LOG AS PART OF THE PROJECT CLOSEOUT SUBMITTALS.

26 05 26 - GROUNDING AND BONDING

GENERAL REQUIREMENTS

1. ALL RACEWAYS AND CIRCUITS SHALL BE PROVIDED WITH A NEC 250 COMPLIANT GREEN GROUND CONDUCTOR.
2. ALL EQUIPMENT SHALL BE PROPERLY BONDED.
3. UPON COMPLETION OF THE WORK, ALL FEEDERS OF THE ELECTRICAL INSTALLATION SHALL BE MEGGER TESTED AND PROVED TO BE FREE OF UNWANTED GROUNDS AND OTHER DEFECTS.
4. INSTALL BRANCH CIRCUITS FEEDING ISOLATED GROUND RECEPTACLES WITH SEPARATE INSULATED GROUNDING CONDUCTOR, CONNECTED ONLY AT ISOLATED GROUND RECEPTACLE, GROUND TERMINALS, AND GROUND BUS OF SERVING PANEL.

PRODUCTS

1. ROD ELECTRODES: 10 FOOT, 3/4" DIAMETER, COPPER. EXOTHERMIC WELDED CONNECTION.
2. GROUNDING AND BONDING WIRE: 600V, STRANDED COPPER; SOLID COPPER MAY BE USED FOR #8 AWG AND SMALLER. MATCH BUILDING WIRE INSULATION EXCEPT WHERE NOTED AS BARE.
3. MECHANICAL CONNECTORS: BRONZE CONNECTORS, SUITABLE FOR GROUNDING AND BONDING APPLICATIONS. LISTED AND LABELED BY A NATIONALLY RECOGNIZED TESTING LABORATORY ACCEPTABLE TO THE A.H.J.
4. GROUND BUS: RECTANGULAR ANNEALED COPPER, MIN. 12" LONG, 1/4" BY 2" IN CROSS SECTION U.N.O. PRE-DRILLED WITH 9/32" HOLES SPACED 1" APART WITH STANDOFF INSULATORS. ALL TERMINATION LUGS SHALL BE 2 HOLE TYPE.

SERVICE ENTRANCE GROUNDING ELECTRODE SYSTEM

1. ALL RACEWAYS AND CIRCUITS SHALL BE PROVIDED WITH A NEC 250 COMPLIANT GREEN GROUND CONDUCTOR.
2. AT A MINIMUM, A GROUNDING ELECTRODE CONDUCTOR, SIZED PER NEC ARTICLE 250, SHALL BE CONNECTED FROM THE GROUND BUS OF THE SERVICE ENTRANCE DISCONNECT TO A 3/4"x10' COPPER CLAD STEEL GROUND ROD, TO THE BUILDING METAL COLD WATER AND GAS PIPING AT THE POINT OF ENTRANCE INTO THE BUILDING, STRUCTURAL STEEL, 20' OF BARE COPPER ENCASED IN THE SLAB, AND ANY OTHER AVAILABLE ELECTRODES AS DEFINED BY NEC 250.52(A). ADDITIONAL GROUNDING REQUIREMENTS MAY BE SPECIFIED ON THE PLANS TO ACHIEVE A MINIMUM GROUND RESISTANCE OF 5 OHMS.
3. ROUTING OF GROUNDING ELECTRODE CONDUCTORS SHALL BE IN METAL CONDUIT IN ALL LOCATIONS THAT ARE SUBJECT TO PHYSICAL ABUSE OR ENVIRONMENTAL DETERIORATION SUCH AS EXTERIOR MOUNTED, EXPOSED BELOW LAY IN CEILING, ETC.
4. PROVIDE A #4 GROUND FROM THE SERVICE ENTRANCE GROUND BUS TO ALL TELEPHONE SERVICE BOARDS AND COMMUNICATIONS EQUIPMENT ROOMS AND TERMINATE AT A GROUND BUS.
5. GROUNDING SYSTEM RESISTANCE SHALL BE 5 OHMS MAXIMUM. SYSTEM SHALL BE TESTED IN ACCORDANCE WITH IEEE 142. PROVIDE ADDITIONAL GROUNDING ELECTRODES AS REQUIRED TO ACHIEVE SPECIFIED RESISTANCE.

26 05 29 - HANGERS AND SUPPORTS

1. SUPPORT RACEWAYS USING GALVANIZED STEEL OR MALLEABLE IRON STRAPS; CHANNEL OR PIPE CLAMPS AS APPROPRIATE.
2. PROVIDE ALL RACKS WITH 25% SPARE CAPACITY.
3. ALL RACKS SHALL BE DEDICATED TO ELECTRICAL DEVICES AND NOT OTHER SYSTEMS.
4. PROVIDE SUPPORTS AT ALL BOXES, ELEC. EQUIP., LOADS, AND AT CODE REQUIRED INTERVALS ALONG RACEWAYS.

26 05 33 - RACEWAYS AND BOXES

GENERAL REQUIREMENTS

1. POWER, LIGHTING, COMMUNICATIONS, FIRE ALARM, ACCESS CONTROL/SECURITY, CONTROLS, AND OTHER SPECIAL SYSTEMS MAY BE RUN EXPOSED WHERE PROPERLY SUPPORTED AND PROTECTED.
2. PROVIDE RACEWAY AND BOXES FOR ALL EQUIPMENT; LIGHTING; WIRING DEVICES; COMMUNICATIONS EQUIPMENT AND OUTLETS; FIRE ALARM EQUIPMENT, APPLIANCES, AND DEVICES; ACCESS CONTROL/SECURITY POINTS; CONTROLS POINTS; AND OTHER SPECIAL SYSTEMS SHOWN ON PLANS TO ABOVE CEILING.
3. PROVIDE RACEWAY BOXES AT OTHER LOCATIONS AS REQUIRED FOR SPLICES, TAPS, WIRE PULLING, EQUIPMENT CONNECTIONS, AND COMPLIANCE WITH REGULATORY REQUIREMENTS. RACEWAY AND BOXES ARE SHOWN IN APPROXIMATE LOCATIONS UNLESS DIMENSIONED. PROVIDE RACEWAY TO COMPLETE WIRING SYSTEM.
4. ALL BOXES SHALL BE LOCATED IN AN ACCESSIBLE SPACE AS DEFINED BY THE NEC.
5. DO NOT INSTALL RACEWAYS WITH MORE THAN THE EQUIVALENT OF THREE NINETY DEGREE BENDS BETWEEN PULL POINTS.
6. ROUTE ALL RACEWAYS PARALLEL AND PERPENDICULAR TO WALLS, FLOORS, AND CEILINGS.
7. ALL EXPOSED CONDUIT SHALL BE RUN PARALLEL AND TIGHT TO STRUCTURAL ELEMENTS. FOLLOW ALL SURFACE CONTOURS; DO NOT ROUTE IN FREE AIR FROM POINT TO POINT.
8. INSTALL RACEWAYS SO THAT IT DRAINS TO JUNCTION AND PULL BOXES TO AVOID MOISTURE TRAPS AT LOW POINTS.
9. ALL SPARE CONDUITS SHALL BE PROVIDED WITH PULL STRING, LABELED, AND CAPPED AT BOTH ENDS.
10. CLOSE ENDS AND UNUSED OPENINGS IN SURFACE RACEWAYS, WIREWAY, BOXES, AND ENCLOSURES.
11. WHERE POSSIBLE, ALL CONDUIT ROUTED THROUGH ROOF STRUCTURE SHALL SHARE COMMON PENETRATIONS AS MECHANICAL DUCTWORK OR PIPING. COORDINATE WITH MECHANICAL CONTRACTOR.
12. ALL ROOF AND WALL PENETRATIONS SHALL BE FLASHED AND SEALED TO MAINTAIN THE FIRE RATING AND WATERPROOFING OF THE STRUCTURE PER THE MANUFACTURER OF THE MATERIAL'S RECOMMENDED PRACTICES.

CONDUIT

1. CONTRACTOR SHALL FURNISH AND INSTALL ALL CONDUITS SERVING ALL EQUIPMENT, INCLUDING BUT NOT LIMITED TO, LIGHTING, RECEPTACLES, HEATING, AIR CONDITIONING, PLUMBING EQUIPMENT, TELEPHONE, DATA, SPEAKERS, AND ELECTRICAL EQUIPMENT. WHEN NM CABLE IS USED, CONDUIT IS NOT REQUIRED.
2. CONDUIT TYPES ALLOWED ARE SUMMARIZED IN THE TABLE BELOW. CONTRACTOR SHALL ONLY INSTALL CONDUIT LISTED WITHIN UNLESS OTHERWISE SPECIFIED IN SPECIFICATIONS OR ON DRAWINGS. ALL CONDUIT IS TO BE UL LABELED. EMT CONNECTORS SHALL BE STEEL COMPRESSION. SET SCREW CONNECTORS ARE NOT PERMITTED.
3. MINIMUM SIZE OF CONDUIT SHALL BE 3/4" AND 1" FOR ALL UNDERGROUND CONDUIT.
4. WHEN USING CONDUIT, IT SHALL BE CONCEALED EXCEPT FOR UNFINISHED AREAS, SUCH AS EQUIPMENT ROOMS. EXPOSED CONDUIT SHALL BE ALLOWED ONLY AS NOTED ON PLAN AND AS APPROVED BY THE G.C.'S CONSTRUCTION MANAGER. PAINTING OF CONDUITS, NOTED ON DRAWINGS OR SPECIFICATIONS WILL BE BY THE G.C. AND APPROVED BY THE ARCHITECT.
5. WHERE EXPOSED, CONDUIT SHALL BE RMC OR IMC BELOW 10', AND RMC, IMC, OR EMT ABOVE 10'. PROVIDE RMC IN ALL LOCATIONS WHERE SUBJECT TO PHYSICAL DAMAGE.
6. SUPPORT ALL CONDUIT, INCLUDING SEISMIC AND SWAY BRACING, IN ACCORDANCE WITH THE NEC AND LOCAL CODES.
7. ALL CONDUITS MUST BE SIZED PER NEC AND LOCAL CODES.
8. ALL CONDUITS THAT TRAVERSE EXPANSION JOINTS SHALL HAVE EXPANSION FITTINGS LISTED FOR THE USE. OZ GEDNEY TYPE TX OR EQUIVALENT. PROVIDE EXTERNAL BONDING JUMPER.
9. ALL CONDUIT SHALL HAVE INSULATED THROAT CONNECTOR OR BUSHING IN PLACE PRIOR TO PULLING CONDUCTORS.
10. ALL CONNECTIONS TO MOTORS, INSTRUMENTS, MACHINES, AND EQUIPMENT SUBJECT TO MOVEMENT OR VIBRATION SHALL BE MADE USING LIQUID-TIGHT, FLEXIBLE METAL CONDUIT (LFMC), WITH A MAXIMUM LENGTH OF 36".
11. PROVIDE WRAPPED RIGID STEEL CONDUIT WHERE ENTERING/EXITING SLABS OR GRADE AND FOR ELBOWS 1" AND LARGER.
12. PROVIDE RIGID STEEL CONDUIT WITHIN 5' OF BUILDING FOUNDATIONS.
13. ANY EXPOSED RNC CONDUIT SHALL BE SCHEDULE 80 PVC.
14. RNC IS PROHIBITED FROM INDOOR INSTALLATIONS UNLESS OTHERWISE SPECIFIED ON THE DRAWINGS.

LOCATION	RACEWAYS ALLOWED
UNDERGROUND	RMC, RNC, IMC
IN CONCRETE	RMC, RNC, IMC
EXTERIOR ABOVE GRADE	RMC
EXTERIOR, WET/DAMP	RMC, IMC, RNC, LFMC
DRY, CONCEALED	RMC, IMC, EMT, FMC
DRY, EXPOSED	<10' AFF: RMC, IMC >10' AFF: EMT, IMC, LFMC, FMC
SLAB ON GRADE	RMC, IMC, RNC

OUTLET BOXES

1. ALL OUTLET BOXES SHALL BE GALVANIZED PRESSED STEEL OF THE STANDARD KNOCKOUT TYPE. NO ROUND OUTLET BOXES SHALL BE PERMITTED, EXCEPT AS SPECIFICALLY NOTED ON DRAWINGS. CONCEALED BOXES SHALL NOT BE LESS THAN 4" SQUARE AND 1-1/2" DEEP, WITH PLASTER RINGS.
2. USE MULTI-GANG BOXES IN ALL POSSIBLE LOCATIONS.
3. ALL KNOCKOUT BOXES, UPON WHICH LIGHTING FIXTURES ARE TO BE INSTALLED, SHALL BE EQUIPPED WITH 3/8" FIXTURE STUDS.
4. EXTERIOR BOXES SHALL BE CAST RUST-RESISTING METAL WITH GASKETED COVERS.
5. INSTALL BOXES RIGIDLY FROM BUILDING STRUCTURE AND SUPPORT INDEPENDENTLY OF THE CONDUIT SYSTEM. ALSO PROVIDE SUITABLE BOX EXTENSIONS TO EXTEND BOXES TO FINISHED FACES OF FLOORS, CEILINGS, WALLS, ETC. ALL OUTLET BOXES SHALL BE PROVIDED WITH CADDY "QUICK-MOUNT BOX SUPPORT" TO MINIMIZE THE DEFLECTION THAT OCCURS WHEN PLUGGING/UNPLUGGING INTO THESE DEVICES.
6. USE CONCRETE TIGHT, MASONRY RATED BOXES AND FITTINGS WHERE INSTALLED IN CONCRETE, STONE, BRICK, OR CMU.
7. EXTERIOR OUTLET BOXES SHALL BE CAST METAL, GASKETED, AND RATED NEMA 3R MIN.
8. ALL LUMINARIE OR FAN OUTLET BOXES SHALL BE RATED FOR 50LBS. FOR GREATER THAN 50LB, BOXES MUST BE MARKED FOR MAXIMUM ALLOWABLE WEIGHT LIMIT.

JUNCTION AND PULL BOXES

1. THE PLANS INDICATE ONLY SCHEMATIC ROUTINGS FOR CONDUIT RUNS. CONTRACTOR SHALL FURNISH AND INSTALL ADDITIONAL BOXES WHERE REQUIRED BY FIELD CONDITIONS OR BY CODE.
2. BOXES AND COVERS SHALL BE GALVANIZED STEEL OF CODE GAUGE SIZE.
3. INSTALL BOXES RIGIDLY SUPPORTED FROM THE BUILDING STRUCTURE AND SUPPORTED INDEPENDENT OF THE CONDUIT SYSTEM.
4. ARRANGE CIRCUITS TO AVOID THE USE OF JUNCTION BOXES IN INACCESSIBLE LOCATIONS. THE USE OF JUNCTION BOXES ABOVE DRYWALL CEILINGS SHOULD BE IN LOCATIONS NEAR ACCESS FRAMES USED FOR DIFFUSERS AND RETURN AIR GRILLES OR ACCESS PANELS AS LOCATED ON PLANS.
5. JUNCTION AND PULL BOXES MUST BE LABELED WITH CIRCUIT NUMBER IDENTIFICATION AND SYSTEM TYPE ON COVER WITH AN INDELIBLE MARKER.
6. PROVIDE BOXES FOR UTILITY SERVICE CONDUIT(S) OR CABLING PER UTILITY PROVIDER'S SPECIFICATIONS.
7. NONMETALLIC HANDHOLES MAY BE USED FOR SITE LIGHTING AND CONTROLS CIRCUITS. ALL HANDHOLES SHALL HAVE RATED COVERS FOR THEIR LOCATION.
8. USE CONCRETE TIGHT, MASONRY RATED BOXES AND FITTINGS WHERE INSTALLED IN CONCRETE, STONE, BRICK, OR CMU.
9. EXTERIOR BOXES SHALL BE CAST METAL, GASKETED, AND RATED NEMA 3R MIN.
10. ALL ELECTRICAL EQUIPMENT ENCLOSURES SHALL BE 16 GAUGE SHEET METAL (MIN) AND PROVIDED WITH MANUFACTURER'S CORROSION RESISTANT PAINT, CONTINUOUS HINGE, AND LATCHING DOOR. (UNLESS NOTED OTHERWISE)

26 05 53 - IDENTIFICATION

GENERAL REQUIREMENTS

1. PROVIDE APPROPRIATE LABELS AND WARNING SIGNS FOR ALL EQUIPMENT, WIRING DEVICES, CONDUCTORS, CABLES, BOX, AND ENCLOSURES.
2. CONDUCTOR TAGGING: TAG CIRCUITS WHICH PASS THROUGH OTHER DEVICES SUCH AS LIGHTING CONTACTORS.
3. PROVIDE A TYPED PANEL DIRECTORY FOR EACH PANEL PROVIDED OR MODIFIED FOR THIS PROJECT. DIRECTORY SHALL IDENTIFY THE CIRCUIT NUMBER, LOADS SERVED, AND LOCATION OF LOADS BY ROOM NUMBER. MOUNT ON INSIDE OF EACH PANEL AND FILE THEM WITH THE OWNER WHEN THE WORK IS COMPLETED.
4. PROVIDE EACH PANEL, TRANSFORMER, VFD, DISCONNECTS, AUTOMATIC TRANSFER SWITCHES, AND EQUIPMENT ENCLOSURES WITH A MANUFACTURER PREPARED ARC FLASH HAZARD WARNING LABEL.
5. ALL ELECTRICAL EQUIPMENT SHALL BE IDENTIFIED BY MEANS OF 3"X1" (MIN)NAMEPLATES PERMANENTLY ATTACHED TO THE EQUIPMENT, PLATES SHALL BE METAL, PLASTIC, OR SIMILAR, BLACK WITH 1/4" (MIN) ENGRAVED WHITE LETTERS. SEE SYMBOLS SHEET FOR EXAMPLE.
6. JUNCTION AND PULL BOXES SHALL BE LABELED WITH PANEL NAME, CIRCUIT #, AND VOLTAGE.
7. ALL UNDERGROUND CONDUIT SHALL HAVE 6" WIDE PLASTIC, DETECTABLE, RED COLORED WARNING TAPE FOR THE ENTIRE CONDUIT RUN.
8. IN FINISHED AREAS, RECEPTACLES SHALL BE LABELED WITH THE PANEL NAME AND CIRCUIT # ON BACKSIDE OF RECEPTACLE COVERS. FOR UNFINISHED AREAS, LABEL TO BE ON FRONTSIDE OF RECEPTACLE COVERS. USE WHITE LABELS WITH BLACK TEXT.
9. EXTERIOR, RECEPTACLES SHALL BE LABELED UNDER THE WEATHER PROOF COVER WITH PANEL NAME AND CIRCUIT #.
10. FIRE ALARM, EMERGENCY/CRITICAL PWR, LIFE SAFETY LABELS, INCLUDING RECEPTACLES, SHALL BE COLOR CODED WITH ENGRAVED LABELS.

26 22 00 - TRANSFORMERS

GENERAL REQUIREMENTS

1. TRANSFORMERS SHALL BE CONTINUOUSLY RATED ISOLATING TYPE FOR 60 HERTZ SERVICE UNLESS OTHERWISE INDICATED.
2. ALL TRANSFORMERS 15KVA AND LARGER TO BE 2016 DOE COMPLIANT.
3. 25KVA AND LARGER, PROVIDE TAPS AT 2.5% ABOVE AND 2.5% BELOW FULL CAPACITY.
4. INSULATION SYSTEMS SHALL BE 220 DEGREES C (150 DEGREE RISE).
5. ENCLOSURES FOR TRANSFORMERS SHALL BE METALLIC, SUITABLE FOR INDOOR AND OUTDOOR INSTALLATION AS APPLICABLE AND RODENT PROOF.
6. MANUFACTURERS SHALL BE SCHNEIDER ELECTRIC, EATON, SEIMENS, POWERSMITHS, PQI, OR ABB.. FRACTIONAL KVA TRANSFORMERS SHALL BE MANUFACTURED BY EDWARDS OR THE SPECIAL EQUIPMENT MANUFACTURER IN WHICH THE TRANSFORMERS ARE USED.
7. FOUR APPROVED VIBRATION DAMPENERS PER TRANSFORMER SHALL BE EMPLOYED AS NECESSARY TO AVOID TRANSMITTING ANY VIBRATION TO THE BUILDING STRUCTURE. SIZES OF THE MOUNTINGS SHALL BE SELECTED ON THE BASIS OF THE WEIGHT OF THE TRANSFORMER, USING:
   - A. A MINIMUM 1" THICK RUBBER-CORK-RUBBER SANDWICH TYPE FOR FLOOR MOUNTING.
   - B. A SPRING TYPE FOR SUSPENSION MOUNTING.
   - C. TWO(2) SPRING TYPE AT THE TOP (WITH TWO (2) STEEL BRACKETS) AND TWO (2) RUBBER-IN COMPRESSION TYPE AT THE BOTTOM (STAND-OFF) FOR WALL MOUNTING.

6. NO RIGID CONDUITS SHALL BE ATTACHED DIRECTLY TO THE TRANSFORMER. AT EACH ATTACHMENT, PROVIDE A VIBRATION DAMPENING ASSEMBLY CONSISTING OF:
   - A. AT&B #5721, 2, 3 ETC., OR EQUIVALENT FEMALE HUB TYPE LIQUID-TIGHT CONNECTOR BY STEEL CITY, EFCOR OR APPROVED EQUAL.
   - B. T&B #5331, 2, 3 ETC., OR EQUIVALENT MALE HUB TYPE LIQUID-TIGHT CONNECTOR WITH AN INSULATED THROAT BY STEEL CITY, EFCOR OR APPROVED EQUAL.
   - C. SHORT LENGTH (24" MAX) OF LIQUID-TIGHT FLEXIBLE CONDUIT.
   - D. A BONDING JUMPER OF NEC SIZE OUTSIDE OF THE ASSEMBLY.

7. FLOOR MOUNTING: ALL FLOOR MOUNTED TRANSFORMERS SHALL BE INSTALLED ON A CONTRACTOR PROVIDED 4" HIGH HOUSEKEEPING CONCRETE PAD.
8. EXTERIOR MOUNTING: PROVIDE 4" PAD ABOVE GRADE WITH MINIMUM 4" BELOW GRADE.
9. CLEANING: VACUUM ONLY, DO NOT USE COMPRESSED AIR.

26 24 13 - DISTRIBUTION PANELS/SWITCHBOARDS

GENERAL REQUIREMENTS

1. ACCEPTABLE MANUFACTURERS: SCHNEIDER ELECTRIC, EATON, SEIMENS, ABB. DISTRIBUTION PANELS SHALL BE FREESTANDING, DEAD FRONT TYPE WITH FEATURES AND RATING AS SCHEDULED ON THE DRAWINGS.
2. COMPLY WITH NEMA PB 2.
3. MOLDED CASE CIRCUIT BREAKERS SHALL BE AS SCHEDULED, OF SIZE AND NUMBER INDICATED ON THE DRAWINGS. ALL BREAKERS SHALL BE BOLT-ON TYPE.
4. ALL LUGS SHALL BE UL APPROVED CU/AL TYPE.
5. PANELS SHALL BE MANUFACTURED AS A COMPLETE UNIT AND NOT AN ASSEMBLY OF PARTS SECURED FROM A SUPPLY HOUSE.
6. ALL PANELS SHALL BE CAPABLE OF ACCEPTING CIRCUIT BREAKERS SIZED UP TO AND INCLUDING 400 AMPS.
7. VERTICAL BUSSING SHALL BE EXTENDED THE FULL LENGTH OF THE PANEL.
8. ALL BUS BARS SHALL BE RECTANGULAR SOLID COPPER AND BE A-B-C FROM LEFT TO RIGHT, TOP TO BOTTOM, AND FRONT TO REAR, AS VIEWED FROM THE FRONT OF THE SWITCHBOARD.
9. GROUND BUS SHALL EXTEND THE LENGTH OF THE SWITCHBOARD.
10. INSTALL SUCH THAT HANDLE FOR THE TOP BREAKER DOES NOT EXCEED 6'-6" ABOVE FINISHED FLOOR.
11. PROVIDE FOR FUTURE EXTENSIONS ON BOTH ENDS.
12. PROVIDE PHENOLIC LABELS FOR EACH LOAD.
13. ALL BOLTED CONNECTIONS SHALL BE TORQUED IN ACCORDANCE WITH MANUFACTURER'S STANDARDS.
14. FLOOR-MOUNTED PANELS SHALL BE MOUNTED ON A 4" HIGH CONCRETE HOUSEKEEPING PAD.
15. ALL BREAKERS SHALL BE MOLDED CASE (MCCB)
    - 15.1. PROVIDE FRONT MOUNTED, FIELD ADJUSTABLE TRIP SETTINGS.
    - 15.2. ADJUSTABLE MAGNETIC TRIP FOR 250A AND LARGER.
    - 15.3. LI FOR 600A TO 900A
    - 15.4. LSIG FOR 1000A AND ABOVE
    - 15.5. ARC REDUCING MAINTENANCE SWITCH (ARMS) FOR THOSE 1200A AND ABOVE. ALL ARMS SHALL BE TESTED PER NEC 240.67(C).
16. GROUND FAULT DEVICES
    - 16.1. PROVIDE GROUND FAULT PROTECTION ON ALL DEVICES RATED 1000A OR GREATER.
    - 16.2. ADJUSTABLE RELAY FROM 200A TO 1200A WITH TIME DELAY FROM 0-3 SECONDS.
17. FIELD QUALITY CONTROL
    - 17.1. PROVIDE PROOF OF FACTORY INSPECTIONS AND TESTING.
    - 17.2. TEST GROUND FAULT PROTECTION OF SERVICE EQUIPMENT.

26 24 16 - PANELBOARDS

GENERAL REQUIREMENTS

1. ACCEPTABLE MANUFACTURERS: SCHNEIDER ELECTRIC, EATON, SIEMENS, ABB. PANELBOARDS SHALL BE ENCLOSED DEAD FRONT SAFETY TYPE WITH HINGED DOOR-IN-DOOR COVER AND FEATURES AND RATINGS AS SCHEDULED ON THE DRAWINGS.
2. PANELS KNOWN AS "LOAD CENTERS" ARE UNACCEPTABLE UNLESS LOCATED WITHIN AND DEDICATED TO AN INDIVIDUAL DWELLING UNIT OR GUEST SUITE.
3. ALL PANELBOARDS IN PROJECT SHALL BE KEYED ALIKE.
4. MOLDED CASE CIRCUIT BREAKERS SHALL BE THERMAL MAGNETIC AS SCHEDULED ON THE DRAWINGS AND SPECIFIED IN THIS DIVISION. PROVIDE HACR TYPE BREAKERS FOR ALL MECHANICAL EQUIPMENT.
5. PROVIDE ALL PANELBOARDS WITH FEED-THROUGH LUGS OPPOSITE OF INCOMING LUGS.
6. ALL BUS BARS SHALL BE RECTANGULAR, 98% CONDUCTIVE SOLID COPPER AND EXTEND THE ENTIRE LENGTH OF THE PANELBOARD.
7. NEUTRAL AND GROUND BUS SHALL HAVE A LUG FOR EACH POLE IN THE PANELBOARD.
8. SPACE, WHERE SHOWN IN PANEL SCHEDULES, DESIGNATES SPACE FOR FUTURE PROTECTIVE DEVICES AND SHALL INCLUDE BUS AND SUPPORT.
9. INSTALL CABINETS SO THAT CENTER OF THE TOP BREAKER DOES NOT EXCEED 6'-6" ABOVE THE FINISHED FLOOR.
10. ENTRIES ON DIRECTORY CARDS SHALL BE TYPED, COMPLETE AND ACCURATE.
11. ALL BOLTED CONNECTIONS SHALL BE TORQUED IN ACCORDANCE WITH MANUFACTURER'S STANDARDS.
12. ELECTRICAL CONTRACTOR SHALL ARRANGE CIRCUITS AS NEAR AS POSSIBLE TO CIRCUIT NUMBERS ON THE DRAWINGS. AT COMPLETION OF JOB, ELECTRICAL CONTRACTOR SHALL TAKE CURRENT READING CHECKS OF RESPECTIVE PHASES. A MINIMUM OF CIRCUIT CONNECTIONS SHALL BE REARRANGED TO BALANCE AS CLOSELY AS POSSIBLE, THE LOAD IN THE PANEL.
13. ALL BREAKERS SHALL BE BOLT-ON TYPE.
14. PROVIDE (3) SPARE 1" CONDUITS INTO ACCESSIBLE CEILING SPACE WHERE PANELS ARE FLUSH-MOUNTED.

26 27 26 - WIRING DEVICES

GENERAL REQUIREMENTS

1. WIRING DEVICE COLOR SHALL MATCH THE CEILING/WALL FINISH COLOR SELECTED BY ARCHITECT, UNLESS OTHERWISE INDICATED. ALL ISOLATED GROUND (I.G) TYPE RECEPTACLES SHALL BE ORANGE UNLESS OTHERWISE NOTED.
2. RECEPTACLES REQUIRING AMPERAGES, VOLTAGES OR CONFIGURATIONS DIFFERENT FROM THE DUPLEX CONVENIENCE RECEPTACLES BELOW SHALL BE AS INDICATED ON THE DRAWINGS.
3. PROVIDE OTHER RECEPTACLES OF A QUALITY, MATERIAL AND WORKMANSHIP EQUAL TO THAT SPECIFIED FOR DUPLEX CONVENIENCE RECEPTACLES.
4. LOCATE THE SWITCHES APPROXIMATELY 4'-0" ABOVE THE FINISHED FLOOR ELEVATION OR NEAREST BLOCK COURSE (WITHIN A.D.A. REQUIREMENTS), U.N.O. THE LONG DIMENSION OF THE SWITCHES SHALL BE VERTICAL.
5. LOCATE RECEPTACLES APPROXIMATELY 1'-6" ABOVE THE FINISHED FLOOR ELEVATION OR NEAREST BLOCK COURSE (WITHIN A.D.A. REQUIREMENTS), U.N.O. THE LONG DIMENSION OF RECEPTACLES SHALL BE VERTICAL.
6. PROVIDE TOTALLY ENCLOSED, 20 AMPERE, 120/277 VOLT, QUIET A/C GENERAL USE SNAP SWITCHES.
7. SWITCHES SHALL BE SPECIFICATION GRADE AS MANUFACTURED BY HUBBEL, P&S, OR LEVITON.
8. PROVIDE NEMA CONFIGURATION 5-20R DUPLEX 125 VOLT GROUNDING TYPE RECEPTACLES RATED FOR 20 AMPERES UNLESS OTHERWISE INDICATED ON THE DRAWINGS.
9. RECEPTACLES SHALL BE SPECIFICATION GRADE AS MANUFACTURED BY HUBBELL, P&S OR LEVITON.
10. INSTALL GROUND PIN UP FOR VERTICALLY MOUNTED RECEPTACLES AND LEFT FOR HORIZONTALLY MOUNTED RECEPTACLES.
11. SPECIALTY RECEPTACLES:
    - 11.1. TAMPER-RESISTANT RECEPTACLES SHALL BE LISTED AS "TR" WITH INTEGRAL SHUTTER AND INSTALLED IN ALL LOCATIONS REQUIRED BY NEC 406.12 AND ELSEWHERE NOTED ON THE PLANS.
    - 11.2. USB RECEPTACLES SHALL BE A 5-20R DUPLEX RECEPTACLE WITH ONE TYPE A USB AND ONE TYPE C USEB 3.0 OUTLETS RATED FOR AT LEAST 3 AMPS.
    - 11.3. GFCI RECEPTACLES SHALL HAVE AN INTEGRAL TEST & RESET WITH LED INDICATOR LIGHT.
12. PROVIDE COVER OR DEVICE PLATES FOR OUTLET BOXES AS FOLLOWS UNLESS OTHERWISE NOTED:

ALL ELECTRICAL SHALL BE IN ACCORDANCE WITH CITY OF AUSTIN ELECTRICAL CODES. The granting of a permit for, approval of these plans shall not be construed to be a permit for, or approval of, any violation of the provisions of the currently adopted electrical code or any other ordinances of the City of Austin.

ELECTRICAL
APPROVAL

APPROVED
Date 04/01/2026

This stamp serves as a means of electrical approval and does not include other disciplines.

BEAtx Architects, LLC.
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SHEET TITLE :
ELECTRICAL
GENERAL NOTES

REVISIONS :

SUBMITTAL:
ISSUED FOR PERMIT

SCALE :

DATE :
2/27/2026

PROJECT NUMBER :
25003

DRAWN BY : CHECKED BY :

SHEET NO. :
E0.2

12.1. FINISHED AREAS: THERMOPLASTIC - COLOR TO MATCH DEVICE.
12.2. UNFINISHED AREAS: ZINC COATED SHEET METAL, ALUMINUM, OR CAST METAL AS APPROPRIATE FOR THE TYPE OF BOX.
12.3. EXTERIOR AREAS: COPPER FREE ALUMINUM WITH GRAY, POWDER EPOXY FINISH, GASKET, WEATHERPROOF, CROUSE-HINDS "WLRD" FOR DUPLEX RECEPTACLES AND WLRS FOR SINGLE RECEPTACLES OR EQUAL.
12.4. TELEPHONE, COMMUNICATION, AND SIGNAL OUTLET PLATES, SHALL MATCH THOSE USED FOR RECEPTACLES AND SWITCHES. ALL OUTLET AND/OR JUNCTION BOXES SHALL BE COMPLETE WITH A COVER PLATE BY THIS CONTRACTOR.
12.5. WHERE DEVICES ARE GANGED, THEY SHALL BE INSTALLED UNDER A COMMON COVERPLATE.

26 28 16 - ENCLOSED SWITCHES AND CIRCUIT BREAKERS

1. SAFETY SWITCHES SHALL BE THE ENCLOSED HEAVY-DUTY TYPE (TYPE HD) WITH QUICK-MAKE, QUICK-BREAK MECHANISM AND EXTERNAL PAD LOCKABLE OPERATING HANDLE.
2. SAFETY SWITCHES SHALL BE RATED FOR 240 OR 600 VOLTS AS APPLICABLE. THEY SHALL BE HORSEPOWER RATED WHEN USED IN MOTOR CIRCUITS.
3. SAFETY SWITCHES SHALL BE FUSIBLE OR NON-FUSIBLE 2, 3, OR 4 POLE AS INDICATED ON THE DRAWINGS.
4. SAFETY SWITCHES SHALL BE SINGLE THROW UNLESS OTHERWISE INDICATED ON THE DRAWINGS.
5. ENCLOSURES SHALL BE NEMA 1 INDOORS AND NEMA 3R OUTDOORS UNLESS OTHERWISE INDICATED ON THE DRAWINGS.
6. MANUFACTURER SHALL BE SCHNEIDER ELECTRIC, SIEMENS, ABB, OR EATON. ALL SAFETY SWITCHES SHALL BE BY ONE MANUFACTURER.

26 29 16 - ENCLOSED CONTROLLERS

1. COMPLY WITH NEMA ICS 2 AND NEMA 250.
2. PROVIDE MOTOR STARTERS (FUSED OR NON-FUSED COMBINATION TYPE AS INDICATED ON DRAWINGS) AND CONTROL DEVICES REQUIRED FOR THIS PROJECT. STARTERS SHALL BE PROVIDED WITH CONTROL COILS, OVERLOADS, CONTROL TRANSFORMER WITH FUSED SECONDARY CONTROL CIRCUIT, (2) N.O. AND (2) N.C. AUXILIARY CONTACTS, HAND-OFF-AUTO SELECTOR SWITCH AND RUNNING PILOT LIGHT, UNLESS OTHERWISE NOTED. PROVIDE AND INSTALL INTERLOCK WIRING CONTROL DEVICES. ALL FUSES SHALL BE DUAL ELEMENT TYPE. PROVIDE "BLOWNFUSE" INDICATOR LAMPS IN COVER.
3. STARTERS SHALL BE SCHNEIDER ELECTRIC, ABB, EATON, OR SIEMENS.
4. THE ELECTRICAL CONTRACTOR SHALL VERIFY THE EXACT NUMBER OF NORMALLY OPEN AND NORMALLY CLOSE AUXILIARY CONTACTS AND CONTROL VOLTAGE REQUIREMENTS FOR EACH STARTER WITH THE TEMPERATURE CONTROL CONTRACTOR PRIOR TO ORDERING STARTERS.
5. REFER TO MECHANICAL CONSTRUCTION DOCUMENTS FOR ELECTRICAL CHARACTERISTICS OF EQUIPMENT. STARTERS SHALL BE REQUIRED FOR ALL MOTORS, UNLESS SPECIFICALLY NOTED ON THE MECHANICAL CONSTRUCTION DOCUMENTS AS BEING FURNISHED INTEGRAL TO THE EQUIPMENT.
6. LIGHTING CONTACTORS SHALL BE ELECTRICALLY OPERATED, MECHANICALLY HELD AND HAVE 20A MINIMUM RATING PER POLE. PROVIDE WITH HOA SWITCH, HINGED METAL ENCLOSURE, SCREW TERMINALS, QTY POLES PLUS ADDITIONAL 25% SPARE CAPACITY. CONTROL VOLTAGE AS NOTED IN THE DRAWINGS.

26 28 13 - FUSES

1. THE CONTRACTOR SHALL FURNISH A COMPLETE SET OF FUSES FOR ALL SWITCHES, PLUS FUSIBLE EQUIPMENT FURNISHED BY OTHER TRADES. UNLESS INDICATED OTHERWISE ON PLANS, THE FUSES SHALL BE OF THE FOLLOWING TYPES:
    - A. FUSES 601 TO 6000 AMPS SHALL BE UL CLASS. TRADE TYPE SHALL BE KRP-C AS MANUFACTURED BY THE BUSSMANN COMPANY.
    - B. FUSES 1/10 TO 600 AMPS SHALL BE UL CLASS RK1. TRADE TYPE SHALL BE LOW PEAK LPS-RK (600V) AND LPN-RK (250V) AS MANUFACTURED BY THE BUSSMANN COMPANY.
    - C. ALL OTHER FUSES SHALL BE DUAL-ELEMENT CURRENT-LIMITING TYPE WITH 200,000 AMPERES SYMMETRICAL INTERRUPTING CAPACITY.
2. FUSES SHALL BE MANUFACTURED BY BUSSMANN, GOULD-SHAWMUTT, OR RELIANCE.
3. SPARE FUSES AMOUNTING TO A DUPLICATE SET OF EACH SIZE INSTALLED SHALL BE TURNED OVER TO THE OWNER UPON COMPLETION OF THE PROJECT. PROVIDE AND PLACE IN A SPARE FUSE CABINET SIMILAR TO BUSSMANN # SFC.
4. THIS CONTRACTOR SHALL REPLACE ALL FUSES BLOWN DURING CONSTRUCTION.
5. INSTALL LABELS ORIENTED SUCH THAT MANUFACTURER INFORMATION IS EASILY READ WITHOUT REMOVING FUSE.

26 24 20 - SURGE PROTECTIVE DEVICES

1. ALL SURGE PROTECTION DEVICES (SPD) SHALL BE TYPE 2 UNO AND ANSI/UL 1449 4TH EDITION LISTED.
2. SPDS SHALL BE EXTERNAL TO THE DEVICE IT PROTECTS AND BE ELECTRICALLY ISOLATED WITH PANEL CIRCUIT BREAKER.
3. EACH SURGE SUPPRESSION ELEMENT SHALL BE INDIVIDUALLY FUSED SO THAT A FAILURE OF ONE ELEMENT SHALL NOT AFFECT OTHER SUPPRESSION ELEMENTS. DEVICES THAT ACCOMPLISH THIS RATING BY PROVIDING ADDITIONAL FUSING TO THE SPD SYSTEM WILL NOT BE ACCEPTED.
4. SPD SHALL HAVE A SHORT CIRCUIT CURRENT RATING OF 200KAIC.
5. ACCEPTABLE MANUFACTURERS ARE ASCO OR THE SELECTED GEAR MANUFACTURER.
6. THE SPD SHALL BE MOUNTED AS CLOSE AS POSSIBLE TO THE EQUIPMENT IT IS PROTECTING. CONDUCTORS AND CIRCUIT BREAKER SHALL BE PER MANUFACTURER'S INSTALLATION RECOMMENDATIONS.

26 28 26 - AUTOMATIC TRANSFER SWITCHES (ATS)

1. OPEN TRANSITION, 4 POLE SWITCHED NEUTRAL, FULLY RATED UNO ON ONE-LINE DIAGRAM.
2. PROVIDE BYPASS ISOLATION SWITCH FOR NEC ARTICLE 700 LOADS AND OTHER LOADS INDICATED ON ONE-LINE DIAGRAM.
3. ELECTRICALLY OPERATED, MECHANICALLY HELD. MICROPROCESSOR CONTROLLED WITH PHASE ROTATION SENSING, LOSS OF PHASE PROTECTION, WITHSTAND RATING PER 26 05 73 STUDY.
4. REFER TO PLANS FOR VOLTAGE AND AMPERAGE.
5. NEMA 1 ENCLOSURE UNLESS NOTED OTHERWISE.
6. INSTALL ON 4" HOUSEKEEPING PAD.
7. FURNISH AND INSTALL CONTROLS CONDUIT AND WIRE BETWEEN TRANSFER SWITCH AND GENERATOR.
8. WHERE MULTIPLE ATS'S ARE REQUIRED, INSTALL CONTROL WIRING BETWEEN ATS AND PROGRAM THE SEQUENCE OF TRANSFER SWITCHES AS FOLLOWS:
    - 8.1. EMERGENCY LOADS (NEC ART. 700)
    - 8.2. LEGALLY REQUIRED LOADS (NEC ART. 701)
    - 8.3. OPTIONAL STANDBY LOADS (NEC ART. 702)
    - 8.4. REFER TO GENERATOR SCHEDULE FOR SEQUENCE OF OPERATIONS.
9. CUMMINS OTPC, OR EQUAL.
10. FIELD QUALITY CONTROL
    - 10.1. PROVIDE MANUFACTURING INSPECTIONS AND TESTING REPORTS.
    - 10.2. PERFORM START-UP INSPECTIONS AND TESTING.
    - 10.3. PROVIDE TO OWNER SEQUENCE OF OPERATIONS AND TRAINING.
    - 10.4. DEMONSTRATE OPERATION OF TRANSFER SWITCH(ES) IN NORMAL, BYPASS, AND EMERGENCY MODES.

26 32 13 - ENGINE GENERATORS

1. DIESEL FUELED STANDBY ENGINE GENERATOR.
2. FUEL TANK: 24-HOUR UL 142 SUB-BASE FUEL TANK WITH MINIMUM RUNTIME OF 30 MINUTES AT FULL LOAD.
3. ENCLOSURE: WEATHERPROOF ENCLOSURE WITH LEVEL 1 SOUND RATING AND VANDAL RESISTANT.
4. ACCESSORIES: CRITICAL TYPE EXHAUST SILENCER (12DB AT 500HZ), REMOTE ANNUNCIATIOR PANEL WITHIN AN ENCLOSURE.
5. GENERATOR SHALL START UPON LOSS OF POWER AND RUN FOR ADDITIONAL 30 MINUTES ONCE POWER IS RESTORED AND POWER IS TRANSFERRED TO NORMAL SOURCE.
6. REFER TO GENERATOR SCHEDULE AND/OR NOTES ON PLANS FOR MORE INFORMATION.

INSTALLATION

1. VERIFY ACTUAL LOCATIONS OF EQUIPMENT AND ROUGH-IN REQUIREMENTS FOR POWER AND CONTROLS PRIOR TO INSTALLATION.
2. COMPLY WITH NECA 1 & NECA 404.
3. COMPLY WITH MANUFACTURERS INSTALLATION REQUIREMENTS.
4. PROVIDE CAST-IN-PLACE CONCRETE BASE AS SPECIFIED BY STRUCTURAL ENGINEER.
5. PROVIDE PROOF OF FACTORY INSPECTIONS AND TESTING.
6. PERFORM REQUIRED TESTING, INSPECTIONS, AND STARTUP PROCEDURES.
7. AFTER INSTALLATION, CHARGE FLUID SYSTEMS AND CONFIRM NO LEAKS. ANY LEAKS SHALL BE REPAIRED AND RE-TESTED.
8. MAINTENANCE SERVICE SHALL BE INCLUDED FOR A PERIOD OF NO LESS THAN 12 MONTHS FROM DATE OF SUBSTANTIAL COMPLETION.
9. ENGAGE FACTORY AUTHORIZED SERVICE REPRESENTATIVE TO TRAIN OWNER'S MAINTENANCE PERSONNEL TO ADJUST, OPERATE, AND MAINTAIN PACKAGED ENGINE GENERATORS.

26 51 00 - LIGHTING

GENERAL REQUIEMENTS

1. REFER TO ARCHITECTURAL REFLECTED CEILING PLAN FOR EXACT LIGHT FIXTURE LOCATIONS AND QUANTITIES.
2. EXAMINE THE AREA OF INSTALLATION TO VERIFY ADEQUATE SPACE AND MOUNTING PROVISIONS ARE PROVIDED FOR THE SPECIFIED LUMINAIRE PRIOR TO ORDERING LUMINAIRES.
3. VERIFY THAT LUMINAIRES WILL NOT INTERFERE WITH REQUIRED CLEARANCES FOR EQUIPMENT INCLUDING FILTER PULL SPACE, NEC WORKING SPACE IN FRONT OF DISCONNECTS, CONTROL PANELS, ETC.
4. COORDINATE EXIT LIGHT LOCATIONS WITH STRUCTURE AND BUILDING SYSTEMS TO INSURE EXIT SIGNS ARE VISIBLE.
5. PROVIDE GROUND WIRE AND ONE NEUTRAL CONDUCTOR PER CIRCUIT IN ALL LIGHTING CONDUIT.
6. LABEL ALL CIRCUIT BREAKERS SERVING EMERGENCY LIGHTING.
7. UNO, ALL EXIT SIGNS, EMERGENCY EGRESS PATHWAY LIGHT FIXTURES, LIGHTS NOTED "xE", AND LIGHTS SHOWN CROSS HATCHED SHALL BE CONNECTED TO THE SWITCHED AREA LIGHTING CIRCUIT FOR NORMAL OPERATION AND AN UNSWITCHED CIRCUIT FROM THE SAME OCPD TO AUTOMATICALLY CONTROL POWER TRANSFER TO AN INTEGRAL BATTERY SYSTEM (INVERTER OR BATTERY PACK) FOR 90 MINUTES OF EMERGENCY OPERATION WHEN LOSS OF NORMAL POWER IS SENSED ON THE UNSWITCHED CIRCUIT. PROVIDE A BATTERY STATUS INDICATOR NEAR BATTERY PACK OR LIGHTING INVERTER.
8. INSTALL FIXTURES PLUMB, SQUARE AND LEVEL WITH CEILINGS AND WALLS AND SECURE FIXTURES PER MANUFACTURER'S PRINTED INSTRUCTIONS.
9. ADJUST AIMABLE FIXTURES, CLEAN, AND PROVIDED ALL FIXTURES WITH LAMPS PRIOR TO OWNER OCCUPANCY.
10. LUMINAIRE WHIPS SHALL BE FLEXIBLE METAL CONDUIT, 6FT MAX. SECURE TO STRUCTURE WITH LISTED SUPPORTS.

LIGHTING CONTROL REQUIREMENTS

1. U.N.O., LIGHTING SWITCHES IN ROOMS SHALL CONTROL ONLY FIXTURES IN THAT ROOM.
2. WHEN MORE THAN ONE(1) LIGHTING SWITCH IS SHOWN AT A LOCATION THEY SHALL BE GANGED TOGETHER.
3. ALL SENSORS SHALL BE DUAL TECHNOLOGY (PIR AND ULTRASONIC) VACANCY TYPE U.N.O. SENSOR OFF DELAY SHALL BE SET BY EC AT END OF PROJECT TO 15 MINUTES. AMBIENT LIGHT OVERRIDE SHALL BE SET SUCH THAT THE LUMINAIRES ARE SWITCHED OFF WHEN APPROPRIATE FC LEVEL IS MEASURED ON THE FLOOR (REGARDLESS OF THE FOOTCANDLES MEASURED AT THE SENSOR). REFER TO LIGHTING CONTROL MATRIX FOR EACH ROOM'S CONTROL.
4. INSTALL SWITCHES ON THE LOAD SIDE OF SENSORS AND OTHER CONTROLS.
5. IF LOW VOLTAGE LIGHTING CONTROL SYSTEM IS NOT PROVIDED, ALL EXTERIOR LIGHTING SHALL BE CONTROLLED AUTOMATICALLY AND OPERATE PER THE ADOPTED ENERGY CODE. PROVIDE LIGHTING CONTACTOR TO CONTROL ALL EXTERIOR LIGHTING CIRCUITS BY A SINGLE PHOTOCELL AND/OR ASTRONOMICAL TIME CLOCK WITH HOLIDAY PROGRAMING AND BATTERY BACKUP. PHOTOCELL SHOULD FACE NORTH AND BE ROOF MOUNTED. COORDINATE MOUNTING LOCATION WITH ARCHITECT.

LOW VOLTAGE NETWORKED LIGHTING CONTROLS

1. BASIS OF DESIGN IS ACUITY NLIGHT.
2. SYSTEM SHALL BE WIRED AND NOT USE WIRELESS COMMUNICATION TO CONTROL DEVICES UNLESS SPECIFICALLY STATED.
3. REFER TO LIGHTING CONTROL MATRIX FOR LOCATIONS OF SENSORS, WALL STATIONS, DIMMING, RECEPTACLE CONTROL, AND DAYLIGHTING CONTROL ZONES.
4. EMERGENCY FIXTURES SHALL BE CONTROLLED LIKE NORMAL FIXTURES WITHIN THE SPACE AND UTILIZE UL924 DEVICES TO BRING BRIGHTNESS TO 100% UPON ALARM INPUT.
5. LIGHTING CONTROL ZONES SHALL BE CAPABLE OF PROVIDING AUTOMATIC CONTROL FROM SENSORS (OCCUPANCY AND/OR PHOTOCELL) AND MANUAL CONTROL FROM LOCAL WALLSTATIONS WITHOUT REQUIRING CONNECTION TO A HIGHER LEVEL SYSTEM BACKBONE.
6. ELECTRICAL CONTRACTOR SHALL ENGAGE LOCAL LIGHTING REPRESENTATIVE TO PRODUCE SHOP DRAWINGS SHOWING ALL COMPONENTS OF THE NETWORK LIGHTING CONTROL SYSTEM FOR APPROVAL.
7. SERVICE AGREEMENT SHALL INCLUDE SOFTWARE SUPPORT AND UPGRADES FOR A PERIOD OF 1 YEAR.
8. TRAINING SHALL BE MADE AVAILABLE TO OWNER'S MAINTENANCE PERSONNEL BY A FACTORY AUTHORIZED SERVICE REPRESENTATIVE.

LUMINAIRES

1. ALL LIGHT FIXTURES/LAMPS SHALL BE APPROVED BY AN OSHA APPROVED LISTING AGENCY AND CONFORM TO ALL APPLICABLE UL, ANSI AND NFPA STANDARDS.
2. REFER TO LUMINAIRE SCHEDULE FOR FIXTURE SPECIFICATIONS. SUBSTITUTIONS MUST BE APPROVED PRIOR TO BID.

28 31 00 - FIRE ALARM SYSTEM

GENERAL REQUIREMENTS

1. FIRE ALARM AND MASS NOTIFICATION SYSTEM IS SHOWN FOR CONCEPT ONLY. CONTRACTOR SHALL NOT USE THESE DRAWINGS FOR PRICING, BIDDING, PERMITTING, INSTALLATION, OR CONSTRUCTION. A SPECIALIST FIRE ALARM SYSTEM CONTRACTOR (NICET LEVEL III CERTIFIED MINIMUM) SHALL DEVELOP A SET OF SHOP DRAWINGS MEETING ALL NATIONAL AND LOCAL CODES TO SHOW EQUIPMENT LOCATIONS, CIRCUITING, VOLTAGE DROP AND BATTERY CALCULATIONS, AND SUPPLEMENTARY EQUIPMENT AS REQUIRED FOR THE SPECIFIC MANUFACTURER'S SYSTEM TO BE INSTALLED. AT A MINIMUM, FIRE ALARM SYSTEM CONTRACTOR TO FURNISH, INSTALL, HOOKUP, AND TEST ALL WIRING AND DEVICES SHOWN ON THESE PLANS PLUS ANY OTHER COMPONENTS REQUIRED BY CODE.
2. THE ELECTRICAL CONTRACTOR SHALL PROVIDE EMPTY CONDUITS, DEVICE BOXES WITH PULL STRINGS, ETC. AS REQUIRED AND COORDINATE THE CONTRACT FOR THIS WORK WITH THE OWNER AND THE FIRE ALARM SYSTEM CONTRACTOR. THE ELECTRICAL CONTRACTOR SHALL VERIFY QUANTITIES AND LOCATIONS WITH FIRE ALARM SYSTEM CONTRACTOR PRIOR TO INSTALLATION.
3. ALL LABOR, MATERIALS, APPARATUS, AND APPLIANCES ESSENTIAL TO THE COMPLETE FUNCTIONING OF THE SYSTEM DESCRIBED AND/OR INDICATED HEREIN, OR WHICH MAY BE REASONABLY IMPLIED AS ESSENTIAL, WHETHER MENTIONED IN THE CONTRACT DRAWINGS AND SPECIFICATIONS OR NOT, SHALL BE FURNISHED AND INSTALLED BY THE CONTRACTOR.
4. THE TERM "PROVIDED" SHALL MEAN PURCHASE, INSTALL, MAKE ELECTRICAL CONNECTIONS, START UP AND TEST.
5. ALL CONTROL, SIGNAL AND MONITOR MODULES, NOTIFICATION APPLIANCE CIRCUIT (NAC) EXTENDER DEVICES, FIBER OPTIC TRANSMITTERS AND OTHER DEVICES REQUIRED FOR PROPER OPERATION OF THE SELECTED MANUFACTURER'S FA SYSTEM SHALL BE PROVIDED WETHER SHOWN ON THESE PLANS OR NOT. THE ELECTRICAL CONTRACTOR SHOULD COORDINATE REQUIREMENTS FOR EQUIPMENT, INCLUDING ANY ADDITIONAL POWER REQUIREMENTS, CONDUITS, OR CONDUCTORS FOR INTERCONNECTION OF DEVICES, WITH FIRE ALARM SYSTEM INSTALLER.
6. LABELING FOR FIRE ALARM SYSTEM PANELS AND EQUIPMENT SHALL BE A PERMANENT METHOD SUCH AS PHENOLIC LABEL OR ENGRAVING.ALL EQUIPMENT INSTALLED ON THIS PROJECT SHALL BE NEW AND UNUSED, UNO. THE CONTRACTOR SHALL REMOVE ALL SHIPPING LABELS, DIRT, PAINT SPOTS, GREASE, AND STAINS FROM ALL EQUIPMENT. DEBRIS SHALL BE REMOVED AS IT ACCUMULATES. UPON COMPLETION OF HIS WORK, THE CONTRACTOR SHALL CLEAN ALL EQUIPMENT. NO LOOSE PARTS OR SCRAPS OF EQUIPMENT SHALL BE LEFT ON THE PREMISES OR THE EQUIPMENT.
7. LABELING FOR FIRE ALARM SYSTEM PANELS AND EQUIPMENT SHALL BE A PERMANENT METHOD SUCH AS PHENOLIC LABEL OR ENGRAVING.
8. ALL FIRE ALARM EQUIPMENT SHALL BE UL LISTED FOR THE APPLICATION INCLUDING AMBIENT TEMPERATURES, CORROSIVE AND HAZARDOUS ENVIRONMENTS AND MEET REQUIREMENTS OF THE NFPA AND ADA.
9. FIRE ALARM CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING AND PERFORMING ALL ACCEPTANCE TESTING REQUIRED BY THE AUTHORITY HAVING JURISDICTION. THE TESTING SHOULD BE COORDINATE WITH AND OBSERVED BY THE OWNER.
10. FIRE ALARM SYSTEM SHALL REPORT TO AN OFF SITE CONSTANTLY ATTENDED MONITORING STATION.

FIRE ALARM PANEL SPECIFICATIONS

1. CIRCUIT TO A DEDICATED BRANCH CIRCUIT WITH DEDICATED GROUND. THE CIRCUIT DISCONNECT MEANS SHALL HAVE A RED MARKING, BE ACCESSIBLE TO AUTHORIZED PERSONNEL ONLY, PROVIDED WITH LOCK OUT TAG OUT, AND SHALL BE CLEARLY MARKED "FIRE ALARM CIRCUIT CONTROL" PER NFPA 72, CHAPTER 4. CIRCUIT NUMBER AND DISCONNECT LOCATION SHALL BE CLEARLY LABELED AT ALL PANELS.
2. FIRE ALARM CONTROL PANEL SHALL BE PROVIDED WITH TWO INDEPENDENT, RELIABLE, AND CONTINUOUSLY MONITORED POWER SUPPLIES. PRIMARY POWER SHALL BE FROM BRANCH CIRCUIT IN PANEL. SECONDARY POWER SHALL BE FROM BATTERIES WITH 120% OF THE CAPACITY REQUIRED TO OPERATE THE COMPLETE FIRE ALARM SYSTEM IN NORMAL (NON-ALARM) MODE FOR 24 HOURS FOLLOWED BY 5 MINUTES OF OPERATION IN ALARM MODE. BATTERIES SHALL FULLY RECHARGE WITHIN 48 HOURS AFTER DISCHARGE CYCLE. FIRE ALARM SYSTEM DESIGNER SHALL SUBMIT COMPLETE BATTERY CALCULATIONS WITH FIRE ALARM SYSTEM DESIGN.
3. ALL NOTIFICATION SIGNALS SENT TO THE SUPERVISORY STATION AND DISPLAYED ON THE BUILDING FIRE ALARM PANEL SHALL INDICATE THE ZONE, INITIATING DEVICE DESCRIPTION, AND THE LOCATION (FLOOR AND ROOM NUMBER) OF THE INITIATING DEVICE.

FIRE ALARM DEVICE SPECIFICATIONS AND INSTALLATION

1. UNLESS NOTED OTHERWISE, EQUIPMENT SPACINGS SHOWN ON PLANS ARE BASED ON COMBINATION PHOTOELECTRIC AND IONIZATION SMOKE SENSORS, "ORDINARY" TEMPERATURE RANGE HEAT DETECTORS (AS DEFINED IN NFPA 72 TABLE 5.6.2.1.1), 110cd VISUAL NOTIFICATION AND 90dBA AT 10' AUDIO NOTIFICATION APPLIANCES. FIRE ALARM SYSTEM CONTRACTOR SHALL DETERMINE QUANTITIES AND SIZE THE EQUIPMENT INSTALLED BASED ON SPACE (CORRIDOR, RESTROOM, OFFICE) TO BE COVERED. (AUDIBLE NOTIFICATION APPLIANCES SHALL PRODUCE AUDIBLE SIGNAL AT 15dBA ABOVE AMBIENT NOISE LEVEL AT ALL POINTS IN THE BUILDING.)
2. FOLLOW ALL NATIONAL AND LOCAL CODES, INCLUDING ADA, FOR MOUNTING DEVICES AND INSTALLING WIRE.
    - MANUAL CONTROLS SHALL BE MOUNTED WITH THE OPERABLE PART AT OR BELOW 48".
    - PULL STATIONS SHALL BE MOUNTED WITHIN 5' OF DOORS.
    - CEILING MOUNTED SMOKE DETECTION DEVICES SHALL BE MOUNTED AT A MAXIMUM OF 20' AND A MINIMUM OF 4" FROM SIDE WALLS, SPACED AT 30' MAXIMUM, LOCATED A MINIMUM OF 12" FROM LIGHT FIXTURES, AND A MINIMUM OF 36" FROM FANS AND DIFFUSERS.
    - WALL MOUNTED NOTIFICATION APPLIANCES SHALL BE MOUNTED WITH THE BOTTOM EDGE OF THE APPLIANCE ABOVE 80" AND THE TOP BELOW 96" A.F.F. (OR 6" BELOW THE CEILING FOR CEILINGS LESS THAN 86").
3. EACH DEVICE SHOWN ON THE PLANS REQUIRES A 4" SQUARE JUNCTION BOX WITH CONDUIT TO AN ACCESSIBLE, CONCEALED ABOVE CEILING SPACE OR NEAREST INTERFACE DEVICE SPECIFIED BY FIRE ALARM SYSTEM CONTRACTOR. COORDINATE ROUGH IN REQUIREMENTS FOR JUNCTION BOXES (MUD RINGS, ETC), CONDUITS, CABLING, ETC. FOR EACH FIRE ALARM DEVICE WITH FIRE ALARM SYSTEM INSTALLER PRIOR TO ROUGH IN. ALL BOXES SHALL BE RECESSED MOUNTED. COORDINATE WITH ARCHITECT FOR ANY DEVICES THAT MUST BE SURFACE MOUNTED BECAUSE OF CODE OR SITE REQUIREMENTS. ALL FIRE ALARM BOXES SHALL BE CLEARLY MARKED RED AND BE LABELED WITH THE CIRCUIT NUMBERS.
4. ALL FIRE ALARM CIRCUITS ARE TO BE FREE OF GROUNDS AND SHORTS. FIRE ALARM CONTROL PANEL SHALL MONITOR ALL MEANS OF INTERCONNECTING EQUIPMENT, DEVICES, AND APPLIANCES AND WIRING CONNECTIONS FOR INTEGRITY INCLUDING AC VOLTAGE, TELEPHONE LINE (ONCE PER 24 HR PERIOD) AND BATTERY LEVEL AS REQUIRED BY NFPA 72.4.4.7 AND OTHER APPLICABLE SECTIONS.
5. U.N.O., ALL EXPOSED FIRE ALARM WIRING AND WIRING BELOW 7' AFF SHALL BE IN 3/4" EMT CONDUIT. FIRE ALARM WIRING NOT INSTALLED IN CONDUIT SHALL BE RATED FOR THE APPLICATION (PLENUM RATED). SUPPORT EVERY 48" MINIMUM, OR AS REQUIRED BY THE FIRE ALARM DESIGNER. SUPPORTS MAY NOT BE USED FOR ANY OTHER TRADE'S WORK OTHER THAN FIRE ALARM SYSTEM.
6. DETECTOR LOOPS SHALL MEET FIRE ALARM PANEL MANUFACTURER'S REQUIREMENTS FOR MAXIMUM TOTAL LOOP RESISTANCE. USE #18 AWG, SHIELDED, TWISTED PAIR AS A MINIMUM FOR SIGNALING LINE CIRCUITS AND #14 FOR NOTIFICATION APPLIANCE AND MASS NOTIFICATION CIRCUITS. USE NFPA 72 AND NFPA 70 ARTICLE 760 FOR FIRE ALARM WIRING.
7. ALL FIRE ALARM NOTIFICATION APPLIANCES SHALL BE WHITE AS BASIS OF DESIGN. COORDINATE WITH ARCHITECT FOR FINAL COLOR.

HVAC SYSTEM INTERFACES

1. COORDINATE FIRE ALARM CONNECTIONS TO HVAC EQUIPMENT WITH MECHANICAL CONTRACTOR. ALL EQUIPMENT REQUIRING SHUTDOWN SHALL BE INTERFACED WITH THE FA SYSTEM.
2. PROVIDE DUCT DETECTOR AND FIRE ALARM CONTROL MODULES FOR INTERFACE WITH FIRE SMOKE DAMPERS (FSD'S). PROVIDE ONE CONTROL MODULE FOR EACH HVAC UNIT TO ALLOW FIRE ALARM SYSTEM TO CLOSE FSD UPON FIRE ALARM SYSTEM SHUTDOWN OF THEIR RESPECTIVE HVAC UNIT.
3. PROVIDE DUCT MOUNTED SMOKE DETECTOR IN AIR DUCT OF HVAC UNITS. DUCT DETECTOR TO BE WIRED TO SHUT DOWN UNIT UPON DETECTION OF SMOKE AND SEND SUPERVISORY SIGNAL TO FIRE ALARM PANEL. PROVIDE DUCT DETECTOR WITH LED ALARM INDICATOR REMOTE MOUNTED TO BOTTOM OF CEILING BELOW UNIT SERVED. PROVIDE DC POWER FOR DUCT DETECTOR FROM UNIT SERVED. COORDINATE REQUIREMENTS AND INSTALLATION WITH MECHANICAL CONTRACTOR.

26 41 00 - LIGHTNING PROTECTION SYSTEM

GENERAL REQUIREMENTS

1. LIGHTNING PROTECTION PLAN IS CONCEPTUAL AND SHOULD NOT BE USED FOR CONSTRUCTION. A CONTRACTOR SPECIALIZING IN THE DESIGN OF LIGHTNING PROTECTION (LP) SYSTEMS SHALL PROVIDE SHOP DRAWINGS SHOWING THE LOCATIONS AND INTERCONNECTIONS OF ALL AIR TERMINALS, THE LP CONDUCTOR, FASTENING LOCATIONS AND SPACING, INSTALLATION DETAILS FOR AIR TERMINALS CONNECTED TO THE ROOF STRUCTURE, TO ROOF MOUNTED EQUIPMENT THAT EXTENDS ABOVE THE ROOF STRUCTURE, AND ALL APPLICABLE CABLE CONNECTION DETAILS.

QUALIFICATIONS AND QUALITY ASSURANCE

1. UL COMPLIANT ROOF MOUNTED LIGHTNING PROTECTION (LP) SYSTEM EQUIPMENT AND DOWN CONDUCTORS SHALL BE PROVIDED BY QUALIFIED AND CERTIFIED LIGHTNING PROTECTION CONTRACTOR.
2. ALL COMPONENTS, MATERIALS DEVICES, AND ACCESSORIES SHALL BE UL 96 LISTED AND LABELED.
3. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH NFPA 780 AND UL 96A.
4. ROOF STRUCTURE IS LESS THAN 75 FT IN HEIGHT (CLASS 1). LIGHTNING PROTECTION CONTRACTOR SHOULD REFER TO ARCHITECTURAL PLANS TO DETERMINE THE LEVEL OF PROTECTION REQUIRED PER UL 96-96A/NFPA 780.
5. FURNISH MASTER LABEL.

COORDINATION

1. COORDINATE WORK WITH ROOFING AND EXTERIOR AND INTERIOR FINISH INSTALLATIONS.
2. BELOW GRADE GROUNDING COMPONENTS SHALL BE INSTALLED BY ELECTRICAL CONTRACTOR. UL COMPLIANT ROOF MOUNTED LIGHTNING PROTECTION SYSTEM EQUIPMENT AND DOWN CONDUCTORS SHALL BE PROVIDED BY LIGHTNING PROTECTION(LP) CONTRACTOR. LP CONTRACTOR SHALL BE RESPONSIBLE FOR CONNECTING DOWN CONDUCTORS TO GROUNDING ELECTRODE SYSTEM.
3. COORDINATE DOWN CONDUCTOR, CONDUIT, AND SLEEVE INSTALLATION WITH BUILDING CONSTRUCTION SO THAT NO COMPONENTS OF THE DOWN CONDUCTORS ARE EXPOSED IN THE BUILDING INTERIOR OR EXTERIOR.

PRODUCTS

1. AIR TERMINALS AND LP CONDUCTORS SHALL BE COPPER UNLESS OWNER APPROVES THE USE OF ALUMINUM OR WHERE ATTACHING TO AN EXISTING ALUMINUM LP SYSTEM.
2. LP CONDUCTORS SHALL BE STRANDED, CLASS 1 EXCEPT THAT CLASS II SHALL BE USED FOR STRUCTURES ABOVE 75FT.
3. AIR TERMINALS: ROUNDED TIP, SOLID METAL, 10" LENGTH MIN, 3/8" DIA. FOR CLASS I, 1/2" FOR CLASS II.
4. AIR TERMINAL BASE: USE UNIVERSAL, HORIZONTAL, VERTICAL, PARAPET, PIPE RAILING, RIDGE SADDLE, OR SWIVEL BASE AS REQUIRED, WITH METAL CABLE CLAMP WITH SECURING BOLT.
5. USE CONCEALED BASES WHERE LP CONDUCTOR IS NOTED TO BE ROUTED BELOW ROOF.
6. PROVIDE APPROPRIATE THROUGH ROOF CONNECTOR ASSEMBLY, COORDINATE WITH ROOFING CONTRACTOR.

INSTALLATION

1. LP CONTRACTOR SHOULD PROVIDE DISCHARGE UNITS OR LIGHTNING ARRESTORS FOR EACH SPECIAL SYSTEMS NETWORK OR COMPONENT (FIRE ALARM, TELEPHONE, ROOF MOUNTED ANTENNAS, ETC) CONNECTED TO THE LIGHTNING PROTECTION SYSTEM VIA THE LP CABLES (ROOF MOUNTED EQUIPMENT). LP CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING WITH OTHER SPECIAL SYSTEMS CONTRACTOR TO INSURE THAT SPECIALIST CONTRACTORS PROVIDE ALL NECESSARY ARRESTORS FOR THEIR SPECIAL SYSTEMS NETWORKS THAT WILL BE CONNECTED TO THE LP SYSTEM VIA GROUNDING TO THE COUNTERPOISE. REFER TO ONE LINE DIAGRAM FOR SURGE AND LIGHTING ARRESTOR EQUIPMENT REQUIRED TO BE PROVIDED BY THE ELECTRICAL CONTRACTOR FOR THE POWER DISTRIBUTION SYSTEM.
2. LP CONTRACTOR TO DETERMINE LOCATIONS FOR ROOF AIR TERMINALS. FIELD VERIFY ALL METAL BODIES SUCH AS ANTENNAS, LADDERS, HATCHES, FLAG POLES, GAS PIPING, SANITARY VENTS, SUPPLY AND EXHAUST STACKS, HVAC EQUIPMENT, ETC AND BOND TO THE LP SYSTEM USING AIR TERMINALS AND/OR THE APPROPRIATE LUG, CLAMP, OR CAD WELD CONNECTION UNLESS SUCH ITEMS ARE LOCATED UNDER A ZONE OF PROTECTION AS DEFINED BY NFPA 780.
3. ALL METAL BODIES WITHIN 6 FT OF A PRIMARY LP CABLE SHALL BE BONDED TO THE LP SYSTEM.
4. AT A MINIMUM, AIR TERMINALS SHALL BE LOCATED AT EDGES AND OUTSIDE CORNERS OF FLAT OR LOW SLOPE PORTIONS OF THE ROOF AND WITHIN 2 FT OF RIDGE ENDS, SPACE AT 20 FT O.C. MIN AROUND PERIMETER OF FLAT OR LOW SLOPE PORTIONS OF THE ROOF AND ALONG RIDGES.
5. AIR TERMINALS SHALL EXTEND 10 IN MIN ABOVE THE OBJECT BEING PROTECTED.
6. ALL LP CONDUCTORS SHALL BE FASTENED TO THE STRUCTURE AT 3 FT O.C. MAXIMUM INTERVALS AND INSTALLED COMPLETELY HORIZONTAL OR VERTICAL.
7. ALL LP CONDUCTORS BENDS SHALL HAVE A RADIUS OF GREATER THAN 8 IN AND LESS THAN 90°.
8. UNO, THE GROUNDING ELECTRODE SHALL BE A COUNTERPOISE INSTALLED AROUND THE PERIMETER OF THE BUILDING.
9. BOND THE GROUNDING ELECTRODE TO THE ELECTRICAL SYSTEM AND ALL LP DOWN CONDUCTORS. REFER TO GROUNDING SPECIFICATIONS, DETAILS, AND NOTES FOR ADDITIONAL GROUNDING SYSTEM REQUIREMENTS.
10. PROVIDE TEST WELL AT EACH CONNECTION BETWEEN THE GROUNDING ELECTRODE AND LP DOWN CONDUCTORS.
11. BOND ALL UG METAL PIPING ENTERING THE BUILDING TO THE GROUNDING ELECTRODE.
12. DISSIMILAR METALS SHALL BE COMBINED IN A MANNER THAT PREVENTS CORROSION.
13. COORDINATE DOWN CONDUCTOR, CONDUIT, AND SLEEVE INSTALLATION WITH BUILDING CONTSTRUCTION SO THAT NO COMPONENTS OF THE DOWN CONDUCTORS ARE EXPOSED IN THE BUILDING INTERIOR OR EXTERIOR.
14. ALL EXPOSED CONNECTIONS CAN BE MECHANICAL OR EXOTHERMIC. ALL HIDDEN CONNECTIONS SHALL BE EXOTHERMIC.

28 00 00 - SPECIAL SYSTEMS

GENERAL REQUIREMENTS

1. SPECIAL SYSTEMS INCLUDE, BUT ARE NOT LIMITED TO, TELECOMMUNICATIONS, FIRE ALARM, AUDIO/VIDEO, ACCESS CONTROL SYSTEMS.
2. FOR SPECIAL SYSTEMS EQUIPMENT AND DEVICES SHOWN ON THE CONSTRUCTION DOCUMENTS, OR EQUIPMENT AND DEVICES THAT CAN BE REASONABLY IMPLIED AS REQUIRED TO OPERATE ITEMS SHOWN, ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR POWER, RACEWAY/BOX/ENCLOSURES ROUGH-IN, AND INFRASTRUCTURE PROVISION EVEN IF SAID SPECIAL SYSTEMS ARE PROVIDED BY A SPECIALIST CONTRACTOR, OWNER'S AGENT, OR UNDER SEPARATE CONTRACT.
3. TELECOMMUNICATIONS: IT CABLING, JACKS, EQUIPMENT RACKS, NETWORKING EQUIPMENT, AND PATCH PANELS WILL BE PROVIDED AND INSTALLED BY TELECOM CONTRACTOR. ALL OTHER WORK BY ELEC. CONTRACTOR
4. FIRE ALARM: CONTROL PANELS, MODULES, NOTIFICATION APPLIANCES, INITIATING DEVICES, WIRING, BATTERIES, AND MISC. MATERIALS SHALL BE PROVIDED BY SPECIALIST FIRE ALARM CONTRACTOR UNDER THIS CONTRACT.
5. AUDIO/VIDEO: COORDINATE SCOPE WITH OWNER PRIOR TO BID
6. ACCESS CONTROL (SECURITY): COORDINATE SCOPE WITH OWNER PRIOR TO BID
7. COORDINATE REQUIREMENTS FOR DATA ROOMS WITH OWNER'S INFORMATION TECHNOLOGIES REPRESENTATIVE (IT REP).
8. AT MINIMUM, THE FOLLOWING GENERAL PROVISIONS SHALL BE PROVIDED BY THE CONTRACTOR. ADDITIONAL ITEMS SPECIFIED ELSEWHERE ON THE CONSTRUCTION DOCUMENTS:
    - 8.1. 3/4", FIRE RATED, PLYWOOD SHEETS ON ALL WALLS OF IT CLOSETS UNLESS DIRECTED OTHERWISE BY IT REP. PAINT TO MATCH WALL TO WHICH BOARD IS ATTACHED.
    - 8.2. SERVICE CONDUITS BURIED IN SAND AT 18" WITH PULL STRING FROM SERVICE DEMARC TO MAIN TELECOM ROOM. COORDINATE DEMARC LOCATION WITH SERVICE PROVIDER AND TERMINATION POINT WITH COMMUNICATIONS CONTRACTORS. REFER TO SITE PLANS TO DETERMINE CONDUIT RUN LENGTHS AND ROUTING.
    - 8.3. FOUR(4) 4" CONDUIT SLEEVES BETWEEN EACH FLOOR FOR TELECOM, FA, AND ACCESS CONTROL
    - 8.4. DOUBLE GANG DEVICE BOX WITH SINGLE GANG REDUCER (AS NEEDED) AT EACH LOCATION SHOWN ON PLANS. NOTE THAT SOME SPECIAL SYSTEMS EQUIPMENT MAY REQUIRE A DIFFERENT SIZE BOX. COORDINATE LOCATIONS AND SIZES FOR BOXES WITH RESPECTIVE SPECIALIST CONTRACTORS PRIOR TO ROUGH-IN.
    - 8.5. CONDUIT WITH PULL STRINGS FROM SOURCE (TELEPHONE BACKBOARD, SECURITY PANEL, FACP, ETC) OR ACCESSIBLE CEILING SPACE TO ALL DEVICE LOCATIONS SHOWN ON THESE PLANS. HOMERUN CONDUITS MAY BE COMBINED WHERE APPROVED BY SPECIALIST CONTRACTOR. COORDINATE CONDUIT SIZES WITH RESPECTIVE SPECIALIST CONTRACTORS PRIOR TO INSTALLATION.
    - 8.6. ALL ALARM PANELS (GAS, CHEMICAL, FIRE, SECURITY, ETC) SHOWN ON THE MEP PLANS SHALL BE PROVIDED WITH A MIN. OF THREE(3)-1" CONDUITS ROUTED FROM THE PANEL TO ABOVE CEILING AND A 20A, 120V CIRCUIT AT THE PANEL. COORDINATE ROUTING AND ADDITIONAL REQUIREMENTS WITH SPECIALIST CONTACTOR.
9. POWER LIMITED AND NON POWER LIMITED CABLE SHALL NOT SHARE COMMON RACEWAYS OR ENTER JUNCTION BOXES THROUGH THE SAME OPENING.

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ELECTRICAL
APPROVAL

APPROVED
Date 04/01/2026

This stamp serves as a means of electrical approval and does not include other disciplines.

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SHEET TITLE :
ELECTRICAL GENERAL NOTES

REVISIONS :

SUBMITTAL:
ISSUED FOR PERMIT

SCALE :

DATE :
2/27/2026

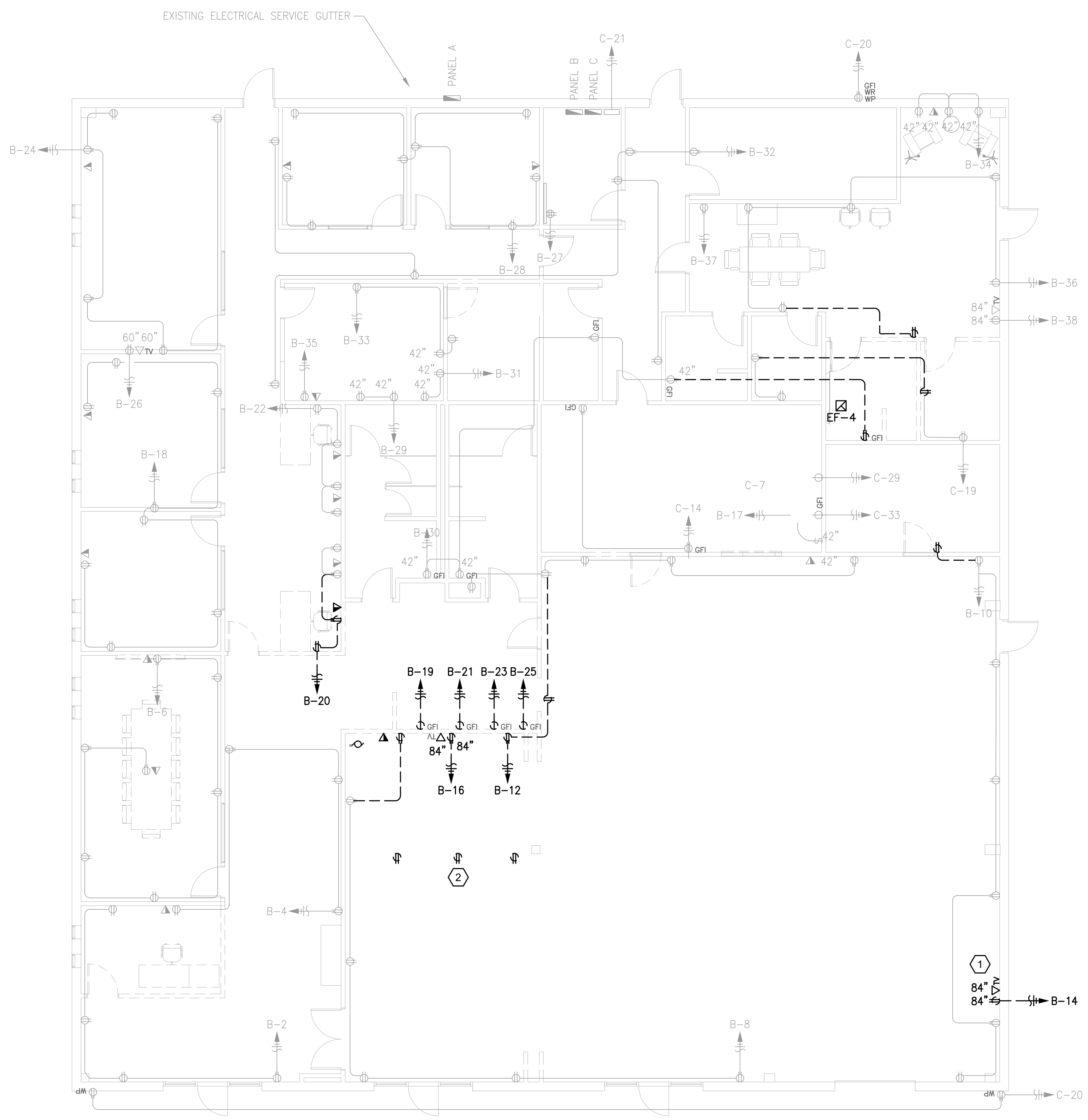
PROJECT NUMBER :
25003

DRAWN BY :
CHECKED BY :

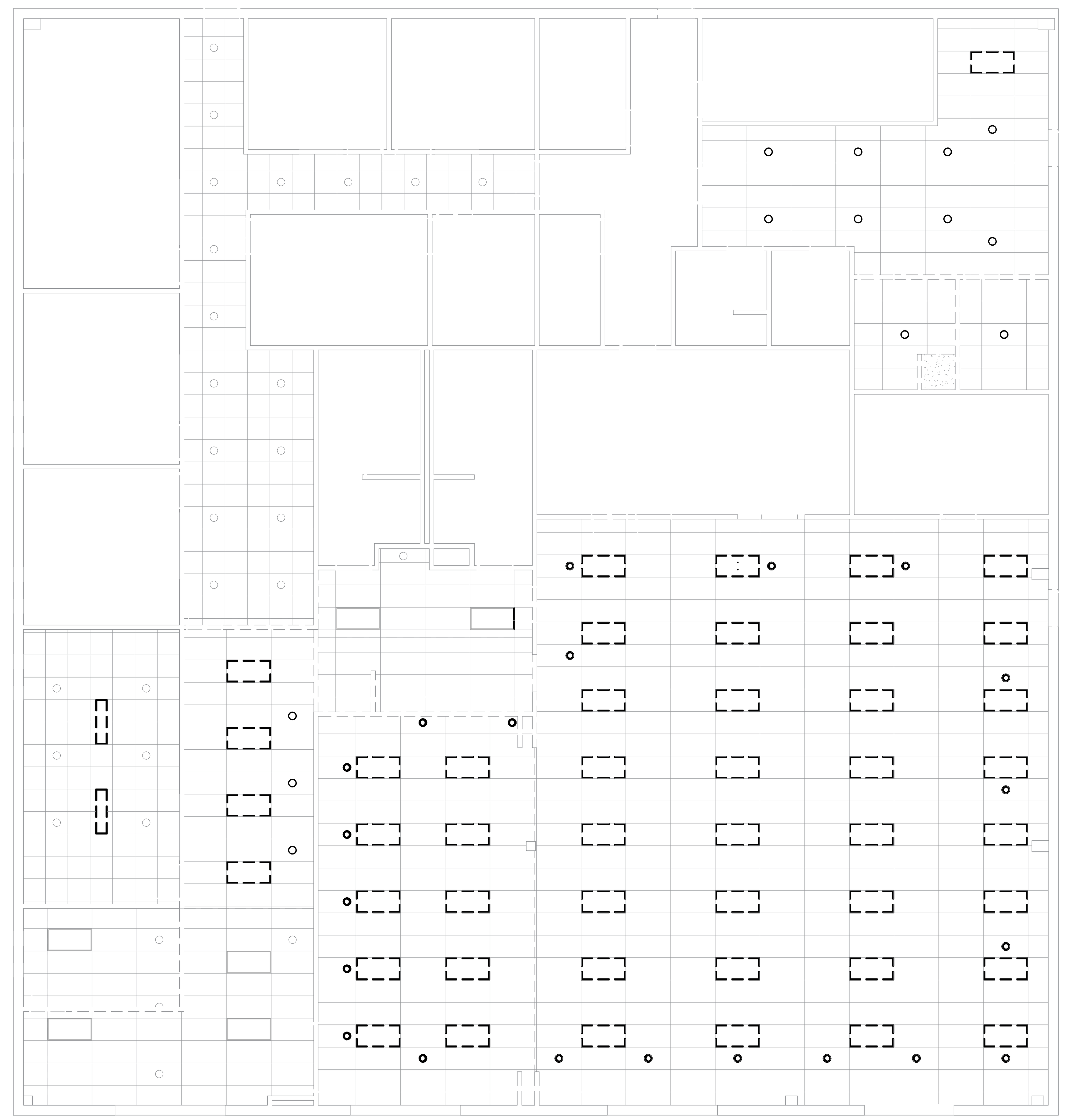
SHEET NO. :
E0.3

POWER KEYED NOTES: (X)

1. COORDINATE AV DEMOLITION IN TRAINING ROOM WITH OWNER / ARCHITECT. ALL EXISTING AUDIO TO BE DEMOLISHED IN ROOM.
2. DEMOLISH ALL EXISTING RECEPTACLES ON THE EXISTING FURNITURE



1 POWER DEMOLITION
1/8" = 1'-0"
0 4' 8' 16'
NORTH



2 LIGHTING DEMOLITION
1/8" = 1'-0"
0 4' 8' 16'
NORTH

GENERAL NOTES:

1. THE OWNER SHALL HAVE FIRST RIGHT OF REFUSAL FOR ALL DEMOLISHED EQUIPMENT. DISPOSAL OF ALL DEMOLISHED EQUIPMENT NOT REQUESTED BY THE OWNER SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
2. THE CONTRACTOR SHALL ASSUME RESPONSIBILITY FOR THE DISPOSAL OF HAZARDOUS MATERIALS SUCH AS PCBS AND MERCURY CONTAINING FLUORESCENT LAMPS FOLLOWING ALL LOCAL, STATE, AND FEDERAL GUIDELINES AND PROVIDE DOCUMENTATION OF DISPOSAL TO THE OWNER.
3. ANY EXISTING EQUIPMENT THAT IS CALLED OUT ON THE PLANS TO BE REUSED BUT IS FIELD DETERMINED TO BE DAMAGED IN ANY WAY SHOULD BE BROUGHT TO THE ATTENTION OF THE ENGINEER.
4. ALL ELECTRICAL EQUIPMENT SUCH AS CONDUIT, CONDUCTORS, DISCONNECTS, SUPPORTS, ETC. THAT IS ASSOCIATED WITH OTHER EQUIPMENT SUCH AS RECEPTACLES, LIGHTING, HVAC EQUIPMENT, ETC. THAT IS SHOWN ON THESE PLANS TO BE REMOVED SHALL ALSO BE REMOVED FROM THE ELECTRICAL PANEL TO THE LOAD SERVED UNLESS NOTED TO BE REUSED FOR NEW EQUIPMENT OR ALSO SERVING EXISTING TO REMAIN LOADS.
5. PATCH AND FIRE SEAL AS REQUIRED ALL PENETRATIONS IN STRUCTURES MAD BY ELECTRICAL EQUIPMENT SUCH AS CONDUIT AND CABLE TRAY THAT IS BEING REMOVED.
6. EXISTING TO REMAIN EQUIPMENT IS SHOWN GRAY SCALED ON THESE PLANS FOR REFERENCE. EQUIPMENT TO BE DEMOLISHED IS SHOWN BOLD AND/OR DASHED.
7. ALL MATERIALS SALVAGED TO OWNER SHALL BE STORED BY CONTRACTOR FOR REUSE UNTIL END OF PROJECT THEN RETURNED TO THE OWNER.

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FOUNDED 1839

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SHEET TITLE :
ELECTRICAL DEMOLITION

REVISIONS :

SUBMITTAL:
ISSUED FOR PERMIT

SCALE :

DATE :
2/27/2026

PROJECT NUMBER :
25003

DRAWN BY : CHECKED BY :

SHEET NO. :
ED1.1

POWER KEYED NOTES: (X)

1. PROVIDE RECESSED WALL BOX: CHIEF PAC 526 AT CENTER OF TV.
2. INSTALL NEW FLOOR BOXES USING WIREMOLD. BASIS OF DESIGN LEGRAND OFR ON FLOOR WITH WALL ENTRANCE. INSTALL WITH 4 GANG BOX COORDINATE FINISHES WITH ARCHITECT.
3. INSTALL NEW 120V RETRACTABLE POWER REEL MOUNTED TO CEILING DECK. BASIS OF DESIGN HUBBELL HBLI45123GF20. COORDINATE FINISH WITH ARCHITECT
4. CONTRACTOR TO CONNECT FIRE SMOKE DAMPERS TO EXISTING CIRCUIT SERVING DEMOLISHED DAMPER
5. INSTALL NEW JUNCTION BOXES FOR CAMERAS. COORDINATE FINAL LOCATION WITH ARCHITECT

LIGHTING KEYED NOTES: (X)

1. CONNECT LIGHT FIXTURE TO THE EXISTING CIRCUIT IN THIS ROOM. CONFIRM CIRCUIT NOTED SERVES ROOM, ALTERNATELY RECONNECT TO EXISTING CIRCUIT IN ROOM.
2. ROOM EXEMPT FROM DAYLIGHTING REQUIREMENTS DUE TO LESS THAN 75W OF LIGHT IN PRIMARY DAYLIGHTING ZONE AND LESS THAN 150W IN THE COMBINED DAYLIGHTING ZONES.

GENERAL NOTES:

A. REFER TO SPECIFICATIONS, SCHEDULES, DETAILS AND GENERAL NOTES SHEET FOR ADDITIONAL ELECTRICAL EQUIPMENT AND SYSTEM INSTALLATION REQUIREMENTS.

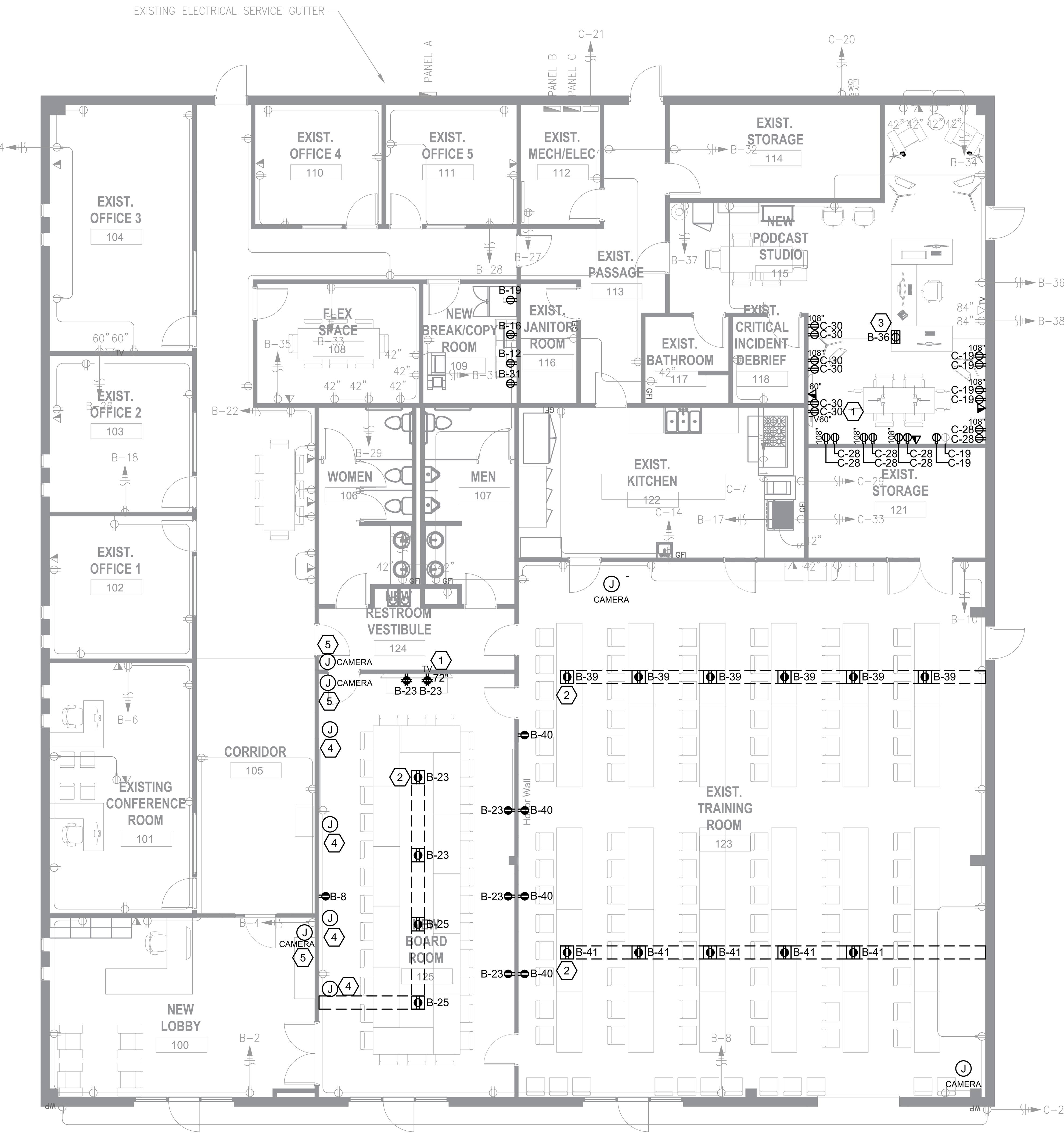
B. SPECIAL REQUIREMENTS SUCH AS MOUNTING ABOVE COUNTER (AC), GROUND FAULT CIRCUIT INTERRUPTERS (GFI), AND WEATHERPROOF ENCLOSURES (WP) ARE NOTED ADJACENT TO RECEPTACLES.

C. REFER TO ELECTRICAL EQUIPMENT SCHEDULE FOR DISCONNECT AND CONTROLS REQUIREMENTS.

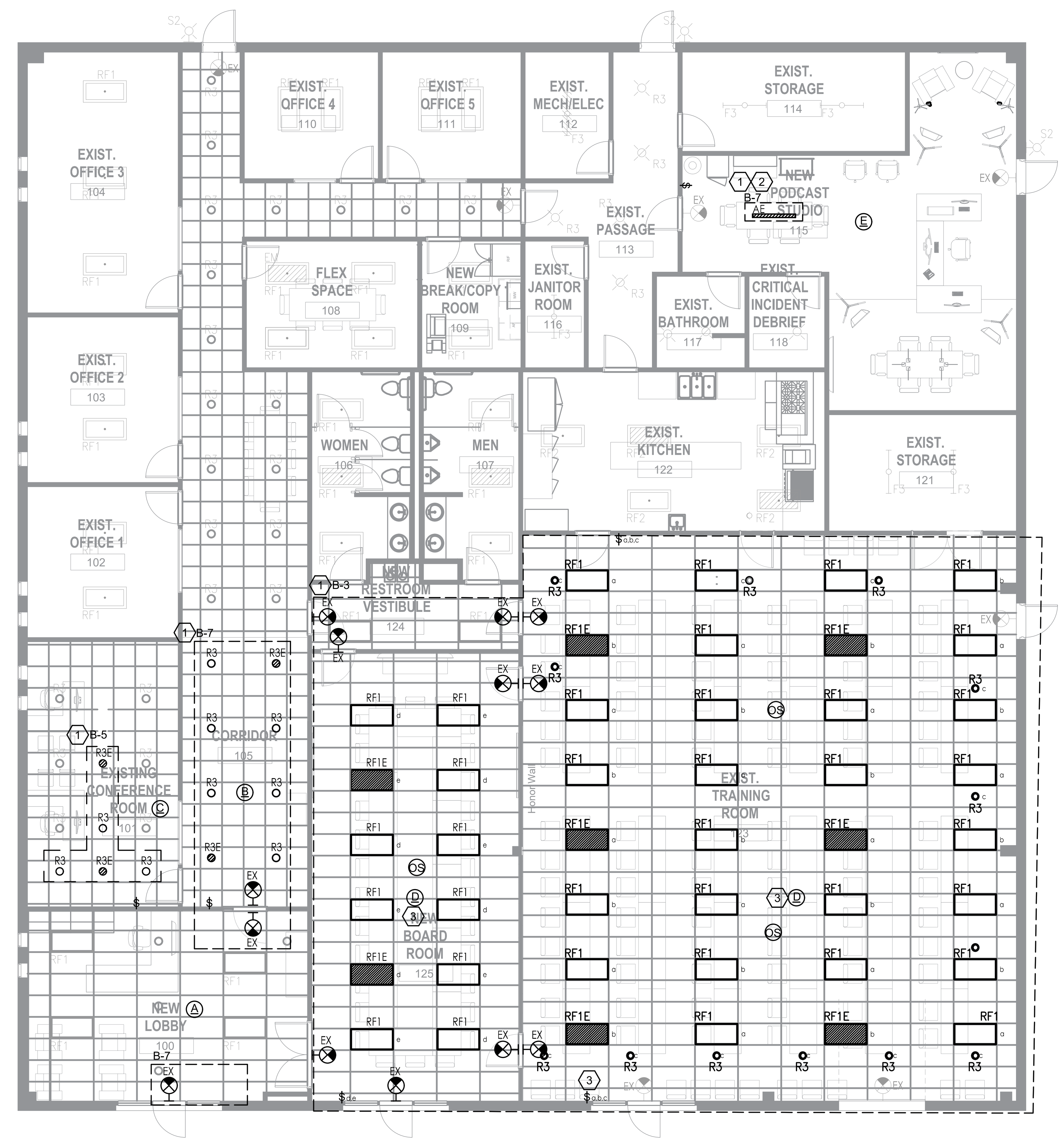
D. CONTRACTOR SHALL PROVIDE POWER TO ALL ITEMS SHOWN FROM THE PANEL AND CIRCUIT NUMBERS THAT ARE SHOWN ADJACENT TO THE LOAD (RECEPTACLE, DISCONNECT, JBOX, EQUIPMENT CONNECTION POINT, ETC). SIZE CIRCUIT PER PANEL SCHEDULE. PROVIDE NEUTRAL AND GROUND, U.N.O.

E. COORDINATE J-BOX INSTALLATION HEIGHTS WITH ARCHITECTURAL AND LOW VOLTAGE PROVIDER

F. EXISTING ELECTRIC SERVICE IS OF SUFFICIENT AMPACITY & CAPACITY FOR NEW LOAD TO BE SERVED AND IS TO REMAIN AS ORIGINALLY INSTALLED



NORTH 1 POWER PLAN 1/8" = 1'-0" 0 4' 8' 16'



NORTH 2 LIGHTING PLAN 1/8" = 1'-0" 0 4' 8' 16'

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Registered Firm F-24779

SHEET TITLE : ELECTRICAL PLAN

REVISIONS :

SUBMITTAL: ISSUED FOR PERMIT

SCALE :

DATE : 2/27/2026

PROJECT NUMBER : 25003

DRAWN BY : CHECKED BY :

SHEET NO. : E1.1

Insert Project Name AUSTIN POLICE ASSOCIATION
Insert Project Number

(E) PANEL C

28/01/2026 16:42

PANEL OPTIONS:

BUS RATING: 100A
MAIN: 100A
VOLTAGE: 240/120V1PH,3W
LOCATION: REFER TO PLAN
FED FROM: REFER TO ONE LINE
FEEDER SIZE: REFER TO ONE LINE

AIC RATING: EXISTING
BUSSING: COPPER
MOUNTING: SURFACE
NEMA ENCLOSURE: NEMA 1

CB OPT: ST - SHUNT TRIP
SS - SOLID STATE
GF - GROUND FAULT CIRCUIT INTERRUPTER
FR - FULLY RATED
L - LOCKABLE
EP - EQUIPMENT GROUND FAULT (30mA)

LOAD (VA)						CKT	LOAD SERVED	CB	CB	Ø	CB	CB	LOAD SERVED	CKT	LOAD (VA)					
LIGHT	RECPT	CONT	MISC	MOTOR	KITCH	NO.		OPT	AMP/ POLE		AMP/ POLE	OPT		NO.	LIGHT	RECPT	CONT	MISC	MOTOR	KITCH
			268			1	WALK - IN		20/1	A	20/1		EF - 7	2				864		
			1596			3	WALK - IN COOLER		20/1	B	20/2		EF - 6	4				1200		
	500					5	REC - DISHWASHER		20/1	A	-		-	6				1200		
	500					7	REC - REFRIGERATOR		20/1	B	20/1		SF - 1	8				696		
	500					9	REC - COFFE MAKER		20/1	A	15/2		SF - 2	10				828		
	1200					11	REC - MICROWAVE		20/1	B	-		-	12				828		
	200					13	REC - CHARBROILER		20/1	A	20/1		REC - KITCHEN GFI	14		540				
	200					15	REC - FRYERS		20/1	B	20/1		REC - KITCHEN GFI	16		360				
	200					17	REC - RANGE		20/1	A	20/1		REC - KITCHEN GFI	18		360				
	1440					19	REC - DEBRIEF 118,119		20/1	B	20/1		REC - EXTERIOR	20		720				
			200			21	LIGHTING CONTROLS		20/1	A	20/1		OUTLET CONTACTOR	22						
						23	SPARE		20/1	B	20/1		BAR GFI´S	24						
			1596			25	WALK - IN CU		20/1	A	20/1		BAR GFI´S	26						
			200			27	FREEZER LIGHTS		20/1	B	20/1		REC - PODCAST STUDIO 115	28		1440				
						29	KEGGER		'20/1	A	20/1		REC - PODCAST STUDIO 115	30		1440				

PHASE LOADING

LIGHT	RECPT	CONT	MISC	MOTOR	KITCH	TOTAL		CONNECTED AMPS PER PHASE
0	3740	0	4956	0	0	8696	PHASE A	72 A
0	5860	0	4520	0	0	10380	PHASE B	87 A
0	9600	0	9476	0	0		TOTAL	
					LARGEST MOTOR LOAD			

PANEL TOTALS

	LIGHT	RECPT	CONT	MISC	MOTOR	KITCH
CONNECTED KVA TOTALS	0.00	9.60	0.00	9.48	0.00	0.00
DEMAD FACTOR	1.25	(1)	1.25	1	(2)	0.65
DEMAND KVA TOTALS	0.00	9.60	0.00	9.48	0.00	0.00
TOTAL CONNECTED KVA	19.08	FOOTNOTES:				
TOTAL DEMAND KVA	19.08	(1) = PER NEC ARTICLE 220.44				
PHASE TO PHASE VOLTAGE	240	(2) = PER NEC ARTICLE 220.50				
TOTAL PANEL DEMAND AMPERAGE	**79**					

PROJECT NAME: AUSTIN POLICE ASSOCIATION
PROJECT NUMBER:

(E) PANEL B

2/27/2026 16:21

PANEL OPTIONS:

BUS RATING: 225 A
MAIN: 200A
VOLTAGE: 240/120V,3PH,4W
LOCATION: REFER TO PLANS
FED FROM: REFER TO ONE LINE
FEEDER SIZE: REFER TO ONE LINE

AIC RATING: 10 KAIC
BUSSING: COPPER
MOUNTING: SURFACE
NEMA ENCLOSURE: NEMA 3R

CB OPT: ST - SHUNT TRIP
SS - SOLID STATE
GF - GROUND FAULT CIRCUIT INTERRUPTER
FR - FULLY RATED
L - LOCKABLE
EP - EQUIPMENT GROUND FAULT (30mA)

LOAD (VA)						CKT	LOAD SERVED	CB	CB	Ø	CB	CB	LOAD SERVED	CKT	LOAD (VA)					
LIGHT	RECPT	CONT	MISC	MOTOR	KITCH	NO.		OPT	AMP/ POLE		AMP/ POLE	OPT		NO.	LIGHT	RECPT	CONT	MISC	MOTOR	KITCH
1856						1	LTG - TRAINING		20/1	A	20/1		REC - LOBBY	2		720				
1397						3	LTG - TRAINING		20/1	B	20/1		REC - LOBBY	4		720				
1452						5	LTG - LOBBY/CONF/OFFICE		20/1	C	20/1		REC - CONFERENCE	6		1260				
1517						7	LTG - CORR/OFFICES		20/1	A	20/1		REC - TRAINING ROOM	8		1080				
617						9	LTG - KITCHEN/RR/EF		20/1	B	20/1		REC - TRAINING ROOM	10		1260				
1672						11	LTG - WORKROOM/RR/EF		20/1	C	20/1	GFI	109 - NEW BREAK AIR FRYER	12				1000		
276						13	LTG - EXTERIOR		20/1	A	20/1		REC - TV TRAINING	14		180				
500						15	LTG - HEAT LAMPS		20/1	B	20/1	GFI	109 - BK RM MICROWAVE	16				1000		
400						17	LTG - HOOD LIGHTS		20/1	C	20/1		REC - OFFICE 102, 103	18		1440				
			1500			19	109 - NEW BREAK FRIDGE	GFI	20/1	A	20/1		REC - OPEN OFFICE	20		720				
			1500			21	REC - VENDING		20/1	B	20/1		REC - OPEN OFFICE	22		720				
	1080					23	125 - BOARD RM FLR RCPT		20/1	C	20/1		REC - OFFICE 104	24		900				
	900					25	125 - BOARD RM WALL RCPT		20/1	A	20/1		REC - TV OFFICE 104	26		180				
	360					27	REC - PHONE BOARD		20/1	B	20/1		REC - OFFICE 110,111	28		1440				
	360					29	REC - WORK ROOM		20/1	C	20/1		REC - RR/JANITOR	30		900				
	540					31	REC - WORK ROOM		20/1	A	20/1		REC - CORRIDOR/STORAGE	32		1260				
	540					33	REC - WORK ROOM		20/1	B	20/1		REC - OFFICE 115	34		540				
	500					35	REC - COPIER		20/1	C	20/1		REC - OFFICE 116	36		1080				
	500					37	REC - ICE MAKER OFF 115		20/1	A	20/1		REC - TV OFFICE 115	38		180				
	1080					39	123- TRAIN RM FLR RECPT		20/1	B	20/1		123- TRAIN RM WALL RECPT	40		720				
	900					41	123- TRAIN RM FLR RECPT		20/1	C	20/1		SPARE	42						

PHASE LOADING

LIGHT	RECPT	CONT	MISC	MOTOR	KITCH	TOTAL		CONNECTED AMPS PER PHASE
3649	6260	0	1500	0	0	11409	PHASE A	95 A
2514	7380	0	2500	0	0	12394	PHASE B	103 A
3524	8420	0	1000	0	0	12944	PHASE C	108 A
9687	22060	0	5000	0	0		TOTAL	
					LARGEST MOTOR LOAD			

PANEL TOTALS

	LIGHT	RECPT	CONT	MISC	MOTOR	KITCH
CONNECTED KVA TOTALS	9.69	22.06	0.00	5.00	0.00	0.00
DEMAND FACTOR	1.25	(1)	1.25	1	(2)	0.65
DEMAND KVA TOTALS	12.11	16.03	0.00	5.00	0.00	0.00
TOTAL CONNECTED KVA	36.75	FOOTNOTES:				
TOTAL DEMAND KVA	33.14	(1) = PER NEC ARTICLE 220.44				
THREE PHASE VOLTAGE	240	(2) = PER NEC ARTICLE 220.50				
TOTAL PANEL DEMAND AMPERAGE	**80**					

(X) Lighting Control Matrix

ID	ROOM TYPE	LOCAL CONTROL FUNCTIONS	SENSOR MOUNTING	LIGHTS AUTO ON LEVEL	OCCUPANCY SHUTOFF	TIMECLOCK CONTROL	DIMMABLE	DAYLIGHT CONTROL	RECEPTACLE CONTROL	SCHEDULE NOTES
A	RECEPTION	ON/OFF/DIM	CEILING	100%	20 MIN	YES	YES	YES	NO	4
B	CORRIDOR	ON/OFF/DIM	CEILING	100%	20 MIN	YES	YES	NO	NO	1
C	RESTROOM (SINGLE)	ON/OFF	WALL (INTEGRAL)	100%	20 MIN	NO	NO	NO	NO	
D	CONFERENCE	ON/OFF/DIM	CEILING	0%	20 MIN	NO	YES	SEE PLAN	YES	
E	PODCAST ROOM	ON/OFF	N/A	N/A	N/A	NO	NO	NO	NO	

GENERAL NOTES

A. PROVIDE ALL POWER PACKS, RELAYS, PHOTOCELLS, TIME CLOCKS, CONTROLLERS AND BRIDGING DEVICES, AS REQUIRED FOR A FUNCTIONAL CONTROL SYSTEM.
B. OCCUPANCY SENSORS TO BE PLACED PER MANUFACTURER RECOMMENDATIONS. LAYOUT SHOWN ON PLAN IS FOR SCHEMATIC PURPOSES ONLY.
C. CONTRACTOR TO PROVIDE SHOP DRAWING INDICATING LOCATIONS OF ALL CONTROL DEVICES AS PART OF THE LIGHTING SUBMITTAL FOR APPROVAL PRIOR TO INSTALLATION.
D. AUTO ON LEVEL : 0% = MANUAL ON.
E. REFER TO LIGHTING PLANS FOR ROOM TYPE DESIGNATIONS PER THE ID COLUMN ABOVE.
F. ALL EMERGENCY LIGHTING CONTROLLED BY AUTOMATIC MEANS SHALL BE CONTROLLED THROUGH A LISTED UL924 CONTROL DEVICE THAT BRINGS LIGHTS TO FULL OUTPUT UPON LOSS OF NORMAL BRANCH POWER, SIGNAL FROM FIRE ALARM SYSTEM, OR SIGNAL FROM OTHER DESIGNATED CONTROL PANEL.
G. DAYLIGHTING CONTROL IN DAYLIGHTING AREAS ONLY. SEE CODED NOTE ON PLAN FOR LOCATIONS.
H. MANUAL OFF: WHEN LIGHTS ARE MANUALLY TURNED OFF, THEY ARE TO REMAIN OFF UNTIL THEY ARE MANUALLY TURNED ON, THEN AUTO-ON/OFF CONTROL WILL TAKE OVER.
I. ALL ROOMS TO BE TIED TO THE LOW VOLTAGE CONTROL SYSTEM UNLESS NOTED OTHERWISE.
J. ALL WALL MOUNTED OCCUPANCY SENSORS SHALL HAVE INTGRAL ON/OFF BUTTONS, AND UP/DOWN DIMMING BUTTONS WHERE APPLICABLE.
K. ALL ROOMS WITH AUTOMATIC DAYLIGHT CONTROL SHALL ADJUST ONCE THE LIGHT LEVELS REACH 50fc AT 36" AFF.
L. LIGHTING CONTROL ZONES: LIGHTS TO BE CONTROLLED TOGETHER, PER LOWER-CASE LETTER.
M. WHERE INDICATED AS "DIMMABLE" THE PROVIDED CONTROLS SHALL BE COMPATIABLE WITH THE FIXURE SHOWN IN THE LUMINAIRE SCHEDULE.

LUMINAIRE SCHEDULE

TYPE	MANUFACTURER	CATALOG NO.	LED WATTS	LED LUMENS	COLOR TEMP	INPUT WATTS	VOLTS	MOUNTING	REMARKS
AE	LITHONIA	LL4EPD	10		3000K	20	120	SUSPENDED	4" LED SUSPENDED EMERGENCY
RF1 RF1E	RF1	2RT5-28T5-MVOT-GEB90-LPM835O	28		3000K	58	MVOLT	LAY-IN	2'X4', 2-LAMP FLUORESCENT EMERGENCY BATTERY
R3 R3E	LITHONIA	LF6-1/32TRT-MVOLT-F601AZ	32		3000K	35	MVOLT	RECESSED	5" COMPACT FLUORESCENT DOWNLIGHT EMERGENCY BATTERY
EX	LITHONIA	LQM-P-W-3-R-120/277-EL N	3		3000K	3	120	UNIVERSAL	LED EXIT SIGN, EDGE LIT, DOUBLE FACE, DIRECTION ARROWS AND MOUNTING AS REQUIRED

NOTES:

1. WHETHER INDICATED IN CATALOG NUMBER OR NOT, CONTRACTOR TO PROVIDE ALL NECESSARY ACCESSORIES AND MOUNTING HARDWARE REQUIRED FOR A COMPLETE INSTALLATION.
2. COORDINATE FIXTURE COLOR SELECTION WITH ARCHITECT PRIOR TO PURCHASE.
3. LEDs SHALL MEET THE FOLLOWING MIN SPECS IN ADDITION TO THE REQUIREMENTS SHOWN ELSEWHERE:
   A. 50,000 HOUR RATED, MIN CRI = 80 (FOR INTERIOR LIGHTING), 1 TO 10V DIMMABLE
   B. LAMP CCT SHALL CONFORM TO ANSI C78.377A COLOR BINNING AND UTILIZE 4 STEP MACADAM ELLIPSE ALGORITHM BINNING PROCESS
4. LED DRIVERS SHALL MEET THE FOLLOWING MIN SPECS IN ADDITION TO THE REQUIREMENTS SHOWN ELSEWHERE:
   A. THD LESS THAN 10 %, POWER FACTOR GREATER THAN 90%

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SHEET TITLE :
ELECTRICAL SCHEDULES

REVISIONS :

SUBMITTAL:
ISSUED FOR PERMIT

SCALE :

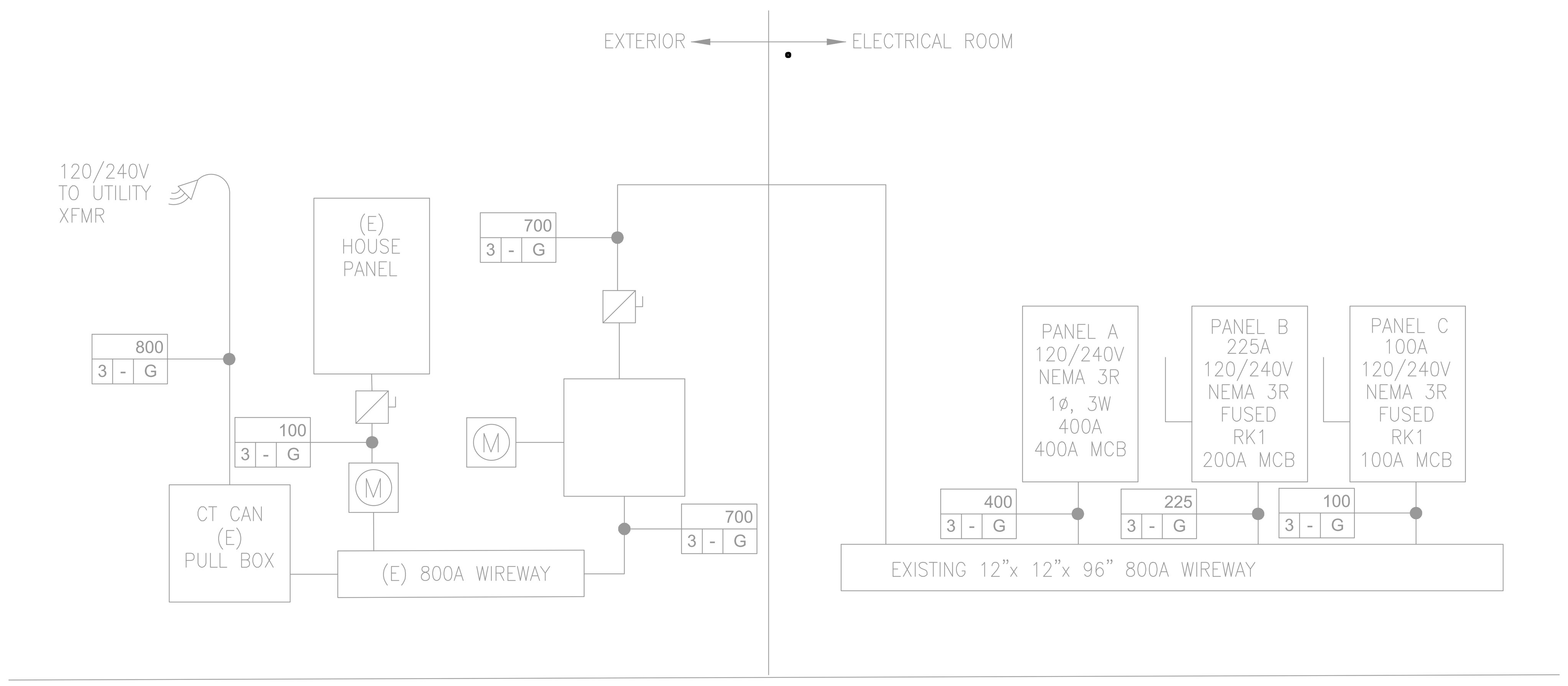
DATE :
2/27/2026

PROJECT NUMBER :
25003

DRAWN BY : CHECKED BY :

SHEET NO. :
E6.1

- EXISTING ELECTRICAL INFRASTRUCTURE IS EXISTING TO REMAIN AND WILL NOT BE MODIFIED AS PART OF THIS PROJECT.
- CONTRACTOR TO CONFIRM EXISTING WIRE SIZES. NOTIFY ENGINEER IF THESE DIFFER FROM SIZES SHOWN ON DRAWINGS



1 ELECTRICAL ONE-LINE DIAGRAM

NOT TO SCALE

FEEDER TAG LEGEND

600 — FEEDER AMPERAGE, SEE TABLE ABOVE

G — GROUND REQUIRED WITH ALL CIRCUITS

N — "N" = NEUTRAL REQUIRED ("-" = NOT REQUIRED)

3 — # = QUANTITY OF PHASE CONDUCTORS

CONDUIT & CONDUCTOR SCHEDULE

	COPPER					ALUMINUM				
ONE LINE TAG	NO. OF SETS	SIZE OF CONDUCTORS	SIZE OF GROUND (G)	SIZE OF SERVICE GROUND (SG)	CONDUIT SIZE	NO. OF SETS	SIZE OF CONDUCTORS	SIZE OF GROUND (G)	SIZE OF SERVICE GROUND (SG)	CONDUIT SIZE
20		#12	#12	#8	3/4"	COPPER ONLY				
30		#10	#10	#8	3/4"					
40		#8	#10	#8	1"					
50		#6	#10	#8	1"					
60		#4	#10	#8	1-1/4"					
70		#4	#8	#8	1-1/4"					
80		#3	#8	#8	1-1/4"					
90		#2	#8	#8	1-1/2"					
100 (SEE NOTE 3)		#1	#8	#6	1-1/2"					
110		#1	#6	#6	1-1/2"					
125		#1/0	#6	#6	2"					
150		#1/0	#6	#6	2"					
175		#2/0	#6	#4	2"		#4/0	#4	#2	3"
200		#3/0	#6	#4	3"		250kcmil	#4	#2	3"
225		#4/0	#4	#2	3"		300kcmil	#2	#1/0	3"
250		250kcmil	#4	#2	3"		350kcmil	#2	#1/0	3"
300		350kcmil	#4	#2	3"		500kcmil	#2	#1/0	4"
350		500kcmil	#3	#1/0	4"	(2)	#4/0	#1	#1/0	3"
400	(2)	#3/0	#3	#1/0	3"	(2)	250kcmil	#1	#1/0	3"
500	(2)	250kcmil	#2	#1/0	3"	(2)	350kcmil	#1/0	#3/0	3"
600	(2)	350kcmil	#1	#2/0	3"	(2)	500kcmil	#2/0	#4/0	4"
700	(2)	500kcmil	#1/0	#2/0	4"	(3)	350kcmil	#3/0	#4/0	3"
800	(4)	#3/0	#1/0	#2/0	3"	(3)	400kcmil	#3/0	#4/0	4"
1000	(3)	400kcmil	#2/0	#3/0	4"	(4)	350kcmil	#4/0	#4/0	3"
1200	(4)	350kcmil	#3/0	#4/0	3"	(4)	500kcmil	250kcmil	250kcmil	4"
1400	(4)	500kcmil	#4/0	250kcmil	4"	(5)	500kcmil	250kcmil	250kcmil	4"
1600	(5)	400kcmil	#4/0	250kcmil	4"	(6)	400kcmil	350kcmil	300kcmil	4"
2000	(6)	400kcmil	250kcmil	300kcmil	4"	(7)	500kcmil	400kcmil	500kcmil	4"
2500	(7)	500kcmil	350kcmil	500kcmil	4"	(9)	500kcmil	600kcmil	600kcmil	4"
3000	(8)	500kcmil	400kcmil	500kcmil	4"	(10)	600kcmil	600kcmil	600kcmil	4"
4000	(10)	600kcmil	500kcmil	600kcmil	4"					

NOTES:
1. ALL FEEDERS ARE 4 WIRE PLUS GROUND, UNLESS NOTED OTHERWISE.
2. OPTIONAL SIZES MAY BE USED WHERE SPECIFIED CONDUIT AND CONDUCTORS ARE NOT FEASIBLE.
3. FOR EQUIP. WITH 75 C TERMINATIONS, 100A OR BELOW MAY BE SIZED PER 75C COLUMN IN TABLE 310.16 (RE: 110.14(C)(1)(a)(3))
4. ALL CONDUCTORS ARE COPPER UNLESS NOTED OTHERWISE.
5. COPPER CONDUCTORS SHALL BE USED FOR ANY EQUIPMENT THAT REQUIRES IT.
6. SERVICE GROUND (SG) SIZED PER TABLE 250.102(C)(1)

ALL ELECTRICAL SHALL BE IN ACCORDANCE WITH CITY OF AUSTIN ELECTRICAL CODES The granting of a permit for, approval of these plans shall not be construed to be a permit for, or approval of, any violation of the provisions of the currently adopted electrical code or any other ordinances of the City of Austin.

ELECTRICAL APPROVAL

CITY OF AUSTIN APPROVED Date 04/01/2026 FOUNDED 1839

This stamp serves as a means of electrical approval and does not include other disciplines.

BEAtx Architects, LLC.
LICENSE No. BR 5098

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SHEET TITLE :
ELECTRICAL ONE LINE DIAGRAM

REVISIONS :

SUBMITTAL:
ISSUED FOR PERMIT

SCALE :

DATE :
2/27/2026

PROJECT NUMBER :
25003

DRAWN BY : CHECKED BY :

SHEET NO. :
E5.1

COMcheck-Web™

Compliance Certificate

Project Information

Energy Code:	2024 IECC
Project Title:	AUSTIN POLICE ASSOCIATION
Location:	Austin, Texas
Climate Zone:	2a
Project Type:	Alteration
Project No:	78217
Project Sub Type:	Substantial Alteration
All Electric:	true
Is Renewable:	false
Has Battery:	false
Has Charger:	false
Has Heat Pump	false

Construction Site:

Owner/Agent:
Make Selection

Designer/Contractor:
Lorenzo Gonzalez
G2LG
Montgomery , Texas 77356
5125222692
LGonzalez@g2lg.com

Notes:

Renewable energy

Number of Floors:	1
Area of Three Largest Floors:	0
Proposed Capacity:	0
Required Capacity:	0
Proposed Off-site Energy:	0
Required Off-site Energy:	0
Exception:	None

Renewables Pass

Building Area

Description	Floor Area
1-Police (Police) : Nonresidential	88885

Interior Lighting Compliance Certificate

Project Information

Energy Code:	2024 IECC
Project Title:	AUSTIN POLICE ASSOCIATION
Location:	Austin, Texas
Climate Zone:	2a
Project Type:	Alteration

Construction Site:

Owner/Agent:
Make Selection

Designer/Contractor:
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G2LG
Montgomery , Texas 77356
5125222692
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Allowed Interior Lighting Power

A Area Category	B Floor Area (ft2)	C Allowed Watts / ft2	D Allowed Watts
1-123-EXIST TRAINING ROOM (Common Space Types:Classroom/lecture hall/training room)	2390	0.72	
2-125-NEW BOARD ROOM (Common Space Types:Classroom/lecture hall/training room)	749	0.72	
3-101-EXISTING CONFERENCE ROOM (Common Space Types:Conference/meeting/multipurpose room)	339	0.88	
4-105-CORRIDOR (Common Space Types:Corridor <8 ft wide)	864	0.44	
5-115 NEW PODCAST STUDIO (Common Space Types:Office - enclosed)	649	0.73	
Total Allowed Watts:			55109

Proposed Interior Lighting Power

A Fixture ID : Description / Lamp / Wattage Per Lamp / Ballast	B # of Fixture	C Fixture Watt.	D (B X C)
1-123-EXIST TRAINING ROOM (Common Space Types:Classroom/lecture hall/training room)			
RF1: RF1: LED:	32	28	896
R3: R3: LED:	14	32	448
2-125-NEW BOARD ROOM (Common Space Types:Classroom/lecture hall/training room)			
RF1: RF1: LED:	12	28	336
R3: R3: LED:	7	32	224
3-101-EXISTING CONFERENCE ROOM (Common Space Types:Conference/meeting/multipurpose room)			
R3: R3: LED:	11	32	352
4-105-CORRIDOR (Common Space Types:Corridor <8 ft wide)			
R3: R3: LED:	25	32	800
5-115 NEW PODCAST STUDIO (Common Space Types:Office - enclosed)			

A Fixture ID : Description / Lamp / Wattage Per Lamp / Ballast	B # of Fixture	C Fixture Watt.	D (B X C)
AE: AE: LED:	1	10	10
Total Proposed Watts:			3066

Proposed Interior Lighting Controls

Fixture	Lighting Control
1-123-EXIST TRAINING ROOM (Common Space Types:Classroom/lecture hall/training room)	
RF1: RF1: LED:	Occupancy Sensor
R3: R3: LED:	Occupancy Sensor
2-125-NEW BOARD ROOM (Common Space Types:Classroom/lecture hall/training room)	
RF1: RF1: LED:	Occupancy Sensor
R3: R3: LED:	Occupancy Sensor
3-101-EXISTING CONFERENCE ROOM (Common Space Types:Conference/meeting/multipurpose room)	
R3: R3: LED:	Occupancy Sensor
4-105-CORRIDOR (Common Space Types:Corridor <8 ft wide)	
R3: R3: LED:	Occupancy Sensor
5-115 NEW PODCAST STUDIO (Common Space Types:Office - enclosed)	
AE: AE: LED:	

Interior Lighting PASSES

Interior Lighting Compliance Statement

Compliance Statement: The proposed interior lighting design represented in this document is consistent with the building plans, specifications, and other calculations submitted with this permit application. The proposed interior lighting systems have been designed to meet the 2024 IECC requirements in COMcheckWeb and to comply with any applicable mandatory requirements listed in the Inspection Checklist.

Name - Title	Signature	Date
LORENZO GONZALEZ, DIRECTOR OF ENGINEERING	[signature]	2/27/26

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SHEET TITLE :
ELECTRICAL COMCHECK

REVISIONS :

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SHEET NO. : E8.1