

# CONSTRUCT CLASSROOM ADDITION REGIONAL TRAINING SITE - MAINTENANCE (RTS-M) FORT LEONARD WOOD, MISSOURI

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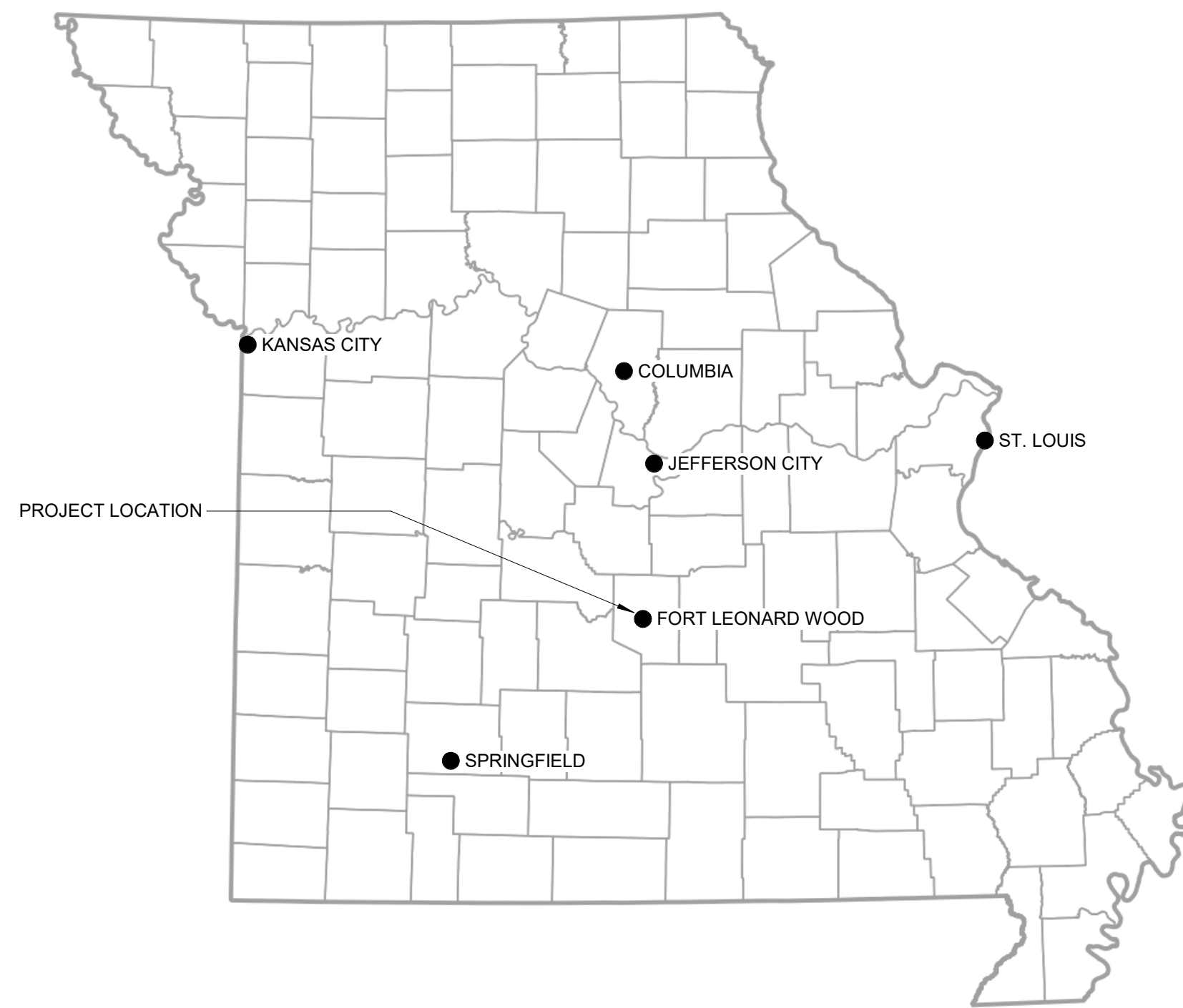
OWNER: STATE OF MISSOURI  
MICHAEL L. PARSON,  
GOVERNOR  
DEPARTMENT OF  
PUBLIC SAFETY

PROJECT  
MANAGEMENT: OFFICE OF ADMINISTRATION  
DIVISION OF FACILITIES MANAGEMENT,  
DESIGN AND CONSTRUCTION

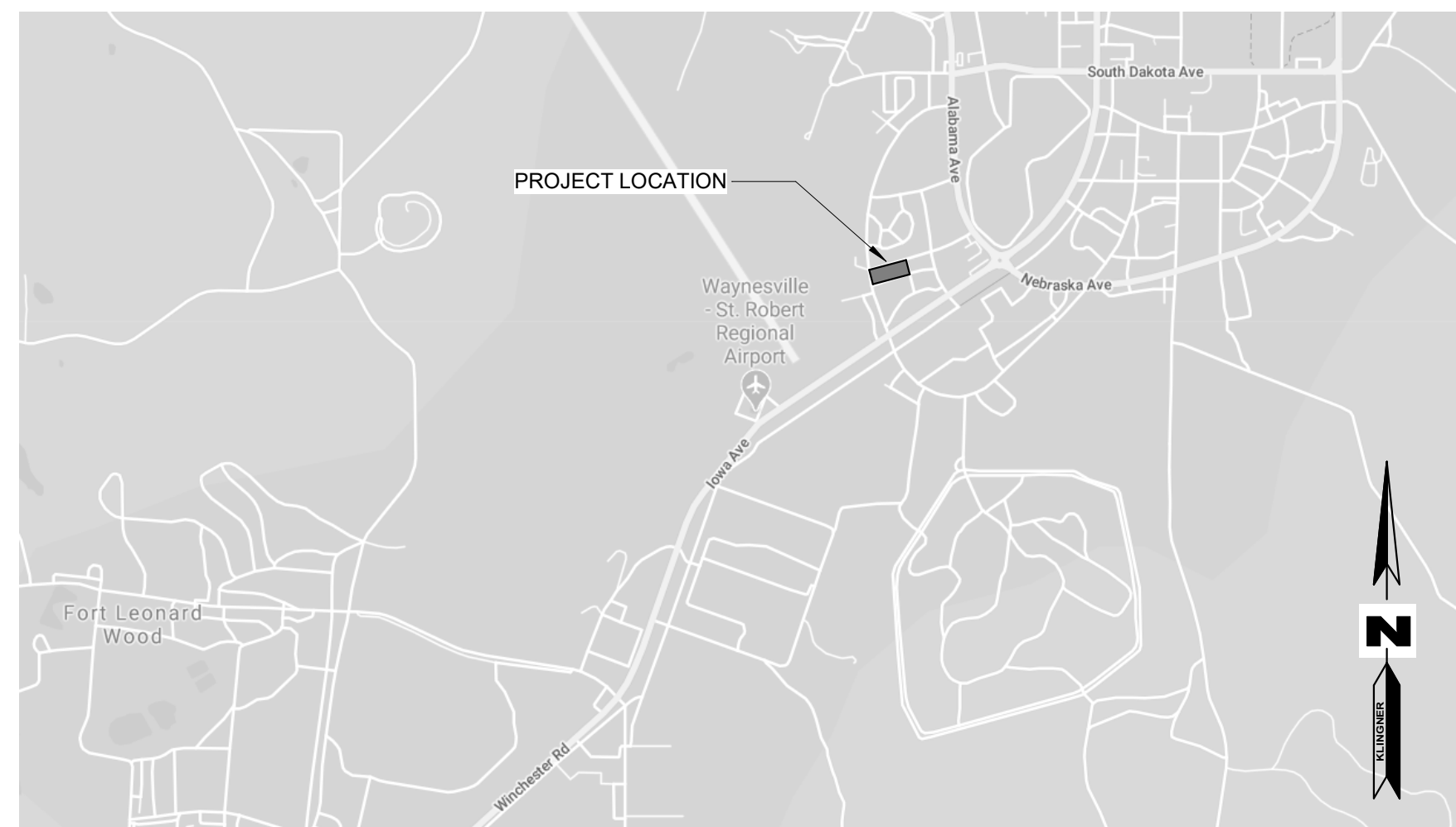
DESIGNER: KLINGNER & ASSOCIATES, P.C.

PROJECT NUMBER: T2042-01

SITE NUMBER: 6306  
ASSET NUMBER: 8136306006



PROJECT LOCATION MAP  
NTS



SHEET NUMBER	SHEET NAME	CURRENT REVISION DATE
G001	COVER SHEET	04/28/23
G002	INDEX SHEET	04/28/23
G101	CODE PLAN & REVIEW	04/28/23
C001	GENERAL NOTES & LEGEND	04/28/23
CD101	EXISTING CONDITIONS & SITE DEMO PLAN	04/28/23
C101	SITE & UTILITY PLAN	04/28/23
C102	GRADING & EROSION CONTROL PLAN	04/28/23
C501	SITE DETAILS	04/28/23
C502	SITE DETAILS	04/28/23
AD101	SELECTIVE DEMOLITION	04/28/23
A101	FLOOR PLAN AND MEZZANINE PLAN	04/28/23
A102	DIMENSION PLAN	04/28/23
A110	INTERIOR FINISH PLAN	04/28/23
A120	REFLECTED CEILING PLAN	04/28/23
A130	ROOF PLAN	04/28/23
A201	BUILDING ELEVATIONS	04/28/23
A301	BUILDING SECTIONS	04/28/23
A401	INTERIOR ELEVATIONS & ENLARGED VIEWS	04/28/23
A501	DETAILS	04/28/23
A502	ENLARGED STAIR PLAN AND SECTIONS	04/28/23
A601	DOOR SCHEDULE & DETAILS	04/28/23
S001	STRUCTURAL NOTES	04/28/23
S002	STRUCTURAL NOTES	04/28/23
S101	FOUNDATION AND SLAB PLAN	04/28/23
S102	FOUNDATION DETAILS	04/28/23
S103	FOUNDATION DETAILS	04/28/23
S201	FRAMING PLAN	04/28/23
S301	EXISTING ENDWALL FRAMING	04/28/23
MEP001	MEP SYMBOLS LIST	04/28/23
MEP002	MEP DEMOLITION PLAN	04/28/23
FF101	FIRE SUPPRESSION FLOOR PLAN	04/28/23
P101	MAIN LEVEL - BELOW FLOOR PLUMBING PLAN	04/28/23
P102	MAIN LEVEL - ABOVE FLOOR PLUMBING PLAN	04/28/23
P501	PLUMBING DETAILS	04/28/23
P601	PLUMBING SCHEDULES	04/28/23
M101	MAIN LEVEL - MECHANICAL FLOOR PLAN	04/28/23
M102	MEZZANINE - MECHANICAL FLOOR PLAN	04/28/23
M103	MECHANICAL PIPING PLAN	04/28/23
M501	MECHANICAL DETAILS	04/28/23
M601	MECHANICAL EQUIPMENT SCHEDULES	04/28/23
M602	CONTROL SCHEMATICS & SEQUENCES	04/28/23
M603	CONTROL SCHEMATICS & SEQUENCE	04/28/23
M604	CONTROL SCHEMATICS & SEQUENCE	04/28/23
M605	HVAC SYSTEM SCHEMATIC - OCCUPIED	04/28/23
M606	HVAC SYSTEM SCHEMATIC - UNOCCUPIED	04/28/23
E101	POWER PLAN	04/28/23
E102	LIGHTING PLAN	04/28/23
E103	MAIN LEVEL - LOW VOLTAGE PLAN	04/28/23
E104	MEZZANINE LEVEL - LOW VOLTAGE PLAN	04/28/23
E501	ELECTRICAL DETAILS	04/28/23
E601	ELECTRICAL SCHEDULES	04/28/23

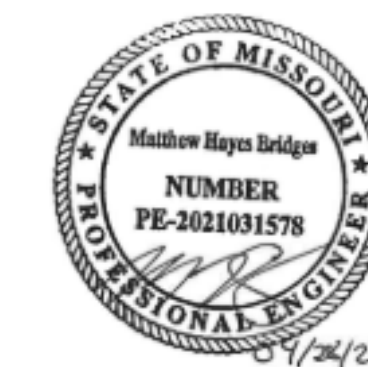
**GENERAL NOTES:**

- 1) THE CONTRACTOR(S) SHALL FIELD VERIFY EXISTING DIMENSIONS AND CONDITIONS AND TELL THE ENGINEER OF ANY DISCREPANCIES AND INTERFERENCES ENCOUNTERED PRIOR TO STARTING WORK AFFECTED THEREBY.
- 2) THE CONTRACTOR(S) SHALL COMPLY WITH THE LATEST EDITION OF APPLICABLE CODES AND STANDARDS INCLUDING BUT NOT LIMITED TO:
  - THE AMERICANS WITH DISABILITIES ACT (ADAAG)
  - INTERNATIONAL BUILDING CODE (IBC)
  - NATIONAL ELECTRIC CODE (NEC)
  - INTERNATIONAL MECHANICAL CODE (IMC)
  - INTERNATIONAL PLUMBING CODE (IPC)
  - LIFE SAFETY CODE (NFPA 101)
  - ASHRAE STANDARD 90.1
  - AMERICAN SOCIETY OF MECHANICAL ENGINEERS (ASME)
  - AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)
  - AMERICAN CONCRETE INSTITUTE (ACI)
  - SHEET METAL AND AIR CONDITIONING CONTRACTOR'S NATIONAL ASSOCIATION (SMACNA)
- 3) THE CONTRACTOR(S) SHALL BE RESPONSIBLE FOR OSHA COMPLIANCE AND JOB SITE SAFETY.
- 4) CONTRACTOR(S) SHALL VERIFY LOCATIONS OF ALL UTILITIES (TELEPHONE, DATA, GAS, ELECTRIC, SANITARY AND STORM SEWERS, ETC.) AT THE SITE BEFORE STARTING EXCAVATION OR CONSTRUCTION. THESE ITEMS SHALL BE MARKED AND PROTECTED.
- 5) CONTRACTOR(S) SHALL TAKE PRECAUTIONS NECESSARY TO PROTECT ADJACENT PROPERTY FROM DAMAGE RESULTING FROM CONSTRUCTION OPERATIONS.
- 6) CONTRACTOR SHALL PROTECT EXISTING FINISHES AND OTHER BUILDING COMPONENTS FROM DAMAGE. ANY SURFACES AND/OR COMPONENTS DAMAGED DURING THE CONSTRUCTION PROJECTS SHALL BE RETURNED TO PRE-PROJECT CONDITIONS AND/OR MADE TO MATCH ADJACENT MATERIALS. WHERE REQUIRED, A SURFACE MOUNTED ACCESS PANEL MAY BE USED TO CREATE ACCESS TO WALL AND CEILING CAVITIES TO FACILITATE CONSTRUCTION ACTIVITY. SEE DETAIL SHEET FOR ACCESS PANEL INFORMATION.

**GENERAL DEMOLITION NOTES:**

- 1) ALL MATERIALS THAT HAVE BEEN DEMOLISHED SHALL BE REMOVED AND DISPOSED OF PROPERLY. NO DEMOLISHED MATERIALS SHALL BE STOCKPILED ON SITE.
- 2) AN ASBESTOS INSPECTION WAS NOT CONDUCTED FOR THE PROPOSED RENOVATION DUE TO THE ANTICIPATED BUILDING MATERIALS TO BE DISTURBED. IF THE CONTRACTOR IDENTIFIES SUSPECT ASBESTOS CONTAINING BUILDING MATERIALS WILL BE DISTURBED AS PART OF THE RENOVATION, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER.
- 3) THE CONTRACTOR SHALL MAKE A PERSONAL INSPECTION OF THE SITE AND INCLUDE ALL WORK REQUIRED BY THE DRAWINGS. NOTIFY THE ARCHITECT IN WRITING OF ANY INCONSISTENCIES IN THE DRAWINGS.
- 4) PROTECT OWNER'S PROPERTY AND PERSONS AT ALL TIMES. THIS INCLUDES ALL ITEMS AND SERVICES NECESSARY TO DEMOLISH OR DISMANTLE AND REMOVE ALL WALLS, EQUIPMENT, PIPING AND APPURTENANCES WHICH WILL INTERFERE WITH NEW CONSTRUCTION. ALL ITEMS TO BE REMOVED SHALL BE COORDINATED WITH NEW CONSTRUCTION.
- 5) ANY ITEMS NOT SHOWN TO BE DEMOLISHED THAT ARE DAMAGED DURING THE COURSE OF DEMOLITION OR CONSTRUCTION SHALL BE REPAIRED/REPLACED BY THE CONTRACTOR AT THE CONTRACTOR'S EXPENSE.
- 6) COORDINATE ANY SYSTEMS SHUTDOWNS WHICH MAY BE REQUIRED WITH THE OWNER.
- 7) PRIOR TO COMMENCING DEMOLITION, THE CONTRACTOR SHALL ASCERTAIN FROM THE OWNER WHETHER OR NOT THE OWNER WISHES TO RETAIN ANY ITEMS. ANY SUCH ITEMS SHALL BE REMOVED WITH CARE SO AS TO PREVENT UNNECESSARY DAMAGE.
- 8) ANY ITEMS NOT TO BE RETAINED BY THE OWNER SHALL BE LEGALLY DISPOSED OF OFF SITE BY THE CONTRACTOR.
- 9) GENERAL CONTRACTOR SHALL PROVIDE & MAINTAIN DUST PROTECTION BETWEEN EXISTING OCCUPIED AREAS AND WORK AREAS.
- 10) EXISTING CONSTRUCTION SHALL BE PROTECTED.

STATE OF MISSOURI  
MICHAEL L. PARSON,  
GOVERNOR



MATTHEW H. BRIDGES - ENGINEER  
MO # PE-2021031578

**KLINGNER  
& ASSOCIATES, P.C.**

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Missouri State Certificate of Authority #000866

OFFICE OF ADMINISTRATION  
DIVISION OF FACILITIES  
MANAGEMENT,  
DESIGN AND CONSTRUCTION

CONSTRUCT CLASSROOM  
ADDITION  
REGIONAL TRAINING SITE -  
MAINTENANCE (RTS-M)  
12249 20TH STREET  
FORT LEONARD WOOD,  
MO 65473

PROJECT # T2042-01  
SITE # 6306  
ASSET # 8136306006

REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
ISSUE DATE: 04/28/23

CAD DWG FILE: G002  
DRAWING BY: JLD  
CHECKED BY: JLN  
DESIGNED BY: JLD

SHEET TITLE:  
**INDEX SHEET**

SHEET NUMBER:

**G002**

SHEET 02 OF 51  
APRIL 28, 2023



2018 INTERNATIONAL BUILDING CODE REVIEW		
Code Section & Provisions	Code Requirement	Application To This Project
<b>Chapter 3: Occupancy Classification and Use</b>		
304.1 Business Group B	Business Group B occupancy includes, among other, the use of a building or structure, or a portion thereof, for office, professional or service-type transactions, including storage of records and accounts. Business occupancies shall include, but not be limited to, the following: ... Training and skill development not in a school or academic program...	Building addition will be a Business Occupancy as the main use of the space will be for training and skill development in the classroom spaces.
311.2 Moderate-hazard storage, Group S-1	Storage Group S-1 occupancies includes buildings occupied for storage uses that are not classified as Group S-2. Group S-1 includes among others: Motor vehicle repair garages complying with the maximum allowable quantities of hazardous materials listed in Table 307.1(1).	The example given of "Motor vehicle repair garages" most closely represents the use of this building.
<b>Chapter 4: Special Detailed Requirements Based on Occupancy and Use</b>		
406.1 Motor-Vehicle-Related Occupancies, General	All motor-vehicle-related occupancies shall comply with Section 406.2. Private garages and carports shall also comply with Section 406.3. Open public parking garages shall also comply with Section 406.4 and 406.5. Enclosed public parking garages shall also comply with Section 406.4 and 406.6. Motor fuel-dispensing facilities shall also comply with Section 406.7. Repairs garages shall also comply with Section 406.8.	This use most closely resembles the definition of an "enclosed public parking garage," which means sections 406.2, 406.4, and 406.6 will apply. See those sections for additional information.
406.2.2 Clear height	The clear height of each floor level in vehicle and pedestrian traffic areas shall not be less than 7 feet.	This minimum clear height is maintained in all areas.
406.2.4 Floor surfaces	Floor surfaces shall be of concrete or similar approved noncombustible and nonabsorbent materials. The area of floor used for the parking of automobiles or other vehicles shall be sloped to facilitate the movement of liquids to a drain or toward the main vehicle entry doorway. Exception 1: Asphalt parking surfaces shall be permitted at ground level for public parking garages and private carports.	The existing floor surface is slip-resistant, nonabsorbent, interior floor finish complying with Exception 3.
406.2.8 Mixed occupancies and uses	Mixed uses shall be allowed in the same building as repair garages in accordance with Section 508.1.	The building is mixed occupancies with B and S-1 occupancies.
406.2.9 Equipment and appliances	Equipment and appliances shall be installed in accordance with Section 406.2.9.1 through 406.2.9.3 and the International Mechanical Code, International Fuel Gas Code and NFPA 70.	Equipment and appliances shall be installed in accordance with these requirements.
406.4 Public Parking Garages	Parking garages, other than private garages, shall be classified as public parking garages and shall comply with the provisions of Section 406.2 and 406.4 and shall be classified as either an open parking garage or an enclosed parking garage. Enclosed parking garages shall also comply with Section 406.6.	The provisions of this section do not apply.
406.6.1 Enclosed parking garages, heights and areas	Enclosed vehicle parking garages and portions thereof that do not meet the definition of open parking garages shall be limited to the allowable heights and areas specified in Sections 504 and 506 as modified by Section 507. Roof parking is permitted.	The limits specified in these sections shall be observed.
406.6.2 Ventilation	A mechanical ventilation system and exhaust system shall be provided in accordance with Chapters 4 and 5 of the International Mechanical Code.	A system which meets these requirements shall be provided.
406.6.3 Automatic sprinkler system	An enclosed parking garage shall be equipped with an automatic sprinkler system in accordance with Section 903.2.10.	The requirements listed in 903.2.10 are not applicable for this situation, therefore a sprinkler system is not required. See 903.2.10 for additional information.
<b>Chapter 5: General Building Heights and Areas</b>		
504.3, Table: Allowable building height in feet above grade plane	Group B, sprinklered, Type IIB = 75 feet; Group S, sprinklered, Type IIB = 75 feet	The building height shall not exceed 40 feet.
504.4, Table: Allowable number of stories above grade plane	Group B, sprinklered, Type IIB = 4 stories; Group S-1, sprinklered, Type IIB = 3 stories	Only one story above grade plane shall be provided.
505.3 Mezzanines - Equipment Platform	Equipment platforms in buildings shall not be considered as a portion of the floor below. Equipment platforms shall not be a part of any mezzanine and such platforms and walkways, stairways, and ladders providing access to an equipment platform shall not serve as a part of the means of egress from the building.	An equipment platform is planned to be located over the center portion of the new building addition with access via new stair in existing garage bay. No code implications anticipated.
505.3.2, Automatic sprinkler system.	Where located in a building that is required to be protected by an automatic sprinkler system, equipment platforms shall be fully protected by sprinklers above and below the platform, where required by the standards referenced in Section 903.3	Equipment platform shall be protected by automatic sprinkler system.
506.2, Table: Allowable area factor in square feet	Group B, sprinklered, Type IIB = 69,000 SF; Group S-1, sprinklered, Type IIB = 52,500 square feet	The building's footprint will be approximately 7,260 square feet and therefore compliant.
508.4.2 Mixed Use - Separated Occupancies - Allowable building area	The building area shall be such that the sum of the ratios of the actual building area of each separated occupancy divided by the allowable building area of each separated occupancy shall not exceed 1.	Actual building area (B Group = 10,705 SF), (S-1 Group = 10,545 SF); Allowable building area (B Group = 69,000 SF), (S-1 Group = 52,500 SF); B Group = 10,705/69,000 = .16; S-1 Group = 10,545/52,500 = .20; 0.16 + 0.20 = 0.36 < 1 Acceptable

2018 INTERNATIONAL BUILDING CODE REVIEW		
Code Section & Provisions	Code Requirement	Application To This Project
<b>Chapter 6: Types of Construction</b>		
601, Table: Fire-resistance rating requirements for building elements (hours)	Type IIB: Primary structural frame = 0 hours Exterior bearing walls = 0 hours Interior bearing walls = 0 hours Nonbearing exterior walls = See Table 602 Nonbearing interior walls = 0 hours Floor construction = 0 hours Roof construction = 0 hours	No components are required to be have any fire-resistance rating.
602, Table: Fire-resistance rating requirements for exterior walls based on fire separation distance	X ≥ 30, Type IIB, Group S-1 & B = 0 hours	No components are required to be have any fire-resistance rating.
<b>Chapter 8: Interior Finishes</b>		
803.13, Table: Interior wall and ceiling finish requirements by occupancy	Group B & S, sprinklered: Rooms and enclosed spaces = Class C; Corridors = Class C	A minimum of Class C finishes will be provided.
<b>Chapter 9: Fire Protection and Life Safety Systems</b>		
903.2.9.1 Automatic sprinkler systems - Repair Garages	An automatic sprinkler system shall be provided throughout all buildings used as repair garages in a occupancy where one of the following conditions exists: 1. Buildings having two or more stories above grade plane, including basements, with a fire area containing a repair garage exceeding 10,000 square feet. 2. Buildings not more than one story above grade plane, with a fire area containing a repair garage exceeding 12,000 square feet. 3. Buildings with repair garages servicing vehicles parked in basements. 4. A Group S-1 fire area used for the storage of commercial motor vehicles where the fire area exceeds 5,000 square feet.	There is an automatic sprinkler system installed in the existing portions of the building.
906.1 Portable Fire Extinguishers	Portable fire extinguishers shall be installed in all of the following locations: 1. Group B & S occupancies. 2. Within 30 feet distance of travel from commercial cooking equipment... 3. In areas where flammable or combustible liquids are stored, used or dispensed. 4. On each floor of structures under construction ... in accordance with Section 3315.1 of the International Fire Code. 5. Where required by the International Fire Code sections indicated in Table 906.1. 6. Special-hazard areas ... where required by the fire code official.	See code plan for locations of fire extinguishers.
906.3(1), Table: Fire extinguishers for Class A fire hazards	Light (Low) Hazard Occupancy: Minimum floor area per unit of A = 3,000 square feet Maximum floor area for extinguisher = 11,250 square feet Maximum distance of travel to extinguisher = 75 feet	See code plan for locations of fire extinguishers.
<b>Chapter 10: Means of Egress</b>		
1004.5, Table: Maximum floor area allowances per occupant	See occupant load table.	See occupant load table.
1005.3.2 Means of egress sizing, other egress components	The capacity, in inches, of means of egress components other than stairways shall be calculated by multiplying the occupant load served by such component by a means of egress capacity factor of 0.2 inch per occupant.	See egress calculation tags on code plan. In all cases, the occupant load multiplied by the factor does not exceed the allowable width.
1006.2.1, Table: Spaces with one exit or exit access doorway	Group B maximum occupant load = 49, maximum common path of egress travel with sprinkler system = 100 feet.	See egress calculation tags and paths on code plan. A total of four (4) exits shall be provided.
1010.1.1 Size of doors	The required capacity of each door opening shall be sufficient for the occupant load thereof and shall provide a minimum clear opening width of 32 inches.	All doors shall be of sufficient width.
1015.4 Guards Opening Limitations	At elevated walking surfaces for access to and use of electrical, mechanical, or plumbing systems or equipment, guards shall not have openings that allow passage of a sphere 21 inches in diameter.	Complies.
1017.2, Table: Exit access travel distance	Group B, with sprinkler system = maximum 300 feet	See paths on code plan.
<b>Chapter 11: Accessibility</b>		
1105.1.3 Public entrances, restricted entrances	Where restricted entrances are provided to a building or facility, at least one restricted entrance to the building or facility shall be accessible.	The door which is currently most accessible is the door in the southwest corner. East entrance to building addition is accessible.
<b>Chapter 29: Plumbing Systems</b>		
2902.1, Table: Minimum number of required plumbing fixtures	Water closets: 1 per 25 occupants; Lavatories: 1 per 40 occupants; Drinking Fountains: 1 per 100 occupants; 1 service sink	Plumbing fixtures to be provided in building addition: Male: 1 water closet, 1 lavatory Female: 1 water closet, 1 lavatory 1 drinking fountain and 1 service sink.

CODE PLAN SYMBOL LEGEND	
	FIRE EXTINGUISHER TAG - SEE SCHEDULE
	OCCUPANTS / WIDTH REQUIRED
	WIDTH PROVIDED
	FIRE DEPARTMENT CONNECTION
	EGRESS ROUTE

DESCRIPTION: This project consists of an addition to an existing Type IIB mixed use (training and skill development and storage) building. The storage area most closely resembles motor vehicle repair garages, considering it a Moderate-hazard Storage Group S-1. The building is sprinklered.

The area and occupancy of the building is such that fire-resistive construction, fire walls/barriers/partitions, fire alarms, etc. are not required. See code review matrix for additional information.

**BUILDING AREA SUMMARY:**

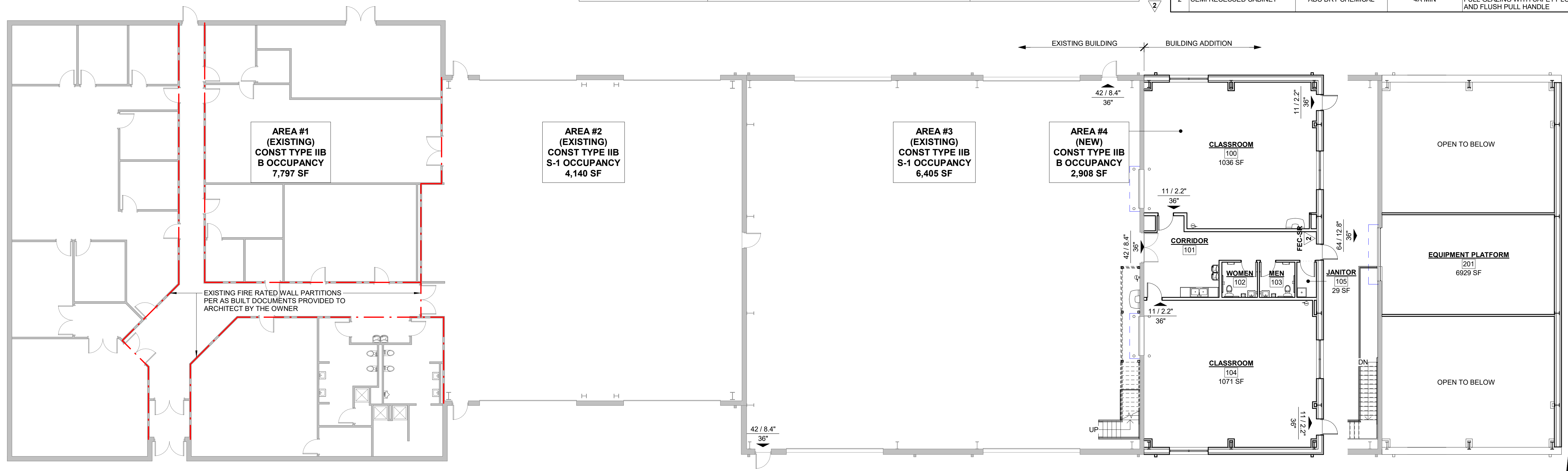
The existing building's square footage is approximately 18,342 square feet. After the addition, the total square footage will be approximately 21,250 square feet.

**OCCUPANCY CLASSIFICATION & OCCUPANT LOAD SCHEDULE**

ROOM #	ROOM NAME	TABLE 1004.5		# OF OCCUPANTS	
		FUNCTION OF SPACE	FLOOR AREA PER OCCUPANT		
100	CLASSROOM	SHOP AND VOCATIONAL AREA	50 SF	1036 SF	21.0
104	CLASSROOM	SHOP AND VOCATIONAL AREA	50 SF	1071 SF	22.0
				2107 SF	43.0
101	CORRIDOR	CIRCULATION	0 SF	346 SF	
102	WOMEN	RESTROOM	0 SF	53 SF	
103	MEN	RESTROOM	0 SF	53 SF	
		CIRCULATION, RESTROOM, ETC.		452 SF	0.0
105	JANITOR	ACCESSORY STORAGE	300 SF	29 SF	1.0
		UTILITY & MISCELLANEOUS U		29 SF	1.0
		FINISH FLOOR		2588 SF	44.0
201	EQUIPMENT PLATFORM	ACCESSORY STORAGE	0 SF	6929 SF	
		STORAGE - MODERATE HAZARD S-1		6929 SF	0.0
		MEZZANINE LEVEL		6929 SF	0.0
		GRAND TOTAL		9518 SF	44.0

**FIRE EXTINGUISHER EQUIPMENT SCHEDULE**

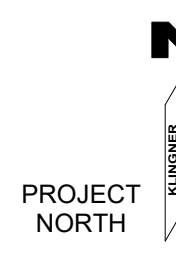
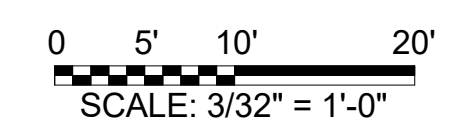
#	CABINET TYPE & TRIM	EXTINGUISHER TYPE	EXTINGUISHER UNITS OF A	COMMENTS
2	SEMI RECESSED CABINET	ABC DRY CHEMICAL	4A MIN	FULL GLAZING WITH SAFETY LOCK AND FLUSH PULL HANDLE



1 CODE PLAN 3/32" = 1'-0"

2 CODE PLAN - MEZZANINE 3/32" = 1'-0"

NOTE: NO FIRE RATED PARTITIONS REQUIRED FOR BUILDING ADDITION



STATE OF MISSOURI  
MICHAEL L. PARSON,  
GOVERNOR



CODY N. BASHAM - ARCHITECT  
MO # A-2021000203

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Hannibal, MO

MISSOURI STATE CERTIFICATE OF AUTHORITY #2001010108  
KLINGNER & ASSOCIATES, P.C. - ARCHITECTURE

OFFICE OF ADMINISTRATION  
DIVISION OF FACILITIES  
MANAGEMENT,  
DESIGN AND CONSTRUCTION

CONSTRUCT CLASSROOM  
ADDITION  
REGIONAL TRAINING SITE -  
MAINTENANCE (RTS-M)  
12249 20TH STREET  
BLDG 1270  
FORT LEONARD WOOD,  
MO 65473

PROJECT # T2042-01  
SITE # 6306  
ASSET # 8136306006

REVISION:  
DATE:  
REVISION:  
DATE:  
REVISION:  
DATE:  
ISSUE DATE: 04/28/23

CAD DWG FILE: G101  
DRAWING BY: MSG  
CHECKED BY: CNB  
DESIGNED BY: CNB

SHEET TITLE:  
**CODE PLAN &  
REVIEW**

SHEET NUMBER:  
**G101**  
SHEET 03 OF 51  
APRIL 28, 2023



**GENERAL NOTES**

- ALL DIMENSIONS SHALL BE FIELD VERIFIED BY THE CONTRACTOR.
- ANY DISCREPANCIES BETWEEN SPECIFICATIONS, DRAWINGS, AND/OR SITE CONDITIONS SHALL BE REPORTED TO THE ENGINEER IMMEDIATELY.
- ALL AREAS DESIGNATED TO REMAIN UNDISTURBED SHALL BE PROTECTED BY THE CONTRACTOR THROUGHOUT CONSTRUCTION.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR STAKING THE LOCATION OF ALL PROPOSED IMPROVEMENTS, INCLUDING ROUGH AND FINISHED ELEVATIONS AND ALL OTHER PROPOSED IMPROVEMENTS INDICATED ON THE DRAWINGS.
- THE CONTRACTOR SHALL VERIFY THAT ALL APPLICABLE LOCAL, STATE, & FEDERAL CODES ARE FOLLOWED. COORDINATION WILL BE REQUIRED WITH THE OWNER.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL TEMPORARY UTILITIES AND SERVICES REQUIRED DURING CONSTRUCTION.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING ALL REFERENCE POINTS, BENCHMARKS, MONUMENTS, STAKES, AND PROPERTY CORNERS DURING CONSTRUCTION. REPLACEMENT OF LOST REFERENCE POINTS SHALL BE AT THE CONTRACTORS EXPENSE.
- REMOVE ALL STRUCTURES, FOUNDATIONS, WALLS, PAVEMENTS, AND ALL OTHER ITEMS IN CONFLICT WITH PROPOSED IMPROVEMENTS IN ACCORDANCE WITH THE SPECIFICATIONS.
- REFERENCES TO "STANDARD SPECIFICATIONS" SHALL MEAN THE MISSOURI DEPARTMENT OF TRANSPORTATION, "STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION", LATEST ADDITION.
- THE MEANS OF THE WORK AND THE SAFETY OF THE CONTRACTOR'S EMPLOYEES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
- NO WORK SHALL BE PERFORMED BEYOND THE LIMITS OF CONSTRUCTION WITHOUT OWNER APPROVAL.
- SITE CLEAN-UP SHALL BE PERFORMED ON A DAILY BASIS. SIDEWALKS, PARKING LOTS, ROADWAYS, AND THE PROJECT SITE SHALL BE KEPT CLEAN AT ALL TIMES. CONTROL DUST IN AND AROUND ALL WORK AND STAGING AREAS.
- ALL OPEN EXCAVATIONS SHALL BE PROTECTED.
- MAINTAIN POSITIVE DRAINAGE ON THE SITE THROUGHOUT THE PROJECT DURATION.
- IF A DISCREPANCY IN THE SPOT ELEVATIONS IS NOTED, THE CONTRACTOR SHALL NOTIFY THE ENGINEER PRIOR TO CONSTRUCTING. IF THERE IS A DISCREPANCY BETWEEN THE SPOT ELEVATIONS AND CONTOURS, THE CONTOURS SHALL GOVERN.
- THE CONTRACTOR IS RESPONSIBLE FOR SECURING A DIG PERMIT FROM THE FT LEONARD WOOD DIRECTORATE OF PUBLIC WORKS PRIOR TO THE START OF CONSTRUCTION.  
DIRECTORATE OF PUBLIC WORKS  
8112 NEBRASKA AVE, BUILDING 400  
FORT LEONARD WOOD, MO 65473  
PHONE: (573) 596-0174

**EROSION CONTROL NOTES**

- EROSION CONTROL SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS, THE DETAILS IN THESE PLANS, AND THE MISSOURI DEPARTMENT OF NATURAL RESOURCES STANDARDS AND REQUIREMENTS FOR EROSION AND SEDIMENT CONTROL.
- THE EROSION CONTROL SHOWN ON THIS SET OF PLANS SHALL BE CONSIDERED THE MINIMUM ACCEPTABLE FOR THIS PROJECT. THERE MAY BE ADDITIONAL EROSION CONTROL REQUIRED DUE TO THE VARIOUS CONSTRUCTION TECHNIQUES, WHICH MAY BE USED. THE CONTRACTOR IS RESPONSIBLE FOR CONTROLLING AND MAINTAINING ALL THE RUNOFF FROM THE SITE, IN A MANNER WHICH KEEPS ALL SILT ON SITE.
- A LAND DISTURBANCE PERMIT WILL NOT BE REQUIRED SINCE LESS THAN 1 ACRE OF LAND WILL BE DISTURBED BY GRADING OPERATIONS.
- ALL TEMPORARY EROSION CONTROL MEASURES SHALL BE REMOVED UPON FINAL STABILIZATION OF LANDSCAPE AND SEEDED AREAS.

**GRADING NOTES**

- TOPSOIL SHALL BE STRIPPED TO A DEPTH OF SIX (6) INCHES WITHIN THE GRADING LIMITS AND STOCKPILED ON SITE FOR USE IN FINAL GRADING (COORDINATE WITH OWNER).
- ALL EXCESS MATERIALS NOT USED FOR CONSTRUCTION OF THE PROJECT SHALL BE DISPOSED OFF SITE BY THE CONTRACTOR AT THE CONTRACTORS EXPENSE.
- PROPOSED CONTOURS ARE INTENDED TO PROVIDE A MIN. 1% SLOPE IN PAVEMENT AREAS AND 2% IN TURFED AREAS. CONTRACTORS SHALL BE RESPONSIBLE FOR PROVIDING A SMOOTH UNIFORM DRAINING SURFACE THAT DOES NOT CREATE PONDING WATER OR SHARP BREAKS. CONTOURS OR ELEVATIONS THAT WILL NOT PROVIDE SUCH SURFACE SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER/ARCHITECT IMMEDIATELY.
- FINAL ELEVATIONS INDICATED ARE THE FINISHED SURFACE ELEVATIONS, WHETHER GRASS, CONCRETE, PAVEMENT, OR MULCH. THE CONTRACTOR SHALL COORDINATE SUBGRADE ELEVATIONS TO ALLOW FOR PAVEMENT, CONCRETE OR MULCH DEPTHS.
- ALL DISTURBED AREAS NOT WITHIN PAVEMENT & LANDSCAPE AREAS SHALL BE SEEDED PER THE SPECIFICATIONS. THE AREAS INDICATED TO BE SEEDED ON THIS PLAN ARE ESTIMATED DISTURBED AREAS. DISTURBED AREAS OUTSIDE OF THOSE INDICATED SHALL BE SEEDED REGARDLESS OF THE LIMITS INDICATED.
- WHERE INDICATED ON THE PLANS SLOPES 4:1 AND STEEPER SHALL RECEIVE A TEMPORARY EROSION CONTROL BLANKET, PROVIDING PROTECTION FOR UP TO 12 MONTHS IN ACCORDANCE WITH SECTION 806 OF THE MoDOT STANDARD SPECIFICATIONS.

**UTILITY NOTES**

- THE LOCATION OF EXISTING UTILITIES IN CONSTRUCTION AREAS SHALL BE FIELD VERIFIED BY THE CONTRACTOR BY CONTACTING THE FT. LEONARD WOOD BOARD OF PUBLIC WORKS. EXISTING UTILITIES TO REMAIN SHALL BE PROTECTED. ANY REPAIR OR RELOCATION REQUIRED, AS A RESULT OF DAMAGE BY CONSTRUCTION ACTIVITIES SHALL BE AT THE CONTRACTOR'S EXPENSE. THE CONTRACTOR SHALL PAY UTILITY PERMIT AND/OR INSPECTION FEES.
- UTILITY TRENCHES WITHIN PAVEMENT AREAS SHALL BE BACKFILLED WITH APPROVED COMPACTED GRANULAR BACKFILL.
- ADJUST ALL VALVES, MANHOLES, CASTINGS, GAS VENTS, ETC., TO MATCH THE NEW SURFACE. ADJUSTMENT SHALL BE COORDINATED WITH THE UTILITY COMPANIES AND THE COST FOR ALL ADJUSTMENTS SHALL BE INCIDENTAL TO THE CONSTRUCTION AT NO ADDITIONAL COST TO THE OWNER. REPAIR ANY DAMAGE TO SAID STRUCTURES AND APPURTENANCES THAT OCCUR DURING CONSTRUCTION.
- THE DRAWINGS INDICATE THE BEST KNOWLEDGE OF THE OWNER AND ENGINEER/ARCHITECT ON THE GENERAL LOCATION AND NATURE OF THE EXISTING AND OR PROPOSED UNDERGROUND UTILITIES IN THE AREA OF CONSTRUCTION. VISIBLE UTILITY STRUCTURES WERE SURVEYED AND UNDERGROUND UTILITIES WERE INDICATED BASED ON AVAILABLE PLAN INFORMATION. EXPLORATORY EXCAVATIONS AT THE SITE TO DETERMINE INSITU LOCATIONS WERE NOT CONDUCTED.

QUALITY LEVELS C & D IN ACCORDANCE WITH CII/ASCE 38-02, STANDARD GUIDELINE FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA, WERE UTILIZED REGARDLESS OF THE LEVEL OF INVESTIGATION. THE UTILITIES SHOWN SHOULD NOT BE CONSIDERED A WARRANTY OR GUARANTEE OF ACTUAL PRESENCE OR LOCATION AND THE CONTRACTOR REMAINS RESPONSIBLE FOR THE LOCATION, VERIFICATION, AND PROPER NOTIFICATION OF POTENTIAL UTILITIES.

**QUALITY LEVELS:**

QUALITY LEVEL A - PROVIDES THE HIGHEST LEVEL OF ACCURACY. BY LOCATING OR POTHOLING UTILITIES IN ADDITION TO QUALITY LEVELS B, C, AND D TASKS. THE LOCATED UTILITY INFRASTRUCTURE IS SURVEYED AND MAPPED TO DEVELOP PLAN AND PROFILE INFORMATION.

QUALITY LEVEL B - INVOLVES DESIGNATING THE HORIZONTAL POSITION OF SUBSURFACE UTILITIES THROUGH SURFACE DETECTION METHODS AND RECORDING THE INFORMATION THROUGH A SURVEY METHOD. IN ADDITION TO QUALITY LEVEL C AND D TASKS.

QUALITY LEVEL C - INVOLVES SURVEYING VISIBLE SUBSURFACE UTILITY STRUCTURES SUCH AS MANHOLES, HAND-HOLES, UTILITY VALVES AND METERS, FIRE HYDRANTS, PEDESTALS AND UTILITY MARKERS, AND THEN CORRELATING THE INFORMATION WITH EXISTING UTILITY RECORDS TO CREATE COMPOSITE DRAWINGS. IN ADDITION TO QUALITY LEVEL D TASKS

QUALITY LEVEL D - INVOLVES COLLECTING DATA FROM EXISTING UTILITY RECORDS, THAT MAY INCLUDE AS-BUILT DRAWINGS, DISTRIBUTION AND SERVICE MAPS, EXISTING GEOGRAPHIC INFORMATION SYSTEM DATABASE, CONSTRUCTION PLANS, ETC. DATABASES, CONSTRUCTION PLANS, ETC.

**PAVEMENT NOTES**

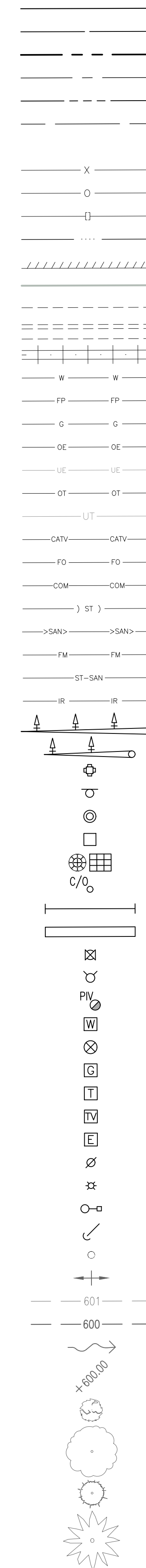
- PAVEMENT SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE MISSOURI DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS, LATEST EDITION.
- PROOF-ROLL SUBGRADE WITH A MINIMUM 25 TON G.V.W. TRUCK TO IDENTIFY AREAS OF SOFT OR UNSTABLE SUBGRADE. REMOVE AND REPLACE UNSTABLE AREAS WITH SUITABLE COMPACTED MATERIALS.
- PAVEMENT MARKING SHALL NOT BEGIN UNTIL PAVEMENT SURFACE HAS BEEN POWER BROOMED AND HAND SWEEP AS NECESSARY TO REMOVE LOOSE MATERIALS AND DIRT, AND NOT BEFORE ADEQUATE CURING TIME HAS BEEN OBTAINED ON THE PAVEMENT.
- ALL DIMENSIONS ARE TO EDGE OF PAVEMENT OR PROPERTY LINES UNLESS OTHERWISE NOTED. ALL RADII ARE TO EDGE OF PAVEMENT.

**BENCHMARK:**  
RAILROAD SPIKE IN POWER POLE SOUTHEAST OF MAINTENANCE BUILDING ON ALLEY - ELEV 1161.23

**ABBREVIATIONS**

FL	FLOWLINE ELEVATION
TC	TOP OF CURB ELEVATION
GL	GUTTER LINE ELEVATION
TG	TOP OF GRATE ELEVATION
STA	STATION
FES	FLARED END SECTION
SWI	STORM WATER INLET
FFE	FINISH FLOOR ELEVATION
HP	HIGH POINT
LP	LOW POINT
TW	TOP OF WALL ELEVATION
BW	BOTTOM OF WALL ELEVATION
DS	DOWNSPOUT
(M)	MATCH EXISTING
EP	EDGE OF PAVEMENT
BC	BACK OF CURB
N.I.C.	NOT IN CONTRACT

**EXISTING**



**LEGEND**

**PROPOSED**

PROPERTY LINE
LOT LINE
RIGHT OF WAY LINE
CENTERLINE
EASEMENT
BUILDING SETBACK
CONSTRUCTION LIMITS
FENCE LINE
CHAIN LINK FENCE
FENCE W/ SQUARE POSTS
STREAM
STRUCTURE
PAVEMENT MARKINGS
EDGE OF PAVEMENT
CURB AND GUTTER
RAILROAD TRACKS
WATER LINE
FIRE PROTECTION
GAS LINE
OVERHEAD ELECTRIC
UNDERGROUND ELECTRIC
OVERHEAD TELEPHONE
UNDERGROUND TELEPHONE
CABLE TELEVISION
FIBER OPTIC
COMMUNICATION LINE
STORM SEWER
SANITARY SEWER
FORCE MAIN
COMBINED SEWER
IRRIGATION SYSTEM
MAST ARM SIGNAL (3 SIGNALS)
MAST ARM SIGNALS (2 SIGNALS)
UTILITY TRAFFIC SIGN
SIGN
MANHOLE
STORM WATER INLET
CATCH BASIN
CLEANOUT
CULVERT
BOX CULVERT
WATER VALVE
FIRE HYDRANT
POST INDICATOR VALVE
WATER METER
GAS VALVE
GAS METER
TELEPHONE PEDESTAL
CABLE TV PEDESTAL
ELECTRIC METER
UTILITY POLE
LIGHT STANDARD
LIGHT POLE
GUY WIRE
SURVEY MARKER
SUMMIT / HIGH POINT
CONTOURS
INDEX CONTOURS
DIRECTION OF DRAINAGE
SPOT ELEVATION
DECIDUOUS SHRUB
DECIDUOUS TREE
CONIFEROUS SHRUB
CONIFEROUS TREE

STATE OF MISSOURI  
MICHAEL L. PARSON,  
GOVERNOR



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ADDITION  
REGIONAL TRAINING SITE -  
MAINTENANCE  
12249 20TH STREET  
BLDG 1270  
FORT LEONARD WOOD,  
MO 65473

PROJECT # T2042-01  
SITE # 6306  
ASSET # 8136306006

REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
ISSUE DATE: 04/28/2023

CAD DWG FILE: \_\_\_\_\_  
DRAWING BY: TCR  
CHECKED BY: CSW  
DESIGNED BY: DCD

SHEET TITLE:

**GENERAL NOTES &  
LEGEND**

SHEET NUMBER:

**C-001**

SHEET 04 OF 51  
APRIL 28, 2023

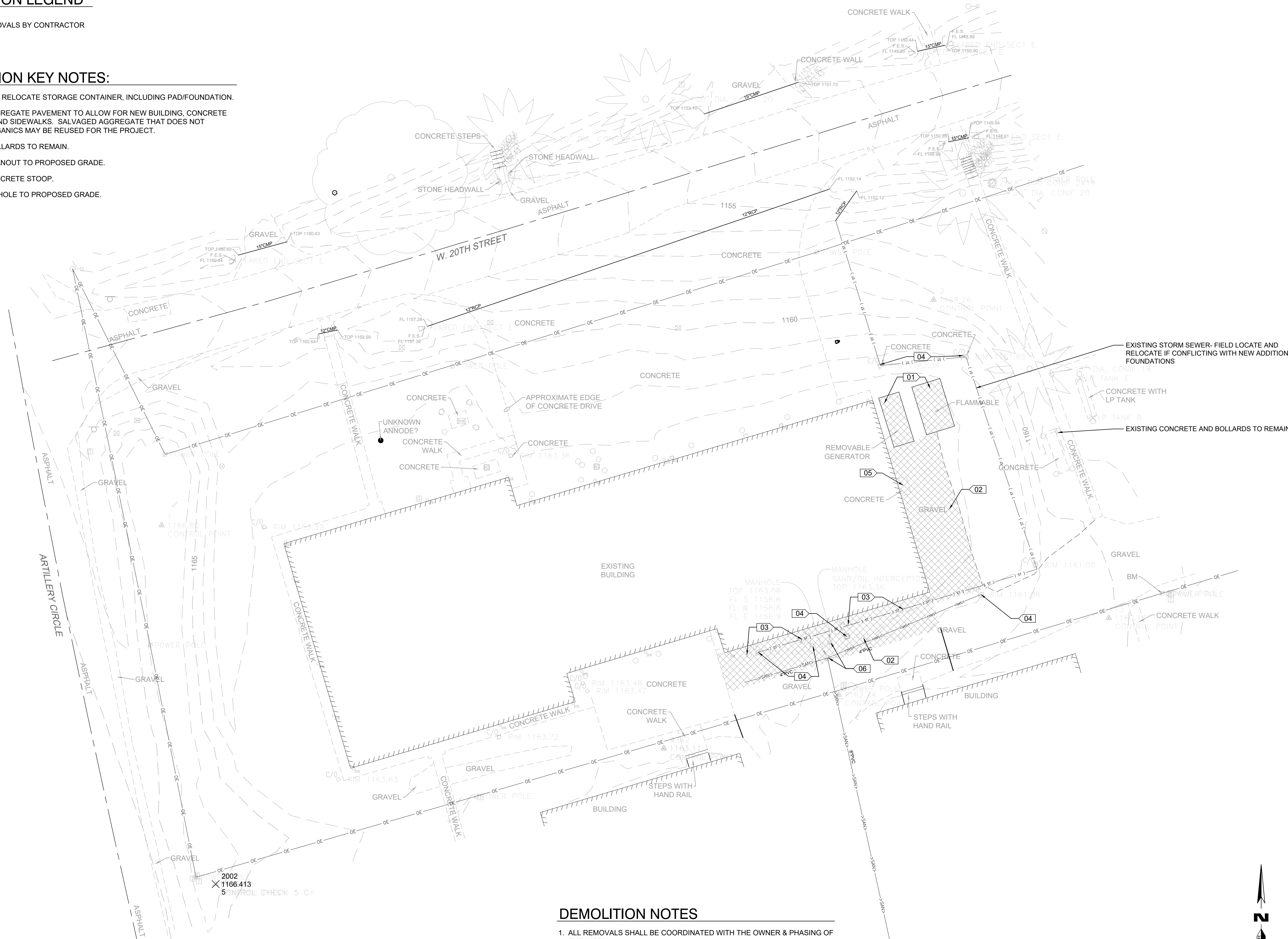


**DEMOLITION LEGEND**

 REMOVALS BY CONTRACTOR

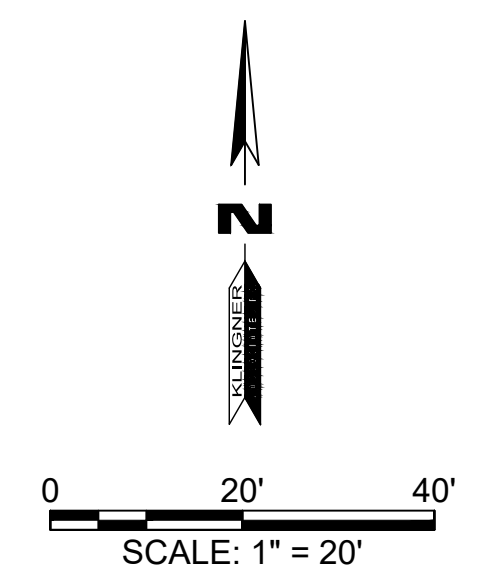
**DEMOLITION KEY NOTES:**

- 01 REMOVE AND RELOCATE STORAGE CONTAINER, INCLUDING PAD/FOUNDATION.
- 02 REMOVE AGGREGATE PAVEMENT TO ALLOW FOR NEW BUILDING, CONCRETE PAVEMENT AND SIDEWALKS. SALVAGED AGGREGATE THAT DOES NOT INCLUDE ORGANICS MAY BE REUSED FOR THE PROJECT.
- 03 EXISTING BOLLARDS TO REMAIN.
- 04 ADJUST CLEANOUT TO PROPOSED GRADE.
- 05 REMOVE CONCRETE STOOP.
- 06 ADJUST MANHOLE TO PROPOSED GRADE.



**DEMOLITION NOTES**

1. ALL REMOVALS SHALL BE COORDINATED WITH THE OWNER & PHASING OF THE WORK.
2. REMOVE ALL EXISTING CONCRETE, PAVEMENTS, CURBS, LANDSCAPING AND ALL OTHER EXISTING SITE FEATURES IN CONFLICT WITH PROPOSED IMPROVEMENTS.
3. DEMOLITION SHALL INCLUDE REMOVAL AND PROPER DISPOSAL OF MATERIALS.
4. CONTRACTOR SHALL PAY ALL PERMIT AND DISPOSAL FEES.



**BENCHMARK:**  
RAILROAD SPIKE IN POWER POLE SOUTHEAST OF MAINTENANCE BUILDING ON ALLEY - ELEV 1161.23

STATE OF MISSOURI  
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MO 65473**

PROJECT # T2042-01  
SITE # 6306  
ASSET # 8136306006

REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
ISSUE DATE: 04/28/2023

CAD DWG FILE: \_\_\_\_\_  
DRAWING BY: TCR  
CHECKED BY: CSW  
DESIGNED BY: DCD

SHEET TITLE:  
**EXISTING  
CONDITIONS &  
SITE DEMO PLAN**

SHEET NUMBER:  
**CD-101**  
SHEET 05 OF 51  
APRIL 28, 2023





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ISSUE DATE: 04/28/2023

CAD DWG FILE: \_\_\_\_\_  
DRAWING BY: TCR  
CHECKED BY: CSW  
DESIGNED BY: DCD

SHEET TITLE:  
**SITE & UTILITY  
PLAN**

SHEET NUMBER:

**C101**

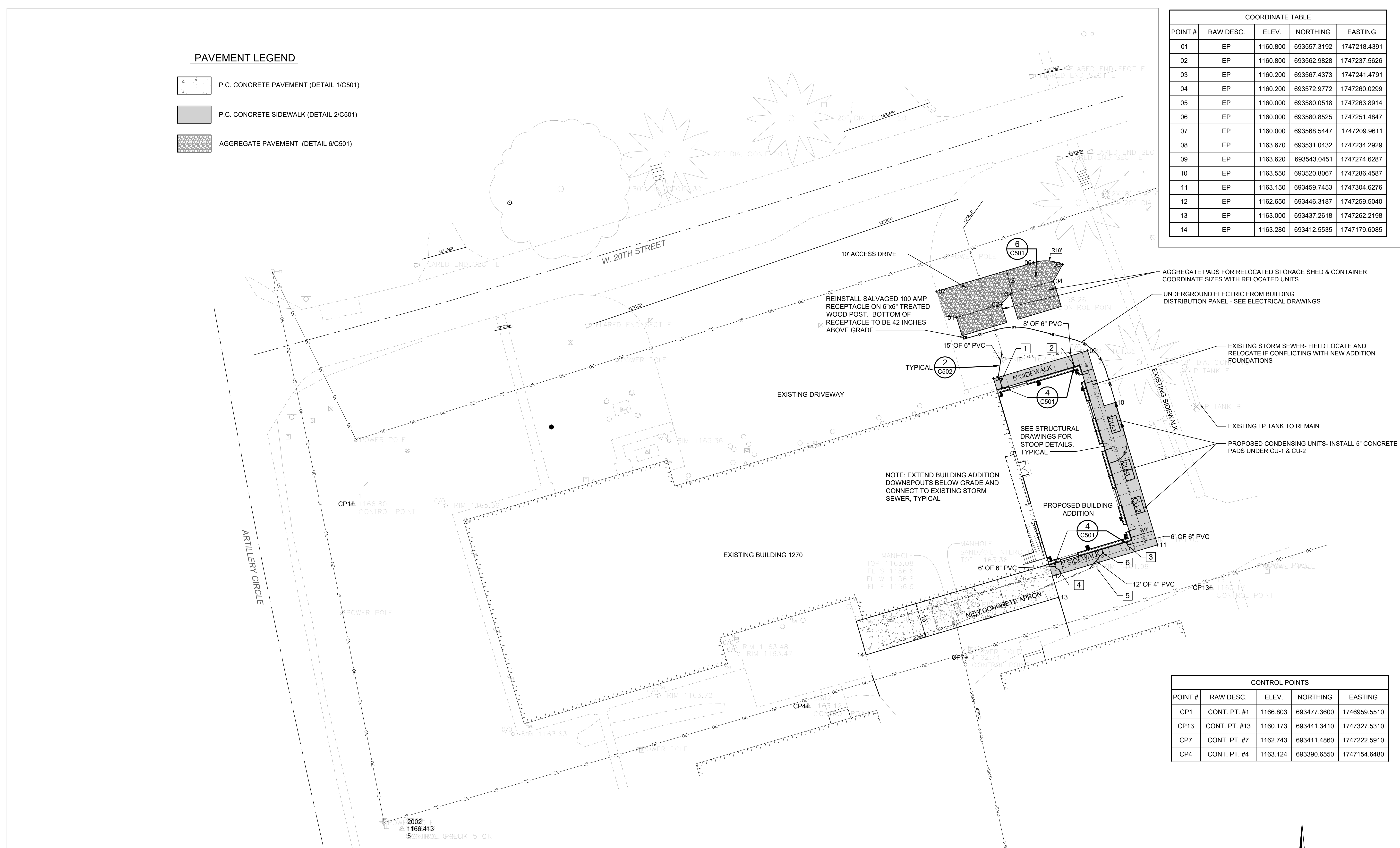
SHEET 06 OF 51  
APRIL 28, 2023

COORDINATE TABLE				
POINT #	RAW DESC.	ELEV.	NORTHING	EASTING
01	EP	1160.800	693557.3192	1747218.4391
02	EP	1160.800	693562.9828	1747237.5626
03	EP	1160.200	693567.4373	1747241.4791
04	EP	1160.200	693572.9772	1747260.0299
05	EP	1160.000	693580.0518	1747263.8914
06	EP	1160.000	693580.8525	1747251.4847
07	EP	1160.000	693568.5447	1747209.9611
08	EP	1163.670	693531.0432	1747234.2929
09	EP	1163.620	693543.0451	1747274.6287
10	EP	1163.550	693520.8067	1747286.4587
11	EP	1163.150	693459.7453	1747304.6276
12	EP	1162.650	693446.3187	1747259.5040
13	EP	1163.000	693437.2618	1747262.2198
14	EP	1163.280	693412.5535	1747179.6085

CONTROL POINTS				
POINT #	RAW DESC.	ELEV.	NORTHING	EASTING
CP1	CONT. PT. #1	1166.803	693477.3600	1746959.5510
CP13	CONT. PT. #13	1160.173	693441.3410	1747327.5310
CP7	CONT. PT. #7	1162.743	693411.4860	1747222.5910
CP4	CONT. PT. #4	1163.124	693390.6550	1747154.6480

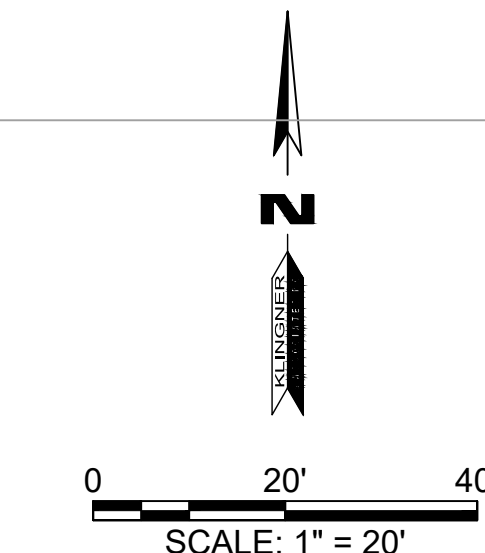
**PAVEMENT LEGEND**

- P.C. CONCRETE PAVEMENT (DETAIL 1/C501)
- P.C. CONCRETE SIDEWALK (DETAIL 2/C501)
- AGGREGATE PAVEMENT (DETAIL 6/C501)



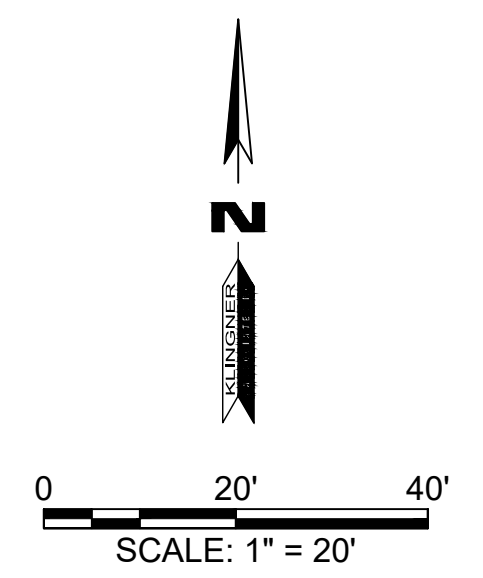
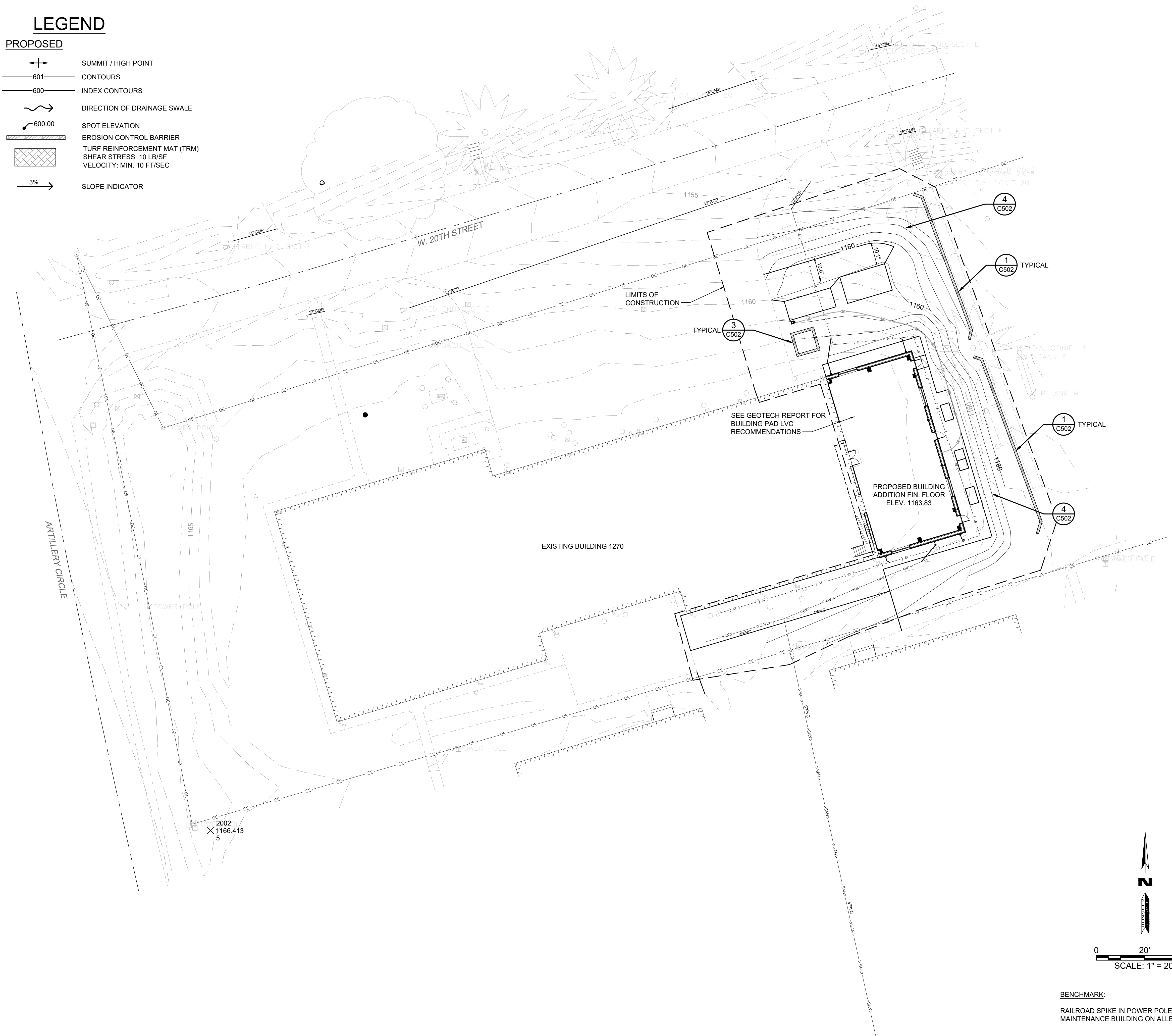
STORM & SANITARY STRUCTURE SCHEDULE				
STRUCTURE NO.	TOP ELEV.	FLOWLINE ELEV.	DESCRIPTION	GRATE TYPE
1	NA	FIELD LOCATE & CONNECT TO EXISTING STORM	DOWNSPOUT CONNECTION (DETAIL 4/C501)	NA
2	NA	FIELD LOCATE & CONNECT TO EXISTING STORM	DOWNSPOUT CONNECTION (DETAIL 4/C501)	NA
3	NA	FIELD LOCATE & CONNECT TO EXISTING STORM	DOWNSPOUT CONNECTION (DETAIL 4/C501)	NA
4	NA	FIELD LOCATE & CONNECT TO EXISTING STORM	DOWNSPOUT CONNECTION (DETAIL 4/C501)	NA
5	NA	FIELD LOCATE	CONNECT TO EXISTING SANITARY SEWER DOWNSTREAM OF CO	NA
6	1163.20	1161.50	CLEANOUT (DETAIL 5/C501)	SEE DETAIL

BENCHMARK:  
RAILROAD SPIKE IN POWER POLE SOUTHEAST OF  
MAINTENANCE BUILDING ON ALLEY - ELEV 1161.23



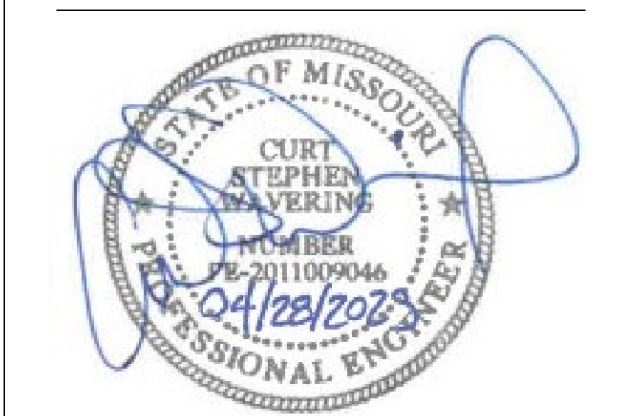


EXISTING	PROPOSED	
		SUMMIT / HIGH POINT
		CONTOURS
		INDEX CONTOURS
		DIRECTION OF DRAINAGE SWALE
		SPOT ELEVATION
		EROSION CONTROL BARRIER
		TURF REINFORCEMENT MAT (TRM) SHEAR STRESS: 10 LB/SF VELOCITY: MIN. 10 FT/SEC
		SLOPE INDICATOR



BENCHMARK:  
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SITE # 6306  
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ISSUE DATE: 04/28/2023

CAD DWG FILE: \_\_\_\_\_  
DRAWING BY: TCR  
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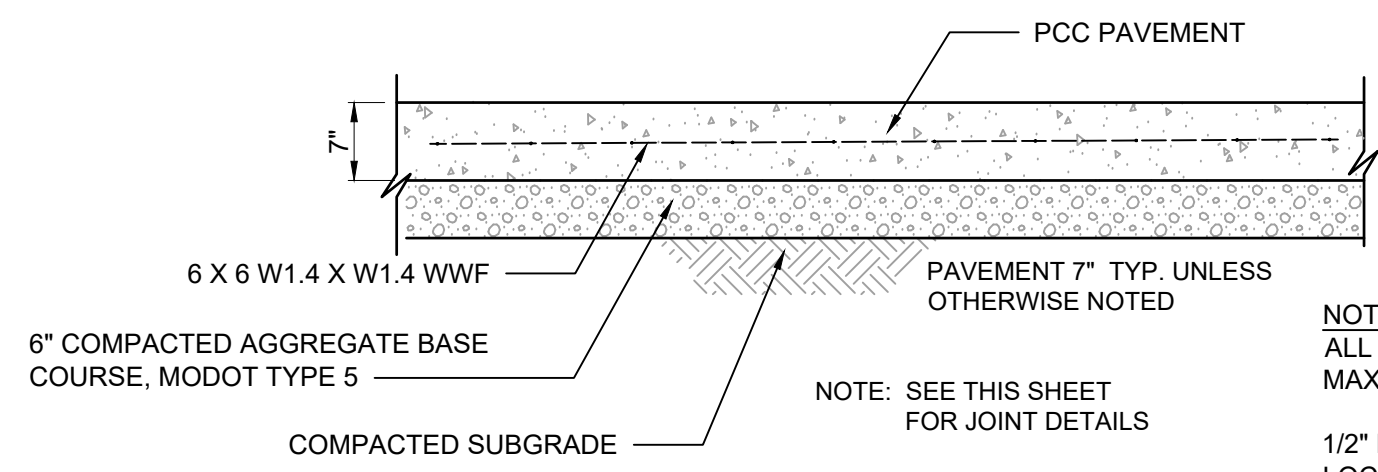
SHEET TITLE:  
**GRADING &  
EROSION  
CONTROL PLAN**

SHEET NUMBER:

**C102**

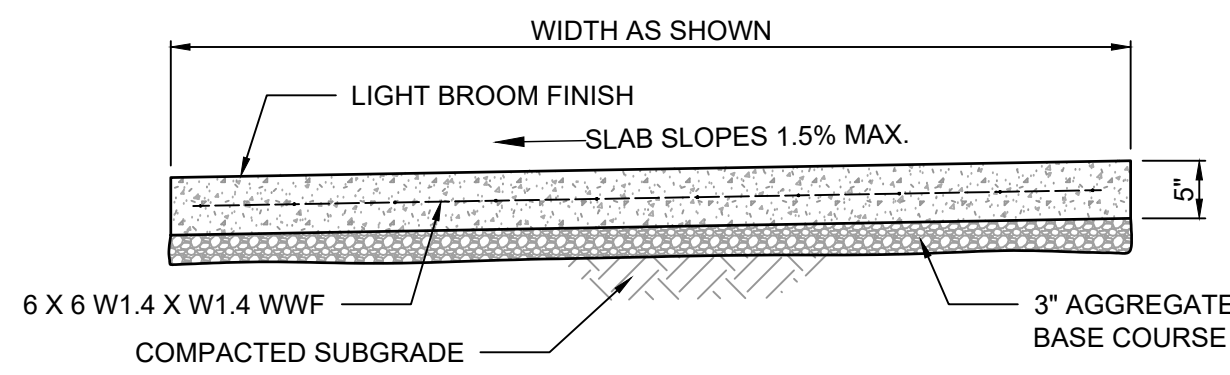
SHEET 07 OF 51  
APRIL 28, 2023





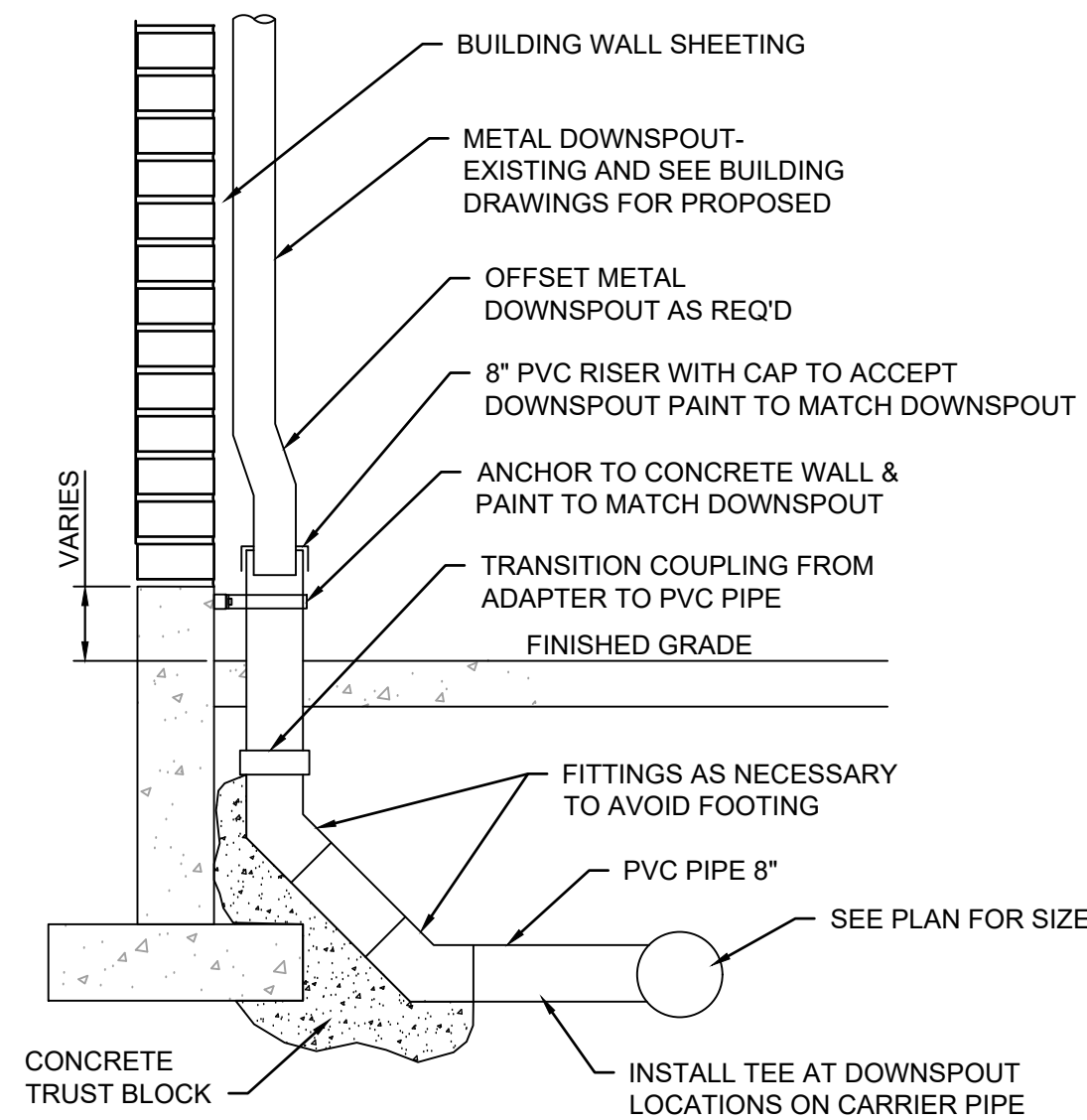
**1 PCC PAVING DETAIL**  
N.T.S.

NOTES:  
ALL PAVEMENT JOINTS SHALL BE SAWED AT A MAXIMUM SPACING OF 12 FEET.  
1/2\"/>

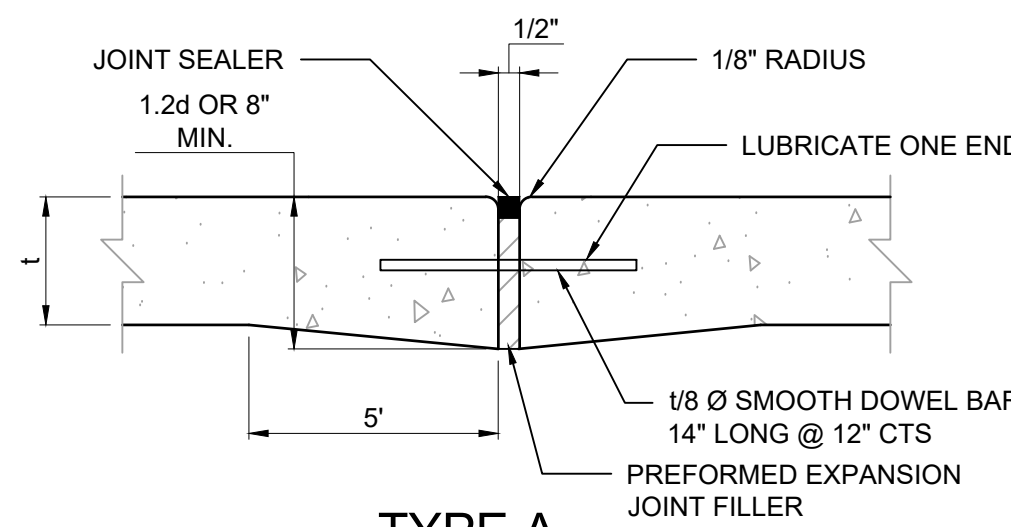


NOTES:  
ALL SIDEWALK JOINTS SHALL BE TOOLED OR EDGED, MAX. SPACING = WIDTH OF SIDEWALK.  
1/2\"/>

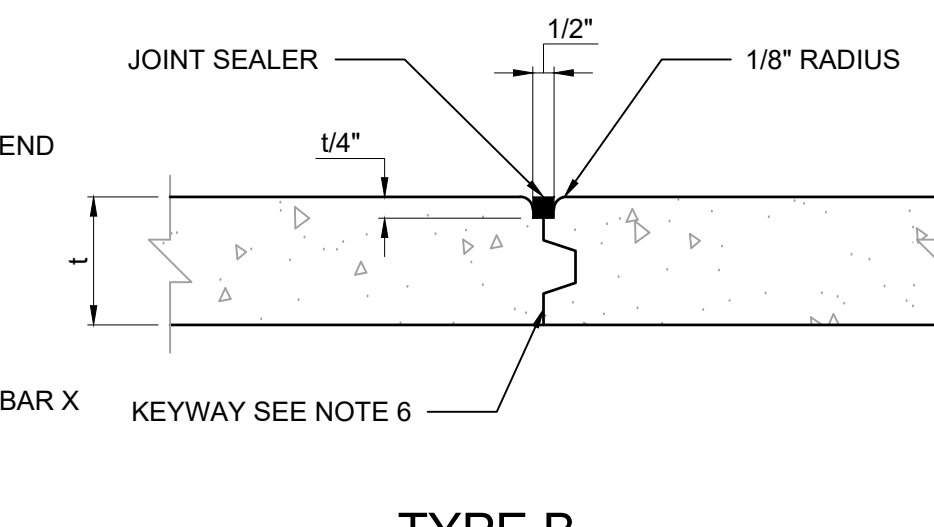
**2 TYPICAL SIDEWALK**  
N.T.S.



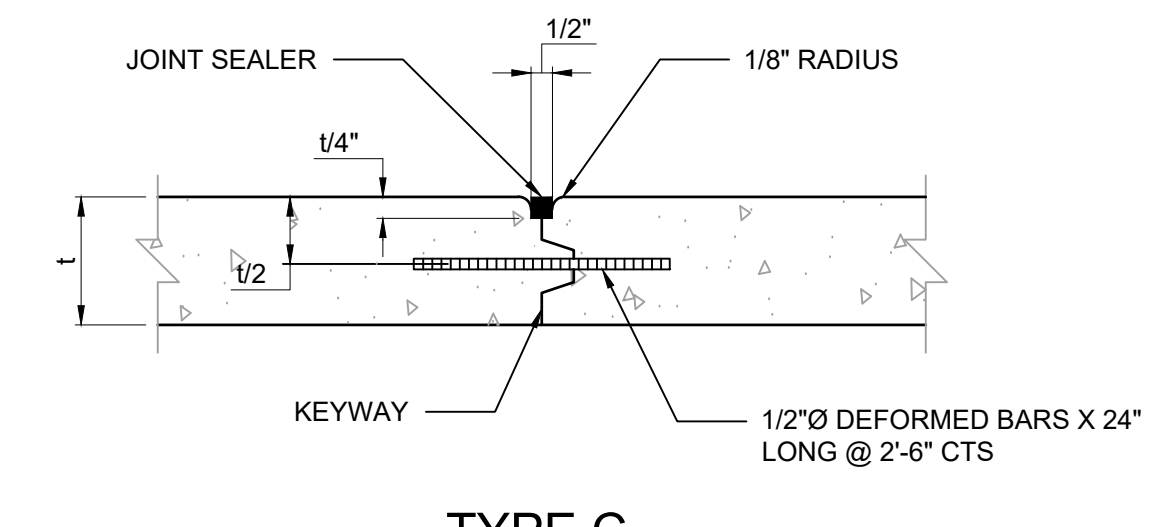
**4 DOWNSPOUT CONNECTION DETAIL**  
N.T.S.



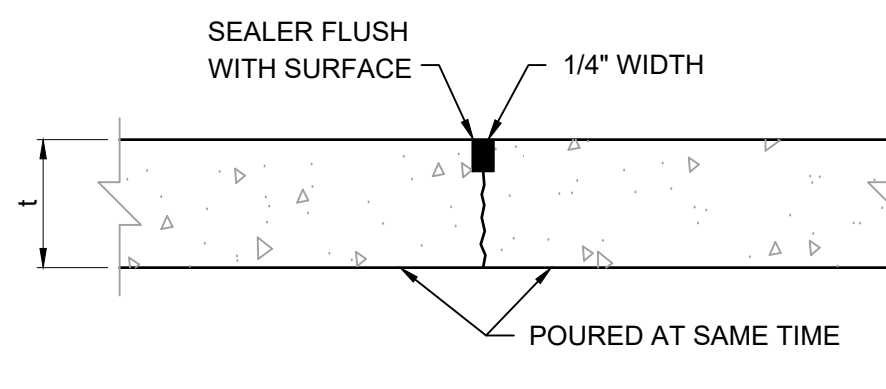
**TYPE A**  
EXPANSION JOINT



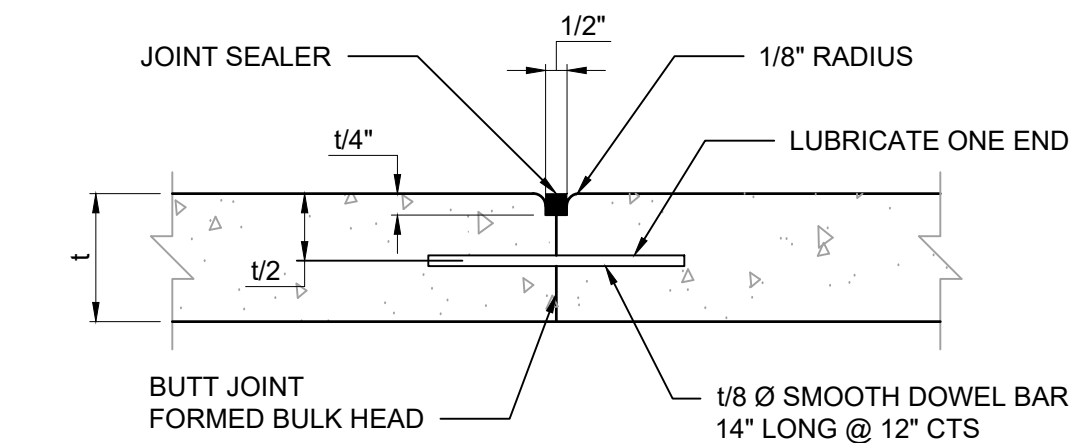
**TYPE B**  
LONGITUDINAL OR TRANSVERSE CONSTRUCTION JOINT



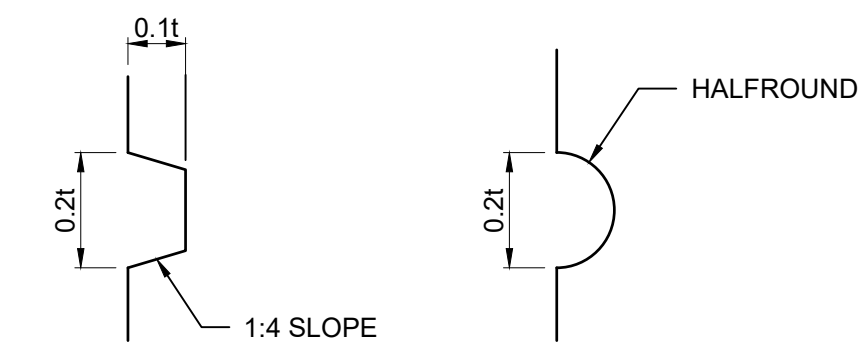
**TYPE C**  
TIED LONGITUDINAL OR TRANSVERSE CONSTRUCTION JOINT



**TYPE D**  
SAWED LONGITUDINAL OR TRANSVERSE



**TYPE E**  
ALTERNATE TRANSVERSE CONSTRUCTION JOINT AT NORMAL SPACING

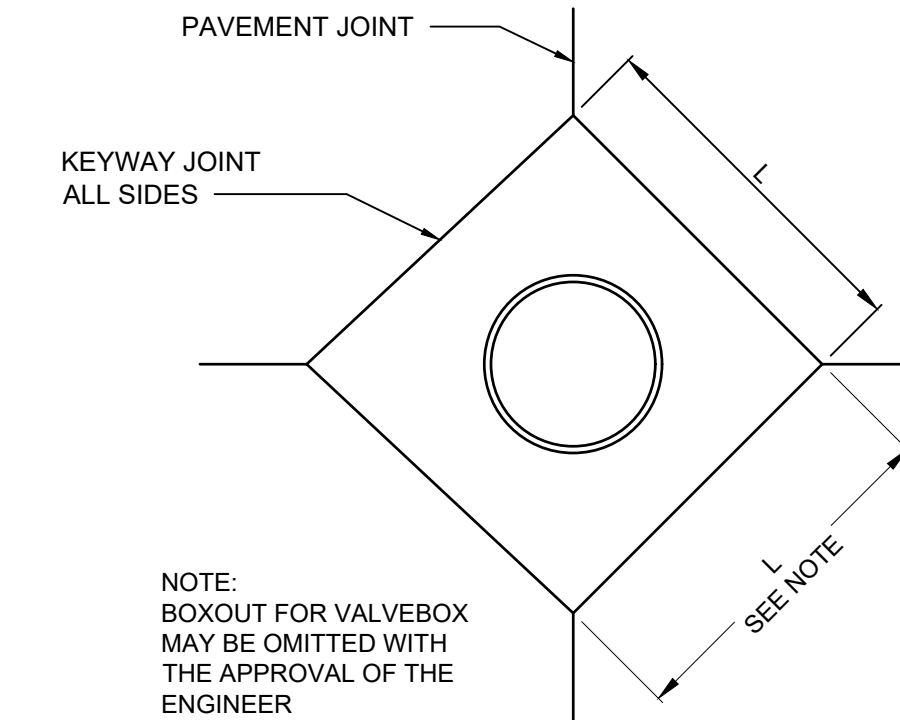


**KEYWAYS FOR TYPE B AND C**  
CONSTRUCTION JOINTS

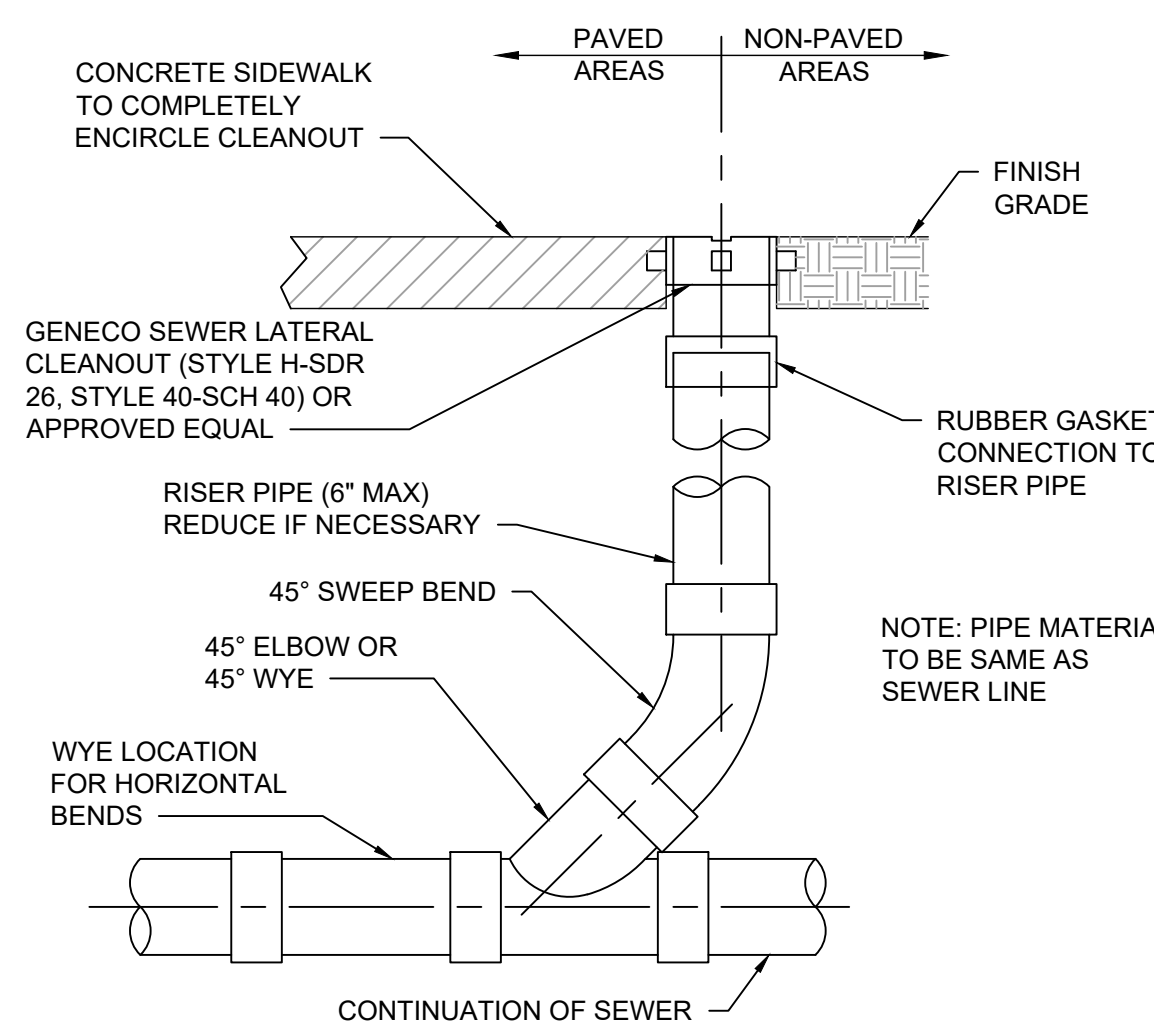
**3 PAVEMENT JOINT DETAILS**  
N.T.S.

**NOTES**

1. AT INLETS, MANHOLES, OR OTHER STRUCTURES TRANSVERSE JOINTS SHALL BE SHORTENED ONE OR MORE PANELS EITHER SIDE OF THE STRUCTURE TO PERMIT JOINTS TO FALL AT THE CORNERS OF THE BOXOUT. ONE OR BOTH "L" DIMENSIONS OF THE BOX OUT MAY BE ADJUSTED TO PROVIDE FOR INTERSECTION OF LONGITUDINAL JOINTS AT BOX OUT CORNERS.
2. ALL TRANSVERSE JOINTS MUST BE CONTINUOUS ACROSS PAVEMENT, EXCEPT TIED TRANSVERSE CONSTRUCTION JOINTS. EXPANSION JOINTS WILL BE REQUIRED AS SHOWN ON PLANS.
3. MAXIMUM TRANSVERSE JOINT SPACING SHALL BE 10 FEET, UNLESS OTHERWISE SPECIFIED.
4. PAVEMENT JOINTS SHALL BE SEALED WITH SELF LEVELING POLYURETHANE SEALANT.
5. DEFORMED BARS CONFORMING TO THE REQUIREMENTS OF A.A.S.H.T.O., M-31 OR M-53 GRADE 40 SHALL BE USED FOR THE TIE BARS.
6. TYPE B JOINTS WHICH ARE TO BE COATED SHALL RECEIVE TWO COATS OF ASPHALTIC EMULSION PRIOR TO PLACEMENT OF THE ADJACENT PAVEMENT.
7. TYPE 'D' JOINT MAY BE USED IN LIEU OF TYPE 'B' OR 'C' JOINTS WHEN WHEN SLABS ON BOTH SIDES OF JOINT ARE POURED INTEGRAL.
8. SUPPORT PINS FOR THE TIE BARS, WHEN REQUIRED, SHALL BE OF A SIZE AND STRENGTH SUFFICIENT TO FIRMLY HOLD THE BAR IN PLACE.

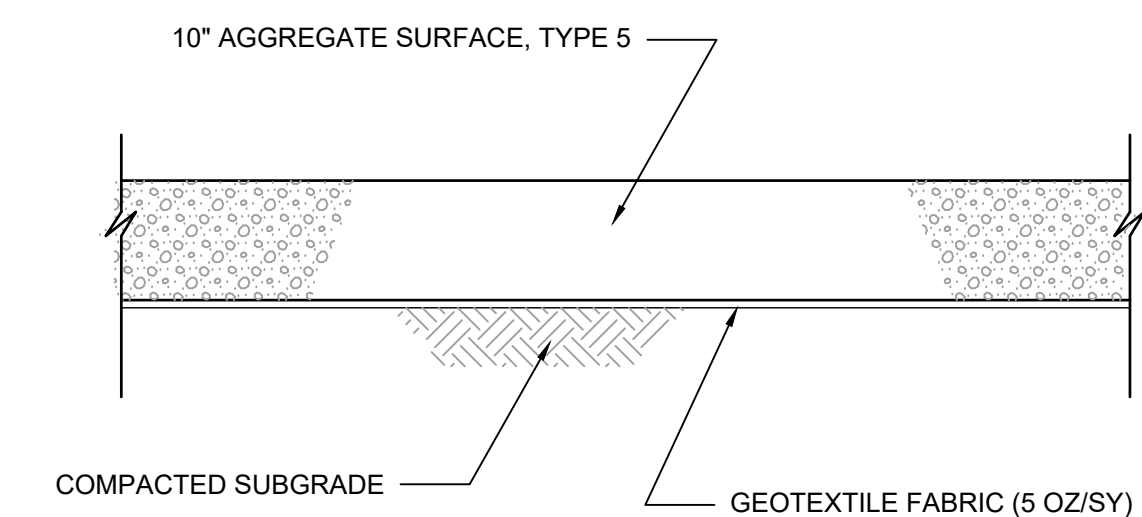


**TYPICAL UTILITY BOXOUT**  
JOINTS ALL CORNERS



**PEDESTRIAN TRAFFIC AREA**

**5 CLEANOUT DETAILS**  
N.T.S.



**6 AGGREGATE PAD DETAIL**  
N.T.S.

STATE OF MISSOURI  
MICHAEL L. PARSON,  
GOVERNOR



CURT S. WAVERING - ENGINEER  
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ADDITION  
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MO 65473

PROJECT # T2042-01  
SITE # 6306  
ASSET # 8136306006

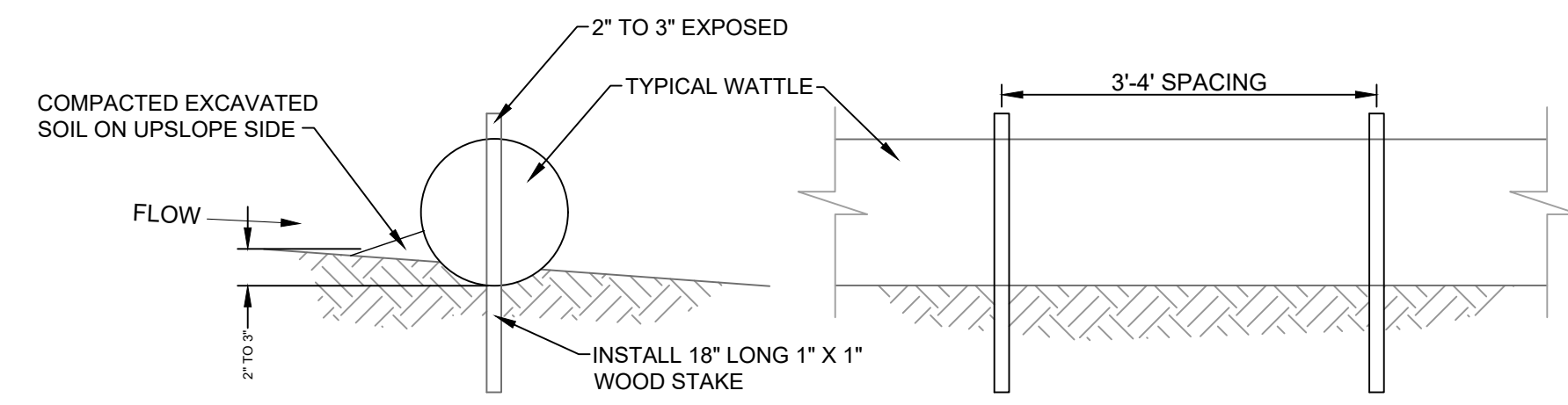
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DATE: \_\_\_\_\_  
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DATE: \_\_\_\_\_  
REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
ISSUE DATE: APRIL 17, 2023

CAD DWG FILE: C501  
DRAWING BY: DCD/VJC  
CHECKED BY: CSW  
DESIGNED BY: DCD

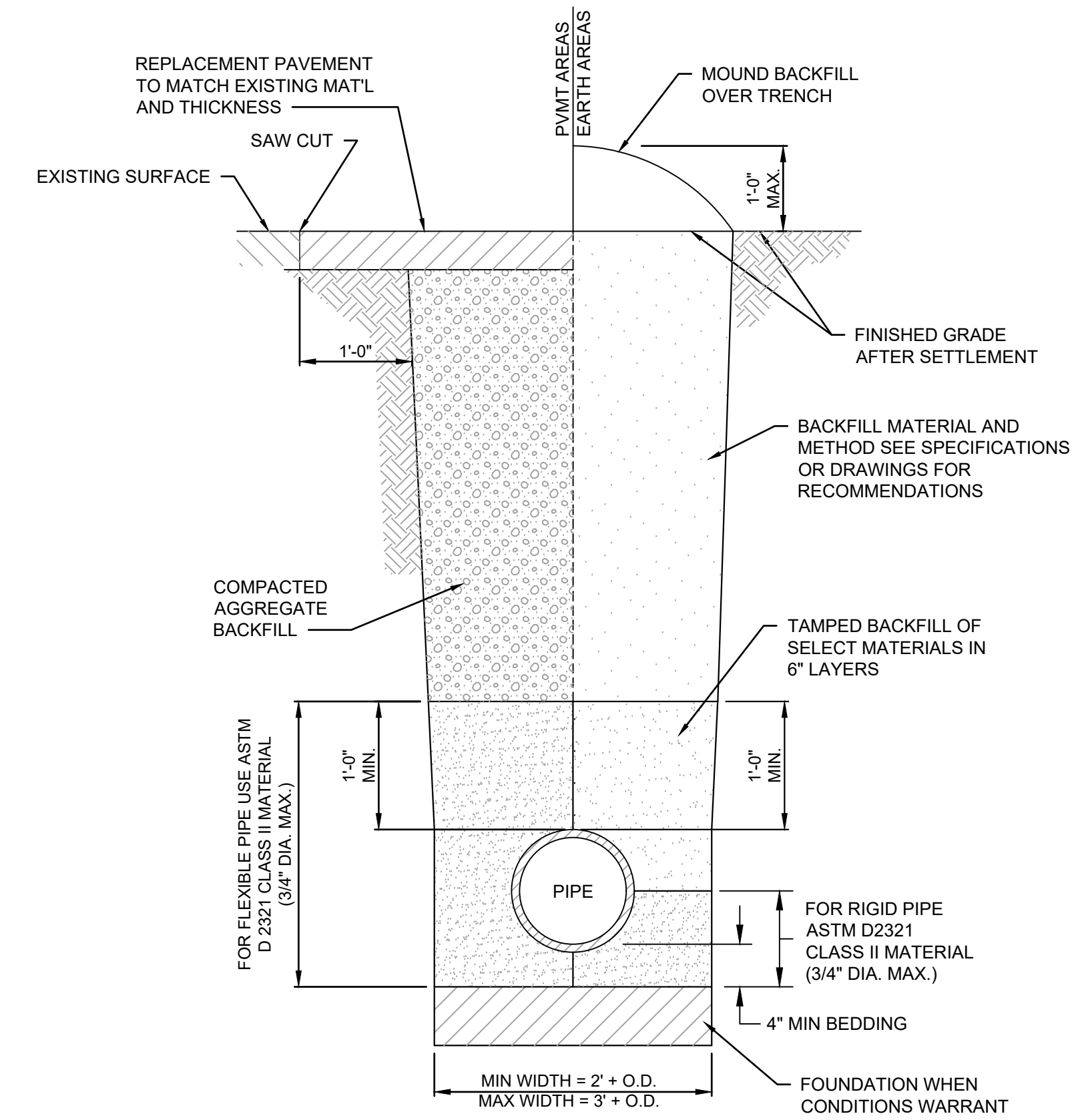
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**SITE DETAILS**

SHEET NUMBER:  
**C501**  
SHEET 08 OF 51  
APRIL 17, 2023

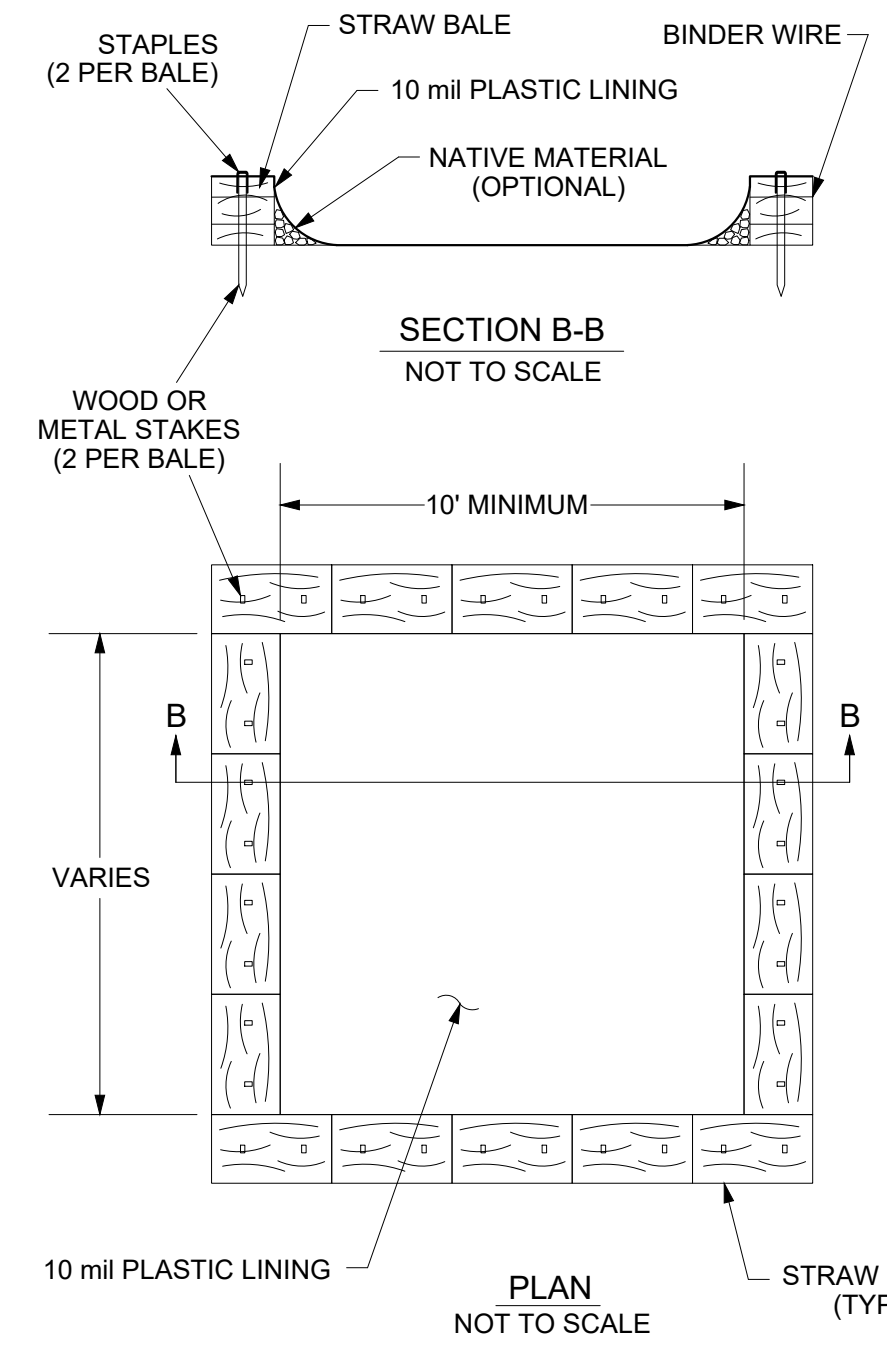




**1 EROSION CONTROL WATTLE CHECK**  
N.T.S.



**2 SEWER TRENCH DETAIL**  
N.T.S.

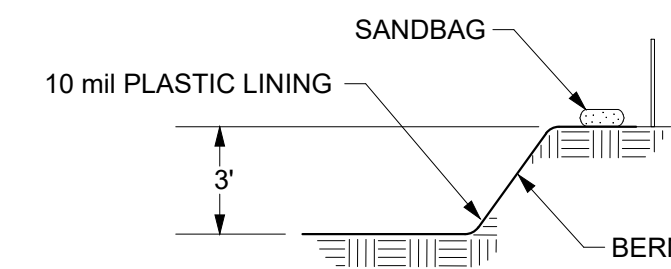


**TYPE "ABOVE GRADE" WITH STRAW BALES**

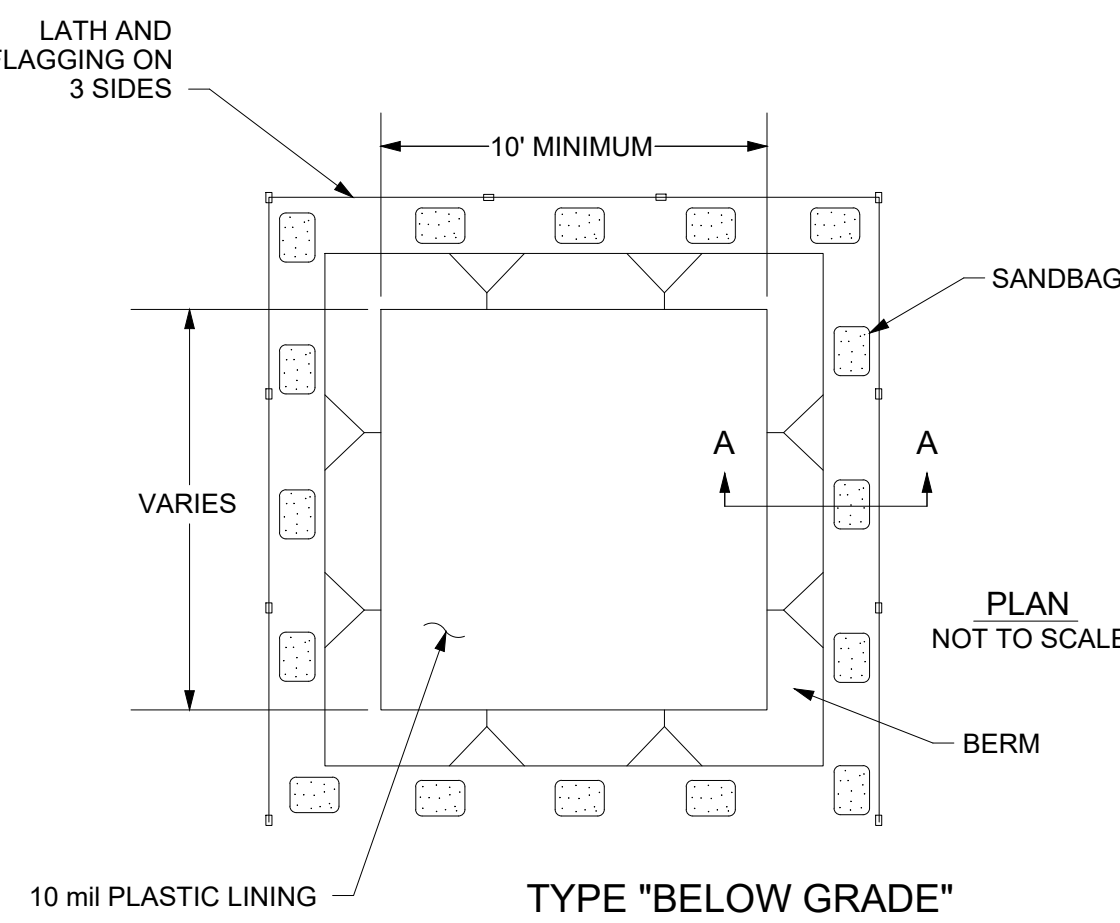
**NOTES**

- ACTUAL LAYOUT TO BE DETERMINED IN THE FIELD.
- A CONCRETE WASHOUT SIGN SHALL BE INSTALLED WITHIN 30' OF THE TEMPORARY CONCRETE WASHOUT FACILITY.
- MATERIALS USED TO CONSTRUCT TEMPORARY CONCRETE WASHOUT FACILITIES SHALL BE REMOVED FROM THE SITE OF THE WORK AND DISPOSED OF OR RECYCLED.
- HOLES, DEPRESSIONS OR OTHER GROUND DISTURBANCE CAUSED BY THE REMOVAL OF THE TEMPORARY CONCRETE WASHOUT FACILITIES SHALL BE BACKFILLED, REPAIRED, AND STABILIZED TO PREVENT EROSION.

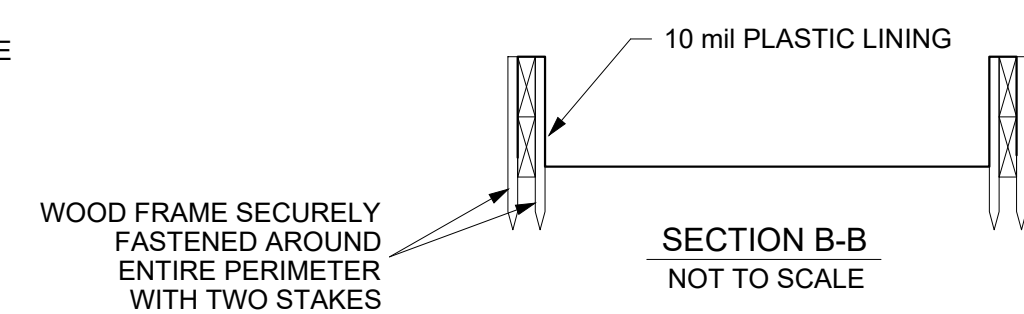
**3 CONCRETE WASH OUT DETAIL**  
N.T.S.



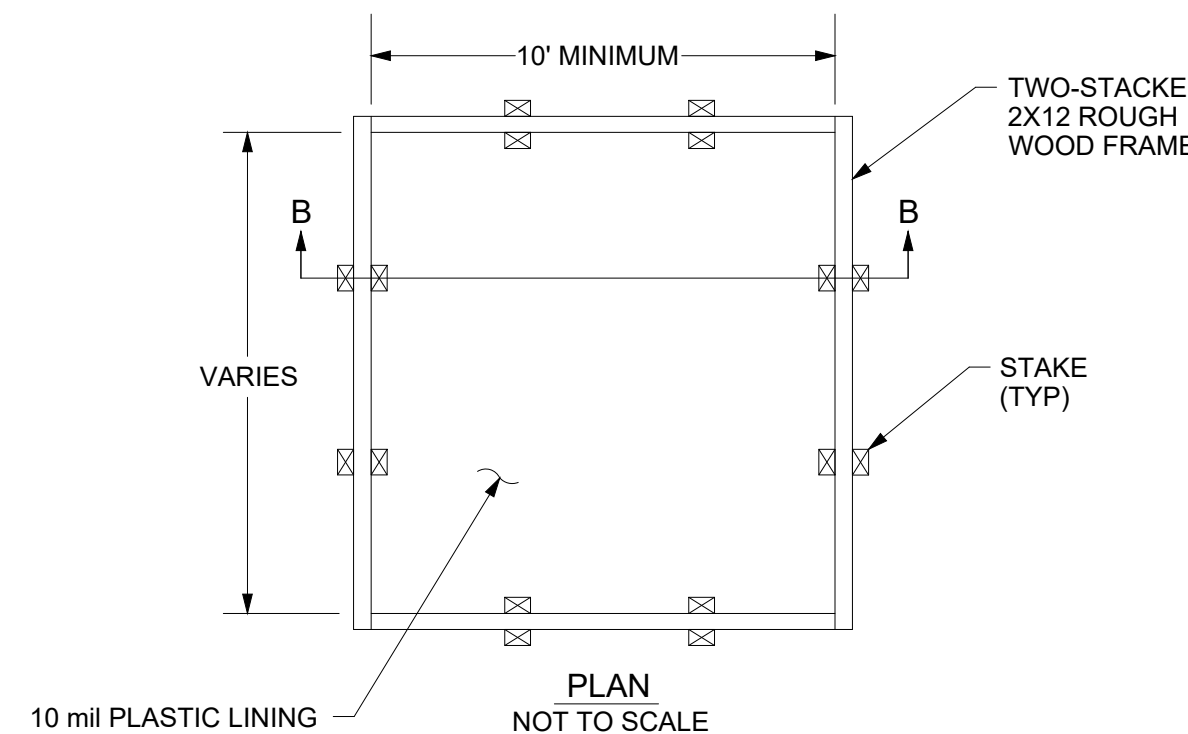
**SECTION A-A**  
NOT TO SCALE



**TYPE "BELOW GRADE"**



**SECTION B-B**  
NOT TO SCALE



**TYPE "ABOVE GROUND" WITH WOOD PLANKS**

**4 EROSION CONTROL BLANKET INSTALLATION DETAILS**  
N.T.S.

- PREPARE SOIL BEFORE INSTALLING ROLLED EROSION CONTROL PRODUCTS (RECP'S), INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED. SEEDING WILL BE COMPLETED BY THE OWNER, CONTRACTOR TO COORDINATE WITH OWNER TO ALLOW PROPER TIMING AND COORDINATION FOR THE SEEDING AND EROSION BLANKET INSTALLATION.
- BEGIN AT THE TOP OF THE SLOPE BY ANCHORING THE RECP'S IN A 6" DEEP X 6" WIDE TRENCH WITH APPROXIMATELY 12" OF RECP'S EXTENDED BEYOND THE UP-SLOPE PORTION OF THE TRENCH. ANCHOR THE RECP'S WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO COMPACTED SOIL AND FOLD REMAINING 12" (30 CM) PORTION OF RECP'S BACK OVER SEED AND COMPACTED SOIL. SECURE RECP'S OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12" APART ACROSS THE WIDTH OF THE RECP'S.
- ROLL THE RECP'S (A) DOWN OR (B) HORIZONTALLY ACROSS THE SLOPE. RECP'S WILL UNROLL WITH APPROXIMATE SIDE AGAINST THE SOIL SURFACE. ALL RECP'S MUST BE SECURELY FASTENED TO SOIL SURFACE BY PLACING STAPLES/STAKES IN APPROXIMATE LOCATIONS AS SHOWN IN THE STAPLE PATTERN GUIDE. WHEN USING THE DOT SYSTEM, STAPLES/STAKES SHOULD BE PLACED THROUGH EACH OF THE COLORED DOTS CORRESPONDING TO THE APPROPRIATE STAPLE PATTERN.
- THE EDGES OF PARALLEL RECP'S MUST BE STAPLED WITH APPROXIMATELY 2" - 54" OVERLAP DEPENDING ON RECP'S TYPE.
- CONSECUTIVE RECP'S SPICED DOWN THE SLOPE MUST BE PLACED END OVER END (SHINGLE STYLE) WITH AN APPROXIMATE 3" OVERLAP. STAPLE THROUGH OVERLAPPED AREA, APPROXIMATELY 12" APART ACROSS ENTIRE RECP'S WIDTH.  
NOTE:  
IN LOOSE SOIL CONDITIONS, THE USE OF STAPLE OR STAKE LENGTHS GREATER THAN 6" MAY BE NECESSARY TO PROPERLY SECURE THE RECP'S.
- EROSION CONTROL BLANKET SHALL BE USED ON ALL SLOPES 4:1 AND STEEPER THAT ARE NOT HYDROMULCHED.



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MO 65473

PROJECT # T2042-01  
SITE # 6306  
ASSET # 8136306006

REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
ISSUE DATE: 04/28/2023

CAD DWG FILE: \_\_\_\_\_  
DRAWING BY: TCR  
CHECKED BY: CSW  
DESIGNED BY: DCD

SHEET TITLE:  
**SITE DETAILS**

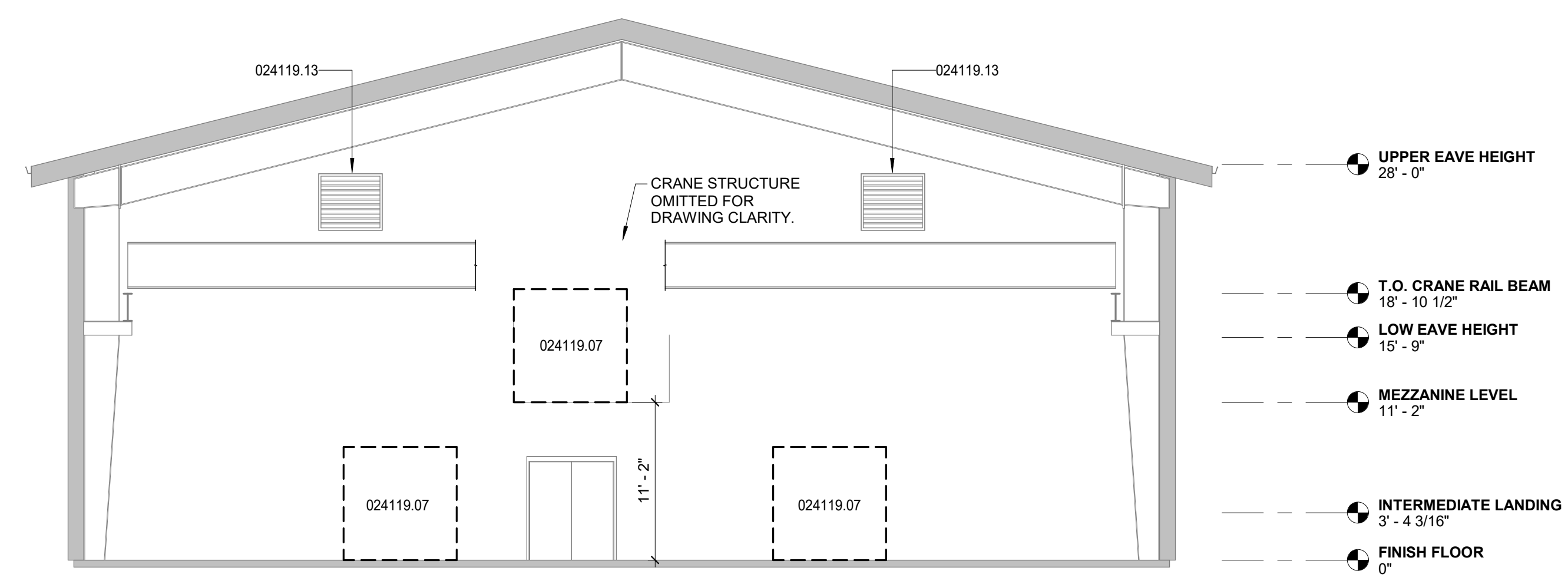
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**C502**

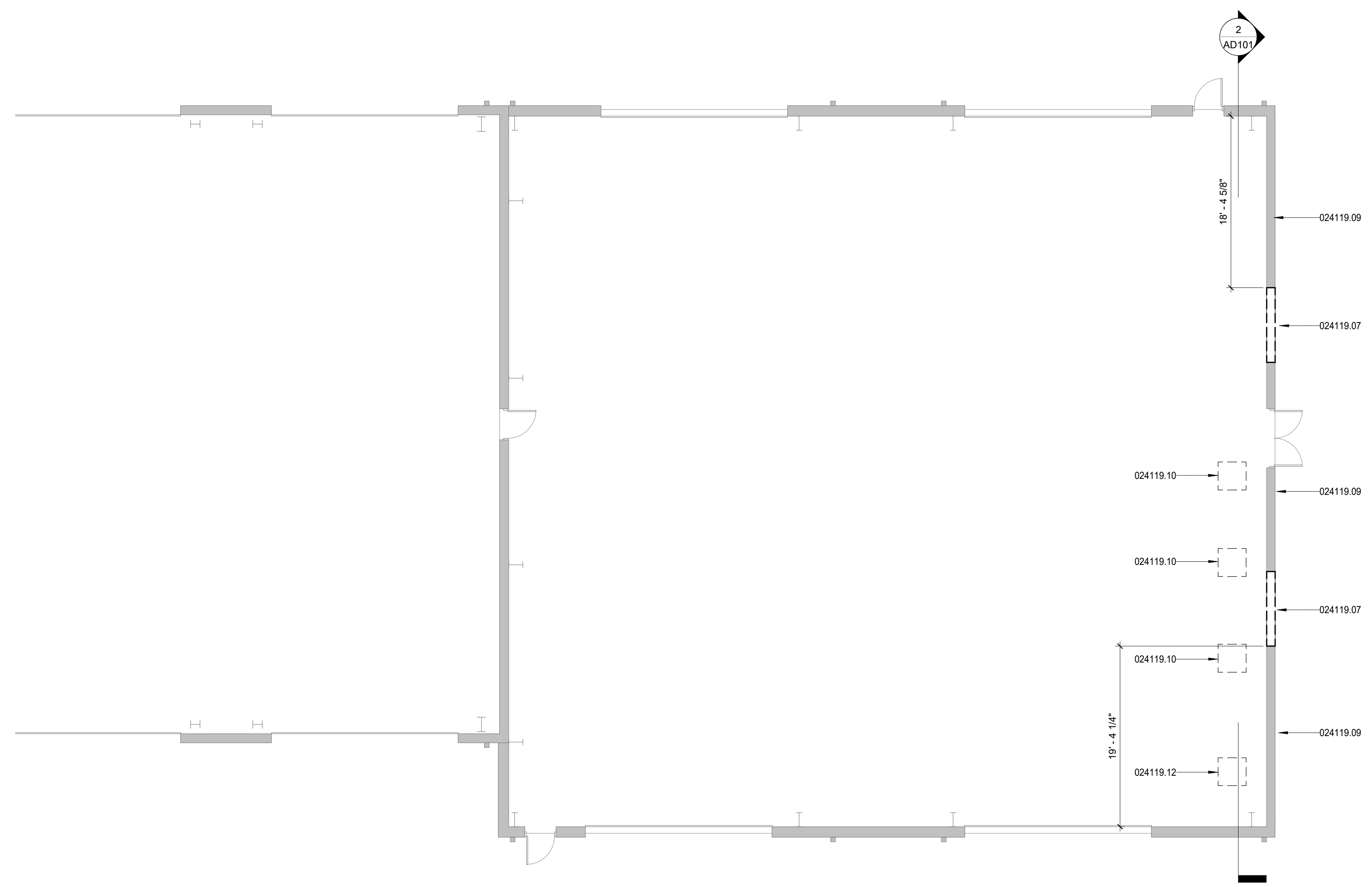
SHEET 09 OF 51  
APRIL 28, 2023



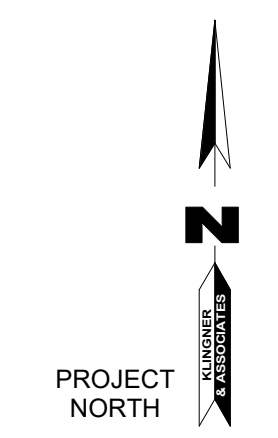
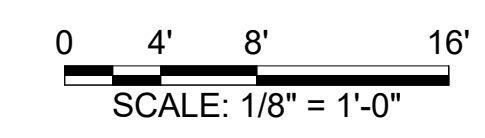
KEYNOTE LEGEND	
VALUE	DESCRIPTION
024119.07	CUT IN NEW OPENING FOR 8'-0" x 8'-0" OVERHEAD COILING DOOR. CONTRACTOR SHALL CONFIRM ROUGH OPENING WITH OVERHEAD COILING DOOR MFR. ENLARGE OPENING IF NEEDED.
024119.09	REMOVE WALL PANELS FROM FACE OF FURRING CHANNELS ON STUD WALL AT ELEVATION BELOW NEW ADDITION ROOF LINE
024119.10	SAWCUT AND REMOVE EXISTING CONCRETE SLAB FOR NEW COLUMN FOOTING FOR NEW STAIR
024119.12	SAWCUT AND REMOVE EXISTING CONCRETE SLAB FOR NEW COLUMN FOOTING FOR NEW STAIR. SAWCUT AROUND EXISTING BUILDING COLUMN AND DO NOT DISTURB EXISTING FOOTING.
024119.13	EXISTING EXHAUST FAN TO REMAIN



2 SECTION THROUGH EXISTING GARAGE BAY, LOOKING EAST  
1/8" = 1'-0"



1 MAIN LEVEL - DEMO PLAN  
1/8" = 1'-0"



STATE OF MISSOURI  
MICHAEL L. PARSON,  
GOVERNOR



CODY N. BASHAM - ARCHITECT  
MO # A-2021000203

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MO 65473

PROJECT # T2042-01  
SITE # 6306  
ASSET # 8136306006

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REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
ISSUE DATE: 04/28/23

CAD DWG FILE: AD101  
DRAWING BY: MSG  
CHECKED BY: CNB  
DESIGNED BY: CNB

SHEET TITLE:  
**SELECTIVE  
DEMOLITION**

SHEET NUMBER:

**AD101**

SHEET 10 OF 51  
APRIL 28, 2023





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DATE:  
ISSUE DATE: 04/28/23

CAD DWG FILE: A101  
DRAWING BY: MSG  
CHECKED BY: CNB  
DESIGNED BY: CNB

SHEET TITLE:  
**FLOOR PLAN AND  
MEZZANINE PLAN**

SHEET NUMBER:

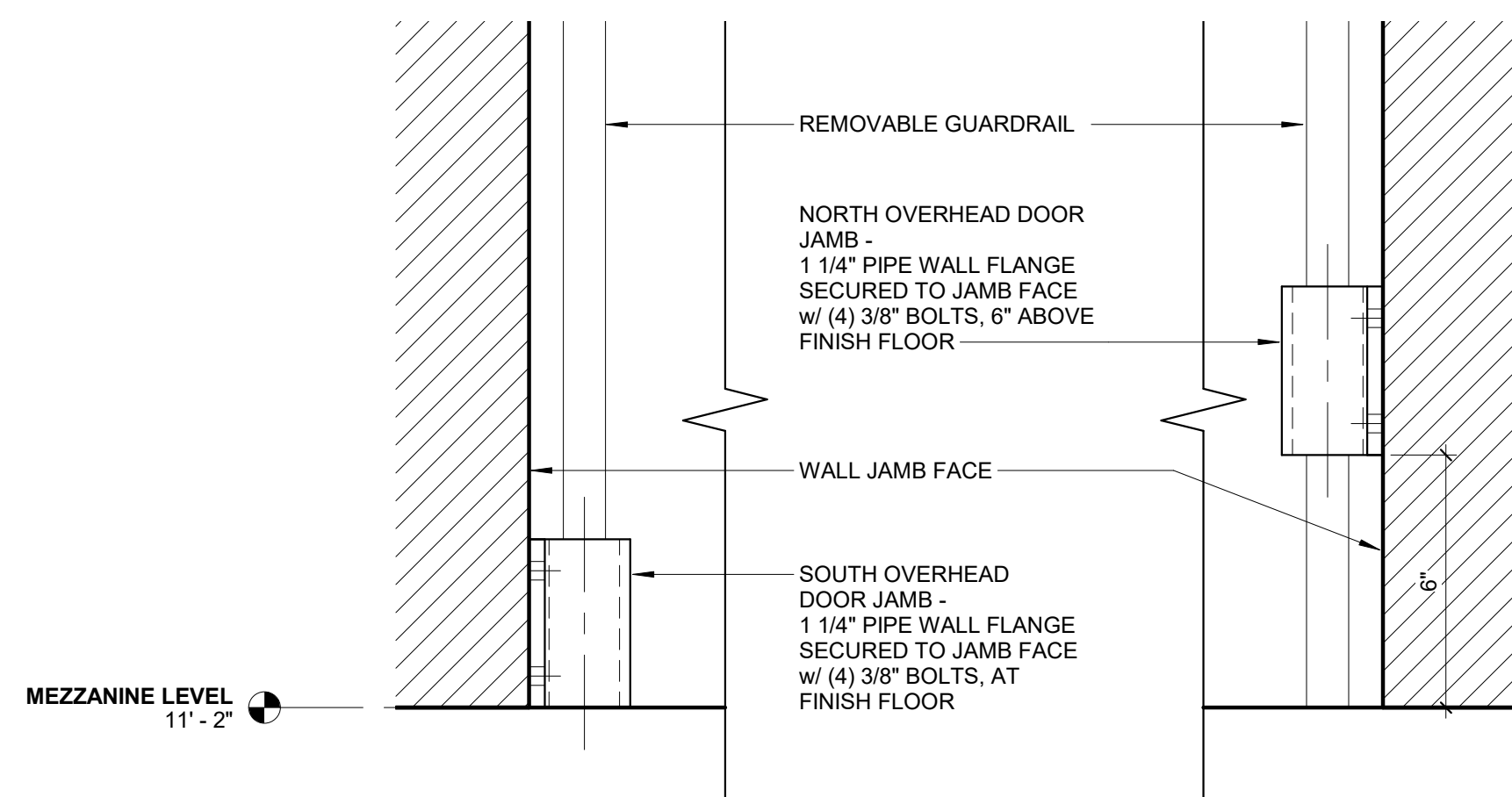
**A101**

SHEET 11 OF 51  
APRIL 28, 2023

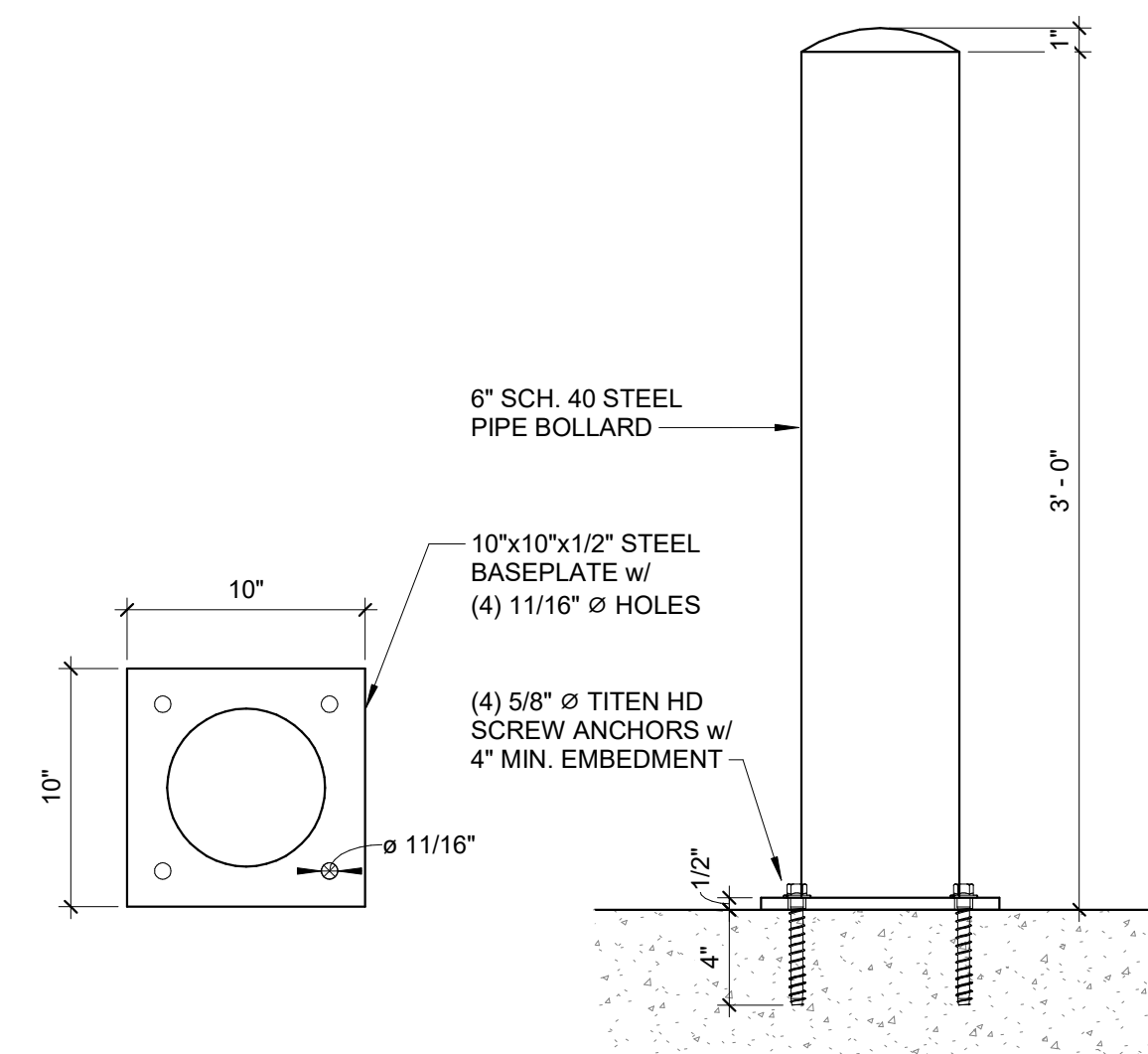
VALUE	DESCRIPTION
055200.05	REMOVEABLE ALUMINUM GUARDRAIL SYSTEM WITH FLANGES AT EACH END. ADD BOLT AND COTTER PIN FOR SECURING GUARDRAIL TO FLANGES.
092900.06	INSTALL 5/8" GYPSUM BOARD OVER FURRING CHANNELS. EXTEND TO BOTTOM OF ROOF DECK
101400.01	14" x 14" LOAD RATING SIGNAGE; TOP OF SIGN MAX. 5'-0" AFF
123200.01	BASE CABINETS W/ COUNTER AND 2-BASIN SINK
220000.01	EYEWASH STATION. SEE PLUMBING
220000.02	WASHFOUNTAIN. SEE PLUMBING
220000.05	NEW WASHFOUNTAIN - SEE PLUMBING - PROVIDE BLOCKING IN WALLS AS REQ'D
230000.06	FAN COIL UNIT. SEE MECHANICAL
230000.07	ENERGY RECOVERY UNIT & OUTDOOR AIR PROCESSOR. SEE MECHANICAL
323913.01	REMOVEABLE BOLLARDS BOTH SIDES, TYP.

GENERAL NOTES

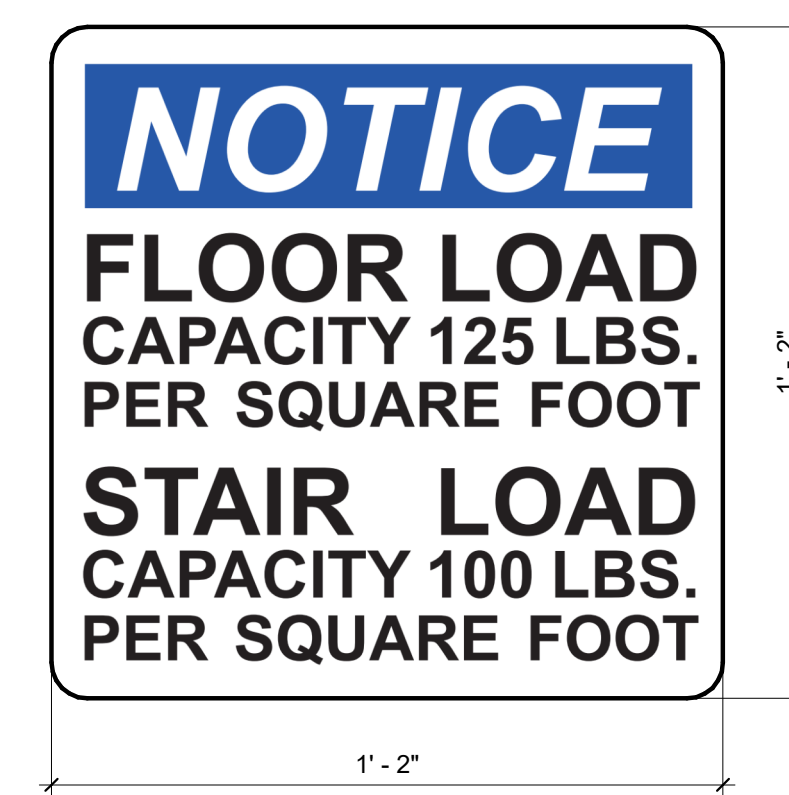
- CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS AND DIMENSIONS. REPORT TO THE ARCHITECT WITH ANY DISCREPANCIES.
- FINISH FLOOR ELEVATION IS 1163.83' ON CIVIL PLANS = 0' - 0" ON ARCHITECTURE PLANS.
- REFER TO SHEET A102 FOR DIMENSIONS.



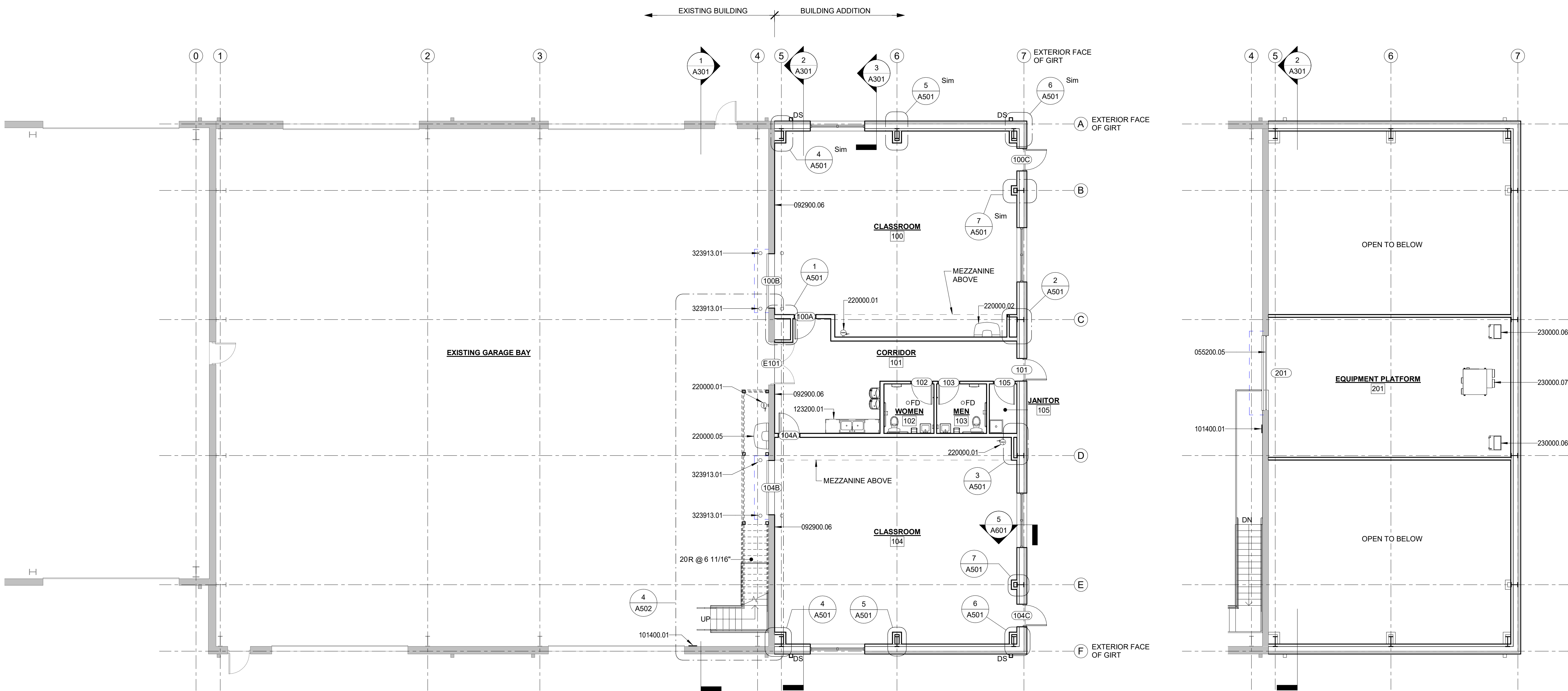
3 REMOVABLE GUARDRAIL DETAIL  
3" = 1'-0"



4 REMOVABLE BOLLARD DETAIL  
1 1/2" = 1'-0"



5 LOAD RATING SIGNAGE DETAIL  
3" = 1'-0"



1 MAIN LEVEL - FLOOR PLAN  
1/8" = 1'-0"

2 MEZZANINE FLOOR PLAN  
1/8" = 1'-0"

0 3" 6" 1'  
SCALE: 1 1/2" = 1'-0"

0 3" 6"  
SCALE: 3" = 1'-0"

0 4' 8' 16'  
SCALE: 1/8" = 1'-0"







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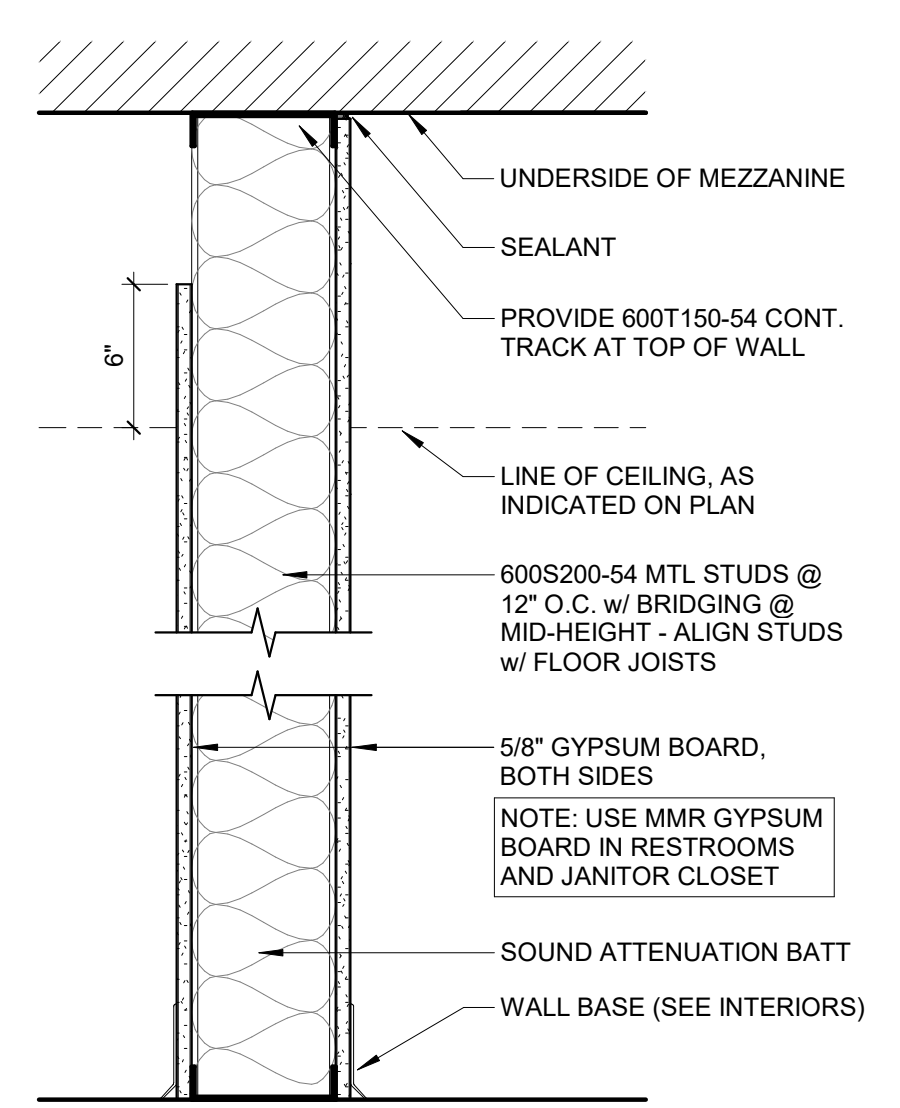
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DRAWING BY: MSG  
CHECKED BY: CNB  
DESIGNED BY: CNB

SHEET TITLE:  
**DIMENSION PLAN**

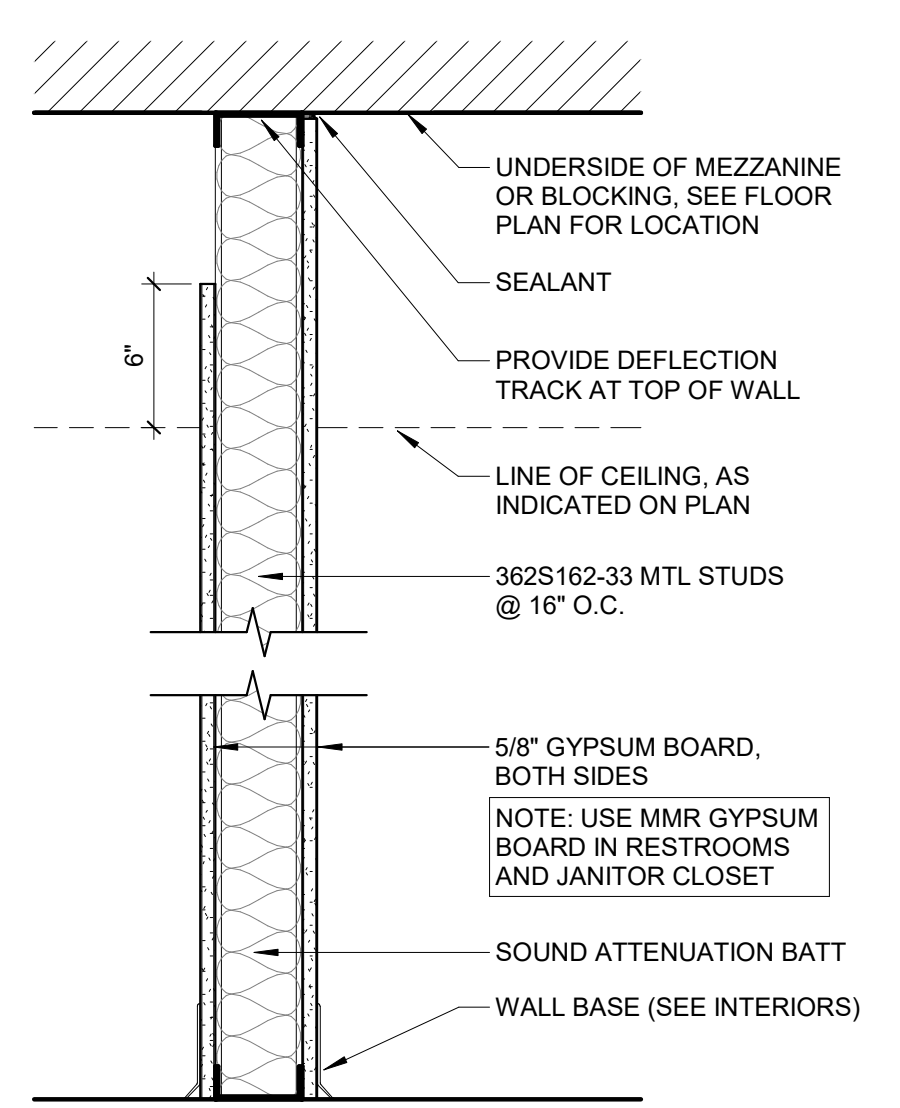
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**A102**

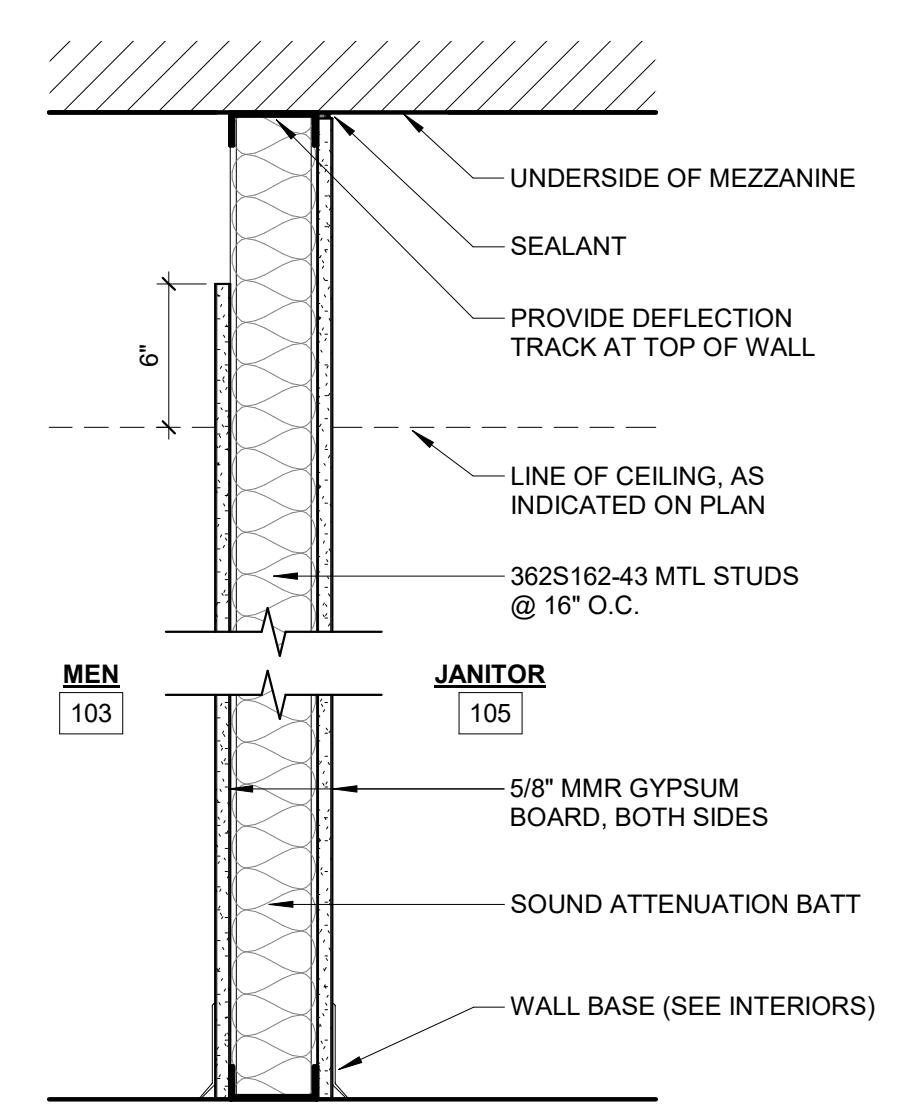
SHEET 12 OF 51  
APRIL 28, 2023



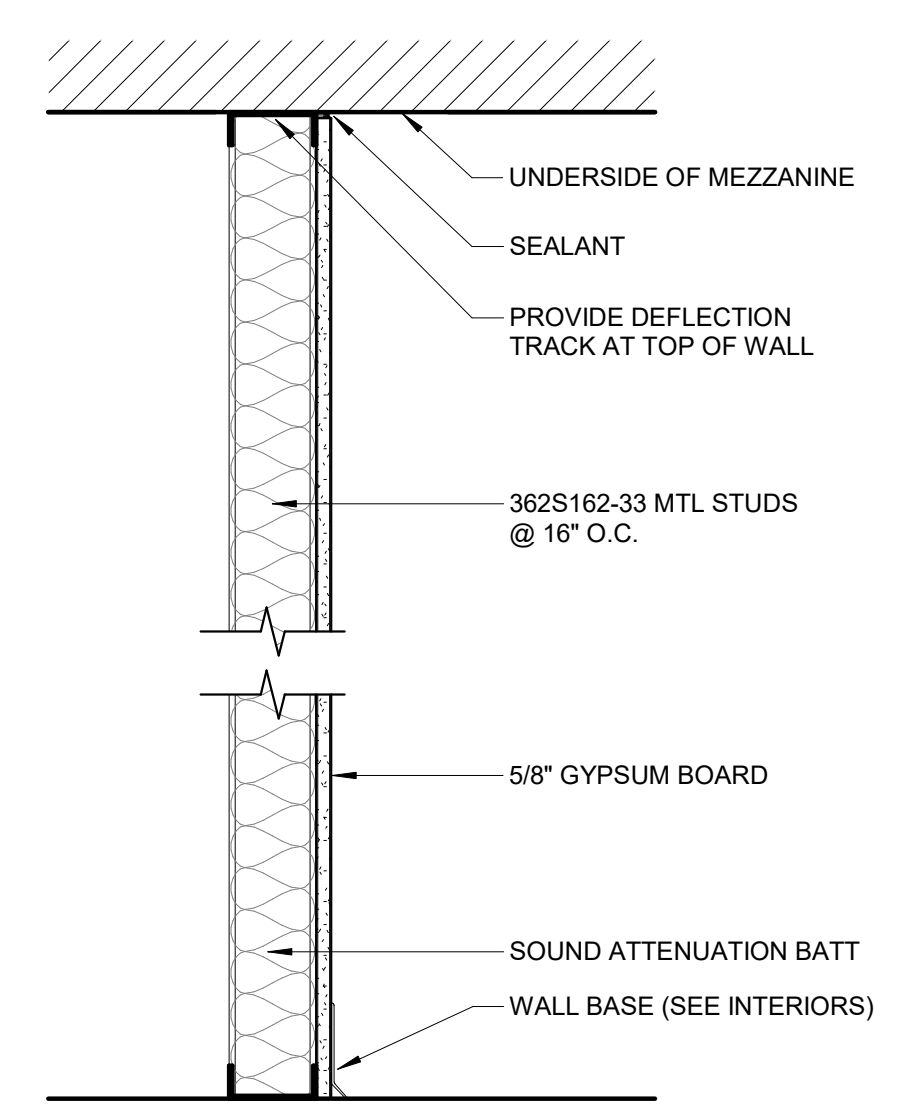
3 PARTITION TYPE P6  
1 1/2" = 1'-0"



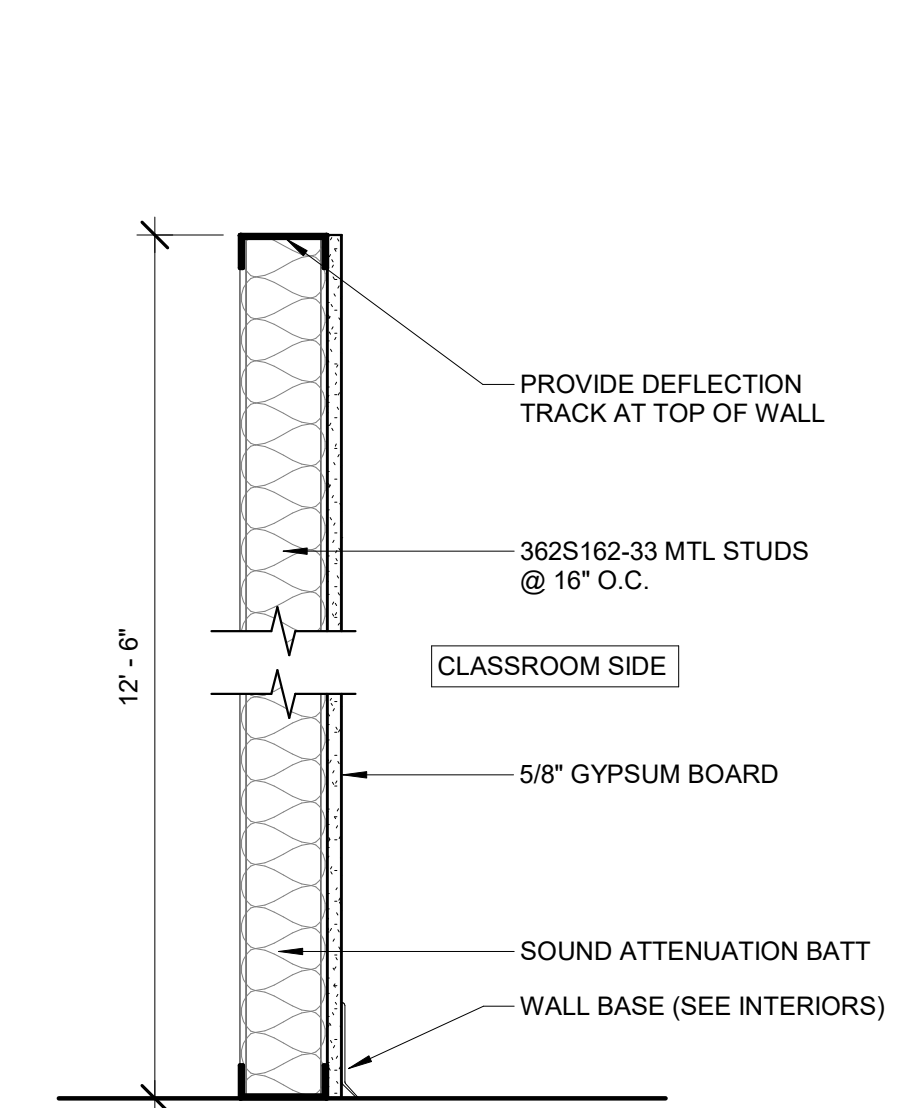
4 PARTITION TYPE P3  
1 1/2" = 1'-0"



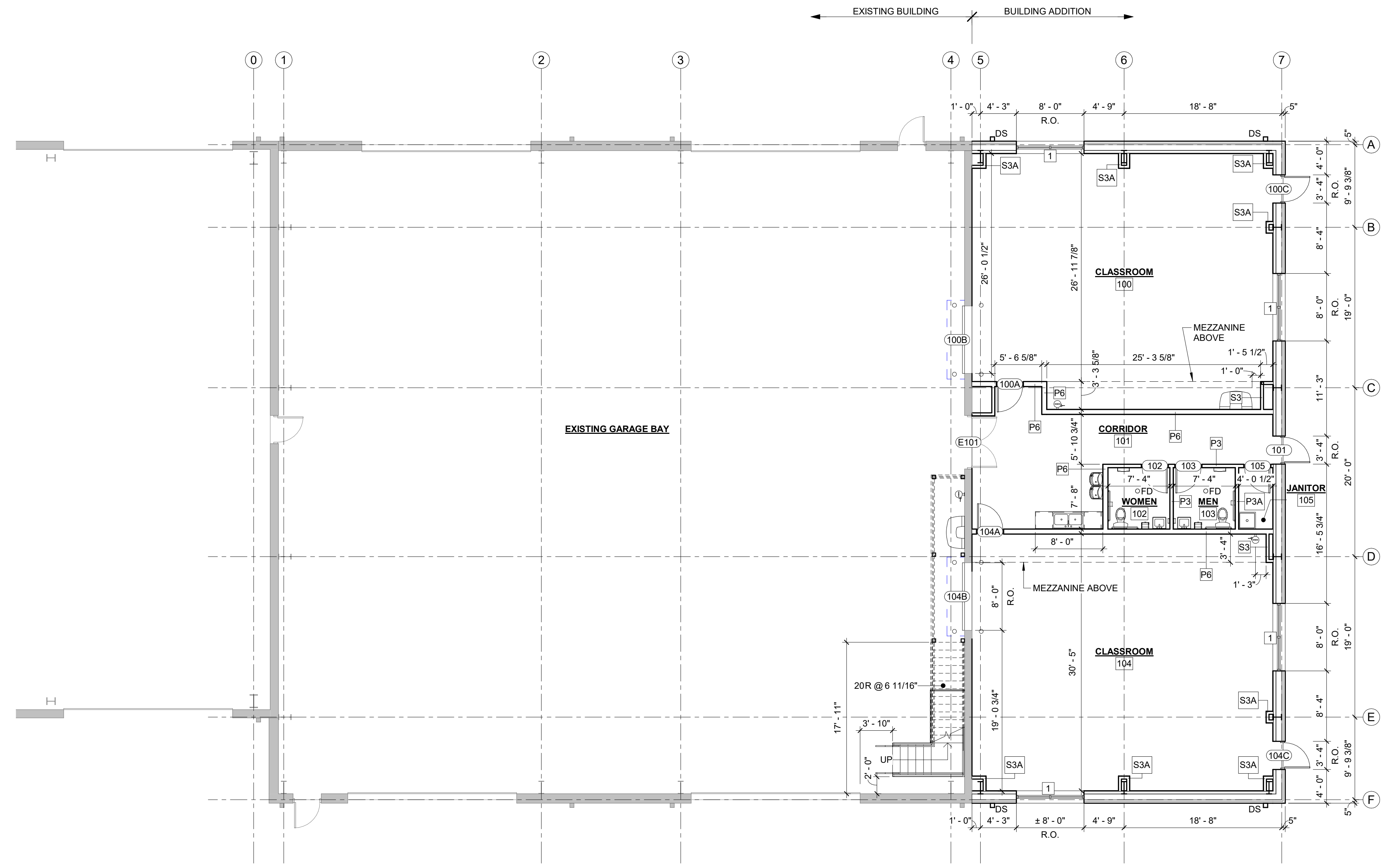
5 PARTITION TYPE P3A  
1 1/2" = 1'-0"



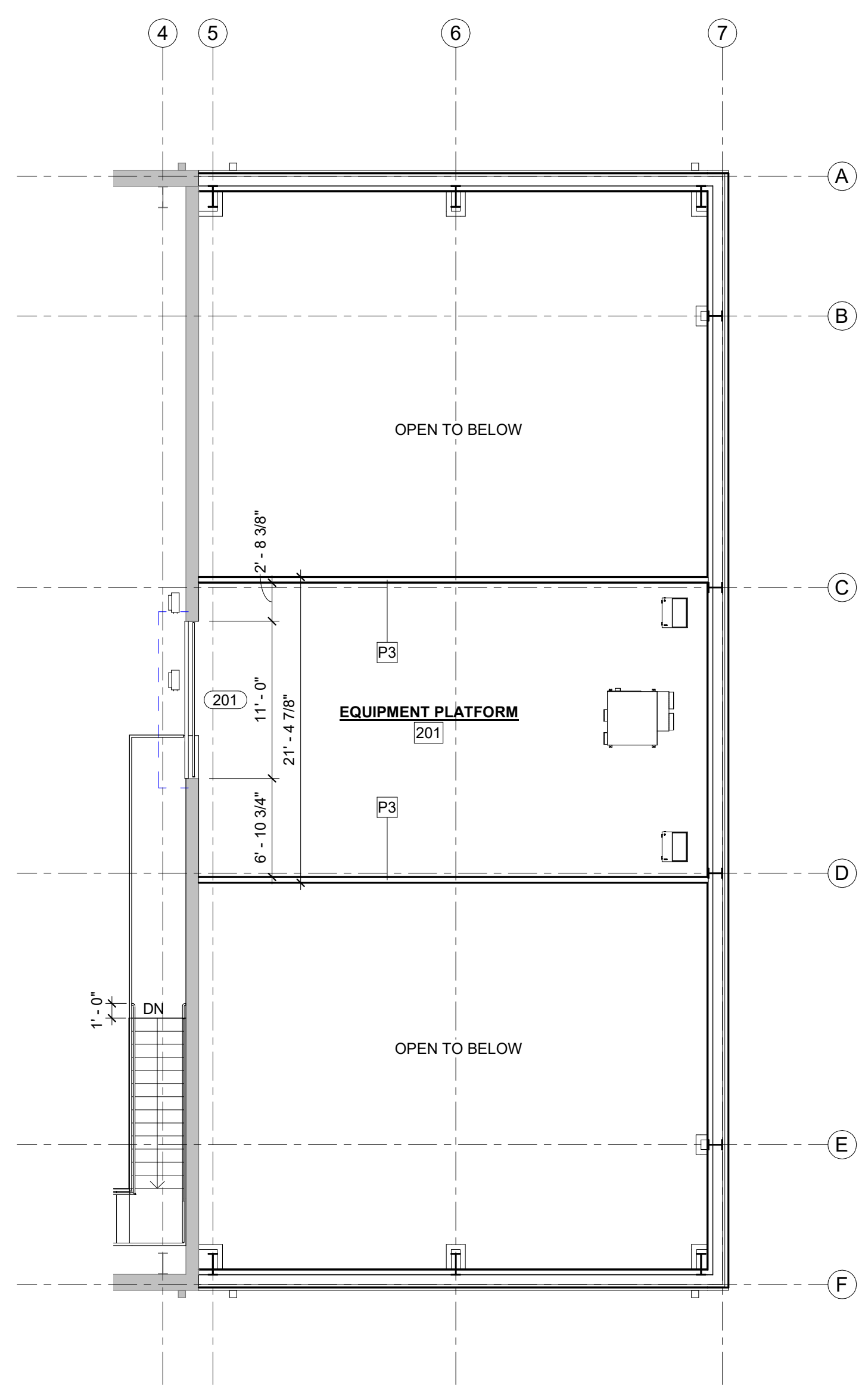
6 SHAFT WALL TYPE S3  
1 1/2" = 1'-0"



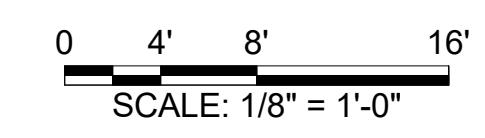
7 SHAFT WALL TYPE S3A  
(AT COLUMN SURROUND)  
1 1/2" = 1'-0"



1 MAIN LEVEL - DIMENSION PLAN  
1/8" = 1'-0"



2 MEZZANINE - DIMENSION PLAN  
1/8" = 1'-0"



PROJECT  
NORTH



WALL FINISH SCHEDULE			
TAG	MANUFACTURER	PRODUCT DESCRIPTION	REMARKS
CT-1	ATLAS CONCORDE USA	BASIS OF DESIGN: FRAY; COLOR: GRAY; SIZE: 2' x 2' MOSAICS; INSTALL PATTERN: STRAIGHT; GROUT: MAPA; COLOR: TIMBERWOLF 104; JOINT WIDTH: 1/8"	RESTROOMS - BELOW 48"; DRINKING FOUNTAIN WET WALL - BELOW 48"
FRP-1	NUDO	BASIS OF DESIGN PRODUCT - FIBER - LITE LINER PANEL; PRODUCT # LP-F9; COLOR: WHITE; SURFACE: PEBBLED	
PNT-1	SHERWIN WILLIAMS	BASIS OF DESIGN: PROMAR 200 ZERO VOC; COLOR: DORIAN GRAY SW7017; FINISH: EGGSHELL	FIELD PAINT; RESTROOMS - ABOVE 48"; DRINKING FOUNTAIN WET WALL - ABOVE 48"
PNT-2	SHERWIN WILLIAMS	BASIS OF DESIGN: PROMAR 200 ZERO VOC; COLOR: PORPOISE SW7047; FINISH: SEMI-GLOSS	DOORS AND DOOR FRAMES

WALL BASE SCHEDULE			
TAG	MANUFACTURER	PRODUCT DESCRIPTION	REMARKS
RES-1	JOHNSONITE	BASIS OF DESIGN: 4" RUBBER COVE BASE; COLOR: SILVER GREY 55	

FLOORING SCHEDULE			
TAG	MANUFACTURER	PRODUCT DESCRIPTION	REMARKS
EPX-1	SHERWIN WILLIAMS	BASIS OF DESIGN: SEE SPECIFICATIONS; COLOR: SW 4030 NICKEL; FLAKE MIX: OASIS FB 7-12, 1/8"	
PLY-1		FIRE-RETARDANT-TREATED PLYWOOD, 3/4" THICK	
SCF-1	PROSOCO	BASIS OF DESIGN: CONSOLIDECK LS; CREAM FINISH - SATIN/HONED	

MISCELLANEOUS INTERIOR FINISH SCHEDULE			
TAG	MANUFACTURER	PRODUCT DESCRIPTION	REMARKS
CG-1	INPRO	BASIS OF DESIGN PRODUCT: 130F FLUSH MOUNT CORNER GUARD; COLOR: PEPPERDUST 0119; WING SIZE: 3"; HEIGHT: 9"	

WINDOW COVERING SCHEDULE			
TAG	MANUFACTURER	PRODUCT DESCRIPTION	REMARKS
BL-1	A BETTER BLIND	BASIS OF DESIGN PRODUCT: 1" ALUMINUM MINI BLINDS; COLOR: WHITE SATIN	

SURFACES - VERTICAL			
TAG	MANUFACTURER	PRODUCT DESCRIPTION	REMARKS
PLAM-1	WILSONART	BASIS OF DESIGN: PREMIUM LAMINATE; COLOR: WINDSOR MAHOGONY 7039K-78; FINISH: FINEGRAIN	WOOD LOOK

SURFACES - HORIZONTAL			
TAG	MANUFACTURER	PRODUCT DESCRIPTION	REMARKS
PLAM-2	WILSONART	BASIS OF DESIGN: STANDARD LAMINATE; COLOR: SLATE GREY D91-60; FINISH: MATTE	DARK GRAY

**GENERAL NOTES - INTERIOR**

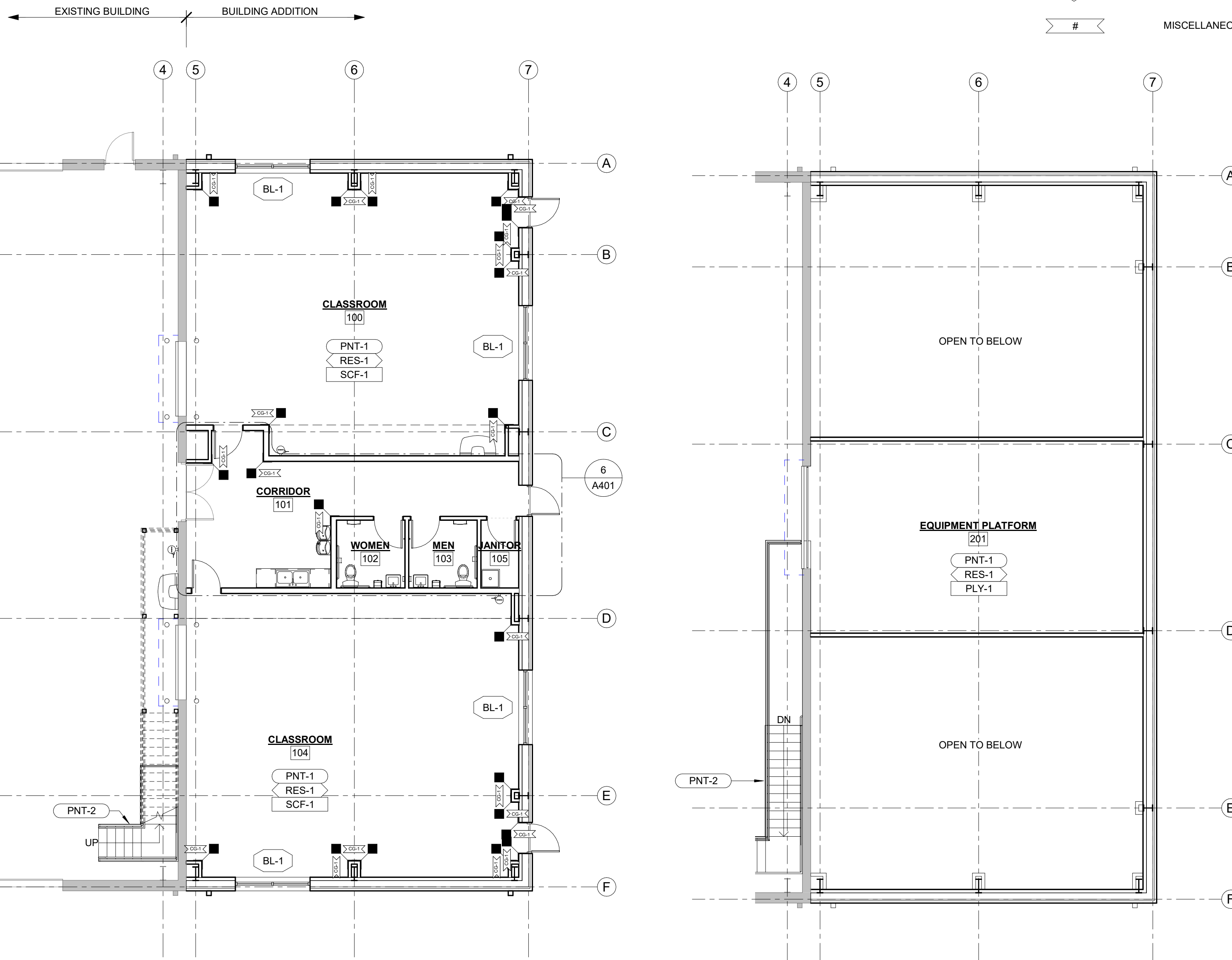
1. BASIS-OF-DESIGN PRODUCT: WHERE SPECIFICATIONS OR DRAWINGS NAME A PRODUCT AND MANUFACTURER, PROVIDE THE SPECIFIED PRODUCT/MANUFACTURER OR APPROVED EQUIVALENTS AS INDICATED. DRAWINGS AND SPECIFICATIONS INDICATE SIZES, PROFILES, DIMENSIONS, AND OTHER CHARACTERISTICS THAT ARE BASED ON THE PRODUCT NAMED. INSTALL PRODUCT COMPLETE WITH ALL REQUIRED ACCESSORIES IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS, INSTRUCTION AND DETAILS.
2. ALL CONTRACTORS TO FIELD VERIFY ALL CONDITIONS AND DIMENSIONS.
3. ALL FLOOR TRANSITIONS THAT CHANGE MATERIALS TO RECEIVE TRANSITION STRIP.
4. ALL FLOOR FINISHES TO EXTEND BENEATH CASEWORK.
5. DISSIMILAR FLOOR MATERIALS SHALL MEET UNDER CENTER OF DOOR LEAF WHEN IN CLOSED POSITION, UNLESS OTHERWISE NOTED OR SHOWN.
6. REMARKS COLUMN ON ROOM AND PRODUCT FINISH SCHEDULE INDICATES GENERAL COMMENTS ONLY. SEE INTERIOR FINISH PLANS AND SPECIFICATIONS FOR LOCATIONS AND DETAILS.
7. ALL WALLS SHALL BE PNT-1, UNLESS OTHERWISE NOTED OR SHOWN.
8. ALL METAL DOORS AND DOOR FRAMES SHALL BE PNT-2, UNLESS OTHERWISE NOTED OR SHOWN.
9. ALL WALL BASE SHALL BE RES-1, UNLESS OTHERWISE NOTED OR SHOWN.
10. ALL FRP-1 TO BE 4'-0"W x 4'-0"H AT MOP SINKS, UNLESS OTHERWISE NOTED OR SHOWN.
11. STAIR AND LANDING, INCLUDING RAILINGS, SHALL BE PNT-2, UNLESS OTHERWISE NOTED OR SHOWN.

**INTERIOR FINISH LEGEND**

AB	ALUMINUM WALL BASE	LVT	LUXURY VINYL TILE
ACP	ACOUSTICAL CEILING PANELS	NS	NATURAL STONE
AP	ACOUSTICAL WALL PANEL	PT	PORCELAIN FLOOR TILE
ALUM	ALUMINUM	POR	PORCELAIN TILE WALL BASE
BST	BIODEBASED TILE	PNT	PAINT
BL	WINDOW ROLLER BLIND	PLAM	PLASTIC LAMINATE
CC	CUBICLE CURTAIN	PLY	PLYWOOD
CCT	CUBICLE CURTAIN TRACK	QTZ	QUARTZ COUNTERTOP
CG	CORNER GUARD	RES	RESILIENT WALL BASE
CJ	CONTROL JOINT	RFS	RESIN PANEL SYSTEM
CMU	CONCRETE MASONRY UNIT	RS	RIGID SHEET
CPT	CARPET	SC	SEALED CONCRETE
CS	CULTURED STONE	SCF	SPECIAL CONCRETE FINISH
CT	CERAMIC TILE	SS	SOLID SURFACE
EPOXY	EPOXY PAINT	SSTL	STAINLESS STEEL
EPX	FLUID APPLIED FLOORING	STC	STAINED CONCRETE
E/S/C	EXPOSED STRUCTURE/COLUMNS	SV	SHEET VINYL
E/S/B	EXPOSED STRUCTURE/BEAMS	SVT	SOLID VINYL TILE
EXIST	EXISTING	TS	TRANSITION STRIP
EW	END WALL PROTECTOR	VCT	VINYL COMPOSITION TILE
FRP	FIBERGLASS REINFORCED PANELS	VET	VINYL ENHANCED TILE
GLS	GLASS	VWC	VINYL WALL COVERING
GLT	GLASS TILE	WD	WOOD
GWT	GLAZED WALL TILE	WLK	WALK-OFF CARPET
GYP	GYPSUM WALL BOARD	WFS	WOOD PANEL SYSTEM
LIN	LINOLEUM	WWB	WOOD WALL BASE

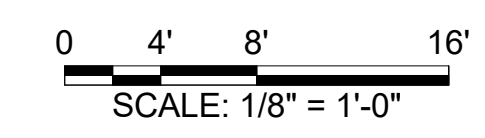
**INTERIOR SYMBOL LEGEND**

	WALL FINISH TAG
	ACCENT WALL FINISH
	WALL BASE TAG
	FLOOR FINISH TAG
	FLOOR MATERIAL TRANSITION
	ALIGN TRANSITION WITH ADJACENT ITEM
	PATTERN/LINEAR DIRECTION
	CASEWORK COUNTER/TRANSITION TOP FINISH
	CASEWORK BASE AND UPPER CABINET FINISH
	CORNER GUARD
	END WALL GUARD
	WINDOW ROLLER SHADE
	WINDOW DRAPES
	WINDOW TREATMENT TAG
	SIGNAGE DETAIL TAG
	MISCELLANEOUS FINISH TAG



1 MAIN LEVEL - FINISH PLAN  
1/8" = 1'-0"

2 MEZZANINE FINISH PLAN  
1/8" = 1'-0"



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MICHAEL L. PARSON,  
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BLDG 1270  
FORT LEONARD WOOD,  
MO 65473

PROJECT # T2042-01  
SITE # 6306  
ASSET # 8136306006

REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
ISSUE DATE: 04/28/23

CAD DWG FILE: A110  
DRAWING BY: MSG  
CHECKED BY: CNB  
DESIGNED BY: CNB

SHEET TITLE:  
**INTERIOR FINISH  
PLAN**

SHEET NUMBER:

**A110**

SHEET 13 OF 51  
APRIL 28, 2023





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MO 65473

PROJECT # T2042-01  
SITE # 6306  
ASSET # 8136306006

REVISION:  
DATE:  
REVISION:  
DATE:  
REVISION:  
DATE:  
ISSUE DATE: 04/28/23

CAD DWG FILE: A120  
DRAWING BY: MSG  
CHECKED BY: CNB  
DESIGNED BY: CNB

SHEET TITLE:  
**REFLECTED  
CEILING PLAN**

SHEET NUMBER:

**A120**

SHEET 14 OF 51  
APRIL 28, 2023

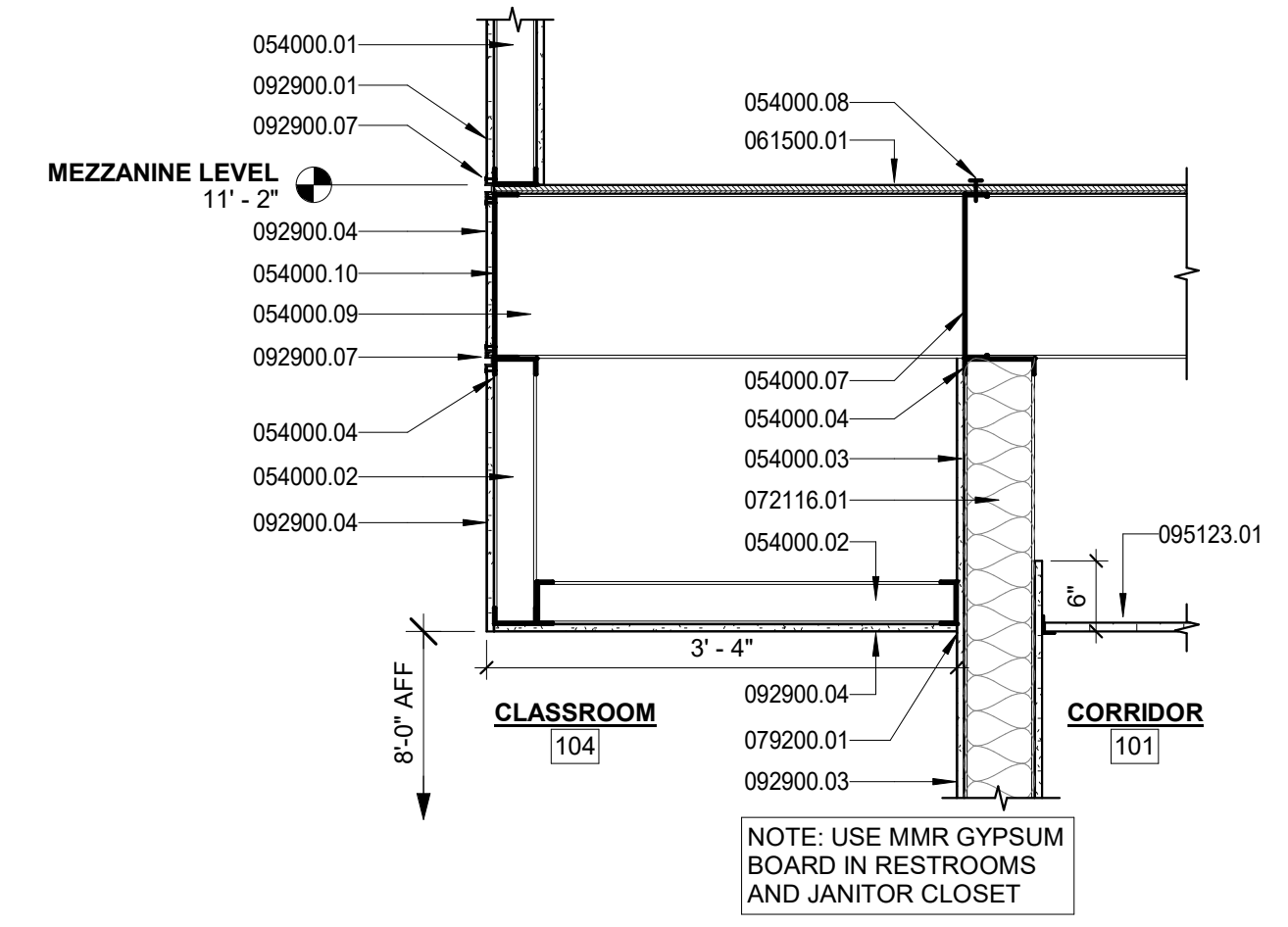
VALUE	DESCRIPTION
054000.01	362S162-33 MTL STUDS AT 16" O.C. UP TO UNDERSIDE OF DECK
054000.02	362S162-33 MTL STUDS AT 16" O.C.
054000.03	600S200-54 MTL STUDS AT 12" O.C. w/ BRIDGING @ MID-HEIGHT - ALIGN STUDS w/ FLOOR JOISTS
054000.04	600T150-54 CONT. TRACK
054000.07	FULL HEIGHT BLOCKING BETWEEN JOISTS FASTENED TO TOP TRACK OF WALL w/ #12 TEK SCREWS @ 12" O.C.
054000.08	#8 TEK SCREWS @ 6" O.C.
054000.09	1400S200-68 MTL JOIST @ 12" O.C.
054000.10	1400T150-68 CONT. TRACK
054000.12	362S162-33 BLOCKING @ 3'-0" O.C. - INSTALL AS FLAT AS POSSIBLE
054000.13	3" CONTINUOUS DEFLECTION TRACK FASTENED TO BLOCKING w/ (2) #12 TEK SCREWS
061500.01	3/4" FIRE-RETARDANT TREATED PLYWOOD, FASTENED w/ #8 TEK SCREWS @ 6" O.C. AT PERIMETER, 12" O.C. FIELD
072116.01	SOUND ATTENUATION BATT
079200.01	SEALANT
079200.02	SEALANT, BOTH SIDES
079200.03	CUT AND SEAL AROUND STRUCTURE
092900.01	5/8" GYPSUM BOARD UP TO UNDERSIDE OF ROOF DECK
092900.03	5/8" GYPSUM BOARD, BOTH SIDES
092900.04	5/8" GYPSUM BOARD
092900.07	DRYWALL EXPANSION JOINT BASIS OF DESIGN: FRY REGLET DRM-50-50 2-PC
095123.01	ACP CEILING, AS INDICATED ON PLAN
133419.01	24 GA. PRE-FINISHED, STANDING RIB METAL ROOF PANELS (MATCH EXISTING)
133419.02	P.E.M.B. ROOF PURLINS
133419.06	ROOF PANEL CLIP
133419.22	P.E.M.B. RIGID FRAME RAFTER

RCP LEGEND

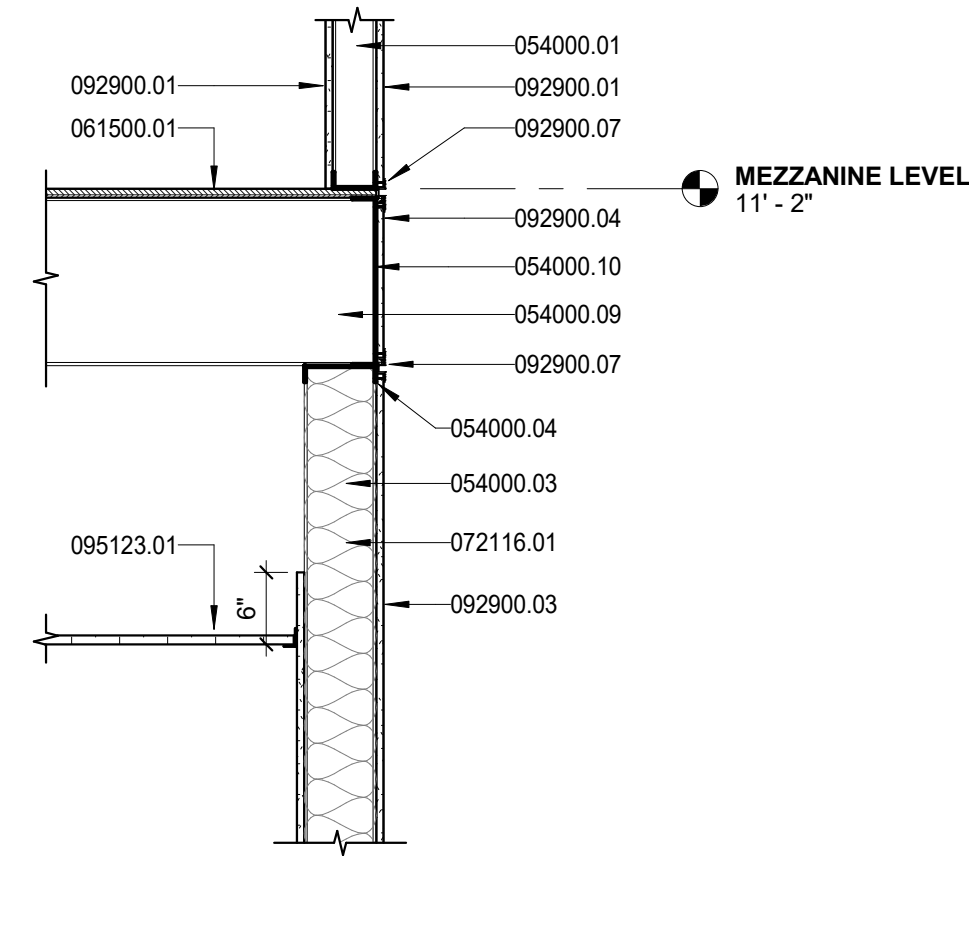
- SUPPLY
- RETURN
- CEILING CASSETTE
- MAKE-UP AIR SUPPLY
- EXHAUST FAN
- FLEXIBLE EXHAUST DUCT (APPROX. LOCATION)
- LIGHT FIXTURE
- LIGHT FIXTURE
- LIGHT FIXTURE
- LIGHT FIXTURE
- LIGHT FIXTURE
- LIGHT FIXTURE
- CEILING ACCESS PANEL

KEYNOTE LEGEND

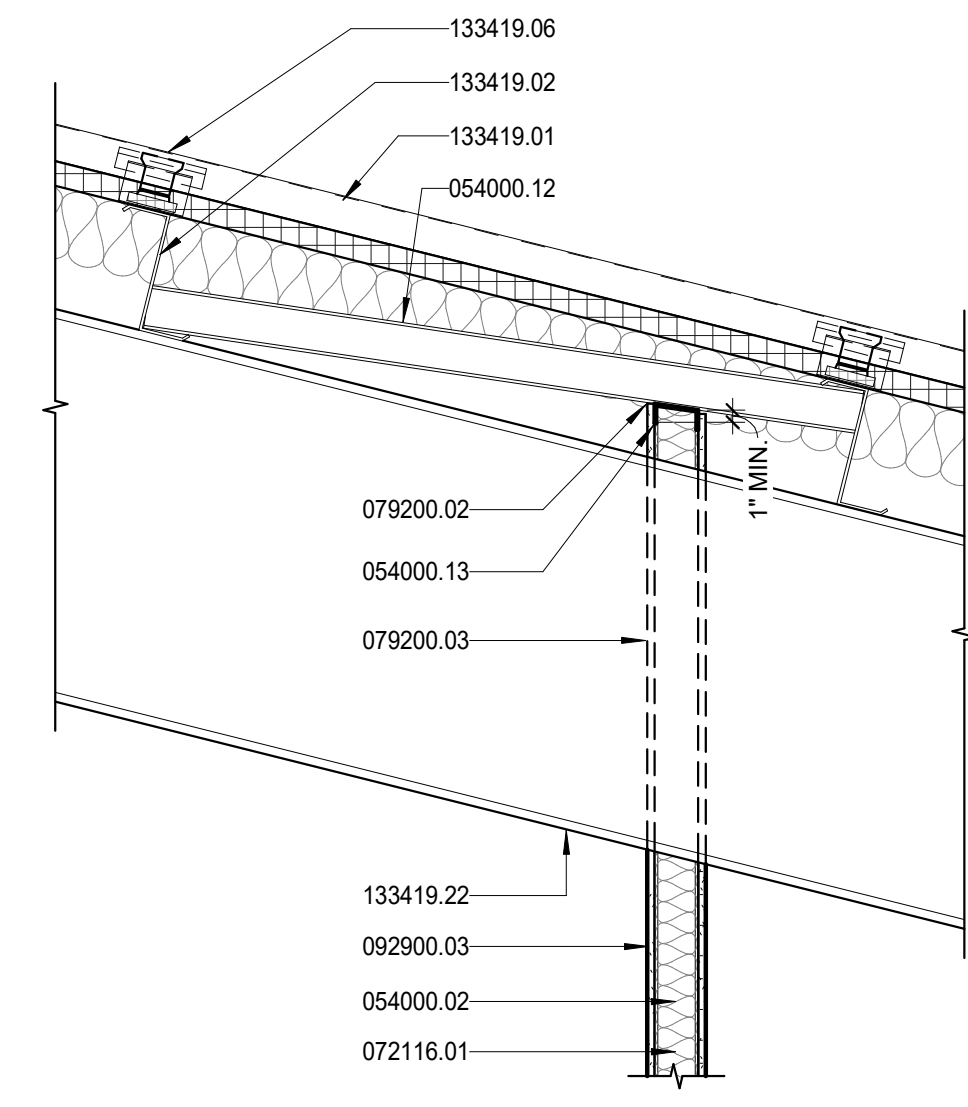
VALUE	DESCRIPTION
054000.01	362S162-33 MTL STUDS AT 16" O.C. UP TO UNDERSIDE OF DECK
054000.02	362S162-33 MTL STUDS AT 16" O.C.
054000.03	600S200-54 MTL STUDS AT 12" O.C. w/ BRIDGING @ MID-HEIGHT - ALIGN STUDS w/ FLOOR JOISTS
054000.04	600T150-54 CONT. TRACK
054000.07	FULL HEIGHT BLOCKING BETWEEN JOISTS FASTENED TO TOP TRACK OF WALL w/ #12 TEK SCREWS @ 12" O.C.
054000.08	#8 TEK SCREWS @ 6" O.C.
054000.09	1400S200-68 MTL JOIST @ 12" O.C.
054000.10	1400T150-68 CONT. TRACK
054000.12	362S162-33 BLOCKING @ 3'-0" O.C. - INSTALL AS FLAT AS POSSIBLE
054000.13	3" CONTINUOUS DEFLECTION TRACK FASTENED TO BLOCKING w/ (2) #12 TEK SCREWS
061500.01	3/4" FIRE-RETARDANT TREATED PLYWOOD, FASTENED w/ #8 TEK SCREWS @ 6" O.C. AT PERIMETER, 12" O.C. FIELD
072116.01	SOUND ATTENUATION BATT
079200.01	SEALANT
079200.02	SEALANT, BOTH SIDES
079200.03	CUT AND SEAL AROUND STRUCTURE
092900.01	5/8" GYPSUM BOARD UP TO UNDERSIDE OF ROOF DECK
092900.03	5/8" GYPSUM BOARD, BOTH SIDES
092900.04	5/8" GYPSUM BOARD
092900.07	DRYWALL EXPANSION JOINT BASIS OF DESIGN: FRY REGLET DRM-50-50 2-PC
095123.01	ACP CEILING, AS INDICATED ON PLAN
133419.01	24 GA. PRE-FINISHED, STANDING RIB METAL ROOF PANELS (MATCH EXISTING)
133419.02	P.E.M.B. ROOF PURLINS
133419.06	ROOF PANEL CLIP
133419.22	P.E.M.B. RIGID FRAME RAFTER



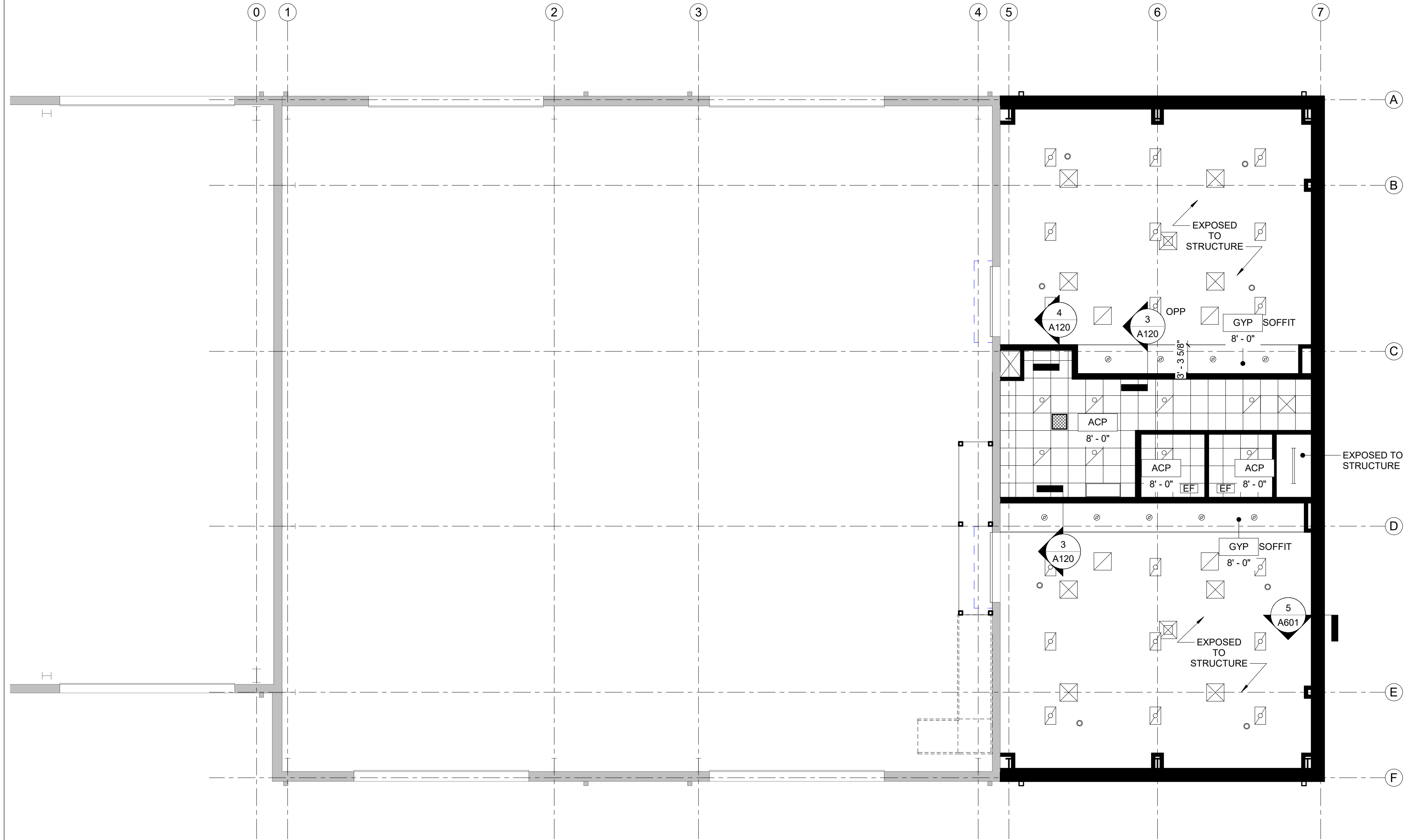
3 SOFFIT DETAIL  
3/4" = 1'-0"



4 MEZZANINE FRAMING DETAIL  
3/4" = 1'-0"

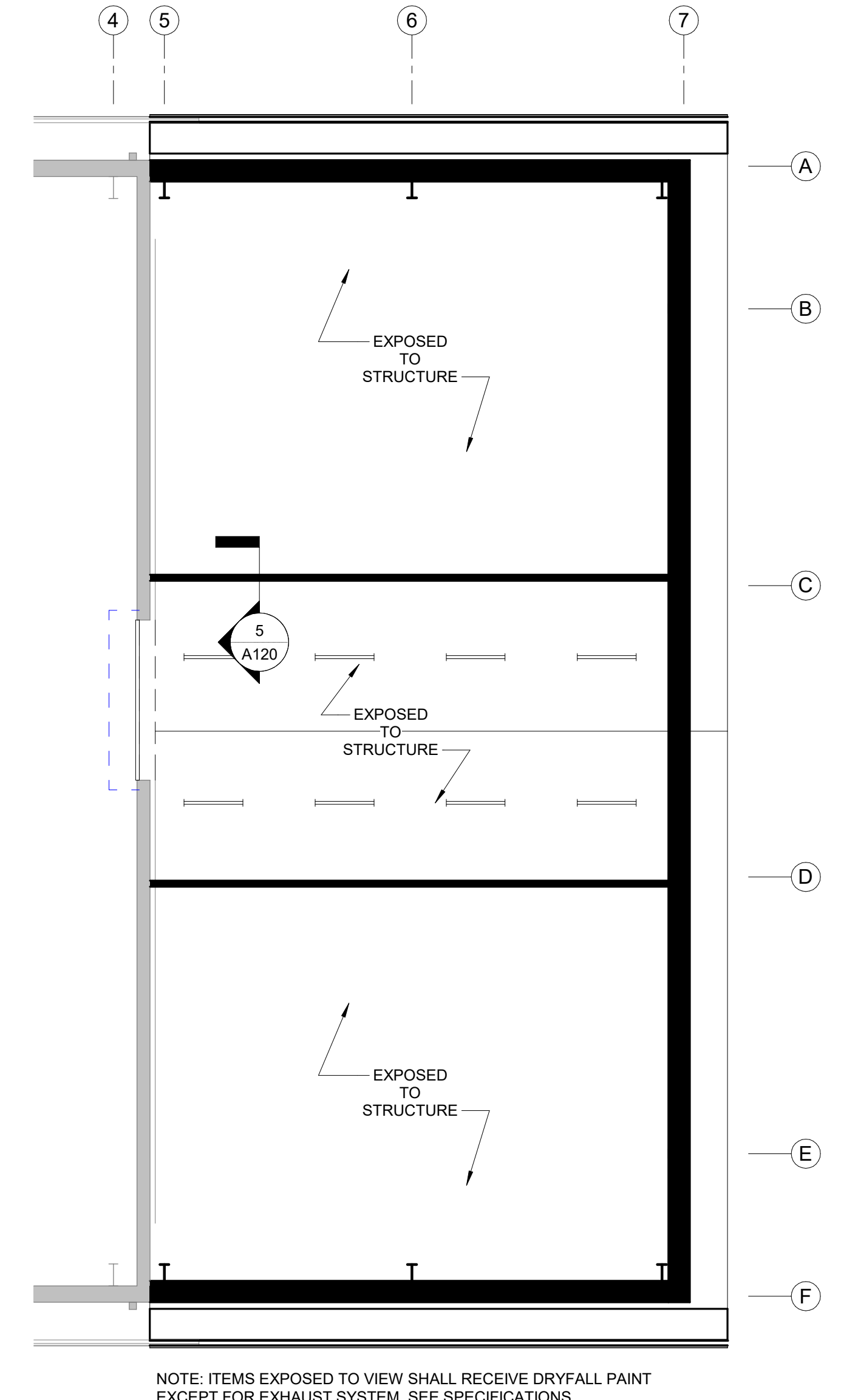


5 WALL TERMINATION AT ROOF DECK  
3/4" = 1'-0"



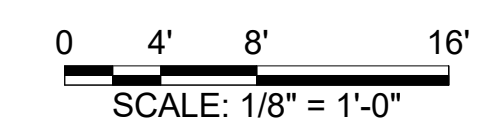
1 MAIN LEVEL REFLECTED CEILING PLAN  
1/8" = 1'-0"

NOTE: SEE SHEET E102 FOR EXIT SIGNS AND EMERGENCY LIGHT LOCATIONS



2 MEZZANINE REFLECTED CEILING PLAN  
1/8" = 1'-0"

NOTE: ITEMS EXPOSED TO VIEW SHALL RECEIVE DRYFALL PAINT EXCEPT FOR EXHAUST SYSTEM. SEE SPECIFICATIONS.



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



PROJECT NORTH



KEYNOTE LEGEND	
VALUE	DESCRIPTION
024119.02	EXISTING STANDING RIB METAL ROOFING
024119.03	EXISTING GUTTER AND DOWNSPOUTS
077253.01	RIB MOUNTED SNOW GUARDS TO MATCH EXISTING
133419.01	24 GA. PRE-FINISHED, STANDING RIB METAL ROOF PANELS (MATCH EXISTING)
133419.12	PRE-FIN. SHT MTL "SCULPTURED" GUTTER AND PLAIN RECT. DOWNSPOUT BY P.E.M.B. SUPPLIER
220000.03	PLUMBING VENTS, SEE PLUMBING

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FORT LEONARD WOOD,  
MO 65473

PROJECT # T2042-01  
SITE # 6306  
ASSET # 8136306006

REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
ISSUE DATE: 04/28/23

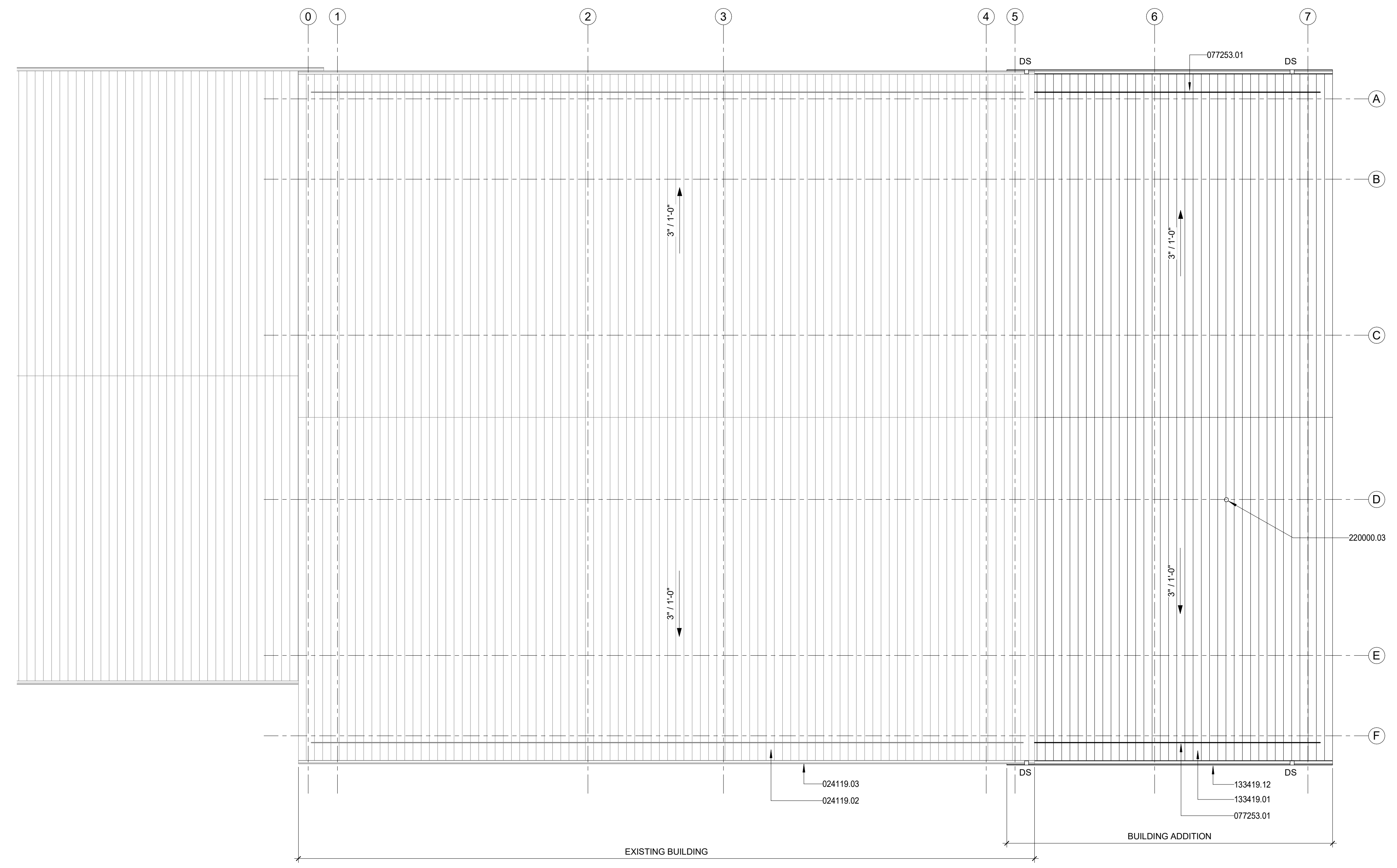
CAD DWG FILE: A130  
DRAWING BY: MSG  
CHECKED BY: CNB  
DESIGNED BY: CNB

SHEET TITLE:  
**ROOF PLAN**

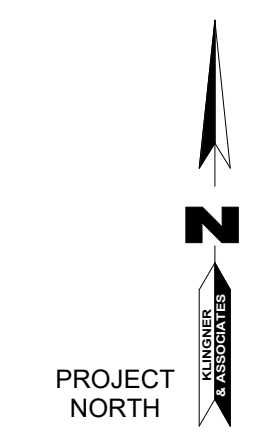
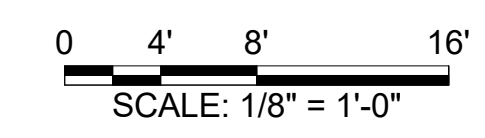
SHEET NUMBER:

**A130**

SHEET 15 OF 51  
APRIL 28, 2023



1 ROOF PLAN  
1/8" = 1'-0"







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MO 65473

PROJECT # T2042-01  
SITE # 6306  
ASSET # 8136306006

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REVISION: \_\_\_\_\_  
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ISSUE DATE: 04/28/23

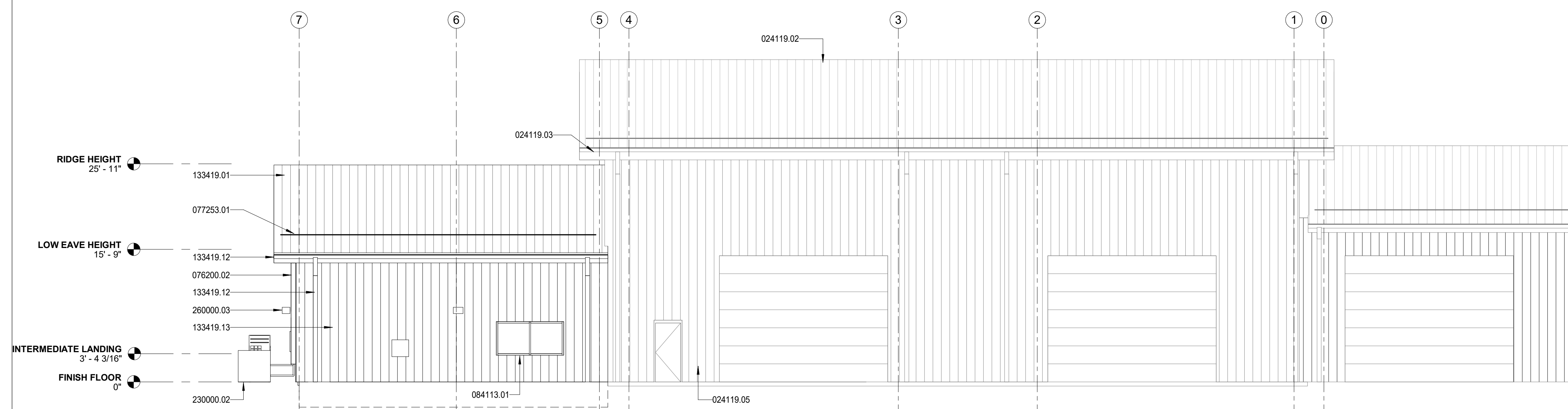
CAD DWG FILE: A201  
DRAWING BY: MSG  
CHECKED BY: CNB  
DESIGNED BY: CNB

SHEET TITLE:  
**BUILDING  
ELEVATIONS**

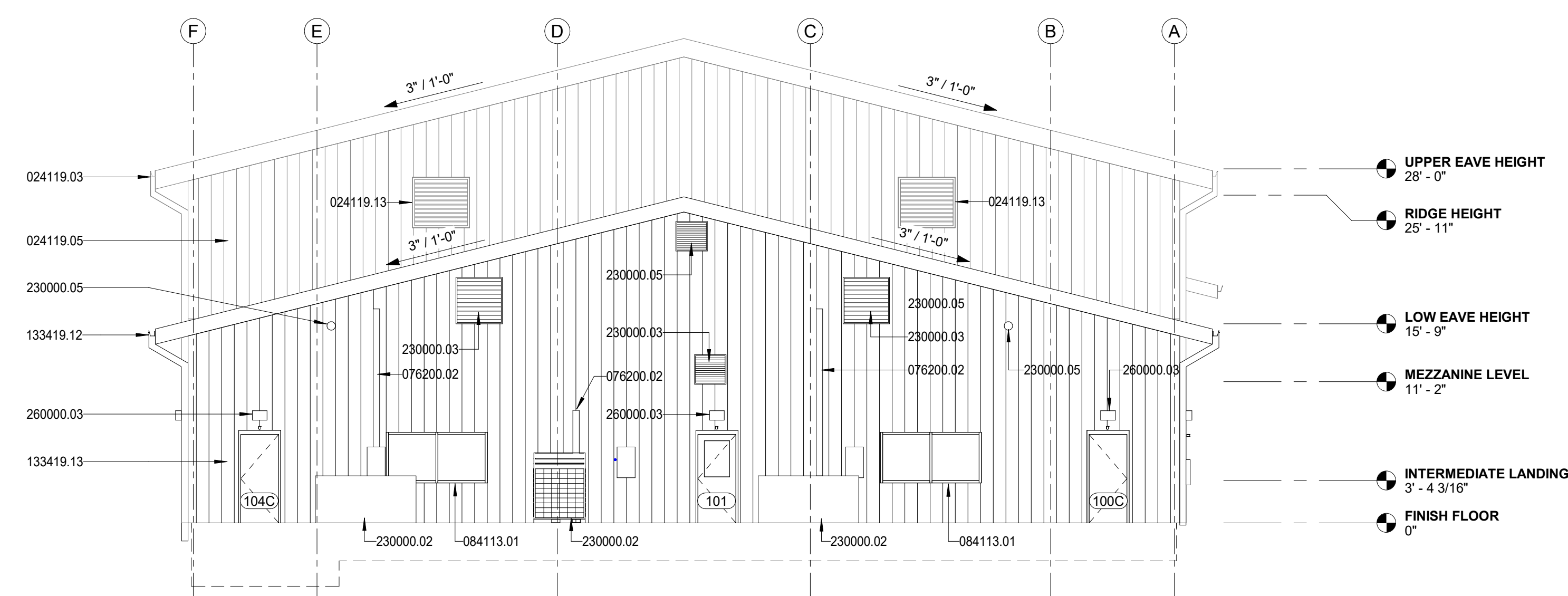
SHEET NUMBER:

**A201**

SHEET 16 OF 51  
APRIL 28, 2023



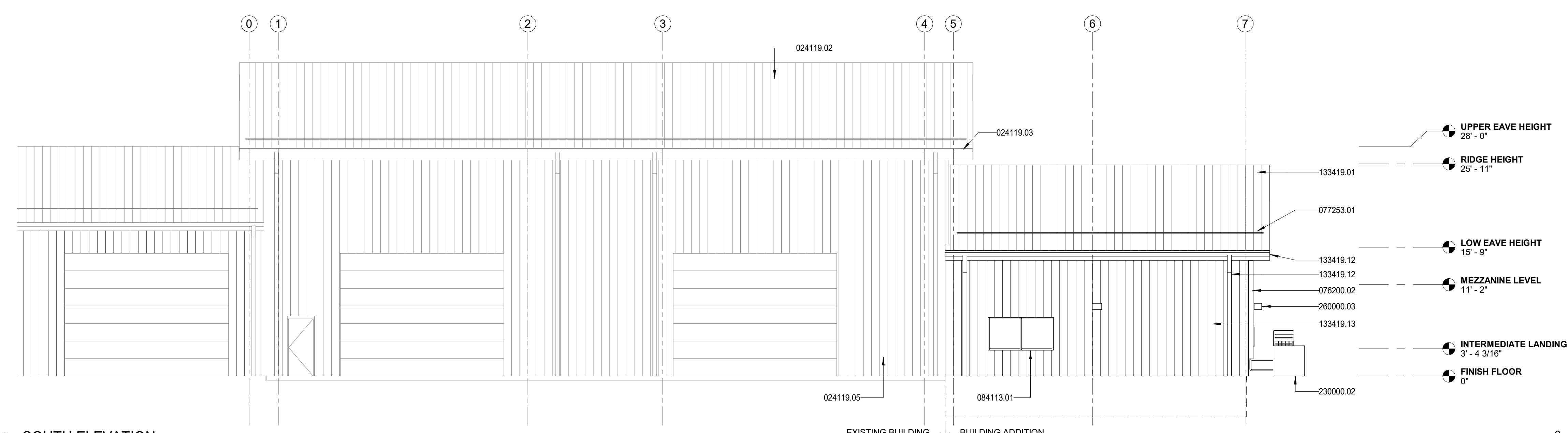
2 NORTH ELEVATION  
1/8" = 1'-0"



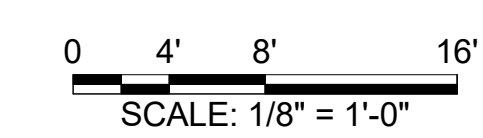
3 EAST ELEVATION  
1/8" = 1'-0"

VALUE	DESCRIPTION
024119.02	EXISTING STANDING RIB METAL ROOFING
024119.03	EXISTING GUTTER AND DOWNSPOUTS
024119.05	EXISTING CONCEALED FASTENER METAL WALL PANELS
024119.13	EXISTING EXHAUST FAN TO REMAIN
076200.02	SHEET METAL COVER OVER REFRIGERANT PIPING, PAINTED TO MATCH SIDING
077253.01	RIB MOUNTED SNOW GUARDS TO MATCH EXISTING
084113.01	THERMALLY-BROKEN ALUMINUM STOREFRONT WINDOW
133419.01	24 GA. PRE-FINISHED, STANDING RIB METAL ROOF PANELS (MATCH EXISTING)
133419.12	PRE-FIN. SHT MTL "SCULPTURED" GUTTER AND PLAIN RECT. DOWNSPOUT BY P.E.M.B. SUPPLIER
133419.13	3" DEEP, CONCEALED FASTENER, PRE-FINISHED P.E.M.B. EXTERIOR METAL WALL PANELS
230000.02	CONDENSING UNIT. SEE MECHANICAL
230000.03	MAKE-UP AIR LOUVER. SEE MECHANICAL
230000.05	EXHAUST DUCT. SEE MECHANICAL
260000.03	WALL PACK. SEE ELECTRICAL

NOTE: EAVE HEIGHT IS EQUAL TO TOP OF WALL GIRT AT INTERSECTION POINT OF EXTERIOR FACE OF WALL GIRT AND TOP OF ROOF GIRT.



1 SOUTH ELEVATION  
1/8" = 1'-0"







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ASSET # 8136306006

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DATE:  
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DATE:  
ISSUE DATE: 04/28/23

CAD DWG FILE: A301  
DRAWING BY: MSG  
CHECKED BY: CNB  
DESIGNED BY: CNB

SHEET TITLE:  
**BUILDING SECTIONS**

SHEET NUMBER:

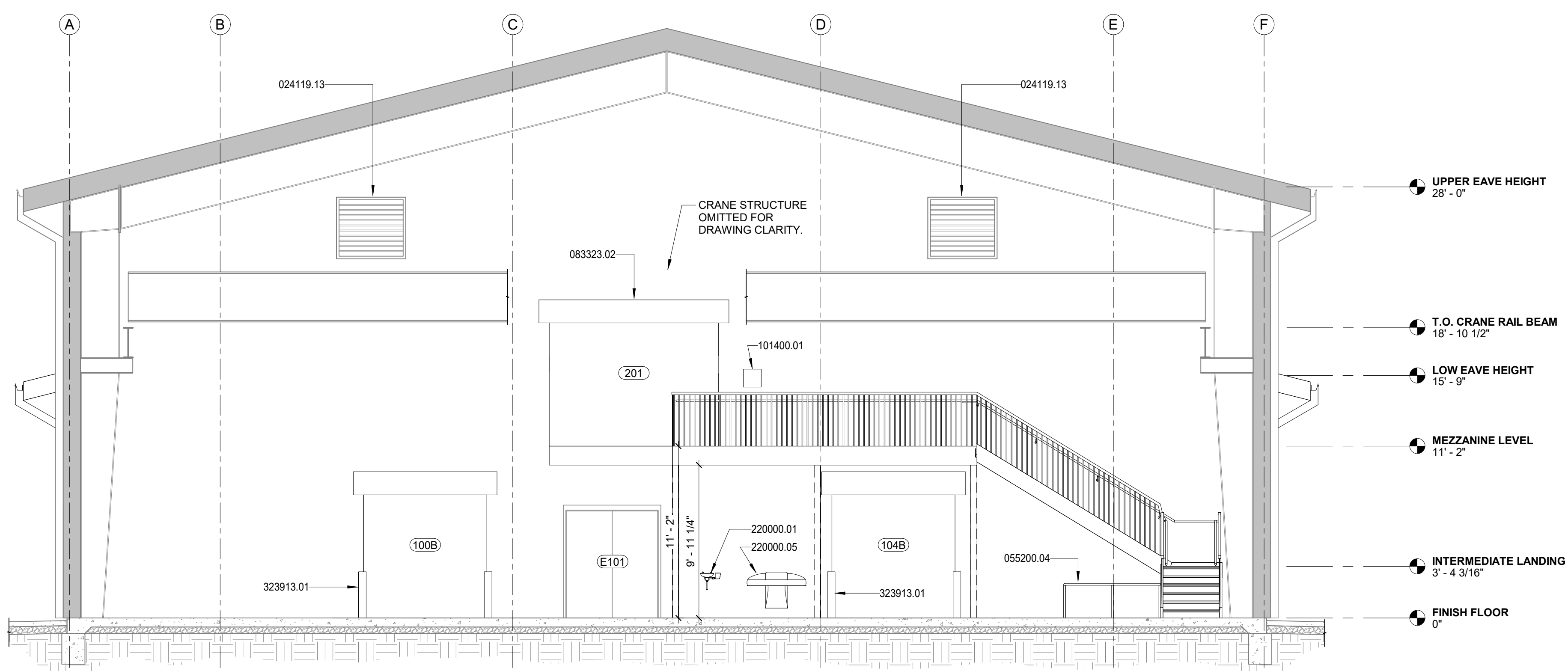
**A301**

SHEET 17 OF 51  
APRIL 28, 2023

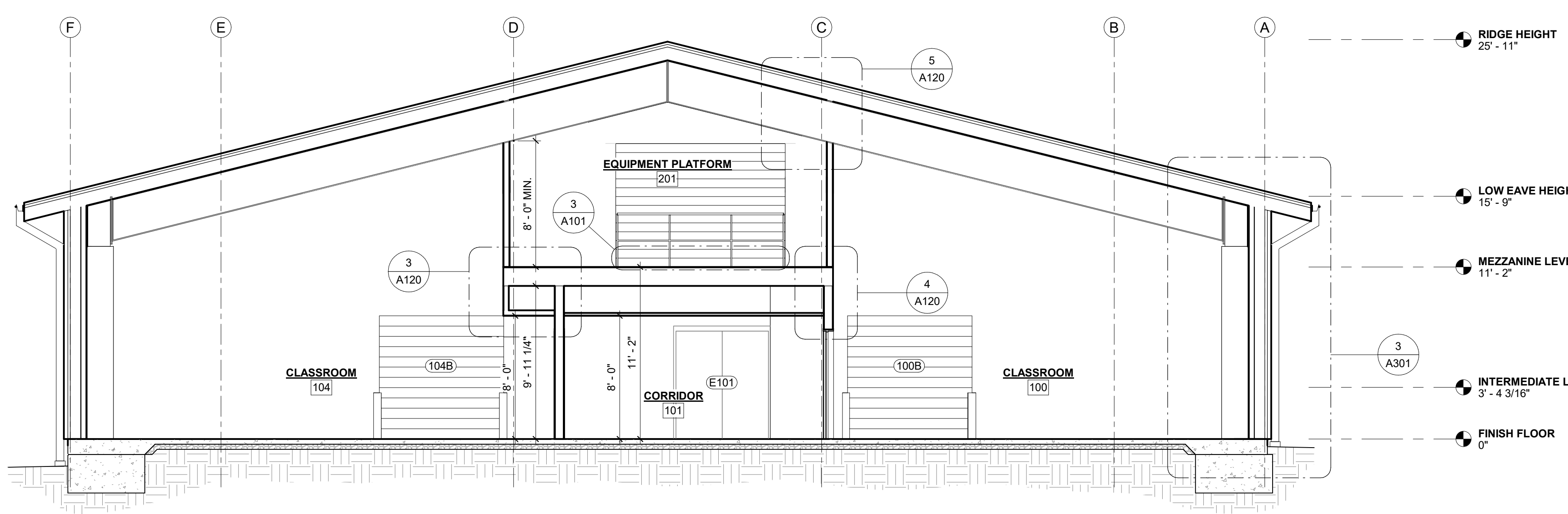
VALUE	DESCRIPTION
024119.13	EXISTING EXHAUST FAN TO REMAIN
033000.01	5" THICK CONCRETE SLAB, SEE STRUCTURAL
054000.01	3625162-33 MTL STUDS AT 16" O.C. UP TO UNDERSIDE OF DECK
055200.04	FLOOR-MOUNTED RAILING
072100.01	2" PERIMETER INSULATION ON INSIDE FACE OF FOUNDATION WALL UP TO SLAB - 2'-0" HORIZ. & VERT.
072600.01	10 MIL. POLYETHYLENE VAPOR RETARDER
077253.01	RIB MOUNTED SNOW GUARDS TO MATCH EXISTING
083323.02	8'-0" x 8'-0" OVERHEAD COILING DOOR FOR FORKLIFT ACCESS
092900.01	5/8" GYPSUM BOARD UP TO UNDERSIDE OF ROOF DECK
092900.02	GYPSUM BOARD AND STUD COLUMN SURROUND (BEYOND) TO 12'-6" ABOVE FINISH FLOOR
096500.01	WALL BASE - SEE INTERIOR FINISH SCHEDULE
101400.01	14" x 14" LOAD RATING SIGNAGE, TOP OF SIGN MAX. 5'-0" AFF
133419.01	24 GA. PRE-FINISHED, STANDING RIB METAL ROOF PANELS (MATCH EXISTING)
133419.02	P.E.M.B. ROOF PURLINS
133419.03	P.E.M.B. EAVE STRUT
133419.04	P.E.M.B. CANOPY SYSTEM w/ RAFTER PROJECTIONS BOLTED ON TO TOP OF RIGID FRAME RAFTERS - CANOPY/PURLINS/STRUTS TO BE INSTALLED BETWEEN RAFTER PROJECTIONS
133419.05	P.E.M.B. CANOPY SYSTEM EAVE STRUT
133419.06	ROOF PANEL CLIP
133419.07	7/8" MTL FURRING CHANNELS AT 16" O.C. (MAX.) SCREWED UP INTO 3-5/8" MTL STUD FRAMING AT 24" O.C.

VALUE	DESCRIPTION
133419.08	50% VENTED PRE-FINISHED METAL SOFFIT PANELS - SET AS HIGH AS POSSIBLE UP AGAINST BOT. OF CANPY EAVE STRUT
133419.09	CLOSURE STRIP AND SEALANT BY P.E.M.B. SUPPLIER
133419.10	SOLID WOOD BLOCKING TO MATCH INSULATION THICKNESS
133419.11	PRE-FIN. SHT MTL FASCIA TRIM UP BEHIND GUTTER AND BACK UNDER ROOFING
133419.12	PRE-FIN. SHT MTL "SCULPTURED" GUTTER AND PLAIN RECT. DOWNSPOUT BY P.E.M.B. SUPPLIER
133419.13	3" DEEP, CONCEALED FASTENER, PRE-FINISHED P.E.M.B. EXTERIOR METAL WALL PANELS
133419.14	MTL PANEL TOP J-TRIM BY MTL PANEL MFR UP TIGHT AGAINST BOT. OF SOFFIT
133419.15	P.E.M.B. PRE-FIN. MTL BASE TRIM w/ DRIP EDGE TO EXTEND DOWN 1" BELOW FLOOR LINE - EXTEND UP BEHIND, AND OUT UNDER EXT. WALL PANELS
133419.16	2" THICK, MIN. R-15 RIGID INSULATION, TAPE & SEAL ALL JOINTS
133419.17	P.E.M.B. BASE ANGLE - PROVIDE CONT. BEAD OF SEALANT UNDER ANGLE
133419.18	CONT. INSULATION TO ROOF DECK AND SCREW TO EAVE STRUT
133419.19	P.E.M.B. 8" BY-PASS WALL GIRTS
133419.20	P.E.M.B. RIGID FRAME BEYOND w/ TAPERED COLUMNS
133419.21	BOT. OF RIGID FRAME RAFTER TO BE NO LOWER THAN 10'-6" A.F.F. AT ANY POINT
133419.31	UNFACED R-11 METAL BUILDING INSULATION
133419.32	FACED R-19 METAL BUILDING INSULATION
220000.01	EYEWASH STATION, SEE PLUMBING
220000.05	NEW WASHFOUNTAIN - SEE PLUMBING - PROVIDE BLOCKING IN WALLS AS REQD
321123.01	6" CLEAN 1/2" TO 3/4" AGGREGATE
323913.01	REMOVEABLE BOLLARDS BOTH SIDES, TYP.

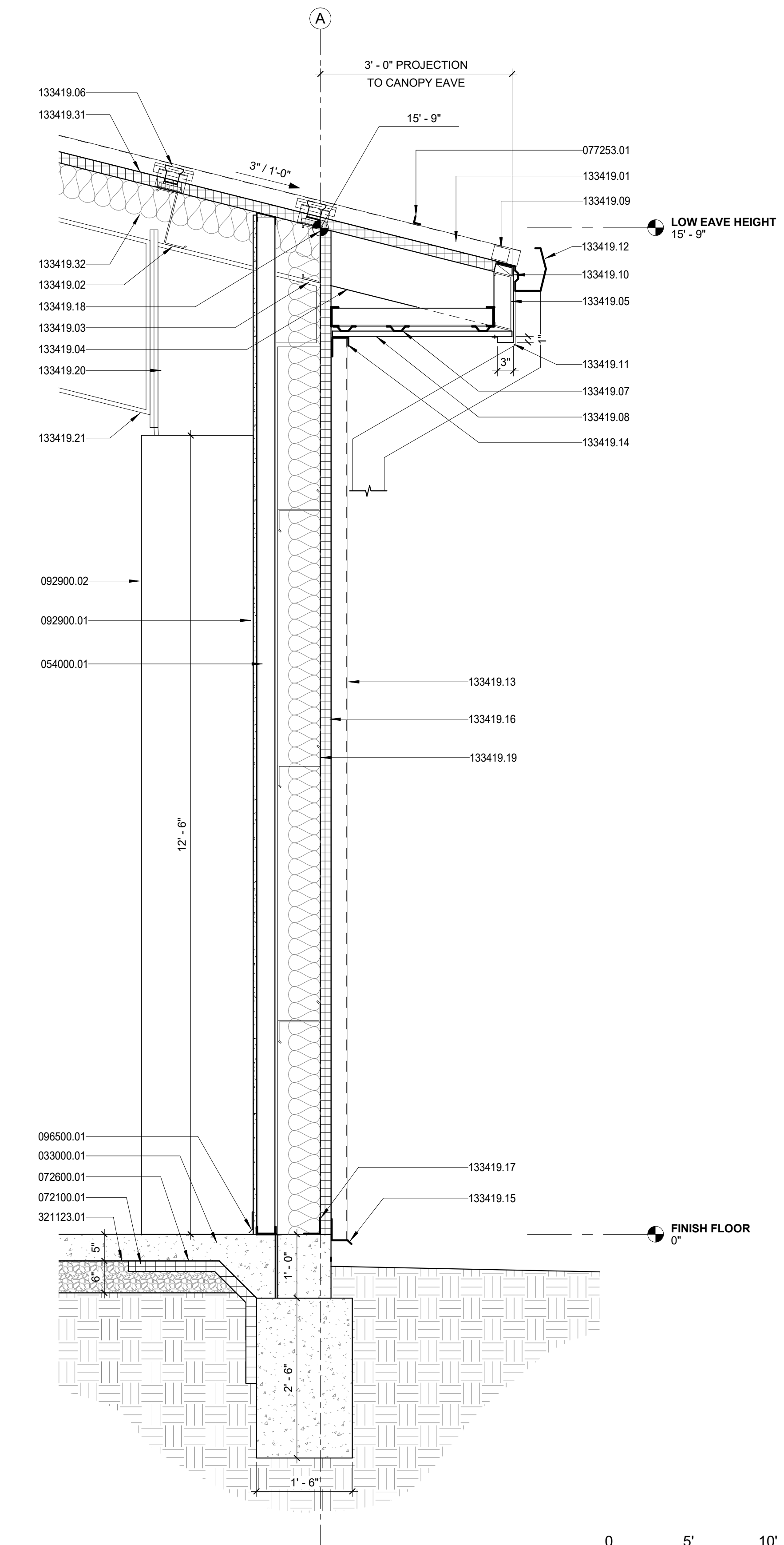
NOTE: EAVE HEIGHT IS EQUAL TO TOP OF WALL GIRT AT INTERSECTION POINT OF EXTERIOR FACE OF WALL GIRT AND TOP OF ROOF GIRT.



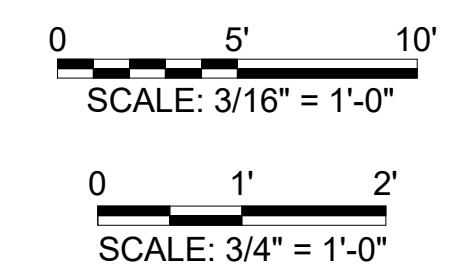
1 BUILDING SECTION THROUGH EXISTING GARAGE BAY LOOKING TOWARDS ADDITION  
3/16" = 1'-0" NOTE: SEE A502 FOR STAIR DETAILS



2 TRANSVERSE BUILDING SECTION  
3/16" = 1'-0"



3 TYPICAL WALL SECTION  
3/4" = 1'-0"







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ADDITION  
REGIONAL TRAINING SITE -  
MAINTENANCE (RTS-M)  
12249 20TH STREET  
BLDG 1270  
FORT LEONARD WOOD,  
MO 65473

PROJECT # T2042-01  
SITE # 6306  
ASSET # 8136306006

REVISION:  
DATE:  
REVISION:  
DATE:  
REVISION:  
DATE:  
ISSUE DATE: 04/28/23

CAD DWG FILE: A401  
DRAWING BY: MSG  
CHECKED BY: CNB  
DESIGNED BY: CNB

SHEET TITLE:  
**INTERIOR  
ELEVATIONS &  
ENLARGED VIEWS**

SHEET NUMBER:

**A401**

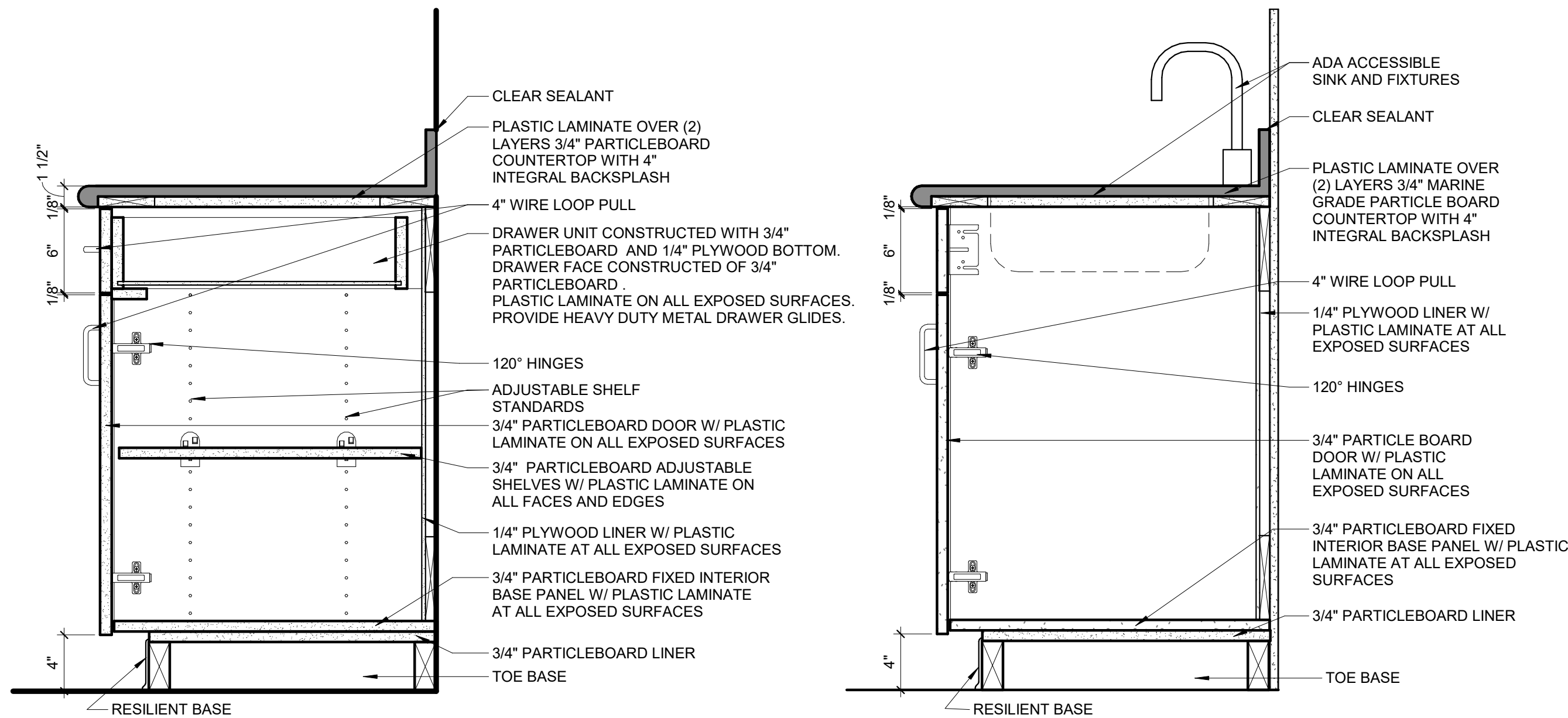
SHEET 18 OF 51  
APRIL 28, 2023

SPECIALTY EQUIPMENT SCHEDULE					
TAG	BASIS OF DESIGN	MANUFACTURER	MODEL	COUNT	COMMENTS
GRB-1	Bobrick Washroom Equipment, Inc		B-5806 STRAIGHT GRAB BAR	2	PROVIDE 48" LONG & 36" LONG AT EACH TOILET
MIR-1	Bobrick Washroom Equipment, Inc		B-165 1836 18" x 36" MIRROR	2	PROVIDE IN EACH RESTROOM
RH-1	Bobrick Washroom Equipment, Inc		B-76717 ROBE HOOK	2	PROVIDE IN EACH RESTROOM
SOAP-1	Bobrick Washroom Equipment, Inc		B-4112 SOAP DISPENSER	2	PROVIDE IN EACH RESTROOM
TD-1	Bobrick Washroom Equipment, Inc		B-72974 PAPER TOWEL DISPENSER	2	PROVIDE IN EACH RESTROOM
TPH-1	Bobrick Washroom Equipment, Inc		B-4288 TOILET PAPER HOLDER	2	PROVIDE IN EACH RESTROOM
WR-1	Bobrick Washroom Equipment, Inc		B-43644 WASTE RECEPTACLE	2	PROVIDE IN EACH RESTROOM

KEYNOTE LEGEND	
VALUE	DESCRIPTION
093013.01	PROVIDE BULLNOSE TILE AT TOP
093013.02	OMIT TILE BEHIND MIRROR. PROVIDE BULLNOSE TILE AT MIRROR EDGE PERIMETER.
220000.04	DRINKING FOUNTAIN AND BOTTLE FILLING STATION. SEE PLUMBING
230000.01	TRANSFER RETURN GRILLE. SEE MECHANICAL
260000.01	LIGHT FIXTURE. SEE ELECTRICAL
260000.02	FIRE ALARM STROBE. SEE ELECTRICAL

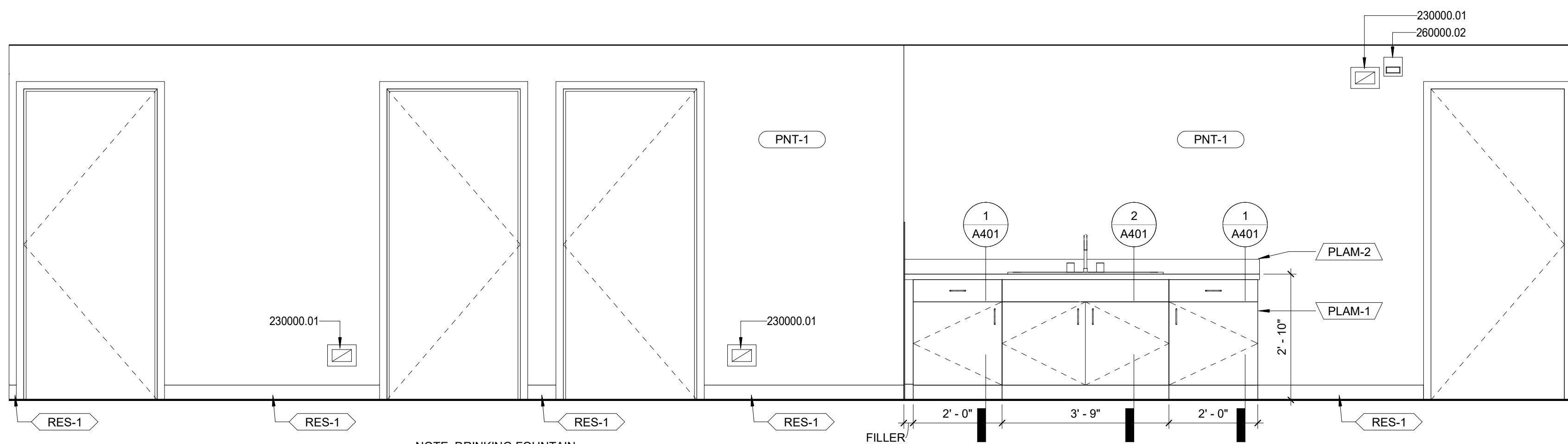
**GENERAL NOTES**

1. REFER TO SHEET A110 FOR FINISHES.

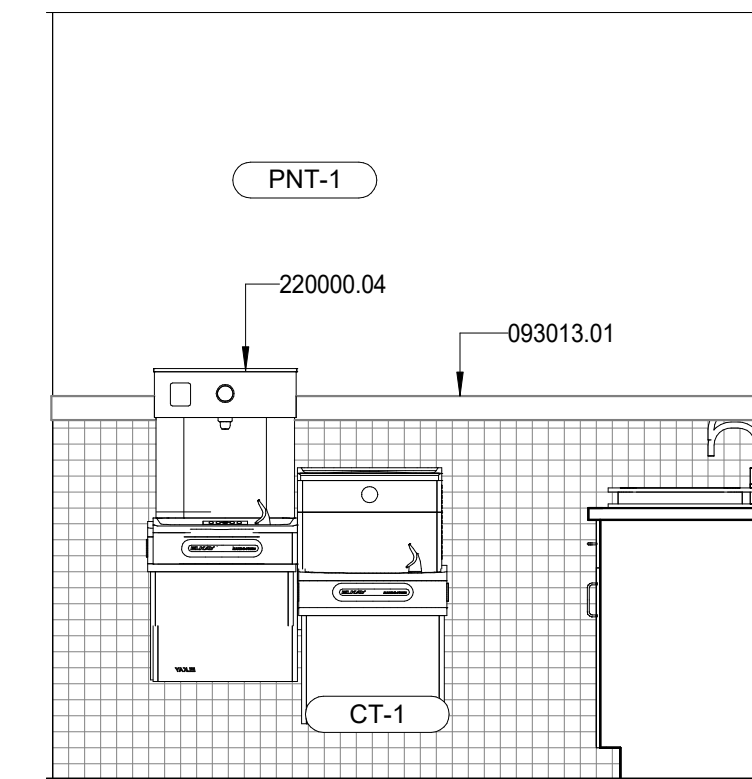


**1 CASEWORK - BASE- 1 DRAWER 1 DOOR**  
1 1/2" = 1'-0"

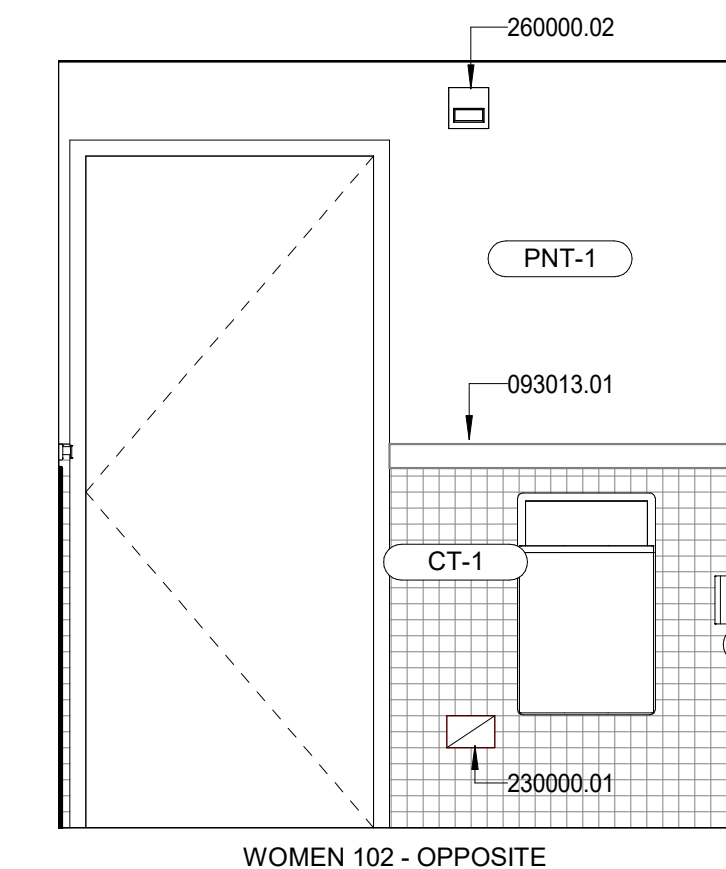
**2 CASEWORK - BASE- SINK**  
1 1/2" = 1'-0"



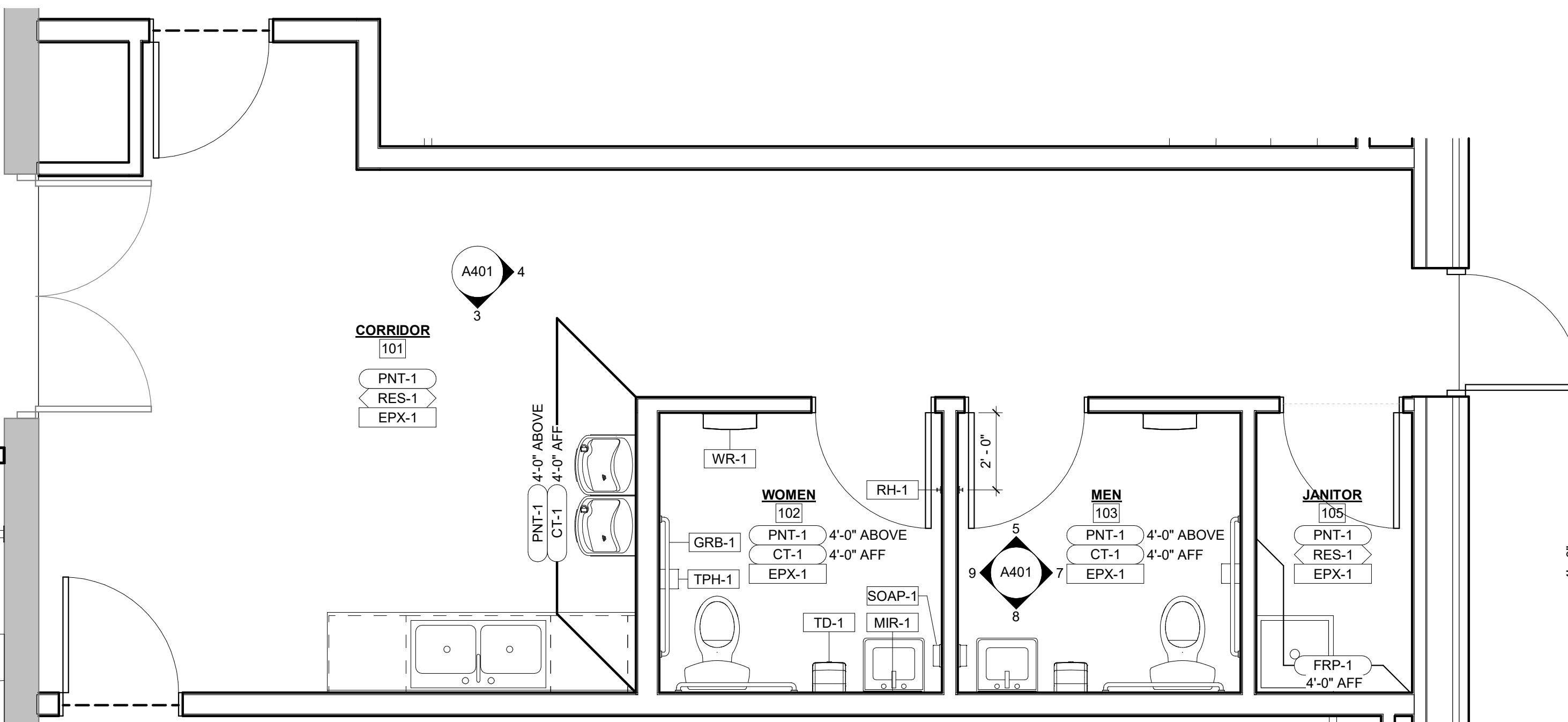
**3 CORRIDOR SOUTH ELEVATION**  
1/2" = 1'-0"  
NOTE: DRINKING FOUNTAIN OMITTED FOR DRAWING CLARITY



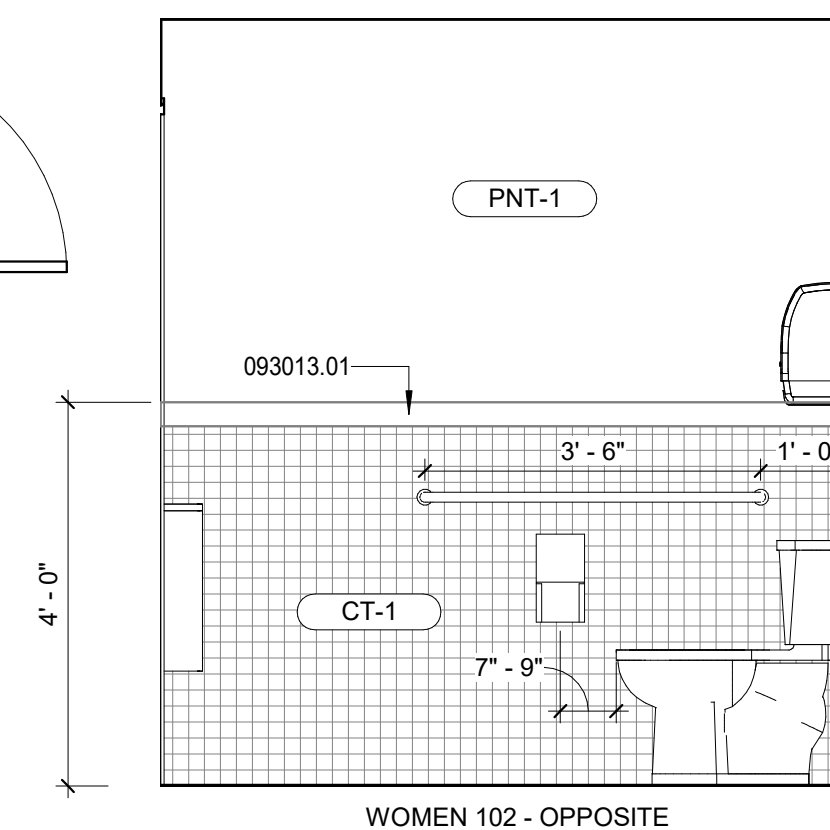
**4 CORRIDOR - EAST**  
1/2" = 1'-0"



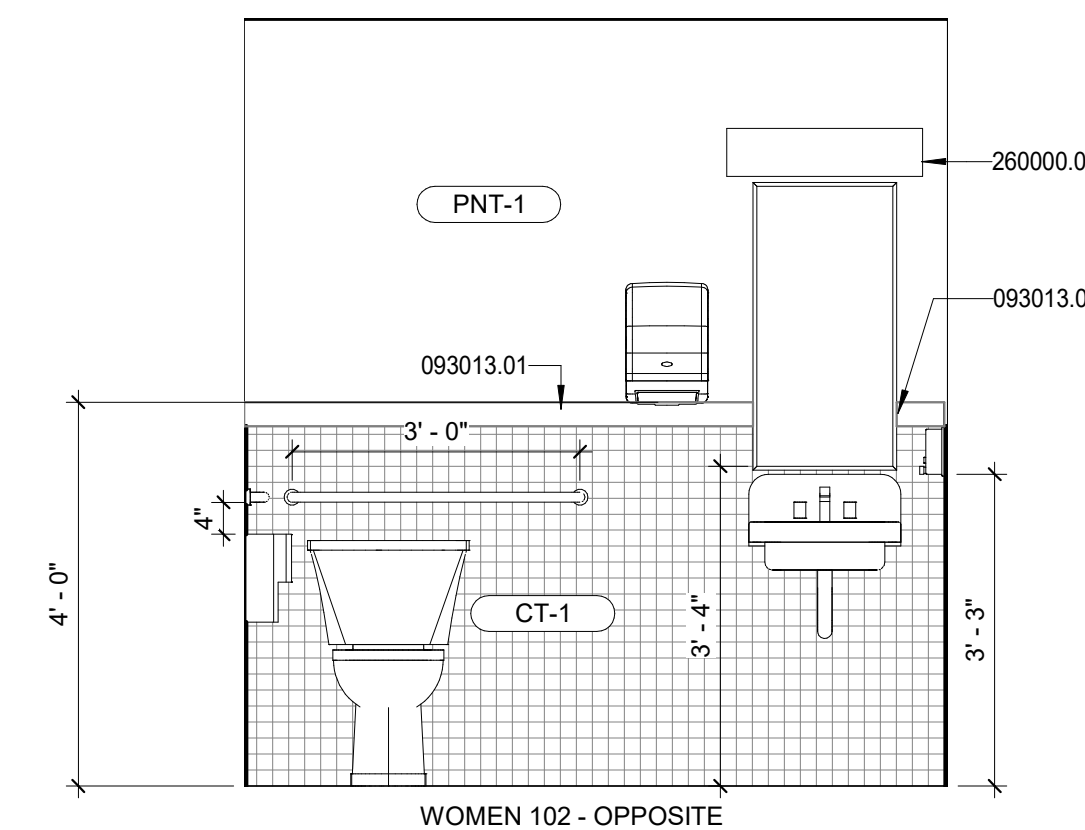
**5 MEN 103 - NORTH**  
1/2" = 1'-0"



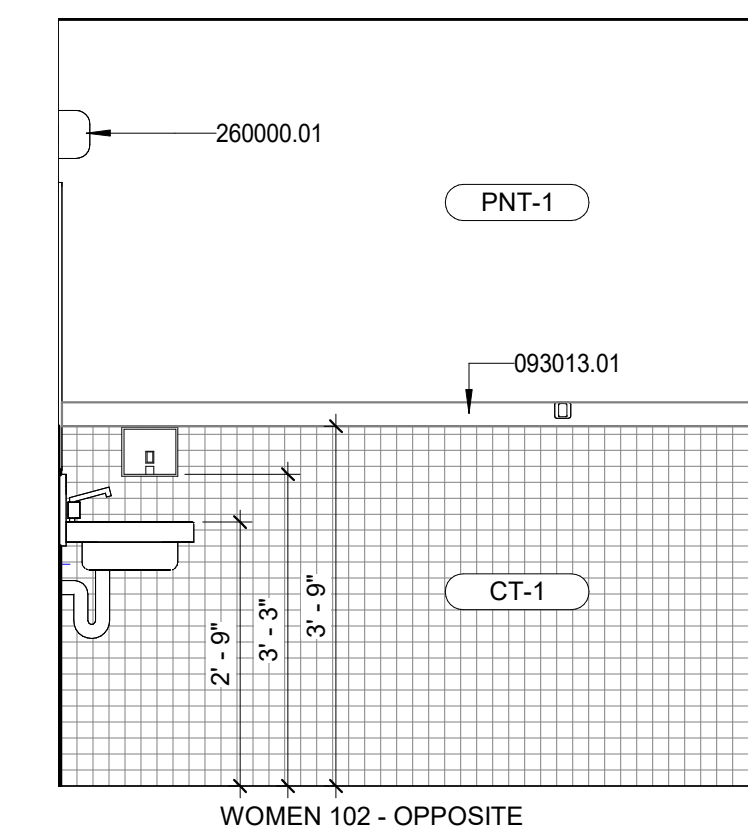
**6 ENLARGED CORRIDOR AND RESTROOM PLAN**  
3/8" = 1'-0"



**7 MEN 103 - EAST**  
1/2" = 1'-0"



**8 MEN 103 - SOUTH**  
1/2" = 1'-0"



**9 MEN 103 - WEST**  
1/2" = 1'-0"

0 3" 6" 1"  
SCALE: 1 1/2" = 1'-0"

0 2 4  
SCALE: 3/8" = 1'-0"

0 1' 2' 4'  
SCALE: 1/2" = 1'-0"

PROJECT NORTH





CODY N. BASHAM - ARCHITECT  
MO # A-2021000203

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MISSOURI STATE CERTIFICATE OF AUTHORITY #2001010108

OFFICE OF ADMINISTRATION  
DIVISION OF FACILITIES  
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PROJECT # T2042-01  
SITE # 6306  
ASSET # 8136306006

REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
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DATE: \_\_\_\_\_  
REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
ISSUE DATE: 04/28/23

CAD DWG FILE: A501  
DRAWING BY: MSG  
CHECKED BY: CNB  
DESIGNED BY: CNB

SHEET TITLE:  
**DETAILS**

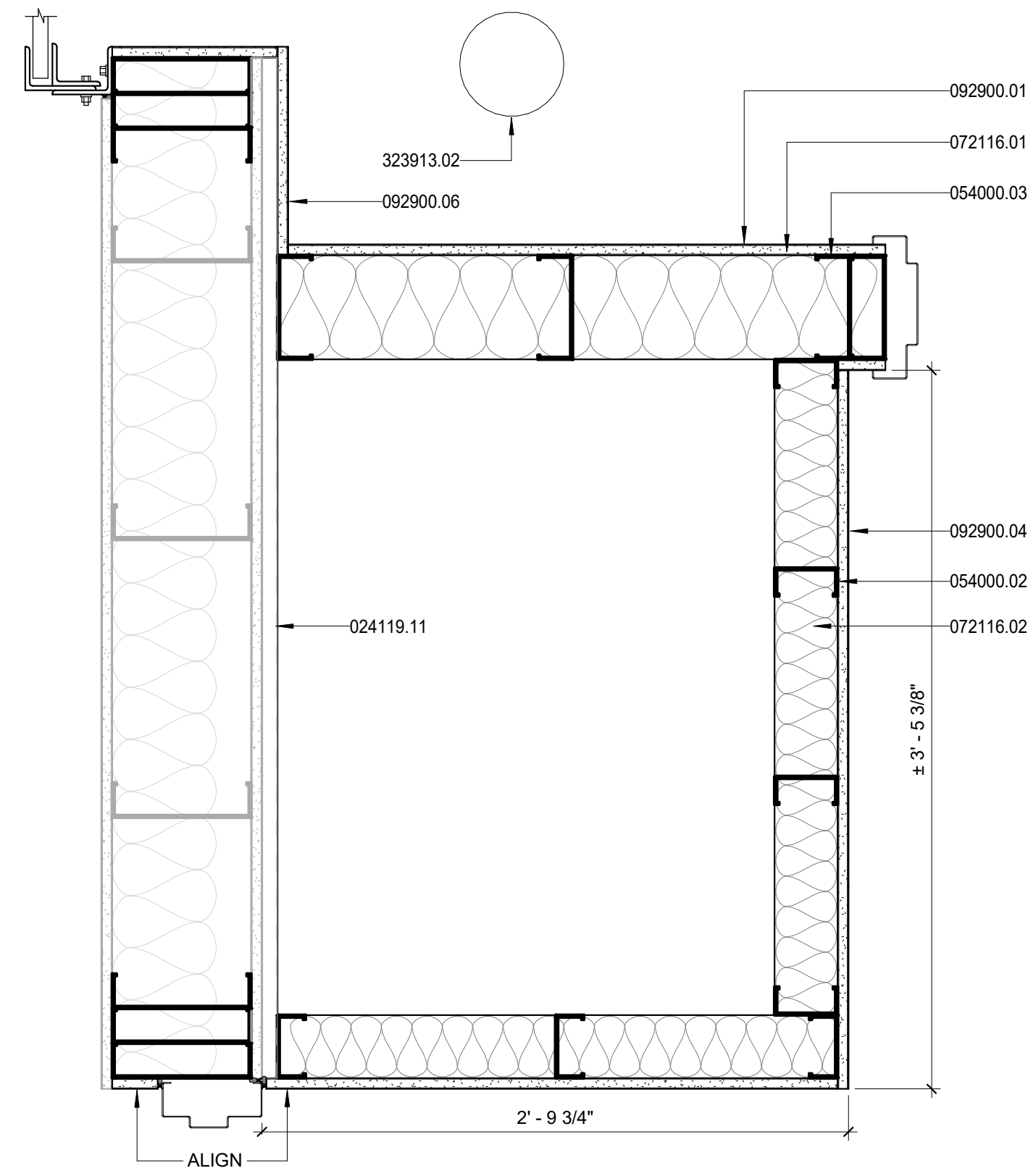
SHEET NUMBER:

**A501**

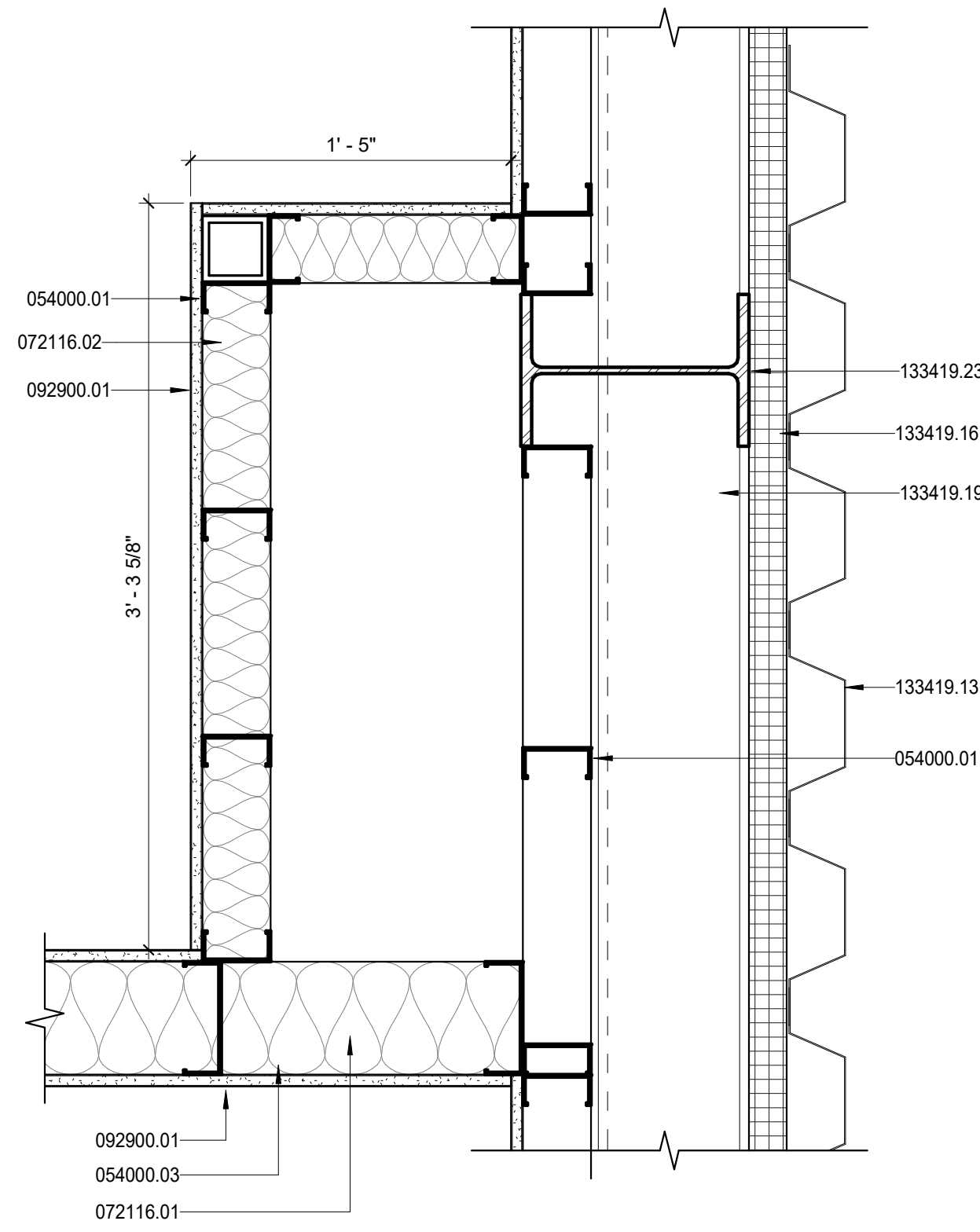
SHEET 19 OF 51  
APRIL 28, 2023

VALUE	DESCRIPTION
024119.11	EXISTING P.E.M.B. EXTERIOR WALL
054000.01	362S162-33 MTL STUDS AT 16" O.C. UP TO UNDERSIDE OF DECK
054000.02	362S162-33 MTL STUDS AT 16" O.C.
054000.03	600S200-54 MTL STUDS AT 12" O.C. w/ BRIDGING @ MID-HEIGHT - ALIGN STUDS w/ FLOOR JOISTS
072116.01	SOUND ATTENUATION BATT
072116.02	BATT INSULATION
092900.01	5/8" GYPSUM BOARD UP TO UNDERSIDE OF ROOF DECK

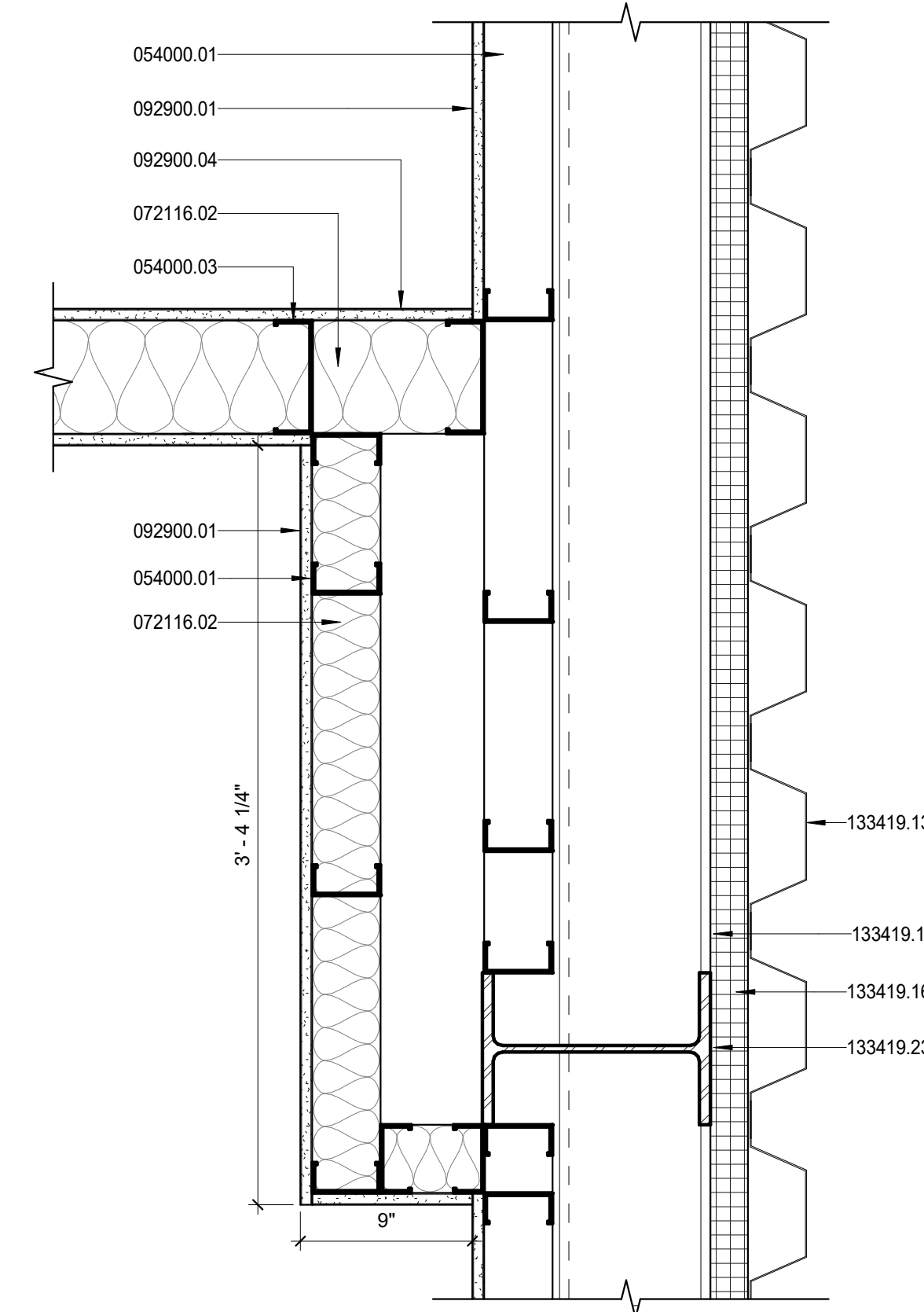
VALUE	DESCRIPTION
092900.04	5/8" GYPSUM BOARD
092900.06	INSTALL 5/8" GYPSUM BOARD OVER FURRING CHANNELS, EXTEND TO BOTTOM OF ROOF DECK
133419.13	3" DEEP, CONCEALED FASTENER, PRE-FINISHED P.E.M.B. EXTERIOR METAL WALL PANELS
133419.16	2" THICK, MIN. R-15 RIGID INSULATION, TAPE & SEAL ALL JOINTS
133419.19	P.E.M.B. 8" BY-PASS WALL GIRTS
133419.23	P.E.M.B. STRUCTURAL COLUMN
323913.02	REMOVEABLE BOLLARD



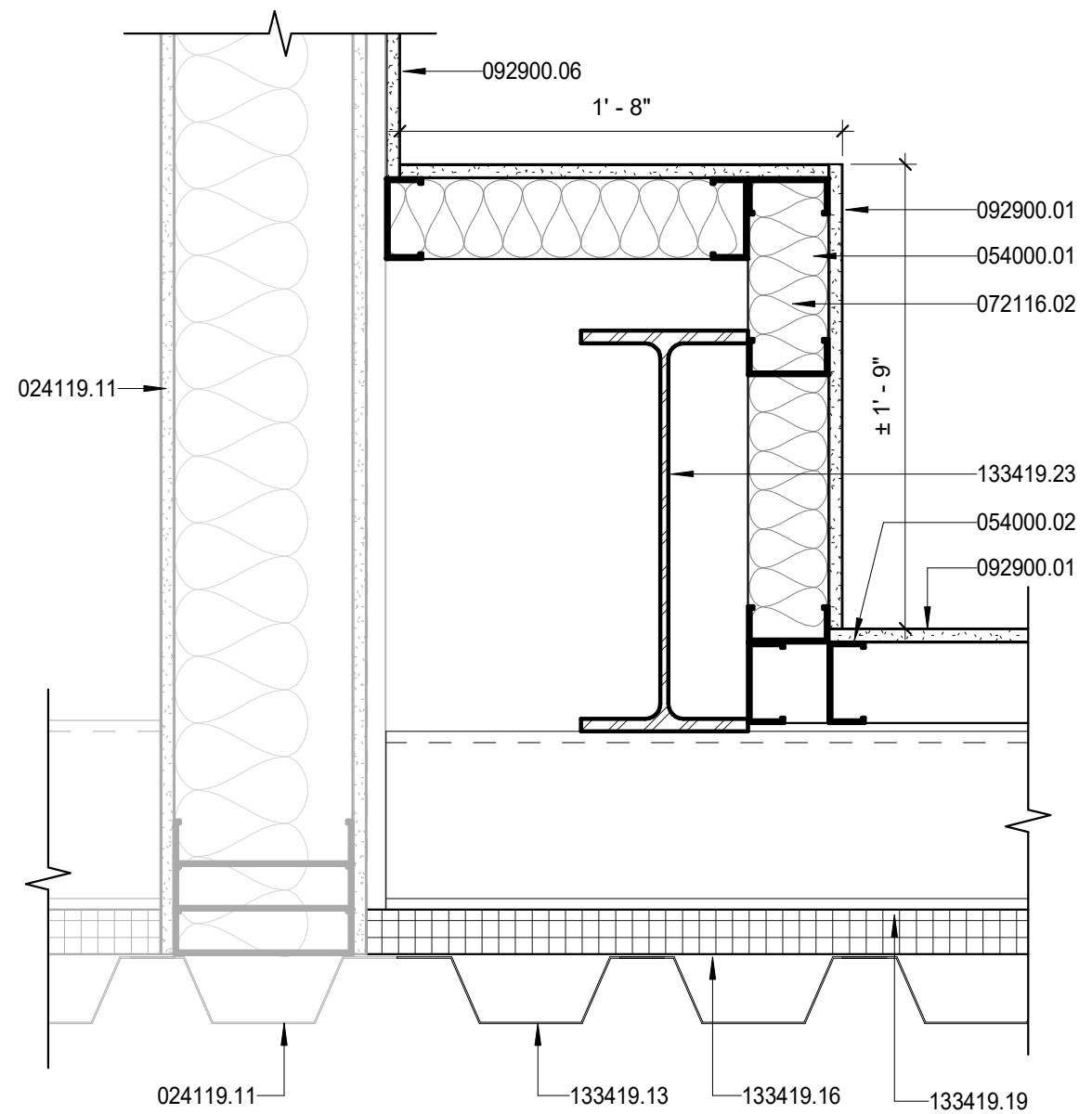
1 DETAIL AT DOOR ALCOVE  
1 1/2" = 1'-0"



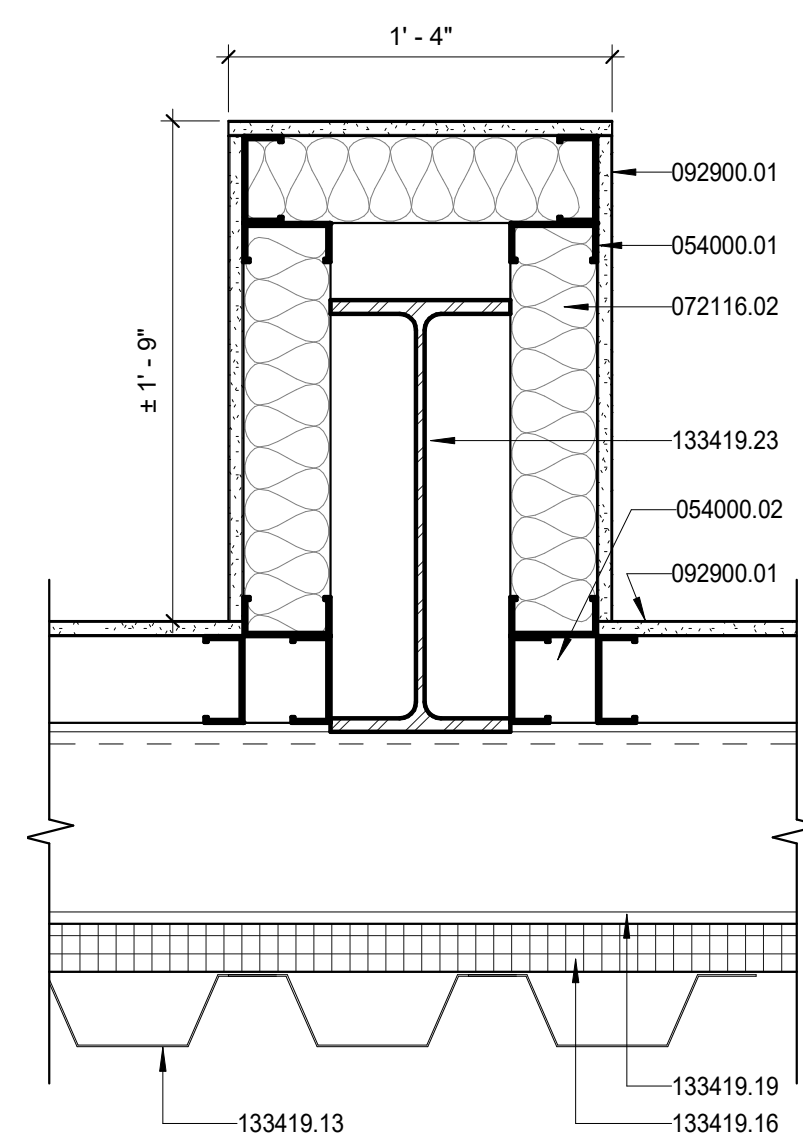
2 COLUMN SURROUND - DETAIL 1  
1 1/2" = 1'-0"



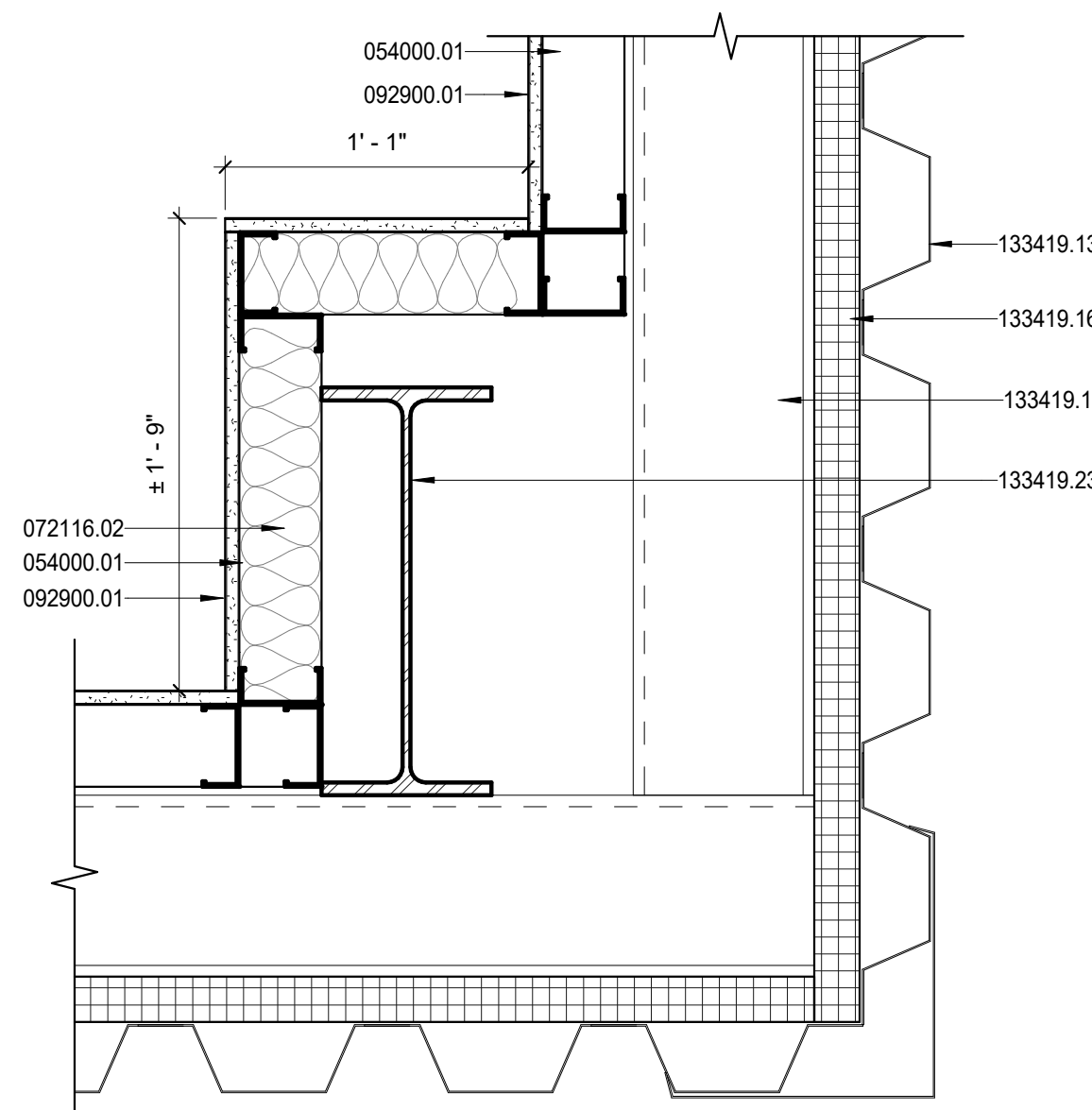
3 COLUMN SURROUND - DETAIL 2  
1 1/2" = 1'-0"



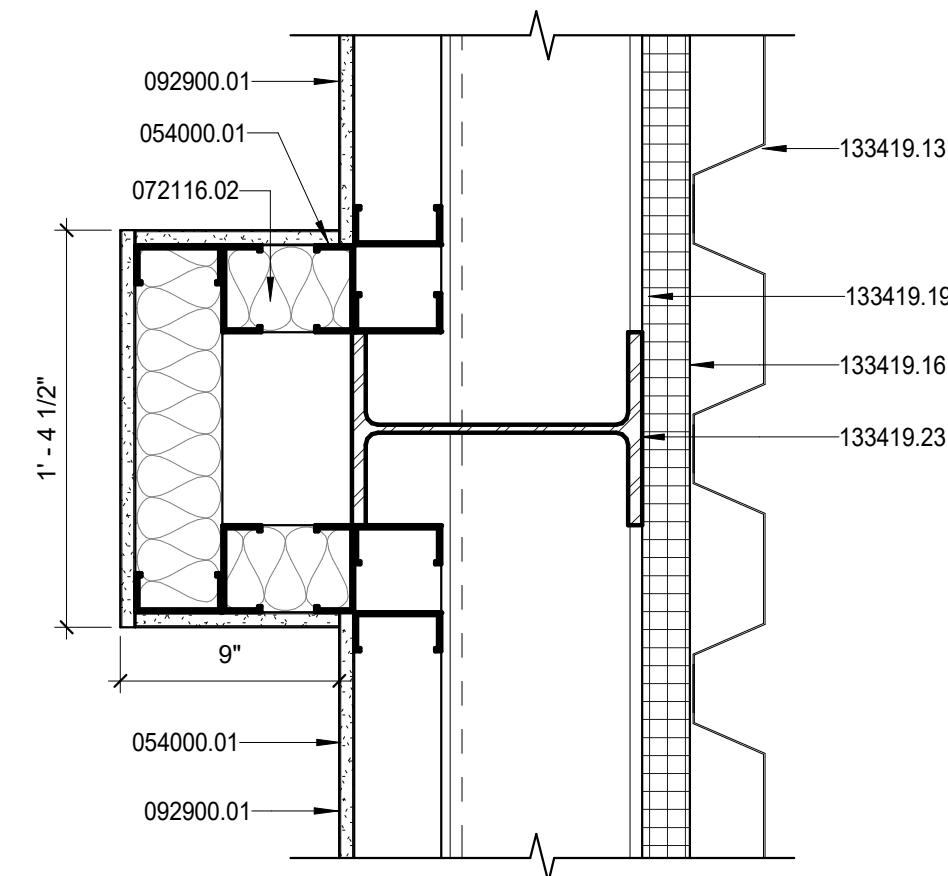
4 COLUMN SURROUND - DETAIL 3  
1 1/2" = 1'-0"



5 COLUMN SURROUND - DETAIL 4  
1 1/2" = 1'-0"

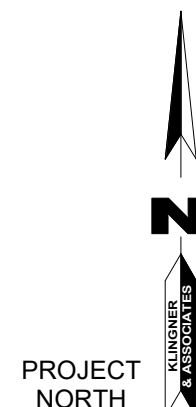


6 COLUMN SURROUND - DETAIL 5  
1 1/2" = 1'-0"



7 COLUMN SURROUND - DETAIL 6  
1 1/2" = 1'-0"

0 3" 6" 1'  
SCALE: 1 1/2" = 1'-0"







CODY N. BASHAM - ARCHITECT  
MO # A-2021000203

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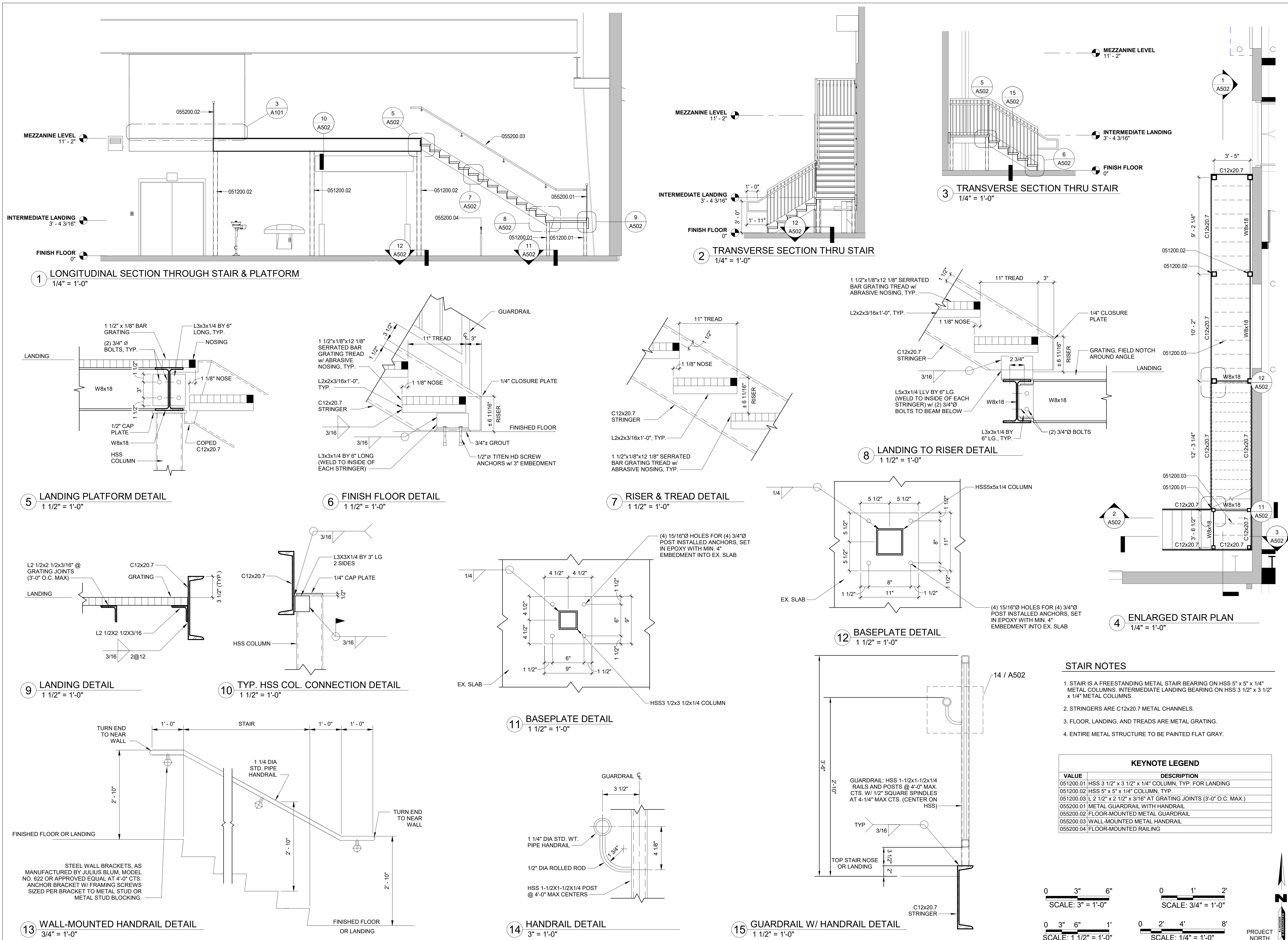
CAD DWG FILE: A502  
DRAWING BY: MSG  
CHECKED BY: CNB  
DESIGNED BY: CNB

SHEET TITLE:  
**ENLARGED STAIR  
PLAN AND  
SECTIONS**

SHEET NUMBER:

**A502**

SHEET 20 OF 51  
APRIL 28, 2023





DOOR AND FRAME SCHEDULE														
DOOR NUMBER	SIZE	FRAME			TYPE	FINISH	DETAILS				FIRE RATING	HARDWARE GROUP	DOOR NUMBER	REMARKS
		WIDTH	HEIGHT	THICKNESS			TYPE	FINISH	HEAD	JAMB				
100A	3'-0"	7'-0"	1 3/4"	HM-F	STAIN	A	PNT-3	2H	2J	---	---	---	100A	
100B	8'-0"	8'-0"	3"	CDI-E	SEE SPEC	-	PNT-3	4H	4J	---	---	---	100B	
100C	3'-0"	7'-0"	1 3/4"	HM-F	PNT-3	A	PNT-3	3H	3J	---	---	---	100C	
101	3'-0"	7'-0"	1 3/4"	HM-G	PNT-3	A	PNT-3	3H	3J	---	---	---	101	
102	3'-0"	7'-0"	1 3/4"	HM-F	STAIN	A	PNT-3	1H	1J	---	---	---	102	
103	3'-0"	7'-0"	1 3/4"	HM-F	STAIN	A	PNT-3	1H	1J	---	---	---	103	
104A	3'-0"	7'-0"	1 3/4"	HM-F	STAIN	A	PNT-3	2H	2J	---	---	---	104A	
104B	8'-0"	8'-0"	3"	CDI-E	SEE SEPC	-	PNT-3	4H	4J	---	---	---	104B	
104C	3'-0"	7'-0"	1 3/4"	HM-F	PNT-3	A	PNT-3	3H	3J	---	---	---	104C	
105	3'-0"	7'-0"	1 3/4"	HM-F	STAIN	A	PNT-3	1H	1J	---	---	---	105	
201	11'-0"	8'-0"	3"	CDI-F	SEE SPEC	-	PNT-3	4H	4J	---	---	---	201	

### DOOR LEGEND

F	FLUSH
G	GLAZED
GL-1	1/4" CLEAR TEMPERED GLAZING UNIT
GL-2	1" INSULATED GLASS UNIT
HM	HOLLOW METAL
PNT-3	SEE SHEET A110
WD	WOOD

### DOOR HARDWARE SCHEDULE

DOOR HARDWARE SET NO. 1 - DOORS: 101, 100C, & 104C

ITEM	MANUFACTURER	FINISH
1 1/2 PAIR BUTT HINGE - BALL BARRING FULL MORTISE HEAVY WEIGHT	IVES - 5 KNUCKLE 5" 5BB1HW	US32D
1 EXIT DEVICE	VON DUPRIN - 98-L-NL-06	626
1 RIM CYLINDER	BEST - 1E72 IC RIM CYLINDER	626
1 MORTISE CYLINDER	BEST - 1E74 IC MORTISE CYLINDER	626
1 CLOSER - HIGH TRAFFIC	LCN - 4040XP	ALUMINUM
1 WALL STOP - CONVEX	ROCKWOOD - 406	US32D
1 GASKETING	ZERO - 50AA-S	AA
1 DOOR SWEEP	ZERO - 39A	A
1 THRESHOLD	ZERO - 65A-223	A

DOOR HARDWARE SET NO. 2 - DOORS: 100A & 104A

ITEM	MANUFACTURER	FINISH
1 1/2 PAIR BUTT HINGE - BALL BARRING FULL MORTISE HEAVY WEIGHT	IVES - 5 KNUCKLE 5" 5BB1HW	US32D
1 CLASSROOM FUNCTION LATCHSET - HEAVY DUTY	BEST - 9K SERIES	US32D
1 CLOSER - HIGH TRAFFIC	LCN - 4040XP	ALUMINUM
1 WALL STOP - CONVEX	ROCKWOOD - 406	US32D

DOOR HARDWARE SET NO. 3 - DOORS: 102 & 103

ITEM	MANUFACTURER	FINISH
1 1/2 PAIR BUTT HINGE - BALL BARRING FULL MORTISE HEAVY WEIGHT	IVES - 5 KNUCKLE 5" 5BB1HW	US32D
1 PRIVACY FUNCTION LATCHSET - HEAVY DUTY	BEST - 9K SERIES	US32D
1 CLOSER - HIGH TRAFFIC	LCN - 4040XP	ALUMINUM
1 WALL STOP - CONVEX	ROCKWOOD - 406	US32D

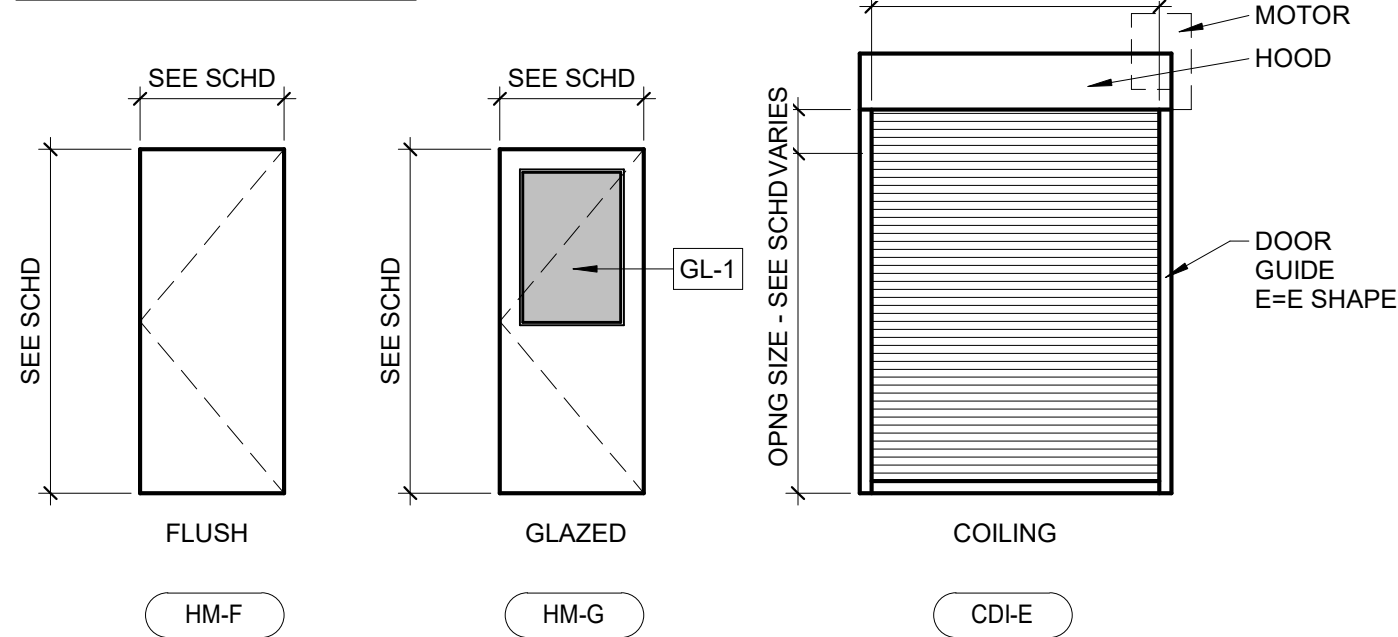
DOOR HARDWARE SET NO. 4 - DOORS: 105

ITEM	MANUFACTURER	FINISH
1 1/2 PAIR BUTT HINGE - BALL BARRING FULL MORTISE HEAVY WEIGHT	IVES - 5 KNUCKLE 5" 5BB1HW	US32D
1 STOREROOM FUNCTION LATCHSET - HEAVY DUTY	BEST - 9K SERIES	US32D
1 WALL STOP - CONVEX	ROCKWOOD - 406	US32D

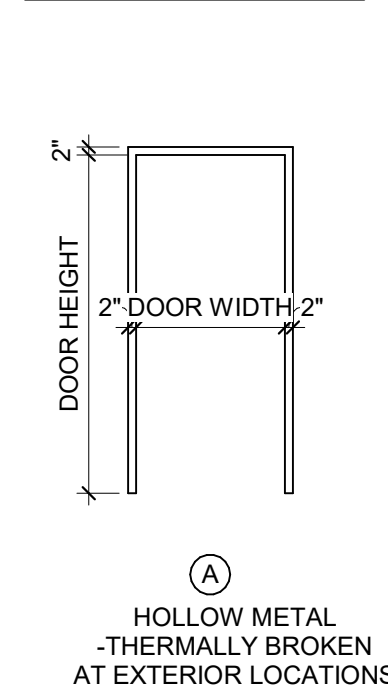
### GENERAL DOOR NOTES

- DOOR HARDWARE SHALL BE COORDINATED BY THE CONTRACTOR AND APPROVED BY THE OWNER. THE CONTRACTOR SHALL COORDINATE ALL KEYING REQUIREMENTS.
- HANDLES, PULLS, LATCHES, LOCKS, AND OTHER OPERATING DEVICES ON ACCESSIBLE DOORS SHALL HAVE A SHAPE THAT IS EASY TO GRASP WITH ONE HAND AND DOES NOT REQUIRE TIGHT GRASPING, PINCHING, OR TWISTING OF THE WRIST TO OPERATE.
- THE CONTRACTOR SHALL VERIFY ALL DOOR OPENING SIZES, FRAME SIZES, AND WALL WIDTHS PRIOR TO PLACING ORDER.
- DOOR CLOSERS SHALL BE ADJUSTED SO THAT FROM AN OPEN POSITION OF 90 DEGREES, THE TIME REQUIRED TO MOVE THE DOOR TO A POSITION OF 12 DEGREES FROM THE LATCH IS 5 SECONDS MINIMUM.
- THE FORCE FOR PUSHING OR PULLING OPEN A DOOR OTHER THAN FIRE DOORS SHALL BE AS FOLLOWS:  
A) INTERIOR HINGED DOORS AND GATES= 5LBS MAXIMUM.  
B) SLIDING OR FOLDING DOORS= 6LBS MAXIMUM.
- ALL GLASS BELOW THE HEIGHT OF 7 FEET ABOVE THE FINISHED FLOOR SHALL BE TEMPERED GLASS. ALL GLASS ADJACENT TO DOORS SHALL BE TEMPERED.
- FIRE RATED LABELS ON DOORS AND FRAMES SHALL NOT BE PAINTED OVER.
- CONTRACTOR SHALL COORDINATE KEYING WITH THE OWNER.

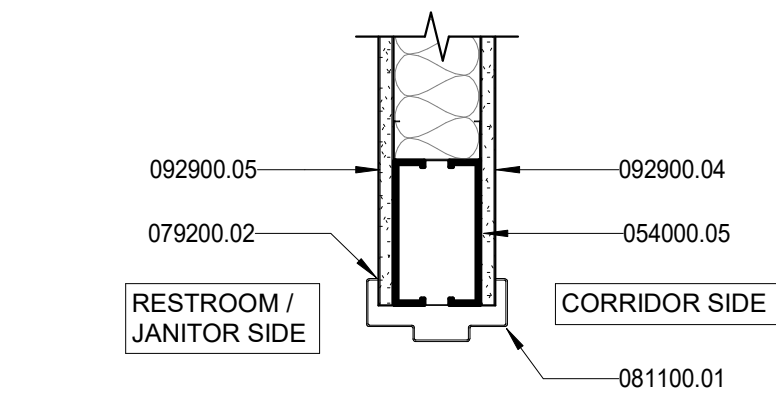
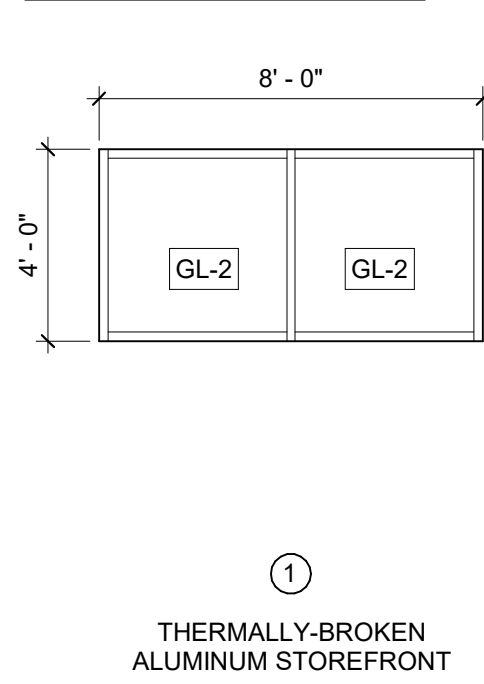
### DOOR TYPES



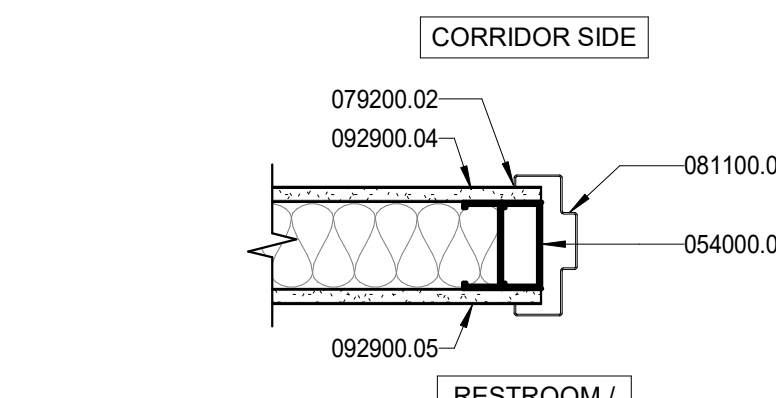
### FRAME TYPE



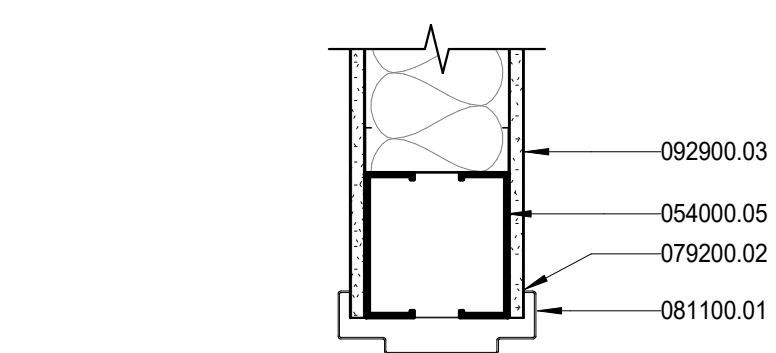
### WINDOW TYPE



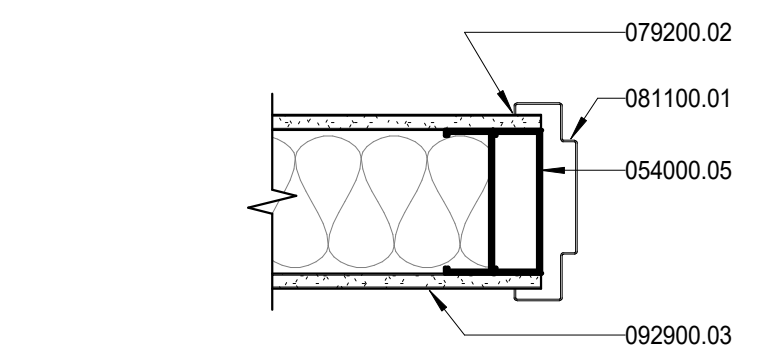
1H METAL STUD HEAD DETAIL - 3 5/8" 1 1/2" = 1'-0"



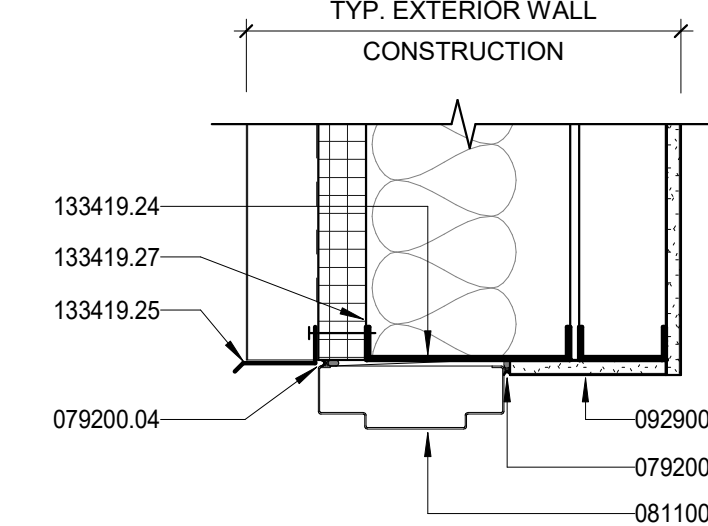
1J METAL STUD JAMB DETAIL - 3 5/8" 1 1/2" = 1'-0"



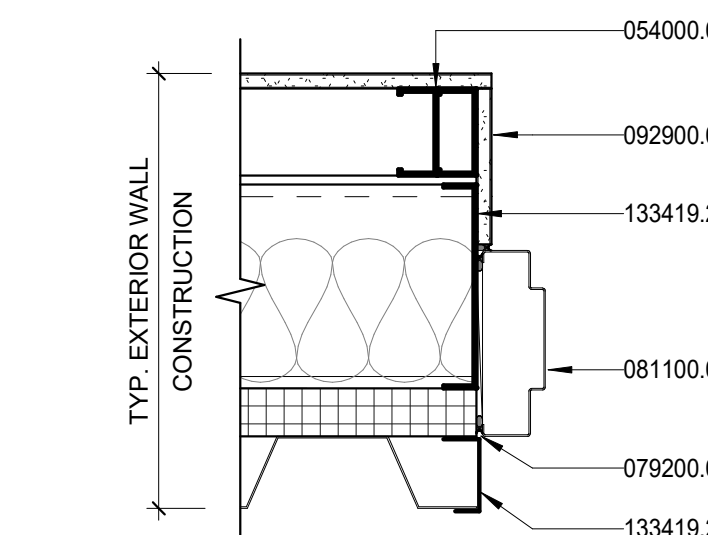
2H METAL STUD HEAD DETAIL - 6" 1 1/2" = 1'-0"



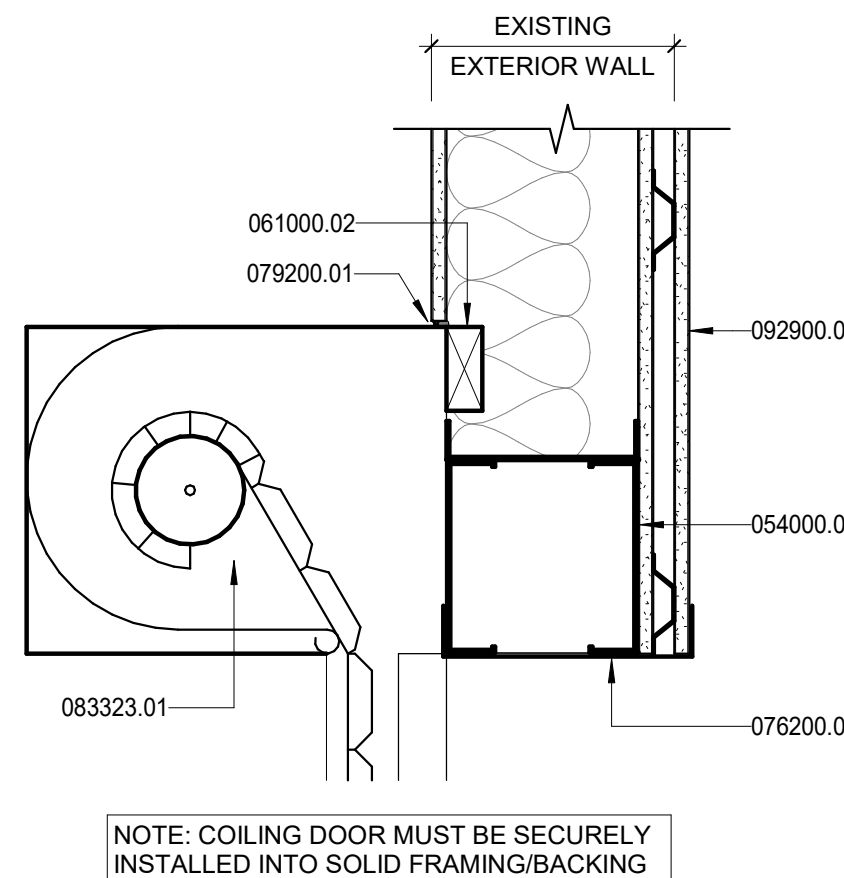
2J METAL STUD JAMB DETAIL - 6" 1 1/2" = 1'-0"



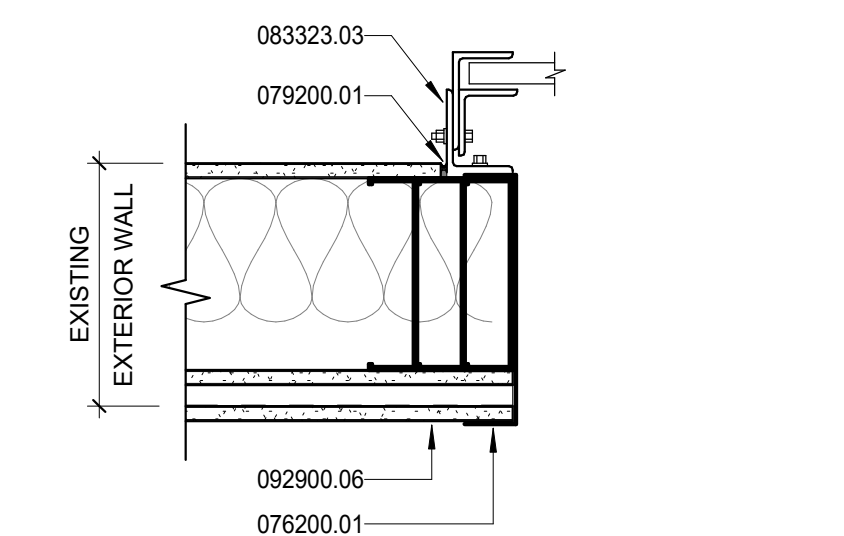
3H EXTERIOR WALL HEAD DETAIL 1 1/2" = 1'-0"



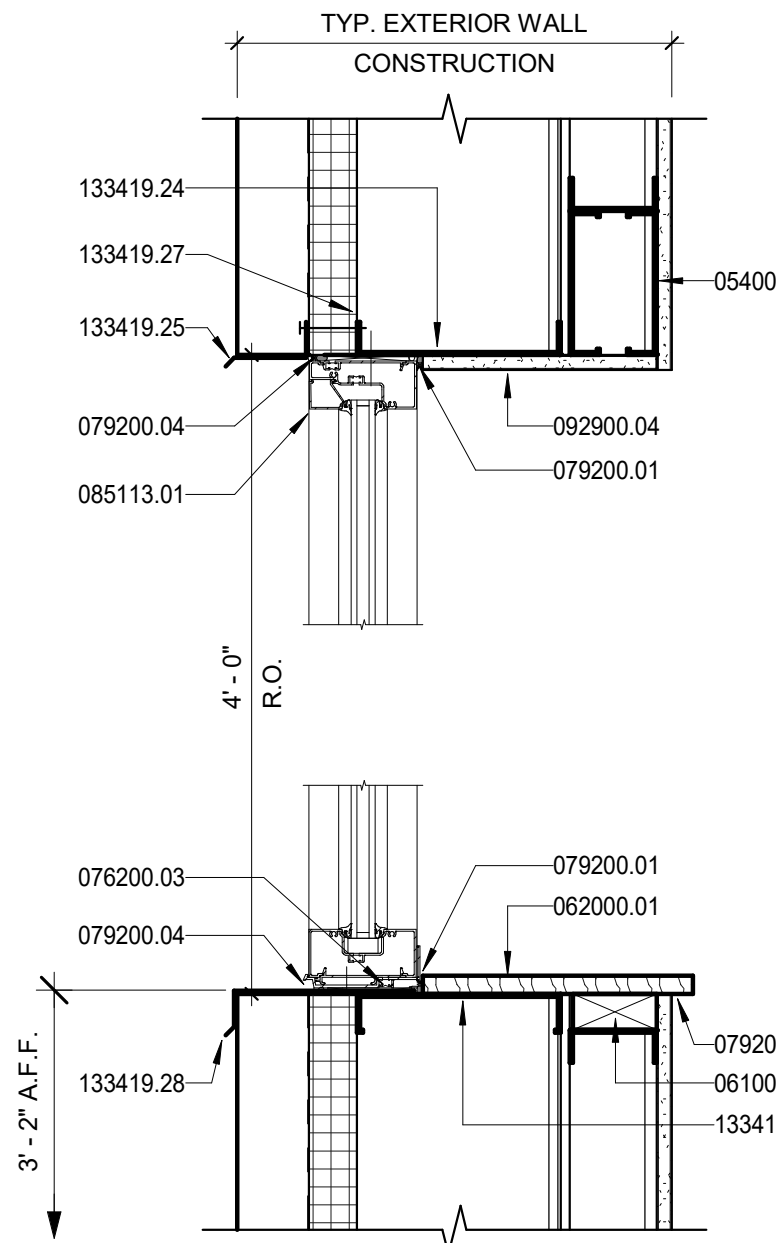
3J EXTERIOR WALL JAMB DETAIL 1 1/2" = 1'-0"



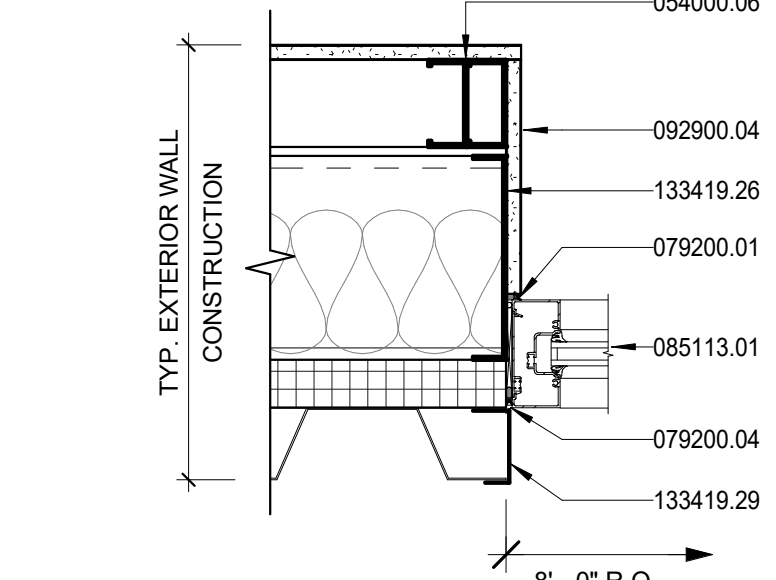
4H COILING DOOR HEAD 1 1/2" = 1'-0"



4J COILING DOOR JAMB 1 1/2" = 1'-0"



5 WINDOW HEAD & SILL DETAIL 1 1/2" = 1'-0"



6 WINDOW JAMB DETAIL 1 1/2" = 1'-0"

### KEYNOTE LEGEND

VALUE	DESCRIPTION
054000.05	HEADER - (2) 800S162-54 METAL STUDS
054000.06	(2) 362S162-33 MTL STUDS AT JAMB
061000.01	2x WOOD BLOCKING
061000.02	SOLID WOOD BLOCKING AS REQ'D AT COILING DOOR ANCHOR LOCATIONS
062000.01	SOLID SURFACE SILL w/ ROUNDED TOP EDGE
076200.01	PRE-FINISHED SHEET MTL CASING TRIM TO WRAP IN FRONT OF WALL SHEATHING AND EXTEND BACK BEHIND WALL STUDS BETWEEN STUDS AND COILING DOOR HOOD - PROVIDE (1) LAYER OF BUILDING FELT BETWEEN STUD HEADER AND CASING TRIM
076200.03	FULL DEPTH METAL PAN FLASHING WITH END DAMS
079200.01	SEALANT
079200.02	SEALANT, BOTH SIDES
079200.04	BACKER ROD & SEALANT
081100.01	HOLLOW METAL FRAME
083323.01	8'-0" x 8'-0" OVERHEAD COILING DOOR
083323.03	E" GUIDE OVERHEAD COILING DOOR JAMB
085113.01	THERMALLY-BROKEN ALUMINUM STOREFRONT WINDOW SYSTEM
092900.03	5/8" GYPSUM BOARD, BOTH SIDES
092900.04	5/8" GYPSUM BOARD
092900.05	5/8" MMR GYPSUM BOARD
092900.06	INSTALL 5/8" GYPSUM BOARD OVER FURRING CHANNELS, EXTEND TO BOTTOM OF ROOF DECK
133419.24	P.E.M.B. HEAD CHANNEL
133419.25	PRE-FINISHED HEAD TRIM w/ DRIP EDGE
133419.26	P.E.M.B. JAMB CHANNEL
133419.27	PROVIDE SEALANT PER MFR'S RECOMMENDATIONS BETWEEN BOTTOM OF INSULATION AND P.E.M.B. HEAD CHANNEL
133419.28	PRE-FINISHED CAP TRIM w/ DRIP EDGE - EXTEND BACK UNDER WINDOW FRAMING
133419.29	PRE-FINISHED JAMB TRIM
133419.30	P.E.M.B. "C" GIRT FRAMING

STATE OF MISSOURI  
MICHAEL L. PARSON,  
GOVERNOR



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REVISION:  
DATE:  
ISSUE DATE: 04/28/23

CAD DWG FILE: A601  
DRAWING BY: MSG  
CHECKED BY: CNB  
DESIGNED BY: CNB

SHEET TITLE:  
**DOOR SCHEDULE  
& DETAILS**

SHEET NUMBER:

**A601**

SHEET 21 OF 51  
APRIL 28, 2023

0 3" 6" 1'  
SCALE: 1 1/2" = 1'-0"



DESIGN CRITERIA

- 1. BUILDING CODES:
A. IBC 2018
B. ASCE 7-16
2. DESIGN LOADS:
A. Occupancy Category II
B. Dead Loads
a. Roof = self weight
b. Colateral = 5 psf
c. See roof framing plan for additional loads & locations. (RTU, Point Loads, etc.)
C. Live Loads
a. Roof = 20 psf
b. Mezzanine = 125 psf
D. Roof Snow Load
a. Ground Snow Load, P\_g = 20 psf
b. Flat Roof Snow Load, P\_f = 14 psf
c. Snow Load Importance, I\_s = 1.0
d. Snow Exposure Factor, C\_e = 1.0
e. Roof Thermal Factor, C\_t = 1.0
f. Drifting: (See Special Loading Diagram for Drift Loads)
E. Wind Loading
a. Basic Wind Speed, V\_{ult} = 115 mph
b. Risk Category = II
c. Exposure Category = C
d. Internal pressure Coefficient, GC\_p = +/- 0.18
e. Components and Cladding Design per ASCE 7-10
F. Seismic Loading
a. Risk Category = II
b. Importance Factor, I\_p = 1
c. Site Class C
d. S\_{as} = 0.221 (S\_s = 27.7%)
e. S\_{d1} = 0.129 (S\_1 = 11.6%)
f. Seismic Response Coefficient, C\_s = 0.0681
g. Seismic Design Category B
h. Design Coefficients and Factors for Seismic Force-Resisting Systems
i. Component Design per ASCE 7-16
j. Seismic Base Shear = W x C\_s

GENERAL

- 1. The structure is designed to be self-supporting and stable after the building is fully completed. It is solely the contractor's responsibility to determine erection procedure and sequence and insure the safety of the construction personnel, public, building and its components parts, and adjacent buildings and properties.
2. Fall protection support from perimeter columns or walls shall be provided in accordance with OSHA requirements as required. Such material shall remain the contractor's property after the completion of the project.
3. It is the contractor's responsibility to enforce all applicable safety codes and regulations during all phases of construction.
4. The contractor shall perform all construction for the project in a manner and sequence that are based on accepted industry standards that recognize the interaction of the components that comprise the structure, without causing distress, unanticipated movements or irregular load paths as a result of the construction means and methods employed.
5. Construction loads shall not exceed design live loads. The contractor shall be responsible for all design required to support construction equipment used in constructing this project. Shoring and reshoring is the responsibility of the contractor.
6. Principal openings through the framing are shown on these drawings. The contractor shall examine the structural and mechanical drawings for the required openings and shall verify size and location of all openings with the contractor.
7. All contractors are required to examine the drawings and specifications carefully, visit the site and fully inform themselves as to all existing conditions and limitations, prior to agreeing to perform the work.
8. Contractor shall verify all dimensions and conditions at the job site before commencing work and shall report any discrepancies to the engineer.
9. Omissions or conflicts between various elements of the drawings, notes, details and specifications shall be brought to the attention of the engineer and resolved before proceeding with the work.
12. Do not scale drawings.
13. Should any of the general notes conflict with any details or instructions on plans, the strictest provision shall govern.
14. Shop drawings and submittals:
A. These drawings shall be checked and coordinated with other materials and contracts by the general contractor and shop drawings and submittals shall bear the contractor's review stamp with the checker's initials before being submitted to the architect for approval.
B. When the fabricator has been authorized to use the architect and engineer's drawings as erection drawings, the fabricator must remove all title blocks, professional seals and any other reference to the architect and engineer from that erection drawing. The fabricator's name and title shall be placed on the erection drawing.

EXISTING WORK

- 1. Existing conditions shown or noted on the drawings were obtained from field measurements or were assumed. If conditions other than those shown exist, immediately notify the Engineer before proceeding with the work at that location.
2. Where specifically noted on the drawings that existing construction be verified, notify the Engineer in writing of the findings.
3. Use appropriate construction methods and equipment as necessary to support existing structures and to avoid over stressing the existing structures.
4. Existing framing is assumed to be in original condition. If deterioration has occurred notify the Engineer in writing of the findings.

OVER EXCAVATION FILL

- 1. Portions of the loessial soils and/or recent fill will be soft and unstable due to excessive moisture. Unsuitable (soft or unstable) natural soils and/or recent fill shall be removed from the footing excavations, and replaced with suitable material as recommended below.
2. Replacement material for unsuitable soils in footings may consist of suitable lean clay (LL45%, PI22%) or granular material (IDOT CA6) that is placed in 8" or less lifts and compacted to at least 95% of the standard proctor maximum dry density (ASTM D 698) at moisture contents of - 2% to +4% of optimum or flowable fill (Controlled Low Strength Material, CLSM).
3. The depth of overexcavation under footings should be at least 2 feet below the bottom of footing to adequate bearing material, whichever is deeper) and the overexcavation should be at least 50% wider than the footing width for lateral stress dissipation. If flowable fill is used as replacement material below footings, over widening is not necessary. Backfill materials required for confined spaces such as the former septic tank (if present) and/or other buried structures left in-place should consist of clean gravel or crushed stone that is compacted to at least 75% of the maximum relative dry density as per ASTM D 4253 and D 4254 or flowable fill.

FOUNDATION

- 1. The contractor shall familiarize themselves with the survey and the geotechnical investigation report before starting construction.
2. A soils testing laboratory shall be retained by the owner for project construction review to insure conformance with the construction documents during the excavation, back fill, and foundation phases of the project.
3. Foundation design is based on:
A. 2500 psf net allowable soil bearing pressure for isolated column footings.
B. 2000 psf net allowable soil bearing pressure for continuous wall footings.
4. All fill material shall be free of organic contaminations and other deleterious matter.
5. All soil surrounding and under footings shall be protected from frost action and freezing during the course of construction.
6. Notify structural engineer of any unusual soil conditions that are in variance with the geotechnical report.
7. Footing excavations should be made to the required lines and grades as rapidly as possible. Footing excavations be left open for a minimum of time to prevent disturbance to the foundation soils. Foot traffic should be prevented on the base of the footing excavations if disturbance is noted. Hand cleaning, if required and setting of reinforcing steel should then be accomplished from the sides of the excavation.

BUILDING PAD PREPARATION

- 1. All building pad preparation shall follow the recommendations of the geotechnical report, unless otherwise noted.
2. All trees, brush, roots, topsoil, rubble, organically contaminated or otherwise objectionable materials encountered are to be removed from the structural areas of the site.
3. Subgrade sectors which will exist in cut and those which are to support fill structures are to be proof rolled. Areas exhibiting instability are to be undercut and back filled on a lift-by-lift basis with each lift carefully compacted.
4. If unstable subgrade sectors cannot be stabilized by excavation and recompaction, then crushed stone or similar coarse aggregate material shall be rolled into the subgrade until a firm subgrade reaction is achieved.
5. The proposed engineered fill materials are to be placed in lifts not exceeding eight (8) inches in loose measured thickness.
A. Each lift is to be compacted as follows:
a. Slab-on-grade: Minimum of 98% maximum density by ASTM D698

CAST-IN-PLACE CONCRETE

- 1. All concrete construction shall conform to ACI 301, "Specification for Structural Concrete" and ACI 302, "Guide for Concrete Floor and Slab Construction", ACI 305 "Specification for Hot Weather Concreting" and ACI 306, "Standard Specification for Cold Weather Concreting", unless noted otherwise for the year referenced in the building code noted.
2. All detailing, fabrication and placing of reinforcing bars, unless otherwise noted, shall conform to ACI 318, "Building Code Requirements for Structural Concrete", ACI 117, "Specification for Tolerances for Concrete Construction and Materials", and the latest ACI detailing manual.
3. Concrete Types:
A. Interior Concrete:
a. Min. Cementitious Content = 564 lb/cu yd
b. Max Water-Cement Ratio = 0.45
c. Specified 28-day Compressive Strength, f'\_c = 4000 psi
d. Specified Slump Range for Placement (with W.R.) = 3 - 5 inches
e. Specified Air Content % by Volume = 0 - 3 (Entrapped)
f. Max Size Aggregate = 3/4"
B. Concrete Permanently Exposed to Weather; Exterior Walls, Exterior Footings:
a. Min. Cementitious Content = 564 lb/cu yd
b. Max Water-Cement Ratio = 0.45
c. Specified 28-day Compressive Strength, f'\_c = 4000 psi
d. Specified Slump Range for Placement (with W.R.) = 3 - 5 inches
e. Specified Air Content % by Volume = 6.0 +/- 1.5
f. Max Size Aggregate = 3/4"
C. Concrete Permanently Exposed to Weather & Deicing Chemicals; Exterior Stoops:
a. Min. Cementitious Content = 564 lb/cu yd
b. Max Water-Cement Ratio = 0.40
c. Specified 28-day Compressive Strength, f'\_c = 4000 psi
d. Specified Slump Range for Placement (with W.R.) = 3 - 5 inches
e. Specified Air Content % by Volume = 6.0 +/- 1.5
f. Max Size Aggregate = 3/4"
D. Detail cement shall be Type I or Type III Portland Cement per ASTM C150. Types IA and IP are not acceptable. Use one brand of cement throughout the project.
E. Minimum cementitious content shall consist of 100% cement or a combination of flyash per Note e, or a combination of cement and ground granulated blast furnace slag (GGBFS) per note f. Flyash shall not be used in combination with GGBFS as a substitute for cement.
F. Flyash is permitted and shall conform to ASTM C618 Type C or F, but shall not exceed 20% of cementitious content by weight indicated above on a substitution basis and shall be included in the water-cement ratio.
G. Ground granulated blast furnace slag (GGBFS) is permitted and shall conform to ASTM C989, but shall not exceed 15% of cementitious content by weight indicated above on a substitution basis and shall be included in the water-cement ratio.
H. Concrete used for floors shall have 1600 psi, 3 day strength. Mixes to be pumped shall be so identified on the mix design submittal. All pumped mixes shall have a mid-range or high-range water reducer.
I. All admixtures other than superplasticizers shall be added at the batch plant. Superplasticizers, designed for addition to the mix at the plant, may be added at the batch plant with verifications from the engineer and verification that the water-cement ratio has not been exceeded. Superplasticizers added at the site shall be in pre-measured containers from the batch plant.
J. All concrete used for cast-in-place concrete slabs shall contain the specified water reducing or water reducing/retarding admixture. All concrete slabs, placed at air temperature 50°F shall contain the specified non-corrosive, non-chloride accelerator. All concrete placed at air temperature above 80°F shall contain specific water-reducing/retarder admixture. All concrete required to be air-entrained shall contain an approved air-entraining admixture. All pumped concrete shall contain the specified high-range water-reducing admixture. Concrete with a water-cement ratio between 0.4 and 0.6 shall contain the specified water-reducer.
K. Calcium chloride shall not be permitted nor shall any admixture containing calcium chloride be permitted.
L. All pipe sleeve openings through concrete slabs shall be formed with standard steel pipe.
5. No electrical conduit shall be placed above the welded wire fabric or top reinforcing of slab.
6. All aluminum in contact with concrete or dissimilar metals shall be coated with two coats of coal tar epoxy, approved by the engineer, unless otherwise noted.
7. Concrete shall be discharged at the site within 1 1/2 hours after water has been added to the cement and aggregates. Addition of water to the mix at the project site will not be permitted. All water must be added at the batch plant. Slump may be adjusted only through the use of additional water reducing admixtures or high range water reducing admixture.
8. All concrete shall be placed without horizontal construction joints, except where specifically noted.
9. All exposed edges of concrete members shall be chamfered 3/4" unless shown otherwise.
10. See architectural drawings for concrete finishes, masonry anchors, and for miscellaneous embedded plates, bolts, anchors, angles, etc.
11. The placement of sleeves, outlet boxes, box-outs, anchors, etc. for the mechanical, electrical and plumbing trades is the responsibility of the trade involved; however, any box-outs not covered by typical details in structural drawings shall be submitted for approval.
12. Reinforcing bars shall conform to ASTM A615, Grade 60, No tack welding of reinforcing in the field will be permitted.
13. Reinforcing bars for welded applications shall conform to ASTM A706, 60 ksi yield strength.
14. Welded wire fabric reinforcing shall conform to ASTM A185 and be furnished in flat sheets and installed on chairs.
15. Wire bar supports shall be furnished for all reinforcing within slabs, inclusive of welded wire fabric. Bottom bars in slabs-on-grade may be supported by other suitable supports. Reinforcing shall be properly positioned prior to concrete placement and may not be re-positioned once concrete operations have begun. Wire bar and other types of supports shall be in accordance with the concrete reinforcing steel institute manual of standard practice.
16. Reinforcement shall be continuous through all construction joints unless otherwise noted on drawings.
17. All hooks shown on drawings shall be ACI standard hooks, unless otherwise noted.
18. Where continuous bars are called for, they shall run continuously around corners and be lapped at necessary splices. Lap lengths shall be as given in the splice and development table.
19. Provide additional reinforcing at the side and corners of all openings in concrete in accordance with typical details.
A. Minimum additional requirements are as follows:
a. (2)-#5 top and bottom in slabs
b. (2)-#5 each face in walls
c. (2)-#5 x 4'-0" long diagonally each corner of opening
B. Extend bars a minimum of 2'-0" beyond openings, hook where extension is not possible.
20. In reinforced concrete walls, grade beams and trench footing provide corner dowels of same size and spacing as horizontal reinforcing. Dowels shall lap with horizontal reinforcing in each direction.
21. The following minimum concrete cover shall be provide for reinforcement, unless otherwise noted:
A. Earth formed and cast directly against soil - 3"
B. Cast against forms but exposed to earth and weather
a. #6 and Larger - 2"
b. #5 and Smaller - 1 1/2"
C. Slabs and walls not exposed to earth or weather - 3/4"
D. Others - 2"
22. Reinforcing bars shall have a minimum clear spacing or 4"
23. SPLICE LENGTHS:
Bar Size Min. Lap
#3 1'-4"
#4 1'-7"
#5 2'-0"
#6 2'-6"
#7 3'-6"
#8 4'-0"
#9 4'-6"
#10 5'-0"
A. When lapping two different size bars, use the lap dimension of the smaller bar or the anchorage dimension of the larger bar, use whichever dimension is larger.

POST INSTALLED ANCHORS

- 1. Concrete adhesive anchors Hilti HY200 or approved equal. Concrete Mechanical Anchors Hilti Kwik Bolt TZ or approved equal.
2. Masonry adhesive anchors Hilti HY270 or approved equal. Masonry Mechanical Anchors Hilti Kwik Bolt III in grouted CMU or approved equal.
3. Submitt ICC-ES reports for all post installed anchors.
4. Install all post installed anchors per the product's ICC-ES report and the manufacturer's written instructions.
5. Post installed anchors shall be inspected per the product's ICC-ES report.
6. Install adhesive anchors in dry hammer drilled holes.

ABBREVIATIONS

Table with 4 columns: Abbreviation, Description, Abbreviation, Description. Includes entries like AB AND ANCHOR BOLT, BLDG BUILDING, LG LONG, etc.

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DIVISION OF FACILITIES
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DESIGN AND CONSTRUCTION

CONSTRUCT CLASSROOM
ADDITION
REGIONAL TRAINING SITE -
MAINTENANCE
12249 20TH STREET
BLDG 1270
FORT LEONARD WOOD,
MO 65473

PROJECT # T2042-01
SITE # 6306
ASSET # 8136306006

REVISION:
DATE:
REVISION:
DATE:
REVISION:
DATE:
ISSUE DATE: 04/28/2023

CAD DWG FILE:
DRAWING BY: NRM/WPH
CHECKED BY: KTH
DESIGNED BY: NRM/WPH

SHEET TITLE:
STRUCTURAL
NOTES

SHEET NUMBER:
S001
SHEET 22 OF 51
APRIL 28, 2023



**STRUCTURAL STEEL**

- Detailing, fabrication and erection shall conform to the AISC Specifications and Standard Code of Practice for the year referenced in the building code noted, except as modified by these notes and the project specifications.
- Steel shall conform to the following grades unless otherwise noted:
  - W Shapes – ASTM A992 Grade 50 (Fy=50 ksi)
  - Plate, Angles, M, S and C Shapes – ASTM A36 (Fy=36 ksi)
  - HSS Tubular Shapes – ASTM A500 Grade B (Fy=46 ksi)
  - D Pipes – ASTM A53 (Fy=35 ksi)
  - Bolts – ASTM 325-N, 1/2" diameter minimum.
  - Washers – ASTM F436
  - Deformed Bar Anchor (DBA) – ASTM A496 (Fy=60 ksi) and AWS D1.1
  - Anchor Rods (Bolts) – ASTM F1554 Grade 36 (Fy=36 ksi) (If exposed to weather or incontact with treated timber hot dip galvanize per ASTM A123)
- Welding Electrodes – E70xx
- Unless being Galvanized, all structural steel shall be primed. Asphaltic paints are not acceptable. Exposed Steel shall be painted per Painting Specification. Field Touch up Primer and Paint.
- All column base plates shall have a minimum of four (4) anchor rods.
- Connections may be bolted or welded. The fabricator is responsible for the design of connections not designed on the drawings. Connections shown on these drawings are generally schematic and are intended to show the relationship of members connected. Any connection that is not shown or is not completely detailed on the structural drawings shall be designed by a registered professional engineer, retained by the fabricator. Completely detailed means the following information is shown on the shop drawings:
  - All plate dimensions and grade.
  - All weld sizes, lengths, pitches and returns.
  - All hole sizes and spacing.
  - Number and type of bolts. Where bolts are shown but no number is given, the connections have not been completely detailed.
  - Where partial information is given, it shall be the minimum requirement for the connection.
- Connection design forces:
  - Beam, Greater of:
    - 55% of total allowable uniform load capacity from AISC 9th Edition Tables for Allowable Loads on Beams, Wc/L
    - Reactions shown on drawings.
    - 10 Kips
  - Connection force notation:
    - P = Axial Force in Kips: (+) Tension, (-) Compression
    - V or I = Shear in Kips
    - M = Moment in Foot-Kips
    - T = Torsion in Foot-Kips
- The minimum plate thickness shall be 3/8", unless otherwise noted.
- The minimum length of connection angle shall be equal to 1/2 the depth of the member to be supported.
- Bolts not designated as slip critical bolts shall be considered bearing bolts. Tighten bearing bolts to a snug condition per AISC Specifications
- All welding shall be in accordance with the "Structural Welding Code", AWS D1.1, Latest Edition.
- Fabricate all beams with the mill camber up.
- Work these drawings with architectural drawings for nailer holes and architectural clearances.
- Contractor shall verify all structural beam locations, mechanical units weights and opening sizes and locations with mechanical contractor and vendor's drawings for actual mechanical unit purchased.
- Splicing of structural members where not detailed on the drawings is prohibited without prior approval of the structural engineer.
- Cuts, holes, coping, etc. required for work of other trades shall be shown on the shop drawings and made in the shop. Cuts or burning of holes in the structural steel members in the field will not be permitted, unless specifically approved in each case by the engineer.
- All structural steel, including base plates and top of anchor bolts that are exposed to soil are to be coated with an approved coal tar epoxy, 16 mils minimum thickness.
- Anchor Rods shall be located using templates with exposed threads (only) of rods greased after concrete has set.
- Grout for Baseplates: Prepacked, non-metallic, non-gaseous and non-shrink per CRD C621 and ASTM C1107 at fluid consistency (flow cone) of 20-30 seconds. Minimum 28 Day Compressive Strength = 7000 PSI.
- Hot dip galvanize per ASTM A123 after fabrication the following structural steel members:
  - Items identified on the architectural and structural drawings, including RTU support, Roof Top Screens and their supports.
  - Items exposed to weather or in direct contact with soil.
  - Items in direct contact with treated timber.
- Repair galvanized surfaces according to ASTM A 780.
- Provide 1 1/2" X 1/8" painted black (interior) or galvanized (exterior), Type 19-W-4, non-serrated Welded Steel Bar Grating, unless otherwise noted. Material shall comply with ASTM A-1101. Attach grating panels with Type H-3 Saddle clips. Each grating panel shall have a minimum of two (2) clips per supporting member. Grating shall be fabricated so that cross bars or adjacent panels are aligned when installed. Exposed ends shall have welded banding. Where indicated, provide welded toeplates with a 4" projection.
- Stair treads shall be 1 3/4" X 3/16" painted black (interior) or galvanized (exterior), Type 19, serrated, with non-slip abrasive nosing.
- Slip critical bolts shall be used on columns, column splices, and cross bracing connections, unless noted otherwise. Slip critical bolts shall be tightened per AISC Specifications.
- Unless otherwise noted, all connections at HSS sections shall be designed and detailed in accordance with the AISC "Hollow Structural Sections Connection," first edition.
- Handrail and posts shall be shop welded, 1 1/2" Ø (nominal diameter) schedule 40 steel pipe. Handrails shall have two rails and be ground smooth at joints.

**PRE-ENGINEERED METAL BUILDING (PEMB)**

- The entire pre-engineered metal building system shall be designed by the metal building manufacturer in conformance to the 2018 International Building Code and/or state/local requirements.
- The pre-engineered metal building manufacturer is responsible for the design of the complete building system (steel framing, anchor bolts, purlins, girts, bracing, connections, roofing, wall panels, etc.) The manufacturer shall provide a letter sealed by a Professional Engineer licensed in the state of Missouri stating the building meets the indicated code, performance, and loading requirements.
- The pre-engineered metal building manufacturer shall be certified by the American Institute of Steel Construction (AISC) Category MB, and building shall be produced in an AISC-Certified Facility.
- The metal building shall be designed, detailed, fabricated, and erected according to all requirements of AISC, AISI, AWS, and the latest edition of The Metal Building Manufacturers' Association publication titled, "Metal Building Systems Manual."
- The Contractor shall submit shop drawings of the entire metal building system for review. The Contractor shall also submit a complete structural design analysis of the building system. The shop drawing submittal shall include all anchor bolt requirements and foundation reactions. All shop drawings and calculation submittal shall be sealed by a Professional Engineer licensed in the state of Missouri. All drawings and calculations submitted for review shall be 100% complete; incomplete submittals will not be reviewed by the Structural Engineer of Record.
- Design loads to be used in connection with the Metal Building design are per the "Design Criteria" on sheet S001. In addition to the actual dead load, an additional collateral roof framing dead load of 5psf shall be included. Coordinate any equipment loads with the mechanical and architectural drawings.
- The pre-engineered manufacturer shall provide all girts, purlins, and other components required for a complete system. The components shall be properly supported by the metal building system. Allowable deflection of components shall be in accordance with the 2018 International Building Code.
- The foundation design is based on industry standards. The Contractor shall be responsible for coordination of and revisions required as a result of a change in the building design assumptions, including redesign of foundations.
- The size, number, and placement pattern of all anchor bolts shall be determined by the pre-engineered building manufacturer. All columns shall have a minimum of (4) F1554 anchor bolts.
- The pre-engineered metal building shall be designed by the manufacturer to resist lateral loads as follow:
  - Interior frame lines - Rigid frames (pinned based columns)
  - Perimeter wall lines - Braced bays (coordinate brace locations with Architectural plans)
- The metal building erector shall provide all temporary guying and bracing.
- Unless otherwise noted or specified, all steel members shall be cleaned and painted in accordance with the manufacturer's standard procedures or the contract documents, whichever is more stringent.
- The foundations have been designed for pinned column bases. Fixed base columns are not permitted without the Structural Engineer of Record's written approval.
- Base plates shall not be modified without written approval from the Structural Engineer of Record and the pre-engineer metal building engineer.
- Metal wall and roof panels are considered structural component and shall not be cut/alterd without authorization from the pre-engineered metal building engineer. Door and window locations shall not deviate from the plans without written authorization from the Architect and pre-engineered metal building engineer.

**COLD-FORMED STEEL**

- All sizing based on Steel Stud Manufactures Association (ESR-3064P) product technical information.
- All framing shall be galvanized.
- Material shall conform to the following:
  - Galvanized Material:
    - All galvanized studs and joists 12, 14 and 16 gauge shall be formed from steel that corresponds to the minimum requirements of ASTM A1003, Type H with a minimum yield of 50 ksi.
    - All galvanized 18 and 20 gauge studs and joists, all galvanized track, bridging, end closures and accessories shall be formed from steel that corresponds to the minimum requirements of ASTM A1003, Type H, with minimum yield of 33 ksi.
    - All galvanized studs, joists, tracks, bridging, and accessories shall be formed from steel having a galvanized coating meeting the requirements of A1003, Type H.
  - Properties:
    - The physical and structural properties listed by steel stud manufacture association and AISI design manual shall be considered the minimum permitted for all framing members. The properties include - Ix (in4), Sx(in3), Area (in2), Rx (in), Fy (ksi) and Resisting Moment (in-lb)
    - Substitutions: Any Substitutions must be approved in writing prior to delivery, by the architect and/or engineer of record.
- Installation of studs shall be as per ASTM C1007-08 "Standard Specification for Installation of Load Bearing (Transverse and Axial) Steel Studs and Related Accessories"; ASTM C 955 - 09a "Standard Specification for Load-Bearing (Transverse and Axial) Steel Studs, Runners (Tracks), and Bracing or Bridging for Screw Application of Gypsum Panel Products and Metal Plaster Bases"; ASTM C754 - 11 "Standard Specification for Installation of Steel Framing Members to Receive Screw-Attached Gypsum Panel Products.
- All framing components shall be cut squarely for attachment to perpendicular members, or as required for an angular fit against abutting members.
- All track butt joints, abutting pieces of track shall be securely anchored to a common structural element, or that shall be butt-welded or spliced together.
- All stud bridging shall be attached in a manner to prevent stud rotation. Bridging rows shall be spaced according to Dietrich Industry recommendations.
- Temporary bracing shall be provided until erection is completed.
- Stud ends must be sealed against the track web. Both stud flanges shall be attached to the base track. Exterior wall load bearing studs shall also have both stud flanges attached to the top track.
- Stud bridging shall be provided by 1 1/2" cold rolled U-channel. The U-channel must be attached to each stud by welding or attaching with clip angles and screws. Horizontal strapping and solid bridging with track members can also be used for bridging. Bridging shall be spaced at 4'-0" o.c. max. for load bearing exterior walls and non-composite interior walls.
- All welds shall be touched up with zinc-rich paint.
- The following minimum cold-form steel attachments shall be provided unless otherwise noted:
  - Track to Stud: (1) - #10 TEK screw each flange, each stud.
  - Track to Structural Steel: (1) - 0.157" dia. power driven fastener at 2'-0" o.c.
  - Track to Concrete: (1) - 0.157" dia. low velocity power driven fastener at 16" o.c. with 1 1/2" penetration.
  - Track to Metal Deck: (1) - #10 TEK screw at 16" o.c.
  - Track to Masonry: (1) - 0.157" dia. power driven fastener at 12" o.c.
  - Stud to Structural Steel: (1) - L2x2x14 GA clip angle connection with (3) #10 TEK screws into metal stud and (3) 0.157" dia. power driven fasteners into structural steel or (3) 1/2" TEK screws into structural steel.
  - Exterior Sheathing to Stud: #8x1" long Flat Head Self-Drilling Screw at 12" o.c. (6" o.c. at panel edges).
- The following minimum cold-form steel member sizes shall be provided for load bearing walls unless otherwise noted:
  - Stud: 600S200-54.
  - Base & Top Track: 600T150-54.
  - Header: (See framing plan for Header locations)
    - H1 = (2) 600S200-54 back-to-back with web stiffeners and 600T150-54 track above and below.

**COLD FORMED STRUCTURAL STUD FRAMING**

- Any dimensional information shown is included for engineering purposes only. It is the responsibility of the contractor to verify building dimensions with the A/E and MEP drawings and to comply with all other requirements of the Contract Documents.
- All materials shall have 33 ksi minimum yield strength, except studs and track of 16 gage or heavier shall have a minimum yield strength of 50 ksi.
- All material properties, fabrication, and erection shall be in accordance with the latest edition of the AISI "Specifications for the Design of Cold-Formed Structural Members."
- Any proprietary connectors shown have been selected based on specifications and capacities published by the manufacturer. Weld design values have been based on the latest edition of the AISI "Specifications for the Design of Cold-Formed Structural Members." Any deviance from the brand, type, size or quantity of connectors indicated on these drawings must be approved by the engineer prior to construction.
- All framing components shall be cut squarely or at an angle to fit squarely against abutting members. Splicing of axially loaded members shall not be permitted. Members shall be held firmly in place until properly fastened. Attachments of similar components shall be by welding, screw attachment, or bolting. Wire tying of components is not permitted.
- Special anchorage requirements required for wind and seismic bracing shall be as shown on the plans.
- Members shall not be spliced other than at the locations indicated on the drawings. All splices shall conform to the details in the drawings.
- Contractor shall verify sizes and locations of structural components where members attach.
- All load bearing joists shall have blocking with a maximum spacing of 8'-0" on center, attached per details.
- Temporary bracing shall be provided & remain in place until work is completely stabilized.
- No nothing or coping of studs is allowed, unless stated within this drawing package.
- Design assumes conditions to be stabilized and in final location. Temporary bracing (by others) or other means of stabilization may be required until framing is in its stable & final condition.
- Per AISI standard for cold-formed framing - wall design, the maximum allowable gap (measured between the web of the stud and of the track) for a stud seated in a track is 1/4" for non-axial load bearing conditions and 1/8" for axial load bearing conditions (U.N.O.) Pressure should be applied to nest the studs into the tracks until the tolerances listed above are achieved. Failure to do so could result in serviceability problems in the future.
- Stud bridging minimum requirements for panelized construction:

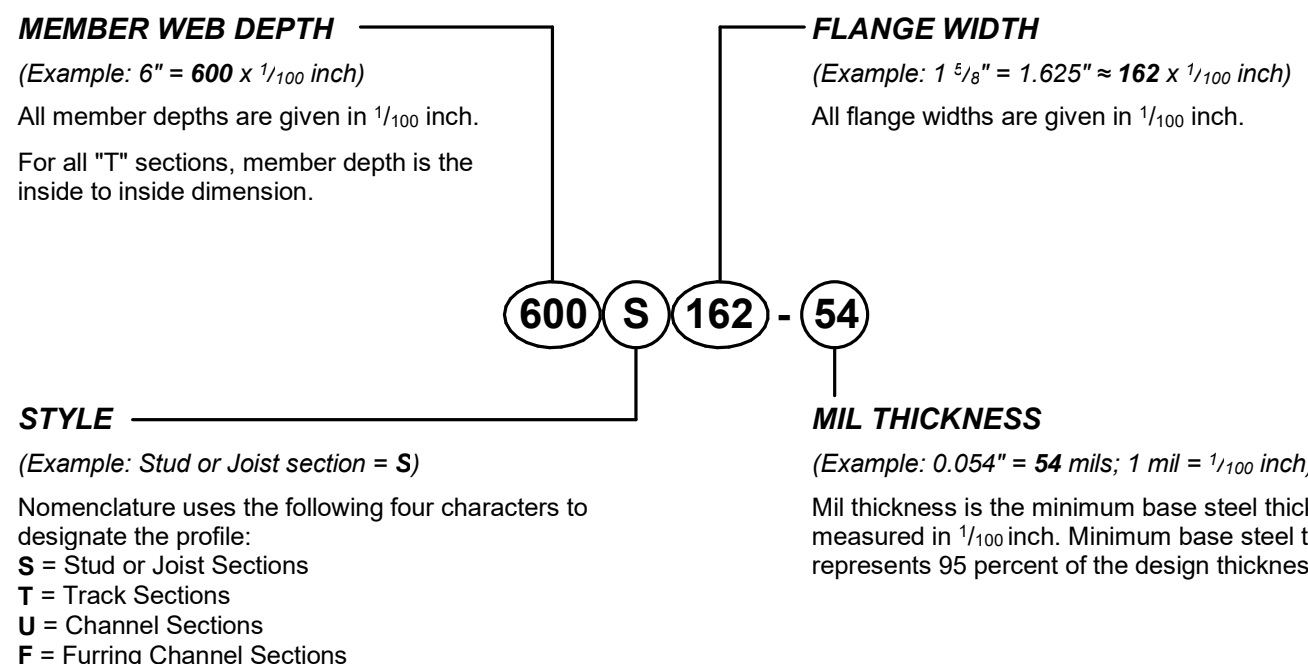
Wall Stud Height (ft)	Bridging Spacing (ft)
8	4
9	4.5
10	5
12	6
14	6
16	6

**COLD-FORMED CONNECTIONS**

- All fasteners are to be installed per manufacturer's recommendations. Do not substitute fasteners without written permission from Klingner & Associates.
- PAF point must penetrate through full base steel thickness. Notify PAF manufacturer for instructions where full penetration is not achieved.
- If required, all welded connections are to be performed in accordance with the latest version of AWS D1.3-98 Specifications for Welding Sheet Steel in Structures. Consult AWS D19.0 Welding Zinc Coated Steel & ANSI Standard Z49.1 for information regarding safe welding procedures.
- Minimum weld throat thickness (t) must match or exceed the base steel thickness of the thinnest connected part unless otherwise specified.
- In welding, the zinc coating on steel framing will be burned away; therefore, a zinc rich paint must be applied to the weld area to provide corrosion resistance.
- All screw connections are based on NASPEC Section E4, which outlines the AISI Specification provisions for screw connections.
- For screws, a minimum of 1.5 x screw diameter clearance must be maintained from all edges of the steel members. A minimum of 3.0 x screw diameter on-center spacing must be maintained between adjacent screws.
- Power driven fastener systems, expansion anchor systems, masonry screw systems, & adhesive anchor systems connections are based on literature for fastener requirements (e.g. Spacing, edge distance, base material thickness, etc.). Alternate manufacturer's fasteners of comparable specifications & load capacities are acceptable.
- All PAF's shall be Hilti 0.157"Ø x-U, U.N.O. For PAF's into steel, steel shall have 1/4" minimum thickness. PAF's into steel shall have 1/2" minimum edge distance and 1" minimum spacing. PAF's into concrete shall have 1-1/2" penetration, 3" edge distance and 4" spacing (Min.).

**Product Identification**

- The designations of the Steel Stud Manufacturer Association are used in this package. Any Manufacturer whose product geometry meets or exceeds SSMA standards is acceptable. See below for SSMA nomenclature.



**Web Size. (Nominal Member Depth)**

3-5/8" Member = 362
6" Member = 600
8" Member = 800
10" Member = 1000
12" Member = 1200

**Flange Designations:**

Load Bearing Stud/Joist (1-3/8" flange)	S137
Load Bearing Stud/Joist (1-5/8" flange)	S162
Load Bearing Stud/Joist (2" flange)	S200
Load Bearing Stud/Joist (2-1/2" flange)	S250
Running Track (1-1/4" flange)	T125

**The Last Two Numbers Indicate the Steel Thickness:**

Gage	Design	Minimum	SSMA	Color Coding
20	0.0346"	0.0329"	33 mils	White
18	0.0451"	0.0428"	43 mils	Yellow
16	0.0566"	0.0538"	54 mils	Green
14	0.0713"	0.0677"	68 mils	Orange
12	0.1017"	0.0966"	97 mils	Red

**SPECIAL STRUCTURAL INSPECTIONS AND TESTING**

- Owner will engage a qualified testing and inspecting agency to perform field special structural inspections and testing in accordance with the applicable International Building Code and to submit reports.
- See specifications and list of elements below for a summary of the elements of construction that shall require verification or special inspection. The tables shall be considered a guide, and the contractor and inspector shall refer to the IBC for complete requirements, qualifications, exceptions, and submittals. Refer to IBC section 1704 for IBC 2003-2009 codes, and section 1705 for IBC 2012-2018 codes.
- Special inspections noted as "Continuous" requires the presence of a qualified inspector in the vicinity of the work being performed for 100% of that work. Special inspections noted as "Periodic" requires part-time observation of the work being performed and observance of the final condition of the work before it is closed from view. Special inspections noted as "N/A" are Not Applicable for this project.
- Special inspection and testing reports shall be furnished to owner, structural engineer, and contractor. Special inspector shall inform engineer of record immediately of any items found in non-compliance with construction documents or approved submittals.
- The special inspector shall submit a final report stating that the structural work was, to the best of the special inspector's knowledge, performed in accordance with the construction documents.
- Special inspections shall conform to Chapter 17 of the International Building Code, IBC, 2018. Special inspections include:
  - Steel Construction - 1705.2
  - Concrete Construction - 1705.3
  - Soils - 1705.6
  - Wind Resistance Construction - 1705.11
  - Siesmic Resistance Construction - 1705.12

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**CONSTRUCT CLASSROOM  
ADDITION  
REGIONAL TRAINING SITE -  
MAINTENANCE  
12249 20TH STREET  
BLDG 1270  
FORT LEONARD WOOD,  
MO 65473**

PROJECT # T2042-01  
SITE # 6306  
ASSET # 8136306006

REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_

ISSUE DATE: 04/28/2023

CAD DWG FILE: \_\_\_\_\_  
DRAWING BY: NRM/WPH  
CHECKED BY: KTH  
DESIGNED BY: NRM/WPH

SHEET TITLE:

**STRUCTURAL  
NOTES**

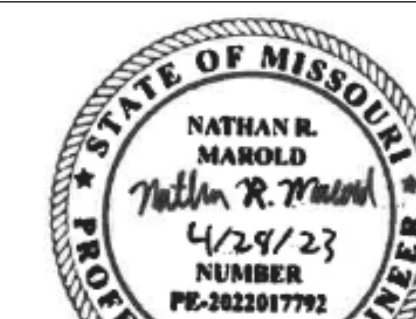
SHEET NUMBER:

**S002**

SHEET 23 OF 51

APRIL 28, 2023





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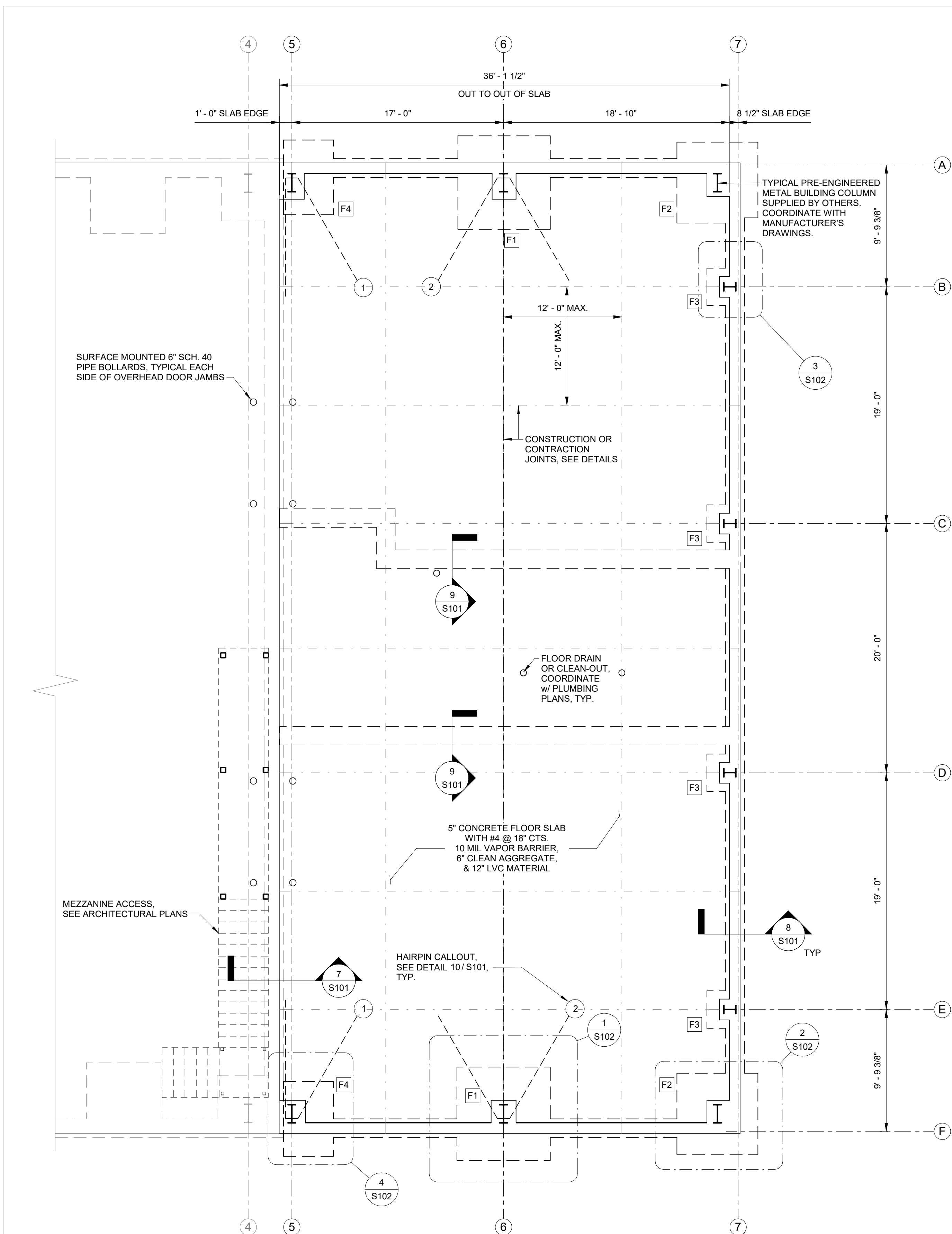
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DATE: \_\_\_\_\_  
REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
ISSUE DATE: 04/28/2023

CAD DWG FILE: \_\_\_\_\_  
DRAWING BY: NRM/WPH  
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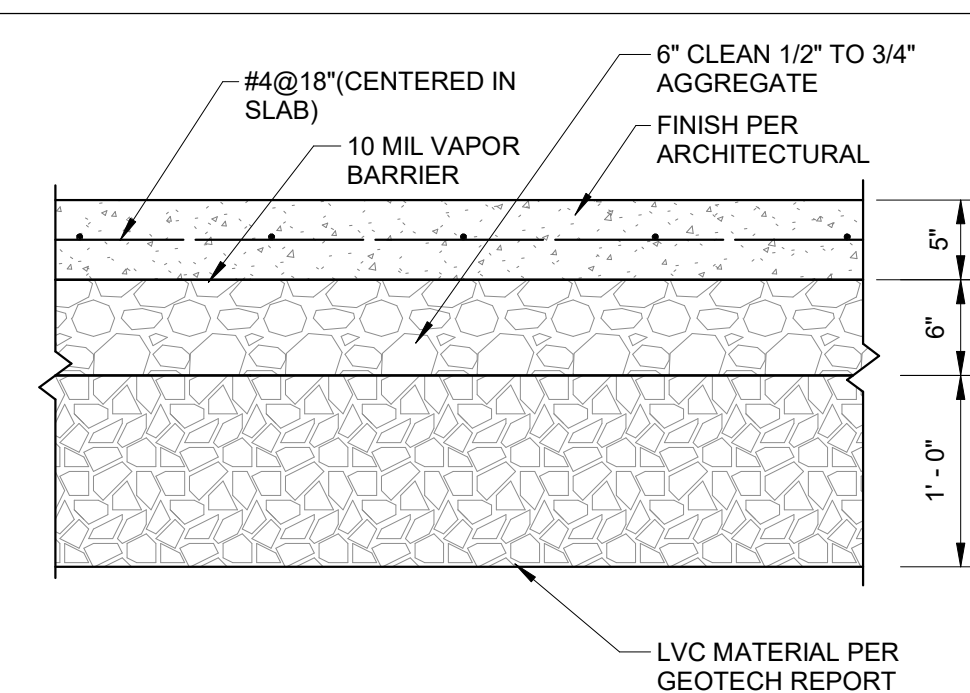
SHEET TITLE:  
**FOUNDATION AND  
SLAB PLAN**

SHEET NUMBER:

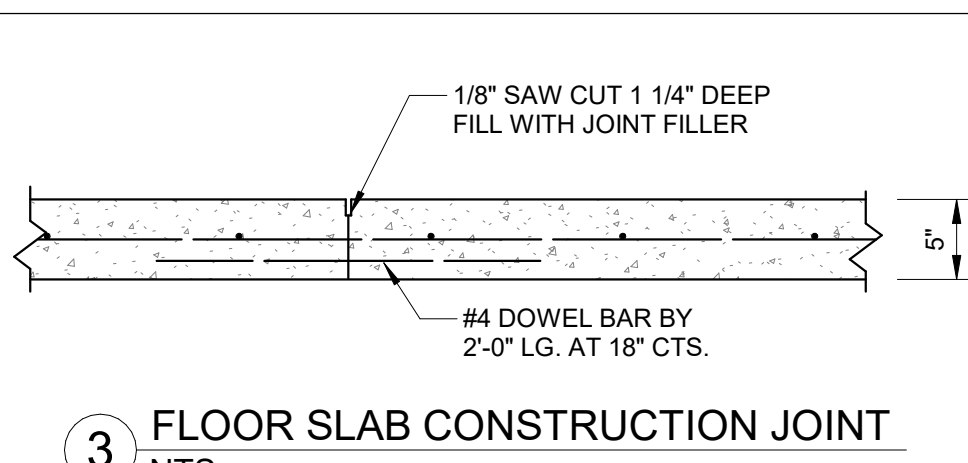
**S101**  
SHEET 24 OF 51  
APRIL 28, 2023



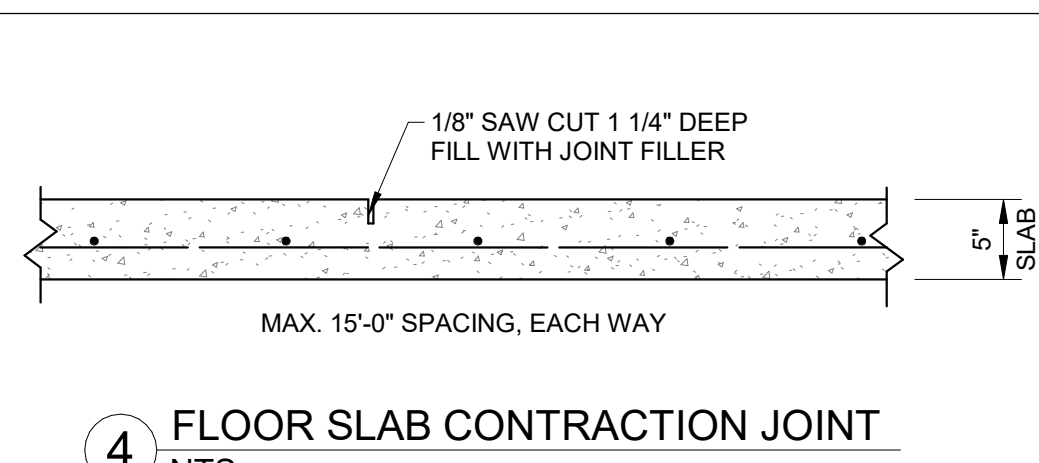
**1 FOUNDATION AND SLAB PLAN**  
3/16" = 1'-0"



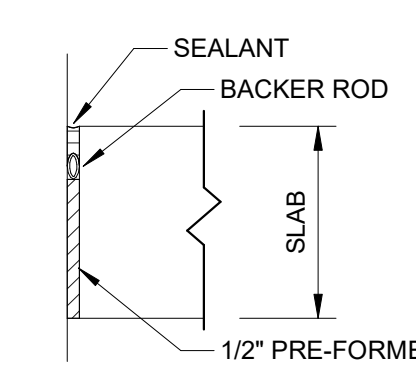
**2 TYPICAL 5" SLAB SECTION**  
NTS



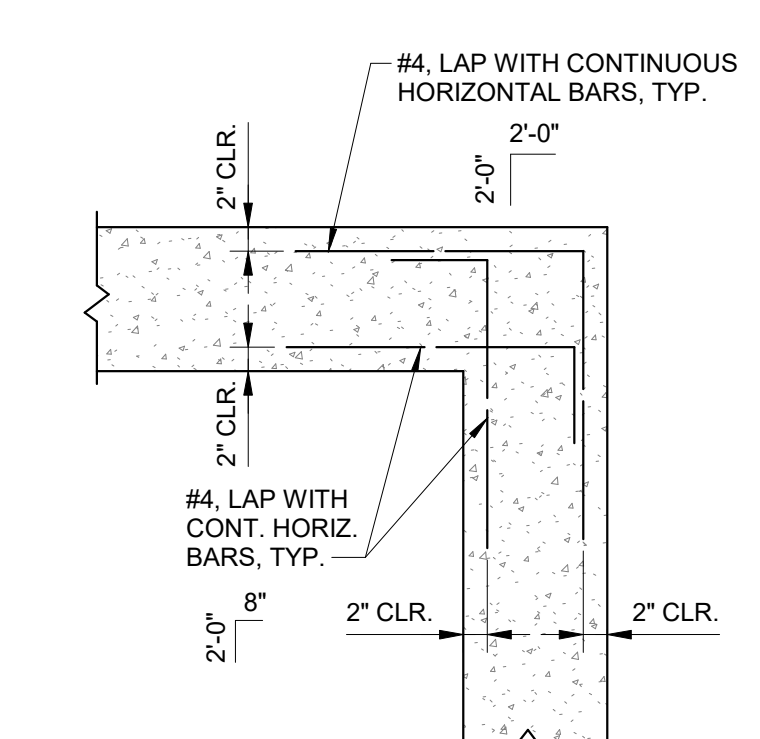
**3 FLOOR SLAB CONSTRUCTION JOINT**  
NTS



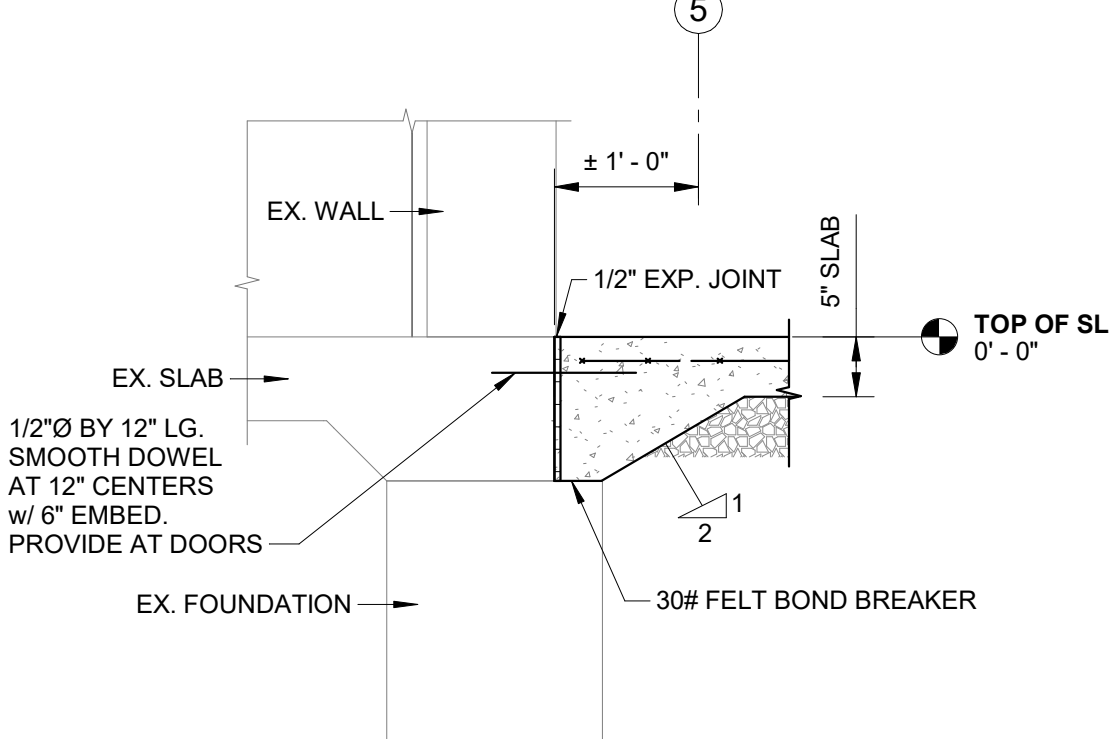
**4 FLOOR SLAB CONTRACTION JOINT**  
NTS



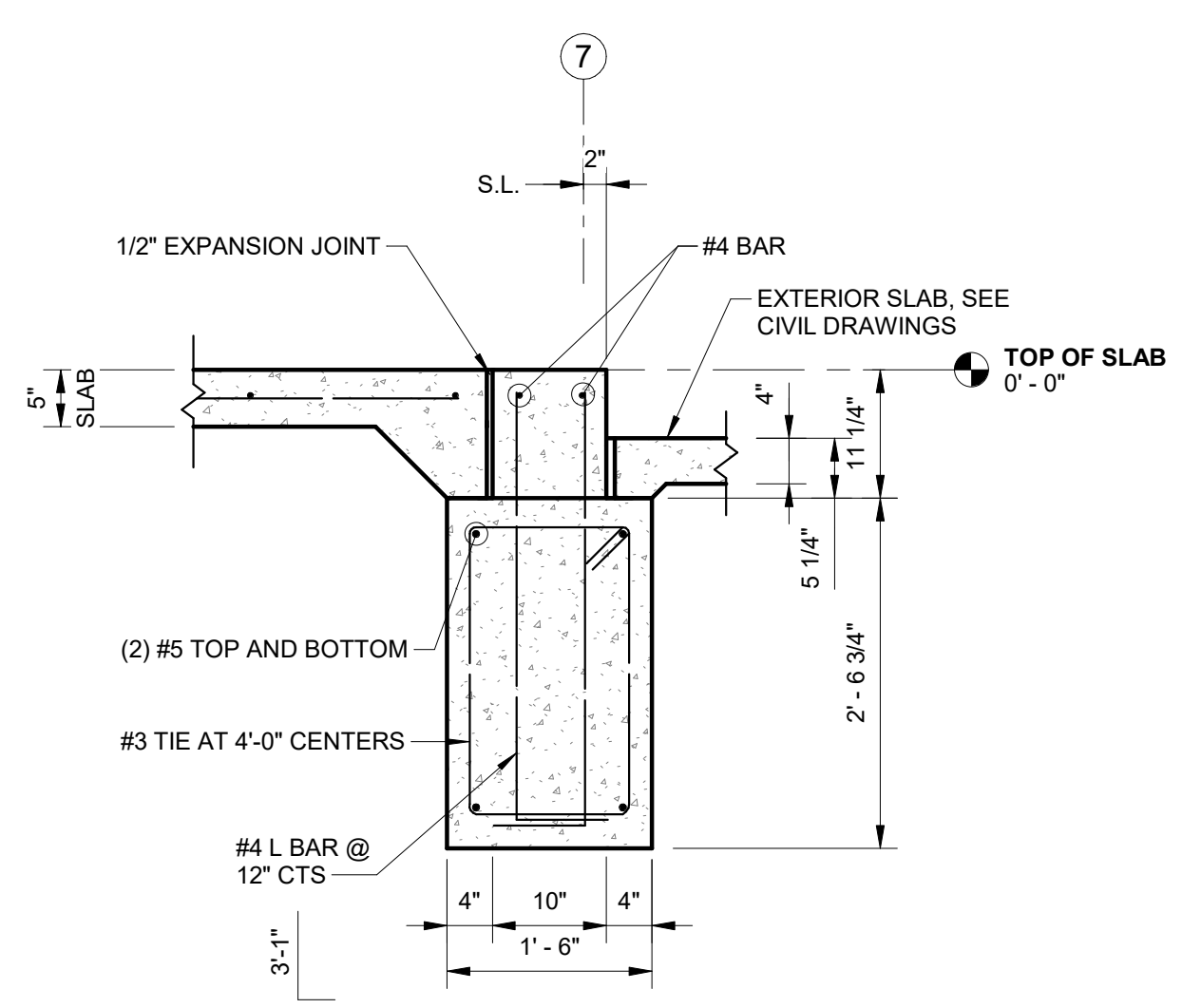
**5 EXPANSION JOINT-SLAB TO WALL**  
NTS



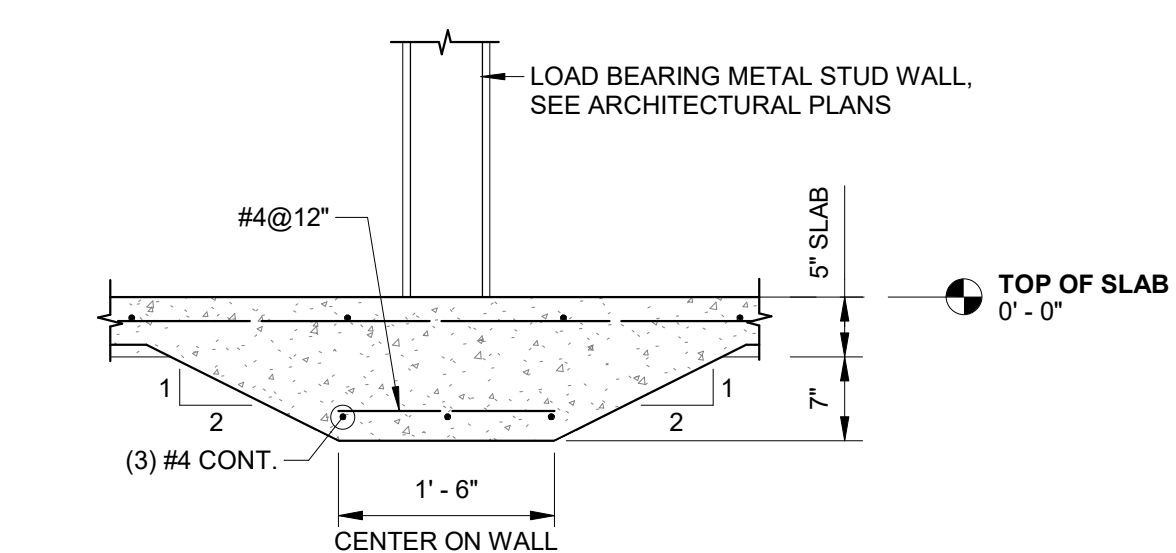
**6 FOUNDATION CORNER REINFORCEMENT**  
NTS



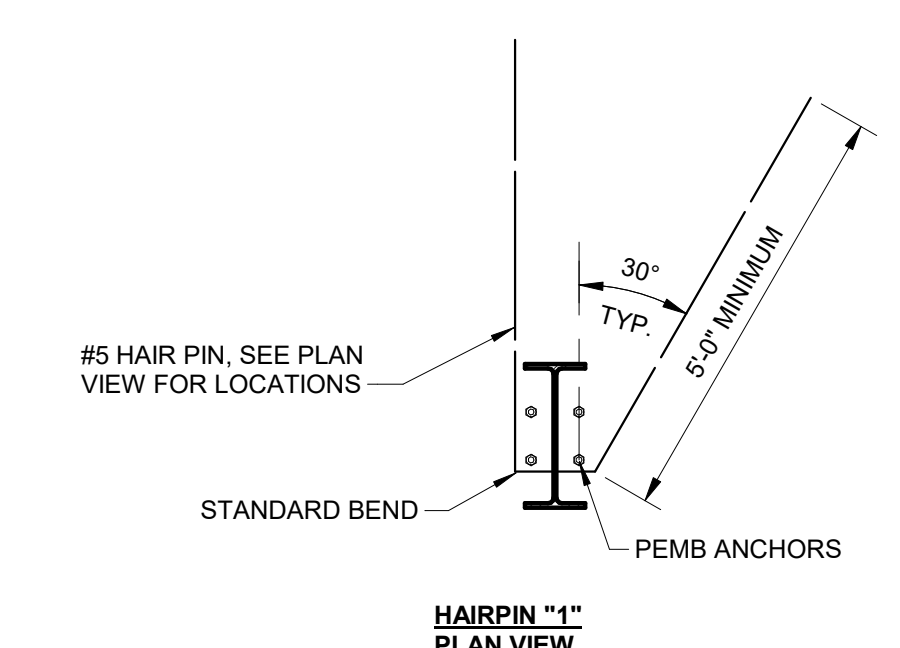
**7 SECTION AT EX. WALL**  
3/4" = 1'-0"



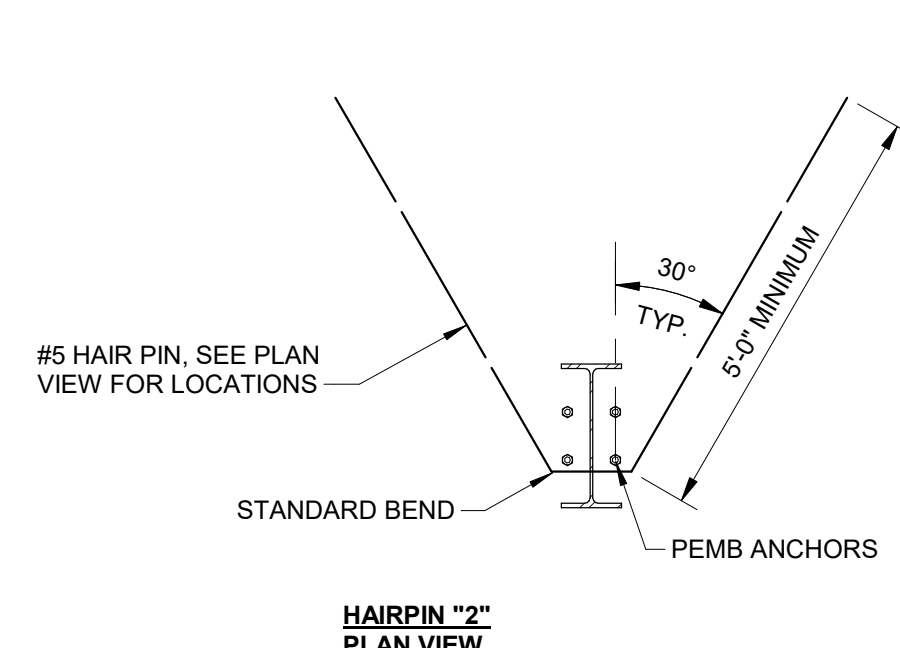
**8 TYPICAL WALL SECTION**  
3/4" = 1'-0"



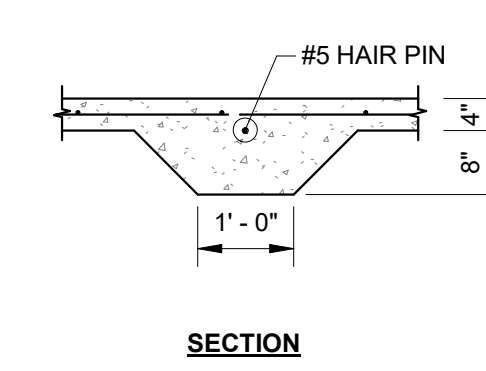
**9 MEZZANINE LOAD BEARING WALL THICKENED SLAB**  
3/4" = 1'-0"



**HAIRPIN "#1  
PLAN VIEW**



**HAIRPIN "#2  
PLAN VIEW**



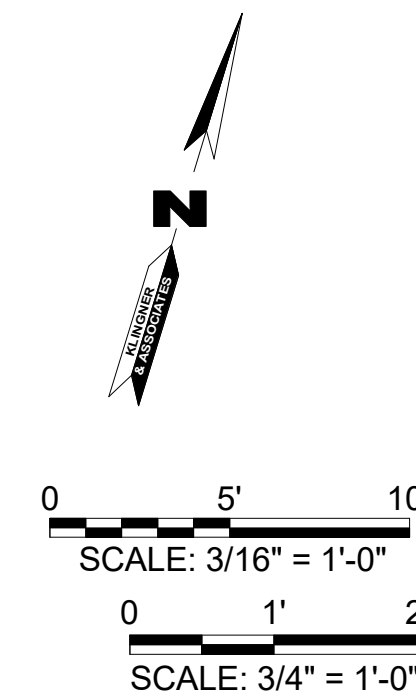
**SECTION**

**10 HAIR PIN DETAIL**  
NTS  
NOTE: FINAL HAIRPIN SIZE AND LENGTH WILL BE VERIFIED WITH KICKOUT FORCE IN PEMB SHOP DRAWINGS.

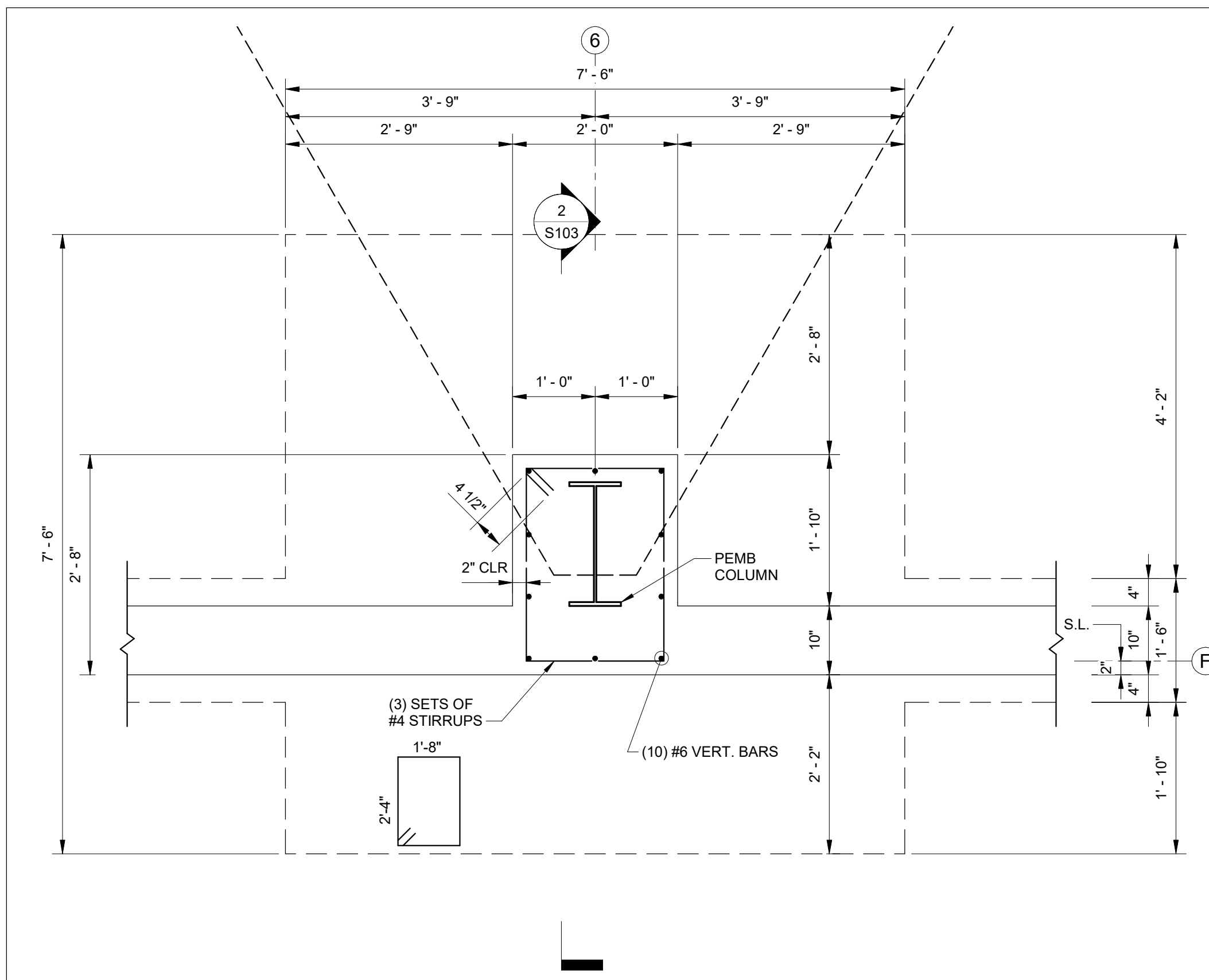
Note: Verify all dimensions with the pre-engineer metal building manufacturer's plans. Foundation sizes are based on industry standards and will need to be verified upon receipt of the actual column reactions provided by the PEMB manufacturer.

FOUNDATION SCHEDULE					
MARK	LENGTH	WIDTH	THICKNESS	ELEV. @ TOP	REINFORCEMENT
F1	7'-6"	7'-6"	2'-6"	-0'-11 1/4"	(8) #5 E.W. T&B
F2	6'-6"	6'-6"	2'-6"	-0'-11 1/4"	(7) #5 E.W. T&B
F3	3'-0"	3'-0"	2'-6"	-0'-11 1/4"	(4) #5 E.W. T&B
F4	6'-0"	4'-0"	2'-6"	-0'-11 1/4"	(5) #5 x 5'-6" T&B w/ (7) #5 x 3'-6" T&B TRANSVERSE

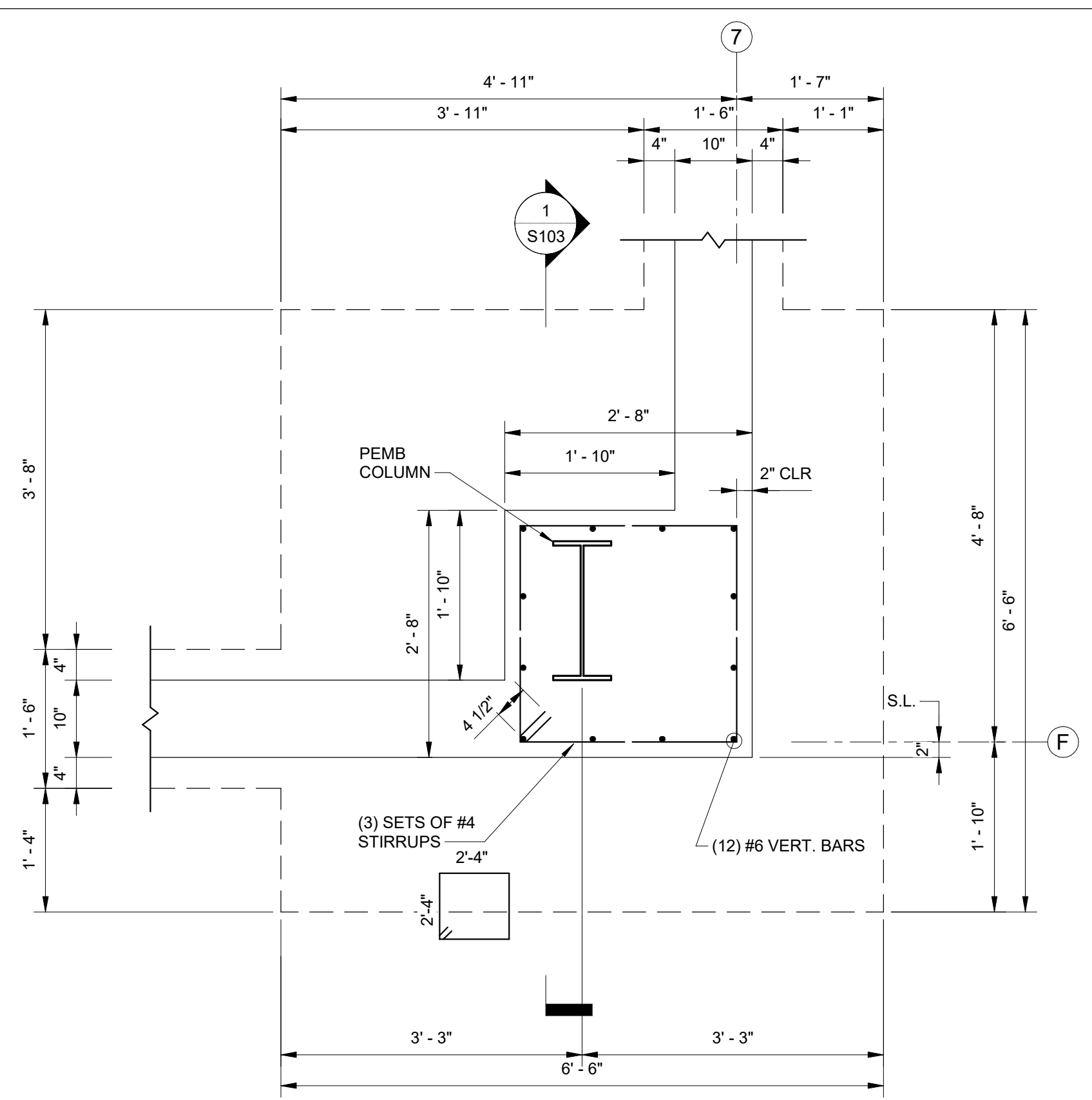
**LEGEND**  
Fx - DENOTES FOUNDATION MARK. SEE S103 FOR SIZE AND DETAILS.  
--- DENOTES SAWED CONSTRUCTION OR CONTRACTION JOINT.



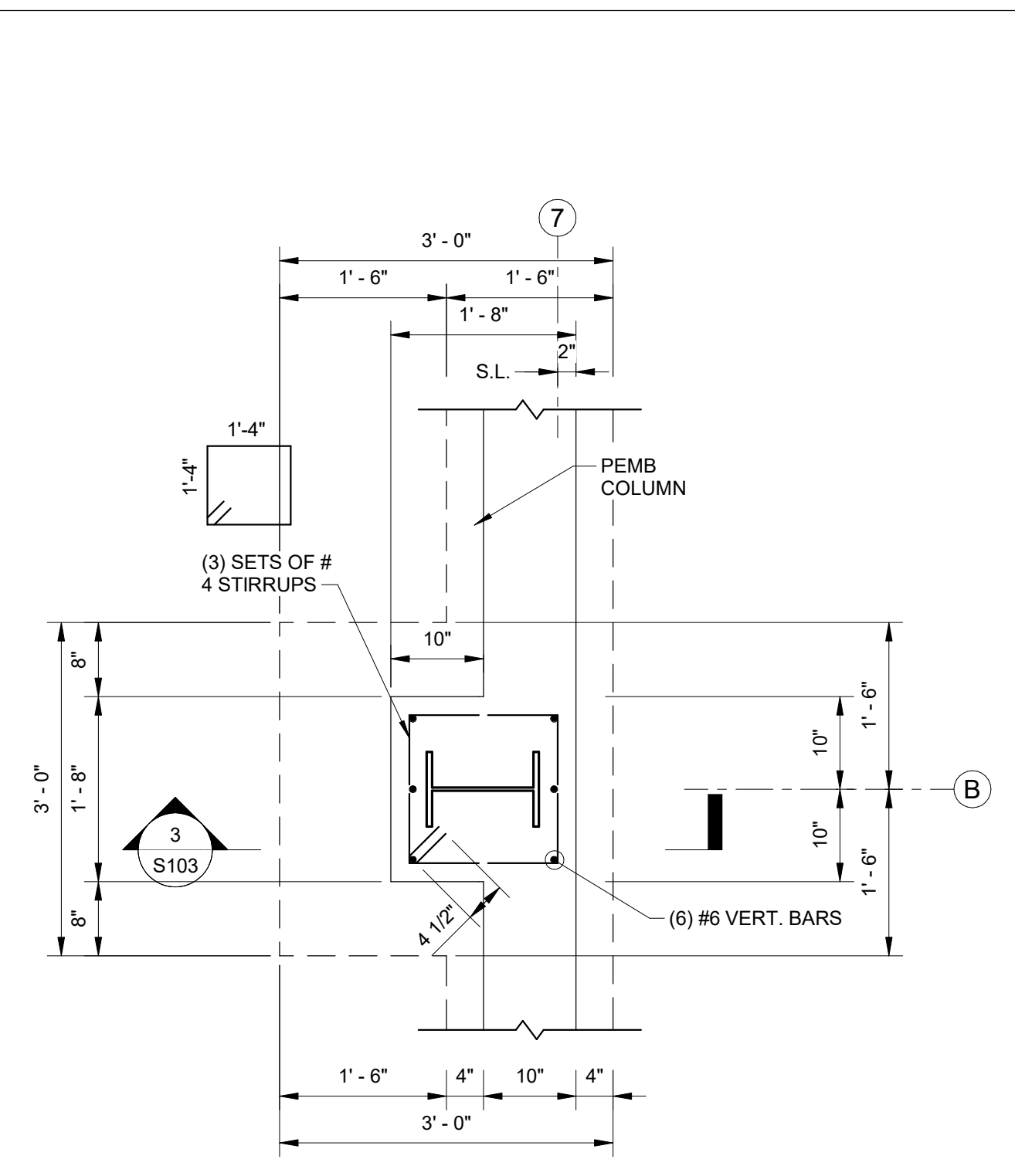




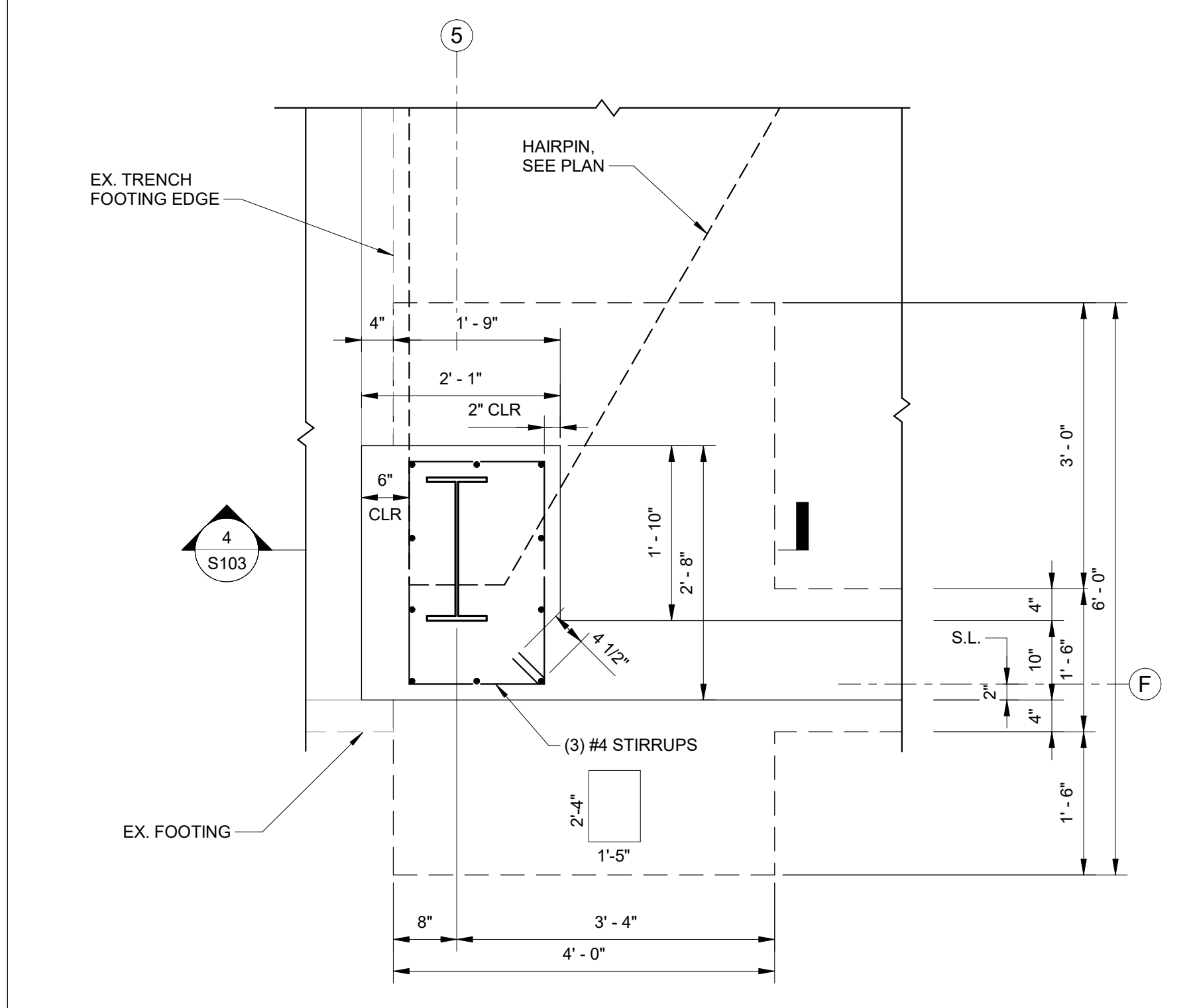
1 F1 ENLARGED DETAIL  
3/4" = 1'-0"



2 F2 ENLARGED DETAIL  
3/4" = 1'-0"

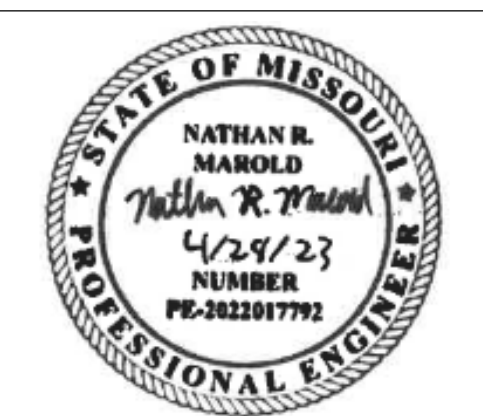


3 F3 ENLARGED DETAIL  
3/4" = 1'-0"



4 F4 ENLARGED DETAIL  
3/4" = 1'-0"

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BLDG 1270  
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MO 65473

PROJECT # T2042-01  
SITE # 6306  
ASSET # 8136306006

REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
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DATE: \_\_\_\_\_  
REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
ISSUE DATE: 04/28/2023

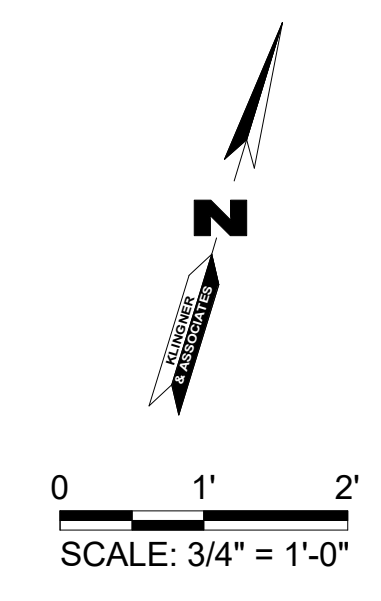
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DRAWING BY: NRM/WPH  
CHECKED BY: KTH  
DESIGNED BY: NRM/WPH

SHEET TITLE:  
**FOUNDATION  
DETAILS**

SHEET NUMBER:

**S102**

SHEET 25 OF 51  
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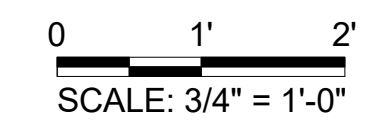
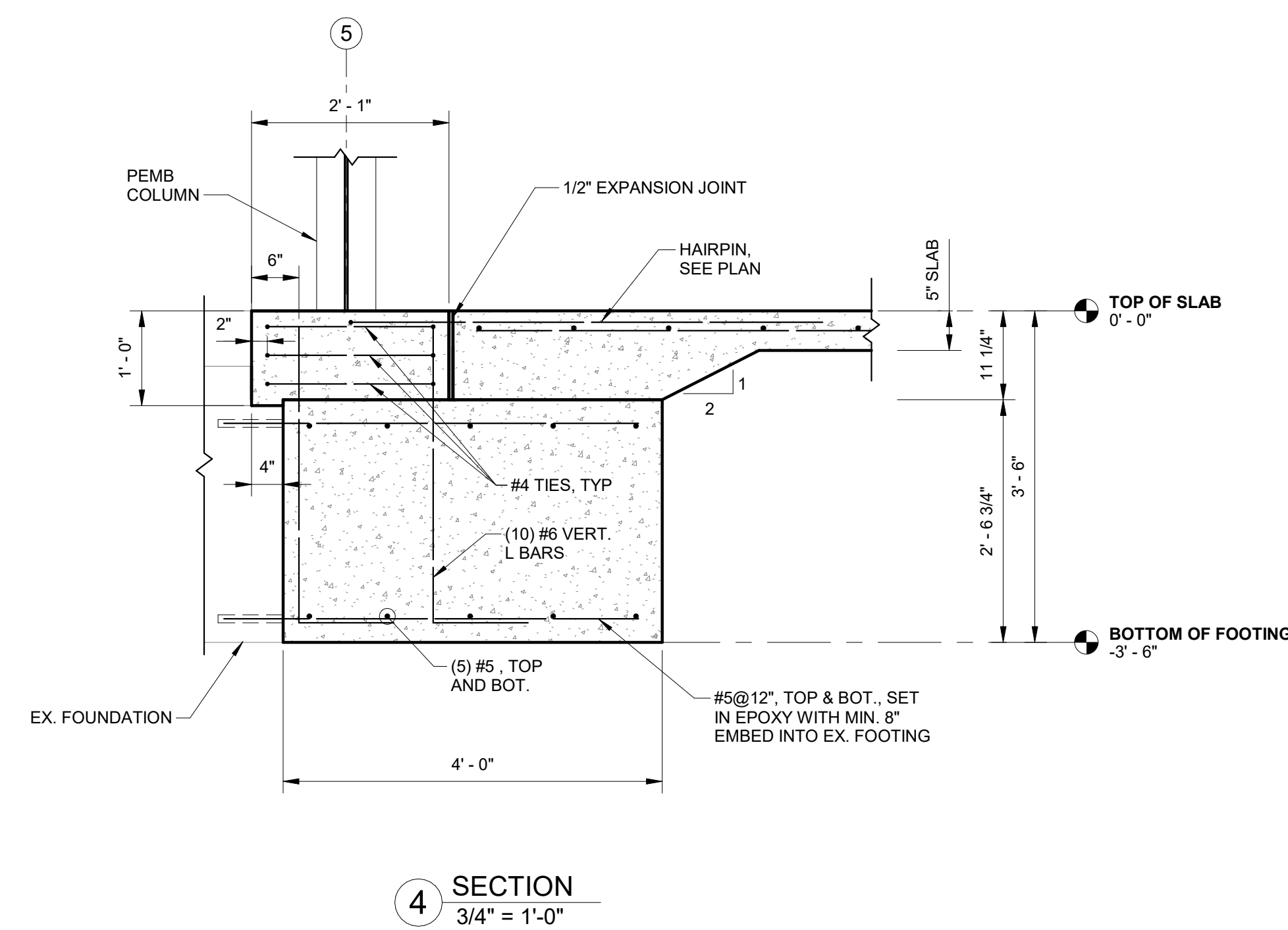
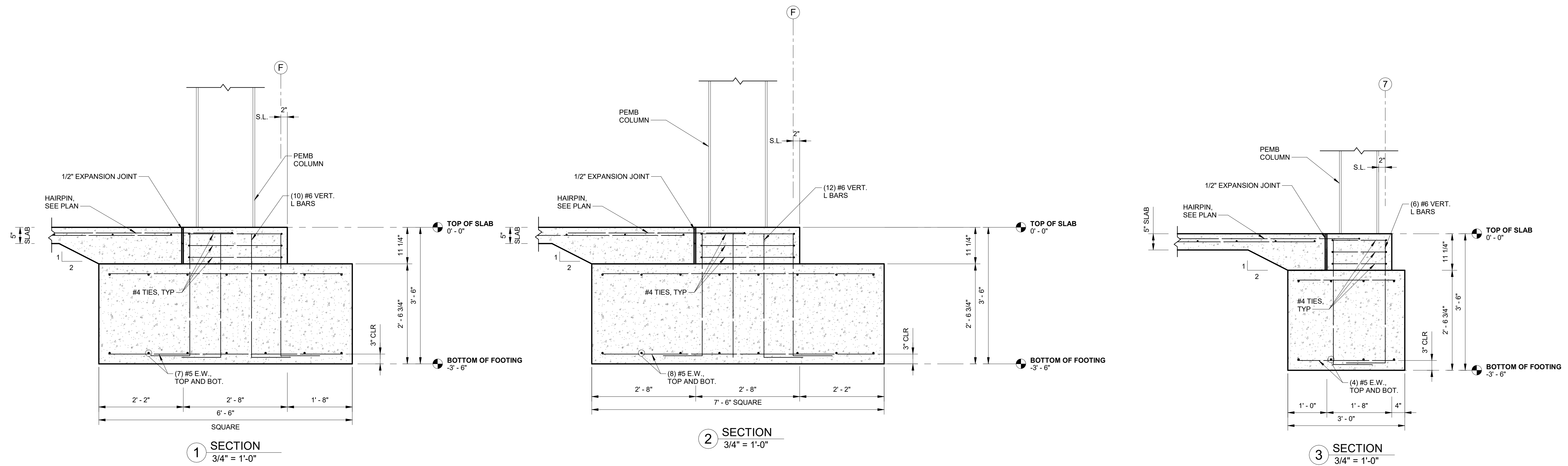
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CHECKED BY: KTH  
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SHEET TITLE:  
**FOUNDATION  
DETAILS**

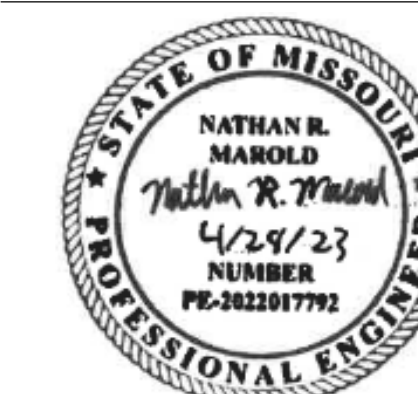
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**S103**

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PROJECT # T2042-01  
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REVISION: \_\_\_\_\_  
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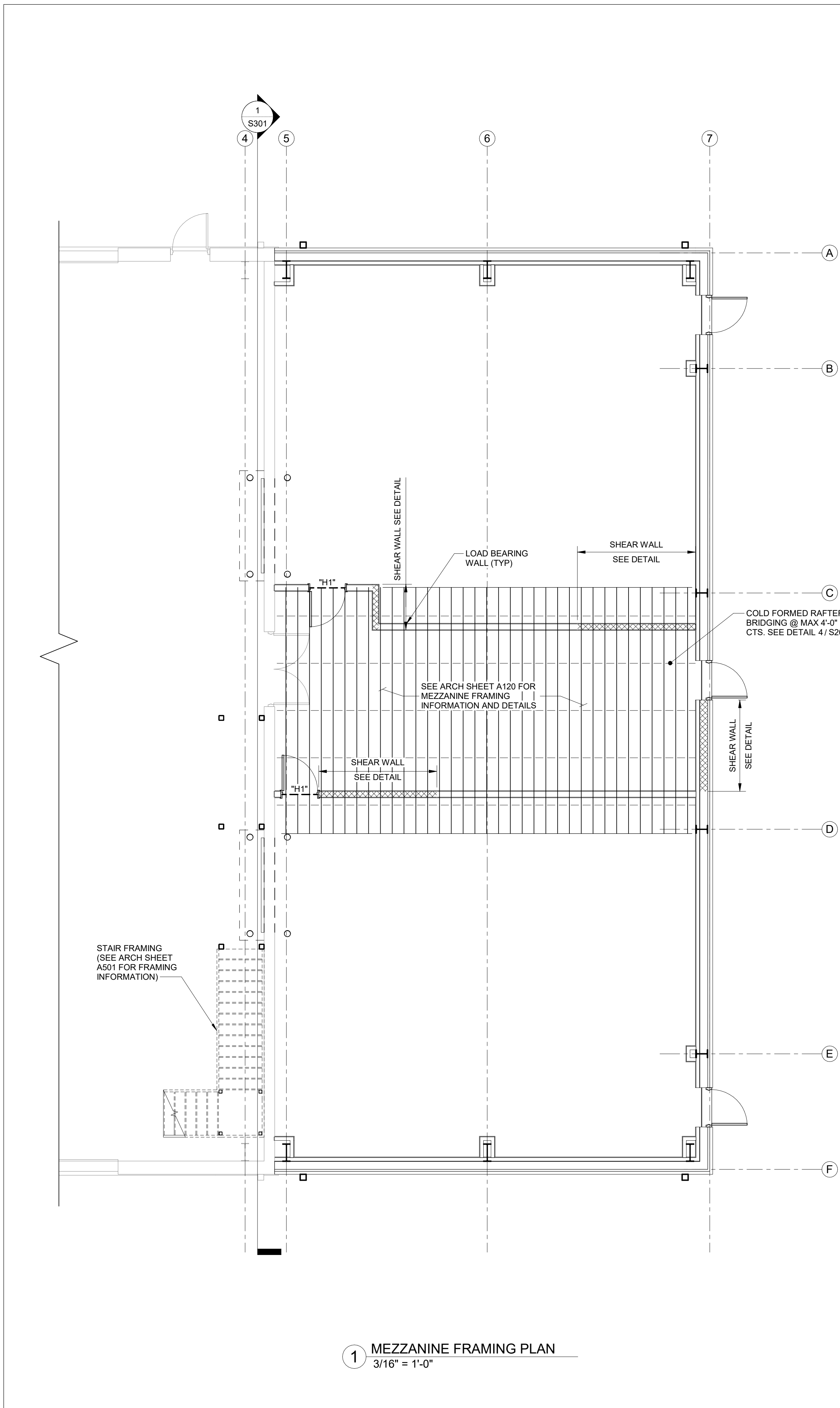
CAD DWG FILE: \_\_\_\_\_  
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CHECKED BY: KTH  
DESIGNED BY: NRM/WPH

SHEET TITLE:  
**FRAMING PLAN**

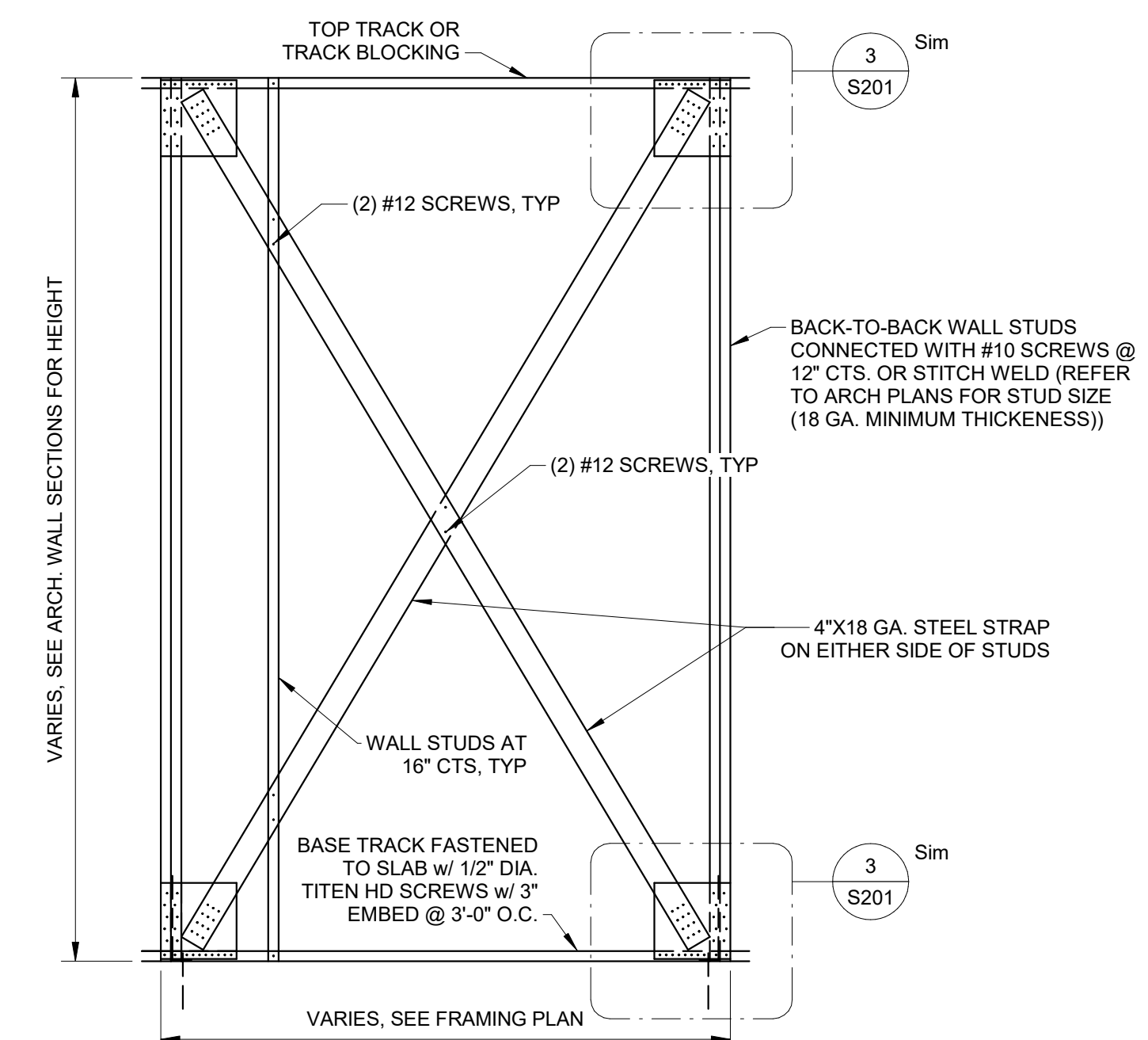
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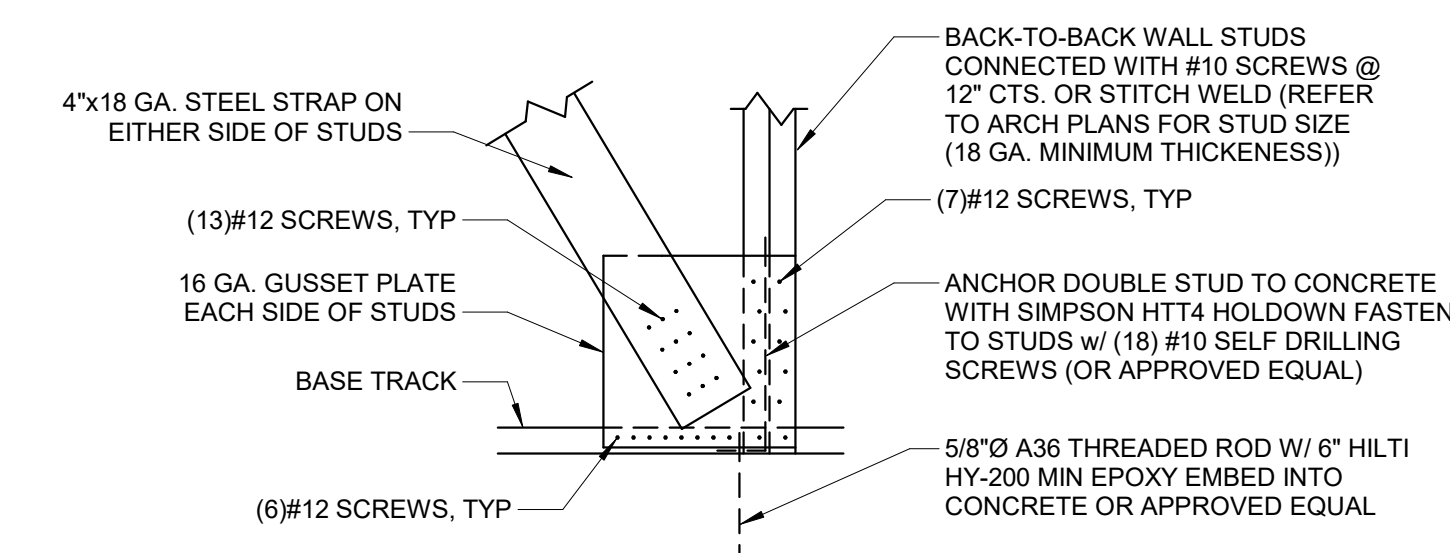
SHEET 27 OF 51  
APRIL 28, 2023



1 MEZZANINE FRAMING PLAN  
3/16" = 1'-0"

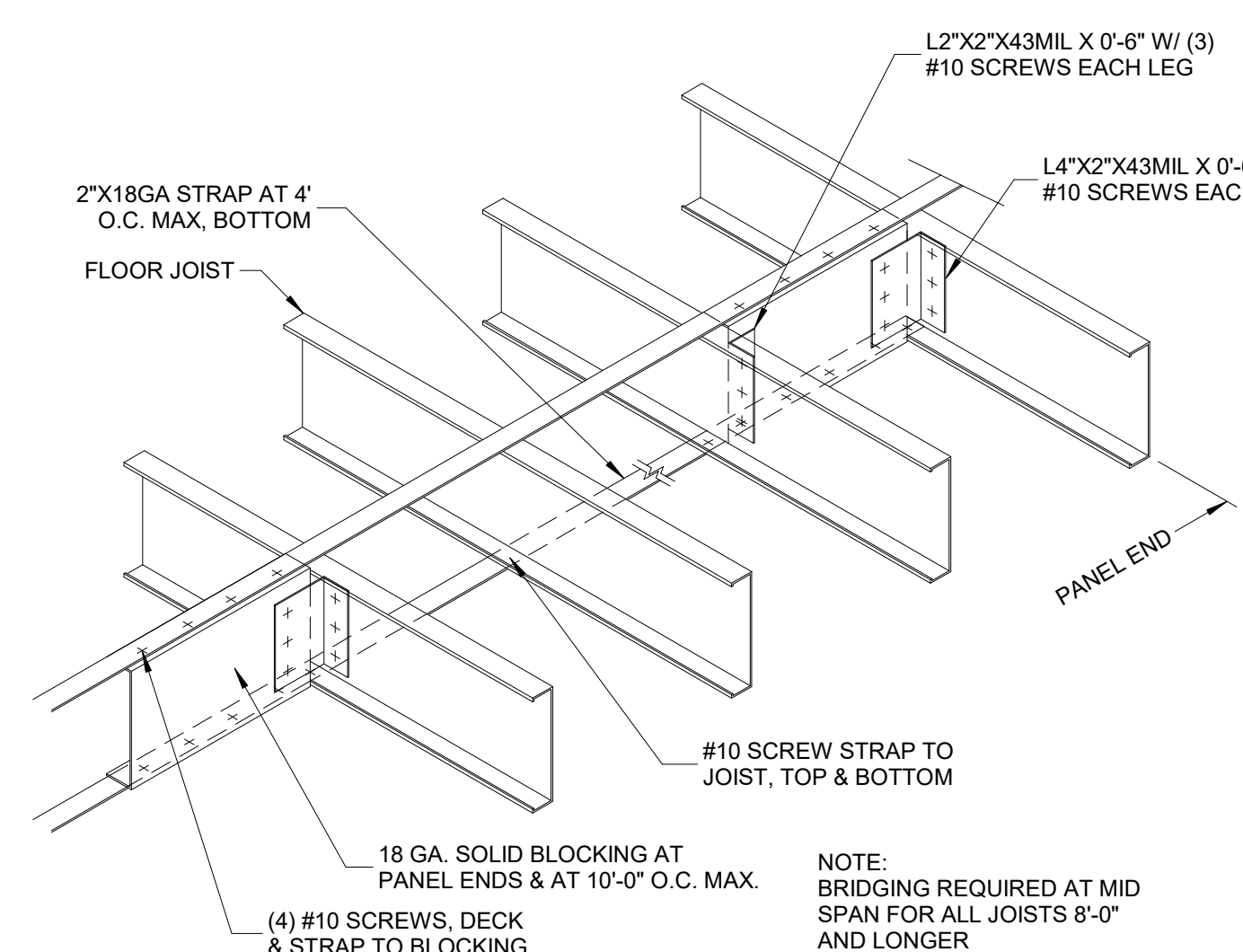
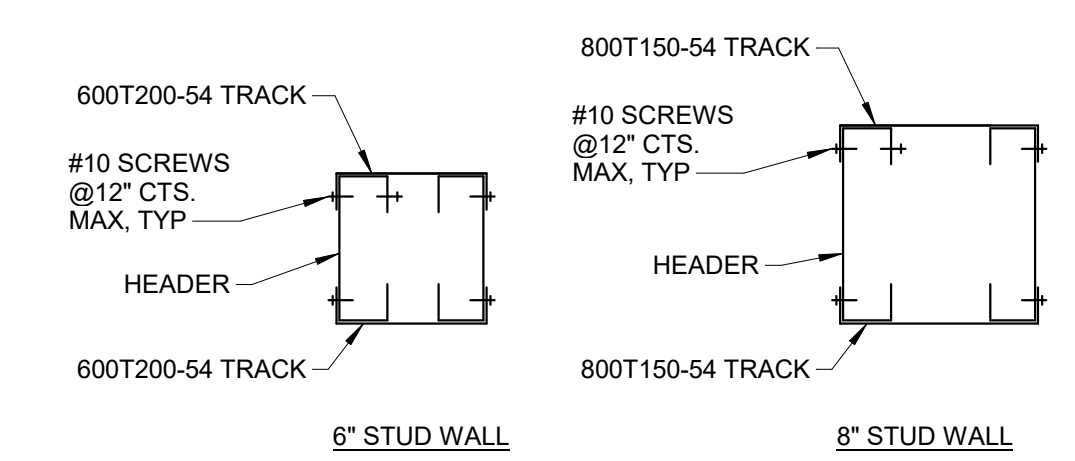


2 SHEARWALL DETAIL  
1/2" = 1'-0"

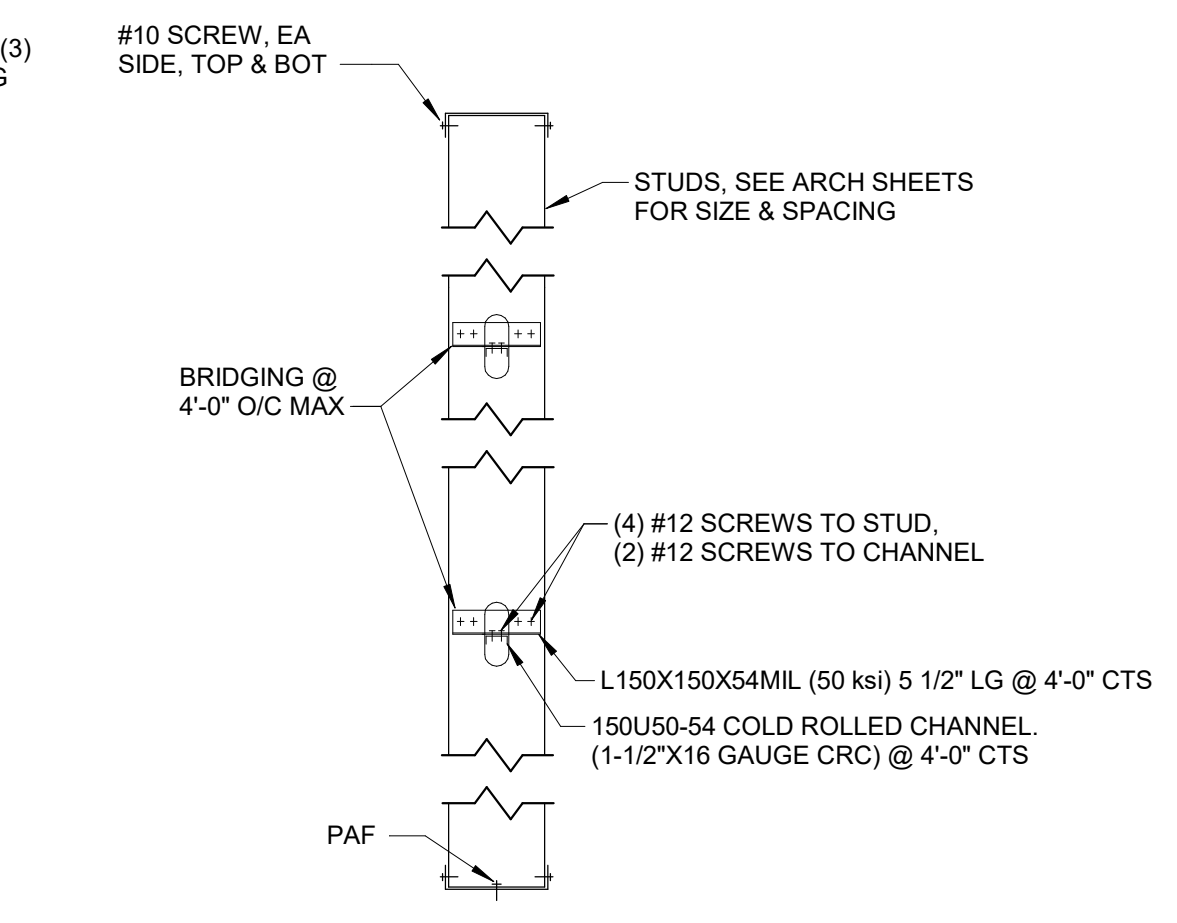


3 SHEARWALL TIEDOWN DETAIL  
1" = 1'-0"

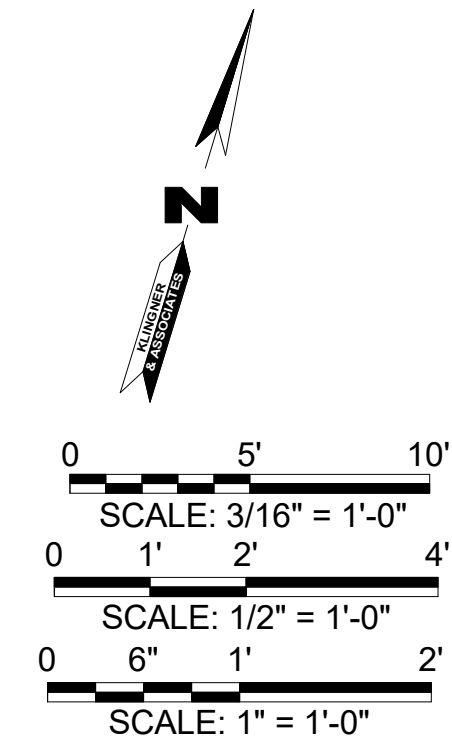
HEADER SCHEDULE				
MARK	STUD WALL WIDTH	SIZE	JACK STUDS	KING STUDS
H1	6"	(2) 600S200-54	(2) 600S200-54 BACK TO BACK	(2) 600S250-68 W/ MID POINT BRIDGING
H2	8"	(2) 800S162-54	(2) 800S162-54 BACK TO BACK	(2) 800S162-68 W/ MID POINT BRIDGING



4 COLD FORMED RAFTER JOIST BRIDGING DETAIL  
1" = 1'-0"



5 STUD WALL BRIDGING DETAIL  
1" = 1'-0"









MATTHEW H. BRIDGES - ENGINEER  
MO # PE-2021031578

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BLDG 1270  
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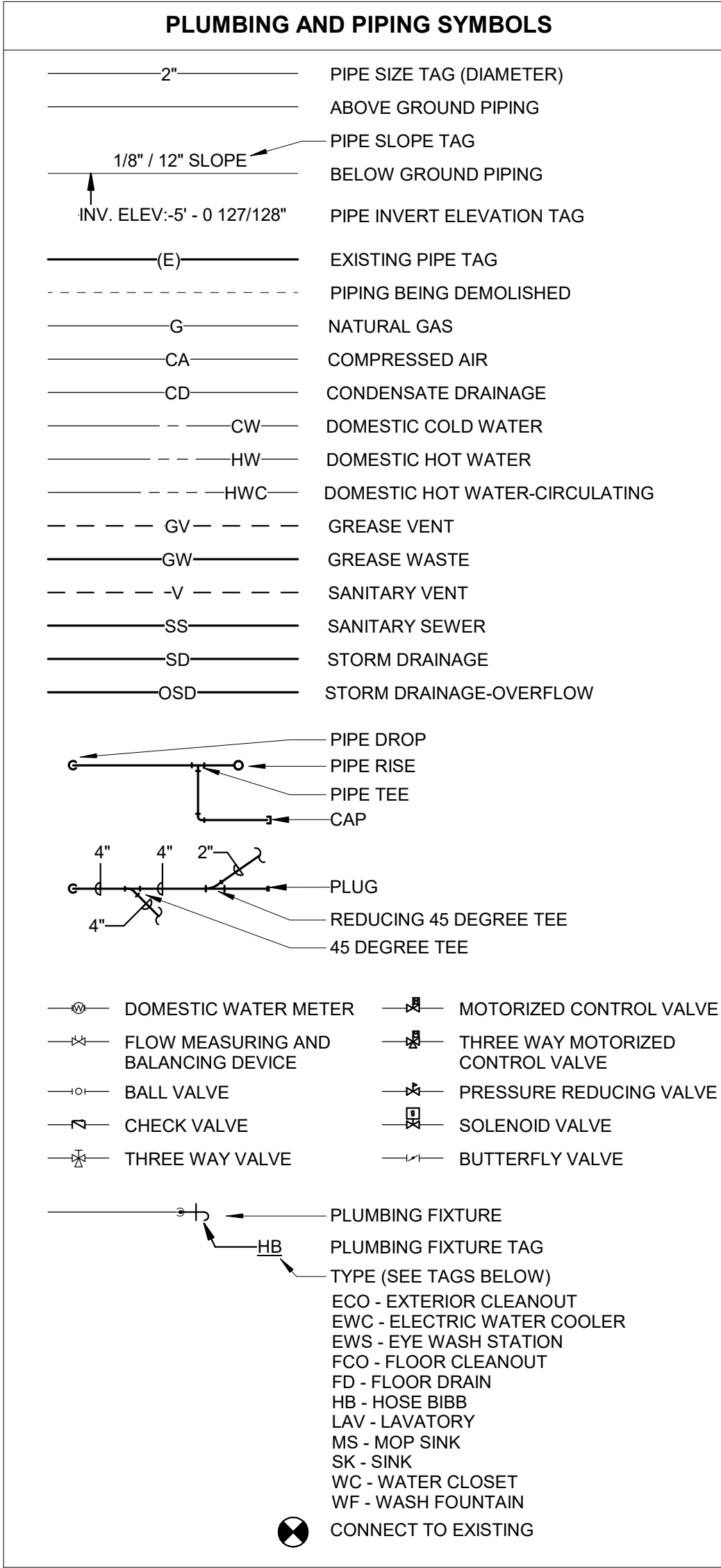
PROJECT # T2042-01  
SITE # 6306  
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DATE: \_\_\_\_\_  
REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
ISSUE DATE: 04/28/23

CAD DWG FILE: MEP001  
DRAWING BY: MHB  
CHECKED BY: JJJ  
DESIGNED BY: MHB

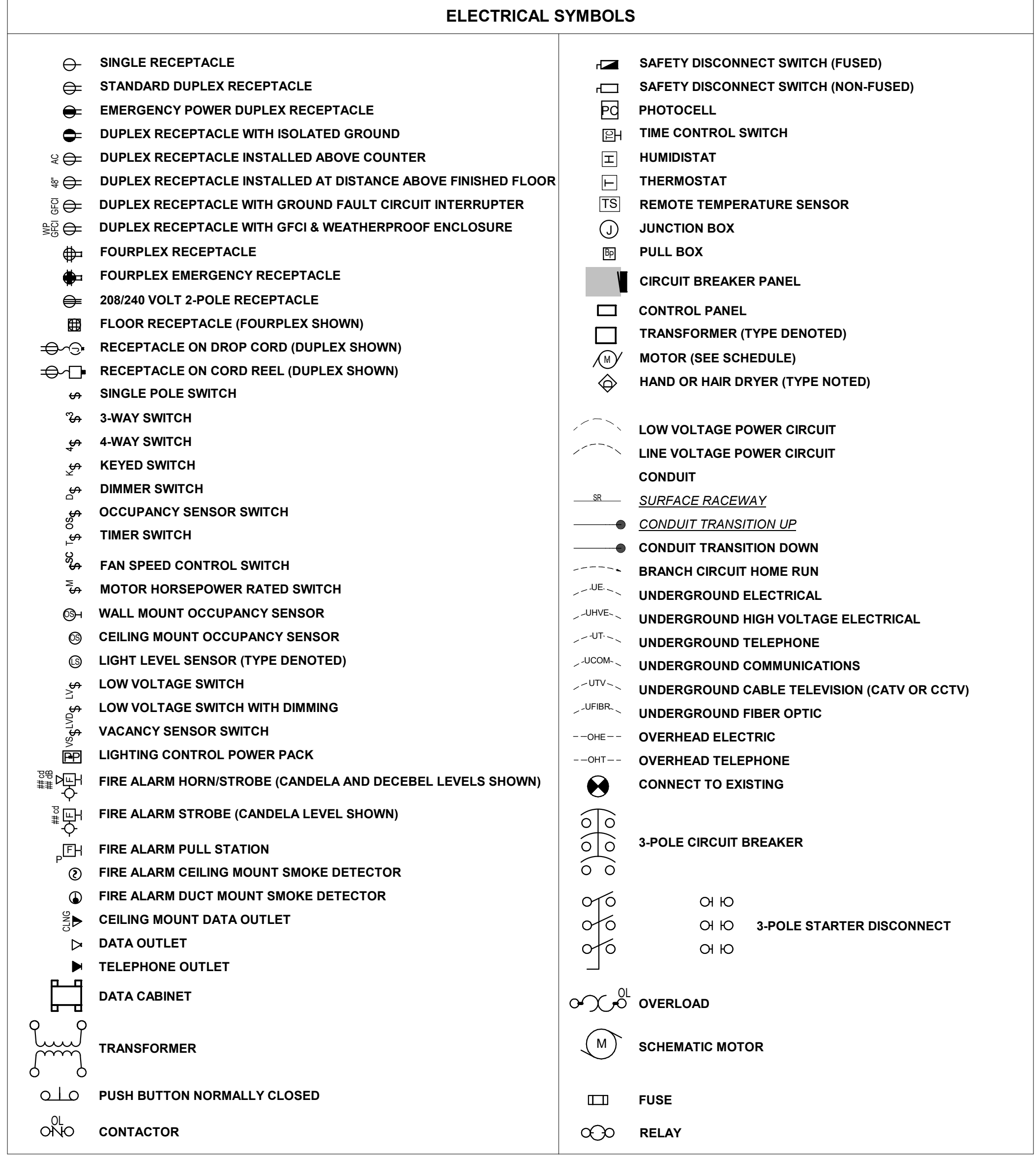
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**MEP SYMBOLS  
LIST**

SHEET NUMBER:  
**MEP001**  
SHEET 29 OF 51  
APRIL 28, 2023



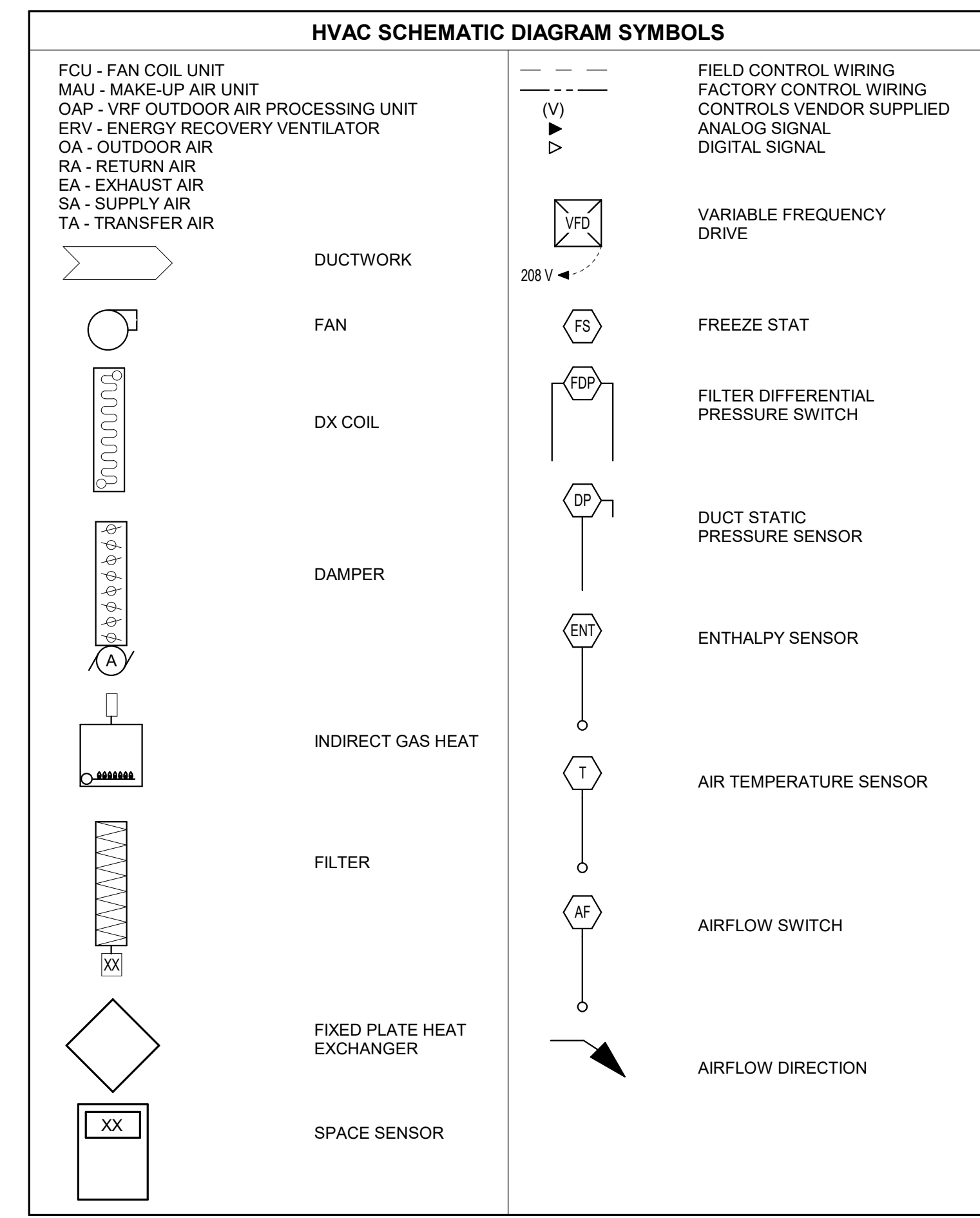
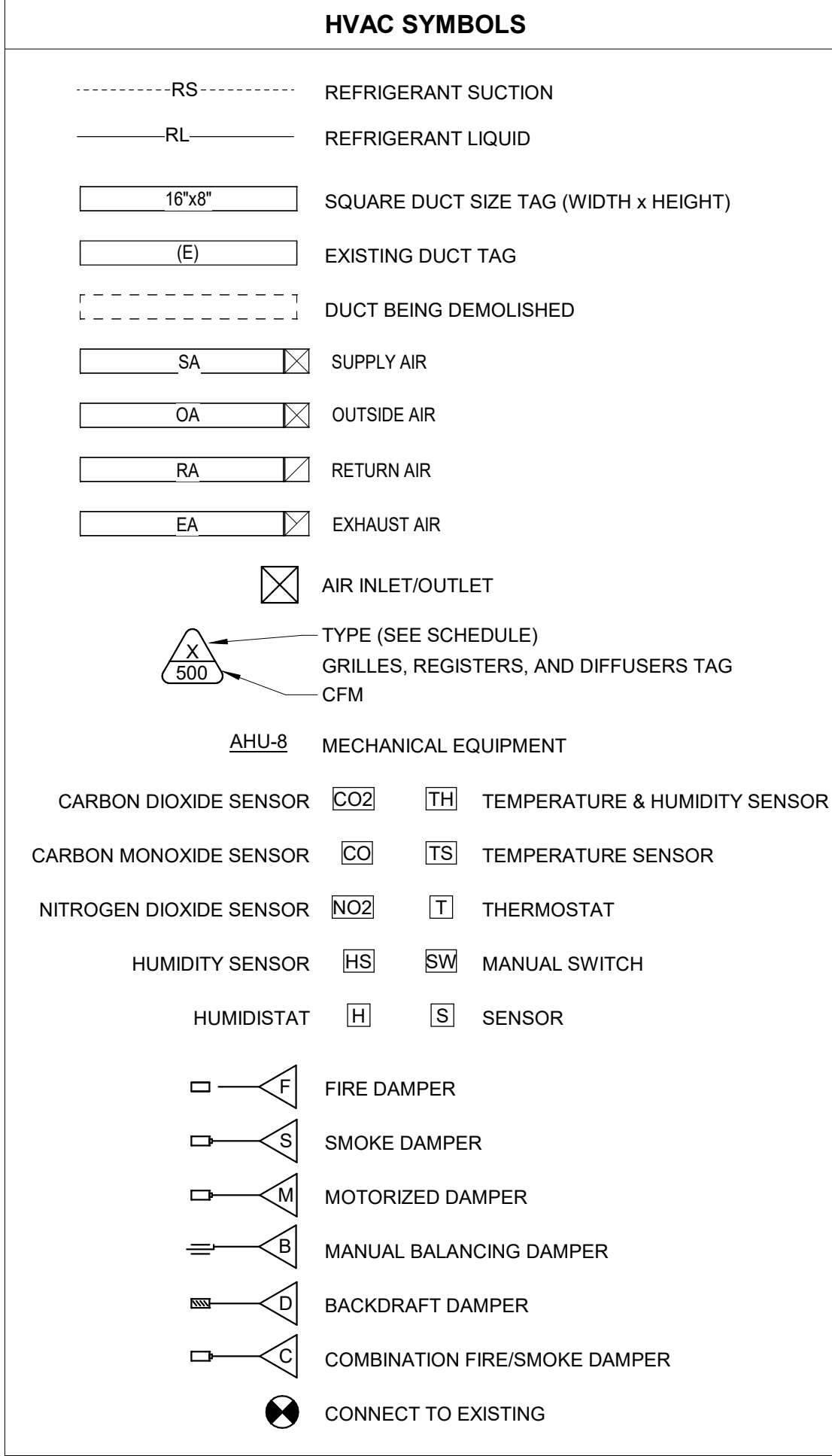
### GENERAL PLUMBING NOTES:

1. ALL WORK SHALL COMPLY WITH APPLICABLE LOCAL, STATE, AND NATIONAL CODES AND REGULATIONS.
2. MATERIALS MUST BE NEW, IN FIRST CLASS CONDITION.
3. PIPE INSTALLATION SHALL BE COORDINATED WITH OTHER TRADES.
4. PIPING SHALL BE SEPARATELY HUNG AND ANCHORED, FREE TO EXPAND AND CONTRACT QUIETLY, WITHOUT IMPOSING STRAINS ON STRUCTURE, PIPING, VALVES, DEVICES, AND EQUIPMENT. PIPING SHALL BE RUN PARALLEL OR PERPENDICULAR TO BUILDING LINES.
5. CONNECTIONS BETWEEN DISSIMILAR METALS SHALL BE SEPARATED BY DIELECTRIC COUPLINGS.
6. PROVIDE ISOLATION VALVE ON PIPES TO EACH GROUP OF FIXTURES OR TO EACH PIECE OF EQUIPMENT.
7. LOCATE ALL SHUT-OFFS, CLEANOUTS, AND OTHER DEVICES REQUIRING ACCESS IN AN EASILY ACCESSIBLE AREA.
8. DRAWINGS ARE SCHEMATIC AND SHOW APPROXIMATE LOCATIONS OF PIPING. EXACT LOCATIONS SHALL BE COORDINATED BY THE CONTRACTOR AND VERIFIED IN THE FIELD PRIOR TO ROUGH-IN.
9. SEE ARCHITECTURAL SHEET FOR FIRE RATED CONSTRUCTION LOCATIONS. ALL PLUMBING PENETRATIONS IN FIRE RATED CONSTRUCTION SHALL BE UL LISTED OF EQUAL OR GREATER HOUR RATING.



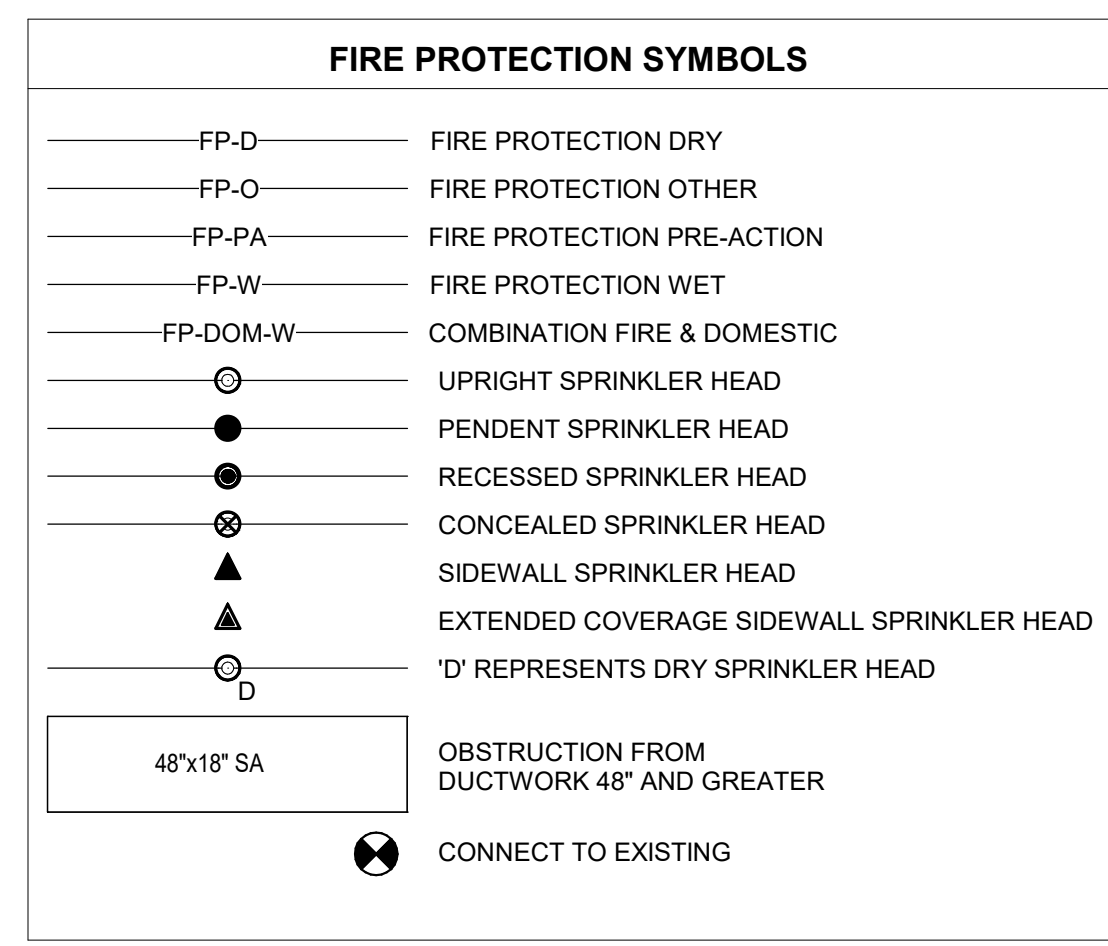
### GENERAL ELECTRICAL NOTES:

1. APPLICABLE STANDARDS: NFPA-70, AND THE OCCUPATIONAL SAFETY AND HEALTH ACT (OSHA) OF 1971 AND ALL AMENDMENTS THERETO; EQUIPMENT, DEVICES, APPARATUS, SYSTEMS, AND INSTALLATIONS SHALL BE ENTIRELY SUITABLE AND SAFE FOR EACH INTENDED APPLICATION AND BE IN FULL COMPLIANCE WITH APPLICABLE STANDARDS, REQUIREMENTS, RULES, REGULATIONS, CODES, STATUTES, ORDINANCES, ETC. NOTHING CONTAINED IN THESE PLANS AND SPECIFICATIONS SHALL BE CONSTRUED TO CONFLICT WITH THESE LAWS, CODES, AND ORDINANCES.
2. DRAWINGS ARE SCHEMATIC AND SHOW APPROXIMATE LOCATIONS OF ELECTRICAL EQUIPMENT. EXACT LOCATIONS SHALL BE COORDINATED BY THE CONTRACTOR AND VERIFIED IN THE FIELD PRIOR TO ROUGH-IN.
3. INSTALLATIONS WHICH INCLUDE ELECTRICAL FIXTURES, DEVICES, CONDUIT, SWITCHES, PANELS, HANGERS, WIRE, CABLE, STANDARDS, ETC. MUST BE ENTIRELY SUITABLE FOR TEMPERATURES, HUMIDITY, DAMP AREAS, VOLTAGE, FREQUENCY, AND ALL INSTALLATION CONDITIONS ENCOUNTERED.
4. INSTALLATION MUST BE ENTIRELY SAFE IN EVERY RESPECT, AND MUST NOT CREATE ANY CONDITIONS OF ANY KIND WHICH WILL BE HARMFUL TO ANY OCCUPANT OF THE BUILDING. IF CONTRACTOR BELIEVES THAT INSTALLATION WILL NOT BE SAFE FOR ALL PEOPLE, HE/SHE SHALL SO REPORT IN WRITING TO ENGINEER BEFORE ANY EQUIPMENT IS PURCHASED OR WORK IS INSTALLED, GIVING EXACT RECOMMENDATIONS, AND REASONS FOR THEM.
5. GROUNDING: ALL GROUNDING SHALL BE IN STRICT ACCORDANCE WITH THE LATEST EDITION OF THE NATIONAL ELECTRICAL CODE (NEC).
6. INSTALLATION OF ELECTRICAL DEVICES SHALL BE COORDINATED WITH OTHER TRADES AS NECESSARY TO PREVENT ANY CONFLICTS DURING CONSTRUCTION.
7. LIGHTING: FURNISH AND INSTALL ALL LIGHTING FIXTURES COMPLETE WITH LAMPS IN ACCORDANCE WITH THE LIGHTING FIXTURE SCHEDULE SHOWN ON THE DRAWINGS. ALL UNITS SHALL BE COMPLETE WITH SUSPENSION ACCESSORIES, CANOPIES, SOCKETS, LOUVERS, FRAMES, AND ROUGH-IN BOXES, WIRED AND ASSEMBLES TO FURNISH A COMPLETE WORKABLE SYSTEM.
8. EQUIPMENT GROUNDING CONDUCTORS SHALL BE PULLED WITH ALL BRANCH CIRCUITS. CONDUIT SHALL NOT BE USED AS A GROUND U.N.O.
9. CONTRACTOR SHALL FURNISH AND INSTALL ALL MATERIALS, ACCESSORIES, TOOLS, EQUIPMENT, TRANSPORTATION, LABOR, SERVICES AND OPERATIONS NECESSARY FOR A COMPLETE ELECTRICAL SYSTEM.
10. CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS AND ARRANGE FOR ALL INSPECTIONS REQUIRED BY STATE OR LOCAL AUTHORITIES.
11. MATERIALS MUST BE NEW, IN FIRST CLASS CONDITION.
12. CONDUIT SHALL BE SEPARATELY HUNG AND ANCHORED, FREE TO EXPAND AND CONTRACT QUIETLY, WITHOUT IMPOSING STRAINS ON STRUCTURE, DEVICES, AND EQUIPMENT. CONDUIT SHALL BE RUN PARALLEL OR PERPENDICULAR TO BUILDING LINES.
13. SEE ARCHITECTURAL SHEET FOR FIRE RATED CONSTRUCTION LOCATIONS. ALL ELECTRICAL PENETRATIONS IN FIRE RATED CONSTRUCTION SHALL BE UL LISTED OF EQUAL OR GREATER HOUR RATING.
14. SEE ARCHITECTURAL SHEETS FOR SMOKE PARTITION LOCATIONS. ALL SPACES AROUND ELECTRICAL PENETRATIONS THROUGH A SMOKE PARTITION SHALL BE FILLED WITH AN APPROVED MATERIAL TO LIMIT THE FREE PASSAGE OF SMOKE.



### GENERAL HVAC NOTES:

1. ALL MECHANICAL INSTALLATIONS SHALL CONFORM TO SMACNA, ASHRAE AND ALL OTHER STATE AND LOCAL CODES.
2. UPON COMPLETION OF CONSTRUCTION, REPLACE ALL FILTERS.
3. ALL MAIN AND BRANCH DUCTS SHALL BE RECTANGULAR GALV. STEEL SIZED AS NOTED ON THE PLANS. SIZE SHALL REFER TO UNOBSTRUCTED INTERNAL AIRFLOW AREA. DUCTWORK SHALL BE MOUNTED TIGHT TO JOISTS ABOVE OR RUN IN SPACE BETWEEN JOISTS. U.N.O. CLEARANCES FROM FINISH FLOOR SHALL BE MAXIMIZED WHERE POSSIBLE.
4. ALL RUNOUTS TO DIFFUSERS SHALL HAVE A VOLUME CONTROL DAMPER AT THE CONNECTION TO THE BRANCH OR MAIN DUCT.
5. FLEXIBLE DUCT SHALL BE A MAXIMUM OF FIVE (5) FEET IN LENGTH AND SHALL BE ROUTED TO MINIMIZE LENGTH WITH NO KINKS OR SHARP BENDS.
6. CONTRACTOR SHALL CONNECT RUNOUT TO CONTRACTOR FABRICATED BOOT AS NECESSARY TO ACCOMMODATE DIFFUSER.
7. A FLEXIBLE CONNECTION BETWEEN MECHANICAL UNITS AND BOTH THE SUPPLY AND RETURN AIR DUCTWORK IS REQUIRED FOR VIBRATION ISOLATION AND NOISE REDUCTION.
8. SERVICE OPENINGS SHALL BE LOCATED IN THE DUCTWORK BEFORE AND AFTER EACH TURNING VANE. SEE SPECIFICATIONS FOR LOCATIONS OF ADDITIONAL ACCESS DOORS AND PANEL REQUIRED THROUGHOUT THE AIR DISTRIBUTION SYSTEM.
9. ROUTE DUCTWORK BETWEEN JOISTS WHERE POSSIBLE TO INCREASE CLEARANCES BELOW.
10. LEAVE ADEQUATE SPACE FOR INSTALLATION OF PLUMBING PIPES. COORDINATE WITH PLUMBING CONTRACTOR.
11. VEHICLE EXHAUST SYSTEM IN SOUTH CLASSROOM IS ALTERNATE BID #1, INCLUDING ALL ASSOCIATED DUCTWORK, FANS, AND ANCILLARY COMPONENTS.



### GENERAL FIRE PROTECTION NOTES:

1. THE INFORMATION PROVIDED ON THE FIRE PROTECTION DRAWINGS IS INTENDED TO SERVE AS THE "PRELIMINARY PLANS" FOR THE PROJECT AS DEFINED BY NFPA 13 FOR THE PURPOSE OF PRELIMINARY BUILDING PERMIT APPROVAL AND CONSTRUCTION BIDDING. "WORKING PLANS", IN ACCORDANCE WITH THE "HYDRAULIC CALCULATION METHODS" DEFINED BY NFPA 13, SHALL BE DEVELOPED BY THE CONTRACTOR AND APPROVED BY THE ENGINEER AND THE AUTHORITY HAVING JURISDICTION PRIOR TO PURCHASE OR INSTALLATION OF ANY FIRE PROTECTION SYSTEM EQUIPMENT.
2. THE CONTRACTOR IS RESPONSIBLE FOR REVIEWING ALL DRAWINGS ASSOCIATED WITH THE PROJECT TO UNDERSTAND BUILDING COMPONENTS AND ARRANGEMENTS (INCLUDING CONCEALED SPACE THAT COULD IMPACT THE FINAL DESIGN OF THE FIRE SPRINKLER SYSTEM).
3. ALL AREAS OF THE BUILDING SHALL BE PROVIDED WITH SPRINKLERS EXCEPT WHERE SPRINKLER OMISSION IS PERMITTED BY NFPA 13.
4. PRELIMINARY FLOW ANALYSIS HAS DETERMINED THAT A FIRE PUMP IS NOT REQUIRED FOR THE PROPOSED FIRE PROTECTION SYSTEM. CONTRACTOR SHALL NOTIFY THE ENGINEER DURING THE BIDDING PERIOD IF THEY BELIEVE A FIRE PUMP IS REQUIRED.





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FORT LEONARD WOOD,  
MO 65473

PROJECT # T2042-01  
SITE # 6306  
ASSET # 8136306006

REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
ISSUE DATE: 04/28/23

CAD DWG FILE: \_\_\_\_\_  
DRAWING BY: MHB  
CHECKED BY: JJN  
DESIGNED BY: MHB

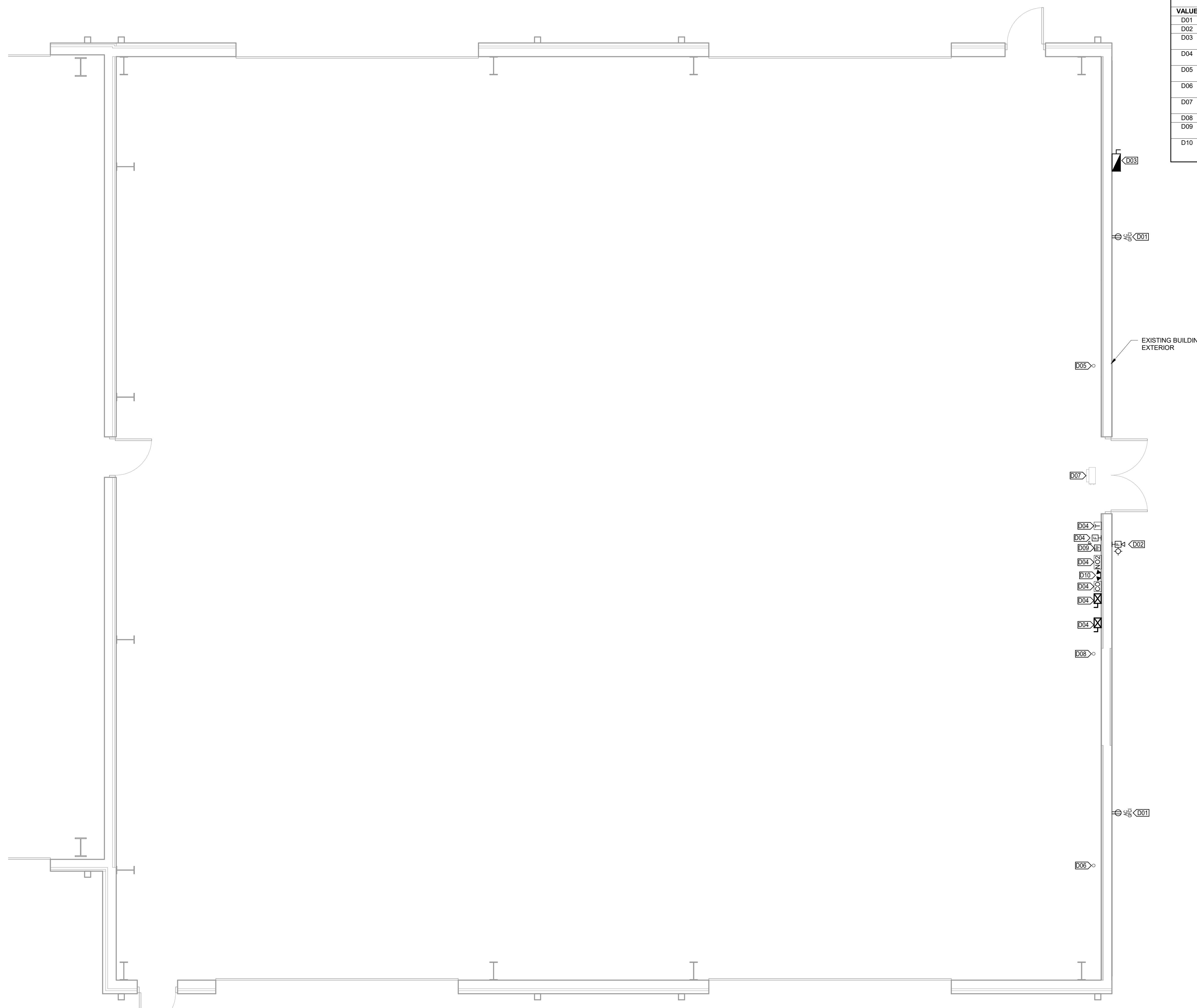
SHEET TITLE:  
**MEP DEMOLITION  
PLAN**

SHEET NUMBER:

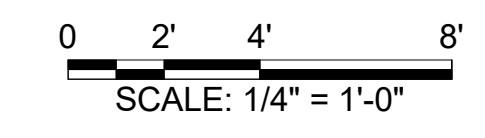
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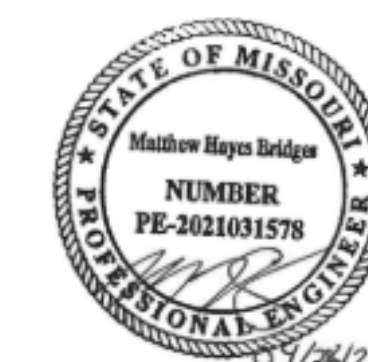
SHEET 30 OF 51  
APRIL 28, 2023

VALUE	DESCRIPTION
D01	REMOVE EXISTING DUPLEX OUTLETS FROM BUILDING EXTERIOR.
D02	REMOVE EXISTING FIRE ALARM FROM BUILDING EXTERIOR.
D03	REMOVE AND RELOCATE EXISTING POWER SUPPLY CONNECTION FOR EXTERIOR SHED. SEE CIVIL SHEETS FOR MORE INFORMATION.
D04	REMOVE AND RELOCATE EXISTING DEVICES TO WALL NORTH OF EXISTING DOUBLE DOOR. REFER TO E103 FOR MORE INFORMATION.
D05	REMOVE EXISTING DOMESTIC WATER PIPE. REFER TO P102 FOR NEW LOCATION.
D06	REROUTE EXISTING COMPRESSED AIR PIPE INTO NEW ADDITION TO AVOID STAIRS. REFER TO P102 FOR MORE INFORMATION.
D07	REMOVE AND RELOCATE EXISTING NATURAL GAS RADIANT HEATER. REFER TO M101 FOR NEW LOCATION.
D08	REMOVE EXISTING DOMESTIC WATER PIPE.
D09	REMOVE AND RELOCATE EXISTING PULL BOX TO WALL NORTH OF EXISTING DOUBLE DOOR. REFER TO E103 FOR MORE INFORMATION.
D10	REMOVE AND RELOCATE EXISTING EMERGENCY LIGHT TO WALL NORTH OF EXISTING DOUBLE DOOR. REFER TO E103 FOR MORE INFORMATION.



1 MEP DEMOLITION PLAN  
1/4" = 1'-0"





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MO 65473

PROJECT # T2042-01  
SITE # 6306  
ASSET # 8136306006

REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
ISSUE DATE: 04/28/23

CAD DWG FILE: FP101  
DRAWING BY: MHB  
CHECKED BY: JJJ  
DESIGNED BY: MHB

SHEET TITLE:  
**FIRE  
SUPPRESSION  
FLOOR PLAN**

SHEET NUMBER:

**FP101**

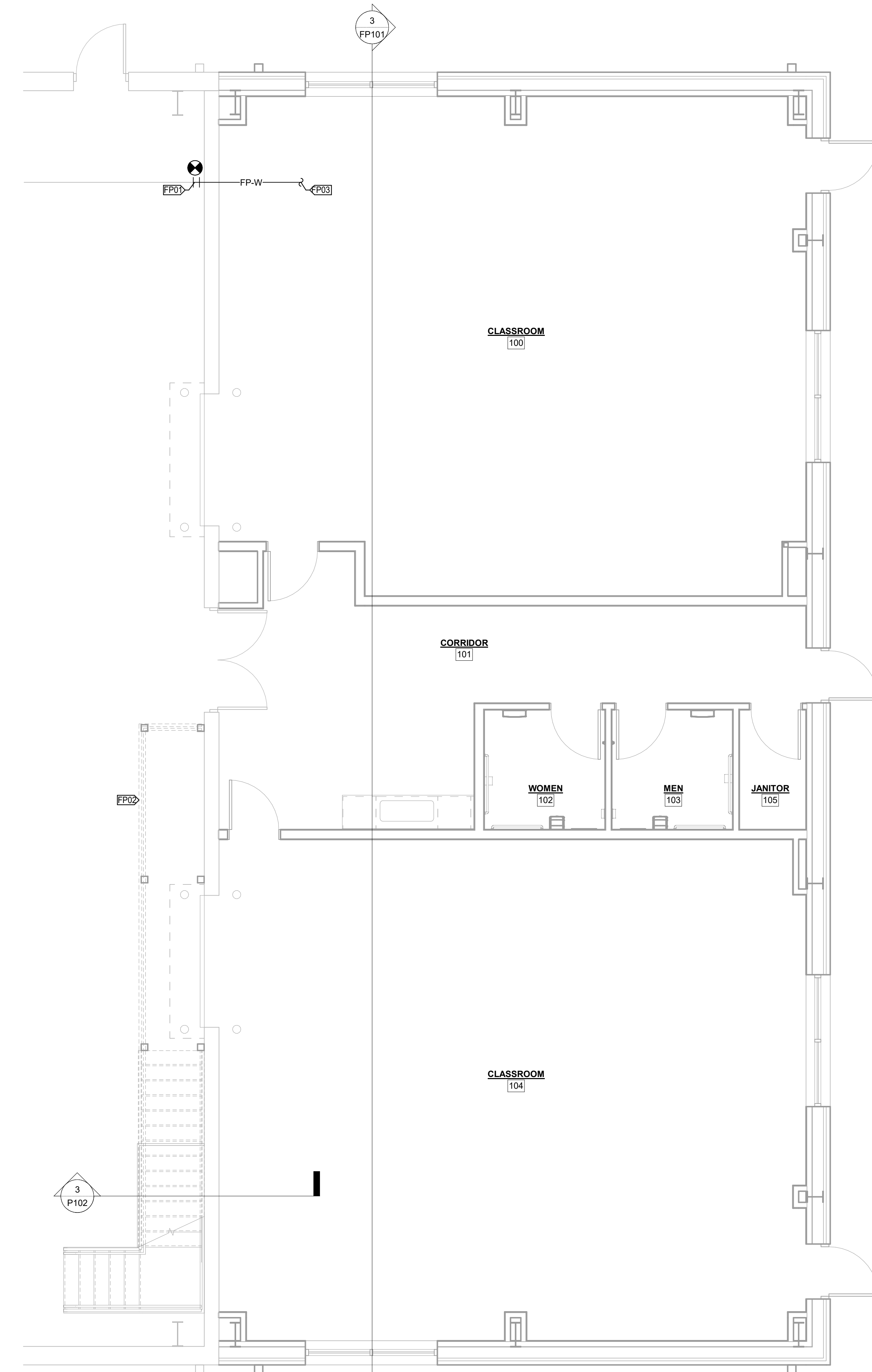
SHEET 31 OF 51  
APRIL 28, 2023

VALUE	DESCRIPTION
FP01	CONNECT TO EXISTING FIRE SUPPRESSION SYSTEM MAIN.
FP02	MODIFY EXISTING FIRE SUPPRESSION SYSTEM TO PROVIDE FIRE SPRINKLER COVERAGE BELOW NEW STAIRS.
FP03	FIRE SUPPRESSION PIPE ROUTING DETERMINED BY CONTRACTOR DURING WORKING PLAN DEVELOPMENT.

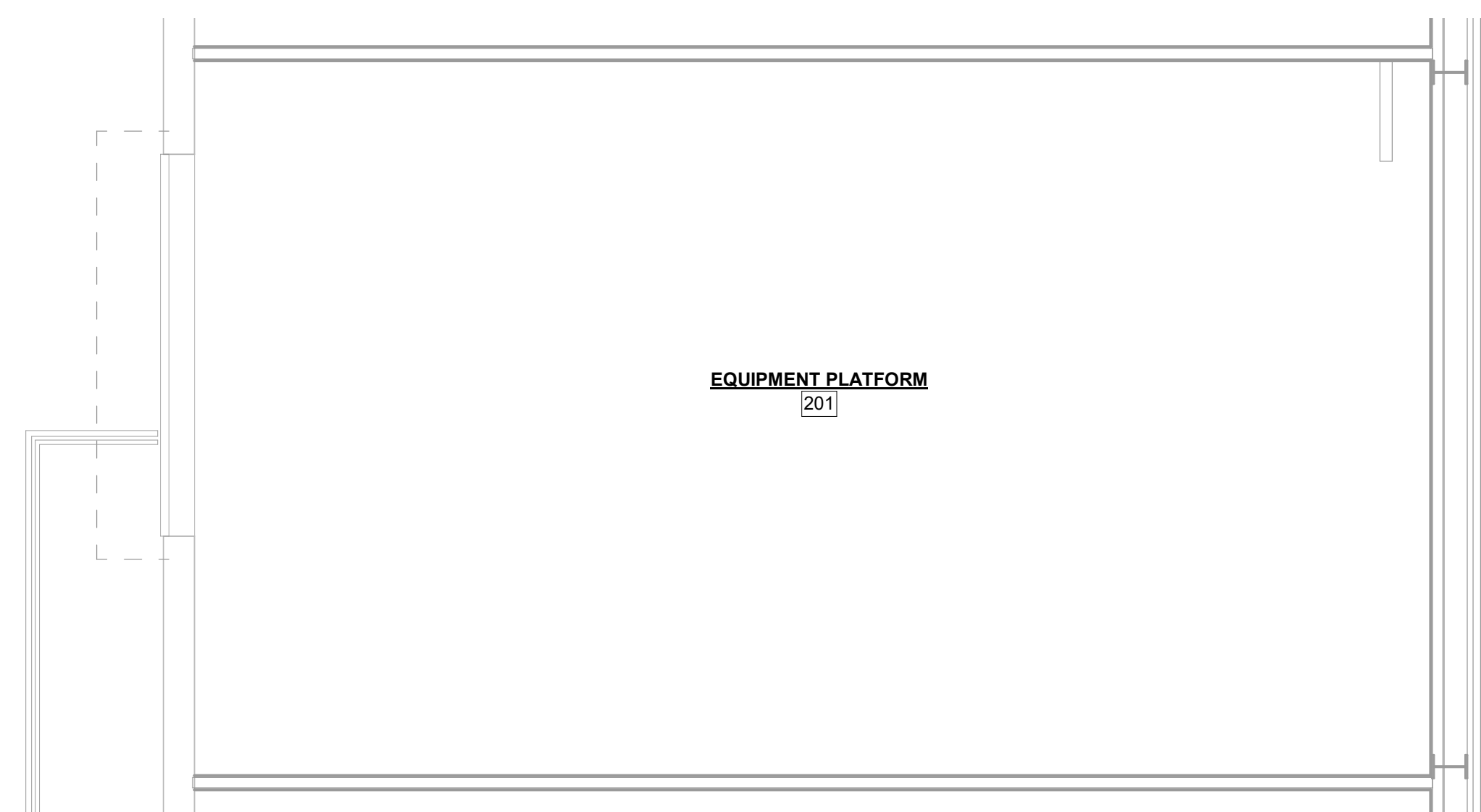
FIRE SUPPRESSION SYSTEM SUMMARY					
ROOM #	ROOM NAME	AREA (SF)	OCCUPANCY HAZARD TYPE (NFPA 13)	MINIMUM REQUIRED DENSITY (GPM/SF)	SYSTEM NAME
100	CLASSROOM 100	1,152	ORDINARY HAZARD GROUP 1	0.15	EXISTING
101	CLASSROOM 104	1,077	ORDINARY HAZARD GROUP 1	0.15	EXISTING
102	CORRIDOR	152	LIGHT HAZARD	0.1	EXISTING
103	WOMEN'S RESTROOM	54	LIGHT HAZARD	0.1	EXISTING
102A	MEN'S RESTROOM	54	LIGHT HAZARD	0.1	EXISTING
103A	JANITOR'S CLOSET	30	LIGHT HAZARD	0.1	EXISTING
104	MEZZANINE	760	ORDINARY HAZARD GROUP 1	0.15	EXISTING

**NOTES:**  
1. INSIDE HOSE ALLOWANCE: 0 GPM  
2. OUTSIDE HOSE ALLOWANCE: 250 GPM

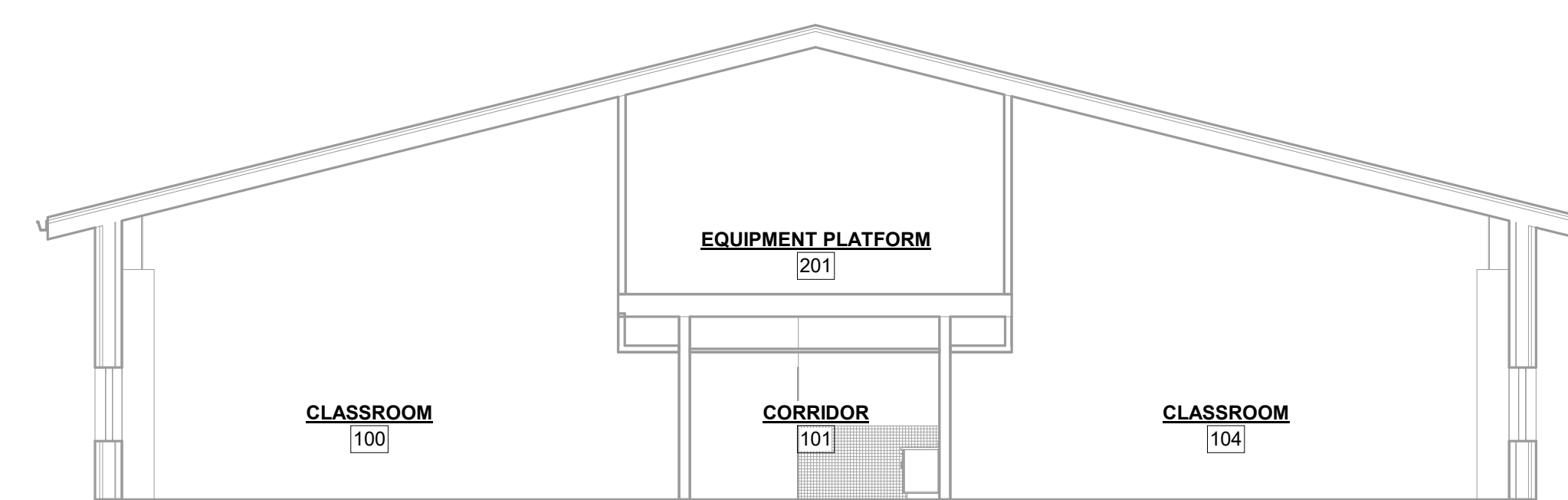
**FLOW DATA INFORMATION:**  
1. SUBSEQUENT FLOW DATA WAS PROVIDED BY COMPLETE FIRE SYSTEMS, INC. SUBMITTAL DATA FROM THE PREVIOUS PROJECT PHASE. THIS INFORMATION IS PRESENTED FOR INITIAL SYSTEM SIZING ESTIMATES ONLY.  
2. DATE OF FLOW TEST: 10/31/2011  
3. STATIC PRESSURE AT HYDRANT A: 42 PSI  
4. FLOW AT HYDRANT A: 950 GPM  
5. RESIDUAL PRESSURE AT HYDRANT B: 40 PSI



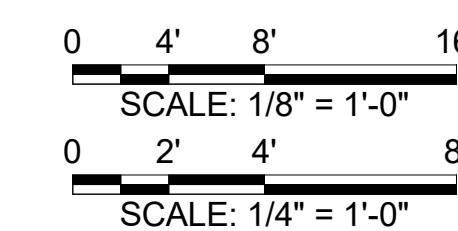
1 FIRE SUPPRESSION FLOOR PLAN  
1/4" = 1'-0"



2 FIRE SUPPRESSION MEZZANINE PLAN  
1/4" = 1'-0"

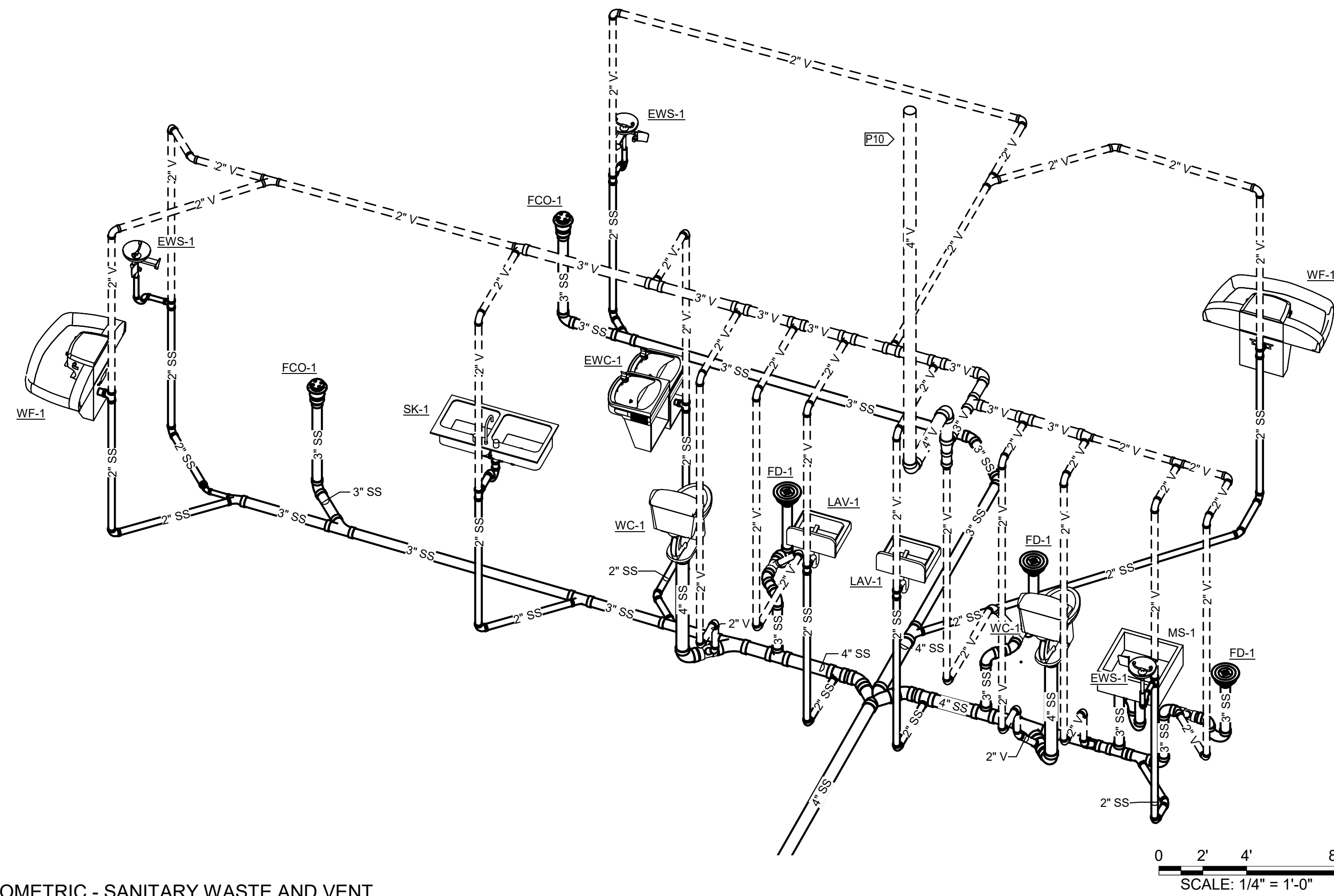
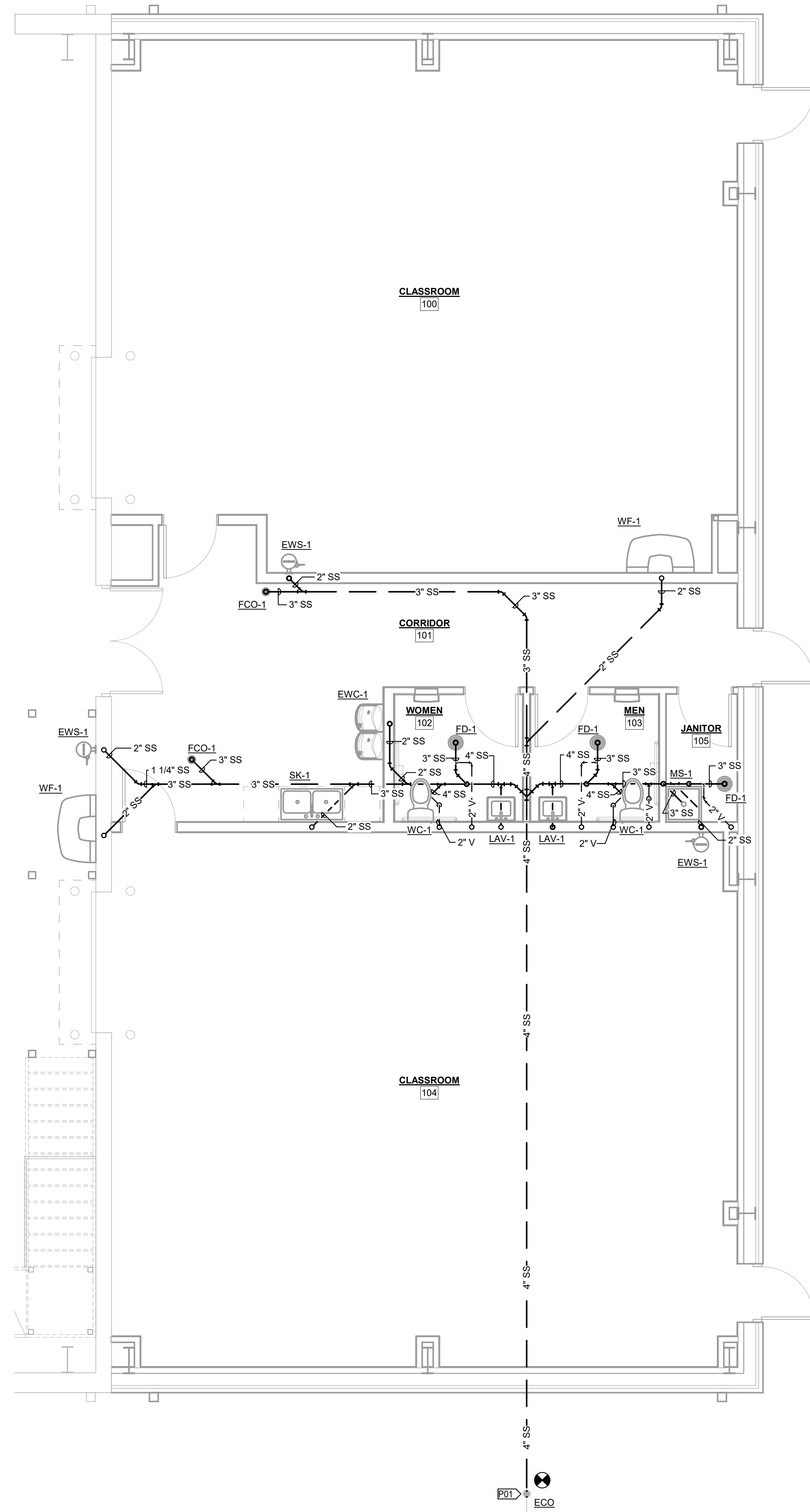


3 FIRE PROTECTION ELEVATION  
1/8" = 1'-0"





KEYNOTE LEGEND	
VALUE	DESCRIPTION
P01	CONNECT SANITARY MAIN TO BOTTOM OF EXISTING EXTERIOR CLEANOUT AT AN ESTIMATED 5 FEET BELOW FINISHED FLOOR.
P10	VENT ALONG EQUIPMENT PLATFORM WALL AND THROUGH ROOF.



1 MAIN LEVEL - BELOW FLOOR PLUMBING PLAN  
1/4" = 1'-0"

2 ISOMETRIC - SANITARY WASTE AND VENT  
NTS

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MICHAEL L. PARSON,  
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ASSET # 8136306006

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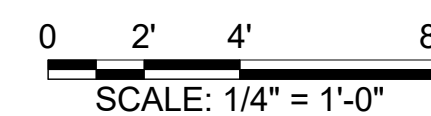
CAD DWG FILE: P101  
DRAWING BY: JLD  
CHECKED BY: JJN  
DESIGNED BY: JLD

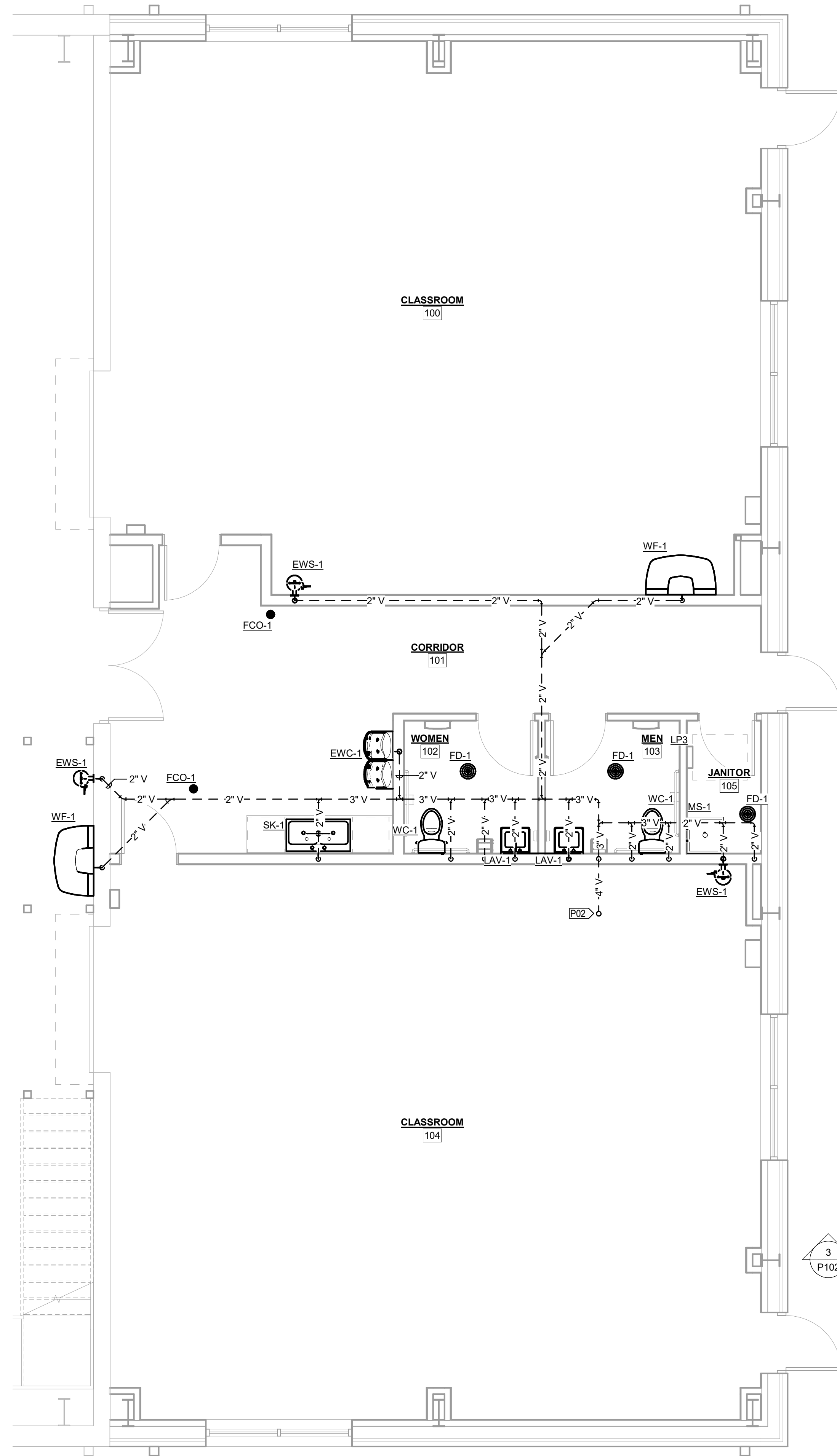
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**MAIN LEVEL -  
BELOW FLOOR  
PLUMBING PLAN**

SHEET NUMBER:

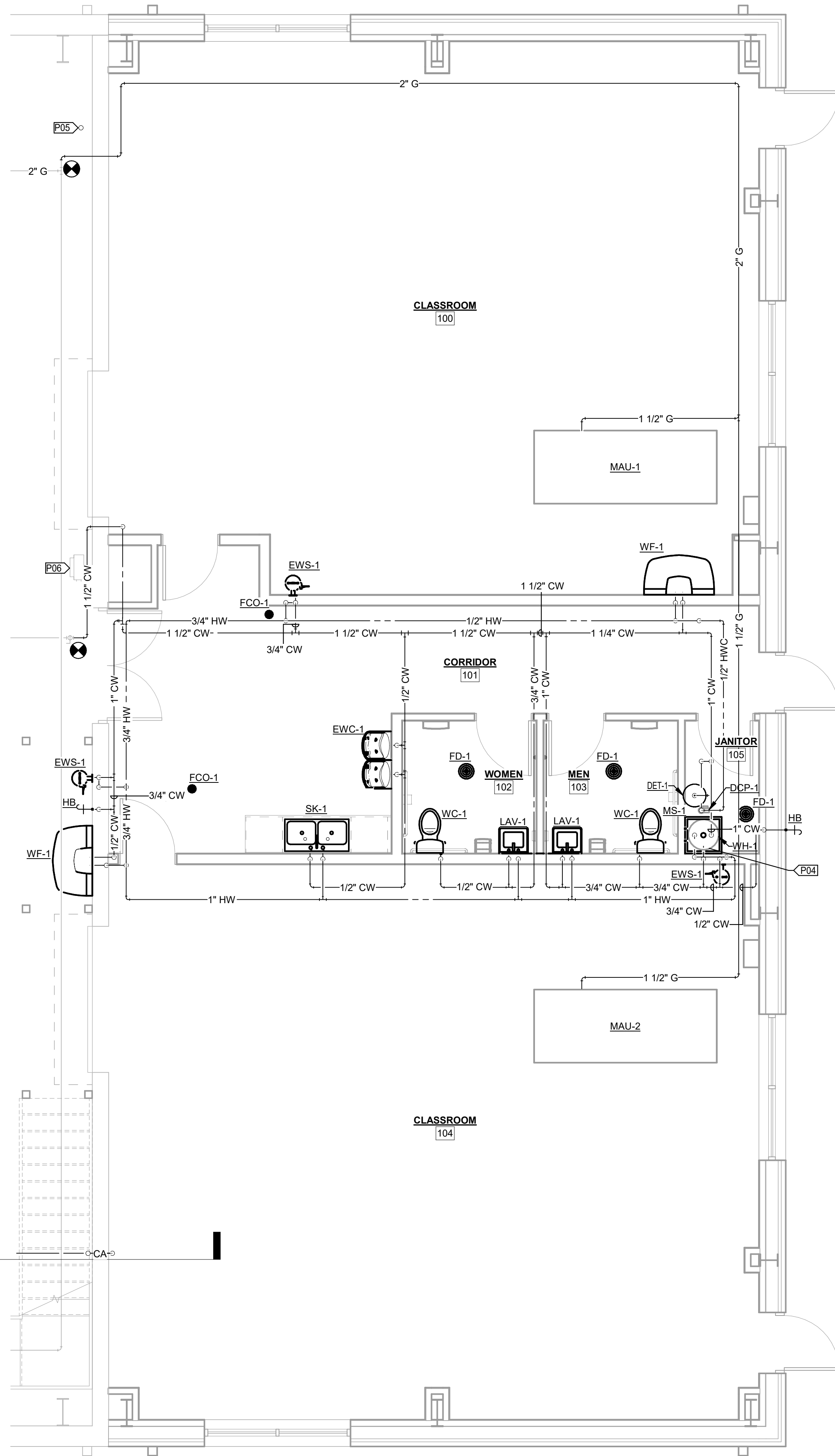
**P101**

SHEET 32 OF 51  
APRIL 28, 2023



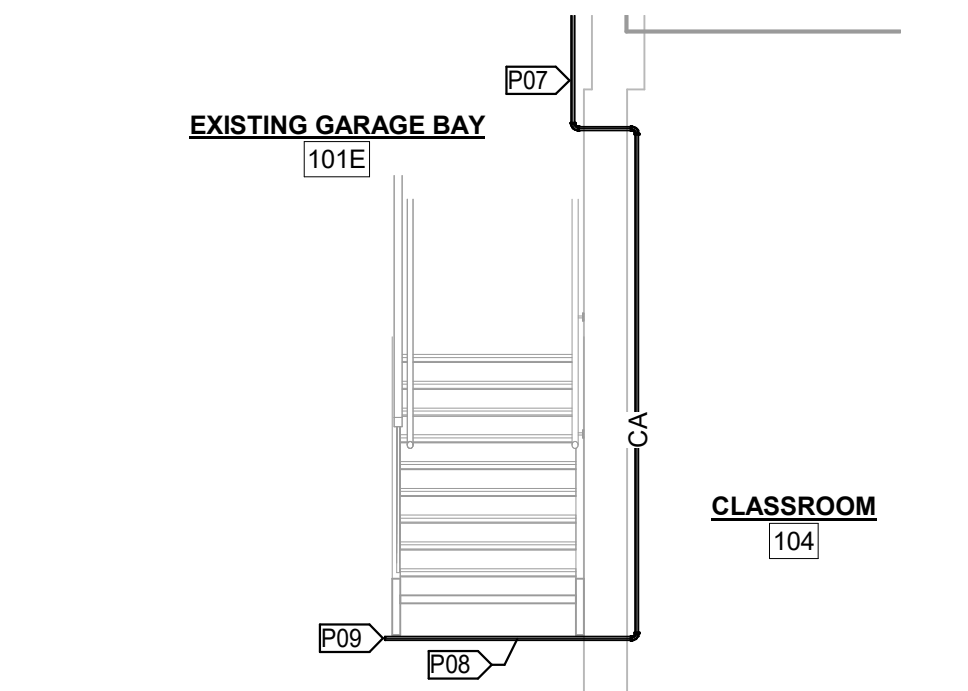


1 MAIN LEVEL - ABOVE FLOOR SANITARY PLUMBING PLAN  
1/4" = 1'-0"

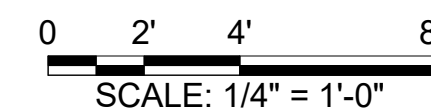


2 MAIN LEVEL - ABOVE FLOOR DOMESTIC PLUMBING PLAN  
1/4" = 1'-0"

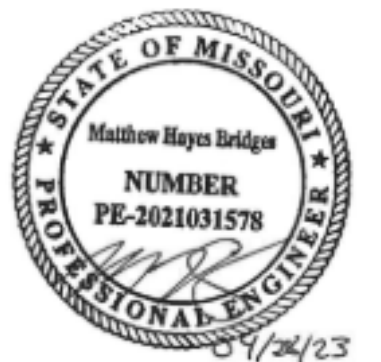
VALUE	DESCRIPTION
P02	STACK VENT SHALL BE ROUTED THROUGH ROOF.
P04	WATER HEATER TO BE MOUNTED ABOVE MOP SINK. SEE PLUMBING DETAILS SHEET FOR MORE INFORMATION.
P05	NEW DOMESTIC COLD WATER DROP WITH HOSE CONNECTION.
P06	REROUTE NATURAL GAS PIPING TO AVOID MEZZANINE ACCESS FOR RELOCATED RADIANT HEATER.
P07	CUT COMPRESSED AIR PIPE AT THIS LOCATION AND REROUTE INTO CLASSROOM 104.
P08	REROUTE BACK INTO EXISTING GARAGE BAY. SUPPORT COMPRESSED AIR PIPE FROM NEW STAIRS.
P09	COMPRESSED AIR PIPE TO EXTEND 2' PAST END OF STAIRS. REINSTALL ISOLATION BALL VALVE AND QUICK CONNECTION.



3 COMPRESSED AIR PIPE ROUTING DETAIL  
1/4" = 1'-0"



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DATE: \_\_\_\_\_  
ISSUE DATE: 04/28/23

CAD DWG FILE: P102  
DRAWING BY: MHB  
CHECKED BY: JJJ  
DESIGNED BY: MHB

SHEET TITLE:  
**MAIN LEVEL -  
ABOVE FLOOR  
PLUMBING PLAN**

SHEET NUMBER:

**P102**

SHEET 33 OF 51  
APRIL 28, 2023

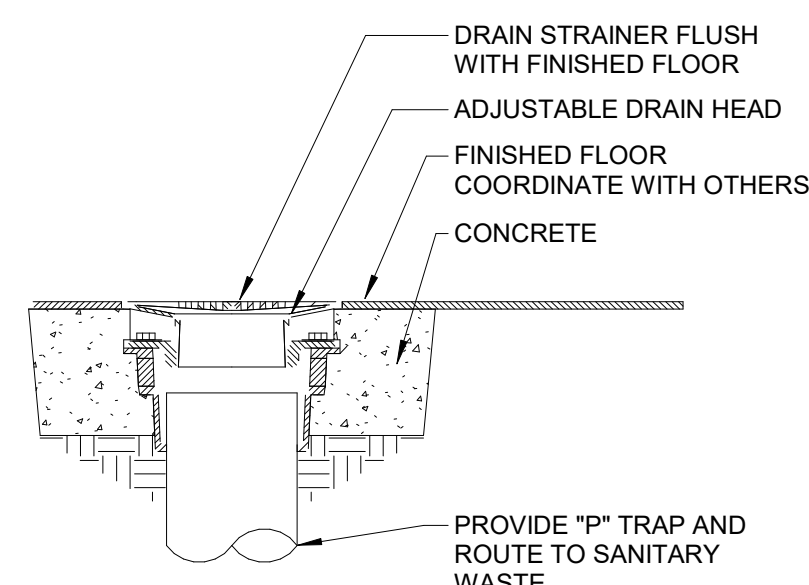




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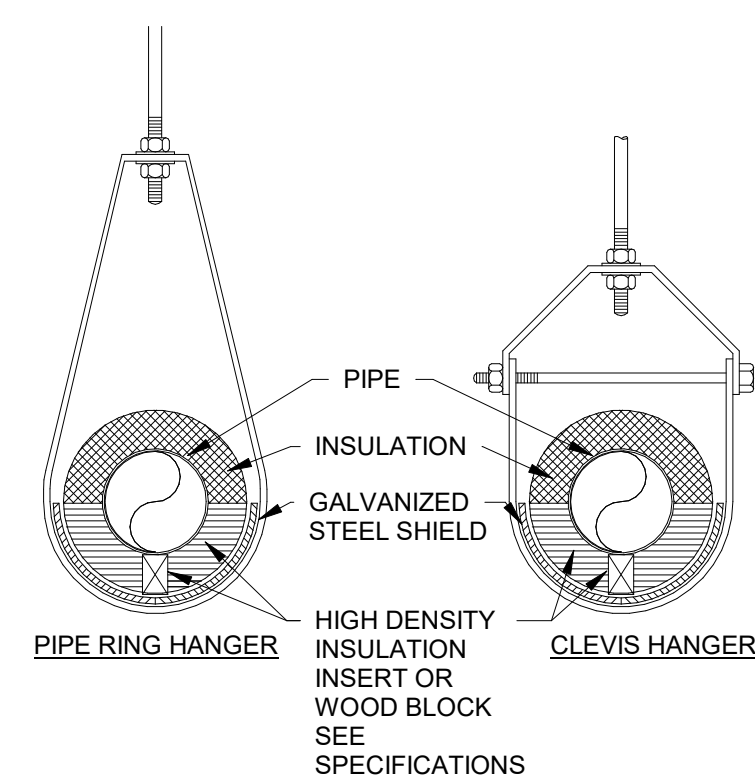
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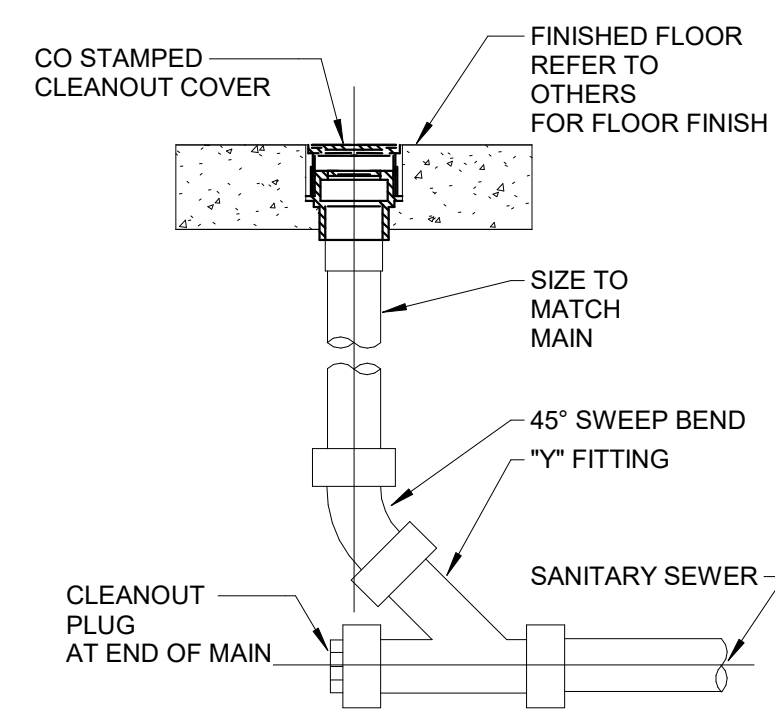


NOTE:  
ALL FLOOR DRAINS SHALL BE VENTED  
PER CODE.

1 FLOOR DRAIN DETAIL  
NTS

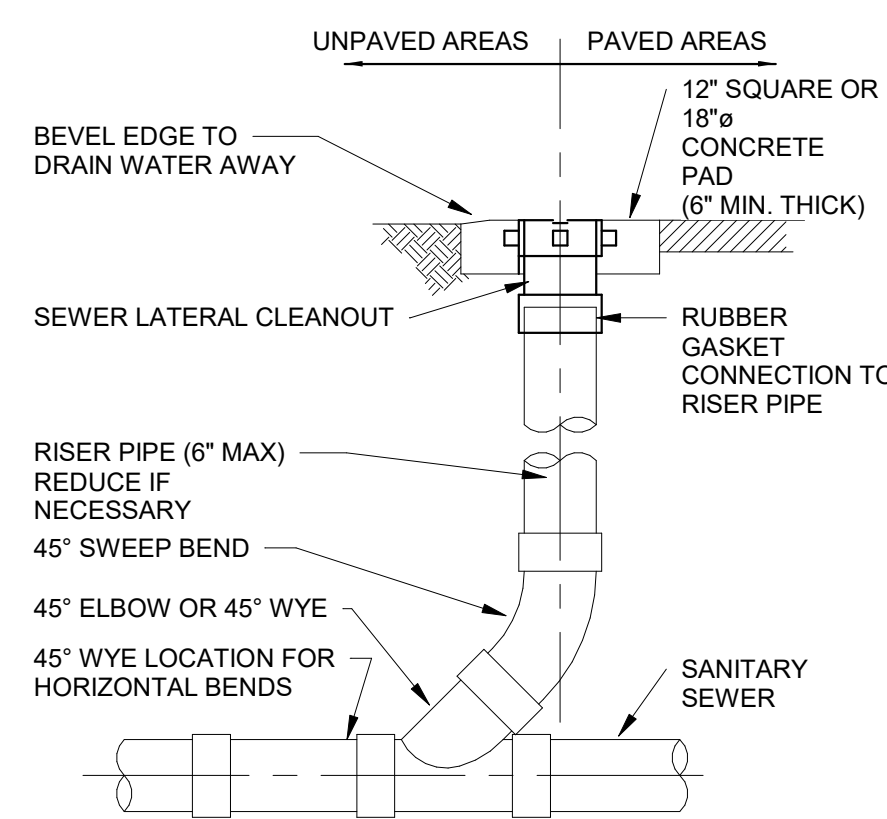


2 INSULATED PIPE AT HANGER DETAIL  
NTS



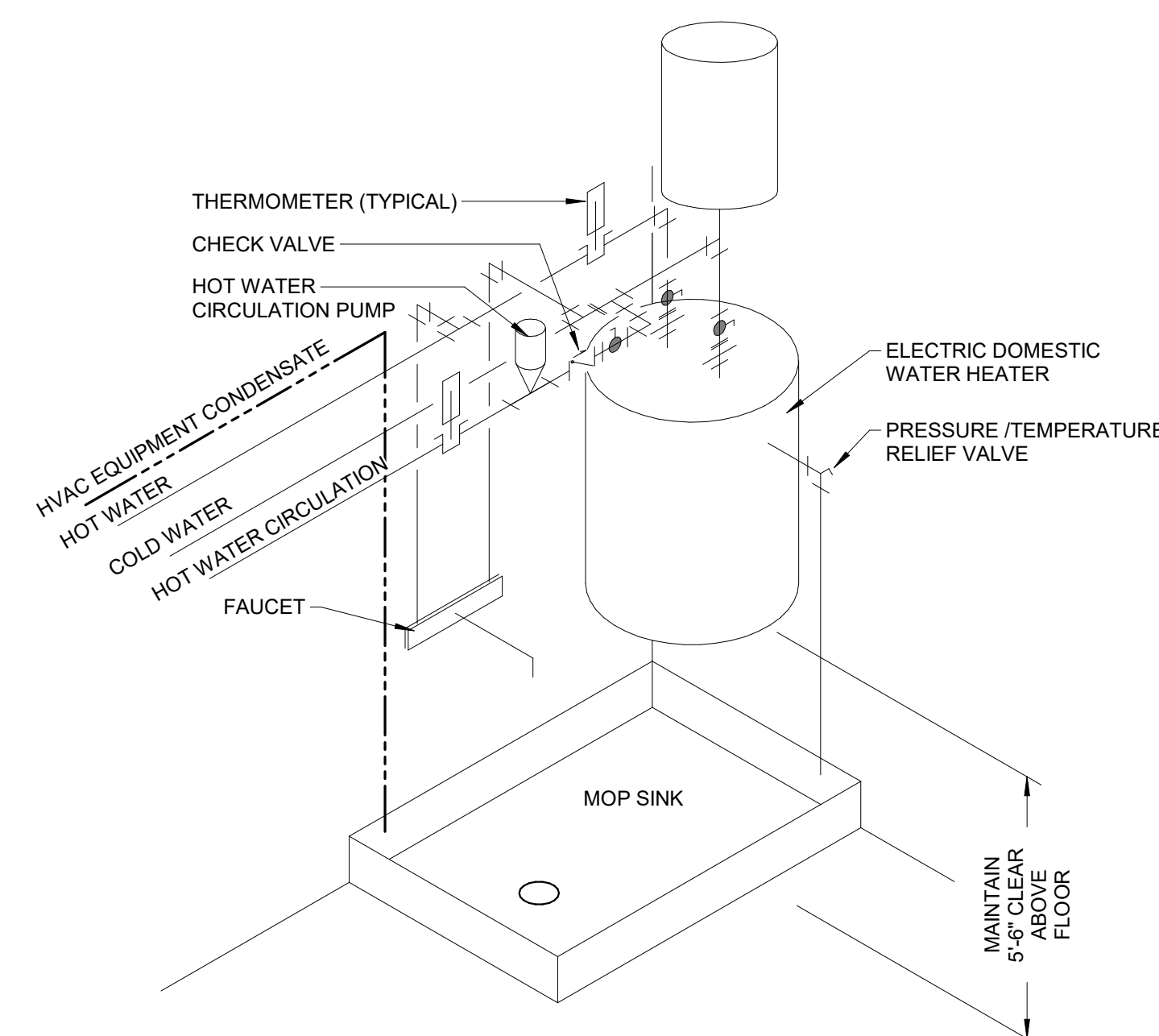
NOTE:  
PIPE MATERIAL TO BE SAME AS SEWER

3 INTERIOR CLEANOUT DETAIL  
NTS



NOTE:  
PIPE MATERIAL TO BE SAME AS SANITARY SEWER

4 EXTERIOR CLEANOUT DETAIL  
NTS



NOTES:

1. CONTRACTOR SHALL PROVIDE ALL PIPE, VALVES, AND ACCESSORIES AS REQUIRED BY WATER HEATER MANUFACTURER RECOMMENDATIONS.
2. HOT WATER CIRCULATOR SHALL RUN WHEN HWC TEMPERATURE IS BELOW 130°F AS DETERMINED BY A PIPE MOUNTED AQUASTAT (NOT INTEGRAL TO THE PUMP).
3. SECURE WATER HEATER WITH CHANNEL SCREWED TO STUDS, A MINIMUM OF 3-STUDS SHALL BE USED. BOLT WATER HEATER TO CHANNEL WITH ONE-PIECE OF 1-1/2" X 1/16" THICK STEEL FLAT BAR STRAPPING.

5 WATER HEATER ABOVE MOP SINK DETAIL  
NTS

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MAINTENANCE (RTS-M)  
12249 20TH STREET  
BLDG 1270  
FORT LEONARD WOOD,  
MO 65473

PROJECT # T2042-01  
SITE # 6306  
ASSET # 8136306006

REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
REVISION: \_\_\_\_\_  
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ISSUE DATE: 04/28/23

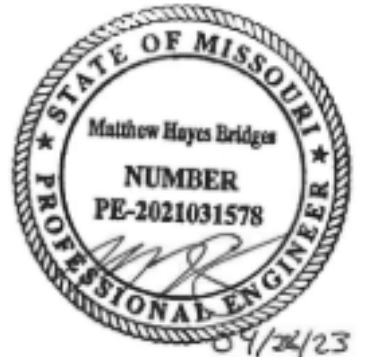
CAD DWG FILE: P501  
DRAWING BY: MHB  
CHECKED BY: JJJ  
DESIGNED BY: MHB

SHEET TITLE:  
**PLUMBING  
DETAILS**

SHEET NUMBER:

**P501**

SHEET 34 OF 51  
APRIL 28, 2023



MATTHEW H. BRIDGES - ENGINEER  
MO # PE-2021031578

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ISSUE DATE: 04/28/23

CAD DWG FILE: P601  
DRAWING BY: MHB  
CHECKED BY: JJJ  
DESIGNED BY: MHB

SHEET TITLE:  
**PLUMBING  
SCHEDULES**

SHEET NUMBER:

**P601**

SHEET 35 OF 51  
APRIL 28, 2023

**PLUMBING FIXTURE SCHEDULE**

TAG	ADA	DESCRIPTION	ROUGH IN PIPE SIZE				BASIS OF DESIGN				FIXTURE REMARKS	BASIS OF DESIGN FIXTURE ACCESSORIES					
			CW	HW	SS	V	MAKE	MODEL	TYPE	DESCRIPTION		MAKE	MODEL	ACCESSORY REMARKS			
EWC-1	Yes	MECHANICAL PUSHBAR ACTUATED WATER COOLER	1/2"	0"	1 1/4"	1 1/4"	ELKAY MANUFACTURING OASIS HAWS	LVRCTL8WSK B1 LEVEL VERSACOOLER II DUAL WALL MOUNT FOUNTAIN									
EWS-1	Yes	WALL MOUNTED HAND OPERATED, W/ STAINLESS STEEL RECEPTOR & DUAL EYE/FACE SPRAY HEADS	1/2"	1/2"	1 1/4"	1 1/4"	CHICAGO FAUCET HAWS CONDOR	8401-NF 7260BT-7270BT 49E5V6		MIXING VALVE	WALL MOUNTED EMERGENCY WATER MIXING VALVE W/ LOCKING TEMP. REGULATOR, INTERNAL COLD WATER BYPASS, BIMETAL THERMOSTAT, HIGH TEMP. LIMIT STOP, UNION CHECKSTOPS, DIAL THERMOMETER	CHICAGO FAUCET HAWS BRADLEY	132-LFABNF 9201EFE S19-2010		PROVIDE EMERGENCY THERMOSTATIC MIXING VALVE SET TO 80F		
FCO-1	No	ADJUSTABLE, CAST IRON BODY W/ POLISHED NICKEL BROZE TOP & BRONZE PLUG	0"	0"	3"	0"	ZURN JAY R SMITH MIFAB	2N-1400-BP-SG-SM 4021S C1220-1	COORDINATE FINISH ELEVATION								
FD-1	No	POLISHED NICKEL BRONZE STRAINER, CAST IRON BODY, PROVIDE WITH DEEP SEAL TRAP & 5" DIA. TYPE B STRAINER	0"	0"	3"	2"	SILOUX CHIEF JOSAM ZURN	860-4-P-U FD-370 FD2360									
LAV-1	Yes	WALL MOUNT LAVATORY, 19"W X 17"D, VITREOUS CHINA WITH FAUCET HOLES ON 4" CENTERS	1/2"	1/2"	1 1/4"	1 1/4"	AMERICAN STANDARD GERBER KOHLER	DECLYN 0321.075 12-314-98 K-1728		FAUCET	4" CENTERS, SELF CLOSING METERING TYPE W/ SEPARATE HOT & COLD WATER CONTROL AND 0.5 GPM FLOW CONTROL	CHICAGO FAUCET GERBER TSBRASS WADE JAY R SMITH ZURN LEONARD BRADLEY WATTS	802-VE2805-665ABCP 44-340 B-0831 520 0700 Z1231 TA-300-LF W/ TA-300-LF-STSTL-REC S19-2000 ETV200	PROVIDE POINT OF USE THERMOSTATIC MIXING VALVE SET TO 104F			
MS-1	No	3" DRAIN, MOLDED ONE-PIECE CONSTRUCTION	1/2"	1/2"	3"	2"	SWAN FIAT ACORN	MS-2424 MSBID2424 TRH-242410		HOSE	5/8" DIA. REINFORCED RUBBER HOSE, SPRING LOADED RUBBER HOLDER	SWAN FIAT MUSTEE SWAN FIAT MUSTEE SWAN FIAT MUSTEE SWAN FIAT MUSTEE SWAN FIAT MUSTEE	MS2405 832AA 665.700 MSG2436 67.2436 E-88-AA 63.403 MS2437 889-CC 65.600 MS-2412 830-AA 63.600A				
									CORNER GUARD	20 GA. TYPE 304 STAINLESS STEEL							
									RIM GUARD	STAINLESS STEEL							
									MOP HOLDER	SPRING LOADED RUBBER ON STAINLESS STEEL WALL PLATE							
									FAUCET	8" ADJUSTABLE CENTERS, LEVER ACTUATED TYPE W/ SEPARATE HOT & COLD WATER CONTROL, VACUUM BREAKER NOZZLE, WALL BRACE, AND ROUGH CHROME PLATED FINISH							
SK-1	No	DOUBLE WELL SINK, 18 GA. (18-8) NICKEL BEARING STAINLESS STEEL WITH THREE(FOUR) FAUCET HOLES AND TWO 13-1/2"x16"x10" BOWLS, PROVIDE WITH LK-35 BASKET STRAINERS.	3/4"	3/4"	2"	2"	CECO AMERICAN STANDARD KOHLER	747-3 77DB33223.308 K-5846-3	INDIVIDUAL TRAP EACH BOWL	FAUCET	8" CENTERS, LEVER ACTUATED TYPE W/ SEPARATE HOT & COLD WATER CONROL, 4" BLADE HANDLES, AND 8" GOOSENECK SWING SPOUT	CHICAGO FAUCET AMERICAN STANDARD T&S BRASS LEONARD BRADLEY WATTS	786-GN8FCABCP OR 786-GN8FCXKABCP 6450.188 B-2866-134XPF15 TA-300-LF W/ TA-300-LF-STSTL-REC S19-2000 ETV200	PROVIDE POINT OF USE THERMOSTATIC MIXING VALVE SET TO 110F			
									MIXING VALVE	WALL MOUNTED EMERGENCY WATER MIXING VALVE W/ LOCKING TEMP. REGULATOR, INTERNAL COLD WATER BYPASS, BIMETAL THERMOSTAT, HIGH TEMP. LIMIT STOP, UNION CHECKSTOPS, DIAL THERMOMETER							
WC-1	Yes	FLOOR MOUNTED VITREOUS CHINA, PRESSURE-ASSISTED SIPHON ACTION, ELONGATED BOWL, LOW CONSUMPTION W/ CLOSE COUPLED TANK	1/2"	0"	4"	2"	AMERICAN STANDARD GERBER KOHLER	CADET 2467.100 EF-21-318 K-3519	16-1/2" FLOOR TO RIM	SEAT	ELONGATED HEAVY DUTY, SOLID PLASTIC, OPEN FRONT, WITH LIFT OFF HINGE SYSTEM	BEMIS KOHLER AMERICAN STANDARD	2155CTJ K-4666-CA 5901.100				
WF-1	Yes	4 1/2" DEEP, 36-54" DIA. STAINLESS STEEL BOWL AND THERMOSTATIC MIXING VALVE PROVIDE W/ OPTIONAL LIQUID SOAP DISPENSOR	3/4"	3/4"	2"	2"	BRADLEY ACORN WASHWARE NEO-METRO	SN2004 3544 8984	PURCHASE WITH LIQUID SOAP DISPENSOR OPTION						THERMOSTATIC MIXING VALVE SET TO 104F		

**WATER HEATER SCHEDULE**

TAG	DESCRIPTION	VOLUME	HEATING ELEMENT		RATINGS		ELECTRICAL				BASIS OF DESIGN			REMARKS	
			HEATING CAP.	QUANTITY	UEF	MAX. PRES.	MAX. TEMP.	VOLT	POLES	FLA	MOP	MAKE	MODEL		MAX. OPERATING WEIGHT
WH-1	TANK TYPE ELECTRIC WATER HEATER	30.0 gal	5 kW	2	0.9	150.0 psig	140 °F	208 V	2	19 A	29 A	AMERICAN A.O. SMITH RHEEM	E6N-30R ENS-30 PROE30	350 lb	PROVIDE WALL MOUNT HARDWARE AND DRAIN PAN AND ROUTE DRAIN AND P/T DRAIN TO NEAREST MOP SINK OR FLOOR DRAIN. NOTE 1.

**NOTES:**

1. HOT WATER STORAGE TEMPERATURE: 140F.

**DOMESTIC CIRCULATING PUMP SCHEDULE**

TAG	TYPE	FLOW	HEAD	ELECTRICAL			BASIS OF DESIGN			REMARKS
				VOLT	POLES	MOP	MAKE	MODEL	WEIGHT	
DCP-1	IN-LINE	3.2 GPM	2.4 ftH2O	208 V	2	1 A	TACO GRUNDFOS BELL & GOSSETT	006 ALPHA1 15-55F XL 20-35	25 lb	PROVIDE WITH AQUASTAT

**NOTES:**

1. PROVIDE WITH AQUASTAT.

**DOMESTIC EXPANSION TANK SCHEDULE**

TAG	DESCRIPTION	MAX. PRES.	MAX. TEMP.	PRE-CHARGE	TANK VOLUME	ACCEPTANCE VOLUME	BASIS OF DESIGN			REMARKS
							MAKE	MODEL	WEIGHT	
DET-1	POTABLE WATER, BLADDER STYLE EXPANSION TANK	150 psi	200 °F	50 psi	10.0 gal	10.3 gal	AMTROL BELL & GOSSETT ZURN	ST PT WTTA	110 lb	



VALUE	DESCRIPTION
M03	BOTTOM OF TRANSFER GRILLE TO BE INSTALLED 18" ABOVE FINISHED FLOOR (TYPICAL).
M07	VEHICLE EXHAUST CONTROL PANEL TO BE PROVIDED BY VEHICLE EXHAUST SYSTEM EQUIPMENT VENDOR. PROVIDE WITH AN INTERNAL RELAY TO ENABLE ASSOCIATED MAKE-UP AIR SYSTEM.
M11	EXISTING NATURAL GAS RADIANT HEATER NEW LOCATION.
M12	MAINTAIN REQUIRED CLEARANCE FROM REFRIGERANT BRANCH BOX AND FACE OF WALL (MINIMUM 12").

STATE OF MISSOURI  
MICHAEL L. PARSON,  
GOVERNOR



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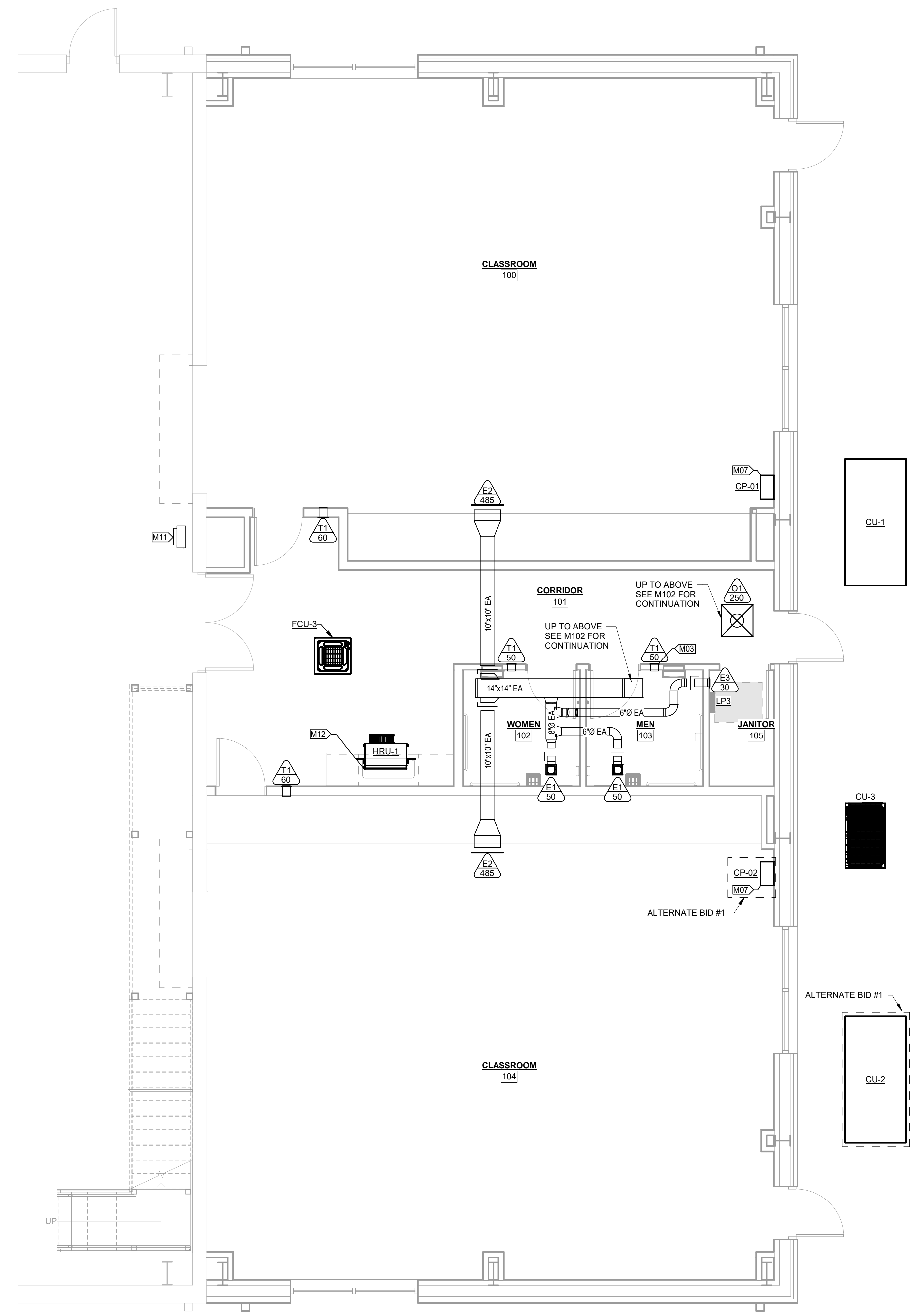
CAD DWG FILE: M101  
DRAWING BY: MHB  
CHECKED BY: JJN  
DESIGNED BY: MHB

SHEET TITLE:  
**MAIN LEVEL -  
MECHANICAL  
FLOOR PLAN**

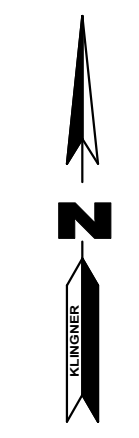
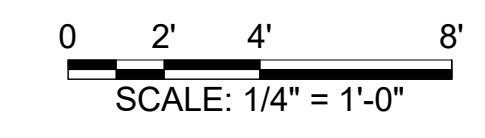
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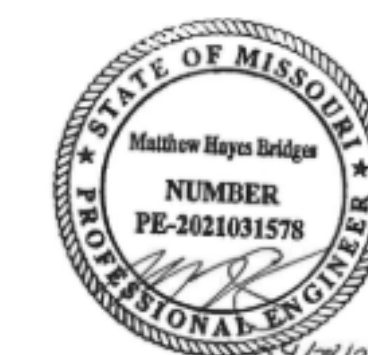
**M101**

SHEET 36 OF 51  
APRIL 28, 2023



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





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CAD DWG FILE: M102  
DRAWING BY: MHB  
CHECKED BY: JJJ  
DESIGNED BY: MHB

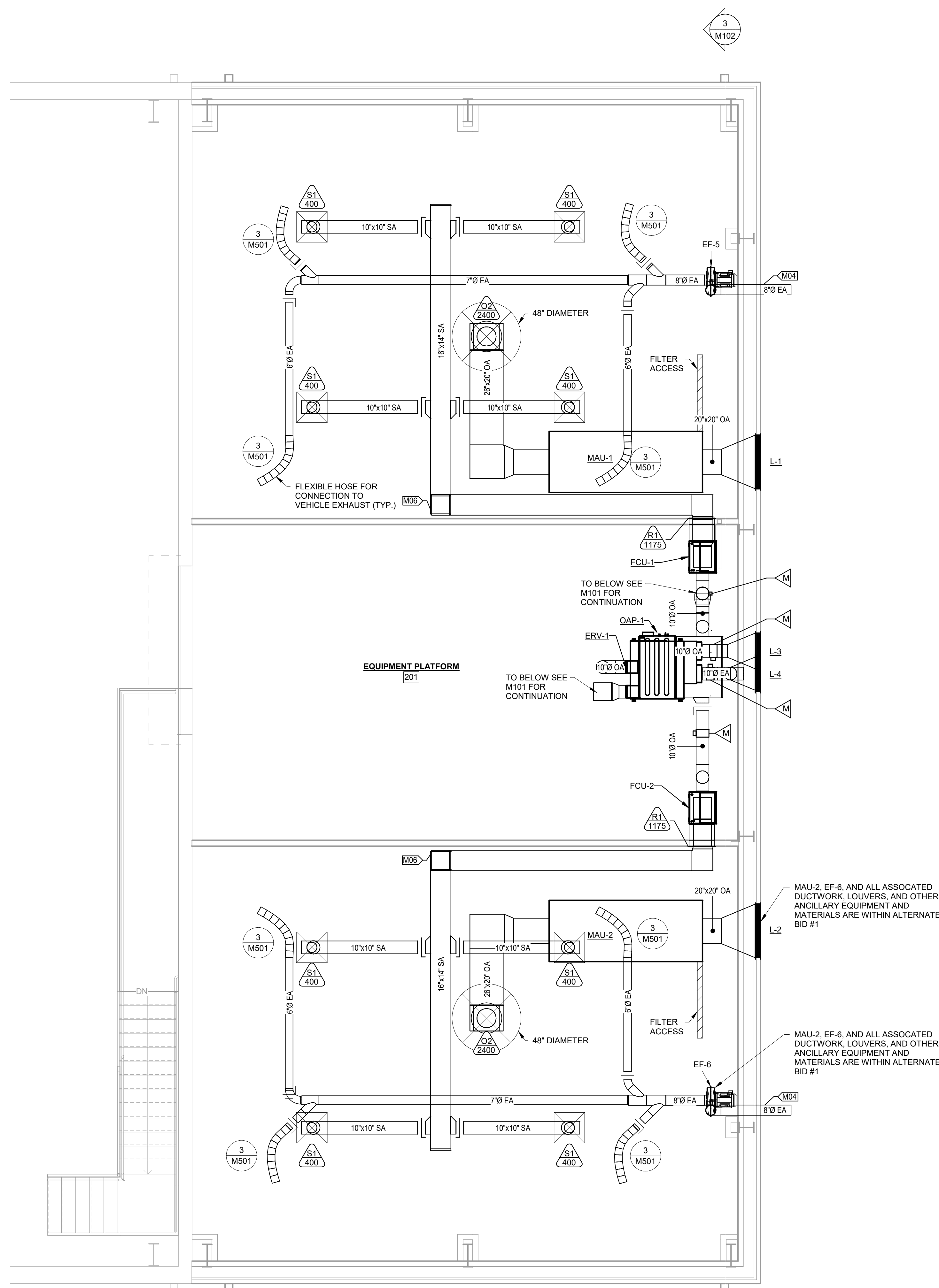
SHEET TITLE:  
**MEZZANINE -  
MECHANICAL  
FLOOR PLAN**

SHEET NUMBER:

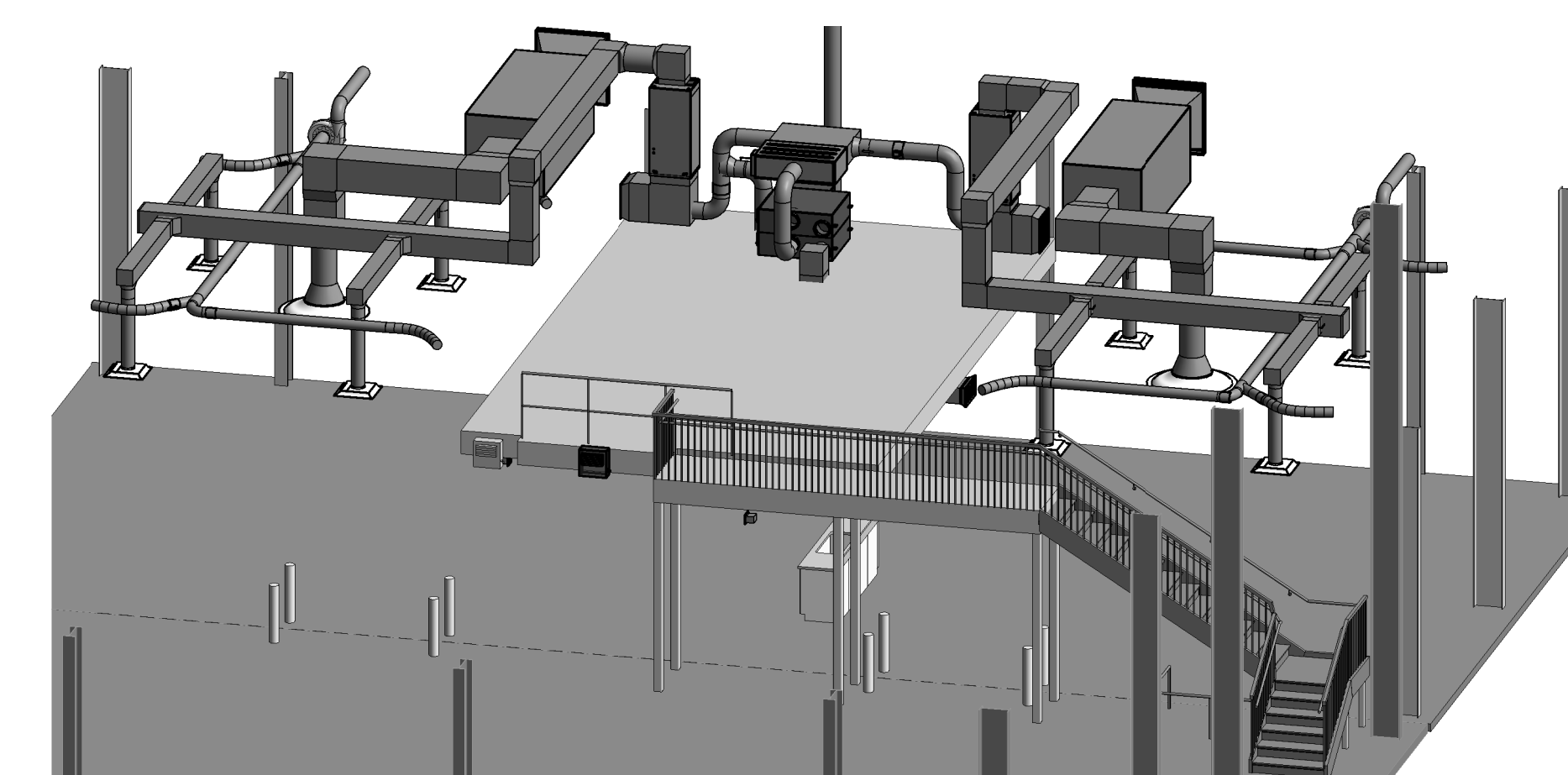
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APRIL 28, 2023

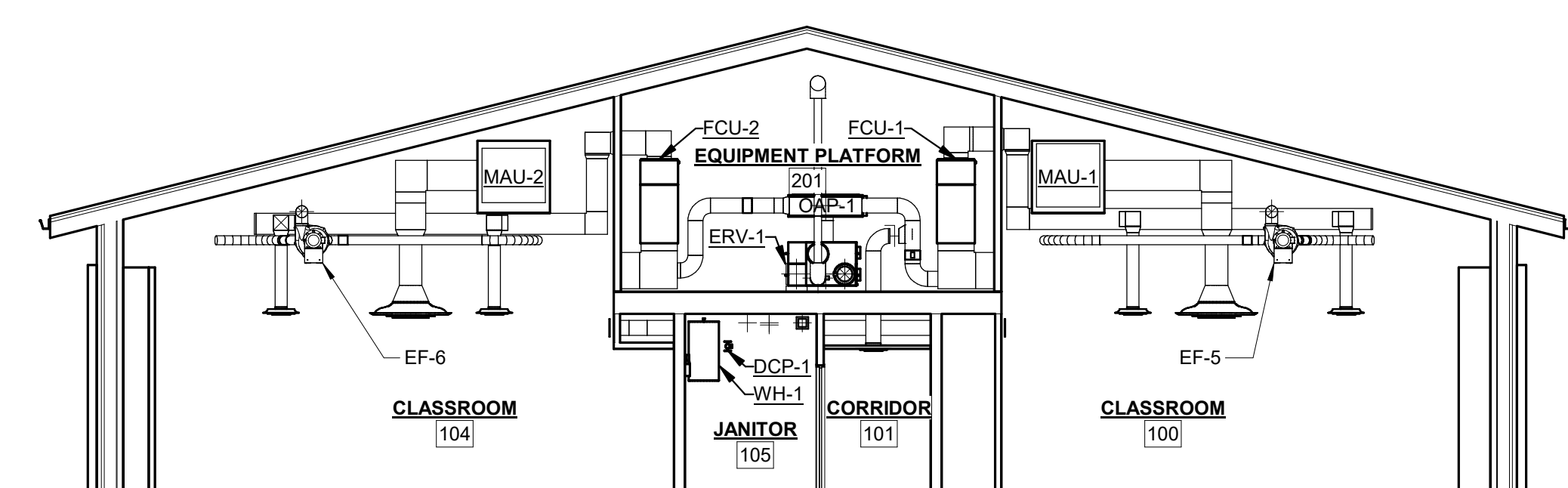
VALUE	DESCRIPTION
M04	EXHAUST DUCT DOWNSTREAM OF EXHAUST FAN TO BE SCHEDULE 10 STAINLESS STEEL.
M06	SUPPLY AND RETURN AIR DUCTS TO BE STACKED VERTICALLY. REFER TO DETAIL 3 ON M102 FOR DETAILS.



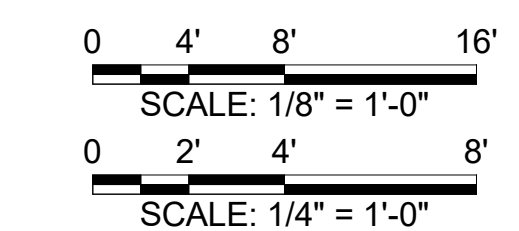
1 MEZZANINE LEVEL - MECHANICAL FLOOR PLAN  
1/4" = 1'-0"



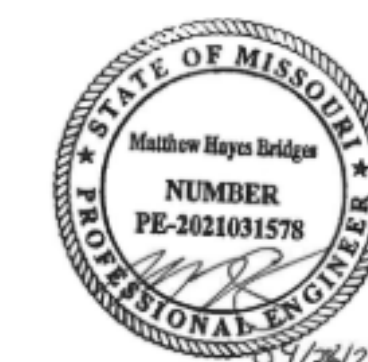
2 MEZZANINE ISOMETRIC VIEW



3 MEZZANINE ELEVATION  
1/8" = 1'-0"







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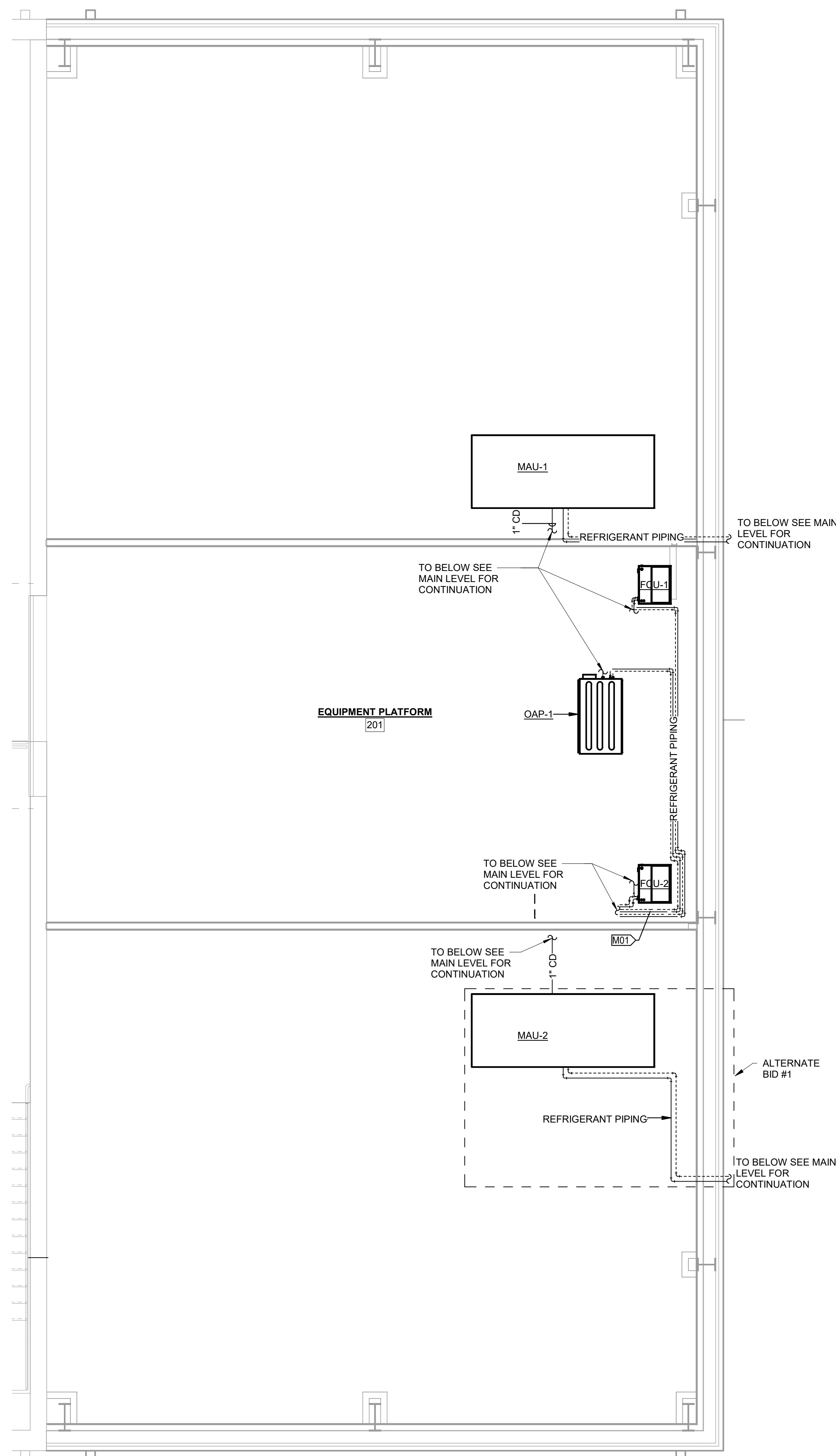
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**MECHANICAL  
PIPING PLAN**

SHEET NUMBER:

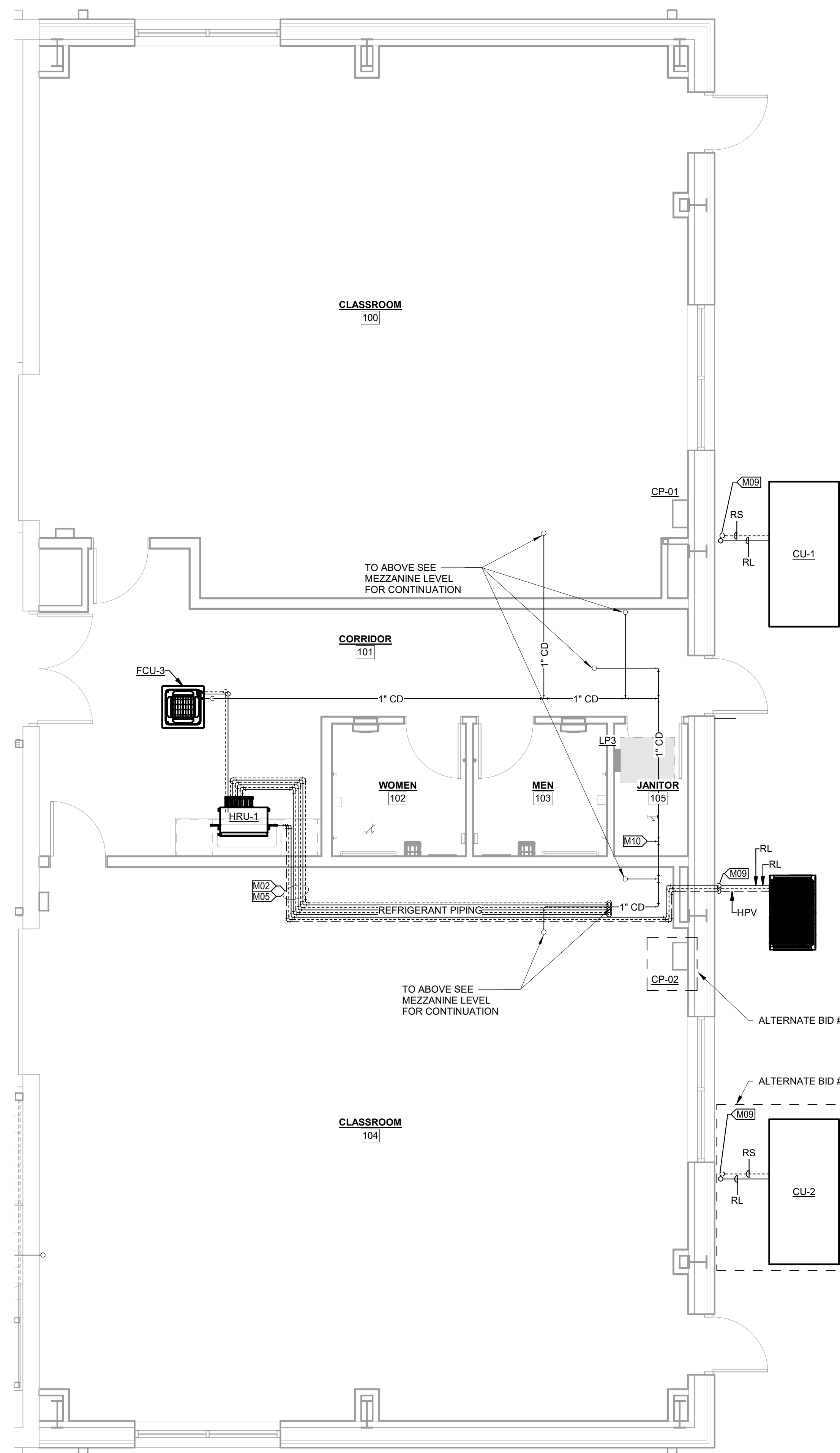
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APRIL 28, 2023

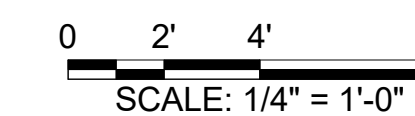
VALUE	DESCRIPTION
M01	ALL MEZZANINE FLOOR REFRIGERATION PIPING PENETRATIONS TO BE TIGHT AGAINST MEZZANINE WALL AND COORDINATED WITH OWNER.
M02	ROUTE REFRIGERANT PIPING ABOVE SAT CEILING. NO REFRIGERANT PIPING TO BE INSTALLED ABOVE THE RESTROOMS OR JANITOR'S CLOSET.
M05	REFRIGERANT PIPING SHOWN IS SCHEMATIC. CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE QUANTITY AND SIZE OF REFRIGERANT PIPING REQUIRED.
M09	REFER TO ARCHITECTURAL SHEETS FOR EXTERIOR REFRIGERANT PIPING COVER.
M10	ROUTE CONDENSATE DRAIN TO MOP SINK.

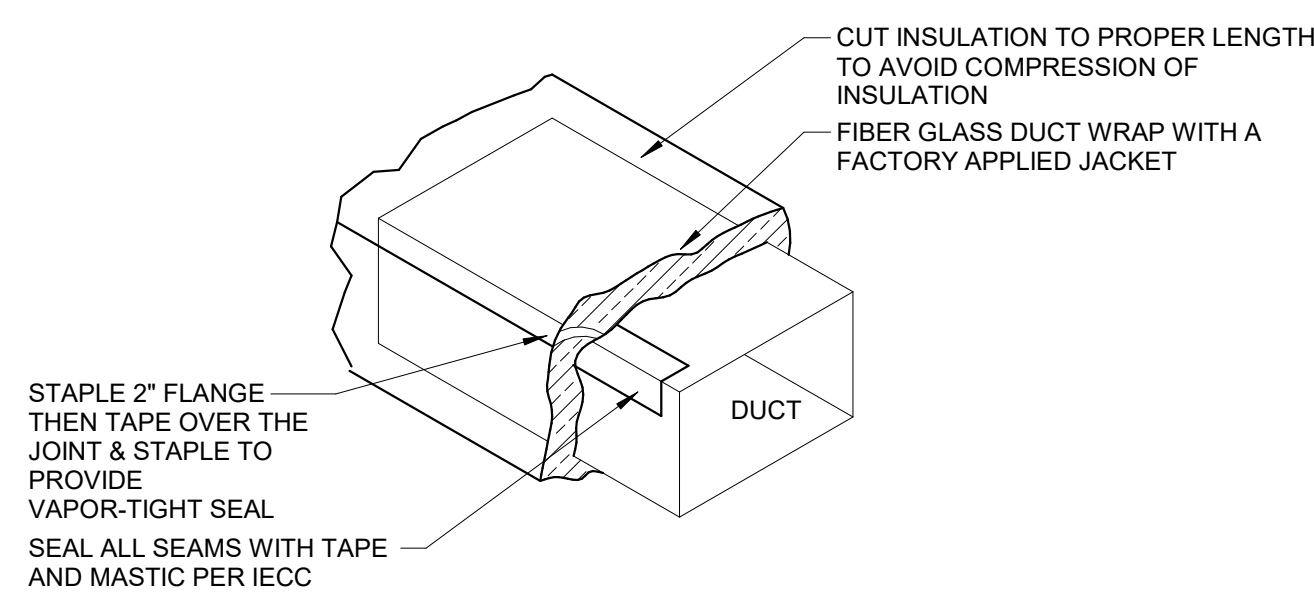


1 MEZZANINE LEVEL - MECHANICAL PIPING PLAN  
1/4" = 1'-0"

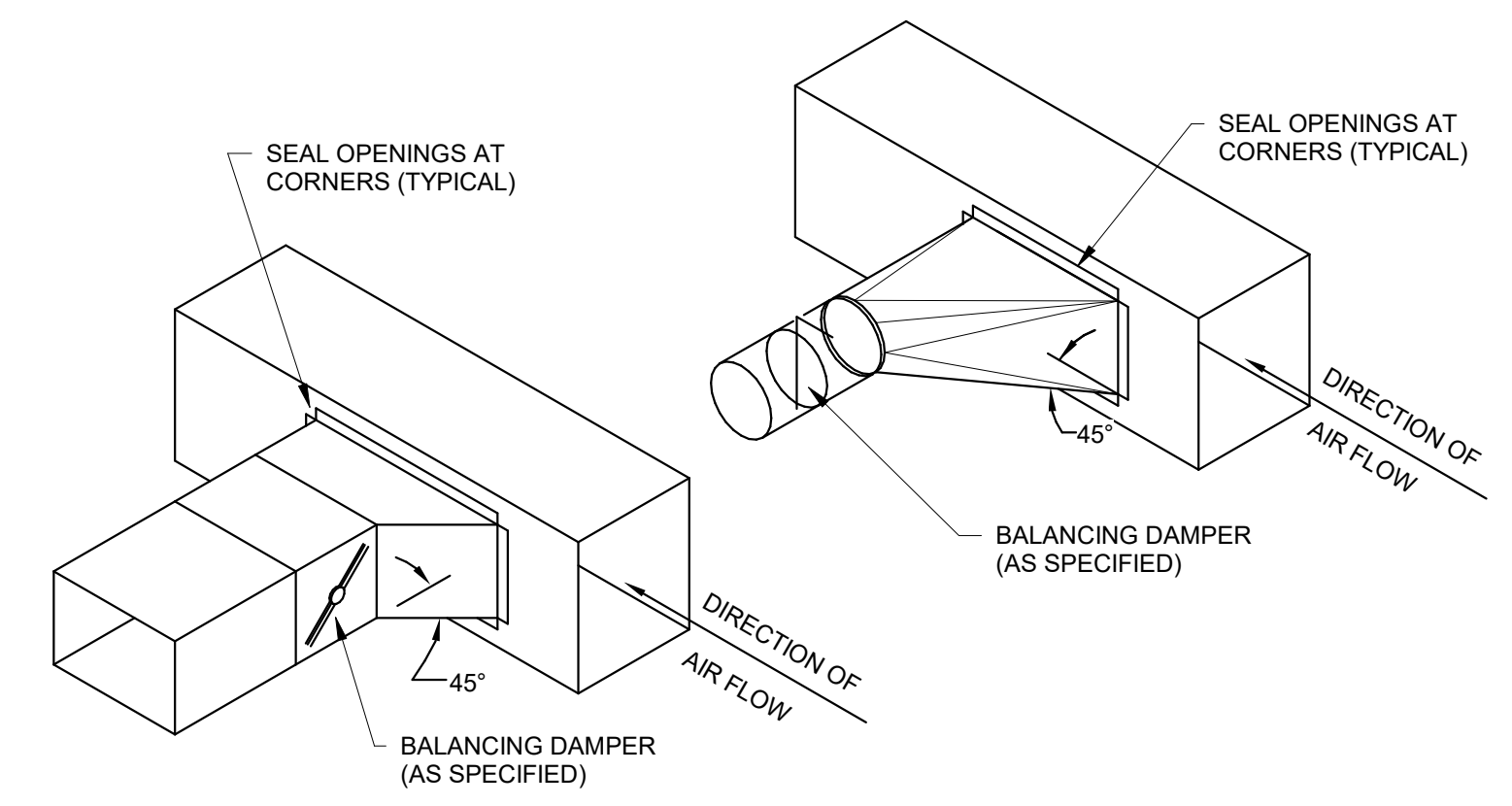


2 MAIN LEVEL - MECHANICAL PIPING PLAN  
1/4" = 1'-0"

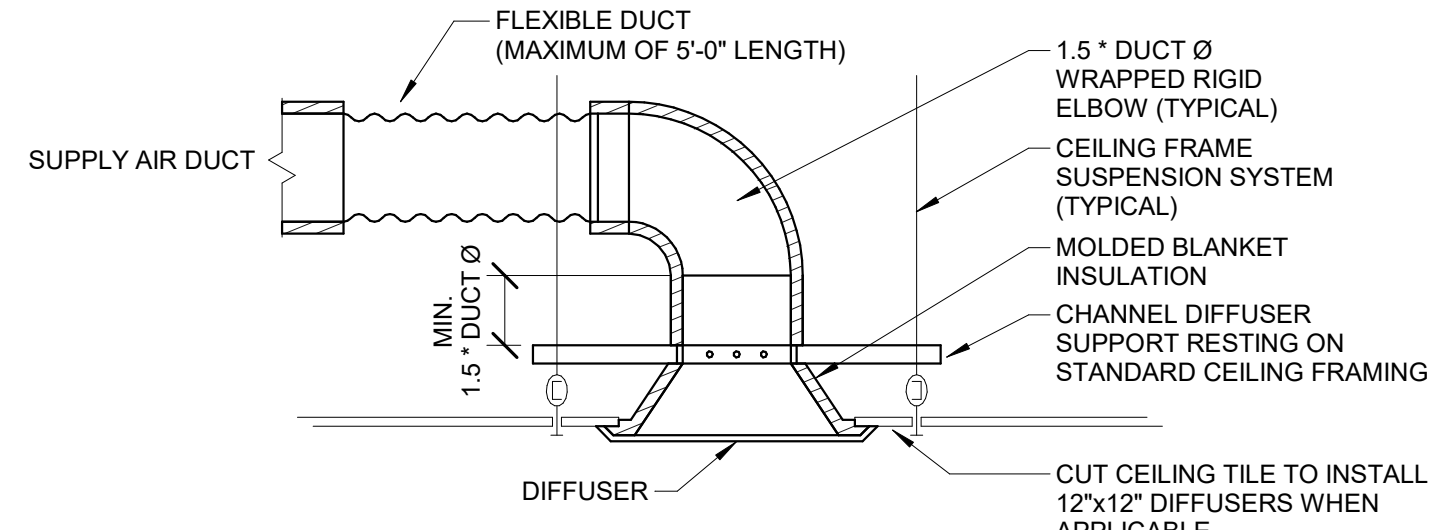




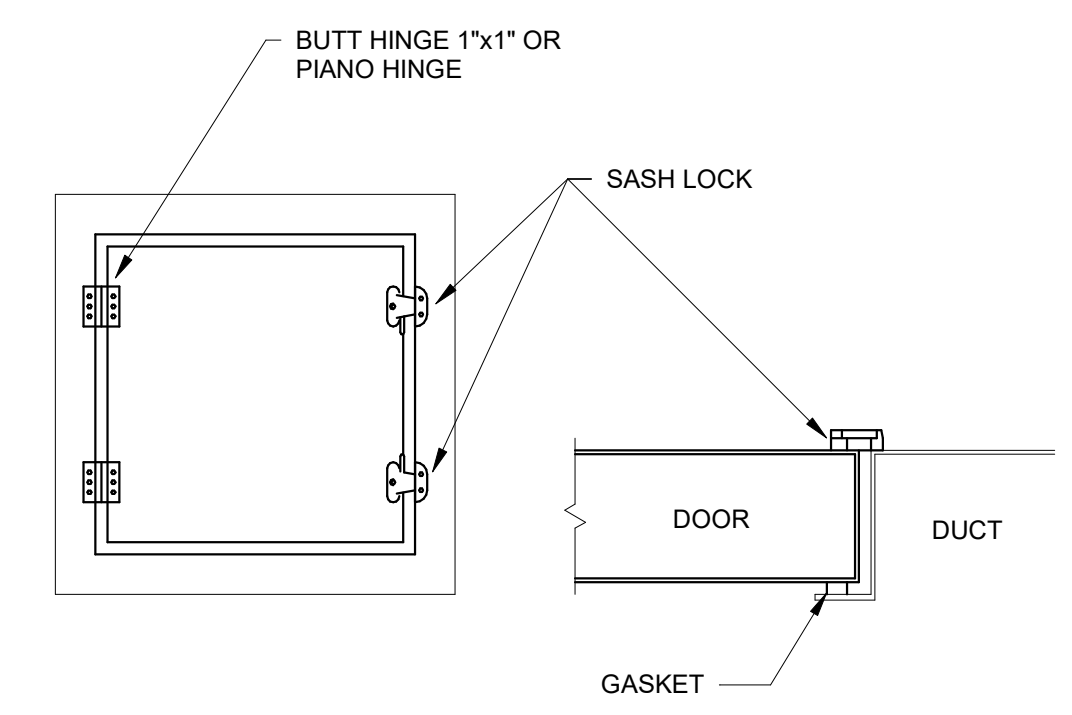
1 DUCT WRAP DETAIL  
NTS



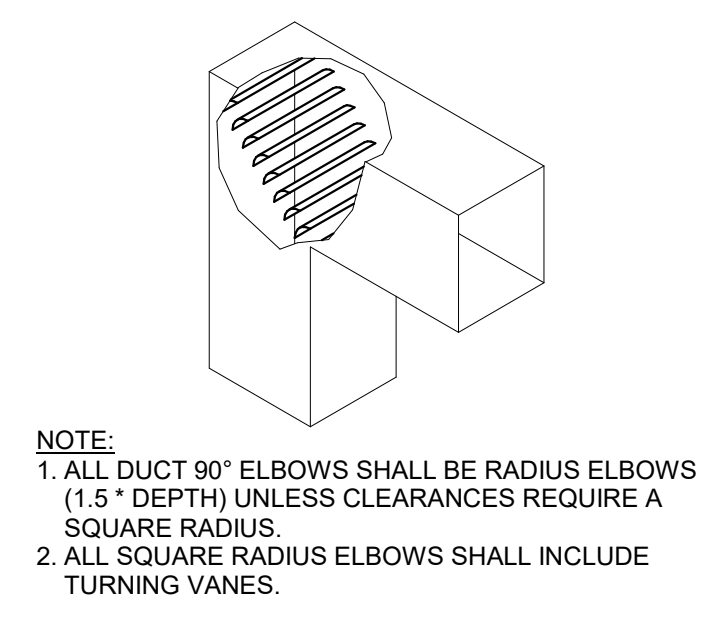
2 BRANCH CONNECTION DETAIL  
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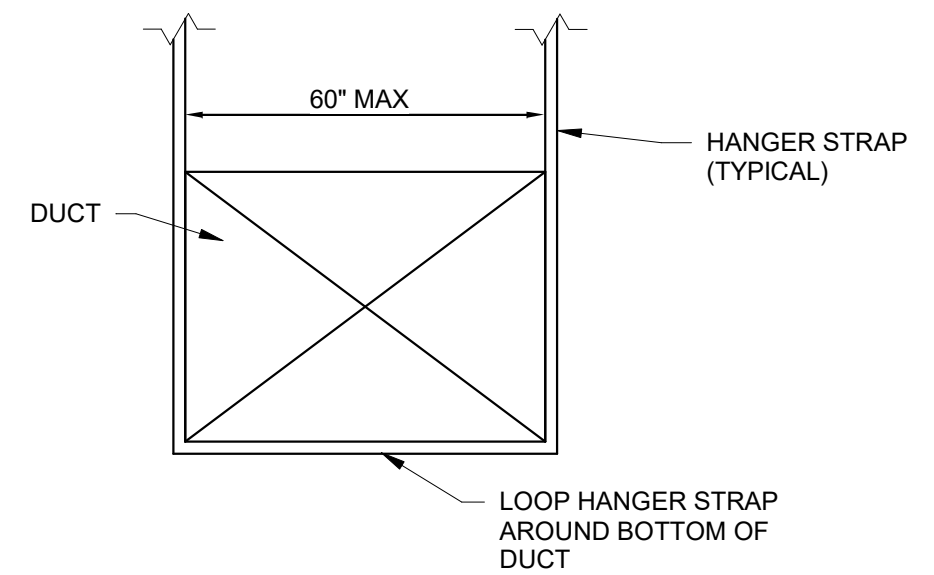
4 DIFFUSER CONNECTION DETAIL  
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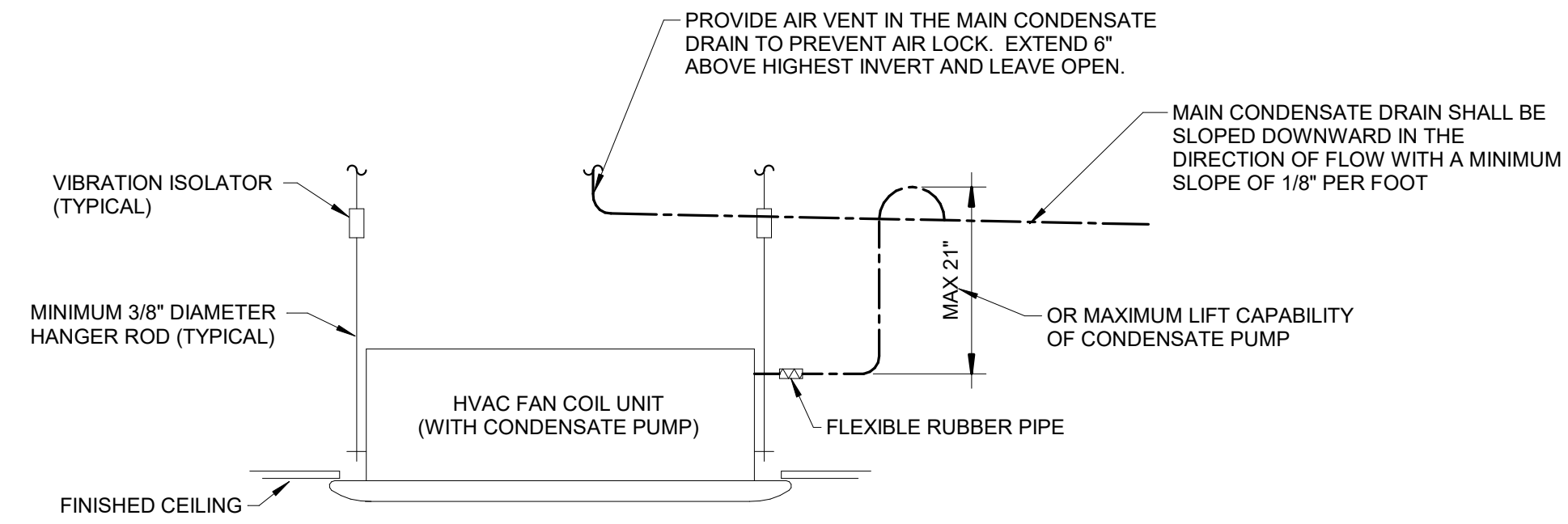
5 DUCT ACCESS DOOR DETAIL  
NTS



6 TURNING VANE DETAIL  
NTS



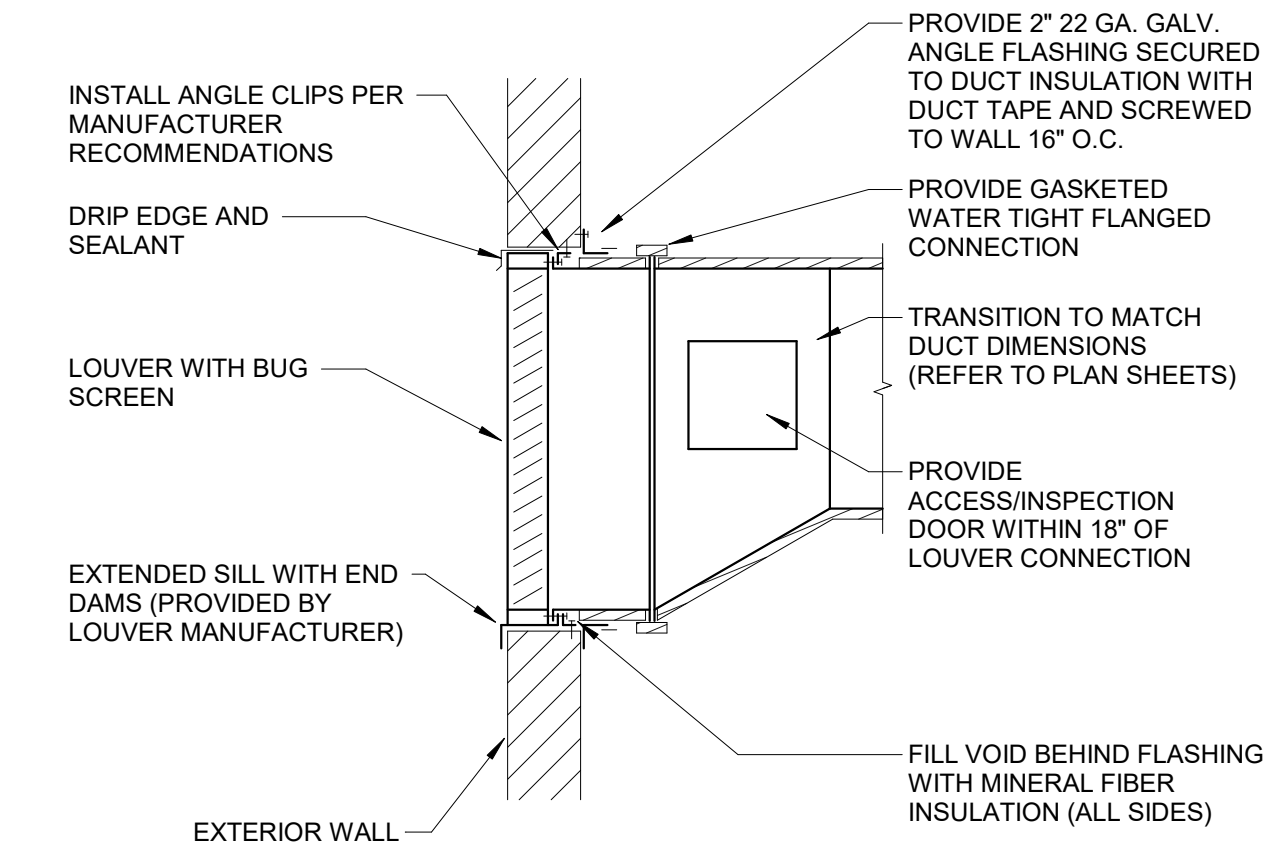
7 STRAP HANGER DETAIL  
NTS



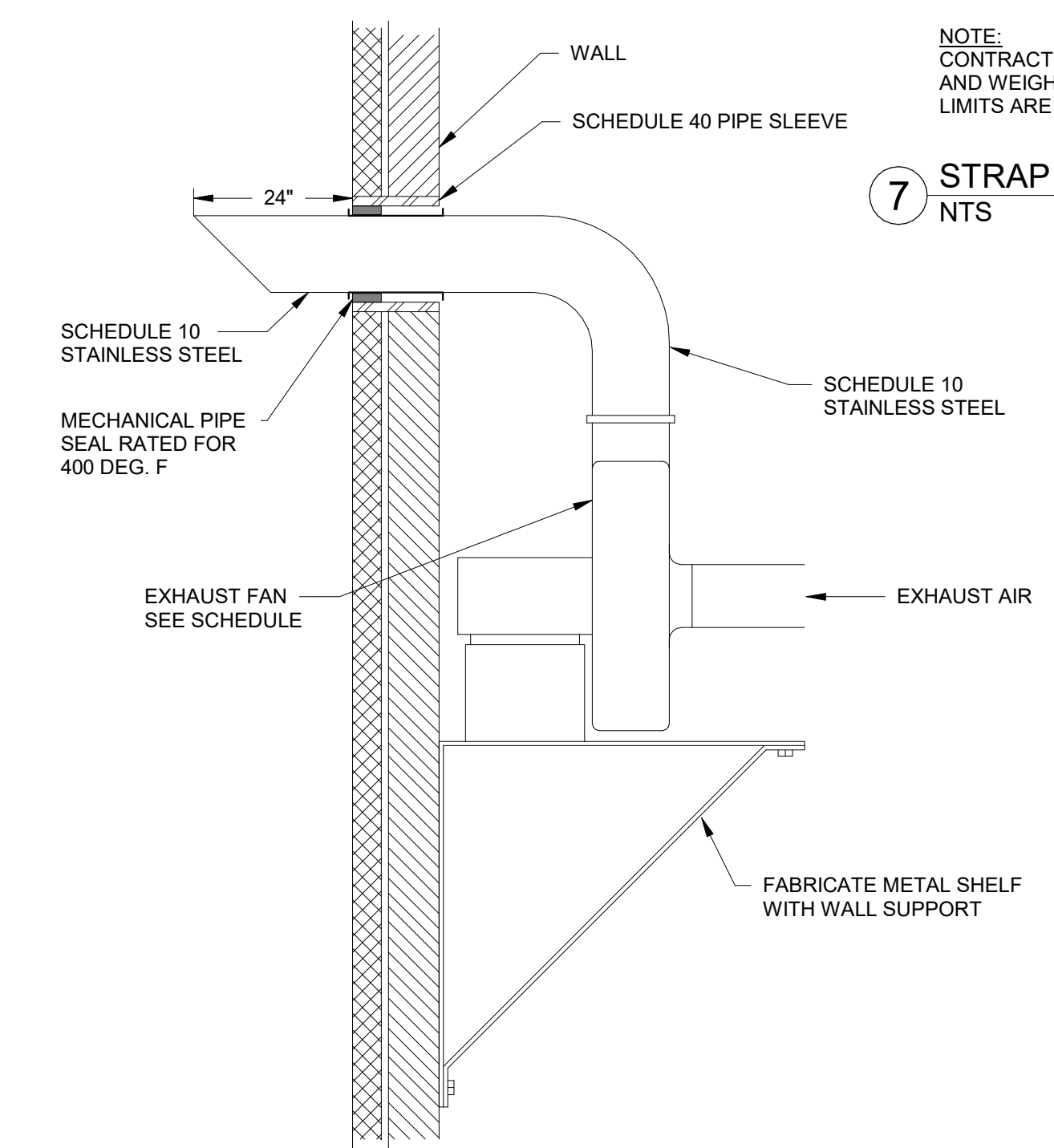
8 VRF CASSETTE UNIT DETAIL  
NTS



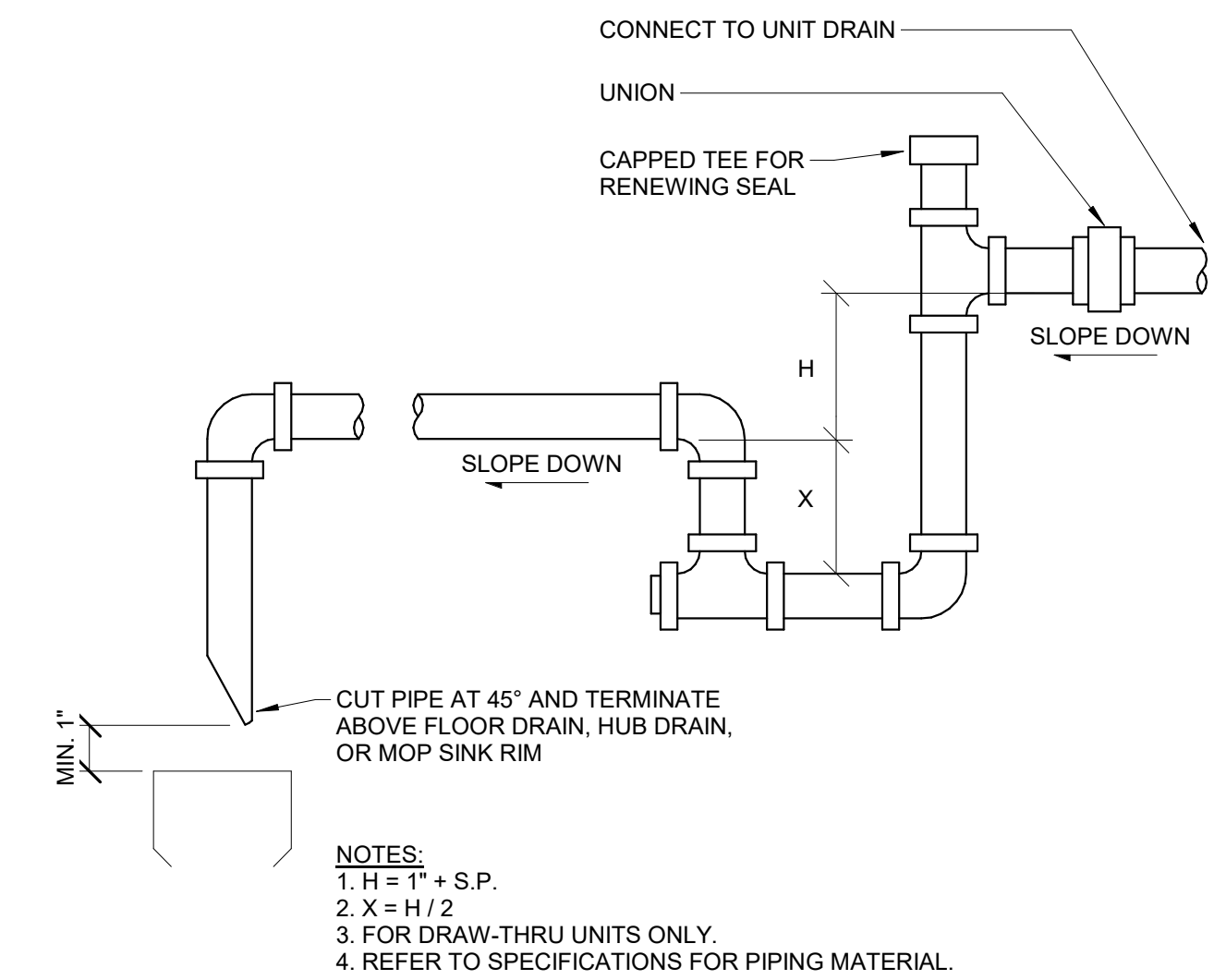
3 VEHICLE EXHAUST SYSTEM DETAIL  
NTS



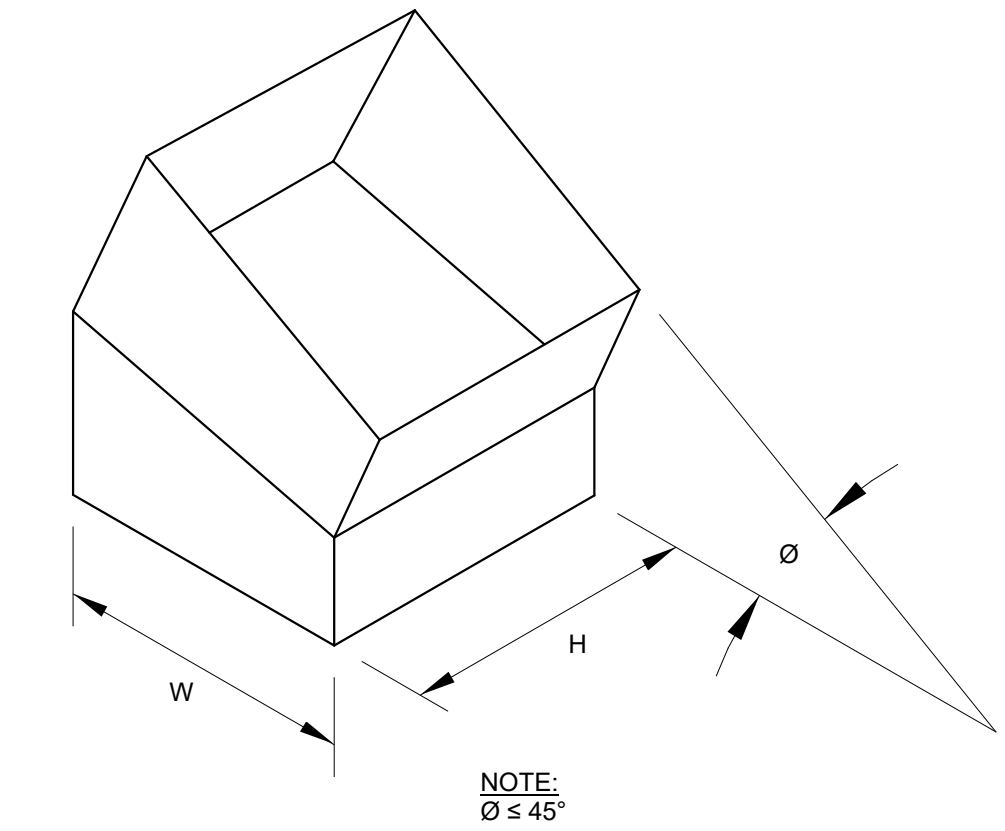
9 LOUVER INSTALLATION DETAIL  
NTS



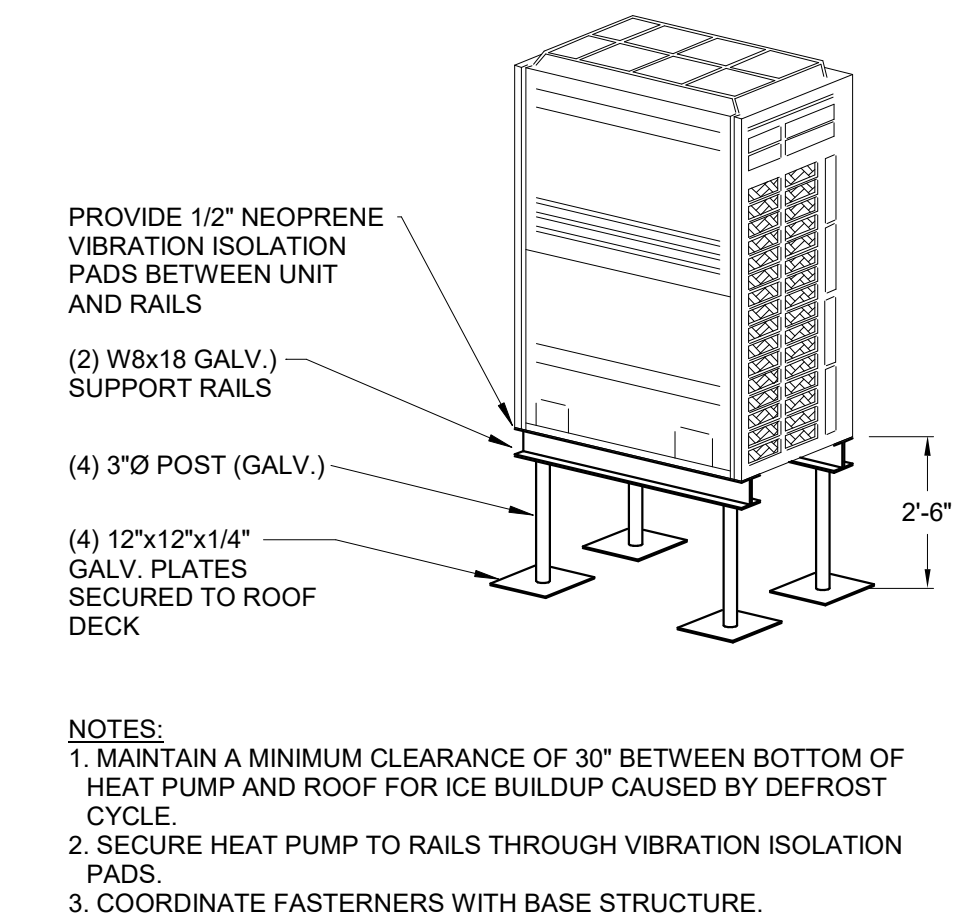
10 VEHICLE EXHAUST FAN (WALL MOUNTED)  
NTS



11 COOLING COIL CONDENSATION DETAIL  
NTS



12 MITRED DUCT ELBOW DETAIL  
NTS



13 OUTDOOR HEAT PUMP  
NTS



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CAD DWG FILE: M601  
DRAWING BY: MHB  
CHECKED BY: JJJ  
DESIGNED BY: MHB

SHEET TITLE:

**MECHANICAL  
EQUIPMENT  
SCHEDULES**

SHEET NUMBER:

**M601**

SHEET 40 OF 51  
APRIL 28, 2023

VRF HEAT RECOVERY CONDENSING UNIT SCHEDULE													
MARK	BASIS OF DESIGN			CAPACITY (BTU/HR)		OPERATING RANGE		ELECTRICAL					NOTES
	MANUFACTURER	MODEL	REFRIGERANT	COOLING (95F AMBIENT)	HEATING (-12F AMBIENT)	COOLING	HEATING	VOLT	HZ	PHASE	MCA	MOCP	
CU-3	LG ELECTRONICS	ARUM168BTE5	R-410A	163,600	150,300	122F	-22F	208	60	3	53.6	70	1,2,3,4

**NOTES:**

1. PROVIDE THE REQUIRED NUMBER OF REFRIGERANT BRANCH BOXES REQUIRED TO SERVE THE CONTROL ZONES AND PIPING LENGTHS.
2. REFER TO M501, DETAIL 13 FOR EQUIPMENT SUPPORT REQUIREMENTS.
3. PROVIDE WITH HAIL GUARD.
4. REFER TO VARIABLE REFRIGERANT FLOW SYSTEMS SPECIFICATION 238200 FOR APPROVED ALTERNATE VENDORS.

VRF FAN COIL UNIT SCHEDULE														
MARK	DESCRIPTION	BASIS OF DESIGN			CAPACITY (BTU/HR)		AIRFLOW		ELECTRICAL					NOTES
		MANUFACTURER	MODEL	REFRIGERANT	COOLING	HEATING	CFM	ESP (IN WG)	VOLT	HZ	PHASE	MCA	RLA	
FCU-1	VERTICAL DUCTED	LG ELECTRONICS	ARNUS43NKA4	R-410A	52,100	59,700	1,475	1.0	208	60	1	2.25	1.8	2,3,4
FCU-2	VERTICAL DUCTED	LG ELECTRONICS	ARNUS43NKA4	R-410A	52,100	59,700	1,475	1.0	208	60	1	2.25	1.8	2,3,4
FCU-3	4-WAY CEILING CASSETTE	LG ELECTRONICS	ARNU053TRD4	R-410A	5,300	3,800	264.9	---	208	60	1	0.25	0.2	1,4
OAP-1	DUCTED UNIT	LG ELECTRONICS	ARNUS43M3A4	R-410A	46,200	56,300	1,100	0.5	208	60	1	3.1	2.5	1,4

**NOTES:**

1. PROVIDE WITH INTEGRAL CONDENSATE PUMP.
2. PROVIDE VERTICAL DUCTED FAN COIL UNITS WITH EXTERNAL CONDENSATE PUMP.
3. PROVIDE WITH DUCT MOUNTED, 24V CONTROL DAMPER ON OUTSIDE AIR DUCT.
4. REFER TO VARIABLE REFRIGERANT AND FLOW SYSTEMS SPECIFICATION 238200 FOR APPROVED ALTERNATE VENDORS.

CONDENSING UNIT SCHEDULE												
MARK	BASIS OF DESIGN			COOLING CAPACITY (BTU/HR) @ 95F AMBIENT	CAPACITY CONTROL	ELECTRICAL						NOTES
	MANUFACTURER	MODEL	REFRIGERANT			VOLT	HZ	PHASE	MCA	MOCP		
CU-1	AAON	CFA-015	R-410A	180,000	100-25%	208	60	3	62	80	1.3	
CU-2	AAON	CFA-015	R-410A	180,000	100-25%	208	60	3	62	80	1.2,3	

**NOTES:**

1. INSTALL CONDENSING UNIT ON CONCRETE EQUIPMENT PAD.
2. ALTERNATE #1.
3. REFER TO PACKAGED COMPRESSOR AND CONDENSING UNITS SPECIFICATION 238200 FOR APPROVED ALTERNATE VENDORS.

MAKE-UP AIR UNIT SCHEDULE																						
MARK	BASIS OF DESIGN			AIRFLOW			REFRIGERANT	COOLING			HORH CAPACITY (BTU/HR)	HEATING TYPE	TURNDOWN	HEATING			ELECTRICAL					NOTES
	MANUFACTURER	MODEL	MAXIMUM CFM	ESP (IN WG)	MINIMUM CFM	CAPACITY (BTU/HR)		SUPPLY AIR ENTERING	SUPPLY AIR LEAVING	CAPACITY (BTU/HR)				SUPPLY AIR ENTERING	SUPPLY AIR LEAVING	VOLT	HZ	PHASE	MCA	MOCP		
MAU-1	AAON	H3-C	2,400	0.25	600	R-410A	183,250	85/79	58/57	52,800	NAT. GAS	5:1	225,000	0	80	208	60	3	11	15	1,2,3,4	
MAU-2	AAON	H3-C	2,400	0.25	600	R-410A	183,250	85/79	58/57	52,800	NAT. GAS	5:1	225,000	0	80	208	60	3	11	15	1,2,3,4	

**NOTES:**

1. PROVIDE WITH FACTORY INSTALLED OUTDOOR AIR DAMPER.
2. PROVIDE WITH FACTORY INSTALLED NON-FUSED DISCONNECT SWITCH.
3. REFER TO MODULAR INDOOR CENTRAL STATION AIR HANDLING UNITS SPECIFICATION 237313 FOR APPROVED ALTERNATE VENDORS.
4. ALTERNATE #1.

ENERGY RECOVERY UNIT SCHEDULE																						
MARK	DESCRIPTION	BASIS OF DESIGN			AIRFLOW				SUMMER				WINTER				ELECTRICAL					NOTES
		MANUFACTURER	MODEL	MODE	SUPPLY		EXHAUST		SUPPLY AIR		EXHAUST AIR		SUPPLY AIR		EXHAUST AIR		VOLT	HZ	PHASE	MCA	MOCP	
		CFM	ESP (IN WG)	CFM	ESP (IN WG)	SUPPLY AIR ENTERING	SUPPLY AIR LEAVING	EXHAUST AIR ENTERING	EXHAUST AIR LEAVING	SUPPLY AIR ENTERING	SUPPLY AIR LEAVING	EXHAUST AIR ENTERING	EXHAUST AIR LEAVING									
ERV-1	CROSS-FLOW FIXED-CORE ENERGY RECOVERY VENTILATOR	LG Electronics	ARVU123ZFA2	OCCUPIED	1,100	.5	1,100	.5	95/78F	83/72.8F	75/62F	87/68.5F	1/0F	41.7/29.8F	70/51.5F	29.3/29.2F	208	60	1	6.82	1.2	
				UNOCCUPIED	530	0.2	530	0.3	95/78F	81.6/71.6F	75/62F	88.4/69.8F	1/0F	46.5/35.4F	70/51.5F	24.5/24.4F						

**NOTES:**

1. PROVIDE WITH DUCT MOUNTED, 24V CONTROL DAMPERS ON OUTSIDE AIR AND EXHAUST AIR DUCTS.
2. REFER TO AIR TO AIR ENERGY RECOVERY EQUIPMENT SPECIFICATION 237200 FOR APPROVED ALTERNATE VENDORS.

GRILLES, REGISTERS, AND DIFFUSERS SCHEDULE																				
TAG	TYPE	DISCRPTION	FACE SIZE		CONNECTION SIZE			NOMINAL AIRFLOW (CFM)	TOTAL P.D.	THROW				DAMPER	MATERIAL	FINISH	FRAME	BASIS OF DESIGN		REMARKS
			LENGTH	WIDTH	RECTANGULAR LENGTH	RECTANGULAR WIDTH	ROUND			150 FPM	100 FPM	50 FPM	MAX. NC					MAKE	MODEL	
			8"	8"	6"	6"														
E1	EXHAUST GRILLE	1/2" x 1/2" x 1" EGGCRATE GRID.	8"	8"										---	ALUMINUM	WHITE ENAMEL		TITUS	PXP-AA	NOTE 1.
E2	EXHAUST GRILLE	35 DEG. FIXED DEFLECTION REGISTER WITH BLADES PARALLEL TO LONG DIMENSION. 3/4" SPACING.	24"	12"	20"	10"								---	ALUMINUM	WHITE ENAMEL		TITUS	350FL	NOTE 1.
E3	EXHAUST GRILLE	35 DEG. FIXED DEFLECTION REGISTER WITH BLADES PARALLEL TO LONG DIMENSION. 3/4" SPACING.	8"	8"	6"	6"								---	ALUMINUM	WHITE ENAMEL		TITUS	350FL	NOTE 1.
O1	CEILING DIFFUSER	24x24 MODULAR FULL-FACE DIFFUSER WITH ROUND NECK	24"	24"			10"	250	0.03 in-wg	3'	4'	8'	10	---	ALUMINUM	WHITE ENAMEL		TITUS	TMSA	NOTE 1.
O2	ADJUSTABLE ROUND CEILING DIFFUSER	ADJUSTABLE ROUND CEILING DIFFUSER - DIFFUSER DIAMETER NOTED ON PLANS					24"	2400	0.12 in-wg	13'	20'	32'	31	---	ALUMINUM	WHITE ENAMEL		TITUS	TMRA	NOTE 1.
R1	RETURN AIR GRILLE	SIGHT PROOF GRILLE WITH INVERTED-V BLADES IN HORIZONTAL POSITION.	22"	22"	20"	20"								---	ALUMINUM	WHITE ENAMEL		TITUS	350FL	NOTE 1.
S1	SUPPLY DIFFUSER	24x24 MODULAR FULL-FACE DIFFUSER WITH ROUND NECK	24"	24"			8"	400	0.16 in-wg	5'	8'	12'	33	---	ALUMINUM	WHITE ENAMEL		TITUS	TMSA	NOTE 1.
T1	TRANSFER GRILLE	35 DEG. FIXED DEFLECTION REGISTER WITH BLADES PARALLEL TO LONG DIMENSION. 3/4" SPACING.	8"	6"	6"	4"								---	ALUMINUM	WHITE ENAMEL		TITUS	350FL	NOTE 1.

**NOTES:**

1. REFER TO DIFFUSERS, REGISTERS AND GRILLES SPECIFICATION 233713 FOR APPROVED ALTERNATE VENDORS.

LOUVER SCHEDULE															
TAG	DESCRIPTION	FUNCTION	AIRFLOW	WIDTH	HEIGHT	FRAME DEPTH	FREE AREA	MAX. P.D.	MAX. VELOCITY	MATERIAL	FINISH	BASIS OF DESIGN		REMARKS	
												MAKE	MODEL		
L-1	STATIONARY	OUTDOOR AIR INTAKE	2400 CFM	3' - 8"	3' - 8"	0' - 4"	5.0 SF	0.18 in-wg	500 FPM	ALUMINUM	BAKED ENAMEL	RUSKIN	ELF375X	INCLUDED EXTENDED SILL AND END DAMS, INSECT SCREEN. COORDINATE LOUVER COLOR WITH ARCHITECT. NOTE 1.	
L-2	STATIONARY	OUTDOOR AIR INTAKE	2400 CFM	3' - 8"	3' - 8"	0' - 4"	5.0 SF	0.18 in-wg	500 FPM	ALUMINUM	BAKED ENAMEL	RUSKIN	ELF375X	INCLUDED EXTENDED SILL AND END DAMS, INSECT SCREEN. COORDINATE LOUVER COLOR WITH ARCHITECT. NOTE 1.	
L-3	STATIONARY	OUTDOOR AIR INTAKE	1100 CFM	2' - 6"	2' - 4"	0' - 4"	2.2 SF	0.18 in-wg	500 FPM	ALUMINUM	BAKED ENAMEL	RUSKIN	ELF375X	INCLUDED EXTENDED SILL AND END DAMS, INSECT SCREEN. COORDINATE LOUVER COLOR WITH ARCHITECT. NOTE 1.	
L-4	STATIONARY	EXHAUST AIR OUTLET	1100 CFM	2' - 6"	2' - 4"	0' - 4"	2.2 SF	0.18 in-wg	500 FPM	ALUMINUM	BAKED ENAMEL	RUSKIN	ELF375X	INCLUDED EXTENDED SILL AND END DAMS, INSECT SCREEN. COORDINATE LOUVER COLOR WITH ARCHITECT. NOTE 1.	

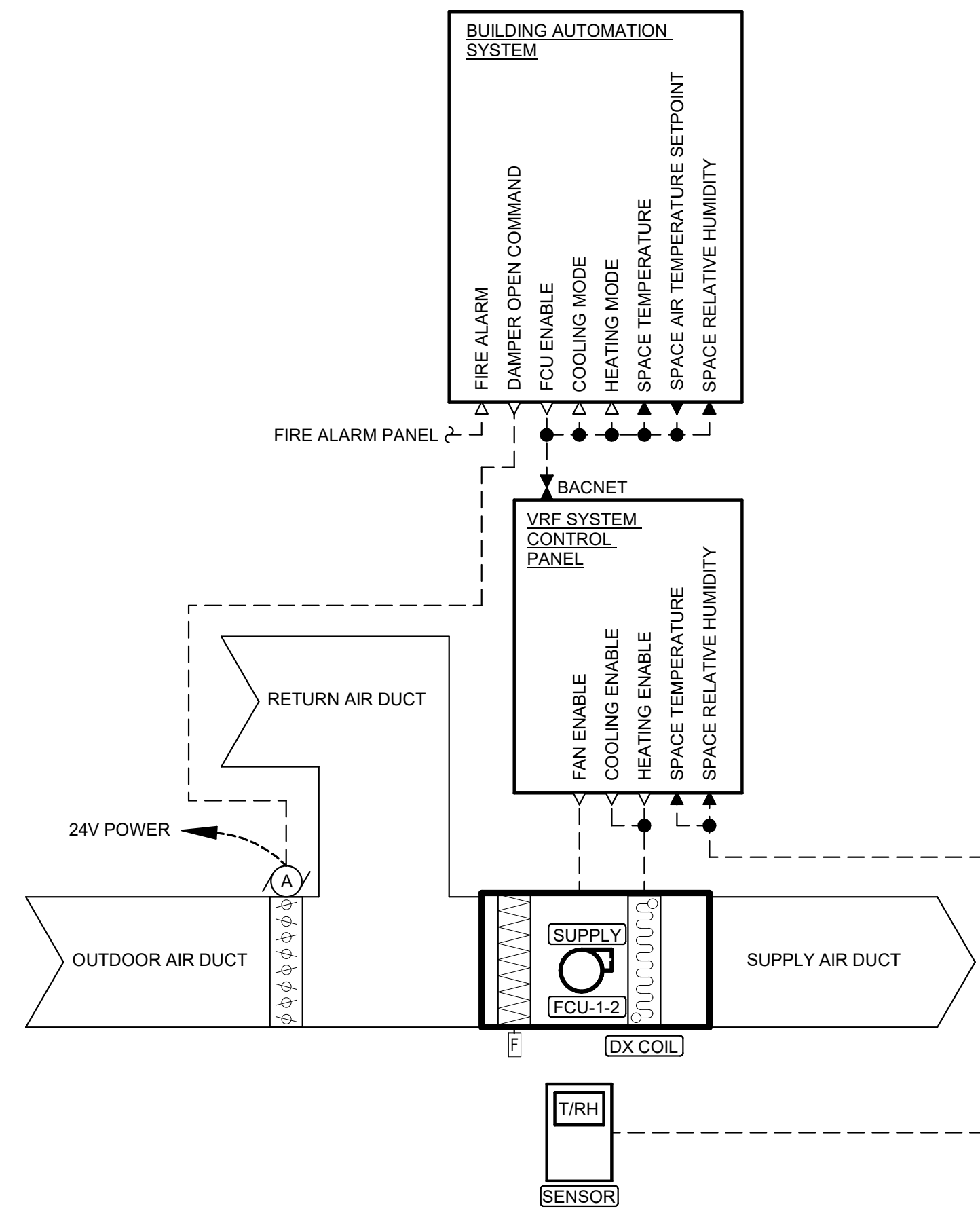
**NOTES:**

1. REFER TO LOUVERS SPECIFICATION 239100 FOR APPROVED ALTERNATE VENDORS.
2. ALTERNATE #1.

**SEQUENCE OF OPERATION**

**GENERAL OPERATION**

- A. OCCUPANCY MODE:**  
 1. THE OCCUPANCY MODE (OCCUPIED OR UNOCCUPIED) SHALL BE DETERMINED THROUGH A USER-ADJUSTABLE, GRAPHICAL, SCHEDULING PROGRAM WITHIN THE EXISTING BAS SYSTEM.
- B. ZONE SETPOINTS**
- INITIAL OCCUPIED PERIOD ZONE SETPOINTS (REGULARLY SCHEDULED WORK DAYS FROM 7:00 AM- 5:30 PM, MONDAY-FRIDAY)
    - COOLING
      - 72°F (ADJUSTABLE BETWEEN 65°F AND 80°F)
      - USERS SHALL BE ABLE TO OVERRIDE INDIVIDUAL ZONE SETPOINTS AT THE LOCAL THERMOSTATS. USER SELECTED RANGE SHALL BE LIMITED TO +/-5°F (ADJUSTABLE FROM 0°F-10°F) AND WITHIN THE COOLING SETPOINT RANGE DESCRIBED ABOVE. USER OVERRIDES SHALL RESET FOLLOWING SYSTEM SWITCHOVER TO UN-OCCUPIED CONDITION.
    - HEATING
      - 65°F (ADJUSTABLE BETWEEN 60°F AND 75°F)
      - USERS SHALL BE ABLE TO OVERRIDE INDIVIDUAL ZONE SETPOINTS AT THE LOCAL THERMOSTATS. USER SELECTED RANGE SHALL BE LIMITED TO +/-5°F (ADJUSTABLE FROM 0°F-10°F) AND WITHIN THE COOLING SETPOINT RANGE DESCRIBED ABOVE. USER OVERRIDES SHALL RESET FOLLOWING SYSTEM SWITCHOVER TO UN-OCCUPIED CONDITION.
  - INITIAL UN-OCCUPIED PERIOD ZONE SETPOINTS (ALL REMAINING TIME THAT IS NOT DEFINED AS OCCUPIED)
    - COOLING
      - 80°F (ADJUSTABLE BETWEEN 65°F AND 80°F)
      - USERS SHALL BE ABLE TO OVERRIDE INDIVIDUAL ZONE SETPOINTS. USER SELECTED RANGE SHALL BE LIMITED TO +/-5°F (ADJUSTABLE FROM 0°F-10°F) AND WITHIN THE COOLING SETPOINT RANGE DESCRIBED ABOVE. USER OVERRIDES SHALL RESET FOLLOWING SYSTEM SWITCHOVER TO OCCUPIED CONDITION.
    - HEATING
      - 60°F (ADJUSTABLE BETWEEN 60°F AND 75°F)
      - USERS SHALL BE ABLE TO OVERRIDE INDIVIDUAL ZONE SETPOINTS. USER SELECTED RANGE SHALL BE LIMITED TO +/-5°F (ADJUSTABLE FROM 0°F-10°F) AND WITHIN THE COOLING SETPOINT RANGE DESCRIBED ABOVE. USER OVERRIDES SHALL RESET FOLLOWING SYSTEM SWITCHOVER TO OCCUPIED CONDITION.
- C. AIRFLOW RATES**  
 1. UNIT FLOW RATES FOR OCCUPIED AND UN-OCCUPIED PERIODS SHALL BE AS SHOWN ON THE DRAWINGS.

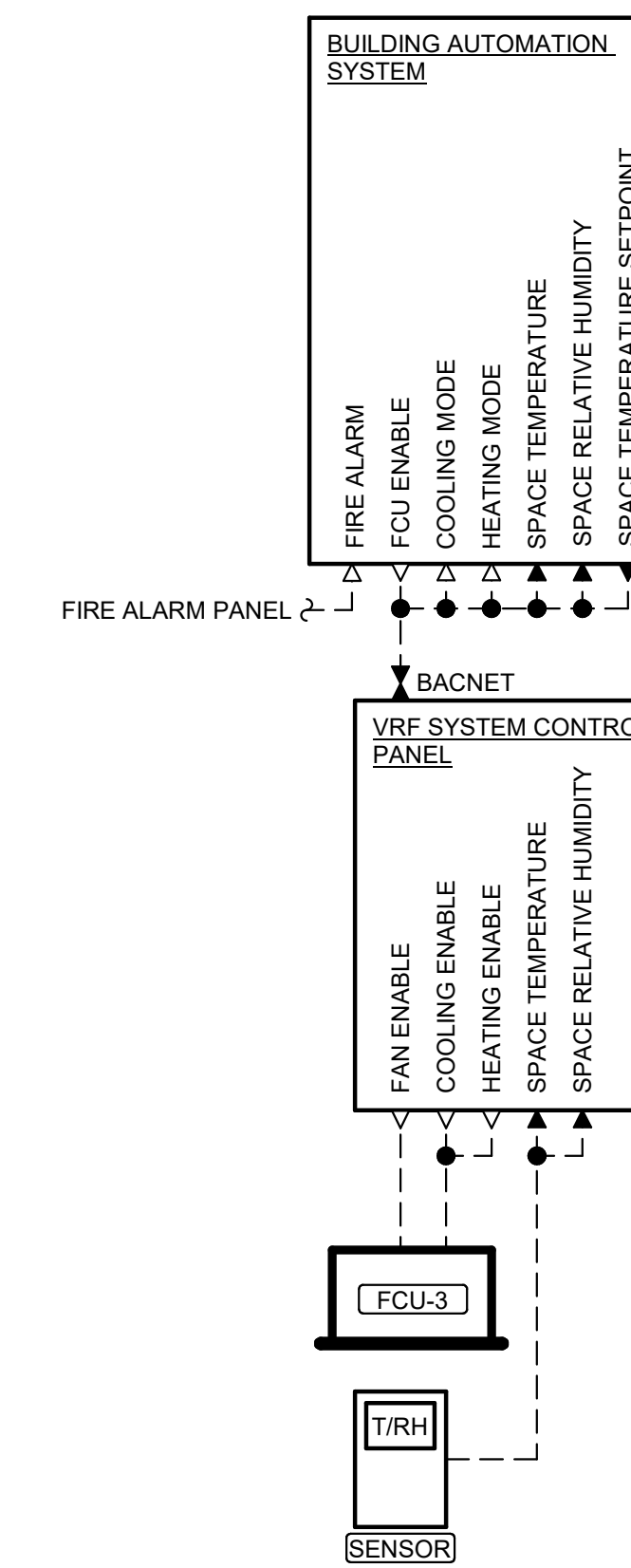


VRF FAN COIL UNIT CONTROL SUMMARY					
CONTROL POINT	VRF SYSTEM CONTROL PANEL DISPLAY	BAS DISPLAY	BAS ADJUSTABLE	BAS ALARM	COMMENTS
FCU ON/OFF	●	●			
DAMPER COMMAND		●			
SPACE TEMPERATURE	●	●	●	●	
SPACE TEMPERATURE SET POINT	●	●	●		
COOLING MODE	●	●			
HEATING MODE	●	●			
SPACE RELATIVE HUMIDITY	●	●	●		

**VRF HEAT RECOVERY SYSTEM SEQUENCE OF OPERATION**

- A. CENTRAL BAS SYSTEM CONTROL**
- THE BAS SHALL ENABLE THE VRF HEAT RECOVERY SYSTEM AT ALL TIMES.
  - SAFETY SHUTDOWNS/ALARM GENERATION:
    - BUILDING FIRE ALARM ACTIVATION SHALL DISABLE OPERATION OF ALL OF THE COMPONENTS COMPRISING THE VRF HEAT RECOVERY SYSTEM.
    - AN FCU GENERAL ALARM SHALL BE GENERATED IF THE SPACE TEMPERATURE IS GREATER THAN +/-5°F (ADJUSTABLE BETWEEN 2°F AND 10°F) FROM SETPOINT FOR MORE THAN FIVE MINUTES (ADJUSTABLE BETWEEN 1 AND 20 MINUTES)
  - FAN COIL UNITS (FCU-1 THROUGH 2)
    - SETPOINTS: AS PROVIDED WITHIN THE GENERAL BAS SYSTEM DESCRIPTION.
    - CENTRAL BAS SHALL OPEN OUTDOOR AIR DAMPER DURING THE OCCUPIED PERIOD.
- B. VRF SYSTEM CONTROLLER**
- FAN COIL UNITS (FCU-1 THROUGH 2)
    - FCUS SHALL OPERATE TO MAINTAIN SPACE SETPOINT.
    - FCUS OPERATING MODE SHALL AUTOMATICALLY SWITCH BETWEEN HEATING AND COOLING BASED ON THE SPACE TEMPERATURE RELATIONSHIP TO SET POINT.
    - SYSTEM SHALL SUPPORT SIMULTANEOUS HEATING AND COOLING BY DIFFERENT FCUS.
    - SPACE TEMPERATURE SETPOINTS SHALL BE CONTROLLED THROUGH THE BAS WITH TEMPORARY OCCUPANT OVERRIDE AT TEMPERATURE SENSORS.

1 VRF FAN COIL UNIT CONTROLS DIAGRAM NTS



VRF CASSETTE UNIT CONTROL SUMMARY					
CONTROL POINT	VRF SYSTEM CONTROL PANEL DISPLAY	BAS DISPLAY	BAS ADJUSTABLE	BAS ALARM	COMMENTS
FCU ON/OFF	●	●			
SPACE TEMPERATURE	●	●	●	●	
SPACE TEMPERATURE SET POINT	●	●	●		
COOLING MODE	●	●			
HEATING MODE	●	●			
SPACE RELATIVE HUMIDITY	●	●	●		

**VRF HEAT RECOVERY SYSTEM SEQUENCE OF OPERATION**

- A. CENTRAL BAS SYSTEM CONTROL**
- THE BAS SHALL ENABLE THE VRF HEAT RECOVERY SYSTEM AT ALL TIMES.
  - SAFETY SHUTDOWNS/ALARM GENERATION:
    - BUILDING FIRE ALARM ACTIVATION SHALL DISABLE OPERATION OF ALL OF THE COMPONENTS COMPRISING THE VRF HEAT RECOVERY SYSTEM.
    - AN FCU GENERAL ALARM SHALL BE GENERATED IF THE SPACE TEMPERATURE IS GREATER THAN +/-5°F (ADJUSTABLE BETWEEN 2°F AND 10°F) FROM SETPOINT FOR MORE THAN FIVE MINUTES (ADJUSTABLE BETWEEN 1 AND 20 MINUTES)
  - FAN COIL UNITS (FCU-3)
    - SETPOINTS: AS PROVIDED WITHIN THE GENERAL BAS SYSTEM DESCRIPTION.
- B. VRF SYSTEM CONTROLLER**
- FAN COIL UNITS (FCU-3)
    - FCUS SHALL OPERATE TO MAINTAIN SPACE SETPOINT.
    - FCUS OPERATING MODE SHALL AUTOMATICALLY SWITCH BETWEEN HEATING AND COOLING BASED ON THE SPACE TEMPERATURE RELATIONSHIP TO SET POINT.
    - SYSTEM SHALL SUPPORT SIMULTANEOUS HEATING AND COOLING BY DIFFERENT FCUS.
    - SPACE TEMPERATURE SETPOINTS SHALL BE CONTROLLED THROUGH THE BAS WITH TEMPORARY OCCUPANT OVERRIDE AT TEMPERATURE SENSORS.

2 VRF CASSETTE UNIT CONTROLS DIAGRAM NTS



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OFFICE OF ADMINISTRATION  
 DIVISION OF FACILITIES  
 MANAGEMENT,  
 DESIGN AND CONSTRUCTION

CONSTRUCT CLASSROOM  
 ADDITION  
 REGIONAL TRAINING SITE -  
 MAINTENANCE (RTS-M)  
 12249 20TH STREET  
 BLDG 1270  
 FORT LEONARD WOOD,  
 MO 65473

PROJECT # T2042-01  
 SITE # 6306  
 ASSET # 8136306006

REVISION: \_\_\_\_\_  
 DATE: \_\_\_\_\_  
 REVISION: \_\_\_\_\_  
 DATE: \_\_\_\_\_  
 REVISION: \_\_\_\_\_  
 DATE: \_\_\_\_\_  
 ISSUE DATE: 04/28/23

CAD DWG FILE: M602  
 DRAWING BY: MHB  
 CHECKED BY: JJJ  
 DESIGNED BY: MHB

SHEET TITLE:  
**CONTROL SCHEMATICS & SEQUENCES**

SHEET NUMBER:

**M602**

SHEET 41 OF 51  
 APRIL 28, 2023





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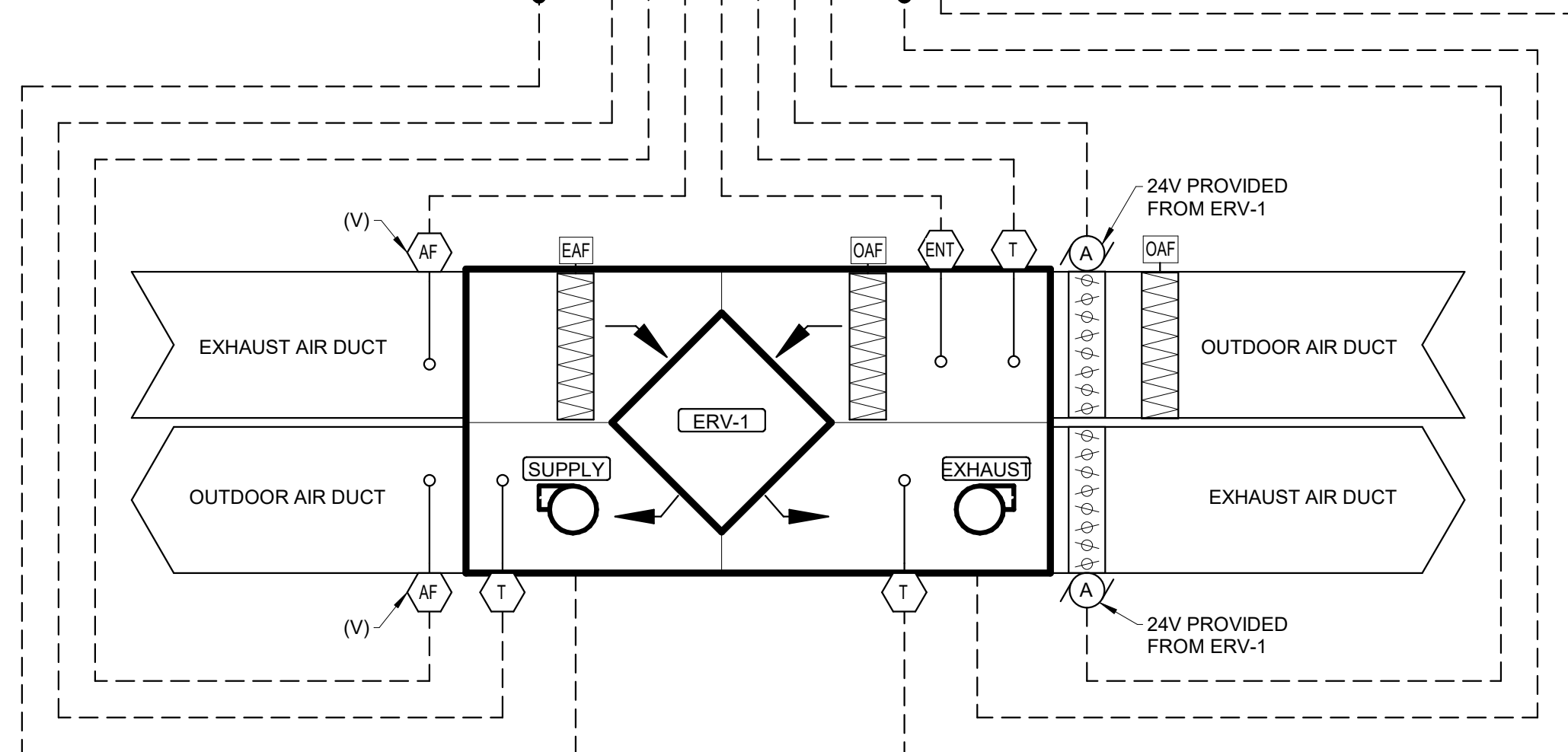
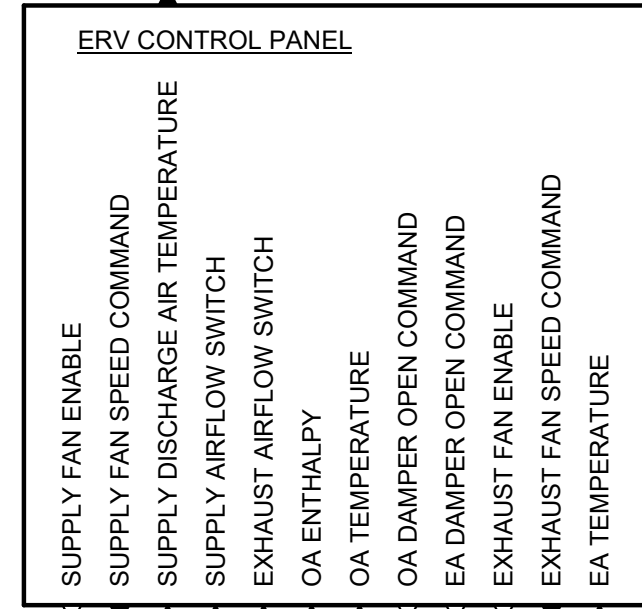
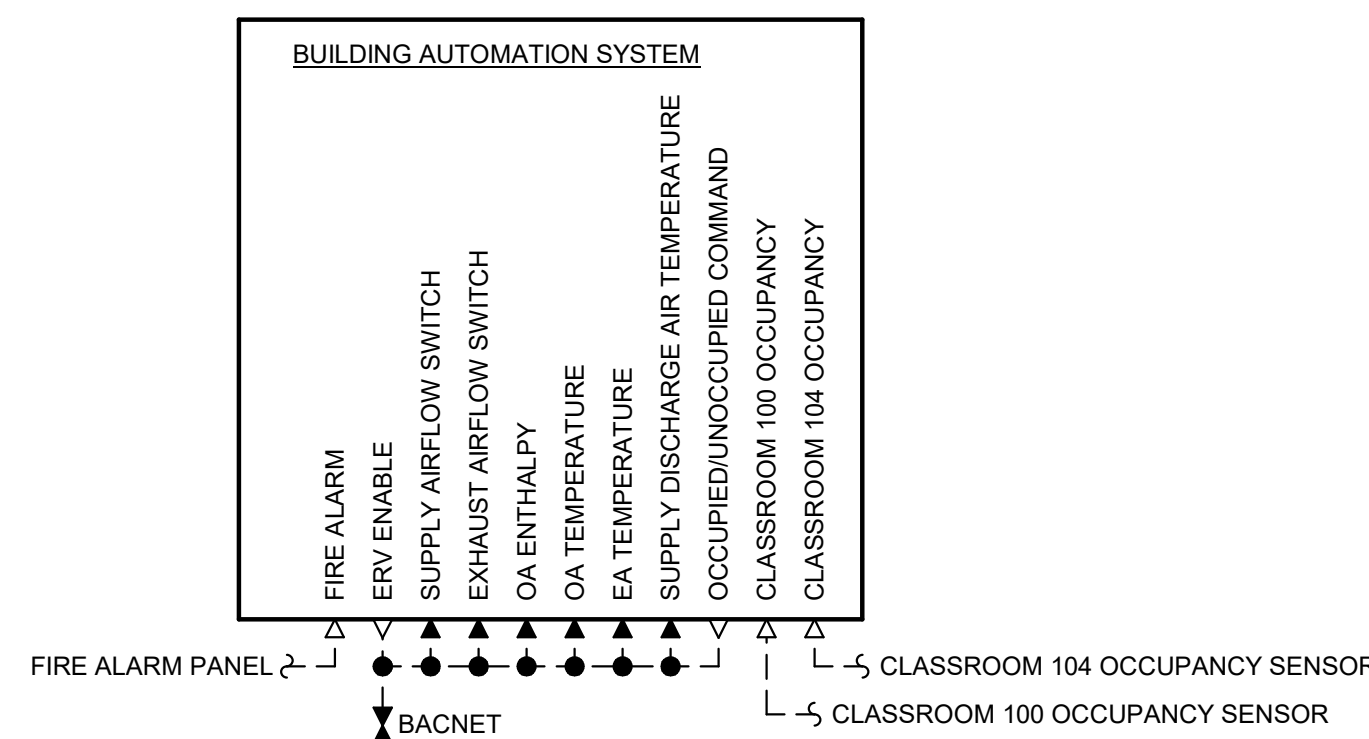
CAD DWG FILE: M603  
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SHEET TITLE:  
**CONTROL SCHEMATICS & SEQUENCE**

SHEET NUMBER:

**M603**

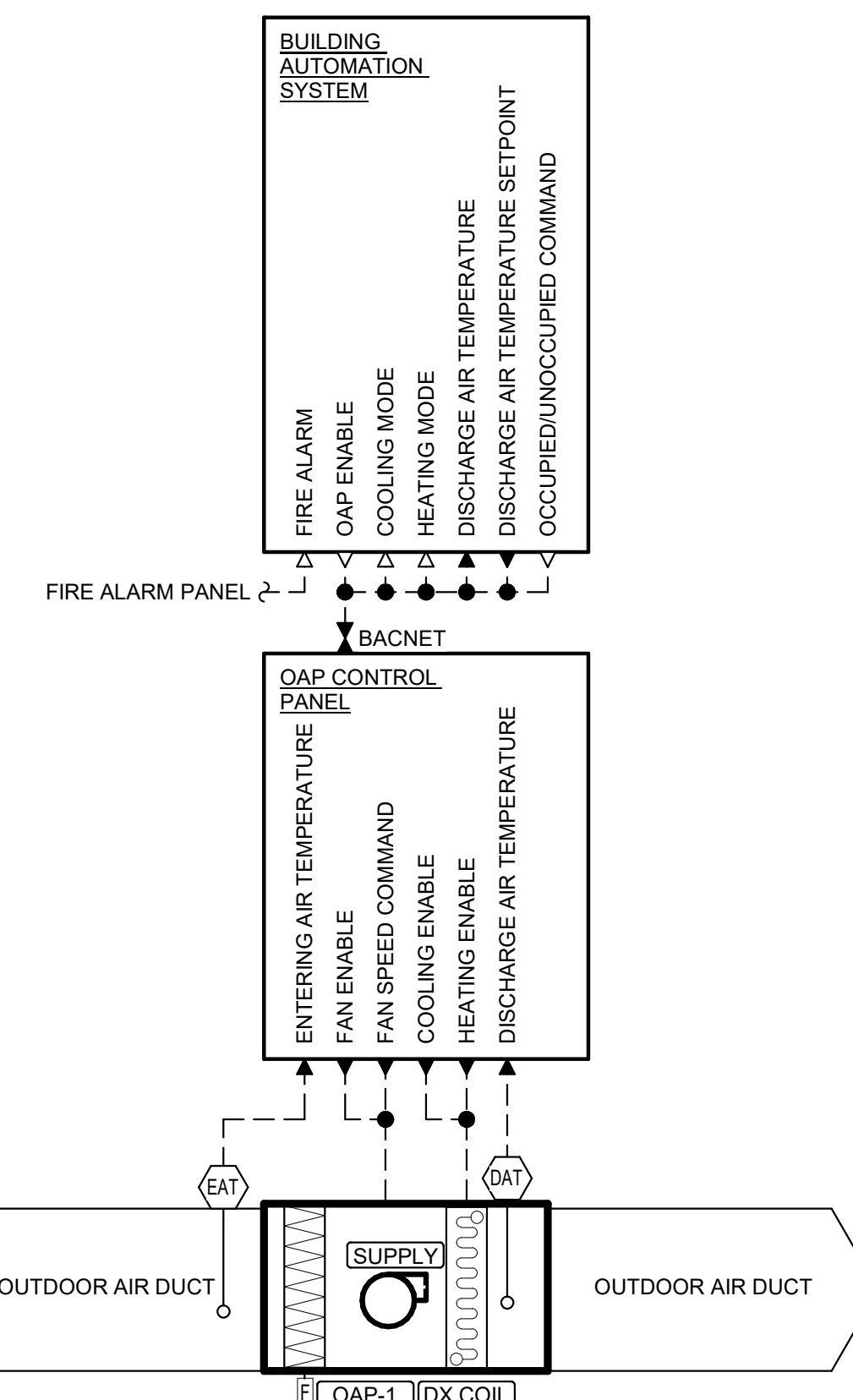
SHEET 42 OF 51  
APRIL 28, 2023



CONTROL POINT	LOCAL CONTROLLER DISPLAY	BAS DISPLAY	BAS ADJUSTABLE	BAS TREND	BAS ALARM	COMMENTS
ERV ON/OFF	●	●				
OUTDOOR AIR TEMPERATURE	●	●	●			
OUTDOOR AIR ENTHALPY	●	●	●			
SUPPLY FAN ON/OFF	●					
SUPPLY FAN SPEED COMMAND	●	●				
EXHAUST FAN ON/OFF	●					
EXHAUST FAN SPEED COMMAND	●	●				
DISCHARGE AIR TEMPERATURE	●	●	●			
EXHAUST AIR TEMPERATURE	●	●	●			
OA AIRFLOW SWITCH				●		ALARM IF ERV ON AND NO AIRFLOW AFTER 2 MINUTES
EA AIRFLOW SWITCH				●		ALARM IF ERV ON AND NO AIRFLOW AFTER 2 MINUTES
CLASSROOM 100 OCCUPIED		●		●		
CLASSROOM 104 OCCUPIED		●		●		

**ENERGY RECOVERY VENTILATOR SEQUENCE OF OPERATION**

- A. CENTRAL BAS SYSTEM CONTROL
1. THE BAS SHALL ENABLE THE ERV-1 AT ALL TIMES.
  2. SAFETY SHUTDOWNS/ALARM GENERATION:
    - a. BUILDING FIRE ALARM ACTIVATION SHALL DISABLE OPERATION OF THE ERV-1.
    - b. AN ERV-1 GENERAL ALARM SHALL BE GENERATED IF THE ERV-1 IS NOT PROVEN BY THE SUPPLY AIR FLOW SWITCH WITHIN FIVE MINUTES OF GENERATING AN ERV RUN SIGNAL.
    - c. AN ERV-1 GENERAL ALARM SHALL BE GENERATED IF THE ERV-1 IS NOT PROVEN BY THE EXHAUST AIR FLOW SWITCH WITHIN FIVE MINUTES OF GENERATING AN ERV RUN SIGNAL.
  3. SUPPLY AND EXHAUST FANS
    - a. UPON ENABLING OF THE ERV-1 THE SUPPLY AND EXHAUST FANS SHALL BE ENERGIZED AND THE SUPPLY AIR AND EXHAUST AIR FANS SHALL ADJUST SPEED TO PROVIDE THE OCCUPIED/UNOCCUPIED AIRFLOW RATES SHOWN ON THE EQUIPMENT SCHEDULE.
    - b. THE ERV SHALL BE IN UNOCCUPIED MODE AT ALL TIMES EXCEPT WHEN CLASSROOM 100 AND/OR CLASSROOM 104 OCCUPANCY SENSORS DETECT OCCUPANCY.
  4. SUPPLEMENTARY COMPONENTS
    - a. THE OUTDOOR AIR AND EXHAUST AIR CONTROL DAMPERS SHALL BE OPEN WHENEVER ERV-1 IS ENABLED.



CONTROL POINT	LOCAL CONTROLLER DISPLAY	BAS DISPLAY	BAS ADJUSTABLE	BAS TREND	BAS ALARM	COMMENTS
OAP ON/OFF	●	●				
FAN ON/OFF	●	●				
COOLING MODE	●	●	●			
HEATING MODE	●	●	●			
DISCHARGE AIR TEMPERATURE	●	●	●	●		
DISCHARGE AIR TEMPERATURE SETPOINT	●	●	●			

**OUTDOOR AIR PROCESSING UNIT SEQUENCE OF OPERATION**

- A. CENTRAL BAS SYSTEM CONTROL
1. THE BAS SHALL ENABLE THE OAP AT ALL TIMES.
  2. SAFETY SHUTDOWNS/ALARM GENERATION:
    - a. BUILDING FIRE ALARM ACTIVATION SHALL DISABLE OPERATION OF THE OAP.
    - b. AN OAP GENERAL ALARM SHALL BE GENERATED IF THE DX COIL LEAVING AIR TEMPERATURE IS GREATER THAN +1.5°F (ADJUSTABLE BETWEEN 2°F AND 10°F) FROM SETPOINT FOR MORE THAN FIVE MINUTES (ADJUSTABLE BETWEEN 1 AND 20 MINUTES)
  3. SUPPLY FAN
    - a. UPON ENABLING OF THE OAP THE SUPPLY FAN SHALL BE ENERGIZED AND THE SUPPLY AIR FAN SHALL ADJUST SPEED TO PROVIDE THE OCCUPIED/UNOCCUPIED AIRFLOW RATES SHOWN ON THE EQUIPMENT SCHEDULE.
    - b. THE OAP OCCUPIED/UNOCCUPIED PERIOD SHALL MATCH THE ERV.
  4. THE BAS SYSTEM SHALL DETERMINE SETPOINTS ACCORDING TO THE FOLLOWING:
    - a. IF THE OUTDOOR AIR TEMPERATURE IS ABOVE 65°F (ADJUSTABLE BETWEEN 55°F AND 70°F), THE DX COIL LEAVING AIR TEMPERATURE SETPOINT SHALL BE 55°F (ADJUSTABLE BETWEEN 50°F AND 65°F).
    - b. IF THE OUTDOOR AIR TEMPERATURE IS BELOW 55°F, THE DX COIL LEAVING AIR TEMPERATURE SETPOINT SHALL BE 70°F (ADJUSTABLE BETWEEN 65°F AND 90°F).
    - c. WHEN THE OUTDOOR AIR TEMPERATURE IS WITHIN THE DEADBAND TEMPERATURE BETWEEN HEATING AND COOLING, THE DX COIL SHALL BE INACTIVE.
    - d. DISCHARGE AIR TEMPERATURE SETPOINTS AND OUTDOOR AIR OPERATIONAL RANGES SHALL BE ADJUSTABLE THROUGH BAS.
- B. LOCAL OAP UNIT CONTROLLER
1. THE LOCAL OAP CONTROLLER SHALL OPERATE THE REFRIGERANT SYSTEM TO PROVIDE THE DX COIL LEAVING AIR TEMPERATURE SETPOINTS PROVIDED BY THE BAS.

1 ENERGY RECOVERY VENTILATOR CONTROLS DIAGRAM  
NTS

2 OUTDOOR AIR PROCESSING UNIT CONTROLS DIAGRAM  
NTS



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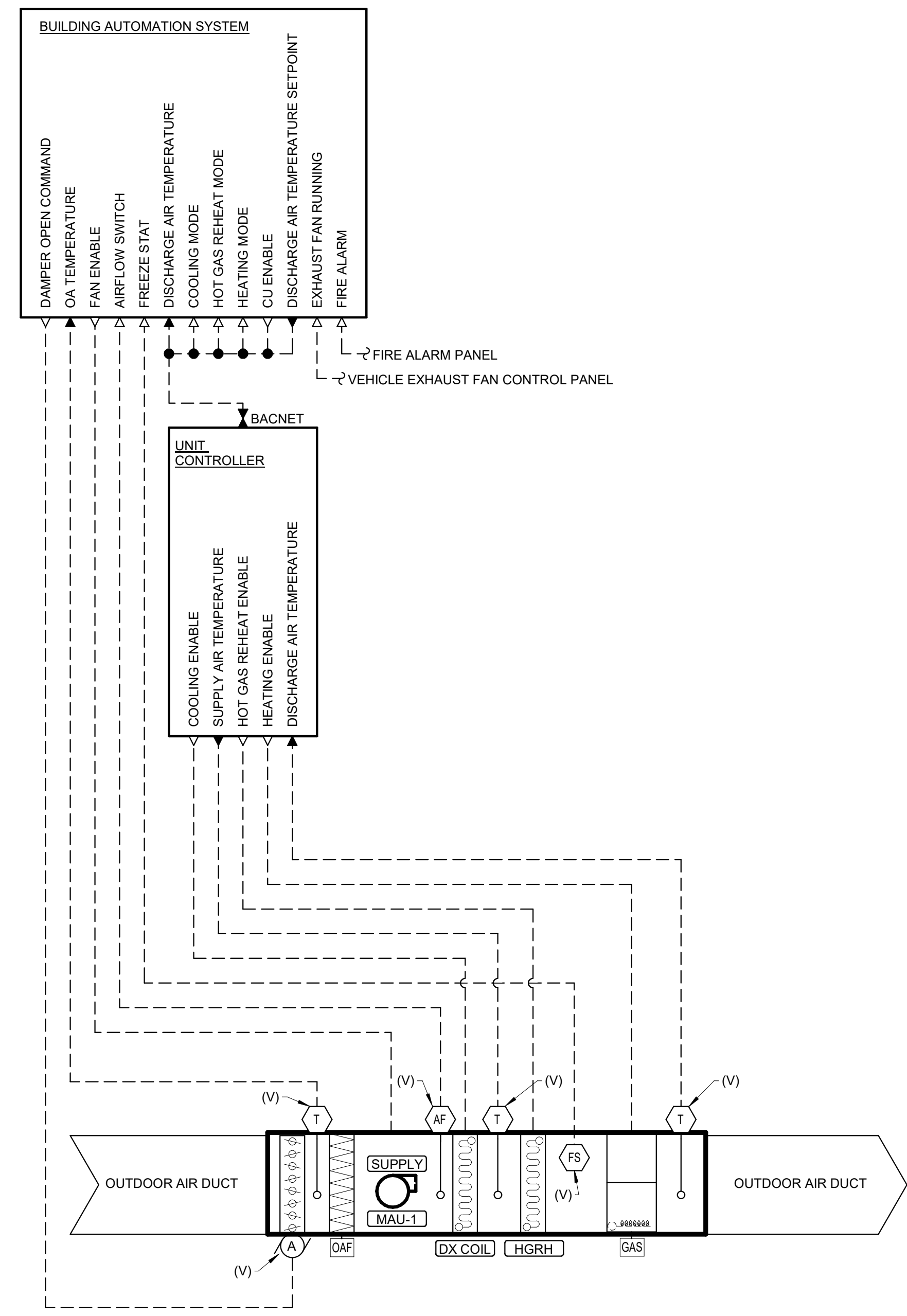
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ASSET # 8136306006

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CAD DWG FILE: \_\_\_\_\_  
DRAWING BY: MHB  
CHECKED BY: JJJ  
DESIGNED BY: MHB

SHEET TITLE:  
**CONTROL SCHEMATICS & SEQUENCE**

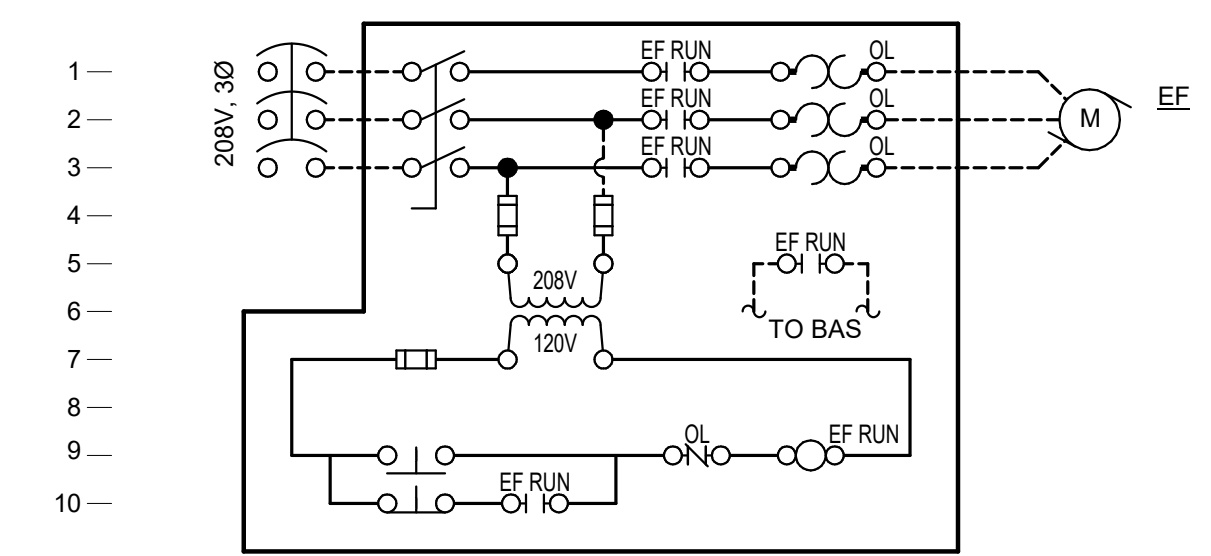
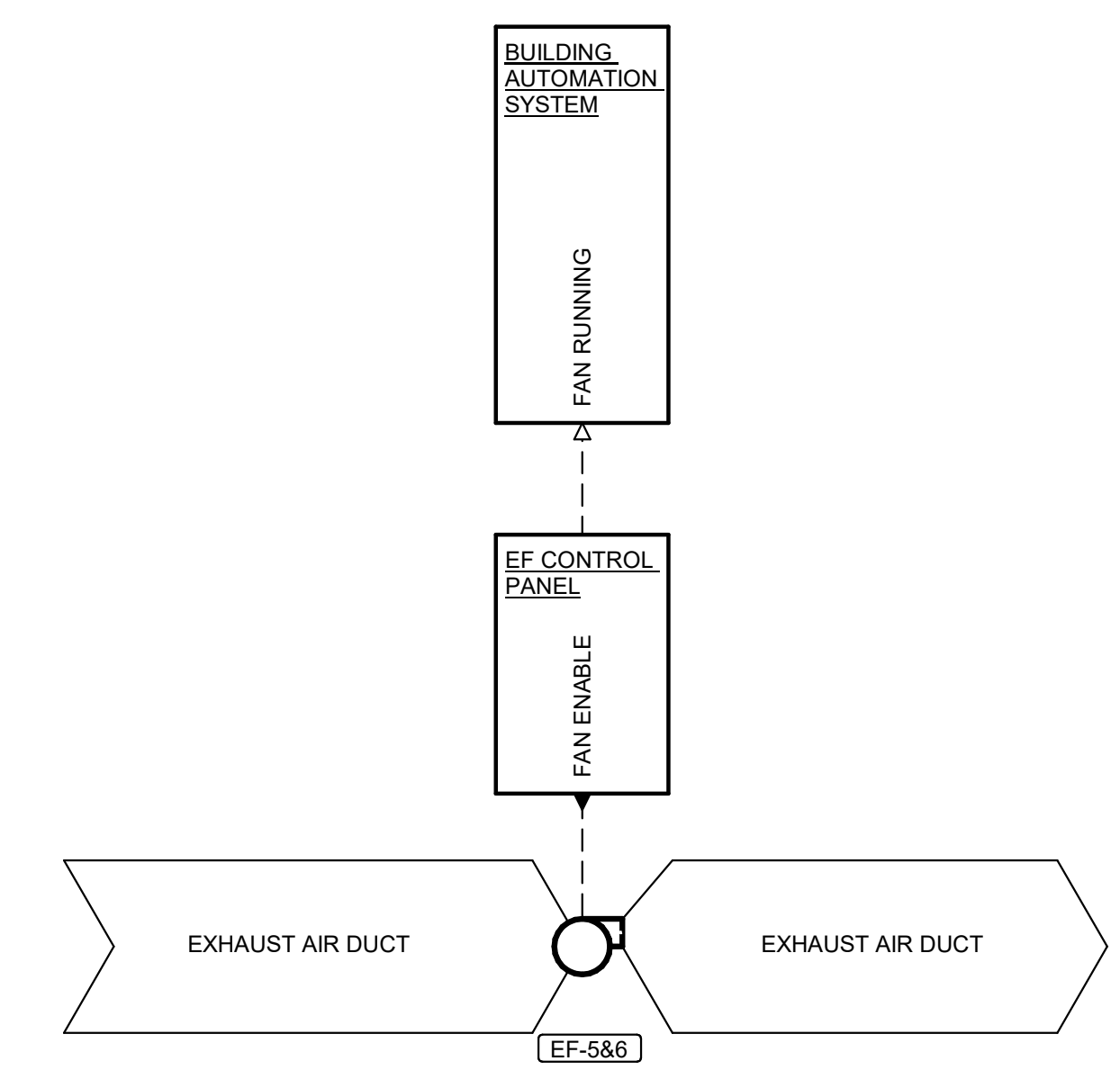
SHEET NUMBER:  
**M604**  
SHEET 43 OF 51  
APRIL 28, 2023



1 MAKE-UP AIR UNIT CONTROLS DIAGRAM  
NTS

MAKE-UP AIR UNIT CONTROL SUMMARY					
CONTROL POINT	LOCAL CONTROLLER DISPLAY	BAS DISPLAY	BAS ADJUSTABLE	BAS ALARM	COMMENTS
MAU ON/OFF	●	●			
OUTDOOR AIR TEMPERATURE		●		●	
COOLING ON/OFF	●	●	●		
HEATING ON/OFF	●	●	●		
FAN ON/OFF	●	●			
DISCHARGE AIR TEMPERATURE	●	●	●	●	
FREEZE/STAT				●	

- MAKE-UP AIR UNITS (MAU-1 AND MAU-2)**
- A. CENTRAL BAS SYSTEM CONTROL**
- THE ASSOCIATED VEHICLE EXHAUST SYSTEM SHALL ENABLE THE MAU WHENEVER THE VEHICLE EXHAUST SYSTEM IS RUNNING.
  - SAFETY SHUTDOWNS/ALARM GENERATION:
    - BUILDING FIRE ALARM ACTIVATION SHALL DISABLE OPERATION OF THE MAU.
    - AN MAU GENERAL ALARM SHALL BE GENERATED IF THE MAU IS NOT PROVEN ON BY THE AIR FLOW SWITCH WITHIN FIVE MINUTES OF GENERATING AN AHU RUN SIGNAL.
      - AN MAU AIR FLOW ALARM SHALL BE GENERATED.
      - THE OUTDOOR AIR INTAKE DAMPER SHALL BE CLOSED.
      - THE ASSOCIATED CONDENSING UNIT SHALL BE DISABLED.
      - MANUAL RESET AT THE MAU UNIT SHALL BE REQUIRED TO TAKE THE UNIT OUT OF THE AIR FLOW ALARM OPERATION.
    - AN MAU GENERAL ALARM SHALL BE GENERATED IF THE LEAVING AIR TEMPERATURE IS GREATER THAN +1.5°F (ADJUSTABLE BETWEEN 2°F AND 10°F) FROM SETPOINT FOR MORE THAN FIVE MINUTES (ADJUSTABLE BETWEEN 1 AND 20 MINUTES)
    - WHEN THE MAU LEAVING AIR TEMPERATURE IS OBSERVED TO BE 40°F BY THE FREEZE STAT (ADJUSTABLE BETWEEN 32°F AND 45°F):
      - AN MAU FREEZE ALARM SHALL BE GENERATED.
      - OPERATION OF THE MAU SUPPLY FAN SHALL BE PREVENTED.
      - THE OUTDOOR AIR INTAKE DAMPER SHALL BE CLOSED.
      - THE ASSOCIATED CONDENSING UNIT SHALL BE DISABLED.
      - MANUAL RESET AT THE MAU UNIT SHALL BE REQUIRED TO TAKE THE UNIT OUT OF THE FREEZE PROTECTION OPERATION.
  - OUTDOOR AIR INTAKE DAMPER
    - PRIOR TO SUPPLY FAN ENERGIZATION, THE OUTDOOR AIR INTAKE DAMPER SHALL BE OPENED.
  - THE BAS SYSTEM SHALL DETERMINE SETPOINTS ACCORDING TO THE FOLLOWING:
    - IF THE OUTDOOR AIR TEMPERATURE IS ABOVE 70°F (ADJUSTABLE BETWEEN 65°F AND 75°F), THE SYSTEM IS IN THE COOLING MODE. THE DX COIL LEAVING AIR TEMPERATURE SETPOINT SHALL BE 55°F AND THE HOT GAS REHEAT COIL LEAVING AIR TEMPERATURE SETPOINT SHALL BE 65°F (ADJUSTABLE BETWEEN 60°F AND 75°F).
    - IF THE OUTDOOR AIR TEMPERATURE IS BELOW 65°F (ADJUSTABLE BETWEEN 60°F AND 70°F), SYSTEM IS IN HEATING MODE. THE INDIRECT FIRED GAS HEAT EXCHANGER LEAVING AIR TEMPERATURE SETPOINT SHALL BE 68°F (ADJUSTABLE BETWEEN 65°F AND 80°F).
    - DISCHARGE AIR TEMPERATURE SHALL BE ADJUSTABLE THROUGH BAS.
- B. LOCAL MAU UNIT CONTROLLER**
- WHEN THE SUPPLY FAN IS ENERGIZED AND THE UNIT IS ENABLED, THE LOCAL UNIT CONTROLLER SHALL OPERATE THE REFRIGERANT SYSTEM OR GAS HEAT TO PROVIDE THE LEAVING AIR TEMPERATURE SETPOINTS PROVIDED BY THE BAS.



VEHICLE EXHAUST FAN CONTROL SUMMARY					
CONTROL POINT	LOCAL CONTROLLER DISPLAY	BAS DISPLAY	BAS ADJUSTABLE	BAS ALARM	COMMENTS
FAN ON/OFF		●			

- VEHICLE EXHAUST SYSTEM (EF-5&6)**
- A. VEHICLE EXHAUST SYSTEM CONTROL**
- THE VEHICLE EXHAUST SYSTEM SHALL BE CONTROLLED BY A PUSH BUTTON THE VEHICLE EXHAUST SYSTEM CONTROL PANEL.
  - THE BAS SHALL ENABLE THE ASSOCIATED MAKE-UP AIR UNIT (MAU) WHENEVER THE ASSOCIATED VEHICLE EXHAUST FAN IS RUNNING.

2 VEHICLE EXHAUST FAN CONTROLS DIAGRAM  
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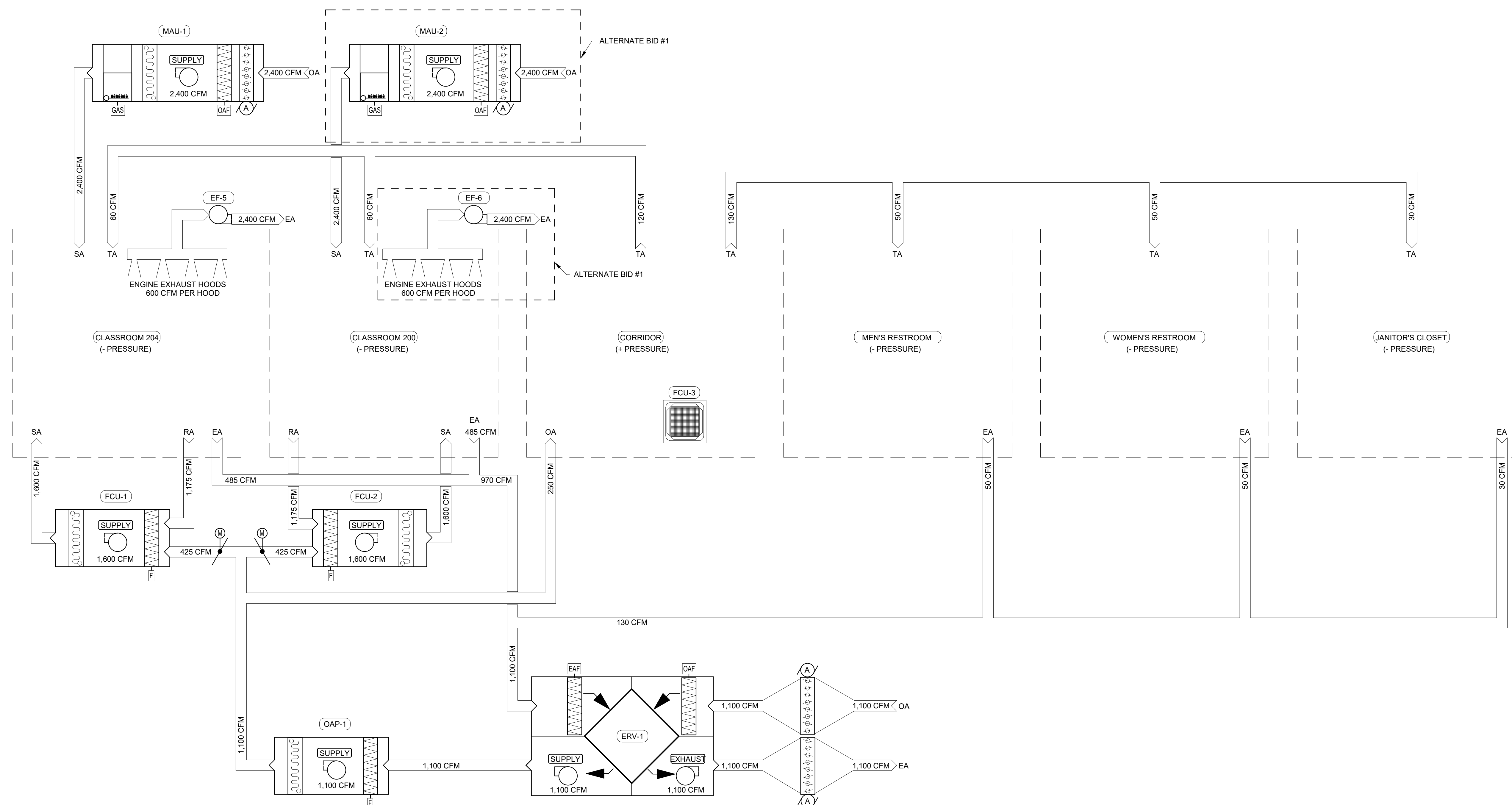
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DRAWING BY: MHB  
CHECKED BY: JJN  
DESIGNED BY: MHB

SHEET TITLE:  
**HVAC SYSTEM  
SCHEMATIC -  
OCCUPIED**

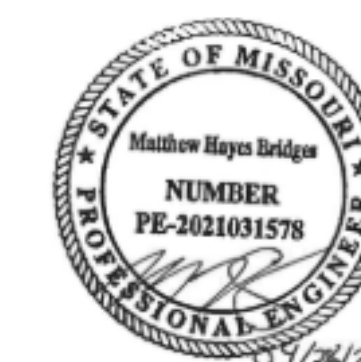
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**M605**

SHEET 44 OF 51  
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1 HVAC SYSTEM SCHEMATIC DIAGRAM  
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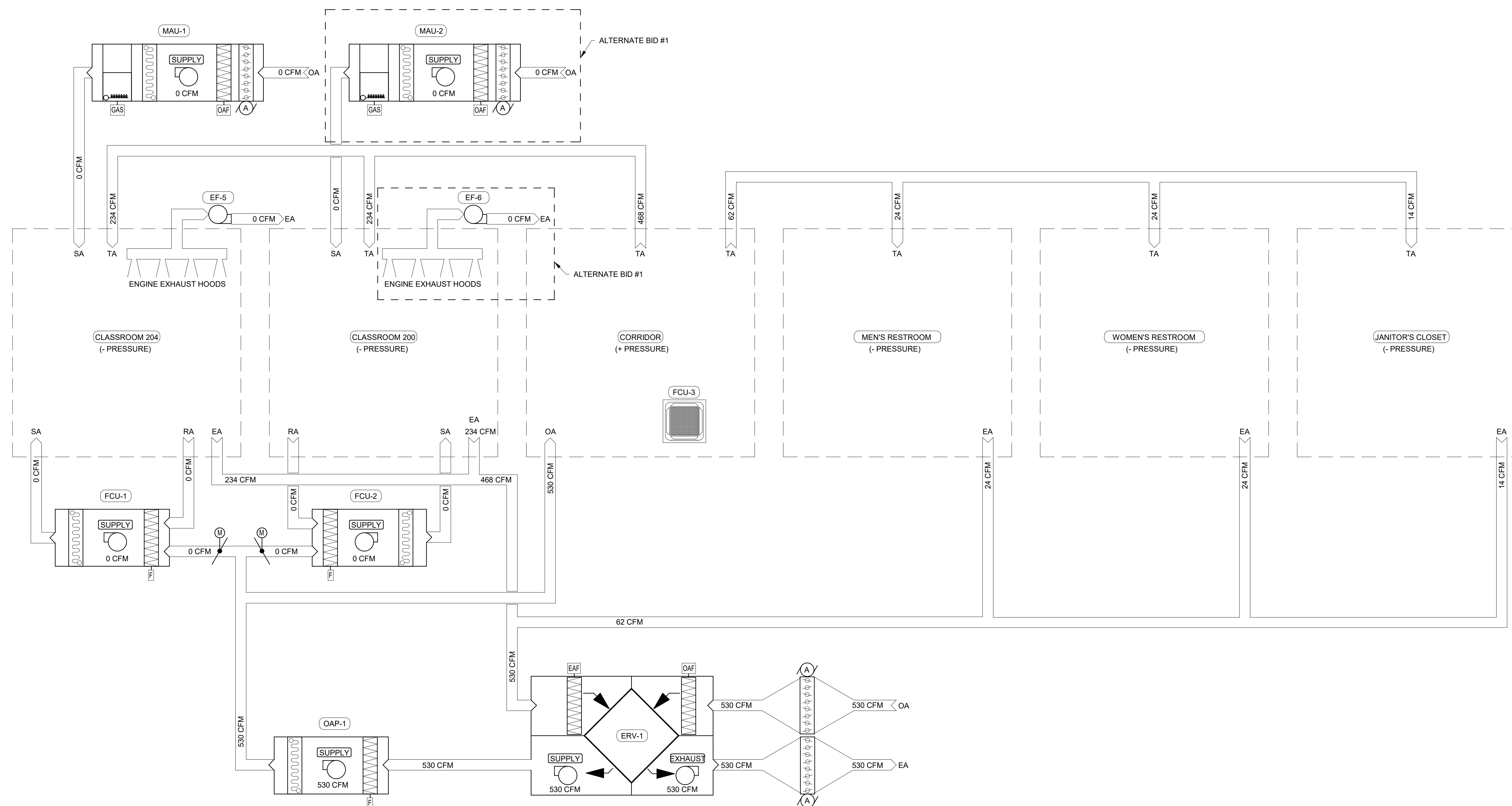
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SHEET TITLE:  
**HVAC SYSTEM  
SCHEMATIC -  
UNOCCUPIED**

SHEET NUMBER:

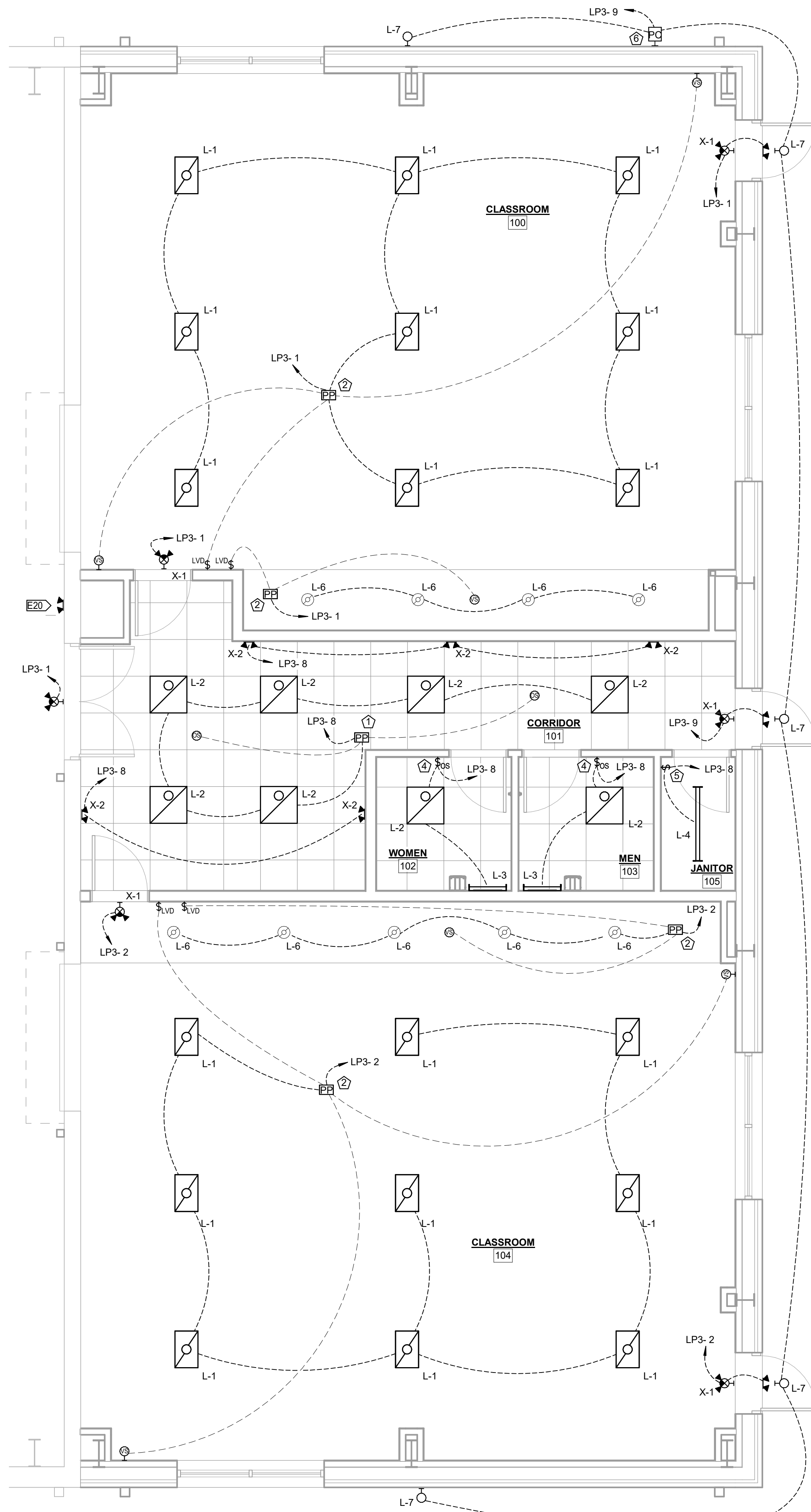
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SHEET 45 OF 51  
APRIL 28, 2023



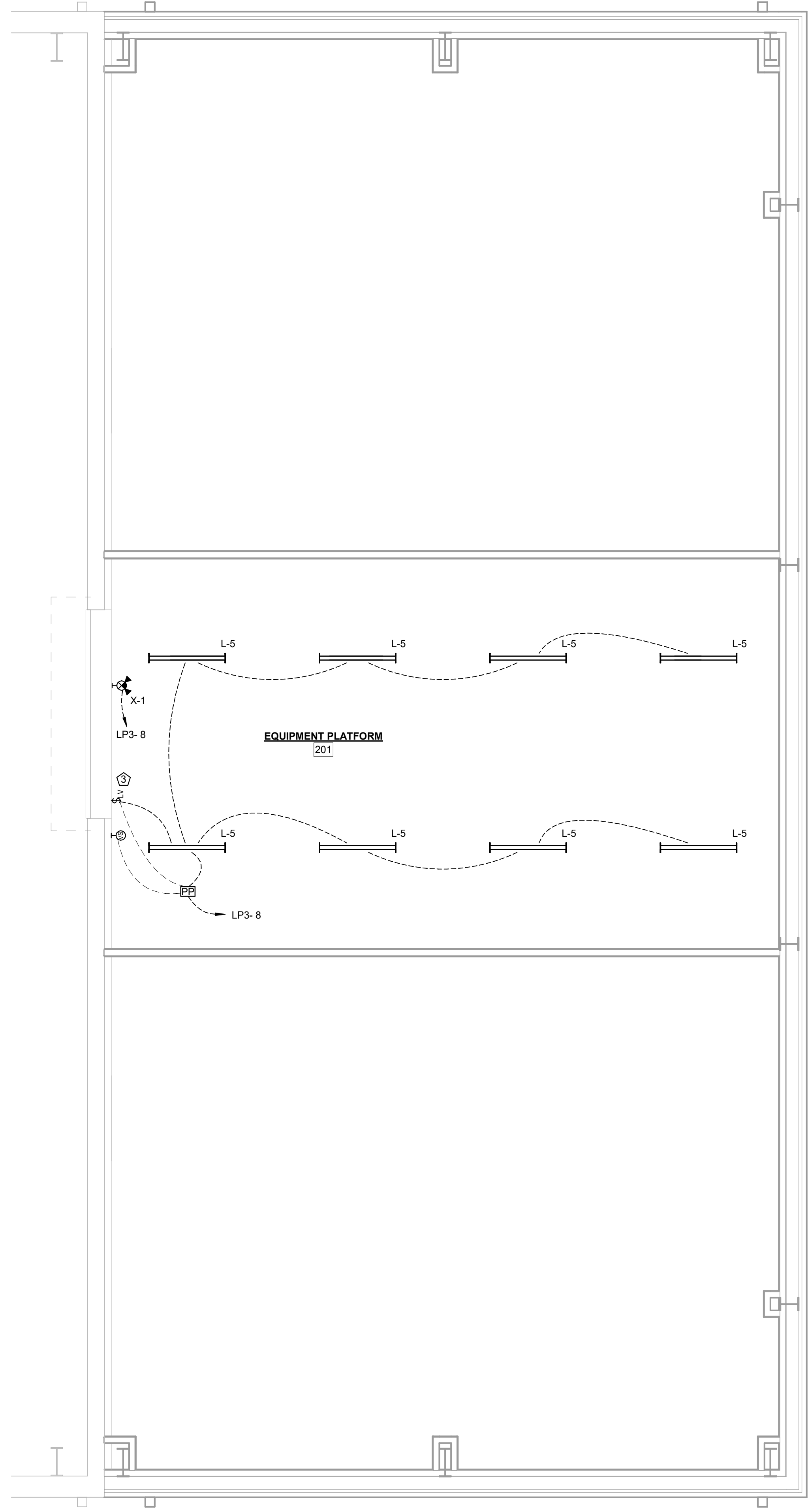
1 HVAC SYSTEM SCHEMATIC DIAGRAM UNOCCUPIED  
NTS





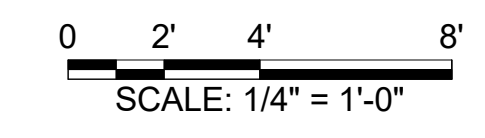


1 MAIN LEVEL - LIGHTING PLAN  
1/4" = 1'-0"



2 MEZZANINE LEVEL - LIGHTING PLAN  
1/4" = 1'-0"

KEYNOTE LEGEND	
VALUE	DESCRIPTION
E20	EXISTING REMOTE HEAD NEW LOCATION. REROUTE ELECTRICAL WIRING AND CONDUIT TO AVOID MEZZANINE ACCESS.



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SITE # 6306  
ASSET # 8136306006

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CAD DWG FILE: E102  
DRAWING BY: JLD  
CHECKED BY: JLN  
DESIGNED BY: JLD

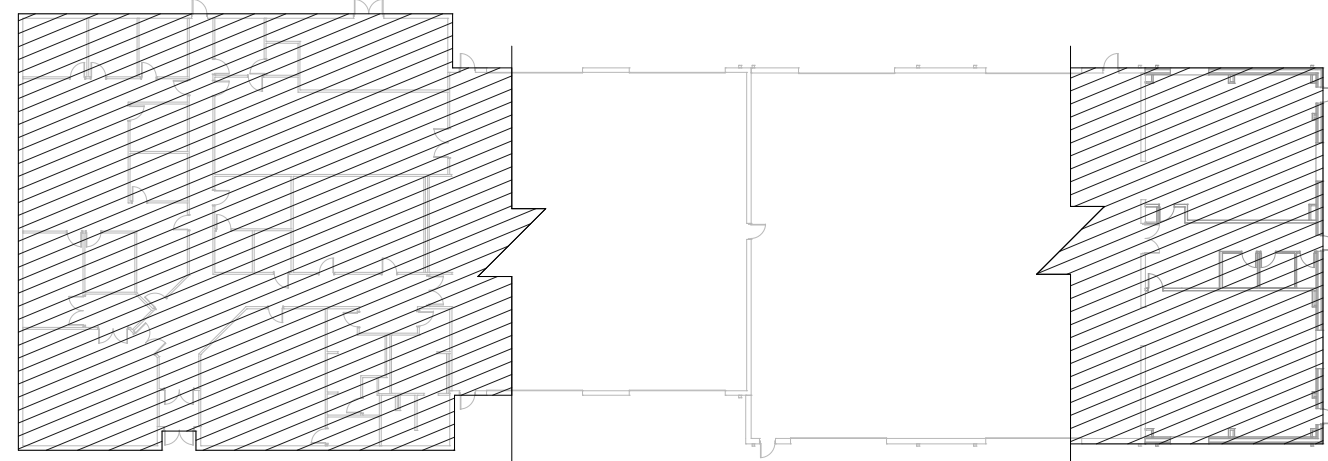
SHEET TITLE:  
**LIGHTING PLAN**

SHEET NUMBER:

**E102**

SHEET 47 OF 51  
APRIL 28, 2023





1 E103 KEY PLAN  
1" = 40'-0"

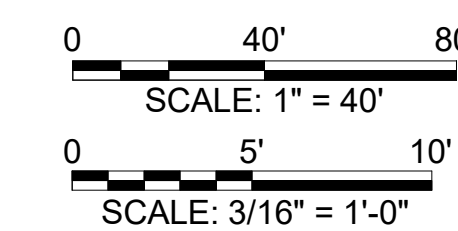
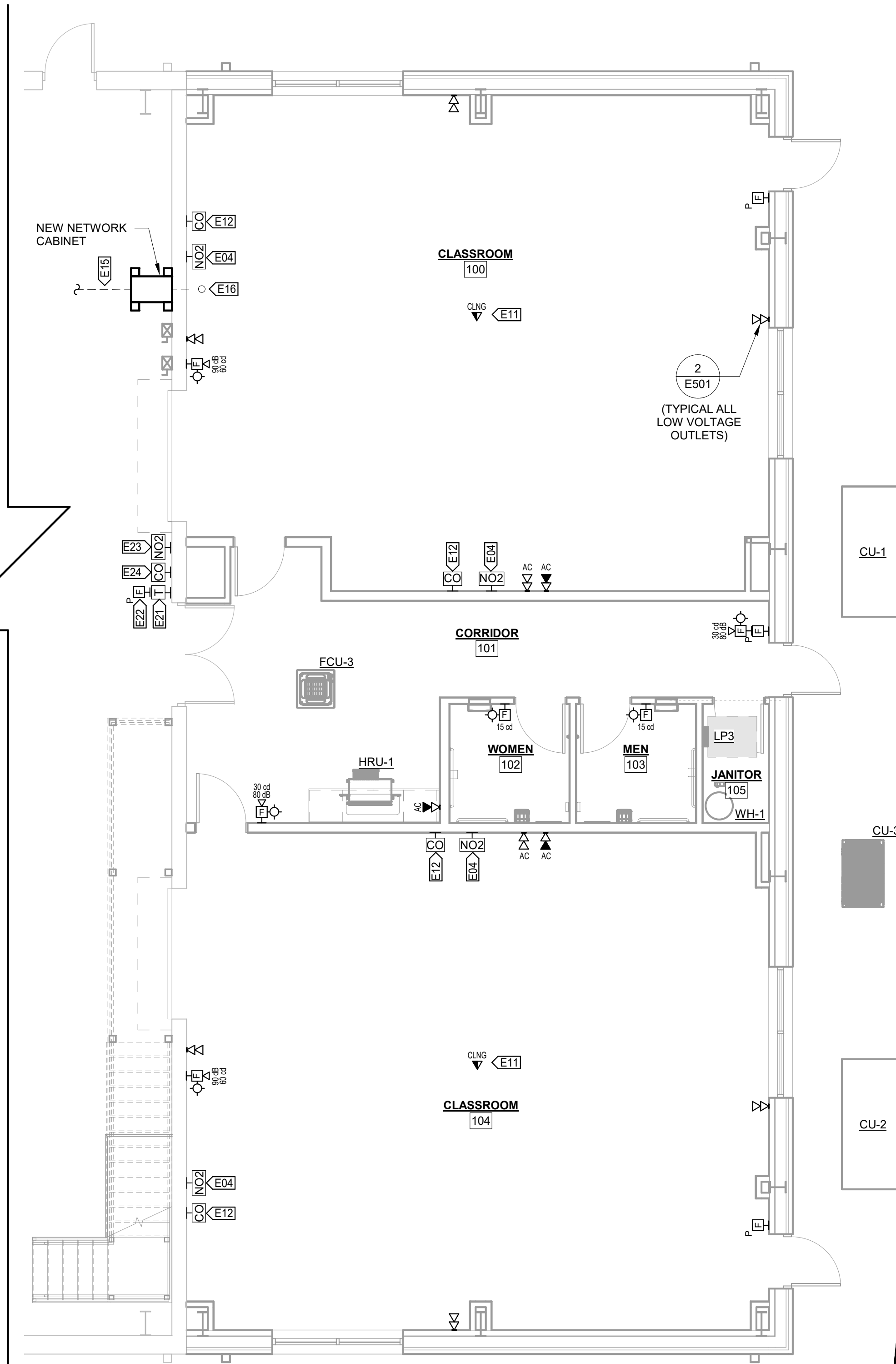
**GENERAL NOTES:**

- 1) FOR EACH DATA AND TELEPHONE LOCATION SHOWN, PROVIDE CAT6 CABLE BACK TO NEW DATA CABINET LOCATION.
- 2) CONNECT NEW FIRE ALARM DEVICES TO EXISTING "SIMPLEX 4100ES" FIRE ALARM PANEL.
- 3) CONNECT NEW NITROGEN DIOXIDE SENSORS TO EXISTING "MSA C485" PANEL.

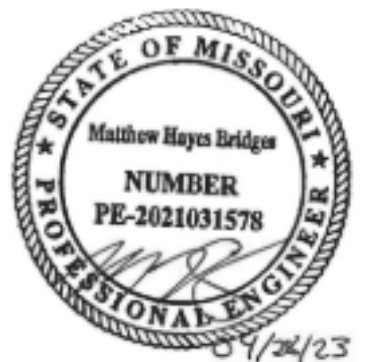


2 MAIN LEVEL - LOW VOLTAGE PLAN  
3/16" = 1'-0"

VALUE	DESCRIPTION
E04	PROVIDE NEW NO2 SENSOR. CONNECT NEW NO2 SENSOR TO EXISTING MSA C485 ZGARD CONTROLLER. ROUTE CABLE IN CONDUIT.
E11	PROVIDE DATA CABLE TO LOCATION SHOWN WITH 10 FEET OF EXTRA CABLE COILED NEATLY FOR FUTURE WI-FI ROUTER BY OWNER.
E12	PROVIDE NEW CO SENSOR AND CONNECT TO FIRE ALARM SYSTEM.
E15	CONTRACTOR SHALL PROVIDE 6-STRAND, 50 MICRON MULTIMODE CABLE AND CAT6 CABLE IN 1" CONDUIT BETWEEN EXISTING AND PROPOSED DATA CABINET. FINAL CONNECTIONS BY OWNER.
E16	PROVIDE 4" CONDUIT FROM DATA CABINET UP TO 24" BELOW ROOF DECK FOR DATA CABLE ROUTING FROM PROPOSED ADDITION TO DATA CABINET.
E21	EXISTING THERMOSTAT NEW LOCATION. REROUTE ELECTRICAL WIRING AND CONDUIT TO AVOID MEZZANINE ACCESS.
E22	EXISTING FIRE ALARM PULL STATION NEW LOCATION. REROUTE ELECTRICAL WIRING AND CONDUIT TO AVOID MEZZANINE ACCESS.
E23	EXISTING NO2 SENSOR NEW LOCATION. REROUTE ELECTRICAL WIRING AND CONDUIT TO AVOID MEZZANINE ACCESS.
E24	EXISTING CO SENSOR NEW LOCATION. REROUTE ELECTRICAL WIRING AND CONDUIT TO AVOID MEZZANINE ACCESS.



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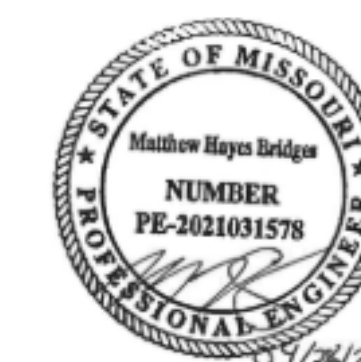
SHEET TITLE:  
**MAIN LEVEL -  
LOW VOLTAGE  
PLAN**

SHEET NUMBER:

**E103**

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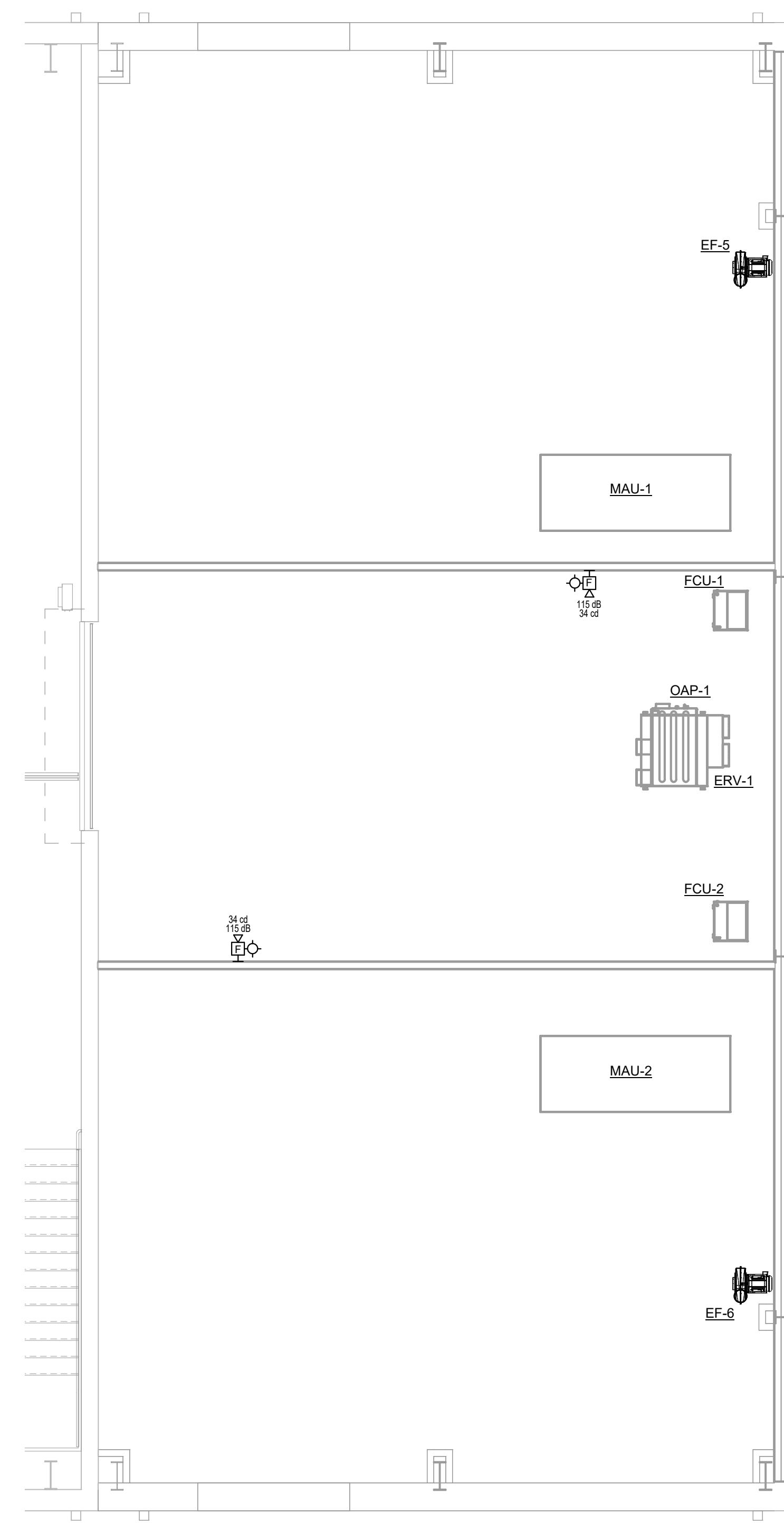
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**MEZZANINE  
LEVEL - LOW  
VOLTAGE PLAN**

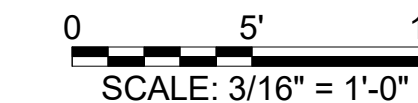
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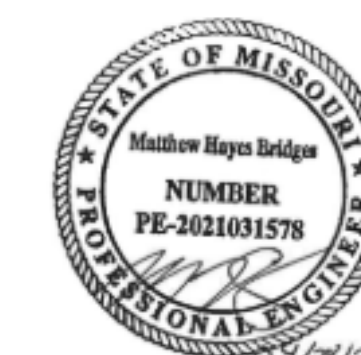
SHEET 49 OF 51  
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1 MEZZANINE LEVEL - LOW VOLTAGE PLAN  
3/16" = 1'-0"







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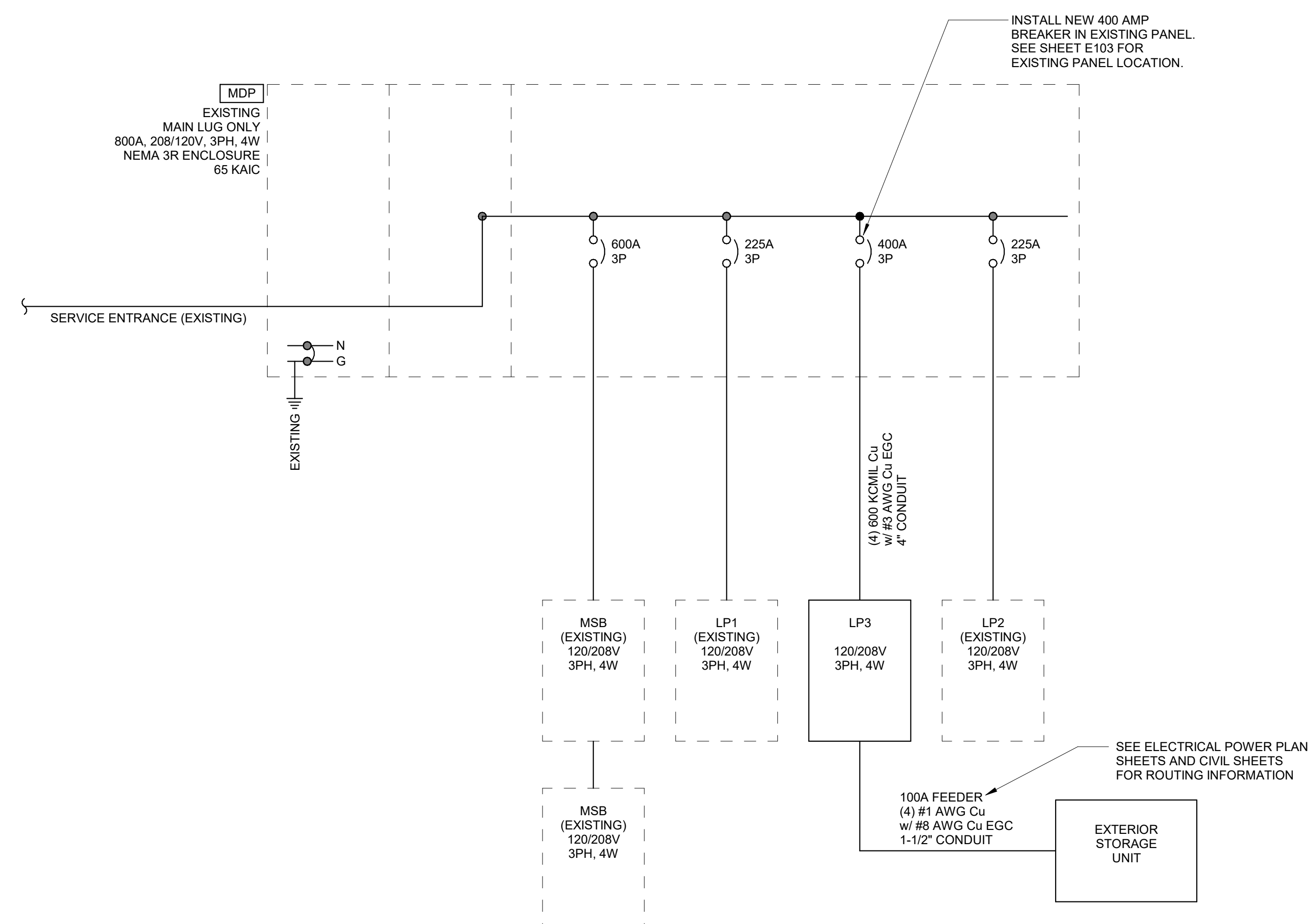
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SHEET TITLE:  
**ELECTRICAL  
DETAILS**

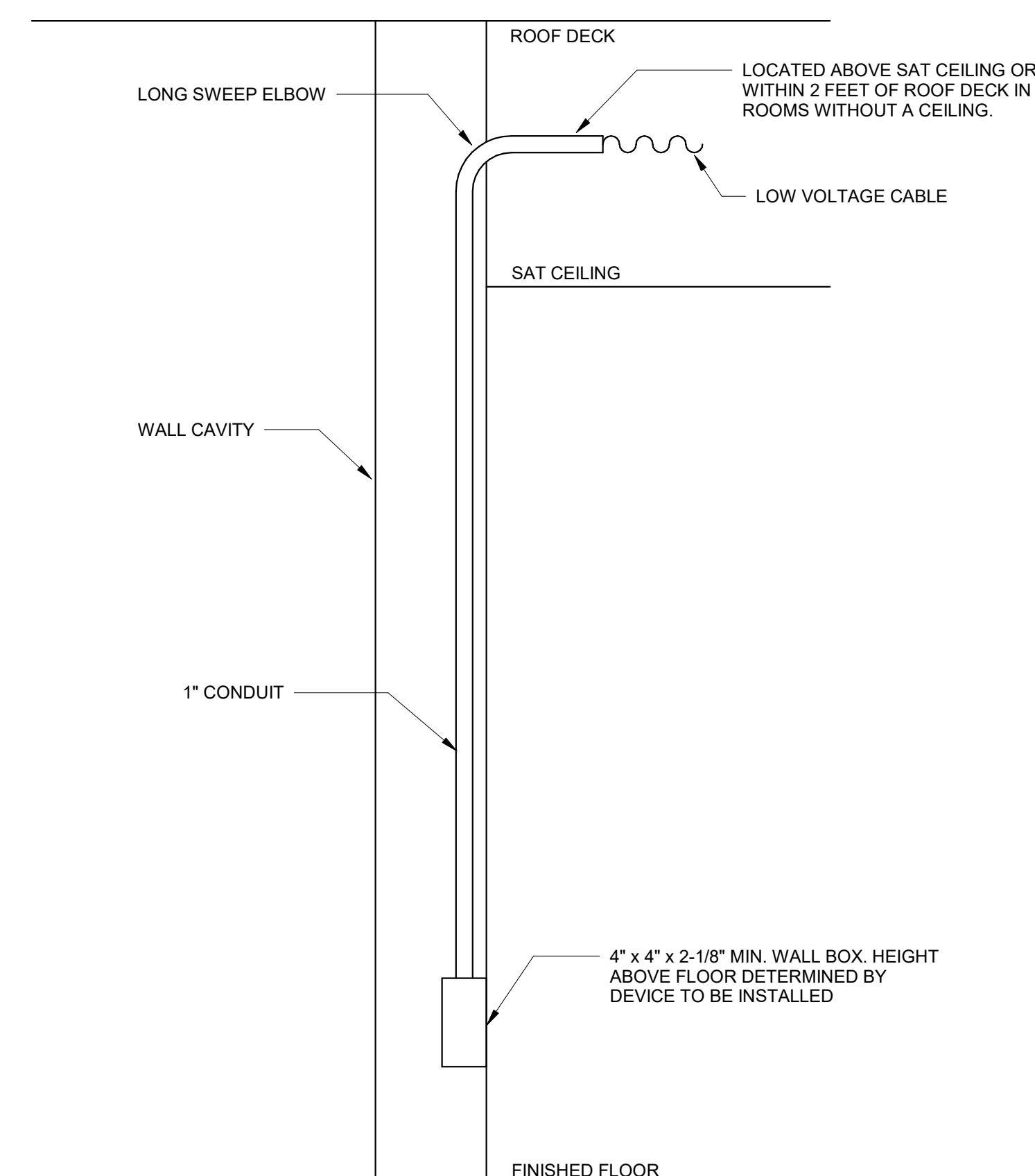
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**E501**

SHEET 50 OF 51  
APRIL 28, 2023



1 ELECTRICAL ONE-LINE DIAGRAM  
NTS



2 LOW VOLTAGE DEVICE ROUGH-IN DETAIL  
NTS

LIGHTING CONTROL MATRIX		LIGHTING CONTROL CAPABILITIES						SEQUENCE OF OPERATION			
TAG	LINE VOLTAGE	LOW VOLTAGE	MANUAL ON	MANUAL OFF	MANUAL DIMMING	OCC. SENSOR ON	OCC. SENSOR OFF		VAC. SENSOR OFF	PHOTOCONTROL ON	PHOTOCONTROL OFF
1	X										1
2	X	X	X	X	X				X		2
3	X	X	X	X					X		3
4	X	X	X			X	X				4
5	X	X	X								5
6	X								X	X	6

**LIGHTING CONTROL SEQUENCES OF OPERATION**

- LOW VOLTAGE, OCCUPANCY SENSOR CONTROL.
  - UPON DETECTION OF MOTION BY ANY OCCUPANCY SENSOR IN THE ZONE, ALL LIGHTING SHALL BE ON.
  - AFTER NO MOTION DETECTION FOR 20 MINUTES, LIGHTING SHALL BE OFF.
- LOW VOLTAGE, VACANCY SENSOR, MANUAL DIMMING & MANUAL ON/OFF.
  - UPON ACTIVATION BY MANUAL BUTTON, LIGHTING SHALL BE ON.
  - AFTER NO MOTION DETECTION FOR 20 MINUTES, LIGHTING SHALL BE OFF.
  - LIGHTING MAY BE DEACTIVATED BY MANUAL BUTTON.
  - LIGHTING SHALL BE CAPABLE OF MANUAL DIMMING.
- LOW VOLTAGE, VACANCY SENSOR & MANUAL ON/OFF.
  - UPON ACTIVATION BY MANUAL BUTTON, LIGHTING SHALL BE ON.
  - AFTER NO MOTION DETECTION FOR 20 MINUTES, LIGHTING SHALL BE OFF.
  - LIGHTING MAY BE DEACTIVATED BY MANUAL BUTTON.
- LINE VOLTAGE, OCCUPANCY SENSOR & MANUAL CONTROL.
  - UPON DETECTION OF MOTION BY ANY OCCUPANCY SENSOR IN THE ZONE, ALL LIGHTING SHALL BE ON.
  - UPON ACTIVATION BY MANUAL BUTTON, LIGHTING SHALL BE ON.
  - AFTER NO MOTION DETECTION FOR 20 MINUTES, LIGHTING SHALL BE OFF.
  - LIGHTING MAY BE DEACTIVATED BY MANUAL BUTTON.
- LINE VOLTAGE, MANUAL CONTROL.
  - UPON ACTIVATION BY MANUAL BUTTON, LIGHTING SHALL BE ON.
  - LIGHTING SHALL BE DEACTIVATED BY MANUAL BUTTON.
- LINE VOLTAGE, PHOTOCELL CONTROL.
  - LIGHT FIXTURE SHALL BE CONTROLLED BY EXTERIOR WALL MOUNTED PHOTOCELL.

**NOTES:**

- COORDINATE COMPATIBILITY OF ALL LIGHTING CONTROLS AND LIGHT FIXTURE DRIVERS.
- PROVIDE ALL WIRE, DEVICES, POWER PACKS, SENSORS, ETC. AS NECESSARY TO CREATE A STAND ALONE SYSTEM THAT ACCOMPLISHES THE DESCRIBED SEQUENCE OF OPERATION.
- ALL LIGHTING CONTROLS SHALL BE HARD WIRED (WIRELESS SYSTEMS ARE NOT ACCEPTABLE)
- WHERE OCCUPANCY AND/OR VACANCY SENSOR LOCATIONS ARE SHOWN, ENTIRE ROOM/SPACE IN WHICH THE SENSORS ARE PLACED SHALL HAVE TOTAL COVERAGE PROVIDED.



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MO 65473

PROJECT # T2042-01  
SITE # 6306  
ASSET # 8136306006

REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
ISSUE DATE: 04/28/23

CAD DWG FILE: E601  
DRAWING BY: JLD  
CHECKED BY: JLN  
DESIGNED BY: JLD

SHEET TITLE:  
**ELECTRICAL  
SCHEDULES**

SHEET NUMBER:

**E601**

SHEET 51 OF 51  
APRIL 28, 2023

BRANCH PANEL: LP3											
LOCATION: JANITOR 105				VOLTS: 120/208				A.I.C. RATING: 10,000 AMPS SYMMETRICAL			
SUPPLY FROM: MDP				PHASES: 3				PANEL TYPE: MLO			
MOUNTING: SURFACE				WIRES: 4				MAINS RATING: 400 A			
ENCLOSURE: NEMA1				ACCESSORIES:							
CKT	CIRCUIT DESCRIPTION	TRIP	POLES	A	B	C	POLES	TRIP	CIRCUIT DESCRIPTION	CKT	
1	LTG - CLASSROOM 100	20 A	1	55 VA	62 VA			20 A	LTG - CLASSROOM 104	2	
3	RCPT - CLASSROOM 100	20 A	1		720 VA	720 VA		20 A	RCPT - CLASSROOM 104	4	
5	RCPT - CLASSROOM 100	20 A	1			720 VA	720 VA	20 A	RCPT - CLASSROOM 104	6	
7	RCPT - CORR., REST., & MEZZ.	20 A	1	1440 VA	662 VA			20 A	LTG - WO., ME., JAN., COR., & MEZ.	8	
9	LTG - EXTERIOR	20 A	1		178 VA	1080 VA		20 A	RCPT - CORRIDOR, MENS, JANITOR	10	
11	FCU-3 & HRU-1	15 A	2			30 VA	360 VA	20 A	RCPT - CORRIDOR 101	12	
13								20 A	RCPT - CORRIDOR 101	14	
15	FCU-1,2, ERV-1 & OAP-1	15 A	2		1344 VA	2486 VA		30 A	WH-1 & DCP-1	16	
17				0 VA	6004 VA					18	
19	GENERATOR - PLACE HOLDER	20 A	3		0 VA	6004 VA		70 A	CU-1	20	
21										22	
23				6725 VA	6725 VA	0 VA	6004 VA			24	
25										26	
27	CU-2	70 A	3		6725 VA	6725 VA		70 A	CU-3	28	
29						6725 VA	6725 VA			30	
31				1081 VA	1081 VA					32	
33	MAU-2	15 A	3		1081 VA	1081 VA		15 A	MAU-1	34	
35										36	
37				209 VA	209 VA		1081 VA	1081 VA		38	
39	EF-6	30 A	3		209 VA	209 VA		30 A	EF-5	40	
41						209 VA	209 VA			42	
43	RCPT - CLASS. 100 CORD REEL	20 A	1	180 VA	180 VA			20 A	RCPT - EWC-1 ***	44	
45	RCPT - CLASS. 100 CORD REEL	20 A	1		180 VA	180 VA		20 A	RCPT - WF-1 ***	46	
47	RCPT - CLASS. 100 CORD REEL	20 A	1			180 VA	180 VA	20 A	RCPT - WF-1 ***	48	
49	RCPT - CLASS. 100 CORD REEL	20 A	1	180 VA	180 VA			20 A	RCPT - CLASS. 104 CORD REEL	50	
51	RCPT - CLASS. 104 CORD REEL	20 A	1		180 VA	180 VA		20 A	RCPT - CLASS. 104 CORD REEL	52	
53	RCPT - PATCH PANEL	20 A	1			360 VA	180 VA	20 A	RCPT - CLASS. 104 CORD REEL	54	
55	SPARE	20 A	1	0 VA	0 VA			20 A	OVERHEAD DOOR PANEL	56	
57	SPARE	20 A	1		0 VA	0 VA		20 A	OVERHEAD DOOR PANEL	58	
59	SPARE	20 A	1				0 VA			60	
61	SPARE	20 A	1	0 VA						62	
63	SPARE	20 A	1		0 VA					64	
65	SPARE	20 A	1			0 VA				66	
PHASE LOAD:				24,897 VA	28,625 VA	27,980 VA	***TOTAL LOAD: 81,478 VA				
PHASE AMPS:				207 A	242 A	237 A	***TOTAL AMPS: 226 A				

\* FIELD VERIFY BREAKER SIZE WITH ACTUAL EQUIPMENT PROVIDED. COORDINATE WITH OTHER CONTRACTORS AS NECESSARY.  
 \*\*\* TOTAL LOAD AND TOTAL AMPS DO NOT INCLUDE DEMAND FACTOR CALCULATIONS.  
 \*\*\* INDICATED CIRCUIT BREAKER SHALL BE A GFCI BREAKER.

ALTERNATE  
BID #1

LIGHT FIXTURE SCHEDULE										
TAG	DESCRIPTION	MOUNT	LAMP		OUTPUT	VOLT	LOAD	BASIS OF DESIGN		NOTES
			TYPE	COLOR TEMP.				MAKE	MODEL	
L-1	HIGH BAY	SUSPENDED	LED	4000 K	12000 lm	120 V	87 VA	DAY-BRITE LITHONIA	FBX12LL40-UNV-W-LFA IBG 12000LM SEF-WD MVOLT 40K 80CRI	1
L-2	LENSED TROFFER	LAY-IN	LED	4000 K	3000 lm	120 V	27 VA	DAY-BRITE LITHONIA	2FGG30L840-2-D-UNV 2GTL 2 33L LP840	
L-3	WALL BRACKET	WALL	LED	4000 K	800 lm	120 V	7 VA	DAY-BRITE LITHONIA	22GR-LD5-32-F1-UNV-L840 TAB2L-SYM-120-40K	
L-4	STRIPLIGHT	SURFACE	LED	4000 K	3000 lm	120 V	17 VA	DAY-BRITE LITHONIA	FSS440L840-UNV ZL1D L48 3000LM MVOLT 40K 80CRI	
L-5	STRIPLIGHT	SUSPENDED	LED	4000 K	4000 lm	120 V	32 VA	DAY-BRITE LITHONIA	FSSEZ440L840-UNV ZL1N L24 4000LM MVOLT 40K 80CRI	
L-6	DOWNLIGHT	RECESSED CEILING	LED	4000 K	800 lm	120 V	11 VA	DAY-BRITE LITHONIA	ZSNLED-LD5-40SL-UNV-L840 W4 LED 40K MVOLT	1
L-7	EXTERIOR LED WALL PACK	WALL	LED	4000 K	4400 lm	120 V	36 VA	DAY-BRITE LITHONIA	WP-50-NW-G1-PCB-8 TWX2-LED-P2-40K-MVOLT-PE	
X-1	EXIT/UNIT COMBO	WALL	LED	4000 K	200 lm	120 V	4 VA	DAY-BRITE LITHONIA	WPMLED10-PC EGR LED M6	2
X-2	EMERGENCY REMOTE HEAD	WALL	LED	4000 K	200 lm	120 V	2 VA	DAY-BRITE LITHONIA	VLT2R EU2C	

NOTES:  
 1. COORDINATE WITH CONTROLS PROVIDED TO PROVIDE DIMMING CAPABILITY WHERE INDICATED ON THE DRAWINGS.  
 2. PROVIDE WITH REMOTE MOUNT EXTERIOR LIGHTS WHERE SHOWN ON THE DRAWINGS.