

# HEATHERWILDE OFFICE CONDOS BLDG. 3

201 N. HEATHERWILDE BLVD.  
PFLUGERVILLE, TEXAS 78660

**OWNER:**  
**MILESTONE PECAN STREET  
DEVELOPMENT, LTD**  
9800 RICHMOND AVE, SUITE 490  
HOUSTON, TX 77042  
**CONTACT: JACOBO MALCA**  
713-784-3790

**TDLR REGISTRATION NUMBER:**  
**TABS2023013254**



LOCATION MAP

## FIRE DEPARTMENT NOTES:

**ADDRESS.** THE ADDRESS OF THE COMPLEX MUST BE POSTED SO IT IS CLEARLY VISIBLE FROM THE PUBLIC STREET. THE ADDRESS MUST BE POSTED ON ANY SIGNS, INCLUDING ANY MONUMENTAL SIGNS, INSTALLED TO IDENTIFY THE COMPLEX. THE SIZE, DESIGN AND PLACEMENT OF ADDRESS SIGNS MUST BE APPROVED BY TRAVIS COUNTY EMERGENCY SERVICES DISTRICT 2 PRIOR TO INSTALLATION.

**BUILDING NUMBER.** THE BUILDING NUMBER MUST BE POSTED AT APPROVED LOCATIONS. BUILDING NUMBERS MUST BE A MINIMUM OF 6 INCHES IN HEIGHT, MUST CLEARLY CONTRAST WITH THEIR BACKGROUND, AND SIGNS MUST BE CONSTRUCTED OF A DURABLE, WEATHER RESISTANT MATERIAL. THE LOCATION OF BUILDING IDENTIFICATION SIGNS MUST BE APPROVED PRIOR TO INSTALLATION.

**SUITE NUMBER.** THE SUITE NUMBER FOR EACH TENANT SPACE MUST BE POSTED SO IT IS CLEARLY VISIBLE FROM THE ACCESS DRIVE. THE SUITE NUMBER WILL BE REQUIRED ON BOTH SIDES OF THE BUILDING. THE SIZE, DESIGN AND PLACEMENT OF SUITE IDENTIFICATION SIGNS MUST BE APPROVED BY TRAVIS COUNTY EMERGENCY SERVICES DISTRICT 2 PRIOR TO INSTALLATION.

**KNOX BOX.** ONE OR MORE KNOX BOXES WILL BE REQUIRED. EACH KNOX BOX MUST BE MOUNTED IN AN APPROVED LOCATION. THE GENERAL CONTRACTOR WILL BE RESPONSIBLE FOR CONTACTING TRAVIS COUNTY EMERGENCY SERVICES DISTRICT 2 FOR INFORMATION REGARDING INSTALLATION OF KNOX BOXES.

**ELECTRONIC ACCESS CONTROL.** WHEN PROVIDED, ELECTRONIC ACCESS CONTROL MUST BE ADDRESSED THROUGH A DEFERRED SUBMITTAL. APPROVAL OF THE BUILDING PERMIT DOES NOT IMPLY APPROVAL TO INSTALL AN ELECTRONIC ACCESS CONTROL SYSTEM.

**MAIN ELECTRICAL DISCONNECT.** THE MAIN ELECTRICAL DISCONNECT MUST BE LOCATED ON THE EXTERIOR OF THE BUILDING AND APPROVED SIGNAGE WILL BE REQUIRED TO IDENTIFY THE LOCATION OF THE MAIN ELECTRICAL DISCONNECT. THE DISCONNECT MUST BE A KNOX-VAULT 4500 SERIES POWER SHUTDOWN. THE SIZE, DESIGN AND PLACEMENT OF IDENTIFICATION SIGNS MUST BE APPROVED BY TRAVIS COUNTY EMERGENCY SERVICES DISTRICT 2 PRIOR TO INSTALLATION.

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**PORTABLE FIRE EXTINGUISHERS.** PORTABLE FIRE EXTINGUISHERS WILL BE INSTALLED SO THAT NO POINT IN THE BUILDING WILL BE LOCATED MORE THAN 75 FEET FROM AN EXTINGUISHER. THIS DISTANCE IS MEASURED BY PATH OF TRAVEL. THE MINIMUM DISTANCE FOR AN EXTINGUISHER IS 2A-10BC. 5-LB DRY CHEMICAL UNITS, WHICH CARRY A 3A-40BC RATING, ARE RECOMMENDED. EXTINGUISHERS SHALL BE MOUNTED ADJACENT TO EXIT DOORS AND AT INTERMEDIATE LOCATIONS TO MEET TRAVEL DISTANCE REQUIREMENTS. EXTINGUISHERS MUST BE MOUNTED IN A VISIBLE AND ACCESSIBLE LOCATION. THE TOP OF AN EXTINGUISHER SHALL NOT BE MORE THAN 5 FEET ABOVE THE FINISHED FLOOR LEVEL. EXTINGUISHERS MUST BE PROVIDED WITH A CURRENT INSPECTION TAG ISSUED BY A LICENSED FIRE PROTECTION CONTRACTOR.

## PROJECT ABBREVIATIONS

<b>A</b>	AND	<b>E</b>	EACH
AMP	AMPERES	EA	EXHAUST AIR
AB	ANCHOR BOLT	EJA	EXHAUST FAN
ABV	ABOVE	EIFS	EXTERIOR INSULATION & FINISH SYSTEM
A/C	AIR CONDITIONING	EJ	EXPANSION JOINT
ACT	ACOUSTICAL TILE	ELEV	ELEVATION
AD	AREA DRAIN	ELEC	ELECTRICAL
ADJ	ADJUSTABLE	EMER	EMERGENCY
AFF	ABOVE FINISH FLOOR	ENCL	ENCLOSURE
ALUM	ALUMINUM	EPS	EXTERIOR PAINT SYSTEM
ACS. PNL	ACCESS PANEL	EQ	EQUAL
APPROX	APPROXIMATE	EW	EACH WAY
ASB	ASBESTOS	EWC	ELECTRIC WATER COOLER
ASC	ABOVE SUSPENDED CEILING	EXP	EXPANSION
ASPH	ASPHALT	EXH	EXHAUST
AUTO	AUTOMATIC	EXT	EXTERIOR
AUX	AUXILIARY		

<b>B</b>	BOARD	<b>F</b>	FIRE ALARM
BD	BOARD	FBO	FURNISHED BY OTHERS
BITUM	BITUMINOUS	FCB	FIBER CEMENT BOARD
BFF	BELOW FINISHED FLOOR	FD	FLOOR DRAIN
BL	BUILDING LINE	FDN.	FOUNDATION
BLDG	BUILDING	FE	FIRE EXTINGUISHER
BLK	BLOCK	FEC	FIRE EXTINGUISHER CABINET
BM	BEAM	FF	FINISH FLOOR
BOT	BOTTOM	FHC	FIRE HOSE CABINET FHC
BS	BACKSPASH	FIN	FINISH

<b>C</b>	CONDUIT	<b>F</b>	FACE OF CONCRETE
CAB	CABINET	FOF	FACE OF FINISH
CG	CORNER GUARD	FOS	FACE OF STUDS
CJ	CONTROL JOINT	FP	FIREPROOF
CLG	CEILING	FT	FOOT OR FEET
CL	CENTER LINE	FTG	FURRING
CO	CLEAN OUT	FUT	FUTURE
COL	COLUMN		
COMM	COMMUNICATION	<b>G</b>	GAGE OR GAUGE
CONN	CONCRETE CONNECTION	GA	GALVANIZED
CONT	CONTINUOUS	GALV	GALVANIZED
CT	COUNTER	GB	GRAB BAR
CONTR	COUNTER	GC	GENERAL CONTRACTOR
CTR	CENTER	GEN	GENERAL
CTV	CABLE TELEVISION	GFCI	GROUND FAULT INTERRUPT
CW	COLD WATER PIPING	GND	GENERAL DUTY

<b>D</b>	DEGREES	<b>G</b>	GRADE
DEG	DEGREES	GL	GLASS
DEPT	DEPARTMENT	G	GROUND
DET	DETAIL	GR	GRADE
DIA	DIAMETER	GWB	GYPSUM WALL BOARD
DIM	DIMENSION		
DISP	DISPENSER	<b>H</b>	HOSE BIBB
DN	DOWN	HB	HANDICAP
DR	DOOR	HC	HARDWARE
DS	DOWNSPOUT	HDW	HARDWARE
DWG	DRAWING	HM	HOLLOW METAL
		HMZ.	HORIZONTAL
		HR	HOUR
		HT	HEIGHT
		HVAC	HEAT/VENTILATION/ AIR COND
		HW	HOT WATER

<b>I</b>	INSIDE DIAMETER	<b>P</b>	POLE
ID	INSIDE DIAMETER	PERF	PERFORATED
IF	INSIDE FACE	PH	PHASE
IN	INSULATION	PL	PLATE
INSUL	INSULATION	PLAM	PLASTIC LAMINATE
INT	INTERIOR	PLAS	PLASTER
IPS	INTERIOR PAINT SYSTEM	PLBG	PLUMBING

<b>J</b>	JANITOR	<b>T</b>	TEMPERED
JAN	JANITOR	TB	TOWEL BAR
JT	JOINT	TOC	TOP OF CONCRETE

<b>K</b>	KIPS (1000 POUNDS)	<b>Q</b>	QUARRY TILE
KIT	KITCHEN	QT	QUARRY TILE

<b>L</b>	LABORATORY	<b>R</b>	RISER
LAM	LAMINATE	RA	RETURN AIR
LAV	LAVATORY	RAD	RADIUS
LKR	LOCKER	RCP	REFLECTED CEILING PLAN
LOC	LOCATION	RD	ROOF DRAIN
LPT	LOW POINT	RECPT	RECEPTACLE
LT	LIGHT	RTU	ROOF TOP UNIT

<b>M</b>	MATERIAL	<b>U</b>	UNDERCOUNTER
MATL	MATERIAL	UC	UNDERCOUNTER
MAX	MAXIMUM	UE	UNDERGROUND ELECTRIC CIRCUIT
MB	MARKER BOARD	UL	UNDERWRITER'S LABORATORIES
MC	MEDICINE CABINET	UNF	UNFINISHED
MD	MEDIUM DENSITY FIBER BOARD	UNF	UNLESS OTHERWISE NOTED
MEMB	MEMBRANE	UR	URINAL
MECH	MECHANICAL	US	UNDERSIDE
MTL	METAL	UT	UNDERGROUND TELEPHONE
MFR	MANUFACTURER		
MH	MANHOLE	<b>S</b>	SUPPLY AIR
MIN	MINIMUM	S/A	SEALED CONCRETE
MID	MIDDLE	S.C.	SEAT COVER DISPENSER
MIRR	MIRROR	SCHED	SCHEDULED
MISC	MISCELLANEOUS	SD	SOAP DISPENSER
MO	MASONRY OPENING	SD	STORM DRAIN
MOD	MODIFIED	SECT	SECTION
MR	MOISTURE RESISTANT	SECT	SECTION
MSB	MAIN SWITCH BOARD	SH	SINGLE HUNG
MTD	MOUNTED	SHR	SHOWER
MUL	MULLION	SHT	SHEET
MBM	METAL BUILDING MANUFACTURER	SIM	SIMILAR

<b>N</b>	NATIONAL ELECTRIC CODE	<b>W</b>	WALL CLEANOUT
NEC	NATIONAL ELECTRIC CODE	W.C.	WATER CLOSET
NEUT	NEUTRAL	WH	WATER HEATER
NHCS	NON HANDICAP SHOWER	WD	WOOD
N.I.C.	NOT IN CONTRACT	WP	WATERPROOF
NO.	NUMBER	WT	WEIGHT
NOM	NOMINAL	WTR	WASTE WATER
NTS	NOT TO SCALE	WWF	WELDED WIRE FABRIC

<b>O</b>	OVERALL	<b>W</b>	WELDED WIRE MESH
OA	OVERALL	WSCT	WAINSCOT
OBS	OBSOLETE	W/	WITH
OC	ON CENTER	W/O	WITHOUT
OCEW	ON CENTER EACH WAY		
OD	OUTSIDE DIAMETER		
OH	OVERHEAD		
OPNG	OPENING		
OPP	OPPOSITE		

## SYMBOLS

	NORTH SYMBOL
	ROOM SYMBOL
	WALL TYPE
	WINDOW TYPE
	DOOR TYPE
	DETAIL REFERENCE
	ELEVATION REFERENCE
	SECTION REFERENCE
	INTERIOR ELEVATION REFERENCE
	KEYNOTE

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A-012	SPECIFICATIONS
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E-4.1	ELECTRICAL PANEL SCHEDULES
E-5.0	ELECTRICAL SPECIFICATIONS
E-5.1	ELECTRICAL SPECIFICATIONS



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STRUCTURAL ENGINEER:

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DATE: MAR 15, 2023

**CONSTRUCTION DOCUMENTS**  
**HEATHERWILDE OFFICE CONDOS BLDG 3**

201 N. HEATHERWILDE BLVD.  
PFLUGERVILLE, TX 78660

PROJECT NO: 17003

REVISIONS:

REV 2 - CoP BUILDING COMMENTS

DRAWN BY: LC  
REVIEWED BY: SB

COVER SHEET

**A-000**

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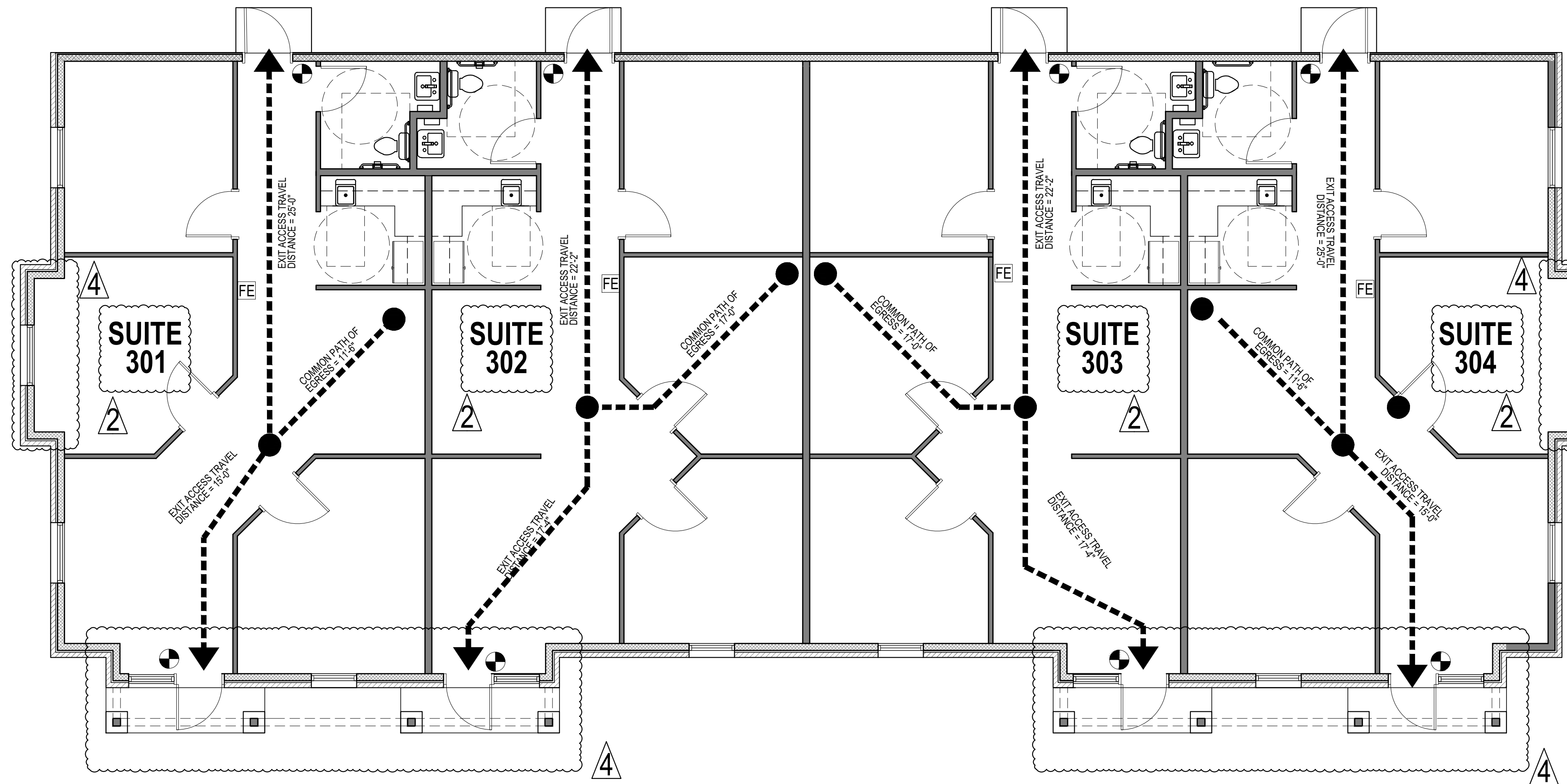
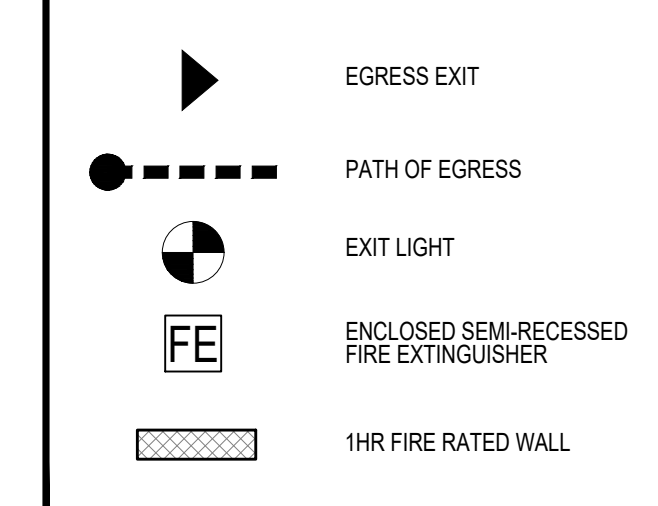
**BUILDING CODE ANALYSIS**

PROJECT NAME: HEATHERWILDE OFFICE CONDOS BLDG. 3  
 PROJECT ADDRESS: 201 N. HEATHERWILDE BLVD, PFLUGERVILLE, TX 78660  
 PROJECT DESCRIPTION: OFFICE CONDOMINIUMS

APPLICABLE CODES: INTERNATIONAL BUILDING CODE 2021  
 INTERNATIONAL PLUMBING CODE 2021  
 INTERNATIONAL MECHANICAL CODE 2021  
 INTERNATIONAL CODE COUNCIL ELECTRICAL CODE 2021  
 INTERNATIONAL FUEL GAS CODE  
 INTERNATIONAL ENERGY CONSERVATION CODE 2021  
 INTERNATIONAL FIRE CODE 2021  
 NATIONAL ELECTRICAL CODE 2020

ITEM	ALLOWED / REQUIRED	PROVIDED	REFERENCE	NOTES
USE & OCCUPANCY CLASSIFICATION		OFFICE BUILDING = B	IBC SECTION 304.1	
BUILDING DATA				
TYPE OF CONSTRUCTION		TYPE V-B	IBC SECTION 602.5	
BUILDING HEIGHT	40'	18'-4"	IBC TABLE 503	
NUMBER OF STORIES	2	1	IBC SECTION 504.1	
AREA	9,000 SF	4,296 SF	IBC SECTION 506.2	
FLOOR AREAS				
BUILDING 3				
SUITE 301		1,068 SF		
SUITE 302		1,017 SF		
SUITE 303		1,068 SF		
SUITE 304		1,017 SF		
FRONT PORCH		126 SF		
OCCUPANCY LOAD				
SUITE 301	1,000 SF / 150 GROSS SF	7 OCCUP	IBC TABLE 1004.5	1 OCCUPANT / 150 GROSS SF
SUITE 302	1,000 SF / 150 GROSS SF	7 OCCUP	IBC TABLE 1004.5	1 OCCUPANT / 150 GROSS SF
SUITE 303	1,000 SF / 150 GROSS SF	7 OCCUP	IBC TABLE 1004.5	1 OCCUPANT / 150 GROSS SF
SUITE 304	1,000 SF / 150 GROSS SF	7 OCCUP	IBC TABLE 1004.5	1 OCCUPANT / 150 GROSS SF
MEAN OF EGRESS PER OFFICE				
NUMBER OF EXITS	1	2	IBC 1006.2.1	OCCUP LOAD <49
EGRESS DOOR WIDTH	32" CLEAR	32" CLEAR	IBC 1010.1	
COMMON PATH OF EGRESS TRAVEL	100' MAX	17'	IBC TABLE 1006.2.1	
EXIT ACCESS TRAVEL DISTANCE	200' MAX	25'	IBC TABLE 1017.2	
FIRE PROTECTION SYSTEMS				
FIRE ACCESS TO ROOF	N/A	N/A		
STANDPIPES	N/A	N/A		
SPRINKLER SYSTEM	N/A	N/A		
FIRE ALARM	N/A	N/A		
FIRE & SMOKE PROTECTION				
OCCUPANCY SEPARATION				
FIRE RESISTANCE	N/A			
PLUMBING FIXTURE COUNTS PER OFFICE				
WC MALE & FEMALE	1 WC	1 WC	IBC TABLE 2902.1	IBC 2902.2.4

**LIFE SAFETY PLAN LEGEND**



**1 LIFE SAFETY PLAN - BLDG 3**  
 SCALE: 3/16" = 1'-0"

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201 N. HEATHERWILDE BLVD.  
 PFLUGERVILLE, TX 78660

PROJECT NO: 17003

REVISIONS:

REV 2 - COP BLDG. REV COMMENTS  
 REV 4 - SITE DEVELOPMENT REV

DRAWN BY: LC  
 REVIEWED BY: SB

CODE SHEET

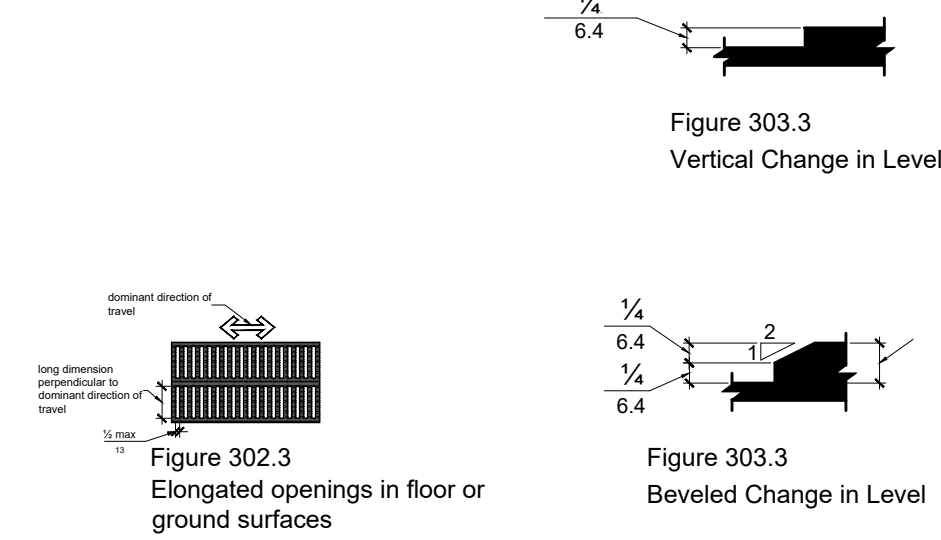
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ACCESSIBILITY STANDARDS

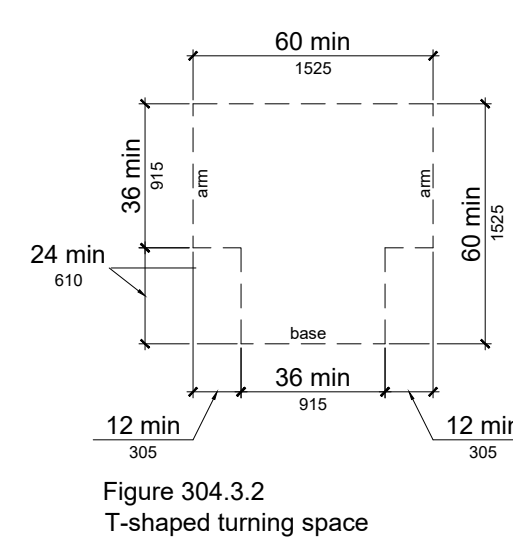
CHAPTER 1 APPLICATION & ADMINISTRATION  
104 CONVENTIONS

Convention	Description
	dimension showing English units (in inches unless otherwise specified) above the line and SI units (in millimeters unless otherwise specified) below the line
	dimension for small measurements
	dimension showing a range with minimum - maximum
	minimum maximum
	greater than less than
	greater than or equal to less than or equal to
	boundary of clear floor space or maneuvering clearance
	centerline
	a permitted element or its extension
	direction of travel or approach
	a wall, floor, ceiling or other element cut in section or plan
	a highlighted element in elevation or plan
	location zone of element, control or feature

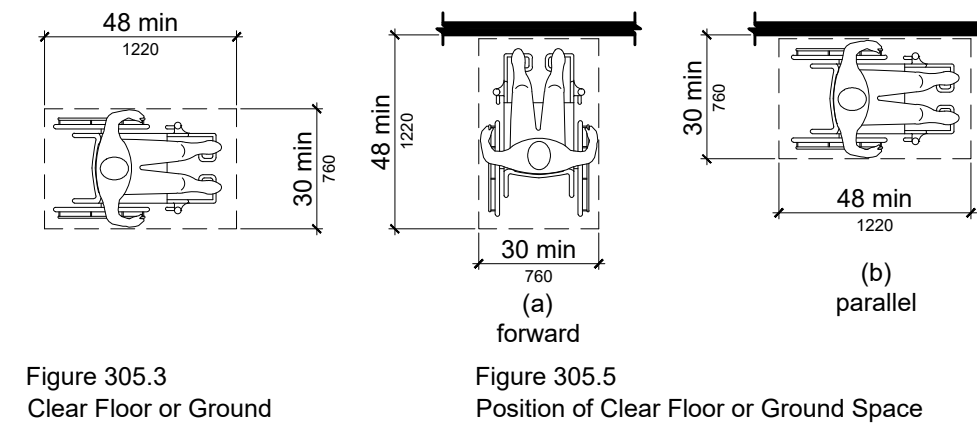
CHAPTER 3 BUILDING BLOCKS  
302 FLOOR OR GROUND SURFACES



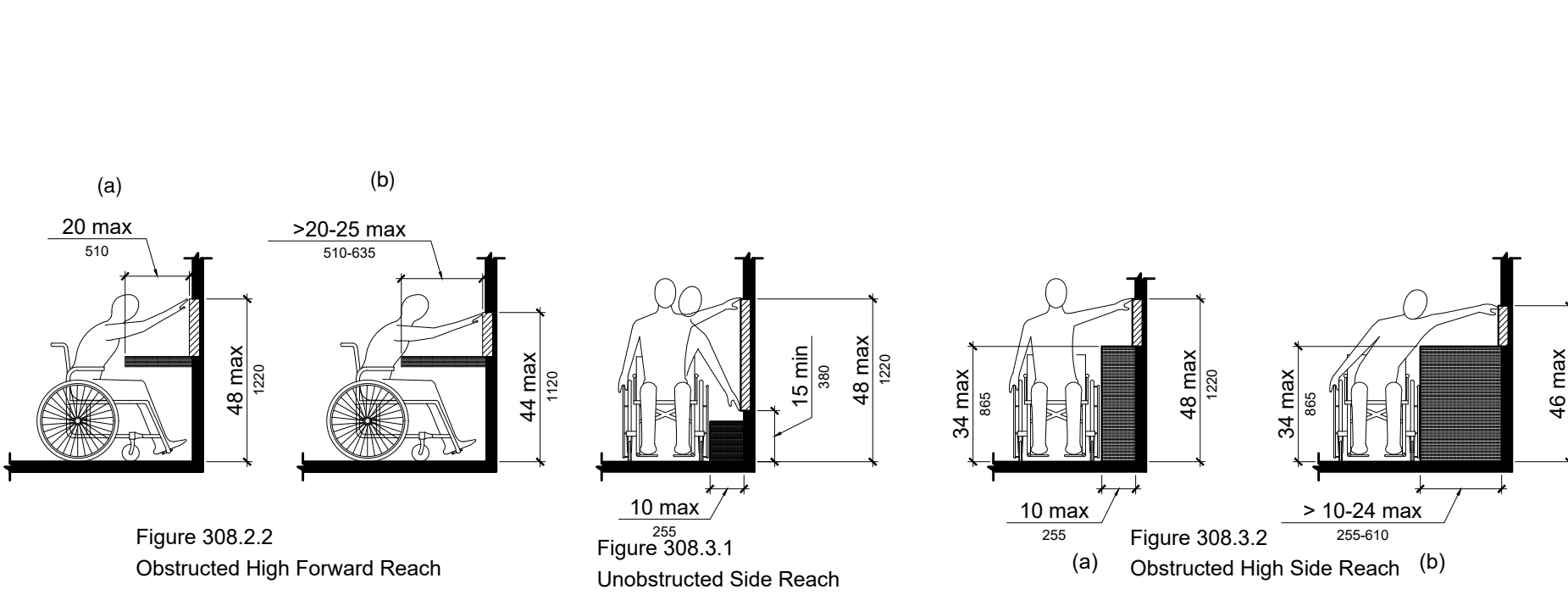
304 TURNING SPACE



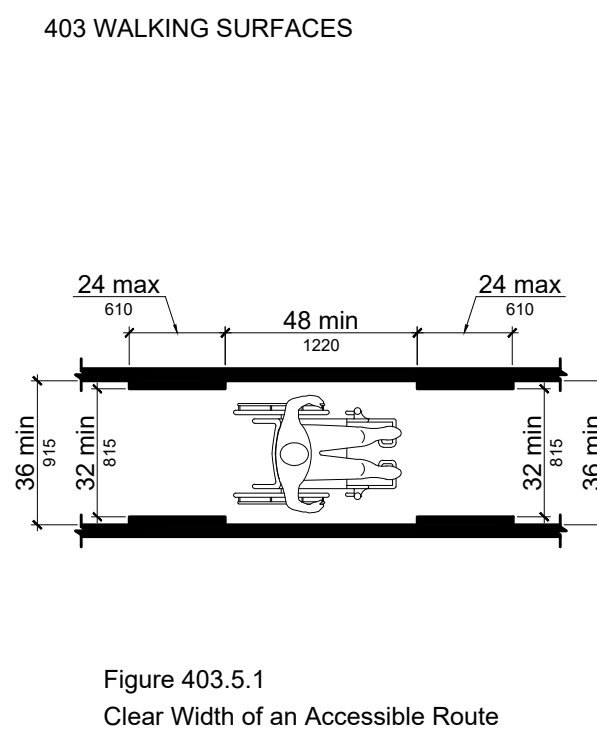
305 CLEAR FLOOR OR GROUND SPACE



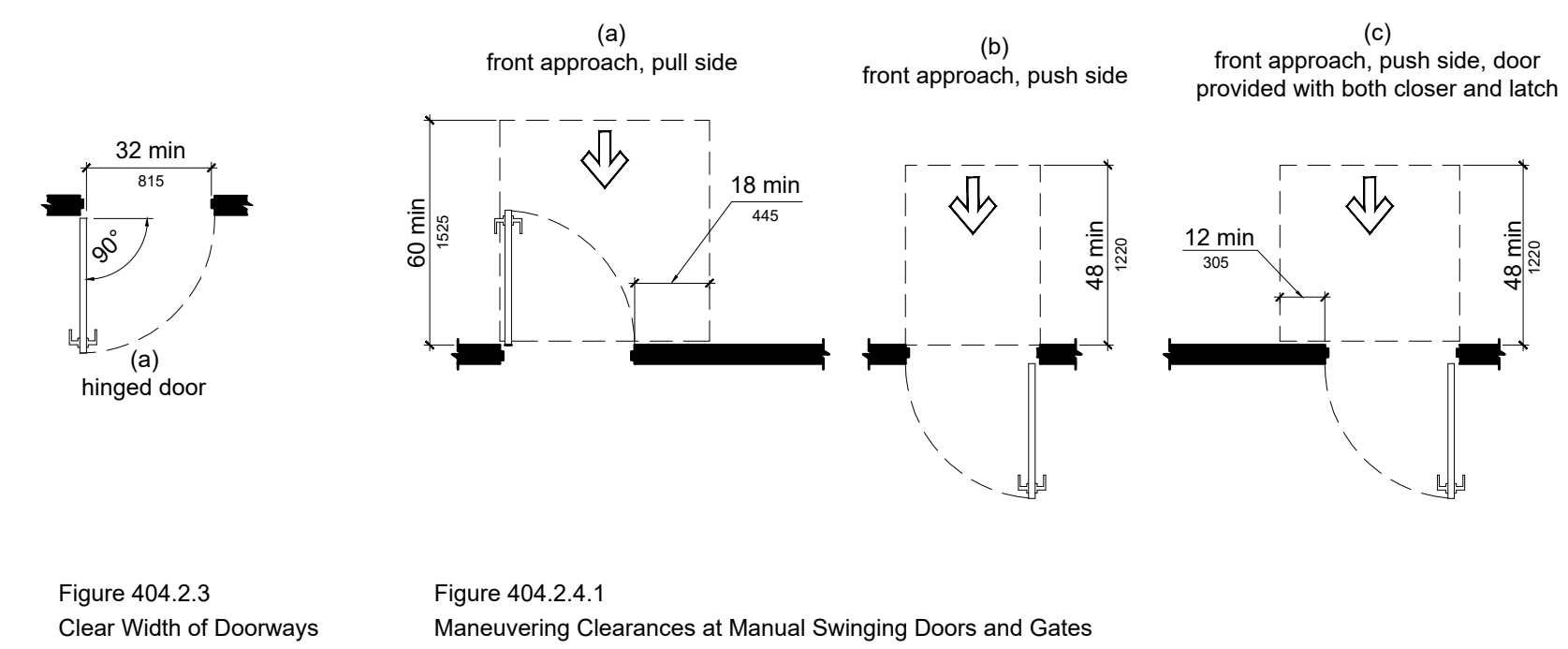
308 REACH RANGES



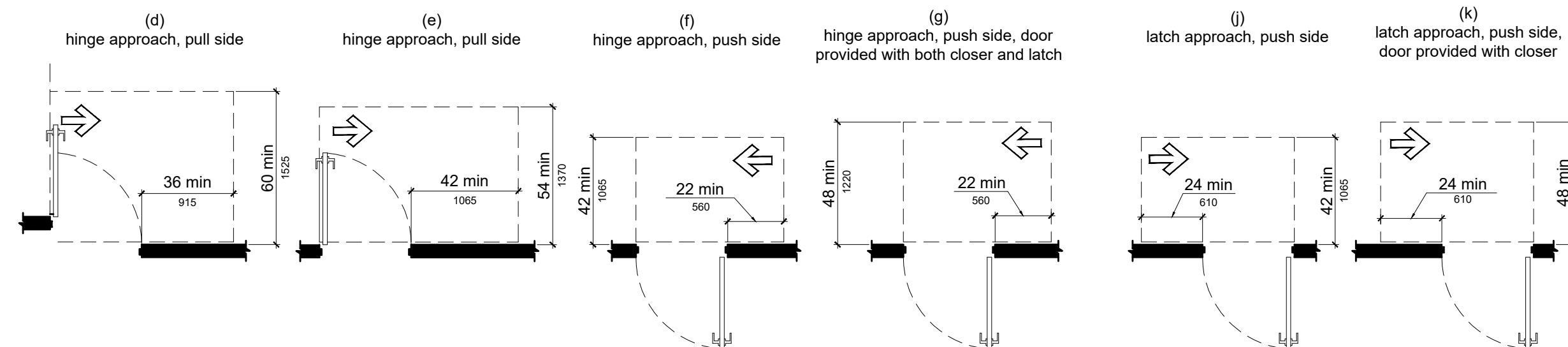
CHAPTER 4 ACCESSIBLE ROUTES  
403 WALKING SURFACES



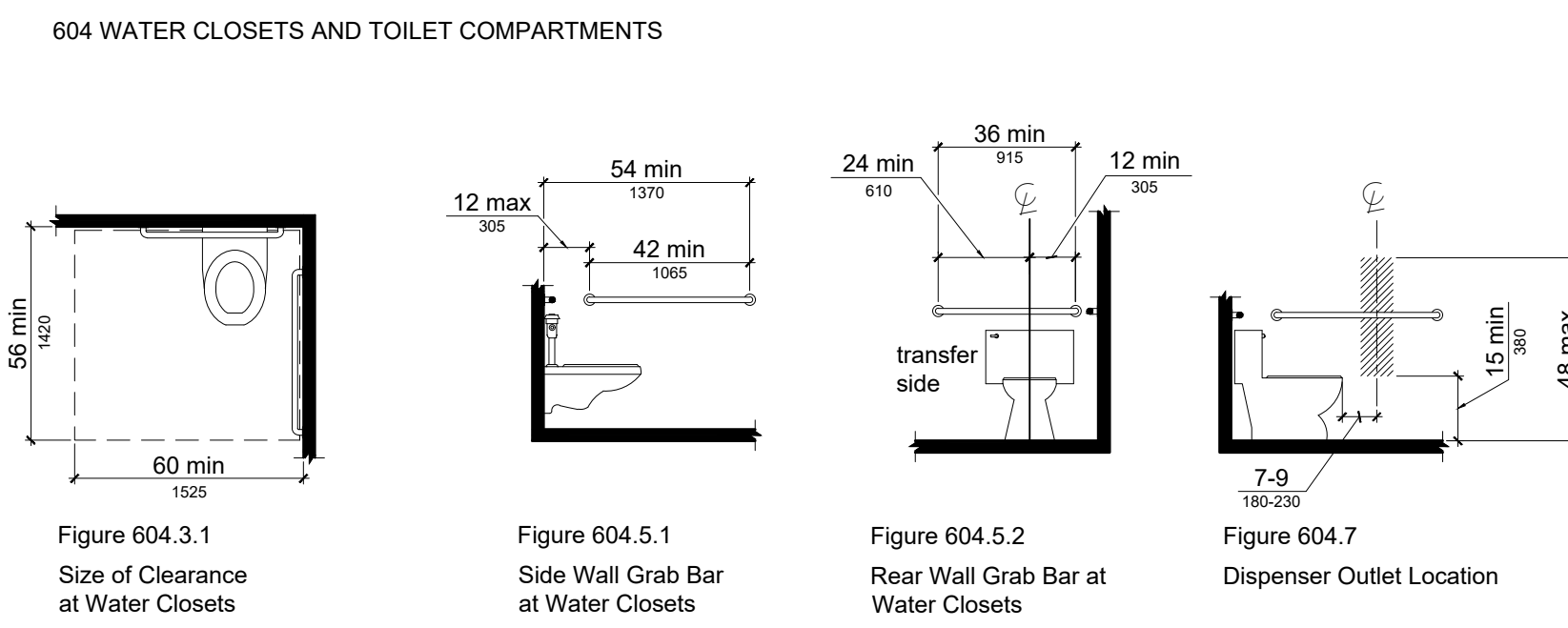
404 DOORS, DOORWAYS, GATES



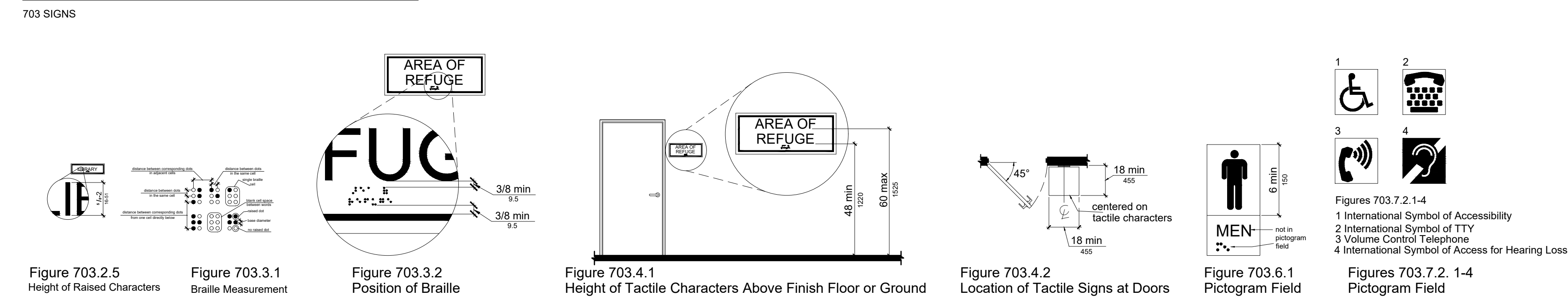
404 DOORS, DOORWAYS, GATES (CONT.)



CHAPTER 6 PLUMBING ELEMENTS AND FACILITIES  
604 WATER CLOSETS AND TOILET COMPARTMENTS



CHAPTER 7 COMMUNICATION ELEMENTS AND FEATURES  
703 SIGNS



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DATE: MAR 15, 2023

**CONSTRUCTION DOCUMENTS**  
**HEATHERWILDE OFFICE CONDOS BLDG 3**

201 N. HEATHERWILDE BLVD.  
PFLUGERVILLE, TX 78660

PROJECT NO: 17003

REVISIONS:

DRAWN BY: LC  
REVIEWED BY: SB

ACCESSIBILITY DETAILS

**A-002**

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SECTION 01 3000 - ADMINISTRATIVE REQUIREMENTS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Submittals for review, information, and project closeout.
B. Submittal procedures.

1.02 RELATED REQUIREMENTS

- A. Section 01 7000 - Execution and Closeout Requirements: Additional coordination requirements.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 SUBMITTALS FOR REVIEW

- A. When the following are specified in individual sections, submit them for review:

- 1. Product data.
2. Shop drawings.
3. Samples for selection.
4. Samples for verification.

- B. Submit to Architect for review for the limited purpose of checking for conformance with information given and the design concept expressed in the contract documents.

- C. Samples will be reviewed only for aesthetic, color, or finish selection.

3.02 SUBMITTALS FOR INFORMATION

- A. When the following are specified in individual sections, submit them for information:

- 1. Design data.
2. Certificates.
3. Test reports.
4. Inspection reports.
5. Manufacturer's instructions.
6. Manufacturer's field reports.

3.03 SUBMITTALS FOR PROJECT CLOSEOUT

- A. When the following are specified in individual sections, submit them at project closeout:

- 1. Operation and maintenance data.
2. Warranties.
3. Other types as indicated.

- B. Submit to Owner's benefit during and after project completion.

3.04 NUMBER OF COPIES OF SUBMITTALS

A. Documents for Review:

- 1. Small Size Sheets, Not Larger Than 8-1/2 x 11 inches : Submit the number of copies that Contractor requires, plus one copy that will be retained by Architect. Electronic submission is encouraged.

- B. Documents for Information: Submit two copies. Electronic submission is encouraged.

- C. Samples: Submit the number specified in individual specification sections; one of which will be retained by Architect.

3.05 SUBMITTAL PROCEDURES

- A. Identify Project, Contractor, Subcontractor or supplier; pertinent drawing and detail number, and specification section number, as appropriate on each copy.

- B. Schedule submittals to expedite the Project, and coordinate submission of related items.

- C. For each submittal for review, allow 15 days excluding delivery time to and from the Contractor.

- D. Identify variations from Contract Documents and Product or system limitations that may be detrimental to successful performance of the completed Work.

- E. When revised for resubmission, identify all changes made since previous submission.

- F. Submittal and technical information may be electronic; coordinate with Architect and Engineer.

END OF SECTION 01 3000

SECTION 01 7000 - EXECUTION AND CLOSEOUT REQUIREMENTS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Examination, preparation, and general installation procedures.
B. Pre-installation meetings.
C. Cutting and patching.
D. Cleaning and protection.
E. Starting of systems and equipment.
F. Closeout procedures, except payment procedures.
G. General requirements for maintenance service.

1.02 RELATED REQUIREMENTS

- A. Section 01 3000 - Administrative Requirements: Submittals procedures.

- B. Section 01 7800 - Closeout Submittals: Project record documents, operation and maintenance data, warranties and bonds.

- C. Section 07 8400 - Firestopping.

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

- B. Section 01 7800 - Closeout Submittals: Project record documents, operation and maintenance data, warranties and bonds.

- C. Section 07 8400 - Firestopping.

1.03 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

1.04 PROJECT CONDITIONS

- A. Grade site to drain. Maintain excavations free of water. Provide, operate, and maintain pumping equipment.

- B. Protect site from puddling or running water. Provide water barriers as required to protect site from soil erosion.

- C. Ventilate enclosed areas to assist cure of materials, to dissipate humidity, and to prevent accumulation of dust, fumes, vapors, or gases to prevent contamination of soil, water, and atmosphere from discharge of noxious, toxic substances, and pollutants produced by construction operations. Comply with federal, state, and local regulations.

1.05 COORDINATION

- A. Coordinate scheduling, submittals, and work of the various sections of these Specification to ensure efficient and orderly sequence of installation of interdependent construction elements.

- B. Notify affected utility companies and comply with their requirements.

- C. Verify that utility requirements and characteristics of new operating equipment are compatible with building utilities. Coordinate work of various sections having interdependent responsibilities for installing, connecting to, and placing in service, such equipment.

- D. Coordinate space requirements, supports, and installation of mechanical and electrical work that are indicated diagrammatically on Drawings and outlined in specifications on individual Drawings. Follow routing shown for pipes, ducts, and conduit, as closely as practicable; place runs parallel with lines of building. Utilize spaces efficiently to maximize accessibility for other installations, for maintenance, and for repairs.

- E. In finished areas except as otherwise indicated, conceal pipes, ducts, and wiring within the construction. Coordinate locations of fixtures and outlets with finish elements.

F. Coordinate completion and clean-up of work of separate sections.

- G. After Owner occupancy of premises, coordinate access to site for correction of defective work and work not in accordance with Contract Documents, to minimize disruption of Owner's activities.

PART 2 EXECUTION

2.01 EXAMINATION

- A. Verify that existing site conditions and substrate surfaces are acceptable for subsequent work. Start of work means acceptance of existing conditions.

- B. Verify that existing substrate is capable of structural support or attachment of new work being applied or attached.

- C. Examine and verify specific conditions described in individual specification sections.

- D. Take field measurements before confirming product orders or beginning fabrication, to minimize waste due to over-ordering or mis-fabrication.

- E. Verify that utility services are available, of the correct characteristics, and in the correct locations.

2.02 PREPARATION

- A. Clean substrate surfaces prior to applying next material or substance.

- B. Seal cracks or openings of substrate prior to applying next material or substance.

- C. Apply manufacturer required or recommended substrate primer, sealer, or conditioner prior to applying any new material or substance in contact or bond.

2.03 PRE-INSTALLATION MEETINGS

- A. When required in individual specification sections or at request of Architect/Engineer, convene a pre-installation meeting at the site prior to commencing work of the section.

- B. Require attendance of parties directly affecting, or affected by, work of the specific section.

2.04 GENERAL INSTALLATION REQUIREMENTS

- A. Install products as specified in individual sections, in accordance with manufacturer's instructions and recommendations, and so as to avoid waste due to necessity for replacement.

- B. Make vertical elements plumb and horizontal elements level, unless otherwise indicated.

- C. Install equipment and fittings plumb and level, neatly aligned with adjacent vertical and horizontal lines, unless otherwise indicated.

- D. Make consistent texture on surfaces, with seamless transitions, unless otherwise indicated.

- E. Make neat transitions between different surfaces, maintaining texture and appearance.

2.05 CUTTING AND PATCHING

- A. Whenever possible, execute the work by methods that avoid cutting or patching.

- B. Perform whatever cutting and patching is necessary to:
1. Complete the work.
2. Fit products together to integrate with other work.

- 3. Provide openings for penetration of mechanical, electrical, and other services.

- 4. Match work that has been cut to adjacent work.

- 5. Repair areas adjacent to cuts to required condition.

- 6. Repair new work damaged by subsequent work.

- 7. Remove samples of installed work for testing when requested.

- 8. Remove and replace defective and non-conforming work.

- C. Execute work by methods that avoid damage to other work and that will provide appropriate surfaces to receive patching and finishing.

- D. Employ skilled and experienced installer to perform cutting for weather exposed and moisture resistant elements, and sight exposed surfaces.

- E. Cut rigid materials using masonry saw or core drill. Pneumatic tools not allowed without prior approval.

- F. Restore work with new products in accordance with requirements of Contract Documents.

- G. Fit work air tight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.

- H. At penetrations of fire rated walls, partitions, ceiling construction, completely seal voids with fire rated material in accordance with Section 07 8400, to full thickness of the penetrated element.

- I. Patching:
1. Finish patched surfaces to match finish that existed prior to patching. On continuous surfaces, refinish to nearest intersection or natural break. For an assembly, refinish entire unit.

- 2. Match color, texture, and appearance.

- 3. Repair patched surfaces that are damaged, lifted, discolored, or showing other imperfections due to patching work. If defects are due to condition of substrate, repair substrate prior to repairing finish.

2.06 PROGRESS CLEANING

- A. Maintain areas free of waste materials, debris, and rubbish. Maintain site in a clean and orderly condition.

- B. Remove debris and rubbish from pipe chases, plenums, attics and other closed or remote spaces, prior to enclosing the space.

- C. Broom and vacuum clean interior areas prior to start of surface finishing, and continue cleaning to eliminate dust.

- D. Collect and remove waste materials, debris, and trash/rubbish from site periodically and dispose off-site; do not burn or bury.

2.07 PROTECTION OF INSTALLED WORK

- A. Protect installed work from damage by construction operations.

- B. Provide special protection where specified in individual specification sections.

- C. Provide temporary and removable protection for installed products. Control activity in immediate work area to prevent damage.

- D. Provide protective coverings at walls, projections, jams, sills, and soffits of openings.

- E. Protect finished floors and other surfaces from traffic, dirt, wear, damage, or movement of heavy objects, by protecting with durable sheet materials.

- F. Prohibit traffic or storage upon waterproofed or roofed surfaces and floor coatings and toppings. If traffic or activity is necessary, obtain recommendations for protection from waterproofing, roofing, topping and coating material manufacturer.

- G. Remove protective coverings when no longer needed; reuse or recycle plastic coverings if possible.

2.08 SYSTEM STARTUP

- A. Coordinate schedule for start-up of various equipment and systems.

- B. Verify that each piece of equipment or system has been checked for proper lubrication, drive rotation, belt tension, control sequence, and for conditions that may cause damage.

- C. Verify tests, meter readings, and specified electrical characteristics agree with those required by the equipment or system manufacturer.

- D. Verify that wiring and support components for equipment are complete and tested.

- E. Execute start-up under supervision of applicable Contractor personnel in accordance with manufacturers' instructions.

- F. Submit a written report that equipment or system has been properly installed and is functioning correctly.

2.09 ADJUSTING

- A. Adjust operating products and equipment to ensure smooth and unhindered operation.

2.10 FINAL CLEANING

- A. Use cleaning materials that are nonhazardous.

- B. Clean interior and exterior glass, surfaces exposed to view; remove temporary labels, stains and foreign substances, polish transparent and glossy surfaces.

- C. Remove all labels that are not permanent. Do not paint or otherwise cover fire test labels or nameplates on mechanical and electrical equipment.

- D. Clean equipment and fixtures to a sanitary condition with cleaning materials appropriate to the surface and material being cleaned.

- E. Replace filters of operating equipment.

- F. Clean debris from roofs, gutters, downspouts, floor trenches and drainage systems.

- G. Clean site; sweep existing and new paved areas, rake clean new and existing landscaped surfaces.

- H. Remove waste, surplus materials, trash/rubbish, and construction facilities from the site; dispose of in legal manner; do not burn or bury.

2.11 CLOSEOUT PROCEDURES

- A. Make submittals that are required by governing or other authorities.
1. Provide copies to Owner.

- B. Notify Architect /Engineer when work is considered ready for Substantial Completion.

- C. Correct items of work listed in executed Certificates of Substantial Completion and comply with requirements for access to Owner-occupied areas.

- D. Notify Architect /Engineer when work is considered finally complete.

- E. Complete items of work determined by Architect/Engineer's final inspection.

END OF SECTION 01 7000

SECTION 01 7800

CLOSEOUT SUBMITTALS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Project Record Documents.
B. Operation and Maintenance Data.
C. Warranties and bonds.

1.02 RELATED REQUIREMENTS

- A. Section 01 3000 - Administrative Requirements: Submittals procedures, shop drawings, product data, and samples.

- B. Section 01 7000 - Execution and Closeout Requirements: Contract closeout procedures.

- C. Individual Product Sections: Specific requirements for operation and maintenance data.

- D. Individual Product Sections: Warranties required for specific products or Work.

1.03 SUBMITTALS

A. Operation and Maintenance Data:

- 1. For equipment, or component parts of equipment put into service during construction and operated by Owner, submit completed documents within ten days after acceptance.

B. Warranties and Bonds:

- 1. For equipment or component parts of equipment put into service during construction with Owner's permission, submit documents within 10 days after acceptance.

- 2. Make other submittals within 10 days after Date of Substantial Completion, prior to final Application for Payment.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 OPERATION AND MAINTENANCE DATA

- A. For Each Product or System: List names, addresses and telephone numbers of Subcontractors and suppliers, including local source of supplies and replacement parts.

- B. Product Data: Mark each sheet to clearly identify specific products and component parts, and data applicable to installation. Delete inapplicable information.

- C. Drawings: Supplement product data to illustrate relations of component parts of equipment and systems, to show control and flow diagrams. Do not use Project Record Documents as maintenance drawings.

- D. Typed Text: As required to supplement product data. Provide logical sequence of instructions for each procedure, incorporating manufacturer's instructions.

- 3.02 WARRANTIES AND BONDS

- A. Obtain warranties and bonds, executed in duplicate by responsible Subcontractors, suppliers, and manufacturers, within 10 days after completion of the applicable item of work. Except for items put into use with Owner's permission, leave date of beginning of time of warranty until the Date of Substantial completion is determined.

- B. Verify that documents are in proper form, contain full information, and are notarized. C. Co-execute submittals when required.

- D. Retain warranties and bonds until time specified for submittal.

- D. Retain warranties and bonds until time specified for submittal.

- D. Retain warranties and bonds until time specified for submittal.

END OF SECTION 01 7800

SECTION 03 3000 - CAST-IN-PLACE CONCRETE

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Concrete formwork.
B. Floors and slabs on grade.
C. Concrete reinforcement.
D. Concrete curing.
E. See Structural Drawings Sxxx for additional specifications.

1.02 REFERENCE STANDARDS

- A. ACI 117 - Standard Specifications for Tolerances for Concrete Construction and Materials; American Concrete Institute International; Current Date..

- B. ACI 211.1 - Standard Practice for Selecting Proportions for Normal, Heavyweight, and Mass Concrete; American Concrete Institute International; Current Date.

- C. ACI 301 - Specifications for Structural Concrete for Building; American Concrete Institute International; Current Date.

- D. ACI 302.1R - Guide for Concrete Floor and Slab Construction; American Concrete Institute International; Current Date.

- E. ACI 304R - Guide for Measuring, Mixing, Transporting, and Placing Concrete; American Concrete Institute International; Current Date.

- F. ACI 305R - Hot Weather Concreting; American Concrete Institute International; Current Date.

- G. ACI 308R - Guide to Curing Concrete; American Concrete Institute International; Current Date.

- H. ACI 318 - Building Code Requirements for Structural Concrete and Commentary; American Concrete Institute International; Current Date.

- I. ACI 347 - Guide to Formwork for Concrete; American Concrete Institute International; Current Date.

- J. ASTM A185/A185M - Standard Specification for Steel Weld Wire Reinforcement, Plain, for Concrete; Current Date.

- K. ASTM A615/A615M - Standard Specification for Deformed and Plain Billet-Steel Bars for Concrete Reinforcement; Current Date

- L. ASTM C33 - Standard Specification for Concrete Aggregate; Current Date.

- M. ASTM C39/C39M - Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens; Current Date.

- N. ASTM C94/C94M - Standard Specification for Ready-Mixed Concrete; Current Date.

- O. ASTM C150 - Standard Specification for Portland Cement; Current Date.

- 1.03 SUBMITTALS
A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

- B. Samples: Submit samples of under slab vapor retarder to be used to Owner.

1.04 QUALITY ASSURANCE

- A. Perform work of this section in accordance with ACI 301 and ACI 318.

- B. Follow recommendations of ACI 305R when concreting during hot weather.

PART 2 PRODUCTS

2.01 FORMWORK

- A. Formwork Design and Construction: Comply with guidelines ACI 347 to provide formwork that will produce concrete comply with tolerances of ACI 117.

- B. Form Materials: Contractor's choice of standard products with sufficient strength to withstand hydrostatic head without distortion excess of permitted tolerances.

2.02 REINFORCEMENT

- A. Reinforcing Steel: ASTM A615/A615M Grade 60 (420).
1. Type: Deformed billet-steel bars.

- B. Steel Welded Wire Reinforcement: ASTM A 185/A 185M, plain.

- C. Reinforcement Accessories:
1. Chairs, Bolsters, Bar Supports, Spacers: Sized and shaped for adequate support of reinforcement during concrete placement.

- D. See notes and specifications on Structural Drawing Sheets.

2.03 CONCRETE MATERIALS

- A. Cement: ASTM C150, Type I - Normal Portland type.

- B. Fine and Coarse Aggregates: ASTM C 33.

- C. Water: Clean and not detrimental to concrete.

- D. See notes and specifications on Structural Drawing Sheets.

2.04 ACCESSORY MATERIALS

- A. Under slab Vapor Retarder: Multi-layer, fabric-, cord-, grid-, or aluminum-reinforced polyethylene or equivalent, complying with ASTM E1745, Class A; stated by manufacturer as suitable for intended use.



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stallation in contact with soil or granular fill under concrete slabs. The use of single ply polyethylene is prohibited.

1. Accessory Products: Vapor retarder manufacturer's recommended tape, adhesive, mastic, prefabricated boots, etc., for sealing seams and penetrations in vapor retarder.

2. Products:

- a. Stego Industries, LLC; Stego Wrap Vapor Barrier 15-mil (Class A); www.stegoindustries.com.

2.05 CURING MATERIALS

A. Evaporation Reducer: Liquid thin-film-forming compound that reduces rapid moisture loss caused by high temperature, low humidity, and high winds; intended for application immediately after concrete placement.

B. Moisture-Retaining Sheet: ASTM C171.

1. Polyethylene film, clear, minimum nominal thickness of 0.0040 in.

C. Water: Potable, not detrimental to concrete.

2.06 CONCRETE MIX DESIGN

A. Proportioning Normal Weight Concrete: Comply with ACI 211.1 recommendations.

B. Normal Weight Concrete:

1. Compressive Strength, when tested in accordance with ASTM C39/C39M at 28 days: 3,000 pounds per square inch.
2. Maximum Slump: see Specifications and Notes on Structural Drawings.
3. Maximum Aggregate Size: see Specifications and Notes on Structural Drawings.

2.07 MIXING

A. Transit Mixers: Comply with ACI 318.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify lines, levels, and dimensions before proceeding with work of this section.

3.02 PREPARATION

A. Formwork: Comply with requirements of ACI 301. Design and fabricate forms to support all applied loads until concrete is cured, and for easy removal without damage to concrete.

B. Coordinate placement of embedded items with erection of concrete formwork and placement of form accessories.

C. Interior Slabs on Grade: Install vapor retarder under interior slabs on grade. Lap joints minimum 6-inches. Seal joints, seams and penetrations watertight with manufacturer's recommended products and follow manufacturer's written instructions. Repair damaged vapor retarder before covering.

3.03 INSTALLING REINFORCEMENT AND OTHER EMBEDDED ITEMS

A. Comply with requirements of ACI 301. Clean reinforcement of loose rust and mill scale, and accurately position, support, and secure in place to achieve not less than minimum concrete coverage required for protection.

B. Install welded wire reinforcement in maximum possible lengths, and offset end laps in both directions. Splice laps with tie wire.

3.04 PLACING CONCRETE

A. Place concrete in accordance with ACI 304R.

B. Place concrete for floor slabs in accordance with ACI 302.1R.

C. Repair under slab vapor retarder damaged during placement of concrete reinforcing. Repair with vapor retarder material; lap over damaged areas a minimum 6-inches and seal watertight.

D. Finish floors level and flat, unless otherwise indicated, within the tolerances specified below.

3.05 CONCRETE FINISHING

A. Concrete Slabs: Finish to requirements of ACI 302.1R, and as follows:

1. Decorative Exposed Surfaces: "Steel trowel" as described in ACI 302.1R; use steel-reinforced plastic trowel blades instead of steel blades to avoid black-burnish marks; decorative exposed surfaces include surfaces to be polished.

a. General Contractor to coordinate trades for concrete pour and finishing prior to start of work.

3.06 CURING AND PROTECTION

A. Comply with requirements of ACI 308R. Immediately after placement, protect concrete from premature drying, excessively hot or cold temperatures, and mechanical injury.

B. Maintain concrete with minimal moisture loss at relatively constant temperature for period necessary for hydration of cement and hardening of concrete.

3.07 FIELD QUALITY CONTROL

A. An independent testing agency will perform field quality control tests.

B. Provide free access to concrete operations at project site and cooperate with appointed firm.

3.08 DEFECTIVE CONCRETE

A. Test Results: The testing agency shall report test results in writing to Architect/Engineer and Contractor within 24 hours of test.

3.09 PROTECTION

A. Do not permit traffic over unprotected concrete floor surface until fully cured.

END OF SECTION 03 3000

SECTION 03 3511 - CONCRETE FLOOR FINISHES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Surface treatments for concrete floors and slabs.

1.02 ADMINISTRATIVE REQUIREMENTS

A. Coordinate the work with concrete floor placement and concrete floor curing.

1.03 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Product Data: Manufacturer's published data on each finishing product, including information on compatibility of different products and limitations.

C. Maintenance Data: Provide data on maintenance and renewal of applied finishes.

1.04 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials in manufacturer's sealed packaging, including application instructions.

1.05 FIELD CONDITIONS

A. Maintain light level equivalent to a minimum 200 W light source at 8 feet above the floor surface over each 20 foot square area of floor being finished.

C. Maintain ambient temperature of 50 degrees F minimum.

PART 2 PRODUCTS

2.01 POLISHED CONCRETE SYSTEM

A. Polished Concrete System: Materials, equipment, and procedures designed and furnished by a single manufacturer to produce dense polished concrete of the specified sheen.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that floor surfaces are acceptable to receive the work of this section.

B. Verify that flaws in concrete have been patched and joints filled with methods and materials suitable for further finishes.

3.02 GENERAL

A. Apply materials in accordance with manufacturer's instructions.

3.03 CONCRETE POLISHING

A. Execute using materials, equipment, and procedures specified by manufacturer, using manufacturer approved installer.

1. Final Polished Sheen: Semigloss finish; other sheens are included as comparison to illustrate required sheen; final sheen is before addition of any sealer or coating, regardless of whether that is also specified or not.

2. Satin Finish: Reflecting images from side lighting.

B. Protect finished surface as required and recommended by manufacturer of polishing system.

END OF SECTION 03 3511

SECTION 04 0511 - MASONRY MORTARING AND GROUTING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Mortar for masonry.

B. Grout for masonry.

1.02 RELATED REQUIREMENTS

A. Section 04 4301 - Stone Masonry Veneer: Installation of mortar.

1.03 REFERENCE STANDARDS

A. ACI 530/530.1/ERT A - Building Code Requirements and Specification for Masonry Structures; American Concrete Institute International; 2009.

B. ASTM C91 - Standard Specification for Masonry Cement; 2005.

C. ASTM C94/C94M - Standard Specification for Ready-Mixed Concrete; 2011.

D. ASTM C270 - Standard Specification for Mortar for Unit Masonry; 2010.

E. ASTM C476 - Standard Specification for Grout for Masonry; 2010.

1.04 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Product Data: Include design mix and indicate whether the Proportion or Property specification of ASTM C270 is to be used. Also include required environmental conditions and admixture limitations.

C. Samples: Submit two samples of mortar, illustrating mortar color and color range.

1.05 QUALITY ASSURANCE

A. Comply with provisions of ACI 530/530.1/ERT A, except where exceeded by requirements of the contract documents.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Maintain packaged materials clean, dry, and protected against dampness, freezing, and foreign matter.

1.07 FIELD CONDITIONS

A. Cold and Hot Weather Requirements: Comply with requirements of ACI 530/530.1/ERT A or applicable building code, whichever is more stringent.

PART 2 PRODUCTS

2.01 MATERIALS

A. Masonry Cement: ASTM C91.

1. Type: as indicated by stone masonry veneer manufacturer.

B. Water: Clean and potable.

2.02 MORTAR MIXING

A. Thoroughly mix mortar ingredients in accordance with ASTM C270 and in quantities needed for immediate use.

B. Maintain sand uniformly damp immediately before the mixing process.

C. Do not use anti-freeze compounds to lower the freezing point of mortar.

D. If water is lost by evaporation, re-temper only within two hours of mixing.

2.03 GROUT MIXING

A. Mix grout in accordance with ASTM C94/C94M.

B. Thoroughly mix grout ingredients in quantities needed for immediate use in accordance with ASTM C476 for fine and coarse grout.

PART 3 EXECUTION

3.01 INSTALLATION

A. Install mortar and grout to requirements of section(s) in which masonry is specified.

3.02 GROUTING

A. Perform all grouting by means of low-lift technique. Do not employ high-lift grouting.

B. Low-Lift Grouting:

1. Limit height of pours to 16 inches (400 mm).

2. Limit height of masonry to 16 inches (400 mm) above each pour.

3. Pour grout only after vertical reinforcing is in place; place horizontal reinforcing as grout is poured. Prevent displacement of bars as grout is poured.

4. Place grout for each pour continuously and consolidate immediately; do not interrupt pours for more than 1-1/2 hours.

END OF SECTION 04 0511

SECTION 04 4301 - STONE MASONRY VENEER

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Field stone veneer at exterior walls.

B. Metal anchors and accessories.

C. Setting mortar and pointing mortar.

1.02 RELATED REQUIREMENTS

A. Section 04 0511 - Masonry Mortaring and Grouting: Setting and pointing mortar.

1.03 REFERENCE STANDARDS

A. ACI 530/530.1/ERT A - Building Code Requirements and Specification for Masonry Structures; American Concrete Institute International; 2009.

B. ASTM A123/A123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products; 2009.

C. ASTM C270 - Standard Specification for Mortar for Unit Masonry; 2010.

D. ASTM C568 - Standard Specification for Limestone Dimension Stone; 2010.

1.04 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Samples: Submit two stone samples illustrating minimum and maximum stone sizes, color range, texture, and markings.

C. Samples: Submit mortar color samples.

1.05 QUALITY ASSURANCE

A. Stone Fabricator Qualifications: Company specializing in fabricating cut stone with minimum ten years of experience.

B. Installer Qualifications: Company specializing in performing work of the type required by this section, with minimum 3 years of experience.

1.06 MOCK-UP

A. Construct stone wall mock-up, 4 feet long by 6 feet wide; include stone anchor accessories, corner condition, and typical control joint in mock-up.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Protect stone from discoloration during storage on site.

PART 2 PRODUCTS

2.01 STONE

A. Limestone: Selected by Contractor; complying with ASTM C568 Classification I - Low Density.

2.02 MORTAR

A. Setting Mortar: ASTM C270, Type S, using the Proportion Method as specified in

Section 04 0511.

B. Pointing Mortar: Type N as specified in Section 04 0511, and using the Property Method in ASTM C270.

2.03 ACCESSORIES

A. Wall Ties: Formed steel wire, 3/16" gage diameter, hot dip galvanized per ASTM A123/A123M, eye and pintle type, with provision for vertical adjustment after attachment.

B. Weep/Cavity Vents: Polyethylene tubing.

C. Cleaning Solution: Type that will not harm stone, joint materials, or adjacent surfaces.

2.04 STONE FABRICATION

A. Nominal Thickness: 4 inch.

B. Pattern and Coursing: random ashlar.

C. Slope exposed top surfaces of stone and horizontal sill surfaces for shedding water.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that support work and site conditions are ready to receive work of this section.

3.02 PREPARATION

A. Establish lines, levels, and coursing. Protect from disturbance.

3.03 INSTALLATION

A. Size stone units to fit opening dimensions and perimeter conditions.

B. Arrange stone pattern to provide color uniformity and minimize visual variations, and provide a uniform blend of stone unit sizes.

C. Arrange stone coursing in ashlar bond with consistent joint width.

D. Set stone in full mortar setting bed to fully support stone over

bearing surface. Use setting buttons or shims to maintain correct joint width.

E. Install weep/cavity vents in vertical stone joints at 36 inches or center horizontally; immediately above horizontal flashings, above shelf angles and supports, and at top of each cavity space; do not permit mortar accumulation in cavity space.

3.04 REINFORCEMENT AND ANCHORAGE

A. Attach wall ties to back-up to bond veneer to back-up at minimum of one for every 2-2/3 sq ft.

B. In addition, place wall ties at maximum 3 inches (75 mm) on center each way around perimeter of openings, within 12 inches (300 mm) of openings.

3.05 JOINTS

A. Leave the following joints open for sealant:

1. Head joints in top courses, including copings, parapets, cornices, sills, and steps.

2. Joints in projecting units.

3. Joints between rigidly anchored units, including soffits, panels, and column covers.

4. Joints below lugged sills and stair treads.

5. Joints below ledge and relieving angles.

6. Joints labeled "expansion joint".

B. Rake out mortar joints 5/8 to 3/4 inch (16 to 19 mm) and brush joints clean to accommodate pointing mortar. Fill joints with pointing mortar.

C. Pack mortar into joints and work into voids. Neatly tool surface to concave joint.

D. At joints to be sealed, clean mortar out of joint before it sets. Brush joints clean.

3.06 CLEANING

A. Remove excess mortar as work progresses, and upon completion of work.

B. Clean soiled surfaces with cleaning solution.

C. Use non-metallic tools in cleaning operations.

3.07 PROTECTION

A. During temporary storage on site, at the end of working day, and during rainy weather, cover stone work exposed to weather with non-staining waterproof coverings, securely anchored.

END OF SECTION 04 4301



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REGISTERED ARCHITECT  
L. HEATHER WILDE  
18068  
STATE OF TEXAS

DATE: FEB 10, 2022

CONSTRUCTION DOCUMENTS

HEATHER WILDE OFFICE

CONDOS BLDG 3

201 N. HEATHER WILDE BLVD.

PFLUGERVILLE, TX 78660

PROJECT NO: 17003

REVISIONS:

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DRAWN BY: LC

REVIEWED BY: SB

SPECS

A-011

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SECTION 05 5000 - METAL FABRICATIONS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Shop fabricated steel items.

1.02 RELATED REQUIREMENTS

- A. Section 03 3000 - Cast-in-Place Concrete: Placement of metal fabrications in concrete.
B. Section 09 9000 - Painting and Coating: Paint finish.

1.03 REFERENCE STANDARDS

- A. ASTM A53/A53M - Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless; Current Date.
B. SSPC-Paint 15 - Steel Joist Shop Primer; Society for Protective Coatings; Current Date.

1.04 QUALITY ASSURANCE

- A. Designed under direct supervision of a Professional Structural Engineer experienced in design of this Work and licensed in the State in which the Project is located.

PART 2 PRODUCTS

2.01 MATERIALS - STEEL

- A. Pipe: ASTM A53/A53M, Grade B Schedule 40, black finish.
B. Shop and Touch-Up Primer: SSPC-Paint 15, complying with VOC limitations of authorities having jurisdiction.

2.02 FABRICATED ITEMS

- A. Bollards: Steel pipe, concrete filled, crowned cap, as detailed; prime paint finish.

2.03 FINISHES - STEEL

- A. Clean surfaces of rust, scale, grease, and foreign matter prior to finishing.
B. Prime Painting: One coat.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that field conditions are acceptable and are ready to receive work.

3.02 PREPARATION

- A. Supply setting templates to the appropriate entities for steel items required to be cast into concrete or embedded in masonry.

3.03 INSTALLATION

- A. Install items plumb and level, accurately fitted, free from distortion or defects.
B. Provide for erection loads, and for sufficient temporary bracing to maintain true alignment until completion of erection and installation of permanent attachments.
C. Obtain approval prior to site cutting or making adjustments not scheduled.

END OF SECTION 05 5000

SECTION 05 5213 - PIPE AND TUBE RAILINGS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:

- 1. Steel pipe and tube railings.

1.2 COORDINATION

- A. Coordinate selection of shop primers with topcoats to be applied over them. Comply with paint and coating manufacturers' written recommendations to ensure that shop primers and topcoats are compatible with one another.

- B. Coordinate installation of anchorages for railings. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete. Deliver such items to Project site in time for installation.

- C. Schedule installation so wall attachments are made only to completed walls. Do not support railings temporarily by any means that do not satisfy structural performance requirements.

1.3 ACTION SUBMITTALS

- A. Product Data: For the following:

- 1. Manufacturer's product lines of mechanically connected railings.
2. Railing brackets.
3. Grout, anchoring cement, and paint products.

- B. Shop Drawings: Include plans, elevations, sections, details, and attachments to other work.

- C. Samples: For each type of exposed finish required.

- 1. Sections of each distinctly different linear railing member, including handrails, top rails, posts, and balusters, including finish.

- 2. Fittings and brackets.

1.4 FIELD CONDITIONS

- A. Field Measurements: Verify actual locations of walls and other construction contiguous with metal fabrications by field measurements before fabrication.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Steel Pipe and Tube Railings:

- 1. Leading Edge Safety, LLC
2. Substitution - subject to approval

2.2 PERFORMANCE REQUIREMENTS

- A. Structural Performance: Railings, including attachment to building construction, shall withstand the effects of gravity loads and the following loads and stresses within limits and under conditions indicated:

- 1. Handrails and Top Rails of Guards:
a. Uniform load of 50 lbf/ft. applied in any direction.
b. Concentrated load of 200 lbf applied in any direction.
c. Uniform and concentrated loads need not be assumed to act concurrently.

- 2. Infill of Guards:
a. Concentrated load of 50 lbf applied horizontally on an area of 1 sq. ft.
b. Infill load and other loads need not be assumed to act concurrently.

2.3 METALS, GENERAL

- A. Metal Surfaces, General: Provide materials with smooth surfaces, without seam marks, roller marks, rolled trade names, stains, discolorations, or blemishes.

- B. Brackets, Flanges, and Anchors: Cast or formed metal of same type of material and finish as supported rails unless otherwise indicated.

- 1. Provide type of bracket with predrilled hole for exposed bolt anchorage and that provides 1-1/2-inch clearance from inside face of handrail to finished wall surface.

2.4 STEEL AND IRON

- A. Tubing: ASTM A 500 (cold formed).

- B. Pipe: ASTM A 53/A 53M, Type F or Type S, Grade A, Standard Weight (Schedule 40), unless another grade and weight are required by structural loads.

- C. Plates, Shapes, and Bars: ASTM A 36/A 36M.

- D. Cast Iron: Either gray iron, ASTM A 48/A 48M, or malleable iron, ASTM A 47/A 47M, unless otherwise indicated.

2.5 FASTENERS

- A. General: Provide the following:

- 1. Hot-Dip Galvanized Railings: Type 304 stainless-steel or hot-dip zinc-coated steel fasteners complying with ASTM A 153/A 153M or ASTM F 2329 for zinc coating.

- B. Fasteners for Anchoring Railings to Other Construction: Select fasteners of type, grade, and class required to produce connections suitable for anchoring railings to other types of construction

indicated and capable of withstanding design loads.

- C. Fasteners for Interconnecting Railing Components:

- 1. Provide concealed fasteners for interconnecting railing components and for attaching them to other work, unless exposed fasteners are unavoidable or are the standard fastening method for railings indicated.
2. Provide Phillips flat-head machine screws for exposed fasteners.
3. Material for Interior Locations: Carbon-steel components zinc-plated to comply with ASTM B 633 or ASTM F 1941, Class Fe/Zn 5, unless otherwise indicated.

2.6 MISCELLANEOUS MATERIALS

- A. Welding Rods and Bare Electrodes: Select according to AWS specifications for metal alloy welded.

- B. Etching Cleaner for Galvanized Metal: Complying with MPI#25.

- C. Galvanizing Repair Paint: High-zinc-dust-content paint complying with SSPC-Paint 20 and compatible with paints specified to be used over it.

- D. Epoxy Zinc-Rich Primer: Complying with MPI#20 and compatible with topcoat.

- E. Epoxy Intermediate Coat: Complying with MPI#77 and compatible with primer and topcoat.

- F. Polyurethane Topcoat: Complying with MPI #72 and compatible with undercoat.

- G. Anchoring Cement: Factory-packaged, nonshrink, nonstaining, hydraulic-controlled expansion cement formulation for mixing with water at Project site to create pourable anchoring, patching, and grouting compound.

- 1. Water-Resistant Product: provide formulation that is resistant to erosion from water exposure without needing protection by a sealer or waterproof coating and that is recommended by manufacturer for exterior use.

2.7 FABRICATION

- A. General: Fabricate railings to comply with requirements indicated for design, dimensions, member sizes and spacing, details, finish, and anchorage, but not less than that required to support structural loads.

- B. Shop assemble railings to greatest extent possible to minimize field splicing and assembly. Disassemble units only as necessary for shipping and handling limitations. Clearly mark units for reassembly and coordinated installation. Use connections that maintain structural value of joined pieces.

- C. Cut, drill, and punch metals cleanly and accurately. Remove burrs and ease edges to a radius of approximately 1/32 inch unless otherwise indicated. Remove sharp or rough areas on exposed surfaces.

- D. Form work true to line and level with accurate angles and surfaces.

- E. Fabricate connections that are exposed to weather in a manner that excludes water. Cut, reinforce, drill, and tap as indicated to receive finish hardware, screws, and similar items.

- F. Connections: Fabricate railings with either welded or non-welded connections unless otherwise indicated.

- G. Welded Connections: Cope components at connections to provide close fit, or use fittings designed for this purpose. Weld all around at connections, including at fittings.

- 1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
2. Obtain fusion without undercut or overlap.
3. Remove flux immediately.

- 4. At exposed connections, finish exposed surfaces smooth and blended so no roughness shows after finishing and welded surface matches contours of adjoining surfaces.

- 5. Fabricate splice joints for field connection using an epoxy structural adhesive if this is manufacturer's standard splicing method.

- H. Close exposed ends of railing members with prefabricated end fittings.

- I. Provide wall returns at ends of wall-mounted handrails unless otherwise indicated. Close ends of returns unless clearance between end of rail and wall is 1/4 inch or less.

- J. Brackets, Flanges, Fittings, and Anchors: Provide wall brackets, flanges, miscellaneous fittings, and anchors to interconnect railing members to other work unless otherwise indicated.

- K. Provide inserts and other anchorage devices for connecting railings to concrete or masonry work. Fabricate anchorage devices capable of withstanding loads imposed by railings. Coordinate anchorage devices with supporting structure.

- L. For removable railing posts, fabricate slip-fit sockets from steel tube or pipe whose ID is sized for a close fit with posts; limit movement of post without lateral load, measured at top, to not more than one-fortieth of post height. Provide socket covers designed and fabricated to resist being dislodged.

- 1. Provide chain with eye, snap hook, and staple across gaps formed by removable railing sections at locations indicated. Fabricate from same metal as railings.

- M. Toe Boards: Where indicated, provide toe boards at railings around openings and at edge of open-sided floors and platforms. Fabricate to dimensions and details indicated.

2.8 STEEL AND IRON FINISHES

- A. Galvanized Railings:

- 1. Hot-dip galvanize indicated steel railings, including hardware, after fabrication.

- 2. Do not quench or apply post galvanizing treatments that might interfere with paint adhesion.

- B. For galvanized railings, provide hot-dip galvanized fittings, brackets, fasteners, sleeves, and other ferrous components.

- C. Preparing Galvanized Railings for Shop Priming: After galvanizing, thoroughly clean railings of grease, dirt, oil, flux, and other foreign matter, and treat with etching cleaner.

- D. Primer Application: Apply shop primer to prepared surfaces of railings unless otherwise indicated. Comply with requirements in SSPC-PA 1, "Shop, Field, and Maintenance Painting of Steel," for shop painting. Primer need not be applied to surfaces to be embedded in concrete or masonry.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Fit exposed connections together to form tight, hairline joints.

- B. Perform cutting, drilling, and fitting required for installing railings. Set railings accurately in location, alignment, and elevation; measured from established lines and levels and free of rack.

- 1. Do not weld, cut, or abrade surfaces of railing components that are coated or finished after fabrication and that are intended for field connection by mechanical or other means without further cutting or fitting.
2. Set posts plumb within a tolerance of 1/16 inch in 3 feet.

- 3. Align rails so variations from level for horizontal members and variations from parallel with rake of steps and ramps for sloping members do not exceed 1/4 inch in 12 feet.

- C. Control of Corrosion: Prevent galvanic action and other forms of corrosion by insulating metals and other materials from direct contact with incompatible materials.

- D. Adjust railings before anchoring to ensure matching alignment at abutting joints.

- E. Fastening to In-Place Construction: Use anchorage devices and fasteners where necessary for securing railings and for properly transferring loads to in-place construction.

3.3 RAILING CONNECTIONS

- A. Welded Connections: Use fully welded joints for permanently connecting railing components. Comply with requirements for welded connections in "Fabrication" Article whether welding is performed in the shop or in the field.

3.4 ANCHORING POSTS

- 1. For steel pipe railings, weld flanges to post and bolt to metal supporting surfaces.

- A. Install removable railing sections, where indicated, in slip-fit metal sockets cast in concrete.

3.5 ATTACHING RAILINGS

- A. Anchor railing ends at walls with round flanges anchored to wall construction and welded to railing ends.

- B. Anchor railing ends to metal surfaces with flanges bolted to metal surfaces and welded to railing ends.

- C. Attach railings to wall with wall brackets, except where end flanges are used. Locate brackets as indicated or, if not indicated, at spacing required to support structural loads.

- D. Secure wall brackets and railing end flanges to building construction as follows:

- 1. For concrete anchorage, use drilled-in expansion shields and hanger or lag bolts.

3.6 ADJUSTING AND CLEANING

- A. Touchup Painting: Immediately after erection, clean field welds, bolted connections, and abraded areas of shop paint, and paint exposed areas with the same material as used for shop painting to comply with SSPC-PA 1 requirements for touching up shop-painted surfaces.

- 1. Apply by brush or spray to provide a minimum 2.0-mil dry film thickness.

- B. Galvanized Surfaces: Clean field welds, bolted connections, and abraded areas, and repair galvanizing to comply with ASTM A 780/A 780M.

3.7 PROTECTION

- A. Protect finishes of railings from damage during construction period with temporary protective coverings approved by railing manufacturer. Remove protective coverings at time of Substantial Completion.

END OF SECTION 05 5213

SECTION 06 16 13 - INSULATING SHEATHING

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes insulating wall sheathing with integral water-resistive barrier and air barrier.

1.2 REFERENCES

- A. ASTM International (ASTM): www.astm.org
1. ASTM A153/A153M - Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware

- 2. ASTM C1289 - Specification for Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board

- 3. ASTM D779 - Test Method for Water Resistance of Paper, Paperboard, and Other Sheet Materials by the Dry Indicator Method

- 4. ASTM D1621 - Test Method for Compressive Properties Of Rigid Cellular Plastics

- 5. ASTM D2247 - Practice for Testing Water Resistance of Coatings in 100% Relative Humidity

- 6. ASTM E96/E 96M - Test Methods for Water Vapor Transmission of Materials

- 7. ASTM E331 - Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform Static Air Pressure Difference

- 8. ASTM E2357 - Test Method for Determining Air Leakage of Air Barrier Assemblies

- 9. ASTM F1667 - Specification for Driven Fasteners: Nails, Spikes, and Staples

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of sheathing product specified.

1.4 CLOSEOUT SUBMITTALS

- A. Warranty: Executed copy of manufacturer special warranties.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Comply with manufacturer's written instructions for protection of sheathing products from weather prior to installation.

1.6 WARRANTY

- A. Special Manufacturer's Warranty: Manufacturer's standard form in which sheathing manufacturer agrees to repair or replace sheathing products that demonstrate deterioration or failure under normal use due to manufacturing defects within warranty period specified, when installed according to manufacturer's instructions.

- 1. Warranty Period for Sheathing Products: 30 years following date of Substantial Completion.

- 2. Warranty Conditions: Special warranties exclude deterioration or failure due to structural movement resulting in stresses on sheathing products exceeding manufacturer's written specifications, or due to air or moisture infiltration resulting from cladding failure or mechanical damage.

- 1. Warranty Period for Sheathing Products: 30 years following date of Substantial Completion.

- 2. Warranty Conditions: Special warranties exclude deterioration or failure due to structural movement resulting in stresses on sheathing products exceeding manufacturer's written specifications, or due to air or moisture infiltration resulting from cladding failure or mechanical damage.

PART 2 - PRODUCTS

1.7 MANUFACTURERS

- A. Basis-of-Design Product: Provide sheathing products manufactured by Huber Engineered Woods LLC, Charlotte NC, Phone: (800) 933-9220; Website: www.zipsystem.com.

1.8 COMPOSITE INSULATING WALL SHEATHING

- A. Composite Insulating Wall Sheathing: Oriented-strand-board Exposure 1 sheathing 7/16 inch thick, with factory-laminated water-resistive barrier exterior facer, and with rigid foam plastic insulating board laminated to interior face.

- 1. Basis-of-Design Product: Provide Huber Engineered Woods LLC; ZIP System R Sheathing.

- 2. Span Rating and Performance Category of Sheathing Layer: Not less than 24/16; 7/16 Performance Category.

- 3. Thickness: 1 inch.

- 4. Thermal Resistivity (R Value): 3.6 deg F x h x sq. ft/Btu x in. at 75 deg F.

- 5. Edge Profile: Square edge.

- 6. Exterior Facer: Medium-density, phenolic-impregnated polymer-modified sheet material meeting requirements to ASTM D779 Grade D weather-resistive barrier in accordance with ICC AC308 and AC310, with fastener spacing symbol: on exterior facer for 16-inch and 24-inch on center spacing with the following characteristics

- a. Water Resistance of Coatings, ASTM D2247: Pass: 14 day exposure test.

- b. Moisture Vapor Transmission, ASTM E96: Not less than 12 perms.

- c. Water Penetration, ASTM E331: Pass at 2.86 lbf/sq ft.

- d. Wind Driven Rain, TAS-100: Pass.

- e. Accelerated Weathering, ASTM G154: Pass.

1.9 FASTENERS

- A. Fasteners, General: Size and type complying with manufacturer's written instructions for Project conditions and requirements of authorities having jurisdiction.

- 1. Corrosion Resistance: [Hot-dip zinc coating ASTM A153/A 153M] [or] [Type 304 stainless steel].

- B. Nails, Brads, and Staples: ICC AC116 and ICC AC201.

- C. Power-Driven Fasteners: ICC-ES-1539 or NER-272.

- D. Wood Screws: ASME B18.6.1.

1.10 SHEATHING JOINT-AND-PENETRATION TREATMENT MATERIAL

- A. Self-Adhering Seam and Flashing Tape: Pressure-sensitive, self adhering, cold-applied, seam tape consisting of polyolefin film with acrylic adhesive, meeting ICC AC148.

- 1. Basis-of-Design Product: Provide Huber Engineered Woods; ZIP System Tape.

- 2. Thickness: 0.012 inch.

PART 3 - EXECUTION

1.11 EXAMINATION

- A. Examine framing spacing and alignment to determine if work is ready to receive sheathing. Proceed with sheathing work once conditions meet requirements.

1.12 SHEATHING INSTALLATION

- A. Install sheathing panels in accordance with manufacturer's written instructions, requirements of applicable Evaluation Reports, and requirements of authorities having jurisdiction.

- B. Air and Moisture Barrier: Coordinate sheathing installation with flashing and joint sealant installation and with adjacent building air and moisture barrier components to provide complete, continuous air- and moisture- barrier.

- C. Do not bridge expansion joints; allow joint spacing equal to spacing of structural supports.

- D. Install panels with laminated facer to exterior. Stagger end joints of adjacent panel runs.

- E. Attach sheathing panels securely to substrate with manufacturer approved fasteners in compliance with the following:

- 1. ICC-ES ESR-1539 or ICC-NES NER-272 for power-driver fasteners.

- F. Apply seam tape at all panel seams, penetrations, and facer defects or cracks to form continuous weathertight surface. Apply tape according to manufacturer's written instructions and requirement of ICC-ES applicable to tape application.

END OF SECTION 06 1613



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**SECTION 06 4100 - ARCHITECTURAL WOOD CASEWORK**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Specially fabricated cabinet units.
- B. Countertops.
- C. Cabinet hardware.

**1.02 RELATED REQUIREMENTS**

- A. Section 09 9000 - Painting and Coating; Site finishing of cabinet exterior.

**1.03 REFERENCE STANDARDS**

- A. AWI/AWMAC/WI (AWS) - Architectural Woodwork Standards; 2009.

**1.04 SUBMITTALS**

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Shop Drawings: Indicate materials, component profiles, fastening methods, jointing details, and accessories.
- C. Product Data: Provide data for hardware accessories.
- D. Samples: Submit actual samples of architectural cabinet construction, minimum 12 inches (300 mm) square, illustrating proposed cabinet substrate and finish.

**1.05 QUALITY ASSURANCE**

- A. Fabricator Qualifications: Company specializing in fabricating the products specified in this section with minimum five years of experience.

**1.06 DELIVERY, STORAGE, AND HANDLING**

- A. Protect units from moisture damage.

**1.07 FIELD CONDITIONS**

- A. During and after installation of custom cabinets, maintain temperature and humidity conditions in building spaces at same levels planned for occupancy.

**PART 2 PRODUCTS**

**2.01 CABINETS**

- A. Quality Grade: Unless otherwise indicated provide products of quality specified by AWI/AWMAC/WI Architectural Woodwork Standards for Custom Grade.

**B. Cabinets:**

1. Finish - Exposed Exterior Surfaces: Wood.
2. Finish - Exposed Interior Surfaces: Wood.
3. Door and Drawer Front Edge Profiles: Square edge with thin applied band.
4. Casework Construction Type: Type A - Frameless.
5. Grained Face Layout for Cabinet and Door Fronts: Style and Rail, all Grades.
  - a. Drawer fronts run grain either vertically or horizontally at the manufacturer's option.
  - b. Doors: Vertical grain.
6. Cabinet Design Series: As indicated on the Drawings.
7. Adjustable Shelf Loading: 50 lbs. per sq. ft.
8. Cabinet Style: Reveal overlay.
9. Cabinet Doors and Drawer Fronts: as indicated on drawings.
10. Drawer Construction Technique: Dovetail joints.

**2.02 WOOD-BASED COMPONENTS**

- A. Wood fabricated from old growth timber is not permitted.

**2.03 LAMINATE MATERIALS**

**A. Manufacturers:**

1. Wilsonart International, Inc: www.wilsonart.com.

**2.04 COUNTERTOPS**

- A. Plastic Laminate Countertops: Medium density fiberboard substrate covered with HPDL, conventionally fabricated and self-edge banded.

**2.05 ACCESSORIES**

- A. Adhesive: Type recommended by fabricator to suit application.

**2.06 HARDWARE**

- A. Adjustable Shelf Supports: Standard side-mounted system using surface mounted metal shelf standards or multiple holes for pin supports and coordinated self rests, satin chrome finish, for nominal 1 inch (25 mm) spacing adjustments.

- B. Drawer and Door Pulls: \_\_\_as selected by Contractor \_\_\_\_.

**C. Drawer Slides:**

1. Type: Standard extension.
2. Static Load Capacity: Commercial grade.
3. Mounting: Side mounted.

**4. Features: Provide self closing/stay closed type.**

- D. Hinges: European style concealed self-closing type, steel with satin finish.

**2.07 FABRICATION**

- A. Assembly: Shop assemble cabinets for delivery to site in units easily handled and to permit passage through building openings.
- B. Plastic Laminate: Apply plastic laminate finish in full uninter-rupted sheets consistent with manufactured sizes. Fit corners and joints hairline; secure with concealed fasteners.
- C. Provide cutouts for electrical chords. Verify locations of cutouts from on-site dimensions. Prime paint cut edges.

**2.08 SHOP FINISHING**

- A. Sand work smooth and set exposed nails.
- B. On items to receive transparent finishes, use wood filler matching or blending with surrounding surfaces and of types recommended for applied finishes.
- C. Finish work in accordance with AWI/AWMAC/WI Architectural Woodwork Standards, Section 5 - Finishing for Grade specified and as follows:
  1. Transparent:
    - a. Stain: As selected by General Contractor.
    - b. Sheen: Semigloss.

**PART 3 EXECUTION**

**3.01 EXAMINATION**

- A. Verify adequacy of backing and support framing.
- B. Verify location and sizes of utility rough-in associated with work of this section.

**3.02 INSTALLATION**

- A. Set and secure custom cabinets in place, assuring that they are rigid, plumb, and level.
- B. Use concealed joint fasteners to align and secure adjoining cabinet units.
- C. Secure cabinets to floor using appropriate angles and anchor-ages.

**3.03 CLEANING**

- A. Clean casework, counters, shelves, hardware, fittings, and fixtures.

**END OF SECTION 06 4100**

**SECTION 07 2100 - THERMAL INSULATION**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Batt insulation in exterior wall and roof construction.

**1.02 RELATED REQUIREMENTS**

- A. Section 07 2500 - Weather Barriers: Separate air barrier and vapor retarder materials.

**1.03 REFERENCE STANDARDS**

- A. ASTM C665 - Standard Specification for Mineral-Fiber Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing; Current Date.
- B. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; Current Date.
- C. ASTM E136 - Standard Test Method for Behavior of Materials in a Vertical Tube Furnace At 750 Degrees C; Current Date.

**1.04 SUBMITTALS**

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; Current Date.
- C. Manufacturer's Installation Instructions: Include information on special environmental conditions required for installation and installation techniques.
- D. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.

**1.05 FIELD CONDITIONS**

- A. Do not install insulation adhesives when temperature or weather conditions are detrimental to successful installation.

**PART 2 PRODUCTS**

**2.01 BATT INSULATION MATERIALS**

- A. Where batt insulation is indicated, either glass fiber or mineral fiber batt insulation may be used, at Contractor's option.
- B. Glass Fiber Batt Insulation: Flexible preformed batt or blanket, complying with ASTM C665; friction fit.

1. Combustibility: Non-combustible, when tested in accordance with ASTM E136.

2. Formaldehyde Content: Zero.

3. Thermal Resistance:
  - a. Exterior Walls: R-15
  - b. Roof: R-38

4. Facing: Un-faced.

5. Manufacturers:
  - a. CertainTeed Corporation: www.certainteed.com.
  - b. Johns Manville Corporation: www.jm.com.
  - c. Owens Corning Corp: www.owenscorning.com.

- C. Mineral Fiber Batt Insulation: Flexible preformed batt or blanket, complying with ASTM C665; friction fit, un-faced flame spread index of 0 (zero) when tested in accordance with ASTM E84.

1. Smoke Developed Index: 0 (zero), when tested in accordance with ASTM E84.

2. Thermal Resistance:
  - a. Exterior Walls: R-13
  - b. Roof: R-19 + R-11 Liner System

3. Manufacturers:
  - a. Thermafiber, Inc: www.thermafiber.com.

- C. Mineral Fiber Batt Insulation: Flexible preformed batt or blanket, complying with ASTM C665; friction fit, un-faced flame spread index of 0 (zero) when tested in accordance with ASTM E84.

1. Smoke Developed Index: 0 (zero), when tested in accordance with ASTM E84.

2. Thermal Resistance:
  - a. Exterior Walls: R-13
  - b. Roof: R-19 + R-11 Liner System

3. Manufacturers:
  - a. Thermafiber, Inc: www.thermafiber.com.

**PART 3 EXECUTION**

**3.01 EXAMINATION**

- A. Verify that substrate, adjacent materials, and insulation materials are dry and that substrates are ready to receive insulation.
- B. Verify substrate surfaces are flat, free of irregularities or materials or substances that may impede adhesive bond.

**3.02 BATT INSTALLATION**

- A. Install insulation in accordance with manufacturer's instructions.
- B. Install in exterior wall and roof spaces without gaps or voids. Do not compress insulation.
- C. Trim insulation neatly to fit spaces. Insulate miscellaneous gaps and voids.
- D. Fit insulation tightly in cavities and tightly to exterior side of mechanical and electrical services within the plane of the insulation.

**3.03 PROTECTION**

- A. Do not permit installed insulation to be damaged prior to its concealment.

**END OF SECTION 07 2100**

**SECTION 07 2500 - WEATHER BARRIERS**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Water-Resistive Barrier: Under exterior wall cladding, over sheathing or other substrate; not air tight or vapor retardant.

- B. Air Barriers: Materials that form a system to stop passage of air through exterior walls, joints between exterior walls and roof, and joints around frames of openings in exterior walls.

**1.02 RELATED REQUIREMENTS**

- A. Section 03 3000 - Cast-In-Place Concrete: Vapor retarder under concrete slabs on grade.

- B. Section 07 2100 - Thermal Insulation: Vapor retarder installed in conjunction with batt insulation.

- C. Section 09 2116 - Gypsum Board Assemblies: Water-resistive barrier under exterior cladding.

**1.03 REFERENCE STANDARDS**

- A. AATCC Test Method 127 - Water Resistance: Hydrostatic Pressure Test; Current Date.

- B. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; Current Date.

- C. ASTM E96/E96M - Standard Test Methods for Water Vapor Transmission of Materials; Current Date.

- D. ASTM E2178 - Standard Test Method for Air Permeance of Building Materials; Current Date.

- E. ICC-ES AC38 - Acceptance Criteria for Water-Resistive Barriers; ICC Evaluation Service, Inc.; Current Date.

**1.04 SUBMITTALS**

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

- B. Product Data: Provide data on material characteristics, performance criteria, and limitations.

**1.05 FIELD CONDITIONS**

- A. Maintain temperature and humidity recommended by the materials manufacturers before, during and after installation.

**PART 2 PRODUCTS**

**2.01 WEATHER BARRIER ASSEMBLIES**

- A. Water-Resistive Barrier: Provide on exterior walls under exterior cladding.

1. Use building paper unless otherwise indicated.

**B. Air Barrier:**

1. On outside surface of sheathing of exterior walls at stone veneer use air barrier sheet, mechanically fastened type.

- 2.02 WATER-RESISTIVE BARRIER MATERIALS (NEITHER AIR BARRIER NOR VAPOR RETARDER)

- A. Building Paper: Asphalt-saturated Kraft building paper complying with requirements of ICC-ES AC38 Grade D.

- B. Plastic Sheet: Polymeric-based sheet complying with requirements of ICC-ES AC38 Grade D with 60-minute water-resistance; do not use polyethylene sheet.

- 2.03 AIR BARRIER MATERIALS (WATER VAPOR PERMEABLE AND WATER-RESISTIVE)

**A. Air Barrier Sheet, Mechanically Fastened:**

1. Air Permeance: 0.004 cubic feet per square foot maximum, when tested in accordance with ASTM E2178.

2. Water Vapor Permeance: 20 perms minimum, when tested in accordance with ASTM E96/E96M Procedure A (desiccant method).

3. Water Penetration Resistance: Withstand a water head of 21 inches minimum, for minimum of 5 hours, when tested in accordance with AATCC 127.

4. Ultraviolet and Weathering Resistance: Approved in writing by manufacturer for minimum of 4 months weather exposure.

5. Surface Burning Characteristics: Flame spread index of 25 or less, smoke developed index of 50 or less, when tested in accordance with ASTM E84.

**2.04 SEALANTS**

- A. Polyurethane Sealant: Type 1 as specified in Section 07 9005.

- B. Silicone Sealant: Type 7 as specified in Section 07 9005.

**PART 3 EXECUTION**

**3.01 EXAMINATION**

- A. Verify that surfaces and conditions are ready to accept the work of this section.

**3.02 PREPARATION**

- A. Remove projections, protruding fasteners, and loose or foreign matter that might interfere with proper installation.

**3.03 INSTALLATION**

- A. Install materials in accordance with manufacturer's instructions.

- B. Water-Resistive Barriers: Install continuous barrier over surfaces indicated, with sheets lapped to shed water but with seams not sealed.

- C. Air Barriers: Install continuous air tight barrier over surfaces indicated, with sealed seams and with sealed joints to adjacent surfaces.

**D. Mechanically Fastened Sheets - On Exterior:**

1. Install sheets shingle-fashion to shed water, with seams generally horizontal.

2. Overlap seams as recommended by manufacturer but at least 6 inches.

3. Overlap at outside and inside corners as recommended by manufacturer but at least 12 inches.

4. For applications specified to be air tight, seal seams, laps, penetrations, tears, and cuts with self-adhesive tape; use only large-headed, gasketed fasteners recommended by the manufacturer.

5. Install water-resistive barrier over jamb flashings.

6. Install air barrier and vapor retarder UNDER jamb flashings.

7. Install head flashings under weather barrier.

8. At openings to be filled with frames having nailing flanges, wrap excess sheet into opening; at head, seal sheet over flange and flashing.

- E. Openings and Penetrations in Exterior Weather Barriers:**
1. Install flashing over sills, covering entire sill frame member, extending at least 5 inches onto weather barrier and at least 6 inches up jambs; mechanically fasten stretched edges.

2. At openings to be filled with frames having nailing flanges, seal head and jamb flanges using a continuous bead of sealant compressed by flange and cover flanges with at least 4 inches wide; do not seal sill flange.

3. At openings to be filled with non-flanged frames, seal weather barrier to all sides of opening framing, using flashing at least 9 inches wide, covering entire depth of framing.

4. At head of openings, install flashing under weather barrier extending at least 2 inches beyond face of jambs; seal weather barrier to flashing.

5. At interior face of openings, seal gap between window/door frame and rough framing, using joint sealant over backer rod.

6. Service and Other Penetrations: Form flashing around penetrating item and seal to weather barrier surface.

- 3.04 FIELD QUALITY CONTROL**
- A. Do not cover installed weather barriers until required inspections have been completed.

- 3.05 PROTECTION**
- A. Do not leave materials exposed to weather longer than recommended by manufacturer.
  - B. Do not leave paper- or felt-based barriers exposed to weather for longer than one week.

- END OF SECTION 07 2500**

- SECTION 07 3113 - FIBERGLASS-BASED ASPHALT SHINGLES**

- PART 1 GENERAL**
- 1.1 SECTION INCLUDES**
- A. Roof shingles and accessories including the following:
    1. Fiberglass-based asphalt shingles.
    2. Hip and ridge shingles.
    3. Starter shingles.
    4. Shingle underlayment.
    5. Fasteners.
    6. Metal flashing and trim.

- 1.2 RELATED SECTIONS**
- B. Section 076200 - Sheet Metal Flashing and Trim..

- C. Section 077123 - Manufactured Gutters and Downspouts

- 1.3 REFERENCES**
- D. ASTM International (ASTM):

1. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.

2. ASTM D226 - Standard Specification for Asphalt-Saturated Organic Felt Used in Roofing and Waterproofing.

3. ASTM D228 - Standard Test Method for Sampling, Testing, and Analysis of Asphalt Roll Roofing, Cap Sheets, and Shingles Used in Roofing and Waterproofing.

4. ASTM D1079 - Standard Terminology Relating to Roofing and Waterproofing.

5. ASTM D3018 - Standard Specification for Class A Asphalt Shingles Surfaced with Mineral Granules.

6. ASTM D3161 - Standard Test Method for Wind-Resistance of Asphalt Shingles (Fan-Induced Method).

7. ASTM D4869 - Standard Specification for Asphalt-Saturated Organic Felt Underlayment Used in Steep Slope Roofing.

8. ASTM D6381 - Standard Test Method for Measurement of Asphalt Shingle Mechanical Uplift Resistance.

9. ASTM D6757 - Standard Specification for Underlayment Felt Containing Inorganic Fibers Used in Steep-Slope Roofing.

10. ASTM D7158 - Standard Test Method for Wind Resistance of Sealed Asphalt Shingles (Uplift Force/ Uplift Resistance Method).

11. ASTM E108 - Standard Test Methods for Fire Tests of Roof Coverings.

12. ASTM F1667 - Standard Specification for Driven Fasteners: Nails, Spikes, and Staples.

- E. Underwriters Laboratories (UL):**
1. UL 790 - Standard Test Methods for Fire Test of Roof Coverings.
  2. UL 997 - Wind Resistance of Prepared Roof Covering Materials.
  3. UL 2218 - Impact Resistance of Prepared Roof Covering Materials.
  4. UL 2390 - Test Method for Wind Resistant Asphalt Shingles with Sealed Tabs.
  5. UL 1897 - Uplift Tests for Roof Covering Systems

- 1.4 SUBMITTALS**
- F. Submit under provisions of Section 013300 - Submittal Procedures.
  - G. Submit printed copies of product data sheets indicating product characteristics, product information, installation instructions (including required preparation and installation procedures) and product limitations and color samples.
  - H. Warranty: Submit manufacturer's warranty and ensure forms have been completed in Owner's name and are registered with manufacturer.
  - I. Selection Samples: Two complete sets of samples, representing manufacturer's full range of available products and colors.
  - J. Verification Samples: For each product and finish specified, two samples representing actual products and colors.

- 1.5 QUALITY ASSURANCE**
- K. Manufacturer Qualifications: Provide all primary roofing products, including shingles, underlayment, by a single manufacturer.
  - L. Installer Qualifications: Company trained and authorized by roofing system manufacturer.



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THESE DOCUMENTS

1.6 DELIVERY, STORAGE, AND HANDLING

M. Deliver materials to site in manufacturer's unopened bundles with labels intact and legible.

N. Store all products in manufacturer's unopened, labeled packaging until they are ready for installation.

O. Store all products in accordance with manufacturer's recommendations.

P. Do not install underlayment or shingles on wet surfaces.

Q. Store and dispose of solvent-based materials in accordance with all federal, state and local regulations.

R. For rooftop loading, lay shingle bundles flat. Do not bend over the ridge.

1.7 WARRANTY

S. See Section 01 7800-Closeout Submittals, for additional warranty requirements.

PART 2 PRODUCTS

1.1 MANUFACTURERS

A. Acceptable Manufacturers: Owens Corning Roofing and Asphalt, LLC., GAF, Commercial Roofing Products.

B. Requests for substitutions will be considered upon review.

1.2 ASPHALT SHINGLES

C. Duration® Premium (Algae Resistant) Shingles or Equal:

1. Nominal Size: 13-1/4 in (337 mm) by 39-3/8 in (1000 mm).

2. Exposure: 5-5/8 in (143 mm).

3. Shingles per Square: 64.

4. Bundles per Square: 4 bundles of 16 shingles.

5. Coverage per Square: 98.4 sq ft (9.1 sq m).

6. Color: As selected from manufacturer's full range.

7. Standards/Qualifications: ASTM D228, ASTM D3018 (Type 1), ASTM D3161 (Class F Wind Resistance), ASTM D3462, ASTM D7158 (Class H Wind Resistance), ASTM E108/UL 790 (Class A Fire Resistance), ICC-ES AC438, and UL ER2453-01.

1.3 HIP AND RIDGE SHINGLES

D. DuraRidge® Hip and Ridge (Algae Resistant) Shingles with Sealant or Equal:

1. Nominal Size: 12 in (305 mm) by 10 1/2 in (270 mm) with 8 in (203 mm) exposure

2. Standards/Qualifications: ASTM D3018 (Type 1), ASTM D3161 (Class F Wind Resistance), ASTM D3462, ASTM E108/UL790 (Class A Fire Resistance), ICC-ES AC438, UL ER2453-01, Florida Product Approval, Miami-Dade County Product Approval, and CSA A123.5.

1.4 STARTER SHINGLES

E. Starter Strip Shingle:

1. Nail applied starter course. Individual starter shingle is 6-5/8 in (168 mm) by 39-3/8 in (1000 mm).

2. Standards/Qualifications: ASTM D3462, ASTM D3161 (Class F Wind Resistance), ASTM E108/UL 790 (Class A Fire Resistance), CSA A123.5, ICC-ES AC438, UL ER2453-01

1.5 MECHANICALLY FASTENED UNDERLAYMENTS

F. Fiberglas™ Reinforced Felt Underlayment.

1. Wrinkle resistant, water resistant, breather type cellulose/glass fiber composite roofing underlayment.

2. Roll Width: 36 in (914 mm).

3. Roll Length: 141.5 ft (43.1 m).

4. Coverage Per Roll: 4 roof squares.

5. Standards/Qualifications: ASTM D226 (Type II), ASTM D4869 (Type IV), ASTM D6757.

1.6 FASTENERS

G. Fasteners: Galvanized steel, stainless steel, or aluminum nails complying with ASTM F1667, minimum 12-gauge, 0.0808 in (2.05 mm) shank with 3/8 in (9.5 mm) diameter head. Check local building code requirements.

1.7 METAL FLASHING

H. Flashing: Provide flashing as specified by Section 076200 – Sheet Metal Flashing and Trim.

PART 3 EXECUTION

1.1 EXAMINATION

A. Prior to starting work, examine all roof decks on which work will be applied for defects in materials and workmanship.

B. Do not begin installation until the roof deck has been properly prepared.

C. If another installer is responsible for roof deck preparation, notify the architect, designer-of-record on the project, or building owner of unsatisfactory preparation prior to proceeding with installation. Commencement of installation constitutes acceptance of conditions.

D. Underlayment and shingles installed directly over roof insulation or similar type decks is not approved.

1.2 PREPARATION

E. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

F. Remove all existing roofing down to the roof deck.

G. Verify that the deck is dry, structurally sound, clean and smooth. It shall be free of any depressions, waves, and projections. Cover ALL holes 1 in (25 mm) or less in diameter, cracks over 1/2 in (13 mm) in width, loose knots and excessively resinous areas with minimum 28 gauge; 0.0187 in (0.475 mm) galvanized steel, 0.0156 in (0.396 mm) stainless steel, or 0.0126 in (0.320 mm) aluminum sheet metal. Decking or deck boards with holes greater than 1 in (25 mm) in diameter shall be replaced.

H. Replace damaged deck with new materials.

I. Verify installed roof deck is acceptable to receive shingles. Acceptable roof decks include the following:

1. Wood boards: 6 in (152 mm) minimum width, 3/4 in (19 mm) minimum thickness.

2. Plywood sheathing: 3/8 in (9.5 mm) minimum thickness Exposure 1 grade plywood sheathing as recommended by APA and in compliance with local building code requirements.

3. Spacing between boards or panels shall not exceed 1/4 in (6.4 mm) between roof boards or 1/8 in (3.2 mm) between plywood panels.

1.3 UNDERLAYMENT INSTALLATION

J. General: Comply with underlayment manufacturer's written installation instructions applicable to products and applications indicated unless more stringent requirements apply.

K. Drip Edge

1. Drip edge shall be installed on all roof edges.

2. Install drip edge on eaves first with underlayment installed over the drip edge, or install per local code requirements.

3. Install drip edge on rakes after underlayment is installed, with the drip edge fastened over the underlayment.

4. Joints in drip edge shall be lapped minimum 2 in (51 mm) with the upslope piece lapped over the down slope piece, or per local building code requirements.

5. Install fasteners 8 in to 10 in (203 mm to 254 mm) on center, approximately 1-3/4 in (44 mm) to 3 in (76 mm) from the outside edge of the drip edge, or per local building code requirements.

L. Valleys

1. Install self-adhering ice and water barrier at least 36 in (914 mm) wide and centered on the valley. Lap ends 6 in (152 mm) and seal.

2. Where valleys are indicated to be "open valleys", install metal flashing over self-adhering ice and water barrier before roof deck underlayment is installed; DO NOT nail through the flashing. Secure the flashing by nailing at 18 in (457 mm) on center just beyond edge of flashing so that nail heads hold down the edge, or use valley metal with a formed edge and secure with clips.

M. Roof Deck

1. On roofs with slope greater than 4:12, lap horizontal edges at least 2 inches (51 mm) and at least 2 inches (51 mm) over self-adhering ice and water barrier. Lap ends at least 4 inches (102 mm). End laps in succeeding course should be located at least 6 ft (1.8 m) from end laps in the preceding course.

2. On roofs with pitch between 2:12 to less than 4:12, see application instructions printed on each shingle wrapper, or follow local code requirements.

3. Lap underlayment over valley protection at least 6 inches (152 mm).

N. Penetrations

1. Vent pipes: Install a 24 in (610 mm) square piece of self-adhering ice and water barrier lapping over roof deck underlayment; seal tightly to pipe.

2. Vertical walls: Install self-adhering ice and water barrier extending at least 3 in to 4 in (76 mm to 102 mm) up the wall and 12 in (305 mm) onto the roof surface. Lap the membrane over the roof deck underlayment.

3. Chimneys: Install self-adhering ice and water barrier around entire chimney extending at least 6 in (152 mm) up the wall and 12 in (305 mm) on to the roof surface. Lap the membrane over the roof deck underlayment.

1.4 SHINGLE INSTALLATION

O. Install shingles (including started shingles as well as hip and ridge shingles) in accordance with manufacturer's installation instructions and in accordance with local building code requirements.

P. Install starter course at lowest roof edge and along rake with edge of shingles extending 1/4 in (6.4 mm) over edge of roof. Sealant strip should be closest to roof edge.

Q. Install first and successive courses of shingles stepping diagonally up and across roof deck with manufacturer's recommended offset at each succeeding course. Maintain uniform exposure of shingles at each succeeding course. Use of a chalk line every other course is recommended.

R. Fasten shingles to deck with number of roofing nails per shingle and type of nails specified by manufacturer, or in accordance specified by local Authority Having Jurisdiction.

S. All fasteners must be driven flush with the shingle surface and penetrate at least 3/4 in (19.1 mm) into the wood deck. Where the deck is less than 3/4 in (19.1 mm) thick, the fastener should be long enough to penetrate fully and extend through the roof sheathing.

T. Install shingles at valleys, eaves, rakes, hips and ridges in accordance with manufacturer installation instructions and local building code requirements.

1.5 PROTECTION

U. Protect installed products until completion of project.

V. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION

SECTION 074646 - FIBER-CEMENT SIDING

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes fiber-cement siding and soffit.

B. Related Requirements:

1. Section 061000 "Rough Carpentry" for wood furring, grounds, nailers, and blocking.

2. Section 062013 "Exterior Finish Carpentry" for exterior trim.

1.2 COORDINATION

A. Coordinate siding installation with flashings and other adjoining construction to ensure proper sequencing.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes.

B. Samples for Initial Selection: For fiber-cement siding and soffit including related accessories.

1.4 CLOSEOUT SUBMITTALS

A. Maintenance Data: For each type of product, including related accessories, to include in maintenance manuals.

1.5 QUALITY ASSURANCE

A. Mockups: Build mockups to verify selections made under Sample submittals and to demonstrate aesthetic effects and to set quality standards for fabrication and installation.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Deliver and store packaged materials in original containers with labels intact until time of use.

B. Store materials on elevated platforms, under cover, and in a dry location.

1.7 WARRANTY

A. Special Warranty: Manufacturer agrees to repair or replace products that fail in materials or workmanship within specified warranty period.

1. Failures include, but are not limited to, the following:

a. Structural failures including cracking and deforming.

b. Deterioration of materials beyond normal weathering.

2. Warranty Period: 10 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Source Limitations: Obtain products, including related accessories, from single source from single manufacturer.

2.2 FIBER-CEMENT SIDING

A. General: ASTM C 1186, Type A, Grade II, fiber-cement board, noncombustible when tested according to ASTM E 136; with a flame-spread index of 25 or less when tested according to ASTM E 84.

B. Nominal Thickness: Not less than 5/16 inch (8 mm).

C. Horizontal Pattern: Boards 6-1/4 to 6-1/2 inches wide in plain style.

1. Texture: Wood grain.

D. Factory Priming: Manufacturer's standard acrylic primer.

2.3 FIBER-CEMENT SOFFIT

A. General: ASTM C 1186, Type A, Grade II, fiber-cement board, noncombustible when tested according to ASTM E 136; with a flame-spread index of 25 or less when tested according to ASTM E 84.

B. Nominal Thickness: Not less than 5/16 inch.

C. Pattern: 18-inch wide sheets with wood-grain texture.

D. Ventilation: Provide unperforated soffit.

E. Factory Priming: Manufacturer's standard acrylic primer.

2.4 ACCESSORIES

A. Siding Accessories, General: Provide starter strips, edge trim, outside and inside corner caps, and other items as recommended by siding manufacturer for building configuration.

B. Decorative Accessories: Provide the following fiber-cement decorative accessories as indicated:

1. Corner posts.

2. Door and window casings.

3. Fasciae.

4. Moldings and trim.

C. Flashing: Provide stainless-steel flashing complying with Section 076200 "Sheet Metal Flashing and Trim" at window and door heads and where indicated.

D. Fasteners:

1. For fastening to wood, use siding nails of sufficient length to penetrate a minimum of 1 inch into substrate.

2. For fastening fiber cement, use hot-dip galvanized fasteners.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates for compliance with requirements for installation tolerances and other conditions affecting performance of fiber-cement siding and soffit and related accessories.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Clean substrates of projections and substances detrimental to application.

3.3 INSTALLATION

A. General: Comply with manufacturer's written installation instructions applicable to products and applications indicated unless more stringent requirements apply.

1. Do not install damaged components.

2. Install fasteners no more than 24 inches o.c.

B. Install joint sealants as specified in Section 079200 "Joint Sealants" and to produce a weathertight installation.

3.4 ADJUSTING AND CLEANING

A. Remove damaged, improperly installed, or otherwise defective materials and replace with new materials complying with specified requirements.

B. Clean finished surfaces according to manufacturer's written instructions and maintain in a clean condition during construction.

END OF SECTION 074646

SECTION 076200 - SHEET METAL FLASHING AND TRIM

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Formed wall sheet metal fabrications

1.2 COORDINATION

A. Coordinate sheet metal flashing and trim layout and seams with sizes and locations of penetrations to be flashed, and joints and seams in adjacent materials.

B. Coordinate sheet metal flashing and trim installation with adjoining roofing and wall materials, joints, and seams to provide leakproof, secure, and noncorrosive installation.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.

1. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for each manufactured product and accessory.

1.4 CLOSEOUT SUBMITTALS

A. Maintenance Data: For sheet metal flashing and trim, and its accessories, to include in maintenance manuals.

1.5 QUALITY ASSURANCE

A. Fabricator Qualifications: Employs skilled workers who custom fabricate sheet metal flashing and trim similar to that required for this Project and whose products have a record of successful in-service performance.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Do not store sheet metal flashing and trim materials in contact with other materials that might cause staining, denting, or other surface damage. Store sheet metal flashing and trim materials away from uncured concrete and masonry.

B. Protect strippable protective covering on sheet metal flashing and trim from exposure to sunlight and high humidity, except to extent necessary for period of sheet metal flashing and trim installation.

1.7 WARRANTY

A. Special Warranty on Finishes: Manufacturer agrees to repair finish or replace sheet metal flashing and trim that shows evidence of deterioration of factory-applied finishes within specified warranty period.

1. Exposed Panel Finish: Deterioration includes, but is not limited to, the following:

a. Color fading more than 5 Hunter units when tested according to ASTM D 2244.

b. Chalking in excess of a No. 8 rating when tested according to ASTM D 4214.

c. Cracking, checking, peeling, or failure of paint to adhere to bare metal.

2. Finish Warranty Period: 10 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Sheet Metal Standard for Flashing and Trim: Comply with NRCA's "The NRCA Roofing Manual" and SMACNA's "Architectural Sheet Metal Manual" requirements for dimensions and profiles show unless more stringent requirements are indicated.

2.2 SHEET METALS

A. General: Protect mechanical and other finishes on expose surfaces from damage by applying strippable, temporary protective film before shipping.

B. Stainless-Steel Sheet: ASTM A 240/A 240M, dead soft, fully annealed; with smooth, flat surface.

2.3 UNDERLAYMENT MATERIALS

A. Slip Sheet: Rosin-sized building paper, 3 lb/100 sq. ft. minimum.

2.4 MISCELLANEOUS MATERIALS

A. General: Provide materials and types of fasteners, protective coatings, sealants, and other miscellaneous items as required for complete sheet metal flashing and trim installation and as recommended by manufacturer of primary sheet metal unless otherwise indicated.

2.5 MANUFACTURED SHEET METAL FLASHING AND TRIM

A. Through-Wall, Ribbed, Sheet Metal Flashing: Manufacture through-wall sheet metal flashing for embedment in masonry, with ribs at 3-inch intervals along length of flashing to provide integral mortar bond. Manufacture through-wall with interlocking counterflashing on exterior face, of same metal as flashing.

1. Stainless Steel: 0.016 inch thick.

B. Reglets: Units of type, material, and profile required, formed to provide secure interlocking of separate reglet and counterflashing pieces, and compatible with flashing indicated with factory-mitered and -welded corners and junctions and with interlocking counterflashing on exterior face, of same metal as reglet].

1. Material: [Stainless steel, 0.019 inch thick.

2. Surface-Mounted Type: Provide with slotted holes for fastening to substrate, with neoprene or other suitable



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PROJECT NO: 17003

REVISIONS:

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REVIEWED BY: SB

SPECS

A-014



weatherproofing washers, and with channel for sealant at top edge.

2.6 FABRICATION, GENERAL

A. General: Custom fabricate sheet metal flashing and trim to comply with details shown and recommendations in cited sheet metal standard that apply to design, dimensions, geometry, metal thickness, and other characteristics of item required. Fabricate sheet metal flashing and trim in shop to greatest extent possible.

1. Fabricate sheet metal flashing and trim in thickness or weight needed to comply with performance requirements, but not less than that specified for each application and metal.
2. Obtain field measurements for accurate fit before shop fabrication.
3. Form sheet metal flashing and trim to fit substrates without excessive oil canning, buckling, and tool marks; true to line, levels, and slopes; and with exposed edges folded back to form hems.
4. Conceal fasteners and expansion provisions where possible. Do not use exposed fasteners on faces exposed to view.

**PART 3 - EXECUTION**

3.1 EXAMINATION

A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances, substrate, and other conditions affecting performance of the Work.

1. Verify compliance with requirements for installation tolerances of substrates.
2. Verify that substrate is sound, dry, smooth, clean, sloped for drainage, and securely anchored.
3. Verify that air- or water-resistant barriers have been installed over sheathing or backing substrate to prevent air infiltration or water penetration.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 UNDERLAYMENT INSTALLATION

A. Apply slip sheet, wrinkle free, directly on substrate before installing sheet metal flashing and trim.

3.3 INSTALLATION, GENERAL

A. General: Anchor sheet metal flashing and trim and other components of the Work securely in place, with provisions for thermal and structural movement. Use fasteners[, solder], protective coatings, separators, sealants, and other miscellaneous items as required to complete sheet metal flashing and trim system.

1. Install sheet metal flashing and trim true to line, levels, and slopes. Provide uniform, neat seams with minimum exposure of solder, welds, and sealant.
2. Install sheet metal flashing and trim to fit substrates and to result in watertight performance. Verify shapes and dimensions of surfaces to be covered before fabricating sheet metal.
3. Space cleats not more than 12 inches apart. Attach each cleat with at least two fasteners. Bend tabs over fasteners.
4. Install exposed sheet metal flashing and trim with limited oil canning, and free of buckling and tool marks.
5. Torch cutting of sheet metal flashing and trim is not permitted.
6. Do not use graphite pencils to mark metal surfaces.

B. Rivets: Rivet joints in [uncoated aluminum] [zinc] where necessary for strength.

3.4 ROOF FLASHING INSTALLATION

A. General: Install sheet metal flashing and trim to comply with performance requirements and cited sheet metal standard. Provide concealed fasteners where possible, and set units true to line, levels, and slopes. Install work with laps, joints, and seams that are permanently watertight and weather resistant.

3.5 WALL FLASHING INSTALLATION

A. General: Install sheet metal wall flashing to intercept and exclude penetrating moisture according to cited sheet metal standard unless otherwise indicated. Coordinate installation of wall flashing with installation of wall-opening components such as windows, doors, and louvers.

3.6 CLEANING AND PROTECTION

A. Clean exposed metal surfaces of substances that interfere with uniform oxidation and weathering.

B. Clean and neutralize flux materials. Clean off excess solder.

C. Clean off excess sealants.

D. Remove temporary protective coverings and strippable films as sheet metal flashing and trim are installed unless otherwise indicated in manufacturer's written installation instructions. On completion of sheet metal flashing and trim installation, remove unused materials and clean finished surfaces as recommended by sheet metal flashing and trim manufacturer. Maintain sheet metal flashing and trim in clean condition during construction.

E. Replace sheet metal flashing and trim that have been damaged or that have deteriorated beyond successful repair by finish touchup or similar minor repair procedures.

END OF SECTION 076200

**SECTION 07 7123 - MANUFACTURED GUTTERS AND DOWNSPOUTS**

**PART 1 GENERAL**

1.01 SECTION INCLUDES

A. Pre-finished aluminum gutters and downspouts.

1.02 RELATED REQUIREMENTS

A. Section 07 4113: Metal Roof Panels.

1.03 REFERENCE STANDARDS

A. AAMA 2604 - Voluntary Specification, Performance Requirements and Test Procedures for High Performance Organic Coatings on Aluminum Extrusions and Panels; Current Date.

B. ASTM B209 - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate; Current Date.

C. ASTM B209M - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate; Current Date.

D. SMACNA (ASMM) - Architectural Sheet Metal Manual; Sheet Metal and Air Conditioning Contractors' National Association; Current Date.

1.04 DESIGN REQUIREMENTS

A. Conform to SMACNA Architectural Sheet Metal Manual for sizing components for rainfall intensity determined by a storm occurrence of 1 in 5 years.

B. Conform to applicable code for size and method of rain water discharge.

1.05 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Stack material to prevent twisting, bending, or abrasion, and to provide ventilation. Slope to drain.

B. Prevent contact with materials that could cause discoloration, staining, or damage.

**PART 2 PRODUCTS**

2.01 MATERIALS

A. Pre-Finished Aluminum Sheet: ASTM B209 (ASTM B209M); 0.032 inch thick.

1. Finish: Plain, shop pre-coated with PVDF (polyvinylidene fluoride) coating.
2. Color: As selected from manufacturer's standard colors.

2.02 COMPONENTS

A. Gutters: SMACNA square style profile.

B. Downspouts: SMACNA Square profile.

C. Anchors and Supports: Profiled to suit gutters and downspouts.

1. Anchoring Devices: In accordance with SMACNA requirements.
2. Gutter Supports: Brackets.
3. Downspout Supports: Straps.

D. Fasteners: Galvanized steel, with soft neoprene washers.

2.03 FABRICATION

A. Form gutters and downspouts of profiles and size indicated on drawings.

B. Fabricate with required connection pieces.

C. Form sections square, true, and accurate in size, in maximum possible lengths, free of distortion or defects detrimental to appearance or performance. Allow for expansion at joints.

D. Hem exposed edges of metal.

E. Fabricate gutter and downspout accessories; seal watertight.

2.04 FACTORY FINISHING

A. Fluoropolymer Coating: High Performance Organic Finish, AAMA 2604; multiple coat, thermally cured fluoropolymer finish system; color as selected from manufacturer's standard colors.

**PART 3 EXECUTION**

3.01 EXAMINATION

A. Verify existing conditions before starting work.

B. Verify that surfaces are ready to receive work.

3.02 INSTALLATION

A. Install gutters, downspouts, and accessories in accordance with manufacturer's instructions.

END OF SECTION 07 7123

**SECTION 07 8400 - FIRESTOPPING**

**PART 1 GENERAL**

1.01 SECTION INCLUDES

A. Firestopping of all joints and penetrations in fire-resistance rated and smoke-resistant assemblies, whether indicated on drawings or not.

1.02 RELATED REQUIREMENTS

A. Section 09 2116 - Gypsum Board Assemblies: Gypsum wallboard fireproofing.

1.03 REFERENCE STANDARDS

A. ASTM E119 - Standard Test Methods for Fire Tests of Building Construction and Materials; Current Date.

B. ASTM E814 - Standard Test Method for Fire Tests of Through-Penetration Fire Stops; Current Date.

C. UL (FRD) - Fire Resistance Directory; Underwriters Laboratories Inc.; Current Date.

1.04 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

1.05 QUALITY ASSURANCE

A. Fire Testing: Provide firestopping assemblies of designs that provide the scheduled fire ratings when tested in accordance with methods indicated.

1.06 FIELD CONDITIONS

A. Comply with firestopping manufacturer's recommendations for temperature and conditions during and after installation. Maintain minimum temperature before, during, and for 3 days after installation of materials.

B. Provide ventilation in areas where solvent-cured materials are being installed.

**PART 2 PRODUCTS**

2.01 FIRESTOPPING - GENERAL REQUIREMENTS

A. Primers, Sleeves, Forms, Insulation, Packing, Stuffing, and Accessories: Type required for tested assembly design.

2.02 FIRESTOPPING ASSEMBLY REQUIREMENTS

A. Through Penetration Firestopping: Use any system that has been tested according to ASTM E814 to have fire resistance F Rating equal to required fire rating of penetrated assembly.

2.03 FIRESTOPPING SYSTEMS

A. Firestopping: Any material meeting requirements.

1. Fire Ratings: Use any system listed by UL or tested in accordance with ASTM E814 that has F Rating equal to fire rating of penetrated assembly and T Rating Equal to F Rating and that meets all other specified requirements.

**PART 3 EXECUTION**

3.01 EXAMINATION

A. Verify openings are ready to receive the work of this section.

3.02 PREPARATION

A. Clean substrate surfaces of dirt, dust, grease, oil, loose material, or other matter that could adversely affect bond of firestopping material.

B. Remove incompatible materials that could adversely affect bond.

3.03 INSTALLATION

A. Install materials in manner described in fire test report and in accordance with manufacturer's instructions, completely closing openings.

3.04 CLEANING

A. Clean adjacent surfaces of firestopping materials.

3.05 PROTECTION

A. Protect adjacent surfaces from damage by material installation.

END OF SECTION 07 8400

**SECTION 07 9200 - JOINT SEALANTS**

**PART 1 GENERAL**

1.01 SECTION INCLUDES

A. Sealants and joint backing.

1.02 RELATED REQUIREMENTS

A. Section 07 2500 - Weather Barriers: Sealants required in conjunction with air barriers and vapor retarders.

B. Section 07 8400 - Firestopping

C. Section 09 2116 - Gypsum Board Assemblies

1.03 REFERENCE STANDARDS

A. ASTM C834 - Standard Specification for Latex Sealants; Current Date.

B. ASTM C920 - Standard Specification for Elastomeric Joint Sealants; Current Date.

C. ASTM C1193 - Standard Guide for Use of Joint Sealants; Current Date.

D. ASTM D1056 - Standard Specification for Flexible Cellular Materials—Sponge or Expanded Rubber; Current Date.

E. SCAQMD 1168 - South Coast Air Quality Management District Rule No. 1168; current edition; www.aqmd.gov.

1.04 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

1.05 FIELD CONDITIONS

A. Maintain temperature and humidity recommended by the sealant manufacturer during and after installation.

1.06 WARRANTY

A. See Section 01 7800 - Closeout Submittals, for additional warranty requirements.

B. Warranty: Include coverage for installed sealants and accessories which fail to achieve airtight seal, exhibit loss of adhesion or cohesion, or do not cure.

**PART 2 PRODUCTS**

2.01 SEALANTS

A. Sealants and Primers - General: Provide only products having lower volatile organic compound (VOC) content than required by South Coast Air Quality Management District Rule No. 1168.

B. Type 1 - General Purpose Exterior Sealant: Polyurethane; ASTM C920, Grade NS, Class 25, Uses M, G, and A; single component.

1. Color: Match adjacent finished surfaces.
2. Applications: Use for:
  - a. Control, expansion, and soft joints in masonry.
  - b. Joints between concrete and other materials.
  - c. Joints between metal frames and other materials.
  - d. Other exterior joints for which no other sealant is indicated.

C. Type 2 - Exterior Metal Lap Joint Sealant: Butyl or polyisobutylene, non-drying, non-skinning, non-curing.

1. Applications: Use for:
  - a. Concealed sealant bead in sheet metal work.
  - b. Concealed sealant bead in siding overlaps.

D. Type 3 - General Purpose Interior Sealant: Acrylic emulsion latex; ASTM C834, Type OP, Grade NF single component, paintable.

1. Color: Match adjacent finished surfaces.
2. Applications: Use for:
  - a. Interior wall control joints.
  - b. Joints between door and window frames and wall surfaces.
  - c. Other interior joints for which no other type of sealant is indicated.

E. Type 4 - Silicone Sealant: ASTM C920, Grade NS, Class 25, Uses NT, A, G, M, O; single component, solvent curing, non-sagging, non-staining, fungus resistant, non-bleeding.

1. Service Temperature Range: -65 to 180 degrees F.
2. Shore A Hardness Range: 15 to 35.

3. Applications: Use for:

- a. Structural Glazing.
- b. Weatherproofing.

**2.02 ACCESSORIES**

A. Primer: Non-staining type, recommended by sealant manufacturer to suit application.

B. Joint Cleaner: Non-corrosive and non-staining type, recommended by sealant manufacturer; compatible with joint forming materials.

C. Joint Backing: Round foam rod compatible with sealant; ASTM D1056, sponge or expanded rubber; oversized 30 to 50 percent larger than joint width.

D. Bond Breaker: Pressure sensitive tape recommended by sealant manufacturer to suit application.

**PART 3 EXECUTION**

3.01 PREPARATION

A. Remove loose materials and foreign matter that could impair adhesion of sealant.

B. Clean and prime joints in accordance with manufacturer's instructions.

C. Perform preparation in accordance with manufacturer's instructions and ASTM C1193.

D. Protect elements surrounding the work of this section from damage or disfigurement.

3.02 INSTALLATION

A. Perform work in accordance with sealant manufacturer's requirements for preparation of surfaces and material installation instructions.

B. Perform installation in accordance with ASTM C1193.

C. Install bond breaker where joint backing is not used.

D. Install sealant free of air pockets, foreign embedded matter, ridges, and sags.

E. Apply sealant within recommended application temperature ranges. Consult manufacturer when sealant cannot be applied within these temperature ranges.

F. Tool joints concave.

3.03 CLEANING

A. Clean adjacent soiled surfaces.

3.04 PROTECTION

A. Protect sealants until cured.

**END OF SECTION 07 9005**

**SECTION 08 1113 - HOLLOW METAL DOORS AND FRAMES**

**PART 1 GENERAL**

1.01 SECTION INCLUDES

A. Non-fire-rated steel doors and frames.

B. Thermally insulated steel doors.

C. Accessories, including glazing and louvers.

1.02 RELATED REQUIREMENTS

A. Section 08 7100 - Door Hardware.

B. Section 08 8000 - Glazing: Glass for doors and borrowed lites.

C. Section 09 9000 - Painting and Coating: Field painting.

1.03 REFERENCE STANDARDS

A. ANSI/ICC A117.1 - American National Standard for Accessible and Usable Buildings and Facilities; International Code Council; 2009.

B. ANSI A250.8 - SDI-100 Recommended Specifications for Standard Steel Doors and Frames; 2003.

C. ANSI A250.10 - Test Procedure and Acceptance Criteria for Prime Painted Steel Surfaces for Steel Doors and Frames; 1998 (R2004).

D. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2010.

E. ASTM C1363 - Standard Test Method for Thermal Performance of Building Assemblies by Means of a Hot Box Apparatus; 2005.

F. NAAMM HMMMA 840 - Guide Specifications for Installation and Storage of Hollow Metal Doors and Frames; The National Association of Architectural Metal Manufacturers; 2007.

1.04 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements for submittal procedures.

B. Product Data: Materials and details of design and construction, hardware locations, reinforcement type and locations, anchorage and fastening methods, and finishes; and one copy of referenced grade standard.

C. Shop Drawings: Details of each opening, showing elevations, glazing, frame profiles, and identifying location of different finishes, if any.

1.05 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years experience.

B. Maintain at the project site a copy of all reference standards dealing with installation.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Store in accordance with NAAMM HMMMA 840.

B. Protect with resilient packaging; avoid humidity build-up under coverings; prevent corrosion.

**PART 2 PRODUCTS**

2.01 DOORS AND FRAMES

A. Requirements for All Doors and Frames:

1. Accessibility: Comply with ANSI/ICC A117.1.
2. Door Top Closures: Flush with top of faces and edges.
3. Door Edge Profile: Beveled on both edges.
4. Door Texture: Smooth faces.
5. Glazed Lights: Non-removable stops on non-secure side sizes and configurations as indicated on drawings.
6. Finish: Factory primed, for field finishing.

B. Combined Requirements: If a particular door and frame unit is indicated to comply with more than one type of requirement, comply with all the specified requirements for each type; for instance, an exterior door that is also indicated as being sound-rated must comply with the requirements specified for exterior doors and for sound-rated doors; where two requirements conflict, comply with the most stringent.

2.02 STEEL DOORS

A. Exterior Doors Type:

1. Grade: ANSI A250.8 Level 3, physical performance Level A, Model 2, seamless.
2. Galvanizing: All components hot-dipped zinc-iron alloy-coated (galvannealed) in accordance with ASTM A653/A653M, with manufacturer's standard coating thickness.

B. Interior Doors, Non-Fire-Rated:

1. Grade: ANSI A250.8 Level 1, physical performance Level C, Model 1, full flush.
2. Thickness: 1-3/4 inches (44 mm).

2.03 STEEL FRAMES

A. General:

1. Comply with the requirements of grade specified for corresponding door.



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**CONSTRUCTION DOCUMENTS**  
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**201 N. HEATHERWILDE BLVD.**  
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PROJECT NO: 17003

REVISIONS:

DRAWN BY: LC  
REVIEWED BY: SB

SPECS

**A-016**

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2. Finish: Same as for door.  
B. Exterior Door Frames: Fully welded.  
1. Weatherstripping: Integral, recessed into door edge or frame.  
C. Interior Door Frames, Non-Fire-Rated: Knock-down type.  
D. Frames for Interior Glazing or Borrowed Lights: Construction and face dimensions to match door frames, and as indicated on drawings.  
E. Transom Bars: Fixed, of profile same as jamb and head.

**2.04 ACCESSORY MATERIALS**  
A. Louvers: Extruded aluminum with overlapping frame; finish same as door components; factory-installed.  
B. Glazing: Clear sheet glass, 6 mm thick, factory installed.  
C. Silencers: Resilient rubber, fitted into drilled hole; 3 on strike side of single door, 3 on center mullion of pairs, and 2 on head of pairs without center mullions.

**2.05 FINISH MATERIALS**  
A. Primer: Rust-inhibiting, complying with ANSI A250.10, door manufacturer's standard.

**PART 3 EXECUTION**

**3.01 INSTALLATION**  
A. Install in accordance with the requirements of the specified door grade standard and NAAMM HMMA 840.  
B. Coordinate frame anchor placement with wall construction.  
C. Coordinate installation of hardware.  
D. Coordinate installation of glazing.

**3.02 TOLERANCES**  
A. Maximum Diagonal Distortion: 1/16 in (1.5 mm) measured with straight edge, corner to corner.

**3.03 ADJUSTING**  
A. Adjust for smooth and balanced door movement.

**END OF SECTION 08 1113**

**SECTION 081416 - FLUSH WOOD DOORS**

**PART 1 - GENERAL**

**1.1 SUMMARY**  
A. Section Includes:  
1. Solid-core doors with wood-veneer faces.  
2. Factory finishing flush wood doors.  
3. Factory fitting flush wood doors to frames and factory machining for hardware.  
**1.2 ACTION SUBMITTALS**  
A. Product Data: For each type of door. Include details of core and edge construction and trim for openings.  
B. Shop Drawings: Indicate location, size, and hand of each door; elevation of each kind of door; construction details not covered in Product Data; and the following:  
1. Dimensions and locations of blocking.  
2. Dimensions and locations of mortises and holes for hardware.  
3. Dimensions and locations of cutouts.  
4. Undercuts.  
5. Requirements for veneer matching.  
6. Doors to be factory finished and finish requirements.  
7. Fire-protection ratings for fire-rated doors.

C. Samples for Initial Selection: For factory-finished doors.  
**1.3 INFORMATIONAL SUBMITTALS**  
A. Sample Warranty: For special warranty.  
B. Quality Standard Compliance Certificates: AWI Quality Certification Program certificates.  
**1.4 DELIVERY, STORAGE, AND HANDLING**  
A. Comply with requirements of referenced standard and manufacturer's written instructions.  
B. Package doors individually in plastic bags or cardboard cartons.  
C. Mark each door on bottom rail with opening number used on Shop Drawings.

**1.5 FIELD CONDITIONS**  
A. Environmental Limitations: Do not deliver or install doors until spaces are enclosed and weathertight, wet work in spaces is complete and dry, and HVAC system is operating and maintaining ambient temperature and humidity conditions at occupancy levels during remainder of construction period.  
B. Environmental Limitations: Do not deliver or install doors until spaces are enclosed and weathertight, wet work in spaces is complete and dry, and HVAC system is operating and maintaining temperature between 60 and 90 deg F and relative humidity between 25 and 55percent during remainder of construction period.  
**1.6 WARRANTY**  
A. A. Special Warranty: Manufacturer agrees to repair or replace doors that fail in materials or workmanship within specified warranty period.  
1. Failures include, but are not limited to, the following:  
a. Warping (bow, cup, or twist) more than 1/4 inch in a 42-by-84-inch section.  
b. Telegraphing of core construction in face veneers exceeding 0.01 inch in a 3-inch span.  
2. Warranty shall also include installation and finishing that may be required due to repair or replacement of defective doors.  
3. Warranty Period for Hollow-Core Interior Doors: Two years from date of Substantial Completion.

**PART 2 - PRODUCTS**

**2.1 MANUFACTURERS**  
A. Source Limitations: Obtain flush wood doors from single manufacturer.  
**2.2 FLUSH WOOD DOORS, GENERAL**  
A. Quality Standard: In addition to requirements specified, comply with AWI's, AWMAC's, and WI's "Architectural Woodwork Standards."  
1. Provide AWI Quality Certification Labels indicating that doors comply with requirements of grades specified.  
2. Contract Documents contain selections chosen from options in quality standard and additional requirements beyond those of quality standard. Comply with those selections and requirements in addition to quality standard.  
**2.3 FABRICATION**  
A. Factory fit doors to suit frame-opening sizes indicated. Comply with clearance requirements of referenced quality standard for fitting unless otherwise indicated.  
1. Comply with NFPA 80 requirements for fire-rated doors.  
**2.4 SHOP PRIMING**  
A. Doors for Opaque Finish: Shop prime faces, all four edges, edges of cutouts, and mortises with one coat of wood primer specified in

Section 099123" Interior Painting."  
B. Doors for Transparent Finish: Shop prime faces and all four edges with stain (if required), other required pretreatments, and first coat of finish as specified in Section 099300 "Staining and Transparent Finishing." Seal edges of cutouts and mortises with first coat of finish.

**2.5 FACTORY FINISHING**  
A. General: Comply with referenced quality standard for factory finishing. Complete fabrication, including fitting doors for openings and machining for hardware that is not surface applied, before finishing.  
1. Finish faces, all four edges, edges of cutouts, and mortises. Stains and fillers may be omitted on top and bottom edges, edges of cutouts, and mortises.

**2.6 EXAMINATION**  
A. Examine doors and installed door frames, with Installer present, before hanging doors.  
B. Proceed with installation only after unsatisfactory conditions have been corrected.  
**2.7 INSTALLATION**  
A. Hardware: For installation, see Section 087100 "Door Hardware."  
B. Installation Instructions: Install doors to comply with manufacturer's written instructions and referenced quality standard, and as indicated.  
1. Install fire-rated doors according to NFPA 80.  
2. Install smoke- and draft-control doors according to NFPA 105.

C. Job-Fitted Doors: Align and fit doors in frames with uniform clearances and bevels as indicated below; do not trim stiles and rails in excess of limits set by manufacturer or permitted for fire-rated doors. Machine doors for hardware. Seal edges of doors, edges of cutouts, and mortises after fitting and machining.  
1. Clearances: Provide 1/8 inch at heads, jams, and between pairs of doors. Provide 1/8 inch from bottom of door to top of decorative floor finish or covering unless otherwise indicated. Where threshold is shown or scheduled, provide 1/4 inch from bottom of door to top of threshold unless otherwise indicated.  
a. 2. Bevel non-fire-rated doors 1/8 inch in 2 inches at lock and hinge edges.

D. Factory-Fitted Doors: Align in frames for uniform clearance at each edge.  
E. Factory-Finished Doors: Restore finish before installation if fitting or machining is required at Project site.  
**2.8 ADJUSTING**  
A. Operation: Rehang or replace doors that do not swing or operate freely.  
B. Finished Doors: Replace doors that are damaged or that do not comply with requirements. Doors may be repaired or refinished if Work complies with requirements and shows no evidence of repair or refinishing.

**END OF SECTION 081416**

**SECTION 085113 - ALUMINUM WINDOWS**

**PART 1 - GENERAL**

**1.1 SUMMARY**  
A. Section includes aluminum windows for exterior locations.  
**1.2 ACTION SUBMITTALS**  
A. Product Data: For each type of product.  
1. Include construction details, material descriptions, glazing and fabrication methods, dimensions of individual components and profiles, hardware, and finishes for aluminum windows.  
B. Shop Drawings: For aluminum windows.  
1. Include plans, elevations, sections, hardware, accessories, insect screens, operational clearances, and details of installation, including anchor, flashing, and sealant installation.

**1.3 QUALITY ASSURANCE**  
A. Manufacturer Qualifications: A manufacturer capable of fabricating aluminum windows that meet or exceed performance requirements indicated and of documenting this performance by test reports and calculations.  
B. Installer Qualifications: An installer acceptable to aluminum window manufacturer for installation of units required for this Project.

**1.4 WARRANTY**  
A. Manufacturer's Warranty: Manufacturer agrees to repair or replace aluminum windows that fail in materials or workmanship within specified warranty period.  
1. Failures include, but are not limited to, the following:  
a. Failure to meet performance requirements.  
b. Structural failures including excessive deflection, water leakage, condensation, and air infiltration.  
c. Faulty operation of movable sash and hardware.  
d. Deterioration of materials and finishes beyond normal weathering.  
e. Failure of insulating glass.

2. Warranty Period:  
a. Window: 10 years from date of Substantial Completion.  
b. Glazing Units: 10 years from date of Substantial Completion.  
c. Aluminum Finish: 10 years from date of Substantial Completion.

**PART 2 - PRODUCTS**  
**2.1 MANUFACTURERS**  
A. Source Limitations: Obtain aluminum windows from single source from single manufacturer.  
**2.2 ALUMINUM WINDOWS**  
A. Operating Types: Provide the following operating types in locations indicated on Drawings:  
1. Fixed.  
B. Frames and Sashes: Aluminum extrusions complying with AAMA/WDMA/CSA 101/I.S.2/A440.  
1. Thermally Improved Construction: Fabricate frames, sashes, and muntins with an integral, concealed, low-conductance thermal barrier located between exterior materials and window members exposed on interior side in a manner that eliminates direct metal-to-metal contact.  
C. Insulating-Glass Units: ASTM E 2190.  
1. Glass: ASTM C 1036, Type 1, Class 1, q3.  
a. Tint: Gray.  
b. Kind: Fully tempered [where indicated on Drawings] <insert requirements>.  
2. Low-E Coating: Pyrolytic on second surface.

D. Fasteners: Noncorrosive and compatible with window members, trim, hardware, anchors, and other components.  
**2.3 ALUMINUM FINISHES**  
A. Finish designations prefixed by AA comply with the system established by the Aluminum Association for designating aluminum finishes.  
B. Class I, Clear Anodic Finish: AA-M12C22A41 (Mechanical Finish: nonspecular as fabricated; Chemical Finish: etched, medium matte; Anodic Coating: Architectural Class I, clear coating 0.018 mm or thicker) complying with AAMA 611.

**PART 3 - EXECUTION**

**3.1 EXAMINATION**  
A. Examine openings, substrates, structural support, anchorage, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.  
B. Verify rough opening dimensions, levelness of sill plate, and

operational clearances.  
C. Examine wall flashings, vapor retarders, water and weather barriers, and other built-in components to ensure weathertight window installation.  
D. Proceed with installation only after unsatisfactory conditions have been corrected.

**3.2 INSTALLATION**  
A. Comply with manufacturer's written instructions for installing windows, hardware, accessories, and other components. For installation procedures and requirements not addressed in manufacturer's written instructions, comply with installation requirements in ASTM E 2112.  
B. Install windows level, plumb, square, true to line, without distortion or impeding thermal movement, anchored securely in place to structural support, and in proper relation to wall flashing and other adjacent construction to produce weathertight construction.  
C. Install windows and components to drain condensation, water penetrating joints, and moisture migrating within windows to the exterior.  
D. Separate aluminum and other corrodible surfaces from sources of corrosion or electrolytic action at points of contact with other materials.

**3.3 ADJUSTING, CLEANING, AND PROTECTION**  
A. Adjust operating sashes and hardware for a tight fit at contact points and weather stripping for smooth operation and weathertight closure.  
B. Clean exposed surfaces immediately after installing windows. Avoid damaging protective coatings and finishes. Remove excess sealants, glazing materials, dirt, and other substances.  
1. Keep protective films and coverings in place until final cleaning.  
C. Remove and replace glass that has been broken, chipped, cracked, abraded, or damaged during construction period.  
D. Protect window surfaces from contact with contaminating substances resulting from construction operations. If contaminating substances do contact window surfaces, remove contaminants immediately according to manufacturer's written instructions.

**END OF SECTION 085113**

**SECTION 08 7100 - DOOR HARDWARE**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**  
A. Hardware for hollow steel doors.  
B. Thresholds.  
C. Weatherstripping, seals and door gaskets.  
**1.02 RELATED REQUIREMENTS**  
A. Section 08 1113 - Hollow Metal Doors and Frames.  
**1.03 REFERENCE STANDARDS**  
A. 36 CFR 1191 - Americans with Disabilities Act Accessibility Guide lines for Buildings and Facilities; Final Rule; Current Date; (AD Standards for Accessible Design).  
B. BHMA A156.6 - American National Standard for Architecture Door Trim; Builders Hardware Manufacturers Association; Current Date (ANSI/BHMA A156.6).  
C. BHMA A156.18 - American National Standard for Materials and Finishes; Builders Hardware Manufacturers Association, Inc.; Current Date (ANSI/BHMA A156.18).  
D. BHMA A156.22 - American National Standard for Door Gasketin and Edge Seal Systems, Builders Hardware Manufacturers Association; Current Date (ANSI/BHMA A156.22).  
E. NFPA 80 - Standard for Fire Doors and Other Opening Protection; Current Date.  
F. UL (BMD) - Building Materials Directory; Underwriters Laboratories Inc.; Current Date.

**1.04 ADMINISTRATIVE REQUIREMENTS**

A. Coordinate the manufacture, fabrication, and installation of products onto which door hardware will be installed.

**1.05 SUBMITTALS**

A. See Section 01 3000 - Administrative Requirements, for submit procedures.  
B. Product Data: Manufacturer's catalog literature for each type of hardware, marked to clearly show products to be furnished for the project.  
C. Keys: Deliver with identifying tags to Owner by security shipper direct from hardware supplier.  
D. Warranty: Submit manufacturer's warranty and ensure that form have been completed in Owner's name and registered with manufacturer.

**1.06 QUALITY ASSURANCE**

A. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years of experience.

**1.07 DELIVERY, STORAGE, AND HANDLING**

A. Package hardware items individually; label and identify each package with door opening code to match hardware schedule.

**1.08 WARRANTY**  
A. See Section 01 7800 - Closeout Submittals, for additional warranty requirements.  
B. Provide five year warranty for door closers.

**PART 2 PRODUCTS**

**2.01 DOOR HARDWARE - GENERAL**  
A. Provide all hardware specified or required to make doors full functional, compliant with applicable codes, and secure to the extent indicated.  
B. Provide all items of a single type of the same model by the same manufacturer.  
C. Provide products that comply with the following:  
1. Applicable provisions of federal, state, and local codes.  
2. Fire-Rated Doors: NFPA 80.  
3. All Hardware on Fire-Rated Doors: Listed and classified by UL as suitable for the purpose specified and indicated.  
D. Finishes: All door hardware the same finish unless otherwise indicated.

1. Finish: Match material, finish, and hardware of existing buildings.  
**2.02 HINGES**  
A. Hinges: Provide hinges on every swinging door.  
1. Provide five-knuckle full mortise butt hinges unless otherwise indicated.  
2. Provide ball-bearing hinges at all doors having closers.  
3. Provide hinges in the quantities required for complete installation.  
4. Provide non-removable pins on exterior outswinging doors.  
5. Where electrified hardware is mounted in door leaf, provide power transfer hinges.

**2.03 PUSH/PULLS**

A. Push/Pulls: Comply with BHMA A156.6.

1. On exterior entry doors, provide matching push plate and pull plate on opposite faces.

#### 2.04 LOCKS AND LATCHES

A. Locks: Provide a lock for every door, unless specifically indicated as not requiring locking.

1. Hardware Sets indicate locking functions required for each door.

2. If no hardware set is indicated for a swinging door provide an office lockset.

3. Trim: Provide lever handle or pull trim on outside of all locks unless specifically stated to have no outside trim.

4. Lock Cylinders: Provide key access on outside of all locks unless specifically stated to have no locking or no outside trim.

B. Lock Cylinders: Manufacturer's standard tumbler type, six-pin standard core.

1. Provide cams and/or tailpieces as required for locking devices required.

C. Keying: Master Key Owner's existing system.

D. Latches: Provide a latch for every door that is not required to lock, unless specifically indicated "push/pull" or "not required to latch".

#### 2.05 GASKETING AND THRESHOLDS

A. Gaskets: Complying with BHMA A156.22.

1. On each exterior door, provide weatherstripping gaskets, unless otherwise indicated; top and sides.

2. On each exterior door, provide door bottom sweep, unless otherwise indicated.

B. Thresholds:

1. At each exterior door, provide a threshold unless otherwise indicated.

#### 2.06 KEY CONTROLS

A. Fire Department Lock Box: Heavy-duty, surface mounted, solid stainless-steel box with hinged door and interior gasket seal; single drill resistant lock with dust covers and tamper alarm.

1. Capacity: Holds 10 keys.

2. Finish: Manufacturer's standard black.

#### PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that doors and frames are ready to receive work; labeled, fire-rated doors and frames are present and properly installed, and dimensions are as indicated on shop drawings.

#### 3.02 INSTALLATION

A. Install hardware in accordance with manufacturer's instructions and applicable codes.

B. Use templates provided by hardware item manufacturer.

C. Install hardware on fire-rated doors and frames in accordance with code and NFPA 80.

D. Mounting heights for hardware from finished floor to center line of hardware item: As noted on drawing.

#### 3.03 ADJUSTING

A. Adjust work under provisions of Section 01 7000.

B. Adjust hardware for smooth operation.

#### 3.04 CLEANING

A. Clean adjacent surfaces soiled by hardware installation. Clean finished hardware per manufacturer's instructions after final adjustments has been made. Replace items that cannot be cleaned to manufacturer's level of finish quality at no additional cost.

#### 3.05 PROTECTION

A. Protect finished Work under provisions of Section 01 7000.

B. Do not permit adjacent work to damage hardware or finish.

#### END OF SECTION 08 7100

#### SECTION 08 8000 - GLAZING

#### PART 1 GENERAL

##### 1.01 SECTION INCLUDES

A. Glass.

B. Glazing compounds and accessories.

##### 1.02 RELATED REQUIREMENTS

A. Section 07 9005 - Joint Sealers: Sealant and back-up material.

##### 1.03 REFERENCE STANDARDS

A. ASTM C864 - Standard Specification for Dense Elastomeric Compression Seal Gaskets, Setting Blocks, and Spacers; Current Date.

B. ASTM C1036 - Standard Specification for Flat Glass; Current Date.

C. ASTM C1048 - Standard Specification for Heat-Treated Flat Glass--Kind HS, Kind FT Coated and Uncoated Glass; Current Date.

D. ASTM E1300 - Standard Practice for Determining Load Resistance of Glass in Buildings; Current Date.

E. GANA (GM) - GANA Glazing Manual; Glass Association of North America; Current Date.

F. GANA (SM) - FGMA Sealant Manual; Glass Association of North America; Current Date.

##### 1.04 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Product Data on Glass Types: Provide structural, physical and environmental characteristics, size limitations, special handling or installation requirements.

C. Product Data on Glazing Compounds: Provide chemical, functional, and environmental characteristics, limitations, special application requirements. Identify available colors.

D. Certificates: Certify that products meet or exceed specified requirements.

##### 1.05 QUALITY ASSURANCE

A. Perform Work in accordance with GANA Glazing Manual and FGMA Sealant Manual for glazing installation methods.

B. Installer Qualifications: Company specializing in performing the work of this section approved by manufacturer.

##### 1.06 FIELD CONDITIONS

A. Do not install glazing when ambient temperature is less than 50 degrees F.

B. Maintain minimum ambient temperature before, during and 24 hours after installation of glazing compounds.

##### 1.07 WARRANTY

A. See Section 01 7800 - Closeout Submittals, for additional warranty requirements.

B. Laminated Glass: Provide a five (5) year warranty to include coverage for delamination, including replacement of failed units.

#### PART 2 PRODUCTS

##### 2.01 EXTERIOR GLAZING ASSEMBLIES

A. Structural Design Criteria: Select type and thickness to withstand dead loads and wind loads acting normal to plane of glass at design pressures calculated in accordance with ASCE 7.

1. Use the procedure specified in ASTM E1300 to determine glass type and thickness.

2. Limit glass deflection to 1/200 or flexure limit of glass, whichever is less, with full recovery of glazing materials.

3. Thicknesses listed are minimum.

##### 2.02 GLASS MATERIALS

A. Float Glass Manufacturers:

1. AGC Flat Glass North America, Inc: www.na.agc-flat-glass.com.

2. Guardian Industries Corp: www.sunguardglass.com.

3. Pilkington North America Inc: www.pilkington.com/na.

4. PPG Industries, Inc: www.ppgideascape.com.

B. Float Glass: All glazing is to be float glass unless otherwise indicated.

1. Annealed Type: ASTM C1036, Type I, transparent flat, Class 1 clear, Quality Q3 (glazing select).

2. Heat-Strengthened and Fully Tempered Types: ASTM C1048.

3. Tinted Types: Color and performance characteristics as indicated.

4. Thicknesses: As indicated; for exterior glazing comply with specified requirements for wind load design regardless of specified thickness.

##### 2.03 GLAZING COMPOUNDS

A. Manufacturers:

1. Bostik Inc: www.bostik-us.com.

2. Momentive Performance Materials, Inc (formerly GE Silicons): www.momentive.com.

3. Pecora Corporation: www.pecora.com.

4. BASF Construction Chemicals-Building Systems: www.buildingsystems.basf.com.

#### 2.04 GLAZING ACCESSORIES

A. Setting Blocks: Neoprene, 80 to 90 Shore A durometer hardness, ASTM C864 Option I. Length of 0.1 inch for each square foot of glazing or minimum 4 inch x width of glazing rabbet space minus 1/16 inch x height to suit glazing method and pane weight and area.

B. Spacer Shims: Neoprene, 50 to 60 Shore A durometer hardness, ASTM C 864 Option I. Minimum 3 inch long x one half the height of the glazing stop x thickness to suit application, self adhesive on one face.

C. Joint Treatment and Accessories:

F. Water-resistive barrier over exterior wall sheathing.

#### PART 3 EXECUTION

##### 3.01 EXAMINATION

A. Verify that openings for glazing are correctly sized and within tolerance.

B. Verify that surfaces of glazing channels or recesses are clean, free of obstructions that may impede moisture movement, weeps are clear, and ready to receive glazing.

##### 3.02 PREPARATION

A. Clean contact surfaces with solvent and wipe dry.

B. Install sealant in accordance with manufacturer's instructions.

##### 3.03 CLEANING

A. Remove glazing materials from finish surfaces.

B. Remove labels after Work is complete.

C. Clean glass and adjacent surfaces.

##### 3.04 PROTECTION

A. After installation, mark pane with an 'X' by using removable plastic tape or paste; do not mark heat absorbing or reflective glass units.

#### END OF SECTION 08 8000

#### SECTION 09 2116 - GYPSUM BOARD ASSEMBLIES

#### PART 1 GENERAL

##### 1.01 SECTION INCLUDES

A. Performance criteria for gypsum board assemblies.

B. Metal stud wall framing.

C. Acoustic insulation.

D. Gypsum wallboard.

E. Joint treatment and accessories.

F. Water-resistive barrier over exterior wall sheathing.

##### 1.02 RELATED REQUIREMENTS

A. Section 07 2100 - Thermal Insulation: Acoustic insulation.

B. Section 07 2500 - Weather Barriers: Water-resistive barrier over sheathing.

C. Section 07 8400 - Firestopping: Top-of-wall assemblies at fire rated walls.

D. Section 07 9005 - Joint Sealers: Acoustic sealant.

E. Section 09 3000 - Tiling (Tile): Tile backing board.

##### 1.03 REFERENCE STANDARDS

A. AISI SG02-1 - North American Specification for the Design of Cold-Formed Steel Structural Members; American Iron and Steel Institute; 2001 with 2004 supplement. (replaced SG-971)

B. ASTM C475/C475M - Standard Specification for Joint Compound and Joint Tape for Finishing Gypsum Board; 2002 (Reapproved 2007).

C. ASTM C645 - Standard Specification for Nonstructural Steel Framing Members; 2009a.

D. ASTM C665 - Standard Specification for Mineral-Fiber Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing; 2006.

E. ASTM C754 - Standard Specification for Installation of Steel Framing Members to Receive Screw-Attached Gypsum Panel Products; 2009a.

F. ASTM C840 - Standard Specification for Application and Finishing of Gypsum Board; 2008.

G. ASTM C954 - Standard Specification for Steel Drill Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Steel Studs From 0.033 in. (0.84 mm) to 0.112 in. (2.84 mm) in Thickness; 2010.

H. ASTM C1002 - Standard Specification for Steel Self-Piercing Tapping Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Wood Studs or Steel Studs; 2007.

I. ASTM C1280 - Standard Specification for Application of Gypsum Sheathing; 2009.

J. ASTM C1396/C1396M - Standard Specification for Gypsum Board; 2009a.

K. ASTM D3273 - Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber; 2000 (Reapproved 2005).

L. ASTM E90 - Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements; 2009.

M. ASTM E413 - Classification for Rating Sound Insulation; 2010.

N. GA-216 - Application and Finishing of Gypsum Board; Gypsum Association; 2010.

O. GA-600 - Fire Resistance Design Manual; Gypsum Association; 2009.

P. UL (FRD) - Fire Resistance Directory; Underwriters Laboratories Inc.; current edition.

##### 1.04 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide data on metal framing, gypsum board, accessories, and joint finishing system.

C. Product Data: Provide manufacturer's data on partition head to structure connectors, showing compliance with requirements.

##### 1.05 QUALITY ASSURANCE

A. Perform in accordance with ASTM C 840. Comply with requirements of GA-600 for fire-rated assemblies.

B. Product Data: Provide data on metal framing, gypsum board, accessories, and joint finishing system.

C. Product Data: Provide manufacturer's data on partition head to structure connectors, showing compliance with requirements.

##### 1.05 QUALITY ASSURANCE

A. Perform in accordance with ASTM C 840. Comply with requirements of GA-600 for fire-rated assemblies.

B. Product Data: Provide data on metal framing, gypsum board, accessories, and joint finishing system.

C. Product Data: Provide manufacturer's data on partition head to structure connectors, showing compliance with requirements.

#### PART 2 PRODUCTS

##### 2.01 GYPSUM BOARD ASSEMBLIES

A. Provide completed assemblies complying with ASTM C840 and GA-216.

B. Interior Partitions Indicated as Acoustic: Provide completed assemblies with the following characteristics:

1. Acoustic Attenuation: STC of 45-49 calculated in accordance with ASTM E413, based on tests conducted in accordance with ASTM E90.

C. Shaft Walls at Elevator Shafts: Provide completed assemblies with the following characteristics:

1. Air Pressure Within Shaft: Intermittent loads of 5 lbf/sq ft (0.24 kPa) with maximum mid-span deflection of L/240.

2. Acoustic Attenuation: STC of 35-39 calculated in accordance with ASTM E413, based on tests conducted in accordance

with ASTM E90.

D. Fire Rated Assemblies: Provide completed assemblies with the following characteristics:

1. Fire Rated Shaft Walls: UL listed assembly No. U-425; 1 hour rating.

2. UL Assembly Numbers: Provide construction equivalent to that listed for the particular assembly in the current UL Fire Resistance Directory.

##### 2.02 METAL FRAMING MATERIALS

A. Non-Loadbearing Framing System Components: ASTM C645; galvanized sheet steel, of size and properties necessary to comply with ASTM C754 for the spacing indicated, with maximum deflection of wall framing of L/240 at 5 psf (240 Pa).

1. Studs: "C" shaped with flat or formed webs with knurled faces.

2. Runners: U shaped, sized to match studs.

B. Shaft Wall Studs and Accessories: ASTM C645; galvanized sheet steel, of size and properties necessary to comply with ASTM C754 and specified performance requirements.

C. See Specifications on Structural Drawings and Drawings provided by Metal Building Manufacturer.

##### 2.03 BOARD MATERIALS

A. Manufacturers - Gypsum-Based Board:

1. Georgia-Pacific Gypsum LLC: www.gp.com/gypsum.

2. National Gypsum Company: www.nationalgypsum.com.

3. USG Corporation: www.usg.com.

B. Gypsum Wallboard: Paper-faced gypsum panels as defined in ASTM C1396/C1396M; sizes to minimize joints in place; ends square cut.

1. Application: Use for vertical surfaces, unless otherwise indicated.

2. Mold Resistance: Score of 10, when tested in accordance with ASTM D3273.

3. At Assemblies Indicated with Fire-Rating: Use type required by indicated tested assembly; if no tested assembly is indicated, use Type X board, UL or WH listed.

4. Thickness:

a. Vertical Surfaces: 5/8 inch (16 mm).

##### 2.04 ACCESSORIES

A. Acoustic Insulation: As specified in Section 07 2100.

B. Acoustic Sealant: As specified in Section 07 9005.

C. Water-Resistive Barrier: As specified in Section 07 2500.

D. Joint Materials: ASTM C475 and as recommended by gypsum board manufacturer for project conditions.

1. Tape: 2 inch (50 mm) wide, coated glass fiber tape for joints and corners, except as otherwise indicated.

2. Tape: 2 inch (50 mm) wide, creased paper tape for joints and corners, except as otherwise indicated.

3. Ready-mixed vinyl-based joint compound.

4. Chemical hardening type compound.

E. Screws for Attachment to Steel Members Less Than 0.03 inch (0.7 mm) In Thickness, to Wood Members, and to Gypsum Board: ASTM C1002; self-piercing tapping type; cadmium-plated for exterior locations.

F. Screws for Attachment to Steel Members From 0.033 to 0.112 inch (0.8 to 2.8 mm) in Thickness: ASTM C954; steel drill screws for application of gypsum board to loadbearing steel studs.

G. Anchorage to Substrate: Tie wire, nails, screws, and other metal supports, of type and size to suit application; to rigidly secure materials in place.

#### PART 3 EXECUTION

##### 3.01 EXAMINATION

A. Verify that project conditions are appropriate for work of this section to commence.

##### 3.02 SHAFT WALL INSTALLATION

A. Shaft Wall Framing: Install in accordance with manufacturer's installation instructions.

1. Install studs at spacing required to meet performance requirements.

B. Shaft Wall Liner: Cut panels to accurate dimension and install sequentially between special friction studs.

##### 3.03 FRAMING INSTALLATION

A. Metal Framing: Install in accordance with ASTM C754 and manufacturer's instructions.

B. Studs: Space studs as indicated on drawings.

1. Extend partition framing to structure where indicated and to ceiling in other locations.

2. Partitions Terminating at Ceiling: Attach ceiling runner securely to ceiling track in accordance with manufacturer's instructions.

C. Openings: Reinforce openings as required for weight of doors or operable panels, using not less than double studs at jambs.

D. Standard Wall Furring: Install at masonry walls scheduled to receive gypsum board, not more than 4 inches (100 mm) from floor

and ceiling lines and abutting walls. Secure in place on alternate channel flanges at maximum 24 inches (600 mm) on center.

1. Orientation: Horizontal.

3.04 ACOUSTIC ACCESSORIES INSTALLATION

A. Acoustic Insulation: Place tightly within spaces, around cut openings, behind and around electrical and mechanical items within partitions, and tight to items passing through partitions.

B. Acoustic Sealant: Install in accordance with manufacturer's instructions.

##### 3.05 BOARD INSTALLATION

A. Comply with ASTM C 840, GA-216, and manufacturer's instructions. Install to minimize butt end joints, especially in highly visible locations.

B. Single-Layer Non-Rated: Install gypsum board in most economical direction, with ends and edges occurring over firm bearing.

1. Exception: Tapered edges to receive joint treatment at right angles to framing.

C. Fire-Rated Construction: Install gypsum board in strict compliance with requirements of assembly listing.

D. Installation on Metal Framing: Use screws for attachment of all gypsum board.

E. Moisture Protection: Treat cut edges and holes in moisture resistant gypsum board with sealant.

##### 3.06 INSTALLATION OF TRIM AND ACCESSORIES

A. Corner Beads: Install at external corners, using longest practica lengths.

##### 3.07 JOINT TREATMENT

A. Finish gypsum board in accordance with levels defined in ASTM C840, as follows:

1. Level 4: Walls and ceilings to receive paint finish or wall coverings, unless otherwise indicated.

2. Level 2: Restroom area to receive tile finish.

3. Level 1: Fire rated wall areas above finished ceilings whether or not accessible in the completed construction.

B. Tape, fill, and sand exposed joints, edges, and corners to produce smooth surface ready to receive finishes.

1. Feather coats of joint compound so that camber is maximum 1/32 inch (0.8 mm).

2. Taping, filling, and sanding is not required at surface behind adhesive applied

ceramic tile and fixed cabinetry.

#### END OF SECTION 09 2116



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#### STRUCTURAL ENGINEER:

#### BLAKE WILSON ENGINEERING, PL

6

**SECTION 09 3000 - TILING**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Tile for wall applications.
- B. Cementitious backer board as tile substrate.
- C. Ceramic accessories.
- D. Ceramic trim.

**1.02 RELATED REQUIREMENTS**

- A. Section 07 9005 - Joint Sealers.

**1.03 REFERENCE STANDARDS**

A. ANSI A108 Series/A118 Series/A136.1 - American National Standard Specifications for the Installation of Ceramic Tile (Compendium); 2011.

B. ANSI A108.1a - American National Standard Specifications for Installation of Ceramic Tile in the Wet-Set Method, with Portland Cement Mortar; 2011.

C. ANSI A108.1b - American National Standard Specifications for Installation of Ceramic Tile on a Cured Portland Cement Mortar Setting Bed with Dry-Set or Latex Portland Cement Mortar; 2011.

D. ANSI A108.1c - Specifications for Contractors Option: Installation of Ceramic Tile in the Wet-Set Method with Portland Cement Mortar or Installation of Ceramic Tile on a Cured Portland Cement Mortar Bed with Dry-Set or Latex Portland Cement Mortar; 2011.

E. ANSI A108.4 - American National Standard Specifications for Installation of Ceramic Tile with Organic Adhesives or Water Cleanable Tile-Setting Epoxy Adhesive; 2011.

F. ANSI A108.5 - American National Standard Specifications for Installation of Ceramic Tile with Dry-Set Portland Cement Mortar or Latex-Portland Cement Mortar; 2011.

G. ANSI A108.6 - American National Standard Specifications for Installation of Ceramic Tile with Chemical Resistant, Water Cleanable Tile-Setting and -Grouting Epoxy; 2011.

H. ANSI A108.8 - American National Standard Specifications for Installation of Ceramic Tile with Chemical Resistant Furan Resin Mortar and Grout; 2011.

I. ANSI A108.9 - American National Standard Specifications for Installation of Ceramic Tile with Modified Epoxy Emulsion Mortar/Grout; 2011.

J. ANSI A108.10 - American National Standard Specifications for Installation of Grout in Tilework; 2011.

K. ANSI A108.11 - American National Standard for Interior Installation of Cementitious Backer Units; 2011.

L. ANSI A118.6 - American National Standard Specifications for Standard Cement Grouts for Tile Installation; 2011.

M. ANSI A118.9 - American National Standard Specifications for Test Methods and Specifications for Cementitious Backer Units; 2011.

N. ANSI A137.1 - American National Standard Specifications for Ceramic Tile; 2008.

O. TCNA (HB) - Handbook for Ceramic, Glass, and Stone Tile Installation; 2011.

**1.04 SUBMITTALS**

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide manufacturers' data sheets on tile, mortar, grout, and accessories. Include instructions for using grouts and adhesives.

C. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.

D. Maintenance Data: Include recommended cleaning methods, cleaning materials, stain removal methods, and polishes and waxes.

E. Samples: Provide grout color samples.

**1.05 QUALITY ASSURANCE**

A. Maintain one copy of The Tile Council of North America Handbook and ANSI A108 Series/A118 Series on site.

B. Installer Qualifications: Company specializing in performing tile installation, with minimum of 5 years of documented experience.

**1.06 DELIVERY, STORAGE, AND HANDLING**

A. Protect adhesives from freezing or overheating in accordance with manufacturer's instructions.

**1.07 FIELD CONDITIONS**

A. Do not install solvent-based products in an unventilated environment.

B. Maintain ambient and substrate temperature of 50 degrees F (10 degrees C) during installation of mortar materials.

**PART 2 PRODUCTS**

**2.01 TILE**

- A. Manufacturers:
  1. Dal-Tile Corporation: www.daltile.com.
- B. Ceramic Mosaic Tile: ANSI A137.1, and as follows:
  1. Coastal Keystone - Tropical Thunder CK88 Block Random Mosaic manufactured by Dal-Tile Corporation.

2. Size and Shape: Block Random.

3. Colors: As scheduled.

C. Glazed Wall Tile: ANSI A137.1, and as follows:

- 1. City View - Urban Evening CY08 manufactured by Dal-Tile Corporation.
- 2. Size and Shape: 4 inch by 12 inch.
- 3. Surface Finish: Matte glaze.
- 4. Colors: As scheduled.
- 5. Pattern: see details on Sheet A-301.

**2.02 TRIM AND ACCESSORIES**

A. Ceramic Accessories: same color and finish as adjacent field tile; same manufacturer as tile.

1. Toilet Tissue Holder: Surface mounted, for single roll, with spring loaded holder.

B. Ceramic Trim: Matching bullnose ceramic shapes in sizes coordinated with field tile.

1. Applications: Use in the following locations:

- a. Open Edges: Bullnose.
- b. Inside Corners: Jointed.
- c. Floor to Wall Joints: Straight base.

**2.03 SETTING MATERIALS**

A. Provide setting materials made by the same manufacturer as grout.

**2.04 GROUTS**

A. Standard Grout: ANSI A118.6 standard cement grout.

1. Applications: Use this type of grout where indicated and where no other type of grout is indicated.

2. Use sanded grout for joints 1/8 inch wide and larger; use unsanded grout for joints less than 1/8 inch wide.

3. Color(s): Provide samples from manufacturer's full line for selection by Architect.

**2.05 THIN-SET ACCESSORY MATERIALS**

A. Cementitious Backer Board: ANSI A118.9; High density, cementitious, glass fiber reinforced, 5/8 inch thick; 2 inch (50 mm) wide coated glass fiber tape for joints and corners.

**PART 3 EXECUTION**

**3.01 EXAMINATION**

A. Verify that wall surfaces are smooth and flat within the tolerances specified for that type of work, are dust-free, and are ready to receive tile.

B. Verify that required floor-mounted utilities are in correct location.

**3.02 PREPARATION**

A. Protect surrounding work from damage.

B. Vacuum clean surfaces and damp clean.

C. Seal substrate surface cracks with filler. Level existing substrate surfaces to acceptable flatness tolerances.

D. Install backer board in accordance with ANSI A108.11 and board manufacturer's instructions. Tape joints and corners, cover with skim coat of setting material to a feather edge.

**3.03 INSTALLATION - GENERAL**

A. Install tile and grout in accordance with applicable requirements of ANSI A108.1 through A108.13, manufacturer's instructions, and The Tile Council of North America Handbook recommendations.

B. Lay tile to pattern indicated. Do not interrupt tile pattern through openings.

C. Cut and fit tile to penetrations through tile, leaving sealant joint space. Form corners and bases neatly. Align base and wall joints.

D. Place tile joints uniform in width, subject to variance in tolerance allowed in tile size. Make grout joints without voids, cracks, excess mortar or excess grout, or too little grout.

E. Form internal angles square and external angles bullnosed.

F. Install ceramic accessories rigidly in prepared openings.

G. Sound tile after setting. Replace hollow sounding units.

H. Keep expansion joints free of adhesive or grout. Apply sealant to joints.

I. Prior to grouting, allow installation to completely cure; minimum of 48 hours.

J. Grout tile joints. Use standard grout unless otherwise indicated.

K. Apply sealant to junction of tile and dissimilar materials and junction of dissimilar planes.

**3.04 INSTALLATION - WALL TILE**

A. Over gypsum wallboard on wood or metal studs install in accordance with The Tile Council of North America Handbook Method W243, thin-set with dry-set or latex-Portland cement bond coat, unless otherwise indicated.

**3.05 CLEANING**

A. Clean tile and grout surfaces.

**END OF SECTION 09 3000**

**SECTION 09 9000 - PAINTING AND COATING**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

A. Surface preparation.

B. Field application of paints and other coatings.

C. Scope: Finish all interior and exterior surfaces exposed to view, unless fully factory-finished and unless otherwise indicated.

D. Do Not Paint or Finish the Following Items:

- 1. Items fully factory-finished unless specifically so indicated; materials and products having factory-applied primers are not considered factory finished.
- 2. Items indicated to receive other finishes.
- 3. Items indicated to remain unfinished.
- 4. Fire rating labels, equipment serial number and capacity labels, and operating parts of equipment.
- 5. Floors, unless specifically so indicated.
- 6. Glass.
- 7. Concealed pipes, ducts, and conduits.

**1.02 RELATED REQUIREMENTS**

A. Section 05 5000 - Metal Fabrications: Shop-primed items.

**1.03 REFERENCE STANDARDS**

A. 40 CFR 59, Subpart D - National Volatile Organic Compound Emission Standards for Architectural Coatings; U.S. Environmental Protection Agency; Current Date.

B. ASTM D16 - Standard Terminology for Paint, Related Coatings, Materials, and Applications; Current Date.

C. ASTM D4442 - Standard Test Methods for Direct Moisture Content Measurement of Wood and Wood-Base Materials; Current Date.

D. GreenSeal GS-11 - Paints; Current Date.

E. SSPC (PM1) - Good Painting Practice: SSPC Painting Manual, Vol. 1; Society for Protective Coatings; Current Edition.

**1.04 SUBMITTALS**

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide complete list of all products to be used, with the following information for each:

- 1. Manufacturer's name, product name and/or catalog number, and general product category (e.g. "alkyd enamel").
- 2. MPI product number (e.g. MPI #47).
- 3. Cross-reference to specified paint system(s) product is to be used in; include description of each system.

C. Certification: By manufacturer that all paints and coatings do not contain any of the prohibited chemicals specified; GreenSeal GS-11 certification is not required but if provided shall constitute acceptable certification.

D. Manufacturer's Instructions: Indicate special surface preparation procedures.

E. Maintenance Data: Submit data on cleaning, touch-up, and repair of painted and coated surfaces.

**1.05 QUALITY ASSURANCE**

A. Manufacturer Qualifications: Company specializing in manufacturing the products specified, with minimum three years experience.

B. Applicator Qualifications: Company specializing in performing the type of work specified with minimum three years experience.

**1.06 DELIVERY, STORAGE, AND HANDLING**

A. Deliver products to site in sealed and labeled containers; inspect to verify acceptability.

B. Container Label: Include manufacturer's name, type of paint, brand name, lot number, brand code, coverage, surface preparation, drying time, cleanup requirements, color designation, and instructions for mixing and reducing.

C. Paint Materials: Store at minimum ambient temperature of 45 degrees F and a maximum of 90 degrees F, in ventilated area, and as required by manufacturer's instructions.

**1.07 FIELD CONDITIONS**

A. Do not apply materials when surface and ambient temperatures are outside the temperature ranges required by the paint product manufacturer.

B. Follow manufacturer's recommended procedures for producing best results, including testing of substrates, moisture in substrates, and humidity and temperature limitations.

C. Provide lighting level of 80 ft candles measured mid-height at substrate surface.

**PART 2 PRODUCTS**

**2.01 MANUFACTURERS**

A. Provide all paint and coating products used in any individual system from the same manufacturer; no exceptions.

B. Provide all paint and coating products from the same manufacturer to the greatest extent possible.

C. Paints:

- 1. Base Manufacturer: Sherwin-Williams.

2. Duron, Inc: www.duron.com.

3. Benjamin Moore & Co: www.benjaminmoore.com.

4. PPG Architectural Finishes, Inc: www.ppgaf.com.

D. Primer Sealers: Same manufacturer as top coats.

**2.02 PAINTS AND COATINGS - GENERAL**

A. Paints and Coatings: Ready mixed, unless intended to be a field-catalyzed coating.

1. Provide paints and coatings of a soft paste consistency, capable of being readily and uniformly dispersed to a homogeneous coating, with good flow and brushing properties, and capable of drying or curing free of streaks or sags.

2. Supply each coating material in quantity required to complete entire project's work from a single production run.

3. Do not reduce, thin, or dilute coatings or add materials to coatings unless such procedure is specifically described in manufacturer's product instructions.

B. Primers: Where the manufacturer offers options on primers for a particular substrate, use primer categorized as "best" by the manufacturer.

C. Volatile Organic Compound (VOC) Content:

a. 40 CFR 59, Subpart D--National Volatile Organic Compound Emission Standards for Architectural Coatings.

2. Determination of VOC Content: Testing and calculation in accordance with 40 CFR 59, Subpart D (EPA Method 24), exclusive of colorants added to a tint base and water added at project site; or other method acceptable to authorities having jurisdiction.

D. Colors: As indicated on drawing and as selected by Owner.

1. In finished areas, finish pipes, ducts, conduit, and equipment the same color as the ceiling they are mounted on/ under.

**2.03 PAINT SYSTEMS - EXTERIOR**

A. Paint ME-OP-3L - Ferrous Metals, Unprimed, Latex, 3 Coat:

Primer.

- 1. One coat of latex primer; S-W All Surface Enamel Latex

Gloss.

- 2. Gloss: Two coats of latex enamel; S-W Exterior Latex

B. Paint ME-OP-2L - Ferrous Metals, Primed, Latex, 2 Coat:

Gloss.

- 1. Touch-up with rust-inhibitive primer recommended by top coat manufacturer.
- 2. Gloss: Two coats of latex enamel; S-W A-100 Latex

C. Paint MgE-OP-3L - Galvanized Metals, Latex, 3 Coat:

Gloss.

- 1. One coat galvanize primer.
- 2. Gloss: Two coats of latex enamel; S-W A-100 Latex

**2.04 PAINT SYSTEMS - INTERIOR**

A. Paint MI-OP-3L - Ferrous Metals, Unprimed, Latex, 3 Coat:

1. One coat of latex primer.

2. Semi-gloss: Two coats of latex enamel; S-W ProMar 200 XP Interior Latex.

B. Paint MI-OP-2A - Ferrous Metals, Primed, Alkyd, 2 Coat:

C. Paint Mgl-OP-3A - Galvanized Metals, Alkyd, 3 Coat:

D. Paint Mgl-OP-3L - Galvanized Metals, Latex, 3 Coat:

1. Semi-gloss: Two coats of latex enamel; S-W ProMar 200 XP Interior Latex.

B. Paint MI-OP-2A - Ferrous Metals, Primed, Alkyd, 2 Coat:

C. Paint Mgl-OP-3A - Galvanized Metals, Alkyd, 3 Coat:

D. Paint Mgl-OP-3L - Galvanized Metals, Latex, 3 Coat:

1. Semi-gloss: Two coats of latex enamel; S-W ProMar 200 XP Interior Latex.

**2.05 ACCESSORY MATERIALS**

A. Accessory Materials: Provide all primers, sealers, cleaning agents, cleaning cloths, sanding materials, and clean-up materials required to achieve the finishes specified whether specifically indicated or not; commercial quality.

B. Patching Material: Latex filler.

C. Fastener Head Cover Material: Latex filler

**PART 3 EXECUTION**

**3.01 EXAMINATION**

A. Verify that surfaces are ready to receive work as instructed by the product manufacturer.

B. Examine surfaces scheduled to be finished prior to commencement of work. Report any condition that may potentially affect proper application.

C. Test shop-applied primer for compatibility with subsequent cover materials.

**3.02 PREPARATION**

A. Clean surfaces thoroughly and correct defects prior to coating application.

B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

C. Remove or mask surface appurtenances, including electrical plates, hardware, light fixture trim, escutcheons, and fittings, prior to preparing surfaces or finishing.

D. Seal surfaces that might cause bleed through or staining of top coat.

E. Remove mildew from impervious surfaces by scrubbing with solution of tri-sodium phosphate and bleach. Rinse with clean water and allow surface to dry.

F. Galvanized Surfaces to be Painted: Remove surface contamination and oils and wash with solvent. Apply coat of etching primer.

G. Corroded Steel and Iron Surfaces to be Painted: Prepare using at least SSPC-PC 2 (hand tool cleaning) or SSPC-SP 3 (power tool cleaning) followed by SSPC-SP 1 (solvent cleaning).

H. Uncoated Steel and Iron Surfaces to be Painted: Remove grease, mill scale, weld splatter, dirt, and rust. Where heavy coatings of scale are evident, remove by hand or power tool with brushing or sandblasting; clean by washing with solvent. Apply treatment of phosphoric acid solution, ensuring weld joints, bolts and nuts are similarly cleaned. Prime paint entire surface; spot prime after repairs.

I. Shop-Primed Steel Surfaces to be Finish Painted: Sand and scrape to remove loose primer and rust. Feather edges to make touch up patches inconspicuous. Clean surfaces with solvent. Prime bare steel surfaces.

J. Metal Doors to be Painted: Prime metal door top and bottom edge surfaces.

K. Remove unfinished louvers, grilles, covers, and access panels or mechanical and electrical components and paint separately.

L. Apply products in accordance with manufacturer's instructions.

M. Do not apply finishes to surfaces that are not dry. Allow applied coats to dry before next coat is applied.

N. Apply each coat to uniform appearance.

O. Sand metal surfaces lightly between coats to achieve required finish.

P. Vacuum clean surfaces of loose particles. Use tack cloth to remove dust and particles just prior to applying next coat.

Q. Reinstall electrical cover plates, hardware, light fixture trim, escutcheons, and fittings removed prior to finishing.

**3.04 FIELD QUALITY CONTROL**

A. General Contractor will provide field inspection.

**3.05 CLEANING**

A. Collect waste material that could constitute a fire hazard, place in closed metal containers, and remove daily from site.

**3.06 PROTECTION**

A. Protect finished coatings until completion of project.

B. Touch-up damaged coatings after Substantial Completion.

**END OF SECTION 09 9000**



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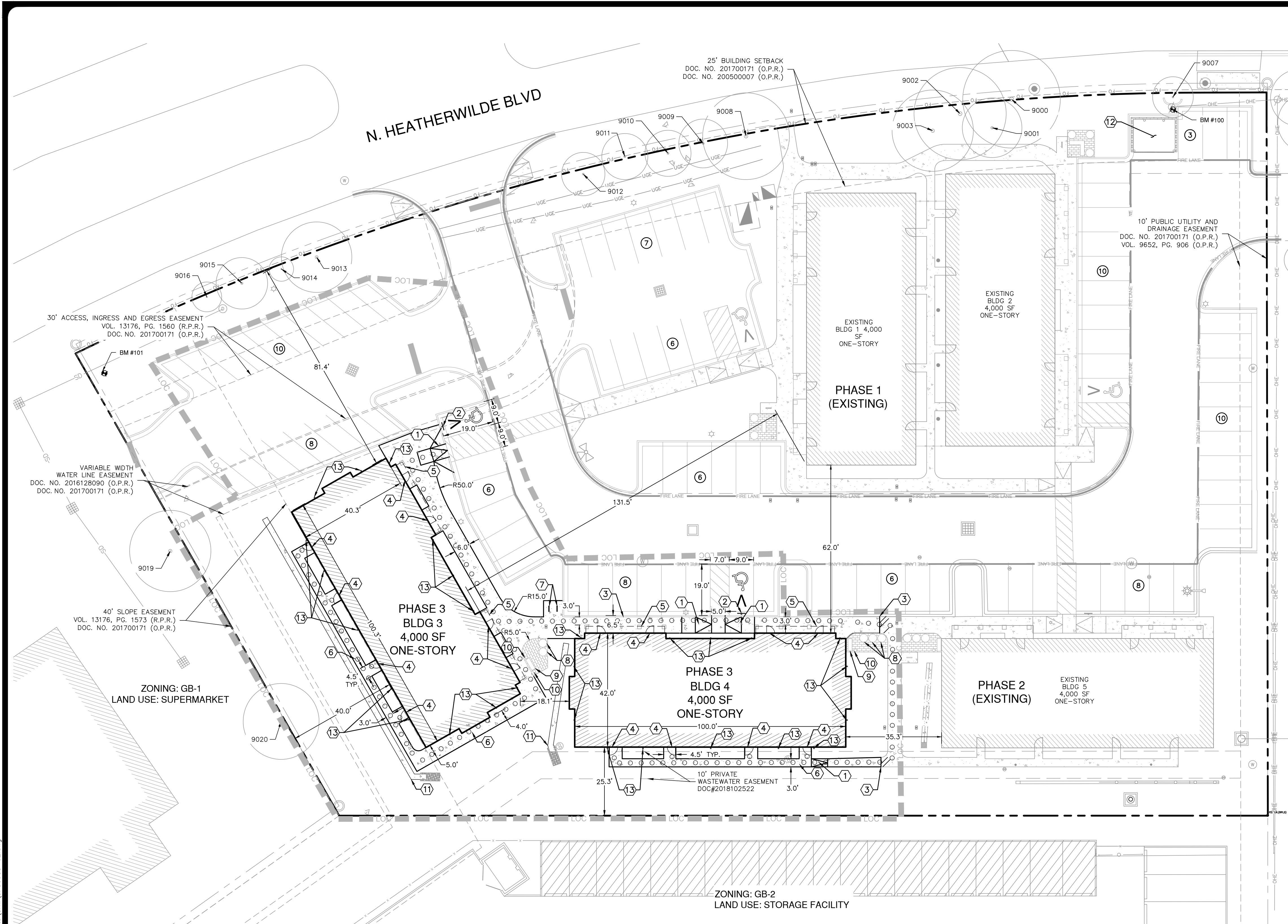
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Date: Aug 16, 2023, 2:07pm User: Id: akalifa  
 File: H:\Projects\509\509\509\Construction Documents\509\509\509.dwg



SCALE: 1" = 20'

0' 20' 40' 60'

**LEGEND**

- PROPERTY BOUNDARY
- ○ ○ ○ ○ PROPOSED ADA PATH
- EXISTING ADA RAMP
- ▭ PROPOSED ADA RAMP
- ▭ PROPOSED BUILDING
- ▭ EXISTING BUILDING
- EXISTING CURB
- EXISTING WHEEL STOP
- EXISTING FIRE LANE STRIPING
- EXISTING ACCESSIBLE PARKING AND VAN ACCESSIBLE PARKING
- PROPOSED ACCESSIBLE PARKING AND VAN ACCESSIBLE PARKING (FOR REFERENCE ONLY NOT TO BE PAINTED ON GROUND)
- OVERHEAD ELECTRIC
- EXISTING FIRE HYDRANT
- EXISTING WATER VALVE
- EXISTING WASTEWATER MANHOLE
- EXISTING LAMP POST
- EXISTING UTILITY POLE
- EXISTING GRATE INLET
- EXISTING JUNCTION BOX
- BENCHMARK
- ARCHITECTURAL PAVING (SEE SHEET 17 FOR DETAILS)
- TIE INTO EXISTING PAVEMENT

**KEYED NOTES**

- ① SIDEWALK RAMP @ 12:1 MAX SLOPE (SEE DETAIL SHEET 15)
- ② ACCESSIBLE PARKING SIGN AND WHEEL STOP (SEE DETAIL SHEET 15)
- ③ MATCH EXISTING SIDEWALK OR PAVEMENT
- ④ BUILDING ENTRANCE
- ⑤ BUILDING OVERHANG
- ⑥ PROPOSED CONCRETE SIDEWALK (SEE DETAIL SHEET 15)
- ⑦ PROPOSED BIKE RACK (SEE SHEET 15 FOR DETAILS)
- ⑧ PROPOSED LANDSCAPE PLANTER (SEE SHEET 15 FOR DETAILS)
- ⑨ PROPOSED BENCH (SEE SHEETS 18 - 20 FOR DETAILS)
- ⑩ PROPOSED ACCENT LIGHTING (SEE SHEETS 28 & 30 FOR DETAILS)
- ⑪ PROPOSED DRAINAGE SWALE
- ⑫ EXISTING DUMPSTER LOCATION
- ⑬ PROPOSED DOWNSPOUTS (SEE THE ARCHITECTURAL PLANS SHEETS 22 & 25 FOR DETAILS)

**DIMENSIONAL CONTROL NOTES:**

1. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS PRIOR TO THE START OF CONSTRUCTION AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ESTABLISHING ALL HORIZONTAL AND VERTICAL CONTROL PER THE CONSTRUCTION DRAWINGS.
3. UNLESS OTHERWISE NOTED, THE CONTRACTOR SHALL USE THE PROPERTY PINS FOR HORIZONTAL CONTROL POINTS. BENCHMARKS ARE NOT TO BE USED FOR HORIZONTAL CONTROL.
4. DIMENSIONAL CONTROL POINTS ARE TO BACK OF CURB. DIMENSIONS ARE TO THE FACE OF CURB, FACE OF RETAINING WALL, AND CENTER OF PAINT STRIPING. ALL DIMENSIONS ARE PERPENDICULAR TO THE POINT OF REFERENCE.
5. REFER TO THE ARCHITECTURAL AND STRUCTURAL PLANS FOR ADDITIONAL DIMENSIONAL CONTROL INFORMATION.
6. ALL CONCRETE CURB RADII ARE 2' UNLESS OTHERWISE NOTED.
7. COORDINATES FOR HORIZONTAL CONTROL POINTS ARE BASED ON THE TEXAS STATE PLANE COORDINATE SYSTEM, CENTRAL ZONE, FROM THE NORTH AMERICAN DATUM OF 1983 NAD83 (NA2011) EPOCH 2010.00, DISPLAYED IN SURFACE VALUES USING A SURFACE ADJUSTMENT FACTOR FOR EACH COUNTY. (THE SURFACE ADJUSTMENT FACTOR FOR THIS SITE IS 0.99988.)
8. ALL PROPOSED SIDEWALKS ARE 6' WIDE UNLESS OTHERWISE NOTED.
9. ALL PROPOSED SIDEWALKS MUST MEET ALL ADA REQUIREMENTS.

**BENCH MARK:**  
 BM# 100: COTTON SPINDLE IN UTILITY POLE  
 GRID NORTHING: 10138631.840  
 GRID EASTING: 3145947.324  
 ELEVATION: 776.19  
 BM# 101: CUT SQUARE IN TRANSFORMER PAD  
 GRID NORTHING: 10138237.570  
 GRID EASTING: 3145850.133  
 ELEVATION: 782.25

GENERAL INFORMATION	
LEGAL DESCRIPTION	LOT 1A OF THE RE-SUBDIVISION OF LOT 1 MILESTONE PECAN STREET SUBDIVISION
SITE AREA	2.201 AC
ZONING	GB-1
BUILDING SETBACKS	
STREET	15 FT MINIMUM
SIDE	10 FT MINIMUM
REAR	25 FEET MINIMUM
LAND USE	
EXISTING	3 PROFESSIONAL OFFICES BUILDINGS
PROPOSED	2 - 4,000 SF OF PROFESSIONAL OFFICE

**SITE PLAN NOTES:**

1. HEATHERWILDE OFFICE CONDOS PHASE 3 (2023-1-SP) SITE DEVELOPMENT PROJECT PERMITS ALL APPROVED DEVELOPMENT WITHIN THE SCOPE OF PHASE 3, WHICH INCLUDES ALL SITE WORK ASSOCIATED WITH BUILDINGS 3, AND 4, AND ARE SUBJECT TO THE ESTABLISHED CITY OF PFLUGERVILLE'S UNIFIED DEVELOPMENT CODE AT THE TIME OF SITE PLAN SUBMITTAL.
2. ALL NEW ELECTRIC UTILITY INFRASTRUCTURE INCLUDING BUT NOT LIMITED TO TELEPHONE, CABLE, TELEVISION, ELECTRIC UTILITY LATERAL AND SERVICE LINES SHALL BE INSTALLED IN ACCORDANCE WITH THE CITY OF PFLUGERVILLE ENGINEERING DESIGN MANUAL.
3. ALL MECHANICAL EQUIPMENT SHALL BE SCREENED IN ACCORDANCE WITH SUBCHAPTER 11, SECTION 11.8.2 OF THE UNIFIED DEVELOPMENT CODE. GROUND-MOUNTED AND WALL-MOUNTED MECHANICAL EQUIPMENT SHALL BE SCREENED BY THE BUILDINGS AND FENCING.
4. THIS SITE PLAN HAS BEEN SUBMITTED TO THE TEXAS DEPARTMENT OF LICENSING AND REGULATION FOR REVIEW OF COMPLIANCE WITH THE ARCHITECTURAL BARRIERS ACT. THE REFERENCE NUMBERS #TABS2023013254 AND #TABS2023013255 ARE PROOF OF SUBMITTAL TO TDLR.
5. A PEDESTRIAN SPACE TOTALING 325 SQUARE-FEET HAS BEEN PROVIDED WITH PHASE 3 (2023-1-SP). THE FOUR PROPOSED ITEMS ARE DECORATIVE LANDSCAPE PLANTERS, PEDESTRIAN BENCH SEATING, SPECIAL PAVING TO MATCH PHASES 1, 2, AND ACCENT LIGHTING. SEE LANDSCAPE PLANS FOR DETAILS. ANY LOW BRANCHES ALONG HEATHERWILDE BLVD. SHOULD BE TRIMMED TO KEEP DRIVER VISIBILITY AT THE DRIVEWAY AS CLEAR AS POSSIBLE.
6. THE BUILDING NUMBERS MUST BE CLEARLY POSTED ON EACH BUILDING SO IT IS VISIBLE AS NOT TO DELAY EMERGENCY SERVICE RESPONSE.

TOTAL SITE AREA 2.201 AC				PARKING REQUIRED				PARKING PROVIDED			
PHASE	(AC)	IMPERVIOUS COVER (85% MAX) (%)	FLOOR TO AREA RATIO (60% MAX) (%)	PROF. OFFICE AREA (1 SPACE / 250 SF)	MED. OFFICE AREA (1 SPACE / 200 SF)	STANDARD SPACES	VAN ACCESSIBLE SPACES	TOTAL SPACES REQUIRED	STANDARD SPACES	VAN ACCESSIBLE SPACES	TOTAL SPACES PROVIDED
EXISTING (PHASE 1)	1.104	50.2%	8.3%	8,000 SF	0 SF	30 SPACES	2 SPACES	32 SPACES	87 SPACES	2 SPACES PROVIDED	89 SPACES
EXISTING (PHASE 2)	0.132	6.0%	4.2%	4,000 SF	0 SF	15 SPACES	1 SPACE	16 SPACES	86 SPACES	1 SPACE CONVERTED	NONE ADDED
PROPOSED (PHASE 3)	0.260	11.8%	8.3%	0 SF	8,000 SF	38 SPACES	2 SPACES	40 SPACES	84 SPACES	2 SPACES CONVERTED	NONE ADDED
<b>TOTAL SITE</b>	<b>1.496</b>	<b>68.0%</b>	<b>20.9%</b>			<b>TOTAL SPACES REQUIRED 83 SPACES</b>	<b>5 SPACES</b>	<b>88 SPACES</b>	<b>84 SPACES</b>	<b>5 SPACES</b>	<b>89 SPACES</b>

NO. REVISION

DATE

STATE OF TEXAS  
 SHELLY MITCHELL  
 103682  
 PROFESSIONAL ENGINEER  
 08/16/2023  
 Shelly Mitchell

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 TYPE FIRM REGISTRATION #470 | TYPE C FIRM REGISTRATION #1002861

**HEATHERWILDE OFFICE CONDOS - PHASE 3**  
 201 N. HEATHERWILDE BOULEVARD  
 CITY OF PFLUGERVILLE, TEXAS 78660

**SITE PLAN**

JOB NO. 50988-02  
 DATE AUGUST 2023  
 DESIGNER KRS  
 CHECKED EAL DRAWN WKB  
 SHEET 07 OF 30

BUILDING 3 FLOOR AREAS	
SUITE 301	1,068 SF
SUITE 302	1,017 SF
SUITE 303	1,068 SF
SUITE 304	1,017 SF
FRONT PORCHES	126 SF
<b>TOTAL</b>	<b>4,296 SF</b>

**FLOOR PLAN GENERAL NOTES**

- 1) ALL DIMENSIONS ARE TO FACE OF STUD UNLESS NOTED OTHERWISE.
- 2) ALL INTERIOR PARTITIONS TO BE TYPE 1 UNLESS NOTED OTHERWISE.
- 3) ALL DOOR OPENINGS TO BE LOCATED 6" FROM ADJACENT PERPENDICULAR WALL UNLESS NOTED OTHERWISE.
- 4) CONTRACTOR TO COORDINATE MOUNTING HEIGHTS OF WALL MOUNTED ITEMS/EQUIPMENT PRIOR TO INSTALLATION WITH OWNER AND/OR ARCHITECT.
- 5) ALL WET WALL(S) TO RECEIVE 5/8" MOISTURE RESISTANT GYPSUM BOARD UNLESS NOTED OTHERWISE.
- 6) NO SUBSTITUTIONS PERMITTED WITHOUT THE APPROVAL OF THE ARCHITECT OR OWNER.
- 7) ANY CONFLICTS IN THE CONSTRUCTION DOCUMENTS SHALL BE BROUGHT TO THE ARCHITECT'S ATTENTION BEFORE WORK BEGINS.



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**CONSTRUCTION DOCUMENTS**  
**HEATHERWILDE OFFICE CONDOS BLDG 3**

201 N. HEATHERWILDE BLVD.  
PFLUGERVILLE, TX 78660

PROJECT NO: 17003

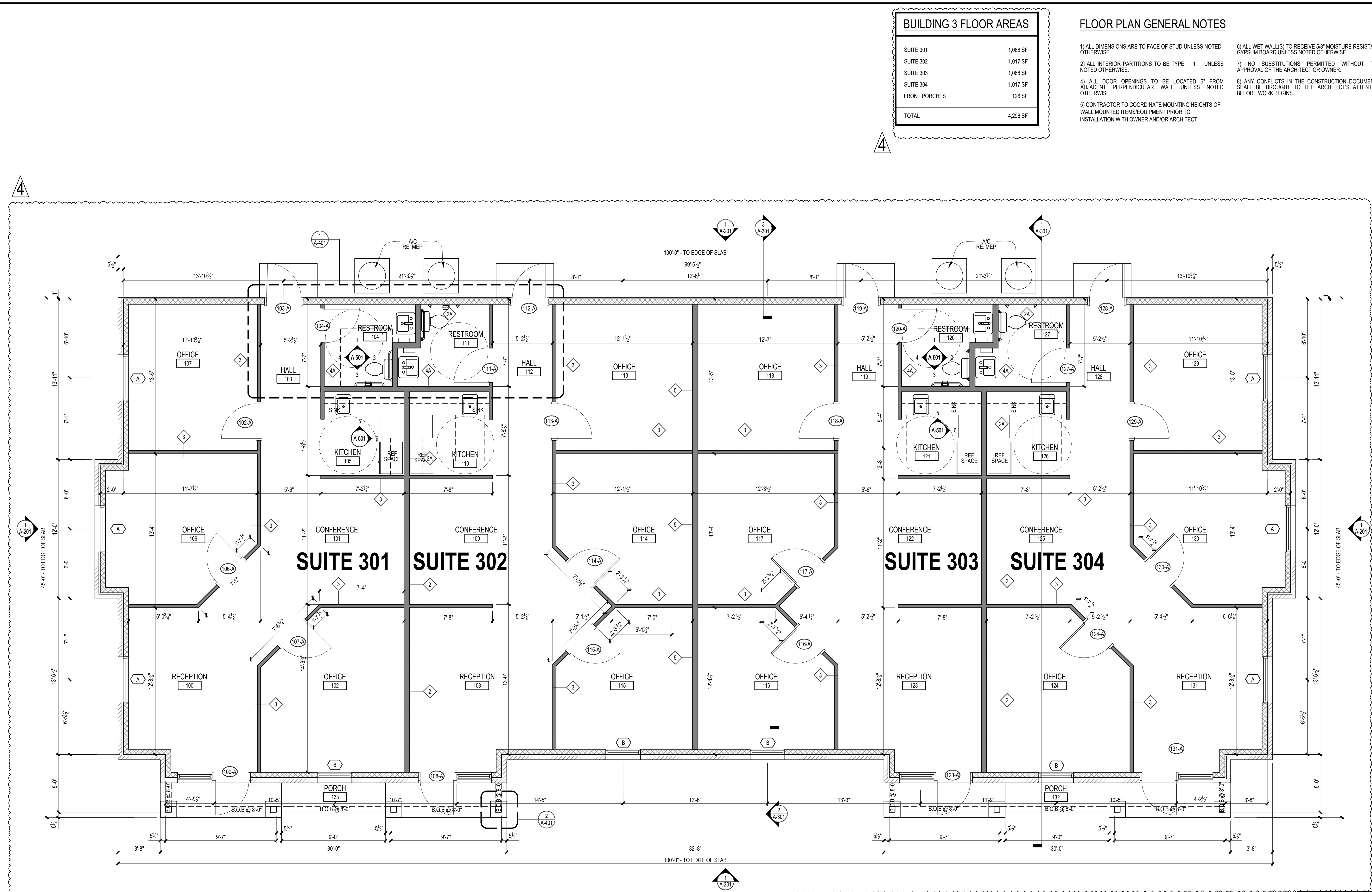
**REVISIONS:**  
REV 1 - SITE REVISIONS  
REV 2 - CoP BLDG. REV COMMENTS  
REV 4 - SITE DEVELOPMENT REV

DRAWN BY: LC  
REVIEWED BY: SB

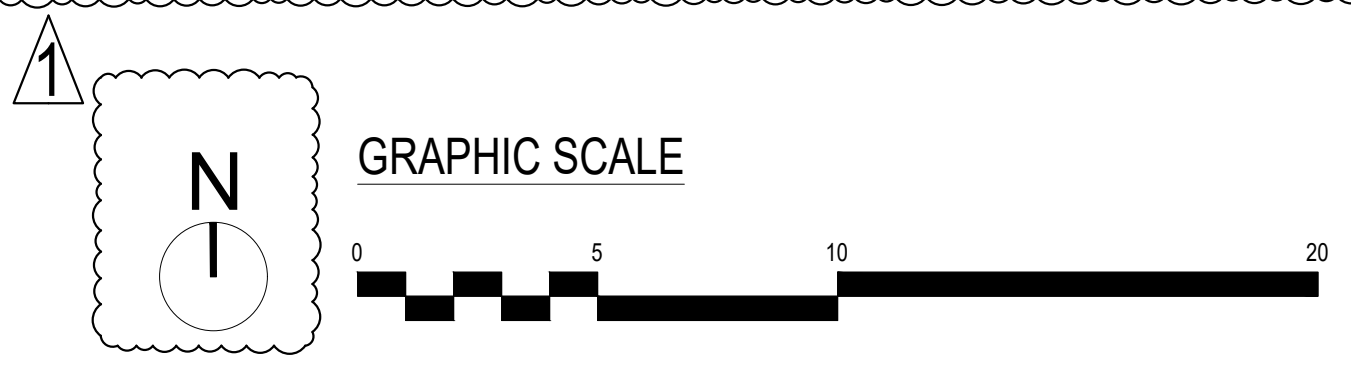
FLOOR PLAN

**A-101**

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**1 FLOOR PLAN - BUILDING 3**  
SCALE: 1/4" = 1'-0"





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PROJECT NO: 17003

REVISIONS:

REV 4 - SITE DEVELOPMENT REV

DRAWN BY: LC  
REVIEWED BY: SB

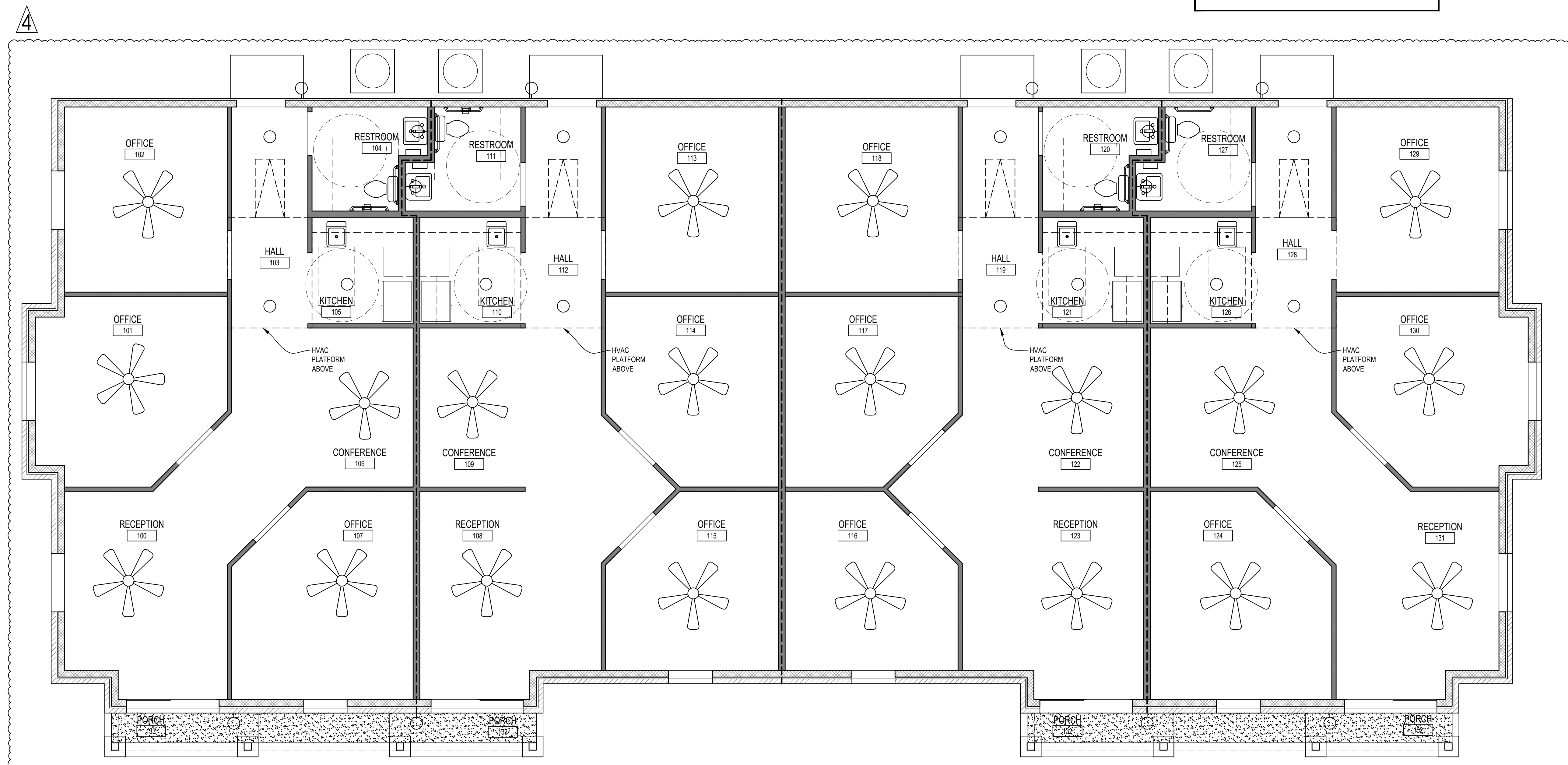
REFLECTED CEILING PLAN

**A-103**

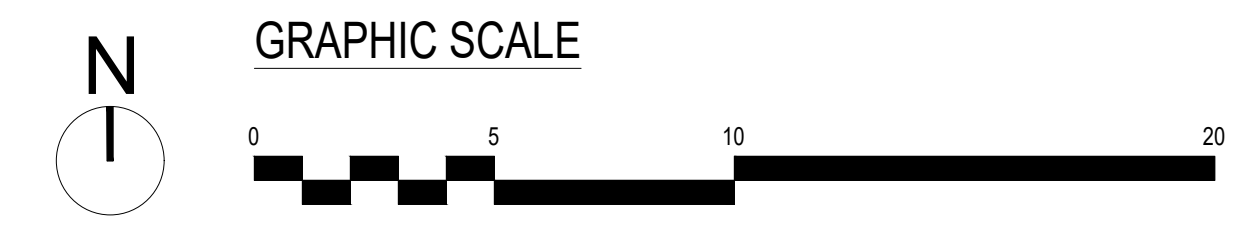
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CEILING LEGEND	
	CEILING FAN W/ LIGHT PACK RE: ELECTRICAL
	RECESSED LIGHT FIXTURE RE: ELECTRICAL
	WALL MOUNT LIGHT FIXTURE RE: ELECTRICAL
	ATTIC SPACE
	GYPSUM BOARD
	FIBER CEMENT BOARD

- REFLECTED CEILING PLAN NOTES**
- 1) ALL WALLS THAT DO NOT EXTEND TO THE UNDERSIDE OF THE STRUCTURAL DECK ABOVE ARE TO EXTEND 12" ABOVE THE FINISH CEILING HEIGHT U.N.O. RE: PLANS AND PARTITION TYPES FOR MORE INFORMATION.
  - 2) VERIFY ANY CONDITIONS THAT VARY FROM THESE PLANS WITH THE ARCHITECT.
  - 3) CONTRACTOR RESPONSIBLE FOR COORDINATION OF TRADES OF ALL CEILING MOUNTED ITEMS PRIOR TO ROUGH-IN AND INSTALLATION.
  - 5) REFER TO ELECTRICAL DRAWINGS FOR LIGHTING LOCATIONS.
  - 6) REFER TO MEP DRAWINGS AND SPECIFICATIONS FOR ASSIGNMENTS AND LEGENDS.
  - 7) COORDINATE ALL CEILING PENETRATIONS WITH MEP DRAWINGS.



**1 REFLECTED CEILING PLAN**  
SCALE: 1/4" = 1'-0"



**ROOF PLAN GENERAL NOTES**

1. ROOFING CONTRACTOR TO FURNISH AND INSTALL AND FLASHING IN ROOF. REFERENCE MECHANICAL SCHEDULES, MECHANICAL FLOOR PLANS AND PLUMBING FLOOR PLANS FOR LOCATIONS AND QUANTITIES.
2. REFER TO MECHANICAL AND PLUMBING DRAWINGS FOR LOCATIONS OF ALL ROOF MOUNTED EQUIPMENT, VENTS, AND/OR OTHER ROOF PENETRATIONS.
3. VERIFY GUTTER AND DOWNSPOUT SIZING W/ METAL BUILDING MANUFACTURER.



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PROJECT NO: 17003

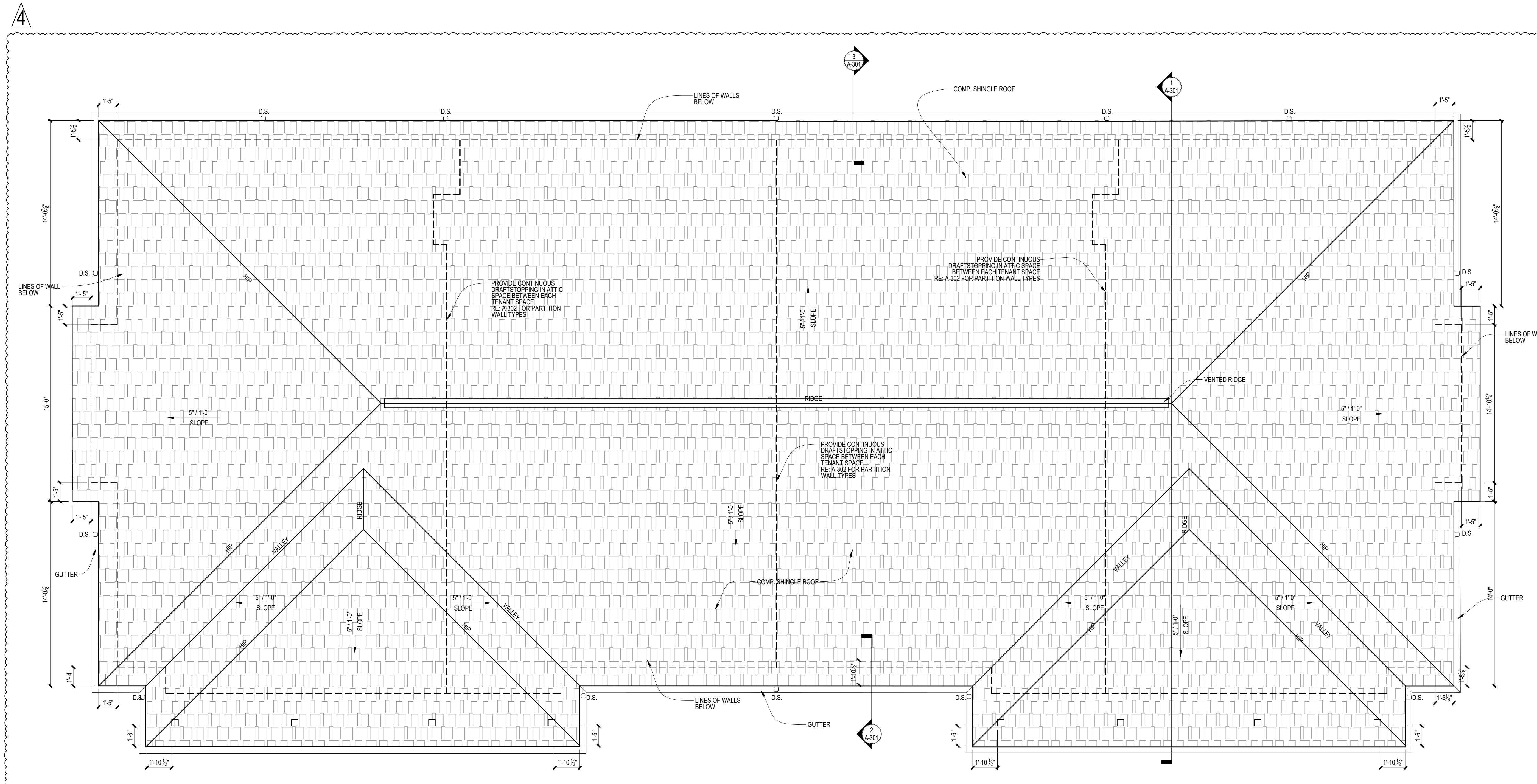
REVISIONS:


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 REVIEWED BY: SB

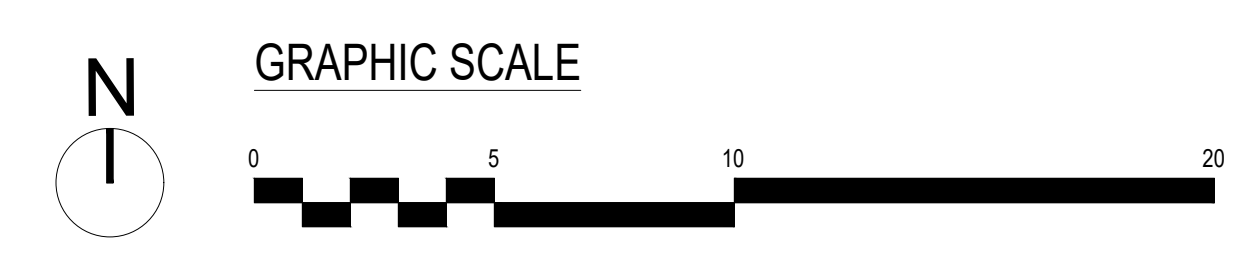
ROOF PLAN

**A-104**

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**1 ROOF PLAN**  
 SCALE: 1/4" = 1'-0"





ARCHITECTURAL ELEMENTS KEYNOTES

- ① CANOPIES & PORTICOS
- ② PITCHED ROOF
- ③ ARTICULATED CORNICE LINE
- ④ TWO BUILDING MATERIALS

BUILDING ELEVATION NOTES

- A. ROOF-MOUNTED MECHANICAL EQUIPMENT SHALL BE SCREENED ON ALL FOUR SIDES UTILIZING PARAPET WALL SHOW HEREON
- B. ALL WALL-MOUNTED EQUIPMENT (E.G., AIR HANDLING EQUIPMENT, COMPRESSORS, ETC.) MUST BE SCREENED FROM PUBLIC VIEW FROM A STREET OR PARKING AREA, AND ON MINIMUM THE THREE SIDES. EXPOSED CONDUIT, LADDERS, UTILITY BOXES AND DRAIN SPOUTS MUST BE PAINTED TO MATCH COLOR OF THE PRINCIPLE STRUCTURE. NATURAL METALLIC FINISHES ARE AN ACCEPTABLE ALTERNATIVE TO PAINT.
- C. EIFS SHALL NOT BE PERMITTED BELOW NINE (9) FEET ABOVE FINISHED GRADE UNLESS UTILIZED FOR DECORATIVE ARCHITECTURAL FEATURES.



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**HEATHERWILDE OFFICE**  
**CONDOS BLDG 3**

201 N. HEATHERWILDE BLVD.  
PFLUGERVILLE, TX 78660

PROJECT NO: 17003

REVISIONS:

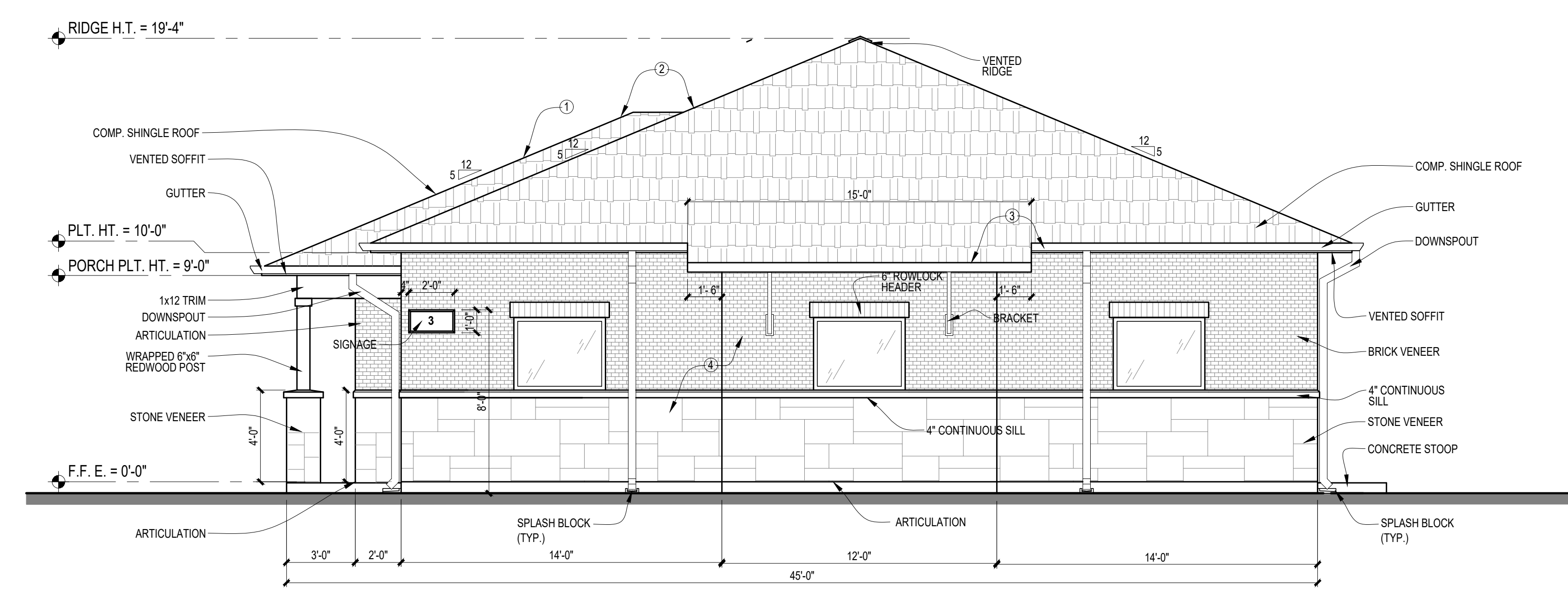
REV 4 - SITE REVISIONS

DRAWN BY: LC  
REVIEWED BY: SB

EXTERIOR ELEVATIONS

**A-201**

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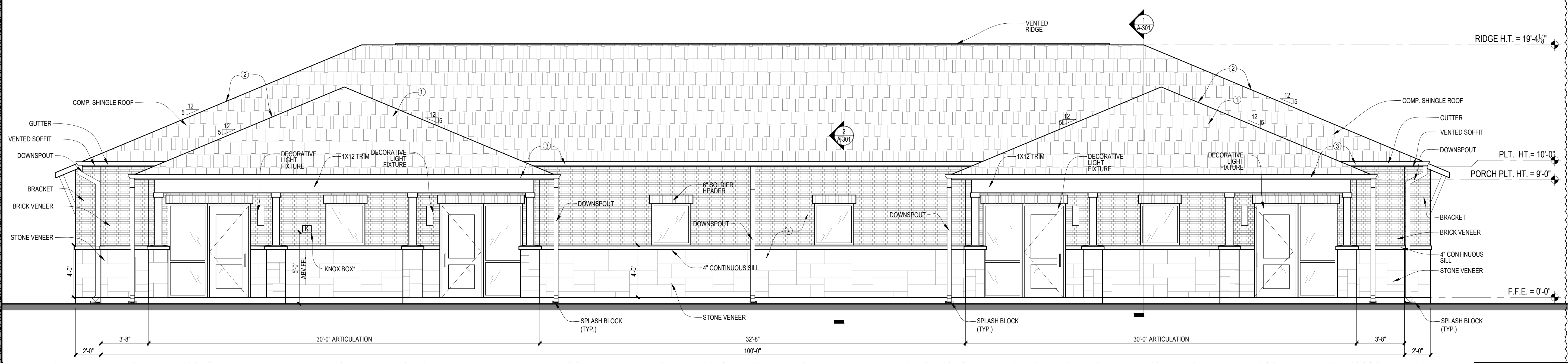
**2 RIGHT ELEVATION**  
SCALE: 1/4" = 1'-0"

**FAÇADE TREATMENT MATERIALS**  
(TABLE 9.4.2 OF PFLUGERVILLE UDC)

ELEVATION	TOTAL FAÇADE	MATERIAL AREA
FRONT	830 SF	100% MASONRY
RIGHT	365 SF	100% MASONRY
LEFT	365 SF	100% MASONRY
REAR	843 SF	100% FIBER CEMENT SIDING

**ARCHITECTURAL ARTICULATION BLDG 3 & 4**

	REQUIRED	PRIMARY	RIGHT	LEFT
MAXIMUM BUILDING HEIGHT	19'-4"			
AVERAGE HEIGHT	14'-2"			
<b>HORIZONTAL CALCULATIONS</b>				
A WALL MAY NOT EXCEED THIS LINEAR DISTANCE w/o A HORIZONTAL OFFSET (MAX LINEAR DISTANCE = AVG HT x 3)	42'-6"	32'-8"	14'-0"	14'-0"
MIN. HORIZONTAL PROJECTION OR RECESS (10% OF BUILDING HEIGHT)	2'-0"	2'-0"	2'-0"	2'-0"
MAX. LENGTH OF ALL FAÇADE WALLS IN A SINGLE PLANE (MAX. LENGTH OF WALL = 60% OF LENGTH OF FAÇADE)	FRONT = 60'-0" RIGHT = 27'-0" LEFT = 27'-0"	32'-8"	14'-0"	14'-0"
<b>VERTICAL CALCULATIONS</b>				
A ROOF MAY NOT EXCEED THIS LINEAR DISTANCE w/o A VERTICAL OFFSET (MAX LINEAR DISTANCE = AVG HT x 3)	42'-6"	32'-8"	15'-2"	15'-2"
MIN. VERTICAL ELEVATION VARIATION DISTANCE (15% OF BUILDING HEIGHT)	2'-11"	3'-2"	3'-2"	3'-2"
MIN. DISTANCE OF VERTICAL ELEVATION CHANGE IN ROOF (TOTAL LENGTH OF FAÇADE x 20%)	FRONT = 20'-0" RIGHT = 9'-0" LEFT = 9'-0"	30'-0"	10'-0"	10'-0"
MAX. DISTANCE OF VERTICAL ELEVATION CHANGES IN ROOF (TOTAL LENGTH OF FAÇADE x 60%)	FRONT = 60'-0" RIGHT = 27'-0" LEFT = 27'-0"	30'-0"	10'-0"	10'-0"



**1 PRIMARY FAÇADE**  
SCALE: 1/4" = 1'-0"

4

**ARCHITECTURAL ELEMENTS KEYNOTES**

- ① CANOPIES & PORTICOS
- ② PITCHED ROOF
- ③ ARTICULATED CORNICE LINE
- ④ TWO BUILDING MATERIALS

**BUILDING ELEVATION NOTES**

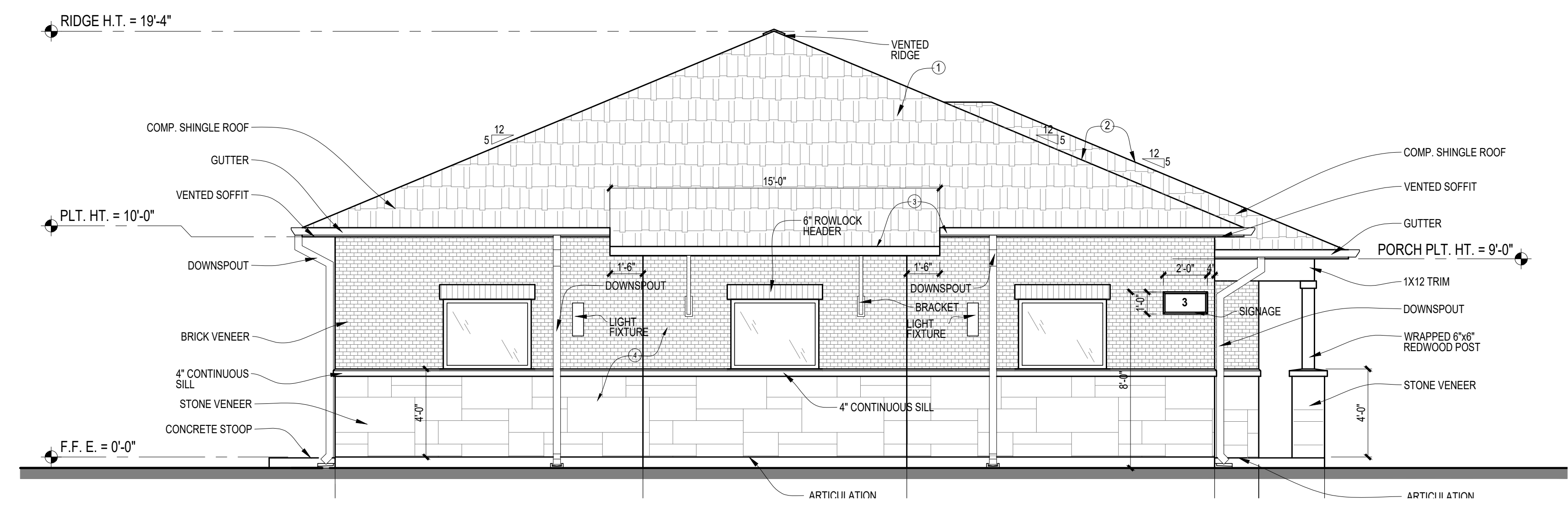
- A. ROOF-MOUNTED MECHANICAL EQUIPMENT SHALL BE SCREENED ON ALL FOUR SIDES UTILIZING PARAPET WALL SHOW HEREON.
- B. ALL WALL-MOUNTED EQUIPMENT (E.G., AIR HANDLING EQUIPMENT, COMPRESSORS, ETC.) MUST BE SCREENED FROM PUBLIC VIEW FROM A STREET OR PARKING AREA, AND ON MINIMUM THE THREE SIDES. EXPOSED CONDUIT, LADDERS, UTILITY BOXES AND DRAIN SPOUTS MUST BE PAINTED TO MATCH COLOR OF THE PRINCIPLE STRUCTURE. NATURAL METALLIC FINISHES ARE AN ACCEPTABLE ALTERNATIVE TO PAINT.
- C. EIFS SHALL NOT BE PERMITTED BELOW NINE (9) FEET ABOVE FINISHED GRADE UNLESS UTILIZED FOR DECORATIVE ARCHITECTURAL FEATURES.

**FAÇADE TREATMENT MATERIALS**  
(TABLE 9.4.2 OF PFLUGERVILLE UDC)

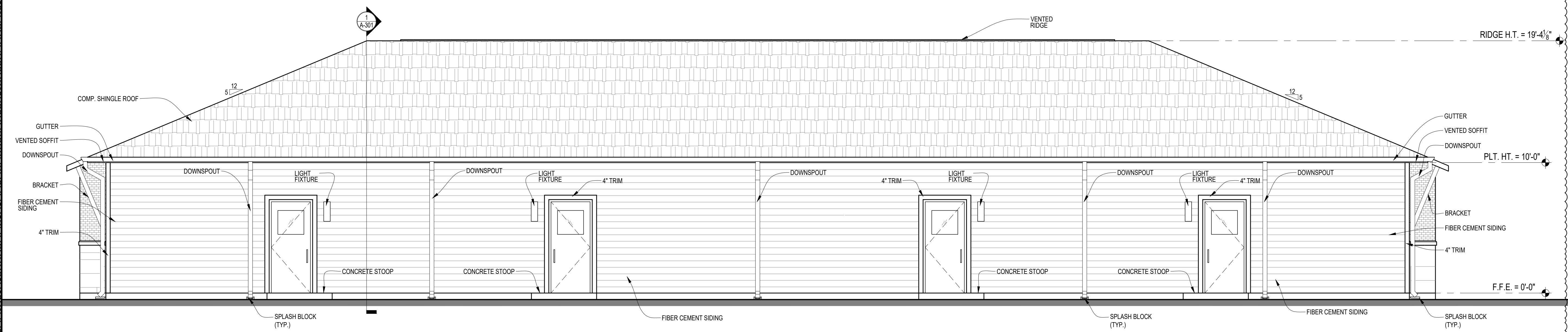
ELEVATION	TOTAL FAÇADE	MATERIAL AREA
FRONT	830 SF	100% MASONRY
RIGHT	365 SF	100% MASONRY
LEFT	365 SF	100% MASONRY
REAR	843 SF	100% FIBER CEMENT SIDING

**ARCHITECTURAL ARTICULATION BLDG 3 & 4**

	REQUIRED	PRIMARY	RIGHT	LEFT
MAXIMUM BUILDING HEIGHT	19'-4"			
AVERAGE HEIGHT	14'-2"			
<b>HORIZONTAL CALCULATIONS</b>				
A WALL MAY NOT EXCEED THIS LINEAR DISTANCE W/O A HORIZONTAL OFFSET (MAX LINEAR DISTANCE = AVG HT x 3)	42'-6"	32'-8"	14'-0"	14'-0"
MIN. HORIZONTAL PROJECTION OR RECESS (10% OF BUILDING HEIGHT)	2'-0"	2'-0"	2'-0"	2'-0"
MAX. LENGTH OF ALL FAÇADE WALLS IN A SINGLE PLANE (MAX. LENGTH OF WALL = 60% OF LENGTH OF FAÇADE)	FRONT = 60'-0" RIGHT = 27'-0" LEFT = 27'-0"	32'-8"	14'-0"	14'-0"
<b>VERTICAL CALCULATIONS</b>				
A ROOF MAY NOT EXCEED THIS LINEAR DISTANCE W/O A VERTICAL OFFSET (MAX LINEAR DISTANCE = AVG HT x 3)	42'-6"	32'-8"	15'-2"	15'-2"
MIN. VERTICAL ELEVATION VARIATION DISTANCE (15% OF BUILDING HEIGHT)	2'-11"	3'-2"	3'-2"	3'-2"
MIN. DISTANCE OF VERTICAL ELEVATION CHANGE IN ROOF (TOTAL LENGTH OF FAÇADE x 20%)	FRONT = 20'-0" RIGHT = 9'-0" LEFT = 9'-0"	30'-0"	10'-0"	10'-0"
MAX. DISTANCE OF VERTICAL ELEVATION CHANGES IN ROOF (TOTAL LENGTH OF FAÇADE x 60%)	FRONT = 60'-0" RIGHT = 27'-0" LEFT = 27'-0"	30'-0"	10'-0"	10'-0"



**2 LEFT ELEVATION**  
SCALE: 1/4" = 1'-0"



**1 REAR ELEVATION**  
SCALE: 1/4" = 1'-0"



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**CONSTRUCTION DOCUMENTS**  
**HEATHERWILDE OFFICE**  
**CONDOS BLDG 3**

201 N. HEATHERWILDE BLVD.  
PFLUGERVILLE, TX 78660

PROJECT NO: 17003

REVISIONS:

REV	DESCRIPTION
REV 4	SITE REVISIONS

DRAWN BY: LC  
REVIEWED BY: SB

EXTERIOR ELEVATIONS

**A-202**



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REVISIONS:

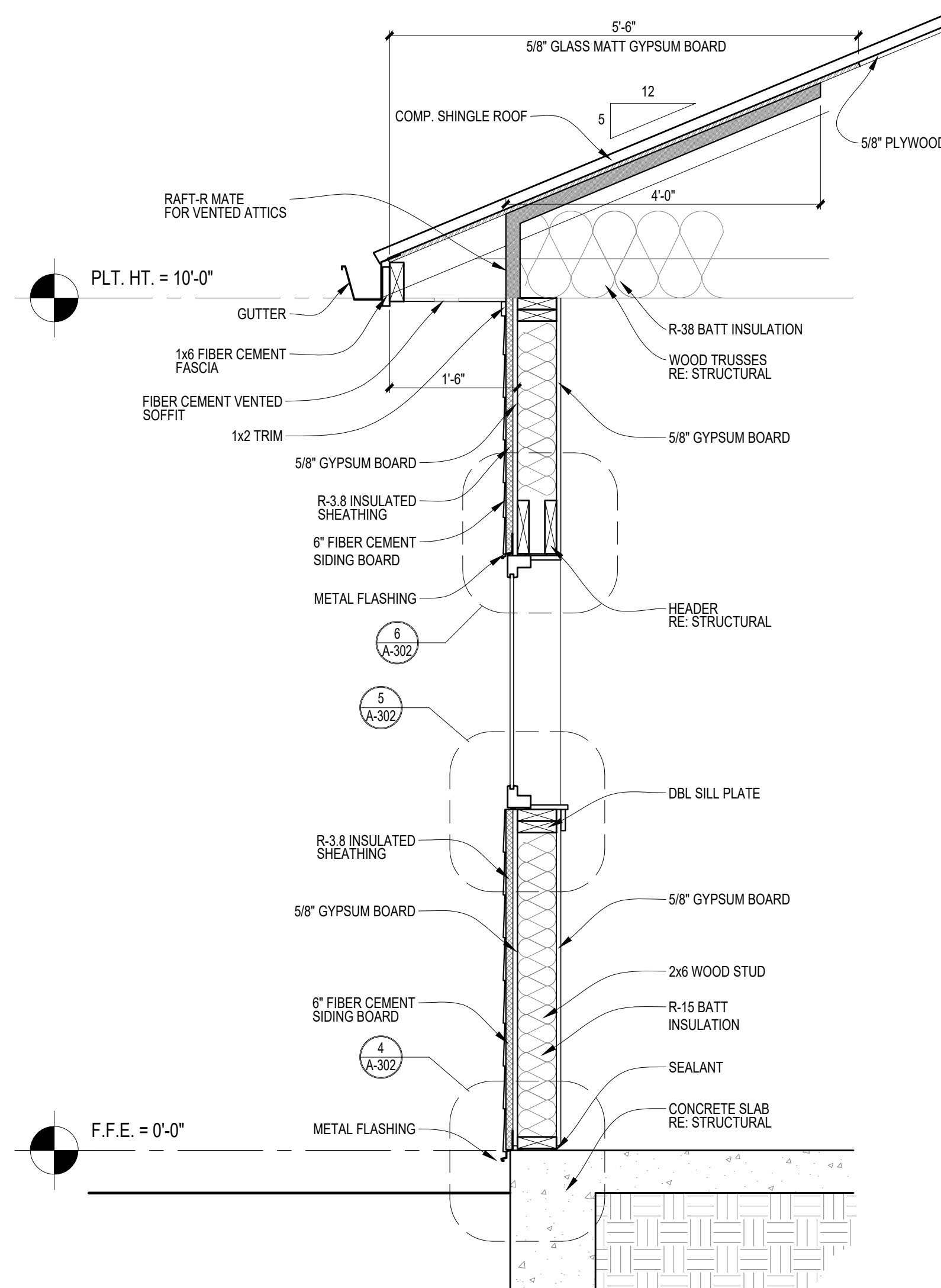
REV 2 - COP BLDG. REV COMMENTS  
REV 4 - SITE REVISIONS

DRAWN BY: LC  
REVIEWED BY: SB

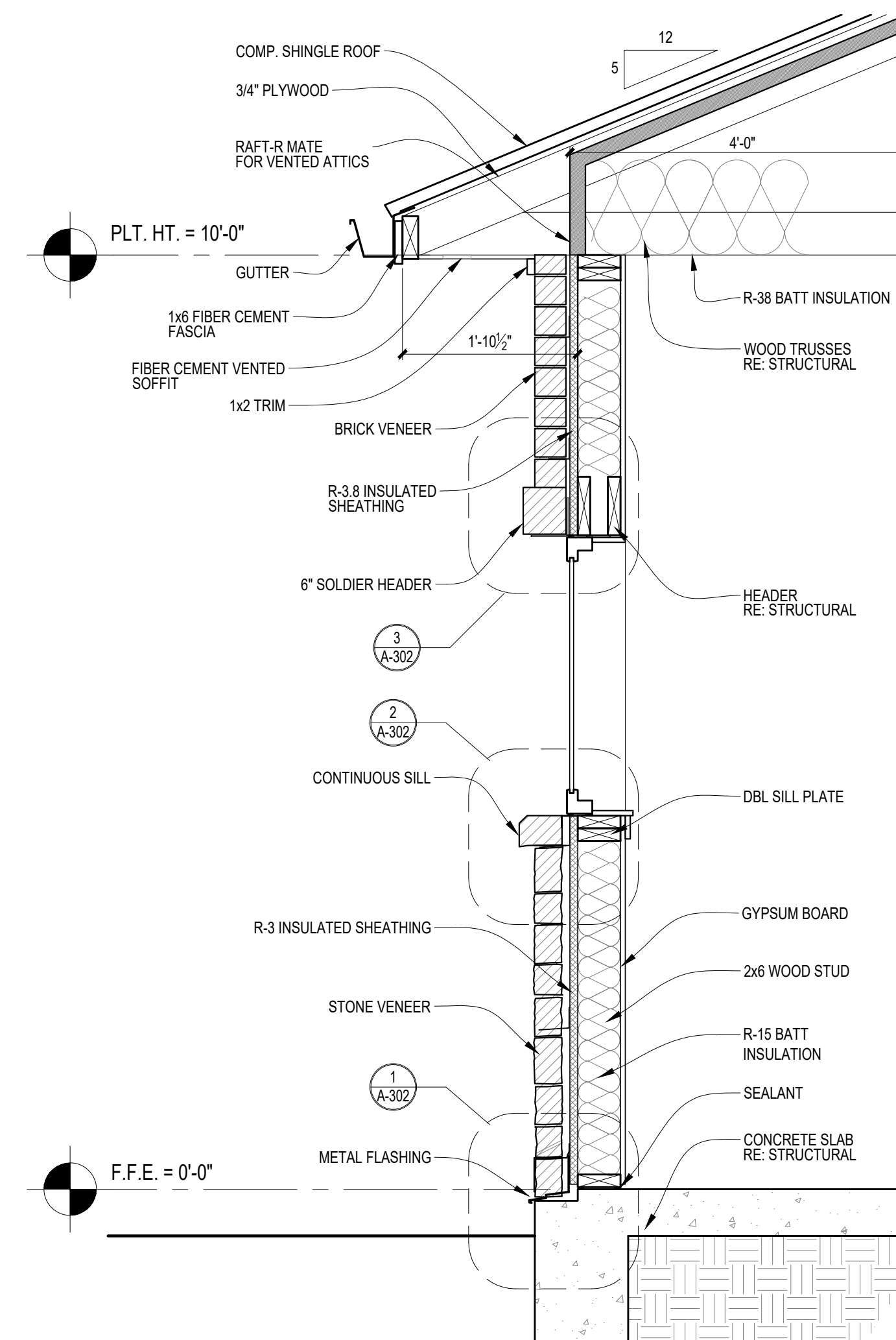
BUILDING SECTION

**A-301**

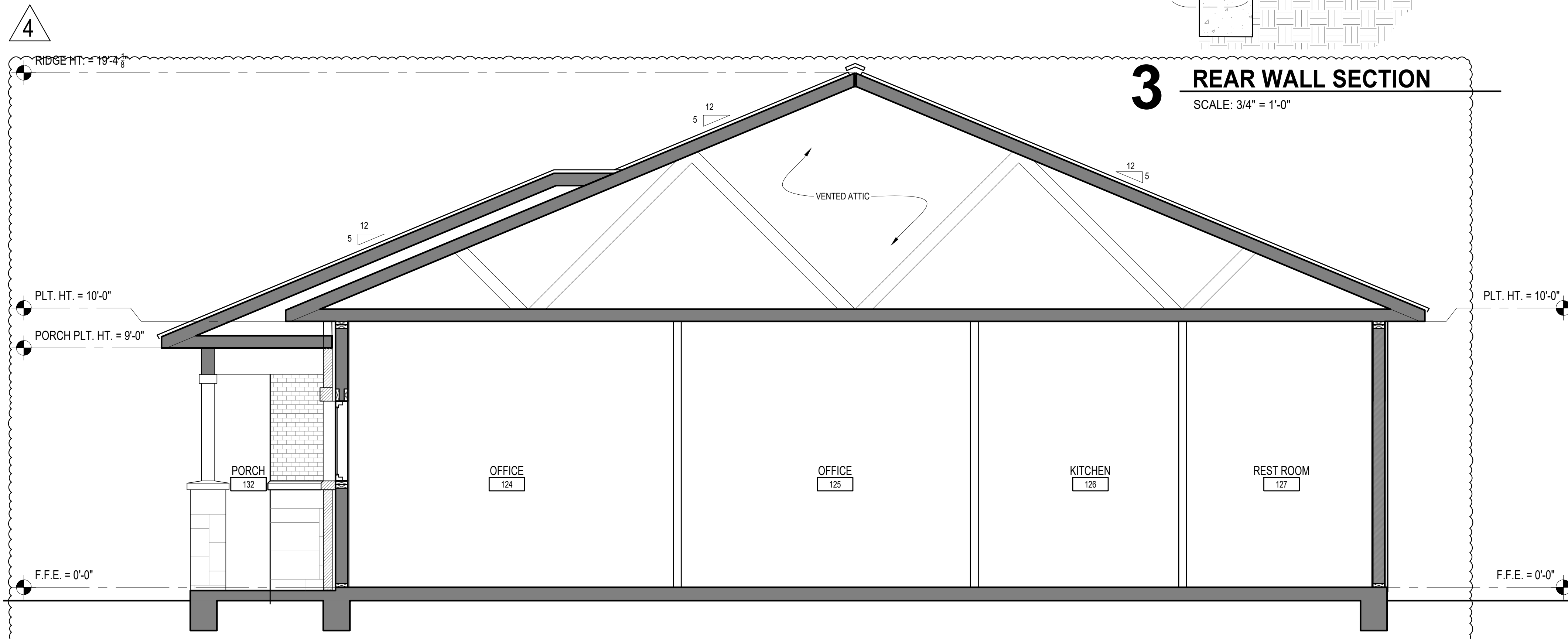
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**3 REAR WALL SECTION**  
SCALE: 3/4" = 1'-0"



**2 WALL SECTION (TYP.)**  
SCALE: 3/4" = 1'-0"



**1 BUILDING SECTION**  
SCALE: 3/8" = 1'-0"

4



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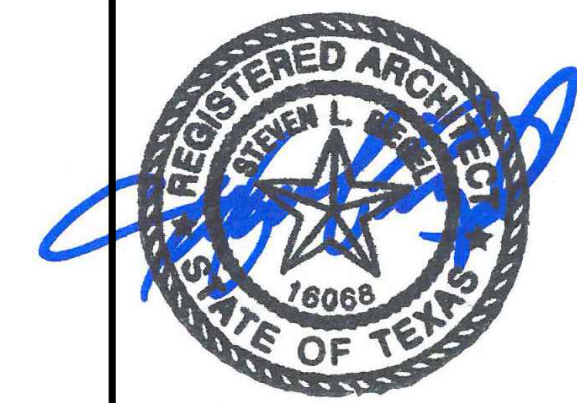
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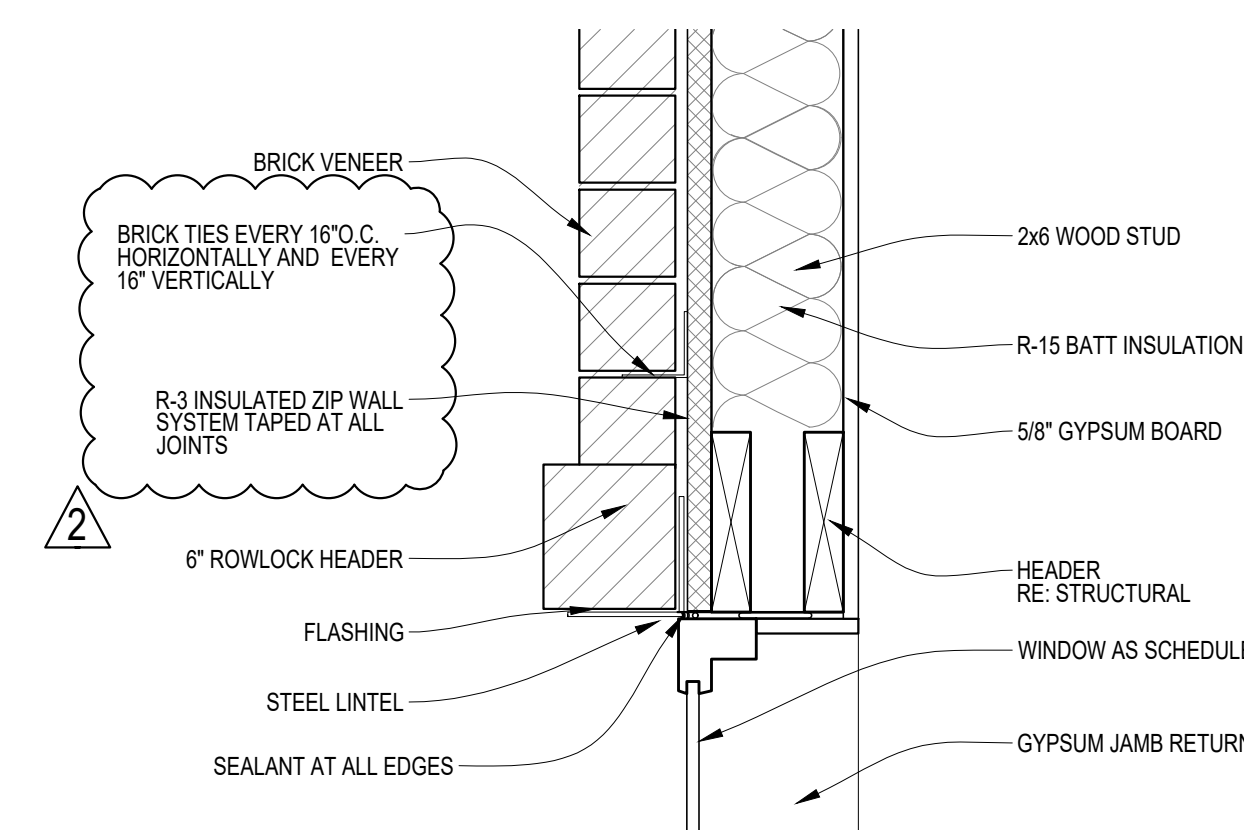
REV 2 - CoP BLDG. REV COMMENTS

DRAWN BY: LC  
REVIEWED BY: SB

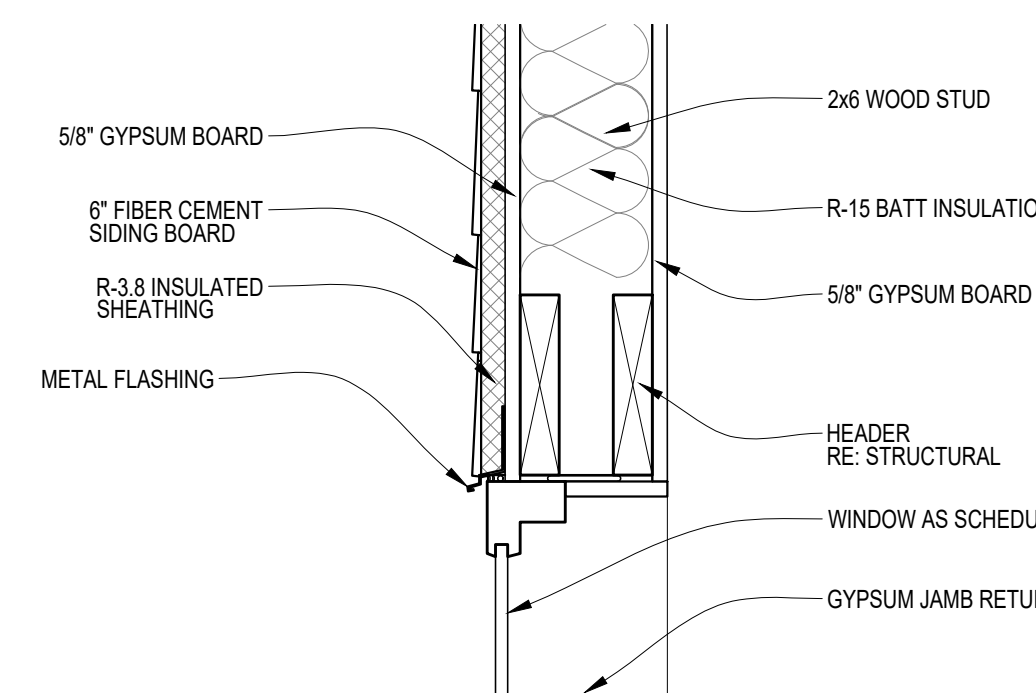
WALL DETAILS

**A-302**

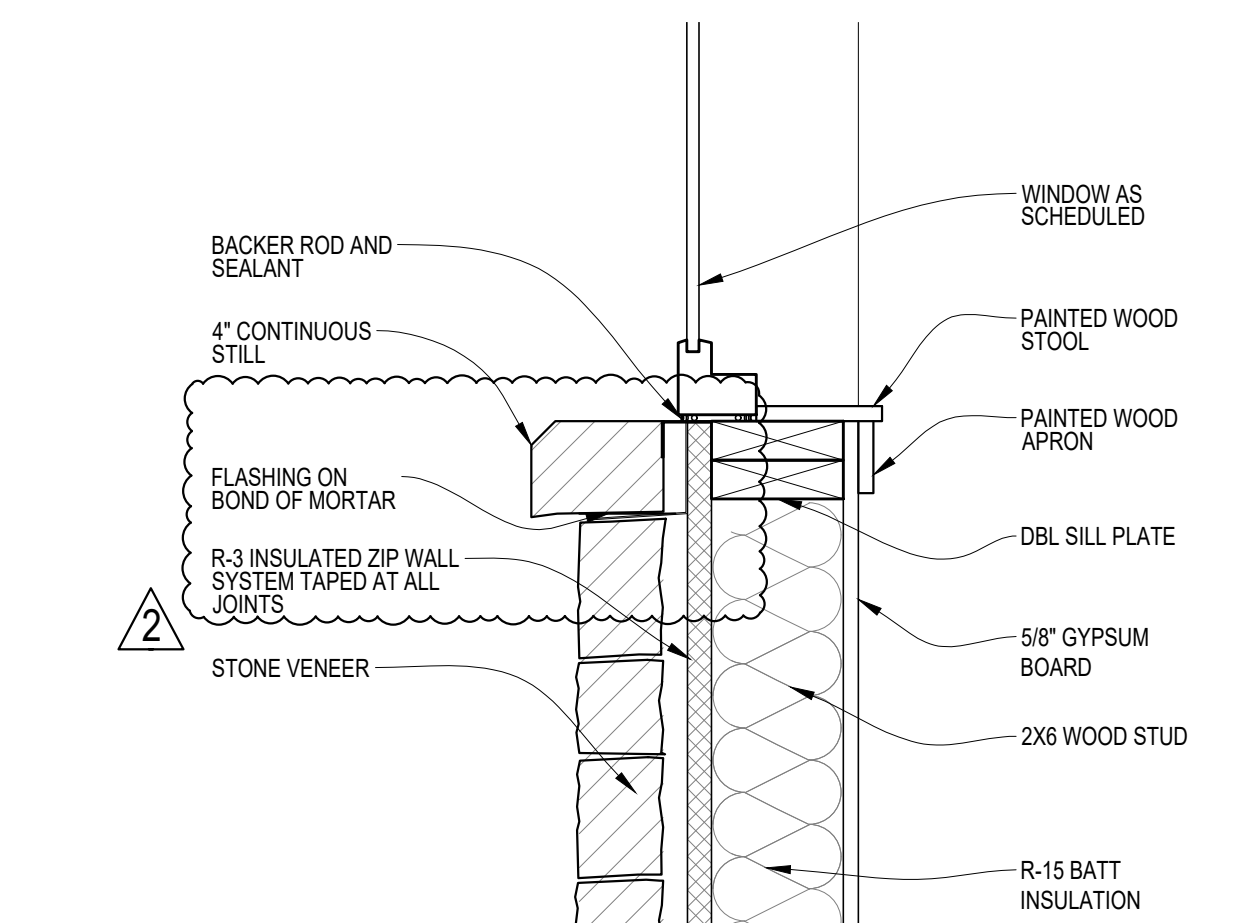
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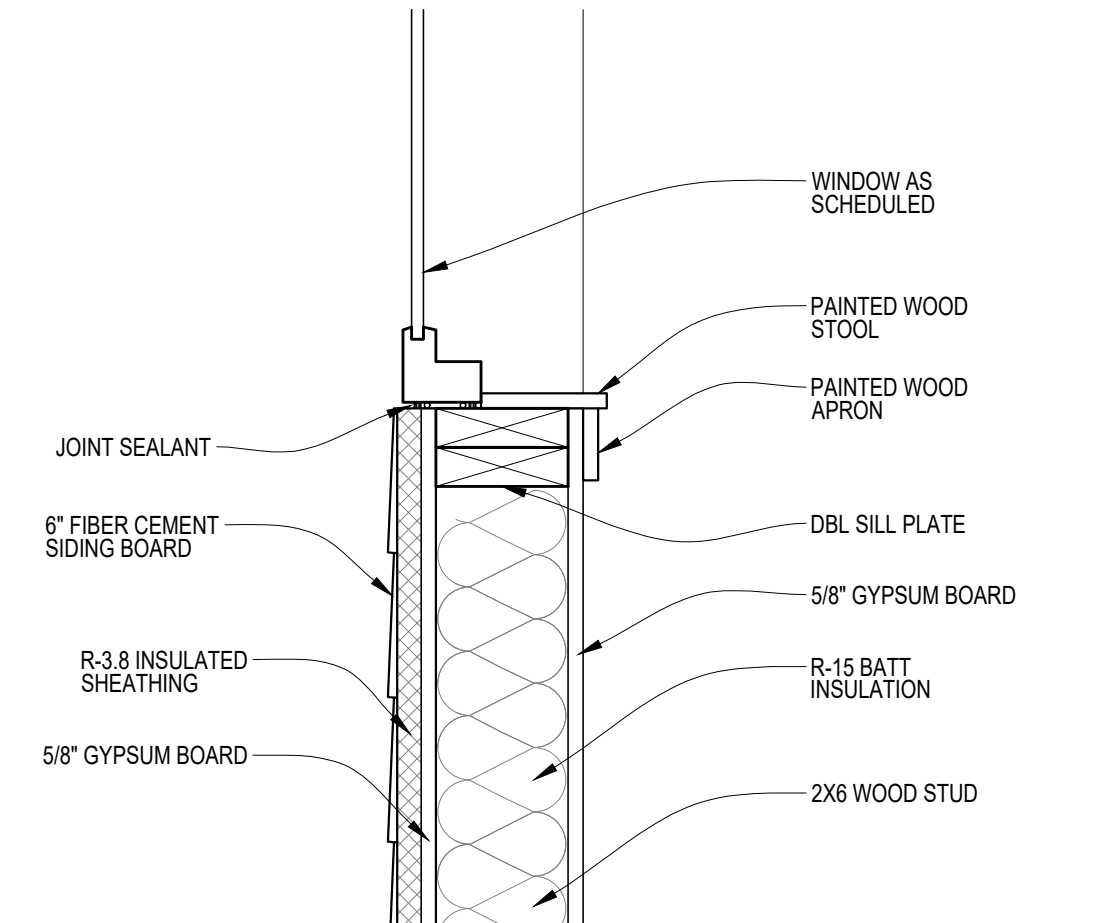
**3 WALL DETAIL 3**  
SCALE: 1 1/2" = 1'-0"



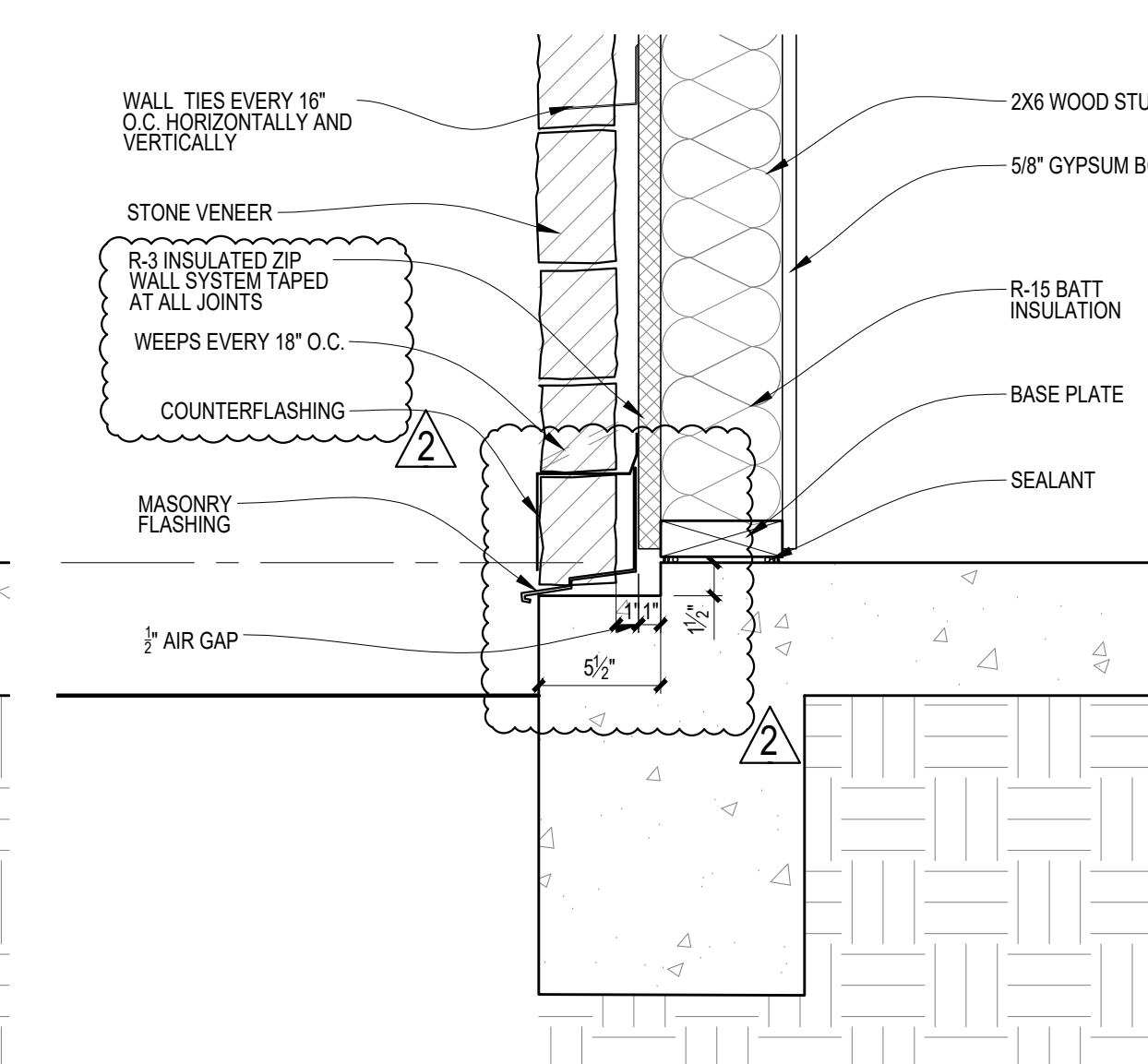
**6 WALL DETAIL 6**  
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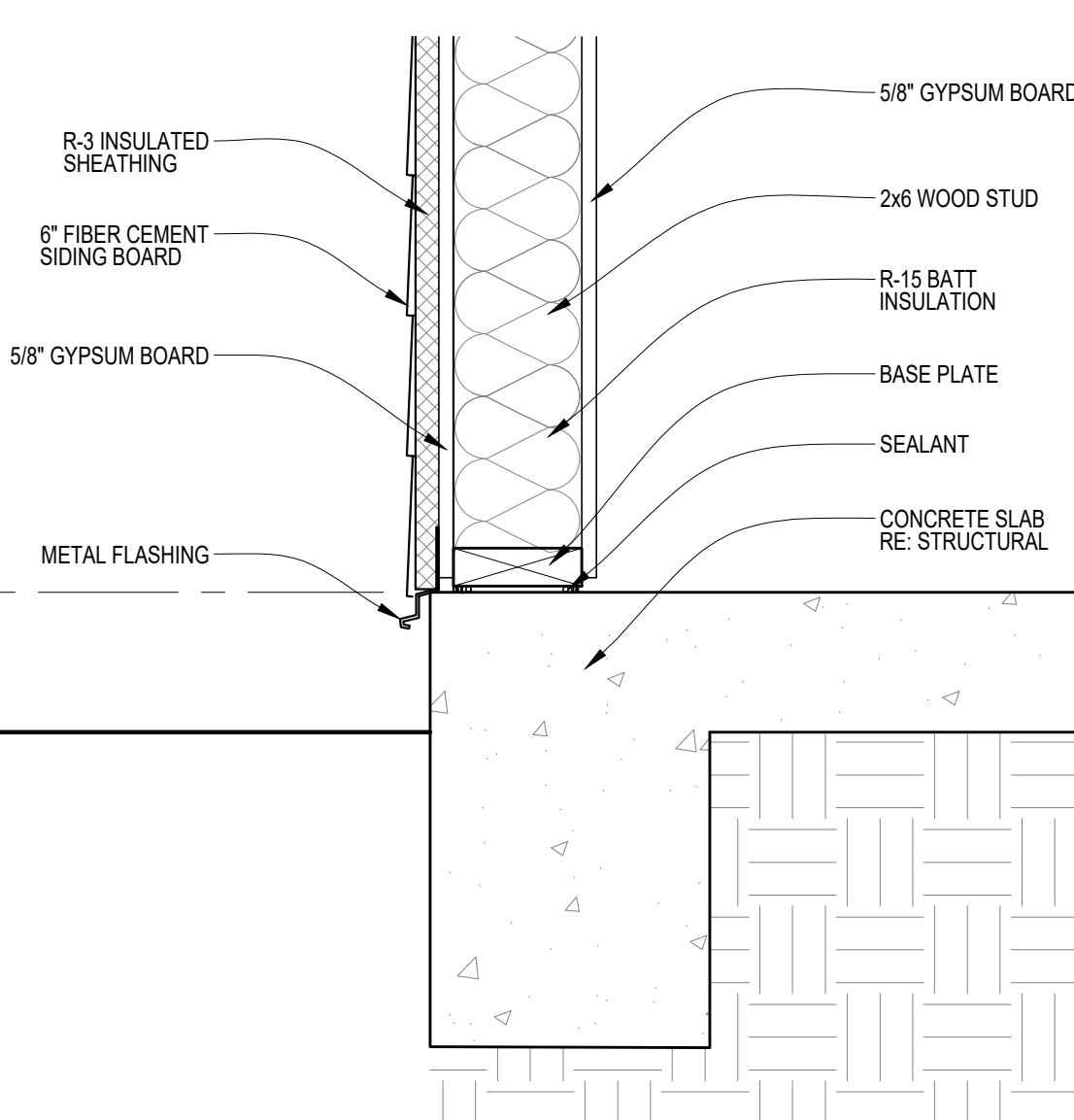
**2 WALL DETAIL 2**  
SCALE: 1 1/2" = 1'-0"



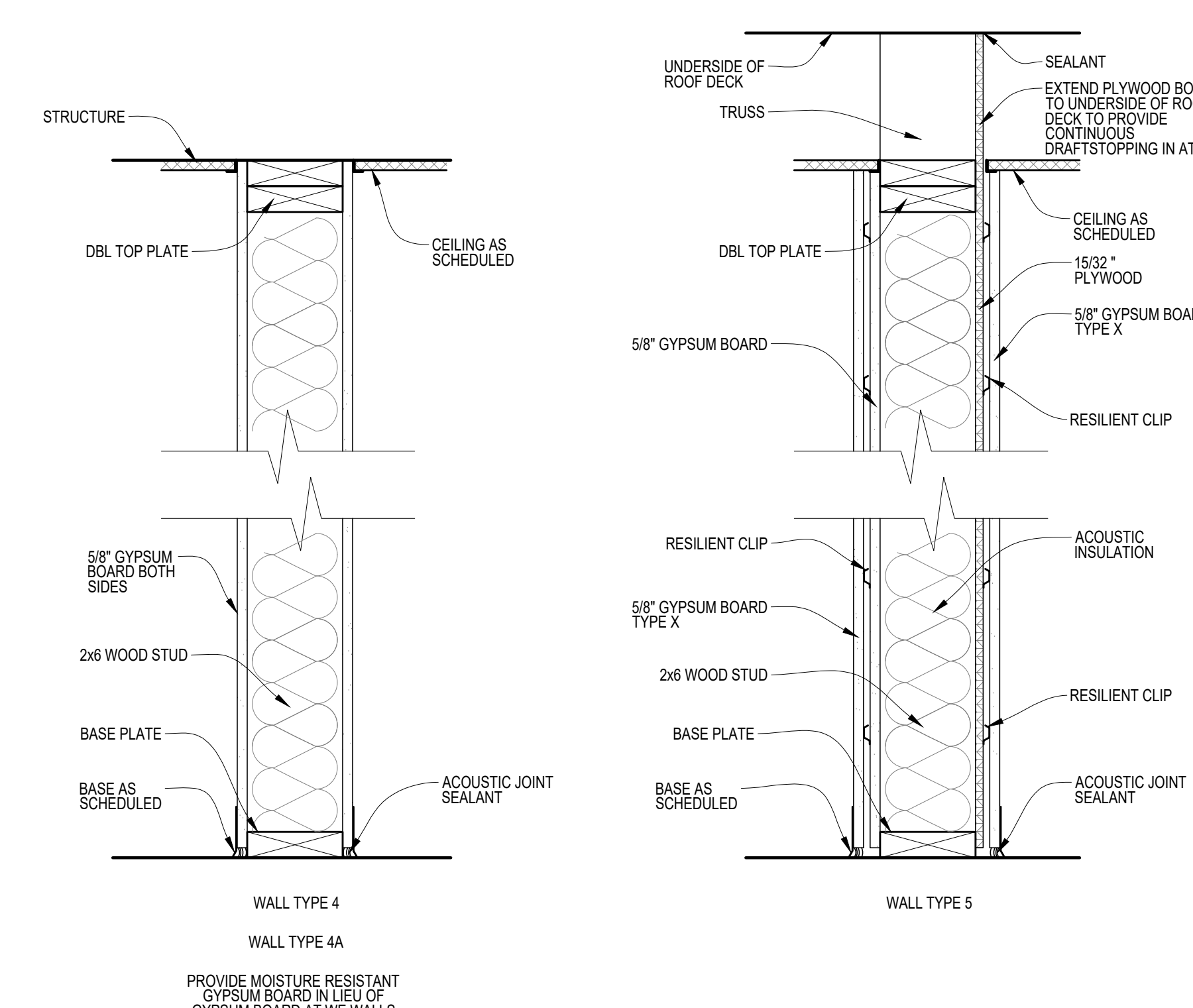
**5 WALL DETAIL 5**  
SCALE: 1 1/2" = 1'-0"



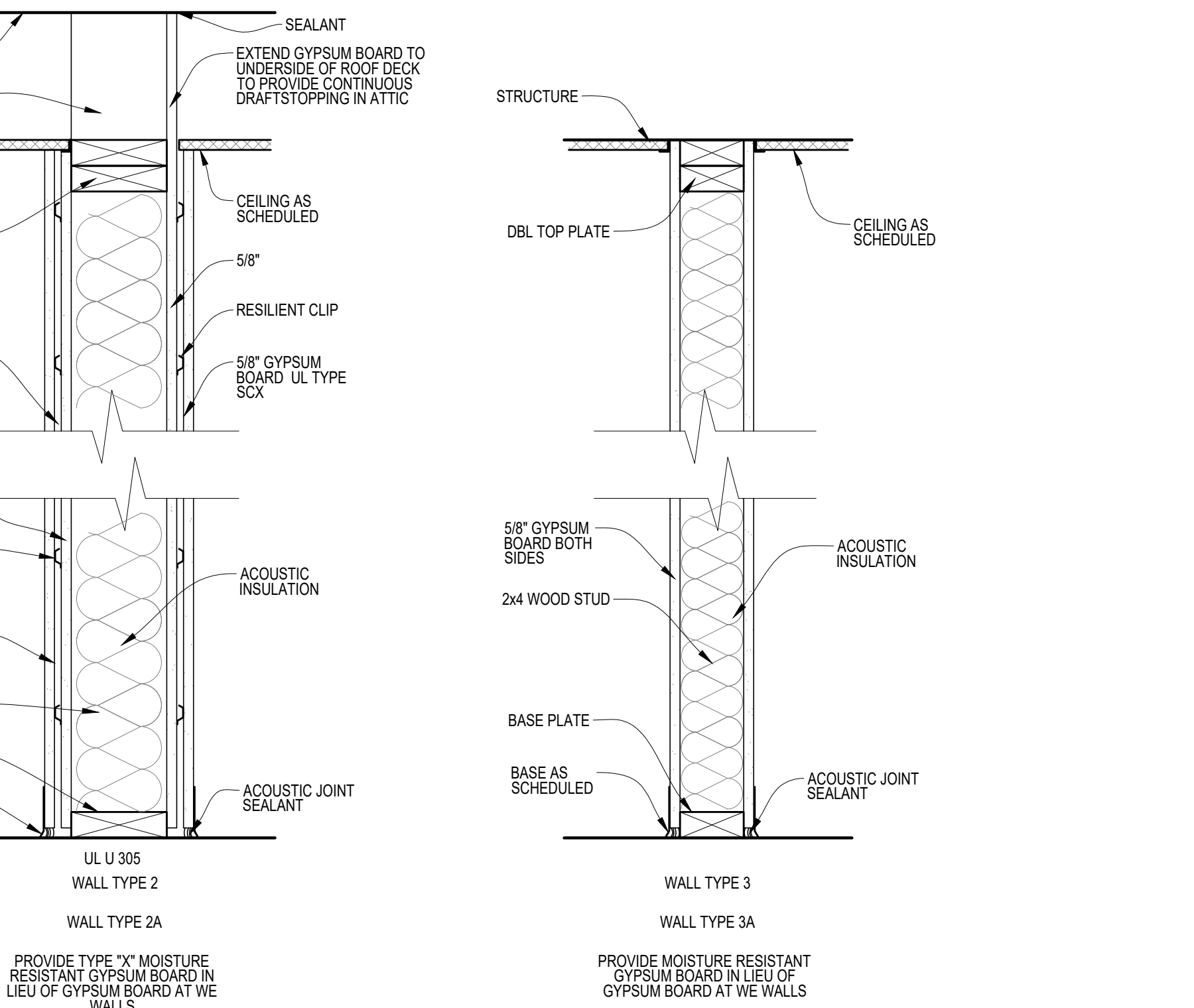
**1 WALL DETAIL 1**  
SCALE: 1 1/2" = 1'-0"



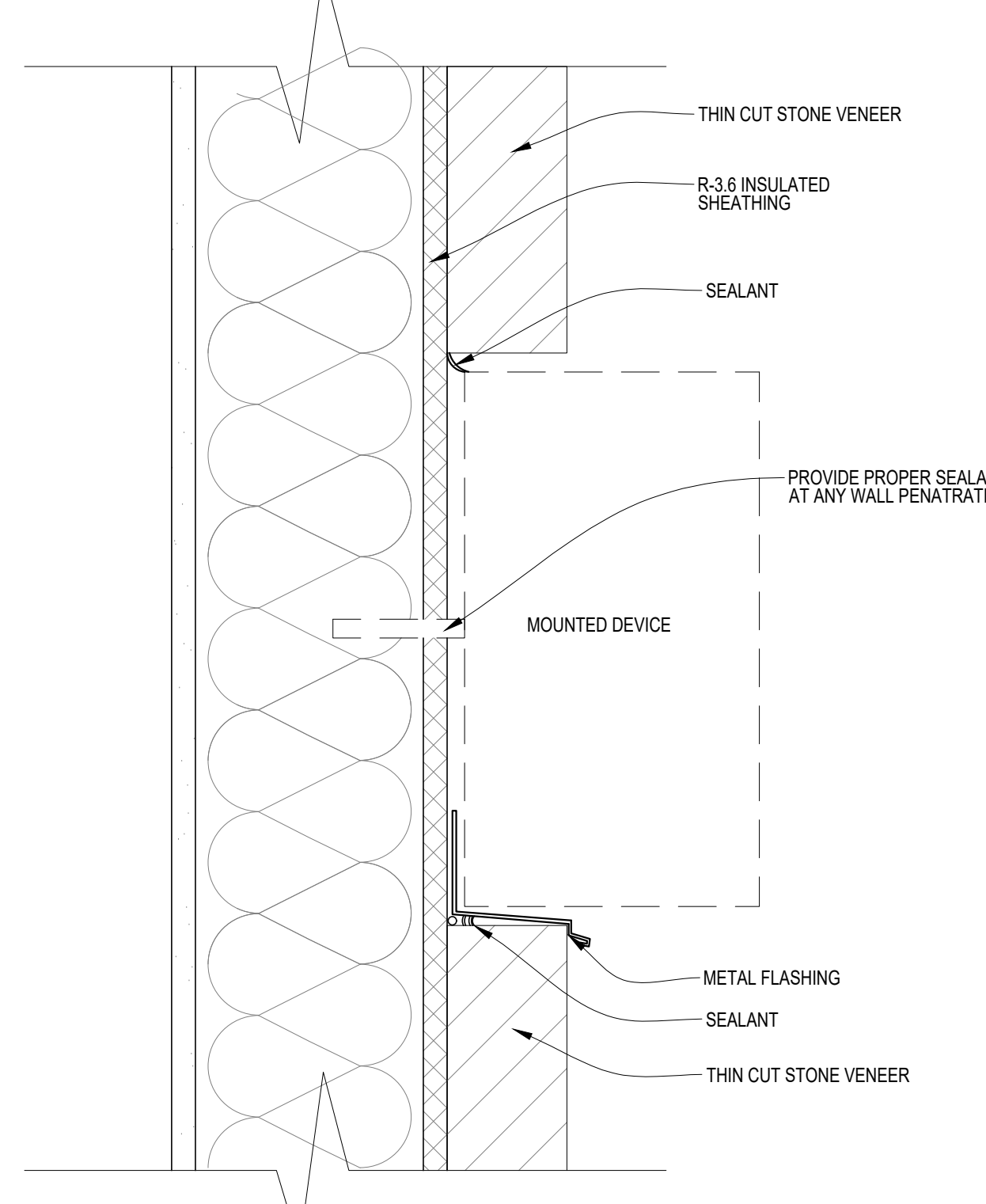
**4 WALL DETAIL 4**  
SCALE: 1 1/2" = 1'-0"



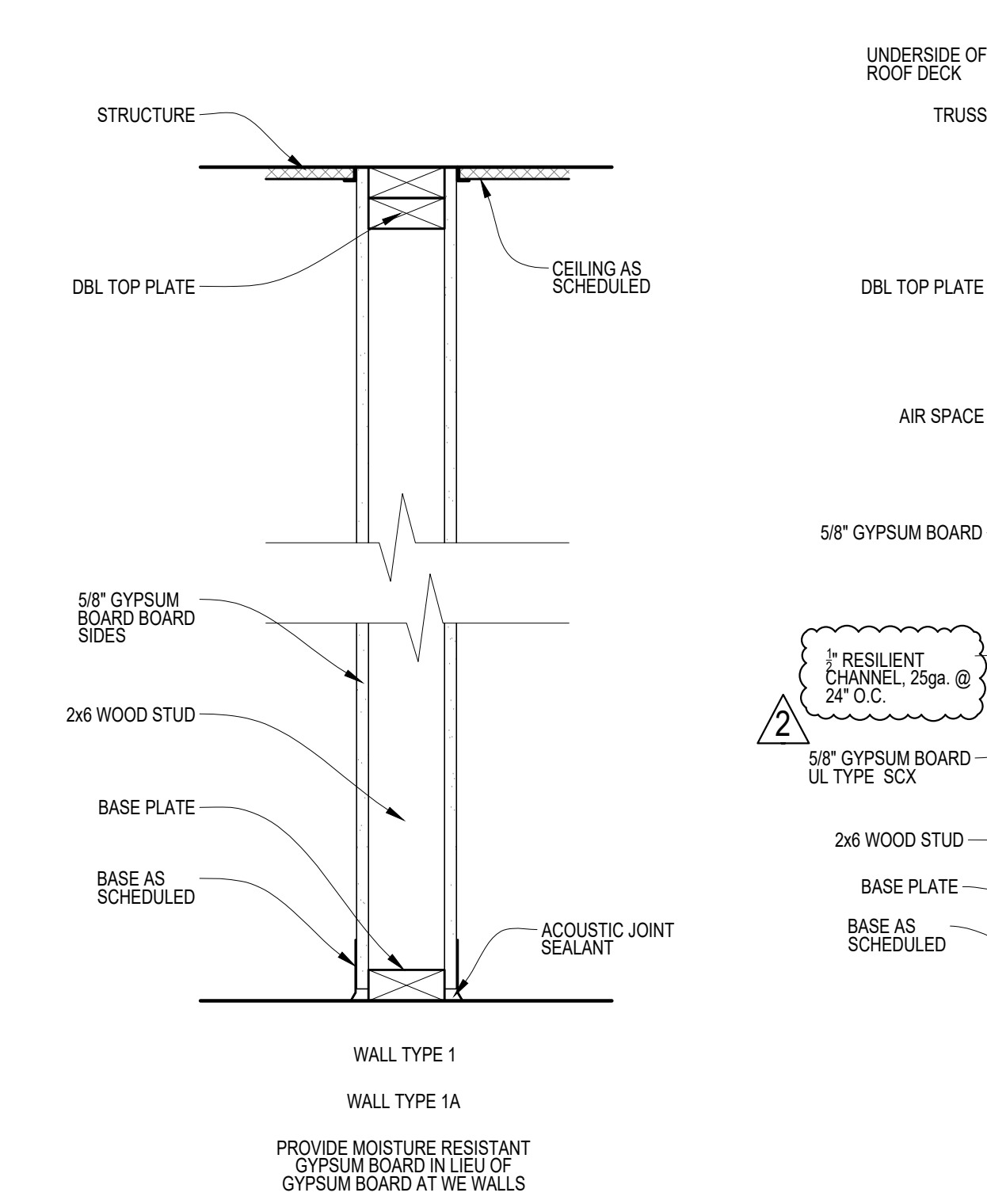
**8 PARTITION WALL TYPES**  
SCALE: 1 1/2" = 1'-0"



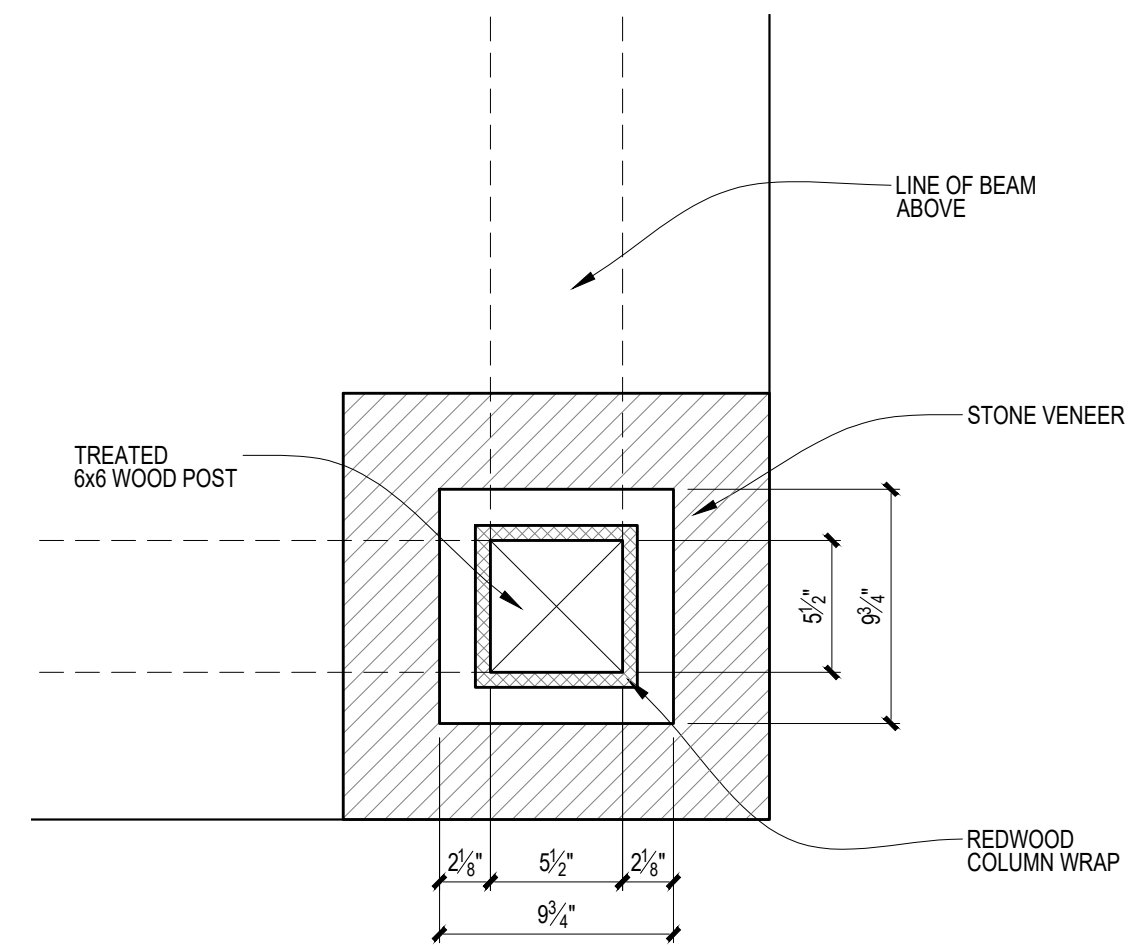
**7 PARTITION WALL TYPES**  
SCALE: 1 1/2" = 1'-0"



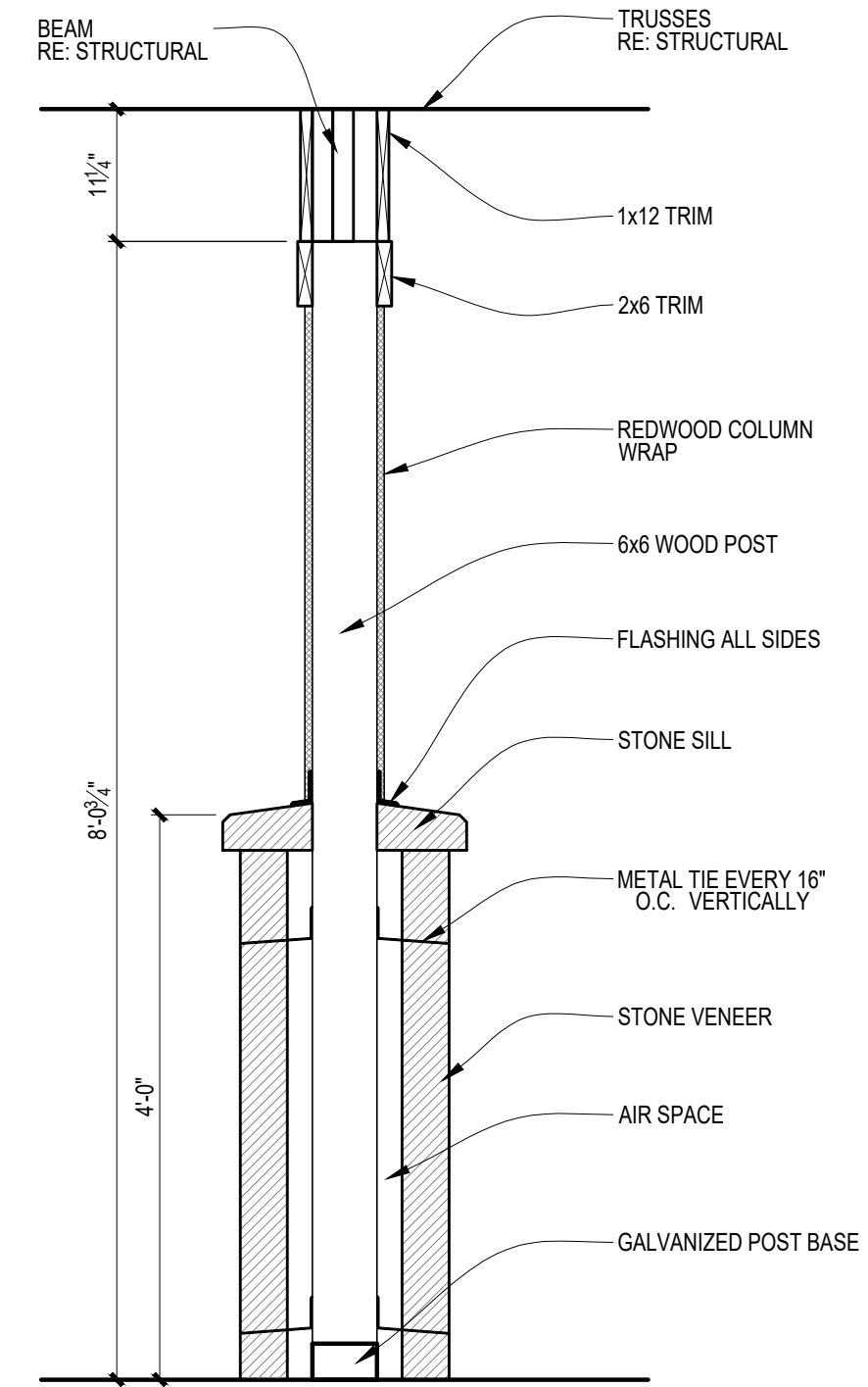
**9 EXT. MOUNTED DEVICE DETAIL**  
SCALE: 3" = 1'-0"



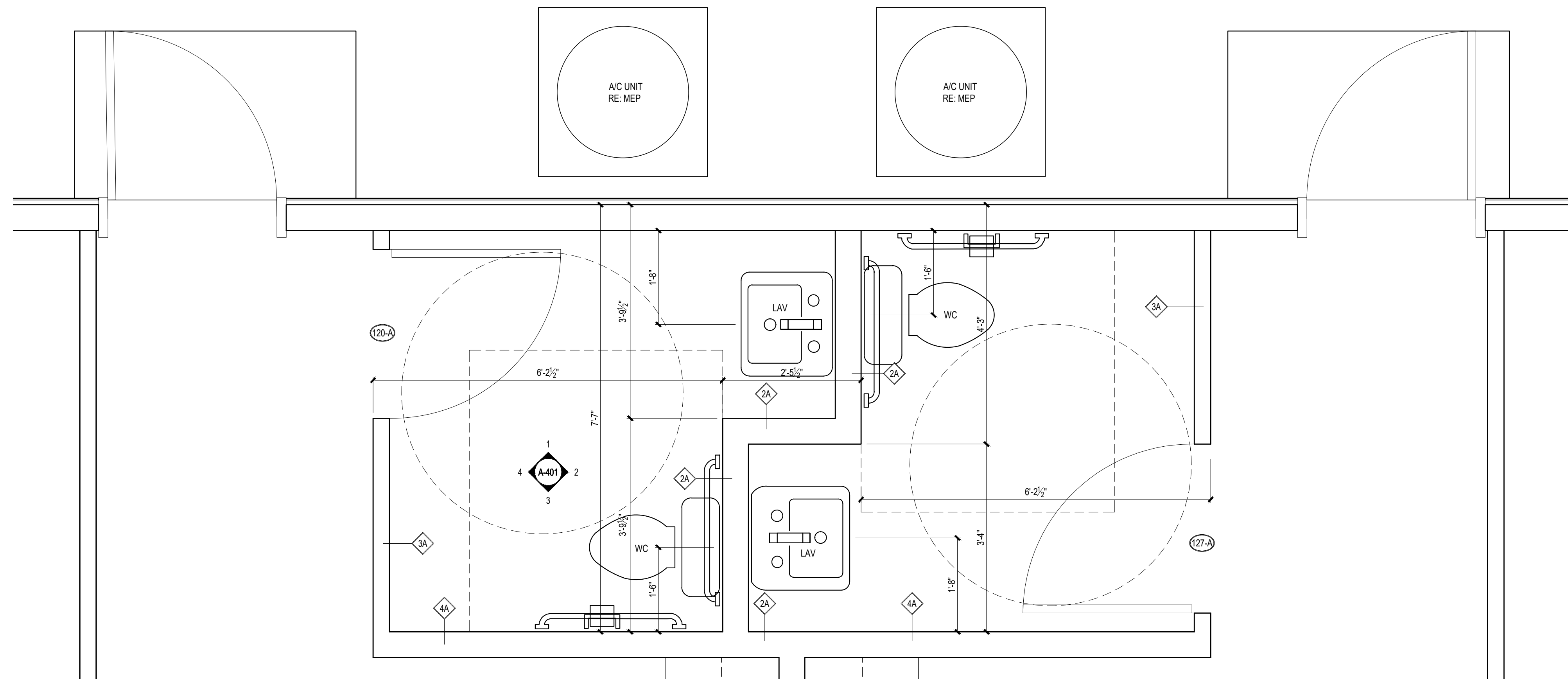
**7 PARTITION WALL TYPES**  
SCALE: 1 1/2" = 1'-0"



**2 PORCH COLUMN (TYP.)**  
SCALE: 1 1/2" = 1'-0"



**3 PORCH COLUMN SECTION**  
SCALE: 3/4" = 1'-0"



**1 RESTROOM ENLARGED PLAN**  
SCALE: 3/4" = 1'-0"

**GENERAL NOTES TO ENLARGED PLANS**

- 1) ALL DIMENSIONS ARE TO FACE OF STUD UNLESS NOTED OTHERWISE.
- 2) ALL INTERIOR PARTITIONS TO BE TYPE '1' UNLESS NOTED OTHERWISE.
- 3) ALL DIMENSIONS LOCATING FIXTURES ARE TO THE CENTER OF THE FIXTURE UNLESS NOTED OTHERWISE.
- 4) COORDINATE WITH PLUMBING FOR FIXTURE TYPES AND HEIGHTS, MEET CURRENT T&S WHERE APPLICABLE.
- 5) CONTRACTOR RESPONSIBLE FOR FIELD MEASUREMENTS FOR MILLWORK PRIOR TO FABRICATION.
- 6) ALL DOOR OPENINGS TO BE LOCATED 6" FROM ADJACENT PERPENDICULAR WALL UNLESS NOTED OTHERWISE.
- 7) CONTRACTOR TO PROVIDE AND INSTALL SUFFICIENT BLOCKING IN WALL(S) TO SUPPORT WALL MOUNTED ITEMS.
- 8) ALL WET WALL(S) TO RECEIVE 5/8" MOISTURE RESISTANT GYPSUM BOARD UNLESS NOTED OTHERWISE.
- 10) CONTRACTOR TO COORDINATE MOUNTING HEIGHTS OF WALL MOUNTED ITEMS/EQUIPMENT PRIOR TO INSTALLATION WITH OWNER AND/OR ARCHITECT.
- 11) NO SUBSTITUTIONS PERMITTED WITHOUT THE APPROVAL OF THE ARCHITECT OR OWNER.
- 12) ANY CONFLICTS IN THE CONSTRUCTION DOCUMENTS SHALL BE BROUGHT TO THE ARCHITECT'S ATTENTION BEFORE WORK BEGINS.



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DATE: MAR 15, 2023

**CONSTRUCTION DOCUMENTS**  
**HEATHERWILDE OFFICE**  
**CONDOS BLDG 3**

201 N. HEATHERWILDE BLVD.  
PFLUGERVILLE, TX 78660

PROJECT NO: 17003

REVISIONS:


DRAWN BY: LC  
REVIEWED BY: SB

ENLARGED PLANS

**A-401**

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STRUCTURAL ENGINEER:

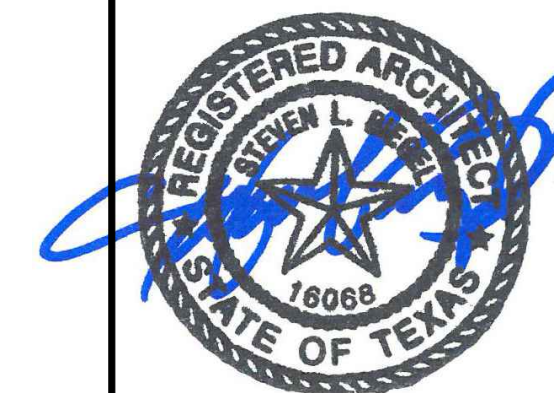
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**CONDOS BLDG 3**

201 N. HEATHERWILDE BLVD.  
 PFLUGERVILLE, TX 78660

PROJECT NO: 17003

REVISIONS:

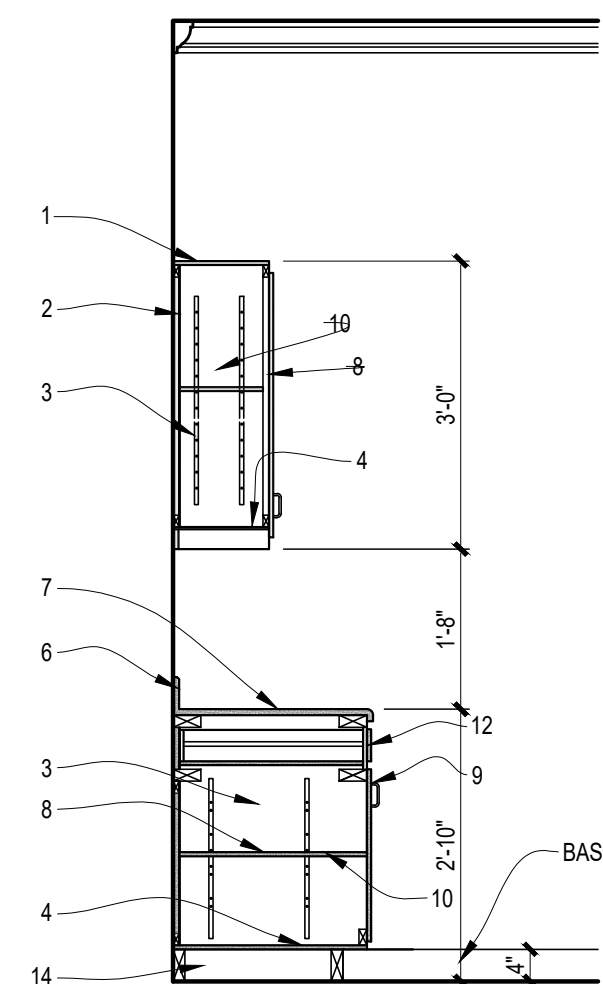
△ - ADA REVIEW

DRAWN BY: LC  
 REVIEWED BY: SB

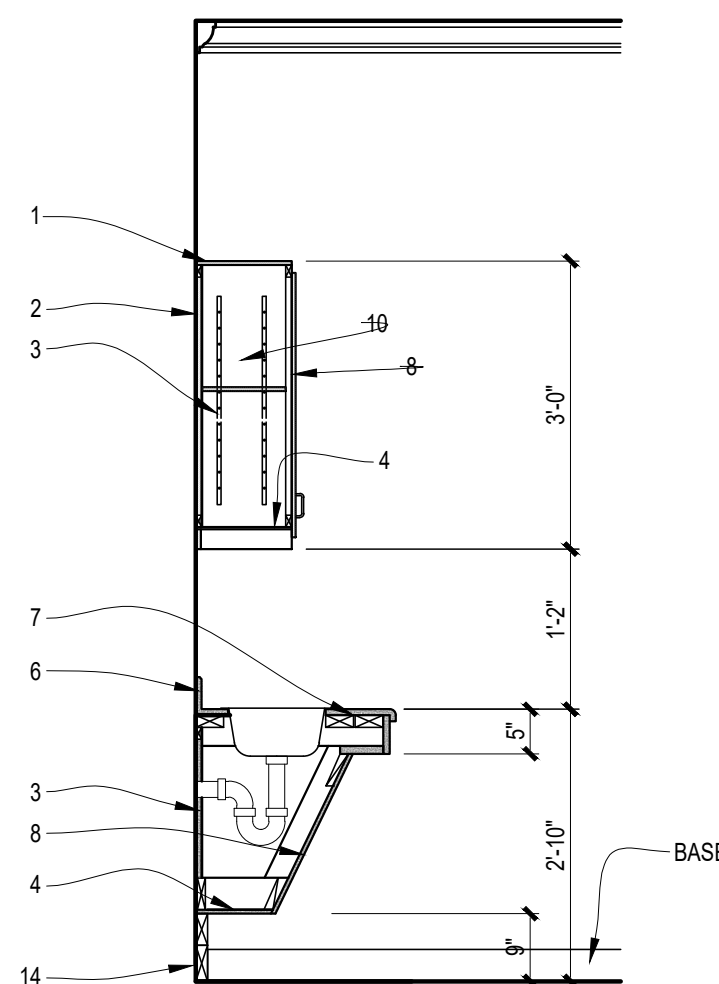
INTERIOR ELEVATIONS

**A-501**

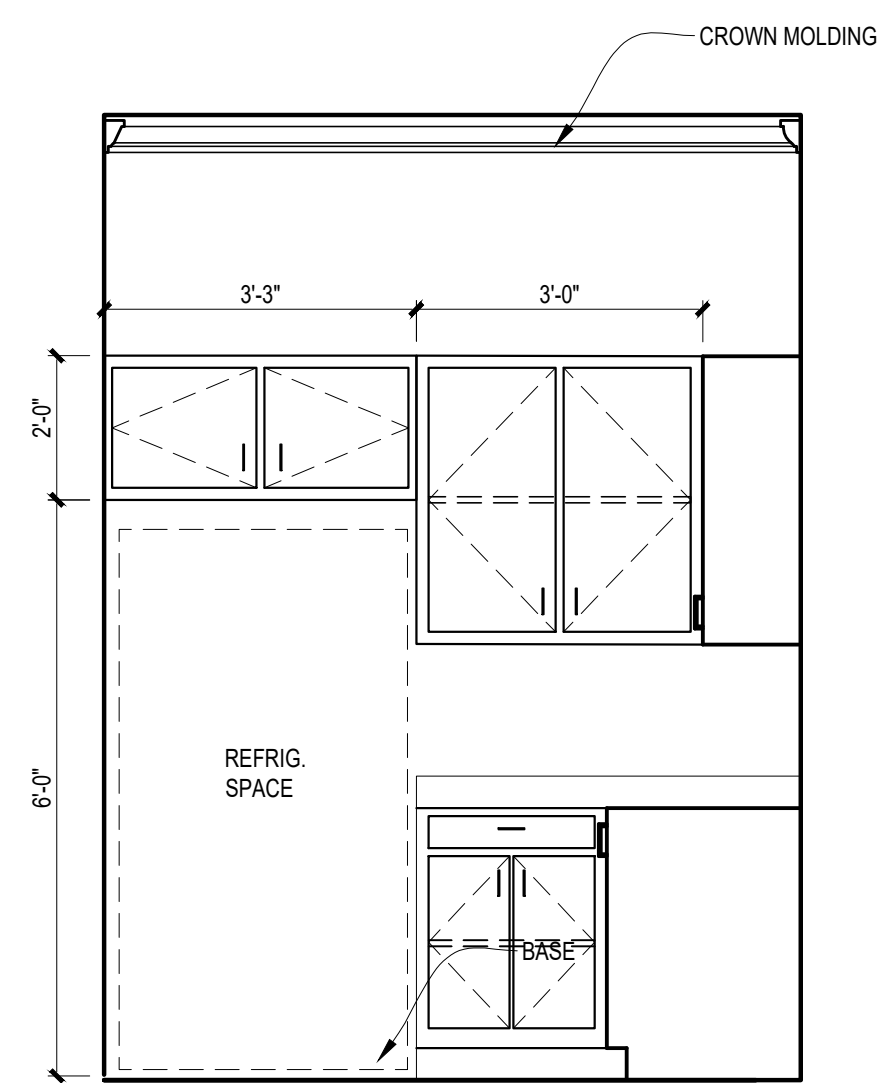
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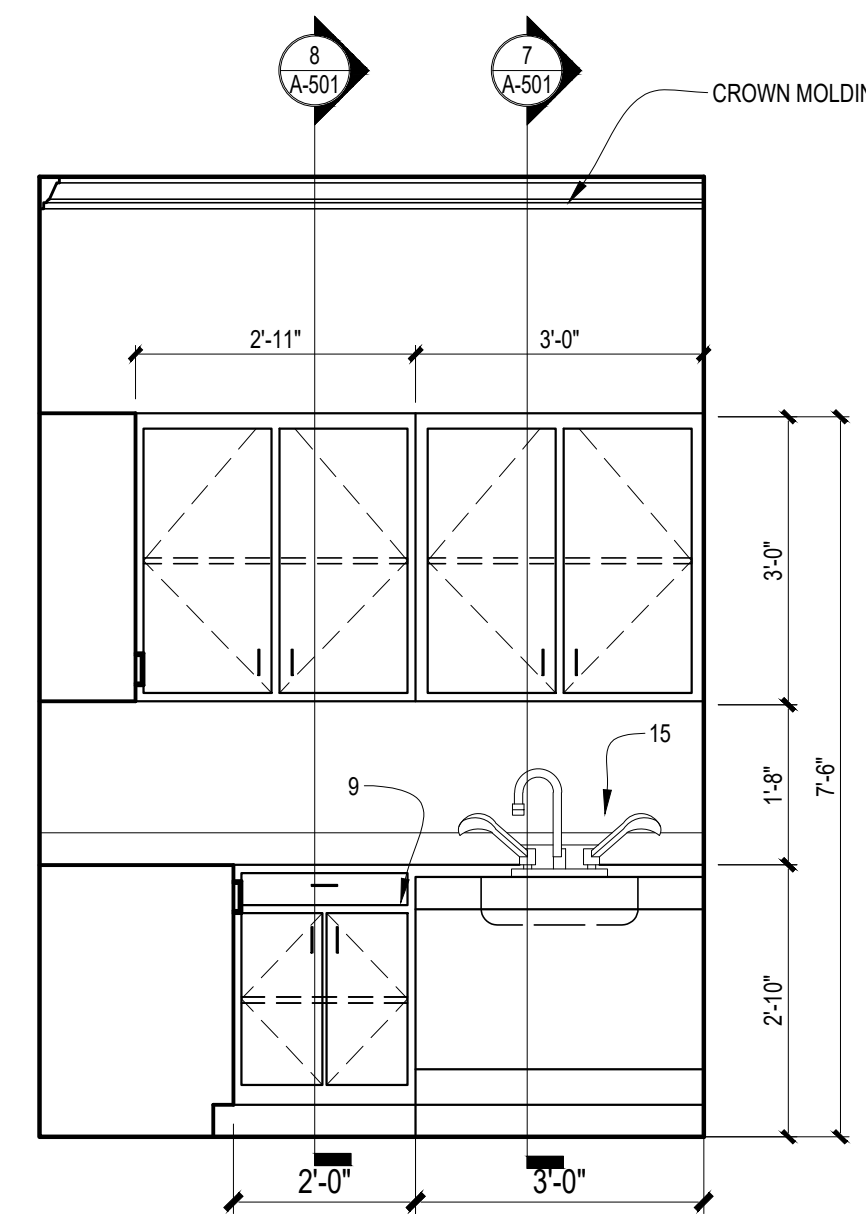
**8 KITCHEN SECTION. (TYP.)**  
 SCALE: 1/2" = 1'-0"



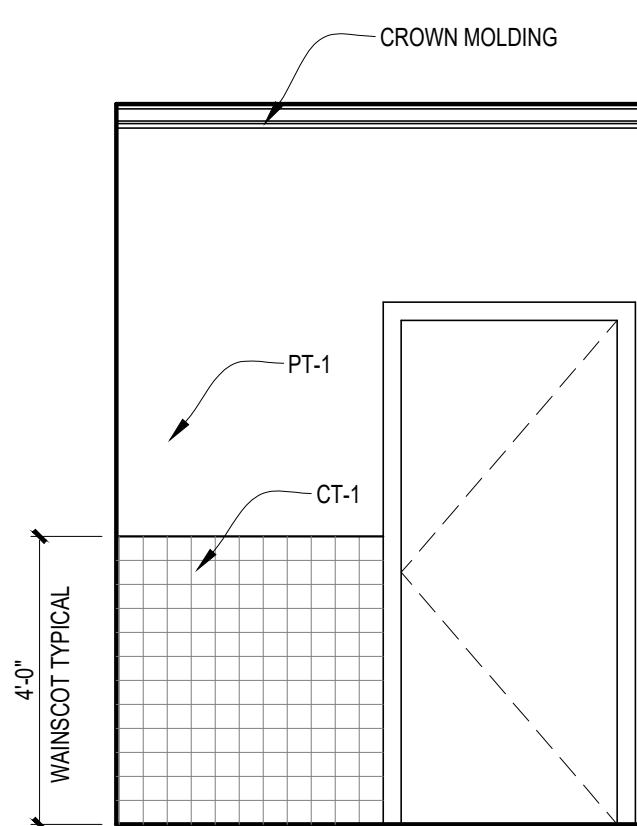
**7 KITCHEN SECTION. (TYP.)**  
 SCALE: 1/2" = 1'-0"



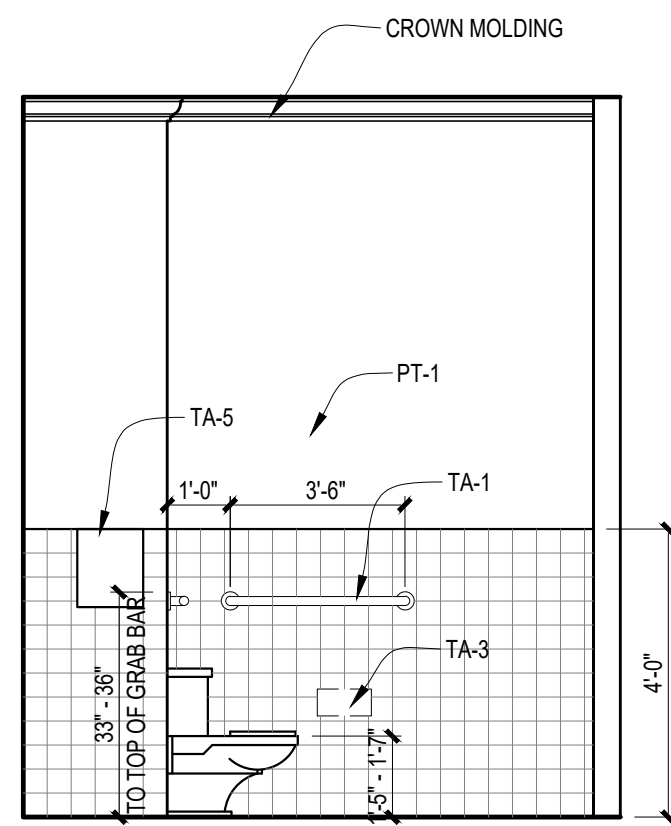
**6 KITCHEN ELEV. (TYP.)**  
 SCALE: 1/2" = 1'-0"



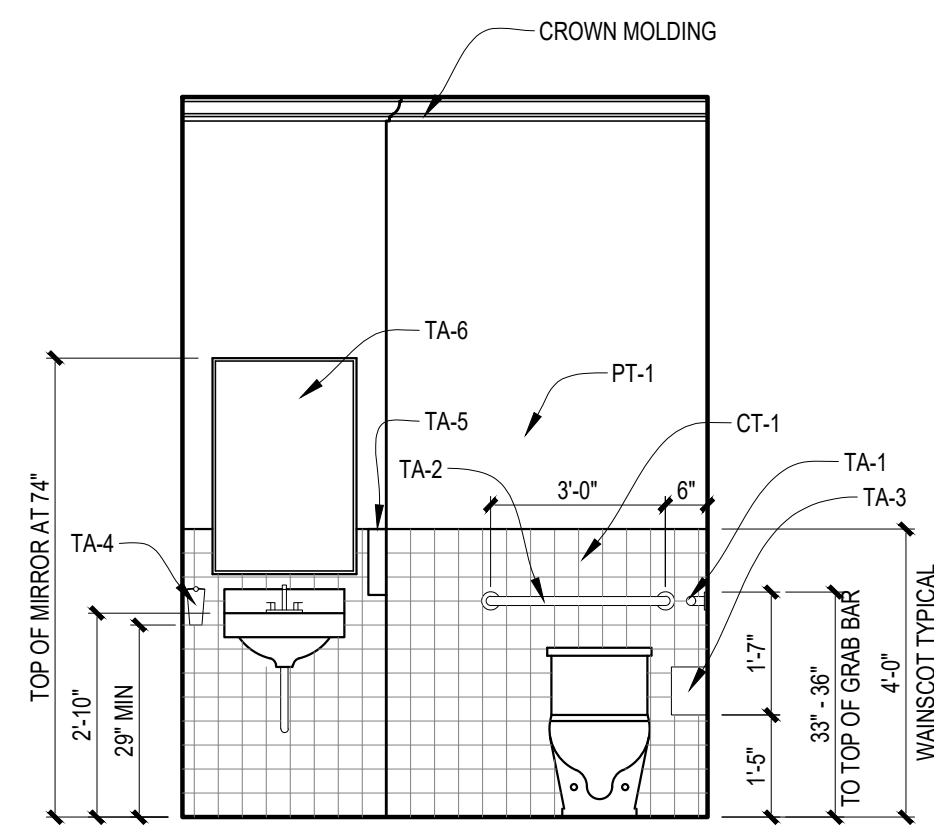
**5 KITCHEN ELEV. (TYP.)**  
 SCALE: 1/2" = 1'-0"



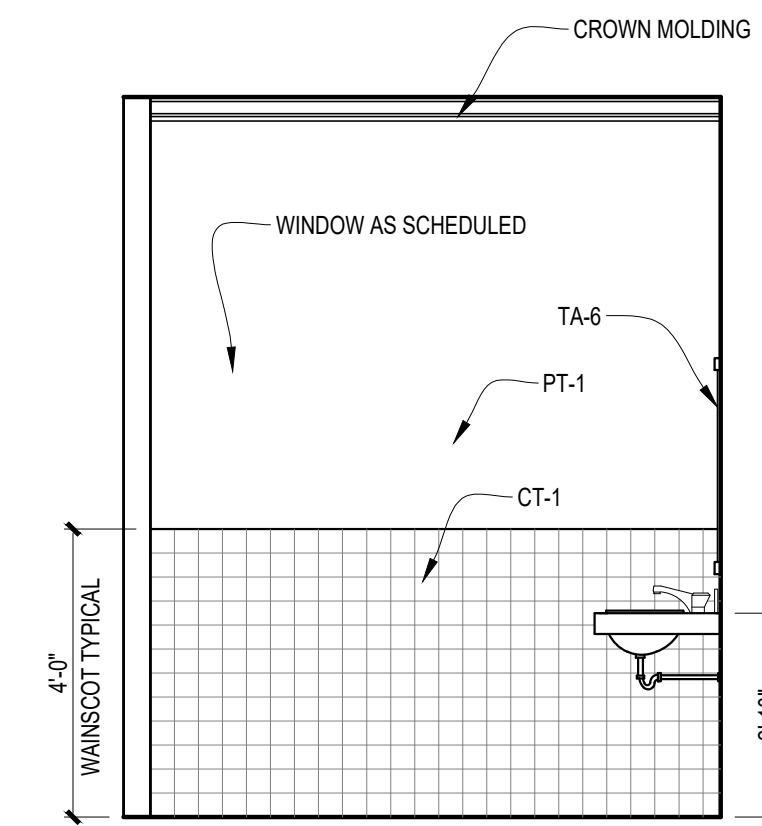
**4 RESTROOM ELEV. - 1 (TYP.)**  
 SCALE: 3/8" = 1'-0"



**3 RESTROOM ELEV. - 4 (TYP.)**  
 SCALE: 3/8" = 1'-0"



**2 RESTROOM ELEV. - 3 (TYP.)**  
 SCALE: 3/8" = 1'-0"



**1 RESTROOM ELEV. - 2 (TYP.)**  
 SCALE: 3/8" = 1'-0"

**KEY NOTES**

- |  |  |
|--|--|
| <ul style="list-style-type: none"> <li>1 3/4" PLYWOOD TOP &amp; SIDES W/ 1/2" x 3/4" HARDWOOD EDGE</li> <li>2 1/4" PLYWOOD BACK</li> <li>3 ADJUSTABLE SHELF TRACK, REFER TO SPECS.</li> <li>4 3/4" PLYWOOD W/ 1/2" x 3/4" HARDWOOD BAND AT EXPOSED EDGES</li> <li>5 SINK RE: PLUMBING</li> <li>6 BACKSPLASH</li> <li>7 BLANCO ALTICO GRANITE COUNTERTOP W/ EASED EDGES TOP AND SPLASH</li> </ul> | <ul style="list-style-type: none"> <li>8 3/4" PLYWOOD DOOR W/ HARDWOOD EDGER AND MELAMINE FINISH.</li> <li>9 DRAWER &amp; DOOR PULLS AS SPECIFIED</li> <li>10 3/4" PLYWOOD ADJ. SHELVES W/ 1/2" x 3/4" HARDWOOD EDGE</li> <li>11 FAUCET, RE: PLUMBING</li> <li>12 3/4" BIRCH PLYWOOD DRAWER WITH HARDWOOD "V"EE" EDGE BANDING</li> <li>13 3/4" PLYWOOD DIVIDERS W/ 1/2" x 3/4" HARDWOOD EDGES AT MULTIPLE BAY SHELVES</li> <li>14 TREATED 2" X 4" BASE.</li> <li>15 MICROWAVE PROVIDE BY TENANT</li> </ul> |
|--|--|

**FINISH SCHEDULE -**

ROOM #	ROOM NAME	FLOOR	BASE	WALLS				CEILING	CLG.	REMARKS
				NORTH	SOUTH	EAST	WEST			
100	RECEPTION	LVT	WB-1	PT-1	PT-1	PT-1	PT-1	GWB-1	10'-0"	4" CROWN MOLDING/PAINT GRADE
101	CONFERENCE	LVT	WB-1	PT-1	PT-1	PT-1	PT-1	GWB-1	10'-0"	4" CROWN MOLDING/PAINT GRADE
102	OFFICE	LVT	WB-1	PT-1	PT-1	PT-1	PT-1	GWB-1	10'-0"	4" CROWN MOLDING/PAINT GRADE
103	HALL	LVT	WB-1	PT-1	PT-1	PT-1	PT-1	GWB-1	10'-0"	4" CROWN MOLDING/PAINT GRADE
104	RESTROOM		CTB-1	CT1/PT-1	CT1/PT-1	CT1/PT-1	CT1/PT-1	GWB-1	10'-0"	ENAMEL PAINT ON CLG OF RESTR.
105	KITCHEN	LVT	WB-1	PT-1	PT-1	CT1/PT-1	PT-1	GWB-1	10'-0"	4" CROWN MOLDING/PAINT GRADE
106	OFFICE	LVT	WB-1	PT-1	PT-1	PT-1	PT-1	GWB-1	10'-0"	4" CROWN MOLDING/PAINT GRADE
107	OFFICE	LVT	WB-1	PT-1	PT-1	PT-1	PT-1	GWB-1	10'-0"	4" CROWN MOLDING/PAINT GRADE
108	RECEPTION	LVT	WB-1	PT-1	PT-1	PT-1	PT-1	GWB-1	10'-0"	4" CROWN MOLDING/PAINT GRADE
109	CONFERENCE	LVT	WB-1	PT-1	PT-1	PT-1	PT-1	GWB-1	10'-0"	4" CROWN MOLDING/PAINT GRADE
110	KITCHEN	LVT	WB-1	PT-1	PT-1	PT-1	CT1/PT-1	GWB-1	10'-0"	4" CROWN MOLDING/PAINT GRADE
111	RESTROOM		CTB-1	CT1/PT-1	CT1/PT-1	CT1/PT-1	CT1/PT-1	GWB-1	10'-0"	ENAMEL PAINT ON CLG OF RESTR.
112	HALL	LVT	WB-1	PT-1	PT-1	PT-1	PT-1	GWB-1	10'-0"	4" CROWN MOLDING/PAINT GRADE
113	OFFICE	LVT	WB-1	PT-1	PT-1	PT-1	PT-1	GWB-1	10'-0"	4" CROWN MOLDING/PAINT GRADE
114	OFFICE	LVT	WB-1	PT-1	PT-1	PT-1	PT-1	GWB-1	10'-0"	4" CROWN MOLDING/PAINT GRADE
115	OFFICE	LVT	WB-1	PT-1	PT-1	PT-1	PT-1	GWB-1	10'-0"	4" CROWN MOLDING/PAINT GRADE
116	OFFICE	LVT	WB-1	PT-1	PT-1	PT-1	PT-1	GWB-1	10'-0"	4" CROWN MOLDING/PAINT GRADE
117	OFFICE	LVT	WB-1	PT-1	PT-1	PT-1	PT-1	GWB-1	10'-0"	4" CROWN MOLDING/PAINT GRADE
118	OFFICE	LVT	WB-1	PT-1	PT-1	PT-1	PT-1	GWB-1	10'-0"	4" CROWN MOLDING/PAINT GRADE
119	HALL	LVT	WB-1	PT-1	PT-1	PT-1	PT-1	GWB-1	10'-0"	4" CROWN MOLDING/PAINT GRADE
120	RESTROOM		CTB-1	CT1/PT-1	CT1/PT-1	CT1/PT-1	CT1/PT-1	GWB-1	10'-0"	ENAMEL PAINT ON CLG OF RESTR.
121	KITCHEN	LVT	WB-1	PT-1	PT-1	CT1/PT-1	PT-1	GWB-1	10'-0"	4" CROWN MOLDING/PAINT GRADE
122	CONFERENCE	LVT	WB-1	PT-1	PT-1	PT-1	PT-1	GWB-1	10'-0"	4" CROWN MOLDING/PAINT GRADE
123	RECEPTION	LVT	WB-1	PT-1	PT-1	PT-1	PT-1	GWB-1	10'-0"	4" CROWN MOLDING/PAINT GRADE
124	OFFICE	LVT	WB-1	PT-1	PT-1	PT-1	PT-1	GWB-1	10'-0"	4" CROWN MOLDING/PAINT GRADE
125	CONFERENCE	LVT	WB-1	PT-1	PT-1	PT-1	PT-1	GWB-1	10'-0"	4" CROWN MOLDING/PAINT GRADE
126	KITCHEN	LVT	WB-1	PT-1	PT-1	PT-1	CT1/PT-1	GWB-1	10'-0"	4" CROWN MOLDING/PAINT GRADE
127	RESTROOM		CTB-1	CT1/PT-1	CT1/PT-1	CT1/PT-1	CT1/PT-1	GWB-1	10'-0"	ENAMEL PAINT ON CLG OF RESTR.
128	HALL	LVT	WB-1	PT-1	PT-1	PT-1	PT-1	GWB-1	10'-0"	4" CROWN MOLDING/PAINT GRADE
129	OFFICE	LVT	WB-1	PT-1	PT-1	PT-1	PT-1	GWB-1	10'-0"	4" CROWN MOLDING/PAINT GRADE
130	OFFICE	LVT	WB-1	PT-1	PT-1	PT-1	PT-1	GWB-1	10'-0"	4" CROWN MOLDING/PAINT GRADE
131	RECEPTION	LVT	WB-1	PT-1	PT-1	PT-1	PT-1	GWB-1	10'-0"	4" CROWN MOLDING/PAINT GRADE
GENERAL REMARKS:									NOTE: ALL RESTROOMS TO HAVE A 4'-0" WAINSCOT OF TILE FINISHED WITH A SCHLUTER TRIM AND PAINT ABOVE TO CEILING.	

**FINISH SCHEDULE - NOTES**

	DESCRIPTION	REMARKS
FLOOR		
LVT	LUXURY VINYL TILE	
CT-2	CERAMIC TILE FLOORING	
BASE		
WB-1	WOOD BASE	REFER TO SPECS
CTB-1	CERAMIC TILE BASE #1	REFER TO SPECS
CEILING		
GWB-1	PAINTED GWB CEILING	REFER TO OWNER FOR PAINT SELECTION.
WALLS		
PT-1	GW, B, PAINTED COLOR	REF. TO OWNER FOR PAINT SELECTION.
CT-1	CERAMIC TILE	REFER TO SPECS. - WAINSCOT TO BE FINISHED WITH SCHLUTER PROFILE

**HARDWARE SCHEDULE -**

HARDWARE SET #	RATED OPEN'G	BUTT HINGES, PAIR	EXTERIOR LOCKSET	LOCKSET (CLASSROOM FUNCT)	LOCKSET (PRIVACY FUNCTION)	PANIC DEVICE (CONCEAL ROD) W/ LOCKSET	CLOSER	KEY DEADBOLT	KICK PLATE	DOOR STOP (FLOOR)	SILENCERS (SET)	WEATHERSTRIPPING (TOP & SIDES)	ALUM. ADA TRESHOLD	ELECTROMAGNETIC HOLD - OPEN DEVICE
01 EXTERIOR DOORS	---	1.5	1					1	1	1	1	1	1	
02 OFFICE, SINGLE	20 MIN.	1.5		1							1	1		
03 RESTROOM	20 MIN.	1.5		1			1	1	1	1				

**DOOR SCHEDULE -**

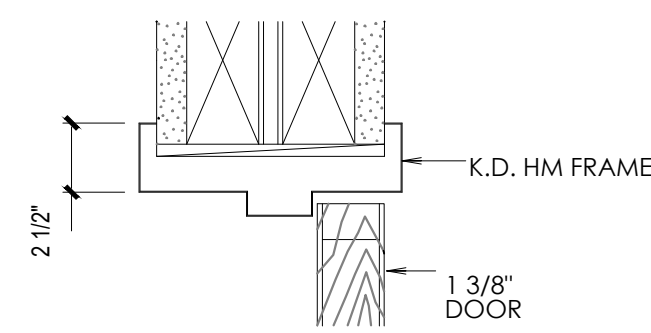
DOOR #	ROOM NAME	TYPE	WIDTH	HEIGHT	TYPE	FRAME	REMARKS
100A	MAIN ENTRY	HM	3'-0"	7'-0"	A	HM	REFER TO DETAILS.
102A	OFFICE	HM	3'-0"	7'-0"	C	HM	REFER TO DETAILS.
103A	REAR EXIT	HM	3'-0"	7'-0"	B	HM	45 MIN FIRE RATED
104A	RESTROOM	HM	3'-0"	7'-0"	C	HM	REFER TO DETAILS.
106A	OFFICE	SC	3'-0"	7'-0"	C	HM	REFER TO DETAILS.
107A	OFFICE	SC	3'-0"	7'-0"	C	HM	REFER TO DETAILS.
108A	MAIN ENTRY	HM	3'-0"	7'-0"	A	HM	REFER TO DETAILS.
111A	RESTROOM	HM	3'-0"	7'-0"	C	HM	REFER TO DETAILS.
112A	REAR EXIT	HM	3'-0"	7'-0"	B	HM	45 MIN FIRE RATED
113A	OFFICE	SC	3'-0"	7'-0"	C	HM	REFER TO DETAILS.
114A	OFFICE	SC	3'-0"	7'-0"	C	HM	REFER TO DETAILS.
115A	OFFICE	SC	3'-0"	7'-0"	C	HM	REFER TO DETAILS.
116A	OFFICE	SC	3'-0"	7'-0"	C	HM	REFER TO DETAILS.
117B	OFFICE	SC	3'-0"	7'-0"	C	HM	REFER TO DETAILS.
118A	OFFICE	SC	3'-0"	7'-0"	C	HM	REFER TO DETAILS.
119B	REAR EXIT	HM	3'-0"	7'-0"	B	HM	45 MIN FIRE RATED
120A	RESTROOM	SC	3'-0"	7'-0"	C	HM	REFER TO DETAILS.
123A	MAIN ENTRY	HM	3'-0"	7'-0"	A	HM	REFER TO DETAILS.
124A	OFFICE	SC	3'-0"	7'-0"	C	HM	REFER TO DETAILS.
130A	OFFICE	SC	3'-0"	7'-0"	C	HM	REFER TO DETAILS.
127A	RESTROOM	SC	3'-0"	7'-0"	C	HM	REFER TO DETAILS.
128A	REAR EXIT	HM	3'-0"	7'-0"	B	HM	45 MIN FIRE RATED
129A	OFFICE	SC	3'-0"	7'-0"	C	HM	REFER TO DETAILS.
131A	MAIN ENTRY	HM	3'-0"	7'-0"	A	HM	REFER TO DETAILS.

**GLAZING LEGEND**

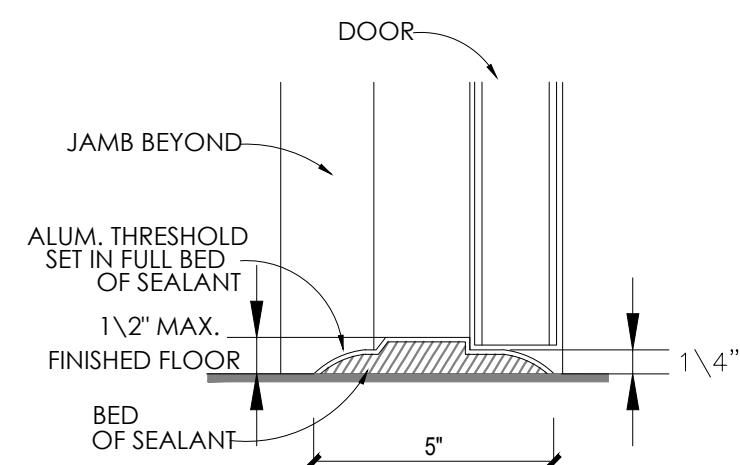
TYPE	DESCRIPTION
1	1/4" TINTED INSULATED GLASS
2	1/4" TINTED SAFETY INSULATED GLASS
3	1/4" FROSTED INSULATED GLASS
4	1/4" TINTED INSULATED GLASS - 45 MIN FIRE RATED

**TOILET ACCESSORIES**

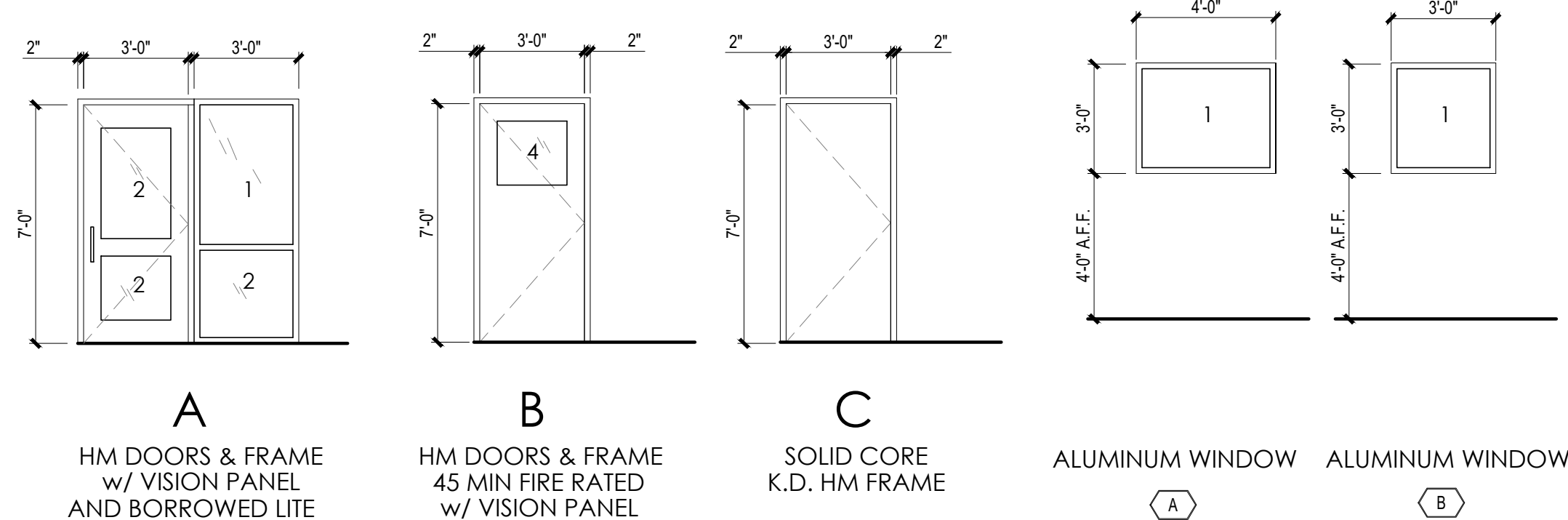
KEY NAME	DESCRIPTION
TA-1	GRAB BAR - 42"
TA-2	GRAB BAR - 36"
TA-3	TOILET PAPER DISPENSER
TA-4	WALL MOUNTED SOAP DISPENSER
TA-5	WALL MOUNTED HAND DRYER
TA-6	FRAMED MIRROR



**1 INTERIOR HEAD DETAIL SECTION**  
SCALE: 3"=1'-0"



**2 EXTERIOR SILL DETAIL SECTION**  
SCALE: 3"=1'-0"



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DATE: MAR 15, 2023

**CONSTRUCTION DOCUMENTS**  
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201 N. HEATHERWILDE BLVD.  
PFLUGERVILLE, TX 78660

PROJECT NO: 17003

REVISIONS:

DRAWN BY: LC  
REVIEWED BY: SB

SCHEDULES & TYPES

**A-601**

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## STRUCTURAL DESIGN CRITERIA

### CODES

- BUILDING CODE:** INTERNATIONAL BUILDING CODE (IBC), 2021.
- STRUCTURAL STEEL:** AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC) MANUAL OF STEEL CONSTRUCTION, ALLOWABLE STRESS DESIGN (ASD), NINTH EDITION.
- STRUCTURAL CONCRETE:** AMERICAN CONCRETE INSTITUTE (ACI), BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE, 318-02.
- CONCRETE MASONRY:** MASONRY STANDARDS JOINT COMMITTEE CODE, ACI530-02/ASCE5-02/TMS402-02, 2002.
- WOOD:** AMERICAN INSTITUTE OF TIMBER CONSTRUCTION, MOST RECENT EDITION APA - THE ENGINEERED WOOD ASSOCIATION, MOST RECENT EDITION.
- WOOD TRUSSES:** TRUSS PLATE INSTITUTE DESIGN SPECIFICATIONS FOR METAL PLATE CONNECTED PARALLEL WOOD TRUSSES, MOST RECENT EDITION.
- REFER TO SOILS REPORT BY RABA-KISTNER CONSULTANTS, INC., REPORT NO. AAA08-053-00, JULY 29, 2008.

### DESIGN LOADS

#### 1. DEAD LOADS:

FLOORS	10 PSF
ROOF MATERIAL	10 PSF
WALLS	10 PSF

#### 2. LIVE LOADS INCLUDE THE FOLLOWING:

FLOORS	50 PSF
ROOF	20 PSF

#### 3. WIND LOADS PARAMETERS INCLUDE THE FOLLOWING:

DESIGN WIND SPEED - Vult	115 MPH
EXPOSURE	B
DIRECTION	ANY
RISK CATEGORY	II

### SEISMIC

- SITE CLASS: D  
SEISMIC DESIGN CATEGORY: A

### FOUNDATION DESIGN

- BASED ON OWNER'S GEOTECHNICAL REPORT BY RABA KISTNER BRYTEST CONSULTANTS REPORT NO. AAA08-053-00, DATED - JULY 29, 2008.

### MATERIAL STRENGTHS

#### 1. CONCRETE

SIDEWALKS	3000 PSI (W/AIR ENT.)
PAVING & CURBS	3000 PSI (W/AIR ENT.)
SLABS	3000 PSI (W/AIR ENT.)

#### 2. REINFORCING STEEL: ASTM A615

- GRADE 40 FOR BEAM STIRRUPS, TIES, SPIRALS AND DOWELS.
- GRADE 60 FOR ALL OTHER REINFORCING.
- WELDED WIRE FABRIC: ASTM A185

## MEMBER SCHEDULE

ID MARK	SIZE (REFER TO SCHEDULE NOTES)	FRAMING TYPE	NOTES
B1	2-PLY LVL 1 1/2"x1 3/4"	BEAM	AT COVERED ENTRANCE
C1	6x6 WOOD	COLUMN	AT COVERED ENTRANCE
H1	(2) 2x6 SYP	HEADER	AT INTERIOR OPENINGS REF SPEC
H2	3-PLY 2x12	HEADER	AT EXTERIOR OPENINGS REF SPEC
H3	2-PLY LVL 1 1/2"x1 3/4"	HEADER	SPAN 8'-0" MAX
R1	METAL PLATE CONNECTED TRUSS	ROOF TRUSS	DESIGN BY SUPPLIER
R2	INTERMEDIATE TRUSS GIRDER	ROOF TRUSS	DESIGN BY SUPPLIER
S1	2x4 @ 1'-4"	WALL STUD INTERIOR	1'-4" SPACING
S2	2x6 @ 1'-4"	WALL STUD EXTERIOR	1'-4" SPACING
F1	(3) 2x4 SYP	WALL COLUMN	INTERIOR BEAM SUPPORT
F2	(3) 2x6 SYP	WALL COLUMN	EXTERIOR BEAM SUPPORT
F3	STEEL SADDLE	SIMPSON STRONG TIE	CCOQ4-SDS2.5 OR SIMILAR
F4	ABU66	SIMPSON STRONG TIE	STEEL BASE PLATE
J1	2x6 @ 2'-0"	CEILING JOIST	15'-0" MAX SPAN
J2	2x8 @ 2'-0"	CEILING JOIST	MECHANICAL MEZZANINE IN ATTIC

### NOTES:

- LUMBER - SYP OR DF NO.2
- LVL - MICROLAM BY TRUSJOIST OR EQUAL, E=1900 KSI

DIMENSIONS AND ELEVATIONS FOR REFERENCE ONLY. REFER TO LATEST REVISED ARCHITECTURAL PLANS BY PLACE DESIGNERS FOR BUILDING DIMENSIONS. REFER TO CIVIL PLANS FOR SLAB ELEVATIONS AND TO VERIFY SLAB STEP LOCATIONS.

## GENERAL NOTES

### SITE PREPARATION

- SITE PREPARATION REQUIREMENTS ARE BASED ON THE PROJECT SOILS REPORT REFERENCED ABOVE.
- THE SUBGRADE UNDER THE BUILDING SLAB SHALL BE MOISTURE CONDITIONED AS SPECIFIED IN THE PROJECT SOILS REPORT PAGE 6 AND 1. THE MOISTURE CONDITIONING SHALL EXTEND TO 7 FEET DEEP BELOW EXISTING GRADE. THE TOP 12 INCHES UNDER THE SLAB SHALL CONSIST OF SELECT COMPACTED BACKFILL. SEE NOTE 4 BELOW.
- MAINTAIN SITE DRAINAGE DURING AND AFTER CONSTRUCTION TO DIVERT SURFACE WATER AND ROOF RUN-OFF WATER AWAY FROM THE FOUNDATION.
- SELECT NON-EXPANSIVE FILL MATERIAL REQUIRED TO ELEVATE PAD SHALL BE A SAND AND GRAVEL WITH A PLASTICITY INDEX BETWEEN 5 AND 15. THE FILL MATERIAL SHALL BE PLACED IN 6 INCH LOOSE LIFTS AND UNIFORMLY COMPACTED TO A MINIMUM DENSITY OF 95% AND MOISTURE CONTENT OF ±2% OF THE OPTIMUM MOISTURE CONTENT.
- STABILIZATION OF THE SUBGRADE SOIL SHALL EXTEND UNDER THE PORTICO SLABS AND APPROACH SLABS INTO THE BUILDING.

### FOUNDATIONS

- THE FOUNDATION DESIGN IS BASED UPON AN ALLOWABLE BEARING PRESSURE OF 1800 PSF IN ACCORDANCE WITH THE PROJECT SOILS REPORT.
- GRADE BEAMS AND FOOTINGS SHALL BEAR A MINIMUM OF 1'-0" INTO THE FINISHED GRADE OR COMPACTED SUBGRADE.
- GRADE BEAMS NOT DIMENSIONED SHALL BE CENTERED UNDER WALLS.
- FOOTINGS AT STRUCTURAL COLUMNS SHALL BE 2'-6" SQUARE UNLESS OTHERWISE DIMENSIONED.
- A 10-MIL POLY SHEETING VAPOR BARRIER SHALL BE PLACED UNDER THE SLAB.

### CAST-IN-PLACE CONCRETE

- CONCRETE WORK SHALL BE EXECUTED IN STRICT ACCORDANCE WITH THE LATEST AMERICAN CONCRETE INSTITUTE BUILDING CODE ACI 318.
- JOB SITE CONDITIONS SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO THE FABRICATION OF MATERIALS.
- ALL CONCRETE EXPOSED TO THE WEATHER SHALL HAVE 5% TO 6% AIR ENTRAINMENT.
- CONSTRUCTION JOINTS, WHEN NECESSARY SHALL OCCUR NEAT THE MIDDLE OF THE SPAN UNLESS A BEAN INTERSECTS AT THIS POINT, IN WHICH CASE THE JOINT SHALL BE OFFSET A DISTANCE EQUAL TO TWICE THE WIDTH OF THE BEAM. ENGINEER SHALL APPROVE PROVISIONS FOR TRANSFER OF SHEAR AND OTHER FORCES THROUGH THE JOINT.
- CONCRETE SPECIFICATIONS SHALL BE AS FOLLOWS:

LOCATIONS	28 DAY STRENGTH	AGGREGATE	SLUMP
ALL	REF STRUCTURAL DESIGN CRITERIA	1" MAXIMUM	3" TO 5"

### CONCRETE REINFORCING STEEL

- ALL REINFORCEMENT SHALL CONFORM TO ASTM A615 GRADE 60.
- REINFORCING STEEL SHALL BE DESIGNED, DETAILED, FABRICATED AND PLACED IN ACCORDANCE WITH THE LATEST ACI "MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES (ACI-315)" AND THE CRISI "RECOMMENDED PRACTICE FOR PLACING REINFORCING BARS", LATEST EDITION
- SPLICES IN REINFORCEMENT SHALL OCCUR AT POINTS OF MINIMUM STRESS AND LAP 30 BAR DIAMETERS MINIMUM UNLESS NOTED OTHERWISE.
- MINIMUM CONCRETE COVERAGE FOR REINFORCEMENT SHALL BE AS FOLLOWS:

GRADE BEAMS	3" FROM BOTTOM AND SIDES 1 1/2" FROM TOP
SLABS ON GRADE	3/4" FROM TOP
- PROVIDE CORNER BARS AT ALL CORNERS AND INTERSECTIONS, SAME SIZE AND SPACING AS LARGER REINFORCEMENT.
- SUBMIT SHOP DRAWINGS TO ENGINEER FRO APPROVAL PRIOR TO FABRICATION OF MATERIALS.

### GENERAL EPOXY NOTES

- EPOXY SHALL BE ONE OF THE FOLLOWING TYPES, UNLESS APPROVED BY ENGINEER:
  - HILTI HVA ADHESIVE ANCHORS
  - SIKA-31, HIMODGEL
  - MASTER BUILDERS, CONGRESIVE 1380
- APPLICATION SHALL BE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
- HOLE SHALL BE 1/4" LARGER THAN ANCHOR DIAMETER AND A MINIMUM OF 10" EMBEDMENT, UNLESS NOTED OTHERWISE ON DETAILS.
- HOLES SHALL BE FREE OF DUST AND MOISTURE.

### WOOD FRAMING

- FURNISH, FABRICATE AND ERECT FRAMING IN ACCORDANCE WITH THE REQUIREMENTS OF THE MOST RECENT EDITION OF THE TIMBER CONSTRUCTION MANUAL BY THE AMERICAN INSTITUTE OF TIMBER CONSTRUCTION AND THE ADOPTED EDITION OF THE INTERNATIONAL BUILDING CODE.
- BEAM TO COLUMN AND BEAM TO BEAM CONNECTIONS SHALL BE NAILED FOR BEAMS UP TO 2" IN THICKNESS AND BOLTED FOR BEAMS GREATER THAN 2" IN THICKNESS.
- WHERE MULTIPLE JOISTS OR HEADERS OCCUR, THERE SHALL BE A STUD FOR EACH MEMBER OF THE BEAM (I.E. PROVIDE DOUBLE STUDS UNDER DOUBLE JOISTS).
- STUD SCHEDULE
  - PERIMETER WALLS 2X6 @ 1'-4"
  - INTERIOR WALLS - NON LOAD BEARING 2X4 @ 2'-0"
  - INTERIOR LOAD BEARING WALLS 2X4 @ 1'-4"
- STUDDING SHALL BE DOUBLE AT ALL ANGLES, CORNERS AND AROUND ALL OPENINGS.
- ALL STUDS SHALL BE CONTINUOUS FROM BOTTOM PLATE TO TOP PLATE, ALL TOP AND BOTTOM PLATES SHALL BE LATERALLY SUPPORTED.
- ALL BALLOON FRAMED WALLS TALLER THAN 9'-1" SHALL BE 2x6.
- ALL MEMBERS SHALL BE KILN DRIED, #2 GRADE, SOUTHERN YELLOW PINE. BEAMS AND HEADERS SHALL HAVE A MINIMUM ALLOWABLE BENDING STRESS OF 975 PSI. STUDS AND PLATES SHALL HAVE A MINIMUM ALLOWABLE BENDING STRESS OF 1250 PSI.
- LVL HEADERS SHALL BE 1.9E BY TRUS-JOIST McMILLAN
- ROOF DECK 1/2" CDX PLYWOOD OR OSB INSTALLED WITH EDGE CLIPS.

## NAILING SCHEDULE

CONNECTION	NAILING
1. TRUSS TO SILL OR GIRDER, TOENAIL	SPEC. BY TRUSS MFR.
2. BRIDGING TO TRUSS, TOENAIL EACH END	SPEC. BY TRUSS MFR.
3. SOLE PLATE TO JOIST OR BLOCKING, FACE NAIL	16d @ 16" O.C.
4. TOP PLATE TO STUD, END NAIL	2) 16d
5. STUD TO SOLE PLATE	4) 8d TOE NAIL OR 2) 16d END NAIL
6. DOUBLE STUDS, FACE NAIL	16d @ 24" O.C.
7. DOUBLE TOP PLATES, FACE NAIL	16d @ 16" O.C.
8. TOP PLATES, LAPS & INTERSECTIONS, FACE NAIL	2) 16d
9. CONTINUOUS HEADER, TWO PIECES	16d @ 16" O.C. ALONG EACH SIDE
10. RAFTER TO PLATE, TOENAIL	3) 8d
11. CONTINUOUS HEADER TO STUD, TOENAIL	4) 8d
12. CEILING JOIST LAPS OVER PARTITION, FACE NAIL	3) 16d
13. CEILING JOISTS TO PARALLEL RAFTERS, FACE NAIL	3) 16d
14. 1" BRACE TO EACH STUD AND PLATE, FACE NAIL	2) 8d
15. BUILT UP CORNER STUDS	16d @ 24" O.C.
16. BUILT UP GIRDER & BEAMS, FACE NAIL	20d @ 32" O.C. AT TOP AND BOTTOM STAGGERED ON OPPOSITE SIDES AND 20d @ ENDS AND AT EACH SPLICE
PLYWOOD OR OSB SUB FLOOR, ROOF AND WALL SHEATHING (NOTE 1)	
1. 1/2" THICK AND LESS (REFER TO NOTE 2)	6d COMMON OR DEFORMED SHANK
2. 19/32" TO 3/4" THICK	8d COMMON OR 6d DEFORMED SHANK
3. 7/8" TO 1" THICK	8d COMMON OR DEFORMED SHANK
4. 1 1/8" TO 1 1/4" THICK	10d COMMON OR 8d DEFORMED SHANK
GYPSUM BOARD SHEATHING	
1. 5/8" THICK	No 6 1/4" TYPE W OR S SCREWS SPACED @ 7" ALONG EDGES AND 12" @ FIELD SPACE 3/8" MIN FROM EDGE OF PANEL OR SIDES OF STUDS. BLOCKING AND TOP AND BOTTOM PLATE.
HARDBOARD SIDING	
1. 1/2" THICK x 12" NOMINAL WIDE	6d CORROSION RESISTENT SIDING OR CASING NAILS 2 NAILS @ EACH SUPPORT

### NOTE:

- NAILS SPACED @ 6" O.C. AT EDGES, 12" O.C. @ INTERMEDIATE SUPP. WHERE SUPPORTS ARE SPACED @ 48" RO GREATER NAIL @ 6" O.C.
- USE 8d NAILS MINIMUM FOR ROOF SHEATHING APPLICATIONS.

### HEADER SCHEDULE - WOOD FRAMING

- LOAD BEARING:
  - WINDOWS/DOORS UP TO 6'-0" 2) 2x12
- NON LOAD BEARING DOOR OR WINDOW OPENINGS 2) 2x6

### WIND BRACING DETAILS:

- SEE SHEET S4.1 AND S5.0

## SPECIAL INSPECTION SCHEDULE

VERIFICATION AND INSPECTION TASK	FREQUENCY
<b>1. CONCRETE SLAB CONSTRUCTION - PRE-POUR</b>	
VERIFY REINFORCING STEEL PLACEMENT IN CONCRETE SLABS	PERIODIC
VERIFY SLAB THICKNESS	PERIODIC
VERIFY GRADE BEAM CONFIGURATION - GENERAL ARRANGEMENT	PERIODIC
VERIFY GRADE BEAM REINFORCING STEEL	PERIODIC
VERIFY GRADE BEAM DIMENSIONS AND DEPTH	PERIODIC
<b>2. WOOD FRAMING</b>	
VERIFY FRAMING MEMBER SIZES FOR HEADERS, STUDS, JOISTS RAFTERS ETC.	PERIODIC
VERIFY GRADE AND SPECIES	PERIODIC
VERIFY NAILING AND FASTENING OF FRAMING MEMBERS	PERIODIC
VERIFY TREATED WOOD 2X SILL PLATE FASTENED TO THE SLAB	PERIODIC
VERIFY MEMBER MAXIMUM ALLOWABLE SPANS	PERIODIC
VERIFY RAFTER BRACING AND SPACING	PERIODIC
VERIFY RAFTER CONNECTIONS AND HURRICANE CLIPS	PERIODIC
VERIFY ROOF DECK SHEATHING TYPE, THICKNESS AND FASTENING	PERIODIC
VERIFY WALL SHEATHING TYPE, THICKNESS AND FASTENING	PERIODIC
VERIFY SHEAR WALL LOCATIONS AND GENERAL ARRANGEMENT	PERIODIC
VERIFY HOLD-DOWN LOCATIONS AND CONNECTION TO THE SLAB	PERIODIC
<b>3. BRICK AND MASONRY</b>	
VERIFY BRICK TIE SPACING	PERIODIC
VERIFY BRICK TIE FASTENING TO STUD FRAMING	PERIODIC

### NOTES:

- INSPECTIONS SHALL BE CONDUCTED AT THE MINIMUM FREQUENCY INDICATED.
- INSPECTION REPORTS SHALL BE PREPARED AND SUBMITTED PROMPTLY.

### TESTING AND CONSTRUCTION REVIEW

- SOIL COMPACTION OF SELECT FILL MATERIAL SHOULD BE CONFIRMED WITH A MINIMUM OF ONE FIELD DENSITY TEST PER 800 S.F. PER LIFT.
- CONCRETE COMPRESSIVE STRENGTH SHOULD BE CONFIRMED WITH A MINIMUM OF ONE CYLINDER TEST PER DAY OR 150 CUBIC YARDS OR 5,000 SF OF SURFACE AREA FOR SLABS OR WALLS, WHICHEVER IS GREATER.
- CONSTRUCTION REVIEW OF THE FOUNDATION INSTALLATION AND SLAB PREPARATION SHOULD BE PERFORMED BY A PROFESSIONAL ENGINEER.

## GENERAL NOTES AND SCHEDULE

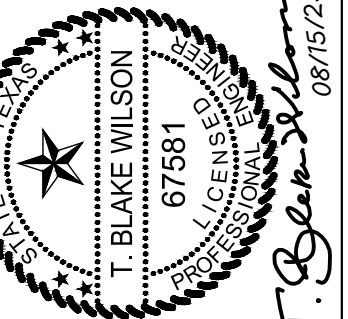
Heatherwide Office Condos  
201 N. Heatherwide Blvd. - Bldg 3  
Pflugerville, Texas 78660

## SCALE: AS NOTED

DATE: AUG 15, 2023

SHEET NUMBER:  
**S1.0**

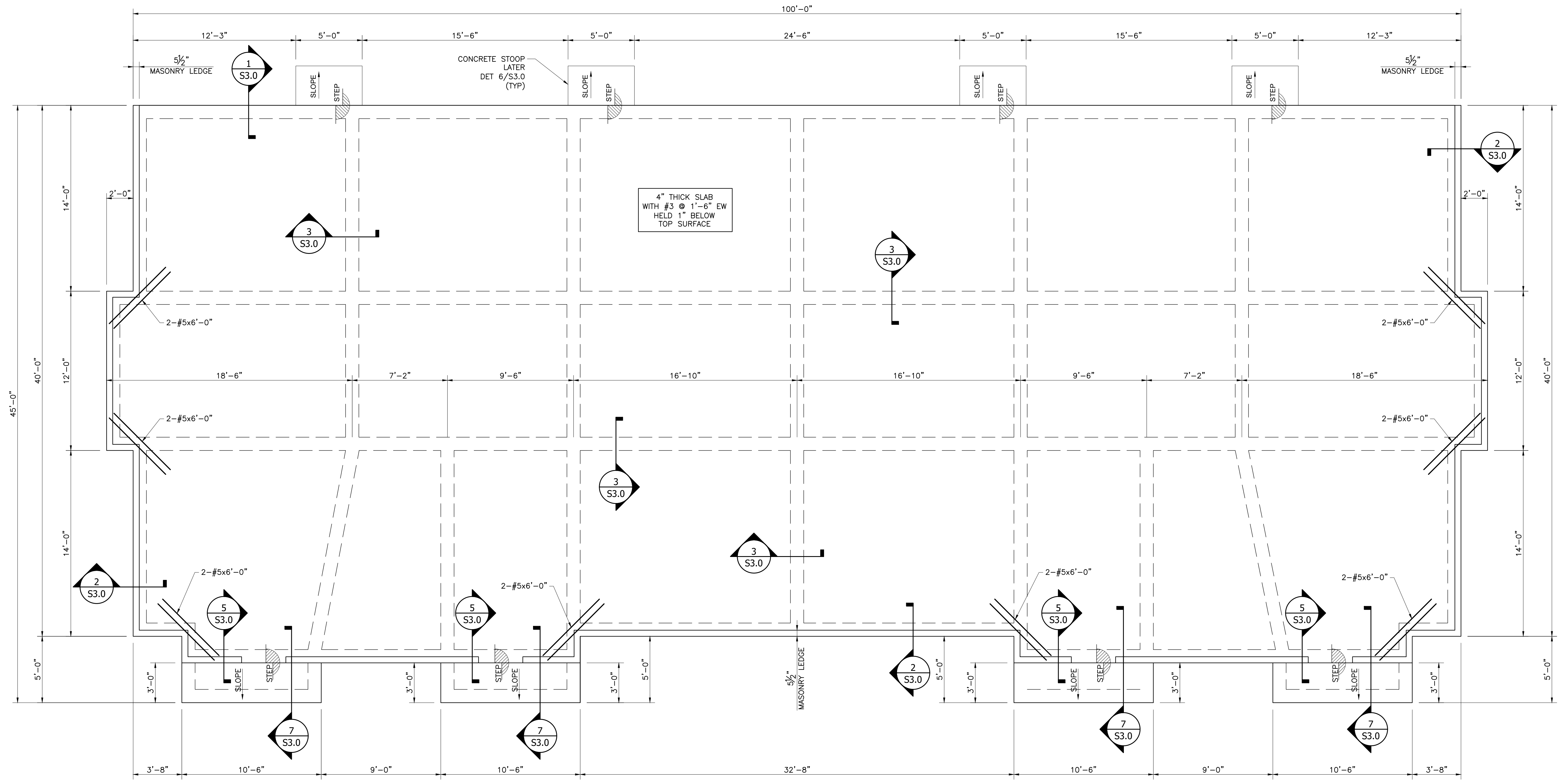
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FILE NAME: 106506.0.dwg  
DRAWN BY: N PHILLIPS  
DESIGNED BY: B WILSON  
CHECKED BY: B WILSON  
APPROVED BY: B WILSON



**Blake Wilson Engineering, PLLC**  
1848 Norwood Plaza #114  
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Phone (817) 268-2345  
Texas Firm Reg. No. F-3843



4



**FOUNDATION PLAN  
BUILDING 3**  
SCALE: NOT TO SCALE

VERIFY BUILDING DIMENSIONS, STEP LOCATIONS, DOOR POCKETS, MASONRY LEDGES, SHEETING LEDGES, SLAB RECESSES, SLAB OPENINGS AND SLAB PENETRATIONS WITH LATEST REVISION OF THE ARCHITECT PLANS PRIOR TO CONSTRUCTION.

VERIFY BUILDING ELEVATIONS WITH LATEST REVISION OF CIVIL PLANS PRIOR TO CONSTRUCTION.

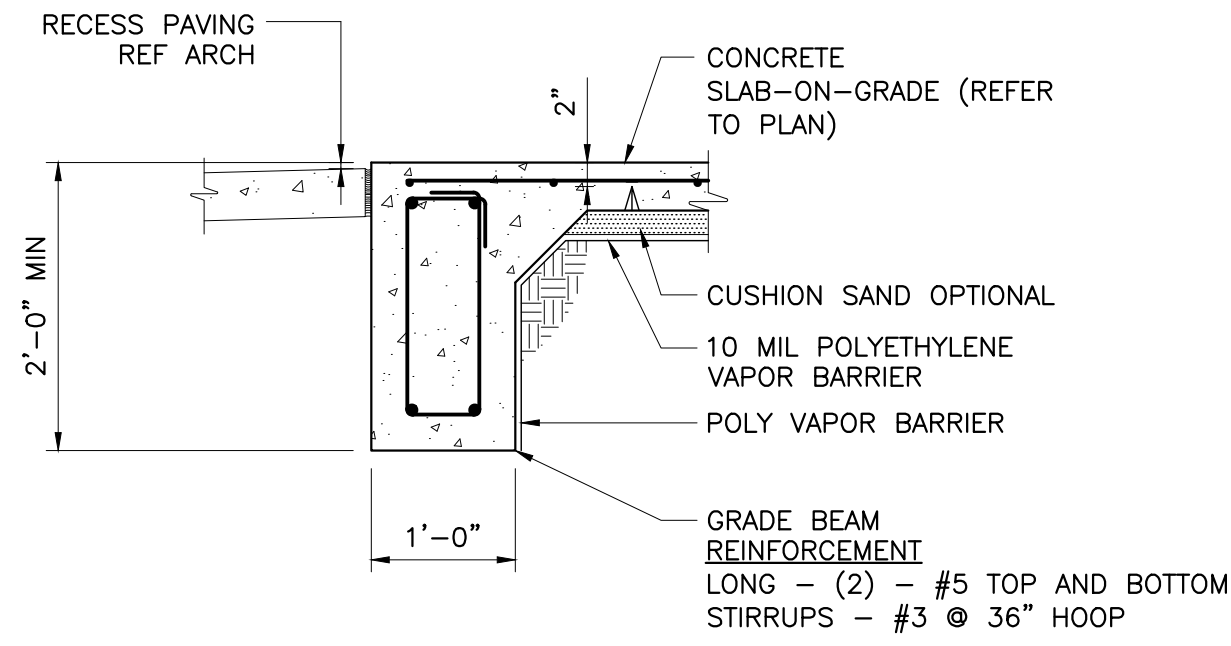
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0	03-16-23	FOR PERMIT
1	04-25-23	REVISED PER CITY PLAN REVIEW COMMENTS
4	08-15-23	CITE DEVELOPMENT REVISION

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**FOUNDATION PLAN - BUILDING 3**  
**Heatherwide Office Condos**  
**201 N. Heatherwide Blvd. - Bldg 3**  
Pflugerville, Texas 78660

SCALE:	AS NOTED
PROJECT NO:	106506.0
FILE NAME:	106506.0.dwg
DRAWN BY:	N. PHILLIPS
DESIGNED BY:	B. WILSON
CHECKED BY:	B. WILSON
APPROVED BY:	B. WILSON

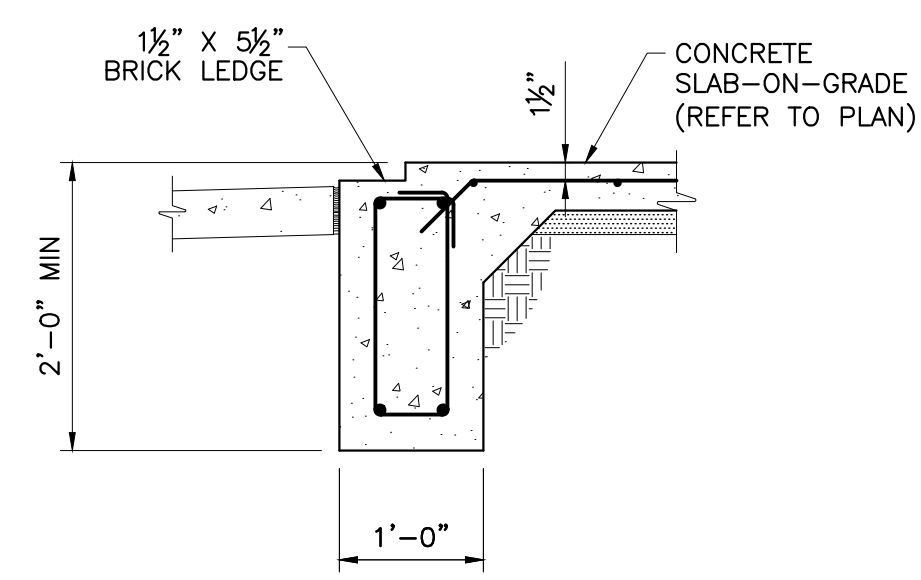
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**TYPICAL EXTERIOR GRADE BEAM DETAIL**

SCALE: NOT TO SCALE

1  
S3.0



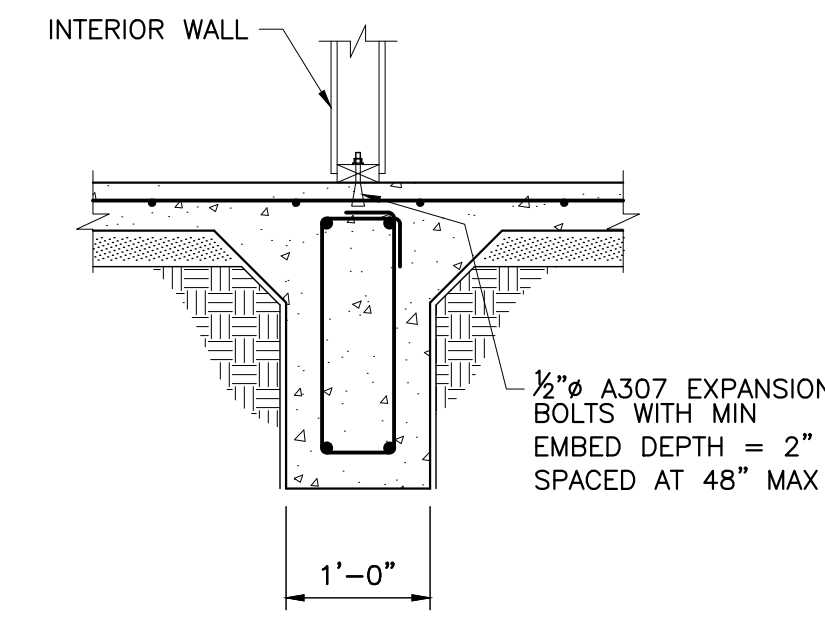
**TYPICAL EXTERIOR GRADE BEAM DETAIL**

SCALE: NOT TO SCALE

2  
S3.0

**NOTES**

1. SEE DETAIL 1/S3.0 FOR INFORMATION NOT SHOWN.



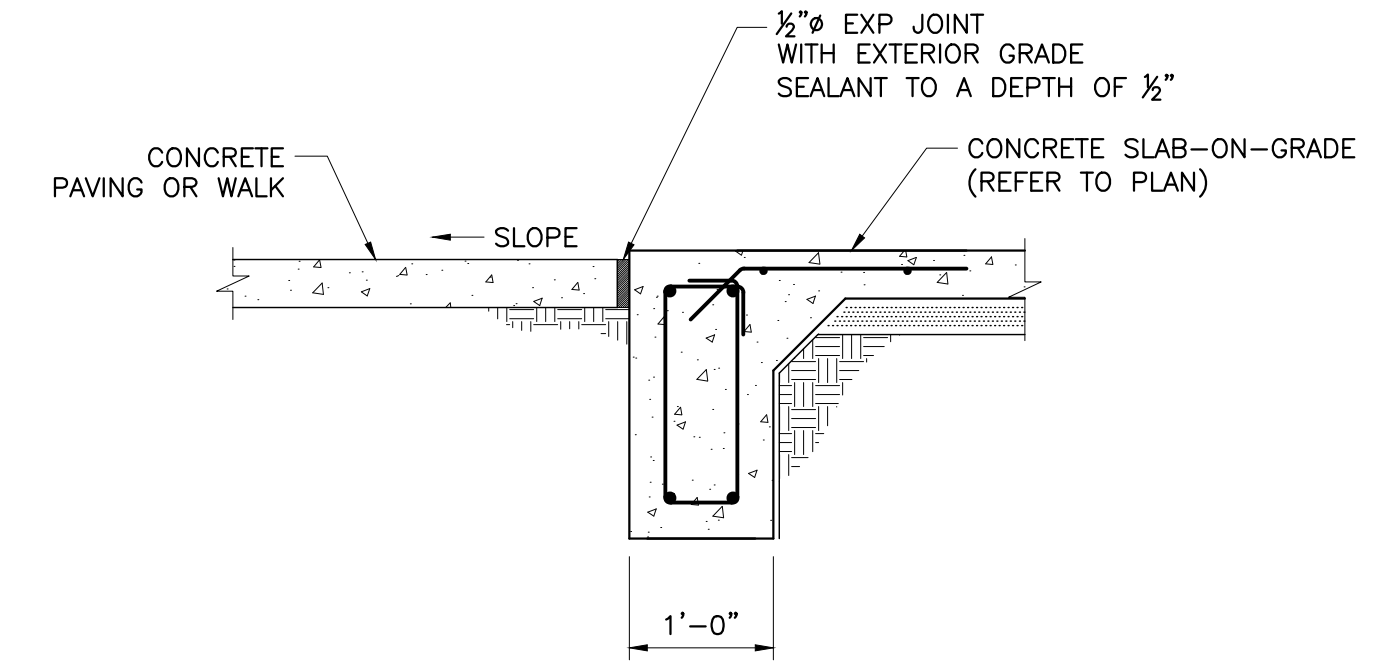
**TYPICAL INTERIOR GRADE BEAM DETAIL**

SCALE: NOT TO SCALE

3  
S3.0

**NOTES**

1. SEE DETAIL 1/S3.0 FOR INFORMATION NOT SHOWN.



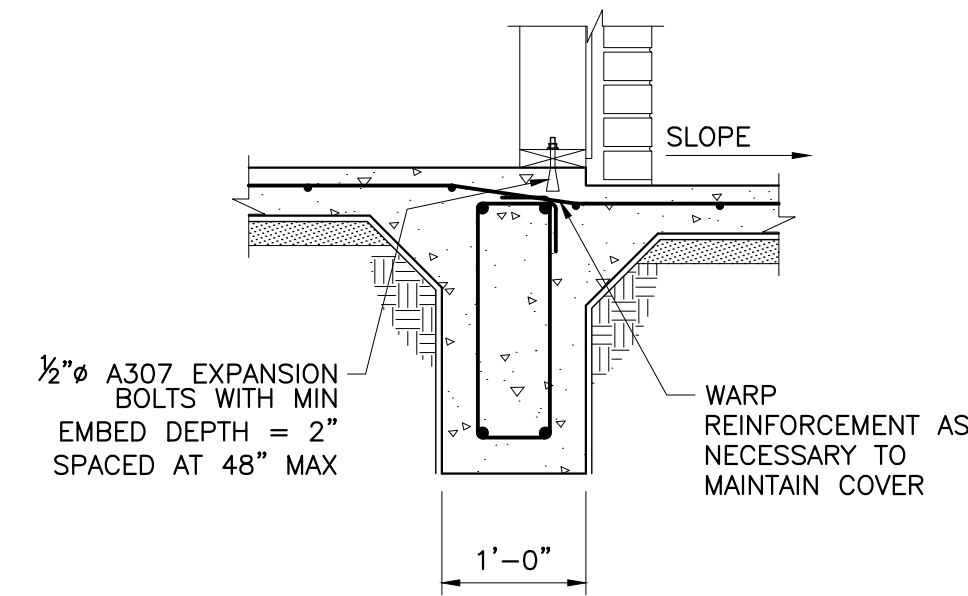
**EXTERIOR GRADE BEAM CONCRETE DETAIL**

SCALE: NOT TO SCALE

4  
S3.0

**NOTES**

1. SEE DETAIL 1/S3.0 FOR INFORMATION NOT SHOWN.



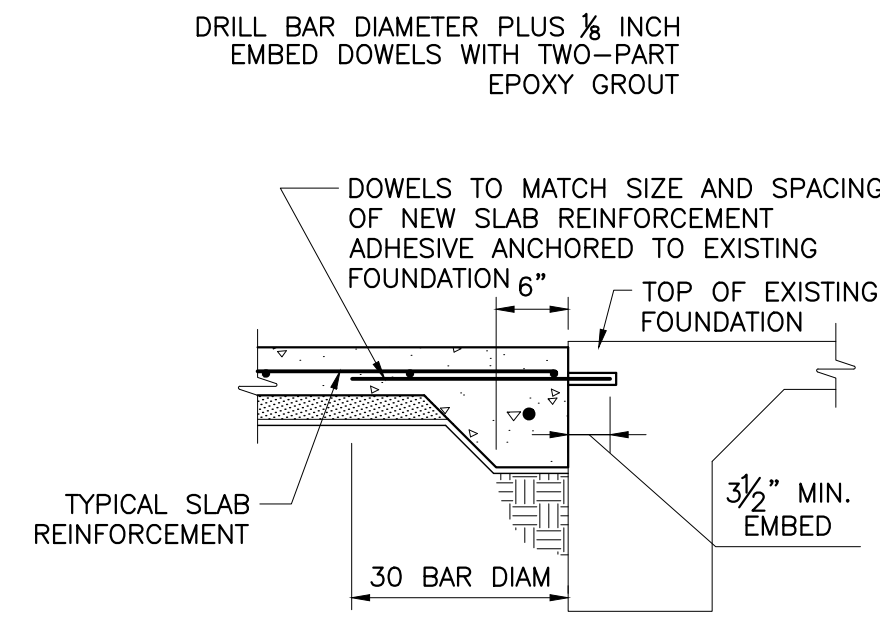
**TYPICAL STEP IN GRADE BEAM DETAIL**

SCALE: NOT TO SCALE

5  
S3.0

**NOTES**

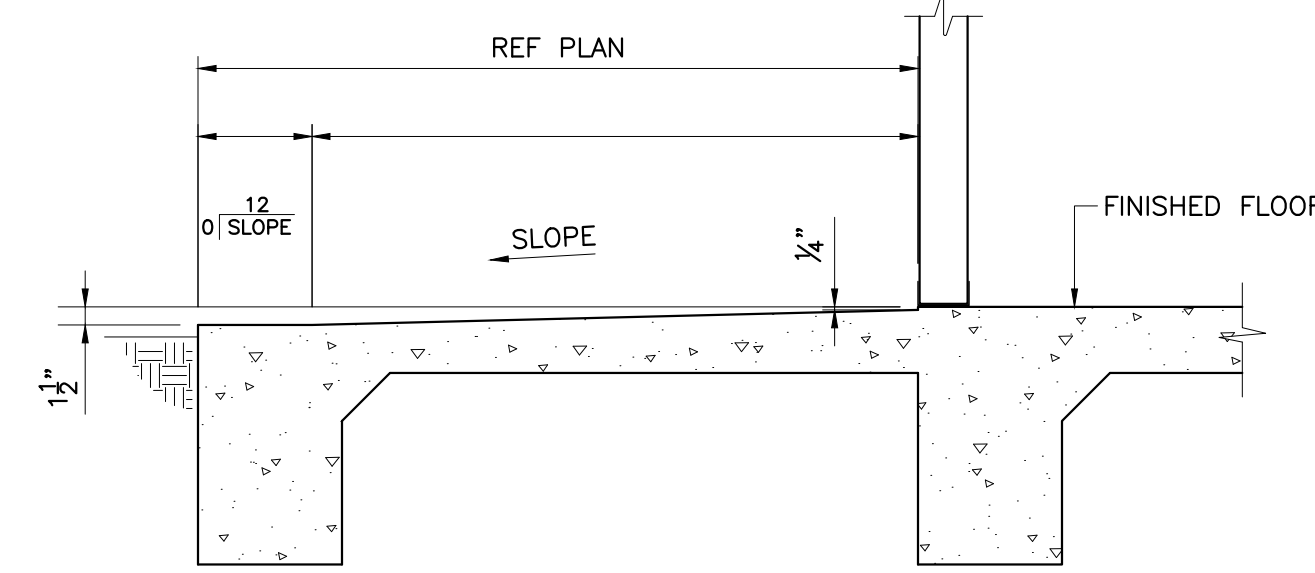
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**TYPICAL GRADE BEAM DETAIL**

SCALE: NOT TO SCALE

6  
S3.0



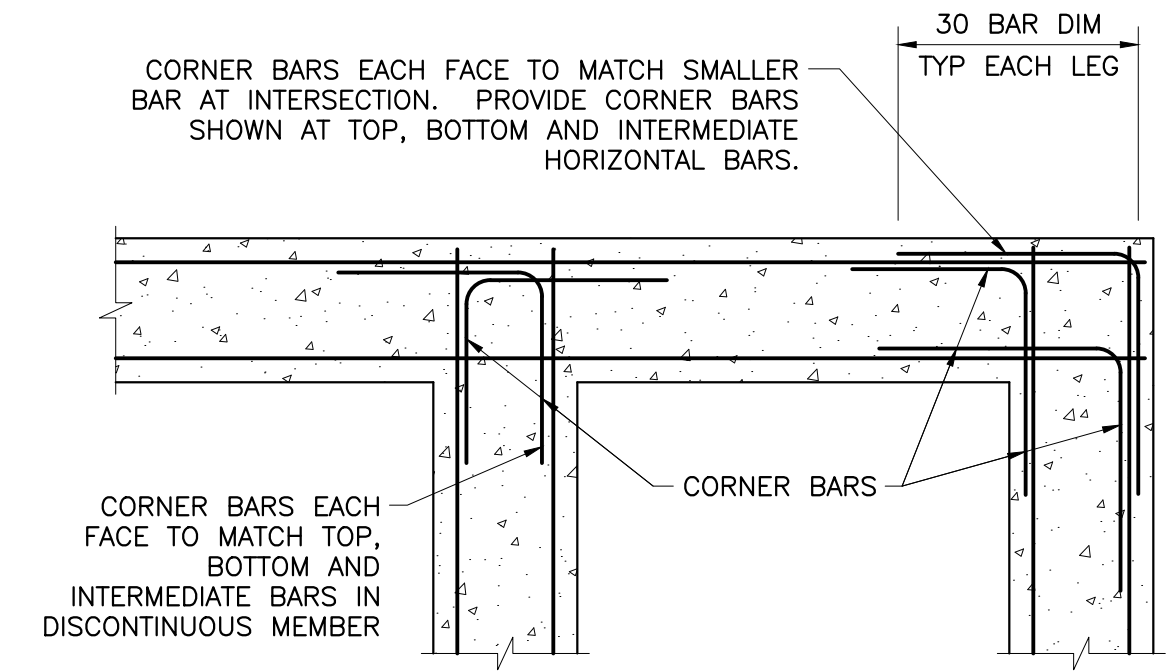
**TYPICAL ADA ACCESS ENTRY DETAIL**

SCALE: NOT TO SCALE

7  
S3.0

**NOTES**

1. SLOPE SHALL NOT EXCEED ADA MAX ALLOWABLE SLOPE



**TYP CORNER BAR SPLICE DETAIL**

SCALE: NOT TO SCALE

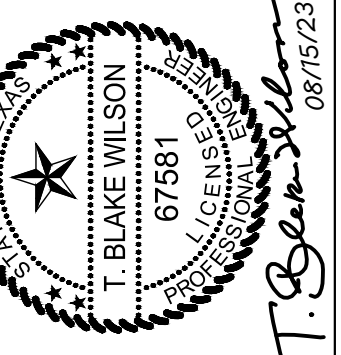
8  
S3.0

**NOTES**

1. WHERE 90 DEGREE HOOKS ARE SCHEDULED OR DETAILED FOR TOP BARS, CORNER BARS MAY BE OMITTED.  
2. MATCH SIZE, LOCATION AND QUANTITY OF HORIZONTAL BEAM AND WALL BARS, EXCEPT THAT WHERE THERE ARE MORE THAN 2 TOP OR BOTTOM BARS, ONLY THE INSIDE AND OUTSIDE BARS MUST BE MATCHED.

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**FOUNDATION DETAILS**

Heatherwide Office Condos  
201 N. Heatherwide Blvd. - Bldg 3  
Pflugerville, Texas 78660

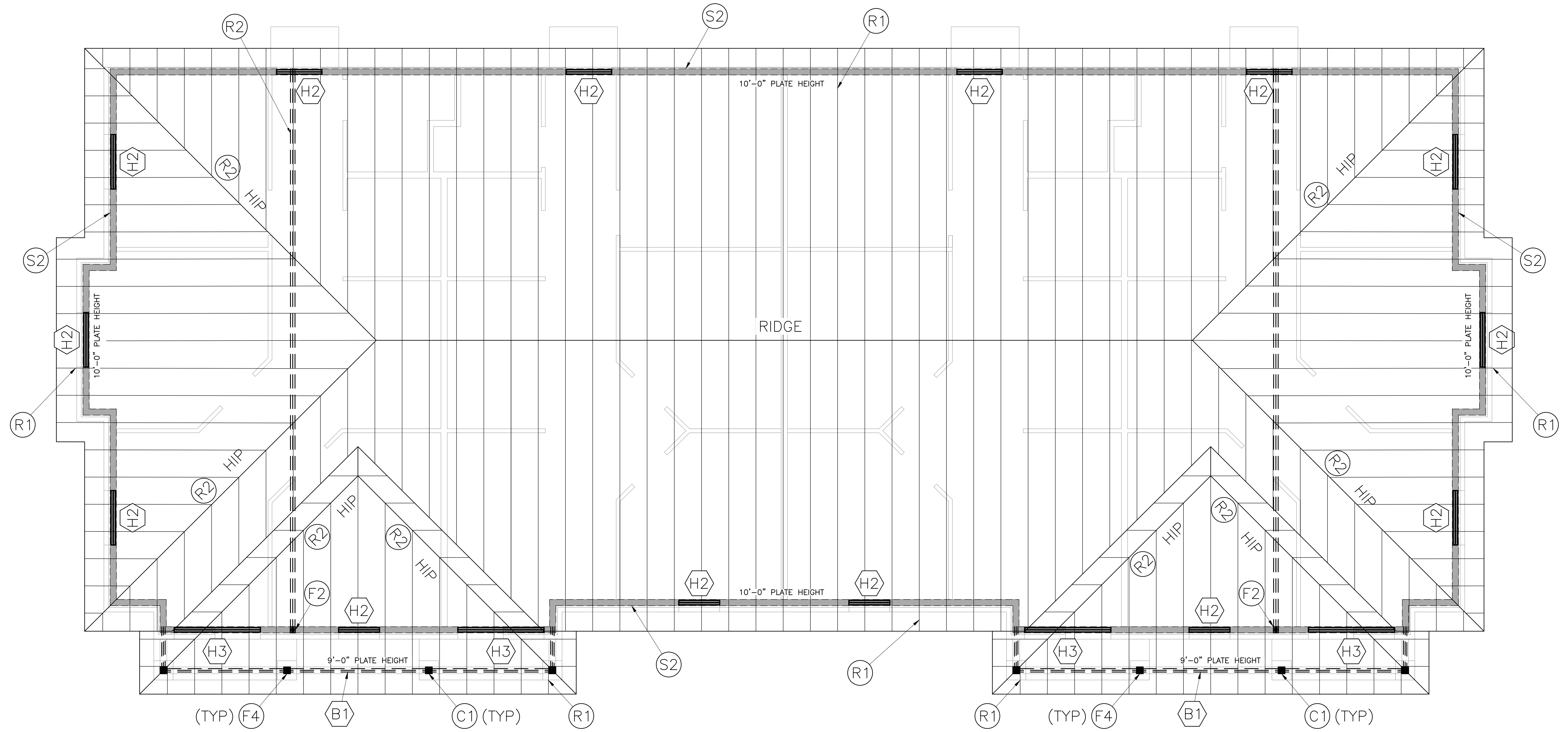
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PROJECT NO: 106506.0
FILE NAME: 106506.0.dwg
DRAWN BY: N PHILLIPS
DESIGNED BY: B WILSON
CHECKED BY: B WILSON
APPROVED BY: B WILSON

DATE: AUG 15, 2023

SHEET NUMBER:  
**S3.0**

4



**FRAMING PLAN - BUILDING 3**  
SCALE: NOT TO SCALE

**HEADER SCHEDULE - WOOD FRAMING**  
 1. LOAD BEARING:  
 WINDOW/DOOR OPENINGS UP TO 6'-0" - (2)-2x12  
 2. NON LOAD BEARING:  
 WINDOW/DOOR OPENINGS - (2)-2x6

ID MARK	SIZE (REFER TO SCHEDULE NOTES)	FRAMING TYPE	NOTES
B1	2-PLY LVL 1 1/4"x1 3/4"	BEAM	AT COVERED ENTRANCE
C1	6x6 WOOD	COLUMN	AT COVERED ENTRANCE
H1	(2) 2x6 SYP	HEADER	AT INTERIOR OPENINGS REF SPEC
H2	3-PLY 2x12	HEADER	AT EXTERIOR OPENINGS REF SPEC
H3	2-PLY LVL 1 1/4"x1 3/4"	HEADER	SPAN 8'-0" MAX
R1	METAL PLATE CONNECTED TRUSS	ROOF TRUSS	DESIGN BY SUPPLIER
R2	INTERMEDIATE TRUSS GIRDER	ROOF TRUSS	DESIGN BY SUPPLIER
S1	2x4 @ 1'-4"	WALL STUD INTERIOR	1'-4" SPACING
S2	2x6 @ 1'-4"	WALL STUD EXTERIOR	1'-4" SPACING
F1	(3) 2x4 SYP	WALL COLUMN	INTERIOR BEAM SUPPORT
F2	(3) 2x6 SYP	WALL COLUMN	EXTERIOR BEAM SUPPORT
F3	STEEL SADDLE	SIMPSON STRONG TIE	CCOQ4-SDS2.5 OR SIMILAR
F4	ABU66	SIMPSON STRONG TIE	STEEL BASE PLATE
J1	2x6 @ 2'-0"	CEILING JOIST	15'-0" MAX SPAN
J2	2x8 @ 2'-0"	CEILING JOIST	MECHANICAL MEZZANINE IN ATTIC

**NOTES:**  
 1. LUMBER - SYP OR DF NO.2  
 2. LVL - MICROLLAM BY TRUSJOIST OR EQUAL, E=1900 KSI

VERIFY BUILDING DIMENSIONS, STEP LOCATIONS, DOOR POCKETS, MASONRY LEDGES, SHEETING LEDGES, SLAB RECESSES, SLAB OPENINGS AND SLAB PENETRATIONS WITH LATEST REVISION OF THE ARCHITECT PLANS PRIOR TO CONSTRUCTION.

VERIFY BUILDING ELEVATIONS WITH LATEST REVISION OF CIVIL PLANS PRIOR TO CONSTRUCTION.

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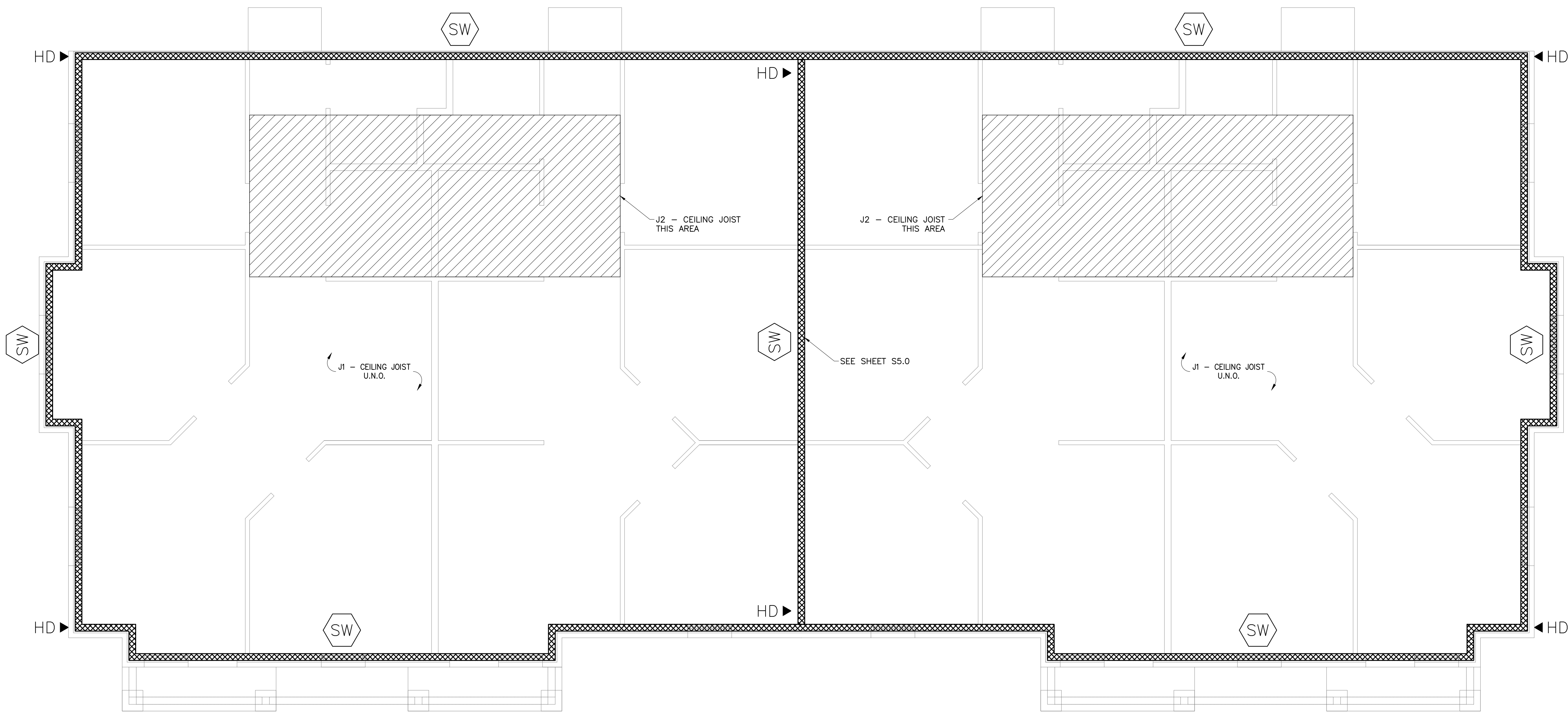
**T. Blake Wilson**  
 67561  
 08/15/23

**FRAMING PLAN - BUILDING 3**  
**Heatherwide Office Condos**  
**201 N. Heatherwide Blvd. - Bldg 3**  
 Pflugerville, Texas 78660

DATE: AUG 15, 2023  
 SCALE: AS NOTED  
 PROJECT NO: 106506.0  
 FILE NAME: 106506.0.dwg  
 DRAWN BY: N PHILLIPS  
 DESIGNED BY: B WILSON  
 CHECKED BY: B WILSON  
 APPROVED BY: B WILSON

**S4.0**

4



**WIND BRACING WALL PLAN -  
BUILDING 3**  
SCALE: NOT TO SCALE

1  
S4.1

VERIFY BUILDING DIMENSIONS, STEP LOCATIONS, DOOR POCKETS, MASONRY LEDGES, SHEETING LEDGES, SLAB RECESSES, SLAB OPENINGS AND SLAB PENETRATIONS WITH LATEST REVISION OF THE ARCHITECT PLANS PRIOR TO CONSTRUCTION.

VERIFY BUILDING ELEVATIONS WITH LATEST REVISION OF CIVIL PLANS PRIOR TO CONSTRUCTION.

SEE SHEET S5.0 FOR SHEAR WALL DETAILS AND SPECIFICATIONS

**MEMBER SCHEDULE**

ID MARK	SIZE (REFER TO SCHEDULE NOTES)	FRAMING TYPE	NOTES
B1	2-PLY LVL 1 1/2"x1 3/4"	BEAM	AT COVERED ENTRANCE
C1	6x6 WOOD	COLUMN	AT COVERED ENTRANCE
H1	(2) 2x6 SYP	HEADER	AT INTERIOR OPENINGS REF SPEC
H2	3-PLY 2x12	HEADER	AT EXTERIOR OPENINGS REF SPEC
H3	2-PLY LVL 1 1/2"x1 3/4"	HEADER	SPAN 8'-0" MAX
R1	METAL PLATE CONNECTED TRUSS	ROOF TRUSS	DESIGN BY SUPPLIER
R2	INTERMEDIATE TRUSS GIRDER	ROOF TRUSS	DESIGN BY SUPPLIER
S1	2x4 @ 1'-4"	WALL STUD INTERIOR	1'-4" SPACING
S2	2x6 @ 1'-4"	WALL STUD EXTERIOR	1'-4" SPACING
F1	(3) 2x4 SYP	WALL COLUMN	INTERIOR BEAM SUPPORT
F2	(3) 2x6 SYP	WALL COLUMN	EXTERIOR BEAM SUPPORT
F3	STEEL SADDLE	SIMPSON STRONG TIE	CCOQ4-SDS2.5 OR SIMILAR
F4	ABU66	SIMPSON STRONG TIE	STEEL BASE PLATE
J1	2x6 @ 2'-0"	CEILING JOIST	15'-0" MAX SPAN
J2	2x8 @ 2'-0"	CEILING JOIST	MECHANICAL MEZZANINE IN ATTIC

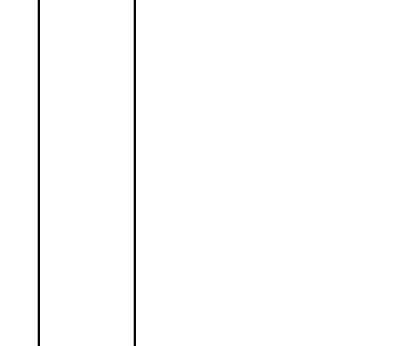
**NOTES:**

- LUMBER - SYP OR DF NO.2
- LVL - MICROLAM BY TRUSJOIST OR EQUAL, E=1900 KSI

REV. NO.	ISSUE DATE	DESCRIPTION
0	03-16-23	FOR PERMIT
1	04-25-23	REVISED PER CITY PLAN REVIEW COMMENTS
4	08-15-23	CITE DEVELOPMENT REVISION

**Blake Wilson Engineering, PLLC**  
 1848 Norwood Plaza #114  
 Hurst, Texas 76054  
 Phone (817) 268-2345  
 Texas Firm Reg. No. F-3843

SEAL



**WIND BRACING PLAN - BUILDING 3**  
**Heatherwide Office Condos**  
**201 N. Heatherwide Blvd. - Bldg 3**  
 Pflugerville, Texas 78660

DATE: AUG 15, 2023  
 SCALE: AS NOTED

PROJECT NO: 106506.0  
 FILE NAME: 106506.0.dwg  
 DRAWN BY: N PHILLIPS  
 DESIGNED BY: B WILSON  
 CHECKED BY: B WILSON  
 APPROVED BY: B WILSON

SHEET NUMBER:  
**S4.1**

## GENERAL NOTES FOR WOOD FRAMING

(THESE NOTES SHALL CONTROL UNLESS NOTED OTHERWISE ON PLANS AND DETAILS.)

### TIMBER GRADES

ROOF RAFTERS:	NO. 2 SOUTHERN YELLOW PINE (SYP) OR EQUAL
FLOOR JOISTS:	NO. 2 SOUTHERN YELLOW PINE (SYP), KD, S4S.
CEILING JOISTS:	NO. 2 SOUTHERN YELLOW PINE (SYP), KD, S4S.
BEAMS & HEADERS:	NO. 2 SOUTHERN YELLOW PINE (SYP), KD, S4S.
STUDS:	STUD GRADE, SYP, KD, S4S.
WOOD POSTS:	NO. 2 SYP, SURFACE GREEN.

### JOISTS

- JOIST BLOCKING**
  - JOISTS SHALL BE Laterally supported at each end and at each support by solid blocking except where the ends of joists are nailed into a header, band or rim joist or to an adjoining stud. Solid blocking shall not be less than two inches in thickness and shall match the depth of the joist.
  - Provide solid blocking under all bearing walls perpendicular to the direction of the joists.
  - Provide double joists under all bearing walls parallel to the direction of the joists.
- JOIST BRIDGING**  
Provide bridging at all floor joists at spacing not to exceed 8'-0".
- JOIST HOLES AND NOTCHES**
  - Notches in top or bottom of joists shall not exceed one sixth (1/6) the joist depth and shall not be located within middle third of the span.
  - Holes shall not be closer than 2" to top or bottom of joist. The diameter of any hole shall not exceed one fourth (1/4) the joist depth unless approved by the engineer.

### BEAMS AND HEADERS

- AT BEAMS MADE UP OF A NUMBER OF 2x JOISTS, EACH JOIST WILL BEAR ON A WALL STUD (I.E. NUMBER OF WALL STUDS SHALL MATCH NUMBER OF JOISTS BEARING ON THESE STUDS). THE CENTERLINE OF THE BEAM SHALL BE THE CENTERLINE OF THE SUPPORTING WALL STUDS.
- ALL BEAMS MADE UP OF A NUMBER OF 2x JOISTS SHALL BE FASTENED AS FOLLOWS:  
FOR THE MAXIMUM HORIZONTAL SPACING OF BOLTS:  
2x2x12 16d NAILS @ 12" TOP & BOTTOM, STAGGER, EA. FACE  
2x12 20d NAILS @ 12" TOP & BOTTOM, STAGGER, EA. FACE  
4x12 (OR MORE) 8" Ø BOLTS @ 12" TOP & BOTTOM, STAGGER (W/ STD WASHERS)  
BOLTS SHALL BE 5/8" Ø, LOCATED 2" MINIMUM FROM BEAM EDGES AND SHALL BE STAGGERED IN TOP AND BOTTOM ROWS. PROVIDE STANDARD WASHERS @ EACH FACE.
- ALL DOOR AND WINDOW HEADERS (OR HEADERS AT ANY OTHER OPENING) THAT ARE NOT SPECIFIED ON PLANS SHALL BE AS FOLLOWS:  
FLOOR FRAMING: 2-2X12  
CEILING FRAMING: 2-2X8
- MINIMUM BEARING OF ANY BEAM OR HEADER AT A STUD WALL IS 3 1/2"

### STUD WALLS

- STUDS SHALL BE AS FOLLOWS:  
2x4 @ 16" AT ALL FLOORS IN ONE- OR TWO- STORY STRUCTURES.  
DBL 2x4 OR 2x6 @ 16" AT ALL STUD WALLS AT FIRST FLOOR AREAS DIRECTLY BELOW A THIRD FLOOR.
- PROVIDE A MINIMUM OF TWO (2) STUDS AT EACH SIDE OF OPENINGS LARGER THAN 4'-0". FULL HEIGHT OF WALL (KING STUDS).
- MAXIMUM STUD WALL HEIGHT SHALL BE AS FOLLOWS:  
2x4 STUDS @ 16' o.c. 10'-0"  
2x6 STUDS @ 16' o.c. 13'-0"  
2x8 STUDS @ 16' o.c. 16'-0"
- BLOCKING & LATERAL BRACING:
  - PROVIDE BLOCKING AND/OR TEMPORARY CROSS BRACING AS REQUIRED TO ENSURE STUD STRAIGHTNESS ACCORDING TO SPECIFIED TOLERANCES.
  - MAXIMUM TOLERANCE FOR STUD STRAIGHTNESS IN EITHER DIRECTION IS 1/4 INCH PER TEN (10) FEET OF STUD HEIGHT.
  - MINIMUM BLOCKING:  
1 ROW FOR STUD HEIGHT UP TO 9'-0";  
2 ROWS FOR STUD HEIGHT UP TO 15'-0";  
3 ROWS FOR STUD HEIGHT OVER 15'-0".

### ROOF DECK:

- MINIMUM THICKNESS SHALL BE 1/2" THICK. MATERIAL SHALL BE CDX PLYWOOD.
- ORIENTED STRAND BOARD (OSB) MAY BE USED IN LIEU OF PLYWOOD.
- MINIMUM NAILING SHALL BE AS REQUIRED BY THE BUILDING CODE.
- PLYWOOD CLIPS SHALL BE INSTALLED @ ROOF DECKING TO RESULT IN A 1/8" GAP BETWEEN ALL PANEL EDGES. PROVIDE 1 CLIP PER SPAN (JOIST SPACING). CLIPS SHALL BE SIMPSON PSL, OR APPROVED EQUAL, TO MATCH CORRESPONDING PLYWOOD THICKNESS.

### CONNECTORS

- CONNECTORS SHALL BE AS MANUFACTURED BY SIMPSON STRONG-TIE COMPANY, INC., DUBLIN, CA. OR APPROVED EQUAL. NAIL ALL NAIL HOLES.
- CONNECTORS SHALL BE THE MANUFACTURER-DESIGNATED SIZE FOR FRAMED MEMBERS, AND SHALL BE INSTALLED IN STRICT CONFORMANCE WITH MANUFACTURER'S INSTRUCTIONS.
- ALL NAIL & BOLT HOLES SHALL BE ENGAGED, WITH MANUFACTURER-DESIGNATED FASTENERS.
- CONNECTORS SHALL BE INSTALLED AT THE ENDS OF ALL JOISTS & BEAMS FRAMING INTO OTHER (SUPPORTING) MEMBERS (UNLESS OTHERWISE NOTED).
- THE FOLLOWING CONNECTORS SHALL BE PROVIDED AND SHALL BE CONSIDERED THE MINIMUM:  
SAWN-LUMBER JOISTS — U SERIES  
I-JOISTS — IUS SERIES  
MULTIPLE-JOIST BEAMS — HUS SERIES  
PSL & LVL BEAMS — LBV SERIES  
LSL (GLU-LAM) BEAMS — HUS SERIES

### FASTENERS

- BOLTS**
  - USE ASTM A-307 BOLTS, WITH STANDARD WASHERS AT ALL CONTACT SURFACES.
  - PROVIDE 1/2" Ø x 0'-10" LONG ANCHOR BOLTS @ 4'-0" O.C. AT ALL EXTERIOR WALL SILL PLATES, WITH 2" PROJECTION AND 1" THREAD.
  - ALL BOLTS, NUTS, AND WASHERS EXPOSED TO WEATHER SHALL BE GALVANIZED.
- ADHESIVE ANCHORS**
  - USE HILTI RES-90 ANCHORS, OR APPROVED EQUAL.
  - INSTALL IN STRICT ACCORDANCE W/ MANUFACTURER'S RECOMMENDATIONS.
- POWDER-ACTUATED PINS**
  - USE HILTI X-EDNI (0.145" SHANK) OR APPROVED EQUAL.
  - INSTALL IN STRICT ACCORDANCE W/ MANUFACTURER'S RECOMMENDATIONS.

### HURRICANE CLIPS:

PROVIDE HURRICANE CLIPS @ EVERY OTHER ROOF TRUSS OR RAFTER. (SIMPSON H2.5 OR APPROVED EQUAL.)

### MISCELLANEOUS:

ALL WOOD IN CONTACT WITH CONCRETE OR MASONRY SHALL BE TREATED LUMBER.

## TYPICAL NAILING SCHEDULE

### NAILING SCHEDULE (FLOOR & ROOF DECK)

DECK TYPE & THICKNESS	NAIL SIZE	NUMBER OR NAILING PATTERN
PLYWOOD OR OSB		
1/2" OR LESS	8D COMMON OR EQUAL	6" O.C. @ PANEL EDGES
1/2" THRU 3/4"	8D COMMON OR EQUAL	10" O.C. @ INTERMEDIATE SUPPORTS TYPICAL (TYPICAL)
7/8" THRU 1" (FLR.)	8D COMMON OR EQUAL	
1 1/8" THRU 1 1/4" (FLR.)	10D COMMON OR EQUAL	

### NAILING SCHEDULE (FRAMING MEMBERS)

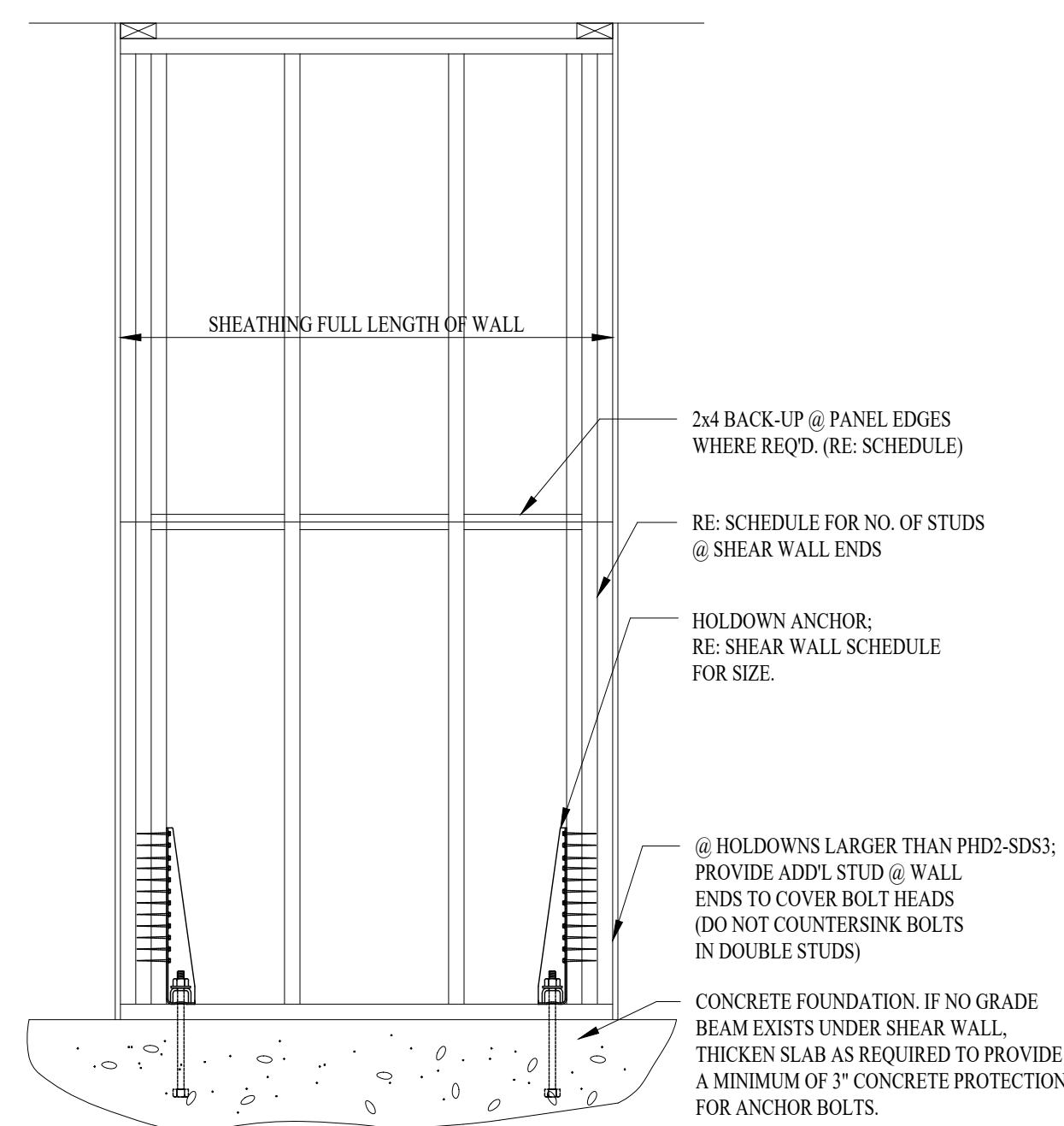
CONNECTED MEMBERS	NAIL SIZE	NUMBER OR NAILING PATTERN
BRIDGING TO JOIST	8D COMMON	2 TOE NAIL EA. END @ 16" O.C.
SOLE PLATE TO JOIST OR BLOCKING	16D COMMON	2 END NAIL @ 16" O.C. FACENAIL
TOP PLATE TO STUD	16D COMMON	2 END NAIL @ 16" O.C. FACENAIL
STUD TO SOLE PLATE	8D COMMON OR 16D COMMON	4 TOE NAIL @ 24" FACE NAIL
DOUBLE STUDS	16D COMMON	@ 24" FACE NAIL
DOUBLED TOP PLATES	16D COMMON	@ 16" FACE NAIL
TOP PLATES: LAPS & INTERSECTIONS	16D COMMON	2 FACE NAIL
CONTINUOUS HEADER, TWO PIECE	16D COMMON	@ 16" FACE NAIL ALONG EA. EDGE
CEILING JOISTS TO PLATE	8D COMMON	3 TOE NAIL
CONTINUOUS HEADER TO STUD	8D COMMON	4 TOE NAIL
CEILING JOISTS, LAPS OVER PARTITIONS	16D COMMON	3 FACE NAIL
CEILING JOISTS TO PARALLEL RAFTERS	16D COMMON	3 FACE NAIL
RAFTER TO PLATE	8D COMMON	3 TOE NAIL
1" BRACE TO EACH STUD & PLATE	8D COMMON	2 FACE NAIL
BUILT UP CORNER STUDS	16D COMMON	@ 24" FACE NAIL
CONTINUOUS HEADER, 3 OR MORE PIECE & BUILT UP GIRDBERS OR BEAMS	BOLTS	RE: GEN. NOTES.

### NAILING SCHEDULE (WALL SHEATHING AND SIDING)

SHEATHING TYPE & THICKNESS	FASTNER SIZE & TYPE	NAILING PATTERN
PLYWOOD & OSB		
LESS THAN 1/2"	6D COMMON OR EQUAL	6" O.C. @ PANEL EDGES
1/2" THRU 3/4"	8D COMMON OR EQUAL	12" O.C. @ INTERMEDIATE SUPPORTS
FIBERBOARD		
1/2" OR LESS	6D COMMON OR EQUAL	6" O.C. @ PANEL EDGES
25/32"	8D COMMON OR EQUAL	6" O.C. @ INTERMEDIATE SUPPORTS
GYPSPUM SHEATHING		
1/2" OR 5/8"	12 GA. (4) OR EQUAL	4" O.C. @ EDGES 8" O.C. @ INTERMEDIATE SUPPORTS
GYPSPUM WALLBOARD		
1/2"	1 3/8" DRYWALL NAILS	7" O.C. @ CEILINGS
5/8"	1 1/2" DRYWALL NAILS	8" O.C. @ WALLS
PANEL SIDING (TO FRAMING)		
1/2" OR LESS	6D COMMON OR EQUAL	1 EACH PANEL
5/8"	8D COMMON OR EQUAL	

### NOTES ON "NAILING-WALL SHEATHING & SIDING"

- CORROSION-RESISTANT SIDING OR CASING NAILS CONFORMING TO THE REQUIREMENTS OF IRC 2000
- CORROSION-RESISTANT ROOFING NAILS WITH 7/16-INCH DIAMETER HEAD AND 1 1/2-INCH LENGTH FOR 1/2-INCH SHEATHING AND 1 3/4-INCH LENGTH FOR 25/32-INCH SHEATHING CONFORMING TO THE REQUIREMENTS OF IRC 2000
- CORROSION-RESISTANT STAPLES WITH NOMINAL 7/16-INCH CROWN AND 1 1/8-INCH LENGTH FOR 1/2-INCH SHEATHING AND 1 1/2-INCH LENGTH FOR 25/32-INCH SHEATHING CONFORMING TO THE REQUIREMENTS OF IRC 2000
- CORROSION-RESISTANT, LARGE HEAD.



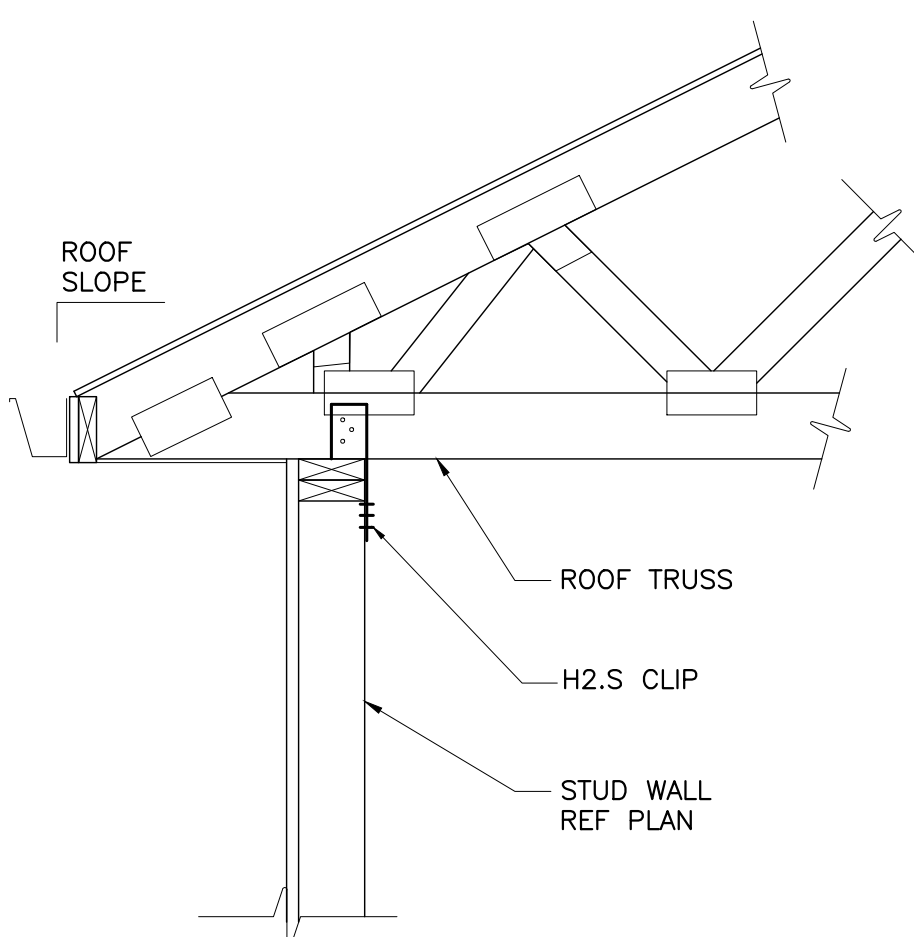
## TYPICAL SHEAR WALL ELEVATION

NOT TO SCALE

MARK	SHEATHING MATERIAL	BLOCKING	NAILING PATTERN	STUD POST EACH END	HOLD-DOWN MARK
SW	7/16" PLYWOOD C-C	YES	WALL BOUNDRY - TOP, BOT AND ENDS: 8D COMMON @ 4" SHEETING EDGES: 8D COMMON @ 6"	2-2x6	HTT4

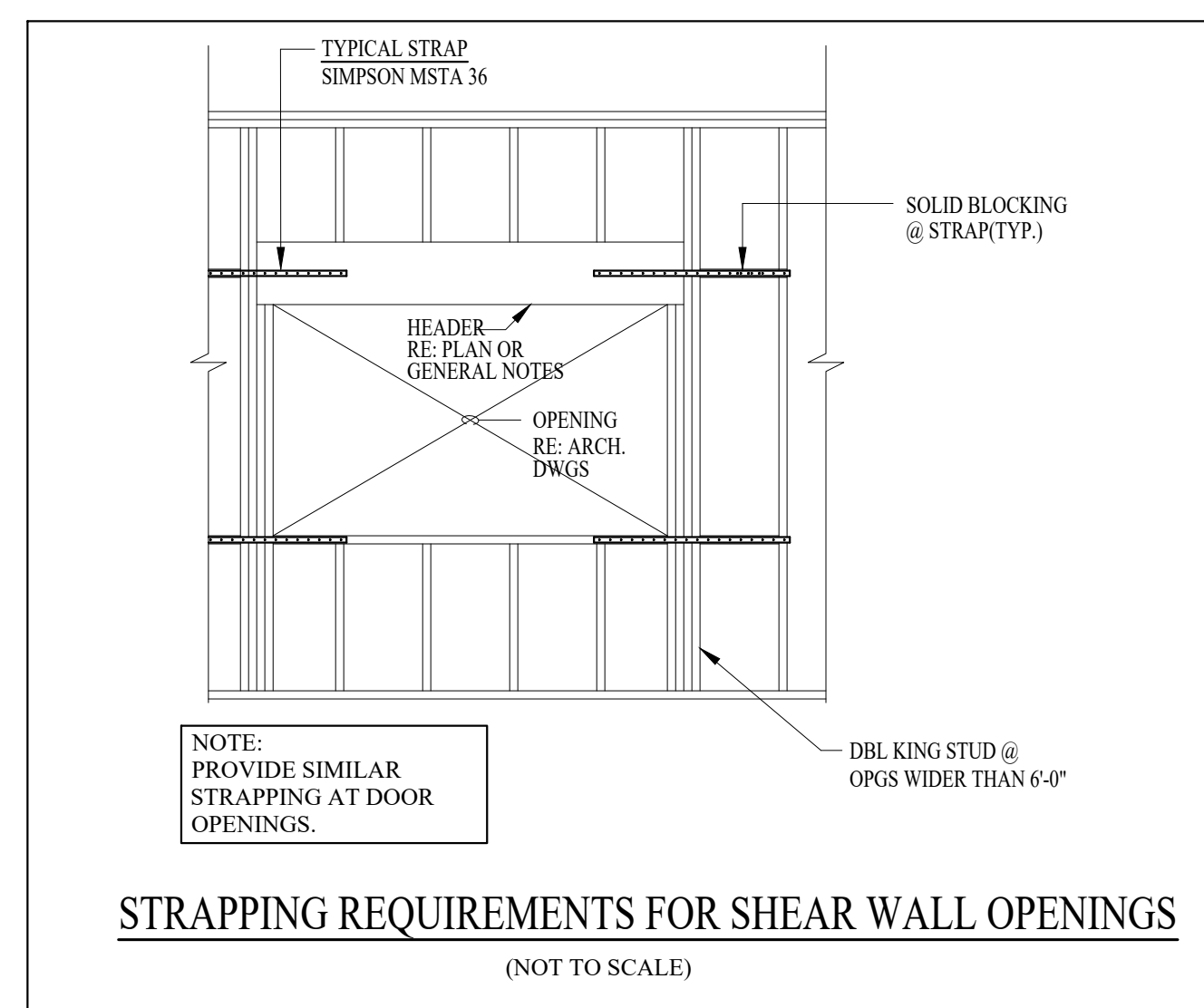
### SHEAR WALL NOTES:

- WHERE "BLOCKING" IS INDICATED, PROVIDE 2x4 BACK-UP AT ALL GYPBOARD OR PLYWOOD PANEL EDGES.
- NAILING PATTERN APPLIES AT ALL PANEL EDGES. AT INTERMEDIATE SUPPORTS, PROVIDE NAILING @ 12" O.C. USING CORRESPONDING NAIL SIZE.
- SHEATHING MATERIAL AND NAILING PATTERN APPLY TO ONE SIDE OF SHEAR WALL ONLY.
- WHERE A SHEAR WALL IS CALLED OUT ON A PLAN, PROVIDE SCHEDULED SHEATHING MATERIAL AND NAILING FOR THE FULL LENGTH OF THAT WALL.
- PROVIDE SCHEDULED STUDS AT EACH END OF SHEAR WALL OR SEGMENT THEREOF.
- HOLD-DOWN CONNECTORS:
  - CONNECTORS SHALL BE AS MANUFACTURED BY SIMPSON STRONG-TIE COMPANY, INC., SAN LEANDRO, CA. OR APPROVED EQUAL.
  - HOLD-DOWN SHALL BE FASTENED TO FOUNDATION WITH 5/8 INCH EPOXY BOLD EMBEDDED AT LEAST 5 INCHES INTO CONCRETE.



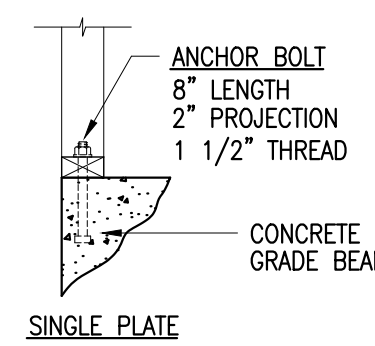
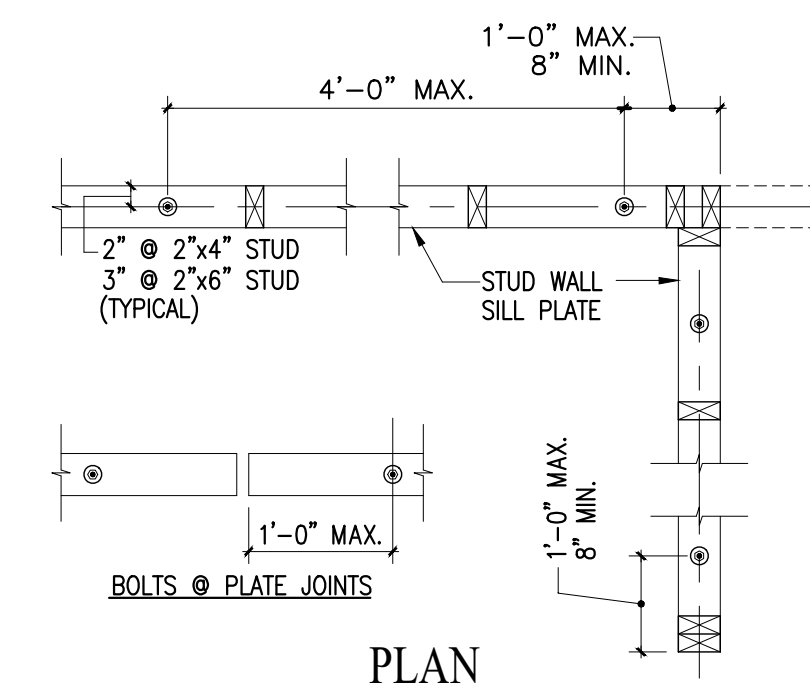
## FRAMING DETAIL

SCALE: NOT TO SCALE



## STRAPPING REQUIREMENTS FOR SHEAR WALL OPENINGS

(NOT TO SCALE)



## TYPICAL ANCHOR BOLT PLACEMENT DETAIL

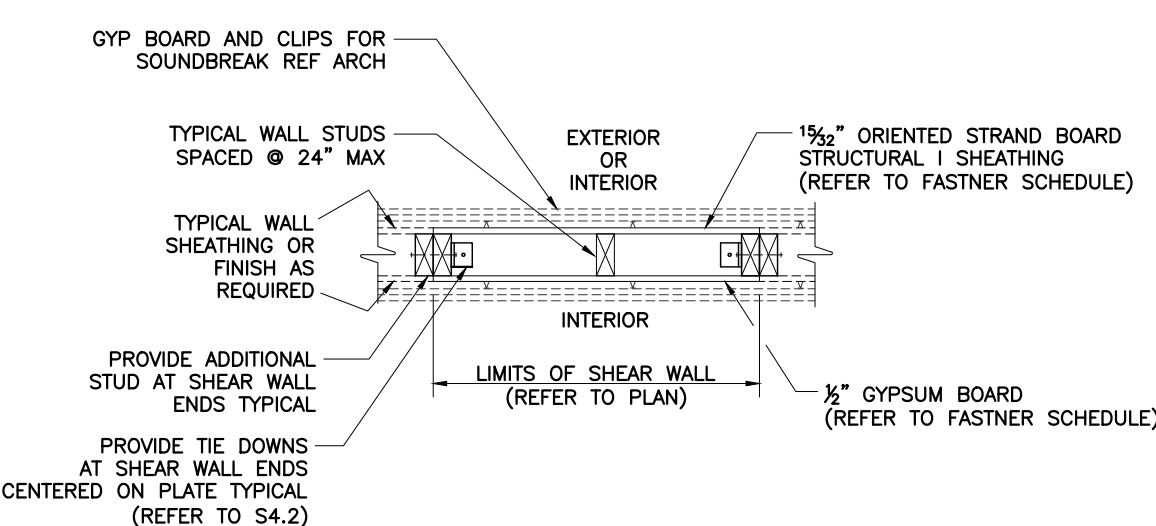
SCALE: NOT TO SCALE

### NOTES:

- ALL BOLTS ARE 1/2" Ø HEADED, CONFORMING TO ASTM A-307.
- ALTERNATIVE BOLT: 1/2" Ø EXPANSION BOLT EMBED 4" MIN.
- PROVIDE STANDARD WASHERS @ ALL BOLTS.

### IMPORTANT NOTES:

- PRIOR TO CONCRETE PLACEMENT, CONTRACTOR SHALL: PREDETERMINE ANCHOR BOLT LAYOUT CONSISTANT W/ WALL GEOMETRY & THESE DETAILS OF INSTALLATION.
- PROVIDE CLEAR MARKINGS ON FORM BOARD TO DESIGNATE BOLT LOCATIONS, FOR EASE OF INSTALLATION.



## SHEAR WALL DETAIL

SCALE: NOT TO SCALE

## ANCHOR BOLT AND TIE SCHEDULE

DESCR	TYPE	SPACING AND LOCATION
HD = HOLD DOWN	HTT5 - SIMPSON	AT LOCATIONS AS SHOWN ON PLANS
SILL TO FOUNDATION	TITEN HD 1/2" x 6"	WITHIN 12" FROM ENDS AND AT 4 FT SPACING
SILL TO STUD AND STUD TO TOP PLATE	DSP OR 2-SSP	AT BUILDING CORNERS AND SPACED NO GREATER THAN 15 FEET ON CENTER
RAFTER TO TOP PLATE	H2.5 A	AT CORNERS AND AT ALTERNATING RAFTERS

DESCRIPTION  
FOR PERMIT  
REVISED PER CITY PLAN REVIEW COMMENTS  
CITE DEVELOPMENT REVISION

ISSUE DATE  
03-16-23  
04-25-23  
08-15-23

REV. NO.  
0  
1  
4

SEAL  
T. Blake Wilson  
Professional Engineer  
No. 67561  
State of Texas  
08/15/23

**Blake Wilson Engineering, PLLC**  
1848 Norwood Plaza #114  
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Phone (817) 268-2345  
Texas Firm Reg. No. F-3843

WOOD FRAMING DETAILS

Heatherwide Office Condos  
201 N. Heatherwide Blvd. - Bldg 3  
Pflugerville, Texas 78660

DATE: AUG 15, 2023

SCALE: AS NOTED

PROJECT NO: 106506.0  
FILE NAME: 106506.0.dwg

DRAWN BY: N PHILLIPS  
DESIGNED BY: B WILSON  
CHECKED BY: B WILSON  
APPROVED BY: B WILSON

SHEET NUMBER:  
**S5.0**

### DRAWING ABBREVIATIONS AND SYMBOLS

ABBREVIATION	DESCRIPTION	ABBREVIATION	DESCRIPTION
ABV	ABOVE	PLBG	PLUMBING QUANTITY
CW	COLD WATER	SAN	SANITARY SEWER
EXIST.	EXISTING	V	SANITARY VENT
FCO	FLOOR CLEAN OUT	W/O	WITHOUT
HW	HOT WATER	WCO	WALL CLEAN OUT
		WHA	WATER HAMMER ARRESTOR

### GENERAL SYMBOL LEGEND

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
①	NOTE BY SYMBOL DESIGNATION	→	CONTINUATION OF SYSTEM OR LINE

NOTES: 1. ALL ABBREVIATIONS AND SYMBOLS ARE NOT NECESSARILY USED.  
 2. ALL MATERIALS, LABOR, COORDINATION, AND SUPERVISION IS BY CONTRACTOR UNLESS SPECIFICALLY NOTED "BY OWNER" OR "N/C". CONTRACTOR SHALL COORDINATE AND INSTALL EQUIPMENT WHEN NOTED "OWNER FURNISHED".  
 3. SYMBOLS USED, BUT NOT ON THE LEGEND ARE NOTED ON THE PLAN.

### PIPING SCHEDULE

SYMBOL	SERVICE	PIPE MATERIAL	TYPE JOINT	FITTINGS	TEST
---	SANITARY WASTE AND UNDERGROUND	SCHEDULE 40 DWV PVC	SOLVENT WELD (PER MANUFACTURER'S RECOMMENDATIONS)	SCHEDULE 40 DWV PVC	10 ft. FOR 6-HOURS
----	SANITARY VENT	SCHEDULE 40 DWV PVC	SOLVENT WELD (PER MANUFACTURER'S RECOMMENDATIONS)	SCHEDULE 40 DWV PVC	10 ft. FOR 6-HOURS
-----	DOMESTIC WATER AND ABOVE GROUND	TYPE 'L' HARD DRAWN COPPER	SWEAT WITH LEAD FREE SOLDER,	WROUGHT COPPER	15 ft. FOR 24 HOURS

### PLUMBING SYMBOL LEGEND

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
---	SANITARY SEWER	WCO	WALL CLEANOUT
----	PLUMBING VENT	→	ELBOW TURNING DOWN
-----	DOMESTIC COLD WATER	○	ELBOW TURNING UP
-----	DOMESTIC HOT WATER		

#### GENERAL NOTE:

(THIS NOTE APPLIES TO ALL SHEETS)  
 ALL MATERIALS, FIXTURES AND DEVICES SHALL CONFORM TO APPROVED APPLICABLE STANDARDS

#### GENERAL NOTE:

(THIS NOTE APPLIES TO ALL SHEETS)  
 ALL PLUMBING SHALL BE IN ACCORDANCE WITH CITY OF PFLUGERVILLE PLUMBING CODES

### PLUMBING FIXTURE SCHEDULE

CONNECTION SIZE					ITEM	DESCRIPTION
W.	V.	C.W.	H.W.			
4"	2"	1"	-		WC-1 - WATER CLOSET	FIXTURE: ZURN #Z5555-BWL WITH Z5535-45-55 TANK, 16-1/2" HIGH, VITREOUS CHINA, ELONGATED RIM, FLOOR MOUNTED, WHITE 1.28 GPF (MOUNT LEVEL ON WIDE SIDE IF STALL) SEAT: MANLINE ML10555SC000, ELONGATED, OPEN FRONT SEAT LESS LID CLOSET FLANGE: SIOUX CHIEF #887-PM PROVIDE RESILIENT SPONGE RUBBER WATER CLOSET SEALING RINGS. DO NOT USE WAX RING GASKETS. INSTALL PER MANUFACTURER'S RECOMMENDATIONS HOLDRITE ROUGH IN BRACKETS PROVIDE TWO SOLID BRASS CLOSET FLANGE BOLT ASSEMBLIES (NOT PLATED BRASS)
2"	2"	1/2"	1/2"		LAV-1 - LAVATORY	FIXTURE: ZURN #Z5344 20X18, WALL HUNG, ADA COMPLIANT, CHINA LAVATORY FAUCET: ZURN#Z7440-XL-CST-FC SIERRA POLISHED CHROME LEVER HANDLE, POP UP DRAIN SUPPLIES: BRASSCRAFT 1/2" INLET X 1/2" OUTLET, FLEXIBLE RISER ALL CHROME FINISH. P-TRAP: MCGUIRE #NO. 8872- P-TRAP W/ TUBING DRAIN TO WALL. CARRIER: ZURN Z1231-EZ, OR EQUAL TRAP & SUPPLY COVERS: TRUEBRO NO. 102 LAV-GUARD2 W/ NO. 105 ACCESSORY. HOLDRITE ROUGH IN BRACKETS MIXING VALVE: EACH LAV SHALL HAVE A POWERS #LM495 SERIES MIXER INSTALLED UNDER THE LAVE PER THE MANUFACTURERS RECOMMENDATIONS. SET TEMP TO 110°
2"	2"	1/2"	1/2"		SK-1 - SINK	FIXTURE: ELKAY #LRAD152260, WITH THREE FAUCET HOLE & OFF CENTER DRAINS. FAUCET: ELKAY #LK810G04T6 GOOSE NECK FAUCET, LK-18 GRID STRAINER SUPPLIES: MCGUIRE LAVATORY SUPPLIES - I.P.S. X OD" NO. H2167-LK; 12 INCH CHROME PLATED COPPER RISERS AND FORGED BRASS WITH SET SCREW FLANGE INLET 1/2 INCH IPS AND 1/2 INCH IPS OUTLET. P-TRAP: MCGUIRE NO. 8912-C-F; P-TRAP SHALL BE CHROME PLATED CAST BRASS BODY WITH CLEANOUT, WITH 17-GAUGE SEAMLESS TUBULAR WALL BEND, CAST BRASS SLIP NUTS. ALL WITH POLISHED CHROME FINISH OFFSET STRAINER: A. MCGUIRE NO. 1151AWC, ADA COMPLIANT OFFSET WHEELCHAIR LAVATORY STRAINER WITH HEAVY CAST BRASS GRID DRAIN STRAINER, HEAVY CAST BRASS ELBOW AND 17-GAUGE TUBULAR BRASS OFFSET TAILPIECE. PROVIDE STAINLESS STEEL CONICAL STRAINER BASKET. TRAP & SUPPLY COVERS: TRUEBRO NO. 102 LAV-GUARD2 W/ NO. 105 ACCESSORY.
2"	2"	1/2"	1/2"		WB-1 - ICE MAKER BOX	DATEY #38981 WASHER CONNECTION BOX 1/4 TURN BALL VALVES
2"	2"	1/2"	1/2"		HB-1 - HOSE BIBB	WOODFORD #B79 WITH LOOSE KEY
AS NOTED ON PLANS					WALL CLEANOUT: (WCO)	MIFAB No. C1400-R6-36, STAINLESS STEEL ROUND WALL CLEANOUT ACCESS COVER.
AS NOTED ON PLANS					CLEANOUT: (CO) (FCO)	MIFAB No. C1000 SERIES, STAINLESS STEEL ROUND FLOOR CLEANOUT ACCESS COVER. HEAVY DUTY TOP, TAPER THREAD BRONZE PLUG, NICKLE BRONZE TOP
AS NOTED ON PLANS					WATER HAMMER ARRESTORS (WHA)	WATER HAMMER ARRESTORS MIFAB WHB-SERIES STAINLESS STEEL BELOWS TYPE
AS NOTED ON PLANS					TRAP PRIMER: (TP)	MIFAB No. M-500 WITH MODEL # MI-DU DISTRIBUTION UNIT; SEE DETAIL
AS NOTED ON PLANS					ACCESS DOOR: (AD)	MIFAB 10" X 10" SQUARE STAINCOAT STEEL ACCESS DOOR WITH ANCHOR LUGS AND SATIN SMOOTH SECURE COVER.

#### NOTES

- OR OWNER APPROVED EQUAL MANUFACTURERS.
- PROVIDE SOLID JOINT CONNECTIONS ON TUB WASTE AND OVERFLOW, OR ACCESS PANEL IF SLIP JOINT CONNECTION IS USED (SLIP JOINT ONLY, WHERE ALLOWED BY CODE).
- PROVIDE OFFSET TRAP FOR ALL ACCESSIBLE LAVATORIES AND SINKS.
- ALL FLOOR DRAINS, HUB DRAINS AND FLOOR SINKS SHALL BE PROTECTED WITH TRAP PRIMERS WETHER SHOWN ON PLANS OR NOT.
- CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ALL TRIM AND ACCESSORIES NECESSARY FOR A COMPLETE AND WORKING INSTALLATION.

### PLUMBING SPECIFICATIONS

#### PART 1 - GENERAL

- MATERIALS AND INSTALLATION SHALL COMPLY WITH ALL APPLICABLE STATE AND LOCAL CODES AND REQUIREMENTS.
- OBTAIN AND PAY FOR ALL REQUIRED PERMITS, INSPECTION FEES, TAPPING FEES, CONNECTION CHARGES, AND UTILITY COMPANY SERVICE CHARGES.
- INSTALLATION SHALL BE DONE IN A NEAT AND WORKABLE MANNER.
- DRAWINGS ARE DIAGRAMMATIC AND SHALL NOT BE SCALED FOR EXACT SIZES OR LOCATIONS. THEY ARE NOT INTENDED TO DISCLOSE ABSOLUTE OR UNCONDITIONAL KNOWLEDGE OF ACTUAL FIELD CONDITIONS.

#### PART 2 - PRODUCTS

- ALL DOMESTIC WATER PIPING INSIDE THE BUILDING ABOVE SLAB SHALL BE TYPE 'L' HARD DRAWN COPPER (TYPE 'K' FOR UNDERGROUND) WITH WROUGHT COPPER FITTINGS, SWEAT WITH LEAD FREE SOLDER.
- ALL CONDENSATE PIPING ON THE ROOF SHALL BE TYPE 'M' COPPER, OR PVC WHERE ALLOWED BY CODE
- DOMESTIC WATER AND CONDENSATE DRAIN PIPING BELOW SLAB AND OUTSIDE SHALL BE TYPE 'K' SOFT SEAMLESS. NO JOINTS SHALL BE ALLOWED BELOW SLAB. ALL SLAB PENETRATIONS SHALL BE SLEEVED TO PROTECT PIPING FROM CORROSION BY CONCRETE.
- COPPER PIPE FITTINGS SHALL BE WROUGHT COPPER SWEEP PATTERN FITTINGS, SOLDERED USING 95-5 LEAD-FREE SOLDER OR BRAZED WITH SIL-FOS.
- ALL SANITARY WASTE, VENT AND STORM DRAINAGE PIPING INSIDE AND EXTENDING 30" OUTSIDE THE BUILDING SHALL BE SCHEDULE 40 PVC DWV EQUIVALENT TO CHARLOTTE PIPE AND MEET ASTM D-2865. EXTERIOR PVC PIPING 30" FROM BUILDING SHALL BE TYPE SDR-35 AND ASTM D-3034.
- JOINTS FOR PVC PIPING SHALL BE SOLVENT WELD TYPE INSIDE AND UNDERSLAB TO A POINT 30" OUTSIDE THE BUILDING AND NEOPRENE PUSH-ON TYPE JOINTS BEYOND OUTSIDE 30" FROM THE BUILDING.
- INSULATE AND HEAT TRACE ALL DOMESTIC HOT AND COLD WATER PIPING LOCATED IN AREAS SUBJECT TO FREEZING. INSULATION SHALL BE 1" THICK FIBERGLASS AS MANUFACTURED BY MANVILLE, OWENS-CORNING, OR KNAUF.
- ALL NATURAL GAS PIPING SHALL BE SCHEDULE 40 BLACK STEEL WITH SCREWED OR WELDED FITTINGS AND GASKET TYPE UNIONS AND FLANGES. 2" AND SMALLER - SCREWED, 2 1/4" AND LARGER WELDED
- ALL UNDERGROUND NATURAL GAS PIPING SHALL BE POLYETHYLENE (PE-2306) WITH HEAT FUSION JOINTS.

#### PART 3 - EXECUTION

- EXCAVATION, BACKFILLING AND TRENCH WORK SHALL BE DONE IN ACCORDANCE WITH O.S.H.A. AND EXISTING SAFETY STANDARDS.
  - PROVIDE SHORING AND CLEANING NECESSARY TO KEEP TRENCHES IN GOOD WORKING CONDITION, INCLUDING PUMPING OUT WATER.
  - IN MOSTLY ROCK MATERIAL, TRENCHES SHALL BE EXCAVATED TO AT LEAST 6" BELOW THE ELEVATION OF THE BOTTOM OF THE PIPES. AFTER EXCAVATION, TRENCH SHALL THEN BE FILLED TO THE PROPER ELEVATION WITH CRUSHED LIMESTONE. GRAVEL SHALL BE SCOOPED OUT UNDER PIPE BELLS SO THE PIPE RESTS FIRMLY ON THE TRENCH BOTTOM.
  - IN MOSTLY EARTH OR SAND MATERIAL, THE LAST 6" OF EXCAVATION SHALL BE DONE BY HAND. TRENCH BOTTOM SHALL BE SCOOPED OUT AT PIPE BELLS SO THE PIPE RESTS FIRMLY ON THE TRENCH BOTTOM.
  - BACKFILLING AND TAMPING SHALL BE CAREFULLY DONE BY HAND SIMULTANEOUSLY ALONG BOTH SIDES OF THE PIPE USING ROCK FREE EARTH, CRUSHED STONE OR SAND UNTIL THE PIPE IS COVERED TO A DEPTH OF AT LEAST 12". THE REST OF THE FILL-UP TO THE TOPSOIL LAYER MAY BE GRAVEL OR ROCK FREE EARTH. ACCEPTABLE SOIL MATERIALS FOR BACK FILL AND FILL SHALL BE FREE OF CLAY, ROCK OR GRAVEL LARGER THAN 2" IN ANY DIMENSION, DEBRIS, WASTE, FROZEN MATERIALS AND OTHER DELETERIOUS MATTER HAVING A PLASTICITY INDEX LESS THAN 30. BACKFILL SHALL BE DONE IN LAYERS OF NOT MORE THAN 8" AND EACH LAYER SHALL BE COMPACTED. THE LAST 12" OF BACKFILL SHALL BE ROCK FREE TOPSOIL.
  - SURFACE SHALL BE RESTORED TO ITS ORIGINAL CONDITION.
- PRESSURE REDUCING VALVE SHALL BE SET AT 70 PSI MAXIMUM. PRESSURE RELIEF VALVE SHALL BE SET AT 80 PSI MAXIMUM.
- EXPOSED HOT AND COLD WATER TRIM IN FINISHED AREAS SHALL BE CHROME FINISHED.
- ALL HORIZONTAL AND VERTICAL PIPING SHALL BE SUPPORTED IN ACCORDANCE WITH APPLICABLE STATE AND LOCAL CODE RECOM-MENDATIONS. SUPPORTS SHALL SECURELY HOLD PIPING, PREVENT VIBRATION, COMPENSATE FOR ALL STATIC AND OPERATIONAL CONDITIONS OF THE VARIOUS SYSTEMS AND SHALL NOT BE SUBJECT TO ELECTROLYTIC ACTION. SHOCK ABSORBERS SERVICING FIXTURES WITH FLUSH VALVES SHALL BE SECURELY ANCHORED IN THEIR VERTICAL POSITION. ACCEPTABLE METHODS OF SUPPORT WILL BE THE SUMMER SYSTEM, POSIFIX, STAKFIX, PIPEFIX, HOLDRITE OR CHANNEL.
- PROVIDE J.R. SMITH OR APPROVED EQUAL SHOCK ABSORBERS #5005 THRU 5050 SIZE AS RECOMMENDED BY MANUFACTURER INSTALLED ON HOT AND COLD WATER BRANCH LINES CONTAINING SINGLE LEVER FAUCETS, FLUSH VALVES OR EQUIPMENT WITH QUICK CLOSING VALVES

BETWEEN THE LAST TWO FIXTURES AS SHOWN ON THE CONTRACT DRAWINGS.

- SANITARY WASTE LINES SHALL BE UNIFORMLY GRADED TO ELEVATIONS SHOWN. IF NO ELEVATIONS ARE GIVEN, SEWERS SHALL BE PITCHED NOT LESS THAN 1/4" PER FOOT FOR ALL PIPING 2-1/2" IN DIAMETER AND SMALLER AND 1/8" PER FOOT FOR ALL PIPING 3" IN DIAMETER AND LARGER.
- SUPPORT HORIZONTAL PIPING AS FOLLOWS:
 

NOMINAL PIPE SIZE (N.)	MAXIMUM DISTANCE BETWEEN SUPPORT (FT.)	MINIMUM HANGER DIAMETER (N.)
1/2	6	3/8
3/4 TO 1-1/2	6	3/8
2 TO 2-1/2	10	3/8
3 TO 6	12	1/2
- HANGERS FOR PIPING GREATER THAN 1" SHALL PASS OVER THE INSULATION. PROVIDE SADDLES FOR INSULATED PIPING.
- INSULATION SHALL BE APPLIED WITH JOINTS TIGHTLY BUTTED. OPEN CRACKS, VOIDS AND DEPRESSIONS SHALL BE FILLED WITH HYDRAULIC SETTING CEMENT. LAPPING MATCHING THE FINISH SHALL BE PASTED NEATLY OVER JOINTS.
- FITTINGS AND VALVES SHALL BE INSULATED WITH THE SAME TYPE INSULATION AS THE PIPING OR WITH HYDRAULIC SETTING CEMENT, BUILT-UP TO THE SAME THICKNESS AS LINES. COVER SHALL BE SAME AS ADJACENT PIPING OR PVC PREFORMED JACKET.
- PROVIDE AND INSTALL A CUT-OFF VALVE, UNION AND FULL SIZE DIRT LEG AT CONNECTION TO EACH GAS-FIRED PIECE OF EQUIPMENT.
- THE SYSTEM TESTS DESCRIBED HEREIN ARE MINIMUM REQUIREMENTS. HOWEVER, ADDITIONAL TESTS AS REQUIRED BY THE AUTHORITY HAVING JURISDICTION SHALL ALSO BE PERFORMED.
- DOMESTIC WATER PIPING SHALL BE TESTED HYDROSTATICALLY AT 85 PSI. IN ADDITION PIPING SHALL BE TESTED IN ACCORDANCE WITH APPLICABLE CODE REQUIREMENTS.
- THE DOMESTIC WATER SYSTEM SHALL BE FLUSHED OUT PROGRESSIVELY BY OPENING OUTLETS AND FLOWING WATER UNTIL IT RUNS CLEAR. AFTER PIPE CLEANING IS COMPLETED, THE STRAINERS SHALL BE REMOVED, CLEANED, AND REPLACED THEN THE ENTIRE DOMESTIC WATER SYSTEM SHALL BE DISINFECTED IN ACCORDANCE WITH THE AUTHORITY HAVING JURISDICTION.
- THE SANITARY WASTE SYSTEM SHALL BE FLUSHED OUT PROGRESSIVELY WITH FLOWING WATER UNTIL IT RUNS CLEAR.
- THE ENTIRE SANITARY WASTE SYSTEM SHALL BE TESTED AGAINST A HEAD PRESSURE OF 10', FOR 6 HOURS WITHOUT LEAKAGE.

### GENERAL PLUMBING NOTES:

- FOR CONTINUATION OF WATER AND SANITARY SEWER SERVICES, REFER TO CIVIL DRAWINGS.
- WATER LINES SHALL BE RUN ABOVE CEILING AND SANITARY SEWER LINES UNDER FLOOR UNLESS NOTED OTHERWISE. CONFORM TO ALL STRUCTURAL AND FINISH CONDITIONS OF BUILDING. COORDINATE WITH STRUCTURAL AND ARCHITECTURAL DRAWINGS PRIOR TO INSTALLATION.
- CONTRACTOR TO CHANGE LOCATION OF NEW PIPING, AS SHOWN, TO MEET FIELD CONDITIONS.
- CONTRACTOR SHALL NOT SCALE DRAWINGS.
- ANY PENETRATIONS OF THE CLG. WALLS OR FLOORS SHALL BE RESTORED TO THE ORIGINAL FIRE RATINGS, OPENING CUTS, AND CEILING SHALL BE PATCHED SLEEVE, SEALED, AND ESCUTCHEONED.
- CONTRACTOR SHALL LOCATE HIS WORK FROM ACTUAL FIELD MEASUREMENTS AND ACTUAL DIMENSIONS OF EQUIPMENT INSTALLED, ALL PIPING AND EQUIPMENT OF ALL TRADES SHALL BE PROPERLY COORDINATED AND SET TO MAINTAIN REQUIRED CLEARANCES. CONTRACTOR SHALL BE HELD RESPONSIBLE FOR ALL LOCATIONS SUBJECT TO APPROVAL OF ARCHITECT.
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- PLUMBING VENTS AND FLUES THRU ROOF SHALL BE LOCATED 10'-0" FROM ALL OUTSIDE AIR INTAKES AND 2'-0" FROM ALL VERTICAL STRUCTURES. TERMINATIONS ARE TO BE 12" MINIMUM ABOVE ROOF. IF WITH 10'-0" OF A PARAPET, TERMINATIONS SHALL BE AT TOP OF PARAPET. REFER TO ARCHITECTURAL DRAWINGS FOR PARAPET HEIGHT.
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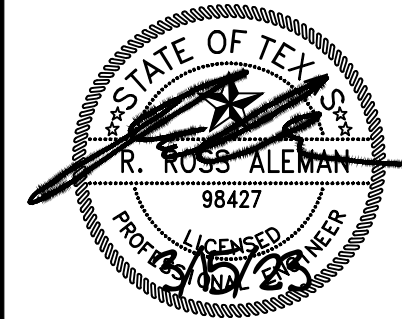
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DATE: MAR 15, 2023

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**HEATHERWILDE OFFICE**  
**CONDOS BLDG 3**

201 N. HEATHERWILDE BLVD.  
 PFLUGERVILLE, TX 78660

PROJECT NO: 17003

REVISIONS:

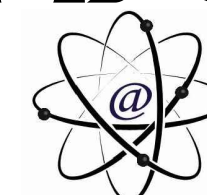
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 REVIEWED BY: SL

PLUMBING LEGEND,  
 NOTES AND  
 SCHEDULE

**P1.0**

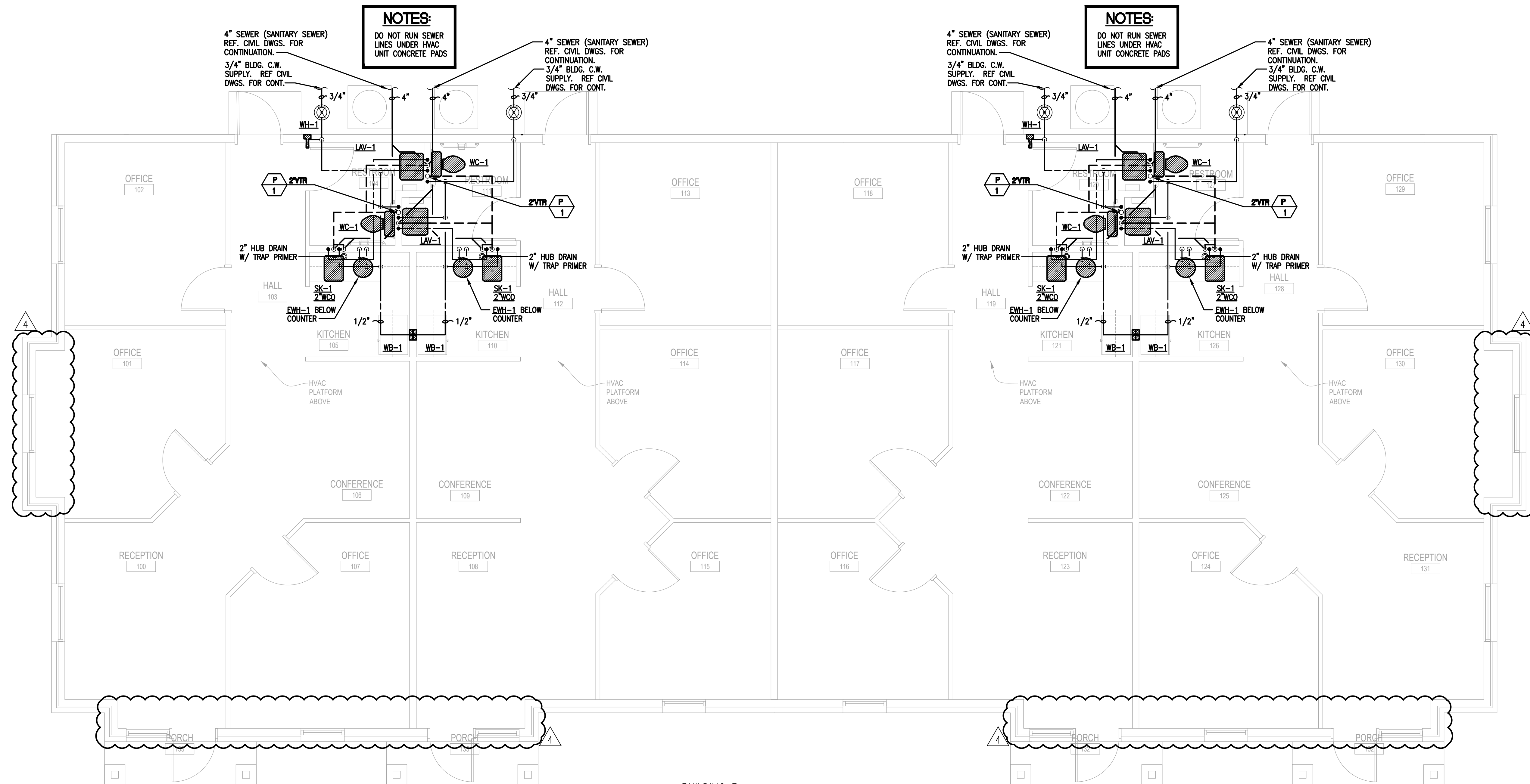
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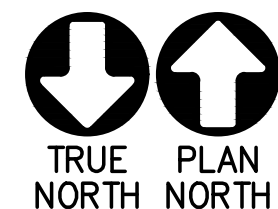


**NOTES:**  
DO NOT RUN SEWER LINES UNDER HVAC UNIT CONCRETE PADS

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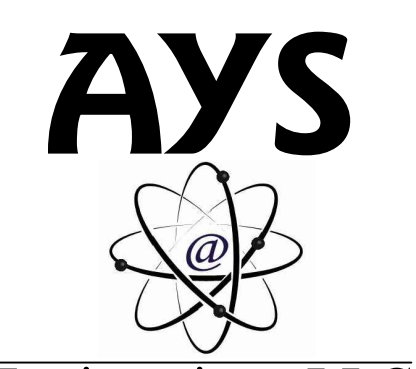
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**BUILDING 3 FLOOR PLAN - PLUMBING**

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



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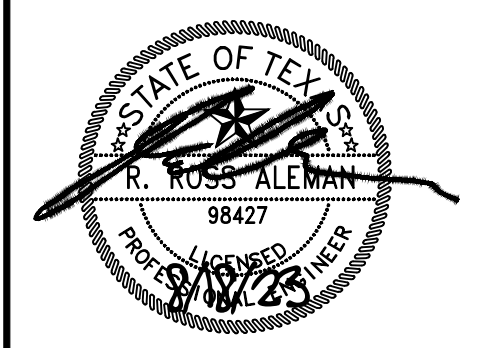
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201 N. HEATHERWILDE BLVD.  
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PROJECT NO: 17003

**REVISIONS:**

1	City Comments	4-21-2023
3	City Comments	5-9-2023
4	Site Development	
	Revision	8-18-2023

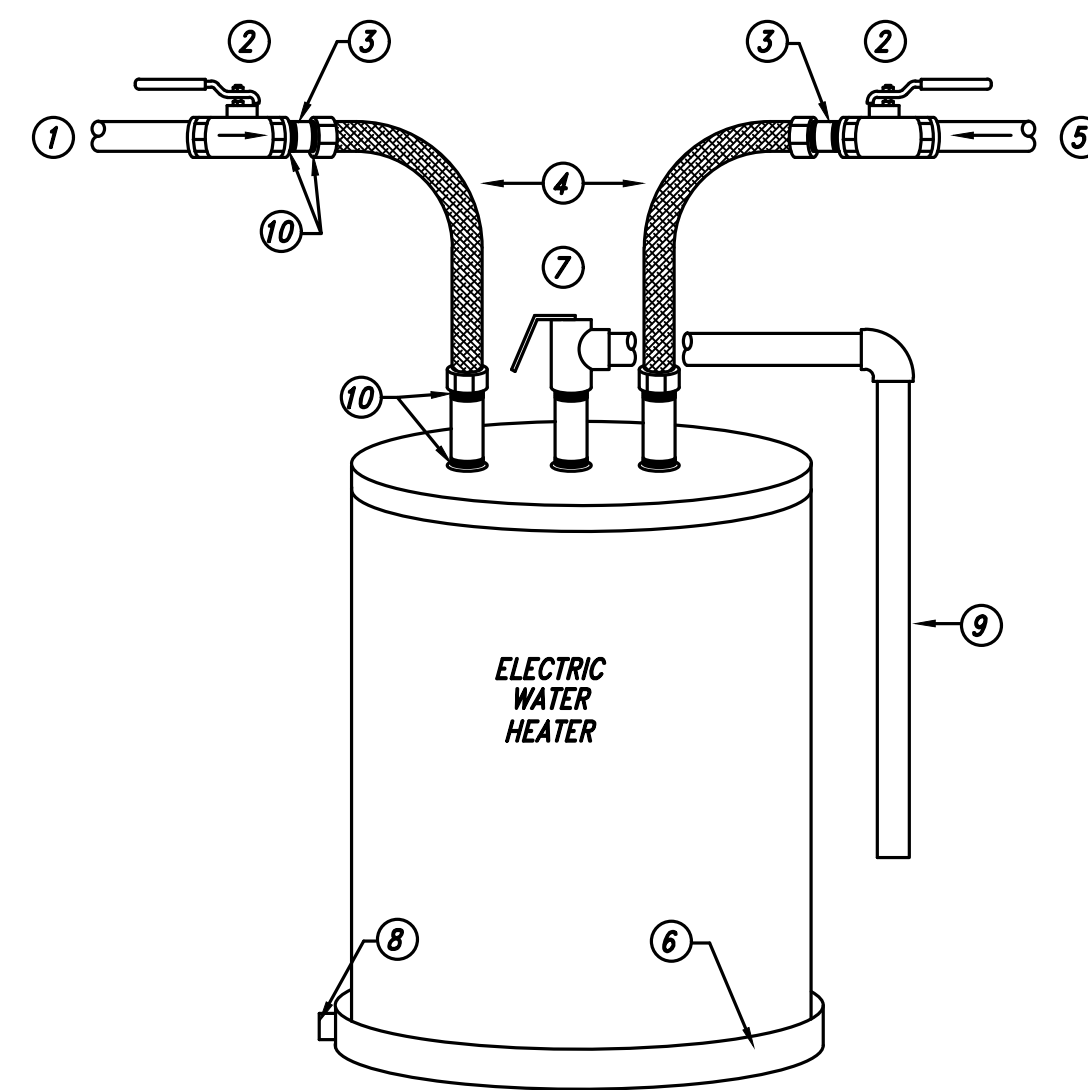
DRAWN BY: ET  
REVIEWED BY: SL

BUILDINGS 3 - FLOOR PLAN - PLUMBING

**P2.0**

ELECTRIC WATER HEATER SCHEDULE					
MARK	RECOVERY GPH AT 100°F RISE	KW	VOLTS/PH CYCLES	STORAGE CAPACITY (GALLONS)	REMARKS
EWH-1	11	3	240/1/60	6	STATE #ES6 6 SOMS-K

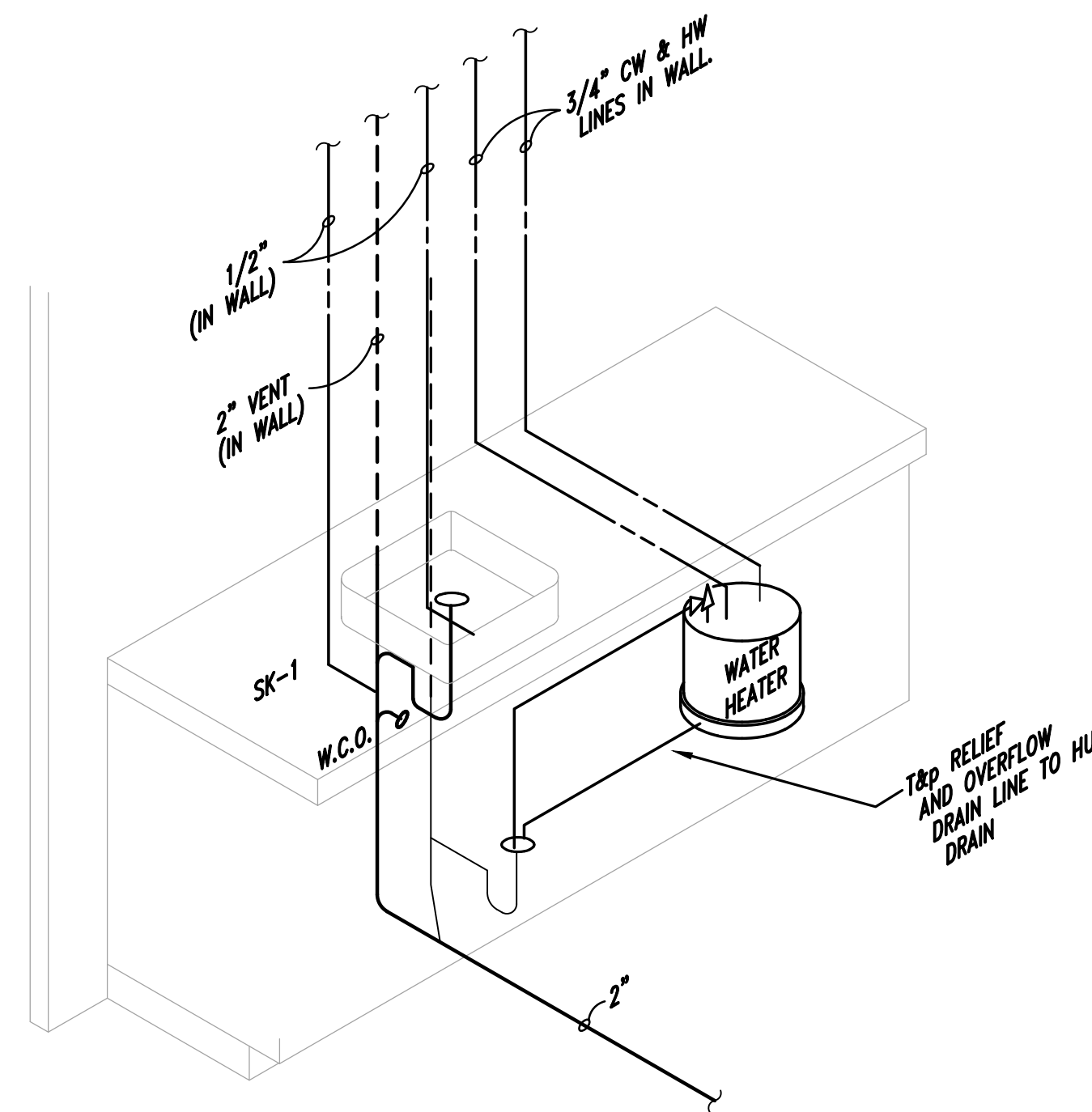
PROVIDE WITH FACTORY HEAT TRAPS



- ① HOT WATER SUPPLY OUT
- ② WATTS No. B-6000, 3/4" BALL VALVE.
- ③ 3" BRASS MALE THREADED NIPPLE.
- ④ BRASSCRAFT No. BWBO POLYMERE BRAID FLEXIBLE WATER HEATER CONNECTOR.
- ⑤ COLD WATER SUPPLY IN
- ⑥ WATER-TITE, PLASTIC WATER HEATER DRAIN PAN.
- ⑦ WATTS No. T & P RELIEF VALVE.
- ⑧ DRAIN PAN AUXILIARY DRAIN OUTLET, ROUTE FULL SIZE TO OUTSIDE
- ⑨ 3/4" COPPER T & P RELIEF DRAIN, ROUTE FULL SIZE TO OUTSIDE
- ⑩ PROVIDE TEFLON OR PLUMBING PUTTY TYPICAL AT ALL NON-SWEAT CONNECTION.

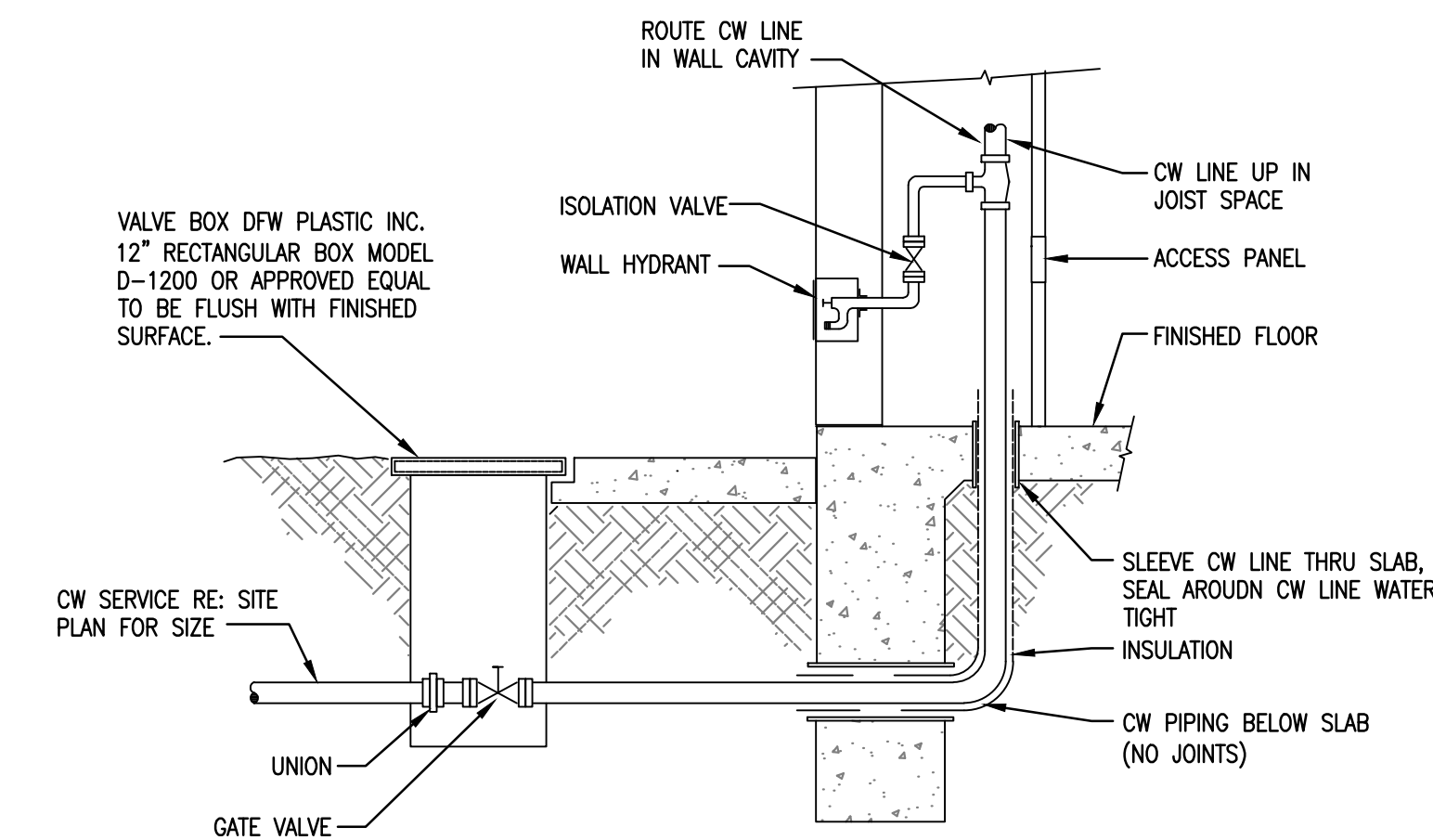
### 1 DOMESTIC WATER HEATER DETAIL

SCALE: NTS



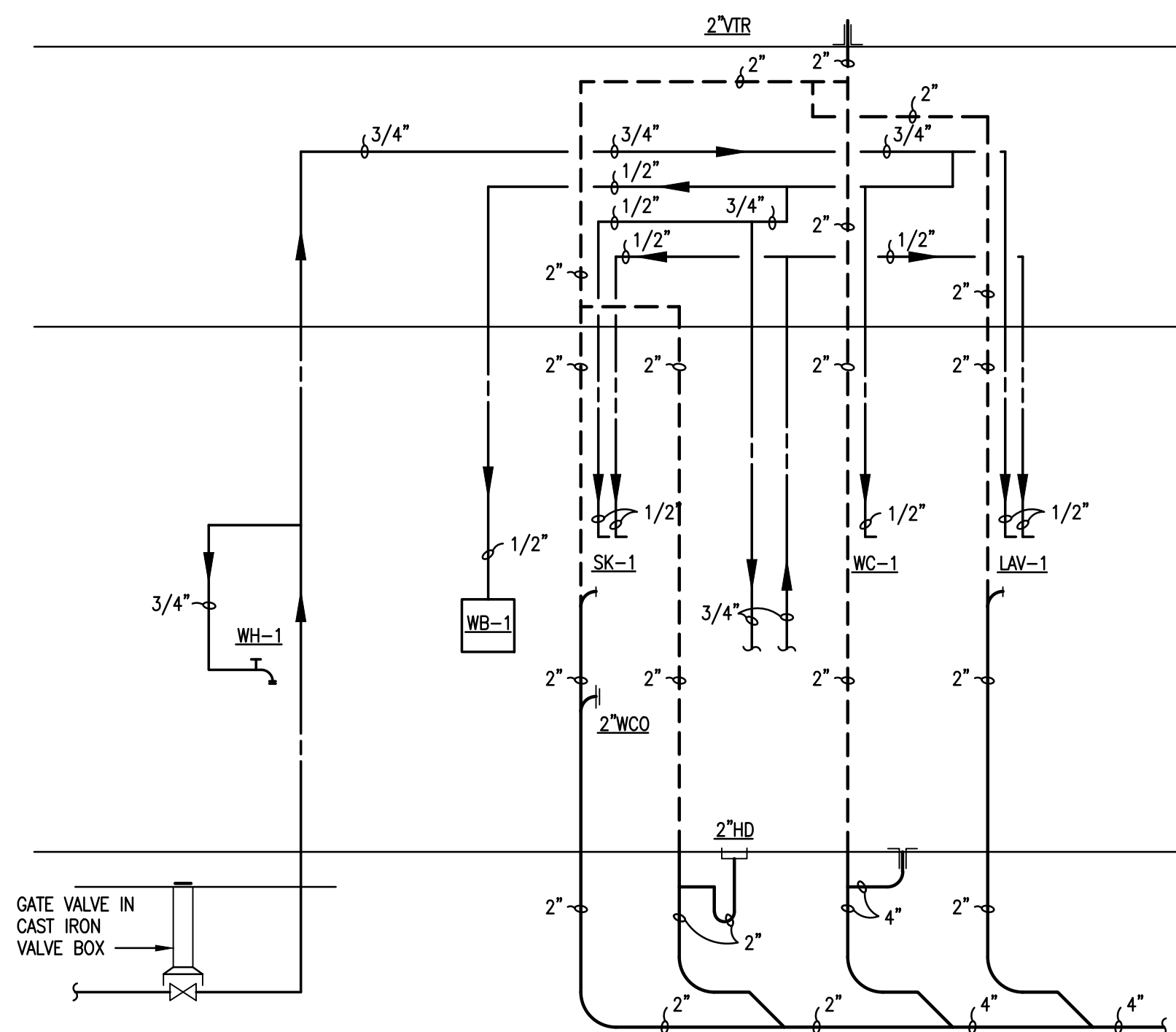
### 2 WATER HEATER AND HUB DRAIN BELOW COUNTER INSTALLATION

SCALE: NTS



### 3 DOMESTIC WATER ENTRY DETAIL

SCALE: NOT TO SCALE



### 4 TYPICAL UNIT RISER DIAGRAM

SCALE: NTS



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STRUCTURAL ENGINEER:

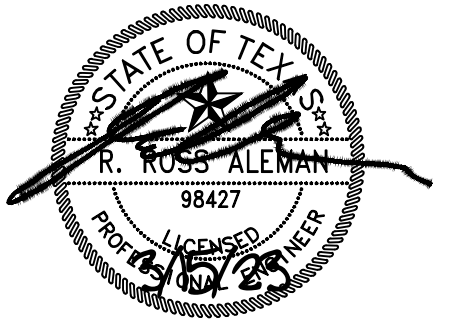
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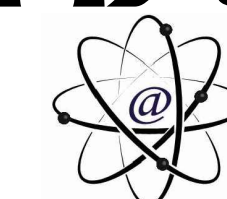
PROJECT NO: 17003

REVISIONS:

DRAWN BY: ET  
REVIEWED BY: SL

PLUMBING DETAILS

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**P3.0**

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(NOTE: NOT ALL SYMBOLS SHOWN ARE USED ON DRAWINGS)

SYMBOL		DESCRIPTION	SYMBOL	DESCRIPTION
		RIGID DUCTWORK, 1ST NUMBER IS VISIBLE DIMENSION		FLEXIBLE CONNECTION
		FLEX DUCTWORK		CONCENTRIC PIPE REDUCER/INCREASER
		90 DEGREE ROUND DUCT DOWN 90 DEGREE ROUND DUCT UP		ECCENTRIC PIPE REDUCER/INCREASER
		ROUND RADIUS ELBOW		PIPE SLEEVE
		SIZE OR SHAPE TRANSITION		DIRECTION OF SLOPE (DNWARD)
		90 DEGREE S/A ELBOW DOWN		EQUIPMENT OR FIXTURE DRAIN LINE
		90 DEGREE S/A ELBOW UP		DIRECTION OF FLOW
		90 DEGREE OR RADIUS RETURN AIR OR EXHAUST ELBOW DOWN		PIPING DOWN
		90 DEGREE OR RADIUS RETURN AIR OR EXHAUST ELBOW UP		PIPING UP
		SUPPLY DUCT RISER		CAP
		RETURN OR EXHAUST DUCT RISER		THERMOSTAT
		RECTANGULAR RADIUS ELBOW		DUCT MOUNTED SMOKE DETECTOR
		RECTANGULAR ELBOW WITH TURNING VANES		REMOTE RESET
		RECTANGULAR BRANCH TAKE-OFF WITH ADJUSTABLE VANED EXTRACTOR		SENSOR
		S/A GRILLE OR REGISTER		DIFFUSER/REGISTER/GRILLE DESIGNATION CFM
		R/A, E/A, T/A GRILLE OR REGISTER		EQUIPMENT DESIGNATION NUMBER IN SEQUENTIAL ORDER
		OPPOSED BLADE DUCT VOLUME DAMPER		
		ROUND DUCT TAKE-OFF DAMPER		

ABBREVIATION	DESCRIPTION	ABBREVIATION	DESCRIPTION
A/C	AIR CONDITIONING	KW	KILOWATT (THOUSAND WATTS)
AFF	ABOVE FINISHED FLOOR	LAT	LEAVING AIR TEMPERATURE
AFG	ABOVE FINISHED GRADE	LBS	POUNDS
AHU	AIR HANDLING UNIT	MBH	THOUSAND BRITISH THERMAL UNITS PER HOUR
AUX	AUXILIARY	MCA	MINIMUM CIRCUIT AMPS
BLDG	BUILDING	MCB	MAIN CIRCUIT BREAKER
BTC	BRANCH TO CONNECTION	MECH	MECHANICAL
BTUH	BRITISH THERMAL UNIT PER HOUR	MFR	MANUFACTURER
CD	CONDENSATE DRAIN	MIN	MINIMUM
CFM	CUBIC FEET PER MINUTE	MISC	MISCELLANEOUS
¢	CENTER	MOC	MAXIMUM OVER CURRENT PROTECTION
CLG	CEILING	NA	NOT APPLICABLE
COL	COLUMN	NIC	NOT IN CONTRACT
COMP	COMPRESSOR	NTS	NOT TO SCALE
COND	CONDENSER	OA	OUTSIDE AIR
DB	DRY BULB (TEMPERATURE)	OBD	OPPOSED BLADE DAMPER
DEC	DEGREES	OC	ON CENTER
DIA	DIAMETER	OFICI	OWNER FURNISHED, CONTRACTOR INSTALLED
DN	DOWN	OFOI	OWNER FURNISHED, OWNER INSTALLED
DET	DETAIL	PH	PHASE
DWG	DRAWING	PLBG	PLUMBING
DX	DIRECT EXPANSION	QTY	QUANTITY
E/A	EXHAUST AIR	R	RISE
EXIST	EXISTING	RA	RETURN AIR
FAT	ENTERING AIR TEMPERATURE	REF	REFERENCE
EQ	EQUIPMENT	REQ	REQUIRED
ESP	EXTERNAL STATIC SYSTEM	RH	RELATIVE HUMIDITY
EXH	EXHAUST	RPM	REVOLUTION PER MINUTE
F	FAHRENHEIT, FALL	RTU	ROOFTOP UNIT
FCU	FAN COIL UNIT	SEER	SEASONAL ENERGY EFFICIENCY RATING
FF	FINISH FLOOR	SP	STATIC PRESSURE
FLA	FULL LOAD AMPS	SPECS	SPECIFICATIONS
FLUOR	FLUORESCENT	SS	STAINLESS STEEL
FPM	FEET PER MINUTE	TEMP	TEMPERATURE
FSD	COMBINATION FIRE/SMOKE DAMPER	TYP	TYPICAL
FT	FEET/FOOT (')	UH	UNIT HEATER
GA	GAUGE	UL	UNDERWRITER'S LABORATORY
GALV	GALVANIZED	UON	UNLESS OTHERWISE NOTED
GPM	GALLONS PER MINUTE	VAV	VARIABLE AIR VOLUME
HP	HORSEPOWER	V	VOLTS
HR	HOUR	VD	VOLUME DAMPER
HT	HEIGHT	VRF	VARIABLE REFRIGERANT FLOW
HTR	HEATER	W/	WITH
HVAC	HEATING VENTILATION AND AIR CONDITIONING	W/O	WITHOUT
HZ	HERTZ-FREQUENCY IN CYCLE PER SECOND	WB	WET BULB (TEMPERATURE)
ID	INSIDE DIAMETER	WP	WATER PROOF
IN	INCH/INCHES (")	WT	WATERTIGHT

ASHRAE 62.1 OUTSIDE AIR CALCULATION						
ROOM	62.1 CFM/PERSON	62.1 CFM/SF	# PEOPLE	AREA	REQ'D OA	OA PROVIDED
Reception	5	0.06	1	124	12	100
Office 1	5	0.06	1	132	13	
Office 2	5	0.06	1	141	13	
Hall	5	0.12	0	79	9	
Conference	5	0.12	0	177	21	
Kitchen	5	0.12	0	52	6	
Office 3	5	0.06	1	137	13	
TOTAL						89

1. VENTILATION FOR PUBLIC SPACE COMPLIES WITH ALL APPLICABLE CODES INCLUDING ASHRAE 62.1, 2021 IMC CHAPTER 4 AND TABLE 403.3.1.1.

2. NO DUCT MOUNTED SMOKE DETECTORS ARE NEEDED AS NO AREAS ARE SERVED BY ONE OR MORE AIR HANDLERS WITH AIR FLOWS THAT EXCEED 2000 CFM PER CODE.

3. MECHANICAL COMCHECK AND HVAC LOAD CALCULATIONS ARE PROVIDED IN THIS SUBMITTAL FOR NEW EQUIPMENT.

4. MOTORIZED VOLUME DAMPERS AND GRAVITY DAMPERS ARE SHOWN ON OUTSIDE AIR AND EXHAUST AIR PER CODE - REF. PLAN.

5. TOILET ROOM EXHAUST FANS ARE SIZED FOR 75 CFM PER TOILET/URINAL PER CODE.

6. A COMPLETE AIR BALANCE SHALL BE PERFORMED IN ACCORDANCE TO SPECIFICATION SHOWN ON M4.0. THE OWNERS MANUALS SHALL BE GIVEN TO THE OWNER AT TIME OF SWITCHOVER.

7. ECONOMIZERS ARE NOT REQUIRED FOR ALL SYSTEMS LESS THAN 54,000 BTUH PER 2021 IECC.

8. FLEXIBLE DUCTWORK SHALL BE LIMITED TO 5 FEET MAXIMUM PER CODE.

9. ALL INTAKE AND DISCHARGE DUCTWORK MUST BE A MINIMUM OF 26 GAUGE SHEET METAL.

GENERAL NOTES (APPLIES TO ALL SHEETS)										
1.	IN ANY CASE WHERE A PIPE OR DUCT SHOWN ON A PLAN SHEET DIFFERS FROM THAT SHOWN IN A SCHEMATIC OR DETAIL, USE THE LARGER OF THE TWO SIZES SHOWN.									
2.	PIPING SHOWN ON EACH PLAN IS RUN ABOVE THE CEILING ON THE FLOOR WHERE IT IS SHOWN UNLESS OTHERWISE NOTED.									
3.	MOUNT THERMOSTATS SUCH THAT TOP OF DEVICE IS AT 48 INCHES ABOVE FINISHED FLOOR AND CENTERED ABOVE THE LIGHT SWITCHES WHERE BOTH OCCUR IN THE SAME LOCATION, UNLESS OTHERWISE NOTED.									
4.	NORMAL DESIGN CONDITIONS ARE BASED ON ASHRAE AT THE FOLLOWING: <table border="0" style="margin-left: 20px;"> <tr> <td></td> <td>OUTSIDE</td> <td>INSIDE</td> </tr> <tr> <td>SUMMER:</td> <td>98°F/78°F</td> <td>75°F, 50% RH</td> </tr> <tr> <td>WINTER:</td> <td>20°F</td> <td>75°F</td> </tr> </table>		OUTSIDE	INSIDE	SUMMER:	98°F/78°F	75°F, 50% RH	WINTER:	20°F	75°F
	OUTSIDE	INSIDE								
SUMMER:	98°F/78°F	75°F, 50% RH								
WINTER:	20°F	75°F								
5.	ALL DUCT DIMENSIONS SHOWN ARE CLEAR AIRSTREAM SHEETMETAL DIMENSIONS.									
6.	OUTSIDE AIR DUCT SYSTEMS SHALL BE SHEET METAL PER SPECIFICATIONS W/ EXTERNAL INSULATION.									
7.	DO NOT RUN AIR HANDLERS OR EXHAUST FANS UNTIL ALL INTERIOR CLEANING AND PAINTING IS COMPLETE. THE CLEANING OF FOULED COILS OR FAN ASSEMBLIES DUE TO PAINT OR CONSTRUCTION DEBRIS WILL BE THE RESPONSIBILITY OF THE HVAC CONTRACTOR.									
8.	ALL EQUIPMENT, INSTALLATION METHODS AND MATERIALS USED ARE TO MEET LOCAL, STATE AND OTHER APPLICABLE CODES.									
9.	THESE PLANS ARE DIAGRAMMATIC IN NATURE, CONTRACTORS SHALL INCLUDE APPROPRIATE ALLOWANCES FOR OFFSETS AS REQUIRED TO ACCOMMODATE VERTICAL AND HORIZONTAL VARIATIONS IN THE LOCATIONS AND ELEVATIONS OF DUCTWORK AND TERMINAL DEVICES.									
10.	PROVIDE RECTANGULAR TO ROUND DUCT TRANSITIONS AS REQUIRED.									
11.	ALL CONSTRUCTION DEBRIS SHALL BE DISPOSED OF BY THE CONTRACTOR UNLESS NOTED OTHERWISE.									
12.	FLEXIBLE DUCTWORK SHALL NOT EXCEED FIVE (5) FEET IN LENGTH. FLEXIBLE DUCT SHALL NOT REST ON LIGHTING FIXTURES. WHERE FLEXIBLE DUCTS REQUIRE SUPPORT, SUSPEND FROM STRUCTURE OVERHEAD WITH NYLON BANDS.									

AIR HANDLER UNIT SCHEDULE (R-410A) - WITH AUXILIARY HEAT															
MARK	LOCATION	TOTAL AIR CFM	OUTSIDE AIR CFM	EXT. SP H <sub>2</sub> O	ELECTRICAL DATA			COOLING COIL (DX)			HEATING COIL (ELEC)			REMARKS	
					MTR HP	VOLTS/PH/HZ	MCA AMPS	MCB AMPS	MIN. SENSIBLE CAPACITY BTUH	MIN. TOTAL CAPACITY BTUH	EDB °F/ EWB °F	KW	BTUH CAPACITY		EAT °F
AHU-1, 2, 3, 4	REF. PLAN	800	100	0.5	1/3	240/1/60	28	30	18,550	21,875	78/64	4.8	16,380	68	TRANE TEM6A0B24

- PROVIDE WITH SINGLE POINT ELECTRICAL CONNECTION.
- PROVIDE OVERFLOW DRAIN PAN WITH FLOAT SWITCH.
- PROVIDE DIGITAL 7-DAY PROGRAMMABLE THERMOSTAT.
- PROVIDE CONVERTIBLE AIR HANDLER FOR VERTICAL OR HORIZONTAL POSITION.

OUTDOOR CONDENSING UNIT SCHEDULE												
MARK	MIN. CAP. BTUH	REFRIG-ERANT	VOLTS/PH/HZ	MCA AMPS	MCB AMPS	MINIMUM EER/SEER	COMPRESSOR		CONDENSER		REMARKS	
							NO.	MAX. SUCT. TEMP °F	ROWS	MAX. COND. TEMP °F		AMBIENT TEMP °F
HP-1, 2, 3, 4	22,700	R-410A	240/1/60	15	25	16.0 SEER	1	45	1	120	105	TRANE 4TWR6024

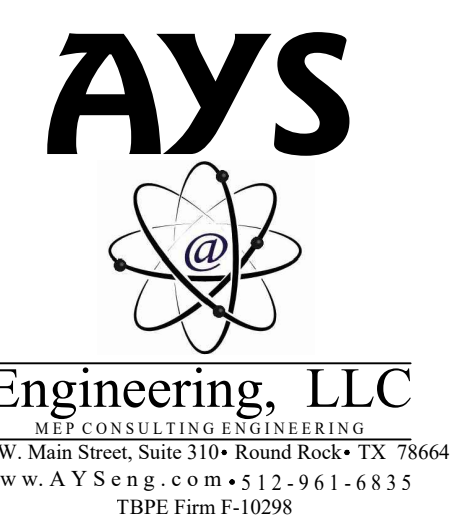
- PROVIDE HAIL GUARDS.
- PROVIDE LOW AMBIENT CONTROLS.

FAN SCHEDULE										
MARK	SERVICE	TYPE	CFM	SP (INCHES WATER)	HP (W)	VOLTS/PHASE/HERTZ	RPM	INTERLOCK WITH	DRIVE TYPE	REMARKS
EF-1, 2, 3, 4	RESTROOM	CEILING	75	0.25	(64W)	120/1/60	700	LIGHT SWITCH	DIRECT	COOK GC-124

- NOTES:
- PROVIDE DISCONNECT AND BACKDRAFT DAMPER FOR EACH FAN.

DIFFUSER AND GRILLE SCHEDULE									
MARK	CFM RANGE	SERVICE	TYPE	MOUNTING	VOLUME CONTROL	SIZE (INCHES)		MATERIAL	REMARKS
						FACE	NECK		
A	0-150	SUPPLY	GRILLE	SIDEWALL	YES	8"x8"	6"x6"	ALUMINUM	TITUS 272-FL
B	151-250	SUPPLY	GRILLE	SIDEWALL	YES	12"x8"	10"x6"	ALUMINUM	TITUS 272-FL
C	0-1000	RETURN	GRILLE	CEILING	NO	24"x12"	22"x10"	ALUMINUM	TITUS 50F
D	0-170	RETURN	GRILLE	CEILING	NO	8"x8"	6"x6"	ALUMINUM	TITUS 50F

- NOTES FOR ALL:
- COORDINATE FRAME TYPE WITH CEILING TYPE AND WALL TYPE.
  - ALL DIFFUSERS ARE TO BE PRIMED AND PAINTED. COORDINATE WITH ARCHITECT FOR FINISH COLOR.
  - CONTRACTOR TO CONFIRM ALL SIZES WITH G.C., EXISTING CONDITIONS, FRAMING, ETC PRIOR TO ORDERING.



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STRUCTURAL ENGINEER:

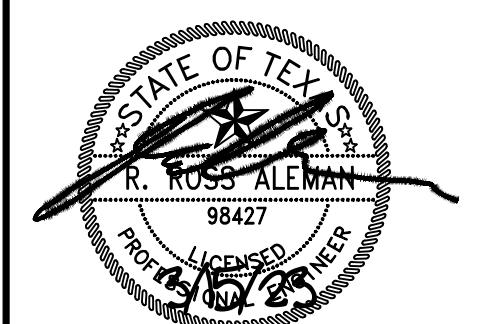
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**CONDOS BLDG 3**

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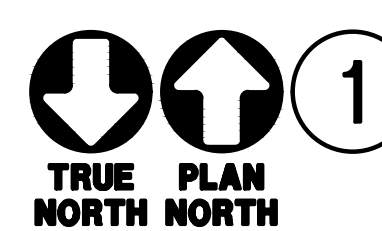
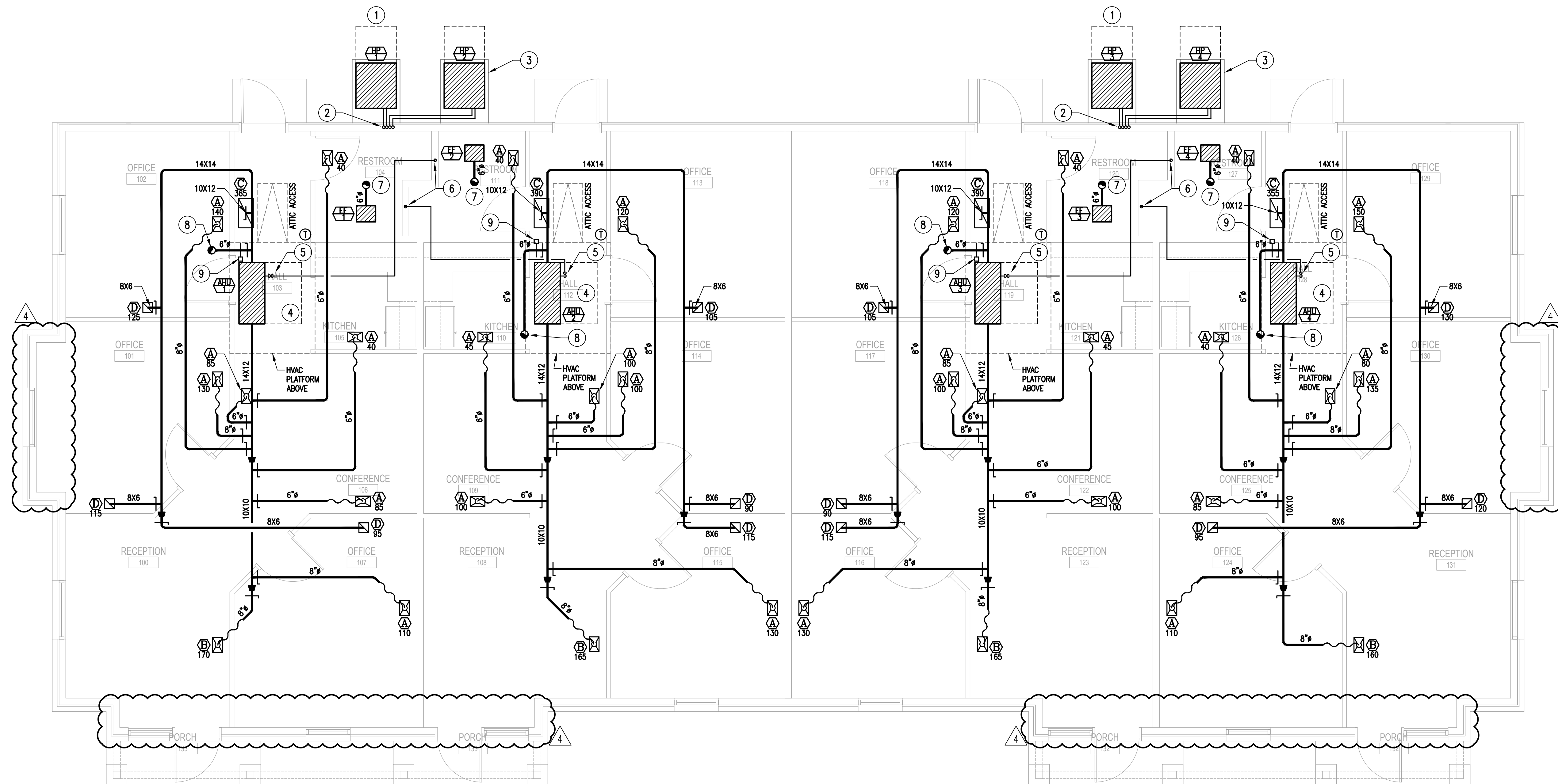
PROJECT NO: 17003

REVISIONS:


DRAWN BY: MF  
REVIEWED BY: PR

MECHANICAL LEGEND, NOTES AND SCHEDULE

**M1.0**



**BUILDING 3  
FLOOR PLAN - MECHANICAL**  
SCALE: 1/4" = 1'-0"

**ATTIC EQUIPMENT NOTE**

CONTRACTOR TO REVIEW AND ADHERE TO ALL CODE REQUIREMENTS FOR EQUIPMENT INSTALLATION IN ATTIC SPACE INCLUDING, BUT NOT LIMITED TO THE FOLLOWING ITEMS BEFORE ORDER/INSTALL:

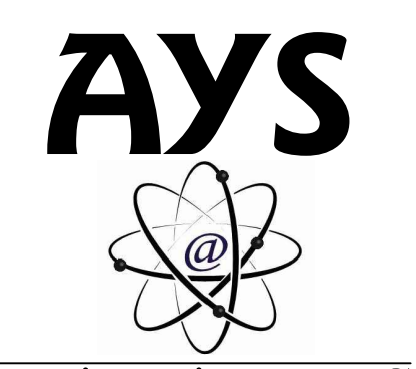
- ACCESS TO ATTIC EQUIPMENT SHALL BE PROVIDED THROUGH AN OPENING NOT LESS THAN THE LARGEST COMPONENT, AND NOT LESS THAN 22"x30".
- LENGTH OF THE PASSAGE WAY FROM ACCESS OPENING TO EQUIPMENT SHALL NOT EXCEED 20 FEET. WIDTH OF PASSAGE WAY SHALL BE A MINIMUM OF 24".
- A LEVEL WORKING PLATFORM NOT LESS THAN 30"x30" SHALL BE PROVIDED IN FRONT OF THE SERVICE SIDE OF THE EQUIPMENT.
- A PERMANENT 120-VOLT RECEPTACLE OUTLET AND A LIGHTING FIXTURE SHALL BE INSTALLED NEAR THE EQUIPMENT. THE LIGHTING SWITCH FOR THE FIXTURE SHALL BE LOCATED AT THE PASSAGEWAY ENTRANCE.

**GENERAL NOTES**

- MECHANICAL CONTRACTOR TO COORDINATE WITH EXISTING SYSTEMS AND ALL OTHER TRADES PRIOR TO INSTALLING NEW SYSTEMS.
- THESE PLANS ARE DIAGRAMMATIC IN NATURE. CONTRACTORS SHALL INCLUDE APPROPRIATE ALLOWANCES FOR OFFSETS, TRANSITIONS, FITTINGS, ETC. AS REQUIRED TO ACCOMMODATE VERTICAL AND HORIZONTAL VARIATIONS IN THE LOCATIONS AND ELEVATIONS OF DUCTWORK, PIPING AND EXISTING AND/OR OTHER TRADES CONDITIONS.
- PENETRATIONS OF WALLS OR FLOORS FOR THE PASSAGE OF PIPING, DUCTWORK, OR OTHER EQUIPMENT SHALL BE PROPERLY SEALED AFTER INSTALLATION OF EQUIPMENT. FIELD VERIFY EXISTING WALL PENETRATIONS AND PROPERLY SEAL AS REQUIRED TO MAINTAIN WALL OR FLOOR RATING.
- PROVIDE CODE AND MANUFACTURER-REQUIRED ACCESS TO ALL CONCEALED EQUIPMENT. COORDINATE LOCATION OF ACCESS PANELS WITH ARCHITECT.
- PROVIDE RECTANGULAR TO ROUND DUCT TRANSITIONS AS REQUIRED.
- ALL CONSTRUCTION DEBRIS SHALL BE DISPOSED OF BY THE CONTRACTOR UNLESS NOTED OTHERWISE.
- MECHANICAL CONTRACTOR TO COORDINATE WITH LIGHTING LAYOUT ON ELECTRICAL AND ARCHITECTURAL PLANS.
- ALL SUPPLY TAPS TO DIFFUSERS SHALL INCLUDE VOLUME DAMPERS IN DUCTWORK UNLESS OTHERWISE NOTED.
- ALL DUCT SIZES SHALL BE FIELD VERIFIED AND COORDINATED WITH OTHER TRADES (EG ELECTRICIAN, FIRE PROTECTION, STRUCTURAL, ETC) PRIOR TO ANY FABRICATION OR INSTALLATION OF DUCTWORK. CONTRACTOR MAY ALTER SIZES TO EQUIVALENT SIZES AND DENOTE ON AS-BUILT PLANS.
- EXISTING SYSTEMS INFORMATION SHOWN IS TAKEN FROM EXISTING DRAWINGS AND/OR FIELD OBSERVATIONS. THESE ARE NOT INTENDED TO REPRESENT EXACT EXISTING CONDITIONS. CONTRACTOR TO FIELD VERIFY PRIOR TO ANY WORK DONE OR EQUIPMENT ORDERED.

**KEYED NOTES**

- DASHED LINES REPRESENT SERVICE, ACCESS, AND MANUFACTURERS CLEARANCES. ELECTRICAL SERVICE CLEARANCE IS 30" PER NEC. CONTRACTOR TO CONFIRM AND MAINTAIN CLEARANCES WITH ACTUAL MANUFACTURER INTENDED FOR INSTALLATION PRIOR TO INSTALLING.
- ROUTE REFRIGERANT LINES FROM OUTDOOR CONDENSING UP IN EXTERIOR WALL TO ABOVE CEILING AND ROUTE TO MATCHING INDOOR UNIT. SEAL EXTERIOR WALL PENETRATION WATER AND AIR TIGHT.
- PROVIDE 4" CONCRETE PAD FOR CONDENSING UNITS. PAD TO EXTEND FROM BUILDING AND TO EXTEND BEYOND UNIT DIMENSIONS BY 3". CONTRACTOR TO COORDINATE WITH MANUFACTURER DIMENSIONS PRIOR TO POURING CONCRETE.
- DASHED LINES INDICATES 30" CLEARANCE FOR ACCESS AND MAINTENANCE. CONTRACTOR TO COORDINATE WITH ALL OTHER TRADES PRIOR TO INSTALL OR FABRICATION TO ENSURE AREA DENOTED IS CLEAR OF SYSTEMS AND CODE CLEARANCE IS MAINTAINED. IN ADDITION, CONTRACTOR TO MAINTAIN ANY OTHER MANUFACTURER RECOMMENDED CLEARANCES FOR ACCESS AND MAINTENANCE.
- ROUTE 3/4" CONDENSATE LINE FROM COOLING COIL OF EACH AIR HANDLING UNIT TO LOCATION SHOWN. PROVIDE P-TRAP DIRECTLY ADJACENT TO UNIT AND POSITION AS NOT TO OBSTRUCT REQUIRED ACCESS TO EQUIPMENT COMPONENTS.
- ROUTE 3/4" CONDENSATE DOWN IN WALL AND STUB OUT IN CONCEALED FASHION AND CONNECT TO LAVATORY TAILPIECE.
- PROVIDE ROOF CAP WITH INTEGRAL BACKDRAFT DAMPER AND BIRD SCREEN FOR EXHAUST. INSTALL A MINIMUM OF 10'-0" FROM ALL INTAKE VENTS.
- PROVIDE ROOF CAP WITH BIRD SCREEN FOR OUTSIDE AIR DUCT. INSTALL A MINIMUM OF 10'-0" FROM ALL EXHAUST VENTS.
- PROVIDE MOTORIZED VOLUME DAMPER (MVD) IN OUTSIDE AIR DUCT. MVD TO INTERLOCK WITH ASSOCIATED AIR HANDLER SUCH THAT MVD IS 100% OPEN WHEN FAN IS ENERGIZED AND MVD IS 100% CLOSED WHEN FAN IS DE-ENERGIZED.



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**STRUCTURAL ENGINEER:**

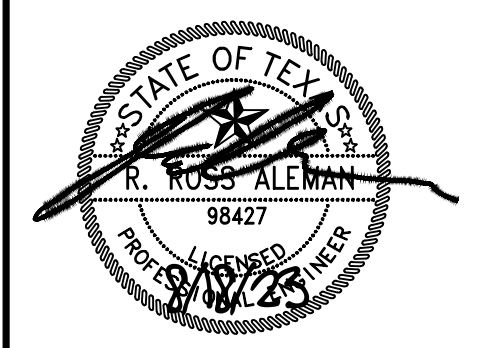
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PROJECT NO: 17003

REVISIONS:

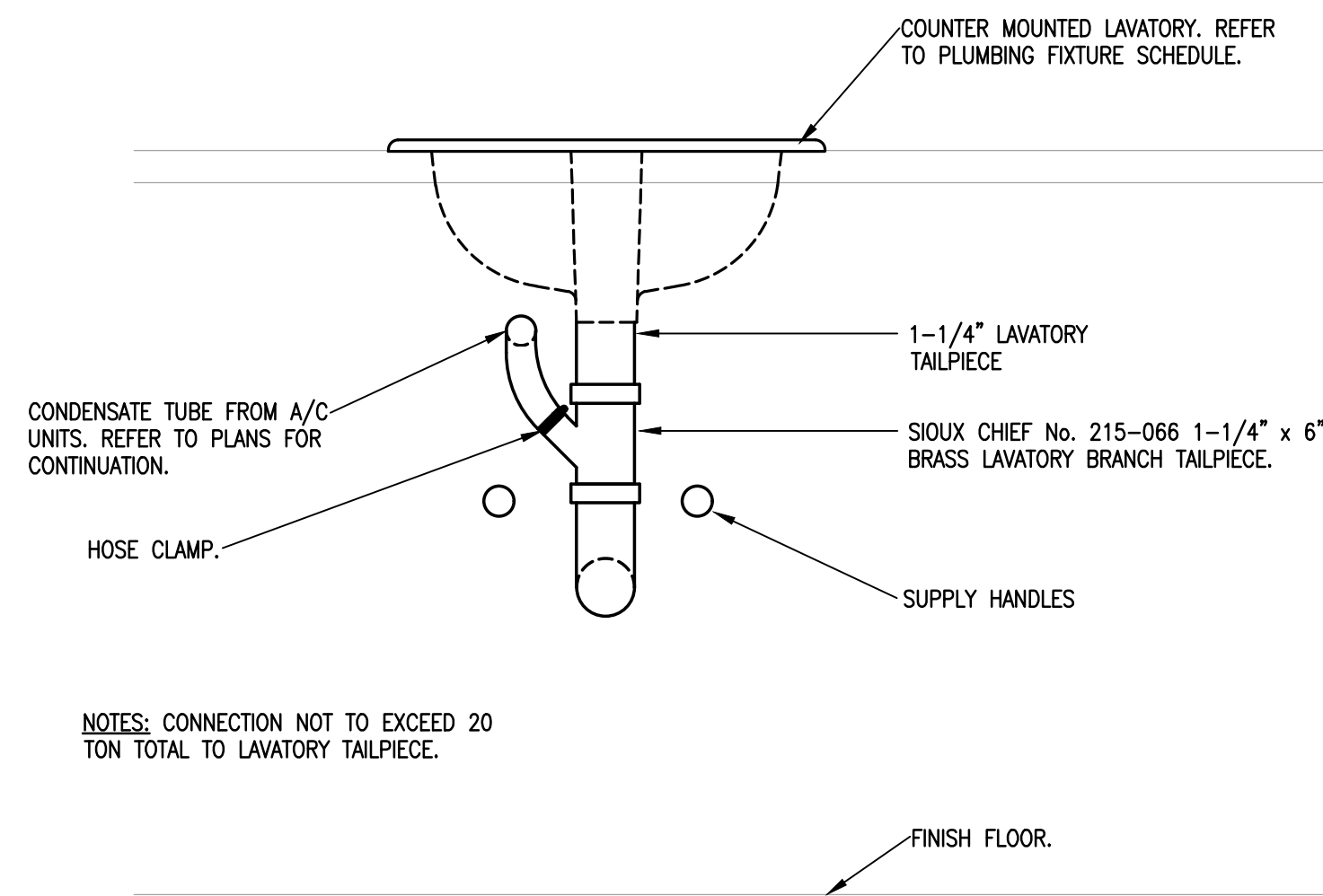
- 1 City Comments 4-21-2023
- 3 City Comments 5-9-2023
- 4 Site Development
- Revision 8-18-2023

DRAWN BY: MF  
REVIEWED BY: PR

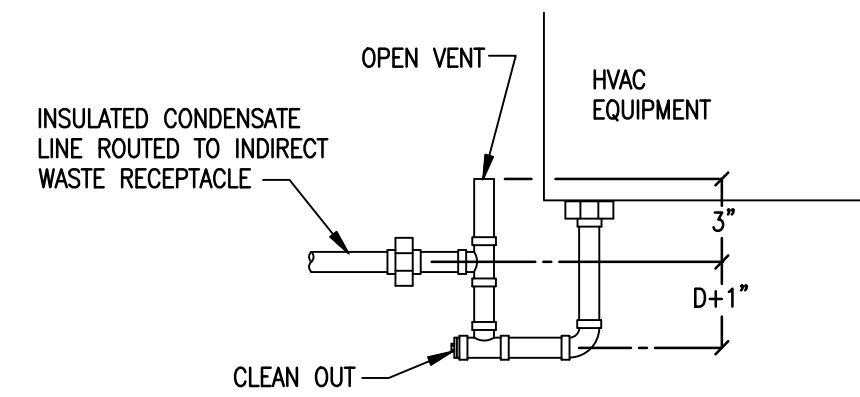
BUILDINGS 3 -  
FLOOR PLAN -  
MECHANICAL

**M2.0**

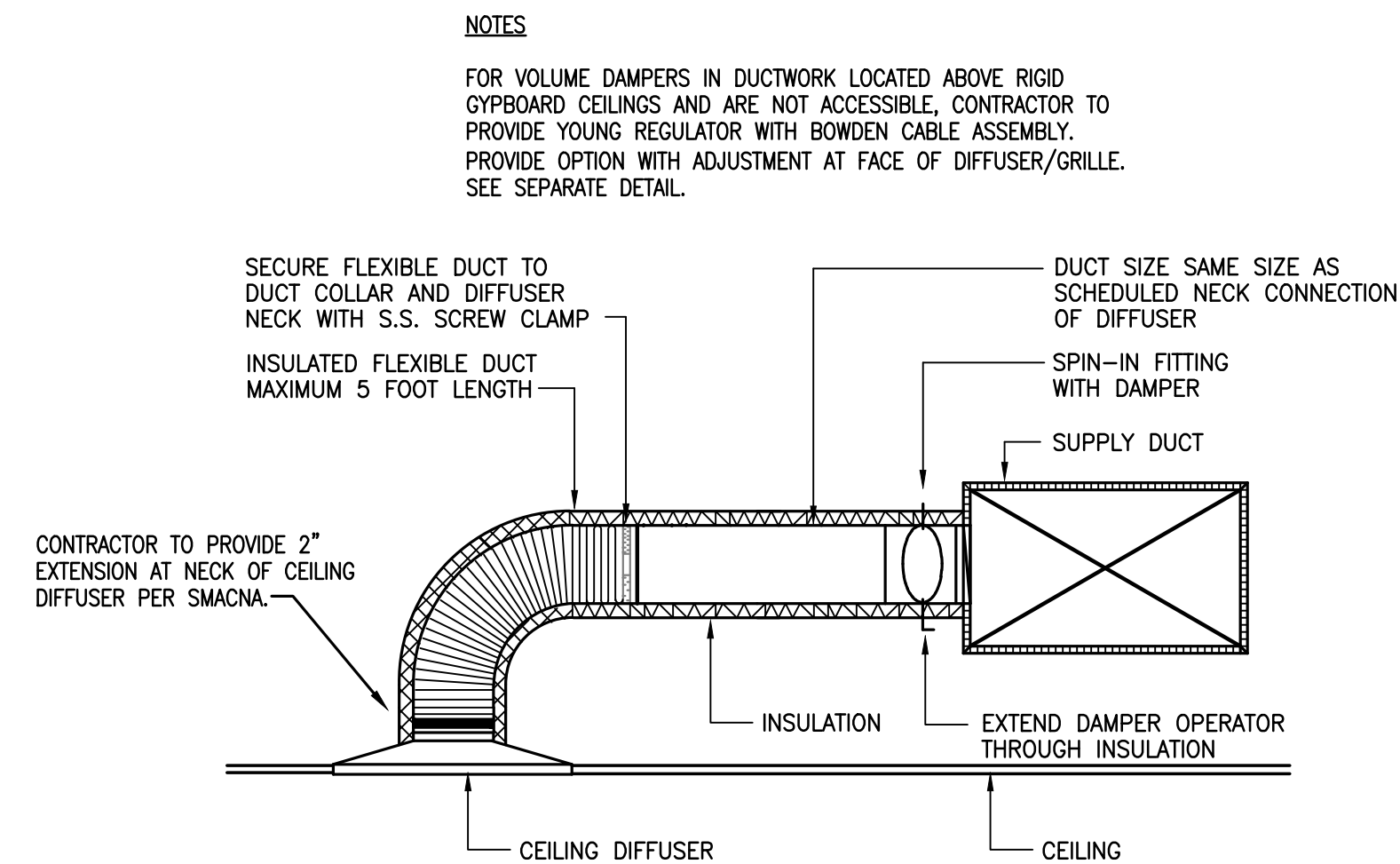
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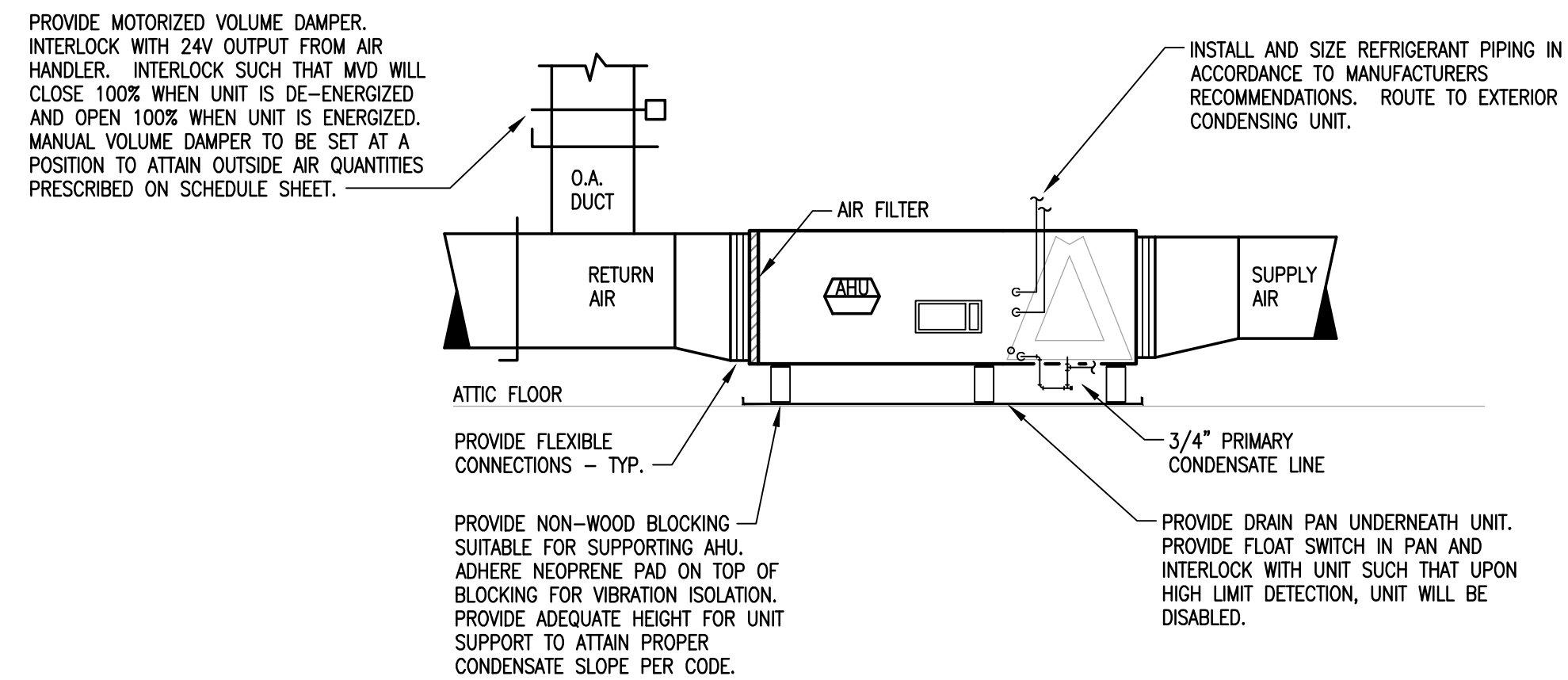
**1 CONDENSATE CONNECTION DETAIL**  
SCALE: NOT TO SCALE



**2 CONDENSATE TRAP DETAIL**  
SCALE: NOT TO SCALE



**3 DIFFUSER CONNECTION DETAIL**  
SCALE: NOT TO SCALE



**4 TYPICAL HORIZONTAL AHU DETAIL**  
SCALE: NOT TO SCALE

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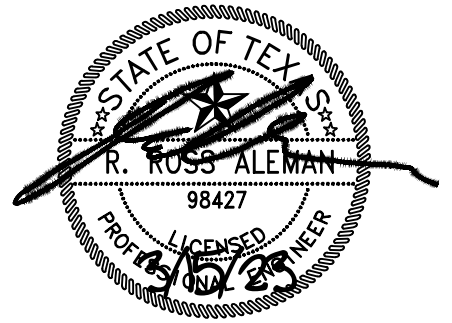
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PROJECT NO: 17003

REVISIONS:


DRAWN BY: MF  
REVIEWED BY: PR

MECHANICAL DETAILS

**M3.0**

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## GENERAL SPECIFICATIONS

- IT IS THE INTENT AND MEANING OF THE CONTRACT DOCUMENTS THAT THE CONTRACTOR SHALL PROVIDE A MECHANICAL INSTALLATION THAT IS COMPLETE WITH ALL ITEMS AND APPURTENANCES NECESSARY, REASONABLY INCIDENTAL, OR CUSTOMARILY INCLUDED, EVEN THOUGH EACH AND EVERY ITEM IS NOT DETAILED ON THE DRAWINGS OR SPECIFIED.
  - THESE PLANS ARE DIAGRAMMATIC IN NATURE, CONTRACTORS SHALL INCLUDE APPROPRIATE ALLOWANCES FOR OFFSETS AS REQUIRED TO ACCOMMODATE VERTICAL AND HORIZONTAL VARIATIONS IN THE LOCATIONS AND ELEVATIONS OF DUCTWORK AND TERMINAL DEVICES.
  - THE TERM "PROVIDE" IN THESE SPECIFICATIONS AND ON THE DRAWINGS MEANS; FURNISH, TRANSPORT, INSTALL, CONNECT, WARRANT AND START-UP, INCLUSIVELY.
  - THE TERM "COORDINATE" IN THESE SPECIFICATIONS AND ON THE PLANS MEANS THE CONTRACTOR SHALL CONTACT OTHERS AS IS REQUIRED TO ESTABLISH A MUTUAL UNDERSTANDING OF THE PROJECT REQUIREMENTS FOR AN ITEM AND THE RESPECTIVE COSTS FOR EACH PARTY IN ORDER TO PROVIDE A COMPLETE OPERATING PRODUCT OR LABOR FOR THIS PROJECT.
  - THE INSTALLATION OF ALL SYSTEMS SHALL BE MADE BY EXPERIENCED CRAFTSMEN IN A NEAT WORKMANLIKE MANNER. ALL MATERIALS, TOOLS, PERMITS AND INSPECTIONS AND ALL OTHER COSTS AND SERVICES NECESSARY TO PROVIDE ALL MECHANICAL AND ELECTRICAL ITEMS SHALL BE FURNISHED AND PAID FOR, IN FULL, BY THE CONTRACTOR.
- THE CONTRACTOR SHALL TAKE PROPER PRECAUTIONS TO PROTECT ANY EXISTING CONSTRUCTION AND ADJACENT PROPERTY, WITH WHICH WORK COMES IN CONTACT, AND OVER WHICH HE MAY TRANSPORT, HOIST OR MOVE MATERIALS, EQUIPMENT, DEBRIS, ETC., AND SHALL REPAIR SATISFACTORILY ALL DAMAGES CAUSED BY HIM DURING CONSTRUCTION.
- THE CONTRACTOR SHALL, AT NO COST TO THE OWNER, REPLACE WITH NEW MATERIALS AND/OR EQUIPMENT, ANY ITEMS FAILING TO GIVE SATISFACTORY SERVICE DURING A 1-YEAR WRITTEN LABOR AND MATERIALS WARRANTY PERIOD TO BE INCLUDED AS PART OF THIS WORK.
  - ALL WARRANTY CERTIFICATES ISSUED SHALL BE TRANSMITTED IN WRITING TO THE OWNER
- THE CONTRACTOR SHALL COORDINATE WITH AND NOTIFY THE OWNER'S REPRESENTATIVE FOR APPROVAL AND SCHEDULING OF ANY BUILDING SYSTEM INTERRUPTIONS OR WORK INVOLVING EXISTING AREAS. (INCLUDING NOISE, DUST, ETC.). THE CONTRACTOR SHALL RECOGNIZE ANY EXISTING BUILDING EQUIPMENT WARRANTIES PRIOR TO MODIFICATION OR CONNECTION TO SAME.
- ALL EQUIPMENT SHALL BE NEW, UNLESS NOTED OTHERWISE, AND INSTALLED IN ACCORDANCE WITH MANUFACTURER'S PUBLISHED RECOMMENDATIONS FOR THE SERVICE INTENDED. PROVIDE ONLY PRODUCTS BEARING UNDERWRITERS LABORATORIES (UL) LABEL AS APPLICABLE.
- CONTRACTOR SHALL OBTAIN APPROVAL FROM THE ENGINEER OF ALL MAJOR ITEMS OF EQUIPMENT PRIOR TO PLACING ORDERS. SHOULD THE CONTRACTOR SUPPLY EQUIPMENT DIFFERING FROM THE SCHEDULED OR SPECIFIED ITEMS IN THE CONTRACT DOCUMENTS WITHOUT NOTIFICATION TO THE ENGINEER, HE SHALL BEAR ALL COST TO REMEDY ANY DEFICIENCIES ARISING FROM SAME.
- PROVIDE TWO COPIES OF CLEARLY MARKED SUBMITTAL DATA ON THE FOLLOWING ITEMS AND SEND ONE COPY TO OWNER:
  - HVAC EQUIPMENT
  - DUCTWORK
  - INSULATION
  - GRILLES, REGISTERS, DIFFUSERS, AND LOUVERS
- MATERIALS, WORKMANSHIP, AND INSTALLATION METHODS SHALL COMPLY WITH THE CONTRACT DOCUMENTS AND ALL CURRENT APPLICABLE CODES AND STANDARDS. SHOULD THE CONTRACTOR PROVIDE ANY ITEM OR PERFORM ANY WORK THAT DOES NOT COMPLY WITH THE REQUIREMENTS OF CURRENT APPLICABLE CODES AND STANDARDS, HE SHALL BEAR ALL COSTS ARISING IN CORRECTING ANY DEFICIENCIES. CURRENT APPLICABLE CODES AND STANDARDS SHALL INCLUDE ALL ORDINANCES, UTILITY COMPANY REGULATIONS, FEDERAL REGULATIONS AND APPLICABLE REQUIREMENTS OF CITY AND NATIONALLY ACCEPTED CODES AND STANDARDS.
- THE CONTRACTOR SHALL VISIT THE PREMISES PRIOR TO BIDDING TO THOROUGHLY FAMILIARIZE HIMSELF WITH ALL DETAILS AND COORDINATE WITH ALL EXISTING CONDITIONS TO BE ENCOUNTERED BY ALL TRADES. HE SHALL VERIFY ALL CONDITIONS IN THE FIELD, INCLUDE ANY COSTS RELATED TO SAME IN HIS BID, AND SHALL NOTE IN WRITING, ANY EXCEPTIONS TAKEN WHEN BIDDING THE WORK.
- THE CONTRACTOR SHALL NOTE THE WORKING CONDITION OF ALL EXISTING EQUIPMENT TO BE REUSED AND NOTIFY THE ENGINEER OF ANY DAMAGED OR MALFUNCTIONING EQUIPMENT PRIOR TO THE START OF CONSTRUCTION.
- VERIFY ALL MEASUREMENTS. NO EXTRA COMPENSATION WILL BE ALLOWED BECAUSE OF DIFFERENCES BETWEEN WORK SHOWN ON THE DRAWINGS AND ACTUAL MEASUREMENTS AT THE SITE OF CONSTRUCTION. DO NOT SCALE THE DRAWINGS.
- EQUIPMENT SUBSTITUTIONS TO THE NAMED SPECIFIED PRODUCTS MAY BE PROPOSED BY THE CONTRACTOR. HOWEVER, THE CONTRACTOR SHALL BASE HIS BID ON THE NAMED ITEMS. THE CONTRACTOR SHALL DEMONSTRATE TO THE SATISFACTION OF THE ENGINEER THAT THE QUALITY, CAPACITY AND SUITABILITY OF THE PROPOSED ITEM EQUALS OR EXCEEDS THAT OF THE NAMED ITEM.
- SUBSTITUTIONS ACCEPTED BY THE ENGINEER ARE REVIEWED FOR OVERALL COMPLIANCE WITH THE DESIGN INTENT. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO COORDINATE EQUIPMENT SUBSTITUTIONS FOR THE SCHEDULED OR SPECIFIED ITEM WITH ALL OTHER TRADES. COMPENSATION TO OTHER TRADES DUE TO CHANGES IN RATED VOLTAGE, PHASE, PHYSICAL SIZE, ARRANGEMENTS, SHAPE, COLOR AND ALL OTHER CHARACTERISTICS AND THEIR RELATED EFFECTS ARISING FROM EQUIPMENT SUBSTITUTIONS IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR MAKING THE CHANGE.
- IN THE CASE WHERE TWO OR MORE TRADES OR CONTRACTORS ARE INVOLVED IN THE INSTALLATION OF ANY ITEM, ALL SUCH PERSONS SHALL BE RESPONSIBLE FOR COORDINATING THEIR WORK AMONG THEMSELVES TO PROVIDE A FULLY COMPLETED, FUNCTIONING INSTALLATION.
- WHETHER ITEMS SPECIFIED OR NOTED ARE DESCRIBED AS SINGULAR OR PLURAL SHALL NOT ALTER THE REQUIREMENT THAT SUFFICIENT QUANTITIES OF THE ITEM ARE TO BE PROVIDED IN ORDER TO RESULT IN A COMPLETE INSTALLATION AND PROJECT.
- THE DRAWINGS ARE DIAGRAMMATIC, BUT ARE REQUIRED TO BE FOLLOWED AS CLOSELY AS ACTUAL CONSTRUCTION AND WORK OF OTHER TRADES WILL PERMIT. DATA INDICATED ON THE DRAWINGS AND IN THESE SPECIFICATIONS ARE AS EXACT AS COULD BE SECURED, BUT THEIR ABSOLUTE ACCURACY IS NOT WARRANTED. PIPING ARRANGEMENTS, AND MECHANICAL AND PLUMBING COMPONENT LOCATIONS AND THE LIKE HAVE BEEN DESIGNED FOR ECONOMY CONSISTENT WITH GOOD PRACTICE AND OTHER CONSIDERATIONS.
- MAJOR CHANGES TO THE SYSTEMS ARRANGED AS SHOWN ON THE DRAWINGS, IF ACCEPTED, MUST BE APPROVED IN WRITING BY THE ENGINEER, PRIOR TO PROCEEDING. ALL SUCH CHANGES SHALL BE INCORPORATED INTO THE "AS BUILT" DRAWINGS AS SPECIFIED.
- FILTRATION DURING CONSTRUCTION
  - PROVIDE PRE-MEDIA FILTER ON THE AIR HANDLER UNIT SERVICING THE CONSTRUCTION SPACE, SUCH THAT CONSTRUCTION DUST IS CONTAINED AND NOT TRANSFERRED THROUGH UNIT OR INTO OTHER SPACE.
  - IF EQUIPMENT IS TURNED DISABLED DURING CONSTRUCTION, THEN CONTRACTOR TO PROTECT ALL INLETS, OUTLETS, DUCTWORK, ETC COMPLETE SUCH THAT NO CONSTRUCTION DUST OR CONTAMINATION ENTERS THE HVAC SYSTEMS.

C. UPON COMPLETION OF CONSTRUCTION, CONTRACTOR TO PROVIDE NEW FILTERS IN ALL EQUIPMENT AND PROVIDE 2 SETS OF SPARE FILTERS FOR EACH SYSTEM. PROVIDE TO OWNER AND STORE IN DESIGNATION ALLOCATED BY OWNER.

D. DO NOT RUN AIR HANDLERS OR EXHAUST FANS UNTIL ALL INTERIOR CLEANING AND PAINTING IS COMPLETE. THE CLEANING OF FOULED COILS OR FAN ASSEMBLIES DUE TO PAINT OR CONSTRUCTION DEBRIS WILL BE THE RESPONSIBILITY OF THE HVAC CONTRACTOR.

### 19. TESTING AND INSPECTION:

A. PROVIDE PERSONNEL AND EQUIPMENT, MAKE REQUIRED TESTS, AND SECURE REQUIRED APPROVALS FROM THE ENGINEER AND GOVERNMENTAL AGENCIES HAVING JURISDICTION.

B. MAKE WRITTEN NOTICE TO THE ARCHITECT/ENGINEER ADEQUATELY IN ADVANCE OF EACH OF THESE:

- WHEN ROUGH-INS ARE COMPLETE, BUT NOT COVERED.
- AT SUBSTANTIAL COMPLETION OF THE WORK.

C. WHEN MATERIAL AND/OR WORKMANSHIP IS FOUND TO NOT COMPLY WITH THE SPECIFIED REQUIREMENTS: WITHIN THREE DAYS AFTER RECEIPT OF NOTICE OF SUCH NON-COMPLIANCE, REMOVE THE NON-COMPLYING ITEMS FROM THE JOB SITE AND REPLACE THEM WITH ITEMS COMPLYING WITH THE SPECIFIED REQUIREMENTS, ALL AT NO ADDITIONAL COST TO THE OWNER.

### 19. UPON COMPLETION OF THE WORK:

A. THOROUGHLY CLEAN ALL EXPOSED PORTIONS OF THE MECHANICAL AND PLUMBING EQUIPMENT PROVIDED AND THE GENERAL AREA WHERE WORK WAS PERFORMED. REMOVE ALL TRACES OF SOIL, LABELS, GREASE, OIL, AND OTHER FOREIGN MATERIAL USING ONLY THE TYPE CLEANER RECOMMENDED BY THE MANUFACTURER OF ANY ITEM BEING CLEANED.

B. PROVIDE MANUFACTURERS' OPERATING AND MAINTENANCE INSTRUCTIONS TO THE OWNER'S REPRESENTATIVE FOR ALL MAJOR MECHANICAL AND PLUMBING EQUIPMENT PROVIDED.

C. PROVIDE (2) HOURS OF FORMAL TRAINING FOR KITCHEN HOOD AND FAN SYSTEM(S) OPERATION TO OWNER'S MAINTENANCE PERSONNEL IN ORDER TO FAMILIARIZE THEM WITH THE SYSTEM OPERATION AND REQUIRED PERIODIC MAINTENANCE.

D. DOCUMENTATION OF ANY TEST AND THE "AS-BUILT" RECORD DRAWINGS SHALL BE PROVIDED TO THE BUILDING OWNER UPON COMPLETION.

20. CONTRACTOR SHALL DESIGNATE ONE PERSON TO SERVE AS SOLE POINT OF COMMUNICATION WITH OWNER OR ENGINEER.

21. WORK AMONG ALL TRADES SHALL BE FULLY COORDINATED AS REQUIRED IN THE FIELD TO AVOID SPACE CONFLICTS AND INTERRUPTION OF THE FLOW OF WORK.

22. IN THE EVENT THAT ANY ITEM PROVIDED UNDER THIS CONTRACT IS DAMAGED PRIOR TO FINAL ACCEPTANCE THE CONTRACTOR SHALL REPLACE, NOT REPAIR, THE ITEM WITH NEW. IF AN EXISTING ITEM IS DAMAGED DURING THE CONSTRUCTION, THE CONTRACTOR SHALL RESTORE THE ITEM TO NEAR ORIGINAL CONDITION AND PRIOR OPERATING CONDITION TO THE SATISFACTION OF THE OWNER'S REPRESENTATIVE.

23. CONTRACTOR SHALL PROVIDE ALL DIMENSIONS FOR BLOCK OUTS, SLEEVES, ETC., AND THE DIMENSIONED LOCATIONS OF SAME.

24. UNLESS DETAILED OTHERWISE MAINTAIN A MINIMUM CLEARANCE FOR LIGHTS OF 7" ABOVE FINISHED CEILING AND 1" MINIMUM BELOW ALL DUCTS, PIPES, CONDUIT OR ANY OTHER EQUIPMENT IN THE CEILING SPACE. PROVIDE MANUFACTURER'S RECOMMENDED SERVICE ACCESS CLEARANCE AT ALL EQUIPMENT.

25. PROVIDE ALL MATERIALS REQUIRED FOR THE SUPPORT OF SUCH ITEMS AS PIPING, DUCTS, EQUIPMENT AND SIMILAR ITEMS. THIS SHALL INCLUDE RODS, ANGLES, ETC., TO PROPERLY SUPPORT ALL ITEMS IN A PROPER AND SAFE MANNER. ALL HANGERS SHALL BE VERTICAL AND PLUMB.

26. SUITABLE FLASHINGS AND THEIR WATERTIGHT SEALING FOR OPENINGS IN THE BUILDING WALLS OR ROOF SHALL BE PROVIDED BY THE CONTRACTOR PROVIDING THE PENETRATING ITEM. THE INSTALLATION OF THE FLASHING AND ITS WATERTIGHT INTEGRITY SHALL BE COORDINATED WITH THE GENERAL CONTRACTOR OR ENGINEER. FLASHINGS FOR PENETRATIONS MAY ALSO BE PROVIDED ENTIRELY BY THE GENERAL CONTRACTOR. ALSO, REFER TO THE ARCHITECT'S SPECIFICATIONS TO COORDINATE THE COMPLETENESS OF THIS ITEM.

27. PROPERLY SUPPORT ALL EQUIPMENT AND PIPING WITHIN THE BUILDING AND PROVIDE ADEQUATE PROVISIONS FOR SLOPE AND ANCHORAGE. CONTRACTOR SHALL USE AND VERTICALLY ALIGN HANGERS AND RODS. INSERTS ETC. SHALL BE LISTED BY UNDERWRITERS' LABORATORIES FOR THE SERVICE INTENDED. THE USE OF PERFORATED STRAP AS HANGERS IS PROHIBITED.

28. SECURELY SUPPORT ALL EQUIPMENT FROM STRUCTURAL MEMBERS PROVIDED AS NEEDED, WHICH IN TURN ARE TO BE SUPPORTED DIRECTLY FROM THE BUILDING STRUCTURE. ALL HANGERS SHALL HAVE A MINIMUM FACTOR OF SAFETY OF 5. ALL PIPING SHALL BE SUPPORTED AT PROPER INTERVALS WITH ONE HANGER OR SUPPORT WITHIN 12" OF EITHER SIDE OF EACH TURN.

29. IN THE EVENT OF A CONFLICT WITHIN THE DRAWINGS AND/OR SPECIFICATIONS, PROVIDE THE GREATER QUANTITY OR HIGHER QUALITY.

30. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ALL CONTROLS THAT WILL COMPLETELY ACCOMPLISH THE IMPLIED OR INTENDED FUNCTIONS OF THE CONTROL SYSTEM AS SHOWN OR SPECIFIED.

31. CONTRACTOR SHALL RETAIN ALL PERMITS REQUIRED TO PERFORM WORK IN SCOPE AT NO ADDITIONAL COST TO THE OWNER.

## MECHANICAL SPECIFICATIONS

WORK INCLUDES BUT IS NOT NECESSARILY LIMITED TO:

- AIR HANDLING UNITS
- HEAT PUMP CONDENSING UNIT
- FANS
- GRILLES, REGISTERS, DIFFUSERS, AND LOUVERS

ALL MECHANICAL EQUIPMENT SHALL BE OF THE BRAND, CAPACITY AND QUALITY AS SCHEDULED. SUBSTITUTIONS MUST BE APPROVED IN WRITING PRIOR TO BIDDING. ANY REQUESTED SUBSTITUTION MUST BE ACCOMPANIED BY A SIDE BY SIDE COMPARISON OF THE BASIS OF DESIGN AND THE PROPOSED SUBSTITUTION. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO SHOW HOW THE PROPOSED SUBSTITUTION IS EQUAL TO THE BASIS OF DESIGN IN ORDER TO BE CONSIDERED.

INSTALL ALL EQUIPMENT AS RECOMMENDED BY EACH MANUFACTURER. PROVIDE EQUIPMENT OF THE TYPE, CAPACITY AND QUALITY AS SCHEDULED OR APPROVED EQUAL WITH THE FOLLOWING FEATURES.

## AIR HANDLERS

IN ADDITION TO THE BASIS OF DESIGN LISTED IN THE EQUIPMENT SCHEDULES, THE FOLLOWING MANUFACTURERS ARE CONSIDERED ACCEPTABLE SUBSTITUTES: CARRIER, JCI (YORK), DAIKIN OR EQUAL.

A. THE INDOOR UNIT MANUFACTURER SHALL MATCH THE OUTDOOR UNIT MANUFACTURER.

B. THE UNIT SHALL BE PERMANENTLY LABELED WITH THE AREA OR SPACE THAT IT SERVES. THE UNIT SHALL ALSO BE LABELED WITH THE MARK THAT IT IS IDENTIFIED BY IN THE CONSTRUCTION DRAWINGS AND SCHEDULES.

C. THE EQUIPMENT INSTALLER SHALL LEAVE THE EQUIPMENT MANUFACTURERS INSTALLATION AND OPERATING INSTRUCTIONS ATTACHED TO THE UNIT.

D. BLOWER COIL UNITS SHALL BE COMPLETELY FACTORY ASSEMBLED INCLUDING COIL, CONDENSATE DRAIN PAN, FAN, MOTOR, FILTERS AND CONTROLS IN AN INSULATED CASING THAT CAN BE APPLIED IN HORIZONTAL OR VERTICAL CONFIGURATION. PROVIDE "AIR-TITE" MODEL WITH 4.2 "R" VALUE INSULATION AND ADDITIONAL SEALING SYSTEMS.

E. UNITS SHALL BE UL LISTED.

F. UNITS SHALL HAVE A RUGGED SHEET METAL AND STEEL FRAME CONSTRUCTION AND SHALL BE PAINTED WITH ENAMEL FINISH. CASING SHALL BE INSULATED AND KNOCKOUTS FOR ELECTRICAL POWER AND CONTROL WIRING.

G. ALUMINUM FIN SURFACE SHALL BE MECHANICALLY BONDED TO 3/8 INCH OD COPPER TUBING. COILS ARE FACTORY PRESSURE AND LEAK TESTED.

H. FORWARD CURVED, DYNAMICALLY BALANCED AND STATICALLY BALANCED WITH 3-SPEED DIRECT DRIVE SHALL BE STANDARD, FAN MOTOR SHALL BE PREMIUM EFFICIENCY AND BEARINGS PERMANENTLY LUBRICATED.

I. LOW VOLTAGE TERMINAL BOARD, FAN CONTACTOR, AND PLUG IN MODULE FOR ACCESSORY HEAT CONTROL SHALL BE INCLUDED.

J. FILTERS SHALL BE INCLUDED AS STANDARD, ONE INCH LOW VELOCITY SEMI-PERMANENT TYPE.

E. IF AIR HANDLING UNITS DO NOT INCLUDE BUILT-IN FILTER FRAMES, THEN MANUFACTURED FILTER BASE/RACK SHALL BE PROVIDED.

F. HEATERS SHALL FIT INSIDE THE INTERNAL COMPARTMENT.

G. MAINTAIN OPERATING, INSTALLATION AND MAINTENANCE CLEARANCES AS RECOMMENDED BY THE EQUIPMENT MANUFACTURER, UNLESS OTHERWISE NOTED.

H. REFERENCE CONSTRUCTION DRAWINGS, SCHEDULES AND DETAILS FOR ADDITIONAL INSTALLATION REQUIREMENTS AND/OR OPTIONAL EQUIPMENT SPECIFICATIONS AND MODIFICATIONS.

## HEAT PUMP CONDENSING UNITS

IN ADDITION TO THE BASIS OF DESIGN LISTED IN THE EQUIPMENT SCHEDULES, THE FOLLOWING MANUFACTURERS ARE CONSIDERED ACCEPTABLE SUBSTITUTES: CARRIER, JCI (YORK), DAIKIN OR EQUAL.

A. THE OUTDOOR UNIT MANUFACTURER SHALL MATCH THE INDOOR UNIT MANUFACTURER.

B. THE UNIT SHALL BE PERMANENTLY LABELED WITH THE AREA OR SPACE THAT IT SERVES. THE UNIT SHALL ALSO BE LABELED WITH THE MARK THAT IT IS IDENTIFIED BY IN THE CONSTRUCTION DRAWINGS AND SCHEDULES.

C. SELF-CONTAINED, PACKAGED, FACTORY ASSEMBLED AND PRE-WIRED UNITS FOR OUTDOOR USE CONSISTING OF CABINET, COMPRESSORS, CONDENSING COIL AND FANS, INTEGRAL SUB-COOLING COIL, CONTROLS, AND LIQUID RECEIVER.

D. CABINET SHALL BE GALVANIZED STEEL WITH BAKED ENAMEL FINISH AND REMOVABLE ACCESS DOORS OR PANELS WITH QUICK FASTENERS. PROVIDE MANUFACTURER'S STANDARD HALL GUARDS.

E. CONDENSER SHALL INCLUDE THE FOLLOWING: COIL WITH SEAMLESS COPPER TUBING WITH ALUMINUM FINS. FAN WITH VERTICAL DISCHARGE, DIRECT DRIVE AXIAL FANS, RESILIENTLY MOUNTED WITH GUARD AND MOTOR. PERMANENTLY LUBRICATED BALL BEARING MOTORS WITH BUILT-IN CURRENT AND OVERLOAD PROTECTION.

F. CONTROLS SHALL INCLUDE THE FOLLOWING: HIGH AND LOW PRESSURE CUTOUTS FOR COMPRESSOR, OIL PRESSURE CONTROL, NON-RECYCLING PUMP-DOWN, AND RESET RELAY. LOW AMBIENT CONTROLS TO PERMIT OPERATION DOWN TO 30 DEG. F. AMBIENT TEMPERATURE. TIMER CIRCUITS TO PREVENT RAPID LOADING AND UNLOADING OF COMPRESSOR.

G. MAINTAIN OPERATING, INSTALLATION AND MAINTENANCE CLEARANCES AS RECOMMENDED BY THE EQUIPMENT MANUFACTURER, UNLESS OTHERWISE NOTED.

H. REFERENCE CONSTRUCTION DRAWINGS, SCHEDULES AND DETAILS FOR ADDITIONAL INSTALLATION REQUIREMENTS AND/OR OPTIONAL EQUIPMENT SPECIFICATIONS AND MODIFICATIONS.

## EXHAUST FANS

IN ADDITION TO THE BASIS OF DESIGN LISTED IN THE EQUIPMENT SCHEDULES, THE FOLLOWING MANUFACTURERS ARE CONSIDERED ACCEPTABLE SUBSTITUTES: GREENHECK

A. ALL FANS SHALL CARRY THE CERTIFIED RATING SEAL AUTHORIZED BY AMCA.

B. CEILING MOUNTED EXHAUST FANS SHALL BE DIRECT DRIVEN, CEILING MOUNTED, CENTRIFUGAL EXHAUST FAN. FAN WHEEL HOUSING AND INTEGRAL OUTLET DUCT COLLAR SHALL BE INJECTION MOLDED RESIN THAT MEETS UL REQUIREMENTS FOR SMOKE AND HEAT GENERATION. OUTLET SHALL HAVE INTEGRAL BACKDRAFT DAMPER; INLET BOX SHALL BE MINIMUM 22 GAUGE GALVANIZED STEEL. GRILLE SHALL BE A WHITE, HIGH IMPACT STYRENE INJECTION MOLDED GRILLE. WHEEL SHALL BE CENTRIFUGAL FORWARD CURVED TYPE, INJECTION MOLDED RESIN. WHEEL SHALL BE BALANCED IN ACCORDANCE WITH AMCA STANDARD 205-05. MOTOR SHALL BE PERMANENT SPLIT CAPACITOR WITH PERMANENTLY LUBRICATED SEALED BEARINGS AND INCLUDE IMPEDANCE OR THERMAL OVERLOAD PROTECTION AND DISCONNECT PLUG.

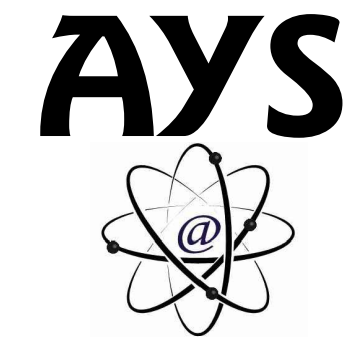
## DUCTWORK

### GENERAL REQUIREMENTS

A. PROVIDE VIBRATION ISOLATION FOR MOTOR-DRIVEN MECHANICAL EQUIPMENT PER MANUFACTURER'S RECOMMENDATIONS AND AS SHOWN.

B. PROVIDE FLEXIBLE DUCTWORK CONNECTIONS AT INLET AND OUTLET OF EQUIPMENT.

C. DUCT SYSTEMS SHALL COMPLY WITH ALL APPLICABLE REQUIREMENTS OF NFPA 90A AND 90B.



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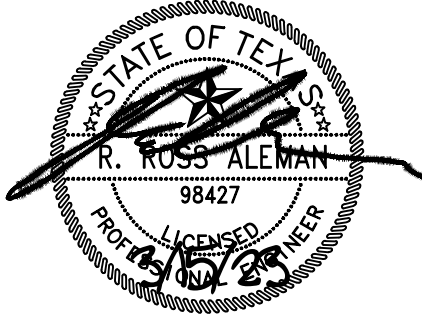
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DATE: MAR 15, 2023

## CONSTRUCTION DOCUMENTS HEATHERWILDE OFFICE CONDOS BLDG 3

201 N. HEATHERWILDE BLVD.  
PFLUGERVILLE, TX 78660

PROJECT NO: 17003

### REVISIONS:

DRAWN BY: MF  
REVIEWED BY: PR

## MECHANICAL SPECIFICATIONS

# M4.0

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D. DUCT SIZES SHOWN ARE AIRSTREAM DIMENSIONS.

SHEETMETAL – SUPPLY, RETURN, OUTSIDE AIR AND EXHAUST

A. DUCTWORK SHALL BE SHEET METAL CONSTRUCTED AND SEALED ACCORDING TO SMACNA STANDARDS FOR 2.5" W.C. POSITIVE AND NEGATIVE PRESSURE. FLEXIBLE DUCT MAY BE USED ONLY AS DETAILED ON THE DRAWINGS. REFER TO DUCTWORK LEGEND AND DUCT DETAILS ON DRAWINGS FOR DUCTWORK, FITTINGS, VANES, DAMPERS, ETC.

FLEXIBLE DUCTWORK

A. FLEXIBLE DUCT SHALL HAVE 1" THICK INSULATION WITH FOIL JACKET AND VAPOR BARRIER LINER. DUCT SHALL MEET CLASS I, UL-181, AND 25/50 FIRE RATING REQUIREMENTS.

B. USE OF FLEXIBLE DUCT IS LIMITED TO A MAXIMUM OF 5 FEET IN LENGTH AND ONLY IN AREAS DETAILED ON THE MECHANICAL DRAWINGS.

DUCTWORK ACCESSORIES

A. SPLITTERS: PROVIDE ADJUSTABLE, GALVANIZED SPLITTER DAMPERS PIVOTED AT THE DOWNSTREAM END WITH APPROPRIATE CONTROL DEVICE AT EACH SUPPLY DUCT SPLIT, IN ACCORDANCE WITH SMACNA DUCT MANUAL. PROVIDE A SPLITTER FOR EACH DUCT BRANCH TO TWO OR MORE OUTLETS.

B. EXTRACTORS: PROVIDE TITUS AC225 OR EQUAL EXTRACTORS WITH AN APPROPRIATE CONTROL DEVICE AT EACH RECTANGULAR ZONE OR BRANCH SUPPLY DUCT CONNECTION IN ACCORDANCE WITH SMACNA DUCT MANUAL.

C. VOLUME DAMPERS: PROVIDE OPPOSED BLADE VOLUME DAMPERS WITH AN APPROPRIATE CONTROL DEVICE IN EACH RETURN AIR, OUTSIDE AIR AND EXHAUST BRANCH DUCT, IN EXHAUST CONNECTIONS TO HOODS OR EQUIPMENT, IN EACH ZONE AT MULTIZONE UNIT DISCHARGE, AND WHERE OTHERWISE INDICATED, IN ACCORDANCE WITH SMACNA DUCT MANUAL. MANUAL BALANCING DAMPER TO BE 16-GAUGE GALVANIZED STEEL REINFORCED BLADES, 20-GAUGE FRAME, MANUAL HAND QUADRANT WITH STANDOFF FOR EXTERNALLY INSULATED DUCTWORK, SYNTHETIC SLEEVE. DAMPERS SUITABLE FOR SERVICE TO 4" W.C. FOR 12" WIDTH, 3" W.C. FOR 24" WIDTH, 2" W.C. FOR 36" WIDTH, 2" W.C. FOR 48" WIDTH AND RATED FOR 2000 FPM.

D. MANUAL LOW-LEAKAGE VOLUME DAMPERS SHALL BE ULTRA LOW-LEAKAGE DAMPER, RATED FOR 6 CFM PER S.F. AT 4" W.C. AND RATED FOR UP TO 4000 FPM AND UP TO 8" W.C. FRAME TO BE 16-GAUGE GALVANIZED, BLADES TO BE 14-GAUGE AIRFOIL. SEALS TO BE SILICONE-RUBBER FOR BLADES AND FLEXIBLE METAL COMPRESSION JAMB SEALS. BEARINGS TO BE SYNTHETIC TYPE. MAXIMUM BLADE HEIGHT IS 6". PROVIDE WITH MANUAL HAND QUADRANT WITH 1 1/2" STANDOFF.

DUCT SUPPORTS

A. HORIZONTAL DUCTS UP TO 40 INCH. SUPPORT HORIZONTAL DUCTS UP TO AND INCLUDING 40 INCHES IN THEIR GREATER DIMENSION BY MEANS OF NO. 22 U.S. GAGE BAND IRON HANGERS ATTACHED TO THE DUCTS BY MEANS OF SCREWS, RIVETS OR CLAMPS, AND FASTENED TO INSERTS WITH TOGGLE BOLTS, BEAM CLAMPS OR OTHER APPROVED MEANS. PLACE SUPPORTS ON AT LEAST 8'-0" CENTERS. USE CLAMPS TO FASTEN HANGERS TO REINFORCING ON SEALED DUCTS.

B. EXPOSED HORIZONTAL SPIRAL SUPPLY DUCTS. SUPPORT BY MEANS OF 1-INCH NO. 8 GAUGE STEEL BAND AROUND DUCT AT 6 FEET ON CENTER. BAND TO BE ATTACHED WITH ALL THREAD ROD AND CONNECTED TO BEAMS ABOVE WITH A BEAM-CLAMP. ALL DEVICES SIMILAR TO PRODUCTS BY SPIRAL MANUFACTURING, INC.

DUCTWORK INSULATION

	EXTERNAL WRAP	LINER
SUPPLY, RETURN, OUTSIDE AIR . . .	X (A)	

A. EXTERNAL DUCT WRAP SHALL BE 2" FOIL FACED EXTERNAL INSULATION (INSTALLED R VALUE = 6.0) SEAL ALL EXTERNAL WRAP INSULATION SEAMS VAPOR TIGHT WITH FOIL TAPE OR MASTIC.

**BALANCING**

A. QUALIFICATIONS: THE AIR BALANCING SHALL BE DONE BY AN INDEPENDENT AABC OR NEBB CERTIFIED FIRM AT THE COST OF THE GENERAL CONTRACTOR.

B. FLOW BALANCING OF ALL SYSTEMS PROVIDED SHALL BE INCLUDED UNDER THIS CONTRACT. BALANCE AIR FLOW AT ALL AIR DEVICES TO +/- 10% OF VALUE SHOWN ON DRAWINGS. PROVIDE WRITTEN BALANCE REPORT SHOWING INDIVIDUAL GRILLE FLOWS AND SYSTEM FAN PERFORMANCE FOR VOLTAGE, AMPERAGE DRAW AND EXTERNAL STATIC PRESSURE.

C. EXECUTION.

a. PRIOR TO COMMENCING WITH THE BALANCING WORK THE BALANCING SUBCONTRACTOR SHALL INSPECT THE DUCTWORK INSTALLATION TO DETERMINE IF ALL REQUIRED BALANCING DAMPERS AND ACCESS DOORS/PANELS HAVE BEEN INSTALLED. DO NOT USE OUTLET OBD FOR BALANCING.

b. BALANCE ALL FANS TO WITHIN +10%/-5% OF DESIGN. REPLACE FAN DRIVE IF REQUIRED TO OBTAIN THE DESIGN CAPACITY. BALANCE OUTLETS AS FOLLOWS: SMALL AREAS WITH 1 OR 2 OUTLETS: +/-5% OF DESIGN LARGE AREAS WITH 3 OR MORE OUTLETS: +/-10% OF DESIGN. REPORT IN WRITING ALL DEFICIENCIES AND PROBLEMS DISCOVERED TO THE FOLLOWING PRIOR TO COMPLETING THE BALANCING WORK.

1. ENGINEER  
2. GENERAL CONTRACTOR  
3. THE HVAC SUBCONTRACTOR

D. THIS REPORT SHOULD INCLUDE THE "CAUSE" AND "SUGGESTED SOLUTION", IF KNOWN. THE AIR CONDITIONING UNITS SHALL BE BALANCED IN THE MINIMUM OUTSIDE AIR MODE. THE OUTSIDE AIR DAMPER "% MINIMUM OPEN POSITION" AND THE "METHOD" USED SHALL BE INCLUDED IN THE BALANCING REPORT.

**PIPING**

A. CONDENSATE DRAINAGE PIPING SHALL BE TYPE "M" WITH WROUGHT FITTINGS JOINED WITH SOLDER. PVC MAY BE USED (EXCEPT IN RETURN AIR PLENUMS) WHERE LOCAL CODES PERMIT.

B. REFRIGERANT PIPING:

a. INSTALL AND SIZE REFRIGERANT PIPING PER MANUFACTURERS RECOMMENDATIONS.

b. REFRIGERANT PIPING SHALL BE COPPER TYPE "L" PIPING WITH WROUGHT COPPER FITTINGS AND BRAZED JOINTS ABOVE GROUND AND WITHIN BUILDING. USE TYPE "K", ANNEALED TEMPERED COPPER TUBING FOR 2" OR SMALLER WITHOUT JOINTS BELOW GROUND AND WITHIN SLABS.

c. INSULATE REFRIGERANT SUCTION LINES BETWEEN EVAPORATOR AND COMPRESSOR WITH 1.5" FLEXIBLE UNICELLULAR, ASTM C 534, TYPE 1.

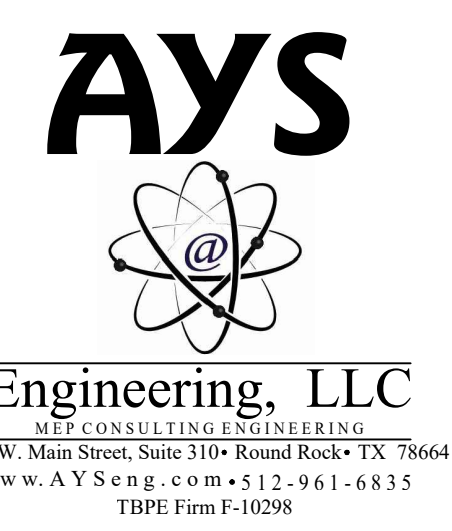
**AIR DEVICES**

A. PROVIDE AIR DEVICES AS MANUFACTURED BY: PRICE, TITUS, METALAIR OR EQUAL.

B. DIFFUSERS, REGISTERS AND GRILLES SHALL BE AS SCHEDULED OR NOTED AND ALL SHALL BE PROVIDED WITH FRAMES COMPATIBLE WITH EACH CEILING TYPE. CONTRACTOR SHALL COORDINATE ALL DIFFUSER LOCATIONS AND FRAME TYPES WITH FINAL APPROVED REFLECTED CEILING PLAN FOR LIGHT FIXTURE AND ALL OTHER CEILING MOUNTED DEVICE LOCATIONS.

**NAMEPLATE**

A. PROVIDE ENGRAVED NAMEPLATE ATTACHED WITH SCREWS FOR ALL MAJOR EQUIPMENT PROVIDED. USE NOMENCLATURE FROM EQUIPMENT SCHEDULES.



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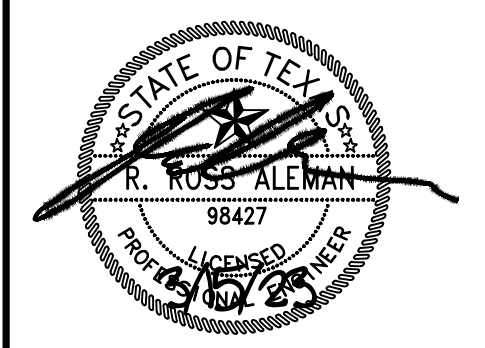
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DATE: MAR 15, 2023

**CONSTRUCTION DOCUMENTS**  
**HEATHERWILDE OFFICE CONDOS BLDG 3**

201 N. HEATHERWILDE BLVD.  
PFLUGERVILLE, TX 78660

PROJECT NO: 17003

REVISIONS:


DRAWN BY: MF  
REVIEWED BY: PR

**MECHANICAL SPECIFICATIONS**

**M4.1**

**ELECTRICAL LEGEND**

NOTE: ALL SYMBOLS SHOWN ON LEGEND ARE NOT NECESSARILY USED.

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	1X4 LINEAR FIXTURE W/ DESIGNATION	<b>ABBREVIATIONS</b>	
	2X2 LINEAR FIXTURE W/ DESIGNATION	AFc	ABOVE FINISHED CEILING
	2X4 LINEAR FIXTURE W/ DESIGNATION	AFf	ABOVE FINISHED FLOOR
	NIGHT LIGHT FIXTURE	AFg	ABOVE FINISHED GRADE
	LINEAR STRIP OR 6" FIXTURE W/ DESIGNATION	AHJ	AUTHORITY HAVING JURISDICTION
	RECESSED DOWNLIGHT FIXTURE W/ DESIGNATION	AL	ALUMINUM
	SURFACE OR PENDANT DOWNLIGHT FIXTURE W/ DESIGNATION	C	CONDUIT
	WALL WASH FIXTURE W/ DESIGNATION, DIRECTION INDICATED BY TRIANGLE	CKT	CIRCUIT
	WALL MOUNT LINEAR FIXTURE W/ DESIGNATION	CLG	CEILING
	WALL MOUNT FIXTURE W/ DESIGNATION	CT	CURRENT TRANSFORMER
	SPOTLIGHT	EOMH	ELECTRICALLY OPERATED, MECHANICALLY HELD
	CEILING OR WALL MOUNT EXIT SIGN (INSTALL FACE AS INDICATED BY ARROWS)	EM	EMERGENCY
	EMERGENCY BATTERY FIXTURE	EWc	ELECTRIC WATER COOLER
	CEILING FAN	(E)	EXISTING
	20A SIMPLEX RECEPTACLE AT 18" U.N.O.	ETR	EXISTING TO REMAIN
	20A DUPLEX RECEPTACLE AT 18" U.N.O.	ER	EXISTING RELOCATED
	GFCI RECEPTACLE AT 18" U.N.O. (DUPLEX / SIMPLEX)	F/A	FIRE ALARM
	20A QUADRUPLX RECEPTACLE AT 18" U.N.O.	F/S	FIRE/SMOKE DAMPER
	20A DUPLEX RECEPTACLE 8" ABOVE COUNTER U.N.O.	G OR GND	GROUND
	20A DUPLEX RECEPTACLE SPECIAL MOUNT (FLOOR, CLG)	GEC	GROUNDING ELECTRODE CONDUCTOR
	20A ISOLATED GROUND RECEPTACLE	GF	GROUND FAULT CIRCUIT INTERRUPTER
	20A WEATHER-RESISTANT GFCI RECEPTACLE WITH WEATHERPROOF "EXTRA DUTY WHILE IN USE" COVER	IG	ISOLATED GROUND
	DEDICATED DUPLEX RECEPTACLE WITH AMP RATING NOTED	MFR	MANUFACTURER
	20A DUPLEX RECEPTACLE WITH TOP RECEPTACLE CONTROLLED VIA AUTO-ON/OFF OCCUPANCY SENSOR	N1, N3R, N...	NEMA 1, NEMA 3R, NEMA RATING (AS NOTED)
	20A COMBINATION DUAL USB AND DUPLEX RECEPTACLE	NIES	NOT IN ELECTRICAL SECTION
	GFCI BLANK FACE RESET BUTTON	NL	NIGHT LIGHT
	SPECIAL RECEPTACLE AS NOTED	NTS	NOT TO SCALE
	COMBINATION TELEPHONE/DATA (TELE-DATA) OUTLET (18" ON WALL, 8" ABOVE COUNTER, FLOOR)	OH	OVERHEAD
	TELEPHONE OUTLET, DATA OUTLET	SDE	SERVICE DISTRIBUTION ENCLOSURE
	TELEVISION/CABLE OUTLET, CARD READER OUTLET	SPD	SURGE PROTECTIVE DEVICE
	J-BOX (CEILING/WALL, FLOOR)	TT	TELEPHONE TERMINAL
	SECURITY CAMERA	TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSOR
	CONDUIT RUN EXPOSED OR CONCEALED	UG	UNDERGROUND
	CONDUIT RUN BELOW FLOOR OR GRADE	UNO	UNLESS NOTED OTHERWISE
	ITEM TO BE REMOVED	WP	WEATHER PROOF
	SWITCHLEG	WR	WEATHER RESISTANT
	CIRCUIT HOMERUN, #12, THWN/THHN & QTY AS REQ'D, W/ GND, 3/4"C., U.N.O.	XFMR	TRANSFORMER
	CIRCUIT HOMERUN CONTAINING 3 HOTS, NEUTRAL, & GROUND	XP	EXPLOSION PROOF
	CONDUIT STUB-UP - CAP & MARK	+18"	MOUNTING HEIGHT TO CENTERLINE OF DEVICE AFF OR AFG
	GROUND	#	SIZE OF WIRE (EX. #3/0 IS SIZE 3/0 AWG WIRE)
	BUILDING STEEL GROUND		
	COLD WATER GROUND		
	CONCRETE ENCASED ELECTRODE GROUND		
<b>FIRE ALARM SYSTEM</b>			
	PANELBOARD OR LOAD CENTER	[FACP]	FIRE ALARM CONTROL PANEL
	TRANSFORMER	[ANNUN]	FIRE ALARM ANNUNCIATOR PANEL
	DISCONNECT SWITCH (NON-FUSED UNLESS NOTED OTHERWISE WITH FUSE SIZE - AF - IN DISCONNECT SWITCH CALLOUT)	[ ]	MANUAL PULL STATION DOUBLE ACTION
	MAGNETIC MOTOR STARTER	[MMS]	GENERAL ALARM COMBINATION HORN/STROBE (AUDIO/VISUAL) (WALL, CLG)
	COMBINATION DISCONNECT AND STARTER	[VI] [IV]	FIRE ALARM STROBE (VISUAL DEVICE) (WALL, CLG)
	MOTOR	[S] [S-I]	SPEAKER - CEILING MOUNTED, WALL MOUNTED
	EQUIPMENT CONNECTION	[ ]	SMOKE/IONIZATION DETECTOR
	OCCUPANCY SENSOR (CEILING, WALL) - RATING/COVERAGE, IF SHOWN, IS IN 100'S OF SQ. FT.	[H]	HEAT DETECTOR
	PHOTOELECTRIC CELL	[D]	DUCT DETECTOR
	LIGHTING CONTACTOR	[FS]	SPRINKLER SYSTEM FLOW SWITCH
	TIMECLOCK	[TS]	SPRINKLER SYSTEM TAMPER SWITCH
	LIGHTING CONTROL PANEL	[RTS]	REMOTE TEST SWITCH
	LIGHT SWITCH AT 48" UNLESS NOTED	[ ]	ELECTRIC DOOR HOLDER
<b>SUBSCRIPTS</b>			
3	3-WAY SWITCH		
4	4-WAY SWITCH		
O	OCCUPANCY SENSOR SWITCH (AUTO OFF, AUTO ON)		
D	DIMMER SWITCH		
K	KEY-OPERATED SWITCH		
T	TIMER SWITCH		

P	SWITCH WITH PILOT LIGHT		
M	MOTOR RATED SWITCH		
V	VACANCY SWITCH (AUTO OFF, MANUAL ON)		
a	LOWER CASE LETTER AT FIXTURES AND SWITCHES (a, b, etc.) INDICATES SWITCHING CONTROL.		

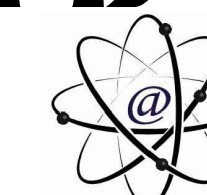
**GENERAL ELECTRICAL NOTES:**

- DO NOT SCALE DRAWINGS. VERIFY DIMENSIONS ON ARCHITECTURAL DRAWINGS AND IN FIELD PRIOR TO COMMENCEMENT OF WORK.
- BEFORE BEGINNING EXCAVATIONS OF ANY NATURE WHATSOEVER, CONTRACTOR SHALL LOCATE ALL SERVICES AND UTILITIES OCCURRING WITHIN THE BOUNDS OF THE PROJECT. THE CONTRACTOR SHALL THEN PROCEED WITH CAUTION IN HIS WORK SO THAT NO UTILITY OR LINE SERVING AREAS THAT ARE TO REMAIN BE DAMAGED WITH A RESULTANT LOSS OF SERVICE. VERIFY THE SOURCE AND SERVICE OF EACH AND EVERY LINE ENCOUNTERED AND RECORD SERVICE, SIZE AND LOCATION ON RECORD DRAWINGS.
- COORDINATE EACH AND EVERY INTERRUPTION OF SERVICES AND UTILITIES WITH THE OWNER AND UTILITY COMPANIES TO ENSURE MINIMUM SHUT-DOWN TIMES ARE ACCEPTABLE.
- VERIFY EXACT LOCATION OF EQUIPMENT TO BE FURNISHED BY OTHERS PRIOR TO ROUGH-IN.
- IT IS THE INTENT OF THESE DRAWINGS TO CALL FOR FINISHED WORK, I.E., FULLY ADJUSTED, TESTED, AND READY FOR OPERATION. WHERE THE WORD "PROVIDE" IS USED, IT SHALL MEAN, "FURNISH AND INSTALL COMPLETE AND READY FOR USE".
- FOR EACH EQUIPMENT CONNECTION SHOWN, PROVIDE THE DEVICE, OUTLET, DISCONNECT SWITCH, OR JUNCTION BOX REQUIRED TO CONNECT THE EQUIPMENT.
- WHERE 120 VOLT BRANCH CIRCUITS EXCEED 57', PROVIDE MINIMUM #10 AWG CONDUCTORS FROM PANEL TO FIRST DEVICE, FIXTURE, ETC. REF. VOLTAGE DROP TABLE ON THIS SHEET FOR ADDITIONAL VOLTAGE DROP CONDITIONS.
- NO SINGLE CONDUIT SHALL CONTAIN MORE THAN 6 CURRENT CARRYING CONDUCTORS, UNLESS NOTED OTHERWISE AND PROPERLY DERATED. HOMERUN CONDUIT SHALL NOT BE LESS THAN 3/4".
- ALL WIRING SHALL BE IN CONDUIT. ALL CONDUIT SHALL BE 1/2" EMT MINIMUM WITH STEEL TYPE FITTINGS. 1/2" STEEL FLEXIBLE METAL CONDUIT WILL BE ALLOWED IN MAXIMUM LENGTHS OF 6'. 3/8" AND/OR NON-METALLIC FLEXIBLE CONDUIT SHALL NOT BE USED. MC-TYPE CABLE MAY BE USED FOR INTERIOR BRANCH CIRCUIT WIRING IF ALLOWED BY THE AUTHORITY HAVING JURISDICTION. UNDERGROUND CONDUIT SHALL BE RIGID GALVANIZED STEEL (RGS) OR SCHEDULE 40 PVC WITH RGS ELLS AND RGS CONDUIT/FITTINGS WHEN EMERGING FROM GRADE, UNLESS NOTED OTHERWISE. PROVIDE CODE-SIZED GREEN GROUNDING CONDUCTOR IN ALL CONDUIT. INCREASE CONDUIT SIZE AS REQUIRED. ALL WIRING SHALL BE #12 AWG MINIMUM COPPER CONDUCTORS.
- UNLESS OTHERWISE NOTED, CONDUIT SHALL BE CONCEALED, IF POSSIBLE, AND INSTALLED SQUARE TO BUILDING LINES.
- ALL EMPTY RACEWAY SYSTEMS SHALL HAVE A #12 PULLWIRE OR EQUAL, AND SHALL BE IDENTIFIED AT ALL JUNCTION, PULL AND TERMINATION POINTS, USING PERMANENT METALLIC TAGS. TAG SHALL INDICATE INTENDED USE OF CONDUIT ORIGINATOR, AND TERMINATION POINTS OF EACH INDIVIDUAL CONDUIT.
- RECESSED LIGHT FIXTURES INSTALLED IN GYPSUM BOARD OR PLASTER CEILINGS SHALL HAVE PLASTER FRAMES INSTALLED PRIOR TO CEILING MATERIAL.
- WHERE FIXTURES CONTAINING BATTERY PACKS ARE SWITCHED (BY TOGGLE SWITCH, OCCUPANCY SENSOR, TIMECLOCK/LIGHTING CONTROL PANEL, ETC.), SUPPLY TO BATTERY PACKS SHALL BE UNSWITCHED. EXIT LIGHTS SHOWN ON A SWITCHED CIRCUIT SHALL BE POWERED BY AN UNSWITCHED LINE ON THAT CIRCUIT.
- LIGHT SWITCHES SHOWN IN ROOM CONTROL ALL LIGHTS IN THAT ROOM UNLESS NOTED OTHERWISE. WALL SWITCHES SHOWN IN ROOMS WITH CEILING OCCUPANCY SENSOR SWITCHES SHALL OVERRIDE OCCUPANCY SENSOR CONTROL.
- REVIEW ARCHITECTURAL, STRUCTURAL, CIVIL, MECHANICAL, PLUMBING, AND OTHER DRAWINGS PRIOR TO BID.
- INSTALL ALL MATERIALS IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. ANY DEVIATIONS SHALL BE BROUGHT TO THE ARCHITECT/ENGINEER'S ATTENTION PRIOR TO INSTALLATION.
- WORK SHALL BE PERFORMED IN A WORKMANLIKE MANNER TO THE SATISFACTION OF THE ARCHITECT.
- JUNCTION AND PULL BOXES OF APPROPRIATE DIMENSIONS FOR CONDUITS AND CONDUCTORS NOTED SHALL BE INSTALLED WHERE SHOWN ON THE DRAWINGS AND IN ADDITION WHERE NECESSARY OR CONVENIENT FOR INSTALLING AND PULLING WIRE.
- SPLICES IN EXTERIOR PULLBOXES SHALL BE MADE WATERPROOF USING "SCOTCHCAST" SPLICE KIT OR APPROVED EQUAL. SEAL ENDS OF CONDUITS AND DUCTS WITH "DUCTSEAL" OR APPROVED EQUAL.
- PROTECT ALL RECEPTACLES SHOWN AS GFCI-PROTECTED IN LOCATIONS THAT ARE NOT "READILY ACCESSIBLE" (PER THE NEC) WITH GFCI-TYPE CIRCUIT BREAKERS OR REMOTE, BLANK-FACE GFCI DEVICE IN LIEU OF GFCI-TYPE RECEPTACLE.
- PROVIDE A PERMANENTLY AFFIXED LABEL TO EACH INDIVIDUAL RECEPTACLE FACE/COVER PLATE, DISCONNECTING MEANS, SWITCH COVER, ETC., INDICATING THE PANEL AND THE CIRCUIT SERVING THE DEVICE. TYPICAL FOR ALL EQUIPMENT, RECEPTACLES, LIGHTING SWITCHES, AND DISCONNECTS.

	240V, 1Ø	120V, 1Ø
#12 AWG	0 - 114 FT.	0 - 57 FT.
#10 AWG	115 - 181 FT.	58 - 91 FT.
#8 AWG	182 - 289 FT.	92 - 145 FT.
#6 AWG	290 - 458 FT.	146 - 229 FT.
#4 AWG	459 - 731 FT.	230 - 365 FT.

(VERIFY MINIMUM VOLTAGE DROP AND CONDUIT SIZE, PER N.E.C.)

**AYS**



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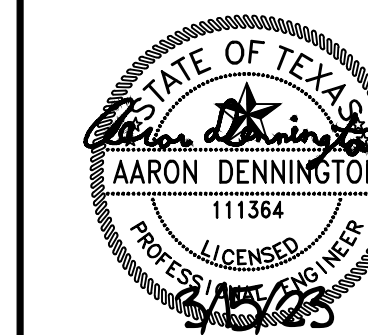
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**CONSTRUCTION DOCUMENTS**  
**HEATHERWILDE OFFICE CONDOS BLDG 3**

201 N. HEATHERWILDE BLVD.  
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PROJECT NO: 17003

REVISIONS:

DRAWN BY: GR  
REVIEWED BY: AD

ELECTRICAL LEGEND AND NOTES

**E1.0**

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LIGHTING FIXTURE SCHEDULE							
TYPE	MANUFACTURER	CATALOG NUMBER	MOUNTING	LAMPS	VOLTS	DESCRIPTION	LOCATION
				TYPE			
AE	LITHONIA	#DSXW1-10C-350-40K-T3M-MVOLT-PE-EZOWC-VERIFY FINISH	SURFACE	13.4 WATT LED	120	WALL MOUNTED WITH AN EMERGENCY BACK-UP BATTERY AND A BUTTON CELL PHOTOCELL CONTROL.	EXTERIOR, SEE PLANS.
B	KICHLER	#11146INLED-24"	SURFACE	19 WATT LED	120	BATHROOM VANITY SCONCE.	INTERIOR, SEE PLANS.
C	KICHLER	#10784INLED-24"	SURFACE	28.5 WATT LED	120	SURFACE LED FIXTURE.	INTERIOR, SEE PLANS.
DE	LITHONIA	#WL4-30L-MVOLT-EZ1-LP840-EL41L	SURFACE	28.2 WATT LED	MVOLT	4FT LINEAR LED FIXTURE WITH AN EMERGENCY BACK-UP BATTERY.	ATTIC, SEE PLANS.
E	LITHONIA	#ELMRE-LP220L-T	SURFACE	LED INCLUDED	MVOLT	SELF-CONTAINED EMERGENCY LIGHTING UNIT WITH DUAL HEADS.	INTERIOR, SEE PLANS.
F	PROGRESS LIGHTING	#EDGEFIELD P250016-009	STEM	18 WATT LED LIGHT KIT	120	LOW PROFILE CEILING FAN WITH #P2659-20-LED LIGHT KIT.	INTERIOR, SEE PLANS.
X	LITHONIA	#LQHM-LED-R-HO-SD	SURFACE	LED INCLUDED	MVOLT	SINGLE FACE LED EXIT SIGN WITH EMERGENCY BACK-UP BATTERY.	INTERIOR, SEE PLANS.

**NOTES:**

- ANY LIGHTING MANUFACTURER(S) SUBSTITUTED NOT AS SPECIFIED IN THE LIGHT FIXTURE SCHEDULE DOES NOT GUARANTEE APPROVAL. SUBSTITUTIONS MUST MEET THE QUALIFICATIONS OF THE IECC (INTERNATIONAL ENERGY CONSERVATION CODE) AND MUST BE SUBMITTED TO AYS ENGINEERING AND PLACE DESIGNERS FOR CONSIDERATION OF APPROVAL. APPROVAL WILL BE DETERMINED BY WRITTEN REQUESTS SUBMITTED TO THE ENGINEER OF RECORD AND PRIOR TO REVIEW OF SHOP DRAWINGS TO DETERMINE IF THE SUBSTITUTED FIXTURE MEETS OR EXCEEDS THE DESIGN STANDARDS AND PERFORMANCE REQUIRED OF THE ACTUAL FIXTURE SPECIFIED IN THE LIGHT FIXTURE SCHEDULE. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO SUBMIT A PASSING IECC COMCHECK ALONG WITH ANY SUBSTITUTION LIGHT FIXTURE PACKAGE. SHOP DRAWING DELAYS AS A RESULT OF INAPPROPRIATE SUBSTITUTIONS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND AT NO ADDITIONAL COST TO THE OWNER.
- ALL COLORS SPECIFIED FOR FIXTURES SHALL BE COORDINATED WITH ARCHITECT/OWNER PRIOR TO PURCHASING.
- COORDINATE AND CONFIRM ALL MOUNTING HEIGHTS AND LOCATIONS WITH THE ARCHITECT/OWNER PRIOR TO CONSTRUCTION.
- COLOR TEMPERATURE IN DEGREES OF KELVIN SHALL BE CONFIRMED WITH ARCHITECT/OWNER PRIOR TO PURCHASING.
- ALL LIGHTING SYSTEMS TO BE TESTED AND PROGRAMMED/CALIBRATED TO ENSURE WORKING PROPERLY.

LIGHTING CONTROLS LEGEND			
SYMBOL	SENSOR-SWITCH-POWER PACK INFORMATION (SEE IECC C405.2.1.1.3, C405.2.2.1 & C405.2.1.1.2)	SEQUENCE OF OPERATION	MOUNTING HEIGHT
SO	OCCUPANCY - AUTO "ON/OFF" TIMEOUT - 20 MINUTES WALL MOUNTED DIGITAL SWITCH WITH DUAL TECHNOLOGY AND 180° DETECTION.	1. AUTO SWITCH "ON" DRIVERS IN ALL FIXTURES TO 100% AFTER OCCUPANT ENTERS SPACE. 2. TURN OFF ALL FIXTURES WHEN TIMEOUT EXPIRES AFTER OCCUPANT LEAVES SPACE.	MOUNT TO CENTER OF JUNCTION BOX AT +48" A.F.F UNLESS NOTED OTHERWISE.
SV	VACANCY - MANUAL "ON" AUTO "OFF" TIMEOUT - 20 MINUTES WALL MOUNTED DIGITAL SWITCH WITH DUAL TECHNOLOGY AND 180° DETECTION.	1. MANUAL SWITCH "ON" DRIVERS IN ALL FIXTURES TO 100% BY OCCUPANT ENTERING SPACE. 2. TURN OFF ALL FIXTURES WHEN TIMEOUT EXPIRES AFTER OCCUPANT LEAVES SPACE.	MOUNT TO CENTER OF JUNCTION BOX AT +48" A.F.F UNLESS NOTED OTHERWISE.
SVM	VACANCY - MANUAL "ON" AUTO "OFF" TIMEOUT - 20 MINUTES 5-BUTTON SWITCH WITH RAISE/LOWER 0-10V DIMMING, 100%, 50%, OFF WALL MOUNTED DIGITAL SWITCH WITH DUAL TECHNOLOGY AND 180° DETECTION.	1. MANUAL SWITCH "ON" DRIVERS IN ALL FIXTURES TO 100% BY OCCUPANT ENTERING SPACE. 2. TURN OFF ALL FIXTURES WHEN TIMEOUT EXPIRES AFTER OCCUPANT LEAVES SPACE.	MOUNT TO CENTER OF JUNCTION BOX AT +48" A.F.F UNLESS NOTED OTHERWISE.
SOM	OCCUPANCY - AUTO "ON" AUTO "OFF" TIMEOUT - 20 MINUTES 5-BUTTON SWITCH WITH RAISE/LOWER 0-10V DIMMING, 100%, 50%, OFF, AUTO "ON" @50% WALL MOUNTED DIGITAL SWITCH WITH DUAL TECHNOLOGY AND 180° DETECTION.	1. AUTO SWITCH "ON" DRIVERS TO 100% IN ALL FIXTURES BY OCCUPANT ENTERING SPACE. 2. TURN OFF ALL FIXTURES WHEN TIMEOUT EXPIRES AFTER OCCUPANT LEAVES SPACE.	MOUNT TO CENTER OF JUNCTION BOX AT +48" A.F.F UNLESS NOTED OTHERWISE.
SSI	OCCUPANCY - "ON/OFF" TIMEOUT - 20 MINUTES 2-BUTTON WALL MOUNTED DIGITAL SWITCH.	1. AUTO SWITCH "ON" DRIVERS IN ALL FIXTURES TO 100% AFTER OCCUPANT ENTERS SPACE. 2. TURN OFF ALL FIXTURES WHEN TIMEOUT EXPIRES AFTER OCCUPANT LEAVES SPACE.	MOUNT TO CENTER OF JUNCTION BOX AT +48" A.F.F UNLESS NOTED OTHERWISE.
SRL	3-BUTTON WALL MOUNTED DIGITAL SWITCH WITH ON/OFF AND RAISE/LOWER 0-10V DIMMING. COORDINATE DIMMER SWITCH TYPE WITH LIGHT FIXTURE DIMMING CAPABILITY.	1. DIMS SPECIFIED FIXTURES PER SWITCH GROUP, SEE PLANS.	MOUNT TO CENTER OF JUNCTION BOX AT +48" A.F.F UNLESS NOTED OTHERWISE.
⓪ <sub>S</sub>	OCCUPANCY - AUTO "ON/OFF" TIMEOUT - 20 MINUTES. CEILING MOUNTED, STANDARD RANGE, DUAL TECHNOLOGY WITH 360° DETECTION, 1500 SQUARE FEET OR LESS.	1. SENSOR TO ACTIVATE POWER PACK WITHIN THE OCCUPIED SPACE, SEE PLANS FOR POWER PACK TYPE.	MOUNT VISIBLE IN CEILING.
⓪ <sub>EX</sub>	OCCUPANCY - AUTO "ON/OFF" TIMEOUT - 20 MINUTES. CEILING MOUNTED, EXTENDED RANGE, DUAL TECHNOLOGY WITH 360° DETECTION, 2000 SQUARE FEET OR MORE.	1. SENSOR TO ACTIVATE POWER PACK WITHIN THE OCCUPIED SPACE, SEE PLANS FOR POWER PACK TYPE.	MOUNT VISIBLE IN CEILING.
⓪ <sub>S</sub>	VACANCY - MANUAL "ON" AUTO "OFF" TIMEOUT - 20 MINUTES. CEILING MOUNTED, STANDARD RANGE, DUAL TECHNOLOGY WITH 360° DETECTION, 1500 SQUARE FEET OR LESS.	1. SENSOR TO ACTIVATE POWER PACK WITHIN THE OCCUPIED SPACE, SEE PLANS FOR POWER PACK TYPE.	MOUNT VISIBLE IN CEILING.
⓪ <sub>EX</sub>	VACANCY - MANUAL "ON" AUTO "OFF" TIMEOUT - 20 MINUTES. CEILING MOUNTED, EXTENDED RANGE, DUAL TECHNOLOGY WITH 360° DETECTION, 2000 SQUARE FEET OR MORE.	1. SENSOR TO ACTIVATE POWER PACK WITHIN THE OCCUPIED SPACE, SEE PLANS FOR POWER PACK TYPE.	MOUNT VISIBLE IN CEILING.
⓪	POWER PACK WITH AUTO "ON". CLASS 2 LOW VOLTAGE WIRING. OCCUPANCY MODE - AUTO "ON/OFF"		ABOVE CEILING IN AN ACCESSIBLE AREA.
⓪	POWER PACK WITH MANUAL "ON". CLASS 2 LOW VOLTAGE WIRING. VACANCY MODE - MANUAL "ON" AUTO "OFF"		ABOVE CEILING IN AN ACCESSIBLE AREA.

**NOTES:**

- DISREGARD ANY SYMBOLS THAT ARE NOT USED ON PLANS.
- APPROVED LIGHTING CONTROLS BY: COOPER GREENGATE, ACUTY LIGHT, HUBBELL, AND LEGRAND WATT STOPPER. FOR AN APPROVED EQUAL, THE CONTRACTOR SHALL SUBMIT TO AYS ENGINEERING PRODUCT DATA ON AN EQUALLY PERFORMING DIGITAL LIGHTING CONTROL SYSTEM AND PROVIDE A LAYOUT DEMONSTRATING DESIGN CONFORMANCE FOR REVIEW AND APPROVAL.



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laurenanderson@pape-dawson.com

**STRUCTURAL ENGINEER:**

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**MEP ENGINEER:**

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DATE: MAR 15, 2023

**CONSTRUCTION DOCUMENTS**  
**HEATHERWILDE OFFICE CONDOS BLDG 3**

201 N. HEATHERWILDE BLVD.  
PFLUGERVILLE, TX 78660

PROJECT NO: 17003

REVISIONS:


DRAWN BY: GR  
REVIEWED BY: AD

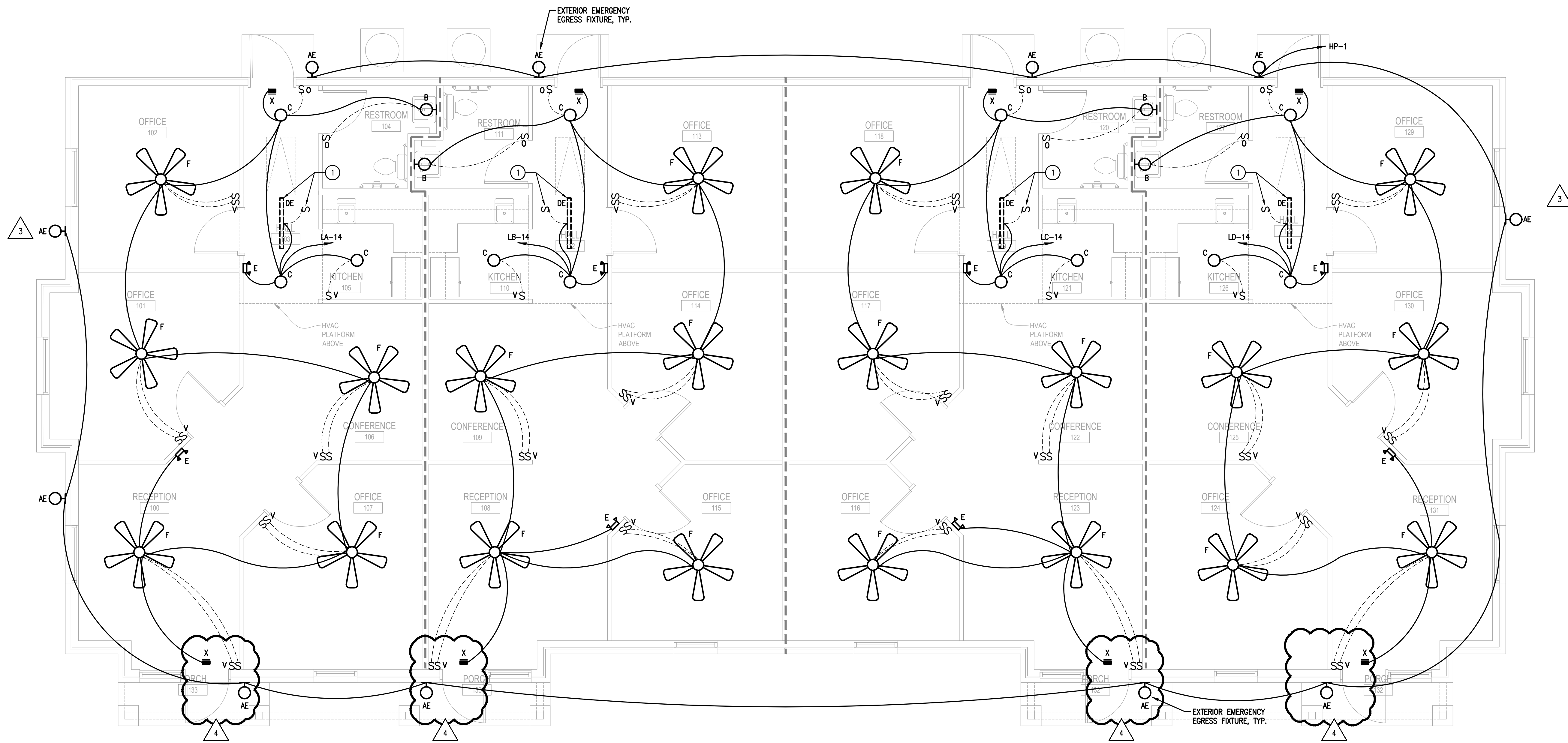
ELECTRICAL  
LEGEND, NOTES,  
AND SCHEDULE

**E1.1**

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TBP# Firm F-10298



BUILDINGS 3  
**FLOOR PLAN - LIGHTING**  
SCALE: 1/4" = 1'-0"

**KEYED NOTES:**

GENERAL: REFER ALSO TO GENERAL ELECTRICAL NOTES ON SHEET E1.0.

1. LIGHT FIXTURE MOUNTED IN ATTIC SPACE. LOCATE LIGHT SWITCH IN ACCESSIBLE LOCATION TO ATTIC ACCESS.



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201 N. HEATHERWILDE BLVD.  
PFLUGERVILLE, TX 78660

PROJECT NO: 17003

**REVISIONS:**

1	City Comments	4-21-2023
3	City Comments	5-9-2023
4	Site Development	
	Revision	8-18-2023

DRAWN BY: GR  
REVIEWED BY: AD

BUILDINGS 3 -  
FLOOR PLAN -  
LIGHTING

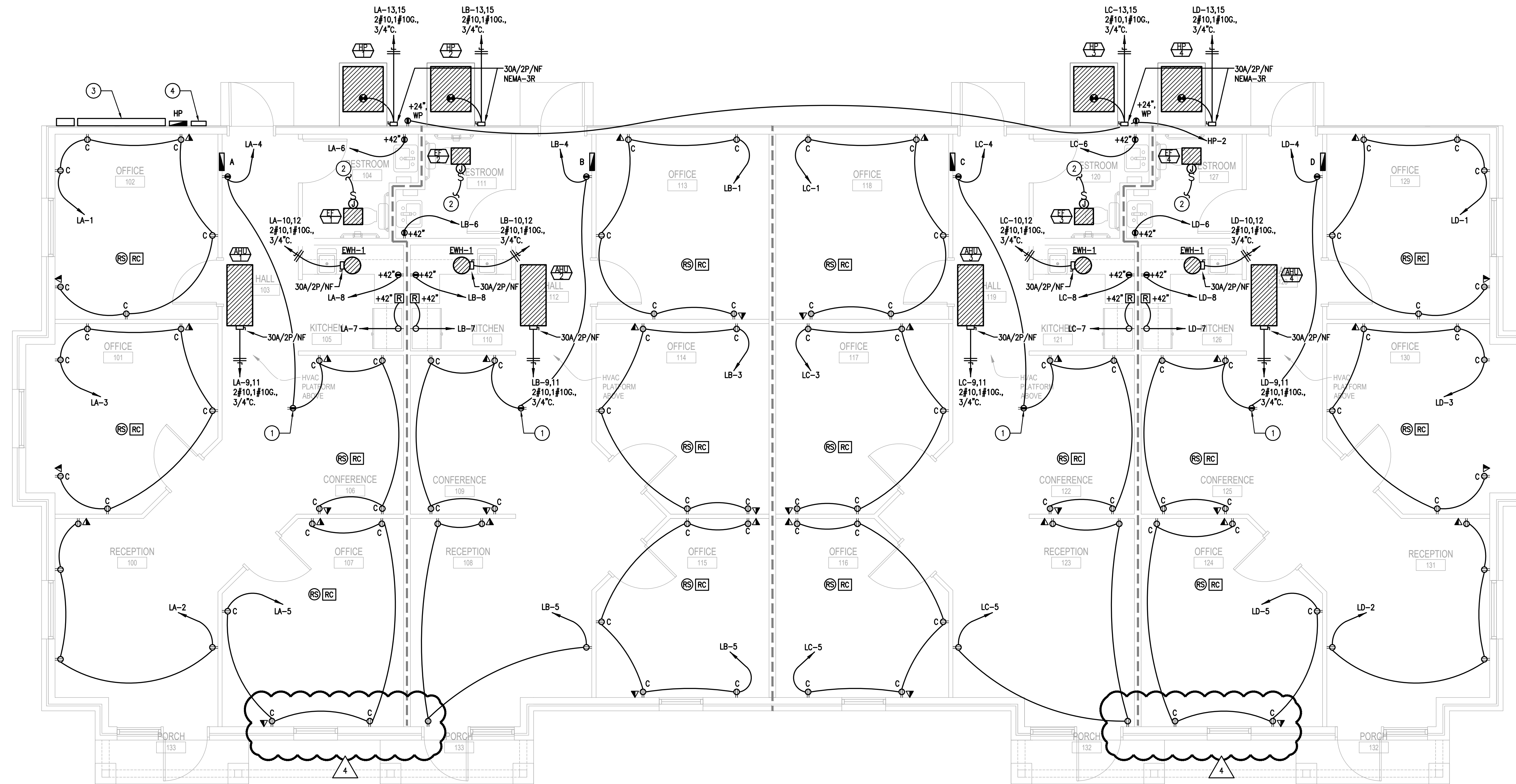
**E2.0**

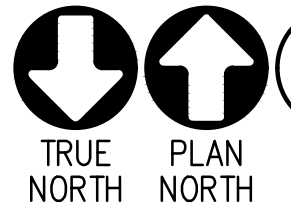
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

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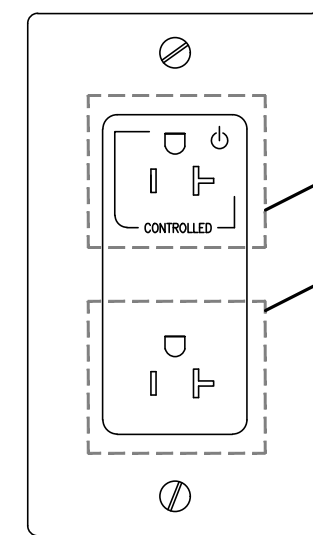




BUILDING 3  

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

**SYMBOLS INDICATED ON PLANS.**

- CEILING MOUNTED SENSOR SIMILAR TO LEVITON#OSC-M 
- SUPER DUTY PLUG LOAD CONTROLLER SIMILAR TO LEVITON #OPP20. 
- RECEPTACLE (OR WALL PLATE) MARKED AS "CONTROLLED". 



THIS PART OF THE RECEPTACLE CONTROLLED BY CEILING SENSOR.  
 THIS PART OF THE RECEPTACLE NON-CONTROLLED, KEEPS CONSTANT POWER.  
 NOTE:  
 RECEPTACLES SHALL COMPLY WITH IECC C405.11.1. CONTROLLED PORTION OF THE RECEPTACLE SHALL BE TURNED "ON/OFF" VIA AUTO-ON/OFF CEILING MOUNTED OCCUPANCY SENSOR AND PLUG LOAD POWER PACK.

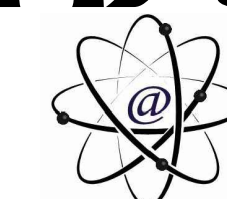
**2 CONTROLLED RECEPTACLE**  
 SCALE: NONE

**KEYED NOTES:**

GENERAL: REFER ALSO TO GENERAL ELECTRICAL NOTES ON SHEET E1.0.

1. GFCI SERVICE RECEPTACLE LOCATE IN ATTIC SPACE FOR SERVICE OF MECHANICAL GEAR.
2. CIRCUIT FAN ON SAME CIRCUIT SERVING LIGHTING IN THIS RESTROOM, FAN TO RUN WITH OCCUPANCY SENSOR SERVING THIS RESTROOM.
3. REFER TO DRAWING E4.0 FOR RISER DIAGRAM AND ADDITIONAL INFORMATION.
4. TELEPHONE PEDESTAL, COORDINATE WITH TELE/COMM COMPANY.

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**CONSTRUCTION DOCUMENTS**  
**HEATHERWILDE OFFICE CONDOS BLDG 3**

201 N. HEATHERWILDE BLVD.  
 PFLUGERVILLE, TX 78660

PROJECT NO: 17003

REVISIONS:

- |          |                         |
|----------|-------------------------|
| 1        | City Comments 4-21-2023 |
| 3        | City Comments 5-9-2023  |
| 4        | Site Development        |
| Revision | 8-18-2023               |

DRAWN BY: GR  
 REVIEWED BY: AD

BUILDING 3 - FLOOR PLAN - POWER

**E3.0**

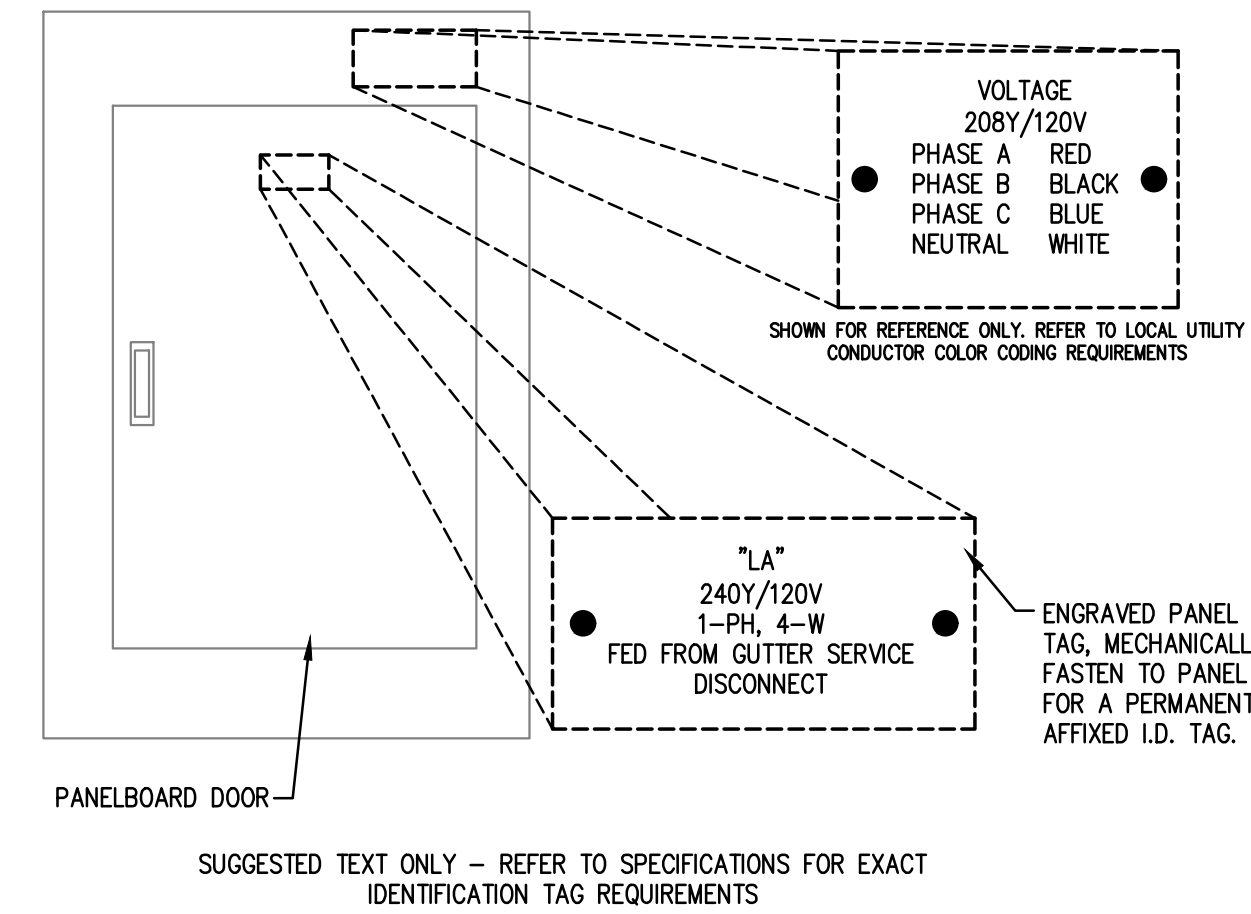
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ELECTRICAL LOAD ANALYSIS TENANT SPACES + HOUSE LOAD	
LOAD DESCRIPTION 120/240V., 1Ø - 3W	LOAD KVA
TENANT PANEL LA =	19.1
TENANT PANEL LB =	19.1
TENANT PANEL LC =	19.1
TENANT PANEL LD =	19.1
HOUSE LOADS	
EXTERIOR LIGHTING =	0.1
RECEPTACLES =	0.3
MISC. =	0.1
TOTAL ESTIMATED CONNECTED LOAD =	76.9
76.9 KVA / 240 = AMPS	320.4 AMPS
BUILDING SERVICE SIZE = 510 AMP GUTTER AT 240V., 1Ø, - 3W SPARE CAPACITY = 189.6 AMPS	

DESIGNATION RANGE (ID)	GROUNDING ELECTRODE CONDUCTOR CU WIRE SIZE FOR:		
	GROUND ROD	CONCRETE-ENCASED ELECTRODE	STRUCTURAL STEEL AND METAL WATER PIPING (IF ANY)
20G-100G	#8	#8	#8
125G-150G	#6	#6	#6
175G-200G	#6	#4	#4
225G-300G	#6	#4	#2
350G-500G	#6	#4	#1/0
600G-800G	#6	#4	#2/0
1000G+	#6	#4	#3/0

NOTES:

- DESIGNATIONS REFER TO AMPERAGE FOLLOWED BY A "G." FOR EXAMPLE, 30G WOULD FALL WITHIN THE 20G-100G RANGE.
- CONDUCTOR CONNECTED TO FIRST ELECTRODE IN SYSTEM SHALL BE SIZED ACCORDING TO THE GROUNDING ELECTRODE REQUIRING THE LARGEST CONDUCTOR. ONLY AVAILABLE GROUNDING ELECTRODES IN SYSTEM SHALL BE CONSIDERED. ALL BONDING BETWEEN REMAINING ELECTRODES SHALL BE SIZED ACCORDING TO VALUE LISTED IN TABLE.
- GROUNDING ELECTRODE SYSTEMS SHALL CONSIST OF ALL AVAILABLE GROUNDING ELECTRODES.
- THIS TABLE IS BASED ON ARTICLE 250.66 OF THE NEC.



2 TYP. PANELBOARD IDENTIFICATION  
SCALE: NOT TO SCALE

ELECTRICAL RISER/SERVICE NOTE:

- GENERAL: REFER ALSO TO GENERAL ELECTRICAL NOTES ON SHEET E1.0.
- THE CONTRACTOR SHALL MAKE EVERY FEASIBLE EFFORT TO INSTALL THE REPRESENTED ELECTRICAL SERVICE DESIGN IN AS LITTLE SPACE AS POSSIBLE.
  - IT SHALL NOT BE ACCEPTABLE TO ALTER OR DEViate FROM THE ELECTRICAL RISER DESIGN REPRESENTED. ANY ALTERATIONS OR DESIGN DEVIATIONS SHALL BE SUBMITTED TO AND APPROVED BY AYS ENGINEERING, LLC PRIOR TO ANY ROUGH-IN OR EQUIPMENT PURCHASES.
  - IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO ENSURE THAT THE ELECTRICAL INSTALLATION, EQUIPMENT, DEVICES, CONDUIT, ENCLOSURES, METERS, ETC., ARE IN ACCORDANCE WITH THE LOCAL UTILITY REQUIREMENTS AND THE LOCAL AHJ REQUIREMENTS.



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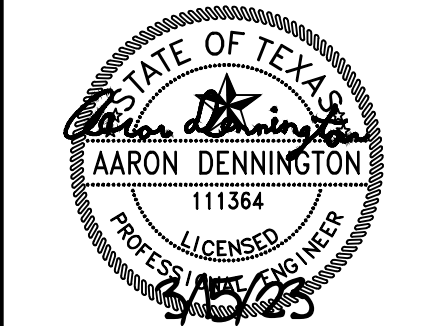
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CONDOS BLDG 3

201 N. HEATHERWILDE BLVD.  
PFLUGERVILLE, TX 78660

PROJECT NO: 17003

REVISIONS:  
1 City Comments 4-21-2023  
3 City Comments 5-9-2023

DRAWN BY: GR  
REVIEWED BY: AD

ELECTRICAL RISER AND DIAGRAMS

E4.0

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ELECTRICAL LOAD ANALYSIS TENANT SPACE FOR PANEL LA	
(TENANT PANEL LA) LOAD DESCRIPTION 120/240V., 1Ø - 3W	LOAD KVA
LIGHTING CONNECTED LOAD = 0.3 KVA AT 1.25% =	0.4
RECEPTACLES - FIRST 10 KW OF 6.4 KVA AT 100% = N/A	6.4
REMAINDER N/A KVA AT 50% (N.E.C. 220-44) = N/A	
HVAC: AIR HANDLING UNIT AT 100% = *6.7* *HEATING GREATER THAN COOLING*	6.7
CONDENSING UNIT AT 100% = 3.6	-
EXHAUST FANS AT 100% =	0.1
PLUMBING EQUIPMENT AT 100% =	4.5
MISC. EQUIPMENT AT 100% =	1.0
TOTAL ESTIMATED CONNECTED LOAD =	19.1
19.1 KVA / 240 = AMPS	79.5 AMPS
TENANT SERVICE SIZE = 150 AMPS AT 240V., 1Ø, - 3W SPARE CAPACITY = 70.5 AMPS	

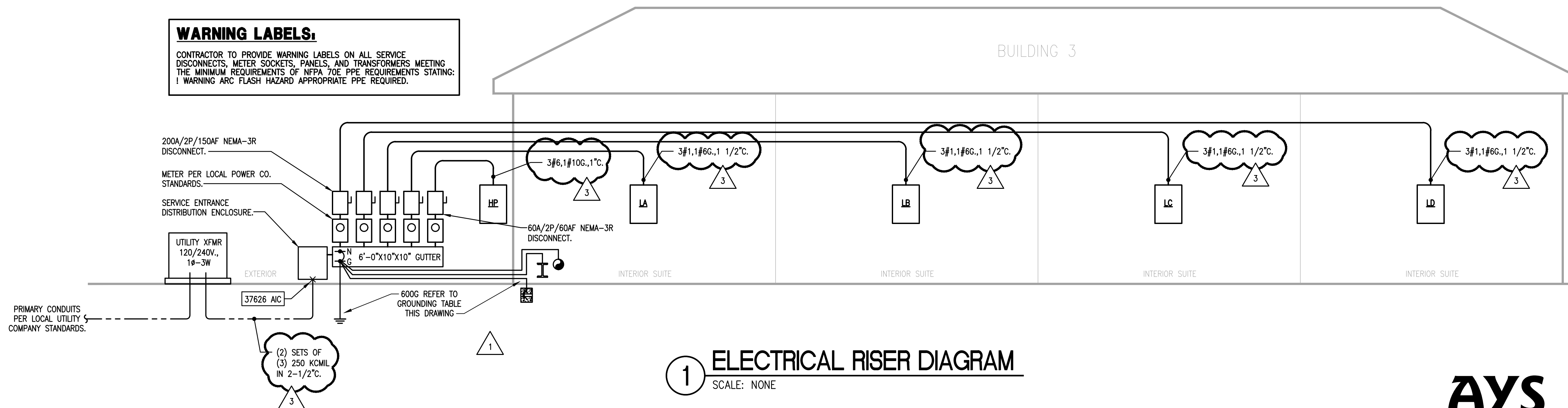
ELECTRICAL LOAD ANALYSIS TENANT SPACE FOR PANEL LB	
(TENANT PANEL LB) LOAD DESCRIPTION 120/240V., 1Ø - 3W	LOAD KVA
LIGHTING CONNECTED LOAD = 0.3 KVA AT 1.25% =	0.4
RECEPTACLES - FIRST 10 KW OF 6.4 KVA AT 100% = N/A	6.4
REMAINDER N/A KVA AT 50% (N.E.C. 220-44) = N/A	
HVAC: AIR HANDLING UNIT AT 100% = *6.7* *HEATING GREATER THAN COOLING*	6.7
CONDENSING UNIT AT 100% = 3.6	-
EXHAUST FANS AT 100% =	0.1
PLUMBING EQUIPMENT AT 100% =	4.5
MISC. EQUIPMENT AT 100% =	1.0
TOTAL ESTIMATED CONNECTED LOAD =	19.1
19.1 KVA / 240 = AMPS	79.5 AMPS
TENANT SERVICE SIZE = 150 AMPS AT 240V., 1Ø, - 3W SPARE CAPACITY = 70.5 AMPS	

ELECTRICAL LOAD ANALYSIS TENANT SPACE FOR PANEL LC	
(TENANT PANEL LC) LOAD DESCRIPTION 120/240V., 1Ø - 3W	LOAD KVA
LIGHTING CONNECTED LOAD = 0.3 KVA AT 1.25% =	0.4
RECEPTACLES - FIRST 10 KW OF 6.4 KVA AT 100% = N/A	6.4
REMAINDER N/A KVA AT 50% (N.E.C. 220-44) = N/A	
HVAC: AIR HANDLING UNIT AT 100% = *6.7* *HEATING GREATER THAN COOLING*	6.7
CONDENSING UNIT AT 100% = 3.6	-
EXHAUST FANS AT 100% =	0.1
PLUMBING EQUIPMENT AT 100% =	4.5
MISC. EQUIPMENT AT 100% =	1.0
TOTAL ESTIMATED CONNECTED LOAD =	19.1
19.1 KVA / 240 = AMPS	79.5 AMPS
TENANT SERVICE SIZE = 150 AMPS AT 240V., 1Ø, - 3W SPARE CAPACITY = 70.5 AMPS	

ELECTRICAL LOAD ANALYSIS TENANT SPACE FOR PANEL LD	
(TENANT PANEL LD) LOAD DESCRIPTION 120/240V., 1Ø - 3W	LOAD KVA
LIGHTING CONNECTED LOAD = 0.3 KVA AT 1.25% =	0.4
RECEPTACLES - FIRST 10 KW OF 6.4 KVA AT 100% = N/A	6.4
REMAINDER N/A KVA AT 50% (N.E.C. 220-44) = N/A	
HVAC: AIR HANDLING UNIT AT 100% = *6.7* *HEATING GREATER THAN COOLING*	6.7
CONDENSING UNIT AT 100% = 3.6	-
EXHAUST FANS AT 100% =	0.1
PLUMBING EQUIPMENT AT 100% =	4.5
MISC. EQUIPMENT AT 100% =	1.0
TOTAL ESTIMATED CONNECTED LOAD =	19.1
19.1 KVA / 240 = AMPS	79.5 AMPS
TENANT SERVICE SIZE = 150 AMPS AT 240V., 1Ø, - 3W SPARE CAPACITY = 70.5 AMPS	

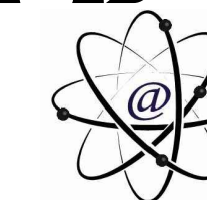
WARNING LABELS:

CONTRACTOR TO PROVIDE WARNING LABELS ON ALL SERVICE DISCONNECTS, METER SOCKETS, PANELS, AND TRANSFORMERS MEETING THE MINIMUM REQUIREMENTS OF NFPA 70E PPE REQUIREMENTS STATING: 1 WARNING ARC FLASH HAZARD APPROPRIATE PPE REQUIRED.



1 ELECTRICAL RISER DIAGRAM  
SCALE: NONE

AYS



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ELECTRICAL SPECIFICATIONS:

PART 1 - GENERAL

1.01 SCOPE OF WORK: FURNISH AND INSTALL ALL MATERIALS AND EQUIPMENT AND PROVIDE ALL LABOR, TOOLS, TRANSPORTATION, SUPERINTENDENCE AND SERVICES REQUIRED AND NECESSARY TO COMPLETE THE WORK SHOWN ON THE DRAWINGS AND/OR SPECIFIED HEREIN.

ALSO INCLUDED WILL BE ALL OTHER WORK AND MISCELLANEOUS ITEMS, NOT SPECIFICALLY MENTIONED, BUT REASONABLY INFERRED FOR A COMPLETE INSTALLATION INCLUDING ALL ACCESSORIES AND APPURTENANCES REQUIRED FOR TESTING THE SYSTEM. IT IS THE INTENT OF THE DRAWINGS AND SPECIFICATIONS THAT ALL SYSTEMS BE COMPLETE AND READY FOR OPERATION.

1.02 REGULATORY REQUIREMENTS: ALL WORK AND MATERIALS SHALL COMPLY WITH THE LATEST RULES, CODES AND REGULATIONS, INCLUDING, BUT NOT LIMITED TO THE FOLLOWING:

- A. 2021 INTERNATIONAL BUILDING CODE
B. 2021 INTERNATIONAL FIRE CODE
C. 2021 INTERNATIONAL PLUMBING CODE
D. 2021 INTERNATIONAL FUEL GAS CODE
E. 2021 INTERNATIONAL MECHANICAL CODE
F. 2021 INTERNATIONAL ENERGY CONSERVATION CODE/ASHRAE 90.1-2019 ENERGY CODE COMPLIANCE
G. 2020 NATIONAL ELECTRIC CODE
H. LOCAL CODE ORDINANCES AND AMENDMENTS
I. NATIONAL ELECTRICAL MANUFACTURER ASSOCIATION (NEMA)
J. AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)
K. NATIONAL ELECTRICAL SAFETY CODE (NEC)
L. INSTITUTE OF ELECTRICAL AND ELECTRONIC ENGINEERS (IEEE)
M. UNDERWRITERS' LABORATORIES (UL)
N. AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)
O. NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)
P. OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA)
Q. AMERICANS WITH DISABILITIES ACT (ADA)
R. APPLICABLE UTILITY COMPANIES

1.03 LICENSE, FEES AND PERMITS: ELECTRICAL CONTRACTOR SHALL PAY FOR ALL LICENSES, PERMITS AND INSPECTION FEES REQUIRED BY THE AUTHORITY HAVING JURISDICTION AND SHALL ARRANGE FOR ALL REQUIRED INSPECTIONS.

1.04 SAFETY AND INDEMNITY: THE CONTRACTOR SHALL BE SOLELY AND COMPLETELY RESPONSIBLE FOR CONDITIONS OF THE JOB SITE, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY DURING PERFORMANCE OF WORK. THIS REQUIREMENT WILL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS.

NO ACT, SERVICE, DRAWING REVIEW OR CONSTRUCTION REVIEW BY THE OWNER, THE ENGINEERS OR THEIR CONSULTANTS, IS INTENDED TO INCLUDE REVIEW OF THE ADEQUACY OF THE CONTRACTOR'S SAFETY MEASURES, IN, ON, OR NEAR THE CONSTRUCTION SITE.

1.05 DRAWINGS AND SPECIFICATIONS: ALL DRAWINGS AND SPECIFICATIONS SHALL BE CONSIDERED AS A WHOLE AND WORK OF THIS DIVISION SHOWN ANYWHERE THEREIN SHALL BE FURNISHED UNDER THIS DIVISION.

DRAWINGS ARE DIAGRAMMATIC AND INDICATE THE GENERAL ARRANGEMENT OF EQUIPMENT AND WIRING. MOST DIRECT ROUTING OF CONDUITS AND WIRING IS NOT ASSURED. EXACT REQUIREMENTS SHALL BE GOVERNED BY CONDITIONS OF THE JOB. CONSULT ALL OTHER DRAWINGS IN PREPARATION OF THE BID. EXTRA LENGTHS OF WIRING OR ADDITION OF PULL OR JUNCTION BOXES, ETC. NECESSITATED BY SUCH CONDITIONS SHALL BE INCLUDED.

1.06 CONDITIONS AT SITE: THE ELECTRICAL CONTRACTOR SHALL HAVE EXAMINED THE SITE AND FAMILIARIZED THEMSELVES WITH ALL DISCERNIBLE EXISTING CONDITIONS. NO EXTRA PAYMENT WILL BE ALLOWED FOR WORK REQUIRED BECAUSE OF THESE CONDITIONS, WHETHER SPECIFICALLY MENTIONED OR NOT.

1.07 WORKMANSHIP AND CONTRACTOR'S QUALIFICATIONS: ONLY QUALITY WORKMANSHIP WILL BE ACCEPTED. HAPHAZARD OR POOR INSTALLATION WILL BE CAUSE FOR REJECTION OF WORK. THE CONTRACTOR SHALL BE LICENSED IN THE STATE IN WHICH THE JOB IS LOCATED.

1.08 SHOP DRAWINGS AND MATERIALS LIST: SUBMIT TO OWNER IN A SINGLE PACKAGE SIX (6) COPIES OF COMPLETE SHOP DRAWINGS AND MATERIALS LIST, AS NOTED BELOW, FOR REVIEW WITHIN FIFTEEN (15) DAYS AFTER AWARD OF CONTRACT. SUBMITTALS REQUIRED AS FOLLOWS:

- A. WIRING DEVICES: SWITCHES, RECEPTACLES, DEVICE PLATES.
B. ENCLOSURES FOR UTILITY COMPANY METERING.
C. MAIN FUSED DISCONNECT SWITCH OR ENCLOSED CIRCUIT BREAKER.
D. PANELBOARDS.
E. DISCONNECT SWITCHES.
F. LIGHTING FIXTURES, AND LIGHTING CONTROL EQUIPMENT.

1.09 SUBSTITUTIONS: ONE OR MORE MAKES OF MATERIALS OR METHODS MAY HAVE BEEN SPECIFIED TO ESTABLISH THE STANDARD OF QUALITY, WORKMANSHIP, FINISH AND DESIGN REQUIRED, BUT OTHER MATERIALS OR METHODS EQUAL IN QUALITY, WORKMANSHIP, FINISH, DESIGN, AND GUARANTEED PERFORMANCE WILL BE ACCEPTED. HOWEVER, ALL CHANGES AND SUBSTITUTIONS SHALL BE REQUIRED IN LETTER FORM AND SHALL BE ACCOMPANIED WITH A STATEMENT OF THE AMOUNT OF MONEY TO BE RETURNED TO THE CONTRACT IF THE SUBSTITUTION IS PERMITTED.

NO WORK INVOLVING MATERIALS SUBMITTED FOR SUBSTITUTION SHALL PROCEED UNTIL WRITTEN ACCEPTANCE IS RECEIVED FROM THE OWNER. THE OWNER IS THE SOLE JUDGE OF ACCEPTABILITY OF PREFERRED SUBSTITUTIONS. IF A SUBSTITUTION ITEM IS PERMITTED, AND ANY RE-DESIGN EFFORT IS THEREBY NECESSITATED, THE REQUIRED RE-DESIGN SHALL BE AT THE CONTRACTOR'S EXPENSE.

1.10 COORDINATION: COORDINATE WORK WITH OTHER TRADES TO AVOID CONFLICT AND TO PROVIDE CORRECT ROUGH-IN AND CONNECTION FOR EQUIPMENT FURNISHED UNDER OTHER TRADES THAT REQUIRE ELECTRICAL CONNECTIONS. INFORM CONTRACTORS OF OTHER TRADES OF THE REQUIRED ACCESS TO AND CLEARANCES AROUND ELECTRICAL EQUIPMENT TO MAINTAIN SERVICE ABILITY AND CODE COMPLIANCE.

VERIFY EQUIPMENT DIMENSIONS AND REQUIREMENTS WITH PROVISIONS SPECIFIED UNDER THIS SECTION. CHECK ACTUAL JOB CONDITIONS BEFORE FABRICATING WORK. REPORT NECESSARY CHANGES IN TIME TO PREVENT NEEDLESS WORK. CHANGES OR ADDITIONS, SUBJECT TO ADDITIONAL COMPENSATION, WHICH ARE MADE WITHOUT WRITTEN AUTHORIZATION AND IN AGREED PRICE, SHALL BE AT THE CONTRACTOR'S RISK AND EXPENSE.

1.11 ROUTINGS: ALL CONDUIT ROUTINGS, INCLUDING MC CABLE, SHALL BE PARALLEL AND PERPENDICULAR TO THE BUILDING STRUCTURE AND LINES. CONDUITS SHALL BE CONCEALED WHERE POSSIBLE UNLESS NOTED OTHERWISE. AESTHETIC APPEARANCE IS VERY IMPORTANT FOR THE WORK OF THIS PROJECT - THE CONTRACTOR WILL BE REQUIRED TO REMOVE AND REPLACE WORK THAT IS NOT NEAT AND ACCURATE. UNDERGROUND ROUTINGS, IF ANY, BETWEEN BUILDINGS MAY TAKE MOST DIRECT ROUTE.

1.12 CUTTING AND PATCHING: ALL CUTTING AND PATCHING REQUIRED FOR WORK OF THIS DIVISION IS INCLUDED HEREIN. COORDINATION WITH GENERAL CONTRACTOR AND OTHER TRADES IS IMPERATIVE. CONTRACTOR SHALL BEAR THE RESPONSIBILITY FOR AND THE ADDED EXPENSE OF ADJUSTING FOR IMPROPER HOLES, SUPPORTS, ETC.

1.13 ACCEPTANCE DEMONSTRATION: UPON COMPLETION OF THE WORK, AT A TIME TO BE DESIGNATED BY THE OWNER, THE CONTRACTOR SHALL DEMONSTRATE FOR THE OWNER THE OPERATION OF THE ELECTRICAL INSTALLATION, INCLUDING ANY AND ALL SPECIAL ITEMS INSTALLED BY HIM/HER OR INSTALLED UNDER THEIR SUPERVISION.

1.14 RECORD DRAWINGS, EQUIPMENT DATA: MAINTAIN ONE SET OF CLEAN WORKING DRAWINGS AT THE JOB SITE AND ENTER DAILY SUCH "AS-BUILTS" INFORMATION AS FEEDER AND SERVICE ROUTES, PULL BOX LOCATIONS AND CHANGES IN LAYOUT OR ARRANGEMENT WHICH OCCUR DURING CONSTRUCTION. DELIVER COMPLETED DRAWINGS TO THE OWNER.

DELIVER TO THE OWNER'S REPRESENTATIVE THREE COPIES OF DATA SHEETS OR OTHER CURRENT MANUFACTURERS' PUBLICATIONS FOR EACH ITEM OF ELECTRICAL EQUIPMENT FURNISHED FOR THE PROJECT INCLUDING AT LEAST THESE DATA:

- A. TECHNICAL DESCRIPTION AND REPLACEABLE PARTS LIST.
B. PHYSICAL DESCRIPTION AND INSTALLATION INSTRUCTIONS.
C. USER'S MANUAL AND OPERATING INSTRUCTIONS.
D. MANUFACTURER'S WARRANTY.

1.15 CLEAN-UP: RID THE PREMISES OF SCRAP MATERIALS, TRASH AND DEBRIS BOTH DURING CONSTRUCTION AND AT COMPLETION OF THE PROJECT. LEAVE THE BUILDING AND SURROUNDING AREA IN A CLEAN AND ORDERLY CONDITION.

1.16 TEMPORARY SERVICES: PROVIDE ADEQUATE AND SAFE TEMPORARY ELECTRICAL POWER AND LIGHTING THROUGHOUT THE CONSTRUCTION AND FINISHING OF THE PREMISES FOR BENEFICIAL OCCUPANCY. IN ADDITION TO SPECIAL OR UNUSUAL REQUIREMENTS, PROVIDE AT LEAST THESE ITEMS:

- A. SIX 20-AMP CIRCUITS FOR CONSTRUCTION POWER TOOLS. PROVIDE GFI TEMPORARY CIRCUITS WITH COVERPLATES TO MEET OSHA REQUIREMENTS.
B. EIGHT OR MORE LIGHT STRINGS SUSPENDED APPROXIMATELY ONE FOOT BELOW THE HEIGHT OF FINISH CEILING WITH LAMPS SPACED NOT MORE THAN TWELVE FEET ON CENTERS. STRINGS SHALL BE RUN THE LENGTH OF THE BUILDING FOOTPRINT WITH ONE STRING WITHIN EIGHT FEET OF EACH WALL AND ONE (OR MORE) INTERMEDIATE STRING(S) ARRANGED TO LIMIT THE SPACING BETWEEN ROWS TO SIXTEEN FEET OR LESS.
C. FLOOD LIGHTING AND TASK LIGHTING FOR PAINTING AND OTHER FINISH WORK. WHEN PERMANENT ELECTRICAL SERVICE IS OPERABLE, DISCONNECT AND REMOVE FROM THE PREMISES THE MATERIALS AND EQUIPMENT USED FOR TEMPORARY POWER AND LIGHTING, AND RESTORE MODIFICATIONS AND REPAIR DAMAGE CAUSED BY THE INSTALLATION, USE OR REMOVAL OF TEMPORARY SERVICE PROVISIONS.

1.17 WARRANTY: THE CONTRACTOR SHALL UNCONDITIONALLY WARRANT ALL WORK TO BE FREE OF DEFECTS IN MATERIAL AND WORKMANSHIP FOR A PERIOD OF ONE (1) YEAR FROM THE DATE OF FINAL ACCEPTANCE AND WILL REPAIR OR REPLACE ANY DEFECTIVE WORK PROMPTLY AND WITHOUT CHARGE AND RESTORE ANY OTHER EXISTING WORK DAMAGED IN THE COURSE OF REPAIRING DEFECTIVE MATERIALS AND WORKMANSHIP.

PART 2 - PRODUCTS

2.01 MATERIAL APPROVAL: ALL MATERIALS MUST BE NEW AND BEAR UNDERWRITER'S LABORATORIES LABEL. MATERIALS THAT ARE NOT COVERED BY UL TESTING STANDARDS SHALL BE TESTED AND APPROVED BY AN INDEPENDENT TESTING LABORATORY OR A GOVERNMENTAL AGENCY.

MATERIAL NOT IN ACCORDANCE WITH THESE SPECIFICATIONS MAY BE REJECTED EITHER BEFORE OR AFTER INSTALLATION.

2.02 CONDUITS AND OTHER RACEWAYS:

- A. RIGID STEEL: HOT-DIPPED GALVANIZED.
B. INTERMEDIATE METAL CONDUIT (IMC): HOT-DIPPED GALVANIZED.
C. ELECTRICAL METALLIC TUBING (EMT): ELECTRO-GALVANIZED.
D. WIREWAY: CODE GAUGE STEEL, WITH KNOCKOUTS AND HINGED COVER, CORROSION RESISTANT, GRAY BAKED ENAMEL FINISH.
E. PROVIDE FITTINGS AND ACCESSORIES APPROVED FOR THE PURPOSE EQUAL IN ALL RESPECTS TO THE CONDUIT OR RACEWAY. EMT CONNECTORS AND COUPLINGS SHALL BE STEEL SETSCREW TYPE INDOORS AND STEEL COMPRESSION TYPE IN WET LOCATIONS AND OUTDOORS.

2.03 WIRES AND CABLES:

- A. FOR POWER AND LIGHTING SYSTEM 600V OR LESS:
1. CONDUCTOR: MINIMUM SIZE #12 AWG.
a. #12 AND #10 AWG SOLID COPPER.
b. #8 AWG AND LARGER SHALL BE STRANDED COPPER FOR BRANCH CIRCUITS, ALUMINUM FOR SERVICE AND FEEDERS.

- 2. INSULATION TYPE:
a. #12 TO #1 AWG: THHN FOR WET OR UNDERGROUND AND THHN FOR DRY LOCATIONS.
b. #1/0 THROUGH #4/0 AWG: XHHW (55 MILS).
c. #250 KCMIL AND LARGER: XHHW (65 MILS).
d. GROUNDING WIRE: TW.

B. FOR SIGNAL AND COMMUNICATIONS CIRCUIT:

- 1. CONDUCTORS FOR GENERAL USE SHALL BE STRANDED COPPER CONDUCTOR, #16 AWG MINIMUM, WITH THHN INSULATION FOR UNDERGROUND OR WET LOCATIONS AND THHN INSULATION FOR DRY LOCATIONS.

C. ACCEPTABLE PRODUCTS: GENERAL ELECTRIC, AMCONDA, OKONITE, PARANITE OR TRIANGLE PRODUCTS CONFORMING OR EXCEEDING APPLICABLE IPCSEA STANDARDS.

2.04 OUTLET BOXES, JUNCTION AND PULL BOXES:

- A. OUTLET BOXES: 4" SQUARE X 1-1/2" DEEP (OR LARGER) GALVANIZED SHEET STEEL, NO-TYPE WITH PLASTER RING AND COVER FOR GENERAL INTERIOR USE AND CAST METAL TYPE FS OR FD WITH MATCHING SCREW COVERS FOR EXTERIOR AND EXPOSED INTERIOR LOCATIONS (GASKETED IN DAMP OR WET LOCATIONS).
B. JUNCTION BOXES SHALL BE SAME AS OUTLET BOXES UP TO 42 CU. IN. AND CODE-GAUGE STEEL IN LARGER SIZES WITH SURFACE OR FLUSH-TYPE SCREW-MOUNTED TRIM COVERS, BOTH BOXES AND COVERS INHIBITOR-PRIMED AND PAINTED INSIDE OUT.
C. PULL BOXES SHALL BE SAME AS JUNCTION BOXES UNLESS INDICATED OTHERWISE ON THE DRAWINGS, WITH COVERS.
D. TELEDATA OUTLET BOXES SHALL BE THE TYPE AND SIZE REQUIRED BY THE SERVING TELEDATA COMPANY BUT NOT SMALLER THAN 4-11/16" SQUARE X 2-1/8" DEEP WITH SINGLE-GANG RING AND FACE PLATE AS DICTATED BY TELEDATA COMPANY.
E. ALL BOXES AND ASSOCIATED COMPONENTS SHALL BE STEEL CITY 663 SERIES, WITH P60-38 COVERPLATE OR EQUAL.

2.05 WIRING DEVICES AND PLATES SHALL BE HUBBELL, ARROW HART, LEVITON, GE OR P&S WITH HUBBELL NUMBERS USED TO SPECIFY TYPE, USED.

A. STANDARD DESIGN:

- 1. SWITCH AND RECEPTACLE DEVICES SHALL BE AS SPECIFIED BY ARCHITECT.
2. WALL PLATES SHALL BE AS SPECIFIED BY ARCHITECT.
3. SWITCHES SHALL BE 20 AMP, 120/277 VOLT A.C. RATED: SINGLE POLE SWITCHES SHALL BE #1221, (HUBBELL NUMBERS).
4. RECEPTACLES SHALL BE GROUNDING TYPE #5362 (HUBBELL NUMBER).
5. WALL-SWITCH OCCUPANCY/VACANCY SENSORS SHALL BE DUAL-RELAY, MULTI-TECHNOLOGY WALL-SWITCH TYPE, 120/277V, ADJUSTABLE TIME DELAY UP TO 30 MINUTES, 180-DEGREE FIELD OF VIEW, EQUAL TO WATSTOPPER LSW-10X. LUTRON OR NIGHT PRODUCTS ARE ALSO ACCEPTABLE.
6. CEILING OR WALL MOUNT AREA OCCUPANCY OR VACANCY SENSORS SHALL BE MULTI-TECHNOLOGY, 360-DEGREE, SELF-ADJUSTING, ADJUSTABLE TIME DELAY UP TO 20 MINUTES, COMMERCIAL GRADE, EQUAL TO WATSTOPPER. NOTATIONS OF 5, 10, AND 20 SHOWN ON DRAWINGS REPRESENT SENSORS EQUAL TO WATSTOPPER DT-200, DT-300, AND UT-300, RESPECTIVELY. UTILIZE POWER PACKS EQUAL TO WATSTOPPER BZ-250. LUTRON OR NIGHT PRODUCTS ARE ALSO ACCEPTABLE.

2.06 CONDUIT HANGERS:

FOR INDIVIDUAL CONDUIT RUNS NOT DIRECTLY FASTENED TO THE STRUCTURE, USE ROD HANGERS MANUFACTURED BY CADDY, UNISTRUT, OR POWERSTRUT. FOR MULTIPLE CONDUIT RUNS, USE UNISTRUT OR POWERSTRUT TRAPEZE TYPE CONDUIT SUPPORT DESIGNED FOR MAXIMUM DEFLECTION NOT GREATER THAN 1/8".

2.07 WIRE CONNECTORS:

FOR WIRE SIZES #8 AWG AND SMALLER: INSULATED PRESSURE TYPE (WITH LIVE SPRING) RATED 105 DEGREES C., 600V. FOR BUILDING WIRING AND 1000V IN SIGNS OR FIXTURES: SCOTCHLOK OR IDEAL. FOR WIRE SIZE #6 AWG AND LARGER: T & B OR EQUIVALENT COMPRESSION TYPE WITH 3M #33+ OR PLYMOUTH "SLIPKNOT GRAY" TAPE INSULATION.

2.08 PANELBOARDS:

- A. CONSTRUCTION: CABINETS SHALL BE OF CODE GAUGE, GALVANIZED STEEL, SURFACE OR FLUSH MOUNTED AS INDICATED. DOORS SHALL BE OF COLD-ROLLED STEEL WITH CONCEALED HINGES AND FLUSH CATCH AND LOCK. ALL PANELS SHALL BE KEYPED ALIKE. PANELS LOCATED ADJACENT TO EACH OTHER SHALL HAVE IDENTICALLY SIZED ENCLOSURE AND TRIMS. MINIMUM PANEL WIDTH SHALL BE 20". FINISH EXPOSED PART WITH ONE COAT OF PRIMER AND ONE COAT OF LIGHT GRAY ENAMEL SUITABLE FOR OVERPAINTING IN FIELD IF DESIRED.
B. BUS BARS: PROVIDE GROUND BLOCK WITH FULL COMPLEMENT OF TERMINALS IN ADDITION TO INSULATED NEUTRAL BUS. FUTURE BREAKER SPACES SHALL HAVE COMPLETE PROVISION INCLUDING BUSES AND CONNECTING HARDWARE.
C. MANUFACTURERS: PANELBOARDS SHALL BE GENERAL ELECTRIC, SQUARE D, EATON, OR SIEMENS-ITE.
D. CIRCUIT BREAKERS: SHALL BE QUICK-MAKE, QUICK-BREAK, MOLDED CASE TYPE:
1. 120/208-240 VOLT PANELS: SHALL BE BOLT-ON TYPE WITH MINIMUM SYMMETRICAL INTERRUPTING CAPACITY AS SHOWN ON THE PLANS.
2. ALL BREAKERS MUST BE FULLY RATED. SERIES RATING NOT ALLOWED.
3. PROVIDE MULTI-POLE UNITS WITH COMMON TRIP ELEMENT.
E. IDENTIFICATION: PROVIDE SCREWED-ON (NO ADHESIVES) BAKELITE OR PHOTO-ETCHED METALLIC NAMEPLATE IDENTIFICATION ON OUTSIDE OF EACH PANEL SHOWING PANEL DESIGNATION, VOLTAGE, AND PHASE IN

MINIMUM 1/4" HIGH LETTERS. EACH PANEL SHALL CONTAIN A METAL-FRAMED CIRCUIT DIRECTORY INSIDE COVER, WITH PLASTIC PROTECTOR.

F. COMPLETE SHOP DRAWINGS ARE REQUIRED. SEE ARTICLE 1.08.

2.09 INDIVIDUALLY MOUNTED MOTOR CONTROLLERS:

- A. STARTERS FOR FRACTIONAL HORSEPOWER 120V MOTORS SHALL BE MANUAL TYPE UNLESS SHOWN OTHERWISE, EQUIPPED WITH BUILT-IN OVERLOAD PROTECTION.
B. ACCEPTABLE MANUFACTURERS: GENERAL ELECTRIC, EATON, SIEMENS, SQUARE D, AND ALLEN BRADLEY.

2.10 MISCELLANEOUS MATERIALS:

- A. SAFETY SWITCHES: HEAVY DUTY TYPE, 600V, HORSEPOWER RATED FOR MOTORS, FUSED OR NON-FUSED AS REQUIRED. MOUNT IN ENCLOSURE WITH NEMA RATING AS REQUIRED FOR THE SPECIFIC APPLICATION. GENERAL ELECTRIC, SQUARE D, EATON OR SIEMENS-ITS.

2.11 LIGHTING:

- A. LIGHTING TO BE PROVIDED BY THE ELECTRICAL CONTRACTOR AS INDICATED ON THE DRAWINGS. SUBCONTRACTORS TO INSTALL ALL FIXTURES COMPLETE, INCLUDING LAMPS AND BALLASTS, READY FOR SERVICE.
B. SUPPORTS: PROPER SUPPORTS AND MOUNTING ACCESSORIES, SUCH AS HANGERS, STEMS, YOKES, PLASTER FRAMES, ETC. SHALL BE PROVIDED AS REQUIRED BY THE TYPE OF CEILING INSTALLED. FIXTURES SHALL HANG PLUMB REGARDLESS OF CEILING SLOPE.
C. FIXTURE DESIGNATION: FIXTURE TYPES ARE DESIGNATED ON DRAWINGS. FOR EXACT FIXTURE COUNT AND LOCATION, REFER TO REFLECTED CEILING PLAN.

PART 3 - EXECUTION

3.01 GENERAL:

- A. ELECTRIC SYSTEM LAYOUTS INDICATED ON THE DRAWINGS ARE GENERALLY DIAGRAMMATIC AND SHALL BE FOLLOWED AS CLOSELY AS ACTUAL CONSTRUCTION AND WORK OF OTHER TRADES WILL PERMIT. GOVERN EXACT ROUTING OF CABLE AND WIRING AND THE LOCATIONS OF OUTLETS BY THE STRUCTURE AND EQUIPMENT SERVED. TAKE ALL DIMENSIONS FROM ARCHITECTURAL DRAWINGS.
B. CONSULT ALL OTHER DRAWINGS, VERIFY SCALES AND REPORT ANY DIMENSIONAL DISCREPANCIES OR OTHER CONFLICTS WITH THE ARCHITECT BEFORE SUBMITTING BID.
C. ALL HOME RUNS TO PANELBOARDS ARE INDICATED AS STARTING FROM THE OUTLET NEAREST THE PANEL AND CONTINUING IN THE GENERAL DIRECTION OF THAT PANEL. CONTINUE SUCH CIRCUITS TO THE PANEL AS THOUGH THE ROUTES WERE COMPLETELY INDICATED. TERMINATE HOMERUNS OF SIGNAL, ALARM, AND COMMUNICATION SYSTEMS IN A SIMILAR MANNER.
D. AVOID CUTTING AND BORING HOLES THROUGH STRUCTURE OR STRUCTURE MEMBERS WHEREVER POSSIBLE. OBTAIN PRIOR APPROVAL OF OWNER AND CONFORM TO ALL STRUCTURAL REQUIREMENTS WHEN CUTTING OR BORING THE STRUCTURE IS NECESSARY AND PERMITTED.
E. FURNISH AND INSTALL ALL NECESSARY HARDWARE, HANGERS, BLOCKING, BRACKETS, BRACING, RUNNERS, ETC. REQUIRED FOR EQUIPMENT SPECIFIED UNDER THIS SECTION.
F. PROVIDE NECESSARY BACKING REQUIRED TO INSURE RIGID MOUNTING OF OUTLET BOXES.

3.02 WIRING METHODS:

- A. NO "ROMEX" OR ARMORED CABLE WIRING IS PERMITTED - ALL ELECTRICAL WIRING MUST BE IN CONDUIT.
B. CONDUIT SHALL BE RIGID STEEL, IMC, EMT, METAL CLAD (MC) CABLE, OR SCHEDULE 40 PVC AS FOLLOWS:
1. ABOVE GROUND: USE RIGID STEEL, IMC, MC, OR EMT. MC CABLE SHALL BE INSTALLED ONLY WHERE PERMITTED BY CODE AND THE AUTHORITY HAVING JURISDICTION.

- a. WET LOCATIONS: RIGID STEEL OR IMC ONLY.
b. LOCATIONS SUBJECT TO MECHANICAL DEFORMATION: RIGID STEEL OR IMC ONLY.
c. DRY INTERIOR LOCATIONS FOR BRANCH CIRCUIT WIRING AND NOT SUBJECT TO MECHANICAL DEFORMATION: EMT, IMC, MC, OR RIGID STEEL CONDUIT.
d. DRY INTERIOR LOCATIONS FOR OTHER THAN BRANCH CIRCUIT WIRING AND NOT SUBJECT TO MECHANICAL DEFORMATION: EMT, IMC, OR RIGID STEEL CONDUIT.

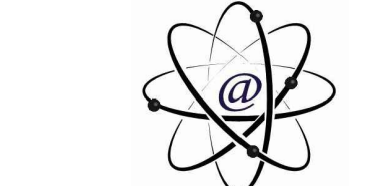
2. UNDERGROUND: USE RIGID STEEL OR SCHEDULE 40 PVC WITH RIGID STEEL ELLS AND RIGID STEEL CONDUIT/FITTINGS WHEN EMERGING FROM GRADE, UNLESS NOTED OTHERWISE.

C. USE FLEXIBLE CONDUITS IN THE FOLLOWING APPLICATIONS (MAX 6-FT):

- 1. RECESSED LIGHTING FIXTURES.
2. MOTOR CONNECTIONS.
3. AT WET LOCATIONS, FLEXIBLE CONDUIT SHALL BE LIQUIDTIGHT TYPE.
D. LIGHT FIXTURES INSTALLED IN GYP BOARD CEILINGS MAY BE WIRED FROM FIXTURE TO FIXTURE USING MC CABLE UNLESS PROHIBITED BY THE AHJ. VERIFY THAT LIGHT FIXTURES ARE PROVIDED WITH JUNCTION BOXES APPROVED FOR THIS PURPOSE. MC TYPE CABLE TO MEET ANSI/NFPA 70 REQUIREMENTS. CABLE ARMOR TO BE INTERLOCKED STEEL METAL TAPE. MC TYPE CABLE MANUFACTURED BY AFC CABLE SYSTEMS, PIRELLI CABLE CORPORATION AND SOUTHWIRE COMPANY ARE APPROVED. MC CABLE SHALL NOT BE USED TO WIRE LIGHT FIXTURES INSTALLED IN EXPOSED CEILINGS FROM FIXTURE TO FIXTURE (6-FT LIGHT FIXTURE WHIPS ARE PERMITTED).
E. ALL WIRING SHALL BE IN CONDUIT.
F. ALL CONDUIT AND MC CABLE SHALL BE SUPPORTED AS REQUIRED BY THE NEC.

3.03 INSTALLATION OF CONDUITS:

- A. GENERAL:
1. RUN ALL CONDUIT CONCEALED, IF POSSIBLE, UNLESS NOTED OTHERWISE ON THE PLANS.



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DATE: MAR 15, 2023

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REVISIONS:
[Blank revision table]

DRAWN BY: GR
REVIEWED BY: AD

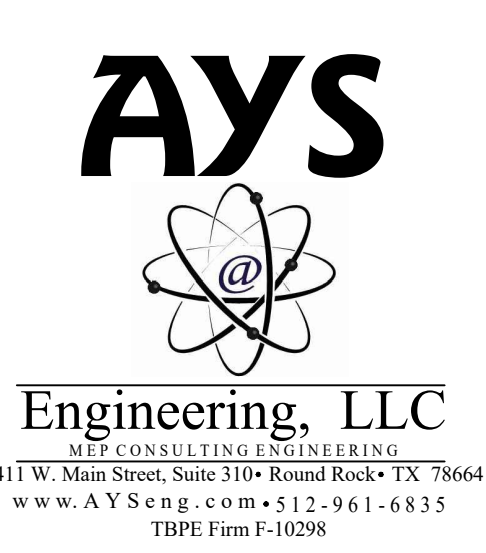
ELECTRICAL SPECIFICATIONS

E5.0

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**ELECTRICAL SPECIFICATIONS:**

- 2. RUN ALL CONDUIT PARALLEL TO OR AT RIGHT ANGLES TO CENTER LINES OF COLUMNS AND BEAMS.
  - 3. CONDUITS ABOVE CEILINGS SHALL NOT OBSTRUCT REMOVAL OF CEILING TILES, LIGHTING FIXTURES, AIR DIFFUSERS, ETC.
  - 4. CONDUITS SHALL NOT CROSS ANY DUCT SHAFT OR AREA DESIGNATED AS FUTURE DUCT SHAFT HORIZONTALLY. CONDUIT RISERS WHEN ALLOWED IN DUCT SHAFT, MUST BE COORDINATED WITH MECHANICAL WORK TO AVOID ANY CONFLICT.
  - 5. INSTALL NO MORE THAN THE EQUIVALENT OF THREE 90-DEGREE BENDS IN ANY CONDUIT RUN EXCEPT FOR COMMUNICATIONS CONDUITS, FOR WHICH ONLY TWO BENDS ARE ALLOWED. PROVIDE J-BOXES AS NEEDED WHERE MORE BENDS ARE NEEDED.
- B. CONDUIT SUPPORTS:
- 1. SUPPORT CONDUITS WITH UNDERWRITER'S LABORATORIES LISTED STEEL CONDUIT SUPPORTS AT INTERVALS REQUIRED BY THE NATIONAL ELECTRIC CODE. WIRES OR SHEET METAL STRIPS ARE NOT ACCEPTABLE FOR CONDUIT SUPPORT. USE CONDUIT HANGERS FOR ALL CONDUITS NOT DIRECTLY FASTENED TO STRUCTURE AND FOR ALL MULTIPLE CONDUIT RUNS. DO NOT ATTACH ANY CONDUIT TO MECHANICAL DUCTS OR PIPES.
  - 2. AVOID ATTACHING CONDUIT TO AIR MOVING SYSTEM. WHEN IT IS NECESSARY TO SUPPORT CONDUIT FROM AIR MOVING SYSTEM, PROVIDE A LENGTH OF FLEXIBLE CONDUIT BETWEEN PORTION ATTACHED TO AIR MOVING SYSTEM AND PORTION ATTACHED TO THE BUILDING TO MINIMIZE TRANSMISSION OF VIBRATION TO THE BUILDING STRUCTURE.
  - 3. AN NFPA 251 TESTED AND APPROVED CEILING SYSTEM CAN BE USED TO SUPPORT BRANCH CIRCUIT CABLING WHERE APPROVED BY THE AHJ.
- C. CONDUIT PENETRATION:
- 1. PENETRATING FIRE RATED FLOOR, CEILING OR WALL: INSTALL CONDUIT IN CONDUIT SLEEVE OR FRAMED OPENING. SEAL PENETRATION WITH FIRE RETARDANT SEALANT.
  - 2. PENETRATING ROOF OR EXTERIOR WALL: AVOID PENETRATING ROOF OR EXTERIOR WALL WHERE POSSIBLE. WHERE PENETRATIONS ARE NECESSARY, BUILDING WEATHERPROOF INTEGRITY MUST BE PRESERVED. CONDUITS PENETRATING THROUGH ROOF SHALL HAVE ROOF FLASHING WITH CAULK TYPE COUNTERFLASHING SLEEVE.
  - 3. PENETRATING NON-FIRE RATED DRY WALL: CONDUIT SLEEVES ARE NOT REQUIRED. PENETRATIONS MUST BE SEALED WITH PLASTER PRIOR TO PAINTING. PENETRATIONS MADE AFTER WALL FINISH IS APPLIED MUST BE AS SMALL AS POSSIBLE AND PROVIDED WITH ESCUTCHEONS, ONE ON EACH SIDE OF WALL.
  - 4. PENETRATING SUSPENDED CEILING: CUT HOLE AS SMALL AS POSSIBLE TO PERMIT CONDUIT PENETRATION. PROVIDE ESCUTCHEON FOR EACH CONDUIT BELOW CEILING.
- 3.04 CONNECTIONS TO EQUIPMENT:
- A. GENERAL:
- 1. FURNISH AND INSTALL REQUIRED POWER SUPPLY CONDUIT AND WIRING TO ALL EQUIPMENT. SEE BELOW FOR OTHER WIRING REQUIRED.
  - 2. FURNISH AND INSTALL A DISCONNECT SWITCH IMMEDIATELY AHEAD OF AND ADJACENT TO EACH MAGNETIC MOTOR STARTER OR APPLIANCE UNLESS THE MOTOR APPLIANCE IS LOCATED ADJACENT AND WITHIN SIGHT OF THE SERVING PANELBOARD, CIRCUIT BREAKER OR SWITCH. VERIFY ALL EQUIPMENT NAMEPLATE CURRENT RATINGS PRIOR TO INSTALLATION.
  - 3. INSTALL ALL ROUGH-IN WORK FOR EQUIPMENT FROM APPROVED SHOP DRAWINGS TO SUIT THE SPECIFIC REQUIREMENTS OF THE EQUIPMENT.
  - 4. FURNISH AND INSTALL MANUAL THERMAL PROTECTION FOR ALL MOTORS NOT INTEGRALLY EQUIPPED WITH THERMAL PROTECTION.
  - 5. FURNISH 120 VOLT POWER TO EACH CONTROL PANEL AND TIME SWITCH REQUIRING A SOURCE OF POWER TO OPERATE.
- 3.05 INSTALLATION OF CONDUCTORS:
- A. PULL NO WIRE INTO ANY PORTION OF THE CONDUIT SYSTEM UNTIL ALL CONSTRUCTION WORK WHICH MIGHT DAMAGE THE WIRE HAS BEEN COMPLETED.
  - B. INSTALL ALL WIRE CONTINUOUS FROM OUTLET TO OUTLET OR TERMINAL TO TERMINAL. SPLICES IN CABLES WHEN REQUIRED SHALL BE MADE IN HAND HOLES, PULL BOXES OR JUNCTION BOXES. MAKE BRANCH CIRCUIT SPLICES IN OUTLET BOXES WITH 8" OF CORRECTLY COLOR-CODED TAILS LEFT IN THE BOX.
  - C. SPLICES IN WIRES AND CABLES SHALL BE MADE UTILIZING MATERIALS AND METHODS DESCRIBED HEREIN BEFORE.
  - D. MAKE ALL GROUND, NEUTRAL AND LINE CONNECTIONS TO RECEPTACLE AND WIRING DEVICE TERMINALS AS RECOMMENDED BY MANUFACTURER.
  - E. PROVIDE BRADY WIRE MARKERS WHERE NUMBER OF CONDUCTORS IN A BOX EXCEEDS FOUR.
  - F. MEGGER AND RECORD INSULATING RESISTANCE OF ALL 600 VOLT INSULATED CONDUCTORS SIZE #4/0 AND LARGER USING 500 VOLT MEGGER FOR ONE MINUTE. MAKE TESTS WITH CIRCUITS ISOLATED FROM SOURCE AND LOAD. VERIFY THAT RESULTS ARE WITHIN THE MANUFACTURER'S RESISTANCE SPECIFICATIONS. SUBMIT ALL RESULTS TO ENGINEER.
- 3.06 WIRE COLOR CODE:
- COLOR CODING SHALL BE CONTINUOUS FOR WIRE #12 THROUGH #10 AWG. PHASE CONDUCTORS #8 AND LARGER AND CONDUCTORS OF ANY SIZE IN CABLE ASSEMBLIES MAY HAVE COLORED PHASING TAPE AT TERMINATIONS. COLOR CODE WIRES AS FOLLOWS:
- | VOLTAGE  | PHASE A | PHASE C | NEUTRAL | CND   |
|----------|---------|---------|---------|-------|
| 120/240V | RED     | BLUE    | WHITE   | GREEN |
- 3.07 IDENTIFICATION:
- A. PROVIDE NAMEPLATES FOR PANELBOARDS, AND ALL SIMILAR DEVICES. NAMEPLATES SHALL BE SCREWED (NO ADHESIVES) ENGRAVED BAKELITE OR PHOTO-ETCHED METALLIC NAMEPLATE IDENTIFICATION SHOWING PANEL DESIGNATION, VOLTAGE AND PHASE IN MINIMUM 1/4" HIGH LETTERS.
- B. EACH PANELBOARD SHALL CONTAIN A METAL-FRAMED CIRCUIT DIRECTORY INSIDE COVER, WITH PLASTIC PROTECTOR.
  - C. PANELBOARD SCHEDULE: AFTER COMPLETION OF WORK, PROVIDE TYPEWRITTEN UPDATED PANELBOARD SCHEDULES FOR ALL PANELBOARDS. INCLUDE ROOM/EQUIPMENT DESIGNATIONS TO IDENTIFY ROOM/EQUIPMENT SERVED BY CIRCUIT.
- 3.08 GROUNDING:
- A. ELECTRICAL SERVICE AND ALTERNATING CURRENT SYSTEMS SHALL BE GROUNDED IN ACCORDANCE WITH NEC ARTICLE 250.3 TO 250.30, INCLUSIVE.
  - B. GROUND NON-CURRENT CARRYING METAL PARTS OF ELECTRICAL ENCLOSURES, FRAMES, OR CONDUCTOR RACEWAYS TO PROVIDE A LOW IMPEDANCE PATH FOR LINE-TO-GROUND FAULT CURRENT AND TO BOND ALL NON-CURRENT CARRYING METAL PARTS TOGETHER. PROVIDE GROUND CONDUCTOR IN EACH RACEWAY SYSTEM, WHETHER GROUND WIRE IS SPECIFICALLY LISTED OR NOT. EQUIPMENT GROUND CONDUCTOR SHALL BE ELECTRICALLY AND MECHANICALLY CONTINUOUS FROM THE ELECTRICAL CIRCUIT SOURCE TO THE EQUIPMENT TO BE GROUNDED. SIZE GROUND CONDUCTORS PER NEC ARTICLE 250.122 UNLESS LARGER CONDUCTORS ARE SHOWN ON DRAWINGS.
  - C. GROUNDING CONDUCTORS SHALL BE IDENTIFIED WITH GREEN INSULATION. WHERE GREEN INSULATION IS NOT AVAILABLE ON LARGER SIZES, BLACK INSULATION SHALL BE USED AND SUITABLY IDENTIFIED WITH GREEN TAPE AT EACH JUNCTION BOX OR DEVICE ENCLOSURE.



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DATE: MAR 15, 2023

**CONSTRUCTION DOCUMENTS**  
**HEATHERWILDE OFFICE CONDOS BLDG 3**

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PROJECT NO: 17003

REVISIONS:


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ELECTRICAL SPECIFICATIONS

**E5.1**