

VILLA FINALE MUSEUM AND GARDENS  
VISITORS' CENTER

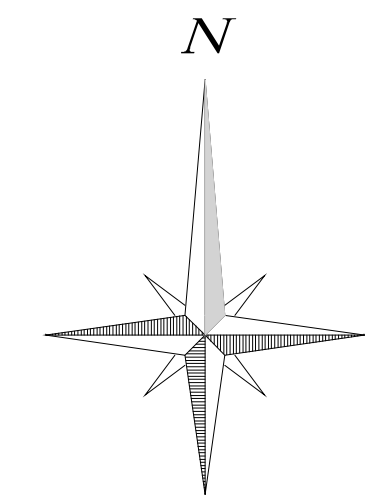
SAN ANTONIO, TEXAS

MICHAEL G. IMBER  
ARCHITECTS



## GRAPHIC SYMBOLS

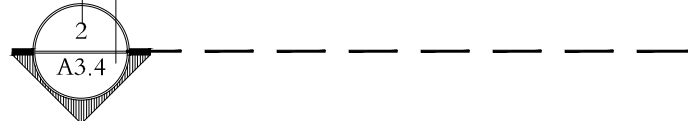
### NORTH ARROW SYMBOL



### DRAWING REFERENCE SYMBOLS

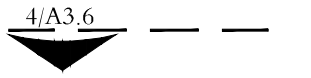
#### BUILDING SECTION:

SECTION NUMBER  
SHEET NUMBER

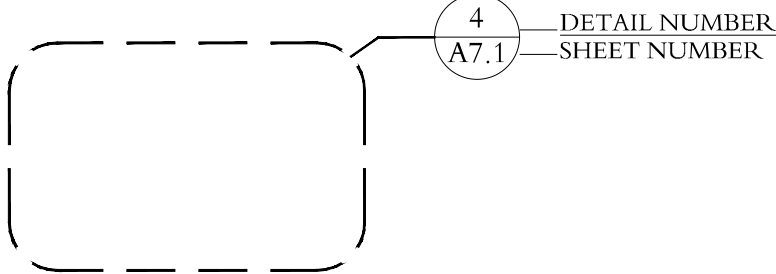


#### WALL SECTION/ ROOF DETAIL:

SECTION NUMBER  
SHEET NUMBER



### DETAIL REFERENCE SYMBOL



### IDENTIFICATION SYMBOLS

#### WINDOW TYPE:

ROOM NUMBER  
WINDOW TYPE



#### DOOR TYPE:

ROOM NUMBER  
DOOR TYPE



#### COLUMN TYPE:

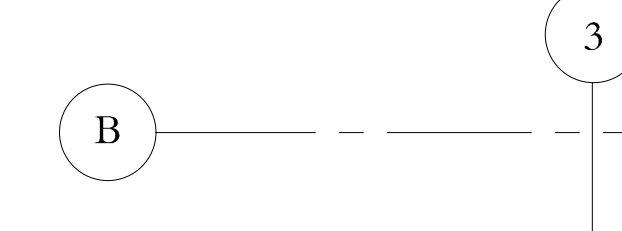
COLUMN TYPE



#### ROOM IDENTIFICATION:

#### DINING ROOM

131



B

## GENERAL NOTES

- CONTRACTOR SHALL CONFINE HIS ACTIVITIES TO THE PROJECT SITE UNDER DEVELOPMENT AND WITHIN THE EXISTING RIGHT-OF-WAYS. CONSTRUCTION AND PERMANENT EASEMENTS, AND SHALL NOT TRESPASS ON OTHER PRIVATE PROPERTY WITHOUT THE CONSENT OF THE OWNER OF THE PROPERTY.
- CONTRACTOR SHALL OBTAIN FINAL APPROVAL FROM THE OWNER FOR LOCATIONS OF PARKING AND STAGING AREAS.
- CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ALL TAPS, EXTENSIONS, WATER AND ELECTRICITY FOR ALL PROJECT FUNCTIONS, PROJECT OFFICE, STORAGE, ETC.
- CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING HIS OWN TELEPHONE, TOILET, VALVES OR OTHER DEVICES NECESSARY TO RUN POWER TOOLS AND EQUIPMENT. SUCH MODIFICATIONS TO EXISTING UTILITIES SHALL BE REMOVED AT COMPLETION OF THE PROJECT.
- CONTRACTOR IS RESPONSIBLE FOR LOCATING ALL UTILITIES ON SITE. PROTECTIVE MEASURES SHALL BE TAKEN BY THE CONTRACTOR TO PROTECT ANY UTILITIES OR STRUCTURES AT THE SITE. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE OWNER OF AFFECTED UTILITIES OR STRUCTURES BEFORE STARTING WORK. CONTRACTOR SHALL NOTIFY THE PROPER UTILITY COMPANY IMMEDIATELY UPON DAMAGE OR BREAKAGE OF ANY UTILITY LINE OR APPURTENANCE, OR ANY INTERRUPTION OF THEIR SERVICES.
- WHEN AN EXISTING UTILITY CONFLICTS WITH PROJECT REQUIREMENTS, CONTRACTOR SHALL NOTIFY THE ENGINEER AND/OR ARCHITECT SO THAT THE CONFLICT MAY BE RESOLVED.
- WHEN AN EXISTING UTILITY REQUIRES ADJUSTMENT OR RELOCATION, CONTRACTOR SHALL NOTIFY THE PROPER UTILITY COMPANY AND COORDINATE SUBSEQUENT WORK ACCORDINGLY. THERE SHALL BE NO CLAIM MADE BY THE CONTRACTOR NOR ANY ADDITIONAL COSTS INCURRED BY DELAYS IN CONSTRUCTION DUE TO ADJUSTMENT OR RELOCATION OF UTILITIES.
- UNLESS NOTED OTHERWISE, SITE PLAN DIMENSIONS ARE TO FACE STUD & PROPERTY LINE. FLOOR PLAN DIMENSIONS ARE TO FACE OF STUD FRAMING. REFER TO STRUCTURAL DRAWINGS FOR GRID LAYOUT AND DIMENSIONS.

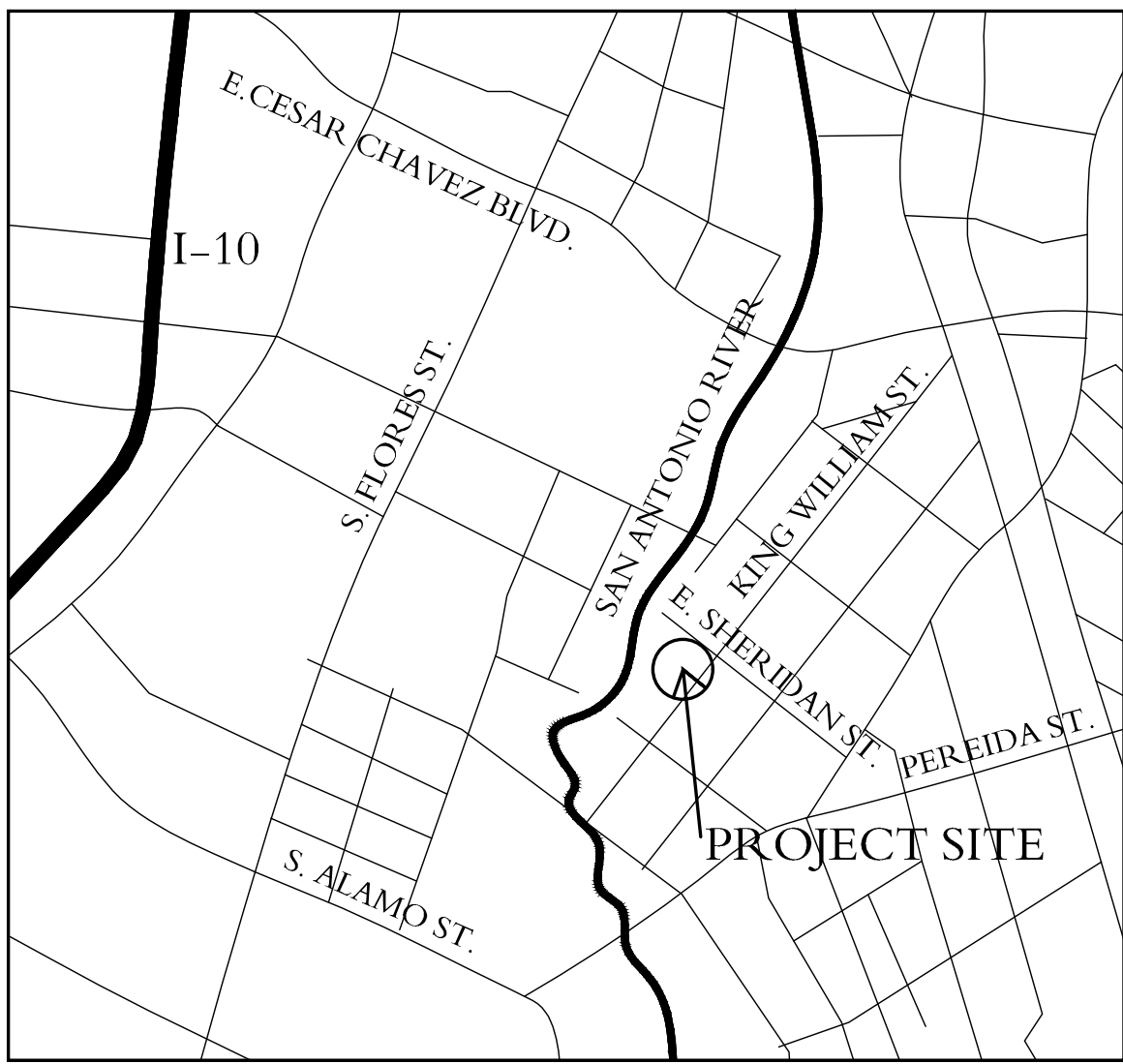
ALL DETAIL ITEMS NOTED AS 'ARCHITECT TO PROVIDE DETAIL' ARE FOR CLARIFICATION OF DETAILS ONLY AND WILL NOT MODIFY THE PROJECT SCOPE OR COST.

## LEGAL DESCRIPTION

BEING A TOTAL OF 1.1579 ACRES, BEING ALL OF LOTS 1, 2, 3, BLOCK 4, NEW CITY BLOCK 745 RECORDED IN VOLUME 10541, PAGE 662, AND A PORTION OF LOT 4, BLOCK 4, NEW CITY BLOCK 745 RECORDED IN VOLUME 5883, PAGE 662 OF THE OFFICIAL PUBLIC RECORDS OF BEXAR COUNTY, TEXAS, OUT OF THE ORIGINAL SAN ANTONIO TOWN TRACT SURVEY, ABSTRACT 20, ESTABLISHING LOT 10, BLOCK 4, IN NEW CITY BLOCK 745, IN THE CITY OF SAN ANTONIO, BEXAR COUNTY, TEXAS.

## LOCATION MAP

N.T.S.



401 KING WILLIAM STREET  
SAN ANTONIO, TEXAS

NORTH

## CONTACT INFORMATION

### MICHAEL G. IMBER ARCHITECTS

ARCHITECT

111 WEST EL PRADO  
SAN ANTONIO, TEXAS 78212  
210.824.7703

### TROY JESSEE CONSTRUCTION

CONTRACTOR

312 W JOSEPHINE STREET  
SAN ANTONIO, TX 78212  
210.737.3434

### WGA CONSULTING ENGINEERS

CIVIL ENGINEER

909 NE LOOP 410, SUITE 107  
SAN ANTONIO, TX 78209  
210.585.3700

### PERSYN ENGINEERING

STRUCTURAL ENGINEER

MIKE BLEDSOE  
4734 COLLEGE PARK  
SAN ANTONIO, TX 78249  
210.680.4126

### CES ENGINEERING

MEP ENGINEER

VISH HARIHARAPUTRAN  
1370 PANTHEON WAY, SUITE #290  
SAN ANTONIO, TX 78232  
210.686.1614

## LIST OF ALTERNATES

- PROVIDE STAINED AND SEALED CONCRETE FLOORING THROUGHOUT IN LIEU OF SEALED CONCRETE FLOORING THROUGHOUT
- PROVIDE ACOUSTICAL TREATMENT AT WALLS AND CEILING EXHIBITION SPACE 102
- ADD OPERABLE TRANSOMS AND HARDWARE AT WINDOWS 102-1 AND 102-2 AND DOOR 102-A AND 102-B
- PROVIDE INDIVIDUAL EMERGENCY LIGHT FIXTURES IN LIEU OF INVERTER FOR RECESSED FIXTURES AS DRAWN.

## SQUARE FOOTAGE

MAIN LEVEL		
CONDITIONED COVERED	1,613 sq. ft.	
	280 sq. ft.	
MAIN LEVEL TOTAL		1,893 sq. ft.

## CODE REVIEW

PROJECT ADDRESS	401 KING WILLIAM STREET SAN ANTONIO, TEXAS 78204
GROSS FLOOR AREA	1613 SQ. FT.
NO. OF STORIES	1 STORY
BUILDING HEIGHT	19'-7"
FIRE SPRINKLER PROVIDED	NO
AUTHORITY HAVING JURISDICTION	CITY OF SAN ANTONIO
ADOPTED BUILDING CODES	2021 INTERNATIONAL BUILDING CODE 2021 INTERNATIONAL MECHANICAL CODE 2021 INTERNATIONAL PLUMBING CODE 2021 INTERNATIONAL FIRE CODE 2021 INTERNATIONAL ENERGY CONSERVATION CODE

UDC ZONING DESIGNATION	R-4 S IDZ H HE RIO-4 AHOD KING WILLIAM HISTORIC DISTRICT INDIVIDUAL LANDMARK
------------------------	--

RESIDENTIAL SINGLE-FAMILY INFILL DEVELOPMENT ZONE OVERLAY KING WILLIAM HISTORIC OVERLAY HISTORIC EXCEPTIONAL RIVER IMPROVEMENT OVERLAY 4 AIRPORT HAZARD OVERLAY DISTRICT WITH A SPECIFIC USE AUTHORIZATION FOR A MUSEUM AND MAJOR SITE PLAN AMENDMENT

UDC - ZONING REQUIREMENTS	
MIN. FRONT SETBACK:	10'
MAX. FRONT SETBACK:	--
MIN. REAR SETBACK:	20' FROM PROPERTY LINE
MIN. SIDE SETBACK:	5' FROM PROPERTY LINE
MAX. UDC BUILDING HEIGHT:	35' / 2.5 STORIES
MAX. INDIVIDUAL BUILDING SIZE:	--
MAX. AGGREGATE BUILDING SIZE SETBACK AMOUNT:	10'-10' FROM SIDE PROPERTY LINE

PLATTING	
HAS SITE BEEN PLATTED?	IN PROGRESS
IS SITE EXEMPT FROM PLATTING?	NO
WILL PLATTING BE REQUIRED?	YES

UDC - PARKING REQUIREMENTS	
PARKING SPACE MINIMUM:	0 (PER IDZ OVERLAY)
PARKING SPACE MAXIMUM:	0
PARKING SPACE PROVIDED:	0
ACCESSIBLE PARKING SPACE REQUIRED:	0
VAN ACCESSIBLE PARKING SPACES REQUIRED:	0
MAXIMUM IMPERVIOUS COVER:	4,762 SQ. FT. (EXISTING NOT TO EXCEED)
BICYCLE PARKING (UDC 35-526 (B)(8)(9)(L)):	10% OF MIN. PARKING SPACES - 0

DESIGN REVIEW	
PUBLIC PROJECT REQUIRING HDRC REVIEW?	YES
IS IT LOCATED IN A HISTORIC DISTRICT?	YES, KING WILLIAM HISTORIC DISTRICT
SUBDIVISION/NEIGHBORHOOD REVIEW REQ'D?	YES, KING WILLIAM ASSOCIATION
NEIGHBORHOOD DESIGN GUIDELINES?	NO
CORRIDOR DISTRICT	NO
BUILDING MATERIAL REQUIREMENTS:	YES, PER HDRC

## INTERNATIONAL BUILDING CODE

OCCUPANCY CLASSIFICATION (CHAPTER 3)	A-3 - ASSEMBLY - EXHIBITION HALL
MIXED OCCUPANCY (CHAPTER 5)	NO
TYPE OF CONSTRUCTION (CHAPTER 6)	TYPE V-B
ALLOWABLE FLOOR AREA (TABLE 506.2)	6000 SQ. FT.
ALLOWABLE BUILDING HEIGHT (TABLE 504.3)	40'
ALLOWABLE NO. OF STORIES (TABLE 504.4)	1
MEZZANINES	NO
ATRIUM(S)	NO
FIRE-RESISTIVE REQUIREMENTS (CHAPTER 6 AND 7)	
STRUCTURAL FRAME (TABLE 601)	0
FLOOR-CEILING (TABLE 601)	0
ROOF-CEILING (TABLE 601)	0
EXTERIOR DOORS & WINDOWS	0
EXTERIOR WALLS FOR FIRE SEPARATION (TABLE 705.8)	0
SHAFT ENCLOSURES (SECTION 713)	N/A
CORRIDOR FIRE RATING (TABLE 1020.1)	N/A
LIFE SAFETY SYSTEMS (CHAPTER 9)	
AUTOMATIC SPRINKLER SYSTEM REQUIRED (SECTION 903)	NO (PER 903.2.1.3)
STAND PIPE (SECTION 905)	NO
MAX DISTANCE TO FIRE EXTINGUISHER (TABLE 906.3.4)	75'
SPECIAL INSPECTIONS REQUIRED (IBC SECTION 1705)	NO

## INTERNATIONAL ENERGY CONSERVATION CODE

CLIMATE ZONE (FIGURE C301.1)	ZONE 2A
COMPLIANCE PATH (SECTION C401.2)	TOTAL BUILDING PERFORMANCE COMCHECK (ATTACHED)
ENERGY CODE REQUIREMENTS (TABLE C402.1.3)	
ROOFS, ATTIC AND OTHER WALLS, ABOVE GRADE, WOOD FRAMED	R-38
BELOW GRADE WALL	R-13 + R-3.8ci OR R-20
SLAB ON GRADE FLOORS	NR
(TABLE C402.4)	
FIXED PENETRATION U-FACTOR	0.45
OPERABLE PENETRATION U-FACTOR	0.60
ENTRANCE DOOR U-FACTOR	0.77

## FIXTURE COUNT

UNIT OCCUPANCY	WATER CLOSET		LAVATORIES				DRINKING FOUNTAINS		OTHER	
	REQ'D		PRV'D		REQ'D		PRV'D		REQ'D	
	MALE	FEMALE			MALE	FEMALE	MALE	FEMALE		
124 (~ 62 male + 62 female)	1 per 125	1 per 65	3		1 per 200		3		1 PER 500*	1
									1 SERVICE SINK	1

TOTAL REQUIRED PER IBC SEC. 29, TABLE 2902.1 - MINIMUM NUMBER OF REQUIRED PLUMBING FIXTURES

## SHEET INDEX

### CIVIL

C0.1	COVER
C0.2	PLAT
C1.1	GENERAL NOTES
C2.1	DIMENSION CONTROL PLAN
C3.1	FIRE PROTECTION SITE PLAN
C4.1	GRADING PLAN
C5.1	UTILITY PLAN
C6.1	EROSION CONTROL PLAN
C7.1	DRAINAGE AREA MAP
C8.1	EROSION CONTROL DETAILS
C8.2	EROSION CONTROL DETAILS
C8.3	PAVING DETAILS
C8.4	UTILITY DETAILS
C8.5	LOW IMPACT DEVELOPMENT DETAILS

### LANDSCAPE

L1.1	LANDSCAPE AND TREE PRESERVATION PLAN
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### ARCHITECTURAL

A0.0	COVER SHEET
A0.1	REFERENCE SHEET
A0.2	BUILDING DETAILS
LS1.1	LIFE SAFETY PLAN
AS1.1	SITE PLAN
A1.1	FLOOR PLAN
A1.2	ROOF PLAN
A1.3	PAVING PLAN
A2.1	WINDOW & DOOR SCHEDULES
A3.1	EXTERIOR ELEVATIONS
A3.2	EXTERIOR ELEVATIONS
A4.1	WALL SECTIONS
A4.2	WALL SECTIONS
AS.1	INTERIOR ELEVATIONS
AS.2	INTERIOR ELEVATIONS
AS.3	INTERIOR ELEVATIONS
AS.4	INTERIOR ELEVATIONS
AS.5	INTERIOR ELEVATIONS
AS.6	INTERIOR ELEVATIONS
A6.10	HJS DETAILS
A6.11	HJS DETAILS
A6.20	MILLWORK PROFILES
A6.21	MILLWORK SECTIONS
A6.30	EXTERIOR DETAILS
A6.31	EXTERIOR DETAILS
A7.1	POWER PLAN
A8.1	REFLECTED CEILING PLAN
A9.1	ROOM FINISH PLAN AND SCHEDULE

### STRUCTURAL

S1.0	GENERAL NOTES
S1.1	BORING LOGS
S2.0	FOUNDATION PLAN
S3.0	CEILING / ROOF FRAMING PLANS
S4.0	FOUNDATION DETAILS
S5.0	FRAMING DETAILS
S5.1	FRAMING DETAILS

### MECHANICAL

M0.0	MECHANICAL SYMBOLS & ABBREVIATIONS
M1.0	MECHANICAL ZONE PLAN
M2.0	MECHANICAL FLOOR PLAN
M3.0	MECHANICAL DETAILS
M4.0	MECHANICAL SCHEDULES
M5.0	MECHANICAL SPECIFICATIONS

### ELECTRICAL

E0.0	ELECTRICAL ABBREVIATIONS, NOTES & SYMBOLS
E1.0	ELECTRICAL LIGHTING PLAN
E2.0	ELECTRICAL POWER PLAN
E5.0	ELECTRICAL DETAILS
E6.0	ELECTRICAL SCHEDULES & DIAGRAMS
E7.0	ELECTRICAL RISER DIAGRAM
E8.0	ELECTRICAL SPECIFICATIONS
E8.1	ELECTRICAL SPECIFICATIONS
SU1.0	SITE UTILITIES

### PLUMBING

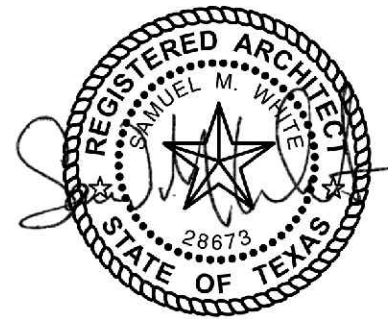
P0.0	PLUMBING ABBREVIATIONS & SYMBOLS
P1.0	PLUMBING UNDER SLAB PLAN
P1.1	PLUMBING ABOVE SLAB PLAN
P3.0	PLUMBING DETAILS
P5.0	PLUMBING SPECIFICATIONS

REVISIONS		
NO.	DATE	DESCRIPTION
1	7/25/2024	PERMIT RESPONSES NO. 1

### CONSTRUCTION DOCUMENTS

REFERENCE	

JUNE 21, 2024



VILLA FINALE	
VISITORS' CENTER	
SAN ANTONIO, TEXAS	
~ A0.1 ~	
MICHAEL G. IMBER	
ARCHITECT	
111 WEST EL PRADO	
SAN ANTONIO, TEXAS 78212	

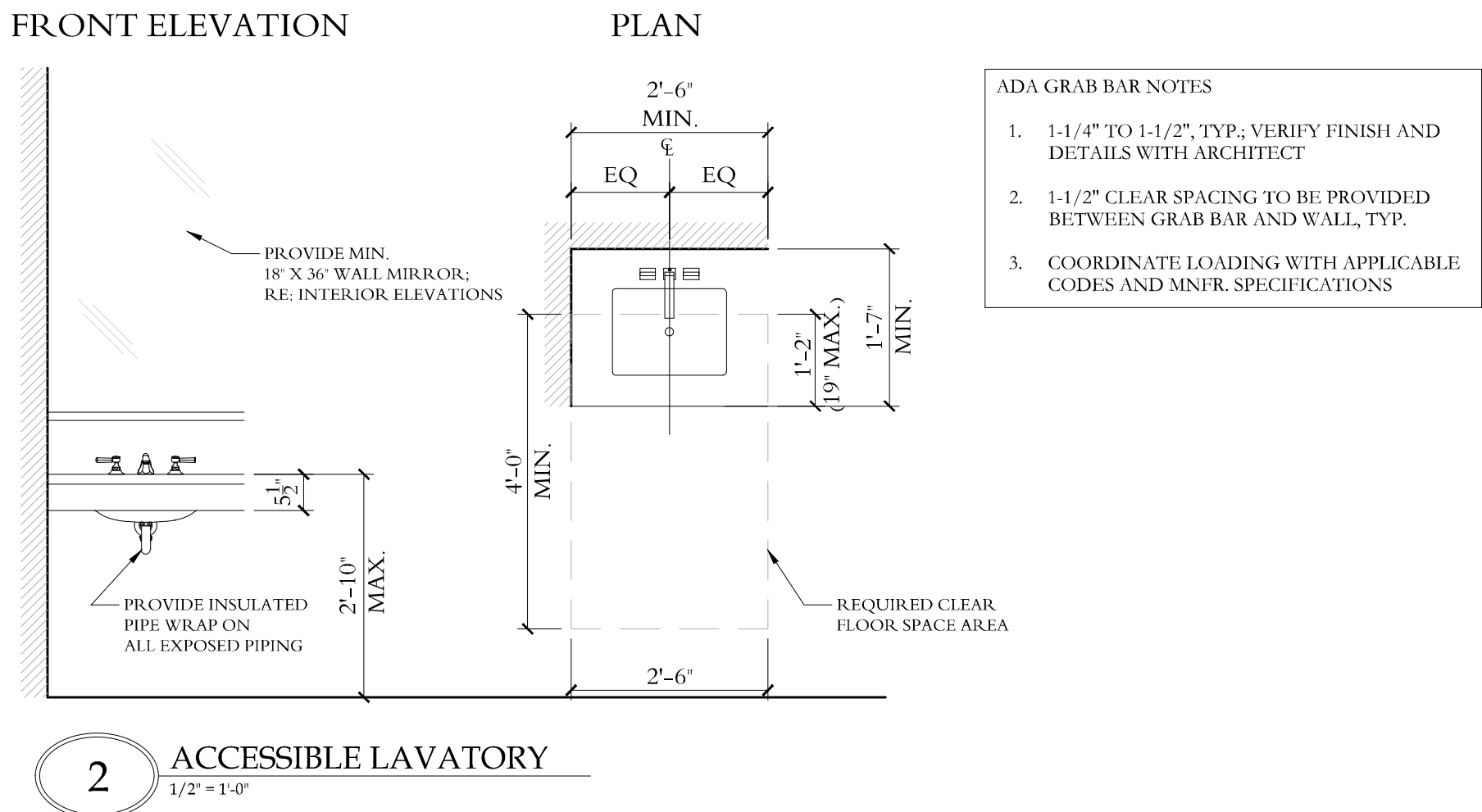
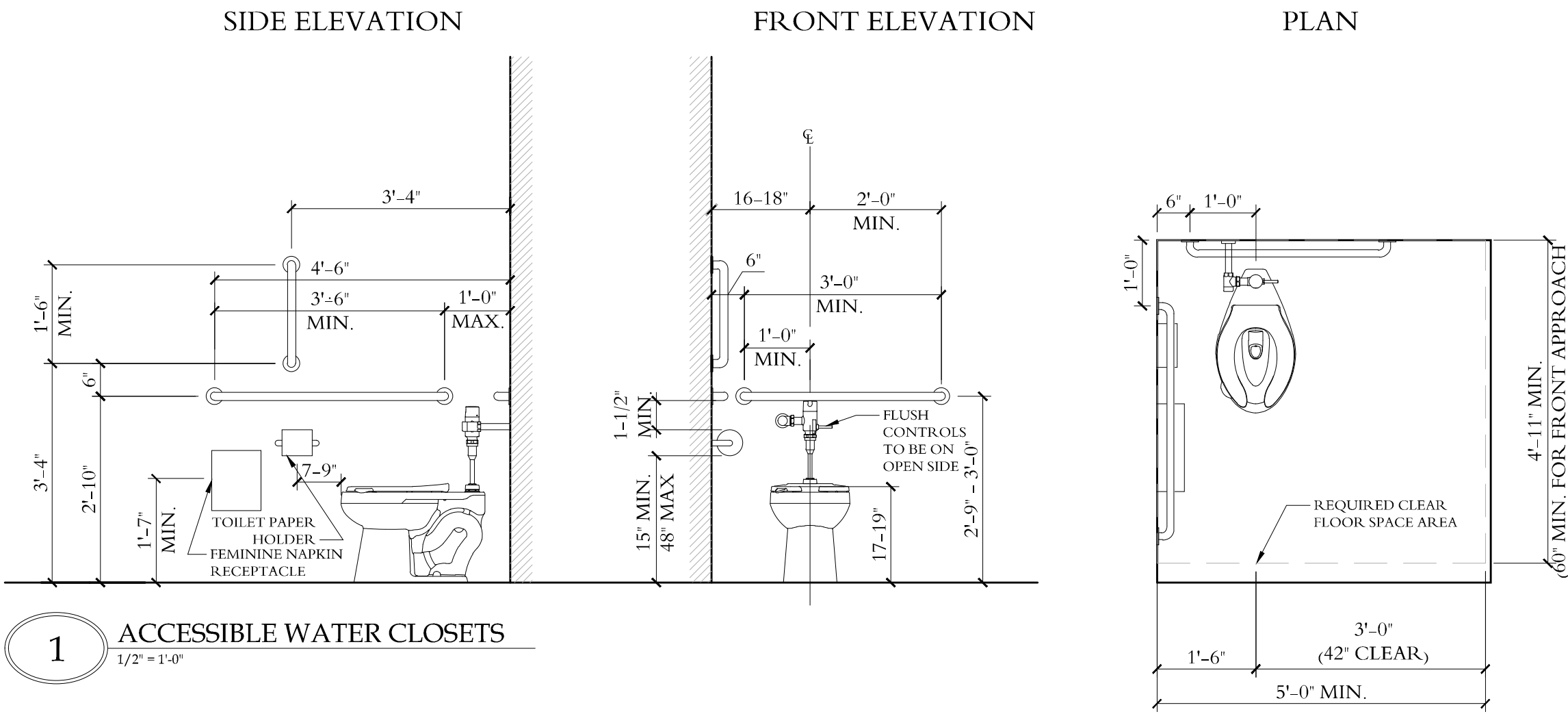
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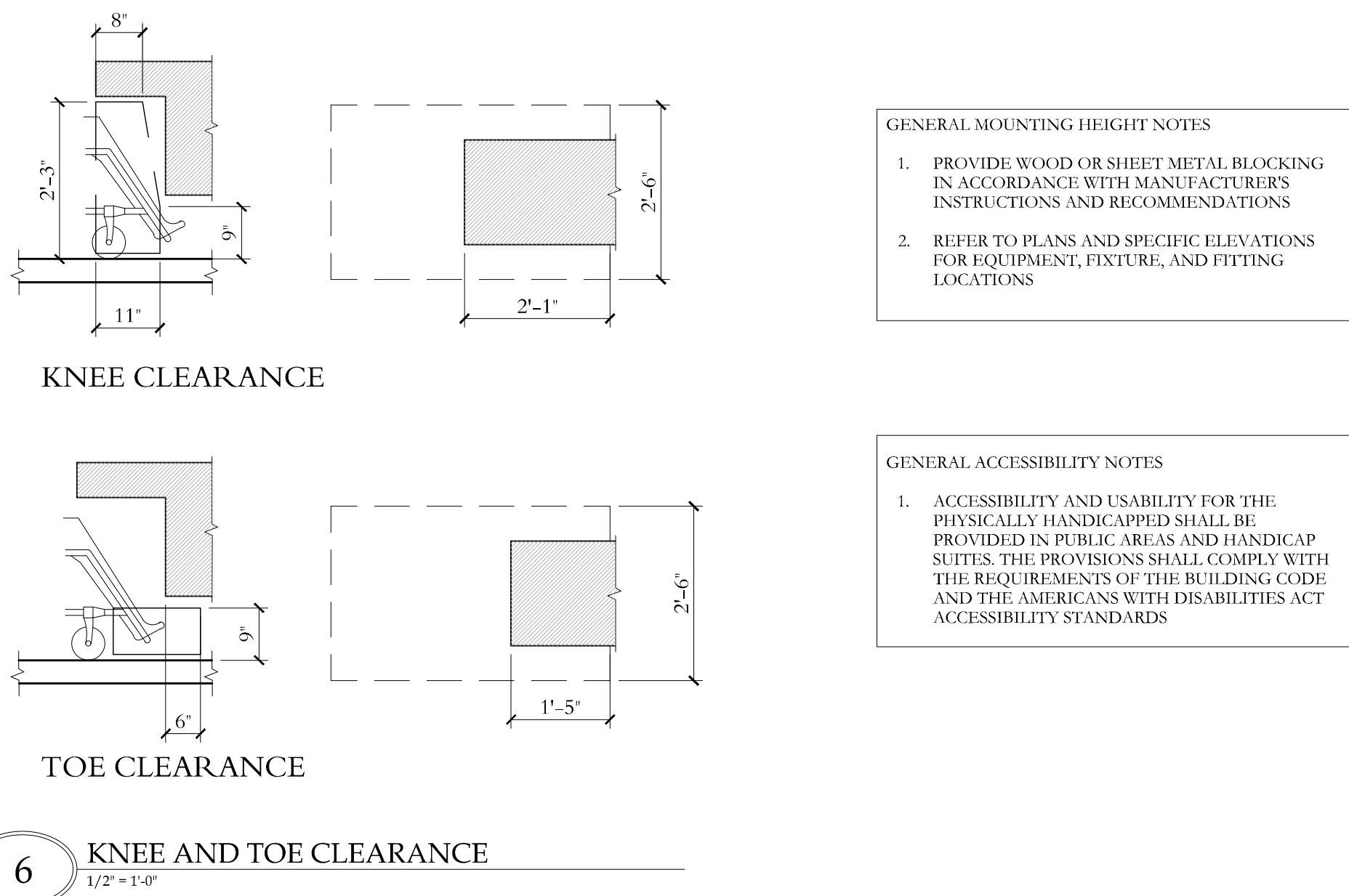
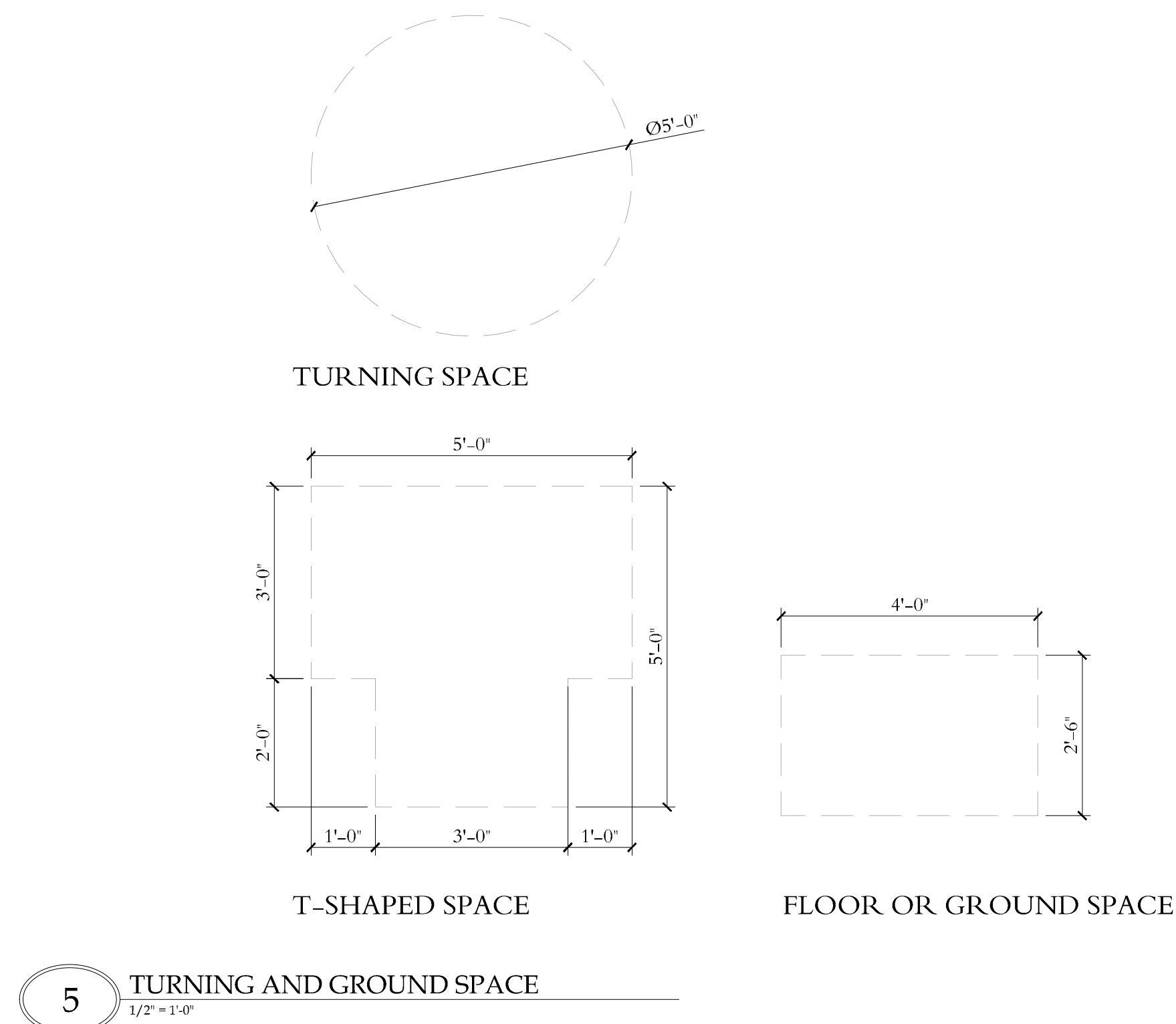
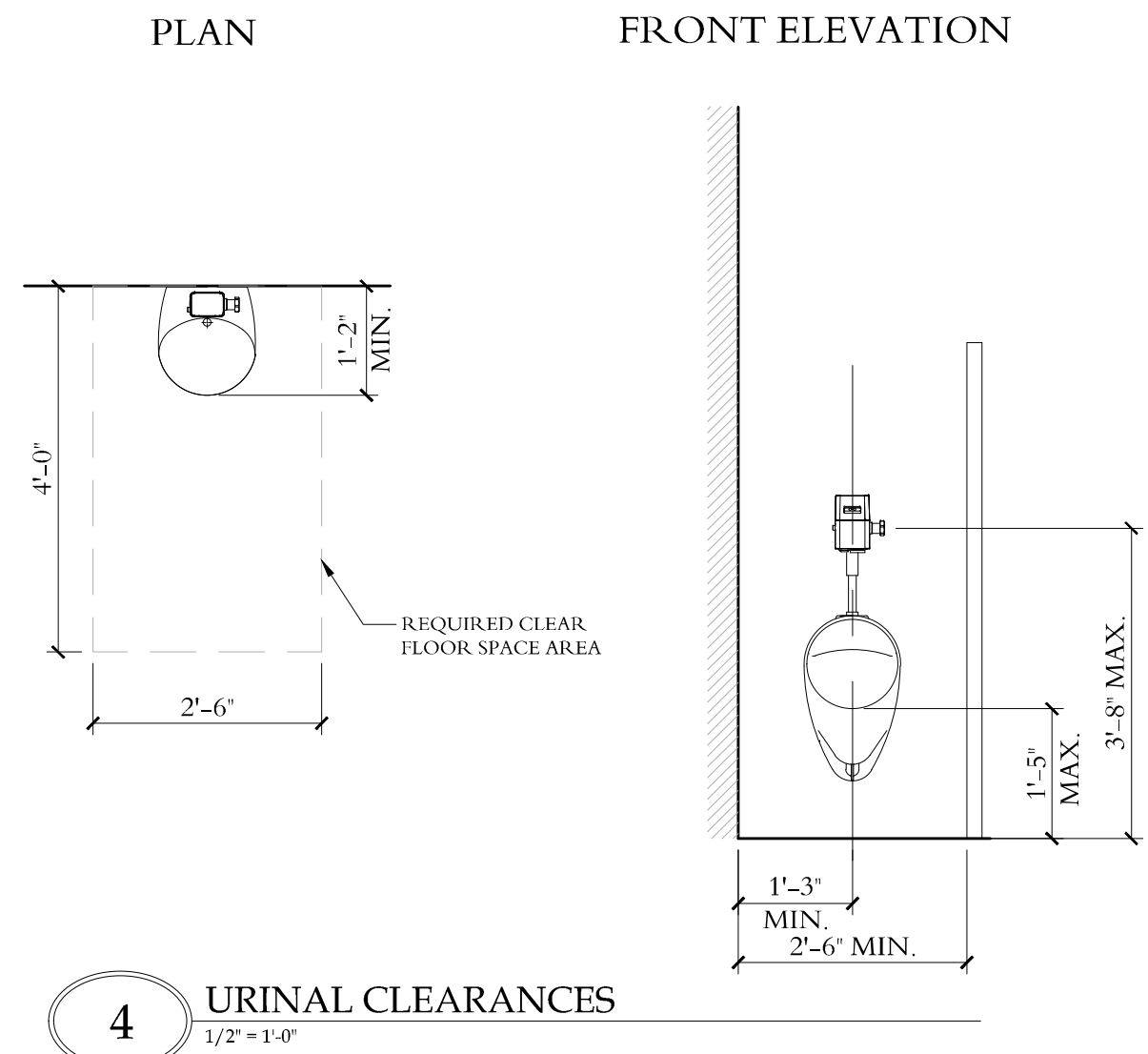
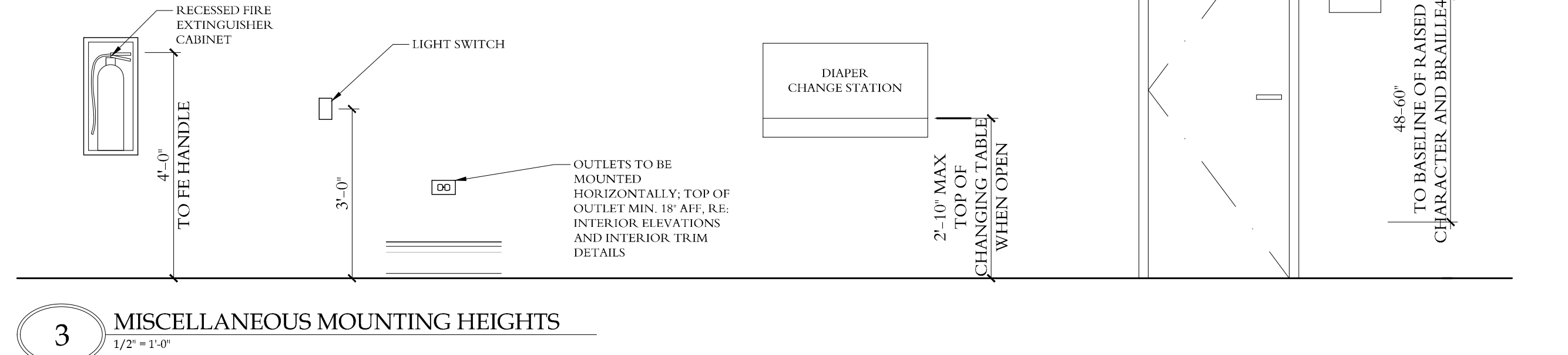


ACCESSIBILITY STANDARDS

ALL ASPECTS OF THIS PROJECT SHALL COMPLY WITH THE TEXAS ACCESSIBILITY STANDARDS OF THE ELIMINATION OF ARCHITECTURAL BARRIERS TEXAS GOVERNMENT CODE, CHAPTER 409, ADMINISTERED BY THE TEXAS DEPARTMENT OF LICENSING AND REGULATION EFFECTIVE MARCH 15, 2012, INCLUDING BUT NOT LIMITED TO THE FOLLOWING:



- ADA GRAB BAR NOTES
- 1-1/4" TO 1-1/2", TYP. VERIFY FINISH AND DETAILS WITH ARCHITECT.
  - 1-1/2" CLEAR SPACING TO BE PROVIDED BETWEEN GRAB BAR AND WALL, TYP.
  - COORDINATE LOADING WITH APPLICABLE CODES AND MNFR SPECIFICATIONS



- GENERAL MOUNTING HEIGHT NOTES
- PROVIDE WOOD OR SHEET METAL BLOCKING IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS AND RECOMMENDATIONS.
  - REFER TO PLANS AND SPECIFIC ELEVATIONS FOR EQUIPMENT, FIXTURE, AND FITTING LOCATIONS

- GENERAL ACCESSIBILITY NOTES
- ACCESSIBILITY AND USABILITY FOR THE PHYSICALLY HANDICAPPED SHALL BE PROVIDED IN PUBLIC AREAS AND HANDICAP SITES. THE PROVISIONS SHALL COMPLY WITH THE REQUIREMENTS OF THE BUILDING CODE AND THE AMERICANS WITH DISABILITIES ACT ACCESSIBILITY STANDARDS

BUILDING DETAIL NOTES

- THESE FIXTURES AND ACCESSORIES MOUNTING DETAILS AND REQUIREMENTS ARE TYPICAL AND APPLY TO REQUIRED ACCESSIBLE INSTALLATIONS ONLY. REFER TO PLANS FOR LOCATIONS AND TYPES OF LAYOUTS. EQUIPMENT SHOWN MAY OR MAY NOT APPEAR ON THIS PROJECT. IF A ROOM IS IN QUESTION AS TO BEING A REQUIRED ACCESSIBLE ROOM, CONTACT ARCHITECT FOR RESOLUTION.
- PROVIDE IN ALL LOCATIONS OR REQUIRED ACCESSORIES, ADEQUATE SOLID BLOCKING, CAPABLE OF WITHSTANDING 55 LB FORCE (SHEAR AND BENDING). GRAB BARS SHALL NOT ROTATE. FASTENERS SHALL BE OF A TYPE TO WITHSTAND REQUIRED FORCE AND TYPED FOR TYPE OF WALL CONSTRUCTION.
- ANY METAL FLOOR GRATINGS OR DRAINAGE GRATINGS IN AN ACCESSIBLE PATH SHALL HAVE SPACES NO GREATER THAN 1" WIDE IN ONE DIRECTION. LONG DIMENSIONS SHALL BE PERPENDICULAR TO THE DIRECTION OF TRAVEL.
- ACCESSIBLE DOORS: SWEEP PERIOD OF DOOR CLOSERS ON ACCESSIBLE DOORS SHALL BE ADJUSTED SO THAT FROM OPEN POSITION OF 70 DEGREES, DOOR WILL TAKE A MINIMUM OF 2 SECOND TO MOVE TO A POINT 4" FROM THE LATCH. DOORS SHALL REQUIRE NO MORE THAN 5 LBS. OF FORCE TO OPEN. ADJUST CLOSERS ACCORDINGLY.
- SEE FLOOR PLANS FOR MINIMUM REQUIRED CLEAR AREA AT LATCH SIDE OF DOORS.

REVISIONS		
NO.	DATE	DESCRIPTION
1	7/25/2024	PERMIT RESPONSES NO. 1

CONSTRUCTION DOCUMENTS

BUILDING DETAILS

JUNE 21, 2024



VILLA FINALE  
VISITORS' CENTER  
SAN ANTONIO, TEXAS  
~ A0.2 ~  
MICHAEL G. IMBER  
ARCHITECT  
111 WEST EL PRADO  
SAN ANTONIO, TEXAS 78212

GENERAL NOTES

- REFER TO REFERENCE PAGE R1.1 GPR GENERAL BUILDING INFORMATION.
- BUILDING TO COM PL WITH MANUAL FIRE ALARM SYSTEM REQUIREMENTS, PER IBC 907 AND NFPA 72. PROVIDE SMOKE DETECTORS, AS REQ'D.
- PORTABLE FIRE EXTINGUISHERS TO BE MINIMUM 2A:10BC AND LOCATED SUCH THAT THE MAXIMUM TRAVEL DISTANCE TO AND EXTINGUISHER DOES NOT EXCEED 75 FEET.
- EXIT SIGNAGE TO BE PROVIDED IN ACCORDANCE WITH IBC 1013.
- EGRESS ILLUMINATION TO BE PROVIDED IN ACCORDANCE WITH IBC 1008.

SYMBOLS AND ABBREVIATIONS

EGRESS CAPACITY	
TRAVEL DISTANCE	
1-HOUR FIRE RATED WALL	
2-HOUR FIRE RATED WALL	
PORTABLE FIRE EXTINGUISHER	
EXIT SIGN -	
WALL MOUNT EXIT-WL	
CEILING MOUNT EXIT-C	

OL*0.15 = 12.6"	
EGRESS WIDTH	1004.1.1
A/7 NSF = 84	
OCCUPANT LOAD (OL)	1004.1.1
N/A	
MODIFIED AREA (A')	50% * A
587 SF	
FLOOR AREA (A)	1004.1.1
A	
OCCUPANCY	302
CALCULATION	CODE

OL*0.15 = .6"	
EGRESS WIDTH	1004.1.1
A/15 NSF = 4	
OCCUPANT LOAD (OL)	1004.1.1
N/A	
MODIFIED AREA (A')	50% * A
60 SF	
FLOOR AREA (A)	1004.1.1
A	
OCCUPANCY	302
CALCULATION	CODE

OL*0.15 = .15"	
EGRESS WIDTH	1004.1.1
A/150 GSF = 1	
OCCUPANT LOAD (OL)	1004.1.1
N/A	
MODIFIED AREA (A')	50% * A
41 SF	
FLOOR AREA (A)	1004.1.1
B	
OCCUPANCY	302
CALCULATION	CODE

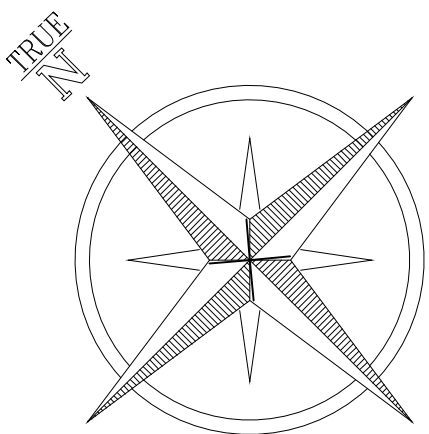
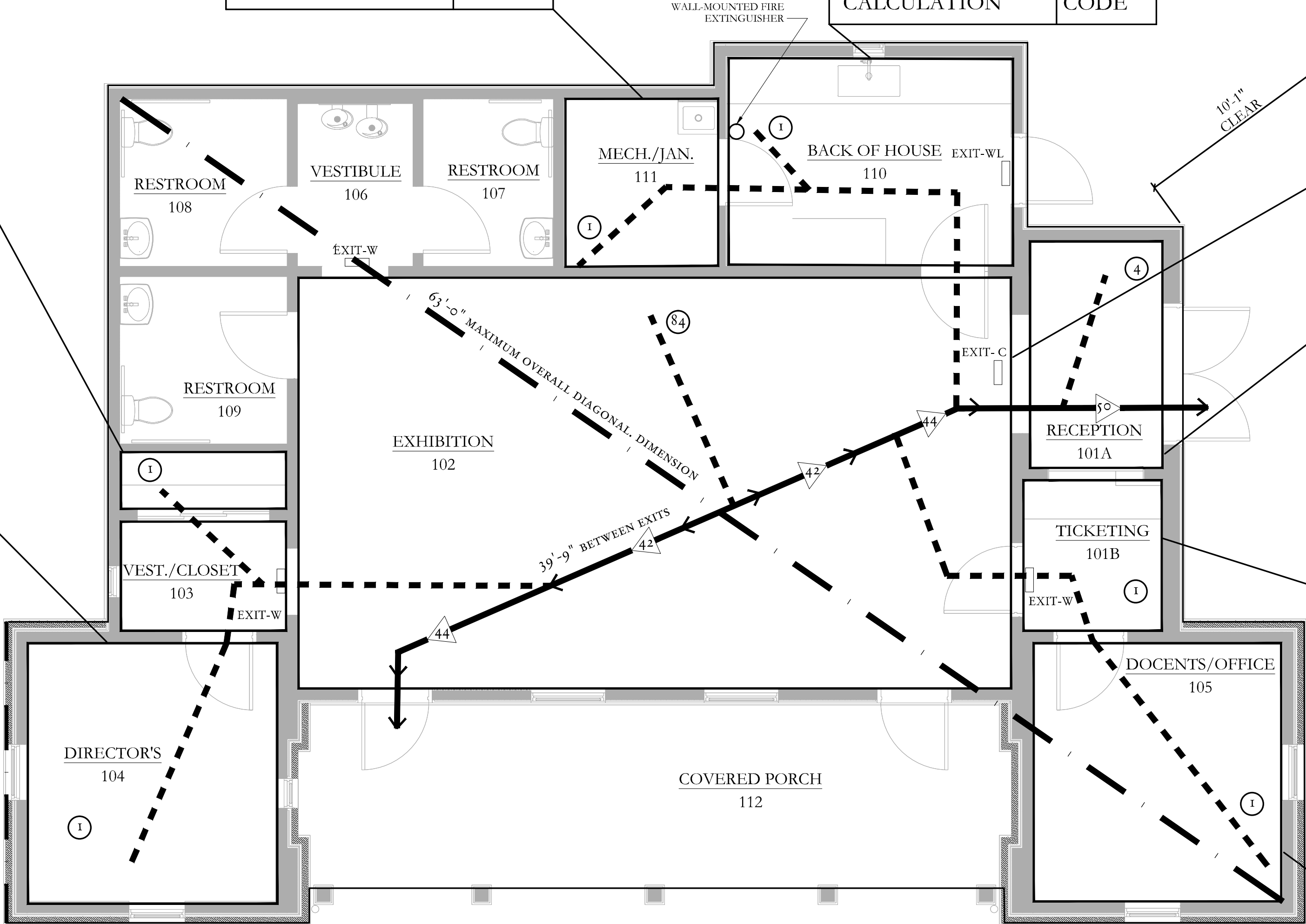
OL*0.15 = 0.15"	
EGRESS WIDTH	1004.1.1
A/150 GSF = 1	
OCCUPANT LOAD (OL)	1004.1.1
N/A	
MODIFIED AREA (A')	50% * A
128 SF	
FLOOR AREA (A)	1004.1.1
B	
OCCUPANCY	302
CALCULATION	CODE

OL*0.15 = 0.15"	
EGRESS WIDTH	1004.1.1
A/300 GSF = 1	
OCCUPANT LOAD (OL)	1004.1.1
N/A	
MODIFIED AREA (A')	50% * A
20 SF	
FLOOR AREA (A)	1004.1.1
S	
OCCUPANCY	302
CALCULATION	CODE

OL*0.15 = 0.15"	
EGRESS WIDTH	1004.1.1
A/150 GSF = 1	
OCCUPANT LOAD (OL)	1004.1.1
N/A	
MODIFIED AREA (A')	50% * A
128 SF	
FLOOR AREA (A)	1004.1.1
B	
OCCUPANCY	302
CALCULATION	CODE

OL*0.15 = 0.15"	
EGRESS WIDTH	1004.1.1
A/300 GSF = 1	
OCCUPANT LOAD (OL)	1004.1.1
N/A	
MODIFIED AREA (A')	50% * A
52 SF	
FLOOR AREA (A)	1004.1.1
S	
OCCUPANCY	302
CALCULATION	CODE

OL*0.15 = 0.15"	
EGRESS WIDTH	1004.1.1
A/300 GSF = 1	
OCCUPANT LOAD (OL)	1004.1.1
N/A	
MODIFIED AREA (A')	50% * A
119 SF	
FLOOR AREA (A)	1004.1.1
S	
OCCUPANCY	302
CALCULATION	CODE

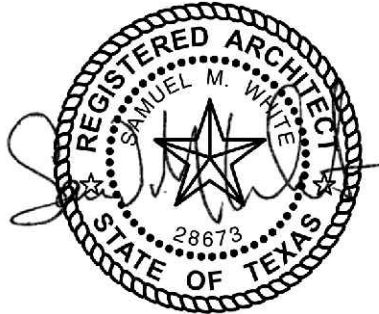


REVISIONS		
NO.	DATE	DESCRIPTION
1	7/25/2024	PERMIT RESPONSES NO. 1

CONSTRUCTION DOCUMENTS

LIFE SAFETY PLAN

JUNE 21, 2024



VILLA FINALE  
VISITORS' CENTER  
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~ LS.1.1 ~

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PLAN LEGEND

NEW CONDITIONED SPACE

NEW COVERED SPACE

NOT IN SCOPE

- SITE NOTES
1. SITE INFORMATION OBTAINED FROM SURVEY MADE BY PAPE-DAWSON ENGINEERS, SURVEY NO 9384-08 ON 12/1/08.

2. CONTRACTOR SHALL OBTAIN SURVEY, VERIFY INFORMATION ABOUT PROPERTY AND NOTIFY ARCHITECT OF ANY DISCREPANCIES WHICH WILL AFFECT CONSTRUCTION.

3. CONTRACTOR SHALL EMPLOY SURVEYOR TO LOCATE AND MARK ALL PROPERTY LINES PRIOR TO COMMENCEMENT OF ALL WORK.

4. SURVEYOR SHALL CERTIFY THAT ALL LIMITS OF PROPOSED WORK ARE WITHIN THE LIMITS OF PROPERTY AND SETBACKS.

5. GENERAL CONTRACTOR TO SLOPE GRADE AWAY FROM STRUCTURES AS REQUIRED. CONTRACTOR TO COORDINATE FINISH FLOOR ELEVATIONS AND PROPER SITE DRAINAGE.

6. IRRIGATION SYSTEM TO BE COORDINATED WITH OWNER.

7. NEW CURBS, LOW WALLS AND WALKWAYS TO BE COORDINATED WITH CIVIL ENGINEER, ARCHITECT AND OWNER.

8. ORNAMENTAL GATES, RAILS, AND IRONWORK TO BE DETAILD BY ARCHITECT.
9. CONTRACTOR TO VERIFY BUILDING FOOTPRINT AND ROOF OVERHANGS WITH ALL SETBACKS AND EASEMENTS.

10. ALL RETAINING WALLS TO BE DETAILED BY STRUCTURAL ENGINEER AND COORDINATED WITH LANDSCAPE ARCHITECT AND ARCHITECT.

11. ALL EXISTING TREES TO REMAIN SHALL BE PROTECTED FROM DAMAGE AS SPECIFIED.

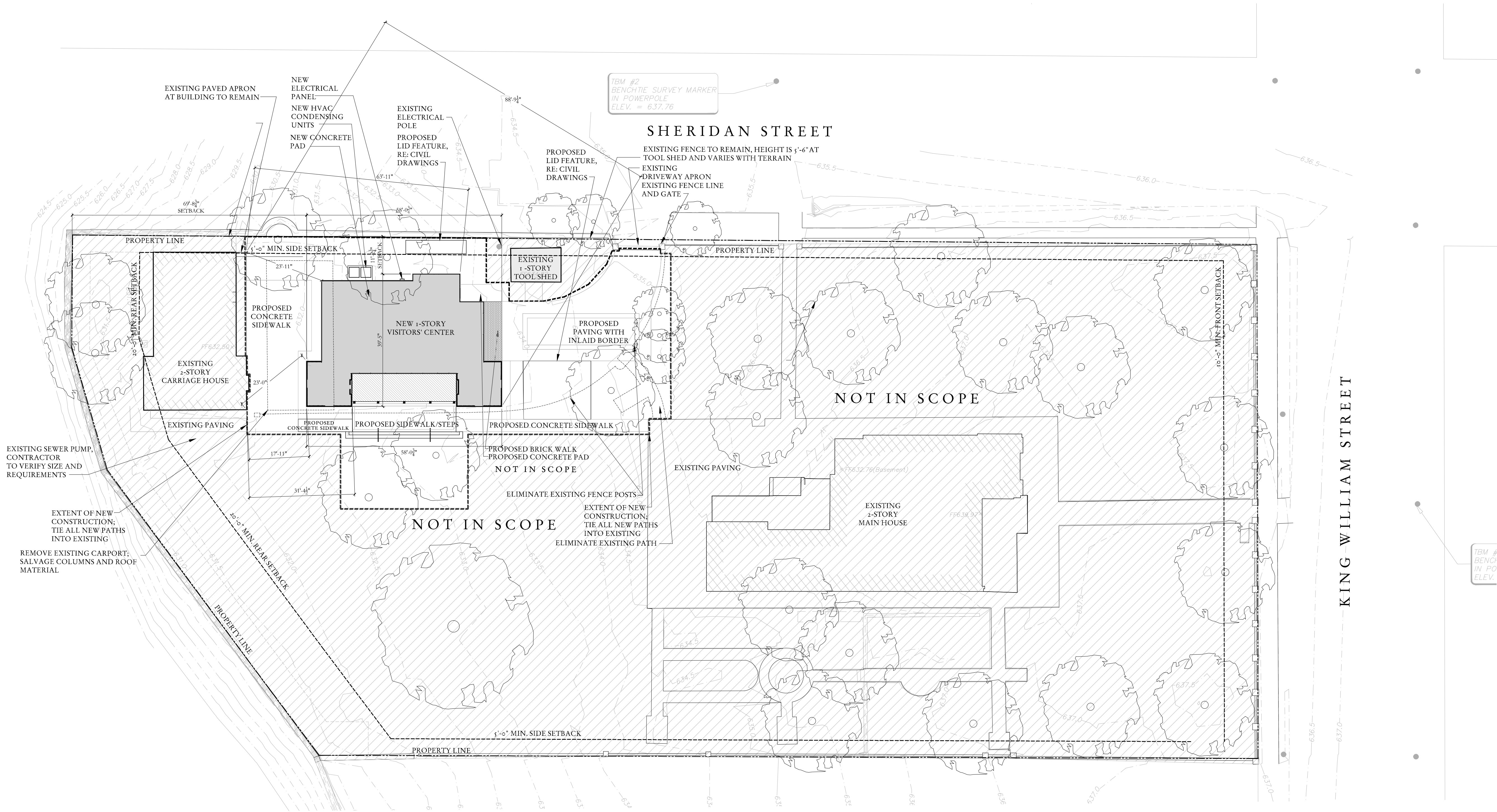
12. ALL EXISTING TREES SHOWN TO BE REMOVED TO BE COORDINATED WITH ARCHITECT AND OWNER.

13. CONTRACTOR TO VERIFY UTILITY SERVICE AND EASEMENTS.

14. CONTRACTOR TO VERIFY NO INCREASE TO IMPERVIOUS COVER OF PROPERTY AS INDICATED IN CIVIL DRAWINGS

15. CONTRACTOR TO COORDINATE DEMOLITION AND SALVAGE OF EXISTING CARPORT AND FENCEPOSTS FOR REUSE WITH OWNER AND ARCHITECT

16. CONTRACTOR TO DEMOLISH ALL EXISTING ASPHALT AT DRIVEWAY AREA AND COORDINATE REMOVAL OF EXISTING CURBS AS REQUIRED

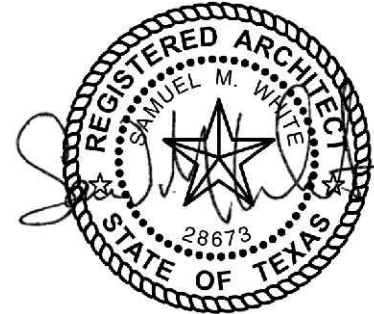


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CONSTRUCTION DOCUMENTS

SITE PLAN

JUNE 21, 2024



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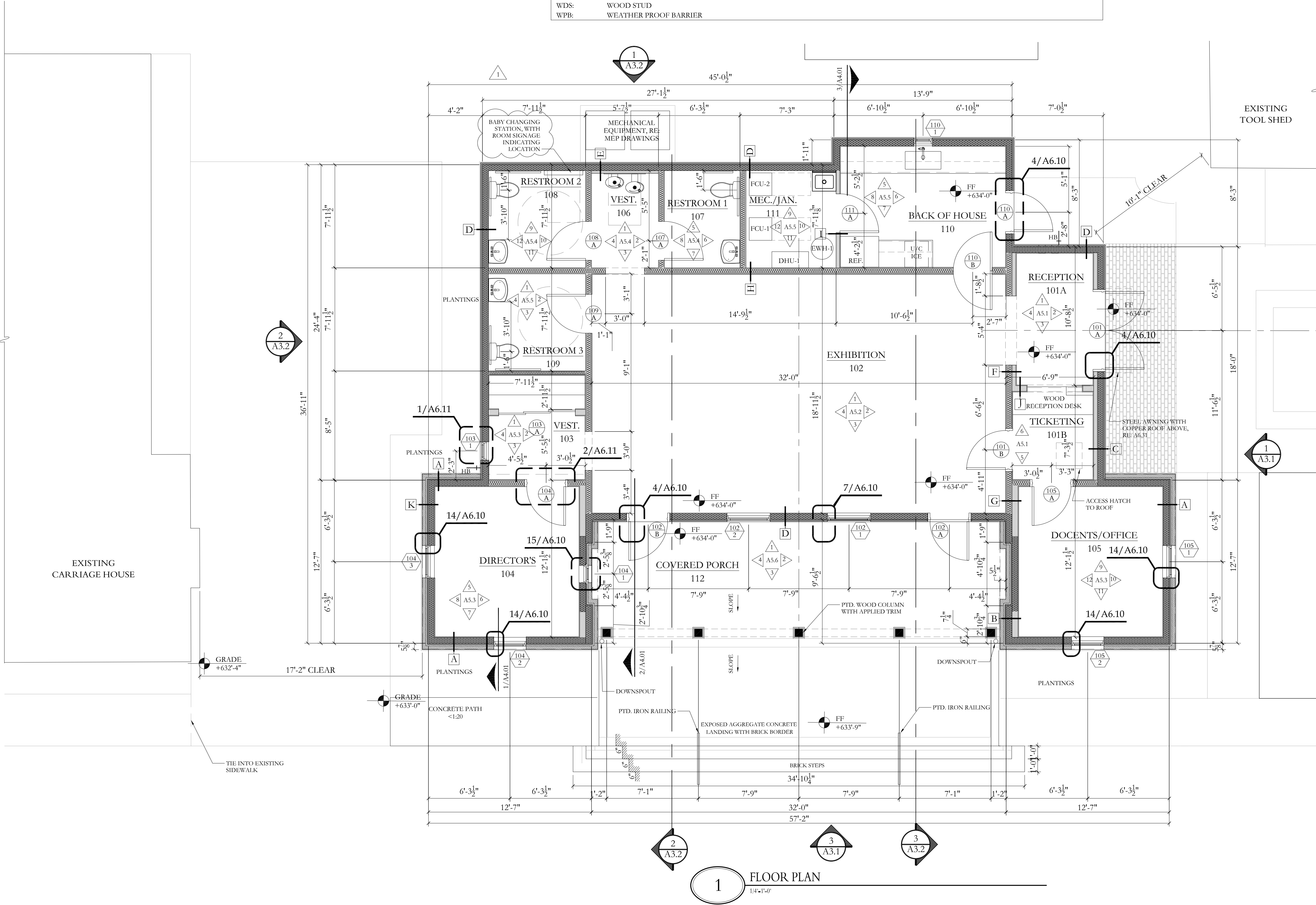
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WALL TYPE							
TYPE	WALL CONDITION						FIRE RATING
A	BRICK	½" DMAT / 1" CAVITY	WPB / STH	2X6 WDS / INSL	GYP		
B	BRICK	½" DMAT / 1" CAVITY	WPB / STH	2X6 WDS / INSL	2X6 WDS	GYP	
C	STUCCO	WPB / STH	2X6 WDS / INSL	2X4 WDS	GYP		
D	STUCCO	WPB / STH	2X6 WDS / INSL	GYP			
E	STUCCO	WPB / STH	2X6 WDS / INSL	2 1/2" WDS	GYP		
F	GYP	2X6 WDS / SD INSL	2X4 WDS	GYP			
G	GYP	2X6 WDS / SD INSL	2X6 WDS	GYP			
H	GYP	2X6 WDS / SD INSL	GYP				
I	GYP	2X4 WDS	GYP				
J	GYP	2X6 WDS	GYP				
K	BRICK	½" CAVITY / DMAT	WPB / DGLASS / STH	2X6 WDS / INSL RW	GYP		1 HR / UL
WALL TYPE LEGEND					WALL TYPE NOTES		
BRICK: DGLASS: DENSGLASS DMAT: DRAINAGE MAT GYP: 5/8" GYPSUM BOARD INSL: R-21 SPRAY INSULATION INSL SD: SOUND INSULATION INSL RW: ROCK WOOL INSULATION STH: 3/4" SHEATHING STUCCO: TRADITIONAL 3-COAT STUCCO ON LATH, FINISH TO MATCH EXISTING WDS: WOOD STUD WPB: WEATHER PROOF BARRIER					1. WALL TYPE DOES NOT INCLUDE INFORMATION OF FINISHES, REFER TO FINISH PLANS & SCHEDULE		

PLAN LEGEND	
	STUD WALL
	EXTERIOR STUD WALL WITH INSULATION
	STUD WALL WITH BATT INSULATION
	BRICK VENEER
	WOOD FRAMING

- PLAN NOTES
- DIMENSION LINES ARE TO FACE OF STUD WALL, FACE OF RETAINING WALL AND/OR FACE OF CMU WALL, UNLESS NOTED OTHERWISE.
  - LOCATE ALL HOSE BIBS 18" MAX ABOVE FINISH GRADE. RE: PLUMBING DRAWINGS.
  - CONTRACTOR TO COORDINATE ALL MILLED STONE THRESHOLD LOCATIONS WITH STRUCTURAL. VERIFY DROPS IN SLAB AT ALL FLUSH CONDITIONS PRIOR TO FORMING SLAB.
  - REFER TO INTERIOR ELEVATIONS FOR TREATMENTS AT WINDOW SILLS U.N.O.
  - CONTRACTOR TO VERIFY ALL WINDOW PLACEMENTS WITH CENTER OF ROOM AT ALL WINDOWS AS INDICATED WITH CENTERLINE NOTATION. REFER TO WINDOW DETAILS AND COORDINATE WITH FRAMER AND MASON AS REQUIRED.
  - CONTRACTOR TO VERIFY ALL REQUIRED DOOR AND WINDOW ROUGH OPENINGS WITH DOOR AND WINDOW SCHEDULE, DETAILS, AND SHOP DRAWINGS.
  - CONTRACTOR TO VERIFY ALL BLOCKING LOCATIONS FOR ACCESSORIES, ART, MIRRORS, DRAPERY RODS, ETC. WITH ARCHITECT AND OWNER PRIOR TO ENCLOSING ANY FRAMING.
  - CONTRACTOR TO PROVIDE DRAIN AT ALL ICEMAKERS.
  - 6", MIN., STUD WALL AT ALL DOOR LOCATIONS
  - INSULATE INTERIOR PARTITIONS AT RESTROOMS AND OFFICE 110 FOR SOUND. SEE PLUMBING PLANS FOR EXTERIOR HOSE BIB LOCATIONS. COORDINATE W. ARCH. ELEVATIONS.

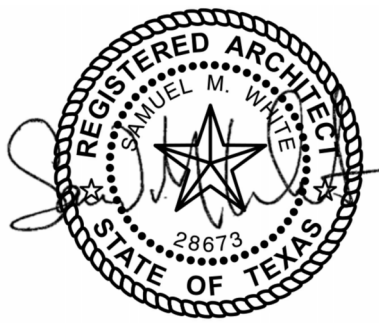


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FLOOR PLAN

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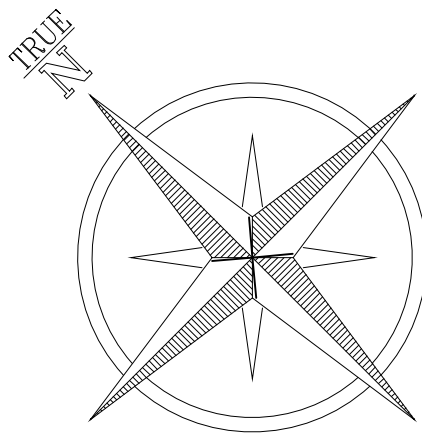
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ROOF NOTES

- CONTRACTOR TO PROVIDE CRICKETS AS REQUIRED; MOCKUPS TO BE PREPARED ON SITE FOR ARCHITECT TO OBSERVE PRIOR TO DRY-IN OF ROOF.
- CONTRACTOR TO COORDINATE LIGHTNING PROTECTION WITH ARCHITECT AND OWNER ON SITE ACCORDING TO MANUFACTURER SPECIFICATIONS AND CODE REQUIREMENTS.
- CONTRACTOR TO VERIFY LOCATIONS OF ALL PLUMBING, MECHANICAL VENTS WITH ARCHITECT IN THE FIELD. VENTS SHOULD BE CONCEALED FROM MAIN EXTERIOR ELEVATIONS. CONFIRM MATERIAL AND COLOR OF VENTS WITH ARCHITECT PRIOR TO INSTALL.
- COORDINATE ALL GUTTERS AND DOWNSPOUT LOCATIONS WITH ARCHITECT.
- CONTRACTOR TO PROVIDE MOCKUP FOR ALL CONDITIONS INCLUDING RAKE, EAVE & RIDGE.
- REFERENCE SPECIFICATIONS FOR ROOF ASSEMBLY.
- ALL GUTTER AND DOWN SPOUT LOCATIONS TO BE COORDINATED WITH STORMWATER DRAINAGE, CIVIL, AND LANDSCAPE DRAWINGS.
- CONTRACTOR TO COORDINATE ROOF DRAIN LOCATIONS & ROUTING PRIOR TO FOUNDATION POUR.
- PROVIDE COPPER THROUGH-WALL FLASHING AT ALL SCUPPER AND OVERFLOW SCUPPER LOCATIONS.



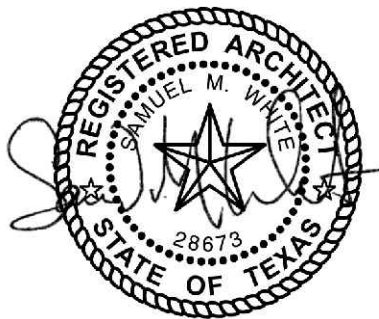
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CONSTRUCTION DOCUMENTS

ROOF PLAN

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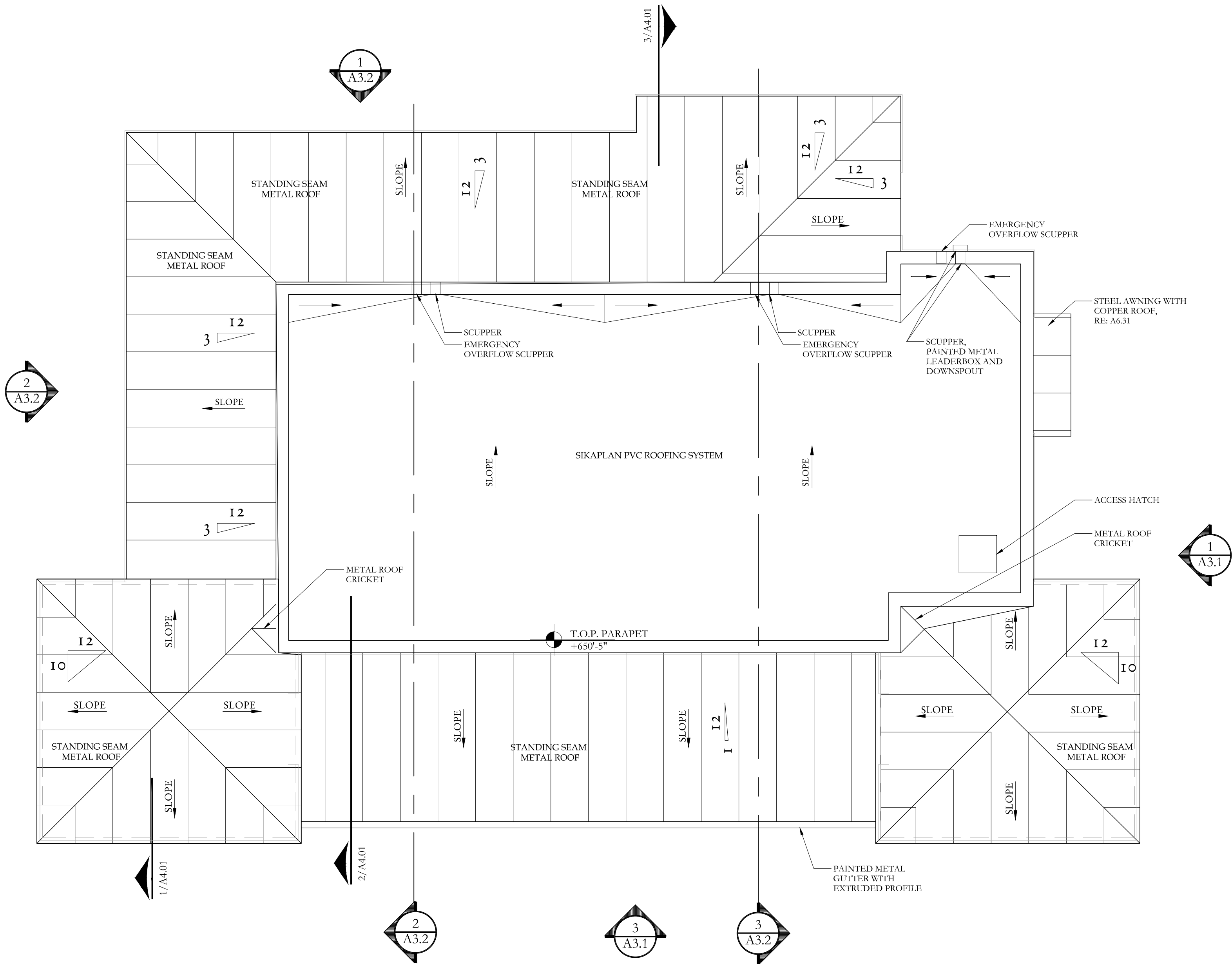
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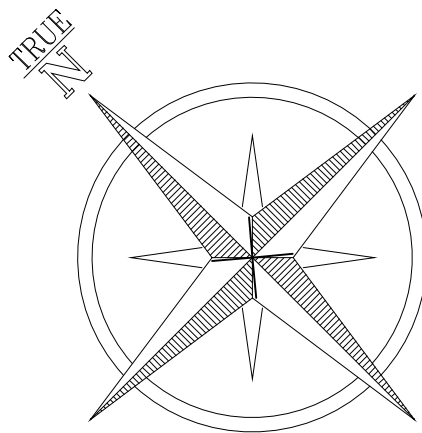
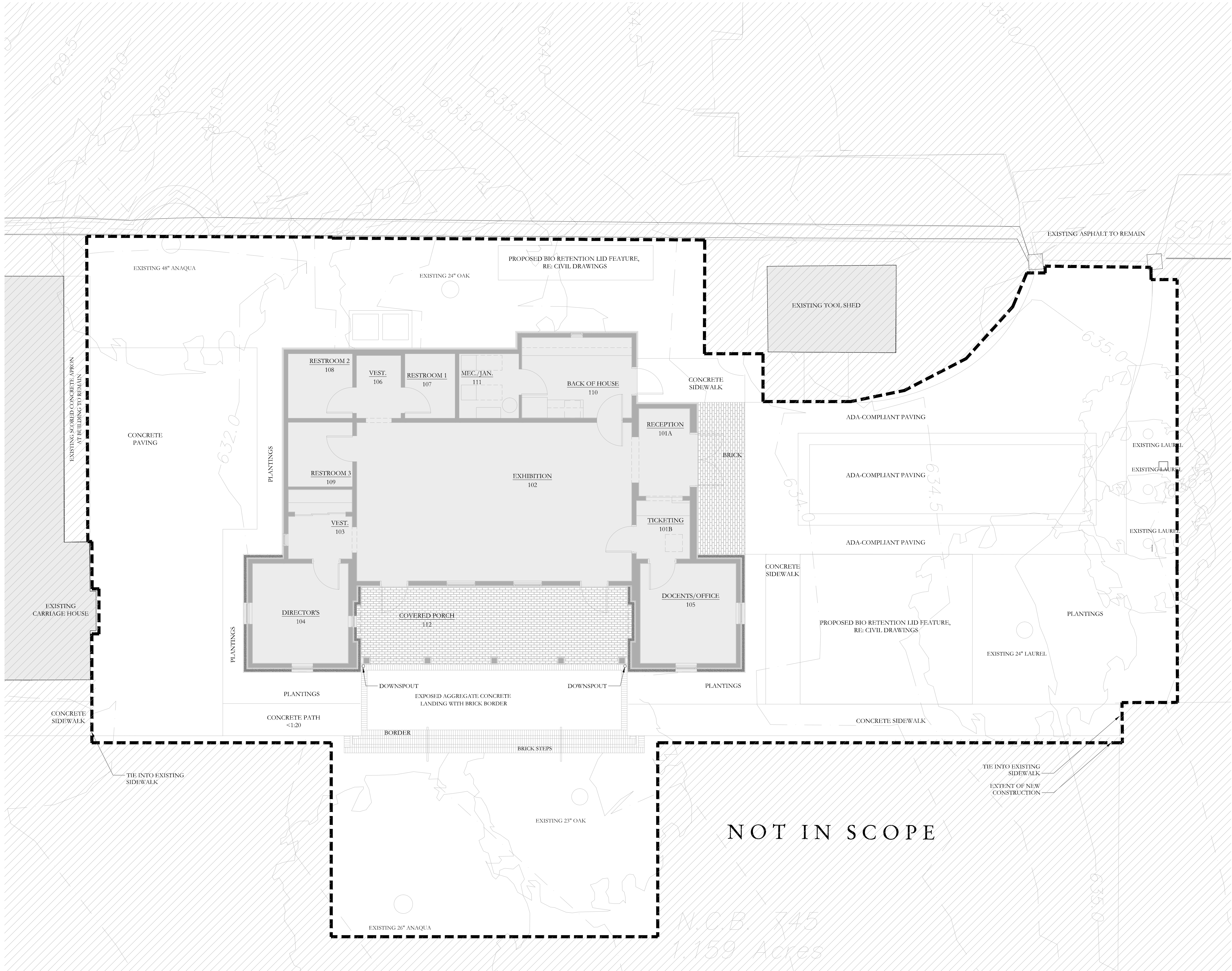
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ROOF PLAN

1

1/4" = 1'-0"

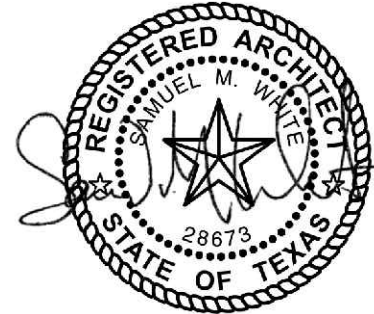


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CONSTRUCTION DOCUMENTS

EXTERIOR  
PAVING PLAN

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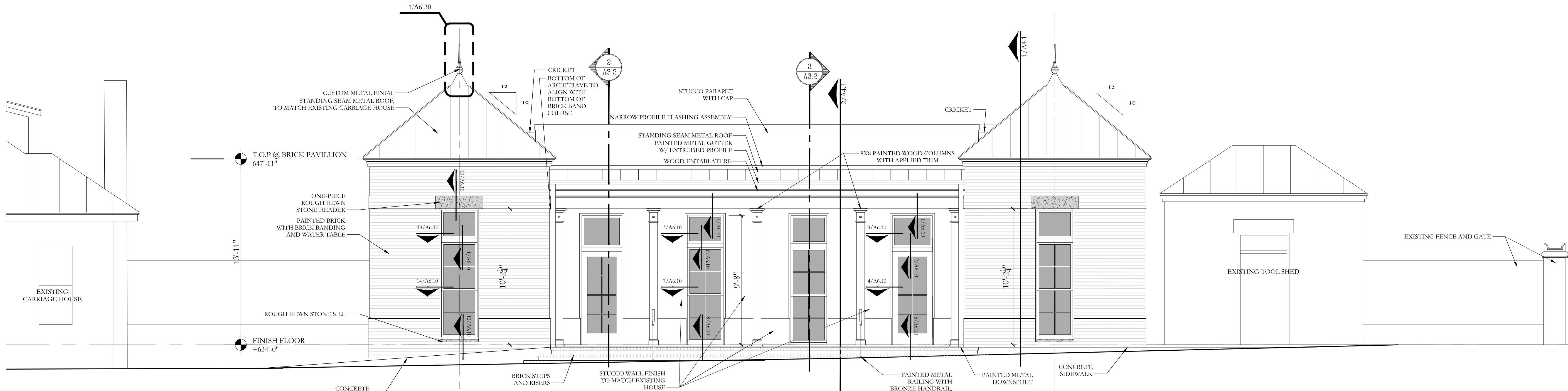
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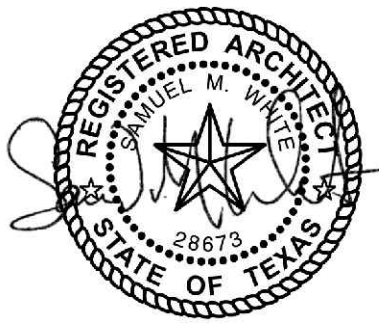
3 SOUTH ELEVATION  
1/4"=1'-0"

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EXTERIOR ELEVATIONS

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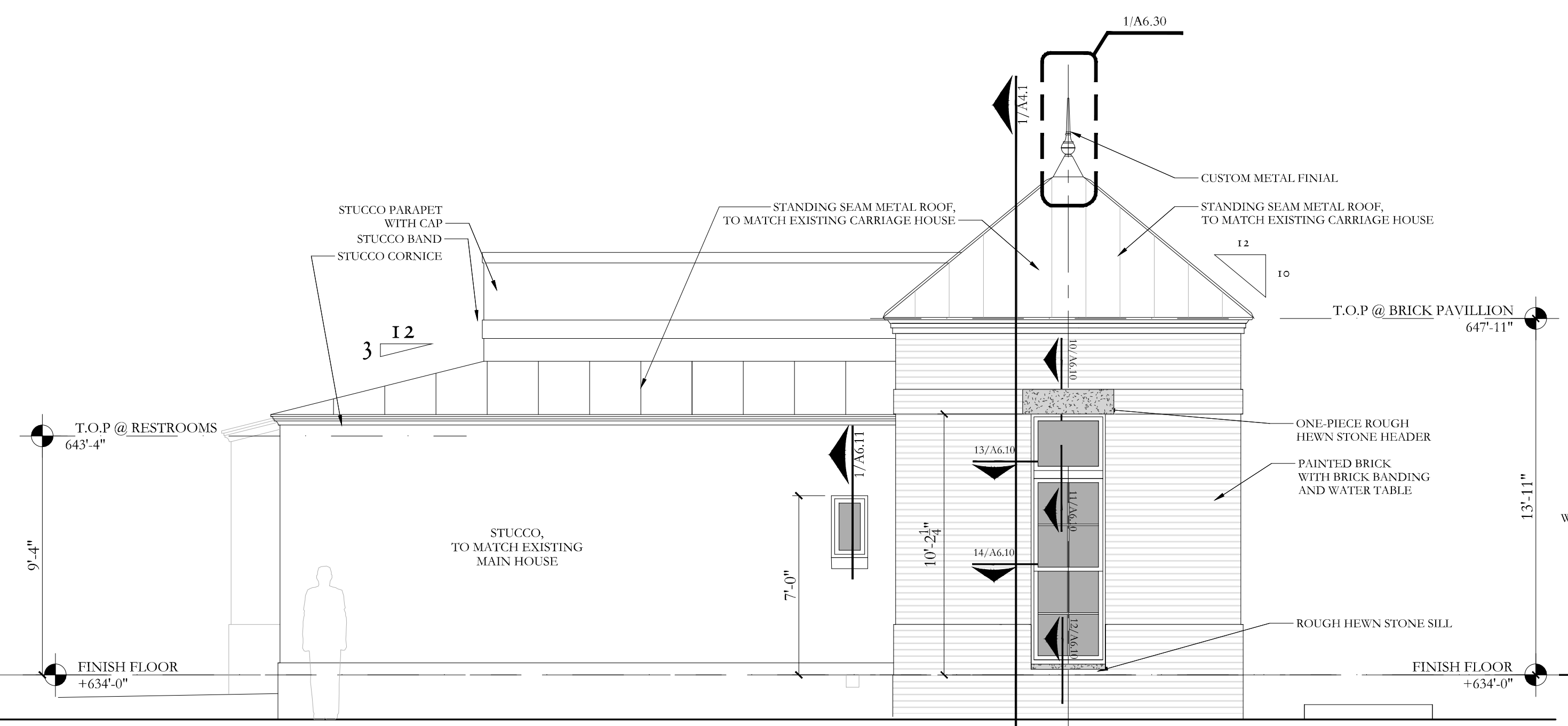


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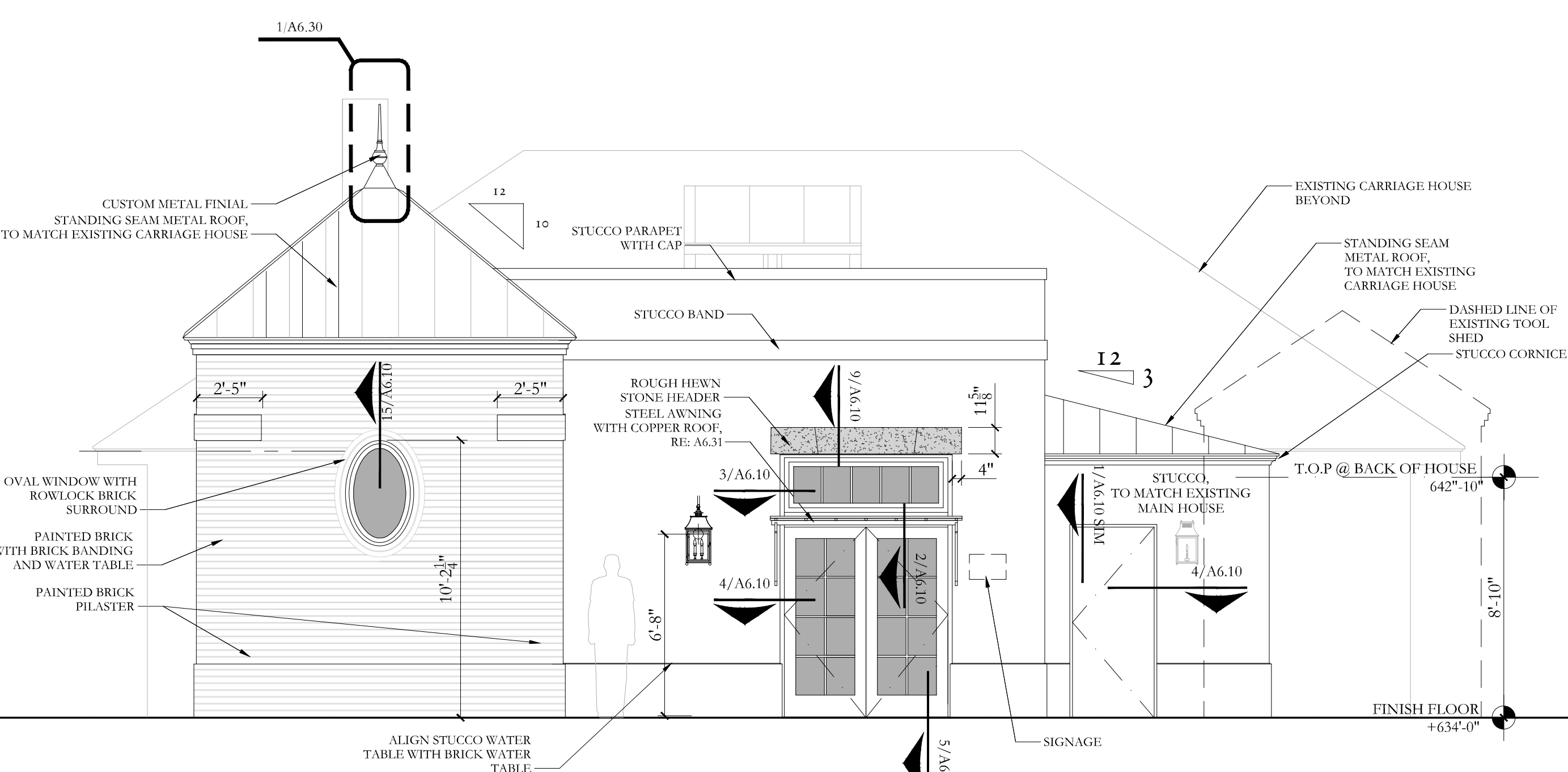
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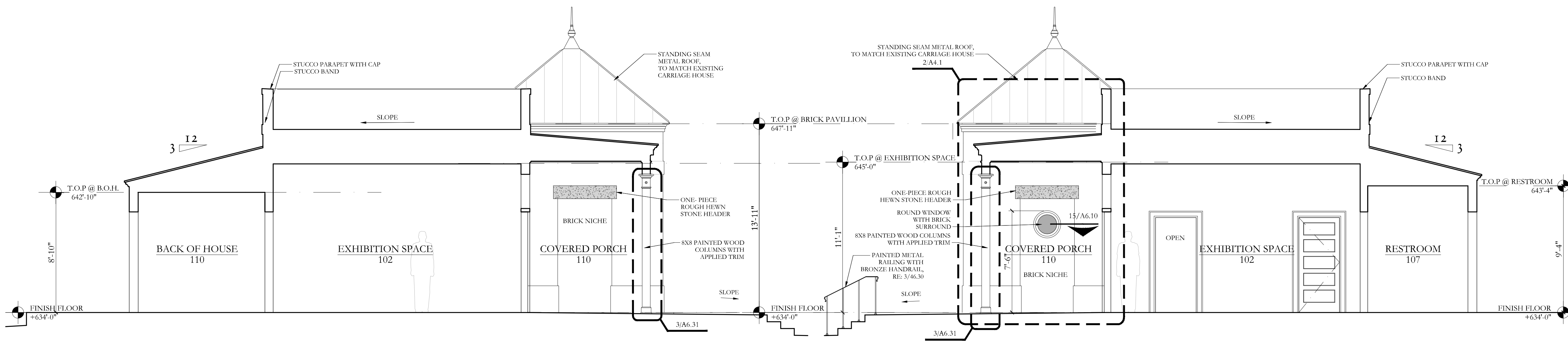


2 WEST ELEVATION  
1/4"=1'-0"



1 EAST ELEVATION  
1/4"=1'-0"





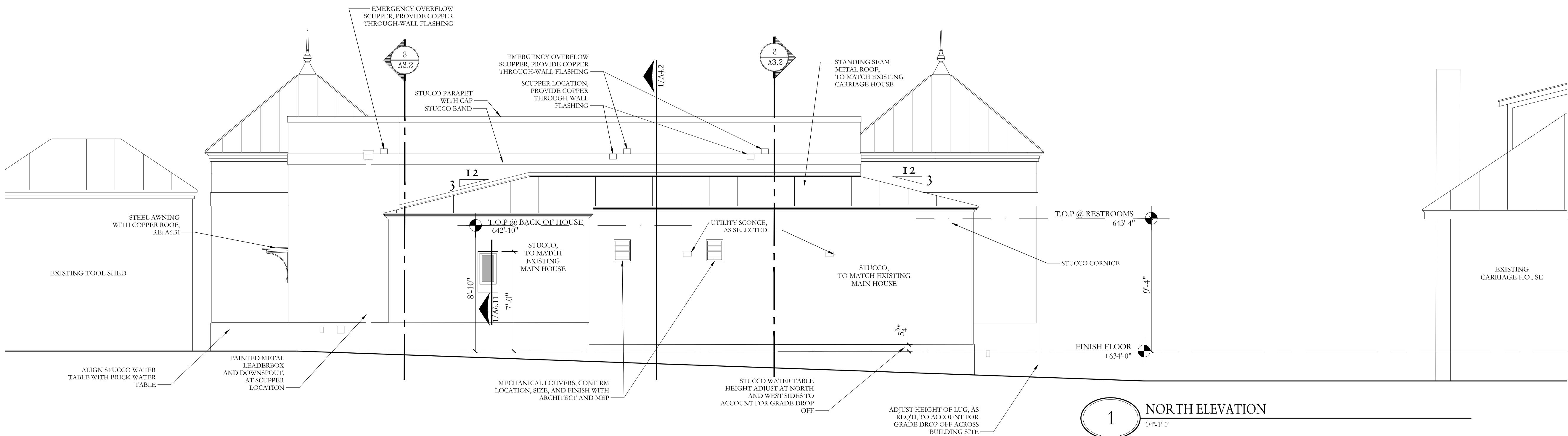
3 SECTION LOOKING EAST  
1/4"=1'-0"

2 SECTION LOOKING WEST  
1/4"=1'-0"

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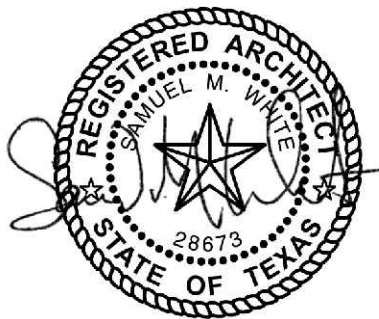
CONSTRUCTION DOCUMENTS

EXTERIOR ELEVATIONS



1 NORTH ELEVATION  
1/4"=1'-0"

JUNE 21, 2024

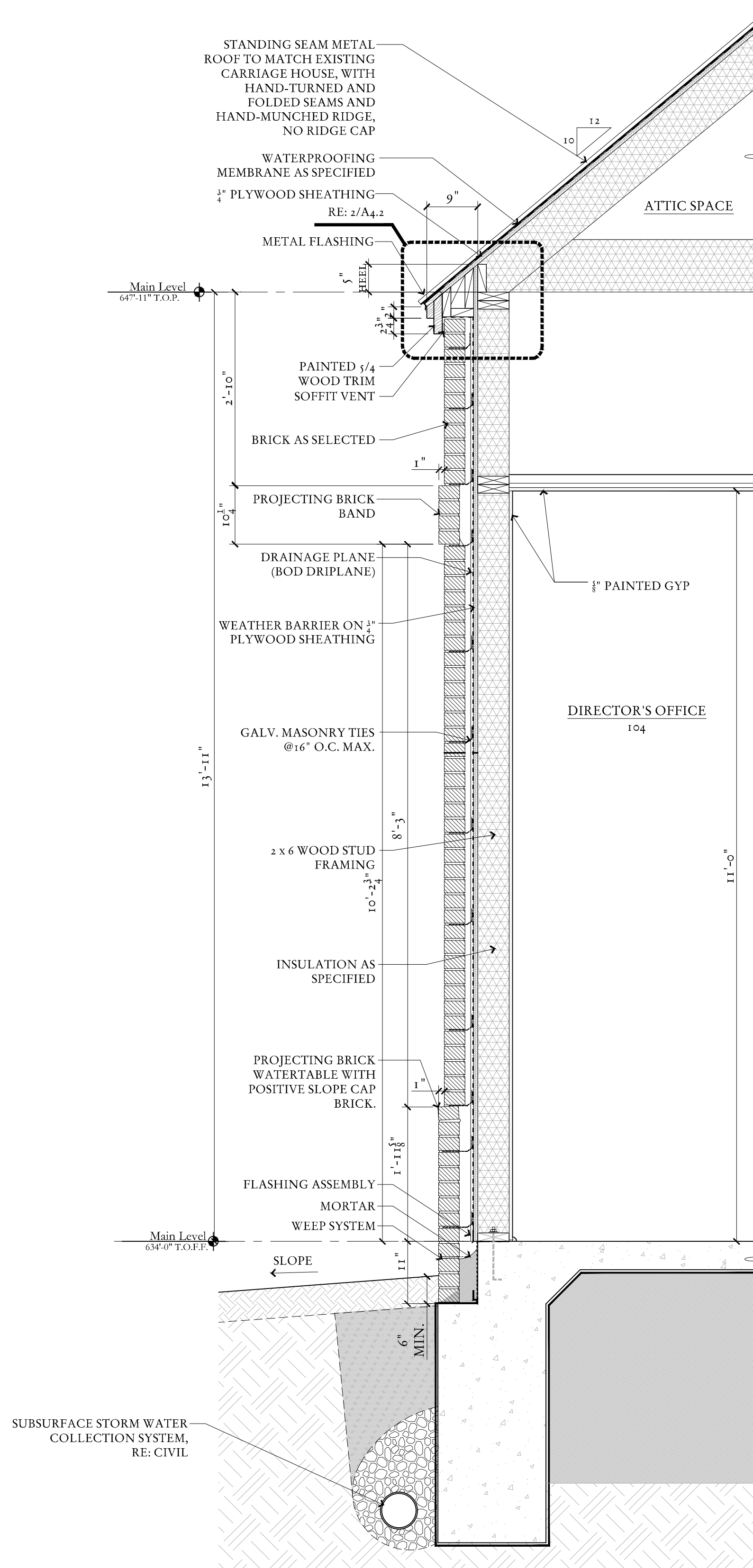


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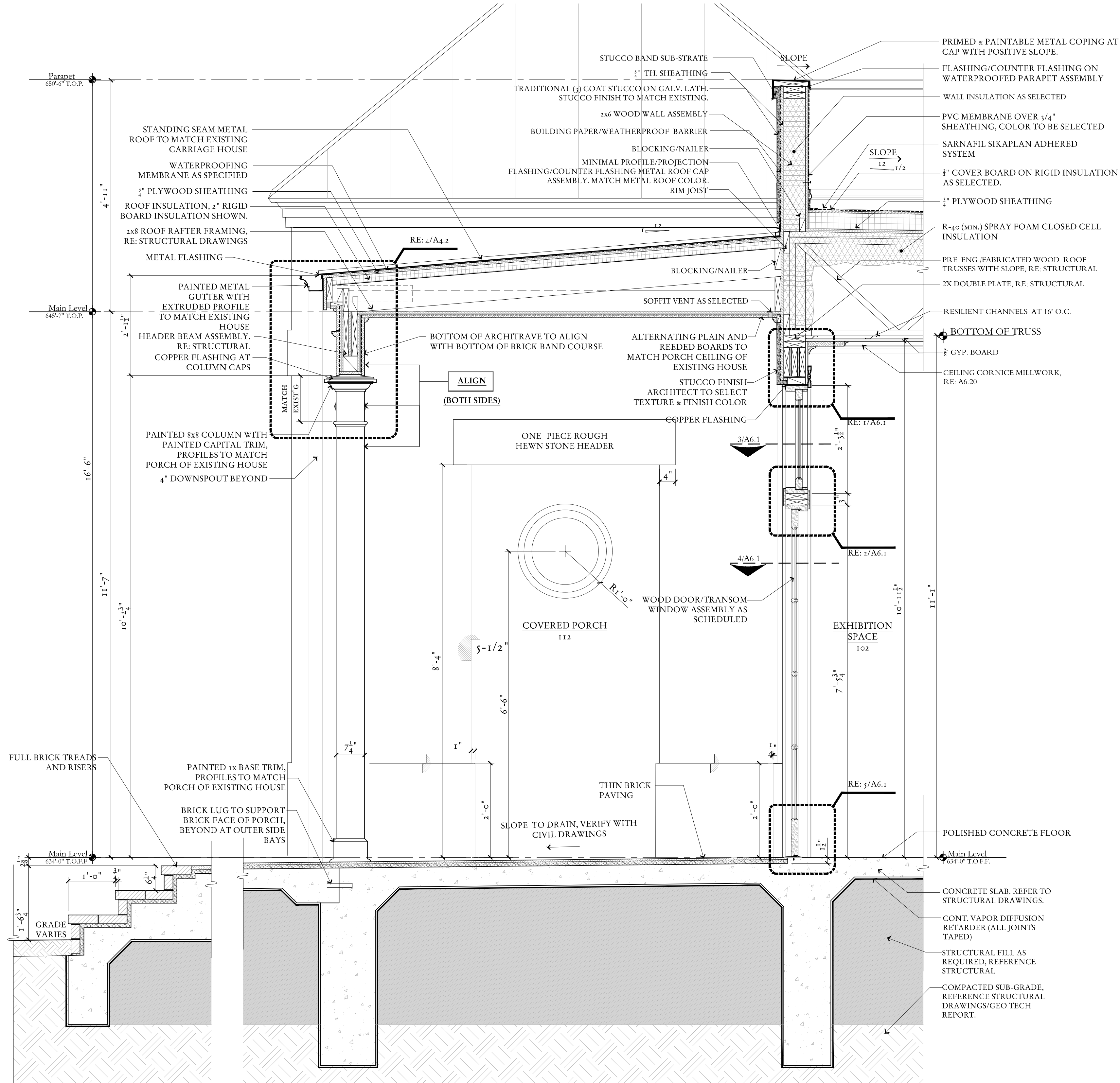
~ A3.2 ~

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NOTE:  
ALL WALL SECTIONS REPRESENT THE CONSTRUCTIVITY OF THE ARCHITECTURAL AESTHETICS AS IT RELATES TO THE PROPOSED STRUCTURAL ASSEMBLY. THE CONTRACTORS SHALL BE RESPONSIBLE FOR VERIFYING AND IMPLEMENTING WATERPROOFING AND FLASHING ASSEMBLIES AS REQUIRED.



1 WALL SECTION AT OFFICE  
3/4"-1'-0"



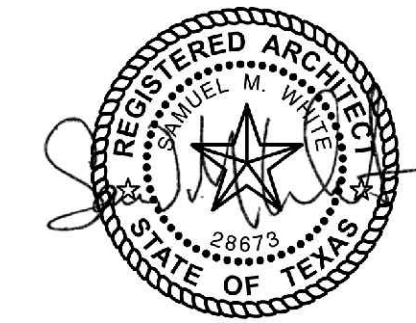
2 WALL SECTION AT COVERED PORCH  
3/4"-1'-0"

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WALL SECTIONS

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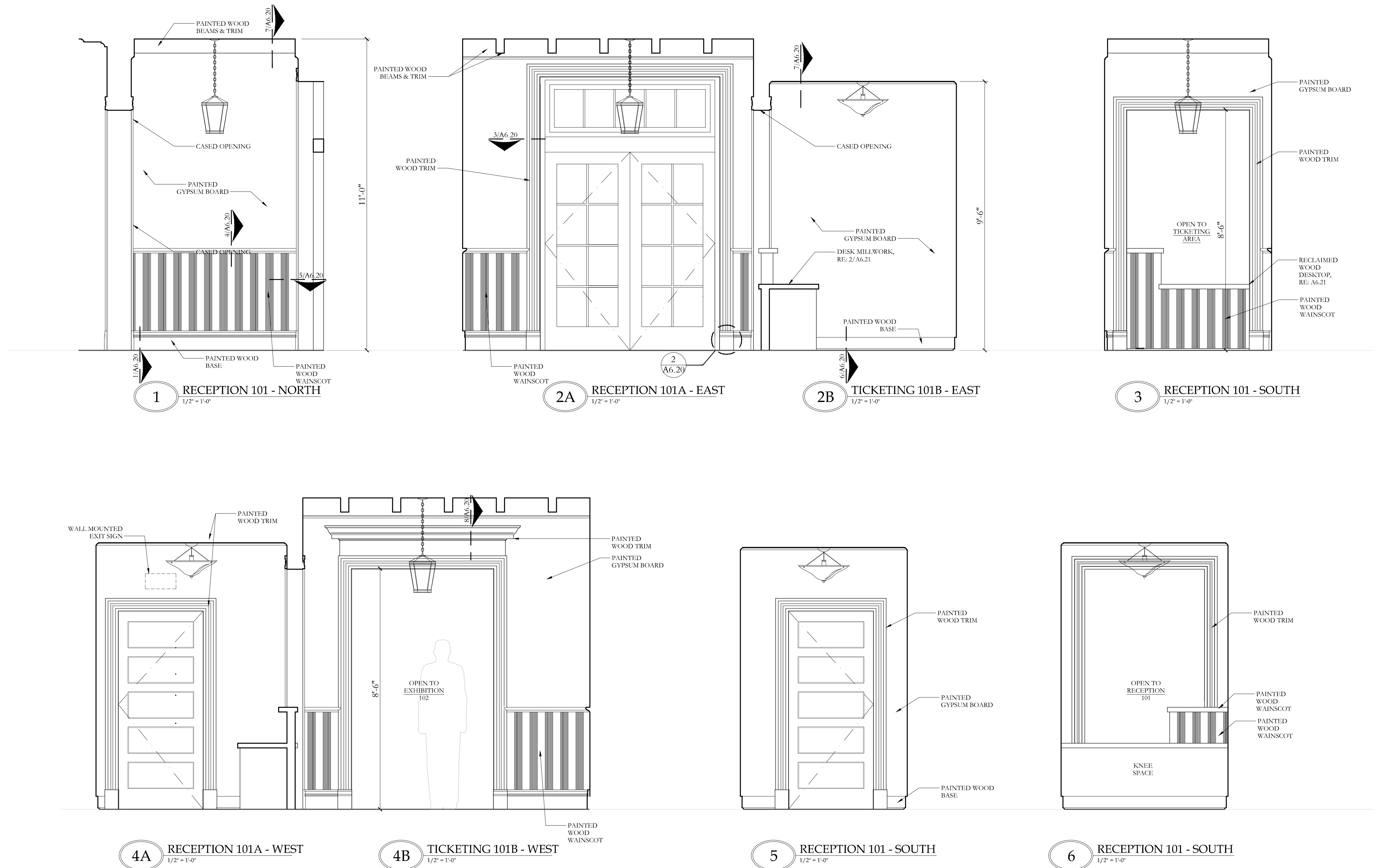
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ALL WALL SECTIONS REPRESENT THE  
CONSTRUCTIVITY OF THE  
ARCHITECTURAL AESTHETICS AS IT  
RELATES TO THE PROPOSED STRUCTURAL  
ASSEMBLY. THE CONTRACTORS SHALL BE  
RESPONSIBLE FOR VERIFYING AND  
IMPLEMENTING WATERPROOFING AND  
FLASHING ASSEMBLIES AS REQUIRED.



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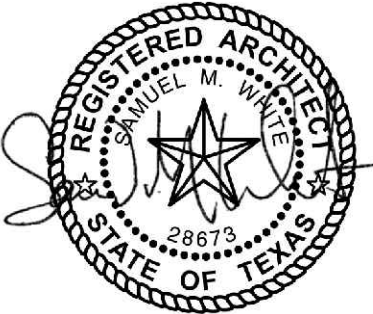


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CONSTRUCTION DOCUMENTS

INTERIOR ELEVATIONS

JUNE 21, 2024



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CONSTRUCTION DOCUMENTS

## INTERIOR ELEVATIONS

JUNE 21, 2024



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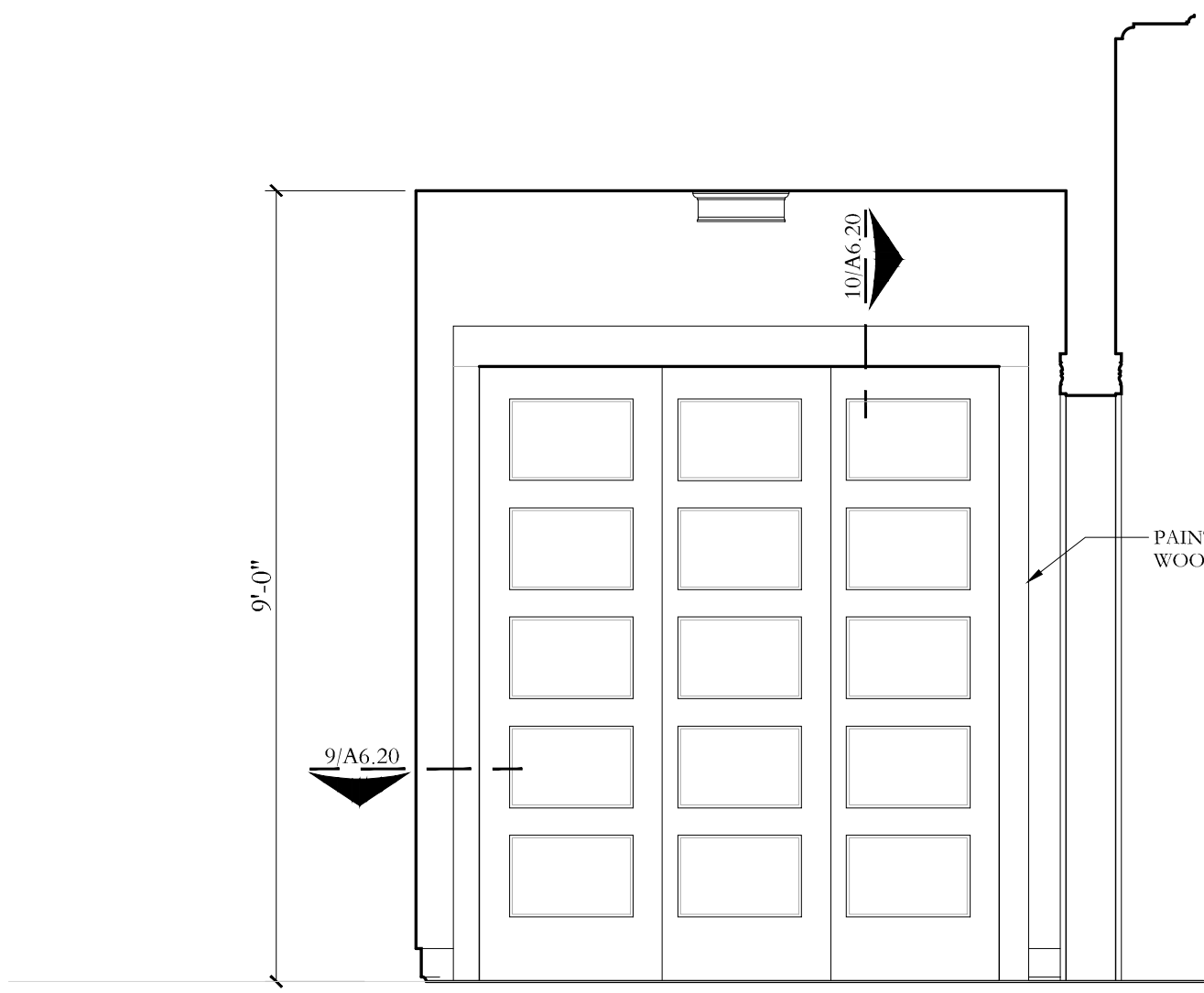
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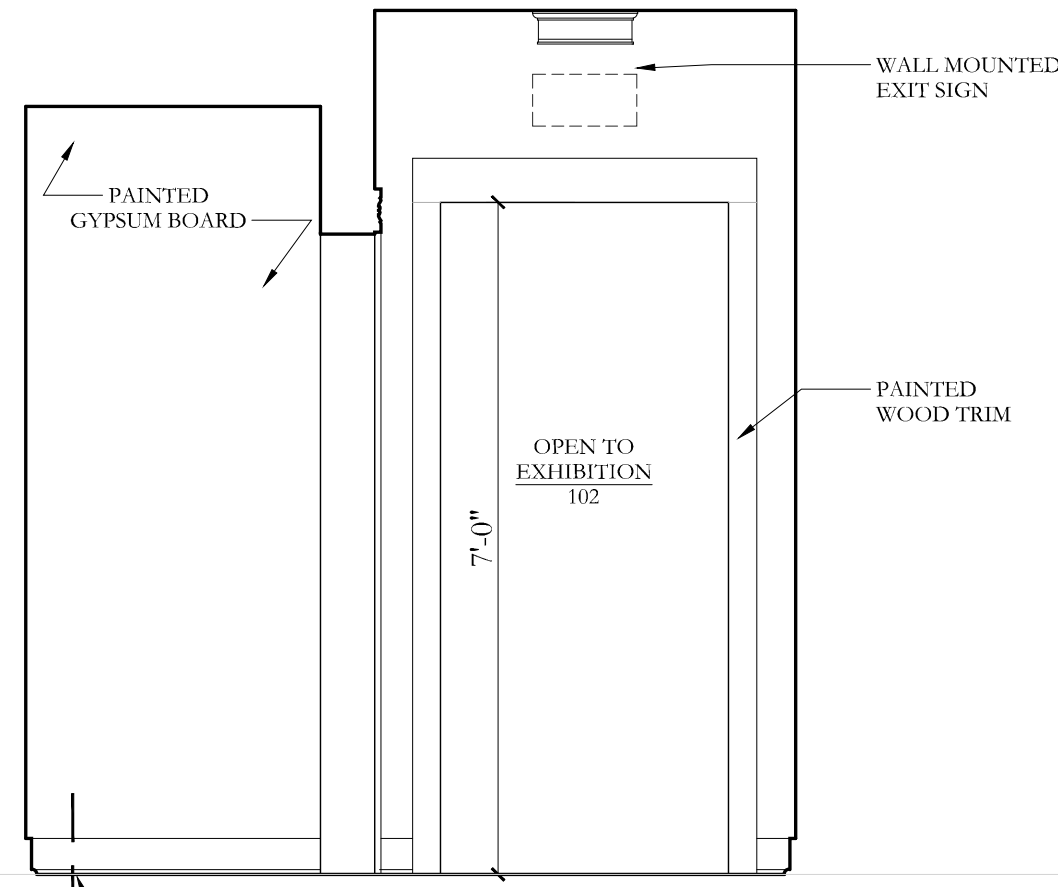
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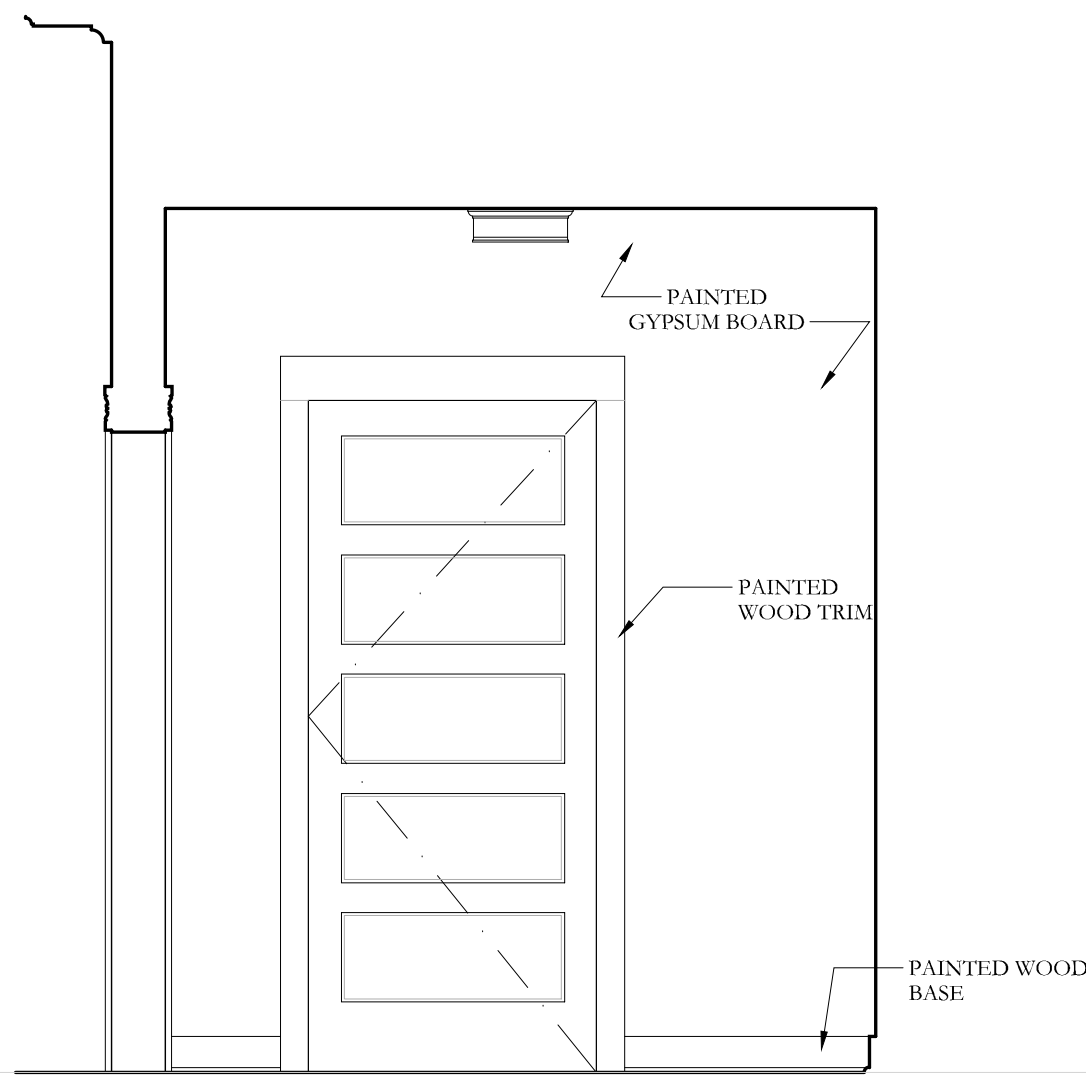




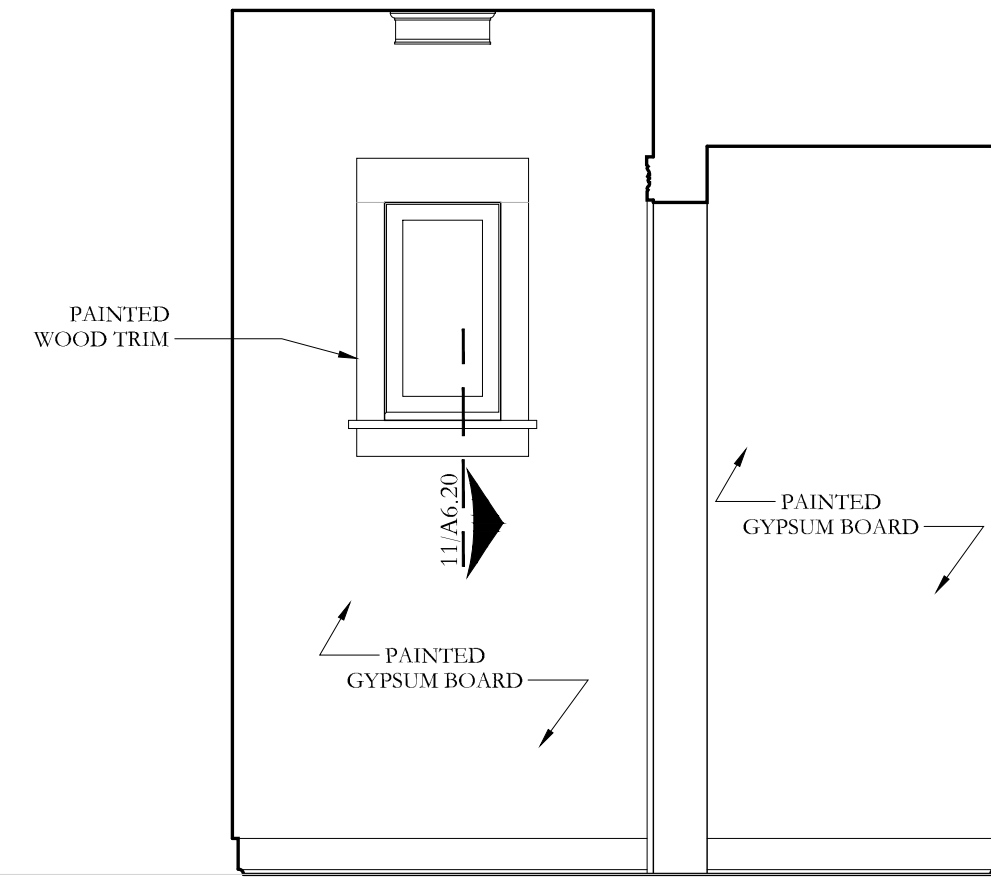
1 VEST. / CLOSET 103 - NORTH  
1/2" = 1'-0"



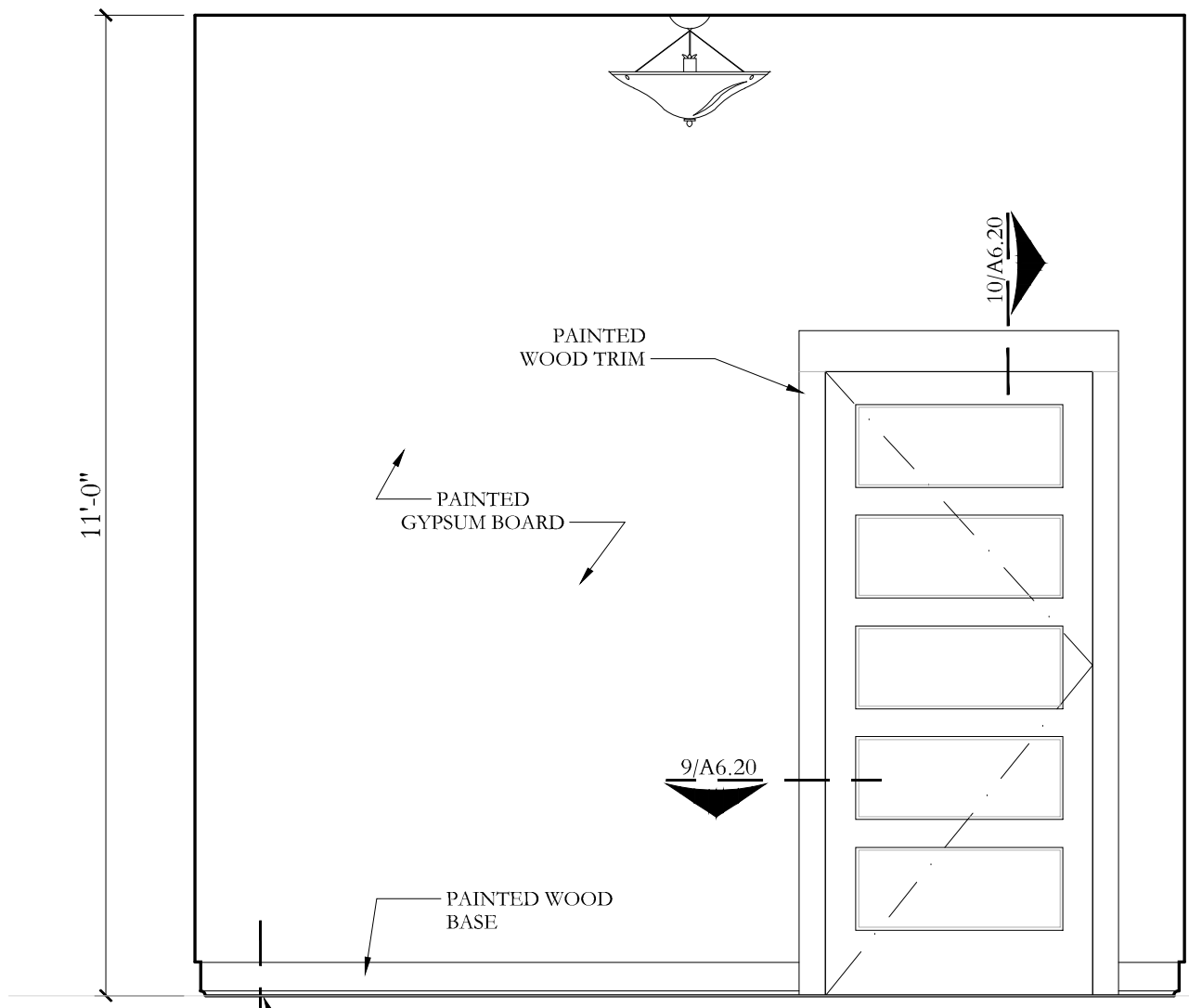
2 VEST. / CLOSET 103 - EAST  
1/2" = 1'-0"



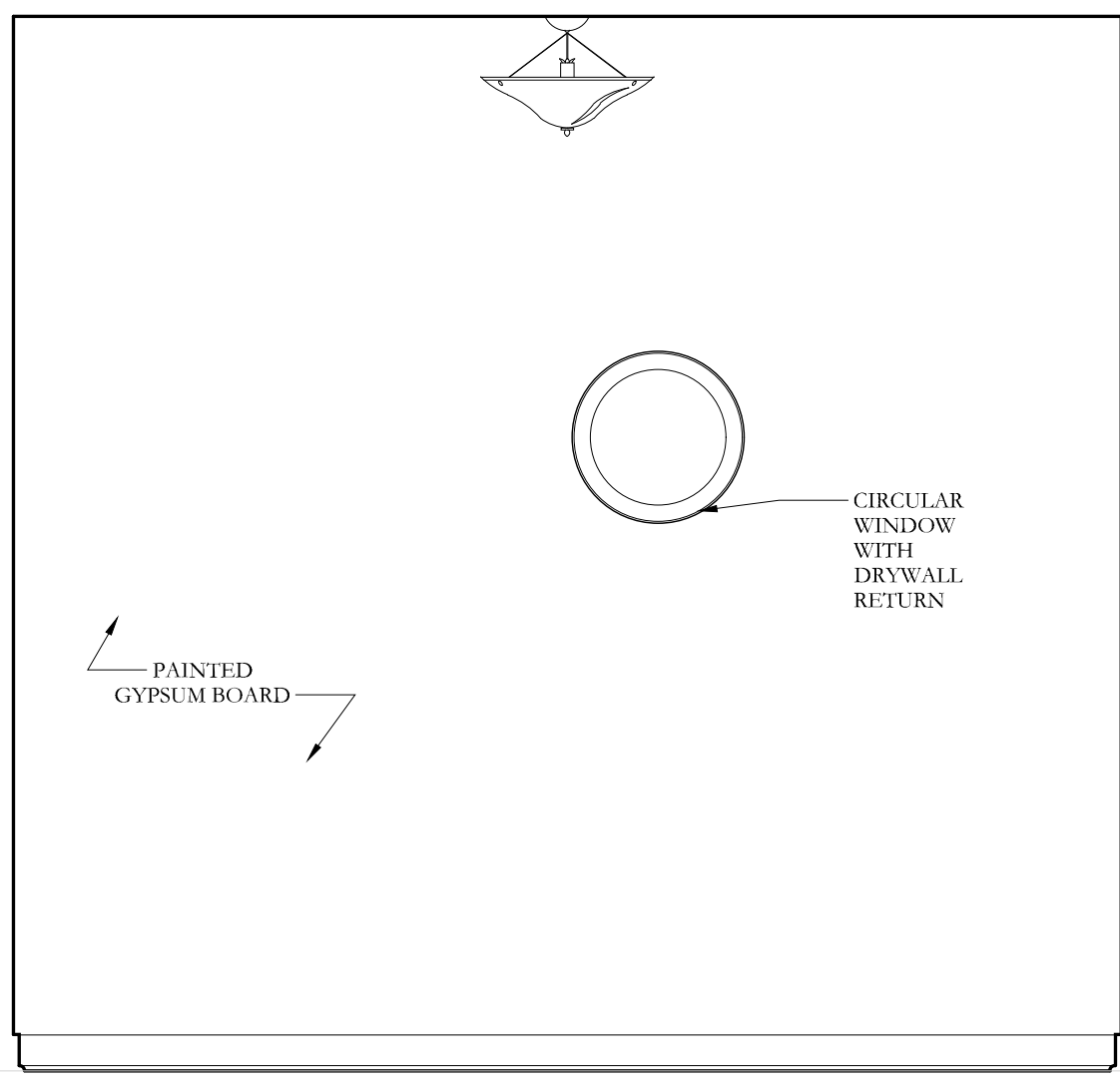
3 VEST. / CLOSET 103 - SOUTH  
1/2" = 1'-0"



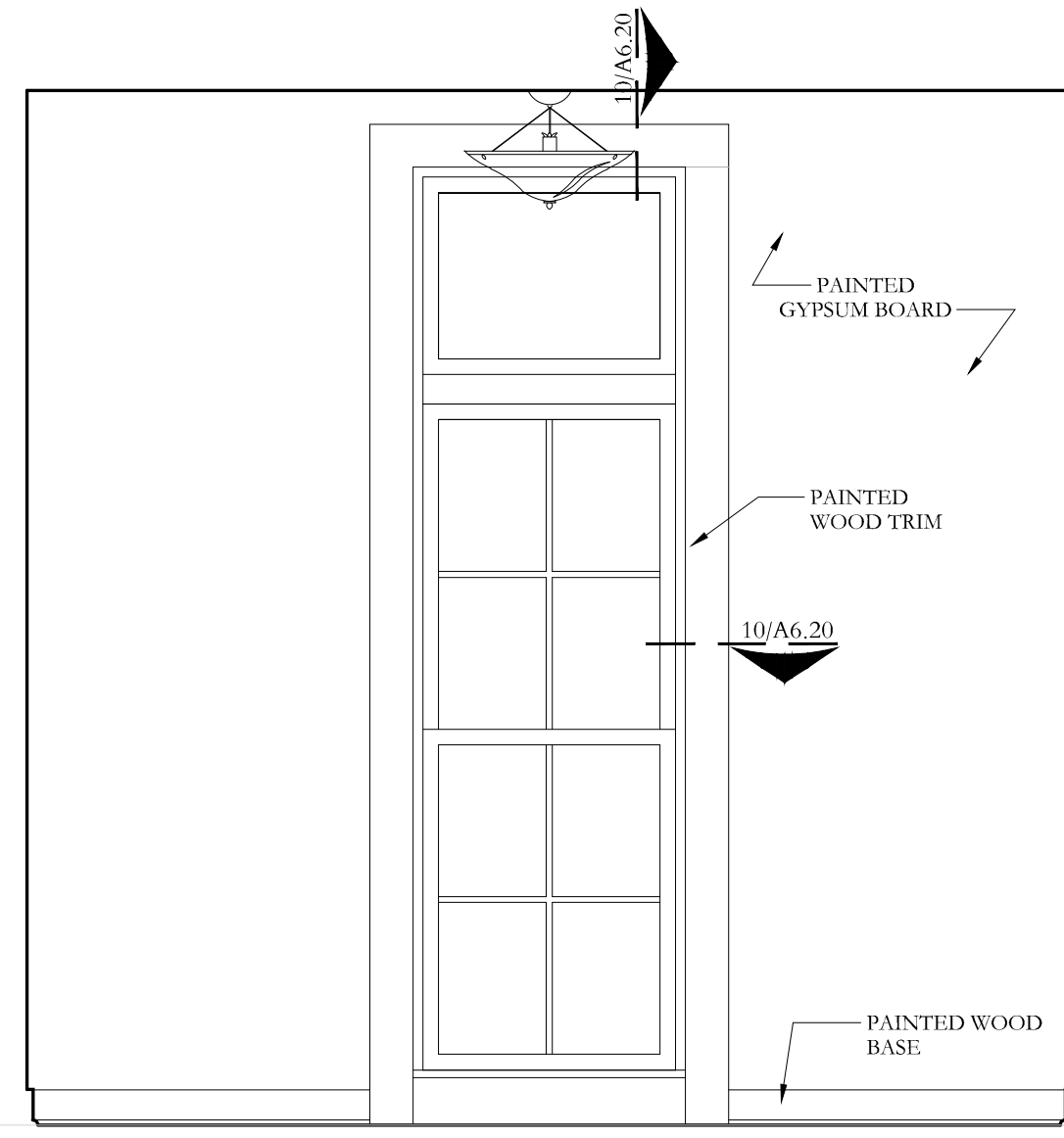
4 VEST. / CLOSET 103 - WEST  
1/2" = 1'-0"



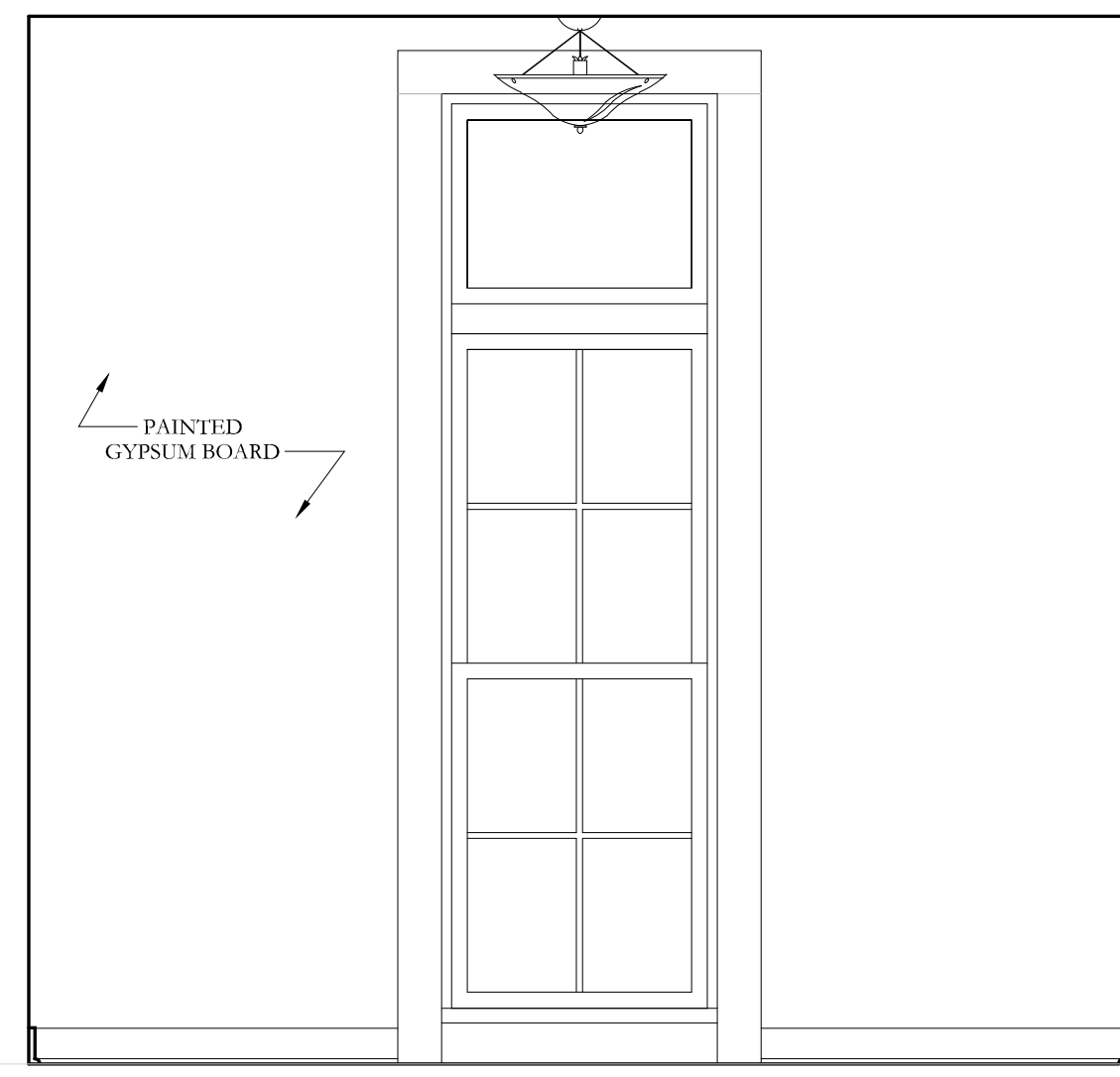
5 DIRECTOR'S 104 - NORTH  
1/2" = 1'-0"



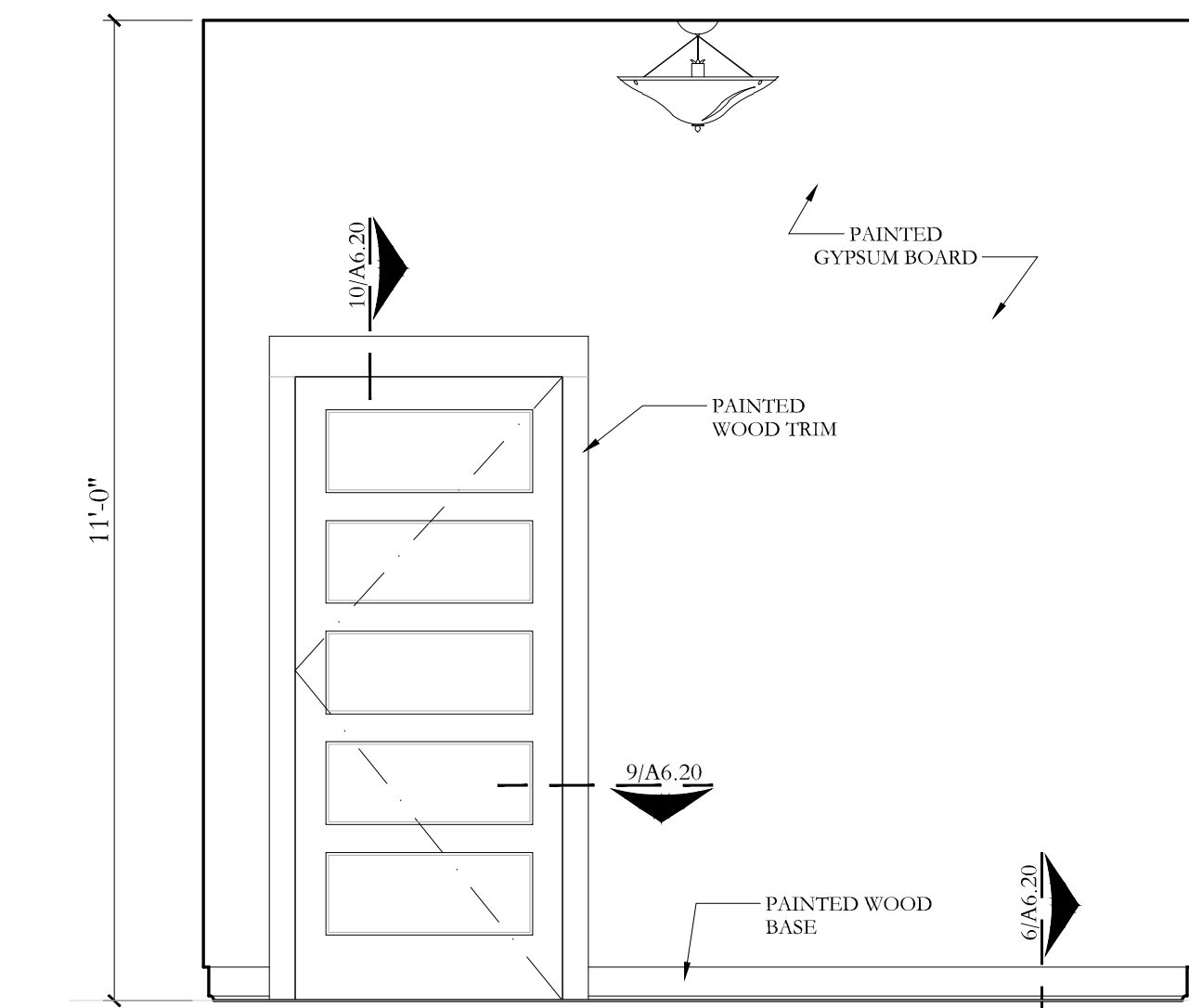
6 DIRECTOR'S 104 - EAST  
1/2" = 1'-0"



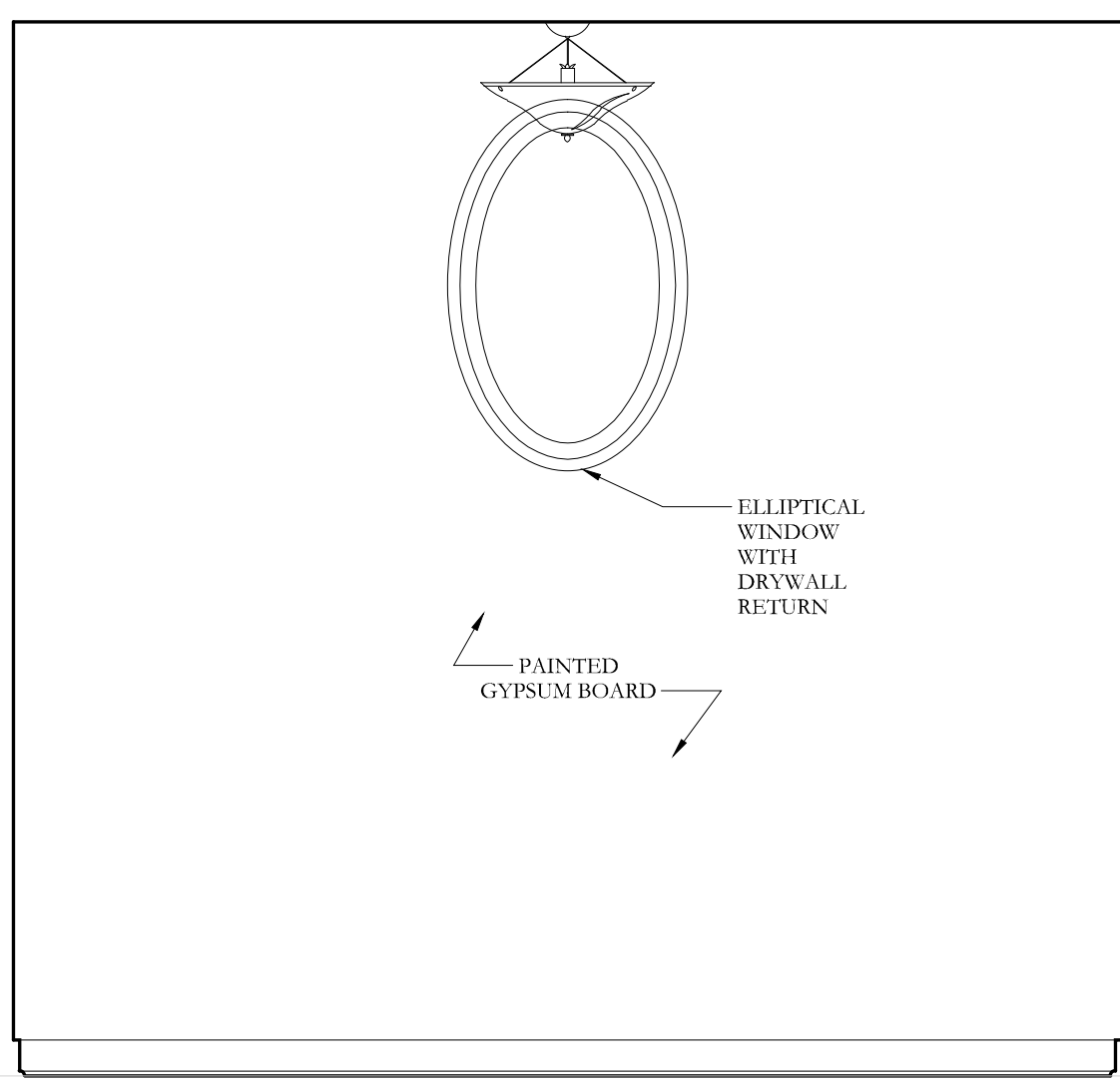
7 DIRECTOR'S 104 - SOUTH  
1/2" = 1'-0"



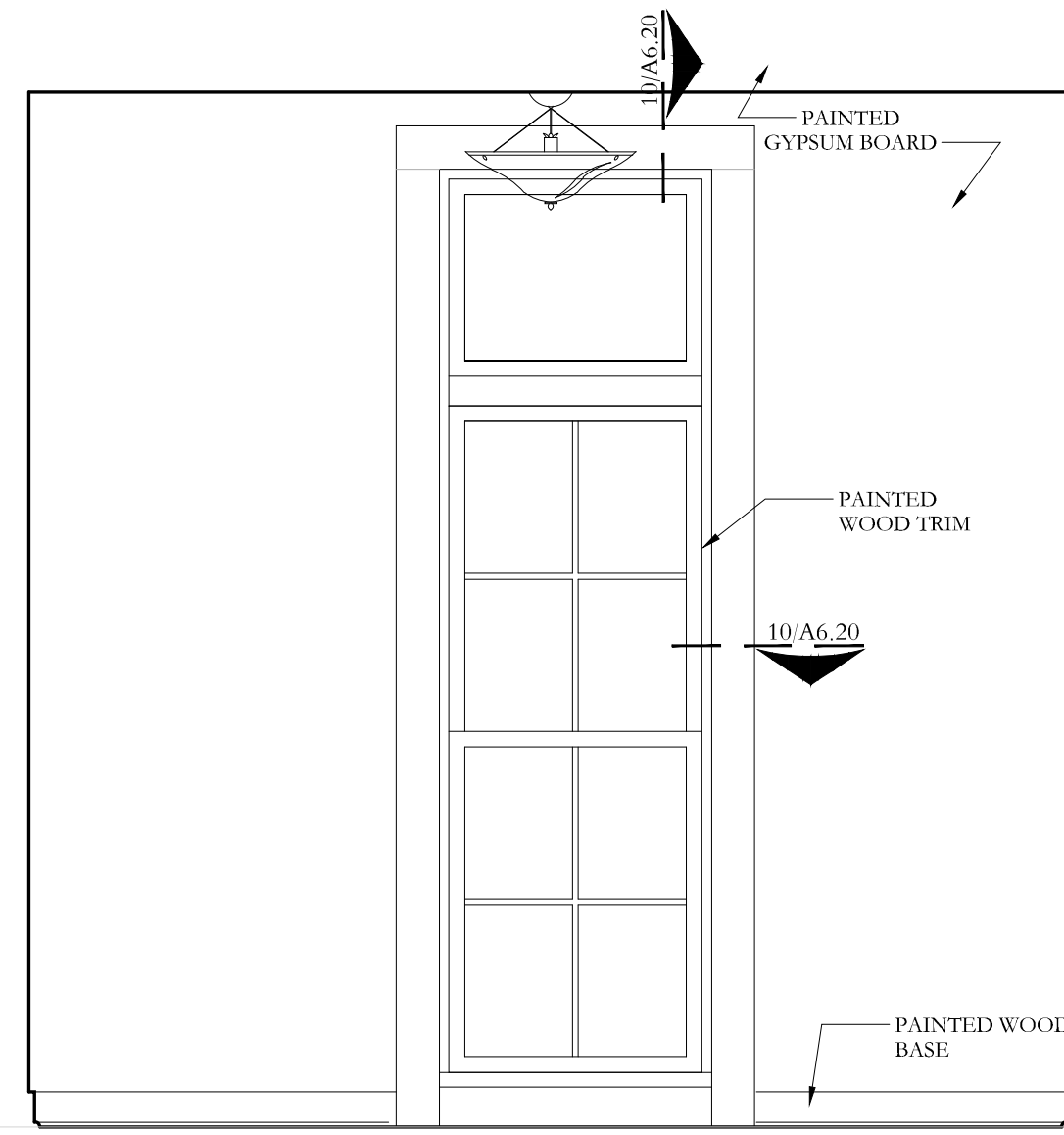
8 DIRECTOR'S 104 - WEST  
1/2" = 1'-0"



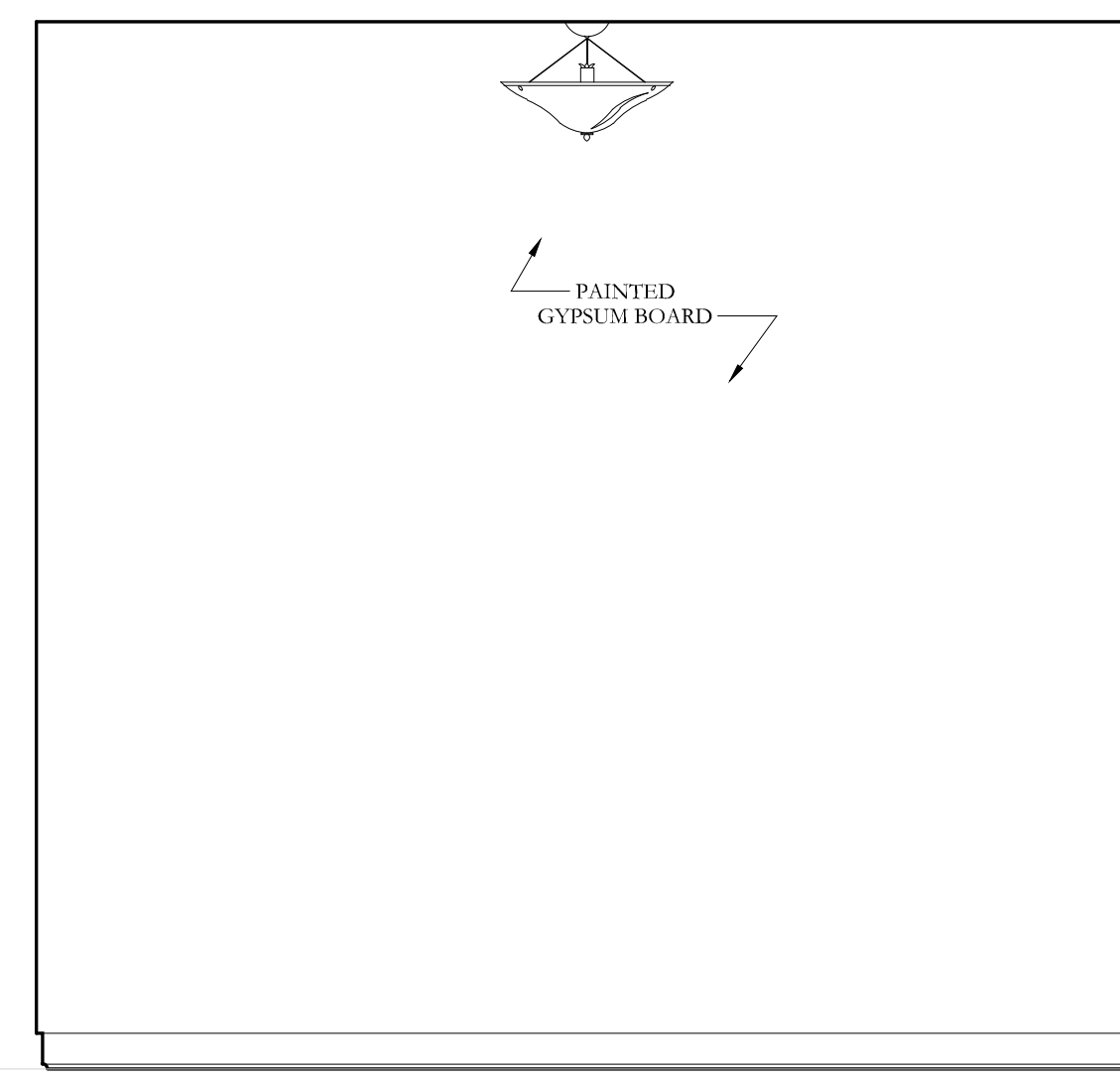
9 DOCENTS/OFFICE 105 - NORTH  
1/2" = 1'-0"



10 DOCENTS/OFFICE 105 - EAST  
1/2" = 1'-0"



11 DOCENTS/OFFICE 105 - SOUTH  
1/2" = 1'-0"



12 DOCENTS/OFFICE 105 - WEST  
1/2" = 1'-0"

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INTERIOR ELEVATIONS

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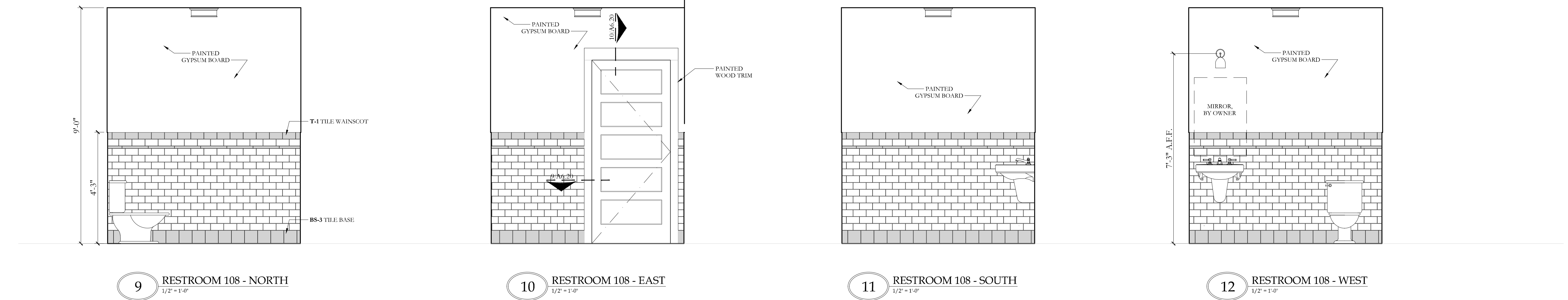
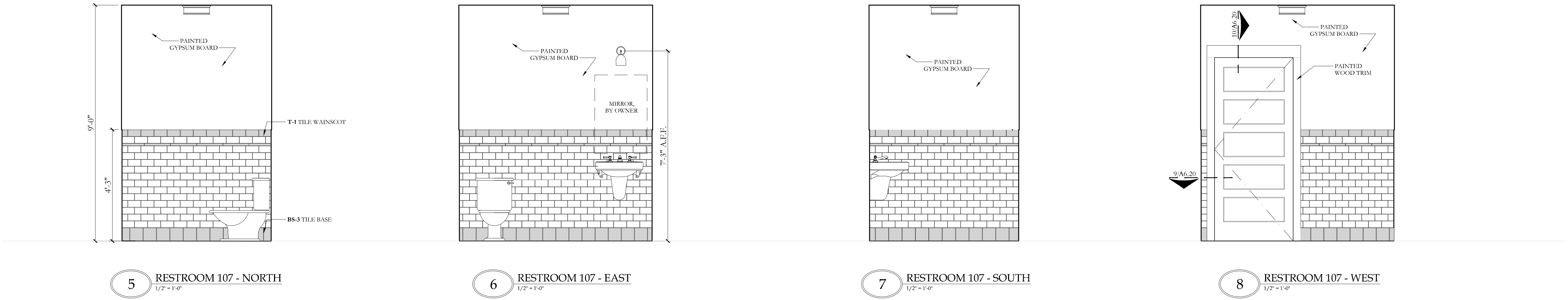
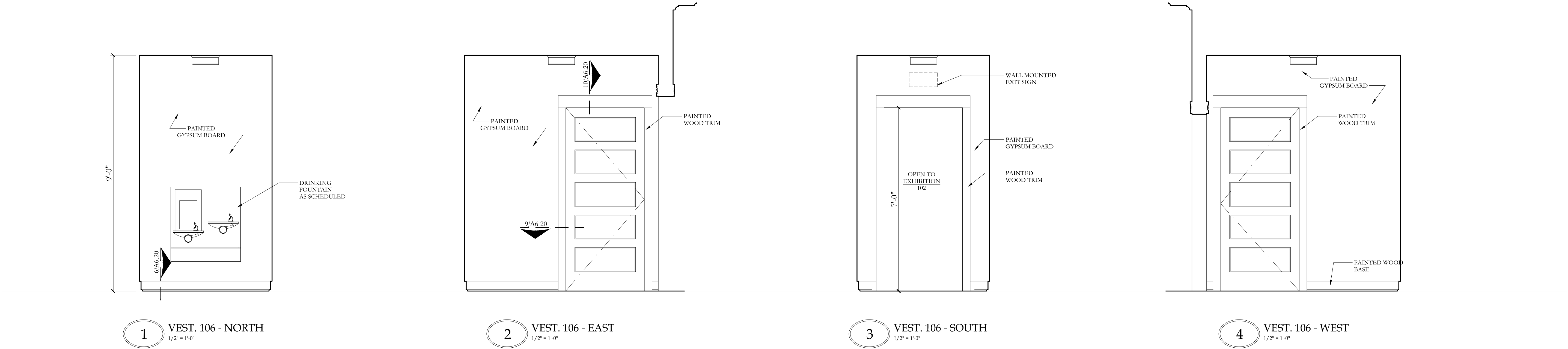
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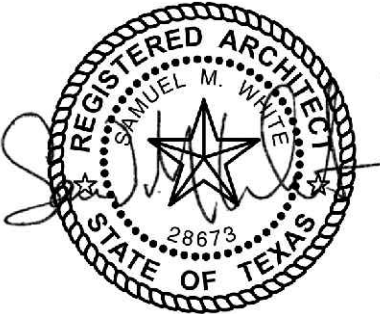


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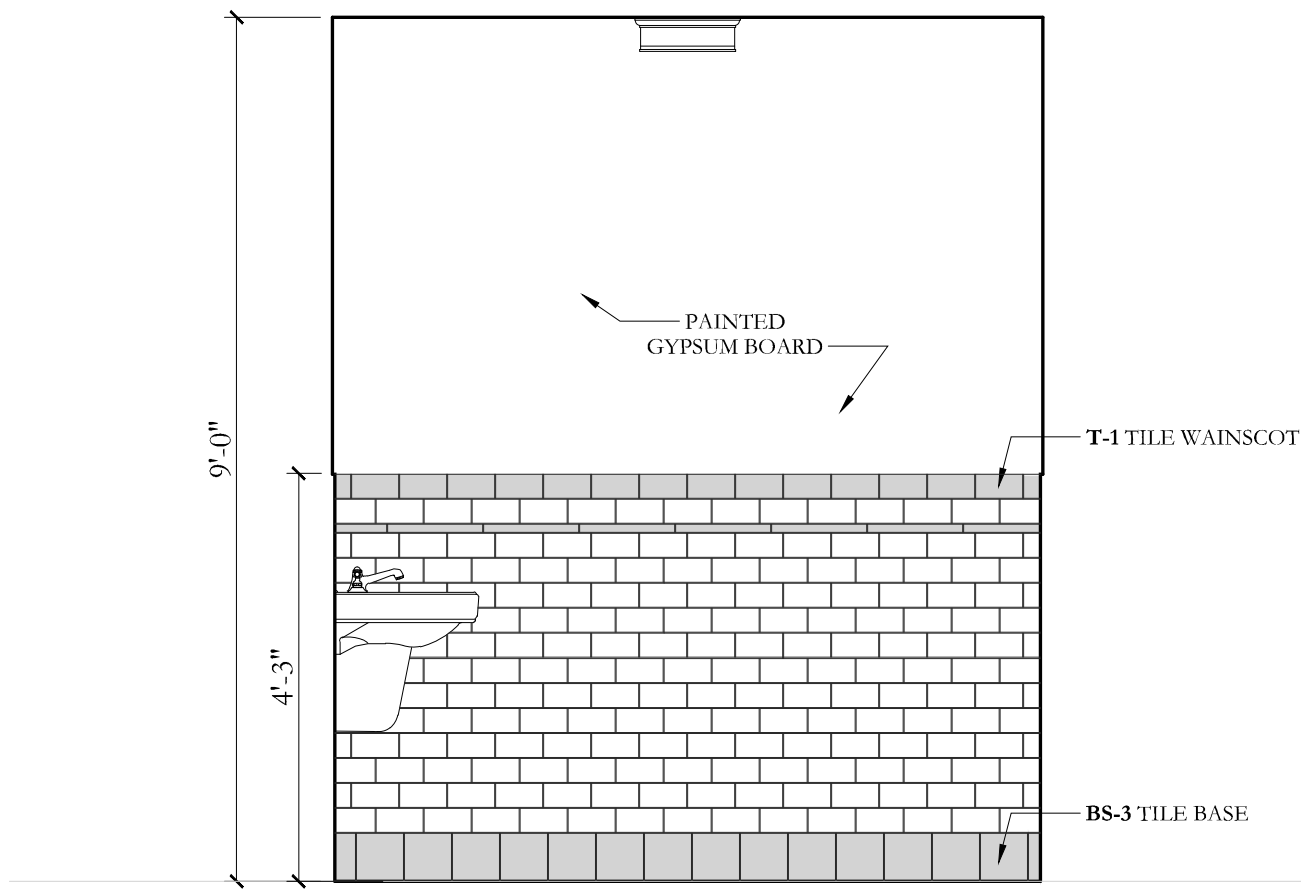
INTERIOR ELEVATIONS

JUNE 21, 2024

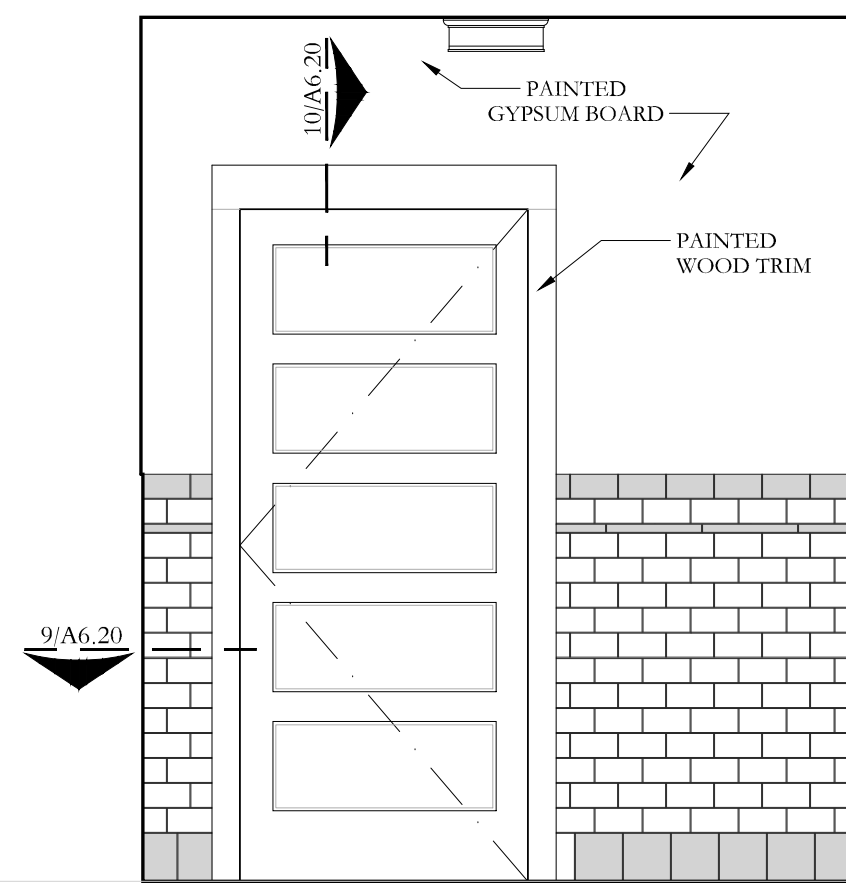


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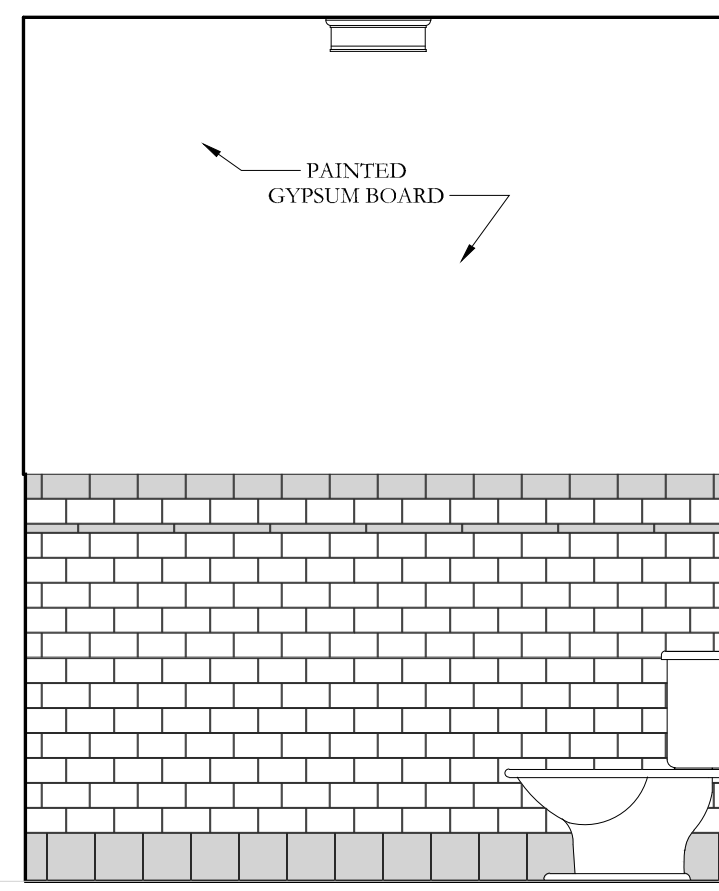
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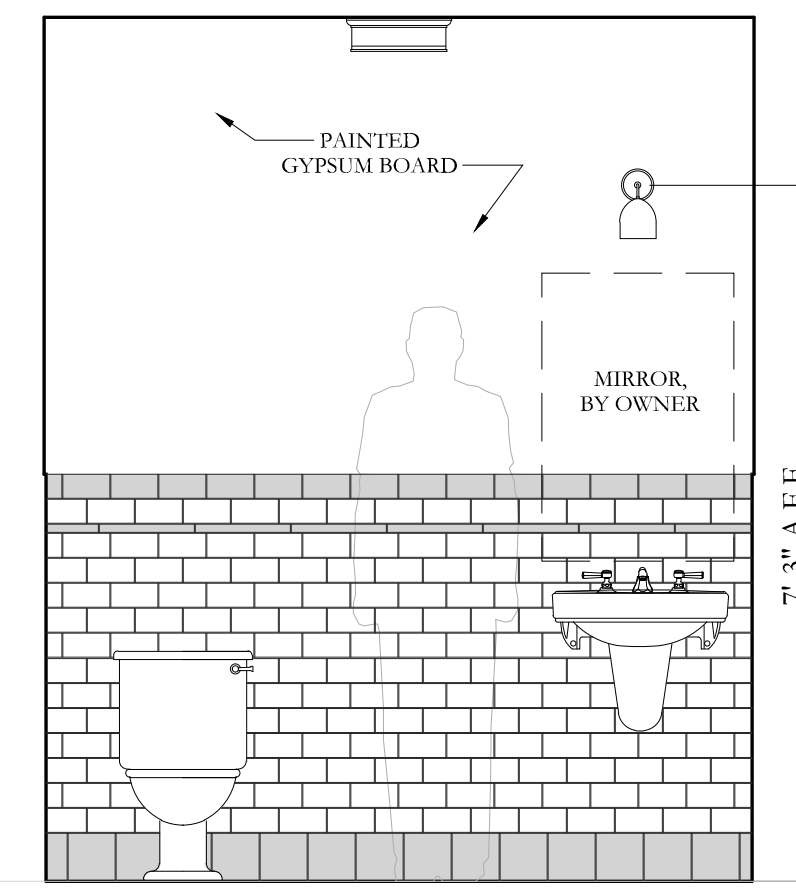
1 RESTROOM 109 - NORTH  
1/2" = 1'-0"



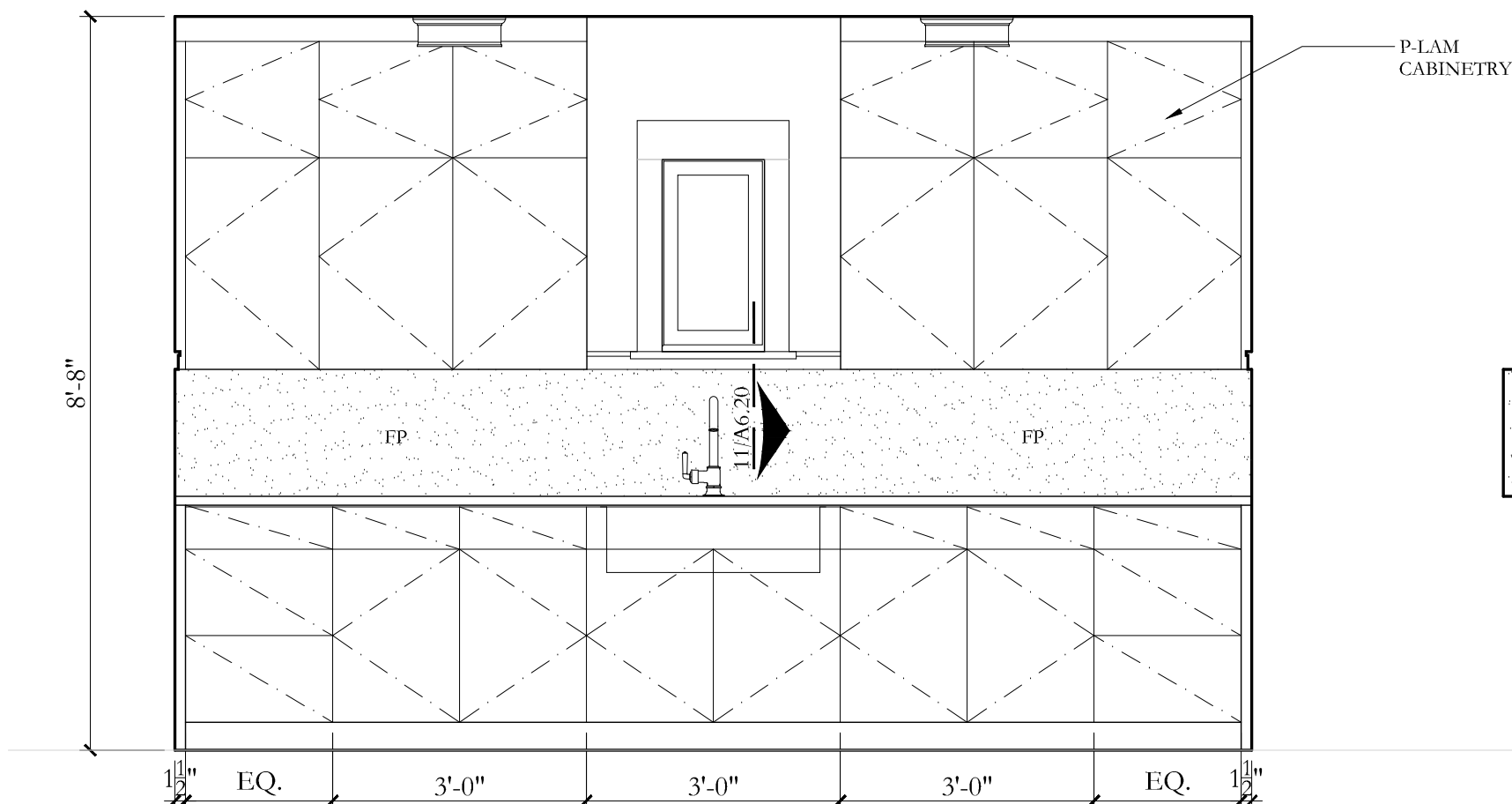
2 RESTROOM 109 - EAST  
1/2" = 1'-0"



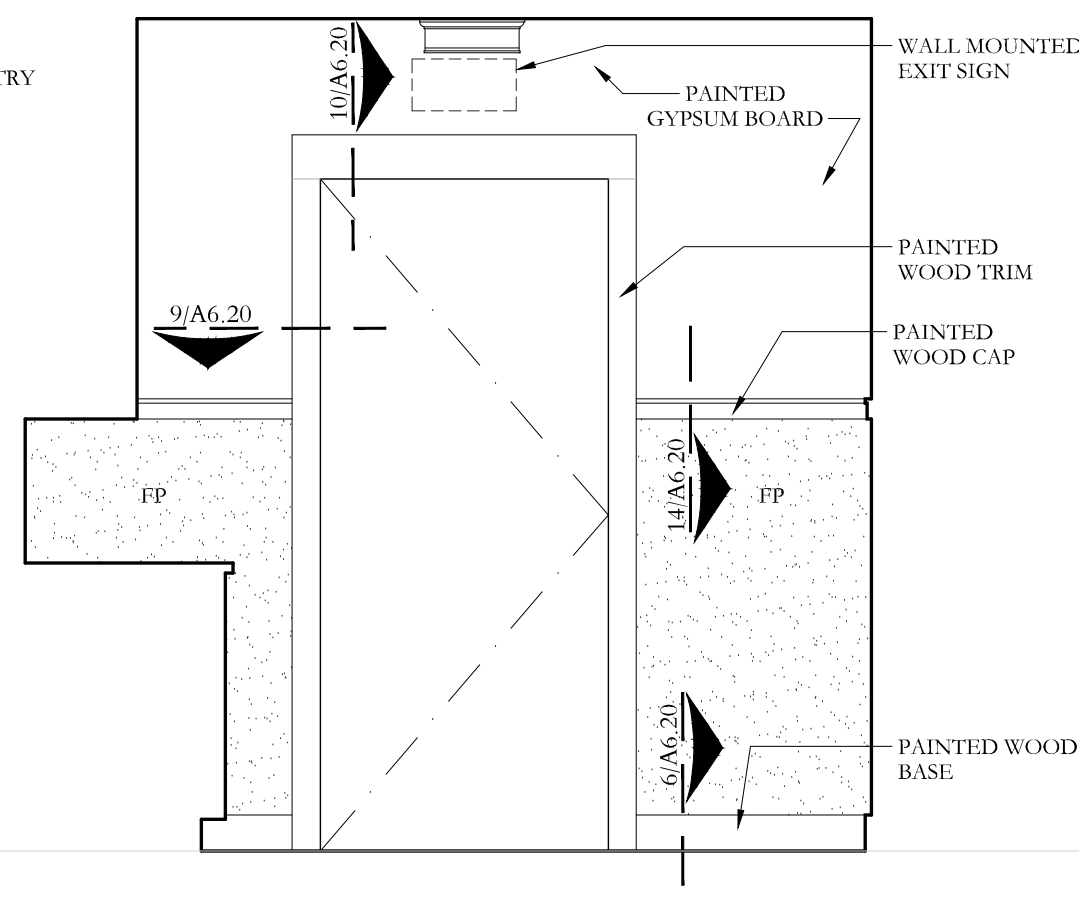
3 RESTROOM 109 - SOUTH  
1/2" = 1'-0"



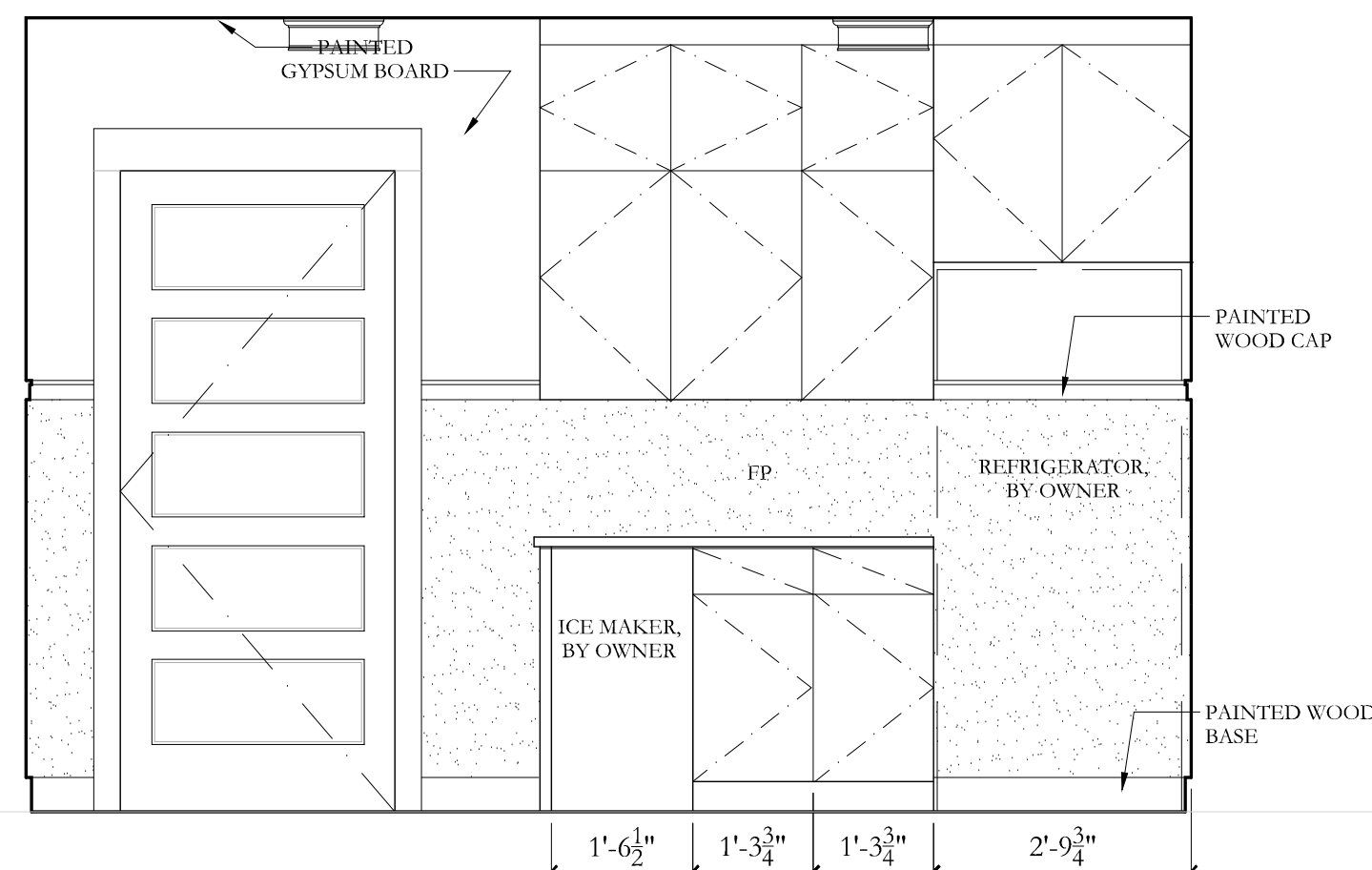
4 RESTROOM 109 - WEST  
1/2" = 1'-0"



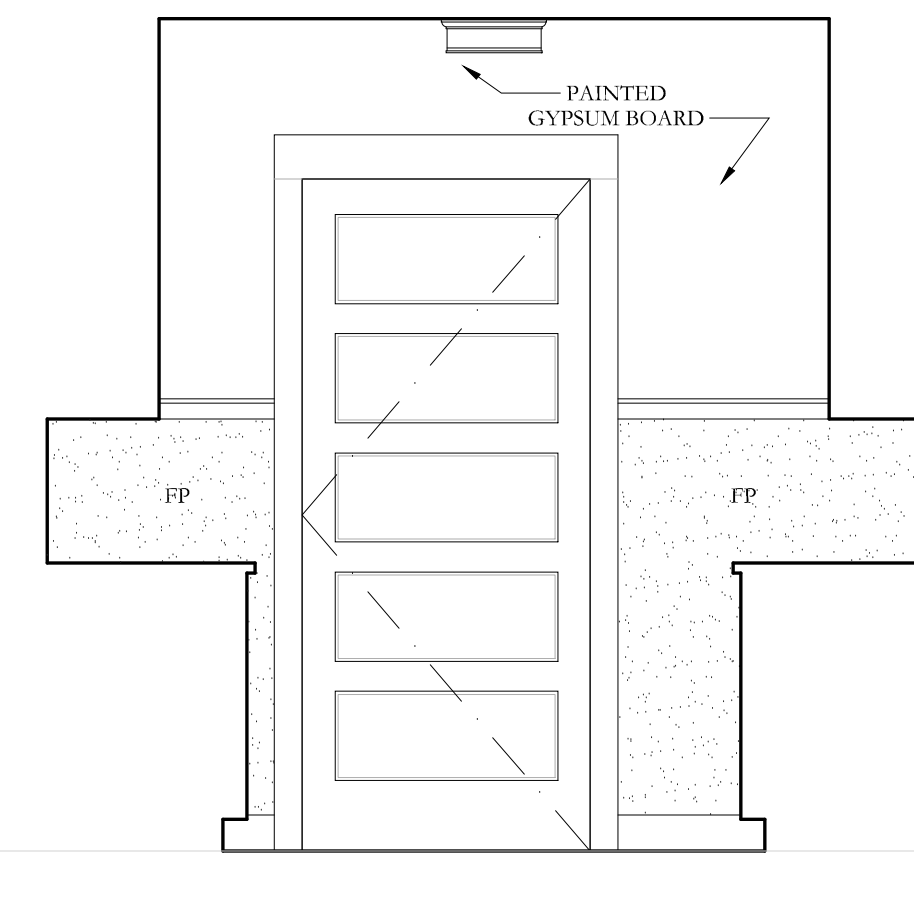
5 BACK OF HOUSE 110 - NORTH  
1/2" = 1'-0"



6 BACK OF HOUSE 110 - EAST  
1/2" = 1'-0"



7 BACK OF HOUSE 110 - SOUTH  
1/2" = 1'-0"



8 BACK OF HOUSE 110 - WEST  
1/2" = 1'-0"

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CONSTRUCTION DOCUMENTS

INTERIOR ELEVATIONS

JUNE 21, 2024



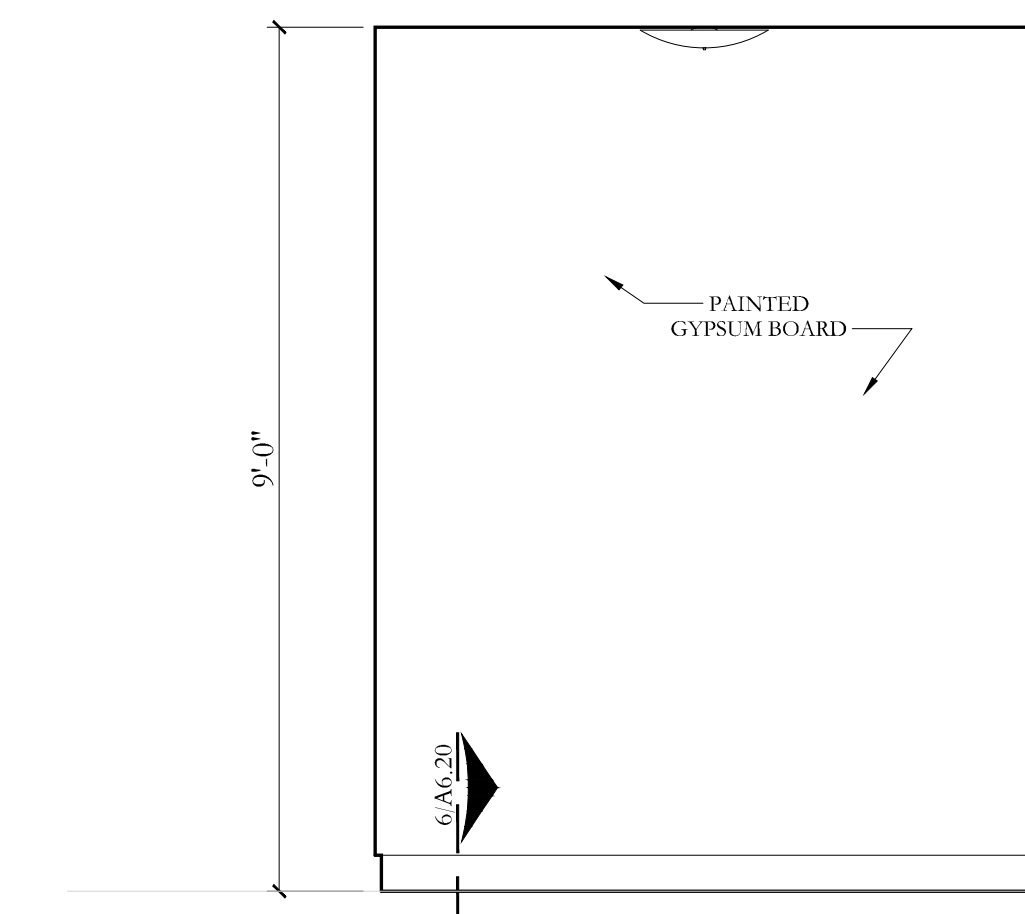
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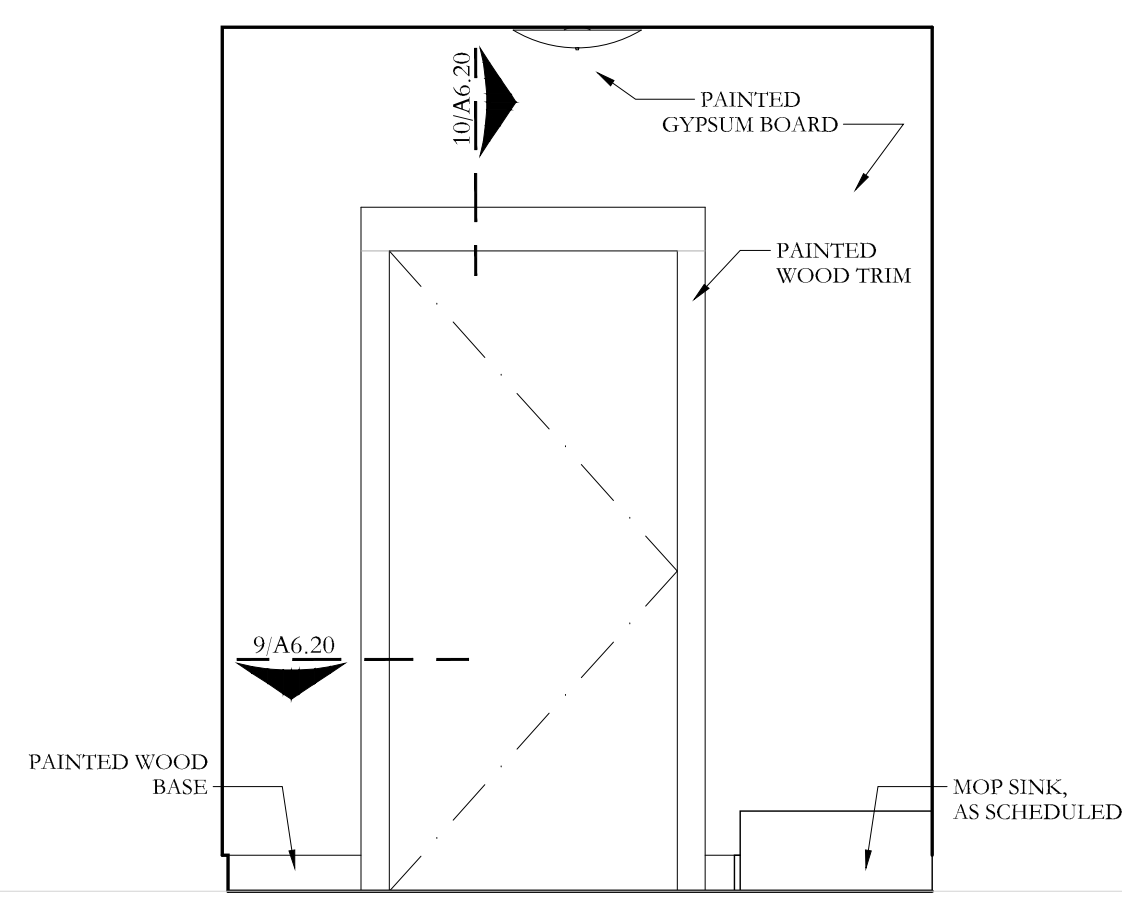
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ARCHITECT  
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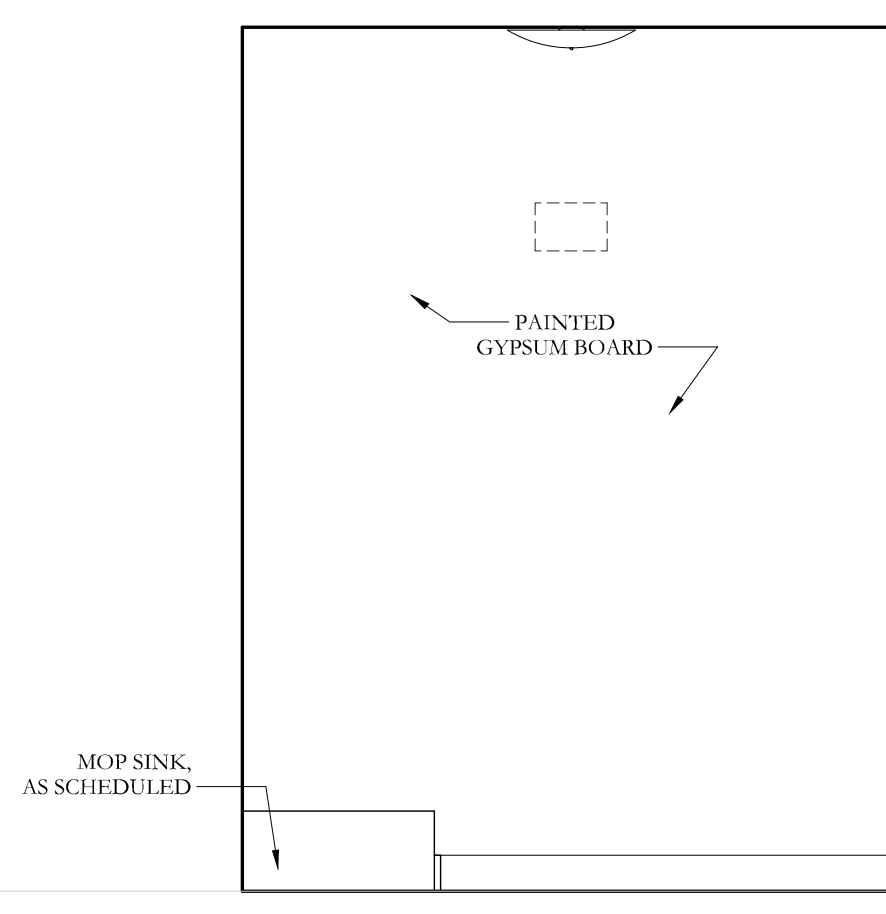
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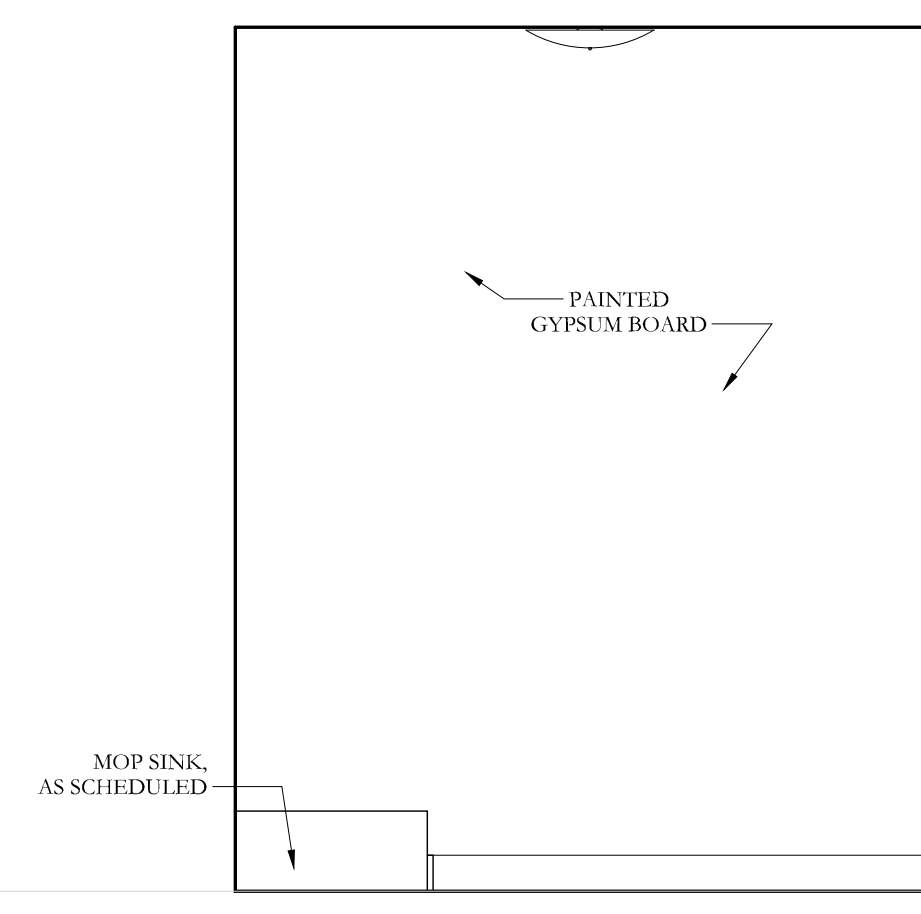
9 MEC./JAN. 111 - NORTH  
1/2" = 1'-0"



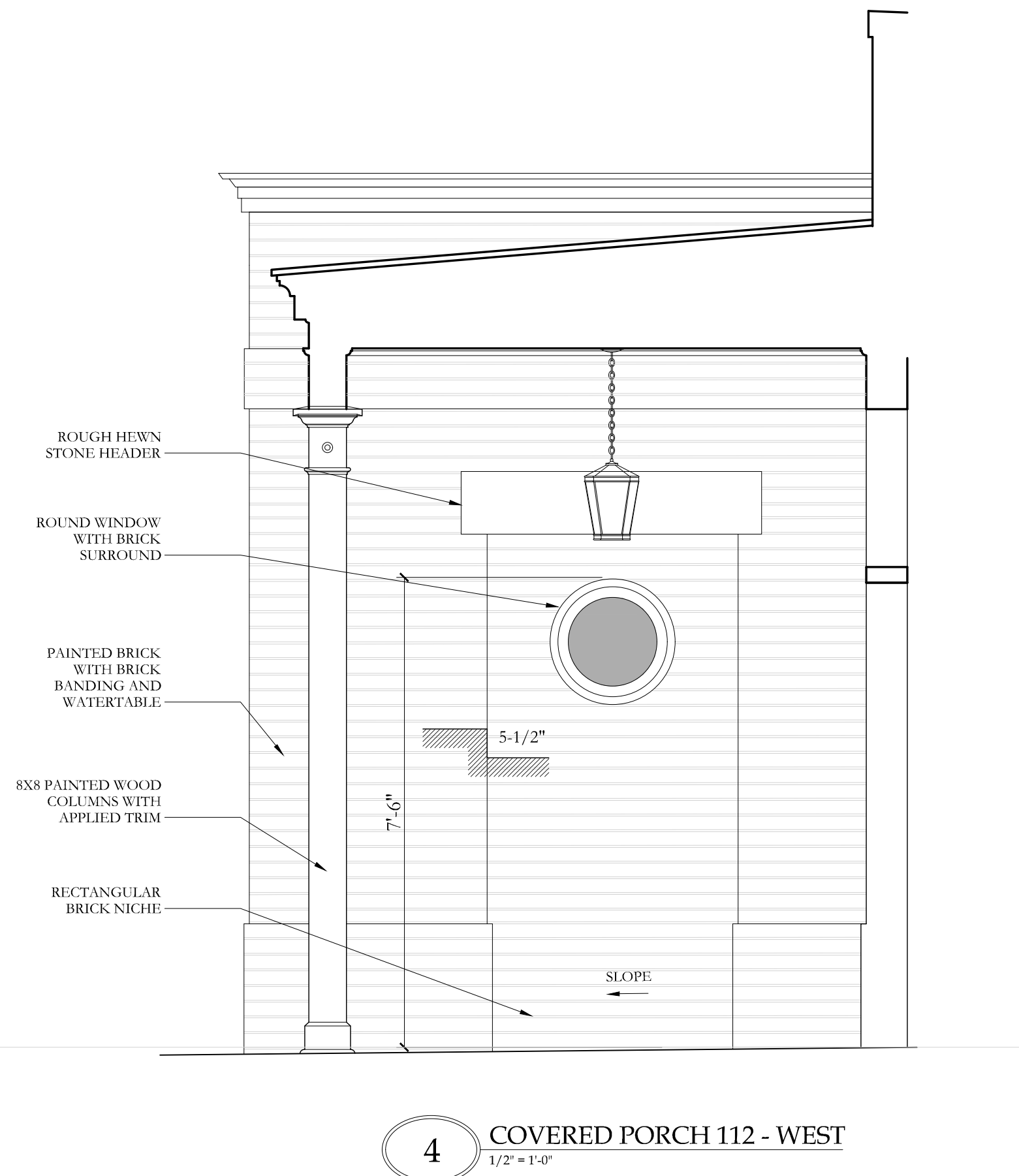
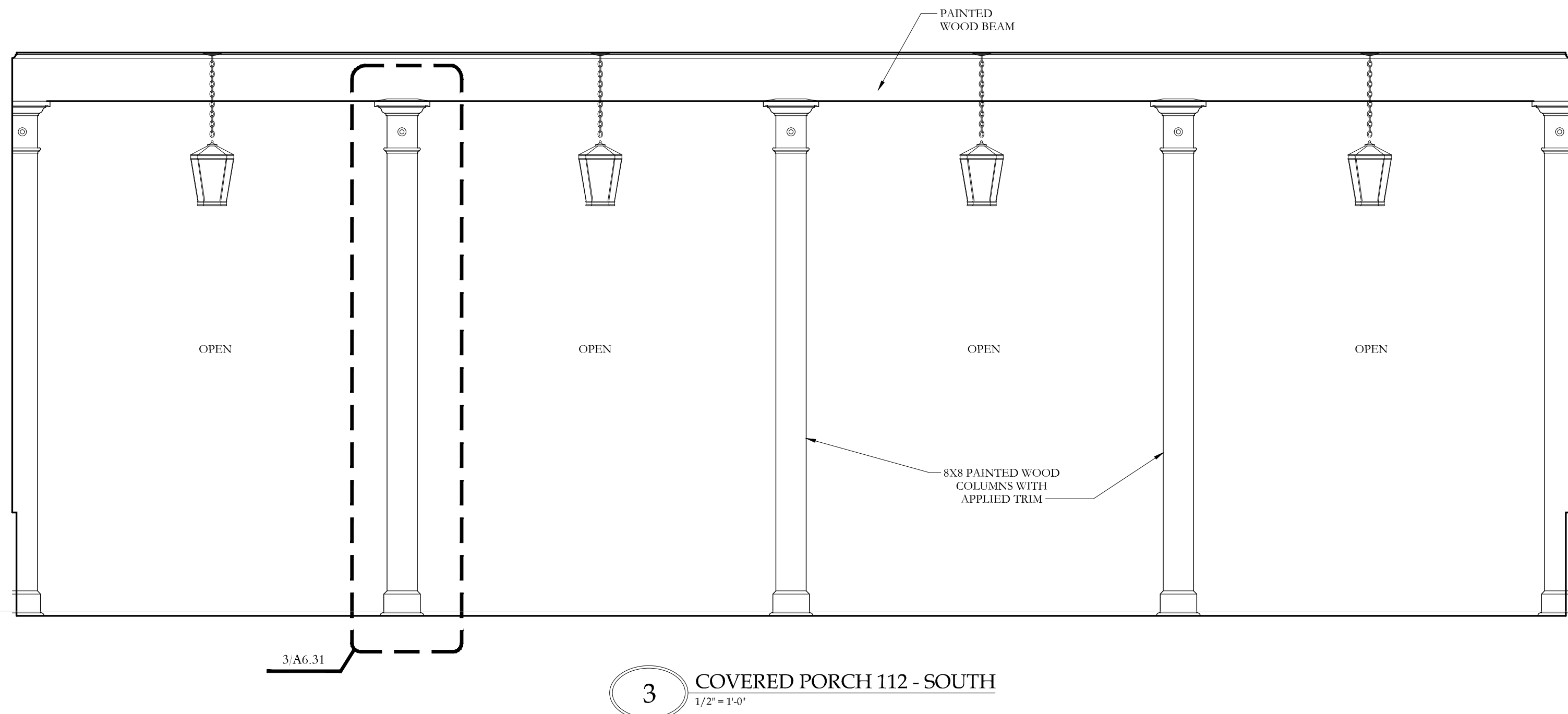
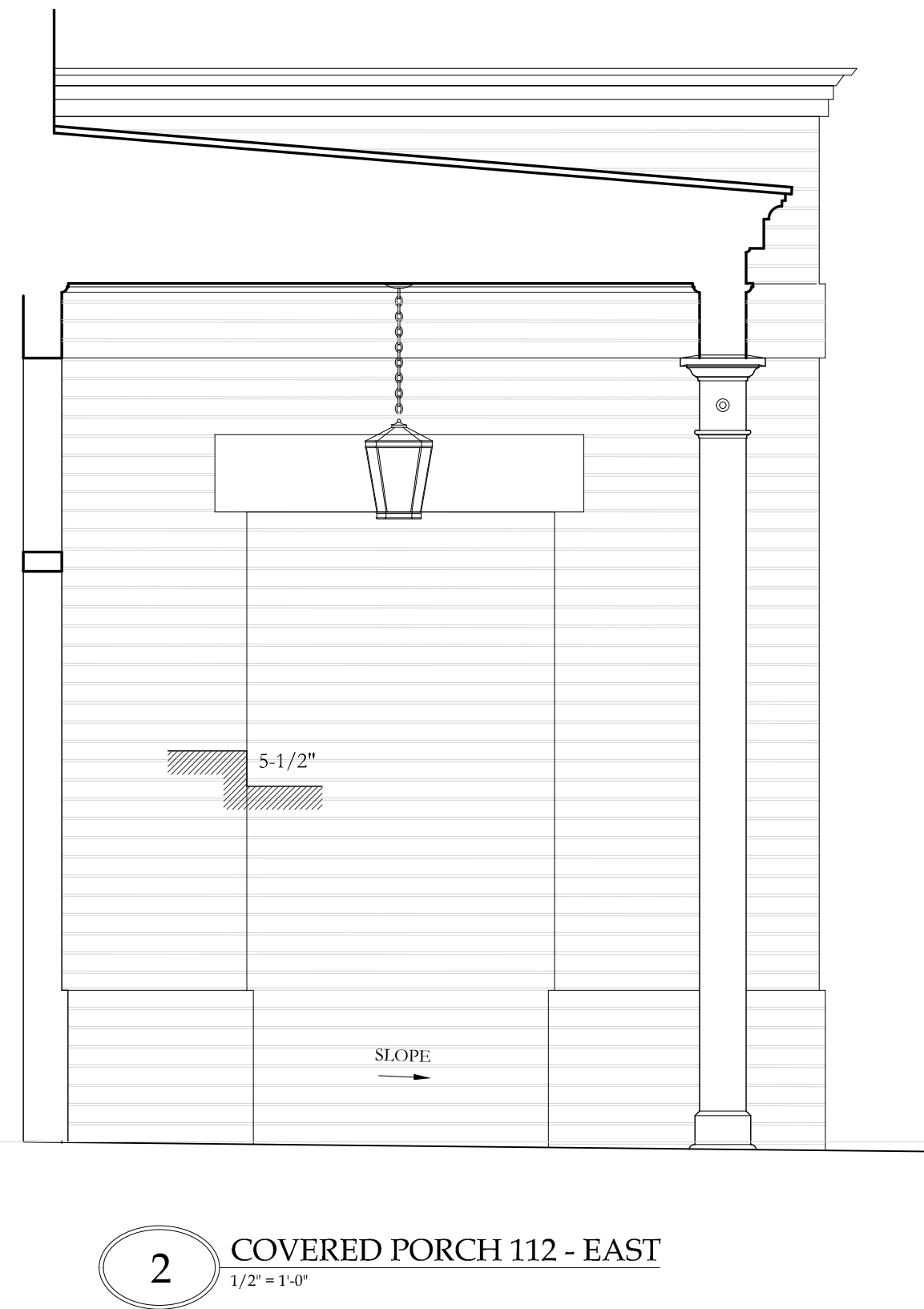
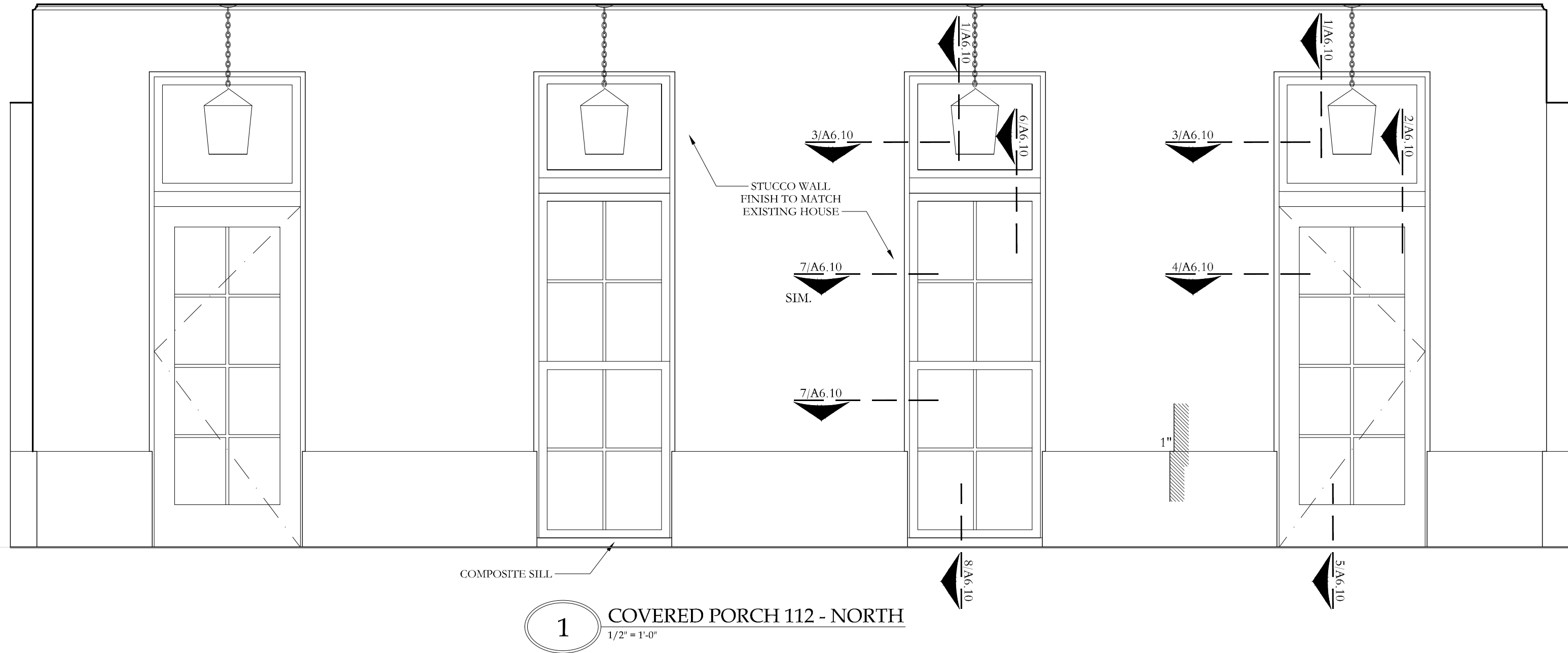
10 MEC./JAN. 111 - EAST  
1/2" = 1'-0"



11 MEC./JAN. 111 - SOUTH  
1/2" = 1'-0"



12 MEC./JAN. 111 - WEST  
1/2" = 1'-0"



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INTERIOR ELEVATIONS

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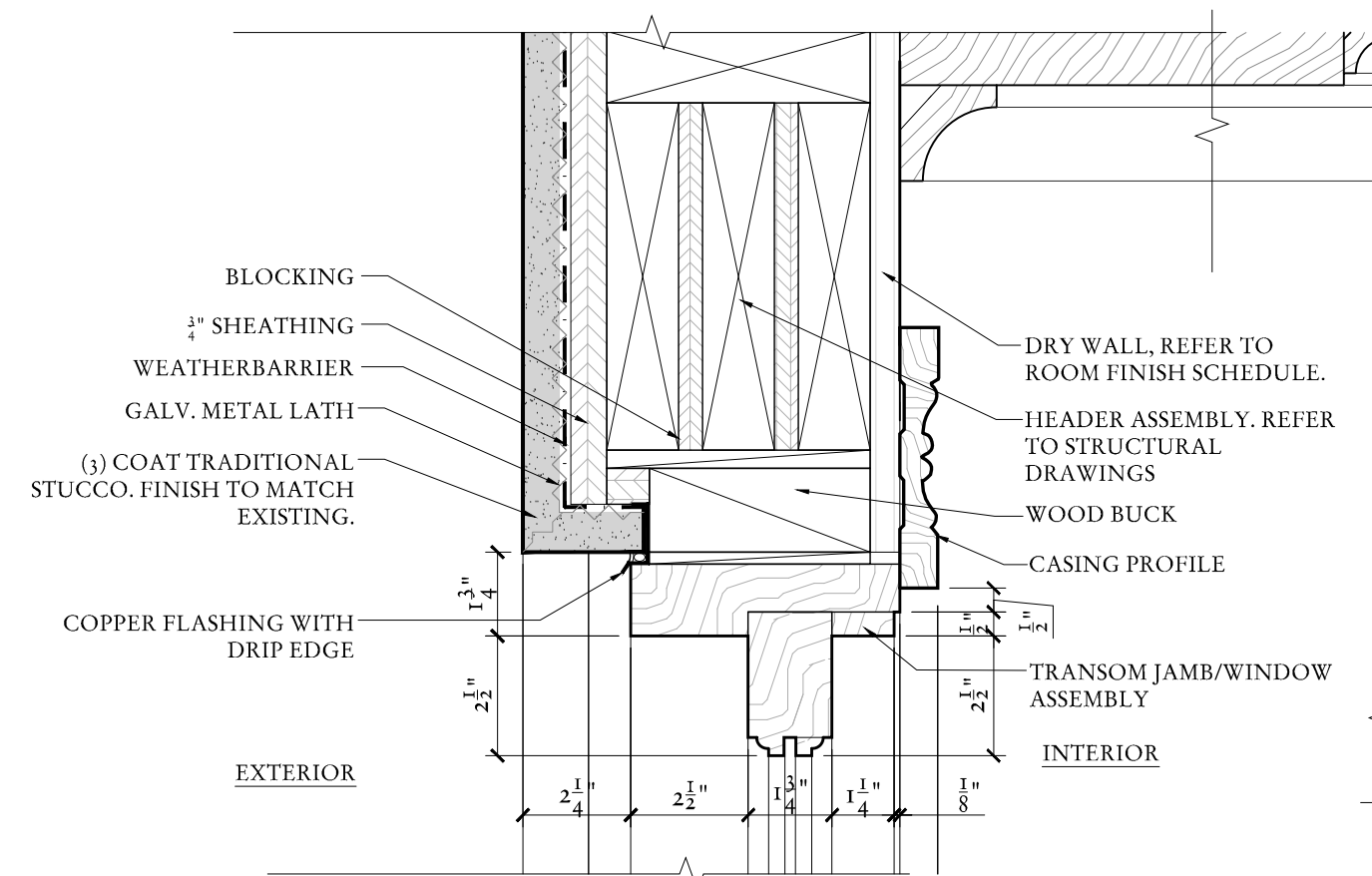
~ A5.6 ~

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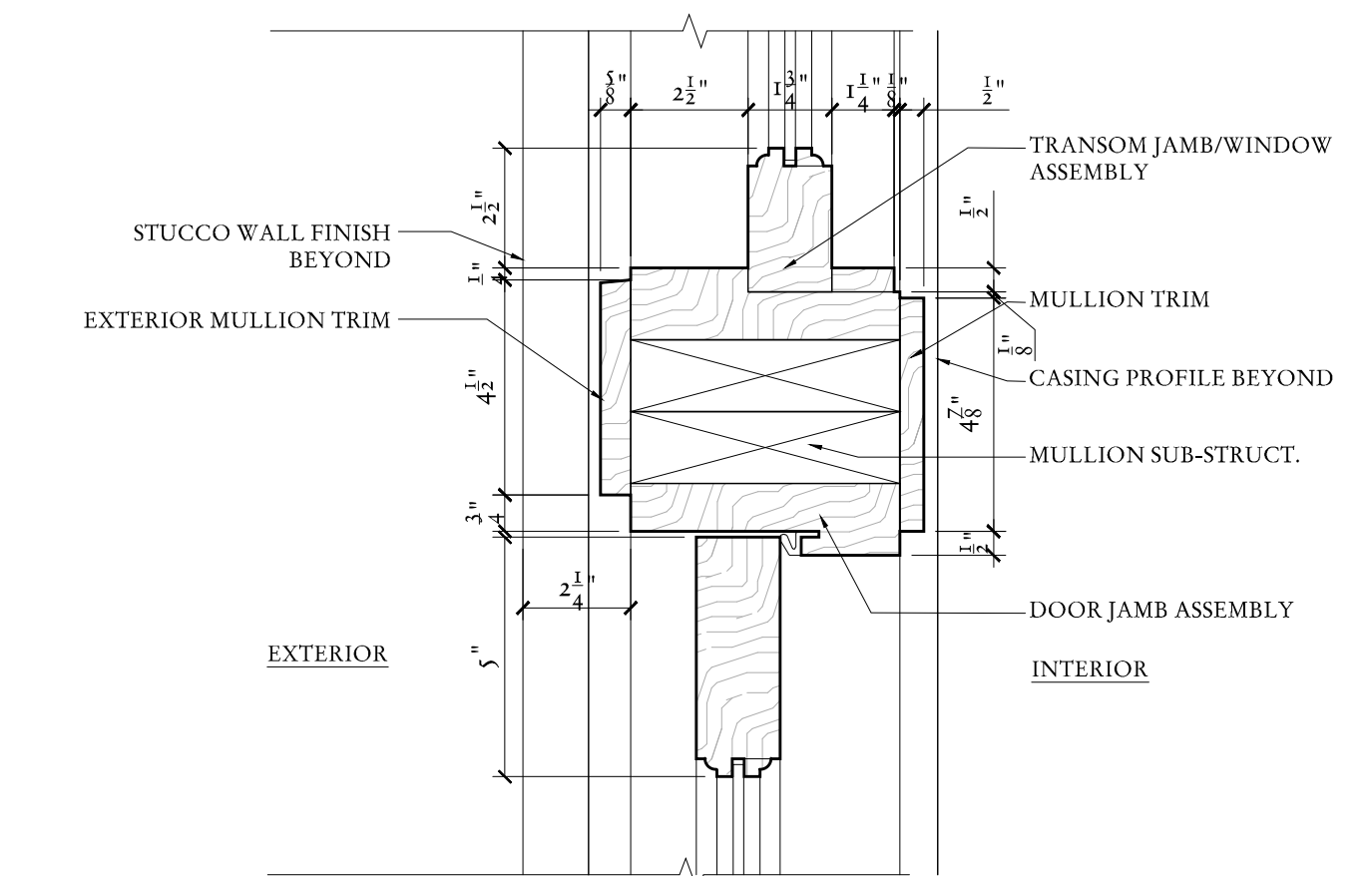
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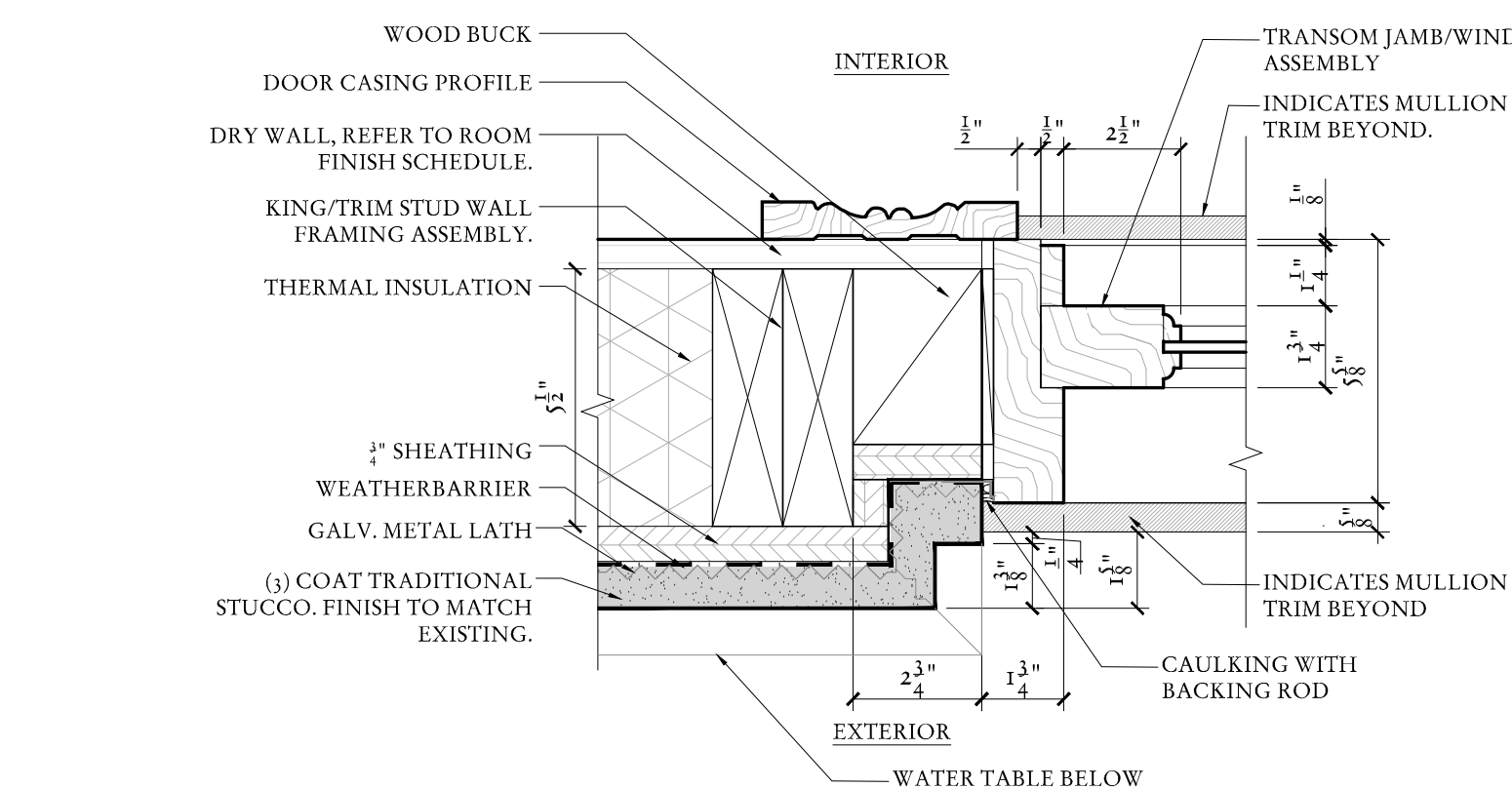




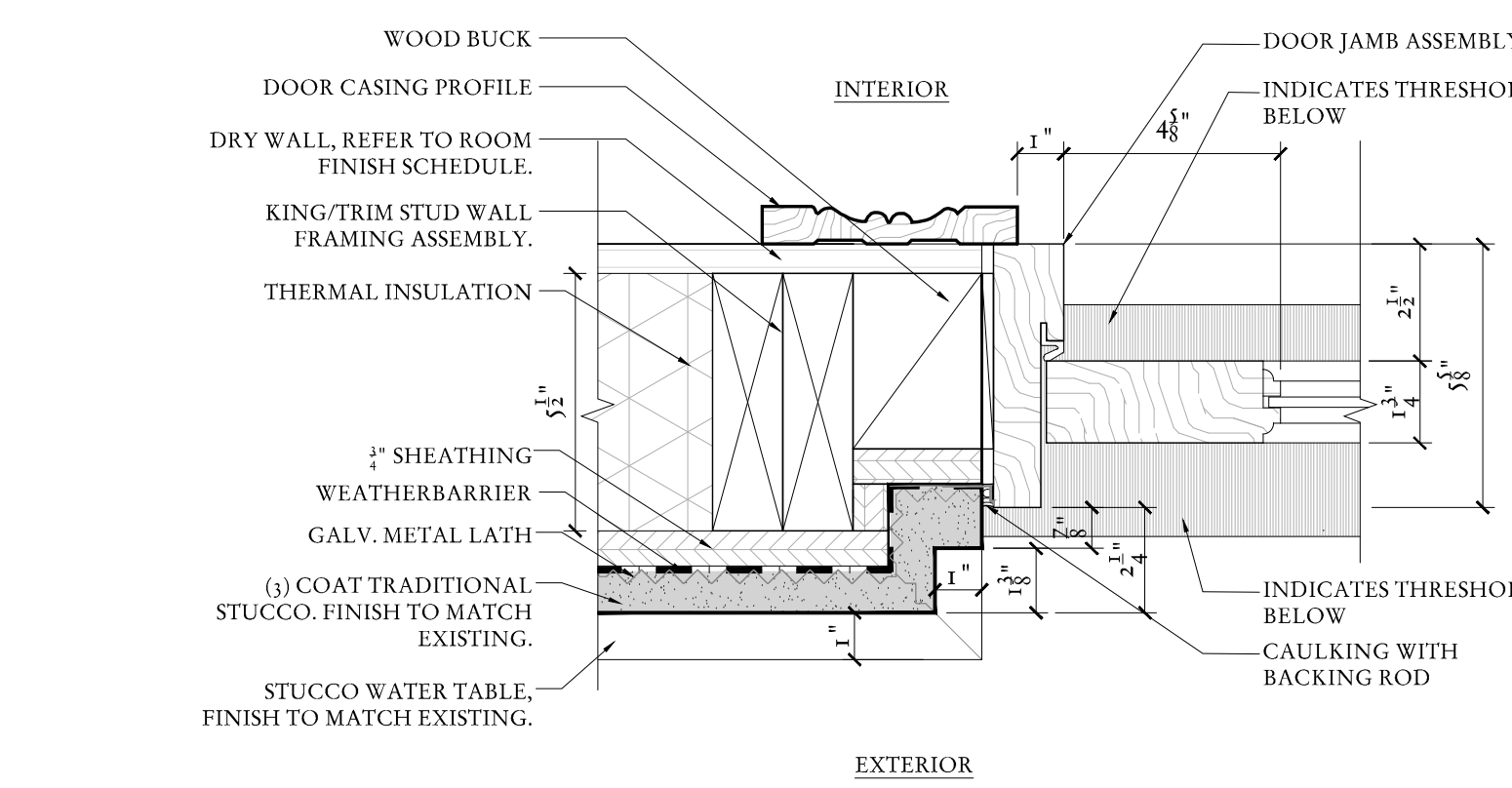
1 SECTION DETAIL: TRANSOM HEADER TYPE  
SCALE: 3/8"=1'-0" WINDOWS: 102-1 DOORS: 102-A  
102-2 102-B 110-A SIM



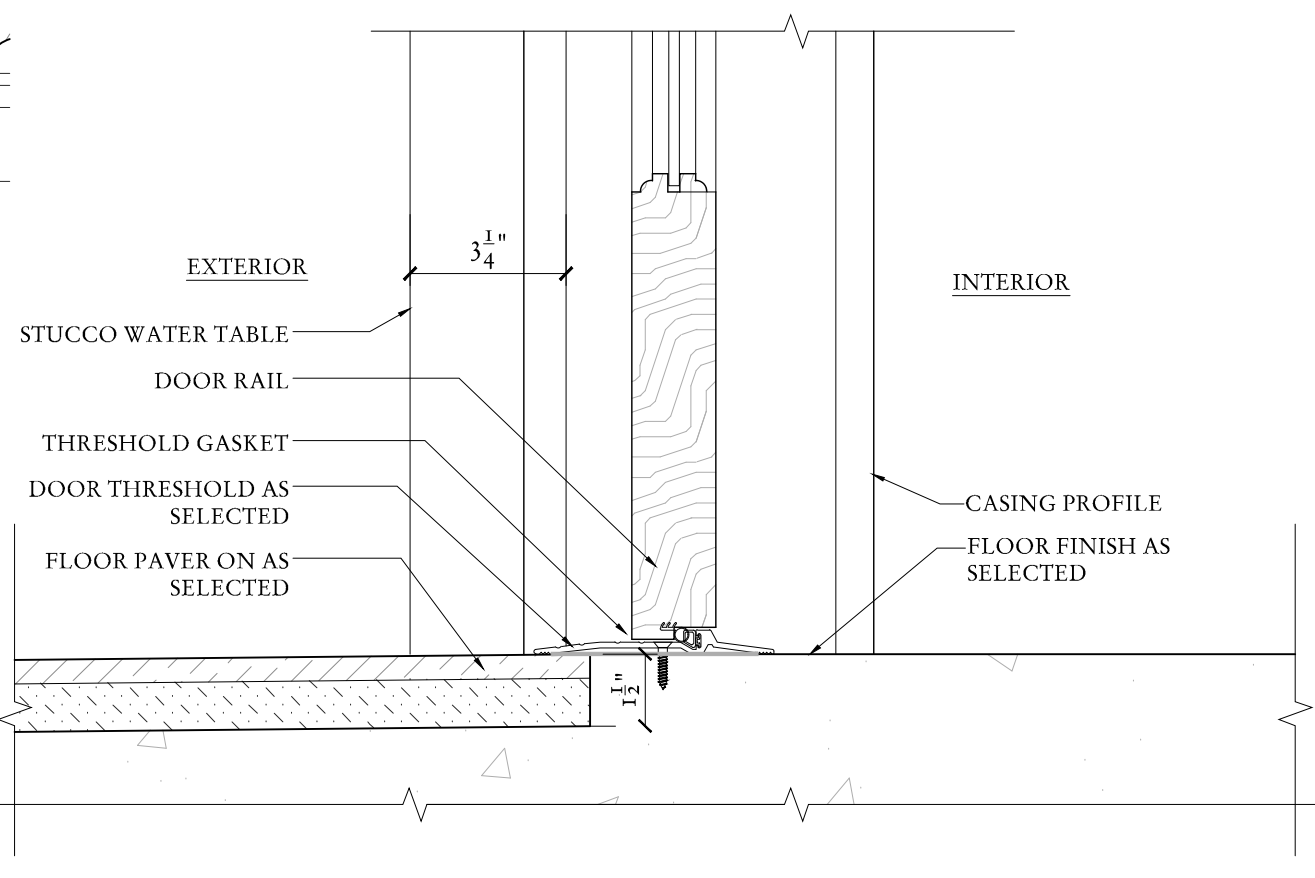
2 SECTION DETAIL: TRANSOM / DOOR HEADER TYPE  
SCALE: 3/8"=1'-0" DOORS: 102-A  
102-B



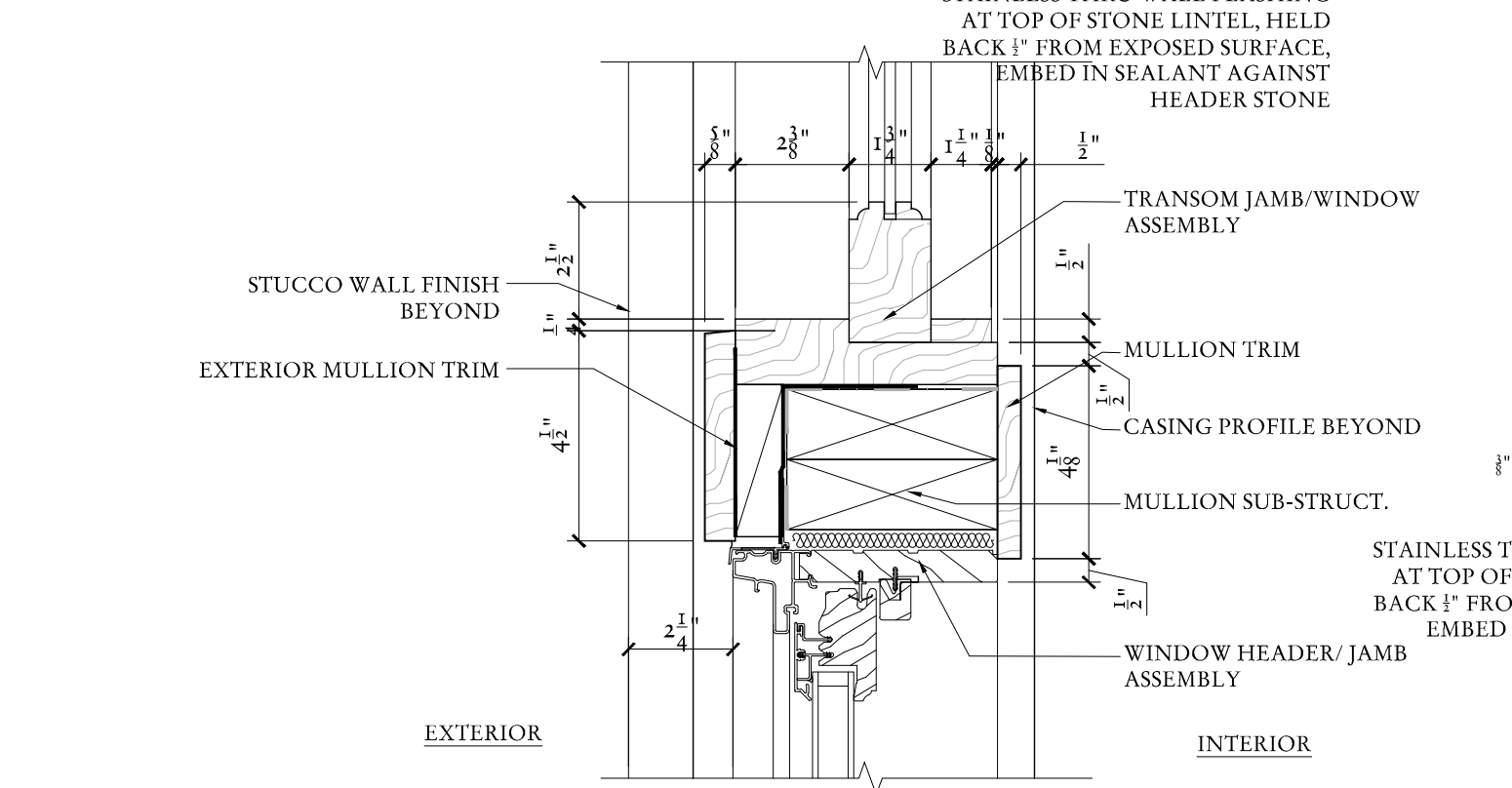
3 SECTION DETAIL: TRANSOM JAMB TYPE  
SCALE: 3/8"=1'-0" WINDOWS: 102-A DOORS: 101-A  
102-2 102-A 102-B



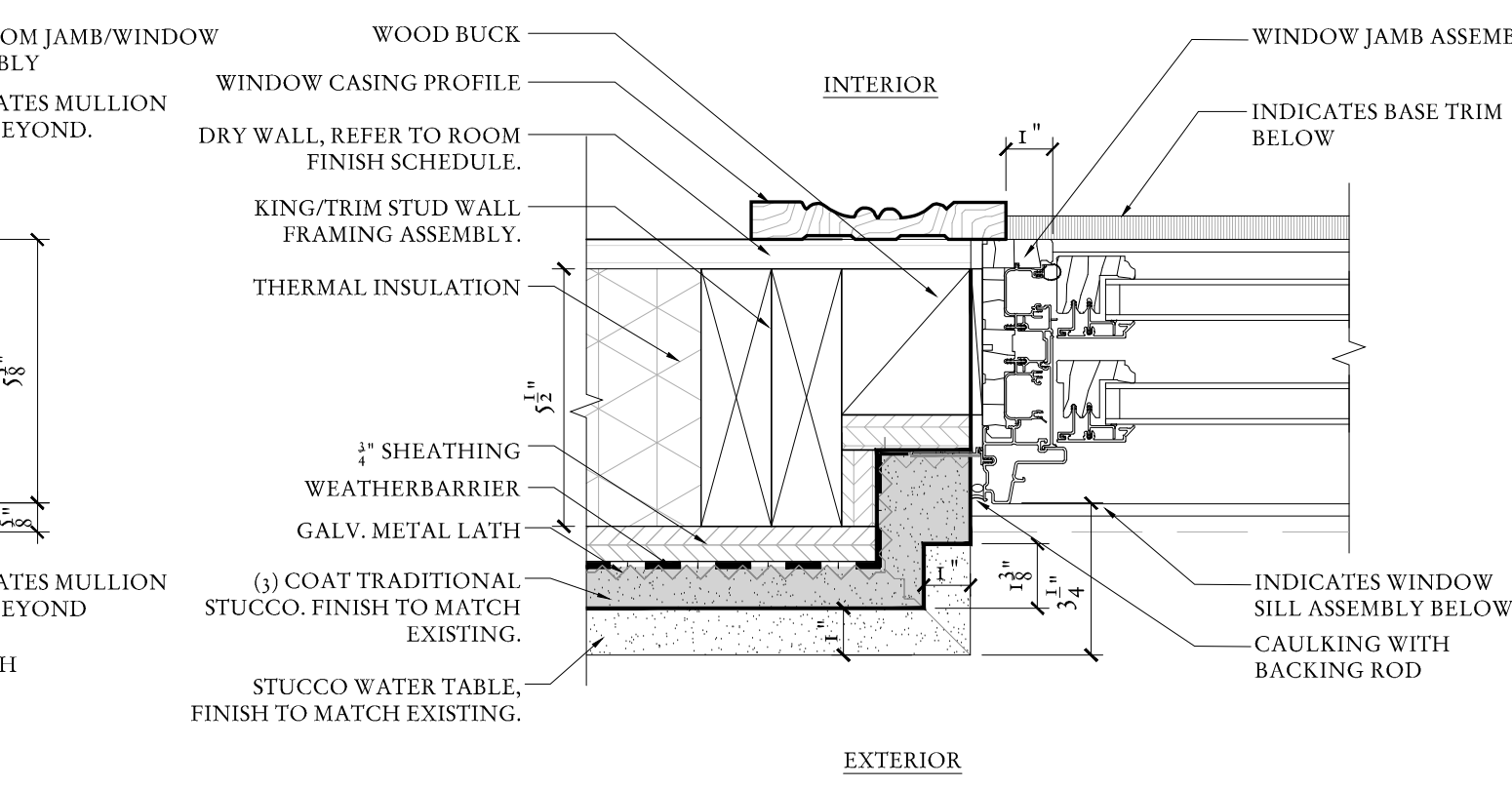
4 SECTION DETAIL: DOOR JAMB TYPE  
SCALE: 3/8"=1'-0" DOORS: 101-A 102-B  
102-A 110-A



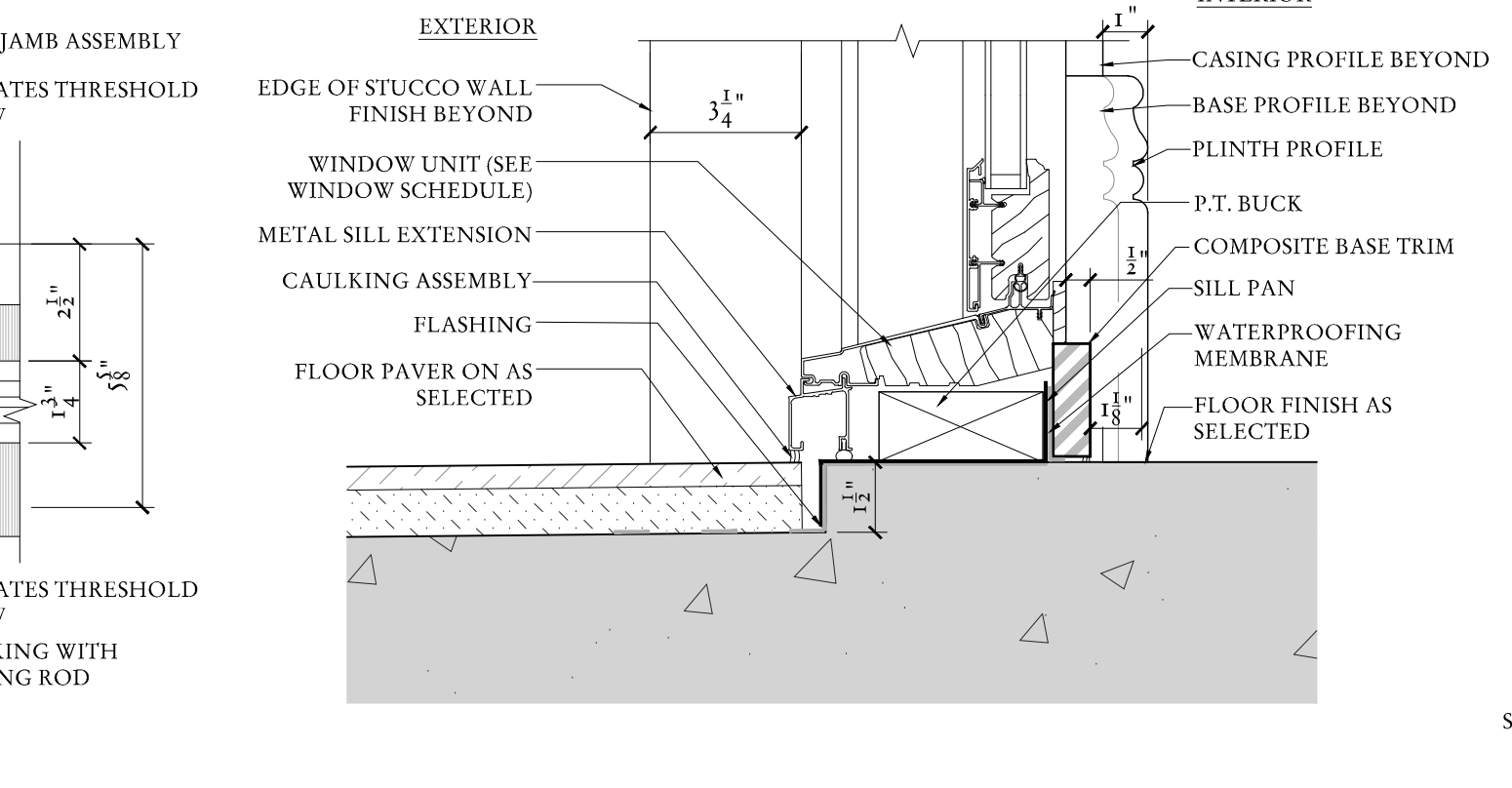
5 SECTION DETAIL: DOOR SILL TYPE  
SCALE: 3/8"=1'-0" DOORS: 101-A 102-B  
102-A 110-A



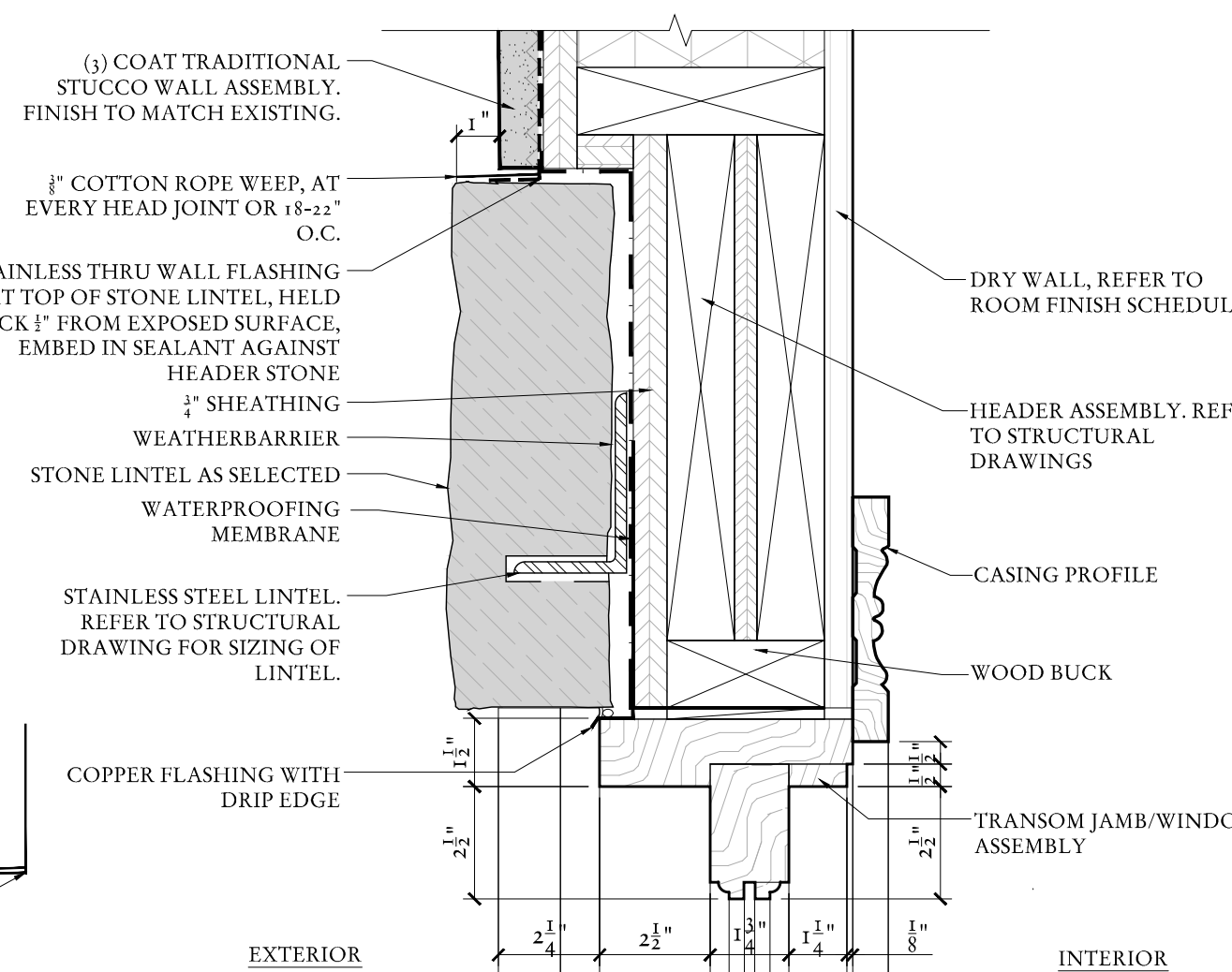
6 SECTION DETAIL: TRANSOM / WINDOW HEADER TYPE  
SCALE: 3/8"=1'-0" WINDOWS: 102-1  
102-2



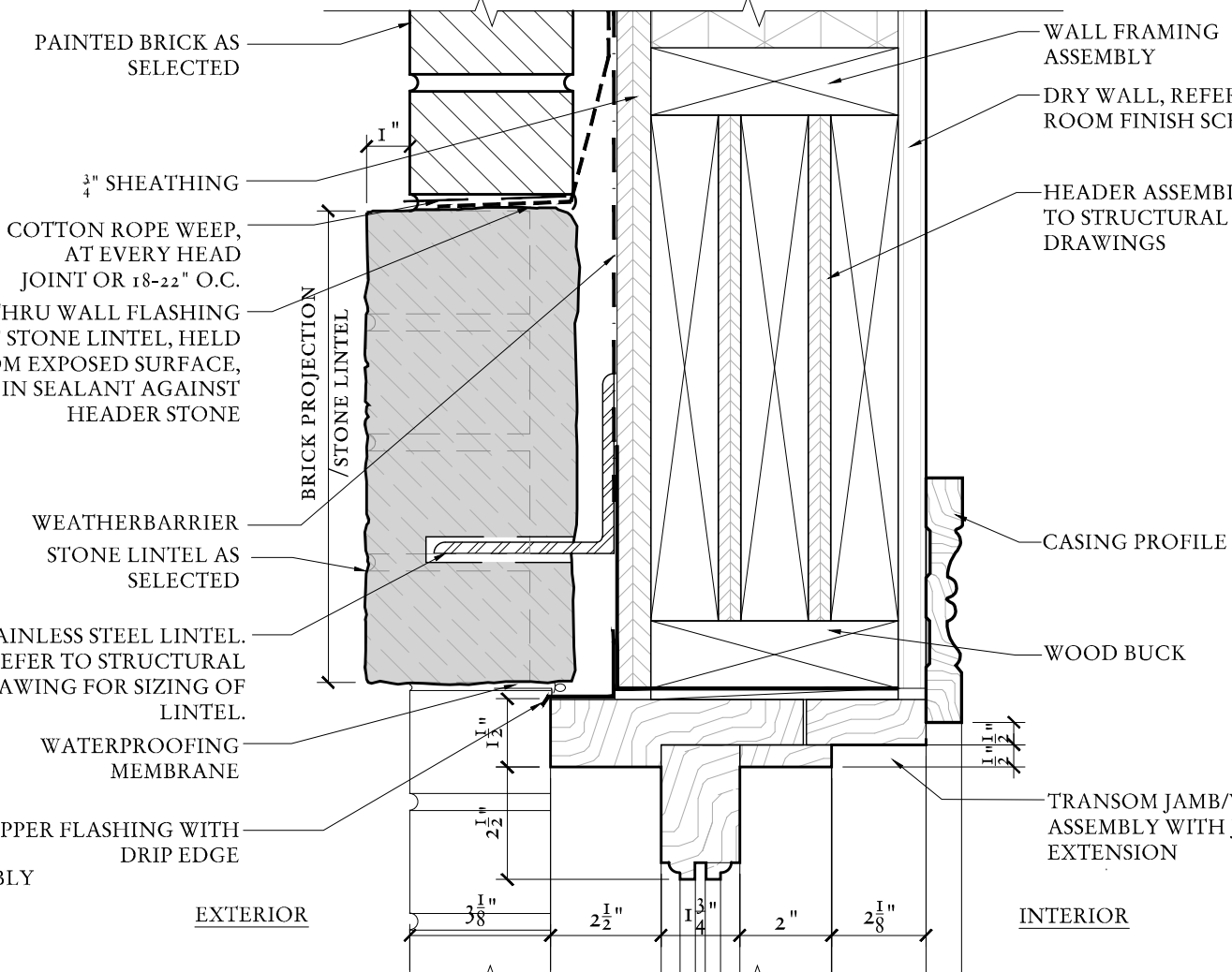
7 SECTION DETAIL: WINDOW JAMB TYPE  
SCALE: 3/8"=1'-0" WINDOWS: 102-A  
102-2



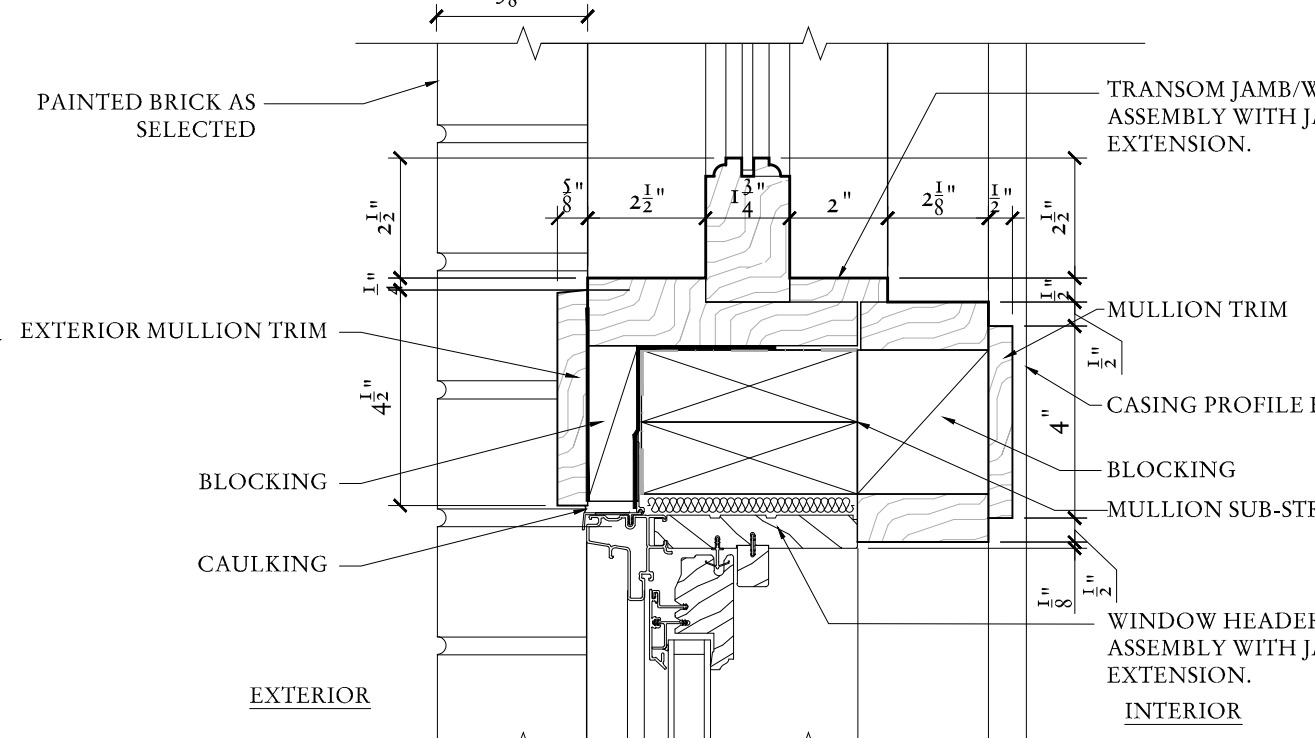
8 SECTION DETAIL: WINDOW SILL TYPE  
SCALE: 3/8"=1'-0" WINDOWS: 102-1  
102-2



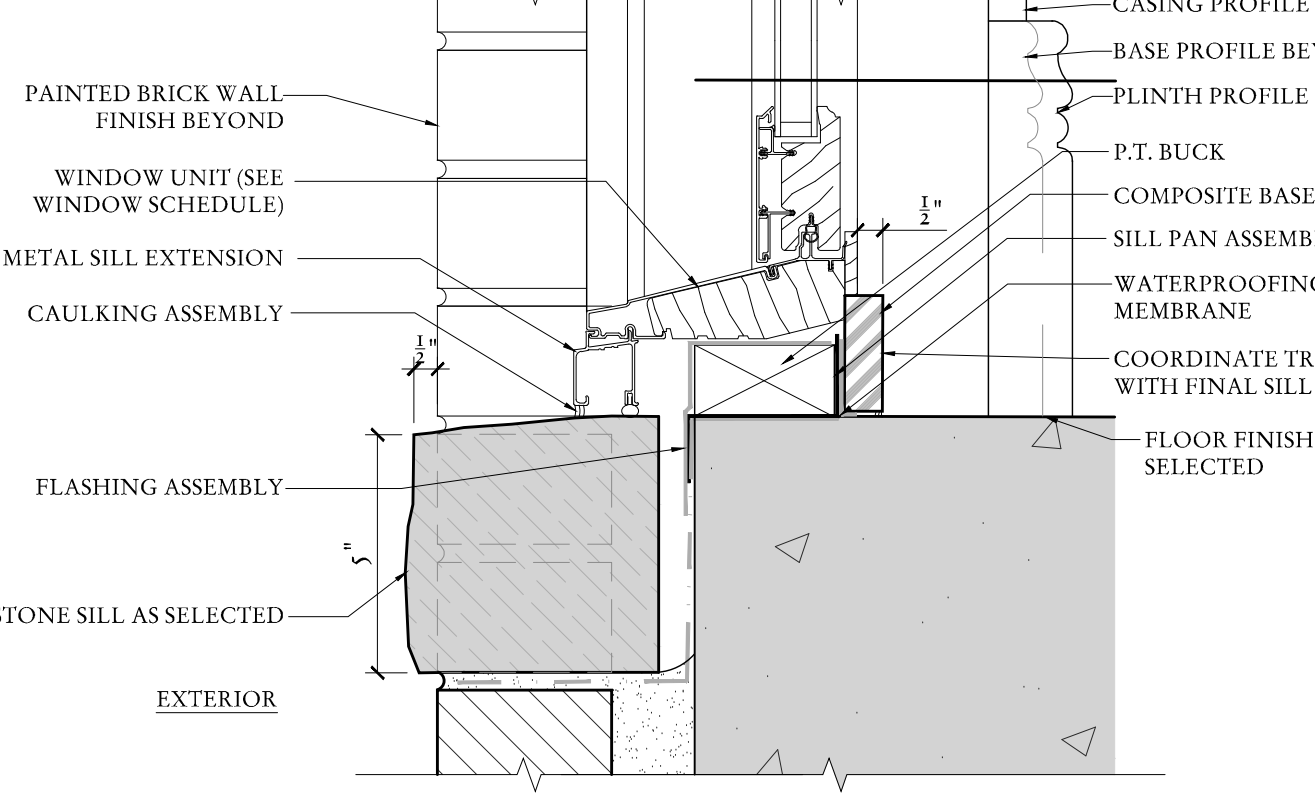
9 SECTION DETAIL: TRANSOM HEADER TYPE  
SCALE: 3/8"=1'-0" DOORS: 101-A



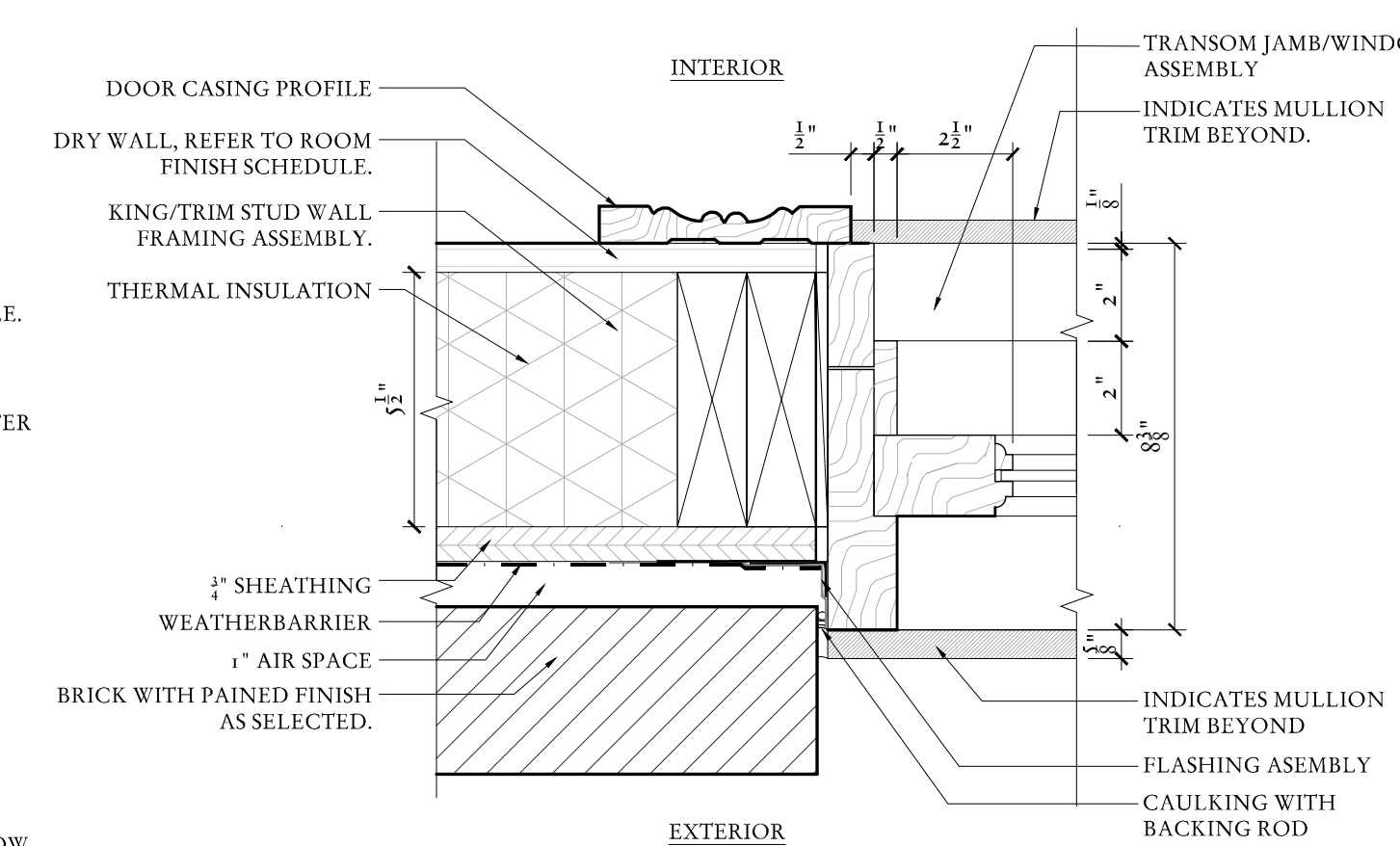
10 SECTION DETAIL: TRANSOM HEADER TYPE  
SCALE: 3/8"=1'-0" WINDOWS: 104-2 104-3 105-2



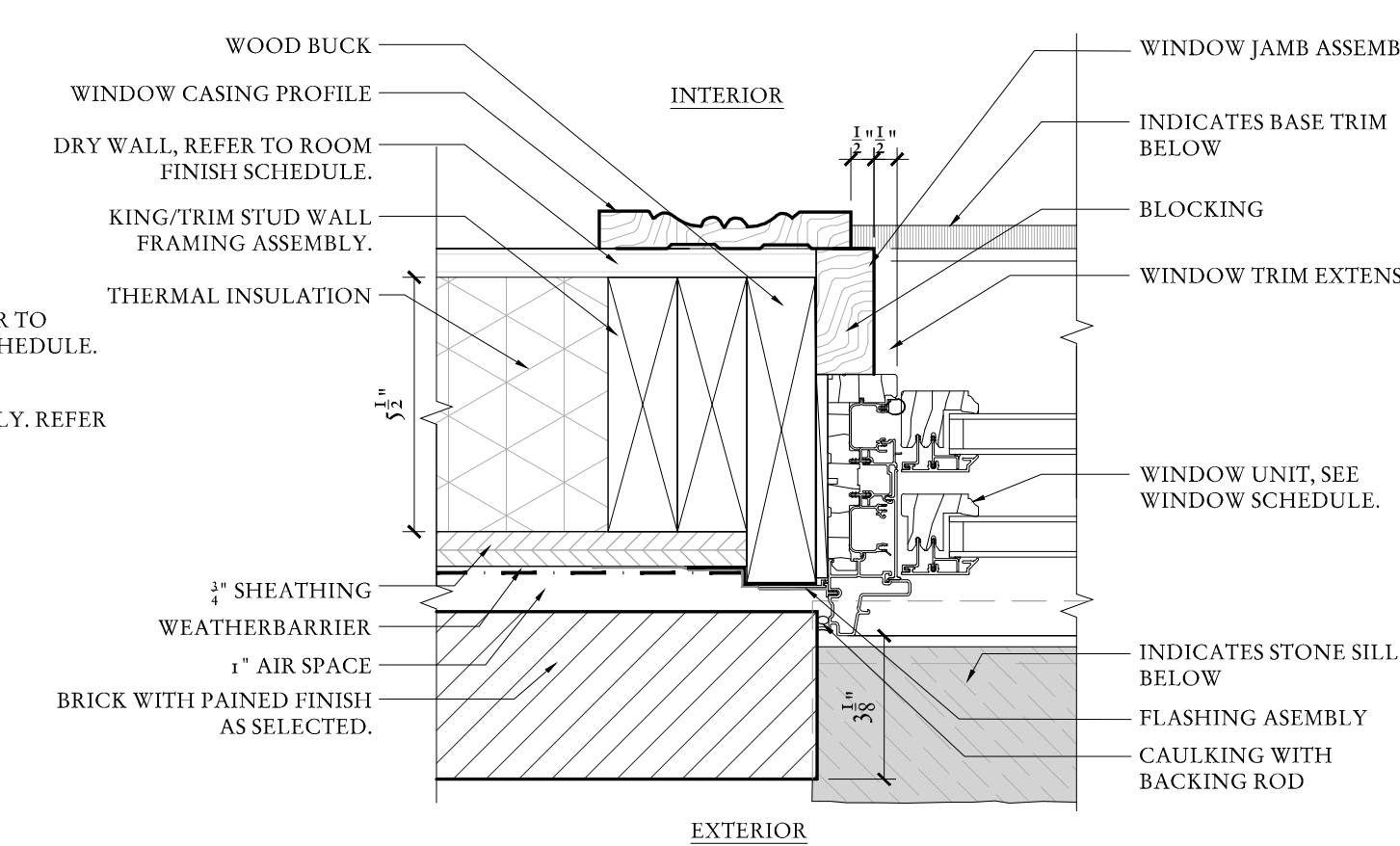
11 SECTION DETAIL: TRANSOM / WINDOW HEADER TYPE  
SCALE: 3/8"=1'-0" WINDOWS: 104-2 104-3 105-2



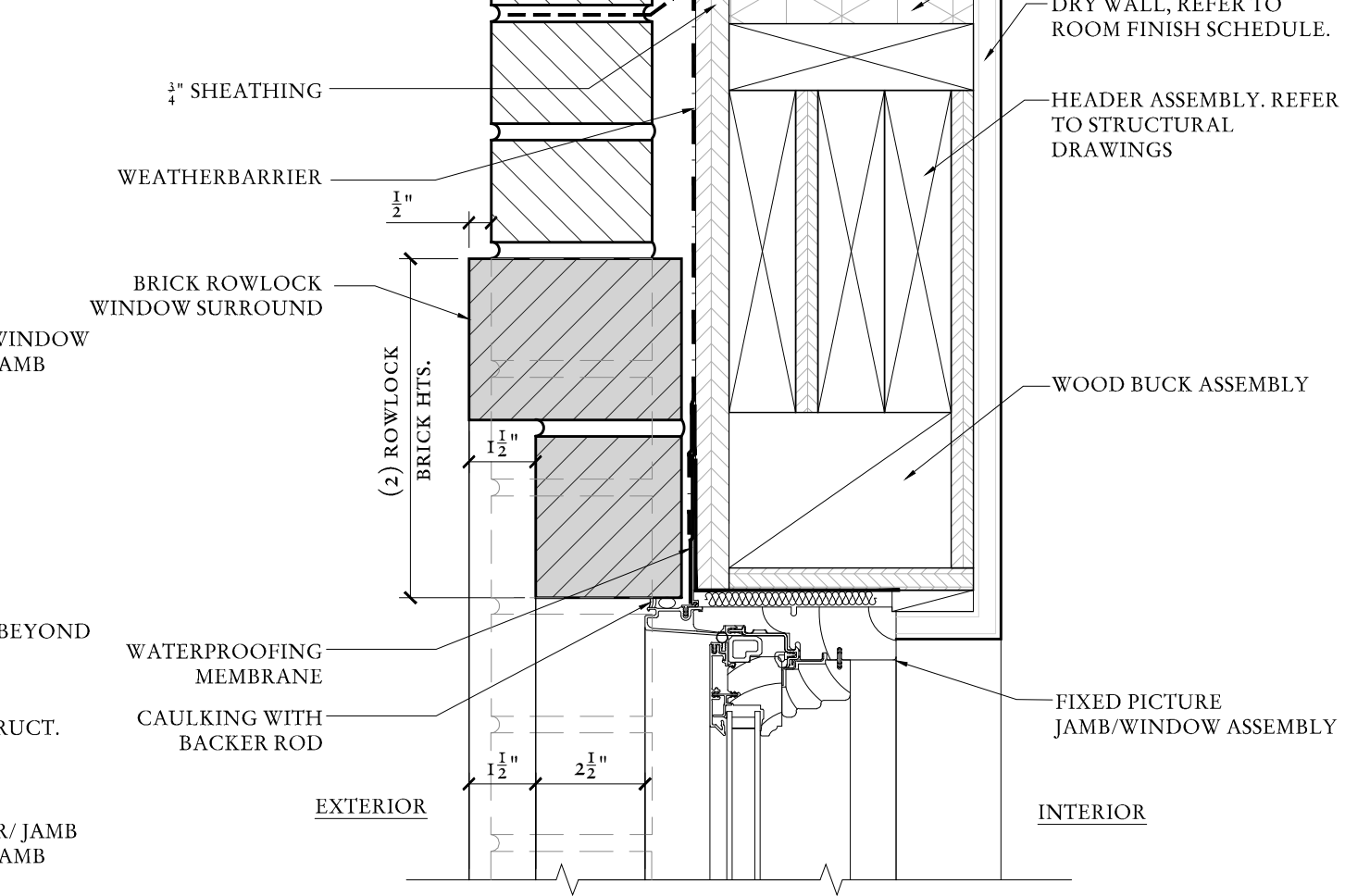
12 SECTION DETAIL: WINDOW SILL TYPE  
SCALE: 3/8"=1'-0" WINDOWS: 104-2 104-3 105-2



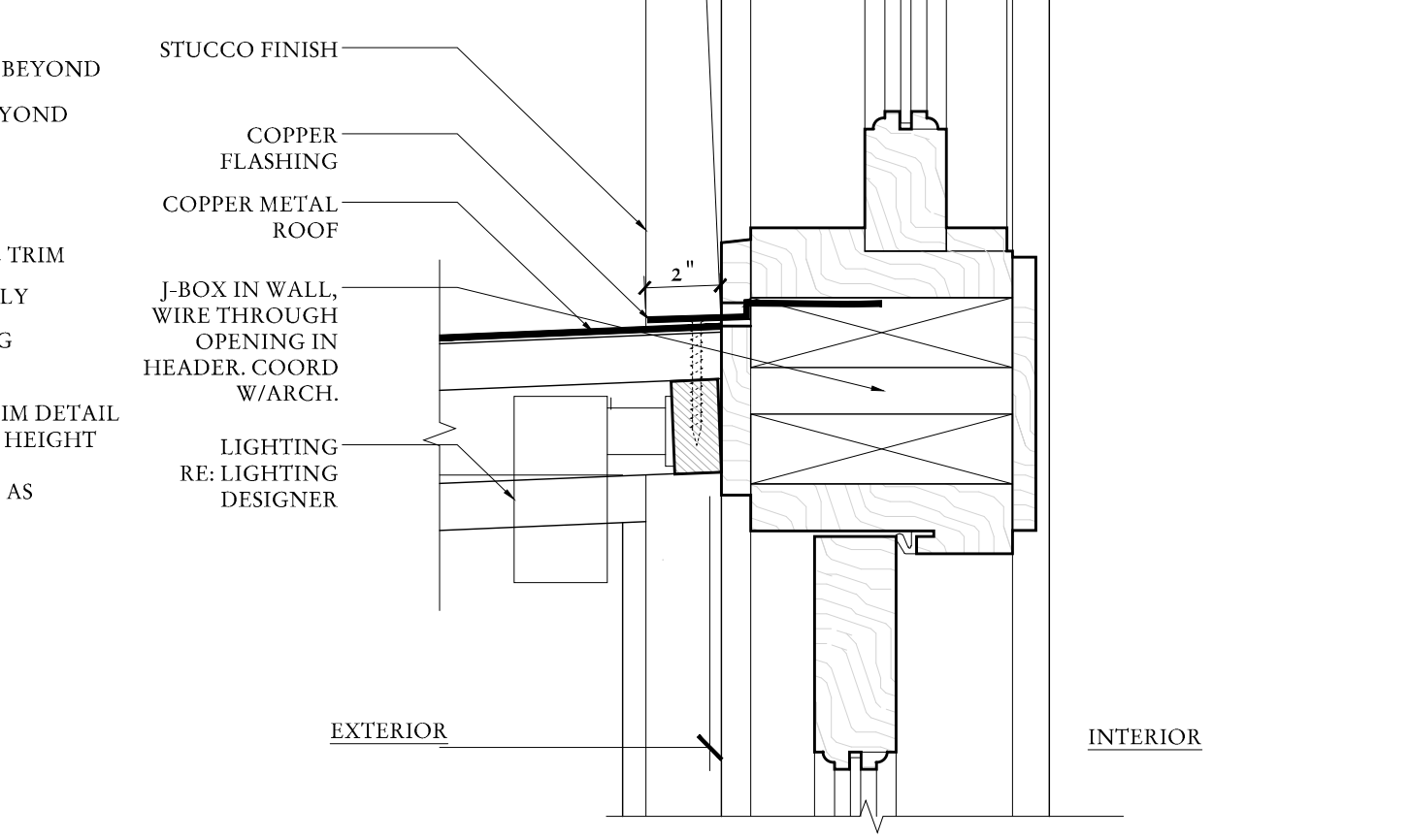
13 SECTION DETAIL: TRANSOM JAMB TYPE  
SCALE: 3/8"=1'-0" WINDOWS: 104-2  
104-3 105-2



14 SECTION DETAIL: WINDOW JAMB TYPE  
SCALE: 3/8"=1'-0" WINDOWS: 104-2 104-3 105-2



15 SECTION DETAIL: WINDOW HEADER/JAMB TYPE  
SCALE: 3/8"=1'-0" WINDOWS: 104-1, 105-1



16 SECTION DETAIL: COPPER AWNING  
SCALE: 3/8"=1'-0" DOORS: 101-A

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HJS DETAILS

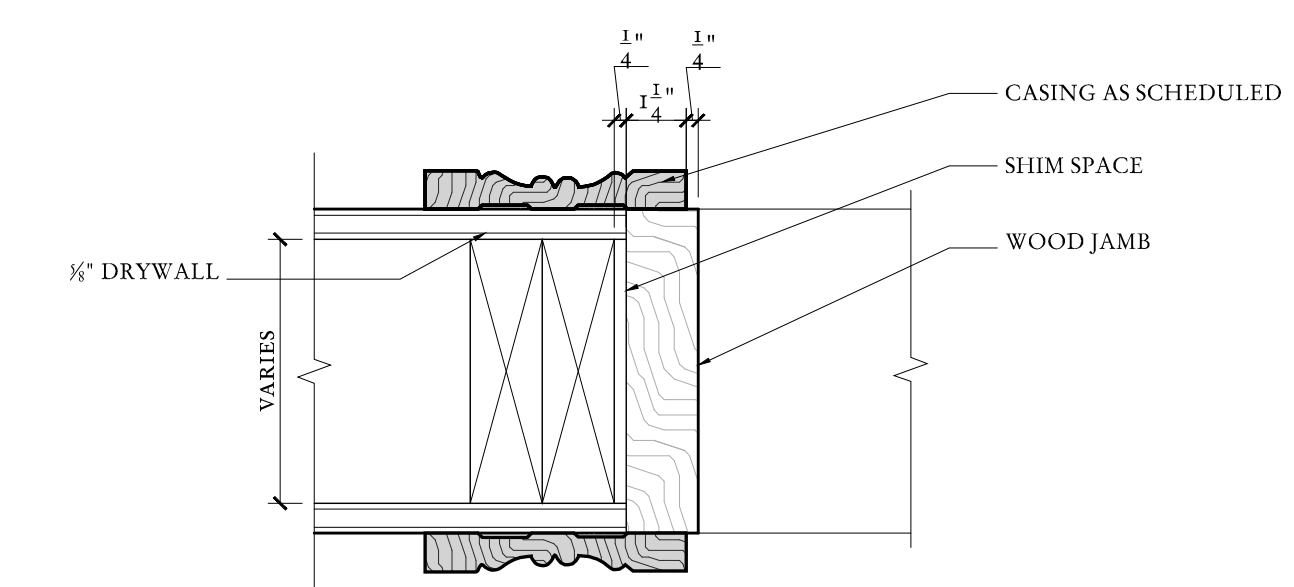
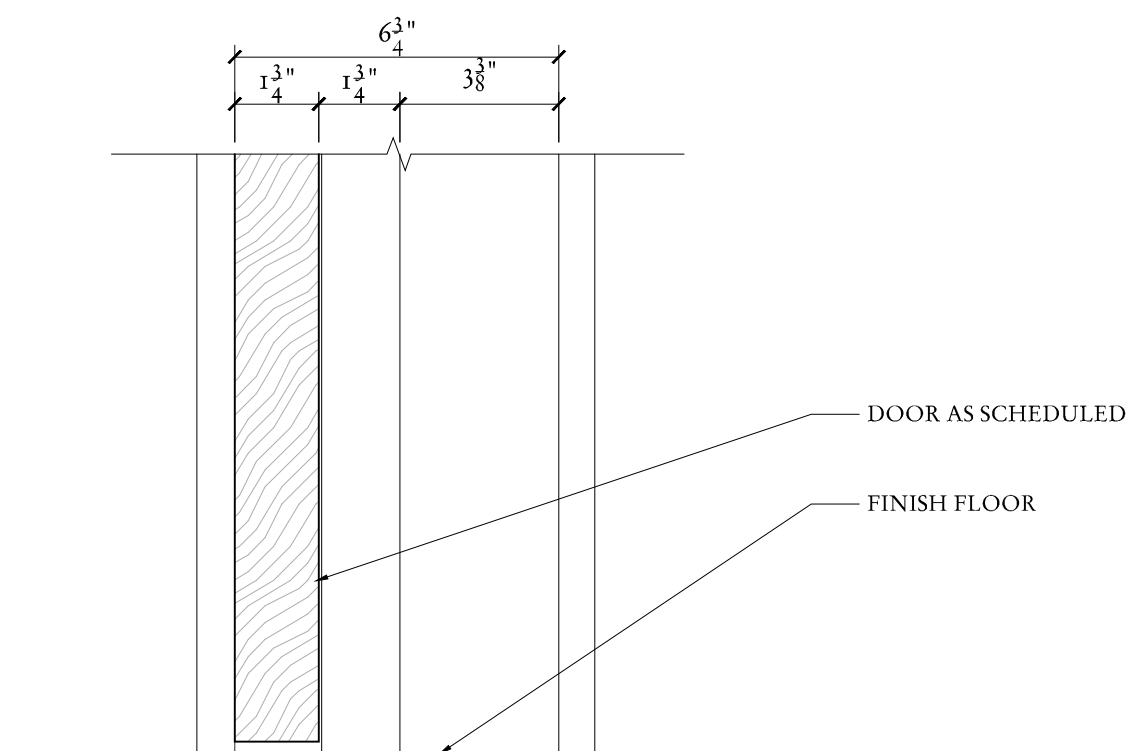
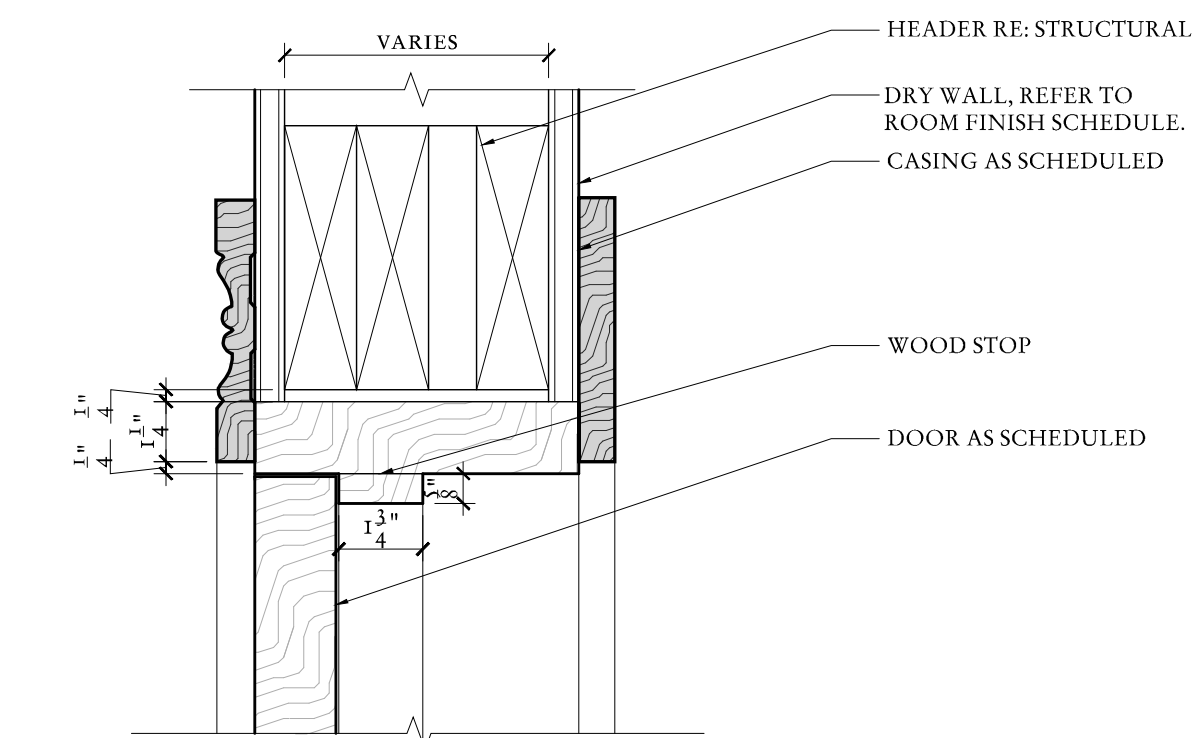
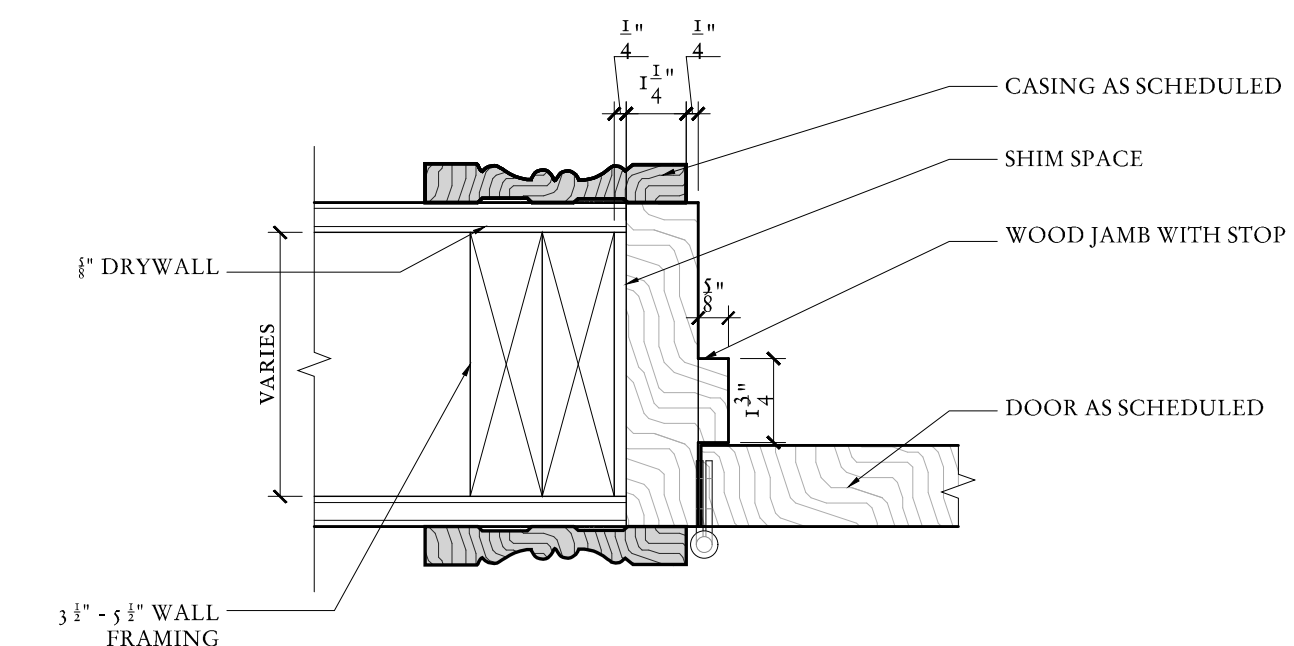
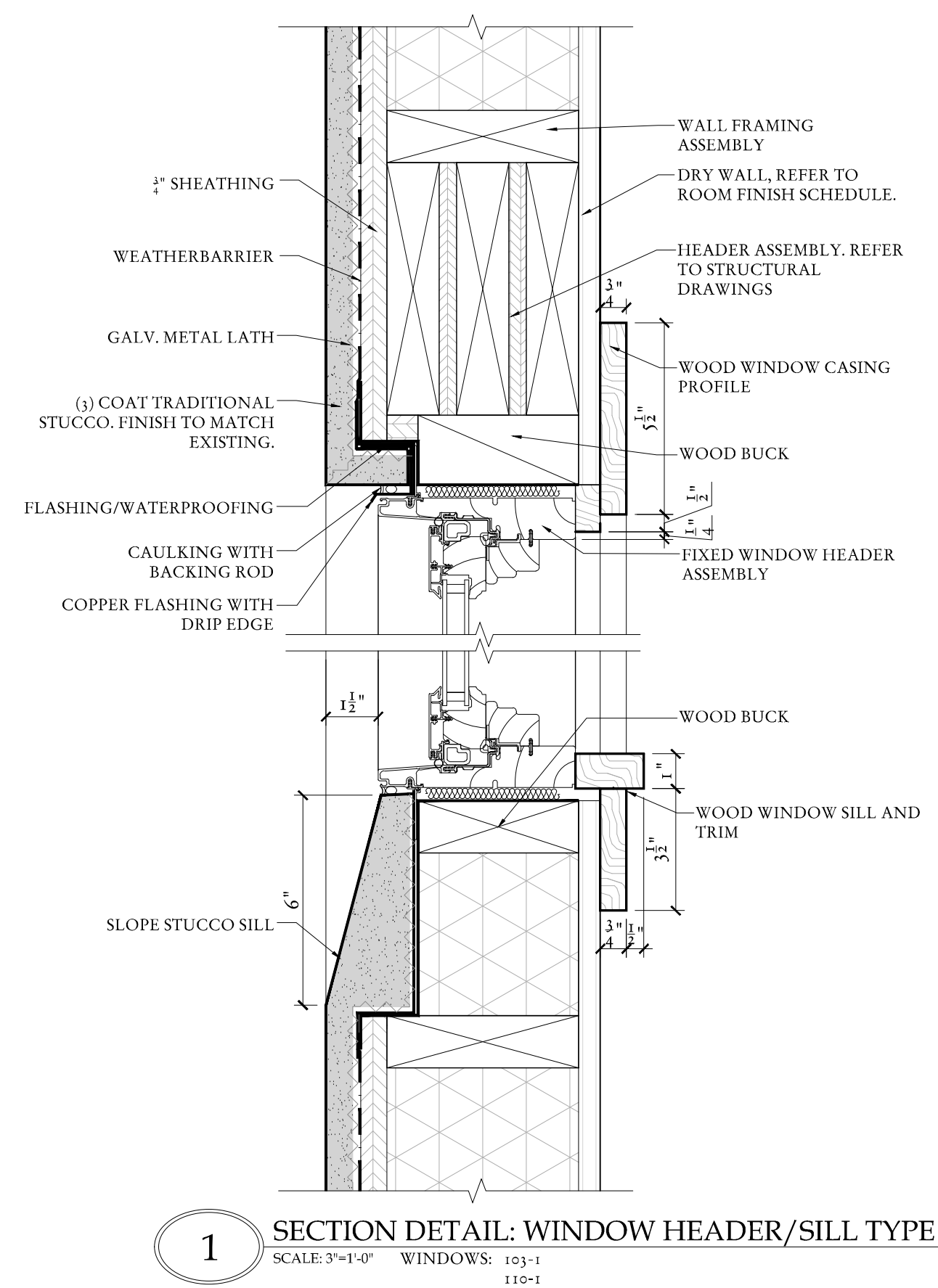
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~ A6.10 ~

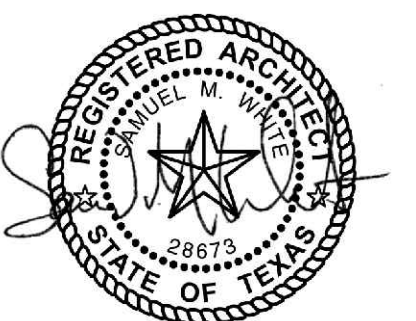
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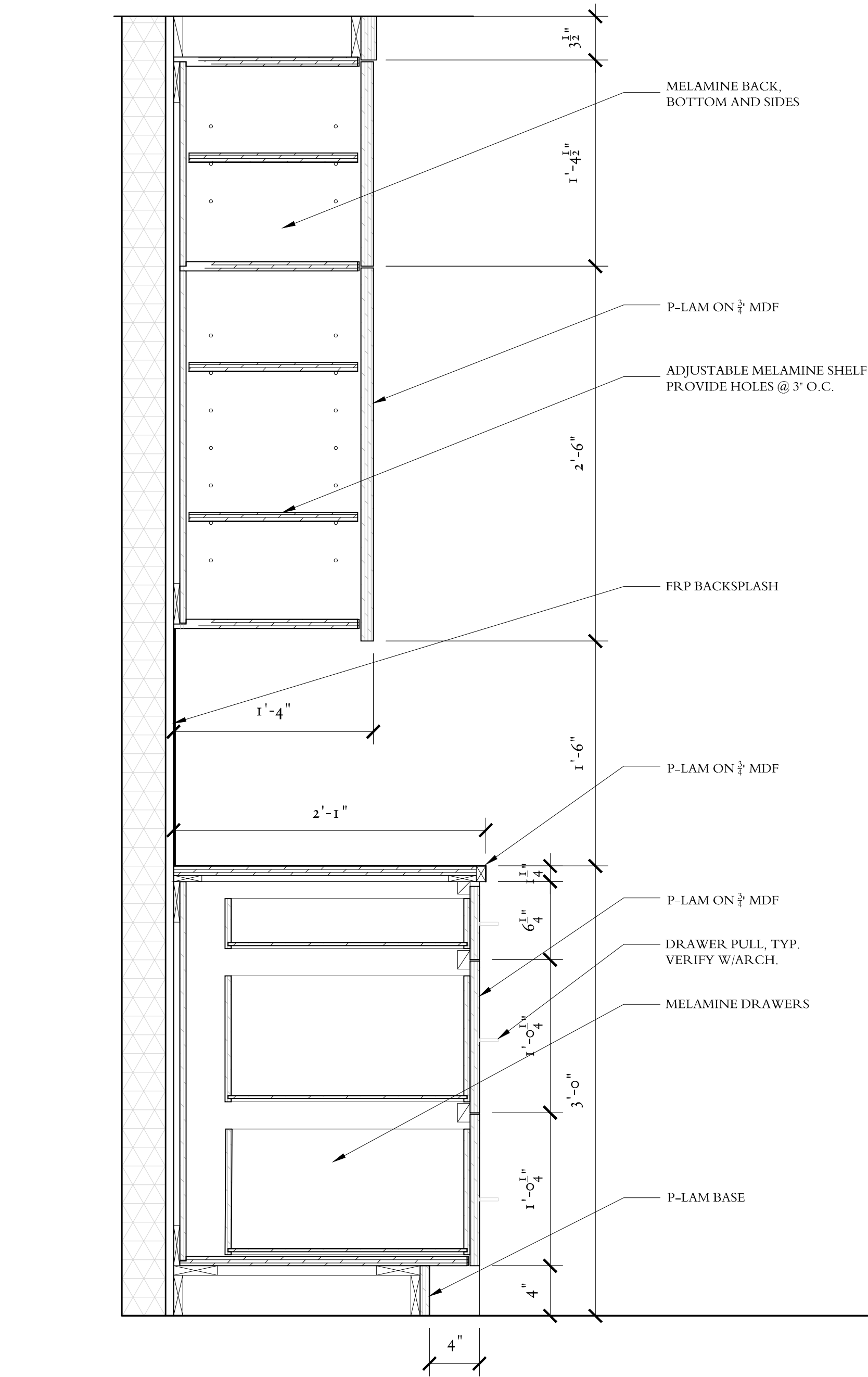
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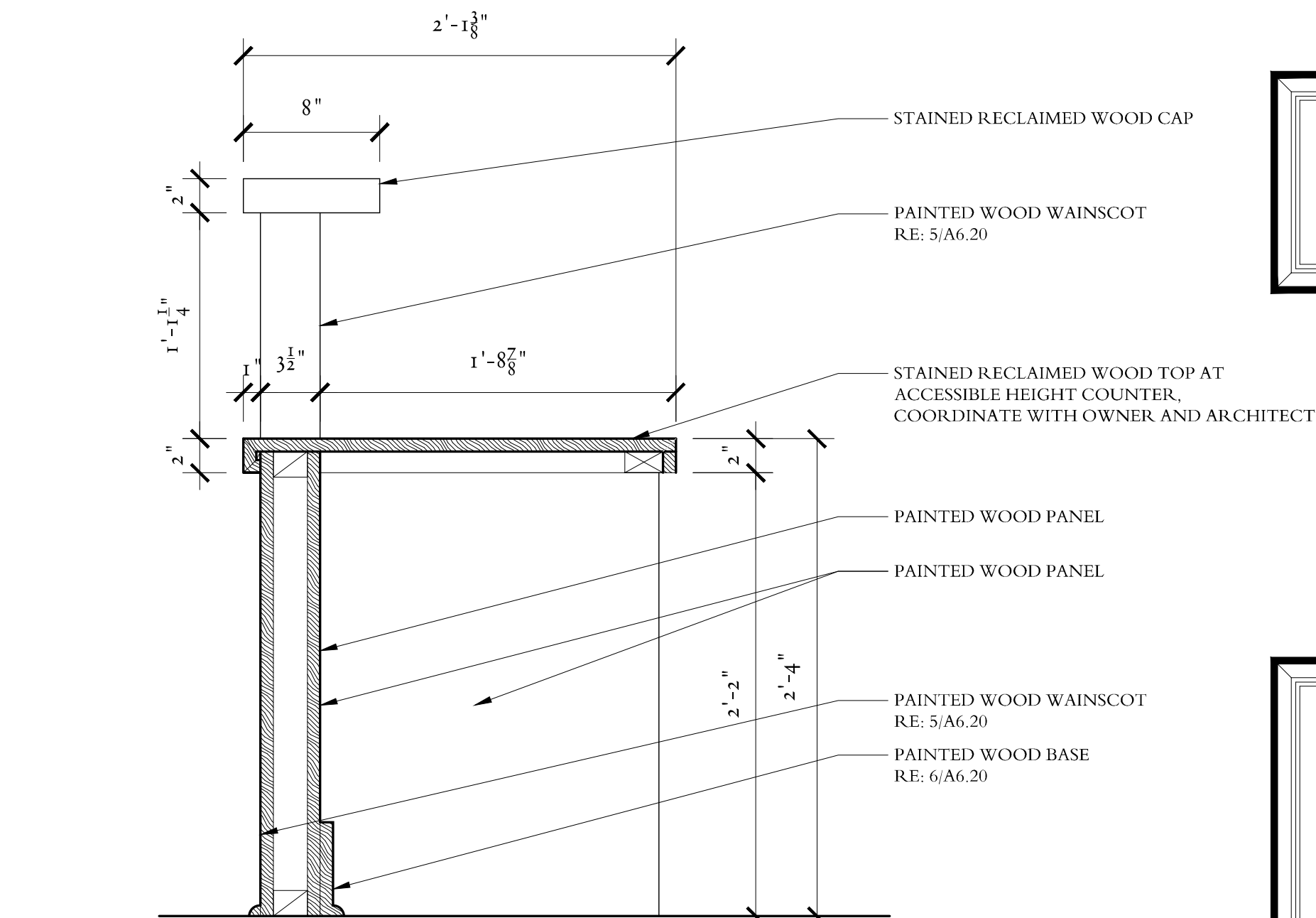
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CONTRACTOR TO VERIFY SOURCE FOR TRIM AND  
COORDINATE STOCK SELECTIONS WITH ARCHITECT





1 SECTION @ KITCHEN CABINETS  
SCALE: 1-1/2" = 1'-0"



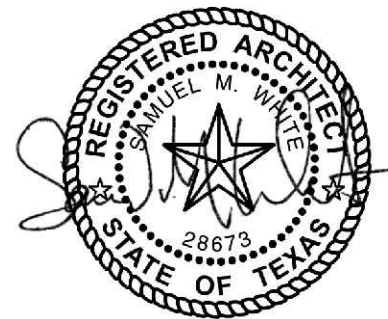
2 SECTION @ RECEPTION DESK  
SCALE: 1-1/2" = 1'-0"

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1	7/25/2024	PERMIT RESPONSES NO. 1

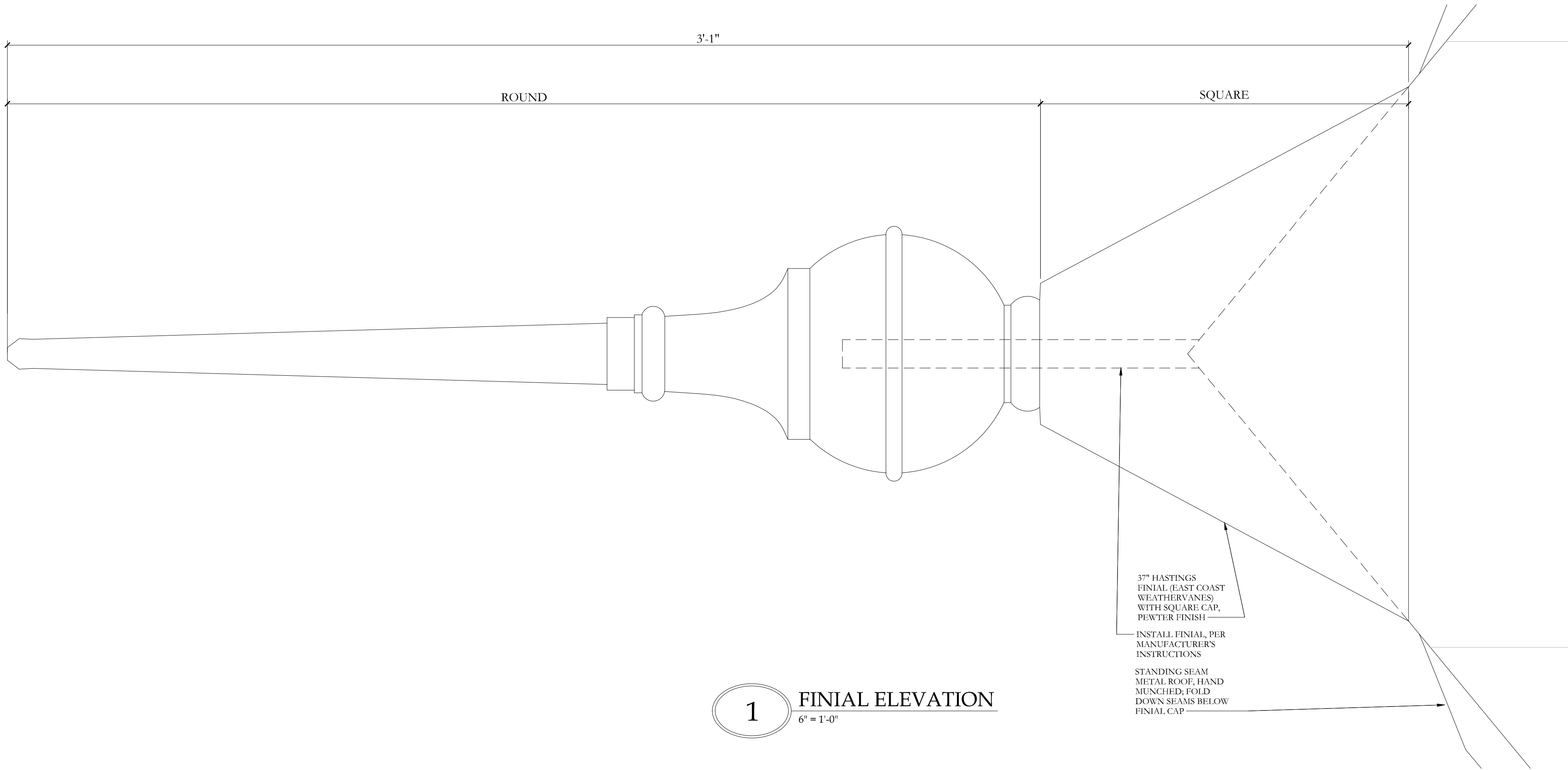
CONSTRUCTION DOCUMENTS

MILLWORK SECTIONS

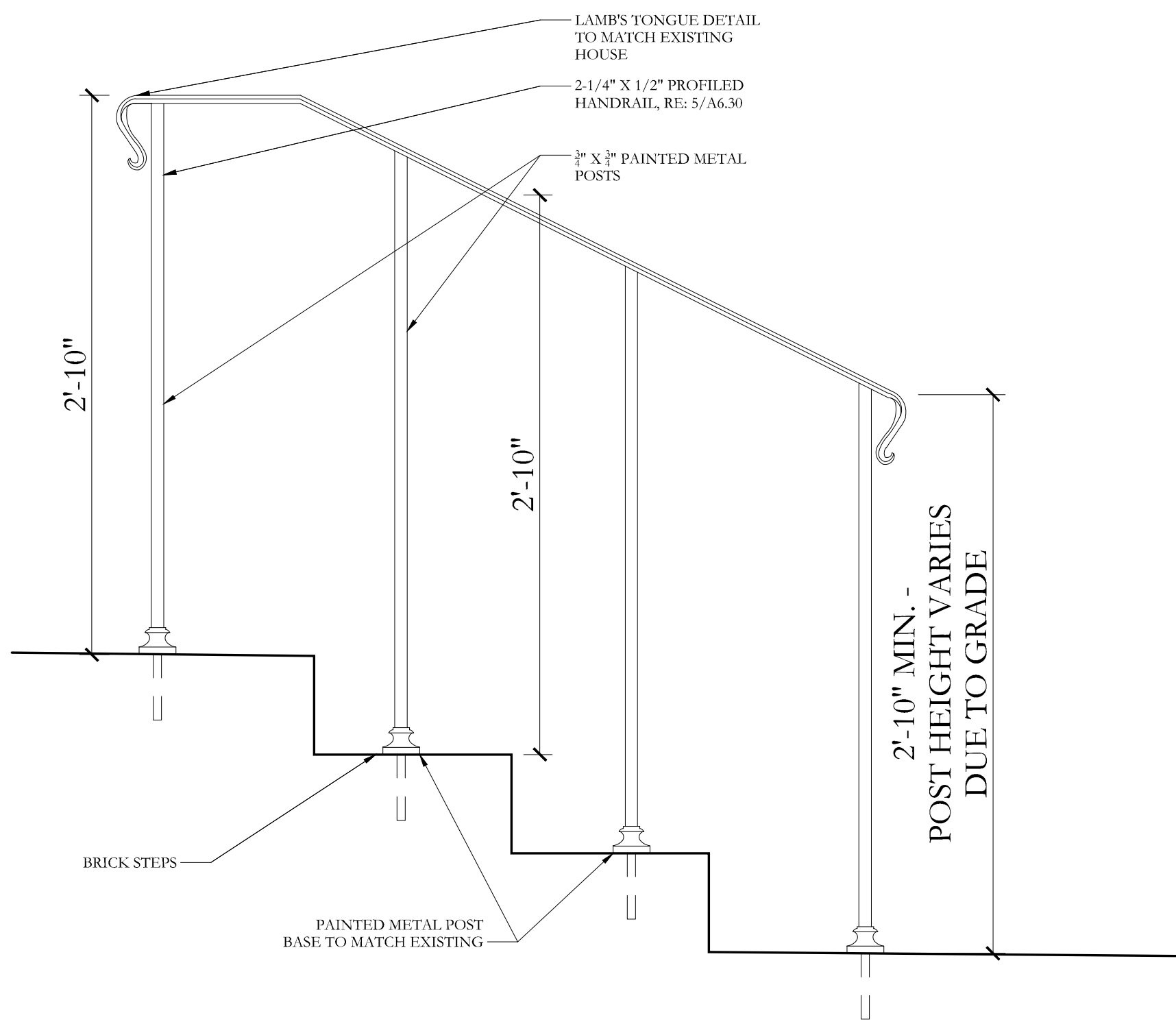
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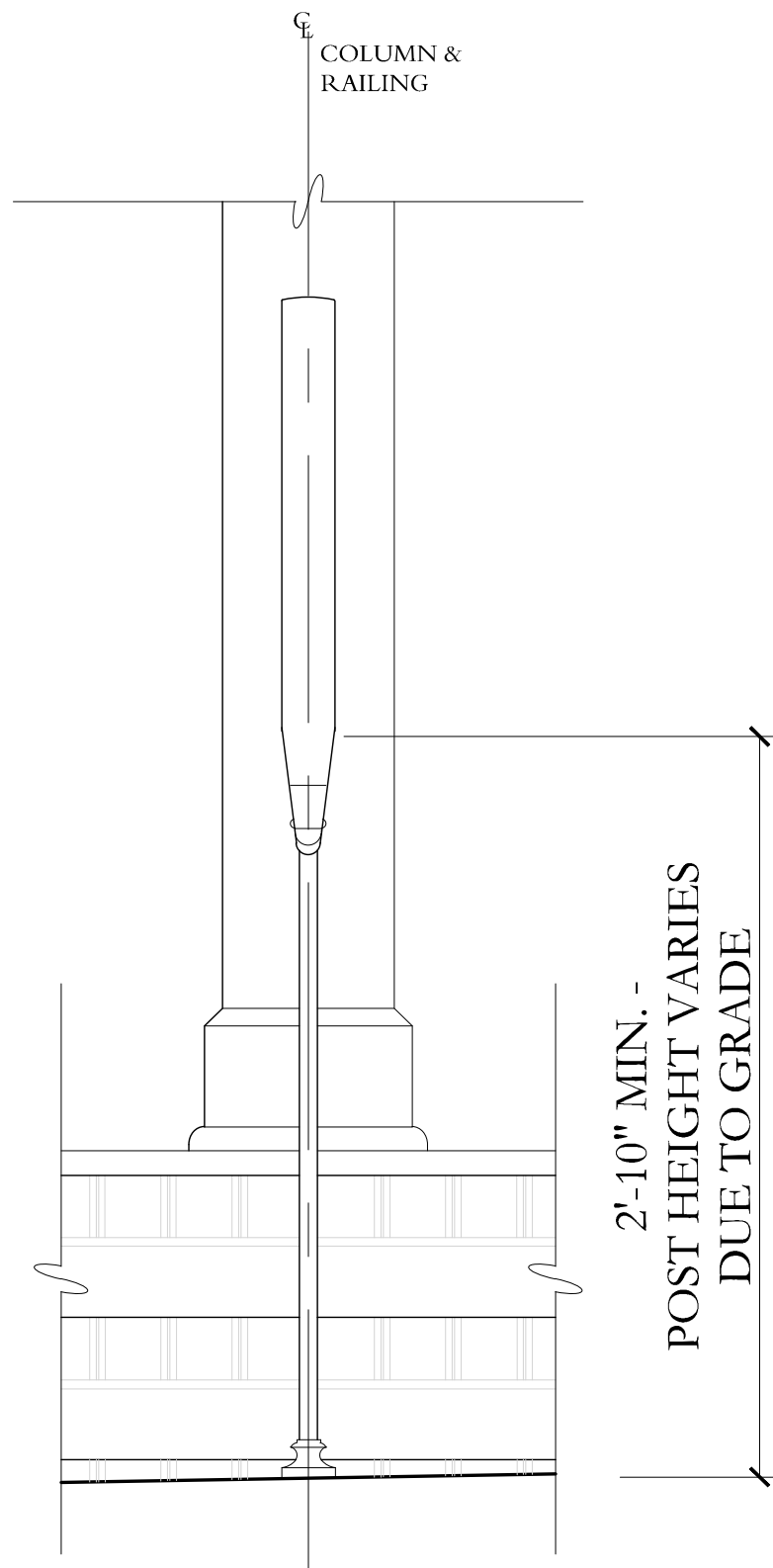
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1 FINIAL ELEVATION  
6" = 1'-0"

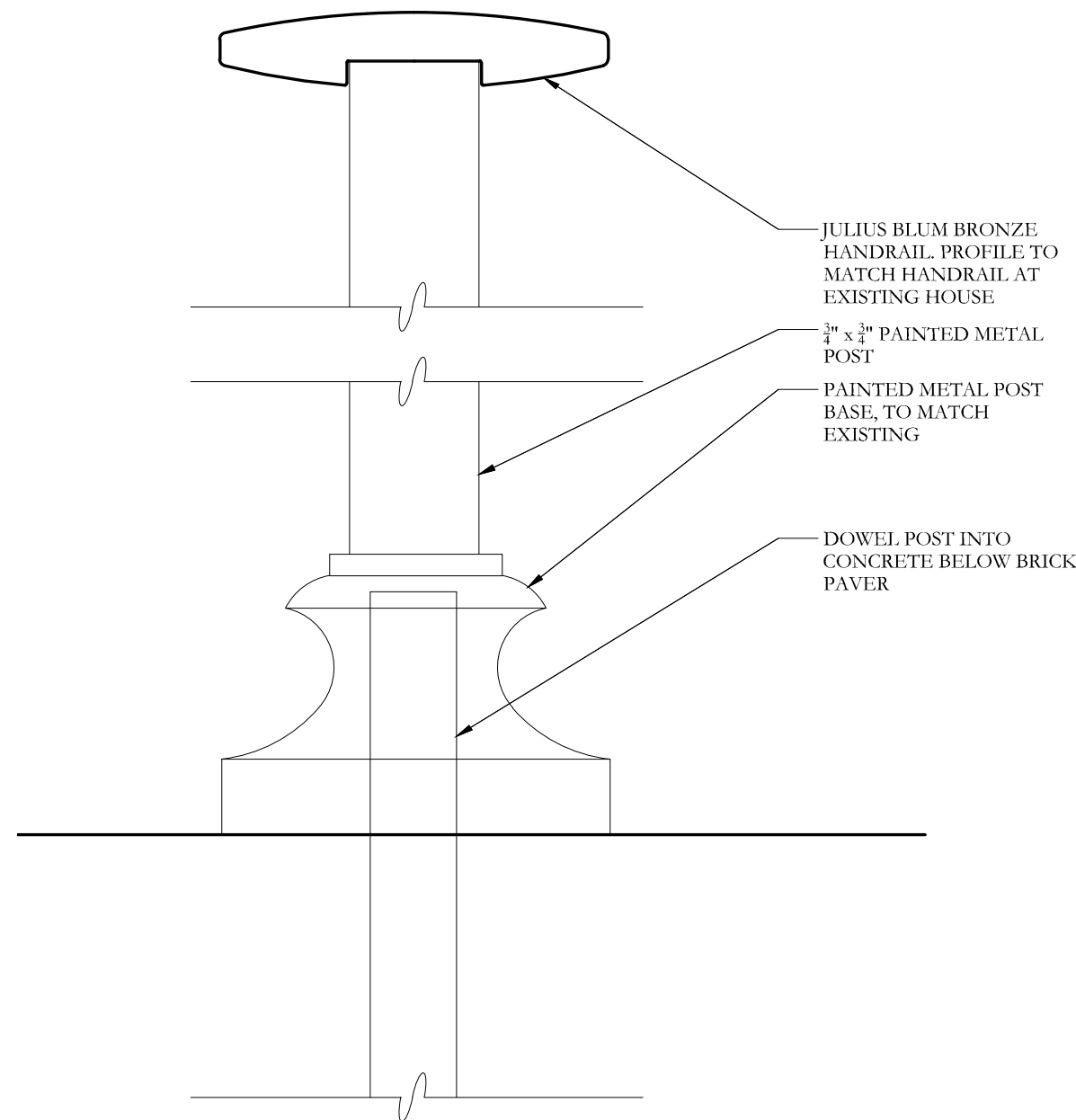


3 RAILING DETAIL @ ENTRY STAIR  
SCALE: 1-1/2" = 1'-0"



4 RAILING ELEVATION @ ENTRY STAIR  
SCALE: 1-1/2" = 1'-0"

NUMBER OF STEPS  
VARIES BY LOCATION  
AND MAY IMPACT POST  
LAYOUT. VERIFY IN  
FIELD & CONFIRM  
W/ARCH.



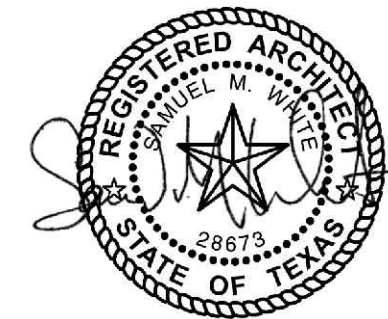
5 HANDRAIL PROFILE  
FULL SCALE

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EXTERIOR DETAILS

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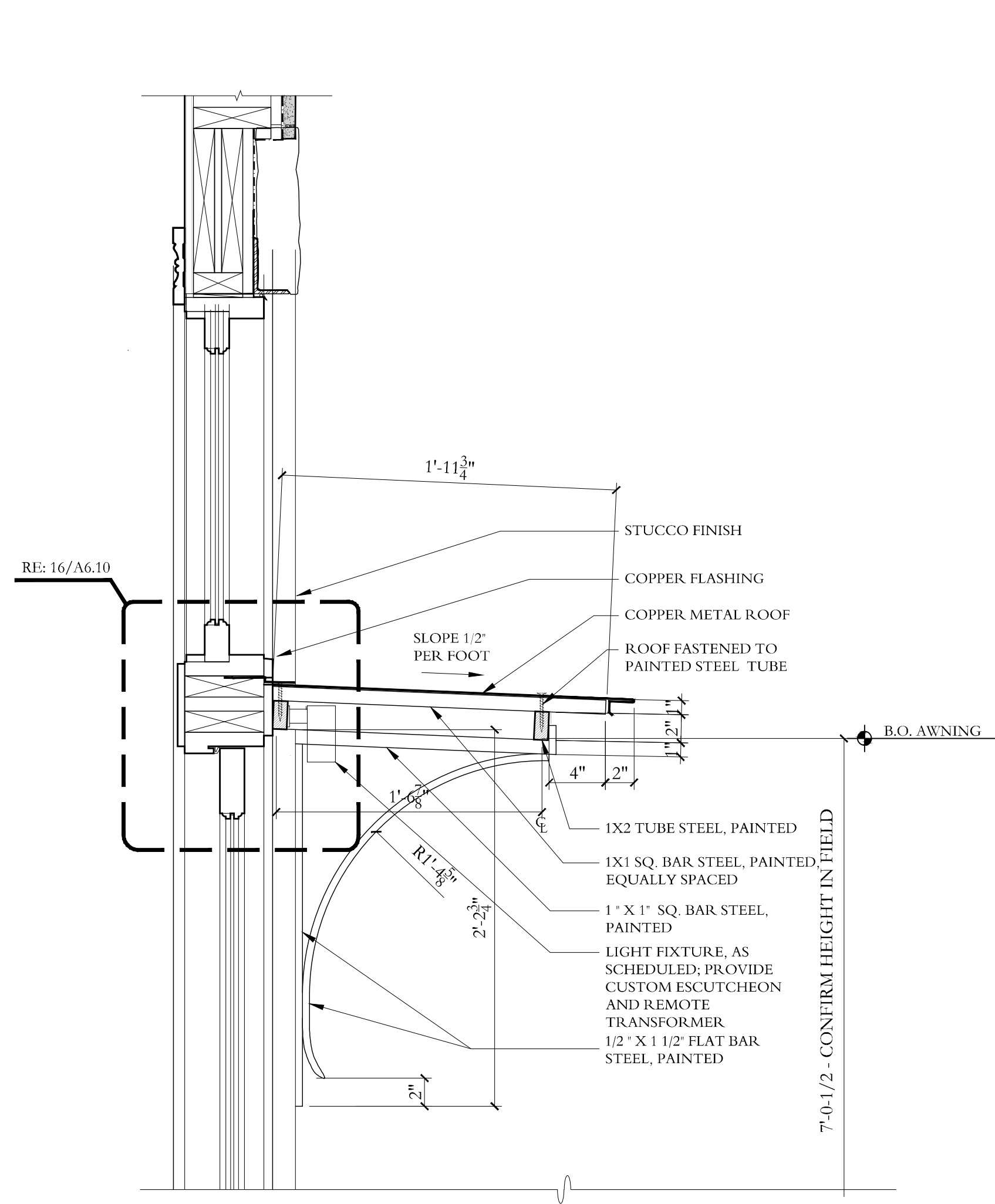
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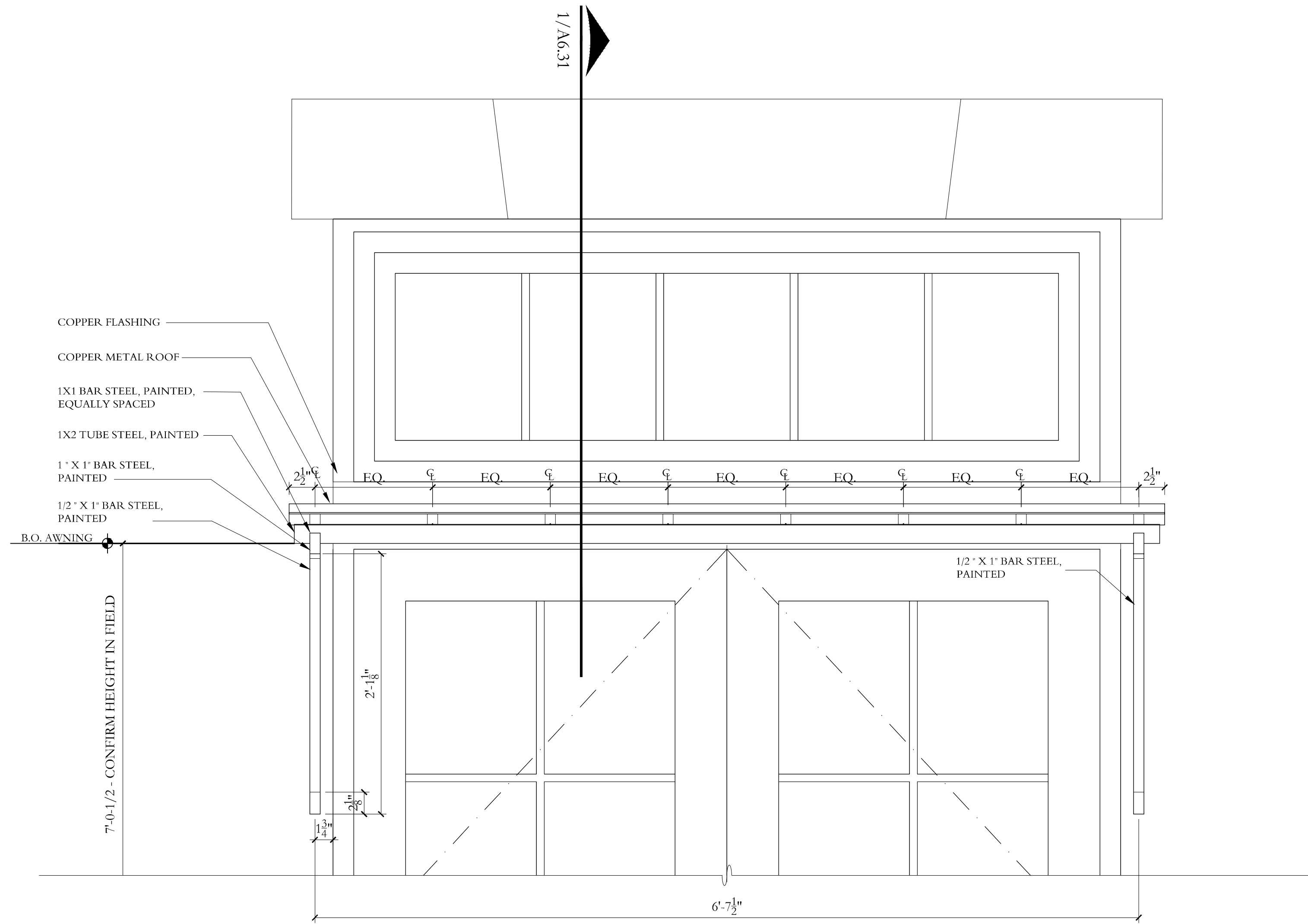
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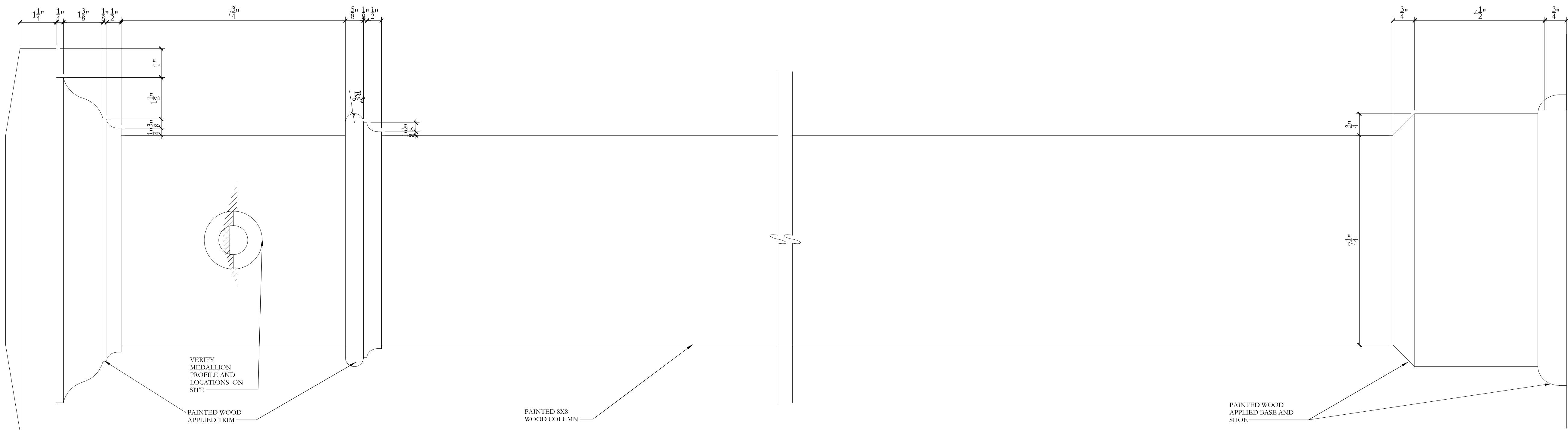
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1 AWNING SECTION  
1 1/2" = 1'-0"



2 AWNING ELEVATION  
1 1/2" = 1'-0"



NOTE: PAINTED WOOD COLUMN AND PROFILES TO MATCH DIMENSIONS, TRIM PROFILES, AND DETAILS OF COLUMNS ON EXISTING HOUSE

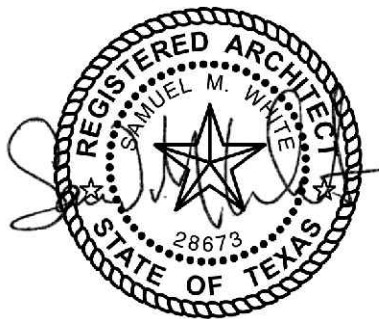
3 COLUMN ELEVATION  
6" = 1'-0"

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EXTERIOR DETAILS

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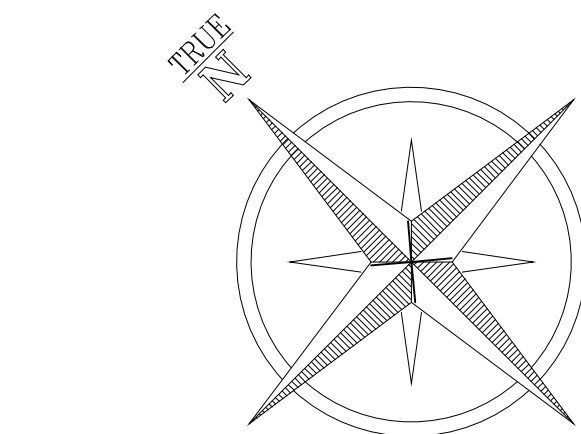
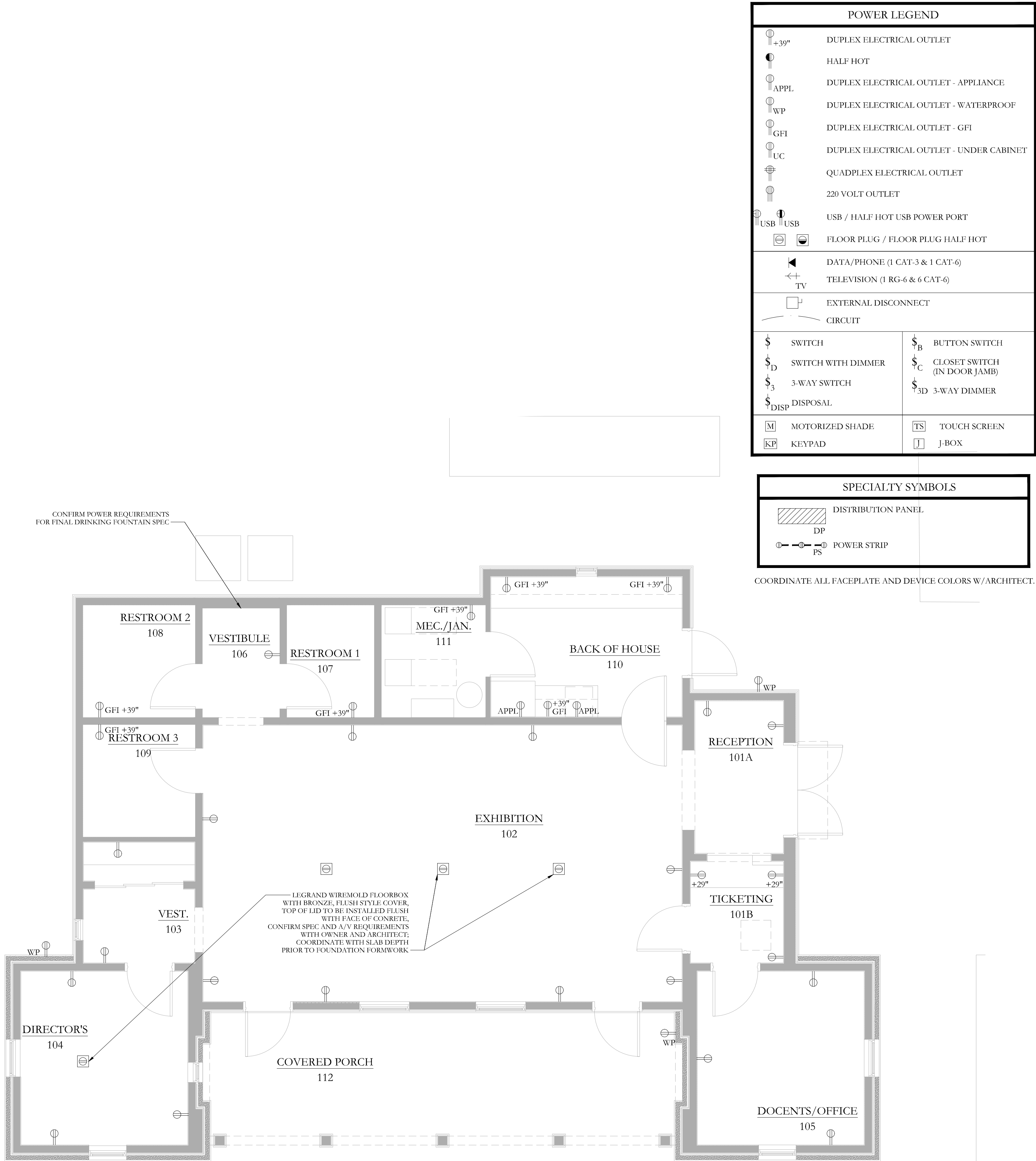
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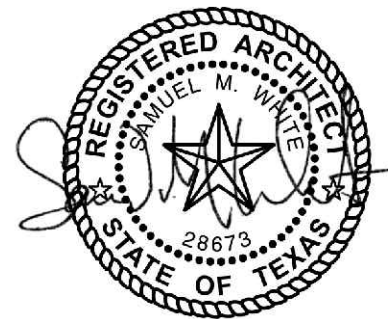


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CONSTRUCTION DOCUMENTS

POWER PLAN

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GENERAL NOTES

- ALL DECORATIVE & EXTERIOR LIGHTING ALLOWANCES TO BE DETERMINED BY ARCHITECT
- PROVIDE STUB OUTS FOR LANDSCAPE LIGHTING AS REQUIRED; TO BE COORDINATED W/OWNER
- ALL LANDSCAPE AND SECURITY LIGHTING TO BE COORDINATED/SELECTED BY OWNER AND DESIGN TEAM
- REFER TO ELECTRICAL PLAN FOR ALL EMERGENCY EXIT SIGNS, BACKUP EMERGENCY LIGHTING, SMOKE AND CO2 DETECTORS, ETC. VERIFY LOCATIONS W/ARCHITECT

**LIGHT SWITCH LOCATION NOTE**

ALL LIGHT SWITCHES HEIGHT AT 36" AFF, UNLESS OTHERWISE NOTED.

**ATTIC ACCESS**

COORDINATE ATTIC ACCESS LOCATION WITH ARCHITECT AND MECHANICAL CONSULTANT.

**LIGHTING NOTES**

1. ALL DIMENSIONS ARE FROM CENTERLINES OR J-BOXES, U.N.O.

2. LIGHTING AND ELECTRICAL SYMBOLS SHOWN SHALL HAVE J-BOXES MOUNTED ON RESPECTIVE CENTERLINES AT APPROPRIATE HEIGHTS AS LOCATED ON SITE BY ARCHITECT.

3. FIXTURES AND OUTLETS SHOWN WITHOUT DIMENSIONS SHALL BE LOCATED BY ARCHITECT IN THE FIELD PRIOR TO INSTALLATION OF J-BOXES.

4. SWITCHES (CONTROL STATIONS) TO BE LOCATED ON SITE WITH ARCHITECT AND OWNER

5. SWITCH PLATES SHALL BE ORIENTED VERTICAL UNLESS FIELD CONDITIONS DICTATE A HORIZONTAL APPLICATION; CONTRACTOR TO INFORM ARCHITECT OF SUCH SITUATIONS.

6. LOCATION OF SWITCHED PORTION OF HALF-HOT OUTLETS ARE ALWAYS TO BE LOCATED ON BOTTOM OF DUPLEX OUTLETS OR RIGHT SIDE (IF HORIZONTAL), U.N.O.

7. CONTRACTOR SHALL VERIFY ALL FIXTURE AND PLATE SELECTION WITH ARCHITECT.

8. CONTRACTOR SHALL VERIFY ALL J-BOX SIZES ARE APPROPRIATE FOR RESPECTIVE FIXTURE. ESCUTCHEONS TO ENSURE ESCUTCHEON COVERS J-BOX COMPLETELY.

9. CONTRACTOR TO VERIFY MOUNTING HEIGHTS FOR ALL PENDANT FIXTURES WITH ARCHITECT TO DETERMINE LENGTH OF RODS AND CHAINS AS REQUIRED. CONTRACTOR TO VERIFY MOUNTING HEIGHTS OF ALL EXTERIOR AND INTERIOR SCONCES PRIOR TO SETTING J-BOXES.

10. CONTRACTOR TO ALLOW FOR WALK-THROUGH WITH ARCHITECT AND OWNER TO LOCATE SWITCHING, OUTLET PLACEMENT, AND LIGHTING HEIGHTS, ACCORDING TO OWNER PREFERENCE. WALK-THROUGH SHALL BE CONDUCTED PRIOR TO WIRING.

11. CONTRACTOR TO ALLOW FOR EXTERIOR STEP LIGHTING, SITE WALL LIGHTING AND LANDSCAPE LIGHTING. SELECTIONS AND LOCATIONS TO TO VERIFIED WITH ARCHITECT AND LANDSCAPE ARCHITECT.

12. ALL EXTERIOR FIXTURES AT PORCHES, TRELLIS, ETC. TO HAVE CONCEALED CONDUIT ROUTED INTO BEAMS AS APPROVED BY ARCHITECT.

13. ALL INTERIOR FIXTURES IN NON-ACCESSIBLE CEILINGS TO HAVE CONCEALED CONDUIT, VERIFY WITH ARCHITECT METHOD USED TO CONCEAL WIRING.

14. CONTRACTOR SHALL COORDINATE LIGHTING WITH BEAM AND MECHANICAL LAYOUT.

**LIGHTING LEGEND**

R1 STANDARD RECESSED CAN

MR1 MINI RECESSED DOWNLIGHT (SQ OR RD)

MR2 MINI RECESSED DIRECTIONAL (SQ OR RD)

MP1 DIRECTIONAL MONOPOINT

WP RECESSED DOWNLIGHT (WATERPROOF)

SM SURFACE MOUNT / EXTERIOR SURFACE MOUNT

EP PENDANT / EXTERIOR PENDANT

CH CH = CHANDELIER  
ECH = EXTERIOR CHANDELIER

SC SCONCE/ EXTERIOR SCONCE

PL PICTURE LIGHT / BOOKCASE LIGHT

T TASK LIGHT

CV COVE LIGHT

TL TRACK LIGHTING

SP STEP LIGHT

CF = CEILING FAN  
ECF = EXTERIOR CEILING FAN  
CFL = CEILING FAN WITH LIGHT KIT

FL FLUORESCENT LIGHT

\$ SWITCH

\$D SWITCH WITH DIMMER

\$3 3-WAY SWITCH

\$Disp DISPOSAL SWITCH

M MOTORIZED SHADE

KP KEYPAD

CP CLOCK PLUG

F EXHAUST FAN / EXHAUST FAN AT WALL

FW EXHAUST FAN / EXHAUST FAN AT WALL

EXIT-W EXIT SIGN - WALL-MOUNT

EXIT-C EXIT SIGN - CEILING-MOUNT

EXIT-WL EXIT SIGN - WALL-MOUNT W/ EMERGENCY LIGHT

EM EMERGENCY LIGHT

\$B BUTTON SWITCH

\$C CLOSET SWITCH (IN DOOR JAMB)

\$3D 3-WAY DIMMER

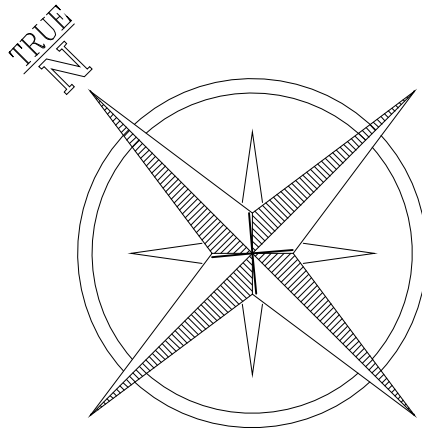
\$OCC OCCUPANCY SWITCH

TS TOUCH SCREEN

J J-BOX

SD SMOKE DETECTOR

REFERENCE SPECIFICATIONS FOR LIGHTING SYSTEM REQUIREMENTS

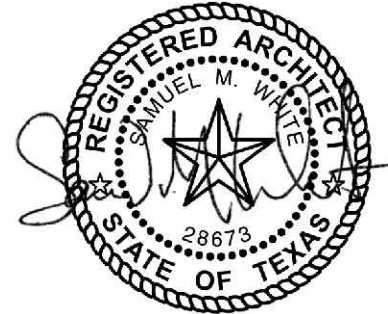


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REFLECTED CEILING PLAN

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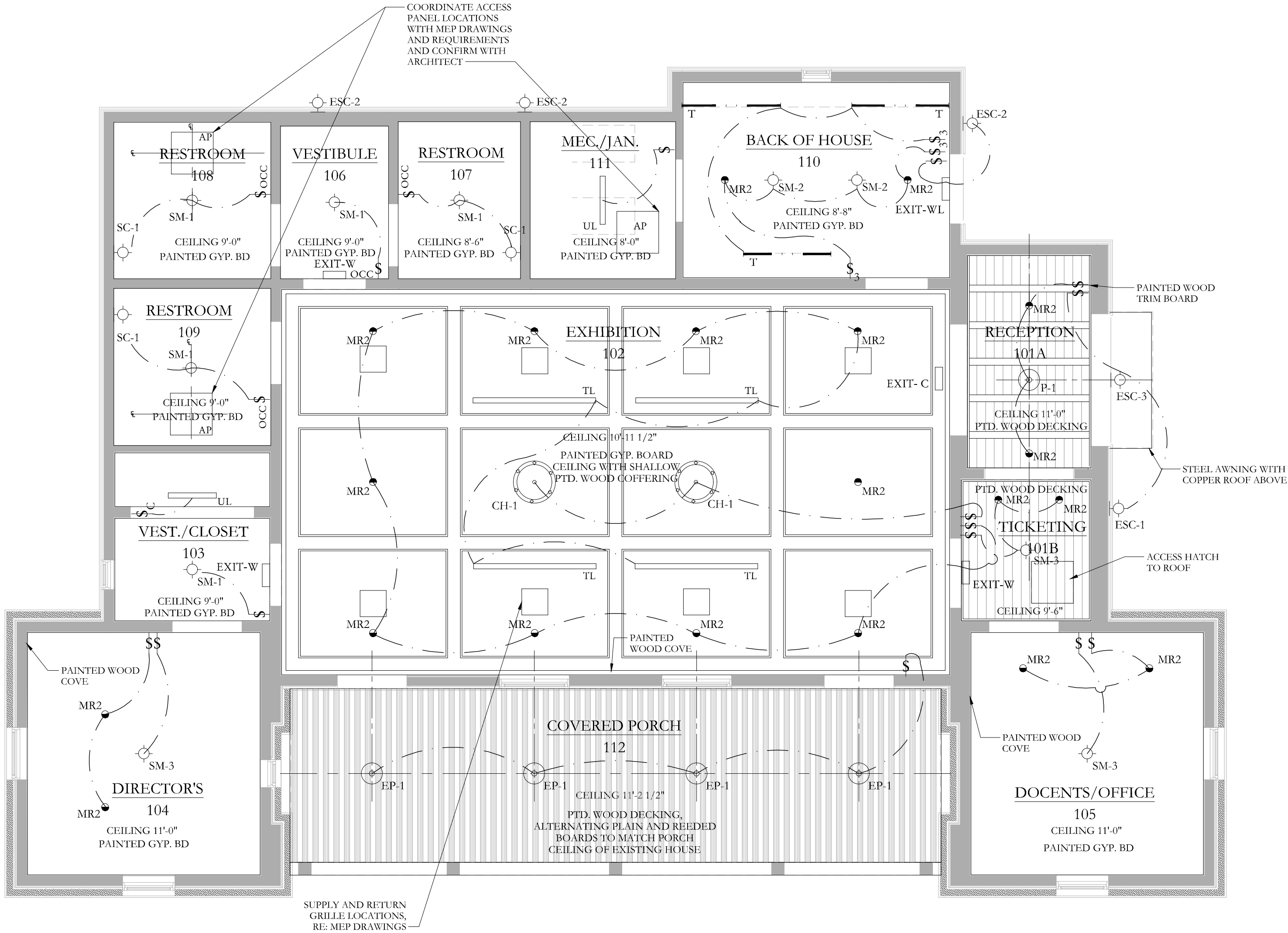
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## MATERIALS & FINISHES

## PLUMBING FIXTURES & ACCESSORIES

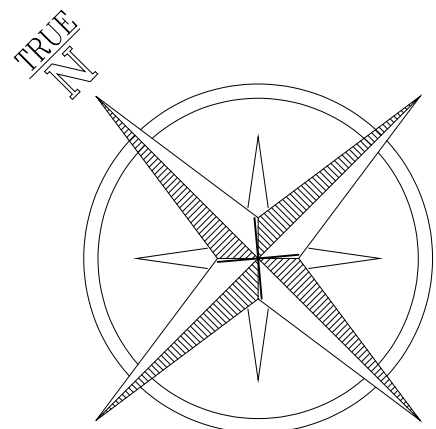
## APPLIANCES

## I ROOM FINISH SCHEDULE

The floor plan illustrates a building layout with the following rooms and specifications:

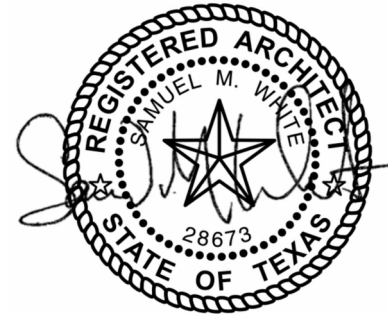
- RESTROOM 2 (108):** FLOOR PC, BASE BS-3, WALL PT-1/T-1, CEILING PT-2. Includes a toilet and a sink.
- VESTIBULE (106):** FLOOR PC, BASE BS-2, WALL PT-1, CEILING PT-2. Includes a door and a sink.
- RESTROOM 1 (107):** FLOOR PC, BASE BS-2, WALL PT-1, CEILING PT-2. Includes a toilet and a sink.
- MEC./JAN. (111):** FLOOR PC, BASE BS-2, WALL PT-1, CEILING PT-2. Includes a door and a sink.
- BACK OF HOUSE (110):** FLOOR PC, BASE BS-2, WALL PT-1/FP, CEILING PT-2. Includes a door and a sink.
- RECEPTION (101A):** FLOOR BR-2, BASE BS-1, WALL PT-1, CEILING PW-1. Includes a door and a sink.
- TICKETING (101B):** FLOOR PC, BASE BS-1, WALL PT-1, CEILING PW-2. Includes a door and a sink.
- DOCENTS/OFFICE (105):** FLOOR PC, BASE BS-2, WALL PT-1, CEILING PT-2. Includes a door and a sink.
- COVERED PORCH (112):** FLOOR BR-1, CEILING PW-3. Includes a door and a sink.
- EXHIBITION (102):** FLOOR PC, BASE BS-1, WALL PT-1, CEILING PT-2. Includes a door and a sink.
- VEST. (103):** FLOOR PC, BASE BS-2, WALL PT-1, CEILING PT-2. Includes a door and a sink.
- DIRECTOR'S (104):** FLOOR PC, BASE BS-2, WALL PT-1, CEILING PT-2. Includes a door and a sink.
- RESTROOM 3 (109):** FLOOR PC, BASE BS-3, WALL PT-1/T-1, CEILING PT-2. Includes a toilet and a sink.

Exterior features include concrete paths, brick steps, and slopes. The plan also shows various material specifications for floors, bases, walls, and ceilings, as well as doors and windows.



## CONSTRUCTION DOCUMENTS

JUNE 21, 2024



A9.1

111 WEST EL PRADO

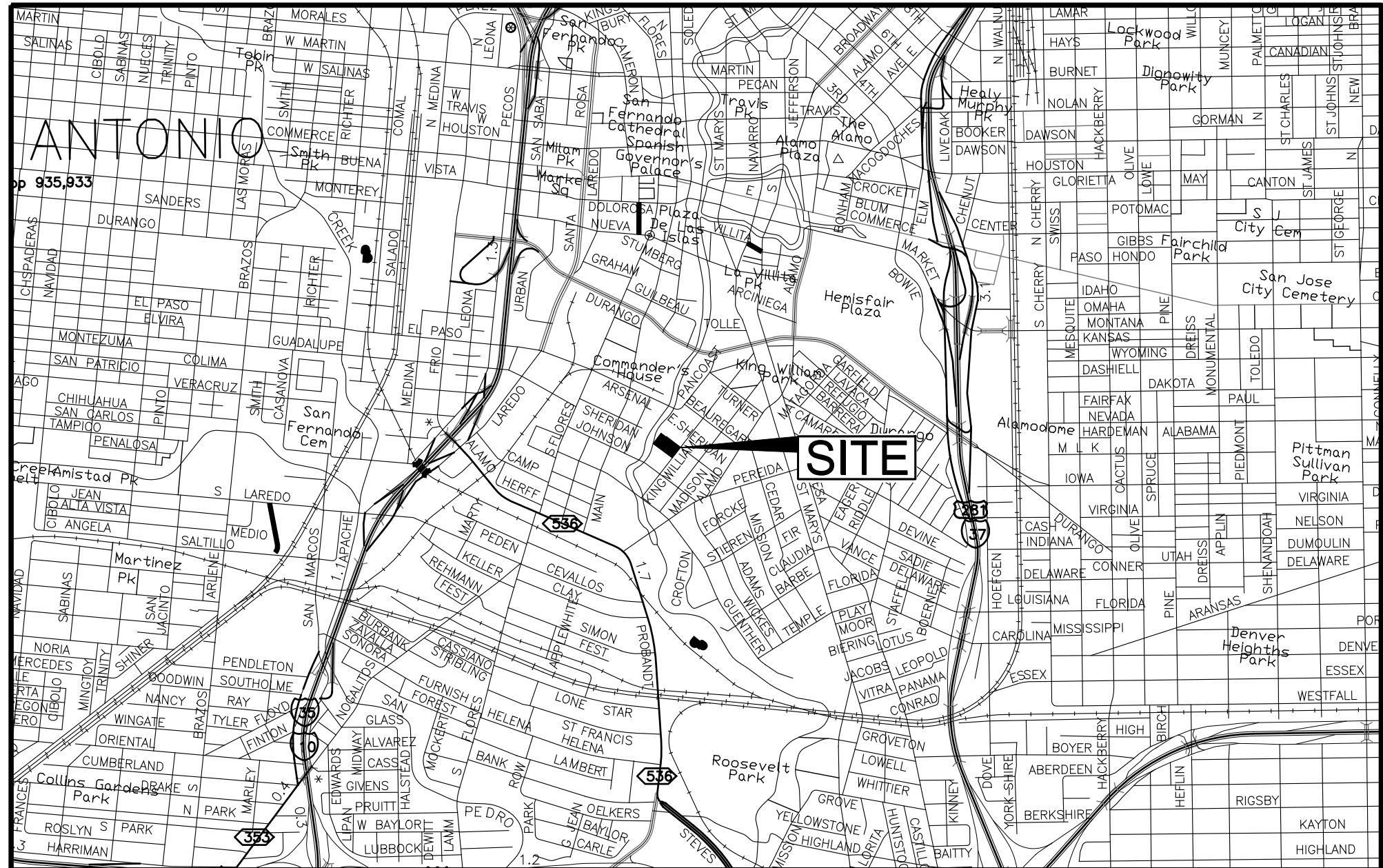
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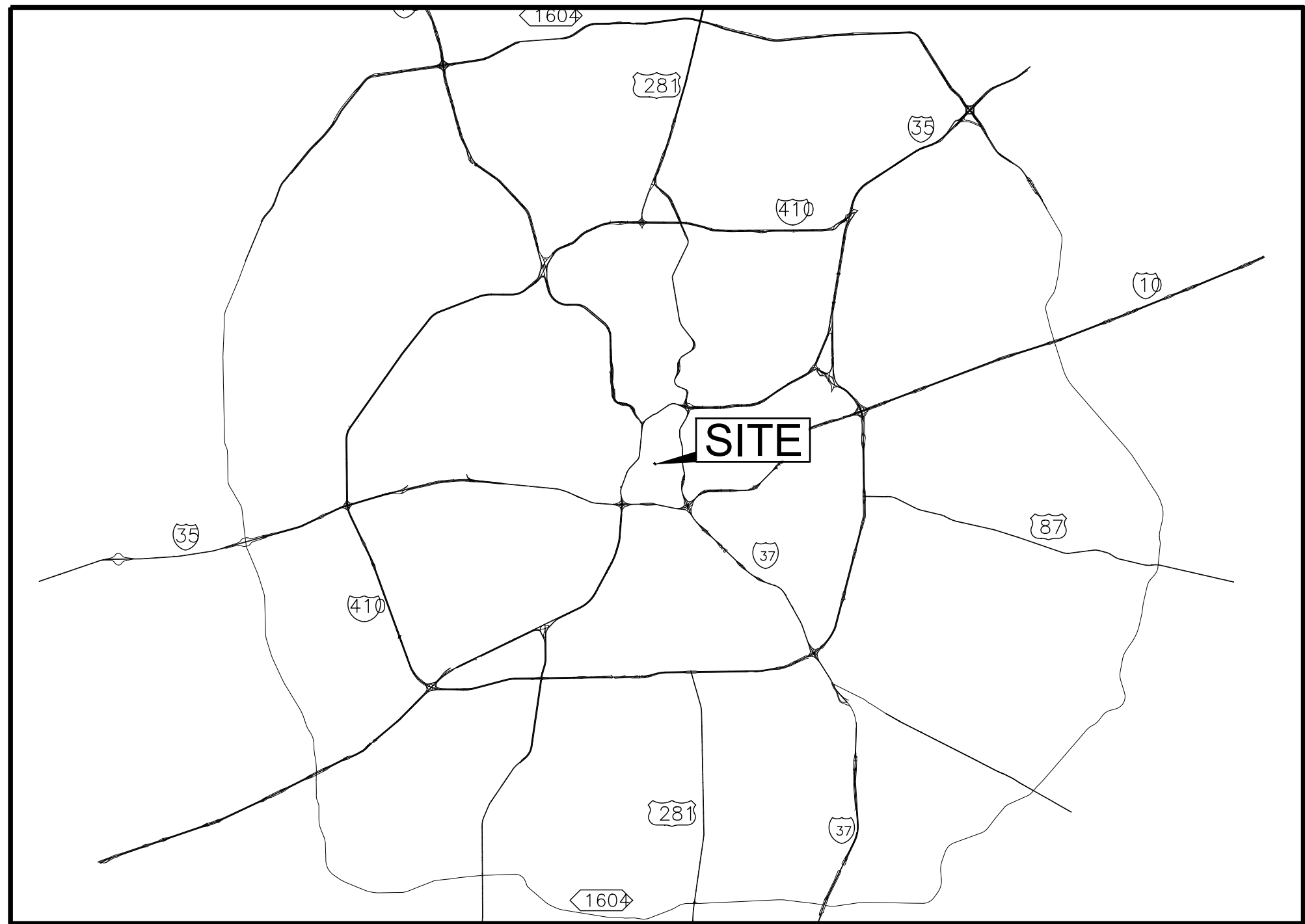
VILLA FINALE MUSEUM  
401 KING WILLIAM ST, SAN ANTONIO, TX

CONSTRUCTION PLANS  
FOR PROPOSED  
WATER DISTRIBUTION, SANITARY SEWER, PAVING & DRAINAGE

W,S,S,P & D PLANS FOR  
VILLA FINALE MUSEUM



SITE MAP  
SCALE: 1"=2,000'



ZIP CODE 78204

VICINITY MAP  
SCALE: 1"=20,000'

DRAWING INDEX

SHEET NO.	TITLE
	CIVIL PLANS
C0.1	COVER
C0.2	PLAT
C1.1	GENERAL NOTES
C2.1	DIMENSION CONTROL PLAN
C3.1	FIRE PROTECTION SITE PLAN
C4.1	GRADING PLAN
C5.1	UTILITY PLAN
C6.1	EROSION CONTROL PLAN
C7.1	DRAINAGE AREA MAP
C8.1	EROSION CONTROL DETAILS
C8.2	EROSION CONTROL DETAILS
C8.3	PAVING DETAILS
C8.4	UTILITY DETAILS
C8.5	LOW IMPACT DEVELOPMENT DETAILS

DESIGNED BY: TM  
CHECKED BY: JFK  
DRAWN BY: TM

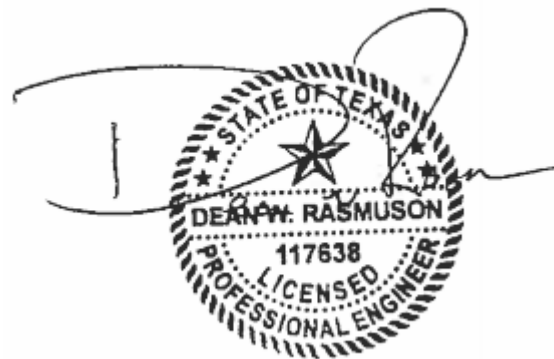
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713.789.1900

June 2024  
WGA PROJECT No. 70049-003









CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/ENGINEER/SAFETY/EQUIPMENT CONSULTANT, IF ANY, SHALL REVIEW THESE PLANS AND SPECIFICATIONS FOR CONFORMANCE WITH ALL APPLICABLE REGULATIONS AND ORDINANCES OF THE PROJECT WORK AREA IN ORDER TO IMPLEMENT CONTRACTOR'S TRENCH EXCAVATION SAFETY PROTECTION SYSTEMS, PROGRAMS AND/OR PROCEDURES FOR THE PROJECT DESCRIBED IN THE SPECIFICATIONS. CONTRACTOR SHALL BE RESPONSIBLE FOR THE DESIGN AND/OR CONSTRUCTION OF THE SAFETY PROTECTION SYSTEMS, PROGRAMS AND/OR PROCEDURES THAT PROVIDE ADEQUATE TRENCH EXCAVATION SAFETY PROTECTION THAT COMPLY WITH AS A MINIMUM, OSHA STANDARDS FOR TRENCH EXCAVATIONS. SPECIFICALLY, CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR SAFETY CONSULTANT SHALL IMPLEMENT A TRENCH EXCAVATION SAFETY PROTECTION SYSTEM, PROGRAM AND/OR PROCEDURE, INCLUDING THE PRESENCE AND ACTIVITIES OR INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATION

ALL MATERIALS AND CONSTRUCTION PROCEDURES WITHIN THE SCOPE OF THIS CONTRACT SHALL CONFORM TO ALL APPLICABLE CITY OF SAN ANTONIO RULES AND REQUIREMENTS FOR STREETS, SIDEWALKS, ALLEYS, AND DRIVEWAYS (LATEST EDITION) (CITY OF SAN ANTONIO, TEXAS), AND THE SAN ANTONIO WATER SYSTEM (SAWS) SPECIFICATIONS (LATEST EDITION), THE SAN ANTONIO WATER SYSTEM (SAWS) SPECIFICATIONS FOR WATER WORKS CONSTRUCTION (LATEST EDITION).

THE LOCATIONS AND DEPTHS OF EXISTING UTILITIES SHOWN ON THESE PLANS ARE APPROXIMATE ONLY. ACTUAL LOCATIONS AND DEPTHS OF EXISTING UTILITIES MUST BE VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO LOCATE UTILITY SERVICE LINES AS REQUIRED FOR CONSTRUCTION AND TO OBTAIN ANY NECESSARY PERMITS AND APPROVALS FROM ANY AGENCY. IN THE EVENT THE CONTRACTOR'S EXISTING UTILITIES (WHEN SHOWN ON THESE PLANS OR NOT) SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO REPAIR, AT HIS EXPENSE.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR ACQUIRING ALL PERMITS, TESTS, APPROVALS AND ADJUSTMENTS REQUIRED TO COMPLETE CONSTRUCTION OF THIS PROJECT

4. CONTRACTOR SHALL VERIFY THE EXACT LOCATION OR UNDERGROUND UTILITIES AND DRAINAGE SYSTEMS WHETHER SHOWN OR PLANS OR NOT.

SANITARY SEWER	21D-233-2D10
STORM DRAINAGE	21D-207-8D48
AT&T	80D-828-5127
GAS (CITY PUBLIC ENERGY)	21D-353-2D10
ELECTRIC (CITY PUBLIC ENERGY)	21D-353-2D0D
TIME WARNER CABLE	80D-828-5127
SAN ANTONIO WATER SYSTEM	
AFTER HOURS OR WEEKENDS	21D-227-6143
CITY OF SAN ANTONIO TRAFFIC SIGNAL	21D-207-7765
BEAR METROPOLITAN WATER DISTRICT	21D-354-65D0

4. ALL UTILITIES SHALL BE INSTALLED PRIOR TO PAVEMENT CONSTRUCTION.
5. ALL UTILITY CONNECTIONS SHALL BE COORDINATED WITH THE MECHANICAL, PLUMBING, AND ELECTRICAL PLANS. NOTIFY ENGINEER OF ANY CONFLICTS PRIOR TO CONSTRUCTION.
6. THE CONTRACTOR SHALL INSTALL ANY BENDS, FITTINGS, ETC. IN THE WATER & SEWER MAIN AS REQUIRED TO AVOID CONFLICTS WITH OTHER UTILITIES. (NO SEPARATE PLAN)
7. NO WATER JETTING TO BACKFILL TRENCHES WILL BE ALLOWED ON THIS PROJECT.
8. POLY(VINYL CHLORIDE (PVC) SEWER PIPE SHALL BE SDR 26. FITTINGS AND JOINTS SHALL CONFORM TO COMPATIBLE SDR 26 PIPE. SOLVENT CEMENT JOINTS SHALL NOT BE USED. (REFER TO CIVIL PLANS FOR ADDITIONAL INFORMATION)
9. ALL SEWER LINES SHALL BE INSTALLED IN THE VICINITY OF WATER MAINS. SUCH INSTALLATION SHALL BE IN STRICT ACCORDANCE WITH THE TEXAS DEPARTMENT OF HEALTH "RULES AND REGULATIONS FOR PUBLIC WATER SYSTEMS" (1988 OR ANY REVISIONS THERETO).
10. DUE TO FEDERAL REGULATIONS TITLE 49, PART 192.181, CITY PUBLIC SERVICE MUST MAINTAIN ACCESS TO GAS VALVES AT ALL TIMES. THE CONTRACTOR MUST PROTECT AND WORK AROUND ANY GAS VALVES THAT ARE IN THE PROJECT AREA.
11. ALL SPOIL AND OTHER UNSUITABLE MATERIAL FROM THIS WORK SHALL BE REMOVED FROM THE SITE BY THE CONTRACTOR, AT HIS EXPENSE.
12. ALL WATER AND SEWER SERVICES BEING RECONNECTED SHALL BE IN ACCORDANCE WITH COLUMBIA PLUMBING CODE AND AS DIRECTED BY PLUMBING INSPECTOR.
13. WHETHER SHOWN ON THE PLANS OR NOT ALL CLEANOUT TOPS AND MANHOLES SHALL BE INSTALLED AT LEAST 3" ABOVE FINISHED GRADE OUTSIDE PAVEMENT AND FLUSH WITH FINISHED GRADE WITHIN THE PAVEMENT AREAS.
14. SANITARY SEWER SYSTEM SHALL BE INSTALLED IN ACCORDANCE WITH THE CITY OF SAN ANTONIO PLUMBING CODE AND AS DIRECTED BY PLUMBING INSPECTOR.
15. TRUST BLOCKING SHALL BE INSTALLED IN ACCORDANCE WITH SAN ANTONIO WATER SYSTEM SPECIFICATIONS.
16. UTILITY CONTRACTOR SHALL COORDINATE WITH CPS ENERGY FOR THE GAS AND ELECTRICAL SERVICE.
17. DOMESTIC WATER MAIN SHALL BE C-905 PVC CLASS 150.
18. CLEANOUTS SHALL BE TWO-WAYS AND INSTALLED IN ACCORDANCE WITH COLUMBIA PLUMBING CODE (EVERY 10D') & AS DIRECTED BY PLUMBING INSPECTOR.
19. FIRE LINE SHALL BE PVC C905, CLASS 150 AND SHALL COMPLY WITH AWWA STANDARDS AND SHALL WITHSTAND A WORKING PRESSURE OF NOT LESS THAN 220 P.S.I.
20. CONTRACTOR SHALL MAINTAIN "AS-BUILT" DRAWINGS THROUGHOUT THE COURSE OF CONSTRUCTION & SHALL SUBMIT SAME TO THE ENGINEER FOR APPROVAL PRIOR TO FINAL ACCEPTANCE BY OWNER.

1. ALL CONSTRUCTION TO BE IN ACCORDANCE WITH THE CITY OF SAN ANTONIO STANDARDS AND SPECIFICATIONS.
2. ALL FILL SHALL BE COMPACTED TO 95% OF THE MAXIMUM DRY DENSITY AS DETERMINED BY THE STANDARD PROCTOR METHOD (ASTM D-698).
3. CURB RAMPS ARE TO BE CONSTRUCTED AS DIRECTED BY THE CITY OF SAN ANTONIO INSPECTOR.
4. ALL CONSTRUCTION BARRICADING TO BE IN ACCORDANCE WITH CURRENT TEXAS MANUAL ON UNIFORMED CONTROL DEVICES.
5. THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES AND STRUCTURES AS SHOWN ON THESE PLANS IS BASED ON RECORDS OF VARIOUS UTILITY COMPANIES AND WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THIS INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE LOCATION OF ALL UNDERGROUND UTILITIES AND STRUCTURES MUST BE CONFIRMED BY THE CONTRACTOR PRIOR TO THE START OF CONSTRUCTION. THE CONTRACTOR MUST CONTACT THE APPROPRIATE UTILITY COMPANY, ANY GOVERNING PERMITTING AUTHORITY, AND "DIG TEST" AT LEAST 72 HOURS PRIOR TO ANY EXCAVATION WORK TO REQUEST EXACT FIELD LOCATION OF UTILITIES INTERFERING WITH THE PROPOSED CONSTRUCTION AND AN APPROVED MEDICAL ACTION TAKEN BEFORE PROCEEDING WITH THE WORK. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THE PLAN PER THE APPROPRIATE RECORDS AND/OR AGREED UPON BY THE ENGINEER.
6. DISPOSAL OF ALL DEMOLISHED MATERIALS IS THE RESPONSIBILITY OF THE CONTRACTOR AND MUST BE OFF-SITE IN ACCORDANCE WITH ALL FEDERAL, STATE, AND LOCAL MUNICIPAL REQUIREMENTS.
7. WHERE A STATE OR LOCAL MUNICIPAL STANDARD DETAIL, DUPLICATES A DETAIL SHOWN IN THE PLANS, THE MORE STRINGENT DETAIL, AS DETERMINED BY THE REVIEWING AGENCY, SHALL APPLY.
8. ALL ITEMS NOT SPECIFICALLY CALLED OUT TO BE REMOVED SHALL REMAIN. ANY ITEM TO REMAIN WHICH IS REMOVED SHALL BE REPLACED AT THE CONTRACTORS EXPENSE. (NO SEPARATE PAY)
9. CONTRACTOR WILL BE RESPONSIBLE FOR ACQUIRING ALL NECESSARY DEMOLITION PERMITS FOR THE PROJECT AND COORDINATION WITH THE RESPECTIVE UTILITY COMPANIES FOR REMOVAL OF THEIR INDIVIDUAL SERVICES.
10. CONTRACTOR SHALL IMMEDIATELY CONTACT THE ENGINEER REGARDING QUESTIONS ON THE DEMOLITION PLAN.
11. DEMOLITION CONTRACTOR SHALL CLEARLY MARK ALL EXISTING UTILITY SERVICES WHERE THEY CROSS THE PROPOSED TUNNEL. THIS INFORMATION WILL BE USED BY UTILITY COMPANY AND CONTRACTOR TO AVOID ANY DAMAGE TO THE PROPOSED TUNNEL.
12. CONTRACTOR SHALL VERIFY WHICH TREES TO BE SAVED & PROTECTED PRIOR TO COMMENCING CONSTRUCTION. DURABLE FENCE PROTECTION BARRIERS SHALL BE INSTALLED AROUND ALL TREES TO BE SAVED WITH FENCE PLACEMENT A MINIMUM OF 10 FEET FROM TREES TRUNKS.
13. CONTRACTORS SHALL NOT DISTURB AREAS AROUND EXISTING TREES TO BE SAVED.
14. CONTRACTORS SHALL COMPENSATE OWNER FOR DAMAGE OR TREES THAT WERE TO REMAIN.

1. THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES AND STRUCTURES AS SHOWN ON THESE PLANS BE BASED ON RECORDS OR VARIOUS UTILITY COMPANIES AND WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THIS INFORMATION IS NOT TO BE RELIED ON AS BEING CORRECT OR COMPLETE. THE LOCATION OF ALL UNDERGROUND UTILITIES AND STRUCTURES SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO THE START OF CONSTRUCTION. THE CONTRACTOR MUST CONTACT THE APPROPRIATE UTILITY COMPANY, ANY OTHER FORMER PROVIDER OF UTILITY AND "DIAL BEFORE YOU DIG" PRIOR TO ANY EXCAVATION WORK TO REQUEST EXACTLY FIELD LOCATION OF UTILITIES AND THE ENGINEER SHALL BE NOTIFIED IN WRITING OF ANY UTILITIES INTERFERING WITH THE PROPOSED CONSTRUCTION AND APPROPRIATE REMEDIAL ACTION TAKEN BEFORE PROCEEDING WITH THE WORK. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO LOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THE PLAN.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ESTABLISHING AND MAINTAINING ALL CONTROL POINTS AND BENCH MARKS NECESSARY FOR THE WORK.
3. ALL EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE FOLLOWING REQUIREMENTS:
  - a. EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE IN PLACE PRIOR TO THE COMMENCEMENT OF ANY SITE WORK OR EARTHWORK OPERATIONS. SHALL BE MAINTAINED DURING CONSTRUCTION, AND SHALL REMAIN IN PLACE UNTIL ALL SITE WORK IS COMPLETE AND GROUND COVER IS ESTABLISHED.
  - b. STOCKPILES SHALL BE SURROUND ON THEIR PERIMETERS WITH STAKED HAY BALES OR CONSTRUCTION MATERIALS TO PREVENT AND CONTROL SILTATION AND EROSION.
  - c. TOPS OF STOCKPILES SHALL BE COVERED IN SUCH A MANNER THAT STORM WATER DOES NOT INFILTRATE THE MATERIALS AND THEREBY RENDER THE SAME UNSUITABLE FOR FILL USE.
  - d. ALL DISTURBED OR EXPOSED AREAS SUBJECT TO EROSION SHALL BE STABILIZED WITH MULCH OR SEEDED FOR TEMPORARY VEGETATIVE COVER. NO AREA, SUBJECT TO EROSION SHALL BE LEFT OPEN TO THE WIND OR UNDISTURBED FOR PERIODS OF TWO WEEKS OR MORE NECESSARY TO CARRY OUT THAT PORTION OF THE CONSTRUCTION WORK, OR 1 WEEK AFTER SOIL HAS BEEN DISTURBED, WHICHEVER IS LESS.
4. EARTHWORK ACTIVITY ON THE SITE SHALL BE DONE IN A MANNER SUCH THAT RUNOFF IS DIRECTED TO TEMPORARY DRAINAGE SWALES AND SEDIMENTATION BASINS.
  - a. THE LOCATION OF TEMPORARY DRAINAGE SWALES AND SEDIMENTATION TRAPS ARE APPROXIMATE ONLY AND THE CONTRACTOR SHALL AS REQUIRED ADJUST CONSTRUCTION PROGRESS.
  - b. INLET PROTECTION SHALL BE PLACED AROUND ALL CATCH BASINS AND CATCH INLETS AS REQUIRED DURING CONSTRUCTION.
5. ALL EROSION CONTROL MEASURES SHALL BE ROUTINELY INSPECTED, CLEANED AND REPAIRED OR REPLACES AS NECESSARY THROUGHOUT ALL PHASES OF CONSTRUCTION. IN ADDITION, INSPECTION SHALL BE IN PLACE TO PREVENT EACH PHASE.
6. THE LOCATION OF HAY BALES AND/OR SILT FENCE FOR EROSION CONTROL PURPOSES SHALL BE INSTALLED IN ACCORDANCE WITH SEDIMENTATION AND EROSION CONTROL PLAN. HAY BALES AND/OR SILT FENCE SHALL BE PERIODICALLY INSPECTED AND REPLACED AS REQUIRED.
7. ALL PROPOSED SLOPES STEEPER THAN 3H:1V SHALL BE STABILIZED WITH JUTE MESH AND PROTECTED FROM EROSION.
8. THE CONTRACTOR SHALL KEEP ON SITE AT ALL TIMES ADDITIONAL HAY BALES AND EXTRA SILTATION FENCE TO BE INSTALLED TO COVER ANY AREAS OF EROSION.
9. BORINGS WERE TAKEN FOR THE PURPOSE OF DESIGN AND SHOW CONDITIONS AT BORING POINTS ONLY. THEY DO NOT NECESSARILY SHOW THE NATURE OF ALL MATERIALS TO BE ENCOUNTERED DURING CONSTRUCTION. CONTRACTOR SHALL OBTAIN A COPY OF THE CURRENT GEOTECHNICAL REPORT FOR THIS SITE PRIOR TO CONSTRUCTION.
10. ALL WORK DONE FOR THE AREA THAT HAS BEEN CLEARED AND GRUBBED SHALL BE THE SAME AS THE LIMIT OF WORK LINE GRADING FOR GRADING PURPOSES (I.E., THE GRADING LIMITS AROUND THE PERIMETER OF THE PROJECT AREA).
11. THE AREA OR AREAS OF ENTRANCE AND EXIT TO AND FROM THE SITE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ON TO PUBLIC RIGHT-OF-WAY. TO AVOID THIS, THE CONTRACTOR SHALL MAINTAIN A DEDICATED DRIVEWAY THROUGH MEASURES AS DICTATED ON THE EROSION AND SEDIMENTATION CONTROL PLAN. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO AIR FORCE VILLAGE CAMPUS MUST BE REMOVED IMMEDIATELY.
12. UPON COMPLETION OF ALL SITE WORK, CONSTRUCTION SITE CONTRACTOR SHALL INSPECT ALL CATCH BASINS AND CURBS INLETS ON-SITE AND REMOVE ALL SEDIMENT AND TRASH DERBS THAT HAS ACCUMULATED WITHIN THE BASINS.
13. ALL CONSTRUCTION SHALL MEET OR EXCEED THE STATE AND LOCAL MUNICIPAL REQUIREMENTS AND SPECIFICATIONS.

4. WHERE A SEWER MAIN CROSSES OVER A WATER MAIN AND THE SEPARATION DISTANCE IS LESS THAN NINE (9) FEET, ALL PORTIONS OF THE SEWER MAIN WITHIN NINE FEET OF THE WATER LINE SHALL BE CONSTRUCTED USING 150 PSI PRESSURE RATED DUCTILE IRON, CAST IRON OR PVC PIPE AND JOINED WITH EQUALLY PRESSURE RATED PRESSURE RING GASKET CONNECTIONS OR CORROSION PROTECTED MECHANICAL COUPLING DEVICES OF A CAST IRON OR DUCTILE IRON MATERIAL. A SECTION OF 150 PSI PRESSURE RATED PIPE AT LEAST EIGHTEEN (18) FEET IN LENGTH MAY BE CENTERED ON THE WATER MAIN IN LIEU OF PIPE CONNECTION REQUIREMENTS. (NO SEPARATE PAY ITEM)

5. WHERE A SEMI-RIGID OR RIGID SEWER MAIN CROSSES UNDER A WATER MAIN AND THE SEPARATION DISTANCE IS LESS THAN NINE FEET BUT GREATER THAN TWO FEET, THE INITIAL BACKFILL SHALL BE CEMENT STABILIZED SAND (TWO OR MORE BAGS OF CEMENT PER CUBIC YARD OF SAND) FOR ALL SECTIONS OF THE SEWER WITHIN NINE FEET OF THE WATER MAIN.

6. WHERE A SEWER MAIN CROSSES UNDER A WATER MAIN AND THE SEPARATION DISTANCE IS LESS THAN TWO FEET, THE SEWER MAIN SHALL BE CONSTRUCTED OF CAST IRON, DUCTILE IRON, OR PVC WITH A MINIMUM PRESSURE RATING OF 150 PSI WITHIN NINE FEET OF THE WATER MAIN, SHALL HAVE A SEGMENT OF SEWER PIPE CENTERED ON THE WATER MAIN, SHALL BE PLACED NO CLOSER THAN SIX INCHES BETWEEN OUTER DIAMETERS, AND SHALL BE JOINED WITH PRESSURE RING GASKET CONNECTIONS OR CORROSION PROTECTED MATERIAL. A SECTION OF 150 PSI PRESSURE RATED PIPE OF A LENGTH GREATER THAN EIGHTEEN (18) FEET MAY BE CENTERED ON THE WATER MAIN IN LIEU OF PIPE CONNECTION REQUIREMENTS. (NO SEPARATE PAY ITEM)

7. WHERE A SEWER MAIN PARALLELS A WATER MAIN AND THE SEPARATION DISTANCE IS LESS THAN NINE FEET, THE SEWER MAIN SHALL BE BELOW THE WATER MAIN, SHALL BE CONSTRUCTED OF CAST IRON, DUCTILE IRON, OR PVC WITH A MINIMUM PRESSURE RATING OF 150 PSI FOR BOTH PIPE AND JOINTS FOR A DISTANCE OF NINE FEET BEYOND THE POINT OF CONFLICT, SHALL MAINTAIN A MINIMUM SEPARATION DISTANCE BETWEEN OUTER DIAMETERS OF TWO FEET VERTICALLY AND FOUR FEET HORIZONTALLY, AND SHALL BE JOINED WITH PRESSURE RING GASKET CONNECTIONS OR CORROSION PROTECTED MECHANICAL COUPLING DEVICES OF A CAST IRON OR DUCTILE IRON MATERIAL.

8. SANITARY SEWER MANHOLES SHALL NOT BE INSTALLED ANY CLOSER THAN NINE FEET TO WATER MAINS.

9. CORROSION PROTECTED MECHANICAL COUPLING DEVICES OF A CAST IRON OR DUCTILE IRON MATERIALS.

ALL GRADES AND CONTOURS SHOWN ARE FINAL, TOP OF FINISHED SURFACE ELEVATIONS. CONTRACTOR SHALL SUBTRACT PAVEMENT, BASE, TOPSOIL, MULCH, ... ETC. TO OBTAIN PROPER SUBGRADE ELEVATIONS.

POSITIVE DRAINAGE SHALL BE MAINTAINED ON ALL SURFACE AREAS WITHIN THE SCOPE OF THIS PROJECT. DRAINAGE SHALL BE DIRECTED AWAY FROM ALL BUILDING FOUNDATIONS. CONTRACTORS SHOULD TAKE PRECAUTIONS NOT TO ALLOW ANY PONDING OF WATER. MINIMUM SLOPE 0.50%

NO ABRUPT CHANGE OF GRADE SHALL OCCUR.

ALL DISTURBED AREAS SHALL BE REVEGETATED, BY THE CONTRACTOR, IN ACCORDANCE WITH PROJECT SPECIFICATIONS, AND ARCHITECTURAL LANDSCAPING PLANS. MINIMUM MULCH DEPTH FOR THIS PROJECT SHALL BE HYDRAMULCH FOR ALL DISTURBED AREAS WITH ADEQUATE IRRIGATION TO ENSURE VEGETATION & EROSION CONTROL.

THE CONTRACTOR WILL BE RESPONSIBLE FOR DETERMINING EXACT LOCATION OF ALL UTILITIES AND DRAINAGE STRUCTURES WHETHER SHOWN ON THE PLANS OR NOT. THE CONTRACTOR SHALL BE RESPONSIBLE FOR EXISTING UTILITIES PRIOR TO CONSTRUCTION TO VERIFY SIZE, GRADE, AND LOCATION. THE CONTRACTORS SHALL NOTIFY THE ENGINEER IMMEDIATELY OF ANY DEVIATIONS FROM PLANS PRIOR TO BEGINNING CONSTRUCTION. ANY DAMAGE TO EXISTING UTILITIES, WHETHER SHOWN ON THE PLANS OR NOT, SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO REPAIR, AT HIS EXPENSE.

ALL MATERIALS AND CONSTRUCTION PROCEDURES WITHIN THE SCOPE OF THIS CONTRACT WHERE NOT SPECIFICALLY COVERED IN THE PROJECT SPECIFICATIONS SHALL CONFORM TO ALL APPLICABLE CITY OF SAN ANTONIO SPECIFICATIONS FOR CONSTRUCTION, TxDOT STANDARD SPECIFICATIONS, AND BEXAR COUNTY PUBLIC WORK STANDARD SPECIFICATIONS.

CONTRACTOR SHALL BE RESPONSIBLE FOR RESTORING TO ORIGINAL, OR BETTER, CONDITION ALL AREAS OF EXISTING UTILITIES, PAVEMENT, CURBS, SIDEWALKS OR DRIVEWAYS. (NO SEPARATE PAY ITEM).

DUE TO FEDERAL REGULATION TITLE 49, PART 192.181, CNG ENERGY MUST MAINTAIN ACCESS TO GAS VALVES AT ALL TIMES. THE CONTRACTOR MUST PROTECT AND WORK AROUND ANY GAS VALVES THAT ARE NEAR THE PROJECT.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATIONS WITH ALL NECESSARY UTILITY COMPANIES FOR PROVIDING TEMPORARY UTILITY SERVICES DURING CONSTRUCTION.

CONTRACTOR SHALL VERIFY THE EXACT LOCATION OF UNDERGROUND UTILITIES AND DRAINAGE SYSTEMS WHETHER SHOWN ON PLANS OR NOT.

1. CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER OF ANY QUESTIONS THAT MAY ARISE CONCERNING THE INTENT, PLACEMENT, OR LIMITS, OF DIMENSIONS OR GRADES NECESSARY FOR THE PROJECT.

2. THE CONTRACTOR SHALL SAW CUT EXISTING PAVEMENT ON NEW PAVEMENT AND CURB JUNCTURES. NO JAGGED OR IRREGULAR CUTS IN PAVEMENT WILL BE ACCEPTED.

3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ACQUIRING ALL PERMITS, TESTS, APPROVALS, AND ACCEPTANCES REQUIRED TO COMPLETE CONSTRUCTION OF THIS PROJECT.

4. ALL EXCAVATION IS UNCLASSIFIED.

5. ALL ON-SITE CURBS ARE 6" HIGH UNLESS OTHERWISE SPECIFIED.

6. SEE CIVIL COVER SHEET FOR PROJECT BENCHMARK.

7. CONTRACTOR TO RAISE/LOWER ALL UTILITY BOXES, COVERS, GRATES, VALVES BOXES, MANHOLES, CLEANOUTS, ETC., TO MATCH PROPOSED FINISHED GRADE ELEVATIONS.

8. ALL DISTURBED AREAS (WHICH ARE NOT TO BE PAVED) SHALL BE COVERED WITH 6" MIN. CLEAN FILL OR TOPSOIL, 5 E.A. MIN. 1/4" SLOPE AWAY FROM TOPSOIL. IN ORDER TO MAINTAIN PROPOSED ELEVATIONS. AREAS FOR LANDSCAPING SHOULD BE IN ACCORDANCE WITH THE LANDSCAPE ARCHITECTS PLANS.

9. PROVIDE THE REQUIRED MINIMUM DENSITY AND MOISTURE CONTENT OF COMPACTED FILL IN ACCORDANCE WITH THE SOILED REPORT AND THE REQUIREMENTS OF THE PROFESSIONAL ENGINEER (SEE CIVIL).

10. A TESTING LABORATORY SHALL BE EMPLOYED BY THE CONTRACTOR TO CHECK THE SUITABILITY OF MATERIAL SELECTED FOR CONTROLLED FILLS, TO TEST AND DETERMINE OF THE REQUIRED IS BEING OBTAINED, AND TO TEST COMPACTION OF EXPOSED SUBGRADES, WHEN TESTS COMPACTION DOES NOT MEET GEOTECH REQUIREMENTS, FILL AND BACKFILL SHALL BE DRIED OR REWETTED/STABILIZED AS NECESSARY, SCRAPPED, AND RECOMPACTED AT NO ADDITIONAL COSTS TO OWNER.

**GENERAL SECTION**

1. ALL MATERIALS AND CONSTRUCTION PROCEDURES WITHIN THE SCOPE OF THIS CONTRACT SHALL BE APPROVED BY THE SAN ANTONIO WATER SYSTEM (SAWS) AND COMPLY WITH THE PLANS, SPECIFICATIONS, GENERAL CONDITIONS AND WITH THE FOLLOWING AS APPLICABLE:

A. CURRENT TEXAS COMMISSION ON ENVIRONMENTAL QUALITY (TCEQ) "DESIGN CRITERIA FOR DOMESTIC WASTEWATER SYSTEMS", TEXAS ADMINISTRATIVE CODE (TAC) TITLE 30 PART 1 CHAPTER 217 AND "PUBLIC DRINKING WATER: TAC TITLE 30 PART 1 CHAPTER 290."

B. CURRENT TxDOT "STANDARD SPECIFICATIONS FOR CONSTRUCTION OF HIGHWAYS, STREETS AND DRAINAGE."

C. CURRENT "SAN ANTONIO WATER SYSTEM STANDARD SPECIFICATIONS FOR WATER AND SANITARY SEWER CONSTRUCTION."

D. CURRENT CITY OF SAN ANTONIO "STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION."

E. CURRENT CITY OF SAN ANTONIO "UTILITY EXCAVATION CRITERIA MANUAL" (UECM).

2. THE CONTRACTOR SHALL NOT PROCEED WITH ANY PIPE INSTALLATION WORK UNTIL THEY HAVE OBTAINED ALL NECESSARY PERMITS AND APPROVALS FROM THE CITY OF SAN ANTONIO (GCP) FROM THE CONSULTANT AND HAS BEEN NOTIFIED BY SAWS CONSTRUCTION INSPECTION DIVISION TO PROCEED WITH THE WORK AND HAS ARRANGED A MEETING WITH THE INSPECTOR TO REVIEW THE PROJECT AND APPROVED THE WORK. ANY WORK BEING DONE WITHOUT AN APPROVED CUTOFF PERMIT AND/OR A GCP WILL BE SUBJECT TO REMOVAL AND REPLACEMENT AT THE EXPENSE OF THE CONTRACTORS AND/OR THE DEVELOPER.

3. THE CONTRACTOR SHALL OBTAIN THE SAWS STANDARD DETAILS FROM THE SAWS WEBSITE [www.saws.org/business/development](http://www.saws.org/business/development) AND USE THEM WITHIN THE DESIGN PLANS.

4. THE CONTRACTOR IS TO MAKE ARRANGEMENTS WITH THE SAWS CONSTRUCTION INSPECTION DIVISION (210) TO OBTAIN NOTIFICATION PROCEDURES THAT WILL BE USED TO NOTIFY AFFECTED HOME RESIDENTS AND/OR PROPERTY OWNERS 48 HOURS PRIOR TO BEGINNING ANY WORK.

5. THE CONTRACTOR SHALL VERIFY THE DEPTH OF EXISTING UTILITIES AND SERVICE LATERALS SHOWN ON THE PLANS ARE UNDERSTOOD TO BE APPROXIMATE. ACTUAL LOCATIONS AND DEPTHS MUST BE FIELD VERIFIED BY THE CONTRACTOR AT LEAST 1 WEEK PRIOR TO CONSTRUCTION. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY THE DEPTHS OF EXISTING UTILITIES FOR CONSTRUCTION AND TO PROTECT THEM DURING CONSTRUCTION AT NO COST TO SAWS.

WATER SECTION

§ PRIOR TO THE TIE-IN, SAWS SHUTDOWNS OF EXISTING MAINS OF ANY SIZE MUST BE COORDINATED WITH THE SAWS CONSTRUCTION INSPECTION DIVISION AT LEAST ONE WEEK IN ADVANCE OF THE SHUTDOWN. THE CONTRACTOR MUST ALSO PROVIDE A SEQUENCE OF WORK AS RELATED TO THE TIE-INS. THIS IS AT NO ADDITIONAL COST TO SAWS OR THE PROJECT AND IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO OBTAIN ALL NECESSARY PERMITS.

§ FOR WATER MAINS 12" OR HIGHER, SAWS EMERGENCY OPERATIONS CENTER (210) 233-2014.

2. ASBESTOS CEMENT (AC) PIPE, ALSO KNOWN AS TRANSITE PIPE WHICH IS KNOWN TO CONTAIN ASBESTOS, MAY BE FOUND IN THE EXISTING MAINS. DUE TO THE FEDERAL PROJECT LIMITS, SPECIAL WASTE MANAGEMENT PROCEDURES AND HEALTH AND SAFETY REQUIREMENTS WILL BE APPLICABLE WHEN REMOVAL AND/OR DISTURBANCE OF THIS PIPE OCCURS. SUCH WORK IS TO BE MADE UNDER SPECIAL SPECIFICATION ITEM NO. 3000, "SPECIAL SPECIFICATION FOR ASBESTOS CEMENT CEMENT CEMENTS CEMENTS."

3. VALVE REMOVAL: WHERE THE CONTRACTOR IS TO ABANDON A WATER MAIN, THE CONTROL VALVE LOCATED ON THE ABANDONING BRANCH WILL BE REMOVED AND REPLACED WITH A PLUG OR GATE VALVE.

4. SUITABLE ANCHORAGE/TRUSS/BLOCKING OR JOINT RESTRAINT SHALL BE PROVIDED AT ALL OF THE FOLLOWING MAIN LOCATIONS: DEAD ENDS, PLUGS, CAES, TEES, CROSSES, VALVES, AND BENDS. IN ACCORDANCE WITH THE STANDARD DRAWINGS DD-839 SERIES AND ITEM NO. 639 OF THE STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION.

5. ALL VALVES SHALL READ "OPEN RIGHT".

6. PRVS REQUIRED: CONTRACTOR TO VERIFY THAT NO PORTION OF THE TRACT IS BELOW THE MINIMUM ELEVATION OF 780 FEET. IF THERE ARE LOTS WITH NORMAL GRADES ABOVE PSL, AT ALL SUCH LOCATIONS WHERE THE GROUND LEVEL IS BELOW 580 FEET, THE DEVELOPER OR BUILDER SHALL INSTALL AT EACH LOT, ON THE CUSTOMER'S SIDE OF THE METER, AN APPROVED TYPE PRESSURE REGULATOR IN CONFORMANCE WITH THE PLUMBING CODE OF THE CITY OF LOS ANGELES. NO DUAL SERVICES ALLOWED FOR ANY LOTS IF PRV IS REQUIRED FOR SUCH LOT(S). ONLY SINGLE SERVICE CONNECTIONS SHALL BE ALLOWED. NOTE: A PRESSURE REGULATOR IS ALSO KNOWN AS A PRESSURE REDUCING VALVE (PRV).

7. BACKFLOW DISINFECTION WITH DRY HYTH FOR PROJECTS LESS THAN 800 LINEAL FEET. (ITEM # 847.3) MAY BE DISINFECTED BY THE CONTRACTOR USING EITHER HYTH OR BLEACH. ALL DOCUMENTS OR AS DIRECTED BY THE INSPECTOR, AND SHALL NOT EXCEED A TOTAL LENGTH OF 800 FEET. THIS METHOD OF DISINFECTION WILL ALSO BE FOLLOWED FOR MAIN REPAIRS, THE CONTRACTOR SHALL TAKE APPROPRIATE SAFETY MEASURE TO PROTECT HIS PERSONNEL DURING DISINFECTION OPERATIONS.

8. BACKFLOW PREVENTION DEVICES:

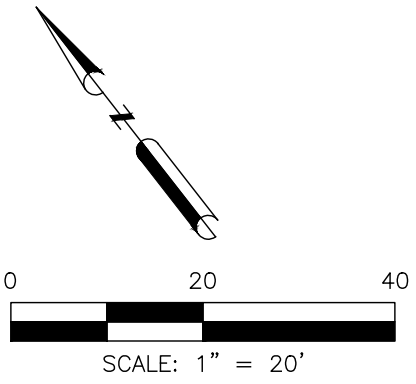
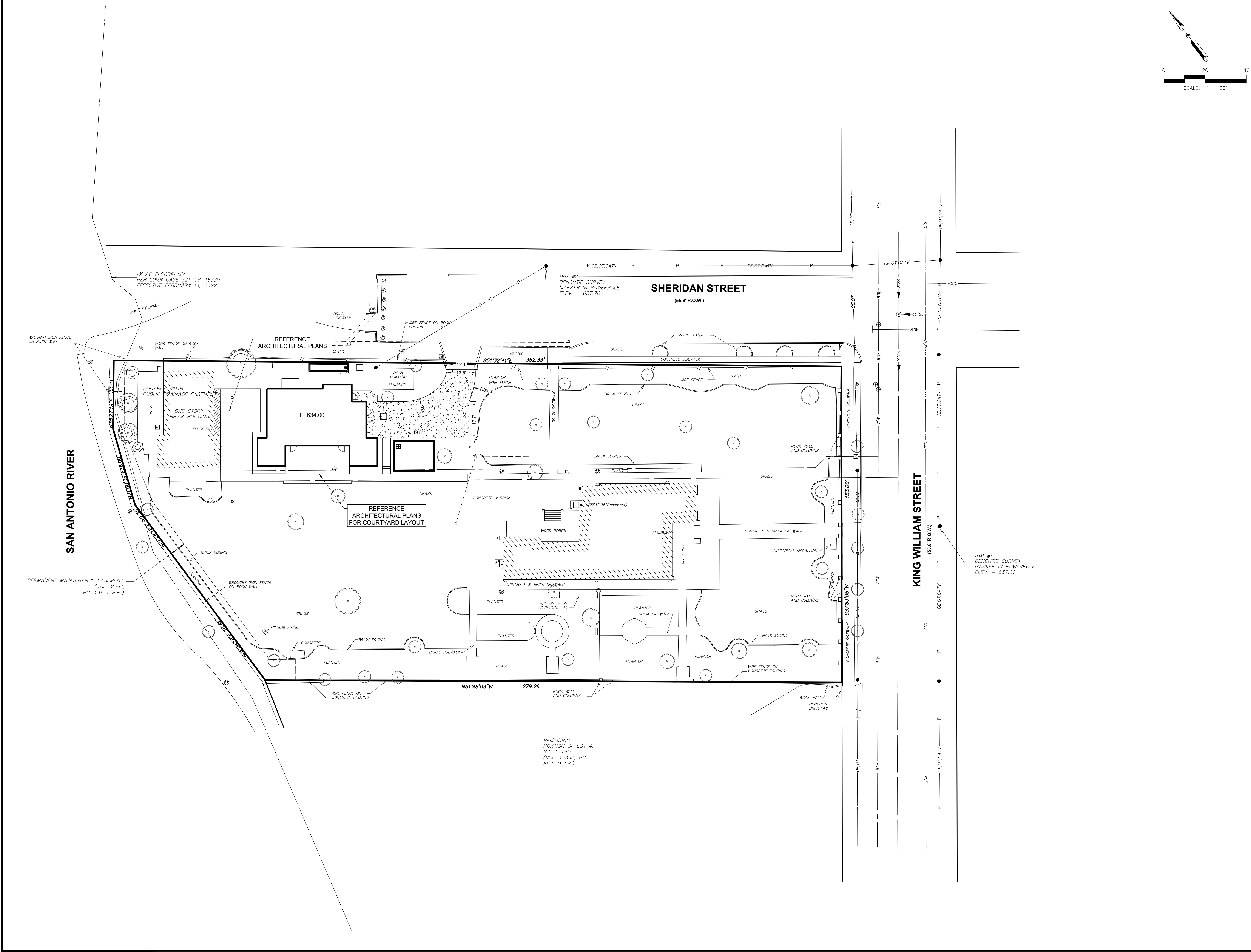
a. ALL IRRIGATION SERVICES WITH RESIDENTIAL AREAS ARE REQUIRED TO HAVE A BACKFLOW PREVENTION DEVICE.

b. ALL COMMERCIAL BACKFLOW PREVENTION DEVICES MUST BE APPROVED BY SAWS PRIOR TO INSTALLATION.

c. IN ORDER FOR CONNECTION TO THE EXISTING WATER MAIN SHALL NOT BE MADE UNTIL THE WATER MAIN HAS BEEN PRESSURE TESTED, CHLORINATED, AND SAWS HAS RELEASED THE MAIN FOR TIE-IN AND USE.

1. THE CONTRACTOR IS RESPONSIBLE FOR ENSURING THAT NO SANITARY SEWER  
2. LINES OR MAINS ARE EXPOSED OR DAMAGED BY ANY CONTRACTOR PERSONNEL.  
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL EXISTING  
4. RESPONSIBLE FOR SSO PREVENTION AND CONTROL SHALL BE TRAINED ON PROPER RESPONSE  
5. SHOULD AN SSO OCCUR, THE CONTRACTOR SHALL:  
6. A. IDENTIFY THE SOURCE OF THE SSO AND NOTIFY SAWS IMMEDIATELY CENTER  
7. (EQC) OPERATIONS AT (210) 233-0144. PROVIDE THE LOCATION OF THE SPILL AND AN ESTIMATED  
8. VOLUME OR FLOW.  
9. B. ATTEMPT TO ELIMINATE THE SOURCE OF THE SSO.  
10. C. CONTAIN SEWAGE FROM THE SSO TO THE EXTENT OF PREVENTING A POSSIBLE  
11. CONTAMINATION OF THE WATERWAY.  
12. D. CLEAN UP SPILL SITE (RETURN CONTAINED SEWAGE TO THE COLLECTION SYSTEM IF  
13. POSSIBLE) AND PROPERLY DISPOSE OF CONTAMINATED SOLID MATERIALS.  
14. E. CLEAN THE AFFECTED SEWER LINE AND REMOVE ANY DEBRIS.  
15. F. MEET ALL POST-SO REQUIREMENTS AS PER THE EPA COMPLIANCE, INCLUDING LINE  
16. CLEANING AND TELEVISIONING THE AFFECTED SEWER MAINS (AT SAWS DIRECTION) WITHIN 24  
17. HOURS.  
18. SHOULD THE CONTRACTOR FAIL TO ADDRESS AN SSO IMMEDIATELY AND TO SAWS  
19. SATISFACTION, THEY WILL BE RESPONSIBLE FOR ALL COSTS INCURRED BY SAWS, INCLUDING  
20. ANY FINES FROM EPA, TCEQ AND/OR ANY OTHER FEDERAL, STATE OR LOCAL AGENCIES.  
21. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL EXISTING  
22. WORK. ALL WORK SHALL  
23. BE DONE ACCORDING TO GUIDELINES SET BY THE TCEQ AND SAWS.  
24. IF BYPASS PUMPING IS REQUIRED, THE CONTRACTOR SHALL PERFORM SUCH WORK IN  
25. ACCORDANCE WITH SAWS STANDARD SPECIFICATION FOR WATER AND SANITARY SEWER  
26. CONSTRUCTION, SECTION 05410, PART 01.  
27. PRIOR TO TIE-INS, ANY SHUTDOWNS OF EXISTING FORCE MAINS OF ANY SIZE MUST  
28. BE COORDINATED WITH THE SAWS CONSTRUCTION INSPECTION DIVISION AT (210) 233-2973 AT  
29. LEAST ONE WEEK IN ADVANCE OF THE SHUTDOWN. THE CONTRACTOR MUST PROVIDE  
30. ADEQUATE WARNING TO ALL SAWS PERSONNEL AND TO THE PUBLIC. IT IS THE SAWS OR  
31. THE PROJECT AND IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO SEQUENCE THE WORK  
32. ACCORDINGLY.  
33. SEWAGE WHERE WATER LINE CROSSES SHALL BE 160 PSI AND MEET THE  
34. REQUIREMENTS OF ASTM D2242, TAC 217.53 AND PVC 290.44E(4)(B). CONTRACTOR SHALL  
35. CENTER A JOINT OF 160 PSI PRESSURE RATED TCEQ AT THE PROPOSED WATER CROSSING.  
36. ELEVATIONS POSTED FOR TOP OF MANHOLES ARE FOR REFERENCE ONLY. IT SHALL BE  
37. THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN ALL ADVANCES AND ADJUSTMENTS FOR  
38. TOP OF MANHOLES TO MATCH THE FINISHED GRADE OF THE PROJECTS IMPROVEMENTS. (NSPI)  
39. 6. SPILLS, OVERFLOWS, OR DISCHARGES OF WASTEWATER, ALL SPILLS, OVERFLOWS, OR  
40. DISCHARGES OF WASTEWATER SHALL BE REPORTED IMMEDIATELY TO SAWS OR THE  
41. CONTRACTOR SHALL BE REPORTED IMMEDIATELY TO THE SAWS INSPECTOR ASSIGNED TO THE COUNTER  
42. PERMIT OR GENERAL CONSTRUCTION PERMIT (GCP). THIS REQUIREMENT APPLIES TO EVERY  
43. SPILL, OVERFLOW, OR DISCHARGE REGARDLESS OF SIZE.  
44. IF A WATER PIPE BREAK OCCURS, THE INSPECTION MUST BE PERFORMED  
45. AND PASSED PRIOR TO FINAL FIELD ACCEPTANCE BY SAWS CONSTRUCTION INSPECTION  
46. DIVISION, AS PER THE SAWS SPECIFICATIONS FOR WATER AND SANITARY SEWER  
47. CONSTRUCTION.  
48. ALL PIPE OVER 14 FEET OF COVER SHALL BE EXTRA STRENGTH WITH MINIMUM PIPE  
49. STIFFNESS OF 115 PSI.

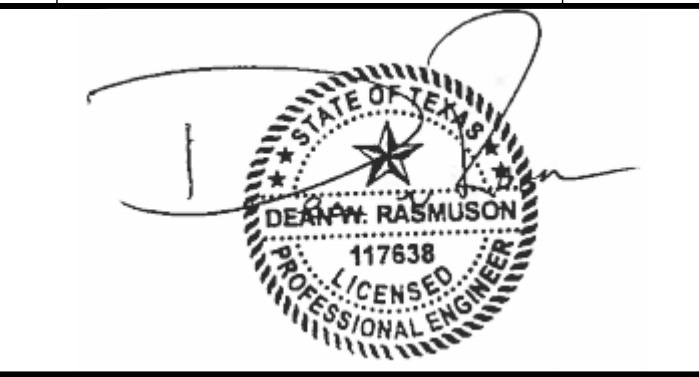
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**BENCHMARKS:**  
 TEMPORARY BENCHMARK #1  
 ELEVATION - 637.91'  
 BENCHMARK SURVEY MARKER IN POWERPOLE  
 TEMPORARY BENCHMARK #2  
 ELEVATION - 637.76'  
 BENCHMARK SURVEY MARKER IN POWERPOLE  
**FLOOD PLAIN NOTE:**  
 THE 1% ANNUAL CHANCE (100-YEAR) FLOODPLAIN LIMITS SHOWN WERE DELINEATED BASED UPON A LETTER OF MAP REVISION (LOMR) STUDY PREPARED BY SAN ANTONIO IMPROVEMENTS PROJECT: EAGLELAND AND MISSION REACHES AND APPROVED BY FEMA ON FEBRUARY 14, 2022 (CASE NO. 21-06-1633P). FLOODPLAIN INFORMATION IS SUBJECT TO CHANGE AS A RESULT OF FUTURE FEMA MAP REVISION AND/OR AMENDMENTS

**SHEET NOTES:**  
 1. ALL DIMENSIONS ARE TO FACE OF CURB UNLESS OTHERWISE NOTED.  
 2. REFERENCE ARCHITECTURAL PLANS FOR EXACT BUILDING DIMENSIONS.  
 3. ALL CURB RADII TO BE 3' (FEET) UNLESS OTHERWISE SHOWN ON PLAN.  
 4. PROPOSED SIGN. REFERENCE LANDSCAPE ARCHITECT PLANS FOR DETAILS.  
 5. CONTRACTOR SHALL REFERENCE THE LANDSCAPE ARCHITECTURAL PLANS FOR ALL COURTYARD DETAILS.  
 6. EXISTING SURVEY WAS DONE BY WINDROSE LAND SERVICES INC. WITH THEIR CONTACT INFORMATION AS FOLLOWS:  
 WINDROSE LAND SERVICES INC.  
 555 E Ramsey, Texas 78216  
 Phone (210) 375-9000 Fax (210) 375-9010

REV	DESCRIPTION	DATE



**WGA**  
 WARD, GETZ & ASSOCIATES, PLLC  
 TEXAS REGISTERED ENGINEERING FIRM F-9756  
 2500 Tanglewilde, Suite 120  
 Houston, Texas 77063  
 713.789.1900

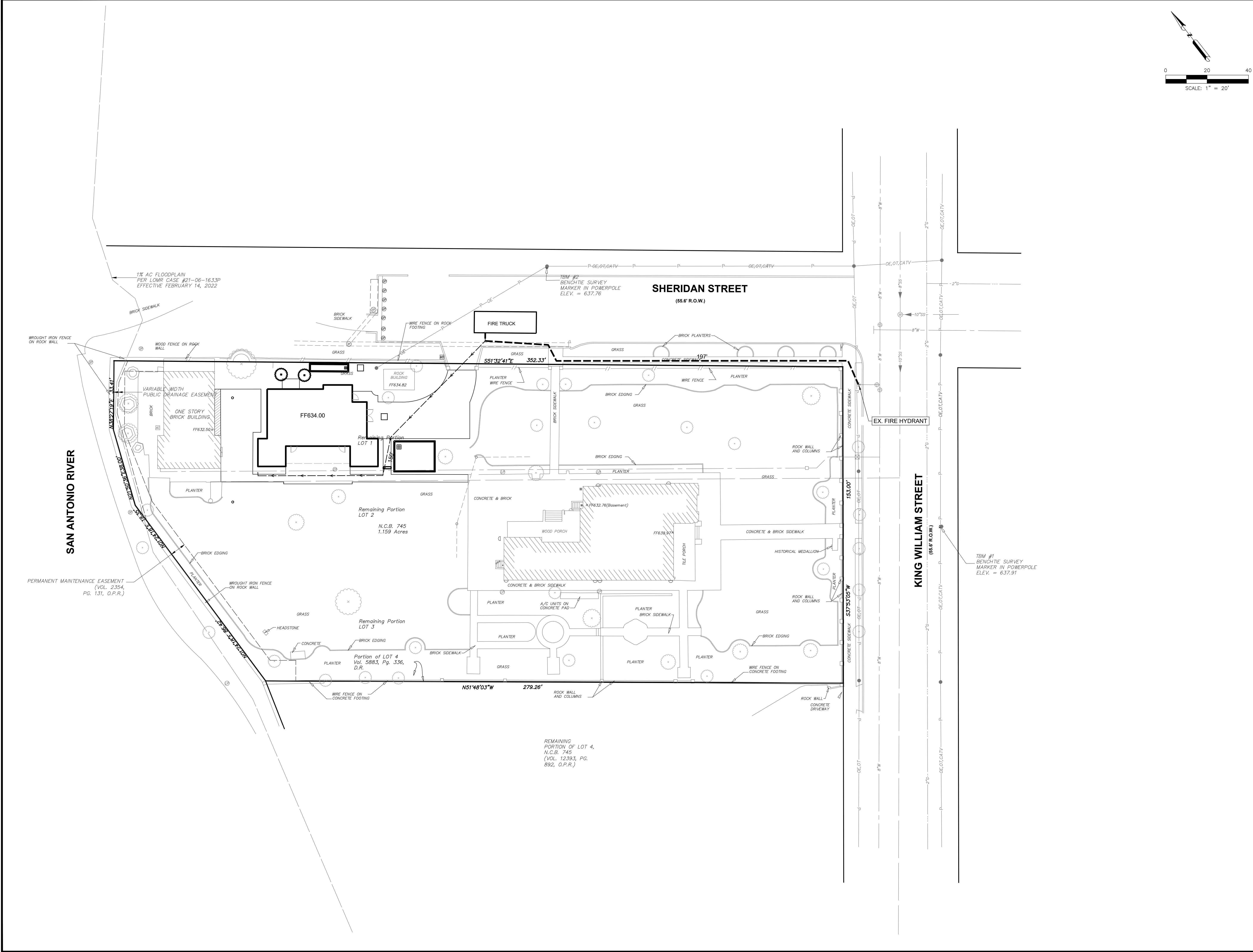
VILLA FINALE MUSEUM

**DIMENSION CONTROL PLAN**

SCALE	DESIGN TAM	DRAWN TAM
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SHEET  
C2.1





**BENCHMARKS:**

TEMPORARY BENCHMARK #1  
ELEVATION - 637.91'  
BENCHTIE SURVEY MARKER IN POWERPOLE

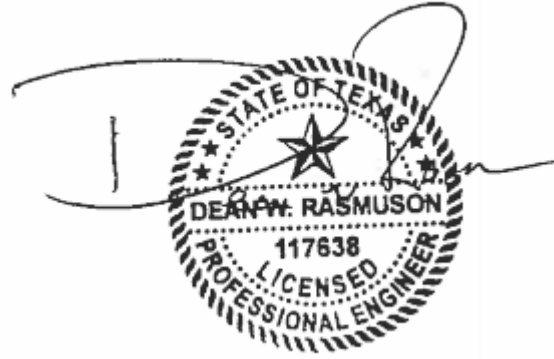
TEMPORARY BENCHMARK #2  
ELEVATION - 637.76'  
BENCHTIE SURVEY MARKER IN POWERPOLE

**FLOOD PLAIN NOTE:**

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LEGEND	
	PRINCIPAL ENTRANCE TO EACH BUILDING
	PROP. FIRE HOSE FROM HYDRANT TO TRUCK
	PROPOSED FIRE HOSE

REV	DESCRIPTION	DATE



**WGA**

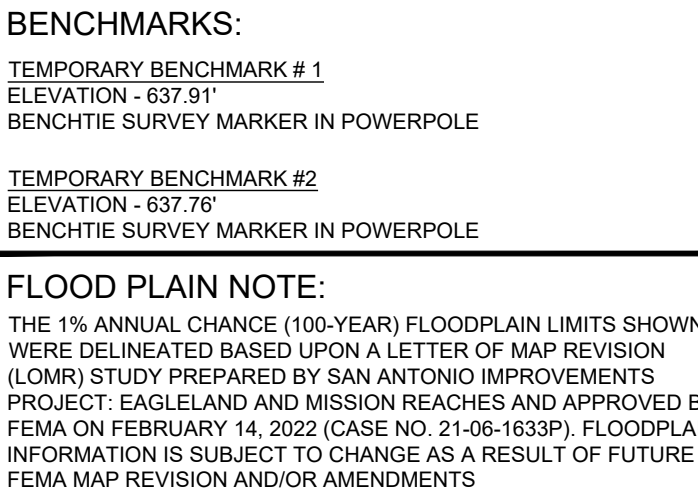
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713.789.1900

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**FIRE PROTECTION SITE PLAN**

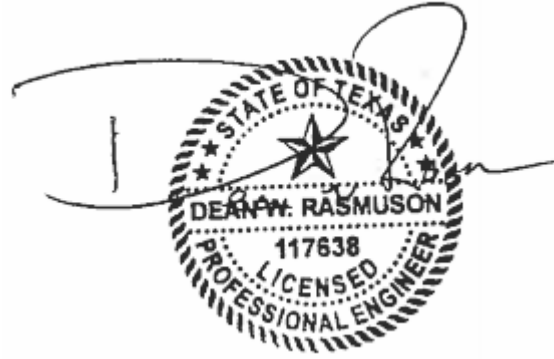
SCALE	DESIGN	DRAWN
1"=20'	TAM	TAM

SHEET  
C3.1



1. ALL SPOT ELEVATIONS ARE TO TOP OF PAVEMENT UNLESS OTHERWISE NOTED.
2. ALL SIDEWALKS AND ACCESSIBLE ROUTES, INCLUDING DRIVEWAY CROSSWALKS, SHALL CONFORM TO ALL APPLICABLE AMERICAN WITH DISABILITIES ACT STANDARDS AND THE TEXAS ACCESSIBILITY STANDARDS. IF ANY DISCREPANCY IS DISCOVERED, THE CONTRACTOR SHALL NOTIFY THE ENGINEER PRIOR TO POURING ANY PAVEMENT.
3. ALL SIDEWALKS AND ACCESSIBLE ROUTES, INCLUDING DRIVEWAY CROSSWALKS, SHALL NOT EXCEED A RUNNING SLOPE OF 5% (1:20) WITHOUT A RAMP, AND SHALL NOT EXCEED A 2% CROSS SLOPE (1:50).

<b>79.50</b>	<b>EXISTING GRADE</b>
TC79.50	TOP OF CURB
GT9.50	GUTTER
TP79.50	TOP OF PAVEMENT
TG79.50	TOP OF GRATE
79.5	PROPOSED NATURAL GROUND
79.50+ME	MATCH EXISTING
HP79.50	HIGH POINT
TW79.50	TOP OF WALL
BW79.50	BASE OF WALL
TS79.50	TOP OF STAIR
BS79.50	BOTTOM OF STAIR
(1)	TRANSITION CURB 0" - 6" WITHIN 5 FEET
	SWALE
	HIGH POINT
-130	EXISTING CONTOUR
-130	PROPOSED CONTOUR

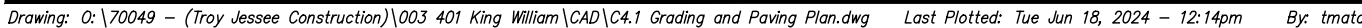
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## GRADING PLAN

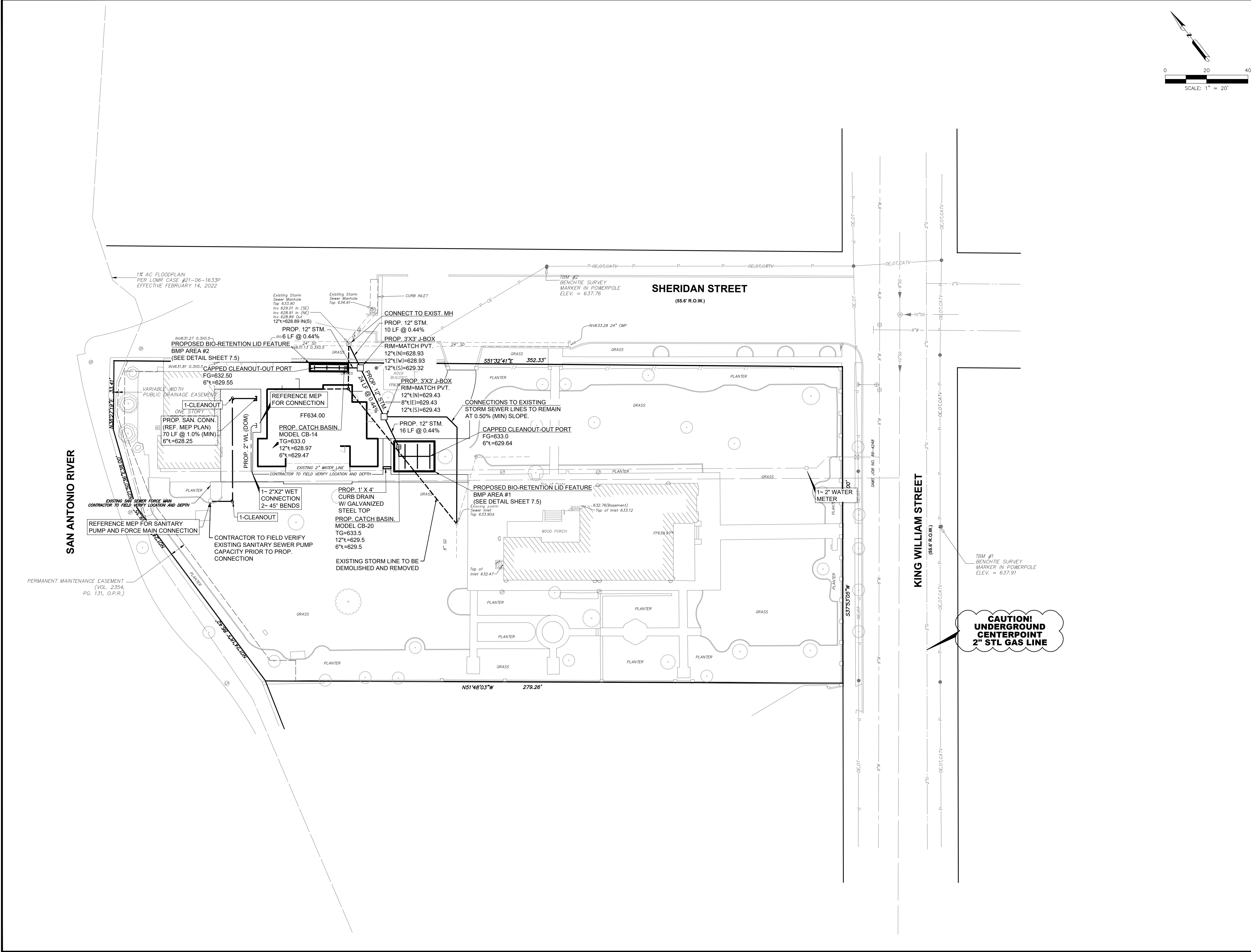
SCALE 1"=20'	DESIGN TAM	DRAWN TAM
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SHEET  
C4.1



**PROJECT No.70049-003**





**BENCHMARKS:**

TEMPORARY BENCHMARK #1  
ELEVATION = 637.91'  
BENCHTIE SURVEY MARKER IN POWERPOLE

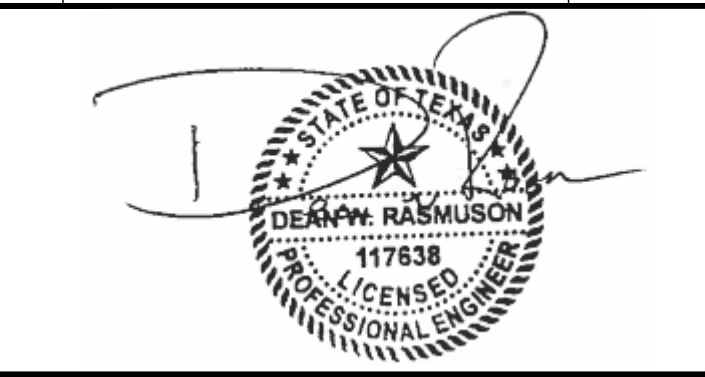
TEMPORARY BENCHMARK #2  
ELEVATION = 637.76'  
BENCHTIE SURVEY MARKER IN POWERPOLE

**FLOOD PLAIN NOTE:**

THE 1% ANNUAL CHANCE (100-YEAR) FLOODPLAIN LIMITS SHOWN WERE DELINEATED BASED UPON A LETTER OF MAP REVISION (LOMR) STUDY PREPARED BY SAN ANTONIO IMPROVEMENTS PROJECT: EAGLELAND AND MISSION REACHES AND APPROVED BY FEMA ON FEBRUARY 14, 2022 (CASE NO. 21-06-1633P). FLOODPLAIN INFORMATION IS SUBJECT TO CHANGE AS A RESULT OF FUTURE FEMA MAP REVISION AND/OR AMENDMENTS

- UTILITY NOTES:**
- PRIVATE STORM SEWER TO BE HOPE UNLESS OTHERWISE NOTED. FOR PUBLIC STORM SEWER REFERENCE GENERAL NOTES.
  - UTILITIES SHOWN ARE APPROXIMATE. CONTRACTOR TO FIELD VERIFY EXISTING UTILITY LOCATIONS AND DEPTHS PRIOR TO CONSTRUCTION AND IMMEDIATELY NOTIFY ENGINEER OF ANY CONFLICT OR DISCREPANCIES.
  - CONTRACTOR TO COORDINATE WITH UTILITY COMPANIES FOR SERVICE ORIGINATION AND CONNECTION.
  - CONTRACTOR SHALL TAKE CARE NOT TO DAMAGE ANY EXISTING ITEMS ON SITE.
  - CONTRACTOR SHALL KEEP THE SITE CLEAN OF DEBRIS AND ANY EROSION CONTROL MEASURES ARE ADEQUATELY PLACED.
  - CONTRACTOR TO COORDINATE LOCATIONS OF UNDERGROUND IRRIGATION SLEEVING PRIOR TO PAVING. SEE LANDSCAPE PLANS.
  - CONTRACTOR TO COORDINATE LOCATIONS OF UNDERGROUND CONDUIT FOR SITE LIGHTING PRIOR TO PAVING.
  - ALL CONSTRUCTION OPERATIONS SHALL BE ACCOMPLISHED IN ACCORDANCE WITH APPLICABLE REGULATIONS OF THE U.S. OCCUPATIONAL HEALTH AND SAFETY ADMINISTRATION. COPIES OF OSHA STANDARDS MAY BE PURCHASED FROM THE U.S. GOVERNMENT PRINTING OFFICE. INFORMATION AND RELATED REFERENCE MATERIALS MAY BE PURCHASED FROM OSHA, 903 SAN JACINTO, RM 319, AUSTIN, TX. 78701. TEL: (512) 919-5783.
  - ALL SANITARY SEWERS CROSSING WATER LINES WITH A 6 INCHES TO 9 FEET CLEARANCE SHALL HAVE A MINIMUM OF 18" JOINT OF 150 P.S.I. SDR 26 PVC PIPE MEETING ASTM SPECIFICATION D2241 CENTERED ON WATER LINE. WHEN WATER LINE IS BELOW SANITARY SEWER PROVIDE MINIMUM 2 FOOT SEPARATION.
  - REFERENCE MEP PLANS FOR UTILITY CONDUIT LOCATIONS.
  - CONTRACTOR TO ADJUST ALL EXISTING APPURTENANCES ON SITE TO PROPOSED GRADE, AS APPLICABLE.

REV	DESCRIPTION	DATE



**WGA**

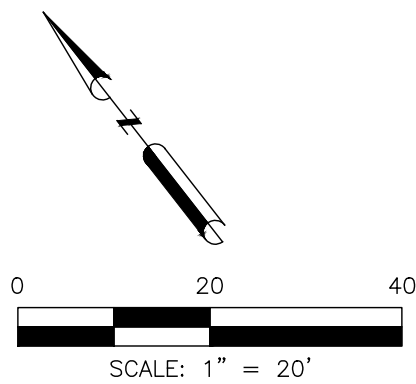
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2500 Tanglewilde, Suite 120  
Houston, Texas 77063  
713.789.1900

VILLA FINALE MUSEUM

**UTILITY PLAN**

SCALE 1"=20'	DESIGN TAM	DRAWN TAM
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**SHEET  
C5.1**



**BENCHMARKS:**  
TEMPORARY BENCHMARK #1  
ELEVATION - 637.91'  
BENCHTIE SURVEY MARKER IN POWERPOLE  
  
TEMPORARY BENCHMARK #2  
ELEVATION - 637.76'  
BENCHTIE SURVEY MARKER IN POWERPOLE  
  
**FLOOD PLAIN NOTE:**  
THE 1% ANNUAL CHANCE (100-YEAR) FLOODPLAIN LIMITS SHOWN WERE DELINEATED BASED UPON A LETTER OF MAP REVISION (LOMR) STUDY PREPARED BY SAN ANTONIO IMPROVEMENTS PROJECT: EAGLELAND AND MISSION REACHES AND APPROVED BY FEMA ON FEBRUARY 14, 2022 (CASE NO. 21-06-1633P). FLOODPLAIN INFORMATION IS SUBJECT TO CHANGE AS A RESULT OF FUTURE FEMA MAP REVISION AND/OR AMENDMENTS

**EROSION CONTROL SCHEDULE AND SEQUENCING**  
  
**I. ROUGH GRADING**  
GRADING CONSTRUCTION ENTRANCE/EXIT, SILT FENCE PROTECTION, AND STONE OVERFLOW STRUCTURES SHALL BE INSTALLED PRIOR TO THE INITIATION OF ROUGH GRADING, AS NEEDED.  
  
**II. UTILITY INSTALLATION**  
ALL PRIOR EROSION CONTROL MEASURES INSTALLED ABOVE TO BE MAINTAINED AS NECESSARY DURING UTILITY INSTALLATION. INLET PROTECTION SHALL BE INSTALLED AS STORM DRAINAGE SYSTEM IS CONSTRUCTED.  
  
**III. PAVING**  
ALL PRIOR EROSION CONTROL MEASURES INSTALLED ABOVE TO BE MAINTAINED AS NECESSARY DURING PAVING AND THROUGHOUT THE REMAINDER OF THE PROJECT.  
  
**IV. FINAL GRADING/SOIL STABILIZATION**  
ALL TEMPORARY EROSION CONTROL MEASURES TO BE REMOVED AT THE CONCLUSION OF THE PROJECT ONCE FINAL STABILIZATION HAS BEEN ACHIEVED.

**SWPPP NOTE:**  
ANY OFF-SITE STAGING AREA UTILIZED BY THE OPERATOR OF THIS SITE MUST BE INCLUDED IN THE SWPPP NARRATIVE PLAN AND TO SWPPP SITE PLAN AS REQUIRED BY THE TPOES TEXAS GENERAL PERMIT TARI50000 (SECTION F). ANY SUCH AREA INCLUDED IN THE SWPPP WILL BE TREATED BY THE OPERATOR AS ANY OTHER PART OF THE CONSTRUCTION ACTIVITY FOR THE PURPOSES OF STORM WATER POLLUTION PREVENTION.

SWPPP LEGEND:	
	STABILIZED CONSTRUCTION EXIT
	FILTER FABRIC FENCE
	CONCRETE TRUCK WASHOUT AREA
	INLET PROTECTION BARRIER (STAGE 1 & 2)

REV	DESCRIPTION	DATE



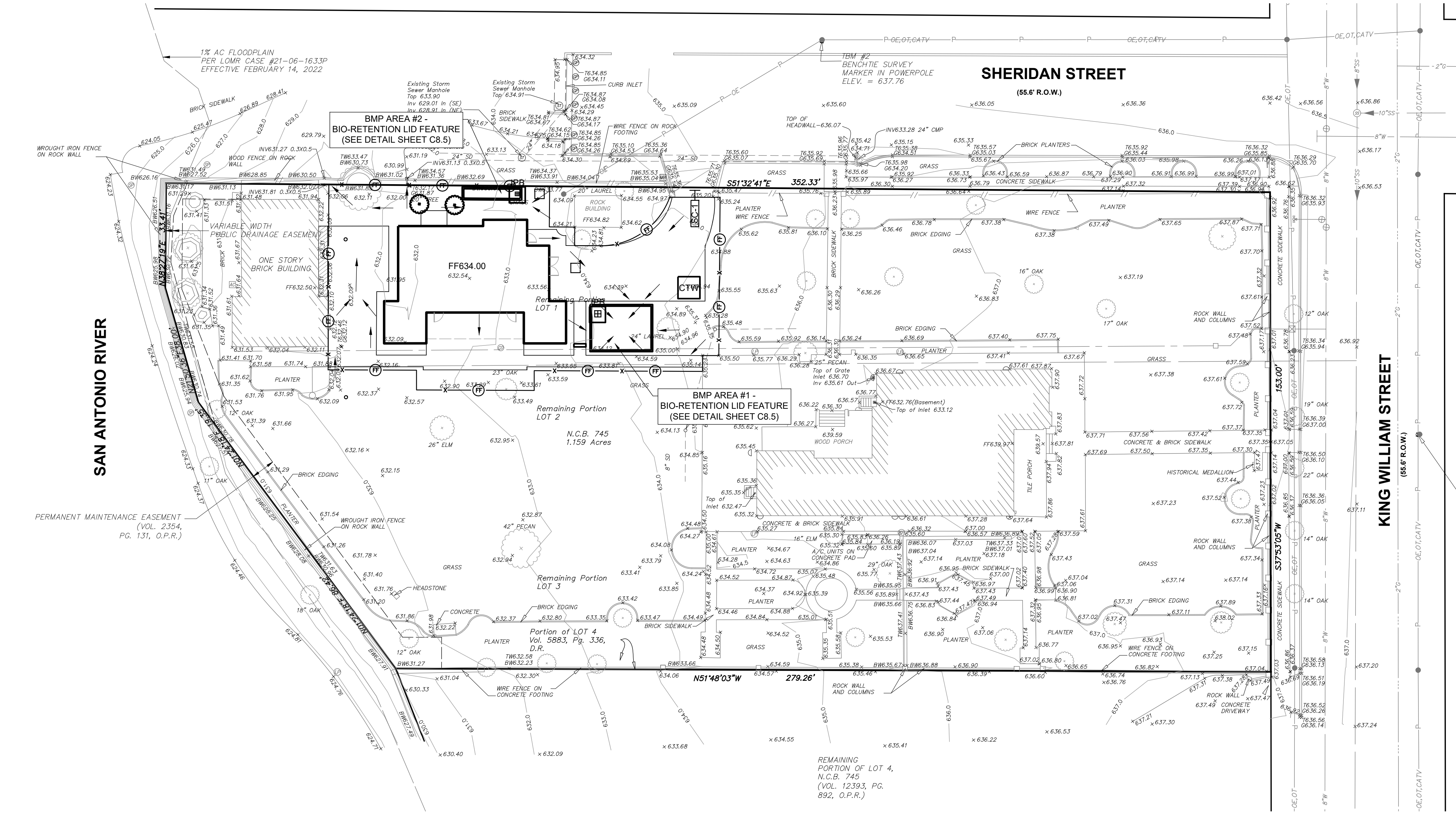
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TEXAS REGISTERED ENGINEERING FIRM F-9756  
2500 Tanglenridge, Suite 120  
Houston, Texas 77063  
713.789.1900

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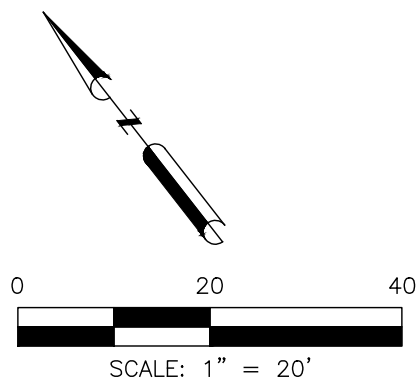
**EROSION CONTROL PLAN**

SCALE	DESIGN TAM	DRAWN TAM
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SHEET  
C6.1

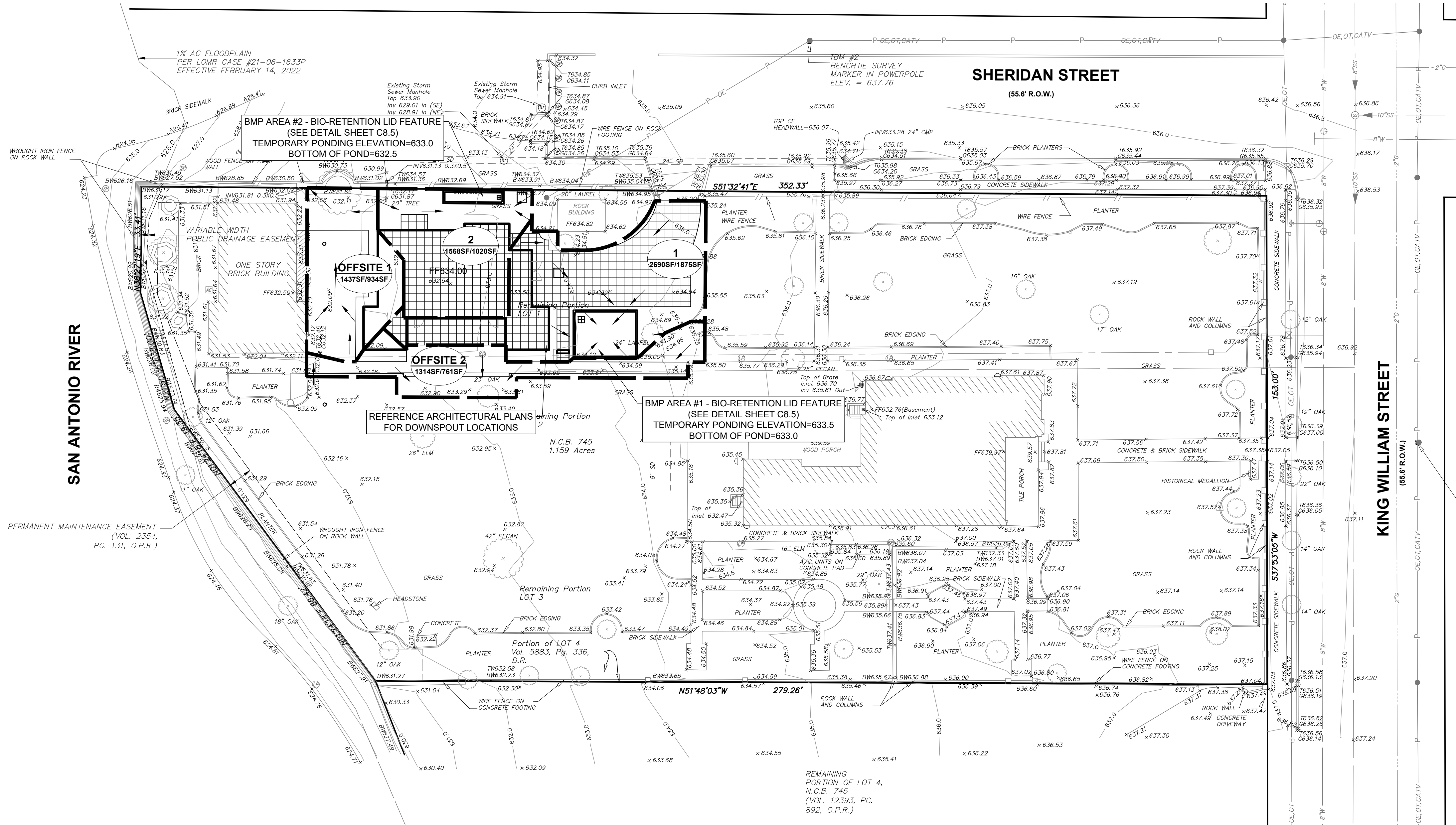






**BENCHMARKS:**  
TEMPORARY BENCHMARK #1  
ELEVATION = 637.91'  
BENCHTIE SURVEY MARKER IN POWERPOLE  
  
TEMPORARY BENCHMARK #2  
ELEVATION = 637.76'  
BENCHTIE SURVEY MARKER IN POWERPOLE  
  
**FLOOD PLAIN NOTE:**  
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DRAINAGE AREA MAP LEGEND:	
<div><div>A</div><div>XX/XX</div></div>	DRAINAGE AREA LABEL DRAINAGE AREA/IMPERVIOUS AREA
<div><div></div></div>	DRAINAGE BOUNDARY
<div><div></div></div>	IMPERVIOUS COVER CAPTURED BY LID



IMPERVIOUS COVER CAPTURED BY LID CALCULATIONS:	
	ACRES
TOTAL PROPOSED IMPERVIOUS COVER	0.107
IMPERVIOUS COVER CAPTURED BY LID	0.066
PERCENTAGE OF IMPERVIOUS COVER CAPTURED	64.5%

WATER QUALITY VOLUME CALCULATION:	
TOTAL SITE AREA	0.16 AC
PROPOSED IMPERVIOUS AREA	0.10 AC
EXISTING OR PREVIOUS IMPERVIOUS AREA	0.11 AC
DIFFERENCE IN IMPERVIOUS AREA	-0.01 AC
DESIGN TREATMENT RAINFALL DEPTH (REDEVELOPMENT)	1.18 IN
BMP TARGET WATER QUALITY VOLUME	428.3 CF
BMP WATER QUALITY VOLUME PROVIDED	541.4 CF

Bioswale & Bioretention Volume Calculations						
BMP Area #	Total Bioswale /Bioretention Area (SF)	Ponding Depth (ft)	Bioretention Media (Mulch+Engineered Soil +Sand) Depth (ft) *	Gravel Storage (#8 & #57 Stone) Depth (ft) *	Total Equivalent Storage Depth (ft)	Proposed Treatment WQV ** (CF)
1	300	0.5	2	1.5	1.8	432
2	76	0.5	2	1.5	1.8	109.44

REV	DESCRIPTION	DATE



**WGA**  
WARD, GETZ & ASSOCIATES, PLLC  
TEXAS REGISTERED ENGINEERING FIRM F-9756  
2500 Tangleville, Suite 120  
Houston, Texas 77063  
713.789.1900

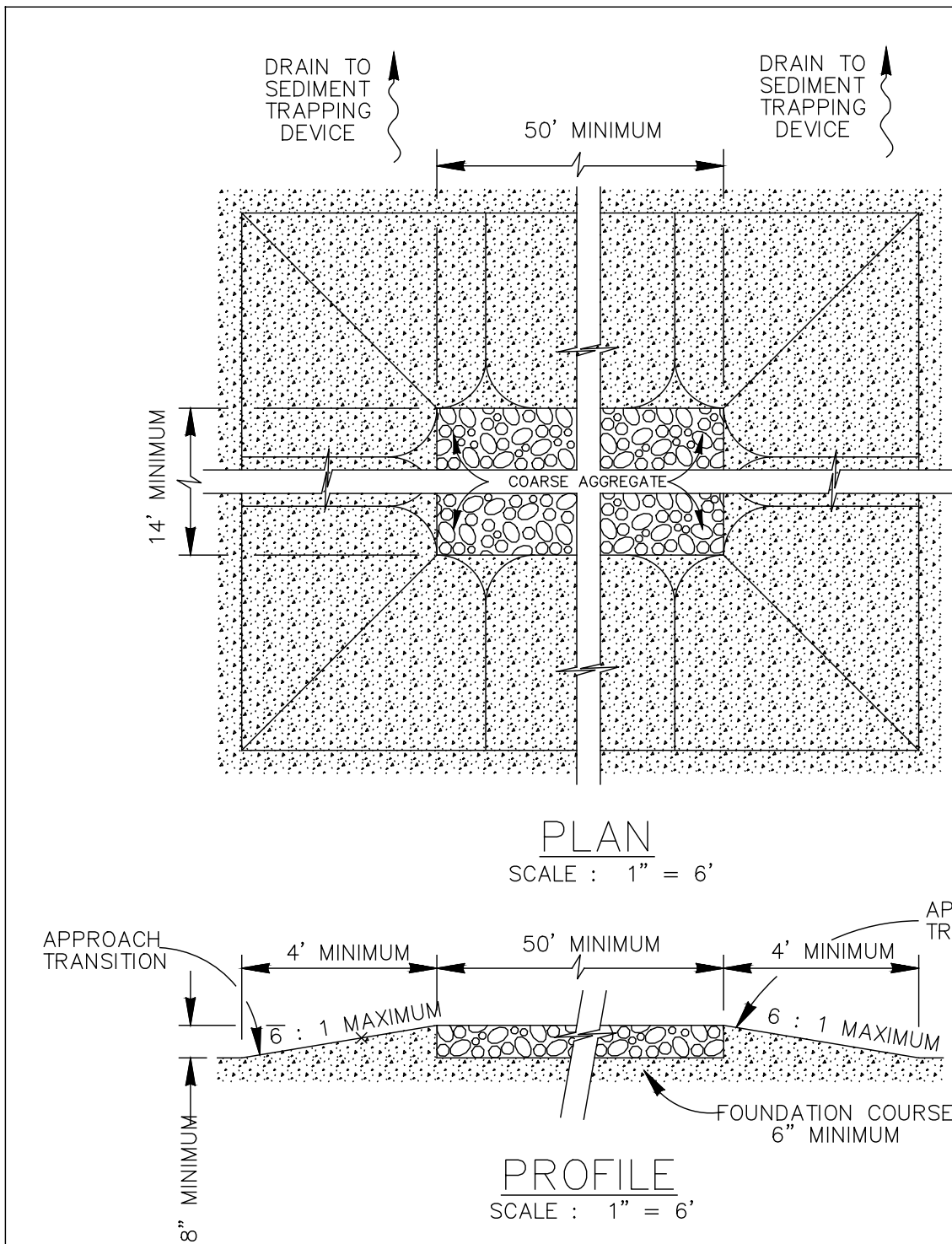
VILLA FINALE MUSEUM

**DRAINAGE AREA MAP**

SCALE	DESIGN TAM	DRAWN TAM
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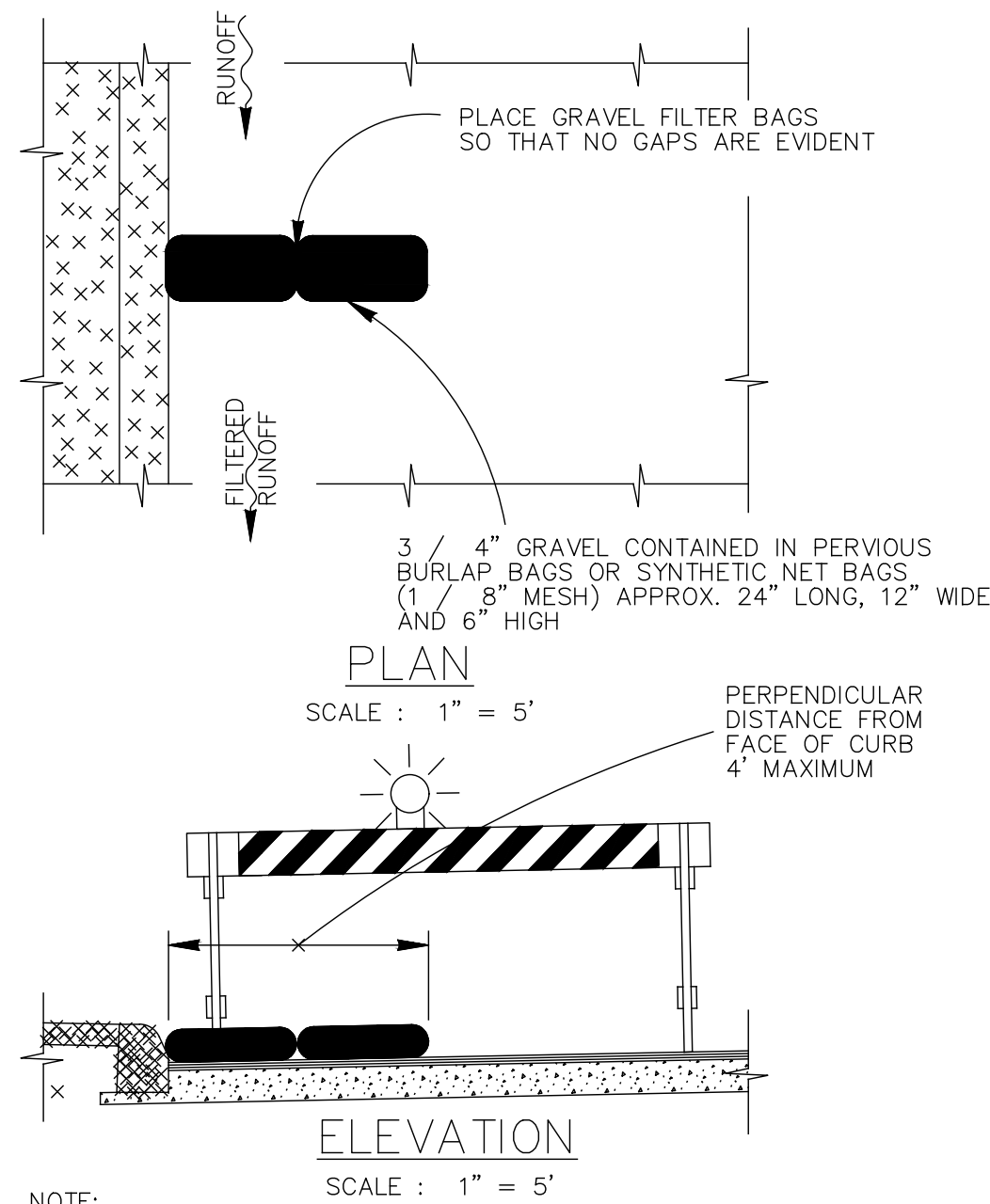
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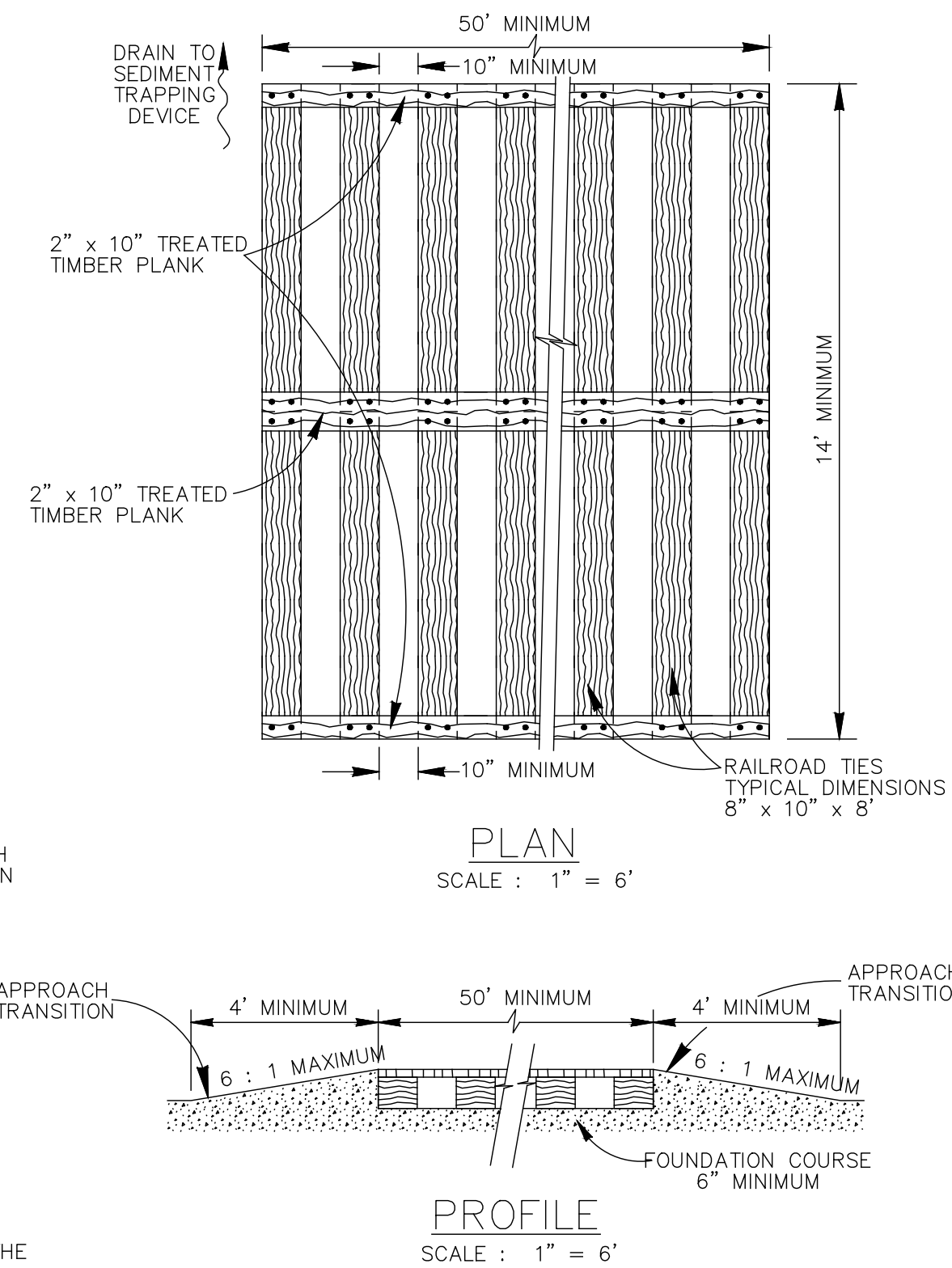
- GENERAL NOTES
1. THE LENGTH OF THE TYPE 1 CONSTRUCTION EXIT SHALL BE AS INDICATED ON THE PLANS, BUT NOT LESS THAN 50'.
  2. THE COARSE AGGREGATE SHOULD BE OPEN GRADED WITH A SIZE OF 4" TO 8".
  3. THE APPROACH TRANSITIONS SHOULD BE NO STEEPER THAN 6 : 1 AND CONSTRUCTED AS DIRECTED BY THE ENGINEER.
  4. THE CONSTRUCTION EXIT FOUNDATION COURSE SHALL BE FLEXIBLE BASE, BITUMINOUS CONCRETE, PORTLAND CEMENT CONCRETE OR OTHER MATERIAL AS APPROVED BY THE ENGINEER.
  5. THE CONSTRUCTION EXIT SHALL BE GRADED TO ALLOW DRAINAGE TO A SEDIMENT TRAPPING DEVICE.
  6. THE GUIDELINES SHOWN HEREON ARE SUGGESTIONS ONLY AND MAY BE MODIFIED BY THE ENGINEER.

#### CONSTRUCTION EXIT – TYPE 1



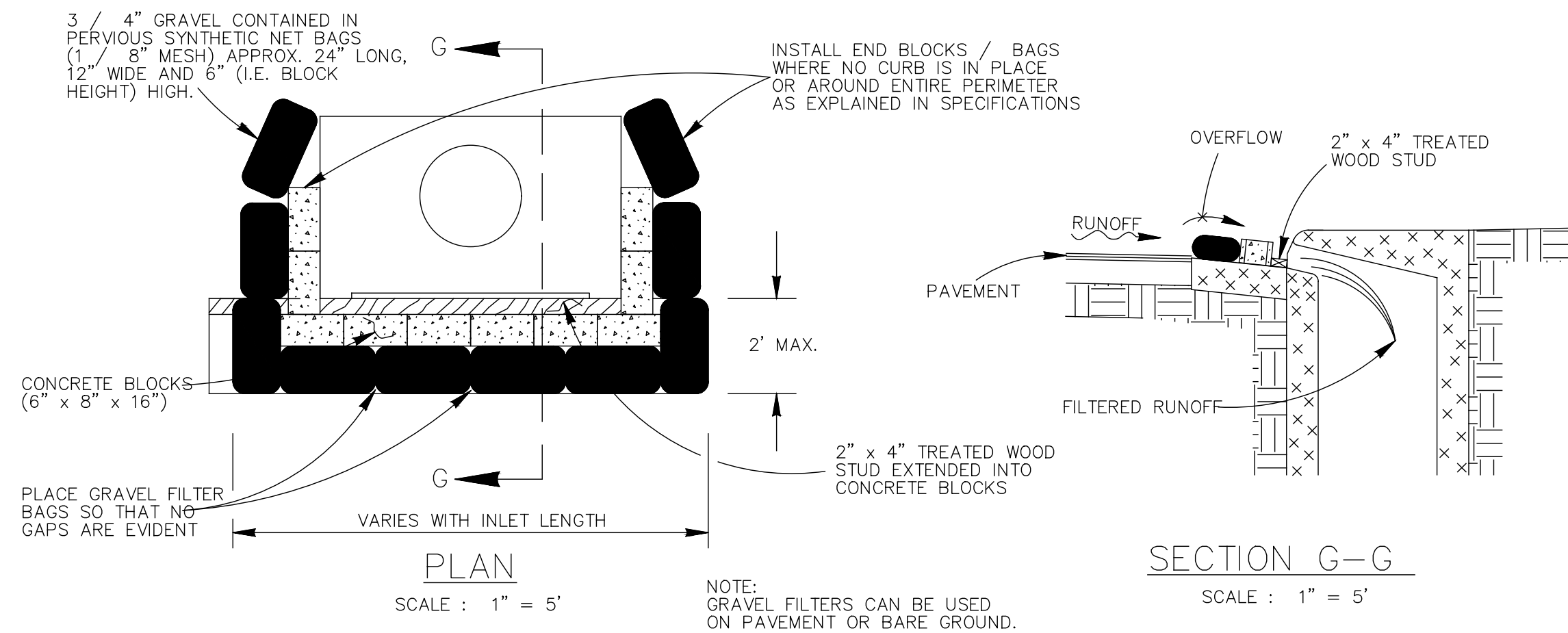
NOTE: STRADDLE GRAVEL FILTER BAGS WITH TYPE 1 BARRICADES MOUNTED WITH TYPE "A" FLASHING WARNING LIGHT. SEE BARRICADE CONSTRUCTION SIGN DETAILS. PLACE FLASHING LIGHTS AWAY FROM GUTTER, FLUSH WITH OUTSIDE EDGE OF BAG CONFIGURATION.

#### GRAVEL FILTER BAGS

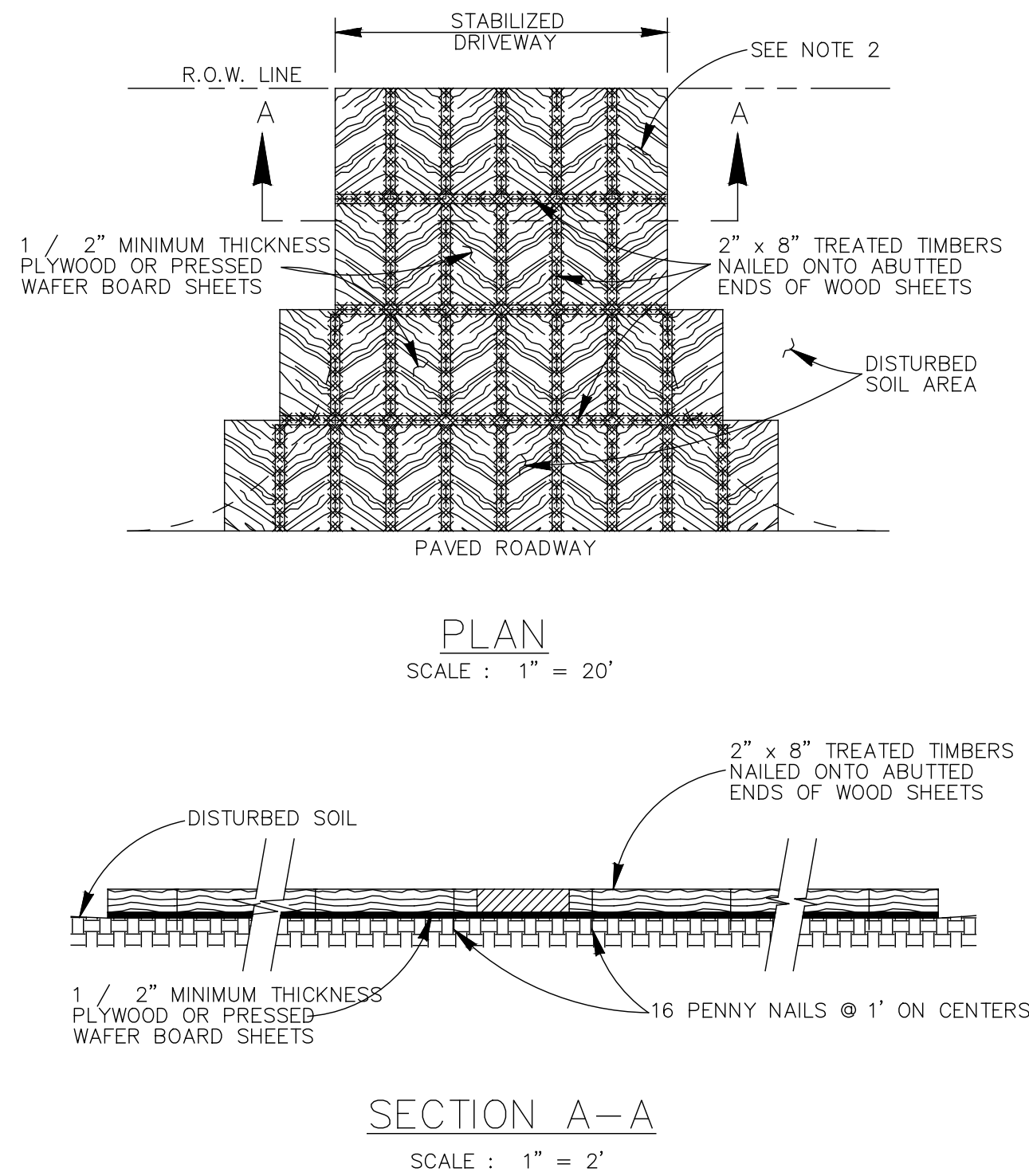


- GENERAL NOTES
1. THE LENGTH OF THE TYPE 2 CONSTRUCTION EXIT SHALL BE AS INDICATED ON THE PLANS, BUT NOT LESS THAN 50'.
  2. THE TREATED TIMBER PLANKS SHALL BE ATTACHED TO THE RAILROAD TIES WITH 1 / 2" x 6" MIN. LAG BOLTS. OTHER FASTENERS MAY BE USED AS APPROVED BY THE ENGINEER.
  3. THE TREATED TIMBER PLANKS SHALL BE #2 GRADE MIN., AND SHOULD BE FREE FROM LARGE AND LOOSE KNOTS.
  4. THE APPROACH TRANSITIONS SHOULD BE NO STEEPER THAN 6 : 1 AND CONSTRUCTED AS DIRECTED BY THE ENGINEER.
  5. THE CONSTRUCTION EXIT FOUNDATION COURSE SHALL BE FLEXIBLE BASE, BITUMINOUS CONCRETE, PORTLAND CEMENT CONCRETE OR OTHER MATERIAL AS APPROVED BY THE ENGINEER.
  6. THE CONSTRUCTION EXIT SHOULD BE GRADED TO ALLOW DRAINAGE TO A SEDIMENT TRAPPING DEVICE.
  7. THE GUIDELINES SHOWN HEREON ARE SUGGESTIONS ONLY AND MAY BE MODIFIED BY THE ENGINEER.

#### CONSTRUCTION EXIT – TYPE 2

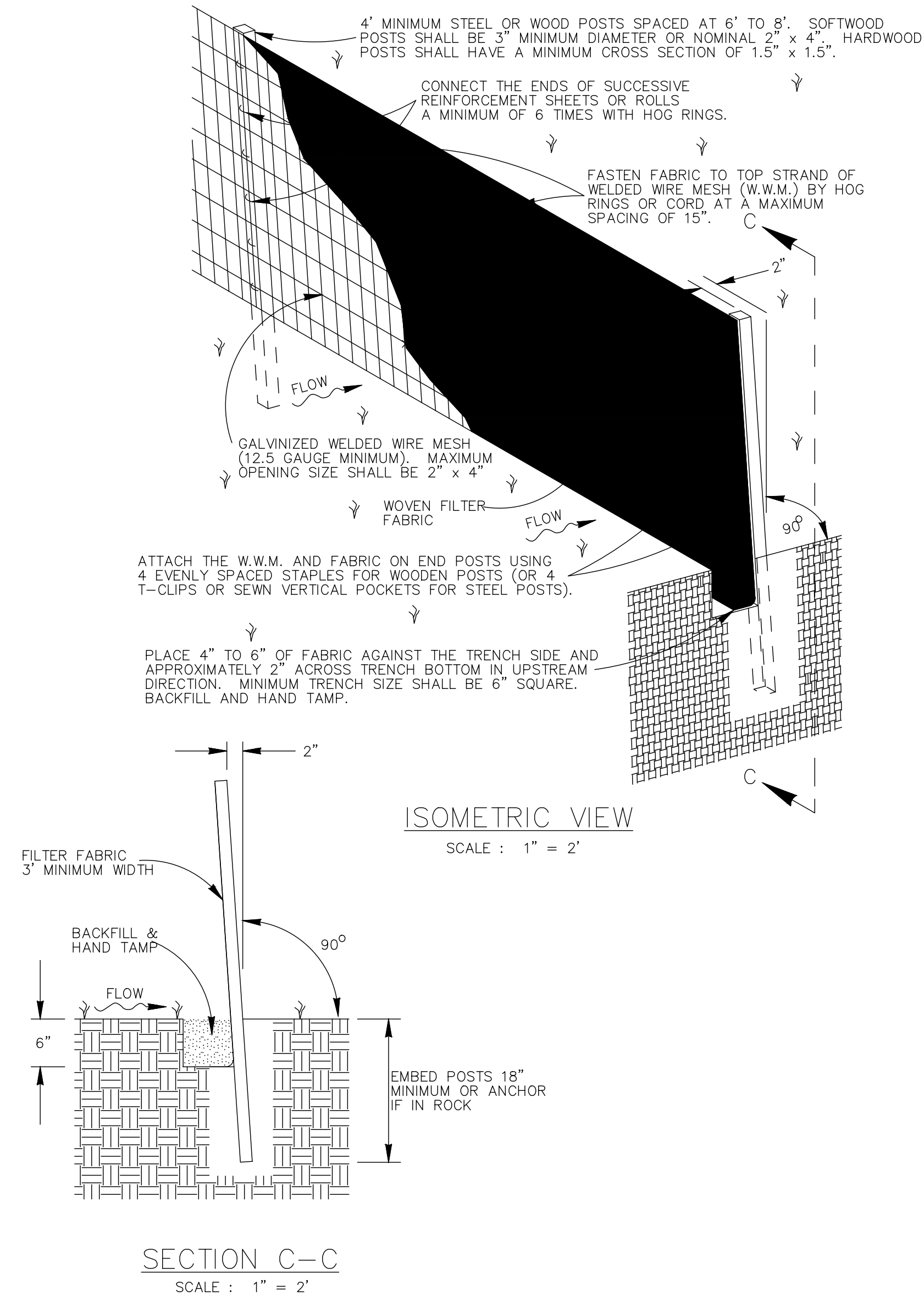


#### CURB INLET GRAVEL FILTER



- GENERAL NOTES
1. THE LENGTH OF THE TYPE 3 CONSTRUCTION EXIT SHALL BE AS INDICATED ON THE PLANS, OR AS DIRECTED BY THE ENGINEER.
  2. THE TYPE 3 CONSTRUCTION EXIT MAY BE CONSTRUCTED FROM OPEN GRADED CRUSHED STONE WITH A SIZE OF 2 TO 4 INCHES SPREAD A MINIMUM OF 4 INCHES THICK TO THE LIMITS SHOWN ON THE PLANS.
  3. THE TREATED TIMBER PLANKS SHALL BE #2 GRADE MIN., AND SHOULD BE FREE FROM LARGE AND LOOSE KNOTS.
  4. THE GUIDELINES SHOWN HEREON ARE SUGGESTIONS ONLY AND MAY BE MODIFIED BY THE ENGINEER.

#### CONSTRUCTION EXIT – TYPE 3



#### SECTION C-C

##### SEDIMENT CONTROL FENCE USAGE GUIDELINES

A SEDIMENT CONTROL FENCE MAY BE CONSTRUCTED NEAR THE DOWNSTREAM PERIMETER OF A DISTURBED AREA ALONG A CONTOUR TO INTERCEPT SEDIMENT FROM OVERLAND RUN-OFF. A 2 YEAR STORM FREQUENCY MAY BE USED TO CALCULATE THE FLOW RATE TO BE FILTERED.

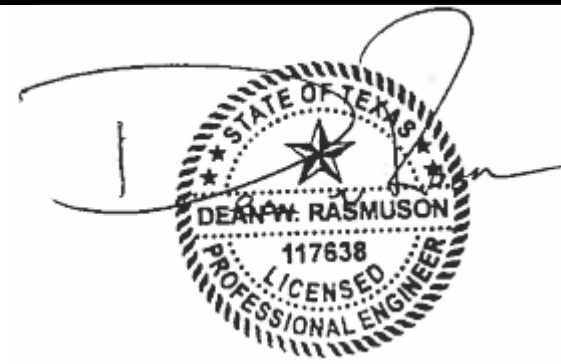
SEDIMENT CONTROL FENCE SHOULD BE SIZED TO FILTER A MAXIMUM FLOW THRU RATE OF 100 GPM / FT SQUARED. SEDIMENT CONTROL FENCE IS NOT RECOMMENDED TO CONTROL EROSION FROM A DRAINAGE AREA LARGER THAN 2 ACRES.

- GENERAL NOTES
1. THE GUIDELINES SHOWN HEREON ARE SUGGESTIONS ONLY AND MAY BE MODIFIED BY THE ENGINEER.

#### TEMPORARY SEDIMENT CONTROL FENCE

JANUARY 2005  
CITY OF SAN ANTONIO  
CAPITAL IMPROVEMENTS MANAGEMENT SERVICES DEPARTMENT  
TEMPORARY EROSION, SEDIMENT  
& WATER POLLUTION CONTROL  
MEASURES STANDARDS 1

REV	DESCRIPTION	DATE



**WGA**  
WARD, GETZ & ASSOCIATES, PLLC  
TEXAS REGISTERED ENGINEERING FIRM F-9756  
2500 Tangleville, Suite 120  
Houston, Texas 77063  
713.789.1900

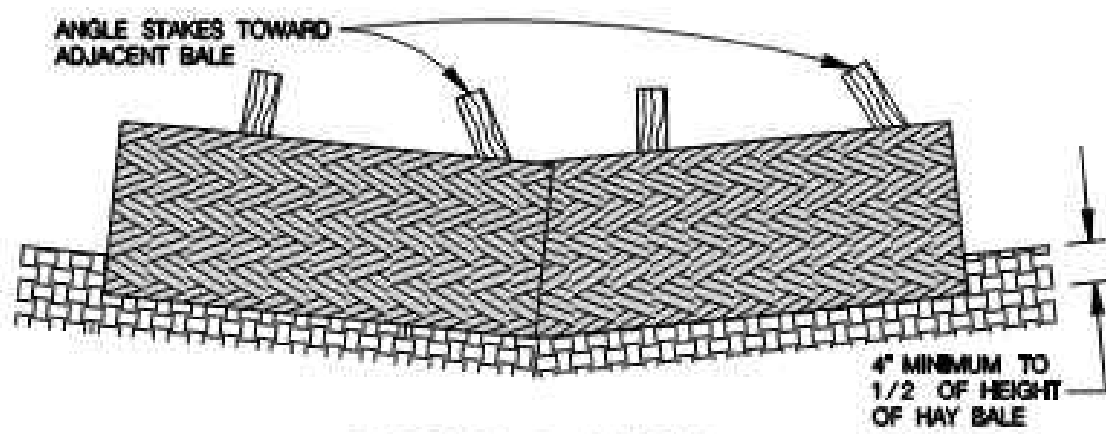
#### VILLA FINALE MUSEUM

#### EROSION CONTROL DETAILS

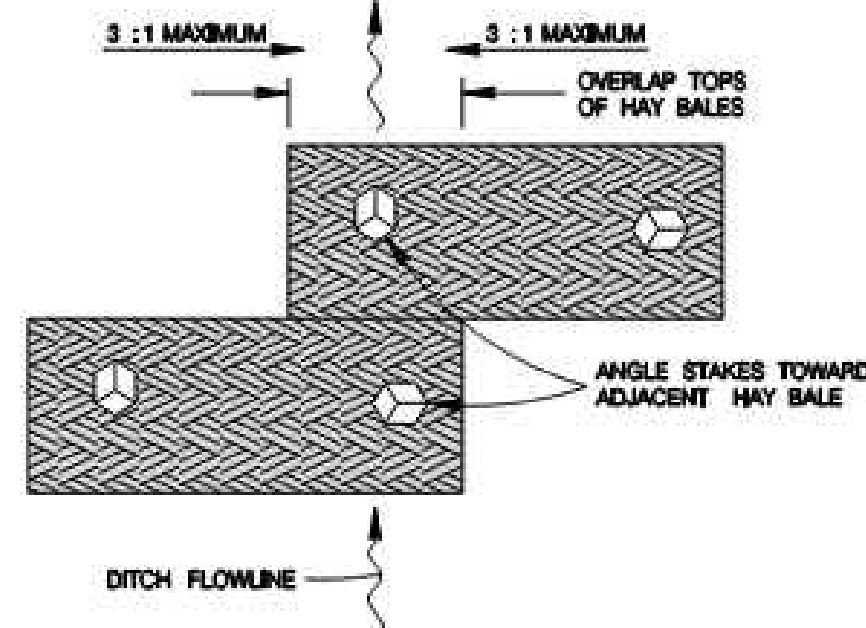
SCALE	DESIGN	DRAWN
	TAM	TAM

#### SHEET C8.1

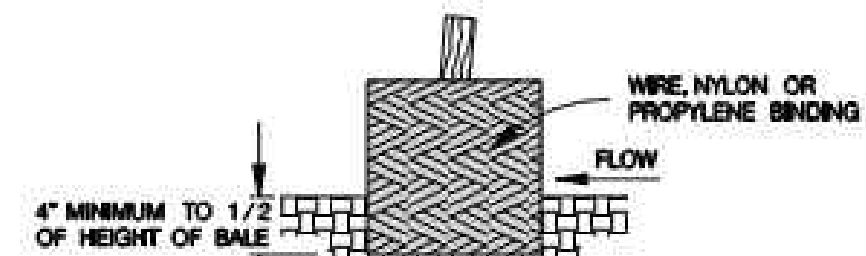




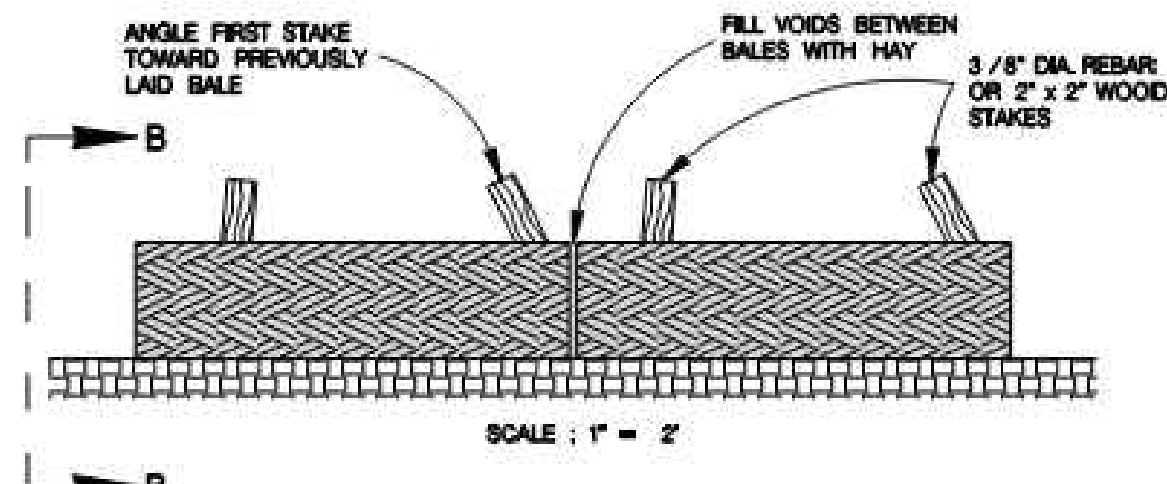
PROFILE VIEW  
SCALE : 1" = 2'



PLAN VIEW  
SCALE : 1" = 2'



SECTION B-B  
SCALE : 1" = 2'



#### BALED HAY USAGE GUIDELINES

A BALED HAY INSTALLATION MAY BE CONSTRUCTED NEAR THE DOWNSTREAM PERIMETER OF A DISTURBED AREA ALONG A CONTOUR TO INTERCEPT SEDIMENT FROM OVERLAND RUNOFF. A TWO YEAR STORM FREQUENCY MAY BE USED TO CALCULATE THE FLOW RATE TO BE FILTERED. THE INSTALLATION SHOULD BE SIZED TO FILTER A MAXIMUM FLOW THRU RATE OF 5 GPM / FT SQUARED OF CROSS SECTIONAL AREA. BALED HAY MAY BE USED AT THE FOLLOWING LOCATIONS:

1. WHERE THE RUNOFF APPROACHING THE BALED HAY FLOWS OVER DISTURBED SOIL FOR LESS THAN 100' IF THE SLOPE OF THE DISTURBED SOIL EXCEEDS 1% THE LENGTH OF SLOPE UPSTREAM OF THE BALED HAY SHOULD BE LESS THAN 50'.
2. WHERE THE INSTALLATION WILL BE REQUIRED FOR LESS THAN 3 MONTHS.
3. WHERE THE CONTRIBUTING DRAINAGE AREA IS LESS THAN 1/2 ACRE.

FOR BALED HAY INSTALLATIONS IN SMALL DITCHES, THE FOLLOWING ADDITIONAL CONSIDERATIONS APPLY:

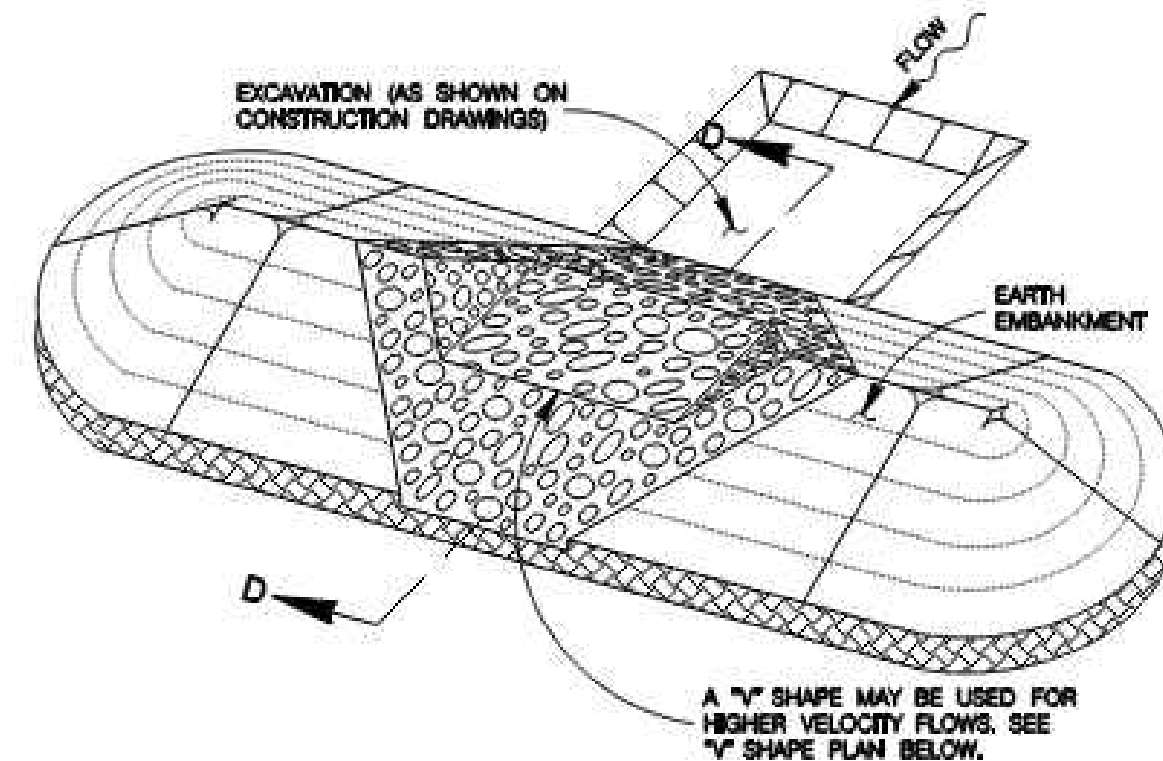
1. THE DITCH SIDESLOPES SHOULD BE GRADED AS FLAT AS POSSIBLE TO MAXIMIZE THE DRAINAGE FLOW RATE THRU THE HAY.
2. THE DITCH SHOULD BE GRADED LARGE ENOUGH TO CONTAIN THE OVERLAPPING DRAINAGE WHEN SEDIMENT HAS FILLED TO THE TOP OF THE BALED HAY.

BALES SHOULD BE REPLACED USUALLY EVERY 2 MONTHS OR MORE OFTEN DURING WET WEATHER WHEN LOSS OF STRUCTURAL INTEGRITY IS ACCELERATED.

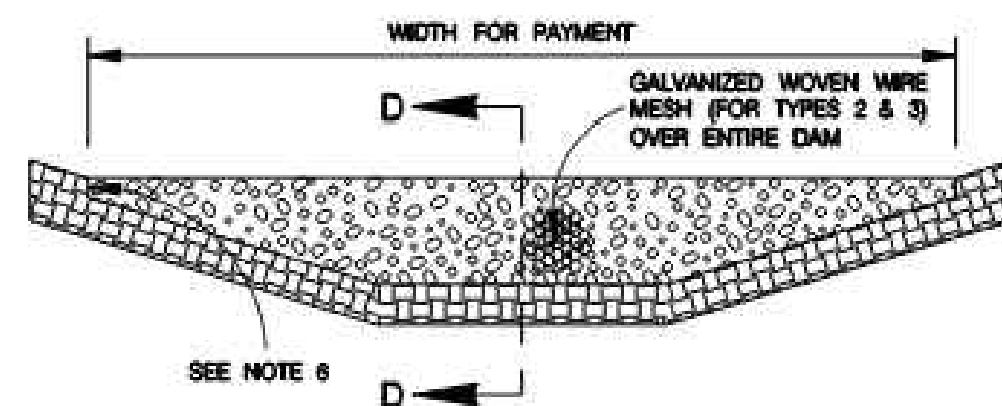
#### GENERAL NOTES

1. HAY BALES SHALL BE A MINIMUM OF 30" IN LENGTH AND WEIGH A MINIMUM OF 50 LBS.
2. HAY BALES SHALL BE BOUND BY EITHER WIRE OR NYLON OR POLYPROPYLENE STRING. THE BALES SHALL BE COMPOSED ENTIRELY OF VEGETABLE MATTER.
3. HAY BALES SHALL BE EMBEDDED IN THE SOIL A MINIMUM OF 4" AND, WHERE POSSIBLE, ONE-HALF THE HEIGHT OF THE BALE.
4. HAY BALES SHALL BE PLACED IN A ROW WITH ENDS TIGHTLY ABUTTING THE ADJACENT BALES. THE BALES SHALL BE PLACED WITH BINDINGS PARALLEL TO THE GROUND.
5. HAY BALES SHALL BE SECURELY ANCHORED IN PLACE WITH 3/8" DIA. REBAR OR 2" x 2" WOOD STAKES DRIVEN THROUGH THE BALES. THE FIRST STAKE SHALL BE ANGLED TOWARD THE PREVIOUSLY LAID BALE TO FORCE THE BALES TOGETHER.
6. THE GUIDELINES SHOWN HEREON ARE SUGGESTIONS ONLY AND MAY BE MODIFIED BY THE ENGINEER.

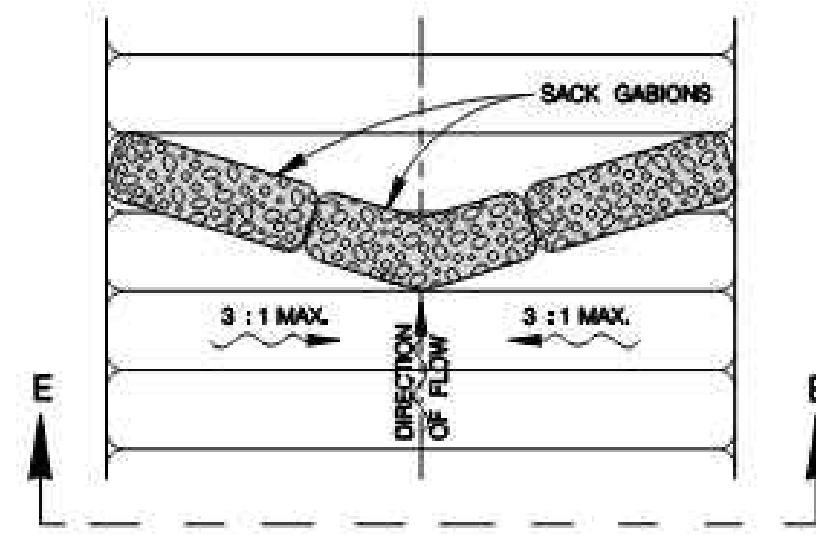
#### BALED HAY FOR EROSION CONTROL



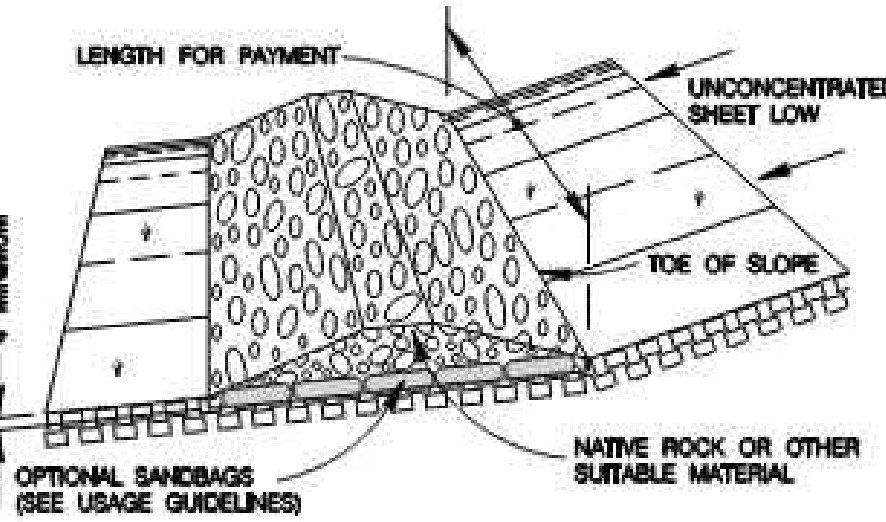
TYPE 1 & 2 FILTER DAM AT  
SEDIMENT TRAP  
SCALE : 1" = 10'



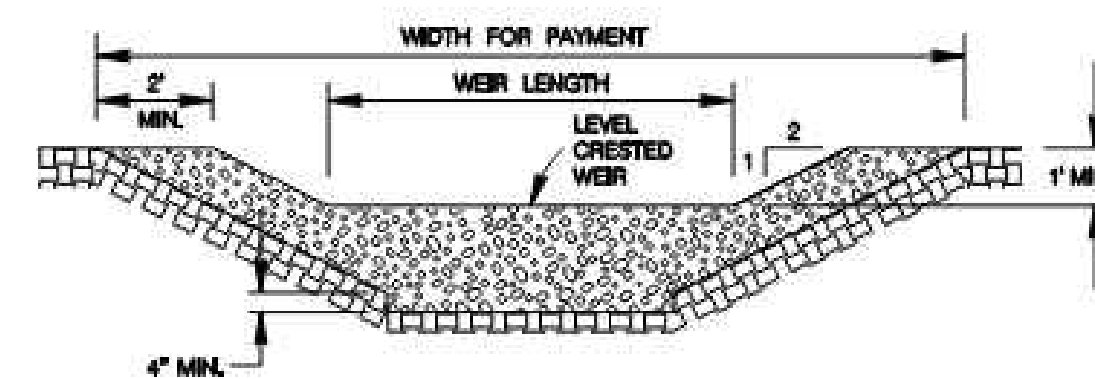
TYPE 1, 2 & 3 FILTER DAM  
AT CHANNEL SECTIONS  
SCALE : 1" = 8'



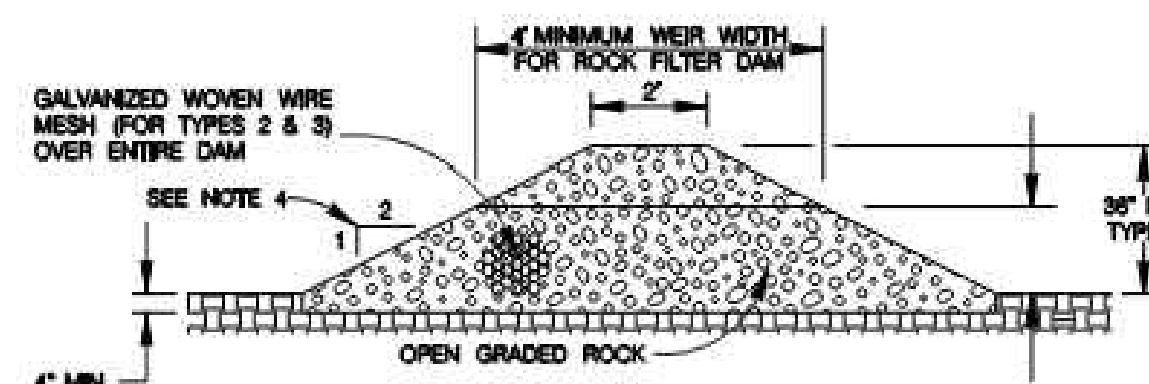
PLAN VIEW  
SCALE : 1" = 10'



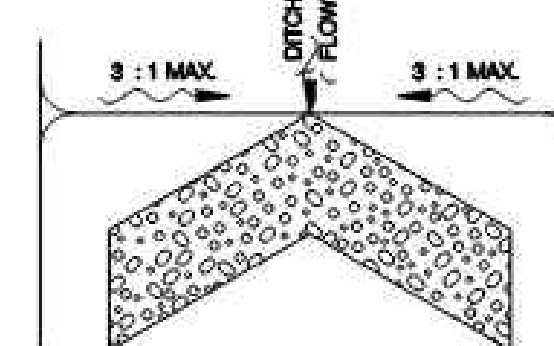
TYPE 1 FILTER DAM AT  
TOE OF SLOPE  
SCALE : 1" = 10'



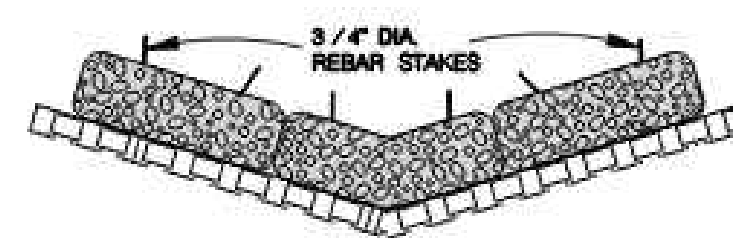
PROFILE OF TYPE 1 & 2 FILTER  
DAM AT SEDIMENT TRAP  
SCALE : 1" = 8'



SECTION D-D  
SCALE : 1" = 8'



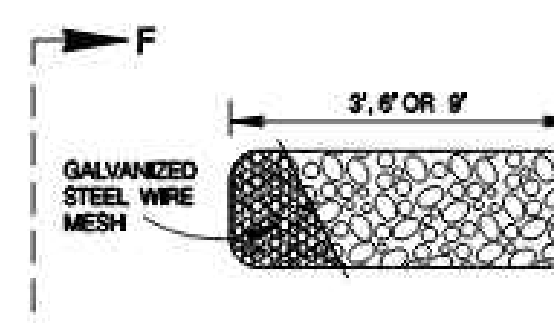
"V" SHAPE  
PLAN VIEW  
NOT TO SCALE



SECTION E-E  
SCALE : 1" = 10'

TYPE 4 FILTER DAM AT DITCHES  
& SMALLER CHANNELS PLAN VIEW

#### ROCK FILTER DAMS



TYPE 4 SACK GABORION DETAIL  
SCALE : 1" = 8'



SECTION F-F  
SCALE : 1" = 8'

#### ROCK FILTER DAM USAGE GUIDELINES

ROCK FILTER DAMS SHOULD BE CONSTRUCTED DOWNSTREAM FROM DISTURBED AREAS TO INTERCEPT SEDIMENT FROM OVERLAND RUNOFF AND /OR CONCENTRATED FLOW. THE DAMS SHOULD BE SIZED TO FILTER A MAXIMUM FLOW THRU RATE OF 80 GPM / FT SQUARED OF CROSS SECTIONAL AREA. A 2 YEAR STORM FREQUENCY MAY BE USED TO CALCULATE THE FLOW RATE.

##### TYPE 1 (18" HIGH WITH NO WIRE MESH):

TYPE 1 MAY BE USED AT THE TOE OF SLOPES, AROUND INLETS IN SMALL DITCHES AND AT DIKE OR SWALE OUTLETS. THIS TYPE OF DAM IS RECOMMENDED TO CONTROL EROSION FROM A DRAINAGE AREA OF 5 ACRES OR LESS. TYPE 1 MAY NOT BE USED IN CONCENTRATED HIGH VELOCITY FLOWS (APPROXIMATELY 8 FT./SEC OR MORE) IN WHICH AGGREGATE WASH OUT MAY OCCUR. SANDBAGS MAY BE USED AT THE EMBEDDED FOUNDATION (4" DEEP MIN.) FOR BETTER FILTERING EFFICIENCY OF LOW FLOWS IF CALLED FOR ON THE PLANS OR AS DIRECTED BY THE ENGINEER.

##### TYPE 2 (18" HIGH WITH WIRE MESH):

TYPE 2 MAY BE USED IN DITCHES AND AT DIKE OR SWALE OUTLETS.

##### TYPE 3 (36" HIGH WITH WIRE MESH):

TYPE 3 MAY BE USED IN STREAM FLOW AND SHOULD BE SECURED TO THE STREAM BED.

##### TYPE 4 (SACK GABIONS):

TYPE 4 MAY BE USED IN DITCHES AND SMALLER CHANNELS TO FORM AN EROSION CONTROL DAM.

#### GENERAL NOTES

1. IF SHOWN ON THE PLANS OR DIRECTED BY THE ENGINEER, FILTER DAMS SHOULD BE PLACED NEAR THE TOE OF SLOPES WHERE EROSION IS ANTICIPATED, UPSTREAM AND / OR DOWNSTREAM AT DRAINAGE STRUCTURES, AND IN ROADWAY DITCHES AND CHANNELS TO COLLECT SEDIMENT.
2. MATERIALS (AGGREGATE, WIRE MESH, SANDBAGS, ETC.) SHALL BE AS INDICATED BY THE SPECIFICATION FOR ROCK FILTER DAMS FOR EROSION AND SEDIMENTATION CONTROL.
3. THE ROCK FILTER DAM DIMENSIONS SHALL BE AS INDICATED ON THE STORM WATER POLLUTION PREVENTION PLANS.
4. SIDE SLOPES SHOULD BE 2:1 OR FLATTER. DAMS WITHIN THE SAFETY ZONE SHALL HAVE SIDE SLOPES OF 6:1 OR FLATTER.
5. MAINTAIN A MINIMUM OF 1' BETWEEN TOP OF ROCK FILTER DAM WEIR AND TOP OF EMBANKMENT FOR FILTER DAMS AT SEDIMENT TRAPS.
6. FILTER DAMS SHOULD BE EMBEDDED A MINIMUM OF 4" INTO THE EXISTING GROUND.
7. THE SEDIMENT TRAP FOR PONDING OF SEDIMENT LADEN RUNOFF SHALL BE OF THE DIMENSIONS SHOWN ON THE PLANS.
8. ROCK FILTER DAM TYPES 2 & 3 SHALL BE SECURED WITH 20 GAUGE GALVANIZED WOVEN WIRE MESH WITH 1" DIAMETER HEXAGONAL OPENINGS. THE AGGREGATE SHALL BE PLACED ON THE MESH TO THE HEIGHT AND SLOPES SPECIFIED. THE MESH SHALL BE FOLDED AT THE UPSTREAM SIDE OVER THE AGGREGATE AND TIGHTLY SECURED TO ITSELF ON THE DOWNSTREAM SIDE USING WIRE TIES OR HOG RINGS. IN STREAM USE, THE MESH SHOULD BE SECURED OR STAKED TO THE STREAM BED PRIOR TO AGGREGATE PLACEMENT.
9. SACK GABIONS SHOULD BE STAKED DOWN WITH 3/4" DIA. REBAR STAKES.
10. FLOW OUTLET SHOULD BE ONTO A STABILIZED AREA (VEGETATION, ROCK, ETC.).
11. THE GUIDELINES SHOWN HEREON ARE SUGGESTIONS ONLY AND MAY BE MODIFIED BY THE ENGINEER.

REV	DESCRIPTION	DATE



#### VILLA FINALE MUSEUM

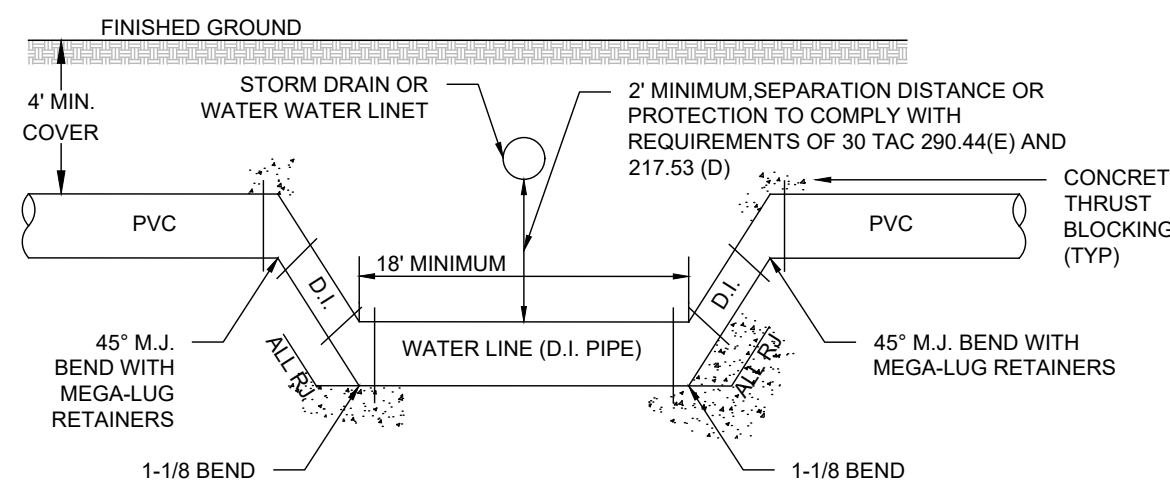
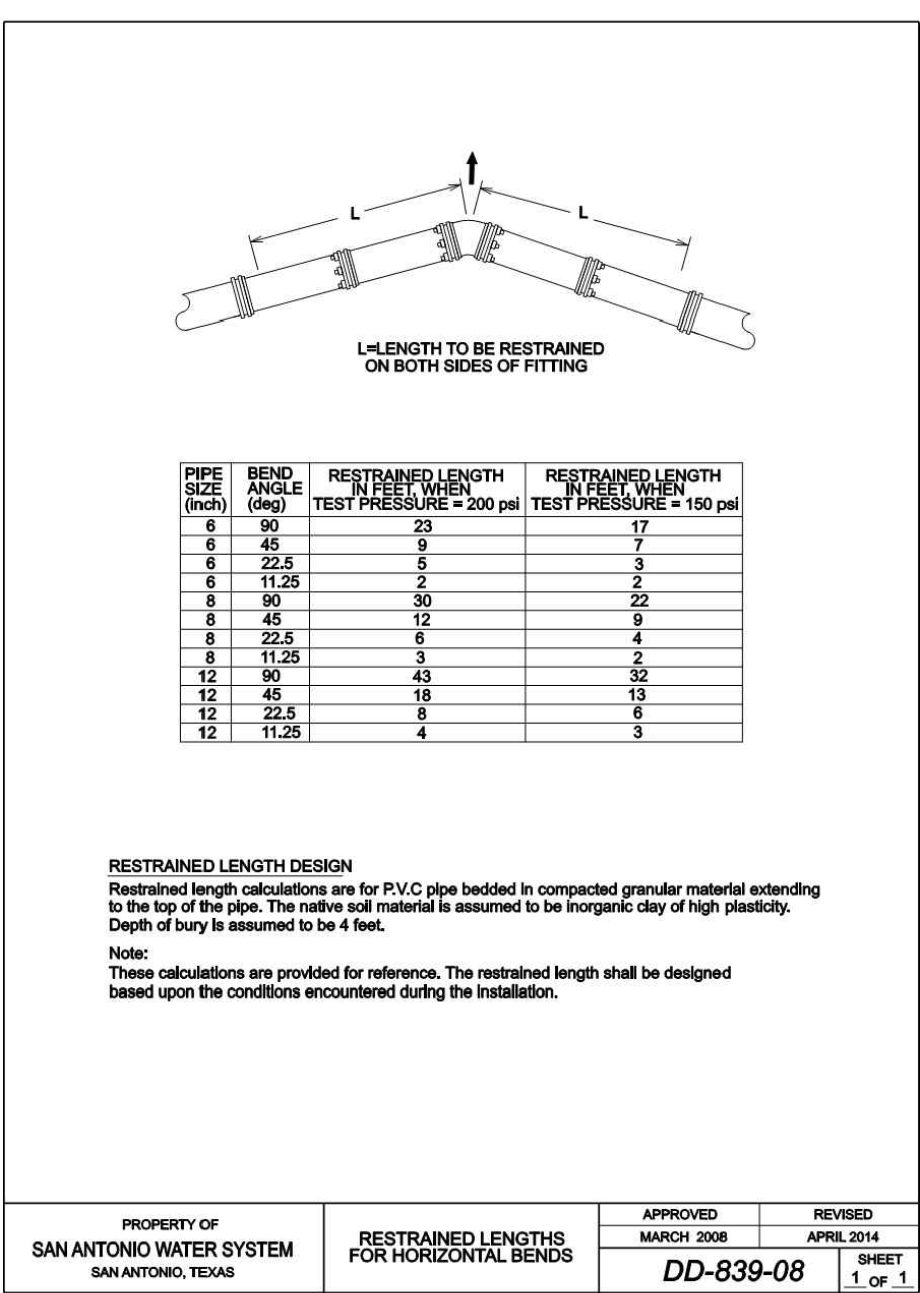
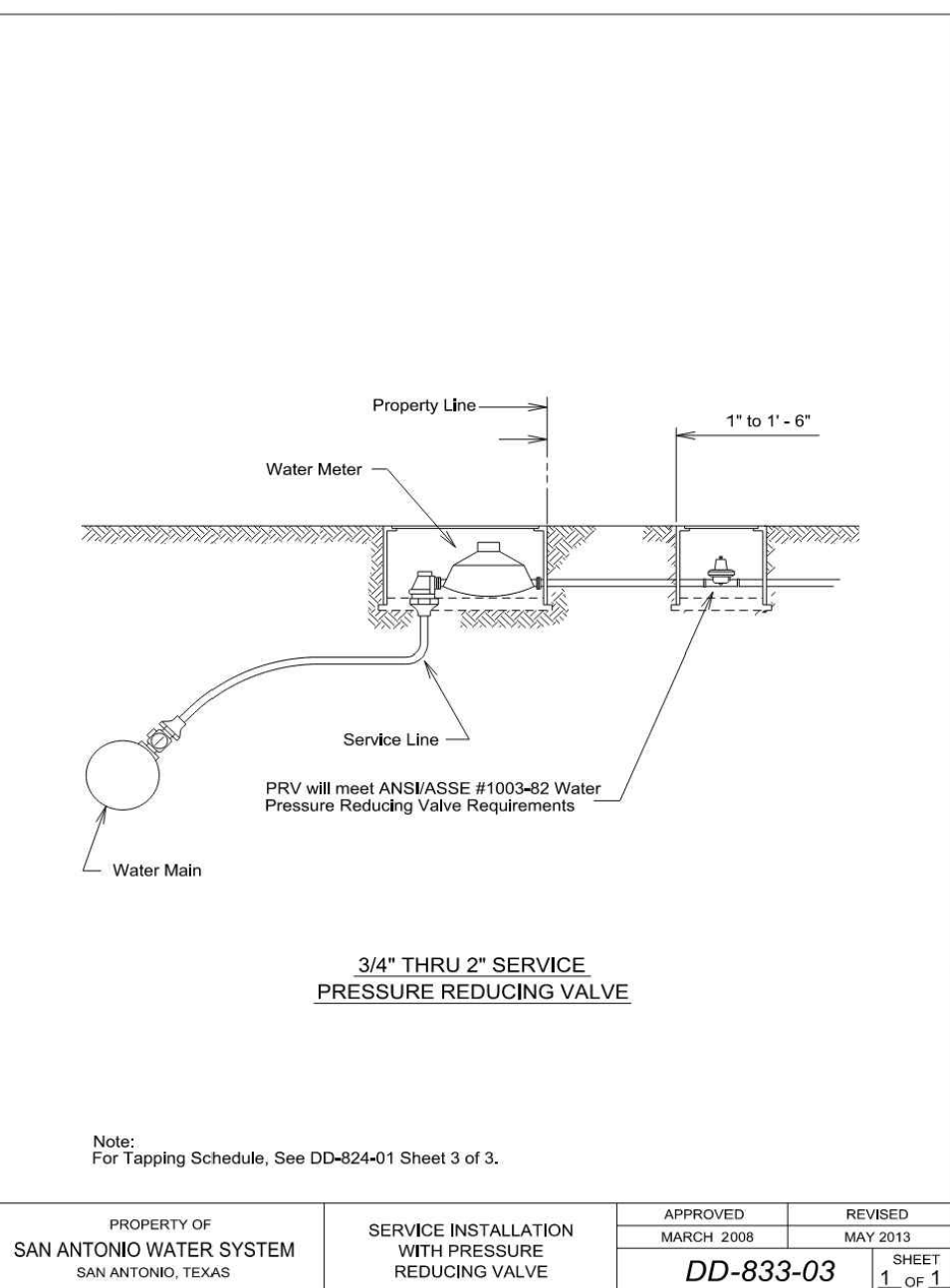
#### EROSION CONTROL DETAILS

SCALE	DESIGN TAM	DRAWN TAM
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SHEET  
C8.2

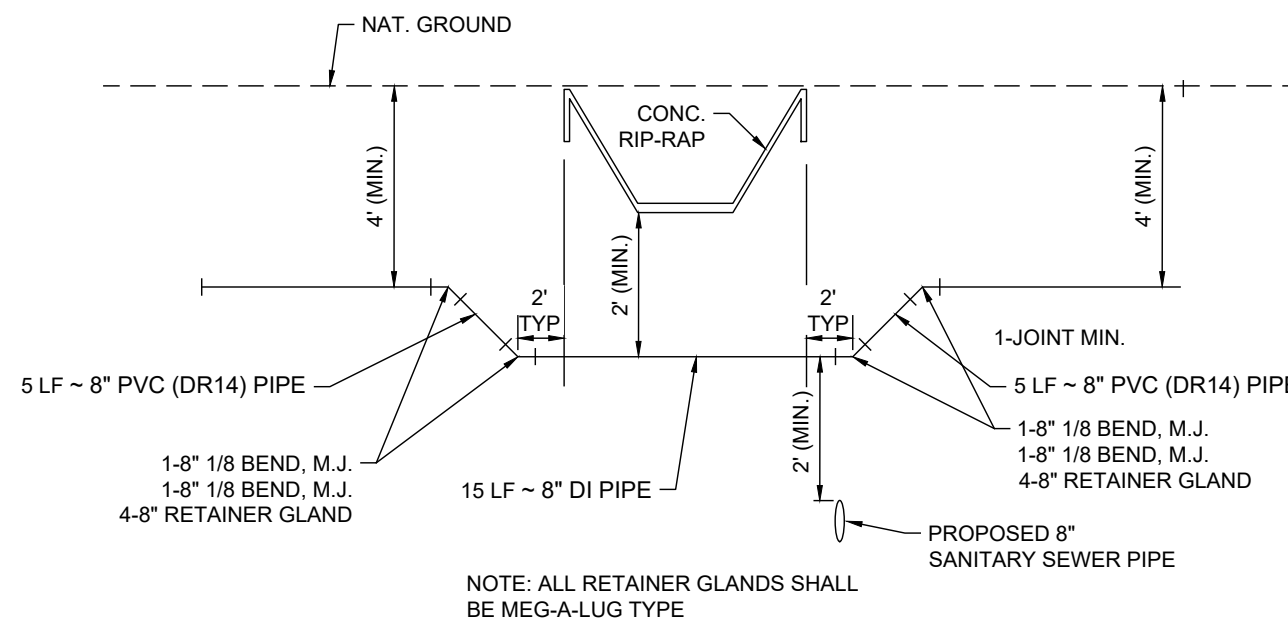
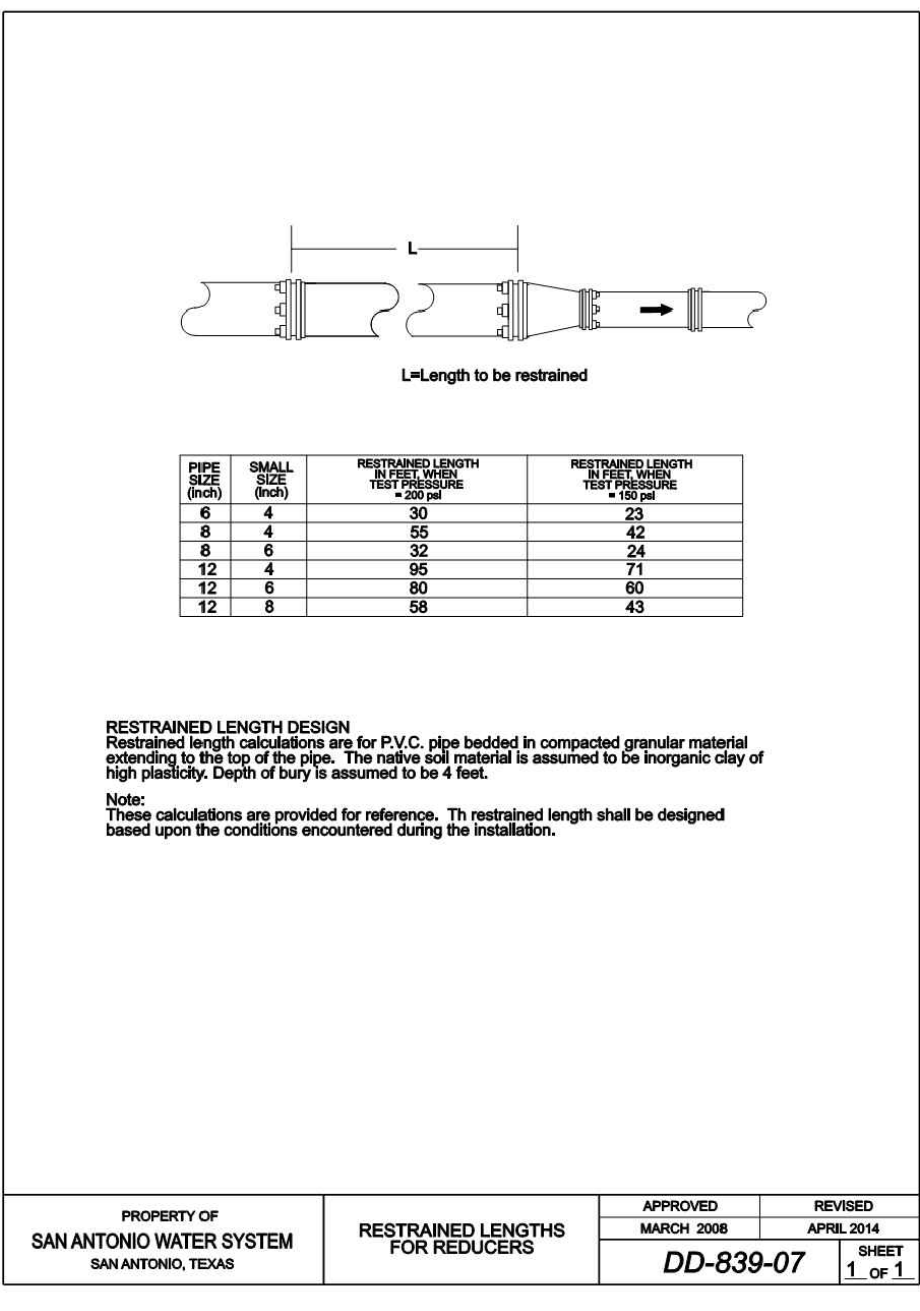
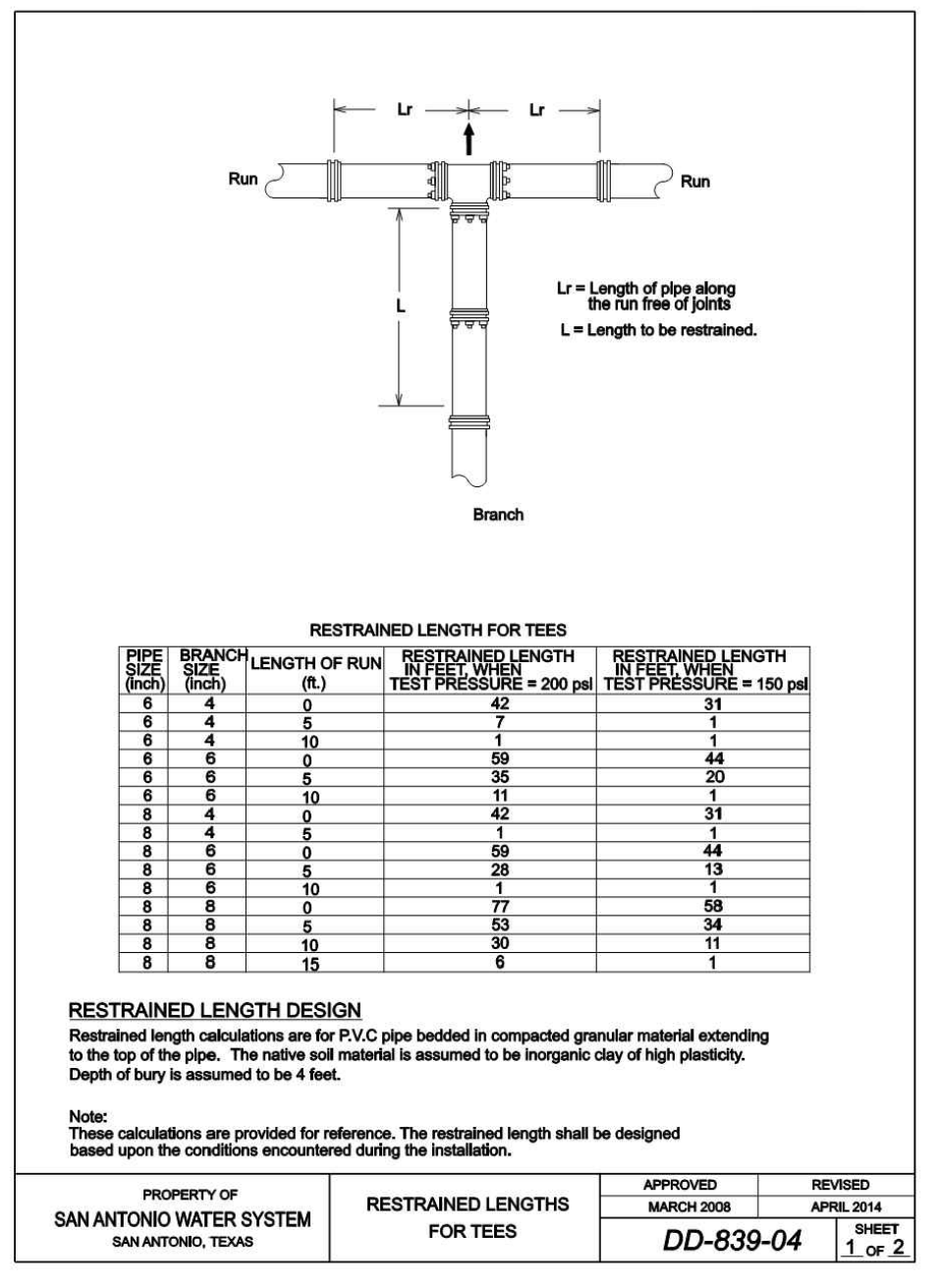




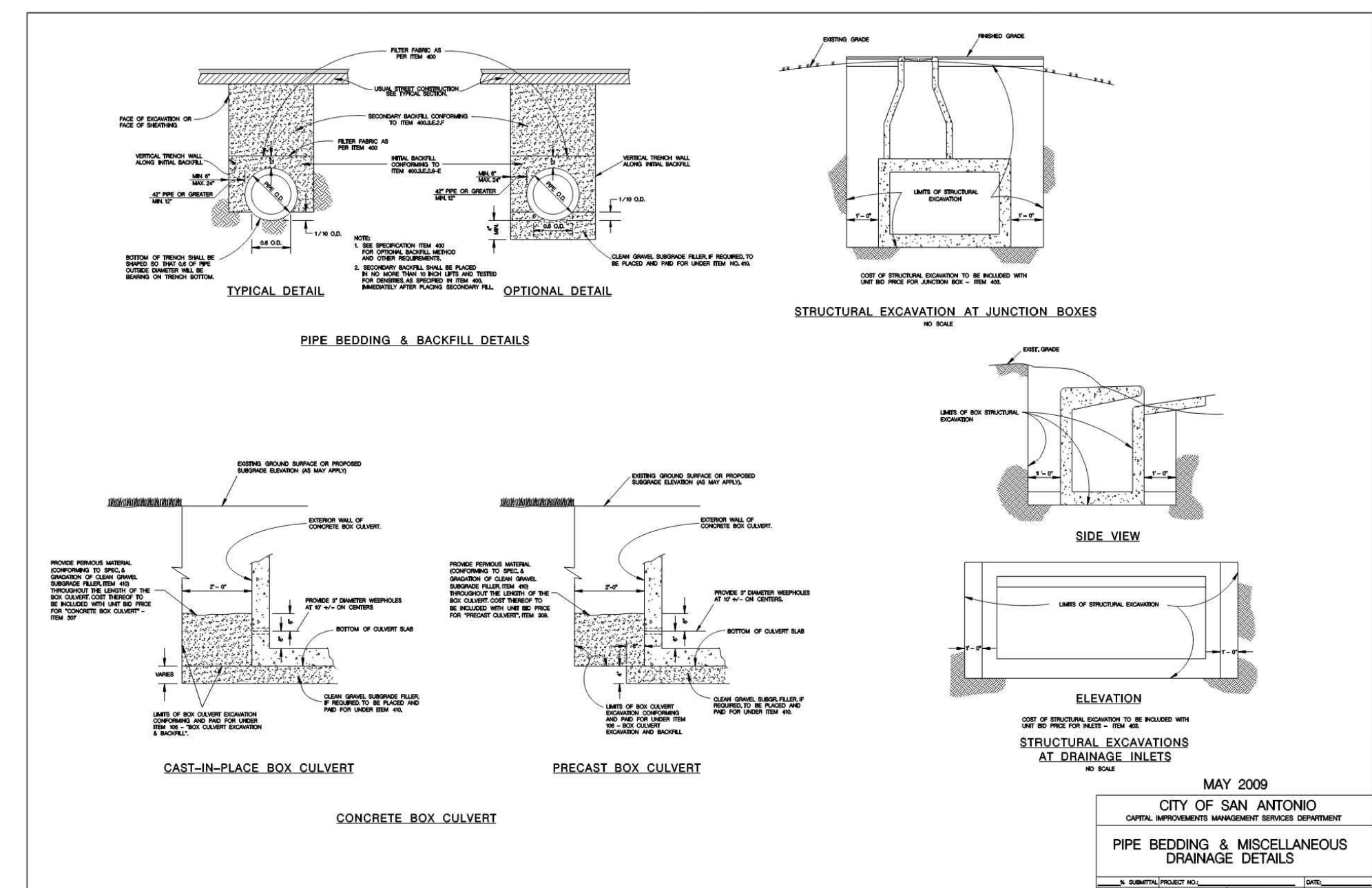


NOTE:

1. 18" MINIMUM WATER PIPE SEGMENT TO BE CENTERED UNDER WASTEWATER LINE
2. WASTEWATER PIPE WITHIN NINE FEET OF WATER PIPE ON EITHER SIDE SHALL BE CONSTRUCTED USING AT LEAST 150 PSI PRESSURE RATED PIPE.



WATER SERVICE DETAIL  
N.T.S.

[illegible]

# WGA

WARD, GETZ & ASSOCIATES, PLLC  
TEXAS REGISTERED ENGINEERING FIRM F-9756  
2500 Tanglewilde, Suite 120  
Houston, Texas 77063  
713.789.1900

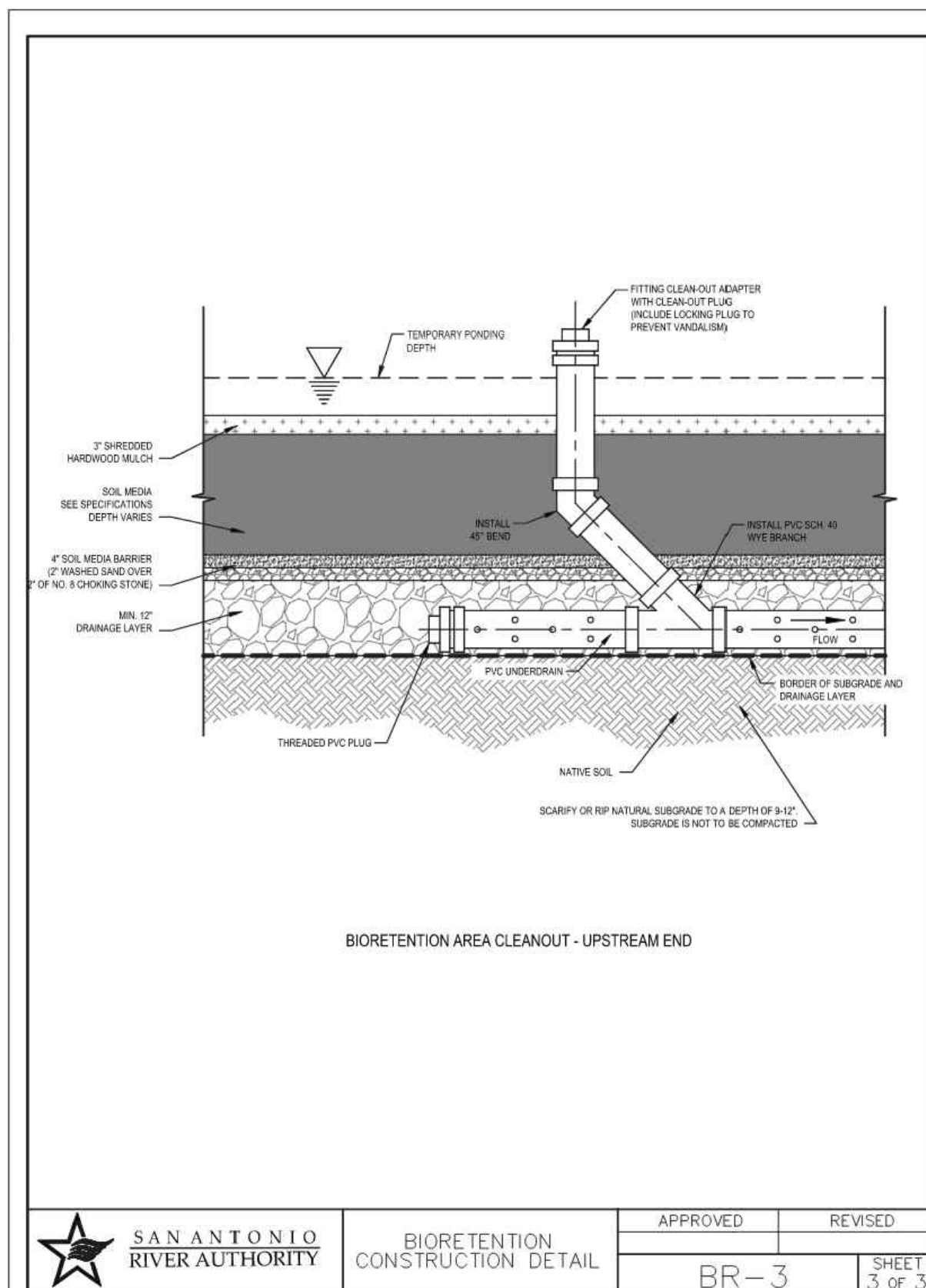
VILLA FINALE MUSEUM

## UTILITY DETAILS

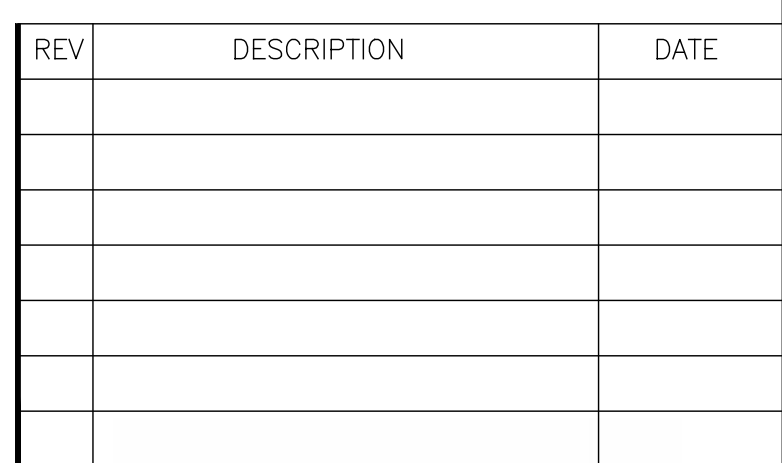
SCALE	DESIGN TAM	DRAWN TAM
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SHEET  
C8.4





<b><u>BIORETENTION LAYER MATERIAL SPECIFICATIONS</u></b>	
SOIL MEDIA	85-88% SAND, 8-12% FINES, 2-5% PLANT-DERIVED ORGANIC MATTER
PERMEABILITY	1-6 IN/HR INFILTRATION RATE
CHEMICAL COMPOSITION	TOTAL PHOSPHORUS <15 PPM, PH 6-8, CEC >5 MEQ/100G SOIL



## LOW IMPACT DEVELOPMENT DETAILS

	SHEET	
	C8.5	



TREE CANOPY REQUIREMENT

TOTAL SQUARE FOOTAGE OF PROPERTY: 7,021 SF  
TOTAL TREE CANOPY REQUIRED: 1,755.25 SF  
TOTAL TREE CANOPY PROVIDED BY EXISTING TREES:  
2 ANAQUA = 875 = 1,750 SF  
2 LIVE OAKS = 875 X 2 = 1,750 SF  
4 MT. LAURELS = 0  
TOTAL TREE CANOPY PROVIDED: 3,500 SF

TREE PRESERVATION COMPLIANCE

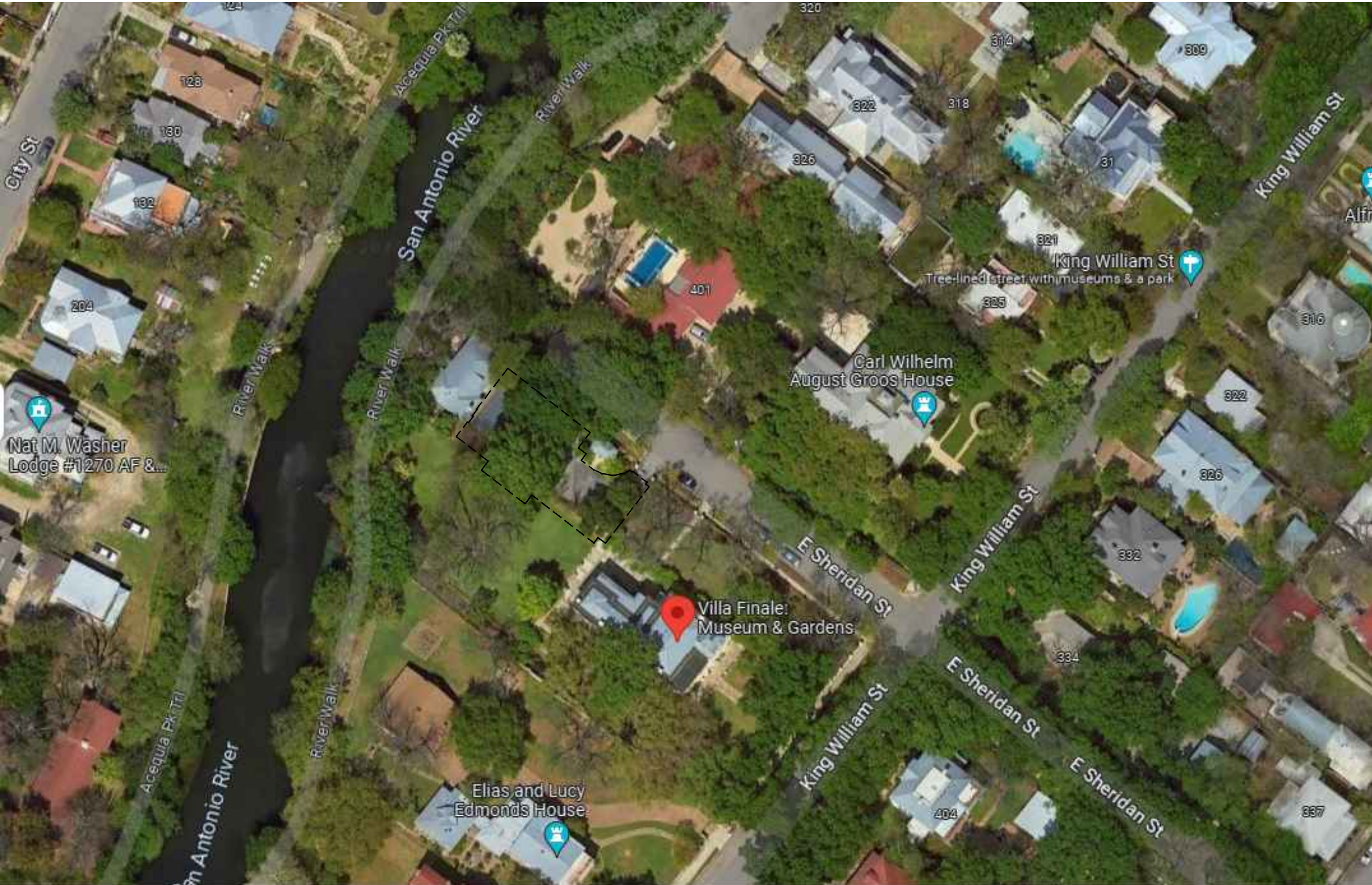
ALL EXISTING TREES TO REMAIN.  
EXISTING TREES WITHIN LIMITS OF CONSTRUCTION TO BE PROTECTED BY FENCING PRIOR TO ANY SITE WORK. FENCING TO BE ERECTED AT DRIPLINE OF TREES & MAINTAINED THROUGHOUT CONSTRUCTION.

LANDSCAPE ORDINANCE COMPLIANCE

PRESERVATION OF EXISTING TREES 25 PNTS.  
1 - EXISTING 24" OAK = 8 PNTS  
1 - EXISTING 23" OAK = 8 PNTS  
1 - EXISTING 48" ANAQUA = 8 PNTS  
1 - EXISTING 24" LAUREL = 8 PNTS  
1 - EXISTING 26" ANAQUA = 8 PNTS  
TOTAL POINTS: 40 POINTS (25 PNTS REQUIRED)

SARA LID REQUIREMENTS

SEE ENGINEERING FOR LID SPECIFICATIONS.  
PLANTING PLAN PLANT SPECIFICATIONS:  
43 LIRIOPE Liriope muscari 'Big Blue' 12"-18" (HEIGHT & SPREAD) 3 GAL.  
2 TEXAS REDBUD Cercis canadensis 'texensis' 5' TALL 30 GAL.  
21 BULBINE 'YELLOW' Bulbine frutescens 12" (HEIGHT & SPREAD) 1 GAL.  
4 SALVIA GREGGII Salvia greggii 'red' 16" (HEIGHT & SPREAD) 3 GAL.  
NOTE: TOP PLANTED AREAS W/ 4" DEPTH, DOUBLE SHREDDED BARK MULCH



AERIAL VIEW  
SCALE: N.T.S.

PARTERRE  
DESIGN

HEIDI WHITE, ASLA  
210-241-7031  
NENA SCOTT, ASLA  
210-827-4088

REVISIONS		
NO.	DATE	DESCRIPTION

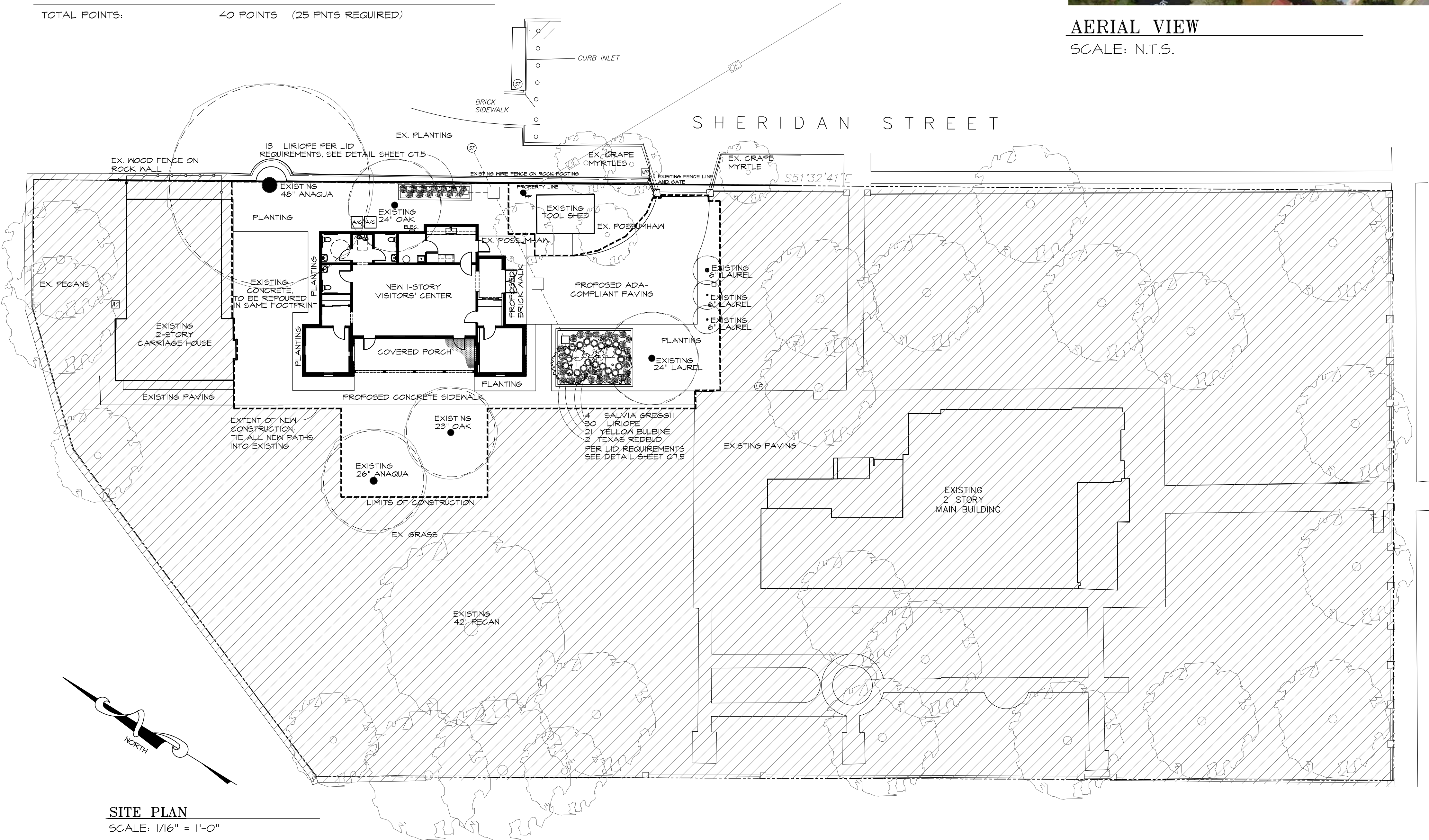
LANDSCAPE & TREE  
PRESERVATION PLAN

JUNE 14, 2024

VILLA FINALE  
VISITORS' CENTER  
SAN ANTONIO, TEXAS

~ L1.1 ~

MICHAEL G. IMBER  
ARCHITECT  
111 WEST EL PRADO  
SAN ANTONIO, TEXAS 78212



SITE PLAN  
SCALE: 1/16" = 1'-0"

NOTE: CONTRACTOR TO LOCATE ALL UTILITY LINES BEFORE CONSTRUCTION



# GENERAL NOTES

## 1. VERIFICATION:

- A)Verify all dimensions and elevations; do not scale drawings for dimensions. Notify Engineer of any discrepancies between Drawings, fabricated items or actual field conditions. Contractor, Subcontractors, and Material Fabricator shall advise the Engineer of any deficiency or discrepancy of which they have knowledge, along with their suggested solution, prior to ordering and/or installing the material in question.
- B) Assumptions have been made by this office regarding existing conditions. Actual conditions may vary from those assumed. The Contractor is to report any such discrepancies to the Engineer for possible modifications needed to the Contract Drawings.
- C)Coordinate structural requirements with Civil, Mechanical, and Architectural to determine conflicts or discrepancies. Notify Architect in writing for direction to resolve conflicts.

## 2. SHOP DRAWINGS AND SUBMITTALS:

- A)Submit Shop Drawings for Engineers review prior to fabrication. Shop drawing review, by the Engineer is for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents. In addition, the review is NOT conducted for purposes of determining accuracy of details (dimensions, quantities, installation, performance), does NOT relieve Contractor's obligation of means, methods, warranties, and does NOT constitute approval of safety precautions or means and methods.
- B) Materials Fabricators shall provide complete Drawings showing location and position of all structural items. All submitted Shop Drawings shall contain clear identification of all deviations from the Contract Documents. Any deviations or substitutions not specifically addressed during shop drawing review shall be considered unacceptable unless sent separately to the engineer for his approval.
- C)Before submitting each Shop Drawing, Contractor shall have determined and verified: All field dimensions, quantities, dimensions, the suitability of all materials for OSHA and other governing agencies. In addition, the Contractor shall verify that the material and assemblies are consistent with the proposed means, methods and techniques of the construction. Contractor shall also review and coordinate submittal with shop drawings of all other trades.
- D)Details shown on shop drawings shall be cross-referenced to details shown on contract documents (i.e., give detail and sheet number where information is shown on contract documents).
- E) As a minimum, the following Shop Drawings shall be submitted and reviewed by the Structural Engineer of Record:
- The Select Fill to be proposed for use shall be submitted to the testing laboratory to verify compliance with the project requirements prior to installation. The Testing Laboratory's approval letter shall be submitted to the Owner and Structural Engineer prior to installation.
  - The Vapor Retarder manufacturer's specification sheets including requirements for laps, repairs, tape, or penetrations.
  - Concrete Mix Design for each type of concrete to be used. Submit letter from concrete suppliers, which certifies proposed mixes meet the Project Specifications.
  - Reinforcing Shop Drawings including placement drawings, cut sheets, proposed joint locations, and pour sequence as required. Refer to project specifications for additional submittal requirements.
  - Wood trusses. Truss drawings to be SEALED BY LICENSED ENGINEER
- F) If the Contractor or Sub-Contractor desires a copy of the Structural Drawings on CADD file, to be used in the preparation of Shop Drawings, the Contractor shall complete the Indemnification and Release for Computer (CADD) Files form, available through Engineers office.
- G)DEFERRED SUBMITTALS: Those submittals and shop drawings which are required as part of the project, but will not be reviewed by the Structural Engineer of Record, will need to be submitted to the City as a "Deferred Submittal":
- None required for this project.

## 3. STRUCTURAL TESTING & INSPECTION REQUIREMENTS: (NON-SPECIAL INSPECTION PROJECTS)

- A)The Testing Lab and/or inspector shall provide written confirmation to the structural engineer that all inspected material was installed in accordance with the project requirements.
- B) In addition to the inspections and testing listed below, observations by the Structural Engineer are required. Refer to "Schedule of Site Observations by Engineer."
- C)The following inspections and testing are required by the structural engineer of record. The contractor is to provide all additional inspections and quality control measures to comply with the currently adopted Building Code:
- SUBGRADE:
    - Provide (1) one density test for each 2000 sq. ft. Refer to Notes on Building Pad for Testing Specifications.
  - SELECT/STRUCTURAL FILL:
    - Arrange for testing lab to sample material. Pit run materials shall be visually monitored by the testing lab with additional samples tested each day, or more often if material appears to vary.
    - Provide (1) one density test for each 2000 sq. ft. or fraction thereof, for each lift. Provide a min. of (3) three tests per lift. Refer to Notes on Building Pad for testing Specifications.
    - Trench Backfilling: Trench backfilling with clay cap and placing of clay plug shall be monitored by Geotechnical Engineer with a written report sent to Structural Engineer.
  - CONCRETE REINFORCING:
    - Contractor is to provide knowledgeable and experienced personnel to inspect and approve reinforcing placement and clearances prior to engineers' field observations.
  - DRILLED & EPOXIED DOWELS: (Adhesive Anchors):
    - Confirm proper installation as required by ICC ES ESR.
    - Installation of epoxied dowels/adhesive anchors shall be by personnel trained by manufacturer representative.
  - CONCRETE TESTING:
    - Sampling and testing for concrete to follow ACI 318, latest edition.
    - All concrete testing is to be made after water, if any, is added at site.
    - Provide a set of (4) four cylinders to be taken for every 75 cubic yards of concrete, or fraction thereof, by testing lab.
    - Monitor slump of concrete and notify delivery driver if slump deviates more than plus or minus 1 inch from recommended value. Contact supplier for further directions.
  - MANUFACTURED WOOD TRUSSES:
    - Installation shall be observed by the Manufacturers/Design Engineers Representative prior to installing roofing and/or ceiling.

## 4. SITE DRAINAGE:

- A)Site drainage during construction is very important in controlling moisture problems associated with the below slab fill and subgrade soils. It is the responsibility of the Owner to maintain the external site drainage features. The following measures are to be taken by the Contractor:
- B) Installation of berms or swales on the uphill side of the construction area to divert surface runoff away from the fill area during construction.
- C) Sloping of the top of the subgrade with a min. downward slope of 1.5 percent out to the base of a dewatering trench located beyond the building perimeter.
- D)Sloping the surface of the select fill during construction to promote runoff of rainwater until the final lift is placed.
- E) During construction, the contractor shall provide any means necessary so as to remove all standing water in the excavation within a 24-hour period, (i.e., dewatering trenches, pumps, etc.) Dewatering shall be maintained until final grading around building has been completed.
- F) At all non-paved areas, provide a Clay "Cap" outside of the foundation. Refer to the Clay "Cap" note in the Building Pad Preparation note for requirements.
- G)Construction of final surface drainage patterns to prevent ponding and limit surface water infiltration at building perimeter.
- H)Location of water-bearing utilities, roof drainage outlets and irrigation spray heads outside the granular fill and perimeter drain boundaries.

## 5. BUILDING PAD PREPARATION:

- A)The Building Pad requirements given below are based on Geotechnical Engineering Study referenced below for a PVR (Potential Vertical Rise) of 1 inch.
- B) Limits of Preparation: Limits of preparation shall extend to 3'-0" beyond the building lines, plus overbuild pad as necessary to provide a 1:1 transition slope from top of pad to natural grade.
- C)Strip area of all vegetation and the top 3 feet of native material.
- D)Scarify the exposed subgrade to a depth of 6", moisture condition at optimum to plus four percentage points above optimum moisture and compact to min 95% max dry density as determined by ASTM D 698.
- E) The SELECT FILL below the concrete slab shall be inert, non-expansive, material with a Plasticity Index between 5 and 17 maximum particle size. Size shall be 3 inches.
- F) Install the Select Fill in 8" loose lifts and compact to 95% of the maximum dry density as determined by ASTM D 698 (plus 3% to minus 3%).
- G)Proper site drainage shall be maintained during construction so that ponding of surface runoff does not occur.
- H)Refer to "Geotechnical Engineering Study" for New Visitor's Center, by: Burge Engineering + Associates, Project No.: 12-22-0474, dated November 23, 2022, for information on soil strata, groundwater, site preparations, drainage and proof-rolling.
- I) Footing and beam design based on allowable soil support values:
- Widened Beams/Spread Footings (Total Load)..... 2,500 psf
  - Continuous Beams (Total Load)..... 2,500 psf
- J) Clay "Cap" (outside of foundation): The upper 24" (clay cap) of soil above the (horizontal) overbuild of Select Fill shall consist of cohesive clayey soil (CL) with a PI of 15 to 25 percent. The clay "cap" material shall have at least 65 percent by weight passing the No. 200 Sieve and no more than 15 percent by weight retained in the No. 4 Sieve. On-site soil may be used to construct this clay "cap" provided it meets the above requirements. The clay "cap" may be replaced with concrete flatwork or pavement extending to the edge of the foundation. The clay "cap" shall be placed in lifts not to exceed 8" loose measure, moisture conditioned to between plus or minus 3 percent of the optimum moisture content and be compacted to at least 90% of the maximum dry density determined in accordance with ASTM D 698. The top surface of the Clay "Cap" shall be sloped away from the building perimeter (min. 1" per foot).

## 6. TRENCH BACKFILLING:

- A)Trench backfill for utilities shall be properly placed and compacted as required and in accordance with local City Standards, Civil, and Mechanical requirements. Beneath the building structures, backfill within the utility trenches shall meet the same requirements specified under Building Pad Preparation.
- B) CLAY CAPS - Provide clay caps over all trenches in non-paved areas leading to and crossing building pad lines. The top 12 inches of trench backfill shall consist of on-site clays placed in two 8-inch loose lifts and compacted to 85 percent max. dry density as determined by ASTM D 698 at plus or minus 3 percent of optimum moisture content. In the event on-site clays are not readily available, contact Geotechnical Engineer for acceptable material options. At paved areas, CLAY CAPS are not required.
- C)CLAY PLUGS - Provide clay plugs where utility lines cross building lines (and 3'-0" min. beyond extent of building line, or pad, whichever is further) to prevent water traveling in the trench backfill and entering beneath the structure. Clay plugs shall extend the full depth of the trench and granular bedding material shall be omitted at plug locations. Clay plugs shall be free of gravel and a min. of 95 percent of the material shall pass the #4 sieve as determined by washed sieve analysis. Clay shall be placed in 8-inch loose lifts and compacted to 85 percent max. dry density as determined by ASTM D 698 at plus or minus 3 percent of optimum moisture content. Compaction equipment shall be suitable for obtaining the required compaction without damage to mechanical lines.
- D)No utility lines are to run parallel to the building, within 3'-0" clear of the building or 3'-0" clear of the building pad, whichever is furthest. Contractor shall notify Engineer if these guidelines are not met. Verify that conflicts between clay plug requirements, City requirements, and Mechanical requirements do not exist. Contact Structural Engineer regarding conflicts, if any.

## 7. CONCRETE & REINFORCING:

- A)All concrete and reinforcing shall meet ASTM A615 & ACI 117 (Standard Tolerances for Concrete Construction and Materials), U.N.O.
- Strength: Based on 28 days compressive strength tests: 3,000 psi
  - Flowable Fill shall meet 2004 1xDOT Item 401 (Max 28-day strength = 80 to 150 psi)
  - Reinforcing: ASTM 615, Grade 60 deformed bars.
- d. Reinforcing on Drawings shall be lapped per the following: [U.N.O.]
- Fill Supported Slabs.....40 dia
  - Fill Supported Beams.....60 dia
  - WWF.....2 Full Squares
  - .....40 dia [U.N.O.]
- e. Provide 2-#4 corner bars (top, bottom & mid if appropriate) at all corners and "T" intersections, (both interior and exterior). Each leg of corner bar to be 3'-0" long UNLESS DETAILED OTHERWISE. Provide "Z" bars at all slab and beam soffit drops, equal in size and number, to beam or slab reinf. respectively.
- f. Embed plates and column dowels shall NOT be "wet set". Securely tie dowels at proper spacing to reinforcing cage of supporting members. Use template to set and secure all anchor bolts.
- g. Welded Wire Fabric (W.W.F.): ASTM A185, or ASTM A497, flat sheets only.
- h. Unless indicated otherwise:
- Provide chairs to support concrete reinforcing at 48 inches o.c.
  - For slab-on-grade: provide chairs to place reinforcing at mid-depth of slab.
- i. Provide expansion joint material (1 inch min. X depth of slab) between building foundations and adjacent concrete walks/pavement. Seal expansion joints with flexible sealant. Unless noted otherwise, provide 3/8-inch diameter smooth bar dowels x 18 inch long @ 12 inches o.c. along all entries. Locate dowels below top bars of foundation beam.
- j. Contractor shall provide and maintain adequate facilities on the project for safe storage and initial curing of concrete test specimens as required by ASTM C31/C31M for the sole use of the testing agency.
- k. Proper curing of all concrete surfaces shall be provided by the Contractor in accordance with ACI 308, latest edition, "Standard Practice for Curing Concrete." If spray-on curing compounds are used, they shall be dissipating, and they need to be compatible with subsequent finish applications.
- l. All concrete shall be placed in accordance with ACI 302.1R. Finish tolerances shall be in accordance with ACI 117 and shall conform to at least an F number value of FF-25 / FL-20.
- m.No coring, saw-cutting, or other removal of concrete will be permitted without prior approval of structural engineer.

## 8. CONCRETE MIX DESIGNS:

- A)Max aggregate size to be lesser of:
- 1 1/2"
  - 1/5 least dimension of forms
  - 1/3 depth of slab
- B) All mixes to contain a minimum of five (5) sacks of cementitious material per cubic yard.
- C)Ratio of fly ash to total cementitious content shall not exceed 20%.
- D)Water cement ratio shall not exceed 0.50.
- E) Slump (as given in mix design) shall not exceed: 5" +/- 1"
- F) Concrete temperatures, at time of placement, shall be between 55 and 95 degrees F.
- G)Concrete shall be placed within 90 minutes of batch time.

## 9. POST-INSTALLED CONCRETE ANCHORS:

- A)Post-installed anchors shall only be used where specified on the construction documents. The contractor shall obtain approval from the engineer-of-record prior to installing post-installed anchors in place of missing or misplaced cast-in-place anchors.
- B) Anchors shall be installed by qualified personnel in strict accordance with the manufacturer specifications and the ICC-ES evaluation report.
- C)Care shall be taken in placing post-installed anchors to avoid conflicts with existing rebar. Holes shall be drilled and cleaned in accordance with the manufacturer's written instructions.
- D)Provide continuous or periodic inspection for all adhesive and mechanical anchors per the product's applicable ICC-ES evaluation report (ICC-ES ESR). Also see Structural Testing and Inspection Requirements.
- E) Contact manufacturer's representative for initial training, installation, and product related questions. Call Simpson at (800) 999-5099. Call Hilti at (800) 879-6000. Call DEWALT at (800) 524-3244.
- Mechanical anchors shall have been tested and qualified for use in accordance with ACI 355.2 and ICC-ES AC193 for cracked and uncracked concrete recognition. Pre-approved mechanical anchors include:
    - SCREW ANCHORS: DEWALT "SCREW BOLT+" (ICC-ES ESR-3889), Simpson "TITEN-HD" (ICC-ES ESR-2713), or Hilti "KWIK HUS-E2" (ICC-ES ESR-3027), or DEWALT SNAKE + (ICC-ES ESR-2272)
    - WEDGE/EXPANSION TYPE ANCHORS: DEWALT "POWER-STUD+ SD-1" (ICC-ES ESR-2818) or DEWALT "POWER STUD+ SD-2" (ICC-ES ESR-2502), DEWALT MINI-UNDERCUT+ (ICC-ES ESR 3912), Simpson "STRONG-BOLT 2" (ICC-ES ESR-3037), or Hilti "KWIK BOLT T2Z" (ICC-ES ESR-1917).
  - Adhesive anchors shall have been tested and qualified for use in accordance with ACI 355.4 and ICC-ES AC308 for cracked and uncracked concrete recognition. Pre-approved adhesive anchors include:
    - DeWalt "AC208+" (ICC-ES ESR-4027), DeWalt "PURE 110+" (ICC-ES ESR-3298), or Simpson "SET-XP" (ICC-ES ESR-2508), or Hilti "HIT-RE 500-V3" (ICC-ES ESR-3814), Hilti "HIT-HY 200" (ICC-ES ESR-3187)
    - Refer to "Structural Testing and Inspection Requirements" for pull testing requirements.
- F) Substitution requests for products other than those specified above shall be submitted by the contractor to the engineer-of-record along with calculations that are prepared and sealed by a registered professional engineer. The calculations shall demonstrate that the substituted product is capable of achieving the pertinent equivalent performance values (minimum) of the specified product using the appropriate design procedure and/or standard(s) as required by the building code.

## 10. CONCRETE ON GRADE CONSTRUCTION:

- A)Refer to Architectural Drawings for all floor finishes, dimensions and locations of slab drops and depressions, and sawcut layouts not shown on structural plans.
- B) Fill supported slabs, unless noted otherwise are 5 inches thick with #4 @ 12 inches o.c. each way in top of slab. Extend all slab bars over entire width of perimeter beams, or to edge of lug. Support bars on concrete bricks (3,000 psi). Place bricks under LOWER bars of reinforcing mat @ 48 inches o.c. Support bottom beam bars at 4'-0" intervals.
- C)VAPOR RETARDER: Place slab directly over Vapor Retarder using 12" minimum laps, continuously taped, tested per the flowing guidelines, and meeting ALL of the following requirements:
- Class (ASTM E1745): A
  - Permeance After Conditioning (ASTM E1745, E154): 0.01 Perms (grains/ft<sup>2</sup> hr inHg) (max.)
  - Tensile Strength (ASTM E154, Section 9): 45.0 lbf/in (min.)
  - Puncture Resistance (ASTM D1709, Method B): 2200 g. (min.)
  - Thickness: Minimum thickness of 15 mil
- Vapor Retarder is to extend down sides of beam and footing trenches, to within 4 inches of trench bottom. DO NOT drape Vapor Retarder across bottom of trenches.
- D)Grade beams are formed by walls and soffit of carefully shaped trench. Wood form exposed faces to a depth of 8 inches below finished grade, U.N.O. (See Architect), or to entire depth of beam if neat excavation is not possible to maintain exterior of beam within 1" of plan dimensions.
- E) All beam soffits shall bear 18 inches min. into final grade or compacted fill. On perimeter, increase scheduled depth as required for soffit to bear 24 inches min. below final grade.
- F) Where beam depth exceeds 36 inches, add #4 at 12 inches o.c. horizontal bars in each face of beam. Provide corner bar for all mid bars.
- G)When mechanical line trenches are to intersect grade beams, they must be approved by the Engineer and pass under or thru @ 90 Deg. to the beam line. Fill and compact all mechanical trenches under the building as noted above.
- Provide sleeves for lines passing thru grade beams with additional #5 bars all around sleeve, each face of beam.
- H)Pipes/Conduit cast into slabs:
- 1 1/2" inches max. O.D.
  - Conduit placed under slab reinforcing.
  - Min. spacing of conduit: 3 x dia.

## 11. STRUCTURAL STEEL:

- A)All structural steel shall meet the requirements of the current edition of the AISC Code of Standard Practice for Steel Buildings and Bridges.
- B) All structural steel WIDE FLANGE shapes shall meet ASTM A992 (50 ksi min.).
- C)Unless noted otherwise: ALL OTHER structural steel shall meet ASTM A36 or ASTM A992.
- D)Structural Steel Tubes:
- (Rectangular HSS): ASTM A500, Grade C (Fy= 50 ksi min.), or ASTM A1085.
  - (Round HSS): ASTM A500, Grade C (Fy=46 ksi min.).
- E) Bolts: ASTM A325, F1554, or F1852. All bolted structural connections shall utilize twist-off-type tension control bolt assemblies or approved equivalent. Bolts, nuts, and washers to be hot dipped galvanized where beams and columns are HDG. Bolt sizes and types to be as follows (unless noted otherwise on drawings):
- Roof Framing: 3/4-inch diameter, A325 or F1852
  - Floor Framing: 1 inch diameter, A325 or F1852
  - Anchor Bolts: F1554.
  - Threaded Rods: A36.
- F) Contractor to provide bracing during construction to resist all wind and construction loads in sufficient quantity to insure stability & plumbness requirements of the components and structure throughout the entire construction period.
- G)All welding shall comply with the requirements of AWS D1.1 for steel construction and work shall be performed by pre-qualified Certified Welders. U.N.O., provide the following minimum welding requirements:
- E70 series (all positions) electrodes.
  - 1/4-inch fillet welds.
  - For material 12 inches long or less, fully weld all joints.
  - For material over 12 inches long, weld 4" at 12" o.c.
  - If weld size is shown on details, but length not given, weld the entire length of the joint.
- H)Field welding is to be primed, painted, cold galvanized, or otherwise to match surrounding steel finishes. All cold galvanizing to be ZRC Galvite, or approved equivalent.
- I) All embedded steel plates and angles to be A 36 steel. "Headed Concrete Anchors" (HCA) shall be of 50,000 psi steel rod with upset ends, automatically arc welded through ceramic ferrules, "Nelson Concrete Anchor" or equivalent. All rebar that is to be welded to steel plates or angles shall be a weldable type, conforming to A-706, 60 ksi. Welding of reinforcing bars to plates and angles shall conform to AWS D1.4/D1.4M.

## J) LOOSE STEEL LINTEL SCHEDULE:

- WHERE OPENING EXCEEDS 8'-0", FILL CELLS OF SUPPORTING MASONRY WITH GROUT.
- All exterior lintels shall be hot dipped galvanized.
- Lintel sizes shown are the minimum sizes for structural requirements.
- Provide additional angle between the back of the brick angle, and the wall framing (or CMU), to close off any gap. Attach to the wall framing (or CMU) or shop weld to back of lintel angle. Coordinate the additional angle with architectural details.
- Masonry heights over opening which exceeds one half of the lintel span shall be shored until mortar has set and cured.

MEMBER SIZES FOR EACH 4 IN. WIDTH OF MASONRY			
ANGLE SIZE	CLEAR OPENING		BEARING
(L.L.V.)	GREATER THAN	UP TO	(EA. END)
3 1/2" x 3 1/2" x 3/8"	0	5'-0"	8" Min.
4" x 3 1/2" x 3/8"	5'-0"	6'-0"	d.o.
5" x 3 1/2" x 3/8"	6'-0"	8'-0"	d.o.
6" x 3 1/2" x 3/8"	8'-0"	9'-0"	12" Min.
6" x 3 1/2" x 1/2"	9'-0"	10'-0"	d.o.
7" x 4" x 1/2"	10'-0"	11'-0"	d.o.
8" x 4" x 1/2"	11'-0"	12'-0"	16" Min.
9" x 4" x 1/2"	12'-0"	14'-0"	d.o.

## 12. STRUCTURAL WOOD:

- A)All structural lumber shall be as specified below and conform to the AITC Code of Standard Practice, latest edition. Specifications by AITC shall govern those portions of work, fabrication and erection, of all structural wood.
- B) Dimensional Lumber Properties: Southern Yellow Pine, No. 2 or better.
- C)Special Lumber Properties: So. Yellow Pine. Select Structural or better.
- D)Hardware shall be as specified on Drawings and be by "Simpson" or an approved equivalent.
- E) Wood in direct contact with concrete or CMU, or exposed to weather, shall be pressure-treated or otherwise protected from moisture.
- F) Connectors to pressure-treated wood shall be galvanized or stainless steel.

## 13. MANUFACTURED WOOD TRUSSES:

- A)Trusses shall be designed, manufactured and installed in accordance with the applicable provisions of the latest edition of:
- The American Forest and Paper Association's ("AF & PA's") National Design Specification for Wood Construction.
  - (ANSI/TPI 1) "National Design Standard for Metal-Plate-Connected Wood Truss Construction".
  - BCSI (latest edition) "Guide to Good Practice for Handling, Installing and Bracing of Metal Plate Connected Wood Trusses".
  - The legal requirements of the applicable local jurisdiction, and currently adopted building code.
- B) Metal connector plates shall be manufactured by a Wood Truss Council of America ("WTCA") member plate manufacturer and shall meet or exceed ASTM A653/A653M requirements of structural steel.
- C)Min. properties of Chord Lumber shall be:
- Allowable bending stress: 1500 psi.
  - Modulus of elasticity: 1,600,000 psi.
- D)Min. properties of Web Lumber shall be:
- Allowable bending stress: 850 psi.
  - Modulus of elasticity: 1,400,000 psi.
- E) Max. moisture content at time of fabrication shall be 19 percent.
- F) Truss designs and layouts including all permanent and temporary bracing shall be performed by a Texas Licensed PE and submitted to Architect/Engineer for review.
- G)Trusses shall be erected, braced, and blocked-in accordance with the following industry bracing guidelines:
- (BCSI-B2) Truss installation and temporary bracing.
  - (BCSI-B3) Web Member Permanent Bracing/Web Reinforcement.
  - (BCSI-B7) Temporary and Permanent Bracing for Parallel Chord Trusses.
- H)Trusses shall be permanently braced in a manner consistent with good building practices and in accordance with the requirements of the Construction Design Documents. Trusses shall furthermore be anchored or restrained to prevent out-of-plane movement and simultaneously buckling of all trusses. Such permanent lateral bracing shall be accomplished by: (a) anchorage to solid end walls; (b) permanent diagonal bracing in the plane of the web members (perpendicular to trusses); or (c) other suitable means.
- I) Truss fabrication shall comply with TPI Quality Control Standards (QCM-77). Truss plant shall be inspected by third party certified agency.
- J) Cutting and altering of trusses is not permitted. If any truss should be broken, damaged, or altered, written concurrence and approval by a licensed design professional is required.

## 14. ENGINEERED WOOD:

- A)Micro-lam LVL beams shall be solid rectangular sections constructed of high strength laminated veneer as manufactured by Truss-Joist Corporation or equal.
- Design properties shall be equal to or exceeding:
    - Fb = 2,600 psi multiplied by (12/D)<sup>0.136</sup> for member depths greater than 12"
    - Ft = 1,555 psi
    - Fc = perpendicular = 750 psi
    - Fc = parallel = 2,510 psi
    - Fv = 285 psi
    - E = 2,000,000 psi
- B) Glu-lam beams shall conform to ANSI/AITC A190.1-2007.
- Design properties shall be equal to or exceeding:
    - Fb = 2,400 psi (Bending)
    - Ft = 1,100 psi (tension parallel to grain)
    - Fv = 265 psi (Shear)
    - E = 1,800,000 psi (Modulus of elasticity)
    - Fc = 650 psi (Compression perpendicular to grain on tension face)
    - Fc = 650 psi (Compression perpendicular to grain on compression face)
    - Fc = 1,650 psi (Compression parallel to grain)
    - Single span glu-lam beams to be combination 24F-V4
    - Multiple span or cantilevered beams to be combination 24F-V8
- C)Adhesives shall meet the requirements for wet conditions of service. Members shall be individually wrapped.

## 15. STRUCTURAL DESIGN LOADS: (Non-Factored)

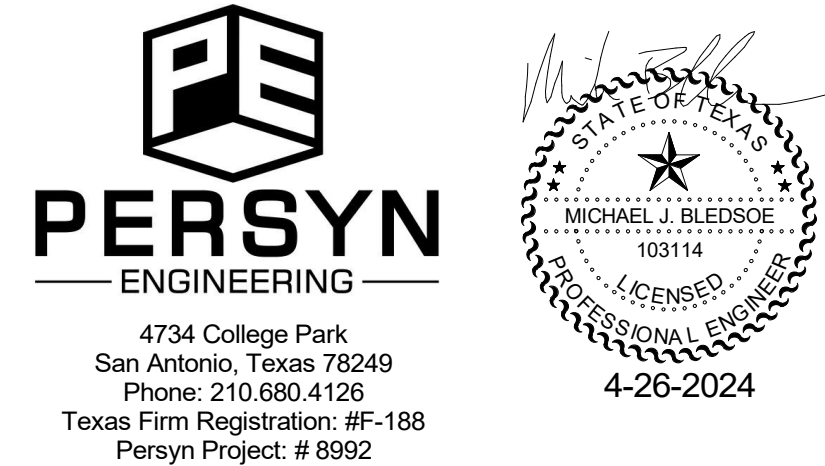
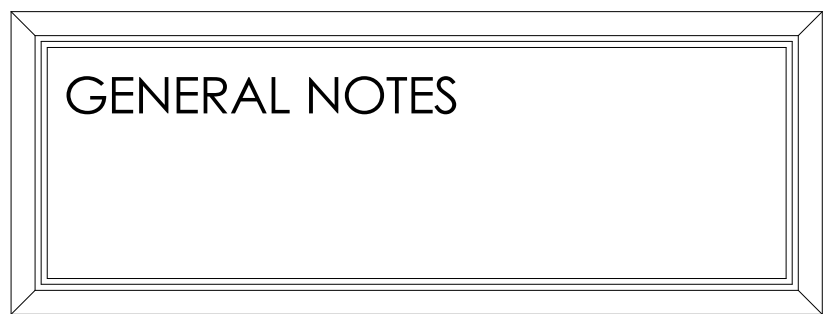
- A)Dead Loads:
- Roof: weight of building components.
  - Floor: weight of building components.
- B) Live Loads:
- Roof: LL Reduction Not Used
    - Typical.....20 psf
  - Floor: LL Reduction Not Used
    - Typical.....100 psf
- C)Building Risk Category: II (IBC Table 1604.5)
- D)Wind Loads per 2021 I.B.C., (Exposure B) (IBC Pg. 378)
- Basic Wind Speed: Category: II
    - Vult = 110 mph
    - Vasd = 85 mph
  - Net uplift on trusses: (Total uplift minus DL (4 psf)) (Net uplift pressures shown on structural plans are results of IBC load combinations already applied)
    - Typical Areas .....12 psf
    - Areas within 10' of roof edges, hips or ridges.....22 psf
    - Areas within 10' of roof corners.....36 psf
- E) Snow Loads: 5 psf
- F) Building Code 2021 I.B.C.
- G)Seismic Design Data:
- Seismic Importance Factor (I) = 1.0 (ASCE 7 Table 1.5-2)
  - Site Class..... = D (Per Geotech)
  - Seismic Design Category..... = A
  - Seismic Force Resisting System: Shear Walls
  - Seismic Analysis Procedure: Equivalent Lateral Force Procedure

## 16. SCHEDULE OF SITE OBSERVATIONS BY ENGINEER:

- A)This design shall not be considered valid, and Engineer accepts no responsibility, unless observations are performed by a representative of Persyn Engineering.
- B) Observations made by Engineers Representative are to check for general conformance with the Structural Drawings. The responsibility for ensuring accuracy o the construction, and quality control procedures remains with the Contractor.
- C)Prior to the beginning of construction, the contractor shall arrange a meeting with th Structural Engineer to set-up a schedule for the following observations:
- CONCRETE REINFORCING: Prior to each concrete pour unless noted otherwise by Engineer.
  - STRUCTURAL WOOD: Before connections and structural members are hidden by installation of architectural finishes.
- D)Notify Engineer at least 24 hours before each site observation is required.
- E) NOTE: These structural observations are the requirements of the Structural Engineer. They are not meant to satisfy the requirements of Section 1705 of the International Building Code, "Special Inspections."

## 17. SPECIAL INSPECTIONS: (Not Required)

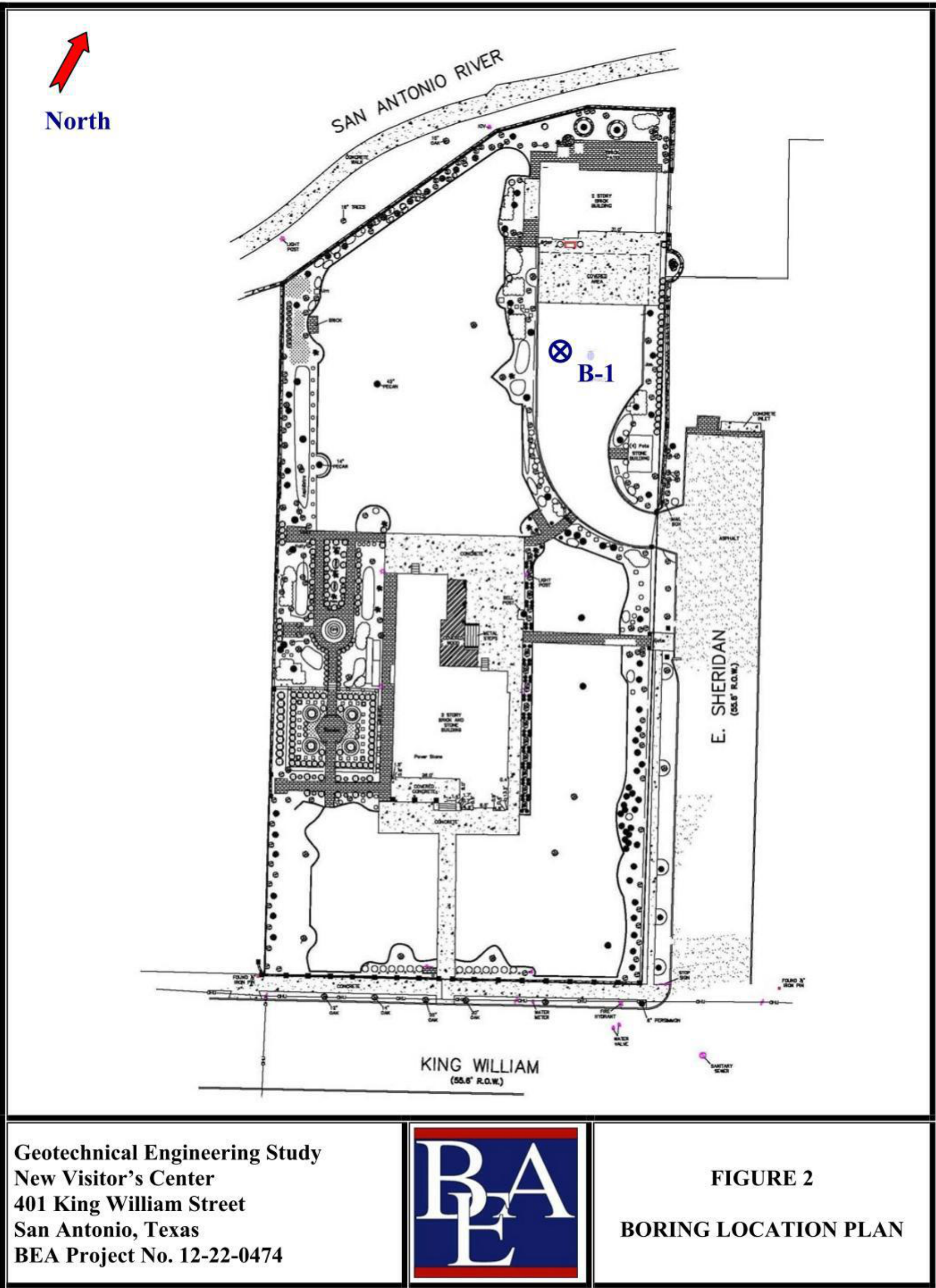
- A)Special inspections are not required for the Structural portion of this project (IBC Section 1704.2, Exception 1).
- B) The general contractor is responsible for coordinating all testing, inspections and notifying the Architect/Engineer and Inspectors of work ready for inspection. The general contractor must provide access to and means for proper inspection of such work.
- C)List of IBC Section 110 Structural Inspections, which are to be made by the Building Official. (Note: The Building Official may accept a review by a licensed professional engineer in place of the Building Official conducting the review).
- Footing and Foundation Inspection (IBC Chapter 110.3.1).
  - Concrete Slab and underfloor inspection (IBC Chapter 110.3.2).
  - Frame Inspection (IBC Chapter 110.3.4).





BORING LOGS

<div><div><div>BAE</div><div>Burge Engineering &amp; Associates 3453 North Pan Am Expressway, Suite 201 San Antonio, Texas 78219 Telephone: 210-646-8566 Fax: 210-590-7476</div></div><div><div>BORING NUMBER B-1</div><div>PAGE 1 OF 1</div></div></div>														
CLIENT Villa Finale Museum & Gardens					PROJECT NAME New Visitor's Center									
PROJECT NUMBER 12-22-0474					PROJECT LOCATION 401 King William St., San Antonio, TX									
DATE STARTED 11/14/22 COMPLETED 11/14/22					GROUND ELEVATION					HOLE SIZE 5"				
DRILLING CONTRACTOR BEA					GROUND WATER LEVELS:									
DRILLING METHOD Dry Auger					▽ AT TIME OF DRILLING 14.0 ft									
LOGGED BY T.J. CHECKED BY B. Krieger					AT END OF DRILLING ---									
NOTES Groundwater encountered at 14' during drilling.					AFTER DRILLING ---									
DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (ROD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS			FINES CONTENT (%)		
0		Asphalt (~1 inch)	SS 1		5-5-7 (12)			18						
		Base Material (~4.5 inches)	SS 2		7-8-8 (16)			19	67	23	44			
5		- trace calcareous deposits below 4.5 feet	SS 3		5-6-6 (12)			22						
		Stratum II: Very stiff, light gray LEAN CLAY (CL)	SS 4		9-8-8 (16)			16						
			SS 5		8-10-16 (26)			12	31	16	15			
10														
		- grades to very loose to dense, light gray CLAYEY SAND (SC), trace gravel	SS 6		2-1-2 (3)							24		
			SS 7		17-18-20 (38)									
20														
		Stratum III: Hard, tan and light gray FAT CLAY (CH)	SS 8		13-18-23 (41)			22						
			SS 9		15-19-22 (41)			21						
30														
		Stratum IV: Hard, gray SHALE	SS 10		17-23-27 (50)			23						
35														
		Bottom of hole at 35.0 feet.												



Geotechnical Engineering Study  
New Visitor's Center  
401 King William Street  
San Antonio, Texas  
BEA Project No. 12-22-0474



FIGURE 2  
BORING LOCATION PLAN

SITE NOTES

Data on indicated subsurface conditions are not intended as representations or warranties of accuracy or continuity between soil borings. It is expressly understood that the Owner, Architect, and/or Civil or Mechanical, Plumbing or Electrical, or Structural Engineer will not be responsible for interpretations or conclusions drawn by Contractor. Data are made available for convenience of Contractor only. The Contractor may, as his option, obtain a copy of the Geotechnical Engineering study from the Geotechnical Engineer.

NOTES:

1. Boring logs shown are reproduced from geotechnical report with permission from the Geotechnical Engineer.
2. Boring logs are shown for information only.
3. These logs should not be used separately from the final geotechnical report, available through the Geotechnical Engineer's office.

BORING LOGS



4734 College Park  
San Antonio, Texas 78249  
Phone: 210.680.4126  
Texas Firm Registration: #F-188  
Persyn Project: # 8992



VILLA FINALE  
MUSEUM AND GARDENS  
401 KING WILLIAM STREET  
SAN ANTONIO, TEXAS

S1.1

MICHAEL G. IMBER  
ARCHITECT  
111 WEST EL PRADO  
SAN ANTONIO, TEXAS 78212

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Refer to Architect for location of floor drains.

- Refer to Architect for concrete flatwork.

1" E.J.

1" E.J.

;

3.1" E

;

T.C. = 100' - 0"

Where shown on plans, — provide (3)- #4 x 5'-0" extra diagonal mat reinforcing. Place on top of main mat.

Column mark. See 11/S4.0 for schedule and detail. \_\_\_\_\_

slots

Provide #4 x 1'-6" dowels @ 18" o.c. Place below top horizontal beam reinforcing

— Provide #4 x 1'-6" dowels @ 18" o.c. Place below top horizontal beam reinforcing.

- Refer to Architect for concrete flatwork.

PLAN  
NORTH

## FOUNDATION PLAN

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

**CONSTRUCTION NOTE**

All final concrete drops, slopes lug depths and curb heights are to be confirmed by contractor and concrete sub contractor and coordinated with final finish material selections prior to form setting or concrete pour. Contractor to protect exposed concrete floors as directed by Architect. Final placement of structures are a field condition and must be verified prior to form setting and concrete pour. Exact placement of all structures is subject to in-field placement at Owners, Architect's direction.

## SLAB ON GRADE

Provide 5" (u.n.o.) normal weight concrete slab reinforced with #4 12" o.c. each way on vapor retarder over compacted select See General Notes.

ALL GRADE BEAMS TO BE GB1,  
UNLESS NOTED OTHERWISE.

### CONCRETE GRADE BEAM SCHEDULE

\*Scheduled beam depth is the minimum depth required. Provide (2)- #4 continuous horizontal mid bars @ 12" o.c. Provide #4 corner bars at ALL horizontal mid bar reinforcing. Space stirrups at 16" o.c. if beam depth exceeds 6'-0".



Provide continuous #4 horizontal bar with #4 x 2'-0" dowels @ 12" o.c. Extend horizontal bar 2'-0" past curb into typical mat. Provide matching corner bars.

Refer to [flatwork](#).

Beam reinforcing. -  
See plan and beam  
schedule.

#4 x  
at 24" o.c.

Typical slab  
reinforcing. See plan.

Concrete bricks at 48" o.c.

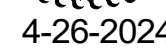
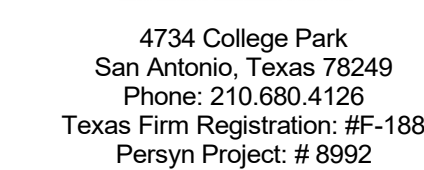
**Structural fill. Refer to General Notes.**

**Drape vapor retarder down side of beam only. Do not extend across bottom of excavation.**

Compacted subgrade.  
Refer to General Notes.

— All grade beams to bear 6" into existing soil strata.

## FOUNDATION PLAN



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## S2.0

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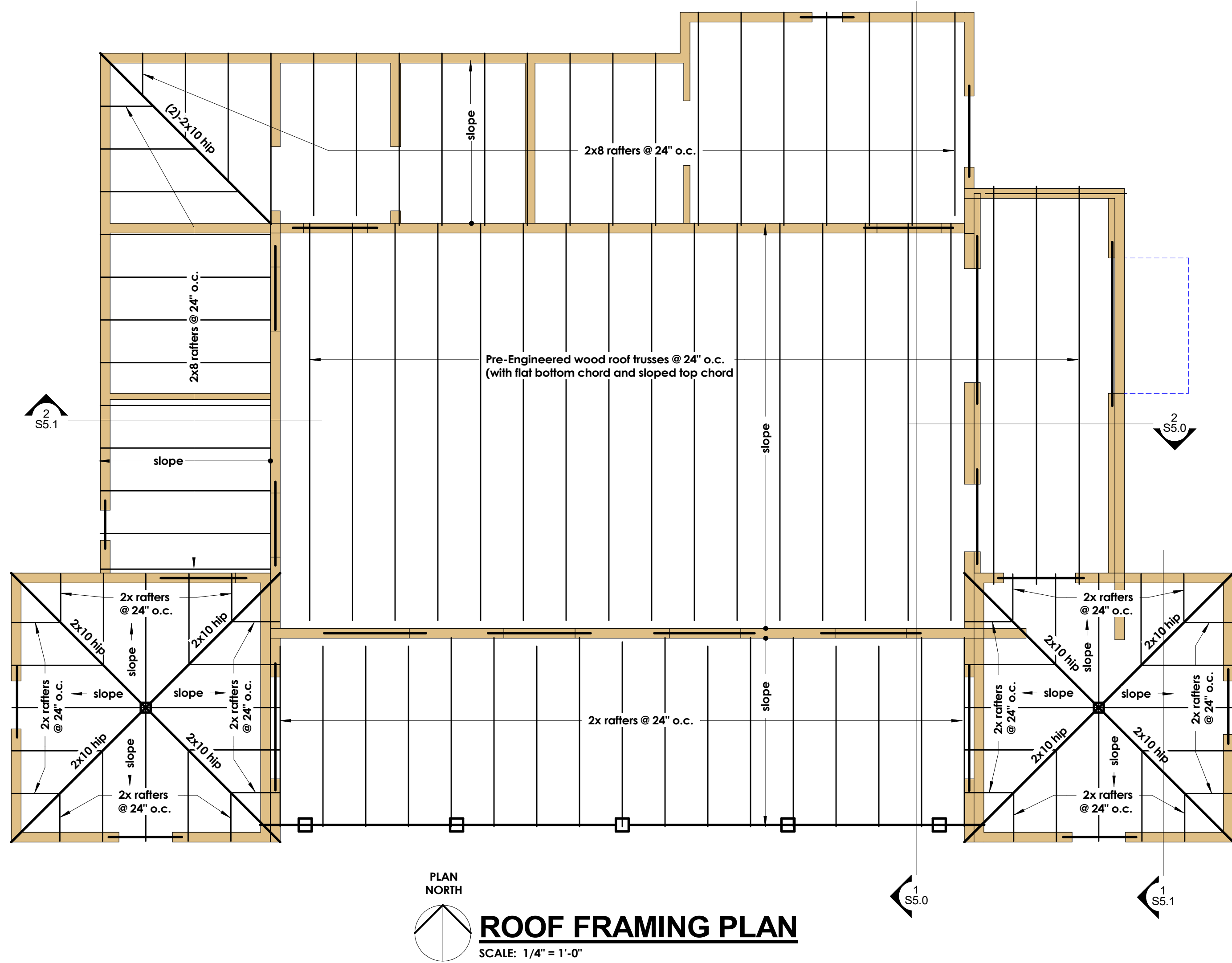
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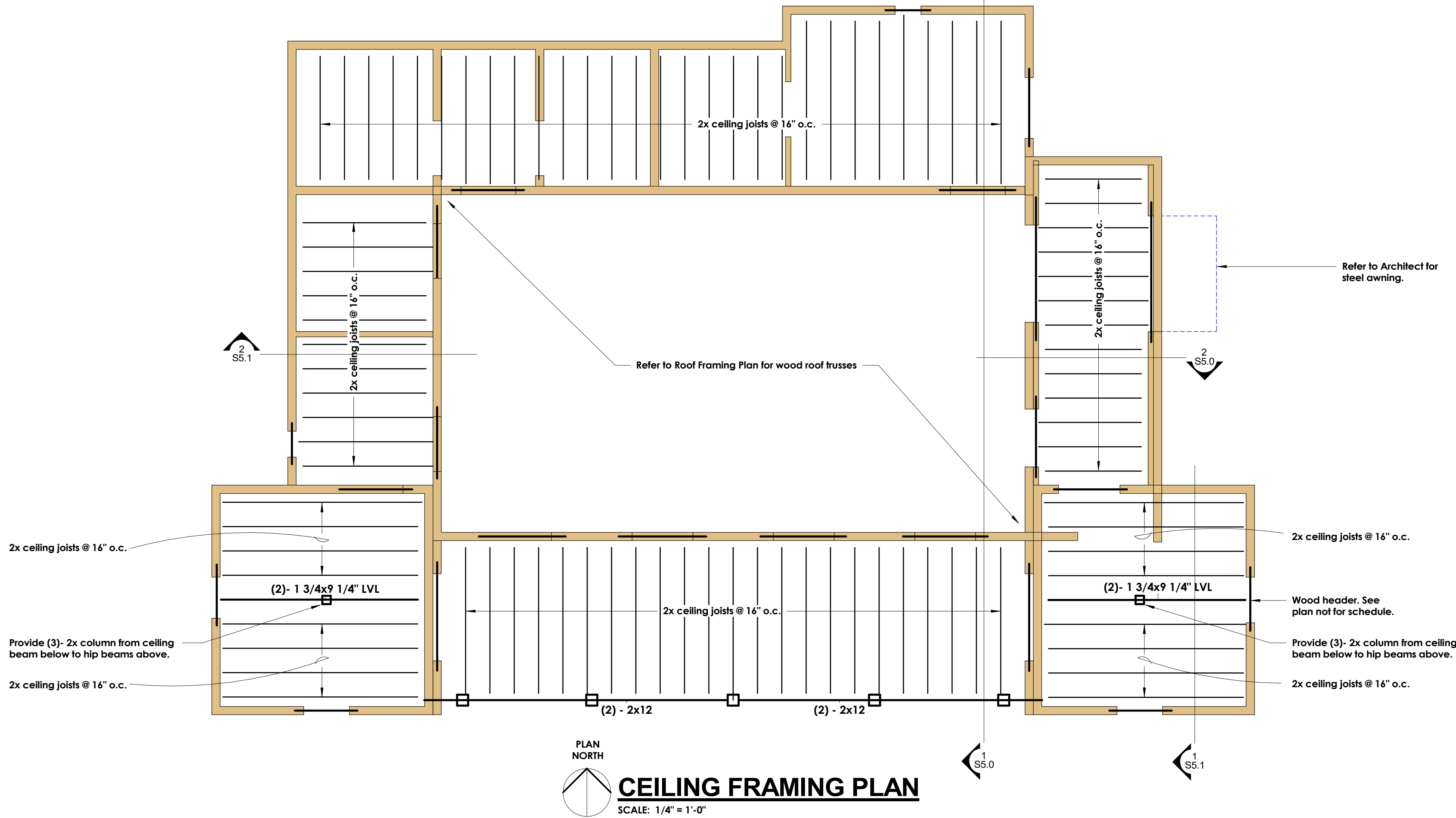
① EXTERIOR GRADE BEAM WITH CURB  
3/4" = 1'-0"





**ROOF FRAMING PLAN**

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



**CEILING FRAMING PLAN**

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

**TYPICAL WOOD ROOF DECK**

Provide 5/8" plywood deck staggered with long dimension across supports. Plywood to be APA rated sheathing. Nail at 6" o.c. along edges and at 12" o.c. at intermediate supports with 8d common nails. Stagger end joints. Provide edge clips.

**RAFTER SCHEDULE**

SPAN	SIZE for clay tile
9'-0" max.	2x6 @ 16" o.c.
11'-0" max.	2x8 @ 16" o.c.
14'-0" max.	2x10 @ 16" o.c.
16'-0" max.	2x12 @ 16" o.c.
SPAN	SIZE for TPO or SSMR
9'-0" max.	2x6 @ 24" o.c.
11'-0" max.	2x8 @ 24" o.c.
14'-0" max.	2x10 @ 24" o.c.
16'-0" max.	2x12 @ 24" o.c.

**WOOD HEADER SCHEDULE**

Unless noted otherwise on plans provide headers as follows: Provide SYP #2 or better.

0' - 3'-0"	(3)- 2x6
3'-1" - 6'-0"	(3)- 2x8
6'-1" - 8'-0"	(3)- 2x10
8'-0" - 10'-0"	(3)- 2x12

**CEILING JOIST SCHEDULE**

SPAN	SIZE (U.N.O. on plan)
12'-0" max.	2x8 @ 16" o.c.
16'-0" max.	2x10 @ 16" o.c.
21'-0" max.	2x12 @ 16" o.c.

**PLYWOOD WALL SHEATHING**

1/2" CDX plywood or OSB. Provide blocking between wall studs at plywood joints. Provide 8d nails at 6" o.c. at ends and edges and 12" o.c. in the field. Extend to top and bottom wall plates. Where noted as Type 2 Shearwall, provide 3" o.c. edge nailing.

**LOAD BEARING WALLS**

At load bearing stud walls provide 2x wood studs @ 16" o.c. to support wood framing. Refer to General Notes for design requirements. Refer to Architectural plan for layout. Use LSL studs at 16" o.c. when stud height exceeds 12'-0".

**STRAP NOTE**

Shown Thus:  
Provide Simpson CS16 (horizontal) straps above and below window openings. Extend 2'-0" beyond opening.

**CEILING/ ROOF FRAMING PLANS**



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San Antonio, Texas 78249  
Phone: 210.680.4126  
Texas Firm Registration: #F-188  
Persyn Project: # 8992



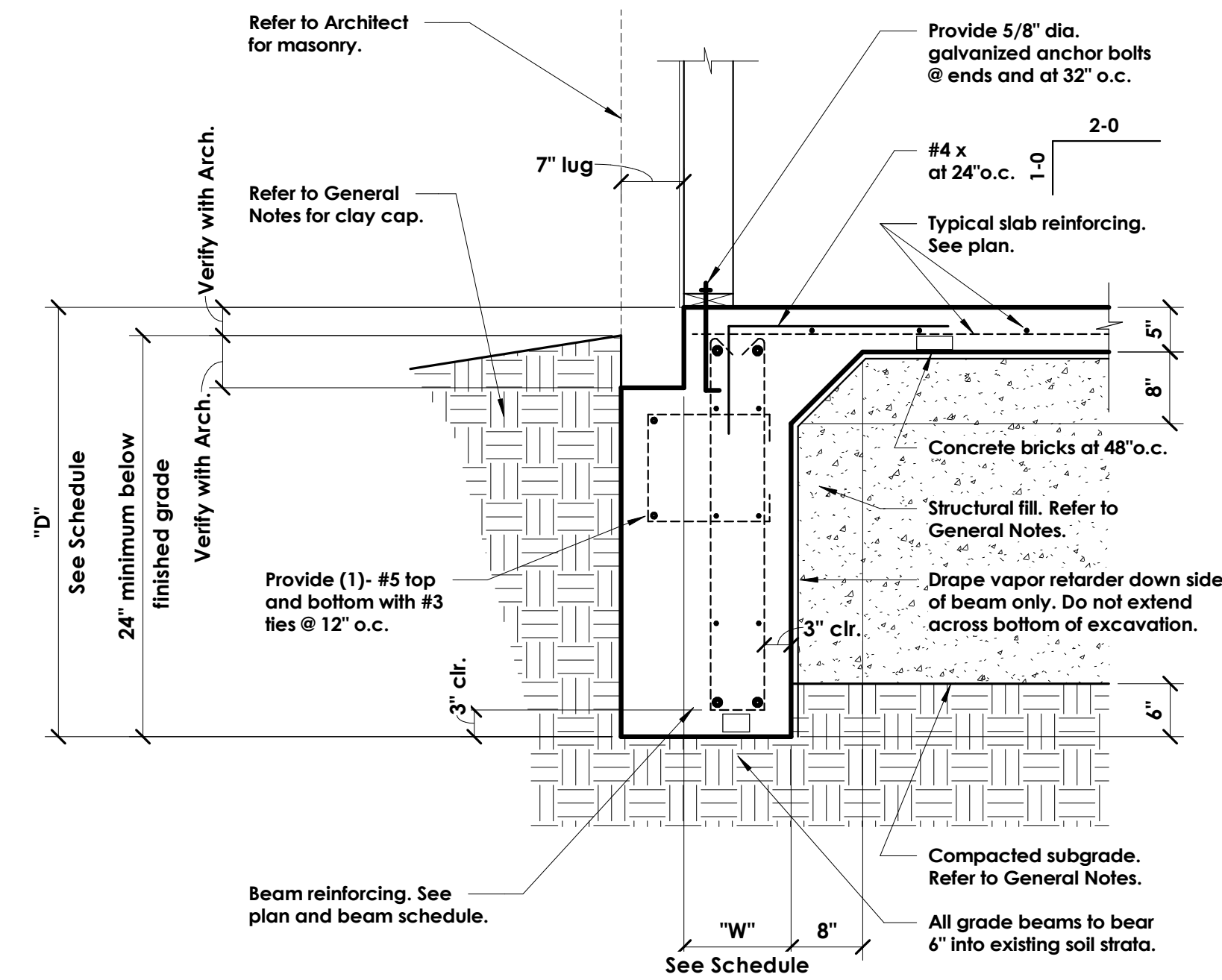
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401 KING WILLIAM STREET  
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**S3.0**  
**MICHAEL G. IMBER**  
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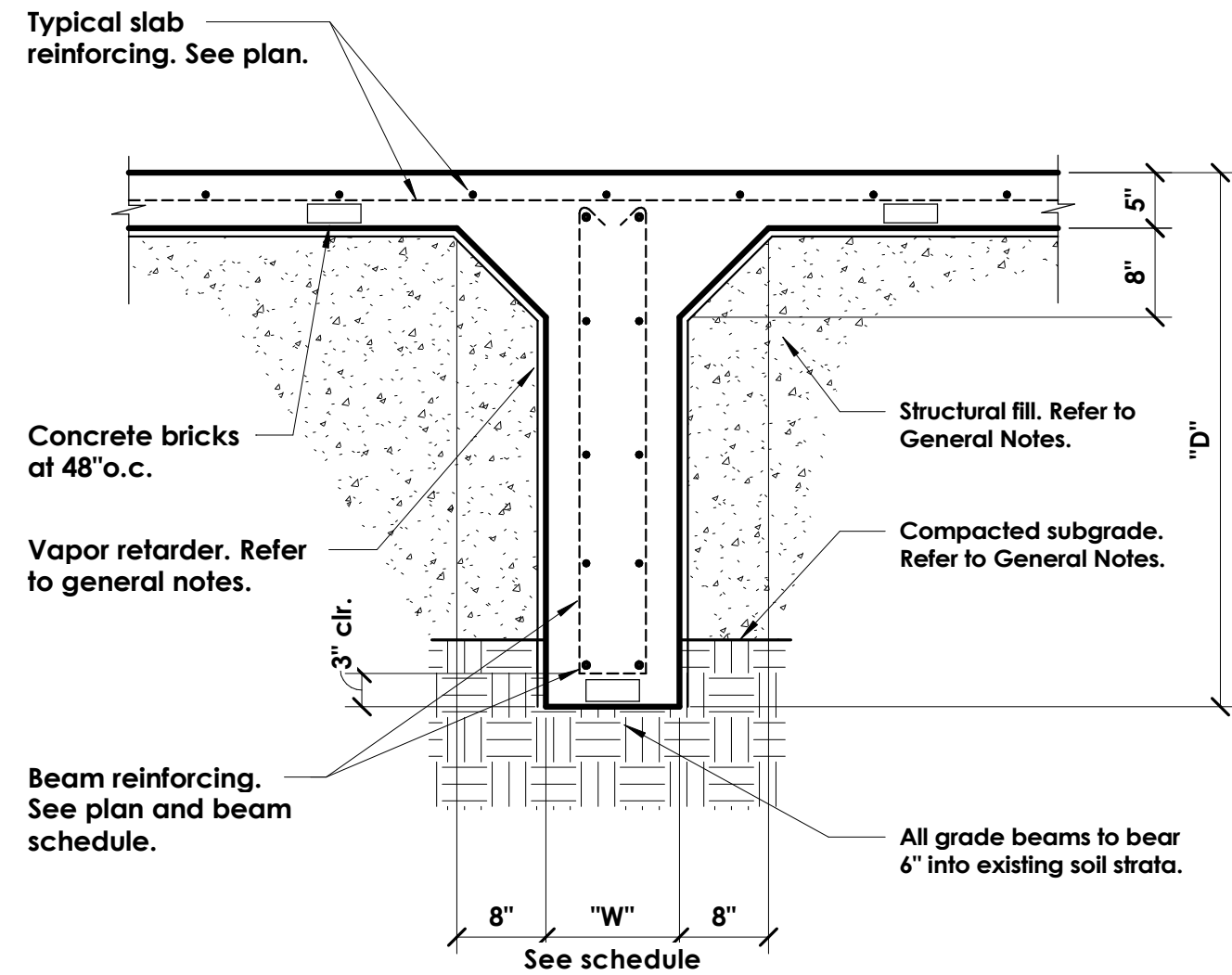
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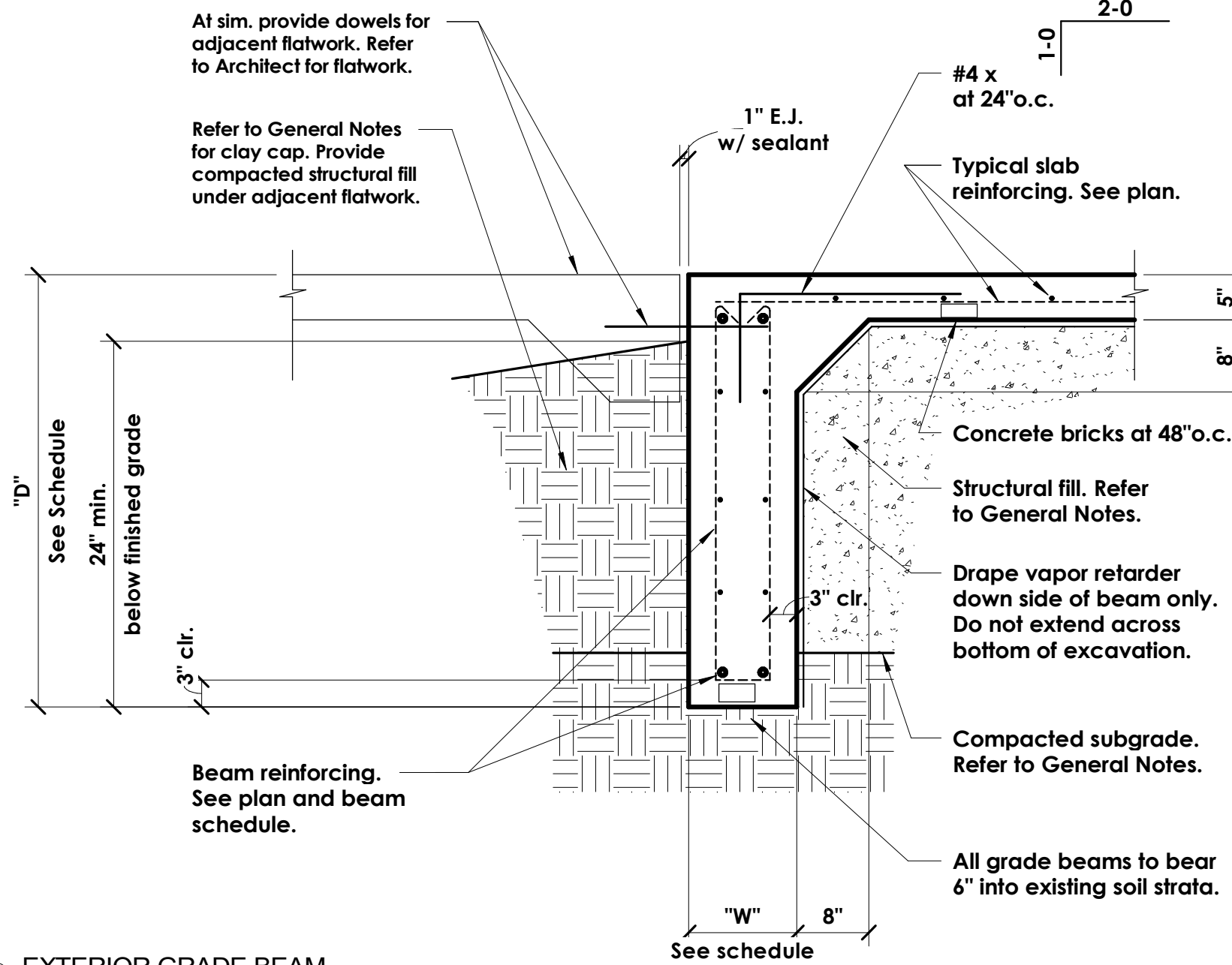
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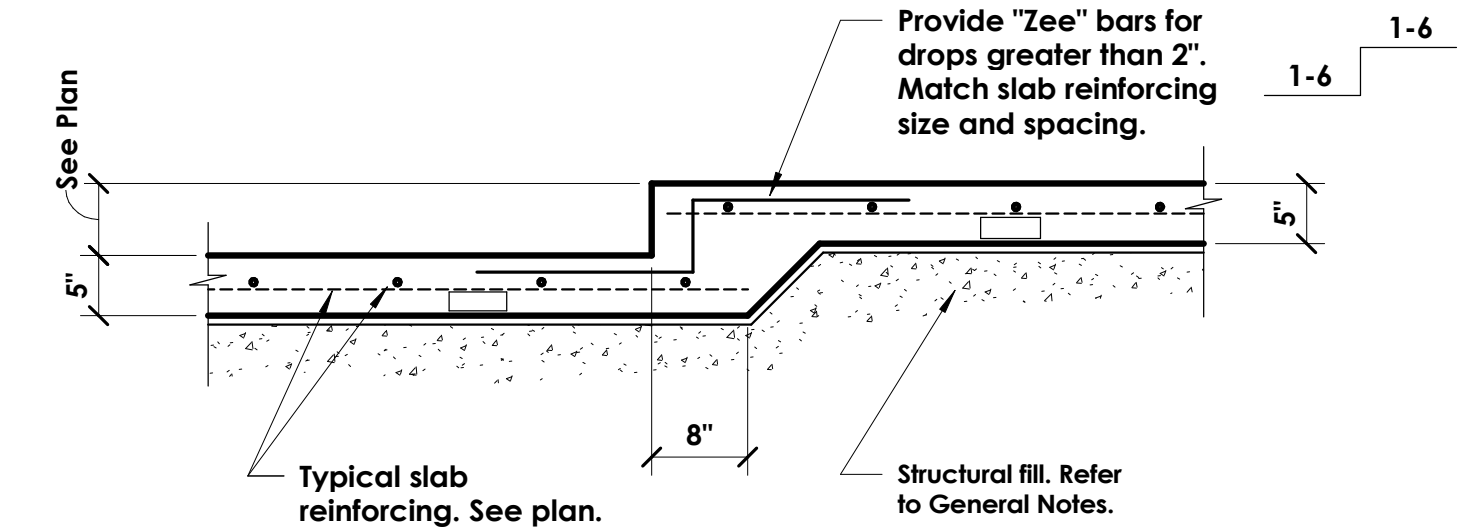
① EXTERIOR GRADE BEAM WITH LUG  
3/4" = 1'-0"



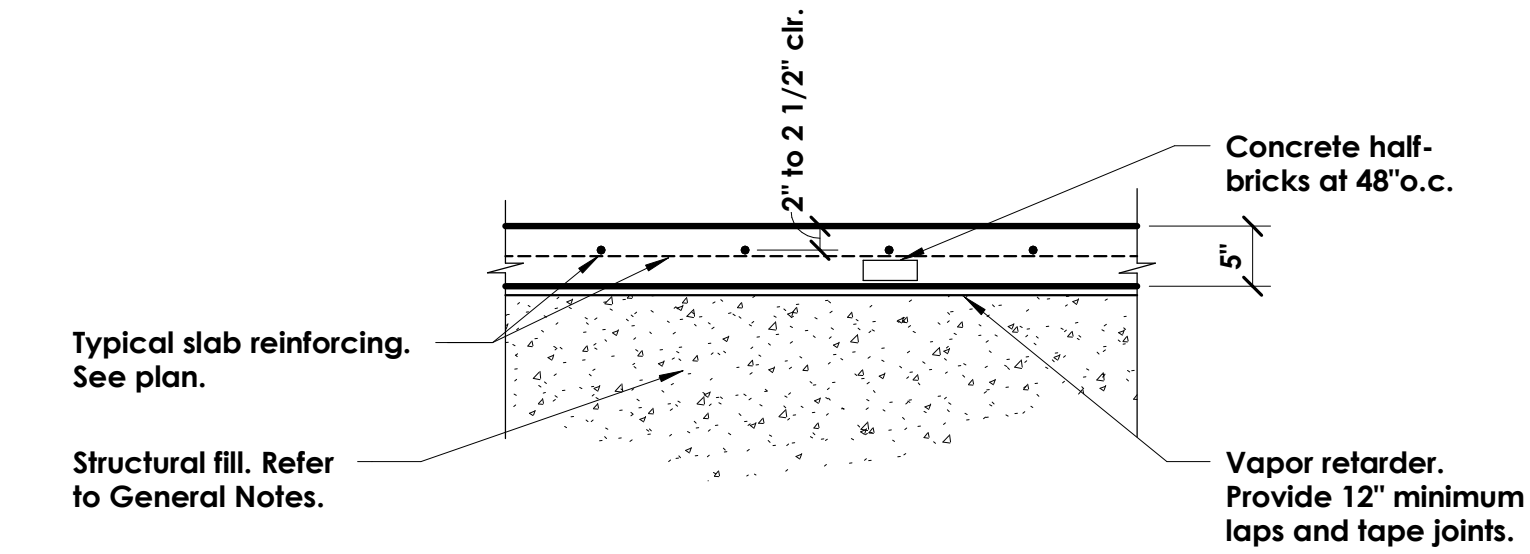
② INTERIOR GRADE BEAM  
3/4" = 1'-0"



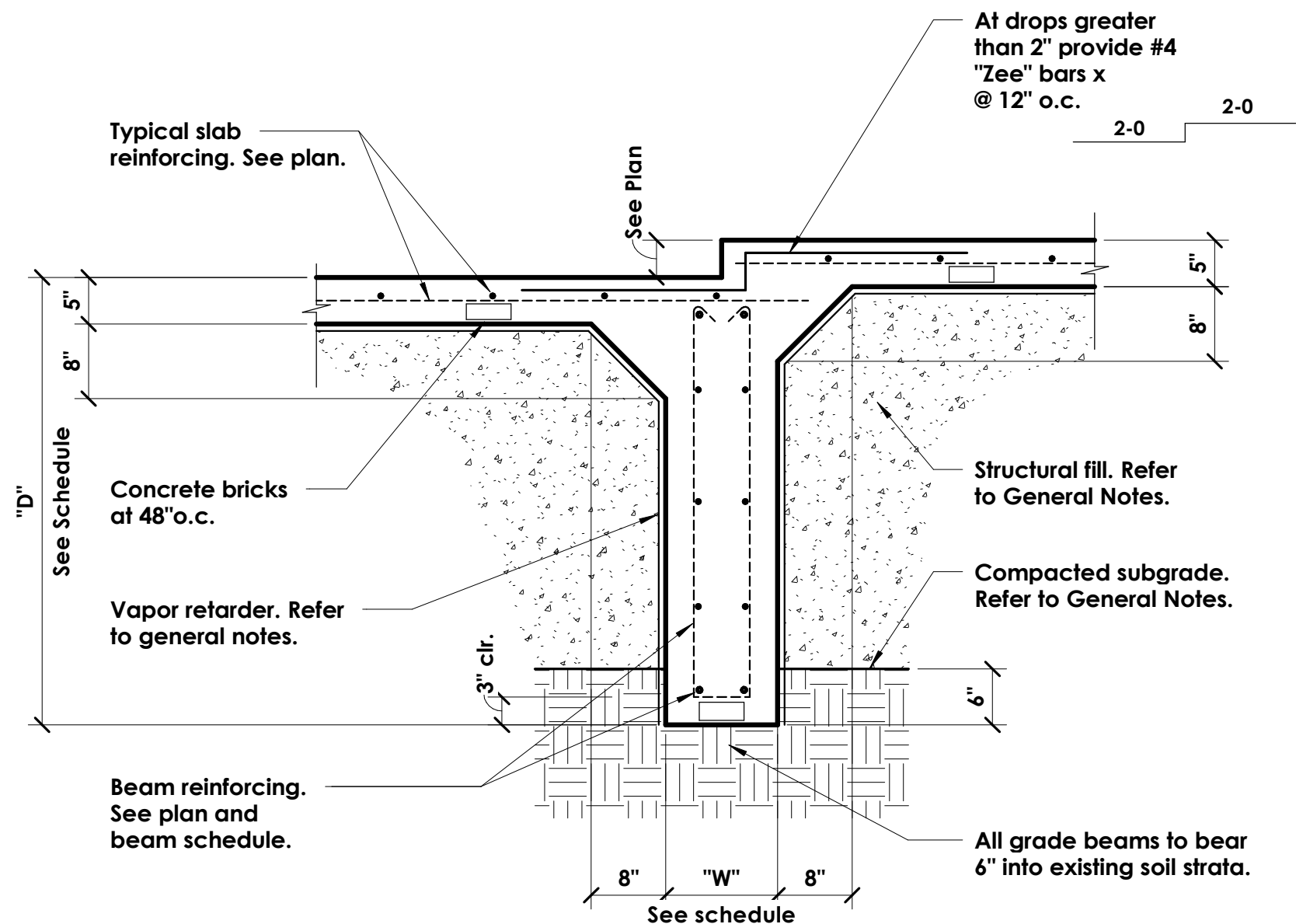
③ EXTERIOR GRADE BEAM  
3/4" = 1'-0"



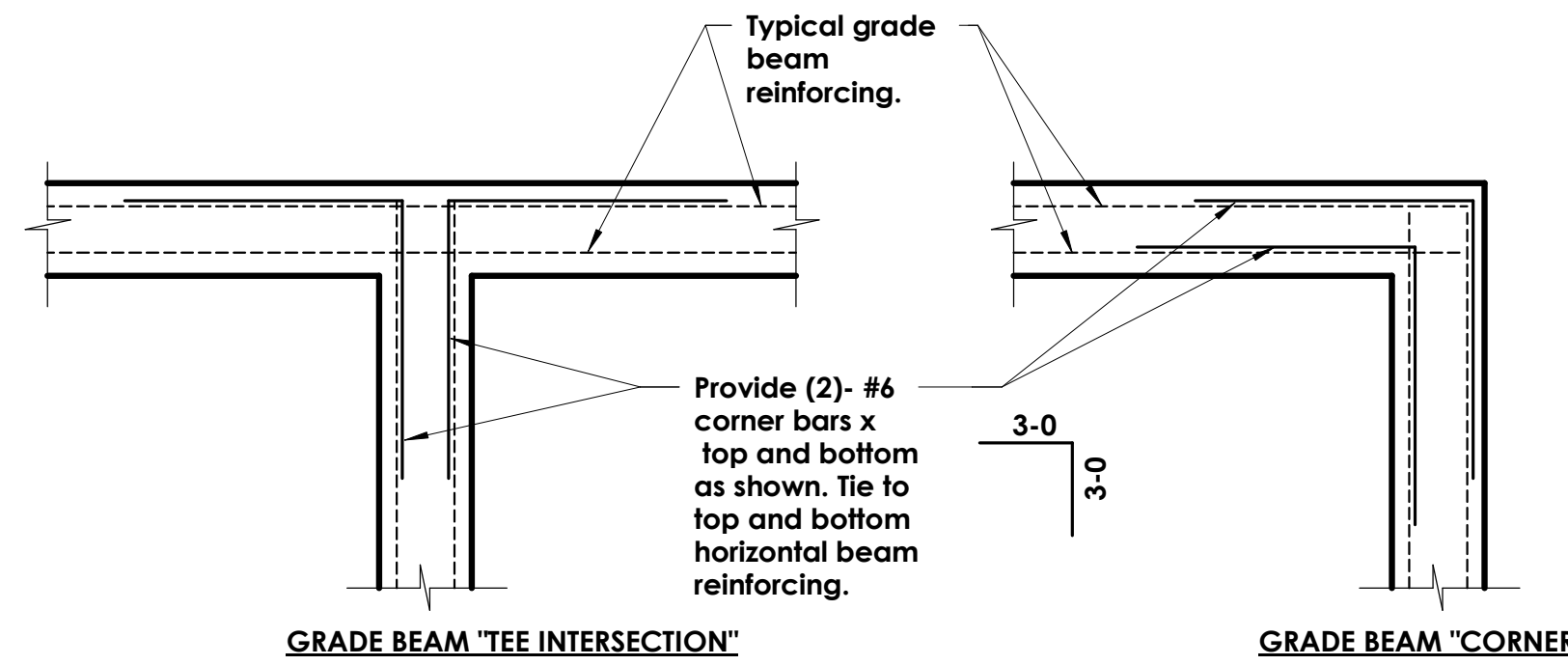
④ SLAB DROP DETAIL (NOT CUT ON PLAN)  
3/4" = 1'-0"



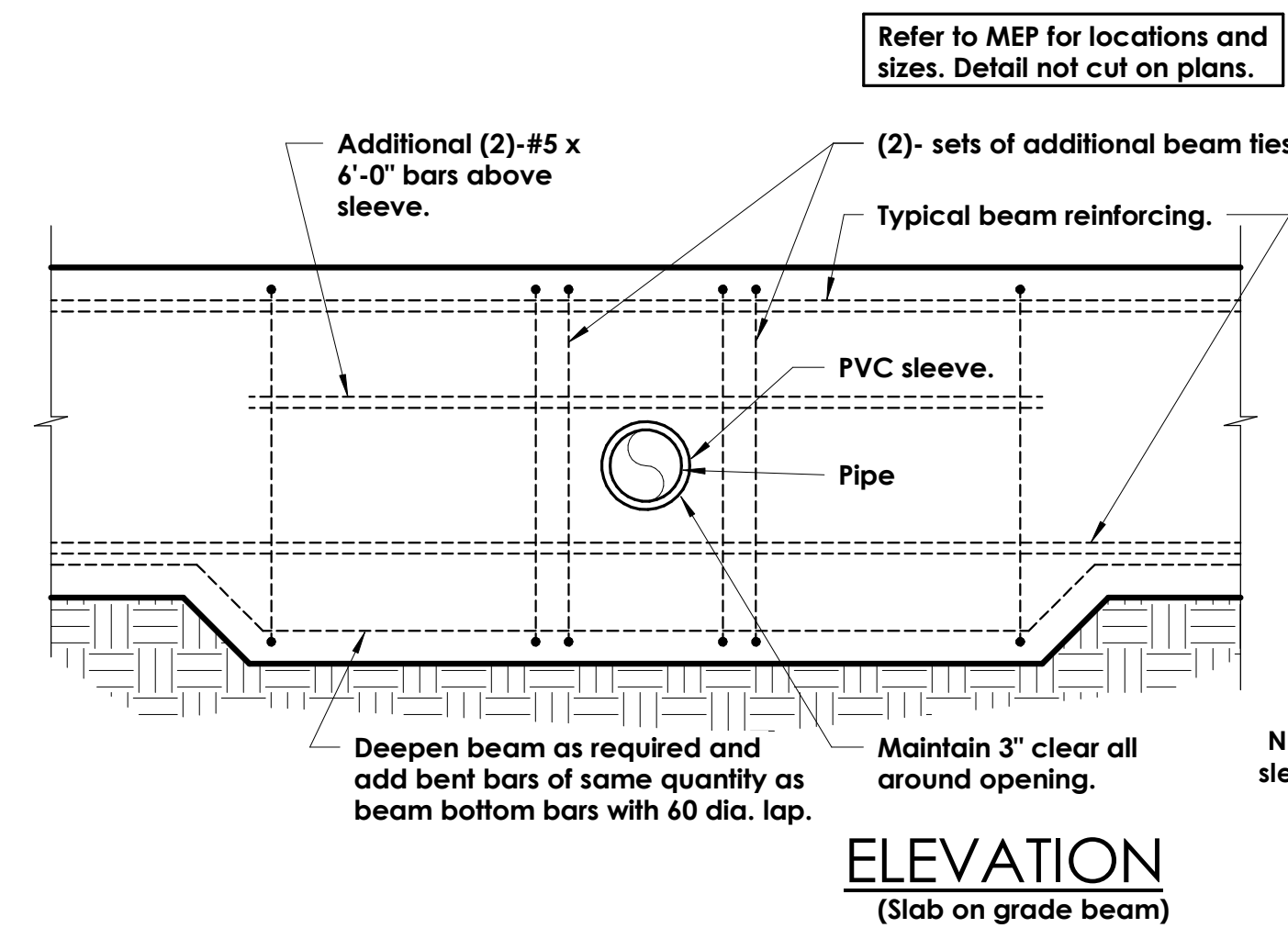
⑤ SLAB REINFORCING SUPPORT DETAIL  
3/4" = 1'-0"



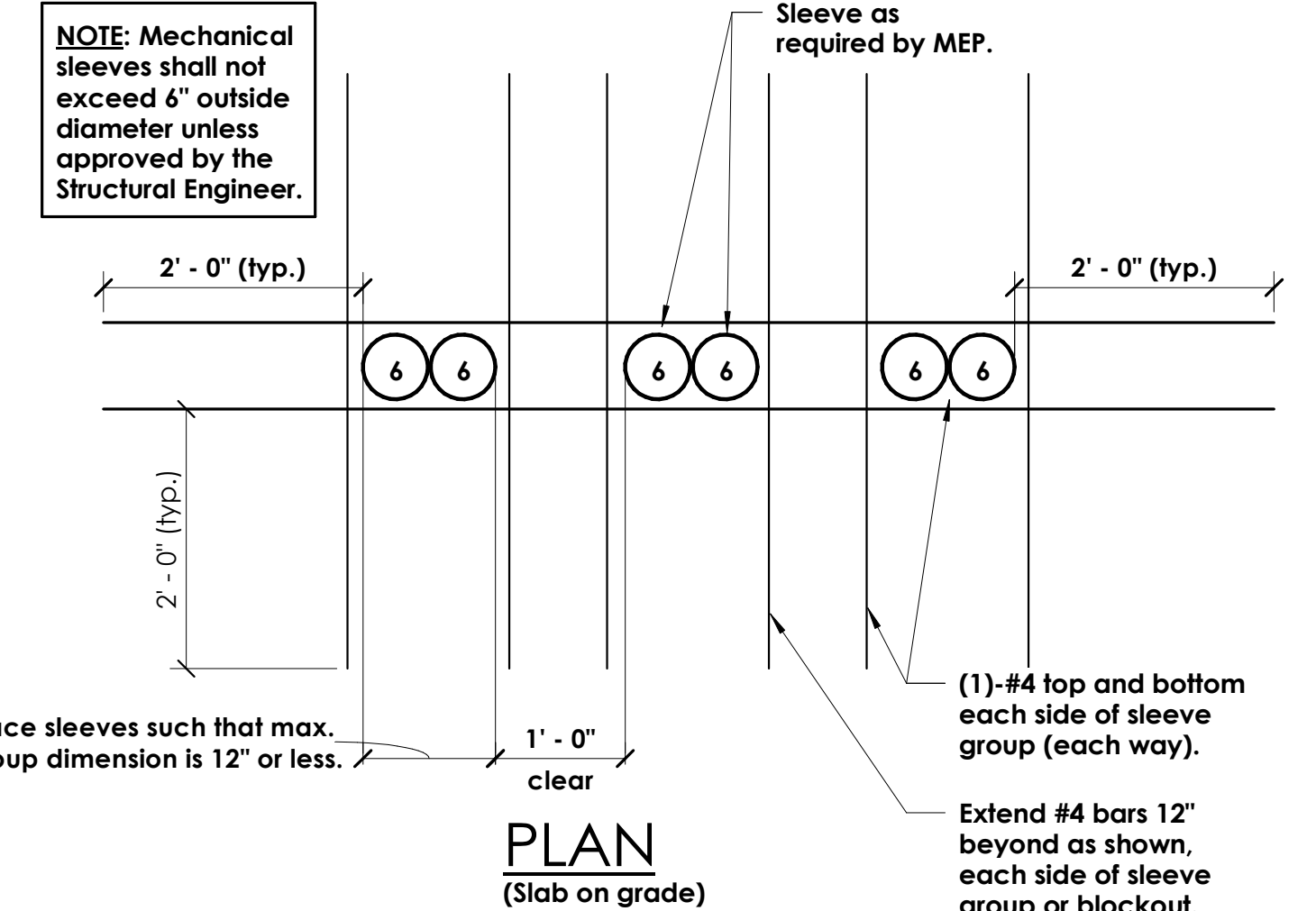
⑥ GRADE BEAM AT DROP  
3/4" = 1'-0"



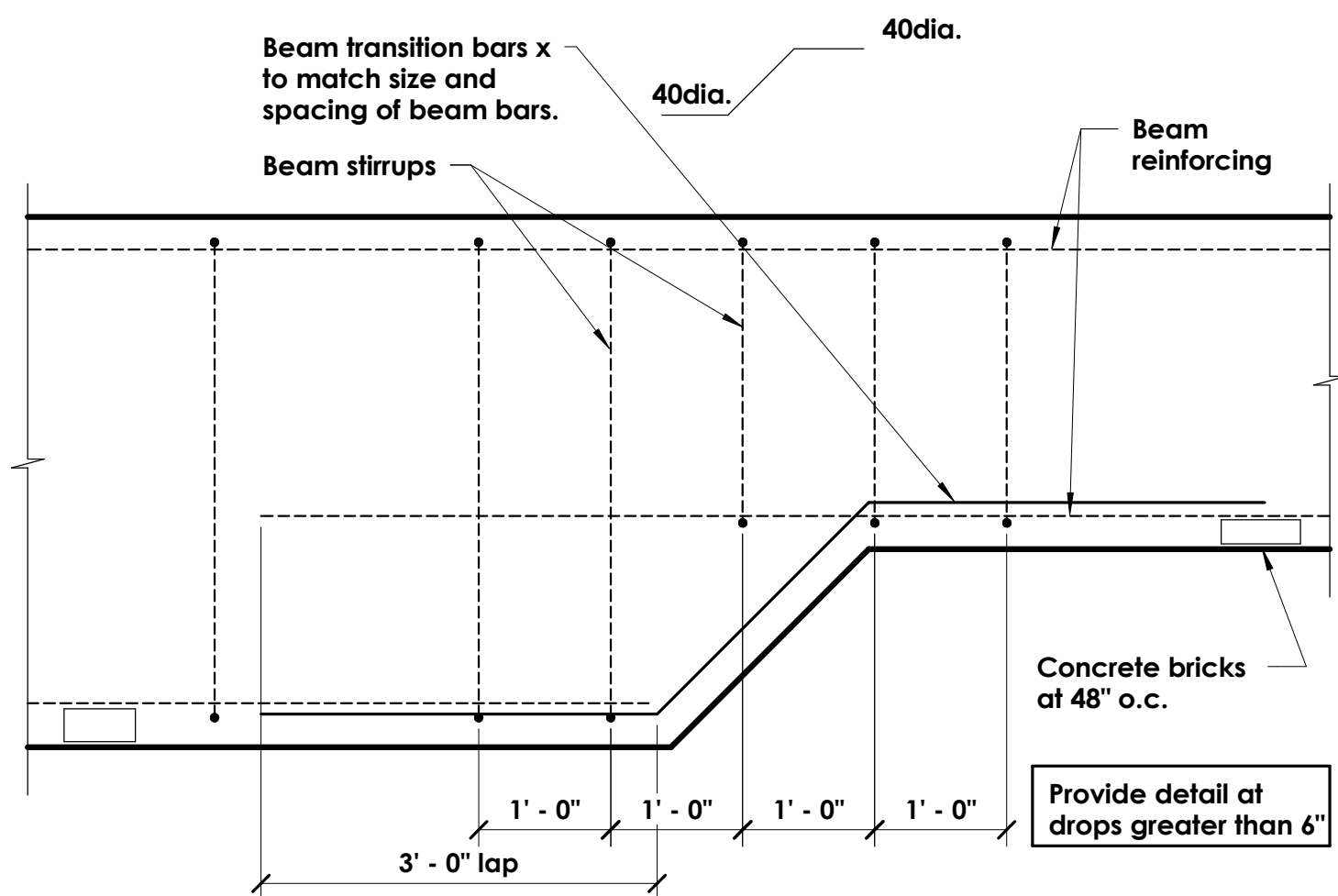
⑦ TYPICAL GRADE BEAM CORNER BAR REINFORCING PLACEMENT (NOT CUT ON PLAN)  
1/2" = 1'-0"



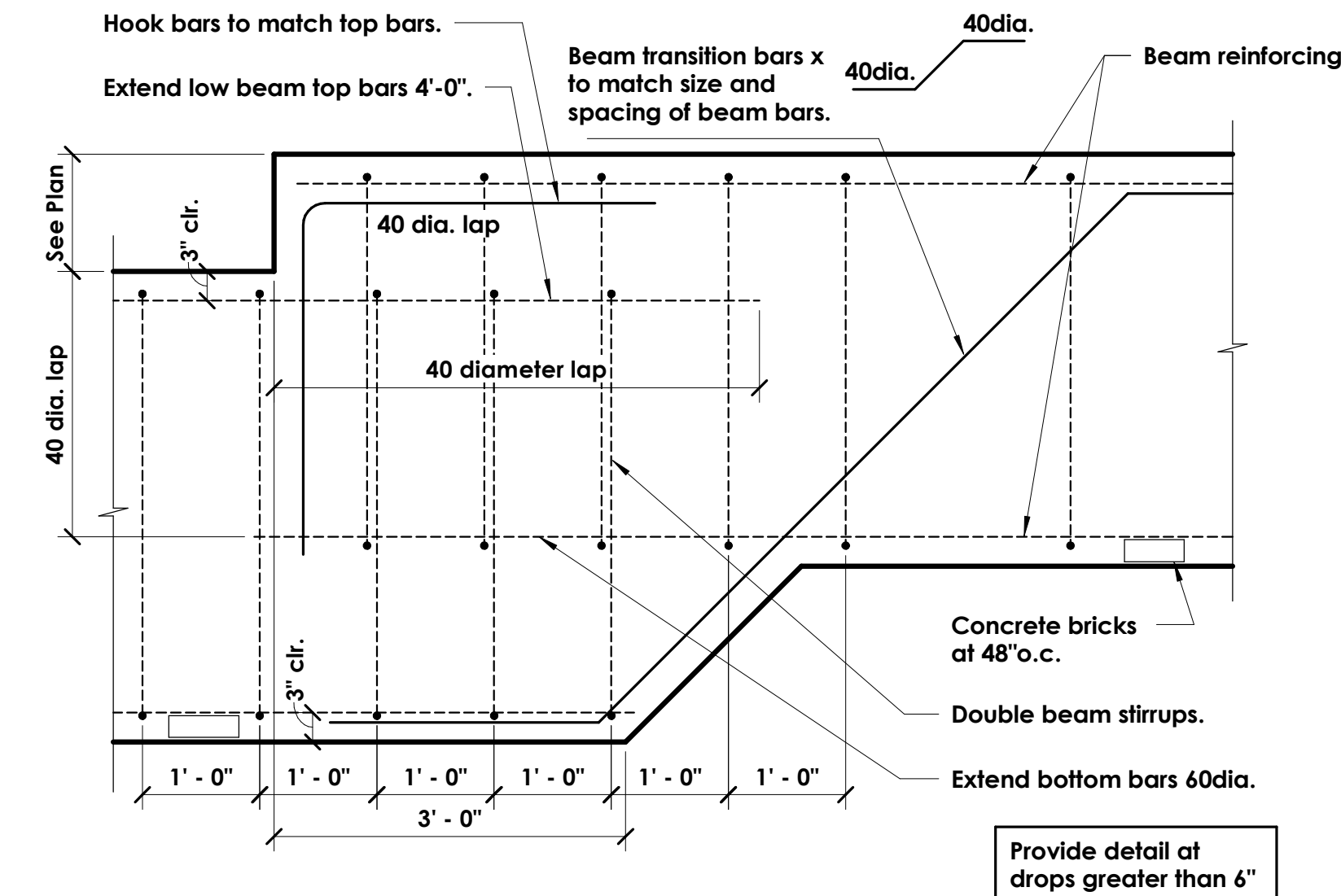
⑧ BEAM PENETRATIONS (NOT CUT ON PLAN)  
3/4" = 1'-0"



FOUNDATION DETAILS

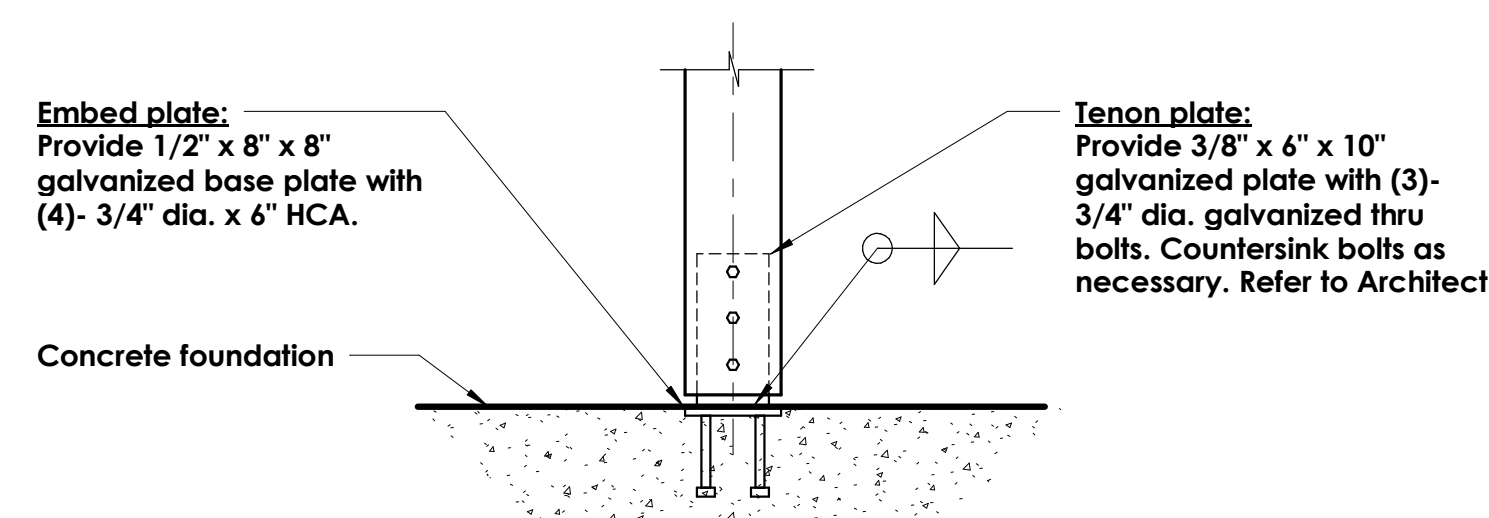


⑨ GRADE BEAM TRANSITION DETAIL (NOT CUT ON PLAN)  
3/4" = 1'-0"



⑩ GRADE BEAM TRANSITION DETAIL AT DROP (NOT CUT ON PLAN)  
3/4" = 1'-0"

WOOD COLUMN SCHEDULE		
MARK	SIZE	BASE PLATE
W1	8" x 8"	See detail



⑪ COLUMN SCHEDULE  
3/4" = 1'-0"

**PERSYN**  
ENGINEERING

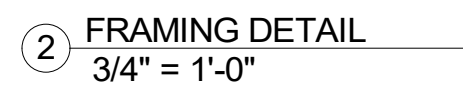
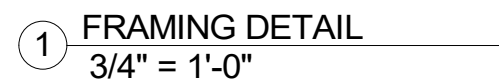
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San Antonio, Texas 78249  
Phone: 210.680.4126  
Texas Firm Registration: #F-188  
Persyn Project: # 8992

STATE OF TEXAS  
MICHAEL J. BLEDSOE  
103114  
LICENSED PROFESSIONAL ENGINEER  
4-26-2024

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SAN ANTONIO, TEXAS

**S4.0**

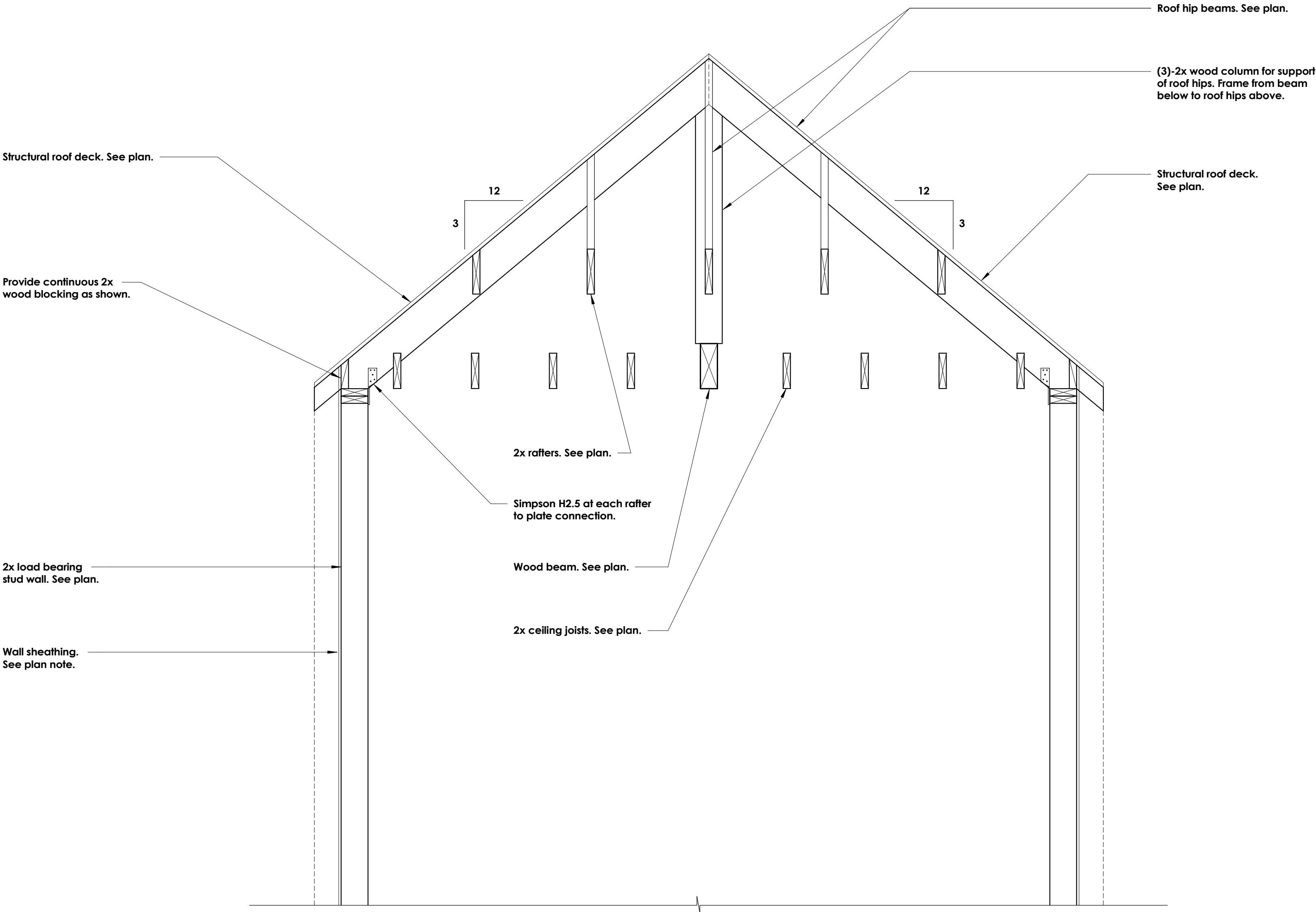
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111 WEST EL PRADO  
SAN ANTONIO, TEXAS 78212



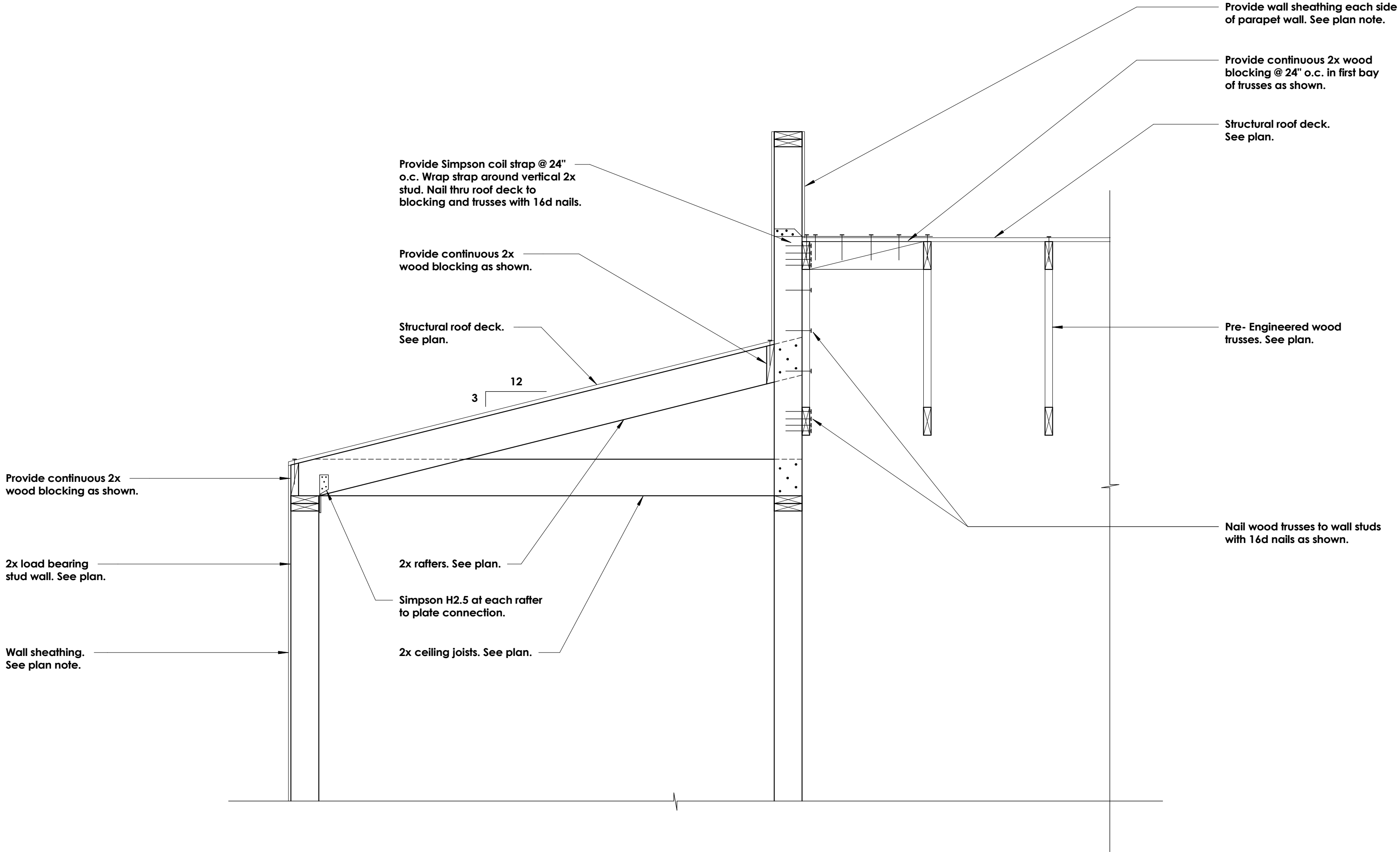
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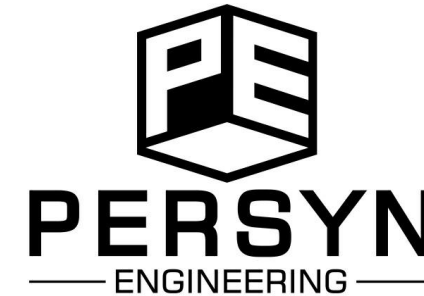


① FRAMING DETAIL  
3/4" = 1'-0"




② FRAMING DETAIL  
3/4" = 1'-0"

FRAMING DETAILS



**PERSYN**  
ENGINEERING

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San Antonio, Texas 78249  
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4-26-2024

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~ S5.1 ~

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LIGHTING SWITCH AND SENSOR TAGS

WALL MOUNTED SWITCH

SWITCH CONTROL GROUP

SWITCH TYPE:

BLANK

-

LINE VOLTAGE SINGLE POLE TOGGLE SWITCH

3

-

LINE VOLTAGE THREE WAY TOGGLE SWITCH

4

-

LINE VOLTAGE FOUR WAY TOGGLE SWITCH

D

-

LINE VOLTAGE WALL DIMMER

K

-

KEYED SWITCH - SINGLE POLE

K3

-

KEYED SWITCH - THREE WAY

OS

-

LINE VOLTAGE OCCUPANCY SENSOR

OSD

-

LINE VOLTAGE OCCUPANCY SENSOR SWITCH  
AUTO-ON / AUTO-OFF

VS

-

LINE VOLTAGE VACANCY SENSOR SWITCH  
(MANUAL-ON / MANUAL-OFF)

VSD

-

LINE VOLTAGE VACANCY DIMMER SWITCH  
(MANUAL-ON / MANUAL-OFF)

LV

-

LOW VOLTAGE MOMENTARY PUSHBUTTON FOR  
USE WITH CEILING SENSORS. REFER TO  
LIGHTING CONTROL DETAILS FOR ADDITIONAL  
INFORMATION.

LVD

-

LOW VOLTAGE DIMMER FOR USE WITH CEILING  
SENSORS. REFER TO LIGHTING CONTROL DETAILS FOR  
ADDITIONAL INFORMATION.

LK#

-

LIGHTING CONTROL KEYPAD FOR USE WITH ROOM  
CONTROLLER SYSTEM. "#" REPRESENTS TYPE OF  
KEYPAD. REFER TO LIGHTING CONTROL DETAILS FOR  
ADDITIONAL INFORMATION.

WALL/CORNER MOUNTED OCCUPANCY  
SENSOR (OS), VACANCY SENSOR (VS)

CEILING MOUNTED OCCUPANCY  
SENSOR (OS), VACANCY SENSOR (VS)

OSOS

SWITCH CONTROL GROUP

SENSOR TYPE:

BLANK

-

DUAL SENSOR

H

-

HIGH BAY SENSOR

IR

-

PIR SENSOR

U

-

ULTRASONIC SENSOR

NOTES:

1. FIXTURE(S) SHALL BE CONTROLLED BY SWITCH OR RELAY LOCATED IN THE ROOM UNLESS OTHERWISE NOTED ON PLAN.

2. REFER TO LIGHTING CONTROL DETAILS FOR ADDITIONAL INFORMATION ON WIRING AND SWITCHING.

3. WALL MOUNTED SWITCHES SHALL BE MOUNTED AT 42" AFF UNLESS OTHERWISE NOTED. COORDINATE WITH ARCHITECT.

4. SET ALL OCCUPANCY TYPE SENSORS TO AUTO-ON, AUTO-OFF MODE. SET ALL VACANCY TYPE SENSORS TO MANUAL-ON, AUTO-OFF MODE.

5. REFER TO CONTROL SCHEME NOTES AND CONTROL SCHEDULE FOR ADDITIONAL INFORMATION.

6. REFER TO SYMBOL LIST FOR ADDITIONAL LIGHTING CONTROL DEVICES.

7. WHERE SWITCHES ARE NOT TAGGED WITH CONTROL LETTER ON PLANS, ALL FIXTURES IN ASSOCIATED ROOM SHALL BE CONTROLLED SIMULTANEOUSLY VIA CONTROLS SPECIFIED.

LIGHTING SYMBOLS	
SYMBOL	DESCRIPTION
	WALL MOUNTED LIGHTING FIXTURE
	SURFACE MOUNTED LIGHTING FIXTURE
	DOWN LIGHTING FIXTURE
	TRACK HEAD LIGHTING FIXTURE
	EXIT SIGN, PLACEMENT VARIES, REFER TO ARCHITECT DRAWINGS FOR MOUNTING ORIENTATION
	EMERGENCY LIGHTING FIXTURE
	POWER PACK
	PHOTOCELL

NOTE: NOT ALL ABBREVIATIONS AND LEGEND LISTED HERE ARE USED

ELECTRICAL ABBREVIATIONS	
A/AMP	AMPERE
AC	ALTERNATING CURRENT
AFCI	ARC FAULT CIRCUIT INTERRUPTER
ACU	AIR CONDITIONING UNIT
AIC	AMPS INTERRUPTING CURRENT
AWG	AMERICAN WIRE GAUGE
C	CONDUIT
C/B	CIRCUIT BREAKER
CKT	CIRCUIT
DEG.	DEGREE
DHU	DEHUMIDIFIER
DWG	DRAWING
ETR	EXISTING TO REMAIN
EF	EXHAUST FAN
ELEC	ELECTRICAL
EWH	ELECTRIC WATER HEATER
FCU	FAN COIL UNIT
G	GROUND
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
HP	HORSE POWER
HP-X	HEAT PUMP
HWRP	HOT WATER RECIRCULATION PUMP
HZ	HERTZ
IN	INCHES
JB	JUNCTION BOX
KCMIL	THOUSAND CIRCULAR MILS
KVA	KILOVOLT AMPERE
KW	KILOWATT
MAX	MAXIMUM
MCB	MAIN CIRCUIT BREAKER
MIN	MINIMUM
MLO	MAIN LUGS ONLY
NA	NOT APPLICABLE
NEC	NATIONAL ELECTRICAL CODE
NTS	NOT TO SCALE
P	POLE
PE	PRIMARY ELECTRIC SERVICE
PH	PHASE
PNL	PANEL
RE	EXISTING TO BE REMOVED
RGS	RIGID GALVANIZED STEEL CONDUIT
RM	ROOM
RN	EXISTING TO BE REMOVED AND REPLACED WITH NEW (EXISTING BACKBOXES, CONDUIT AND WIRING TO REMAIN)
RR	EXISTING TO BE RELOCATED IN SAME LOCATION ON NEW SURFACE
SE	SECONDARY ELECTRICAL SERVICE
SPD	SURGE PROTECTION DEVICE
SPEC	SPECIFICATION
SWBD	SWITCHBOARD
TELE	TELECOMMUNICATIONS/TELEPHONE
T/TX	TRANSFORMER
TYP	TYPICAL
UH	UNIT HEATER
V	VOLTS
VA	VOLT AMPERE
VAC	VOLTS ALTERNATING CURRENT
W	WATT OR WIRE
WG	WIRE GUARD
WP	WEATHERPROOF
GFCI	GROUND FAULT CIRCUIT INTERRUPTER

NOTE: NOT ALL ABBREVIATIONS AND LEGEND LISTED HERE ARE USED

ELECTRICAL SYMBOLS	
SYMBOL	DESCRIPTION
	SURFACE MOUNTED PANELBOARD
	DISCONNECT SWITCH
	MOTOR (REFER TO MOTOR CIRCUIT SCHEDULE FOR POWER REQUIREMENTS)
	ELECTRICAL METER
	BRANCH CIRCUIT WIRING, CONCEALED IN WALLS OR CEILINGS
	HOMERUN TO PANELBOARD
	JUNCTION BOX
	DUPLEX WALL MOUNTED RECEPTACLE, 18" AFF UNLESS OTHERWISE NOTED
	DUPLEX WALL MOUNTED RECEPTACLE MOUNTED AT XX" ABOVE FINISHED FLOOR
	RECEPTACLE, MOUNT 6" ABOVE COUNTER OR CASEWORK
	RECEPTACLE WITH GROUND FAULT CIRCUIT INTERRUPTION
	GFCI HALF SWITCHED DUPLEX SWITCHED RECEPTACLE FOR GARBAGE DISPOSAL
	SPECIAL PURPOSE RECEPTACLE: <ul style="list-style-type: none"><li>O - OVEN; NEMA 5 - 20R WITH 2#12, 1#12G 3/4"C TO A 20A - 1P GFCI C.B</li></ul>
	FLOOR DUPLEX RECEPTACLE
	FLOOR DUPLEX RECEPTACLE WITH DATA OUTLET, PROVIDE LEGRAND #RFB4E OR EQUAL WITH (1) 3/4"C FOR POWER AND (1) 1-1/4"C FOR DATA TRENCHED TO NEAREST ACCESSIBLE WALL AND ABOVE CEILING.

NOTE: NOT ALL ABBREVIATIONS AND LEGEND LISTED HERE ARE USED

VILLA FINALE ELECTRICAL SHEET INDEX	
DRAWING NUMBER	DRAWING NAME
E0.0	ELECTRICAL ABBREVIATIONS NOTES & SYMBOLS
E1.0	ELECTRICAL LIGHTING PLAN
E2.0	ELECTRICAL POWER PLAN
E3.0	ELECTRICAL DETAILS
E6.0	ELECTRICAL SCHEDULES & DIAGRAMS
E7.0	ELECTRICAL RISER DIAGRAM
E8.0	ELECTRICAL SPECIFICATIONS
E8.1	ELECTRICAL SPECIFICATIONS
SU1.0	SITE UTILITIES

LIGHTING FIXTURE TAGS

UPPER CASE LETTER = FIXTURE TYPE, REFER TO LIGHTING FIXTURE SCHEDULE

XX,a

CIRCUIT FOR FIXTURE, LOWER CASE LETTER = SWITCH CONTROL

NOTES

1. FIXTURE CONTROL DESIGNATION REFERS TO ZONE/SWITCH/RELAY CONTROL OF FIXTURES CONTROLLED BY COMMON:

A.

SWITCH FOR LIGHTING IN ROOM, CORRIDOR, OPEN AREA.

B.

ZONE RELAY IN LOCAL LIGHTING CONTROL PANEL OR LIGHTING CONTROL RELAY PANEL.

C.

ALL CONTROL DEVICES (SWITCHES, CONTROL PANELS, OCCUPANCY/VACANCY SENSORS, ETC) WITH CONTROL DESIGNATIONS REFERS TO COMMON CONTROL OF THE SAME ZONE/SWITCH/RELAY CONTROL.

2. WHERE CONTROL DESIGNATION IS NOT SHOWN, ALL FIXTURES IN ASSOCIATED ROOM OR SPACE SHALL BE CONTROLLED SIMULTANEOUSLY VIA THE CONTROL DEVICES INDICATED ON PLANS.

3. WHERE EMERGENCY AND NORMAL FIXTURES ARE CONTROLLED FROM THE SAME ZONE/SWITCH/CONTROL RELAY, UL 924 EMERGENCY BYPASS RELAYS SHOWN WITH SAME CONTROL DESIGNATION BYPASS THAT ZONE/SWITCH/CONTROL RELAY. REFER TO EMERGENCY LIGHTING CIRCUIT SCHEMATICS FOR ADDITIONAL WIRING INFORMATION.

4. UNSWITCHED LIGHTING BRANCH CIRCUIT WIRING IS SHOWN TO A SINGLE FIXTURE IN EACH COMMON CONTROL ZONE. UNLESS OTHERWISE INDICATED, PROVIDE 2#12, #12G, 3/4"C FOR SWITCHED WIRING TO ALL COMMON CONTROL FIXTURES.

5. PROVIDE LOW VOLTAGE DIMMING CONTROL WIRING AS INDICATED IN LIGHTING CONTROL DETAILS FOR DIMMABLE LIGHT FIXTURES IN COMMON CONTROL ZONES/SWITCHES/RELAY CONTROL.

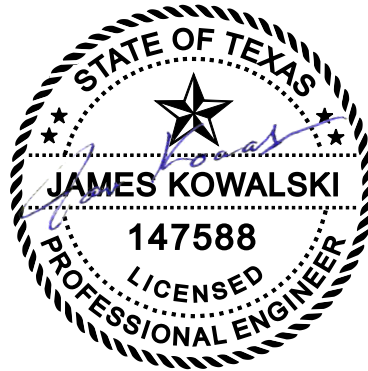
6. REFER TO LIGHTING CONTROL DETAILS FOR ADDITIONAL WIRING AND CONTROL INFORMATION.

7. REFER TO LIGHTING CONTROL RELAY PANEL SCHEDULES WHERE APPLICABLE FOR ADDITIONAL CONTROL INFORMATION.

CES

Engineering Services TX, LLC

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Suite 290  
San Antonio, TX 78232  
Tel. (210) 656-1614  
TX Registration No. F19994  
CES\* 2022580.00



CONSTRUCTION DOCUMENTS

ELECTRICAL  
ABBREVIATIONS NOTES &  
SYMBOLS

08/25/2023: 100 % CD CHECK SET  
04/23/2024: 100 % CD

VILLA  
FINALE

~ E0.0 ~

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## ELECTRICAL LIGHTING PLAN

08/25/2023: 100 % CD CHECK SET  
04/23/2024: 100 % CD

## VILLA FINALE

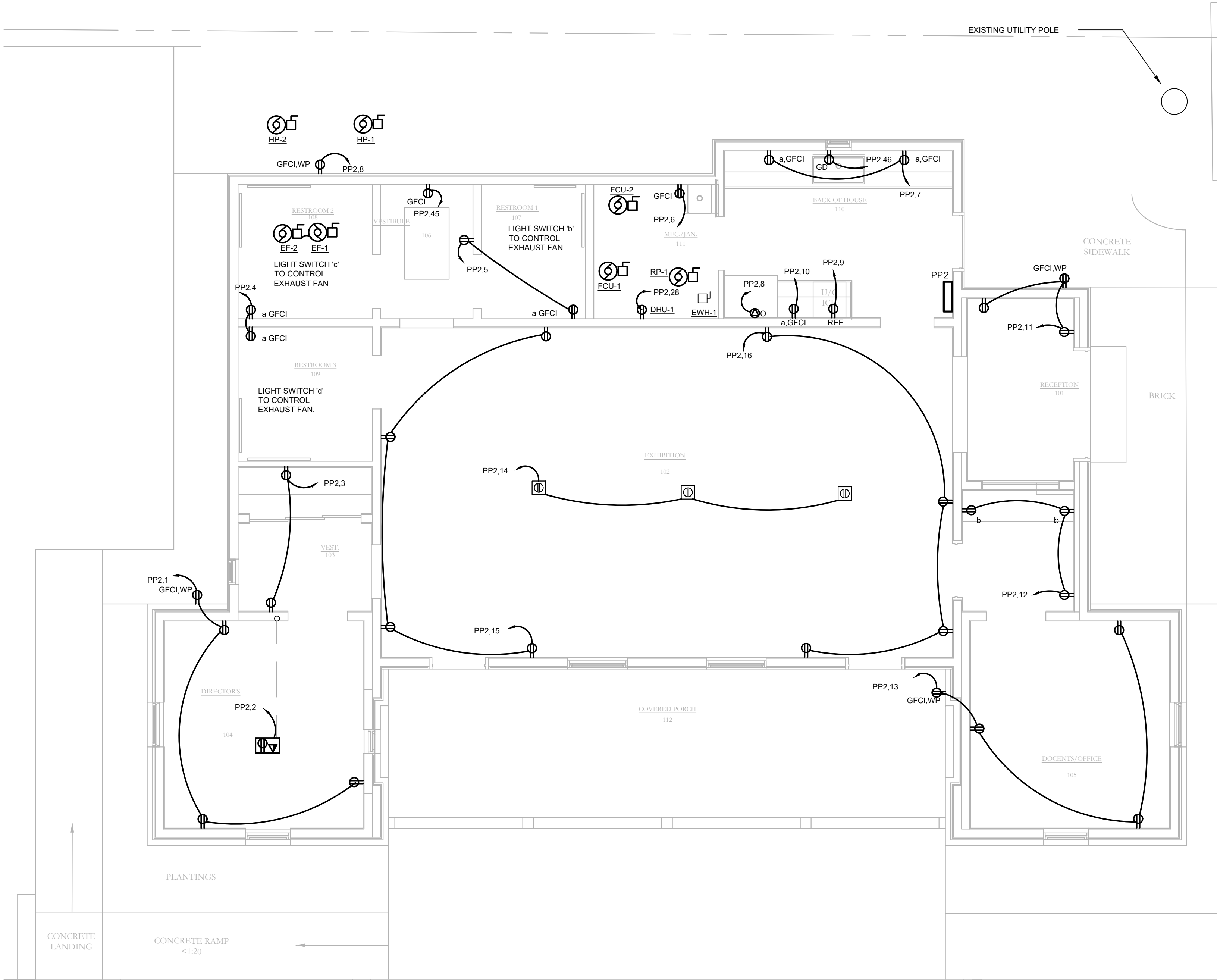
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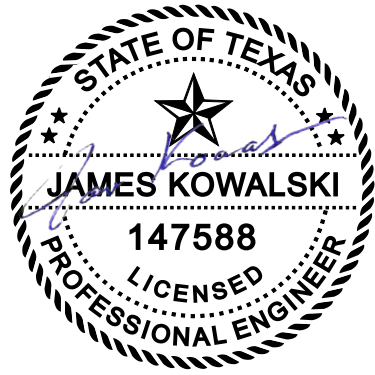
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1 ELECTRICAL POWER PLAN  
1/4" = 1'-0"



CONSTRUCTION DOCUMENTS

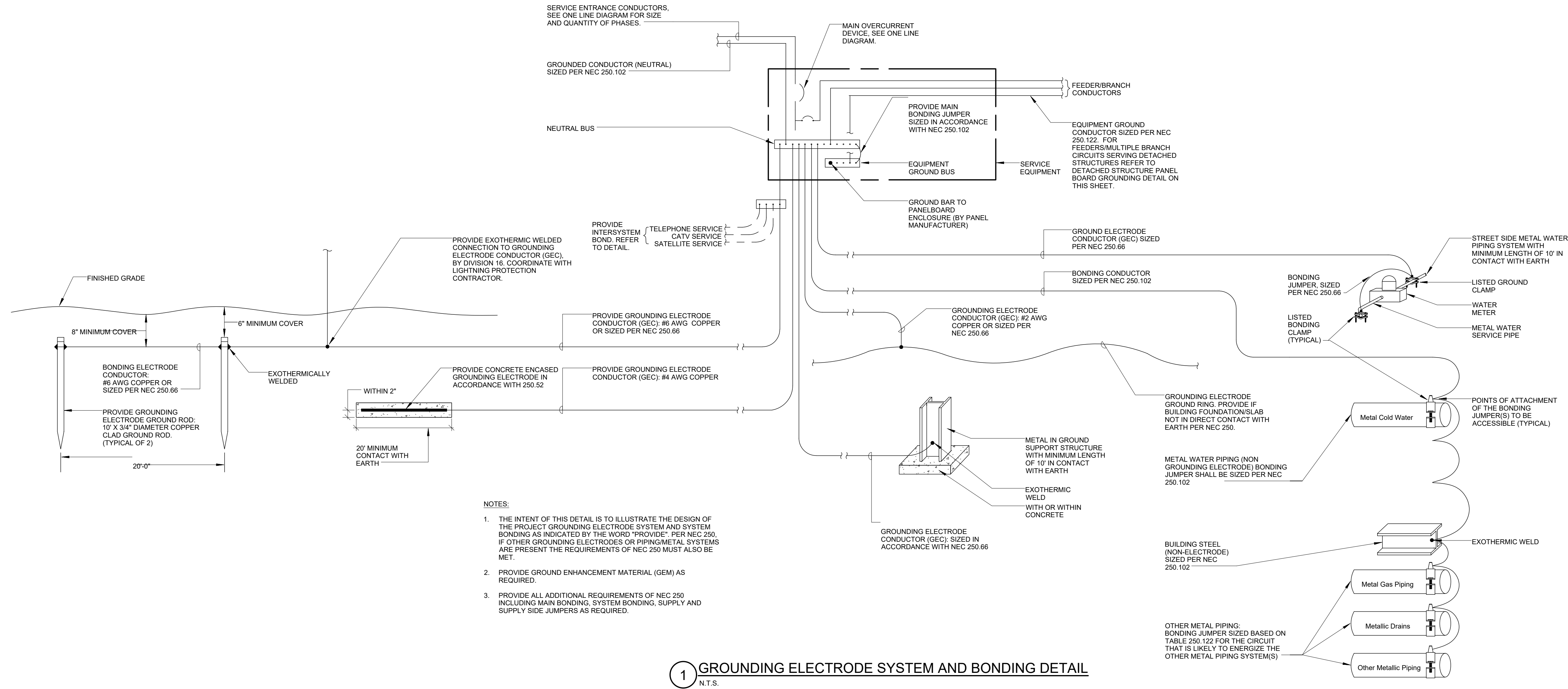
ELECTRICAL POWER PLAN

08/25/2023: 100 % CD CHECK SET  
04/23/2024: 100 % CD

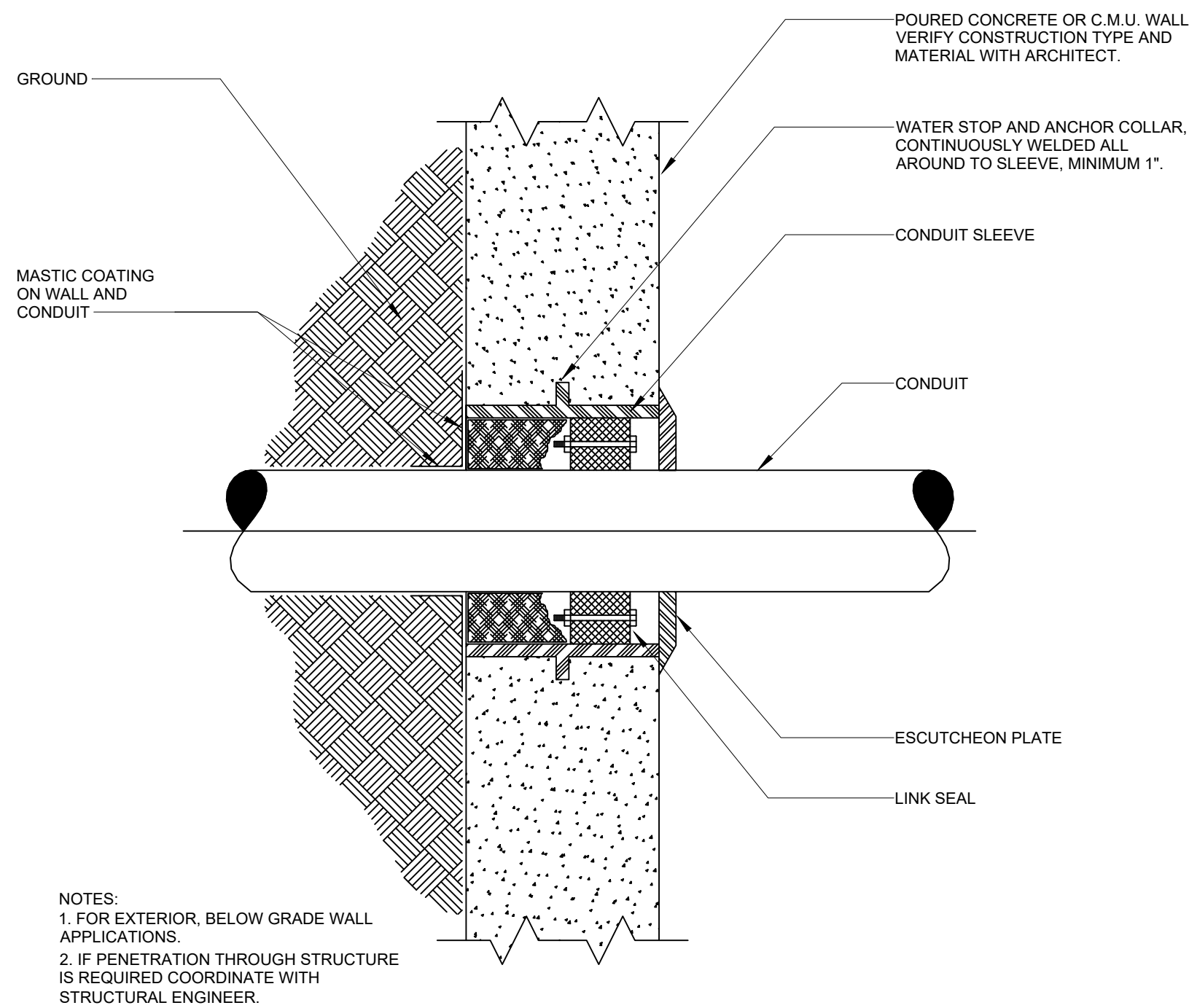
VILLA  
FINALE

~ E2.0 ~

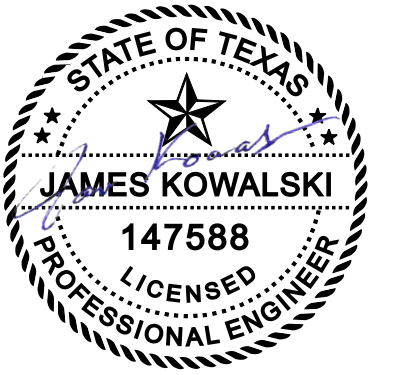
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ARCHITECT  
111 WEST EL PRADO  
SAN ANTONIO, TEXAS 78212



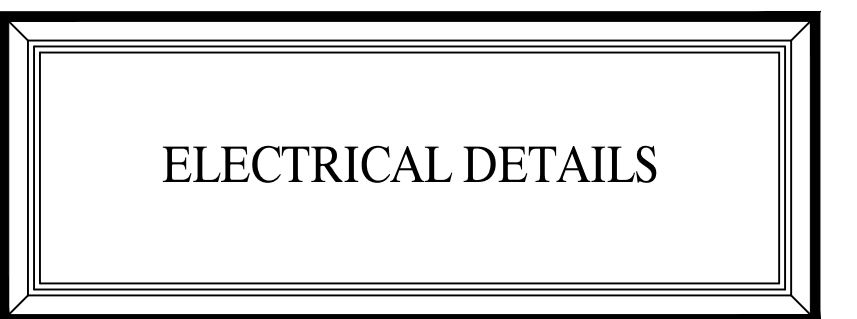
1 GROUNDING ELECTRODE SYSTEM AND BONDING DETAIL  
N.T.S.



2 FOUNDATION WALL PENETRATION DETAIL  
N.T.S.



CONSTRUCTION DOCUMENTS



08/25/2023: 100 % CD CHECK SET  
04/23/2024: 100 % CD





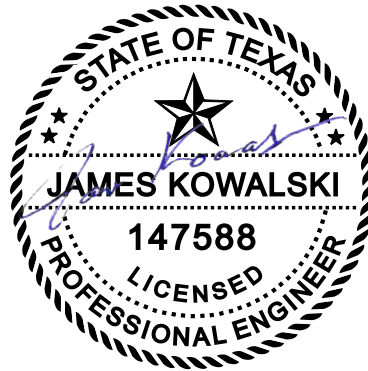
Panel: PP-2													
Location:		OUTSIDE RM 111		Volts:		120/240V		A.I.C. Rating:		22K			
Supply From:		UTILITY		Phases:		1		Main's Type:		CU			
Mounting:		SURFACE		Wires:		3		Mains Rating:		400			
Enclosure:		NEMA 3R		MCB Rating/MLO:		400A MCB							
CKT	Circuit Description	Trip	Poles	A		B		Poles	Trip	Circuit Description	CKT		
1	RECEP - DIRECTORS	20	1	0.72	0.18			1	20	RECEP - DIRECTORS FLR	2		
3	RECEP - VEST 103	20	1			0.36	0.36	1	20	RECEP - RR 103/108	4		
5	RECEP - VEST 106	20	1	0.18	0.18			1	20	RECEP - JAN 111	6		
7	RECEP - 110 COUNTER	20	1			0.36	0.18	1	20	RECEP - 110 OVEN	8		
9	RECEP - 110 ICE	20	1	0.18	0.18			1	20	RECEP - 110	10		
11	RECEP - 101	20	1			0.54	0.54	1	20	RECEP - VEST 101	12		
13	RECEP - 105	20	1	0.72	0.54			1	20	RECEP - 102	14		
15	RECEP - 105 LEFT	20	1			0.72	0.72	1	20	RECEP - 105 RIGHT	16		
17	FCU -1	15	2	0.54	0.54			2	15	FCU -2	18		
19						0.54	0.54						
21	EF-1, 2	20	1	0.95	2.42			2	35	HP-2	22		
23	HP-1	35	2			2.42	2.42						
25				2.42	0.18								
27						4.00	0.83	1	15	GFCI REC (HP)	26		
29	EWH-1	40	2					1	15	HWRP-1	30		
31				4.00	0.33								
33	EXISTING CU-1	50	2			2.40	2.40	2	50	EXISTING CU-2	32		
35	EXISTING CU-3	50	2			2.40	2.40						
37				2.40	2.40			2.40	2.40	2	50	EXISTING CU-4	36
39	EXISTING COURTYARD GFCI	20	1			0.18	0.18	1	20				
41	EXHIBITION LIGHTING	20	1	0.32	14.40			2	200	EXISTING BUILDING PANEL	42		
43	REST OF BUILDING LIGHTING	20	1			0.27	14.40						
45	WATER FOUNTAIN	20	1	0.60	1.18			1	20	GARBAGE DISPOSAL	44		
47	SPD	30	2			0.00	1.80	1	20	STRIP LIGHT CRGT RM 110	46		
49				0.00	0.14								
51	SPARE						0.00			EXTERIOR LTG	50		
53	SPARE			0.00	0.00					SPARE	52		
55	SPARE					0.00	0.00			SPARE	54		
57	SPARE			0.00	0.00					SPARE	56		
59	SPARE									SPARE	58		
Phase Load (kVA):				40.50		40.97							
Phase Amps:				337.5 A		341.4 A							
Notes: 1. CIRCUIT NUMBERS: 31-39, 40-42, 44 SHALL BE REPED FROM EXISTING PANEL PP1, TO NEW PANEL PP2.													
2. REFER TO ARCHITECT FOR PANEL WATERPROOFING													

MOTOR / EQUIPMENT CIRCUIT SCHEDULE										
EQUIPMENT	OCPD	PANEL	LOAD					LOCAL DISC. SW	WIRING	REMARKS
			MOP	MCA	KW	PH	VOLT			
HP-1	35A-2P	PP-2	35	20.2	-	1	240	MAN	2#10, #12G, 3/4"	REMARK 4, 6
HP-2	35A-2P	PP-2	35	20.2	-	1	240	MAN	2#10, #12G, 3/4"	REMARK 4, 6
EF-1	20A-1P	PP-2	-	-	.057	1	120	MAN	2#12, #12G, 3/4"	REMARKS 1
EF-2	20A-1P	PP-2	-	-	.057	1	120	MAN	2#12, #12G, 3/4"	REMARKS 1
FCU-1	15A-2P	PP-2	15	3.6	-	1	240	MAN	2#12, #12G, 3/4"	REMARKS 4.2
FCU-2	15A-2P	PP-2	15	3.6	-	1	240	MAN	2#12, #12G, 3/4"	REMARKS 4.2
DHU-1	15A-1P	PP-2	15	6.9	-	1	120	MAN	2#12, #12G, 3/4"	REMARKS 5.2
EWH-1	40A-2P	PP-2	40	-	8	1	240	MAN	2#8, #10G, 3/4"	REMARKS 7
HWRP-1	15A-1P	PP-2	15	2.75	-	1	120	MAN	2#12, #12G, 3/4"	REMARKS 4
GENERAL NOTES: 1. DISCONNECT SWITCHES SHALL BE LOCATED AT EQUIPMENT LOCATION UNLESS OTHERWISE NOTED. 2. ABBREVIATIONS: • MAN: MANUAL STARTER (TOGGLE SWITCH WITH THERMAL OVERLOADS) • FVNR: COMBINATION FULL VOLTAGE NON-REVERSING STARTER/ DISCONNECT SWITCH • VFD: VARIABLE FREQUENCY DRIVE, FURNISHED BY DIV. 23, WIRED BY DIV. 26. PROVIDE POWER WIRING FROM SOURCE PANELBOARD TO VFD AND FROM VFD TO MOTOR(S). COORDINATE EXACT LOCATION IN FIELD WITH DIV.23. • DIV.21: EQUIPMENT FURNISHED BY DIVISION 21 FIRE PROTECTION CONTRACTOR • DIV.22: EQUIPMENT FURNISHED BY DIVISION 22 PLUMBING CONTRACTOR • DIV.23: EQUIPMENT FURNISHED BY DIVISION 23 HVAC CONTRACTOR • SPC: SINGLE POINT CONNECTION (STARTERS INTEGRAL TO EQUIPMENT). COORDINATE EXACT POINT OF CONNECTION IN FIELD. 3. OVERCURRENT PROTECTION DEVICES (OCPD) SHALL BE MOLDED CASE CIRCUIT BREAKERS UNLESS NOTED WITH AN "F" FOR FUSE. 4. DISCONNECT SWITCHES AND STARTERS SHALL BE NEMA 3R RATED WHEN LOCATED OUTSIDE. 5. REFER TO PANEL SCHEDULES FOR SOURCE PANEL/ CIRCUIT INFORMATION. 6. REFER TO ELECTRICAL AND MECHANICAL PLANS FOR EXACT LOCATIONS OF EQUIPMENT. 7. STARTERS SHALL BE SQUARE D CLASS 8536 OR APPROVED EQUAL.							REFERENCED REMARKS: 1. REFER TO FLOOR PLANS FOR CIRCUITING. ALL UNITS INDICATED ON PLANS SHALL BE DAISY-CHAINED TOGETHER. PROVIDE SEPARATE MOTOR RATED TOGGLE SWITCH FOR EACH UNIT ON CIRCUIT. 2. CONDENSATE PUMP FOR AC/ FAN COIL UNIT SHALL BE FURNISHED/INSTALLED BY DIV.23. ELECTRICAL CONTRACTOR SHALL PROVIDE HARDWIRED CONNECTION TO PUMP VIA SAME CIRCUIT AS AC/ FAN COIL UNIT. PROVIDE MOTOR RATED TOGGLE SWITCH AT PUMP FOR DISCONNECTING MEANS. 3. CONDENSATE PUMP FOR AC/ FAN COIL UNIT SHALL BE FURNISHED/INSTALLED BY DIV.23. ELECTRICAL CONTRACTOR SHALL PROVIDE DUPLEX RECEPTACLE FOR PUMP, POWERED VIA LOCAL UNSWITCHED RECEPTACLE CIRCUIT. COORDINATE EXACT LOCATION WITH DIV.23. 4. PROVIDE POWER WIRING FROM SOURCE PANELBOARD TO OUTDOOR UNIT. PROVIDE INTERCONNECT WIRING IN 3/4". FROM OUTDOOR UNIT TO INDOOR UNIT. WIRE SIZE AND TYPE SHALL BE PER MANUFACTURER'S REQUIREMENTS. PROVIDE SEPARATE DISCONNECT SWITCH FOR EACH OF THE TWO UNITS. 5. PROVIDE SEPARATE 15A/120V/1PH CONNECTION TO UNIT RECEPTACLE. POWER VIA CIRCUIT INDICATED ON PLANS. 6. UNIT IS LOCATED OUTSIDE BUILDING ON PAD. CIRCUIT SHALL RUN UNDER SLAB FROM PANEL TO UNIT LOCATION. COORDINATE EXACT STUB-UP LOCATION IN FIELD WITH HVAC CONTRACTOR PRIOR TO ROUGH-IN. 7. PROVIDE POWER DISCONNECT FOR SYSTEM SHUTOFF. COORDINATE WITH CONTRACTOR PRIOR TO INSTALL. 8. INSTALLED BY KITCHEN EQUIPMENT CONTRACTOR. PROVIDE WIRING FROM SOURCE PANEL TO VFD, AND FROM VFD TO MOTOR(S). PROVIDE CONTROL WIRING AS DICTATED ON FOOD SERVICE DETAILS AND ELECTRICAL DRAWINGS. 9. DISCONNECT SWITCH FOR CHILLER SHALL BE MOUNTED IN AN ACCESSIBLE LOCATION ADJACENT TO UNIT. COORDINATE EXACT LOCATION OF STARTER/VFD AND CONTROL PANEL IN FIELD WITH MECHANICAL CONTRACTOR PRIOR TO INSTALLATION. 10. PROVIDE POWER WIRING TO CONTROL PANEL AND FROM CONTROL PANEL TO EACH OF THE TWO PUMPS.			

LIGHTING FIXTURE SCHEDULE				
TYPE	MANUFACTURER / MODEL	VOLTAGE	SOURCE	FIXTURE DESCRIPTION - BASIS OF DESIGN
ESC-1	CUSTOM SCONCE TO BE SELECTED BY ARCHITECT	120	LED	WALL MOUNTED FIXTURE
ESC-2	BEGA B22261	120	LED	WALL MOUNTED FIXTURE
ESC-3	HEVI LITE HL-340-LED	120	LED	WALL MOUNTED FIXTURE
SC-1	REJUVENATION 8485574-V1-BN	120	LED	WALL MOUNTED FIXTURE
MR2	ENTRA ENCL2R-X-L12-I_ENCL2R-X-A-927- W-W	120	LED	ENTRA 2" DOWN LIGHT
SM-1	VISUAL COMFORT SS 4015AN-WG	120	LED	SURFACE MOUNTED FIXTURE
SM-2	LIMEHOUSE LIGHTING 1900-2-F	120	LED	SURFACE MOUNTED FIXTURE
SM-3	LUCID LIGHTING TO BE SELECTED BY ARCHITECT	120	LED	SURFACE MOUNTED FIXTURE
P-1	COPPER LANTERN GALLERY H1392N	120	LED	PENDANT MOUNTED FIXTURE
EP-1	COPPER LANTERN GALLERY H2405G-9.5" DB-CL	120	LED	PENDANT MOUNTED FIXTURE
CH-1	AUTHENTIC DESIGNS CH-293	120	LED	SURFACE MOUNTED FIXTURE
UL	INDUSTRIAL LIGHT TO BE SELECTED BY ARCHITECT	120	LED	-
T	DI-24V-BLBSC3/DI-CPCHB -SL/DI-ODX-24V60W-J	24	LED	STRIP LIGHTS
TL	CTL9052-WF-2700-D-X_BD9M_ FA-91MX_LT-X-X_LA-9X	120	LED	TRACK HEAD
X1	EXRG EL M6	120	LED	EXIT SIGN
INV-1	ISI-MINI-400	120	LED	400W LIGHTING INVERTER
INV-2	ABC2-220	120	LED	220W LIGHTING INVERTER
NOTES: 1. LIGHT FIXTURES IN THE SCHEDULE SHALL BE CONSIDERED BASIS OF DESIGN. 2. ALL FIXTURES SHALL BE UL LISTED. 3. ALL NECESSARY MOUNTING HARDWARE, HANGERS, BRACKETS, RAILS, YOKES, CANOPIES, STEMS, CHAINS, ROW JOINERS, ETC. SHALL BE FURNISHED AND INSTALLED. 4. REFER TO ARCHITECTURAL DRAWINGS FOR SPECIFIC DETAILS, ARRANGEMENT, MOUNTING HEIGHTS, SUSPENSION LENGTHS, CEILING CONSTRUCTION, ETC. ALL COLORS AND FINISHES SHALL BE SELECTED BY ARCHITECT. 5. FIXTURES SHALL BE SEISMICALLY SUPPORTED AS REQUIRED BY THE APPLICABLE BUILDING CODE. FIXTURES SHALL BE SUPPORTED FROM THE BUILDING STRUCTURE AND SHALL BE INDEPENDENT OF DUCTS, PIPES, CEILINGS AND THEIR SUPPORTING MEMBERS. FIXTURES SHALL BE SUPPORTED WITH A MINIMUM OF 2 SUPPORTS. 6. WIRE EMERGENCY FIXTURES AND EXIT SIGNS AHEAD OF SWITCHED LEGS. 7. MINIMUM MOUNTING HEIGHT OF FIXTURES IN MECHANICAL AND ELECTRICAL SPACES IS 8'-6" AFF. COORDINATE MOUNTING HEIGHT IN FIELD WITH EQUIPMENT IN ROOM SUCH THAT LIGHTING IS NOT OBSTRUCTED BY DUCTWORK, PIPING AND CONDUIT. PROVIDE NECESSARY CHAIN-MOUNTING HARDWARE TO SUSPEND FIXTURES WHERE REQUIRED. 8. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS. 9. WHERE EXIT SIGNS ARE SHOWN AS WALL MOUNTED ABOVE A DOOR, MOUNT SUCH THAT THE BOTTOM OF THE SIGN IS NO MORE THAN 3" ABOVE THE DOOR FRAME, UNLESS INDICATED OTHERWISE ON PLANS. 10. UNLESS OTHERWISE NOTED, PENDANT FIXTURE MOUNTING HEIGHTS IN FINISHED SPACES SHALL BE AS FOLLOWS: A. CEILING HEIGHT 9'-0" OR LOWER: 7'-6" TO BOTTOM OF FIXTURE B. CEILING HEIGHT 9'-6" TO 11'-0": 8'-0" TO BOTTOM OF FIXTURE C. CEILING HEIGHT 11'-0" TO 12'-0": 9'-6" TO BOTTOM OF FIXTURE D. MINIMUM PENDANT LENGTH SHALL BE 1'-6"				



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Tel. (210) 656-1614  
TX Registration No. F19994  
CES\* 2022580.00



CONSTRUCTION DOCUMENTS

ELECTRICAL SCHEDULES & DIAGRAMS

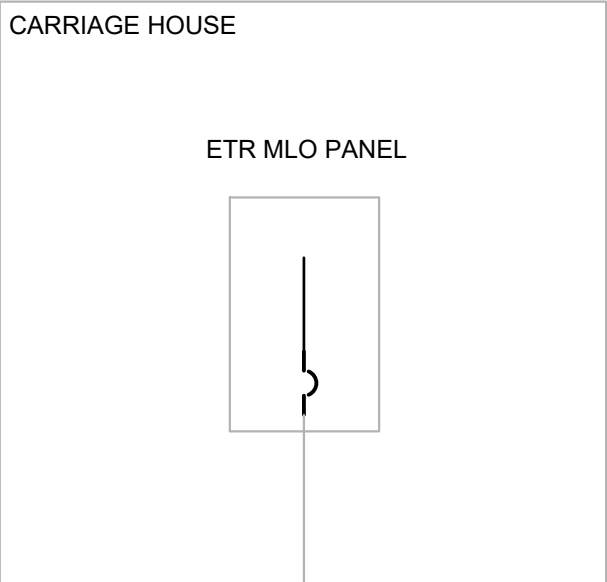
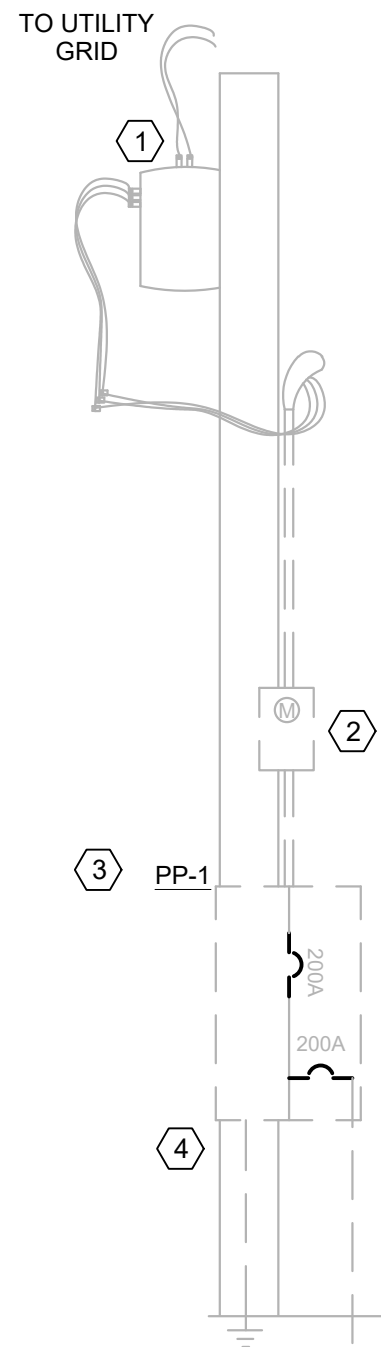
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VILLA  
FINALE  
  
~ E6.0 ~  
  
MICHAEL G. IMBER  
ARCHITECT  
111 WEST EL PRADO  
SAN ANTONIO, TEXAS 78212



DEMO WORK NOTES	
1	REMOVE POLE MOUNTED TRANSFORMER.
2	REMOVE 200 AMP UTILITY METER SOCKET, BOX, AND SERVICE HEAD.
3	REMOVE 120/240 VOLT 200 AMP NEMA 3R PANEL.
4	REMOVE SERVICE GROUND PANEL CONNECTION.

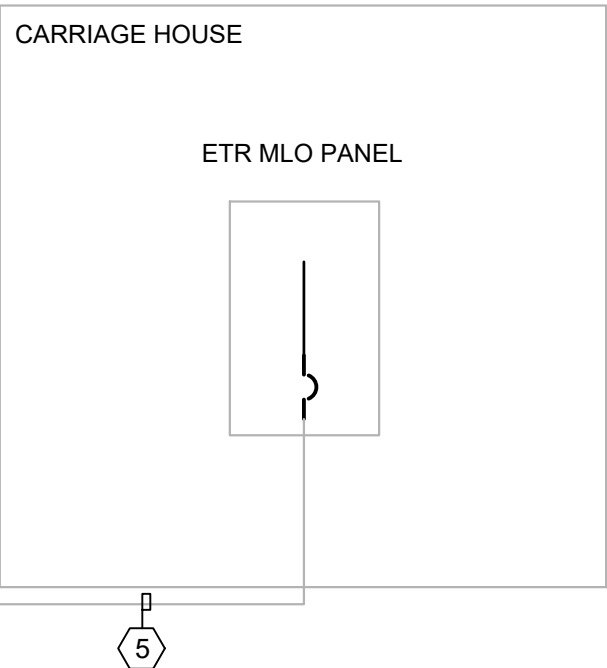
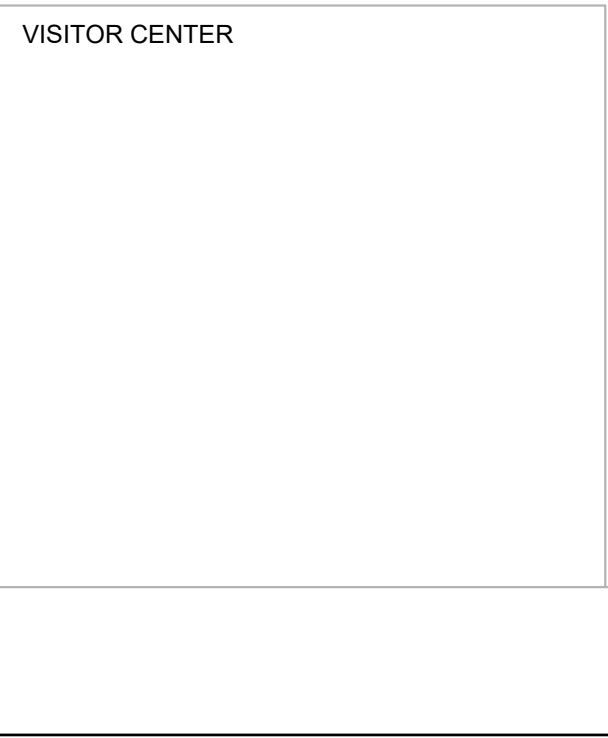
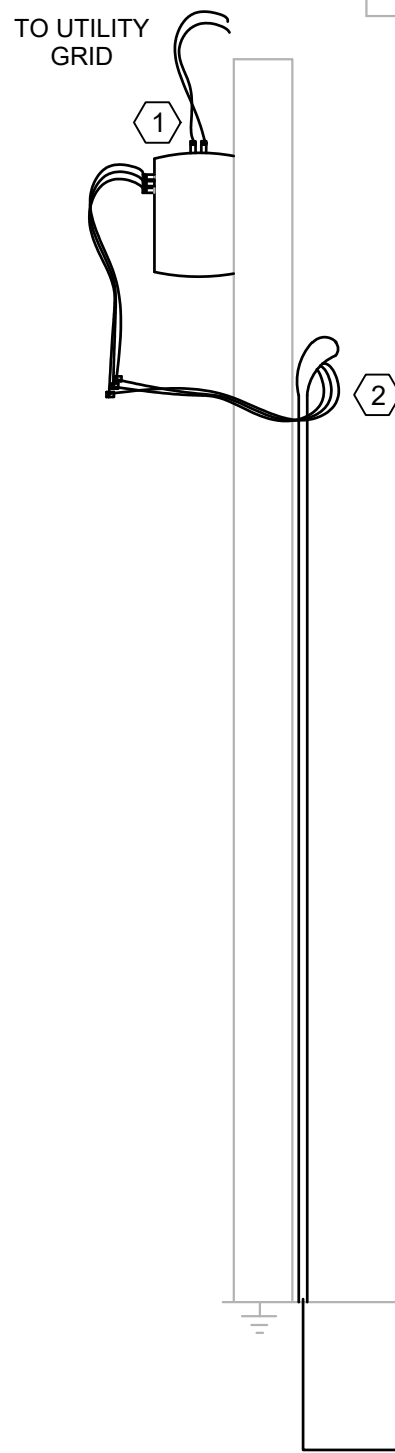
ELECTRICAL FEEDER SCHEDULE							
COPPER CONDUCTORS							
CIRCUIT SYMBOL	CONDUCTORS (1 PH, 2W) WITH GROUND	CONDUIT SIZE	CONDUCTORS (1 OR 3 PH, 3 WIRE) WITH GROUND	CONDUIT SIZE	CONDUCTORS (3 PH, 4 WIRE) WITH GROUND	CONDUIT SIZE	OVERCURRENT RATING
1	2#12 & 1#12G	3/4"	3#12 & 1#12G	3/4"	4#12 & 1#12G	3/4"	15A
2	2#12 & 1#12G	3/4"	3#12 & 1#12G	3/4"	4#12 & 1#12G	3/4"	20A
2.5	2#10 & 1#10G	3/4"	3#10 & 1#10G	3/4"	4#10 & 1#10G	3/4"	25A
3	2#10 & 1#10G	3/4"	3#10 & 1#10G	3/4"	4#10 & 1#10G	3/4"	30A
3.5	2#8 & 1#10G	1"	3#8 & 1#10G	1"	4#8 & 1#10G	1"	35A
4	2#8 & 1#10G	1"	3#8 & 1#10G	1"	4#8 & 1#10G	1"	40A
4.5	2#8 & 1#10G	1"	3#8 & 1#10G	1"	4#8 & 1#10G	1"	45A
5	2#8 & 1#10G	1"	3#8 & 1#10G	1"	4#8 & 1#10G	1"	50A
6	2#6 & 1#10G	1"	3#6 & 1#10G	1"	4#6 & 1#10G	1"	60A
7	2#4 & 1#8G	1 1/4"	3#4 & 1#8G	1 1/4"	4#4 & 1#8G	1 1/4"	70A
8	2#4 & 1#8G	1 1/4"	3#4 & 1#8G	1 1/4"	4#4 & 1#8G	1 1/4"	80A
9	2#3 & 1#8G	1 1/4"	3#3 & 1#8G	1 1/4"	4#3 & 1#8G	1 1/4"	90A
10	2#3 & 1#8G	1 1/4"	3#3 & 1#8G	1 1/4"	4#3 & 1#8G	1 1/4"	100A
11			3#2 & 1#6G	1 1/4"	4#2 & 1#6G	1 1/2"	110A
12			3#1 & 1#6G	1 1/2"	4#1 & 1#6G	2"	125A
15			3#1/0 & 1#6G	2"	4#1/0 & 1#6G	2"	150A
17			3#2/0 & 1#6G	2"	4#2/0 & 1#6G	2"	175A
20			3#3/0 & 1#6G	2"	4#3/0 & 1#6G	2 1/2"	200A
22			3#4/0 & 1#4G	2 1/2"	4#4/0 & 1#4G	2 1/2"	225A
25			3#250KCMIL & 1#4G	3"	4#250KCMIL & 1#4G	3"	250A
30			3#350KCMIL & 1#4G	3"	4#350KCMIL & 1#4G	4"	300A
35			3#500KCMIL & 1#3G	4"	4#500KCMIL & 1#3G	4"	350A
40			3#600KCMIL & 1#3G	4"	4#600KCMIL & 1#3G	4"	400A
45			(2)3#4/0 & 1#2G	(2) 2 1/2"	2 SETS OF 4#4/0 & 1#2G	(2) 2 1/2"	450A
50			(2)3#250KCMIL & 1#2G	(2) 3"	2 SETS OF 4#250KCMIL & 1#2G	(2) 3"	500A
60			(2)3#350KCMIL & 1#1G	(2) 3"	2 SETS OF 4#350KCMIL & 1#1G	(2) 4"	600A
NOTES:							
1. CONDUIT SIZES ARE BASED ON THE NEC ANNEX C TABLES FOR EMT/SCH 40 WITH THHN/THWN CONDUCTORS. CONDUCTOR SIZES USED IN CONDUIT CALCULATION ARE BASED ON THE SIZE OF THE HOT CONDUCTORS OF CIRCUIT. EXAMPLE: 40A 3PH, 4W CONDUIT SIZE IS BASED ON 4#8 + 1#8G + 1#8 'SPACE'. FOR ACTUAL WIRE INSTALL USE QUANTITY AND SIZES WITHIN SCHEDULE.							
2. UNLESS OTHERWISE INDICATED, CONDUCTOR SIZING SHALL MATCH THE SIZE INDICATED ABOVE FOR THE APPLICABLE OVERCURRENT DEVICE. PROVIDE LARGER CIRCUIT WHERE INDICATED.							
3. PROVIDE MINIMUM SIZE CONDUIT INDICATED IN THE SPECIFICATIONS OR ON THE DRAWINGS.							
4. FOR SINGLE PHASE FEEDERS, PROVIDE A 3-WIRE CIRCUIT UNLESS DEVICE SERVED DOES NOT HAVE PROVISIONS FOR A NEUTRAL. FOR THREE PHASE FEEDERS, PROVIDE A 4-WIRE CIRCUIT UNLESS DEVICE SERVED DOES NOT HAVE PROVISIONS FOR A NEUTRAL.							
5. PROVIDE TYPE OF RACEWAY OR CABLE AS INDICATED IN THE SPECIFICATIONS OR ON THE DRAWINGS.							
6. REFER TO PANELBOARD SCHEDULES AND ONE-LINE RISER DIAGRAM DRAWINGS FOR CONDUCTOR AND CONDUIT SIZE REQUIREMENTS.							
7. ALL CONDUCTOR SIZES ARE BASED ON 75°C (167°F), ALL EQUIPMENT CONNECTED TO WIRES SHALL BE RATED OR 75°C (167°F)							



1 ELECTRICAL RISER DIAGRAM - DEMO  
N.T.S

NEW WORK NOTES	
1	UTILITY COMPANY SINGLE PHASE POLE MOUNTED TRANSFORMER. COORDINATE SERVICE REQUIREMENTS WITH LOCAL UTILITY.
2	PROVIDE 400 AMP RATED SERVICE CONDUCTORS, SERVICE RACEWAY AND SERVICE EQUIPMENT. COORDINATE WITH UTILITY COMPANY REQUIREMENTS.
3	PROVIDE PANEL PP2. SEE PANEL SCHEDULE FOR ADDITIONAL INFORMATION.
4	PROVIDE SERVICE GROUND. REFER TO GROUNDING ELECTRODE SYSTEM AND BONDING DETAIL ON E5.0
5	INTERCEPT EXISTING FEEDER TO EXISTING BUILDING. PROVIDE GROUND MOUNTED NEMA 3R JUNCTION BOX. EXTEND EXISTING FEEDERS TO PANEL PP2 AS SHOWN.
6	INTERCEPT EXISTING BRANCH CIRCUIT TO EXISTING SITE MOUNTED CIRCUITS. PROVIDE GROUND MOUNTED NEMA 3R JUNCTION BOX, COORDINATE NEC REQUIREMENTS. EXTEND EXISTING BRANCH CIRCUITS TO PANEL PP2.

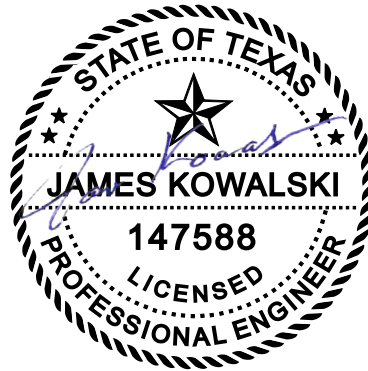
SPD SCHEDULE			
TAG NAME	LOCATION	TYPE WIRE	SPD MODEL NUMBER (SURGE SUPPRESSION INC)
SPD-1	PP-2	THHN (400 AMP)	SKLB-1S1-D3



2 ELECTRICAL RISER DIAGRAM - NEW WORK  
N.T.S



1370 Pantheon Way  
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Tel. (210) 686-1614  
TX Registration No. F19994  
CES\* 2022580.00



CONSTRUCTION DOCUMENTS

ELECTRICAL RISER  
DIAGRAM

08/25/2023: 100 % CD CHECK SET  
04/23/2024: 100 % CD

VILLA  
FINALE

~ E7.0 ~

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SECTION 26 04 00 - GENERAL CONDITIONS FOR ELECTRICAL TRADES

A. DESCRIPTION

- SCOPE OF WORK CONSISTS OF INSTALLATION OF MATERIALS TO BE FURNISHED UNDER THE CONTRACT DOCUMENTS AND WITHOUT LIMITING GENERALITY THEREOF CONSISTS OF FURNISHING LABOR, MATERIALS, EQUIPMENT, HOISTING, PLANT, TRANSPORTATION, RIGGING, STAGING, APPURTENANCES, AND SERVICES NECESSARY AND/OR INCIDENTAL TO PROPERLY COMPLETE ALL WORK AS SHOWN ON THE DRAWINGS AND AS DESCRIBED HEREIN.

B. DEFINITIONS:

- FURNISH: THE TERM "FURNISH" MEANS TO "SUPPLY AND DELIVER TO THE PROJECT SITE, READY FOR UNLOADING, UNPACKING, AND/OR INSTALLATION AND/OR OPERATIONS."
- INSTALL: THE TERM "INSTALL" IS USED TO DESCRIBE OPERATIONS AT PROJECT SITE INCLUDING THE ACTUAL "UNLOADING, UNPACKING, ASSEMBLY, ERECTION, PLACING, ANCHORING, APPLYING, WORKING TO DIMENSION, FINISHING, CURING, PROTECTING, CLEANING, AND SIMILAR OPERATION"
- PROVIDE: THE TERM "PROVIDE" MEANS "TO FURNISH AND INSTALL, COMPLETE AND READY FOR THE INTENDED USE."
- REMOVE: THE TERM REMOVE MEANS TO DISCONNECT FROM ITS PRESENT POSITION; REMOVE FROM THE PREMISES AND TO DISPOSE OF IN A LEGAL MANNER. "
- SUBSTITUTIONS: "SUBSTITUTIONS" ARE REQUESTS FOR CHANGES IN PRODUCTS, MATERIALS AND METHODS OF CONSTRUCTION AS PROPOSED BY THE CONTRACTOR AFTER AWARD OF THE CONTRACT.

C. EQUIPMENT EQUIVALENTS AND SUBSTITUTIONS:

- CERTAIN MANUFACTURERS OF MATERIAL, APPARATUS OR APPLIANCES ARE INDICATED IN THE DRAWINGS AND SPECIFICATIONS FOR THIS PROJECT. THESE ITEMS HAVE BEEN USED AS THE BASIS OF DESIGN, AND AS A CONVENIENCE IN FIXING THE MINIMUM STANDARD OF WORKMANSHIP, FINISH AND DESIGN THAT IS REQUIRED. IF THE CONTRACTORS USES AN "APPROVED EQUAL" ALTERNATIVE TO THE BASIS OF DESIGN, AND IF THE FEATURES OF THAT ALTERNATIVE HAVE AN IMPACT ON OTHER COMPONENTS OF THE PRODUCTION, THE CONTRACTOR SHALL INCLUDE THE NECESSARY ADJUSTMENTS IN THOSE COMPONENTS, WHETHER FOR ARCHITECTURAL, STRUCTURAL, MECHANICAL, ELECTRICAL, FIRE PROTECTION, OR ANY OTHER ELEMENTS, PLUS ANY ADJUSTMENTS FOR DIFFERENCE IN PERFORMANCE.
- EQUIPMENT, MATERIAL OR DEVICES SUBMITTED FOR REVIEW AS AN "EQUIVALENT" SHALL MEET THE FOLLOWING REQUIREMENTS:
  - THE EQUIVALENT SHALL HAVE THE SAME CONSTRUCTION FEATURES SUCH AS, BUT NOT LIMITED TO:
    - MATERIAL THICKNESS, GAUGE, WEIGHT, DENSITY, ETC.
    - WELDED, RIVETED, BOLTED, ETC., CONSTRUCTION
    - FINISH, UNDERCOATING, CORROSION PROTECTION
  - THE EQUIVALENT SHALL PERFORM WITH THE SAME OR BETTER OPERATING EFFICIENCY.
  - THE EQUIVALENT SHALL BE LOCALLY REPRESENTED BY THE MANUFACTURER FOR SERVICE, PARTS AND TECHNICAL INFORMATION.
  - THE EQUIVALENT SHALL BEAR THE SAME LABELS OF PERFORMANCE CERTIFICATION AS IS APPLICABLE TO THE SPECIFIED ITEM, SUCH AS UL OR NEMA LABELS OR DLC QUALIFICATIONS.

D. DRAWINGS:

- PROVIDE ALL MATERIALS, EQUIPMENT AND LABOR NECESSARY TO COMPLETE THE WORK OUTLINED ON THESE CONTRACT DOCUMENTS. THE CONTRACTOR IS TO NOTE THAT THESE DOCUMENTS ARE DIAGRAMMATIC ONLY AND THAT FINAL PLACEMENT OF EQUIPMENT OR DEVICES IN THE FIELD MAY NOT DIRECTLY CORRESPOND TO THAT WHICH IS SHOWN ON THE DRAWINGS. IF A CONFLICT IN POSITIONING OCCURS THE CONTRACTOR IS TO NOTIFY THE ENGINEER IMMEDIATELY TO ASCERTAIN WHAT THE INTENT WAS BY THE DESIGN PROFESSIONAL.
- WHERE VARIANCES OCCUR BETWEEN THE DRAWINGS AND SPECIFICATIONS OR WITHIN EITHER OF THE DOCUMENTS, THE ITEM OR ARRANGEMENT OF BETTER QUALITY, HIGHER RATING, OR HIGHER VALUE SHALL BE INCLUDED IN THE CONTRACT PRICE. THE OWNER AND ENGINEER SHALL DECIDE ON THE ITEM AND THE MANNER IN WHICH THE WORK SHALL BE INSTALLED.

E. SURVEY AND MEASUREMENTS:

- PRIOR TO SUBMITTING BID, VISIT SITE AND IDENTIFY EXISTING CONDITIONS AND DIFFICULTIES THAT WILL AFFECT WORK TO BE PERFORMED. NO COMPENSATION WILL BE GRANTED FOR ADDITIONAL WORK CAUSED BY UNFAMILIARITY WITH SITE CONDITIONS THAT ARE VISIBLE OR READILY IDENTIFIED BY EXPERIENCED OBSERVERS. INCLUDE IN THE BID ALL DEMOLITION WORK REQUIRED.
- DO NOT SCALE DRAWINGS. SCALE INDICATED ON DRAWINGS IS FOR ESTABLISHING REFERENCE POINTS ONLY. ACTUAL FIELD CONDITIONS SHALL COVER ALL DIMENSIONS.
- PRIOR TO ORDERING ANY MATERIALS AND EQUIPMENT, THOROUGHLY REVIEW THE SITE CONDITIONS TO DETERMINE IF ADEQUATE CLEARANCES AND ACCESS IS ALLOWED TO INSTALL THE COMPONENTS. ORDER EQUIPMENT BROKEN DOWN, AS NECESSARY TO ALLOW FOR PROPER RIGGING THROUGH THE PROJECT AREA. PROVIDE ALL NECESSARY ALTERATIONS TO THE STRUCTURE OF THE BUILDING AS NECESSARY TO RIG THE EQUIPMENT IN PLACE.
- ARRANGE INSTALLATION TO PROVIDE ACCESS TO EQUIPMENT FOR EASY MAINTENANCE AND REPAIR.

F. CODES AND STANDARDS: ALL WORK SHALL BE COMPLETED IN ACCORDANCE WITH THE MOST RECENTLY ADOPTED EDITIONS OF THE FOLLOWING CODES AND STANDARDS, INCLUDING ALL JURISDICTIONAL REVISIONS:

- STATE BUILDING CODE INCLUDING ALL SUPPLEMENTS
- STATE FIRE SAFETY CODE INCLUDING ALL SUPPLEMENTS
- STATE FIRE PREVENTION CODE INCLUDING ALL SUPPLEMENTS
- THE INTERNATIONAL BUILDING CODE
- THE INTERNATIONAL FIRE CODE
- THE INTERNATIONAL MECHANICAL CODE
- THE INTERNATIONAL PLUMBING CODE
- THE INTERNATIONAL ENERGY CONSERVATION CODE
- NFPA 1: NATIONAL FIRE CODE
- NFPA 70: NATIONAL ELECTRICAL CODE
- NFPA 72: NATIONAL FIRE ALARM AND SIGNALING CODE
- NECA 1: STANDARD FOR GOOD WORKMANSHIP IN ELECTRICAL CONSTRUCTION

G. PERMITS AND FEES:

- THE CONTRACTOR SHALL GIVE ALL NECESSARY NOTICES, OBTAIN ALL PERMITS, AND PAY ALL GOVERNMENT AND STATE SALES TAXES AND FEES WHERE APPLICABLE, AND OTHER COSTS, FILE ALL THE NECESSARY DOCUMENTS AND WHERE SCHEDULED ON THE NECESSARY APPROVALS OF ALL GOVERNMENTAL AND STATE DEPARTMENTS HAVING JURISDICTION, OBTAIN ALL REQUIRED CERTIFICATES OF INSPECTION FOR HIS WORK, AND DELIVER A COPY TO THE OWNER AND ENGINEER BEFORE REQUEST FOR ACCEPTANCE AND FINAL PAYMENT FOR THE WORK.

H. SHOP DRAWINGS:

- PROVIDE SHOP DRAWINGS FOR ALL DEVICES SPECIFIED UNDER EQUIPMENT SPECIFICATIONS FOR ALL SYSTEMS INCLUDING FIRE ALARM, SWITCHGEAR, CLOCK, LIGHTING, ETC. OR WHERE CALLED FOR ELSEWHERE IN THE SPECIFICATIONS, OR WHERE SCHEDULED ON THE DRAWINGS, OR WHERE CALLED OUT ON THE DRAWINGS. SHOP DRAWINGS SHALL INCLUDE MANUFACTURERS' NAMES, CATALOG NUMBERS, CUTS, DIAGRAMS, DIMENSIONS, IDENTIFICATION OF PRODUCTS AND MATERIALS, COMPLIANCE WITH SPECIFIED STANDARDS, NOTATION OF COORDINATION REQUIREMENTS, NOTATION OF DIMENSIONS ESTABLISHED BY FIELD MEASUREMENT AND OTHER SUCH DESCRIPTIVE DATA AS MAY BE REQUIRED TO IDENTIFY AND ACCEPT THE EQUIPMENT. A COMPLETE LIST IN EACH CATEGORY (EXAMPLE: ALL FIXTURES) OF ALL SHOP DRAWINGS, CATALOG CUTS, MATERIAL LISTS, ETC., SHALL BE SUBMITTED TO THE ENGINEER AT ONE TIME. NO CONSIDERATION WILL BE GIVEN TO A PARTIAL SHOP DRAWINGS SUBMITTAL.
- SHOP DRAWINGS SHALL INCLUDE EQUIPMENT SUBMITTALS, FABRICATION AND INSTALLATION DRAWINGS, SETTING DIAGRAMS, SCHEDULES, PATTERNS, TEMPLATES AND SIMILAR DRAWINGS. INCLUDE THE FOLLOWING INFORMATION:
  - DIMENSIONS
  - WIRING DIAGRAMS AND RISER DIAGRAMS
  - CALCULATIONS
  - IDENTIFICATION OF PRODUCTS AND MATERIALS INCLUDED.
  - COMPLIANCE WITH SPECIFIED STANDARDS AND PERFORMANCE DATA AS INDICATED.
  - NOTATION OF COORDINATION REQUIREMENTS.
  - NOTATION OF DIMENSIONS ESTABLISHED BY FIELD MEASUREMENT.
  - DO NOT USE SHOP DRAWINGS WITHOUT AN APPROPRIATE FINAL STAMP INDICATING ACTION TAKEN IN CONNECTION WITH CONSTRUCTION.
  - DO NOT ORDER ANY MATERIALS OR EQUIPMENT PRIOR TO RECEIVING FINAL APPROVED SHOP DRAWINGS.
- SHOP DRAWINGS SHALL BE IN PDF/OCR FORMAT. PHOTOCOPIES ARE NOT ACCEPTABLE.

I. COORDINATION DRAWINGS:

- PREPARE COORDINATION DRAWINGS AT A SCALE TO MATCH THE CONTRACT DOCUMENT FLOOR PLANS, DETAILING MAJOR ELEMENTS, COMPONENTS, AND SYSTEMS OF ELECTRICAL EQUIPMENT AND MATERIALS IN RELATIONSHIP WITH OTHER SYSTEMS, INSTALLATIONS, AND BUILDING COMPONENTS. INDICATE LOCATIONS WHERE SPACE IS LIMITED FOR INSTALLATION AND ACCESS AND WHERE SEQUENCING AND COORDINATION OF INSTALLATIONS ARE OF IMPORTANCE TO THE EFFICIENT FLOW OF THE WORK, INCLUDING (BUT NOT NECESSARILY LIMITED TO) THE FOLLOWING:
  - INDICATE THE PROPOSED LOCATIONS OF LIGHT FIXTURES, PANELBOARDS, CONDUITS, CABINETS, ETC.
  - CLEARANCES FOR INSTALLING AND MAINTAINING INSULATION.
  - CLEARANCES FOR SERVICING AND MAINTAINING EQUIPMENT, INCLUDING NEC REQUIREMENTS AND SPACE FOR EQUIPMENT DISASSEMBLY REQUIRED FOR PERIODIC MAINTENANCE.
  - EQUIPMENT CONNECTIONS AND SUPPORT DETAILS.
  - EXTERIOR WALL AND FOUNDATION PENETRATIONS.
  - FIRE-RATED WALL AND FLOOR PENETRATIONS.
  - SIZES AND LOCATIONS OF REQUIRED CONCRETE PADS AND BASES.
- INDICATE SCHEDULING, SEQUENCING, MOVEMENT, AND POSITIONING OF LARGE EQUIPMENT INTO THE BUILDING DURING CONSTRUCTION.
- PREPARE FLOOR PLANS, ELEVATIONS, AND DETAILS TO INDICATE PENETRATIONS IN FLOORS, WALLS, AND CEILINGS AND THEIR RELATIONSHIP TO OTHER PENETRATIONS AND INSTALLATIONS.
- PREPARE REFLECTED CEILING PLANS TO COORDINATE AND INTEGRATE INSTALLATIONS, AIR OUTLETS AND INLETS, LIGHT FIXTURES, COMMUNICATION SYSTEMS COMPONENTS, SPRINKLERS, AND OTHER CEILING-MOUNTED ITEMS.

J. AS-BUILT DRAWINGS:

- PREPARE AS-BUILT DRAWINGS TO A SCALE TO MATCH THE CONTRACT DOCUMENT FLOOR PLANS, DETAILING THE ACTUAL INSTALLATION OF MAJOR ELEMENTS, COMPONENTS, AND HANGERS AND SUPPORTS SHALL MEET ASTM STANDARDS FOR COATINGS, NECA 1 STANDARDS FOR WORKMANSHIP, NFPA 70, AND UL 58 FOR STRUT-TYPE CHANNEL, RACEWAY AND FITTINGS.
- RECORD A CROSS-REFERENCE AT THE CORRESPONDING LOCATION ON THE AS-BUILT DRAWINGS, GIVE PARTICULAR ATTENTION TO CONCEALED ELEMENTS THAT WOULD BE DIFFICULT TO MEASURE AND RECORD AT A LATER DATE.
- MARK NEW INFORMATION THAT IS IMPORTANT TO THE OWNER, BUT WAS NOT SHOWN ON CONTRACT DRAWINGS OR SHOP DRAWINGS.
- NOTE RELATED WHERE LOCATIONS WHERE APPLICABLE.
- FINAL RECORD DOCUMENTS SHALL BE PREPARED IN THE LATEST AUTOCAD VERSION AND DIGITAL MEDIA FOR ALL DRAWINGS AND A CLEAN SET OF REPRODUCIBLE PAPER COPIES SHALL BE TURNED OVER TO THE OWNER AT THE COMPLETION OF THE WORK.

K. OPERATIONS AND MAINTENANCE MANUALS

- THE CONTRACTOR SHALL PREPARE (1) PDF COPY AND (3) HARD COPIES OF A COMPLETE MAINTENANCE AND OPERATING INSTRUCTIONS MANUAL, BOUND IN BOOKLET FORM, ORGANIZE OPERATING AND MAINTENANCE DATA INTO SUITABLE SETS OF MANAGEABLE SIZE. BIND PROPERLY INDEXED DATA INTO INDIVIDUAL HEAVY-DUTY, 3-RING VINYL-COVERED BINDERS, WITH POCKET FOLDERS FOR FOLDED SHEET INFORMATION. MARK APPROPRIATE IDENTIFICATION ON FRONT AND SPINE OF EACH BINDER.
- MANUAL SHALL INCLUDE THE FOLLOWING:
  - DESCRIPTION OF FUNCTION, NORMAL OPERATING CHARACTERISTICS AND LIMITATIONS, PERFORMANCE CURVES, ENGINEERING DATA AND TESTS, AND COMPLETE NOMENCLATURE AND COMMERCIAL NUMBERS OF REPLACEMENT PARTS.
  - MANUFACTURER'S PRINTED OPERATING PROCEDURES TO INCLUDE START-UP, BREAK-IN, AND ROUTINE AND NORMAL OPERATING INSTRUCTIONS, REGULATION, CONTROL, STOPPING, SHUT-DOWN, AND EMERGENCY INSTRUCTIONS, AND SUMMER AND WINTER OPERATING INSTRUCTIONS.
  - MAINTENANCE PROCEDURES FOR ROUTINE PREVENTATIVE MAINTENANCE AND TROUBLESHOOTING; DISASSEMBLY, REPAIR, AND REASSEMBLY; ALIGNING AND ADJUSTING.
  - SERVICING INSTRUCTIONS AND LUBRICATION CHARTS AND SCHEDULES.
  - EMERGENCY INSTRUCTIONS.
  - SPARE PARTS LIST.
  - COPIES OF WARRANTIES.
  - WIRING DIAGRAMS.
  - RECOMMENDED "TURN AROUND" CYCLES.
  - INSPECTION PROCEDURES.
  - APPROVED SHOP DRAWINGS AND PRODUCT DATA.
  - EQUIPMENT START-UP REPORTS.

L. WARRANTIES

- ALL EQUIPMENT PROVIDED IN THIS PROJECT SHALL CARRY A MANUFACTURER'S WARRANTY FOR NO LESS THAN ONE (1) YEAR FROM DATE OF BENEFICIAL USE - UNLESS NOTED OTHERWISE IN THE CONTRACT DOCUMENTS.

M. MISCELLANEOUS REQUIREMENTS:

- SUBMIT TO THE OWNER AN OFFICIAL CERTIFICATE OF INSURANCE FOR THEIR RECORDS.

N. ELECTRICAL ACCEPTANCE TESTING

- TESTING SHALL BE PERFORMED ON ELECTRICAL EQUIPMENT AND SYSTEMS TO ASSURE THE EQUIPMENT AND SYSTEMS ARE OPERATIONAL AND WITHIN APPLICABLE STANDARDS AND MANUFACTURING TOLERANCES. TESTING SHOULD VERIFY THAT EQUIPMENT AND SYSTEMS ARE INSTALLED IN ACCORDANCE WITH DESIGN SPECIFICATIONS. ALL TESTING SHALL OCCUR AT THE BUILDING SITE.
- QUALIFIED TECHNICIANS WHO ARE TRAINED AND REGULARLY EMPLOYED FOR TESTING SERVICES SHALL DO ALL THE TESTING.
- TESTING ORGANIZATION SHALL CONFORM TO THE GENERAL GUIDELINES OF SECTION 5 OF THE LATEST NETA ACCEPTANCE TESTING SPECIFICATIONS. THIS INCLUDES THE FOLLOWING:
  - SAFETY AND PRECAUTIONS
  - SUITABILITY OF TEST EQUIPMENT
  - TEST INSTRUMENT CALIBRATION
  - TEST REPORTS
- NOTIFY THE ARCHITECT, ENGINEER AND OWNER AT LEAST SEVEN (7) DAYS IN ADVANCE OF ANY TESTING.
- INSPECTION AND TESTING OF ALL APPLICABLE ELECTRICAL EQUIPMENT LISTED BELOW SHALL BE DONE IN ACCORDANCE WITH THE LATEST VERSION OF NETA ATS.
  - SWITCHBOARDS AND SWITCHGEAR ASSEMBLIES.
  - TRANSFORMERS.
  - CABLES.
  - LOW VOLTAGE CIRCUIT BREAKERS.
  - EMERGENCY SYSTEMS - GENERATOR, AUTOMATIC TRANSFER SWITCHES, UNINTERRUPTIBLE POWER SUPPLIES.

SECTION 26 05 19 - ELECTRICAL POWER CONDUCTORS AND CABLES

- COORDINATION:
  - COORDINATE SIZES OF RACEWAYS, BOXES, AND EQUIPMENT ENCLOSURES INSTALLED UNDER OTHER SECTIONS WITH THE ACTUAL CONDUCTORS TO BE INSTALLED, INCLUDING ADJUSTMENTS FOR CONDUCTOR SIZES, TAPERED CONDUIT VOLTAGE DROP.
  - COORDINATE WITH ELECTRICAL EQUIPMENT INSTALLED UNDER OTHER SECTIONS TO PROVIDE TERMINATIONS SUITABLE FOR USE WITH THE CONDUCTORS TO BE INSTALLED.
- PROVIDE BUILDING WIRING EQUIPMENT INSTALLED IN SUITABLE RACEWAY UNLESS OTHERWISE INDICATED, PERMITTED OR REQUIRED.
- CONDUCTOR SIZES AND AMPACITIES SHOWN ARE BASED ON COPPER.
- MINIMUM CONDUCTOR SIZES:
  - BRANCH CIRCUITS: 12 AWG
    - 20A, 120V CIRCUITS LONGER THAN 150 FEET - #10 AWG MINIMUM AND SIZED FOR VOLTAGE DROP.
  - CONTROL CIRCUITS: 14 AWG
- CONDUCTORS NO. 10 AWG AND SMALLER DIAMETER SHALL BE SOLID ANNEALED COPPER, EXCEPT THAT CONDUCTORS FOR REMOTE CONTROL, ALARM, AND SIGNAL CIRCUITS, CLASSES 1, 2 AND 3, SHALL BE STRAIGHTENED UNLESS SPECIFICALLY INDICATED OTHERWISE.
- CONDUCTORS NO. 8 AWG AND LARGER DIAMETER SHALL BE STRANDED ANNEALED COPPER, UNLESS SPECIFIED OR INDICATED OTHERWISE OR REQUIRED BY NFPA 70, POWER AND LIGHTING WIRING SHALL BE 600-VOLT, TYPE THHN/THWN-2 OR THWN/THWN-2 COPPER CONDUCTORS. CONTROL AND SIGNAL CIRCUITS SHALL BE TYPE TW, THW, OR TF ANNEALED COPPER UNDERGROUND CONDUCTORS SHALL BE TYPE XHHW-2.
- WHERE LIGHTING FIXTURES REQUIRE 90 DEGREES C CONDUCTORS, PROVIDE ONLY 90 DEGREE C CONDUCTORS. MAKE SPLICING IN CONDUCTORS NO. 10 AWG AND SMALLER DIAMETER WITH INSULATED, SPRING WIRE CONNECTORS WITH PLASTIC CAPS. MAKE SPLICING IN CONDUCTORS NO. 8 AWG AND LARGER DIAMETER WITH SOLDERLESS PRESSURE CONNECTORS WITH INSULATING COVERS. MAKE SPLICING IN CONDUCTORS NO. 8 AND LARGER WITH PRESSURE CONNECTORS OR SPLIT BOLT CONNECTORS.
- MAKE WIRE TERMINATIONS USING CRIMPED TERMINALS FOR CONDUCTORS NO. 10 AND SMALLER. MAKE WIRE TERMINATIONS FOR CONDUCTORS NO. 8 AND LARGER USING MECHANICAL OR PRESSURE CONNECTORS. PROVIDE SUITABLE REDUCERS WHERE OVERSIZED CONDUCTORS ARE LARGER THAN THE EQUIPMENT TERMINATION.
- PHASE CONDUCTORS SHALL BE IDENTIFIED BY COLOR CODING. THE COLOR OF THE INSULATION ON PHASES A, B, AND C RESPECTIVELY (FOR THREE PHASE) OR PHASES A AND B RESPECTIVELY (FOR SINGLE PHASE) OF DIFFERENT VOLTAGE SYSTEMS SHALL BE AS FOLLOWS:
  - 120/240 VOLT, SINGLE PHASE: BLACK, RED, AND WHITE.
  - UNLESS OTHERWISE INDICATED, THE WIRING METHOD SHALL CONSIST OF THE INSTALLATION OF INSULATED CONDUCTORS INSTALLED IN ELECTRICAL METALLIC TUBING.
- METAL-CLAD ARMORED TYPE MC CABLES, WHERE ALLOWED, SHALL INCLUDE 600V INSULATION RATING, TYPE THHN/THWN-2 COPPER CONDUCTORS, DEDICATED NEUTRAL CONDUCTOR AND STEEL INTERLOCKING ARMOR. USES PERMITTED:
  - WHERE CONCEALED ABOVE ACCESSIBLE CEILINGS FOR FINAL CONNECTIONS TO LUMINAIRES (MAXIMUM LENGTH 6 FEET).
  - WHERE CONCEALED IN HOLLOW STUD WALLS, ABOVE ACCESSIBLE CEILINGS, AND UNDER RAISED FLOOR FOR BRANCH CIRCUITS UP TO 20A.
- PROVIDE INSULATED, GREEN EQUIPMENT GROUNDING CONDUCTOR IN FEEDER AND BRANCH CIRCUITS, INSTALLED IN CONDUIT OR RACEWAYS, INCLUDING LIGHTING CIRCUITS. GROUNDING CONDUCTOR SHALL BE SEPARATE FROM ELECTRICAL SYSTEM NEUTRAL CONDUCTOR.

SECTION 26 05 26 - GROUNDING AND BONDING

- GROUNDING SHALL BE COMPLETED IN ACCORDANCE WITH NFPA 70. GROUND EXPOSED, NON-CURRENT-CARRYING METALLIC PARTS OF ELECTRICAL EQUIPMENT, METALLIC RACEWAY SYSTEMS, GROUNDING CONDUCTOR IN METALLIC AND NONMETALLIC RACEWAYS, AND NEUTRAL CONDUCTOR OF WIRING SYSTEMS. WHERE GROUND/Fault PROTECTION IS EMPLOYED, ENSURE THAT CONNECTION OF GROUND AND NEUTRAL DOES NOT INTERFERE WITH CORRECT OPERATION OF FAULT PROTECTION.
- WHERE CONDUCTOR SIZE IS NOT INDICATED, SIZE TO COMPLY WITH NFPA 70.
- USE INSULATED COPPER CONDUCTORS UNLESS OTHERWISE INDICATED. USE BARE COPPER CONDUCTORS WHERE INSTALLED UNDERGROUND OR ENCASED IN CONCRETE.
- USE LISTED MECHANICAL CONNECTORS, COMPRESSION CONNECTORS OR EXOTHERMIC WELDED CONNECTIONS FOR ACCESSIBLE CONNECTIONS. USE EXOTHERMIC WELDED CONNECTIONS FOR UNDERGROUND, CONCEALED OR OTHERWISE INACCESSIBLE CONNECTIONS.
- GROUNDING ELECTRODE SYSTEM: PROVIDE CONNECTION TO REQUIRED AND SUPPLEMENTAL GROUNDING ELECTRODE SYSTEM INDICATED TO FORM GROUNDING ELECTRODE SYSTEM. PROVIDE CONTINUOUS GROUNDING ELECTRODE CONDUCTORS WITHOUT SPLICE OR JOINT. INSTALL GROUNDING ELECTRODE CONDUCTORS IN RACEWAY WHERE EXPOSED OR SUBJECT TO PHYSICAL DAMAGE. BOND GROUNDING ELECTRODE CONDUCTOR TO METALLIC RACEWAY AT EACH END WITH BONDING JUMPER.
- SERVICE-SUPPLIED SYSTEM GROUNDING: FOR EACH SERVICE DISCONNECT, PROVIDE GROUNDING ELECTRODE CONDUCTOR TO CONNECT NEUTRAL SERVICE CONDUCTOR TO GROUNDING ELECTRODE SYSTEM. UNLESS OTHERWISE INDICATED, MAKE CONNECTION AT NEUTRAL (GROUNDED) BUS IN SERVICE DISCONNECT ENCLOSURE.

SECTION 26 05 29 - HANGERS AND SUPPORTS

- PROVIDE ALL REQUIRED HANGERS, SUPPORTS, ANCHORS, FASTENERS, FITTINGS, ACCESSORIES AND HARDWARE NECESSARY FOR THE COMPLETE INSTALLATION OF THE ELECTRICAL WORK.
- HANGERS AND SUPPORTS SHALL MEET ASTM STANDARDS FOR COATINGS, NECA 1 STANDARDS FOR WORKMANSHIP, NFPA 70, AND UL 58 FOR STRUT-TYPE CHANNEL, RACEWAY AND FITTINGS.
- WHERE SUPPORT AND ATTACHMENT COMPONENT TYPES AND SIZES ARE NOT INDICATED, SELECT IN ACCORDANCE WITH MANUFACTURERS APPLICATION CRITERIA AS REQUIRED FOR THE LOAD TO BE SUPPORTED.
- STEEL COMPONENTS: USE CORROSION RESISTANT MATERIALS SUITABLE FOR THE ENVIRONMENT WHERE INSTALLED. USE ZINC-PLATED STEEL FOR INDOOR DRY LOCATIONS. USE GALVANIZED STEEL, STAINLESS STEEL, FIBERGLASS OR APPROVED EQUIVALENT FOR OUTDOOR, DAMP AND WET LOCATION INSTALLATIONS.
- CONDUIT AND CABLE SUPPORTS:
  - CONDUIT STRAPS: ONE-HOLE OR TWO-HOLE, ZINC PLATED.
  - CONDUIT CLAMPS: BOLTED TYPE.
  - OUTLET BOX SUPPORTS: HANGERS AND BRACKETS SUITABLE FOR BOXES TO BE SUPPORTED.
- METAL CHANNEL (STRUT) FRAMING SYSTEMS: FACTORY FABRICATED CONTINUOUS SLOTTED METAL CHANNEL AND ASSOCIATED FITTINGS, ACCESSORIES, AND HARDWARE FOR FIELD-ASSEMBLY OF SUPPORTS. ALL LOCATIONS: USE 12 GA. GALVANIZED STEEL.
- HANGERS: HEAVY-DUTY, 3-RING VINYL-COVERED BINDERS, WITH POCKET FOLDERS FOR FOLDED SHEET INFORMATION. MARK APPROPRIATE IDENTIFICATION ON FRONT AND SPINE OF EACH BINDER.
- USE OF POWER-ACTUATED FASTENERS REQUIRES APPROVAL OF ARCHITECT AND STRUCTURAL ENGINEER.
- UNLESS SPECIFICALLY INDICATED, DO NOT SUPPORT ANY ELECTRICAL COMPONENT FROM THE ROOF DECK.
- PLASTIC AND LEAD ANCHORS ARE NOT PERMITTED.

SECTION 26 05 33 - RACEWAY AND BOXES

- PROVIDE A COMPLETE WIRING SYSTEM OF RACEWAYS AND BOXES LOCATED AS INDICATED ON DRAWINGS AND AT LOCATIONS AS REQUIRED FOR SPLICING, TAPS, WIRE PULLING, EQUIPMENT CONNECTIONS AND COMPLIANCE WITH REGULATORY REQUIREMENTS. LOCATIONS INDICATED ON DRAWINGS ARE APPROXIMATE UNLESS DIMENSIONED.
- ADJUSTMENTS TO COMPLY WITH ANSI C80, NEMA AND UL REQUIREMENTS AS APPLICABLE FOR TYPE AND MATERIAL.
- MINIMUM CONDUIT SIZE, UNLESS OTHERWISE NOTED: INTERIOR - 3/4", EXTERIOR EXPOSED 3/4", EXTERIOR UNDERGROUND - 1".
- CONDUIT APPLICATIONS:
  - UNDERGROUND:
    - UNDER SLAB ON GRADE - SCHEDULE 40 PVC CONDUIT WITH RIGID METAL CONDUIT SWEETS.
    - EXTERIOR IN TRENCH - USE SCHEDULE 40 OR SCHEDULE 80 PVC CONDUIT WITH RIGID METAL CONDUIT SWEETS.
    - EXTERIOR, CONCRETE ENCASED - USE TYPE EB RIGID PVC CONDUIT, TRANSITION TO RIGID METAL WHERE EMERGING FROM UNDERGROUND.
  - EMBEDDED WITHIN SLAB: FLOOR BOX SLAB-ON-GRADE APPLICATIONS ONLY.
  - CONCEALED IN MASONRY WALLS: USE EMT WITH FLUSH MOUNTED MASONRY BOXES.
  - CONCEALED IN HOLLOW STUD WALLS: USE EMT CONDUIT OR MC CABLE (WHERE ALLOWED), PROVIDE FLUSH SHEET-METAL BOXES.
- INTERIOR DAMP OR WET LOCATIONS: USE RIGID METAL CONDUIT, INTERMEDIATE METAL CONDUIT OR SCHEDULE 40 PVC CONDUIT. PROVIDE CAST METAL OR NONMETALLIC OUTLET, JUNCTION AND PULL BOXES.
- EXPOSED, INTERIOR DRY LOCATIONS: USE EMT CONDUIT.
- EXPOSED FINISHED LOCATIONS: PROVIDE SURFACE METAL RACEWAY AND FITTINGS, UNLESS SPECIFIED ON DRAWINGS, REQUIRES DESIGN TEAM APPROVAL. COORDINATE ALL VERTICAL RUNS OF SURFACE RACEWAY WITH ARCHITECT PRIOR TO INSTALLATION.
- CONDUIT, MAXIMUM LENGTH OF 6 FEET.
- CONNECTIONS TO VIBRATING EQUIPMENT: LOCATIONS - USE FLEXIBLE METAL CONDUIT OR MC CABLE. DAMP, WET OR CORROSIVE LOCATIONS - USE LIQUIDTIGHT FLEXIBLE METAL CONDUIT, MAXIMUM LENGTH 6 FEET.

SECTION 26 05 33 - IDENTIFICATION FOR ELECTRICAL SYSTEMS

- SERVICE EQUIPMENT: USE IDENTIFICATION NAMEPLATE TO IDENTIFY EACH SERVICE DISCONNECTING MEANS.
- USE IDENTIFICATION NAMEPLATES TO IDENTIFY EACH PIECE OF ELECTRICAL DISTRIBUTION AND CONTROL EQUIPMENT AND ASSOCIATED SECTIONS, COMMITMENTS AND COMPONENTS. IDENTIFY NAME, AMPERE RATING, LOADS SERVED (DISCONNECT SWITCHES, ENCLOSED CONTROLLERS, AND TRANSFORMERS ONLY), VOLTAGE AND PHASE, AND POWER SOURCE/CIRCUIT NUMBER. INCLUDE LOCATION OF SOURCE/LOAD SERVED IF NOT WITHIN SIGHT OF EQUIPMENT.
- PROVIDE LAMINATED ACRYLIC OR NON-CONDUCTIVE PHENOLIC WITH BEVELED EDGES. NAMEPLATES FOR EACH EQUIPMENT ENCLOSURE, RELAY, SWITCH, AND DEVICE. NAMEPLATES SHALL BE 1/8" THICK, WHITE WITH BLACK CENTER CORE, MATTE FINISH SURFACE, BEVELED EDGES, SQUARE CORNERS. ACCURATELY ALIGN LETTERING AND ENGRAVE INTO THE CORE. MINIMUM SIZE OF NAMEPLATES SHALL BE 1" BY 2-1/2". LETTERING SHALL BE A MINIMUM OF 1/4" OTHER THAN NORMAL BLOCK STYLE.
- PROVIDE WIRE AND CABLE MARKERS OR IDENTIFICATION LABELS TO IDENTIFY CIRCUIT NUMBER AT EACH SOURCE LOCATION, WITHIN BOXES WHERE MORE THAN ONE CIRCUIT IS PRESENT: WITHIN EQUIPMENT ENCLOSURES WHERE CONDUCTORS ENTER AND EXIT THE ENCLOSURE; AND CABLE TRAYS (MAXIMUM 20 FT. INTERVALS). PROVIDE WRAP-AROUND SELF-ADHESIVE VINYL CLOTH, WRAP-AROUND SELF-ADHESIVE VINYL SELF-LAMINATING, HEAT-SHRINK SLEEVE, PLASTIC SLEEVE, PLASTIC CLIP-ON, OR VINYL SPLIT SLEEVE TYPE MARKERS SUITABLE FOR THE CONDUCTOR OR CABLE TO BE IDENTIFIED.
- PROVIDE VOLTAGE MARKERS TO IDENTIFY HIGHEST VOLTAGE PRESENT FOR ACCESSIBLE CONDUITS (MAXIMUM 20 FT. INTERVALS).
- PROVIDE PRE-LABELED, SNAP AROUND PIPE MARKERS ON ALL CONDUITS. MARKERS SHALL COMPLY WITH ANSI A 13.1-1988 STANDARDS AND INDICATED VOLTAGE.
- WARNING LABELS: USE FACTORY PRE-PRINTED OR MACHINE-PRINTED SELF-ADHESIVE POLYESTER OR SELF-ADHESIVE VINYL LABELS, UV, CHEMICAL, WATER, HEAT AND ABRASION RESISTANT.
- CLEAN SURFACES TO RECEIVE ADHESIVE PRODUCTS ACCORDING TO MANUFACTURERS INSTRUCTIONS.
- INSTALL IDENTIFICATION PRODUCTS TO BE PLAINLY VISIBLE FOR EXAMINATION, ADJUSTMENT, SERVICING AND MAINTENANCE.
- INSTALL IDENTIFICATION PRODUCTS CENTERED, LEVEL AND PARALLEL WITH LINES OF ITEM BEING IDENTIFIED.

SECTION 26 09 23 - LIGHTING CONTROL DEVICES

A. GENERAL REQUIREMENTS

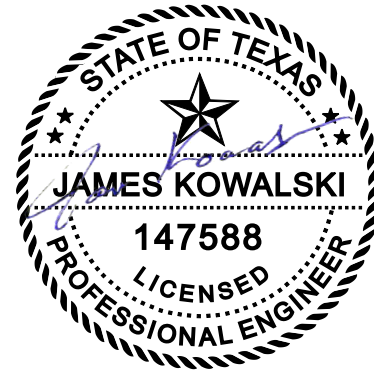
- MANUFACTURERS:
  - ACQUAINTANCE APPLICATIONS.
  - HUBBELL.
  - CRESTRON.
- REFER TO LIGHTING CONTROL DETAILS ON DRAWINGS FOR ADDITIONAL REQUIREMENTS.
- PROVIDE PRODUCTS LISTED, CLASSIFIED, AND LABELED AS SUITABLE FOR THE PURPOSE INTENDED.
- SOURCE LIMITATIONS: FURNISH PRODUCTS PRODUCED BY A SINGLE MANUFACTURER AND OBTAINED FROM A SINGLE SUPPLIER.
- COLOR AND FINISH: TO BE DETERMINED BY ARCHITECT.
- LINE VOLTAGE OCCUPANCY/VACANCY SENSOR SWITCHES:
  - PRODUCT DESCRIPTION:
    - PROVIDE WALL SWITCH STYLE OCCUPANCY/VACANCY SENSOR CAPABLE OF TURNING LIGHTS OFF WHEN THE SPACE BECOMES UNOCCUPIED AND ON WHEN THE SPACE BECOMES RE-OCCUPIED. PROVIDE WITH 0-10V DIMMING CAPABILITIES AND/OR INTEGRAL DAYLIGHT CONTROL, WHERE INDICATED ON THE DRAWINGS. REFER TO DRAWINGS FOR OCCUPANCY OR VACANCY MODE SETTING.
  - LOW VOLTAGE OCCUPANCY/VACANCY SENSORS:
    - SENSOR REQUIREMENTS:
      - SENSOR SHALL BE DUAL TECHNOLOGY (PIR AND ULTRASONIC), UNLESS OTHERWISE NOTED ON DRAWINGS. SENSOR SHALL BE SET TO:
        - AUTO-ON, AUTO-OFF MODE (OCCUPANCY SENSOR)
        - MANUAL-ON, AUTO-OFF MODE (VACANCY SENSOR)
      - DIPSWITCH SELECTABLE TO TOGGLE BETWEEN OCCUPANCY AND VACANCY MODE.
    - COVERAGE:
      - SMALL SPACE (< 500 SQ FT): 500 SQUARE FEET MINIMUM
    - CORRIDORS AND HALLWAYS: CAPABLE OF DETECTING MAJOR MOTION WITH A LONG, NARROW PATTERN DESIGNED FOR CORRIDOR AND AISLE SENSING.
    - HIGH BAY AREAS: FOR AREAS WITH CEILINGS MORE THAN 15 FEET ABOVE FINISHED FLOOR, PROVIDE HIGH-BAY PIR-ONLY CEILING MOUNTED OCCUPANCY SENSOR.
  - PHOTOCELLS:
    - SENSOR REQUIREMENTS:
      - SENSOR SHALL BE FURNISHED WITH A CONTROL-CALIBRATION MODULE CAPABLE OF BEING SWITCHED BETWEEN MULTIPLE MEASUREMENT RANGES, SEPARATE TRIP POINTS FOR HIGH AND LOW RESPONSE SETTINGS, AND THREE-MINUTE TIME DELAY BETWEEN SENSING AND LIGHTING OUTPUTS TO AVOID NOISANCE TRIPPING. FOR STANDALONE DIMMING PHOTO SENSOR APPLICATIONS, PROVIDE PHOTO SENSOR UNIT WITH INTEGRAL 0-10V CONTROLLER, COMPATIBLE WITH THE SPECIFIED DIMMING DRIVERS, FOR DIRECT CONTINUOUS DIMMING OF UP TO 50 DRIVERS.
  - POWER PACKS:
    - DIMMABLE LOAD TYPES: 16A PER CHANNEL AT 100 TO 277VAC, 50/60 HZ. 0 - 10V LED DRIVERS.
  - SWITCHES:
    - PROVIDE SWITCHES WITH CONFIGURATION, FUNCTIONALITY AND OPERATION AS INDICATED ON DRAWINGS.
    - GENERAL REQUIREMENTS:
      - CUSTOM ENGRAVABLE BUTTONS/SWITCHES, REFER TO DRAWINGS FOR LABELING.
      - IDENTITY AND FINISH: TO BE DETERMINED BY ARCHITECT, IN DRAWINGS.
      - LED INDICATORS, AS SHOWN ON DRAWINGS.
      - CONFIGURED TO FIT IN STANDARD GANG BOXES.
      - COLOR: BY ARCHITECT.
    - LABELING:
      - PROVIDE FACTORY ENGRAVED LABELS FOR ALL SWITCHES.
      - REFER TO LIGHTING CONTROL DETAILS ON DRAWINGS FOR SUGGESTED LABELING OF LIGHTING CONTROL EQUIPMENT. COORDINATE NAMING OF SCENES/CONTROL ZONES WITH THE OWNER. PROVIDE A WORKSHEET.
      - DO NOT ORDER LABELS UNTIL OWNER COORDINATION IS COMPLETE.
  - CLASS 2 CONDUCTORS AND CABLES:
    - GENERAL REQUIREMENTS:
      - LINE VOLTAGE WIRING: COMPLY WITH REQUIREMENTS OF DIVISION 26 SECTION 1A. "ELECTRICAL POWER CONDUCTORS AND CABLES".
      - CLASS 2 LOW-VOLTAGE CABLE:
        - PROVIDE PLENUM-RATED CABLE.
        - UTP CABLE: CAT 5, CAT 6, OR AS REQUIRED BY MANUFACTURER.

SECTION 26 27 26 - WIRING DEVICES

- RECEPTACLES:
  - SELF-GROUNDING COMPLYING WITH NEMA WD 1 AND NEMA WD 6 AND LISTED COMPLYING WITH UL 498.
  - SINGLE AND DUPLEX RECEPTACLES SHALL BE RATED 20 AMPERES, 125 VOLTS, TWO-POLE, THREE-WIRE, GROUNDING TYPE WITH POLARIZED PAPER-LEAF SLOTS.
  - COLOR OF BODIES SHALL BE SELECTED BY THE ARCHITECT.
  - RECEPTACLE SHALL BE SIDE-WIRED OR BACK-WIRED WITH TWO SCREWS PER TERMINAL. THE THIRD GROUNDING POLE SHALL BE CONNECTED TO THE METAL MOUNTING YOK.
  - RECEPTACLES WITH GROUND FAULT CIRCUIT INTERRUPTERS SHALL HAVE THE CURRENT RATING AS INDICATED, AND SHALL BE UL 943, CLASS A TYPE UNLESS OTHERWISE SHOWN.
  - GROUND FAULT CIRCUIT PROTECTION SHALL BE PROVIDED AS REQUIRED BY NFPA 70 OR AS INDICATED ON THE DRAWINGS.
  - USE CHARGING DEVICES: PROVIDE DEVICES LISTED PER UL 1310 WITH TWO-PORT CHARGING CAPACITY OF 2.1 A, MINIMUM OR 4.2 A MINIMUM FOR FOUR-PORT DEVICES.
  - LOCKING DEVICES: REFER TO DRAWINGS FOR NEMA LOCKING CONFIGURATIONS.
  - MOUNT RECEPTACLES AND DATA OUTLETS 18" ABOVE FINISHED FLOOR, AND OTHER DEVICES AS INDICATED. MEASURE MOUNTING HEIGHTS OF WIRING DEVICES AND OUTLETS TO TOP OF DEVICE OR OUTLET.
- PROVIDE TAMPER RESISTANT RECEPTACLES WHERE INDICATED ON DRAWINGS.
- LINE VOLTAGE WALL SWITCHES:
  - AC ONLY, QUIET OPERATING GENERAL USE SNAP SWITCHES WITH SILVER ALLOY CONTACTS COMPLYING WITH NEMA WD 1 AND NEMA WD 6 AND UL 20, TYPE AS INDICATED ON DRAWINGS.
  - INDUSTRIAL SPECIFICATION GRADE, 20A, 120/277 V WITH STANDARD TOGGLE TYPE SWITCH ACTUATOR AND MAINTAINED CONTACTS, SINGLE POLE SINGLE THROW, THREE-WAY, OR FOUR-WAY AS INDICATED ON DRAWINGS.
  - COLOR OF BODIES SHALL BE SELECTED BY THE ARCHITECT.
  - SWITCH SHALL BE SIDE-WIRED OR BACK-WIRED WITH BINDING CLAMP, WITH SEPARATE GROUND SCREW TERMINAL.
  - LOCKING (KEYED) TYPE SWITCHES SHALL INCLUDE LEVER TYPE THREE POSITION SWITCH ACTUATOR WITH OFF POSITION IN CENTER.
- LINE VOLTAGE DIMMER SWITCHES:
  - SOLID-STATE WITH CONTINUOUS FULL-RANGE EVEN CONTROL FOLLOWING SQUARE LAW DIMMING CURVE WITH INTEGRAL RF INTERFERENCE FILTER. POWER FAILURE PREVENT MEMORY AND AIR GAP SWITCH COMPLYING WITH NEMA WD 1 AND NEMA WD 6 AND UL 1472. TYPE AND RATING SUITABLE FOR LOAD CONTROLLED AS INDICATED ON DRAWING.
  - SOLID STATE CONTROL TYPE WITH SEPARATE ON/OFF SWITCH.
  - COLOR OF BODIES SHALL BE SELECTED BY THE ARCHITECT.
  - POWER RATING, UNLESS OTHERWISE INDICATED ON DRAWINGS: INCANDESCENT - 600 VA; FLUORESCENT - 600 VA; ELECTRONIC LOW VOLTAGE - 400 VA; MAGNETIC LOW VOLTAGE - 600 VA.
- PROVIDE WITH LOCATOR LIGHT, ILLUMINATED WITH LOAD OFF.
- DEVICE PLATES SHALL BE ONE-PIECE TYPE AND SHALL BE PROVIDED FOR RECEPTACLES, OUTLETS, SWITCHES AND FITTINGS.
- PLATES ON UNFINISHED WALLS AND ON FITTINGS SHALL BE GALVANIZED SHEET STEEL.
- FINISH SELECTION BY ARCHITECT.
- PLATES SHALL BE INSTALLED WITH ALL FOUR EDGES IN CONTINUOUS CONTACT WITH FINISHED WALL SURFACES WITHOUT THE USE OF MATS OR SIMILAR DEVICES. PLASTER FILLINGS WILL NOT BE PERMITTED.
- PLATES INSTALLED IN WET LOCATIONS SHALL BE GASKETED AND PROVIDED WITH A HINGED, GASKETED COVER, UNLESS OTHERWISE SPECIFIED.



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CES® 20222580.00



CONSTRUCTION DOCUMENTS

ELECTRICAL SPECIFICATIONS

08/25/2023: 100 % CD CHECK SET  
04/23/2024: 100 % CD



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SECTION 26 20 00 -ELECTRICAL DISTRIBUTION

A. GENERAL REQUIREMENTS FOR EQUIPMENT UNDER THIS SECTION

1. MANUFACTURERS:
  - A. SQUARE D
  - B. SIEMENS
  - C. EATON
  - D. ABB
2. ENCLOSURE (UNLESS OTHERWISE INDICATED ON PLANS OR SCHEDULES):
  - A. TYPE 1 (INDOOR, DRY LOCATIONS)
  - B. TYPE 3R (OUTDOOR, WET LOCATIONS)

B. SERVICE-DISCONNECTING MEANS

1. SERVICE-DISCONNECTING MEANS SHALL BE OF THE TYPE AS INDICATED WITH EXTERNAL HANDLE FOR MANUAL OPERATION AND LOCKABLE. WHEN SERVICE DISCONNECTING MEANS IS A PART OF AN ASSEMBLY, THE ASSEMBLY SHALL BE LISTED AS SUITABLE FOR SERVICE ENTRANCE EQUIPMENT.
2. ENCLOSURES SHALL BE NEMA 1 (INTERIOR) OR NEMA 3R EXTERIOR) WITH HINGED COVER FOR SURFACE MOUNTING UNLESS OTHERWISE INDICATED.

C. PANELBOARDS

1. PRODUCT DESCRIPTION: NEMA PB 1, CIRCUIT BREAKER TYPE PANELBOARD, COMPLYING WITH UL 67
2. PANELBOARD BUS: COPPER CURRENT CARRYING COMPONENTS, RATINGS AS SHOWN ON DRAWINGS. FURNISH COPPER GROUND BUS IN EACH PANELBOARD.
3. MINIMUM INTEGRATED SHORT CIRCUIT RATING: 10KAIC
4. MOLDED CASE CIRCUIT BREAKERS: NEMA AB 1, CIRCUIT BREAKERS WITH INTEGRAL THERMAL AND INSTANTANEOUS TRIP FUNCTION, BOLT-ON TYPE. PROVIDE ELECTRONIC TRIP CIRCUIT BREAKERS WHERE INDICATED.
5. PROVIDE CIRCUIT BREAKERS WITH MAGNETIC TRIP IN EACH POLE.
6. CIRCUIT BREAKERS RATED 1,000 AMPS OR MORE ON SOLIDLY GROUNDED 480V SYSTEMS SHALL INCLUDE GROUND FAULT PROTECTION.
7. CIRCUIT BREAKERS RATED 1,200 AMPS OR MORE SHALL HAVE LONG TIME, SHORT TIME, INSTANTANEOUS, AND GROUND FAULT PROTECTION (LSI) FUNCTIONS. CIRCUIT BREAKERS SHALL HAVE ENERGY REDUCTION MAINTENANCE SETTING (ERMS) SYSTEM.
8. ENCLOSURE: NEMA PB 1.
9. CABINET FRONT: LOCKABLE HINGED DOOR, METAL DIRECTORY FRAME, FINISHED IN MANUFACTURER'S STANDARD GRAY ENAMEL.

D. DISCONNECT SWITCHES

1. PRODUCT DESCRIPTION: HEAVY-DUTY, NEMA KS 1, ENCLOSED LOAD INTERRUPTER KNIFE SWITCH, HANDLE LOCKABLE IN "OFF" POSITION
2. ENCLOSURE: NEMA KS 1, TO MEET CONDITIONS. FABRICATE ENCLOSURE FROM STEEL FINISHED WITH MANUFACTURER'S STANDARD GRAY.
3. PROVIDE WITH (2) SETS OF AUXILIARY CONTACT(S) IF NEEDED.
4. FURNISH SWITCHES WITH ENTIRELY COPPER CURRENT CARRYING PARTS.
5. SWITCH VOLTAGE, PHASE AND AMPERAGE RATINGS AS INDICATED ON DRAWINGS.
6. WHERE SPECIFIED AS FUSED DISCONNECT SWITCHES, PROVIDE WITH DUAL-ELEMENT, TIME DELAY, CLASS RK1 FUSES, FUSE RATINGS AND QUANTITIES AS INDICATED ON DRAWINGS. FUSES SHALL BE MANUFACTURED BY BUSSMAN, GOLD SHAWMUT OR LITTELFUSE. FURNISH (3) SPARE FUSES OF EACH TYPE.

E. PANELBOARD & DISCONNECT SWITCH INSTALLATION STANDARDS

1. MOUNT PANELBOARDS, CIRCUIT BREAKERS (INCLUDING PROVISIONS FOR FUTURE BREAKERS), AND DISCONNECTING SWITCHES SO HEIGHT OF OPERATING HANDLE AT ITS HIGHEST POSITION IS MAXIMUM 78 INCHES ABOVE FLOOR.
2. ARRANGE EQUIPMENT TO PROVIDE MINIMUM CLEARANCES IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS AND NFPA 70.
3. INSTALL PANELBOARDS PLUMB. INSTALL FLUSH-MOUNTED PANELBOARDS SO THAT TRIMS FIT COMPLETELY FLUSH TO WALL WITH NO GAPS AND ROUGH OPENING COMPLETELY COVERED.
4. INSTALL A PERMANENT LABEL INDICATING THE PANELBOARD OR TRANSFORMER WHERE THE POWER SUPPLY TO THE DEVICE ORIGINATES.
5. PROVIDE FILLER PLATES TO COVER UNUSED SPACES IN PANELBOARDS.
6. PROVIDE CIRCUIT BREAKER LOCK-ON DEVICES TO PREVENT UNAUTHORIZED PERSONNEL FROM DE-ENERGIZING ESSENTIAL LOADS AS INDICATED.

SECTION 26 50 00 - LIGHTING FIXTURES

A. LUMINAIRE TYPES

1. FURNISH PRODUCTS AS INDICATED IN LIGHTING FIXTURE SCHEDULE INCLUDED ON THE DRAWINGS. REFER TO NOTES ON LIGHTING FIXTURE SCHEDULE FOR SUBSTITUTION LIMITATIONS.

B. INTERIOR LUMINAIRES

1. MANUFACTURERS:
  - A. MANUFACTURERS REPRESENTED BY APEX LIGHTING.
  - B. MANUFACTURERS REPRESENTED BY LIGHTING AFFILIATES.
  - C. MANUFACTURERS REPRESENTED BY ILLUMINATE LIGHTING.
2. PROVIDE PRODUCTS THAT COMPLY WITH REQUIREMENTS OF NFPA 70.
3. PROVIDE PRODUCTS THAT ARE LISTED AND LABELED AS COMPLYING WITH UL 1598, WHERE APPLICABLE.
4. UNLESS OTHERWISE INDICATED, PROVIDE COMPLETE LUMINAIRES INCLUDING LAMP(S) AND ALL SOCKETS, BALLASTS, DRIVERS, REFLECTORS, LENSES, HOUSINGS AND OTHER COMPONENTS REQUIRED TO POSITION, ENERGIZE AND PROTECT THE LAMP AND DISTRIBUTE THE LIGHT.
5. UNLESS SPECIFICALLY INDICATED TO BE EXCLUDED, PROVIDE ALL REQUIRED CONDUIT, BOXES, WIRING, CONNECTORS, HARDWARE, SUPPORTS, TRIMS, ACCESSORIES, ETC. AS NECESSARY FOR A COMPLETE OPERATING SYSTEM.
6. LUMINAIRES MOUNTED IN CONTINUOUS ROWS: PROVIDE QUANTITY OF UNITS REQUIRED FOR LENGTH INDICATED WITH ALL ACCESSORIES REQUIRED FOR JOINING AND JOINING.
7. PROVIDE ACCESSORY PLASTER FRAMES FOR LUMINAIRES RECESSED IN PLASTER CEILINGS.
8. LUMINAIRES IN SPECIAL ENVIRONMENTS:
  - A. SHOWERS: PROVIDE WITH NON-CONDUCTIVE TRIM.
  - B. WET LOCATIONS: PROVIDE WITH SEALED AND GASKETED LENS.
  - C. INFECTIOUS ENVIRONMENTS: PROVIDE WITH SEALED AND GASKETED LENS AND ANTI-MICROBIAL FINISH.
  - D. CLEAN ROOMS: PROVIDE WITH SEALED AND GASKETED LENS, IP65 RATING AND CLEAN ROOM RATING AS INDICATED.
  - E. MRI/IMAGING SUITES: PROVIDE WITH NON-FERROUS CONSTRUCTION, DC POWER SUPPLY, WIRING THROUGH RF-FILTER.

C. EXTERIOR LUMINAIRES: SHALL MEET REQUIREMENTS LISTED IN INTERIOR LUMINAIRES SECTION ABOVE, AND THE FOLLOWING:

1. PROVIDE IESNA FULL CUT-OFF CLASSIFIED PRODUCTS UNLESS OTHERWISE INDICATED OR PROVIDE PRODUCTS WITH BACKLIGHT, UPLIGHT AND GLARE (BUG) RATINGS AS INDICATED.
2. PROVIDE PRODUCTS WITH IESNA LIGHT DISTRIBUTION AS INDICATED.
3. PROVIDE PRODUCTS WITH INTERNAL/EXTERNAL HOUSE-SIDE SHIELDS AS INDICATED.
4. POLES:
  - A. MATERIAL AND FINISH: REFER TO LIGHTING FIXTURE SCHEDULE.
  - B. SECTION SHAPE AND DIMENSIONS: ROUND.
  - C. HEIGHT: AS INDICATED ON DRAWINGS OR AS SCHEDULED.
  - D. BASE: NON BREAKAWAY.
  - E. ACCESSORIES:
    - A. HANDHOLE
    - B. ANCHOR BOLTS.
    - C. BASE COVER
    - D. DECORATIVE BASE.
    - E. PRE-DRILLED FOR LUMINAIRE MOUNTING.
    - F. BANNER ARMS.
  - F. LOADING CAPACITY RATINGS:
    - A. PROVIDE WITH EPA RATING SUITABLE FOR MAXIMUM WIND LOAD IN AREA, INCLUDING EPA FOR ATTACHED LUMINAIRES AND ALL REQUIRED ACCESSORIES.
    - B. CONSULT WITH LOCAL AUTHORITIES FOR WIND LOADING REQUIREMENTS.

D. EMERGENCY LIGHTING UNITS

1. PRODUCT DESCRIPTION: EMERGENCY LIGHTING UNITS COMPLYING WITH NFPA 101 AND ALL APPLICABLE STATE AND LOCAL CODES, AND LISTED AND LABELED AS COMPLYING WITH UL 924.
2. BATTERY:
  - A. SEALED MAINTENANCE FREE LEAD CALCIUM UNLESS OTHERWISE INDICATED.
  - B. SIZE BATTERY TO SUPPLY ALL CONNECTED LAMPS/LED ARRAYS, INCLUDING EMERGENCY REMOTE HEADS WHERE INDICATED.
3. SELF-DIAGNOSTICS: PROVIDE UNITS THAT SELF-MONITOR FUNCTIONALITY AND AUTOMATICALLY PERFORM TESTING REQUIRED BY NFPA 101 WHERE INDICATED; PROVIDE INDICATOR LIGHT(S) TO REPORT TEST AND DIAGNOSTIC STATUS.

E. EXIT SIGNS

1. PRODUCT DESCRIPTION: INTERNALLY ILLUMINATED EXIT SIGNS WITH LEDS UNLESS OTHERWISE INDICATED; COMPLYING WITH NFPA 101 AND ALL APPLICABLE STATE AND LOCAL CODES, AND LISTED AND LABELED AS COMPLYING WITH UL 924. REFER TO LIGHTING FIXTURE SCHEDULE FOR FEATURES AND ADDITIONAL REQUIREMENTS.
2. SELF-POWERED EXIT SIGNS:
  - A. PRODUCT DESCRIPTION: UL 924 SELF-CONTAINED EMERGENCY LIGHTING UNIT.
  - B. BATTERY: SEALED MAINTENANCE-FREE NICKEL CADMIUM UNLESS OTHERWISE INDICATED.
  - C. SELF-DIAGNOSTICS: PROVIDE UNITS THAT SELF-MONITOR FUNCTIONALITY AND AUTOMATICALLY PERFORM TESTING REQUIRED BY NFPA 101 WHERE INDICATED; PROVIDE INDICATOR LIGHT(S) TO REPORT TEST AND DIAGNOSTIC STATUS.
3. ACCESSORIES:
  - A. PROVIDE COMPATIBLE ACCESSORY HIGH IMPACT POLYCARBONATE VANDAL SHIELDS WHERE INDICATED.
  - B. PROVIDE COMPATIBLE ACCESSORY WIRE GUARDS WHERE INDICATED.

F. DRIVERS

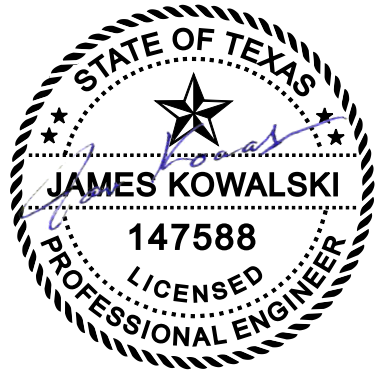
- A. CONTROL INPUT
  - A. 4-WIRE (0-10V DC VOLTAGE CONTROLLED) DIMMING DRIVERS: CONNECT TO DEVICES COMPATIBLE WITH 0 TO 10V ANALOG CONTROL PROTOCOL, CLASS 2, CAPABLE OF SINKING 0.6 MA PER DRIVER AT A LOW END OF 0.3V. LIMIT THE NUMBER OF DRIVERS ON EACH 0-10V CONTROL OUTPUT BASED ON VOLTAGE DROP AND CONTROL CAPACITY.
  - B. DIGITAL MULTIPLEX (DMX LOW VOLTAGE CONTROLLED) DIMMING DRIVERS: MUST MEET DMX / RDM: USITT DMX512A AND ANSI E1.20 (EXPLORE & ADDRESS) AND SHALL BE CAPABLE OF SIGNAL INTERPOLATION AND SMOOTHING OF COLOR AND INTENSITY TRANSITIONS.
- B. DRIVER: APPROVED BY DIMMING SYSTEM MANUFACTURER AS SUITABLE FOR OPERATION WITH CONTROL UNIT AND SUITABLE FOR LED SOURCE TYPE AND QUANTITY SPECIFIED FOR LUMINAIRE.

G. LED DRIVER EMERGENCY POWER SUPPLY UNITS

1. DESCRIPTION: SELF-CONTAINED EMERGENCY POWER SUPPLY UNITS SUITABLE FOR USE WITH INDICATED LUMINAIRES, COMPLYING WITH NFPA 101 AND ALL APPLICABLE STATE AND LOCAL CODES, AND LISTED AND LABELED AS COMPLYING WITH UL 924.
2. BATTERY: SEALED MAINTENANCE-FREE HIGH-TEMPERATURE NICKEL CADMIUM UNLESS OTHERWISE INDICATED.
3. EMERGENCY ILLUMINATION OUTPUT: REFER TO LIGHTING FIXTURE SCHEDULE.
4. SELF-DIAGNOSTICS: PROVIDE UNITS THAT SELF-MONITOR FUNCTIONALITY AND AUTOMATICALLY PERFORM TESTING REQUIRED BY NFPA 101 WHERE INDICATED; PROVIDE INDICATOR LIGHT(S) TO REPORT TEST AND DIAGNOSTIC STATUS AND FIELD SELECTABLE AUDIBLE ALERT.
5. OPERATING TEMPERATURE: FROM 32 DEGREES F (0 DEGREES C) TO 122 DEGREES F (50 DEGREES C) UNLESS OTHERWISE INDICATED OR REQUIRED FOR THE INSTALLED LOCATION.
6. ACCESSORIES:
  - A. WHERE NOT INTEGRAL TO FIXTURE, PROVIDE COMPATIBLE ACCESSORY REMOTE COMBINATION TEST SWITCH/INDICATOR LIGHT MOUNTED ON CEILING ADJACENT TO UNIT OR AS INDICATED ON DRAWINGS.



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CONSTRUCTION DOCUMENTS

ELECTRICAL SPECIFICATIONS

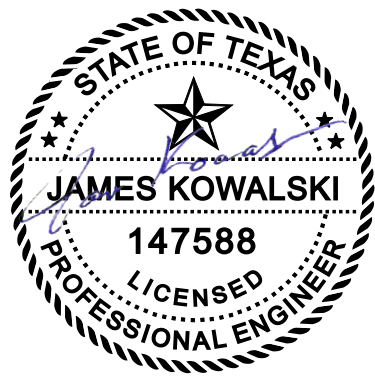
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04/23/2024: 100 % CD

VILLA  
FINALE

~ E8.1 ~

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CONSTRUCTION DOCUMENTS

SITE UTILITIES

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VILLA  
FINALE

~SU1.0~

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KING WILLIAM STREET

SAN ANTONIO RIVER

SHERIDAN STREET

1 SITE UTILITIES  
1/16" = 1'-0"

TO WATER LINE  
COORDINATE WITH CIVIL  
ENGINEERING FOR CONTINUATION

TO ELECTRICAL UTILITY POLE  
COORDINATE WITH UTILITY COMPANY  
FOR CONTINUATION

ETR POLE

TO CARRIAGE HOUSE  
SEE ELECTRICAL RISER  
ONE 7.0 FOR FURTHER  
INFORMATION

PP-2 (400A)

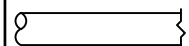
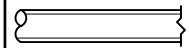
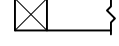
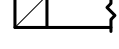
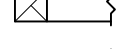
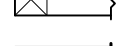
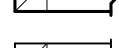
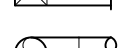


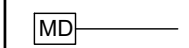
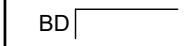
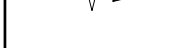



HR(1) & (2)

ETR SEWER PUMP

TO SEWER PUMP COORDINATE  
CIVIL ENGINEERING FOR CONTINUATION

GENERAL ABBREVIATIONS			
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
APD	AIR PRESSURE DROP	IN WG	INCHES WATER GAUGE
AS	AIR SEPARATOR	KW	KILOWATTS
BD	BALANCING DAMPER	LAT	LEAVING AIR TEMPERATURE
BHP	BREAK HORSEPOWER	LV	LOUVER
BTU	BRITISH THERMAL UNIT	LDB	LEAVING DRY BULB
BTUH	BTU/HOUR	LWB	LEAVING WET BULB
CAP	CAPACITY	LWT	LEAVING WATER TEMPERATURE
COP	COEFFICIENT OF PERFORMANCE	MAX	MAXIMUM
CFM	CUBIC FEET PER MINUTE	MBH	THOUSANDS OF BTU / HOUR
CU	CONDENSING UNIT	MCA	MINIMUM CIRCUIT AMPACITY
dB	DECIBELS	MIN	MINIMUM
DX	DIRECT EXPANSION	MOP	MAXIMUM OVERCURRENT PROTECTION
EA	EXHAUST AIR	NC	NOISE CRITERION
ECH	ELECTRIC CABINET HEATER	NTS	NOT TO SCALE
EER	ENERGY EFFICIENCY RATIO	PH	PHASE
ESP	EXTERNAL STATIC PRESSURE	QTY	QUANTITY
EWB	ENTERING WET BULB TEMPERATURE	RA	RETURN AIR
EWT	ENTERING WATER TEMPERATURE	RLL	REFRIGERANT LIQUID LINE
°F	DEGREES FAHRENHEIT	RSL	REFRIGERANT SUCTION LINE
F	FURNACE	RPM	REVOLUTIONS PER MINUTE
FT	FEET	RTU	ROOFTOP UNIT
FT WG	FEET WATER GAUGE	SA	SUPPLY AIR
FLA	FULL LOAD AMPS	SEER	SEASONAL ENERGY EFFICIENCY RATIO
FPM	FEET PER MINUTE	SP	STATIC PRESSURE
GEN'L	GENERAL	SPD	STATIC PRESSURE DROP
HP	HORSEPOWER	SST	SATURATED SUCTION PRESSURE
IN	INCHES	TSP	TOTAL STATIC PRESSURE
		TYP	TYPICAL

NOTE: NOT ALL ABBREVIATIONS AND LEGEND LISTED HERE ARE USED

LEGEND	
SYMBOL	DESCRIPTION
	DUCTWORK
	DUCTWORK WITH ACOUSTICAL LINING
	RECTANGULAR SUPPLY AIR DUCT UP
	RECTANGULAR RETURN AIR DUCT UP
	RECTANGULAR EXHAUST AIR DUCT UP
	RECTANGULAR SUPPLY AIR DUCT DOWN
	RECTANGULAR RETURN AIR DUCT DOWN
	RECTANGULAR EXHAUST AIR DUCT DOWN
	ROUND DUCTWORK UP
	ROUND DUCTWORK DOWN
	VOLUME DAMPER (MANUAL)
	MOTORIZED DAMPER
	BACKDRAFT DAMPER
	AIR ENTERING OPENING
	AIR LEAVING OPENING
	EQUIPMENT TAG

NOTE: NOT ALL ABBREVIATIONS AND LEGEND LISTED HERE ARE USED

VILLA FINALE MECHANICAL SHEET INDEX	
DRAWING NUMBER	DRAWING NAME
M0.0	MECHANICAL SYMBOLS AND ABBREVIATIONS
M1.0	MECHANICAL FLOOR PLAN
M2.0	MECHANICAL ZONE PLAN
M3.0	MECHANICAL DETAILS
M4.0	MECHANICAL SCHEDULES
M5.0	MECHANICAL SPECIFICATIONS

### DUCT INSULATION SCHEDULE

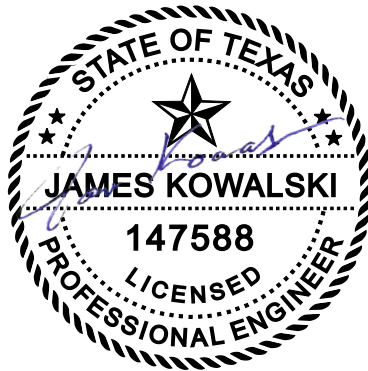
DUCT SYSTEM	TYPE	MINIMUM THICKNESS	MINIMUM R-VALUE
SUPPLY AIR AND RETURN CONCEALED WITHIN BUILDING ENVELOPE	I, II, III	2	6

TYPE I: FLEXIBLE GLASS FIBER (1 LB/CU.FT.)  
TYPE II: RIGID GLASS FIBER (3 LB/CU.FT.)  
TYPE III: ELASTOMERIC

### EQUIPMENT ABBREVIATIONS

AC	AIR CONDITIONING UNIT
ACCU	AIR COOLED CONDENSING UNIT
AHU	AIR HANDLING UNIT
ASHP	AIR SOURCE HEAT PUMP
CP	CONDENSATE PUMP
HP	HEAT PUMP
CV	CONVECTOR
DUH	DEHUMIDIFIER
EB	ELECTRIC BASEBOARD
EUH	ELECTRIC UNIT HEATER
EWB	ELECTRIC WALL HEATER
ERU	ENERGY RECOVERY UNIT
ERV	ENERGY RECOVERY VENTILATOR
EF	EXHAUST FAN
EG	EXHAUST GRILLE
F	FAN
FCU	FAN COIL UNIT
LB	LINEAR BAR GRILLE
LS	LINEAR SLOT DIFFUSER
P	PUMP
SD	SUPPLY DIFFUSER
SG	SUPPLY GRILLE

NOTE: NOT ALL ABBREVIATIONS LISTED HERE ARE USED.



CONSTRUCTION DOCUMENTS

### MECHANICAL SYMBOLS AND ABBREVIATIONS

08/25/2023: 100 % CD CHECK SET  
04/23/2024: 100 % CD

VILLA  
FINALE  
  
~ M0.0 ~  
  
MICHAEL G. IMBER  
ARCHITECT  
111 WEST EL PRADO  
SAN ANTONIO, TEXAS 78212

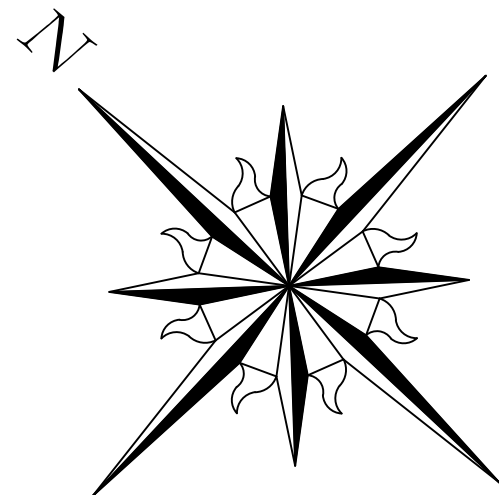


CONTROL LEGEND	
SYMBOL	DESCRIPTION
T	THERMOSTAT
H	HUMIDISTAT
—	LOW VOLTAGE WIRE

[ ] HVAC ZONE

BUILDING DESIGN CRITERIA								
OUTDOOR DESIGN CONDITIONS			BUILDING CONSTRUCTION					
COOLING		HEATING						
DRY BULB (DEG. F)	MCWB (DEG. F)	DRY BULB (DEG. F)	WALL (R-VALUE)	ROOF (R-VALUE)	WINDOW (U-VALUE)	WINDOWS (SHGC)	SLAB (R-VALUE)	REMARK
99.3	73.6	30	20	38	0.45	0.25	0	1,2
REMARKS: 1. U AND R VALUES BASED ON IECC 2021 CODE MINIMUM FOR CLIMATE ZONE 2A. 2. OUTDOOR DESIGN CONDITIONS DRY BULB AND WET BULB BASED ON 2021 ASHRAE HANDBOOK FUNDAMENTALS AT 0.4%.								

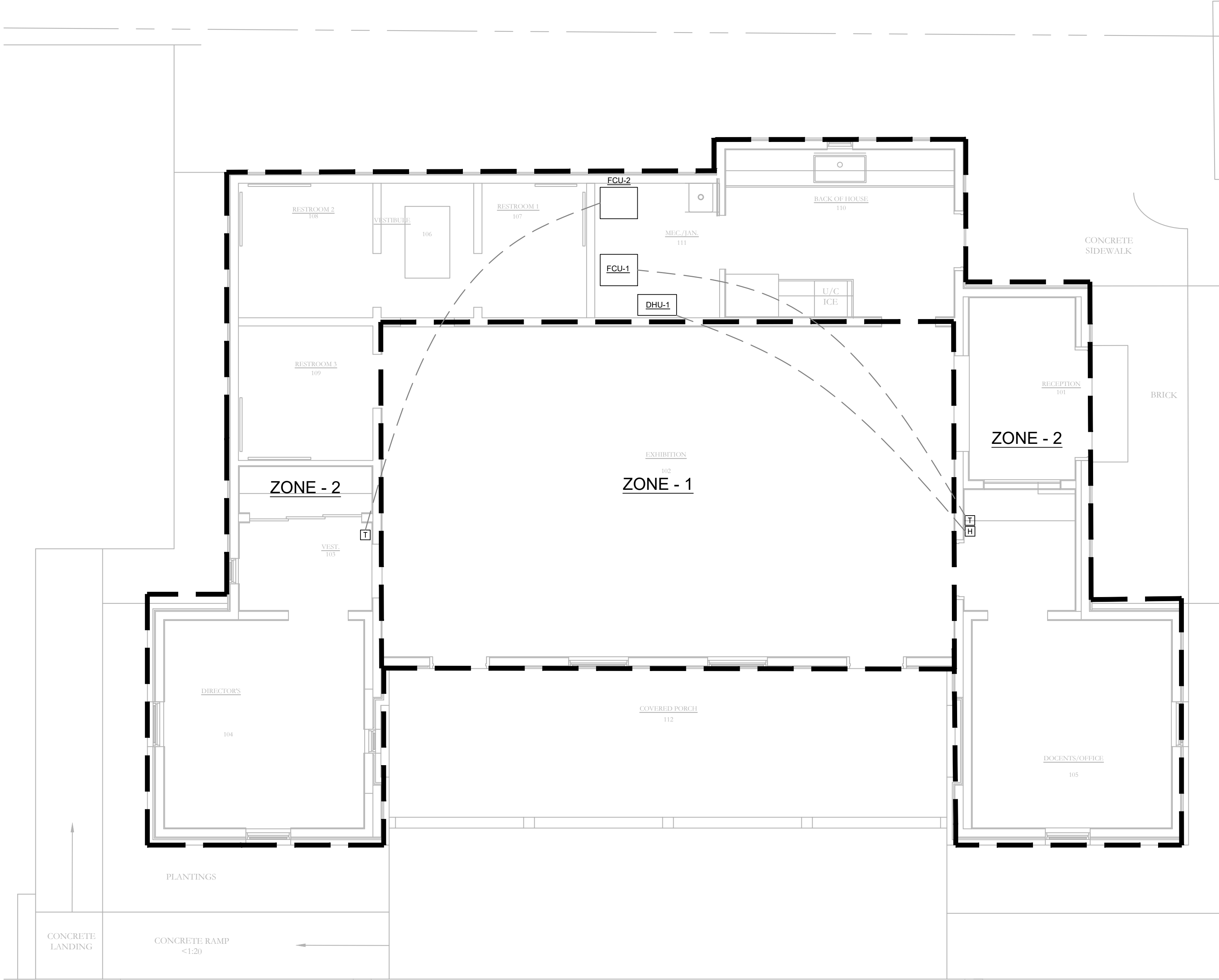
MECHANICAL LOAD						
ZONE	SQ.FT.	TOTAL COOLING (MBH) TOTAL/SENSIBLE	HEATING BTU/H	OCCUPANTS (QTY.)	LIGHTING (WATTS/SQ.FT.)	INDOOR DESIGN CONDITIONS
1	600	29.4/24.4	29.7	30	1	SUMMER 75 FDB @ 50-60% RH WINTER 70 FDB @ 40-60% RH
2	1143	32.2/26.5	16.2	13	1	



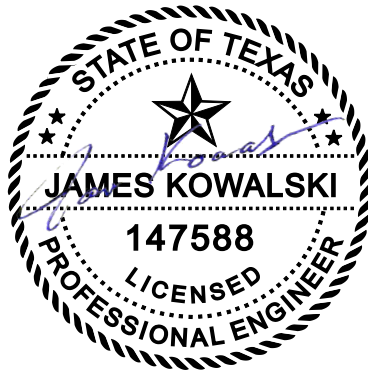
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TX Registration No. F19994  
CES\* 2022580.00



1 MECHANICAL ZONE PLAN  
1/4" = 1'-0"



CONSTRUCTION DOCUMENTS

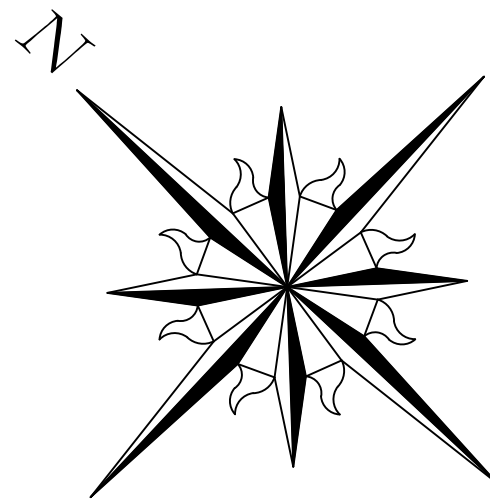
MECHANICAL ZONE PLAN

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04/23/2024: 100 % CD

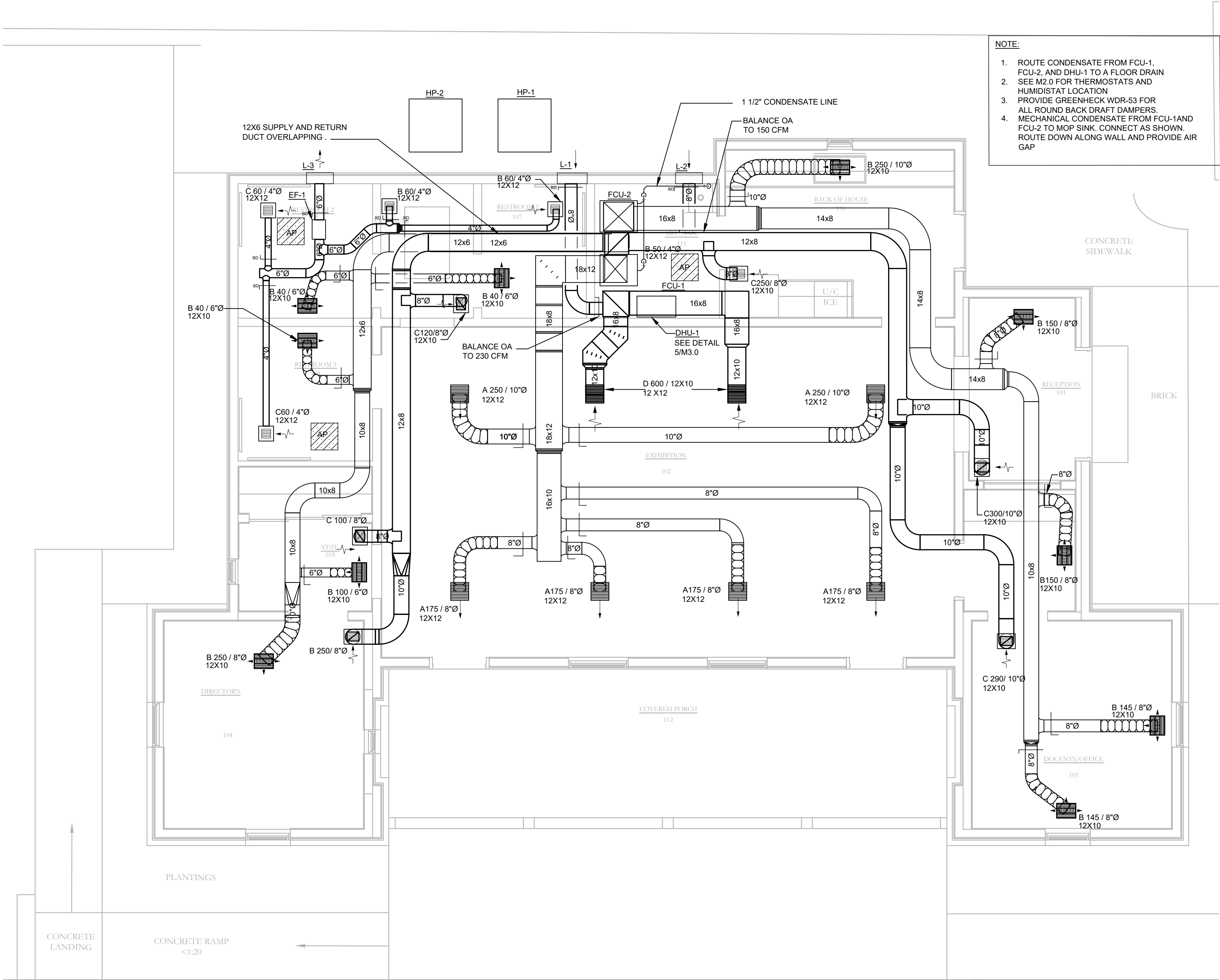
VILLA  
FINALE

~ M1.0 ~

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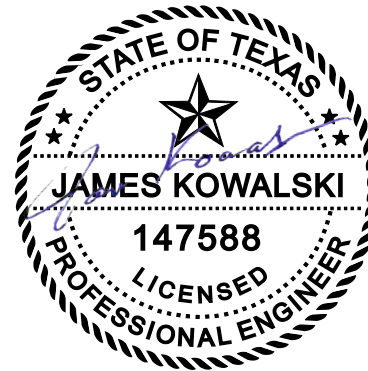


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- NOTE:
1. ROUTE CONDENSATE FROM FCU-1, FCU-2, AND DHU-1 TO A FLOOR DRAIN
  2. SEE M2.0 FOR THERMOSTATS AND HUMIDISTAT LOCATION
  3. PROVIDE GREENHECK WDR-S3 FOR ALL ROUND BACK DRAFT DAMPERS
  4. MECHANICAL CONDENSATE FROM FCU-1 AND FCU-2 TO MOP SINK. CONNECT AS SHOWN. ROUTE DOWN ALONG WALL AND PROVIDE AIR GAP

1 MECHANICAL FLOOR PLAN  
1/4" = 1'-0"



CONSTRUCTION DOCUMENTS

MECHANICAL FLOOR PLAN

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04/23/2024: 100 % CD

VILLA  
FINALE

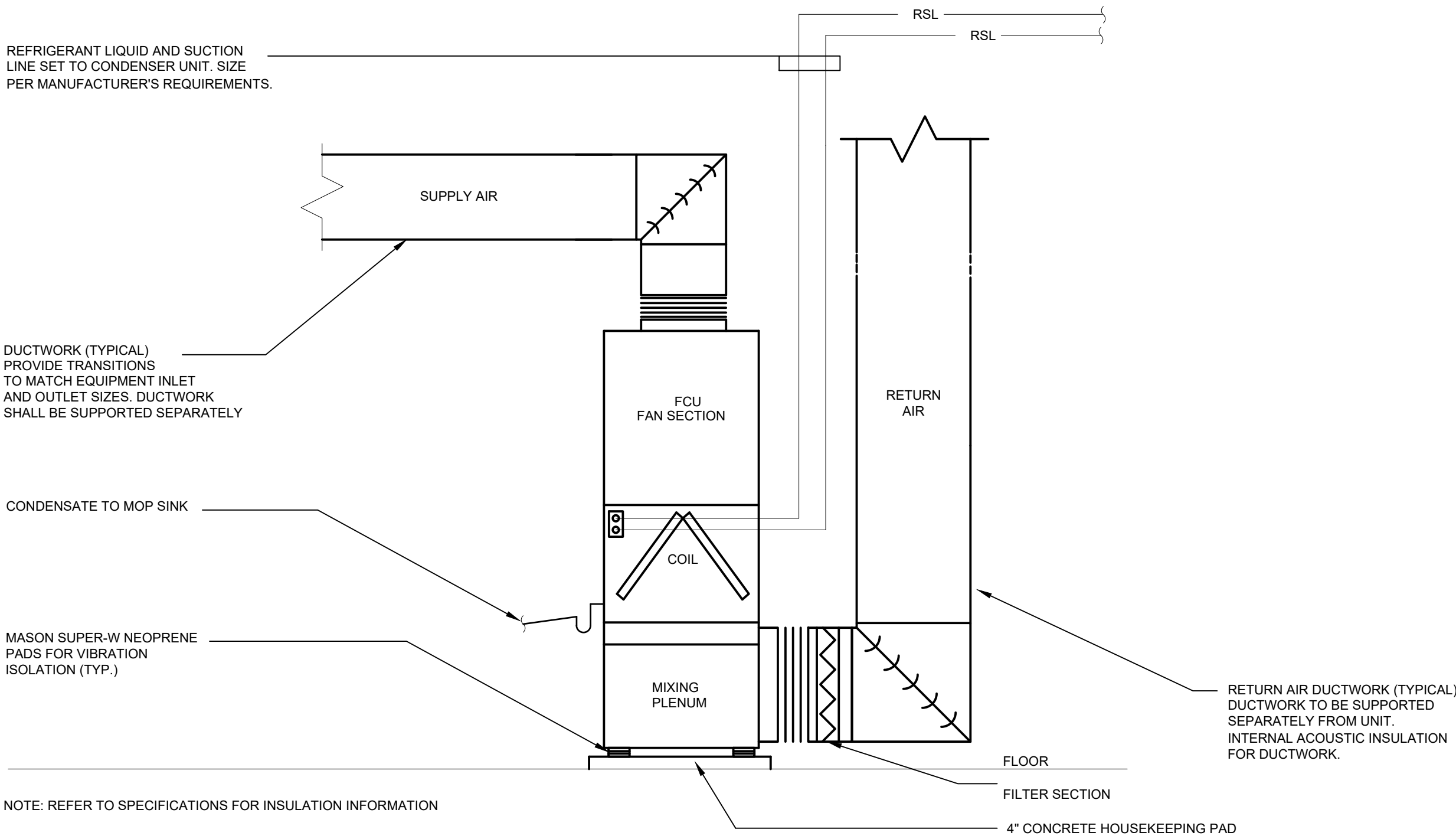
~ M2.0 ~

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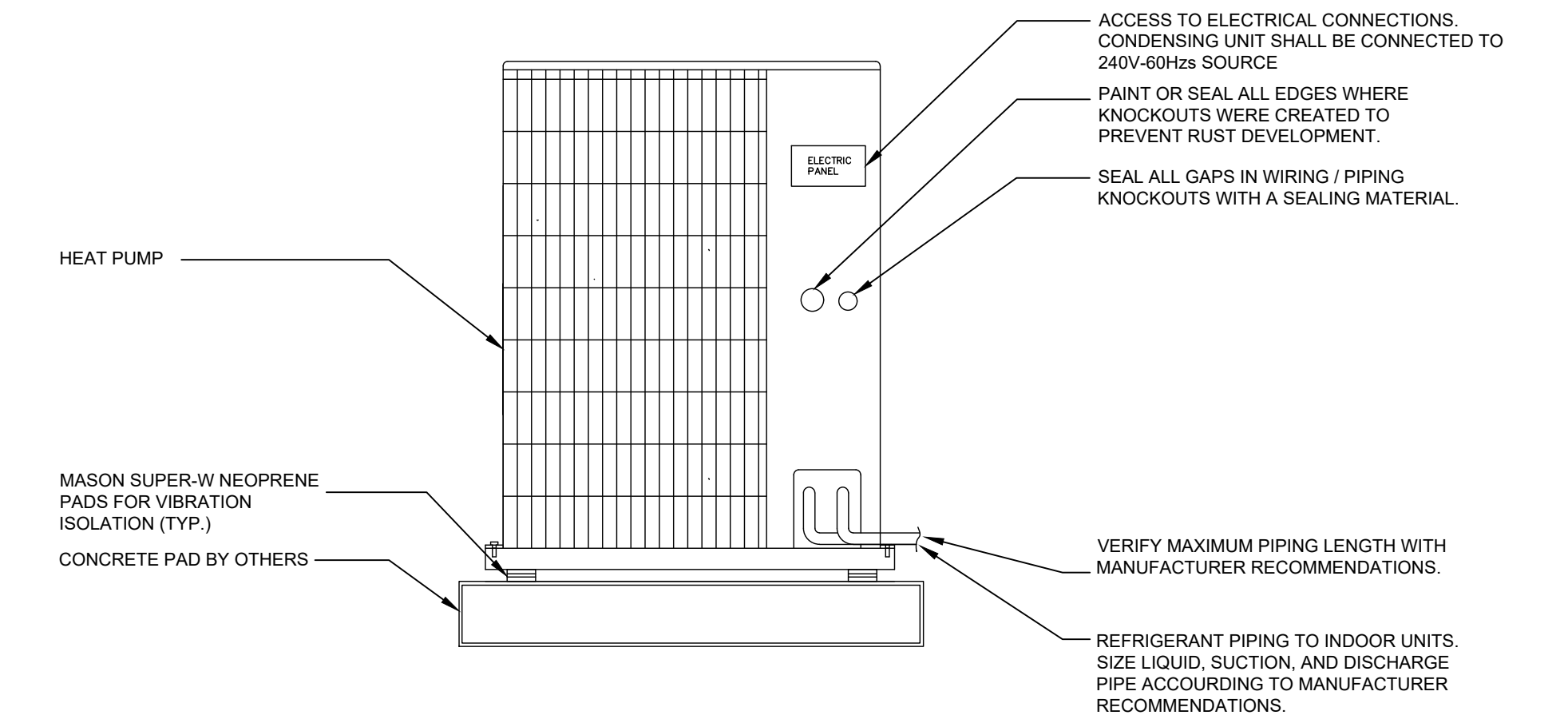
(210) 824-7703

FAX (210) 824-7706

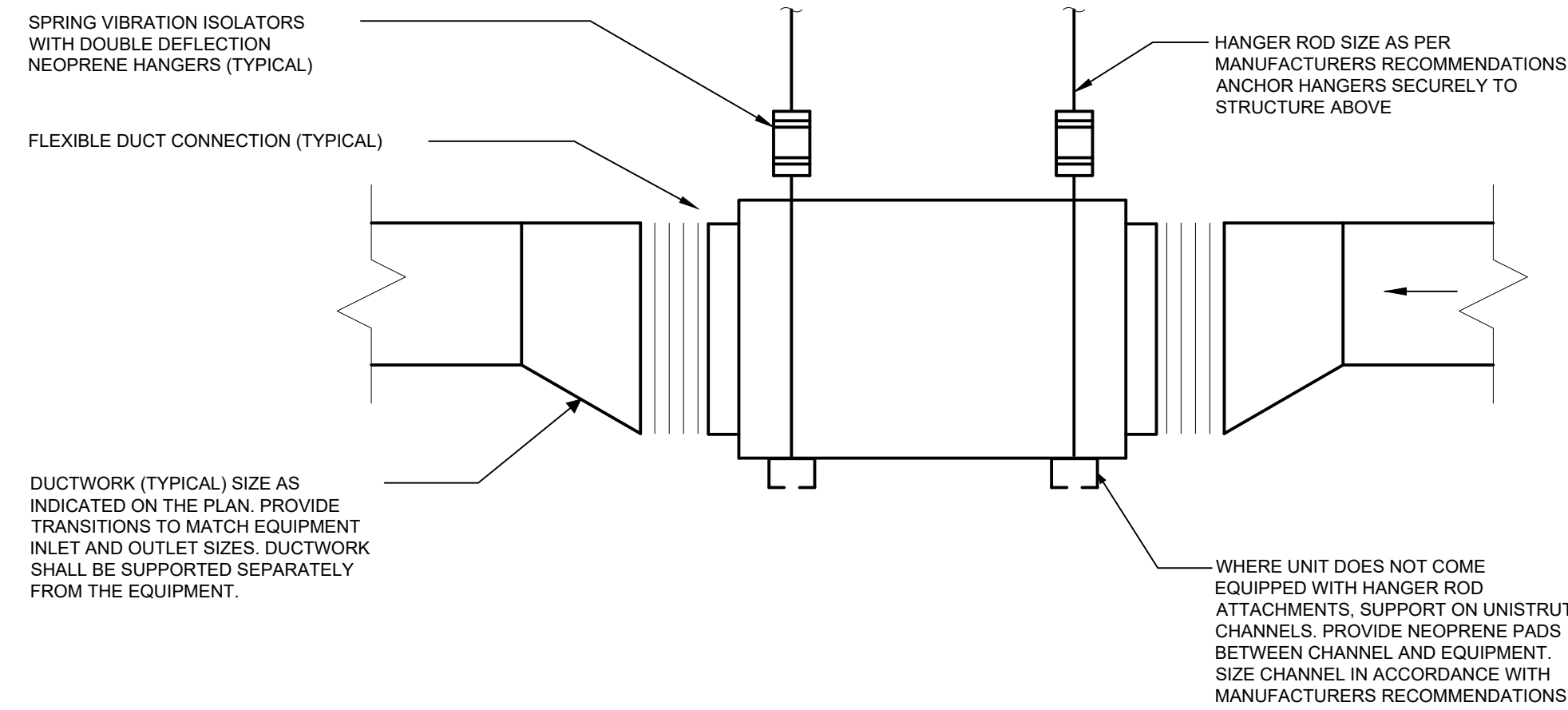




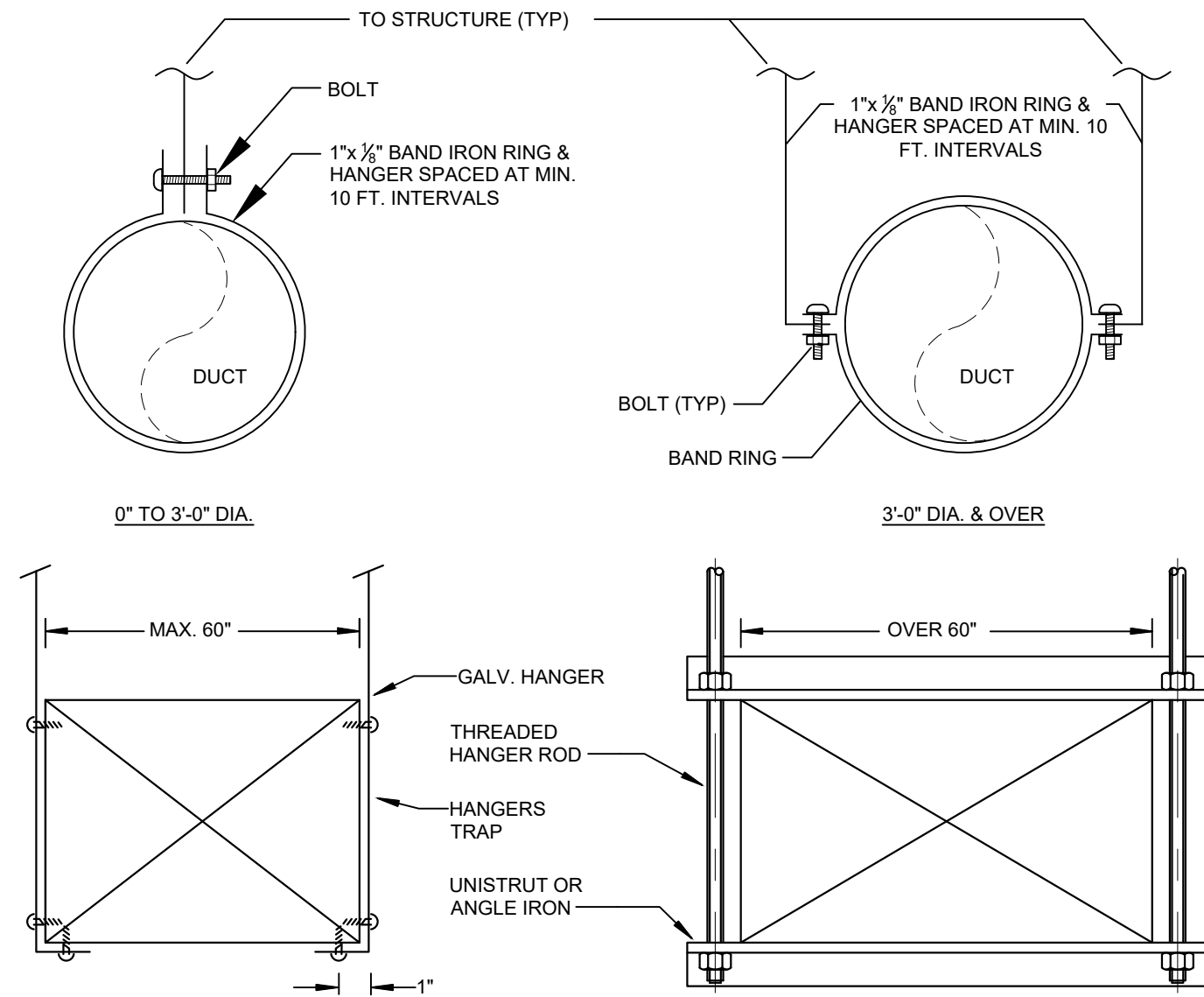
1 VERTICAL FAN COIL UNIT DETAILS  
N.T.S.



4 HEAT PUMP UNIT MOUNTING DETAIL  
N.T.S.

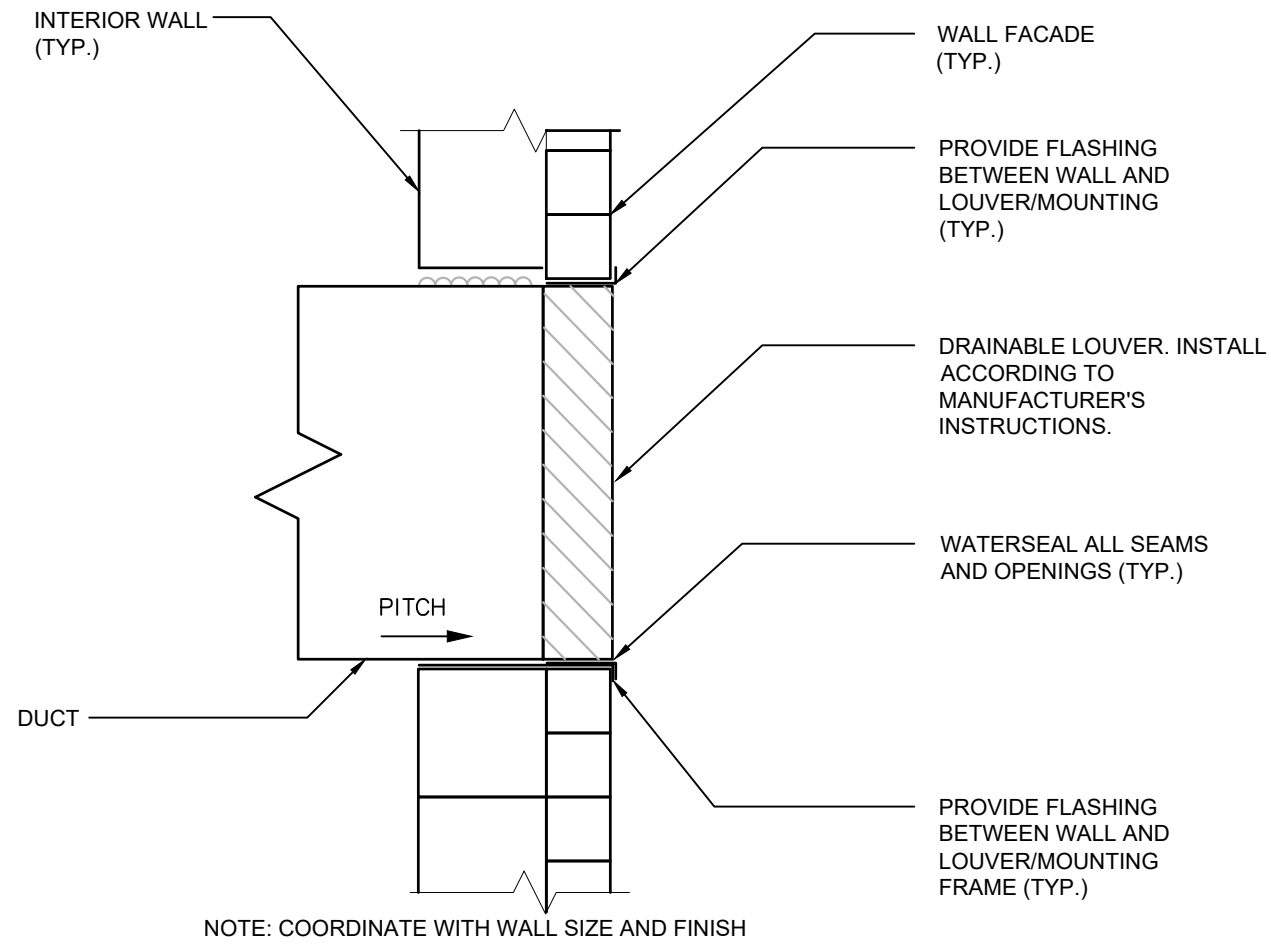


6 SUSPENDED IN-LINE FAN  
N.T.S.



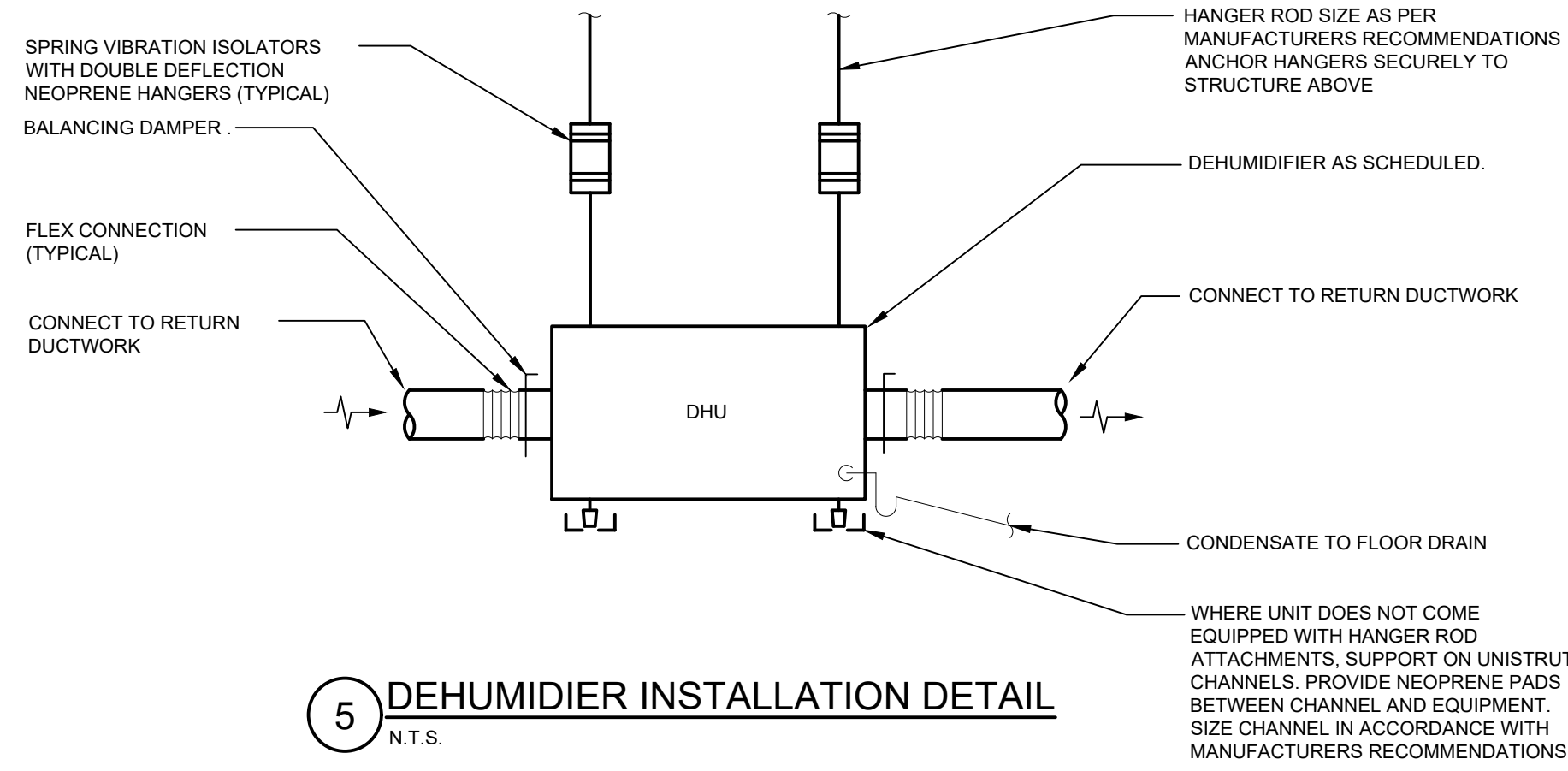
- NOTES:
- ON DUCTS OVER 48" WIDE, BOTTOM SHALL BE BRACED BY ANGLE. FOR CROSS SECTION AREA MORE THAN 8 SQ FT., DUCT SHALL BE BRACED BY ANGLES ON ALL FOUR SIDES.
  - CUTTING AND PATCHING SHALL BE LIMITED TO A MINIMUM AS REQUIRED FOR PROPER INSTALLATION. SUPPORTS SHALL BE SPACED AND SIZED AS PER SMACNA.

2 DUCTWORK HANGING DETAILS  
N.T.S.

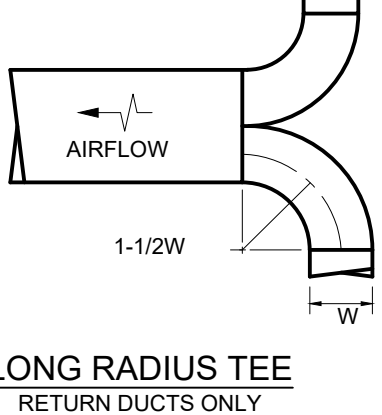
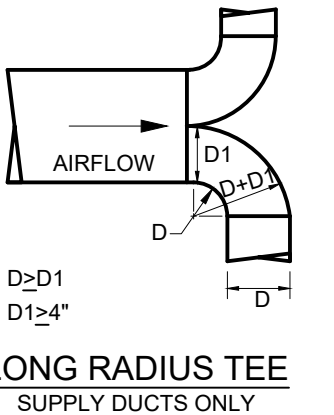
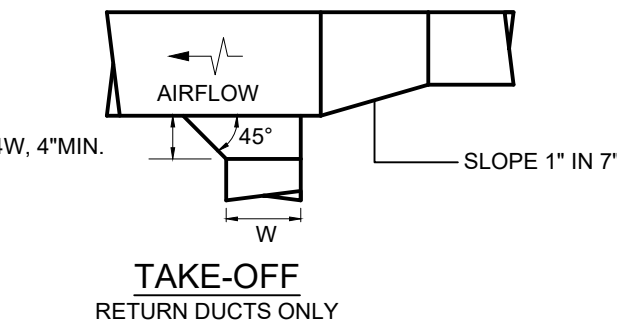
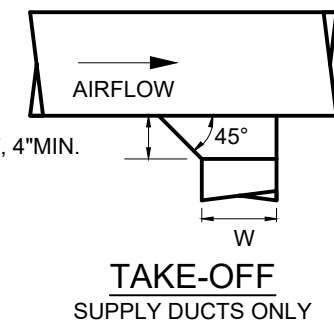
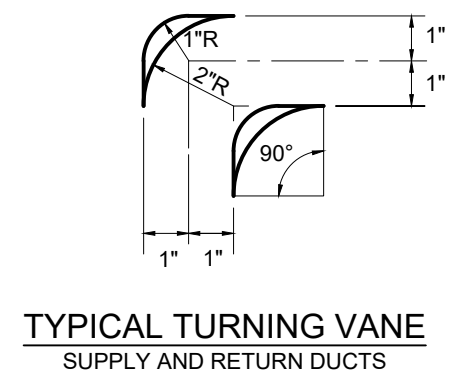
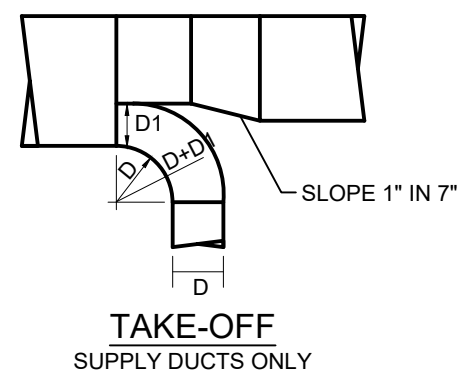
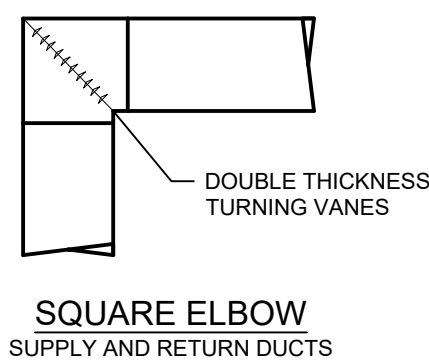
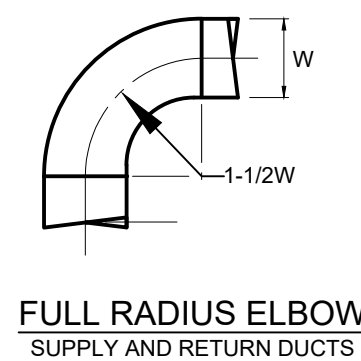


3 LOUVER MOUNTING DETAILS  
N.T.S.

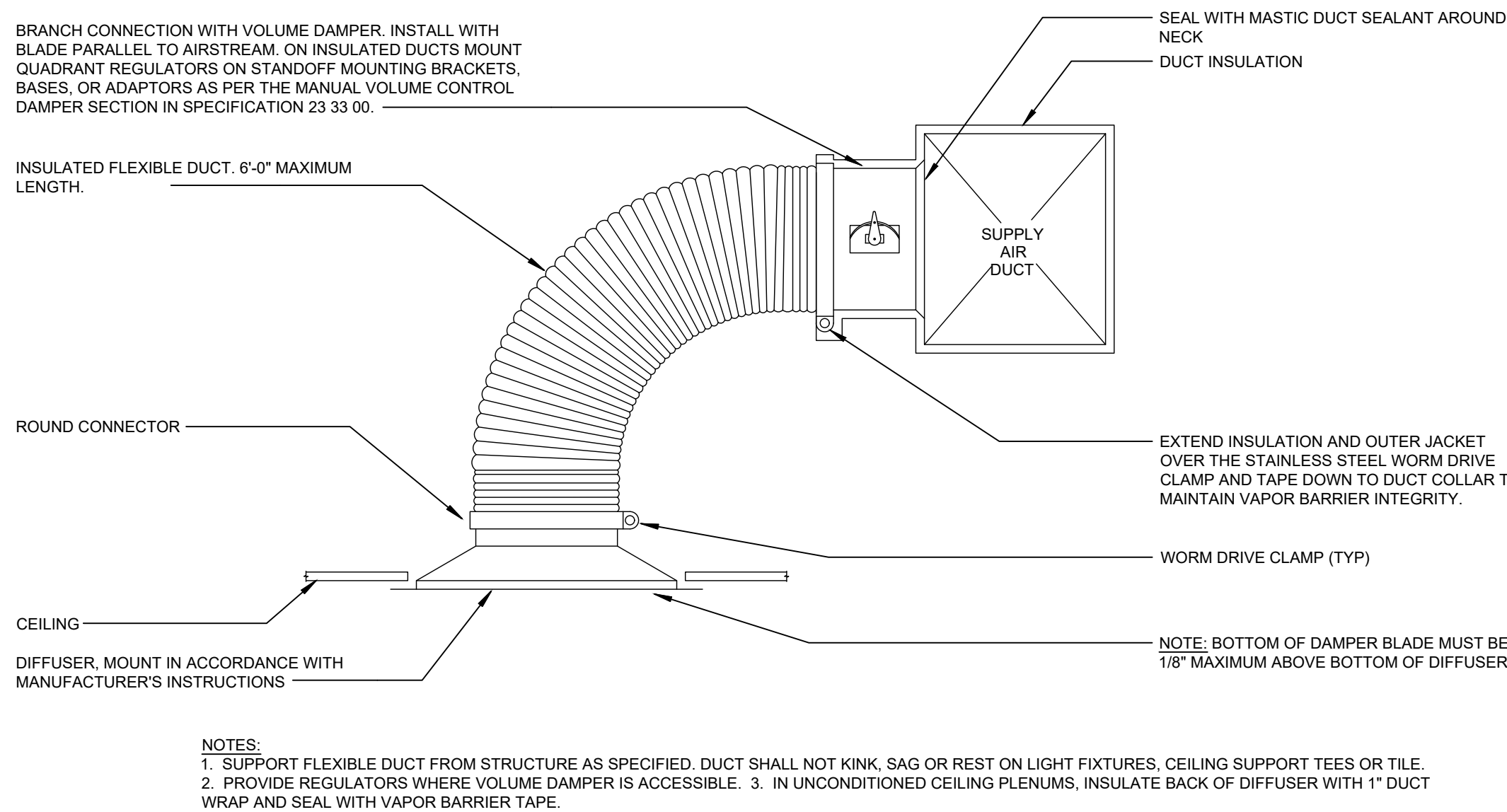
1 VERTICAL FAN COIL UNIT DETAILS  
N.T.S.



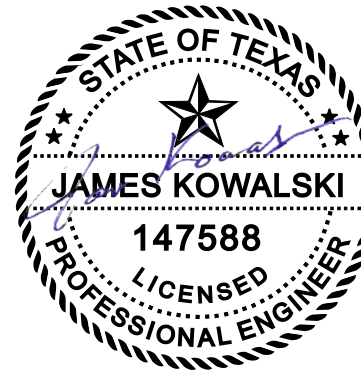
5 DEHUMIDIFIER INSTALLATION DETAIL  
N.T.S.



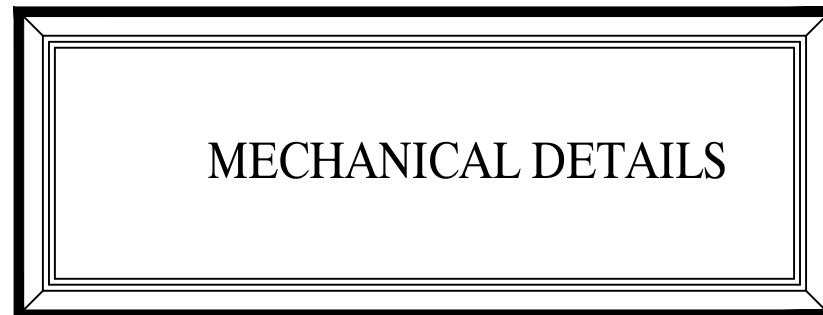
7 TYPICAL DUCT DETAIL  
N.T.S.



8 SUPPLY DIFFUSER WITH FLEX DUCT DETAIL  
N.T.S.







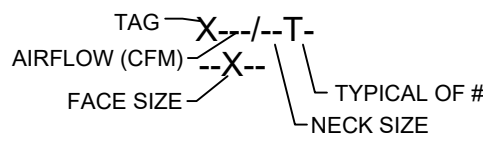
CONSTRUCTION DOCUMENTS



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AIR HANDLER UNIT SCHEDULE																				
GENERAL						PERFORMANCE						ELECTRICAL				REMARKS				
TAG	MANUFACTURER	MODEL	LOCATION	NOMINAL TONS	COM. UNIT	COOLING CAPACITY (MBH)	HEATING CAPACITY (MBH)	FAN			OUTSIDE AIR		MCA	MOP	VOLTAGE	PHASE	TYPE	RATINGS	FEATURES	INSTALL
								CFM	ESP (IN WG)	SPEED	CFM	%								
FCU-1	GOODMAN	ARUF37C14	JANITORS / MECH	3	HP-1	32.7	23.7	1200	0.7	HIGH	250	21	3.6	15	240	1	1	1	1	1
FCU-2	GOODMAN	ARUF43D14	JANITORS / MECH	3.5	HP-2	35.6	26.3	1300	0.7	HIGH	150	12.5	3.6	15	240	1	1	1	1	1
REMARKS - TYPE					REMARKS - RATINGS					REMARKS - FEATURES					REMARKS - INSTALL					
1. VERTICAL DUCTED					1. RATED AT COOLING : 80 °F INDOOR DRY BULB (IDB) TEMPERATURE AND 63 °F ENTERING INDOOR WET BULB (EWT) . HEATING: 25 °F OUTDOOR TEMPERATURE					1. MULTI-POSITIONING PSC MOTOR					SEE DETAIL 1/M3.0					

DIFFUSER & GRILLE SCHEDULE						
GENERAL			PHYS.	REMARKS		
TAG	MANU-FACTURER	MODEL	BLOW PATTERN	TYPE	FEATURES	INSTALL
A	TITUS	TDC - S1		1	1	1
B	KRUEGER	5180		3	1	1
C	KRUEGER	S80		4	1	1
D	TITUS	301 -FL		2	1	1
REMARKS - TYPE						
1. CEILING GRILLE, SUPPLY, RECTANGULAR FACE, ONE WAY TROUGH 2. CEILING GRILLE, RETURN, RECTANGULAR FACE 3. CEILING DIFFUSER, ROUND NECK, SQUARE FACE, WHITE. REFER TO PLANS FOR NECK AND FACE SIZE. 4. RETURN / EXHAUST GRILLE, 35"-45" FIXED BLADES, BLADES PARALLEL TO LONG DIMENSION, WHITE. REFER TO PLANS FOR NECK SIZE AND FACE SIZES.						
REMARKS - FEATURES						
1. SURFACE MOUNT (NOT MUD IN)						
REMARKS - INSTALL						
1. PROVIDE A DUCT MOUNTED VOLUME DAMPER WHETHER OR NOT A DUCT MOUNTED VOLUME DAMPER IS INDICATED ON PLAN, EXCEPT THAT A VOLUME DAMPER IS NOT REQUIRED: ◦ WHERE ONLY ONE SUPPLY DIFFUSER OR GRILLE, OR ONE EXHAUST GRILLE, OR ONE RETURN GRILLE IS SERVED BY THE FAN OR AIR HANDLING EQUIPMENT 2. ARCHITECT SHOULD CONFIRM COLOR SELECTION OF LOUVERS, DIFFUSERS, AND GRILLES.						
DIFFUSER & GRILLE SYMBOL LEGEND						
						

HEAT PUMP SCHEDULE																	
GENERAL			PHYSICAL		PERFORMANCE					ELECTRICAL				REMARKS			
TAG	MANUFACTURER	MODEL	COMPRESSORS TYPE	WEIGHT (LBS)	NOMINAL TONS	COOLING		HEATING MBH	SOUND PRESS. (dBA)	MCA	MOCP	VOLTAGE	PHASE	TYPE	RATINGS	FEATURES	INSTALL
						MBH	SEER										
HP-1	GOODMAN	GSZ140361K	SCROL	173	3	32.7	14	23.7	74	20.2	35	240	1	1	1.2	1	1
HP-2	GOODMAN	GSZ140421K	SCROL	191	3.5	35.6	14	26.3	74	20.2	35	240	1	1	1.2	1	1
REMARKS - TYPE				REMARKS - RATINGS				REMARKS - FEATURES				REMARKS - INSTALL					
1. HEAT PUMP, R-410A				1. RATED AT COOLING :105 °F OUTDOOR TEMPERATURE . HEATING: 25 °F OUTDOOR TEMPERATURE				1. SINGLE STAGE 2. HIGH-EFFICIENCY SCROLL COMPRESSOR				1. PROVIDE WITH 4" HOUSEKEEPING PAD 2. SEE DETAIL 4/M3.0					

FANS SCHEDULE																
GENERAL						PHYS.	PERFORMANCE				ELECTRICAL			REMARKS		
TAG	MANUFACTURER	MODEL	LOCATION	SERVICE	WEIGHT (LBS)	CFM	ESP (IN WG)	RPM	SONES	MAX. WATTS	VOLTAGE	PHASE	TYPE	RATINGS	FEATURES	INSTALL
EF-1	PANASONIC	FV-30NLF1	SEE PLANS	BATHROOM	17	280	0.5	1337	1.7	98.2	120	1	1	1	1	1
REMARKS - TYPE					REMARKS - RATINGS				REMARKS - FEATURES				REMARKS - INSTALL			
1. IN-LINE EXHAUST FAN					1. COMPLIANT WITH ASHRAE 62.2. AIR PERFORMANCE CERTIFIED IN ACCORDANCE TO AMCA 211.				1. GALVANIZED STEEL BODY				1. SEE DETAIL 6/M3.0			

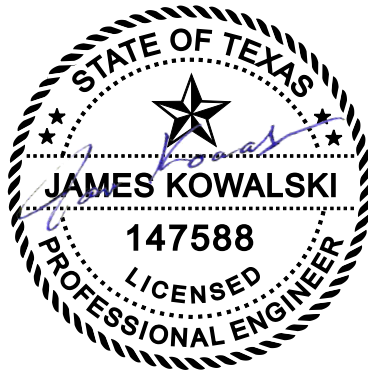
LOUVER SCHEDULE													
GENERAL				PHYSICAL			PERFORMANCE			REMARKS			
TAG	MANUFACTURER	MODEL	SERVICE	WIDTH (IN)	HEIGHT (IN)	FREE AREA (SQ FT)	CFM	FPM	SPD (IN WG)	TYPE	RATINGS	FEATURES	INSTALL
LV-1	GREENHECK	EDJ-401	INTAKE FCU-1	18	14	0.6	250	431	0.030	1	1	1	ALL
LV-2	GREENHECK	EDJ-401	INTAKE FCU-2	18	14	0.6	150	259	0.011	1	1	1	ALL
LV-3	GREENHECK	EDJ-401	EXHAUST	18	14	0.6	200	345	0.018	2	1	1	ALL
REMARKS - TYPE				REMARKS - RATINGS			REMARKS - FEATURES				REMARKS - INSTALL		
1. LOUVERED INTAKE , ALUMINUM CONSTRUCTION 2. LOUVERED EXHAUST , ALUMINUM CONSTRUCTION				1. AMCA 511 CERTIFIED FOR WATER AND AIR PERFORMANCE			1. INSECT SCREEN				1. HEAD DRIP FLANGE 2. FULL CAULK ALL SIDES 3. BACKER ROD AS REQUIRED 4. SEE DETAIL 3/M3.0 5. COLOR PER ARCHITECT		

DEHUMIDIFIER SCHEDULE (ALTERNATE BID)												
GENERAL				PERF.		ELECTRICAL			REMARKS			
TAG	MANUFACTURER	MODEL	SERVICE	PPD	CFM	FLA	VOLTAGE	PHASE	TYPE	RATINGS	FEATURES	INSTALL
DHU-1	APRILAIRE	E100	FCU-1	100	200	6.9	120	1	1	1	1,2,3	1
REMARKS - TYPE			REMARKS - RATINGS			REMARKS - FEATURES			REMARKS - INSTALL			
1. DUCTED, R410A			1. CAPACITY BASED AT 80°F/60% RH			1. PROVIDE WITH MEANS OF ELECTRICAL DISCONNECT 2. CONTAINS 1/2" WASHABLE MERV 8 FILTER 3. CONTROL USING REMOTE HUMIDISTAT/SENSOR MODEL 76			1. SEE DETAIL 5/M3.0			



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CONSTRUCTION DOCUMENTS

MECHANICAL SCHEDULES

08/25/2023: 100 % CD CHECK SET  
04/23/2024: 100 % CD

MECHANICAL SCHEDULES

VILLA  
FINALE

~ M4.0 ~

MICHAEL G. IMBER  
ARCHITECT

111 WEST EL PRADO  
SAN ANTONIO, TEXAS 78212



23 00 00 - GENERAL

A. THESE SPECIFICATIONS ARE APPLICABLE TO ALL PLUMBING, MECHANICAL AND ELECTRICAL DRAWINGS UNLESS NOTED OTHERWISE. REVIEW THE ARCHITECTURAL STRUCTURAL, MECHANICAL, ELECTRICAL, PLUMBING DRAWINGS FOR NOTES, DIMENSIONS, ETC., AND COORDINATE WITH OTHER TRADES INVOLVED.

B. DESCRIPTION

- SCOPE OF WORK CONSISTS OF INSTALLATION OF MATERIALS TO BE FURNISHED UNDER THE CONTRACT DOCUMENTS WITHOUT LIMITING GENERALITY. THE SCOPE OF WORK CONSISTS OF FURNISHING LABOR, MATERIALS, EQUIPMENT, HOISTING, TRANSPORTATION, RIGGING, STAGING, APPURTENANCES, AND SERVICES NECESSARY AND/OR INCIDENTAL TO PROPERLY COMPLETE ALL WORK AS SHOWN ON THE DRAWINGS AND DESCRIBED HEREIN.

C. DEFINITIONS: THE FOLLOWING DEFINITIONS APPLY TO THIS CONTRACT

- FURNISH: THE TERM "FURNISH" MEANS TO "SUPPLY AND DELIVER TO THE PROJECT SITE, READY FOR UNLOADING, UNPACKING, ASSEMBLY, INSTALLATION, AND SIMILAR OPERATIONS"
- INSTALL: THE TERM "INSTALL" IS USED TO DESCRIBE OPERATIONS AT PROJECT SITE INCLUDING THE ACTUAL "UNLOADING, UNPACKING, ASSEMBLY, ERECTION, PLACING, ANCHORING, APPLYING, WORKING TO DIMENSION, FINISHING, CURING, PROTECTING, CLEANING, AND SIMILAR OPERATIONS."
- PROVIDE: THE TERM "PROVIDE" MEANS "TO FURNISH AND INSTALL, COMPLETE AND READY FOR THE INTENDED USE."
- REMOVE: THE TERM "REMOVE" MEANS TO DISCONNECT FROM ITS PRESENT POSITION, REMOVE FROM THE PREMISES AND TO DISPOSE OF IN A LEGAL MANNER."
- SUBSTITUTIONS: "SUBSTITUTIONS" ARE REQUESTS FOR CHANGES IN PRODUCTS, MATERIALS AND/OR METHODS OF CONSTRUCTION AS PROPOSED BY THE CONTRACTOR AFTER AWARD OF THE CONTRACT."

D. DRAWINGS

- DRAWINGS ARE DIAGRAMMATIC. THE FINAL PLACEMENT OF EQUIPMENT OR DEVICES IN THE FIELD MAY NOT DIRECTLY CORRESPOND TO THAT WHICH IS SHOWN ON THE DRAWINGS. THOUGH SOME OFFSETS & TRANSITIONS MAY BE SHOWN IN PIPING & SHEET METAL TO HELP INDICATE THE PHYSICAL RELATIONSHIP BETWEEN THEM, IT IS NOT THE INTENT OF THE DRAWINGS TO SHOW ALL PIPING & SHEET METAL OFFSETS & TRANSITIONS REQUIRED. THE CONTRACTOR SHALL FULLY COORDINATE THE WORK AND PROVIDE ALL MATERIALS, EQUIPMENT AND LABOR NECESSARY TO COMPLETE THE WORK OUTLINED ON THESE CONTRACT DOCUMENTS. IF A CONFLICT IN POSITIONING OCCURS THE CONTRACTOR IS TO NOTIFY THE ENGINEER IMMEDIATELY TO ASCERTAIN WHAT THE INTENT WAS BY THE DESIGN PROFESSIONAL.

E. CODES AND STANDARDS: WORK SHALL CONFORM TO THE CURRENT EDITIONS OF THE FOLLOWING:

- SHEET METAL SMACNA STANDARDS
- INTERNATIONAL MECHANICAL CODE
- INTERNATIONAL ENERGY CONSERVATION CODE
- ALL OTHER APPLICABLE STATE AND LOCAL CODES AND ORDINANCES, OWNER STANDARDS AND BASE BUILDING SPECIFICATIONS AND STANDARDS.

F. PERMITS AND FEES:

- THE CONTRACTOR SHALL GIVE ALL NECESSARY NOTICES, OBTAIN ALL PERMITS, AND PAY ALL GOVERNMENT AND STATE SALES TAXES AND FEES WHERE APPLICABLE, AND OTHER COSTS, INCLUDING UTILITY CONNECTIONS OR EXTENSIONS IN CONNECTION WITH THE WORK, FILE ALL NECESSARY DRAWINGS, PREPARE ALL DOCUMENTS AND OBTAIN ALL NECESSARY APPROVALS OF ALL GOVERNMENTAL AND STATE DEPARTMENTS HAVING JURISDICTION, OBTAIN ALL REQUIRED CERTIFICATES OF INSPECTION FOR HIS WORK, AND DELIVER A COPY TO THE OWNER AND ENGINEER BEFORE REQUEST FOR ACCEPTANCE AND FINAL PAYMENT FOR THE WORK.

G. SURVEY AND MEASUREMENTS

- DO NOT SCALE DRAWINGS. SCALE INDICATED ON DRAWINGS IS FOR ESTABLISHING REFERENCE POINTS ONLY. ACTUAL FIELD CONDITIONS SHALL GOVERN ALL DIMENSIONS.
- PRIOR TO ORDERING ANY MATERIALS AND EQUIPMENT, THOROUGHLY REVIEW THE SITE CONDITIONS TO DETERMINE IF ADEQUATE CLEARANCES AND ACCESS IS ALLOWED TO INSTALL THE COMPONENTS. ORDER EQUIPMENT BROKEN DOWN AS NECESSARY TO ALLOW FOR PROPER RIGGING THROUGH THE PROJECT AREA. PROVIDE ALL NECESSARY ALTERATIONS TO THE STRUCTURE OF THE BUILDING AS NECESSARY TO RIG THE EQUIPMENT IN PLACE.
- CONTRACTORS SHALL VERIFY, LAYOUT AND BE RESPONSIBLE FOR ALL MEASUREMENTS OF ALL EXISTING CONDITIONS BEFORE COMMENCING WORK AND SHALL NOTIFY ARCHITECT AND/OR ENGINEER IF A CONDITION EXISTS THAT PREVENTS THE CONTRACTOR FROM ACCOMPLISHING THE INTENT OF THE DRAWINGS.

H. SUBMITTALS AND SHOP DRAWINGS

- SUBMIT FOR REVIEW, ELECTRONIC SHOP DRAWINGS IN SEARCHABLE PDF FORMAT FOR THE FOLLOWING:
  - SUBMITTAL DATA FOR ALL MATERIAL AND EQUIPMENT. CLEARLY IDENTIFY DEVIATIONS OF THE SUBMITTED PRODUCTS FROM THE DESIGN.
  - DUCTWORK AND PIPING SHOP DRAWINGS: DRAWN TO ACCURATE SCALE OF 1/4" =10". HIGHLIGHT, ENCLOSE, OR OTHERWISE INDICATE DEVIATIONS FROM THE CONTRACT DOCUMENTS. DO NOT REPRODUCE CONTRACT DOCUMENTS OR COPY STANDARD INFORMATION AS THE BASIS OF SHOP DRAWINGS. STANDARD INFORMATION PREPARED WITHOUT SPECIFIC REFERENCE TO THE PROJECT IS NOT CONSIDERED SHOP DRAWINGS.
  - CONTROLS SHOP DRAWINGS: INCLUDE EQUIPMENT AND SYSTEM CONTROL SCHEMATICS, SEQUENCES OF OPERATIONS, LOGIC DIAGRAMS AND SYSTEM COMPONENTS INCLUDING DETAILS OF TIE-IN TO BUILDING CONTROL MANAGEMENT SYSTEM.
- DO NOT USE SHOP DRAWINGS WITHOUT AN APPROPRIATE FINAL STAMP INDICATING ACTION TAKEN IN CONNECTION WITH CONSTRUCTION.
- DO NOT ORDER ANY MATERIALS OR EQUIPMENT PRIOR TO RECEIVING FINAL APPROVED SUBMITTALS.
- SCHEDULE AT LEAST TEN WORKING DAYS EXCLUSIVE OF TRANSMITTAL TIME, FOR SUBMITTAL REVIEW.

I. AS-BUILT DRAWINGS

- MAINTAIN ONE SET OF PRINTS ON THE SITE AND NOTE ALL CHANGES OR DEVIATIONS FROM THE ORIGINAL DESIGN THEREON. AT THE COMPLETION OF THE PROJECT, INCORPORATE ALL CHANGES INTO RECORD AS-BUILT DRAWINGS IN ELECTRONIC FORMAT AND SUBMIT FOR APPROVAL.
- J. OPERATION AND MAINTENANCE
- UPON COMPLETION OF ALL WORK AND TESTS, THE CONTRACTOR SHALL INSTRUCT THE OWNER OR THE OWNER'S REPRESENTATIVE IN THE OPERATION, ADJUSTMENT AND MAINTENANCE OF ALL EQUIPMENT FURNISHED. THE CONTRACTOR SHALL GIVE AT LEAST SEVEN (7) DAYS NOTICE TO THE OWNER AND THE ENGINEER IN ADVANCE OF THIS PERIOD.
  - THE CONTRACTOR SHALL PREPARE THREE (3) COPIES OF A COMPLETE OPERATION AND MAINTENANCE MANUAL, BOUND IN BOOKLET FORM. ORGANIZE OPERATING AND MAINTENANCE DATA INTO SUITABLE SETS OF MANAGEABLE SIZE. BIND PROPERLY INDEXED DATA IN INDIVIDUAL, HEAVY-DUTY 3-RING VINYL-COVERED BINDERS, WITH POCKET FOLDERS FOR FOLDED SHEET INFORMATION AND DESIGNATION PARTITIONS WITH IDENTIFICATION TABS. MARK APPROPRIATE IDENTIFICATION ON FRONT AND SPINE OF EACH BINDER.
  - OPERATION AND MAINTENANCE MANUAL SHALL INCLUDE THE FOLLOWING:
    - MANUFACTURER'S PRINTED OPERATING AND MAINTENANCE PROCEDURES.
    - MAINTENANCE PROCEDURES FOR ROUTINE PREVENTATIVE MAINTENANCE AND TROUBLESHOOTING.
    - COPIES OF WARRANTIES.
    - APPROVED SHOP DRAWINGS AND PRODUCT DATA.
    - BALANCE REPORTS.
    - INCLUDE IN THE MANUAL, A TABULATED EQUIPMENT SCHEDULE FOR ALL EQUIPMENT. SCHEDULE SHALL INCLUDE PERTINENT DATA SUCH AS: MAKE, MODEL NUMBER, SERIAL NUMBER, VOLTAGE, NORMAL OPERATING CURRENT, BELT SIZE, FUEL QUANTITIES AND SIZES, BEARING NUMBER, ETC. SCHEDULE SHALL INCLUDE MAINTENANCE TO BE DONE AND FREQUENCY.
  - MAINTENANCE AND INSTRUCTION MANUALS SHALL BE SUBMITTED TO THE OWNER AT THE SAME TIME AS THE SEVEN (7) DAY NOTICE IS GIVEN PRIOR TO THE INSTRUCTION PERIOD.

K. CLEANING

- ALL WORK AREAS SHALL BE LEFT AS CLEAN AS NEW. CLEAN INTERNALS OF ALL DUCTWORK AND AIR HANDLING UNITS AND REPLACE FILTERS AFTERWARDS.
- DUCTWORK: DUCTS SHALL BE THOROUGHLY CLEANED SO THAT NO DIRT OR DUST SHALL BE DISCHARGED FROM DIFFUSERS, REGISTERS, OR GRILLES, WHEN SYSTEM IS OPERATED.
- PIPING: AFTER CONDENSATE PIPING HAS BEEN PRESSURE TESTED AND APPROVED FOR TIGHTNESS, CLEAN AND FLUSH PIPING.
- EQUIPMENT: AFTER COMPLETION OF PROJECT, CLEAN THE EXTERIOR SURFACE OF EQUIPMENT INCLUDED IN THIS SECTION, INCLUDING REMOVAL OF CONCRETE RESIDUE.

- WORK AREA: AFTER COMPLETION OF PROJECT, REMOVE ALL CONSTRUCTION DEBRIS, TEMPORARY FACILITIES AND EQUIPMENT FROM WORK AREA. CLEAN WORK AREA TO PERMIT OCCUPATION.

L. GUARANTEE

- GUARANTEE WORK OF THESE CONTRACT DOCUMENTS IN WRITING FOR NOT LESS THAN ONE (1) YEAR FROM DATE OF FINAL NOTICE OF ACCEPTANCE. REPAIR OR REPLACE DEFECTIVE MATERIALS, EQUIPMENT, WORKMANSHIP AND INSTALLATION THAT DEVELOP WITHIN THIS PERIOD, PROMPT AND TO OWNER'S SATISFACTION AND CORRECT DAMAGE CAUSED IN MAKING NECESSARY REPAIRS AND REPLACEMENTS UNDER GUARANTEE WITHIN CONTRACT PRICE.

M. MEANS AND METHODS

- INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
- DO NOT BURN WASTE MATERIALS. DO NOT BURY DEBRIS OR EXCESS MATERIALS ON THE OWNER'S PROPERTY. DO NOT DISCHARGE VOLATILE, HARMFUL OR DANGEROUS MATERIALS INTO DRAINAGE SYSTEMS. REMOVE AND DISPOSE OF ALL WASTE MATERIALS, PACKAGING MATERIAL, SKIDS ETC. FROM THE SITE AND DISPOSE OF IN A LAWFUL MANNER IN ACCORDANCE WITH MUNICIPAL, STATE AND FEDERAL REGULATIONS.
- MATERIALS AND EQUIPMENT SHALL BE UL LISTED WHERE STANDARD HAS BEEN ESTABLISHED.
- CAREFULLY INSPECT ALL BUILDING ELEMENTS PRIOR TO CUTTING OR DRILLING INTO WALL, FLOORS OR CEILINGS. PATCH AND PAINT SURFACES DISTURBED BY WORK UNDER THIS CONTRACT AS REQUIRED TO RESTORE THEM TO THEIR ORIGINAL CONDITION.
- SCAFFOLDING, RIGGING, HOISTING: THE CONTRACTOR SHALL FURNISH ALL SCAFFOLDING, RIGGING, HOISTING AND SERVICES NECESSARY FOR ERECTION AND DELIVERY INTO THE PREMISES ANY EQUIPMENT AND APPARATUS FURNISHED UNDER THIS DIVISION. REMOVE SAME FROM PREMISES WHEN NO LONGER REQUIRED.
- WATERPROOFING: WHERE ANY WORK PIERCES WATERPROOFING, INCLUDING WATERPROOF CONCRETE, ROOFS, EXTERIOR WALL AND FLOORS IN WET AREAS, THE METHOD OF INSTALLATION SHALL BE REVIEWED BY THE ENGINEER BEFORE WORK IS DONE. THE CONTRACTOR SHALL FURNISH ALL NECESSARY SLEEVES, CAULKING AND FLASHING REQUIRED TO MAKE OPENINGS ABSOLUTELY WATERTIGHT.
- PROVIDE FIRESTOPPING AROUND ALL MECHANICAL PENETRATIONS THROUGH FIRE RATED PARTITIONS. PROVIDE ASBESTOS FREE FIRESTOPPING SYSTEM CAPABLE OF MAINTAINING AN EFFECTIVE BARRIER AGAINST FLAME AND GASES. SYSTEM SHALL BE UL LISTED AND COMPLY WITH ASTM E 814.
- PROVIDE ACCESS PANELS IN WALLS, FLOORS AND GYPSUM WALL BOARD CEILINGS TO ALLOW ACCESS TO: DAMPERS, HEATERS, VALVES AND OTHER APPARATUS AND EQUIPMENT REQUIRING PERIODIC SERVICE AND INSPECTION. NOT ALL ACCESS PANELS ARE INDICATED ON THE PLANS. REVIEW ARCHITECTURAL AND MECHANICAL PLANS TO DETERMINE THE LOCATION AND QUANTITY OF ACCESS PANELS REQUIRED. COORDINATE TYPE AND LOCATION WITH ARCHITECTURAL PLANS.

23 05 17 - SLEEVES AND PENETRATIONS

A. GENERAL REQUIREMENTS

- LAY OUT PENETRATION AND SLEEVE OPENINGS IN ADVANCE. COORDINATE WORK CAREFULLY WITH ARCHITECT AND STRUCTURAL ENGINEER. PROVIDE PROTECTIVE BRACING OF EXISTING CONSTRUCTION WHERE REQUIRED. SUBMIT PROPOSED LOCATIONS FOR REVIEW PRIOR TO CORE DRILLING.
- MAINTAIN FIRE RATING OF WALLS, PARTITIONS, CEILINGS, AND FLOORS AT PENETRATIONS. SEAL PENETRATIONS WITH APPROVED FIRESTOP MATERIALS.
- SLEEVES FOR INSULATED PIPE AND DUCT IN NON-FIRE RATED CONSTRUCTION SHALL ACCOMMODATE CONTINUOUS INSULATION WITHOUT COMPRESSION.

B. PIPE SLEEVES:

- PROVIDE HOT-DIPPED GALVANIZED SCHEDULE 40 STEEL PIPE SLEEVES FOR PIPES PASSING THROUGH CONCRETE AND MASONRY WALLS AND CONCRETE FLOOR AND ROOF SLABS.
- PROVIDE 26 GAUGE GALVANIZED STEEL SLEEVES THROUGH PARTITIONS AND NON-FIRE-RATED CONSTRUCTION.
- PROVIDE MECHANICAL SLEEVE SEALS CONSISTING OF INTERLOCKING MODULES AT EXTERIOR PIPE PENETRATIONS.
- PROVIDE ADJUSTABLE ESCUTCHEONS ON EXPOSED PIPING THAT PASSES THROUGH FINISHED FLOORS, WALLS AND CEILINGS. ESCUTCHEONS SHALL BE CHROMIUM-PLATED CAST BRASS, SIZED TO COVER SLEEVE OPENING AND TO ACCOMMODATE PIPE AND INSULATION.

C. DUCT SLEEVES AND OPENINGS:

- PROVIDE GALVANIZED-STEEL SHEET DUCT SLEEVES FOR ROUND DUCTS 15 INCHES AND SMALLER. PROVIDE PREPARED, FRAMED OPENINGS FOR ROUND DUCTS LARGER THAN 15 INCHES AND FOR SQUARE, RECTANGULAR AND FLAT OVAL DUCTS, EXCEPT AS SPECIFIED OTHERWISE. SLEEVES SHALL MEET SMACNA REQUIREMENTS.
- PROVIDE GALVANIZED-STEEL SHEET DUCT SLEEVES FOR SLEEVES THROUGH FIRE-RATED CONSTRUCTION AND THROUGH SMOKE PARTITIONS. SLEEVE AND SEAL MATERIALS, CONSTRUCTION AND CLEARANCES SHALL MEET REQUIREMENTS FOR EACH SYSTEM AND HEAT STOP GUIDE FOR AIR HANDLING SYSTEMS. WHERE FIRE DAMPERS ARE REQUIRED, INSTALL SLEEVE AND DAMPER ASSEMBLY IN ACCORDANCE WITH DAMPER LISTING.

23 05 29 - HANGERS AND SUPPORTS

- PROVIDE PIPE STANDS, SUPPORTS, HANGERS AND OTHER SUPPORTING APPLIANCES AS NECESSARY TO SUPPORT WORK REQUIRED BY CONTRACT DOCUMENTS. SPACING OF HANGERS SHALL BE INSTALLED IN ACCORDANCE WITH APPLICABLE BUILDING AND MECHANICAL CODES. STRUCTURAL STEEL SUPPORTS, HANGERS, ETC. SHALL BE ANGLE IRON, STEEL CHANNEL OR STEEL ROD USED WITH APPROVED CLAMPS, INSERTS, ETC. ALL SUPPORTS, HANGERS, BRACKETS, ETC., SHALL BE AS APPROVED BY THE ENGINEER.
- ALL HANGERS SHALL BE GALVANIZED.
- ATTACH HANGERS AND SUPPORTS DIRECTLY ONTO THE STRUCTURE BY FIRST REMOVING EXISTING FIRE PROOFING AND AFTER SECURING THE ATTACHMENT, REPAIRING THE FIRE PROOFING TO ITS ORIGINAL CONDITION, CONTINUOUSLY OVER THE ATTACHMENT.
- SUPPORT ALL GALVANIZED DUCTWORK WITH GALVANIZED HANGERS AND MOUNTS AS REQUIRED BY SMACNA (8 FT SPACING). DO NOT SUPPORT RISERS FROM SLEEVES IN SLABS.

23 05 48 - VIBRATION AND SEISMIC CONTROLS FOR HVAC

- PROVIDE VIBRATION ISOLATION FOR EACH PIECE OF ROTATING OR RECIPROCATING HVAC EQUIPMENT SHOWN ON THE DRAWINGS. ALL ISOLATION COMPONENTS SHALL BE SUPPLIED BY A SINGLE MANUFACTURER - MASON INDUSTRIES, KINETICS OR AMBER BOOTH. TYPES OF ISOLATORS, REQUIRED DEFLECTION, AND INSTALLATION PRACTICES SHALL BE IN STRICT ACCORDANCE WITH THE RECOMMENDATIONS OF THE VIBRATION ISOLATION MANUFACTURER.

23 05 53 - PIPE AND DUCT IDENTIFICATION

- MACHINERY SUCH AS HEAT PUMPS UNITS, FCU, ETC., SHALL BE LABELED WITH PLASTIC LABELS WITH ENGRAVED EQUIPMENT NUMBER CORRESPONDING TO DRAWING SCHEDULE NUMBERS.

23 05 93 - TESTING ADJUSTING AND BALANCING

- PROVIDE QUALIFIED PERSONNEL, EQUIPMENT, APPARATUS AND SERVICES FOR START-UP, TESTING AND BALANCING OF MECHANICAL SYSTEMS. DO NOT PERFORM DATA SHOWN IN SCHEDULES, AS SPECIFIED, AND AS REQUIRED BY CODES, STANDARDS, REGULATIONS AND AUTHORITIES HAVING JURISDICTION INCLUDING CITY INSPECTORS, OWNERS AND ARCHITECT
- PROVIDE THE SERVICES OF AN INDEPENDENT TESTING, ADJUSTING, AND BALANCING (TAB) AGENCY TO PROVIDE TAB SERVICES FOR THE MECHANICAL SYSTEMS. THE TAB AGENCY SHALL BE CERTIFIED BY NATIONAL ENVIRONMENTAL BALANCING BUREAU (NEBB) OR THE ASSOCIATED AIR BALANCE COUNCIL (AABC) IN THOSE TESTING AND BALANCING DISCIPLINES REQUIRED FOR THIS PROJECT. THE TAB AGENCY SHALL HAVE AT LEAST ONE PROFESSIONAL ENGINEER REGISTERED IN THE STATE IN WHICH THE SERVICES ARE TO BE PERFORMED AND CERTIFIED BY NEBB OR AABC AS A TEST AND BALANCE ENGINEER.
- PRIOR TO TESTING, ADJUSTING, AND BALANCING, THE MECHANICAL CONTRACTOR SHALL VERIFY THAT THE SYSTEMS HAVE BEEN INSTALLED AND ARE OPERATING AS SPECIFIED. APPROVED SHOP DRAWINGS, AS BUILT DRAWINGS, AND ALL OTHER DATA REQUIRED FOR EACH SYSTEM AND/OR COMPONENT TO BE TESTED SHALL BE MADE AVAILABLE AT THE JOB SITE DURING THE ENTIRE TAB EFFORT. THE OWNER SHALL BE NOTIFIED IN WRITING OF ALL EQUIPMENT COMPONENTS, OR BALANCING DEVICES, THAT ARE DAMAGED, INCORRECTLY INSTALLED, OR MISSING, AS WELL AS ANY DESIGN DEFICIENCIES THAT WILL PREVENT PROPER TESTING, ADJUSTING, AND BALANCING. TESTING, ADJUSTING, AND BALANCING SHALL NOT COMMENCE UNTIL APPROVED BY THE OWNER.
- PERFORM TESTING AND BALANCING PROCEDURES ON EACH SYSTEM IDENTIFIED, IN ACCORDANCE WITH THE DETAILED PROCEDURES OUTLINED IN EITHER NEBB, "PROCEDURAL STANDARDS FOR TESTING, ADJUSTING, AND BALANCING OF ENVIRONMENTAL SYSTEMS " OR AABC, "NATIONAL STANDARDS FOR TOTAL SYSTEM BALANCE." THE TAB AGENCY SHALL TEST, ADJUST, AND BALANCE THE FOLLOWING MECHANICAL SYSTEMS:
  - ALL AIR HANDLING EQUIPMENT
  - ALL SUPPLY AIR SYSTEMS
  - ALL RETURN AIR SYSTEMS
  - ALL OUTSIDE AIR SYSTEMS
  - ALL EXHAUST AIR SYSTEMS
  - VERIFY OPERATION OF ALL TEMPERATURE CONTROL SYSTEMS
  - TEST SYSTEMS FOR PROPER SOUND AND VIBRATION LEVELS

- SUBMIT TESTING, ADJUSTING, AND BALANCING REPORTS BEARING THE SEAL AND SIGNATURE OF THE TAB PROFESSIONAL ENGINEER. PREPARE A REPORT OF RECOMMENDATIONS FOR CORRECTING STRUCTURALLY UNSATISFACTORY MECHANICAL PERFORMANCES WHEN A SYSTEM CANNOT BE SUCCESSFULLY BALANCED.

- START UP ALL SYSTEMS, PRESSURE TEST DUCTWORK AND PIPING, AND BALANCE SYSTEMS INCLUDING, BUT NOT LIMITED TO, ALL NEW AND EXISTING REGISTERS, GRILLES, DIFFUSERS, TERMINAL UNITS, FANS, ETC. WITHIN THE AREA OF WORK TO PERFORMANCE DATA SHOWN ON PLANS, SCHEDULES, AND AS SPECIFIED.
- DO NOT COVER OR CONCEAL WORK BEFORE TESTING AND INSPECTION AND OBTAINING APPROVAL.
- LEAKS, DAMAGE AND DEFECTS DISCOVERED OR RESULTING FROM STARTUP, TESTING, AND BALANCING SHALL BE REPAIRED OR REPLACED TO LIKE-NEW CONDITION WITH ACCEPTABLE MATERIALS. TEST SHALL BE CONTINUED UNTIL SYSTEM OPERATES WITHOUT ADJUSTMENT OR REPAIR.
- REPORT ON REPORTING FORMS, SUBMITTED TO ARCHITECT FOR APPROVAL IN ADVANCE.
- SUBMIT PROCEDURES, RECORDING FORMS, AND TEST EQUIPMENT FOR REVIEW PRIOR TO BALANCING, AS DESCRIBED IN SPECIFICATIONS. SUBMIT ELECTRONIC COPY OF TESTING AND BALANCING REPORTS TO ARCHITECT FOR APPROVAL.
- FURNISH ALL TEST MEDIUMS AND DISPOSE OF ALL TEST MEDIUMS AT AN APPROVED OFF-SITE LOCATION AFTER TESTING IS COMPLETE.
- NOTE REQUIREMENT ABOVE FOR CFM AND STATIC PRESSURE READINGS PRIOR TO DEMOLITION.
- THE BALANCING CONTRACTOR SHALL BE RESPONSIBLE FOR FINAL DIRECTIONAL ADJUSTMENT OF ALL LINEAR DIFFUSERS AS INDICATED ON PLANS. IF NO DIRECTIONAL FLOW IS INDICATED INTERIOR LINEAR DIFFUSERS SHALL BE DIRECTED HORIZONTALLY AND PERIMETER LINEAR DIFFUSER SHALL BE DIRECTED VERTICALLY. IF PERIMETER LINEAR DIFFUSERS HAVE MULTIPLE SLOTS THE PERIMETER SLOT DIRECTED VERTICALLY, AND THE INTERIOR SLOT DIRECTED HORIZONTALLY TOWARDS THE INTERIOR SPACE.

23 07 13 - HVAC INSULATION

A. GENERAL REQUIREMENTS

- INSULATION SHALL BE CERTAIN-TEED, KNAUF, MANVILLE, OR OWENS CORNING. MATERIALS SHALL MEET REQUIREMENTS OF ADHESIVE AND SEALANT COUNCIL STANDARDS AND SMACNA. INSTALL INSULATION, MASTICS, ADHESIVES, COATINGS, COVERS, WEATHER-PROTECTION AND OTHER WORK IN STRICT ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. ASTM E-84 FIRE HAZARD RATINGS SHALL BE 25 FLAME SPREAD, 50 SMOKE DEVELOPED.
- INSULATION AND VAPOR BARRIER SHALL BE CONTINUOUS AROUND ENTIRE PERIMETER OF DUCTS. DUCTS SUPPORTED BY METAL STRAPS SHALL HAVE INSULATION ENCOMPASSING STRAPS, WHERE STRAPS PENETRATE AT TOP OF DUCT TIGHTLY SEAL AROUND STRAP WITH INSULATING TAPE. DUCTS SUPPORTED BY TRAPEZIE TYPE HANGERS UNDER DUCTS SHALL HAVE 6 LB. DENSITY RIGID INSULATION PROVIDED BETWEEN DUCT AND HANGER. INSULATION SHALL BE SAME THICKNESS AND VAPOR BARRIER AS SPECIFIED FOR SPECIFIC DUCT TYPE. RIGID INSULATION SECTION SHALL BE FULL WIDTH OF DUCT AND MINIMUM 12" LONG. TAPE AND SEAL ALL SEAMS WHERE RIGID INSULATION MEETS OTHER INSULATION.
- FITTINGS, VALVES AND FLANGES SHALL BE INSULATED WITH SAME MATERIAL AND TO SAME THICKNESS AS ADJOINING PIPE INSULATION, WITH PRESENT SECTIONS.
- FOR STRAINERS AND OTHER VALVES OR FITTINGS WHICH NEED MAINTENANCE, PROVIDE PREFORMED REMOVABLE INSULATION SECTION.

B. PRODUCTS AND APPLICATIONS

- INDOOR DUCT INSULATION SHALL BE MINERAL FIBER BLANKET DUCT INSULATION WITH FACTORY APPLIED FSK JACKET. PROVIDE MINIMUM OF R-6 (AS INSTALLED) INSULATION FOR THE FOLLOWING:
    - SUPPLY AND FRESH AIR DUCTS WHEN LOCATED WITHIN CONCEALED SPACES INSIDE THE BUILDING ENVELOPE.
    - RETURN AIR DUCTWORK IN UNCONDITIONED SPACES (WHERE SPACE TEMPERATURE IS MORE THAN 10 DEGREES F DIFFERENT FROM DUCT TEMPERATURE)
  - REFRIGERANT LINE AND CONDENSATE DRAIN LINE INSULATION SHALL BE 1" INCH THICK FLEXIBLE ELASTOMERIC, ACCEPTABLE MANUFACTURERS: ARMACELL OR K-FLEX.
- C. OUTDOOR JACKET
- PROVIDE OUTDOOR PIPING WITH WATERPROOF 0.016" THICK ALUMINUM JACKET WITH 2" TRANSVERSE AND LONGITUDINAL LAPPED SEAMS ORIENTED TO SHED WATER.

23 09 00 - INSTRUMENTATION AND CONTROLS

- PROVIDE MANUFACTURER'S COMPLETE SYSTEM OF AUTOMATIC TEMPERATURE CONTROLS. CONTROL SYSTEM SHALL BE CAPABLE OF PERFORMING ALL SEQUENCES OF OPERATION DESCRIBED IN THESE SPECIFICATIONS. INDIVIDUAL CONTROL COMPONENTS MAY NOT BE SHOWN ON CONTRACT DOCUMENTS, BUT THE CONTRACTOR SHALL SUPPLY ALL COMPONENTS, AND CONTROL WIRING NECESSARY FOR A COMPLETE OPERABLE SYSTEM. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL SYSTEM COMPONENTS, WHETHER THE ELECTRICAL OR OTHER WORK IS SUBCONTRACTED OR NOT.
- INSTALL THERMOSTATS AT MOUNTING HEIGHTS ABOVE FINISHED FLOOR IN ACCORDANCE WITH "ADA" REQUIREMENTS, OR AS DIRECTED OTHERWISE BY ARCHITECT.
- ALL SAFETY SWITCHES AND CUT OUTS SHALL BE FIELD CALIBRATED AND SET PRIOR TO START-UP EQUIPMENT.
- ALL CONTROL WIRING SHALL COMPLY WITH THE REQUIREMENTS OF THE ELECTRICAL SPECIFICATIONS.
- SUBMIT TO ARCHITECT A POINT-TO-POINT WIRING DIAGRAM AND AIR PIPING LAYOUT SHOWING MANUFACTURERS AND MODEL NUMBERS OF ALL CONTROL COMPONENTS. INCLUDE WRITTEN DESCRIPTION OF SYSTEM OPERATION.
- ROOM THERMOSTAT SENSORS AND TRANSMITTERS IN PUBLIC AREAS SHALL HAVE METAL COVER WITH TAMPER PROOF OF SCREWS AND CONCEALED ADJUSTMENT. THERMOSTATS FOR PRIVATE OFFICES SHALL HAVE EXPOSED DIAL FOR SETPOINT ADJUSTMENT. HEATING/COOLING THERMOSTATS SHALL HAVE AN ADJUSTABLE DEADBAND.
- LOCAL CONTROLLERS, RELAYS, SWITCHES, AND OTHER CONTROL COMPONENTS SHALL BE MOUNTED ON ENCLOSED CONTROL PANELS WITH HINGE-LOCK DOOR MOUNTED NEXT TO SYSTEM CONTROLLED TEMPERATURE SETTINGS, ADJUSTMENTS AND CALIBRATIONS SHALL BE MADE AT SYSTEM CONTROL PANEL. PANEL SHALL HAVE CANOPY LIGHT AND ON-OFF SWITCH.

SEQUENCE OF OPERATIONS

A.H-P SPLIT SYSTEM

OPERATION

- IF SPACE TEMPERATURE RISES ABOVE SETPOINT, THE FAN COIL UNITS CONTROLS (THERMOSTAT) SHALL ACTIVATE UNIT IN COOLING TO MAINTAIN SET POINT.
- IF SPACE TEMPERATURE DROPS BELOW SETPOINT, THE FAN COIL UNITS CONTROLS (THERMOSTAT) SHALL ACTIVATE UNIT IN HEATING TO MAINTAIN SETPOINT.

TEMPERATURE CONTROL

- TEMPERATURE CONTROL - SPACE TEMPERATURE SENSOR (THERMOSTAT) SHALL CONTROL SPACE TEMPERATURE AND SHALL BE LOCALLY ADJUSTABLE FOR 2 DEG. F ABOVE OR BELOW SETPOINT. SENSOR SHALL HAVE AFTER HOURS OVERRIDE TO INITIATE HEATING / COOLING SYSTEMS

A. OCCUPIED MODE

- VENTILATION - DURING OCCUPIED PERIODS, THE OUTSIDE AIR DAMPERS SHALL REMAIN OPEN TO MAINTAIN MINIMUM VENTILATION REQUIREMENTS.
  - COOLING - SPACE TEMPERATURE OF 75 DEG. F
  - HEATING - SPACE TEMPERATURE OF 70 DEG. F
- MAINTAIN A DEADBAND OF AT LEAST 4 DEG.F BETWEEN HEATING AND COOLING SET POINTS

B. UNOCCUPIED MODE

- MAINTAIN SET BACK TEMPERATURE

- COOLING - 80 DEG. F
- HEATING - 64 DEG. F

C. DEHUMIDIFIER

GENERAL

- PROVIDE UNIT MANUFACTURER'S STANDARD CONTROLS.
- SENSOR SHALL BE WALL MOUNTED.

OPERATION

- DEHUMIDIFIER SHALL BE ENABLED WHEN ITS ASSOCIATED HEAT PUMP IS ACTIVATED. IF THE ASSOCIATED FAN COIL UNIT IS DEACTIVATED, THE DEHUMIDIFIER SHALL BE DISABLED.
- THE DEHUMIDIFIER'S PACKAGED CONTROLS SHALL ACTIVATE UNIT AND CYCLE TO MAINTAIN HUMIDITY SETPOINT OF 50 - 60% RH AT THE WALL MOUNTED HUMIDITY SENSOR.

D. EXHAUST FAN

OPERATION

- EXHAUST FAN SHALL OPERATES CONTENTIOUSLY WHEN THE BUILDING IS OCCUPIED.

23 31 00 - HVAC DUCTS

A. GENERAL REQUIREMENTS

- FOR GALVANIZED DUCTWORK, SEAL AIR DUCT JOINTS AND JOINTS BETWEEN FITTINGS AND DUCTS WITH HARDCAST SEALANT OR APPROVED EQUAL IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
- DUCTWORK SHALL BE FREE FROM VIBRATION UNDER ALL CONDITIONS OF OPERATION.
- DIFFUSER & REGISTER LOCATIONS SHALL BE COORDINATED WITH ARCHITECTURAL REFLECTED CEILING PLANS.
- DUCTWORK SHALL NOT RUN ALONG FULL HEIGHT PARTITIONS.
- PATCH AND SEAL ALL EXISTING OPENINGS IN DUCTWORK NOT UTILIZED FOR NEW LAYOUT.
- THE INSIDE OF ALL UNLINED DUCTWORK VISIBLE THROUGH A GRILLE OR DIFFUSER SHALL BE PAINTED FLAT BLACK.
- WHEN SECTION OF DUCTWORK IS NOT LABELED FOR SIZE, THE LARGER SIZE INDICATED ON THE CONNECTED DUCT SHALL PREVAIL. SIZE OF DUCT RUN-OUTS TO DIFFUSER SHALL EQUAL DIFFUSER NECK SIZE.
- DUCT BRANCH CONNECTIONS AND TAKE OFFS SHALL BE MADE WITH 45° CONNECTION, BELLMOUTH OR CONICAL ONLY. SPIN IN COLLARS AND STRAIGHT TAPS SHALL NOT BE USED.
- ELBOWS AND BENDS FOR RECTANGULAR DUCTS SHALL HAVE CENTER LINE RADIUS OF 1.5 TIMES DUCT WIDTH WHEREVER POSSIBLE. WHERE CENTERLINE RADIUS IS LESS THAN 1.5 TIMES DUCT WIDTH, ELBOWS SHALL BE RADIUS THROAT WITH RADIUS HEEL AND FULL-LENGTH SPLITTER VANES.
- NO PIPE, CONDUIT, HANGER, ARCHITECTURAL ELEMENT NOR STRUCTURAL MEMBER SHALL PASS THROUGH DUCT.

B. SHEETMETAL DUCTWORK

- SHEET METAL DUCTS SHALL BE CONSTRUCTED OF HOT DIPPED G90 GALVANIZED SHEET METAL UNLESS OTHERWISE SPECIFIED. MATERIAL, CONSTRUCTION AND INSTALLATION SHALL MEET REQUIREMENTS OF MOST RECENT EDITIONS OF SMACNA STANDARDS (EXCEPT FOR MORE STRINGENT REQUIREMENTS SPECIFIED OR SHOWN ON DRAWINGS). ALL MEDIUM PRESSURE DUCTWORK BETWEEN AIR HANDLER AND DIFFUSERS SHALL BE MINIMUM 4"(wg) PRESSURE CLASS, SEAL CLASS A, LEAKAGE CLASS 6. ALL LOW-PRESSURE DUCTWORK BETWEEN TERMINAL DEVICE AND AIR OUTLETS SHALL BE MINIMUM 2"(wg) PRESSURE CLASS. SEAL CLASS B, LEAKAGE CLASS 12

C. FLEXIBLE DUCTWORK

- FLEXIBLE DUCTWORK, CONNECTING TO UNINSULATED OR UNLINED DUCT, SHALL BE VINYL COATED FIBERGLASS CLOTH 0.0067" MINIMUM THICKNESS, 25 STRANDS PER INCH MINIMUM THREAD COUNT WITH CORROSION-RESISTANT HELICAL WIRE REINFORCEMENT. FLEX DUCT SHALL BE UL RATED FOR 12" W.C. POSITIVE PRESSURE, 2" W.C. NEGATIVE PRESSURE WITH A MAXIMUM VELOCITY OF 4000 FPM. FLEXDUCT MUST BE LISTED AS A CLASS 1 CONNECTOR ACCORDING TO UL 181 AND SHALL MEET THE REQUIREMENTS OF NFPA 90A - MAXIMUM ASTM E-84 FIRE HAZARD RATING SHALL BE 25 FLAME SPREAD, 50 FUEL CONTRIBUTED, AND 50 SMOKE DEVELOPED. UNINSULATED FLEXIBLE DUCT SHALL BE EQUIVALENT TO FLEXMASTER TYPE 4.
- FLEXIBLE DUCT CONNECTED TO INSULATED OR LINED DUCT SHALL BE INSULATED WITH 1-1/2" 1/2 LB. DENSITY FIBERGLASS INSULATION AND FLAME RETARDANT (UL LISTED) VAPOR BARRIER, MEETING ASTM E-84 RATING AS REFERENCED ABOVE.
- FLEXIBLE DUCTS SHALL NOT EXCEED 5 FEET LONG AND SHALL BE USED FOR STRAIGHT RUN ONLY, NO OFFSETS OR TURNS. MAXIMUM SAG OF 1/2" PER 1'-0".
- HANGER AND SADDLE IN CONTACT WITH FLEXIBLE DUCT SHALL BE WIDE ENOUGH TO PREVENT RESTRICTION OF INTERNAL DUCT DIAMETER WHEN WEIGHT OF SUPPORTED SECTION RESTS ON HANGER OR SADDLE MATERIAL.
- COLLARS TO WHICH FLEXIBLE DUCTS ARE ATTACHED SHALL BE AT LEAST 2" LONG. SLEEVES FOR JOINING SECTIONS OF FLEXIBLE DUCT SHALL BE AT LEAST 4" LONG.
- APPLY SEALING COMPOUND TO METALLIC SURFACE AT CONNECTION OF FLEXIBLE DUCT WITH SHEET METAL DUCTS, COLLARS AND MIXING BOXES. USE FLEXIBLE DUCTWORK OVER SEALING COMPOUND. COMPLETE SEAL WITH 1/2" WIDE, COMMERCIALLY-MADE METAL DRAW BANDS.

23 33 00 - AIR DUCT ACCESSORIES

A. ADJUSTABLE MANUAL BALANCING DAMPERS:

- GENERAL: NOT ALL MANUAL BALANCING DAMPERS MAY BE SHOWN ON THE PLANS FOR CLARITY. PROVIDE MANUAL ADJUSTABLE VOLUME DAMPERS, WITH EXTENDED MOUNT INDICATING AND LOCKING QUADRANTS ON EACH SUPPLY, RETURN, AND EXHAUST DUCT TAKEOFF, AND AT EACH TAKEOFF TO A REGISTER, GRILLE, OR DIFFUSER. DAMPERS SHALL BE LOCATED AS FAR UPSTREAM AS POSSIBLE IN THE BRANCH DUCT OR TAKE OFF TO MINIMIZE DOWNSTREAM NOISE.

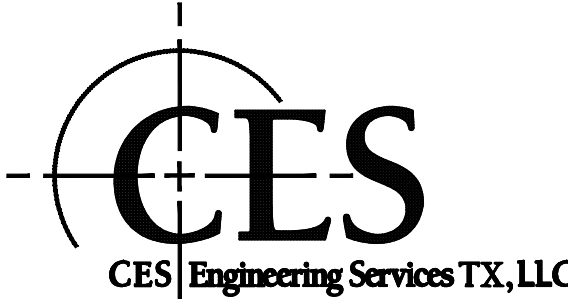
- REMOTE ADJUSTABLE VOLUME DAMPERS: PROVIDE REMOTE ADJUSTABLE VOLUME DAMPERS IN AREAS WHERE CEILING CAVITY ACCESS IS LIMITED BY HARD (SOLID) CEILINGS, EQUIPMENT OBSTRUCTIONS, ARCHITECTURAL FEATURES, ETC. COORDINATE BETWEEN MECHANICAL PLANS AND ARCHITECTURAL CEILING PLANS TO DETERMINE IF AND WHERE REMOTE ADJUSTABLE VOLUME DAMPERS ARE REQUIRED. MANUALLY ADJUSTED REMOTE VOLUME DAMPERS SHALL BE SIMILAR TO YOUNG REGULATOR MODEL 270.

B. FLEXIBLE CONNECTIONS

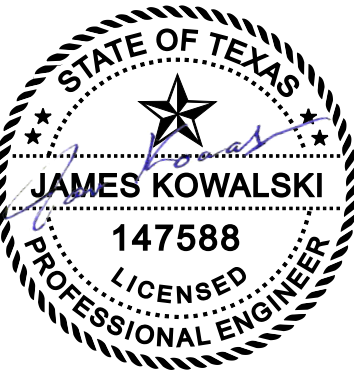
- MAKE ALL CONNECTIONS BETWEEN AIR HANDLING UNITS AND DUCTWORK AND BETWEEN FANS AND DUCTWORK WITH FLEXIBLE CONNECTIONS. FOR INDOOR APPLICATIONS, FLEXIBLE CONNECTIONS SHALL BE NEOPRENE-COATED FIBROUS GLASS FIRE RETARDANT FABRIC, BY VENTFABRICS, OR DURODYNE. FOR OUTDOOR APPLICATIONS, FLEXIBLE CONNECTIONS SHALL BE DUPONT HYPALON-COATED FIBROUS GLASS FIRE-, WEATHER-, AND UV-RESISTANT BY VENTFABRICS OR DURODYNE.

23 37 00 - AIR OUTLETS AND INLETS

- PROVIDE DIFFUSERS, REGISTERS, AND GRILLES FOR SUPPLY, RETURN, AND EXHAUST OUTLETS, OF SIZE, TYPE, MATERIAL AND DESIGN SHOWN ON DRAWINGS. ACCEPTABLE MANUFACTURERS: KRUEGER, NAIL OR METALAIR, TITUS, REGIO OR PRICE. SOUND PRESSURE LEVELS SHALL NOT EXCEED NC 30. COLOR AND FINISH SHALL BE SELECTED BY THE ARCHITECT.



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CES\* 2022580.00



CONSTRUCTION DOCUMENTS

MECHANICAL  
SPECIFICATIONS

08/25/2023: 100 % CD CHECK SET  
04/23/2024: 100 % CD

VILLA  
FINALE

~ M5.0 ~

MICHAEL G. IMBER  
ARCHITECT

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VILLA FINALE PLUMBING SHEET INDEX	
DRAWING NUMBER	DRAWING NAME
P0.0	PLUMBING ABBREVIATIONS AND SYMBOLS
P1.0	PLUMBING UNDER SLAB PLAN
P1.1	PLUMBING ABOVE SLAB PLAN
P3.0	PLUMBING DETAILS
P5.0	PLUMBING SPECIFICATIONS

GENERAL ABBREVIATIONS	
ABBR	DESCRIPTION
AFF	ABOVE FINISHED FLOOR
AHJ	AUTHORITY HAVING JURISDICTION
APD	AIR PRESSURE DROP
ATC	AUTOMATIC TEMPERATURE CONTROL
BTU	BRITISH THERMAL UNIT
BTUH	BTU/HOUR
CAP	CAPACITY
CD	CONDENSATE DRAIN
DN	DOWN
°F	DEGREES FAHRENHEIT
FT	FEET
FT WG	FEET WATER GAUGE
FLA	FULL LOAD AMPS
FPM	FEET PER MINUTE
GEN'L	GENERAL
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
HP	HORSEPOWER
HW	HOT WATER (POTABLE)
IN	INCHES
IN WG	INCHES WATER GAUGE
KW	KILOWATTS
MBH	THOUSANDS OF BTU / HOUR
MCA	MINIMUM CIRCUIT AMPACITY
MIN	MINIMUM
MOP	MAXIMUM OVERCURRENT PROTECTION
NTS	NOT TO SCALE
PH	PHASE
PSIG	POUNDS PER SQUARE INCH GAUGE
QTY	QUANTITY
RD	ROOF/STORM DRAIN
RHW	RECIRCULATED HOT WATER (POTABLE)
RPM	REVOLUTIONS PER MINUTE
S/SAN	SANITARY
T+P	TEMPERATURE PRESSURE SAFETY RELIEF VALVE
TP	TRAP PRIMER
TYP	TYPICAL
UOI	UNLESS OTHERWISE INDICATED
V	VENT
VIF	VERIFY IN FIELD
WPD	WATER PRESSURE DROP

NOTE: NOT ALL ABBREVIATIONS LISTED HERE ARE USED

PLAN LEGEND	
SYMBOL	DESCRIPTION
	COLD WATER PIPING (POTABLE)
	HOT WATER PIPING (POTABLE)
	SANITARY DRAIN/WASTE PIPING
	SANITARY VENT PIPING
	ELBOW
	ELBOW UP
	ELBOW DOWN
	TEE
	TEE DOWN
	TEE DOWN WITH ELBOW
	TEE UP
	TEE UP WITH ELBOW
	VERTICAL OFFSET (RISE AND RUN)
	WYE
	COMBINATION WYE & 1/8 BEND
	SANITARY TEE
	END CAP
	FLOOR DRAIN
	FLOOR CLEANOUT
	CLEANOUT ON VERTICAL PIPE (RISER)
	WALL CLEANOUT ON HORIZONTAL PIPE
	HOSE BIBB/WALL HYDRANT
	CHECK VALVE - SWING TYPE
	QUARTER TURN VALVE
	GATE VALVE
	OS&Y GATE VALVE
	BALANCING VALVE
	WYE STRAINER
	PUMP
	MANUAL BALANCING VALVE
	FLOW DIRECTION
	BALL VALVE WITH HOSE CONNECTION
	BALL VALVE ON RISER
	FIXTURE/SPECIALTY/ACCESSORY TAG
	CONNECT TO EXISTING

EQUIPMENT ABBREVIATIONS	
BF	BOTTLE FILLER
BFP	BACKFLOW PREVENTER
COT	CLEANOUT TEE
ES	EMERGENCY SHOWER
ET	EXPANSION TANK
FCO	FLOOR CLEANOUT
GI	GREASE INTERCEPTOR
HS	HAND SINK
HY	WALL HYDRANT
LV	LAVATORY
LT	LAUNDRY TUB
MPS	MOP SINK
MV	MIXING VALVE
P	PUMP
S	SINK
SH	SHOWER VALVE
SP	SEWAGE PUMP
TD	TRENCH DRAIN
TMV	THERMOSTAT MIXING VALVE
TP	TRAP PRIMER
TV	TEMPERING VALVE
U	URINAL
VC	VENT CAP
WC	WATER CLOSET
WCO	WALL CLEANOUT
EWB	ELECTRIC WATER HEATER
WHA	WATER HAMMER ARRESTOR
WHYD	WALL HYDRANT
YH	YARD HYDRANT

NOTE: NOT ALL ABBREVIATIONS LISTED HERE ARE USED

PLUMBING SPECIALTIES SCHEDULE											
SYMBOL	MANUFACTURER/ MODEL NUMBER	DESCRIPTION	COMPONENTS AND ACCESSORIES	MOUNTING HEIGHT	REMARKS	SYMBOL	MANUFACTURER/ MODEL NUMBER	DESCRIPTION	COMPONENTS AND ACCESSORIES	MOUNTING HEIGHT	REMARKS
FCO-1	JR SMITH MODEL # 4020 SERIES	FLOOR CLEANOUT: CAST IRON BODY, ROUND ADJUSTABLE SCORIATED POLISHED BRONZE TOP, FLANGE GASKET INSIDE, CAULK OUTSIDE	VANDAL PROOF, BRONZE PLUG, COORDINATE ACCESSORIES WITH ARCHITECTURAL FLOORING	-	#1	TV-1	LEONARD MODEL # 991A-LF	THERMOSTATIC MIXING VALVE, PACKAGED THERMOSTATIC MIXING VALVE, TEMPERATURE REGULATORS, 3/4" INLETS, 3/4" OUTLET, 1/2" HWV PIPING, 14GPM @ 5PSI PRESSURE DROP	BRONZE BODY, INLET CHECK STOPS, 110 ° OUTLET TEMPERATURE	MAX 5'0" AFF	#3
FD-1	JR. SMITH MODEL # 2005	FLOOR DRAIN: CHROME PLATED BODY, FLASHING CLAMP, ADJUSTABLE NICKEL BRONZE STRAINER HEAD	PROVIDE WITH STANDARD TRAP.  VANDAL PROOF GRATE.  PROVIDE WITH JR SMITH 2692 QUAD CLOSE TRAP SEAL	-	#1	ET-1	AMTROL # ST-15 (THERM-X-TROL)	EXPANSION TANK: PRE-PRESSURIZED DIAPHRAGM TANK, 150 PSI, 2 GALLON, 0.45 ACCEPTANCE FACTOR	-	-	-
HB-1	WOODFORD MODEL #14	HOSE BIBB: WALL MOUNTED 18" AFF, TWO INDEPENDENT CHECK POWDER-COATED, DIE CAST ALUMINUM HANDLE ADJUSTABLE POLYCARBONATE WALL FLANGE	3/4" THREADED HOSE CONNECTION FREEZELESS WALL FAUCET 5 7/8" LENGTH VALVE STEM ASSEMBLY	18" ABOVE FLOOR	#3	RPZ-1	WATTS MODEL # 009-LF	REDUCED PRESSURE BACKFLOW PREVENTER, BRONZE OR CAST BODY W/ CORROSION RESISTANT INTERNAL PARTS AND SST CAPTURED SPRING CHECK ASSEMBLY	BRONZE BODY, QUARTER TURN, BALL TYPE SHUTOFF VALVES.	DOMESTIC WATER SERVICE ENTRY	#3
RB-1	GUY GRAY MODEL SSMIB6AB LISTED EQUALS IPS	REFRIGERATOR BOX: FULL PORT QUARTER TURN BALL VALVES WITH BUILT-IN HAMMER ARRESTORS AND STAINLESS STEEL TRIM	FULL PORT QUARTER TURN BALL VALVES WITH BUILT-IN HAMMER ARRESTORS AND STAINLESS STEEL TRIM	-	-	BFP-1	WATTS MODEL # 007-LF 1/2	BACKFLOW PREVENTER, BRONZE OR CAST BODY W/ CORROSION RESISTANT INTERNAL PARTS . LEAD FREE	BRONZE BODY, QUARTER TURN, BALL TYPE, BALL VALVE.	ACCESSIBLE LOCATION	-
REMARKS: 1. REFER TO FLOOR PLANS FOR SIZES 2. PROVIDE EACH HYDRANT WITH A LOOSE KEY, CONTRACTOR SHALL VERIFY WALL THICKNESS 3. PROVIDE ISOLATION VALVES AT THE SUPPLY PIPE CONNECTIONS											

PLUMBING FIXTURE CONNECTION SCHEDULE					
FIXTURE	WASTE CONNECTION	VENT CONNECTION	COLD WATER CONNECTION	HOT WATER CONNECTION	REMARKS
MOP SINK (MPS)	3"	1 1/2"	3/4"	3/4"	3
LAVATORY (LV)	1 1/2"	1 1/2"	1/2"	1/2"	1, 2, 3
SINK (S)	1 1/2"	3/4"	1/2"	1/2"	1, 2, 3
WATER CLOSET (WC)	4"	2"	1/2"	-	-
DRINKING FOUNTAIN (DF)	1 1/2"	1 1/4"	1/2"	-	1,2,3
REMARKS: 1. REFER TO ARCHITECTURAL DRAWINGS FOR MOUNTING HEIGHT 2. PIPE TRAP(S) SHALL BE CHROME PLATED BRASS 3. MINIMUM SANITARY PIPING BELOW GRADE SHALL BE 3"					

PLUMBING FIXTURE SCHEDULE	
TAG	DESCRIPTION
MPS-1	GENERAL: MOP SINK MAKE/MODEL: AMGOOD MODEL # MS-192212 DISCRPTION: 19IN X 22IN X 12IN SINK. BOWL DIMENSIONS ARE: 16IN X 19IN X 8IN. CONSTRUCTED FROM HIGH-QUALITY, 18 GAUGE, 304 SERIES STAINLESS STEEL FOR MAXIMUM CORROSION RESISTANCE. 3 1/2 IN STAINLESS DRAIN BASKET.
REFER TO ARCHITECT DRAWINGS FOR ALL PLUMBING FIXTURE SCHEDULES	

ELECTRIC WATER HEATER SCHEDULE											
SYMBOL	MANUFACTURER/ MODEL NUMBER	TYPE	LOCATION	FUEL TYPE	RECOVERY GPH	STORAGE CAP. (GAL)	THERMAL EFFICIENCY %	ELEC.			NOTES
								KW.	VOLT.	PHASE	
EWB-1	AO SMITH DEN-40	S	SEE PLANS	ELECTRIC	41	40	N/A	8	240V	1	1,2
<u>NOTE:</u> 1. ELECTRIC, GLASS LINED STEEL TANK, DUAL COPPER SCREW TYPE NON-SIMULTANEOUS IMMERSION ELEMENTS, SURFACE MOUNT THERMOSTATS, MANUAL RESET CUT-OFF, 1" NON-CFC FOAM INSTALLATION PER ASHRAE 90.1b, TOP WATER CONNECTIONS WITH DIELECTRIC FITTINGS, INTEGRAL HEAT TRAP, COLD WATER INLET SEDIMENT REDUCTION DEVICE, MAGNESIUM ANODE ROD, BRASS DRAIN VALVE, TEMPERATURE AND PRESSURE (T&P) RELIEF VALVE, CSA CERTIFIED LOW LEAD CONTENT, ETL LISTED 2. DUAL SIMULTANEOUS OPERATION, (2) 4KW ELEMENTS S= STORAGE											

PUMP SCHEDULE									
SYMBOL	MANUFACTURER/ MODEL NUMBER	TYPE	LOCATION	SYSTEM SERVED	CAPACITY (GPM)	CAPACITY FT OF HEAD	FLUID TEMP (F°)	ELEC. DATA	REMARKS
HWRP-1	BELL & GOSSETT ECOCIRC XL 55-45	IL	SEE PLANS	DOMESTIC HW RECIRC EWB-1	2.5	22.5'	110	0.111 HP	1,2
NOTES: IL = IN-LINE PUMP SP = SUBMERSIBLE PUMP REMARKS: 1. PUMP SHALL BE STAINLESS STEEL FOR DOMESTIC WATER USE. 2. PROVIDE WITH THERMOSTATIC MIXING VALVE (TMV-1)									

PIPE INSULATION SCHEDULE			
PIPING SYSTEM	TYPE	PIPE SIZE (INCHES)	THICK-NESS* (INCHES)
HOT WATER & RECIRCULATED HOT WATER	1	UNDER 1	1
		1 TO 1-1/4	1
		1-1/2 TO 3	1-1/2
		4 TO 6	1-1/2
		OVER 6	1-1/2
COLD WATER	1, 2	ALL	1/2
COOLING COIL CONDENSATE	2	UNDER 1	1/2
		1 TO 1-1/4	1/2
		1-1/2 TO 3	1
TYPE 1: MOLDED GLASS FIBER, ALL SERVICE JACKET TYPE 2: MOLDED ELASTOMERIC			
* FOR PIPING SMALLER THAN 1-1/2" LOCATED IN PARTITIONS WITHIN CONDITIONED SPACES, THICKNESS MAY BE REDUCED BY 1", EXCEPT MINIMUM 1" THICKNESS			

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CONSTRUCTION DOCUMENTS

PLUMBING ABBREVIATIONS & SYMBOLS
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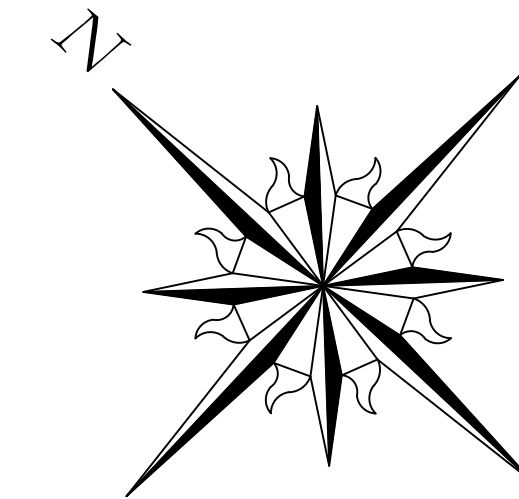
VILLA  
FINALE

~ P0.0 ~

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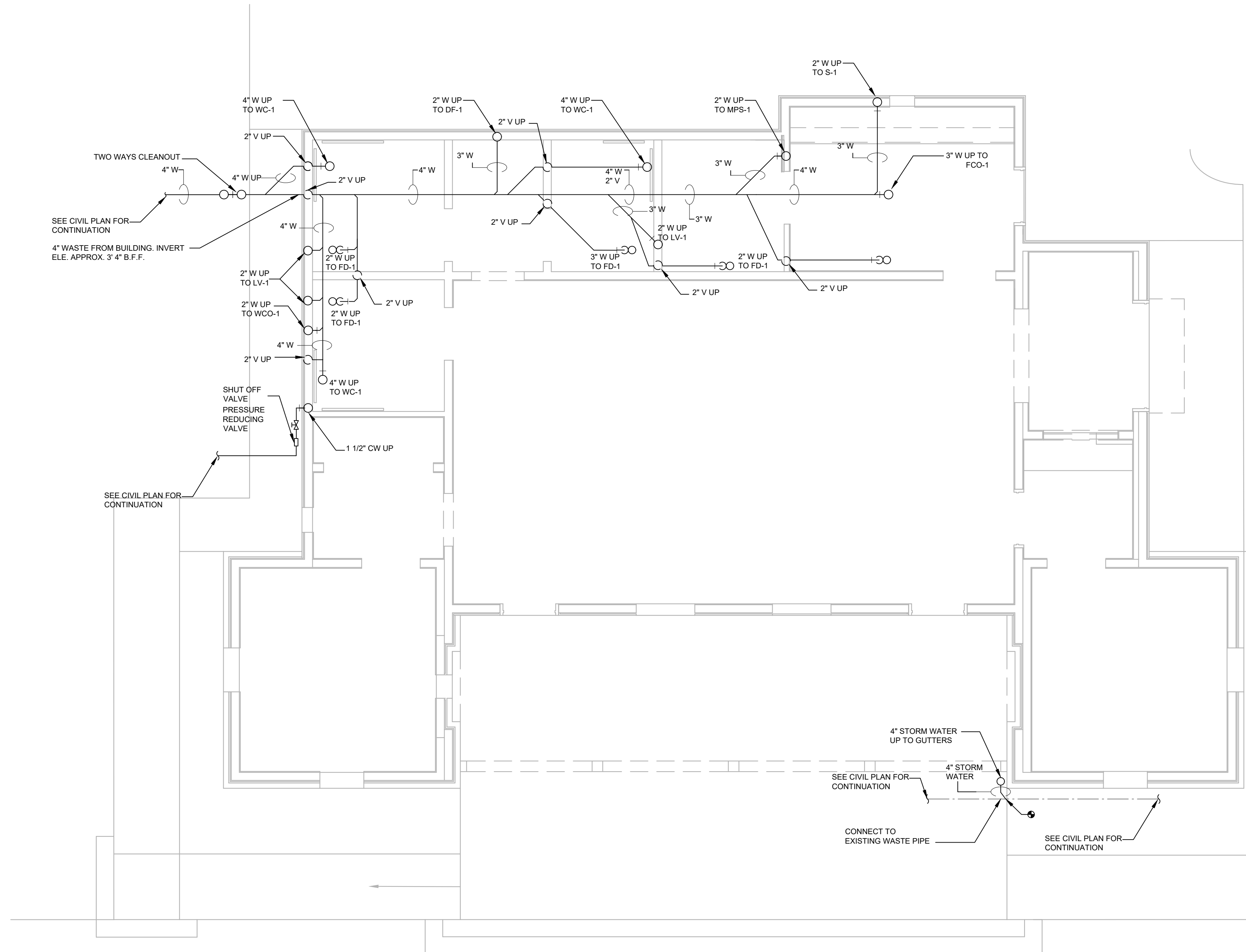




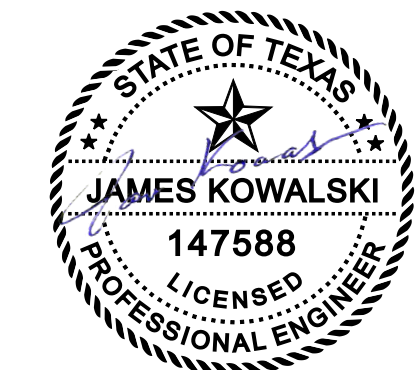
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1 PLUMBING UNDER SLAB PLAN  
1/4" = 1'-0"



CONSTRUCTION DOCUMENTS

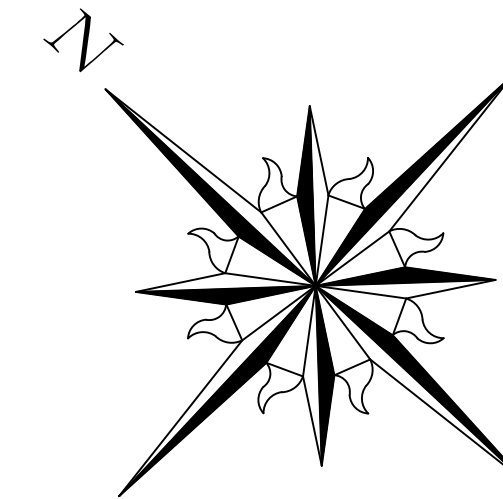
PLUMBING UNDER  
SLAB PLAN

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VILLA  
FINALE

~ P1.0 ~

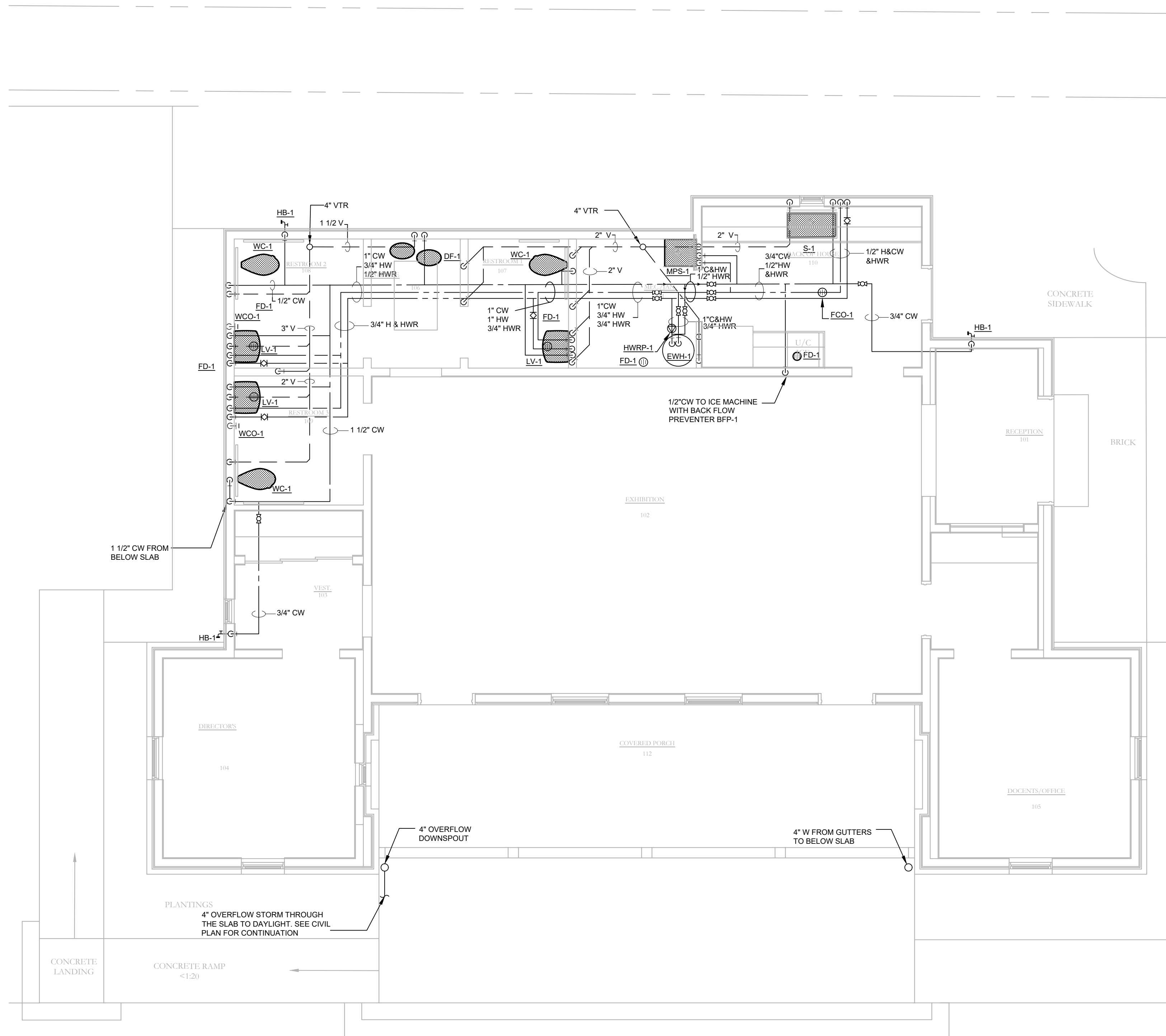
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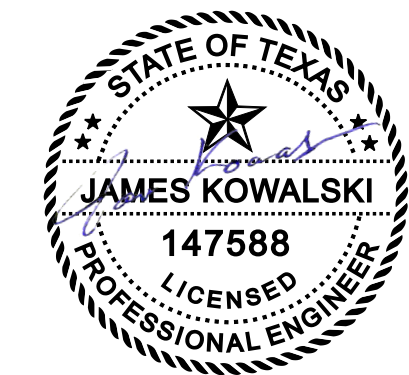
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1 PLUMBING ABOVE SLAB PLAN  
1/4" = 1'-0"



CONSTRUCTION DOCUMENTS

PLUMBING ABOVE  
SLAB PLAN

08/25/2023: 100 % CD CHECK SET  
04/23/2024: 100 % CD

VILLA  
FINALE

~ P1.1 ~

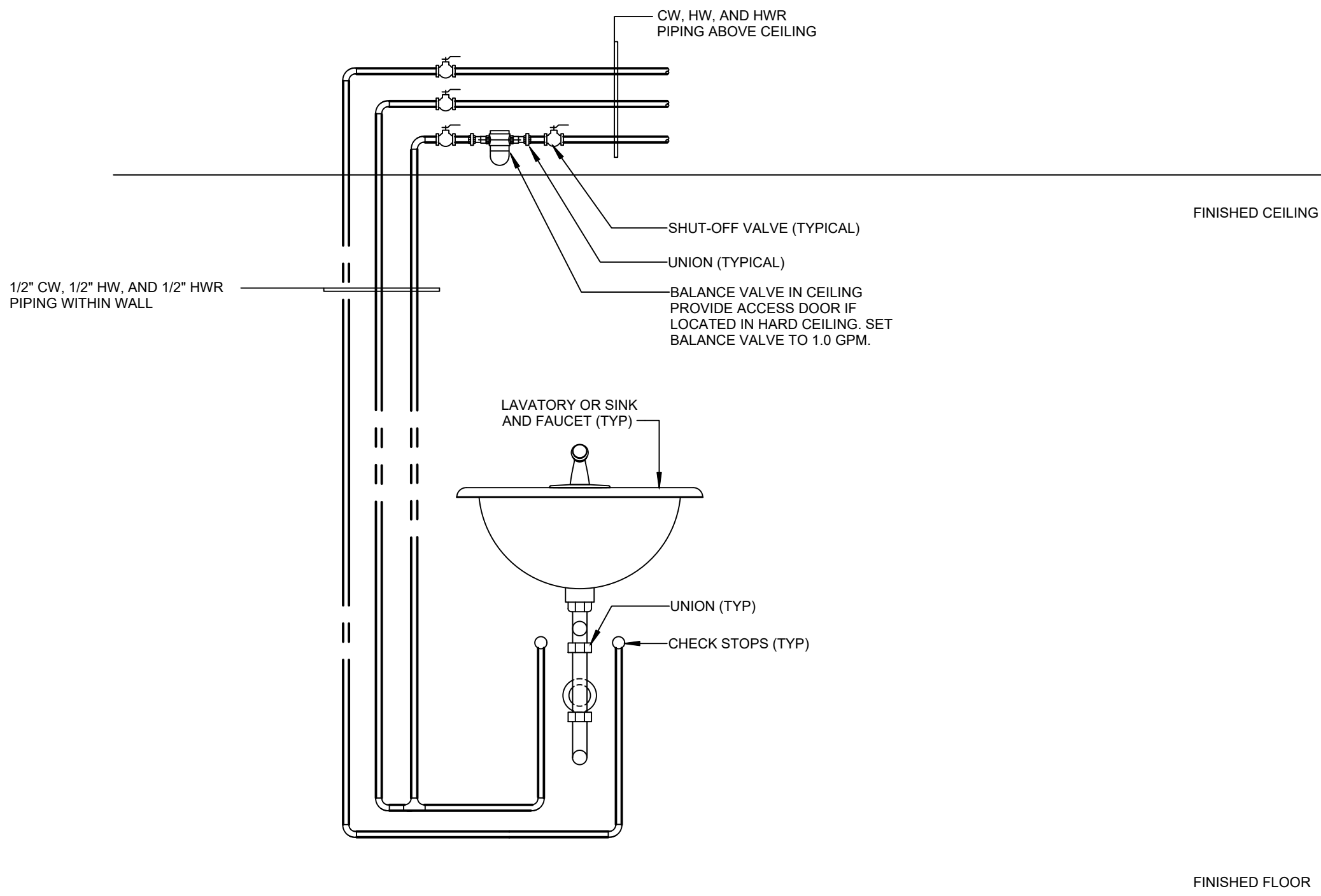
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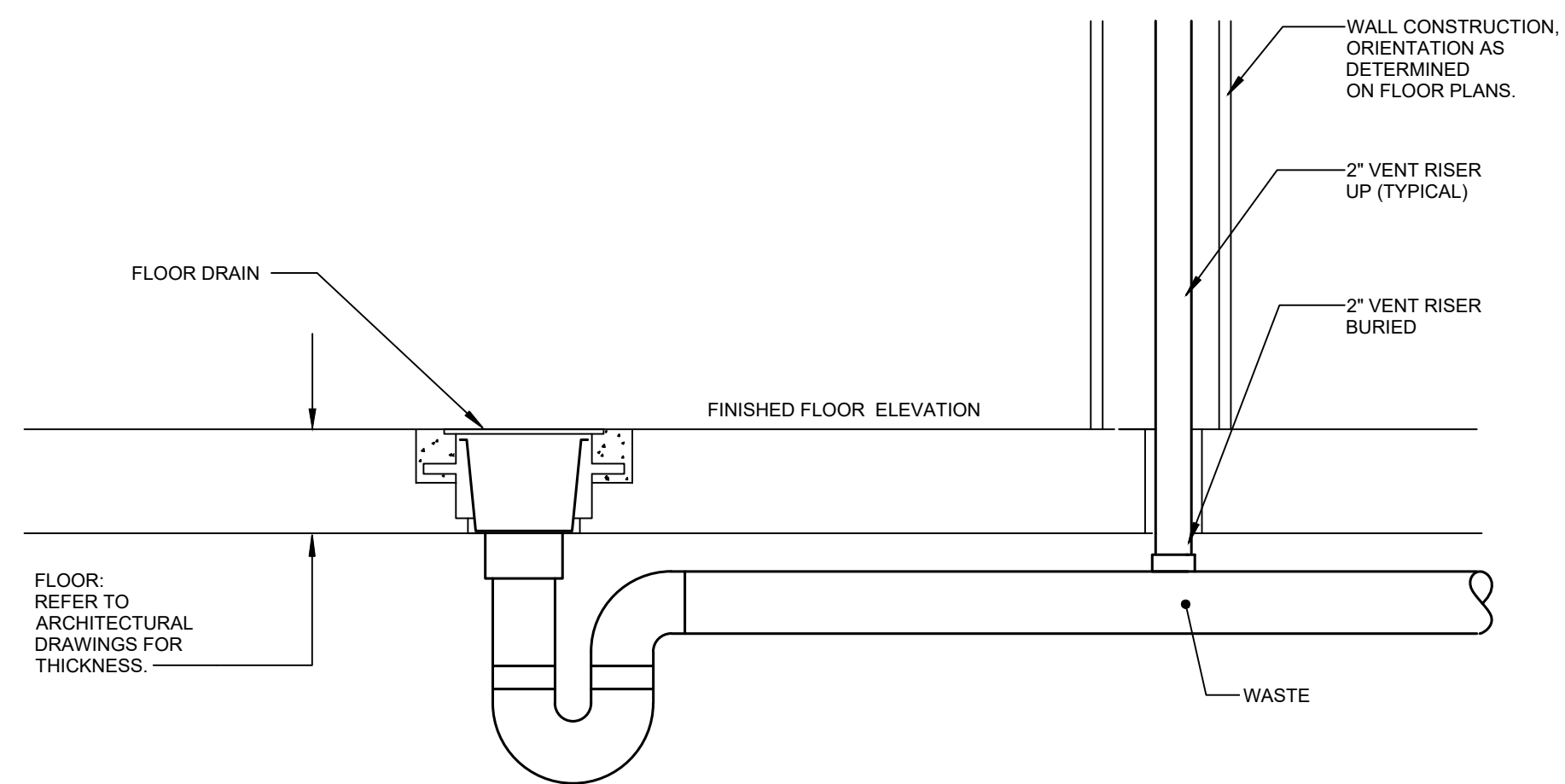
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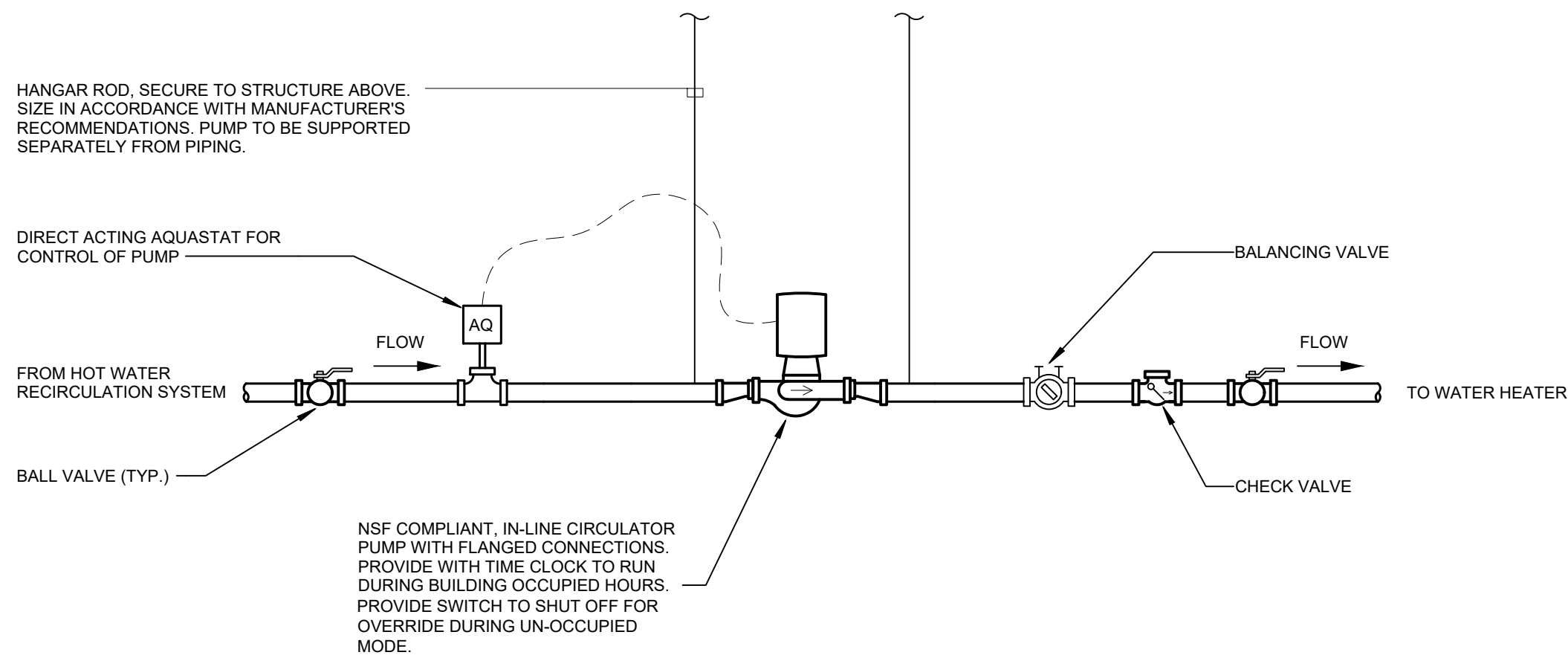


NOTE:  
THIS DETAIL IS INTENDED TO SHOW THE GENERAL INTENT OF THE HOT WATER CIRCULATION PIPING TO A FIXTURE. NOT ALL FIXTURE REQUIREMENTS, FITTINGS AND DEVICES ARE SHOWN.

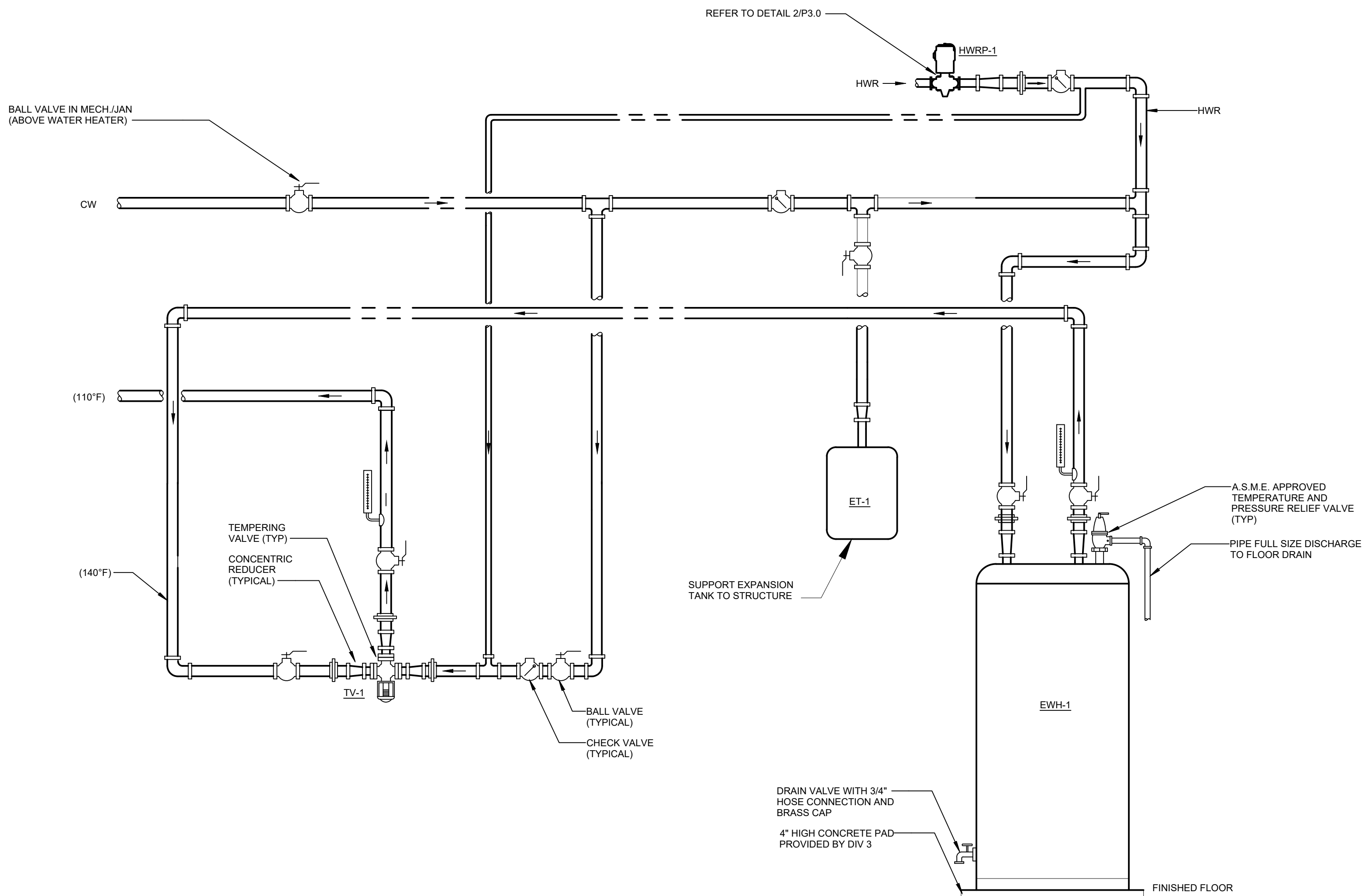
**1** TYPICAL SINGLE LAVATORY AND SINK PIPING DETAIL  
SCALE: NONE



**3** FLOOR DRAIN DETAIL  
SCALE: NONE



**2** IN-LINE PUMP DETAIL  
SCALE: NONE



GENERAL NOTE:  
1. COORDINATE HOT WATER RECIRCULATION PIPING INSTALLATION PER THERMOSTATIC MIXING VALVE MANUFACTURERS INSTALLATION INSTRUCTION. HWR PIPING CONFIGURATION IS INDICATED FOR REFERENCE ONLY.  
2. INSTALL EXPANSION TANK PIPING INSTALLATION PER EXPANSION TANK MANUFACTURERS INSTALLATION INSTRUCTION. EXPANSION TANK PIPING CONFIGURATION IS INDICATED FOR REFERENCE ONLY.

**4** WATER HEATER DETAIL  
SCALE: NONE



22 00 00 - GENERAL

A. DRAWINGS AND GENERAL PROVISIONS OF CONTRACT, INCLUDING GENERAL AND SUPPLEMENTARY CONDITIONS AND DIVISION 1 SPECIFICATION SECTIONS, APPLY TO THIS SECTION.

B. THESE SPECIFICATIONS ARE APPLICABLE TO ALL PLUMBING DRAWINGS UNLESS NOTED OTHERWISE. REVIEW THE ARCHITECTURAL, STRUCTURAL, MECHANICAL, ELECTRICAL, PLUMBING DRAWINGS FOR NOTES, DIMENSIONS, ETC., AND COORDINATE WITH OTHER TRADES INVOLVED.

C. THIS SECTION APPLIES TO ALL DIVISION 22 SPECIFICATION SECTIONS, WHERE THERE ARE DIFFERENCES OR DISCREPANCIES BETWEEN THIS SPECIFICATION SECTION AND OTHER DIVISION 22 SPECIFICATION SECTIONS, THE MORE STRINGENT REQUIREMENT(S) SHALL APPLY.

D. DESCRIPTION

1. SCOPE OF WORK CONSISTS OF INSTALLATION OF MATERIALS TO BE FURNISHED UNDER THE CONTRACT DOCUMENTS AND WITHOUT LIMITING GENERALITY THEREOF CONSISTS OF FURNISHING LABOR, MATERIALS, EQUIPMENT, HOISTING, TRANSPORTATION, RIGGING, STAGING, APPURTENANCES, AND SERVICES NECESSARY AND/OR INCIDENTAL TO PROPERLY COMPLETE ALL WORK AS SHOWN ON THE DRAWINGS AND DESCRIBED HEREIN.

E. DEFINITIONS: THE FOLLOWING DEFINITIONS APPLY TO THIS CONTRACT

1. FURNISH: THE TERM "FURNISH" MEANS TO "SUPPLY AND DELIVER TO THE PROJECT SITE, READY FOR UNLOADING, UNPACKING, ASSEMBLY, INSTALLATION, AND SIMILAR OPERATIONS"

2. INSTALL: THE TERM "INSTALL" IS USED TO DESCRIBE OPERATIONS AT PROJECT SITE INCLUDING THE ACTUAL UNLOADING, ASSEMBLY, ERECTION, PLACING, ANCHORING, APPLYING, WORKING TO DIMENSION, FINISHING, CURING, PROTECTING, CLEANING, AND SIMILAR OPERATIONS.\*

3. PROVIDE: THE TERM "PROVIDE" MEANS "TO FURNISH AND INSTALL, COMPLETE AND READY FOR THE INTENDED USE"

4. REMOVE: THE TERM "REMOVE" MEANS TO DISCONNECT FROM ITS PRESENT POSITION, REMOVE FROM THE PREMISES AND TO DISPOSE OF IN A LEGAL MANNER.\*

5. SUBSTITUTIONS: "SUBSTITUTIONS" ARE REQUESTS FOR CHANGES IN PRODUCTS, MATERIALS AND/OR METHODS OF CONSTRUCTION AS PROPOSED BY THE CONTRACTOR AFTER AWARD OF THE CONTRACT.\*

F. DRAWINGS

1. DRAWINGS ARE DIAGRAMMATIC: THE FINAL PLACEMENT OF EQUIPMENT OR DEVICES IN THE FIELD MAY NOT DIRECTLY CORRESPOND TO THAT WHICH IS SHOWN ON THE DRAWINGS. THOUGH SOME OFFSETS & TRANSITIONS MAY BE SHOWN IN PIPING TO HELP INDICATE THE PHYSICAL RELATIONSHIP BETWEEN THEM, IT IS NOT THE INTENT OF THE DRAWINGS TO SHOW ALL PIPING OFFSETS & TRANSITIONS REQUIRED. THE CONTRACTOR SHALL FULLY COORDINATE THE WORK AND PROVIDE ALL MATERIALS, EQUIPMENT AND LABOR NECESSARY TO COMPLETE THE WORK OUTLINED ON THESE CONTRACT DOCUMENTS. IF A CONFLICT IN POSITIONING OCCURS THE CONTRACTOR IS TO NOTIFY THE ENGINEER IMMEDIATELY TO ASCERTAIN WHAT THE INTENT WAS BY THE DESIGN PROFESSIONAL.

G. CODES AND STANDARDS: WORK SHALL CONFORM TO THE CURRENT EDITIONS OF THE FOLLOWING:

- INTERNATIONAL BUILDING CODE
- INTERNATIONAL PLUMBING CODE
- INTERNATIONAL MECHANICAL CODE
- NATIONAL ELECTRIC CODE (NFPA 70)
- THE LIFE SAFETY CODE (NFPA 101)

H. PERMITS AND FEES:

1. THE CONTRACTOR SHALL GIVE ALL NECESSARY NOTICES, OBTAIN ALL PERMITS, AND PAY ALL GOVERNMENT AND STATE SALES TAXES AND FEES WHERE APPLICABLE, AND OTHER COSTS, INCLUDING UTILITY CONNECTIONS OR EXTENSIONS IN CONNECTION WITH THE WORK, FILE ALL NECESSARY DRAWINGS, PREPARE ALL DOCUMENTS AND OBTAIN ALL NECESSARY APPROVALS OF ALL GOVERNMENTAL AND STATE DEPARTMENTS HAVING JURISDICTION, OBTAIN ALL REQUIRED CERTIFICATES OF INSPECTION FOR HIS WORK, AND DELIVER A COPY TO THE OWNER AND ENGINEER BEFORE REQUEST FOR ACCEPTANCE AND FINAL PAYMENT FOR THE WORK.

I. SURVEY AND MEASUREMENTS

1. CONTRACTORS BY SUBMITTING A BID, SHALL BE COMPLETELY FAMILIAR WITH THE CONDITION OF THE BUILDING SITE AS IT INFLUENCES THE WORK DESCRIBED. NO COMPENSATION WILL BE GRANTED FOR ADDITIONAL WORK CAUSED BY UNFAMILIARITY WITH SITE CONDITIONS THAT ARE VISIBLE OR READILY IDENTIFIED BY EXPERIENCED OBSERVERS.

2. DO NOT SCALE DRAWINGS. SCALE INDICATED ON DRAWINGS IS FOR ESTABLISHING REFERENCE POINTS ONLY. ACTUAL FIELD CONDITIONS SHALL GOVERN ALL DIMENSIONS.

3. PRIOR TO ORDERING ANY MATERIALS AND EQUIPMENT, THOROUGHLY REVIEW THE SITE CONDITIONS TO DETERMINE IF ADEQUATE CLEARANCES AND ACCESS IS ALLOWED TO INSTALL THE COMPONENTS. ORDER EQUIPMENT BROKEN DOWN AS NECESSARY TO ALLOW FOR PROPER RIGGING THROUGH THE PROJECT AREA. PROVIDE ALL NECESSARY ALTERATIONS TO THE STRUCTURE OF THE BUILDING AS NECESSARY TO RIG THE EQUIPMENT IN PLACE.

J. SUBMITTALS AND SHOP DRAWINGS

1. SUBMIT FOR REVIEW, ELECTRONIC SHOP DRAWINGS IN SEARCHABLE PDF FORMAT FOR THE FOLLOWING:

a. SUBMITTAL DATA FOR ALL MATERIAL AND EQUIPMENT. CLEARLY IDENTIFY DEVIATIONS OF THE SUBMITTED PRODUCTS FROM THE DESIGN.

b. SHOP DRAWINGS: DRAWN TO ACCURATE SCALE OF 1/4" =1'-0" HIGHLIGHT, ENCIRCLE, OR OTHERWISE INDICATE DEVIATIONS FROM THE CONTRACT DOCUMENTS. DO NOT REPRODUCE CONTRACT DOCUMENTS OR COPY STANDARD INFORMATION AS THE BASIS OF SHOP DRAWINGS. STANDARD INFORMATION PREPARED WITHOUT SPECIFIC REFERENCE TO THE PROJECT IS NOT CONSIDERED SHOP DRAWINGS.

2. DO NOT USE SHOP DRAWINGS WITHOUT AN APPROPRIATE FINAL STAMP INDICATING ACTION TAKEN IN CONNECTION WITH CONSTRUCTION.

3. DO NOT ORDER ANY MATERIALS OR EQUIPMENT PRIOR TO RECEIVING FINAL APPROVED SUBMITTALS.

4. SCHEDULE AT LEAST TEN WORKING DAYS EXCLUSIVE OF TRANSMITTAL TIME, FOR SUBMITTAL REVIEW.

K. AS-BUILT DRAWINGS

A. MAINTAIN ONE SET OF PRINTS ON THE SITE AND NOTE ALL CHANGES OR DEVIATIONS FROM THE ORIGINAL DESIGN THEREON. AT THE COMPLETION OF THE PROJECT, INCORPORATE ALL CHANGES INTO RECORD AS-BUILT DRAWINGS IN ELECTRONIC FORMAT AND SUBMIT FOR APPROVAL.

L. OPERATION AND MAINTENANCE

1. UPON COMPLETION OF ALL WORK AND TESTS, THE CONTRACTOR SHALL INSTRUCT THE OWNER OR THE OWNER'S REPRESENTATIVE IN THE OPERATION, ADJUSTMENT AND MAINTENANCE OF ALL EQUIPMENT FURNISHED. THE CONTRACTOR SHALL GIVE AT LEAST SEVEN (7) DAYS NOTICE TO THE OWNER AND THE ENGINEER IN ADVANCE OF THIS PERIOD.

2. THE CONTRACTOR SHALL PREPARE THREE (3) COPIES OF A COMPLETE OPERATION AND MAINTENANCE MANUAL, BOUND IN BOOKLET FORM. ORGANIZE OPERATING AND MAINTENANCE DATA INTO SUITABLE SETS OF MANAGEABLE SIZE. BIND PROPERLY INDEXED DATA IN INDIVIDUAL HEAVY-DUTY 3-RING VINYL-COVERED BINDERS, WITH POCKET FOLDERS FOR FOLDED SHEET INFORMATION AND DESIGNATION PARTITIONS WITH IDENTIFICATION TABS. MARK APPROPRIATE IDENTIFICATION ON FRONT AND SPINE OF EACH BINDER.

3. MAINTENANCE AND INSTRUCTION MANUALS SHALL BE SUBMITTED TO THE OWNER AT THE SAME TIME AS THE SEVEN (7) DAY NOTICE IS GIVEN PRIOR TO THE INSTRUCTION PERIOD.

M. CLEANING

1. EQUIPMENT: AFTER COMPLETION OF PROJECT, CLEAN THE EXTERIOR SURFACE OF EQUIPMENT INCLUDED IN THIS SECTION, INCLUDING REMOVAL OF CONCRETE RESIDUE.

2. WORK AREA: AFTER COMPLETION OF PROJECT, REMOVE ALL CONSTRUCTION DEBRIS, TEMPORARY FACILITIES AND EQUIPMENT FROM WORK AREA. CLEAN WORK AREA TO PERMIT OCCUPATION.

3. DOMESTIC WATER PIPING: PRIOR TO STARTING WORK, VERIFY SYSTEM IS COMPLETE, FLUSHED AND CLEANED. ENSURE ACIDITY (pH) OF WATER TO BE TREATED IS BETWEEN 7.4 AND 7.6 BY ADDING ALKALI (CAUSTIC SODA OR SODA ASH) OR ACID (HYDROCHLORIC). INJECT DISINFECTANT, FREE CHLORINE IN LIQUID, POWDER, TABLET OR GAS FORM, THROUGHOUT SYSTEM TO OBTAIN 50 TO 80 mg/L RESIDUAL. BLEED WATER FROM OUTLETS TO ENSURE DISTRIBUTION AND TEST FOR DISINFECTANT RESIDUAL AT MINIMUM 15 PERCENT OF OUTLETS. MAINTAIN DISINFECTANT IN SYSTEM FOR 24 HOURS. IF FINAL DISINFECTANT RESIDUAL TESTS LESS THAN 25 mg/L, REPEAT TREATMENT. FLUSH DISINFECTANT FROM SYSTEM UNTIL RESIDUAL EQUAL TO THAT OF INCOMING WATER OF 1.0 mg/L. TAKE SAMPLES NO SOONER THAN 24 HOURS AFTER FLUSHING, FROM 10 PERCENT OF OUTLETS AND FROM WATER ENTRY, AND ANALYZE IN ACCORDANCE WITH AWWA C651.

N. GUARANTEE

1. GUARANTEE WORK OF THESE CONTRACT DOCUMENTS IN WRITING FOR NOT LESS THAN ONE (1) YEAR FROM DATE OF FINAL NOTICE OF ACCEPTANCE. REPAIR OR REPLACE DEFECTIVE MATERIALS, EQUIPMENT, WORKMANSHIP AND INSTALLATION THAT DEVELOP WITHIN THIS PERIOD, PROMPT AND TO OWNER'S SATISFACTION AND CORRECT DAMAGE CAUSED IN MAKING NECESSARY REPAIRS AND REPLACEMENTS UNDER GUARANTEE WITHIN CONTRACT PRICE.

O. MEANS AND METHODS

1. INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

2. DO NOT BURN WASTE MATERIALS. DO NOT BURY DEBRIS OR EXCESS MATERIALS ON THE OWNER'S PROPERTY. DO NOT DISCHARGE VOLATILE, HARMFUL OR DANGEROUS MATERIALS INTO DRAINAGE SYSTEMS. REMOVE AND DISPOSE OF ALL WASTE MATERIALS, PACKAGING MATERIAL, SKIDS ETC. FROM THE SITE AND DISPOSE OF IN A LAWFUL MANNER IN ACCORDANCE WITH MUNICIPAL, STATE AND FEDERAL REGULATIONS.

3. MATERIALS AND EQUIPMENT SHALL BE UL LISTED WHERE STANDARD HAS BEEN ESTABLISHED.

4. CAREFULLY INSPECT ALL BUILDING ELEMENTS PRIOR TO CUTTING OR DRILLING INTO WALL, FLOORS OR CEILINGS. PATCH AND PAINT SURFACES DISTURBED BY WORK UNDER THIS CONTRACT AS REQUIRED TO RESTORE THEM TO THEIR ORIGINAL CONDITION.

5. SCAFFOLDING, RIGGING, HOISTING: THE CONTRACTOR SHALL FURNISH ALL SCAFFOLDING, RIGGING, HOISTING AND SERVICES NECESSARY FOR ERECTION AND DELIVERY INTO THE PREMISES ANY EQUIPMENT AND APPARATUS FURNISHED UNDER THIS DIVISION. REMOVE SAME FROM PREMISES WHEN NO LONGER REQUIRED.

6. EXCAVATION AND BACKFILLING: IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE SIZES, DEPTHS, FILL AND BEDDING REQUIREMENTS AND ANY OTHER EXCAVATION WORK REQUIRED UNDER THESE SPECIFICATIONS.

7. WATERPROOFING: WHERE ANY WORK PIERCES WATERPROOFING, INCLUDING WATERPROOF CONCRETE, ROOFS, EXTERIOR WALL AND FLOORS IN WET AREAS, THE METHOD OF INSTALLATION SHALL BE REVIEWED BY THE ENGINEER BEFORE WORK IS DONE. THE CONTRACTOR SHALL FURNISH ALL NECESSARY SLEEVES, CAULKING AND FLASHING REQUIRED TO MAKE OPENINGS ABSOLUTELY WATERTIGHT.

8. PROVIDE FIRESTOPPING AROUND PLUMBING PENETRATIONS THROUGH FIRE RATED PARTITIONS. PROVIDE ASBESTOS FREE FIRESTOPPING SYSTEM CAPABLE OF MAINTAINING AN EFFECTIVE BARRIER AGAINST FLAME AND GASES. SYSTEM SHALL BE UL LISTED AND COMPLY WITH ASTM E 814. REFER TO ARCHITECTURAL DRAWINGS FOR RATINGS OF ASSEMBLIES.

9. PROVIDE ACCESS PANELS IN WALLS, FLOORS AND GYPSUM WALL BOARD CEILINGS TO ALLOW ACCESS TO VALVES AND OTHER APPARATUS AND EQUIPMENT REQUIRING PERIODIC SERVICE AND INSPECTION. NOT ALL ACCESS PANELS ARE INDICATED ON THE PLANS. REVIEW ARCHITECTURAL AND PLUMBING PLANS TO DETERMINE THE LOCATION AND QUANTITY OF ACCESS PANELS REQUIRED. COORDINATE TYPE AND LOCATION WITH ARCHITECTURAL PLANS.

22 05 00 - COMMON WORK RESULTS FOR PLUMBING

A. IDENTIFICATION FOR PIPING AND EQUIPMENT:

1. MANUFACTURERS: CRAFTMARK IDENTIFICATION SYSTEMS, SAFETY SIGN CO., SETON IDENTIFICATION PRODUCTS, NORTH TOWN, KOLBI. SUBSTITUTIONS: DIVISION 01 GENERAL - REQUIREMENTS AND 22 04 00 - GENERAL REQUIREMENTS.

2. PLASTIC NAMEPLATES: LAMINATED THREE-LAYER PLASTIC WITH ENGRAVED BLACK LETTERS ON LIGHT BACKGROUND COLOR.

3. TAGS

a. PLASTIC TAGS: LAMINATED THREE-LAYER PLASTIC WITH ENGRAVED BLACK LETTERS ON LIGHT BACKGROUND COLOR, MINIMUM 1-1/2 INCHES DIAMETER.

b. METAL TAGS: ALUMINUM WITH STAMPED LETTERS; TAG SIZE MINIMUM 1-1/2 INCHES DIAMETER WITH FINISHED EDGES.

c. INFORMATION TAGS: CLEAR PLASTIC WITH PRINTED "DANGER," "CAUTION," OR "WARNING" AND MESSAGE; SIZE 3-1/4 X 5-5/8 INCHES WITH GROMMET AND SELF-LOCKING NYLON TIES.

d. TAG CHART: TYPEWRITTEN LETTER SIZE LIST OF APPLIED TAGS AND LOCATION IN ANODIZED ALUMINUM FRAME.

4. PIPE MARKERS

a. COLOR AND LETTERING TO CONFORM TO ASME A13.1.

b. PLASTIC PIPE MARKERS: FACTORY FABRICATED, FLEXIBLE, SEMI-RIGID PLASTIC, PREFORMED TO FIT AROUND PIPE OR PIPE COVERING. LARGER SIZES MAY HAVE MAXIMUM SHEET SIZE WITH SPRING FASTENER. MINIMUM INFORMATION INDICATING FLOW DIRECTION ARROW AND IDENTIFICATION OF FLUID BEING CONVEYED.

c. PLASTIC TAPE PIPE MARKERS: FLEXIBLE, VINYL FILM TAPE WITH PRESSURE SENSITIVE ADHESIVE BACKING AND PRINTED MARKINGS.

d. PLASTIC UNDERGROUND PIPE MARKERS: BRIGHT COLORED CONTINUOUSLY PRINTED PLASTIC RIBBON TAPE, MINIMUM 6 INCHES WIDE BY 4 MIL THICK, MANUFACTURED FOR DIRECT BURIAL SERVICE. TRACE WIRE: MAGNETIC DETECTABLE CONDUCTOR, BRIGHTLY COLORED PLASTIC COVERING, IMPRINTED WITH COLOR CODE AS FOLLOWS (IF APPLICABLE):

1. POTABLE, COOLING, OTHER WATER: GREEN WITH WHITE LETTERS.

5. CEILING TACKS

a. DESCRIPTION: STEEL WITH 3/4 INCH DIAMETER COLOR-CODED HEAD.

b. COLOR CODE AS FOLLOWS: PLUMBING VALVES: GREEN.

6. LABELS

a. DESCRIPTION: POLYESTER FOR ABOVE GRADE AND LAMINATED MYLAR FOR BELOW GRADE. SIZE: 1.9 X 0.75 INCHES, ADHESIVE BACKED WITH PRINTED IDENTIFICATION.

SLEEVES

1. MANUFACTURERS: FLEXICRAFT INDUSTRIES; PIPE WALL SLEEVE, METRAFLEX; PIPE WALL SLEEVE, COI PIPELINE; PIPE WALL SLEEVE, OPT - CENTURYLINE SLEEVE SERIES, OPT/THUNDERLINE LINK-SEAL, INC, METRAFLEX - METRASL, BHM - PIPE SEAU PS SERIES, SUBSTITUTIONS: SEE DIVISION 01 - GENERAL REQUIREMENTS AND 22 04 00 - GENERAL REQUIREMENTS.

2. VERTICAL PIPING:

a. SLEEVE LENGTH: 1 INCH ABOVE FINISHED FLOOR.

b. BLOCKED OUT FLOOR OPENINGS: PROVIDE 1-1/2 INCH ANGLE SET IN SILICON ADHESIVE AROUND OPENING.

c. DRILLED PENETRATIONS: PROVIDE 1-1/2 INCH ANGLE RING OR SQUARE SET IN SILICONE ADHESIVE AROUND PENETRATION.

3. SHEET METAL: PIPE PASSING THROUGH INTERIOR WALLS, PARTITIONS, AND FLOORS, UNLESS STEEL OR BRASS SLEEVES ARE SPECIFIED BELOW.

4. PIPE PASSING THROUGH BELOW GRADE OR EXTERIOR WALLS:

a. ANCHORED SLEEVE - ZINC COATED OR CAST IRON PIPE.

b. PROVIDE WATERTIGHT SPACE WITH LINK RUBBER OR MODULAR SEAL BETWEEN SLEEVE AND PIPE ON BOTH PIPE ENDS.

5. CLEARANCES:

a. PROVIDE ALLOWANCE FOR INSULATED PIPING.

b. WALL, FLOOR, FLOOR, PARTITIONS, AND BEAM FLANGES: 1 INCH GREATER THAN EXTERNAL; PIPE DIAMETER.

c. ALL RATED OPENINGS: CAULKED TIGHT WITH FIRE STOPPING MATERIAL CONFORMING TO HYPERLINK "HTTP://GLOBAL.IHS.COM/DOC\_DETAIL.CFM?RID=BS&DOCUMENT\_NAME=ASTM E814" ASTM E814-13A IN ACCORDANCE WITH DIVISION 07 THERMAL AND MOISTURE PROTECTION TO PREVENT THE SPREAD OF FIRE, SMOKE, AND GASES.

6. SLEEVES FOR PIPES THROUGH NON-FIRE RATED FLOORS: 18 GAGE THICK GALVANIZED STEEL.

7. SLEEVES FOR PIPES THROUGH NON-FIRE RATED WALLS, AND POTENTIALLY WET FLOORS: STEEL PIPE OR 18 GAGE THICK GALVANIZED STEEL.

8. SEALANT: REFER TO DIVISION 07 THERMAL AND MOISTURE PROTECTION.

9. MECHANICAL SLEEVE SEALS

a. PRODUCT DESCRIPTION: MODULAR MECHANICAL TYPE, CONSISTING OF INTERLOCKING SYNTHETIC NITRILE RUBBER LINKS SHAPED TO CONTINUOUSLY FILL ANNULAR SPACE BETWEEN OBJECT AND SLEEVE, CONNECTED WITH BOLTS AND PRESSURE PLATES CAUSING RUBBER SEALING ELEMENTS TO EXPAND WHEN TIGHTENED, PROVIDING WATERTIGHT SEAL AND ELECTRICAL INSULATION.

b. PROVIDE NSF 61 CERTIFIED ASSEMBLY WHEN USED IN POTABLE WATER STORAGE TANK APPLICATIONS.

C. GENERAL INSTALLATION REQUIREMENTS FOR PLUMBING

1. CONNECTIONS BETWEEN COPPER & STEEL PIPING SHALL BE MADE WITH DIELECTRIC WATERWAYS, WITH BRONZE BODY VALVES, OR WITH BRASS ADAPTER FITTINGS.

2. PREPARATION

a. REAM PIPE AND TUBE ENDS. REMOVE BURRS, BEVEL OR GROOVE PLAIN END FERROUS PIPE.

b. REMOVE SCALE AND DIRT ON INSIDE AND OUTSIDE BEFORE ASSEMBLY.

c. PREPARE PIPING CONNECTIONS TO EQUIPMENT WITH FLANGES OR UNIONS.

d. KEEP OPEN ENDS OF PIPE FREE FROM SCALE AND DIRT. PROTECT OPEN ENDS WITH TEMPORARY PLUGS OR CAPS.

e. AFTER COMPLETION, FILL, CLEAN, AND TREAT SYSTEM.

INSTALLATION REQUIREMENTS FOR PLUMBING PIPING

1. INSTALL PIPING IN ACCORDANCE WITH ALL APPLICABLE PLUMBING CODES, ASME B31.1, AND ASME B31.9 AS APPLICABLE.

2. ROUTE PIPING PARALLEL TO BUILDING STRUCTURE AND MAINTAIN GRADIENT.

3. INSTALL PIPING TO CONSERVE BUILDING SPACE, AND NOT INTERFERE WITH USE OF SPACE.

4. GROUP PIPING WHENEVER PRACTICAL AT COMMON ELEVATIONS.

5. SLEEVE PIPE PASSING THROUGH PARTITIONS, WALLS AND FLOORS.

6. INSTALL FIRESTOPPING AT PENETRATIONS OF RATED ASSEMBLIES. REFER TO ARCHITECTURAL DRAWINGS FOR LOCATIONS AND RATINGS OF RATED ASSEMBLIES.

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

8. PROVIDE ACCESS WHERE VALVES AND FITTINGS ARE NOT EXPOSED.

9. SLOPE DOMESTIC WATER PIPING AND ARRANGE SYSTEMS TO DRAIN AT LOW POINTS. USE ECCENTRIC REDUCERS TO MAINTAIN TOP OF PIPE ALIGNED.

10. WHERE PIPE SUPPORT MEMBERS ARE WELDED TO STRUCTURAL BUILDING FRAMING, SCRAPE, BRUSH CLEAN, AND APPLY ONE COAT OF ZINC RICH PRIMER TO WELDS.

11. PREPARE UNFINISHED PIPE, FITTINGS, SUPPORTS, AND ACCESSORIES, READY FOR FINISH PAINTING.

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

TESTING

1. TEST PIPING IN ACCORDANCE WITH ALL APPLICABLE PLUMBING CODES, ASME B31.1 AND ASME B31.9, AS APPLICABLE.

22 05 29 - HANGERS AND SUPPORTS

PROVIDE PIPE STANDS, SUPPORTS, HANGERS AND OTHER SUPPORTING APPLIANCES AS NECESSARY TO SUPPORT WORK REQUIRED BY CONTRACT DOCUMENTS. SPACING OF HANGERS SHALL BE INSTALLED IN ACCORDANCE WITH APPLICABLE BUILDING AND MECHANICAL CODES. STRUCTURAL STEEL SUPPORTS, HANGERS, ETC. SHALL BE ANGLE IRON, STEEL CHANNEL OR STEEL ROD USED WITH APPROVED CLAMPS, INSERTS, ETC. ALL SUPPORTS, HANGERS, BRACKETS, ETC., SHALL BE AS APPROVED BY THE ENGINEER.

ALL HANGERS SHALL BE GALVANIZED.

B. ATTACH HANGERS AND SUPPORTS DIRECTLY ONTO THE STRUCTURE BY FIRST REMOVING EXISTING FIRE PROOFING AND AFTER SECURING THE ATTACHMENT, REPAIRING THE FIRE PROOFING TO ITS ORIGINAL CONDITION, CONTINUOUSLY OVER THE ATTACHMENT.

FOR EXPANSION BOLTS/SHELDS USE RED HEAD, H.L.TI OR WEJ-TI SELF DRILLING OR STEEL SHIELD, LOAD RATED. DO NOT USE DRILLED ANCHORS IN POST TENSION SLABS WITHOUT APPROVAL OF OWNER. DO NOT CUT REINFORCING STEEL WITH DRILLED INSERTS. INSTALLATION REQUIREMENTS FOR HANGERS AND SUPPORTS

1. INSTALL IN ACCORDANCE WITH ASME B31.9, ASTM F708 AND MSS SP 89.

2. SUPPORT HORIZONTAL PIPING AS SCHEDULED.

3. INSTALL HANGERS TO PROVIDE MINIMUM 1/2 INCH SPACE BETWEEN FINISHED COVERING AND ADJACENT WORK.

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

5. USE HANGERS WITH 1-1/2 INCH MINIMUM VERTICAL ADJUSTMENT. DESIGN HANGERS FOR PIPE MOVEMENT WITHOUT DISENGAGEMENT OF SUPPORTED PIPE.

6. SUPPORT VERTICAL PIPING AT EVERY FLOOR. SUPPORT RISE PIPING INDEPENDENTLY OF CONNECTED HORIZONTAL PIPING.

7. WHERE INSTALLING SEVERAL PIPES IN PARALLEL AND AT SAME ELEVATION, PROVIDE MULTIPLE PIPE HANGERS OR TRAPEZE HANGERS.

8. PROVIDE COPPER PLATED HANGERS AND SUPPORTS FOR COPPER PIPING.

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

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

22 07 00 - PLUMBING INSULATION

A. GENERAL REQUIREMENTS

1. INSULATION SHALL BE CERTAIN-TEED, KNAUF, MANVILLE, OR OWENS CORNING. MATERIALS SHALL MEET REQUIREMENTS OF ADHESIVE AND SEALANT COUNCIL STANDARDS AND SMACNA. INSTALL INSULATION, MASTICS, ADHESIVES, COATINGS, COVERS, WEATHER-PROTECTION AND OTHER WORK IN STRICT ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. ASTM E-84 FIRE HAZARD RATINGS SHALL BE 25 FLAME SPREAD, 50 SMOKE DEVELOPED.

2. FITTINGS, VALVES AND FLANGES SHALL BE INSULATED WITH SAME MATERIAL AND TO SAME THICKNESS AS ADJOINING PIPE INSULATION, WITH PRESENT SECTIONS.

3. FOR STRAINERS AND OTHER VALVES OR FITTINGS WHICH NEED MAINTENANCE, PROVIDE PREFORMED REMOVABLE INSULATION SECTION.

B. PRODUCTS AND APPLICATIONS

1. INSULATION SHALL BE FIBROUS GLASS PIPE INSULATION WITH FACTORY-APPLIED ASJ WITH K FACTOR OF AT LEAST 0.23 AT 75F MEAN TEMPERATURE.

2. PROVIDE INSULATION FOR THE FOLLOWING SYSTEMS:

a. DOMESTIC HOT WATER PIPE INSULATION: MINIMUM 1 INCH THICKNESS, PROVIDE 1-1/2 INCH THICKNESS FOR DOMESTIC HOT WATER PIPES 1-1/2 INCH DIAMETER AND LARGER.

b. DOMESTIC COLD WATER: MINIMUM 1/2 INCH THICKNESS. PROVIDE 1 INCH THICKNESS FOR COLD WATER PIPES 1-1/2 INCH DIAMETER AND GREATER.

22 10 00 - PLUMBING PIPING

A. DOMESTIC WATER PIPING

1. SOLDERED OR BRAZED: ASTM B88, TYPE L HARD DRAWN COPPER TUBING, WITH ASME B16.18 CAST BRASS OR ASME B16.22 WROUGHT COPPER FITTINGS. JOINTS SHALL BE SOLDER TYPE WITH ASTM B32 95-5 TIN-ANTIMONY OR TIN AND SILVER SOLDER, OR BRAZED TYPE WITH AWS A5.8 BCUP ALLOY BRAZE. TEES SHALL BE FITTINGS; MECHANICALLY EXTRACTED COLLARS TEES ARE NOT ALLOWED.

2. GROOVED: ASTM B88, TYPE L WITH ROLLED GROOVED ENDS, WITH ASME B16.18 CAST COPPER ALLOY, ASME B16.22 WROUGHT COPPER AND BRONZE, OR ASTM B584 BRONZE SAND CAST TO 11 CORRODED END FITTINGS, AND ASTM F1476 GROOVED MECHANICAL COUPLINGS JOINTS WITH ENAMEL COATED ASTM A395 DUCTILE IRON AND ASTM A536 DUCTILE IRON HOUSING CLAMPS, COMPATIBLE WITH COPPER TUBING SIZES, TO ENGAGE AND LOCK DESIGNED TO PERMIT SOME ANGULAR DEFLECTION, CONTRACTION, AND EXPANSION. ELASTOMER COMPOSITION GASKETS WITH AN OPERATING TEMPERATURE RANGE FROM -40°F TO 230°F, AND GALVANIZED OR STAINLESS STEEL BOLTS, NUTS, AND WASHERS. TEES SHALL BE FITTINGS; CLAMP TYPE TEES ARE NOT ALLOWED. MANUFACTURERS: ANVIL/GRUVLOK, TYCO/GRINNELL, VICTAULIC. FITTINGS AND JOINTS SHALL BE BY THE SAME MANUFACTURER.

B. DRAIN, WASTE, AND VENT PIPING (SANITARY AND STORM)

1. PVC PIPE: ASTM D1785 SCHEDULE 40, OR ASTM D2241 SDR 26 WITH NOT LESS THAN 150 PSI PRESSURE RATING. FITTINGS ARE PER ASTM D2466. PVC JOINTS SHALL BE SOLVENT WELDED, WITH ASTM D2564 SOLVENT CEMENT (PVC IS NOT ALLOWED IN ALL JURISDICTIONS AND OCCUPANCIES. REFER TO AUTHORITY HAVING JURISDICTION GUIDELINES FOR PVC).

C. BRONZE BALL VALVES

1. MANUFACTURERS: APOLLO, CRANE, JENKINS, NIBCO, STOCKHAM.

2. GENERAL: BRONZE BODY, TWO PIECE, FULL PORT, 150 PSIG SWP, 600 PSIG WOG (UP TO 2"), 400 PSIG WOG (2 - 1/2" TO 4"), MSS SP -110, NSF 61 OR NSF/ANSI 372 CERTIFIED.

3. FEATURES: VINYL COATED LEVER HANDLE, CHROME PLATED SOLID BRASS BALL, BLOW -OUT PROOF STEM, ADJUSTABLE PACKING GLAND, PTFE SEATS AND SEALS.

4. EXTENDED LEVER HANDLE: PROVIDE AS NECESSARY TO ALLOW FOR UNCOMPRESSED INSULATION INSTALLATION; LEVER SHALL BE OPERABLE WITHOUT DISTURBING THE INSULATION.

G. CHECK VALVES - HORIZONTAL SWING

1. MANUFACTURERS: APOLLO, CRANE, JENKINS, NIBCO, STOCKHAM

2. GENERAL: ASTM B - 61 BRONZE OR BRASS Y-PATTERN BODY, CLASS 125, 200 PSIG CWP, MSS SP -80, NSF 61 OR NSF/ANSI 372 CERTIFIED.

3. FEATURES: LOW LEAD BRASS SCREWED CAP, LOW LEAD BRASS DISC, LOW LEAD STEM, LOW LEAD BRASS HINGE, STAINLESS STEEL OR LOW LEAD BRASS HINGE PIN.

I. THERMOSTATIC MIXING VALVES

1. MANUFACTURERS: LAWLOR, LEONARD, POWERS, WATTS

2. GENERAL: THERMOSTATIC CONTROLLER WITH SWIVEL ACTION CHECK STOPS, REMOVABLE CARTRIDGE WITH STRAINER, STAINLESS STEEL PISTON AND LIQUID FILLED MOTOR WITH BELLOWS MOUNTED OUT OF WATER, ROUGH BRASS FINISH, LEAD FREE BRONZE OR BRASS VALVE BODY.

J. MISCELLANEOUS FITTINGS

1. FLANGES

a. COPPER PIPING: CLASS 150, SLIP-ON BRONZE FLANGES.

b. STEEL PIPING: CLASS 150, SLIP-ON FORGED STEEL FLANGES.

c. GASKETS: 1/16" THICK PREFORMED NEOPRENE GASKETS.

2. UNIONS

a. COPPER PIPING: CLASS 150, BRONZE UNIONS WITH SOLDERED OR BRAZED JOINTS.

b. STEEL PIPING: CLASS 150, MALLEABLE IRON, THREADED.

c. DIELECTRIC CONNECTIONS: UNION WITH GALVANIZED OR PLATED STEEL THREADED END, COPPER SOLDER END, WATER IMPROVUS ISOLATION BARRIER ARE REQUIRED WHERE TWO DISSIMILAR METAL PRODUCTS ARE CONNECTED WITHIN A SYSTEM.

22 30 00 - PLUMBING EQUIPMENT AND SPECIALTIES

A. GENERAL

a. VERIFY WALLS AND FLOOR FINISHES ARE PREPARED AND READY FOR INSTALLATION OF FIXTURES.

b. VERIFY ELECTRIC POWER IS AVAILABLE AND OF CORRECT CHARACTERISTICS.

c.