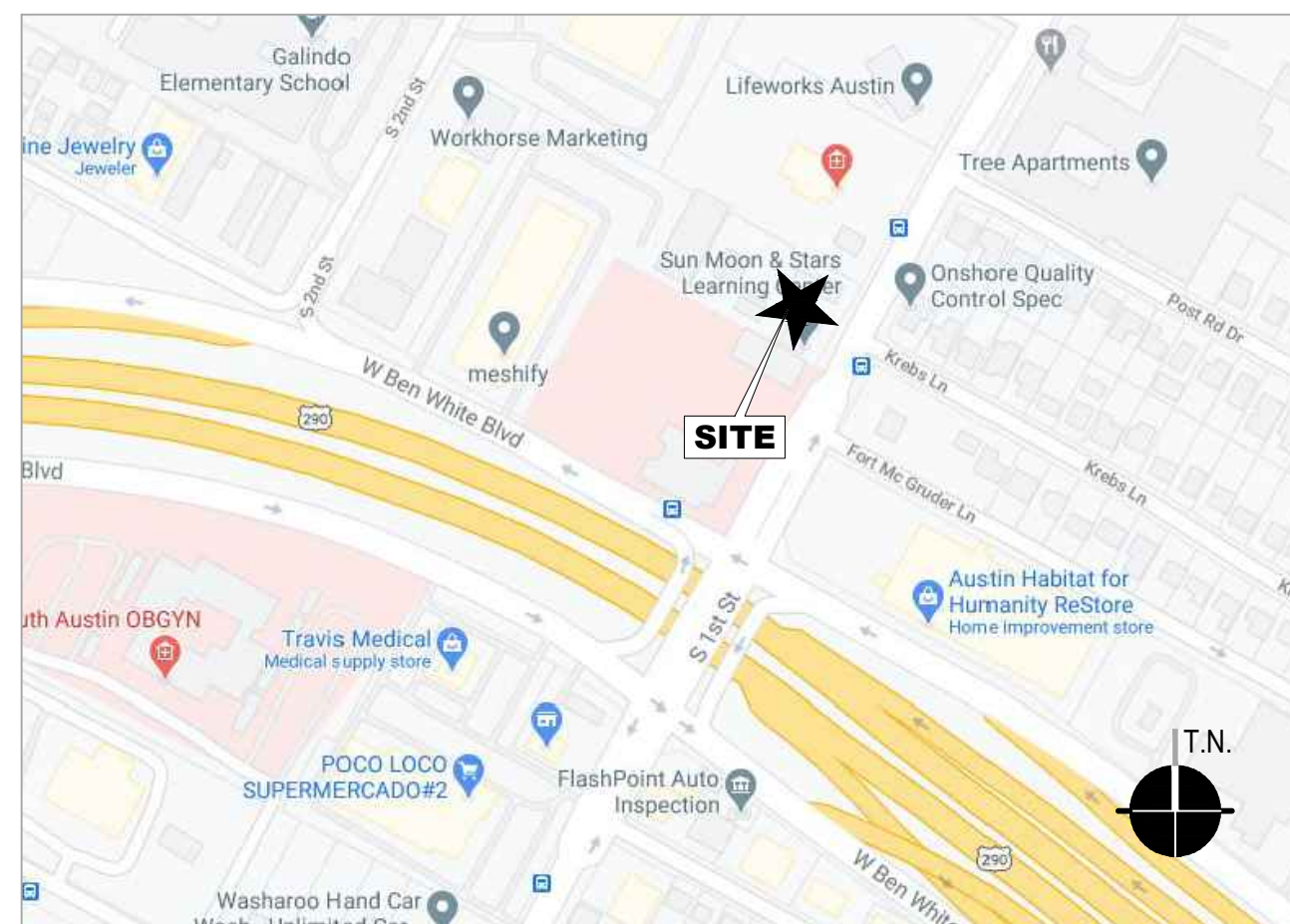


# Sun, Moon and Stars Learning Center

3808 South 1st Street  
Austin, TX 78704



**Location Map**  
N.T.S.



**Key Plan**  
N.T.S.

**Description of Work**  
CONSTRUCTION OF NEW CHILD DAY CARE FACILITY.

**Owner:**  
**Sun, Moon and Stars Learning Center**  
327 Bisset Ct.  
Austin, TX 78738  
512.438.9389  
Contact: Rahul Singh  
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**General Contractor:**  
**T.B.D.**

**Design Team:**  
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**Structural Engineering:**  
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ARCHITECTURAL	SHEET	SHEET NAME	DATE	DESCRIPTION
	A000	COVER SHEET	03/02/2022	FOR CONSTRUCTION
	A001	CODE ANALYSIS & GENERAL NOTES	03/02/2022	FOR CONSTRUCTION
	A010	ACCESSIBILITY DETAILS AND NOTES	03/02/2022	FOR CONSTRUCTION
	A020	LIFE SAFETY PLANS	03/02/2022	FOR CONSTRUCTION
	A021	LIFE SAFETY DETAILS	03/02/2022	FOR CONSTRUCTION
	A040	SITE PLAN	03/02/2022	FOR CONSTRUCTION
	A100	OVERALL MAIN LEVEL FLOOR PLAN	03/02/2022	FOR CONSTRUCTION
	A101	OVERALL UPPER LEVEL FLOOR PLAN	03/02/2022	FOR CONSTRUCTION
	A120	MAIN LEVEL REFLECTED CEILING PLAN	03/02/2022	FOR CONSTRUCTION
	A121	UPPER LEVEL REFLECTED CEILING PLAN	03/02/2022	FOR CONSTRUCTION
	A130	ROOF PLAN	03/02/2022	FOR CONSTRUCTION
	A300	FINISHES AND MATERIAL SCHEDULES	03/02/2022	FOR CONSTRUCTION
	A301	DOOR & WINDOW SCHEDULES AND DETAILS	03/02/2022	FOR CONSTRUCTION
	A400	FRONT & REAR EXTERIOR ELEVATIONS	03/02/2022	FOR CONSTRUCTION
	A401	LEFT & RIGHT EXTERIOR ELEVATIONS	03/02/2022	FOR CONSTRUCTION
	A410	ENLARGED INTERIOR ELEVATIONS	03/02/2022	FOR CONSTRUCTION
	A420	BUILDING SECTIONS	03/02/2022	FOR CONSTRUCTION
	A430	WALL SECTIONS	03/02/2022	FOR CONSTRUCTION
	A431	WALL SECTIONS	03/02/2022	FOR CONSTRUCTION
	A440	DETAILS	03/02/2022	FOR CONSTRUCTION
	A500	STAIRMILLWORK DETAILS	03/02/2022	FOR CONSTRUCTION
		<b>CIVIL</b>		
	1 of 29	COVER SHEET	2/05/2021	
	2 of 29	NOTES SHEET	12/15/2020	
	3 of 29	SITE PLAN	3/16/2021	
	4 of 29	GRADING PLAN	12/14/2020	
	5 of 29	DRAINAGE AREA AND DETENTION POND PLAN	12/14/2020	
	6 of 29	DRAINAGE DETAILS	12/14/2020	
	7 of 29	EROSION/SEDIMENTATION CONTROL & TREE PROTECTION PLAN	12/14/2020	
	8 of 29	WATER & WASTEWATER PLAN	1/15/2021	
	9 of 29	CONSTRUCTION DETAILS	7/21/2020	
	10 of 29	CONSTRUCTION DETAILS	7/21/2020	
	11 of 29	CONSTRUCTION DETAILS	8/06/2020	
	12 of 29	LANDSCAPE PLAN	12/15/2020	
	13 of 29	LANDSCAPE & IRRIGATION SPECIFICATIONS	1/15/2021	
	14 of 29	AUSTIN WATER GENERAL INFORMATION & CONSTRUCTION NOTES	2/02/2021	
	15 of 29	DEMOLITION PLAN	1/15/2021	
	16 of 29	TRAFFIC CONTROL PLANS	2/03/2021	
	17 of 29	TRAFFIC CONTROL PLANS	2/03/2021	
	18 of 29	TRAFFIC CONTROL PLANS	2/03/2021	
	19 of 29	TRAFFIC CONTROL PLANS	2/03/2021	
	20 of 29	TRAFFIC CONTROL PLANS	2/03/2021	
	21 of 29	TRAFFIC CONTROL PLANS	2/03/2021	
	22 of 29	TRAFFIC CONTROL PLANS	2/03/2021	
	23 of 29	TRAFFIC CONTROL PLANS	2/03/2021	
	24 of 29	TRAFFIC CONTROL PLANS	2/03/2021	
	25 of 29	TRAFFIC CONTROL PLANS	2/03/2021	
	26 of 29	TRAFFIC CONTROL PLANS	2/03/2021	
	27 of 29	TRAFFIC CONTROL PLANS	2/03/2021	
	28 of 29	TRAFFIC CONTROL PLANS	2/03/2021	
	29 of 29	TRAFFIC CONTROL PLANS	2/03/2021	
		<b>STRUCTURAL</b>		
	S10	GENERAL NOTES	02/25/2022	FOR CONSTRUCTION
	S11	SPECIAL INSPECTIONS	02/25/2022	FOR CONSTRUCTION
	S12	TYPICAL CONCRETE DETAILS	02/25/2022	FOR CONSTRUCTION
	S13	TYPICAL STEEL DETAILS	02/25/2022	FOR CONSTRUCTION
	S20	FOUNDATION PLAN	02/25/2022	FOR CONSTRUCTION
	S30	FOUNDATION DETAILS	02/25/2022	FOR CONSTRUCTION
	S31	FOUNDATION DETAILS	02/25/2022	FOR CONSTRUCTION
	S40	CEILING FRAMING PLAN	02/25/2022	FOR CONSTRUCTION
	S41	CEILING FRAMING PLAN	02/25/2022	FOR CONSTRUCTION
	S42	ROOF FRAMING PLAN	02/25/2022	FOR CONSTRUCTION
	S50	FRAMING DETAILS	02/25/2022	FOR CONSTRUCTION
	S51	CANOPY FRAMING DETAILS	02/25/2022	FOR CONSTRUCTION
	S60	LATERAL BRACING PLAN	02/25/2022	FOR CONSTRUCTION
	S61	LATERAL BRACING PLAN	02/25/2022	FOR CONSTRUCTION
	S70	LATERAL BRACING DETAILS	02/25/2022	FOR CONSTRUCTION
		<b>MECHANICAL</b>		
	M001	MECHANICAL GENERAL NOTES	12/23/2021	100% CD
	M101	MECHANICAL PLAN - FIRST LEVEL	12/23/2021	100% CD
	M102	MECHANICAL PLAN - SECOND LEVEL	12/23/2021	100% CD
	M601	MECHANICAL SCHEDULES	12/23/2021	100% CD
	M601	MECHANICAL SCHEDULES	12/23/2021	100% CD
		<b>ELECTRICAL</b>		
	E001	ELECTRICAL GENERAL NOTES	12/23/2021	100% CD
	EL101	ELECTRICAL LIGHTING PLAN - FIRST LEVEL	12/23/2021	100% CD
	EL102	ELECTRICAL LIGHTING PLAN - SECOND LEVEL	12/23/2021	100% CD
	EP101	ELECTRICAL POWER PLAN - FIRST LEVEL	12/23/2021	100% CD
	EP102	ELECTRICAL POWER PLAN - SECOND LEVEL	12/23/2021	100% CD
	ES101	ELECTRICAL SITE PLAN	12/23/2021	100% CD
	E501	RISERS AND DETAILS	12/23/2021	100% CD
	E601	ELECTRICAL SCHEDULES	12/23/2021	100% CD
		<b>PLUMBING</b>		
	P001	PLUMBING GENERAL NOTES	12/23/2021	100% CD
	P101	WASTE WATER & VENT PLAN - FIRST LEVEL	12/23/2021	100% CD
	P102	WASTE WATER & VENT PLAN - SECOND LEVEL	12/23/2021	100% CD
	P110	PLUMBING & GAS PLAN - FIRST LEVEL	12/23/2021	100% CD
	P111	PLUMBING & GAS PLAN - SECOND LEVEL	12/23/2021	100% CD
	P501	PLUMBING DETAILS	12/23/2021	100% CD
	P601	PLUMBING SCHEDULES	12/23/2021	100% CD
	P701	RISER DIAGRAMS	12/23/2021	100% CD



03/02/2022  
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**Sun, Moon & Stars Learning Ctr.**  
3808 South 1st Street  
Austin, TX, 78704

**N-VIZION**  
FORMS - ENVIRONMENTS - IMAGES

**Cover Sheet**  
Project Number: 210105  
N-vizion Design, LLC - 5900 Shepherd Mountain Cove, Ste. 2-250  
Austin, TX 78730 p:512.327.9995 www.n-vizion.net  
Registration Nos.: TX PE Firm-F-12225, TX-25489, LA: 9413  
MI: 1301069591, NV: 6252, NC: 14865, OH: ARCC: 0171885

Date:	Description:
03/02/22	FOR CONSTRUCTION

**A000**

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**Sun, Moon & Stars Learning Crt.**  
3808 South 1st Street  
Austin, TX, 78704



**General Notes & Code Analysis**  
Project Number: 210105  
N-vizion Design, LLC - 5900 Shepherd Mountain Cove, Ste 2-250  
Austin, TX 78730 p:512.327.9955 www.n-vizion.net  
Registration Nos.: TX PE Firm-F-12228, TX-25469, LA-9413  
MI: 1301069891, NV: 6252, NC: 14865, OH: ARCC, 1917885

Date:	Description:
03/02/22	FOR CONSTRUCTION

**A001**

**CODE ANALYSIS**

**APPLICABLE CODES**

BUILDING:	2021	INTERNATIONAL BUILDING CODE
ELEC:	2020	NEC
MECH:	2021	INTERNATIONAL MECHANICAL CODE
PLUMB:	2021	INTERNATIONAL PLUMBING CODE
ACCESS:	2012	TEXAS ACCESSIBILITY STANDARDS WTECH MEMOS
FIRE:	2021	INTERNATIONAL FIRE CODE
ENERGY:	2021	INTERNATIONAL ENERGY CONSERVATION CODE

**OCCUPANCY GROUP - CHAPTER 3**

OCCUPANCY GROUP: I-4 - INSTITUTIONAL  
DESCRIPTION OF USE: DAY CARE FOR CHILDREN

**OCCUPANCY SEPARATIONS - CHAPTER 3**

STORAGE ON SECOND FLOOR REQUIRES 1-HR SEPARATION

**AREA SEPARATION REQUIREMENTS - TABLE 302.3.2:**

NONE

**BUILDING HEIGHT - CHAPTER 5**

MAX. STORIES ALLOWED	2
PROPOSED STORIES	2
MAX. HEIGHT ALLOWED	60 FT
PROPOSED HEIGHT	26'-8" FT

**BUILDING AREAS - CHAPTER 5**

BUILDING ONE IS EXISTING AND BUILDING TWO IS PROPOSED. THE TWO BUILDINGS WILL BE CONSIDERED AS ONE BUILDING FOR THE SAKE OF ALLOWABLE AREA. FIRE RATING BETWEEN BUILDINGS AND ALLOWABLE OPENINGS BETWEEN BUILDINGS.

AREA OF EXISTING = 4,075 S.F.  
AREA OF PROPOSED = 3,599 SF  
TOTAL AREA = 7,674 SF  
MAXIMUM TABULAR AREA: At = 27,000 SF  
NO INCREASES NECESSARY  
TOTAL AREA OF EXISTING BUILDING AND NEW BUILDING IS LESS THAN TABULAR AREA.

AREA OF NEW BUILDING:	
FIRST FLOOR AREA	- 2,963 SF
SECOND FLOOR AREA	- 636 SF
TOTAL AREA	- 3,599 SF

**OCCUPANT LOAD/AREA CALC. - TABLE 1004.1.1**

TOTAL EXITS REQ'D ON GROUND FLOOR	2
TOTAL EXITS PROVIDED ON GROUND FLOOR	4

SPACE	AREA	FACTOR	OCCUPS	EXITS	REQ'D	EGRESS CLASSIFICATION
RECEPTION/OFFICE	221	100	3.0	1		BUSINESS AREA
INFANT CLASS 1	302	35	8.7	2		DAYCARE
INFANT CLASS 2	307	35	8.8	2		DAYCARE
INFANT CLASS 3	300	35	8.6	2		DAYCARE
TODDLER CLASS 1	424	35	12.2	2		DAYCARE
TODDLER CLASS 2	429	35	12.3	2		DAYCARE
STORAGE/MECH	1,500	300	5.0	1		ACCESSORY STORAGE AREAS, N
TOTAL OCCUPANT LOAD			59			

**CONSTRUCTION TYPE - CHAPTER 6**

TYPE: VE BOTH EXISTING AND PROPOSED  
DESCRIPTION OF CONSTRUCTION: WOOD FRAMED CONSTRUCTION WITH CONCRETE FOUNDATION

**SEPARATION DISTANCE - TABLE 602**

NORTH	5 FT TO PROPERTY LINE	NO RATING REQ'D
EAST	167 FT TO PROPERTY LINE	NO RATING REQ'D
SOUTH	5 FT TO PROPERTY LINE	NO RATING REQ'D TO EXISTING
WEST	34 FT TO PROPERTY LINE	NO RATING REQ'D
AVG DIST	52.75	

**INT. WALL & FINISH REQUIREMENTS - TABLE 803.5**

GROUP	VERT. EXITS	EXIT ACCESS	ROOMS/ ENCL. SPACES
I-4 - INSTITUTIONAL	B	B	E

**AUTOMATIC FIRE PROTECTION SYSTEMS - CHAPTER 9**

13R SPRINKLER PROVIDED BOTH EXISTING AND PROPOSED  
MANUAL FIRE ALARM SYSTEM PROVIDED  
SMOKE DETECTORS NOT REQUIRED

**EXTERIOR WALL OPENINGS**

<6FT FIRE SEPERATION DISTANCE ON NORTH FAÇADE  
MAX OPENINGS IN WALL = 25%  
AREA OF WALL = 976 244 SF MAX  
PROPOSED OPENING AREA = 108 SF

**PLUMBING FIXTURE COUNT - TABLE 2902.1**

TOTAL OCCUPANT LOAD:	59 PEOPLE	REQ'D	PROVIDED
WATER CLOSETS	15	4	4 UNISEX
LAVATORIES	15	4	4 UNISEX
SERVICE SINKS REQ'D		1	1
DRINKING FOUNTAINS REQ'D	100	1	2

**EXIT SEPARATION - SECTION 1014.2.1**

MAX. DIAGONAL OF OVERALL SPACE	79 FT
MIN. DISTANCE BETWEEN EXITS	26 FT
DISTANCE BETWEEN EXITS PROVIDED	>26 FT

1/3 OVERALL DIAG.

**TRAVEL DISTANCE - SECTION 1015**

MAXIMUM DISTANCE ALLOWED	250 FT
MAXIMUM DISTANCE PROVIDED	84 FT

**REQUIRED EGRESS WIDTH - SECTION 1005**

EGRESS FACTOR	CALCD WIDTH	REQ'D WIDTH	WIDTH PROVIDED
STAIR	0.3	17.7 IN	44 IN
OTHER	0.2	11.8 IN	44 IN

**CONCEALED SPACES - SECTION 718**

DRAFT STOPPING REQUIREMENTS:  
PROVIDE DRAFT STOPPING IN FLOOR SYSTEM AND ROOF ATTIC WITH GYP AT 750SF.

**FIREBLOCKING REQUIREMENTS**

PROVIDED BY TOP AND BOTTOM PLATES WITHIN WALLS

**Legend:**

- 007A000 DETAIL/ELEVATION DRAWING MARKER
- 007A000 SECTION MARKER
- W000 WINDOW LABEL - REF. SCHEDULES
- D000 DOOR LABEL - REF. SCHEDULES
- 0'-0" ELEVATION MARKER
- 00 KEYNOTE
- CONCRETE
- WOOD FLOORING
- TILE
- CARPET
- MILLWORK
- PLYWOOD
- STEEL
- ALUMINUM
- CMU
- MASONRY
- EARTH
- RIGID INSULATION
- BATT INSULATED WALL
- 2-HOUR FIRE RATED WALL

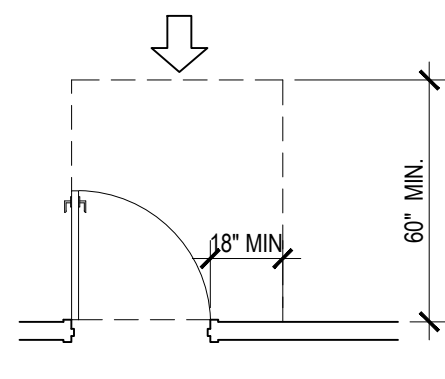
NOTE: REF. PLANS AND SPECS FOR SPECIFIC TYPES OF DIFFERENT FINISHES

**GENERAL NOTES**

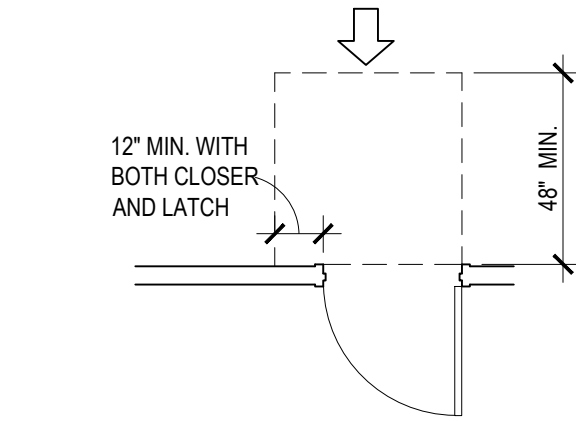
- ALL NOTES ON GENERAL NOTES SHEET APPLY TO ALL DRAWINGS AND IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO READ, UNDERSTAND AND ADHERE TO ALL NOTES.
  - REFERENCE STRUCTURAL DRAWINGS FOR DIMENSIONS AND LOCATIONS OF ALL STRUCTURAL ELEMENTS.
  - ALL WORK SHALL COMPLY WITH ALL APPLICABLE CODES AND ORDINANCES ADOPTED BY LOCAL JURISDICTION. REF. CODE ANALYSIS FOR LIST OF CODES.
  - IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO PROVIDE A COPY OF A U.I. DESIGN MANUAL ON SITE AND TO INSURE THAT ALL DESIGN REQUIREMENTS NOT NOTED ON THE DRAWINGS ARE MET.
  - ALL PENETRATIONS INTO OR THROUGH FIRE RATED WALLS, CEILINGS, FLOORS AND ROOFS SHALL BE FIRE STOPPED PER CODE.
  - ALL WALL COVERINGS TO COMPLY WITH CODE ADOPTED BY AUTHORITY HAVING JURISDICTION. SPECIFICALLY BUT NOT LIMITED TO THE REQUIRED FIRE CLASS AND RATING.
  - FLOOR FINISH MATERIAL TRANSITIONS SHALL HAVE EDGE OR JOINT COVERS. INSURE TRANSITIONS ARE IN COMPLIANCE W/ T.A.S.
  - ALL BREAKS IN FLOOR FINISHES WHICH OCCUR AT DOOR OPENINGS SHALL BE CENTERED AT CENTER OF DOOR IN THE CLOSED POSITION.
  - REFER TO DOOR SCHEDULE FOR DOOR DETAILS: GASKETED, SWEEPS, KICKPLATES, PUSHPLATES, DOORSTOPS, ETC. INSTALL COMMERCIAL GRADE.
  - PROVIDE SAFETY GLASS & WALL/CEILING/FLOOR COVERINGS PER CODE ADOPTED BY LOCAL JURISDICTION.
  - PROVIDE FIRE TREATED BLOCKING IN WALLS FOR ALL MATERIALS TO BE WALL MOUNTED.
  - REFER TO FINISH & MATERIAL SCHEDULES FOR FINISHES, TYPICAL.
  - ALL REQUIRED LIFE SAFETY AND ACCESSIBILITY SIGNAGE AND GRAPHICS TO BE INSTALLED PER THE APPROPRIATE CODE PRIOR TO OCCUPYING THE BUILDING.
  - CONSULT N-VIZION PRIOR TO CONSTRUCTION IN CASES WHERE CONFLICTS EXIST BETWEEN ARCHITECT'S AND ENGINEERS DRAWINGS.
  - DIMENSIONS ARE REFERENCED TO:  
A. FACE OF FRAMING  
B. FACE OF CONCRETE  
C. COLUMN STRUCTURE GRID LINE
- RESTROOM ELEVATIONS AND ACCESSIBILITY DTL'S DIMENSIONS ARE REFERENCED TO:  
A. FACE OF SHEETROCK  
B. FACE OF TILE  
C. FACE OF PARTITION

- PLANS LABELED AS "PERMIT SET" OR "BID SET" MAY BE USED FOR PRELIMINARY BIDS WHICH SHOULD BE REGARDED AS PRELIMINARY ESTIMATES. FINAL BIDS SHOULD BE BASED ON THE "CONSTRUCTION SET." FAILURE TO DO SO MAY LEAD TO UNNECESSARY ADDITIONAL EXPENSES TO BE THE RESPONSIBILITY OF THE CONTRACTOR.
- CONTRACTOR WILL BE HELD RESPONSIBLE FOR STUDYING DRAWINGS, TO HAVE VISITED THE SITE, AND TO HAVE SATISFIED HIMSELF REGARDING ALL EXISTING CONDITIONS UNDER WHICH HE WILL BE OBLIGED TO OPERATE.
- THE SUBMISSION OF A BID OR PROPOSAL WILL BE CONSTRUED AS EVIDENCE THAT THE CONTRACTOR HAS FAMILIARIZED HIMSELF WITH THE PLANS AND EXISTING CONDITIONS OF THE BUILDING SITE. CLAIMS MADE SUBSEQUENT TO THE BID OR PROPOSAL FOR ADDITIONAL MATERIALS AND LABOR BECAUSE OF DIFFICULTIES ENCOUNTERED WILL NOT BE RECOGNIZED IF THEY COULD HAVE BEEN FORESEEN HAD PROPER EXAMINATION BEEN MADE, AND SHALL BE PERFORMED AT THE EXPENSE OF THE CONTRACTOR.
- CONTRACTOR IS ENCOURAGED TO MAKE COST SAVING SUGGESTIONS AS TO MATERIALS AND MEANS OF CONSTRUCTION DURING BOTH THE BID PHASE AND CONSTRUCTION PHASE. ANY SUGGESTIONS REQUIRE SUBMITTAL IN HARD COPY OR DIGITAL FORM TO N-VIZION. WRITTEN APPROVAL BY N-VIZION IS REQUIRED PRIOR TO EXECUTION IN THE FIELD. N-VIZION AND THE OWNER RESERVE THE RIGHT TO REJECT ALTERNATE SUGGESTIONS FOR ANY REASON.
- PRIOR TO STARTING CONSTRUCTION THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE TO VERIFY THAT ALL REQUIRED PERMITS AND APPROVALS HAVE BEEN OBTAINED. NO CONSTRUCTION OR FABRICATION OF ANY ITEM SHALL BEGIN UNTIL THE CONTRACTOR HAS RECEIVED ALL PLANS AND ANY OTHER APPROVALS FROM GOVERNMENTAL AGENCIES OR OTHER REGULATORY AUTHORITIES HAVING JURISDICTION OVER THE PROJECT.
- IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO PROVIDE A COPY OF ALL APPLICABLE CODES AND THEIR AMENDMENTS ADOPTED BY LOCAL JURISDICTION AT THE JOB SITE.
- CONTRACTOR IS RESPONSIBLE FOR SEQUENCE AND MEANS OF CONSTRUCTION AND SHALL SUPERVISE THE WORK AND COORDINATE ALL PORTIONS THEREOF.
- CONTRACTOR SHALL BE RESPONSIBLE FOR THE ACTS AND OMISSIONS OF ALL HIS EMPLOYEES AND SUBCONTRACTORS.
- BEFORE PERFORMING ANY WORK OR ORDERING ANY MATERIALS, THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS OF ANY EXISTING OR NEW WORK AND SHALL BE RESPONSIBLE FOR THEIR ACCURACY. ANY DIFFERENCES FOUND SHALL BE SUBMITTED TO N-VIZION FOR CONSIDERATION BEFORE PROCEEDING WITH THE WORK. ENLARGED SCALE DRAWINGS/DETAILS SHALL GOVERN OVER SMALLER SCALED DRAWINGS. SPECIFICATIONS SHALL GOVERN OVER ALL.
- IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO NOTIFY THE UTILITY COMPANIES AND TO VERIFY THE EXISTING LOCATION AND DEPTH OF THE UTILITIES PRIOR TO ANY CONSTRUCTION. THE CONTRACTOR SHALL PROTECT ALL PRIVATE AND PUBLIC UTILITIES FROM DAMAGE.
- CONTRACTOR SHALL COORDINATE ALL DELIVERIES AND ACCESSIBILITY TO THE BUILDING FOR ALL ITEMS SUCH AS, BUT NOT LIMITED TO THE FOLLOWING: FURNITURE, FIXTURES, EQUIPMENT, ACCESSORIES.
- ALL MATERIALS AND EQUIPMENT INCORPORATED IN THE WORK SHALL BE NEW UNLESS OTHERWISE SPECIFIED AND ALL WORK SHALL BE OF GOOD QUALITY, FREE FROM FAULTS AND IN CONFORMANCE WITH THE PLANS.
- ALL GLAZED OPENINGS SHALL BE FIELD VERIFIED AND COORDINATED WITH SHOP DRAWINGS BEFORE ORDERING.
- SHOP DRAWINGS SHALL BE SUBMITTED TO THE OWNER/N-VIZION FOR APPROVAL PRIOR TO FABRICATION OF ANY ITEM. FAILURE TO ADHERE TO THIS PROCEDURE SHALL PLACE FULL RESPONSIBILITY FOR ANY ERRORS DIRECTLY UPON THE CONTRACTOR.
- CONTRACTOR SHALL PROVIDE A SAMPLE IN INCONSPICUOUS LOCATIONS FOR ALL STAIN AND PAINT FINISHES. FOR APPROVAL BY N-VIZION/OWNER PRIOR TO FINAL FINISHING. FINAL FINISHING WITHOUT APPROVED SAMPLES MAY REQUIRE REFINISHING AS DIRECTED BY N-VIZION AT THE CONTRACTOR'S EXPENSE.
- PROTECT ALL METAL IN CONTACT WITH DISSIMILAR METALS.
- ALL GYPSUM BOARD TO BE 5/8" UNLESS NOTED OTHERWISE. IN WET AREAS MOISTURE RESISTANT GYPSUM SHALL BE USED.
- DURING THE COURSE OF WORK IF THE CONTRACTOR OR ITS AGENTS SHOULD DAMAGE OR DESTROY ANY EXISTING WORK WHICH IS TO REMAIN THEN THE CONTRACTOR SHALL REPAIR OR REPLACE THE DAMAGED WORK TO ITS ORIGINAL CONDITION AT THE CONTRACTOR'S EXPENSE.
- CONTRACTOR SHALL KEEP THE PREMISES FREE FROM ACCUMULATION OF WASTE MATERIALS OR RUBBISH CAUSED BY HIS OPERATIONS. AT THE COMPLETION OF THE WORK HE SHALL PERFORM A FINAL CLEAN-UP INSIDE. CLEAN ALL GLASS SURFACES AND LEAVE THE WORK ROOM CLEAN.
- DO NOT SCALE DRAWINGS. DRAWINGS ARE GENERALLY DRAWN TO SCALE HOWEVER, DIMENSIONS, LABELS AND NOTES TAKE PRECEDENCE OVER SCALE. CONTRACTOR SHALL CHECK FOR DISCREPANCIES IN DIMENSIONS AND LABELS PRIOR TO BEGINNING WORK OR ORDERING MATERIALS. DISCREPANCIES SHALL BE REPORTED TO N-VIZION.
- LOCATIONS OF MECHANICAL, ELECTRICAL OR PLUMBING EQUIPMENT AND ACCESSORIES SHOWN ON PLANS ARE APPROXIMATE. THE ACTUAL LOCATION IS TO BE DETERMINED BY CONTRACTOR. LOCATION IS SUBJECT TO THE APPROVAL OF THE ARCHITECT/ENGINEER.
- CONTRACTOR SHALL CONFINE HIS APPARATUS, STORAGE OF MATERIALS AND OPERATIONS OF HIS MATERIALS AND OPERATIONS OF HIS WORKMEN TO LIMITS INDICATED BY LAW, ORDINANCES, AND PERMITS AND SHALL ARRANGE AND MAINTAIN PARKING OF VEHICLES AND STORAGE OF MATERIALS IN AN ORDERLY MANNER LEAVING ALL WALKS, DRIVEWAYS, ROADS AND ENTRANCES UNOCCLUDED.
- CONTRACTOR TO SUBMIT PLUMBING AND ELECTRICAL FIXTURE CUTS TO THE ARCHITECT FOR APPROVAL PRIOR TO INSTALLATION.
- THE CONTRACTOR TO VERIFY THE LOCATION OF ALL GRADES, LINES, CURBS, UTILITIES, MANHOLES, HYDRANTS, FENCES, TREES, AND OTHER PHYSICAL OBSTRUCTIONS PRIOR TO COMMENCING WORK.
- ALL MATERIALS AND EQUIPMENT INCORPORATED IN THE WORK SHALL BE NEW U.N.O. AND ALL WORK SHALL BE OF GOOD QUALITY, FREE FROM FAULTS AND IN CONFORMANCE WITH THE PLANS.
- SUBSTITUTIONS, REVISIONS, OR CHANGES MAY BE ALLOWED ONLY IF SUCH ITEMS ARE SUBMITTED TO THE OWNER IN A TIMELY MANNER IN WRITING AND SUBSEQUENTLY APPROVED BY THE ARCHITECT IN DESIGN AND PERFORMANCE. THE CONTRACTOR IS LIABLE FOR REPLACEMENT, REPAIR AND DELAYS CAUSED BY ANY UNAUTHORIZED SUBSTITUTION, AND COMPLETE SPECIFICATIONS AND DRAWINGS AS REQUIRED COMPARING ITEMS. THE OWNER RESERVES THE RIGHT TO REJECT FOR ANY REASON.
- CONTRACTOR SHALL SUBMIT ALL WOOD STAIN AND SPECIALTY FINISHES SAMPLES TO THE ARCHITECT AND OWNER FOR APPROVAL PRIOR TO FINAL FINISHING. IF FAILURE TO SUBMIT SAMPLES FOR APPROVAL THE CONTRACTOR WILL BE RESPONSIBLE FOR REFINISHING TO THE ARCHITECT AND OWNER'S SATISFACTION.
- CONTRACTOR TO BALANCE SYSTEM FOR ADEQUATE AIR DISTRIBUTION WITHIN ALL CONDITIONED AREAS TO THE OWNER'S SATISFACTION. (UNLESS CERTIFIED TEST & BALANCE REPORT IS REQUIRED BY LOCAL AUTHORITY).
- ALL WATERPROOFING PRODUCTS TO BE INSTALLED PER THE RECOMMENDATIONS OF THE MANUFACTURER. REFER TO MANUFACTURERS DETAILS AND SPECIFICATIONS FOR REQUIREMENTS.

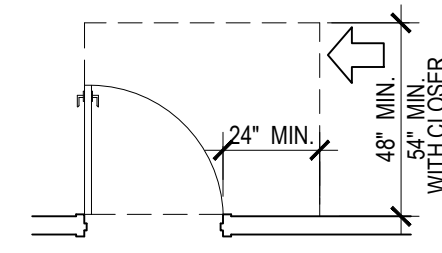
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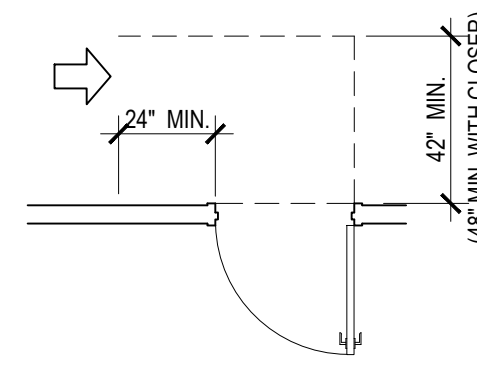
**01 Front Approach**  
1/4"=1'-0"



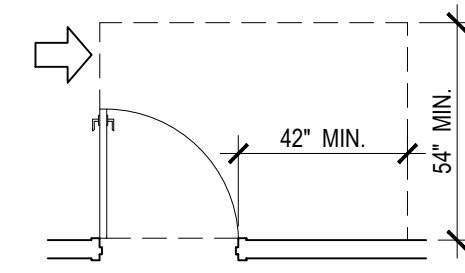
**02 Front Approach**  
1/4"=1'-0"



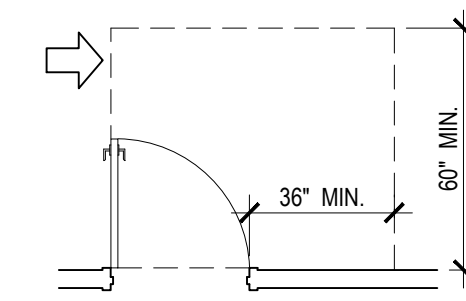
**03 Latch Approach**  
1/4"=1'-0"



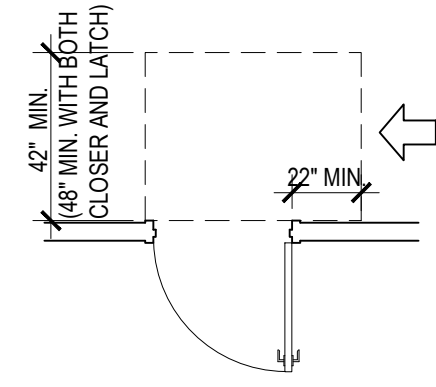
**04 Latch Approach**  
1/4"=1'-0"



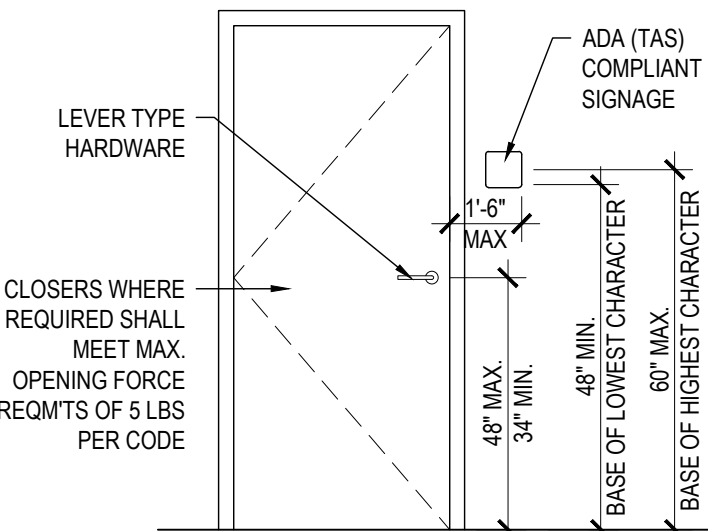
**05 Hinge Approach**  
1/4"=1'-0"



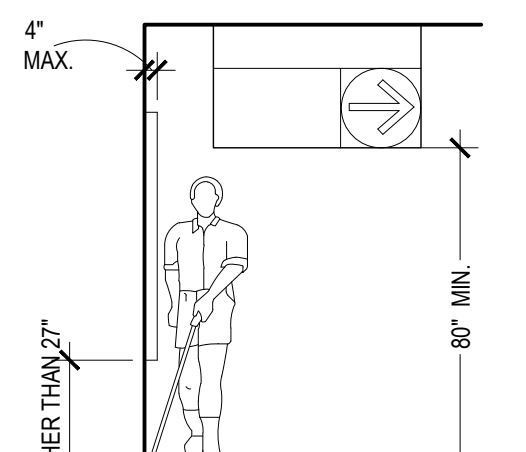
**06 Hinge Approach**  
1/4"=1'-0"



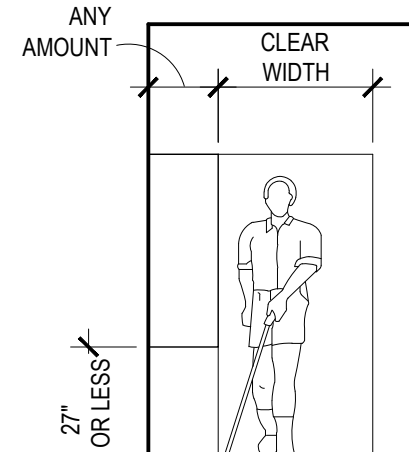
**07 Hinge Approach**  
1/4"=1'-0"



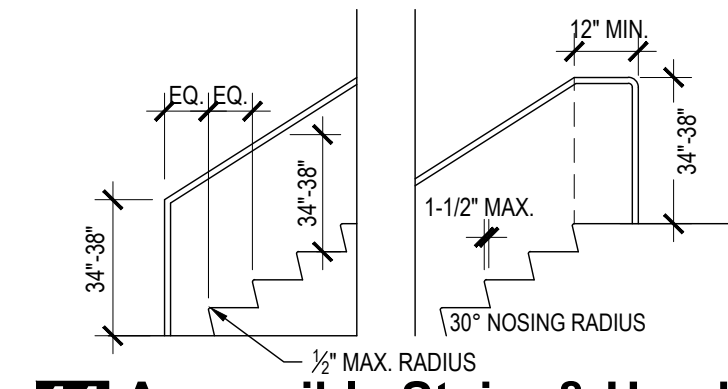
**08 Accessible Door**  
1/4"=1'-0"



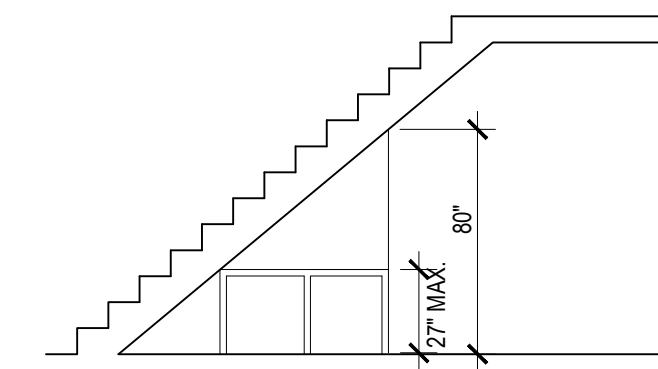
**09 Protruding Objects**  
1/4"=1'-0"



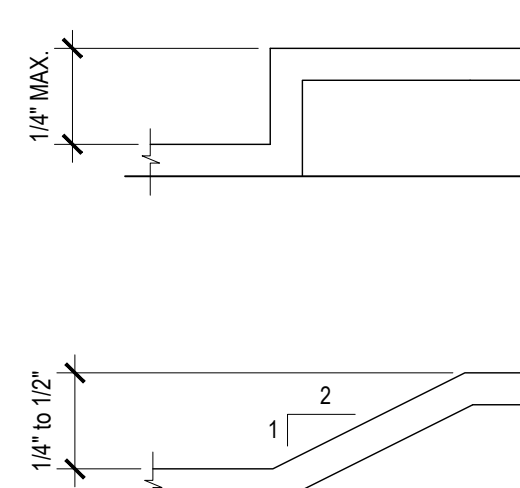
**10 Protruding Objects**  
1/4"=1'-0"



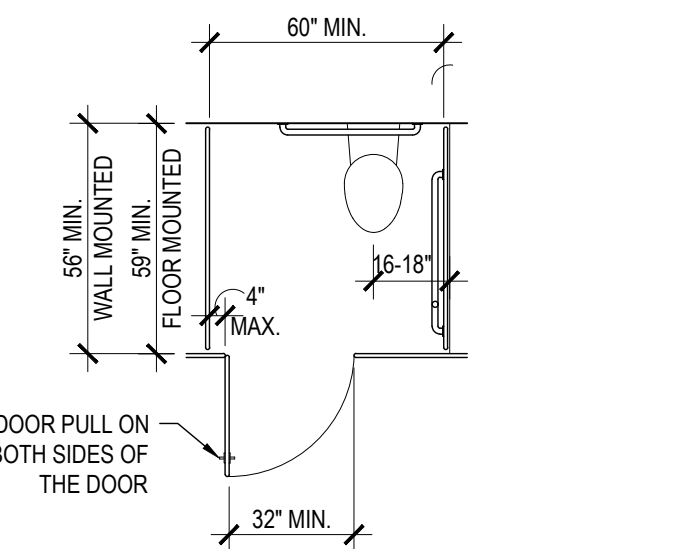
**11 Accessible Stairs & Handrail**  
1/4"=1'-0"



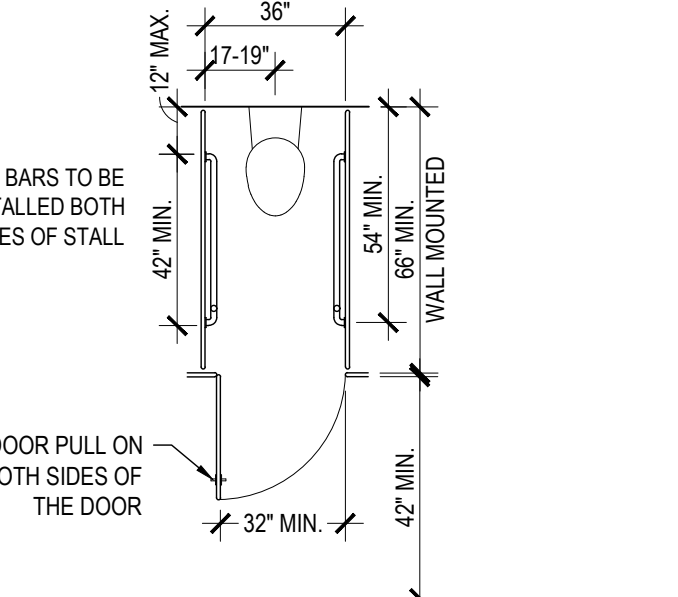
**12 Cane Detection**  
1/4"=1'-0"



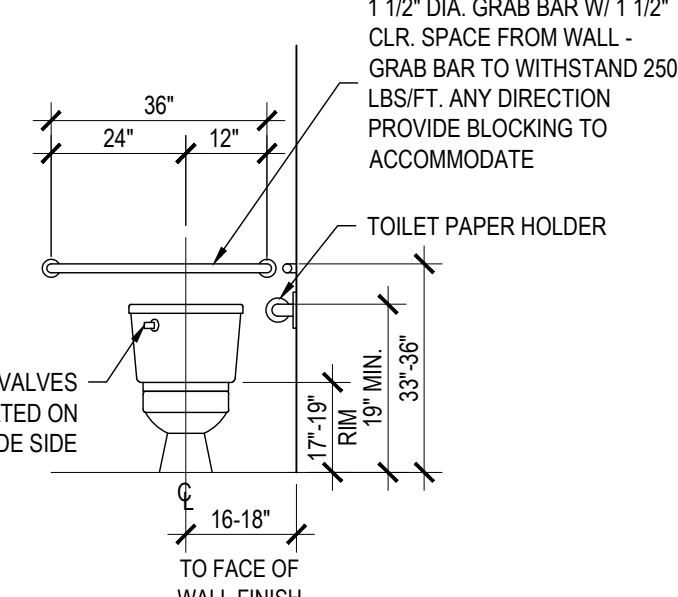
**13 Accessible Transition**  
1/4"=1'-0"



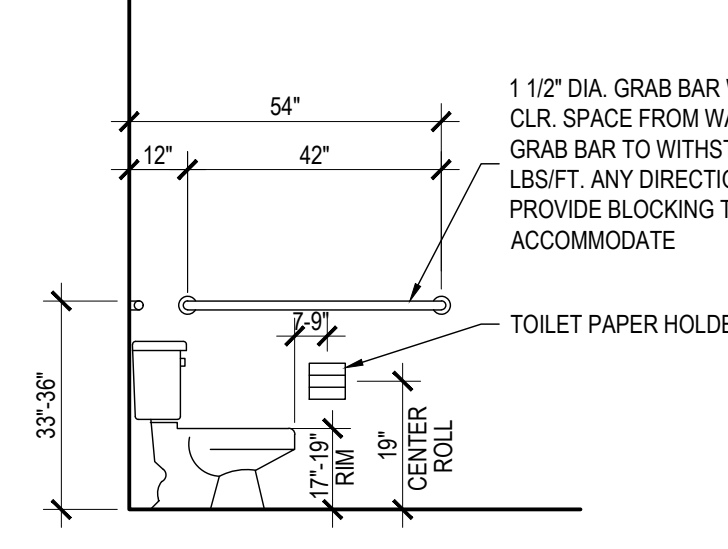
**14 Accessible Toilet Stall**  
1/4"=1'-0"



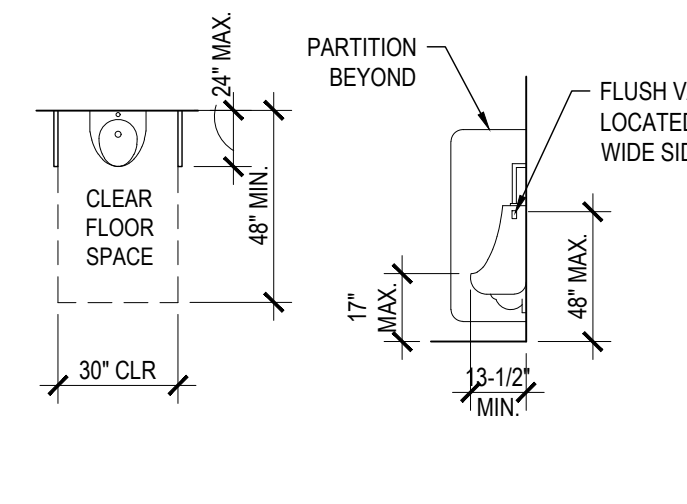
**15 Accessible Ambulatory Stall**  
1/4"=1'-0"



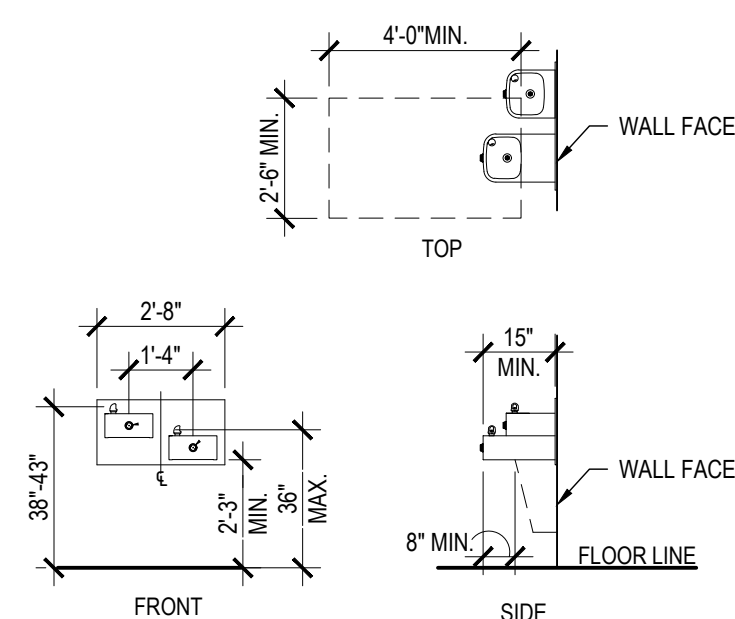
**16 Accessible Toilet & Grab Bars**  
1/4"=1'-0"



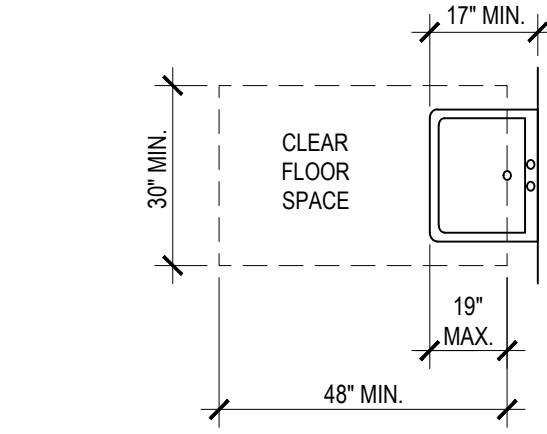
**17 Accessible Toilet & Grab Bars**  
1/4"=1'-0"



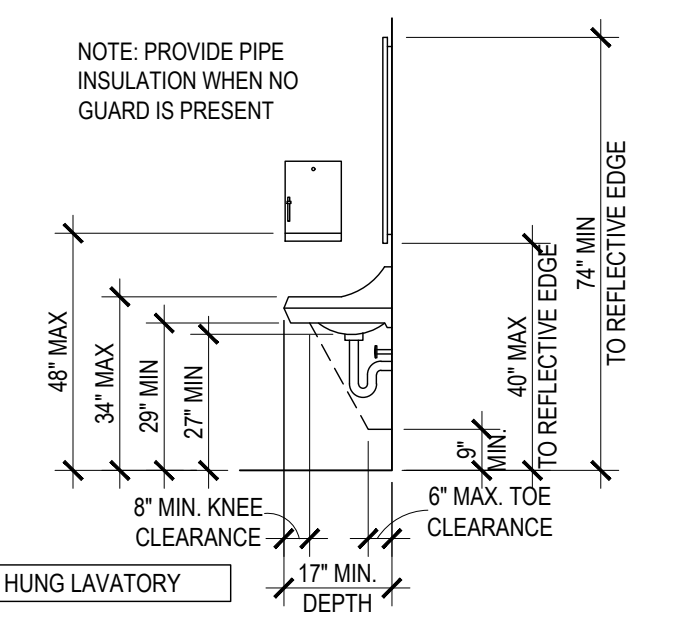
**18 Accessible Urinal Dtls.**  
1/4"=1'-0"



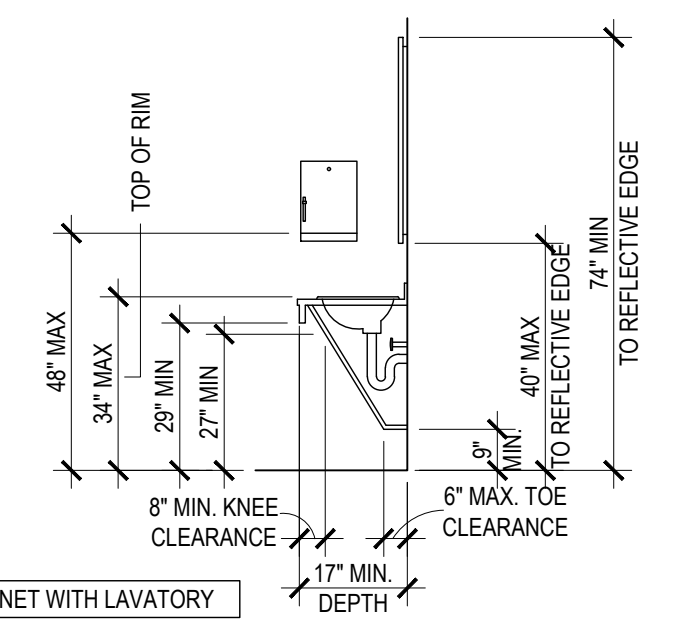
**19 Hi Lo Fountain**  
1/4"=1'-0"



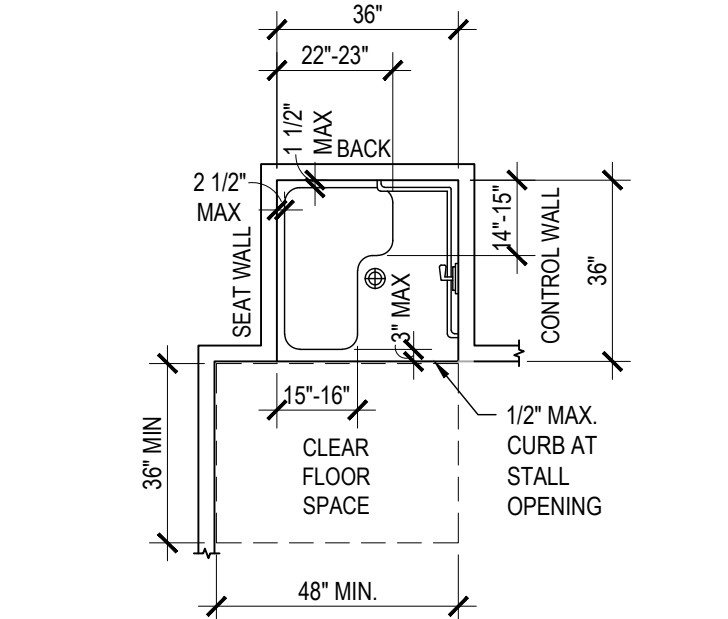
**20 Lavatory Clear Floor Space**  
1/4"=1'-0"



**21 Lavatory Clearances**  
1/4"=1'-0"



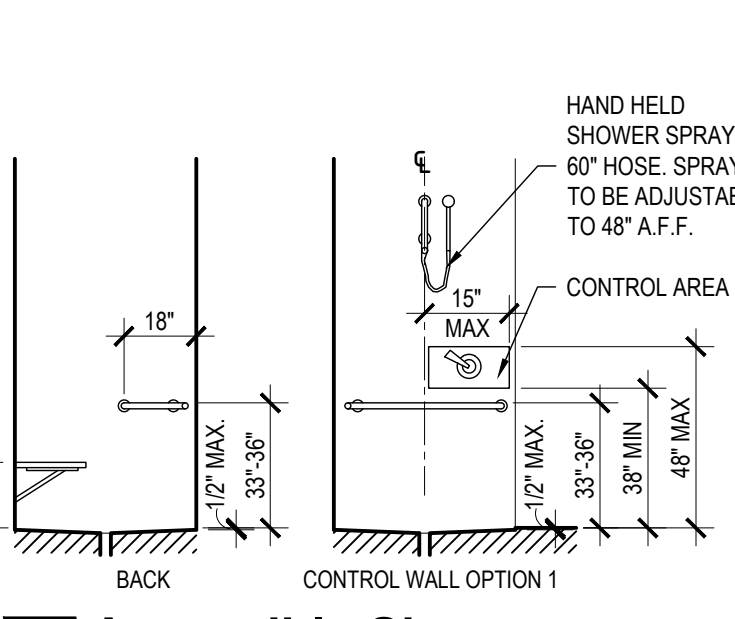
**22 Accessible Shower**  
1/4"=1'-0"



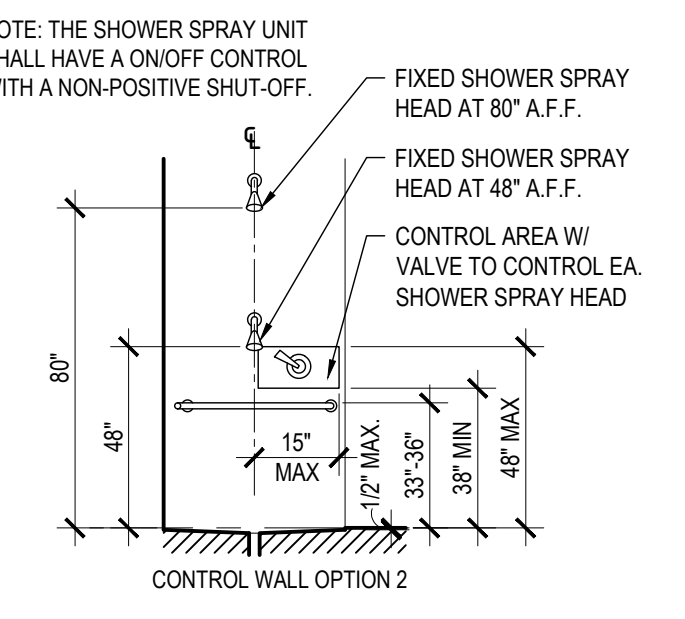
**23 Accessible Ramp Section**  
1/4"=1'-0"



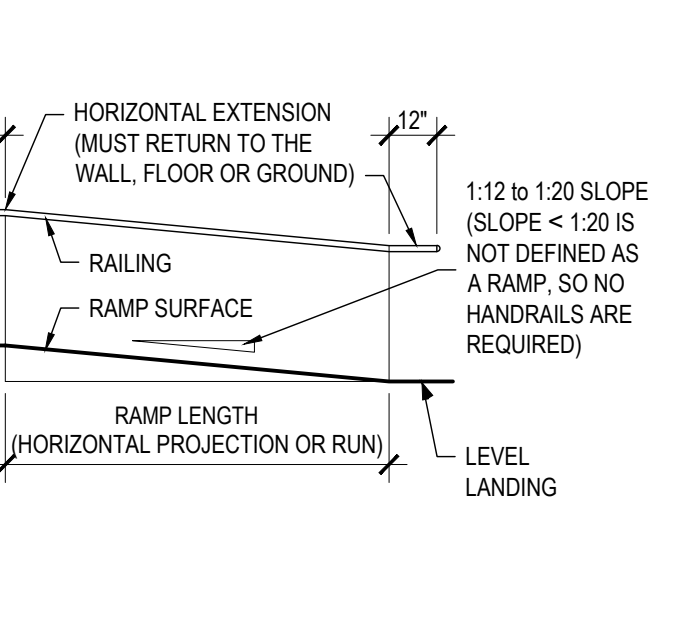
**24 Accessible Ramp**  
1/4"=1'-0"



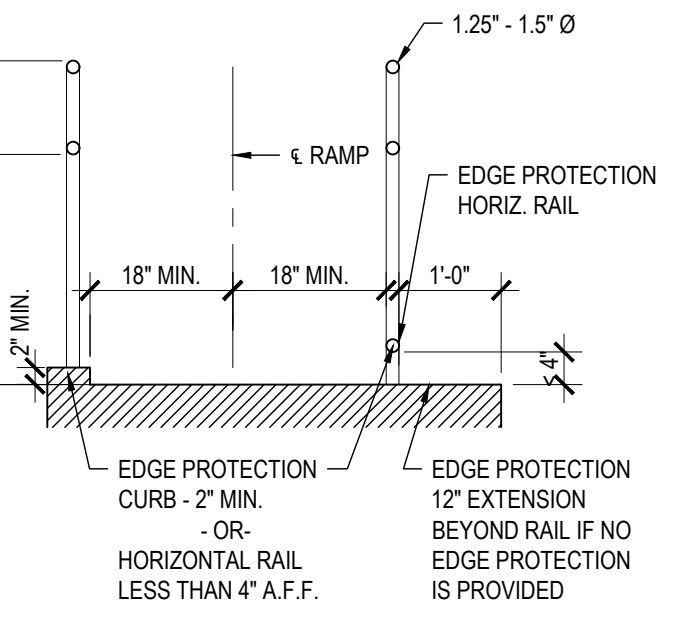
**25 Accessible Shower**  
1/4"=1'-0"



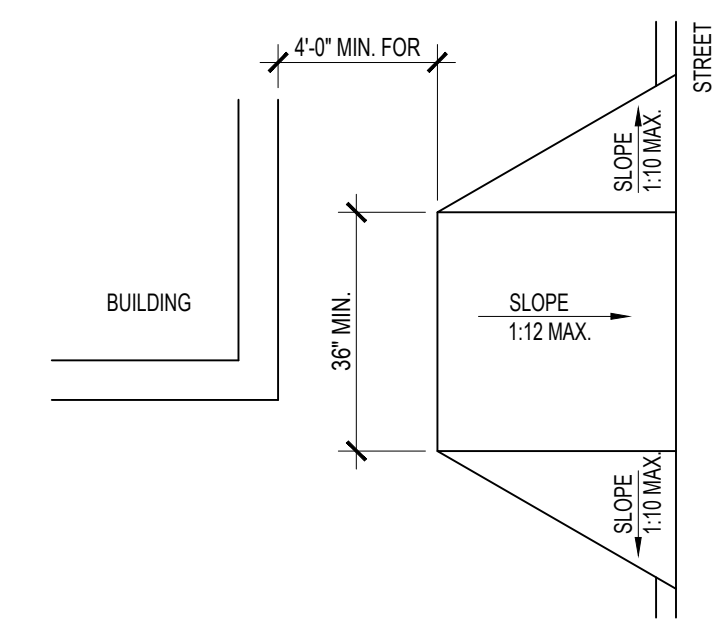
**26 Accessible Ramp**  
1/4"=1'-0"



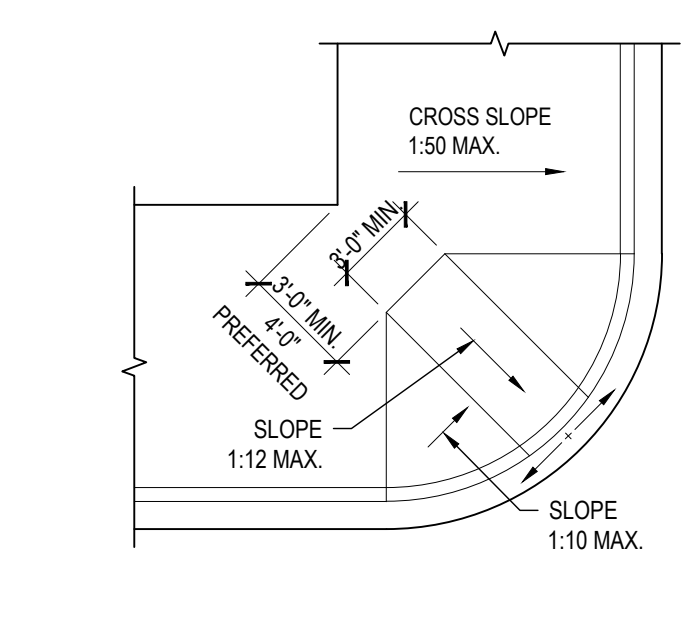
**27 Accessible Corner Curb Ramp**  
1/4"=1'-0"



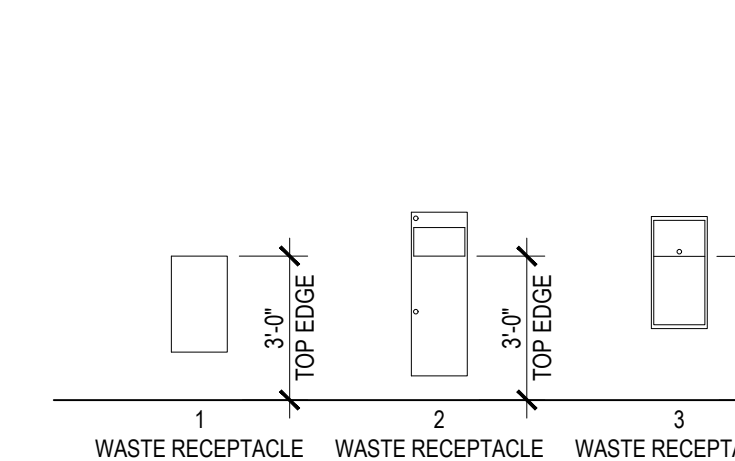
**28 Accessible Ramp**  
1/4"=1'-0"



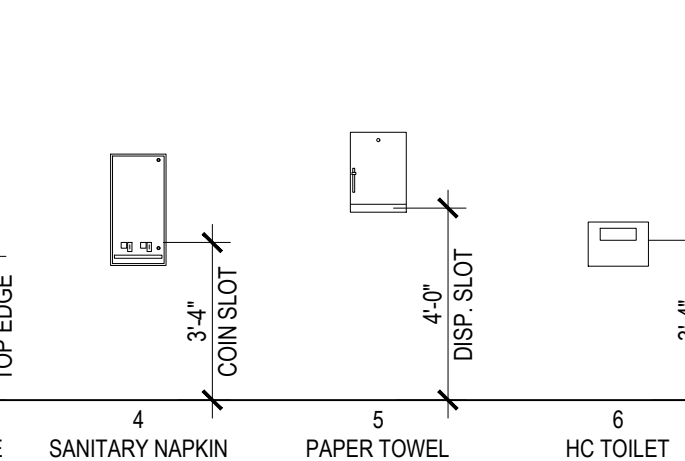
**29 Accessible Ramp**  
1/4"=1'-0"



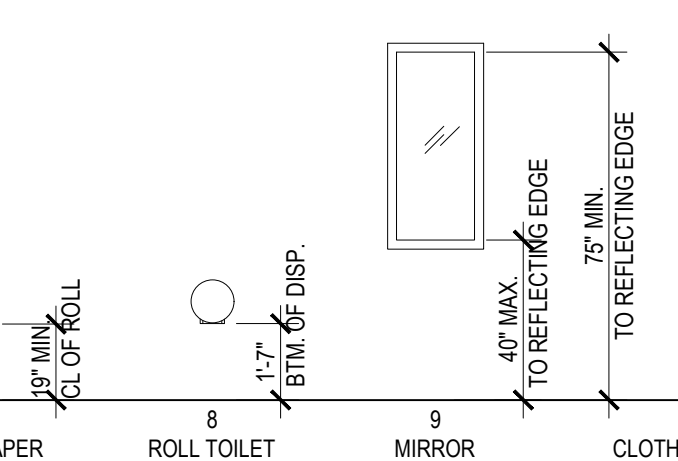
**30 Accessible Ramp**  
1/4"=1'-0"



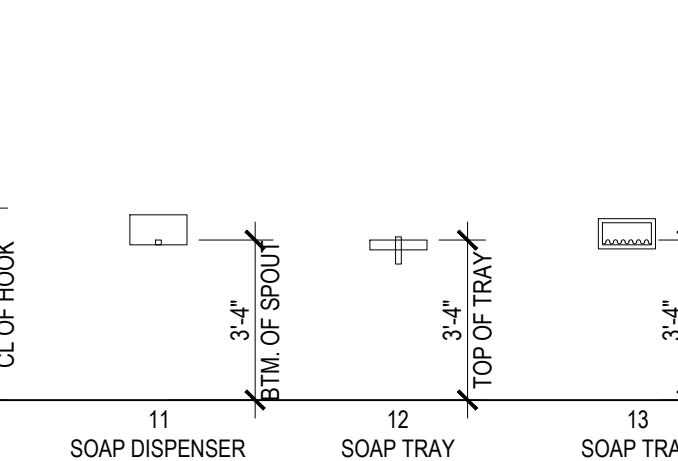
**31 Accessible Ramp**  
1/4"=1'-0"



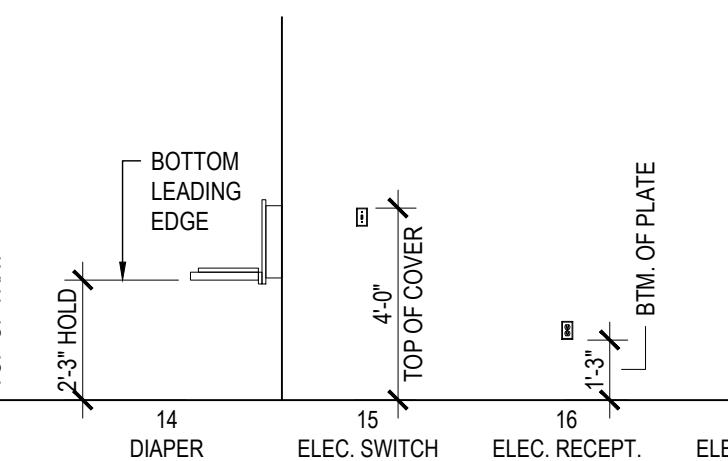
**32 Accessible Ramp**  
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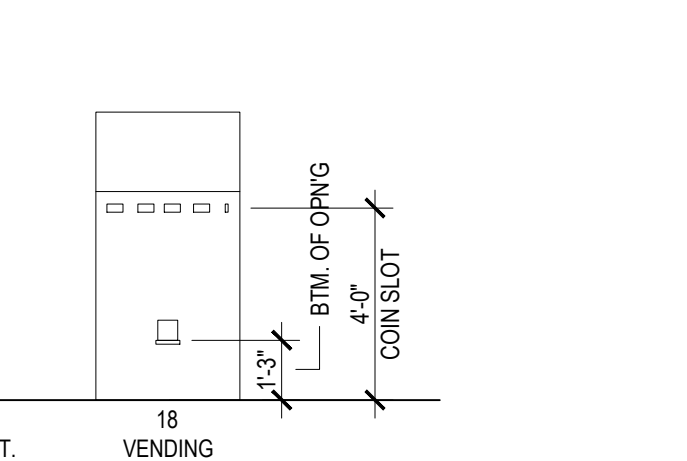
**33 Accessible Ramp**  
1/4"=1'-0"



**34 Accessible Ramp**  
1/4"=1'-0"



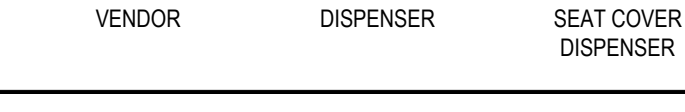
**35 Accessible Ramp**  
1/4"=1'-0"



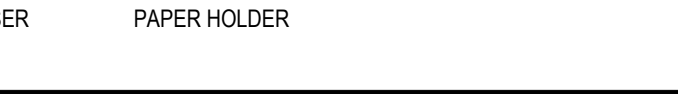
**36 Accessible Ramp**  
1/4"=1'-0"



**37 Accessible Ramp**  
1/4"=1'-0"



**38 Accessible Ramp**  
1/4"=1'-0"



**39 Accessible Ramp**  
1/4"=1'-0"



**40 Accessible Ramp**  
1/4"=1'-0"



**41 Accessible Ramp**  
1/4"=1'-0"



**42 Accessible Ramp**  
1/4"=1'-0"



**43 Accessible Ramp**  
1/4"=1'-0"



**44 Accessible Ramp**  
1/4"=1'-0"



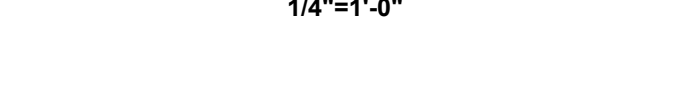
**45 Accessible Ramp**  
1/4"=1'-0"



**46 Accessible Ramp**  
1/4"=1'-0"



**47 Accessible Ramp**  
1/4"=1'-0"



**48 Accessible Ramp**  
1/4"=1'-0"



**49 Accessible Ramp**  
1/4"=1'-0"



**50 Accessible Ramp**  
1/4"=1'-0"



**51 Accessible Ramp**  
1/4"=1'-0"



**52 Accessible Ramp**  
1/4"=1'-0"



**53 Accessible Ramp**  
1/4"=1'-0"



**54 Accessible Ramp**  
1/4"=1'-0"



**55 Accessible Ramp**  
1/4"=1'-0"



**56 Accessible Ramp**  
1/4"=1'-0"



**57 Accessible Ramp**  
1/4"=1'-0"



**58 Accessible Ramp**  
1/4"=1'-0"



**59 Accessible Ramp**  
1/4"=1'-0"



**60 Accessible Ramp**  
1/4"=1'-0"



**61 Accessible Ramp**  
1/4"=1'-0"



**62 Accessible Ramp**  
1/4"=1'-0"



**63 Accessible Ramp**  
1/4"=1'-0"



**64 Accessible Ramp**  
1/4"=1'-0"



**65 Accessible Ramp**  
1/4"=1'-0"



**66 Accessible Ramp**  
1/4"=1'-0"



**67 Accessible Ramp**  
1/4"=1'-0"



**68 Accessible Ramp**  
1/4"=1'-0"



**69 Accessible Ramp**  
1/4"=1'-0"



**70 Accessible Ramp**  
1/4"=1'-0"



**71 Accessible Ramp**  
1/4"=1'-0"



**72 Accessible Ramp**  
1/4"=1'-0"



**73 Accessible Ramp**  
1/4"=1'-0"



**74 Accessible Ramp**  
1/4"=1'-0"



**75 Accessible Ramp**  
1/4"=1'-0"



**76 Accessible Ramp**  
1/4"=1'-0"



**77 Accessible Ramp**  
1/4"=1'-0"



**78 Accessible Ramp**  
1/4"=1'-0"



**79 Accessible Ramp**  
1/4"=1'-0"



**80 Accessible Ramp**  
1/4"=1'-0"



**81 Accessible Ramp**  
1/4"=1'-0"



**82 Accessible Ramp**  
1/4"=1'-0"



**83 Accessible Ramp**  
1/4"=1'-0"



**84 Accessible Ramp**  
1/4"=1'-0"



**85 Accessible Ramp**  
1/4"=1'-0"



**86 Accessible Ramp**  
1/4"=1'-0"



**87 Accessible Ramp**  
1/4"=1'-0"



**88 Accessible Ramp**  
1/4"=1'-0"



**89 Accessible Ramp**  
1/4"=1'-0"



**90 Accessible Ramp**  
1/4"=1'-0"



**91 Accessible Ramp**  
1/4"=1'-0"



**92 Accessible Ramp**  
1/4"=1'-0"



**93 Accessible Ramp**  
1/4"=1'-0"





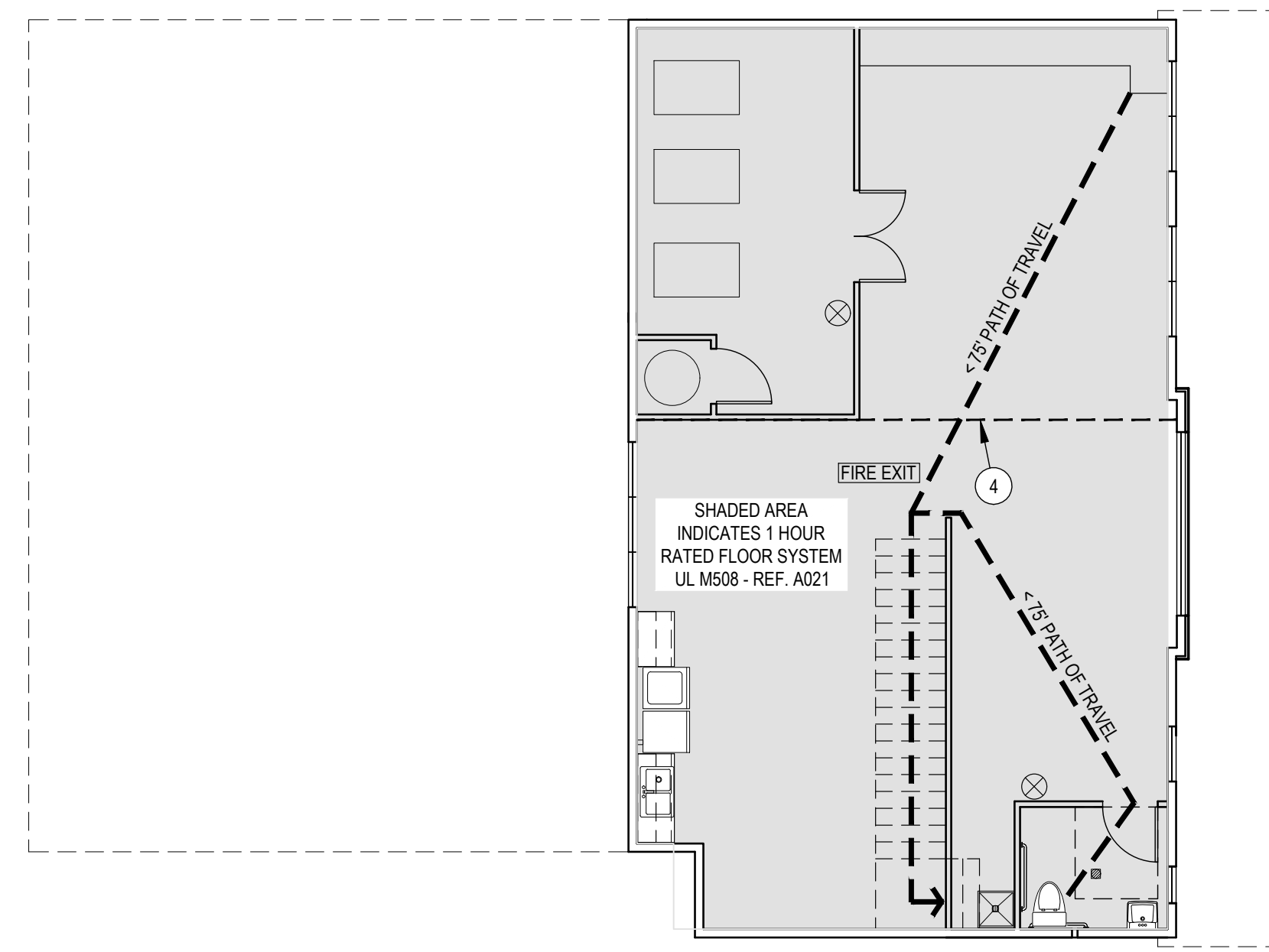
**Sun, Moon & Stars Learning Crt.**  
 3808 South 1st Street  
 Austin, TX, 78704

**N-VIZION**  
 FORMS - ENVIRONMENTS - IMAGES

**Life Safety Plan & Details**  
 Project Number: 210105  
 N-vizion Design, LLC - 5900 Shepherd Mountain Cove, Ste 2-250  
 Austin, TX 78730 p:512.327.9955 www.n-vizion.net  
 Registration Nos.: TX PE Firm-F-12225 TX-25489, LA: 9413  
 MI: 1301069591, NV: 6252, NC: 14865, OH: ARCC: 017885

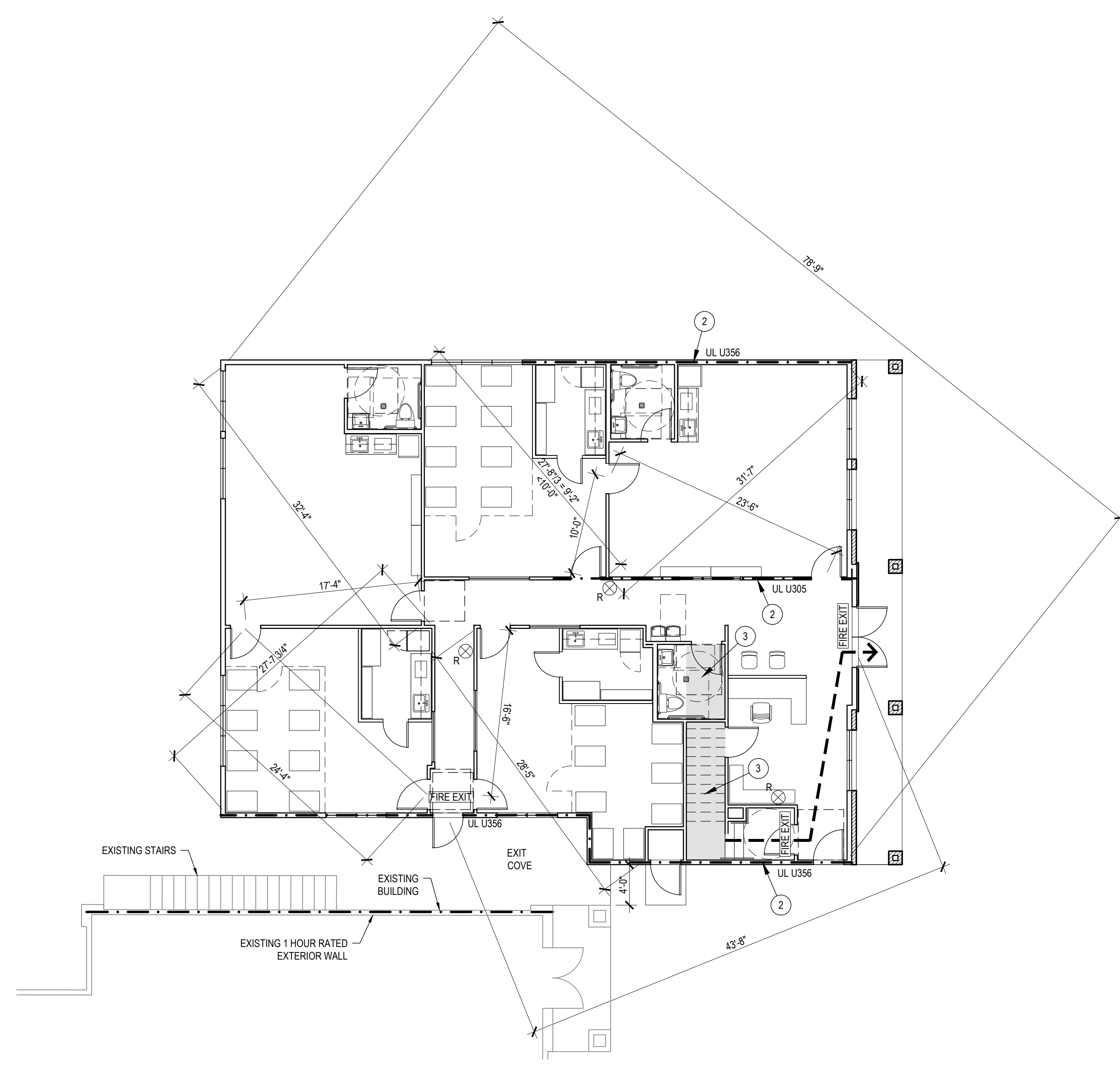
Date:	03/02/22
Description:	FOR CONSTRUCTION

**A020**



**02 Life Safety Plan - Upper Level**

1/8"=1'-0"



**01 Life Safety Plan - Main Level**

1/8"=1'-0"

**LIFE SAFETY KEY NOTES**

1. FIRE EXTINGUISHER. AN EXTINGUISHER SHALL BE LOCATED WITHIN 75 FT. WALKING DISTANCE FROM ANY POINT IN THE BUILDING, AND EACH EXTINGUISHER SHALL COVER A FLOOR AREA NOT GREATER THAN 1000 SQUARE FEET PER UNIT OF "A" RATING.
2. 1 HOUR EXTERIOR WALL FIRST FLOOR ONLY. REFERENCE UL DETAILS SHEET A021.
3. 5/8" TYPE 'X' GYP. BOARD APPLIED TO UNDERSIDE OF STAIRS. PROVIDE DRAFTSTOPPING IN FLOOR SYSTEM.

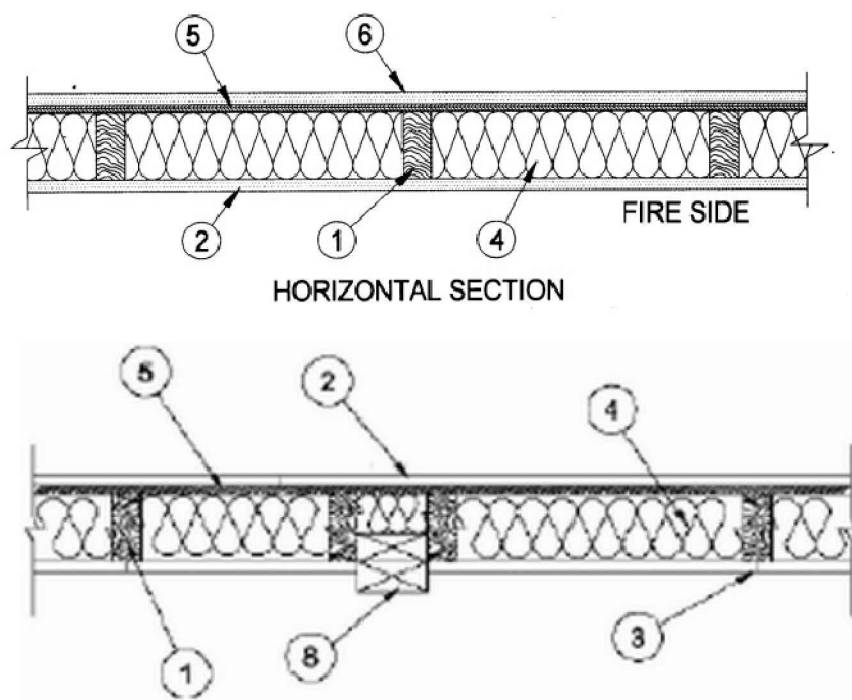
**LIFE SAFETY GENERAL NOTES**

1. AT ALL FIRE RATED PARTITIONS AND SMOKE PARTITIONS, SEAL ALL PENETRATIONS AND SILL-WALL AND HEAD-WALL WITH FIRESTOPPING.
2. ALL FIRE RATED PARTITIONS SHALL BE CONSTRUCTED IN STRICT CONFORMANCE TO U.L. TESTED ASSEMBLIES AS NOTED. CONTRACTOR IS RESPONSIBLE FOR OBTAINING A COPY OF THE U.L. FIRE RESISTANCE DIRECTORY AND HAVING IT AVAILABLE AT THE SITE. THE MOST CURRENT U.L. FIRE RESISTANCE DIRECTORY TAKES PRECEDENCE OVER DETAILS PROVIDED IN THIS SET. WHERE DISCREPANCIES EXIST THE MOST CURRENT U.L. FIRE RESISTANCE DIRECTORY SHALL BE USED.
3. WHERE GYPSUM WALLBOARD IS NOT APPLIED TO BOTH SIDES OF PARTITION FRAMING, INSTALL HORIZONTAL BRIDGING.
4. BOTTOM OF STRUCTURE REFERS TO BOTTOM OF: METAL FLOOR DECK, METAL ROOF DECK, CONCRETE DECK, CONCRETE ROOF, OR WHICHEVER IS APPLICABLE.
5. BOTTOM OF STRUCTURAL FRAMING REFERS TO BOTTOM OF: STEEL BEAM, STEEL GIRDER, STEEL BAR JOIST, CONCRETE BEAM, CONCRETE TEE, WHICHEVER IS APPLICABLE.
6. ALL FINISH MATERIAL TO COMPLY W/ LOCALLY ADOPTED CODE. NOTE - ALL METAL STUD FRAMING TO BE SHEATHED W/ 5/8" SHEETROCK U.O. ALL SHEATHING TO BE APPLIED DIRECTLY TO STUDS MUST BE A COMPLYING NON-COMBUSTIBLE OR LIMITED COMBUSTIBLE MATERIAL AS ACCEPTED BY THE CODE.
7. WHERE REQUIRED, PROVIDE A FIRE ALARM SYSTEM IN ACCORDANCE W/ THE LOCALLY ADOPTED CODE - ALARM SYSTEM DRAWINGS TO BE APPROVED TO FIRE MARSHALL & N-VIZION PRIOR TO INSTALLATION. ALL NEW ALARM DEVICES INSTALLED IN PROJECT TO COMPLY WITH TAS INCLUDING BUT NOT LIMITED TO - ALL VISUAL ALARM DEVICES TO BE MOUNTED 80" ABOVE HIGHEST FINISH FLOOR HEIGHT OR 6" BELOW CEILING WHICHEVER IS LOWER.
8. ALL ELEVATED WOOD FLOORS ON SLEEPERS MUST COMPLY W/ THE LOCALLY ADOPTED CODE. THE FURRING SPACE SHALL BE FILLED WITH NON-COMBUSTIBLE OR LIMITED-COMBUSTIBLE MATERIAL OR SHALL BE FIREBLOCKED SO THAT THERE WILL BE NO OPEN SPACE OVER 100SQ FT IN AREA UNDER THE FLOORING. THE FURRING SPACE CREATED BY SLEEPERS SHALL BE FILLED SOLIDLY UNDER ALL PERMANENT PARTITIONS TP PREVENT SPREAD OF FIRE UNDER THE FLOORING.
9. WHERE REQUIRED, PROVIDE A SPRINKLER SYSTEM IN ACCORDANCE W/ THE LOCALLY ADOPTED CODE - ALARM SYSTEM DRAWINGS TO BE APPROVED TO FIRE MARSHALL & N-VIZION PRIOR TO INSTALLATION.

**Fire Protection Legend**

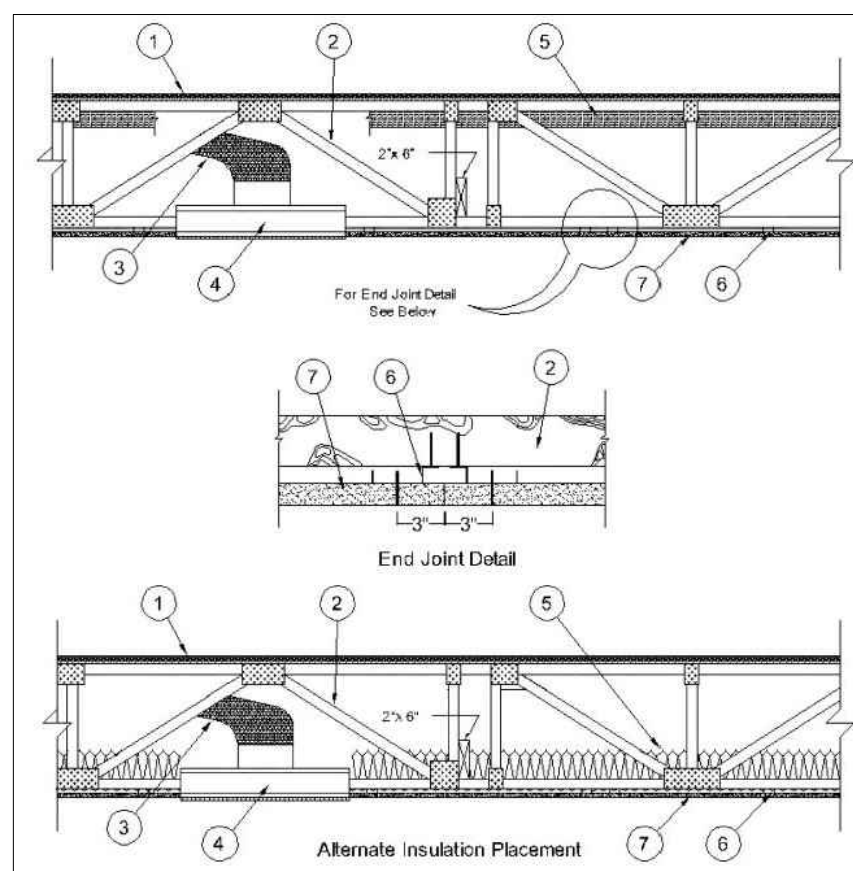
FIRE EXIT	REQUIRED EXIT
⊗	FIRE EXTINGUISHER
⊗ <sub>R</sub>	WALL MOUNTED FIRE EXTINGUISHER IN RECESSED CASE
⊙ <sub>SD</sub>	SMOKE DETECTOR
—	METAL STUD WALL
▨	EXISTING MASONRY WALL
▩	EXISTING CMU WALL
- . - .	ONE HOUR RATING

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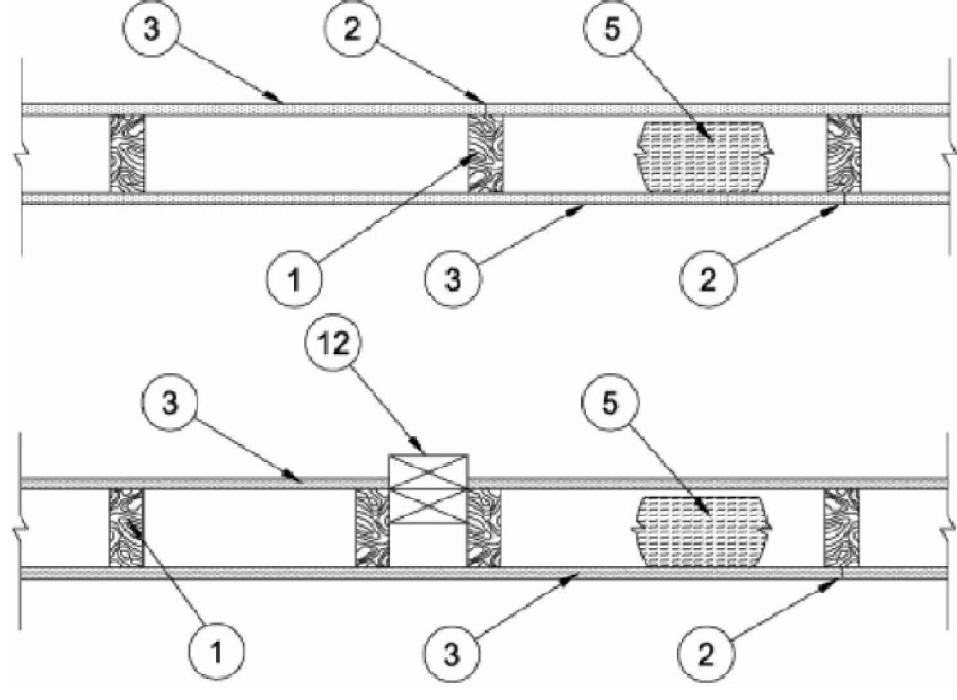
**03 1 Hour Fire Rated Exterior Wall — NTS  
U.L. NO. U356**

- 1. WOOD STUDS** — NOM 2 BY 4 IN. SPACED 16 IN. OC WITH TWO 2 BY 4 IN. TOP AND ONE 2 BY 4 IN. BOTTOM PLATES. STUDS LATERALLY BRACED BY WOOD STRUCTURAL PANEL SHEATHING (ITEM 5). WHEN MINERAL AND FIBER BOARDS\* (ITEM 5A) ARE CONSIDERED AS BRACING FOR THE STUDS, THE LOAD IS RESTRICTED TO 75% OF ALLOWABLE AXIAL LOAD. WALLS EFFECTIVELY FIRE STOPPED AT TOP AND BOTTOM OF WALL.
- 2. GYPSUM BOARD\*** — ANY 5/8 IN. THICK UL CLASSIFIED GYPSUM BOARD THAT IS ELIGIBLE FOR USE IN DESIGN NOS. L501, G512 OR U305. NOM 5/8 IN. THICK, 4 FT WIDE, APPLIED VERTICALLY AND NAILED TO STUDS AND BEARING PLATES 7 IN. OC WITH 6D CEMENT-COATED NAILS, 1-7/8 IN. LONG WITH 1/4 IN. DIAM HEAD. WHEN ITEM 7, STEEL FRAMING MEMBERS\*, IS USED, GYPSUM PANELS ATTACHED TO FURRING CHANNELS WITH 1 IN. LONG TYPE S BUGLE-HEAD STEEL SCREWS SPACED 12 IN. OC. WHEN ITEM 7A, STEEL FRAMING MEMBERS\*, IS USED, TWO LAYERS OF GYPSUM PANELS ATTACHED TO FURRING CHANNELS. BASE LAYER ATTACHED TO FURRING CHANNELS WITH 1 IN. LONG TYPE S BUGLE-HEAD STEEL SCREWS SPACED 12 IN. OC. FACE LAYER ATTACHED TO FURRING CHANNELS WITH 1-5/8 IN. LONG TYPE S BUGLE-HEAD STEEL SCREWS SPACED 12 IN. OC. ALL JOINTS IN FACE LAYERS STAGGERED WITH JOINTS IN BASE LAYERS.
- ACADIA DRYWALL SUPPLIES LTD (VIEW CLASSIFICATION) — CNXN.R25370  
AMERICAN GYPSUM CO (VIEW CLASSIFICATION) — CNXN.R14156  
CERTAINTED GYPSUM INC (VIEW CLASSIFICATION) — CNXN.R3660  
CGC INC (VIEW CLASSIFICATION) — CNXN.R19751  
GEORGIA-PACIFIC GYPSUM L L C (VIEW CLASSIFICATION) — CNXN.R2717  
LAFARGE NORTH AMERICA INC (VIEW CLASSIFICATION) — CNXN.R18482  
LOADMASTER SYSTEMS INC (VIEW CLASSIFICATION) — CNXN.R11809  
NATIONAL GYPSUM CO (VIEW CLASSIFICATION) — CNXN.R3501  
PABCO BUILDING PRODUCTS L L C, DBA PABCO GYPSUM (VIEW CLASSIFICATION) — CNXN.R7094  
PANEL REY S A (VIEW CLASSIFICATION) — CNXN.R21796  
TEMPLE-INLAND (VIEW CLASSIFICATION) — CNXN.R6937  
UNITED STATES GYPSUM CO (VIEW CLASSIFICATION) — CNXN.R1319
- 3. JOINTS AND NAIL HEADS** — (NOT SHOWN) — WALLBOARD JOINTS COVERED WITH TAPE AND JOINT COMPOUND. NAIL HEADS COVERED WITH JOINT COMPOUND.
- 4. BATTS AND BLANKETS\*** — MINERAL FIBER OR GLASS FIBER INSULATION, 3-1/2 IN. THICK, PRESSURE FIT TO FILL WALL CAVITIES BETWEEN STUDS AND PLATES. MINERAL FIBER INSULATION TO BE UNFACED AND TO HAVE A MIN DENSITY OF 3 PCF. GLASS FIBER INSULATION TO BE FACED WITH ALUMINUM FOIL OR KRAFT PAPER AND TO HAVE A MIN DENSITY OF 0.9 PCF (MIN R-13 THERMAL INSULATION RATING). SEE BATTS AND BLANKETS\* (BKNV) CATEGORY IN THE BUILDING MATERIALS DIRECTORY AND BATTS AND BLANKETS\* (BZJZ) CATEGORY IN THE FIRE RESISTANCE DIRECTORY FOR NAMES OF CLASSIFIED COMPANIES.
- 5. WOOD STRUCTURAL PANEL SHEATHING** — MIN 7/16 IN. THICK, 4 FT WIDE WOOD STRUCTURAL PANELS, MIN GRADE "C-D" OR "SHEATHING", INSTALLED WITH LONG DIMENSION OF SHEET (STRENGTH AXIS) OR FACE GRAIN OF PLYWOOD PARALLEL WITH OR PERPENDICULAR TO STUDS. VERTICAL JOINTS CENTERED ON STUDS. HORIZONTAL JOINTS BACKED WITH NOM 2 BY 4 IN. WOOD BLOCKING. ATTACHED TO STUDS ON EXTERIOR SIDE OF WALL WITH 6D CEMENT COATED BOX NAILS SPACED 6 IN. OC AT PERIMETER OF PANELS AND 12 IN. OC ALONG INTERIOR STUDS.
- 5A. MINERAL AND FIBER BOARDS\*** — AS AN ALTERNATE TO ITEM 5 - MIN 1/2 IN. THICK, 4 FT WIDE SHEATHING, INSTALLED VERTICALLY TO STUDS. VERTICAL JOINTS CENTERED ON STUDS. HORIZONTAL JOINTS BACKED WITH NOM 2 BY 4 IN. WOOD BLOCKING. ATTACHED TO STUDS ON EXTERIOR SIDE OF WALL WITH 1-1/2 IN. LONG GALVANIZED ROOFING NAILS SPACED 6 IN. OC AT PERIMETER OF PANELS AND 12 IN. OC ALONG INTERIOR STUDS. AS AN OPTION A WEATHER RESISTIVE BARRIER MAY BE APPLIED OVER THE MINERAL AND FIBER BOARDS.
- TEMPLE-INLAND FOREST PRODUCTS CORP — TYPES FIBERBRACE OR QUIETBRACE
- 6. EXTERIOR FACINGS** — INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS. ONE OF THE FOLLOWING EXTERIOR FACINGS IS TO BE APPLIED OVER THE SHEATHING:
  - a. CEMENTITIOUS STUCCO — PORTLAND CEMENT OR SYNTHETIC STUCCO SYSTEMS WITH SELF-FURRING METAL LATH OR ADHESIVE BASE COAT. THICKNESS FROM 3/8 TO 3/4 IN., DEPENDING ON SYSTEM.
  - b. NON-BEARING WALL PARTITION INTERSECTION — (OPTIONAL), TWO NOMINAL 2 BY 4 IN. STUD OR NOMINAL 2 BY 6 IN. STUD NAILED TOGETHER WITH TWO 3M, LONG 10D NAILS SPACED A MAX. 16 IN. OC. VERTICALLY AND FASTENED TO ONE SIDE OF THE MINIMUM 2 BY 4 IN. STUD WITH 3 IN. LONG 10D NAILS SPACED A MAX. 16 IN. OC. VERTICALLY. INTERSECTION BETWEEN PARTITION WOOD STUDS TO BE FLUSH WITH THE 2 BY 4 IN. STUDS. THE WALL PARTITION WOOD STUDS ARE TO BE FRAMED BY WITH A SECOND 2 BY 4 IN. WOOD STUD FASTENED WITH 3 IN. LONG 10D NAILS SPACED A MAX. 16 IN. OC. VERTICALLY. MAXIMUM ONE NON-BEARING WALL PARTITION INTERSECTION PER STUD CAVITY. NON-BEARING WALL PARTITION STUD DEPTH SHALL BE AT A MINIMUM EQUAL TO THE DEPTH OF THE BEARING WALL.



**02 Fire Rated Floor U.L. NO. M508 — NTS  
UNRESTRAINED ASSEMBLY RATING - 1 HR.  
FINISH RATING - 23 MIN.**

- 1. FLOORING SYSTEM** — SUBFLOORING — MIN 23/32 IN. THICK WOOD STRUCTURAL PANELS, MIN GRADE "C-D" OR "SHEATHING", FACE GRAIN OF PLYWOOD OR STRENGTH AXIS OF PANELS TO BE PERPENDICULAR TO THE JOISTS WITH JOINTS STAGGERED.
- VAPOR BARRIER — COMMERCIAL ASPHALT SATURATED FELT, 0.030 IN. THICK.
- VAPOR BARRIER — (OPTIONAL) - NOM 0.010 IN. THICK COMMERCIAL ROSIN-SIZED BUILDING PAPER.
- FINISH FLOORING — MIN 3/4 IN. THICKNESS OF ANY FLOOR TOPPING MIXTURE BEARING THE UL CLASSIFICATION MARKING AS TO FIRE RESISTANCE. SEE FLOOR AND ROOF-TOPPING MIXTURES (COOY) CATEGORY FOR NAMES OF CLASSIFIED COMPANIES.
- FLOOR MAT MATERIALS — (OPTIONAL) - NOM. 1 IN. THICK LOOSE LAID OVER THE SUBFLOOR. FLOOR TOPPING THICKNESS SHALL BE A MINIMUM OF 1 1/2 IN.
- 2. TRUSSES** — PARALLEL CHORD TRUSSES, SPACED A MAX OF 24 IN. OC, FABRICATED FROM NOM 2 BY 4 LUMBER, WITH LUMBER ORIENTED VERTICALLY OR HORIZONTALLY. MIN TRUSS DEPTH IS 12 IN. TRUSS MEMBERS SECURED TOGETHER WITH MIN 0. 0356 IN. THICK GALVANIZED STEEL PLATES. PLATES HAVE 5/16 IN. LONG TEETH PROJECTING PERPENDICULAR TO THE PLANE OF THE PLATE. THE TEETH ARE IN PAIRS FACING EACH OTHER (MADE BY THE SAME PUNCH), FORMING A SPLIT TOOTH TYPE PLATE. EACH TOOL HAS A CHISEL POINT ON ITS OUTSIDE EDGE. THESE POINTS ARE DIAGONALLY OPPOSITE EACH OTHER FOR EACH PAIR. THE TOP HALF OF EACH TOOTH HAS A TWIST FOR STIFFNESS. THE PAIRS ARE REPEATED ON APPROX. 7/8 IN. CENTERS WITH FOUR ROWS OF TEETH PER INCH OF PLATE WIDTH.
- 3. AIR DUCT** — (OPTIONAL) ANY UL CLASS 0 OR CLASS 1 FLEXIBLE AIR DUCT INSTALLED IN ACCORDANCE WITH THE INSTRUCTIONS PROVIDED BY THE DAMPER MANUFACTURER.
- 4. DAMPER** — (OPTIONAL, TO BE USED WITH AIR DUCT ITEM 3) FOR USE WITH MIN 18 IN. DEEP TRUSSES. MAX NOM 21 IN. LONG BY 18 IN. WIDE. FABRICATED FROM GALVANIZED STEEL. PLENUM BOX MAX SIZE NOM 21 IN. LONG BY 18 IN. WIDE BY 14 IN. HIGH (INNER DIMENSION) FABRICATED FROM EITHER GALVANIZED STEEL OR MIN 1 IN. THICK LISTED DUCT BOARD BEARING THE UL LISTING MARKINGS HAVING A MIN R-VALUE OF 4.3. INSTALLED IN ACCORDANCE WITH THE INSTRUCTIONS PROVIDED BY THE MANUFACTURER. MAX DAMPER OPENINGS NOT TO EXCEED 180 SQ IN. PER 100 SQ FT OF CEILING AREA.
- 5. BATTS AND BLANKETS\*** — (OPTIONAL) - GLASS FIBER OR MINERAL WOOL INSULATION BEARING THE UL CLASSIFICATION MARKING AS TO SURFACE BURNING CHARACTERISTICS AND/OR FIRE RESISTANCE. WHEN THE RESILIENT CHANNELS (ITEM 6) ARE SPACED 16 IN. OC, THE INSULATION SHALL BE A MAX OF 3-1/2 IN. THICK, AND SHALL BE SECURED AGAINST THE SUBFLOORING WITH STAPLES AT 12 IN. OC OR HELD SUSPENDED IN THE CONCEALED SPACE WITH 0.090 IN. DIAM GALV STEEL WIRES ATTACHED TO THE WOOD TRUSSES AT 12 IN. OC. WHEN THE RESILIENT CHANNELS ARE SPACED A MAX OF 12 IN. OC OR WHEN THE STEEL FRAMING MEMBERS (ITEM 6A) ARE USED, THERE IS NO LIMIT IN THE OVERALL THICKNESS OF INSULATION, AND THE INSULATION CAN BE SECURED AGAINST THE SUBFLOORING, HELD SUSPENDED IN THE CONCEALED SPACE OR DRAPED OVER THE RESILIENT CHANNELS (OR STEEL FRAMING MEMBERS) AND GYPSUM PANEL MEMBRANE. THE FINISHED RATING HAS ONLY BEEN DETERMINED WHEN THE INSULATION IS SECURED TO THE SUBFLOORING.
- 5A. LOOSE FILL MATERIAL** — (OPTIONAL) - AS AN ALTERNATE TO ITEM 5, WHEN THE RESILIENT CHANNELS (ITEM 6) ARE SPACED A MAXIMUM OF 12 IN. OC, OR WHEN THE STEEL FRAMING MEMBERS (ITEM 6A) ARE USED - ANY LOOSE FILL MATERIAL BEARING THE UL CLASSIFICATION MARKING FOR SURFACE BURNING CHARACTERISTICS. THERE IS NO LIMIT IN THE OVERALL THICKNESS OF INSULATION, THE FINISHED RATING WHEN LOOSE FILL MATERIAL IS USED HAS NOT BEEN DETERMINED.
- 6. RESILIENT CHANNELS** — FORMED FROM MIN 0.020 IN. THICK GALV STEEL, 1/2 IN. DEEP BY 2-3/8 IN. WIDE AT THE BASE AND 1-3/8 IN. WIDE AT THE FACE, SPACED 16 IN. OC PERPENDICULAR TO TRUSSES. WHEN INSULATION (ITEM 5 OR 5A) IS APPLIED OVER THE RESILIENT CHANNEL/GYPSUM PANEL CEILING MEMBRANE, THE RESILIENT CHANNEL SPACING SHALL BE REDUCED TO 12 IN. OC. CHANNELS SECURED TO EACH TRUSS WITH 1-1/4 IN. LONG TYPE S BUGLE HEAD STEEL SCREWS. CHANNELS OVERLAPPED 4 IN. AT SPLICES. TWO CHANNELS, SPACED 6 IN. OC, ORIENTED OPPOSITE EACH GYPSUM PANEL END JOINT AS SHOWN IN THE ABOVE ILLUSTRATION. ADDITIONAL CHANNELS SHALL EXTEND MIN 6 IN. BEYOND EACH SIDE EDGE OF PANEL.
- 6A. STEEL FRAMING MEMBERS** — (NOT SHOWN) - AS AN ALTERNATE TO ITEM 6
  - a. FURRING CHANNELS — FORMED OF NO. 25 MSG GALV STEEL, NOMINAL 2-1/2 IN. WIDE BY 7/8 IN. DEEP, SPACED AS INDICATED IN ITEM 6, PERPENDICULAR TO TRUSSES AND FRICTION FIT INTO STEEL FRAMING MEMBERS (ITEM 6HC), ENDS OF ADJOINING CHANNELS OVERLAPPED 6 IN. AND TIED TOGETHER WITH DOUBLE STRAND OF NO. 18 SWG GALV STEEL WIRE NEAR EACH END OF OVERLAP OR WITH TWO TEK SCREWS ALONG EACH LEG OF THE 6 IN. OVERLAP. TWO FURRING CHANNELS USED AT END. JOINTS OF GYPSUM BOARD (ITEM 7), BUTT JOINT CHANNELS HELD IN PLACE BY STRONG BACK CHANNELS PLACED UPSIDE DOWN, ON TOP OF, AND RUNNING PERPENDICULAR TO PRIMARY FURRING CHANNELS, EXTENDING 6 IN. LONGER THAN LENGTH OF GYPSUM SIDE JOINT. STRONG BACK CHANNELS SPACED MAXIMUM 48 IN. OC. STRONG BACK CHANNELS SECURED TO EVERY INTERSECTION OF PRIMARY FURRING CHANNELS WITH FOUR 7/16 IN. PAN HEAD SCREWS, TWO ALONG EACH OF THE LEGS AT INTERSECTIONS. BUTT JOINT CHANNELS RUN PERPENDICULAR TO STRONG BACK CHANNELS AND SHALL BE MINIMUM 6 IN. LONGER THAN LENGTH OF JOINT, SECURED TO STRONG BACK CHANNELS WITH 7/16 IN. PAN HEAD SCREWS, TWO ALONG EACH OF THE LEGS AT INTERSECTION WITH STRONG BACK CHANNELS.
    - b. BLOCKING — WHERE TRUSS DESIGN DOES NOT PERMIT DIRECT, FULL CONTACT OF THE HANGER BRACKET, A PIECE OF NOMINAL 2 BY 4 IN. LUMBER (BLOCKING), MIN. 12 IN. LONG TO PERMIT FULL CONTACT OF THE HANGER BRACKET, TO BE SECURED VERTICALLY TO THE SIDE OF THE TRUSSES AT THE TOP AND BOTTOM OF THE BLOCKING AT EACH STEEL FRAMING MEMBER (ITEM 6C) LOCATION WITH 16D NAILS OR MINIMUM 2-1/2 IN. SCREWS.
    - c. STEEL FRAMING MEMBERS\* — USED TO ATTACH FURRING CHANNELS (ITEM 6A) TO TRUSSES. CLIPS SPACED 48 IN. OC AND SECURED ALONG TRUSS WEBS AT EACH FURRING CHANNEL INTERSECTION WITH MIN. 3/4 IN. LONG SELF-DRILLING #10 X 1-1/2 IN. SCREWS THROUGH EACH OF THE PROVIDED HOLE LOCATIONS. FURRING CHANNELS ARE FRICTION FITTED INTO CLIPS.
  - b. STEEL FRAMING MEMBERS\* — USED TO ATTACH FURRING CHANNELS (ITEM 6A) TO TRUSSES. CLIPS SPACED 48 IN. OC AND SECURED ALONG TRUSS WEBS AT EACH FURRING CHANNEL INTERSECTION WITH MIN. 3/4 IN. LONG SELF-DRILLING #10 X 1-1/2 IN. SCREWS THROUGH EACH OF THE PROVIDED HOLE LOCATIONS. FURRING CHANNELS ARE FRICTION FITTED INTO CLIPS.
- 7. GYPSUM BOARD** — NOM 5/8 IN. THICK, 48 IN. WIDE GYPSUM PANELS. WHEN RESILIENT CHANNELS (ITEM 6) ARE USED, GYPSUM PANELS INSTALLED WITH LONG DIMENSION PERPENDICULAR TO RESILIENT CHANNELS. GYPSUM PANELS SECURED WITH 1 IN. LONG TYPE S BUGLE HEAD STEEL SCREWS SPACED 12 IN. OC AND LOCATED A MIN OF 1/2 IN. FROM SIDE JOINTS AND 3 IN. FROM END JOINTS. WHEN INSULATION (ITEMS 5 OR 5A) IS APPLIED OVER THE RESILIENT CHANNEL/GYPSUM PANEL CEILING MEMBRANE, THE CREW SPACING SHALL BE REDUCED TO 8 IN. OC. END JOINTS SECURED TO BOTH RESILIENT CHANNELS AS SHOWN IN END JOINT DETAIL. WHEN STEEL FRAMING MEMBERS (ITEM 6A) ARE USED, NOM 5/8 IN. THICK, 4 FT WIDE GYPSUM BOARD, INSTALLED AS DESCRIBED IN ITEM 7, BUTT JOINTS STAGGERED MINIMUM 24 IN. OC.
- 8. Finishing System** — (NOT SHOWN) — VINYL, DRY OR PREMIXED JOINT COMPOUND, APPLIED TO TWO COATS TO JOINTS AND SCREW HEADS. NOM 2 IN. WIDE PAPER TAPE EMBEDDED IN FIRST LAYER OF COMPOUND OVER ALL JOINTS. AS AN ALTERNATE, NOM 3/32 IN. THICK VENEER PLASTER MAY BE APPLIED TO THE ENTIRE SURFACE OF GYPSUM BOARD.



**01 1 Hour Fire Rated Partition — NTS  
U.L. NO. U305**

- 1. WOOD STUDS** — NOM 2 BY 4 IN. SPACED 16 IN. OC MAX, EFFECTIVELY FIRESTOPPED.
- 2. JOINTS AND NAIL HEADS** — JOINTS COVERED WITH JOINT COMPOUND AND PAPER TAPE. JOINT COMPOUND AND PAPER TAPE MAY BE OMITTED WHEN SQUARE EDGE BOARDS ARE USED. AS AN ALTERNATE, NOM 3/32 IN. THICK GYPSUM VENEER PLASTER MAY BE APPLIED TO THE ENTIRE SURFACE OF CLASSIFIED VENEER BASEBOARD WITH THE JOINTS REINFORCED WITH PAPER TAPE. NAILHEADS EXPOSED OR COVERED WITH JOINT COMPOUND.
- 3. GYPSUM BOARD\*** — 5/8 IN. THICK PAPER OR VINYL SURFACED, WITH BEVELED, SQUARE, OR TAPERED EDGES, APPLIED EITHER HORIZONTALLY OR VERTICALLY. GYPSUM PANELS NAILED 7 IN. OC WITH 6D CEMENT COATED NAILS 1-7/8 IN. LONG, 0.0915 IN. SHANK DIAM AND 15/8 IN. DIAM HEADS. WHEN USED IN WIDTHS OTHER THAN 48 IN., GYPSUM PANELS ARE TO BE INSTALLED HORIZONTALLY. FOR AN ALTERNATE METHOD OF ATTACHMENT OF GYPSUM PANELS, REFER TO ITEM 6, 6A OR 6B, STEEL FRAMING MEMBERS\*.
- 4. STEEL CORNER FASTENERS** — (OPTIONAL) — FOR USE AT WALL CORNERS. CHANNEL SHAPED, 2 IN. LONG BY 1 IN. HIGH ON THE BACK SIDE WITH TWO 1/8 IN. LONG CLEATS PROTRUDING INTO THE 5/8 IN. WIDE CHANNEL. FABRICATED FROM 24 GAUGE GALV STEEL. FASTENERS APPLIED ONLY TO THE END OR CUT EDGE OF THE PLATE. THE TEETH ARE IN PAIRS FACING EACH OTHER (MADE BY THE SAME PUNCH), FORMING A SPLIT TOOTH TYPE PLATE. EACH TOOL HAS A CHISEL POINT ON ITS OUTSIDE EDGE. THESE POINTS ARE DIAGONALLY OPPOSITE EACH OTHER FOR EACH PAIR. THE TOP HALF OF EACH TOOTH HAS A TWIST FOR STIFFNESS. THE PAIRS ARE REPEATED ON APPROX. 7/8 IN. CENTERS WITH FOUR ROWS OF TEETH PER INCH OF PLATE WIDTH.
- 5. BATTS AND BLANKETS\*** — (OPTIONAL - REQUIRED WHEN ITEM 6A IS USED) GLASS FIBER OR MINERAL WOOL INSULATION. PLACED TO COMPLETELY OR PARTIALLY FILL THE STUD CAVITIES. WHEN ITEM 6A IS USED, GLASS FIBER OR MINERAL WOOL INSULATION SHALL BE PLACED TO COMPLETELY FILL THE STUD CAVITIES AND SHALL BE SECURED TO THE STUDS 24 IN. OC WITH STAPLES, NAILS OR SCREWS.
- CERTAINTED CORP  
GUARDIAN FIBERGLASS INC  
JOHNS MANVILLE INTERNATIONAL INC  
KNAUF INSULATION GMBH  
MANSON INSULATION INC  
OWENS CORNING HT INC, DIV OF OWENS CORNING — CORNING FIBERGLAS CORP.  
ROCK WOOL MANUFACTURING CO — DELTA BOARD.  
ROCKWOOL MALAYSIA SDN BHD — ACOUSTICAL FIRE BATTS  
ROXUL INC — ACOUSTICAL FIRE BATTS  
THERMAFIBER INC — TYPE SAFB.
- 5A. FIBER, SPRAYED\*** — (NOT SHOWN - NOT FOR USE WITH ITEM 6A) AS AN ALTERNATE TO BATTS AND BLANKETS (ITEM 5) — SPRAY APPLIED CELLULOSE MATERIAL. THE FIBER IS APPLIED WITH WATER TO COMPLETELY FILL THE ENCLOSED CAVITY IN ACCORDANCE WITH THE APPLICATION INSTRUCTIONS SUPPLIED WITH THE PRODUCT WITH A NOMINAL DRY DENSITY OF 2.7 LB/FT3. ALTERNATE APPLICATION METHOD: THE FIBER IS APPLIED WITHOUT WATER OR ADHESIVE AT A NOMINAL DRY DENSITY OF 3.5 LB/FT3, IN ACCORDANCE WITH THE APPLICATION INSTRUCTIONS SUPPLIED WITH THE PRODUCT. WHEN ITEM 6B IS USED, FIBER, SPRAYED SHALL BE IN5735, IN5745, IN5765LD OR IN5770LD.
- U S GREENFIBER L L C — IN5735 & IN5745 FOR USE WITH WET OR DRY APPLICATION. IN570LD, IN5515LD, IN5541LD, IN5735, IN5745, IN5765LD, AND IN5770LD ARE TO BE USED FOR DRY APPLICATION ONLY.
- 5B. FIBER, SPRAYED\*** — (NOT SHOWN - NOT FOR USE WITH ITEM 6A) AS AN ALTERNATE TO BATTS AND BLANKETS (ITEM 5) AND ITEM 5A - SPRAY APPLIED CELLULOSE INSULATION MATERIAL. THE FIBER IS APPLIED WITH WATER TO INTERIOR SURFACES IN ACCORDANCE WITH THE APPLICATION INSTRUCTIONS SUPPLIED WITH THE PRODUCT. APPLIED TO COMPLETELY FILL THE ENCLOSED CAVITY. MINIMUM DRY DENSITY OF 4.3 POUNDS PER CUBIC FT.
- NU-WOOL CO INC — CELLULOSE INSULATION
- 5C. BATTS AND BLANKETS\*** — REQUIRED FOR USE WITH RESILIENT CHANNELS, ITEM 7, 3 IN. THICK MINERAL WOOL BATTS, PLACED TO FILL INTERIOR OF WALL, ATTACHED TO THE 4 IN. FACE OF THE STUDS WITH STAPLES PLACED 24 IN. OC.  
THERMAFIBER INC — TYPE SAFB
- 5D. GLASS FIBER INSULATION** — (AS AN ALTERNATE TO ITEM 5C) — 3 IN. THICK GLASS FIBER BATTS BEARING THE UL CLASSIFICATION MARKING AS TO SURFACE BURNING AND/OR FIRE RESISTANCE. PLACED TO FILL THE INTERIOR OF THE WALL, ATTACHED TO THE 4 IN. FACE OF THE STUDS WITH STAPLES PLACED 24 IN. OC. SEE BATTS AND BLANKETS (BKNV OR BZJZ) CATEGORIES FOR NAMES OF CLASSIFIED COMPANIES.
- 5E. BATTS AND BLANKETS\*** — (REQUIRED FOR USE WITH WALL AND PARTITION FACINGS AND ACCESSORIES, ITEM 30) — GLASS FIBER INSULATION, NOM 3-1/2 IN. THICK, MIN. DENSITY OF 0.80 PCF, WITH A FLAME SPREAD OF 25 OR LESS AND A SMOKE DEVELOPED OF 50 OR LESS, FRICTION-FITTED TO COMPLETELY FILL THE STUD CAVITIES. SEE BATTS AND BLANKETS CATEGORY (BKNV) FOR NAMES OF MANUFACTURERS.
- 5F. FIBER, SPRAYED\*** — (OPTIONAL, NOT SHOWN - NOT FOR USE WITH ITEM 6, 6A OR 6B). AS AN ALTERNATE TO BATTS AND BLANKETS (ITEM 5) AND ITEM 5A - SPRAY APPLIED GRANULATED MINERAL FIBER MATERIAL. THE FIBER IS APPLIED WITH WATER TO COMPLETELY FILL THE ENCLOSED CAVITY IN ACCORDANCE WITH THE APPLICATION INSTRUCTIONS SUPPLIED WITH THE PRODUCT. SEE FIBER, SPRAYED (COAZ).
- AMERROCK PRODUCTS L P — ROCKWOOL
- 5G. FIBER, SPRAYED\*** — (OPTIONAL, NOT SHOWN - NOT FOR USE WITH ITEMS 6, 6A OR 6B). AS AN ALTERNATE TO BATTS AND BLANKETS (ITEM 5) AND ITEM 5A - BROWN COLORED SPRAY APPLIED CELLULOSE FIBER. THE FIBER IS APPLIED WITH WATER TO COMPLETELY FILL THE ENCLOSED STUD CAVITY IN

ACCORDANCE WITH THE APPLICATION INSTRUCTIONS SUPPLIED WITH THE PRODUCT. THE MINIMUM DRY DENSITY SHALL BE 4.30 LBS/FT3.

INTERNATIONAL CELLULOSE CORP — CELBAR-RL

**6. STEEL FRAMING MEMBERS (OPTIONAL, NOT SHOWN)\*** — FURRING CHANNELS AND STEEL FRAMING MEMBERS AS DESCRIBED BELOW:

- A. FURRING CHANNELS — FORMED OF NO. 25 MSG GALV STEEL, 2-9/16 IN. OR 2-23/32 IN. WIDE BY 7/8 IN. DEEP, SPACED 24 IN. OC PERPENDICULAR TO STUDS. CHANNELS SECURED TO STUDS AS DESCRIBED IN ITEM B. ENDS OF ADJOINING CHANNELS ARE OVERLAPPED 6 IN. AND TIED TOGETHER WITH DOUBLE STRAND OF NO. 18 SWG GALV STEEL WIRE NEAR EACH END OF OVERLAP AS AN ALTERNATE. ENDS OF ADJOINING CHANNELS MAY BE OVERLAPPED 6 IN. AND SECURED TOGETHER WITH TWO SELF-TAPPING #6 FRAMING SCREWS, MIN. 7/16 IN. LONG AT THE MIDPOINT OF THE OVERLAP, WITH ONE SCREW ON EACH FLANGE OF THE CHANNEL. GYPSUM BOARD ATTACHED TO FURRING CHANNELS AS DESCRIBED IN ITEM 3. B. STEEL FRAMING MEMBERS\* — USED TO ATTACH FURRING CHANNELS (ITEM 6A) TO STUDS. CLIPS SPACED 48 IN. OC. R5C-1 AND R5C-1 (2.75) CLIPS SECURED TO STUDS WITH NO. 8 X 2-1/2 IN. COARSE DRYWALL SCREW THROUGH THE CENTER GROMMET. R5C-V AND R5C-V (2.75) CLIPS SECURED TO STUDS WITH NO. 8 X 1-1/2 IN. COARSE DRYWALL SCREW THROUGH THE CENTER HOLE. FURRING CHANNELS ARE FRICTION FITTED INTO CLIPS. R5C-1 AND R5C-V CLIPS FOR USE WITH 2-9/16 IN. WIDE FURRING CHANNELS. R5C-1 (2.75) AND R5C-V (2.75) CLIPS FOR USE WITH 2-23/32 IN. WIDE FURRING CHANNELS.

**7. CAULKING AND SEALANTS** — (NOT SHOWN, OPTIONAL) A BEAD OF ACOUSTICAL SEALANT APPLIED AROUND THE PARTITION PERIMETER FOR SOUND CONTROL.

**8. CEMENTITIOUS BACKER UNITS\*** — (OPTIONAL ITEM NOT SHOWN - FOR USE ON FACE OF 1 HR SYSTEMS WITH ALL STANDARD ITEMS REQUIRED) - 7/16 IN., 1/2 IN., 5/8 IN., 3/4 IN. OR 1 IN. THICK, MIN. 32 IN. WIDE, APPLIED VERTICALLY OR HORIZONTALLY WITH VERTICAL JOINTS CENTERED OVER STUDS. FASTENED TO STUDS AND RUNNERS WITH CEMENT BOARD SCREWS OF ADEQUATE LENGTH TO PENETRATE STUD BY A MINIMUM OF 3/8 IN. FOR STEEL FRAMING MEMBERS, AND A MINIMUM OF 3/4 IN. FOR WOOD FRAMING MEMBERS SPACED A MAX OF 8 IN. OC. WHEN 4 FT. WIDE BOARDS ARE USED, HORIZONTAL JOINTS NEED NOT BE BACKED BY FRAMING.

NATIONAL GYPSUM CO — TYPE DURABACKER, PERMABASE, DURABACKER PLUS, OR PERMABASE PLUS

**12. NON-BEARING WALL PARTITION INTERSECTION** — (OPTIONAL) — TWO NOMINAL 2 BY 4 IN. STUDS OR NOMINAL 2 BY 6 IN. STUDS NAILED TOGETHER WITH TWO 3 IN. LONG 10D NAILS SPACED A MAX. 16 IN. OC. VERTICALLY AND FASTENED TO ONE SIDE OF THE MINIMUM 2 BY 4 IN. STUD WITH 3 IN. LONG 10D NAILS SPACED A MAX. 16 IN. OC. VERTICALLY. INTERSECTION BETWEEN PARTITION WOOD STUDS TO BE FLUSH WITH THE 2 BY 4 IN. STUDS. THE WALL PARTITION WOOD STUDS ARE TO BE FRAMED BY WITH A SECOND 2 BY 4 IN. WOOD STUD FASTENED WITH 3 IN. LONG 10D NAILS SPACED A MAX. 16 IN. OC. VERTICALLY. MAXIMUM ONE NON-BEARING WALL PARTITION INTERSECTION PER STUD CAVITY. NON-BEARING WALL PARTITION STUD DEPTH SHALL BE AT A MINIMUM EQUAL TO THE DEPTH OF THE BEARING WALL.



03/02/2022  
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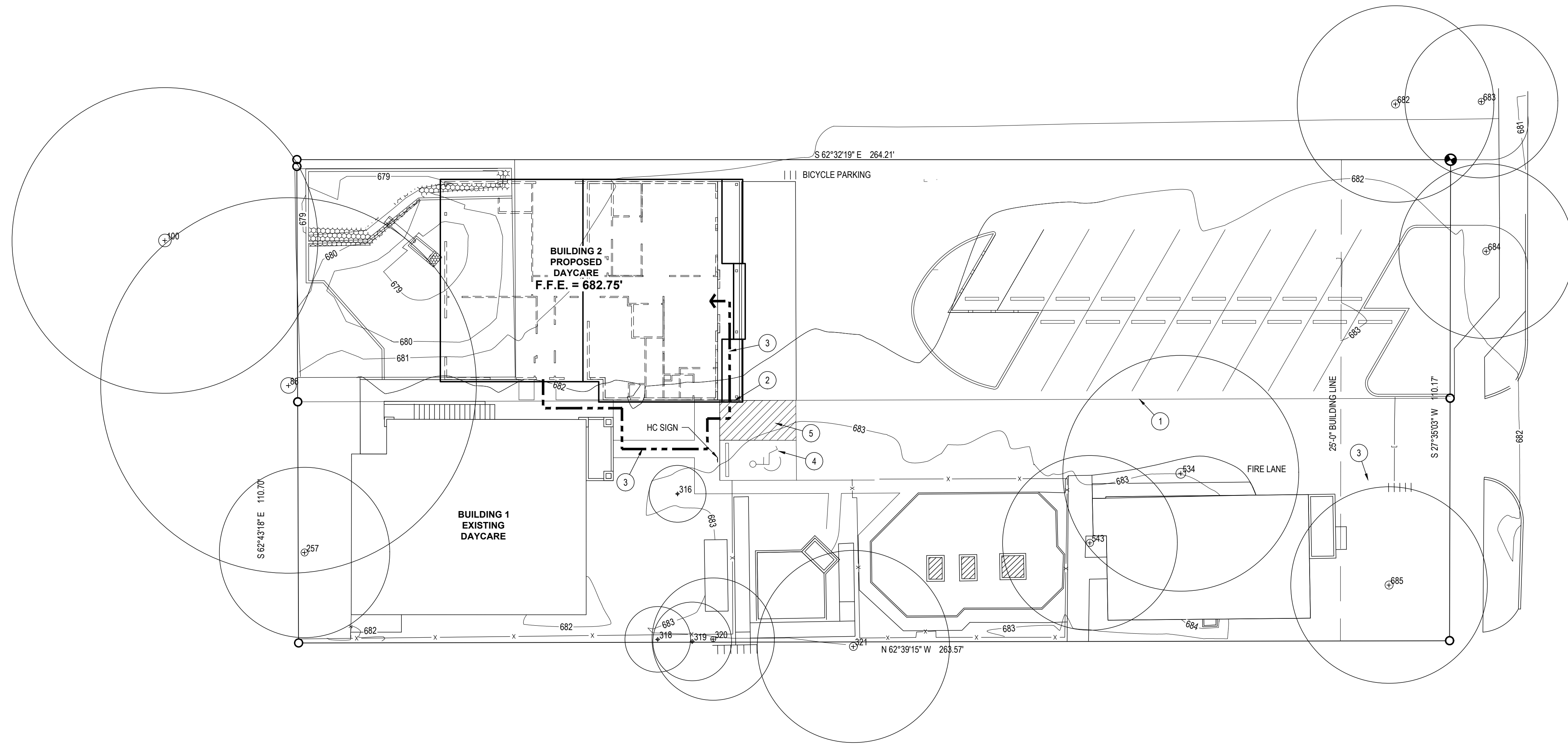
**Sun, Moon & Stars Learning Crt.**  
3808 South 1st Street  
Austin, TX 78704



**Life Safety Details**  
Project Number: 210105  
N-vizion Design, LLC - 5900 Shepherd Mountain Cove, Ste 2-250  
Austin, TX 78730 p:512.327.9955 www.n-vizion.net  
Registration Nos.: TX PE Firm-F-12228 TX-25489, LA- 9413  
MI: 1301069591, IN: 6252, NC: 14865, OH: ARCC, 9171885

Date:	Description:
03/02/22	FOR CONSTRUCTION

**A021**



**KEY NOTES**

1. PROPERTY LINE OF UDA. REFERENCE CIVIL.
2. PROVIDE FLUSH TRANSITION TO LOADING ZONE.
3. ACCESSIBLE ROUTE.
4. HC PARKING SPACE. REF CIVIL.
5. HC LOADING ZONE. REF CIVIL.

Date:	Description:
03/02/22	FOR CONSTRUCTION

**A040**

**Architectural Site Plan**  
 Project Number: 210105  
 N-vizion Design, LLC - 5900 Shepherd Mountain Cove, Ste 2-250  
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 Registration Nos.: TX PE Firm F-12225, TX X-25489, LA: 9413  
 MI: 1301069591, NV: 6252, NC: 14865, OH: ARC: 1917865

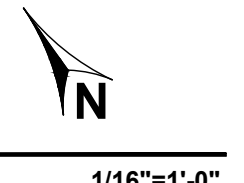
**N-VIZION**  
 FORMS - ENVIRONMENTS - IMAGES

**Sun, Moon & Stars Learning Ctr.**  
 3808 South 1st Street  
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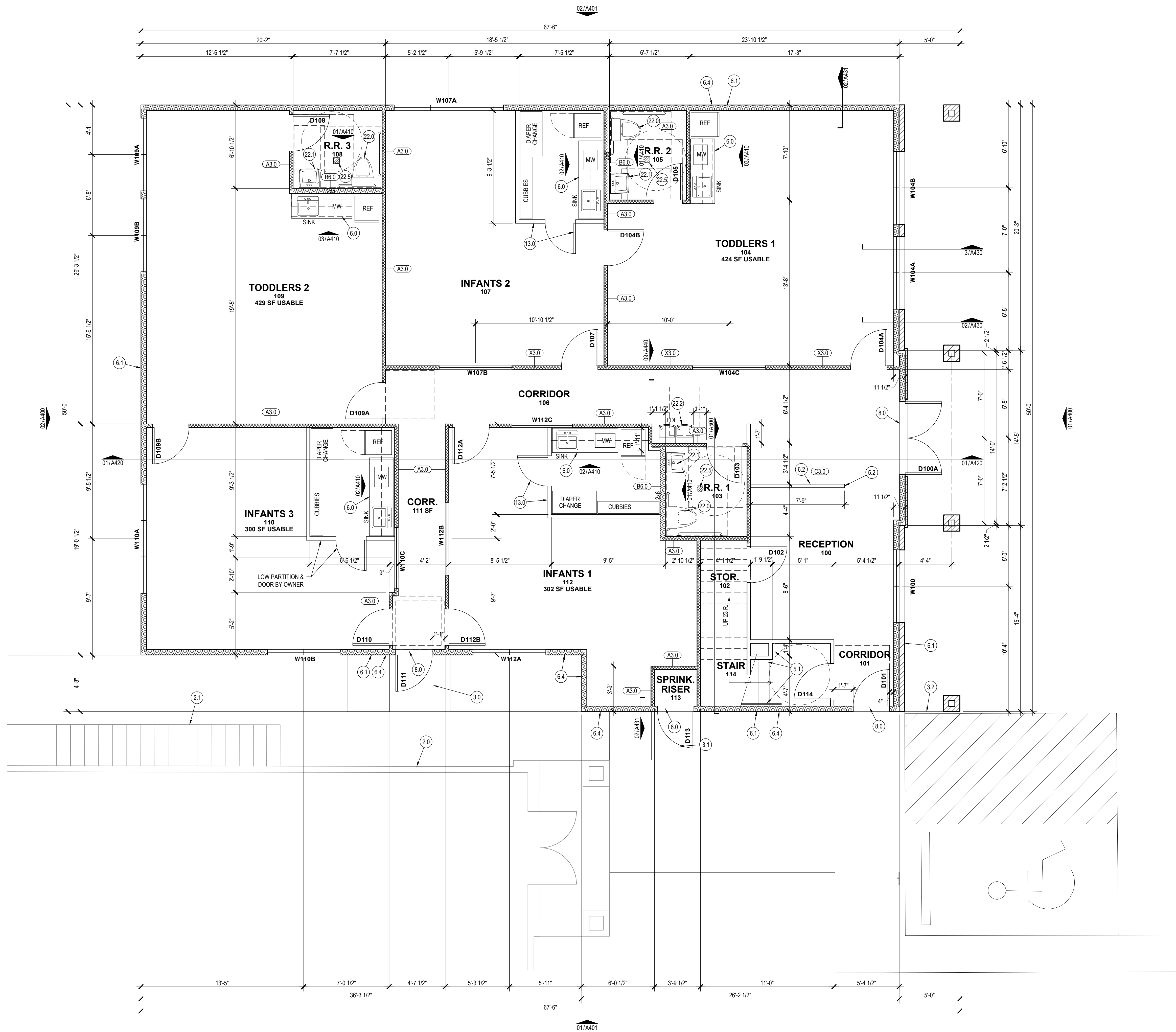


03/02/2022



1/16"=1'-0"

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**Key Notes**

- DIVISION 2 - EXISTING CONDITIONS**  
 2.0 EXIST. BUILDING  
 2.1 EXIST. STAIRS  
**DIVISION 3 - CONCRETE**  
 3.0 NEW CONC. SIDEWALK  
 3.1 NEW CONC. STOOP  
 3.2 EDGE OF CONC. PORCH FLUSH WITH ACCESSIBLE LOADING ZONE  
**DIVISION 4 - MASONRY**  
 4.0  
**DIVISION 5 - METALS**  
 5.0 FREESTANDING ENDS OF WALLS TO BE BUILT W/ CONCEALED 3x3x1/4 STEEL TUBE ANCHOR BOLTED TO CONCRETE FLOOR. CONCEAL BASE PLATE WITHIN WALL.  
 5.1 1 1/2"x36" HIGH STEEL HANDRAIL.  
**DIVISION 6 - WOOD AND PLASTICS**  
 6.0 MILLWORK. REFERENCE ELEVATIONS  
 6.1 ALL EXTERIOR WALLS TO BE 2x6 FRAMING U.N.O.  
 6.2 30" HIGH HALF WALL.  
 6.3 42" HIGH HALF WALL.  
 6.4 ONE HOUR FIRE RATED EXTERIOR WALL. REFERENCE SHEET A021.  
**DIVISION 7 - THERMAL & MOISTURE PROTECT**  
 7.0  
**DIVISION 8 - OPENINGS**  
 8.0 ACCESSIBLE THRESHOLD 1/4" MAX. DROP REF. A010.  
**DIVISION 9 - FINISHES**  
 9.0  
**DIVISION 10 - SPECIALTIES**  
 10.0  
**DIVISION 11 - EQUIPMENT**  
 11.0 OWNER FURNISHED WASHER AND DRYER  
**DIVISION 12 - FURNISHINGS**  
 12.0  
**DIVISION 13 - SPECIAL CONSTRUCTION**  
 13.0 LOW WALLS AND DOOR BY OWNER  
 13.1 5/8" TYPE 'X' GYP. BOARD CEILING AT FLOOR TRUSSES ABOVE LAY-IN CEILING.  
 13.2 5/8" TYPE 'X' GYP. BOARD CEILING.  
 13.3 WOOD FRAMED GYP. FURRODOWN AT 10' FLUSH WITH LAY-IN CEILING.  
**DIVISION 22 - PLUMBING**  
 22.0 ACCESSIBLE WATER CLOSET AND GRAB BARS TO CODE REF. ACCESSIBILITY DETAILS. PROVIDE BLOCKING AS REQUIRED FOR GRAB BARS.  
 22.1 ACCESSIBLE LAVATORY. REF. DETAILS & PROVIDE INSULATING SLEEVE OVER PLUMBING.  
 22.2 ACCESSIBLE H-LOW DRINKING FOUNTAIN. PROVIDE BLOCKING FOR FOUNTAINS.  
 22.3 MOP SINK  
 22.4 WATER HEATER. REF. PLUMBING.  
 22.5 FLR. DRAIN. REF. PLUMBING.  
**DIVISION 23 - MECHANICAL**  
 23.0 AIR HANDLING UNITS. REF. MECHANICAL  
**DIVISION 26 - ELECTRICAL**  
 26.0 RECESSED CAN FIXTURES SELECTED BY OWNER. REF MEP.  
 26.1 CEILING FAN SELECTED BY OWNER. REF MEP.



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**Sun, Moon & Stars Learning Ctr.**  
 3808 South 1st Street  
 Austin, TX, 78704

**N-VIZION**  
 FORMS - ENVIRONMENTS - IMAGES

**Main Level Floor Plan**  
 Project Number: 210105  
 N-vizion Design, LLC - 5900 Shepherd Mountain Cove, Ste 2-250  
 Austin, TX 78730 p:512.327.9955 www.n-vizion.net  
 Registration Nos.: TX PE Firm F-12225, TX 25489, LA 9413  
 MI: 1301069591, NV: 6252, NC: 14865, OH: AR.C: 1917885

Date:	Description:
03/02/22	FOR CONSTRUCTION

**A100**

**01 Main Level Floor Plan**

1/4"=1'-0"

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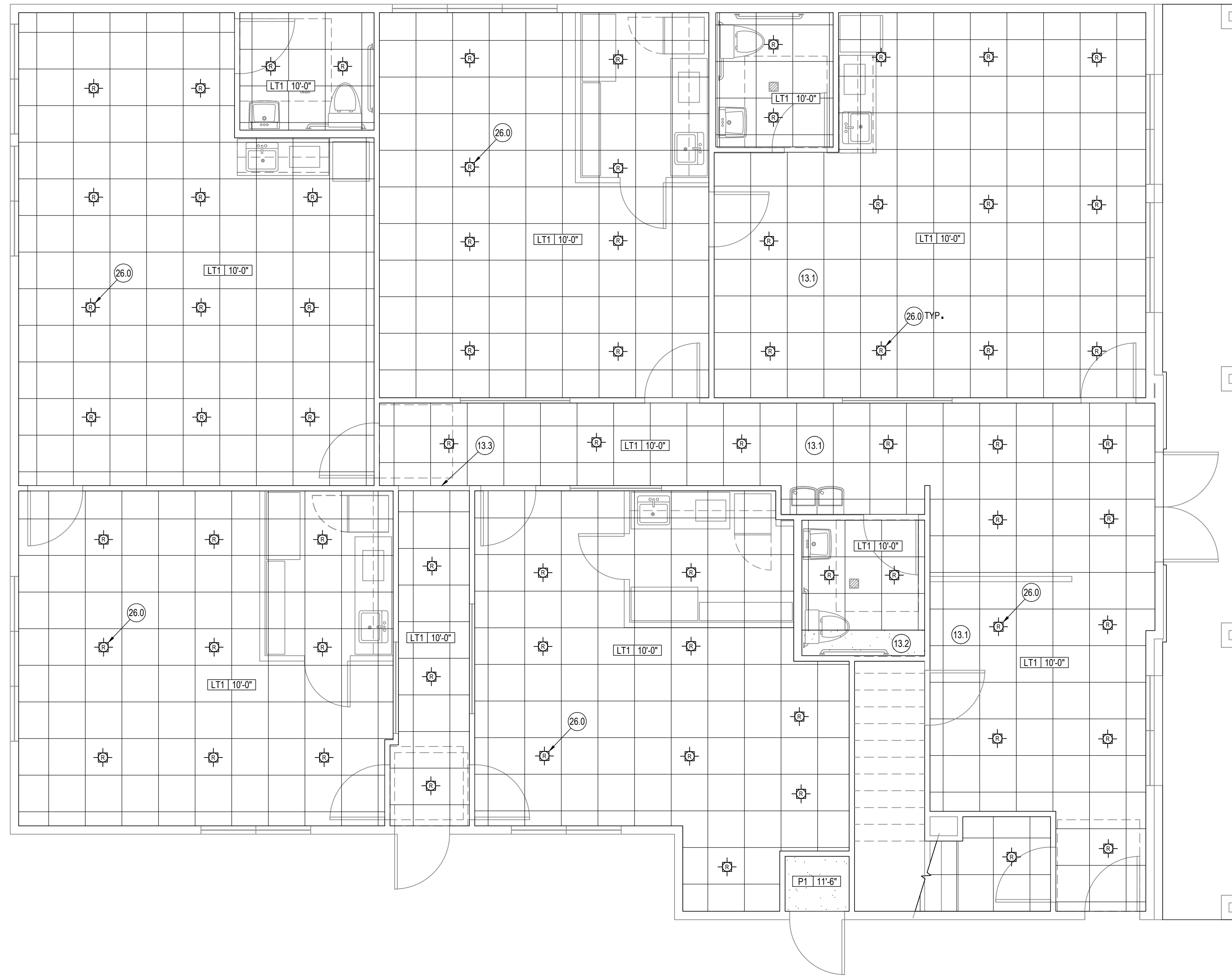
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**N-VIZION**  
FORMS - ENVIRONMENTS - IMAGES

**Main Level RCP**  
Project Number: 210105  
N-vizion Design, LLC - 5900 Shepherd Mountain Cove, Ste 2-250  
Austin, TX 78730 p:512.327.9955 www.n-vizion.net  
Registration Nos.: TX PE Firm F-12225, TX 25489, LA: 9413  
MI: 1301069591, NV: 6252, NC: 14865, OH: ARC: 1917865

Date:	Description:
03/02/22	FOR CONSTRUCTION

**A120**



- Key Notes**
- DIVISION 2 - EXISTING CONDITIONS
  - 2.0 EXIST. BUILDING
  - 2.1 EXIST. STAIRS
  - DIVISION 3 - CONCRETE
  - 3.0 NEW CONC. SIDEWALK
  - 3.1 NEW CONC. STOOP
  - 3.2 EDGE OF CONC. PORCH FLUSH WITH ACCESSIBLE LOADING ZONE
  - DIVISION 4 - MASONRY
  - 4.0
  - DIVISION 5 - METALS
  - 5.0 FREESTANDING ENDS OF WALLS TO BE BUILT W/ CONCEALED 3x3x1/4 STEEL TUBE ANCHOR BOLTED TO CONCRETE FLOOR. CONCEAL BASE PLATE WITHIN WALL.
  - 5.1 1 1/2"x36" HIGH STEEL HANDRAIL.
  - DIVISION 6 - WOOD AND PLASTICS
  - 6.0 MILLWORK, REFERENCE ELEVATIONS
  - 6.1 ALL EXTERIOR WALLS TO BE 2x6 FRAMING U.O.
  - 6.2 30" HIGH HALF WALL.
  - 6.3 42" HIGH HALF WALL.
  - 6.4 ONE HOUR FIRE RATED EXTERIOR WALL. REFERENCE SHEET A021.
  - DIVISION 7 - THERMAL & MOISTURE PROTECT
  - 7.0
  - DIVISION 8 - OPENINGS
  - 8.0 ACCESSIBLE THRESHOLD 1/4" MAX. DROP REF. A010.
  - DIVISION 9 - FINISHES
  - 9.0
  - DIVISION 10 - SPECIALTIES
  - 10.0
  - DIVISION 11 - EQUIPMENT
  - 11.0 OWNER FURNISHED WASHER AND DRYER
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  - 12.0
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  - DIVISION 22 - PLUMBING
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  - 22.1 ACCESSIBLE LAVATORY. REF. DETAILS & PROVIDE INSULATING SLEEVE OVER PLUMBING.
  - 22.2 ACCESSIBLE HI-LOW DRINKING FOUNTAIN. PROVIDE BLOCKING FOR FOUNTAINS.
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  - 22.4 WATER HEATER. REF. PLUMBING.
  - 22.5 FLR. DRAIN. REF. PLUMBING.
  - DIVISION 23 - MECHANICAL
  - 23.0 AIR HANDLING UNITS. REF. MECHANICAL.
  - DIVISION 26 - ELECTRICAL
  - 26.0 RECESSED CAN FIXTURES SELECTED BY OWNER. REF MEP.
  - 26.1 CEILING FAN SELECTED BY OWNER. REF MEP.

**01 Main Level Reflected Ceiling Plan**

1/4"=1'-0"

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**Upper Level RCP**  
Project Number: 210105  
N-vizion Design, LLC - 5900 Shepherd Mountain Cove, Ste 2-250  
Austin, TX 78730 p:512.327.9955 www.n-vizion.net  
Registration Nos.: TX PE Firm F-12225, TX 25469, LA: 9413  
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**A121**



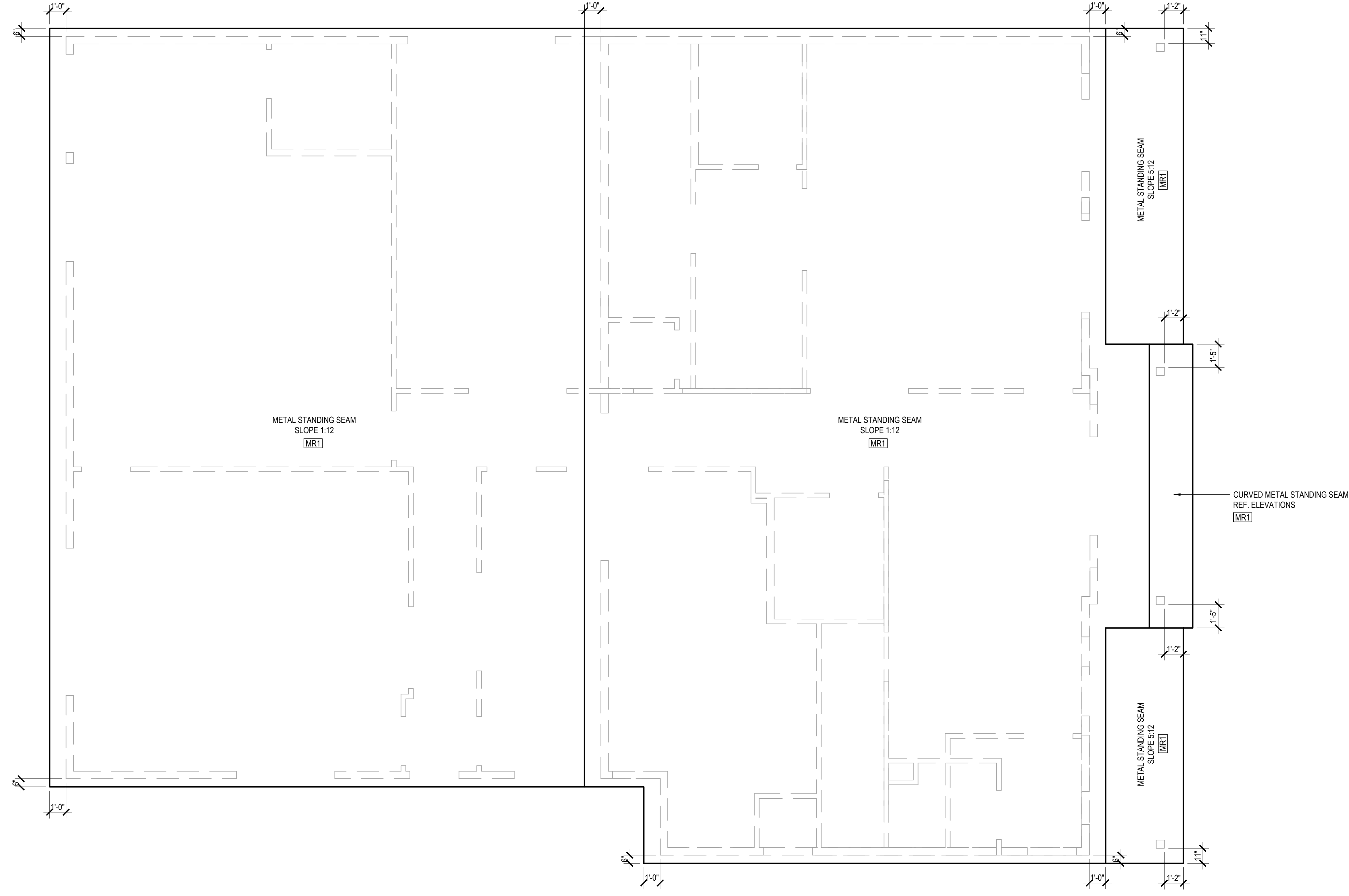
**Key Notes**

- DIVISION 2 - EXISTING CONDITIONS
- 2.0 EXIST. BUILDING
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- DIVISION 3 - CONCRETE
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- 6.3 42" HIGH HALF WALL.
- 6.4 ONE HOUR FIRE RATED EXTERIOR WALL. REFERENCE SHEET A021.
- DIVISION 7 - THERMAL & MOISTURE PROTECT
- 7.0
- DIVISION 8 - OPENINGS
- 8.0 ACCESSIBLE THRESHOLD 1/4" MAX. DROP REF. A010.
- DIVISION 9 - FINISHES
- 9.0
- DIVISION 10 - SPECIALTIES
- 10.0
- DIVISION 11 - EQUIPMENT
- 11.0 OWNER FURNISHED WASHER AND DRYER
- DIVISION 12 - FURNISHINGS
- 12.0
- DIVISION 13 - SPECIAL CONSTRUCTION
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- 26.1 CEILING FAN SELECTED BY OWNER. REF MEP.

**01 Upper Level Reflected Ceiling Plan**

1/4"=1'-0"

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**A130**

**Roof Plan**  
 Project Number: 210105  
 N-vizion Design, LLC - 5900 Shepherd Mountain Cove, Ste 2-250  
 Austin, TX 78730 p:512.327.9995 www.n-vizion.net  
 Registration Nos.: TX PE Firm F-12225 TX-25489 LA: 9413  
 MI: 1301069591 NV: 6252 NC: 14865 OH: ARC: 191865

**N-VIZION**  
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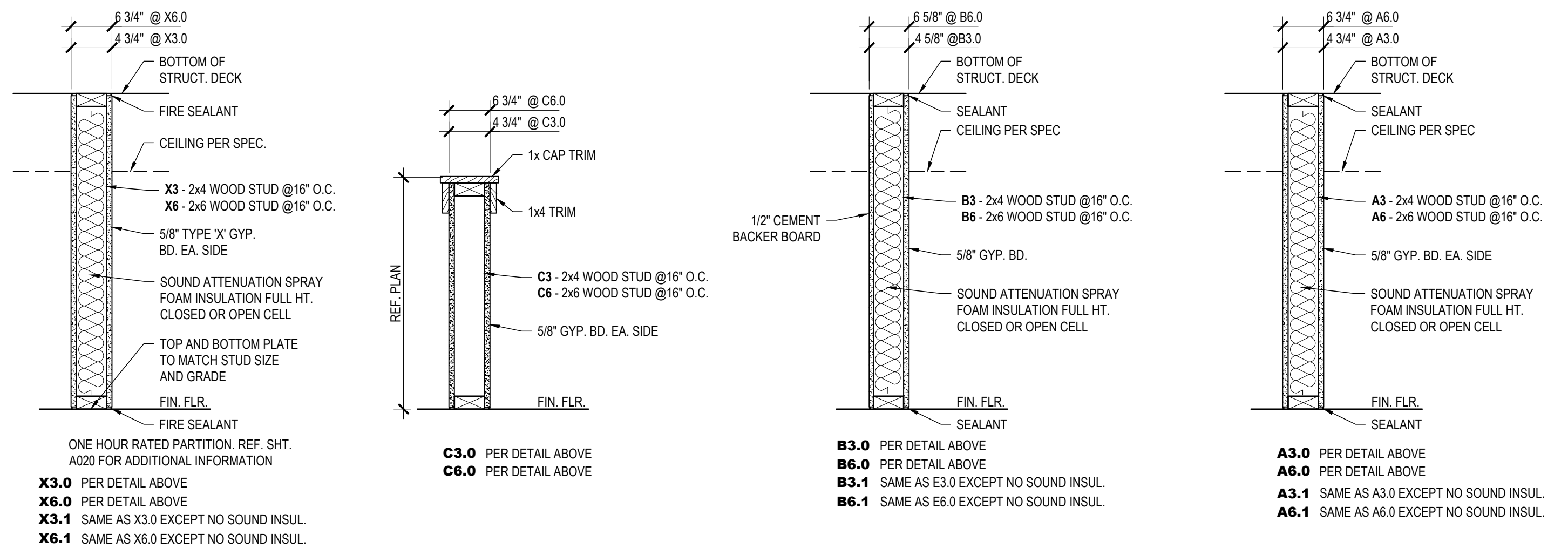
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**N-VIZION**  
FORMS - ENVIRONMENTS - IMAGES

**Finishes & Material Schedules**  
Project Number: 210105  
N-vizion Design, LLC - 5900 Shepherd Mountain Cove, Ste 2-250  
Austin, TX 78730 p:512.327.9955 www.n-vizion.net  
Registration Nos.: TX PE Firm F-12225, TX 25489, LA 9413  
MI: 1301069591, NV: 6252, NC: 14865, OH: ARC: 1917865

ROOM FINISH SCHEDULE															
NO	ROOM NAME	FLOOR	BASE	WALL	CEILING	NO	REMARKS								
		TILE	SEALED CONCRETE	VINYL	WOOD	GYPSUM BOARD	PAINT	TILE	LAY IN CLG	GYP. BOARD	PAINT	EXPOSED STRUCTURE	CEILING HT.		
<b>LEVEL ONE</b>															
100	RECEPTION												10'	100	
101	CORRIDOR												10'	101	
102	STORAGE												VARIES	102	
103	RESTROOM 1												8'	103	1,3,4
104	TODDLER 1												10'	104	1
105	RESTROOM 2												10'	105	1,3,4
106	CORRIDOR												10'	106	1
107	INFANTS 2												10'	107	1
108	RESTROOM 3												10'	108	1,3,4
109	TODDLERS 2												10'	109	1
110	INFANTS 3												10'	110	1
111	CORRIDOR												10'	111	1
112	INFANTS 1												10'	112	1
113	SPRINKLER RISER ROOM													113	
114	STAIR													114	
<b>LEVEL TWO</b>															
200	STORAGE												10'-0"		
201	MECHANICAL/ELECTRICAL														
202	WATER HEATER ROOM														
203	LAUNDRY												10'-0"	3	
204	JANITOR												10'-0"	3	
205	RESTROOM 4												10'-0"	1,3,4	
<b>REMARKS:</b>															
1	PROVIDE SOUND ATTENUATION INSULATION IN SURROUNDING WALLS														
2	PROVIDE SOUND ATTENUATION INSULATION IN PLUMBING WALLS														
3	PROVIDE WATER RESISTANT GYP. BOARD AT DAMP WALLS AND PAINTED WET WALLS														
4	PROVIDE CEMENTITIOUS BACKER BOARD ON ALL WET WALLS WITH TILE														
5	REFER TO FINISH PLANS AND REFLECTED CEILING PLANS FOR ROOMS WITH MULTIPLE FINISHES														
<b>NOTES:</b>															
1	REFERENCE FIRE DETAILS AND FIRE, SHEET A020, FOR ADDITIONAL FIRE RATING INFORMATION														
2	ALL FLOORING TRANSITIONS AND THRESHOLDS TO BE ACCESSIBLE REF. FLOOR FINISH PLAN AND ACCESSIBILITY DETAILS														
3	OWNER AND CONTRACTOR TO VERIFY ALL SCHEDULES PRIOR TO ORDERING MATERIALS AND STARTING CONSTRUCTION														
4	GENERAL CONTRACTOR SHALL VERIFY ALL DIMENSIONS OF ANY EXISTING CONDITIONS AND/OR NEW WORK PRIOR TO PERFORMING ANY WORK OR ORDERING ANY MATERIALS. ANY DISCREPANCIES SHALL BE REPORTED TO ARCHITECT FOR CONSIDERATION PRIOR TO PROCEEDING WITH WORK. GC ASSUMES RESPONSIBILITY FOR UNREPORTED DISCREPANCIES														
5	ALTERNATES REQUIRE SUBMITTAL TO ARCHITECT AND OWNER FOR APPROVAL PRIOR TO ORDERING MATERIAL														
6	ALL GYP. BOARD CORNERS TO BE FINISHED SQUARE														

MATERIAL, FINISH AND EQUIPMENT SCHEDULE						
DIVISION	ITEM	ID	MANUFACTURER	PRODUCT	FINISH/COLOR	DESCRIPTION
05	METALS	STEEL BEAMS AND LINTELS	MR1	BERRIDGE	ZEE-LOCK	REF. STRUCTURAL ENGINEERS DRAWINGS
		METAL ROOFING			COPPER BROWN	INSTALL PER MANUF. RECOMMENDATIONS
06	WOOD AND PLASTICS	BLOCKING	BK1			INSTALL AT ALL GRAB BARS AND WALL MOUNTED DEVICES. PROVIDE REFERENCE STRUCTURAL WHERE USED FOR STRUCTURAL PURPOSES
		PLYWOOD SHEATHING	PW1			2X8 FIRE RETARDANT TREATED SYP #3 1/2" ADA RATED PLYWOOD
07	THERMAL/MOISTURE	WALL, FLOOR & ROOF INSULATION	IN1	JOHNS MANVILLE	JM CORBOND III	WALL, FLOOR & ROOF - INSTALL PER MANUFACTURER'S RECOMMENDATIONS. FILL WALL CAVITY. PROVIDE MIN. R-38 IN ROOF. PROVIDE MIN. R-19 AT FLOOR SLAB.
		THERMAL BARRIER	WB1	TYVEC	STUCCO WRAP	INSTALL PER MANUF. RECOMMENDATIONS
		WATER RESISTIVE BARRIER	WRB1	LATICRETE	MVIS AIR & WATER BARRIER	INSTALL PER MANUF. RECOMMENDATIONS
		GYPSUM WALL BOARD	GB1	USG	5/8" SHEETROCK BRAND	LEVEL 4 FINISH
		WATER RESIST. GYP. WALL BD.	GB2	USG	5/8" FIBEROCK BRAND AQUA - TOUGH	LEVEL 4 FINISH
		EXTERIOR WALL SHEATHING	GB3	USG	5/8" DUROCK	INSTALL AT PAINTED WET WALLS
		CEMENTITIOUS BACKER BOARD	CB1	USG	5/8" DUROCK	INSTALL AT ALL EXTERIOR TILE WALLS
08	OPENINGS	WINDOWS	W1	BOYD	300 SERIES THERMAL SINGLE-HUNG	MAX U-VALUE = 50, MAX SHGC = 33 - INSTALL PER MANUF. RECOMMENDATIONS
			W2	BOYD	300 SERIES THERMAL FIXED	BRONZE OUTSIDE/WHITE INSIDE
		INTERIOR SLAB DOORS	DR1	WOODGRAIN	559 RAISED PANEL	COLOR SELECTED BY OWNER
			DR2	WOODGRAIN	106 RAISED PANEL	PRIMED FINISH
		DOOR FRAMES	DF1	RACO	CLASSIC SYSTEM	PRIMED FINISH
						INTERIOR FRAMES - SQUARE BUTT JOINTS
09	FINISHES	CONC. SEALER	CS1	SIKA SCOFIELD	CURESEAL-W	APPLY IN ACCORDANCE WITH MANUF. RECOMMENDATIONS
		TILE	T1	MANNINGTON	SPACIA WOOD	RUSTIC BARN WOOD
			T2	SELECTED BY OWNER		INSTALL PER MANUF. RECOMMENDATIONS
		LAMINATE	L1	SELECTED BY OWNER		EXTERIOR GRADE PORCELAIN WALL TILE & GROUT. INSTALL PER MANUF. RECOMMENDATIONS
		WALL BASE Moulding	WB1		1x6 WOOD	SELECTED BY OWNER
			WB2	ROPPE	PINNACLE RUBBER BASE	INSTALL PER MANUF. RECOMMENDATIONS
		PAINT	P1	SHERWIN WILLIAMS	INTERIOR EGG SHELL	APPLY IN ACCORDANCE WITH MANUF. SPEC - WALL TEXTURE SELECTED BY OWNER
			P2	SHERWIN WILLIAMS	INTERIOR SEMI-GLOSS	APPLY IN ACCORDANCE WITH MANUF. SPEC - AT TRIM
			P3	SHERWIN WILLIAMS	EXTERIOR	APPLY IN ACCORDANCE WITH MANUF. SPEC.
		ACCOUSTICAL CLG TILE	LT1	ARMSTRONG	FINE FISSURED 1732	BY OWNER
			LT2	ARMSTRONG	FINE FISSURED 1714	24"x24" ANGLED TEGULAR
		STUCCO	S1	DRYVIT	3-PART STUCCO	24"x48" SQUARE EDGE
		MASONRY	M1	MATCH EXISTING BUILDING	MATCH EXISTING BUILDING	INSTALL PER MANUF. RECOMMENDATIONS
						INSTALL PER BUILDING AND MASONRY CODE. PROVIDE EXPANSION JOINTS AS REQUIRED
10	SPECIALTIES	GRAB BARS	GB1	DELTA	40142, CONCEALED MOUNTING, 42" STAINLESS STEEL	SATIN FINISH
			GB2	DELTA	40136, CONCEALED MOUNTING, 36" STAINLESS STEEL	INSTALL PER CODE. REFERENCE ACCESSIBILITY DETAILS. PROVIDE 2x6 BLOCKING AT ALL GRAB BARS
		TOILET PAPER DISPENSER	TP1	KOHLER	K-14393	BRUSHED NICKEL
21	FIRE SUPPRESSION	SPRINKLER SYSTEM	--	--	--	REF. SPRINKLER CONTRACTOR PLANS
		FIRE EXTINGUISHER CABINET	FC1	JL INDUSTRIES	ACADEMY SERIES 1027V10	SEMI RECESSED. SEE LIFE SAFETY PLAN FOR LOCATIONS
22	PLUMBING	LAVATORY	--	--	--	REF. PLUMBING DRAWINGS. PROVIDE 2x6 BLOCKING IN WALLS
		FAUCETS	--	--	--	REF. PLUMBING DRAWINGS
		WATER CLOSET	--	--	--	REF. PLUMBING DRAWINGS
		WATER COOLERS	--	--	--	REF. PLUMBING DRAWINGS
		WATER HEATER	--	--	--	REF. PLUMBING DRAWINGS
		MOP SINK	--	--	--	FLOOR MOUNT. REF. PLUMBING DRAWINGS
23	MECHANICAL	AIR CONDITIONING/HEATING	--	--	--	REF. MECHANICAL DRAWINGS
		LOUVERS/VENTS	--	--	--	REF. MECHANICAL DRAWINGS
<b>NOTES:</b>						
1	REFERENCE DETAILS FOR ADDITIONAL FIRE RATING INFORMATION					
2	REFERENCE DETAILS AND SECTIONS FOR LOCATIONS OF FIRE RATED GYP. BOARD					
3	OWNER AND CONTRACTOR TO VERIFY ALL SCHEDULES PRIOR TO ORDERING MATERIALS AND CONSTRUCTION					
4	ALL HARDWARE AND THRESHOLDS TO BE TAS COMPLIANT					
5	GENERAL CONTRACTOR SHALL VERIFY ALL DIMENSIONS OF ANY EXISTING CONDITIONS OR NEW WORK PRIOR TO PERFORMING ANY WORK OR ORDERING ANY MATERIALS. ANY DISCREPANCIES SHALL BE REPORTED TO ARCHITECT					
6	FOR CONSIDERATION PRIOR TO PROCEEDING WITH WORK. GC ASSUMES RESPONSIBILITY FOR UNREPORTED DISCREPANCIES.					
7	ALTERNATIVES REQUIRE SUBMITTAL TO ARCHITECT AND OWNER FOR APPROVAL PRIOR TO ORDERING MATERIAL					
8	CONTRACTOR TO VERIFY PROPER USE AND INSTALLATION OF MATERIALS WITH MANUFACTURER PRIOR TO CONSTRUCTION					
9	WHERE NO MATERIALS ARE SPECIFIED, CONSULT ARCHITECT AND OWNER PRIOR TO CONSTRUCTION.					
	ALL PRODUCTS INSTALLED PER MANUF. REQUIREMENTS					



**01 Partition Types**

1"=1'-0"

Date:	Description:
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**A300**

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DOOR SCHEDULE														
NO	ROOM	NEW/EXIST	DOOR			FRAME		HRDWR	MANUF.		GLAZ. TYPE	NO	REMARKS	
			SIZE	TYPE	MATERIAL	FINISH	MATERIAL		FINISH	DOOR				FRAME
D100	RECEPTION	NEW	3'-0" x 7'-0"	B	FIBERGLASS	STAIN	WOOD	PAINT	A	T.B.D.	T.B.D.	wxy	D100	1,2
D101	OFFICE	NEW	3'-0" x 7'-0"	A	SC WOOD	PAINT	WOOD	PAINT	A	T.B.D.	T.B.D.	wxy	D101	1,2
D102	STORAGE	NEW	3'-0" x 4'-8"	C	SC WOOD	PAINT	WOOD	PAINT	A	T.B.D.	T.B.D.	NONE	D102	
D103	RESTROOM 1	NEW	3'-0" x 7'-0"	C	SC WOOD	PAINT	WOOD	PAINT	B	T.B.D.	T.B.D.	NONE	D103	
D104A	TODDLERS 1	NEW	3'-0" x 7'-0"	A	SC WOOD	PAINT	WOOD	PAINT	C	T.B.D.	T.B.D.	w	D104A	1
D104B	TODDLERS 1	NEW	3'-0" x 7'-0"	A	SC WOOD	PAINT	WOOD	PAINT	C	T.B.D.	T.B.D.	w	D104B	1
D105	RESTROOM 2	NEW	3'-0" x 7'-0"	A	SC WOOD	PAINT	WOOD	PAINT	B	T.B.D.	T.B.D.	NONE	D105	
D107	INFANTS 2	NEW	3'-0" x 7'-0"	A	SC WOOD	PAINT	WOOD	PAINT	C	T.B.D.	T.B.D.	w	D107	1
D108	RESTROOM 3	NEW	3'-0" x 7'-0"	A	SC WOOD	PAINT	WOOD	PAINT	B	T.B.D.	T.B.D.	NONE	D108	
D109A	TODDLERS 2	NEW	3'-0" x 7'-0"	A	SC WOOD	PAINT	WOOD	PAINT	C	T.B.D.	T.B.D.	w	D109A	1
D109B	TODDLERS 2	NEW	3'-0" x 7'-0"	A	SC WOOD	PAINT	WOOD	PAINT	C	T.B.D.	T.B.D.	w	D109B	1
D110	INFANTS 3	NEW	3'-0" x 7'-0"	A	SC WOOD	PAINT	WOOD	PAINT	C	T.B.D.	T.B.D.	w	D110	1
D111	CORRIDOR	NEW	3'-0" x 7'-0"	A	SC WOOD	PAINT	WOOD	PAINT	A	T.B.D.	T.B.D.	wxy	D111	1,2,3
D112A	INFANTS 1	NEW	3'-0" x 7'-0"	A	SC WOOD	PAINT	WOOD	PAINT	C	T.B.D.	T.B.D.	w	D112A	1
D112B	INFANTS 1	NEW	3'-0" x 7'-0"	A	SC WOOD	PAINT	WOOD	PAINT	C	T.B.D.	T.B.D.	w	D112B	1
D113	SPRINKLER RISER ROOM	NEW	3'-0" x 7'-0"	C	SC WOOD	PAINT	WOOD	PAINT	A	T.B.D.	T.B.D.	NONE	D113	2,3
D114	STAIR	NEW	3'-0" x 7'-0"	C	SC WOOD	PAINT	WOOD	PAINT	A	T.B.D.	T.B.D.	NONE	D114	
D201	MECHANICAL/ELECTRICAL	NEW	(2) 3'-0" x 7'-0"	C	SC WOOD	PAINT	WOOD	PAINT	A	T.B.D.	T.B.D.	NONE	D201	
D202	WATER HEATER ROOM	NEW	3'-0" x 7'-0"	C	SC WOOD	PAINT	WOOD	PAINT	A	T.B.D.	T.B.D.	NONE	D202	
D205	RESTROOM 4	NEW	3'-0" x 7'-0"	C	SC WOOD	PAINT	WOOD	PAINT	B	T.B.D.	T.B.D.	NONE	D205	

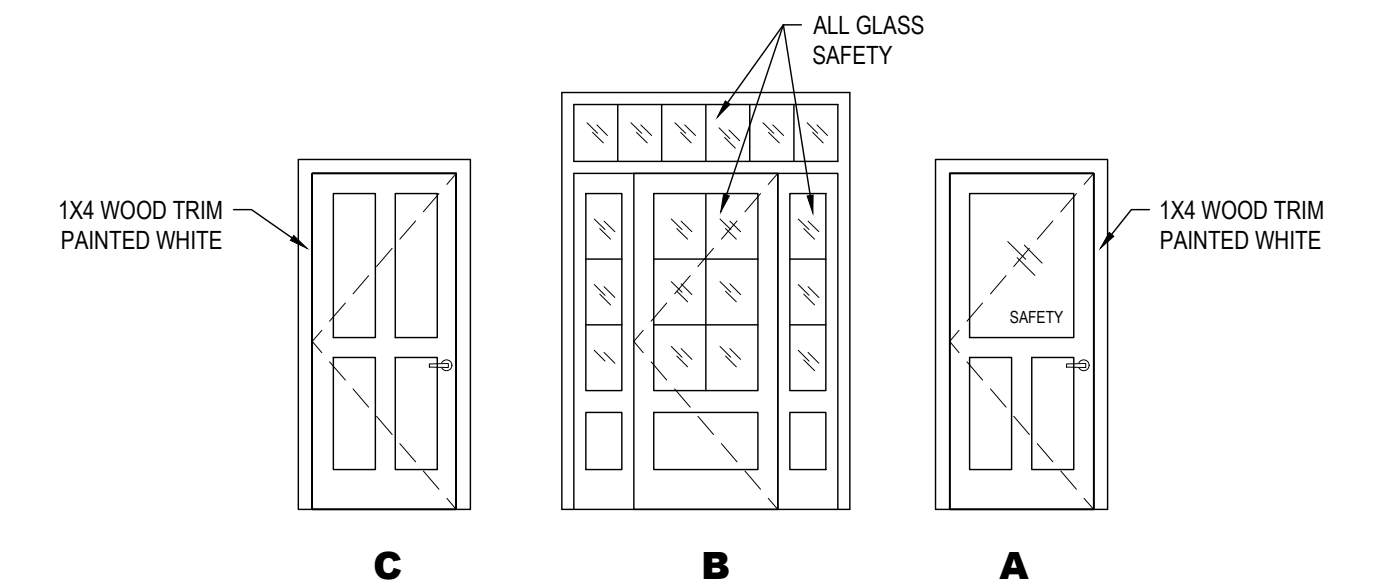
**HARDWARE:**  
A LATCH W/ LOCK & CLOSER  
B PRIVACY FUNCTION  
C LATCH WITH LOCK - NO CLOSER

**NOTE: ALL DOOR HARDWARE TO BE BRUSHED STAINLESS STEEL LEVER HARDWARE**

**GLASS:**  
w TEMPERED SAFETY GLASS  
x MAX U-VALUE: .60 MAX SHGC: .25  
y DOUBLE PANE, LOWE

**REMARKS:**  
1 ALL GLAZING IN DOORS TO BE TEMPERED SAFETY GLASS  
2 PROVIDE WEATHER PROOFING ON EXTERIOR DOORS.  
3 20 MIN. FIRE RATED DOOR

**NOTES:**  
1 GENERAL CONTRACTOR SHALL REVIEW AND VERIFY ALL SCHEDULES AND ALL DIMENSIONS OF ANY EXISTING CONDITIONS OR NEW WORK PRIOR TO PERFORMING ANY WORK OR ORDERING ANY MATERIALS. ANY DISCREPANCIES SHALL BE REPORTED TO ARCHITECT FOR CONSIDERATION PRIOR TO PROCEEDING WITH WORK. GC ASSUMES RESPONSIBILITY FOR UNREPORTED DISCREPANCIES.  
2 ALTERNATES REQUIRE SUBMITTAL TO ARCHITECT AND OWNER FOR APPROVAL PRIOR TO ORDERING MATERIAL.  
3 ALL HARDWARE AND THRESHOLDS TO BE TAS COMPLIANT  
4 REFERENCE DETAILS FOR ADDITIONAL FIRE RATING INFORMATION



**02 Door Types**

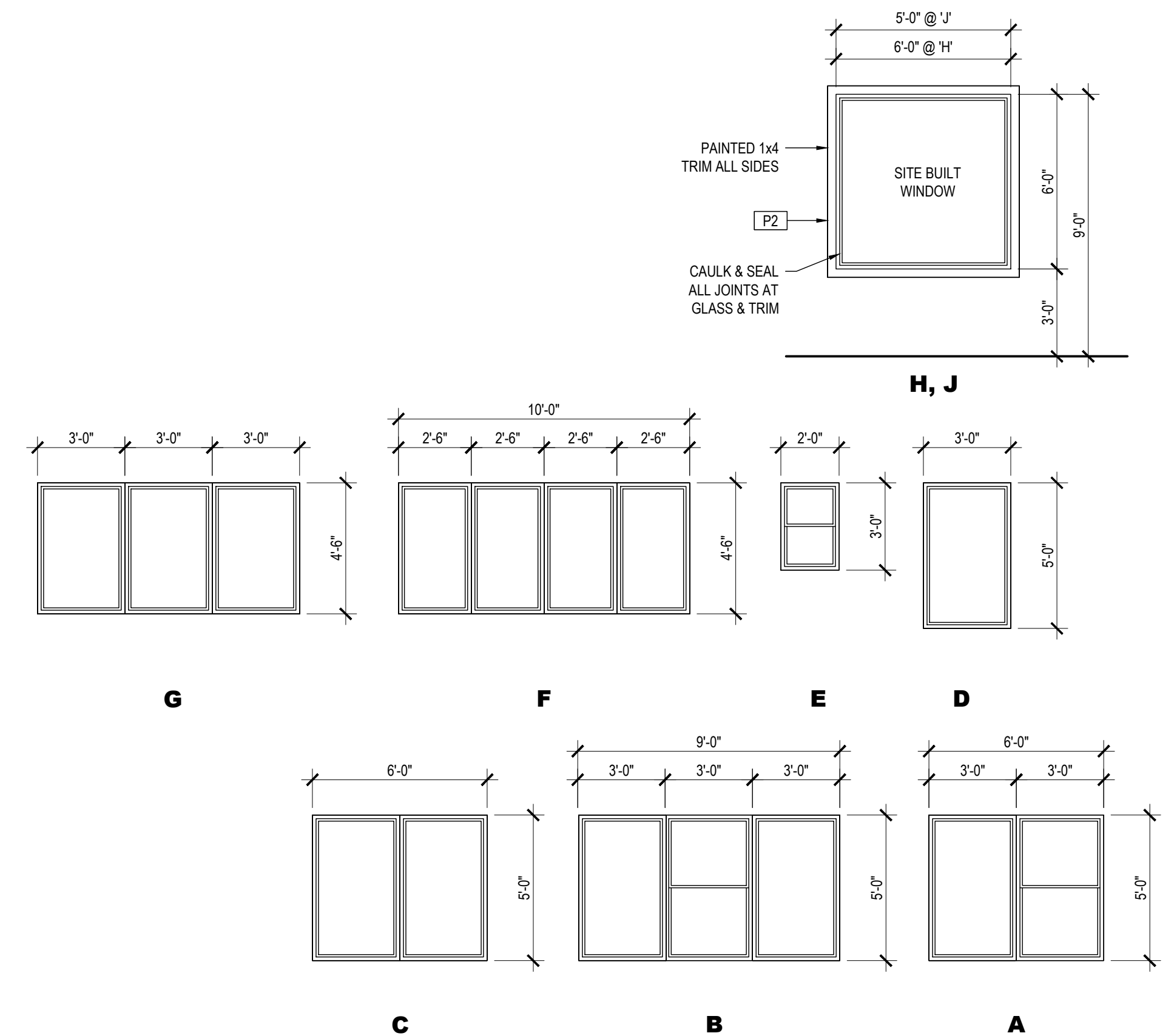
1/4"=1'-0"

GLAZING AND FRAME SCHEDULE										
NO	ROOM	NEW/EXIST	TYPE	FRAME		OPERATION	GLAZ. TYPE	MANUF.	NO	REMARKS
				MATERIAL	FINISH					
W100	RECEPTION	NEW	C	ALUMINUM	BRONZE OUTSIDE/WHITE INSIDE	FIXED	x,y	BOYD	W100	1
W104A	TODDLERS 1	NEW	A	ALUMINUM	BRONZE OUTSIDE/WHITE INSIDE	FIXED/SH	x,y	BOYD	W104A	1
W104B	TODDLERS 1	NEW	A	ALUMINUM	BRONZE OUTSIDE/WHITE INSIDE	FIXED/SH	x,y	BOYD	W104B	1
W104C	TODDLERS 1	NEW	H	WOOD	PAINT	FIXED	z	SITE BUILT	W104C	
W107A	INFANTS 2	NEW	B	ALUMINUM	BRONZE OUTSIDE/WHITE INSIDE	FIXED/SH	x,y	BOYD	W107A	1
W107B	INFANTS 2	NEW	H	WOOD	PAINT	FIXED	z	SITE BUILT	W107B	
W109A	TODDLERS 2	NEW	A	ALUMINUM	BRONZE OUTSIDE/WHITE INSIDE	FIXED/SH	x,y	BOYD	W109A	1
W109B	TODDLERS 2	NEW	A	ALUMINUM	BRONZE OUTSIDE/WHITE INSIDE	FIXED/SH	x,y	BOYD	W109B	1
W110A	INFANTS 3	NEW	B	ALUMINUM	BRONZE OUTSIDE/WHITE INSIDE	FIXED/SH	x,y	BOYD	W110A	1
W110B	INFANTS 3	NEW	A	ALUMINUM	BRONZE OUTSIDE/WHITE INSIDE	FIXED/SH	x,y	BOYD	W110B	1
W110C	INFANTS 3	NEW	J	WOOD	PAINT	FIXED	z	SITE BUILT	W110C	
W112A	INFANTS 1	NEW	A	ALUMINUM	BRONZE OUTSIDE/WHITE INSIDE	FIXED/SH	x,y	BOYD	W112A	1
W112B	INFANTS 1	NEW	H	WOOD	PAINT	FIXED	z	SITE BUILT	W112B	
W112C	INFANTS 1	NEW	J	WOOD	PAINT	FIXED	z	SITE BUILT	W112C	
W200A	STORAGE	NEW	D	ALUMINUM	BRONZE OUTSIDE/WHITE INSIDE	FIXED	x,y	BOYD	W200A	
W200B	STORAGE	NEW	E	ALUMINUM	BRONZE OUTSIDE/WHITE INSIDE	FIXED	x,y	BOYD	W200B	1
W200C	STORAGE	NEW	C	ALUMINUM	BRONZE OUTSIDE/WHITE INSIDE	FIXED	x,y	BOYD	W200C	1
W200D	STORAGE	NEW	C	ALUMINUM	BRONZE OUTSIDE/WHITE INSIDE	FIXED	x,y	BOYD	W200D	1
W203	LAUNDRY	NEW	G	ALUMINUM	BRONZE OUTSIDE/WHITE INSIDE	FIXED	x,y	BOYD	W203	1
W205	RESTROOM 4	NEW	E	ALUMINUM	BRONZE OUTSIDE/WHITE INSIDE	SINGLE HUNG	x,y	BOYD	W205	

**GLAZING TYPE:**  
w TEMPERED SAFETY GLASS  
x MAX U-VALUE: .60 MAX SHGC: .25  
y DOUBLE PANE LOWE  
z CLEAR SINGLE PANE

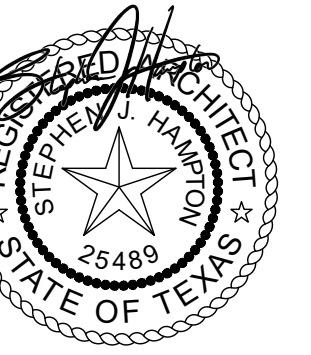
**REMARKS:**  
1 MULLED WINDOWS

**NOTES:**  
1 GENERAL CONTRACTOR SHALL VERIFY ALL DIMENSIONS OF ANY EXISTING CONDITIONS OR NEW WORK PRIOR TO PERFORMING ANY WORK OR ORDERING ANY MATERIALS. ANY DISCREPANCIES SHALL BE REPORTED TO ARCHITECT FOR CONSIDERATION PRIOR TO ORDERING MATERIALS.  
2 OWNER AND CONTRACTOR TO VERIFY ALL SCHEDULES PRIOR TO ORDERING MATERIALS.  
3 ALTERNATES REQUIRE SUBMITTAL TO ARCHITECT AND OWNER FOR APPROVAL PRIOR TO ORDERING MATERIAL.  
4 ALL HARDWARE TO BE TAS COMPLIANT  
5 INSTALL TEMPERED SAFETY GLAZING WHERE SHOWN AS WELL AS WHERE REQUIRED BY CODE



**01 Window Types**

1/4"=1'-0"



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Austin, TX, 78704

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**Door & Window Schedules & Details**  
Project Number: 210105  
N-vizion Design, LLC - 5900 Shepherd Mountain Cove, Ste 2-250  
Austin, TX 78730 p:512.327.9955 www.n-vizion.net  
Registration Nos.: TX PE Firm-F-12225 TX-25469 LA-9413  
MI: 1301069591 NV-6252 NC-14865 OH-ARC-191865

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Description:	FOR CONSTRUCTION

**A301**



03/02/2022

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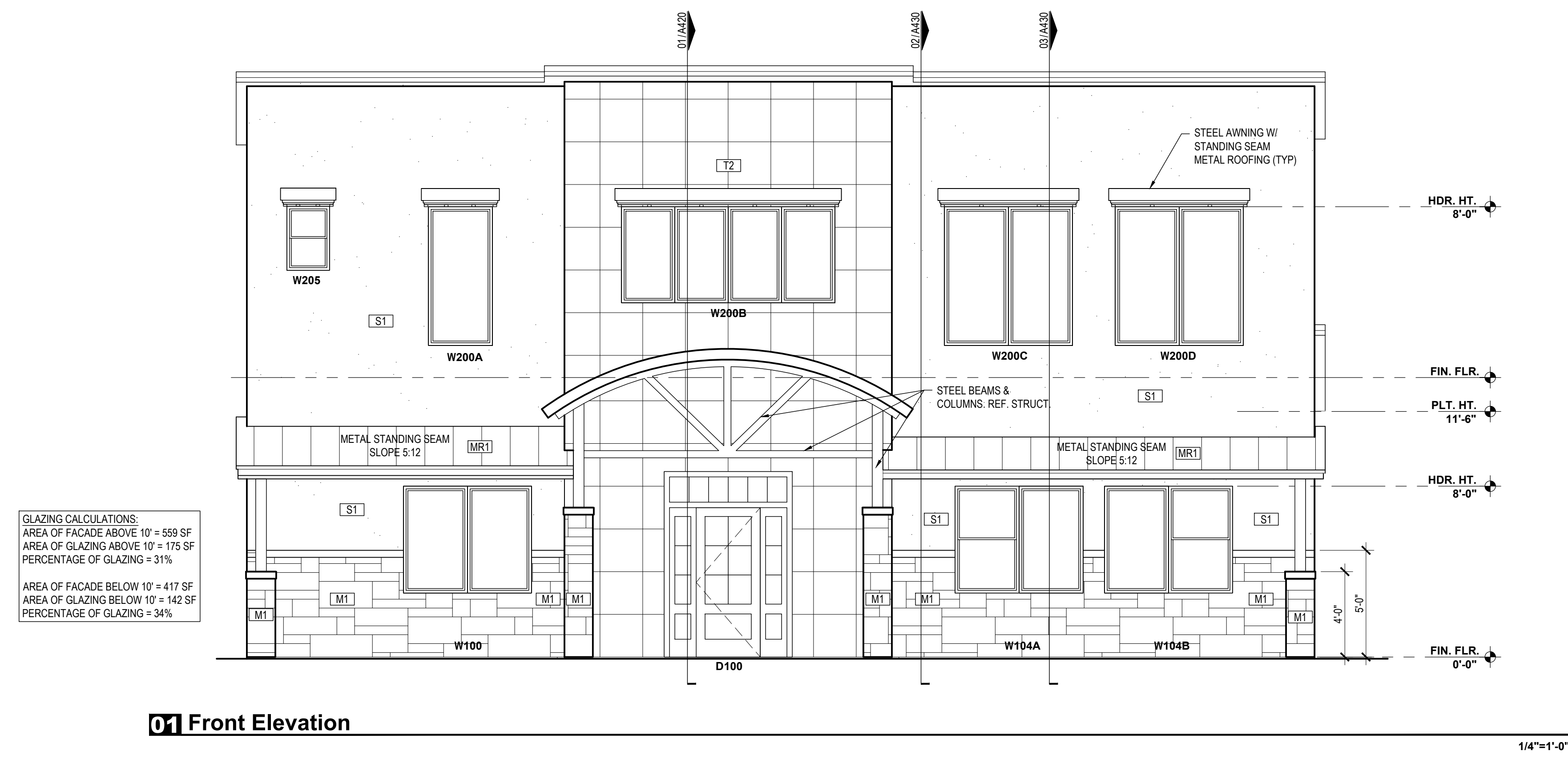
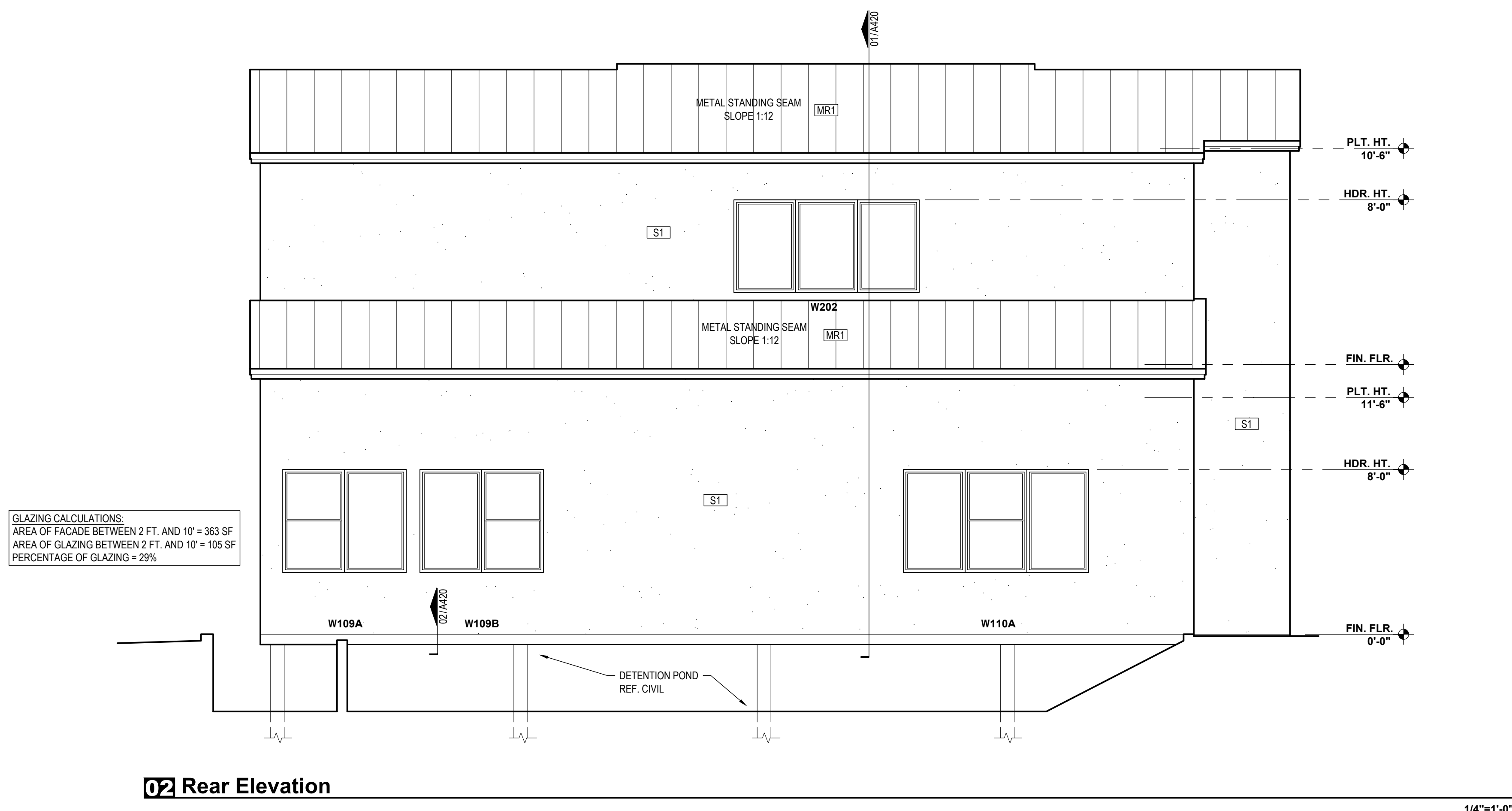
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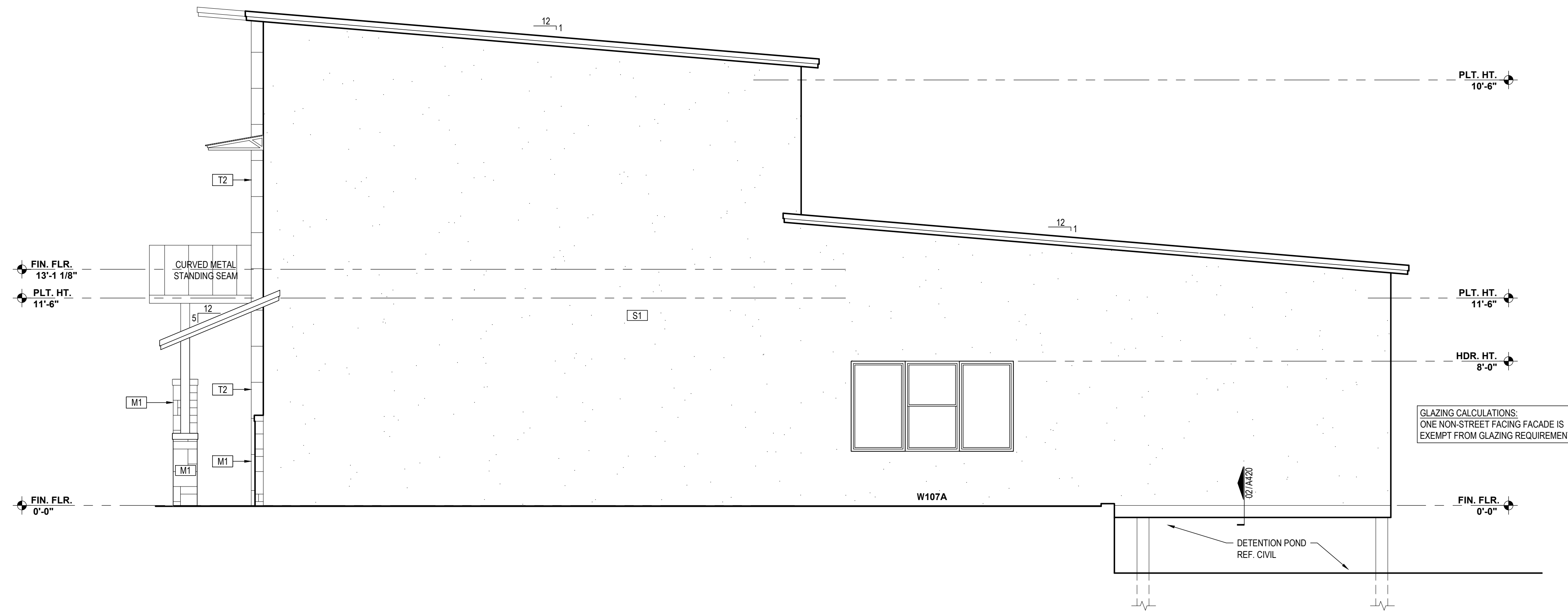
**Exterior Elevations**  
Project Number: 210105  
N-vizion Design, LLC - 5900 Shepherd Mountain Cove, Ste 2-250  
Austin, TX 78730 p:512.327.9955 www.n-vizion.net  
Registration Nos.: TX PE Firm F-12225, TX 25469, LA 9413  
MI: 1301069591, NV: 6252, NC: 14865, OH: ARCC, 9171865

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**A400**

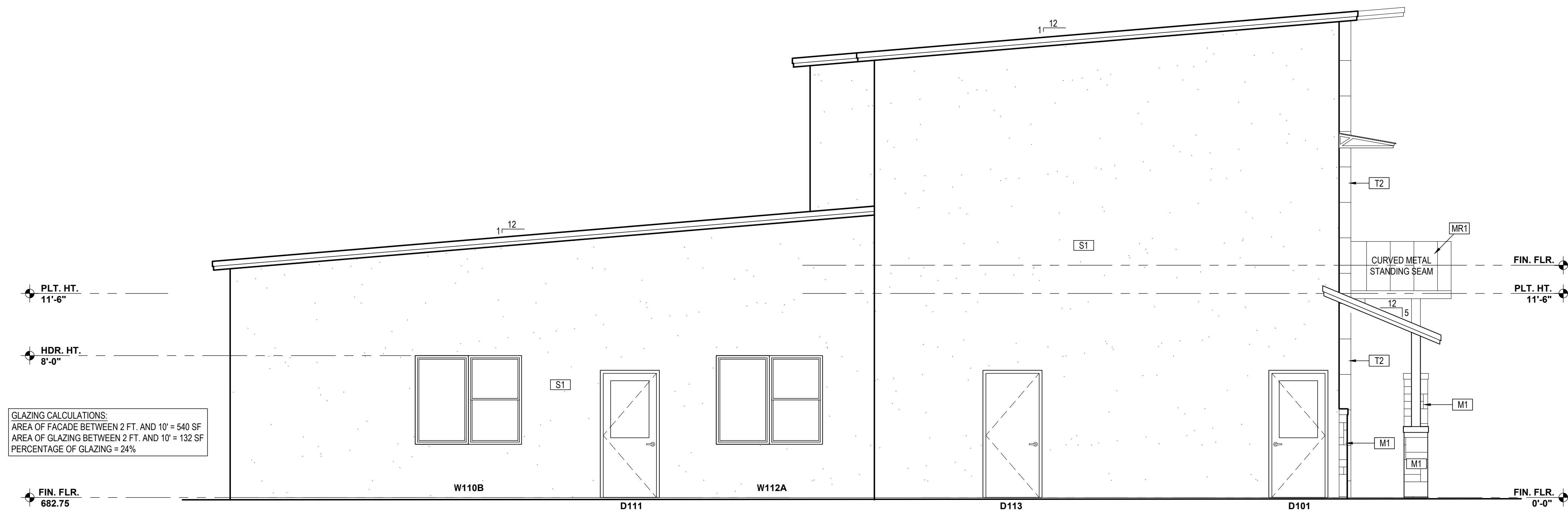


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02 Right Elevation

1/4"=1'-0"



01 Left Elevation

1/4"=1'-0"



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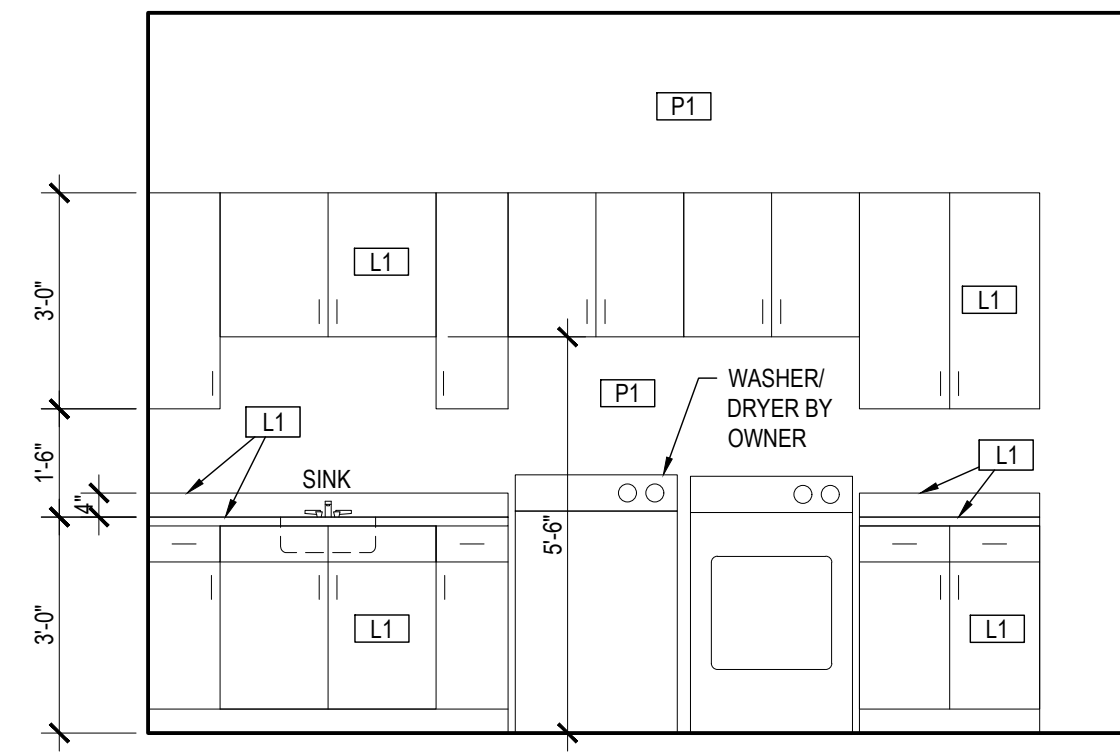
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**Exterior Elevations**  
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N-vizion Design, LLC - 5900 Shepherd Mountain Cove, Ste 2-250  
Austin, TX 78730 p:512.327.9955 www.n-vizion.net  
Registration Nos.: TX PE Firm F-12225, TX 25489, LA: 9413  
MI: T301069591, NV: 6252, NC: 14863, OH: ARC: 1917865

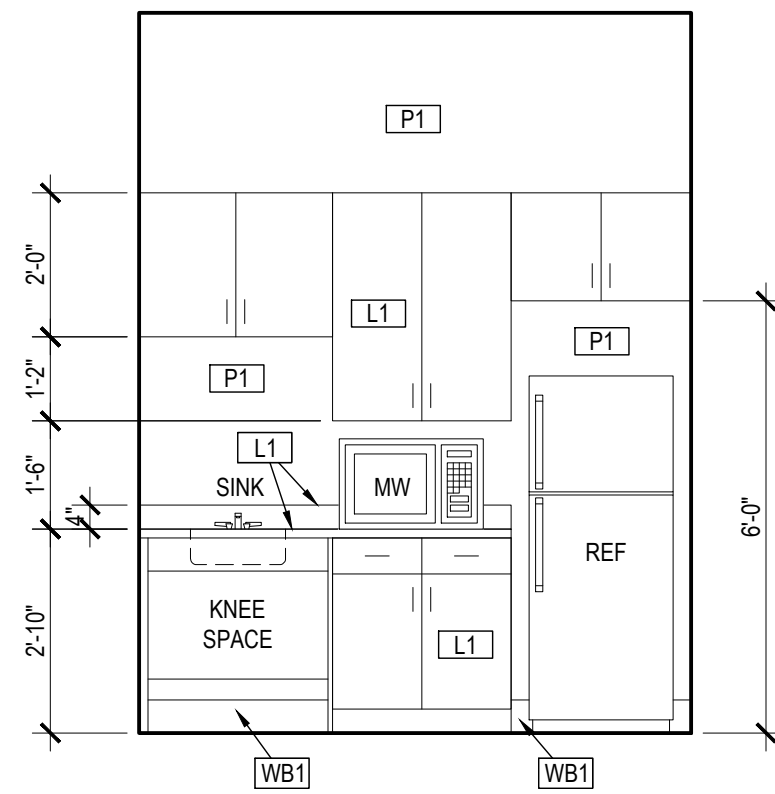
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**A401**



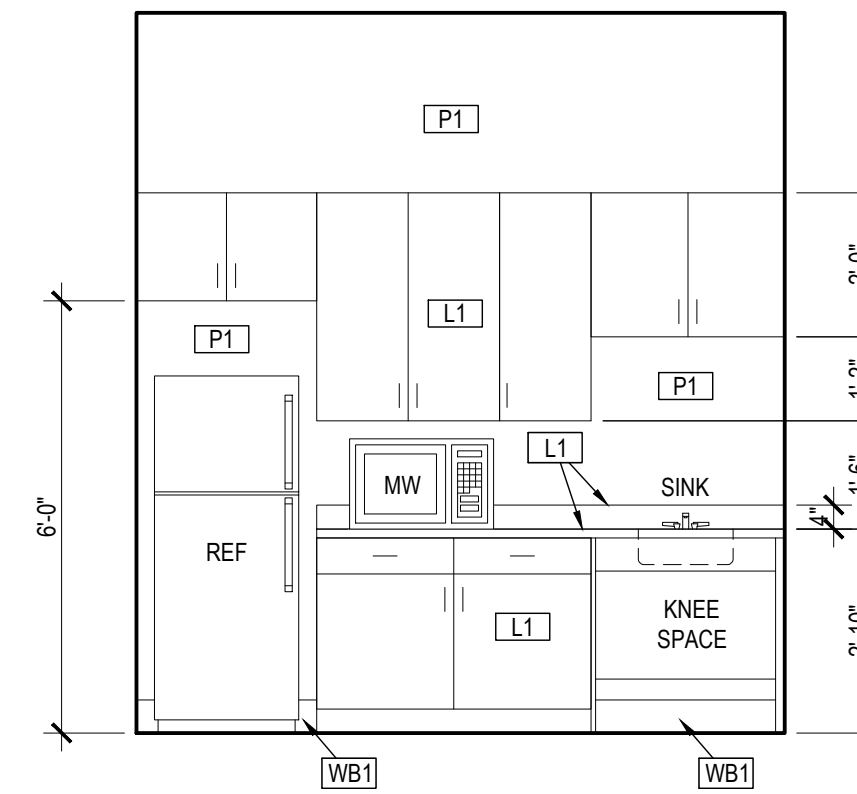
**04 Elevation at Laundry**

3/8"=1'-0"



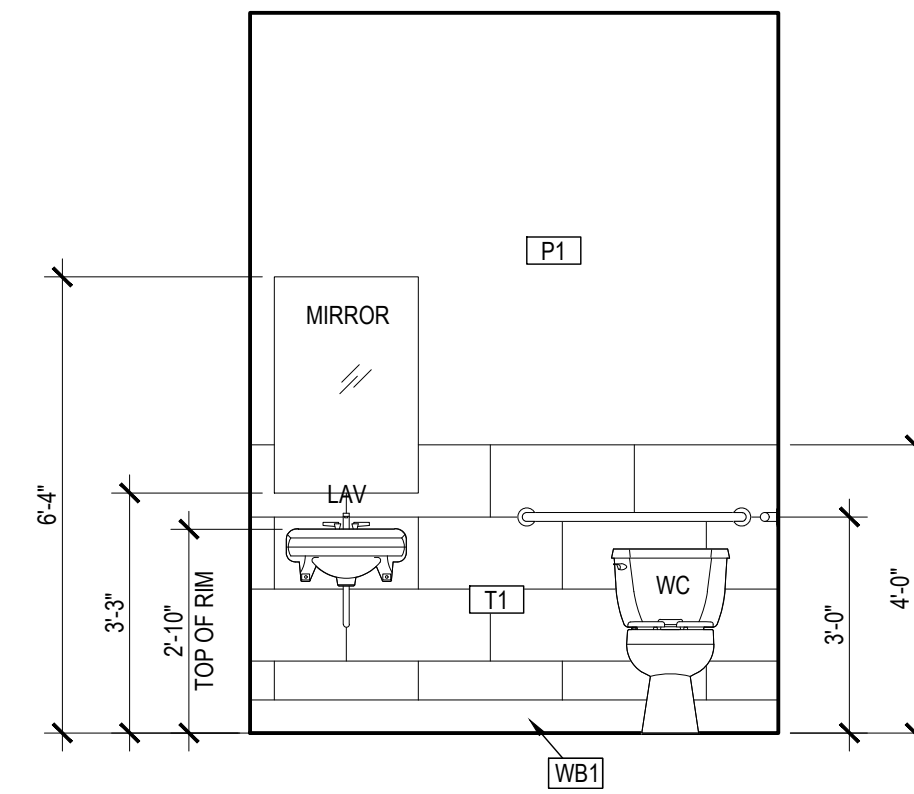
**03 Elevation at Toddlers Prep**

3/8"=1'-0"



**02 Elevation at Infants Prep**

3/8"=1'-0"



**01 Typical Restroom Elevation**

3/8"=1'-0"

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**Interior Elevations**  
 Project Number: 210105  
 N-vizion Design, LLC - 5900 Shepherd Mountain Cove, Ste 2-250  
 Austin, TX 78730 p.512.327.9955 www.n-vizion.net  
 Registration Nos.: TX PE Firm F-12225 TX-25489, LA: 9413  
 MI: 1301069591, NV: 6252, NC: 14863, OH: ARC: 1917865

**A410**

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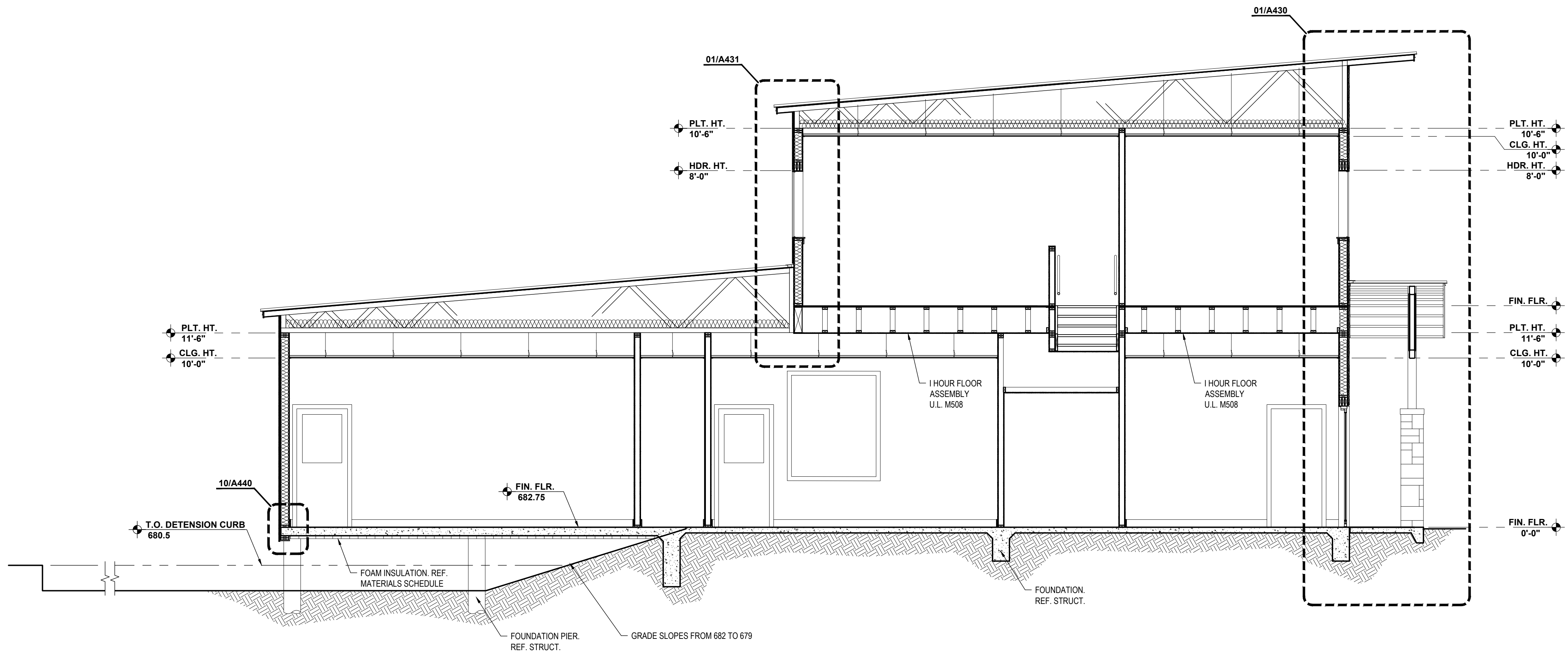
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**01 Building Sections**

1/4"=1'-0"

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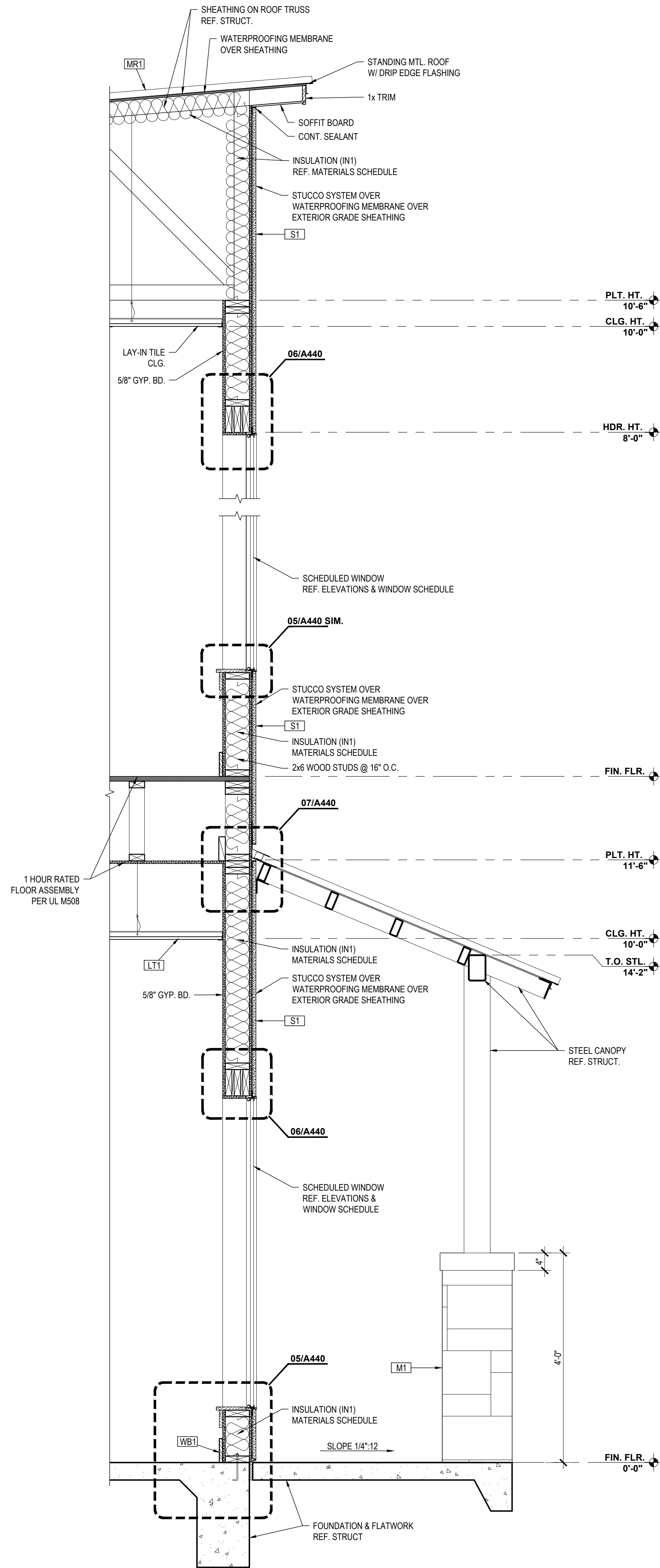
**Building Sections**  
 Project Number: 210105  
 N-vizion Design, LLC - 5900 Shepherd Mountain Cove, Ste 2-250  
 Austin, TX 78730 p:512.327.9995 www.n-vizion.net  
 Registration Nos.: TX PE Firm F-12225, TX 25489, LA: 9413  
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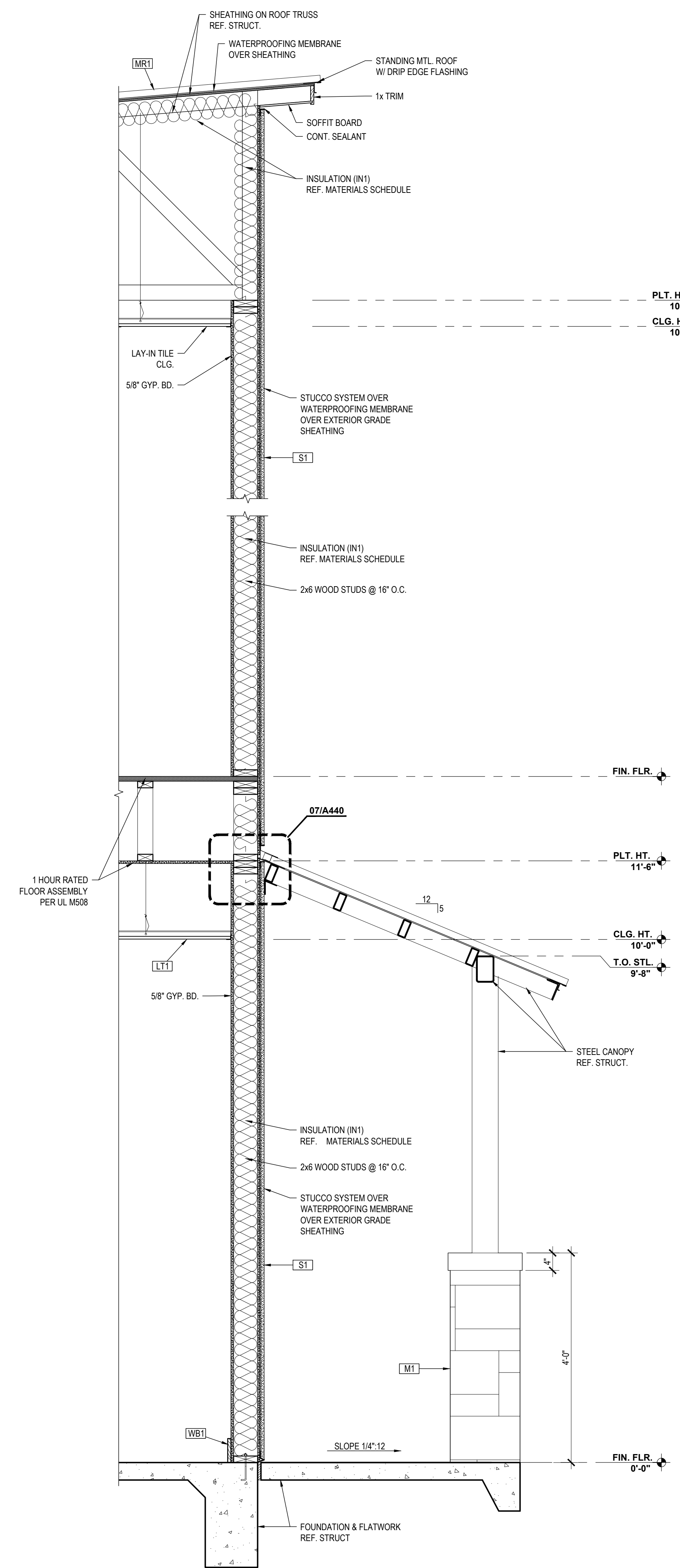
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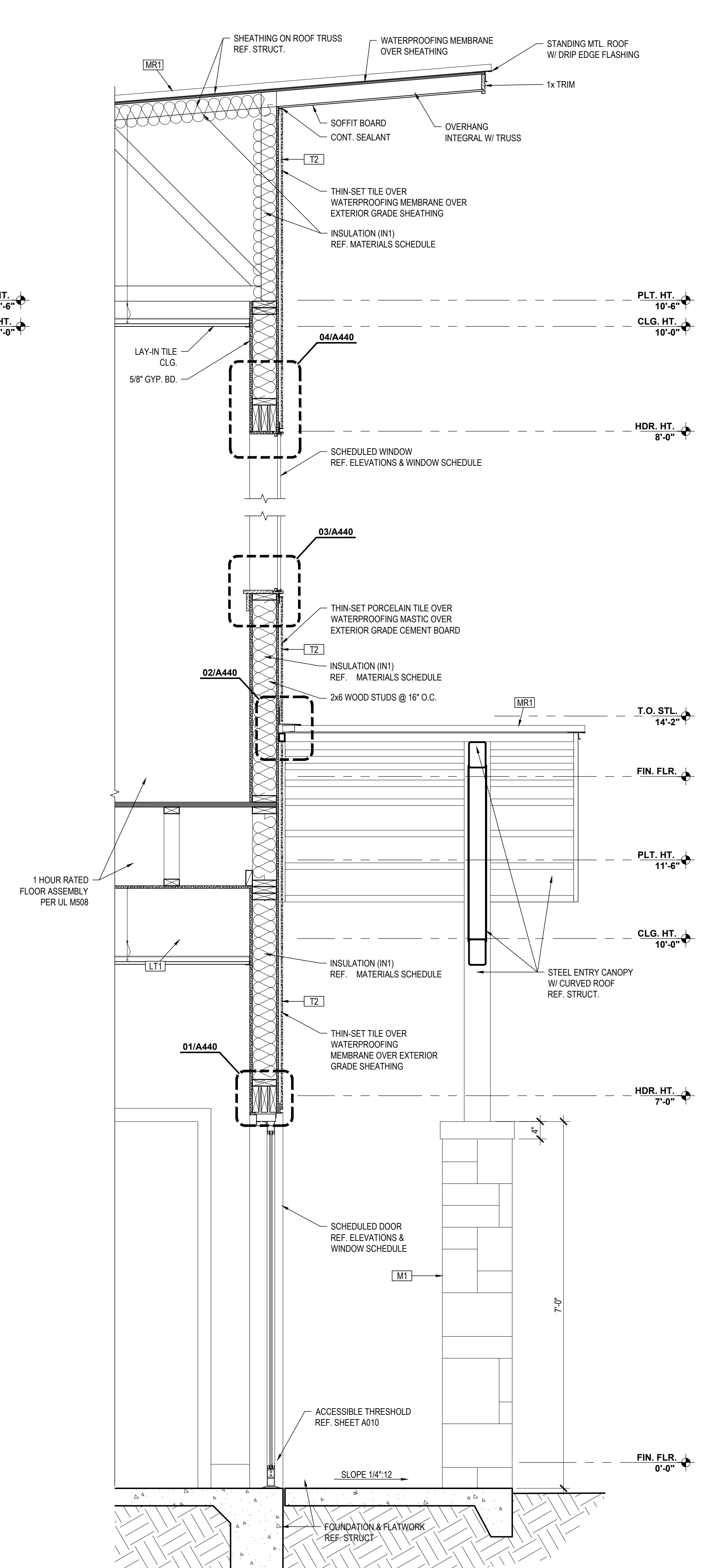
**03 Wall Section**

3/4"=1'-0"



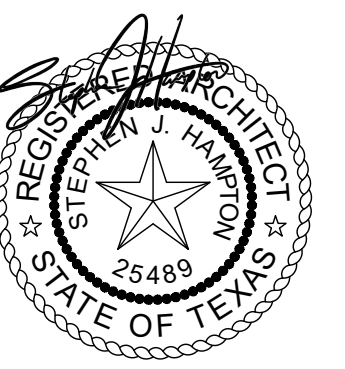
**02 Wall Section**

3/4"=1'-0"



**01 Wall Section**

3/4"=1'-0"



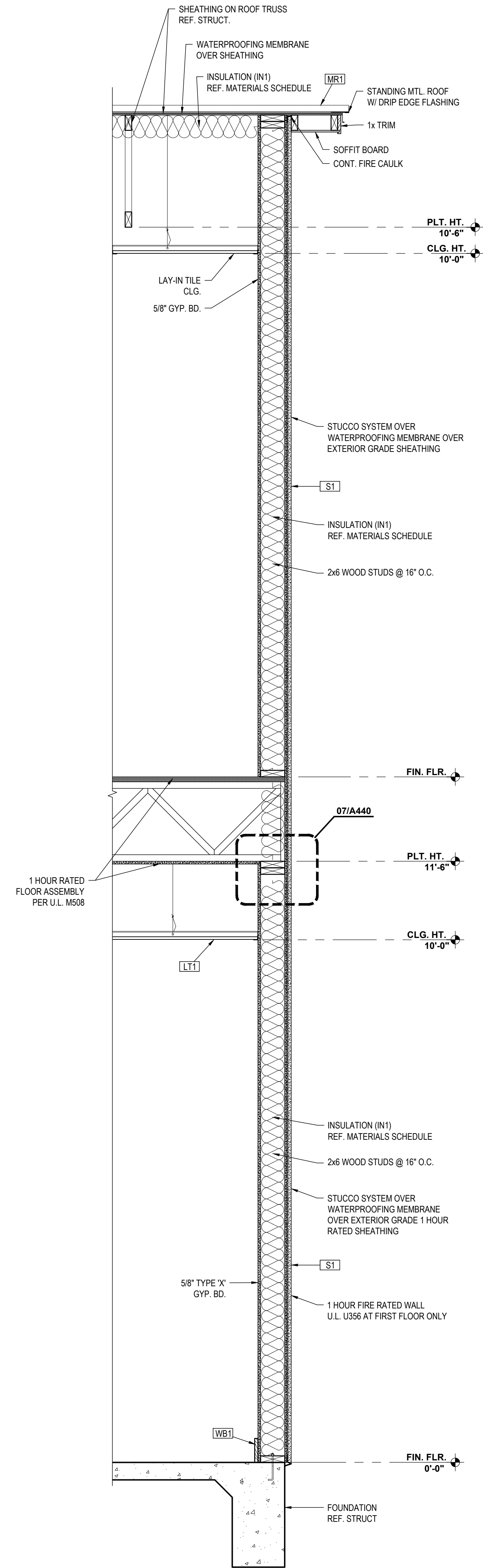
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**Wall Sections**  
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 N-vizion Design, LLC - 5900 Shepherd Mountain Cove, Ste 2-250  
 Austin, TX 78730 p:512.327.9955 www.n-vizion.net  
 Registration Nos.: TX PE Firm#-12225, TX-25489, LA: 9413  
 MI: 1301069591, NV: 6252, NC: 14865, OH: ARC: 891865

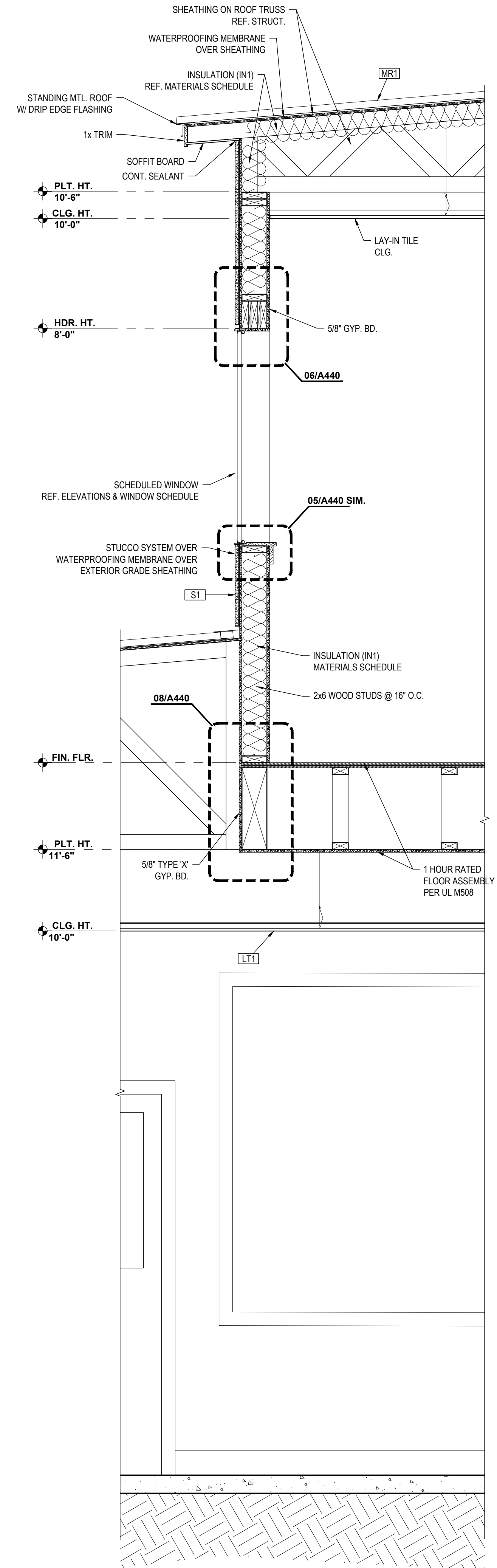
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**A430**



**02** Wall Section

3/4"=1'-0"



**01** Wall Section

3/4"=1'-0"



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**Wall Sections**  
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Registration Nos.: TX PE Firm F-12225, TX-25489, LA: 9413  
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**A431**

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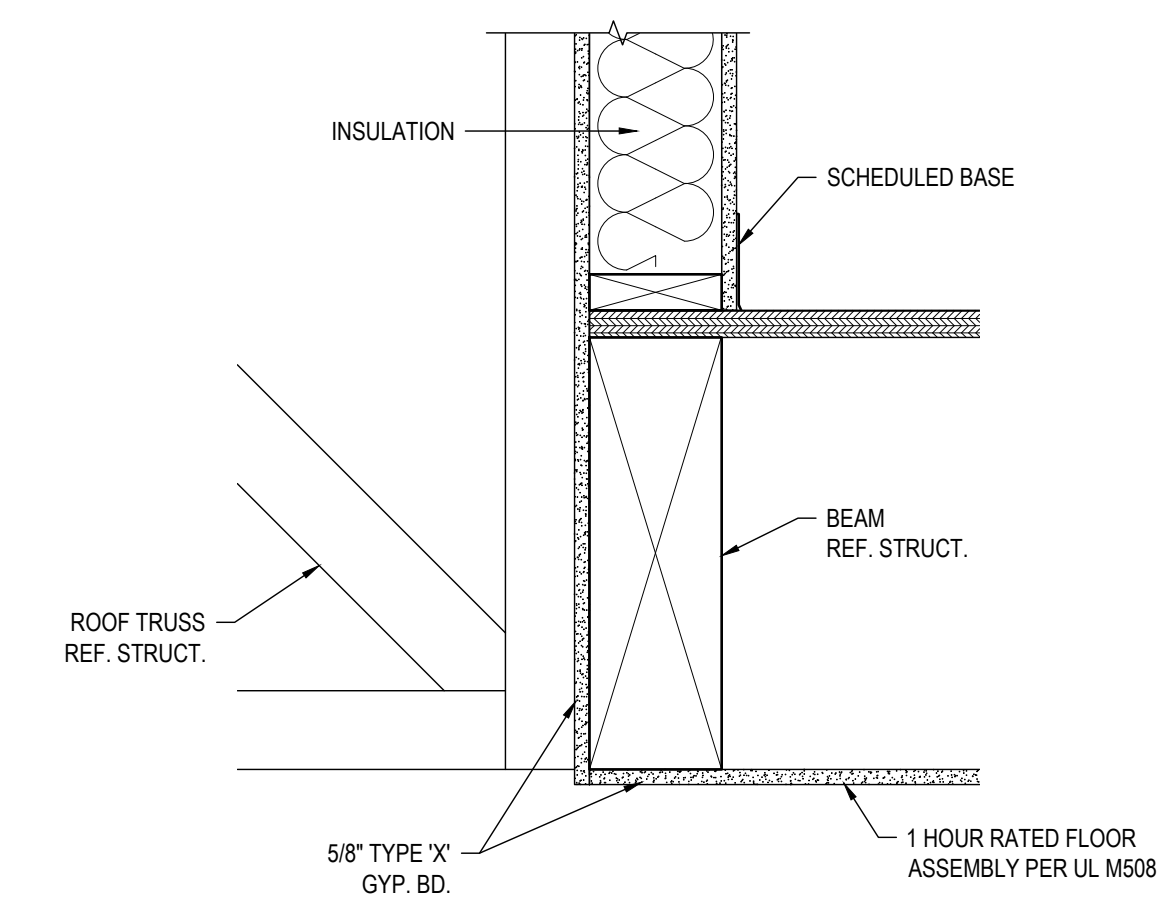
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**Details**  
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Austin, TX 78730 p:512.327.9955 www.n-vizion.net  
Registration Nos.: TX PE Firm F-12225, TX 25489, LA: 9413  
MI: 1301069591, NV: 6252, NC: 14865, OH: ARC: 1917865

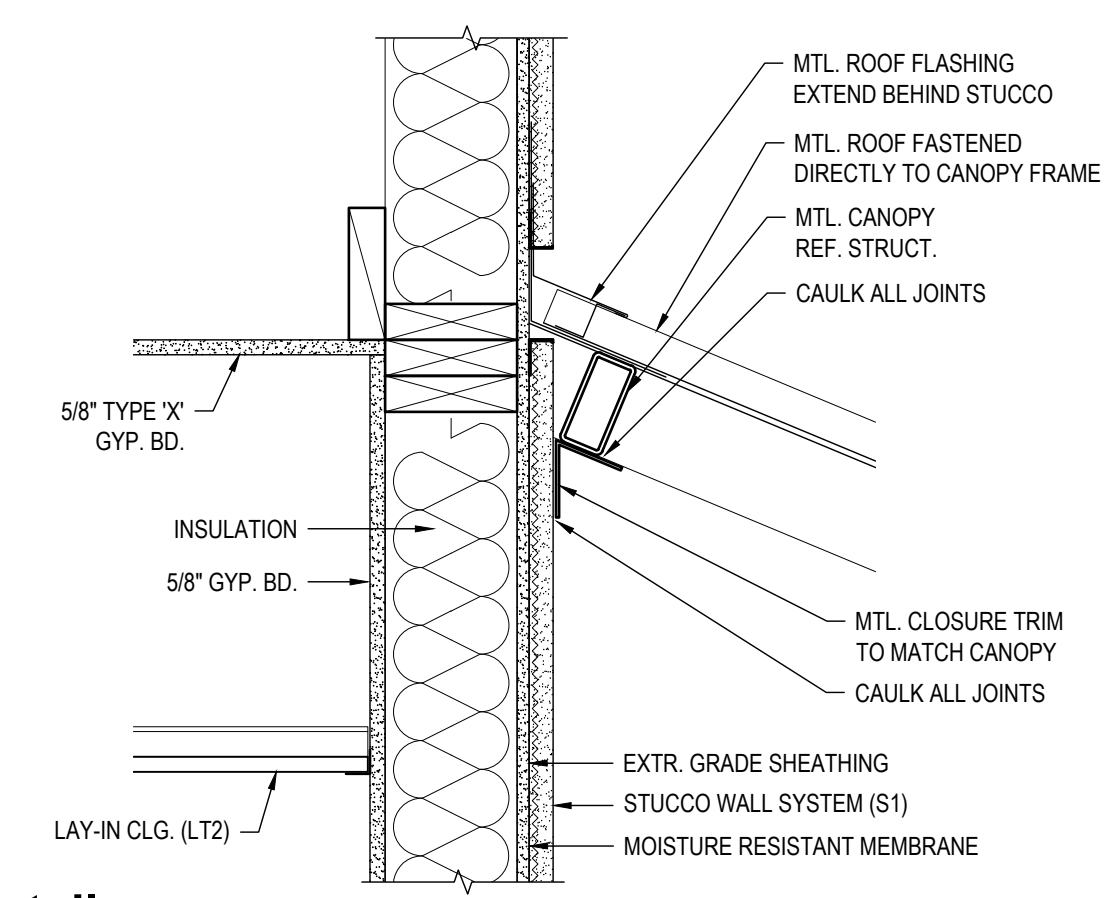
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**A440**



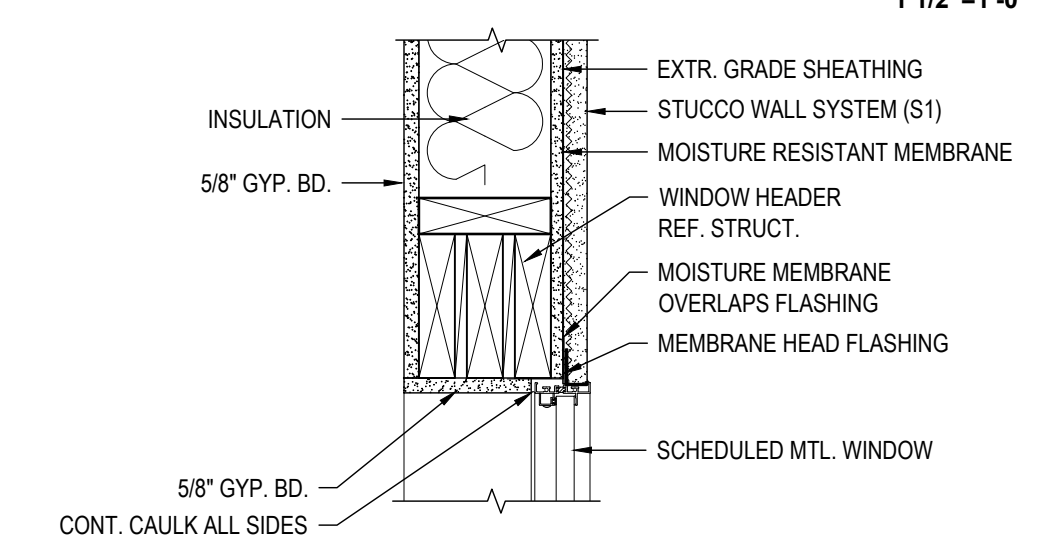
**08 Detail**

1 1/2"=1'-0"



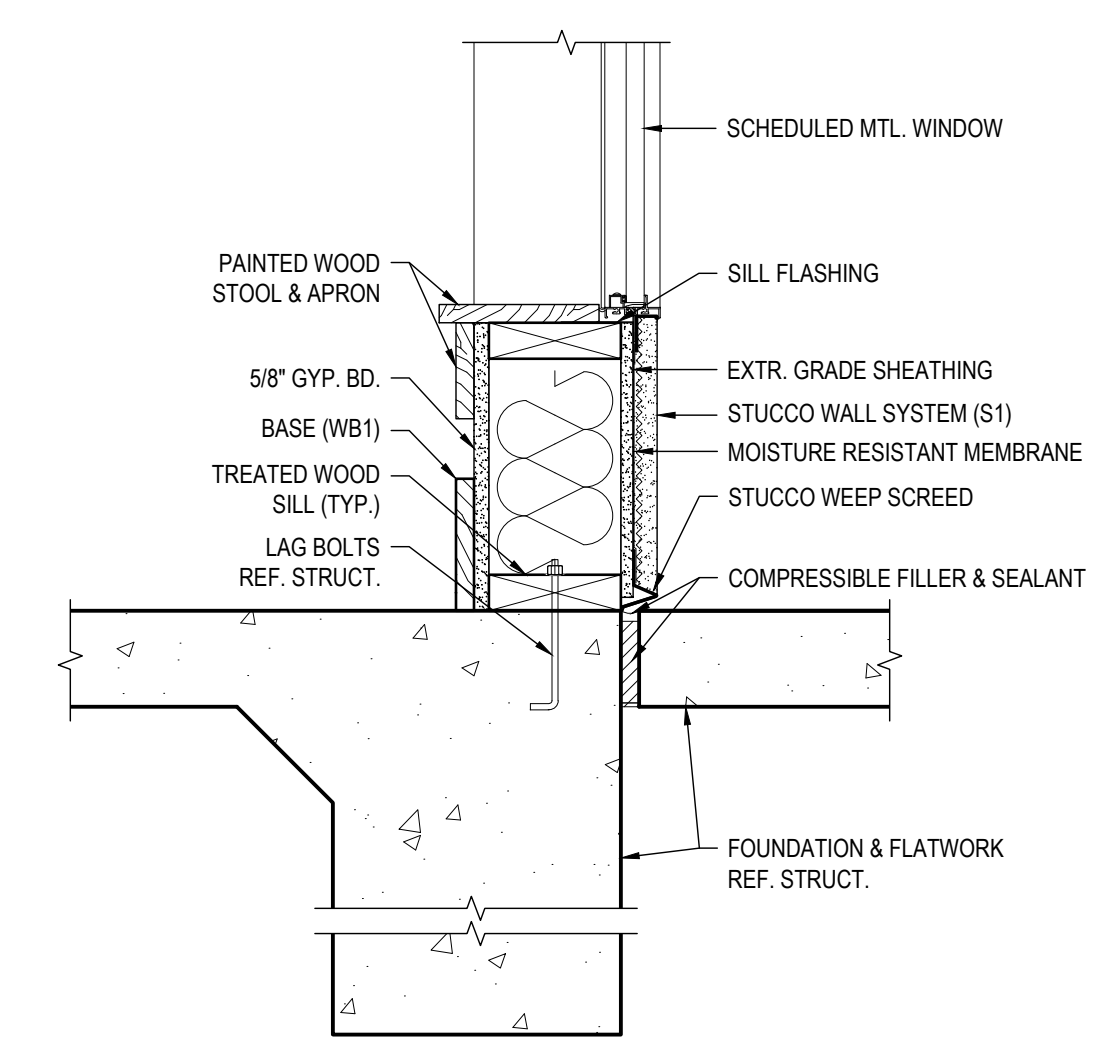
**07 Detail**

1 1/2"=1'-0"



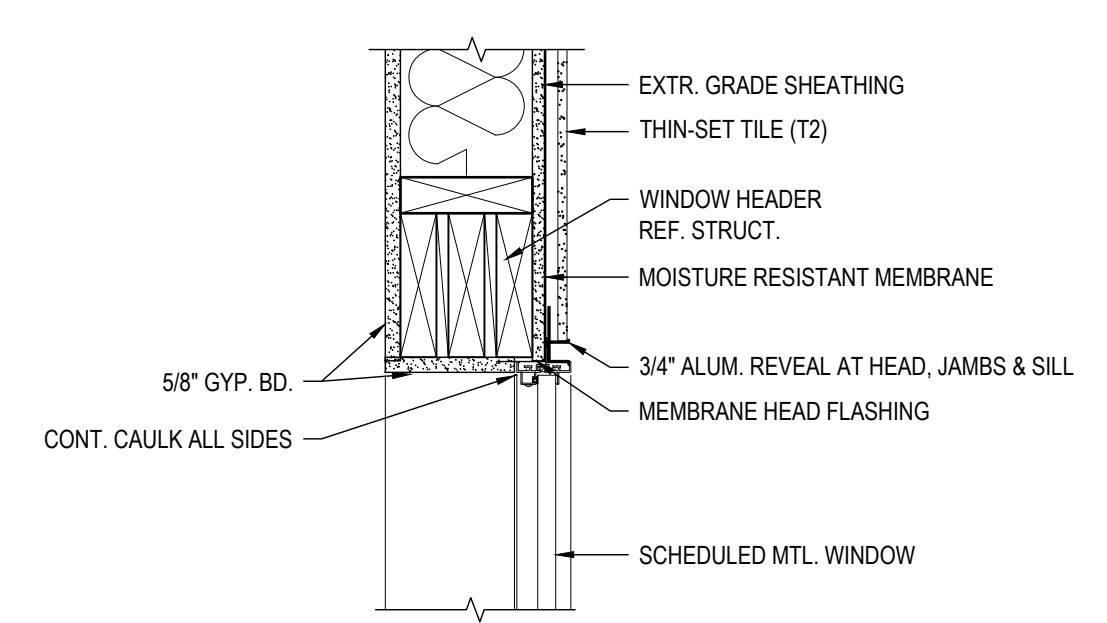
**06 Detail**

1 1/2"=1'-0"



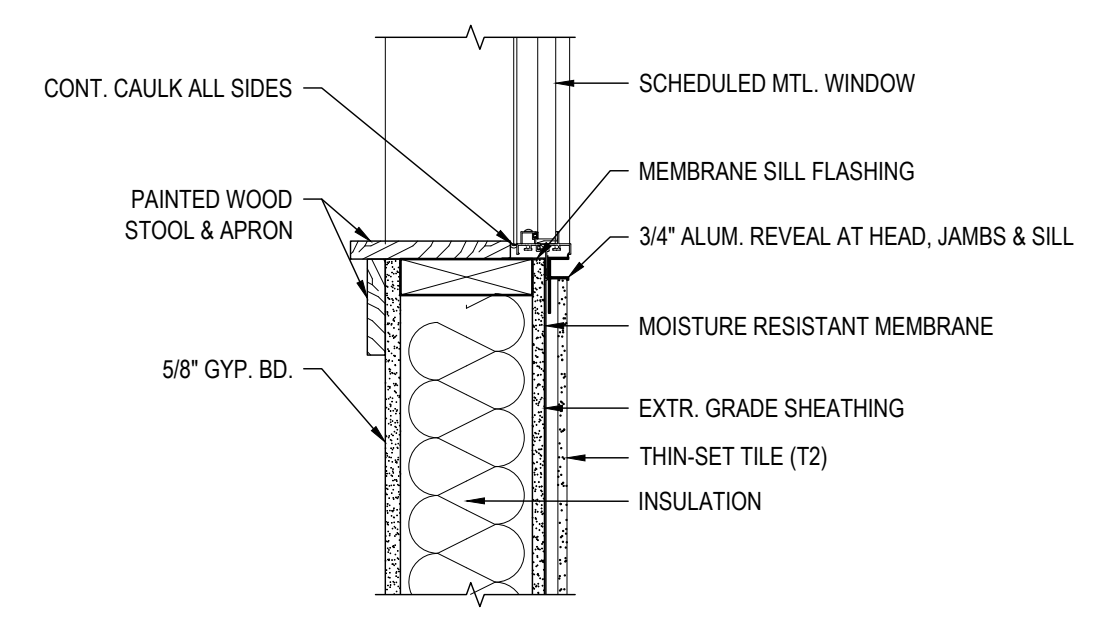
**05 Detail**

1 1/2"=1'-0"



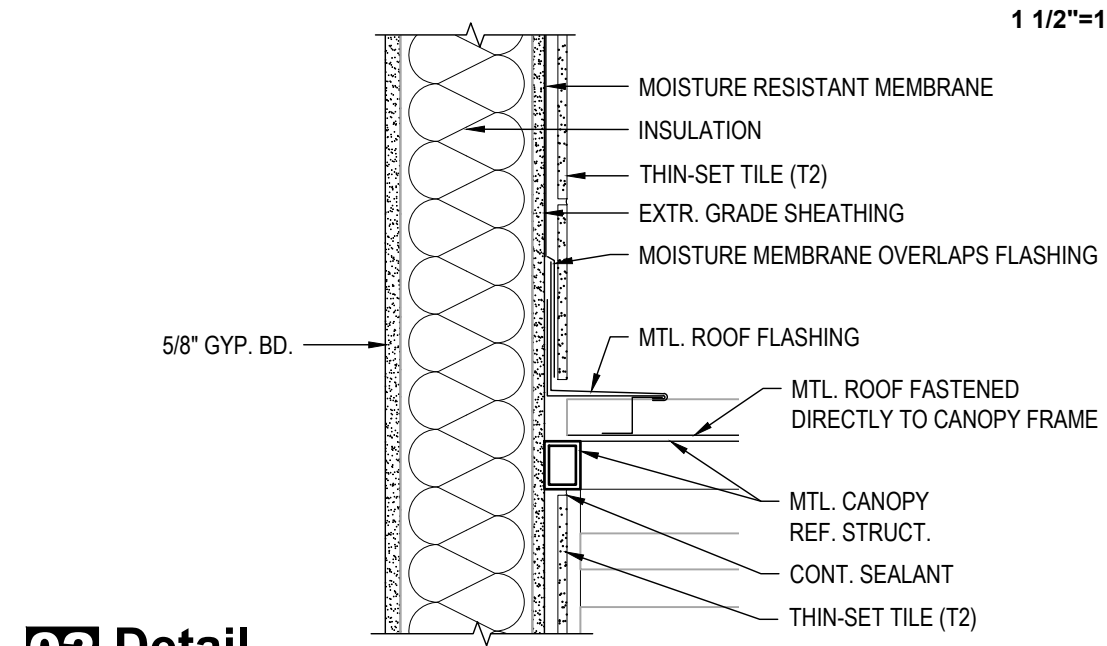
**04 Detail**

1 1/2"=1'-0"



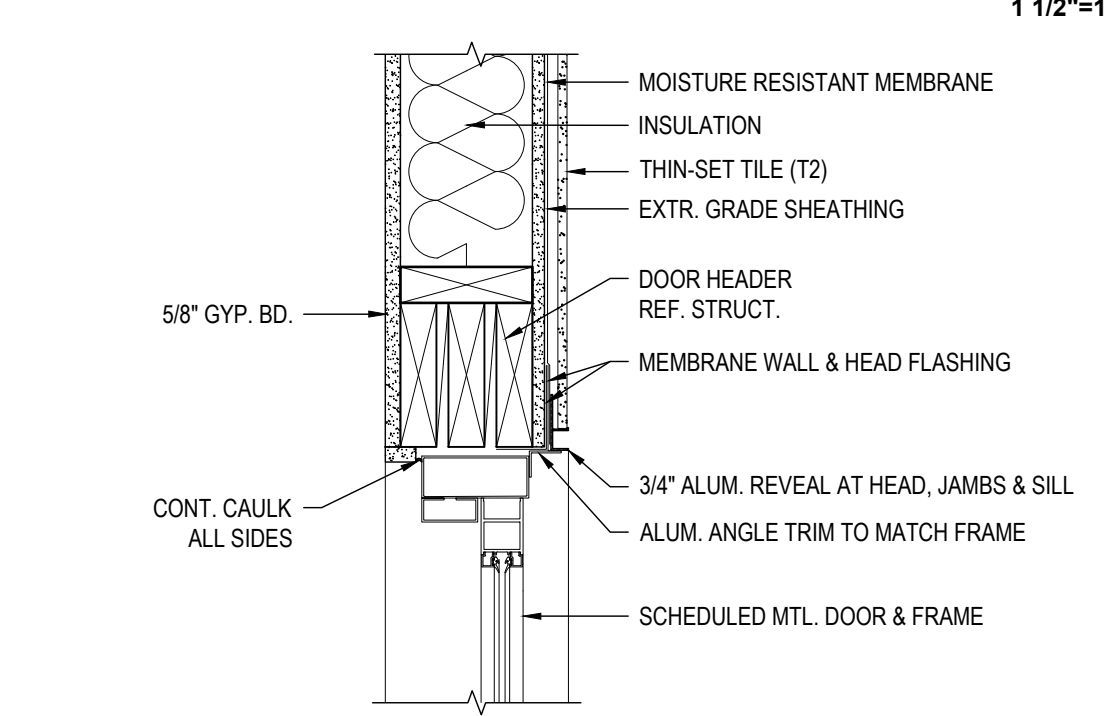
**03 Detail**

1 1/2"=1'-0"



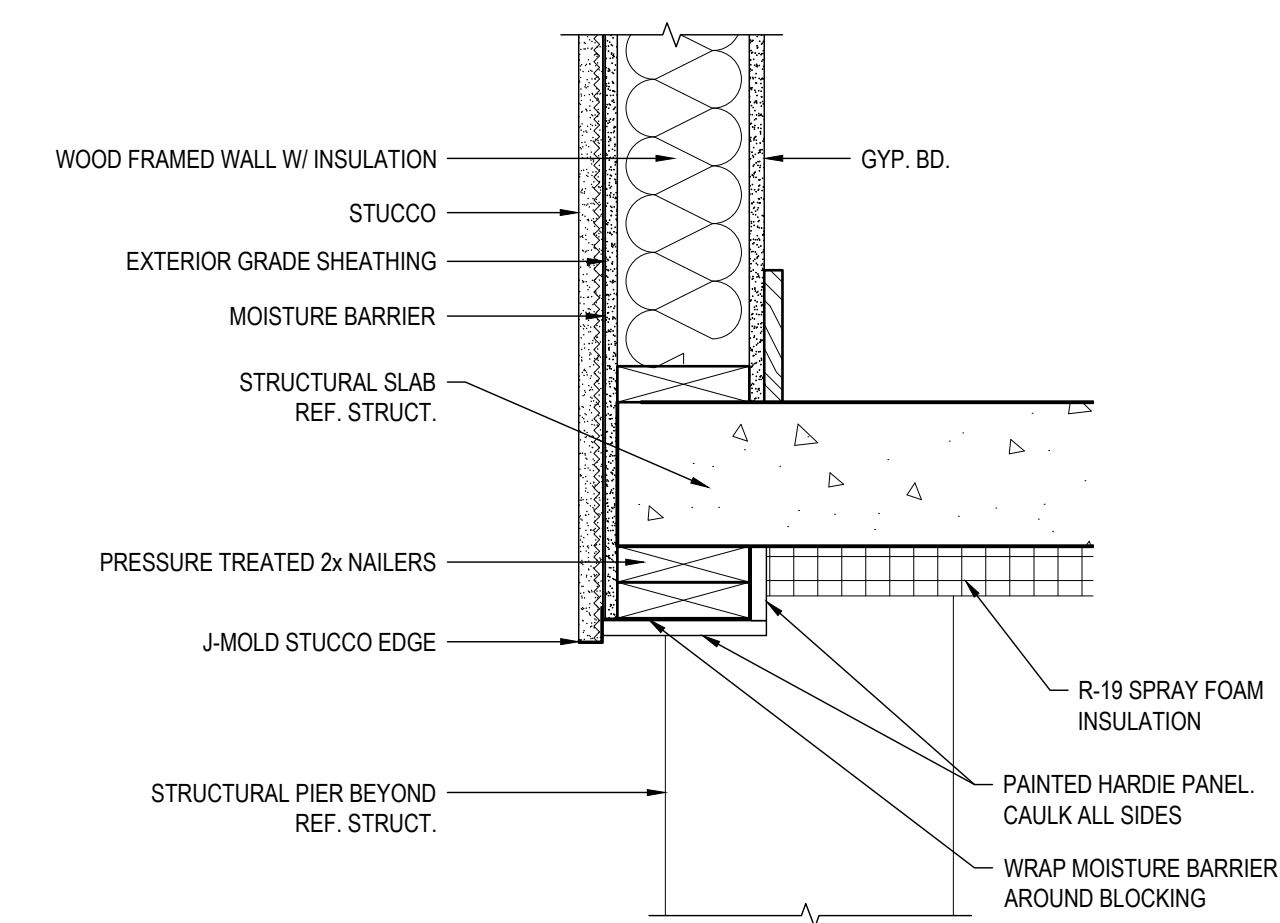
**02 Detail**

1 1/2"=1'-0"



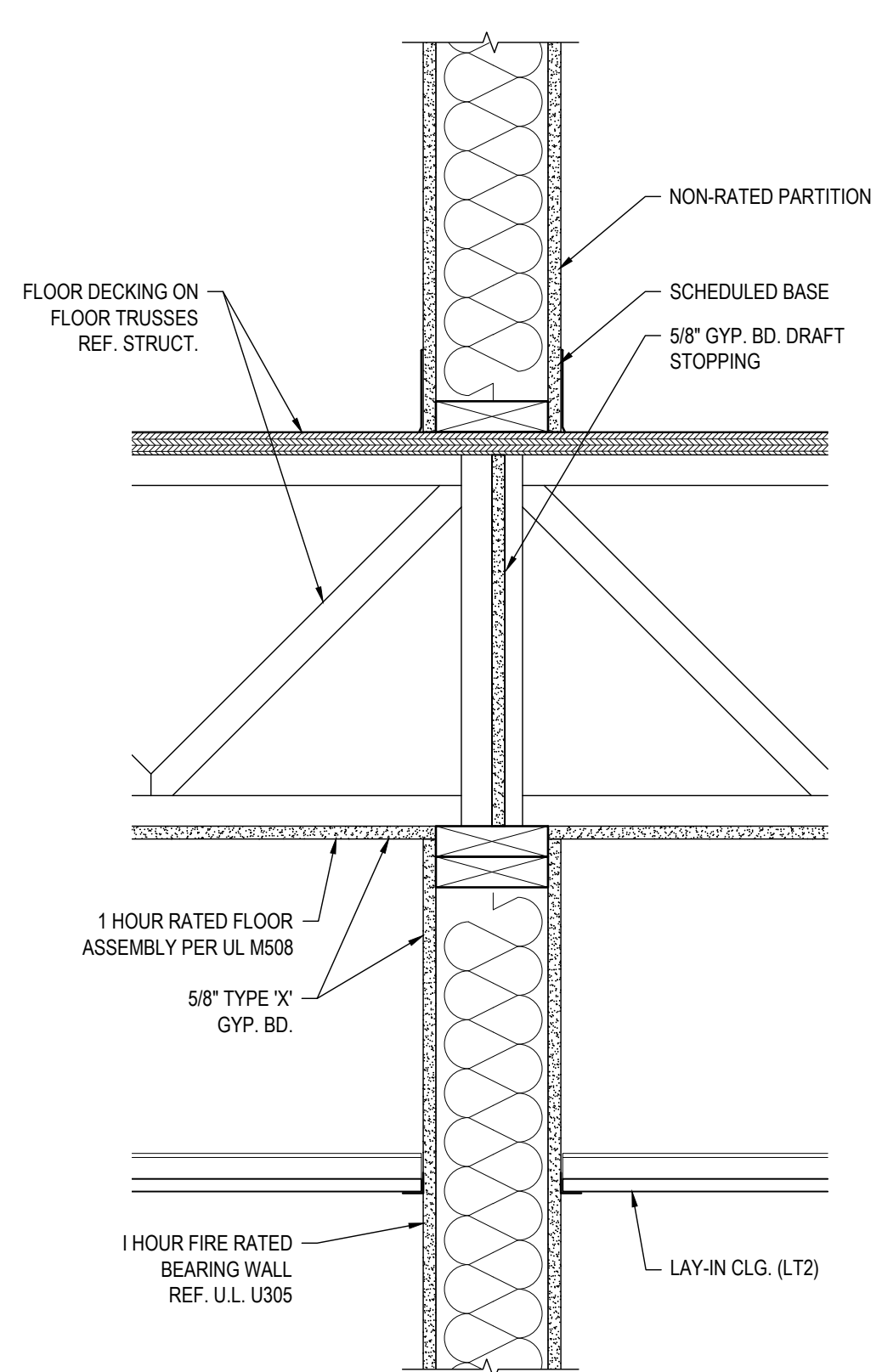
**01 Detail**

1 1/2"=1'-0"



**10 Detail**

1 1/2"=1'-0"

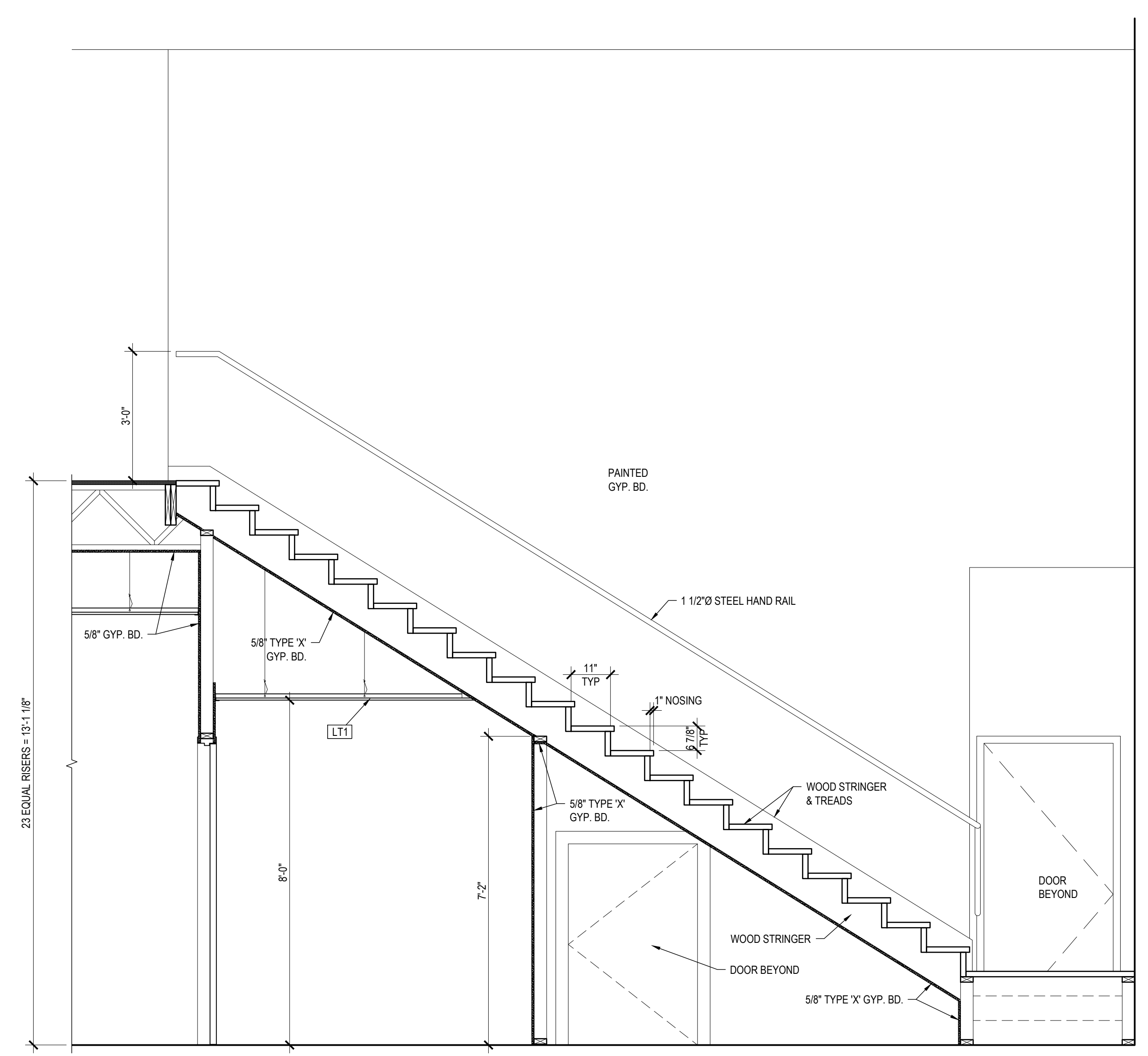


**09 Detail**

1 1/2"=1'-0"

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01 Stair Section

1/2"=1'-0"

Date:	Description:
03/02/22	FOR CONSTRUCTION

**Stair/Millwork Details**  
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# General Notes

## SECTION 1 GENERAL CONDITION AND STATEMENTS

- THESE NOTES SHALL APPLY UNLESS OTHERWISE INDICATED BY DRAWINGS OR SPECIFICATIONS.
- THESE STRUCTURAL DRAWINGS HAVE BEEN PREPARED IN ACCORDANCE WITH THE 2015 INTERNATIONAL BUILDING CODE, ASCE 7-10, ACI 318-14, ACI 530-13, AND ASCE 360-10.
- STRUCTURAL DRAWINGS ARE DIAGRAMMATIC IN NATURE. DO NOT SCALE THESE DRAWINGS. IN CASE OF DIMENSIONAL DISCREPANCIES, THE ARCHITECTURAL DRAWINGS SHALL GOVERN.
- CONTRACTOR TO VERIFY ALL DIMENSIONS AND CONDITIONS WITH ARCHITECTURAL DRAWINGS. REPORT ANY DISCREPANCIES TO STRUCTURAL ENGINEER PRIOR TO PROCEEDING WITH WORK.
- STRUCTURAL DRAWINGS INDICATE TYPICAL AND CERTAIN SPECIFIC CONDITIONS ONLY. SHOP DRAWINGS SHALL DETAIL ALL CONDITIONS IN ACCORDANCE WITH SPECIFIED STANDARDS AND THE SPECIFIC REQUIREMENTS OF THIS PROJECT AS INDICATED ON THE DRAWINGS.
- NON-STRUCTURAL FRAMING REQUIREMENTS ARE NOT SPECIFIED ON STRUCTURAL DRAWINGS. SEE ARCHITECTURAL DRAWINGS FOR ANY ADDITIONAL FRAMING REQUIRED.
- THE USE OR REPRODUCTION OF THESE CONTRACT DRAWINGS BY ANY CONTRACTOR, SUBCONTRACTOR, ERECTOR, FABRICATOR, OR MATERIAL SUPPLIER IN LIEU OF PREPARATION OF SHOP DRAWINGS SIGNIFIES HIS ACCEPTANCE OF ALL INFORMATION SHOWN HEREON AS CORRECT, AND RELIABLE HIMSELF TO ANY JOB EXPENSE, REAL OR IMPLIED, ARISING DUE TO ANY ERRORS THAT MAY OCCUR HEREON.
- THE STRUCTURE SHOWN ON THESE DRAWINGS IS STRUCTURALLY SOUND ONLY IN ITS COMPLETED FORM. THE CONTRACTOR SHALL TEMPORARILY BRACE ALL EARTH, FORMS, CONCRETE, STEEL, WOOD, MASONRY, TO RESIST GRAVITY, EARTH, WIND, SEISMIC, AND CONSTRUCTION LOADS DURING CONSTRUCTION.
- WHERE A DETAIL, TYPICAL DETAIL, SECTION, TYPICAL SECTION OR AS NOTED IS SHOWN FOR ONE CONDITION, IT SHALL APPLY FOR ALL LIKE OR SIMILAR CONDITIONS UNLESS OTHERWISE NOTED.
- SHOP DRAWINGS SHALL BE SUBMITTED TO ENGINEER FOR A MINIMUM OF 10 BUSINESS DAYS. ADDITIONAL TIME FOR REVIEW MAY BE REQUIRED.
- IBC 2015 TABLE 1604.5 RISK CATEGORY: II
- IBC 2015 SECTION 1606 DESIGN DEAD LOADS— DEAD LOADS INCLUDE THE SELF WEIGHT OF THE STRUCTURAL AND NON-STRUCTURAL COMPONENTS AND ALLOWANCES FOR FINISHES, CURTAIN WALLS, ROOFING, MECHANICAL, ELECTRICAL, AND PLUMBING MATERIALS.
- IBC 2015 SECTION 1607 DESIGN LIVE LOADS— OFFICES, LOBBIES, AND 1ST FLOOR CORRIDORS: 100 P.S.F. STAIRS AND EXITS: 100 P.S.F. (300 LBS. CONCENTRATED) ROOF LIVE LOAD: 20 P.S.I. U.N.O. ROOF SNOW LOAD: 5 PSF SEE IBC TABLE 1607.1 FOR APPLICABLE LIVE LOADS NOT LISTED HEREIN.
- IBC 2015 SECTION 1608 SNOW LOADS: GROUND SNOW LOAD = 6 P.S.F.
- IBC 2015 SECTION 1609 WIND LOAD DESIGN CRITERIA: APPLICABLE WIND LOADS HAVE BEEN DETERMINED ACCORDING TO THE PROVISIONS OF ASCE 7-10.
  - WIND SPEED,  $V_{50}$  = 115 MPH,
  - EXPOSURE CATEGORY = B
  - INTERNAL PRESSURE COEFFICIENT,  $G_{CPI}$  = 0.18
  - COMPONENTS AND CLADDING PRESSURE,  $p$  = 16.5 P.S.F.
- IBC 2015 SECTION 1613 SEISMIC DESIGN CRITERIA:
  - SEISMIC IMPORTANCE FACTOR  $I_w$  = 1.0
  - MAPPED SPECTRAL RESPONSE ACCELERATION PARAMETERS:  $C_s = 0.033$
  - SITE CLASS = 0.0M
  - DESIGN SPECTRAL RESPONSE ACCELERATION PARAMETERS:  $S_{D1} = 0.033 \leq 0.04$   $S_{D2} = 0.046 \leq 0.15$
  - SEISMIC DESIGN CATEGORY = A
  - BASIC SEISMIC-FORCE RESISTING SYSTEM = A15: LIGHT FRAMED WALLS SHEATHED WITH WOOD STRUCTURAL PANELS
  - DESIGN BASE SHEAR = 120 LBS
  - SEISMIC RESPONSE COEFFICIENT(S),  $C_s$  = 0.10
  - RESPONSE MODIFICATION FACTOR,  $R$  = 6.5
  - ANALYSIS PROCEDURE USED = EQUIVALENT LATERAL FORCE PROCEDURE
  - SEISMIC USE GROUP: II
  - DEFLECTION AMPLIFICATION FACTOR,  $C_p$  = 4
- GEOTECHNICAL INFORMATION
  - DESIGN LOAD BEARING VALUE OF SOIL = SEE SECTION 2
  - DESIGN ASSUMPTIONS AT BELOW GRADE WALLS = N/A
- IBC 2015 SECTION 1612 FLOOD DESIGN DATA = N/A
- SPECIAL LOADS PER IBC 2015 SECTION 1603.1.8 = ROOF (NOMINAL) = 60 P.S.F. MECHANICAL LOAD WHERE INDICATED ON PLAN.

## SECTION 2 SOILS, SUBSURFACE CONDITIONS AND DEMOLITION

- FOUNDATION DESIGN IS BASED ON RECOMMENDATIONS BY INTEC TERRADYNE PROJECT # A121366, DATED 12/20/2012, AS WELL AS THE SUPPLEMENTAL LETTER DATED FEBRUARY 7, 2012. ALLOWABLE SOIL BEARING PRESSURE IS 1,700. CONTRACTOR SHOULD FAMILIARIZE THEMSELVES WITH GEOTECHNICAL REPORT PRIOR TO CONSTRUCTION.
- SUBGRADE SHALL BE EXISTING IN ACCORDANCE W/ RECOMMENDATIONS IN THE GEOTECHNICAL REPORT. PREPARE SITE SHOULD BE SCRUBBED TO REMOVE ANY VEGETATION, ROOTS, OR OTHER ORGANIC MATERIAL. A MIN. OF 6" OF EXISTING SOIL SHALL BE REMOVED TO ALLOW FOR 1'-0" OF SELECT FILL TO BE PLACED IN COMPACTED LIFTS PER THE GEOTECHNICAL RECOMMENDATIONS. ANY FILL WORK WITHIN 10'-0" OF BUILDING LIMIT SHALL BE COMPACTED TO 95% STANDARD PROCTOR. SEE ARCHITECTURAL DRAWINGS FOR UNDER FLOOR DRAINS, IF REQUIRED.
- TOP OF FOOTING ELEVATIONS GIVEN ARE FOR PURPOSES OF CONTRACT AND SHALL BE ADJUSTED AT THE TIME OF EXCAVATION TO MEET SOIL CONDITIONS IF SO REQUIRED. SEE FOUNDATION INFLUENCE DETAIL, R, SHEET S-3.0, FOR MAXIMUM SLOPE BETWEEN FOOTINGS AND OTHER ELEMENTS.
- BACKFILLING OF WALLS AND PIERS SHALL BE PLACED SUCH THAT SYMMETRICAL LOADING SHALL BE MAINTAINED ON BOTH SIDES. WHERE DESIGN CONDITIONS REQUIRE BACKFILLING EACH SIDE TO UNEQUAL HEIGHTS, THEN WALLS OR PIERS SHALL BE FIRMLY SHORED IN POSITION, AND SHORES SHALL REMAIN UNTIL FLOORS OR OTHER PERMANENT BRACING ELEMENTS ARE PLACED AND PROPERLY SET TO PROVIDE FULL SUPPORT.
- CONTRACTOR SHALL PROVIDE POSITIVE DRAINAGE AWAY FROM FOUNDATION IN ACCORDANCE WITH APPLICABLE CODES. ENGINEER ASSUMES NO RESPONSIBILITY FOR FOUNDATION WITH INADEQUATE DRAINAGE AND/OR GROUNDWATER COLLECTION. USER IS ADVISED THAT INADEQUATE DRAINAGE CAN DISTRESS STRUCTURE AND ATTACHED COMPONENTS.
- DO NOT ALLOW STORED EXCAVATION MATERIAL TO DISRUPT PROPER DRAINAGE OF AREA
- MAINTAIN STABILITY OF EXCAVATIONS UNTIL PROPERLY BACKFILLED. KEEP EXCAVATIONS FREE OF ANY LOOSE MATERIAL. DEWATER EXCAVATIONS AND REMOVE ANY WET MATERIAL PRIOR TO THE PLACING OF CONCRETE WORK.
- HEAVY EQUIPMENT FOR SPREADING AND COMPACTING BACKFILL SHALL NOT BE OPERATED CLOSER TO WALL, GRADE BEAM, ETC., THAN A DISTANCE EQUAL TO THE HEIGHT OF BACKFILL ABOVE TOP OF WALL, FOOTING & BOTTOM OF GRADE BEAM, ETC. THE AREA REMAINING SHALL BE COMPACTED BY HAND TAMPERS.
- USE EXCAVATED MATERIAL AS BACKFILL IF ACCEPTABLE TO TESTING AGENCY. IF EXCAVATED BACKFILL MATERIAL IS NOT AVAILABLE, USE SELECT FILL MATERIAL ACCEPTABLE TO TESTING AGENCY.
- GRADE SHALL BE SUCH THAT THICKNESS OF FOUNDATION, SLAB ON GRADE, ETC., IS NOT REDUCED BY MORE THAN 5% OF THAT SHOWN ON DRAWINGS.

## SECTION 3 CONCRETE

- MIX DESIGNS FOR EACH TYPE OF CONCRETE SPECIFIED SHALL BE SUBMITTED FOR APPROVAL. ADMIXTURES, CURING COMPOUNDS AND HARDENERS INTENDED FOR USE ARE TO BE SUBMITTED FOR APPROVAL. NO MORE THAN 5% PERCENT AIR ENTRAINMENT MAY BE PROVIDED.
- TESTING LABORATORY SHALL SAMPLE AND TEST CONCRETE AS FOLLOWS:
  - SAMPLING:
    - GENERAL: IN ACCORDANCE WITH ASTM C31.
    - NO. 4 CYLINDERS FOR EACH 50 CUBIC YARDS, 5000 SQ. FT. OF SURFACE AREA, OR EACH PLACEMENT OF EACH MIX DESIGN OF CONCRETE PLACED IN ANY ONE DAY.
    - DESIGNATION: LABEL EACH CYLINDER IN EACH SET OF 4 CYLINDERS WITH AN ALPHANUMERIC DESIGNATION, E.G. THE FIRST SET SHALL BE NUMBERED 1A, 1B, 1C, AND 1D.
  - TESTING:
    - SUMP: IN ACCORDANCE WITH ASTM C 143, TO BE TAKEN WHEN EACH SET OF CYLINDERS IS MADE.
    - AIR CONTENT: SEE SPECIFICATIONS.
    - COMPRESSIVE STRENGTH: IN ACCORDANCE WITH ASTM C 39 BREAK ONE CYLINDER AT 7 DAYS, 2 AT 28 DAYS, AND HOLD ONE IN RESERVE. EACH PAIR OF BREAKS FROM EACH SET OF CYLINDERS WILL BE CONSIDERED ONE TEST.
  - TEST REPORTS SHALL BE AVAILABLE AT JOBSITE.
- CONCRETE IN THE FOLLOWING AREAS SHALL HAVE THE STATED MINIMUM COMPRESSIVE STRENGTH (f'c) AT 28 DAYS:
 

SLAB ON GRADE	3,000 psi
ISOLATED AND SPREAD FOOTINGS	3,000 psi
- CONCRETE WORK SHALL CONFORM TO ACI 318 (REINF. CONCRETE) AND/OR 318.1 (PLAIN CONCRETE).
- REINFORCING BARS SHALL CONFORM WITH ASTM A 615. ALL BARS SHALL BE GRADE 60.
- ALL REINFORCING STEEL SHALL BE NEW DEFORMED BILLET STEEL CONFORMING TO A.S.T.M. DESIGNATION 1-615 GRADE 60 (60,000 PSI, YIELD POINT). REINFORCEMENT TO BE WELDED SHALL BE WELDABLE GRADE REINFORCEMENT TO BE WELDED SHALL BE WELDABLE GRADE REINFORCEMENT CONFORMING TO THE REQUIREMENTS OF THE AMERICAN WELDING SOCIETY AWS D12.1-75.
- ANCHOR BOLTS:
  - ASTM A 36 FOR MATERIAL; A 307 FOR CORNER PROPERTIES, WITH CUT THREADS. FURNISH WITH HEAVY HEX NUT AND WASHER.
- REBAR SUPPORT DEVICES: CRSI MANUAL OF STANDARD PRACTICE.
- REINFORCING STEEL COVERAGE SHALL BE AS FOLLOWS:
 

CAST IN PLACE CONCRETE	
(A) PIERS	2" TO TIES
(B) GRADE BEAMS	3" SIDES AND BOTTOM, 2" TOP
(C) SLABS ABOVE GRADE	3/4" NOT EXPOSED TO WEATHER
(D) BEAMS ABOVE GRADE	1 1/2" NOT EXPOSED TO WEATHER
(E) CONCRETE JOINTS	3/4" NOT EXPOSED TO WEATHER
(F) WALLS	2" NOT EXPOSED TO EARTH & WEATHER
(G) FOOTINGS	3" SIDES AND BOTTOM, 2" TOP
- ALL CONTINUOUS BARS SHALL HAVE 42 BARS DIAMETER LAP SPICE (26" FOR #5 BARS) PROVIDE CORNER BARS AT ALL WALL AND GRADE BEAM CORNERS. BARS SHALL BE THE SAME SIZE AND SPACING AS THE HORIZ. REINF. INTERSECTING WALLS OR GRADE BEAMS SHALL BE DOWELED IN THE SAME MANNER. PROVIDE TWO #4 TOP DIAGONAL BARS 4'-0" LONG AT ALL REINFRANT CORNERS IN ALL SLABS ON GRADE AND ELEVATED SLABS.
- CONFORM TO ACI 308R FOR COLD WEATHER CONCRETING AND ACI 305R WHEN ANY COMBINATION OF HIGH TEMPERATURE, LOW RELATIVE HUMIDITY AND WIND VELOCITY TEND TO IMPAIR THE QUALITY OF THE CONCRETE. CONCRETE IS TO BE REJECTED IF ITS TEMPERATURE AT TIME OF PLACEMENT IS 90 DEG. F OR ABOVE. PROTECT SURFACES OF EXPOSED CONCRETE FROM PRECIPITATION DAMAGE UNTIL ADEQUATE STRENGTH IS GAINED TO PREVENT DAMAGE.
- REFER TO ARCHITECTURAL, MECHANICAL AND ELECTRICAL EQUIPMENT ARRANGEMENT. CIVIL AND VENDOR'S DRAWINGS FOR EMBEDDED ITEMS NOT SHOWN. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING AND PLACING ALL EMBEDDED ITEMS SHOWN ON THE DRAWINGS OR REQUIRED BY THE VARIOUS TRADES.M
- IT IS RECOMMENDED THAT THE TYPE OF VAPOR RETARDER OR BARRIER BE DECIDED IN CONSULTATION WITH THE FLOORING CONSULTANT. AMERICAN CONCRETE INSTITUTE (ACI) 302 RECOMMENDS A MINIMUM OF 10 MIL POLYETHYLENE FILM (POLY) BE PLACED UNDER THE ENTIRE CONCRETE SLAB AREA. IT IS RECOMMENDED THAT THE VAPOR RETARDER CONFORM TO ASTM E 1745, CLASS C OR BETTER AND HAVE A MAXIMUM WATER VAPOR PERMEANCE OF 0.04 WHEN TESTED IN ACCORDANCE WITH ASTM E96. PROVIDE (1) LAYER OF POLYETHYLENE VAPOR BARRIER BENEATH ALL STRUCTURAL SLABS AND ON THE SIDES OF BEAMS. PROVIDE (2) LAYERS OF POLYETHYLENE UNDER ALL CONSTRUCTION JOINTS 3'-0" WIDE CENTERED ON JOINT.
- SLEEVE ALL PIPES THRU SLABS INDIVIDUALLY: UNLESS APPROVED BY ENGINEER.
- CONCRETE SLABS SHALL BE PLACED AND FINISHED W/ IN A MINIMUM TOLERANCE OF 1/8" INCH EVERY 10 FEET AS DETERMINED BY PLACING A 10 FOOT STRAIGHT EDGE ON THE SLAB IN ANY DIRECTION FROM ANY DEVIATION FROM THIS WHICH REQUIRES ADDITIONAL CUTTING OF OTHER BUILDING COMPONENTS SHALL BE THE RESPONSIBILITY OF THE CONCRETE CONTRACTOR.
- AGGREGATES FOR CONCRETE OF NORMAL WEIGHT SHALL CONFORM TO "STANDARD SPECIFICATIONS FOR CONCRETE AGGREGATES" (ASTM C 33-82). THE NOMINAL MAXIMUM SIZE OF COARSE AGGREGATES SHALL NOT BE MORE THAN 3/4" INCH.
- NO ADMIXTURES, OTHER THAN AIR-ENTRAINING ADMIXTURE CONFORMING TO "STANDARD SPECIFICATIONS FOR AIR ENTRAINING ADMIXTURES FOR CONCRETE" (ASTM C 260-77) MAY BE USED WITHOUT THE WRITTEN APPROVAL FROM THE ENGINEER. THE USE OF CALCIUM CHLORIDE SHALL NOT BE PERMITTED.
- THE CONCRETE SHALL BE PROPORTIONED AND PRODUCED TO HAVE A SLUMP OF 5 INCHES OR LESS. A TOLERANCE OF 1 INCH ABOVE THIS AMOUNT SHALL BE PERMITTED FOR INDIVIDUAL BATCHES PROVIDED THE AVERAGE FOR ALL BATCHES DOES NOT EXCEED 5 INCHES. THE SLUMP SHALL BE DETERMINED BY "STANDARD TESTING METHOD FOR SLUMP OF PORTLAND CEMENT CONCRETE"(ASTM C143-78).
- CONCRETE SEALERS SHALL BE APPROVED BY ENGINEER PRIOR TO USE. APPLY IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
- ALL WELDED STEEL WIRE FABRIC FOR CONCRETE REINFORCEMENT SHALL CONFORM TO ASTM A-185 AND SHALL BE INSTALLED ONLY IN FLAT SHEETS.
- WHEN REINFORCING STEEL IS INTERRUPTED BY OPENINGS OR EMBEDDED EQUIP. IN THE SLAB, AN EQUAL AMOUNT OF STEEL SHALL BE PLACED AT SIDES OF THE OPENING PARALLEL TO THE UNINTERRUPTED STEEL AND SHALL EXTEND A MIN. OF 40-BAR-DIA. PAST THE EDGE OF OPENING OR EQUIPMENT.
- NO HORIZONTAL JOINTS WILL BE PERMITTED IN CONCRETE EXCEPT AS NOTED. VERTICAL CONSTRUCTION JOINT LOCATIONS, REQUIRED AT POINTS OTHER THAN SHOWN, SHALL BE SUBMITTED TO THE STRUCTURAL ENGINEER IN THE FORM OF SHOP DRAWINGS FOR APPROVAL A MIN. OF (30) DAYS PRIOR TO CONSTRUCTION.

## SECTION 4 STRUCTURAL STEEL

- WELDER QUALIFICATIONS: QUALIFY WELDING PROCESSES AND WELDING OPERATORS IN ACCORDANCE WITH AWS "STANDARD QUALIFICATION PROCEDURE". OPERATORS SHALL CARRY PROOF OF QUALIFICATION ON THEIR PERSONS QUALIFIED WITHIN THE PAST SIX MONTHS. ALL WELDING SHALL BE PERFORMED IN ACCORDANCE WITH THE "STRUCTURAL WELDING CODE" BY THE AMERICAN WELDING SOCIETY.
- TEST REPORTS: STEEL FABRICATOR'S REPORT OF MILL ANALYSIS AND TENSILE AND BEND TESTS FOR STRUCTURAL STEEL MADE NO MORE THAN 60 DAYS BEFORE SHIPMENT.
- CERTIFICATES: TESTING LABORATORY'S CERTIFICATE THAT:
  - STRUCTURAL STEEL HAS BEEN FURNISHED AND INSTALLED IN ACCORDANCE WITH CONTRACT DOCUMENTS.
  - THE ON-SITE INSPECTIONS HAVE BEEN CONDUCTED AND INSTALLED IN ACCORDANCE WITH THE FIELD QUALITY CONTROL BELOW.
- TESTING LABORATORY SHALL INSPECT CONNECTIONS IN ACCORDANCE WITH REFERENCES AS FOLLOWS:
  - WELDED CONNECTIONS: INSPECT ALL COMPLETE PENETRATION WELDS AND ALL BUTT WELDS MADE BY FABRICATOR. IF THE FABRICATOR USES THE FULL VALUE FOR FILLET WELDS, AS SPECIFIED IN THE REFERENCES, INSPECT 15% OF THESE WELDS. VISUALLY INSPECT 50% MINIMUM OF FIELD WELDS. SHOULD ANY WELDS FAIL, 100% SHALL BE INSPECTED.
  - BOLTED CONNECTIONS: INSPECT AT LEAST 10% OF ALL HIGH STRENGTH BOLTS WHICH ARE WELL SCATTERED THROUGHOUT THE STRUCTURE. IF LESS THAN 90% OF THE BOLTS MEET DESIGN TENSION, THEN ALL BOLTS SHALL BE REWORKED. INSPECT 50% UNTIL ABOVE REQUIREMENTS ARE MET. LOAD INDICATOR WASHERS MAY BE USED TO TEST 100% OF ALL HIGH STRENGTH BOLTS.
- COPIES OF TEST RESULTS AND INSPECTION REPORTS SHALL BE SENT DIRECTLY TO THE ENGINEER.
- PRE-CONCRETE AND PRE-STEEL ERECTION CONFERENCES SHALL BE HELD BY THE CONTRACTOR WITH SUBCONTRACTORS, TESTING LAB PERSONNEL, ARCHITECT AS WELL AS ENGINEERS PRESENT. THESE CONFERENCES SHALL BE HELD WELL IN ADVANCE OF CONSTRUCTION TO INSURE PROPER INTERPRETATION OF DESIGN INTENT. STEEL ERECTOR SHALL FIELD VERIFY CORRECTNESS OF FOUNDATION, ANCHOR BOLTS, OR OTHER EXISTING WORK AFFECTING THE STEEL BEFORE STARTING ERECTION.
- STRUCTURAL STEEL DETAILING, FABRICATION, AND ERECTION TO BE IN ACCORDANCE WITH THE LATEST EDITION OF "MANUAL OF STEEL CONSTRUCTION OF THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION. SHOP DRAWINGS SHALL GIVE COMPLETE WELDING INFORMATION, BOTH SHOP AND FIELD, USING AWS SYMBOLS. WELDING ELECTRODES SHALL CONFORM TO AWS A5.1 OR A5.5 E-70XX. ALL CONNECTIONS, EXCEPT THOSE INDICATED ON THE DRAWINGS AS WELDED CONNECTIONS, ARE TO BE MADE USING 3/4" DIAMETER ASTM A-325 BOLTS. STRUCTURAL STEEL BEAMS & GIRDERS SHALL CONFORM TO ASTM A572 OR 50. TUBES TO BE ASTM A-500 GRADE B. PIPES TO BE ASTM A53, U.N.O.
- SUBMIT SHOP DRAWINGS FOR FABRICATION AND ERECTION OF ALL STEEL MEMBERS IN ACCORDANCE WITH AISC STANDARDS NOTED ABOVE.
- FABRICATOR SHALL DESIGN ALL CONNECTIONS NOT SPECIFICALLY DETAILED ON DRAWINGS. REGARDLESS OF PROVISION TO THE CONTRARY IN ASO CODE OF STANDARD PRACTICE FOR BUILDINGS AND BRIDGES, ALL CONNECTIONS DESIGNED BY FABRICATOR SHALL BE HIS RESPONSIBILITY AND REVIEW OF SHOP DRAWINGS BY THE ENGINEER SHALL NOT RELIEVE FABRICATOR OF THIS RESPONSIBILITY.
- UNLESS OTHERWISE NOTED, ALL BEAM CONNECTIONS SHALL BE STANDARD FRAMED OR SEATED CONNECTIONS AS SHOWN IN PART 4 OF THE AISC MANUAL OF STEEL CONSTRUCTION (FOURTEENTH EDITION). UNLESS GREATER REACTIONS ARE NOTED ON THE DRAWINGS, CONNECTIONS SHALL DEVELOP AT LEAST ONE-HALF OF THE TOTAL UNIFORM LOAD CAPACITY OF THE BEAM. CONNECTIONS SHALL BE DESIGNED AS BEARING-TYPE CONNECTIONS WITH THREADS IN THE SHEAR PLANE, UNLESS OTHERWISE NOTED. IN NO CASE SHALL THE LENGTH OF FRAMED CONNECTIONS BE LESS THAN ONE-HALF THE "T" DISTANCE OF THE BEAM WEB.
- IN GENERAL, CONNECTIONS SHALL BE FIELD BOLTED, WELDED CONNECTIONS SHALL BE MADE WITH E70 ELECTRODES, UNLESS OTHERWISE RECOMMENDED BY AWS. ALL BOLTED CONNECTIONS SHALL BE MADE WITH 3/4" DIAMETER A 325 OR A 490 HIGH STRENGTH BOLTS, UNLESS OTHERWISE NOTED ON DRAWINGS OR APPROVED BY ENGINEER. 3/4" DIAMETER A 307 PLAIN BOLTS MAY BE USED FOR SECONDARY CONNECTIONS SUCH AS GRIS, STAIRS AND FRAMED ROOF OPENINGS.
- MINIMUM WELD SIZE SHALL BE 3/16" UNLESS OTHERWISE NOTED.
- GUSSET PLATES SHALL BE 3/8" MINIMUM THICKNESS.
- THE GENERAL CONTRACTOR SHALL VERIFY THE REQUIRED CAMBER IN THE FIELD PRIOR TO ERECTION OF EACH MEMBER.
- SPLICING OF STRUCTURAL STEEL MEMBERS IS PROHIBITED WITHOUT PRIOR APPROVAL OF THE ENGINEER AS TO LOCATION AND TYPE OF SPLICE TO BE MADE. ANY MEMBER HAVING A SPLICE NOT SHOWN AND DETAILED ON SHOP DRAWING WILL BE REJECTED.
- THIS STRUCTURE IS NOT DESIGNED FOR EACH COLUMN LINE BEAT TO RESIST LATERAL FORCES FROM WIND OR SEISMIC LOADS. THIS STRUCTURE DEPENDS ON THE DIAPHRAGM AND BRACING IN EACH DIRECTION DURING THE ERECTION PHASE. SUCH BRACING SHALL REMAIN IN PLACE UNTIL ALL DIAPHRAGM AND WIND BRACING ELEMENTS ARE IN PLACE IN THEIR ENTIRETY AND HAVE BEEN APPROVED BY THE STRUCTURAL ENGINEER.
- UNLIT SCHEDULE
  - PROVIDE LINTELS OVER ALL OPENINGS AND RECESSES IN MASONRY CONSTRUCTION.
  - ALL LINTELS SHALL HAVE A MINIMUM END BEARING OF 8".
  - FOR ALL OPENINGS NOT OTHERWISE DETAILED OR SCHEDULED, MINIMUM LINTELS SHALL BE FOR EACH 4" OTHERWISE WIDTH:
 

0'-0" TO 2'-0" SPAN	5/16" PLATE (1/2" LESS THAN WALL WIDTH)
2'-0" TO 4'-0" SPAN	L 3 x 3 x 3/4
4'-0" TO 6'-0" SPAN	L 4 x 3 x 3/4 (LLV)
6'-0" TO 8'-0" SPAN	L 5 x 3 x 3/4 (LLV)

## SECTION 5 ENGINEERED LUMBER

- ENGINEERED LUMBER SHALL HAVE THE FOLLOWING MINIMUM DESIGN PROPERTIES:
 

TYPE	Fb(Psi)	Fv(Psi)	E(Psi)
GLUED LAMINATED TIMBER (24F-1.8E OR BETTER)	2400	200	1,800,000
MICROLAM LAMINATED VENEER LUMBER	2600	285	1,900,000
PARALLAM LAMINATED VENEER LUMBER	2900	290	2,000,000
- QUALITY ASSURANCES: MATERIALS, MANUFACTURE AND QUALITY CONTROL SHALL BE IN CONFORMANCE WITH AMERICAN NATIONAL STANDARD ANS/AITC A190.1 (LATEST EDITION).
- PROVIDE SIZES AND SHAPES SHOWN ON PLANS. FINAL DESIGN SIZES ARE SUBJECT TO THE MANUFACTURER. MANUFACTURER TO PROVIDE DESIGN CALCULATIONS AND TO DESIGN LAMINATED TIMBER MEMBERS IN ACCORDANCE WITH APPLICABLE PROVISIONS OF AITC 117, "DESIGN, STANDARD SPECIFICATIONS FOR STRUCTURAL GLUED LAMINATED TIMBER OF SOFTWOOD SPECIES".
- GLUED LAMINATED MANUFACTURER TO DESIGN AND FURNISH STEEL CONNECTIONS TO JOIN LAMINATED TO LAMINATED, AND LAMINATED TO SUPPORTS EXCLUSIVE OF ITEMS EMBEDDED IN CONCRETE OR WELDED TO STRUCTURAL STEEL OR CONNECTED TO STUD WALLS.
- EXPOSED MEMBERS SHALL BE AITC ARCHITECTURAL APPEARANCE GRADE. MEMBERS NOT EXPOSED SHALL BE USI INDUSTRIAL GRADE. ARCHITECTURAL APPEARANCE GRADE BEAMS SHALL BE FINISHED WITH A FACTORY APPLIED PENETRATING SEALER AND INDIVIDUALLY WRAPPED. DO NOT REMOVE WRAPPING ON INDIVIDUALLY WRAPPED MEMBERS UNTIL IT WILL SERVE NO USEFUL PURPOSE, INCLUDING PROTECTION FROM THE WEATHER, SOILING AND DAMAGE FROM WORK OF OTHER TRADES.
- BUILT-UP MEMBERS SHALL BE CONNECTED PER MANUFACTURER'S RECOMMENDATIONS.

## SECTION 6 WOOD

- DIMENSIONAL LUMBER FOR CEILING JOISTS, BEAMS, RAFTERS OR EXTERIOR LOAD BEARING STUDS SHALL BE SOUTHERN YELLOW PINE #2 OR BETTER, 19% KO. DESIGN VALUES ARE AS FOLLOWS:
 

2x4's	Fb = 1100/1265 PSI FOR SINGLE/REPETITIVE USE, AND Fv = 175 PSI.
2x6's	Fb = 1000/1150 PSI FOR SINGLE/REPETITIVE USE, AND Fv = 175 PSI.
2x8's	Fb = 925/1063 PSI FOR SINGLE/REPETITIVE USE, AND Fv = 175 PSI.
2x10's	Fb = 800/920 PSI FOR SINGLE/REPETITIVE USE, AND Fv = 175 PSI.
2x12's	Fb = 750/862 PSI FOR SINGLE/REPETITIVE USE, AND Fv = 175 PSI.
- ALL LUMBER SHALL BE STAMPED WITH GRADE MARK OF AN APPROVED TESTING AGENCY.
- ALL WOOD IN CONTACT WITH CONCRETE OR EXPOSED TO WEATHER SHALL BE TREATED LUMBER.
- HEADER & BEAM SUPPORT: MINIMUM DOUBLE VERTICAL STUDS FOR SPANS LESS THAN 8'-0". TRIPLE STUDS FOR SPANS LARGER THAN 8'-0" CLEAR UNLESS NOTED OTHERWISE. ALL HEADERS TO BE A MINIMUM OF (2) 2 X 6 UNLESS NOTED OTHERWISE. BUILDER IS TO ENSURE THAT ALL LOADS TRANSFERRED BY HEADERS AND BEAMS TO THE STUDS ARE TRANSFERRED DOWN TO THE FOUNDATION.
- ALL FLUSH BEAMS AND JOISTS TO BE SUPPORTED WITH SIMPSON BEAM OR JOIST HANGER, SIZED TO SUPPORT THE DEAD AND LIVE LOADS AS DEFINED BY THE GOVERNING CODE.
- DEFLECTION DUE TO LIVE LOAD SHALL BE LIMITED TO L/360 AND DEFLECTION DUE TO LIVE LOAD + DEAD LOAD + CREEP SHALL BE LIMITED TO L/240.
- ALL MEMBERS SHALL BE CONTINUOUS UNLESS NOTED OTHERWISE.
- ROOF FRAMING LAYOUT IS PROVIDED TO ILLUSTRATE CONDITIONS OF CONSTRUCTION AND DO NOT NECESSARILY INDICATE SPECIFIC QUANTITIES OF MATERIALS OR COMPONENTS REQUIRED FOR CONSTRUCTION.
- CONSTRUCTION BRACING SHALL BE PROVIDED BY THE CONTRACTOR TO MAINTAIN THE BUILDING PLUMB AND TRUE, THIS BRACING SHALL REMAIN UNTIL ALL THE SPECIFIED SHEAR WALLS ARE COMPLETELY INSTALLED.
- STRUCTURAL PANEL ROOF DECK SHALL BE 15/32" APA-RATED PLYWOOD SHEATHING OR 7/16" O.S.B. OR BETTER FOR 24" O.C. RAFTER SPACING OR LESS. ALL STRUCTURAL SHEATHING PANELS SHALL BE MANUFACTURED USING EXTERIOR GRADE ADHESIVE. NAIL DECK TO SUPPORTS W/ 8d NAILS @ 6" O.C. AT PANEL EDGES AND AT 12" O.C. IN THE FIELD OR W/ 16 Ga. 1-1/2" LONG STAPLES W/ MIN 7/16" CROWN @ 4" O.C. AT PANEL EDGES AND AT 8" O.C. IN THE FIELD ALONG INTERMEDIATE FRAMING MEMBERS. STAGGER PANEL EDGES IN SHORT DIRECTION.
- EXTERIOR SHEATHING ON SHEAR WALLS SHALL BE A MINIMUM OF 15/32" THICK C-D PLYWOOD OR 7/16" OSB UNLESS NOTED OTHERWISE. NAIL SHEATHING TO VERTICAL STUDS WITH 8d NAILS, REFER TO SCHEDULE FOR SPACING. WALLS NOT SPECIFICALLY DESIGNATED AS LATERAL BRACING ELEMENTS SHALL BE SELECTED BY OTHERS AND APPLIED IN ACCORDANCE WITH THE GOVERNING CODE AND IN COMPLIANCE WITH THE ARCHITECT'S SPECIFICATIONS.
- WOOD CONNECTORS SHALL BE SIMPSON OR BETTER.
- SILL ON CONCRETE SHALL BE FOUNDATION GRADE REDWOOD OR PRESSURE TREATED SOUTHERN PINE OR FIR, ANCHORED WITH 1/2" INCH DIAMETER ANCHOR BOLTS MIN. 7" INTO CONCRETE AT 72 INCHES O.C. OR WITH U-XI-D POWDER ACTUATED FASTENERS @ 16" O.C., UNLESS NOTED OTHERWISE ON SHEAR WALLS. MINIMUM OF 2 ANCHORS OR FASTENERS PER PIECE WITH ONE ANCHORS OR FASTENER WITHIN 12 INCHES OF EACH END.
- PROVIDE STANDARD WASHERS FOR MACHINE BOLTS AND LAG SCREWS WITH HEADS OR NUTS BEARING ON WOOD, UNLESS NOTED OTHERWISE.
- MINIMUM NAILING SCHEDULE - ALL MEMBERS THROUGHOUT THIS PROJECT SHALL BE CONNECTED TOGETHER WITH NAILS LISTED IN THIS SCHEDULE UNLESS A GREATER NUMBER OR SIZE IS INDICATED ON DRAWINGS. ALL NAILS SHALL BE A COMMON WIRE AND STANDARD LENGTH EXCEPT AS OTHERWISE NOTED.
 

JOISTS OR RAFTERS TO ALL BEARING.....	2-8d TOENAILS EACH SIDE
STUDS TO BEARING.....	4-8d TOENAILS EACH SIDE
OR 2-16d END NAILS	
BLOCKING BETWEEN JOISTS OVER TOP PLATE.....	2-8d TOENAILS EACH SIDE
HERRINGBONE AND STUD BLOCKING.....	16d TOP & BOTTOM @ 12" O.C. MAX.
2X CEILING STRIPPING (FURRING).....	10d TOENAILS @ 6" O.C.
BLOCKING BETWEEN RAFTERS OVER TOP PLATE.....	
DOUBLE TOP PLATES.....	2-16d NAILS
LOWER PLATE TO TOP STUD.....	16d @ 6" O.C. (MIN. 8'-0") @ SPLICES
UPPER PLATE TO LOWER PLATE.....	8d @ 6" O.C. PLYWOOD EDGES
SHEATHING (UNLESS NOTED OTHERWISE).....	8d @ 12" O.C. FIELD

## SECTION 7 PRE-ENGINEERED WOOD TRUSSES

- PREFABRICATED WOOD TRUSSES SHALL BE DESIGNED AND FABRICATED BY A TRUSS DESIGNER AND BEAR THE SEAL AND SIGNATURE OF A REGISTERED ENGINEER EXPERIENCED IN PLATE-CONNECTED TRUSS DESIGN. DESIGN SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF ALL RELEVANT DESIGN STANDARDS.
- ROOF TRUSSES SHALL BE DESIGNED FOR THE FOLLOWING UNIFORM LOADS:
 

DESIGN DEAD LOADS:	
TOP CHORD SHINGLE/METAL ROOF	9 PSF
TOP CHORD TPO ROOF	8.5 PSF
TOP CHORD TILE ROOF	16 PSF
BOTTOM CHORD	5 PSF

DESIGN LIVE LOADS:	
TOP CHORD	20 PSF, U.O.N. ON ROOF LOADS
BOTTOM CHORD	20 PSF (STORAGE)
- THE SEALED TRUSS SHOP DRAWINGS SHALL BE SUBMITTED TO THE STRUCTURAL ENGINEER OF RECORD PRIOR TO FABRICATION. A FINAL SET OF COORDINATED DESIGN DRAWINGS AND LAYOUTS SHALL BE FURNISHED TO THE ENGINEER PRIOR TO ERECTION.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ADEQUATE COVER AND PROTECTION FROM WEATHER, CORROSION, BENDING, DAMAGE AND DETERIORATION WHEN STORED ON THE JOB SITE. TRUSSES SHALL NOT BE STORED IN THE WATER OR MUD. PROVIDE BLOCKS OR PALLETS FOR TRUSSES SCHEDULED TO BE STORED FOR LONGER THAN THREE WEEKS.
- ALL TRUSS REPAIRS MADE IN THE FIELD SHALL BE DOCUMENTED BY THE CONTRACTOR. A DESIGNED AND SEALED ENGINEERED REPAIR FROM THE TRUSS MANUFACTURER SHALL BE REQUIRED FOR ALL REPAIRS.
- FIELD NOTCHING OR CUTTING OF TRUSS IS PROHIBITED. ALL MODIFICATIONS SHALL BE MADE UNDER THE DIRECTION OF THE TRUSS DESIGN ENGINEER.
- CONTRACTOR SHALL EXERCISE REASONABLE CARE IN HANDLING AND STORING TRUSSES PRIOR TO INSTALLATION. DO NOT OVERLOAD TRUSSES WHILE TEMPORARILY STORING MATERIALS OR EQUIPMENT.

## SECTION 8 LATERAL BRACING

- THIS DESIGN RELIES ON THE FOLLOWING BRACING METHODS:
  - OB (GYPSUM BOARD) - SEE LATERAL BRACING SYSTEM NOTES ON LATERAL BRACING PLANS
  - WSP (STRUCTURAL SHEATHING) - SEE PLANS
- WHERE NOT SPECIFIED ON THESE PLANS, THE MOST RESTRICTIVE PRESCRIPTIVE FASTENING REQUIREMENTS AND CONSTRUCTION METHODS OF IBC 2304.4 SHALL APPLY.
- SHEATHING ON PLAN SHALL BE CONTINUOUS FROM BOTTOM PLATE TO TOP PLATE OF THE WALL TO WHICH IT IS FASTENED. SHEATHING SHALL EXTEND TO TOP CHORD OF TRUSS WHERE SHOWN.
- ADDITIONAL LATERAL BRACING ADDED BY THE BUILDER IS ACCEPTABLE TO THE ENGINEER.

# Sheet Index

STRUCTURAL DRAWINGS	
S-1.0	GENERAL NOTES
S-1.1	SPECIAL INSPECTIONS
S-1.2	TYPICAL CONCRETE DETAILS
S-1.3	TYPICAL STEEL DETAILS
S-2.0	FOUNDATION PLAN
S-3.0	FOUNDATION DETAILS
S-3.1	FOUNDATION DETAILS
S-4.0	1ST FLOOR FRAMING PLAN
S-4.1	2ND FLOOR FRAMING PLAN
S-4.2	ROOF FRAMING PLAN
S-5.0	FRAMING DETAILS
S-5.1	CANOPY FRAMING DETAILS
S-6.0	1ST FLOOR LATERAL BRACING PLAN
S-6.1	2ND FLOOR LATERAL BRACING PLAN
S-7.0	LATERAL BRACING DETAILS

USE OF THESE NOTES INDICATES AGREEMENT TO CONFORM WITH ALL DOCUMENTS ARE PROPERTY OF ARCH. TECHNICAL SERVICES FIRM REGISTRATION NO.2487

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PROFESSIONAL ENGINEER

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# SPECIAL INSPECTIONS

## REQUIRED VERIFICATION AND INSPECTION OF STRUCTURAL STEEL (IBC 1705.2.1, 1705.11.1 & 1705.12.2)

VERIFICATION AND INSPECTION	PERFORM	OBSERVE	DETAILED INSTRUCTIONS
<b>1. PRIOR TO WELDING (TABLE N5.4-1, AISC 360-10)</b>			
A. WELDING PROCEDURES (WPS) AND CONSUMABLE CERTIFICATES	X	—	
B. MATERIAL IDENTIFICATION	—	X	VERIFY TYPE AND GRADE OF MATERIAL.
C. WELDER IDENTIFICATION	—	X	SYSTEM BY WHICH A WELDER WHO HAS WELDED A JOINT OR MEMBER CAN BE IDENTIFIED.
D. FIT-UP GROOVE WELDS	—	X	VERIFY JOINT PREPARATION, DIMENSIONS, CLEANLINESS, TACKING AND BACKING.
E. ACCESS HOLES	—	X	CONFIGURATION AND FINISH.
F. FIT-UP OF FILLET WELDS	—	X	ALIGNMENT, GAPS AT ROOT, CLEANLINESS OF STEEL SURFACES, AND TACK WELD QUALITY AND LOCATION.
<b>2. DURING WELDING (TABLE N5.4-2, AISC 360-10)</b>			
A. QUALIFIED WELDERS	—	X	
B. CONTROL AND HANDLING OF WELDING CONSUMABLES	—	X	PACKAGING AND EXPOSURE CONTROL.
C. NO WELDING OVER CRACKED TACK WELDS	—	X	
D. ENVIRONMENTAL CONDITIONS	—	X	WIND SPEED, PRECIPITATION AND TEMPERATURE.
E. WPS FOLLOWED	—	X	SETTINGS ON WELDING EQUIPMENT, TRAVEL SPEED, WELDING MATERIALS, SHIELDING GAS TYPE/FLOW RATE, PREHEAT APPLIED, INTERPASS TEMPERATURE MAINTAINED, AND PROPER POSITION IF V-JOIN.
F. WELDING TECHNIQUES	—	X	INTERPASS AND FINAL CLEANING, EACH PASS IS WITHIN PROFILE LIMITATIONS, AND QUALITY OF EACH.
<b>3. AFTER WELDING (TABLE N5.4-3, AISC 360-10)</b>			
A. WELDS CLEANED	—	X	VERIFY THAT WELDS HAVE BEEN PROPERLY CLEANED.
B. SIZE, LENGTH AND LOCATION OF WELDS	X	—	
C. WELDS MEET VISUAL ACCEPTANCE CRITERIA	X	—	
D. ARC STRIKES	X	—	
E. K-AREA	X	—	
F. BACKING AND WELD TABS REMOVED	X	—	
G. REPAIR ACTIVITIES	X	—	
H. DOCUMENT ACCEPTANCE OR REJECTION OF WELDED JOINT/MEMBER	X	—	
<b>4. NON-DESTRUCTIVE TESTING (SECTION N5.5, AISC 360-10)</b>			
A. CJP WELDS (IRIS CAT. II)	—	—	ULTRASONIC TESTING SHALL BE PERFORMED ON 10% OF CJP GROOVE WELDS IN BUTT, T- AND CORNER JOINTS SUBJECT TO TRANSVERSELY APPLIED TENSION LOADING IN MATERIALS 5/16" THICK OR GREATER. TESTING RATE MUST BE INCREASED IF >5% OF WELDS TESTED HAVE UNACCEPTABLE DEFECTS.
B. CJP WELDS (IRIS CAT. III OR IV)	—	—	A REDUCTION IN THE RATE OF ULTRASONIC TESTING IS ALLOWED PER SECTION N5.5e.
C. ACCESS HOLES (FLANGE > 2")	—	—	
D. WELDED JOINTS SUBJECT TO FATIGUE	—	—	
<b>5. PRIOR TO BOLTING (TABLE N5.6-1, AISC 360-10) - NOT REQUIRED IF ONLY SNUG-TIGHT JOINTS ARE SPECIFIED (PER SECTION N5.6(i) OF AISC 360-10)</b>			
A. CERTIFICATIONS OF FASTENERS	—	—	
B. FASTENERS MARKED	—	—	VERIFY THAT FASTENERS HAVE BEEN MARKED IN ACCORDANCE WITH ASTM REQUIREMENTS.
C. PROPER FASTENERS FOR JOINT	—	—	VERIFY GRADE, TYPE AND BOLT LENGTH IF THREADS ARE EXCLUDED FROM THE SHEAR PLANE.
D. PROPER BOLTING PROCEDURE	—	—	VERIFY PROPER PROCEDURE IS USED FOR THE JOINT DETAIL.
E. CONNECTING ELEMENTS	—	—	VERIFY APPROPRIATE FAYING SURFACE CONDITION AND HOLE PREPARATION, IF SPECIFIED, MEET REQUIREMENTS.
F. PRE-INSTALLATION VERIFICATION TESTING	—	—	OBSERVE AND DOCUMENT VERIFICATION TESTING BY INSTALLATION PERSONNEL FOR FASTENER ASSEMBLIES AND METHODS USED.
G. PROPER STORAGE	—	—	VERIFY PROPER STORAGE OF BOLTS, NUTS, WASHERS, AND OTHER FASTENER COMPONENTS.
<b>6. DURING BOLTING (TABLE N5.6-2, AISC 360-10) - NOT REQUIRED IF ONLY SNUG-TIGHT JOINTS ARE SPECIFIED (PER SECTION N5.6(i) OF AISC 360-10); NOT REQUIRED FOR PRETENSIONED JOINTS USING TURN-OF-THE-NUT METHOD WITH MATCH-MARKING, DIRECT-TENSION INDICATORS, OR TWIST-OFF TYPE TENSION CONTROL METHOD (PER SECTION N5.6.2(f) OF AISC-10)</b>			
A. FASTENER ASSEMBLIES	—	—	VERIFY THAT FASTENER ASSEMBLIES ARE OF SUITABLE CONDITION, PLACED IN ALL HOLES, AND WASHERS ARE POSITIONED AS REQUIRED.
B. SNUG-TIGHT PRIOR TO PRETENSIONING	—	—	VERIFY THAT JOINTS ARE BROUGHT TO SNUG-TIGHT CONDITION PRIOR TO PRETENSION OPERATION.
C. FASTENER COMPONENT	—	—	VERIFY THAT FASTENER COMPONENT NOT TURNED BY WRENCH IS PREVENTED FROM ROTATING.
D. PRETENSIONED FASTENERS	—	—	VERIFY THAT FASTENERS ARE PRETENSIONED IN ACCORDANCE WITH RISC SPECIFICATION, PROGRESSING SYSTEMATICALLY FROM THE MOST ROOF POINT TOWARD THE FREE EDGES.
<b>7. AFTER BOLTING (TABLE N5.6-3, AISC 360-10)</b>			
A. DOCUMENT ACCEPTANCE OR REJECTION OF BOLTED CONNECTIONS	X	—	
<b>8. OTHER STEEL INSPECTIONS (SECTION N5.7, AISC 360-10; TABLES J8-1 &amp; J10-1, AISC 341-10)</b>			
A. STRUCTURAL STEEL DETAILS	—	X	ALL FABRICATED STEEL OR STEEL FRAMES SHALL BE INSPECTED TO VERIFY COMPLIANCE WITH THE DETAILS SHOWN IN THE CONSTRUCTION DOCUMENTS, SUCH AS BRACES, STIFFENERS, MEMBER LOCATIONS, AND PROPER APPLICATION OF JOINT DETAILS AT EACH CONNECTION.
B. ANCHOR RODS AND OTHER EMBEDMENTS SUPPORTING THE STRUCTURAL STEEL	—	X	SHALL BE ON THE PREMISES DURING THE PLACEMENT OF ANCHOR RODS AND OTHER EMBEDMENTS SUPPORTING STRUCTURAL STEEL FOR COMPLIANCE WITH CONSTRUCTION DOCUMENTS; VERIFY THE DIAMETER, GRADE, TYPE AND LENGTH OF THE ANCHOR ROD OR EMBEDDED ITEM, AND THE EXTENT OR DEPTH OF EMBEDMENT PRIOR TO PLACEMENT OF CONCRETE.
C. REDUCED BEAM SECTIONS (RBS)	—	—	VERIFY CONTOUR AND FINISH AS WELL AS DIMENSIONAL TOLERANCES (SEE TABLE J8-1 OF AISC 341-10)
D. PROTECTED ZONES	—	—	VERIFY THAT NO HOLES OR UNAPPROVED ATTACHMENTS ARE MADE WITHIN THE PROTECTED ZONE (SEE TABLE J8-1 OF AISC 341-10)
E. H-PLIES	—	—	VERIFY THAT NO HOLES OR UNAPPROVED ATTACHMENTS OCCUR WITHIN THE PROTECTED ZONES OF PILING (SEE TABLE J10-1 OF AISC 341-10)
<b>9. STEEL ELEMENTS OF COMPOSITE CONSTRUCTION (TABLE N6.1, AISC 360-10; TABLES J9-1 THROUGH J9-3, AISC 341-10)</b>			
A. PLACEMENT AND INSTALLATION OF STEEL DECK	—	—	
B. PLACEMENT AND INSTALLATION OF STEEL HEADED STUD ANCHORS	—	—	
C. DOCUMENT ACCEPTANCE OR REJECTION OF STEEL ELEMENTS	—	—	
D. REINFORCING STEEL	—	—	VERIFY APPROPRIATE REINFORCEMENT SIZE, SPACING AND ORIENTATION; THAT IT HAS NOT BEEN RE-BENT IN FIELD; THAT IT IS CORRECTLY TIED AND SUPPORTED; AND THAT REQUIRED STEEL CLEARANCES HAVE BEEN PROVIDED.
E. COMPOSITE MEMBER SIZE	—	—	VERIFY THAT COMPOSITE MEMBER IS THE REQUIRED SIZE.
<b>10. WHERE FABRICATION OF STRUCTURAL LOAD-BEARING MEMBERS AND ASSEMBLIES IS BEING CONDUCTED ON THE PREMISES OF A FABRICATOR'S SHOP, SPECIAL INSPECTION OF THE FABRICATED ITEMS SHALL CONFORM TO THE SPECIAL INSPECTION REQUIREMENTS OF IBC SECTION 1704, AS SUMMARIZED ABOVE, UNLESS THE FABRICATOR HAS BEEN APPROVED IN ACCORDANCE WITH IBC SECTION 1704.2.5.2.</b>			

### NOTES

1. THE OWNER SHALL EMPLOY QUALIFIED SPECIAL INSPECTORS TO PERFORM INSPECTIONS IN ACCORDANCE WITH THE LOCAL BUILDING CODE. INSPECTORS SHALL PERFORM ALL DUTIES AND RESPONSIBILITIES AS REQUIRED BY THE BUILDING CODE. JOB SITE VISITS BY THE STRUCTURAL ENGINEER DO NOT CONSTITUTE AND ARE NOT A SUBSTITUTE FOR SPECIAL INSPECTIONS.
2. THE FOLLOWING SCHEDULE CONTAINS A LIST OF THE SPECIAL INSPECTION ACTIVITIES RELATED TO THE QUALITY ASSURANCE PLAN REQUIRED BY THE MODEL BUILDING CODE (IBC CHAPTER 17) FOR THE FABRICATION, ERECTION AND CONSTRUCTION OF THE STRUCTURAL SYSTEMS AS DESCRIBED IN THE SPECIFICATION AND DRAWINGS FOR THE PROJECT. ALL INSPECTORS SHALL BE QUALIFIED BY TRAINING AND EXPERIENCE FOR THE REQUIRED INSPECTIONS AND TEST PROCEDURES. REFER TO IBC CHAPTER 17 'STRUCTURAL TESTS AND SPECIAL INSPECTIONS' AND SPECIFICATION SECTION 01 43 23 'TESTS AND INSPECTIONS' FOR SPECIFIC TEST PROCEDURES.
3. TESTING AND INSPECTION REPORTS SHALL BE PREPARED FOR EACH INSPECTION ITEM ON A DAILY BASIS WHENEVER INSPECTIONS ARE MADE ON THAT ITEM. REPORTS SHALL BE DISTRIBUTED TO THE OWNER, CONTRACTOR, ARCHITECT, STRUCTURAL ENGINEER, AND BUILDING OFFICIAL IF REQUESTED, FOR THEIR REVIEW, COMMENT, AND ACTION, AS NEEDED.
4. ARCHITECTURAL, MECHANICAL, AND ELECTRICAL COMPONENTS REQUIRING SPECIAL INSPECTIONS PER SECTION 1705 OF THE IBC HAVE NOT BEEN LISTED HERE. REFER TO THE ARCHITECTURAL OR MECHANICAL/ELECTRICAL/PLUMBING PLANS FOR SPECIAL INSPECTION REQUIREMENTS FOR THESE COMPONENTS.
5. IT IS THE CONTRACTOR'S SOLE RESPONSIBILITY TO ENSURE THESE TESTS AND INSPECTIONS ARE PERFORMED.

## STEEL CONSTRUCTION OTHER THAN STRUCTURAL STEEL (IBC 1705.2.2)

VERIFICATION AND INSPECTION	PERFORM	OBSERVE	DETAILED INSTRUCTIONS
<b>1. STEEL ROOF AND FLOOR DECK</b>			
A. MATERIAL VERIFICATION OF COLD-FORMED STEEL DECK AN DW ACCESSORIES	—	—	APPLICABLE ASTM MATERIAL STANDARDS.
B. FLOOR AND ROOF DECK WELDS	—	—	
C. VERIFY MECHANICAL FASTENER SIZE AND TOOL	—	—	
D. VERIFY SPACING, TYPE AND INSTALLATION AT SUPPORT	—	—	
E. VERIFY SPACING, TYPE AND INSTALLATION AT SIDE LAP	—	—	
F. VERIFY SPACING, TYPE AND INSTALLATION AT PERIMETER	—	—	
<b>2. WELDING OF REINFORCING STEEL (IBC TABLE 1705.3)</b>			
A. VERIFICATION OF WELDABILITY	—	—	AWS D1.3
B. REINFORCING STEEL IN INTERMEDIATE OR SPECIAL MOMENT FRAMES, AND BOUNDARY ELEMENTS OF SPECIAL STRUCTURAL WALLS	—	—	
C. SHEAR REINFORCEMENT	—	—	
D. OTHER REINFORCING STEEL	—	—	VISUALLY INSPECT ALL WELDS IN ACCORDANCE WITH AWS D1.4
<b>3. COLD-FORMED STEEL CONSTRUCTION (IBC 1705.2.4 AND 1705.1.2)</b>			
A. TRUSSES SPANNING > 60'-0"	—	—	
B. WIND-FORCE-RESISTING SYSTEMS OR SEISMIC-FORCE-RESISTING SYSTEMS	—	—	

## REQUIRED VERIFICATION AND INSPECTIONS OF OPEN-WEB STEEL JOISTS AND JOIST GIRDERS (REFERENCE TABLE 1705.2.3 OF IBC)

VERIFICATION AND INSPECTION	CONTINUOUS	PERIODIC	REFERENCED STANDARD
<b>1. INSTALLATION OF OPEN-WEB STEEL JOISTS AND JOIST GIRDERS.</b>			
A. END CONNECTIONS - WELDED OR BOLTED	—	—	
B. BRIDGING - HORIZONTAL OR DIAGONAL	—	—	
1. STANDARD BRIDGING	—	—	
2. BRIDGING THAT DIFFERS FROM THE SJI SPECIFICATIONS IN SECTION 2207.J	—	—	

## REQUIRED VERIFICATION AND INSPECTION OF CAST-IN-PLACE DEEP FOUNDATION ELEMENTS (REFERENCE TABLE 1705.8 OF IBC)

VERIFICATION AND INSPECTION	CONTINUOUS DURING TASK LISTED	PERIODICALLY DURING TASK LISTED
1. OBSERVE DRILLING OPERATIONS AND MAINTAIN COMPLETE AND ACCURATE RECORD FOR EACH ELEMENT	—	—
2. VERIFY PLACEMENT LOCATIONS AND PLUMBNESS, CONFIRM ELEMENT DIAMETERS, BELL DIAMETERS IF APPLICABLE, LENGTHS, EMBEDMENT INTO BEDROCK (IF APPLICABLE) AND ADEQUATE END-BEARING STRATA CAPACITY, RECORD CONCRETE/GROUT VOLUMES.	—	—
3. FOR CONCRETE ELEMENTS, PERFORM ADDITIONAL INSPECTIONS IN ACCORDANCE WITH SECTION 1705.3	—	—

## REQUIRED VERIFICATION AND INSPECTION OF DRIVEN DEEP FOUNDATION ELEMENTS (REFERENCE TABLE 1705.7 OF IBC)

VERIFICATION AND INSPECTION	CONTINUOUS DURING TASK LISTED	PERIODICALLY DURING TASK LISTED
1. VERIFY ELEMENTS MATERIALS, SIZES, AND LENGTHS COMPLY WITH REQUIREMENTS	—	—
2. DETERMINE CAPACITIES OF TEST ELEMENTS AND CONDUCT ADDITIONAL LOAD TESTS, AS REQUIRED	—	—
3. OBSERVE DRIVING OPERATIONS AND MAINTAIN COMPLETE AND ACCURATE RECORDS FOR EACH ELEMENT	—	—
4. VERIFY PLACEMENT LOCATIONS AND PLUMBNESS, CONFIRM TYPE AND SIZE OF HAMMER, RECORD NUMBER OF BLOWS PER FOOT OF PENETRATION, DETERMINE REQUIRED PENETRATIONS TO ACHIEVE DESIGN CAPACITY, RECORD TIP AND BUTT ELEVATIONS AND DOCUMENT ANY DAMAGE TO FOUNDATION ELEMENT.	—	—
5. FOR STEEL ELEMENTS, PERFORM ADDITIONAL INSPECTIONS IN ACCORDANCE WITH SECTION 1705.2.	—	—
6. FOR CONCRETE ELEMENTS AND CONCRETE-FILLED ELEMENTS, PERFORM TESTS AND ADDITIONAL SPECIAL INSPECTIONS IN ACCORDANCE WITH SEC. 1705.3.	—	—
7. FOR SPECIALTY ELEMENTS, PERFORM ADDITIONAL INSPECTIONS AS DETERMINED BY THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE.	—	—

## REQUIRED VERIFICATION AND INSPECTION OF CONCRETE CONSTRUCTION (REFERENCE TABLE 1705.3 OF IBC)

VERIFICATION AND INSPECTION	CONTINUOUS	PERIODIC	DETAILED INSTRUCTIONS
1. INSPECTION OF REINFORCING STEEL, INCLUDING PRE-STRESSING TENDONS AND PLACEMENT	—	X	ACI 308: 3.5, 7.1-7.7, IBC 1903.4
2. INSPECTION OF REINFORCING STEEL WELDING IN ACCORDANCE WITH TABLE 1705.2.2, ITEM 2b.	—	—	AWS D1.4, ACI 308: 3.5.2
3. INSPECTION OF ANCHORS TO BE INSTALLED IN CONCRETE PRIOR TO AND DURING PLACEMENT OF CONCRETE WHERE ALLOWABLE LOADS HAVE BEEN INCREASED OR WHERE STRENGTH DESIGN IS USED.	X	—	ACI 308: 8.1.3, 21.2.8, IBC 1908.5, 1909.J
4. INSPECTION OF ANCHORS POST-INSTALLED IN HARDENED CONCRETE.	—	X	ACI 308: 3.8.6, 8.1.3, 21.2.8, IBC 1909.J
5. VERIFY USE OF REQUIRED DESIGN MIX.	—	X	ACI 308: CHAPTER 4, 5.2-5.4, IBC 1904.2, 1910.2, 1910.3
6. WHEN CONCRETE IS EXAMINED FOR STRENGTH TESTS, PERFORM SLUMP AND AIR CONTENT TESTS AND MEASURE CONCRETE TEMP.	X	—	ASTM C 172, ASTM C 31, ACI 308: 5.6, 5.8, IBC 1910.10
7. INSPECTION OF CONCRETE AND SHOTCRETE PLACEMENT FOR PROPER APPLICATION TECHNIQUES	X	—	ACI 308: 5.9, 5.10, IBC 1910.6, 1910.7, 1910.8
8. INSPECTION FOR MAINTENANCE OF SPECIFIED CURING TEMPERATURE AND TECHNIQUES.	—	X	ACI 308: 5.11-5.13, IBC 1910.9
<b>9. INSPECTION OF PRE-STRESSED CONCRETE</b>			
A. APPLICATION OF PRE-STRESSING FORCES.	—	—	ACI 308: 18.20
B. GROUTING OF BONDED PRE-STRESSING TENDONS IN THE SEISMIC FORCE-RESISTING SYSTEM.	—	—	ACI 308: 18.8.4
10. ERECTION OF PRE-CAST CONCRETE MEMBERS.	—	—	ACI 308: CHAPTER 16
11. VERIFICATION OF IN-SITU CONCRETE STRENGTH, PRIOR TO STRESSING OF TENDONS IN POST TENSIONED CONCRETE AND PRIOR TO REMOVAL OF SHORES AND FORMS FROM BEAMS AND STRUCTURAL SLABS.	—	—	ACI 308: 6.2
12. INSPECT FORMWORK FOR SHAPE, LOCATION AND DIMENSIONS OF THE CONCRETE MEMBER BEING FORMED.	—	X	ACI 308: 6.1.1

## SOILS CONSTRUCTION (IBC 1705.6)

VERIFICATION AND INSPECTION	CONTINUOUS	PERIODIC	DETAILED INSTRUCTIONS AND FREQUENCIES
1. VERIFY MATERIAL BELOW SHALLOW FOUNDATIONS ARE ADEQUATE TO ACHIEVE THE DESIGN BEARING PRESSURE.	—	X	PRIOR TO PLACEMENT OF CONCRETE
2. VERIFY EXCAVATIONS EXTEND TO PROPER DEPTH AND MATERIAL.	—	X	PRIOR TO PLACEMENT OF COMPACTED FILL OR CONCRETE
3. PERFORM CLASSIFICATION AND TESTING OF COMPACTED FILL MATERIALS	—	X	ALL MATERIALS SHALL BE CHECKED AT EACH LIFT FOR PROPER CLASSIFICATIONS AND GRADATIONS AT LEAST ONCE FOR EVERY 10,000 SQUARE FT. OF SURFACE AREA
4. VERIFY PROPER MATERIALS, DENSITIES AND LIFT THICKNESS DURING PLACEMENT AND COMPACTION.	X	—	
5. VERIFY THAT SUBGRADE HAS BEEN APPROPRIATELY PREPARED PRIOR TO PLACING COMPACT FILL	—	X	PRIOR TO PLACEMENT OF COMPACTED FILL

USE OF THESE INSPECTIONS INDICATES AGREEMENT TO CONFORM WITH GENERAL NOTES, ALL DOCUMENTS ARE PROPERTY OF ARCH TECHNICAL SERVICES FIRM REGISTRATION NO. 2487

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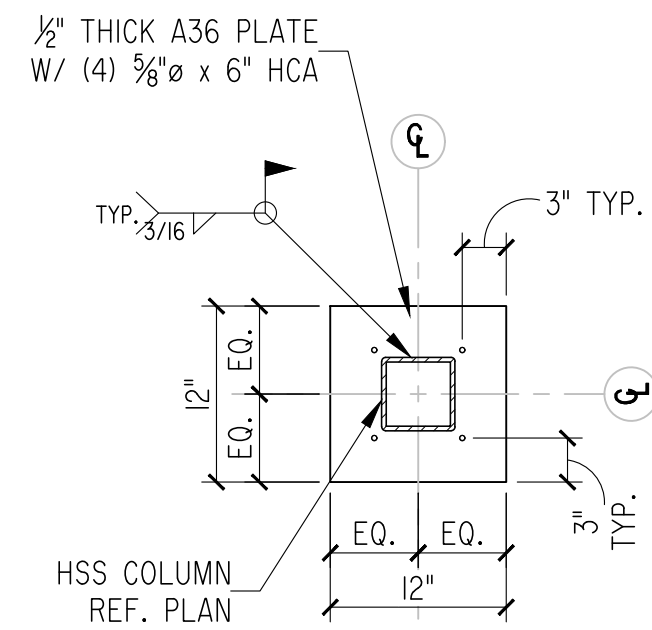
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1/04/2022		
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FILE NAME: 2109016.0		
SHEET NO. <b>S-1.1</b>		

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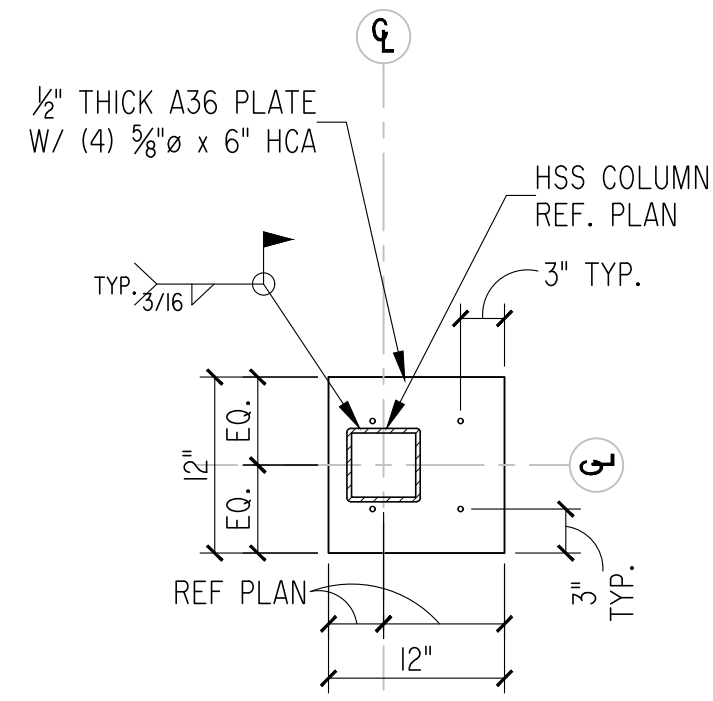
SPECIAL INSPECTIONS



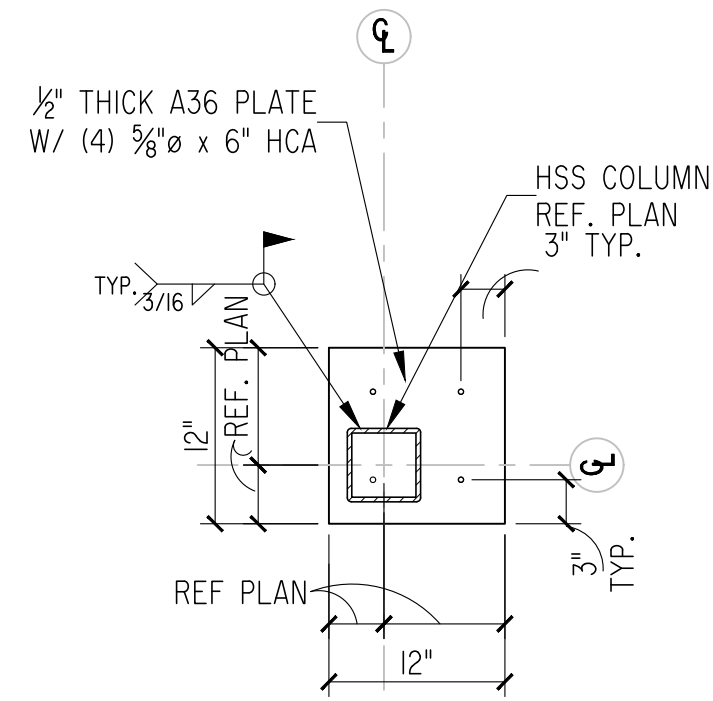




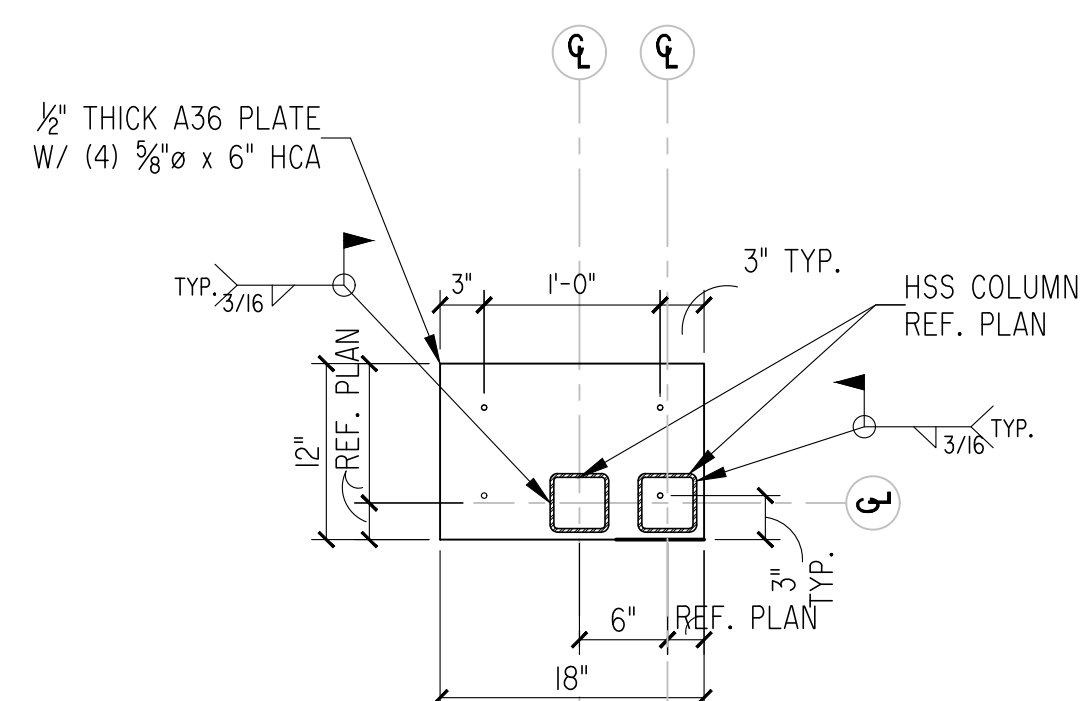
CENTER



EDGE



CORNER



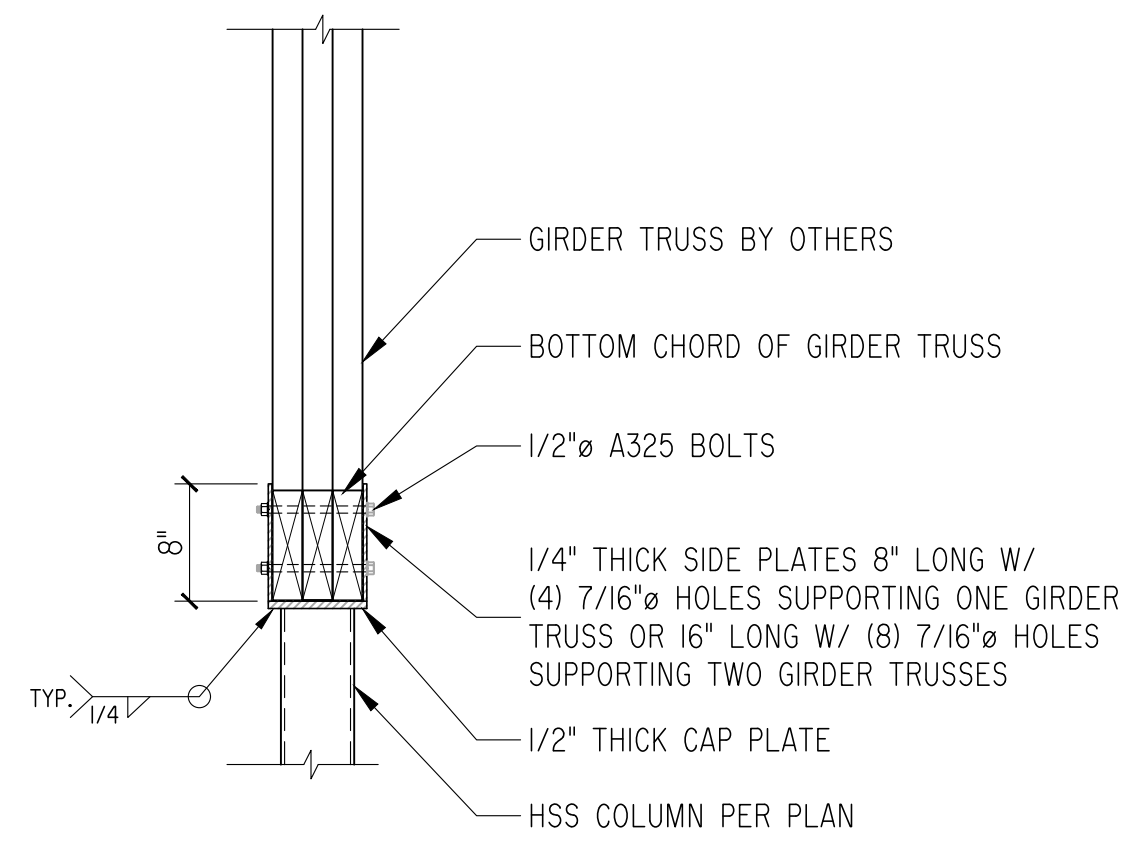
DOUBLE COLUMN

**1 EMBEDDED PLATE DETAIL**  
SCALE: 3/4" = 1'-0"

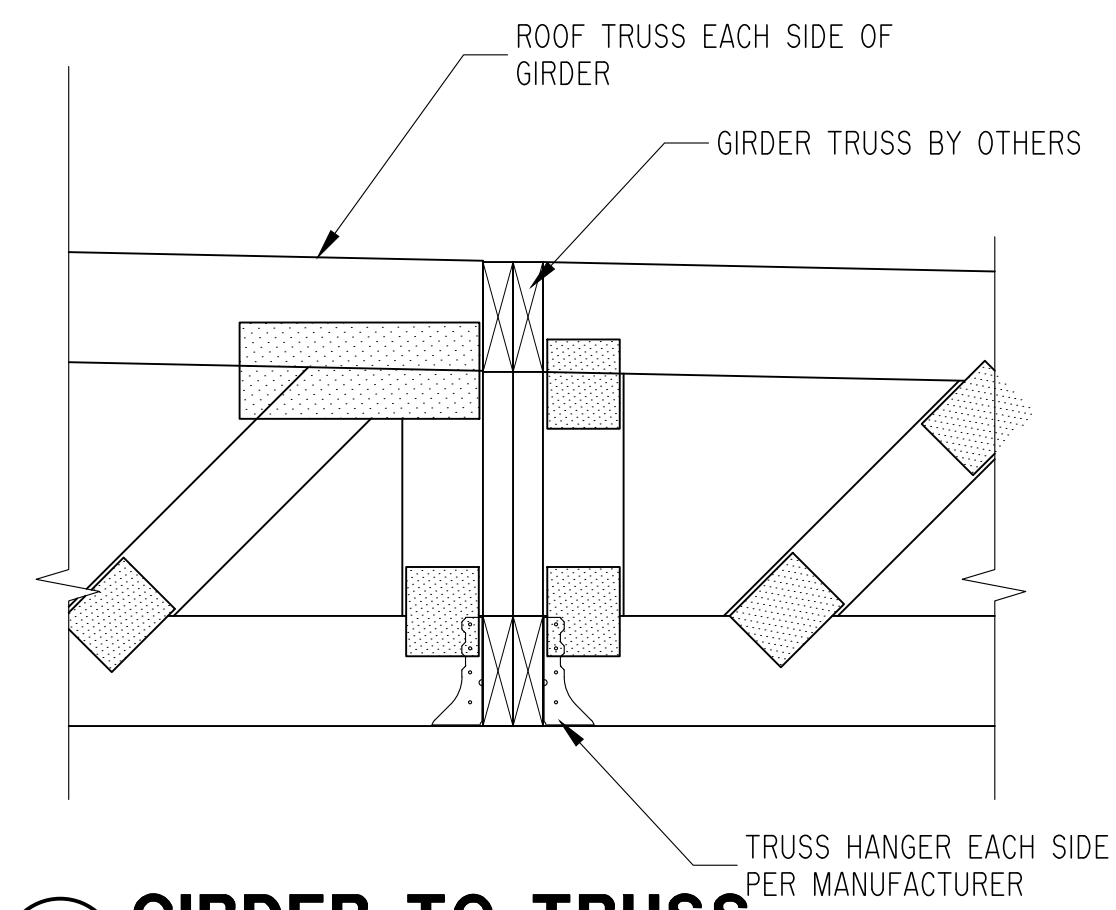
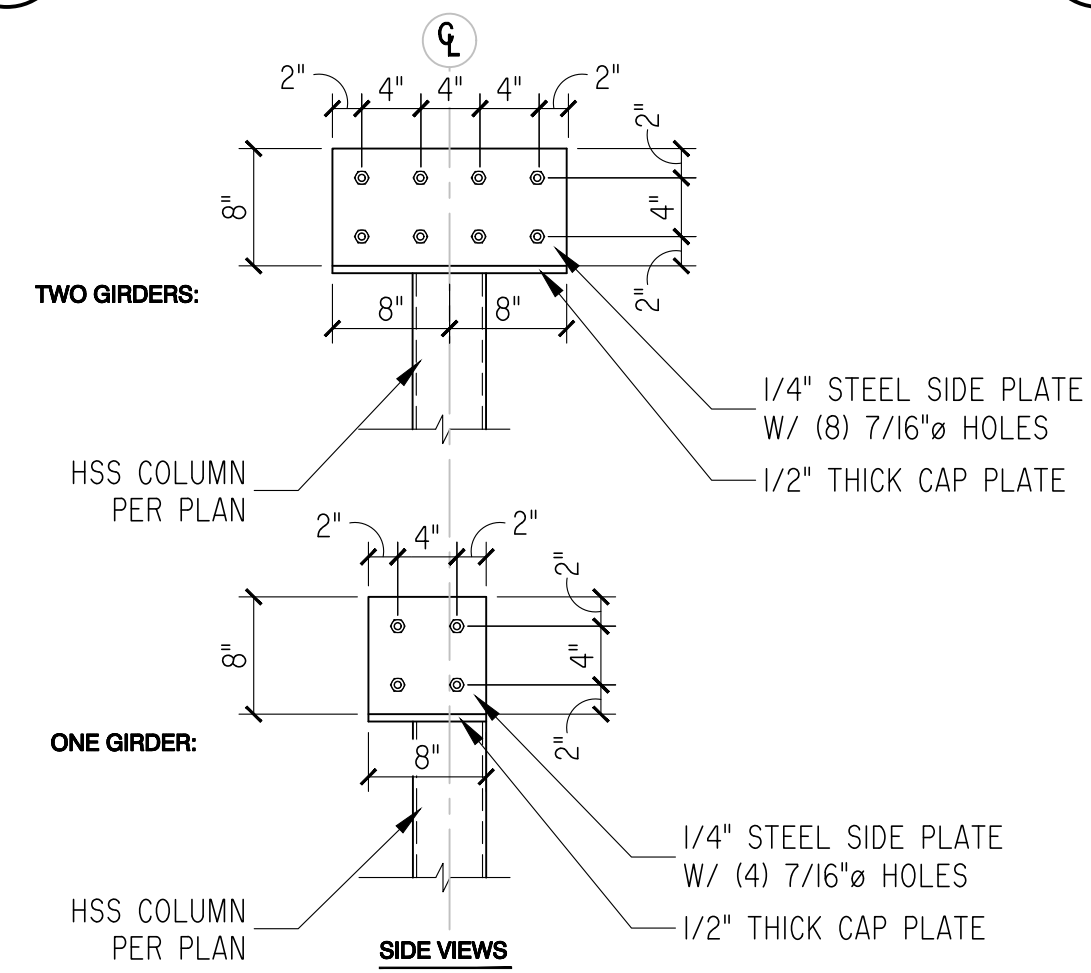
**2 EMBEDDED PLATE DETAIL**  
SCALE: 3/4" = 1'-0"

**3 CANOPY COLUMN EMBEDDED PLATE DETAIL**  
SCALE: 3/4" = 1'-0"

**4 CANOPY DBL. COLUMN EMBEDDED PLATE DETAIL**  
SCALE: 3/4" = 1'-0"



**5 GIRDER TRUSS TO COLUMN**  
SCALE: 3/4" = 1'-0"



**6 GIRDER TO TRUSS**  
SCALE: N.T.S.

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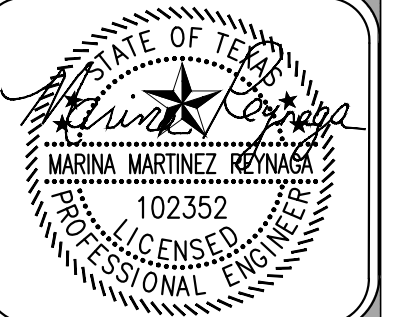
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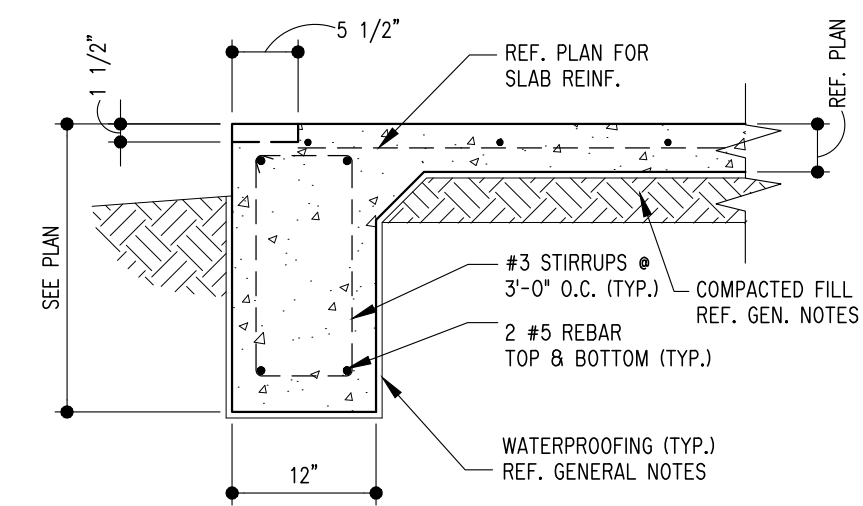


**TYPICAL STEEL DETAILS**

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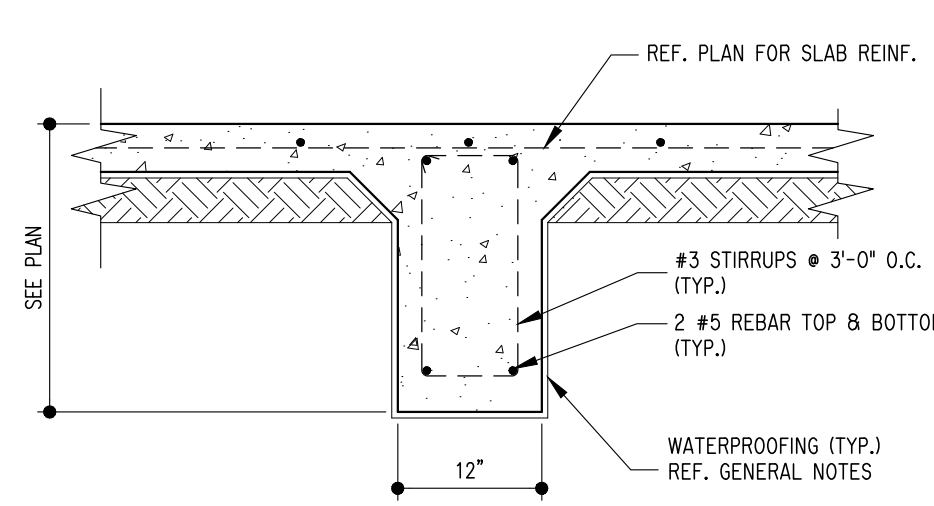
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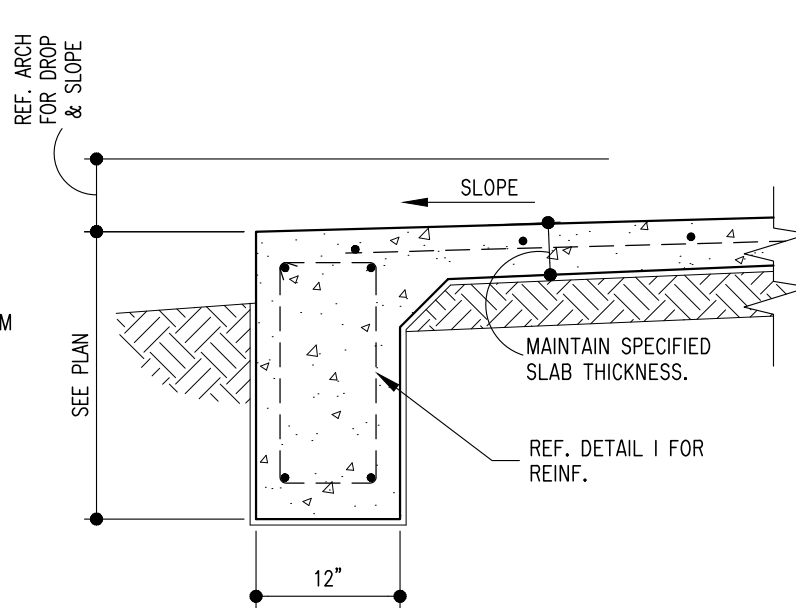
NOTE: WHERE FIRM ROCK IS ENCOUNTERED DURING TRENCHING FOR BEAMS, BEAM DEPTH MAY BE REDUCED. BEAMS MUST PENETRATE ROCK TO PROVIDE MIN. 12\"/>

**1 EXTERIOR BEAM W/ OPT. BRICKLEDGE**  
SCALE: 3/4\"/>

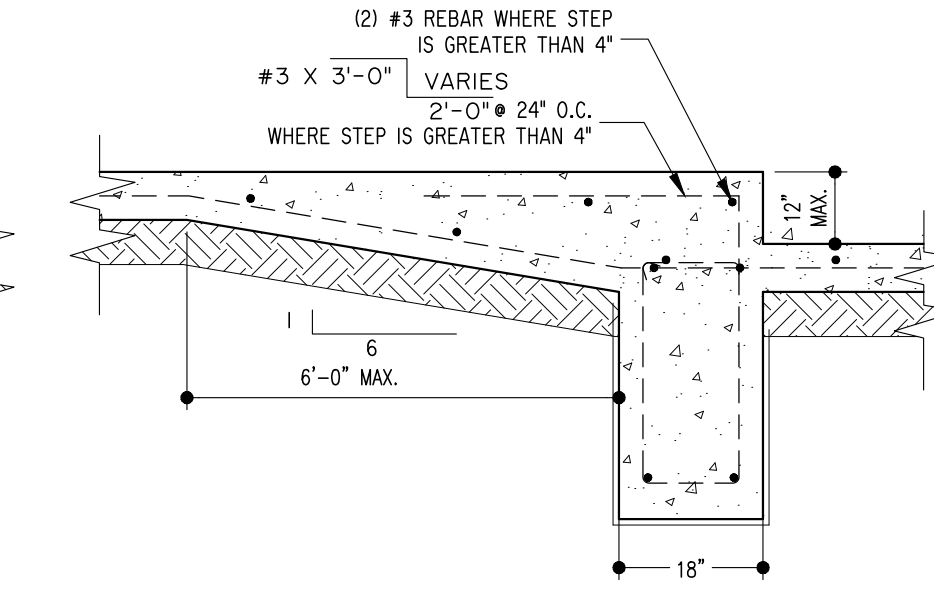


NOTE: TRENCHES FOR BURIED PLUMBING SHALL NOT RUN ALONG OR UNDER BEAMS EXCEPT TO CROSS AT RIGHT ANGLES. TRENCH BACKFILLS SHALL BE THOROUGHLY COMPACTED. IF SAND IS USED FOR BACKFILL, USE A CLAY MOISTURE PLUG AT THE EDGE OF THE FOUNDATION.(TYP.)

**2 INTERIOR BEAM**  
SCALE: 3/4\"/>

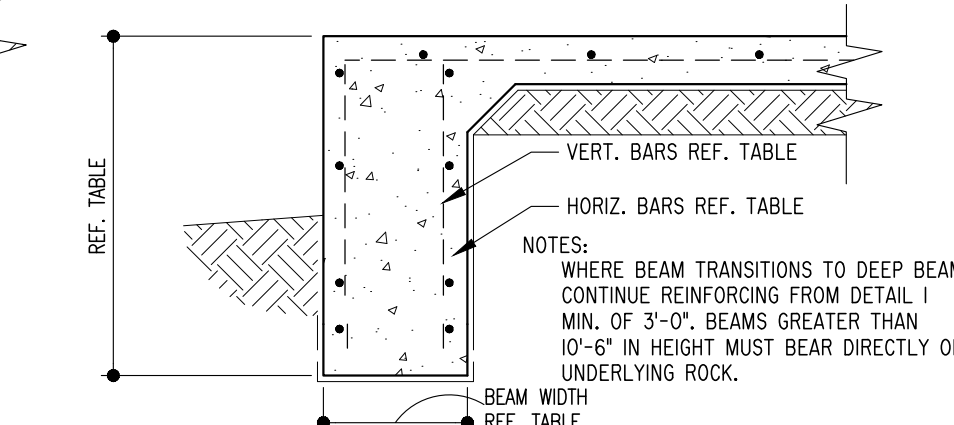


**3 SLOPE IN SLAB**  
SCALE: 3/4\"/>

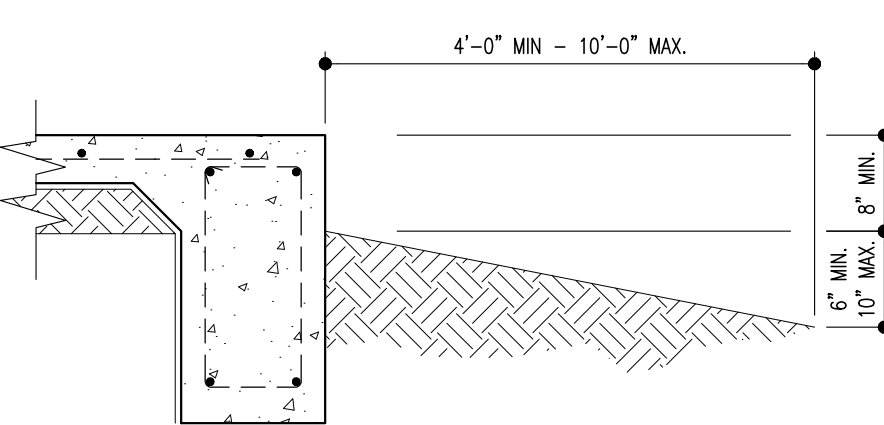


**4 DROP IN SLAB**  
SCALE: 3/4\"/>

BEAM WIDTH	WALL HT.	VERT. BARS	HORIZ. BARS
12"	4'-0"-7'-6"	#4@18" SINGLE MAT	#4@10" SINGLE MAT
12"	7'-6"-11'-0"	#4@18" DBL. MAT	#4@16" DBL. MAT
12"	11'-0"-12'-6"	#4@12" DBL. MAT	#4@16" DBL. MAT
12"	12'-6"-14'-3"	#4@8" OR #5@12" DBL. MAT	#4@12" DBL. MAT
12"	14'-3"-15'-6"	#4@6" OR #5@9" DBL. MAT	#4@12" DBL. MAT
12"	15'-6"-17'-6"	#5@6" DBL. MAT	#4@12" DBL. MAT
16"	17'-6"-19'-6"	#5@6" DBL. MAT	#4@12" DBL. MAT

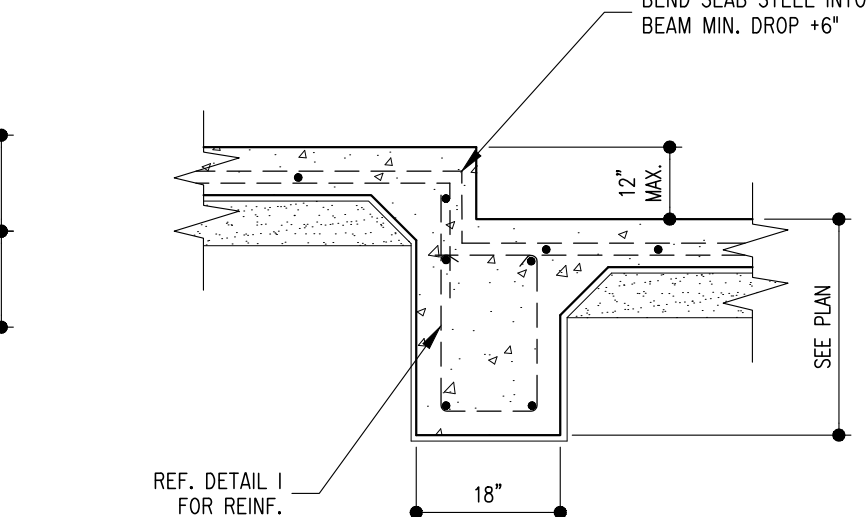


**5 DEEP BEAM**  
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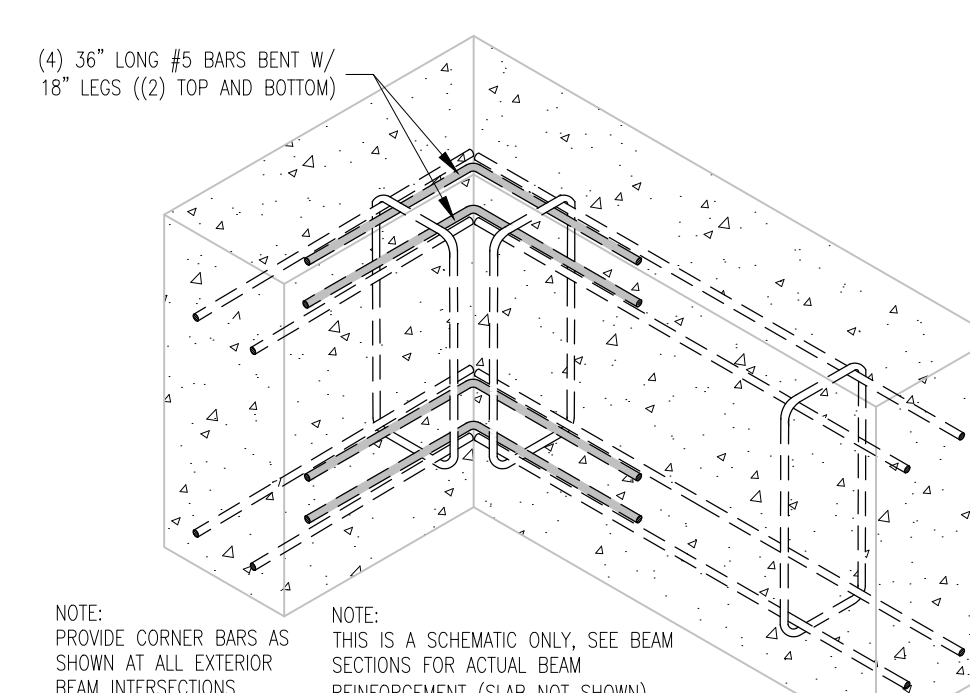


NOTE: PROPER DRAINAGE IS REQUIRED FOR LONG TERM FOUNDATION PERFORMANCE. REFERENCE GENERAL NOTES FOR ADDITIONAL REQUIREMENTS.

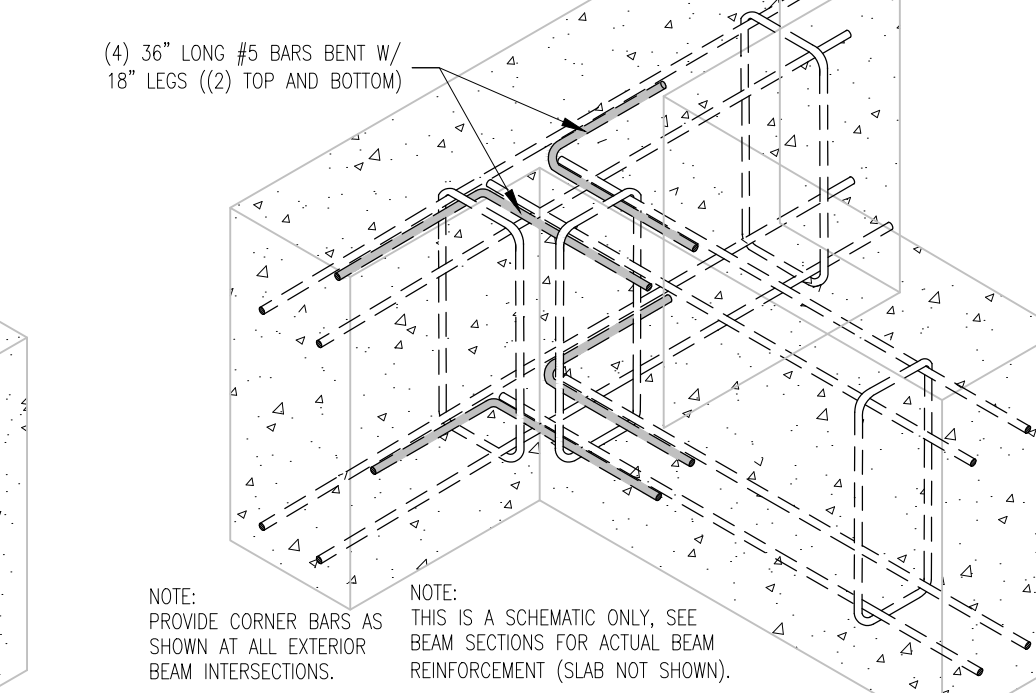
**6 PROTECTIVE BACK SLOPE**  
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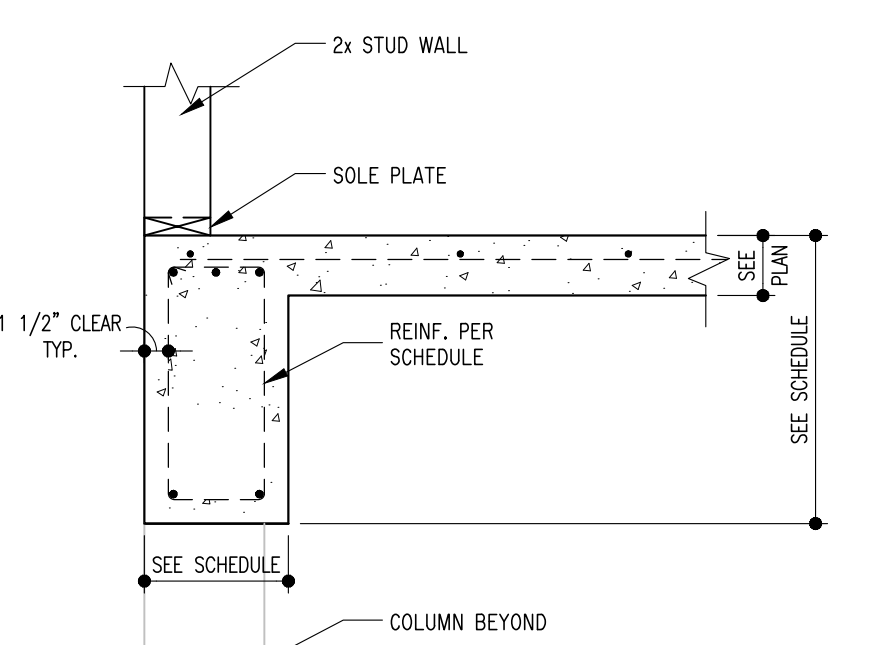
**7 DROP IN SLAB (12\"/>**



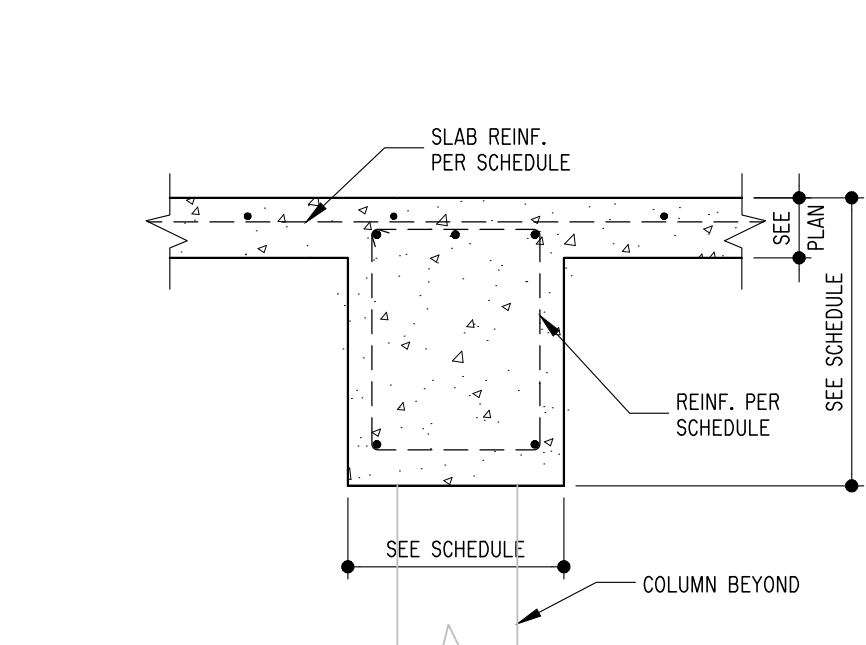
**8 TYPICAL CORNER REINF. LAYOUT**  
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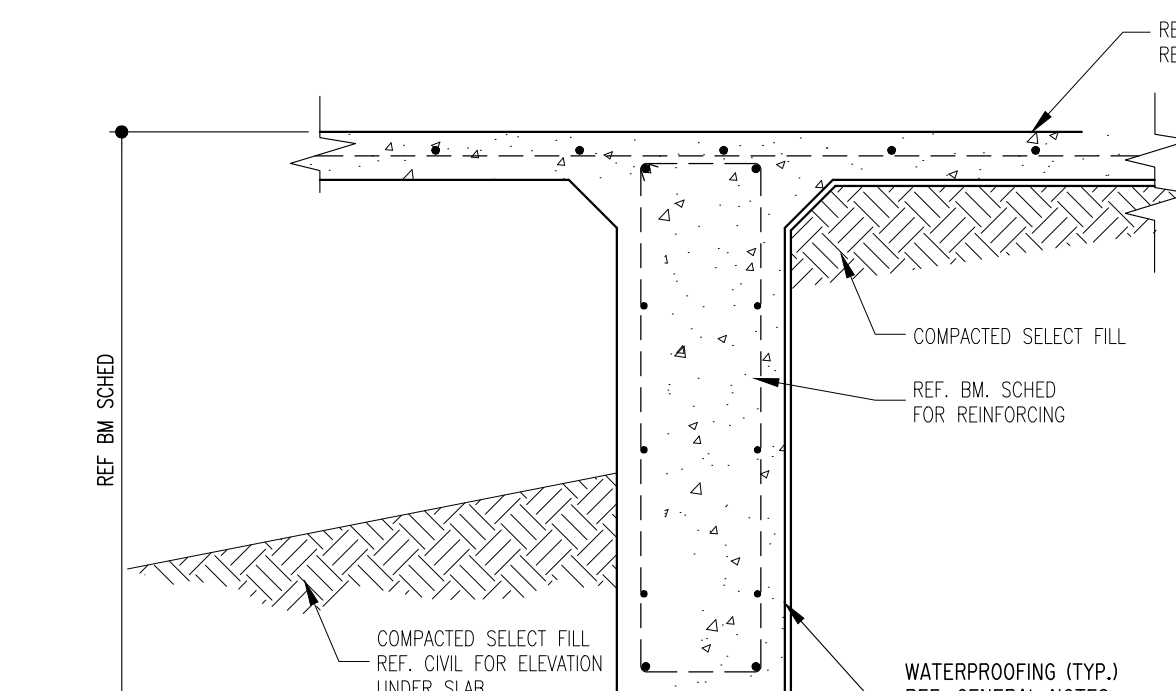
**9 TYPICAL GRADE BEAM INTERSECTION REINF. LAYOUT**  
SCALE: 3/4\"/>



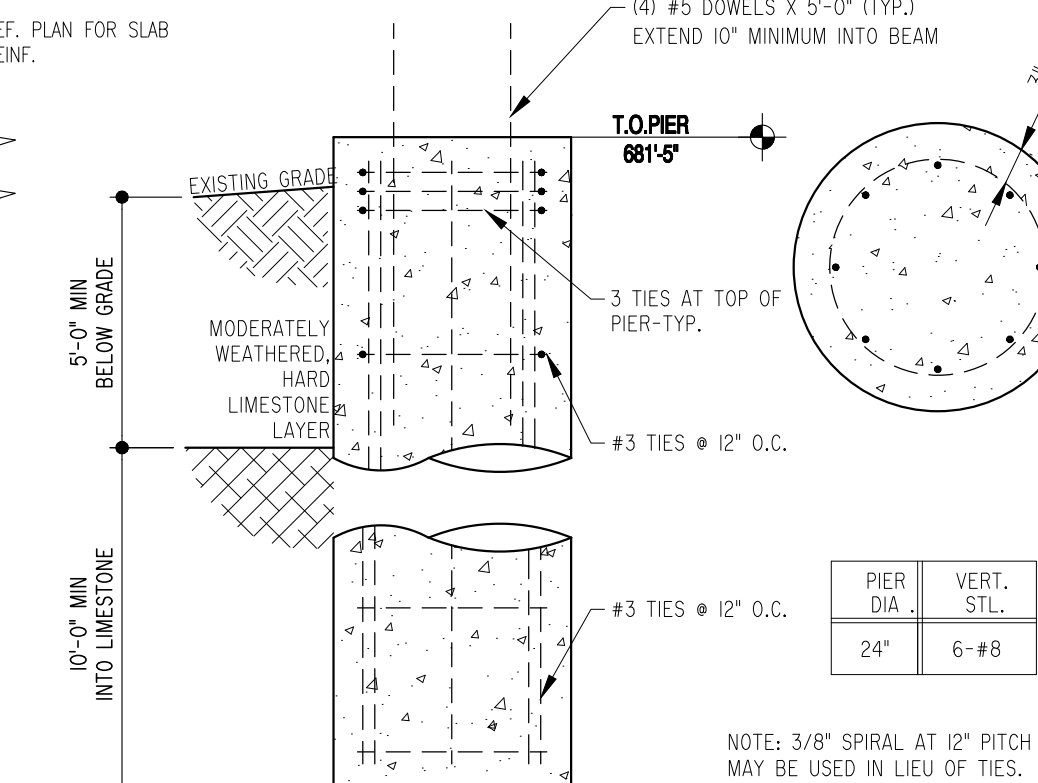
**10 TYPICAL EDGE BEAM @ SUSPENDED SLAB**  
SCALE: 3/4\"/>



**11 TYPICAL INTERIOR BEAM @ SUSPENDED SLAB**  
SCALE: 3/4\"/>



**12 TRANSITION BEAM DETAIL**  
SCALE: 3/4\"/>



**13 PIER DETAIL**  
SCALE: 3/4\"/>

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102352  
LICENSED PROFESSIONAL ENGINEER

FOUNDATION DETAILS

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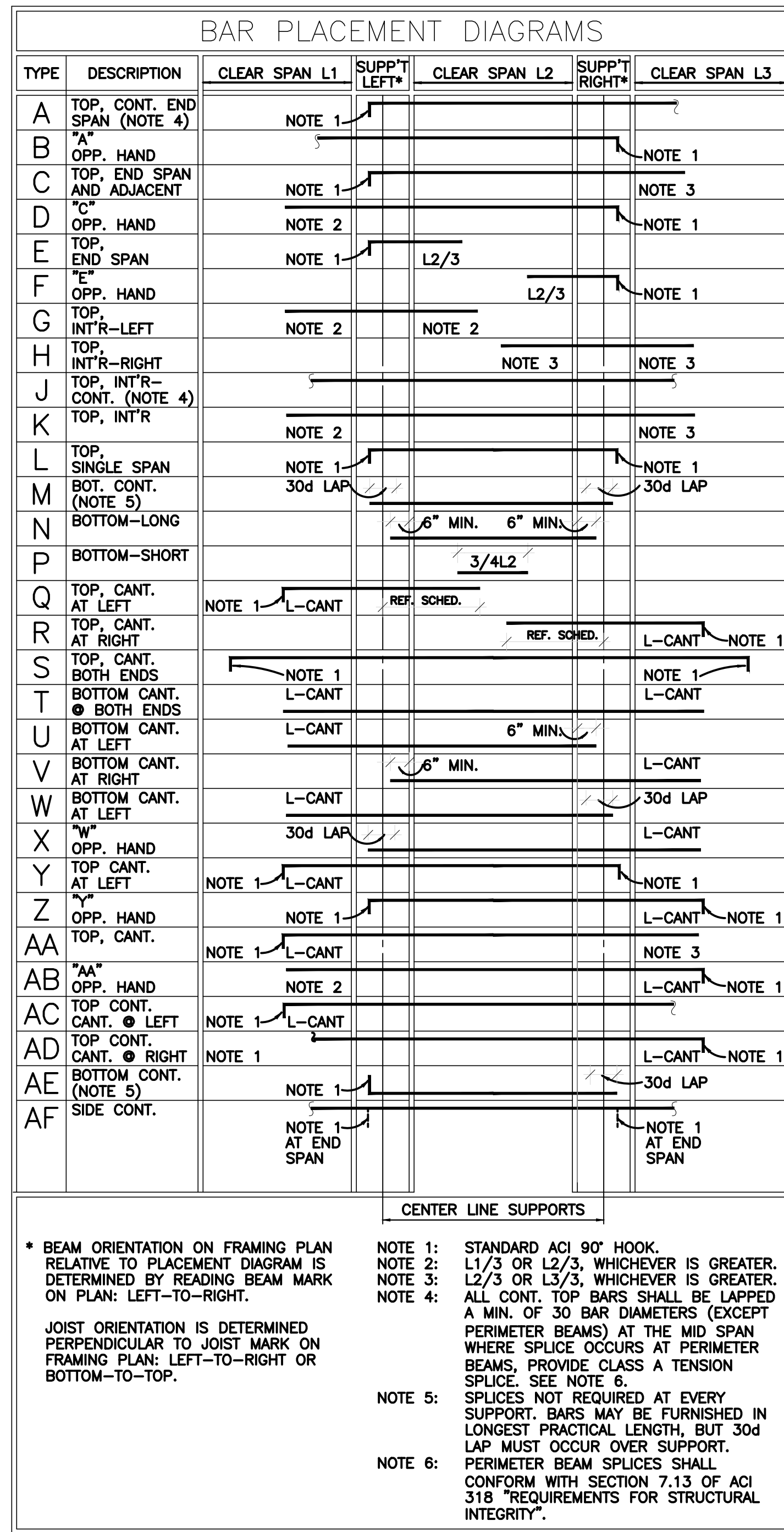
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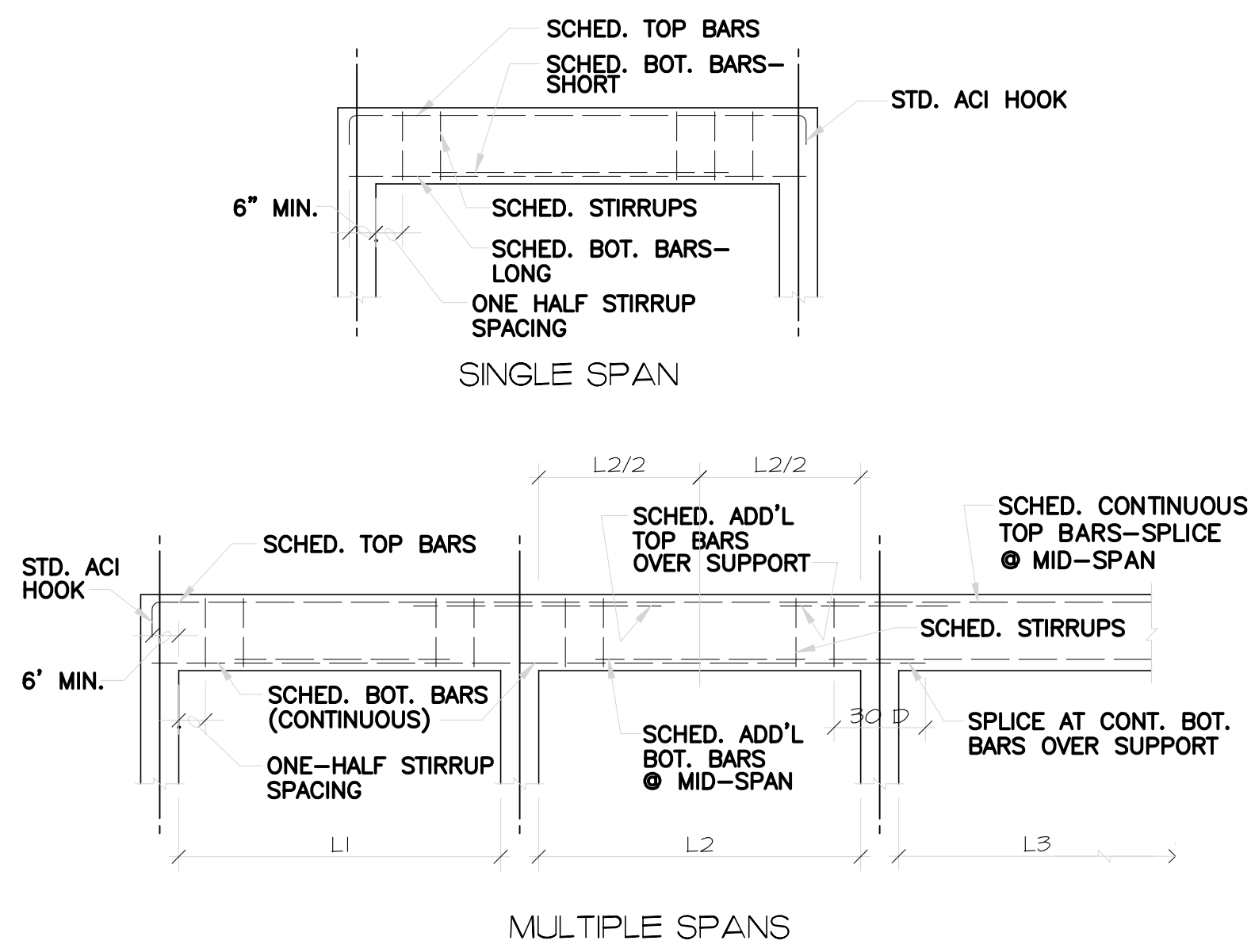


### REINFORCED CONCRETE BEAM SCHEDULE

MARK	WIDTH	DEPTH	REINFORCING		BAR SIZE	STIRRUPS		REMARKS
			TOP BARS	BOTTOM BARS		TYPE	SPACING	
B-1	14"	16"	2 #6-A	3 #6-M	#3	CLOSED	4 @ 6" E.E. REM@24"	
B-2	14"	16"	2 #6-J	3 #6-M	#3	CLOSED	4 @ 6" E.E. REM@24"	CONTINUE BARS WITH SLAB-ON-GRADE REINFORCEMENT
B-3	14"	16"	2 #6-A	3 #6-M	#3	CLOSED	4 @ 6" E.E. REM@24"	
B-4	14"	16"	2 #6-B	3 #6-M	#3	CLOSED	4 @ 6" E.E. REM@24"	
B-5	14"	16"	2 #6-A	3 #6-M	#3	CLOSED	4 @ 6" E.E. REM@24"	
B-6	14"	16"	2 #6-J	3 #6-M	#3	CLOSED	4 @ 6" E.E. REM@24"	CONTINUE BARS WITH SLAB-ON-GRADE REINFORCEMENT
B-7	14"	16"	2 #6-A	3 #6-M	#3	CLOSED	4 @ 6" E.E. REM@24"	
B-8	14"	16"	2 #6-J	3 #6-M	#3	CLOSED	4 @ 6" E.E. REM@24"	
B-9	14"	16"	2 #6-B	3 #6-M	#3	CLOSED	4 @ 6" E.E. REM@24"	
B-10	14"	16"	2 #6-A	3 #6-M	#3	CLOSED	4 @ 6" E.E. REM@24"	
B-11	14"	16"	2 #6-J	3 #6-M	#3	CLOSED	4 @ 6" E.E. REM@24"	
B-12	14"	16"	2 #6-B	3 #6-M	#3	CLOSED	4 @ 6" E.E. REM@24"	
B-13	14"	48"	2 #6-A	3 #6-M	#3	CLOSED	4 @ 6" E.E. REM@24"	
B-14	14"	48"	2 #6-J	3 #6-M	#3	CLOSED	4 @ 6" E.E. REM@24"	
B-15	14"	48"	2 #6-B	3 #6-M	#3	CLOSED	4 @ 6" E.E. REM@24"	

### REINFORCED CONCRETE SLAB SCHEDULE

MARK	DEPTH	REINFORCING - SHORT BARS		REINFORCING - LONG BARS		REMARKS
		TOP BARS	BOTTOM BARS	TOP BARS	BOTTOM BARS	
S-1	6"	#4 @ 6" O.C. - A	-	#4 @ 12" O.C.	-	-
S-2	6"	#4 @ 6" O.C. - J	-	#4 @ 12" O.C.	-	-
S-3	6"	#4 @ 6" O.C. - B	-	#4 @ 12" O.C.	-	-



TYPICAL BEAM REINFORCING PLACEMENT DETAILS  
NO SCALE

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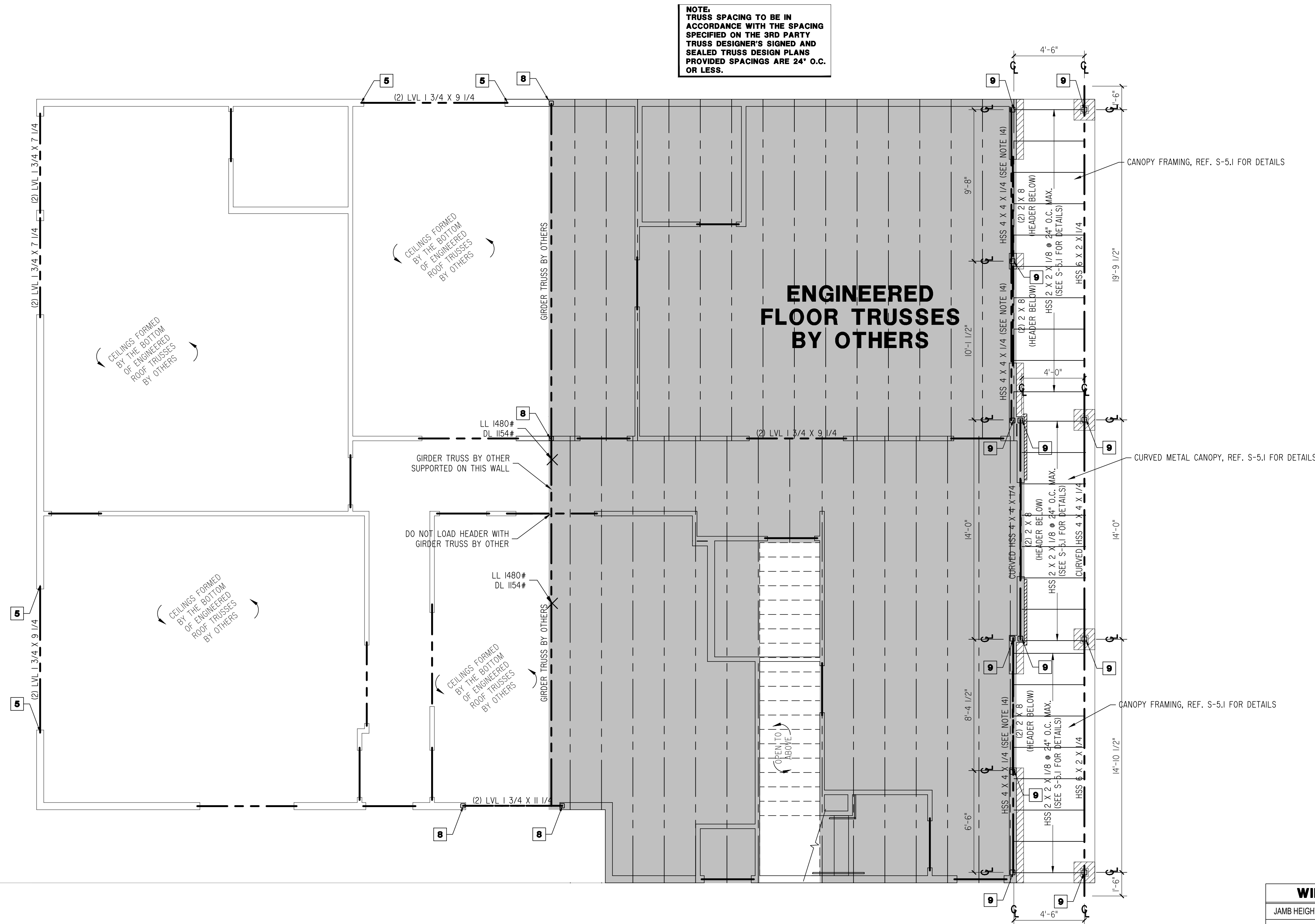
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SHEET NO. **S-3.1**

# FIRST FLOOR CEILING FRAMING PLAN

1/4" = 1'-0"



**NOTE:**  
TRUSS SPACING TO BE IN ACCORDANCE WITH THE SPACING SPECIFIED ON THE 3RD PARTY TRUSS DESIGNER'S SIGNED AND SEALED TRUSS DESIGN PLANS PROVIDED SPACINGS ARE 24' O.C. OR LESS.

## FRAMING NOTES

- DESIGN IS BASED ON A MAXIMUM METAL ROOF DEAD LOAD OF LBS/SQUARE. CONSULT ENGINEER IF OTHER MATERIALS ARE USED.
- ALL MEMBERS SHALL BE CONTINUOUS AND SYP. #2 UNLESS NOTED OTHERWISE.
- ALL MASONRY TO BE SUPPORTED INDEPENDENTLY OF HEADERS BY STEEL LINTEL. CONSULT ENGINEER AS REQUIRED.
- ALL JOISTS / RAFTERS TO BE 2 X 6 @ 24" O.C. UNLESS NOTED OTHERWISE.
- ALL LOAD BEARING DOOR AND WINDOW HEADERS SHALL CONSIST OF MINIMUM (2) 2 X 6 UNLESS NOTED OTHERWISE.
- ALL HANGERS TO BE SIMPSON OR BETTER UNLESS NOTED OTHERWISE.
- PROVIDE MINIMUM HANGER FOR ALL BEAM TO BEAM CONNECTIONS UNLESS SPECIFIC HANGER SIZE IS CALLED OUT ON PLAN.
- NOTCH BEAMS @ SLOPED ROOFS AND REPAIR WHERE INDICATED ON PLANS. BEAM TAPERS HAVE BEEN DESIGNED BASED ON A MINIMUM BEAM DEPTH EQUAL TO THE VERTICAL DEPTH OF THE RAFTERS AT THE INTERIOR FACE OF THE STUD WALL (G.K.A. THE DEPTH FROM THE ROOF DECK TO THE TOP OF THE TOP PLATE.)
- (4) LVL BEAMS TO BE BOLTED W/ (2) ROWS OF 1/2" THROUGH BOLTS @ 12" O.C. ROWS SHOULD BE LOCATED 2" FROM THE TOP AND BOTTOM OF THE BEAM.
- ALL BEAMS AND HEADERS TO BE SUPPORTED BY MIN. (2) SYP #2 STUDS, U.N.O.
- ALL EXPOSED LUMBER TO BE TREATED FOR MOISTURE PROTECTION.
- FLOOR TRUSS DESIGN SHALL ACCOUNT FOR INTERIOR WALL DEAD LOAD OF 100 LBF. PROVIDE 2 X 8 SOLID BLOCKING @ 16" O.C. WHERE WALLS PARALLEL TO TRUSS ORIENTATION DO NOT BEAR DIRECTLY ON TRUSSES.
- ALL ROOF AND FLOOR TRUSSES ASSUMED TO BEAR AT ENDS ONLY, U.N.O.

## FRAMING LEGEND

- ==== GIRDER TRUSS BY OTHERS (GT)
- TRUSS BY OTHERS
- BEAM
- ATD / ASSUMED TRUSS DIRECTION
- ===== NON-LOAD BEARING WALLS
- ===== LOAD BEARING WALLS
- (NLB) NON-LOAD BEARING
- RIDGE OR VALLEY SUPPORT
- SUPPORT AND LOCATION
- /// ROOF SPLICE
- X DENOTES UNFACTORED POINT LOAD (lbs) FROM FRAMING IN UPPER STORIES. FLOOR TRUSS MANUFACTURER TO SUPPORT A POINT LOAD OF DL #, LL # AT THIS LOCATION FROM BEAMS) ABOVE.
- || DENOTES UNFACTORED LINE LOAD (plf) FROM FRAMING IN UPPER STORIES. FLOOR TRUSS MANUFACTURER TO SUPPORT A LINE LOAD OF DL #plf, LL #plf FROM LOAD BEARING WALL ABOVE AT THIS LOCATION.

## COLUMN LEGEND:

- |   |                            |
|---|----------------------------|
| 1 | (2) 2 X 4 S.Y.P., #2 GRADE |
| 2 | (3) 2 X 4 S.Y.P., #2 GRADE |
| 3 | (4) 2 X 4 S.Y.P., #2 GRADE |
| 4 | (5) 2 X 4 S.Y.P., #2 GRADE |
| 5 | (2) 2 X 6 S.Y.P., #2 GRADE |
| 6 | (3) 2 X 6 S.Y.P., #2 GRADE |
| 7 | (4) 2 X 6 S.Y.P., #2 GRADE |
| 8 | T.S. 3 1/2 X 3 1/2 X 1/4   |
| 9 | HSS 4 X 4 X 1/4            |
- REPRESENTS MIN. # OF STUDS FOR END SUPPORT OF MEMBER.

WINDOW / DOOR JAMB SCHEDULE			
JAMB HEIGHT	OPENING ≤ 3 FT.	OPENING ≤ 6 FT.	OPENING > 6 FT.
9 FT.	(2) 2 X 6 SPF STUD	(2) 2 X 6 SPF STUD	SEE PLANS
15.5 FT.	(3) 2 X 6 SPF STUD	(4) 2 X 6 SPF STUD	

- ALL WINDOW AND DOOR JAMBS SHALL BE IN ACCORDANCE WITH THIS TABLE UNLESS NOTED OTHERWISE ON THESE PLANS.
- STUD & JAMB SCHEDULE BASED ON COMPONENTS AND CLADDING PRESSURE OF 17.11 psf, REDUCED BASED ON TRIBUTARY AREA PER ASCE 7-10 FIGURE 30.4-1

STUD SCHEDULE			
	EXTERIOR LOAD BEARING	INTERIOR LOAD BEARING	NON-LOAD BEARING
SECOND LEVEL STUDS	2 X 6 SPF STUD GRADE @ 16" O.C.	2 X 4 SPF STUD GRADE @ 16" O.C.	2 X 4 SPF STUD GRADE @ 16" O.C.
FIRST LEVEL STUDS	2 X 6 SPF STUD GRADE @ 16" O.C.	2 X 4 SPF #2 @ 16" O.C. OR 2 X 4 SPF STUD GRADE @ 12" O.C.	2 X 4 SPF STUD GRADE @ 16" O.C.

- ALL STUD SIZES AND SPECIES ARE "OR BETTER"
- STUDS MAY BE FINGER JOINTED
- CONTACT ENGINEER FOR QUESTIONS REGARDING INTERPRETATION OF THIS STUD SCHEDULE

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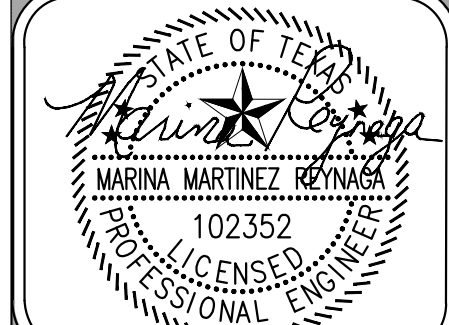
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**CEILING FRAMING PLAN**

**DATE ISSUED**  
1/04/2022

**REVISIONS**

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1	02/25/22	MR

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SQ. FOOTAGE: 21090.16.0

FILE NAME: 2109016.0

**SHEET NO.**

**S-4.0**

















## GENERAL MECHANICAL REQUIREMENTS

- 1.1 SCOPE – DIVISION 23**
- A. THE WORK OF DIVISION 23 CONSISTS OF PROVIDING LABOR, MATERIALS, PRODUCTS, AND IN PERFORMING ALL OPERATIONS REQUIRED FOR THE COMPLETE OPERATING INSTALLATION OF ALL MECHANICAL AND PLUMBING SYSTEMS IN ACCORDANCE WITH SPECIFICATIONS, APPLICABLE DRAWINGS, TERMS, CONDITIONS OF THE CONTRACT AND ALL APPLICABLE CODES AND ORDINANCES GOVERNING THE INSTALLATION OF THE VARIOUS MECHANICAL AND PLUMBING SYSTEMS. ALL WORK SHALL BE FULLY CORRELATED WITH THE WORK OF OTHER CRAFTS.
- B. EACH CONTRACTOR SHALL STUDY THE CONTRACT DOCUMENTS TO DETERMINE THE EXTENT OF WORK PROVIDED UNDER THIS CONTRACT, AS WELL AS TO ASCERTAIN THE DIFFICULTY TO BE ENCOUNTERED IN PERFORMING THE WORK ON THE DRAWINGS AND OUTLINED HEREINAFTER AND IN MAKING CONNECTIONS TO EXISTING UTILITIES, INSTALLING NEW EQUIPMENT AND SYSTEMS AND COORDINATING THE WORK WITH THE OTHER TRADES.
- C. EXAMINATION OF SITE: THE CONTRACTOR SHALL THOROUGHLY EXAMINE SITE AND SATISFY HIMSELF AS TO THE CONDITIONS UNDER WHICH THE WORK IS TO BE PERFORMED. THE CONTRACTOR SHALL VERIFY, AT THE SITE, ALL MEASUREMENTS AFFECTING HIS WORK AND SHALL BE RESPONSIBLE FOR THE CORRECTNESS OF SAME. NO EXTRA COMPENSATION WILL BE ALLOWED TO THE CONTRACTOR FOR EXPENSES DUE TO HIS NEGLIGENCE OR FAILURE TO DISCOVER CONDITIONS WHICH AFFECT HIS WORK. NO EXTRA COMPENSATION WILL BE ALLOWED ON ACCOUNT OF DIFFERENCES BETWEEN ACTUAL DIMENSIONS AND THOSE INDICATED ON THE DRAWINGS.
- 1.2 REGULATORY REQUIREMENTS**
- A. CODES AND ORDINANCES/PERMIT AND FEES: PERFORM ALL WORK IN ACCORDANCE WITH ALL STATE AND LOCAL CODES AND ORDINANCES, INCLUDING THE LATEST ADOPTED TEXAS ACCESSIBILITY STANDARDS, THE CURRENT EDITION OF NFPA, THE LATEST ADOPTED ENERGY CODE, THE LATEST ADOPTED BUILDING CODE, LATEST ADOPTED MECHANICAL CODE, LATEST ADOPTED PLUMBING CODE, AND ALL CURRENT SUPPLEMENTS THERETO, AND ANY OTHER AUTHORITIES HAVING JURISDICTION OVER THE WORK. PROCURE AND PAY FOR ALL PERMITS, LICENSES, FEES AND CHARGES, AND GIVE ALL NOTICES NECESSARY.
- B. IN CASE OF CONFLICT BETWEEN THE CONTRACT DOCUMENTS AND REQUIREMENTS OF ANY CODE OR AUTHORITIES HAVING JURISDICTION, THE MOST STRINGENT REQUIREMENTS OF THE AFOREMENTIONED SHALL GOVERN.
- C. SHOULD THE CONTRACTOR PERFORM ANY WORK THAT DOES NOT COMPLY WITH THE REQUIREMENTS OF THE APPLICABLE BUILDING CODES, STATE LAWS, LOCAL ORDINANCES AND INDUSTRY STANDARDS, HE SHALL BEAR ALL COSTS ARISING IN CORRECTING THE DEFICIENCIES, AS APPROVED BY THE ARCHITECT.
- D. INTENT: THE DRAWINGS SHOW GENERAL ARRANGEMENTS AND THE EXTENT OF THE WORK. THE DRAWINGS DO NOT SHOW, IN MINUTE DETAIL, ALL FEATURES OF THE INSTALLATION. FOLLOW THE DRAWINGS AS CLOSELY AS ACTUAL CONSTRUCTION WILL PERMIT. ALL MATERIAL AND LABOR NECESSARY TO COMPLETE THE WORK IN ACCORDANCE WITH THE INTENT OF THE SPECIFICATIONS AND DRAWINGS SHALL BE FURNISHED BY THE CONTRACTOR WITHOUT ADDITIONAL CHARGE. THE JOB SHALL BE BID AND INSTALLED COMPLETE AND CONSISTENT IN EVERY REQUEST.

### 1.3 COORDINATION OF WORK

- A. EACH CONTRACTOR SHALL COMPARE HIS DRAWINGS AND SPECIFICATIONS WITH THOSE OF OTHER TRADES. ALL WORK SHALL BE INSTALLED IN COOPERATION WITH OTHER TRADES INSTALLING INTERRELATED WORK. BEFORE INSTALLATION, ALL TRADES SHALL MAKE PROPER PROVISIONS TO AVOID INTERFERENCES.
- B. EACH CONTRACTOR SHALL COORDINATE THE LOCATION OF HIS SYSTEMS SO THAT ALL OUTSIDE AIR INTAKES, PLUMBING VENTS AND EXHAUST FANS ARE LOCATED IN SUCH A WAY AS TO PREVENT CROSS-CONTAMINATION. SUCH A DISTANCE SHALL BE NOT LESS THAN 10'-0" FT.
- C. LOCATIONS OF CONDUIT, DUCTS, PIPING, SPRINKLER HEADS AND EQUIPMENT SHALL BE ADJUSTED TO ACCOMMODATE THE WORK WITH INTERFERENCES ANTICIPATED AND ENCOUNTERED. EXACT ROUTING AND LOCATION OF SYSTEMS SHALL BE DETERMINED PRIOR TO FABRICATION OR INSTALLATION.
- D. OFFSETS AND CHANGES OF DIRECTION IN ALL CONDUIT, DUCTS AND PIPING SYSTEMS SHALL BE MADE AS REQUIRED TO MAINTAIN PROPER HEADROOM AND PITCH OF SLOPING LINES

### 1.4 REGULATORY REQUIREMENTS

- A. COMPLY WITH ALL CURRENT LOCAL, STATE AND NATIONAL CODES, INCLUDING THE AMERICANS WITH DISABILITIES ACT (MOST CURRENT EDITION), AND SECURE AND PAY FOR ALL APPLICABLE COSTS, FEES, PERMITS AND LICENSES. NO ADDITIONAL COSTS SHALL BE PAID BY THE OWNER FOR THESE ITEMS.
- B. PERFORM ALL WORK WITH HIGHEST REGARD TO SAFETY. EXCAVATE BY HAND AND WITH CAUTION TO LOCATE ALL UTILITIES IN THE BOUNDS OF THE AREA TO BE EXCAVATED PRIOR TO MACHINE EXCAVATING. PROCEED WITH SAFETY AND CAUTION SO THAT NO UTILITY IS DAMAGED OR INTERRUPTED.
- C. PRIOR TO BID, VERIFY AND COORDINATE ALL REQUIRED CONNECTIONS AND/OR RELOCATIONS OF UTILITIES WITH UTILITY COMPANIES. PERFORM SUCH WORK IN ACCORDANCE WITH UTILITY COMPANY REGULATIONS. PAY ALL APPLICABLE FEES AND COSTS, INCLUDING THOSE FOR ANY EXTENSIONS, RELOCATIONS AND/OR CONNECTIONS
- D. CONTRACTOR SHALL VERIFY LOCATIONS OF ALL ABOVE GROUND AND MARKED UTILITIES.

### 1.5 SUBMITTALS

- A. SUBMITTALS SHALL BE COMPLETE FOR SYSTEM(S) INVOLVED. PROVIDE SUBMITTALS FOR ALL HVAC EQUIPMENT.
- B. WHERE EQUIPMENT OF THE ACCEPTABLE MANUFACTURERS REQUIRE DIFFERENT ARRANGEMENT OR CONNECTIONS FROM THOSE SHOWN, IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO INSTALL THE EQUIPMENT TO OPERATE PROPERLY AND IN HARMONY WITH THE ORIGINAL INTENT OF THE DRAWINGS AND SPECIFICATIONS. THE CONTRACTOR SHALL MAKE ALL NECESSARY CHANGES IN ALL AFFECTED RELATED WORK PROVIDED UNDER OTHER SECTIONS INCLUDING LOCATION OF ROUGH-IN CONNECTIONS BY OTHER TRADES, CONDUIT SUPPORTS, INSULATION, ETC. ALL CHANGES SHALL BE MADE AT NO INCREASE IN THE CONTRACT AMOUNT OR ADDITIONAL COST TO THE OTHER TRADES AND/OR OWNER.

### 1.6 GUARANTEE

- A. ALL EQUIPMENT AND WORK SHALL BE GUARANTEED FOR A PERIOD OF 12 MONTHS AFTER ACCEPTANCE. ANY DEFECTS IN EQUIPMENT OR WORKMANSHIP SHALL BE PROMPTLY REPAIRED OR REPLACED BY THE CONTRACTOR WITHOUT ADDITIONAL EXPENSE TO THE OWNER. THE GUARANTEE PERIOD OF ANY PART OF THE REPAIRED ITEM SHALL BE EXTENDED FOR A PERIOD OF ONE YEAR FROM THE DATE OF SUCH REPAIR OR REPLACEMENT.

### 1.7 COMPLETION

- A. UPON COMPLETION OF THE MECHANICAL INSTALLATION, DEMONSTRATE TO THE OWNER'S SATISFACTION THAT THE SYSTEMS HAVE BEEN INSTALLED IN A SATISFACTORY MANNER IN ACCORDANCE WITH THE PLANS AND APPLICABLE CODES. SHOW THAT ALL CONTROLS ARE OPERABLE AND ARE PROPERLY ADJUSTED IN ACCORDANCE WITH THE REQUIREMENTS OF THE FINAL SYSTEMS BALANCE, THAT ALL SYSTEMS ARE PROPERLY BALANCED, THAT ALL EQUIPMENT OPERATES PROPERLY, THAT FILTERS AND STRAINERS ARE CLEAN, AND THAT ALL COMPONENTS OF ALL SYSTEMS ARE INSTALLED AND ADJUSTED FOR PROPER OPERATION.

## PRODUCTS

### 2.1 GENERAL

- A. ALL MATERIALS SHALL BE NEW AND OF THE QUALITY SPECIFIED. MATERIALS SHALL BE FREE FROM DEFECTS. MANUFACTURERS SHALL BE AS SPECIFIED HEREIN, OR BY ADDENDA. ALL PIPING EQUIPMENT, ETC., WHICH NEEDS TO BE INSULATED TO CONSERVE HEAT OR COLD, OR TO PREVENT FREEZING OR CONDENSATION, SHALL BE INSULATED. ALL MATERIALS SHALL HAVE THE UNDERWRITERS LABORATORIES, INC. LABEL.

## BASIC MECHANICAL METHODS

### 1.1 DIMENSION AND FIT

- A. CUT MATERIALS ACCURATELY FROM MEASUREMENTS TAKEN ON THE JOB SITE.
- B. DO NOT SPRING OR BEND PIPE TO FIT CONDITIONS OR MAKE UP JOINTS.

### 1.2 SERVICEABILITY OF PRODUCTS

- A. FURNISH ALL PRODUCTS TO PROVIDE THE PROPER ORIENTATION OF SERVICEABLE COMPONENTS TO ACCESS SPACE PROVIDED.
- B. COORDINATE INSTALLATION OF PIPING, DUCTWORK, EQUIPMENT, SYSTEM COMPONENTS, AND OTHER PRODUCTS TO ALLOW PROPER SERVICE OF ALL ITEMS REQUIRING PERIODIC MAINTENANCE OR REPLACEMENT.
- C. REPLACE OR RELOCATE ALL PRODUCTS INCORRECTLY ORDERED OR INSTALLED TO PROVIDE PROPER SERVICEABILITY.
- D. PROVIDE ACCESS DOORS AND ACCESS PANELS IN CEILINGS, WALLS, FLOORS, ETC., FOR ACCESS TO TRAPS, VALVES, PRIMERS, DAMPERS, AUTOMATIC DEVICES, AND ALL SERVICEABLE OR OPERABLE EQUIPMENT IN CONCEALED SPACES.
- E. PROVIDE VIBRATION ISOLATORS ON ALL EQUIPMENT HAVING MOTORS AND SUPPORTED BY THE BUILDING STRUCTURE.

### 1.3 ROUTING

- A. ROUTE ALL PIPELINES AND DUCTWORK PARALLEL WITH BUILDING LINES AND AS HIGH AS POSSIBLE.
- B. ROUTE PIPING AND DUCTS TO CLEAR ALL DOORS, WINDOWS, AND OTHER OPENINGS AND TO AVOID ALL OTHER PIPES AND DUCTS, LIGHT FIXTURES AND SIMILAR PRODUCTS.
- C. PROVIDE UNIONS ADJACENT TO ALL EQUIPMENT AND WHERE REQUIRED FOR DISCONNECT AND MAINTENANCE OF EQUIPMENT.
- D. SECURELY FASTEN ALL MECHANICAL/PLUMBING WORK TO THE STRUCTURE TO PREVENT HAZARD HUMAN LIFE AND LIMB, AND TO PREVENT DAMAGE TO PRODUCTS OF CONSTRUCTION UNDER ALL CONDITIONS OF OPERATION.
- E. DO ALL SLEEVING, CUTTING AND PATCHING OF ROUGH CONSTRUCTION FOR PIPING. ALL CUTTING, REPAIRING AND REQUIRED STRUCTURAL REINFORCING FOR INSTALLATION OF THIS WORK SHALL BE DONE IN CONFORMANCE WITH ARCHITECT'S DIRECTIONS AND ANY DAMAGE CAUSED BY CUTTING SHALL BE REPAIRED EQUAL TO ORIGINAL CONDITIONS. NO CUTTING WITHOUT ARCHITECT'S APPROVAL.
- F. PLACE ANY SLEEVES, CHASES, CONCRETE INSERTS, ANCHOR BOLTS, ETC., BEFORE CONCRETE IS POURED, AND BE RESPONSIBLE FOR CORRECT LOCATION AND INSTALLATION OF THESE ITEMS.

## MECHANICAL INSULATION

### 1.1 SCOPE

- A. GENERAL: FURNISH ALL LABOR AND MATERIALS NECESSARY FOR THE COMPLETE INSTALLATION OF THERMAL INSULATION ON ALL HOT AND COLD PIPING SURFACES AND DUCTWORK INSTALLED UNDER THIS CONTRACT WHICH REQUIRE INSULATION FOR HEAT OR COLD CONSERVATION; FREEZE PROTECTION, PREVENTION OF CONDENSATION OR DRIPPING; COMFORT FOR OCCUPANTS; EFFICIENCY OR EASE OF OPERATION. MECHANICAL INSULATION SHALL BE COMPLETE AND EFFECTIVE THROUGHOUT THE PROJECT.
- B. SYSTEMS TO RECEIVE INSULATION INCLUDE, BUT ARE NOT NECESSARILY LIMITED TO:
1. HYDRONIC HEAT WATER LINES (SUPPLY AND RETURN).
  2. CONDENSATE DRAINAGE.
  3. REFRIGERANT LINES (BOTH HIGH AND LOW PRESSURE).
  4. PIPING ACCESSORIES AND SPECIALTIES.

### 1.2 PIPE INSULATION

- A. ALL ABOVE GRADE INSULATION SHALL HAVE COMPOSITE (INSULATION, JACKET OR FACING, AND ADHESIVE OR CEMENT USED TO ADHERE THE JACKET TO THE INSULATION) FIRE AND SMOKE HAZARD RATING AS TESTED UNDER PROCEDURE ASTM E-84 AND NFPA 225.
- B. APPROVED MANUFACTURERS: CERTAINTED, OWENS/CORNING, JOHNS-MANVILLE, UPUOHN, ARMSTRONG, OR APPROVED EQUIVALENT.
- C. CONDENSATE DRAINS: 1/2" FOAMED PLASTIC INSULATION (ARMAFLEX AP).
- D. REFRIGERANT LINES: 1/2" FOAMED PLASTIC INSULATION WITH CLOSED CELL STRUCTURE (ARMAFLEX AP) ON PIPING EXPOSED TO WEATHER. PROVIDE INSULATION TO BE COATED WITH SPECIAL EXTERIOR GRADE COATING BY ARMAFLEX.

### 1.3 DUCTWORK INSULATION

- A. MANUFACTURERS: OWENS/CORNING, OR APPROVED EQUIVALENT.
- B. FLEXIBLE GLASS FIBER: ASTM C612; FLEXIBLE, NON-COMBUSTIBLE BLANKET.
1. "K" (KSI) VALUE : 0.29 AT 75 DEGREES F (0.042 AT 24 DEGREES C).
  2. DENSITY: 1.5 LB/CU FT (24 KG/CU M).
- C. VAPOR BARRIER JACKET: KRAFT PAPER REINFORCED WITH GLASS FIBER YARN AND BONDED TO ALUMINIZED FILM, SECURED WITH PRESSURE SENSITIVE TAPE AND STAPLES
- C. FLEXIBLE GLASS FIBER (THICKNESS INCH):
- |                                       |      |
|---------------------------------------|------|
| EXHAUST DUCTS EXPOSED TO OUTDOOR AIR: | 1"   |
| VENTILATION EQUIPMENT CASINGS         | 1"   |
| SUPPLY DUCTS (COOLING SYSTEMS)        | (R8) |
| RETURN DUCTS IN UNCONDITIONED SPACES  | (R8) |

### 1.4 INSTALLATION

- A. INSTALL MATERIALS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
- B. CONTINUE INSULATION VAPOR BARRIER THROUGH PENETRATIONS.
- C. PIPING INSULATION
1. LOCATE INSULATION AND COVER SEAMS IN LEAST VISIBLE LOCATIONS.
  2. NEATLY FINISH INSULATION AT SUPPORTS, PROTRUSIONS, AND INTERRUPTIONS.
  3. PROVIDE INSULATED DUAL TEMPERATURE PIPES OR COLD PIPES CONVEYING FLUIDS BELOW AMBIENT TEMPERATURE WITH VAPOR BARRIER JACKETS. FINISH WITH GLASS CLOTH AND VAPOR BARRIER ADHESIVE. INSULATE COMPLETE SYSTEM.
  4. FOR INSULATED PIPES CONVEYING FLUIDS ABOVE AMBIENT TEMPERATURE, PROVIDE STANDARD JACKETS, BEVEL AND SEAL ENDS OF INSULATION AT EQUIPMENT, FLANGES, AND UNIONS.
  5. FOR PIPES WITH EXPOSED INSULATION, PROVIDE SUPPORT SHIELDS NOT LESS THAN 12" AT ALL SUPPORTS
  6. PROVIDE INSERT BETWEEN SUPPORT SHIELD AND PIPING ON PIPING 2 INCHES (50 MM) DIAMETER OR LARGER. FABRICATE OF CORK OR OTHER HEAVY DENSITY INSULATING MATERIAL. SUITABLE FOR TEMPERATURE, NOT LESS THAN 6 INCHES (150 MM) LONG.
  7. PIPING INSULATION INSTALLED EXPOSED OUTSIDE THE BUILDING SHALL HAVE TWO COATS OF PAINT OR METAL JACKETING FOR WEATHER PROTECTION. SEE DRAWING NOTES.

### D. EQUIPMENT INSULATION:

1. APPLY INSULATION AS CLOSE AS POSSIBLE TO EQUIPMENT BY GROOVING, SCORING, AND BEVELLING INSULATION, IF NECESSARY. SECURE INSULATION TO EQUIPMENT WITH STUDS, PINS, CLIPS, ADHESIVE, WIRES, OR BANDS.
2. FILL JOINTS, CRACKS, SEAMS, AND DEPRESSIONS WITH BEDDING COMPOUND TO FORM SMOOTH SURFACE. ON COLD EQUIPMENT, USE VAPOR BARRIER CEMENT.
3. PROVIDE INSULATED DUAL TEMPERATURE EQUIPMENT OR COLD EQUIPMENT CONTAINING FLUIDS BELOW AMBIENT TEMPERATURE WITH VAPOR BARRIER JACKETS.
4. FOR INSULATED EQUIPMENT CONTAINING FLUIDS ABOVE AMBIENT TEMPERATURE, PROVIDE STANDARD JACKETS, WITH OR WITHOUT VAPOR BARRIER.
5. DO NOT INSULATE OVER NAMEPLATE OR ASME STAMPS. BEVEL AND SEAL INSULATION AROUND SUCH.
6. WHEN EQUIPMENT WITH INSULATION REQUIRES PERIODIC OPENING FOR MAINTENANCE, REPAIR, OR CLEANING, INSTALL INSULATION IN SUCH A MANNER THAT IT CAN BE EASILY REMOVED AND REPLACED WITHOUT DAMAGE.

## AIR HANDLING

### 1.1 SUBMITTALS

- A. PRODUCT DATA: INCLUDE CATALOG PERFORMANCE RATINGS, CONSTRUCTION, AND DIMENSIONS.
- B. OPERATING AND MAINTENANCE INSTRUCTIONS: INCLUDE INSTRUCTIONS FOR LUBRICATION, MOTOR AND DRIVE REPLACEMENT, SPARE PARTS LISTS, AND WIRING DIAGRAMS.

### 2.1 AIR HANDLING UNITS

- A. MANUFACTURERS: CARRIER, TRANE, YORK, LENNOX, COMFORTMAKER, OR APPROVED EQUIVALENT.
- B. CASING: GALVANIZED STEEL ON CHANNEL BASE OR DRAIN PAN, WELDED AND COATED WITH ZINC CHROMATE PAINT, WITH CORROSION PROTECTED WIRE GUARDS.
- C. INSULATION: ONE INCH (25 MM) THICK, NEOPRENE COATED, GLASS FIBRE INSULATION, APPLIED TO INTERNAL SURFACES WITH ADHESIVE AND WELD PINS. COAT EXPOSED EDGES OF INSULATION WITH ADHESIVE AND WELD PINS. COAT EXPOSED EDGES OF INSULATION WITH ADHESIVE.
- D. LINER: MILL GALVANIZED PERFORATED STEEL WITH SUPPORT MEMBERS.
- E. FINISH: ZINC CHROMATE PAINT.
- F. FAN SECTION:
1. FAN: CENTRIFUGAL TYPE FAN.
  2. BEARINGS: SELF ALIGNING, GREASE LUBRICATED, BALL OR ROLLER BEARINGS WITH LUBRICATION FITTINGS EXTENDED TO EXTERIOR OF CASING.
  3. BASE: WELDED STEEL, MOTOR FACTORY MOUNTED ON SLIDE RAILS, WITH REMOVABLE ACCESS PANELS OR HINGED DOORS.
- G. ELECTRICAL CHARACTERISTICS AND COMPONENTS
1. ELECTRICAL CHARACTERISTICS: AS NOTED ON DRAWINGS.
  2. DISCONNECT SWITCH: FACTORY MOUNT DISCONNECT SWITCH ON EQUIPMENT.
- H. COIL SECTION: ENCLOSE COILS WITH HEADERS AND RETURN BENDS FULLY CONTAINED WITHIN CASING, WITH COILS AND ACCESS.
- I. FILTERS
1. 2" DISPOSABLE PLEATED FILTERS, FARR 3030, OR AS NOTED ON MECHANICAL DRAWINGS.

### 3.1 INSTALLATION

- A. INSTALL IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS. DO NOT OPERATE FANS FOR ANY PURPOSE UNTIL DUCTWORK IS CLEAN, FILTERS ARE IN PLACE, BEARINGS LUBRICATED, AND FAN HAS BEEN TEST RUN UNDER OBSERVATION.
- B. INSTALL FANS WITH RESILIENT MOUNTINGS AND FLEXIBLE ELECTRICAL LEADS. INSTALL FLEXIBLE CONNECTIONS SPECIFIED BETWEEN FAN INLET AND DISCHARGE DUCTWORK. FLEXIBLE CONNECTORS SHALL NOT BE IN TENSION WITH RUNNING.
- C. PROVIDE SHEAVES REQUIRED FOR FINAL AIR BALANCE.
- D. PROVIDE SAFETY SCREEN WHERE FAN INLET OR OUTLET IS EXPOSED.

## DIRECT EXPANSION REFRIGERATION SYSTEMS

### 1.1 SUBMITTALS

- A. PRODUCT DATA: FOR REVIEW PROVIDE FOR MANUFACTURED EQUIPMENT.
- B. OPERATING AND MAINTENANCE INSTRUCTIONS: INCLUDE FOR PROJECT CLOSEOUT.
- 1.2 WARRANTY**
- A. PROVIDE FIVE YEAR WARRANTY COVERAGE FOR COMPRESSORS.

### 1.3 REFRIGERANT

- A. REFRIGERANT: R-410A.

### 1.4 REFRIGERANT SPECIALTIES

- A. PERMANENT STRAIGHT THROUGH TYPE FILTER DRIERS: UL LISTED, STEEL SHELL WITH MOLDED DESICCANT FILTER CORE.
- B. SOLENOID VALVES:
1. VALVE: PILOT OPERATED, COPPER OR BRASS BODY AND INTERNAL PARTS, SYNTHETIC SEAT, STAINLESS STEEL SHIM AND PLUNGER ASSEMBLY, WITH FLARED, SOLDER, OR THREADED ENDS. SYSTEM SHALL PERMIT MANUAL OPERATION IN CASE OF COIL FAILURE.
  2. COIL ASSEMBLY: UL LISTED, REPLACEABLE WITH MOLDED ELECTROMAGNETIC COIL, MOISTURE AND FUNGUS PROOF, WITH SURGE PROTECTOR AND COLOUR CODED LEAD WIRES, INTEGRAL JUNCTION BOX.
- C. FLEXIBLE CONNECTORS: CORRUGATED BRONZE HOSE WITH SINGLE LAYER OF EXTERIOR BRASSING, MINIMUM 9 INCHES (230 MM) LONG WITH COPPER TUBE ENDS.

### 1.5 CONDENSING UNITS

- A. MANUFACTURERS: CARRIER, TRANE, LENNOX, YORK, COMFORTMAKER, OR APPROVED EQUIVALENT.
- B. UNITS: SELF-CONTAINED, PACKAGED, FACTORY ASSEMBLED AND PREWIRED UNITS FOR OUTDOOR USE CONSISTING OF CABINET, COMPRESSORS, CONDENSING COIL AND FANS, INTEGRAL SUB-COOLING COIL, CONTROLS, LIQUID RECEIVER.
- C. CABINET: GALVANIZED STEEL WITH BAKED ENAMEL FINISH AND REMOVABLE ACCESS DOORS OR PANELS WITH QUICK FASTENERS.
- D. COMPRESSOR: HERMETICALLY SEALED, 1750 RPM, RESILIENTLY MOUNTED COMPRESSOR WITH POSITIVE LUBRICATION, CRANKCASE HEATER, CYLINDER UNLOADERS WITH ELECTRIC SOLENOIDS, MOTOR OVERLOAD PROTECTION, SERVICE VALVES, AND FILTER DRIER.
- E. CONDENSER:
1. COIL: SEAMLESS COPPER TUBING WITH ALUMINUM FINS.
  2. FANS: VERTICAL DISCHARGE, DIRECT DRIVE AXIAL FANS, RESILIENTLY MOUNTED WITH GUARD AND MOTOR.
  3. MOTORS: PERMANENTLY LUBRICATED BALL BEARING MOTORS WITH BUILT-IN CURRENT AND OVERLOAD PROTECTION.
- F. CONTROLS:
1. HIGH AND LOW PRESSURE CUTOUTS FOR COMPRESSOR, OIL PRESSURE CONTROL, NON-RECYCLING PUMP-DOWN, AND RESET RELAY.
  2. TIMER CIRCUITS TO PREVENT RAPID LOADING AND UNLOADING OF COMPRESSOR.

### 1.6 REFRIGERANT PIPING

- A. COPPER TUBING: TYPE ACR HARD DRAWN, WROUGHT COPPER FITTINGS, SILVER BRAZE JOINTS.
- B. COPPER TUBING TO 7/8" OD: TYPE K, ANNEALED CAST COPPER FITTINGS, FLARED JOINTS.
- C. STEEL PIPING: ASTM A53, SCHEDULE 40, BLACK, FORGED STEEL WELDED TYPE FITTINGS, WELDED JOINTS.
- D. ALL PIPING SHALL BE SUPPORTED PER LATEST ADOPTED CODES' REQUIREMENTS

### 3.1 INSTALLATION

- A. INSTALL EQUIPMENT AND SPECIALTIES IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
- B. INSTALL PIPING TO CONSERVE BUILDING SPACE AND NOT INTERFERE WITH USE OF SPACE. ROUTE PIPING IN ORDERLY MANNER, PARALLEL TO BUILDING STRUCTURE, AND MAINTAIN GRADIENT. GROUP PIPING WHENEVER PRACTICAL AT COMMON ELEVATIONS AND LOCATIONS. SLOPE PIPING ONE PERCENT IN DIRECTION OF OIL RETURN.
- C. PROVIDE NON-CONDUCTING DIELECTRIC CONNECTIONS WHEN JOINING DISSIMILAR METALS.
- D. INSTALL PIPING TO ALLOW FOR EXPANSION AND CONTRACTION WITHOUT STRESSING PIPE, JOINTS, OR CONNECTED EQUIPMENT. PROVIDE CLEARANCE FOR INSTALLATION OF INSULATION AND ACCESS TO VALVES AND FITTINGS.
- E. INSTALL FLEXIBLE CONNECTORS PARALLEL TO COMPRESSOR SHAFT.
- F. PROVIDE FOR CONNECTION TO ELECTRICAL SERVICE. REFER TO ELECTRICAL SPECIFICATIONS/DRAWINGS.
- G. INSTALL UNITS ON RUBBER OR SHEAR ISOLATORS.
- H. CHARGE SYSTEM WITH REFRIGERANT AND PUT SYSTEM INTO OPERATION, AND TEST EQUIPMENT PERFORMANCE. PROVIDE COOLING SEASON START-UP, AND WINTER SEASON SHUT-DOWN FOR FIRST YEAR OF OPERATION.

## TEST AND BALANCE (IF REQUIRED)

### 1.1 SECTION INCLUDES

- A. TESTING AND BALANCING SERVICES FOR THE HEATING, VENTILATING, AND AIR CONDITIONING (HVAC) SYSTEMS OF THIS PROJECT.
- B. THE BALANCING AGENCY WILL HAVE A CONTRACTUAL RELATIONSHIP WITH THE GENERAL CONTRACTOR FOR THE SATISFACTORY EXECUTION OF TESTING AND BALANCING THE HVAC SYSTEMS

### 1.2 STANDARDS

- A. THE BALANCING AGENCY SHALL PERFORM THE SERVICES SPECIFIED HEREIN IN ACCORDANCE WITH THE ASSOCIATED AIR BALANCE COUNCIL'S NATIONAL STANDARDS, INCLUDING REVISIONS, TO THE DATE OF THE CONTRACT.
- B. ALL TERMS IN THIS SPECIFICATION SHALL HAVE THEIR MEANING DEFINED AS STATED IN THE NATIONAL STANDARDS.

### 1.3 QUALIFICATIONS OF THE BALANCING AGENCY

- A. THE BALANCING AGENCY SHALL BE A MEMBER OF THE ASSOCIATED AIR BALANCE COUNCIL (AABC) AND/OR CERTIFIED BY THE NATIONAL ENVIRONMENTAL BALANCING BUREAU (NEBB).
- B. TO PERFORM REQUIRED PROFESSIONAL SERVICES, THE BALANCING AGENCY SHALL HAVE A MINIMUM OF ONE "TEST AND BALANCE ENGINEER" CERTIFIED BY THE ASSOCIATED AIR BALANCE COUNCIL AND/OR THE NATIONAL ENVIRONMENTAL BALANCING BUREAU (NEBB).
- C. THIS CERTIFIED "TEST AND BALANCE ENGINEER" SHALL BE RESPONSIBLE FOR SUPERVISION AND CERTIFICATION FOR THE TOTAL WORK HEREIN SPECIFIED.
- D. THE BALANCING AGENCY SHALL SUBMIT RECORDS OF EXPERIENCE IN THE FIELD OF AIR AND HYDRONIC SYSTEM BALANCING OR ANY OTHER DATA AS REQUESTED BY THE OWNER/ENGINEER. THE SUPERVISORY PERSONNEL FOR THE FIRM SHALL HAVE AT LEAST FIVE (5) YEARS' EXPERIENCE, AND BE A FULL TIME EMPLOYEE FOR A MINIMUM OF SIX (6) MONTHS PRIOR TO THE PROJECT. ALL EMPLOYEES USED IN THIS PROJECT SHALL BE QUALIFIED TECHNICIANS IN THIS SPECIFIC FIELD.
- E. THE BALANCING AGENCY SHALL FURNISH ALL NECESSARY CALIBRATED INSTRUMENTATION TO ADEQUATELY PERFORM THE SPECIFIED SERVICES.
- F. THE BALANCING AGENCY SHALL HAVE OPERATED FOR A MINIMUM OF FIVE (5) YEARS UNDER ITS CURRENT NAME.

### 1.4 DOCUMENTS

- A. THE GENERAL CONTRACTOR WILL PROVIDE THE BALANCING AGENCY ONE COPY OF THE FOLLOWING DOCUMENTS:
1. PROJECT DRAWINGS AND SPECIFICATIONS.
  2. REVIEWED CONSTRUCTION REVISIONS PERTAINING TO THE HVAC SYSTEMS.
  3. REVIEWED SUBMITTAL DATA ON HVAC EQUIPMENT AND SYSTEMS TO BE INSTALLED BY THE MECHANICAL SUBCONTRACTOR.

### 1.5 COORDINATION

- A. IT WILL BE NECESSARY FOR THE BALANCING AGENCY TO PERFORM ITS SERVICES IN CLOSE COORDINATION WITH THE MECHANICAL SUBCONTRACTOR.
- B. THE PLANS AND SPECIFICATIONS INDICATE METERS, VALVES, DAMPERS, AND OTHER DEVICES FOR THE PURPOSE OF ADJUSTING THE SYSTEM TO OBTAIN OPTIMUM OPERATING CONDITIONS. IT WILL BE THE RESPONSIBILITY OF THE MECHANICAL SUBCONTRACTOR TO INSTALL THESE DEVICES IN A MANNER THAT WILL LEAVE THEM ACCESSIBLE, READILY ADJUSTABLE AND COMPLETE. THE BALANCING AGENCY SHALL PROVIDE GUIDANCE IF THERE IS A QUESTIONABLE ARRANGEMENT OF A CONTROL OR BALANCING DEVICE.
- C. THE GENERAL CONTRACTOR, MECHANICAL CONTRACTOR, TEMPERATURE CONTROLS SUBCONTRACTOR, AND THE SUPPLIERS OF THE HVAC EQUIPMENT SHALL ALL COOPERATE WITH THE BALANCING AGENCY TO PROVIDE ALL NECESSARY DATA ON THE DESIGN AND PROPER APPLICATION OF THE SYSTEM COMPONENTS. IN ADDITION, THEY SHALL FURNISH ALL LABOR AND MATERIALS REQUIRED TO ELIMINATE ANY SYSTEM DEFICIENCIES.

### 1.6 NOTIFICATION FOR TESTING AND BALANCING WORK TO BEGIN

- A. THE GENERAL CONTRACTOR SHALL NOTIFY THE BALANCING AGENCY IN WRITING WHEN ALL HEATING, VENTILATING, AND AIR CONDITIONING SYSTEMS ARE COMPLETE AND READY FOR TESTING AND BALANCING.
- B. IF, UPON COMMENCING THE WORK, THE BALANCING AGENCY FINDS THAT THE SYSTEMS ARE NOT READY, OR IF A DISPUTE OCCURS AS TO THE READINESS OF THE SYSTEMS, THE BALANCING AGENCY SHALL REQUEST AN INSPECTION TO BE MADE BY THE MECHANICAL ENGINEER. SUCH ITEMS THAT ARE NOT READY FOR TESTING AND BALANCING SHALL BE COMPLETED AND PLACED IN OPERATIONAL READINESS BEFORE TESTING AND BALANCING SERVICES SHALL AGAIN BE REQUESTED.

### 3.1 SERVICES

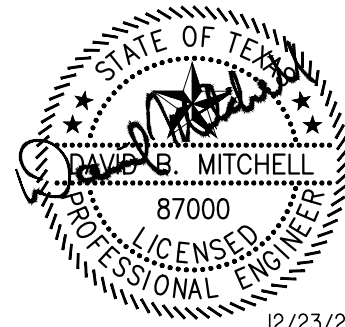
- A. DURING CONSTRUCTION, THE BALANCING AGENCY SHALL INSPECT THE INSTALLATION OF PIPE SYSTEMS, SHEET METAL WORK, TEMPERATURE CONTROLS, AND OTHER COMPONENT PARTS OF THE HEATING, VENTILATING, AND AIR CONDITIONING SYSTEMS.
- B. THE INSPECTIONS SHALL BE PERFORMED PERIODICALLY AS THE WORK PROGRESSES. A MINIMUM OF TWO INSPECTIONS ARE REQUIRED AS FOLLOWS: (1) WHEN 60 PERCENT OF THE DUCT WORK IS INSTALLED; (2) WHEN 90 PERCENT OF THE EQUIPMENT IS INSTALLED. THE BALANCING AGENCY SHALL SUBMIT A BRIEF WRITTEN REPORT OF EACH INSPECTION TO THE GENERAL CONTRACTOR AND ENGINEER.
- C. UPON COMPLETION OF THE INSTALLATION AND START-UP OF THE MECHANICAL EQUIPMENT BY THE MECHANICAL CONTRACTOR, THE BALANCING AGENCY SHALL TEST AND BALANCE THE SYSTEM COMPONENTS TO OBTAIN OPTIMUM CONDITIONS IN EACH CONDITIONED SPACE IN THE BUILDING.

### 3.2 DEFICIENCIES

- A. IN THE PROCESS OF PERFORMING THE TAB WORK, ANY DEFICIENCIES ENCOUNTERED SHALL BE BROUGHT TO THE ATTENTION OF THE CONTRACTOR RESPONSIBLE THROUGH THE GENERAL CONTRACTOR AND ENTERED IN THE FINAL LIST OF DEFICIENCIES. IF CORRECTION OF THE DEFICIENCY IS URGENT, THE MATTER SHALL BE BROUGHT TO THE ATTENTION OF ALL INVOLVED PARTIES FOR QUICK RESOLUTION. THE GENERAL CONTRACTOR SHALL PROVIDE AND COORDINATE SERVICES OF QUALIFIED RESPONSIBLE SUBCONTRACTORS, SUPPLIERS AND PERSONNEL AS REQUIRED TO CORRECT, REPAIR OR REPLACE ANY AND ALL DEFICIENT ITEMS OR CONDITIONS DURING THE TESTING, ADJUSTING AND BALANCING PERIOD.
- B. ALL DEFICIENCIES THAT PREVENT PROPER TAB WORK FROM BEING COMPLETED SHALL BE CORRECTED PRIOR TO SUBMITTAL OF THE FINAL TAB REPORT, UNLESS THE CORRECTION OF SUCH DEFICIENCIES CANNOT BE ACCOMPLISHED IN A REASONABLE PERIOD OF TIME, IN WHICH CASE THE MECHANICAL ENGINEER MAY GRANT PERMISSION TO SUBMIT THE FINAL TAB REPORT WITH THE DEFICIENCIES DETAILED IN THE REPORT.
- C. DEFICIENCIES SHALL NOT BE SUBMITTED WITH THE FINAL TAB REPORT WITHOUT SUFFICIENT EXPLANATION OR DESCRIPTION OF MECHANICAL ISSUES AND THE EFFORT TO CORRECT THESE ISSUES. IT IS THE RESPONSIBILITY OF THE TAB CONTRACTOR TO WORK WITH THE GENERAL CONTRACTOR, PROVIDING INFORMATION ONLY, TO HELP CORRECT DEFICIENCIES FOUND DURING TESTING AND BALANCING.

### 3.3 AIR SYSTEM PROCEDURES

- A. THE BALANCING AGENCY SHALL PERFORM THE FOLLOWING TESTING AND BALANCING FUNCTIONS IN ACCORDANCE WITH THE ASSOCIATED AIR BALANCE COUNCIL'S NATIONAL STANDARDS:
1. FAN SPEEDS: TEST AND ADJUST FAN RPM TO ACHIEVE DESIGN CFM REQUIREMENTS.
  2. CURRENT AND VOLTAGE: MEASURE AND RECORD MOTOR CURRENT AND VOLTAGE.
  3. PITOT-TUBE TRAVERSE: PERFORM A PITOT-TUBE TRAVERSE OF MAIN SUPPLY AND RETURN DUCTS TO OBTAIN TOTAL CFM. IF A PITOT-TUBE TRAVERSE IS NOT PRACTICAL, THE SUMMATION OF THE OUTLETS OR INLETS MAY BE USED. AN EXPLANATION WHY A TRAVERSE WAS NOT MADE MUST APPEAR ON THE APPROPRIATE DATA SHEET.
  4. OUTSIDE AIR: TEST AND ADJUST SYSTEM MINIMUM OUTSIDE AIR BY PITOT-TUBE TRAVERSERS. IF A PITOT-TUBE TRAVERSE IS NOT PRACTICAL, THE PERCENTAGE OF OUTSIDE AIR MAY BE DETERMINED BY CALCULATION FROM THE RETURN AIR, OUTSIDE AIR, AND MIXED AIR TEMPERATURES. MAKE ALLOWANCES FOR HEAT OF COMPRESSION AND MOTOR HEAT WHERE APPLICABLE.
  5. STATIC PRESSURE: TEST AND RECORD SYSTEM STATIC PRESSURES, INCLUDING SUCTION AND DISCHARGE STATIC PRESSURE OF EACH FAN.
  6. AIR TEMPERATURE: TAKE WET-BULB AND DRY-BULB AIR TEMPERATURES ON THE ENTERING AND LEAVING SIDE OF EACH COOLING COIL. DRY-BULB TEMPERATURE SHALL BE TAKEN ON THE ENTERING AND LEAVING SIDE OF EACH HEATING COIL.
  7. ZONE DUCTS: ADJUST ZONE DUCTS TO WITHIN DESIGN CFM REQUIREMENTS. AT LEAST ONE ZONE BALANCING DAMPER SHALL BE COMPLETELY OPEN.
  8. MAIN DUCTS: ADJUST MAIN DUCTS TO WITHIN DESIGN CFM REQUIREMENTS AND TRAVERSE FOR TOTAL CFM QUANTITIES.
  9. BRANCH DUCTS: ADJUST BRANCH DUCTS TO WITHIN DESIGN CFM REQUIREMENTS. MULTI-DIFFUSER BRANCH DUCTS SHALL HAVE AT LEAST ONE OUTLET OR INLET VOLUME DAMPER COMPLETELY OPEN.
  10. TOLERANCES: TEST AND BALANCE EACH DIFFUSER, GRILLE, AND REGISTER TO WITHIN 10 PERCENT OF DESIGN REQUIREMENTS.
  11. IDENTIFICATION: IDENTIFY THE LOCATION AND AREA OF EACH GRILLE, DIFFUSER, REGISTER, AND TERMINAL BOX. THIS INFORMATION SHALL BE RECORDED ON AIR OUTLET DATA SHEETS.
  12. DESCRIPTION: RECORD THE SIZE, TYPE, AND MANUFACTURER OF EACH DIFFUSER, GRILLE, AND REGISTER ON AIR OUTLET DATA SHEETS.
  14. MINIMIZING DRAFTS: ADJUST ALL DIFFUSERS, GRILLES, AND REGISTERS TO MINIMIZE DRAFTS IN ALL AREAS.



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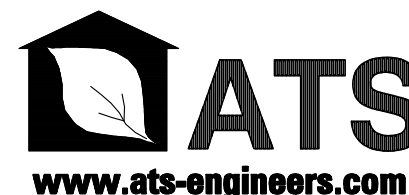
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**Engineers  
Inspectors  
& Surveyors**

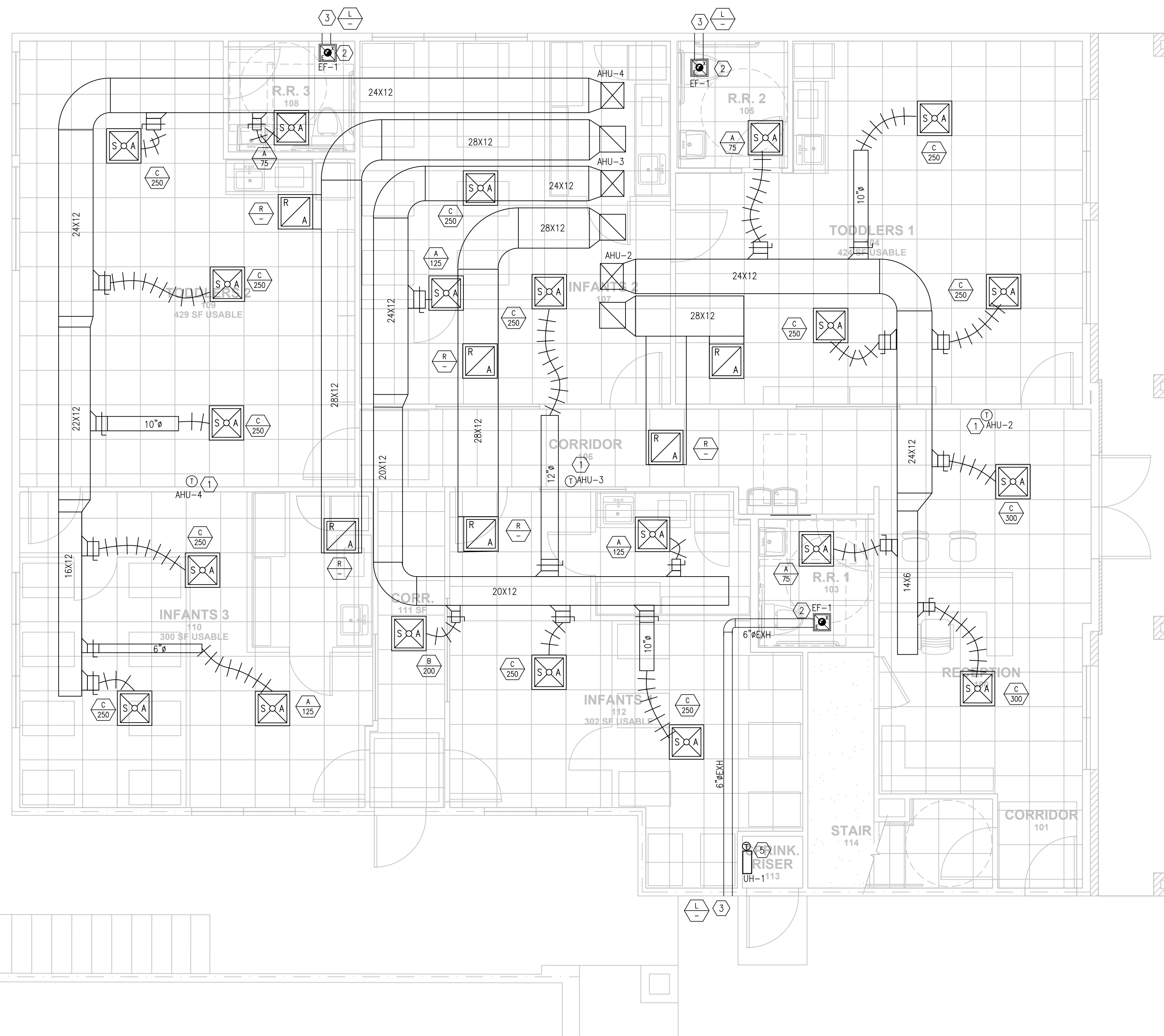
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ATS Project # 210106

**M001**

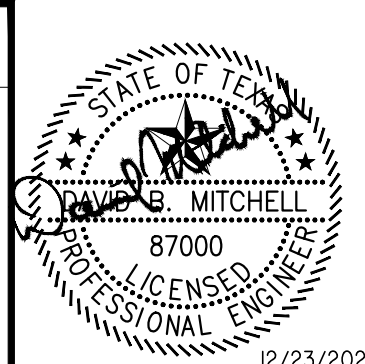
**1 MECHANICAL PLAN - FIRST LEVEL**

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



**PLAN SPECIAL NOTE**

- GENERAL NOTES:
  - REFER TO SHEET M601 FOR NOTES AND SYMBOLS THAT SHALL BE APPLY TO ALL SHEETS IN THIS SET OF DRAWINGS.
  - REFER TO SHEET M601 FOR CLEARANCE REQUIREMENTS BETWEEN OUTSIDE AIR INTAKES, OPENINGS TO PLUMBING VENT OUTLET, EXHAUST AIR OUTLETS, KITCHEN HOOD DUCT OUTLETS, DRYER VENT OUTLETS, GAS EQUIPMENT FLUES.



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**PLAN KEYED NOTES**

- 7-DAY PROGRAMMABLE THERMOSTAT SHALL BE MOUNTED ON WALL AT 48" A.F.F. CONFIRM EXACT LOCATION WITH ARCHITECT AND OWNER PRIOR TO ROUGH-IN.
- EXHAUST FAN SHALL BE SUSPENDED FROM STRUCTURAL MEMBER WITH VIBRATION ISOLATOR.
- ROUTE EXHAUST DUCT TO WALL LOUVER WITH BIRDSCREEN AND FLASHING.
- FIRE RATED FLOOR PENETRATIONS: PER UL L546, PENETRATIONS OF THE 1-HR RATED FLOOR MUST INCLUDE A FIRE DAMPER DAMPER, GREENHECK MODEL CRD-2 OR APPROVED EQUIVALENT.
- PROVIDE AND INSTALL AN ELECTRIC, WALL MOUNTED UNIT HEATER, REZOR MODEL EGV OR APPROVED EQUIVALENT, 3KW, WALL MOUNTED, ON WALL OF RISER ROOM. COORDINATE EXACT LOCATION WITH FIRE SPRINKLER CONTRACTOR PRIOR TO ROUGH-IN. HEATER SHALL INCLUDE INTEGRAL THERMOSTAT. COORDINATE WITH ELECTRICAL CONTRACTOR FOR ELECTRICAL REQUIREMENTS.

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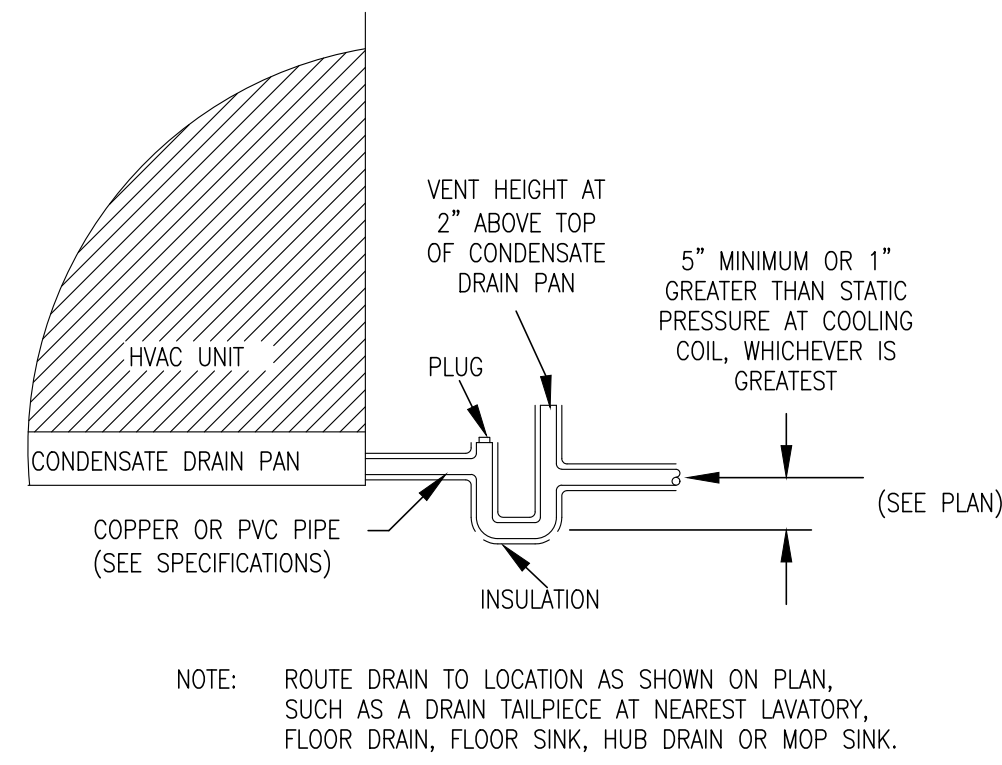
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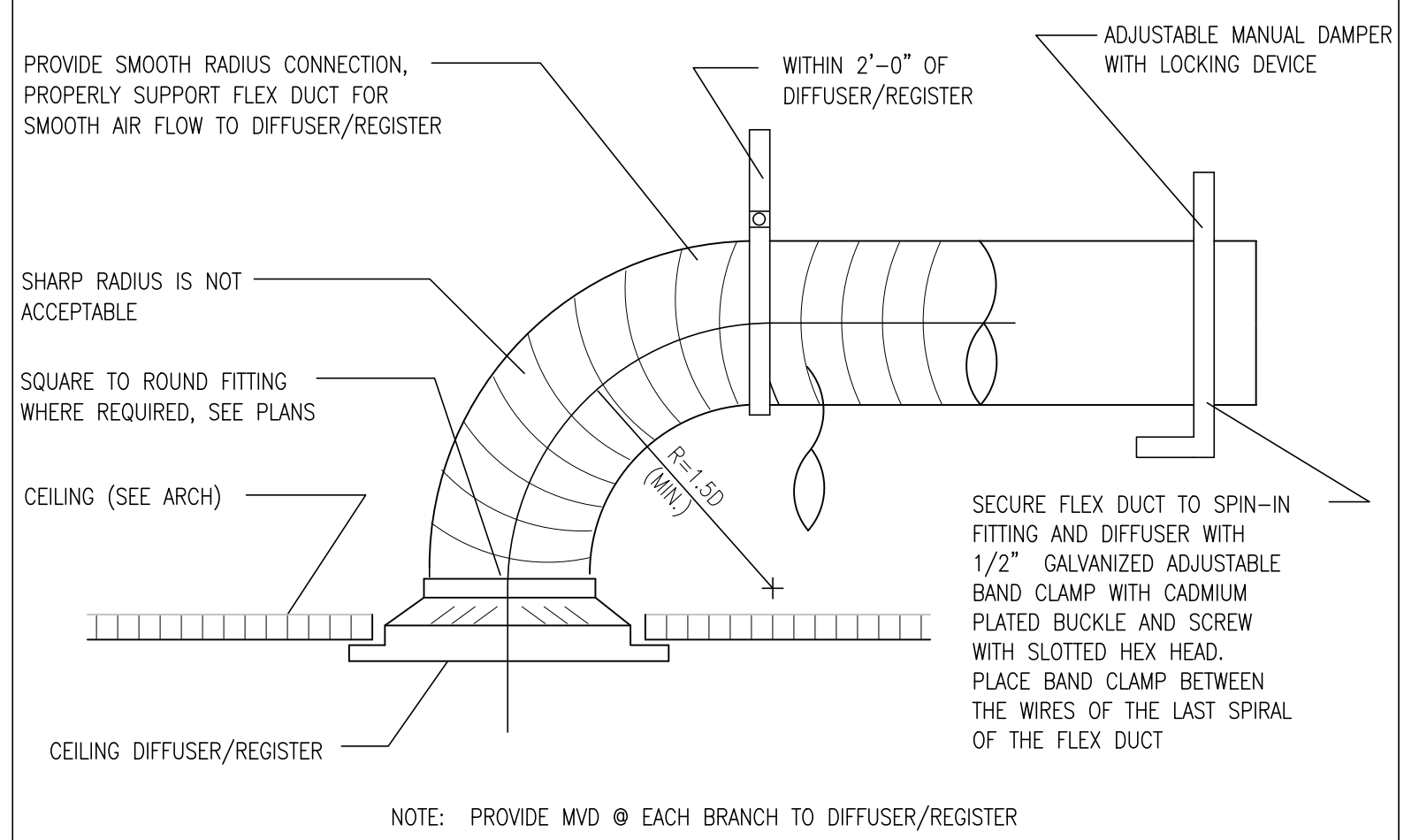
**M101**





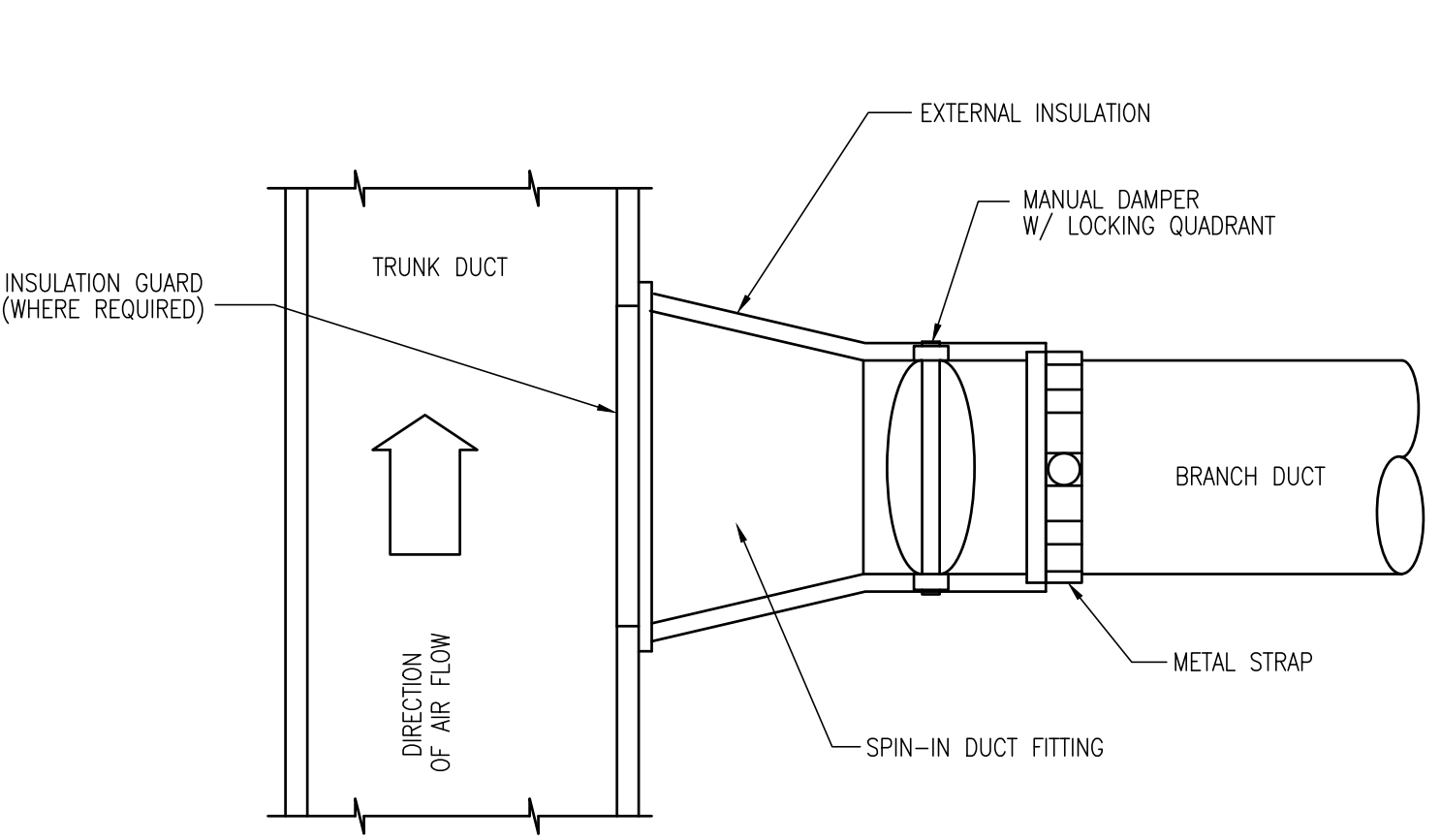
NOTE: ROUTE DRAIN TO LOCATION AS SHOWN ON PLAN, SUCH AS A DRAIN TAILPIECE AT NEAREST LAVATORY, FLOOR DRAIN, FLOOR SINK, HUB DRAIN OR MOP SINK.

**1 CONDENSATE DRAIN**  
NOT TO SCALE

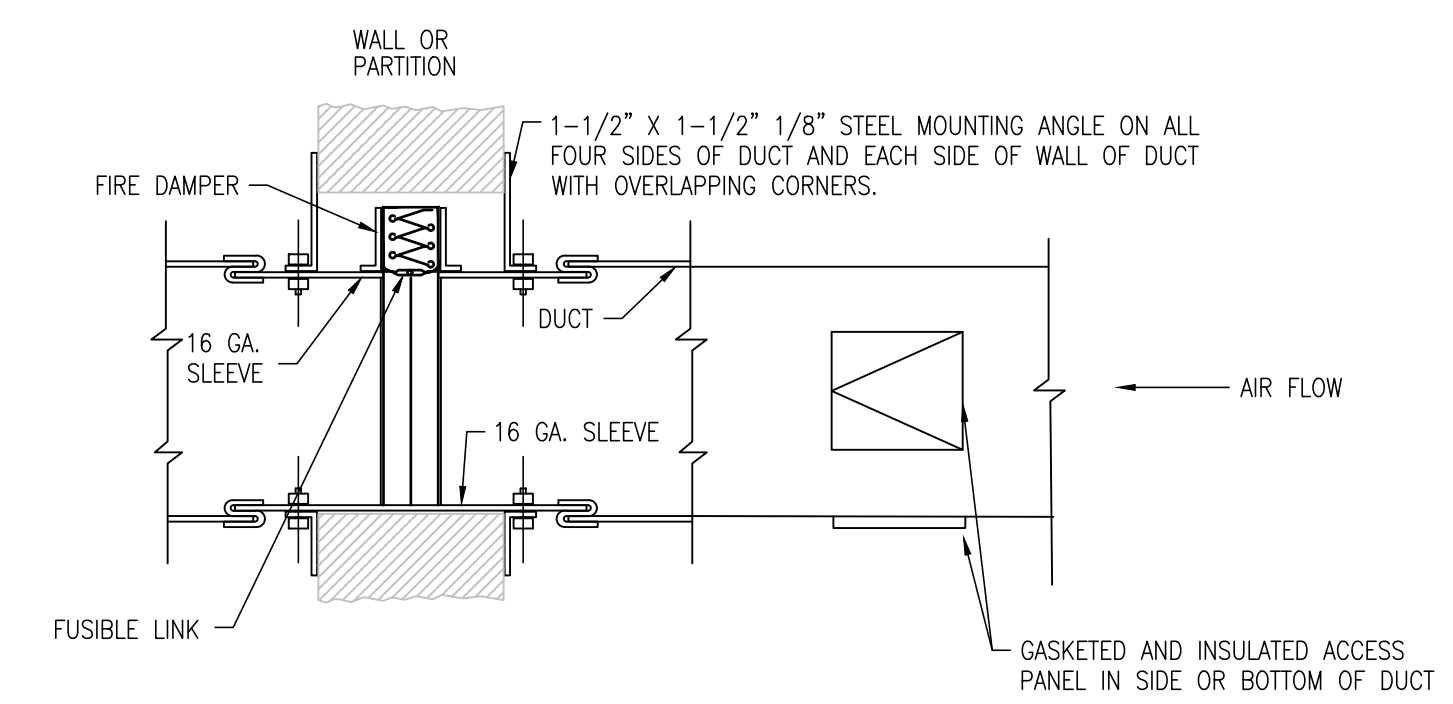


NOTE: PROVIDE MVD @ EACH BRANCH TO DIFFUSER/REGISTER

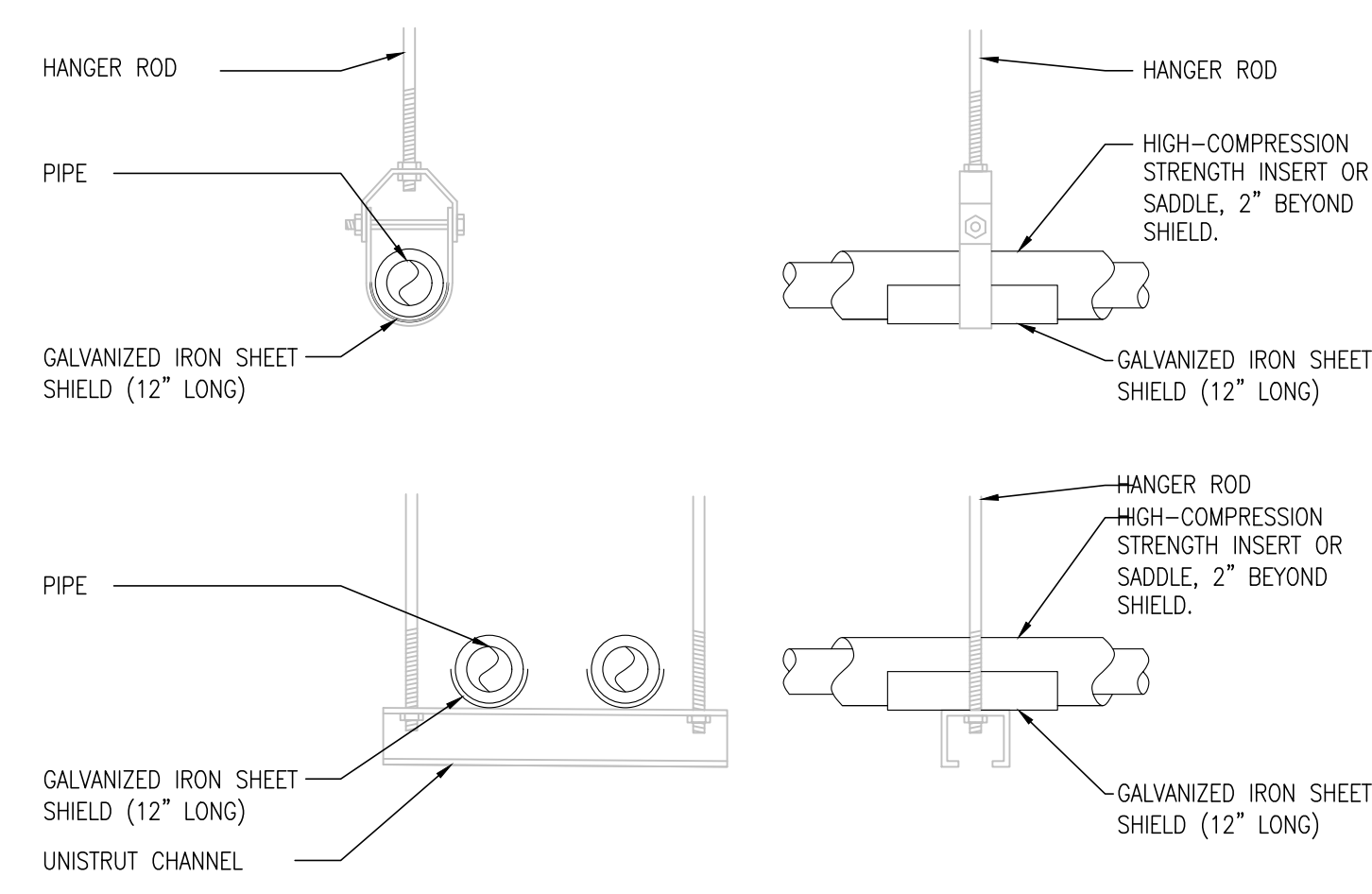
**2 CEILING AIR GRILLE MOUNTING**  
NOT TO SCALE



**3 BRANCH DUCT**  
NOT TO SCALE

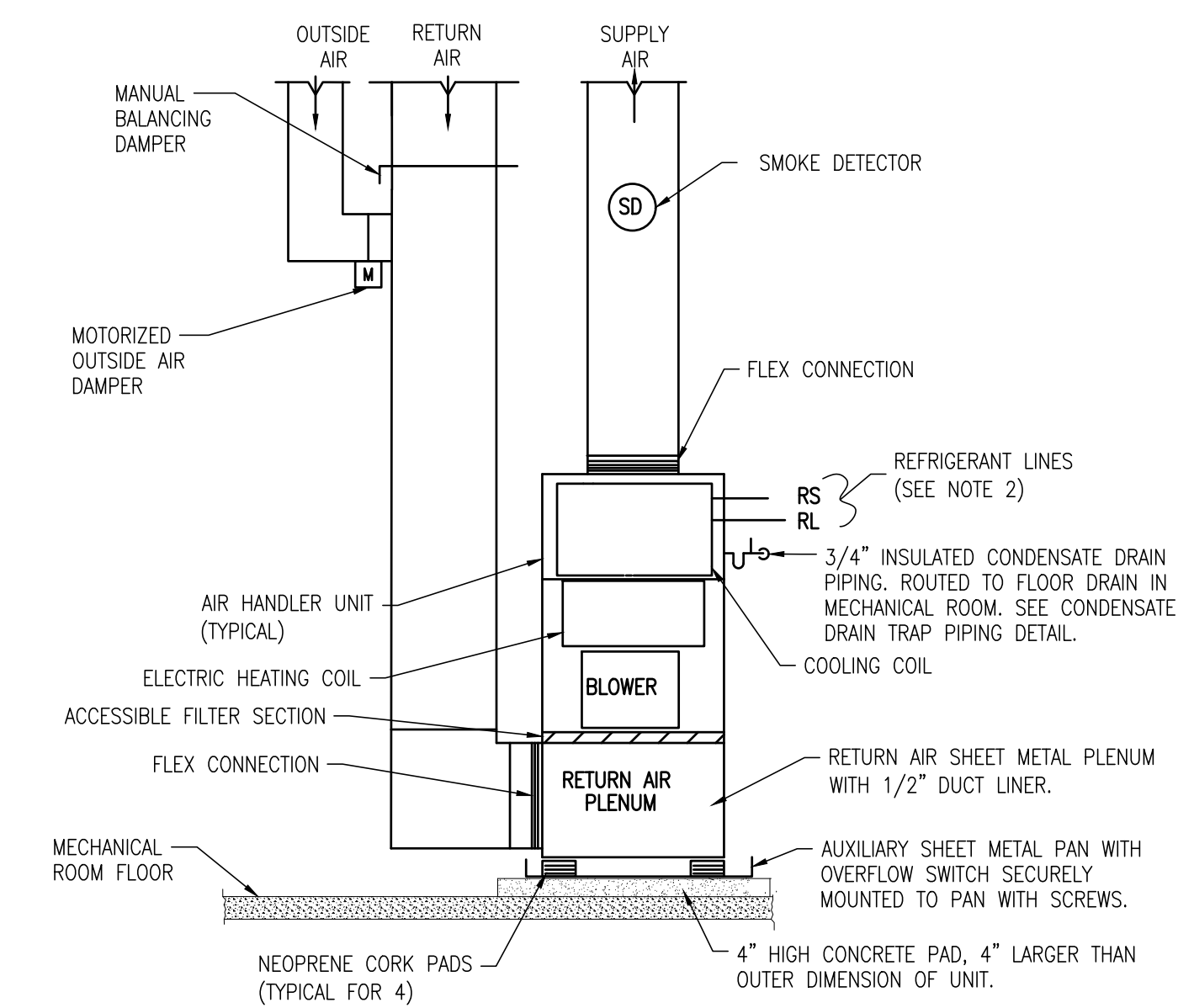


**4 FIRE DAMPER**  
NOT TO SCALE



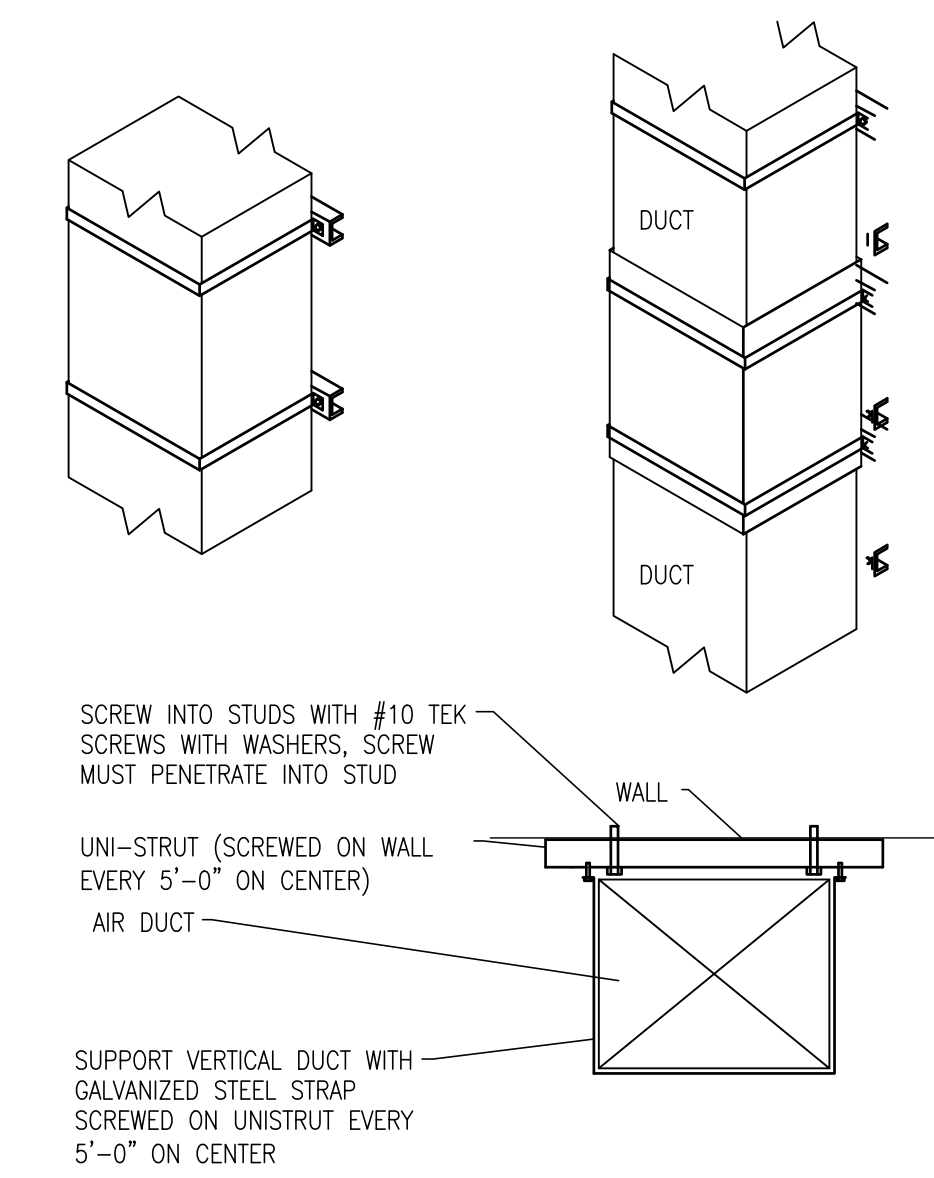
NOTE:  
1. ATTACH SUPPORTS FOR ALL PIPING SUSPENDED FROM THE STEEL STRUCTURE TO THE TOP CORD OF JOISTS OR BEAM.  
2. PROVIDE COPPER OR PLASTIC COATED HANGERS FOR NON-INSULATED COPPER PIPE.

**5 PIPE HANGING**  
NOT TO SCALE

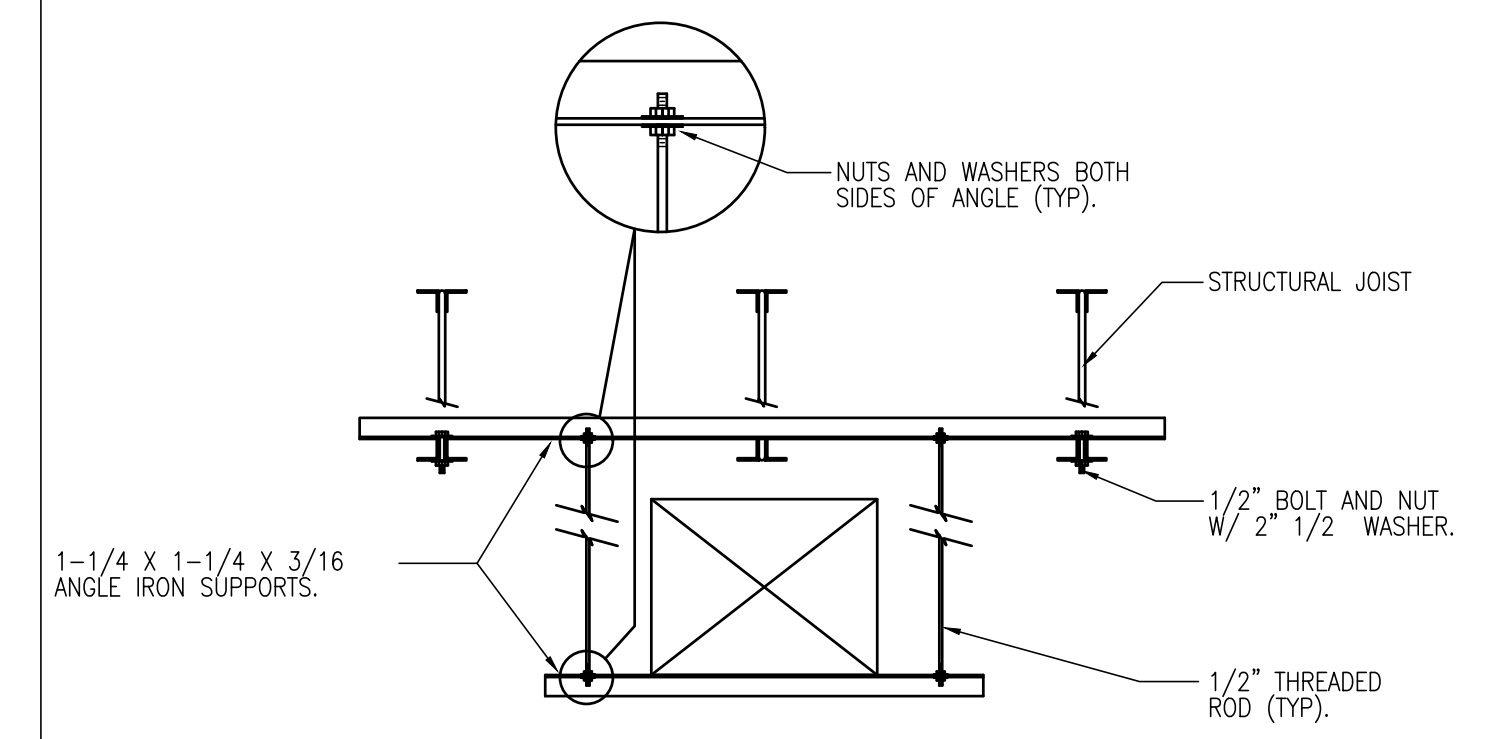


NOTES:  
1. SEE MECHANICAL PLANS FOR SIZES AND ROUTINGS OF SUPPLY AIR, RETURN AIR, AND OUTSIDE AIR.  
2. REFRIGERANT PIPE SIZE AND ROUTING AS PER MANUFACTURING RECOMMENDATION.

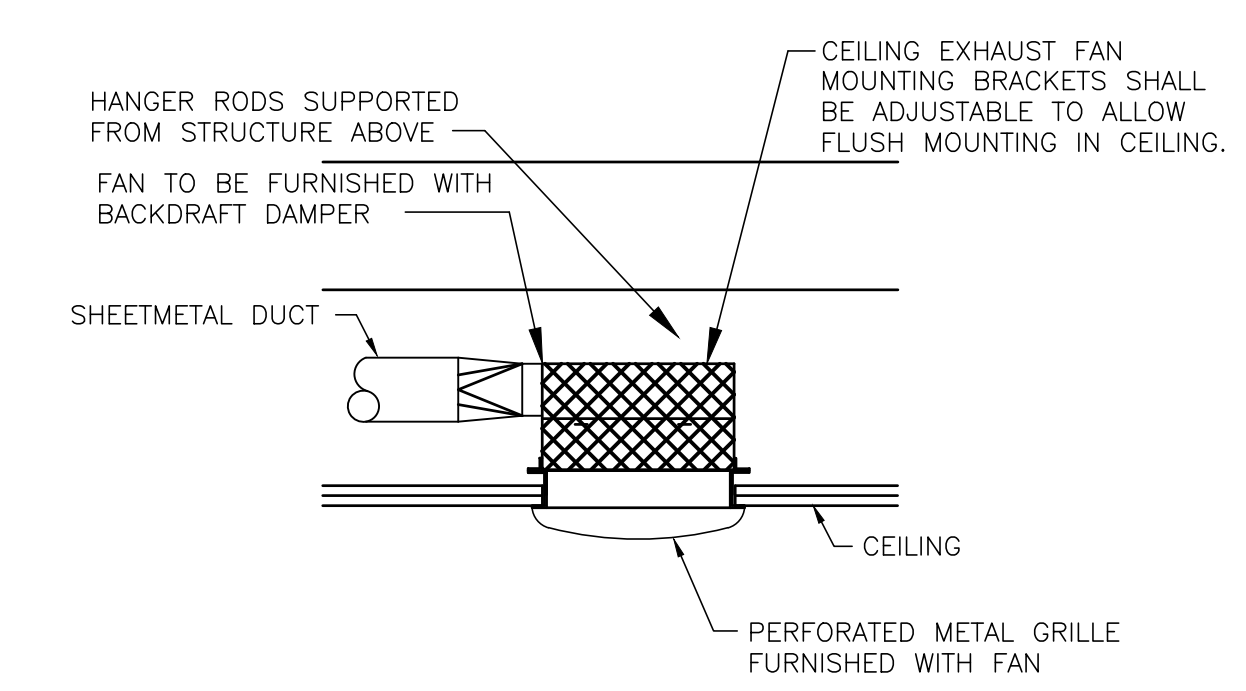
**6 VERTICAL AIR HANDLER UNIT**  
NOT TO SCALE



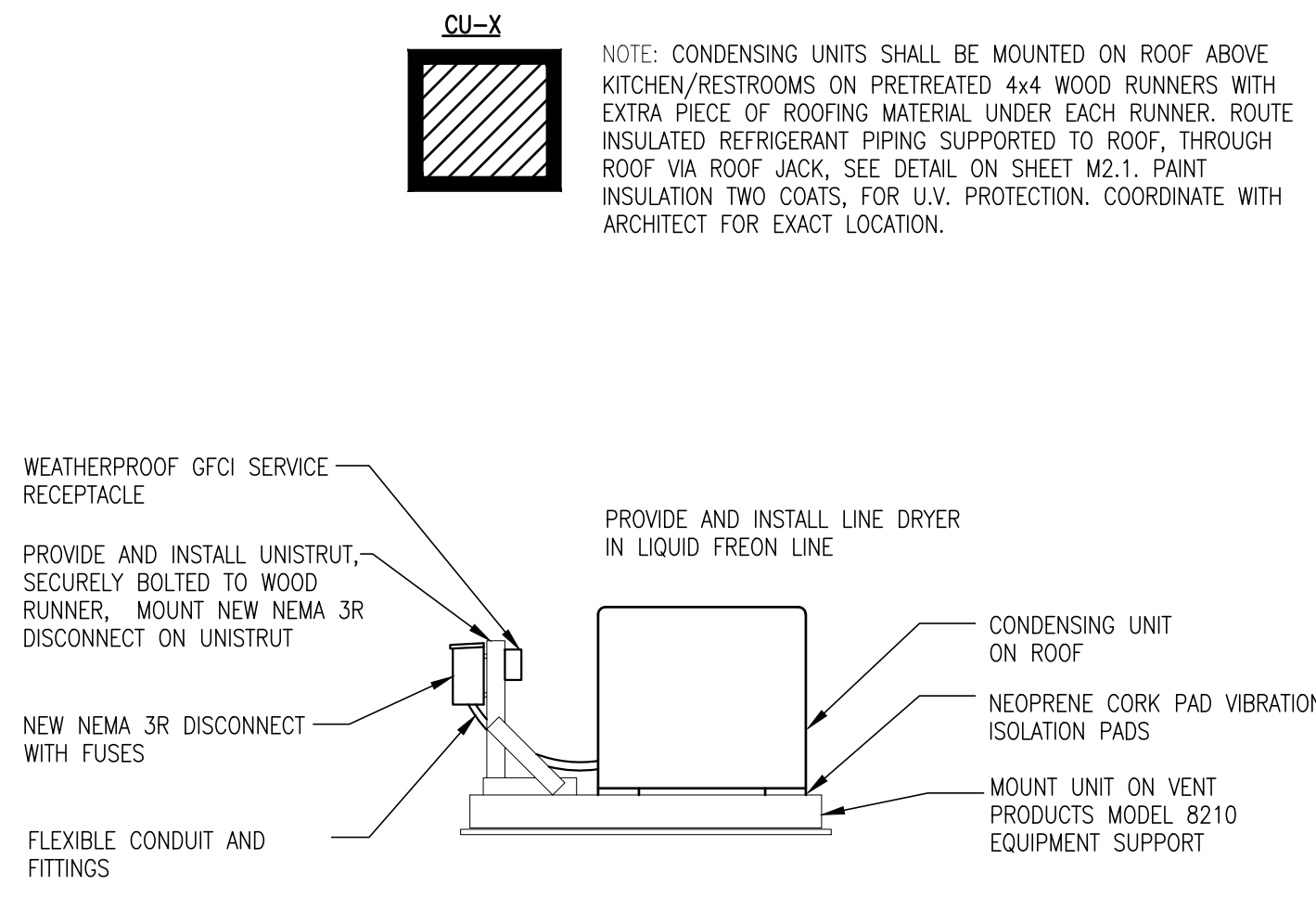
**7 DUCT MOUNTING**  
NOT TO SCALE



**8 DUCT HANGING**  
NOT TO SCALE

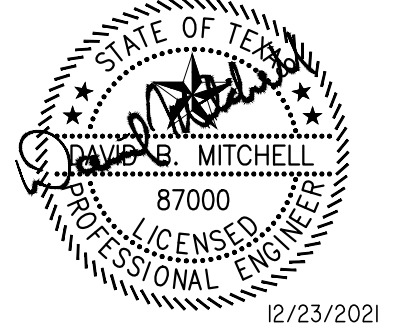


**9 CEILING EXHAUST FAN**  
NOT TO SCALE



NOTES:  
1) PAINT PIPING INSULATION WITH 2 COATS, PER INSULATION MANUFACTURER'S REQUIREMENT AND INSTRUCTIONS.  
2) PROVIDE AND INSTALL LINE DRYER IN LIQUID FREON LINE

**10 CONDENSING UNIT ON ROOF**  
NOT TO SCALE



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Description:	100MCCD

**M501**



## MECHANICAL GENERAL NOTES

- CODES AND ORDINANCES: PERFORM ALL WORK IN ACCORDANCE WITH ALL STATE AND LOCAL CODES AND ORDINANCES, INCLUDING THE LATEST ADOPTED TEXAS ACCESSIBILITY STANDARDS (TAS), THE CURRENT EDITION OF NFPA, THE LATEST ADOPTED ENERGY CODE, THE LATEST ADOPTED BUILDING CODE, LATEST ADOPTED MECHANICAL CODE, LATEST ADOPTED PLUMBING CODE, AND ALL CURRENT SUPPLEMENTS THERETO, AND ANY OTHER AUTHORITIES HAVING JURISDICTION OVER THE WORK.
- CONTRACTOR SHALL PROVIDE PRODUCT DATA SUBMITTALS ON ALL MAJOR EQUIPMENT FOR ENGINEER'S AND OWNER'S REVIEW AND ACCEPTANCE PRIOR TO INSTALLATION.
- CONTRACTOR SHALL SUBMIT COPIES OF HVAC TEST-ADJUST-BALANCE REPORTS TO THE ARCHITECT/ENGINEER FOR REVIEW.
- CONTRACTOR SHALL SUBMIT "AS-BUILT" RECORD DRAWINGS INDICATING ACTUAL AS-BUILT CONDITIONS TO THE ARCHITECT/ENGINEER FOR REVIEW. RECORD DRAWINGS SHALL BE STAMPED "AS-BUILT" AND SHALL HAVE THE NAME, ADDRESS AND TELEPHONE NUMBER OF THE CONTRACTOR. ALL SEALS SHALL BE REMOVED FROM THE DRAWINGS. PROVIDE ONE BLUELINE AND ONE PAPER SEPA. CONTRACTOR SHALL SUBMIT ONE COPY OF OWNERS MAINTENANCE MANUALS.
- THE MANUALS SHALL INCLUDE RATINGS, CAPACITIES, PARTS LISTS, WIRING DIAGRAMS, SERVICE/MAINTENANCE RECOMMENDATIONS AND WARRANTIES.
- CONTRACTOR SHALL SUBMIT WRITTEN RESPONSE TO ALL FIELD REPORTS INDICATING CORRECTIVE ACTIONS TAKEN AND DATE CORRECTIVE ACTION WAS TAKEN TO THE ARCHITECT/ENGINEER FOR REVIEW.
- IT IS THE INTENT OF THE CONTRACT DOCUMENTS TO PROVIDE AN INSTALLATION COMPLETE IN EVERY RESPECT. WORK SHALL BE EXECUTED IN A WORKMANLIKE MANNER AND SHALL INCLUDE ALL LABOR AND MATERIALS ESSENTIAL TO PROVIDE A COMPLETE FUNCTIONING MECHANICAL SYSTEM AS DESCRIBED IN THE CONTRACT DOCUMENTS. IN THE EVENT THAT ADDITIONAL DETAILS OR SPECIAL CONSTRUCTION IS REQUIRED FOR WORK INDICATED, IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO PROVIDE THE SAME AS WELL AS TO PROVIDE MATERIAL AND EQUIPMENT USUALLY FURNISHED WITH SUCH SYSTEMS OR REQUIRED TO COMPLETE THE INSTALLATION, WHETHER MENTIONED OR NOT, AT NO ADDITIONAL EXPENSE TO THE OWNER.
- ANY AND ALL DEVIATIONS TO THE INTENDED DESIGN OR THIS SCOPE OF WORK MUST BE APPROVED IN WRITING BY THE PROJECT ENGINEER PRIOR TO COMMENCING WORK. FAILURE TO DO SO WILL RESULT IN THE WORK TO BE REMOVED AT NO COST TO THE OWNER.
- ALL SUBCONTRACTORS SHALL COORDINATE THE WORK SHOWN ON THESE DRAWINGS WITH ALL OTHER TRADES. COOPERATION WITH OTHER TRADES IS ESSENTIAL. THE MECHANICAL SUB-CONTRACTOR IS RESPONSIBLE TO FURNISH AND INSTALL ALL ITEMS INDICATED ON THE MECHANICAL DRAWINGS, UNLESS SPECIFICALLY NOTED AS BEING FURNISHED AND/OR INSTALLED BY OTHERS.
- THE DRAWINGS ARE DIAGRAMMATIC ONLY AND DO NOT GIVE FULLY DIMENSIONED LOCATIONS OF VARIOUS ELEMENTS OF WORK. DETERMINE EXACT LOCATIONS FROM FIELD MEASUREMENTS. MAKING ADJUSTMENTS TO FIELD CONDITIONS IS CONSIDERED A PART OF THE WORK REQUIRED.
- WALL MOUNTED ROOM TEMPERATURE SENSORS SHALL BE LOCATED 48 INCHES A.F.F. CENTERED ADJACENT TO THE LIGHT SWITCHES WHERE BOTH OCCUR IN THE SAME LOCATION.
- LOCATION OF AIR DEVICES SHALL BE COORDINATED W/ARCHITECTURAL REFLECTED CEILING PLANS. THE FINAL LOCATIONS OF AIR DEVICES SHALL BE DETERMINED BY THE ARCHITECT. NO CHANGES TO AIR DEVICE LOCATIONS SHALL BE MADE WITHOUT PRIOR APPROVAL OF THE ARCHITECT AND ENGINEER. SPRAY PAINT INTERIOR OF DUCTWORK BEHIND OR ABOVE AIR DEVICES TO 12" INSIDE DUCTWORK OPENING WITH FLAT BLACK PAINT TO RENDER DUCT INTERIOR INVISIBLE. LOCATE LOUVERED RETURN GRILLES SUCH THAT VISION INTO DUCT INTERIOR IS RESTRICTED.
- DUCTWORK, PIPING, CONDUIT, CABLING, ETC. SHOWN ON DRAWINGS SHALL BE COORDINATED WITH AIR DISTRIBUTION DEVICES, SPECIAL CEILING, FLOOR AND STRUCTURE CONSTRUCTION, ETC. PROVIDE ADDITIONAL RISERS AND DROPS TO THOSE INDICATED ON THE DRAWINGS AS REQUIRED TO COORDINATE WITH ARCHITECTURAL, STRUCTURAL OR MEP ELEMENTS SHOWN ON THE CONTRACT DOCUMENTS.
- TEMPERATURE CONTROLS: CONTRACTOR SHALL PROVIDE ALL NECESSARY COMPONENTS FOR A FULLY FUNCTIONAL SYSTEM.
- DUCTWORK RUN-OUTS TO AIR DEVICES SHALL BE RIGID DUCTS. FLEXIBLE DUCT MAY BE UTILIZED FOR THE LAST 60-INCHES OF THE RUN-OUT.
- SEAL ALL LONGITUDINAL AND TRANSVERSE SEAMS IN ALL DUCTWORK WITH A NON-HARDENING MASTIC DUCT SEALER RATED FOR SYSTEM OPERATING PRESSURES AND TEMPERATURES. SEALANT SHALL BE EQUAL TO HARDCAST "IRON GRIP" WATER BASED SEALANT #601.
- ALL SUPPLY DUCTWORK SHALL BE SHEET METAL WITH EXTERNAL WRAP INSULATION (SEE SPECIFICATIONS), COMPLYING WITH MECH. STANDARDS, SIZED, CONSTRUCTED & INSTALLED IN ACCORDANCE WITH THE LATEST VERSION OF SMACNA STANDARDS. DUCT SIZES INDICATED ON THE DRAWINGS ARE INSIDE CLEAR DIMENSIONS IN INCHES. WITHIN INSULATED CEILING INSULATION SHALL BE R-6 & NON-INSULATED CEILING PLENUMS TO BE R-8 FIBERBOARD. ON DUCTS OVER 18-INCHES WIDE APPLY WELDCIPS OR STICKCLIPS TO BOTTOM OF DUCT SPACED 18-INCHES ON CENTER EACH WAY MAXIMUM. SEAL ALL LONGITUDINAL AND TRANSVERSE SEAMS AND ALL PUNCTURES CAUSED BY WELDCIPS WITH 2-INCH WIDE SMACNA LABELED DUCT TAPE AND MASTIC. WHERE NOTED, USE 1" INTERNAL INSULATION.
- ALL FLEXIBLE DUCT USED (MAX 5 FT LENGTH) WITHIN INSULATED CEILING PLENUMS TO BE MIN. R-8 INSULATION VALUE. ALL FLEXIBLE DUCT USED WITHIN NON-INSULATED PLENUMS OR IN ATTIC SPACES SHALL BE MINIMUM OF R-8 INSULATION VALUE. FLEX DUCT SHALL BE FACTORY FABRICATED ASSEMBLY CONSISTING OF A ZINC-COATED SPRING STEEL OR SPIRAL ALUMINUM HELIX, SEAMLESS INNER LINER SHALL BE OPE FILM MECHANICALLY LOCKED TO HELIX WITHOUT ADHESIVES. INSULATION SHALL BE FACTORY WRAPPED FIBERGLASS BLANKET, VAPOR BARRIER SHALL BE FIRE RETARDANT REINFORCED ALUMINUM MATERIAL. FLEX DUCT SHALL BE RATED FOR 4000 FPM VELOCITY, 6-INCH W.G. POSITIVE WORKING PRESSURE, 1-INCH NEGATIVE WORKING PRESSURE. FLEX DUCT SHALL BE UL CLASS I DUCT WITH FLAME SPREAD OF NOT OVER 25 AND A SMOKE DEVELOPED RATE OF NOT OVER 50. ALL JOINTS AND CONNECTIONS OF FLEXIBLE DUCT SHALL BE MADE BY INSTALLING "PANDUIT" STRAPS ON INNER JACKET, SEALING OUTER JACKET WITH 2-WRAPPS OF SMACNA APPROVED DUCT TAPE, AND INSTALLING AN ADDITIONAL "PANDUIT" STRAP OVER DUCT TAPE.
- PROVIDE TURNING VANES AT ALL SQUARE ELBOWS. REFER TO DETAIL FOR INSTALLATION REQUIREMENTS.
- ALL BRANCH TAPS SHALL BE PROVIDED WITH MANUAL VOLUME DAMPER WITH LOCKING QUADRANT.
- PROVIDE AND INSTALL DUCT ACCESS DOORS AT ALL COMBINATION FIRE/SMOKE, AUTOMATIC AND MANUAL (EXCEPT SPIN-IN) DAMPER LOCATIONS. SCORE END OF DAMPER SHAFTS TO INDICATE OPEN/CLOSED POSITION.
- ALL PENETRATIONS THROUGH FIRE-RATED CONSTRUCTION SHALL BE SEALED WITH UL 1479 LISTED THROUGH-PENETRATION FIRESTOP SYSTEMS.
- FURNISH AND PERMANENTLY INSTALL ENGRAVED PLASTIC NAMEPLATES ON NEW EQUIPMENT INDICATING EQUIPMENT IDENTIFICATION SHOWN ON THE DRAWINGS. INDICATE ELECTRIC PANEL AND CIRCUIT BREAKER NUMBER IDENTIFICATION ON NAMEPLATE IN SMALLER LETTERS IN PARENTHESIS.
- THE CONTRACTOR SHALL BALANCE THE AIR SYSTEMS TO THE QUANTITIES SHOWN ON THE DRAWINGS USING A FLOW HOOD. FURNISH A TEST AND BALANCE REPORT TO THE ENGINEER FOR REVIEW AND APPROVAL.
- CONDENSATE DRAIN PIPING SHALL BE PVC. (OR APPROVED ALT) INSULATE WITH 1/2" THICKNESS "AP ARMAFLEX" OR RUBATEX R-180-FS S5/S0 RATED FLEXIBLE ELASTOMER PIPE INSULATION.
- CONTRACTOR SHALL APPLY ADHESIVE PLASTIC PIPE MARKERS WITH MINIMUM INFORMATION INDICATING FLOW DIRECTION ARROW AND FLUID IN PIPE. INSTALL IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. APPLY ON NEW AND EXISTING PIPING AT 20 FT. INTERVALS AND AT EACH CHANGE IN DIRECTION.
- FURNISH AND INSTALL VIBRATION ISOLATION DEVICES PROPERLY SIZED FOR ALL RECIPROCATING EQUIPMENT.
- INTERNATIONAL ENERGY EFFICIENCY CODE 2015 SECT. 403.3.1 AIR ECONOMIZER TO BE INSTALLED FOR HVAC UNITS WITH CAPACITY EQUAL TO OR LARGER THAN 54,000 BTUH
- CONDENSATE DRAIN:
  - PROVIDE SUPPORTS (ON ROOF OR SUSPENDED FROM STRUCTURAL MEMBER) FOR COPPER HVAC CONDENSATE DRAIN LINES.
  - ROUTE CONDENSATE LINES WITH MINIMUM SLOPE 1/8" PER FT TO APPROVED DISCHARGE LOCATION.
  - INSULATE LINES AS PER CODE WHEN ROUTED INSIDE THE BUILDING. (PREVENT CONDENSATE FORMING)
- ROOF PENETRATION / LOCATION:
  - MAINTAIN MINIMUM OF 10 FT. CLEARANCE BETWEEN EXHAUST DISCHARGE/P-VENT & HVAC FRESH-AIR INTAKE.
  - NO ROOFING EQUIPMENT WITHIN 5 FT OF DEMISING WALLS.
  - COORDINATE ALL NEW ROOFING PENETRATIONS W/ LANDLORD. (OWNER'S EXPENSE)
- RETURN OR OUTSIDE AIR:
  - OUTSIDE OR RETURN AIR SHALL NOT BE TAKEN FROM THE FOLLOWING LOCATIONS:
    - CLOSER THAN 10 FT. FROM AN APPLIANCE VENT OUTLET, A VENT OPENING FROM A PLUMBING DRAINAGE SYSTEM OR THE DISCHARGE OF AN EXHAUST FAN, UNLESS THE OUTLET IS MINIMUM OF 3 FT. ABOVE THE AIR INLET.
    - WHERE THERE IS A PRESENCE OF OBJECTIONABLE ODORS, FUMES OR FLAMMABLE VAPORS; OR WHERE LOCATED LESS THAN 10 FT. ABOVE THE SURFACE OF ANY ABUTTING PUBLIC WAY OR DRIVEWAY; OR WHERE LOCATED AT GRADE LEVEL BY A SIDEWALK, STREET, ALLEY OR DRIVEWAY.
  - EXHAUST DISCHARGE:
    - COORDINATE ALL ROOF PENETRATIONS & LOCATIONS WITH LANDLORD'S ROOFING CONTRACTOR PRIOR TO STARTING WORK.
    - PROVIDE CODE APPROVED LISTED ROOF CAPS, MAINTAIN MIN. OF 10 FT. CLEARANCE BETWEEN EXHAUST DISCHARGE & HVAC FRESH-AIR INTAKE.
    - ENVIRONMENTAL EXHAUST DUCTS SHALL DISCHARGE AT LEAST (3) THREE FEET. FROM OPENINGS INTO THE BUILDING.
    - EXHAUST DISCHARGE SHALL NOT TERMINATE UNDERNEATH ANY COVERED AREAS OF THE BUILDING, WALKWAYS, CORRIDORS, PATIOS, BREEZEWAYS, ETC. OR WITHIN 5 FEET OF UNIT SEPARATION WALLS.
    - MOISTURE EXHAUST DUCTS SHALL BE OF METAL & SHALL HAVE A SMOOTH INTERIOR SURFACE.
- REFRIGERANT PIPE NOTES:
  - ROUTE REFRIGERANT PIPING UP THROUGH WALL TO UNITS. REFRIGERANT PIPING SHALL BE TYPE L HARD DRAWN "ACR" TUBING THAT HAS BEEN CLEANED AND CAPPED FOR REFRIGERATION SERVICE. FITTINGS TO BE WROUGHT COPPER INSTALLED WITH HARRIS 15% SULPHOS SOLDER JOINTS. PIPE ENDS AND FITTINGS SHALL BE CAREFULLY CLEANED PRIOR TO JOINING. ADD SHALL NOT BE USED IN CLEANING OR AS A FLUX. BLEED NITROGEN THROUGH ALL PIPING WHILE SOLDERING. PIPE SIZES TO BE AS RECOMMENDED BY THE CONDENSING UNIT MANUFACTURER. SHOP DRAWINGS SHOWING ALL TRAPS, PIPE SIZES, LINE SIZING CALCULATIONS, AND ACCESSORIES SHALL BE SIGNED BY A REPRESENTATIVE OF THE CONDENSING UNIT MANUFACTURER, INDICATING THEIR APPROVAL. SHOP DRAWINGS SHALL BE SUBMITTED TO THE ARCHITECT AND ENGINEER FOR REVIEW AND APPROVAL PRIOR TO ORDERING EQUIPMENT. PROVIDE REPLACEABLE CORE TYPE LIQUID LINE FILTER DRYER SIZED FOR SYSTEM CAPACITY (2 PSI DROP PER ARI 710), SIGHT GLASS MOISTURE INDICATOR, THERMAL EXPANSION VALVE WITH ADJUSTABLE SUPERHEAT, REFRIGERANT SHUT-OFF, RELIEF AND SOLENOID VALVES AS REQUIRED. SLOPE ALL SUCTION LINES AND PROVIDE SUCTION LINE TRAPS TO FACILITATE OIL RETURN TO COMPRESSOR. ALL PIPING SHALL BE INSTALLED IN STRICT ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
  - REFRIGERANT PIPING SHALL BE TESTED WITH DRY NITROGEN AT 250 PSI FOR 24 HOURS. ISOLATE EXPANSION VALVES AND OTHER DEVICES THAT WOULD BE DAMAGED BY THIS HIGH PRESSURE. TEST ALL JOINTS WITH A SOAP SOLUTION. AFTER THE INITIAL PRESSURE TEST HAS BEEN COMPLETED, INTRODUCE A MIXTURE OF REFRIGERANT AND NITROGEN AT 150 PSI AND TEST ALL JOINTS USING A HALIDE TORCH. FOLLOWING THE SATISFACTORY COMPLETION OF ALL TESTS, EVACUATE THE SYSTEM WITH A VACUUM PUMP CONNECTED TO THE LIQUID LINE. AFTER 20-INCHES OF VACUUM IS OBTAINED, CLOSE SUCTION AND DISCHARGE VALVES AT THE COMPRESSOR AND CONTINUE EVACUATION FOR 24 HOURS. AFTER DEHYDRATION IS COMPLETE, INTRODUCE PROPER REFRIGERANT.
  - INSULATE EXTERIOR SUCTION REFRIGERANT PIPING, INTERIOR SUCTION REFRIGERANT PIPING, AND ALL CONDENSATE PIPING WITH 1" THICK "AP ARMAFLEX" OR RUBATEX R-180-FS 25/50 RATED FLEXIBLE ELASTOMER PIPE INSULATION. PROVIDE ALUMINUM JACKET WHEN EXPOSED TO OUTSIDE.
  - REFER TO LATEST ADOPTED MECHANICAL CODE "REFRIGERANT PIPING". REFER TO FACTORY BUILT REFRIGERANT EQUIPMENT.
  - LOCKING ACCESS PORT CAPS: ALL REFRIGERANT CIRCUIT SERVICE PORTS LOCATED ON THE EXTERIOR OF THE BUILDING SHALL BE PROVIDED WITH LOCKING-TYPE TAMPER-RESISTANT ACCESS PORT CAPS.

## MECHANICAL LEGEND

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	THERMOSTAT		SIDEWALL GRILLE		POINT OF CONNECTION		REFRIGERANT SUCTION
	DEVICE TAG & CFM REFER TO AIR DEVICE SCHEDULE FOR GRILLE & NECK SIZE		CEILING LINEAR SLOT DIFFUSER		BACK DRAFT DAMPER		REFRIGERANT LIQUID
	CEILING RETURN GRILLE		SUPPLY DUCTWORK		AUTOMATIC DAMPER		CONDENSATE DRAIN
	CEILING SUPPLY GRILLE		RETURN DUCTWORK		MOTORIZED DAMPER		HUMIDITY SENSOR
	CEILING EXHAUST		OUTSIDE AIR DUCTWORK		MANUAL VOLUME DAMPER		CO2 SENSOR
	FIRE SMOKE DAMPER		EXHAUST DUCTWORK		FIRE DAMPER		SENSOR
	FIRE DAMPER		EXHAUST DUCTWORK		FIRE DAMPER		DUCT SMOKE DETECTOR

NOTE: ALL SYMBOLS MAY NOT APPEAR ON THESE DRAWINGS.

## FLEX DUCT SCHEDULE

AIRFLOW (CFM)	NECK SIZE
0 TO 125	6
126 TO 200	8
201 TO 275	10
276 TO 375	12
376 TO 475	14
476 TO 600	16

## DX SPLIT AIR HANDLER UNIT SCHEDULE

UNIT	AIR CAPACITY				COOLING						HEATING				ELECTRICAL DATA			UNIT DATA							
	TOTAL CFM	O/A CFM	FAN HP	E.S.P.	AMBIENT D.B.	AMBIENT W.B.	ENTER D.B.	ENTER W.B.	DESIGN SENS.	LOAD TOTAL	SCHEDULED SENS.	TOTAL	AMBIENT	ENTER	DESIGN LOAD (MBH)	SCHED (MBH)	AUX HEAT (MBH)	KW	MCA	MOCp	VOLT / PHASE	MAKE / MODEL	UNIT TYPE	WEIGHT (LBS)	FEATURE (NOTE 1)
AHU-1	1000	100	1/8	0.50	105	75	80.00	67.00	19.86	27.83	20.80	28.00	25	70	19.03	28.40	-	6.00	29.00	30	208V / 1φ	GOODMAN ARUF31814A	MULTI POSITION/MULTI SPEED	110	1, 2, 3, 4, 5
AHU-2	1800	400	1	0.90	105	75	80.00	67.00	20.84	39.22	42.80	54.00	25	70	21.16	58.50	-	15.00	71.00	80	208V / 1φ	GOODMAN AVPTC60D14A	MULTI POSITION/MULTI SPEED	167	1, 2, 3, 4, 5
AHU-3	1800	400	1	0.90	105	75	80.00	67.00	17.16	41.03	42.80	54.00	25	70	24.42	58.50	-	15.00	71.00	80	208V / 1φ	GOODMAN AVPTC60D14A	POSITION/MULTI SPEED	167	1, 2, 3, 4, 5
AHU-4	1800	400	1	0.90	105	75	80.00	67.00	24.66	50.71	42.80	54.00	25	70	29.12	58.50	-	15.00	71.00	80	208V / 1φ	GOODMAN AVPTC60D14A	MULTI POSITION/MULTI SPEED	167	1, 2, 3, 4, 5

### NOTES:

- EACH UNIT TO BE MOUNTED USING NEOPRENE-IN-SHEAR VIBRATION KIT.
- PROVIDE UNIT WITH A 7-DAY PROGRAMMABLE ELECTRONIC THERMOSTAT WITH NIGHT SETBACK AND AUTOMATIC CHANGEOVER CAPABILITY.
- PROVIDE APPROVED LISTED 2" PLEATED AIR FILTER (MERV-12) IN FILTER BOX.
- REFRIGERANT PIPING SHALL BE SIZED FOR INSTALLATION DISTANCE. CONTRACTOR SHALL COORDINATE WITH MANUFACTURER FOR ANY SPECIAL REQUIREMENTS FOR THE HEAT PUMP CONDENSING UNITS AND SHALL SUBMIT A LETTER FROM MANUFACTURER CONFIRMING THE LINE SIZE FOR THE INSTALLED DISTANCE, FOR APPROVAL PRIOR TO PURCHASE.

## OUTSIDE AIR & EXHAUST AIR CALCULATION

SYSTEM	SERVICE	AREA SQ FT	OCCUPANCY	OUTSIDE AIR CFM/SQ. FT.	CFM/PERSON	STANDARD TOTAL CFM O/A	AVERAGE OCCUPANCY FACTOR	ADJUSTED O/A CFM	PROVIDED O/A	REQUIRED EXHAUST AIR CFM	PROVIDED E/A
AHU-1	STORAGE/LAUNDRY	1060	0	0.06	5	64	100%	64		0	
	JANITOR	24	0	0.06	5	1	100%	1		75	75
	MECHANICAL ROOM	250	0	0.06	5	15	100%	15		0	
	RESTROOM 4	55	0	0.06	5	3	100%	3		75	75
<b>TOTALS</b>								<b>83</b>	<b>100</b>	<b>0</b>	<b>150</b>
AHU-2	TODDLERS 1	441	16	0.18	10	239	100%	239		0	
	RESTROOM 2	329	0	0.06	5	20	100%	20		75	75
	RECEPTION	268	4	0.06	5	36	100%	36		0	
	RESTROOM 1	50	0	0.06	5	3	100%	3		75	75
AHU-3	INFANTS 2	377	13	0.18	10	198	100%	198		0	
	INFANTS 1	366	0	0.18	10	196	100%	196		0	
	CORRIDOR 1	150	0	0.06	5	9	100%	9		0	
	<b>TOTALS</b>								<b>403</b>	<b>400</b>	<b>0</b>
AHU-4	TODDLERS 2	430	16	0.18	10	237	100%	237		0	
	RESTROOM 3	50	0	0.06	5	3	100%	3		75	75
	INFANTS 3	367	13	0.18	10	196	100%	196		0	
<b>TOTALS</b>								<b>436</b>	<b>400</b>	<b>0</b>	<b>75</b>
<b>TOTAL</b>			<b>75</b>					<b>1233</b>	<b>1300</b>	<b>375</b>	<b>375</b>

CALCULATIONS ARE IN COMPLIANCE WITH INTERNATIONAL MECHANICAL CODE CHAPT. 4 TABLE 403.3 & ANSIASHRAE 62.1-2013

INTERMITTENT OR VARIABLE OCCUPANCY AS ALLOWED BY ANSIASHRAE 62.1-2013 SECTION 6.1.3.4

## FAN SCHEDULE

MARK	SERVICE	LOCATION	CONTROL	AIR CAPACITY			ELECTRICAL DATA			UNIT DATA						
				CFM	HP(W)	E.S.P./R.P.M.	MCA	MOCp	VOLT / PHASE	MAKE / MODEL	CONNECTION SIZE	TYPE	DRIVE	WEIGHT (LBS)	REMARKS	
EF-1	RESTROOM	ABOVE CEILING	LIGHT SWITCH	75	21.1W	0.25	700	21.1W	20	120V / 1φ	GREENHECK SP-B90	6"	CEILING EXHAUST FAN	DIRECT	10	1, 2, 3, 4, 5
EF-2	JANITOR	ABOVE CEILING	LIGHT SWITCH	75	21.1W	0.25	700	21.1W	20	120V / 1φ	GREENHECK SP-B90	6"	CEILING EXHAUST FAN	DIRECT	10	1, 2, 3, 4, 5

### NOTES:

- EXHAUST FANS SHALL BE PROVIDED AND INSTALLED BY MECHANICAL CONTRACTOR.
- EACH UNIT TO BE MOUNTED USING NEOPRENE-IN-SHEAR VIBRATION KIT.
- PROVIDE O.B.D./B.D.D (BACKDRIFT DAMPER-GRAVITY) FOR ALL FANS. GANG & ROUTE EXHAUST DUCTS TO EXTERIOR WITH ROOF CAP.
- SWITCH WITH PROGRAMMABLE SWITCH.PROVIDE APPROVED LISTED 2" PLEATED AIR FILTER (MERV-12) IN FILTER BOX.

## AIR DEVICE SCHEDULE

MARK	NECK / FLEX SIZE	FRAME SIZE	FRAME TYPE	CFM RANGE	NOISE CRITERIA	DAMPER	UNIT DATA			
							MAKE / MODEL	TYPE	DESCRIPTION	REMARKS
A	6"	24 x 24	LAY-IN	0-125	UNDER 15	-	TITUS TMS-AA/6"/24x24/TYPE 3	SUPPLY	FULL FACE FOUR WAY SQUARE CONE DIFFUSER WITH ROUND NECK	1, 2, 3, 4, 5, 6, 7
B	8"	24 x 24	LAY-IN	126-200	UNDER 15	-	TITUS TMS-AA/8"/24x24/TYPE 3	SUPPLY	FULL FACE FOUR WAY SQUARE CONE DIFFUSER WITH ROUND NECK	1, 2, 3, 4, 5, 6, 7
C	10"	24 x 24	LAY-IN	201-300	UNDER 15	-	TITUS TMS-AA/10"/24x24/TYPE 3	SUPPLY	FULL FACE FOUR WAY SQUARE CONE DIFFUSER WITH ROUND NECK	1, 2, 3, 4, 5, 6, 7
D	12"	24 x 24	LAY-IN	301-450	UNDER 15	-	TITUS TMS-AA/12"/24x24/TYPE 3	SUPPLY	FULL FACE FOUR WAY SQUARE CONE DIFFUSER WITH ROUND NECK	1, 2, 3, 4, 5, 6, 7
R	22 x 22	24 x 24	LAY-IN	401-1800	UNDER 15	-	TITUS 50F/24x24/TYPE-3	RETURN	EGGCRATE FACE RETURN GRILLE	1, 2, 3, 4, 5, 6, 7

### NOTES:

- COORDINATE EXACT LOCATION OF DIFFUSERS & GRILLS WITH ARCHITECTURAL REFLECTED CEILING PLANS.
- ALL FLEX-DUCT SHALL BE SIZED TO MATCH NECK SIZE U.N.O. & LENGTH KEPT TO MINIMUM. (BELOW 10 FT WHERE POSSIBLE)
- ALL AIR DEVICES SHALL BE STANDARD WHITE FINISH UNLESS SPECIFIED OTHERWISE BY ARCHITECT.
- VERIFY FRAME TYPE WITH ACTUAL CEILING TYPE & DUCT SIZE PRIOR TO PURCHASE OF AIR DEVICES.
- CONTRACTOR TO SURFACE ALL TRANSITIONS FROM SQUARE OR RECTANGULAR AIR DEVICE TO ROUND DUCT WHERE SHOWN.
- PROVIDE PLASTER/SURFACE TRIM KIT FOR AIR DEVICES IN GYP. BOARD CEILING.
- ACCEPTABLE MANUFACTURERS ARE TITUS, PRICE, KRUEGER, RUSKIN OR ENGINEER APPROVED EQUAL. COORDINATE WITH ARCHITECT FOR PREFERRED TYPE, MANUFACTURER & COLOR PRIOR TO BIDDING/PURCHASE.

## HEATPUMP UNIT SCHEDULE

UNIT	CAPACITY				ELECTRICAL DATA			UNIT DATA			
	TON	COOLING MBH	HEATING SEER	HEATING MBH	MCA	MOCp	VOLT / PHASE	MAKE / MODEL	WEIGHT (LBS)	FEATURE (NOTE 1)	
HP-1	2.5	28.00	14.00	27.80	8.20	17.80	30	208V / 1φ	GOODMAN GS214-030IK	171	A
HP-2	5.0	54.00	15.50	58.50	9.50	37.00	60	208V / 1φ	GOODMAN GS216-060IB	306	A
HP-3	5.0	54.00	15.50	58.50	9.50	37.00	60	208V / 1φ	GOODMAN GS216-060IB	306	A
HP-4	5.0	54.00	15.50	58.50	9.50	37.00	60	208V / 1φ	GOODMAN GS216-060IB	306	A

### NOTES:

- THERMAL EXPANSION VALVE REQUIRED ON HEAT PUMP UNIT.

## UNIT HEATER SCHEDULE

UNIT	INPUT	CFM	MOTOR		UNIT		
			HP	VOLT/ PHASE	RPM	MAKE / MODEL	TYPE
UH-1	11,200 BTUH 3.3 KW	400	1/125	208V /			





02/04/2022

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**N-VIZION**  
FORMS - ENVIRONMENTS - IMAGES

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Registration Nos.: TX PE Firm F-12225, TX X-25489, LA: 9413  
MI: 1301069591, NV: 6252, NC: 14865, OH: ARC: 1917885

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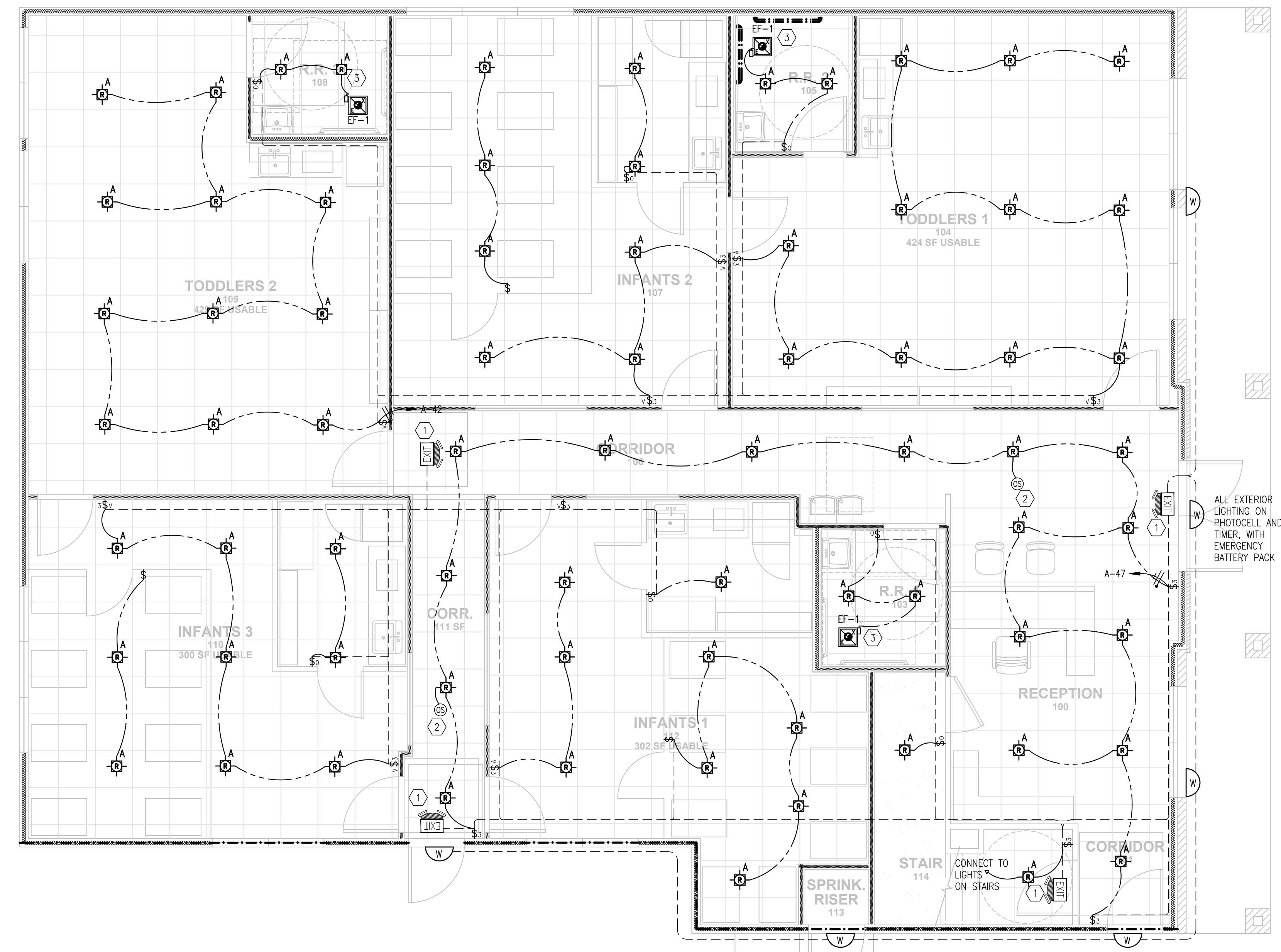
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**PLAN SPECIAL NOTE**

- GENERAL NOTES:**
  - REFER TO SHEET E601 FOR NOTES AND SYMBOLS THAT SHALL BE APPLY TO ALL SHEETS IN THIS SET OF DRAWINGS.
  - PROVIDE BATTERY PACK ON UNSWITCHED CIRCUIT FOR EMERGENCY LIGHT (\*E) & EXIT SIGN.
  - UNLESS OTHERWISE NOTED, ALL RECEPTACLES, SWITCHES, CONTROLLERS, ETC. SHALL BE INSTALLED PER MOUNTING REQUIREMENTS OF THE AMERICANS WITH DISABILITIES ACT OF 1992, TITLE III, AND TEXAS ACCESSIBILITY STANDARDS. ALL RECEPTACLES LOCATED IN EXCESS OF HEIGHTS PERMITTED BY TEXAS ACCESSIBILITY STANDARDS ARE FOR DEDICATED SIGNS AND EQUIPMENT.
- EXISTING CONDITION:**  
EXISTING LAYOUT AND INFORMATION IN THIS SET OF DRAWINGS IS BASED ON EXISTING DRAWINGS AND SITE OBSERVATION. HOWEVER SOME MODIFICATIONS OF CEILING AND SPACE LAYOUT MIGHT BE CHANGE. CONTRACTOR MUST PROCESS FULL SURVEY OF EXISTING CONDITION PRIOR TO BIDDING AND CONSTRUCTION.
- ELECTRICAL CONTRACTOR SHALL PROVIDE AND INSTALL ALL REQUIRED JUNCTION BOXES AND CONDUIT WITH PULLSTRING TO ABOVE CEILING FOR THE FIRE ALARM, SECURITY SYSTEM, CCTV, ACCESS CONTROL, DATA/PHONE AND OTHER LOW VOLTAGE SYSTEMS. FIRE ALARM, SECURITY SYSTEM, DATA/PHONE AND OTHER LOW VOLTAGE SYSTEMS CONTRACTOR SHALL PROVIDE AND INSTALL SYSTEM, INCLUDING ALL OF THE LOW VOLTAGE WIRING AND INSTALLATION OF ALL EQUIPMENT. ELECTRICAL CONTRACTOR SHALL SEE LOW VOLTAGE SYSTEM, ARCHITECTURAL DRAWING AND COORDINATE WITH LOW VOLTAGE SYSTEM CONTRACTOR, ARCHITECT AND GENERAL CONTRACTOR FOR SCOPE OF WORK AND REQUIREMENTS.

**PLAN KEYED NOTES**

- ALL EMERGENCY AND EXIT LIGHTS ARE TO BE CONNECTED TO THE HOT LEG OF THE NEAREST CIRCUIT AND INCLUDE EMERGENCY BATTERY BACKUP POWER. EMERGENCY EXIT LIGHTING TO REMAIN UNSWITCHED AND ONLY ACTIVATED FOR EMERGENCY LOSS OF POWER TO THE BUILDING.
- DUAL TECHNOLOGY INFRARED AND ULTRASONIC OCCUPANCY SENSOR ON CEILING AS SHOWN ON PLANS PER IECC 2021, ARTICLE C405. OCCUPANCY SENSORS SHALL BE ACTIVATED AND OVERRIDDEN BY SWITCH AS SHOWN ON PLAN.  
ANY OF THE OCCUPANCY SENSORS ON THE CEILING WILL ENERGIZE ALL LIGHTING FIXTURES IN THE DESIGNATION SPACE.
- EXHAUST FAN TO BE INTERLOCKED TO LIGHTS WITH TIME DELAY.
- CONNECT EXTERIOR LIGHTING THROUGH A TIMER/PHOTOCELL CONTROL. LIGHTING MUST CONFORM TO IECC 2015 MANDATORY EXTERIOR CONTROLS REQUIREMENTS SECTION 505.2.4 AND LATEST LOCAL CODE.
- CONNECT EXTERIOR LIGHTING THROUGH A TIMER/PHOTOCELL CONTROL. LIGHTING MUST CONFORM TO IECC 2015 MANDATORY EXTERIOR CONTROLS REQUIREMENTS SECTION 505.2.4 AND LATEST LOCAL CODE. FIXTURES TO BE EQUIPPED WITH 90 MINUTE BATTERY BACKUP POWER FOR EGRESS FROM BUILDING IN CASE OF COMPLETE POWER FAILURE.



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

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ATS Project #: 2109016



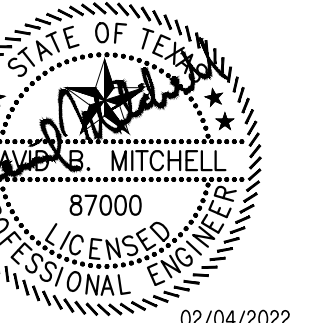
**PLAN SPECIAL NOTE**

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- CONNECT EXTERIOR LIGHTING THROUGH A TIMER/PHOTOCELL CONTROL. LIGHTING MUST CONFORM TO IECC 2015 MANDATORY EXTERIOR CONTROLS REQUIREMENTS SECTION 505.2.4 AND LATEST LOCAL CODE
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FORMS - ENVIRONMENTS - IMAGES

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Registration Nos.: TX PE Firm F-12225, TX 25489, LA: 9413  
MI: 1301069591, NV: 6252, NC: 14865, OH: ARC: 1917885

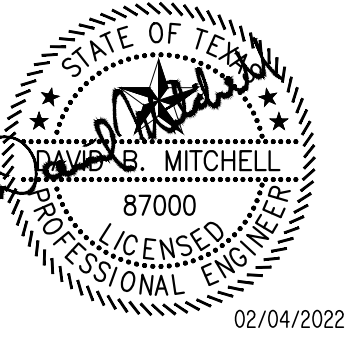
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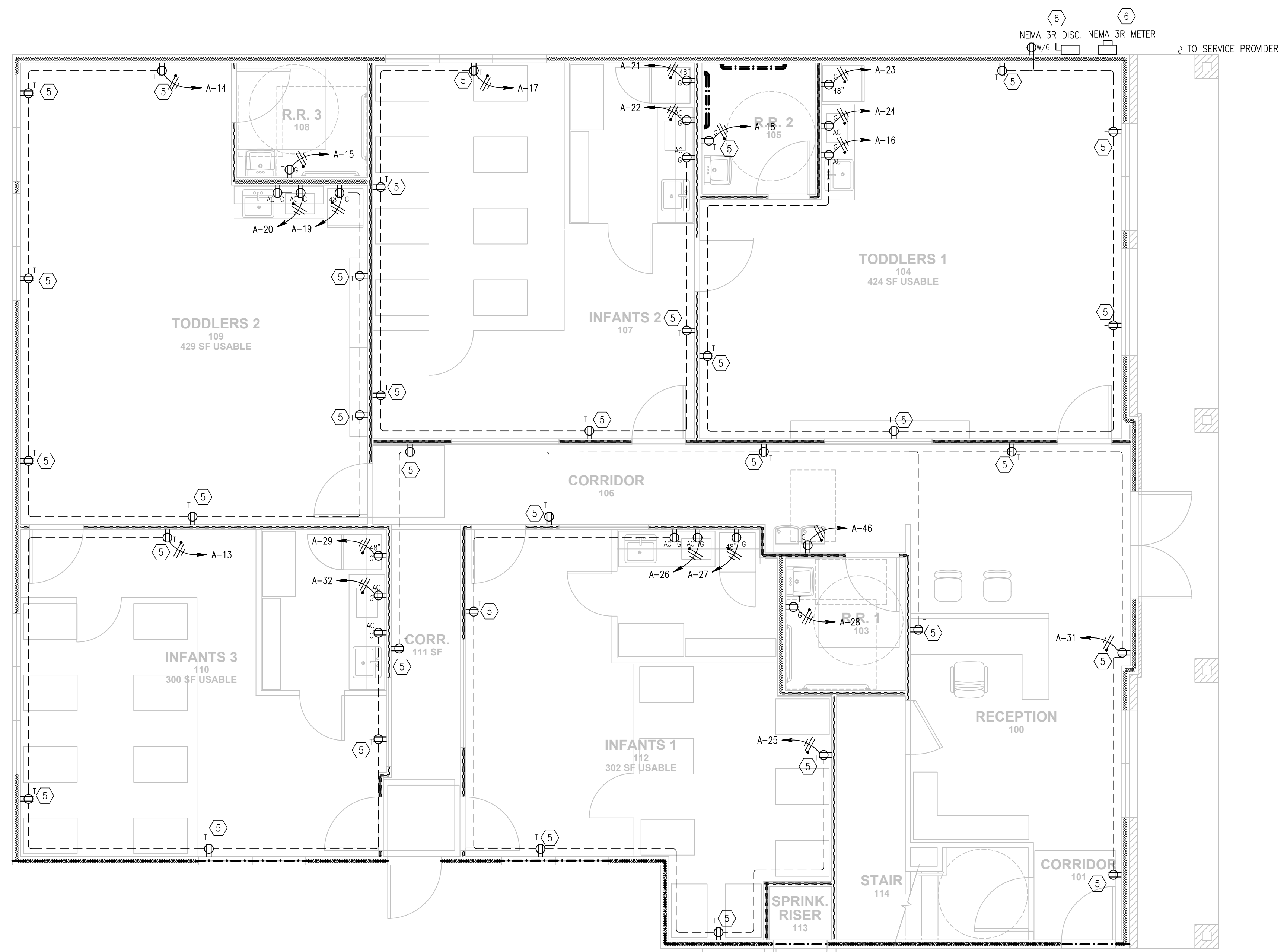
### PLAN SPECIAL NOTE

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### PLAN KEYED NOTES

- LOCATION OF NEW ELECTRICAL SERVICE (OT CAN, METER, AND EXTERIOR PANEL AC). REFER ELECTRICAL ONE LINE DIAGRAM FOR MORE INFORMATION.
- PROVIDE A DEDICATED RECEPTACLE FOR THE REFRIGERATOR. ELECTRICAL CONTRACTOR TO VERIFY EXACT LOCATION OF THE RECEPTACLE PRIOR TO CONSTRUCTION.
- PROVIDE A DEDICATED RECEPTACLE FOR THE MICROWAVE. ELECTRICAL CONTRACTOR TO VERIFY EXACT LOCATION OF THE RECEPTACLE PRIOR TO CONSTRUCTION.
- PROVIDE A DEDICATED RECEPTACLE FOR THE RESTROOM. ELECTRICAL CONTRACTOR TO VERIFY EXACT LOCATION OF THE RECEPTACLE PRIOR TO CONSTRUCTION.
- RECEPTACLE SHALL BE TAPER PROOF.
- ELECTRICAL SERVICE, REFER ELECTRICAL ONE LINE DIAGRAM E601 FOR MORE INFORMATION.
  - NEW ELECTRICAL SERVICE (DISCONNECT & METER)
  - NEMA 3R CIRCUIT BREAKERS BOX SHALL BE MOUNTED ON EXTERIOR WALL.



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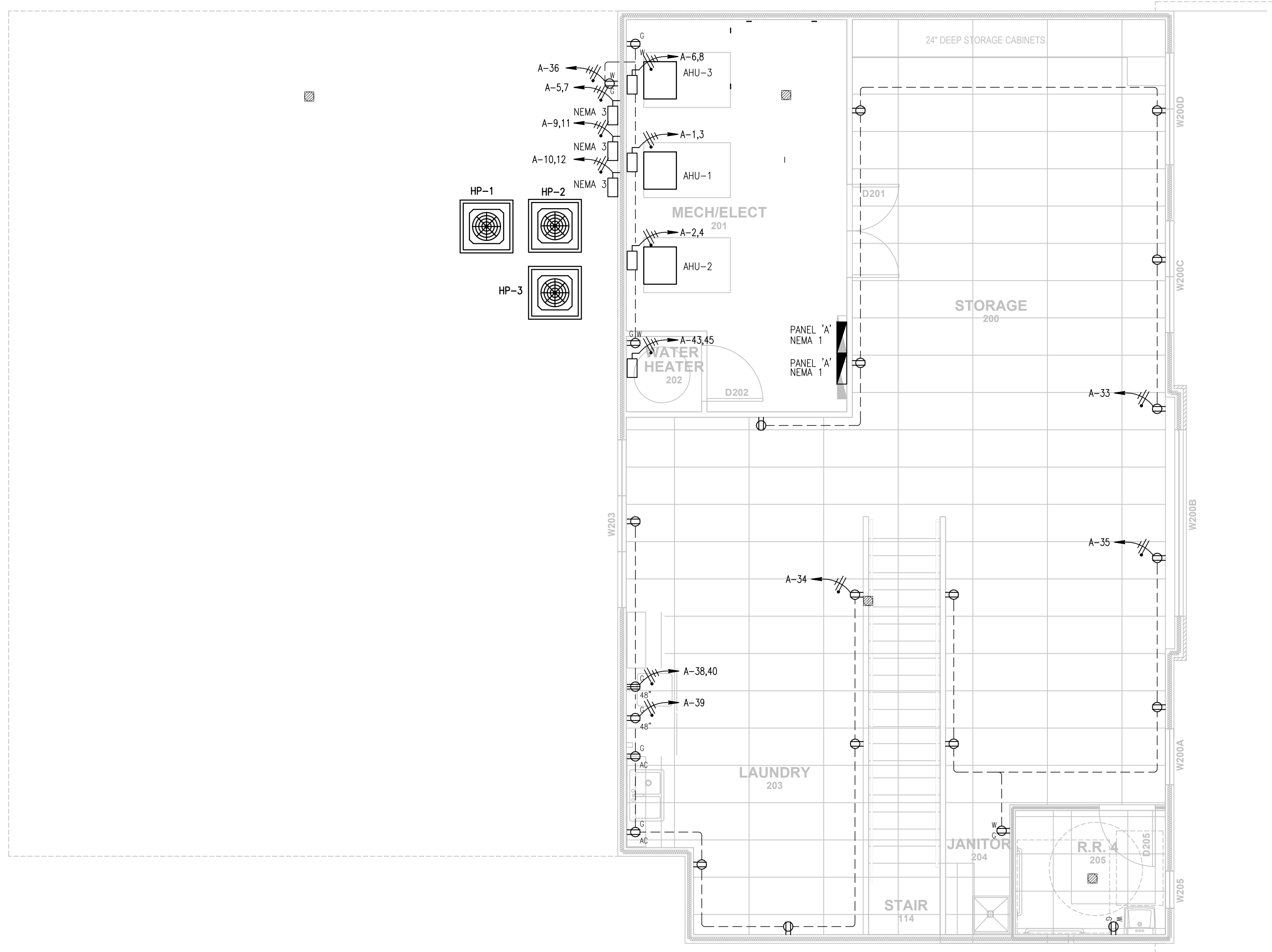
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## 1 ELECTRICAL POWER PLAN - FIRST LEVEL

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

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**EP101**



**PLAN SPECIAL NOTE**

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 Austin, TX, 78704

**PLAN KEYED NOTES**

- LOCATION OF NEW ELECTRICAL SERVICE (CT CAN, METER, AND EXTERIOR PANEL AC). REFER ELECTRICAL ONE LINE DIAGRAM FOR MORE INFORMATION.
- AIR HANDLER UNIT:-**
  - PROVIDE A NEMA 3R DISCONNECT FOR THE AHU.
  - PROVIDE A WP/GFCI RECEPTACLE WITHIN 25'-0" OF THE AHU DISCONNECT.
- CONDENSING UNIT:-**
  - PROVIDE A NEMA 3R DISCONNECT FOR THE AHU.
  - PROVIDE A WP/GFCI RECEPTACLE WITHIN 25'-0" OF THE AHU DISCONNECT.
- PROVIDE A DEDICATED RECEPTACLE FOR THE REFRIGERATOR AND MICROWAVE. ELECTRICAL CONTRACTOR TO VERIFY EXACT LOCATION OF THE RECEPTACLE PRIOR TO CONSTRUCTION.
- RECEPTACLE SHALL BE TAMPER PROOF.

**N-VIZION**  
 FORMS - ENVIRONMENTS - IMAGES

Project Number: 210105  
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 Austin, TX 78730 p:512.327.9955 www.n-vizion.net  
 Registration Nos.: TX PE Firm F-12225, TX 25489, LA: 9413  
 MI: 1301069591, NV: 6252, NC: 14865, OH: ARC: 1917885

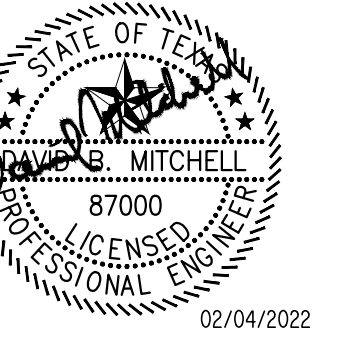
**ATS**  
 Engineers Inspectors & Surveyors  
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 4910 W HWY. 290  
 AUSTIN, TEXAS 787438  
 (512) 328-6996  
 FAX: (512) 328-6996

Date:	Description:
12.23.2021	100%CD

**PLAN SPECIAL NOTE**

- GENERAL NOTES:**
  - REFER TO SHEET E601 FOR NOTES AND SYMBOLS THAT SHALL BE APPLY TO ALL SHEETS IN THIS SET OF DRAWINGS.
  - PROVIDE BATTERY PACK ON UNSWITCHED CIRCUIT FOR EMERGENCY LIGHT (\*E) & EXIT SIGN.
  - UNLESS OTHERWISE NOTED, ALL RECEPTACLES, SWITCHES, CONTROLLERS, ETC. SHALL BE INSTALLED PER MOUNTING REQUIREMENTS OF THE AMERICANS WITH DISABILITIES ACT OF 1992, TITLE III, AND TEXAS ACCESSIBILITY STANDARDS. ALL RECEPTACLES LOCATED IN EXCESS OF HEIGHTS PERMITTED BY TEXAS ACCESSIBILITY STANDARDS ARE FOR DEDICATED SIGNS AND EQUIPMENT.
- EXISTING CONDITION:**

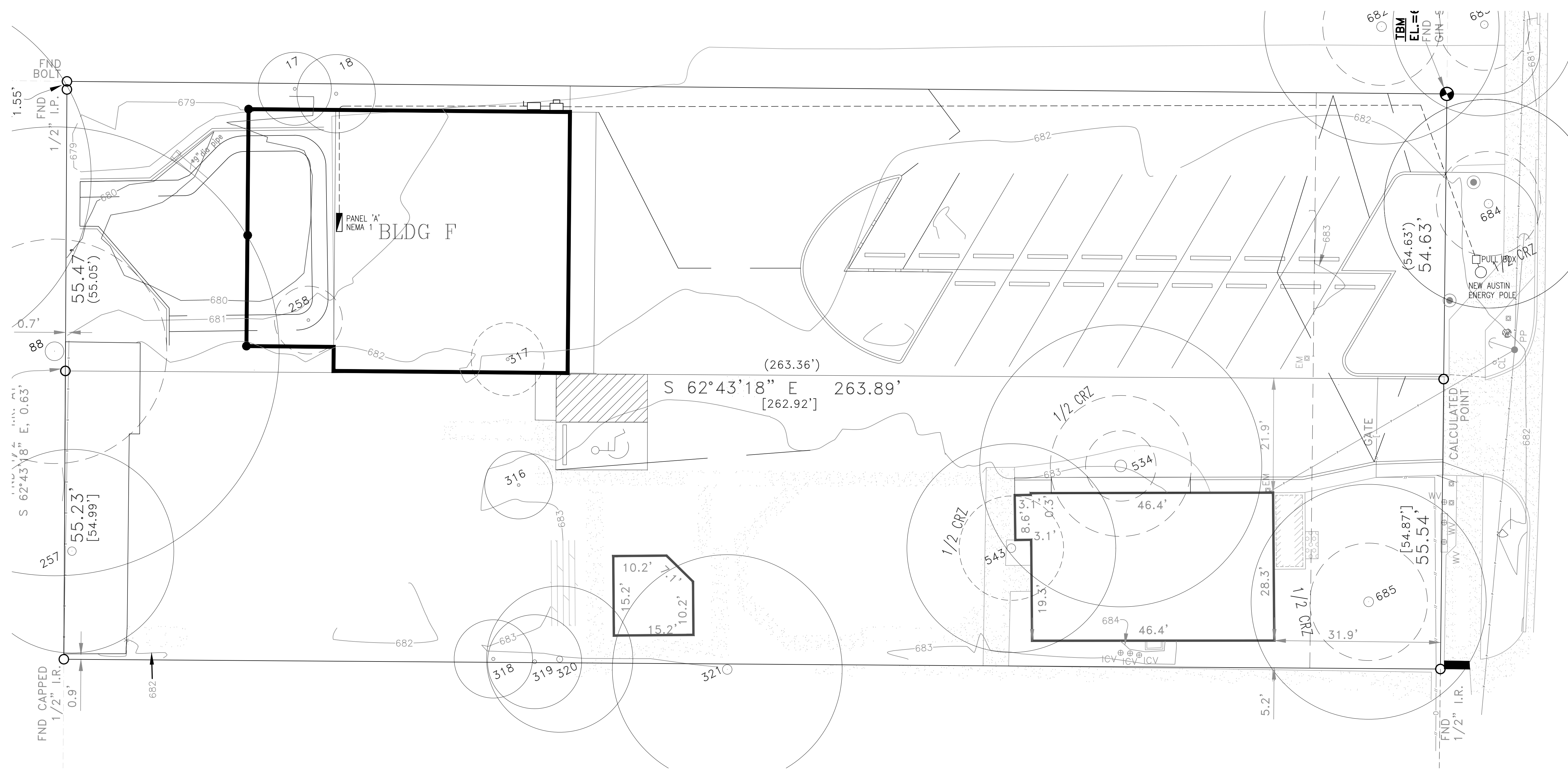
EXISTING LAYOUT AND INFORMATION IN THIS SET OF DRAWINGS IS BASED ON EXISTING DRAWINGS AND SITE OBSERVATION. HOWEVER SOME MODIFICATIONS OF CEILING AND SPACE LAYOUT MIGHT BE CHANGE. CONTRACTOR MUST PROCESS FULL SURVEY OF EXISTING CONDITION PRIOR TO BIDDING AND CONSTRUCTION.
- ELECTRICAL CONTRACTOR SHALL PROVIDE AND INSTALL ALL REQUIRED JUNCTION BOXES AND CONDUIT WITH PULLSTRING TO ABOVE CEILING FOR THE FIRE ALARM, SECURITY SYSTEM, CCTV, ACCESS CONTROL, DATA/PHONE AND OTHER LOW VOLTAGE SYSTEMS. FIRE ALARM, SECURITY SYSTEM, DATA/PHONE AND OTHER LOW VOLTAGE SYSTEMS CONTRACTOR SHALL PROVIDE AND INSTALL SYSTEM, INCLUDING ALL OF THE LOW VOLTAGE WIRING AND INSTALLATION OF ALL EQUIPMENT. ELECTRICAL CONTRACTOR SHALL SEE LOW VOLTAGE SYSTEM, ARCHITECTURAL DRAWING AND COORDINATE WITH LOW VOLTAGE SYSTEM CONTRACTOR, ARCHITECT AND GENERAL CONTRACTOR FOR SCOPE OF WORK AND REQUIREMENTS.**



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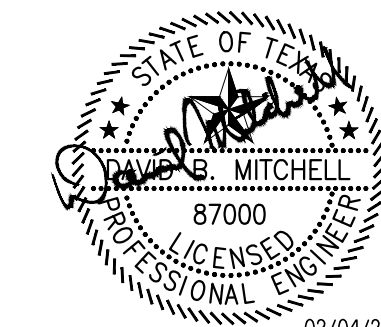


**1 ELECTRICAL SITE PLAN**  
SCALE: 1/4" = 1'-0"

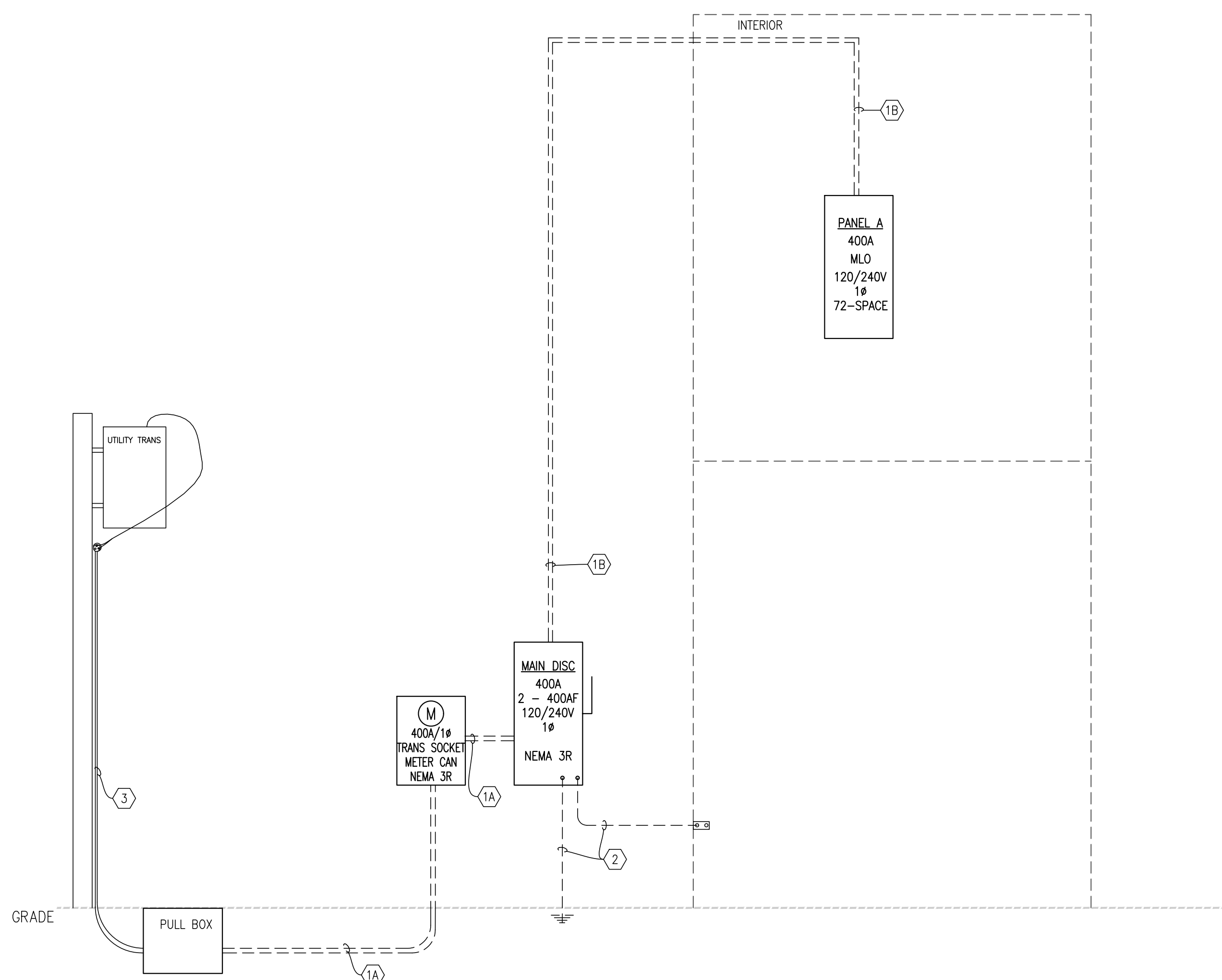
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REGISTR. #2487  
ATS Project #: 2109016

Date	Description
12.23.2021	100% CD

**ES101**



02/04/2022



**1 ELECTRICAL ONE LINE DIAGRAM**  
NOT TO SCALE

**PLAN SPECIAL NOTE**

- A. ALL OUTDOOR EQUIPMENT TO BE NEMA 3R RATED.
- B. ALL INDOOR EQUIPMENT TO BE NEMA 1 RATED.
- C. CONTRACTOR TO VERIFY POSITION OF ELECTRICAL PANELS.
- D. ELECTRICAL SERVICE
  - a. COORDINATE ALL SERVICE AND METERING DETAILS INCLUDING ANY RELOCATION OF TESTING EQUIPMENT WITH POWER COMPANY.
  - b. PAY ANY POWER COMPANY FEES CHARGED TO OWNER FOR WORK ASSOCIATED WITH THIS PROJECT. THESE COSTS SHALL BE INCLUDED IN BIDS IF POSSIBLE. IF THIS INFORMATION IS NOT AVAILABLE PRIOR TO BID DATE, INDICATE EXCLUSION OF THESE COSTS ON BID FORM AND OBTAIN REIMBURSEMENT FOR THESE COSTS BY CHANGE ORDER.
- F. FURNISH AND INSTALL MATERIALS FOR A TEMPORARY CONSTRUCTION SERVICE AS REQUIRED.
- G. FURNISH AND/OR INSTALL ALL REQUIRED MATERIAL AND LABOR IN COMPLIANCE WITH POWER COMPANY REQUIREMENTS TO PROVIDE A COMPLETE ELECTRICAL SERVICE AS SHOWN ON DRAWINGS, PRIMARY CONDUITS, SECONDARY CONDUITS AN CABLES, AND GROUNDING SYSTEM.
- H. GROUND SERVICE EQUIPMENT TO COLD WATER PIPE AND TO CONCRETE ENCASED ELECTRODE IN ACCORDANCE WITH N.E.C.
- I. CONTRACTOR SHALL BE RESPONSIBLE FOR ADEQUATELY BRACING AND PROTECTING ALL WORK DURING CONSTRUCTION AGAINST DAMAGES, BREAKAGE, COLLAPSE, AND MISALIGNMENT ACCORDING TO APPLICABLE CODES, STANDARDS, AND GOOD CONSTRUCTION PRACTICES. CONTRACTOR SHALL TAKE PROPER PRECAUTIONS TO PROTECT ALL EXISTING OPERATIONS AND PROPERTY ADJACENT WITH WHICH WORK COMES IN CONTACT, OR OVER OR UNDER WHICH HE MAY TRANSPORT, HOIST, OR MOVE MATERIALS, EQUIPMENT, DEBRIS, ETC., AND SHALL REPAIR SATISFACTORILY ALL DAMAGE CAUSED BY HIM DURING CONSTRUCTION.
- J. EXISTING CONDITION:  
EXISTING LAYOUT AND INFORMATION IN THIS SET OF DRAWINGS IS BASED ON EXISTING DRAWINGS AND SITE OBSERVATION. HOWEVER SOME MODIFICATIONS OF CEILING AND SPACE LAYOUT MIGHT BE CHANGE. CONTRACTOR MUST PROCESS FULL SURVEY OF EXISTING CONDITION PRIOR TO BIDDING AND CONSTRUCTION.

**PLAN KEYED NOTES**

- 1. CONDUCTOR & CONDUIT:
  - A. 400A: 2 SET OF (3) 3/0 AWG (CU), 2 - 3" C
  - B. 400A: 2 SET OF (3) 3/0 AWG (CU), 3 AWG (CU) G, 2 - 3" C
- 2. GROUNDING: 2 AWG (CU) GROUND TO GROUNDING ELECTRODE AND STRUCTURAL STEEL GROUND PER NEC.
- 3. RUN RIGID STEEL WITH LONG RADIUS CONDUIT TO 12' UP POLE.

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 FORMS - ENVIRONMENTS - IMAGES  
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 MI: 1301069891, NV: 6252, NC: 14865, OH: ARC: 1917865



## GENERAL ELECTRICAL NOTES

- CODES AND ORDINANCES: THE INSTALLATIONS SHALL COMPLY WITH THE LATEST ADOPTED EDITION OF THE NATIONAL ELECTRICAL CODE, OCCUPATIONAL SAFETY AND HEALTH ACT, MUNICIPAL AND STATE CODES, LAWS AND REGULATIONS, RULES OF NEC, OSHA, AND ANY OTHER AUTHORITIES HAVING JURISDICTION OVER THE WORK. WHERE, IN ANY SPECIFIC CASE, DIFFERENT SECTIONS OF ANY OF THE AFOREMENTIONED CODES FOR THESE PLANS AND SPECIFICATIONS SPECIFY DIFFERENT MATERIALS, METHODS OF CONSTRUCTION, OR OTHER REQUIREMENTS, THE MOST RESTRICTIVE SHALL GOVERN.
- ALL NECESSARY PERMIT, LICENSES, CERTIFICATES, TESTS, FEES, ETC. SHALL BE PROCURED AND PAID FOR BY THE CONTRACTOR.
- IN CASES OF A DIFFERENCE BETWEEN THE MINIMUM REQUIREMENTS OF THE VARIOUS LAWS, CODES, AUTHORITIES, AND THE DOCUMENTS, THE WORK SHALL EXCEED THE LESSER REQUIREMENTS WHILE MEETING THE GREATER OR MORE STRINGENT REQUIREMENTS.
- CONTRACTOR SHALL INDICATE ALL CHANGES FROM THE ORIGINAL PLANS MADE DURING THE INSTALLATION OF HIS WORK IN RED INK ON TWO BLUELINE PRINTS.
- THE MANUALS SHALL INCLUDE RATINGS, CAPACITIES, PARTS LISTS, WIRING DIAGRAMS, SERVICE/MAINTENANCE RECOMMENDATIONS AND WARRANTIES.
- CONTRACTOR SHALL SUBMIT WRITTEN RESPONSE TO ALL FIELD REPORTS INDICATING CORRECTIVE ACTIONS TAKEN AND DATE CORRECTIVE ACTION WAS TAKEN TO THE ARCHITECT/ENGINEER FOR REVIEW.
- IT IS THE INTENT OF THE CONTRACT DOCUMENTS TO PROVIDE AN INSTALLATION COMPLETE IN EVERY RESPECT. WORK SHALL BE EXECUTED IN A WORKMANLIKE MANNER AND SHALL INCLUDE ALL LABOR AND MATERIALS ESSENTIAL TO PROVIDE A COMPLETE FUNCTIONING MECHANICAL SYSTEM AS DESCRIBED IN THE CONTRACT DOCUMENTS. IN THE EVENT THAT ADDITIONAL DETAILS OR SPECIAL CONSTRUCTION IS REQUIRED FOR WORK INDICATED, IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO PROVIDE THE SAME AS WELL AS TO PROVIDE MATERIAL AND EQUIPMENT USUALLY FURNISHED WITH SUCH SYSTEMS OR REQUIRED TO COMPLETE THE INSTALLATION, WHETHER MENTIONED OR NOT, AT NO ADDITIONAL EXPENSE TO THE OWNER.
- ANY AND ALL DEVIATIONS TO THE INTENDED DESIGN OR THIS SCOPE OF WORK MUST BE APPROVED IN WRITING BY THE PROJECT ENGINEER PRIOR TO COMMENCING WORK. FAILURE TO DO SO WILL RESULT IN THE WORK TO BE REMOVED AT NO COST TO THE OWNER.
- ALL SUBCONTRACTORS SHALL COORDINATE THE WORK SHOWN ON THESE DRAWINGS WITH ALL OTHER TRADES. COOPERATION WITH OTHER TRADES IS ESSENTIAL. THE ELECTRICAL SUB-CONTRACTOR IS RESPONSIBLE TO FURNISH AND INSTALL ALL ITEMS INDICATED ON THE ELECTRICAL DRAWINGS, UNLESS SPECIFICALLY NOTED AS BEING FURNISHED AND/OR INSTALLED BY OTHERS.
- THE DRAWINGS ARE DIAGRAMMATIC ONLY AND DO NOT GIVE FULLY DIMENSIONED LOCATIONS OF VARIOUS ELEMENTS OF WORK. DETERMINING EXACT LOCATIONS FROM FIELD MEASUREMENTS, MAKING ADJUSTMENTS TO FIELD CONDITIONS IS CONSIDERED A PART OF THE WORK REQUIRED.
- THE CONTRACTOR SHALL PROVIDE A DETAILED TYPED PANEL BOARD DIRECTORY.
- UPON COMPLETION OF HIS WORK, THE ELECTRICAL CONTRACTOR SHALL CLEAN ALL ELECTRICAL EQUIPMENT.
- UPON COMPLETION OF THE WORK, ALL PARTS OF THE ELECTRICAL INSTALLATION SHALL BE TESTED AND PROVED TO BE FREE OF UNWANTED GROUNDS AND OTHER DEFECTS. FINAL TESTS SHALL BE ACCOMPLISHED BY USE OF A MEGGER.
- ALL WIRING SHALL BE 75" COPPER CONDUCTOR WITH TYPE THWN/THHN INSULATION, UNLESS NOTED OTHERWISE.
- MAKE ALL PENETRATIONS THROUGH WALLS AT 90 DEGREE ANGLES. CAULK AND SEAL ALL PENETRATIONS AT FIRE AND SMOKE PARTITIONS WITH FIRE SAFING MATERIAL TO MAINTAIN THE FIRE AND SMOKE RATING. SEAL ALL PENETRATIONS AT SOUND WALLS WITH SOUNDPROOFING MATERIAL.
- REFER TO MECHANICAL AND PLUMBING DRAWINGS FOR EXACT LOCATION OF HVAC AND PLUMBING EQUIPMENT.
- COORDINATE WITH MECHANICAL AND PLUMBING DEVICES FOR CONDUIT ROUTING AND ELECTRICAL EQUIPMENT LOCATIONS.
- CONTRACTOR IS RESPONSIBLE FOR CHECKING ALL CONTRACT DOCUMENTS, FIELD CONDITIONS AND DIMENSIONS FOR ACCURACY, AND CONFIRMING THAT THE WORK IS BUILDABLE AS SHOWN AND MEETS ALL APPLICABLE CODES BEFORE PROCEEDING WITH CONSTRUCTION. IF THERE ARE ANY QUESTIONS REGARDING THESE OR OTHER COORDINATION ISSUES, THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING A CLARIFICATION FROM THE ARCHITECT BEFORE PROCEEDING WITH THE WORK IN QUESTION OR RELATED WORK.
- ALL MATERIALS FURNISHED UNDER THIS CONTRACT SHALL BE NEW, AND U.L. LISTED WHERE AVAILABLE. CONTRACTOR SHALL FURNISH AND INSTALL ALL MATERIALS FOR A COMPLETE INSTALLATION IN ALL RESPECTS READY FOR INTENDED USE AND IN STRICT ACCORDANCE WITH NEC, NESC, STATE AND LOCAL CODES AND MANUFACTURER'S RECOMMENDATIONS.
- ALL WORK SHALL BE GUARANTEED AGAINST DEFECTIVE MATERIALS AND WORKMANSHIP FOR A PERIOD OF ONE (1) YEAR AFTER THE DATE OF SUBSTANTIAL COMPLETION OR ACCEPTANCE OF THE WORK. THE CONTRACTOR SHALL REPAIR OR REPLACE, AT HIS OWN EXPENSE WHEN ORDERED TO DO SO, ALL WORK THAT MAY DEVELOP DEFECTS IN MATERIAL OR WORKMANSHIP WITHIN SAID PERIOD OF TIME. ALL EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S PUBLISHED RECOMMENDATIONS FOR SERVICE INTENDED, AS INTERPRETED BY THE ENGINEER. THE INSTALLATION OF ALL EQUIPMENT SHALL BE MADE BY EXPERIENCED CRAFTSMAN IN A NEAT, WORKMANLIKE MANNER. ALL MATERIALS, TOOLS, COSTS, AND SERVICES NECESSARY TO COMPLETELY INSTALL ALL ELECTRICAL WORK SHALL BE PROVIDED BY THE CONTRACTOR.
- LOCATION OF ALL CEILING MOUNTED ITEMS ON THE ARCHITECTURAL DRAWINGS HAVE PRECEDENCE OVER MEP DRAWINGS ARCHITECT SHALL BE NOTIFIED OF ANY CONFLICTS PRIOR TO CONSTRUCTION.
- IT IS THE INTENT AND MEANING OF THE CONTRACT DOCUMENTS THAT THE CONTRACTOR SHALL PROVIDE ALL ELECTRICAL INSTALLATION THAT IS COMPLETE. ALL ITEMS AND APPURTENANCES NECESSARY, REASONABLY INCIDENTAL, OR CUSTOMARILY INCLUDED, EVEN THOUGH EACH AND EVERY ITEM IS NOT SPECIFICALLY CALLED OUT OR SHOWN ON THE CONSTRUCTION DOCUMENTS SHALL BE PROVIDED.
- COORDINATE WITH THE ARCHITECT FOR EXACT LIGHTING FIXTURE AND OUTLET LOCATIONS. WHEN INSTRUCTED BY THE ARCHITECT, THE CONTRACTOR SHALL RELOCATE OUTLETS LOCATED AT UNACCEPTABLE LOCATIONS AT NO ADDITIONAL COST IF NEW LOCATIONS ARE LESS THAN TWO FEET.
- ELECTRICAL CONTRACTOR TO INSTALL GENERAL PURPOSE LIGHTING IN THE ATTIC SPACES THAT CONTAIN MECHANICAL AND PLUMBING EQUIPMENT AS PER CODE.
- CONTRACTOR SHALL USE MULTI-GANG BOXES IN ALL POSSIBLE LOCATIONS.
- INTERIOR CONDUITS SHALL BE EMT. EXTERIOR CONDUITS SHALL BE RMC, UNLESS NOTES OTHERWISE.
- ALL CONTRACTORS SHALL COORDINATE WITH ALL OTHER CONSTRUCTION TRADES TO IDENTIFY AND RESOLVE ANY CONFLICTS OR OVERLAPPING INSTALLATION ISSUES PRIOR TO CONSTRUCTION.
- ALL CONTRACTORS SHALL COORDINATE WITH ALL OTHER CONSTRUCTION TRADES, MUNICIPAL AUTHORITIES AND SERVICE PROVIDERS TO VERIFY LOCATION OF EXISTING UTILITIES BEFORE DIGGING.
- ELECTRICAL CONTRACTOR TO VERIFY OVERCURRENT SIZES WITH THE EQUIPMENT BEING INSTALLED IN THE FIELD. ADJUST THE BREAKERS, WIRING AND CONDUIT AS NEEDED.
- ELECTRICAL CONTRACTOR TO SIZE WIRES FOR VOLTAGE DROP ON ALL RUNS OF OVER 75' - 0".
- VERIFY ALL NAME PLATE RATINGS PRIOR TO CIRCUITING. ELECTRICAL CONTRACTOR SHALL VERIFY ALL OVERCURRENT PROTECTION IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS.
- CONTRACTOR SHALL VERIFY CONNECTED LOADS, VOLTAGE DROPS AND POWER REQUIREMENTS FOR EACH BUILDING PRIOR TO CONSTRUCTION.
- ELECTRICAL CONTRACTOR TO VERIFY AND ASSURE ADEQUATE ARC FAULT, TEMPERATURE AND NEMA RATINGS FOR ALL ELECTRICAL ENCLOSURES, DISCONNECTS, THROUGHS, CONTROL BOXES, PANELS AND SUB-PANELS PRIOR TO INSTALLATION. COORDINATE WITH SERVICE PROVIDER, OWNER AND GENERAL CONTRACTOR AS REQUIRED.
- BRACING AND SAFETY**  
CONTRACTOR SHALL BE RESPONSIBLE FOR ADEQUATELY BRACING AND PROTECTING ALL WORK DURING CONSTRUCTION AGAINST DAMAGES, BREAKAGE, COLLAPSE, AND MISALIGNMENT ACCORDING TO APPLICABLE CODES, STANDARDS, AND GOOD CONSTRUCTION PRACTICES. CONTRACTOR SHALL TAKE PROPER PRECAUTIONS TO PROTECT ALL EXISTING OPERATIONS AND PROPERTY ADJACENT WITH WHICH WORK COMES IN CONTACT, OR OVER OR UNDER WHICH HE MAY TRANSPORT, HOIST, OR MOVE MATERIALS, EQUIPMENT, DEBRIS, ETC., AND SHALL REPAIR SATISFACTORILY ALL DAMAGE CAUSED BY HIM DURING CONSTRUCTION.
- DISCONNECTING MEANS FOR UTILIZATION EQUIPMENT**  
DISCONNECTING MEANS TO BE PROVIDED FOR UTILIZATION EQUIPMENT.  
A. DISCONNECTING MEANS MUST BE CAPABLE OF BEING LOCKED IN THE "OPEN" POSITION.  
B. DEVICE MUST ALSO HAVE PROVISIONS FOR THE PLACEMENT OF A LOCK ON IT TO SECURE THE DEVICE IN THE "OFF" POSITION.  
C. LOCK-OUT DEVICE TO BE PART OF THE DISCONNECT ASSEMBLY & MUST REMAIN IN PLACE AFTER THE PADLOCK IS REMOVED, WHETHER IT IS A FUSED DISCONNECT SWITCH, A SINGLE CIRCUIT BREAKER OR A CIRCUIT BREAKER IN A PANELBOARD.
- LIGHTING NOTES**  
A. ELECTRICAL CONTRACTOR TO FURNISH, INSTALL AND WIRE ALL EXIT SIGNS, AND EMERGENCY LIGHTING.  
B. EQUIPMENT SHALL BE UL LISTED WHERE APPLICABLE.  
C. **WIRING DEVICES:** UNLESS OTHERWISE NOTED, MOUNT EACH OUTLET BOX SO THE CENTER IS LOCATED AS FOLLOWS:
  - PULL STATION: 44" A.F.F.
  - SWITCH: 48" A.F.F.
  - RECEPTACLE: 18" A.F.F.
  - MOTION DETECTOR: 96" A.F.F.
- MECHANICAL EQUIPMENT CONTROL**  
A. FURNISH AND INSTALL BOXES, CONDUIT AND CONTROL CABLE FOR ALL CONTROLS AS INDICATED ON MECHANICAL DRAWINGS. VERIFY REQUIRED LOCATIONS WITH MECHANICAL CONTRACTOR.  
B. ALL CONTROLS FOR MECHANICAL EQUIPMENT WILL BE FURNISHED WITH MECHANICAL EQUIPMENT BY MECHANICAL CONTRACTOR UNLESS SPECIFIED OTHERWISE ON DRAWINGS.  
C. FINAL EQUIPMENT CONNECTIONS LESS THAN 110 VOLTS SHALL BE PERFORMED BY MECHANICAL CONTRACTOR. MAKE ALL OTHER REQUIRED EQUIPMENT CONNECTIONS.  
D. COORDINATE ALL EQUIPMENT LOCATIONS AND REQUIREMENTS WITH MECHANICAL CONTRACTOR.

## FEEDER & BRANCH CIRCUIT SCHEDULES

	UP TO 50'	UP TO 90'	91'-140'	141'-225'	226'-350'	GROUND
20A/120V/1φ	(2)#12	(2)#10	(2)#8	(2)#6	(2)#4	#12
30A/120V/1φ	(2)#10	(2)#8	(2)#6	(2)#4	(2)#2	#10
20A/240V/1φ	(3)#12	(3)#10	(3)#8	(3)#6	(3)#4	#12
30A/240V/1φ	(3)#10	(3)#10	(3)#8	(3)#6	(3)#4	#10
40A/240V/1φ	(3)#8	(3)#8	(3)#6	(3)#4	(3)#3	#10
50A/240V/1φ	(3)#8	(3)#8	(3)#6	(3)#4	(3)#2	#10
60A/240V/1φ	(3)#6	(3)#6	(3)#4	(3)#2	(3)#1	#10
100A/240V/1φ	(3)#3	(3)#3	(3)#3	(3)#3	(3)#2	#8
200A/240V/1φ	(3) 3/0	(3) 3/0	(3) 3/0	(3) 3/0	(3) 3/0	#6
400A/240V/1φ	2 SETS OF (3) 3/0	2 SETS OF (3) 3/0	2 SETS OF (3) 3/0	2 SETS OF (3) 3/0	2 SETS OF (3) 3/0	#3
600A/240V/1φ	2 SETS OF (3)#350	2 SETS OF (3)#350	2 SETS OF (3)#350	2 SETS OF (3)#350	2 SETS OF (3)#350	#1
800A/240V/1φ	3 SETS OF (3)#350	3 SETS OF (3)#350	3 SETS OF (3)#350	3 SETS OF (3)#350	3 SETS OF (3)#350	1/0
1000A/240V/1φ	4 SETS OF (3)#400	4 SETS OF (3)#400	4 SETS OF (3)#400	4 SETS OF (3)#400	4 SETS OF (3)#400	2/0

ALL WIRING SHALL BE 75" COPPER CONDUCTOR WITH TYPE THWN/THHN INSULATION, UNLESS NOTED OTHERWISE.

## LIGHTING SCHEDULE

SYMBOL	LABEL	CATALOG		DESCRIPTION	LAMP NO.	LAMP TYPE	LUMENS	WATTS	VOLTS
		MANUFACTURER	MODEL NUMBER						
⊕	A	HALO	H7CAT	6" RECESSED INCANDESCENT DOWNLIGHT - INSULATION CONTACT, WITH LED LAMP	1	LED 3500K	1500	13	120
✂	FAN	TBD	SELECTED BY OWNER - INSTALLED BY CONTRACTOR	CEILING FAN, NOT LIGHT PACK, WITH COMPATIBLE FAN SWITCH	N/A	N/A	N/A	100	120
⊔	W	LITHONIA	WSR LED 1 10A700300K SR3 MVOLT BBW PE ELCM DBX8	EXTERIOR LED WALL PACK LIGHT FIXTURE FULL CUTOFF, WITH EMERGENCY BATTERY PACK	1	LED	3460	20	120
EXIT	X-EM	LITHONIA	LITHONIA / LHOM-LED-G	COMBINATION LED EXIT SIGN AND EMERGENCY LIGHTING WITH BUILT-IN BATTERY PACK	N/A	LED	-	2.8	120

\* ELECTRICAL CONTRACTOR TO VERIFY FIXTURES AND ACCESSORIES WITH THE OWNER / ARCHITECT PRIOR TO PURCHASE.

PANELBOARD SCHEDULE A(1)										LOCATION:	SEE PLAN								
NOTES	TYP	VOLTAGE	PHASE	WIRE	MOUNTING SURFACE	FED FROM	SIZE	LUG	TYPE	TYP	NOTES	C.B. RATING:	SEE TABLE						
														240/120V	1	3	400	MLO	NEMA 1
														USE and/or AREA SERVED	C/B POLE	OR	LOAD	C/B POLE	USE and/or AREA SERVED
		AHU-1	30/2	1-2480 3-4263	08	08	2	80/2	AHU-2										
		HP-1	60/2	5-2224 7-4263	6	6	80/2	AHU-3											
		HP-2	60/2	9-2224 11-2224	10	10	60/2	HP-3											
		INFANTS 3 RECEPTACLES	20/1	13-1080 14-1440	14	14	20/1	TODDLERS 2 RECEPTACLES											
		RESTROOM 3 RECEPTACLE	20/1	15-180	16	16	20/1	TODDLERS 1 RECEPTACLES											
		INFANTS 2 RECEPTACLES	20/1	17-1080	18	18	20/1	RESTROOM 2 RECEPTACLE											
		TODDLERS 2 REFRIGERATOR	20/1	19-1000	20	20	20/1	TODDLERS 2 MICROWAVE											
		INFANTS 2 REFRIGERATOR	20/1	21-1000 22-1200	22	22	20/1	INFANTS 2 MICROWAVE											
		TODDLERS 1 REFRIGERATOR	20/1	23-1000	24	24	20/1	TODDLERS 1 MICROWAVE											
		INFANTS 1 RECEPTACLES	20/1	25-1080	26	26	20/1	INFANTS 1 MICROWAVE											
		INFANTS 1 REFRIGERATOR	20/1	27-1200	28	28	20/1	RESTROOM 1 RECEPTACLE											
		INFANTS 3 REFRIGERATOR	20/1	29-1000 30-720	30	30	20/1	HALL RECEPTACLES											
		RECEPTION RECEPTACLES	20/1	31-1200	32	32	20/1	INFANTS 3 MICROWAVE											
		STORAGE RECEPTACLES	20/1	33-1080 34-900	34	34	20/1	STORAGE RECEPTACLES											
		STORAGE RECEPTACLES	20/1	35-1260	36	36	20/1	SERVICE RECEPTACLES											
		RESTROOM 4 RECEPTACLES	20/1	37-180	38	38	30/2	CLOTHES DRYER											
		CLOTHES WASHER	20/1	39-3600	40	40													
			20/1	41-1000	42	42	20/1	LIGHTING											

SEE SECTION 3 FOR LOAD ANALYSIS

① GFCI ② AFCI ③ AFCI/GFCI ④ SHUNT TRIP ⑤ HACR ⑥ HID ⑦ LOCKABLE NOTE - E: EXISTING / N: NEW / R: REPLACE / RR: IDENTIFY IN RED

PANELBOARD SCHEDULE A(2)										LOCATION:	SEE PLAN								
NOTES	TYP	VOLTAGE	PHASE	WIRE	MOUNTING SURFACE	FED FROM	SIZE	LUG	TYPE	TYP	NOTES	C.B. RATING:	SEE TABLE						
														240/120V	1	3	400	MLO	NEMA 1
														USE and/or AREA SERVED	C/B POLE	OR	LOAD	C/B POLE	USE and/or AREA SERVED
		WATER HEATER	30/2	43-3000 44-515	08	08	2	80/2	LIGHTING										
		LIGHTING	20/1	45-3000 46-1220	46	46	20/1	ELECTRIC WATER COOLER											
				47-250	48	48													
				49-4263	50	50													
				51-	52	52													
				53-	54	54													
				55-	56	56													
				57-	58	58													
				59-	60	60													
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				73-	82	82													
				74-	84	84													

TOTAL LOAD PER PHASE 43446 38078 43446 VA / 120 V = 362 A

① GFCI ② AFCI ③ AFCI/GFCI ④ SHUNT TRIP ⑤ HACR ⑥ HID ⑦ LOCKABLE NOTE - E: EXISTING / N: NEW / R: REPLACE / RR: IDENTIFY IN RED

## TYPICAL POWER LEGEND

⊕	FLUSH OR SURFACE MOUNTED DUPLEX RECEPTACLE AT 18" A.F.F., U.O.N. (#: REFER ELECTRICAL ABBREVIATION BELOW)	HCO	FLUSH OR SURFACE MOUNTED CLOSED CIRCUIT SECURITY CAMERA TV OUTLET. SPECIFY HEIGHT. REFER TO SECURITY/ALARM CONTRACTOR FOR EXACT REQUIREMENTS.
⊕	FLUSH OR SURFACE MOUNTED DEDICATED SIMPLEX RECEPTACLE, MOUNTED AT 18" A.F.F., U.O.N.	⊕	FLUSH MOUNTED J-BOX
⊕	FLUSH OR SURFACE MOUNTED DOUBLE DUPLEX RECEPTACLE AT 18" A.F.F., U.O.N.	▬	PANELBOARDS, SEE SINGLE LINE DIAGRAM
⊕	FLUSH OR SURFACE 220V RECEPTACLE MOUNTED AT 18" A.F.F., U.O.N.	□	SERVICE OR FUSED DISCONNECT ENCLOSURE
⊕	FLOOR MOUNTED DUPLEX ELECTRICAL RECEPTACLE. PROVIDE COVER PER NEC ARTICLE 406.	⚡ A-X	PANEL-CIRCUIT NUMBER, SEE NOTES ON SHEET OR PANEL SCHEDULES
⊕	FLUSH OR SURFACE CEILING MOUNTED DUPLEX RECEPTACLE	⊕	SURFACE MTD OCCUPANCY SENSOR, HARD WIRED WITH A BATTERY BACK-UP, (U.O.N.) E.C. TO INSTALL & CONNECT TO HOT WIRE OF NEAREST LIGHT CIRCUIT.
⊕	FLUSH OR SURFACE MOUNTED DATA OUTLET @ 18" A.F.F. USE SINGLE-GANG BOXES WHERE POSSIBLE, CAT 6 CABLES FOR DATA.	⊕	VISUAL FIRE ALARM STROBE. REFER TO FIRE ALARM CONTRACTOR FOR EXACT REQUIREMENTS. HARD WIRED WITH A BATTERY BACK-UP, (U.O.N.) E.C. TO INSTALL & CONNECT TO HOT WIRE OF NEAREST LIGHT CIRCUIT.
⊕	SECURITY CAMERA PROVIDE BY SECURITY SYSTEM CONTRACTOR. ELECTRICAL CONTRACTOR SHALL PROVIDE CONDUIT AND BOX, EQUIPMENT AND CABLE SHALL BE PROVIDED AND INSTALLED BY SECURITY SYSTEM CONTRACTOR.	HTV	FLUSH OR SURFACE MOUNTED CABLE/INTERNET/TV OUTLET. SPECIFY HEIGHT.

## SWITCH LEGEND

\$	SINGLE WAY SWITCH	\$3	THREE-WAY WALL MOUNTED SWITCH
\$ <sup>o</sup>	SINGLE WAY SWITCH WITH DESIGNATION ZONE α (OR AS NOTED)	\$v	WALL MOUNTED VACANCY SENSOR (MANUAL ON / AUTOMATIC OFF) SWITCH WITH PRE-SET TIME TO SHUT-OFF LIGHTS WHEN ROOM IS VACANT SHALL BE SET AT OWNER'S REFERENCE (RANGE 15 SECONDS TO 30 MINUTES)
\$ <sub>o</sub>	DIMMING SWITCH	\$w	MOTOR RATE SWITCH - HUBBLE OR EQUIVALENT
\$ <sub>o</sub>	WALL MOUNTED OCCUPANCY SENSOR SWITCH WITH PRE-SET TIME TO SHUT-OFF LIGHTS WHEN ROOM IS VACANT SHALL BE SET AT OWNER'S REFERENCE (RANGE 15 SECONDS TO 30 MINUTES)		

## FIRE ALARM LEGEND

⊕	FIRE ALARM PULL STATION	⊕	CEILING MOUNT SMOKE DETECTOR
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ALL FIRE ALARM EQUIPMENT, DEVICES AND WIRING SHALL BE DESIGNED, PROVIDED AND INSTALLED BY FIRE ALARM DESIGNER AND CONTRACTOR. DEVICES SHOWN ON ELECTRICAL PLAN ARE FOR REFERENCE ONLY.

## ELECTRICAL ABBREVIATION

A:	ARC FAULT CURRENT INTERRUPTER	OD:	OCCUPANCY SENSOR WITH BUILT-IN DAYLIGHT SENSOR	T:	TAMPER RESISTANT
AC:	ABOVE COUNTER	N:	24/7 NIGHT LIGHT	TV:	TELEVISION
⊕:	EMERGENCY LIGHT WITH BATTERY BACK-UP	U:	USB OUTLET FOR PHONE CHARGER	#:	MOUNTING HEIGHT
G:	GROUND FAULT INTERRUPTER (G.F.I.)	W/WP:	WEATHERPROOF/WEATHER RESISTANT (WEATHER RESISTANT PER N.E.C. ARTICLE 406.8 (A) & (B))		
O:	OCCUPANCY SENSOR				
OL:	OCCUPANCY SENSOR FOR LARGE AREA				
OS:	OCCUPANCY SENSOR FOR SMALL AREA				

## LOAD ANALYSIS

LOAD DESCRIPTION (LOAD IN KVA)	CONNECTED LOAD	DEMAND & AMPACTY FACTOR	DEMAND LOAD & FEEDER AMPACITY	NOTES
INTERIOR LIGHTING	0.77	1.25	0.96	*FIRST 10 KVA AT 100%, REST AT 50%
EXTERIOR LIGHTING	0.00	1.25	0.00	
RECEPTACLES	11.52	*	10.76	
HVAC EQUIPMENT	44.56	1.00	44.56	
KITCHEN EQUIPMENT	23.68	1.00	23.68	
LARGEST MOTOR				

## GENERAL PLUMBING REQUIREMENTS

### 1.1 SCOPE – DIVISION 22

- A. THE WORK OF DIVISION 22 CONSISTS OF PROVIDING LABOR, MATERIALS, PRODUCTS, AND IN PERFORMING ALL OPERATIONS REQUIRED FOR THE COMPLETE OPERATING INSTALLATION OF ALL PLUMBING SYSTEMS. THE CONTRACTOR SHALL VERIFY THAT ALL APPLICABLE DRAWINGS, TERMS, CONDITIONS OF THE CONTRACT AND ALL APPLICABLE CODES AND ORDINANCES GOVERNING THE INSTALLATION OF THE VARIOUS MECHANICAL AND PLUMBING SYSTEMS. ALL WORK SHALL BE FULLY CORRELATED WITH THE WORK OF OTHER CRAFTS.
- B. EACH CONTRACTOR SHALL STUDY THE CONTRACT DOCUMENTS TO DETERMINE THE EXTENT OF WORK PROVIDED UNDER THIS CONTRACT, AS WELL AS TO ASCERTAIN THE DIFFICULTY TO BE ENCOUNTERED IN PERFORMING THE WORK ON THE DRAWINGS AND OUTLINED HEREINAFTER AND IN MAKING CONNECTIONS TO EXISTING UTILITIES, INSTALLING NEW EQUIPMENT AND SYSTEMS AND COORDINATING THE WORK WITH THE OTHER TRADES.
- C. EXAMINATION OF SITE: THE CONTRACTOR SHALL THOROUGHLY EXAMINE SITE AND SATISFY HIMSELF AS TO THE CONDITIONS UNDER WHICH THE WORK IS TO BE PERFORMED. THE CONTRACTOR SHALL VERIFY, AT THE SITE, ALL MEASUREMENTS AFFECTING HIS WORK AND SHALL BE RESPONSIBLE FOR THE CORRECTNESS OF SAME. NO EXTRA COMPENSATION WILL BE ALLOWED TO THE CONTRACTOR FOR EXPENSES DUE TO HIS NEGLECT TO EXAMINE OR FAILURE TO DISCOVER CONDITIONS WHICH AFFECT HIS WORK. NO EXTRA COMPENSATION WILL BE ALLOWED ON ACCOUNT OF DIFFERENCES BETWEEN ACTUAL DIMENSIONS AND THOSE INDICATED ON THE DRAWINGS.

### 1.2 REGULATORY REQUIREMENTS

- A. CODES AND ORDINANCES/PERMIT AND FEES: PERFORM ALL WORK IN ACCORDANCE WITH ALL STATE AND LOCAL CODES AND ORDINANCES, INCLUDING THE LATEST ADOPTED TEXAS ACCESSIBILITY STANDARDS, THE CURRENT EDITION OF NFPA, THE LATEST ADOPTED ENERGY CODE, THE LATEST ADOPTED BUILDING CODE, LATEST ADOPTED MECHANICAL CODE, LATEST ADOPTED PLUMBING CODE, LATEST ADOPTED EDITION OF THE NATIONAL ELECTRICAL CODE, OCCUPATIONAL SAFETY AND HEALTH ACT, AND ALL CURRENT SUPPLEMENTS THERETO, AND ANY OTHER AUTHORITIES HAVING JURISDICTION OVER THE WORK. PROCURE AND PAY FOR ALL PERMITS, LICENSES, FEES AND CHARGES, AND ONE ALL NOTICES NECESSARY.
- B. IN CASE OF CONFLICT BETWEEN THE CONTRACT DOCUMENTS AND REQUIREMENTS OF ANY CODE OR AUTHORITIES HAVING JURISDICTION, THE MOST STRINGENT REQUIREMENTS OF THE AFOREMENTIONED SHALL GOVERN.
- C. SHOULD THE CONTRACTOR PERFORM ANY WORK THAT DOES NOT COMPLY WITH THE REQUIREMENTS OF THE APPLICABLE BUILDING CODES, STATE LAWS, LOCAL ORDINANCES AND INDUSTRY STANDARDS, HE SHALL BEAR ALL COSTS ARISING IN CORRECTING THE DEFICIENCIES, AS APPROVED BY THE ARCHITECT.
- D. THE DRAWINGS SHOW GENERAL ARRANGEMENTS AND THE EXTENT OF THE WORK. THE DRAWINGS DO NOT SHOW, IN MINUTE DETAIL, ALL FEATURES OF THE INSTALLATION. FOLLOW THE DRAWINGS AS CLOSELY AS ACTUAL CONSTRUCTION WILL PERMIT. ALL MATERIAL AND LABOR NECESSARY TO COMPLETE THE WORK IN ACCORDANCE WITH THE INTENT OF THE SPECIFICATIONS AND DRAWINGS SHALL BE FURNISHED BY THE CONTRACTOR WITHOUT ADDITIONAL CHARGE. THE JOB SHALL BE BID AND INSTALLED COMPLETE AND CONSISTENT IN EVERY REQUEST.

### 1.3 COORDINATION OF WORK

- A. EACH CONTRACTOR SHALL COMPARE HIS DRAWINGS AND SPECIFICATIONS WITH THOSE OF OTHER TRADES. ALL WORK SHALL BE INSTALLED IN COOPERATION WITH OTHER TRADES INSTALLING INTERRELATED WORK. BEFORE INSTALLATION, ALL TRADES SHALL MAKE PROPER PROVISIONS TO AVOID INTERFERENCES.
- B. EACH CONTRACTOR SHALL COORDINATE THE LOCATION OF THEIR SYSTEMS SO THAT ALL OUTSIDE AIR INTAKES AND PLUMBING VENTS ARE LOCATED IN SUCH A WAY AS TO PREVENT CROSS-CONTAMINATION. PLUMBING VENTS SHALL BE LOCATED AT A DISTANCE OF NOT LESS THAN 10'-0" FROM OUTSIDE AIR INTAKES OR AS REQUIRED BY APPLICABLE CODES & ORDINANCES.
- C. LOCATIONS OF CONDUIT, DUCTS, PIPING, SPRINKLER HEADS AND EQUIPMENT SHALL BE ADJUSTED TO ACCOMMODATE THE WORK WITH INTERFERENCES ANTICIPATED AND ENCOUNTERED. EXACT ROUTING AND LOCATION OF SYSTEMS SHALL BE DETERMINED PRIOR TO FABRICATION OR INSTALLATION.
- D. OFFSETS AND CHANGES OF DIRECTION IN ALL PIPING SYSTEMS SHALL BE MADE AS REQUIRED TO MAINTAIN PROPER HEADROOM AND PITCH OF SLOPING LINES.

### 1.4 REGULATORY REQUIREMENTS

- A. COMPLY WITH ALL CURRENT LOCAL, STATE AND NATIONAL CODES, INCLUDING THE AMERICANS WITH DISABILITIES ACT (MOST CURRENT EDITION), AND SECURE AND PAY FOR ALL APPLICABLE COSTS, FEES, PERMITS AND LICENSES. NO ADDITIONAL COSTS SHALL BE PAID BY THE OWNER FOR THESE ITEMS.
- B. PERFORM ALL WORK WITH HIGHEST REGARD TO SAFETY. EXCAVATE BY HAND AND WITH CAUTION TO LOCATE ALL UTILITIES IN THE BOUNDS OF THE AREA TO BE EXCAVATED PRIOR TO MACHINE EXCAVATING. PROCEED WITH SAFETY AND CAUTION SO THAT NO UTILITY IS DAMAGED OR INTERRUPTED.
- C. PRIOR TO BID, VERIFY AND COORDINATE ALL REQUIRED CONNECTIONS AND/OR RELOCATIONS OF UTILITIES WITH UTILITY COMPANIES. PERFORM SUCH WORK IN ACCORDANCE WITH UTILITY COMPANY REGULATIONS. PAY ALL APPLICABLE FEES AND COSTS, INCLUDING THOSE FOR ANY EXTENSIONS, RELOCATIONS AND/OR CONNECTIONS.
- D. CONTRACTOR SHALL VERIFY LOCATIONS OF ALL ABOVE GROUND AND MARKED UTILITIES.

### 1.5 SUBMITTALS

- A. INSTALL MATERIALS SHALL BE COMPLETE FOR SYSTEM(S) INVOLVED. PROVIDE SUBMITTALS FOR ALL PLUMBING FIXTURES AND EQUIPMENT REQUIRING SUBMITTAL. REFER TO INDIVIDUAL EQUIPMENT SPECIFICATION SECTIONS.
- B. WHERE EQUIPMENT OF THE ACCEPTABLE MANUFACTURERS REQUIRE DIFFERENT ARRANGEMENT OR CONNECTIONS FROM THOSE SHOWN, IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO INSTALL THE EQUIPMENT TO OPERATE PROPERLY AND IN HARMONY WITH THE ORIGINAL INTENT OF THE DRAWINGS AND SPECIFICATIONS. THE CONTRACTOR SHALL MAKE ALL NECESSARY CHANGES IN ALL AFFECTED RELATED WORK PROVIDED UNDER OTHER SECTIONS INCLUDING LOCATION OF ROUGH-IN CONNECTIONS BY OTHER TRADES, CONDUIT SUPPORTS, INSULATION, ETC. ALL CHANGES SHALL BE MADE AT NO INCREASE IN THE CONTRACT AMOUNT OR ADDITIONAL COST TO THE OTHER TRADES AND/OR OWNER.

### 1.6 GUARANTEE

- A. ALL EQUIPMENT AND WORK SHALL BE GUARANTEED FOR A PERIOD OF 12 MONTHS AFTER ACCEPTANCE. ANY DEFECTS IN EQUIPMENT OR WORKMANSHIP SHALL BE PROMPTLY REPAIRED OR REPLACED BY THE CONTRACTOR WITHOUT ADDITIONAL EXPENSE TO THE OWNER. THE GUARANTEE PERIOD OF ANY PART OF THE REPAIRED ITEM SHALL BE EXTENDED FOR A PERIOD OF ONE YEAR FROM THE DATE OF SUCH REPAIR OR REPLACEMENT.

### 1.7 COMPLETION

- A. UPON COMPLETION OF THE MECHANICAL INSTALLATION, DEMONSTRATE TO THE OWNER'S SATISFACTION THAT THE SYSTEMS HAVE BEEN INSTALLED IN A SATISFACTORY MANNER IN ACCORDANCE WITH THE PLANS AND APPLICABLE CODES. SHOW THAT ALL CONTROLS ARE OPERABLE AND ARE PROPERLY ADJUSTED IN ACCORDANCE WITH THE REQUIREMENTS OF THE FINAL SYSTEMS BALANCE, THAT ALL SYSTEMS ARE PROPERLY BALANCED, THAT ALL EQUIPMENT OPERATES PROPERLY, THAT FILTERS AND STRAINERS ARE CLEAN, AND THAT ALL COMPONENTS OF ALL SYSTEMS ARE INSTALLED AND ADJUSTED FOR PROPER OPERATION.

## PRODUCTS

### 2.1 GENERAL

- A. ALL MATERIALS SHALL BE NEW AND OF THE QUALITY SPECIFIED. MATERIALS SHALL BE FREE FROM DEFECTS. MANUFACTURERS SHALL BE AS SPECIFIED HEREIN, OR BY ADDENDUM. ALL PIPING EQUIPMENT, ETC., WHICH NEEDS TO BE INSULATED TO CONSERVE HEAT OR COLD, OR TO PREVENT FREEZING OR CONDENSATION, SHALL BE INSULATED. ALL MATERIALS SHALL HAVE THE UNDERWRITERS LABORATORIES, INC. LABEL.

## BASIC PLUMBING METHODS

### 1.1 DIMENSION AND FIT

- A. CUT MATERIALS ACCURATELY FROM MEASUREMENTS TAKEN ON THE JOB SITE.
- B. DO NOT SPRING OR BEND PIPE TO FIT CONDITIONS OR MAKE UP JOINTS.

### 1.2 SERVICEABILITY OF PRODUCTS

- A. FURNISH ALL PRODUCTS TO PROVIDE THE PROPER ORIENTATION OF SERVICEABLE COMPONENTS TO ACCESS SPACE PROVIDED.
- B. COORDINATE INSTALLATION OF PIPING, EQUIPMENT, SYSTEM COMPONENTS, AND OTHER PRODUCTS TO ALLOW PROPER SERVICE OF ALL ITEMS REQUIRING PERIODIC MAINTENANCE OR REPLACEMENT.
- C. REPLACE OR RELOCATE ALL PRODUCTS INCORRECTLY ORDERED OR INSTALLED TO PROVIDE PROPER SERVICEABILITY.
- D. PROVIDE ACCESS DOORS AND ACCESS PANELS IN CEILINGS, WALLS, FLOORS, ETC., FOR ACCESS TO TRAPS, VALVES, PRIMERS, DAMPERS, AUTOMATIC DEVICES, AND ALL SERVICEABLE OR OPERABLE EQUIPMENT IN CONCEALED SPACES.
- E. PROVIDE VIBRATION ISOLATORS ON ALL EQUIPMENT HAVING MOTORS AND SUPPORTED BY THE BUILDING STRUCTURE.

### 1.3 ROUTING

- A. ROUTE ALL PIPELINES PARALLEL WITH BUILDING LINES AND AS HIGH AS POSSIBLE.
- B. ROUTE PIPING TO CLEAR ALL DOORS, WINDOWS, AND OTHER OPENINGS AND TO AVOID ALL OTHER PIPES AND DUCTS, LIGHT FIXTURES AND SIMILAR PRODUCTS.
- C. PROVIDE UNIONS ADJACENT TO ALL EQUIPMENT AND WHERE REQUIRED FOR DISCONNECT AND MAINTENANCE OF EQUIPMENT.
- D. SECURELY FASTEN ALL PLUMBING WORK TO THE STRUCTURE TO PREVENT HAZARD HUMAN LIFE AND LIMB, AND TO PREVENT DAMAGE TO PRODUCTS OF CONSTRUCTION UNDER ALL CONDITIONS OF OPERATION.
- E. DO ALL SLEEVING, CUTTING AND PATCHING OF ROUGH CONSTRUCTION FOR PIPING, ALL CUTTING, REPAIRING AND REQUIRED STRUCTURAL REINFORCING FOR INSTALLATION OF THIS WORK SHALL BE DONE IN CONFORMANCE WITH ARCHITECT'S DIRECTIONS AND ANY DAMAGE CAUSED BY CUTTING SHALL BE REPAIRED EQUAL TO ORIGINAL CONDITIONS. NO CUTTING WITHOUT ARCHITECT'S APPROVAL.
- F. PLACE ANY SLEEVES, CHASES, CONCRETE INSERTS, ANCHOR BOLTS, ETC., BEFORE CONCRETE IS POURED, AND BE RESPONSIBLE FOR CORRECT LOCATION AND INSTALLATION OF THESE ITEMS.

## PLUMBING INSULATION

### 1.1 SCOPE

- A. GENERAL: FURNISH ALL LABOR AND MATERIALS NECESSARY FOR THE COMPLETE INSTALLATION OF THERMAL INSULATION ON ALL HOT AND COLD PIPING SURFACES AND DUCTWORK INSTALLED UNDER THIS CONTRACT WHICH REQUIRE INSULATION FOR HEAT OR COLD CONSERVATION; FREEZE PROTECTION, PREVENTION OF CONDENSATION OR DRIPPING; COMFORT FOR OCCUPANTS; EFFICIENCY OR EASE OF OPERATION. MECHANICAL INSULATION SHALL BE COMPLETE AND EFFECTIVE THROUGHOUT THE PROJECT.
- B. SYSTEMS TO RECEIVE INSULATION INCLUDE, BUT ARE NOT NECESSARILY LIMITED TO:
1. DOMESTIC HOT AND COLD WATER.
  2. CONDENSATE DRAINAGE.
  3. HORIZONTAL RAIN LEADERS AND ROOF DRAINS.
  4. PIPING ACCESSORIES AND SPECIALTIES.

### 1.2 PIPE INSULATION

- A. ALL ABOVE GRADE INSULATION SHALL HAVE COMPOSITE (INSULATION, JACKET OR FACING, AND ADHESIVE OR CEMENT USED TO ADHERE THE JACKET TO THE INSULATION) FIRE AND SMOKE HAZARD RATING AS TESTED UNDER PROCEDURE ASTM E-84 AND NFPA 225.
- B. APPROVED MANUFACTURERS: CERTAINTED, OWENS/CORNING, JOHNS-MANVILLE, UPJOHN, ARMSTRONG, OR APPROVED EQUIVALENT.
- C. INSULATE ALL DOMESTIC HOT WATER LINES, INCLUDING RUNOUTS TO HANDICAPPED FIXTURES. MINIMUM THICKNESS SHALL BE, 1" FOR MOLDED FIBERGLASS INSULATION; 3/4" FOR MOLDED URETHANE INSULATION; 3/4" FOR FOAMED PLASTIC INSULATION (ARMAFLEX AP).
- D. CONDENSATE DRAINS: 1/2" FOAMED PLASTIC INSULATION (ARMAFLEX AP).
- E. REFRIGERANT LINES: 1/2" FOAMED PLASTIC INSULATION WITH CLOSED CELL STRUCTURE (ARMAFLEX AP). ON PIPING EXPOSED TO WEATHER, PROVIDE INSULATION TO BE COATED WITH SPECIAL EXTERIOR GRADE COATING BY ARMAFLEX.

### 1.3 INSTALLATION

- A. INSTALL MATERIALS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
- B. CONTINUE INSULATION VAPOR BARRIER THROUGH PENETRATIONS.
- C. PIPING INSULATION
1. LOCATE INSULATION AND COVER SEAMS IN LEAST VISIBLE LOCATIONS.
  2. NEATLY FINISH INSULATION AT SUPPORTS, PROTRUSIONS, AND INTERRUPTIONS.
  3. PROVIDE INSULATED DUAL TEMPERATURE PIPES OR COLD PIPES CONVEYING FLUIDS BELOW AMBIENT TEMPERATURE WITH VAPOR BARRIER JACKETS. FINISH WITH GLASS CLOTH AND VAPOR BARRIER ADHESIVE. INSULATE COMPLETE SYSTEM.
  4. FOR INSULATED PIPES CONVEYING FLUIDS ABOVE AMBIENT TEMPERATURE, PROVIDE STANDARD JACKETS. BEVEL AND SEAL ENDS OF INSULATION AT EQUIPMENT, FLANGES, AND UNIONS.
  5. FOR PIPES WITH EXPOSED INSULATION, PROVIDE SUPPORT SHIELDS NOT LESS THAN 12" AT ALL SUPPORTS
  6. PROVIDE INSERT BETWEEN SUPPORT SHIELD AND PIPING ON PIPING 2 INCHES (50 MM) DIAMETER OR LARGER. FABRICATE OF CORK OR OTHER HEAVY DENSITY INSULATING MATERIAL SUITABLE FOR TEMPERATURE, NOT LESS THAN 6 INCHES (150 MM) LONG.
  7. PIPING INSULATION INSTALLED EXPOSED OUTSIDE THE BUILDING SHALL HAVE TWO COATS OF PAINT OR METAL JACKETING FOR WEATHER PROTECTION. SEE DRAWING NOTES.
- D. EQUIPMENT INSULATION:
1. APPLY INSULATION AS CLOSE AS POSSIBLE TO EQUIPMENT BY GROOVING, SCORING, AND BEVELLING INSULATION, IF NECESSARY. SECURE INSULATION TO EQUIPMENT WITH STUDS, PINS, CLIPS, ADHESIVE, WIRES, OR BANDS.
  2. FILL JOINTS, CRACKS, SEAMS, AND DEPRESSIONS WITH BEDDING COMPOUND TO FORM SMOOTH SURFACE. ON COLD EQUIPMENT, USE VAPOR BARRIER CEMENT.
  3. PROVIDE INSULATED DUAL TEMPERATURE EQUIPMENT OR COLD EQUIPMENT CONTAINING FLUIDS BELOW AMBIENT TEMPERATURE WITH VAPOR BARRIER JACKETS.
  4. FOR INSULATED EQUIPMENT CONTAINING FLUIDS ABOVE AMBIENT TEMPERATURE, PROVIDE STANDARD JACKETS, WITH OR WITHOUT VAPOR BARRIER.
  5. DO NOT INSULATE OVER NAMEPLATE OR ASME STAMPS. BEVEL AND SEAL INSULATION AROUND SUCH.
  6. WHEN EQUIPMENT WITH INSULATION REQUIRES PERIODIC OPENING FOR MAINTENANCE, REPAIR, OR CLEANING, INSTALL INSULATION IN SUCH A MANNER THAT IT CAN BE EASILY REMOVED AND REPLACED WITHOUT DAMAGE.

## PLUMBING

### 1.1 CONNECTION TO WATER SOURCE

- A. PROVIDE CONNECTION, AND COORDINATE ALL INCIDENTAL SERVICES TO PROPERLY INTERFACE THE WATER DISTRIBUTION SYSTEM WITH THE WATER SOURCE. PROVIDE APPROPRIATE MATERIALS, COMPATIBLE JOINTS, DIELECTRIC UNIONS, SUPPORTS, AND ALL OTHER PRODUCTS FOR THE PROPER CONNECTION AT THE SOURCE. REFERENCE CIVIL DRAWINGS FOR CONNECTION POINT.

### 1.2 CONNECTION TO DISPOSAL POINT

- A. PROVIDE CONNECTION AND COORDINATE ALL INCIDENTAL SERVICES TO PROPERLY INTERFACE THE WASTEWATER SYSTEM WITH THE POINT OF DISPOSAL. PROVIDE APPROPRIATE MATERIALS, COMPATIBLE JOINTS, SUPPORTS, AND ALL OTHER PRODUCTS FOR CONNECTION TO THE DISPOSAL POINT. REFERENCE CIVIL DRAWINGS FOR CONNECTION POINT.

### 2.1 SANITARY SEWER PIPING

- A. SCHEDULE 40 PVC.
- B. GRADE ALL HORIZONTAL RUNS OF PIPE IN BUILDING AND UNDER FLOOR SLAB AT 1/4" PER FOOT DOWNWARD IN DIRECTION OF FLOW. IF IT IS ABSOLUTELY IMPOSSIBLE TO MAINTAIN A GRADE OF 1/4" PER FOOT, PIPING MAY SLOPE TO A MINIMUM GRADE OF NOT LESS THAN 1/8" PER FOOT, WHERE PERMITTED BY CODE AND ORDINANCE.
- C. SUPPORT ALL HORIZONTAL RUNS OF PIPE IN BUILDING AT INTERVALS NOT TO EXCEED 5 FT. - 0" AND AT EACH CHANGE OF DIRECTION. PROVIDE A SUPPORT AT THE BASE OF VERTICAL RISERS WITH INTERMEDIATE SUPPORTS AS REQUIRED. BRACE ALL PIPING ADEQUATELY TO PREVENT MOTION, PER MANUFACTURER'S RECOMMENDATIONS.
- D. CLEANOUTS:
1. IN LONG STRAIGHT RUNS, PROVIDE A CLEANOUT EVERY 80 FEET FOR 4" & 6" PIPE.
  2. PROVIDE A CLEANOUT EVERY 50 FEET FOR 3" PIPE AND SMALLER.
  3. PROVIDE 2-WAY CLEANOUT AT EACH POINT WASTEWATER LEAVES THE BUILDING.
  4. PROVIDE CLEANOUTS AT ALL POINTS REQUIRED BY CODE.
- E. VENTING
1. PROVIDE A VENT FOR EACH TRAP OR AS SHOWN ON THE DRAWINGS.
  2. EXTEND EACH VENT VERTICALLY TO A POINT NOT LESS THAN 6" ABOVE THE EXTREME OVERFLOW LEVEL OF THE FIXTURE SERVED BEFORE OFFSETTING HORIZONTALLY. WHENEVER TWO OR MORE VENT PIPES CONVERGE, EXTEND EACH SUCH PIPE AT LEAST 6" IN HEIGHT ABOVE THE TOP OF THE PLUMBING FIXTURE IT SERVES BEFORE BEING CONNECTED TO ANY OTHER VENT.
- F. VENTS THROUGH ROOF: EXTEND VENTS THROUGH THE ROOF A MINIMUM DISTANCE OF 6" AND TERMINATE AT LEAST 15 FT. HORIZONTALLY FROM OPERABLE WINDOWS, DOORS OR AIR INTAKES, AND AT LEAST 3 FT. ABOVE SUCH OPENINGS.

### 2.2 WATER PIPING, BURIED BEYOND BUILDING

- A. PVC PIPE: ASTM D1785, SCHEDULE 40, OR ASTM D2241, MINIMUM 150 PSIG PRESSURE RATING WITH SOLVENT WELD JOINTS.

### 2.3 WATER PIPING, BURIED UNDER BUILDING

- A. COPPER TUBING: ASTM B88, TYPE K, ANNEALED WITH WROUGHT COPPER FITTINGS AND GRADE 957A SOLDER JOINTS.

### 2.4 WATER PIPING, ABOVE GRADE

- A. COPPER TUBING: ASTM B88, TYPE L, HARD DRAWN, WITH CAST BRASS OR WROUGHT COPPER FITTINGS AND GRADE 957A SOLDER JOINTS.

### 2.5 GAS PIPING, ABOVE GRADE

- A. ABOVE GRADE: STEEL PIPE ASTM A 120, SCHEDULE 40, SEAMLESS, BLACK STEEL PIPE, BEVELED ENDS, MALLEABLE IRON THREADED FITTINGS; ANSI B16.3, CLASS 150, STANDARD PATTERN FOR THREADED JOINTS. THREADS SHALL CONFORM TO ANSI B1.20.1.
- B. UNDERGROUND: CORRUGATED STAINLESS STEEL TUBING
- TUBING: ASTM A240 TYPE 304 STAINLESS STEEL.
  - JACKET: UV RESISTANT POLYETHYLENE COMPLYING WITH REQUIREMENTS OF ASTM E84 25/50 INDEX FOR FLAME AND SMOKE.

### 2.6 CONDENSATE PIPING

- A. CONDENSATE DRAIN PIPE AND FITTINGS (AS ALLOWED BY CODE) SHALL BE SCHEDULE 40 PVC (TOTALLY INSULATED) OF MINIMUM SIZE 3/4". INSULATE AND TRAP ALL CONDENSATE LINES WITH A FACTORY TRAP (NO FIELD FABRICATED TRAPS). INSTALL CONDENSATE PIPING FROM UNIT TO DEEP SEAL TRAP OR TERMINATION POINT PROVIDED. COORDINATE WITH PLUMBING CONTRACTOR. SECURE BY GUIDES AND SUPPORT AT A MINIMUM OF 24" O.C. FOR ENTIRE HORIZONTAL LENGTH.
- B. ROUTE CONDENSATE DRAIN LINE FROM EACH UNIT TO NEAREST DISPOSAL POINT. SIZE PER PLUMBING CODE WHICH APPLIES TO THIS JURISDICTION. INSULATION SHALL BE 1/2" ARMAFLEX TYPE AP. GLUE ALL JOINTS AS PER MANUFACTURER'S INSTRUCTIONS. PROVIDE CLEANOUT PLUG AT END OF EACH MAIN RUN.

### 2.7 ACCESS PANELS

- A. AT A MINIMUM, PROVIDE ACCESS PANELS WHERE REQUIRED BY CODES AND FOR MAINTENANCE OR SERVICE. ACCESS PANELS SHALL BE PROVIDED FOR VALVES, CONTROLS AND EQUIPMENT ABOVE GYPSUM PLASTER, OR SIMILAR CEILINGS OR BEHIND GYPSUM PLASTER OR SIMILAR WALLS.
- B. PANELS IN CEILINGS SHALL BE FLANGED STEEL CONSTRUCTION, WITH CONTINUOUS HINGE AND WITH QUARTER TURN SCREW LOCK, INSTALLED FLUSH WITH ADJACENT SURFACES AND PAINTED TO MATCH, UNLESS OTHERWISE INDICATED PANELS SHALL BE SIZED AND LOCATED FOR EASY ACCESS TO AND REPLACEMENT OF EQUIPMENT BUT NOT LESS THAN 24" X 24".
- C. ACCESS PANELS IN WALLS SHALL BE OF FLANGED SATIN FINISH STAINLESS STEEL CONSTRUCTION.

### 2.8 PLUMBING FIXTURES

- A. SEE FIXTURE SCHEDULE ON DRAWINGS.
- B. PLUMBING FIXTURES SHALL BE STANDARD PRODUCTS AS MANUFACTURED BY CRANE, KOHLER, ELIER, AMERICAN STANDARD, DELTA, UNIVERSAL, RUNDALL.
- C. PROVIDE PERMANENT METAL AND WIRE POSITIONERS AND SUPPORTS TO SECURE FIXTURES AND PIPING RIGIDLY IN PROPER ALIGNMENT WITHOUT SWAY OR SIDEPLAY.
- D. INSTALL ALL FIXTURES PLUMB, LEVEL AND FLUSH TO THE FINISHED ARCHITECTURAL SURFACE, SO THAT THE MAXIMUM GAP BETWEEN THE FIXTURE AND THE SURFACE DOES NOT EXCEED 3/16 INCH. CAULK THE EDGE OF THE JOINT BETWEEN FIXTURE AND SURFACE WITH SILICONE OR BUTYL TYPE WATERPROOF CAULKING COMPOUND.
- E. ADJUST ALL FUNCTIONAL COMPONENTS FOR PROPER OPERATION IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS, OR AS OTHERWISE DIRECTED.
- G. CLEAN ALL FIXTURES AND TRIM THOROUGHLY TO SPOTLESSLY CLEAN CONDITION.
- H. ALL WALL HUNG PLUMBING FIXTURES SHALL BE SUPPORTED BY MEANS OF A CARRIER, CONCEALED WITHIN THE WALL, AS MANUFACTURED BY J.R. SMITH, JOSAM, OR ZURN.

### 2.9 TRAP PRIMERS

- A. PROVIDE TRAP PRIMERS FOR ALL FLOOR DRAINS, HUB DRAINS AND FLOOR SINKS.
- B. ACCEPTABLE TYPES AND MODELS
1. GRAVITY FED (FROM LAVATORIES ONLY): SIOUX MODEL 200-090 OR EQUIVALENT.
  2. MECHANICALLY ACTIVATED: JOSAM MODEL 88300 OR EQUIVALENT WITH 5 PSI PRESSURE DROP ACTIVATION AND VACUUM BREAKER.
  3. ELECTRONICALLY ACTIVATED: ZURN MODEL 71020 OR EQUIVALENT. COORDINATE WITH ELECTRICAL CONTRACTOR TO PROVIDE POWER FROM NEAREST RECEPTACLE CIRCUIT.
- C. EQUIVALENT MANUFACTURERS: JOSAM, ZURN, SLOAN, SIOUX, JAY R. SMITH.
- D. TRAP PRIMERS AND TRAP PRIMER SHUT OFF VALVES SHALL BE LOCATED WITHIN THE WALL AND SHALL BE PROVIDED WITH ACCESS PANELS OR OTHER APPROVED MEANS OF ACCESS. FOR EACH ROOM, THE CONTRACTOR SHALL CENTRALLY LOCATE TRAP PRIMERS TO MINIMIZE THE NUMBER OF ACCESS PANELS. COORDINATE ALL ACCESS PANELS WITH THE ARCHITECT.

### 2.9 FREEZE PROTECTION

- A. ALL DOMESTIC WATER PIPING SUBJECTED TO FREEZING TEMPERATURES SHALL BE PROVIDED WITH FREEZE PROTECTION EITHER BY HEAT TRACE, MANUAL SHUT OFF OR OTHER APPROVED METHOD.

### 3.1 INSTALLATION

- A. PROVIDE DIELECTRIC CONNECTIONS WHEREVER JOINTING DISSIMILAR METALS.
- B. INSTALL PIPING TO CONSERVE BUILDING SPACE AND NOT INTERFERE WITH USE OF SPACE. GROUP PIPING WHENEVER PRACTICAL AT COMMON ELEVATIONS.
- C. INSTALL PIPING TO ALLOW FOR EXPANSION AND CONTRACTION WITHOUT STRESSING PIPE, JOINTS, OR CONNECTED EQUIPMENT.
- D. PROVIDE CLEARANCE FOR INSTALLATION OF INSULATION AND ACCESS TO VALVES AND FITTINGS.
- E. SLOPE WATER PIPING AND ARRANGE TO DRAIN AT LOW POINTS.
- F. INSTALL BELL AND SPIGOT PIPE WITH BELL END UPSTREAM.
- G. INSTALL SPECIALTIES IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
- H. EXTEND CLEANOUTS TO FINISHED FLOOR OR WALL SURFACE. LUBRICATE THREADED CLEANOUT PLUGS WITH MIXTURE OF GRAPHITE AND LINED OIL. ENSURE CLEARANCE AT CLEANOUT FOR ROODING OF DRAINAGE SYSTEM.
- I. INSTALL WATER HAMMER ARRESTORS WHERE REQUIRED, COMPLETE WITH ACCESSIBLE INSULATION VALVE.
- J. INSTALL EACH FIXTURE WITH CHROME PLATED RIGID OR FLEXIBLE SUPPLIES WITH STOP VALVES, REDUCERS, AND ESCUTCHEONS.
- K. ADJUST STOPS OR VALVES FOR INTENDED WATER FLOW RATE TO FIXTURES WITHOUT SPLASHING, NOISE, OR OVERFLOW.
- L. INSTALL WATER HEATERS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS AND TO NFPA & UL REQUIREMENTS. COORDINATE WITH PLUMBING PIPING AND RELATED ELECTRICAL WORK TO ACHIEVE OPERATING SYSTEM.
- M. WHERE REQUIRED FOR CONNECTIONS TO FIXTURES, EQUIPMENT ITEMS, ETC., EMPLOY LENGTHS OF RED BRASS PIPE WITH THREADED ENDS OF COPPER TO IPS ADAPTERS, BRASS COUPLINGS, ETC., TO THE END THAT THERE SHALL BE NO FERROUS PIPE IN ANY WATER PIPING SYSTEMS.
- N. PROVIDE AIR CHAMBERS ON COLD WATER AND HOT WATER SUPPLIES TO PLUMBING FIXTURES.
- O. STERILIZE EACH UNIT OF COMPLETED SUPPLY LINE AND DISTRIBUTION SYSTEM WITH CHLORINE BEFORE ACCEPTANCE FOR DOMESTIC OPERATION. PROVIDE WRITTEN CERTIFICATION TO OWNER THAT PROPER STERILIZATION OF DOMESTIC SYSTEM HAS BEEN COMPLETED.
- P. ALL PIPING SHALL BE SUPPORTED PER IPC SECTION 305.4 AND IPC TABLE 305.4.

## FIRE PROTECTION

### PART 1 – GENERAL – DIVISION 21

#### 1.1 DESCRIPTION DIVISION

- A. GENERAL REQUIREMENTS, AND GENERAL MECHANICAL REQUIREMENTS, THIS SHEET, SHALL BE CONSIDERED A PART OF THESE SPECIFICATIONS.
- B. THE FIRE PROTECTION SYSTEMS WORK INCLUDES, BUT IS NOT LIMITED TO, THE FOLLOWING:
1. FURNISH AND INSTALL COMPLETE WITH ALL RELATED ITEMS, FIRE PROTECTION SYSTEMS, AND FABRICATED BY A FIRM REGULARLY ENGAGED IN THIS TYPE OF WORK AND DESIGNED EMPLOYING WORKMEN SKILLED IN THE TRADES INVOLVED. DESIGN SHALL BE IN ACCORDANCE WITH THE LATEST GUIDELINES OF FACTORY MUTUAL FIRE INSURANCE COMPANY, THE NATIONAL FIRE PROTECTION ASSOCIATION (N.F.P.A.), THE STATE INSPECTION BUREAU, AND ALL LOCAL AGENCIES HAVING JURISDICTION. IT WILL BE THIS CONTRACTOR'S RESPONSIBILITY TO PROVIDE ALL SYSTEMS COMPLETE AND OPERABLE.
  2. SYSTEMS SHALL BE BY CONTRACTOR WITH THE LATEST GUIDELINES OF FACTORY MUTUAL FIRE INSURANCE COMPANY, THE NATIONAL FIRE PROTECTION ASSOCIATION (N.F.P.A.), THE STATE INSPECTION BUREAU, AND ALL LOCAL AGENCIES HAVING JURISDICTION. IT WILL BE THIS CONTRACTOR'S RESPONSIBILITY TO PROVIDE ALL SYSTEMS COMPLETE AND OPERABLE.
  3. USE EXTENDED COVERAGE TYPE SPRINKLER HEADS, EXCEPT WHERE UNACCEPTABLE BY THE AUTHORITY HAVING JURISDICTION, WITH THE TYPE OF HEAD, SOFFIT SPRINKLER HEADS SHOULD NOT BE REQUIRED.

#### 1.2 SUBMITTALS

- THIS CONTRACTOR SHALL SUBMIT TO ARCHITECT COMPLETE SHOP DRAWINGS OF THE DRAWINGS SHALL BE ENTIRE FIRE PROTECTION SYSTEM BEFORE STARTING WORK. APPROVED BY LOCAL FIRE MARSHAL PRIOR TO SUBMISSION.

#### PART 2 – PRODUCTS

##### 2.1 PIPING

- A. PIPING SHALL BE STEEL OF THE WEIGHT SCHEDULE AS PERMITTED BY CODE.
- B. FITTINGS SHALL BE SCREWED, FLANGED, WELDED, OR MECHANICAL COUPLING AS PERMITTED BY CODE.

##### 2.2 FIRE DEPARTMENT CONNECTION

- PROVIDE CAST BRONZE BODIED WITH POLISHED BRONZE FITTINGS FOR FLUSH MOUNTING, SIAMSE CONNECTIONS, CAPS, AND CHAINS. THREADS SHALL MEET FIRE DEPARTMENT REQUIREMENTS.

##### 2.3 SPRINKLER HEADS ACOUSTIC PANEL CEILING

- A. ASSEMBLY SHALL BE A RECESSED PENDENT SPRINKLER HEAD WITH A TWO-PIECE RECESSED ESCUTCHEON. HEADS SHALL BE CHROME WITH POLISHED CHROME ESCUTCHEON.
- B. GYPSUM BOARD CEILING AND SOFFITS: ASSEMBLY SHALL BE A FULLY CONCEALED SPRINKLER HEAD WITH A COVER PLATE HAVING A BAKED ENAMEL FINISH TO MATCH THE CEILING.
- C. EXPOSED: SPRINKLER FRAME SHALL BE BRONZE.

##### 2.4 ACCESSORIES

- PROVIDE ALL REQUIRED ITEMS SUCH AS ALARM BELLS, VALVES, DRAINS, FLOW SWITCHES, ETC. FOR A COMPLETE SYSTEM.

#### PART 3 – EXECUTION

##### 3.1 INSTALLATION

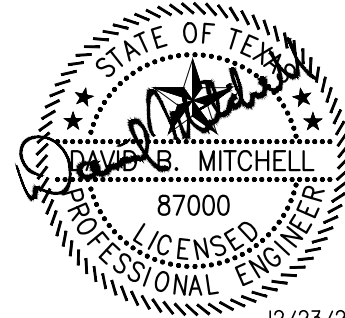
- A. WHERE PIPING PASSES THROUGH WALLS, FLOORS, CEILINGS, OR OTHER BUILDING MEMBER, SLEEVES MUST BE USED, WHERE EXPOSED PIPING PASSES THROUGH FINISH WORK, CHROME PLATED OR OTHER FINISH ACCEPTABLE TO THE ARCHITECT, SPLIT WALL PLATES OR ESCUTCHEONS SHALL BE INSTALLED TO FIT SNUGLY AROUND PIPING, WHERE FINISH IS NOT A PROBLEM, SUITABLE PLATES SHALL BE PROVIDED AT EACH HOLE TO ASSURE EFFECTIVENESS OF CONSTRUCTION AS A FIRE STOP.
- B. ALL OPENINGS FOR PIPING SHOULD BE ANTICIPATED AND INDICATED ON THE APPROVED AND ACCEPTED SHOP DRAWINGS. ANY ADDITIONAL CUTTING OR OPENINGS MUST HAVE WRITTEN APPROVAL OF THE ARCHITECT. THE COST OF CUTTING ADDITIONAL OPENINGS SHALL BE BORNE BY THE CONTRACTOR.
- C. ALL DRAIN VALVES SHALL BE ACCESSIBLE AND DRAINS CARRIED TO THE FLOOR SINK CAPABLE OF HANDLING A FULL FLOW TEST.
- D. PIPING IN AREAS HAVING CEILINGS SHALL BE CONCEALED. PIPING MAY BE EXPOSED ELSEWHERE, BUT KEPT AS HIGH AS POSSIBLE WITH ALL CONSIDERATION FOR THE PLAN LAYOUT.
- E. INSTALLATION OF PIPING AND LOCATION OF SPRINKLER HEADS SHALL BE COORDINATED WITH ALL OTHER ITEMS IN THE CONSTRUCTION AND SHALL NOT OBSTRUCT LIGHTS, AIR OUTLETS, ACCESS DOORS, AND OTHER ITEMS REQUIRING ACCESS. CHECK WITH COMPLETE SET OF DRAWINGS FOR THIS LOCATION.
- F. CONNECTION TO SERVICE MAIN, INCLUDING ALL REQUIRED FITTINGS, VALVES, ETC. SERVICE MAIN TO BE BROUGHT INTO THE BUILDING.
- G. ALL PIPING SHALL BE FREE OF RUST AND BE CLEAN INSIDE AND OUT.
- H. PIPING SHALL BE CAREFULLY COORDINATED WITH THE CEILING SUSPENSION SYSTEM, DUCTWORK, PIPING, AND ELECTRICAL WORK.
- I. RISERS TO BE LOCATED ON THE DRAWINGS AND BE EQUIPPED WITH VARIABLE PRESSURE ALARM VALVES. VALVES SHALL BE COMPLETE WITH ALL NECESSARY ITEMS, FITTINGS, ETC.
- J. THE TOTAL SYSTEM TO MEET ARCHITECT'S AND OWNER'S APPROVAL.
- K. PROVIDE HYDRAULIC DESIGN PLACARD, PERMANENTLY AFFIXED TO THE RISER. IDENTIFICATION TAGS OR PLATES, AND ACCESSORIES, INCLUDING ALARM VALVE AND WATER MOTOR GONG. DESIGN SHALL ALLOW FOR SUITABLE VENTING AND DRAINAGE FOR THE SAME. ALL TO MEET THE APPROVAL OF THE LOCAL OR STATE INSPECTOR.
- L. PROVIDE SIAMSE FIRE DEPARTMENT CONNECTIONS WITH DRAIN. HOSE THREADS SHALL BE SAME AS THOSE USED BY THE CITY FIRE DEPARTMENT.
- M. PROVIDE BRASS HOSE INLET PLUG WITH CHAIN AS APPROVED BY LOCAL FIRE DEPARTMENT.
- N. PROVIDE AN OUTSIDE ELECTRIC ALARM. PROVIDE AN OUTSIDE WATER MOTOR ALARM WITH DRAIN ONLY IF REQUIRED BY CODE.
- O. DESIGNS REQUIRING CUTTING OF STRUCTURAL MEMBERS FOR PASSAGE OF SPRINKLER PIPES OR HANGERS SHALL BE AVOIDED. WHEN DESIGN, DUE TO ECONOMY, APPEARANCE AND SIMILAR ASPECTS, DENOTE THE NECESSITY OF CUTTING, IT SHALL BE HELD TO AN ABSOLUTE MINIMUM, AND DONE ONLY WITH THE ARCHITECT'S WRITTEN APPROVAL.
- P. FURNISH AND INSTALL ALL ELECTRICAL DEVICES AS REQUIRED (SUCH AS TAMPER SWITCHES AND FLOW SWITCHES).
- Q. PIPING AT THE SYSTEM ENTRANCE SHALL BE AS COMPACT AS POSSIBLE TO CONSERVE FLOOR SPACE.
- R. ALL PIPING EXPOSED TO FREEZING TEMPERATURES SHALL BE INSULATED, TO SAME STANDARD AS DOMESTIC COLD WATER PIPING.

##### 3.2 ACCEPTANCE

- A. PRIOR TO CONNECTING TO THE OVERHEAD SPRINKLER PIPING, THE UNDERGROUND MAIN SHOULD BE FLUSHED TO MEET THE APPROVAL OF THE STATE INSPECTION BOARD.
- B. AFTER COMPLETION OF THE INSTALLATION, THE ENTIRE SYSTEM SHALL BE TESTED TO MEET THE APPROVAL OF THE LOCAL OR STATE INSPECTION BUREAU. A CONTRACTOR'S MATERIAL AND TEST CERTIFICATE SHOULD BE COMPLETED IN ACCORDANCE WITH NFPA 13 AND FORWARDED TO THE ARCHITECT.
- C. UPON COMPLETION OF THE JOB, THE CONTRACTOR SHALL FURNISH AND INSTALL WHERE DIRECTED, 12 HEAD EMERGENCY CABINET CONTAINING 12 SPRINKLER HEADS, INCLUDING ANY SPECIAL HEADS REQUIRED AND ONE HEAD WRENCH.
- D. AFTER COMPLETION OF ALL INSTALLATION, TEXTS, ETC. AND PRIOR TO THE OPENING DATE, THE SPRINKLER CONTRACTOR SHALL INSTRUCT THE OWNER IN THE OPERATION OF THE SPRINKLER SYSTEM. SPECIAL CARE SHALL BE TAKEN TO MAKE SURE THE OWNER:
- WILL IMMEDIATELY RECOGNIZE WHETHER THE MAIN VALVE IF IN AN OPEN OR CLOSED POSITION.
  - WILL KNOW HOW TO DRAIN THE SYSTEM.
  - WILL KNOW HOW TO TEST THE ALARM VALVE.
- E. THE STATE INSPECTION BUREAU, AFTER SATISFYING ITSELF THAT THE INSTALLATION IS SATISFACTORY IN ALL RESPECTS, WILL ISSUE A LETTER OF FINAL ACCEPTANCE. LETTER SHALL BE ADDRESSED TO THE SPRINKLER COMPANY RESPONSIBLE FOR THE INSTALLATION, PREPARED IN TRIPPLICATE, AND GIVEN TO THE OWNER.

## SPECIAL NOTE - FIRE PROTECTION

THIS IS NOT A DESIGN FOR THE FIRE SPRINKLER SYSTEM. THIS IS A PERFORMANCE SPECIFICATION ONLY, GIVING VERY GENERAL REQUIREMENTS. A FIRE PROTECTION ENGINEER WILL DESIGN A COMPLETE SYSTEM COMPLIANT WITH ALL APPLICABLE CODES AND PER THE FIRE MARSHAL'S APPROVAL. THIS SPECIFICATION DOES NOT ADDRESS ANY REQUIREMENTS OF WHETHER A WET OR DRY SYSTEM IS NEEDED, OR WHERE FIRE SPRINKLERS ARE REQUIRED, ALL OF THAT WILL BE BY THE FIRE PROTECTION ENGINEER, IN THEIR DESIGN DOCUMENTS.



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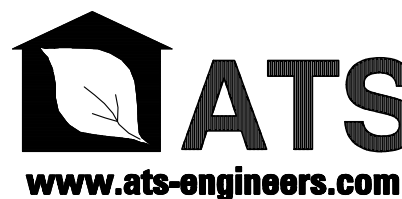
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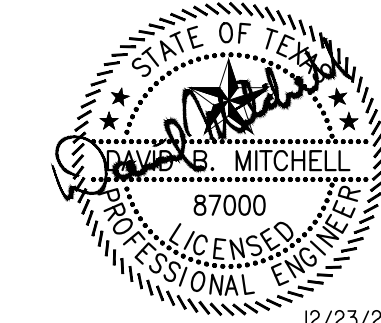
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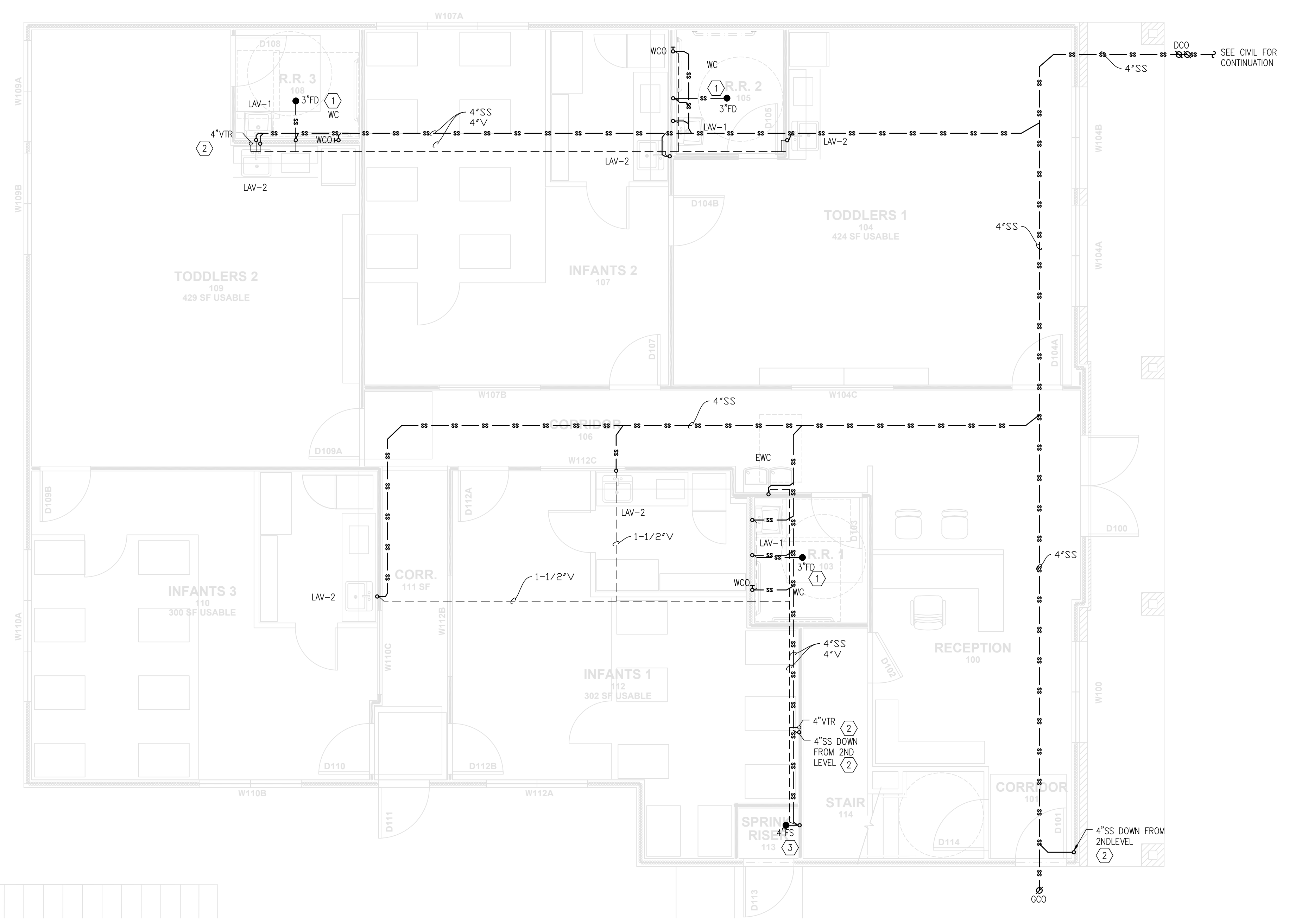
**P101**

### PLAN SPECIAL NOTE

- GENERAL NOTES:
  - REFER TO SHEET P601 FOR NOTES AND SYMBOLS THAT SHALL BE APPLY TO ALL SHEETS IN THIS SET OF DRAWINGS.
  - REFER TO SHEET P601 FOR CLEARANCE REQUIREMENTS BETWEEN OUTSIDE AIR INTAKES, OPENINGS TO PLUMBING VENT OUTLET, EXHAUST AIR OUTLETS, KITCHEN HOOD DUCT OUTLETS, DRYER VENT OUTLETS, GAS EQUIPMENT FLUES.

### PLAN KEYED NOTES

- PROVIDE TRAP PRIMER (TP-1) WITH ACCESSIBLE SHUT-OFF VALVE IN WALL TO ALL FLOOR DRAINS AND HUB DRAIN.
- ALL FIRE WALL AND CEILING PENETRATIONS MUST BE IN ACCORDANCE WITH ICC BUILDING CODE 2021, SECTION 714.
- INSTALL 4" FS TO FIRE RISER ROOM AND CONNECT TO BUILDING WASTE WATER LINE. FIRE SPRINKLER CONTRACTOR TO INSTALL NEW RISER AND CONNECT TO NEW FIRE SPRINKLER WATER LINE. COORDINATE EXACT LOCATION, DEPTH AND SIZE WITH CIVIL ENGINEER. PROVIDE AND INSTALL SIAMSE FIRE DEPARTMENT CONNECTION AND WATER MOTOR GONG PER FIRE MARSHAL REQUIREMENTS.



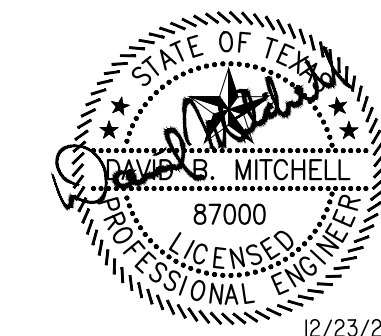
## 1 PLUMBING WASTE WATER & VENT PLAN - FIRST LEVEL

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

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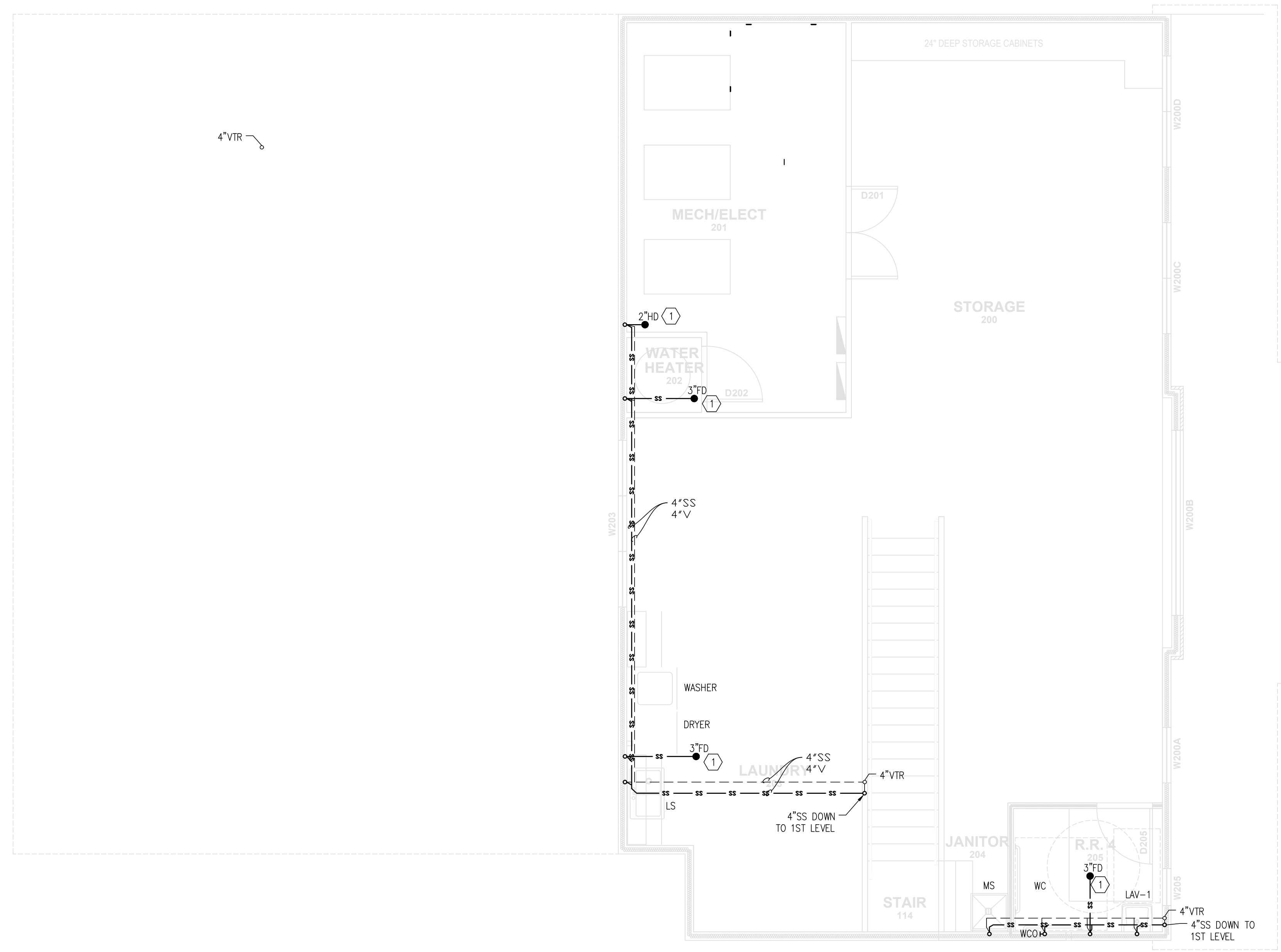
**PLAN SPECIAL NOTE**

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**PLAN KEYED NOTES**

1. PROVIDE TRAP PRIMER (TP-1) WITH ACCESSIBLE SHUT-OFF VALVE IN WALL TO ALL FLOOR DRAINS AND HUB DRAIN.



**1 PLUMBING WASTE WATER & VENT PLAN - SECOND LEVEL**  
SCALE: 1/4" = 1'-0"



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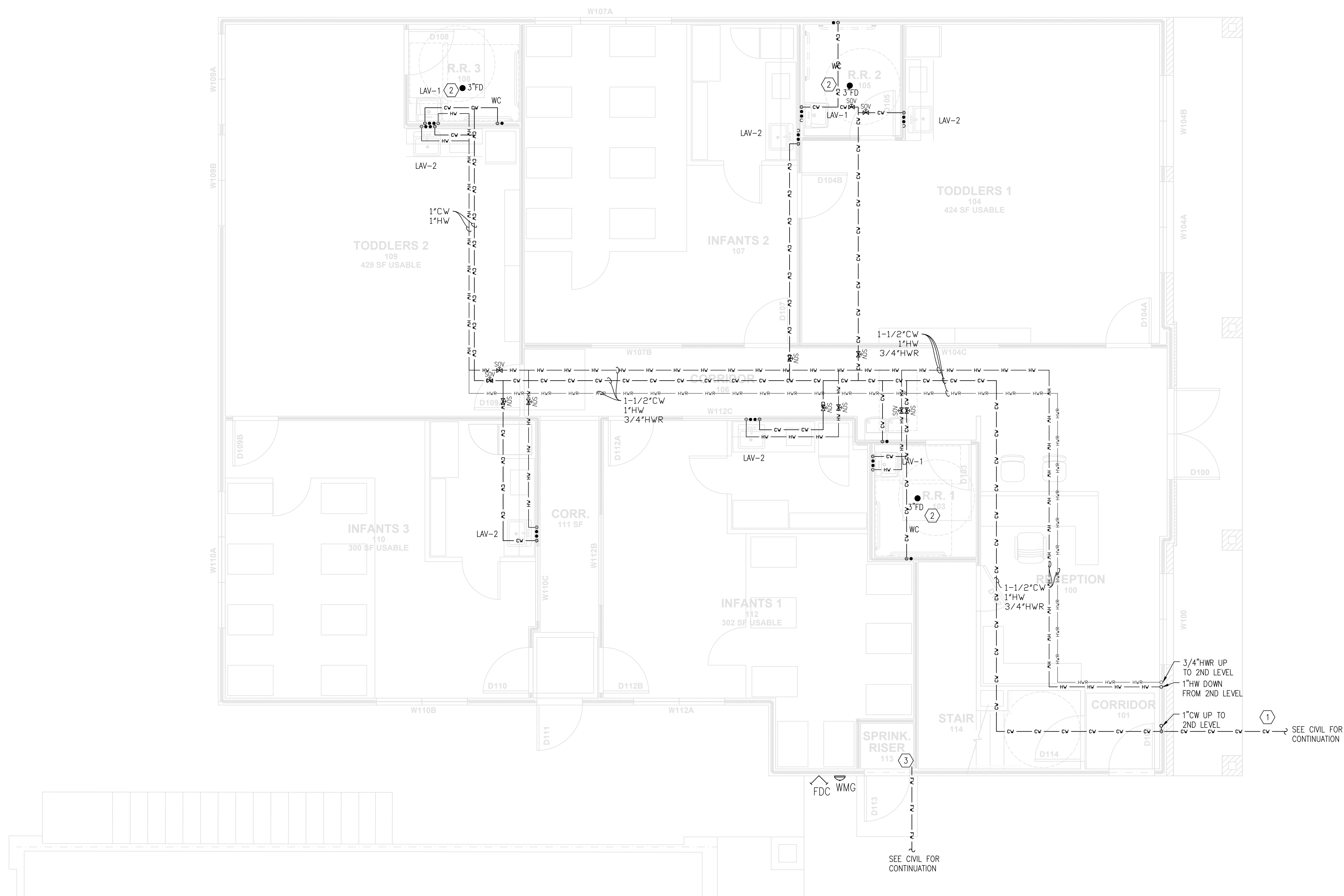
**P110**

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**PLAN KEYED NOTES**

- 1-1/2" DOMESTIC WATER UNIT SHUT-OFF VALVE AND 3/4" METER (METER TO CONFORM TO AWWA 700 & 701 STANDARDS & BE APPROVED BY CITY WATER UTILITY) PROVIDE ACCESSIBLE SHUTOFF IN CODE APPROVED VALVE BOX; REFER TO ARCH. PLANS FOR LOCATIONS ACCORDING TO BUILDING & UNIT LAYOUT & CONFIGURATION.
  - PROVIDE TRAP PRIMER (TP) WITH ACCESSIBLE SHUT-OFF VALVE IN WALL TO ALL FLOOR DRAINS, FLOOR SINKS, AND HUB DRAINS.
  - INSTALL 4" FS TO FIRE RISER ROOM AND CONNECT TO BUILDING WASTE WATER LINE. FIRE SPRINKLER CONTRACTOR TO INSTALL NEW RISER AND CONNECT TO NEW FIRE SPRINKLER WATER LINE. COORDINATE EXACT LOCATION, DEPTH AND SIZE WITH CIVIL ENGINEER. PROVIDE AND INSTALL SIAMSESE FIRE DEPARTMENT CONNECTION AND WATER MOTOR GONG PER FIRE MARSHAL REQUIREMENTS.
- A) A CONTRACTOR PROPERLY LICENSED BY THE STATE FIRE MARSHAL MUST DO THE WORK.
- B) THE LICENSED CONTRACTOR MUST SUBMIT SHOP DRAWINGS TO THE AUSTIN FIRE DEPT. FOR REVIEW AND APPROVAL, AFTER THE BUILDING PERMIT IS APPROVED. THESE SHOP DRAWINGS MUST BE APPROVED BY THE AUSTIN FIRE DEPT. PRIOR TO THE CONTRACTOR BEGINNING THE WORK, UNLESS OTHERWISE APPROVED.
- C) INDICATE THE APPLICABLE NFPA STANDARD AND EDITION (NFPA 13, 13R, 13D, 14, OR 72), AND THAT ALL WORK MUST BE IN COMPLIANCE WITH THE CITED NFPA STANDARDS AND THE CURRENTLY ADOPTED EDITION OF THE INTERNATIONAL FIRE CODE (IFC) AS AMENDED BY THE CITY OF AUSTIN.

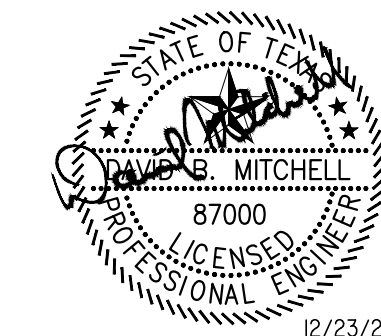


**1 PLUMBING WATER & GAS PLAN - FIRST LEVEL**

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

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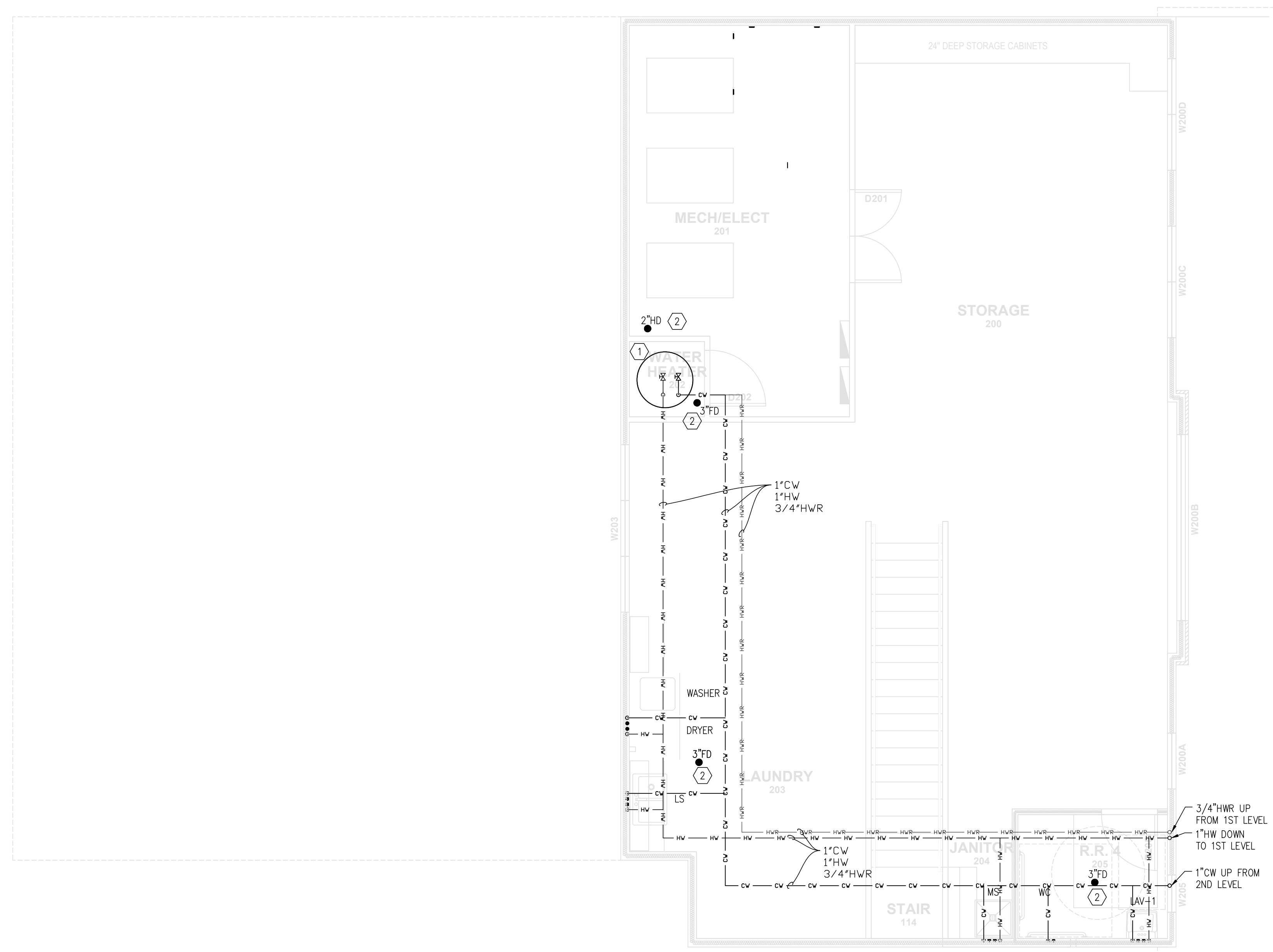
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- EXISTING CONDITION:
 

EXISTING LAYOUT AND INFORMATION IN THIS SET OF DRAWINGS IS BASED ON EXISTING DRAWINGS AND SITE OBSERVATION. HOWEVER SOME MODIFICATIONS OF CEILING AND SPACE LAYOUT MIGHT BE CHANGE. CONTRACTOR MUST PROCESS FULL SURVEY OF EXISTING CONDITION PRIOR TO BIDDING AND CONSTRUCTION.

### PLAN KEYED NOTES

- MOUNT WATER HEATER ON PLATFORM IN WATER HEATER CLOSET. REFER TO ARCHITECTURAL DRAWINGS FOR DETAIL. ROUTE 3/4" INSULATED CONDENSATE 6" ABOVE RIM OF FLOOR DRAIN.
- PROVIDE TRAP PRIMER (TP) WITH ACCESSIBLE SHUT-OFF VALVE IN WALL TO FLOOR DRAIN IN RISER ROOM.



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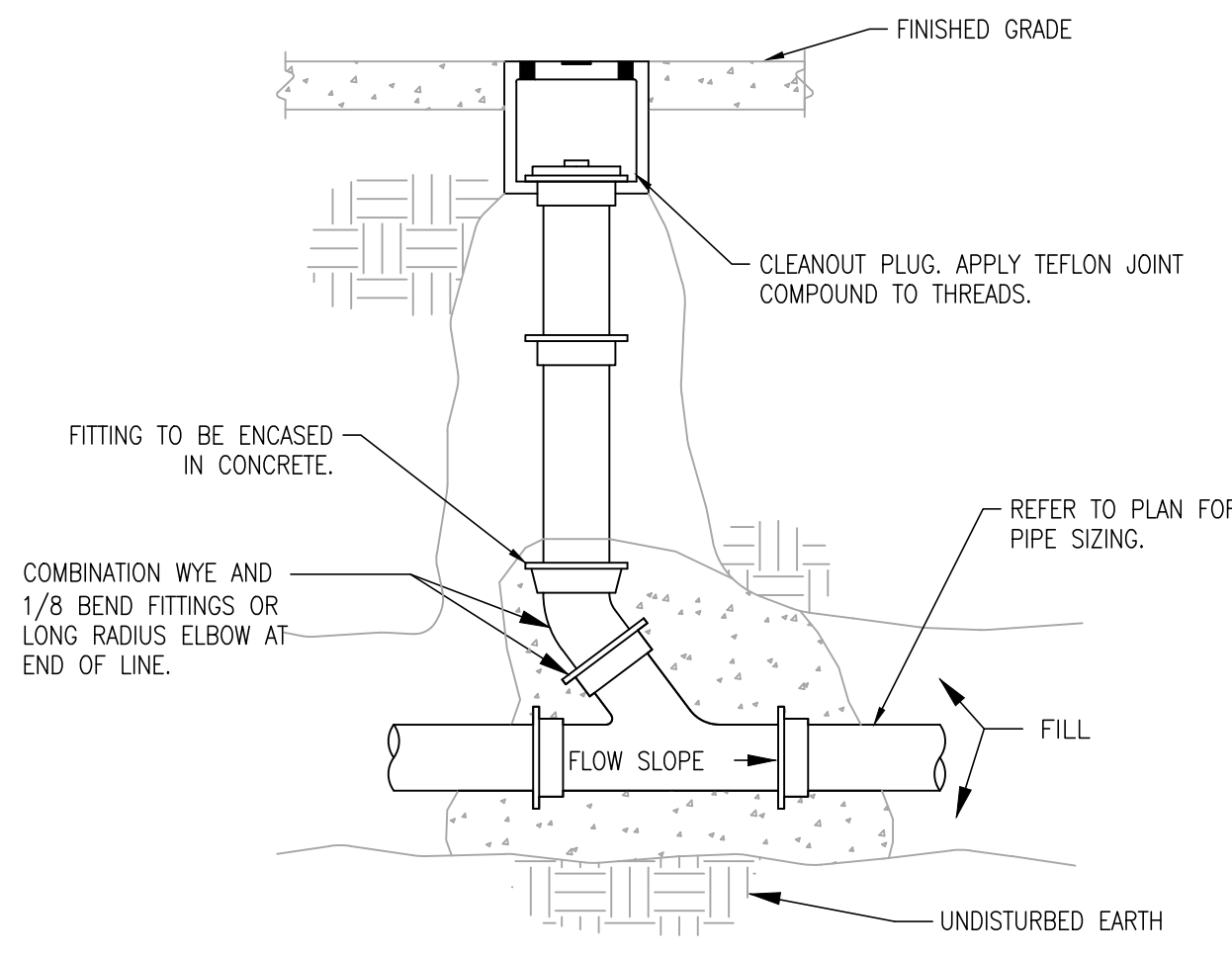
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## 1 PLUMBING WATER & GAS PLAN - SECOND LEVEL

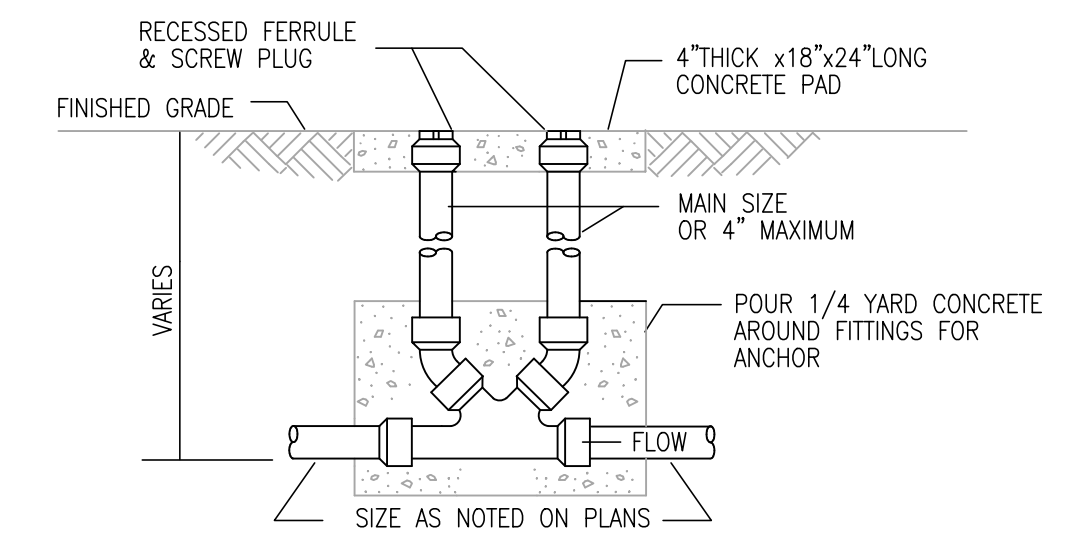
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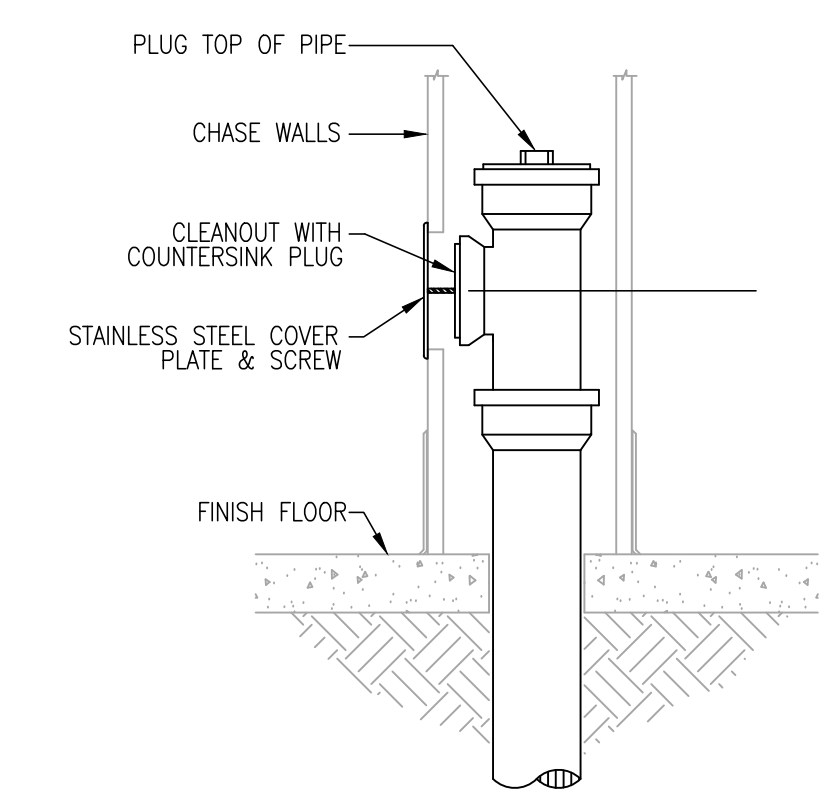
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 REGISTR. #2487  
 ATS Project #: 2109016



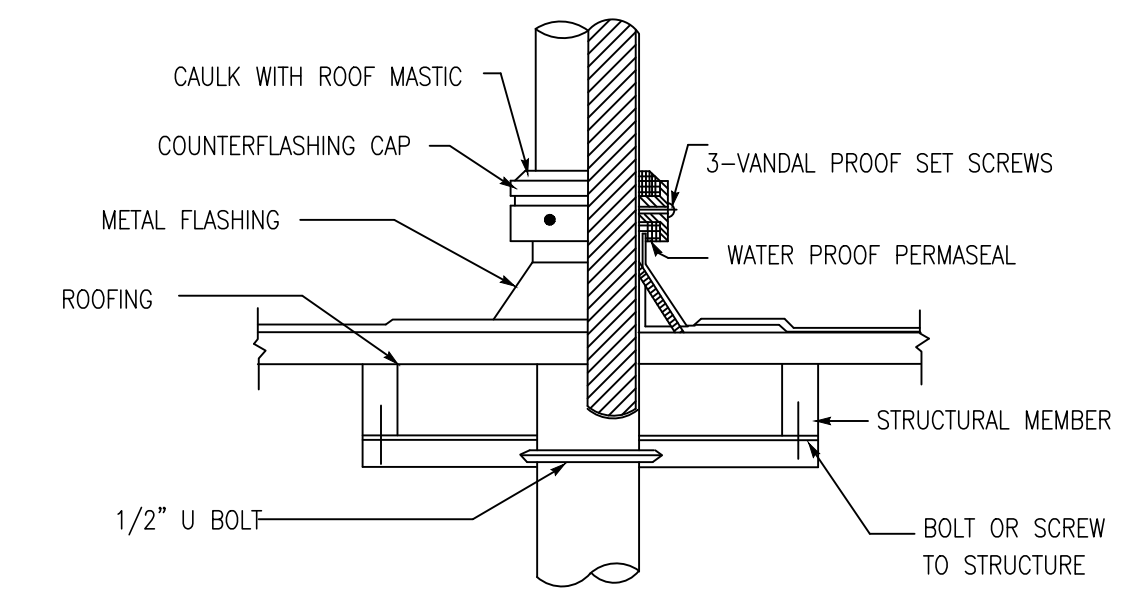
**1 GROUND CLEANOUT DETAIL**  
N.T.S.



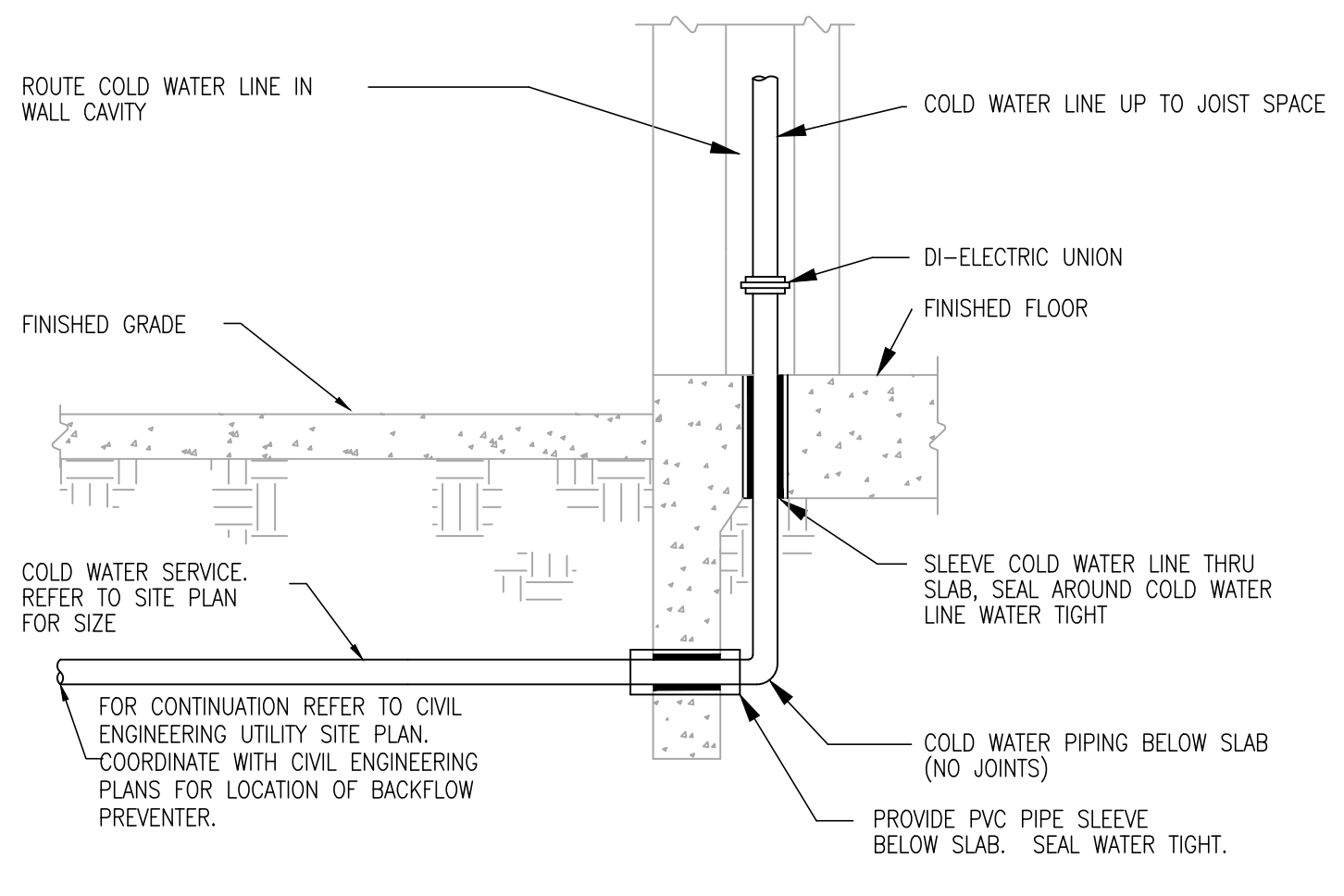
**2 TWO-WAY CLEAN-OUT DETAIL**  
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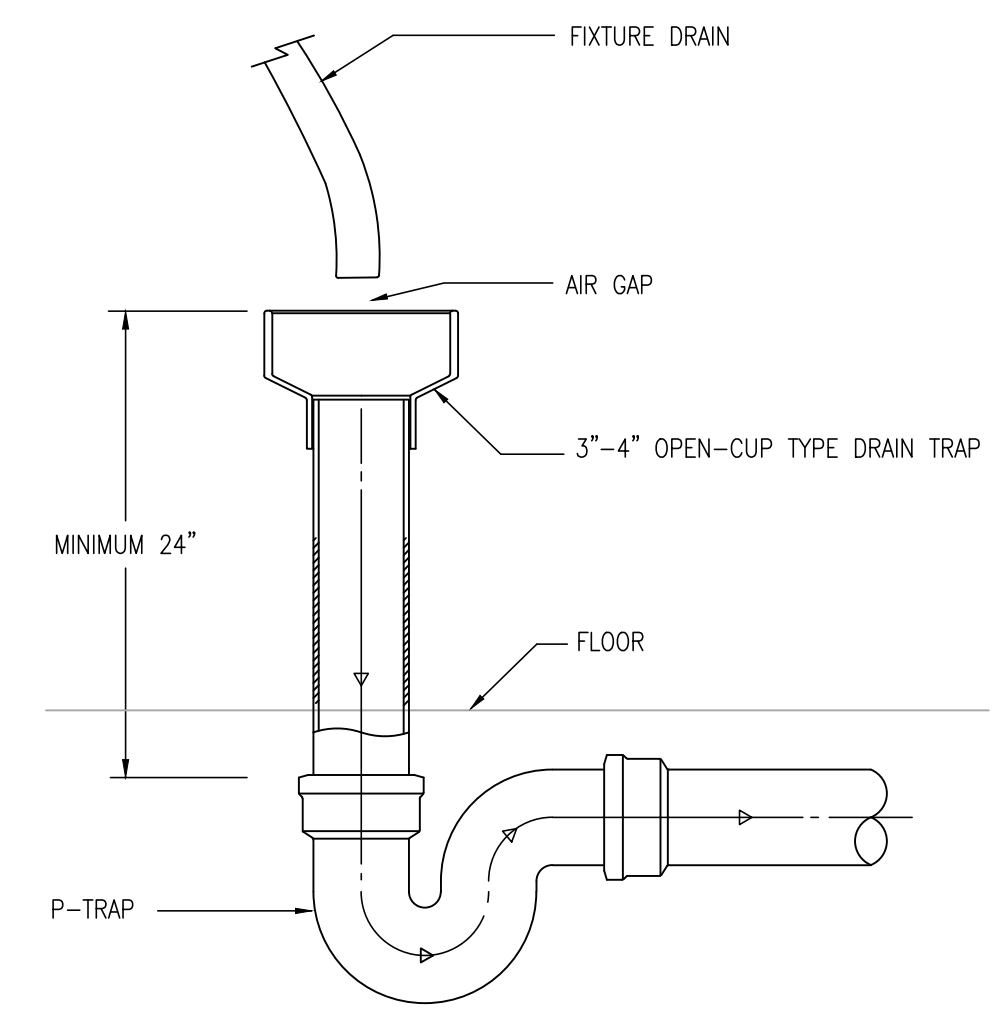
**3 WALL CLEAN-OUT**  
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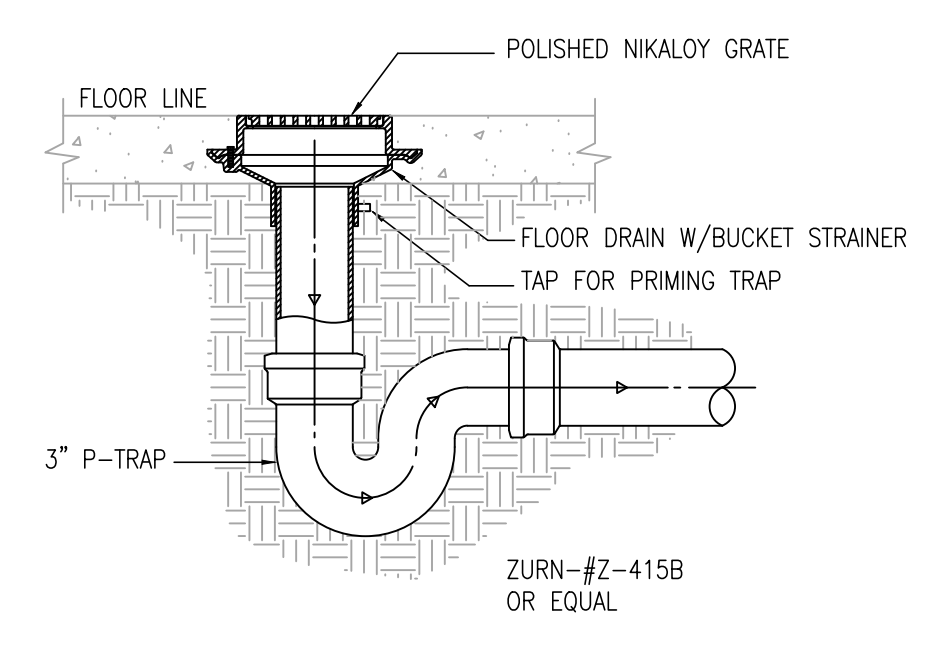
**4 VENT THRU ROOF**  
N.T.S.



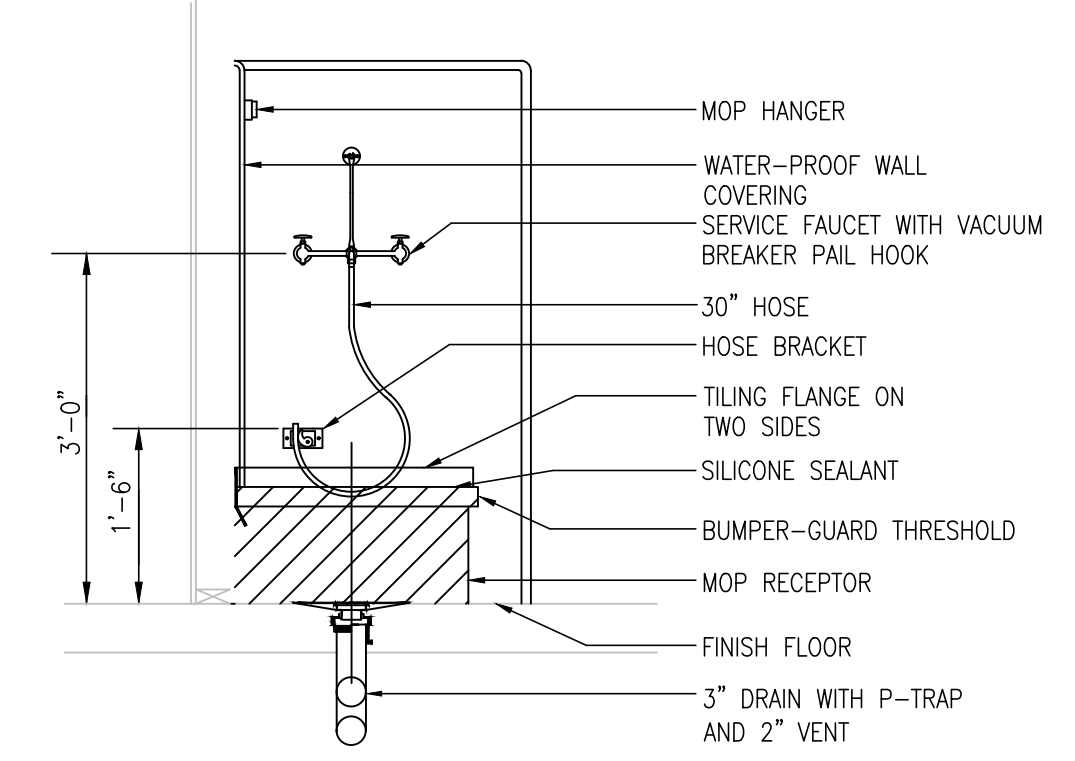
**5 COLD WATER ENTRY DETAIL**  
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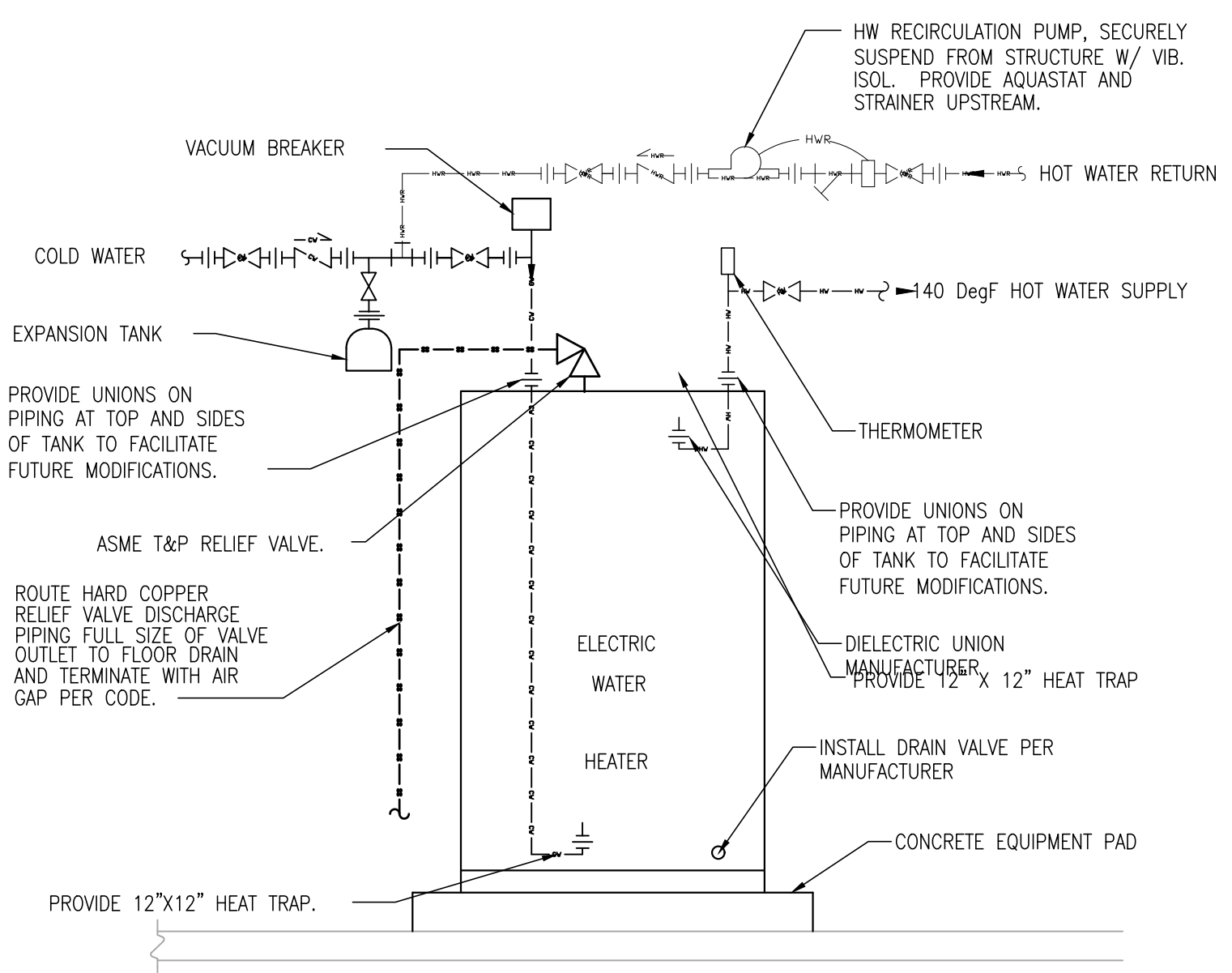
**6 HUB DRAIN DETAIL**  
N.T.S.



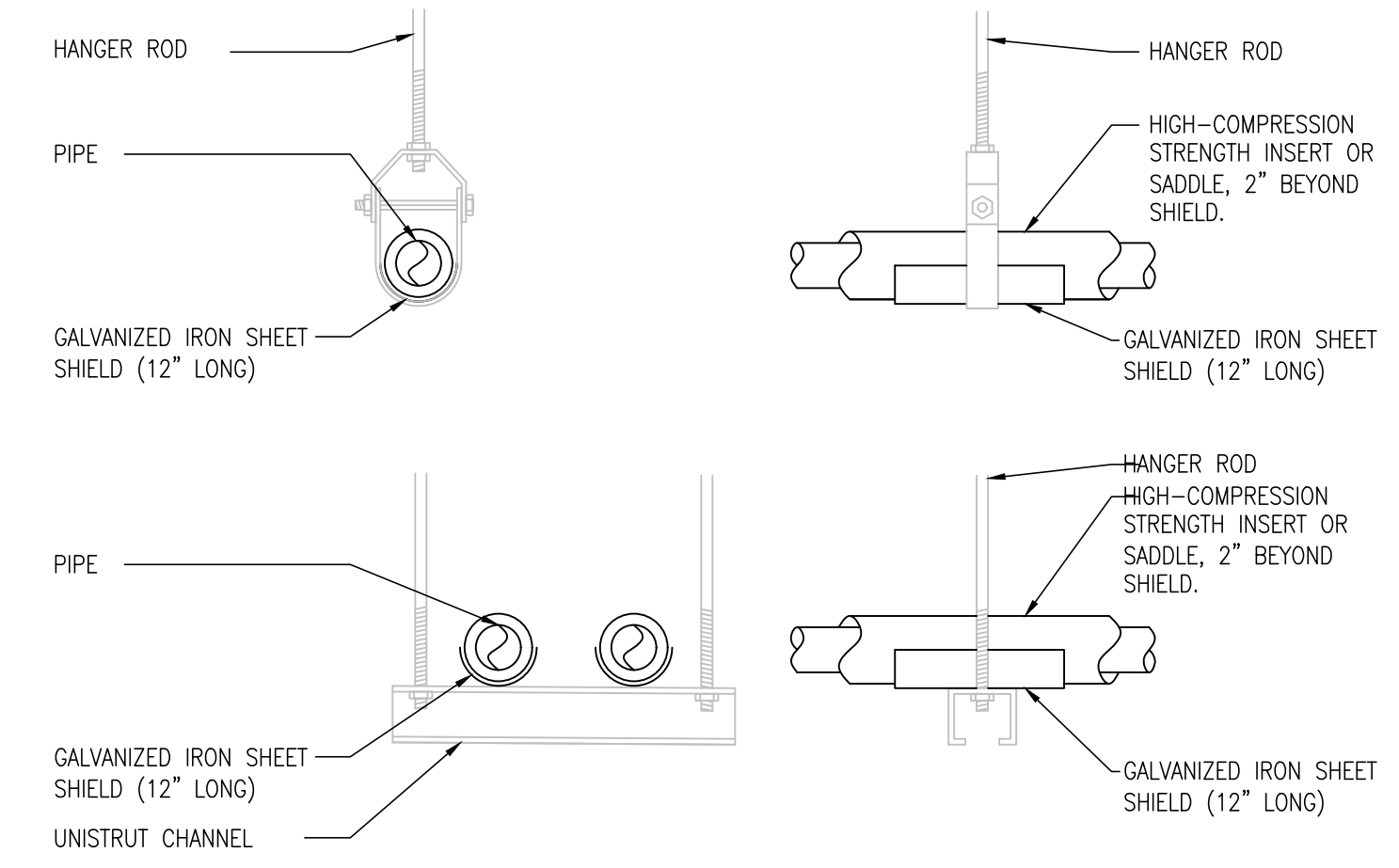
**7 FLOOR DRAIN DETAIL**  
N.T.S.



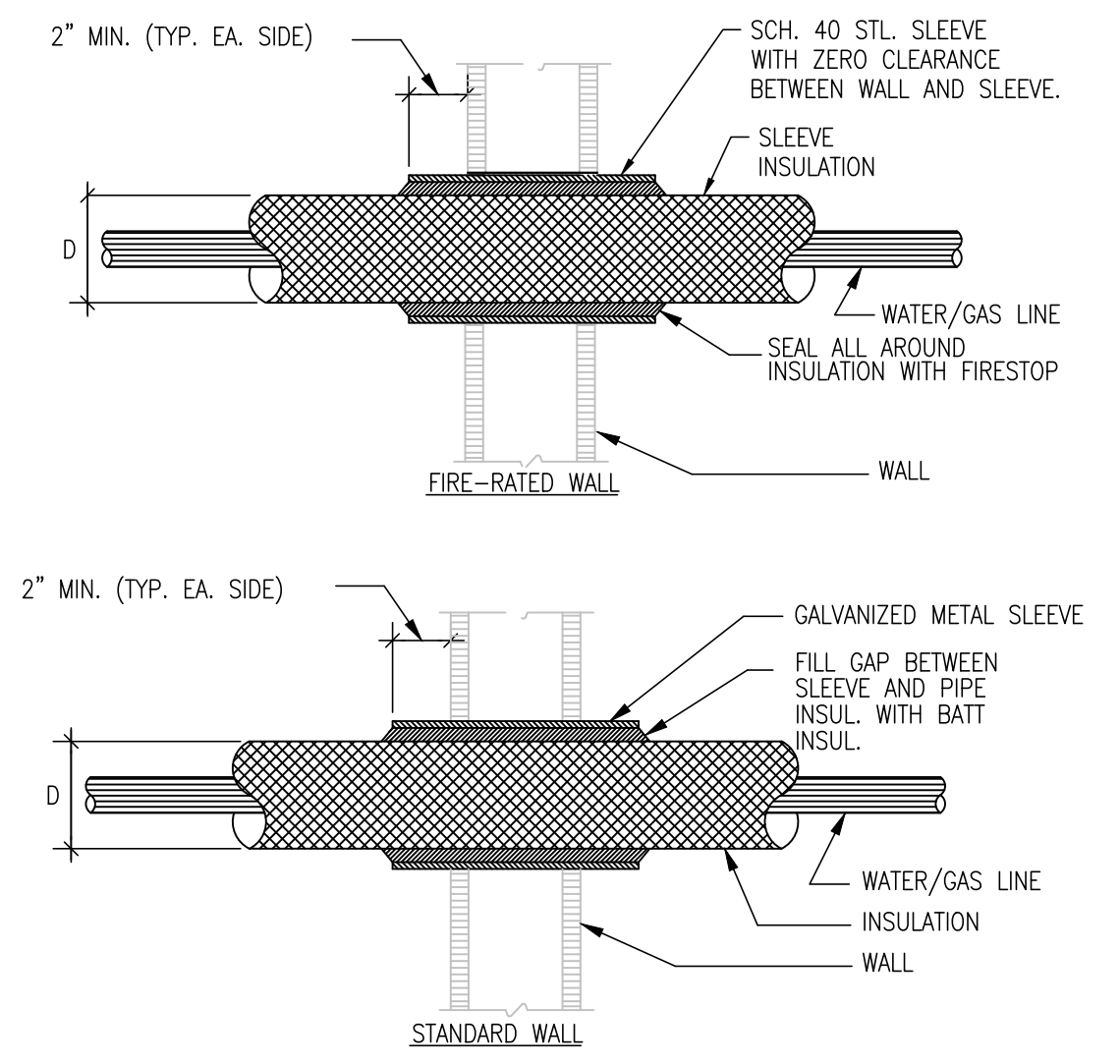
**8 MOP BASIN DETAIL**  
N.T.S.



**9 ELECTRICAL WATER HEATER**  
N.T.S.



**10 PIPE HANGING DETAIL**  
N.T.S.



**11 TYPICAL PIPE PENETRATION DETAIL**  
N.T.S.

**NOTE:**  
1. ATTACH SUPPORTS FOR ALL PIPING SUSPENDED FROM THE STEEL STRUCTURE TO THE TOP CORD OF JOISTS OR BEAM.  
2. PROVIDE COPPER OR PLASTIC COATED HANGERS FOR NON-INSULATED COPPER PIPE.

## GENERAL PLUMBING NOTES

- CODES AND ORDINANCES: PERFORM ALL WORK IN ACCORDANCE WITH ALL STATE AND LOCAL CODES AND ORDINANCES, INCLUDING THE LATEST ADOPTED TEXAS ACCESSIBILITY STANDARDS (TAS), THE CURRENT EDITION OF NFPA, THE LATEST ADOPTED ENERGY CODE, THE LATEST ADOPTED BUILDING CODE, LATEST ADOPTED MECHANICAL CODE, LATEST ADOPTED PLUMBING CODE, AND ALL CURRENT SUPPLEMENTS THERETO, AND ANY OTHER AUTHORITIES HAVING JURISDICTION OVER THE WORK.
- INSULATE ALL DOMESTIC WATER PIPING SUBJECT TO FREEZING TEMPERATURE.
- ALL HOT WATER PIPING SHALL BE INSULATED WITH 1/2-INCH THICKNESS FIBERGLASS INSULATION WITH KRAFT- SCUM-FOIL VAPOR BARRIER JACKET.
- DO NOT SCALE FROM DRAWINGS. REFER TO ARCHITECTURAL DOCUMENTS FOR EXACT LOCATION OF FIXTURES, EQUIPMENT.
- ALL WALL HUNG PLUMBING FIXTURES ARE TO BE SUPPORTED BY MEANS OF A CARRIER AS MANUFACTURED BY J.R. SMITH, JOSAM, OR ZURN.
- PLUMBING CONTRACTOR SHALL COORDINATE ALL PIPING AND EQUIPMENT WITH OTHER TRADES PRIOR TO INSTALLATION OF ANY PIPING OR EQUIPMENT. PROVIDE OFFSETS IN PIPING WHERE REQUIRED BY COORDINATION OF TRADES.
- PLUMBING CONTRACTOR SHALL VERIFY THE EXACT SIZE, LOCATION, DEPTH, AND PRESSURE OF ALL EXISTING UTILITY LINES BEFORE COMMENCING WORK.
- ALL SANITARY AND VENT PIPING SHALL BE ROUTED AT A SLOPE OF NOT LESS THAN 1/8" PER FOOT.
- VENT PENETRATIONS THROUGH ROOF TO HAVE CLEARANCE OF 10 FEET, MINIMUM, FROM ANY INTAKE FOR FRESH AIR, OR 3 FEET FROM ANY OPENING INTO BUILDING.
- CONTRACTOR SHALL VERIFY THE EXISTING DEPTH, SLOPE, AND PRESSURE OF EXISTING UTILITY LINE BEING TAPPED.
- COORDINATE ALL WORK WITH OWNER OR REPRESENTATIVES.
- ALL PIPING SHALL BE RUN CONCEALED UNLESS OTHERWISE NOTED.
- ALL EQUIPMENT USING CONNECTIONS TO THE POTABLE WATER SYSTEM THAT CAN CREATE A POSSIBLE CROSS-CONNECTION EFFECT ON HEALTH, REQUIRES BACKFLOW PROTECTION AS PER CODE. ALL BACKFLOW PREVENTION DEVICES SHALL BE 3RD PARTY CERTIFIED. PROVIDE INDIRECT WASTE RECEPTACLES FOR BACKFLOW PREVENTERS WHERE REQUIRED.
- SANITARY AND WATER SERVICE MAY VARY; SEE SITE PLAN.
- ALL ROOF PENETRATIONS SHALL BE AT THE CONTRACTORS EXPENSE. COORDINATE ALL ROOF WORK WITH THE ROOFING CONTRACTOR. ALL CUTTING TO BE DONE WITH A CUTTING TOOL. COORDINATE ALL PENETRATIONS WITH THE GENERAL CONTRACTOR.
- REFERENCE ARCHITECTURAL DRAWINGS FOR DIMENSIONS AFFECTING THIS WORK. VERIFY ALL DIMENSIONS FROM ARCHITECTURAL DRAWINGS AND FROM ACTUAL MEASUREMENTS AT THE JOB SITE.
- ALL WORK SHALL BE SUBJECT TO THE APPROVAL OF THE ARCHITECT.
- SADDLE CLAMPS SHALL NOT BE PERMITTED FOR CW & HW PIPING.
- THE PLUMBING CONTRACTOR SHALL CLEAN, FLUSH, AND DISINFECT ALL CW AND HW PIPING AND ALL FIXTURES PRIOR TO COMPLETION OF WORK.
- ALL PIPING SHALL BE IDENTIFIED AS TO TYPE OF USE, SERVICE, AND DIRECTION OF FLOW. LOCATE MARKERS AT EACH VALVE, AT ENTRIES TO WALLS, AND ON 20-FOOT CENTERS ON STRAIGHT RUNS OF PIPE. PROVIDE A FLOW ARROW AT EACH IDENTIFICATION MARKER. PIPE MARKERS SHALL BE SET ON "SETMARK" OR EQUAL.
- INSTALL PIPING FREE OF SAGS AND BENDS. PROVIDE NON-METALLIC COATED HANGERS WHERE IN DIRECT CONTACT WITH COPPER PIPING.
- PROVIDE DIELECTRIC UNIONS AT DISSIMILAR MATERIALS.
- THE CONTRACTOR SHALL MAKE ALL NECESSARY EXCAVATIONS, CUTTING OF PAVING, CONCRETE, ETC., REMOVAL OF UNUSABLE SPOIL MATERIAL, DO ALL BACKFILLING WITH STABILIZED FILL, AND DO TEMPORARY PATCH PAVING REPAIRS NECESSARY FOR PROPER EXECUTION OF THE WORK. BACKFILL SHALL BE MECHANICALLY COMPACTED TO A DENSITY OF 95% OF THE MAXIMUM DRY DENSITY AT OPTIMUM MOISTURE CONTENT AS DETERMINED BY THE STANDARD PROCTOR COMPACTION TEST.
- PROVIDE ESCUTCHEONS AT ALL FINISHED WALL AND CEILING PIPING PENETRATIONS.
- THIS IS A STANDARD NOTE SHEET. THEREFORE, NOT ALL OF THE INFORMATION LISTED ON THIS SHEET MAY BE USED.
- SUPPLY ALL FLOOR DRAINS WITH INFREQUENT USAGE, WITH AN AUTOMATIC TRAP PRIMER. PROVIDE ACCESS PANEL FOR PRIMER. COORDINATE LOCATION WITH ARCHITECT.
- PROVIDE CLEANOUTS AS PER CODE.
- INSULATE ALL WATER PIPING AND PIPING IN EXTERIOR WALLS AND IN UNCONDITIONED SPACES WITH HIGH DENSITY INSULATION, AS PER CODE. SUPPORT AS REQUIRED.
- INSTALL APPROVED PIPE WRAP OR INSULATION ON HOT WATER AND DRAIN PIPES ON ALL ADA FIXTURES, AS PER 4.19.4 TEXAS ACCESSIBILITY STANDARDS. REFER ARCHITECTS SPEC'S. (TYP.)
- PROVIDE ISOLATION VALVES TO ALL FIXTURES, IN ACCESSIBLE LOCATION, AS PER CODE.
- COORDINATE EXACT LOCATION OF CONNECTIONS, SIZES AND UTILITY REQUIREMENTS OF EQUIPMENT OR FIXTURES, W/EQUIPMENT VENDORS AND OTHER CONTRACTORS. DO NOT SCALE FROM DRAWINGS. REFER TO EQUIPMENT SCHEDULES FOR SPECIFICATIONS & DIMENTIONS.
- COORDINATE WITH OWNER/ARCHITECT BEFORE PURCHASING ANY FIXTURES OR EQUIPMENT.
- FIRE-RATED PENETRATIONS:**  
ALL PENETRATIONS OF FIRE-RATED WALLS, CEILINGS OR ENCLOSURES (IF ANY) SHALL BE PROTECTED ACCORDING TO THE REQUIREMENTS OF THE LATEST ADOPTED CODES, STANDARDS AND ORDINANCES.
- FIRE SPRINKLER NOTES:**  
THE FIRE SPRINKLER CONTRACTOR SHALL DESIGN MODIFICATIONS TO THE EXISTING FIRE SPRINKLER SYSTEM TO ACCOMMODATE THE NEW LAYOUT AND COMPLY WITH ALL APPLICABLE CODES AND ORDINANCES.  
THE FIRE SPRINKLER CONTRACTOR'S ENGINEER SHALL CREATE SEALED FIRE PROTECTION DRAWINGS FOR SUBMISSION TO THE FIRE MARSHAL FOR APPROVAL AND PERMIT.
- GROSS-CONNECTION**  
ALL EQUIPMENT USING CONNECTIONS TO THE POTABLE WATER SYSTEM THAT CAN CREATE A POSSIBLE CROSS-CONNECTION EFFECT ON HEALTH, REQUIRES BACKFLOW PROTECTION AS PER CODE. ALL BACKFLOW PREVENTION DEVICES SHALL BE 3RD PARTY CERTIFIED. ROUTE DRAIN FOR BACKFLOW PREVENTERS TO APPROVED HUBDRAIN, FLOOR DRAIN OR FLOOR DRAIN WHERE REQUIRED.  
A. **HOSE CONNECTIONS:** HOSE BIB REQUIRES AN ATMOSPHERIC OR PRESSURE TYPE VACUUM BREAKER.  
B. **CARBONATOR & ICEMAKERS:** REQUIRE REDUCED PRESSURE ZONE ASSEMBLY (RPZA - CONBRACO SERIES 40-200 OR APPROVED EQUIVALENT)  
C. **COFFEE, ESPRESSO, TEA & JUICE MACHINES:** REQUIRE DOUBLE CHECK VALVE ASSEMBLY (DCVA - CONBRACO SERIES 40-100 OR APPROVED EQUIVALENT) FOR WATER TO COFFEE MACHINE.  
**NOTE:** CODE REQUIRES INDIVIDUAL BACKFLOW PREVENTERS FOR EACH PIECE OF EQUIPMENT. COMMON LOW HAZARDS MAY BE GROUPED TOGETHER AND PROTECTED BY ONE BACKFLOW PREVENTER. HIGH HAZARDS REQUIRE DEDICATED HIGH HAZARD BACKFLOW PREVENTERS FOR EACH HAZARD.  
6. **MIXING VALVE:**  
PROVIDE MIXING VALVES TO LIMIT HOT WATER TEMPERATURE TO BELOW 120°F FOR PUBLIC LAVATORIES & HAND WASHING SINKS. WATER HEATER THERMOSTAT SHALL NOT BE CONSIDERED A CONTROL TO MEET THIS CODE PROVISION.

## LEGEND

COLD WATER	-----
HOT WATER	-----
HOT WATER RETURN	-----
VENT	-----
WASTEWATER	-----
MEDIUM PRESSURE GAS	-----
LOW PRESSURE GAS	-----
SHUT OFF VALVE	OR
DOUBLE CHECK VALVE ASSEMBLY	DCVA
REDUCED PRESSURE ZONE ASSEMBLY	RPZA
GAS VALVE	+

## WATER CALCULATION

WATER CLOSET, FLUSH TANK (PUBLIC)	4 x	2.5 F.U. =	10.0 F.U.
LAVATORY	9 x	1.0 F.U. =	9.0 F.U.
SERVICE SINK (PRIVATE)	1 x	1.5 F.U. =	1.5 F.U.
LAUNDRY SINK	1 x	1.5 F.U. =	1.5 F.U.
CLOTHES WASHER	1 x	4.0 F.U. =	4.0 F.U.
FIRST HOSE BIBB	1 x	2.5 F.U. =	2.5 F.U.
<b>TOTAL FIXTURE UNITS</b>			<b>28.5 F.U.</b>
<b>28.5 FIXTURE UNITS</b>			<b>22.8 GPM</b>
<b>HIGHEST FIXTURE = 30 FEET</b> <b>(30 FT.) x 0.43 = 12.9 PSI STATIC LOSS</b>			
<b>HORIZONTAL PIPE LENGTH TAP TO METER</b>			<b>10 FEET</b>
<b>HORIZONTAL PIPE LENGTH METER TO BUILDING</b>			<b>200 FEET</b>
<b>HORIZONTAL PIPE LENGTH BUILDING TO LAST FIXTURE</b>			<b>200 FEET</b>
<b>VERTICAL PIPE LENGTH BUILDING RISE TO HIGHEST FIXTURE</b>			<b>30 FEET</b>
<b>TOTAL PIPE LENGTH</b>			<b>440 FEET</b>
<b>(440 FT.) x 1.25 (FITTING LOSS) = 550 FEET TOTAL DEVELOPED LENGTH</b>			
SIZE	DEVICE	PSI LOSS	
3/4"	METER	= 10.1 PSI	
	STATIC	= 12.9 PSI	
	FIXTURE (FLUSH TANK)	= 8.0 PSI	
	<b>TOTAL BUILDING LOSS</b>	<b>= 31.0 PSI</b>	
<b>PRESSURE AT STREET</b>			<b>= 50.0 PSI</b>
<b>BUILDING LOSS</b>			<b>= 31.0 PSI</b>
<b>DIFFERENCE</b>			<b>= 19.0 PSI</b>
<b>(19.0 / 550) x 100 = 3.5</b>	<b>MAX PSI DROP ALLOWABLE</b>		
	<b>PER 100 FT. PIPE LENGTH</b>		
<b>USE 3/4" METER AND 1-1/2" MAIN WATER LINE TO BUILDING</b>			

## WATER CALCULATION NOTES

- THIS CALCULATION IS BASED ON UNIFORM PLUMBING CODE 2021.
- \* VERIFY PRESSURE AT TIME OF CONSTRUCTION. IF GREATER THAN 65 PSI PROVIDE AND INSTALL PRESSURE REDUCING VALVE TO REDUCE WATER PRESSURE TO 65 PSI MAXIMUM.

## PLUMBING FIXTURE SCHEDULE

MARK	MODEL No.	HW	CW	WASTE	VENT	REMARKS
WC	WATER CLOSET: KOHLER MODEL: WELLWORTH CLASSIC SEAT: CHURCH MODEL: 295SSC	-	1"	3"	2"	15" VITREOUS CHINA, FLOOR MOUNTED 1.28GPF. TWO PIECE, ELONGATED BOWL, LEFT HAND FLUSH  WHITE FRONT SEAT WITH CONCEALED STAINLESS STEEL SELF-SUSTAINING AND EXTERNAL CHECK HINGE.
LAV-1	LAVATORY: KOHLER MODEL: PINIOR K-2035-1-0  FAUCET: SLOAN OPTIMA MODEL: SOLIS EAF-275	1/2"	1/2"	1-1/2"	1"	22" x 21 1/4" WALL MOUNT BATHROOM SINK WITH OVERFLOW, ADA COMPLIANT WHEN INSTALLED AS PROPERLY.  INFRARED FAUCET
LAV-2	LAVATORY: ELKAY MODEL: LRAD252255 (ADA ACCESSIBLE)  FAUCET: SLOAN MODEL: EAF-275-SOL-ISM-CP-0.5GPM-AER-IR-IQ-10S-FCT	1/2	1/2"	1-1/2"	2"	DROP IN LAVATORY, STAINLESS STEEL, 25" X 22" BOWL, FAUCET HOLES ON 4" CENTER.  SOLAR POWER SUPPLY WITH BATTERY BACKUP, INTEGRATED SIDE MIXER, POLISHED CHROME FINISH, 0.5 GPM, AERATED SPRAY, INFRARED SENSOR.
LS	LAUNDRY SINK: ELKAY MODEL: LRAD33221  FAUCET: ELKAY MODEL: LKGT1041CR ADA COMPLIANT	1/2	1/2"	1-1/2"	1-1/4"	BAR SINK, DOUBLE BOWL, SELF RIMMING, STAINLESS STEEL, 33"x22"x5-1/2" DEEP, ADA COMPLIANT  ELKAY FAUCET, MID RISE, LEVER HANDLE, 0.5GPM AERATOR, ADA COMPLIANT
MS	WOP SINK: STERN WILLIAMS MODEL: SB-0665-BP-2-LB  FAUCET: T & S MODEL: B-0665-BSTR	1/2"	1/2"	3"	1-1/2"	WHITE (24" X 24") SERVICE SINK WITH 10" HIGH WALLS, 3" STAINLESS STEEL COMBINATION DOME STRAINER AND LINT BASKET OUTLET, ADD RESISTANT, MOLDED STONE (COLOR AS SPECIFIED BY ARCHITECT). REMOVABLE WNVL-COATED RIM GUARD NO. V-70-24.  ROUGH CHROME PLATED BRASS FINISH, RIGID SPOUT, WALL BRACE, INTEGRAL STOPS, PAIL HOOK, HOSE END VACUUM BREAKER AND VANDAL PROOF SCREWS. PROVIDE 30" HOSE (MIN.) WITH STAINLESS STEEL BRACKET (EQUAL TO HIGH 20 GAUGE TYPE 316 STAINLESS STEEL SPLASH GUARDS ON ALL WALLS ADJACENT TO THE SERVICE SINK. PROVIDE AND INSTALL INTERNAL WALL SUPPORTS IN ACCORDANCE WITH THE ARCHITECTS REQUIREMENTS FOR THE WALL BRACE ATTACHMENTS.
EWC	ELECTRIC DRINKING FOUNTAIN: ELKAY MODEL: VRCTLFRBSC	-	1/2"	1-1/2"	1-1/4"	ELECTRIC WATER COOLER, DUAL HEIGHT, STAINLESS STEEL BASIN, INDOOR & OUTDOOR RATED, WALL MOUNT, ADA COMPLIANT 120V/1Ø, 5 FLA HARDWARE ELECTRICAL CONNECTION.
HB	HOSE BIBB: WOODFORD MODEL: B-65	-	1/2"	-	-	ENCASED, AUTO DRAIN, FREEZELESS W/BUILT-IN ANTI-SIPHON VACUUM BREAKER, WITH 3/4" MALE HOSE THREAD. ASSE STANDARD 1019-B APPROVED.
*FD	FLOOR DRAIN: J.R. SMITH MODEL: 2005A	-	-	SEE PLAN	2"	PAINTED CAST IRON FLOOR DRAIN AND SEEPAGE FLANGE, SIZE AS NOTED ON DRAWINGS, CLAMPING UNIT, TRAP PRIMER TAP, AND 6" X 6" SQUARE ADJUSTABLE POLISHED NICKEL BRONZE STRAINER TYPE TOP AND DEEP SEAL TRAP.
TP	TRAP PRIMER: PRECISION PRODUCT MODEL: PR-500	-	1/2"	-	-	AUTOMATIC PRESSURE DROP ACTIVATED TRAP PRIMER VALVE. PRIME UP TO 2 FLOORS DRAINS WITH PATENTED DISTRIBUTOR WITH DISTRIBUTION UNIT DU-UJ OR DU-4
WCO	WALL CLEANOUT COVER: J.R. SMITH MODEL: 4530S	-	-	3"	-	CAST IRON CLEAN OUT TEE, STAINLESS STEEL, ROUND COVER WITH SCREW AND IRON PLUG WITH SEAL
GCO	EXTERIOR CLEANOUT: J.R. SMITH MODEL: 4262L-G	-	-	4"	-	HEAVY DUTY CAST IRON COVER, HIGH & LOW ROUND FLANGES FOR USE WITH CONCRETE, ASPHALT AND EARTH FILL IN PAVED AREAS
DCO	EXTERIOR DOUBLE CLEAN OUT: JR SMITH MODEL: TWO (2) OF 4262L-G	-	-	4"	2"	HEAVY DUTY CAST IRON COVER, HIGH & LOW ROUND FLANGES FOR USE WITH CONCRETE, ASPHALT AND EARTH FILL IN PAVED AREAS
WHA	WATER HAMMER ARRESTOR: WADE MODEL: #10-P	-	3/4"	-	-	PISTON-TYPE SHOCKSTOP WATER HAMMER, SPUN SEAMLESS COPPER CASING, MALE N.P.T. PIPE THREAD, DELRIN PLASTIC PISTON W/ (2) BUNA O-RINGS. MAINTENANCE FREE, APPROVED FOR SEALED WALL INSTALLATIONS. CONFORMS TO PDI & A.S.S.E. STANDARDS.

### NOTES:

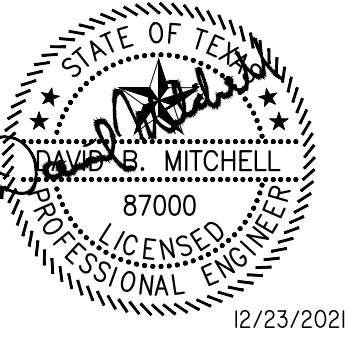
- PLUMBING FIXTURES, ACCESSORIES AND INSTALLATION SHALL MEET ALL FEDERAL, STATE, ADA AND LOCAL REQUIREMENTS
- SPECIAL NOTE: PLUMBING FIXTURES SUBSTITUTIONS BY PLUMBING CONTRACTOR, SUBJECT TO APPROVAL BY ENGINEER AND OWNER.
- CONTRACTOR TO VERIFY THAT FAUCETS ARE COMPATIBLE WITH LAVATORIES.
- CONTRACTOR TO VERIFY COMPATIBILITY OF ALL FIXTURES WITH PIPING SPECIFIED.

## COMMERCIAL WATER HEATER SCHEDULE

MARK	STORAGE		WATER				ELECTRICAL DATA				UNIT DATA				
	SIZE	STANDBY LOSS	CONN (IN)	TEMP (DegF)	RECOVERY (GPH)	KW	MCA	MCCP	VOLT / PHASE	MAKE / MODEL	TYPE	WEIGHT (LBS)	NOTES		
WH	40	0.85	3/4	3/4	60	140	30	6.0	25	30	208V/1Ø	AQ SMITH DEL-40	ELECTRIC TANK TYPE	125	-

### NOTES:

- PROVIDE 3" DEEP EMERGENCY DRAIN PAN.
- MANUFACTURER TO PROVIDE HEAT TRAPS.
- INSTALL MIXING VALVE TO LIMIT HW TEMP TO 110°F (OR LESS) TO THE LAVATORIES & HAND WASHING SINKS. (AS PER UPC 414.1) DO NOT USE THERMOSTAT TO CONTROL LAV HW TEMP.
- INSTALL EXPANSION TANK. (AMTROL OR SIM) VACUUM RELIEF VALVE REQUIRED W/ EXPANSION TANK INSTALLED.



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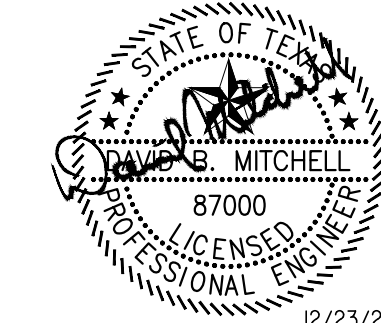
**Sun, Moon & Stars Learning Crt.**  
 3808 South 1st Street  
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**N-VIZION**  
 FORMS - ENVIRONMENTS - IMAGES

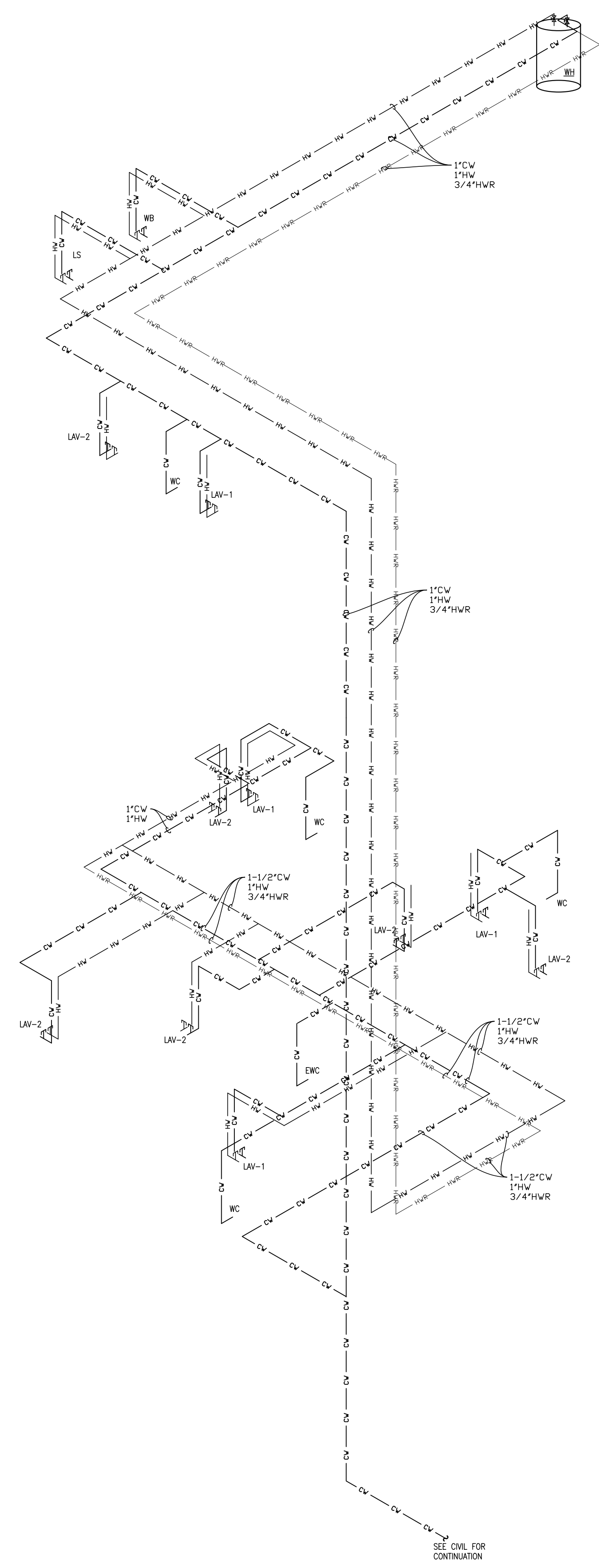
Project Number: 210105  
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 Austin, TX 78730 p:512.327.9955 www.n-vizion.net  
 Registration Nos.: TX PE Firm-F-12228, TX-25489, LA- 9413  
 MI: 1301069591, NV: 6252, NC: 14865, OH: ARC: 1917865

Date:	12/23/2021
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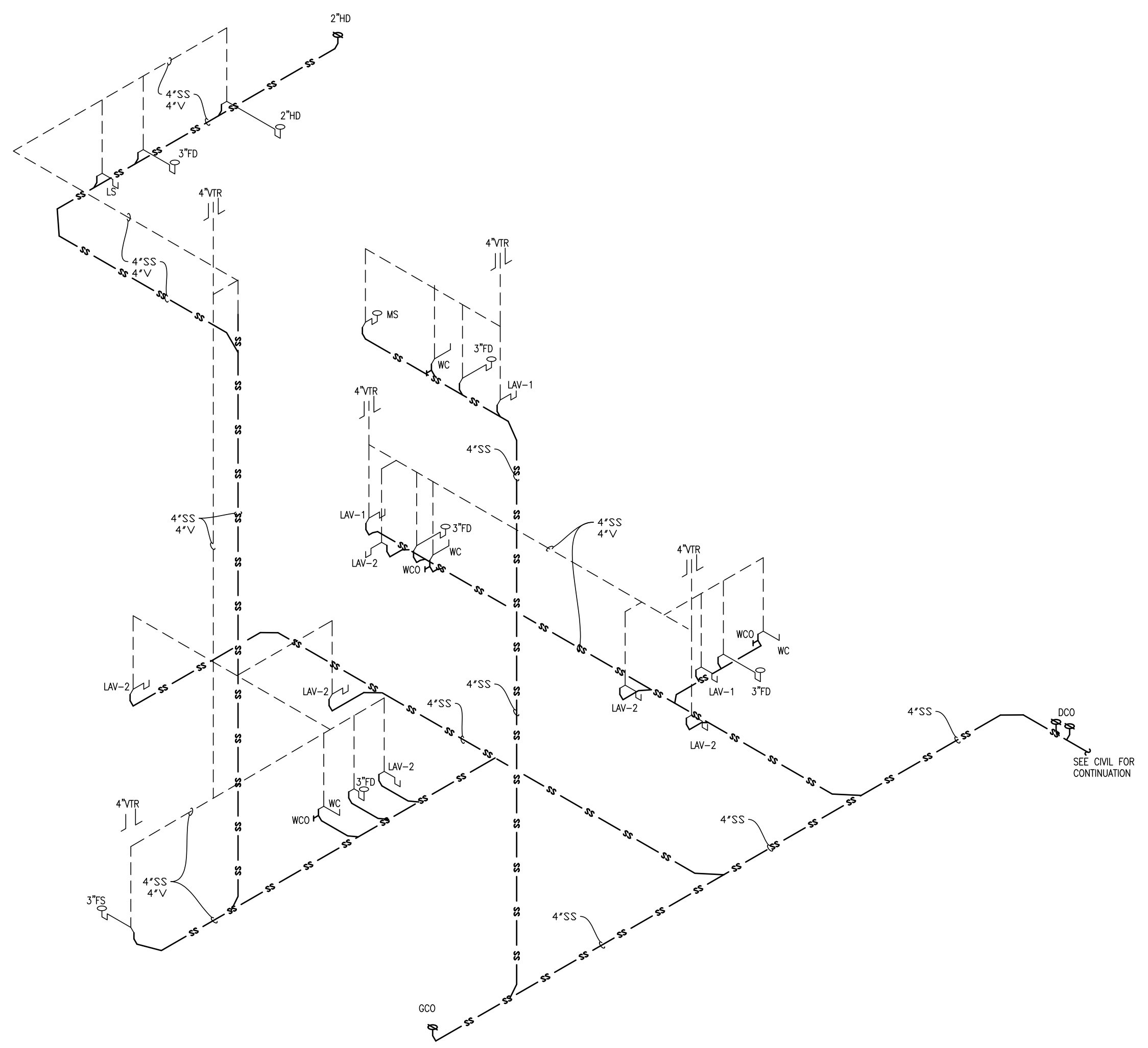




12/23/2021



SEE CIVIL FOR CONTINUATION



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PLUMBING WASTE WATER & VENT RISER

NOT TO SCALE

PLUMBING WASTE WATER & VENT RISER

NOT TO SCALE

Sun, Moon & Stars Learning Crt.  
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N-VIZION  
FORMS - ENVIRONMENTS - IMAGES

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Date:	Description:
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P701