



LSR7 Robotics, GiC & Phys Education: Construction Documents

owner:
Lee's Summit R-7 School District
301 NE Tudor Road
Lee's Summit, MO 64086

architect:
Multistudio
4200 Pennsylvania Avenue
Kansas City, MO 64111
816.931.6655
www.multi.studio

civil engineer:
Kaw Valley Engineering
14700 West 114th Terrace
Lenexa, KS 66215
913.485.0318
kveng.com

MEPFT/Code::
Henderson Engineers
8345 Lenexa Drive, Suite 300
Lenexa, KS 66214
816.742.5000
www.hendersonengineers.com

structural engineer:
Bob D. Campbell & Company,
4338 Belleview
Kansas City, MO 64111
816.531.4144
www.bdc-engrs.com

LSN: 901 NE Douglas St.,
Lee's Summit MO 64086

Project Number: 0121-0100
Issue Date: September 9, 2022

multistudio
the evolution of gould evans

LSR7 Robotics, GiC & Phys Education

LSN: 901 NE Douglas St., Lee's Summit MO 64086
LSW: 2600 SW Ward Rd, Lee's Summit MO 64082
LSHS: 400 SE Blue Pkwy, Lee's Summit MO 64063

Project Number: 0121-0100

owner:
Lee's Summit R-7 School
301 NE Tudor Road
Lee's Summit, MO 64086

architect:
Multistudio
4205 Pennsylvania
Kansas City, MO 64111
816.931.6655
multi.studio

civil engineer:
Kaw Valley Engineering
14700 West 114th Terrace
Lenexa, KS 66215
913.485.0318
kveng.com

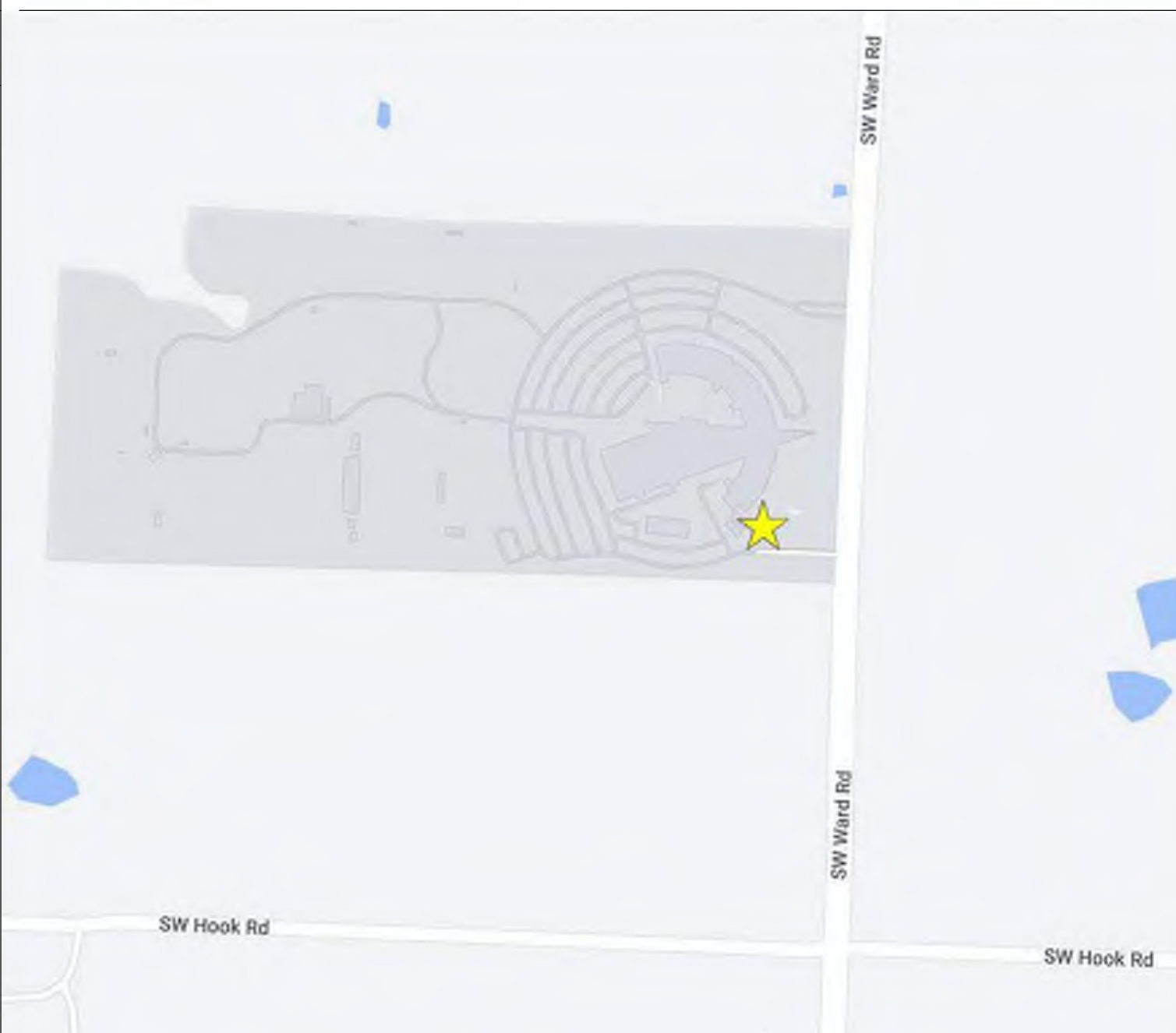
structural engineer:
Bob D. Campbell &
4338 Bellevue
Kansas City, MO 64111
816.531.4144
www.bdc-engrs.com

MEP/IT/Code:
Henderson Engineers
8345 Lenexa Drive, Suite 300
Lenexa, KS 66214
816.742.5000
www.hendersonengineers.com

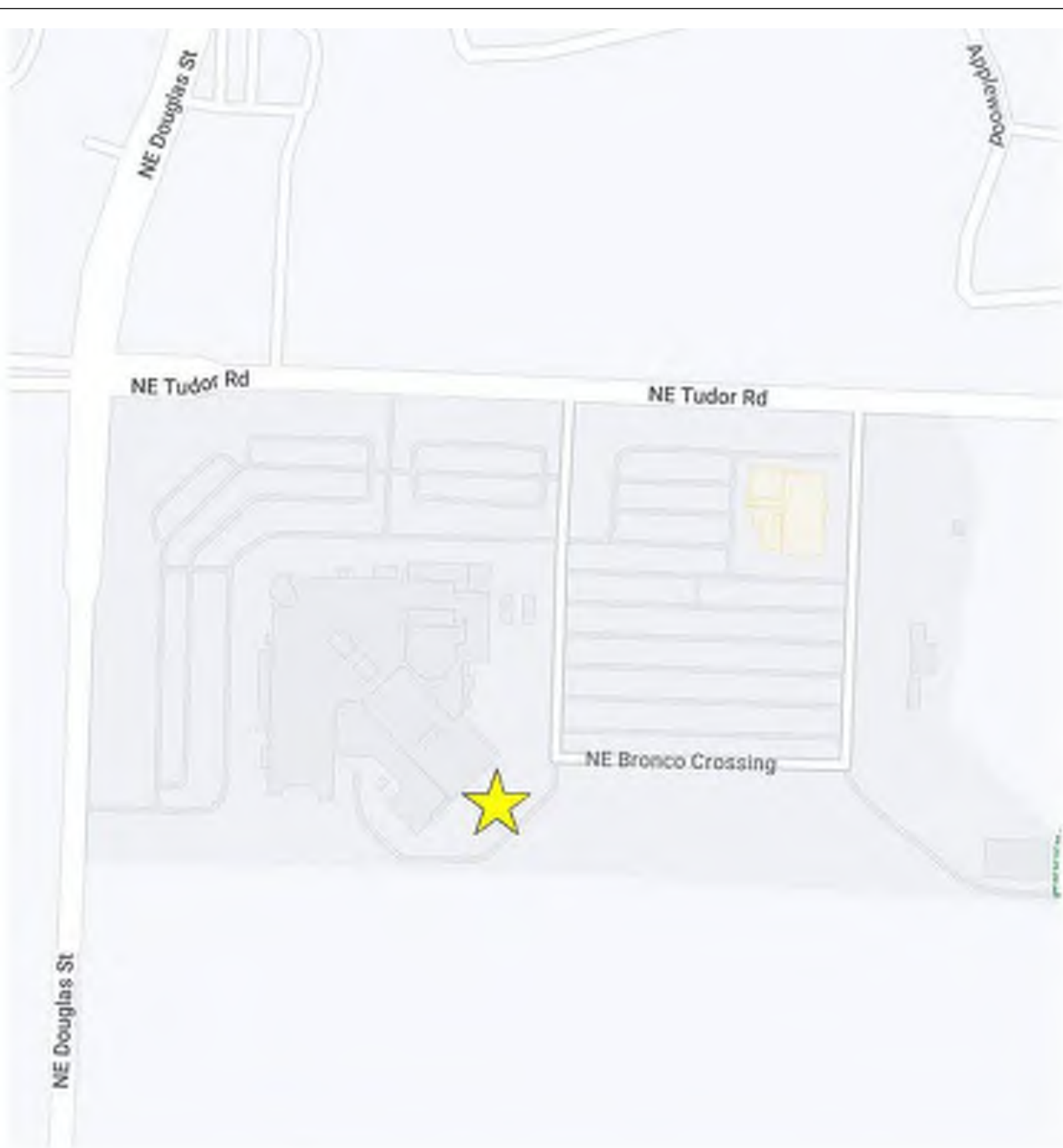
General Notes:

1. THE INTENT OF THE CONTRACT DOCUMENTS IS TO INCLUDE ALL ITEMS NECESSARY FOR THE PROPER EXECUTION AND COMPLETION OF THE WORK BY THE CONTRACTOR. THE CONTRACT DOCUMENTS ARE COMPLEMENTARY, AND WHAT IS REQUIRED BY ONE SHALL BE AS BINDING AS IF REQUIRED BY ALL. PERFORMANCE BY THE CONTRACTOR SHALL BE REQUIRED ONLY TO THE EXTENT CONSISTENT WITH THE CONTRACT DOCUMENTS AND REASONABLY INFERRABLE FROM THEM AS BEING NECESSARY TO PRODUCE THE INDICATED RESULTS.
2. ORGANIZATION OF THE SPECIFICATIONS INTO DIVISIONS, SECTIONS AND ARTICLES, AND ARRANGEMENT OF DRAWINGS SHALL NOT CONTROL THE CONTRACTOR IN DIVIDING THE WORK AMONG SUBCONTRACTORS OR IN ESTABLISHING THE EXTENT OF WORK TO BE PERFORMED BY ANY TRADE.
3. DRAWINGS, SPECIFICATIONS, GENERAL AND SUPPLEMENTARY CONDITIONS ARE ESSENTIAL PARTS OF THE CONTRACT. IN THE EVENT OF ANY DISCREPANCY BETWEEN A DRAWING AND FIGURES WRITTEN THEREON, THE FIGURES, UNLESS OBVIOUSLY INCORRECT, ARE TO GOVERN OVER SCALED DIMENSIONS. IN THE CASE OF ANY DISCREPANCY BETWEEN THE DRAWINGS AND THE SPECIFICATIONS, THE SPECIFICATIONS ARE TO GOVERN. IF THERE IS A DISCREPANCY BETWEEN LARGE AND SMALL SCALE DETAILS, THE LARGER SCALE DETAILS ARE TO GOVERN. SUPPLEMENTARY CONDITIONS SHALL GOVERN OVER SPECIFICATIONS, DRAWINGS AND GENERAL CONDITIONS. THE CONTRACTOR SHALL ADVISE THE ARCHITECT OF ANY DISCREPANCIES OR CONFLICTS BETWEEN CONTRACT DOCUMENTS AS SOON AS THEY ARE DISCOVERED.
4. NOTWITHSTANDING THE ABOVE, IN THE CASE OF INCONSISTENCY BETWEEN DRAWINGS AND SPECIFICATIONS, OR WITHIN EITHER DOCUMENT NOT CLARIFIED BY ADDENDUM OR BY ARCHITECT'S SUPPLEMENTAL INSTRUCTION, THE BETTER QUALITY OR GREATER QUANTITY SHALL BE PROVIDED.
5. DRAWINGS SHALL NOT BE SCALED TO DETERMINE DIMENSIONS. IF DIMENSIONS APPEAR TO BE INSUFFICIENT OR INCORRECT, THE CONTRACTOR SHALL REQUEST CLARIFICATION FROM THE ARCHITECT.
6. WHENEVER CONTRACT DOCUMENTS REASONABLY IMPLY MATERIALS OR INSTALLATION AS NECESSARY TO PRODUCE THE INTENDED RESULTS, BUT DO NOT FULLY DETAIL OR SPECIFY SUCH MATERIALS, THE CONTRACTOR SHALL PROVIDE THE MATERIALS AND LABOR REQUIRED FOR INSTALLATION NONETHELESS.
7. PROVIDE ALL WORK INDICATED UNLESS SPECIFICALLY INDICATED AS "NOT IN CONTRACT" (NIC), "FURNISHED BY OTHERS" (FBO) OR "EXISTING".
8. CONTRACT DOCUMENTS ARE INTENDED TO CONVEY DESIGN INTENT ONLY. PROVIDE PRODUCTS COMPLETE WITH ACCESSORIES, TRIM, FINISH, FASTENERS, AND OTHER ITEMS NEEDED FOR A COMPLETE INSTALLATION AND INDICATED USE AND EFFECT.
9. THESE NOTES ARE NOT INTENDED TO LIMIT THE RESPONSIBILITIES OF THE CONTRACTOR AS DEFINED ELSEWHERE IN THE CONTRACT DOCUMENTS

SITE LOCATION MAP - LEE'S SUMMIT WEST HIGH SCHOOL



SITE LOCATION MAP - LEE'S SUMMIT NORTH HIGH SCHOOL



LSN/LSW Index of Drawings

Volume 1

Volume 2

00 Covers	
VOLUME 1 OF 1 Construction Documents	
01.0 General Information	
G001	Index of Drawings & General Project Notes
01.1 Code Information	
G100-A	Code Review
G100-B	Code Review
G101	Code Plan
02.0 Civil	
C100-A	LSW Site & Dimension Plan
C100-B	LSW Site & Dimension Plan
C101-A	LSW Truck Turning Template
C101-B	LSW Truck Turning Template
C190-A	LSW Site Details
C190-B	LSN Site Details
C200-A	LSW Demolition & Erosion Control Plan
C200-B	LSN Demolition & Erosion Control Plan
C290-A	LSW Erosion Control Details
C290-B	LSN Erosion Control Details
C300-A	LSW Grading Plan
C300-B	LSN Grading Plan
C310-A	LSW Retaining Wall Plan & Profile
C500-A	LSW Utility Plan
C500-B	LSN Utility Plan
C600-A	LSW Storm Sewer Plan & Profile
C600-B	LSN Storm Sewer Plan & Profile
C690-A	LSW Storm Sewer Details
C690-B	LSN Storm Sewer Details
C700-A	LSW Sanitary Sewer Plan & Profile
C700-B	LSN Sanitary Sewer Plan & Profile
C790-A	LSW Sanitary Sewer Details
C790-B	LSN Sanitary Sewer Details
C800-A	LSW Water Line Plan & Profile
C800-B	LSN Water Line Plan & Profile
C890-A	LSW Water Line Details
C890-B	LSN Water Line Details
03.1 Architectural Site	
AS100-A	LSW - Architectural Site Plan
AS100-B	LSN - Architectural Site Plan
04.1 Structural	
S001	General Notes
S002	CMU Details
S101-B	Foundation Plan
S111-B	Low Roof and Roof Framing Plan
S200	Foundation Sections
S201	Foundation Sections
S300	Framing Sections
S301	Framing Sections
S400	Framing Elevations
05.1 Architectural	
A001	Graphic Symbols, Abbreviations, and General Information
A002	Accessibility Standards
A020	Exterior Enclosure Types
A030	Interior & Exterior Window Schedule & Types
A031	Interior & Exterior Storefront Details
A032	Interior & Exterior Storefront Details
A080	Door Types & Details
A090	Interior Partition Types
A100	Slab Plan
A101	Floor Plan
A111	Roof Plan
A151	Reflected Ceiling Plan
A201	Exterior Elevations
A301	Building Sections
A310	Wall Sections
A311	Wall Sections
A320	Exterior Section Details - Foundation
A321	Exterior Section Details
A322	Exterior Section Details
A330	Exterior Plan & Section Details
A331	Exterior Envelope Section & Details
A501	Enlarged Restroom Plans & Elevations
A502	Enlarged Classroom Plans & Elevations
A503	Interior Elevations
A504	Interior Elevations
A540	Interior Details
A600	Casework Standards
05.2 Architectural Finishes	
AF101	Finish Plan
AF102-A	Furniture Plan - LSW
AF102-B	Furniture Plan - LSN
05.3 Signage & Graphics	
SG001	Signage Types

06.1 Plumbing	Plumbing Legend & General Notes
P000	
P101-A	LSW - Plumbing Plan - Level 1
P101-B	LSN - Plumbing Plan - Level 1
P501	Plumbing Details
P601	Plumbing Schedules

07.1 Mechanical	Mechanical General Notes & Legend
M000	
M101-A	LSW - HVAC Plan - Level 1
M101-B	LSN - HVAC Plan - Level 1
M102-A	LSW - Mechanical Plan - Roof
M102-B	LSN - Mechanical Plan - Roof
M201	Mechanical Details
M301	Mechanical Schedules
M401	Mechanical Controls
M402	Mechanical Controls
M403	Mechanical Controls

08.1 Electrical	Electrical General Notes & Legend
E000	
E100-A	LSW - Electrical Site Plan
E100-B	LSN - Electrical Site Plan
E101-A	LSW - Lighting RCP
E101-B	LSN - Lighting RCP
E201-A	LSW - Power Plan
E201-B	LSN - Power Plan
E301-A	LSW - Equipment Connection Plan
E301-B	LSN - Equipment Connection Plan
E302-A	LSW - Electrical Roof Plan
E302-B	LSN - Electrical Roof Plan
E500	Electrical Details
E600-A	LSW - Panelboard Schedules
E600-B	LSN - Panelboard Schedules
E700	Lighting Schedules
E800-A	LSW - Electrical One-Line Diagram & Calculations
E800-B	LSN - Electrical One-Line Diagram & Calculations

09.0 Fire Protection	Fire Alarm General Notes & Legend
FA000	
FA101	Fire Alarm Plan

10.1 Technology	Technology General Notes & Legend
TN000	
TN101-A	LSW - Technology Plan - Level 1
TN101-B	LSN - Technology Plan - Level 1
TN201-A	LSW - Technology RCP - Level 1
TN201-B	LSN - Technology RCP - Level 1
TN400-A	LSW - Technology Enlarged Plans & Details
TN400-B	LSN - Technology Enlarged Plans & Details

10.3 Security	Security General Notes & Legend
TY000	
TY101-A	Security Plan - Level 1 - LSW
TY101-B	Security Plan - Level 1 - LSN
TY500	Security Details

CODE ANALYSIS:

Based on Building Code Summary
Prepared by: Clinton J. Armstrong
1.0 INTRODUCTION
1.1 SCOPE
This documentation outlines major fire and life safety issues affecting the design of the renovations and additions to Lee's Summit North High School. Fire and life safety criteria are summarized from the 2018 International Building Code (IBC) as adopted by the City of Lee's Summit, and with approval from the State of Missouri Fire Marshal (DFS), and the 2018 International Existing Building Code (IEBC).

The new building is a single story vocational shop building with (2) classroom spaces within. Vocational classroom areas do not have enough hazardous materials to be classified as Group H occupancy. These spaces have hazardous materials; however, each has quantities which do not exceed the maximums as permitted by IBC Tables 307.1 (1) and 307.1(3). Construction will take place in a single phase.

1.2 APPLICABLE CODES:
This code summary utilized the following codes as adopted by the City of Lee's Summit, Missouri and the DFS's office (with approval by DFS to be noted on code footprint): :

- 2018 International Building Code (IBC)
- 2018 International Existing Building Code (IEBC)
- 2018 International Plumbing Code (IPC)
- 2017 National Electrical Code (NEC)
- 2018 International Fire Code (IFC)
- 2018 International Mechanical Code (IMC)
- 2018 International Fuel Gas Code (IFGC)
- ICC/ANSI A117.1-2009, Accessible and Usable Buildings and Facilities.
- Referenced Standards within each of the above codes

2.0 CONSTRUCTION CLASSIFICATIONS:

2.1 OCCUPANCY GROUP CLASSIFICATIONS

- Vocational Shop Group E (Section 305.1)

2.2 TYPES OF CONSTRUCTION CLASSIFICATION

- Type II-B (Section 602.2)

2.3 ALLOWABLE AREA AND HEIGHT (TABLE 504.3, 504.4, 506.2):

Type IIB Construction	Allowable
Area/story (square feet)	Group E 14,000
Total area (square feet)	29,000
Height (feet)	55
Height (number of stories)	2

3.0 FIRE RESISTIVE OCCUPANCY AND USE SEPARATIONS:

3.1 USE SEPARATIONS

Fire resistive separations and enclosures are intended to address individual use hazards and are identified below.

Use/Occupancy

Service entrance conductors. Encased in 2 inches of concrete, listed 2-hour electrical circuit protective system, or in a vault - NEC Article 230.6

Information technology equipment room (Not Data Closets) Room is required to be separated with 1-hour fire resistant rated walls, floors and ceilings with protected openings; ducts extending through assembly are required to be provided with fire/smoke dampers - NEC Article 654.2

3.2 OCCUPANCY SEPARATIONS
The new construction is classified throughout as a Group E Occupancy. No occupancy separations are required except as follows:
• Group E to Group S-2: 1-hour
4.0 FIRE RESISTIVE REQUIREMENTS FOR ELEMENTS OF THE STRUCTURE

4.1 ACCEPTABLE MATERIALS
Structural elements Type II-B resistive buildings are limited to non-combustible materials (IBC Section 602.2).

Fire retardant plywood or other wood products are permitted as sheathing or applied directly on studs within non-bearing partitions where the required fire rating is 2-hour or less (IBC Section 603.1, Exception 1 & 7).

Interior wood products installed as part of wall or ceiling finishes are required to meet the following Flame Spread Index:

- Non-Sprinklered Buildings:
 - Corridors and enclosures for exit access stairways and ramps: Class B
 - Rooms and enclosed spaces: Class C

Incidental 2 x blocking is permitted if of fire retardant treated wood. Fire retardant treated plywood is permitted within 1-hour or 2-hour walls that are not part of a shaft. Specific instances should be evaluated individually.

4.2 STRUCTURAL, INTERIOR, AND EXTERIOR ELEMENTS
Passive fire resistance for the structural frame insures that stability of the building, as a whole, can be maintained during the anticipated fire condition. The structural frame is defined as columns, as well as trusses, girders, and beams, having direct connection to columns. Beams and trusses not having direct connection to columns are considered secondary elements. Depending on where they occur, these secondary elements may be classified as an element of either a roof or floor assembly for purposes of determining fire resistance requirements.

Restrained versus unrestrained designations: All fire resistive assemblies should be viewed as unrestrained, except where the Structural Engineer has demonstrated otherwise.

Exterior walls provide exposure protection based on fire separation distances.

New construction will be required to follow seismic, wind, snow, and dead-end line loads as required for new buildings. Any new construction that affects existing structural conditions by more than five percent, that portion of the existing structure is required to be brought up to current code.

The following fire resistive requirements are documented from IBC Table 601 and other applicable sections.

FIRE RESISTANCE RATING REQUIREMENTS (TABLE 601)

BUILDING ELEMENT	Type IIB
Structural Frame	0
Walls: <ul style="list-style-type: none">Exterior bearing WallsExterior non-bearing walls per Table 602Interior Bearing Walls	0 0 0
Interior non-bearing walls	0
Floor Assembly, including secondary beams and trusses	0
Roof Assembly, including secondary beams and trusses	0

FIRE RESISTANCE RATED CONSTRUCTION
Building Element
Corridors
Other permanent partitions
Roof covering
Projections (e.g., canopies)
Fire Resistance/Code Section
0-hour - IBC Section 1020.1, Exception 1.
0-hour - IBC Table 601 Class C - Table 1505.1
0-hour, non-combustible - Section 705.2.1

5.0 FIRE RESISTANCE RATINGS

5.1 OPENINGS IN EXTERIOR WALLS (TABLE 705.8)	
Distances (x) to Center Line of Street or Property Line	Non-Rated Openings as Percent Area of Exterior Wall 10' < x < 15' 45%

5.2 OPENINGS IN FLOORS/CEILING AND ROOF/CEILING ASSEMBLIES
Ceilings Where the ceiling is part of a fire resistive floor/ceiling or roof/ceiling assembly, HVAC duct openings are required to be provided with ceiling type fire dampers - Section 716.6.2
Roofs Roofs may have unprotected openings - Section 712.4

5.3 PENETRATIONS
Roofs Roofs may have unprotected penetrations - Section 712.4

6.0 FIRE RESISTIVE INTERIOR FINISHES

6.1 WALL AND CEILING FINISHES SECTION 803

Flame Spread Classifications	
WALL & CEILING FINISH	
Flame spread 0-25, smoke developed 0-450	Class A
Flame spread 26-75, smoke developed 0-450	Class B
Flame spread 76-200, smoke developed 0-450	Class C

Maximum Flame Spread Class (Table 803.13)

Occupancy Group	Vertical Exits and Exit Passageways	Exit Access Corridors and Other Exit Ways	Room or Enclosed Spaces
E	A	B	C

6.2 FLOOR FINISH

Rooms, exit stairs, exit passageways, rated and non-rated corridors
Material complying with DOC FF-1 "pill test" (CPSC 16 CFR 1030)

6.3 PLENUMS

Plenums are defined as any space used for air movement - IMC Section 602.1

Exposed materials within plenums are required to have a flame spread index of 25 & a smoke developed rating of 50 - IMC Section 602.2

For requirements on wiring, plastic sprinkler piping, & pneumatic tubing see Section 602.2, Exceptions of the IMC

Use of corridor as plenum
Use of corridor as a source of make-up air for exhaust systems that open directly onto such corridors is permitted provided make-up air rate is less than supply of outdoor air to the corridor - Section 1020.5, Exception 1
Corridors are permitted to serve as supply, return, exhaust, relief, or ventilation because the corridors are not required to be rated - Section 1020.5.1

6.4 FOAM PLASTIC (E.G., RIGID INSULATION)
Required to have a flame spread rating of 75 or less & a maximum smoke developed rating of 450 - Section 2603.3
Required to be separated from the building interior by a thermal barrier of 15 1/8 inch regular gypsum board or other material that will limit the average temperature rise of the unexposed surface to not more than 250°F after 15-minutes) - Section 2603.4

May be used in roofing & exterior walls if part of a fire resistive assembly - Sections 2603.4.1.5 & 2603.5.1
May be used as interior trim if covering is no more than 10% of walls or ceilings - Section 2604.2

7.0 EXIT REQUIREMENTS

7.1 GENERAL EXIT CRITERIA

Occupant Load Factors

Mechanical or storage spaces - Table 1004.5
Vocational classrooms (i.e., computers, industrial arts, etc.) 50 square feet net/person - Table 1004.5
Number of Exits
2 exits from each floor required; 3 exits required in areas where there are 501 to 1,000 persons; 4 exits required in areas where there is more than 1,000 people - Table 1006.3.2 2 exit doors required from a room in the following conditions - Table 1006.3.3(2):
Mechanical or storage rooms serving 29 or more people
Office/classroom serving 49 or more people

Arrangement of Exits

Where 2 exits are required, they must be placed a minimum distance apart of 1/3 the overall diagonal dimension of the room or building; 1/3 diagonal if fully sprinklered (also see Section 7.9 of this report) - Section 1007.1.1
Doors
Where 3 or more exits are required, at least 2 must be separated by 1/3 the diagonal; 1/3 diagonal if fully sprinklered - Section 1007.1.2
Additional exits are required to be separated such that if 1 becomes blocked, the others remain available

Capacity of Exits
Groups E and S-2
Doors/ramps 60 people/foot (0.2 inches/person) - Section 1005.3.2
Travel Distance
Non-Smoke Protected
Group E 200 feet to an exit - Table 1017.2
Group S-2 300 feet to an exit - Table 1017.2
Note: Travel distance is measured to an "exit". By definition, an "exit" is one of the following: an exterior door, a stair enclosure, an exit passageway, or a horizontal exit (i.e., a 2-hour wall subdividing a floor plate).

Common Path of Travel
Group E 75 feet - Table 1006.2.1
Group S-2 100 feet - Table 1006.2.1

7.2 DOOR CRITERIA

Maximum leaf width 48 inches - Section 1010.1.1
Minimum leaf width Wide enough to allow minimum clearance width of 32 inches when open - Section 1010.1.1
Minimum clear height 6 feet, 8 inches - Section 1010.1.1

Exit door swing type Exit doors are required to be swinging type - Section 1010.1.2

Exit doors serving 50 or more people or high hazard or refrigeration uses are required to swing in the direction of egress - Section 1010.1.2

No limitations on number of exits or number of occupants limited by travel distance provided the space is accessory & not a storage room, kitchen, closet, or other room of similar use - Section 1016.2, Part 2

7.5 EXIT PROVISIONS FOR THE DISABLED

Number of exits 2 accessible exits are required when 2 or more exits are required - Section 1009.1

Area of refuge Not required - ADAAG Section 4.1.3(9)

Areas not required to be accessible Elevator pits & similar areas accessed only by ladders & frequented only by service personnel & the like are not required to be accessible - ADAAG Section 4.1.3 (5), Exception 2

7.3 CORRIDORS

Minimum height 7 feet, 6 inches - Section 1208.2
Minimum width 44 inches serving an occupant load of more than 50 - Section 1020.2 72 inches serving a Group E occupancies with 100 or more people - Section 1020.2

Maximum allowable dead-end corridor 20 feet or 2.5 times the least width of the corridor - Section 1020.4

Construction 0-hour - Section 1020.1, Exception 1

Projections Not permitted except when doors are fully opened; exception may project no more than 7 inches into the required width - Section 1005.7
Doors in any position cannot reduce the required width by more than half
Fixtures & furnishings may project up to 4 inches on either side into the required width between heights of 27 & 80 inches - Section 1003.3.3 & ADAAG Section 4.4.1
Ceiling projections may extend below the ceiling but not less than 80 inches above the finished floor for not more than 50% of the ceiling - Section 1003.3.1

7.4 STAIRWAY CRITERIA

Access to Roof Required - IMC Section 306.5

If roof is unoccupied, access may be by a roof hatch providing a minimum of 16 square feet with a 2 feet minimum dimension - Section 1011.12.2

7.5 OTHER EXIT ISSUES

Exit access through adjoining spaces Permitted

No limitations on number of exits or number of occupants limited by travel distance provided the space is accessory & not a storage room, kitchen, closet, or other room of similar use - Section 1016.2, Part 2

7.5 EXIT PROVISIONS FOR THE DISABLED

Number of exits 2 accessible exits are required when 2 or more exits are required - Section 1009.1

Area of refuge Not required - ADAAG Section 4.1.3(9)

Areas not required to be accessible Elevator pits & similar areas accessed only by ladders & frequented only by service personnel & the like are not required to be accessible - ADAAG Section 4.1.3 (5), Exception 2

7.6 EXIT SIGNS AND EXIT LIGHTING

Exit lighting requirements Required for means of egress with a minimum intensity of 1 footcandle at floor level; emergency power is required - Section 1008.2.1

Exit sign requirements Required for means of egress from a room or space where 2 or more exits are required & placed no greater than 100 feet apart in corridors - Section 1013.1

Required to be illuminated at all times & be provided with emergency power - Section 1013.5

Tactile exit signs Required at exit doors - Section 1013.4
Tactile sign requirements Exterior exit doors are to be identified with a tactile sign with the word "EXIT" - Section 1013.4

8.0 FIRE PROTECTION ISSUES

8.1 FIRE SUPPRESSION

Automatic sprinklers Not required - Section 903.2.3

Portable Fire Extinguishers Required by Local Authority Required per IFC 906.1

8.3 FIRE ALARMS

Manual pull stations Required - Section 907.2.3

Visual Visual alarms are required to be installed in accordance with ADAAG & NFPA 72.

Audible Audible alarms are required by the ADAAG to provide a sound intensity exceeding the average ambient sound level by 15 dBA or a level which exceeds the maximum sound level by 5 dBA with a duration of 60

The average sound pressure for notification appliances shall provide a sound pressure level of 15 decibels above average ambient sound level or 5 dBA above maximum sound level having a duration of not less than 60 seconds. - Section 907.5.2.1.1

Maximum sound pressure level for audible alarm notification appliances shall be 110 dBA. Where ambient noise is greater than 95 dBA, visible alarm shall be provided and audible alarm shall not be required. - Section 907.5.2.1.2

Duct smoke detectors are required to initiate a visible & supervisory signal at a constantly attended location - Section 907.11; the supervisory signal is not required when the duct smoke detectors activate the building's alarm notification system

Smoke detection is required at elevator lobbies & machine rooms to initiate fireman's service (Phase I) recall - Section 3003.2

Heat detector with a shunt trip device required in sprinklered machine rooms - ANSI A17.1, Section 2.8.2.3

Smoke detector(s) provided in conjunction with smoke dampers & hold openers at rated doors - NFPA 72

8.5 BACK-UP POWER
Fire alarm system Emergency power is required per NFPA 72
Exit signs & exit lights Emergency power is required; may be unit batteries - Sections 1006.3 & Not required - Section 1007.2.1

9.0 MISCELLANEOUS ISSUES

9.1 ROOM HEIGHT CRITERIA

Classroom, assembly and office spaces 7 feet, 6 inches - Section 1208.2

Corridors 7 feet, 6 inches; means of egress (i.e., including rooms) - Section 1208.2

Doors 7 feet, 6 inches - Section 1208.2

Bathrooms 7 feet - Section 1208.2

General Notes (Code Plans):

1. ALL WORK, MATERIALS, AND METHODS SHALL BE IN CONFORMANCE WITH THE CODES, ORDINANCES AND REGULATIONS OF ALL GOVERNMENTAL AGENCIES HAVING JURISDICTION AT THE PROJECT LOCATION.
2. CONTRACTOR SHALL PROVIDE AND IS SOLELY RESPONSIBLE AND LIABLE FOR PUBLIC AND EMPLOYEE PROTECTION AS NECESSARY AND AS REQUIRED BY THE CODES, INCLUDING EXTERIOR PEDESTRIAN AND TRAFFIC BARRIERS. ALL WORK SHALL CONFORM TO ORDINANCES AND REGULATIONS OF GOVERNMENTAL AGENCIES HAVING JURISDICTION AT THE PROJECT LOCATION.
3. THE SIZE, TYPE, QUANTITY, AND LOCATION OF ALL TEMPORARY FIRE EXTINGUISHERS SHALL BE DETERMINED BY THE AUTHORITY HAVING JURISDICTION.
4. COORDINATE LOCATION OF KNOX BOX WITH ARCHITECT, OWNER'S REPRESENTATIVE, AND THE AUTHORITY HAVING JURISDICTION IN THE FIELD.



LSR7 Robotics, GiC & Phys Education

LSN: 901 NE Douglas St., Lee's Summit MO 64086
LSW: 2600 SW Ward Rd, Lee's Summit MO 64082
LSHS: 400 SE Blue Pkwy, Lee's Summit MO 64063

Project Number: 0121-0100

owner: Lee's Summit R-7 School
301 NE Tudor Road
Lee's Summit, MO 64086
architect: Multistudio
4200 Pennsylvania
Kansas City, MO 64111
816.931.6655
multi.studio
civil engineer: Kaw Valley Engineering
14700 West 114th Terrace
Lenexa, KS 66215
913.485.0318
kveg.com
structural engineer: Bob D. Campbell &
4338 Bellevue
Kansas City, MO 64111
816.531.4144
www.bdc-engrs.com

MEP/T/Code: Henderson Engineers
8345 Lenexa Drive, Suite 300
Lenexa, KS 66214
816.742.5000
www.hendersonengineers.com

General Notes (Code Plans):

- ALL WORK, MATERIALS, AND METHODS SHALL BE IN CONFORMANCE WITH THE CODES, ORDINANCES AND REGULATIONS OF ALL GOVERNMENTAL AGENCIES HAVING JURISDICTION AT THE PROJECT LOCATION.
- CONTRACTOR SHALL PROVIDE AND IS SOLELY RESPONSIBLE AND LIABLE FOR PUBLIC AND EMPLOYEE PROTECTION AS NECESSARY AND AS REQUIRED BY THE CODES, INCLUDING EXTERIOR PEDESTRIAN AND TRAFFIC BARRIERS. ALL WORK SHALL CONFORM TO ORDINANCES AND REGULATIONS OF GOVERNMENTAL AGENCIES HAVING JURISDICTION AT THE PROJECT LOCATION.
- THE SIZE, TYPE, QUANTITY, AND LOCATION OF ALL TEMPORARY FIRE EXTINGUISHERS SHALL BE DETERMINED BY THE AUTHORITY HAVING JUISDICTION.
- COORDINATE LOCATION OF KNOX BOX WITH ARCHITECT, OWNER'S REPRESENTATIVE, AND THE AUTHORITY HAVING JUISDICTION IN THE FIELD.

Code Plan Legend:

Egress Path of Travel
Distance to Exit
Common Path of Travel Distance
50' CPT

Egress Point
Maximum # of Occupants (by width)
Required # of Occupants

Stair Egress
Stair #1 | 4'-0"
Maximum # of Occupants (by width)
Required # of Occupants

Occupancy Tag
Occupancy Group
Area
Occupant Load

Fire Extinguisher Radius
75' Typ

Fire Extinguisher Symbol
FE

1-Hour: Fire Rated Assembly
2-Hour: Fire Rated Assembly
3-Hour: Fire Rated Assembly
4-Hour: Fire Rated Assembly
Smoke Barrier
Smoke Partition

Design No. U419
Nonbearing Wall Ratings — 1, 2, 3 or 4 Hr (See Items 3 & 4)

For Number of Layers and Hourly Ratings See Item 4

1. Floor and Ceiling Runners — (Not shown) — Channel shaped, fabricated from min 25 MSG; min 20 MSG when Item 4A is used; corrosion-protected steel, min width to accommodate stud size, with min 1 in. long lips, attached to floor and ceiling with fasteners 24 in. OC, max.

2. Steel Studs — Channel shaped, fabricated from min 25 MSG; min 20 MSG when Item 4A is used; corrosion-protected steel, min width as indicated under Item 4, min 1-1/4 in. flanges and 1-1/4 in. return, spaced a max of 24 in. OC. Studs to be cut 3/8 to 3/4 in. less than assembly height.

3. Batts and Blankets* — (Required as indicated under Item 4) — Mineral wool batts, friction fitted between studs and runners. Min return thickness as indicated under Item 4. See Batts and Blankets (BNNV or BZJZ) Categories for names of Classified companies.

3A. Batts and Blankets* — (Optional) — Placed in stud cavities, any glass fiber or mineral wool insulation bearing the UL Classification Marking as to Surface Burning Characteristics and Fire Retardance. See Batts and Blankets (BNNV or BZJZ) Categories for names of Classified companies.

4. Gypsum Board* — Gypsum panels with beveled, square or tapered edges, applied vertically or horizontally. Vertical joints centered over studs and staggered one stud cavity on opposite sides of studs. Vertical joints in adjacent layers (multilayer system) staggered one stud cavity. Horizontal joints need not be backed by steel framing. Horizontal edge joints and horizontal butt joints on opposite sides of studs need not be staggered. Horizontal edge joints and horizontal butt joints in adjacent layers (multilayer system) staggered a min of 12 in. The thickness and number of layers for the 1 hr, 2 hr, 3 hr and 4 hr ratings are as follows:

Wallboard Protection on Each Side of Wall

Rating

Min Stud Depth

No. of Layers & Thickness

Min Thickness of Insulation (Item 3)

1-1/2

1 layer, 5/8 in. thick

Optional

1-1/2

1 layer, 5/8 in. thick

Optional

1-1/2

1 layer, 5/8 in. thick

Optional

1-1/2

2 layers, 5/8 in. thick

Optional

1-1/2

2 layers, 5/8 in. thick

Optional

1-1/2

3 layers, 1/2 in. thick

Optional

1-1/2

3 layers, 5/8 in. thick

Optional

1-1/2

4 layers, 1/2 in. thick

Optional

1-1/2

2 layers, 3/4 in. thick

2 in.

CANADIAN GYPSUM COMPANY — 1-1/2 in. thick Type C, IP-X2 or IPC-AR, WRC, 5/8 in. thick Type AR, C, IP-AR, IP-X1, IP-X2, IPC-AR, SCX, SHX, WRC or WRC, 3/4 in. thick Type IP-X2, ULTRACODE, ULTRACODE SHC or ULTRACODE WRC.

UNITED STATES GYPSUM CO — 1/2 in. thick Type C, IP-X2, IPC-AR or WRC, 3/8 in. thick Type SCX, SHX, WRC, IP-X1, AR, C, WRC, FRC, G, IP-AR, IP-X2, IPC-AR, 3/4 in. thick Type IP-X2, ULTRACODE, ULTRACODE SHC or ULTRACODE WRC.

USC MEXICO S A DE C V — 1/2 in. thick Type C, IP-X2, IPC-AR or WRC, 3/8 in. thick Type AR, C, IP-AR, IP-X1, IP-X2, IPC-AR, SCX, SHX, WRC, WRC or 3/4 in. thick Type IP-X2, ULTRACODE, ULTRACODE SHC or ULTRACODE WRC.

4A. Gypsum Board* — (As an alternate to Item 4) — 5/8 in. thick gypsum panels, installed as described in Item 4 with Type S-12 steel screws. The length and spacing of the screws as specified under Item 5.

CANADIAN GYPSUM COMPANY — Type FRC.

UNITED STATES GYPSUM CO — Type FRC.

4B. Gypsum Board* — (As an alternate to Items 4 and 4A) — 5/8 in. thick, 2 in. wide, tongue and groove edge, applied horizontally as the outer layer to one side of the assembly. Secured as described in Item 5. Joint covering Item 5 not required.

CANADIAN GYPSUM COMPANY — Type SHX.

UNITED STATES GYPSUM CO — Type SHX.

USC MEXICO S A DE C V — Type SHX.

5. Fasteners — (Not shown) — Type S or S-12 steel screws used to attach panels to studs (Item 2) or furring channels (Item 6). Single layer system: 1 in. long for 1/2 and 5/8 in. thick panels or 1-1/4 in. long for 3/4 in. thick panels; spaced 8 in. OC when panels are applied horizontally or 8 in. OC along vertical and bottom edges and 12 in. OC in the field when panels are applied vertically. Two layer system: First layer: 1 in. long for 1/2 and 5/8 in. thick panels or 1-1/4 in. long for 3/4 in. thick panels; spaced 16 in. OC. Second layer: 1-5/8 in. long for 1/2 in., 5/8 in. thick panels; spaced 24 in. OC. Second layer: 1-5/8 in. long for 1/2 in., 3/4 in. thick panels; spaced 24 in. OC. Third layer: 2-1/4 in. long for 1/2 in., 5/8 in. thick panels or 2-5/8 in. long for 3/8 in. thick panels; spaced 12 in. OC. Screws offset min 6 in. from layer below. Four layer system: First layer: 1 in. long for 1/2 in., 3/8 in. thick panels; spaced 24 in. OC. Second layer: 1-5/8 in. long for 1/2 in., 5/8 in. thick panels or 2-5/8 in. long for 3/8 in. thick panels; spaced 24 in. OC. Third layer: 2-1/4 in. long for 1/2 in. thick panels or 2-5/8 in. long for 3/8 in. thick panels or 3 in. long for 3/4 in. thick panels; spaced 12 in. OC. Screws offset min 6 in. from layer below.

6. Furring Channels — (Optional, not shown, for single or double layer system) — Resilient furring channels fabricated from min 25 MSG; corrosion-protected steel, spaced vertically a max of 24 in. OC. Flange portion attached to each intersecting stud with 1/2 in. long Type S-12 steel screws. Not for use with Item 4A.

7. Joint Tape and Compound — Vinyl or caulk, dry or premixed joint compound applied in two coats to joints and screw heads of outer layers. Paper tape, min 2 in. wide, embedded in first layer of compound over all joints of outer layer panels. Paper tape and joint compound may be omitted when gypsum panels are supplied with a square edge.

8. Siding, Brick or Stone — (Optional, not shown) — A resilient, vinyl or steel siding, brick veneer or stone, meeting the requirements of local code agencies, installed over gypsum panels. Bricks veneer attached to studs with corrugated metal wall ties attached to each stud and screws, not more than one inch above course of brick.

9. Caulking and Sealant* — (Optional, not shown) — A bead of acoustical sealant applied around the partition perimeter for sound control.

UNITED STATES GYPSUM CO — Type AS.

*Bearing the UL Classification Mark.

LSR7 Robotics, GiC & Phys Education

LSN: 901 NE Douglas St., Lee's Summit MO 64086
LSW: 2600 SW Ward Rd, Lee's Summit MO 64082
LSHS: 400 SE Blue Pkwy, Lee's Summit MO 6406

Project Number: 0121-010

owner: Lee's Summit R-7 School 301 NE Tudor Road Lee's Summit, MO 64086	architect: Multistudio 4200 Pennsylvania Kansas City, MO 64111 913.264.0000
------------------------------------------------------------------------------------------------	-------------------------------------------------------------------------------------------------------

civil engineer:
Kaw Valley Engineering
14700 West 114th Terrace
Lenexa, KS 66215
913.485.0318
kveng.com

structural engineer:
Bob D. Campbell &
4338 Belleview
Kansas City, MO 64111
816.531.4144
www.bdc-engrs.com

MEPFT/Code::
Henderson Engineers
8345 Lenexa Drive, Suite
300
Lenexa, KS 66214
816.742.5000
www.hendersonengineers.com

Issue Date: September 9, 2021

Revisions

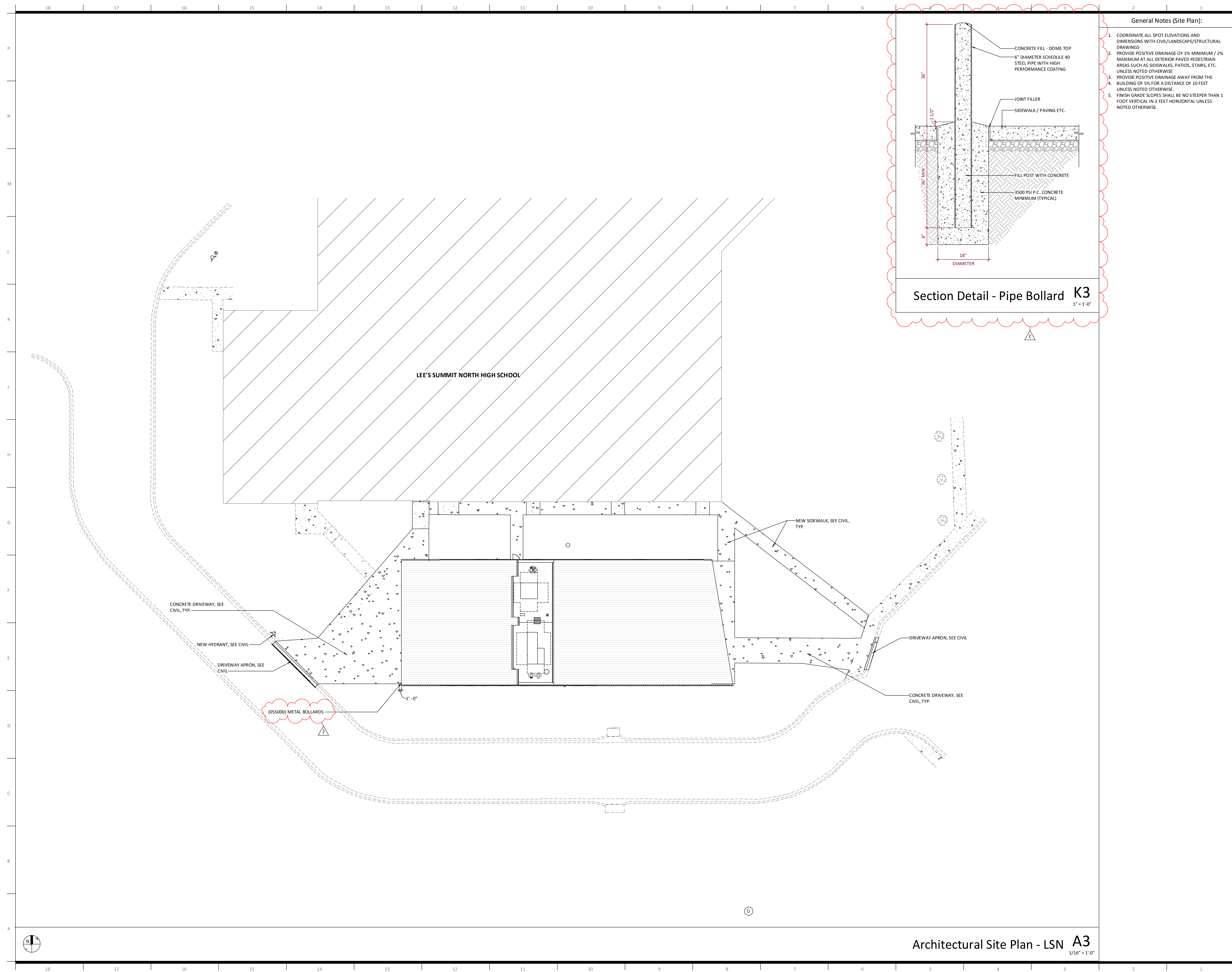
NUMBER	DESCRIPTION	DATE
2	Addendum 02	09/23/20

UNLESS A PROFESSIONAL SEAL WITH SIGNATURE AND DATE IS
AFFIXED, THIS DOCUMENT IS PRELIMINARY AND IS NOT INTENDED FOR
CONSTRUCTION, RECORDING PURPOSES OR IMPLEMENTATION



LSN - Architectural Site Plan

AS100-B



LSR7 Robotics, GiC &
Phys Education

LSN: 901 NE Douglas St., Lee's Summit MO 64086
LSW: 2600 SW Ward Rd, Lee's Summit MO 64083
64082
LSHS: 400 SE Blue Pkwy, Lee's Summit MO 64063

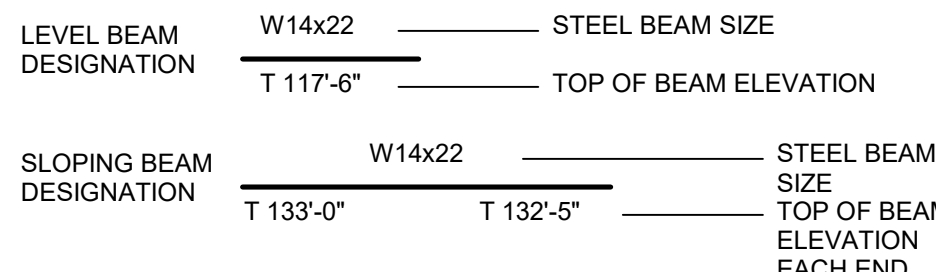
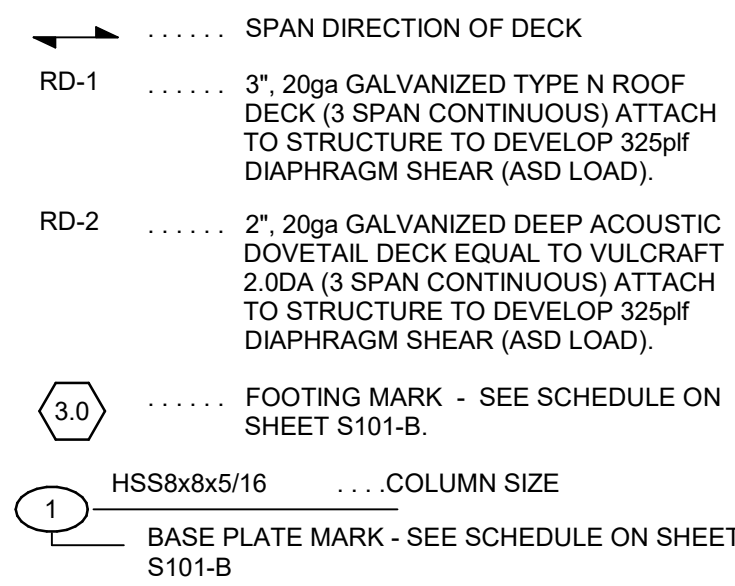
Project Number: 0121-0100

owner:
Lee's Summit R 7 School
301 NE Tudor Road
Lee's Summit, MO 64086
architect:
Multistudio
4200 Pennsylvania
Kansas City, MO 64111
816.931.6655
multi-studio
civil engineer:
Kaw Valley Engineering
14700 West 114th Terrace
Lenexa, KS 66215
913.485.0318
structural engineer:
Bob D. Campbell &
4388 Bellevue
Kansas City, MO 64111
816.531.4144
www.bdc-engrs.com
MEP/FF/Code:
Henderson Engineers
8345 Lenexa Drive, Suite
300
Lenexa, KS 66214
816.742.5000
www.hendersonengineers.com

STRUCTURAL ABBREVIATIONS

@ & Ø	AT AND ROUND, DIAMETER	GA GALV GALVANIZE(D)	RAD RD-# REF	RADIUS ROOF DECK TYPE REFERENCE
ADTL	ADDITIONAL	GEN GENERAL	REIN REINFORCEMENT	REQUIRED
AF	ABOVE FINISHED FLOOR	HORIZ	REIN REQUIRED	REQUIRED
ALT	ALTERNATE	HSS	REV	REVISION
ARCH	ARCHITECTURAL	INSIDE FACE	RLH	ROOF LIVE LOAD
BLDG	BUILDING	INFO	RTU	ROOF TOP UNIT
B/	BOTTOM OF	INT	SC	SLIP CRITICAL
BM	BEAM	JOIST	SCHED	SCHEDULE(D)
BOTT	BOTTOM	JT	SECT	SECTION
BRG	BEARING	K	SHT	SHEET
C	CAMBER	KSF	SIM	SIMILAR
CD-#	CONCRETE DECK TYPE	KSI	SJ	SAW JOINT
CS	CONSTRUCTION/CONTROL JOINT	LBS, #	SL	SNOW LOAD
CJ	COMPLETE JOINT PENETRATION	LONG	SOG	SLAB-ON-GRADE
CL	CENTERLINE	LL	SOG-#	SLAB-ON-GRADE TYPE
CMU	CONCRETE MASONRY UNIT	LLV	SPACING	SPACING
COL	COLUMN	LONG LEG VERTICAL	SPC-#	SPECIFICATION
CONC	CONCRETE	LONGITUDINAL	SPRT	SUPPORT
CONN	CONNECTION	LSLT	SQ	SQUARE
CONT	CONTINUOUS	LTWT	SS	STAINLESS STEEL
COORD	COORDINATE	M	SST	SHORT-SLOTTED HOLE TRANSVERSE
COV, CVR	COVER	MAX	STD	STANDARD
DBL	DOUBLE	MECH	STIFF	STIFFENER
DET	DETAIL	MFR	STIR	STIRRUP
DIA	DIAMETER	MIN	STRUT	STRUCTURE, STRUCTURAL
DIM	DIMENSION	MISC	THRU	THROUGH
DWL	DEAD LOAD	MSRY	TOP OF	TOP OF
DWG	DRAWING	MTL	THR	THROUGH
EA	EACH	NEAR FACE	TOP OF	TOP OF STEEL, TOP OF SLAB
EF	EACH FACE	NTS	TRANS	TRANSVERSE
EJ	EXPANSION JOINT	NOT TO SCALE	TYP	TYPICAL
EL, ELEV	ELEVATION	NORMAL WEIGHT	UNO	UNLESS NOTED OTHERWISE
EMBED	EMBEDMENT, EMBEDDED	OC	V	SHEAR FORCE
ENGR	ENGINEER	OP	VERT	VERTICAL
ENG	ENGINEERING	OUTSIDE FACE	WITH	WITH
EOR	ENGINEER OF RECORD	OPP	W/O	WITHOUT
EOS	EDGE OF SLAB	OVS	WL	WIDE FLANGE
EQUAL	EQUAL	AXIAL FORCE	WIND LOAD	WIND LOAD
EQUIP	EQUIPMENT	PAF	WP	WORK POINT
EXP	EXPANSION	PCF	WWF	WELDED WIRE FABRIC
EXT	EXTERIOR	PC		
EXTG, EXIST	EXISTING	PEMB		
FD	FLOOR DECK TYPE	PERP		
FDN	FOUNDATION	PL		
FF	FAR FACE	P/LF		
FIN	FINISH	PJP		
FLR	FLOOR	PSI		
FS	FAR SIDE	PSI		
FTG	FOOTING	QTY		
FV	FIELD VERIFY			

LEGEND:



1. General Information

- The contractor shall verify dimensions and conditions before construction and notify the engineer of any discrepancies, inconsistencies, or difficulties affecting the work before proceeding.
- The contractor shall coordinate all disciplines, verifying size and location of all openings, whether shown on structural drawings or not, as called for on architectural, mechanical, or electrical drawings. In the case of work in an existing building the contractor shall scan existing structure to locate all rebar in the area of the new core/opening using ground penetrating radar and notify the engineer of record for review prior to continuing. Conflicts, inconsistencies, or other difficulties affecting structural work shall be called to the architect or engineer's attention for direction before proceeding.
- All design and construction work for this project shall conform to the requirements of the following governing design codes:
 - International Building Code (IBC 2018) as amended by the city of Lee Summit, MO.
 - Minimum Design Loads for Buildings and Other Structures (ASCE7-16)
 - Specification for Structural Steel Buildings (AISC 360-16)
 - Member Design Basis is Allowable Stress Design (ASD)
 - Correction Design Basis is Allowable Stress Design (ASD)
 - Structural Welding Code (AWS D1.4-2017)
 - Building Code Requirements for Structural Concrete (ACI 318-14)
 - Building Code Requirements for Masonry Structures (TMS 402-2016)
 - North American Specification for the Design of Cold-Formed Steel Structural Members (AIS1 S100-16)
- These drawings are for this specific project and no other use is authorized.

2. Structural Load Design Criteria

- Roof Live = 30 psf, Roof Dead = 25psf
- Snow: Ps = 20psf, Pf = 14psf, Is = 1.0, Ce = 1.0, Ct = 1.0, Drift per ASCE/SEI 7
- C. Lateral Loads:
 - Wind: V = 109 mph, Exposure C
Occupancy (Risk) Category I, Iw=1.0 GCp=-0.18
Design wind pressures to be used for the design of exterior component and cladding materials on the designated zones of wall and roof surfaces shall be per section 30.7 and Table 30.7.2 of ASCE/SEI 7. Tabulated pressures shall be multiplied by effective area reduction factors, exposure adjustment factors, and topographic factors where applicable.
 - Seismic: Sa = 0.101, S1 = 0.069
Occupancy (Risk) Category I, Iw=1.0
Site Classification D, Sds = 0.108, Sd1 = 0.110
Seismic Design Category B
Basic Seismic Force-resisting System:
Steel system not specifically detailed for seismic resistance
Equivalent Lateral Force Procedure
R = 3, V = 0.036W, Omega = 3, Cd = 3
- This project is designed to resist the most critical effects resulting from the load combinations of section 1605.3 of the International Building Code.

3. Concrete

- All concrete for foundations (walls, grade beams, footings and piers) shall develop minimum ultimate compressive design strength of 3500 psi in 28 days, but not less than 500 pounds of cement shall be used per cubic yard of concrete regardless of strengths obtained, not over 5 gallons of water per 100 pounds of cement and not over 4 inches of slump.
- All concrete for interior flatwork (without floor covering) shall develop minimum ultimate compressive design strength of 4000 psi in 28 days, but not less than 525 pounds of cement shall be used per cubic yard of concrete regardless of strengths obtained, not over 5.75 gallons of water per 100 pounds of cement and not over 4 inches of slump. Concrete mix shop drawing shall contain testing data proving concrete design mix shrinkage is less than 0.034% at 28 days when tested according to ASTM C157 (air drying method only).
- All concrete for exterior flatwork (with floor covering) shall develop minimum ultimate compressive design strength of 4000 psi in 28 days, but not less than 540 pounds of cement shall be used per cubic yard of concrete regardless of strengths obtained, not over 5.40 gallons of water per 100 pounds of cement and not over 4 inches of slump. Concrete mix shop drawing shall contain testing data proving concrete design mix shrinkage is less than 0.034% at 28 days when tested according to ASTM C157 (air drying method only).
- All concrete for exterior flatwork shall have a minimum design compressive strength of 4500 psi in 28 days, with not less than 560 pounds of cement per cubic yard of concrete, not over 5 gallons of water per 100 pounds of cement, with 6% +/- 1% air entrainment, and a maximum of 4 inches of slump.
- The preceding minimum mix requirements may have water-reducing admixtures conforming to ASTM C494 added to the mix at manufacturer's dosage rates for improved workability.
- The preceding minimum mix requirements may have up to 15% maximum of the cement content replaced with an approved ASTM C018 Class C fly ash, provided the total minimum cementitious content is not reduced.
- Combined aggregate (coarse plus fine) for all concrete shall be well graded from coarsest to finest with no less than 16 percent and not less than 8 percent retained on an individual sieve, except that less than 8 percent may be retained on coarsest sieve and on No. 50 and finer sieves. Submit this gradation report with the concrete mix design shop drawings.
- All interior concrete slabs on grade shall be placed over 1 1/2" Class A Vapor Barrier per ASTM E1745 with less than 0.01 perms, tested after mandatory conditioning. All joints shall be lapped and sealed per manufacturer's recommendations. All penetrations, as well as damaged vapor barrier material shall also be sealed per manufacturer's recommendation prior to concrete placement. Install barrier per manufacturer recommended details at all discontinuous edges (at interior corners, exterior edge of slab, etc.) to ensure terms are followed. The vapor barrier shall be placed over free-draining granular material as prescribed by the project soils report.
- All concrete is reinforced concrete unless specifically called out as unreinforced. Reinforce all concrete not otherwise shown with same steel as in similar sections or areas. Any details not shown shall be detailed per ACI 315 and meet requirements of ACI 318, current editions.
- Control joints in dirt formed slab to be as shown on plans. Where not shown, limit controlled areas to not more than 144 square feet, or 12 feet on any side. Slab panel side ratio shall not exceed 1 1/2 to 1.
- Contractor shall verify that all concrete inserts, reinforcing and embedded items are correctly located and rigidly secured prior to concrete placement.
- Construction joints in beams, slabs, and grade beams shall occur at midspan (middle third) unless noted otherwise. Provide 2 x 4 horizontal keys at construction joints for shear transfer.
- No aluminum items shall be embedded in any concrete.

4. Reinforcing Steel

- All reinforcing steel shall conform to the requirements of ASTM A615 or A706 grade 60 steel. Welded plain wire fabric shall be supplied in sheets and conform to the requirements of ASTM A195.
- Clear coverage of concrete over reinforcing steel shall be as follows:
 - Concrete placed against earth: 3"
 - Formed concrete against earth: 2"
 - Slabs: 1"
 - Beams or Columns: 1-1/2"
 - Other: 2"All coverage shall be nominal bar diameter minimum.
- All dowels shall be the same size and spacing as adjoining main bars (splice lap 48 bar diameters or 24" minimum unless noted otherwise).
- At corners of all walls, beams, and grade beams supply corner bars (minimum 2'-0" in each direction or 48 bar diameters) in outside face of wall, matching size and spacing of horizontal bars. Where there are no vertical bars in outside face of wall, supply 3 - #4 vertical support bars for corner bars.
- Bars marked continuous and all vertical steel shall be lapped 48 bar diameters (2'-0" minimum) at splices and embedments, unless shown otherwise. Splice top bars near midspan and splice bottom bars over supports, unless noted otherwise.
- At all holes in concrete walls and slabs, add 2 - #5 bars (opening dimension plus 96 diameters long) at each of four sides and add 2 - #5 x 5'-0" diagonally at each of four corners of hole. Openings in 8" thick walls are reinforced similar, but with 1 - #5 instead of 2 - #5, respectively.
- Unless otherwise covered on architectural plans or specifications, vertical control joints in concrete wall shall be spaced at a maximum of 20'-0" on center and coordinated with the architect. Every other horizontal wall reinforcing bar shall be discontinuous at control joints except heavy top and bottom bars unless noted otherwise. Provide base seal waterstop style number 772 (by Greenstreak Inc. or approved equal) on dirt face side of wall at all walls below grade.
- Accessories shall be as specified in latest edition of the ACI Detailing Handbook and the concrete Reinforcing Steel Institute Design Handbook. Maximum accessory spacing shall be 4'-0" on center, and all accessories on exposed surfaces are to have plastic coated feet.
- All slabs and stairs not shown otherwise shall be 6" thick with #4 bars at 12" on center each way. All exterior porches and stoops not otherwise detailed may be constructed in any standard manner, solid or hollow, but must be reinforced with #4 bars at 12" on center each way minimum. Porches shall be doweled to adjacent walls or grade beams with #4 bars at 12" on center, hooked or embedded 48 diameters into both members. Slope porches 10" per foot for drainage unless noted otherwise.
- Allow 2 ton of reinforcing bars #4 or larger to be used as directed in the field for special conditions by the engineer of record (labor for placing same to be included).

5. Structural Steel

- All structural steel beams and columns shall be ASTM A992, grade 50 steel and all miscellaneous steel shall be ASTM A36 grade steel (except at moment connections where plates shall be ASTM A572, grade 50). Hollow Structural Sections (HSS) shall be ASTM A500, grade C. Fabrication and erection shall be in accordance with AISC 303-05 "Code of Standard Practice for Steel Buildings and Bridges" in the 13th Edition of the AISC Steel Construction Manual.
- All welding shall conform to the recommendations of the AWS.
- All exterior steel and connections, and brick relief angles shall be hot-dip galvanized.
- All bolts not otherwise specified shall be 3/4" diameter high strength (ASTM A325-N). All bolts shall be fully pretensioned. All beam connections shall be designed per the AISC Manual of Steel Construction "Framed Beam Connections" for the indicated reactions or at least 0.4 x beam total shear capacity. Vw/Omega, shown in the maximum total uniform load tables, whichever is greater, and shall account for eccentricity when the bolt line is more than 2" from the center of the support. All connections must be two bolt minimum. Additional connection elements may not be specified shown in the conceptual details in this set but may be required by the final connection design, such as stiffener plates, doubler plates, supplement/reinforcing plates or other connection material. Connection design and shop drawing preparation shall be completed under the direct supervision of a professional engineer licensed in the state the project is located and shop drawings and connection calculations shall bear his/her seal.
- All anchor bolts shall be 3/4" diameter, ASTM F1554, Grade 36 unless noted otherwise. Washers of minimum size and thickness for the given anchor diameter in Table 14-2 of the AISC Steel Construction Manual shall be provided at every column anchor bolt. Washers shall have a standard size hole for the anchor bolt. At braced frames washers shall be welded all around to the column base plate with 3/16" fillet weld.
- All openings in steel beam roof to have L6x4x3/8 (LLV) frame laid between beams. Support mechanical equipment with L6x4x3/8 (LLV) frame laid between beams.
- Design and installation of steel decking shall comply with the recommendations of the Steel Deck Institute (SDI). All decking shall be galvanized unless noted otherwise.
- Allow 2.0 tons structural steel to be used as directed in field for special conditions by the engineer of record. Cost for shop drawings, fabrication, delivery, detailing, and erection shall be included. 50% of structural steel allowance shall be bid as miscellaneous galvanized angle and plate.

6. Post Installed Anchors

- Post-installed anchors shall be used only where specified on the drawings unless approved in writing by the engineer of record. See drawings for anchor diameter, spacing and embedment. Performance values of the anchors shall be obtained for specific products using appropriate design procedures and/or standards as required by the governing building code. Anchors installed in concrete shall have an ICC-ES Evaluation Service Report. Special inspection is required for all post installed anchors. The contractor shall coordinate an on-site meeting with the post installed anchor manufacturer field representative to educate the construction team on the anchor installation guidelines and requirements including admixtures and compounds applied to the concrete after placement.
- Reinforcing steel shop drawings including erection drawings and bending details Bar list will not be reviewed for correct quantities.
- Elevations of all reinforced concrete masonry walls at a scale no smaller than 3/8" = 1'-0" showing all required reinforcing.
- Grout mix designs (for CMU).
- Construction and control joint plans and/or elevations.
- Structural steel shop drawings including erection drawings and plate details. Include joint, decking and connector submittals. Include miscellaneous framing specified on the structural drawings, but do not submit framing specified on non-structural drawings for Bob D. Campbell and Company, Inc. review.
- Deferred Submittal: Exterior curtain wall.
- Deferred Submittal: Structural steel connection design calculations submitted concurrently with structural steel shop drawings.
- Miscellaneous anchors shown on the structural drawings.
- Deferred Submittal: Light gage framing design calculations and detailed erection and fabrication drawings.

7. Foundations

- Lee's Summit North:
- The soil investigation was prepared by Cook, Flat & Strobel Engineers, P.A., the report number is 22-5545 and the telephone number is 913-627-9040.
 - Spread footings and grade beams are designed to bear on engineered fill or undisturbed soil capable of safely sustaining 2,500 psf.
- Lee's Summit West:
- The soil investigation was prepared by Cook, Flat & Strobel Engineers, P.A., the report number is 22-5547 and the telephone number is 913-627-9040.
 - Spread footings and grade beams are designed to bear on engineered fill or undisturbed soil capable of safely sustaining 3,000 psf.
 - Contractor shall provide for dewatering at excavations from either surface water or seepage.
 - All foundation excavations shall be inspected by a qualified soil engineer, approved by the architect and/or structural engineer, prior to placement of steel or concrete. This inspection shall be at the owner's expense.
 - All concrete in the structural portion retaining the backfill shall have attained its design strength prior to being backfilled.
 - Moisture content in soils beneath building locations should not be allowed to change after footing excavations and after grading for slabs on grade are completed. If subgrade materials become desiccated or softened by water or other conditions, recompact materials to the density and water content specified for engineered fill. Do not place concrete on frozen ground.

8. Concrete Masonry Units

- Concrete block used in exterior walls or load bearing walls shall meet the requirements of ASTM C90 and have a minimum net compressive strength of 2650 psi and laid up using type N mortar such that fm equals 2000 psi. Mortar shall be volume proportion based cement lime mortar. Proportioning shall be completed by box measure. Any block in contact with earth shall be normal weight units, laid using type "S" mortar and grouted solid.
- The contractor shall provide adequate temporary bracing for all masonry walls during construction.
- All concrete block shall have 9 gage (or larger) horizontal joint reinforcing (ladder or truss) per architectural drawings and specifications (16" maximum vertical spacing).
- Cavity wall construction shall be reinforced as designed for specific concrete block used. The horizontal joint reinforcing shall be of the ladder or truss style per specification and continuous between brick and block, as prescribed by the architectural drawings.
- Concrete block shall be reinforced as follows in 6", 8", 10", and 12" walls:
 - Vertical reinforcing shall be a minimum of 1 - #4 bar in 6" and 8" walls and 2 - #4 bars in 10" and 12" walls at 4'-0" on center, at each corner, at each door and window jamb, each side of control joints and in the end void of each length of wall. Lap splices for masonry vertical reinforcing shall be 48 bar diameters, 24" minimum.
 - Horizontal reinforcing:
 - Horizontal joint reinforcing as noted above.
 - Continuous horizontal bars shall be included per section or detail in bond beam or optional running bond beam where noted. Where bond beams are continuous at corners of walls, supply corner bars matching size of horizontal bars (minimum 2'-0" or 40 bar diameters in each direction).
- Grout, where noted above, shall have a minimum design ultimate compressive strength of 2500 psi at 28 day test and 3/8" maximum aggregate size.
- Non-load bearing concrete block walls shall be isolated from adjacent structural elements with vertical 3/8" control joints and at the top of the wall with 1" air space or compressible material and support per architectural detail.
- Unless otherwise covered on architectural plans or specifications, vertical control joints in masonry construction shall be 3/8" wide, full height of wall. Joints shall be spaced at a maximum of 24'-0" on center and coordinated with the architect. All horizontal joint reinforcing shall be discontinuous at control joints in masonry. All bond beam horizontal reinforcing shall be continuous through control joints.
- Lintels over all openings up to 8'-0" wide in new and existing masonry walls not otherwise covered shall be one 6x3 1/2x5/16 angle for each 4" width of masonry. All exterior lintels to be galvanized.
- Walls shall be anchored top and bottom by dowels matching wall vertical reinforcing(unless noted otherwise) from floor slab bottom and bracing angles at the top, per details on the drawings.

9. Light Gage Metal Structural Framing

- All load bearing, light gage structural studs, track, and bridging shall be of the type, size, gage and spacing as shown on the plans, minimum:
 - 2x4 studs, gage and spacing as shown on the plans, minimum
 - All materials shall be 33,000 psi minimum yield, except studs of 16 gage or heavier shall have a minimum yield of 50,000 psi.
- All framing components shall be cut squarely or at an angle to fit squarely against existing framing and erection shall be in accordance with latest editions of the AISI "Specifications for the Design of Cold-Formed Structural Members."
- All framing components shall be cut squarely or at an angle to fit squarely against existing framing and erection shall be in accordance with latest editions of the AISI "Specifications for the Design of Cold-Formed Structural Members."
- All framing components shall be cut squarely or at an angle to fit squarely against existing framing and erection shall be in accordance with latest editions of the AISI "Specifications for the Design of Cold-Formed Structural Members."
- Members shall be held firmly in place until properly fastened. Attachments of similar components shall be by welding, screw attachment, or bolting. Wire variation unless the GC advises Bob D. Campbell and Company, Inc. with written documentation.
- Review each submission for conformance with the means, methods, techniques, sequences and operations of construction and safety precautions and programs incidental thereto, all of which are the sole responsibility of the GC.
- Review and approve each submission.
- Stamp each submission as approved.
- Bob D. Campbell and Company, Inc. shall assume that no submission comprises a variation unless the GC advises Bob D. Campbell and Company, Inc. with written documentation.
- Bob D. Campbell and Company, Inc. shall review shop drawings and related materials with comments provided that each submission has met the above requirements. Bob D. Campbell and Company, Inc. shall return without comment unrequired material or submissions without GC approval stamp.
- Shop drawings and related material (if any) required are indicated below. Should Bob D. Campbell and Company, Inc. require more than ten (10) working days to perform the review, Bob D. Campbell and Company, Inc. shall so notify the GC.
 - Concrete mix designs and material certificates including admixtures and compounds applied to the concrete after placement.
- Reinforcing steel shop drawings including erection drawings and bending details Bar list will not be reviewed for correct quantities.
- Elevations of all reinforced concrete masonry walls at a scale no smaller than 3/8" = 1'-0" showing all required reinforcing.
- Grout mix designs (for CMU).
- Construction and control joint plans and/or elevations.
- Structural steel shop drawings including erection drawings and plate details. Include joint, decking and connector submittals. Include miscellaneous framing specified on the structural drawings, but do not submit framing specified on non-structural drawings for Bob D. Campbell and Company, Inc. review.
- Deferred Submittal: Exterior curtain wall.
- Deferred Submittal: Structural steel connection design calculations submitted concurrently with structural steel shop drawings.
- Miscellaneous anchors shown on the structural drawings.
- Deferred Submittal: Light gage framing design calculations and detailed erection and fabrication drawings.

10. Deferred Submittal and Shop Drawing

- Bob D. Campbell and Company, Inc. will review the General Contractor's (GC) shop drawings and related submittals (as indicated below) with respect to the ability of the detailed work, when complete, to be a properly functioning integral element of the overall structural system designed by Bob D. Campbell and Company, Inc.
- Deferred submittals shall be submitted to the architect of record for review who shall forward to the building official for review and approval. Design calculations for deferred submittals shall be submitted at the same time as the shop drawings for review. Design calculations shall be prepared and sealed by a Professional Engineer licensed in the state of the project. The deferred submittal items shall not be installed until the deferred submittal documents have been approved by the building official.
- Prior to submittal of a shop drawing or any related material to Bob D. Campbell and Company, Inc. the GC shall:
 - Review each submission for conformance with the means, methods, techniques, sequences and operations of construction and safety precautions and programs incidental thereto, all of which are the sole responsibility of the GC.
 - Review and approve each submission.
 - Stamp each submission as approved.
- Bob D. Campbell and Company, Inc. shall assume that no submission comprises a variation unless the GC advises Bob D. Campbell and Company, Inc. with written documentation.
- Bob D. Campbell and Company, Inc. shall review shop drawings and related materials with comments provided that each submission has met the above requirements. Bob D. Campbell and Company, Inc. shall return without comment unrequired material or submissions without GC approval stamp.
- Shop drawings and related material (if any) required are indicated below. Should Bob D. Campbell and Company, Inc. require more than ten (10) working days to perform the review, Bob D. Campbell and Company, Inc. shall so notify the GC.
 - Concrete mix designs and material certificates including admixtures and compounds applied to the concrete after placement.
- Reinforcing steel shop drawings including erection drawings and bending details Bar list will not be reviewed for correct quantities.
- Elevations of all reinforced concrete masonry walls at a scale no smaller than 3/8" = 1'-0" showing all required reinforcing.
- Grout mix designs (for CMU).
- Construction and control joint plans and/or elevations.
- Structural steel shop drawings including erection drawings and plate details. Include joint, decking and connector submittals. Include miscellaneous framing specified on the structural drawings, but do not submit framing specified on non-structural drawings for Bob D. Campbell and Company, Inc. review.
- Deferred Submittal: Exterior curtain wall.
- Deferred Submittal: Structural steel connection design calculations submitted concurrently with structural steel shop drawings.
- Miscellaneous anchors shown on the structural drawings.
- Deferred Submittal: Light gage framing design calculations and detailed erection and fabrication drawings.

11. Statement of Structural Special Inspections

- The structural design for this project is based on completion of special inspections during construction in accordance with section 1704 of the International Building Code. The owner shall employ one or more qualified special inspectors to provide the required special inspections.
- The special inspector shall furnish inspection reports to the building official, owner, architect and structural engineer, and any other designated person.
- All discrepancies shall be brought to the immediate attention of the contractor for correction, then, if uncorrected, to the proper design authority, building official and structural engineer.
- The special inspector shall submit a final signed report stating that the work requiring special inspection was, to the best of the inspector's knowledge, in conformance with the approved plans and specifications and the applicable workmanship provisions of the building code.
- The following inspections and tests are required with the frequency (continuous or periodic) as defined within the itemized section or standard listed below. The General Contractor shall provide notification to the inspector when items requiring inspection are ready to be inspected and provide access for those inspections.
 - Shop Fabrication - structural steel and steel bar joint per Section 1704.2.5 unless AISC certified shop
 - Steel Construction per Section 1705.2 and the quality assurance requirements of AISC 341 Chapter J (as referenced by AISC 360)
 - Cold-Formed Steel Deck per Section 1705.2.2 and the quality assurance requirements of SDI QAWCC
 - Concrete Construction per Section 1705.3 and Table 1705.3
 - Reinforcing Steel Placement
 - Cast in Place Anchors
 - Post Installed Anchors
 - Design Mix Verification
 - Concrete Sampling and Testing
 - Concrete Placement
 - Concrete Curing
 - Masonry Construction per Section 1705.4 and the quality assurance requirements of TMS 602 Level 2
 - Verification of Soils per Table 1705.6

12. Copyright and Disclaimer

- All drawings in the structural set (S-series drawings) are the copyrighted work of Bob D. Campbell and company, Inc. These drawings may not be photocopied, traced, or copies in any manner without the written permission of Bob D. Campbell and Company, Inc. Exception: Original drawings may be printed for distribution to the owner, architect, and general contractor for coordination, bidding, and construction. Subcontractors may not reproduce these drawings for any purpose or in any manner.
- Wayne E. Davis, P.E., registered engineer and a representative of Bob D. Campbell and Company, Inc., do hereby accept professional responsibility as required by the professional registration laws of this state for the structural design drawings consisting of S-series drawings. I hereby disclaim responsibility for all other drawings in the construction document package, they being the responsibility of other design professionals whose seals and signed statements may appear elsewhere in the construction document package.

Issue Date: September 5, 2022

Revisions

NUMBER DESCRIPTION DATE

UNLESS A PROFESSIONAL SEAL WITH SIGNATURE AND DATE IS AFFIXED, THIS DOCUMENT IS PRELIMINARY AND IS NOT INTENDED FOR CONSTRUCTION, RECORDING PURPOSES OR REPRESENTATION



**LSR7 Robotics, GiC &
Phys Education**

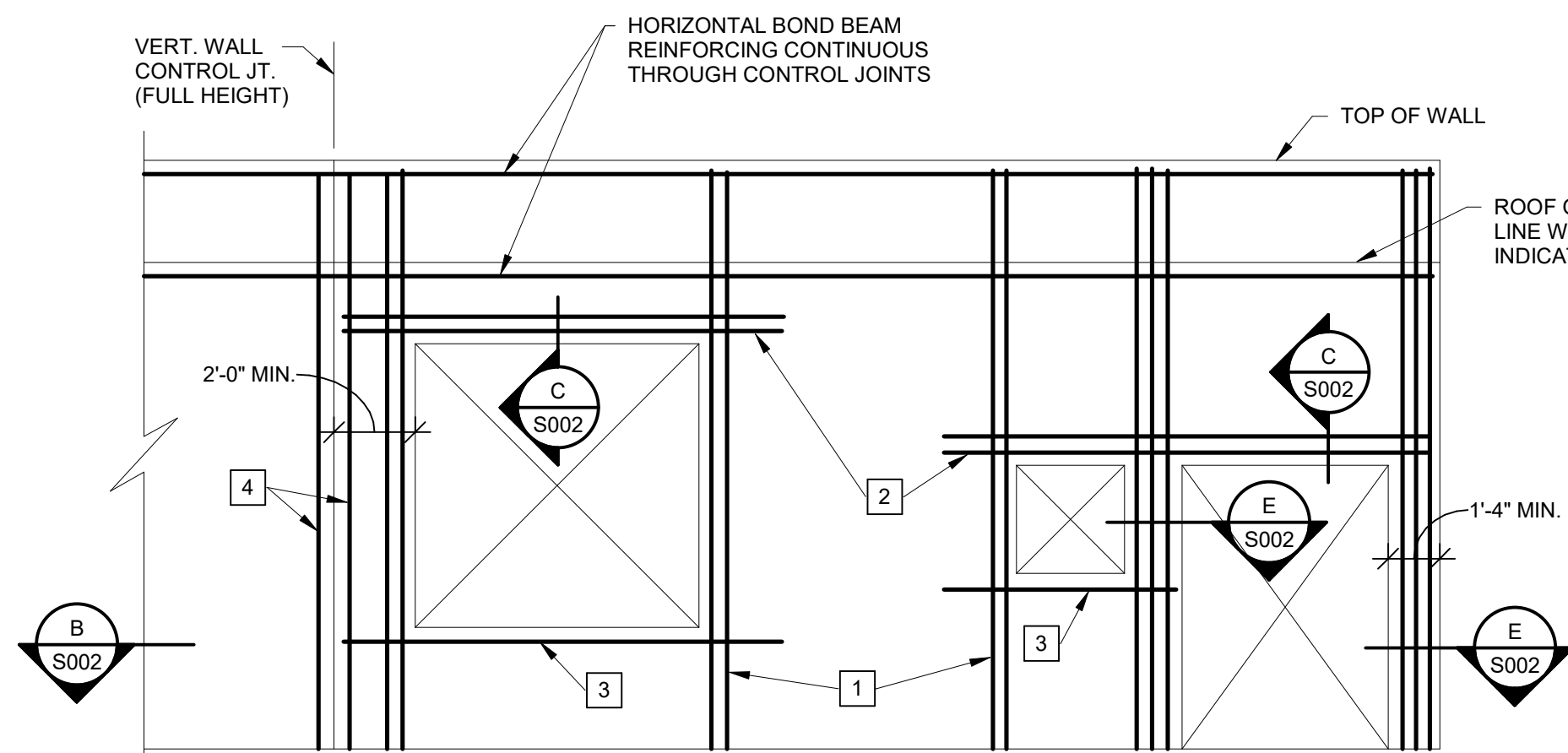
LSN: 901 NE Douglas St., Lee's Summit MO
64086
LSW: 2600 SW Ward Rd, Lee's Summit MO
64082
LSHS: 400 SE Blue Pkwy, Lee's Summit MO 64063

Project Number: 0121-0100

owner: Lee's Summit R-7 School
301 NE Tudor Road
Lee's Summit, MO 64086
architect: Multistudio
4200 Pennsylvania
Kansas City, MO 64111
816.931.6655
multistudio

civil engineer: Kaw Valley Engineering
14700 West 114th Terrace
Lenexa, KS 66215
913.485.0318
kveeng.com
structural engineer: Bob D. Campbell &
4338 Bellevue
Kansas City, MO 64111
816.531.4144
www.bdc-engrs.com

MEP/PT/Code: Henderson Engineers
8345 Lenexa Drive, Suite
300
Lenexa, KS 66214
816.742.5000
www.hendersonengineers.com



TYPICAL CMU WALL REINFORCING AT OPENINGS

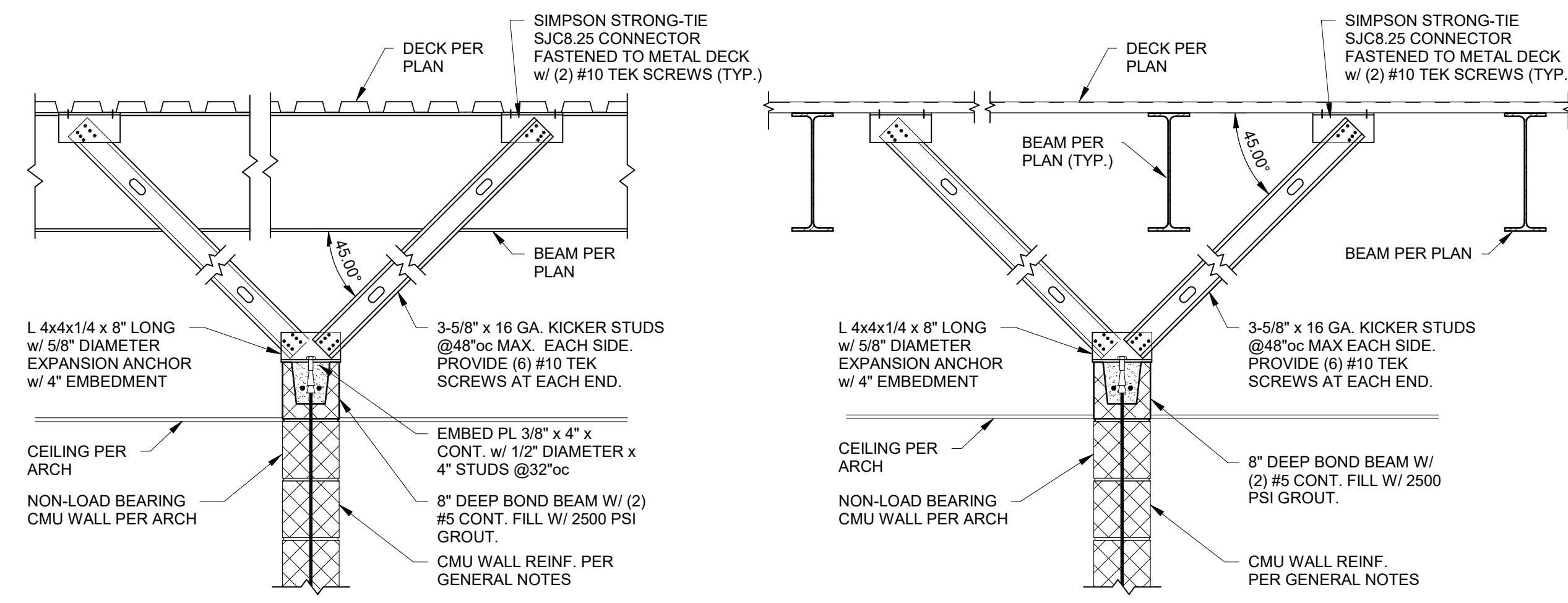
- LEGEND:**
- 1 FULL HEIGHT VERTICAL BARS AS JAMB REINFORCING IN FIRST 2 CELLS ADJACENT TO OPENING. REINFORCE EACH CELL WITH SIZE & QUANTITY OF BAR TO MATCH WALL REINFORCING (1 BAR TYPICAL IN 8" WALLS AND 2 BARS TYPICAL IN 12" WALLS).
 - 2 LINTEL REINFORCING PER SECTION C. EXTEND 2'-0" PAST EDGE OF OPENING ON EACH SIDE (TYPICAL).
 - 3 2-#5 CONTINUOUS HORIZONTAL BARS AS SILL REINFORCING IN 8" COURSE BELOW OPENING (U.N.O.). EXTEND 2'-0" PAST EDGE OF OPENING ON EACH SIDE (TYPICAL).
 - 4 FULL HEIGHT VERTICAL BARS PER MASONRY VERTICAL REINFORCING SCHEDULE LOCATED IN END CELL AT EACH SIDE OF VERTICAL WALL CONTROL JOINTS.

GENERAL CRITERIA: (SECTION A CONTINUED):

1. VERTICAL REINFORCING BARS SHALL BE DOWELED TO FOUNDATION WITH A DOWEL OF MATCHING SIZE AND SPACING.
2. CONTRACTOR SHALL COORDINATE AND VERIFY OPENINGS IN MASONRY WALLS. OPENINGS SHALL BE DETAILED ON REINFORCING STEEL SHOP DRAWING ELEVATIONS.
3. VERTICAL CONTROL JOINTS IN MASONRY WALLS SHALL BE 38" WIDE, FULL HEIGHT OF WALL. JOINTS SHALL BE SPACED AT A MAXIMUM OF 24'-0" ON CENTER AND NOT LESS THAN 2'-0" FROM THE EDGE OF ANY OPENING. ALL HORIZONTAL JOINT REINFORCING SHALL BE DISCONTINUOUS AT CONTROL JOINTS. ALL BOND BEAM HORIZONTAL REINFORCING SHALL BE CONTINUOUS THROUGH CONTROL JOINTS. CONTRACTOR SHALL COORDINATE AND VERIFY ALL CONTROL JOINT LOCATIONS.

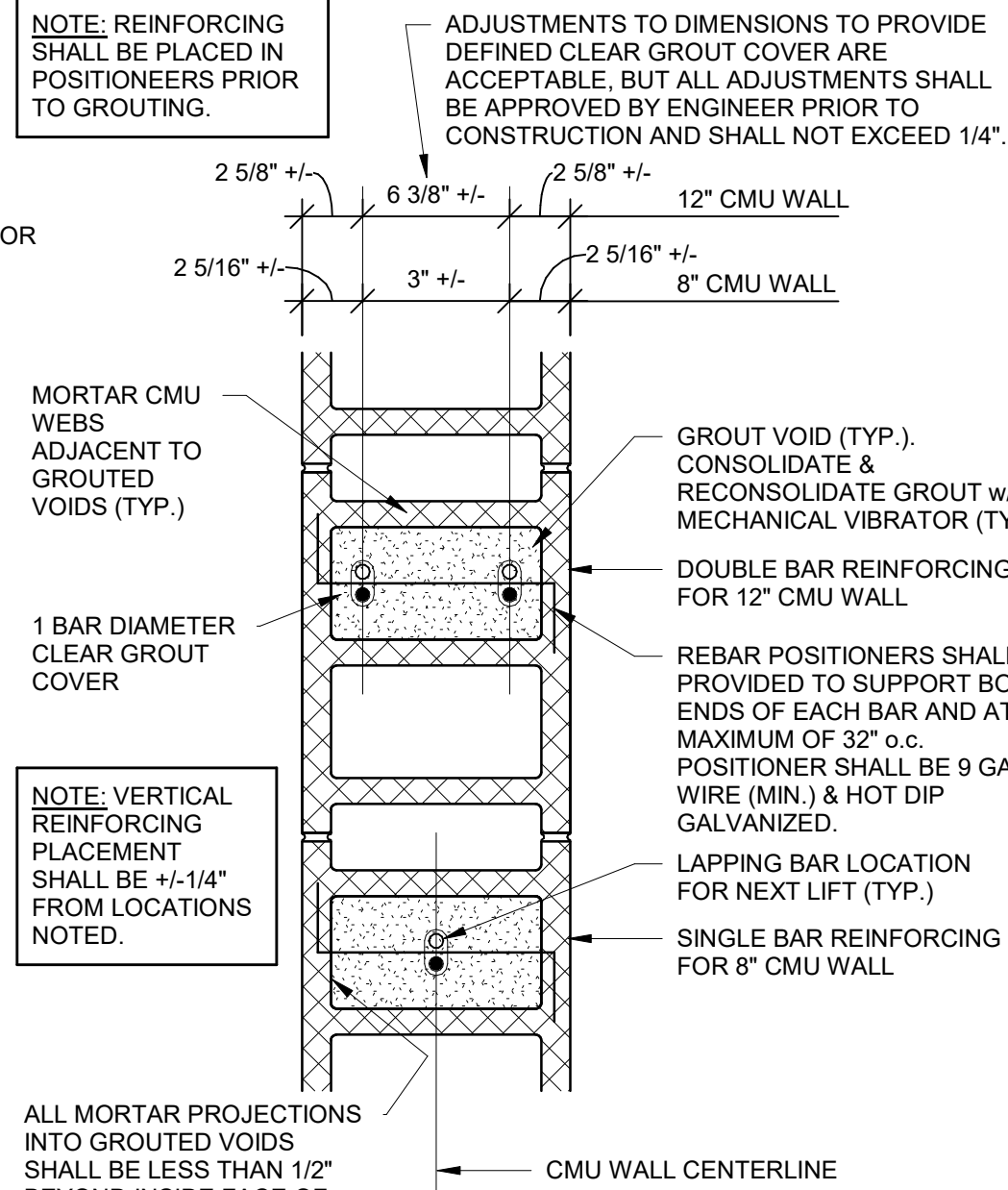
MASONRY VERTICAL REINFORCING SCHEDULE FOR LOAD BEARING MASONRY (CMU) WALLS			
WALL THICKNESS	LOCATION	VERTICAL REINF. (IN GROUTED CELLS)	SPACING
8"	ALL 8" WALLS (U.N.O.)	1-#5	32"oc
12"	ALL 12" WALLS (U.N.O.)	2-#5	16"oc
NOTES: 1. IN ADDITION TO SPACING SHOWN IN SCHEDULE, VERTICAL REINFORCING SHALL BE PROVIDED IN GROUTED CELLS AT THE FOLLOWING LOCATIONS A. IN THE FIRST 2 CELLS ADJACENT TO EACH OPENING B. IN THE END CELLS ON EACH SIDE OF VERTICAL CONTROL JOINTS C. IN THE END CELLS OF EACH LENGTH OF WALL D. AT EACH CORNER OF WALLS 2. ALL MASONRY VOIDS AND BOND BEAMS TO BE GROUTED SHALL BE FREE OF DEBRIS AND MORTAR DROPPINGS PRIOR TO GROUTING. ANY MASONRY w/ DROPPINGS OR DEBRIS OBSERVED IN VOIDS SHALL BE REJECTED.			

A CMU WALL ELEVATION
1 1/2" = 1'-0"



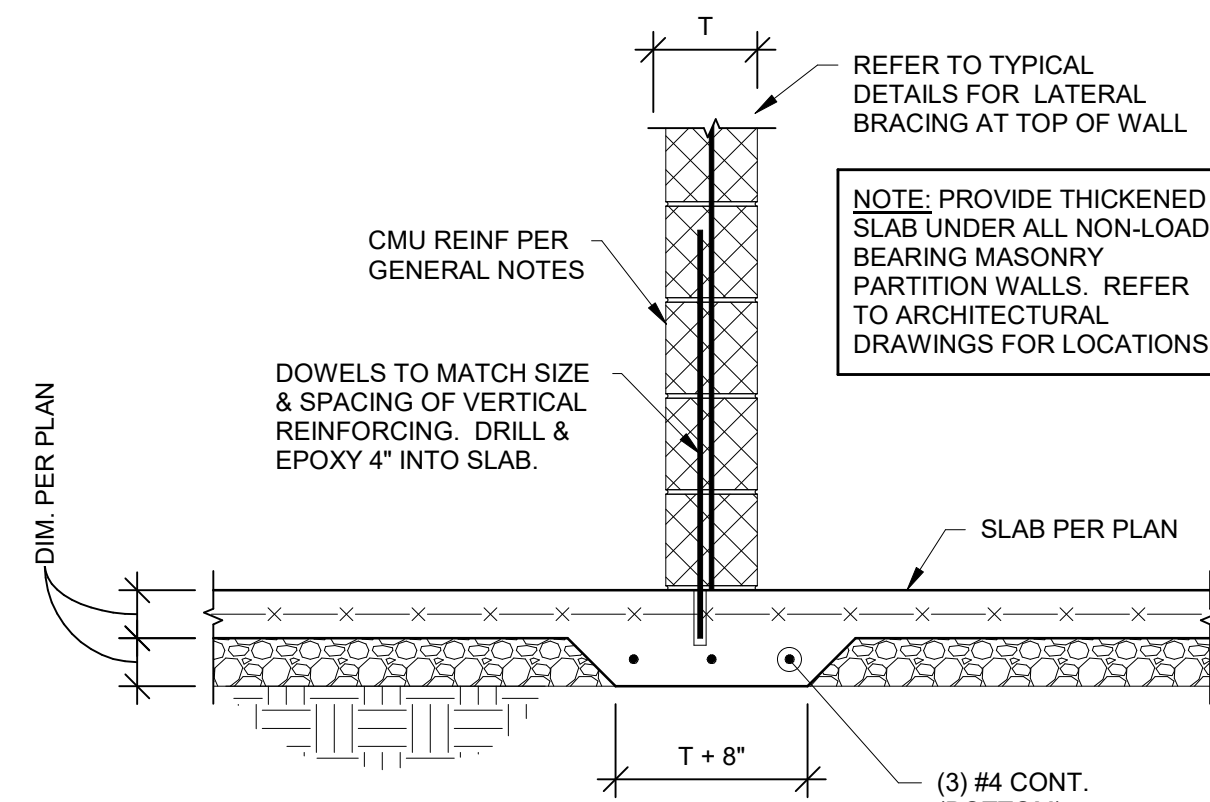
TYPICAL BRACING DETAILS FOR NON-LOAD-BEARING CMU WALLS THAT DO NOT EXTEND TO DECK
(REFER TO ARCHITECTURAL DRAWINGS FOR LOCATION)

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



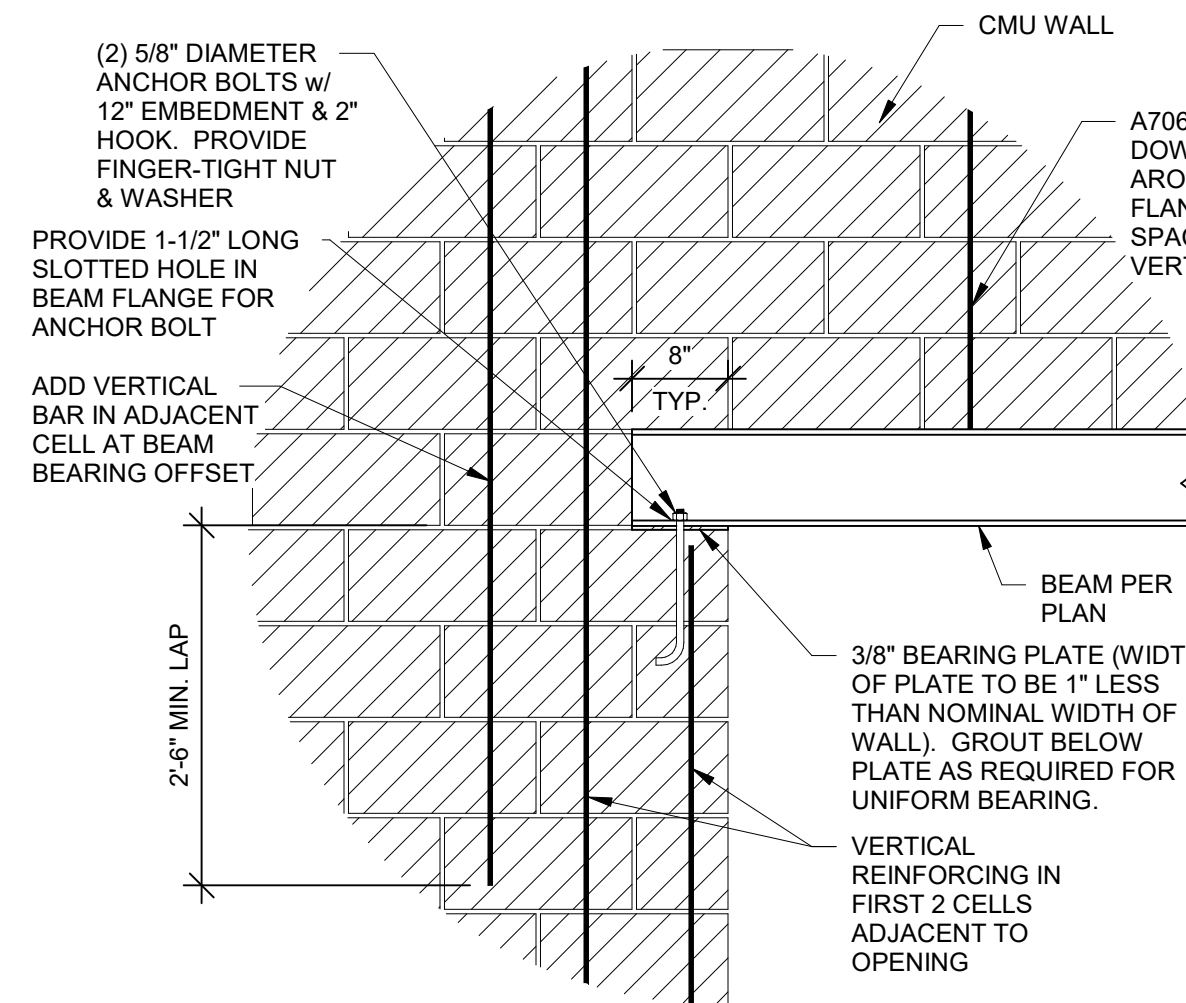
TYPICAL REBAR POSITIONING DETAIL

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



**TYPICAL THICKENED SLAB
(UNDER NON-LOAD-BEARING MASONRY)**

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

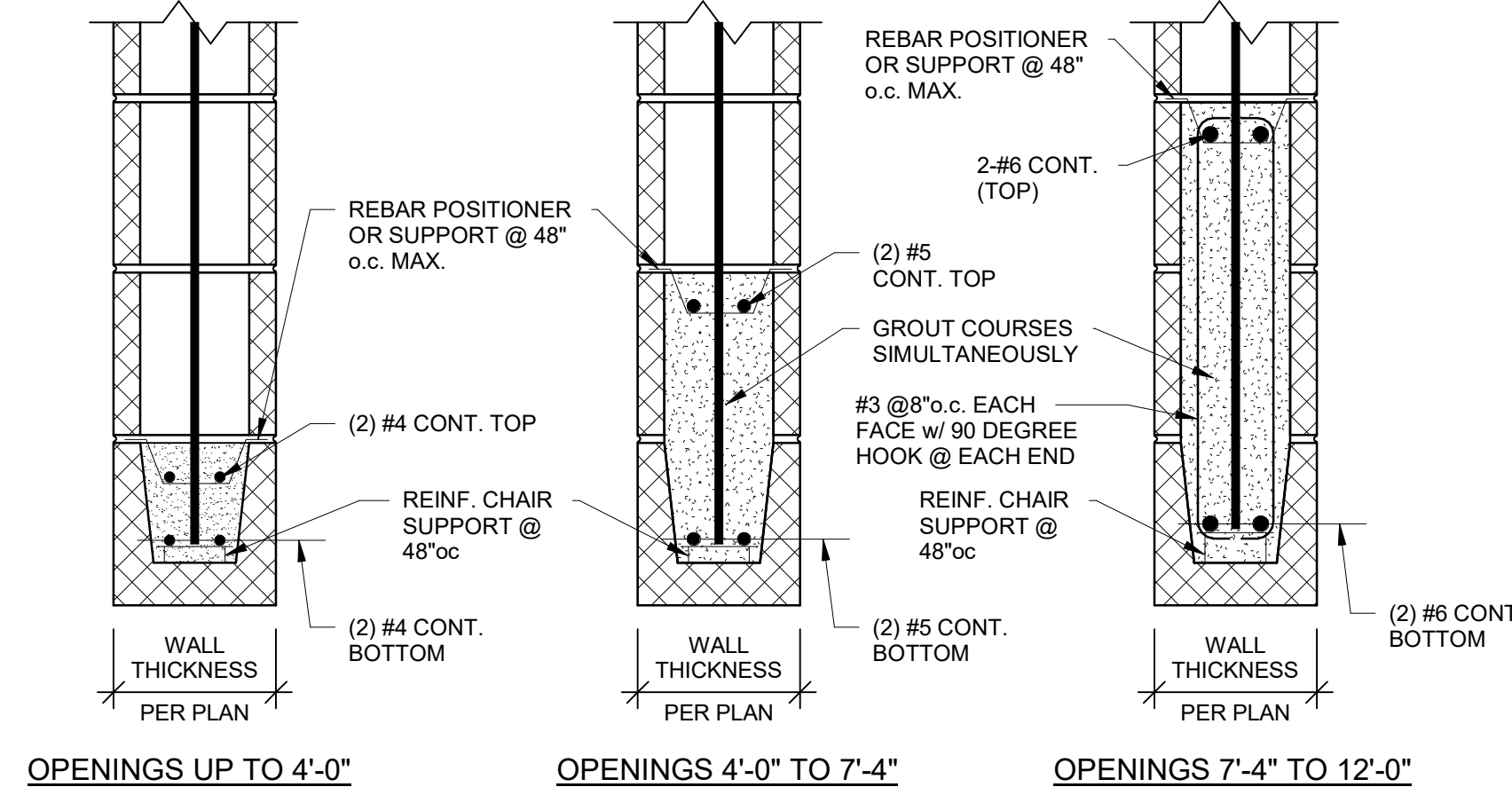


TYPICAL STEEL LINTEL DETAIL AT CMU WALL

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

TYPICAL MASONRY REINFORCING NOTE:

ALL INTERIOR & EXTERIOR MASONRY WALLS SHOWN ON ARCHITECTURAL AND STRUCTURAL DRAWINGS ARE TO BE REINFORCED HORIZONTALLY WITH BOND BEAMS (2-#5 BOTTOM) AT BOTTOM COURSE, TOP COURSE, JOIST BEARING ELEVATION AND AT 8'-0" MAXIMUM O.C. AND VERTICALLY AS INDICATED ON DRAWINGS. THESE WALLS ARE TO BE ANCHORED TOP AND BOTTOM TO THE FOUNDATION, FLOOR, OR ROOF PER TYPICAL DETAILS. THE VERTICAL REINFORCING IS CONTINUOUS (IN 6'-0" MAXIMUM LENGTHS, LAPPED 2'-0" MINIMUM). FILL BLOCK CELLS AND BOND BEAMS WITH 2,500psi GROUT. RE: DETAILS "A" THROUGH "E" ON THIS SHEET.



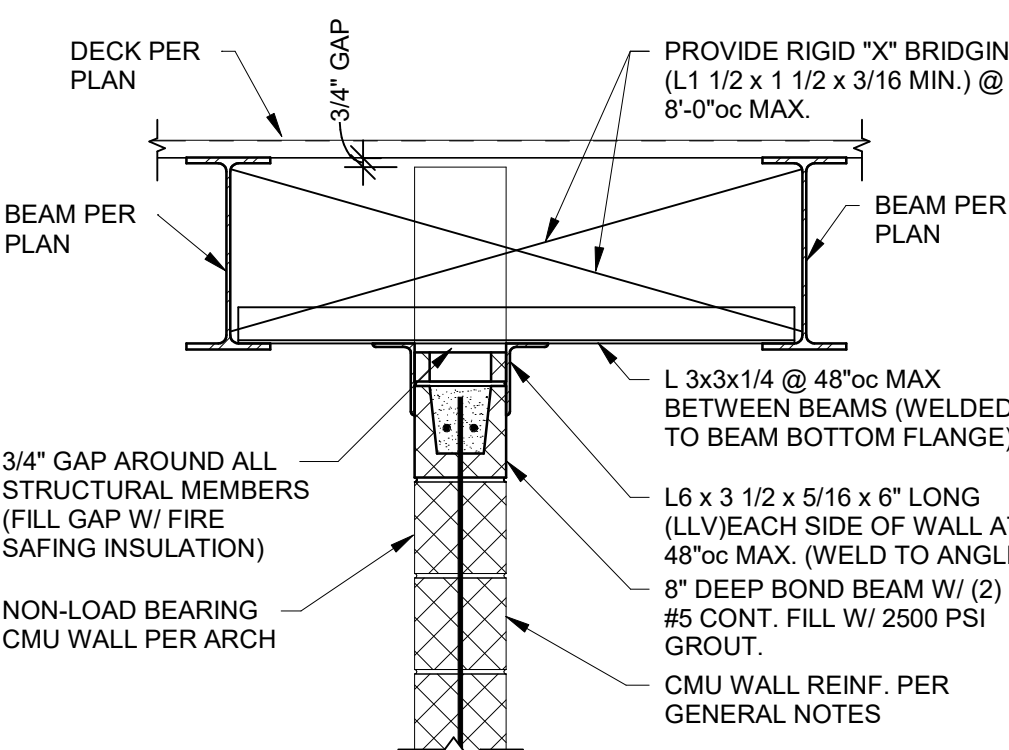
OPENINGS UP TO 4'-0"

OPENINGS 4'-0" TO 7'-4"

OPENINGS 7'-4" TO 12'-0"

TYPICAL LINTELS AT ALL CMU WALLS (U.N.O.)

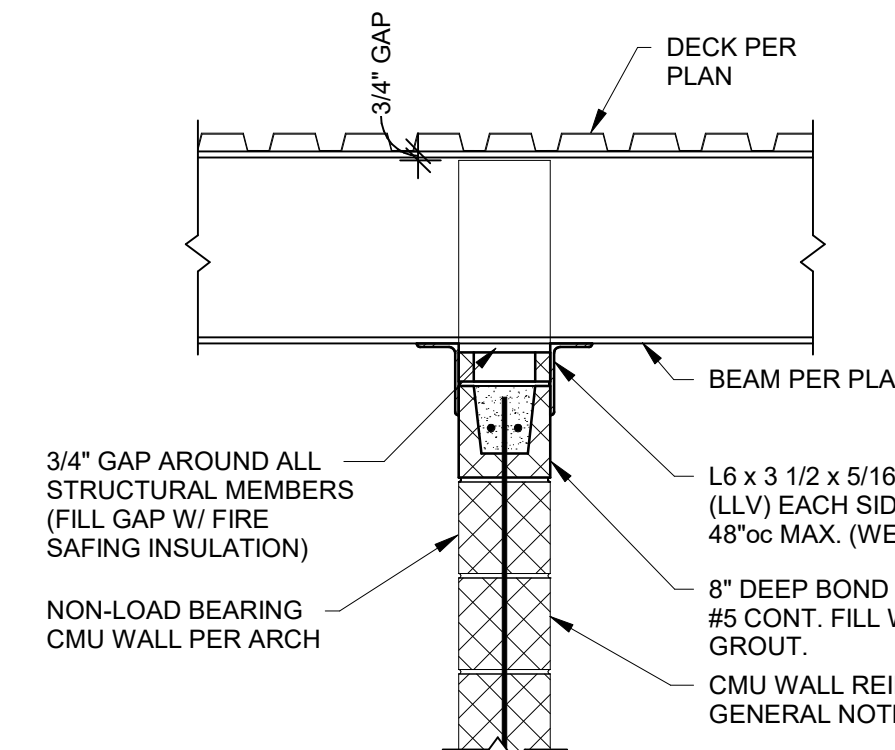
C SECTION
1 1/2" = 1'-0"



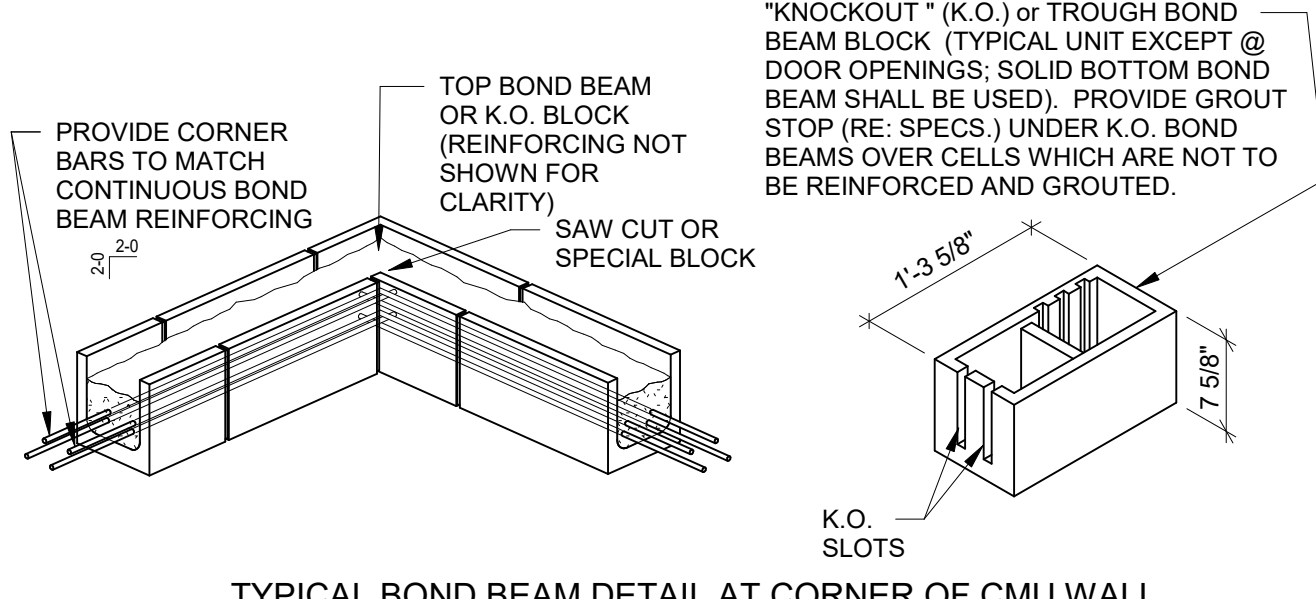
WALL PARALLEL TO BEAM

TYPICAL BRACING DETAILS FOR NON-LOAD-BEARING CMU WALLS THAT EXTEND TO DECK
(REFER TO ARCHITECTURAL DRAWINGS FOR LOCATION)

2 SECTION
3/4" = 1'-0"

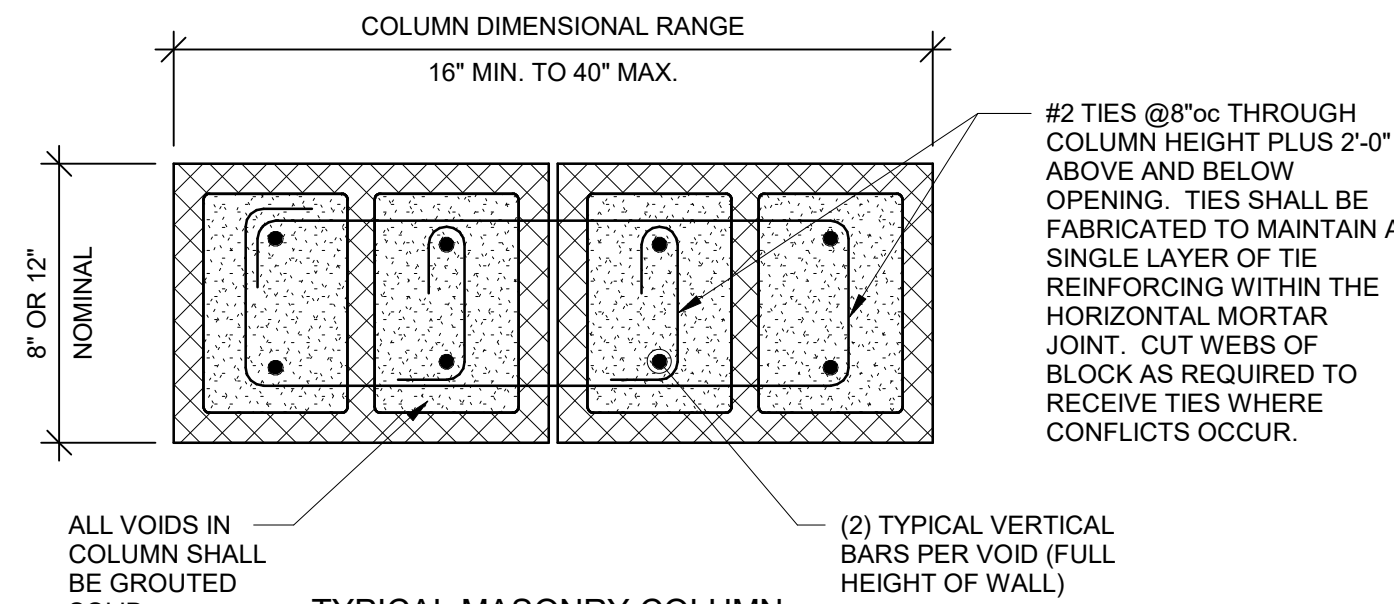


WALL PERPENDICULAR TO BEAM



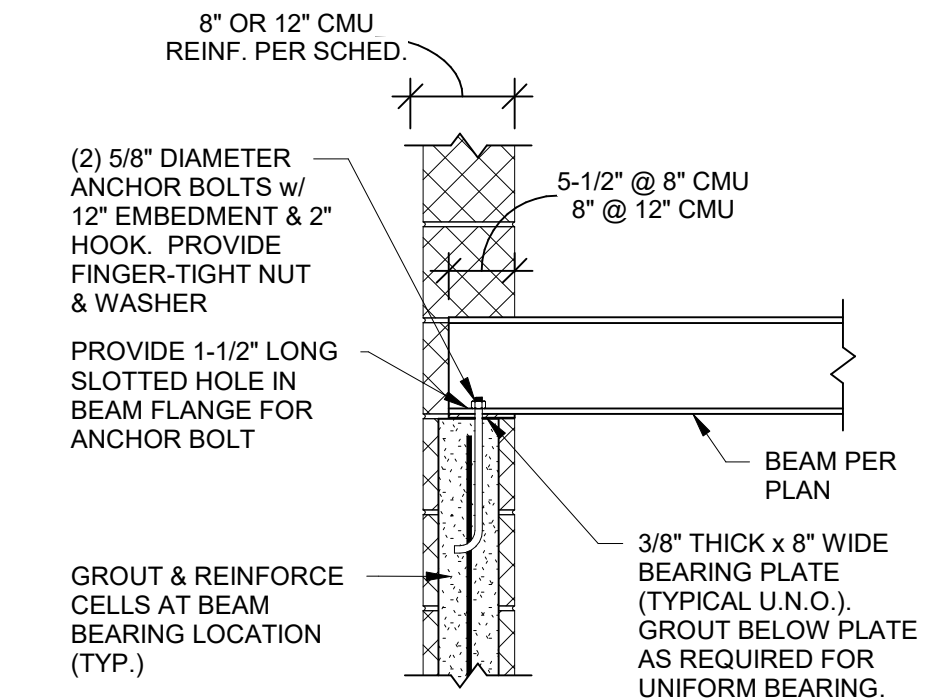
TYPICAL BOND BEAM DETAIL AT CORNER OF CMU WALL

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



TYPICAL MASONRY COLUMN

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



TYPICAL WIDE FLANGE BEAM BEARING ON CMU (U.N.O.)

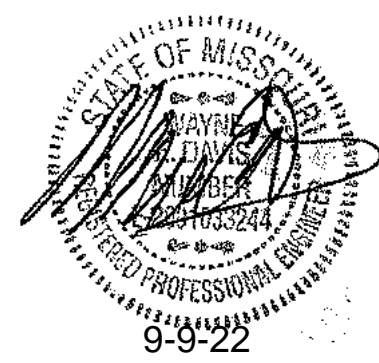
5 SECTION
3/4" = 1'-0"

Issue Date: September 9, 2022

Revisions

NUMBER DESCRIPTION DATE

UNLESS A PROFESSIONAL SEAL WITH SIGNATURE AND DATE IS AFFIXED, THIS DOCUMENT IS PRELIMINARY AND IS NOT INTENDED FOR CONSTRUCTION, RECORDING PURPOSES OR IMPLEMENTATION



CMU DETAILS

S002

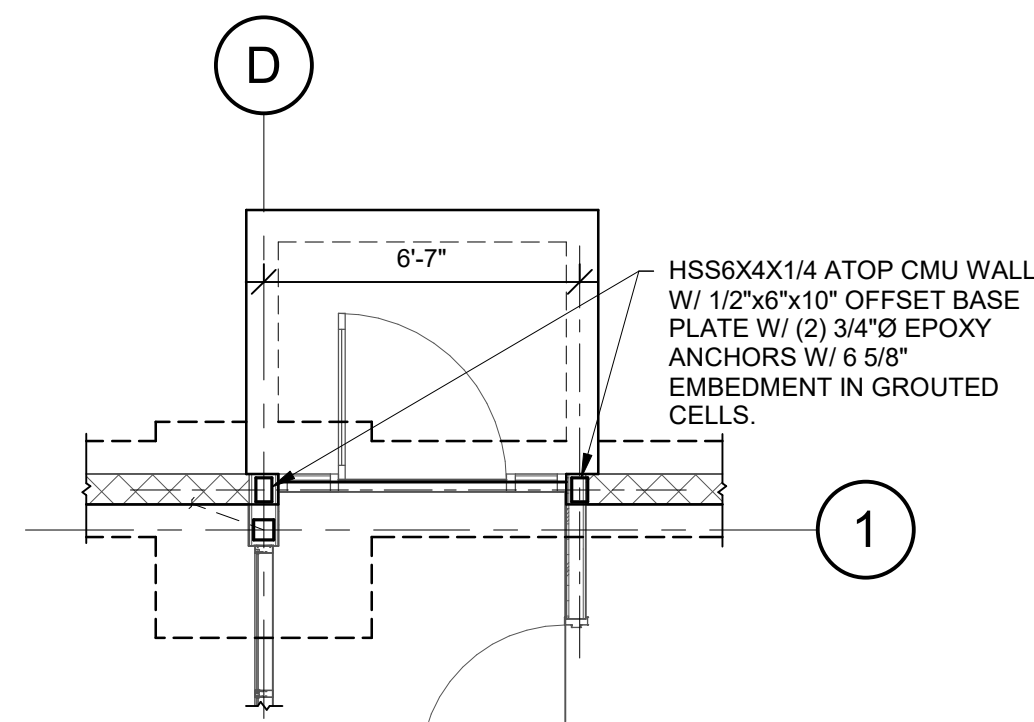
LSR7 Robotics, GiC & Phys Education

LSN: 901 NE Douglas St., Lee's Summit MO 64086
LSW: 2600 SW Ward Rd, Lee's Summit MO 64082
LSHS: 400 SE Blue Pkwy, Lee's Summit MO 64063

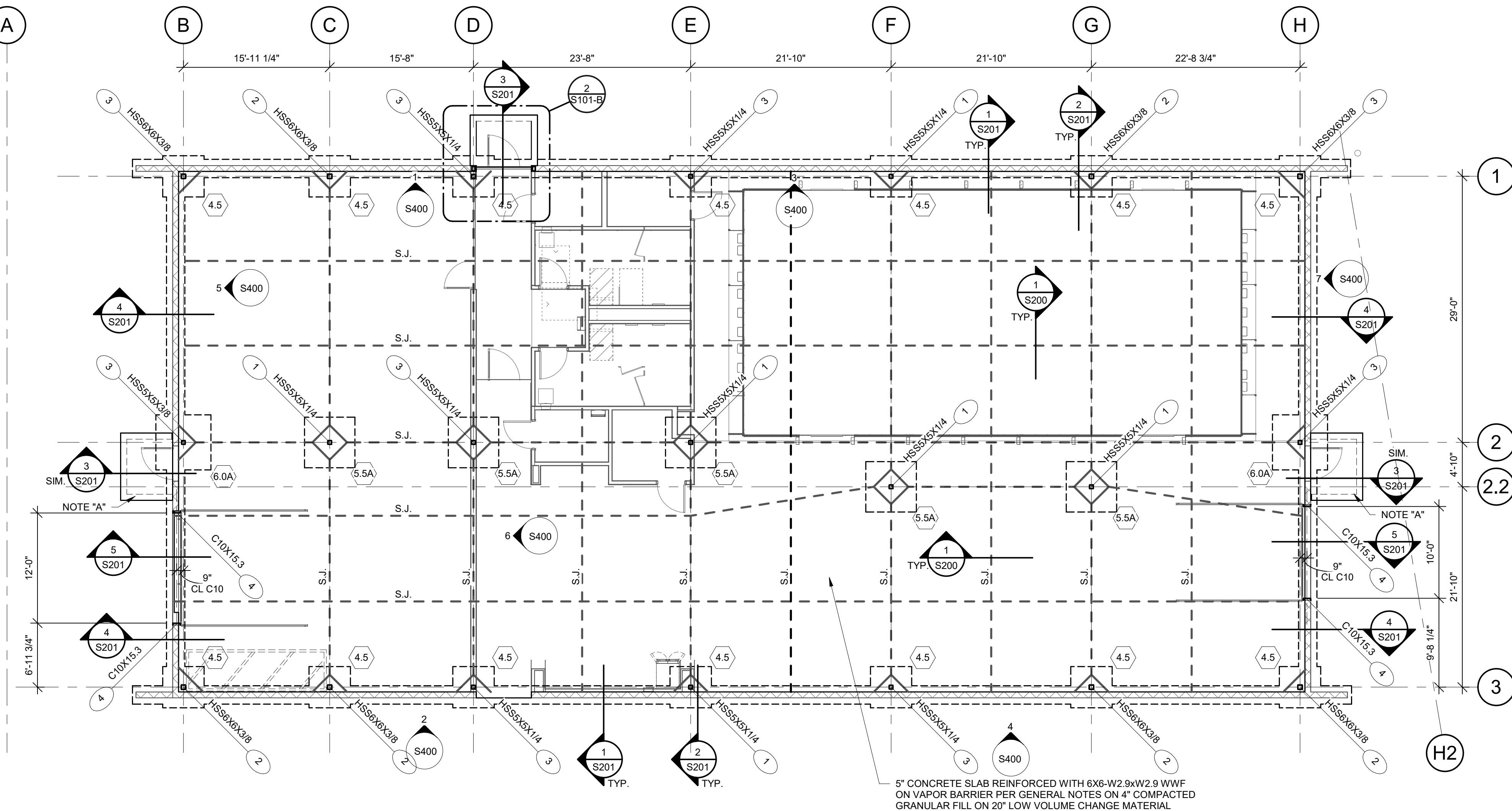
Project Number: 0121-0100

owner: Lee's Summit R-7 School
301 NE Tudor Road
Lee's Summit, MO 64086
architect: Multistudio
4200 Pennsylvania
Kansas City, MO 64111
816.931.6655
multi.studio
civil engineer: Kaw Valley Engineering
14700 West 114th Terrace
Lenexa, KS 66215
913.485.0318
kveeng.com
structural engineer: Bob D. Campbell &
4338 Bellevue
Kansas City, MO 64111
816.531.4144
www.bdc-engrs.com

MEP/T/Code: Henderson Engineers
8345 Lenexa Drive, Suite 300
Lenexa, KS 66214
816.742.5000
www.hendersonengineers.com



2 LSN/LSW FOUNDATION PLAN
1/4" = 1'-0"



1 LSN/LSW FOUNDATION PLAN
1/8" = 1'-0"

- NOTES:
1. REFER TO GENERAL NOTES AND LEGEND ON SHEET S001.
 2. TOP OF EXTERIOR FOOTING ELEVATION = 99'-4" U.N.O.
 3. TOP OF INTERIOR FOOTING ELEVATION = 99'-3" U.N.O.
 4. NOTE "A" - POUR STOOP SLAB WITH ADJACENT SIDEWALK. COORDINATE STOOP WITH SIDEWALK JOINT PATTERN.

Structural Foundation Schedule

NOTE:
1) EXTERIOR FOOTINGS OR FOOTING AT GRADE BEAM SHALL MATCH GRADE BEAM DEPTH AND BE PLACED WITH GRADE BEAM. PROVIDE SPECIFIED REBAR TOP AND BOTTOM WITH 4 STANDEES TO SUPPORT MATS.
2) PROVIDE REINFORCING PER SCHEDULE EACH WAY IN TOP OF FTG. AT ALL MOMENT FRAME AND BRACED BAY COLUMNS.
3) CENTER FOOTINGS ON COLUMNS AND/OR WALL CENTER LINES PER PLAN UNLESS NOTED OTHERWISE (U.N.O.).

Type Mark	Length	Width	Footing Thickness	Bottom Bars	Quantity (E.W. Top & Bott)	
4.5	4'-6"	4'-6"	2'-8"	Rebar : # 4	9	
5.5A	5'-6"	5'-6"	2'-8"	Rebar : # 5	7	
6.0A	6'-0"	6'-0"	2'-8"	Rebar : # 5	8	

COLUMN BASE PLATE SCHEDULE

TYPE	COLUMN	BASE PLATE (MBXN)	SHAPE	ANCHOR RODS	EMBEDMENT
1	PER PLAN	3/4"x11"x11"	A	(4) 3/4"Ø	9"
2	PER PLAN	3/4"x12"x12"	A	(4) 3/4"Ø	9"
3	PER PLAN	1"x12"x18"	B	(6) 3/4"Ø	1'-6"
4	PER PLAN	3/4"x9"x10"	C	(4) 3/4"Ø	9"

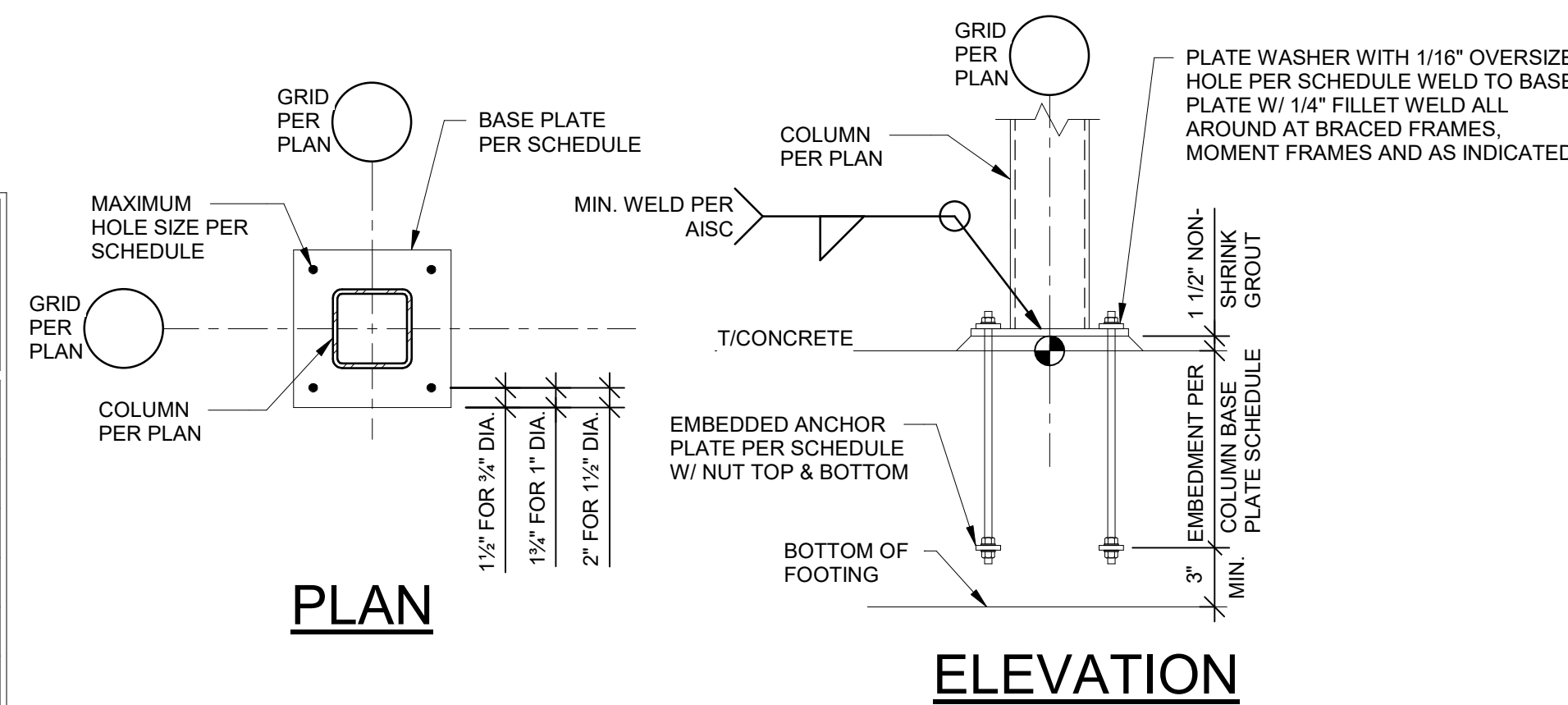
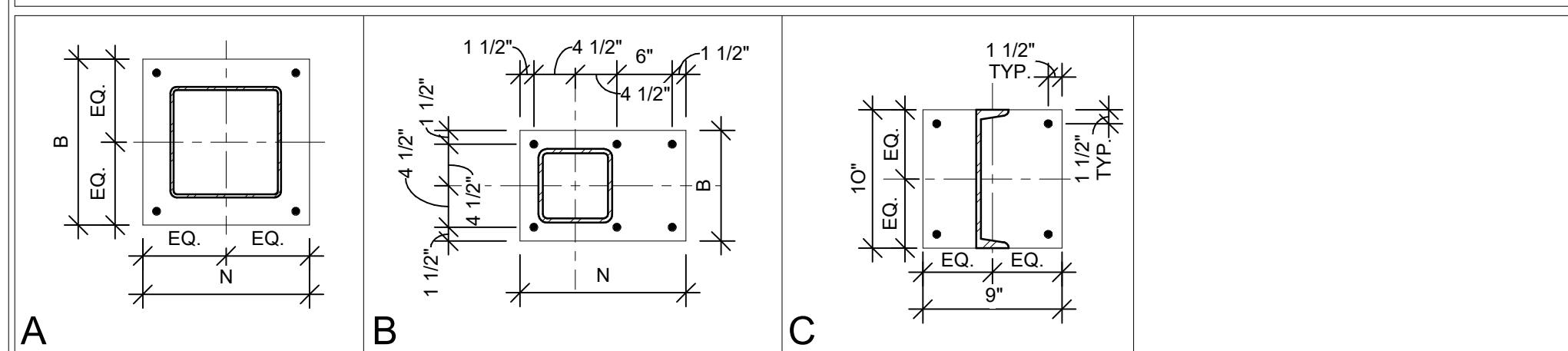
- NOTES:
1. SEE PLAN FOR ORIENTATION OF COLUMNS.
 2. PROVIDE PLATE WASHER & EMBEDDED PLATE PER SCHEDULE @ ALL ANCHOR BOLTS.
 3. U.N.O. ALL THREADED ROD A.B's SHALL BE F1554 (36ksi) MATERIAL.

COLUMN BASE PLATE AND ANCHOR-ROD CRITERIA

ANCHOR-ROD DIAMETER.	MAX. BASE PLATE HOLE DIAMETER.	MIN. PLATE WASHER SIZE.	MIN. PLATE WASHER THICKNESS	EMBEDDED ANCHOR PLATE SIZE
3/4"	1 5/16"	2"	1/4"	1/2"x2 1/2"x2 1/2"
7/8"	1 9/16"	2 1/2"	5/16"	1/2"x2 1/2"x2 1/2"
1"	1 7/8"	3"	3/8"	5/8"x3"x3"
1 1/4"	2 1/8"	3 1/2"	1/2"	5/8"x3 1/2"x3 1/2"
1 1/2"	2 3/8"	4"	1/2"	5/8"x3 1/2"x3 1/2"
1 3/4"	2 7/8"	4 1/2"	5/8"	3/4"x3 1/2"x3 1/2"
2"	3 1/4"	5"	3/4"	3/4"x3 1/2"x3 1/2"
2 1/2"	3 3/4"	5 1/2"	7/8"	3/4"x3 1/2"x3 1/2"

- NOTES:
1. HOLE SIZES PROVIDED ARE BASED ON ANCHOR ROD SIZE AND CORRELATE WITH ACI 117 (ACI, 2010).
 2. CIRCULAR OR SQUARE WASHERS MEETING THE WASHER SIZE ARE ACCEPTABLE.
 3. HOLE IN PLATE WASHER SHALL BE 1/16" LARGER THAN ANCHOR DIAMETER.

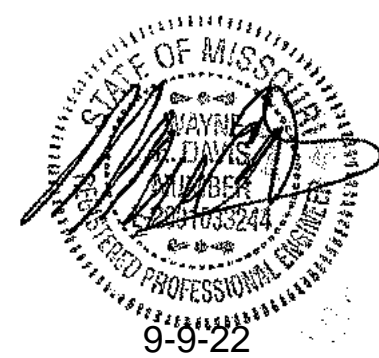
BASE PLATE SHAPE (NOT TO SCALE)



Issue Date: September 9, 2022

Revisions
NUMBER DESCRIPTION DATE

UNLESS A PROFESSIONAL SEAL WITH SIGNATURE AND DATE IS AFFIXED, THIS DOCUMENT IS PRELIMINARY AND IS NOT INTENDED FOR CONSTRUCTION, RECORDING PURPOSES OR IMPLEMENTATION.



FOUNDATION PLAN
S101-B



**LOW ROOF AND ROOF
FRAMING PLAN
S111-B**

LSR7 Robotics, GiC & Phys Education

LSN: 901 NE Douglas St., Lee's Summit MO 64086
LSW: 2600 SW Ward Rd, Lee's Summit MO 64082
LSHS: 400 SE Blue Pkwy, Lee's Summit MO 64063

Project Number: 0121-0100

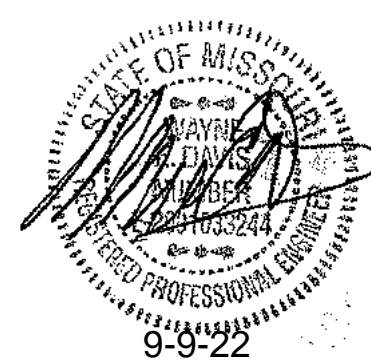
owner:
Lee's Summit R-7 School
301 NE Tudor Road
Lee's Summit, MO 64086
architect:
Multistudio
4200 Pennsylvania
Kansas City, MO 64111
816.931.6655
multistudio.com
civil engineer:
Kaw Valley Engineering
14700 West 114th Terrace
Lenexa, KS 66215
913.485.0318
kveeng.com
structural engineer:
Bob D. Campbell &
4338 Bellevue
Kansas City, MO 64111
816.531.4144
www.bdc-engrs.com

MEP/IT/Code:
Henderson Engineers
8345 Lenexa Drive, Suite
300
Lenexa, KS 66214
816.742.5000
www.hendersonengineers.com

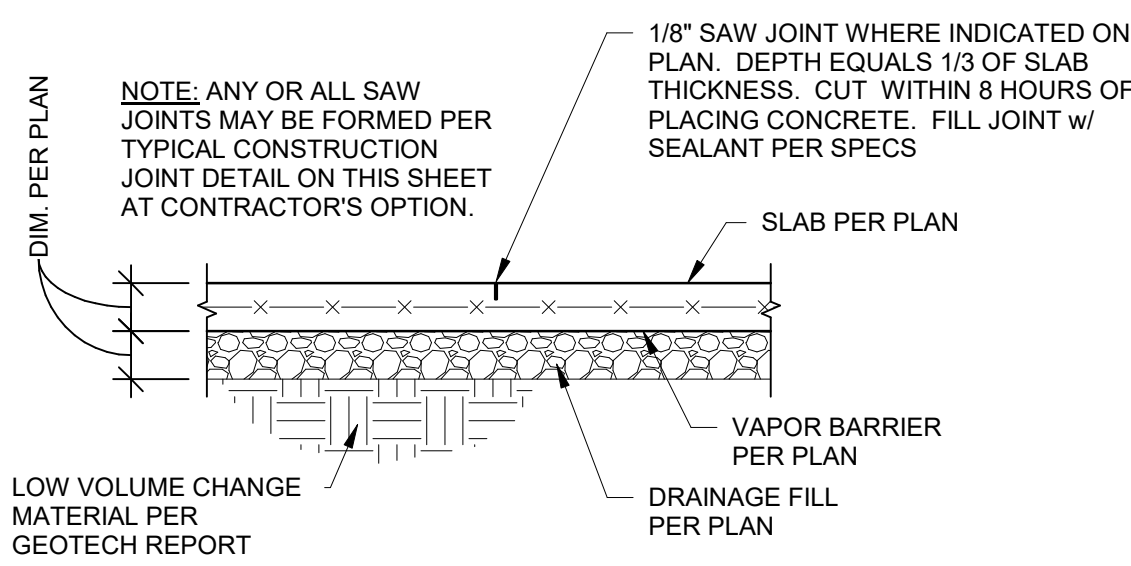
Issue Date: September 9, 2022

NUMBER	DESCRIPTION	DATE
--------	-------------	------

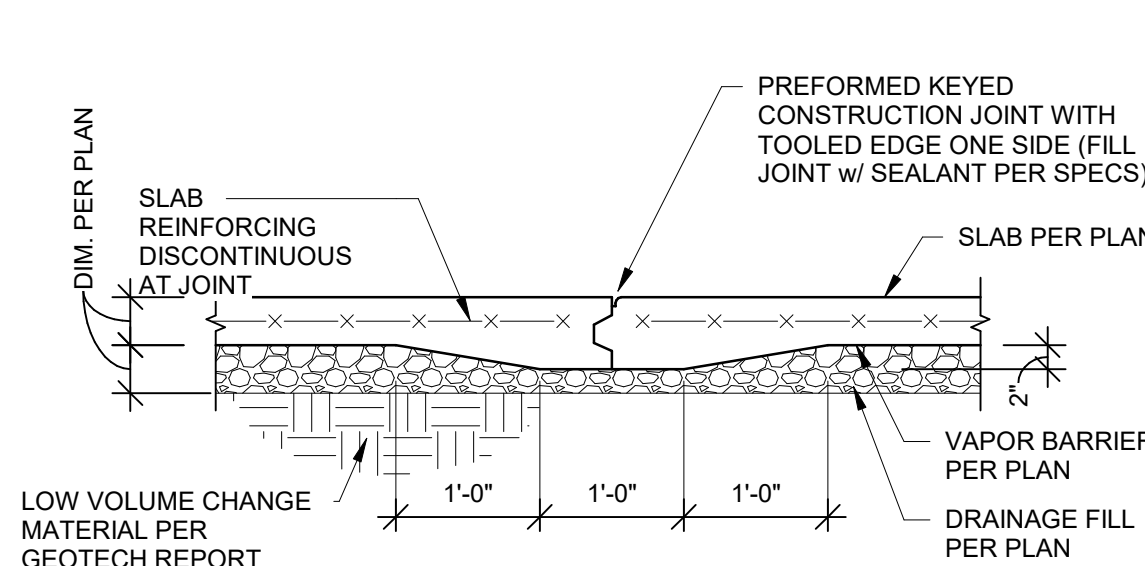
UNLESS A PROFESSIONAL SEAL WITH SIGNATURE AND DATE IS
AFFIXED, THIS DOCUMENT IS PRELIMINARY AND IS NOT INTENDED FOR
CONSTRUCTION, RECORDING PURPOSES OR IMPLEMENTATION



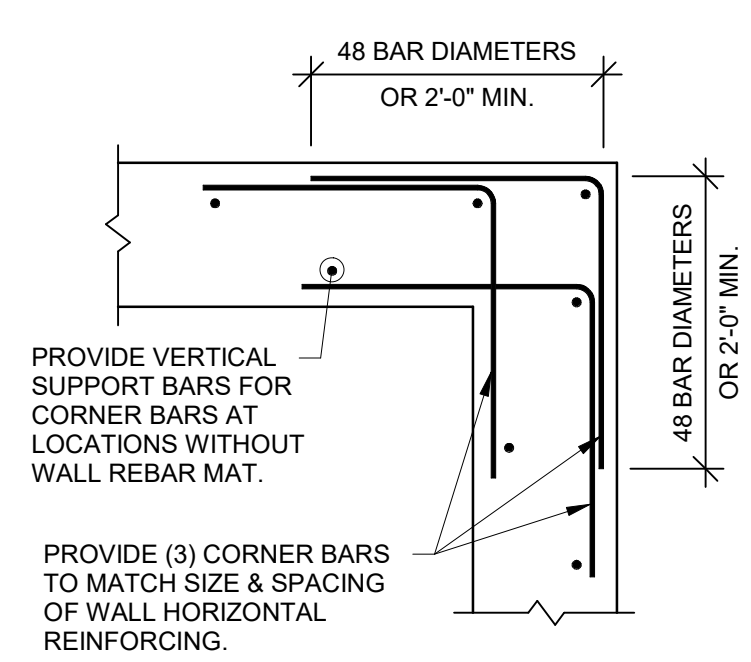
**FOUNDATION
SECTIONS
S200**



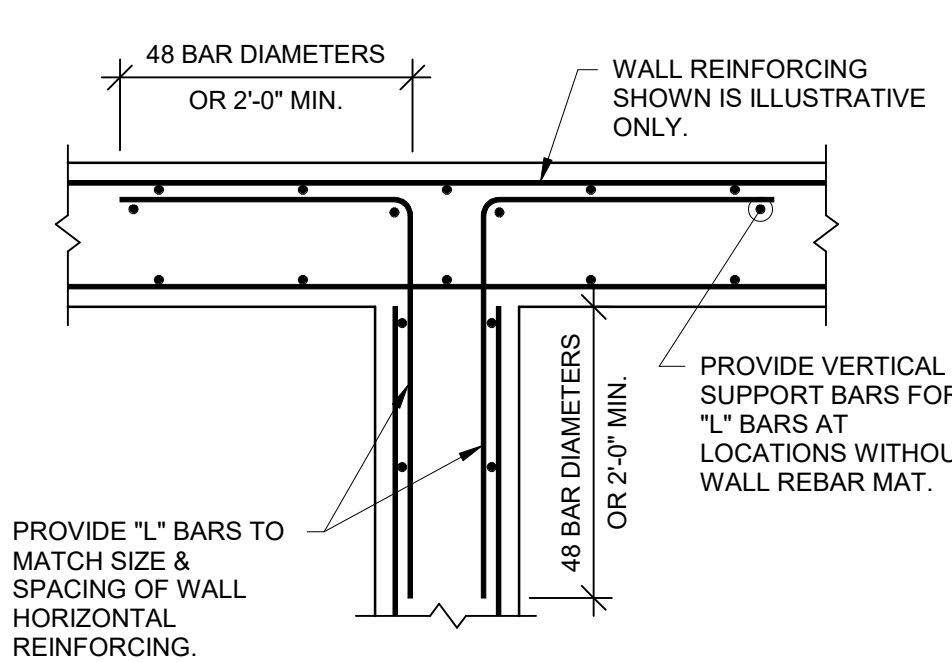
1 SECTION
3/4" = 1'-0"



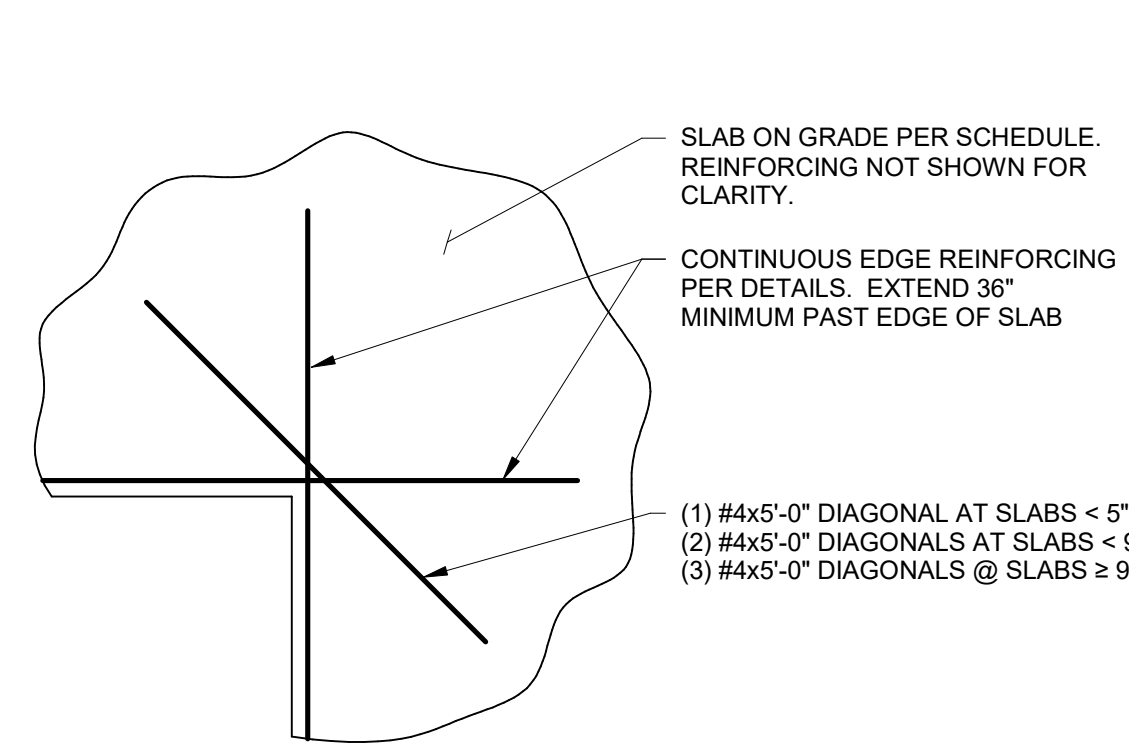
2 SECTION
3/4" = 1'-0"



**TYPICAL CORNER BARS AT
CONCRETE WALLS & FOUNDATIONS**

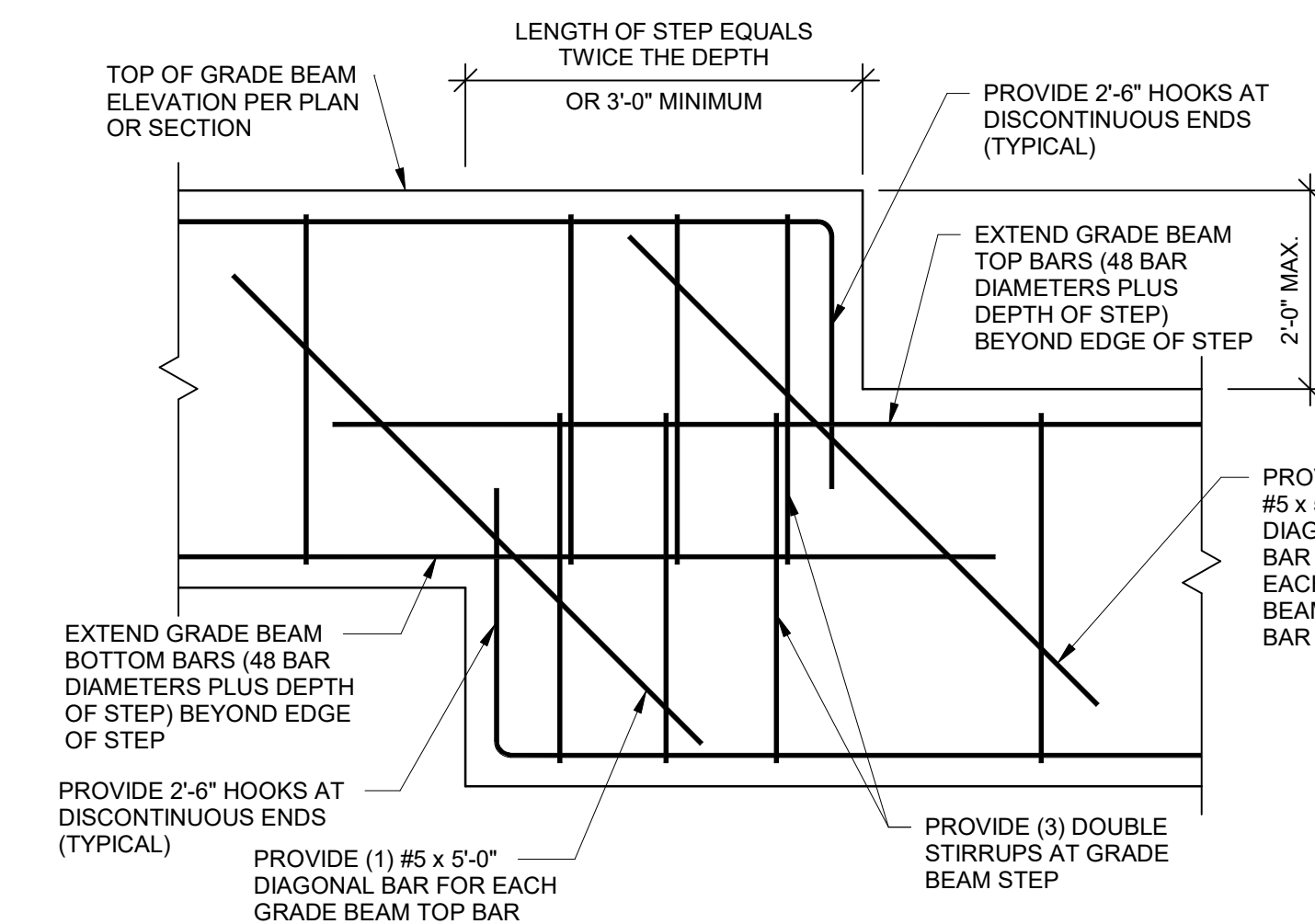


**TYPICAL T-INTERSECTION REINFORCING
AT CONCRETE WALLS & FOUNDATIONS**

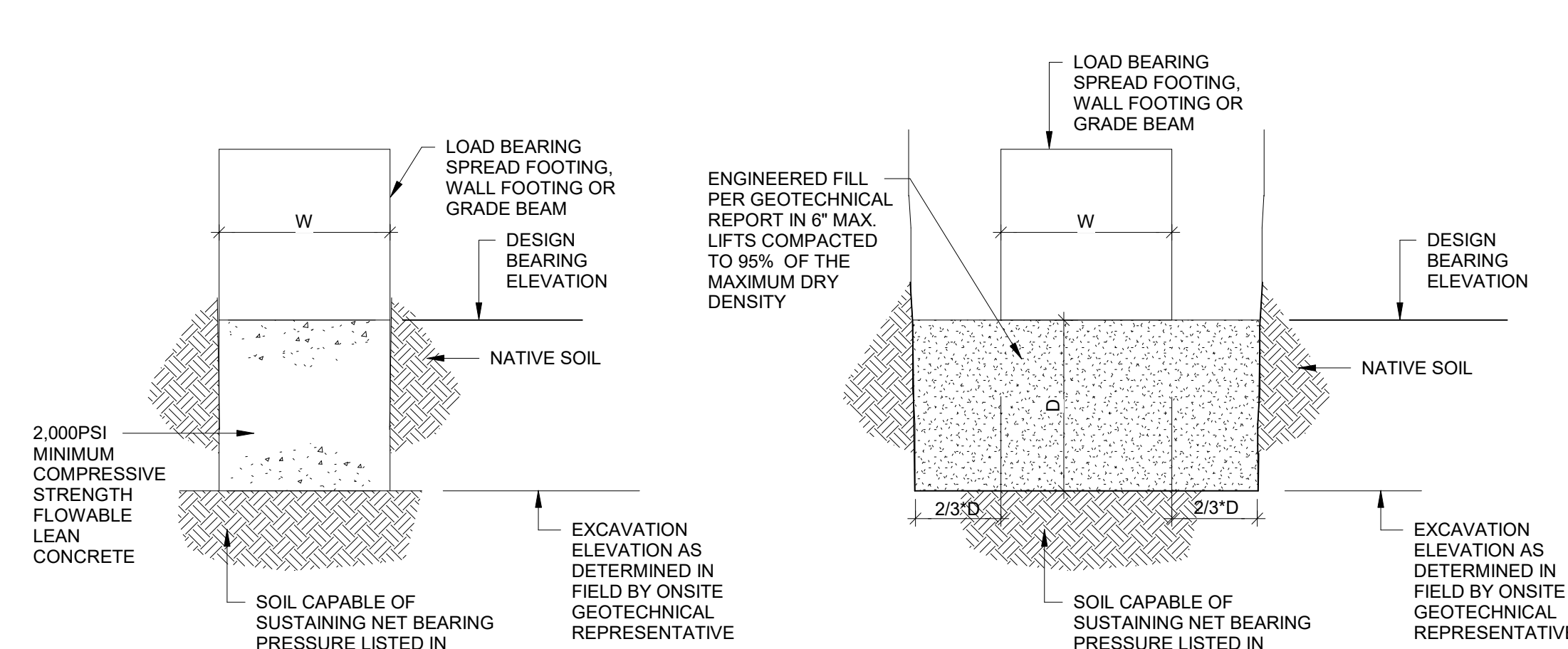


TYPICAL SLAB ON GRADE RE-ENTRANT CORNER BARS

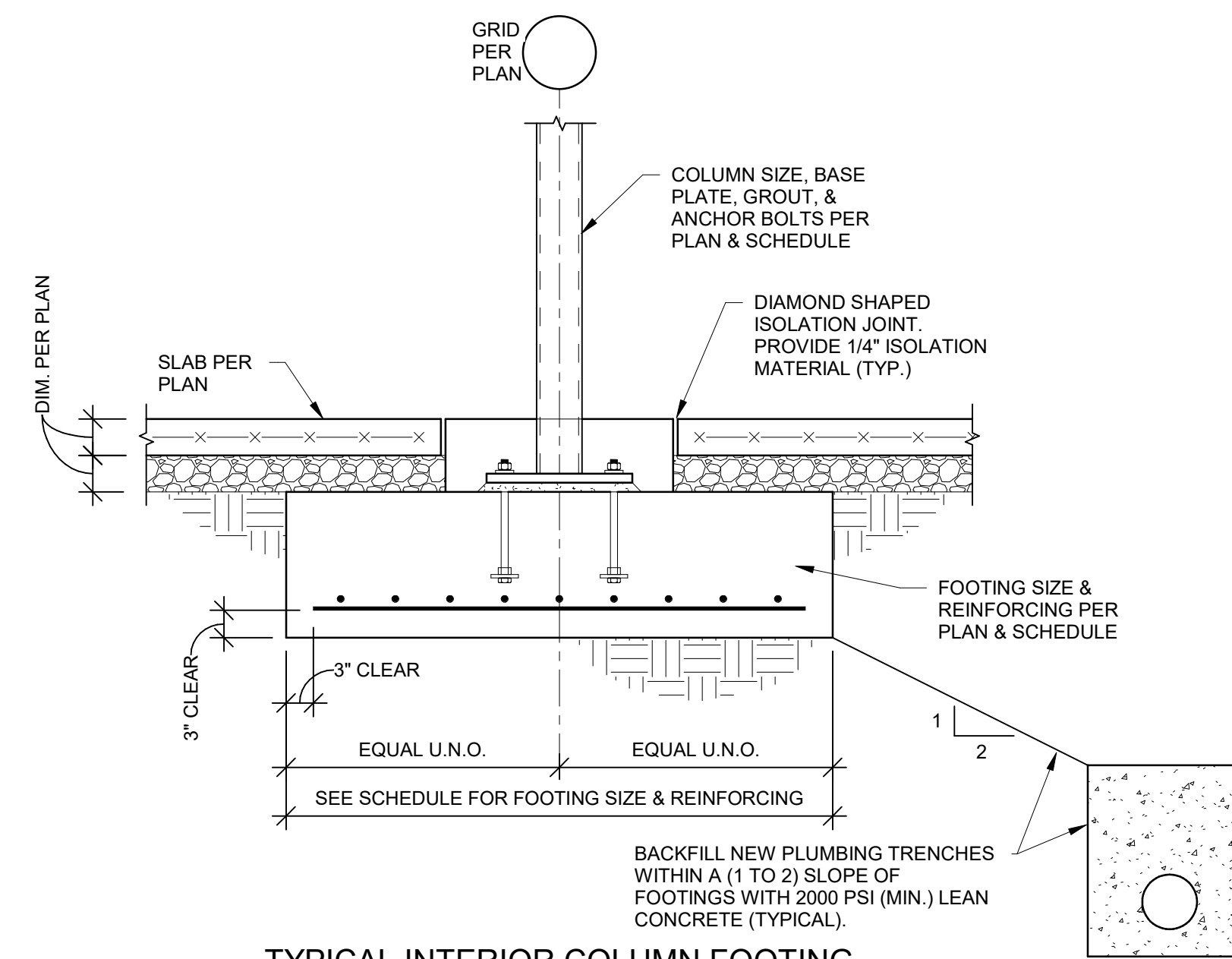
4 DETAIL
1/2" = 1'-0"



5 TYPICAL GRADE BEAM STEP
3/4" = 1'-0"

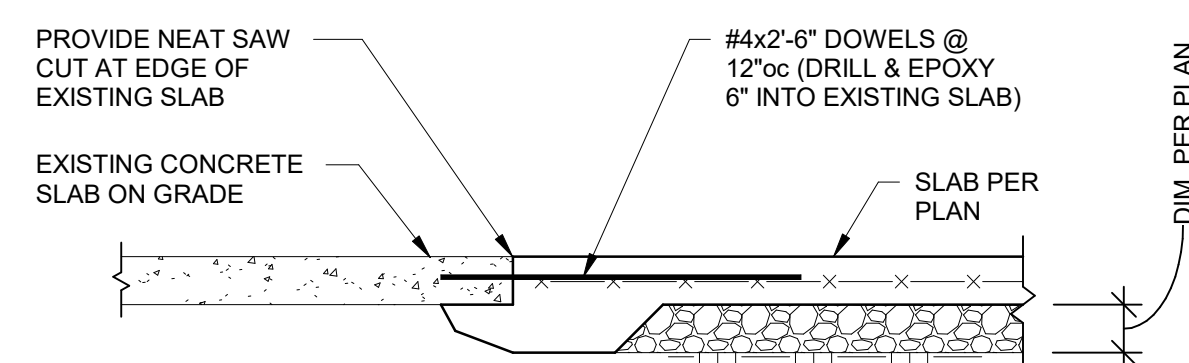


6 OVEREXCAVATION DETAIL
3/4" = 1'-0"



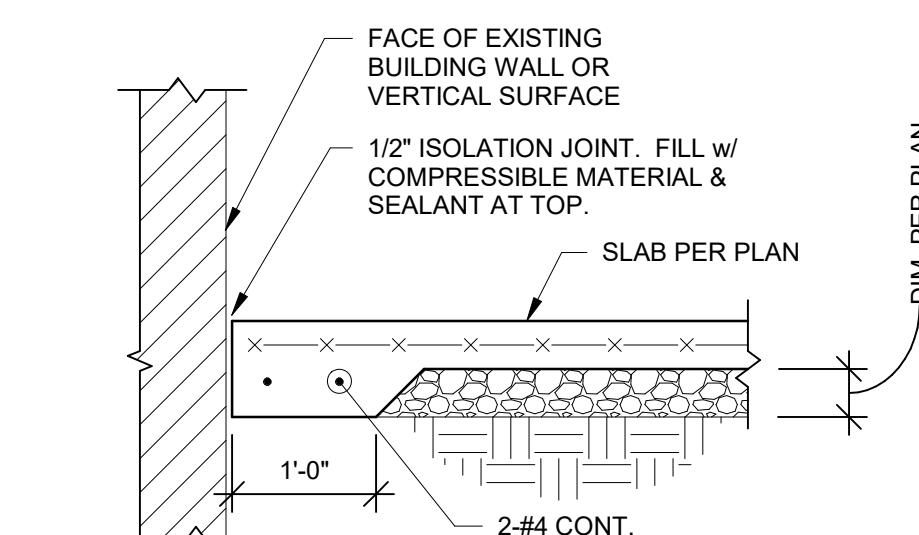
TYPICAL INTERIOR COLUMN FOOTING

7 SECTION
3/4" = 1'-0"



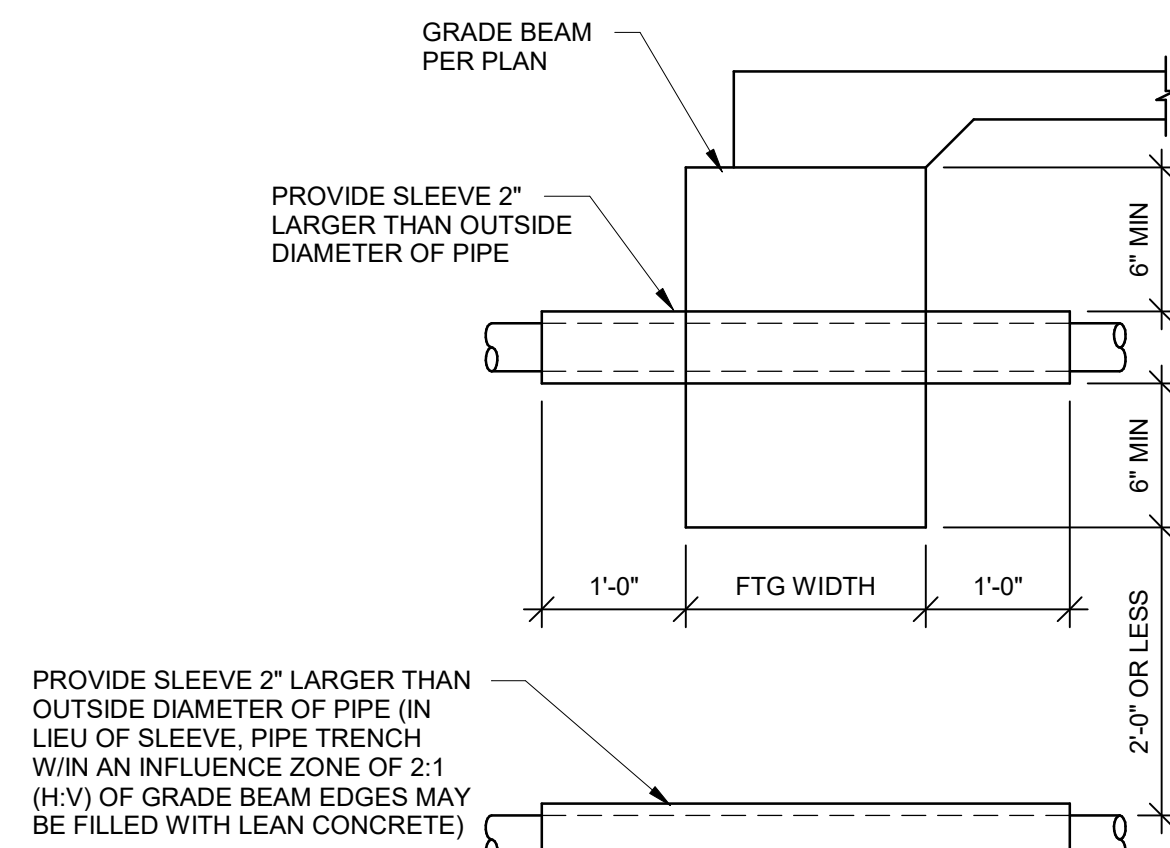
TYPICAL AT NEW-TO-EXISTING SLAB ON GRADE

8 SECTION
3/4" = 1'-0"



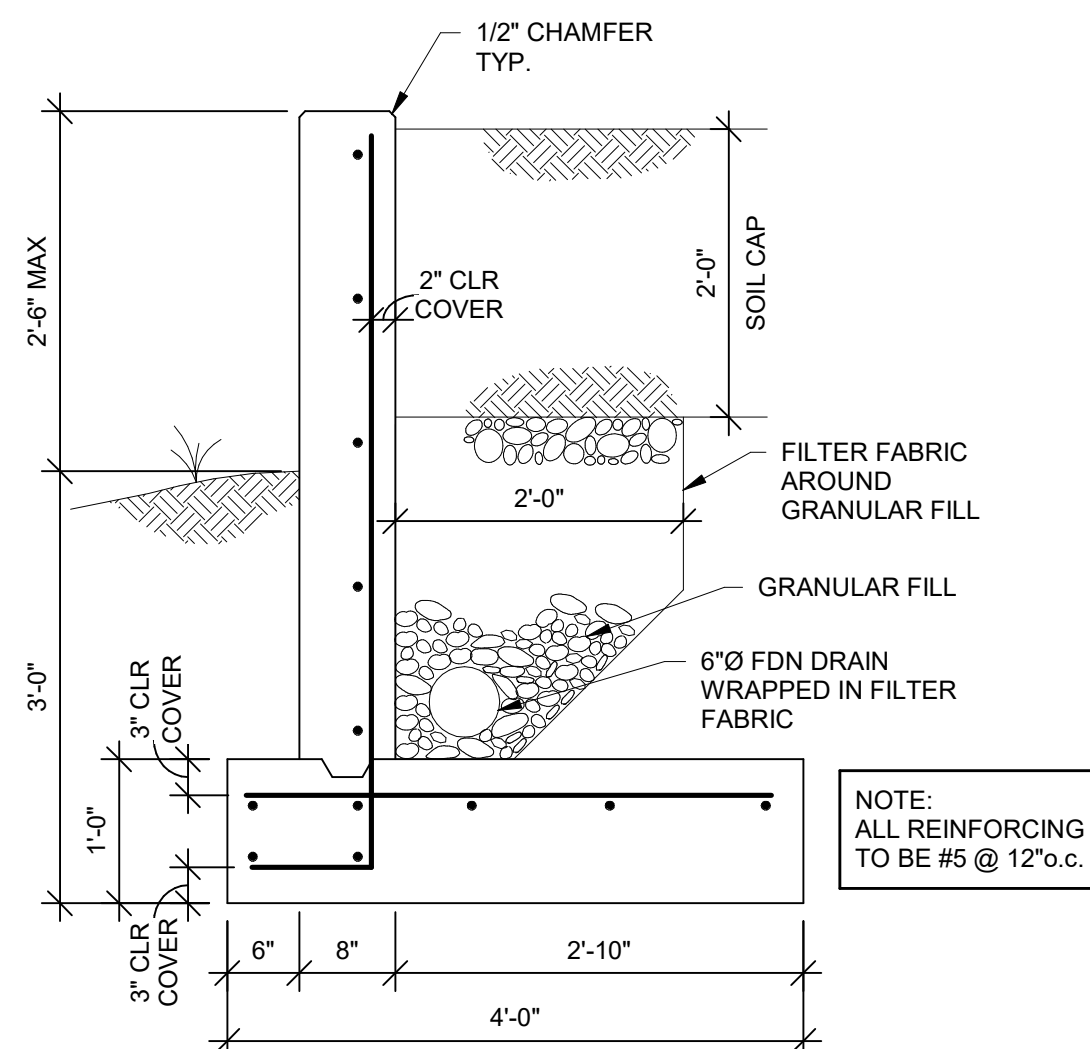
**TYPICAL SLAB EDGE DETAIL AGAINST EXISTING
BUILDING WALL OR VERTICAL SURFACE**

9 SECTION
3/4" = 1'-0"



TYPICAL GRADE BEAM SLEEVE

10 SECTION
3/4" = 1'-0"



11 LSW-SITE WALL SECTION
3/4" = 1'-0"

LSR7 Robotics, GiC & Phys Education

LSN: 901 NE Douglas St., Lee's Summit MO 64086
LSW: 2600 SW Ward Rd, Lee's Summit MO 64082
LSHS: 400 SE Blue Pkwy, Lee's Summit MO 64063

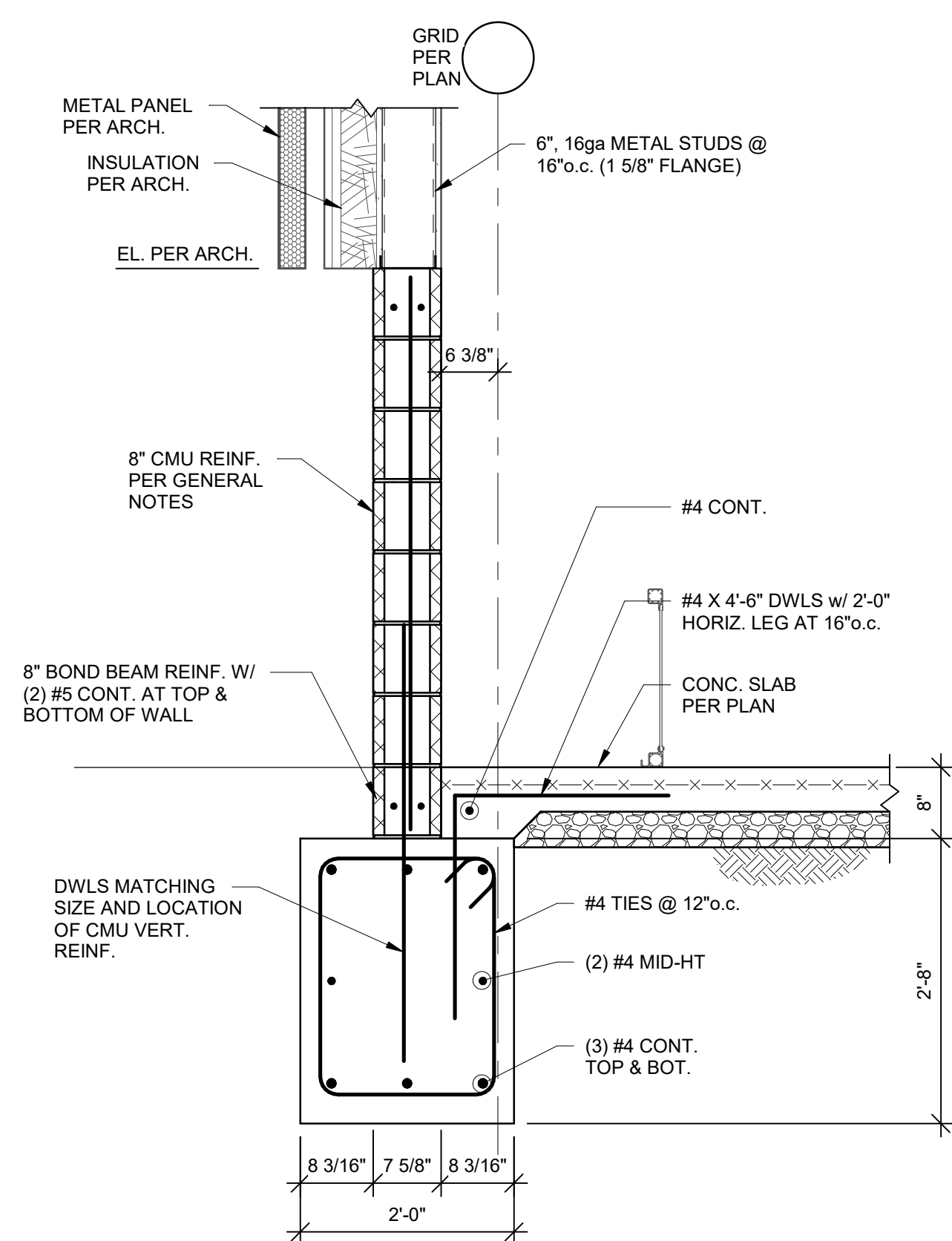
Project Number: 0121-010

owner: Lee's Summit R-7 School 301 NE Tudor Road Lee's Summit, MO 64086	architect: Multistudio 4200 Pennsylvania Kansas City, MO 64111 816.931.6655
-----------------------------------------------------------------------------------------	------------------------------------------------------------------------------------------------

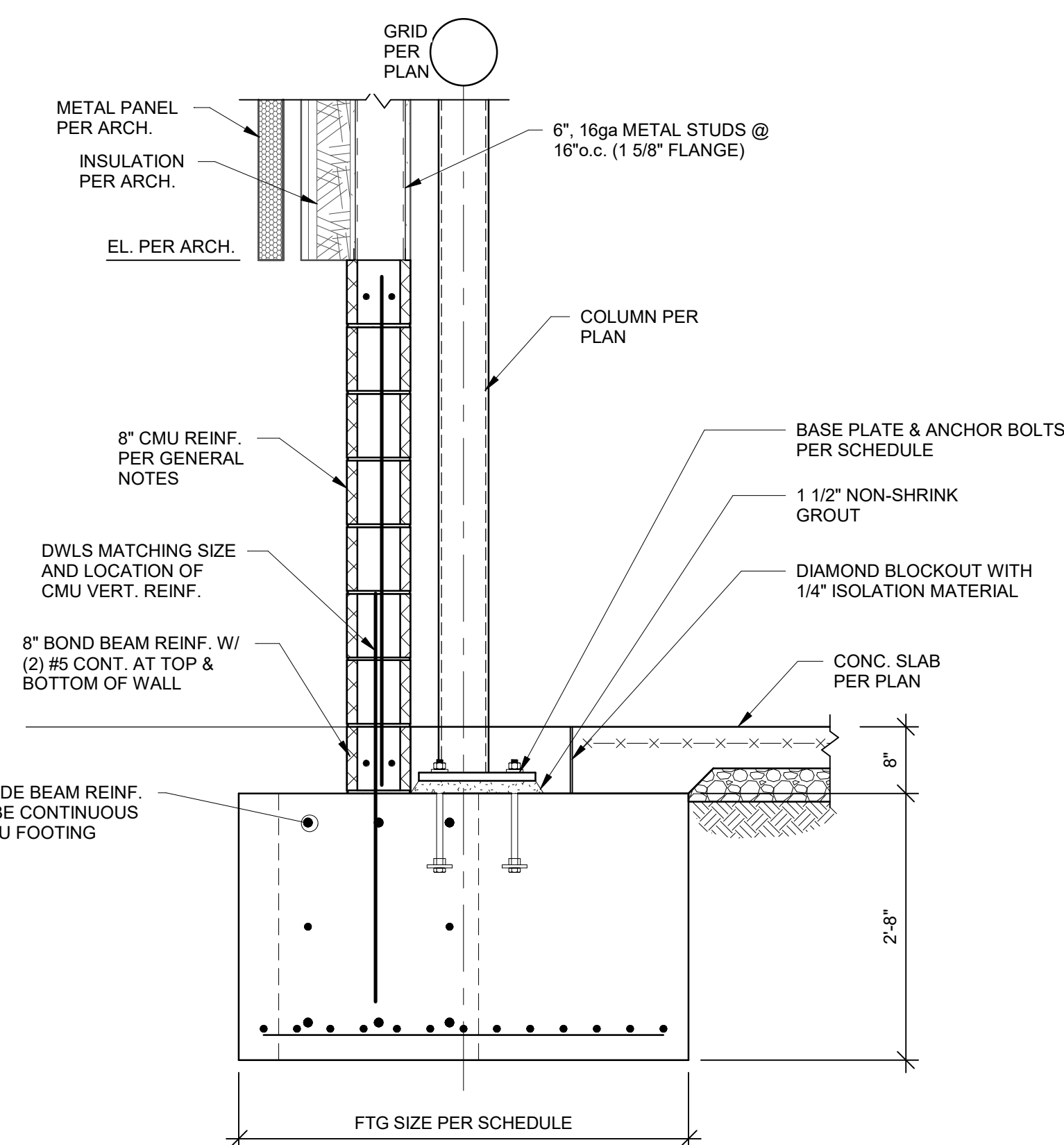
civil engineer:
Kaw Valley Engineering
14700 West 114th Terrace
Lenexa, KS 66215
913.485.0318
kveing.com

structural engineer:
Bob D. Campbell &
4338 Belleview
Kansas City, MO 64111
816.531.4144
www.bdc-engrs.com

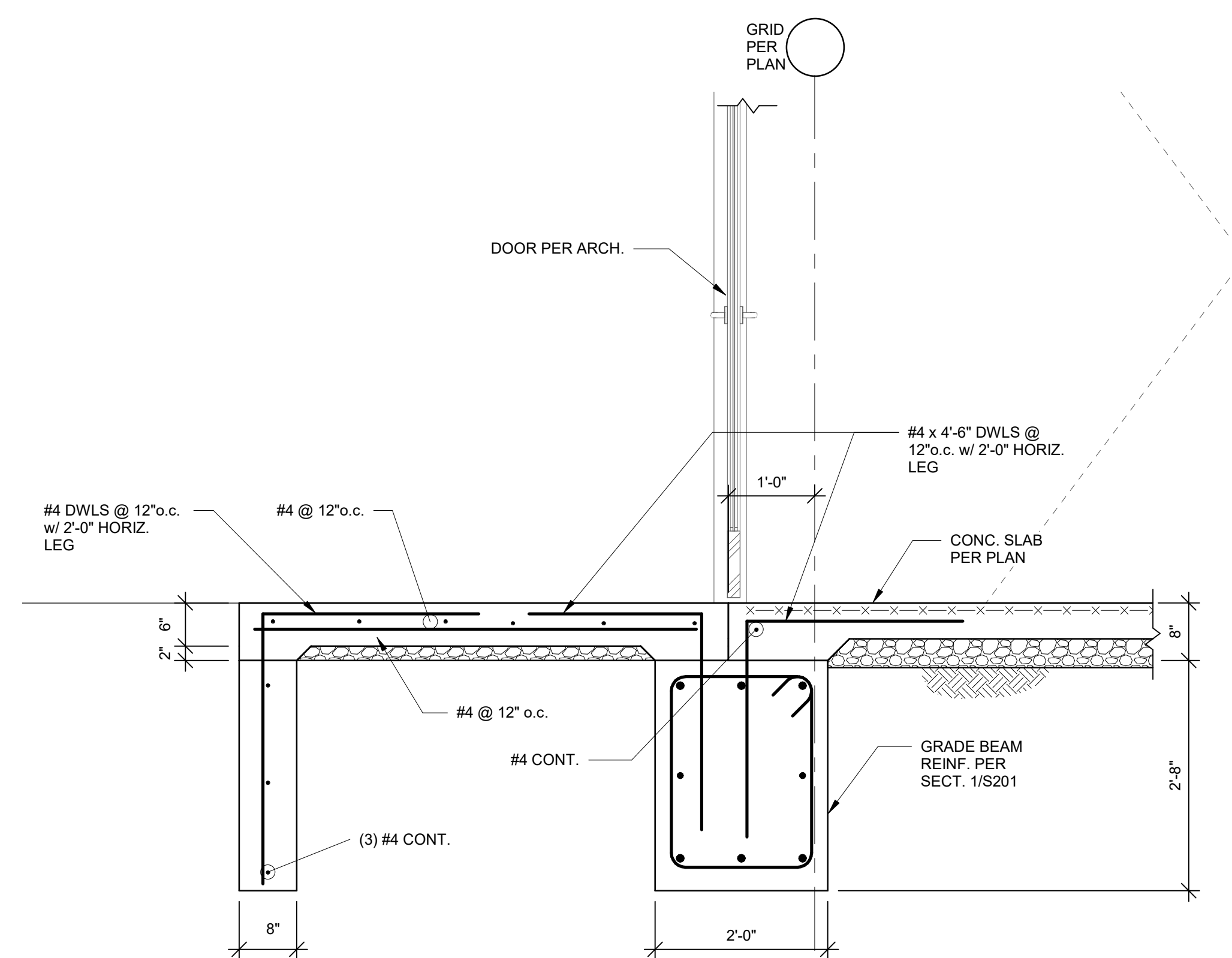
MEPFT/Code::
Henderson Engineers
8345 Lenexa Drive, Suite
300
Lenexa, KS 66214
816.742.5000
www.hendersonengineers.com



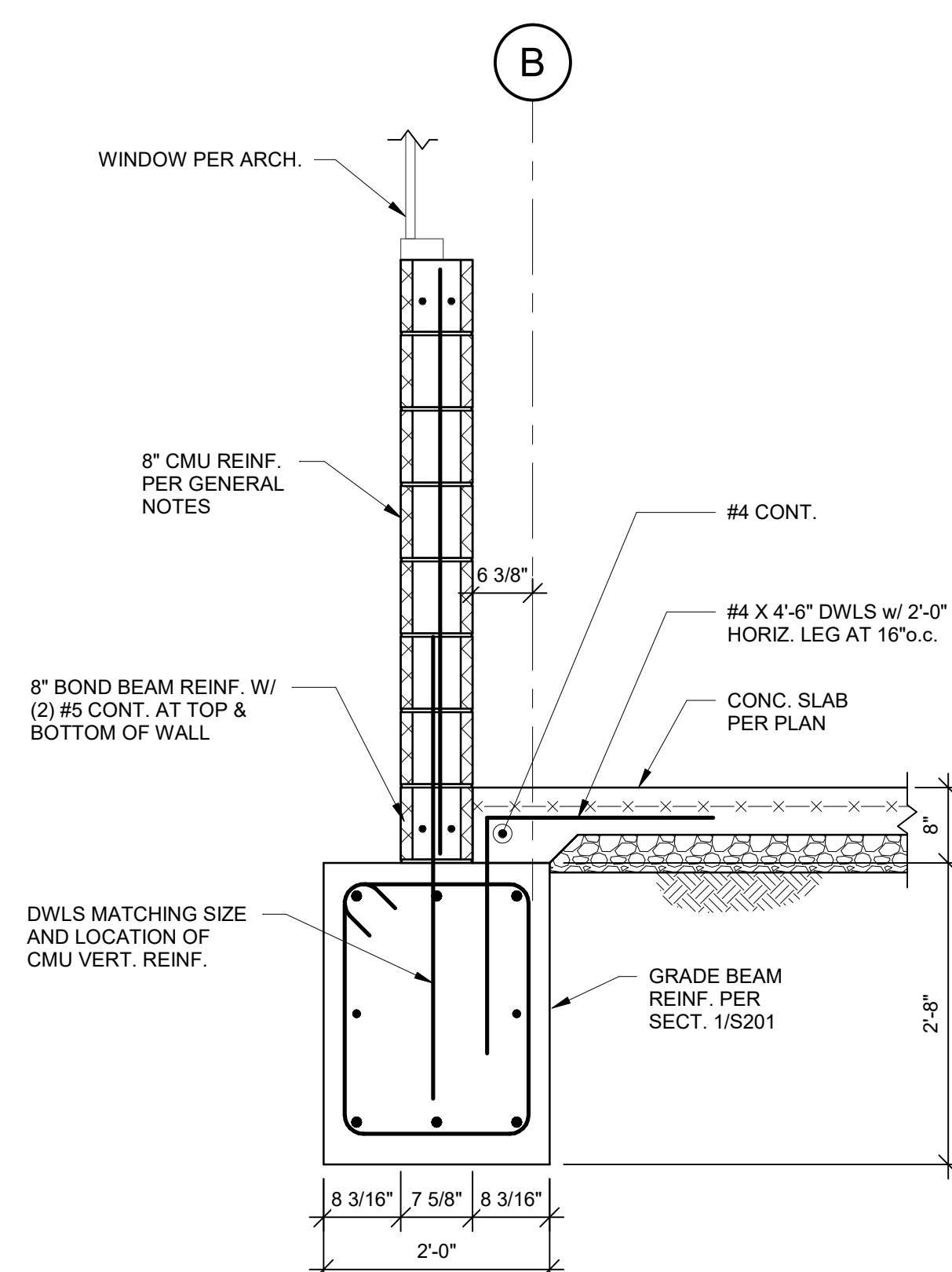
1 SECTION



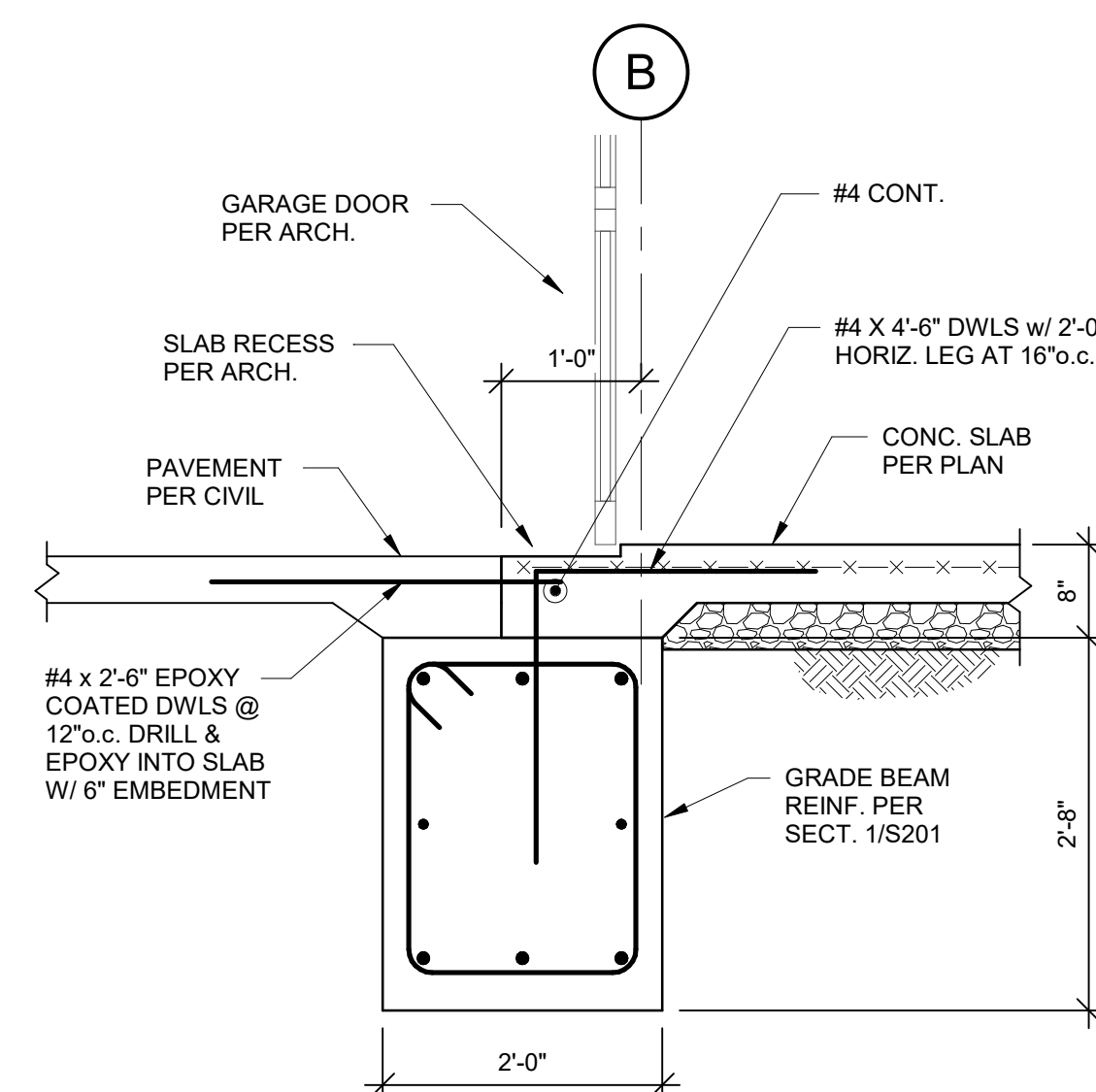
2 SECTION



3 SECTION



4 SECTION

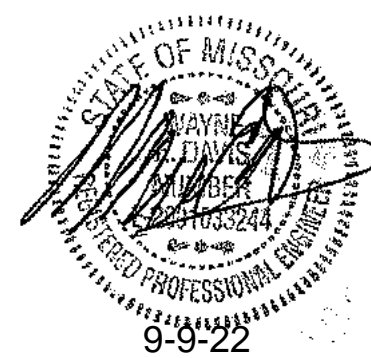


5 SECTION

Issue Date: September 9, 202

Revisions

UNLESS A PROFESSIONAL SEAL WITH SIGNATURE AND DATE IS
AFFIXED, THIS DOCUMENT IS PRELIMINARY AND IS NOT INTENDED FOR
CONSTRUCTION, RECORDING PURPOSES OR IMPLEMENTATION



FOUNDATION SECTIONS

S201

LSR7 Robotics, GiC &
Phys Education

LSN: 901 NE Douglas St., Lee's Summit MO 64086
LSW: 2600 SW Ward Rd, Lee's Summit MO 64082
LSHS: 400 SE Blue Pkwy, Lee's Summit MO 64063

Project Number: 0121-0100

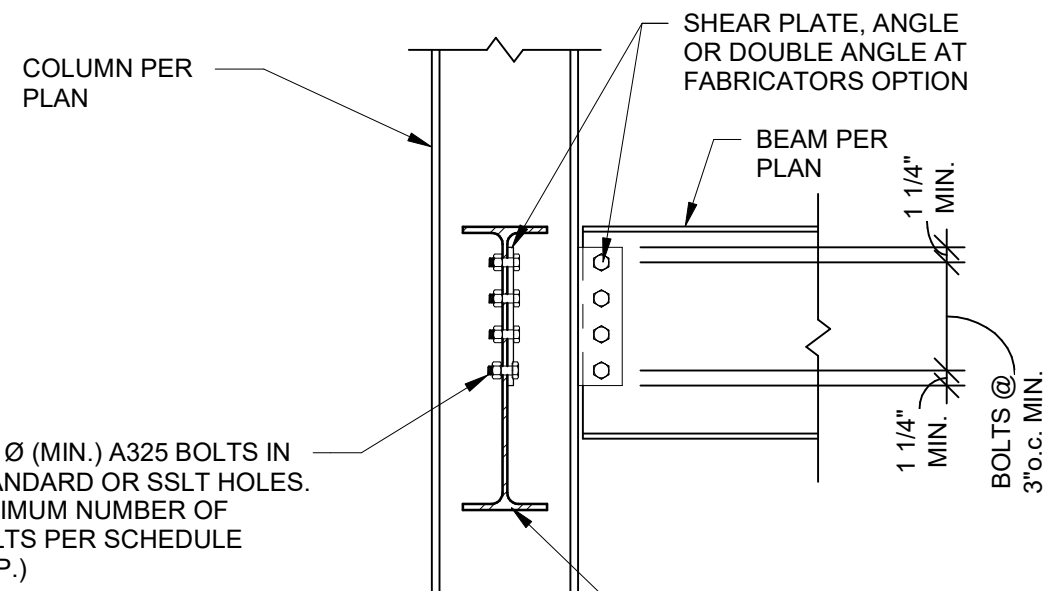
owner:
Lee's Summit R-7 School
301 NE Tudor Road
Lee's Summit, MO 64086

architect:
Multistudio
4205 Pennsylvania
Kansas City, MO 64111
816.931.6655
multi-studio

civil engineer:
Kaw Valley Engineering
14700 West 114th Terrace
Lenexa, KS 66215
913.485.0318
kveng.com

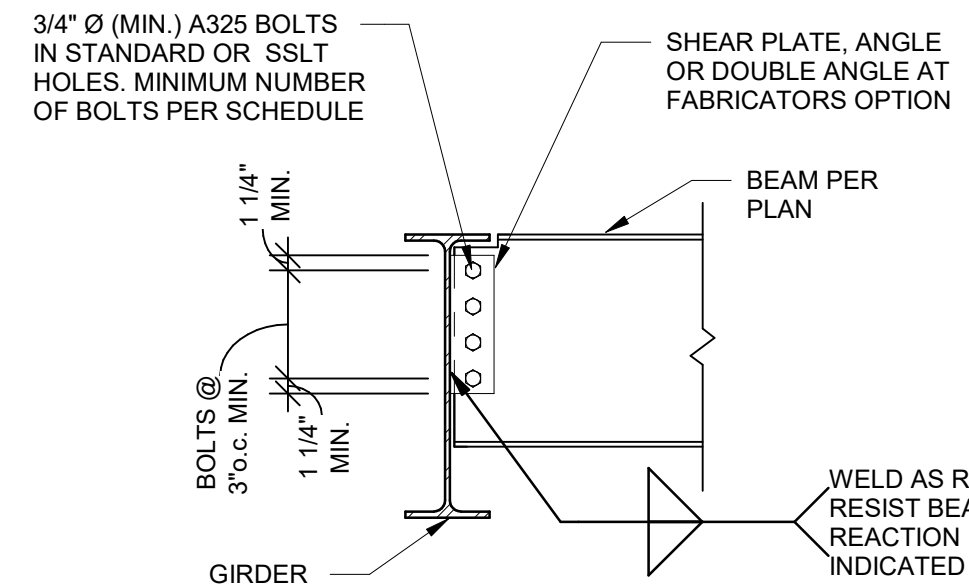
structural engineer:
Bob D. Campbell &
4338 Bellevue
Kansas City, MO 64111
816.531.4144
www.bdc-engrs.com

MEP/PT/Code:
Henderson Engineers
8345 Lenexa Drive, Suite
300
Lenexa, KS 66214
816.742.5000
www.hendersonengineers.com



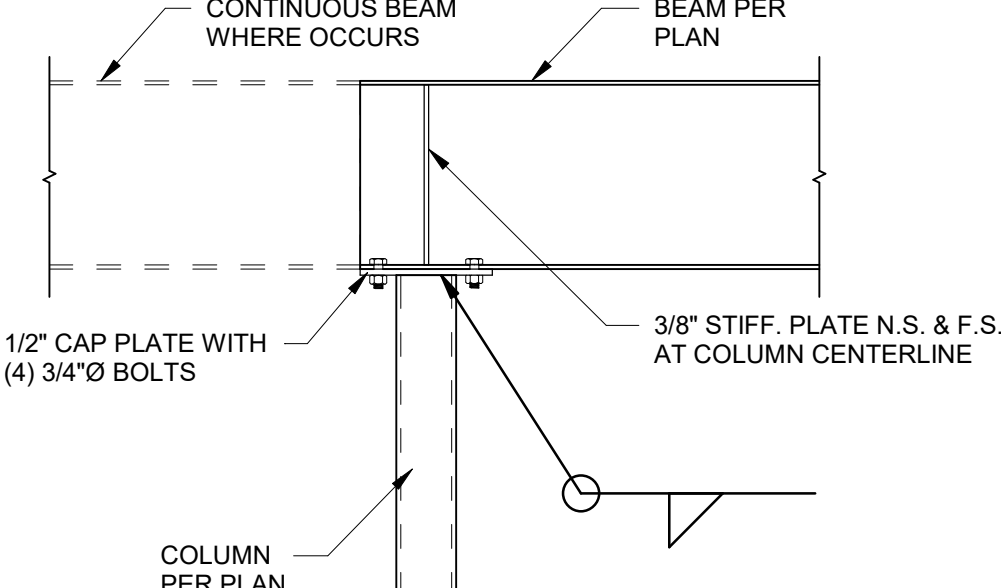
TYPICAL BEAM TO COLUMN SHEAR CONNECTION

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



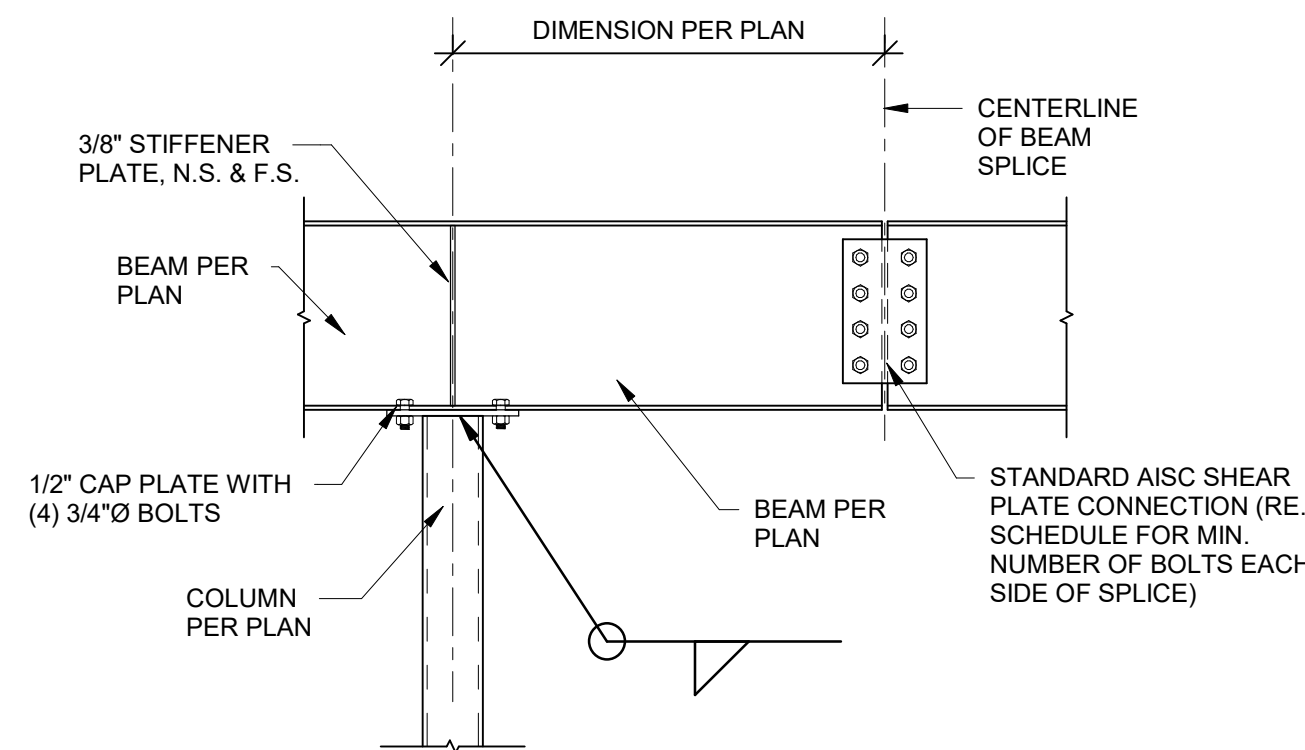
TYPICAL BEAM TO GIRDER CONNECTION

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



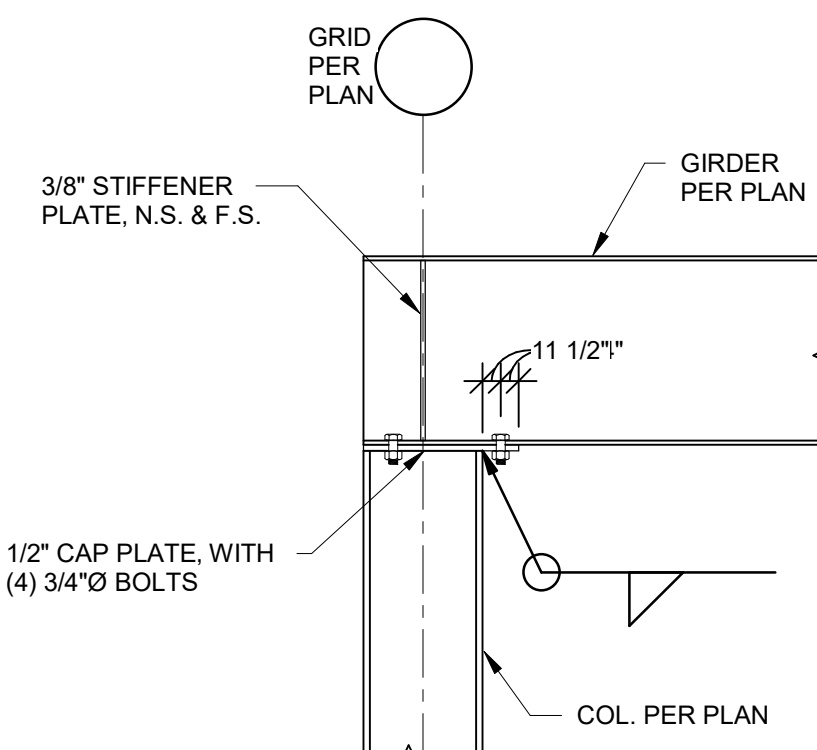
TYPICAL BEAM TO COLUMN CONNECTION

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

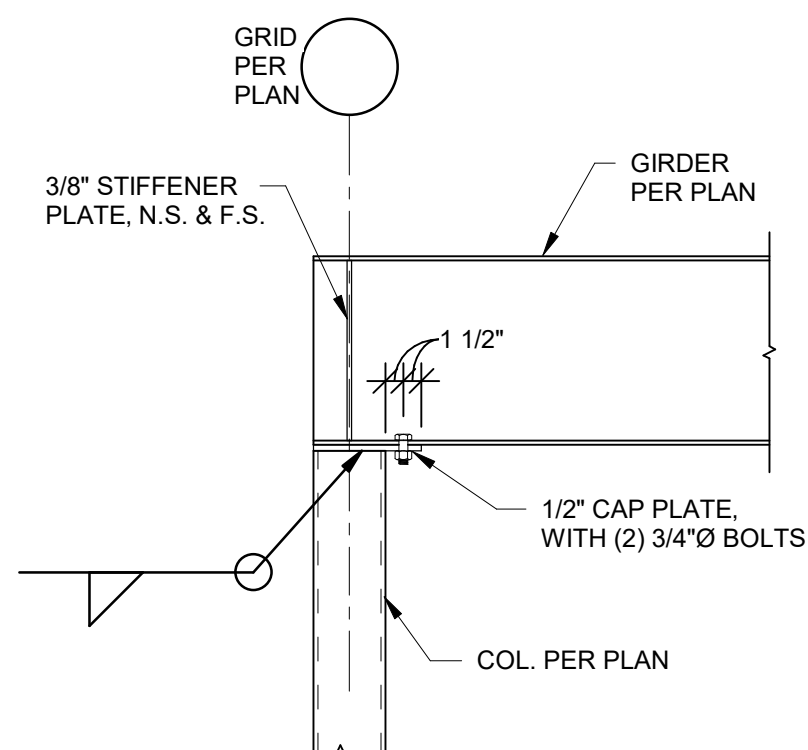


TYPICAL BEAM SPLICE

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



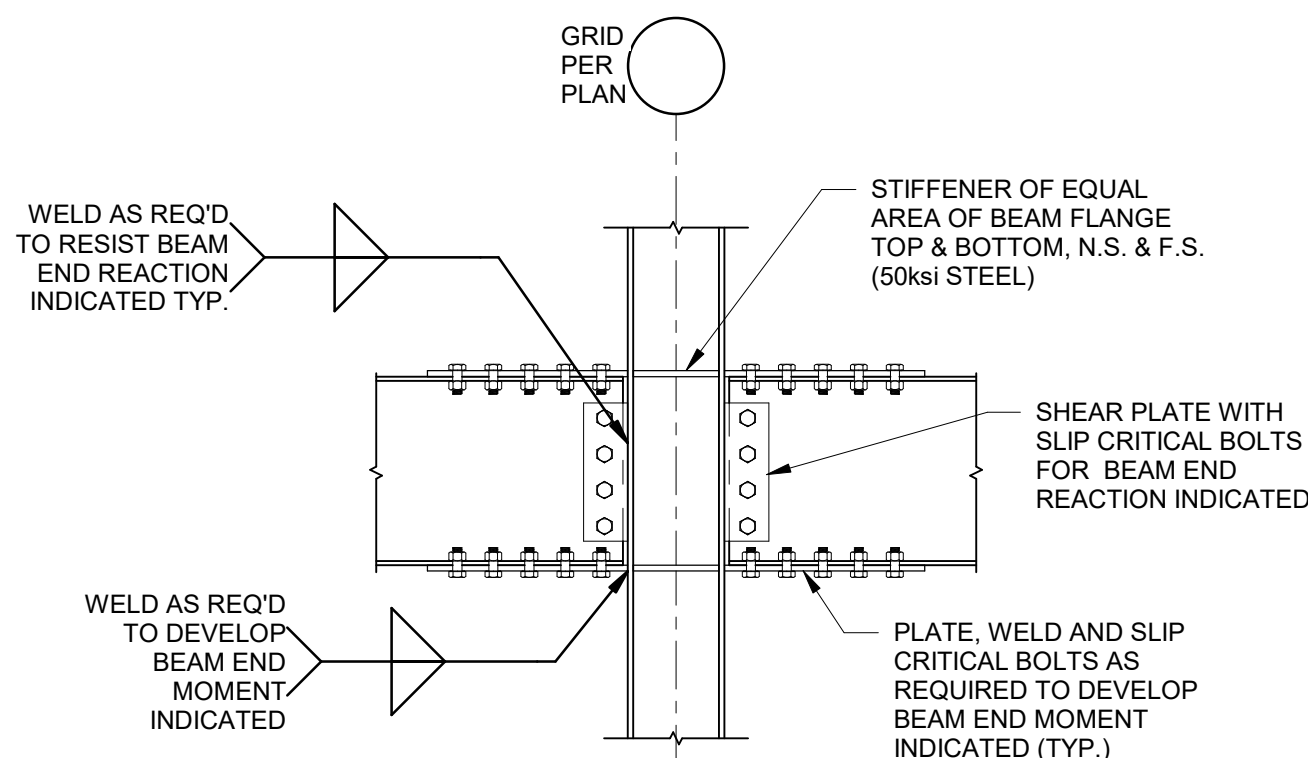
@ WIDE FLANGE COLUMN



@ HSS COLUMN

TYPICAL ROOF BEAM TO COLUMN CONNECTION AT EXTERIOR WALL

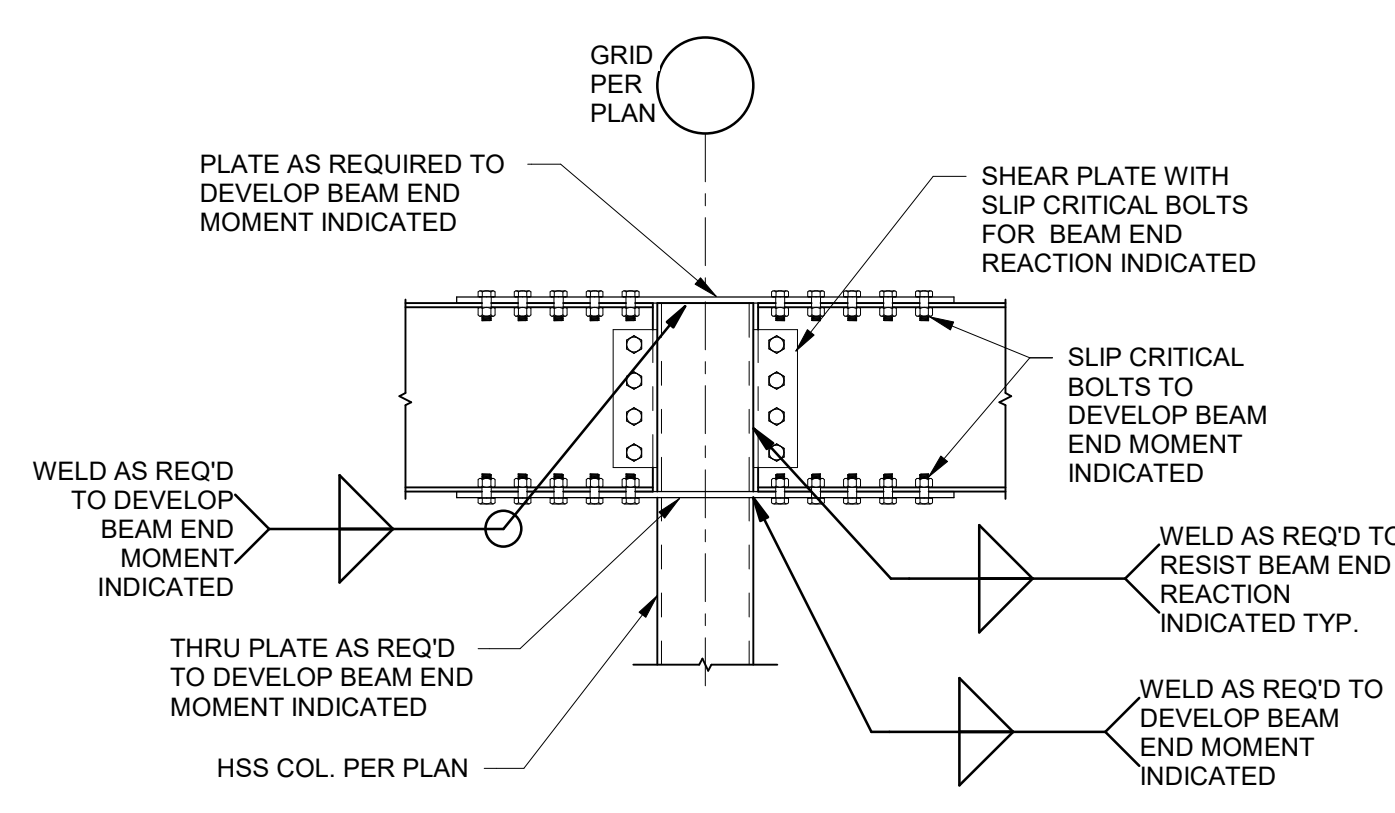
5 SECTION
3/4" = 1'-0"



TYP. BEAM TO WIDE FLANGE COL. MOMENT CONNECTIONS

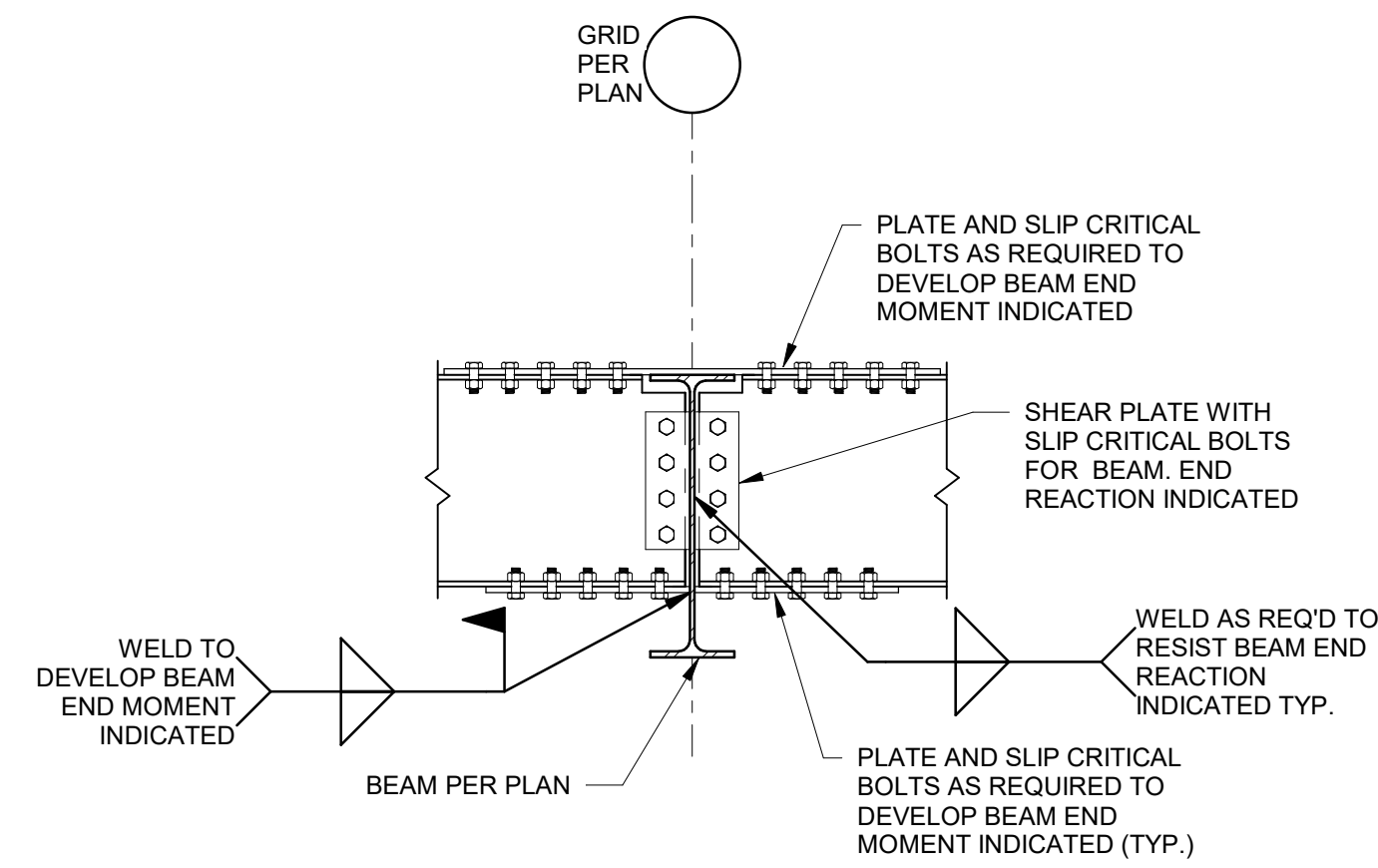
NOTE: FLANGE PLATES MAY BE FULL PENETRATION
WELDED TO COLUMN AT CONTRACTORS OPTION

6 SECTION
3/4" = 1'-0"



TYPICAL BEAM TO HSS COLUMN MOMENT CONNECTIONS

7 SECTION
3/4" = 1'-0"



TYP. BEAM TO BEAM MOMENT CONNECTIONS

8 SECTION
3/4" = 1'-0"

STEEL CONNECTION NOTES:

1. REFER TO GENERAL NOTES ON SHEET S001.
2. CONNECTIONS SHOWN IN THESE DETAILS ARE MINIMUM REQUIREMENTS.
3. FABRICATOR SHALL BE RESPONSIBLE FOR THE ENGINEERING, DESIGNING, AND DETAILING OF EACH CONNECTION FOR LOADS SHOWN ON THE DRAWINGS IN ACCORDANCE WITH THE SPECIFICATIONS AND THE STRUCTURAL GENERAL NOTES.
4. SUGGESTED CONNECTION DETAILS ARE SHOWN. FINAL CONNECTION CONFIGURATION AND DESIGN SHALL BE COMPLETED BY THE CONNECTION ENGINEER. CONNECTION DESIGN SHALL INCLUDE COLUMN OR BEAM CONTINUITY PLATES, WEB STIFFENERS, AND/OR DOUBLER PLATES AS REQUIRED FOR THE FORCES INDICATED.
5. FABRICATOR MAY OPT TO USE OTHER AISC APPROVED CONNECTIONS IN LIEU OF THESE SHOWN HEREIN TO MEET END REACTION REQUIREMENTS (i.e. DOUBLE ANGLE CONNECTION).
6. CONNECTION DETAILINGS SHALL COMPLY WITH THE STANDARD DETAILS SHOWN IN THE LATEST EDITION OF THE AISC MANUAL OF STEEL CONSTRUCTION.
7. ALL BOLTS SHALL BE 3/4" Ø ASTM A325 MINIMUM.
8. ALL BOLTS SHALL BE SPACED AT 3" c. MINIMUM.
9. ALL BOLTS SHALL HAVE HEAVY HEX NUTS.
10. ALL BOLTS SHALL BE FULLY PRE-TENSIONED.
11. BOLT SPACING AND EDGE DISTANCES SHALL BE ADJUSTED PER AISC MANUAL FOR BOLTS LARGER THAN 3/4" DIAMETER.
12. CLIP ANGLES MAY BE SHOP WELDED TO BEAM WEB PER AISC.
13. FOR BEAMS WITH AXIAL LOADS PER DRAWINGS, BOLTS AND CONNECTIONS SHALL BE SLIP-CRITICAL PER AISC GUIDELINES. INCREASE NUMBER OF BOLTS AND/OR PROVIDE EXTENDED SHEAR PLATE CONNECTION W/ AN ADDITIONAL COLUMN OF BOLTS TO ACCOMMODATE COMBINED FORCES.
14. PROVIDE ASTM A490 BOLTS IF REQUIRED TO MEET END REACTION LOAD REQUIREMENTS.
15. REFER TO ELEVATIONS ON SHEET S FOR BRACE FORCES. REFER TO PLANS FOR ADDITIONAL BEAM AXIAL FORCES, BRACE AND BEAM FORCES INDICATED ARE UNFACTORED (ASD) LOADS AND SHALL BE CONSIDERED CONCURRENT W/ BEAM SHEAR DESIGN FORCES LISTED IN THE BEAM SHEAR CONNECTION SCHEDULE.
16. COORDINATE BRACED FRAME CONNECTION W/ ARCHITECTURAL WALLS AS REQUIRED TO AVOID CONFLICT OR EXPOSURE OUTSIDE OF WALL OR FINISH.
17. ALL END REACTIONS INDICATED ARE UNFACTORED (ASD) LOADS.

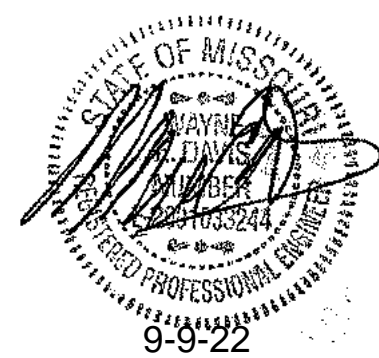
BEAM SHEAR
CONNECTION SCHEDULE

BEAM SIZE	MINIMUM ROWS OF BOLTS	END REACTION (kips)(U.N.O.)
W8.C8	2	16
W10.C10	2	16
W12.C12	2	16
W14	3	24
W16, C15	3	24
W18	4	32
W21	5	40
W24	5	40
W27	6	48
W30	7	56
W33	8	64
W36	8	64

Issue Date: September 9, 2022

Revisions		
NUMBER	DESCRIPTION	DATE

UNLESS A PROFESSIONAL SEAL WITH SIGNATURE AND DATE IS AFFIXED, THIS DOCUMENT IS PRELIMINARY AND IS NOT INTENDED FOR CONSTRUCTION, RECORDING PURPOSES OR IMPLEMENTATION



LSR7 Robotics, GiC & Phys Education

LSN: 901 NE Douglas St., Lee's Summit MO 64086
LSW: 2600 SW Ward Rd, Lee's Summit MO 64082
LSHS: 400 SE Blue Pkwy, Lee's Summit MO 64063

Project Number: 0121-0100

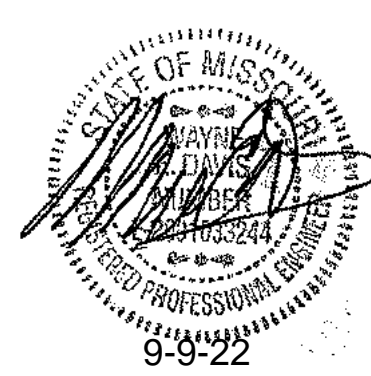
owner: Lee's Summit R-7 School
301 NE Tudor Road
Lee's Summit, MO 64086
architect: Multistudio
4200 Pennsylvania
Kansas City, MO 64111
816.931.6655
multi.studio
civil engineer: Kaw Valley Engineering
14700 West 114th Terrace
Lenexa, KS 66215
913.485.0318
kveeng.com
structural engineer: Bob D. Campbell &
4338 Bellevue
Kansas City, MO 64111
816.531.4144
www.bdc-engrs.com

MEP/IT/Code: Henderson Engineers
8345 Lenexa Drive, Suite 300
Lenexa, KS 66314
816.742.5000
www.hendersonengineers.com

Issue Date: September 9, 2022

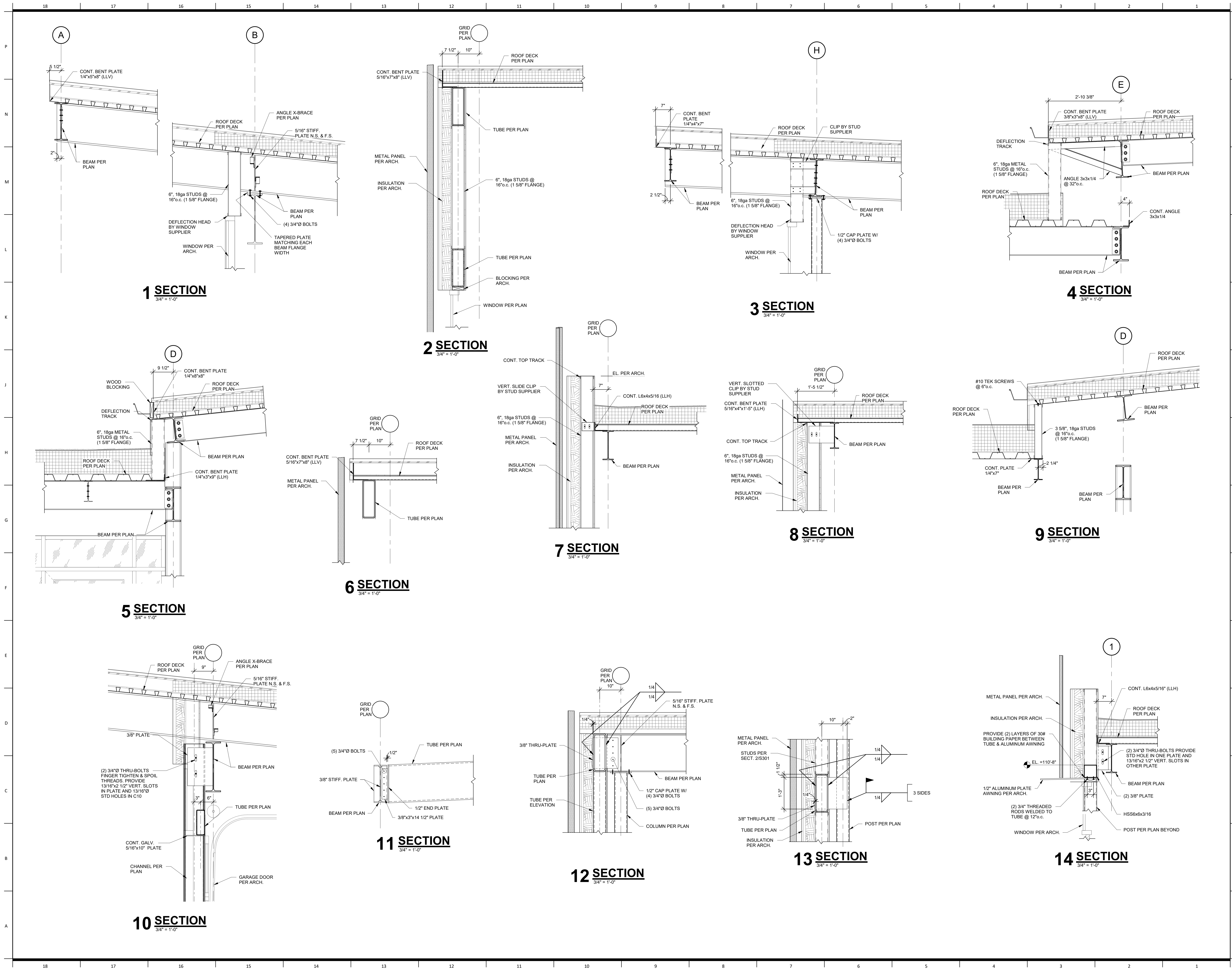
Revisions		
NUMBER	DESCRIPTION	DATE

UNLESS A PROFESSIONAL SEAL WITH SIGNATURE AND DATE IS AFFIXED, THIS DOCUMENT IS PRELIMINARY AND IS NOT INTENDED FOR CONSTRUCTION, RECORDING PURPOSES OR IMPLEMENTATION



FRAMING SECTIONS

S301



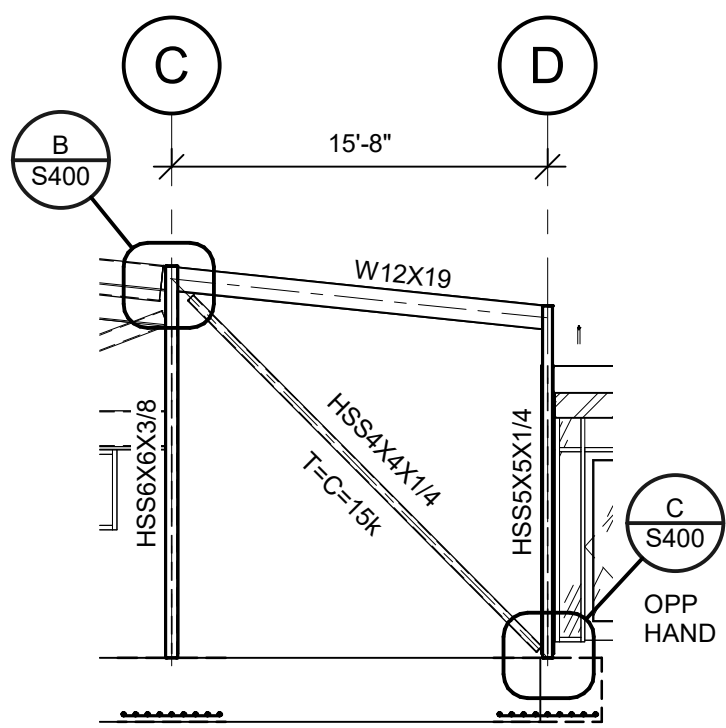
**LSR7 Robotics, GiC &
Phys Education**

LSN: 901 NE Douglas St., Lee's Summit MO
64086
LSW: 2600 SW Ward Rd, Lee's Summit MO
64082
LSHS: 400 SE Blue Pkwy, Lee's Summit MO 64063

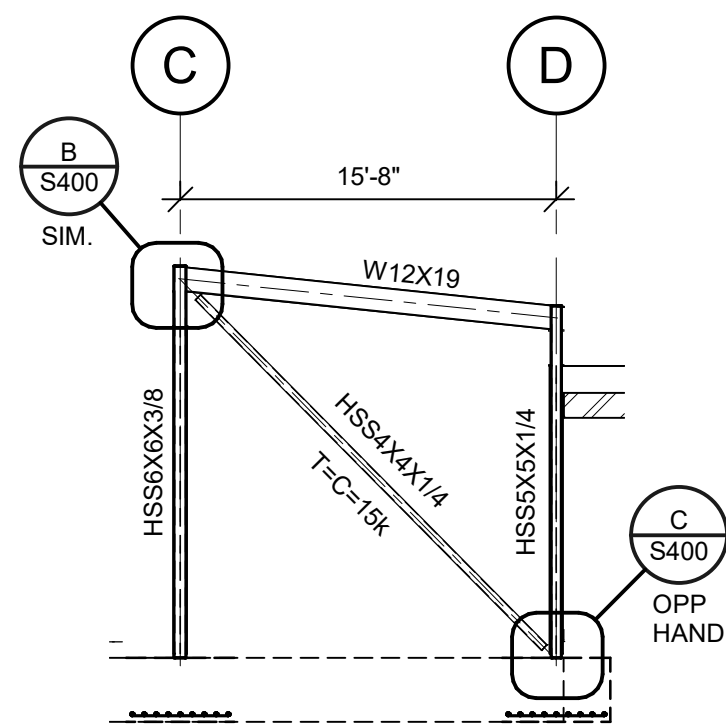
Project Number: 0121-0100

owner:
Lee's Summit R-7 School
301 NE Tudor Road
Lee's Summit, MO 64086
architect:
Multistudio
4200 Pennsylvania
Kansas City, MO 64111
816.931.6655
multi.studio
civil engineer:
Kaw Valley Engineering
14700 West 114th Terrace
Lenexa, KS 66215
913.485.0318
kveeng.com
structural engineer:
Bob D. Campbell &
4338 Bellevue
Kansas City, MO 64111
816.531.4144
www.bdc-engrs.com

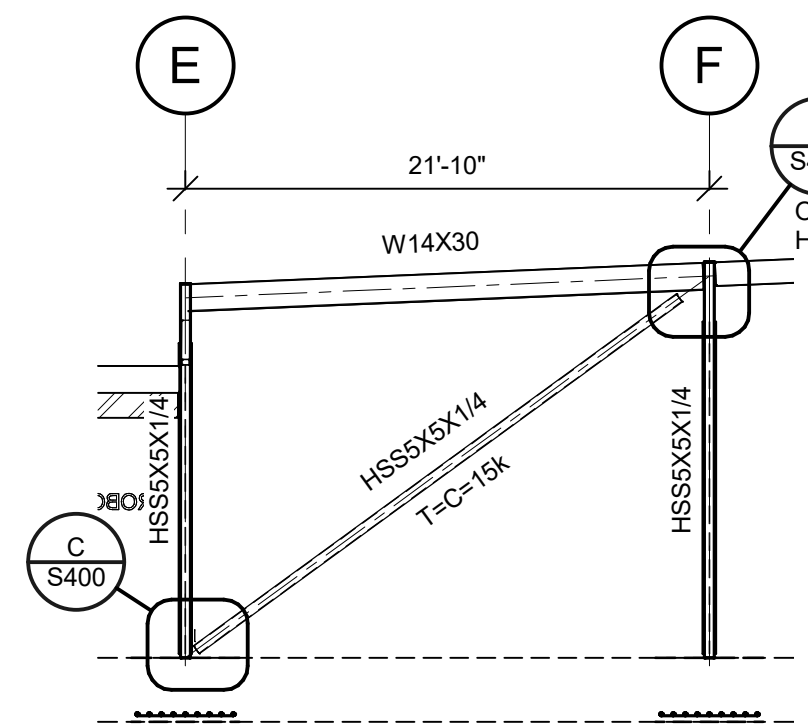
MEP/T/Code:
Henderson Engineers
8345 Lenexa Drive, Suite
300
Lenexa, KS 66214
816.742.5000
www.hendersonengineers.com



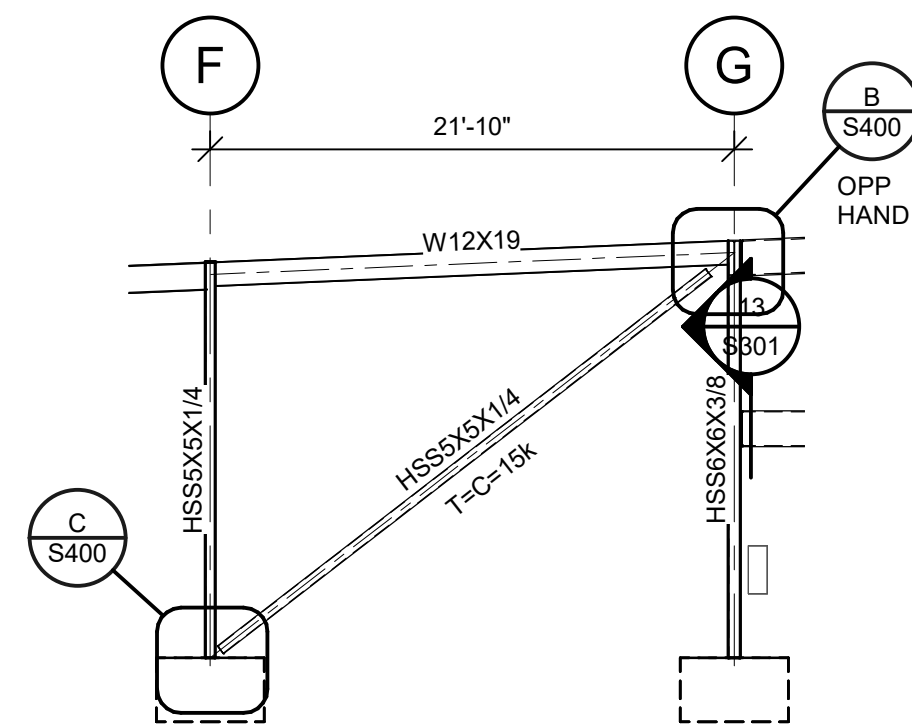
1 ELEVATION
1/8" = 1'-0"



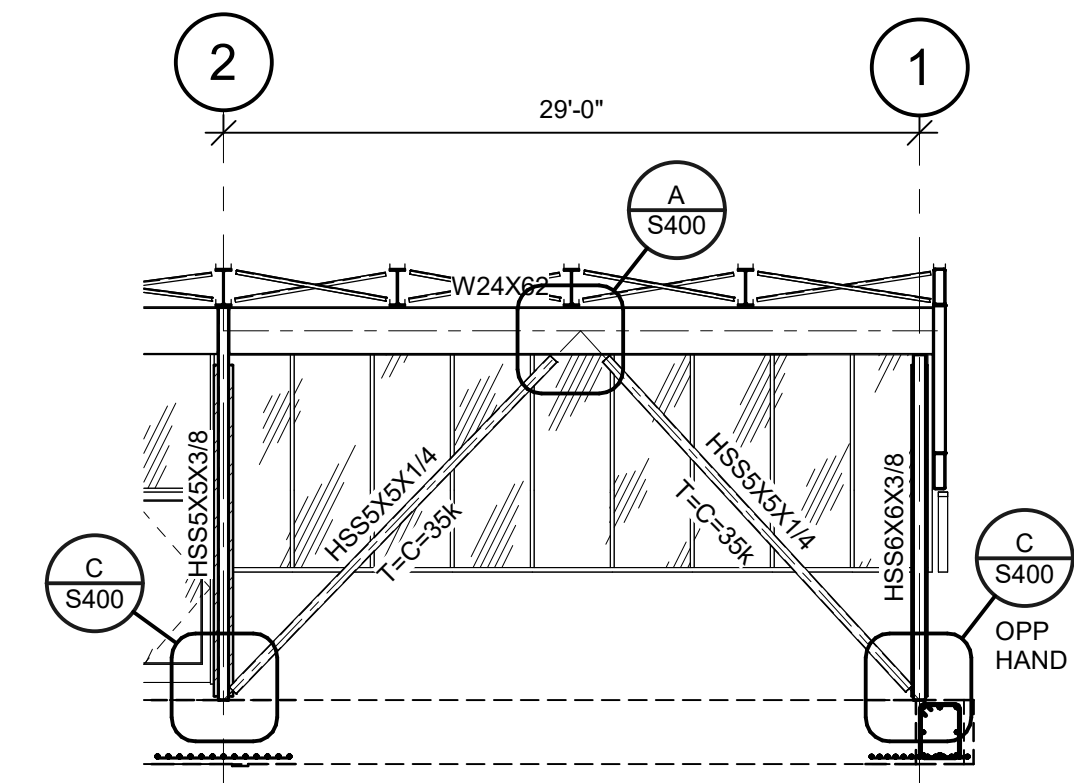
2 ELEVATION
1/8" = 1'-0"



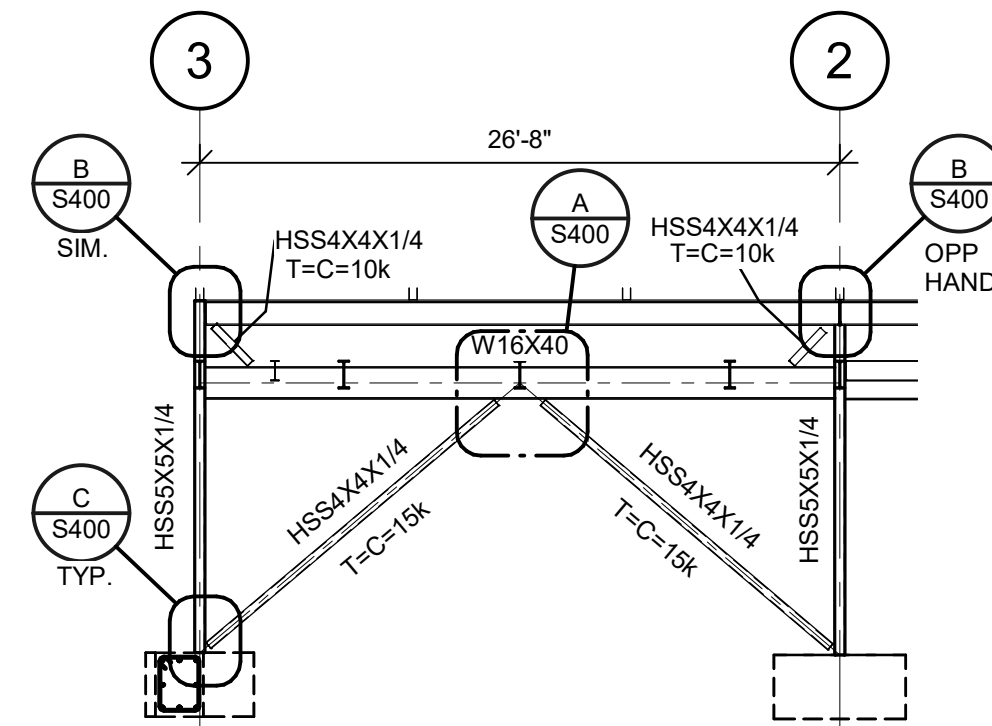
3 ELEVATION
1/8" = 1'-0"



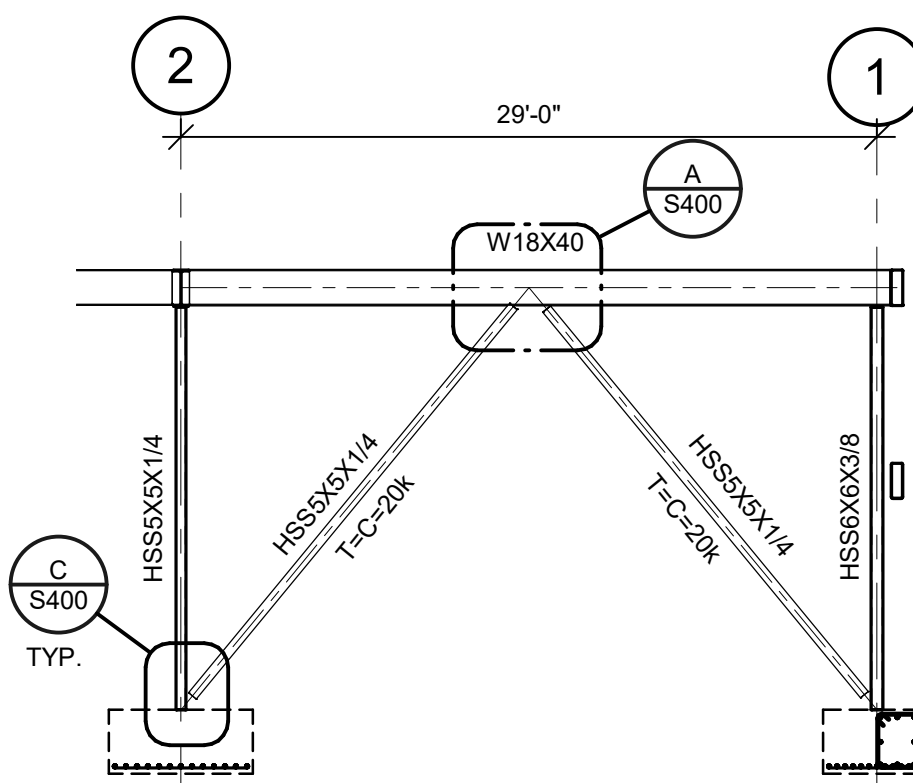
4 ELEVATION
1/8" = 1'-0"



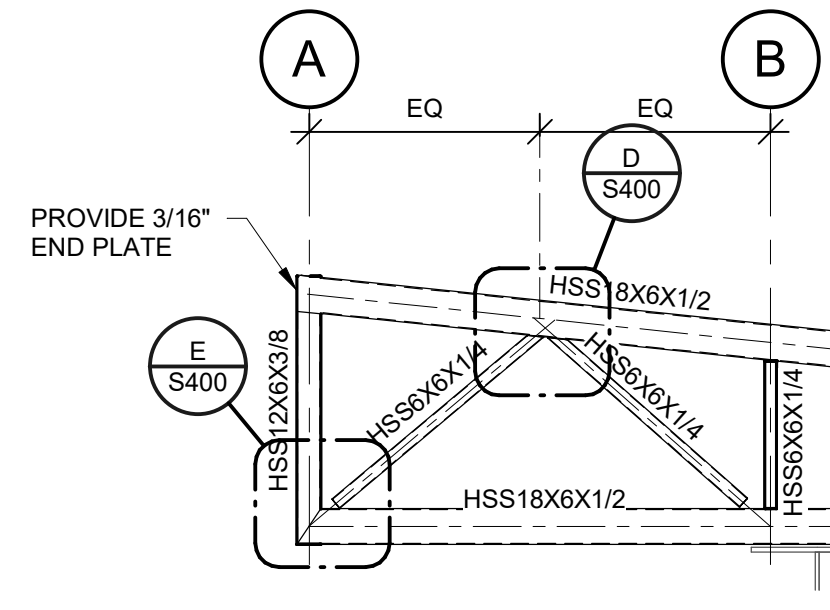
5 ELEVATION
1/8" = 1'-0"



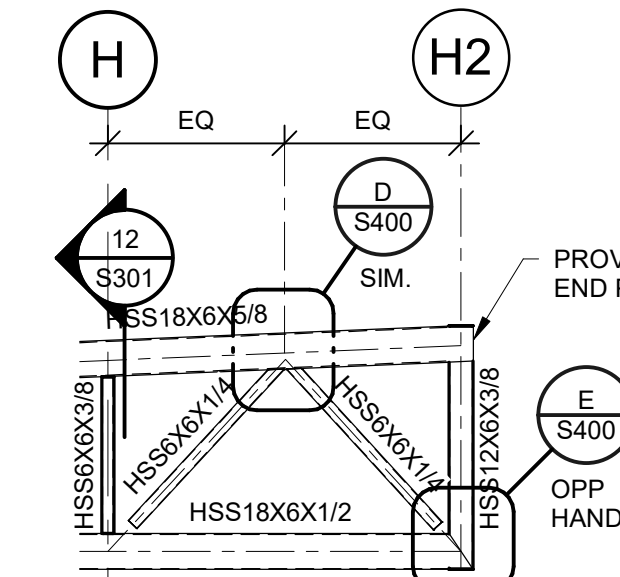
6 ELEVATION
1/8" = 1'-0"



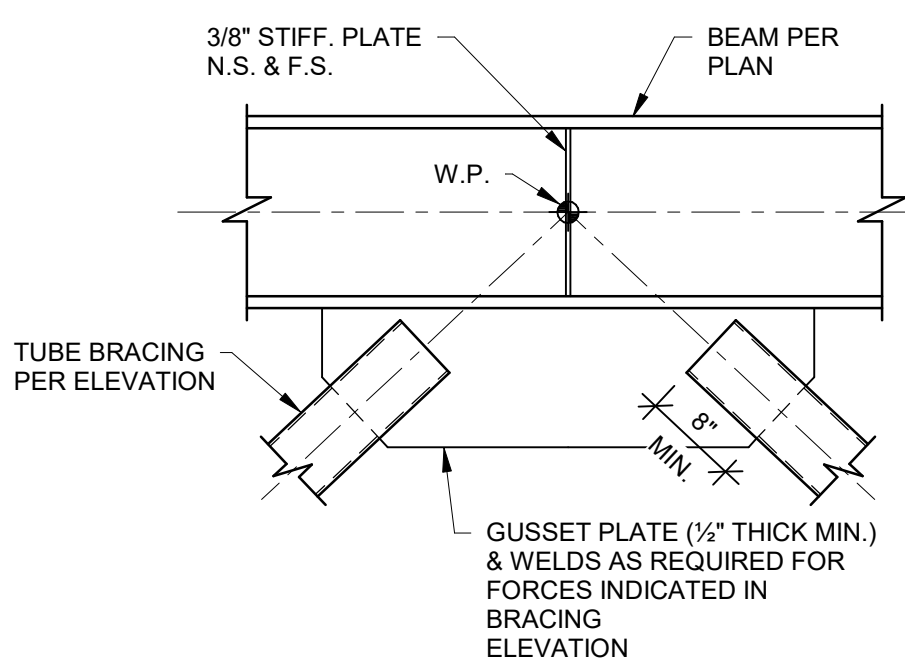
7 ELEVATION
1/8" = 1'-0"



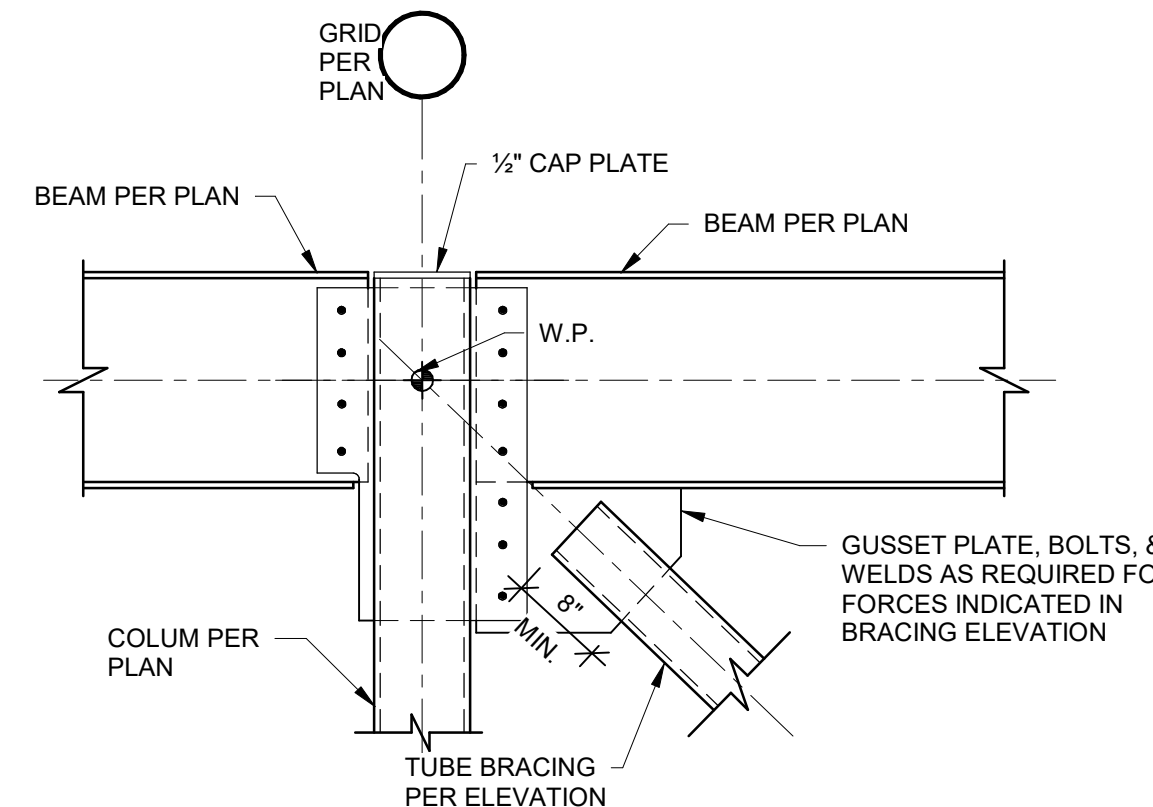
8 ELEVATION
1/8" = 1'-0"



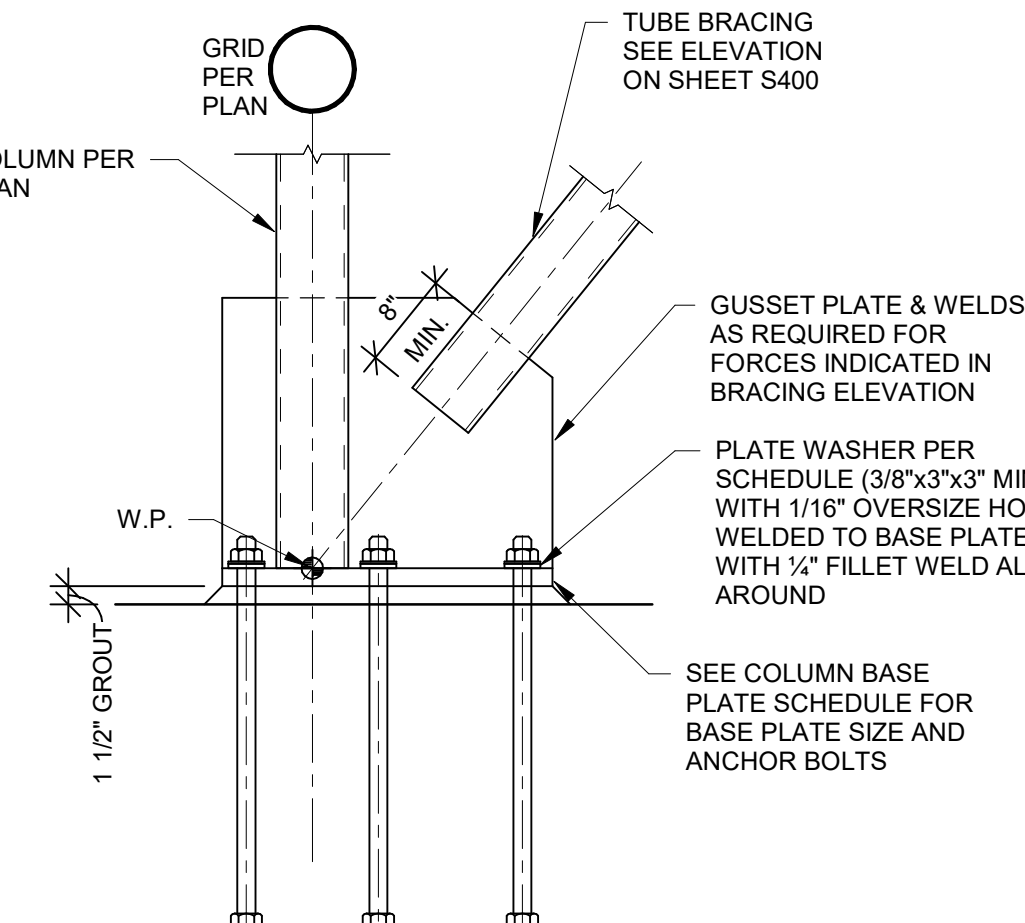
9 ELEVATION
1/8" = 1'-0"



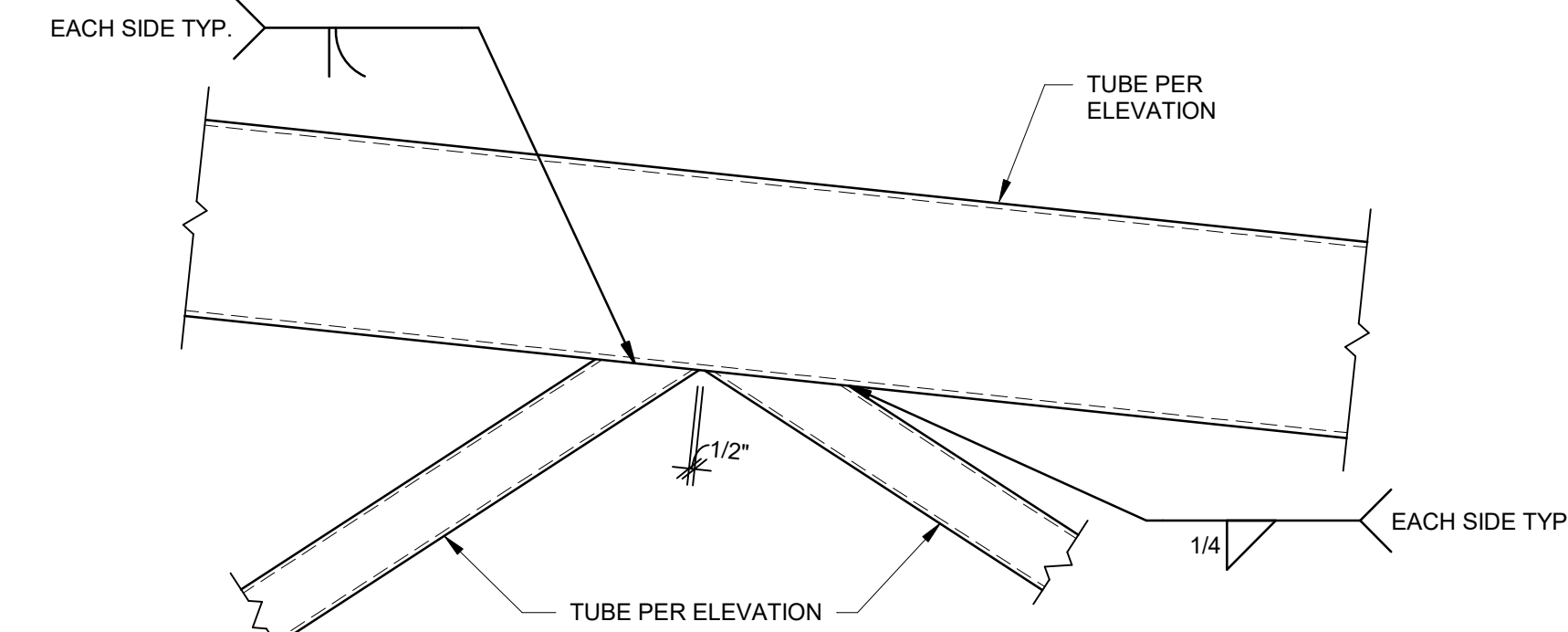
A DETAIL
3/4" = 1'-0"



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

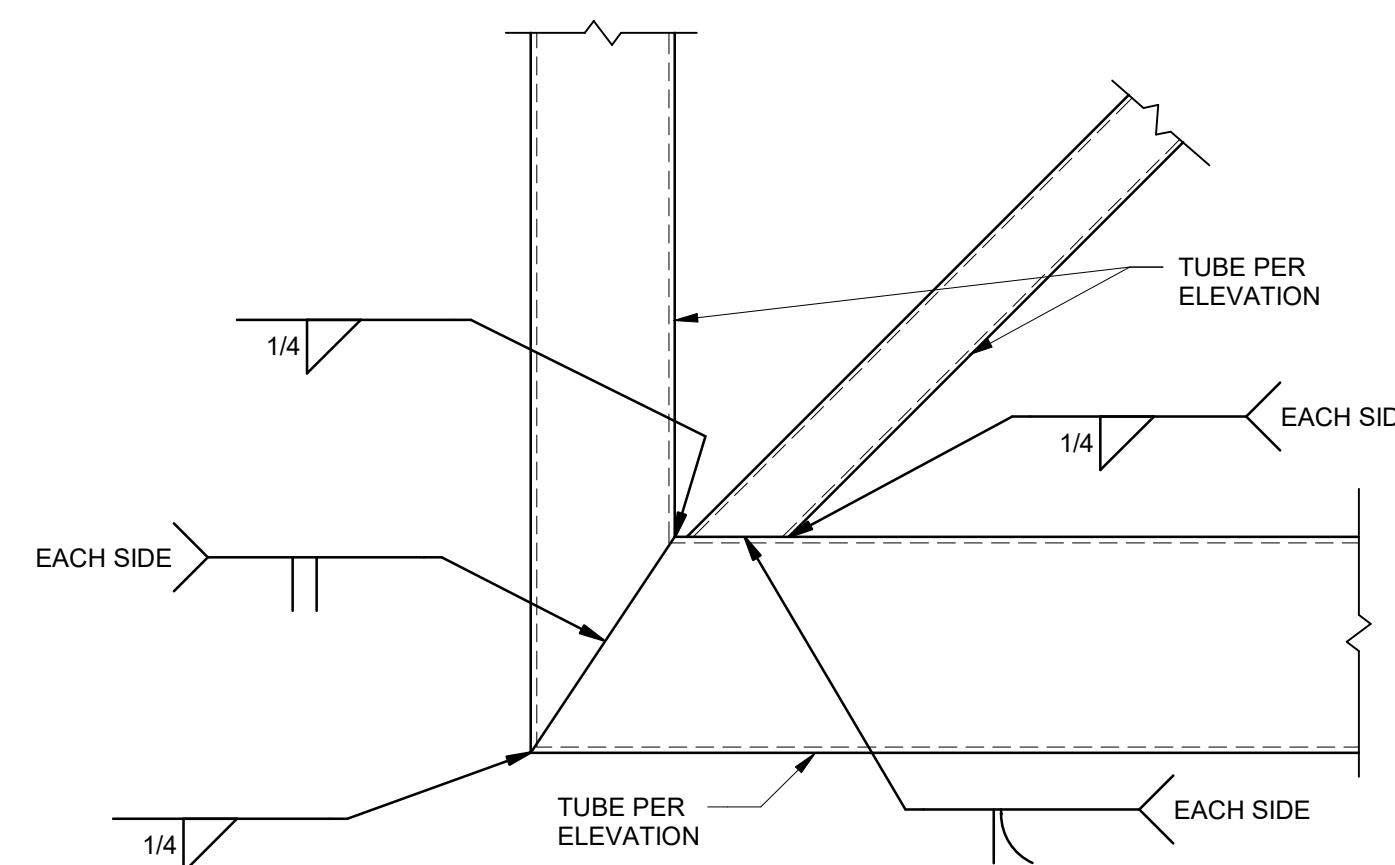


C DETAIL
3/4" = 1'-0"



NOTE: GRIND ALL WELDS SMOOTH

D SECTION
3/4" = 1'-0"



NOTE: GRIND ALL WELDS SMOOTH

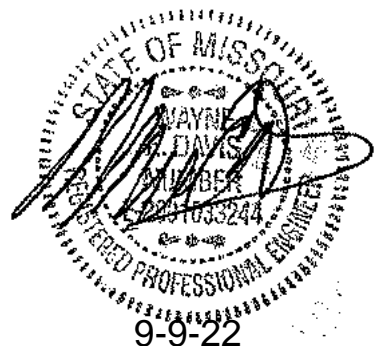
E SECTION
3/4" = 1'-0"

Issue Date: September 9, 2022

Revisions

NUMBER DESCRIPTION DATE

UNLESS A PROFESSIONAL SEAL WITH SIGNATURE AND DATE IS
AFFIXED, THIS DOCUMENT IS PRELIMINARY AND IS NOT INTENDED FOR
CONSTRUCTION, RECORDING PURPOSES OR IMPLEMENTATION



FRAMING ELEVATIONS

S400

Abbreviations																		Graphic Symbols				Materials Graphics				General Architectural Drawing Notes:	
A	AT	D	DEEP, DEPTH	H	HB	HOSE BIBB	P	PUBLIC ADDRESS	T	TREAD	01 GENERAL		02 SITE CONSTRUCTION				1. VERIFY DIMENSIONS AND EXISTING CONDITIONS BEFORE COMMENCING WORK. REPORT DISCREPANCIES TO THE ARCHITECT PRIOR TO PROCEEDING WITH AFFECTED WORK.										
@	AIR CONDITION(ING) (ED)	DBL	DOUBLE	HC	HANDICAP, HOLLOW CORE	PAR	PARALLEL	T & B	TOP AND BOTTOM	NEW WALL		EARTH (existing)				2. BUILDING FLOOR PLAN DIMENSIONS ARE REFERENCED FROM STRUCTURAL GRID, FACE OF CONCRETE, FACE OF MASONRY, OR FACE OF FINISHED SURFACE, UNLESS NOTED OTHERWISE.											
A/C UNIT	AIR CONDITIONING UNIT	DEG	DEGREE	HCP	HANDICAPPED	PART	PARTIAL	T & G	TONGUE AND GROOVE	EXISTING WALL TO BE REMOVED		EARTH (backfill)				3. REFLECTED CEILING PLAN DIMENSIONS ARE REFERENCED FROM FINISHED SURFACES UNLESS NOTED OTHERWISE. CEILING HEIGHTS ARE DIMENSIONED FROM FLOOR TO FINISHED CEILING HEIGHT.											
AB	ANCHOR BOLT	DEMO	DEMOLITION	HD	HEAVY DUTY	PAT	PATTERN	TB	THROUGH BOLT, TOWEL BAR	EXISTING WALL		DRAINAGE FILL				4. CASEWORK, PLUMBING FIXTURES, TOILET PARTITIONS, AND OTHER FIXTURES AND EQUIPMENT ARE DIMENSIONED FROM FINISHED SURFACES UNLESS NOTED OTHERWISE.											
ABVR	DEPARTMENT	DEPT	DEPARTMENT	HDW	HARDWARE	PC	PLUMBING CONTRACTOR	TECH	TECHNICAL, TECHNOLOGY							5. DIMENSIONS NOTED AS "FIELD VERIFY" SHALL BE CHECKED AT THE SITE BY THE CONTRACTOR AND REVIEWED WITH THE ARCHITECT BEFORE INCORPORATING INTO THE WORK.											
ACC	ACCESSIBLE	DET	DETAIL	HDWD	HARDWOOD	PERF	PERFORATED	TEL	TELEPHONE							6. DIMENSIONS NOTED AS "CLEAR" REQUIRE SPECIFIC COORDINATION BETWEEN DISCIPLINES AND/OR MANUFACTURERS.											
ACCU	AIR COOLED CONDENSING UNIT	DF	DRINKING FOUNTAIN	HM	HOLLOW METAL	PERIM	PERIMETER	TEMP	TEMPORARY, TEMPERATURE							7. DRAWINGS NOTED AT "N.T.S." ARE NOT TO SCALE.											
ACI	AMERICAN CONCRETE INSTITUTE	DH	DOUBLE HUNG	HO	HOLD OPEN	PL	PLATE, PROPERTY LINE	TERR	TERRAZZO							8. DO NOT SCALE DRAWING. WRITTEN DIMENSIONS TAKE PRECEDENCE. IF CLARIFICATION IS REQUIRED IN ORDER TO DETERMINE THE INTENT OF THE CONTRACT DOCUMENTS, CONTACT THE ARCHITECT.											
ACOUS	ACOUSTICAL INSULATION	DIA or Ø	DIAMETER	HORIZ	HORIZON	PL GL	PLATE GLASS	THRM	THERMAL							9. NOTES OR DIMENSIONS LABELED "TYPICAL" SHALL APPLY TO SITUATIONS THAT ARE THE SAME OR SIMILAR.											
INSUL		DIFF	DIFFERENCE	HR	HOUR	PLAM	PLASTIC LAMINATE	THK	THICKNESS																		
ACOUS PNL	ACOUSTICAL PANEL	DIM	DIMENSION	HSS	HOLLOW STRUCTURAL SECTION	PLAS	PLASTER, PLASTIC	THRU	THROUGH																		
ACST	ACOUSTIC	DIR	DIRECTION	HT	HEIGHT	PLBG	PLUMBING	TK BD	TACK BOARD																		
ACT	ACOUSTICAL CEILING TILE	DISP	DISPENSER	HVAC	HEATING, VENTILATING AND AIR CONDITIONING	PLYWD	PLYWOOD	TMPD	TEMPERED																		
ADA	AMERICANS WITH DISABILITIES	DIST	DISTANCE	HW	HOT WATER	PNL	PANEL	TMPD GL	TEMPERED GLASS																		
ADDL	ADDITIONAL	DIV	DIVIDE, DIVISION	HYD	HYDRANT	POL	POLISHED	TOC	TOP OF CONCRETE																		
ADDM	ADDENDUM	DL	DEAD LOAD			POLY	POLYETHYLENE (PLASTIC)	TOF	TOP OF FOOTING, TOP OF FLOOR, TOP OF FRAME																		
ADH	ADHESIVE	DMPF	DAMPPOOFING			PORC	PORCELAIN																				
ADJ	ADJUSTABLE, ADJACENT	DMPR	DAMPER	I	INSIDE DIAMETER	PORT	PORTABLE	TOM	TOP OF MASONRY																		
AE	ARCHITECT/ ENGINEER	DN	DOWN	ID	INCHES	POS	POSITIVE	TOPO	TOPOGRAPHY																		
AFF	ABOVE FINISHED FLOOR	DO	DITTO	IN	INCHES	PR	PAIR	TOS	TOP OF STEEL																		
AGGR	AGGREGATE	DOC	DOCUMENT	INCAND	INCANDESCENT	PRCST	PRECAST	TPD	TOILET PAPER DISPENSER																		
AHU	AUTHORITY HAVING JURISDICTION	DOZ	DOZEN	INCL	INCLUDE	PREFAB	PREFABRICATED	TV	TELEVISION																		
AHS	AIR HANDLING UNIT	DR	DOOR	INFO	INFORMATION	PREFIN	PREFINISHED	TYP	TYPICAL																		
AISC	AMERICAN INSTITUTE OF STEEL CONSTRUCTION	DS	DOWNSPOUT	INSUL	INSULATION	PRELUM	PRELIMINARY																				
ALT	ALTERNATE	DSGN	DESIGN	INT	INTERIOR	PRKG	PARKING	U	HEAT TRANSFER COEFFICIENT																		
ALUM	ALUMINUM	DT	DRAIN TILE	INTERM	INTERMEDIATE	PROJ	PROJECT	UC	UNDERCUT																		
ANOD	ANNODIZED	DW	DISH WASHER	J	JANITOR	PROP	PROPERTY	UGND	UNDERGROUND																		
APC	ACOUSTICAL PANEL CEILING	DWG	DRAWING	JAN	JANITOR	PSF	POUNDS PER SQUARE FOOT	UH	UNIT HEATER																		
ARCH	ARCHITECT(URAL)	E	EAST	JAN CLO	JANITOR CLOSET	PSI	POUNDS PER SQUARE INCH	UL	UNDERWRITERS LABORATORIES																		
ASL	ABOVE STRUCTURAL LEVEL	E	EAST	JNT	JOINT	PT	POST TENSIONED	UNFIN	UNFINISHED																		
AWT	ACOUSTICAL WALL TREATMENT	EA	EACH	JR	JUNIOR	PTD	PAPER TOWER DISPENSER	UNO	UNLESS NOTED OTHERWISE																		
		EC	ELECTRICAL CONTRACTOR	JST	JOIST	PTN	PARTITION	UNO	UNLESS NOTED OTHERWISE																		
		EF	EACH FACE			PVC	POLYVINYL CHLORIDE (PLASTIC)	UTIL	UTILITY																		
		EIFS	EXTERIOR INSULATION AND FINISH SYSTEM			PWR	POWER	UV	UNIT VENTILATOR																		
				K	KNOCK DOWN	Q		V																			
B		EJ	EXPANSION JOINT	KD	KNOCK DOWN	QT	QUARRY TILE	V	VOLT																		
B BD	BASE BOARD	EL	ELEVATION	KIP	1000 POUNDS	QTR	QUARTER	VAR	VARIES, VARIATION																		
B/B	BACK-TO-BACK	ELEC	ELECTRIC(AL)	KIT	KITCHEN	QTY	QUANTITY	VB	VINYL BASE																		
BAT	BATTEN	ELEM	ELEMENTARY	KO	KNOCK OUT			VCT	VINYL COMPOSITE TILE																		
BD	BOARD	ELEV	ELEVATOR	KPL	KICK PLATE			VENT	VENTILATION																		
BDRM	BEDROOM	ENAM	ENAMEL	L	LITER, ANGLE	R		VERT	VERTICAL																		
BITUM	BITUMINOUS	ENCL	ENCLOSURE	L	LITER, ANGLE	R	RISER, RADIUS, HEAT RESISTANCE	VEST	VESTIBULE																		
BLDG	BUILDING	ENGR	ENGINEER	LAB	LABORATORY	RA	RETURN AIR	VIF	VERIFY IN FIELD																		
BLKG	BLOCKING	ENVR	ENVIRONMENT	LAM	LAMINATE(D)	RAD	RADIATOR	VOC	VOLATILE ORGANIC COMPOUND																		
BM	BENCHMARK, BEAM	EOS	EDGE OF SLAB	LAV	LAVATORY	RB	RUBBER BASE, RESILIENT BASE	VOL	VOLUME																		
BOT	BOTTOM	EP	ELECTRIC PANEL	LBL	LABEL	RC	ROOFING CONTRACTOR	VOL	VOLUME																		
BRG	BEARING	ETH	ETHYLENE PROPYLENE DIENE MONOMER	LBS	POUND	RCP	REFLECTED CEILING PLAN	VR	VAPOR RETARDER																		
BRZ	BRONZE	LD	LOAD	RD	ROOF DRAIN	REC	RECESSED	VUH	VERTICAL UNIT HEATER																		
BSMT	BASEMENT	LF	LINEAR FEET	REC	RECESSED	REC RM	RECREATION ROOM	VWC	VERTICAL WALL COVERING																		
BTWN	BETWEEN	LH	LATENT HEAT, LEFT HAND	REF	REFRIGERATOR			W	WATT, WEST																		
BUR	BUILT-UP ROOFING	LIB	LIBRARY	REG	REGISTER, REGULATION	REF	REFRIGERATOR	W/	WITH																		
BW	BOTH WAYS	LIN	LINEAR	REIN	REINFORCE	REQD	REQUIRED	W/W	WITHOUT																		
		LKR	LOCKER	REQD	REQUIRED	RESIL	RESILIENT	W/O	WALL TO WALL																		
		LKR RM	LOCKER ROOM	RESIL	RESILIENT	REV	REVISION	WB	WOOD BASE																		
		LL	LIVE LOAD	REV	REVISION	RFG	ROOFING	WC	WALL COVERING, WATER CLOSET																		
		LLH	LONG LEG HORIZONTAL	RFG	ROOFING	RFI	REQUEST FOR INFORMATION	WD	WOOD																		
		LLV	LONG LEG VERTICAL	RFI	REQUEST FOR INFORMATION	RFP	REQUEST FOR PROPOSAL	WDW	WINDOW																		
		LT	LINEOLEUM TILE, LIGHT LIGHTING	RFP	REQUEST FOR PROPOSAL	RH	RIGHT HAND, ROOF HATCH	WF	WIDE FLANGE																		
		LTG	LIGHTING	RH	RIGHT HAND, ROOF HATCH	RM	ROOM	WH	WATER HEATER, WALL HUNG																		
		M		RM	ROOM	RO	ROUGH OPENING	WI	WROUGHT IRON																		
		MACH	MATCHLINE	RO	ROUGH OPENING	ROW	RIGHT OF WAY	WM	WIRE MESH																		
		MACH RM	MACHINE ROOM	ROW	RIGHT OF WAY	RTF	RUBBER TILE FLOOR	WP	WATER PROOFING, WEATHERPROOF																		
		MAHOG	MAHOGANY	RTU	ROOF TOP UNIT	RV	ROOF VENT	WR	WATER REPLENT, WEATHER RESISTANT																		
		MAINT	MAINTENANCE	RV	ROOF VENT	RWB	RUBBER WALL BASE	WSCT	WAINSCOT																		
		MATL	MATERIAL	RWB	RUBBER WALL BASE	S		WT	WEIGHT																		
		MAX	MAXIMUM	S		S	SOUTH	WWF	WELDED WIRE FABRIC																		
		MB or MKR	MARKERBOARD	S	SOUTH	SAB	SOUND ATTENUATION BATTS	WWW	WELDED WIRE MESH																		
		BD		SAN	SANITARY	SAN	SANITARY	X																			
		MC	MECHANICAL CONTRACTOR	SC	SOLID CORE, SHADING COEFFICIENT	SC	SOLID CORE, SHADING COEFFICIENT	X	BY																		
		MDF	MEDIUM DENSITY FIBERBOARD	SCHD	SCHEDULE	SCHD	SCHEDULE																				
		MDO	MEDIUM DENSITY OVERLAY	SD	SOAP DISPENSER	SD	SOAP DISPENSER	Y																			
		ME	MATCH EXISTING	SECT	SECTION	SECT	SECTION	Y	YD																		
		MECH	MECHANICAL	SF	SQUARE FOOT, SAFETY FACTOR	SF	SQUARE FOOT, SAFETY FACTOR																				
		MECH RM	MECHANICAL ROOM	SGT	STRUCTURAL GLAZED TILE	SGT	STRUCTURAL GLAZED TILE																				
		MFR	MANUFACTURER	SHR	SHOWER	SHR	SHOWER																				
		MIN	MINIMUM	SHT	SHEET	SHT	SHEET																				
		MISC	MISCELLANEOUS	SIM	SIMILAR	SIM	SIMILAR																				
		MM	MILLIMETER	SND	SANITARY NAPKIN DISPENSER	SND	SANITARY NAPKIN DISPENSER																				
		MO	MASONRY OPENING	SOG	SLAB ON GRADE	SOG	SLAB ON GRADE																				
		MOD BIT	MODIFIED BITUMEN	SPC	SUSPENDED PLASTER CEILING	SPC	SUSPENDED PLASTER CEILING																				

General Architectural Drawing Notes:

- VERIFY DIMENSIONS AND EXISTING CONDITIONS BEFORE COMMENCING WORK. REPORT DISCREPANCIES TO THE ARCHITECT PRIOR TO PROCEEDING WITH AFFECTED WORK.
- BUILDING FLOOR PLAN DIMENSIONS ARE REFERENCED FROM STRUCTURAL GRID. FACE OF CONCRETE, FACE OF MASONRY, OR FACE OF FINISHED SURFACE, UNLESS NOTED OTHERWISE.
- REFLECTED CEILING PLAN DIMENSIONS ARE REFERENCED FROM FINISHED SURFACES UNLESS NOTED OTHERWISE. CEILING HEIGHTS ARE DIMENSIONED FROM FLOOR TO FINISHED CEILING HEIGHT.
- CASEWORK, PLUMBING FIXTURES, TOILET PARTITIONS, AND OTHER FIXTURES AND EQUIPMENT ARE DIMENSIONED FROM FINISHED SURFACES UNLESS NOTED OTHERWISE.
- DIMENSIONS NOTED AS "FIELD VERIFY" SHALL BE CHECKED AT THE SITE BY THE CONTRACTOR AND REVIEWED WITH THE ARCHITECT BEFORE INCORPORATING INTO THE WORK.
- DIMENSIONS NOTED AS "CLEAR" REQUIRE SPECIFIC COORDINATION BETWEEN DISCIPLINES AND/OR MANUFACTURERS.
- DRAWINGS NOTED AT "N.T.S." ARE NOT TO SCALE.
- DO NOT SCALE DRAWING. WRITTEN DIMENSIONS TAKE PRECEDENCE. IF CLARIFICATION IS REQUIRED IN ORDER TO DETERMINE THE INTENT OF THE CONTRACT DOCUMENTS, CONTACT THE ARCHITECT.
- NOTES OR DIMENSIONS LABELED "TYPICAL" SHALL APPLY TO SITUATIONS THAT ARE THE SAME OR SIMILAR.

General Materials &

LSN: 901 NE Douglas St., Lee's Summit MO 64086
LSW: 2600 SW Ward Rd, Lee's Summit MO 64082
LSHS: 400 SE Blue Pkwy, Lee's Summit MO 64080

Project Number: 0121-0

owner: **Lee's Summit R-7 School**
301 NE Tudor Road
Lee's Summit, MO 64086

architect: **Multistudio**
4200 Pennsylvania
Kansas City, MO 64111
816.931.6655
multi.studio

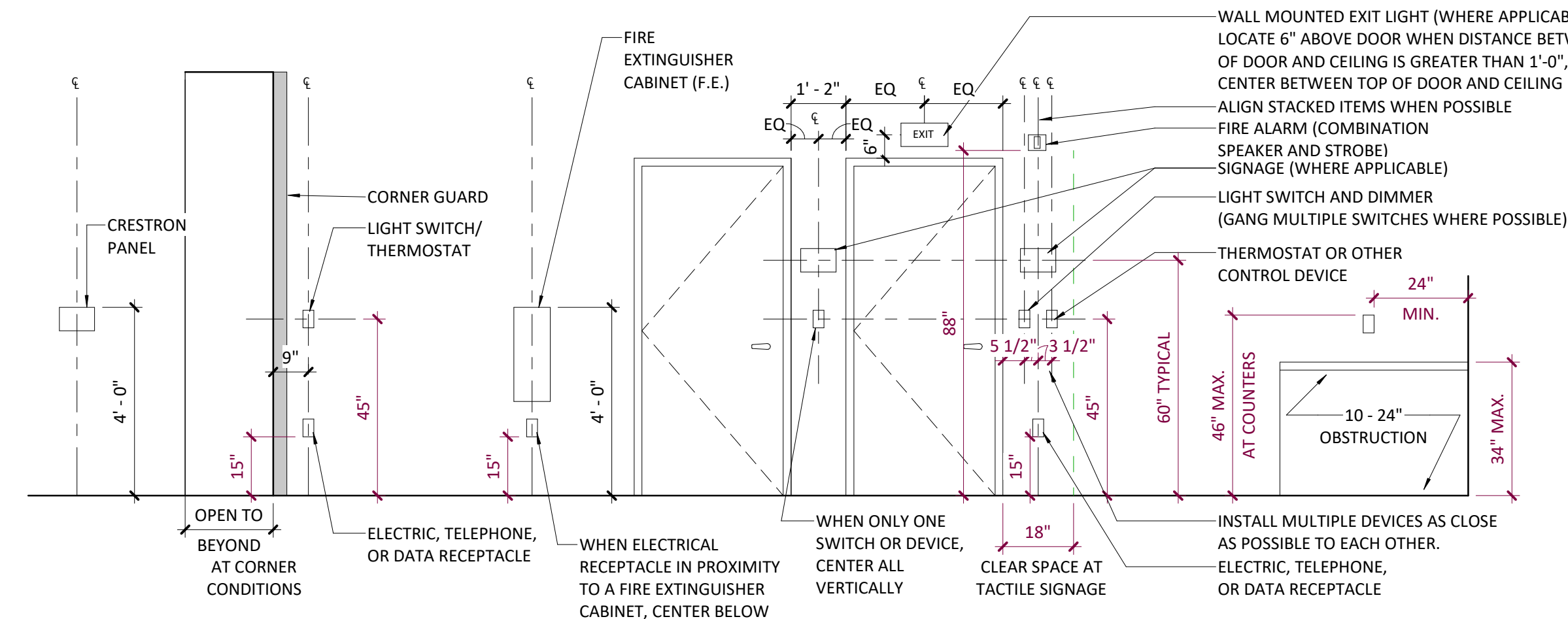
civil engineer:
Kaw Valley Engineering
14700 West 114th Terrace
Lenexa, KS 66215
913.485.0318
kvenrg.com

structural engineer:
Bob D. Campbell &
4338 Bellevue
Kansas City, MO 64111
816.531.4144
www.bdc-engrs.com

MEPFT/Code::
Henderson Engineers
8345 Lenexa Drive, Suite
300
Lenexa, KS 66214
816.742.5000
www.hendersonengineers.com

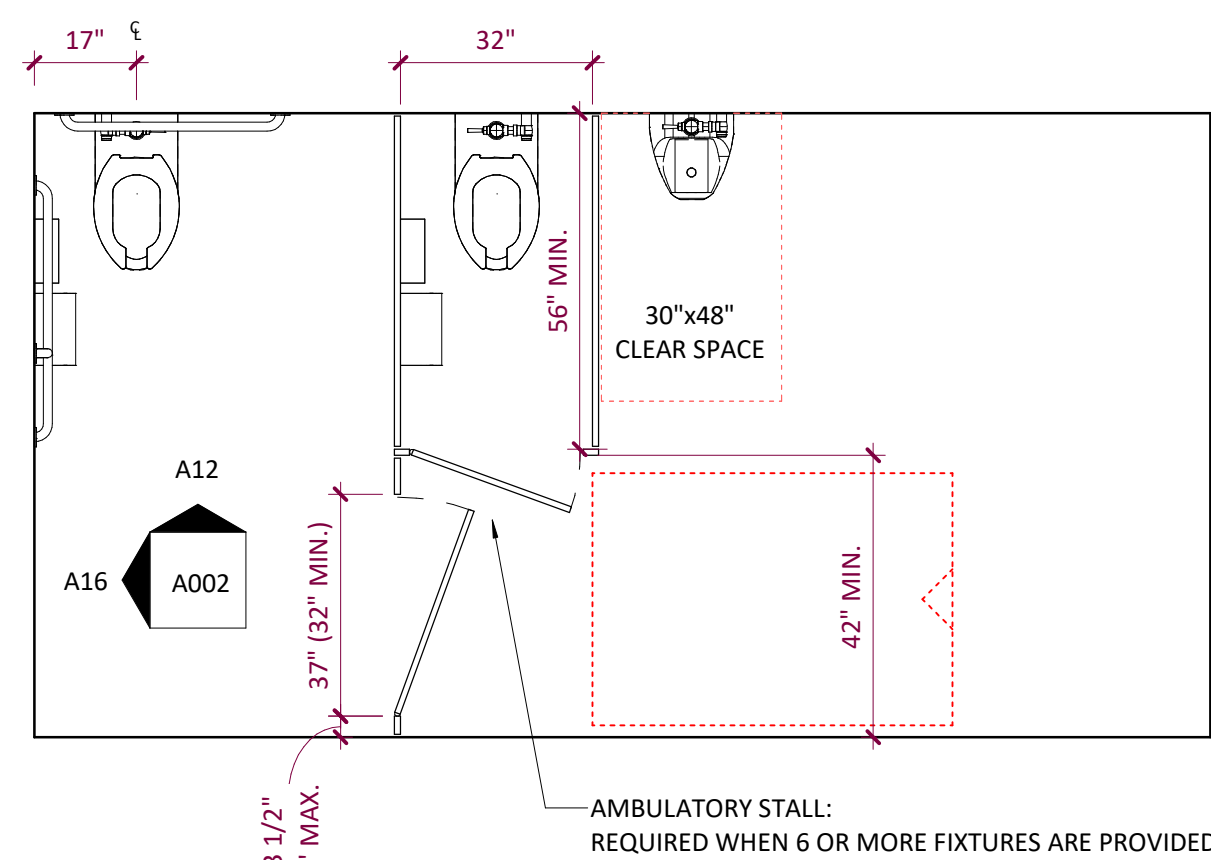
Specialty Equipment Notes:

1. THIS PROJECT WILL COMPLY WITH ALL AMERICAN WITH DISABILITIES REGULATIONS AND ALL LOCAL ACCESSIBILITY CODE REQUIREMENTS.
2. ALL MOUNTING HEIGHTS ARE TO COMPLY WITH ICC/ANSI-A117.1. REFER TO FIXTURE HEIGHT GUIDELINES FOR TYPICAL MOUNTING HEIGHTS, COORDINATE WITH OWNER/ARCHITECT FOR ANY ITEMS IN CONFLICT OR NOT EXPLICITLY INDICATED.
3. PROVIDE WOOD BLOCKING AT ALL EQUIPMENT FIXTURES, AND ACCESSORIES INCLUDED OWNER PROVIDED ITEMS WHETHER OR NOT SUCH BLOCKING IS SPECIFIED OR REQUIRED.
4. ACCESSORIES SHOWN ARE GENERIC. REFER TO SCHEDULE SPECIFIED MODEL.
5. FIXTURES ACCESSORIES SHOWN ARE GENERIC. REFER TO PLUMBING DRAWINGS FOR SCHEDULED FIXTURES.

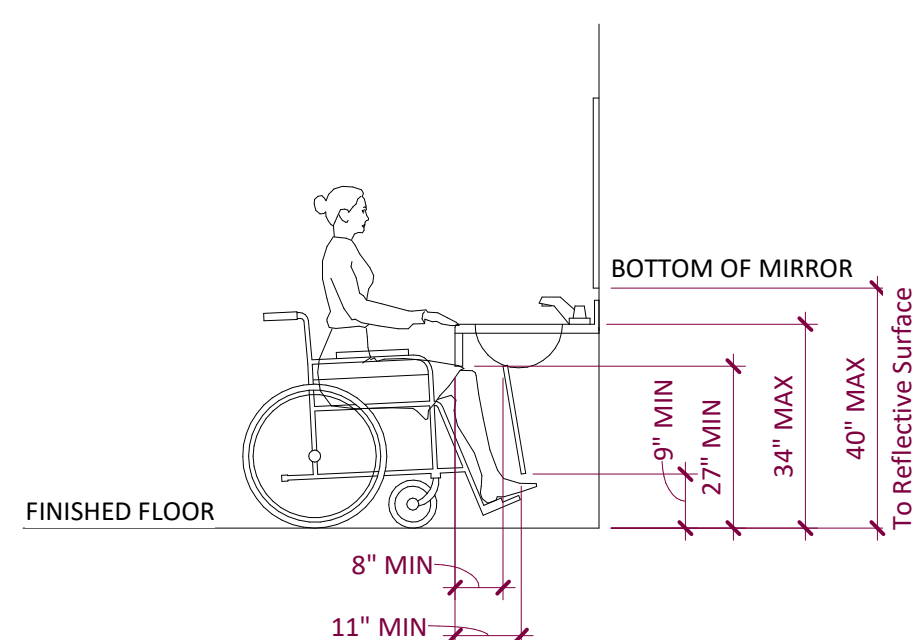


Typical Janitor Closet **G9**
1/2" = 1'-0"

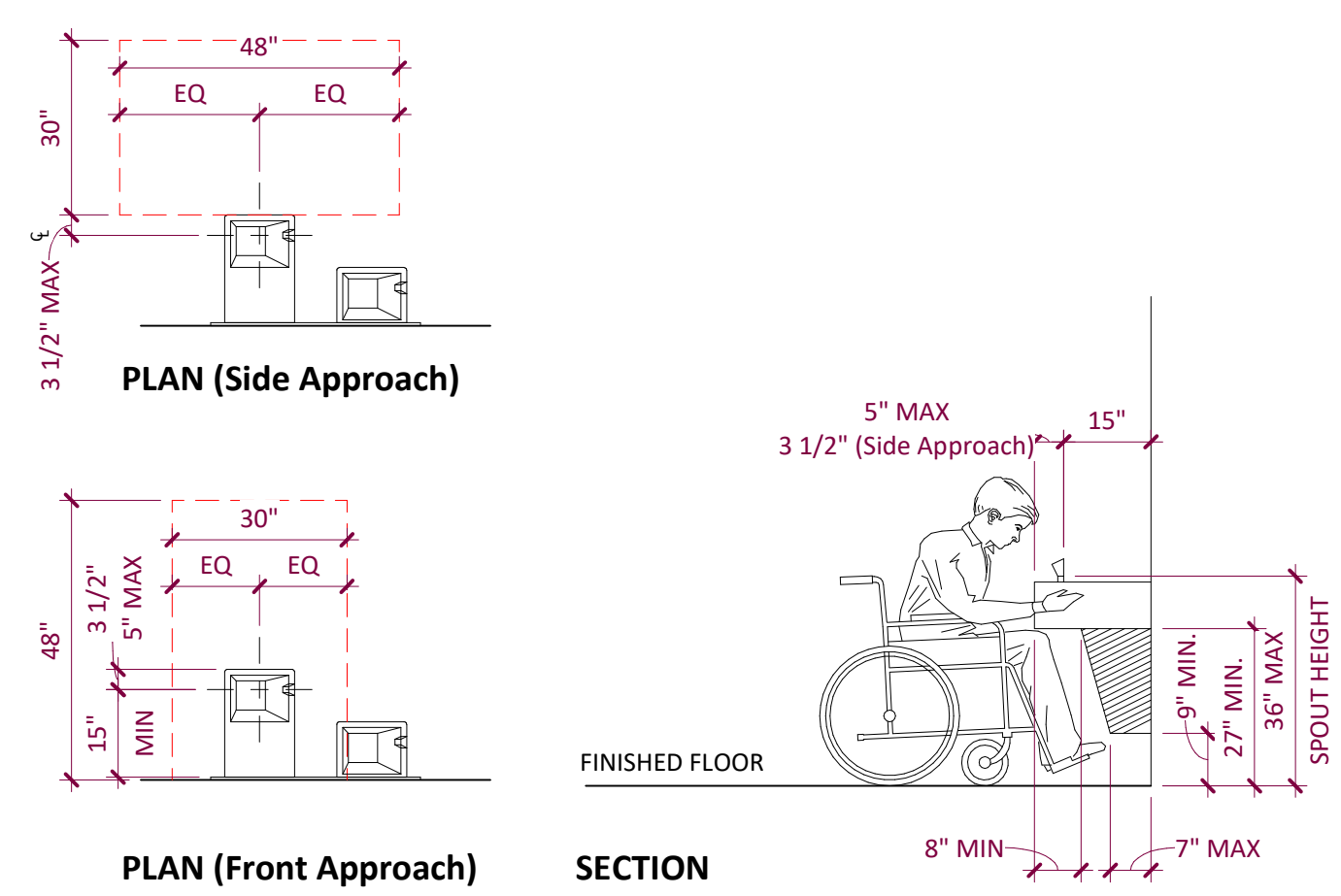
Miscellaneous Heights **G1**
3/8" = 1'-0"



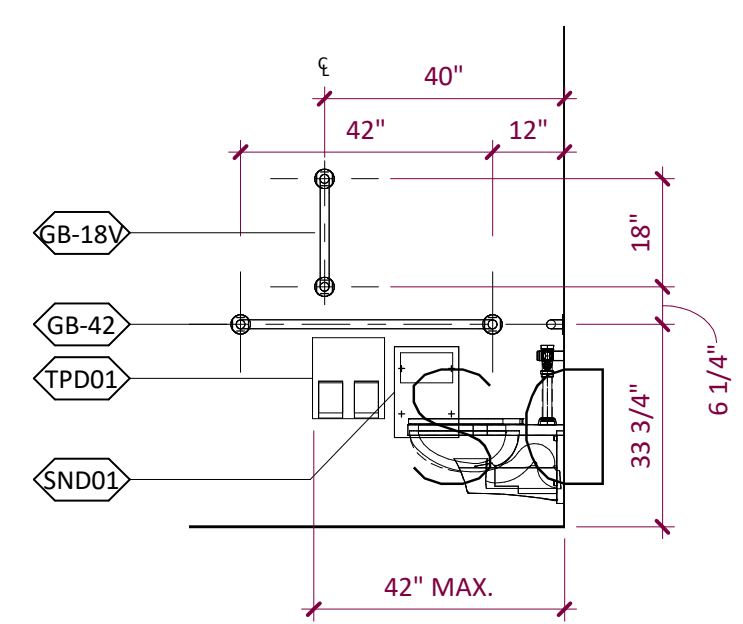
Floor Plan - Toilet Fixture Standard D12



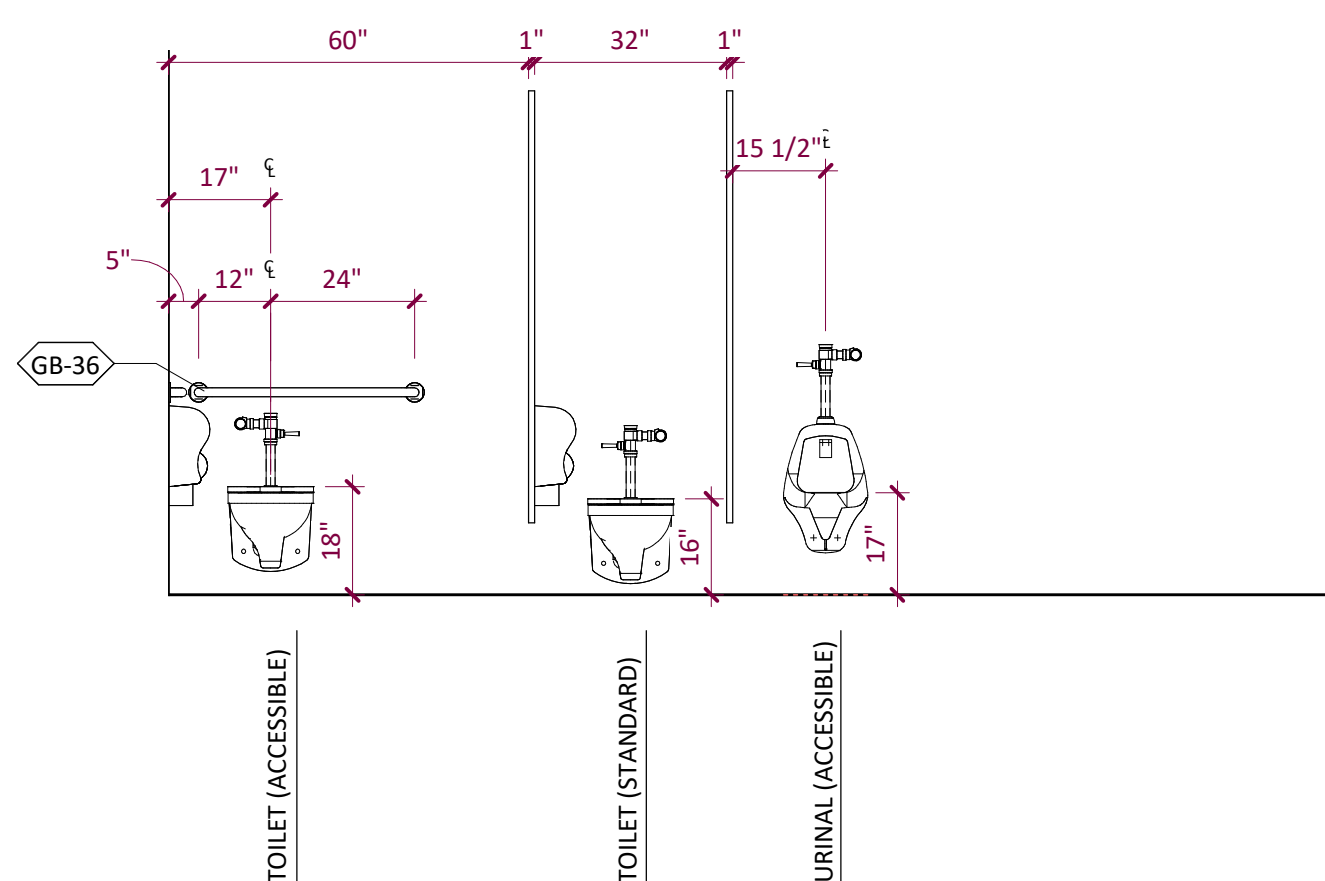
Lavatory Guidelines D9



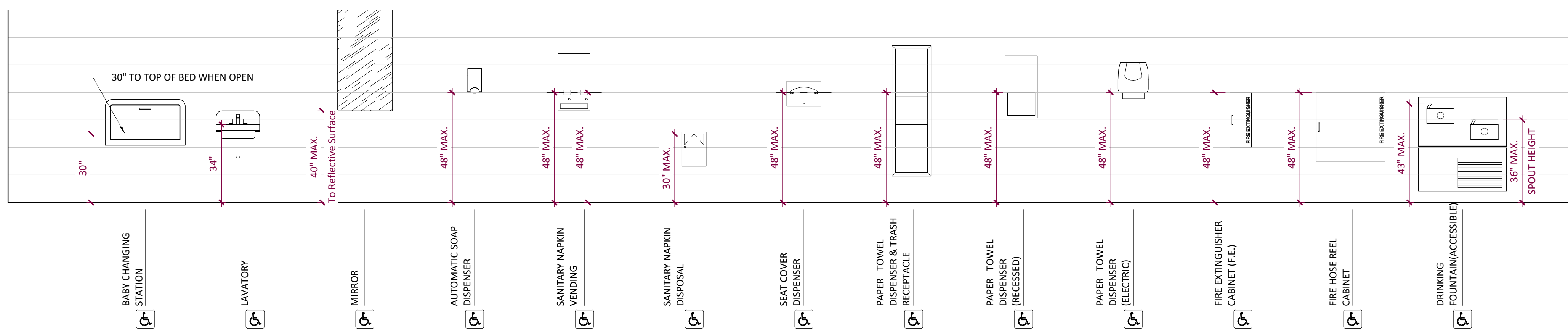
Drinking Fountain Guidelines **D5**



ADA Stall A16
3/8" = 1'-0"



Interior Elevation - Toilet Fixture Standards **A12**
3/8" = 1'-0"



Fixture Height Guidelines **A1**

Issue Date: September 9, 2015

Revisions

NUMBER	DESCRIPTION	DATE
2	Addendum 02	09/23/2011

UNLESS A PROFESSIONAL SEAL WITH SIGNATURE AND DATE IS
AFFIXED, THIS DOCUMENT IS PRELIMINARY AND IS NOT INTENDED FOR
CONSTRUCTION, RECORDING PURPOSES OR IMPLEMENTATION.



Accessibility Standards

A002

LSR7 Robotics, GiC & Phys Education

LSN: 901 NE Douglas St., Lee's Summit MO 64086
LSW: 2600 SW Ward Rd, Lee's Summit MO 64082
LSHS: 400 SE Blue Pkwy, Lee's Summit MO 64063

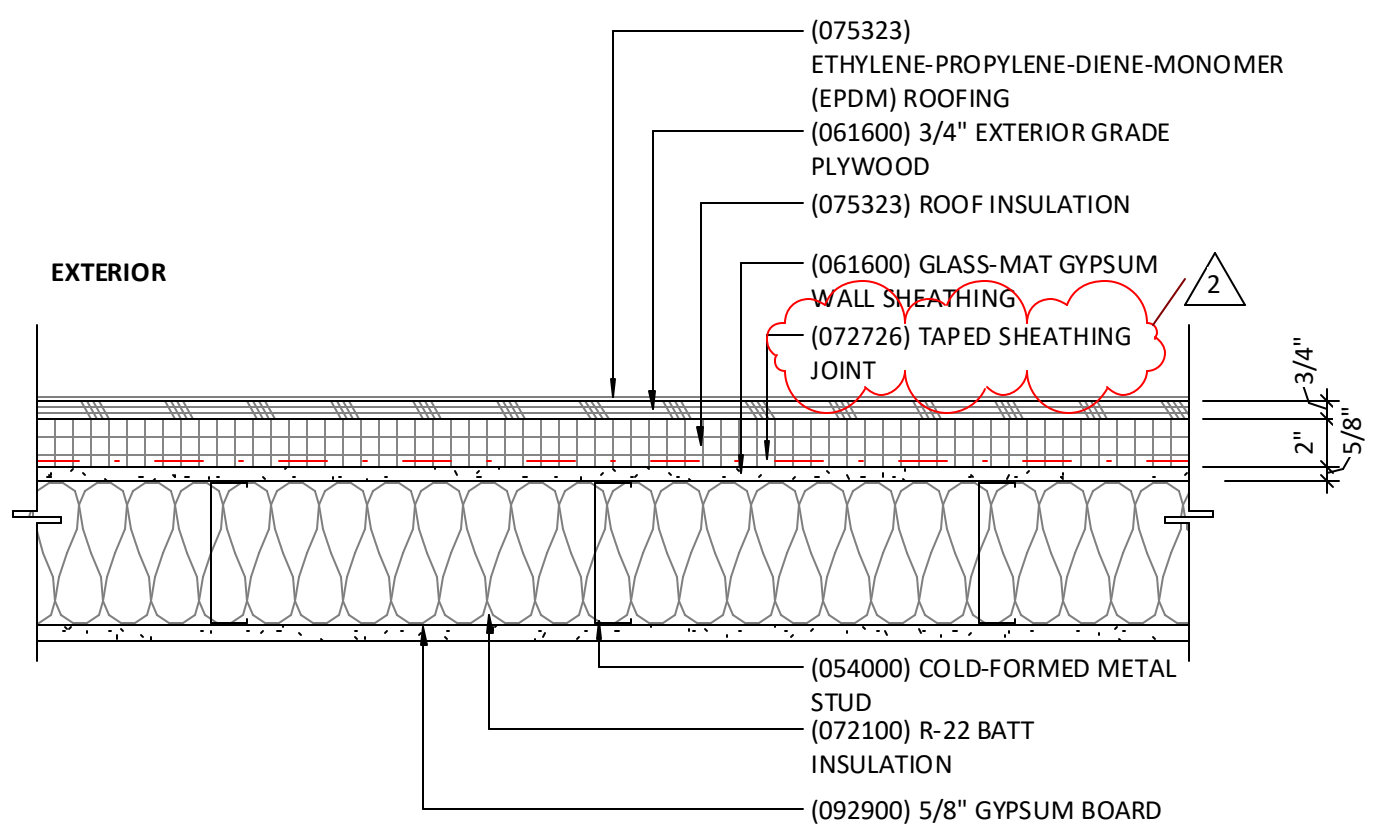
Project Number: 0121-0100

owner: Lee's Summit R-7 School
301 NE Tudor Road
Lee's Summit, MO 64086
architect: Multistudio
4300 Pennsylvania
Kansas City, MO 64111
816.931.6655
multistudio
civil engineer: Kaw Valley Engineering
14700 West 114th Terrace
Lenexa, KS 66215
913.485.0318
kveg.com
structural engineer: Bob D. Campbell &
4338 Bellevue
Kansas City, MO 64111
816.531.4144
www.bdc-engrs.com

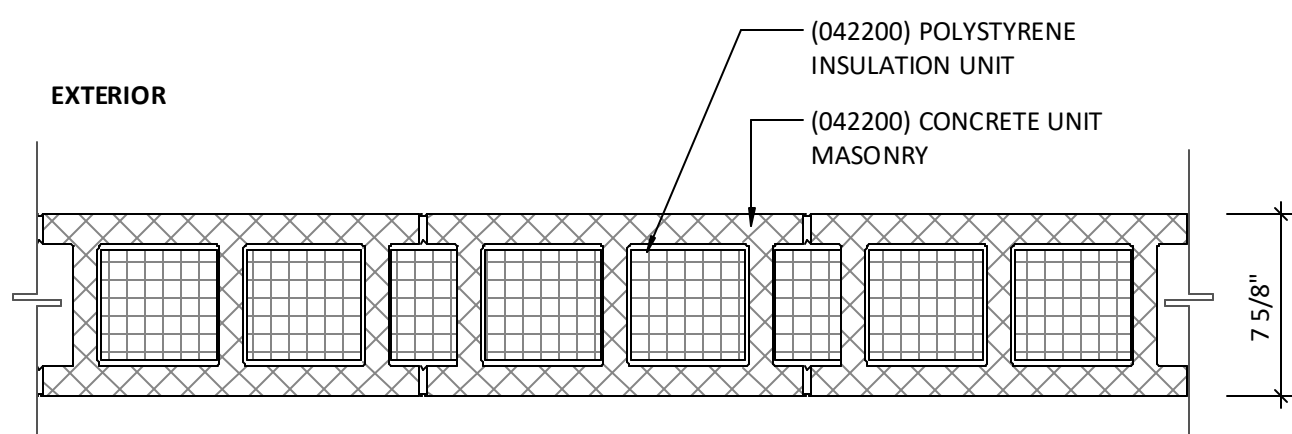
MEP/T/Code: Henderson Engineers
8345 Lenexa Drive, Suite 300
Lenexa, KS 66214
816.742.5000
www.hendersonengineers.com

General Notes (Exterior Enclosure):

- ALL OPENINGS, FLASHING, COUNTER FLASHING, AND EXPANSION JOINTS SHALL BE WATERTIGHT.
- ALL OPEN JOINTS, PENETRATIONS, AND OTHER OPENINGS IN THE ENVELOPE SHALL BE SEALED, GASKETED, OR WEATHER-STRIPPED TO LIMIT AIR LEAKAGE.
- PROVIDE MOLD RESISTANT GYPSUM BOARD AT ALL EXTERIOR WALLS.

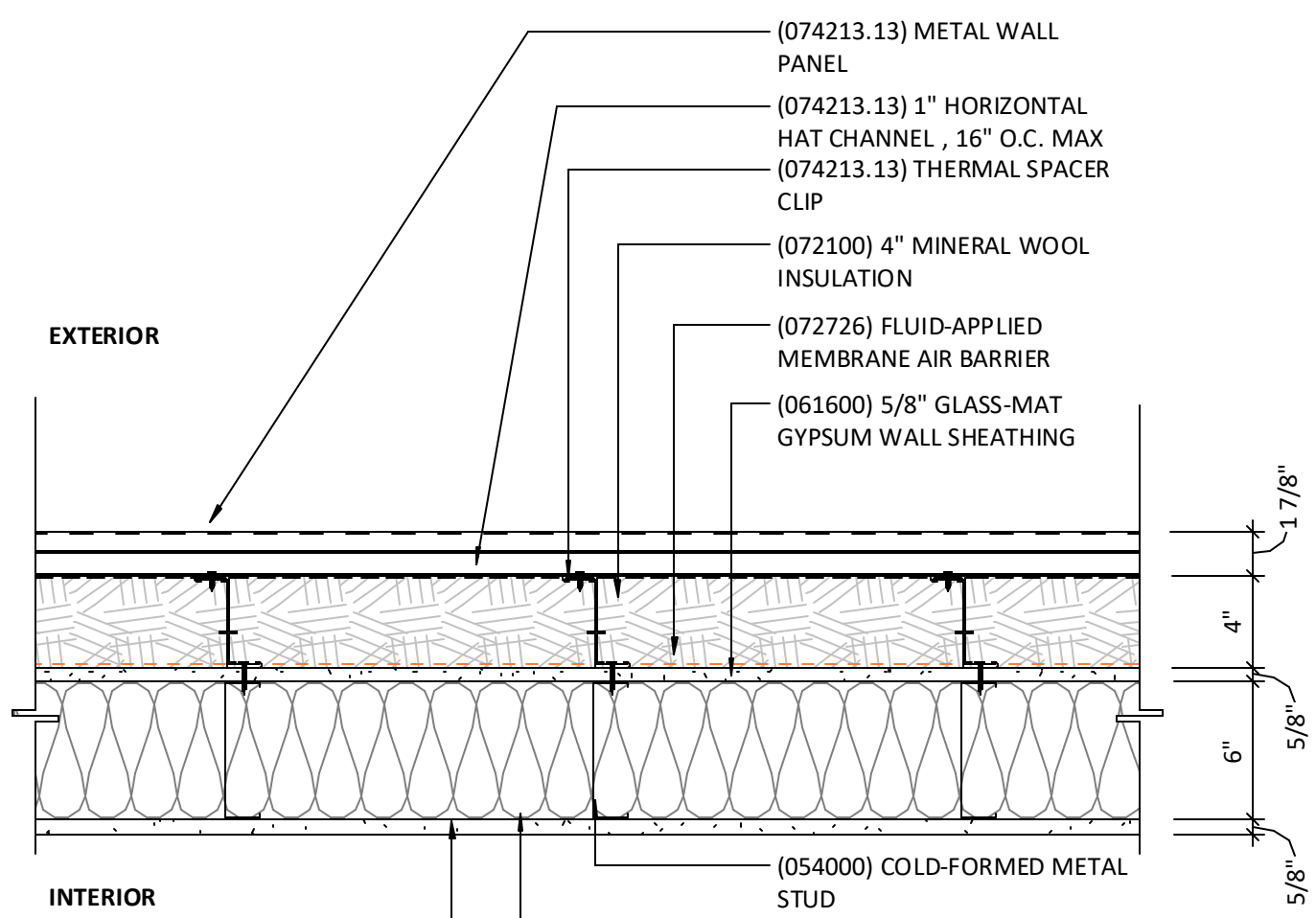


SPM1
SINGLE PLY MEMBRANE ON METAL STUDS

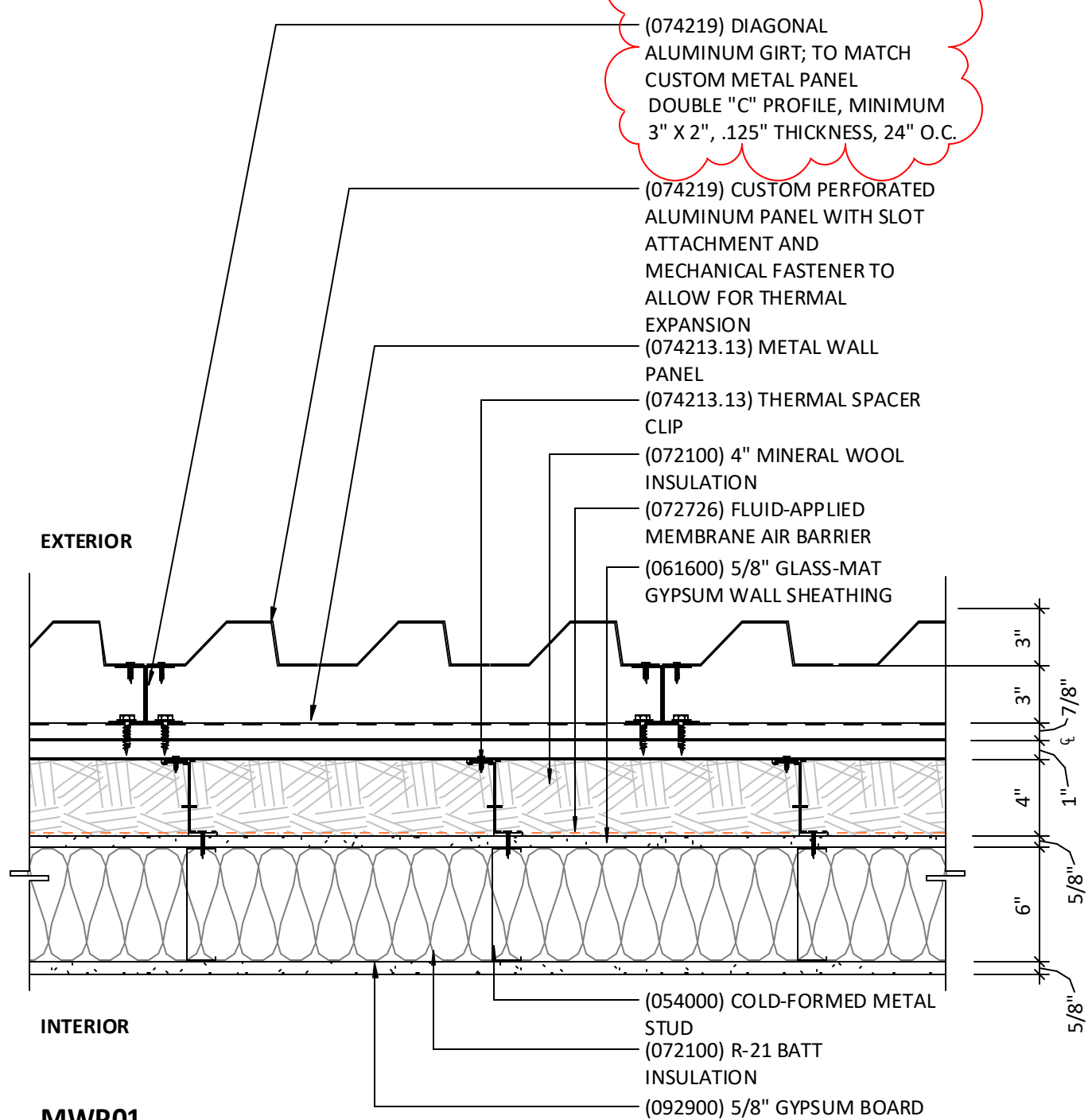


M8

INSULATED CMU WALL

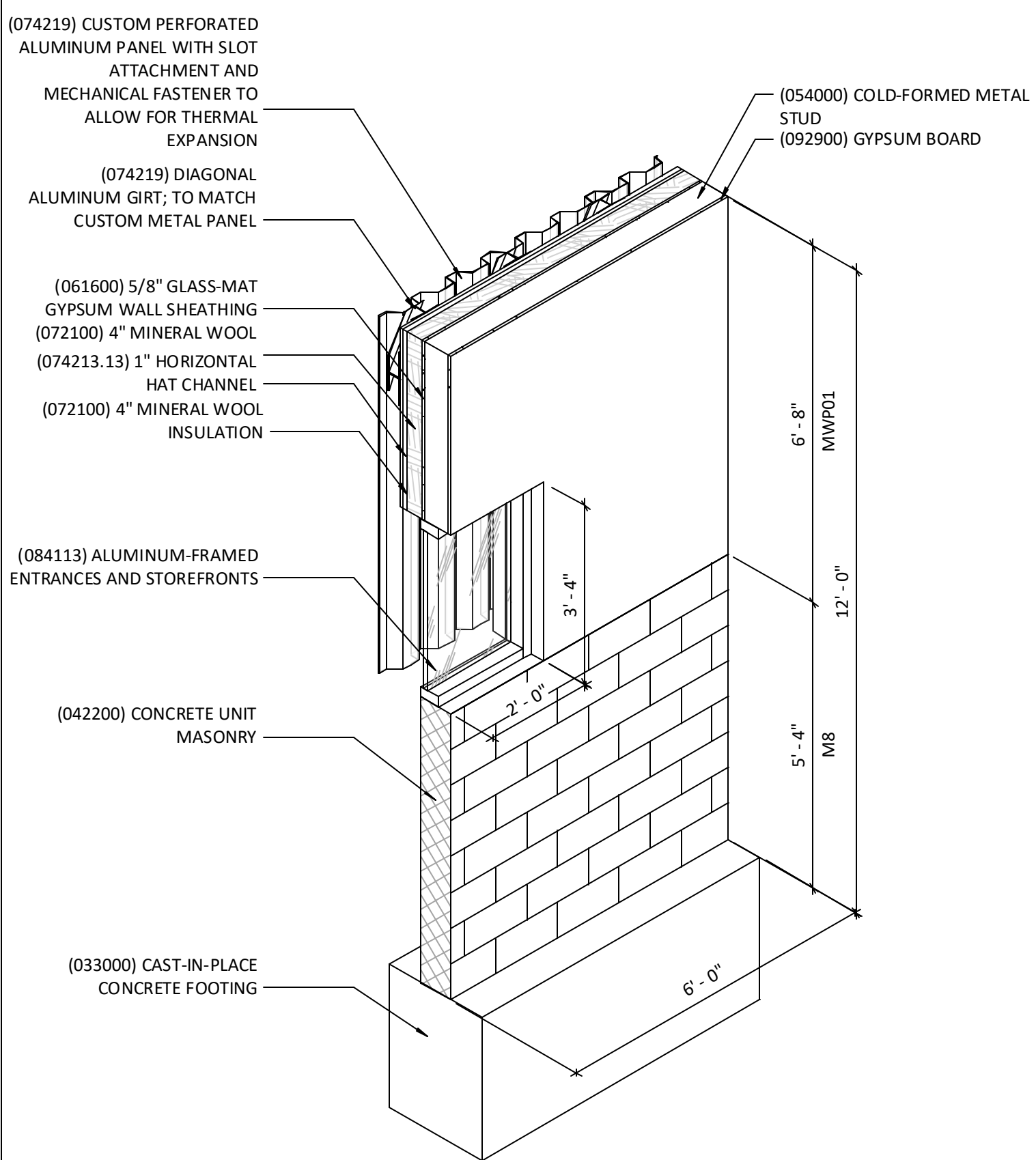


MWP02
CONCEALED FASTENER METAL WALL PANEL ON METAL STUDS

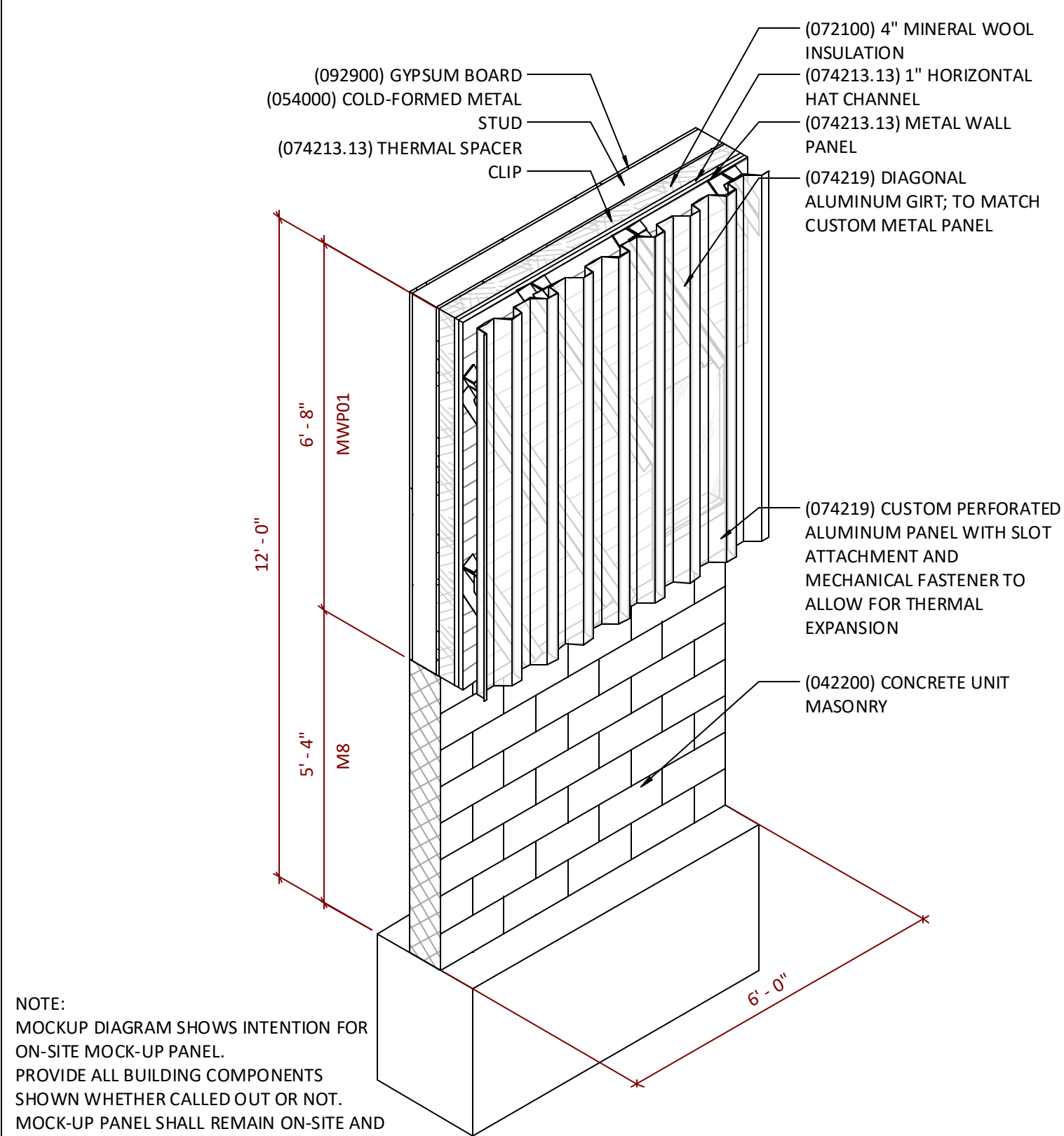


MWP01
PERFORATED CORRUGATED METAL PANEL OVER FORMED METAL WALL PANEL ON METAL STUDS

NOTE: REFER TO SHEET A331 FOR CUSTOM METAL PANEL PROFILE AND PERFORATION PATTERNS.

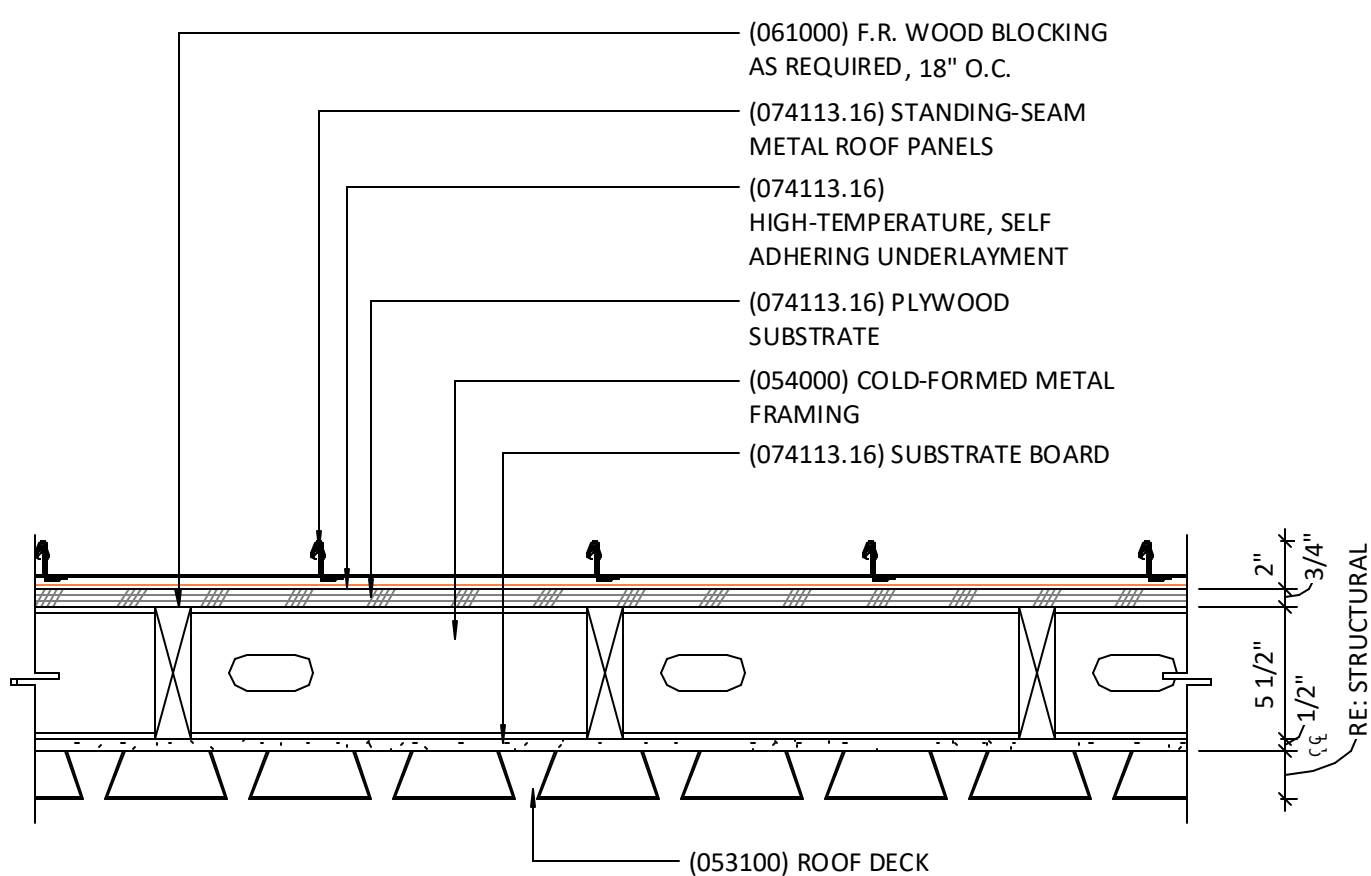


Exterior Envelope Mockup - Back Face F11

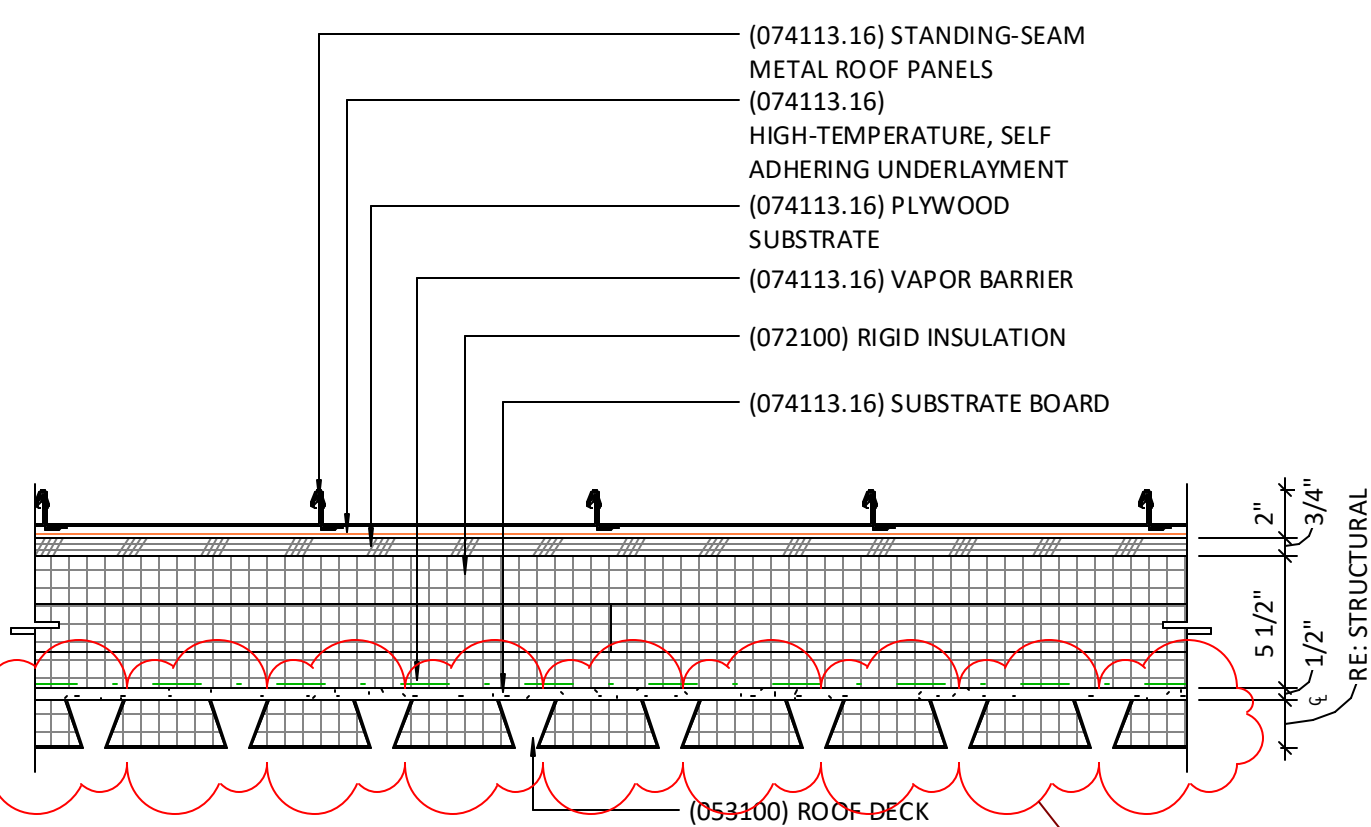


NOTE:
MOCKUP DIAGRAM SHOWS INTENTION FOR ON-SITE MOCK-UP PANEL. PROVIDE ALL BUILDING COMPONENTS SHOWN WHETHER CALLED OUT OR NOT. MOCK-UP PANEL SHALL REMAIN ON-SITE AND PROTECTED FOR FIELD REFERENCE. REFERENCE THE DETAILS AND SPECIFICATIONS FOR FULL ASSEMBLY REQUIREMENTS.

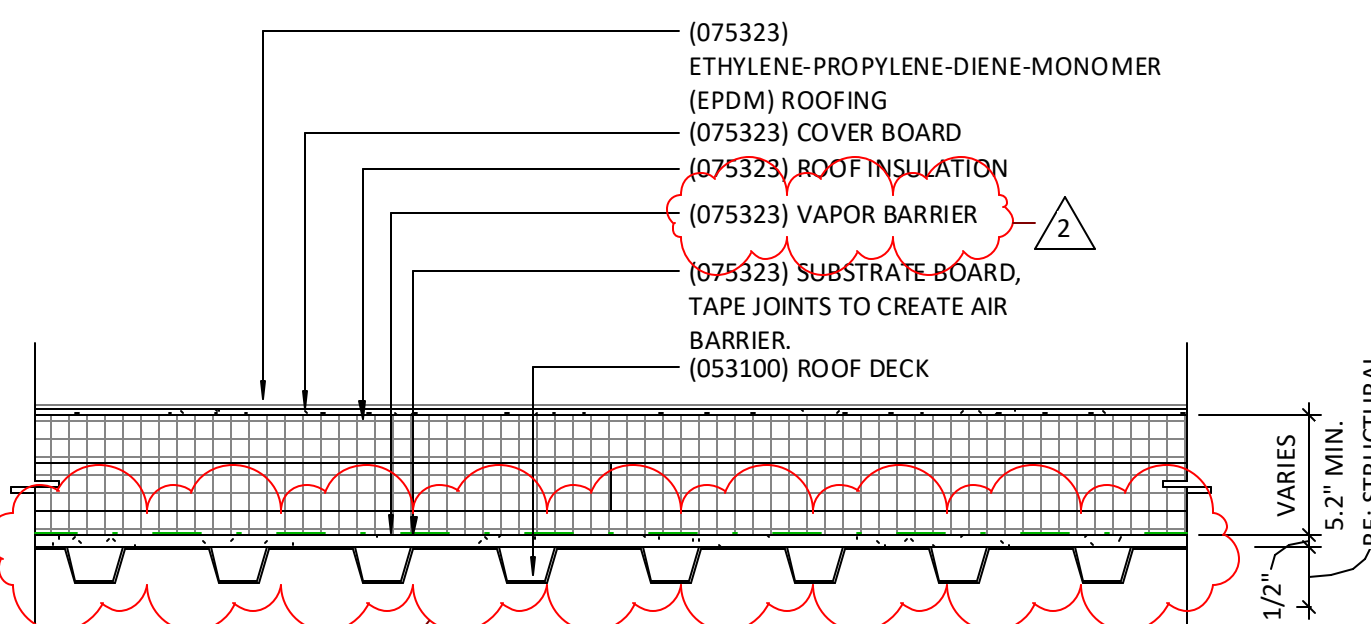
Exterior Envelope Mockup - Front Face A11



ROOF03
STANDING SEAM METAL ROOFING (INSULATED R30 MINIMUM) OVER METAL DECK



ROOF02
STANDING SEAM METAL ROOFING (INSULATED R30 MINIMUM) OVER METAL DECK



ROOF01
(EPDM) (INSULATED R30 MINIMUM) OVER METAL DECK

Roof Types A7

1 1/2" = 1'-0"

Exterior Wall Types A3

1 1/2" = 1'-0"

LSR7 Robotics, GiC & Phys Education

LSN: 901 NE Douglas St., Lee's Summit MO 64086
LSW: 2600 SW Ward Rd, Lee's Summit MO 64082
LSHS: 400 SE Blue Pkwy, Lee's Summit MO 64063

Project Number: 0121-0100

owner: Lee's Summit R-7 School
301 NE Tudor Road
Lee's Summit, MO 64086
architect: multistudio
4300 Pennsylvania
Kansas City, MO 64111
816.931.6655
multistudio.com
civil engineer: Kaw Valley Engineering
14700 West 114th Terrace
Lenexa, KS 66215
913.485.0318
kvweng.com
structural engineer: Bob D. Campbell &
4338 Bellevue
Kansas City, MO 64111
816.531.4144
www.bdc-engrs.com

MEP/FIT Code: Henderson Engineers
8345 Lenexa Drive, Suite 300
Lenexa, KS 66214
816.742.5000
www.hendersonengineers.com

General Notes (Windows):

1. ALL EXTERIOR GLAZING SHALL BE SCHEDULED IN PROJECT MANUAL.
2. CONTRACTOR TO COORDINATE SILL HEIGHTS AND FIELD VERIFY ALL CORNER CONDITIONS WITH ELEVATIONS AND WALL SECTIONS.
3. CONTRACTOR TO VERIFY ALL WINDOW COUNTS AND TYPES.
4. PROVIDE SAFETY GLAZING IN ALL OPERABLE OR FIXED PANELS WHERE REQUIRED.
5. BUTT-GLAZED JOINTS SHALL BE 3/8" NOMINAL, UNLESS NOTED OTHERWISE.

Glazing Schedule - Basic

Mark	Description
GL01	1/4" CLEAR (TEMPERED)
IGU01	1" INSULATED GLASS
IGU01SF	1" INSULATED GLASS (SECURITY GLASS)

Issue Date: September 9, 2022

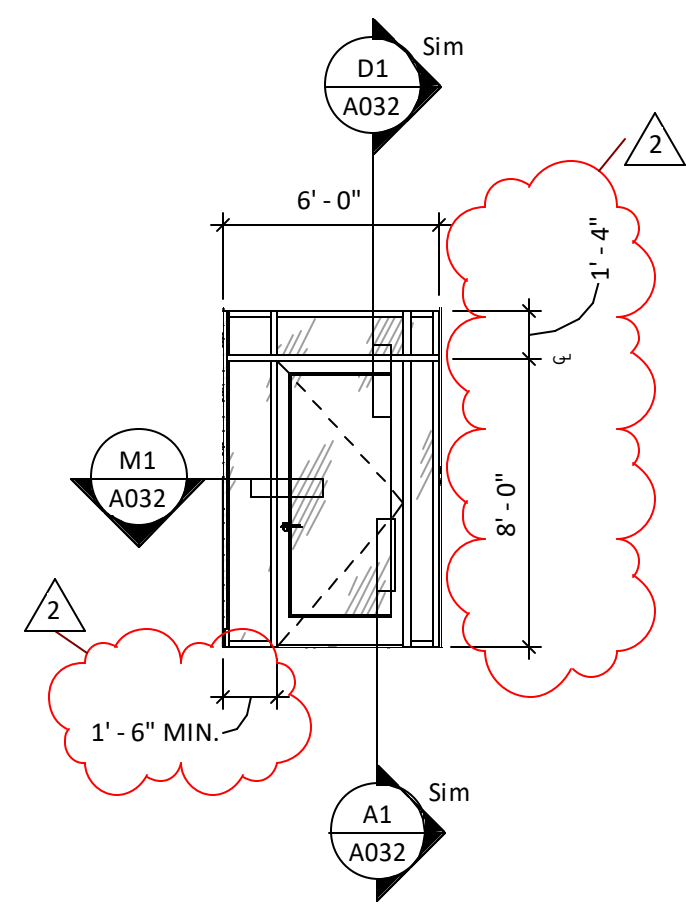
NUMBER	DESCRIPTION	DATE
2	Addendum 02	09/29/2022

UNLESS A PROFESSIONAL SEAL WITH SIGNATURE AND DATE IS AFFIXED, THIS DOCUMENT IS PRELIMINARY AND IS NOT INTENDED FOR CONSTRUCTION, RECORDING PURPOSES OR IMPLEMENTATION.

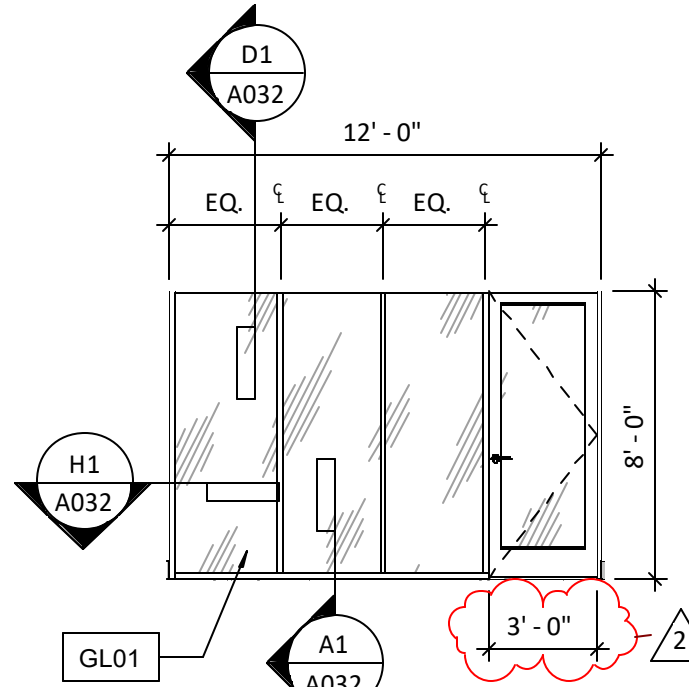


Interior & Exterior Window Schedule & Types

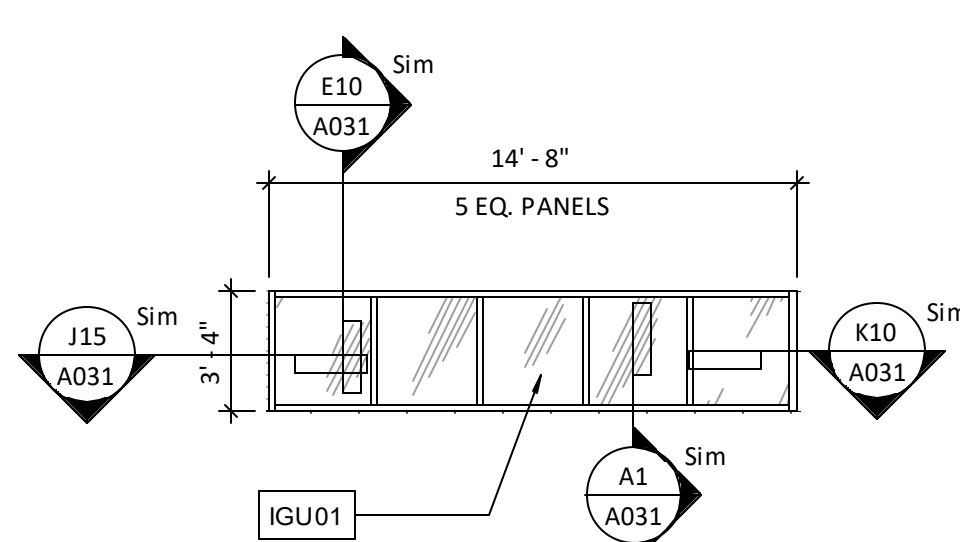
A030



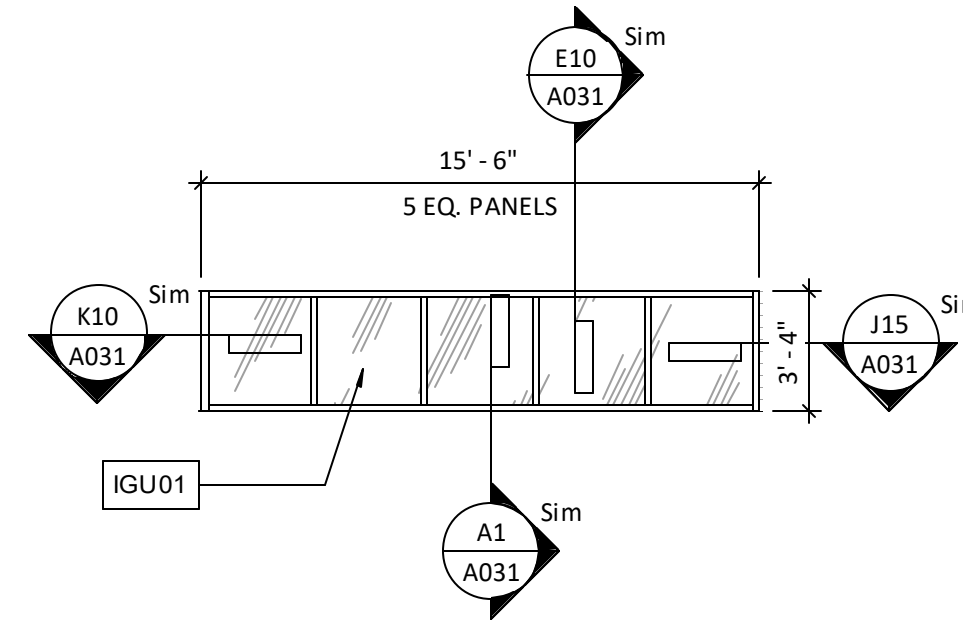
Interior Storefront Glazing - Type G **J15**
3/16" = 1'-0"



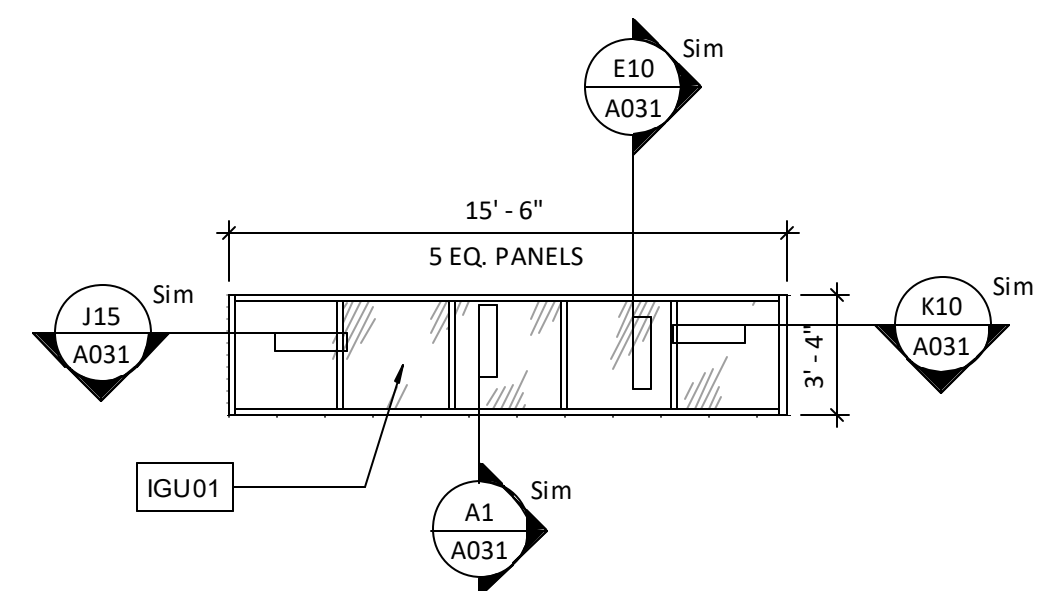
Interior Storefront Glazing - Type F **J11**
3/16" = 1'-0"



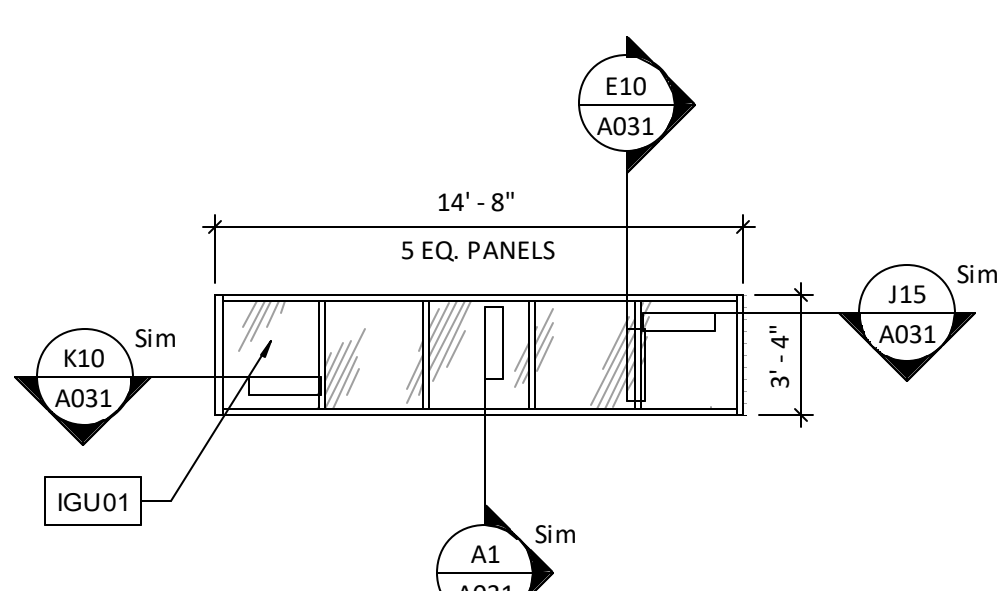
Exterior Storefront Glazing - Type E.4 **J7**
3/16" = 1'-0"



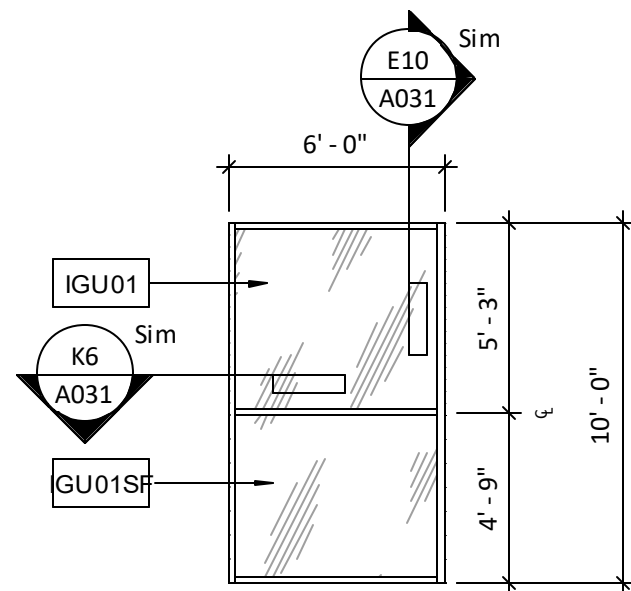
Exterior Storefront Glazing - Type E.3 **J3**
3/16" = 1'-0"



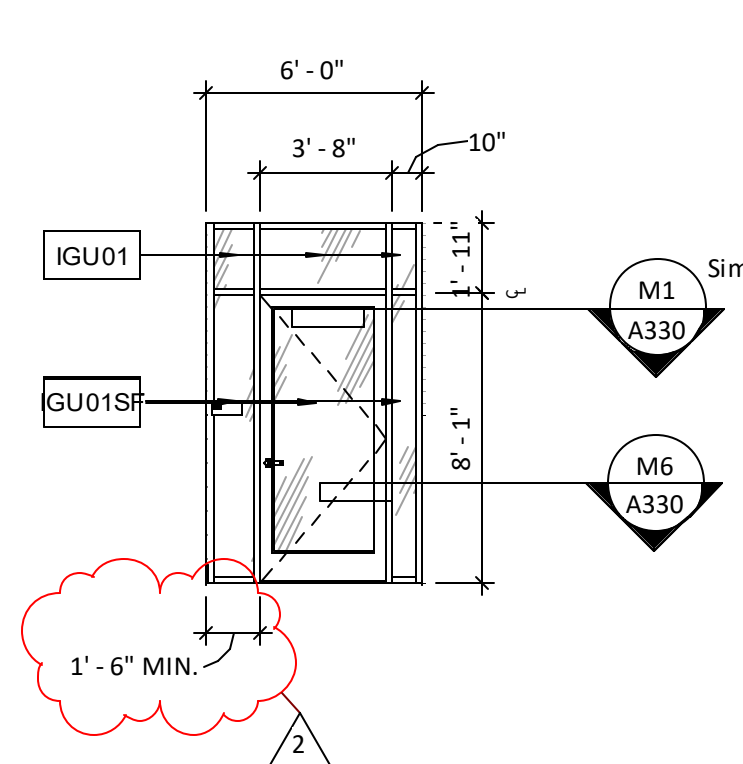
Exterior Storefront Glazing - Type E.2 **E15**
3/16" = 1'-0"



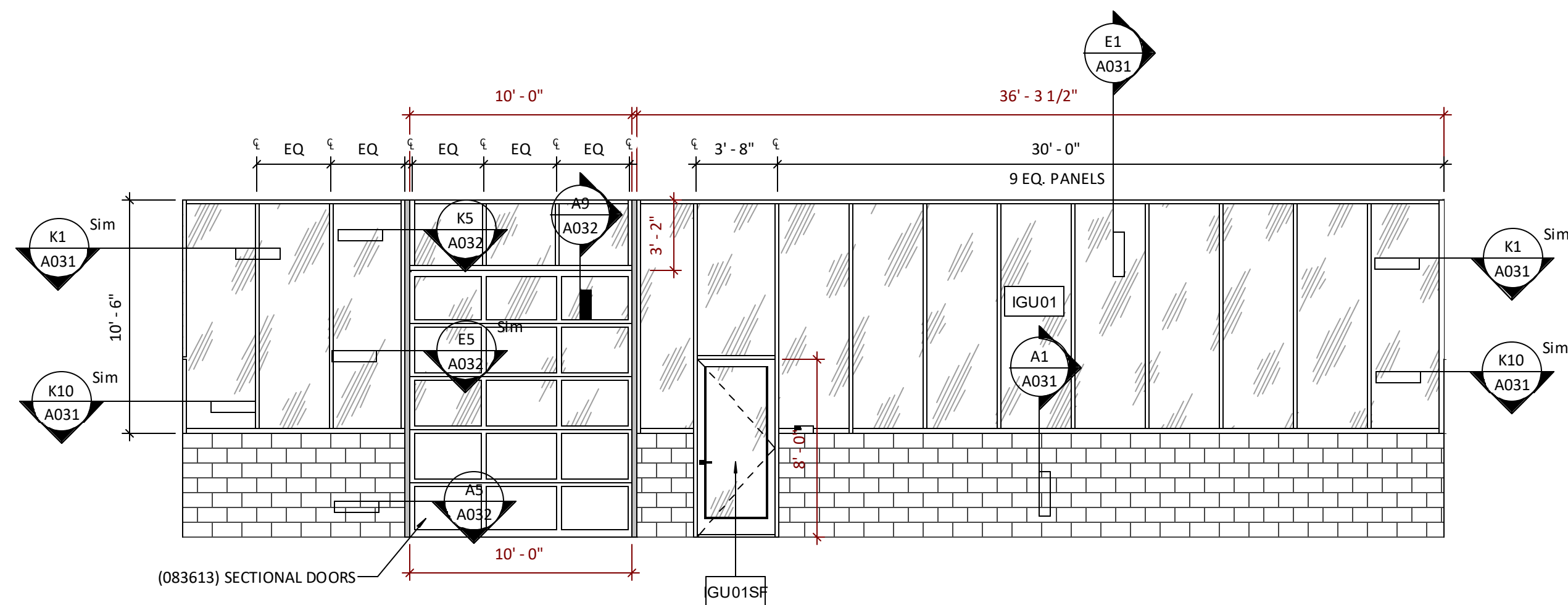
Exterior Storefront Glazing - Type E.1 **E11**
3/16" = 1'-0"



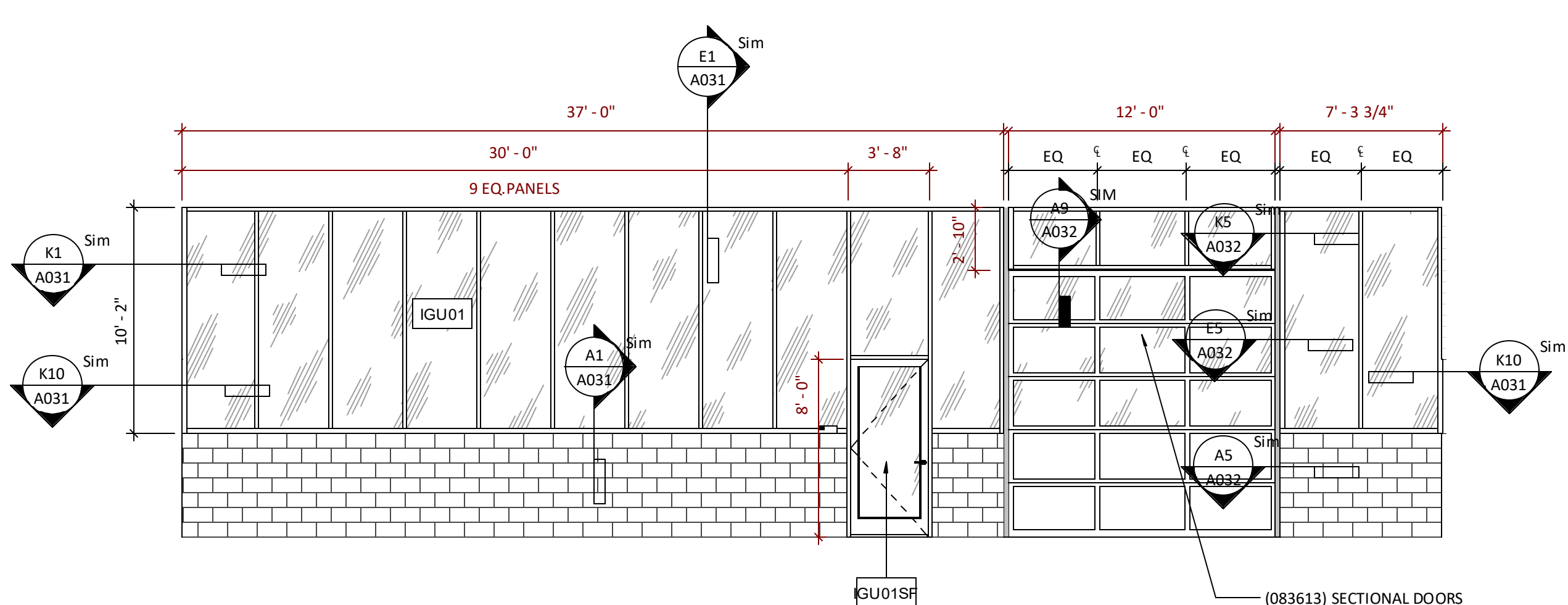
Exterior Storefront Glazing - Type D **E7**
3/16" = 1'-0"



Exterior Storefront Glazing - Type C **E3**
3/16" = 1'-0"



Exterior Storefront Glazing - Type B **A11**
3/16" = 1'-0"



Exterior Storefront Glazing - Type A **A3**
3/16" = 1'-0"

**LSR7 Robotics, GiC &
Phys Education**

LSN: 901 NE Douglas St., Lee's Summit MO
64086
LSW: 2600 SW Ward Rd, Lee's Summit MO
64082
LSHS: 400 SE Blue Pkwy, Lee's Summit MO 64063

Project Number: 0121-0100

owner:
Lee's Summit R-7 School
301 NE Tudor Road
Lee's Summit, MO 64086

architect:
Multistudio
4300 Pennsylvania
Kansas City, MO 64111
816.931.6655
multistudio

civil engineer:
Kaw Valley Engineering
14700 West 114th Terrace
Lenexa, KS 66215
913.485.0318
kveg.com

structural engineer:
Bob D. Campbell &
4338 Bellevue
Kansas City, MO 64111
816.531.4144
www.bdc-engrs.com

MEP/IT/Code:
Henderson Engineers
8345 Lenexa Drive, Suite
300
Lenexa, KS 66214
816.742.5000
www.hendersonengineers.com

Issue Date: September 9, 2022

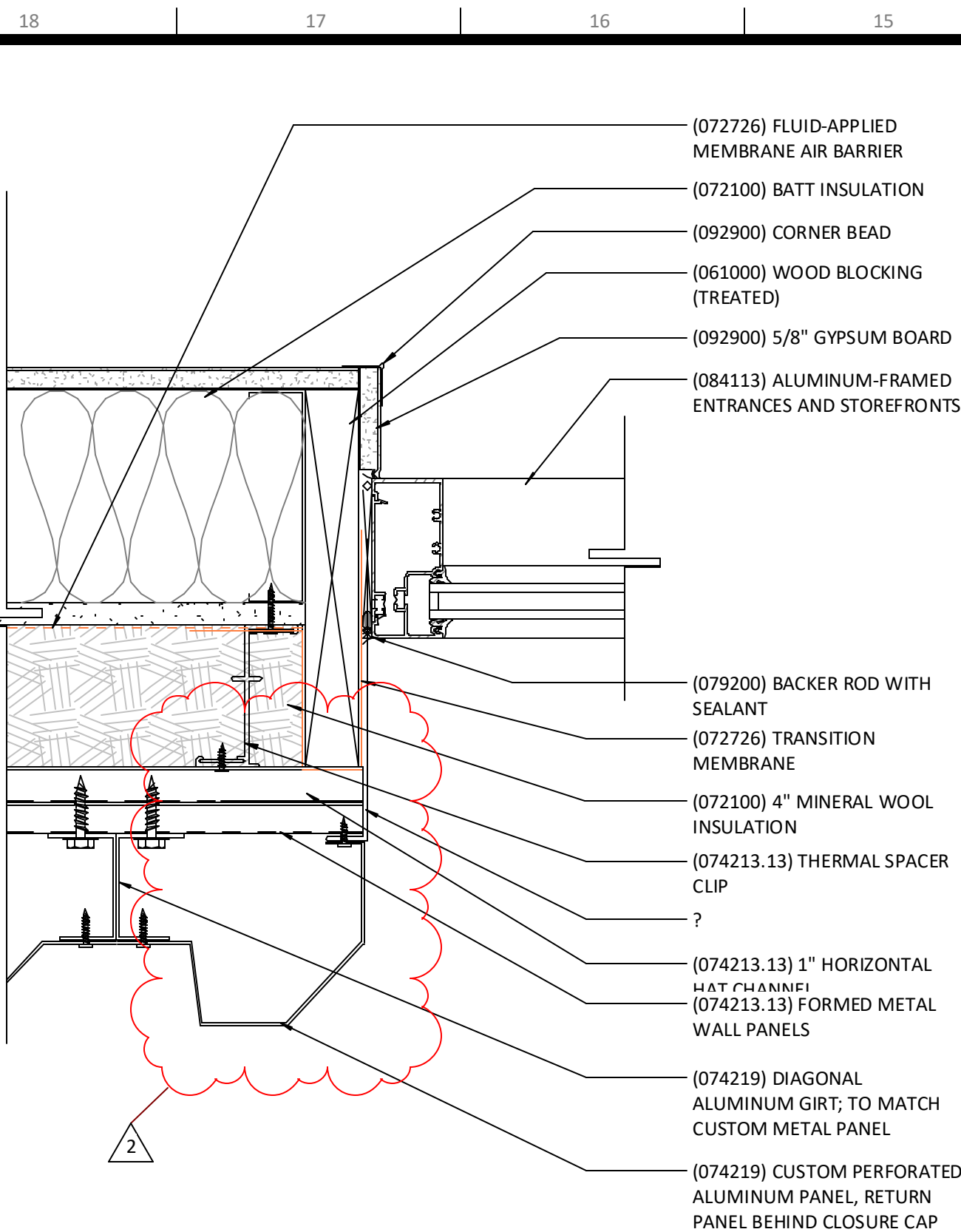
Revisions		
NUMBER	DESCRIPTION	DATE
1	Addendum 01	09/09/2022
2	Addendum 02	09/28/2022

UNLESS A PROFESSIONAL SEAL WITH SIGNATURE AND DATE IS
APPROVED, THIS DOCUMENT IS PRELIMINARY AND IS NOT INTENDED FOR
CONSTRUCTION, RECORDING PURPOSES OR IMPLEMENTATION

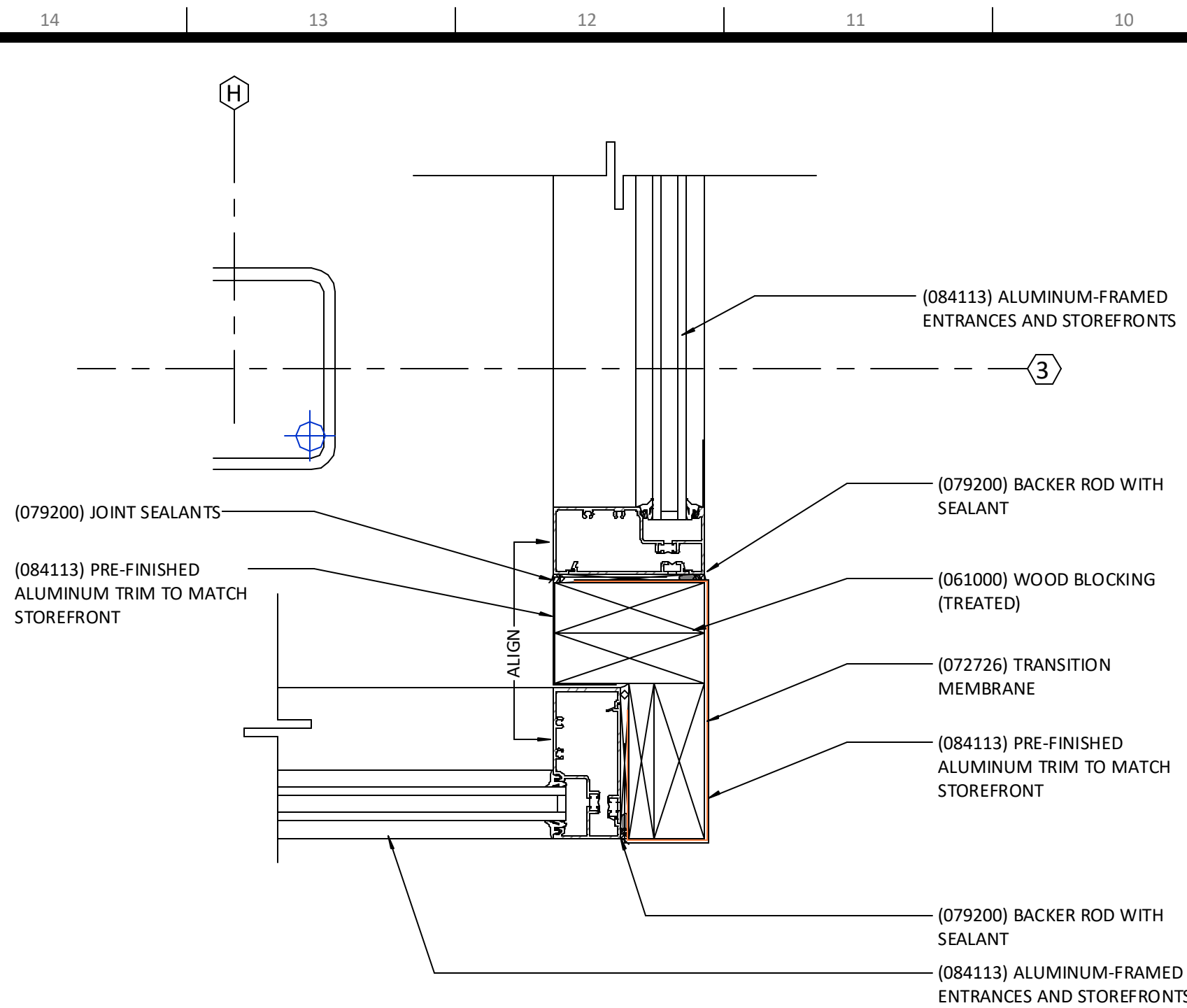


**Interior & Exterior
Storefront Details**

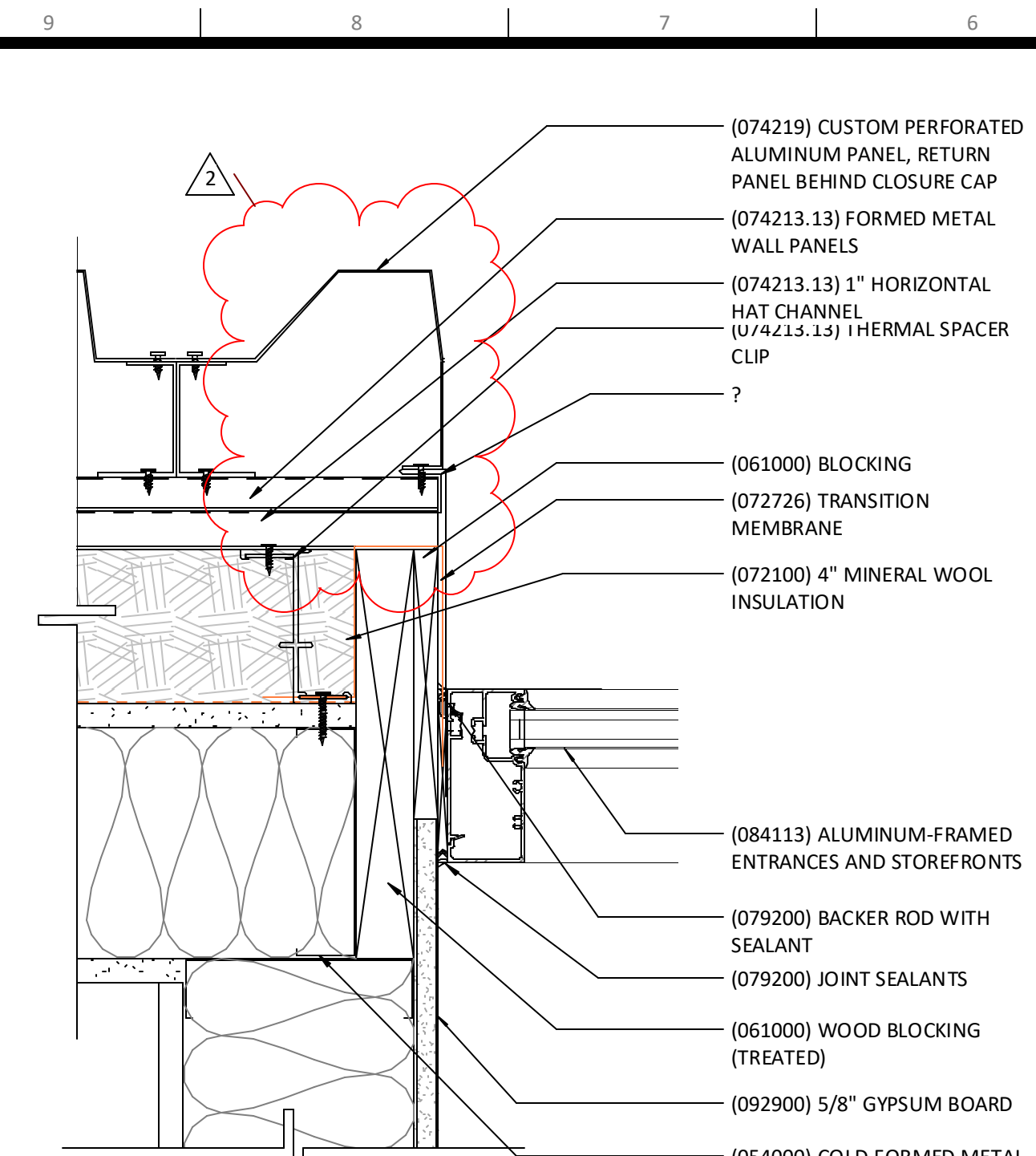
A031



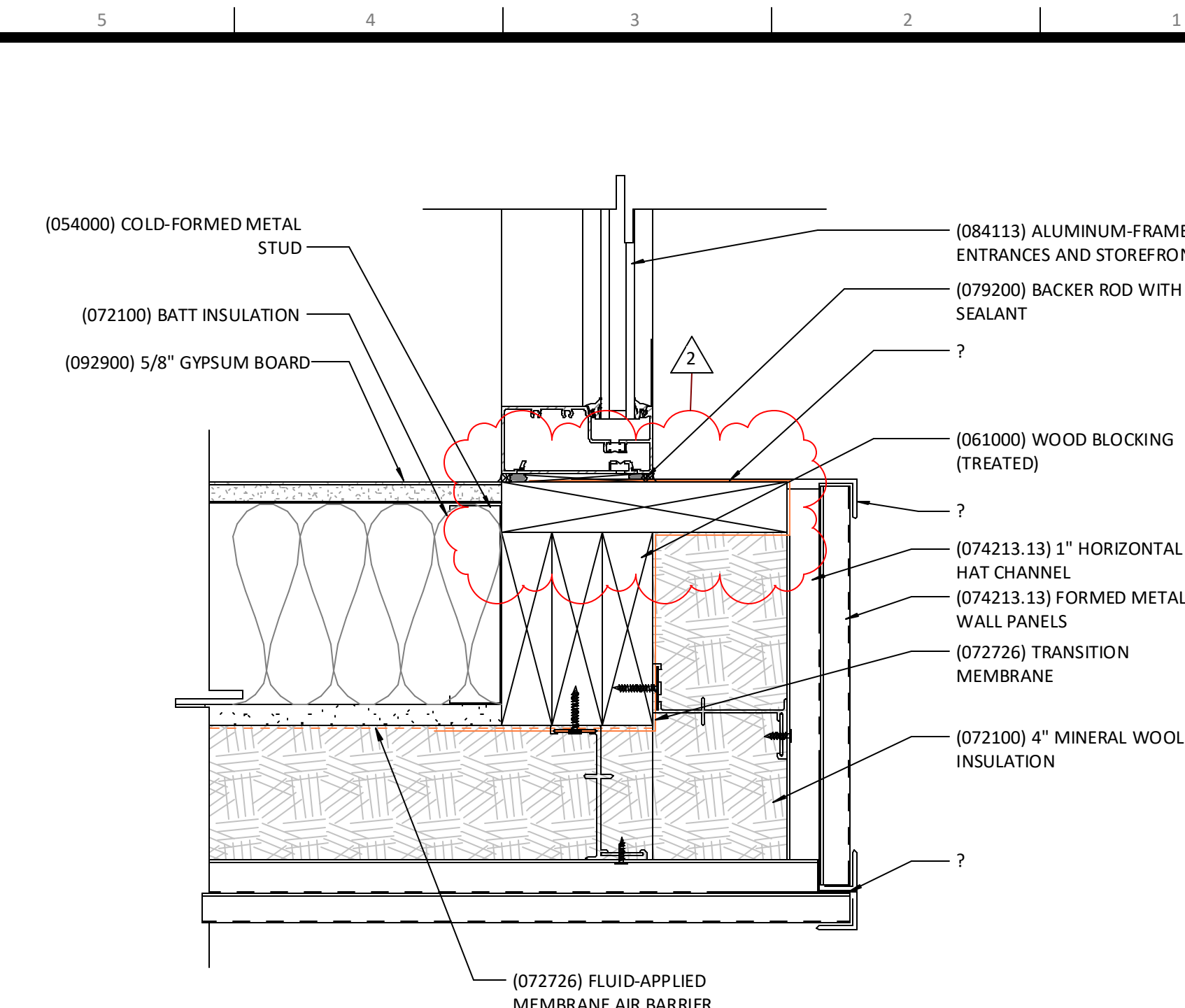
Window Jamb Detail @ Type E Jamb J15
3" x 1'-0"



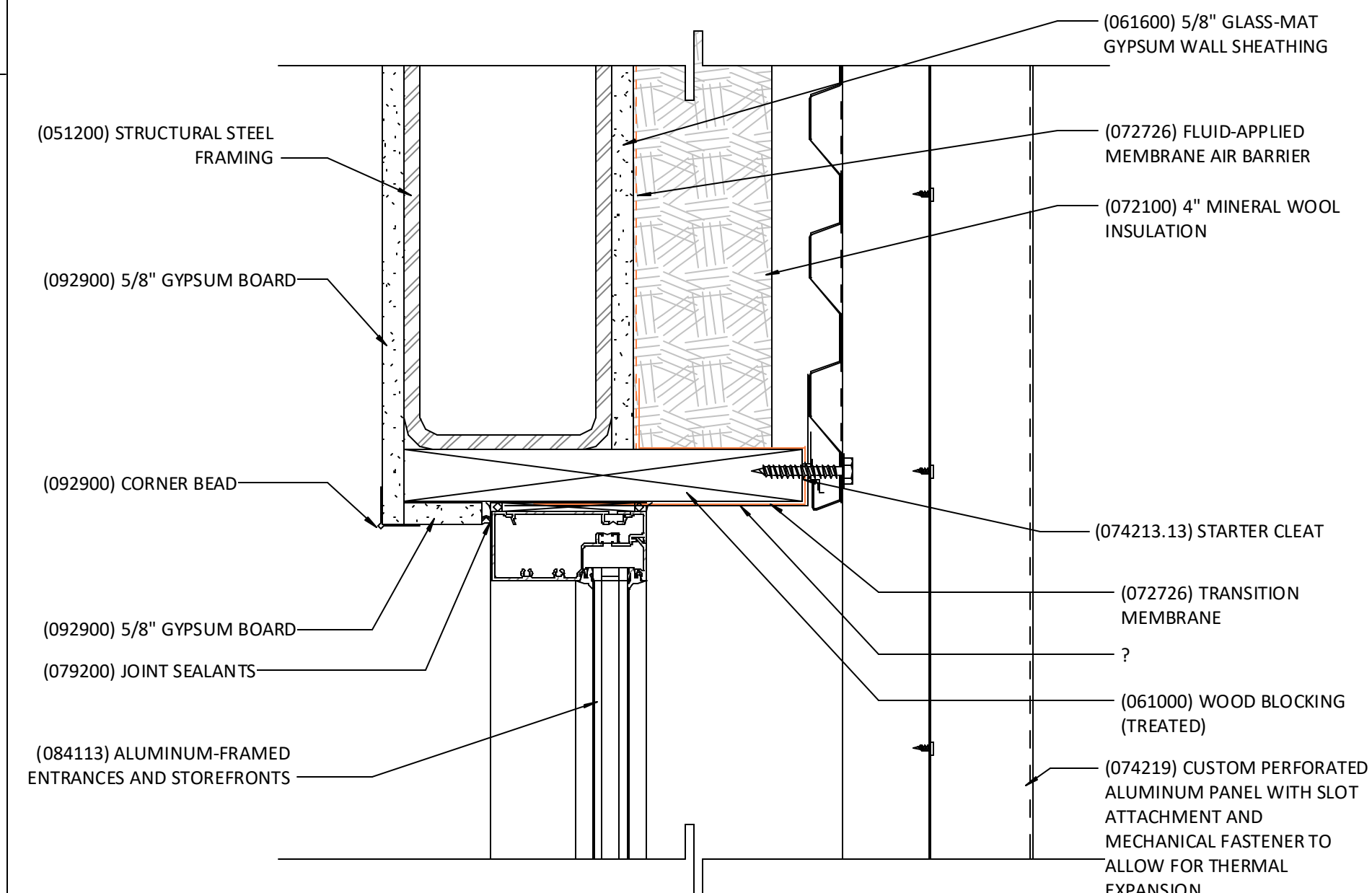
Window Jamb Detail @ Corner Glass K10
3" x 1'-0"



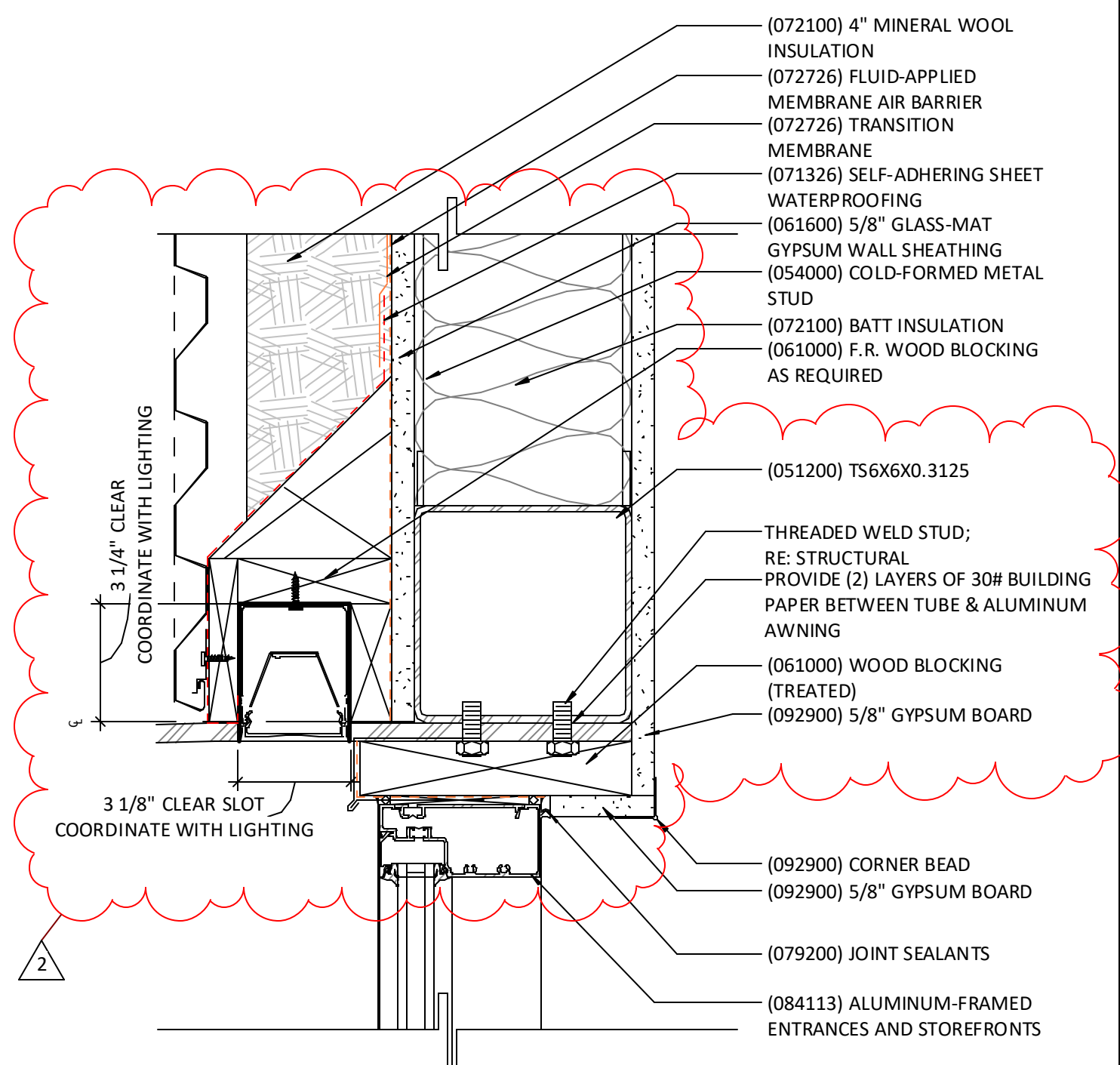
Window Jamb Detail @ Entry K6
3" x 1'-0"



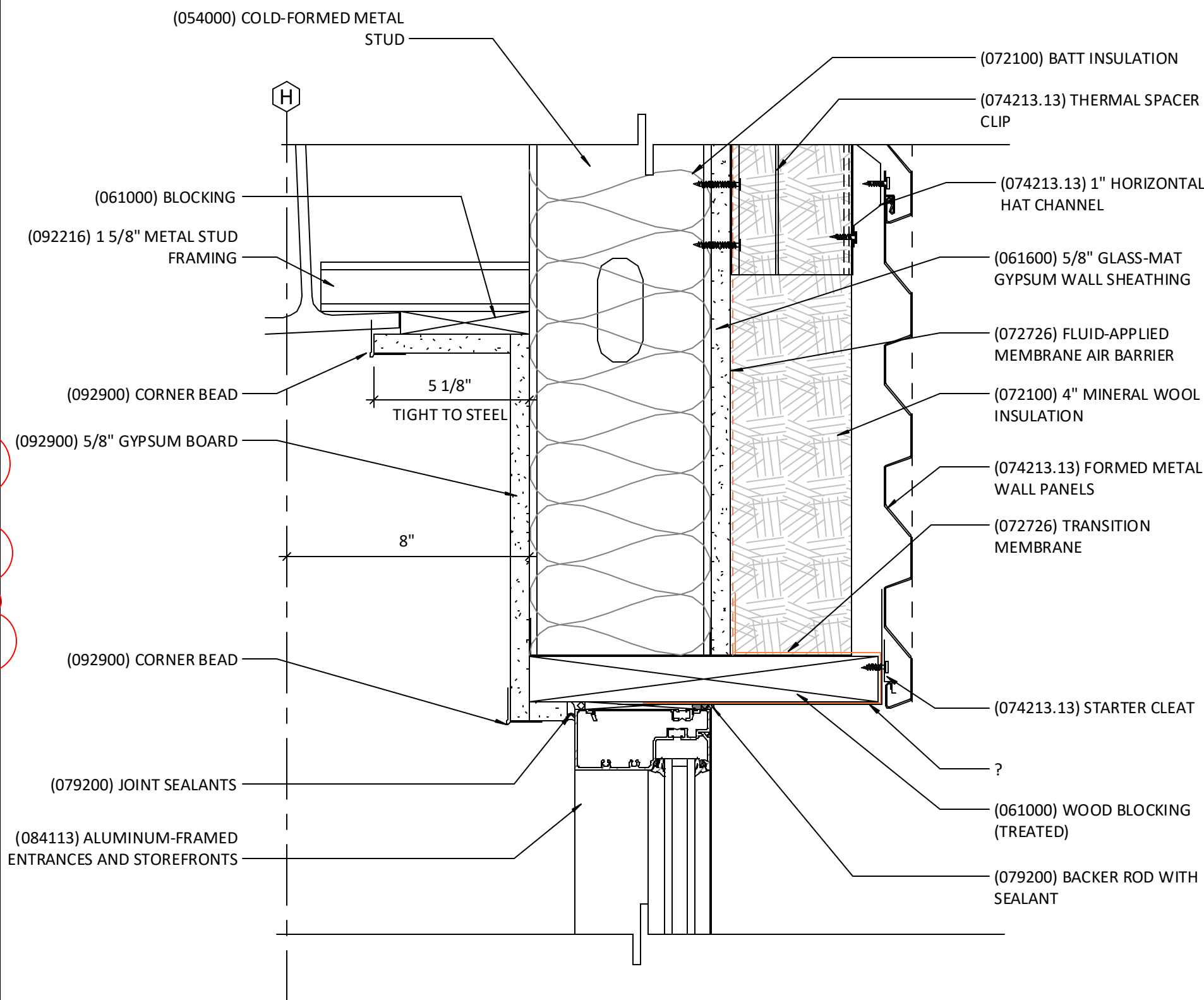
Window Jamb Detail @ Canopy Metal Panel K1
3" x 1'-0"



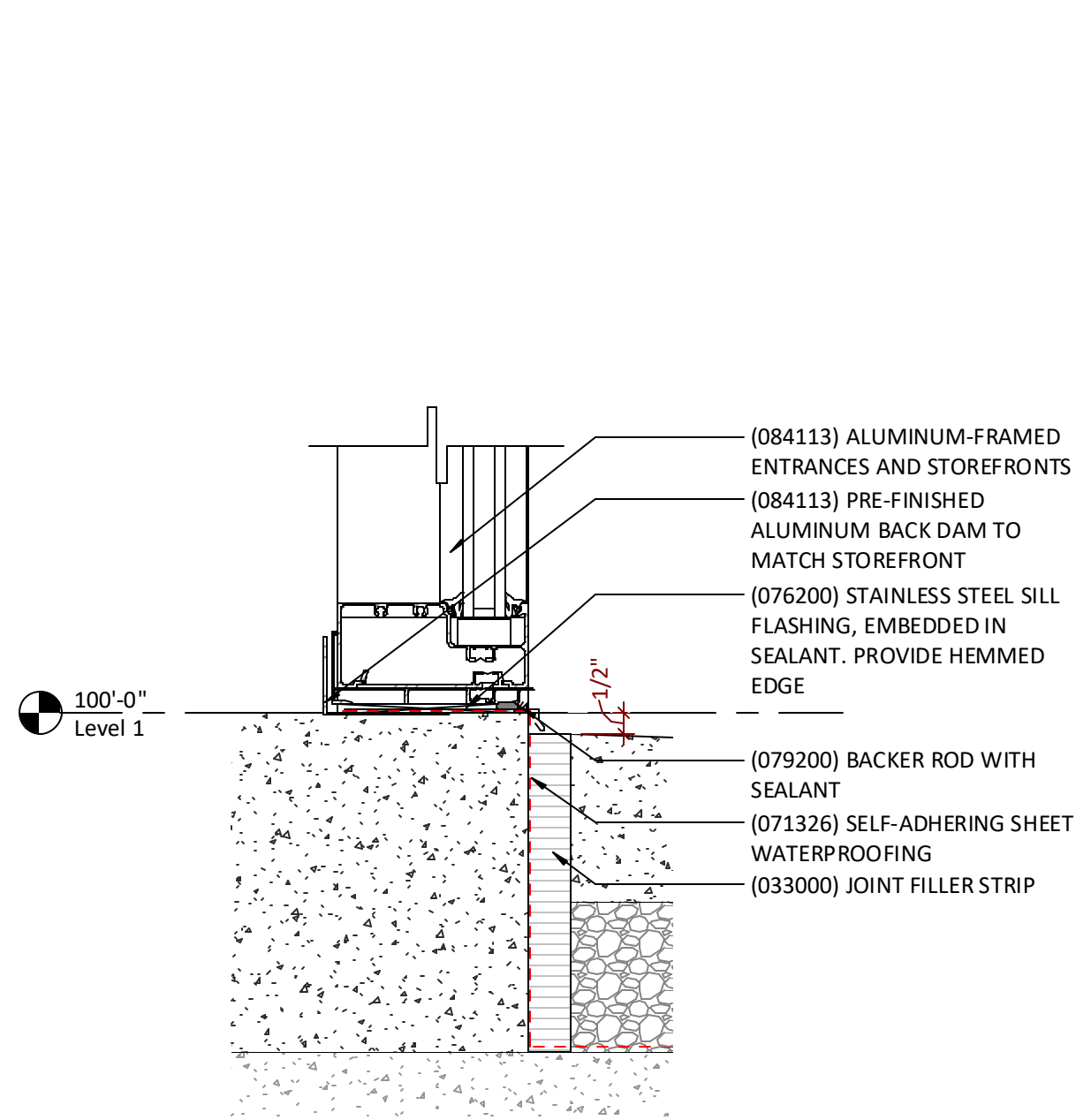
Window Head Detail @ Custom Metal Panel, Typ. E10
3" x 1'-0"



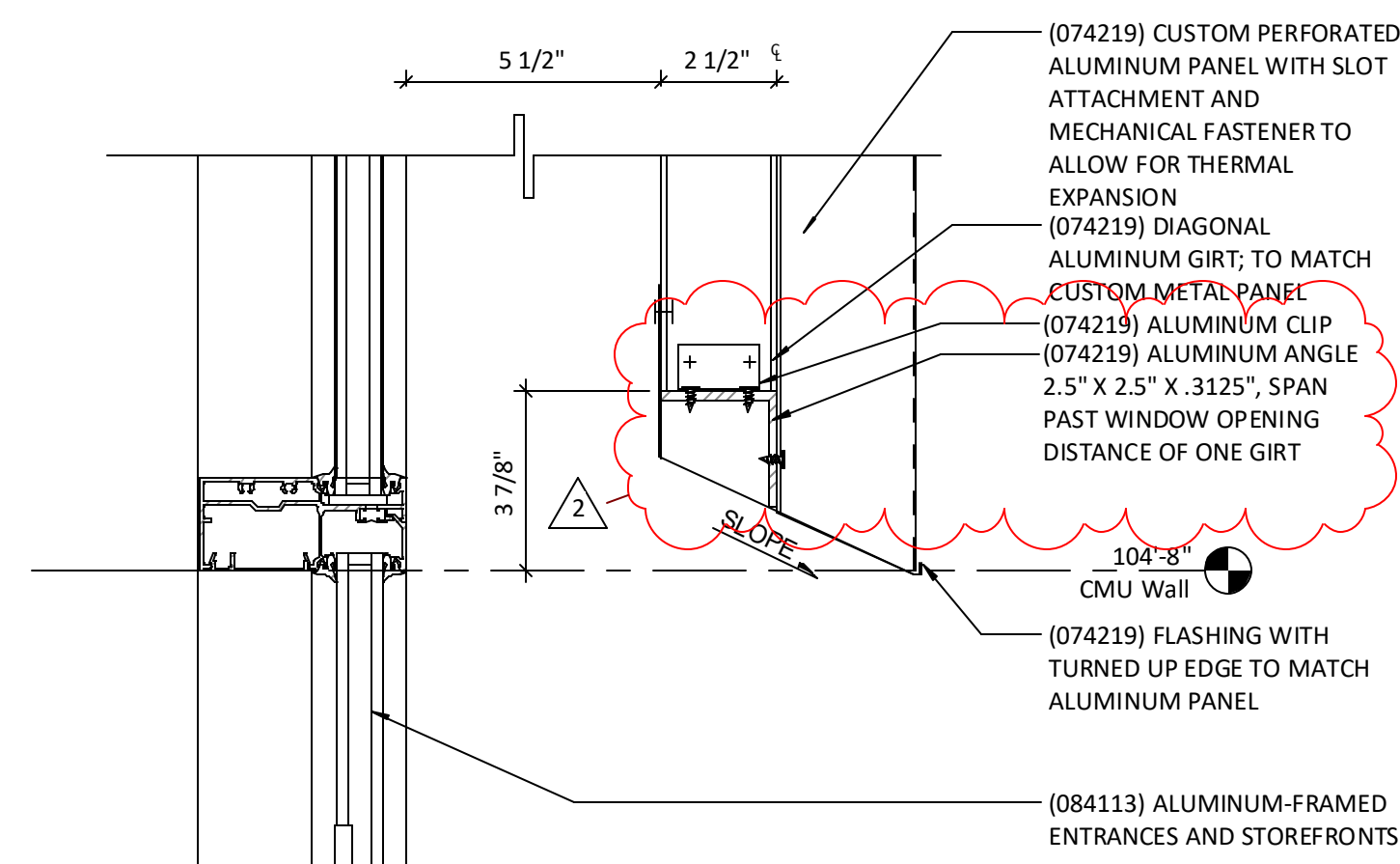
Window Head Detail @ Entry E6
3" x 1'-0"



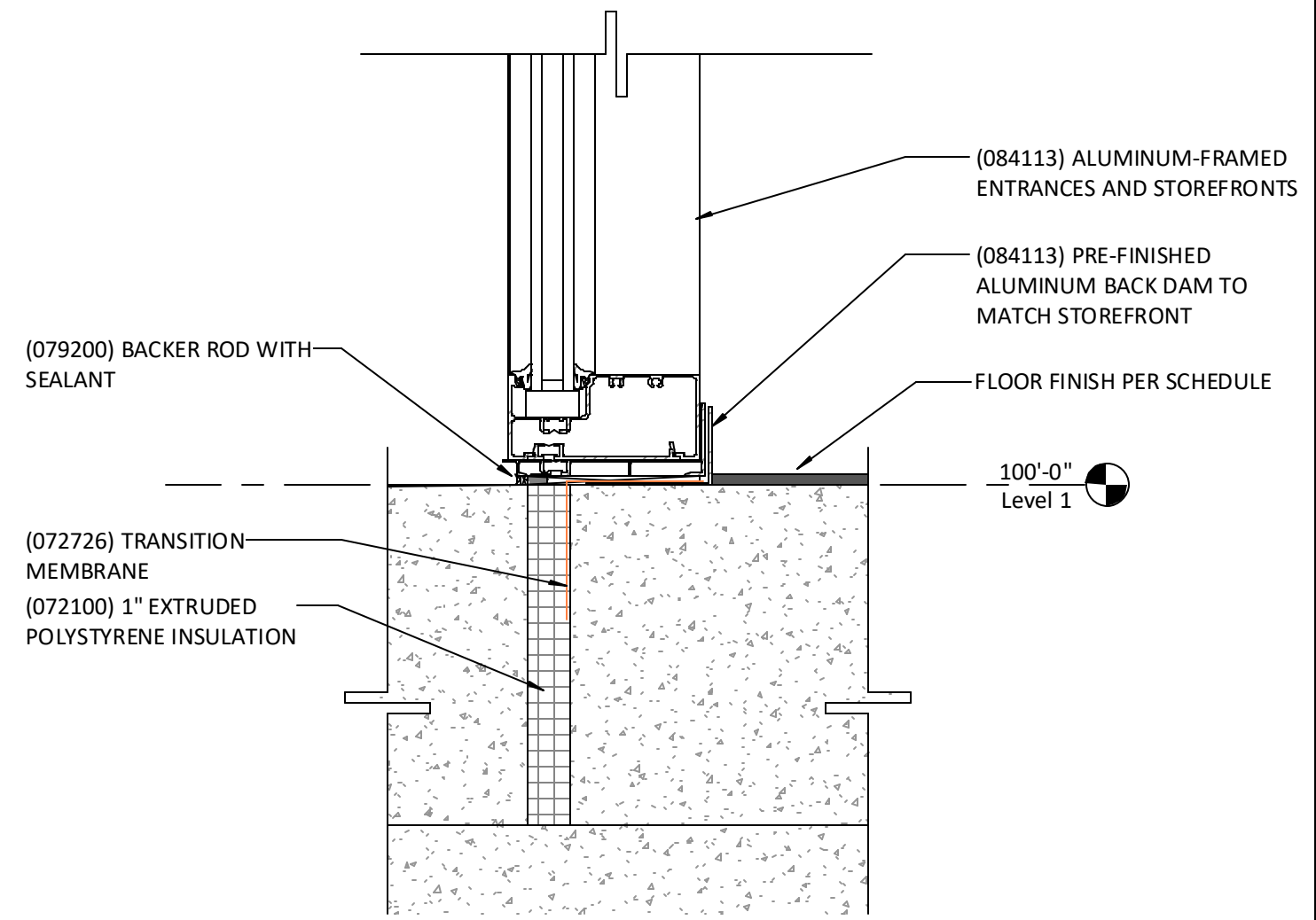
Window Head Detail @ Canopy Metal Panel, Typ. E1
3" x 1'-0"



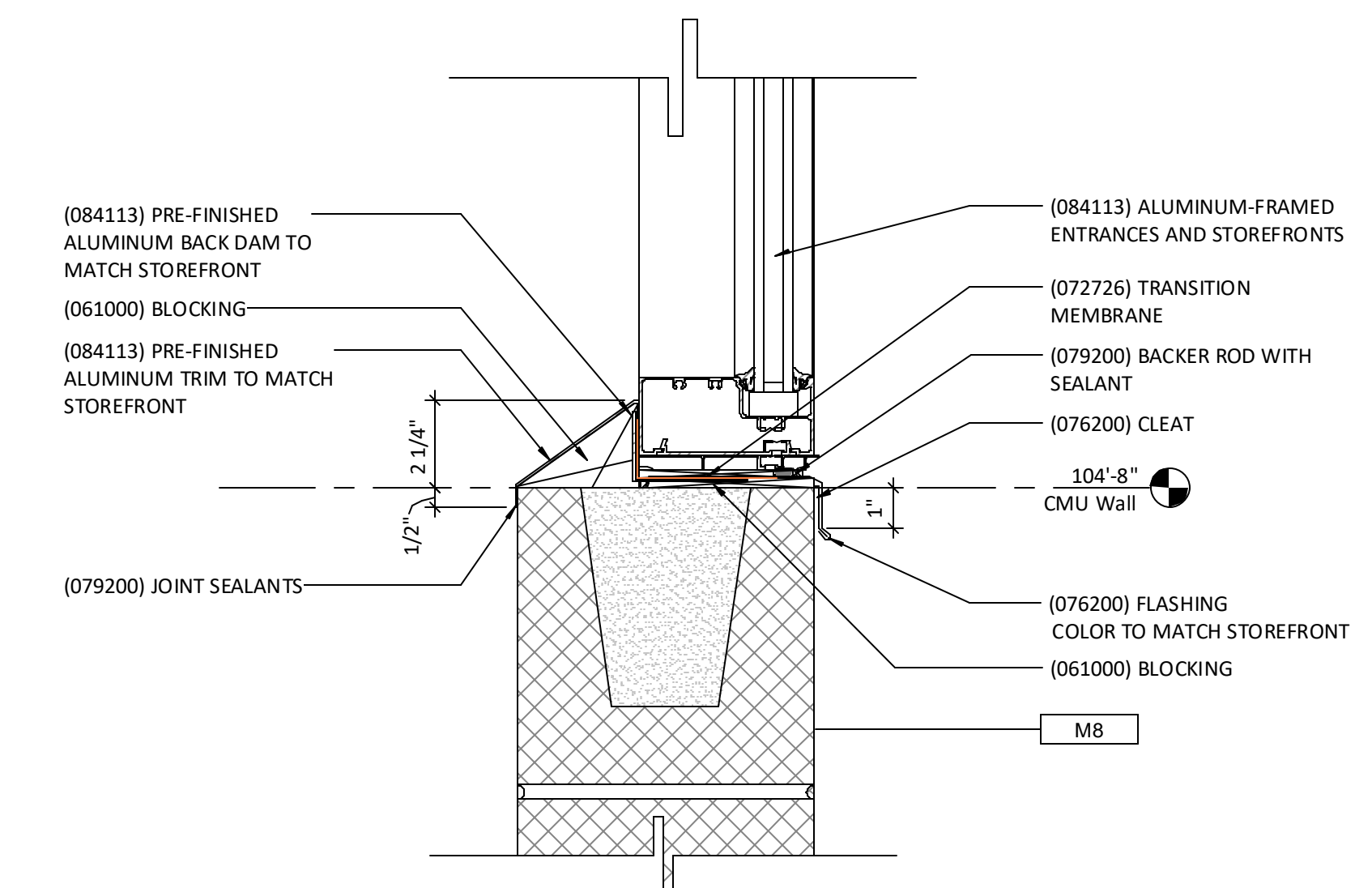
Sill Detail @ Grade A15
3" x 1'-0"



Horizontal Mullion Detail @ Metal Panel A10
3" x 1'-0"



Window Sill Detail @ Entry A6
3" x 1'-0"



Window Sill Detail @ CMU Typ. A1
3" x 1'-0"

LSR7 Robotics, GiC & Phys Education

LSN: 901 NE Douglas St., Lee's Summit MO 64086
LSW: 2600 SW Ward Rd, Lee's Summit MO 64082
LSHS: 400 SE Blue Pkwy, Lee's Summit MO 64063

Project Number: 0121-0100

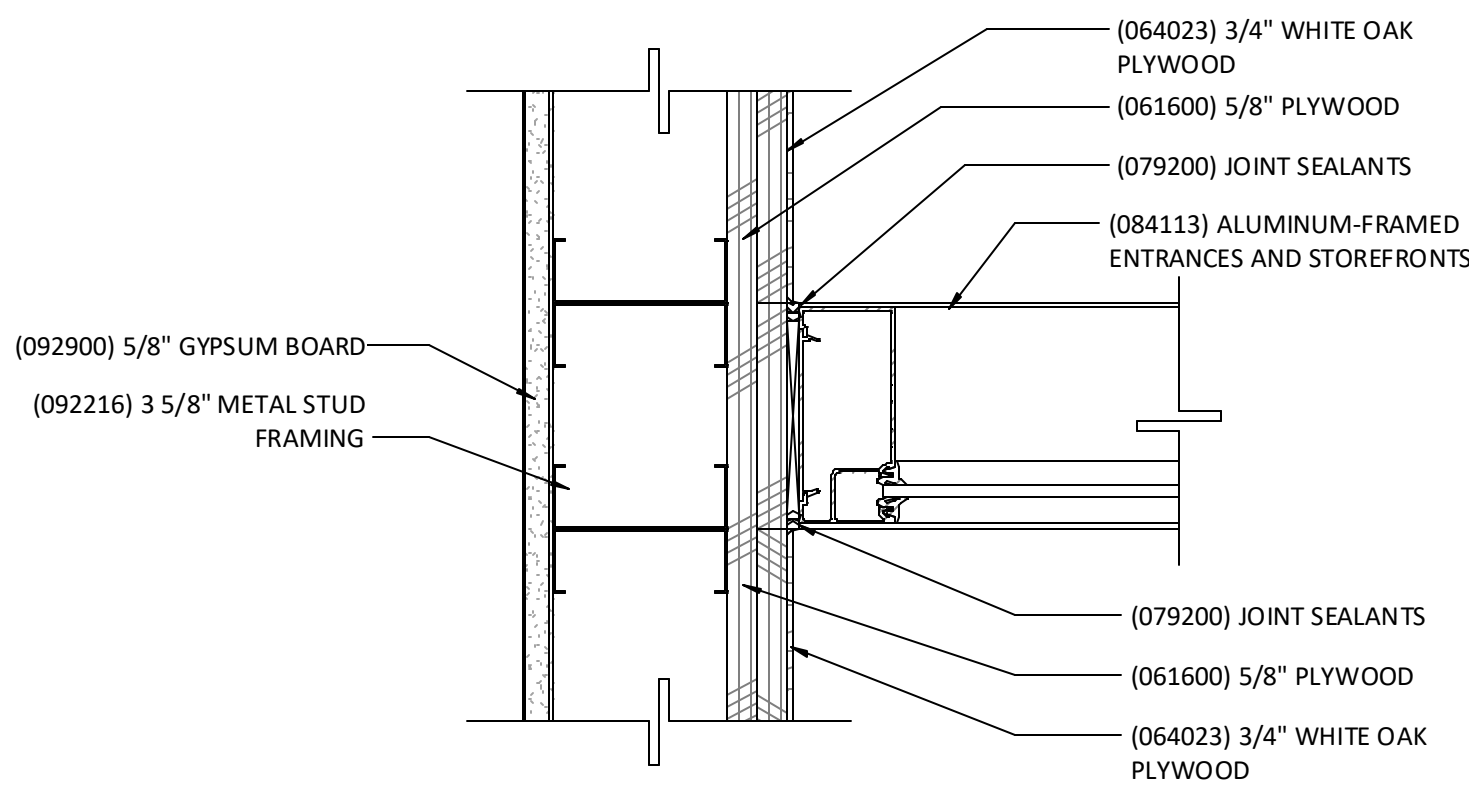
owner: Lee's Summit R-7 School
301 NE Tudor Road
Lee's Summit, MO 64086

architect: Multistudio
4200 Pennsylvania
Kansas City, MO 64111
816.931.6655
multistudio

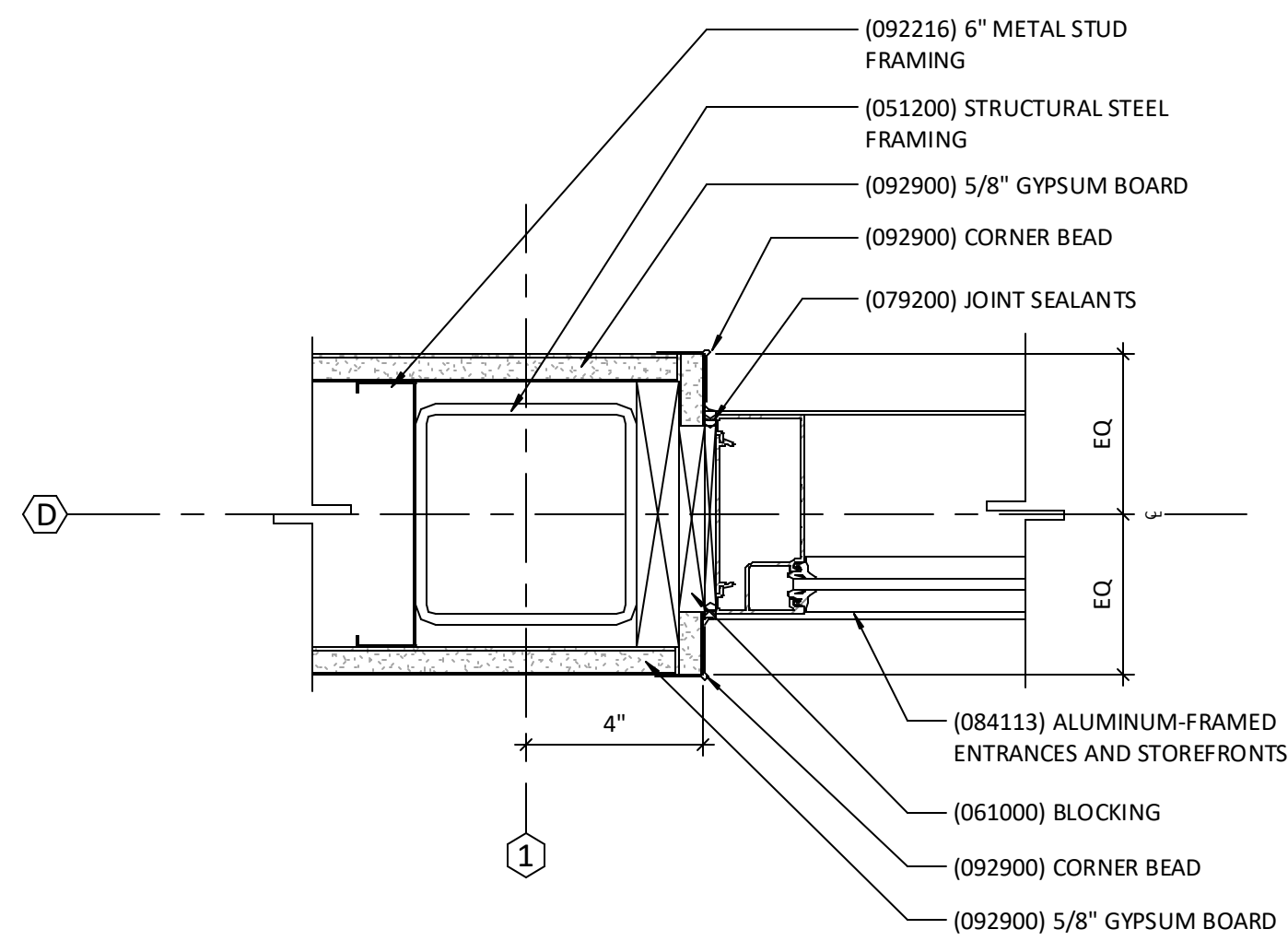
civil engineer: Kaw Valley Engineering
14700 West 114th Terrace
Lenexa, KS 66215
913.485.0318
kvang.com

structural engineer: Bob D. Campbell &
4338 Bellevue
Kansas City, MO 64111
816.531.4144
www.bdc-engrs.com

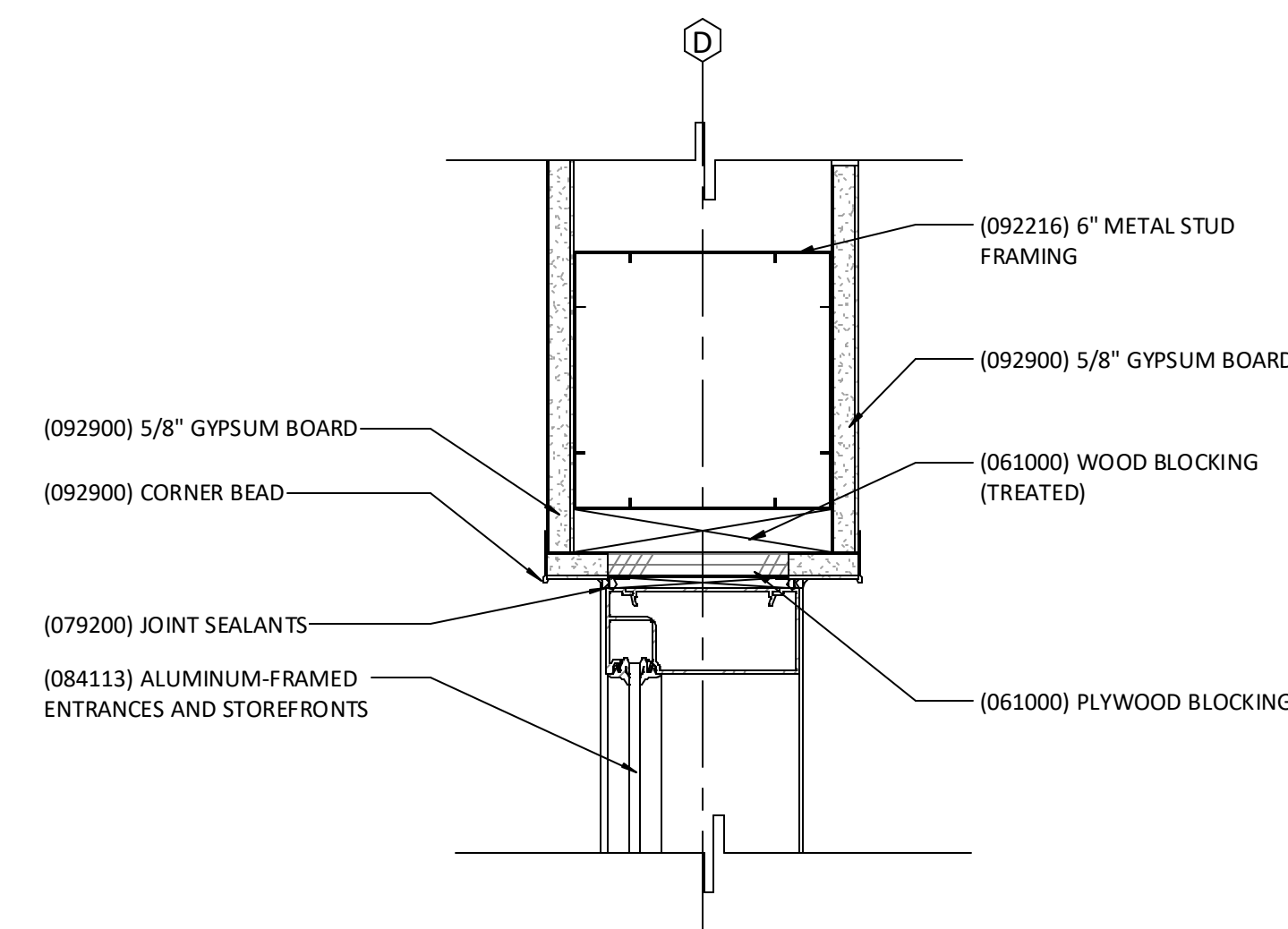
MEP/IT/Code: Henderson Engineers
8345 Lenexa Drive, Suite 300
Lenexa, KS 66214
816.742.5000
www.hendersonengineers.com



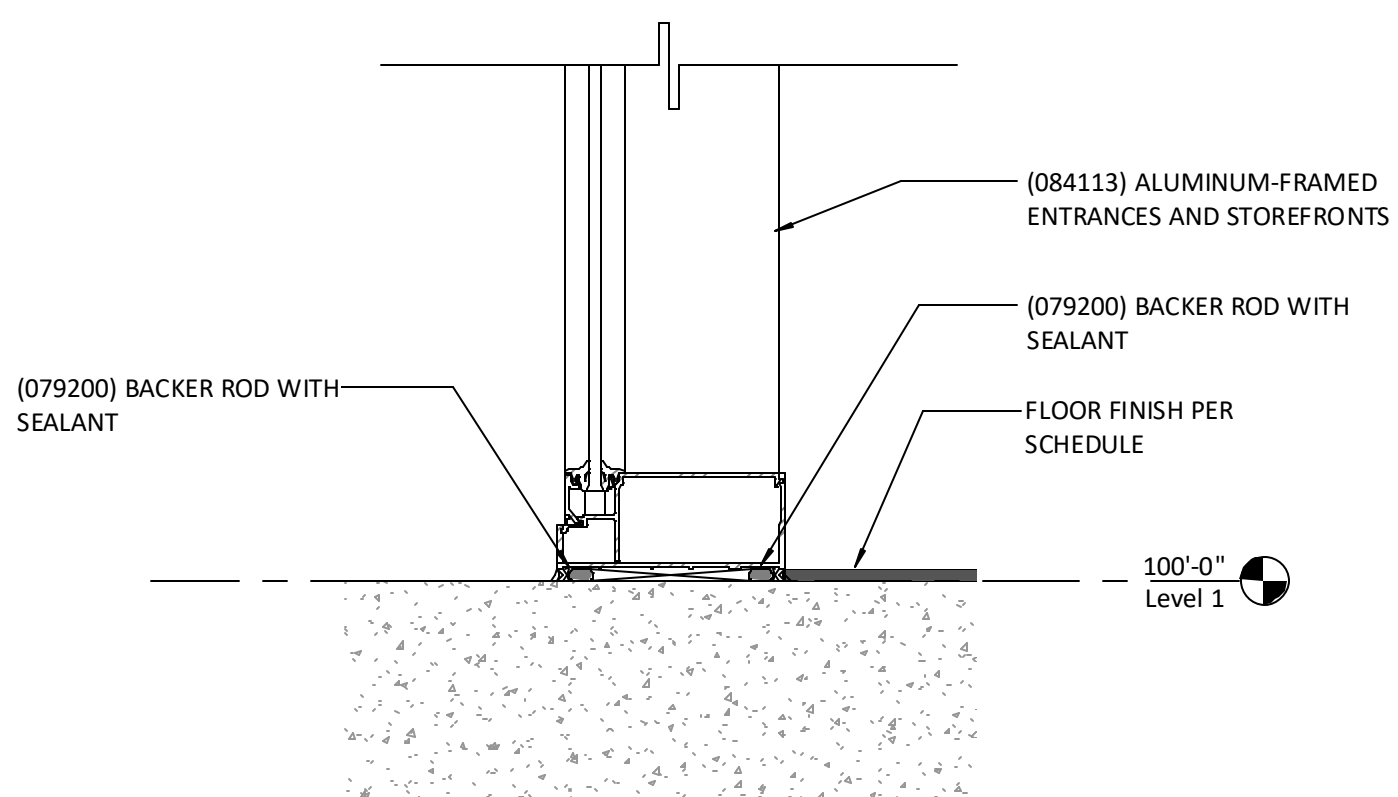
Interior Window Jamb Detail @ Wood M1
3" = 1'-0"



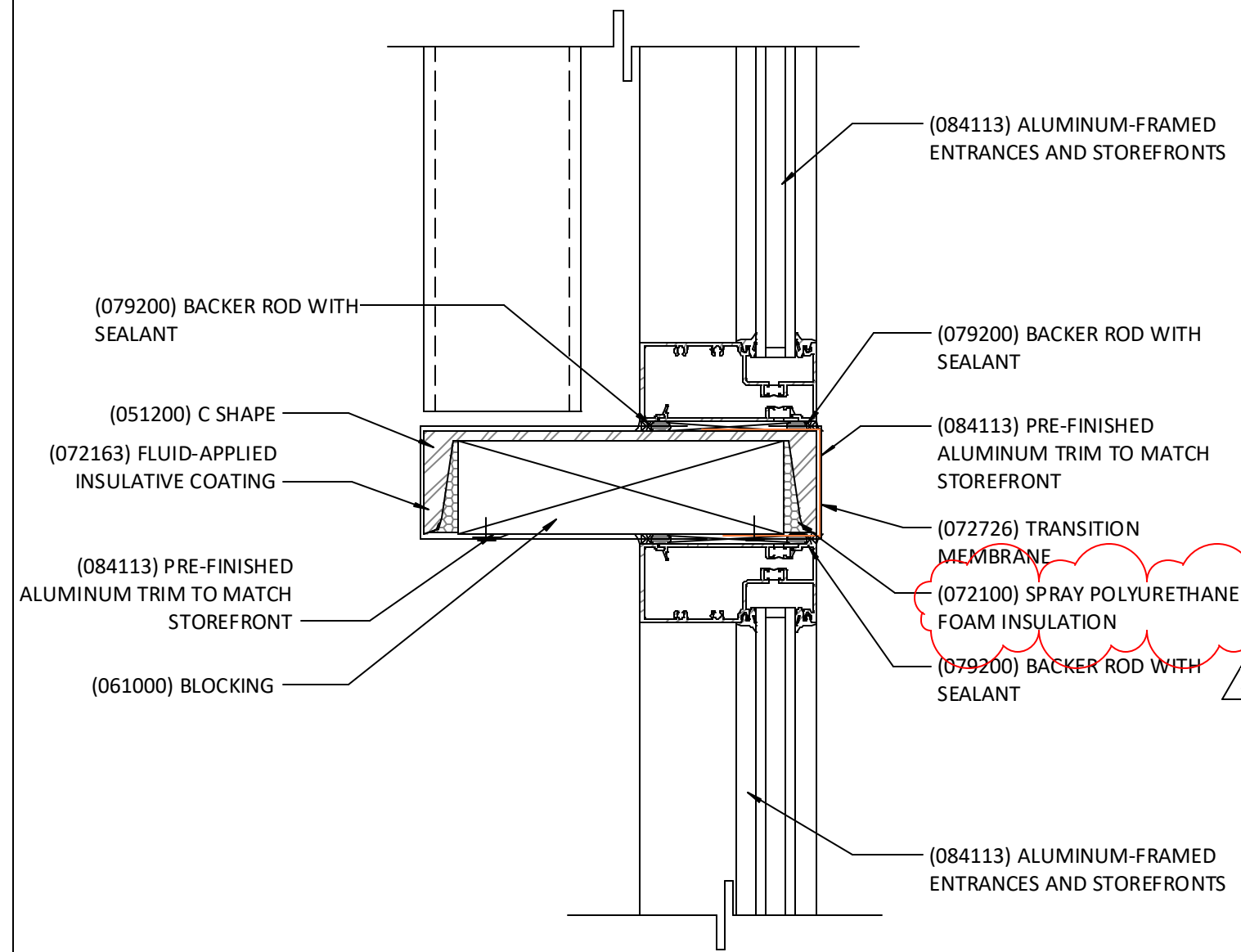
Interior Window Jamb Detail @ Gyp. H1
3" = 1'-0"



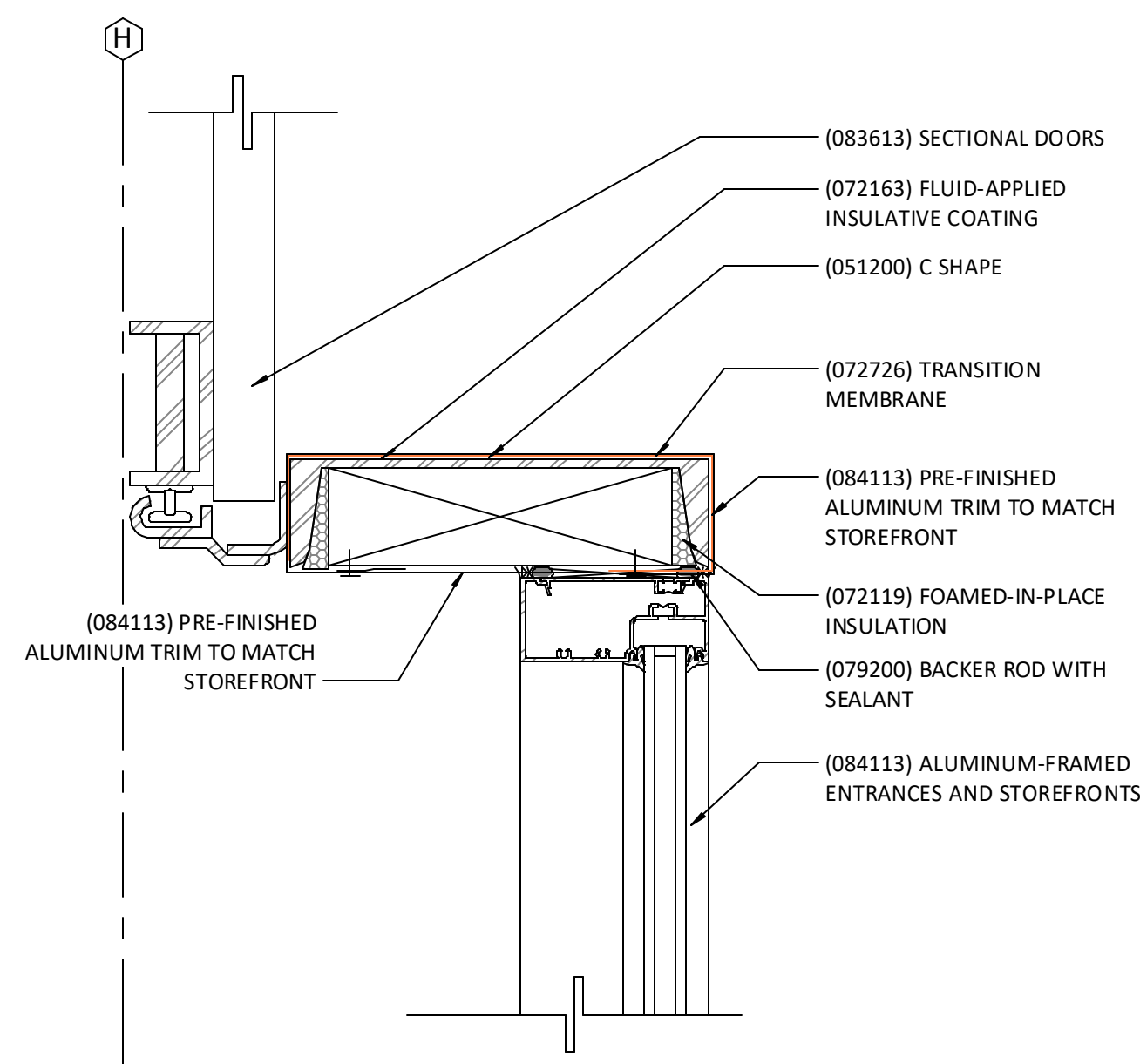
Interior Window Head Detail D1
3" = 1'-0"



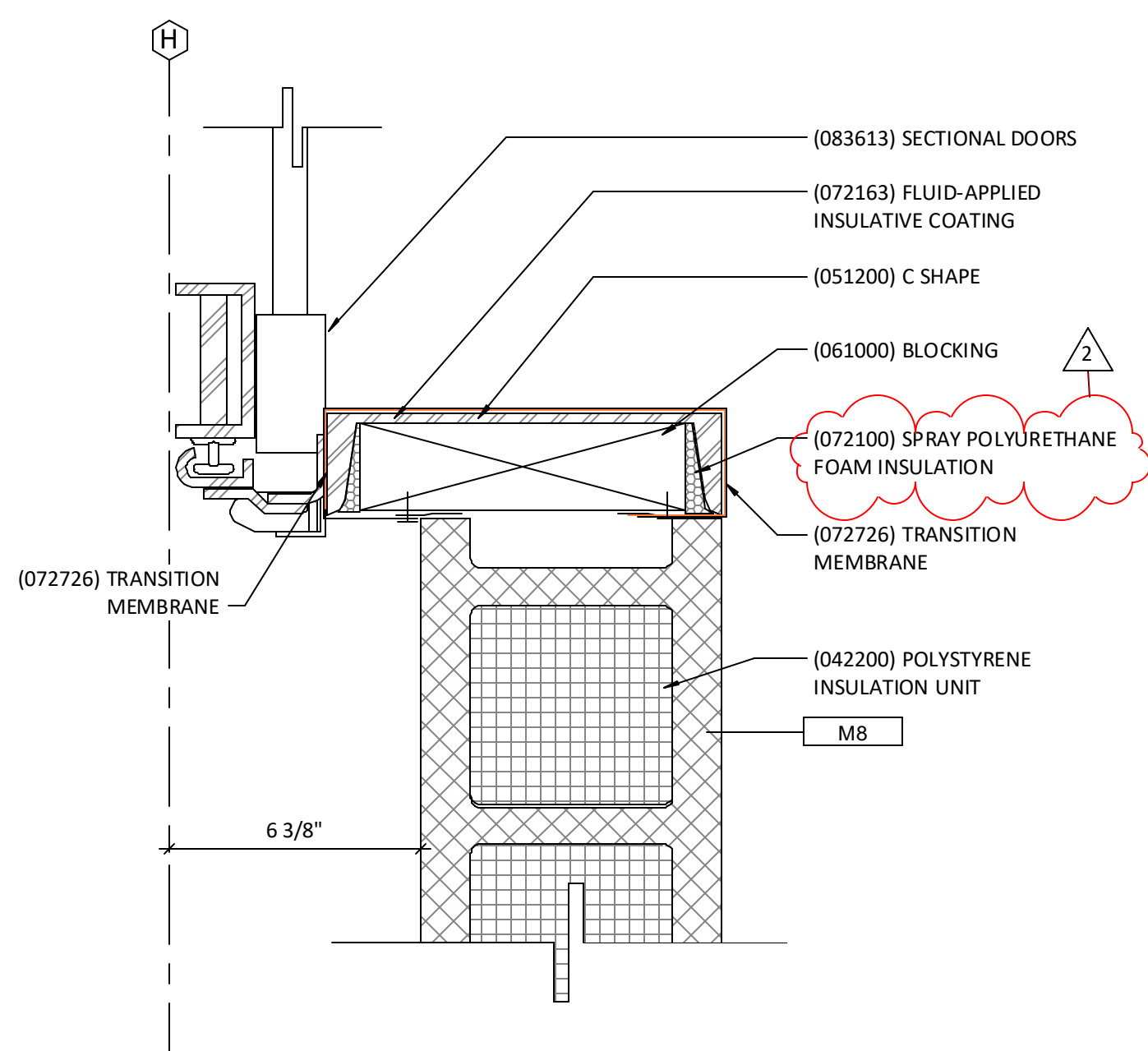
Interior Window Sill Detail A1
3" = 1'-0"



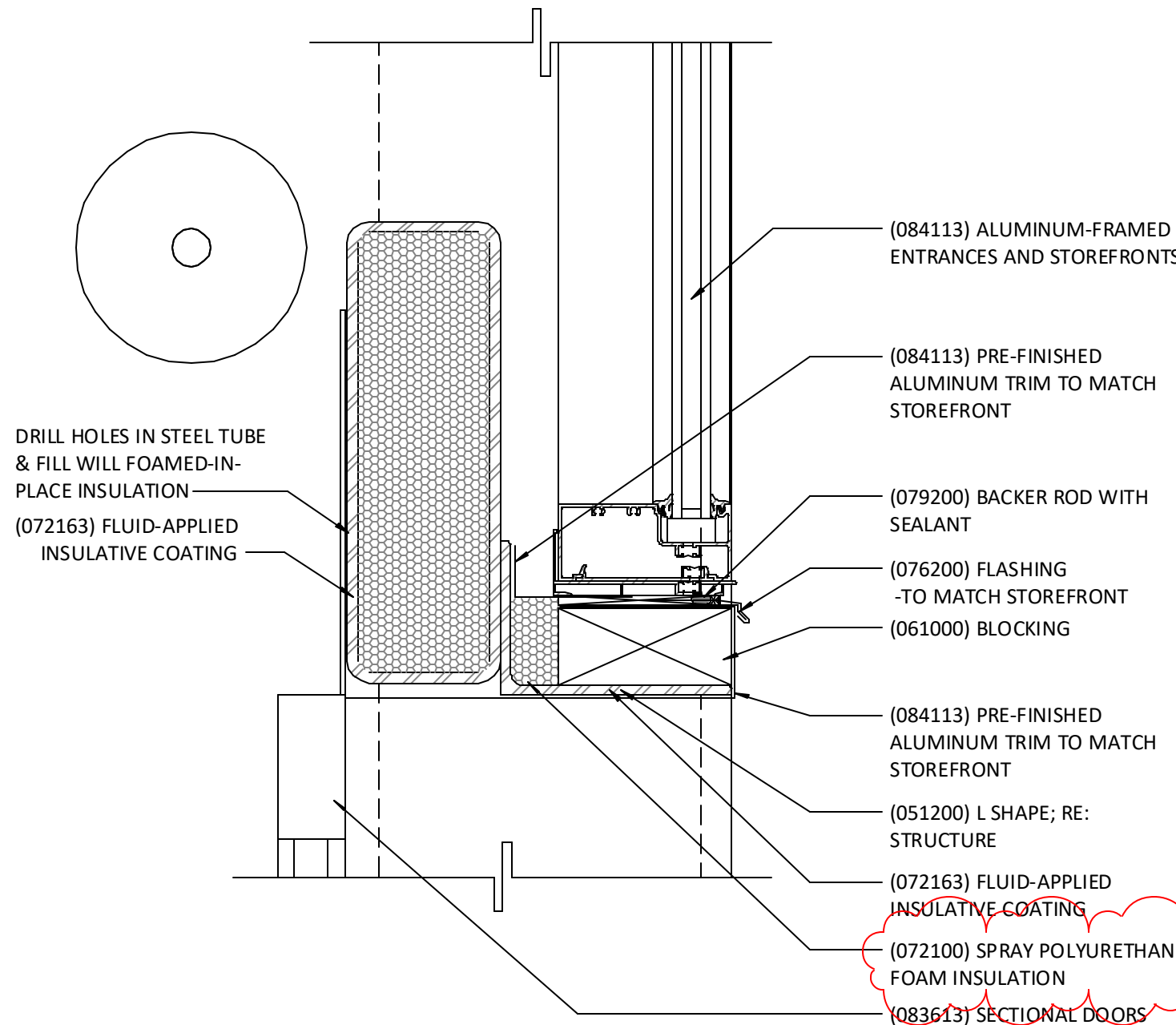
Plan Detail @ Canopy Storefront to Steel Connection K5
3" = 1'-0"



Plan Detail of Sectional Door @ Storefront E5
3" = 1'-0"



Plan Detail of Sectional Door @ CMU A5
3" = 1'-0"



Window Sill Detail above Sectional Door A9
3" = 1'-0"

Issue Date: September 9, 2022

Revisions		
NUMBER	DESCRIPTION	DATE
2	Addendum 02	09/29/2022

UNLESS A PROFESSIONAL SEAL WITH SIGNATURE AND DATE IS AFFIXED, THIS DOCUMENT IS PRELIMINARY AND IS NOT INTENDED FOR CONSTRUCTION, RECORDING PURPOSES OR IMPLEMENTATION.



Interior & Exterior Storefront Details

A032

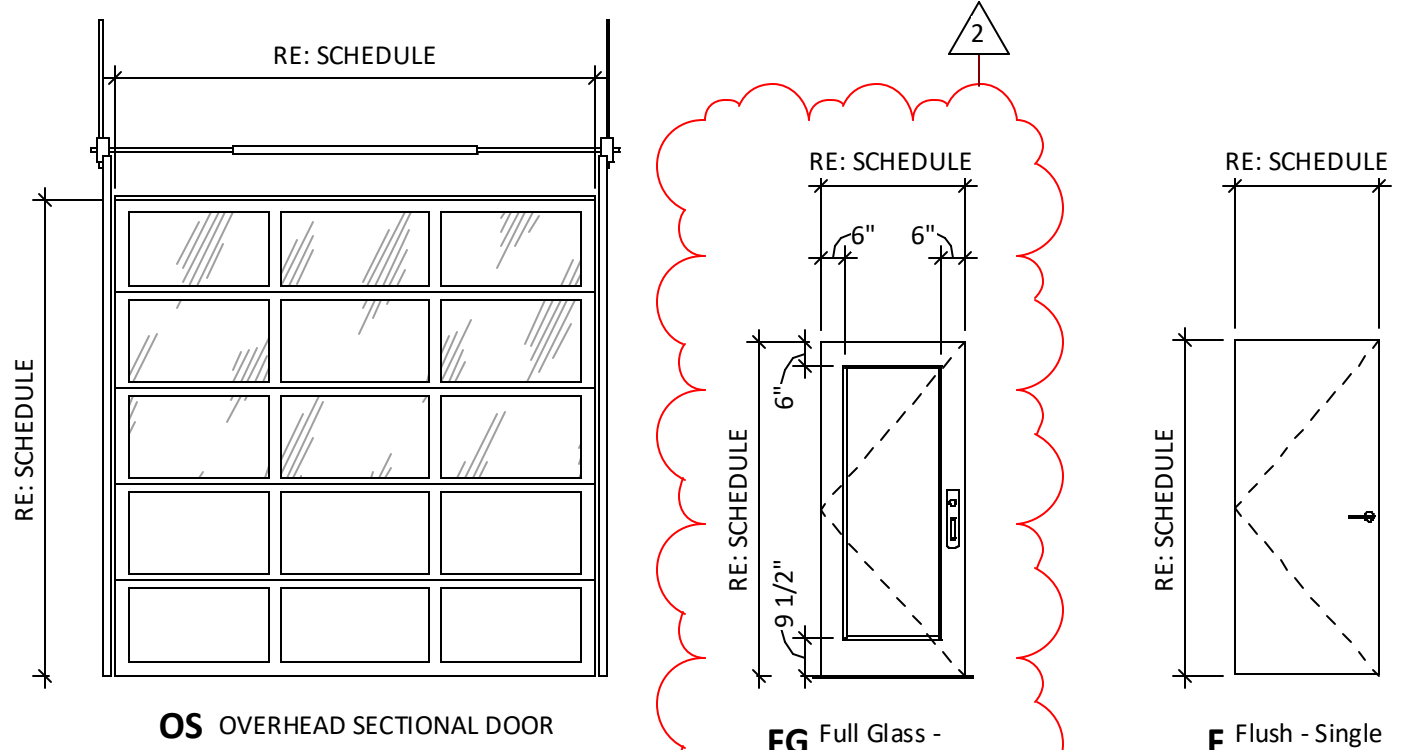
General Notes (Door Schedule):

Note: SHADED CELLS IN THE SCHEDULE ARE ELEMENTS OF THE DOOR THAT ARE EXISTING TO REMAIN AND FOR INFORMATION ONLY.

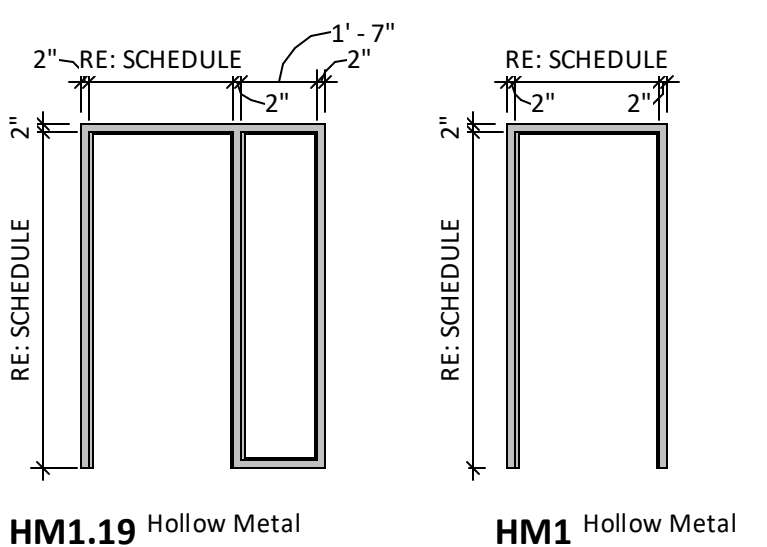
- THRESHOLDS SHALL COMPLY WITH ACCESSIBILITY REGULATIONS.
- ALL DOOR FRAMES ARE TO BE WELDED.
- EDGE CLEARANCES IN ACCORDANCE WITH AIA QUALITY STANDARDS.
- DOORS LOCATED IN CORNERS ARE TO HAVE THE INSIDE FACE OF JAMB LOCATED 4 INCHES FROM THE ADJACENT WALL FINISH (8 INCHES IN MASONRY WALLS) UNLESS NOTED OTHERWISE.
- PROVIDE BLOCKING AT ALL WALL MOUNTED DOOR STOPS.
- GLAZING STOPS IN WOOD DOORS: SAME SPECIES AS DOOR FACE, MITERED CORNERS, CONCEALED FASTENERS.
- FACTORY FINISH WOOD DOORS.
- ALL EXIT DOORS SHALL BE OPERABLE FROM INSIDE WITHOUT THE USE OF A KEY OR ANY SPECIAL KNOWLEDGE OR EFFORT AND SHALL BE LABELED "THIS DOOR TO REMAIN UNLOCKED DURING BUSINESS HOURS." THIS SIGN SHALL BE IN LETTERS NOT LESS THAN ONE INCH HIGH ON A CONTRASTING BACKGROUND. SPECIAL LOCKING DEVICES SHALL BE OF AN APPROVED TYPE, MANUALLY OPERATED. FLUSH BOLTS OR SURFACE BOLTS ARE PROHIBITED.
- PROVIDE CLOSERS AT ALL FIRE RATED AND EXTERIOR DOORS. COORDINATE WITH HARDWARE SETS.
- PROVIDE SAFETY GLAZING IN ALL DOORS AND ASSOCIATED ACTIVE/FIXED PANELS.
- PROVIDE SAFETY GLAZING IN FIXED OR OPERABLE PANELS WHERE WITHIN 24 INCHES OF EITHER EDGE OF AN OPERABLE DOOR.
- PROVIDE SAFETY GLAZING IN FIXED OR OPERABLE PANELS WHERE WITHIN 18 INCHES FROM AND RAMP/STAIR LANDING OR HAND/GUARDRAIL.
- ANY DOOR CARRYING A U.L. RATING SHALL BE INSTALLED IN A U.L. RATED FRAME CARRYING THE SAME DESIGNATION.
- PROVIDE FIRE RATED GLAZING IN PANELS LOCATED WITHIN A RATED WALL.
- CONTRACTOR TO COORDINATE SILL HEIGHTS WITH ELEVATIONS AND WALL SECTIONS.
- PAINT METAL DOORS AND FRAMES TO MATCH ADJACENT WALLS UNLESS OTHERWISE NOTED. REFER TO FINISH LEGEND FOR ADDITIONAL INFORMATION.
- REFER TO "PROJECT MANUAL" FOR HARDWARE SETS AND ADDITIONAL DOOR REQUIREMENTS.

DOOR LEGEND:

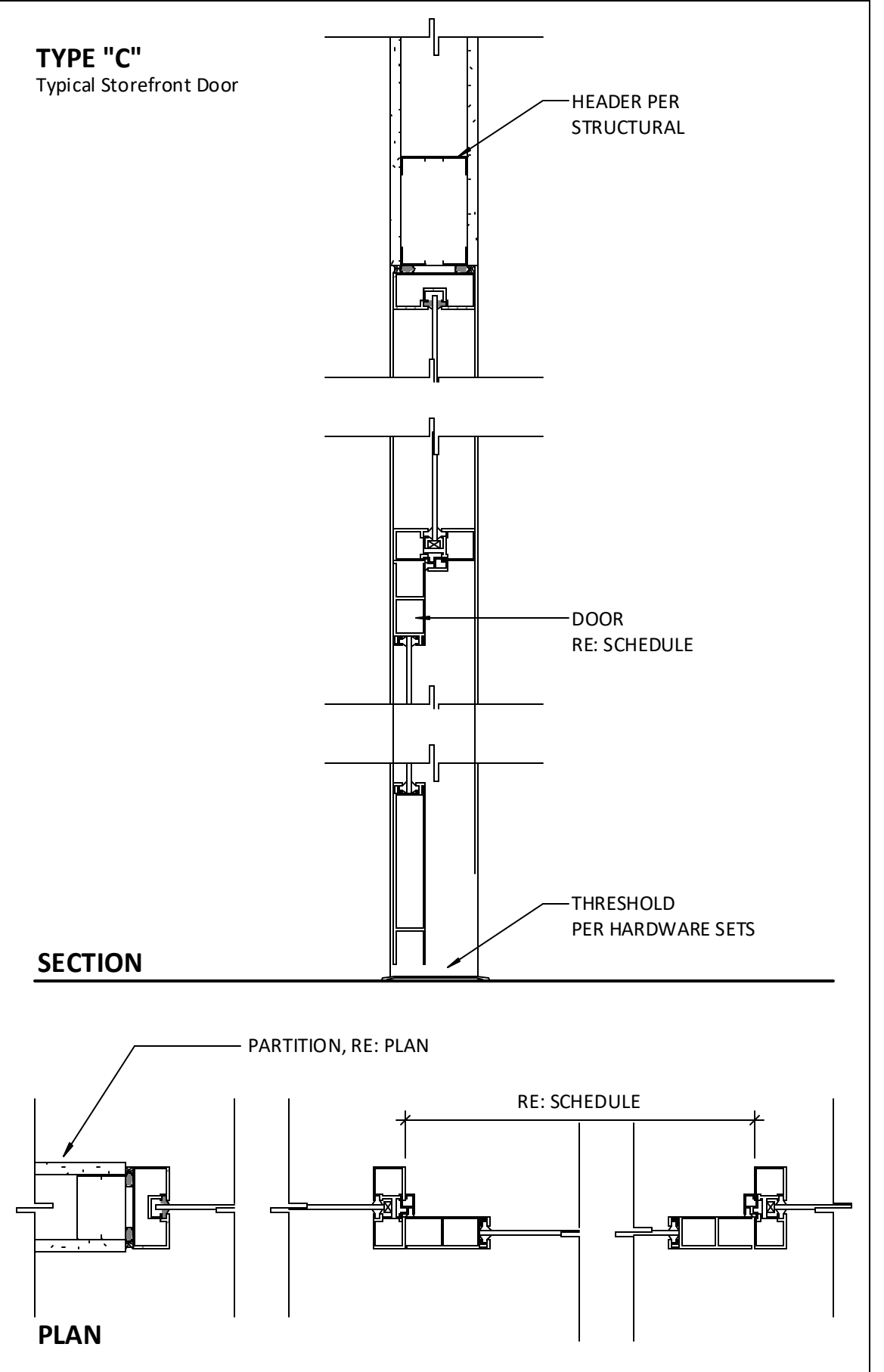
- AL ALUMINUM
ANNO ANODIZED
CA CARD ACCESS DEVICE
CL CLOSER
FRP FIBERGLASS
GL GLASS
HC HOLLOW CORE
HM HOLLOW METAL
IMP INSULATED METAL PANEL
L LOUVER
PF PRE-FINISHED/FACTORY FINISHED
PH PANIC HARDWARE
PR PAIR
PTD PAINTED
SD SMOKE & DRAFT CONTROL
SS STAINLESS STEEL
STL STEEL
T TEMPERED GLASS
V VISION
WD WOOD



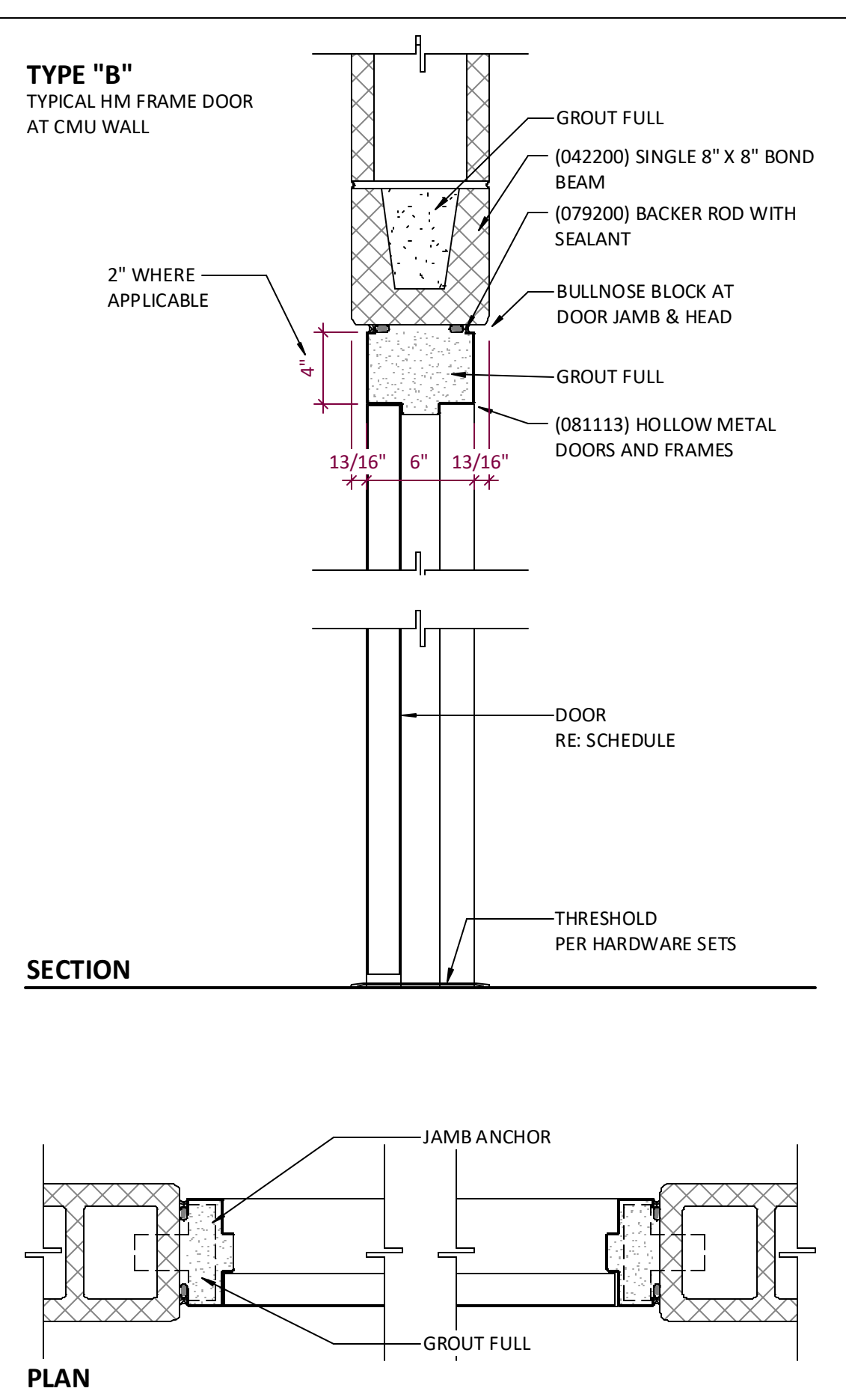
Door Types - LSN M3
1/4" = 1'-0"



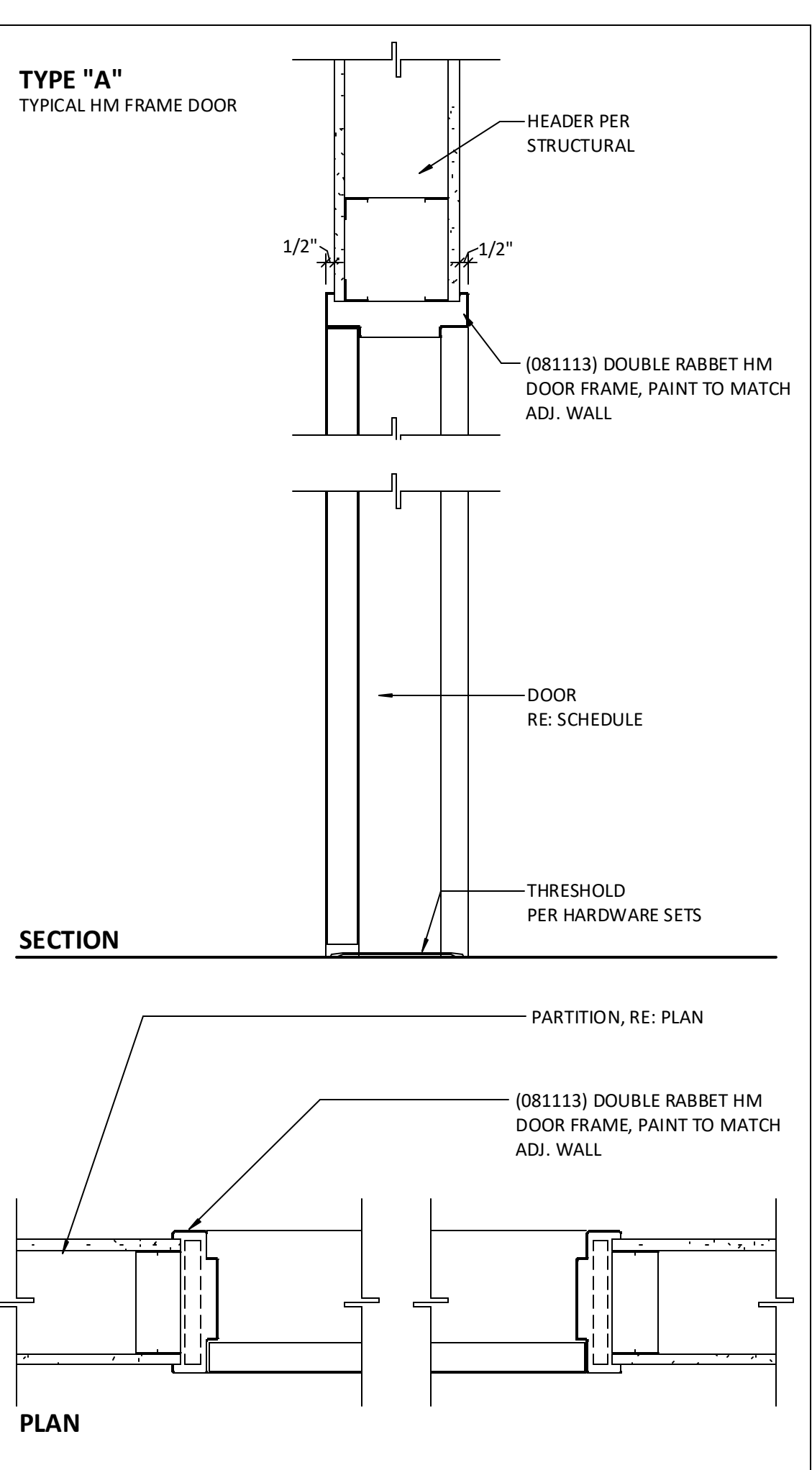
Frame Types
1/4" = 1'-0"



Assembly Detail - Type C A11
1 1/2" = 1'-0"



Assembly Detail - Type B A8
1 1/2" = 1'-0"



Assembly Detail - Type A A3
1 1/2" = 1'-0"

Issue Date: September 9, 2022

Revisions		
NUMBER	DESCRIPTION	DATE
2	Addendum 02	09/29/2022

UNLESS A PROFESSIONAL SEAL WITH SIGNATURE AND DATE IS AFFIXED, THIS DOCUMENT IS PRELIMINARY AND IS NOT INTENDED FOR CONSTRUCTION, RECORDING PURPOSES OR IMPLEMENTATION.



Door Types & Details.
A080

LSR7 Robotics, GiC &
Phys Education

LSN: 901 NE Douglas St., Lee's Summit MO
64086
LSW: 2600 SW Ward Rd, Lee's Summit MO
64082
LSHS: 400 SE Blue Pkwy, Lee's Summit MO 64063

Project Number: 0121-0100

owner:
Lee's Summit R-7 School
301 NE Tudor Road
Lee's Summit, MO 64086

architect:
Multistudio
4300 Pennsylvania
Kansas City, MO 64111
816.931.6655
multistudio

civil engineer:
Kaw Valley Engineering
14700 West 114th Terrace
Lenexa, KS 66215
913.485.0318
kvweng.com

structural engineer:
Bob D. Campbell &
4338 Bellevue
Kansas City, MO 64111
816.531.4144
www.bdc-engrs.com

MEP/F/Codes:
Henderson Engineers
8345 Lenexa Drive, Suite
300
Lenexa, KS 66214
816.742.5000
www.hendersonengineers.com

General Notes (Interior Partitions):

- REFER TO PLANS/CODE PLANS FOR PARTITION TYPE LOCATIONS.
- PARTITION TYPES DESIGNATED ON PLANS SHALL RUN FROM CORNER TO CORNER UNLESS OTHERWISE NOTED.
- PARTITIONS SHALL EXTEND TO STRUCTURE ABOVE AND SHALL BE CONSTRUCTED TO ACCOMMODATE DEFLECTION UNLESS NOTED OTHERWISE.
- FIRE-RESISTANCE-RATED PARTITIONS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE REFERENCED ASSEMBLY DESCRIPTION. REFER TO CODE PLANS FOR MORE INFORMATION.
- FIRE-RATED WALLS REQUIRED TO HAVE PROTECTED OPENINGS SHALL BE PERMANENTLY IDENTIFIED WITH SIGNS OR STENCILING ACCEPTABLE TO THE AUTHORITY HAVING JURISDICTION. SUCH SIGNAGE SHOULD BE ABOVE ACCESSIBLE CEILINGS AND/OR BELOW ACCESSIBLE FLOORS.
- WHERE DIFFERENT PARTITION TYPES INTERSECT, THE PARTITION TYPE WITH THE GREATER FIRE-RESISTANCE RATING SHALL CONTINUE WITHOUT INTERRUPTION.
- PENETRATIONS OF FIRE-RESISTANCE-RATED ASSEMBLIES SHALL BE PROVIDED WITH FIRE-RATED PENETRATION PROTECTION IN ACCORDANCE WITH AN APPROVED UNDERWRITERS LABORATORY SYSTEM.
- FIRE DAMPERS OR FIRE DOORS SHALL BE PROVIDED WHERE AIR DUCTS OR OPENINGS PENETRATE FIRE-RATED PARTITIONS.
- AT ALL WET AREAS AND LOCATIONS TO RECEIVE TILE, COORDINATE THE SUBSTRATE MATERIAL WITH PROJECT MANUAL. EXTEND THE SUBSTRATE A MINIMUM OF 4'-0" BEYOND THE WET AREA.
- USE ACOUSTICAL SEALANT AROUND ALL PIPES, DUCTS, CONDUIT, JUNCTION BOXES, ETC. ON BOTH SIDES OF CROSSING / PENETRATING WALLS WITH ACOUSTICAL RATINGS. COLOR MATCH SEALANT TO THE ADJACENT WALL COLOR.
- PROVIDE IMPACT RESISTANT TRIM OR CASING AT ALL EDGES OF PLASTER AND GYPSUM BOARD SURFACES WHERE IT TERMINATES OR MEETS ANY OTHER MATERIAL UNLESS NOTED OTHERWISE.
- PROVIDE IMPACT RESISTANT CORNER BEADS AT ALL OUTSIDE CORNERS OF PLASTER AND GYPSUM BOARD SURFACES, UNLESS NOTED OTHERWISE.
- CONTRACTOR TO PROVIDE WOOD BLOCKING BEHIND ALL TOILET ROOM ACCESSORIES, GRAB BARS, HANDRAILS, WOOD TRIM, AND WALL MOUNTED FIXTURES.
- INSTALL CONTROL JOINTS IN GYPSUM BOARD CONSTRUCTION AS SHOWN ON THE DRAWINGS AND IN PARTITIONS AND WALL FURRING RUNS EXCEEDING 30 FEET, SPACING CONTROL JOINTS NOT MORE THAN 30 FEET O.C. VERIFY LOCATIONS WITH ARCHITECT. INSTALL CONTROL JOINTS IN FURRED ASSEMBLIES WHERE CONTROL JOINTS OCCUR IN BASE EXTERIOR WALL.

Gypsum Board Schedule

5/8" GYPSUM BOARD	ALL LOCATIONS UNLESS NOTED BELOW OR DETAILED OTHERWISE.
5/8" ABUSE RESISTANT GYPSUM	HIGH TRAFFIC AREAS SUCH AS LOBBIES, PUBLIC CORRIDORS AND WORK ROOMS SUCH AS: JANITOR, HOUSEKEEPING, MECHANICAL, ETC.
5/8" GLASS MAT BACKING BOARD	"WET" WALLS NON-RATED WITH PLUMBING FIXTURES, DRINKING FOUNTAINS, TOILETS, LAVATORIES, URINALS, ETC.
1/2" FIBER CEMENT BACKING PANELS	WALLS EXPOSED DIRECTLY TO RUNNING WATER AND SCHEDULE TO RECEIVE TILE. BATHTUBS, SHOWERS, ETC.
5/8" PLYWOOD SHEATHING	WHERE INDICATED ON PARTITION SCHEDULE
5/8" RATED PLYWOOD SHEATHING	WHERE INDICATED ON PARTITION SCHEDULE

Interior Partition Naming Convention

- PARTITION MATERIAL TYPE
NOMINAL STUD/PARTITION THICKNESS
FIRE RATING OR OTHER MODIFIER
FINISHED PLYWOOD MODIFIER
ACOUSTICAL TREATMENT MODIFIER

G4.1Pa

Issue Date: September 9, 2022

Revisions

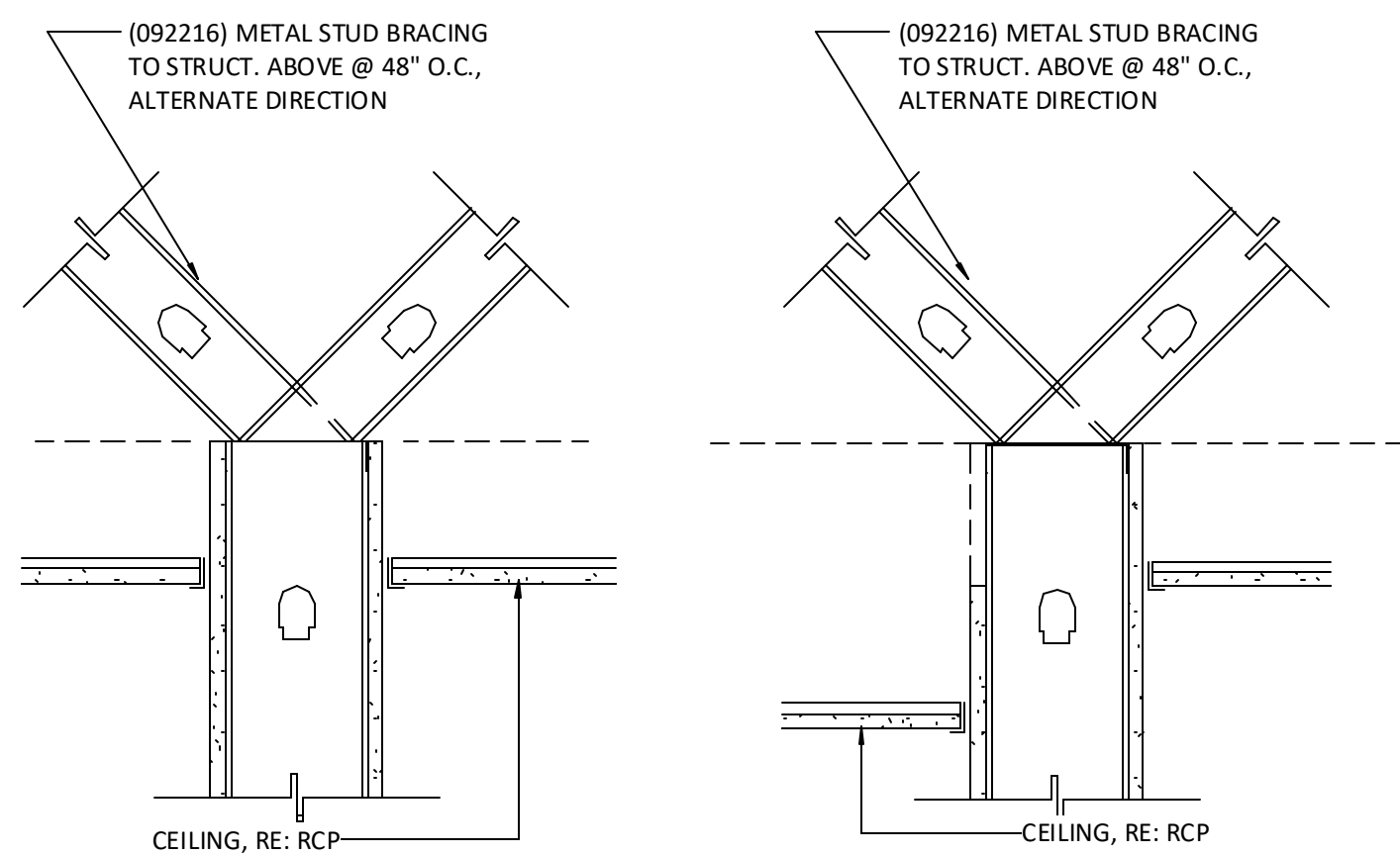
NUMBER	DESCRIPTION	DATE
1	Addendum 01	09/09/2022
2	Addendum 02	09/20/2022

UNLESS A PROFESSIONAL SEAL WITH SIGNATURE AND DATE IS AFFIXED, THIS DOCUMENT IS PRELIMINARY AND IS NOT INTENDED FOR CONSTRUCTION, RECORDING PURPOSES OR IMPLEMENTATION.

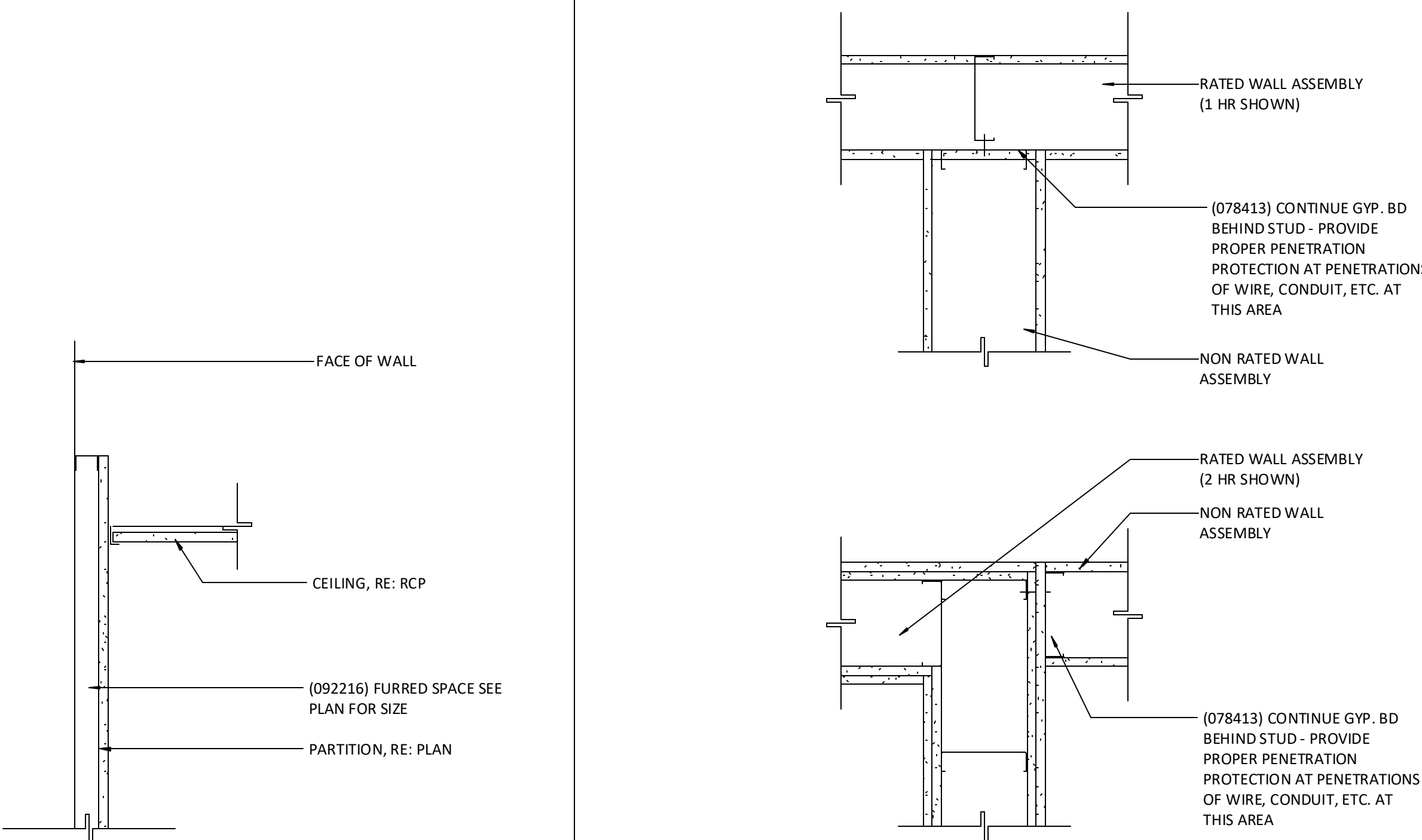


Interior Partition Types

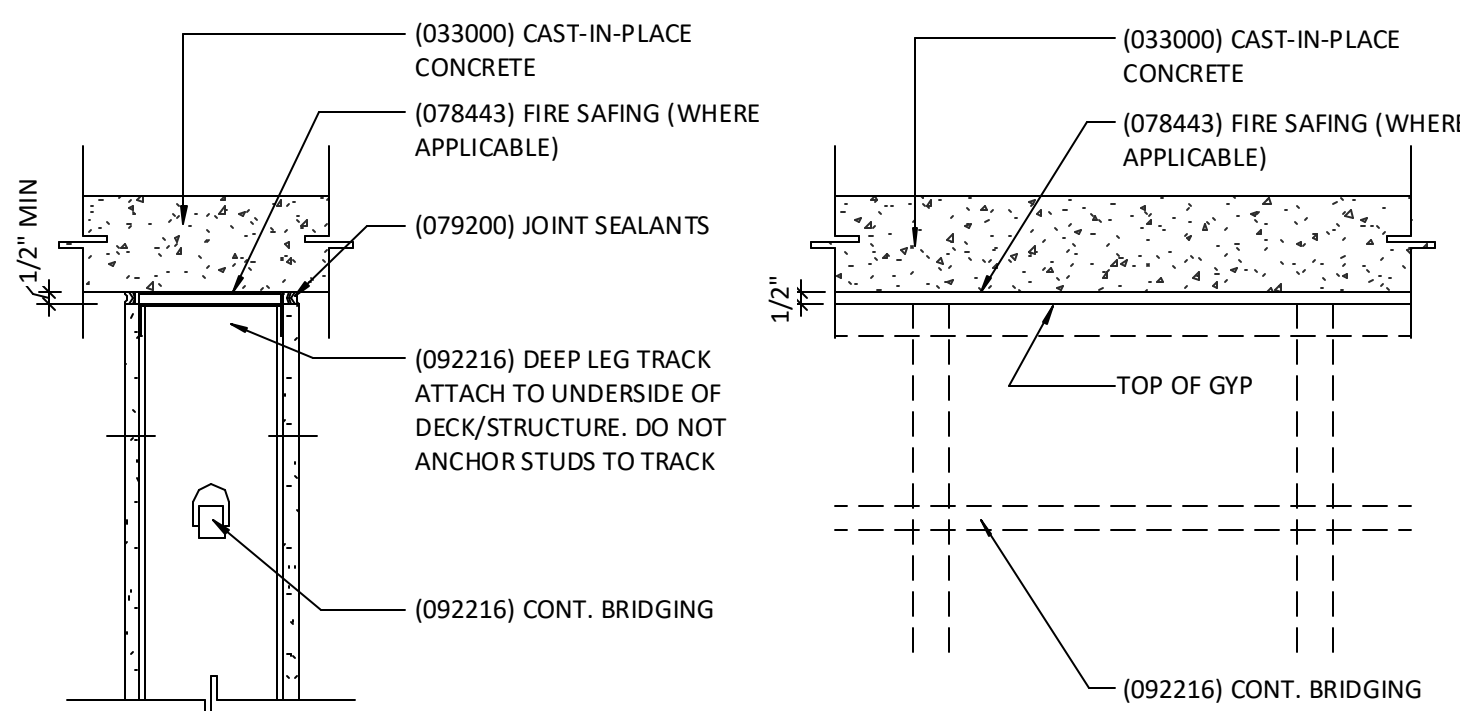
A090



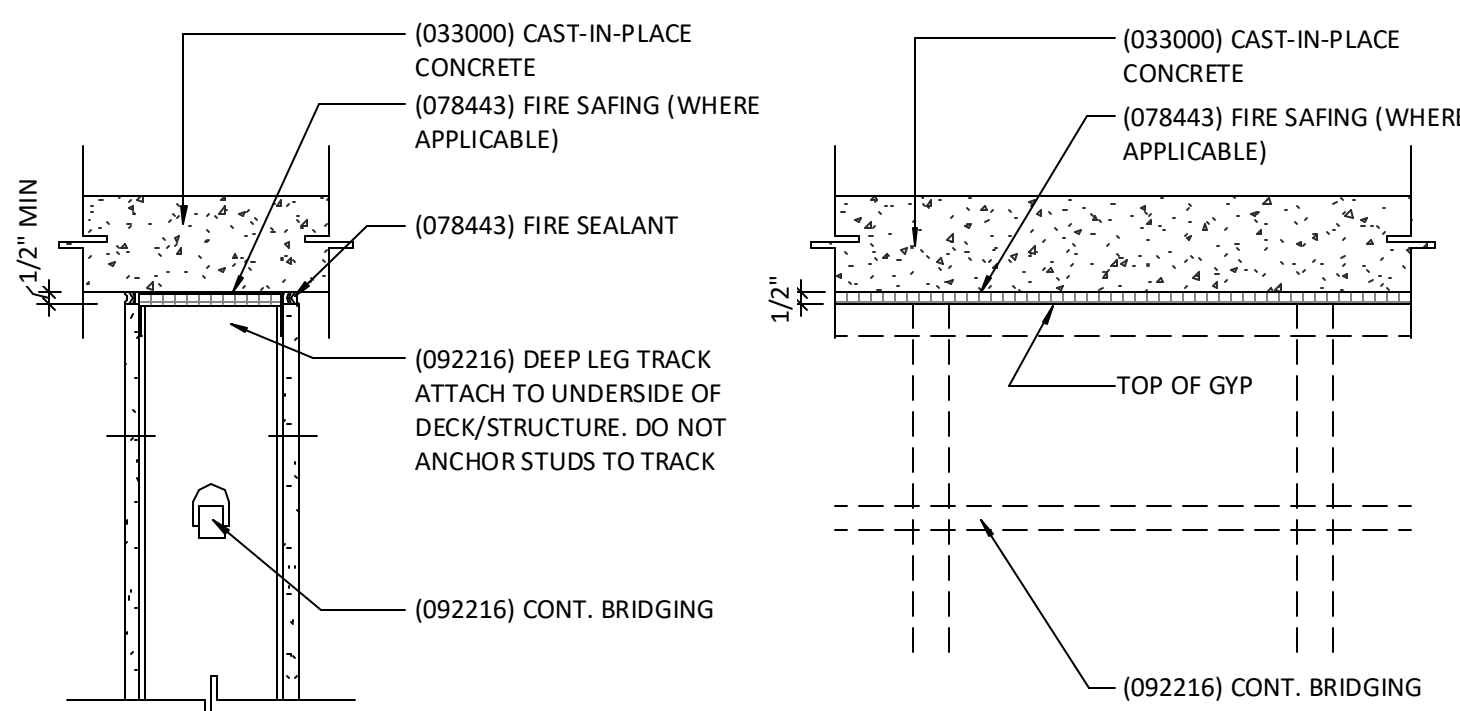
Non-rated Partition 6" Above Ceiling M3
1 1/2" = 1'-0"



Top of Furring Wall F7
1 1/2" = 1'-0"

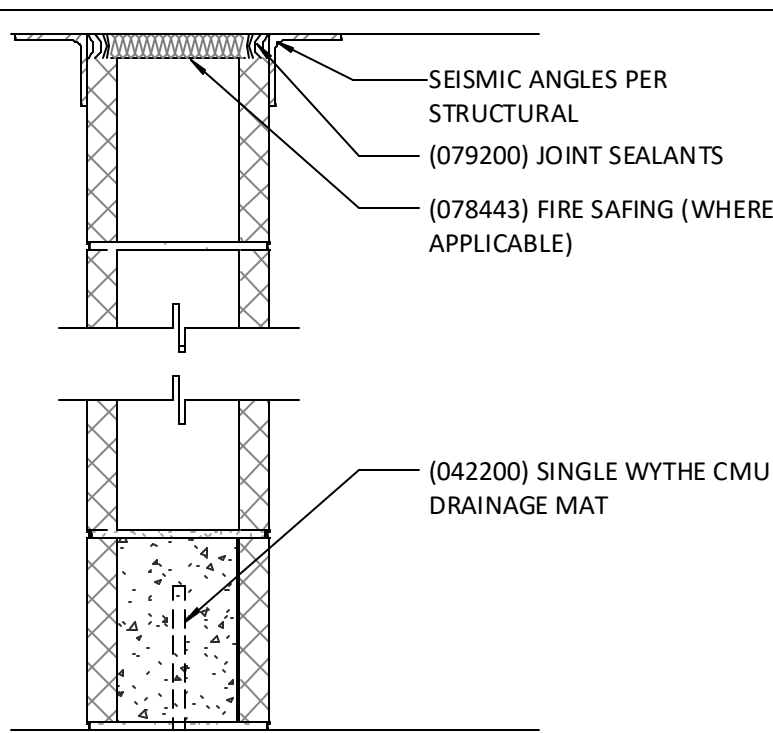


Partition to Underside of Deck - Non-Rated D3
1 1/2" = 1'-0"



Partition to Underside of Deck - Rated A3
1 1/2" = 1'-0"

NOTES:
1. REFER TO STRUCTURAL FOR ADDITIONAL INFORMATION

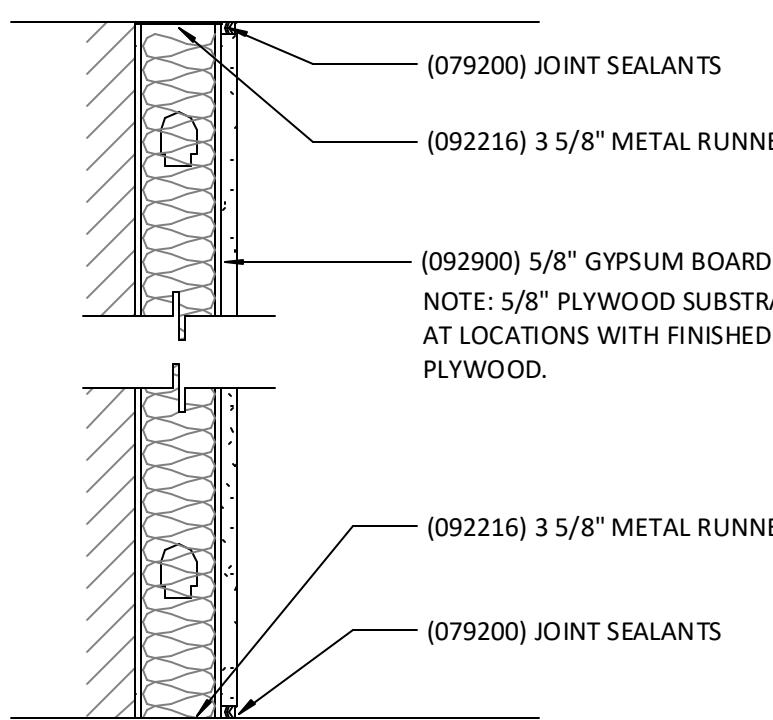


PARTITION SYSTEM:
CONCRETE MASONRY UNIT PARTITION

M

PARTITION IDENTIFICATION PLAN SYMBOL	M8
BASE PARTITION THICKNESS	7 5/8"
MASONRY MATERIAL	CMU
MASONRY SIZE (NOMINAL)	8X16
BEARING WALL	-
FIRE RATING (HRS)	-
FIRE TEST NUMBER	-
FIRE TEST NUMBER (HEAD OF WALL)	-
(078443) FIRE RESISTIVE JOINTS	-
TO 6" ABOVE CEILING	NO
TO STRUCTURE ABOVE	YES
REMARKS:	

NOTES:
1. PLYWOOD SUBSTRATE TO STOP 2" FROM TOP OF FINISH PLYWOOD, GWB TO DECK.

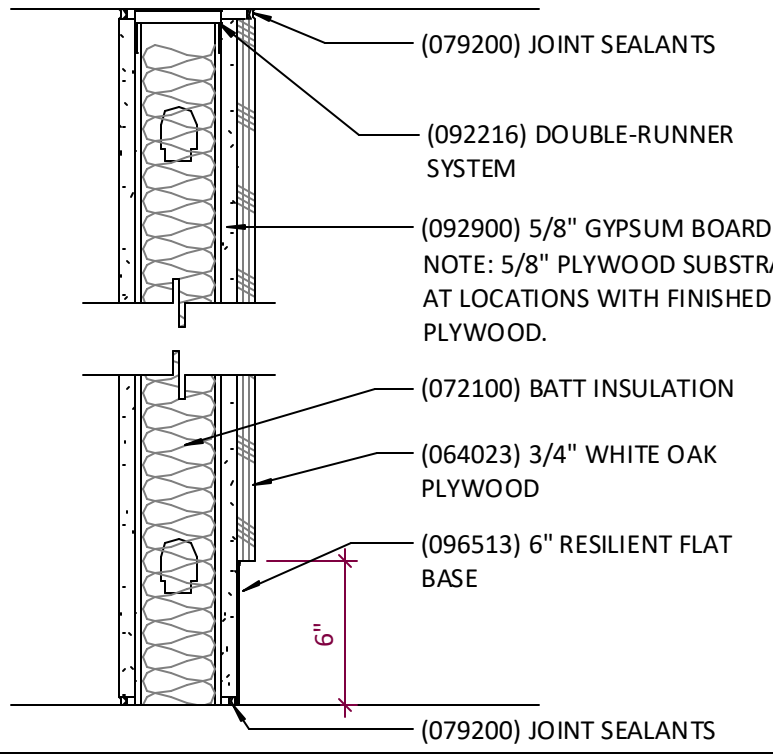


PARTITION SYSTEM:
GYPSUM FURRING PARTITION

F

PARTITION IDENTIFICATION PLAN SYMBOL	F1	F1P	F4	F4P
BASE PARTITION THICKNESS	2 1/4"	3"	4 1/4"	5"
STUD SPACING (O.C.)	16"	16"	16"	16"
STUD SIZE	1 5/8"	1 5/8"	3 5/8"	3 5/8"
GYPSUM WALLBOARD	5/8"	-	5/8"	-
PLYWOOD SHEATHING	-	5/8"	-	5/8"
PLYWOOD FINISH	-	3/4"	-	3/4"
FIRE RATING (HRS)	-	-	-	-
FIRE TEST NUMBER	-	-	-	-
FIRE TEST NUMBER (HEAD OF WALL)	-	-	-	-
FIRE RESISTIVE JOINTS (079500)	-	-	-	-
ACOUSTIC RATING (STC)	-	-	-	-
ACOUSTICAL TEST NUMBER	-	-	-	-
RESILIENT CHANNELS	-	-	-	-
INSULATION THICKNESS	-	-	-	-
(079219) ACOUSTICAL JOINTS	-	-	-	-
TO 6" ABOVE CEILING	YES	NO	YES	NO
GWBB STRUCTURE ABOVE	NO	YES	NO	YES
STUDS TO STRUCTURE ABOVE	YES	YES	YES	YES
REMARKS:		SEE NOTE 1		SEE NOTE 1

NOTES:
1. PLYWOOD SUBSTRATE TO STOP 2" FROM TOP OF FINISH PLYWOOD, GWB TO DECK.
2. PROVIDE MOISTURE RESISTANT GWB IN WET AREAS
3. EXTEND ALL FIRE RATED WALLS STRUCTURE TO STRUCTURE.
4. USE TYPE "X" GWB FOR ALL FIRE RATED PARTITIONS



PARTITION SYSTEM:
GYPSUM WALL BOARD PARTITION

G

PARTITION IDENTIFICATION PLAN SYMBOL	G4	G4a	G4P	G4Pa	G6	G6a
BASE PARTITION THICKNESS	4 7/8"	4 7/8"	5 5/8"	5 5/8"	7 1/4"	7 1/4"
STUD SPACING (O.C.)	16"	16"	16"	16"	16"	16"
STUD SIZE	3 5/8"	3 5/8"	3 5/8"	3 5/8"	6"	6"
GYPSUM WALLBOARD, EACH SIDE	5/8"	5/8"	-	-	5/8"	5/8"
GYPSUM WALLBOARD, ONE SIDE	-	-	5/8"	5/8"	-	-
PLYWOOD SHEATHING, ONE SIDE	-	-	5/8"	5/8"	-	-
PLYWOOD FINISH, ONE SIDE	-	-	3/4"	3/4"	-	-
FIRE RATING (HRS)	-	-	-	-	-	-
FIRE TEST NUMBER	-	-	-	-	-	-
FIRE TEST NUMBER (HEAD OF WALL)	-	-	-	-	-	-
(078443) FIRE RESISTIVE JOINTS	-	-	-	-	-	-
ACOUSTIC RATING (STC)	-	44	-	44	-	44
ACOUSTICAL TEST NUMBER	-	NGC2514	-	NGC2514	-	NGC2514
RESILIENT CHANNELS	-	NO	-	NO	-	NO
INSULATION THICKNESS	-	2 1/2"	-	2 1/2"	-	2 1/2"
ACOUSTICAL JOINTS (079219)	-	YES	-	YES	-	YES
TO 6" ABOVE CEILING	YES	NO	NO	NO	YES	YES
GWBB STRUCTURE ABOVE	NO	YES	YES	YES	NO	NO
STUDS TO STRUCTURE ABOVE	YES	YES	YES	YES	YES	NO
REMARKS:				SEE NOTE 1		

Interior Partition Types A10
1 1/2" = 1'-0"

**LSR7 Robotics, GiC &
Phys Education**

LSN: 901 NE Douglas St., Lee's Summit MO
64086
LSW: 2600 SW Ward Rd, Lee's Summit MO
64082
LSHS: 400 SE Blue Pkwy, Lee's Summit MO 64063

Project Number: 0121-0100

owner:
Lee's Summit R-7 School
301 NE Tudor Road
Lee's Summit, MO 64086
multi-studio

architect:
Multistudio
4205 Pennsylvania
Kansas City, MO 64111
816.931.6655
multi-studio

civil engineer:
Kaw Valley Engineering
14700 West 114th Terrace
Lenexa, KS 66215
913.485.0318
kveng.com

structural engineer:
Bob D. Campbell &
4338 Belview
Kansas City, MO 64111
816.531.4144
www.bdc-engrs.com

MEP/PT/Code:
Henderson Engineers
8345 Lenexa Drive, Suite
300
Lenexa, KS 66214
816.742.5000
www.hendersonengineers.com

Issue Date: September 9, 2022

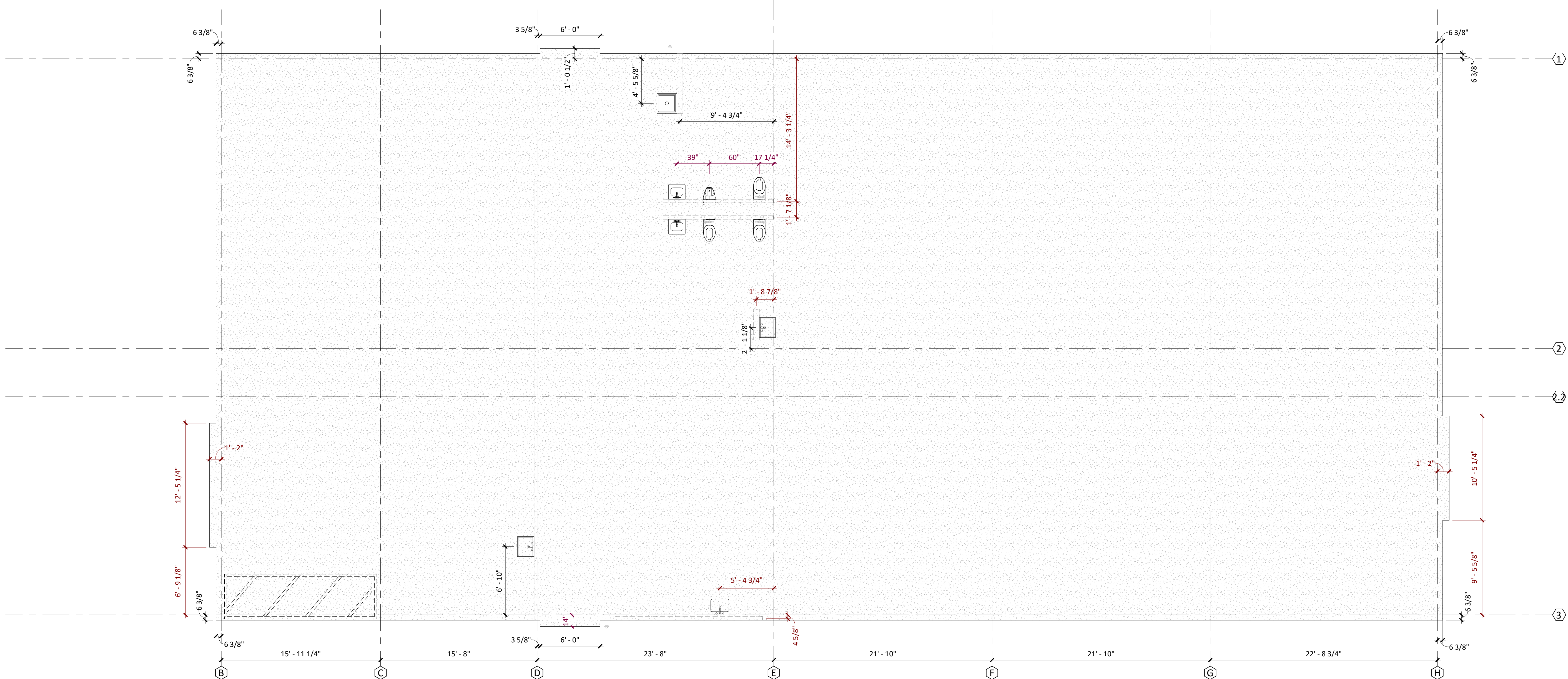
Revisions		
NUMBER	DESCRIPTION	DATE

UNLESS A PROFESSIONAL SEAL WITH SIGNATURE AND DATE IS
AFFIXED, THIS DOCUMENT IS PRELIMINARY AND IS NOT INTENDED FOR
CONSTRUCTION, RECORDING PURPOSES OR IMPLEMENTATION



**Slab Plan
A100**

LSN / LSW - Level 1 Slab Plan **A1**
3/16" = 1'-0"



LSR7 Robotics, GiC &
Phys Education

LSN: 901 NE Douglas St., Lee's Summit MO
64086
LSW: 2600 SW Ward Rd, Lee's Summit MO
64082
LSHS: 400 SE Blue Pkwy, Lee's Summit MO 64063

Project Number: 0121-0100

owner:
Lee's Summit R-7 School
301 NE Tudor Road
Lee's Summit, MO 64086

architect:
Multistudio
4200 Pennsylvania
Kansas City, MO 64111
816.931.6655
multi.studio

civil engineer:
Kaw Valley Engineering
14700 West 114th Terrace
Lenexa, KS 66215
913.485.0318
kveg.com

structural engineer:
Bob D. Campbell &
4338 Bellevue
Kansas City, MO 64111
816.531.4144
www.bdc-engrs.com

MEP/IT Codes:
Henderson Engineers
8345 Lenexa Drive, Suite
300
Lenexa, KS 66214
816.742.5000
www.hendersonengineers.com

General Notes (Floor Plans):

1. ALL WALL TYPES TO BE G4.1 UNLESS OTHERWISE NOTED.
2. ALL WALL DIMENSIONS ARE TO FACE OF WALL UNLESS OTHERWISE NOTED.
3. MASONRY WALLS ARE NOMINALLY CENTERED ON GRID LINES AND MASONRY DIMENSIONS ARE NOMINAL UNLESS OTHERWISE NOTED.
4. DOORS IN STUD WALLS NEAR PERPENDICULAR WALLS ARE LOCATED 4" OFF FACE OF PERPENDICULAR WALL UNLESS OTHERWISE NOTED.
5. DOORS IN MASONRY WALLS ARE LOCATED IN ROUGH OPENINGS DIMENSIONED ON SHEET.
6. SEE GENERAL ACCESSIBILITY SHEET FOR HEIGHTS AND LOCATIONS OF TOILET ACCESSORIES NOT SHOWN ON ELSEWHERE.
7. CONTRACTOR TO FIELD VERIFY ALL MEASUREMENTS AND CONDITIONS NEW AND EXISTING. NOTIFY THE ARCHITECT/OWNER'S REPRESENTATIVE OF ANY DISCREPANCIES.
8. ENLARGED PLANS MAY BE ROTATED OR MIRRORED COORDINATE WITH MAIN FLOOR PLAN.
9. CONTRACTOR TO PROVIDE 4'-0" HIGH PLYWOOD BACKER BOARD IN ALL MECHANICAL AND ELECTRICAL ROOMS MOUNTED 3'-6" A.F.F. FOR PERIMETER OF ROOM.

Issue Date: September 9, 2022

Revisions

NUMBER	DESCRIPTION	DATE
--------	-------------	------

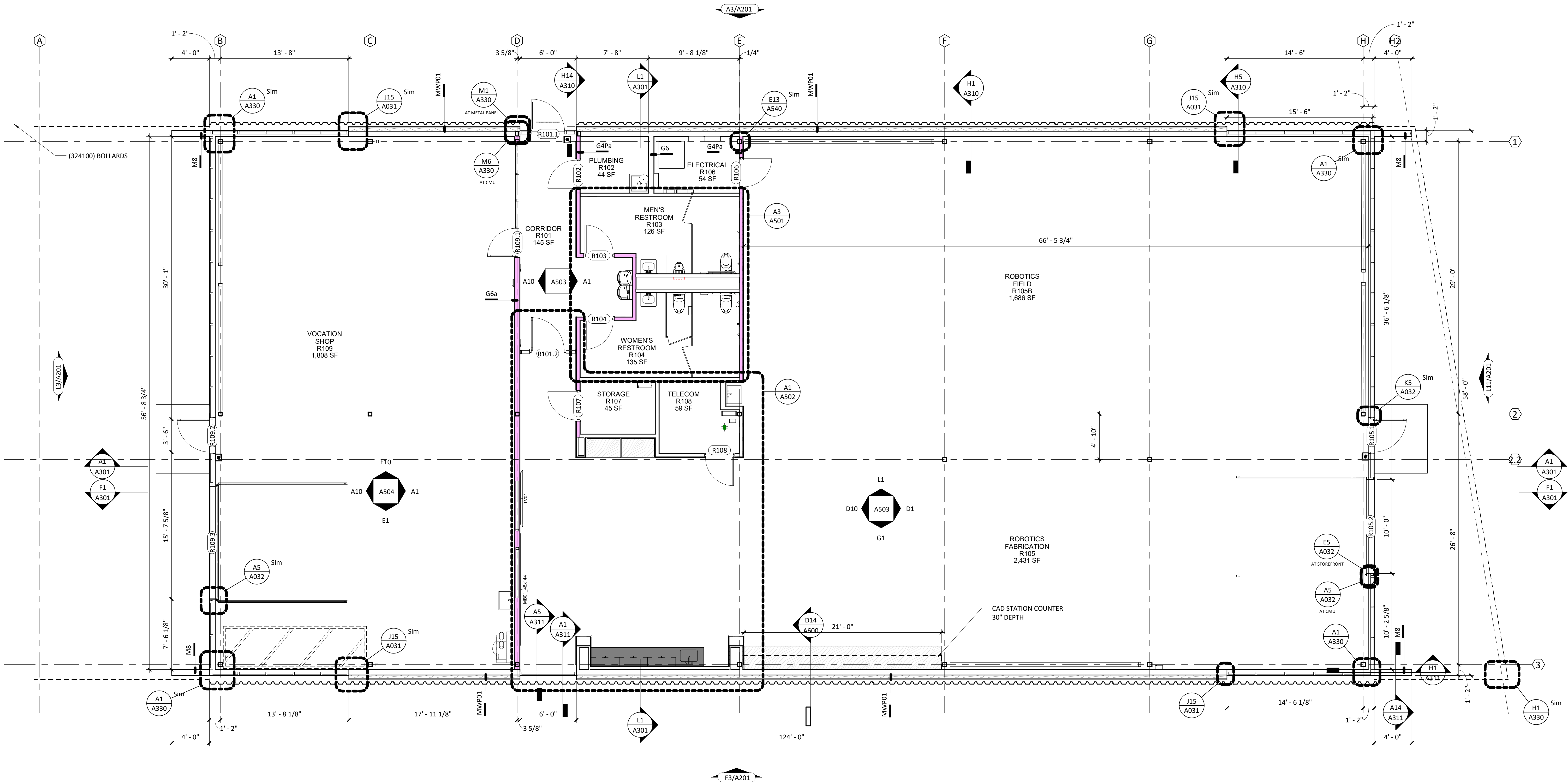
UNLESS A PROFESSIONAL SEAL WITH SIGNATURE AND DATE IS AFFIXED, THIS DOCUMENT IS PRELIMINARY AND IS NOT INTENDED FOR CONSTRUCTION, RECORDING PURPOSES OR IMPLEMENTATION.



Floor Plan

A101

LSN / LSW - Level 1 Floor Plan A3
3/16" = 1'-0"



LSR7 Robotics, GIC &
Phys Education

LSN: 901 NE Douglas St., Lee's Summit MO
64086
LSW: 2600 SW Ward Rd, Lee's Summit MO
64082
LSHS: 400 SE Blue Pkwy, Lee's Summit MO 64063

Project Number: 0121-0100

owner:
Lee's Summit R-7 School
301 NE Tudor Road
Lee's Summit, MO 64086

architect:
Multistudio
4200 Pennsylvania
Kansas City, MO 64111
816.931.6655
multi-studio

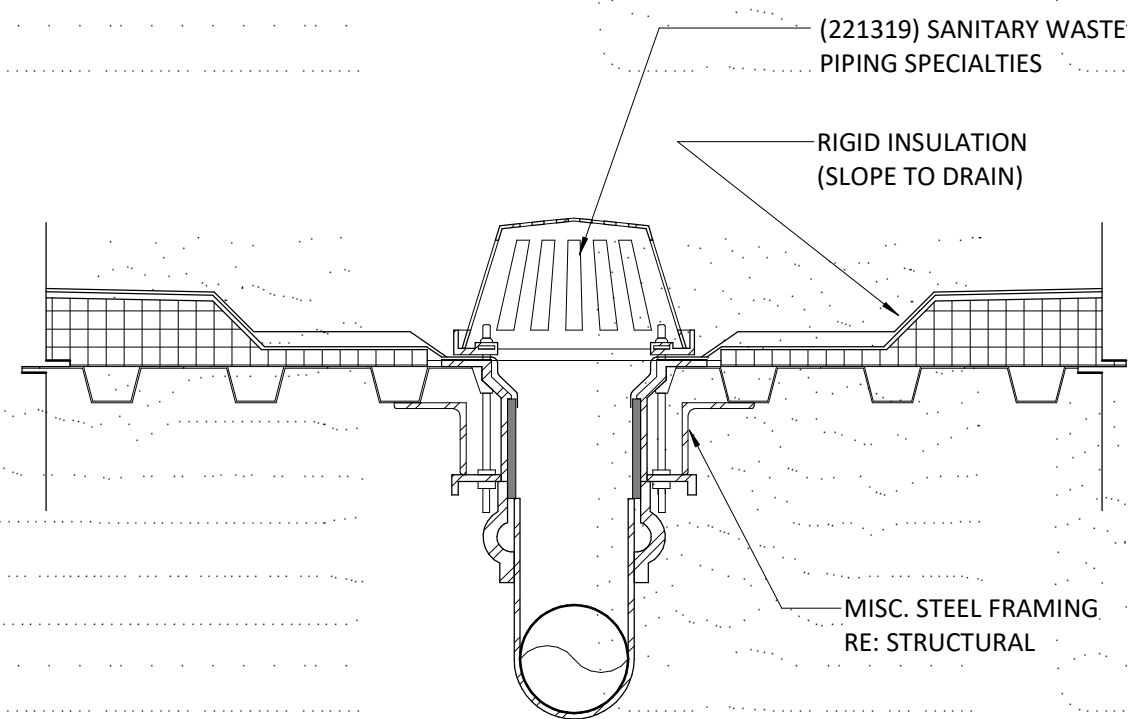
civil engineer:
Kaw Valley Engineering
14700 West 114th Terrace
Lenexa, KS 66215
913.485.0318
kveng.com

structural engineer:
Bob D. Campbell &
4338 Bellevue
Kansas City, MO 64111
816.531.4144
www.bdc-engrs.com

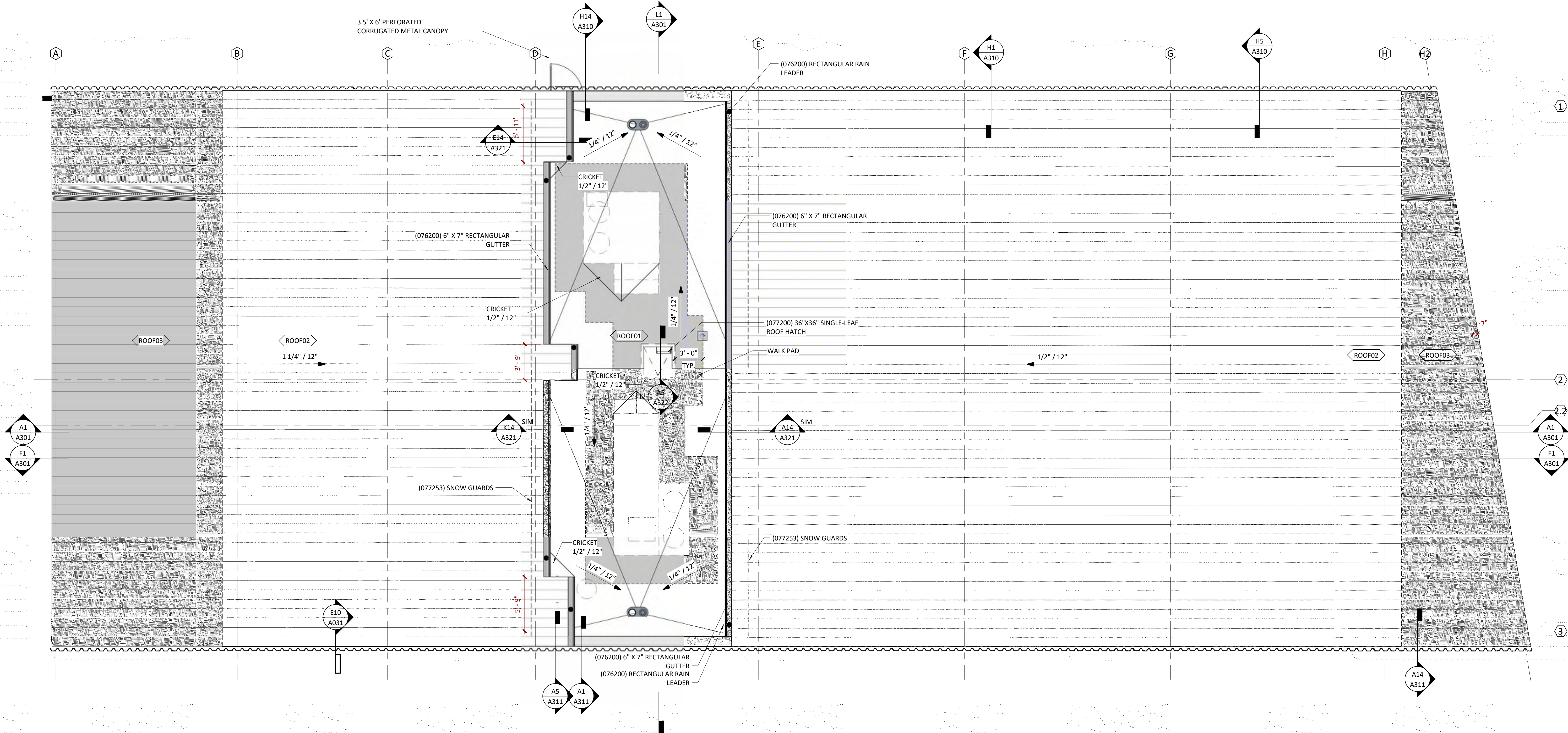
MEP/T/Code:
Henderson Engineers
8345 Lenexa Drive, Suite
300
Lenexa, KS 66214
816.742.5000
www.hendersonengineers.com

General Notes: (Roof Plan)

1. REFER TO EXTERIOR ENCLOSURE TYPES FOR ROOF DETAILS.
2. MINIMUM SLOPES ON ROOF SHALL BE 1/4" PER FOOT IN DIRECTION OF DRAINS OR ROOF EDGE.
3. ELEVATION ABBREVIATIONS AS FOLLOWS: **BOD** = BOTTOM OF DECK, **TOS** = TOP OF STEEL, **TOP** = TOP OF PARAPET.
4. OBJECT ABBREVIATIONS AS FOLLOWS: **RD** = ROOF DRAIN, **RTU** = ROOFTOP UNIT, **RH** = ROOF HATCH.
5. PROVIDE ALL ROOFING DETAILS BY MANUFACTURER'S WARRANTED SYSTEMS.
6. PROVIDE WALKWAY PADS AT ALL ROOF LADDERS AND AT ALL ROOFTOP EQUIPMENT WORKING AREAS.
7. PROVIDE CRICKETS AT ALL ROOFTOP EQUIPMENT TO FACILITATE DRAINAGE.



Section Detail - Typical Roof Drain **M3**
1 1/2" = 1'-0"



Issue Date: September 9, 2022

Revisions		
NUMBER	DESCRIPTION	DATE

UNLESS A PROFESSIONAL SEAL WITH SIGNATURE AND DATE IS AFFIXED, THIS DOCUMENT IS PRELIMINARY AND IS NOT INTENDED FOR CONSTRUCTION, RECORDING PURPOSES OR IMPLEMENTATION.



Roof Plan

A111

LSN / LSW - Roof Plan **A3**
3/16" = 1'-0"

LSR7 Robotics, GiC & Phys Education

LSN: 901 NE Douglas St., Lee's Summit MO 64086
LSW: 2600 SW Ward Rd, Lee's Summit MO 64082
LSHS: 400 SE Blue Pkwy, Lee's Summit MO 64063

Project Number: 0121-0100

owner: Lee's Summit R-7 School
301 NE Tudor Road
Lee's Summit, MO 64086
architect: Multistudio
4200 Pennsylvania
Kansas City, MO 64111
816.931.6655
multi-studio
civil engineer: Kaw Valley Engineering
14700 West 114th Terrace
Lenexa, KS 66215
913.485.0318
kveeng.com
structural engineer: Bob D. Campbell &
4338 Bellevue
Kansas City, MO 64111
816.531.4144
www.bdc-engrs.com

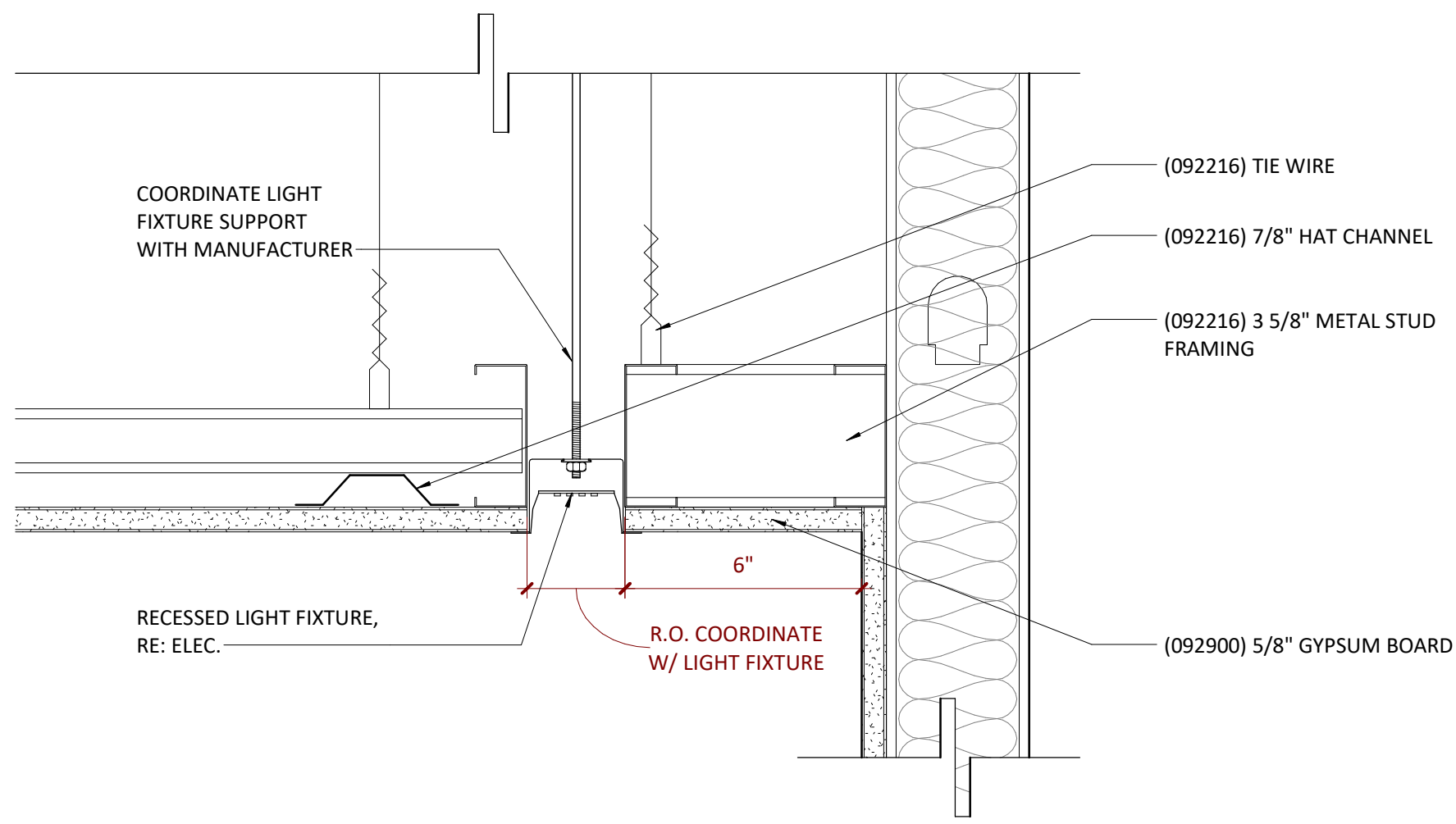
MEP/PT/Code: Henderson Engineers
8345 Lenexa Drive, Suite 300
Lenexa, KS 66214
816.742.5000
www.hendersonengineers.com

General Notes (Reflected Ceiling Plans):

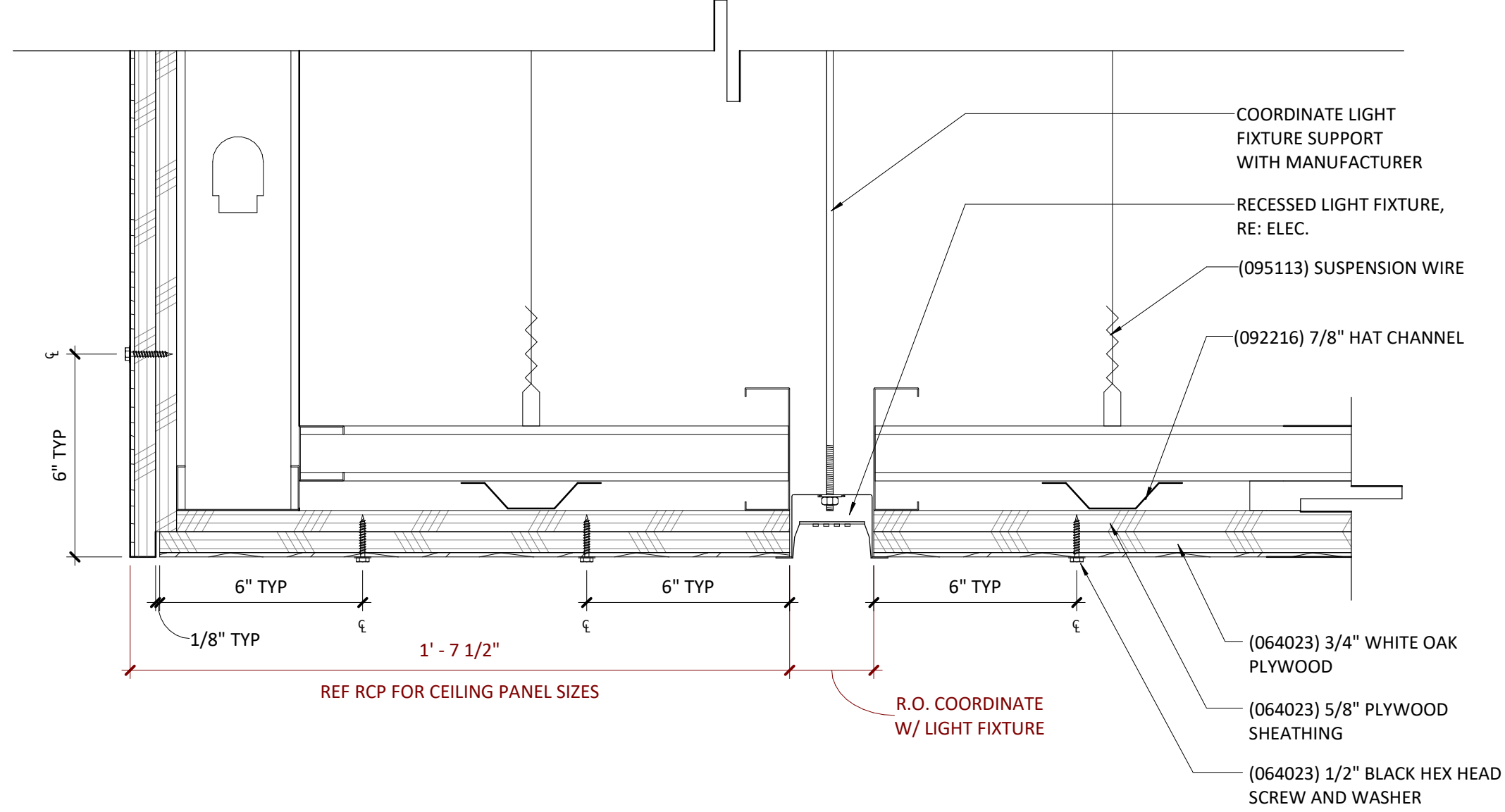
1. ALL CEILING AND SOFFIT HEIGHTS ARE GIVEN ABOVE FINISHED FLOOR ELEVATION - (EL 0'-0").
2. GENERALLY ONLY CEILING MOUNTED FIXTURES ARE SHOWN ON THIS PLAN. COORDINATE WITH MEP PLANS FOR ADDITIONAL INFORMATION.
3. SOME OR ALL SPRINKLERS MAY NOT BE SHOWN ON THIS PLAN. COORDINATE WITH MEP DRAWINGS FOR ADDITIONAL INFORMATION. SPRINKLER HEADS TO BE CENTERED ON CEILING TILE, TYP.
4. VERIFY LOCATIONS OF ALL CEILING ACCESS PANELS WITH MEP DRAWINGS. COORDINATE LOCATIONS OF PANELS WITH ARCHITECT PRIOR TO INSTALLATION. ACCESS PANEL FIRE RATINGS MUST MATCH CEILING ASSEMBLY FIRE RATINGS.
5. LIGHTING FIXTURES TO BE CENTERED AND SPACED EQUALLY UNLESS NOTED OTHERWISE.
6. LIGHT FIXTURES ARE SHOWN FOR DIMENSIONAL PURPOSES ONLY COORDINATE WITH ELECTRICAL DRAWINGS FOR FIXTURE DESIGNATIONS.
7. IF PROJECT INCLUDES FIRE RATED CEILINGS, LIGHT FIXTURES LOCATED IN RATED CEILING ASSEMBLIES ARE TO BE TENTED OR OTHERWISE RATED TO MATCH THE CEILING.

Lighting Fixture Legend:

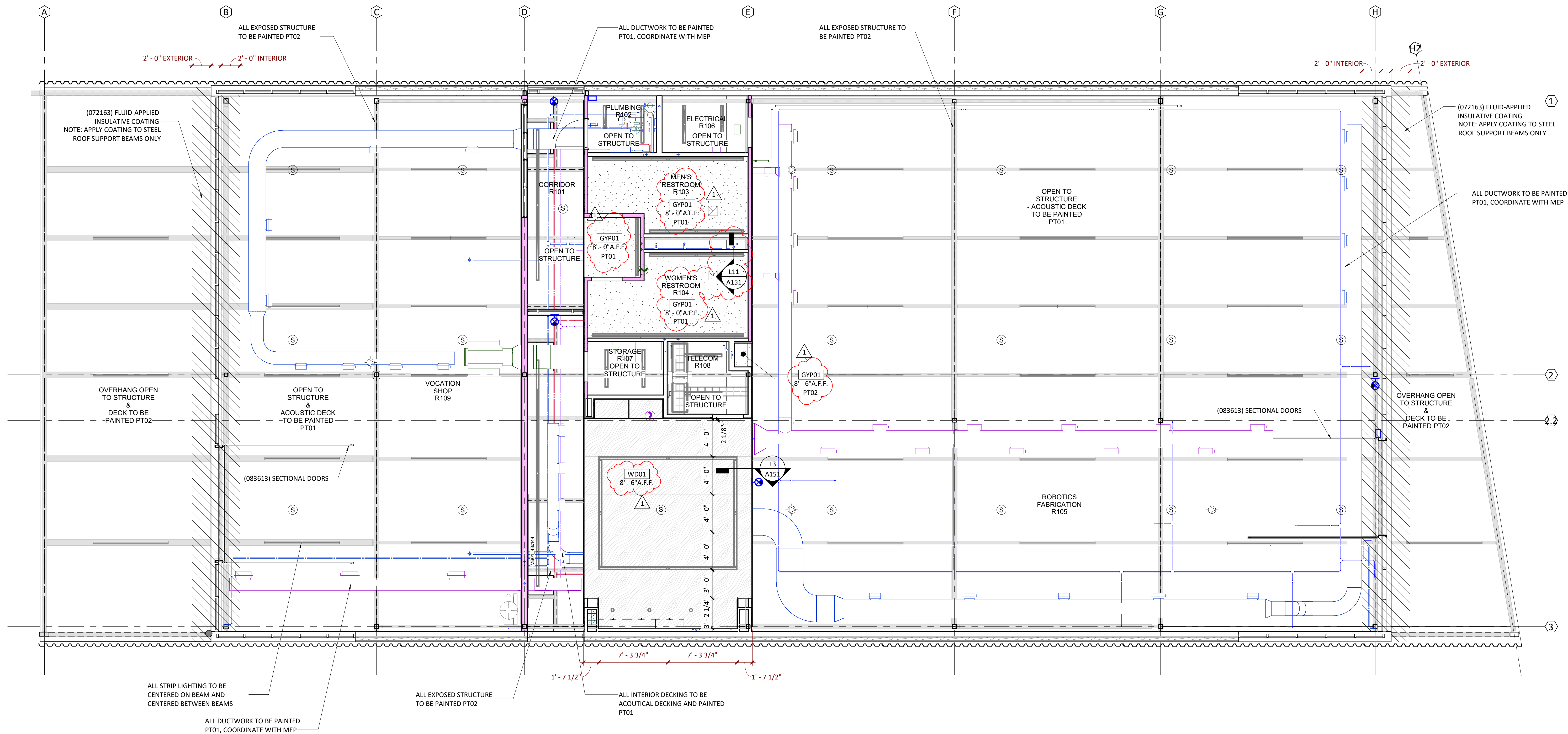
- 2X4 FLORESCENT
- 2X2 FLORESCENT
- STRIP FLORESCENT
- RECESSED CAN LIGHT
- CEILING FAN
- EMERGENCY WALL PACK
- TRACK LIGHTING
- STEP LIGHT
- COVE LIGHT



Restroom Ceiling Detail @ Recessed Light L11
3\"/>



Classroom Ceiling Detail @ Recessed Light L3
3\"/>



LSN / LSW - Level 1 RCP A3
3/16\"/>

Issue Date: September 9, 2022

Revisions		
NUMBER	DESCRIPTION	DATE
1	Addendum 01	09/19/2022

UNLESS A PROFESSIONAL SEAL WITH SIGNATURE AND DATE IS AFFIXED, THIS DOCUMENT IS PRELIMINARY AND IS NOT INTENDED FOR CONSTRUCTION, RECORDING PURPOSES OR IMPLEMENTATION



Reflected Ceiling Plan

A151

LSR7 Robotics, GiC & Phys Education

LSN: 901 NE Douglas St., Lee's Summit MO 64086
LSW: 2600 SW Ward Rd, Lee's Summit MO 64082
LSHS: 400 SE Blue Pkwy, Lee's Summit MO 64063

Project Number: 0121-0100

owner:
Lee's Summit R-7 School
301 NE Tudor Road
Lee's Summit, MO 64086
architect:
Multistudio
4205 Pennsylvania
Kansas City, MO 64111
816.931.6655
multi-studio
civil engineer:
Kaw Valley Engineering
14700 West 114th Terrace
Lenexa, KS 66215
913.485.0318
kveeng.com
structural engineer:
Bob D. Campbell &
4338 Bellevue
Kansas City, MO 64111
816.531.4144
www.bdc-engrs.com

MEP/IT Codes:
Henderson Engineers
8345 Lenexa Drive, Suite
300
Lenexa, KS 66314
816.742.5000
www.hendersonengineers.com

General Notes (Exterior Elevations):

1. MATERIALS AND FINISHES INDICATED APPLY TO ALL SIMILAR ELEMENTS
2. COORDINATE EXTERIOR LIGHTING FIXTURE TYPES AND LOCATIONS WITH ELECTRICAL DRAWINGS.

Finish Legend - Exterior

MARK	MODEL
042200	CONCRETE MASONRY UNIT
M8	CONCRETE MASONRY UNIT
074113	STANDING SEAM METAL ROOF PANELS
ROOF02	STANDING SEAM METAL ROOF
074213.13	FORMED METAL WALL PANEL
MWP02	CORRUGATED METAL PANEL
074219	CUSTOM PERFORATED ALUMINUM PANEL
MWP01	METAL RAINSCREEN PANEL - CUSTOM
088000	GLAZING
IGU01	1" INSULATED GLASS
IGU01SF	1" INSULATED GLASS (SECURITY GLASS)

(074219) ALUMINUM RAINSCREEN GIRTS
- 2'-0" O.C. START AT POINT INDICATED ON
ELEVATIONS

Issue Date: September 9, 2022

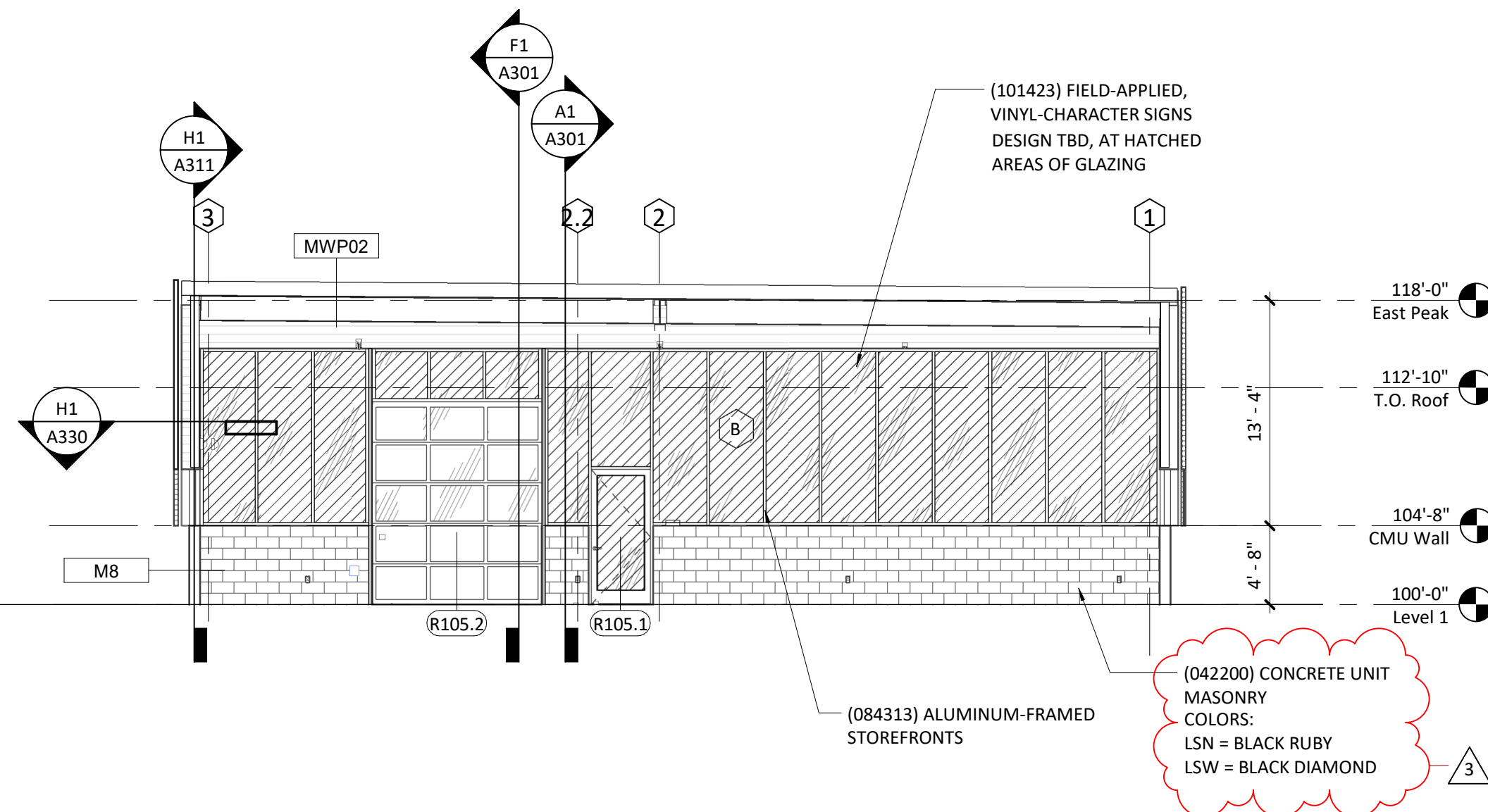
NUMBER	DESCRIPTION	DATE
2	Adendum 02	09/23/2022
3	A300 - Code Comments	11/09/2022

UNLESS A PROFESSIONAL SEAL WITH SIGNATURE AND DATE IS
AFFIXED, THIS DOCUMENT IS PRELIMINARY AND IS NOT INTENDED FOR
CONSTRUCTION, RECORDING PURPOSES OR IMPLEMENTATION

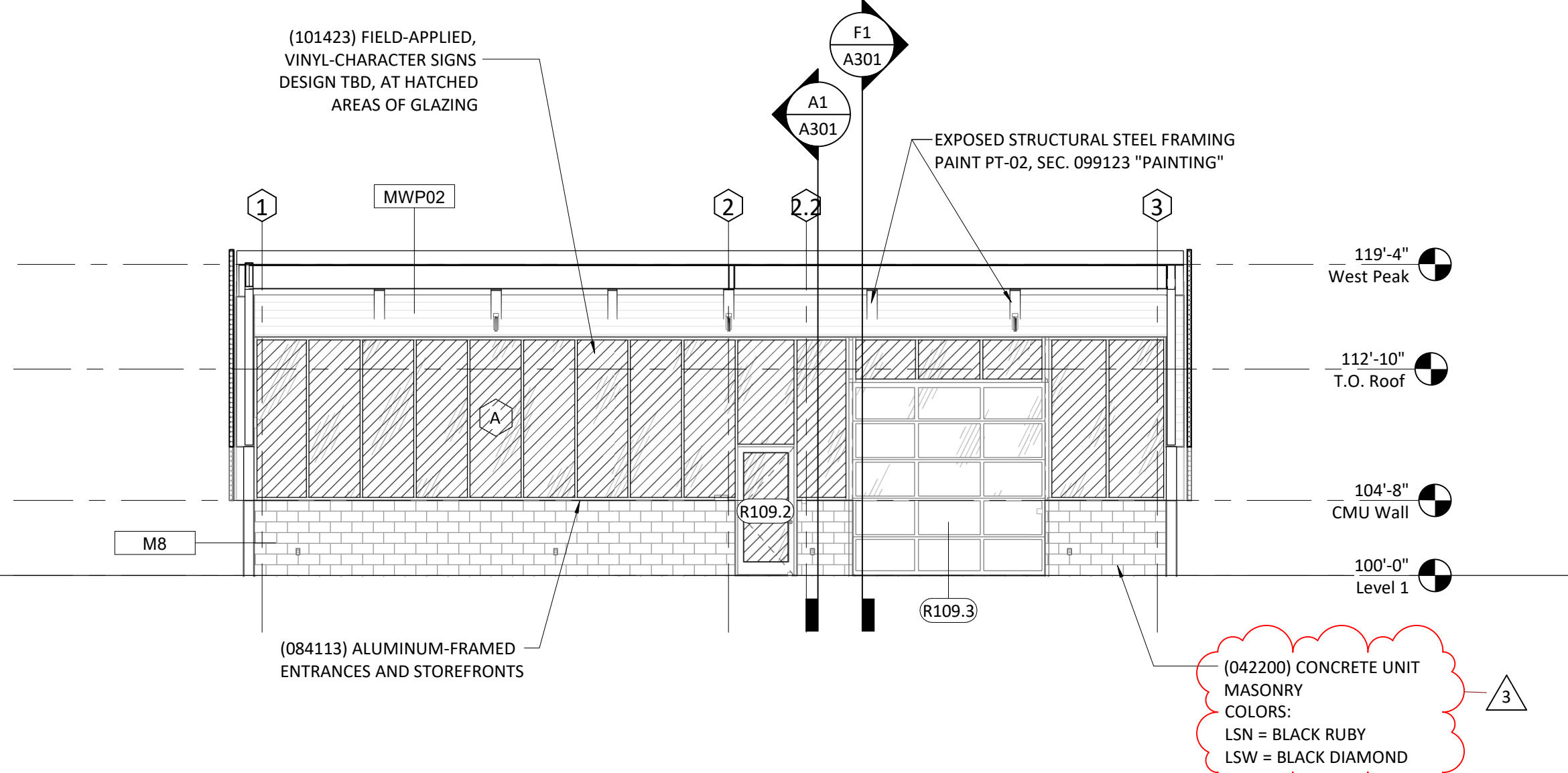


Exterior Elevations

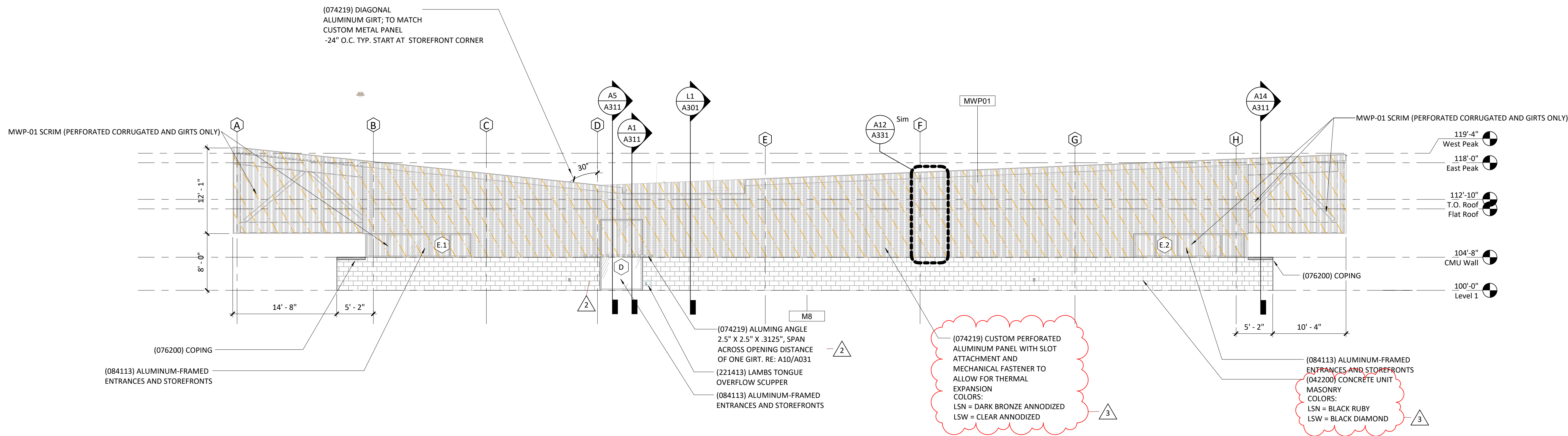
A201



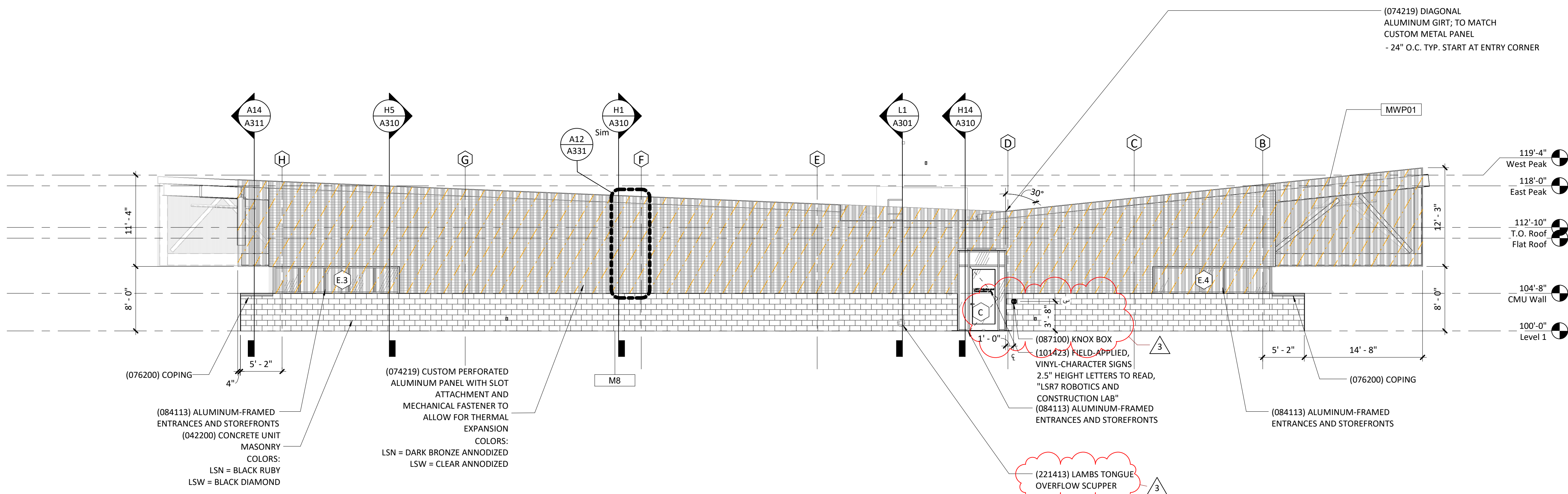
LSN / LSW - East Exterior Elevation **L11**
1/8" = 1'-0"



LSN / LSW - West Exterior Elevation **L3**
1/8" = 1'-0"



LSN / LSW - South Exterior Elevation **F3**
1/8" = 1'-0"



LSN / LSW - North Exterior Elevation **A3**
1/8" = 1'-0"

**LSR7 Robotics, GiC &
Phys Education**

LSN: 901 NE Douglas St., Lee's Summit MO
64086
LSW: 2600 SW Ward Rd, Lee's Summit MO
64082
LSHS: 400 SE Blue Pkwy, Lee's Summit MO 64063

Project Number: 0121-0100

owner:
Lee's Summit R-7 School
301 NE Tudor Road
Lee's Summit, MO 64086

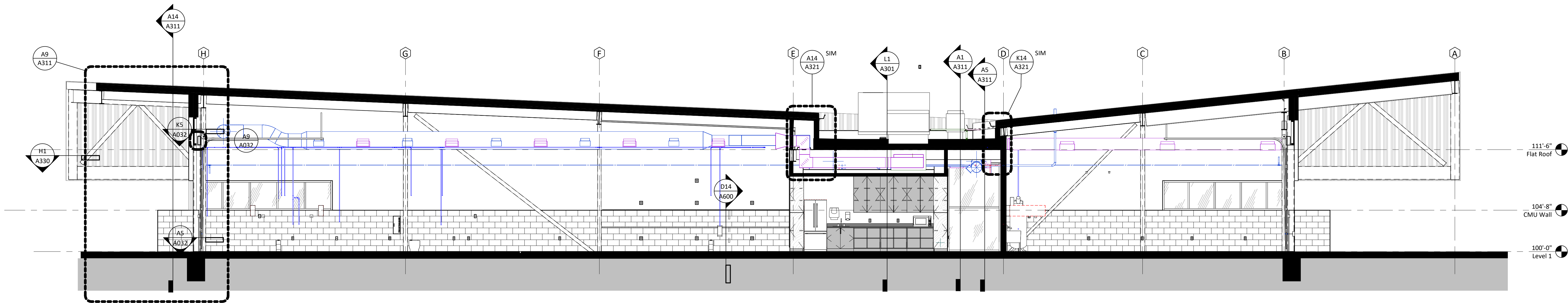
architect:
Multistudio
4200 Pennsylvania
Kansas City, MO 64111
816.931.6655
multi-studio

civil engineer:
Kaw Valley Engineering
14700 West 114th Terrace
Lenexa, KS 66215
913.485.0318
kveng.com

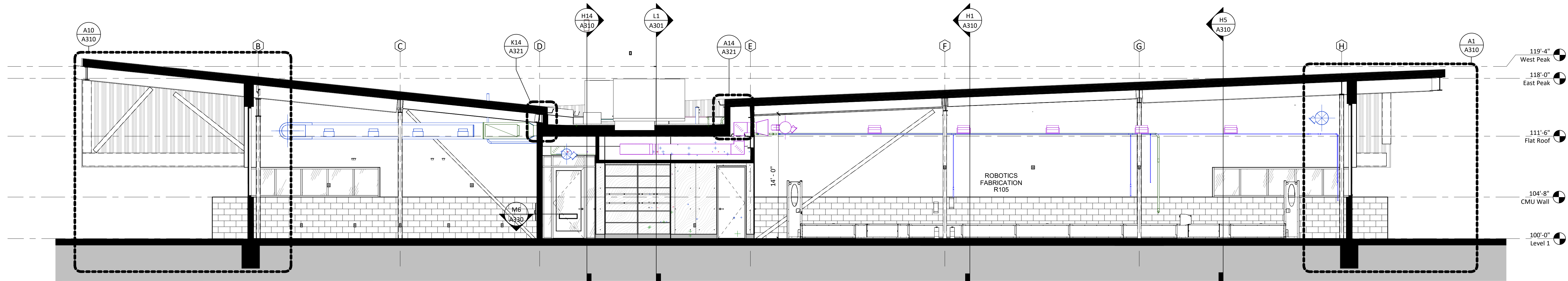
structural engineer:
Bob D. Campbell &
4338 Bellevue
Kansas City, MO 64111
816.531.4144
www.bdc-engrs.com

MEP/IT Codes:
Henderson Engineers
8345 Lenexa Drive, Suite
300
Lenexa, KS 66214
816.742.5000
www.hendersonengineers.com

LSN / LSW - Building Section 3 **L1**
3/16" = 1'-0"



LSN / LSW - Building Section 2 **F1**
3/16" = 1'-0"



LSN / LSW - Building Section 1 **A1**
3/16" = 1'-0"

Issue Date: September 9, 2022

Revisions

NUMBER	DESCRIPTION	DATE
--------	-------------	------

UNLESS A PROFESSIONAL SEAL WITH SIGNATURE AND DATE IS
AFFIXED, THIS DOCUMENT IS PRELIMINARY AND IS NOT INTENDED FOR
CONSTRUCTION, RECORDING PURPOSES OR IMPLEMENTATION



Building Sections
A301

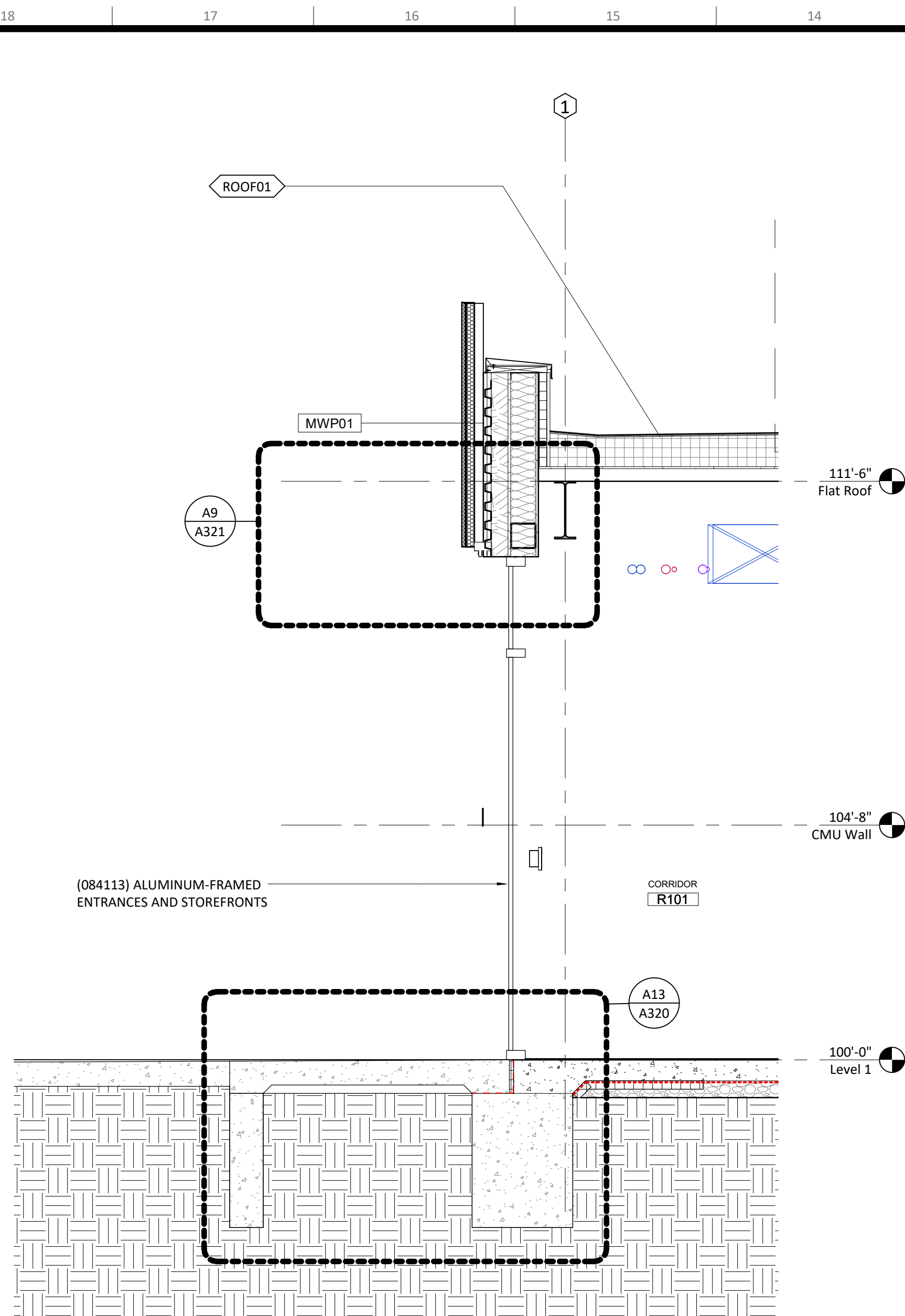
LSR7 Robotics, GIC & Phys Education

LSN: 901 NE Douglas St., Lee's Summit MO 64086
LSW: 2600 SW Ward Rd, Lee's Summit MO 64082
LSHS: 400 SE Blue Pkwy, Lee's Summit MO 64063

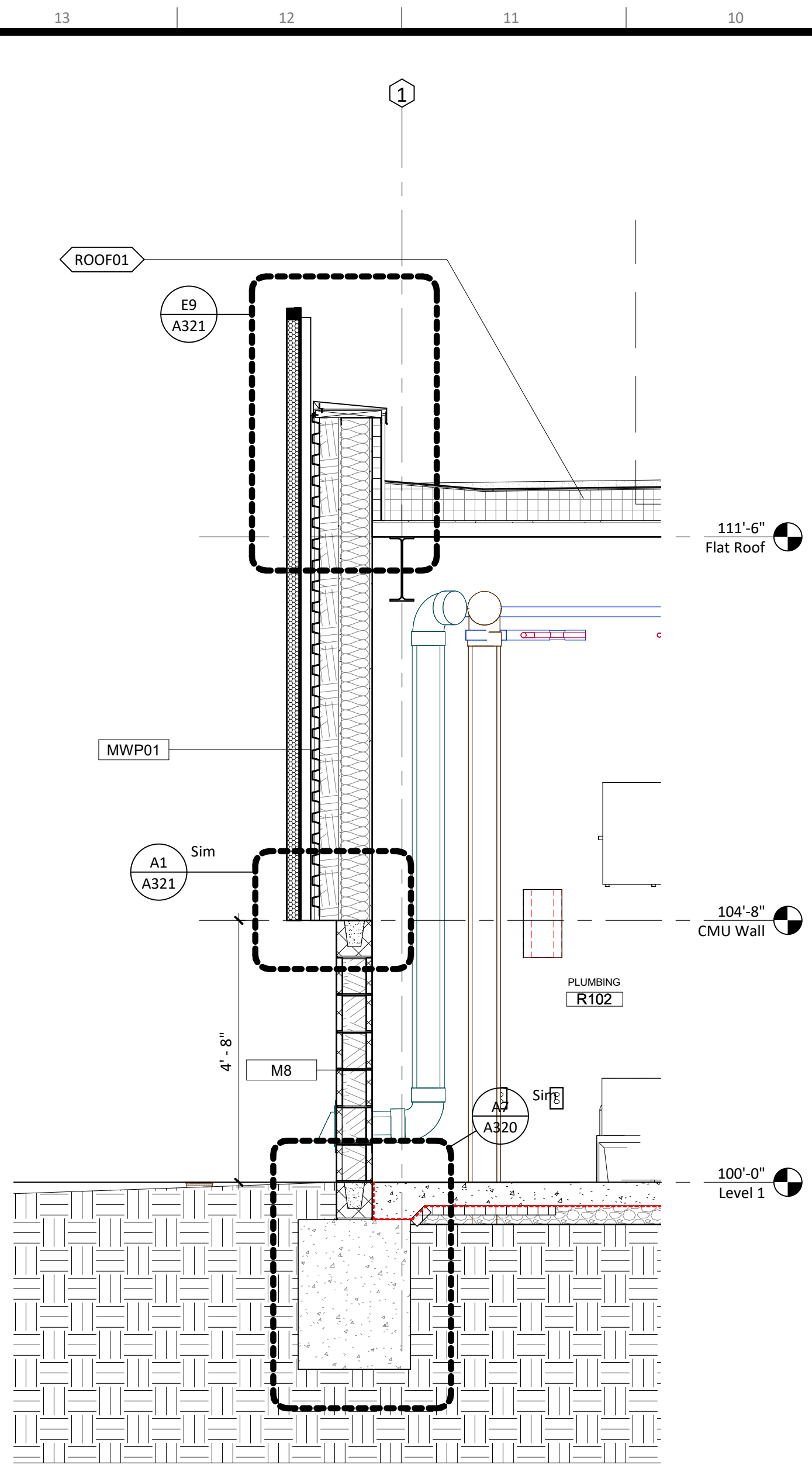
Project Number: 0121-0100

owner:
Lee's Summit R-7 School
301 NE Tudor Road
Lee's Summit, MO 64086
architect:
Multistudio
4205 Pennsylvania
Kansas City, MO 64111
816.931.6655
multi.studio
civil engineer:
Kaw Valley Engineering
14700 West 114th Terrace
Lenexa, KS 66215
913.485.0318
kvereng.com
structural engineer:
Bob D. Campbell &
4338 Bellevue
Kansas City, MO 64111
816.531.4144
www.bdc-engrs.com

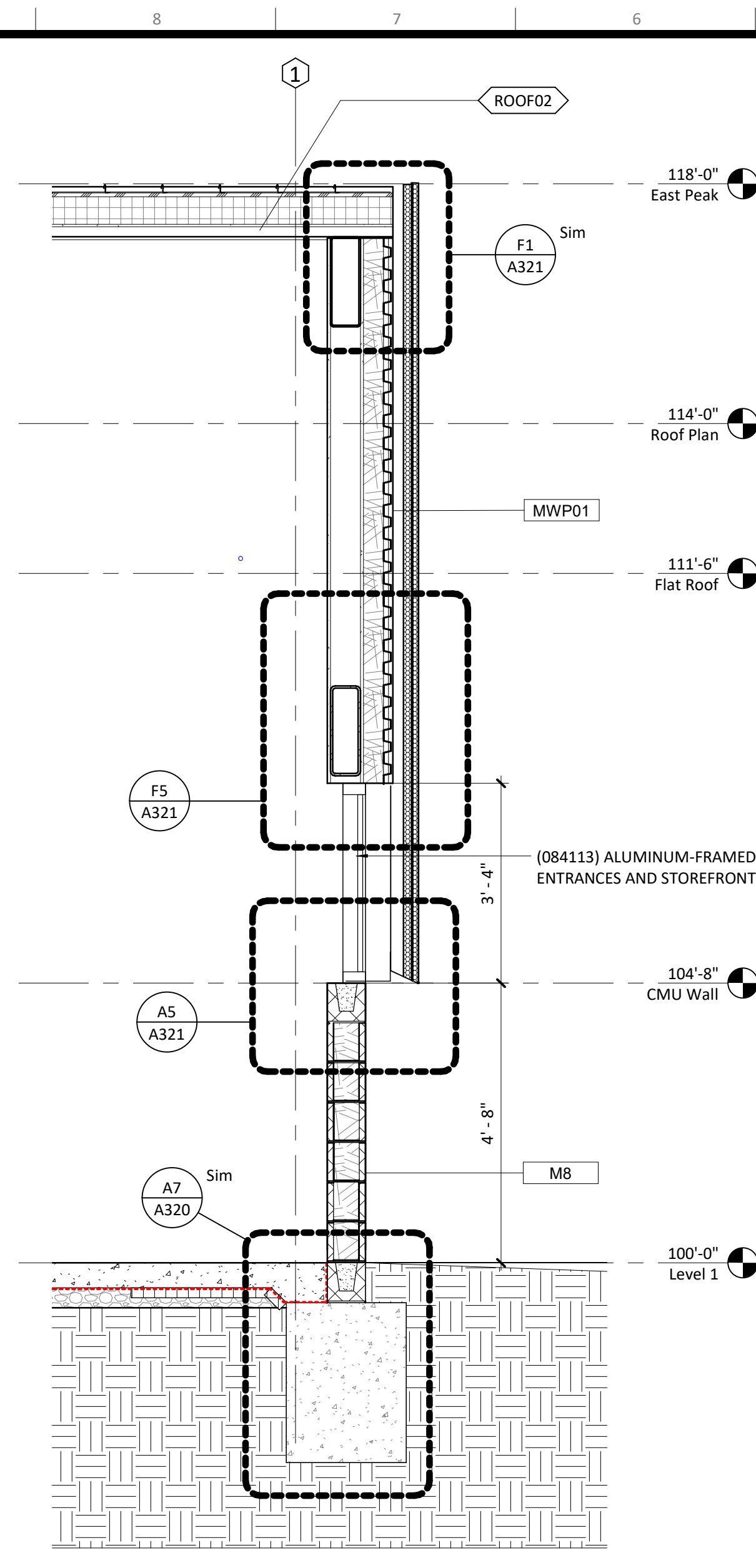
MEP/IT Codes:
Henderson Engineers
8345 Lenexa Drive, Suite
300
Lenexa, KS 66214
816.742.5000
www.hendersonengineers.com



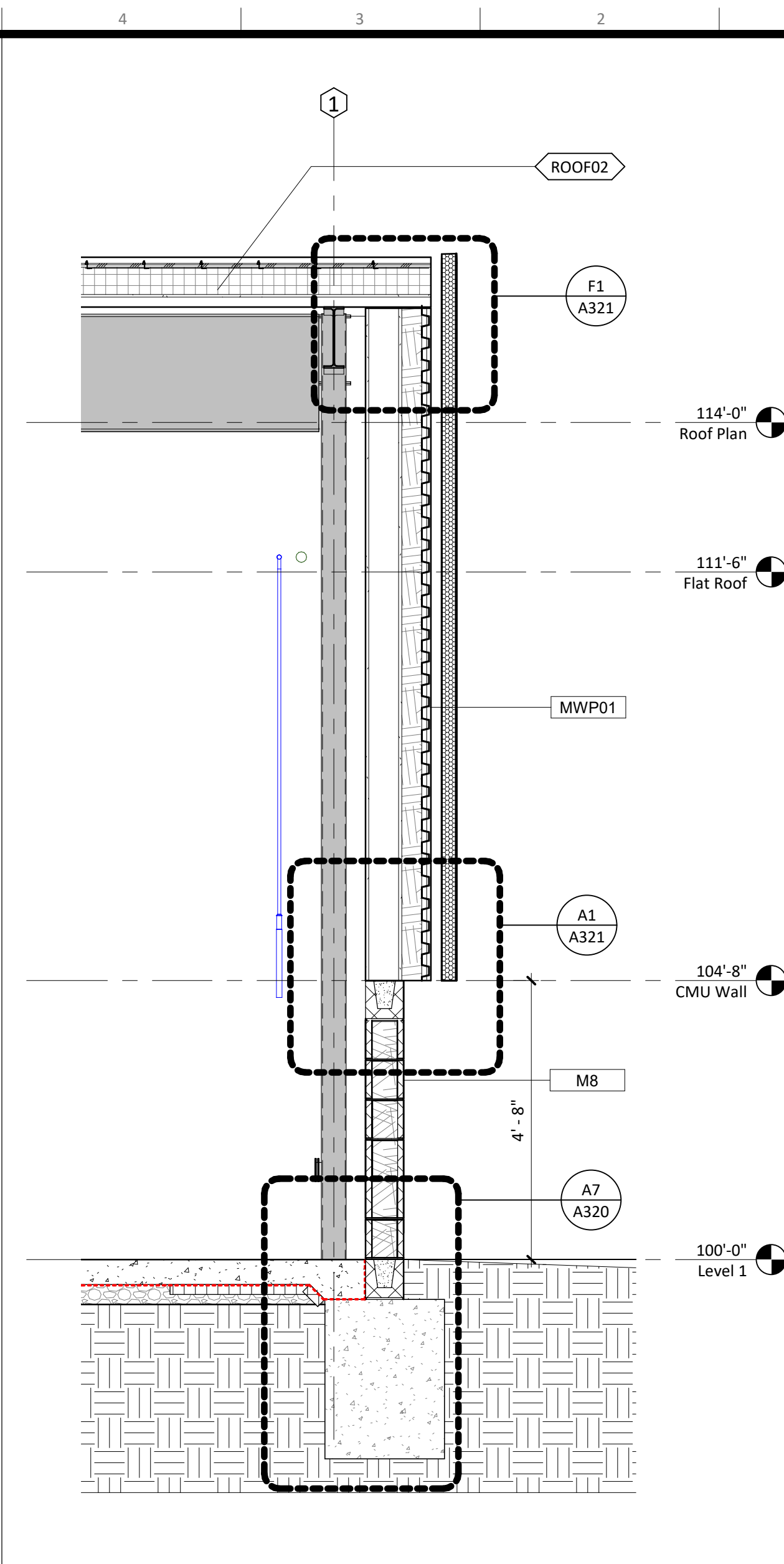
Wall Section @ North Entry H14
1/2" = 1'-0"



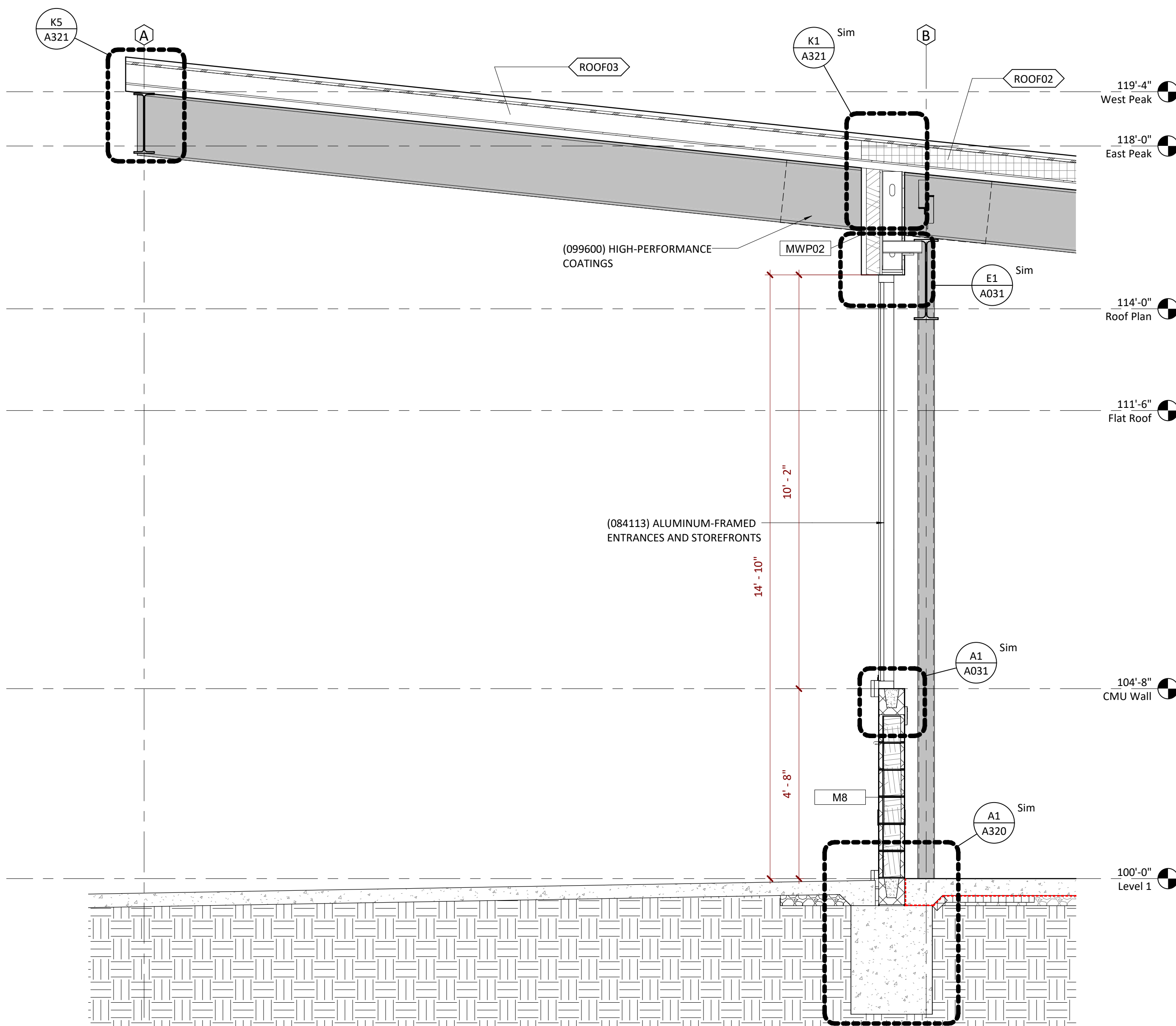
Wall Section @ Mechanical Roof H10
1/2" = 1'-0"



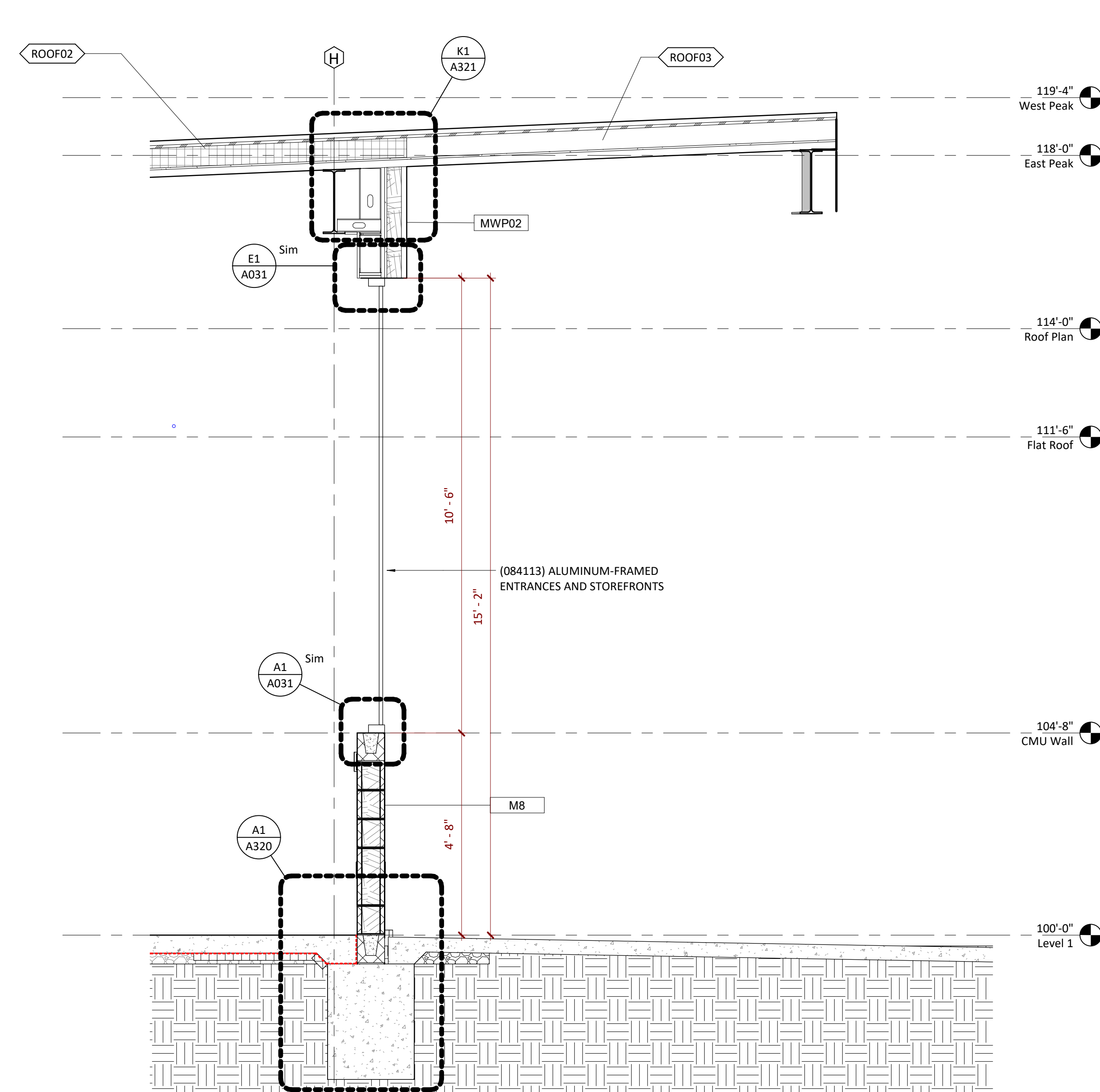
Wall Section @ Metal Panel & Storefront H5
1/2" = 1'-0"



Wall Section @ Metal Panel H1
1/2" = 1'-0"



Wall Section @ GIC Canopy A10
1/2" = 1'-0"



Wall Section @ Robotics Canopy A1
1/2" = 1'-0"

Issue Date: September 9, 2022

Revisions

NUMBER	DESCRIPTION	DATE
--------	-------------	------

LSR7 Robotics, GiC & Phys Education

LSN: 901 NE Douglas St., Lee's Summit MO 64086
LSW: 2600 SW Ward Rd, Lee's Summit MO 64082
LSHS: 400 SE Blue Pkwy, Lee's Summit MO 64063

Project Number: 0121-0100

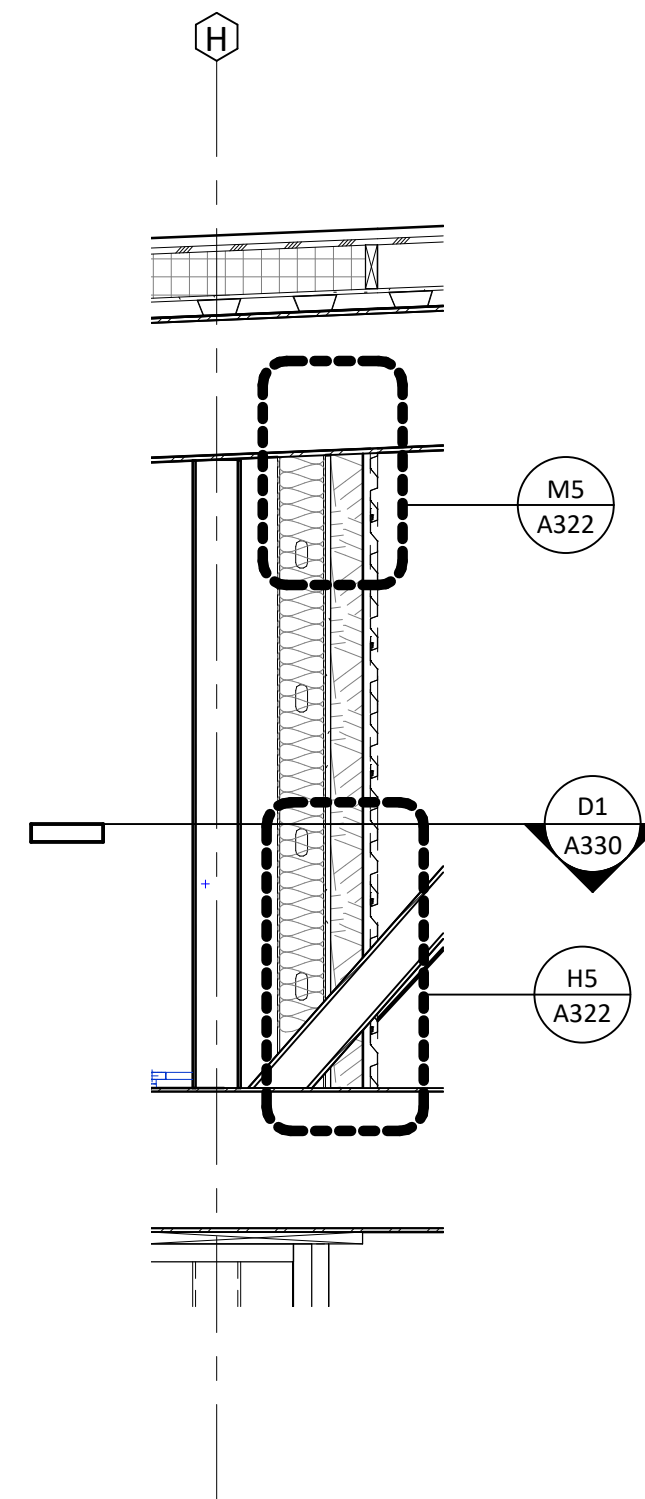
owner:
Lee's Summit R-7 School
301 NE Tudor Road
Lee's Summit, MO 64086
multi-studio

architect:
Multistudio
4200 Pennsylvania
Kansas City, MO 64111
816.931.6655
multi-studio

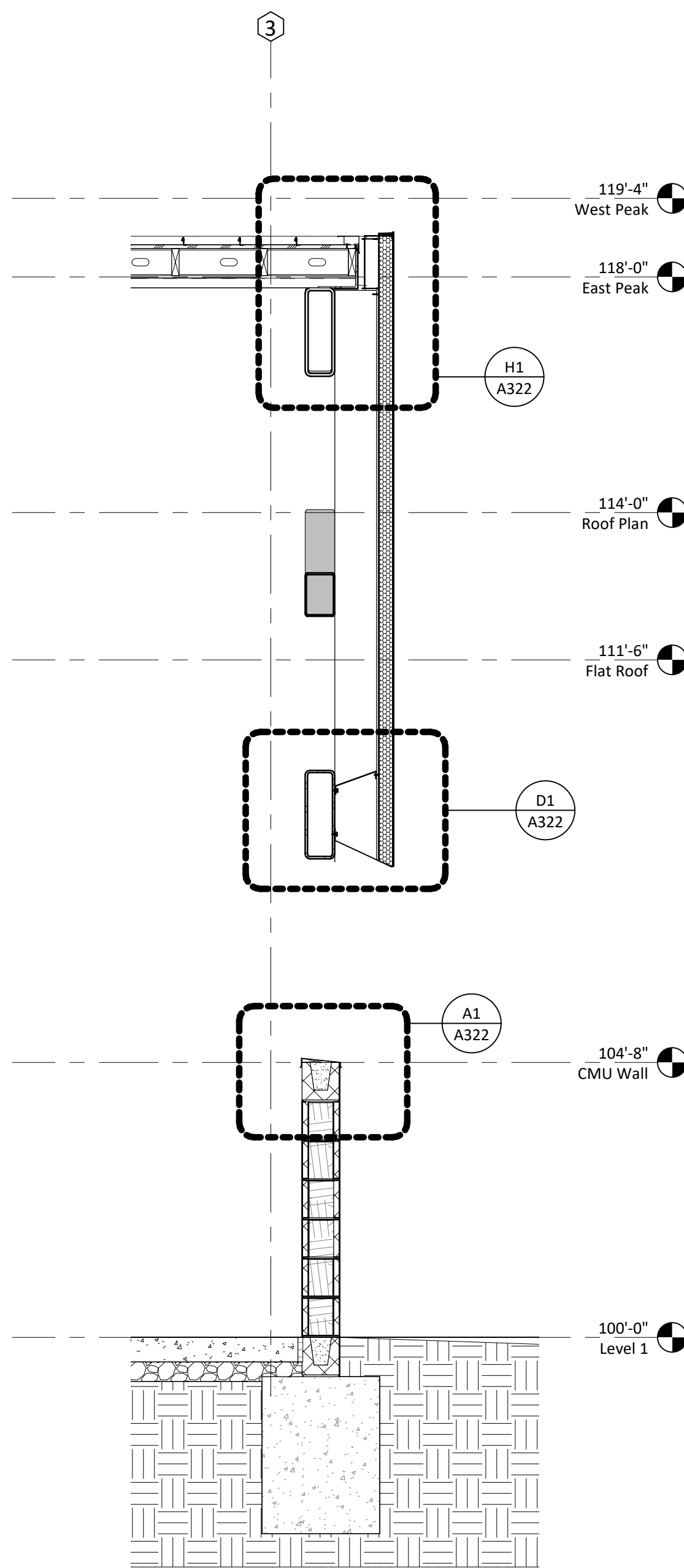
civil engineer:
Kaw Valley Engineering
14700 West 114th Terrace
Lenexa, KS 66215
913.485.0318
kveng.com

structural engineer:
Bob D. Campbell &
4338 Bellevue
Kansas City, MO 64111
816.531.4144
www.bdc-engrs.com

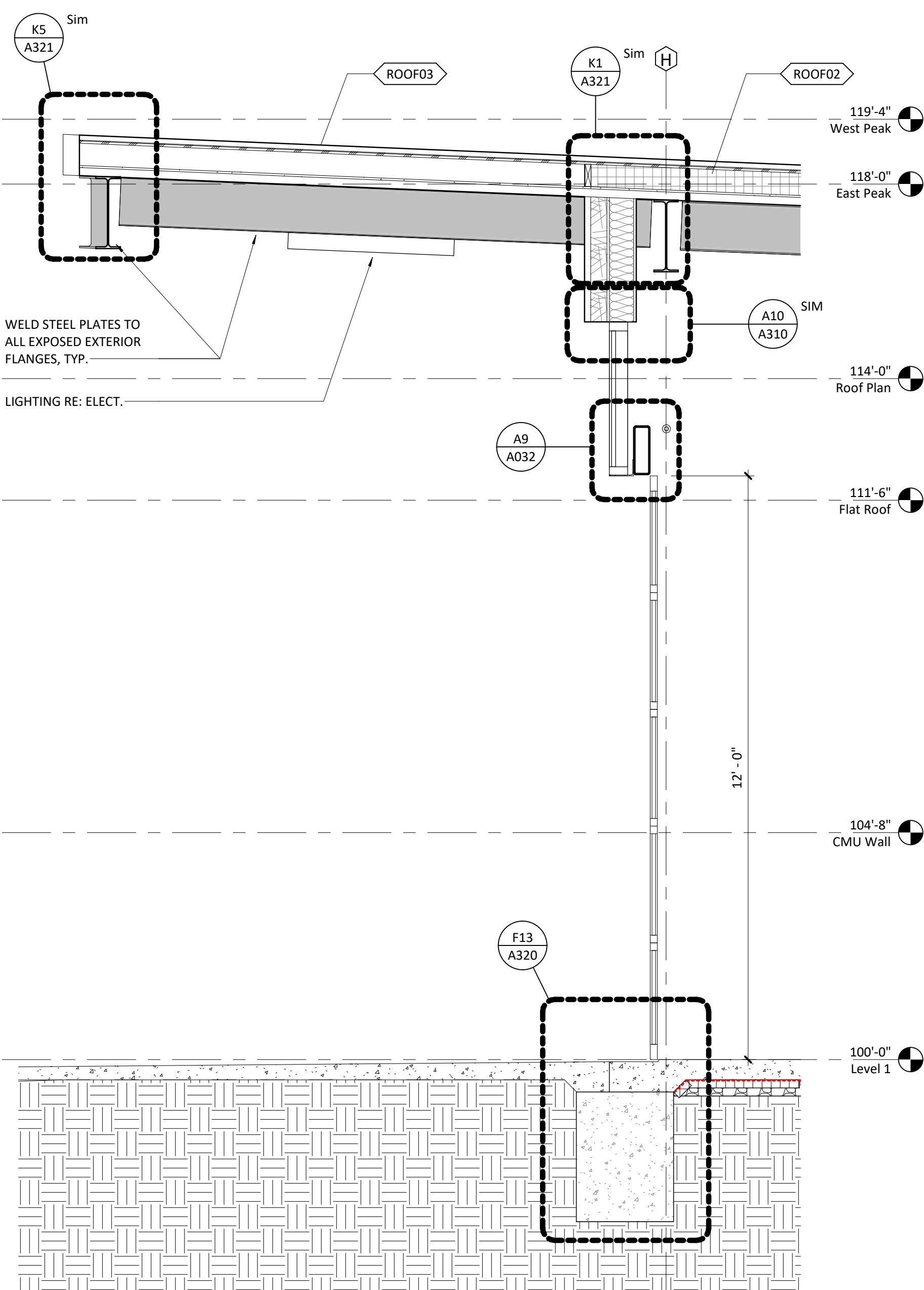
MEP/IT Code:
Henderson Engineers
8345 Lenexa Drive, Suite
300
Lenexa, KS 66214
816.742.5000
www.hendersonengineers.com



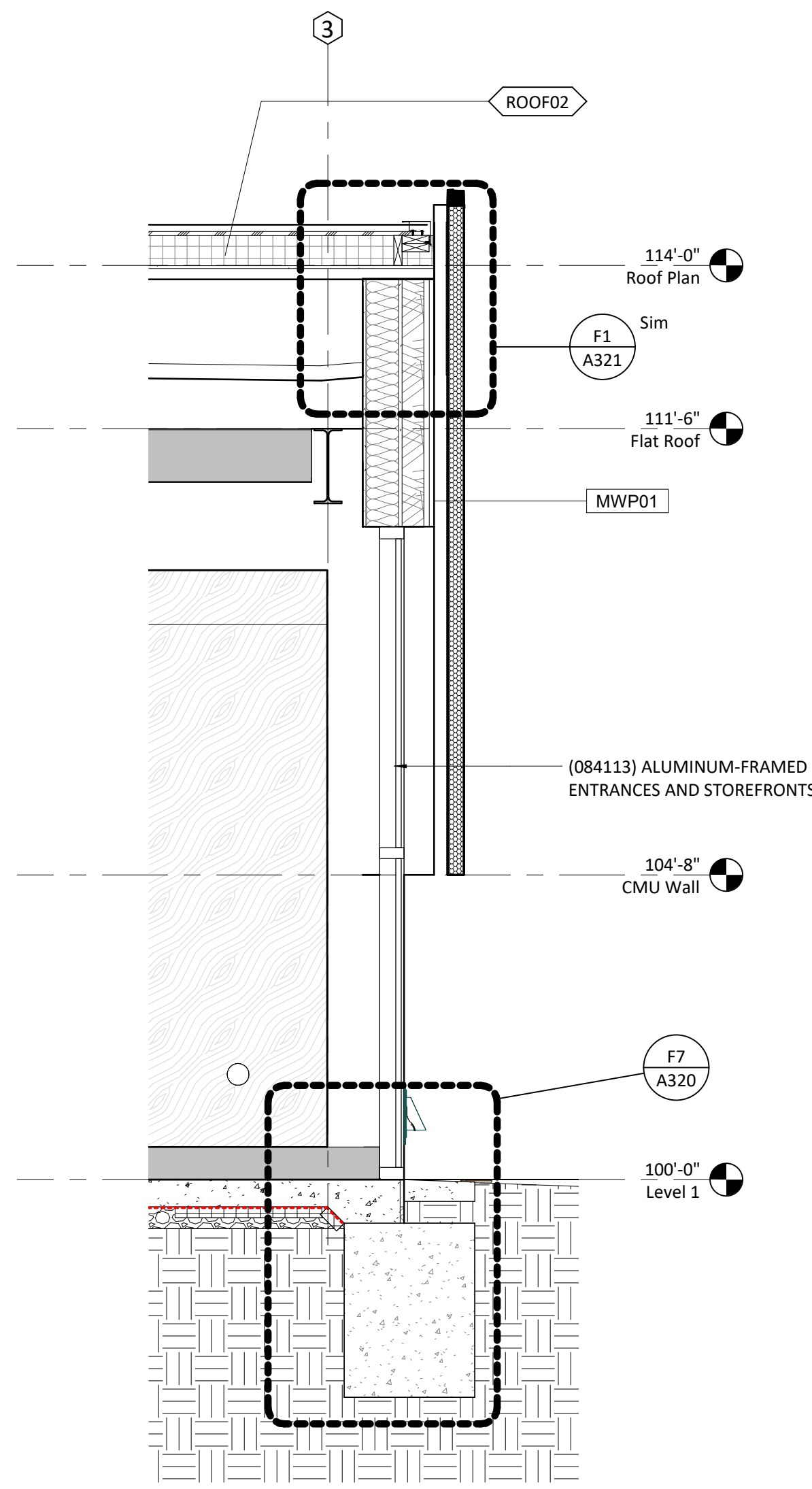
Wall Section - Steel Penetration at Truss **H1**
1/2" = 1'-0"



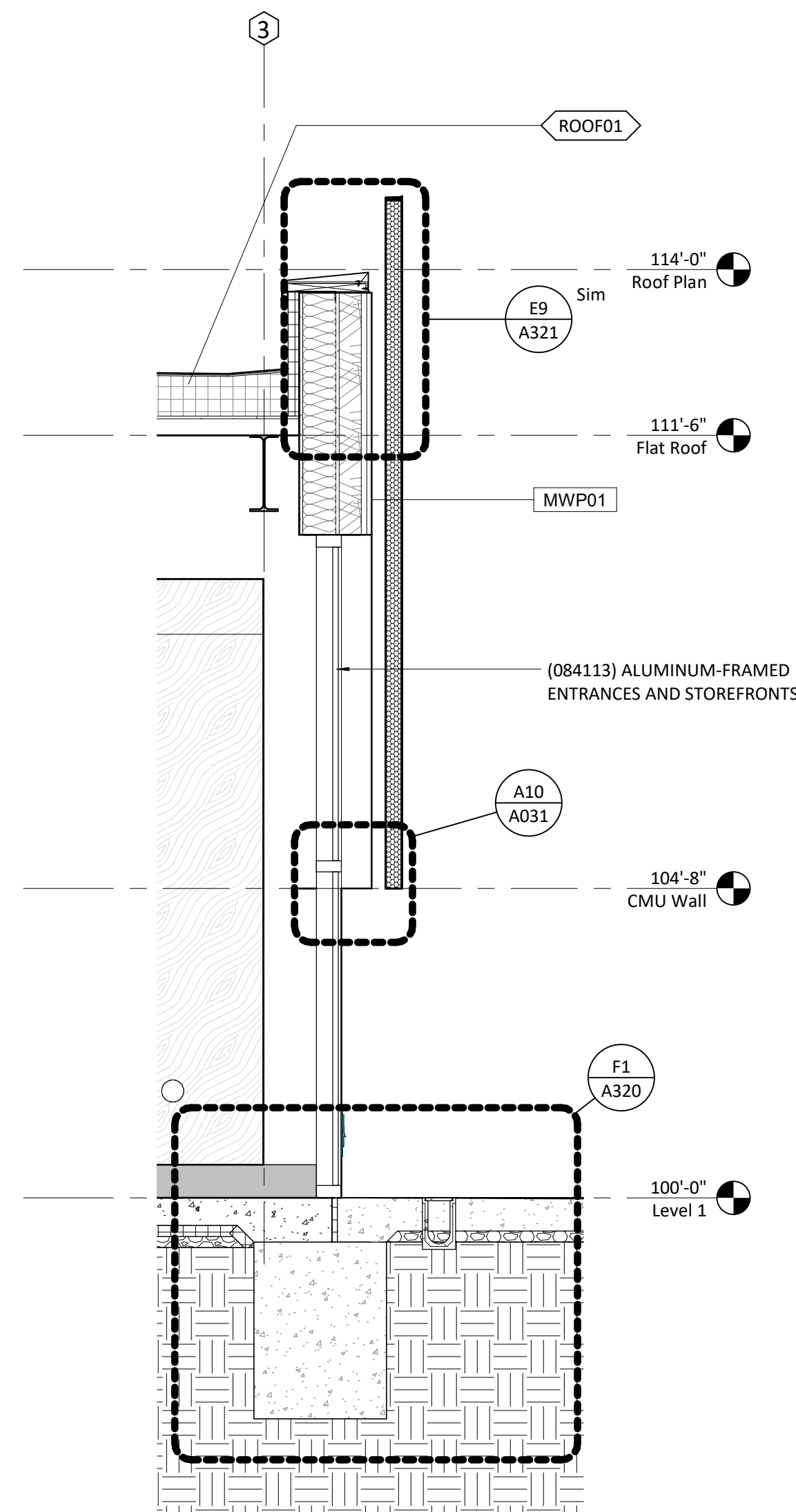
Wall Section @ Canopy Metal Skin Extention **A14**
1/2" = 1'-0"



Wall Section @ Robotics Canopy Garage Door **A9**
1/2" = 1'-0"



Wall Section @ South Window High Roof **A5**
1/2" = 1'-0"



Wall Section @ South Window Low Roof **A1**
1/2" = 1'-0"

Issue Date: September 9, 2022

Revisions

NUMBER	DESCRIPTION	DATE
--------	-------------	------

**LSR7 Robotics, GiC &
Phys Education**

LSN: 901 NE Douglas St., Lee's Summit MO
64086
LSW: 2600 SW Ward Rd, Lee's Summit MO
64082
LSHS: 400 SE Blue Pkwy, Lee's Summit MO 64063

Project Number: 0121-0100

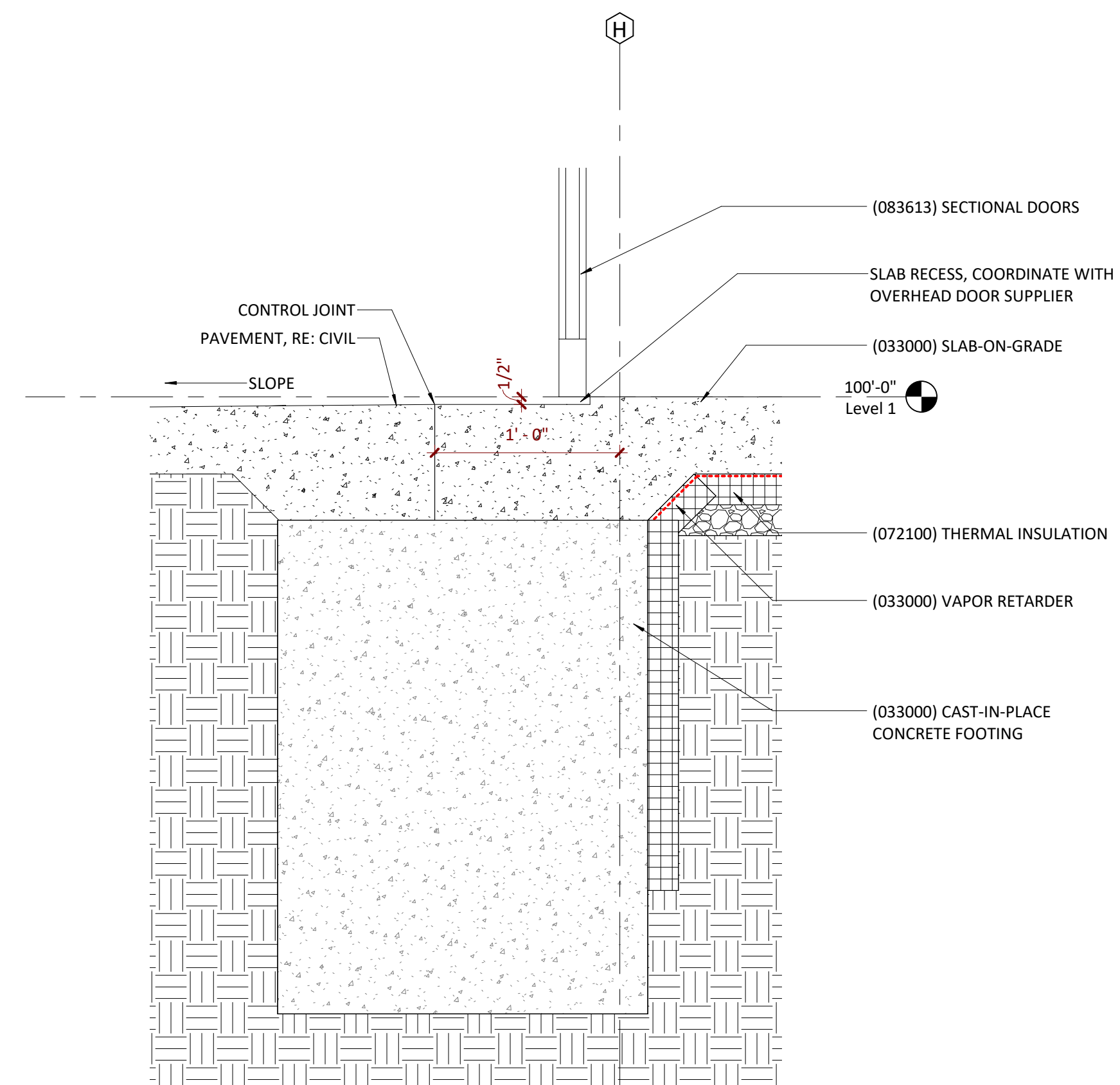
owner:
Lee's Summit R-7 School
301 NE Tudor Road
Lee's Summit, MO 64086
multi-studio

architect:
Multistudio
4205 Pennsylvania
Kansas City, MO 64111
816.931.6655
multi-studio

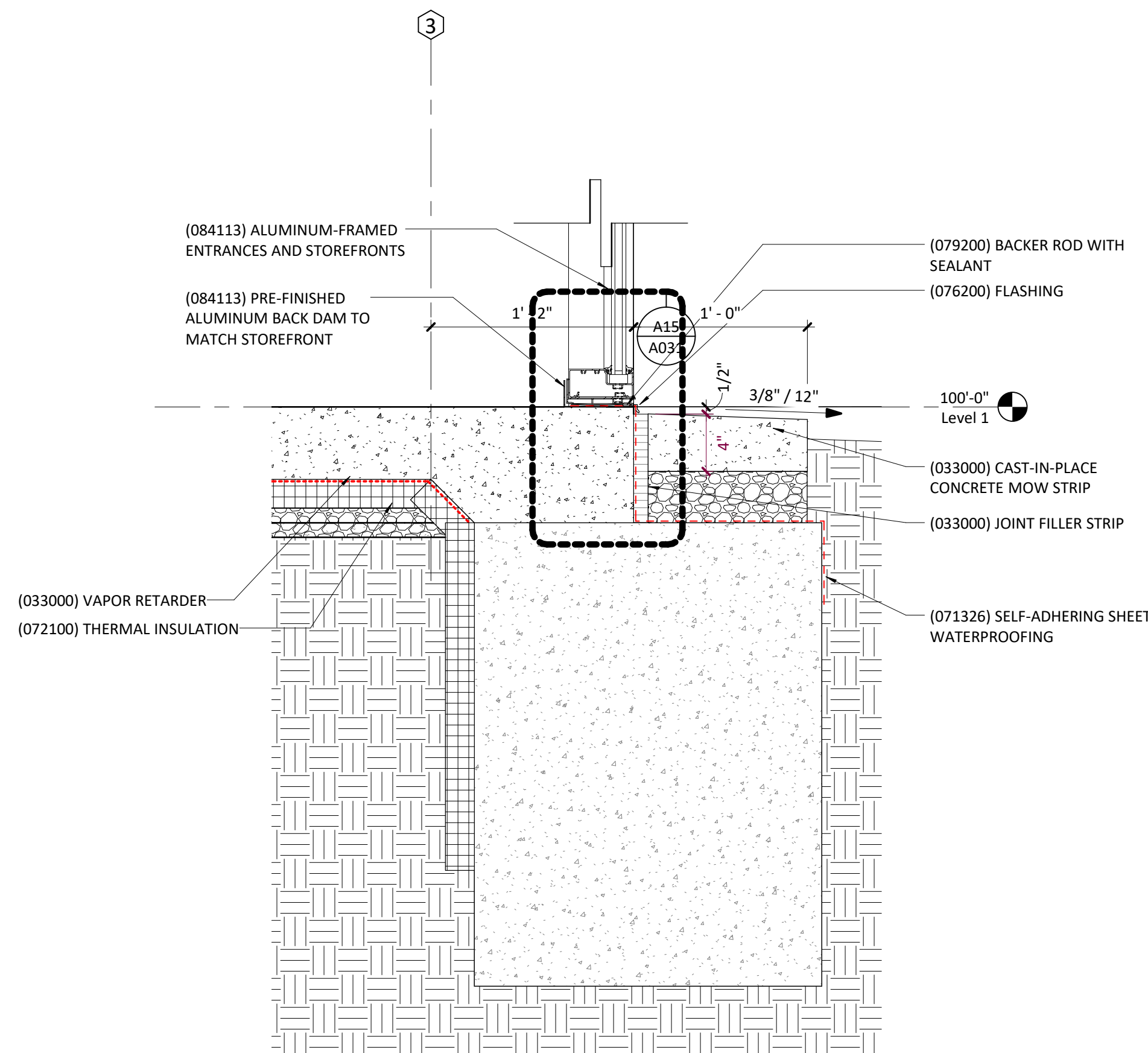
civil engineer:
Kaw Valley Engineering
14700 West 114th Terrace
Lenexa, KS 66215
913.485.0318
kvenrg.com

structural engineer:
Bob D. Campbell &
4338 Belview
Kansas City, MO 64111
816.531.4144
www.bdc-engrs.com

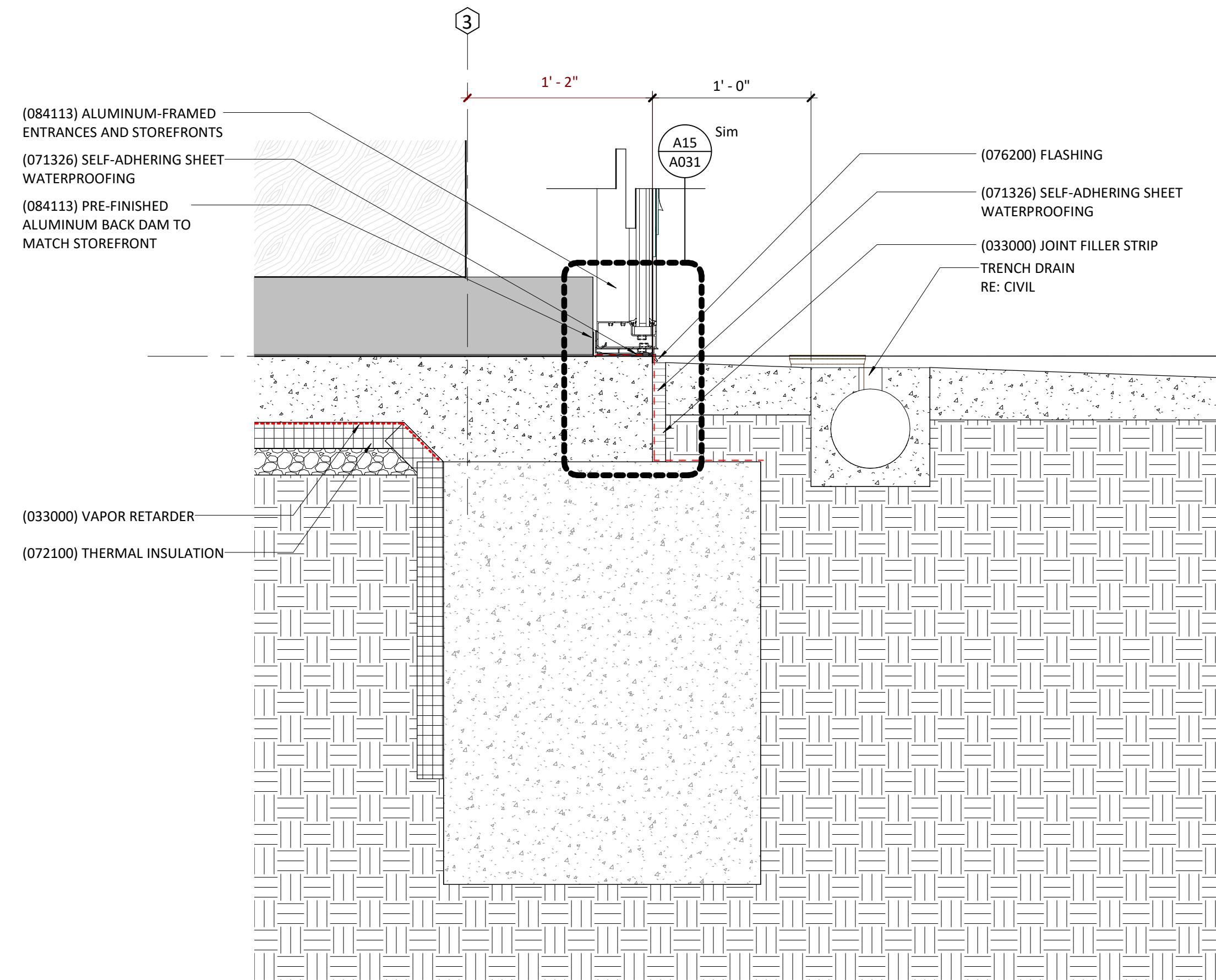
MEP/IT Codes:
Henderson Engineers
8345 Lenexa Drive, Suite
300
Lenexa, KS 66214
816.742.5000
www.hendersonengineers.com



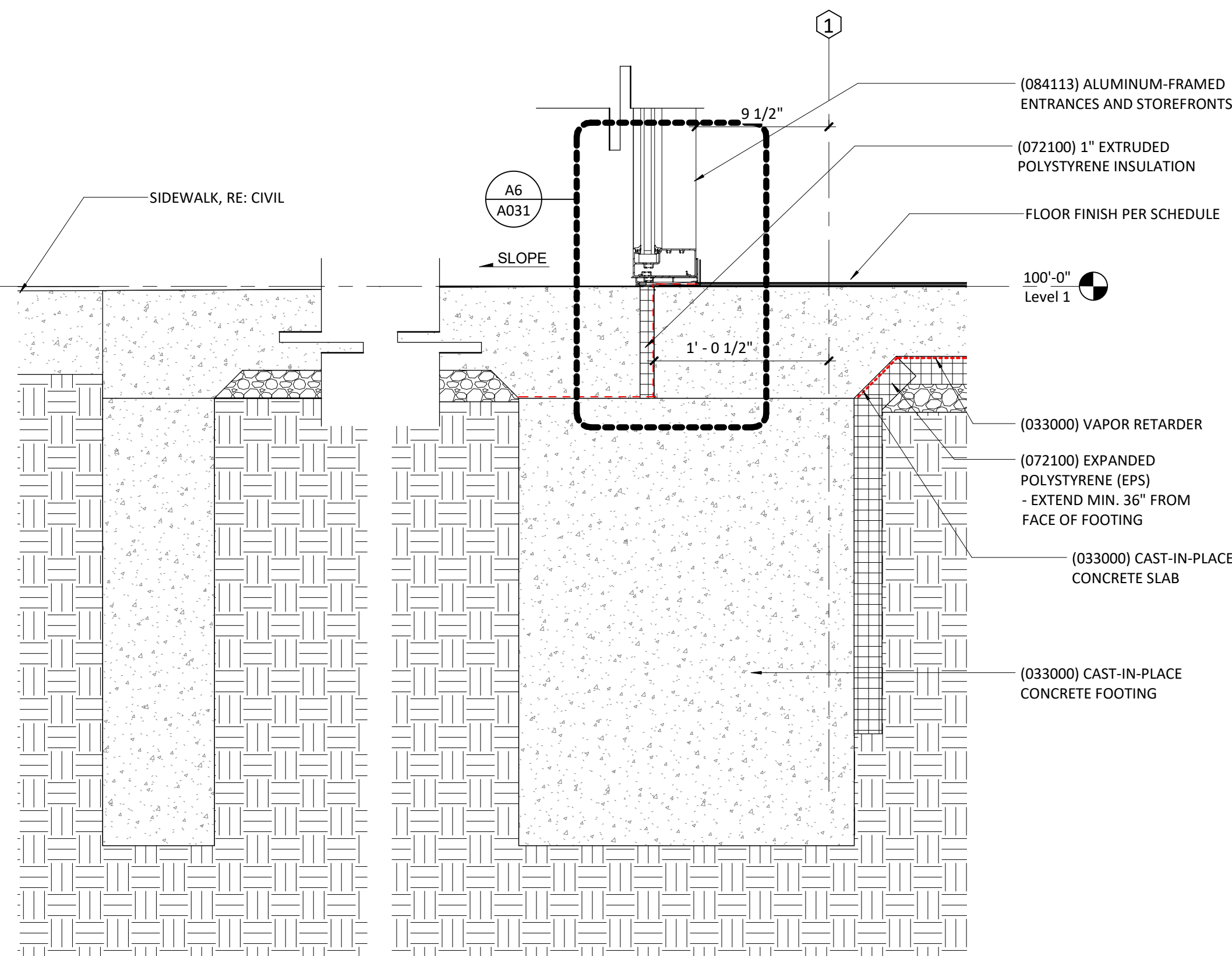
Foundation Detail @ Overhead Door F13
1 1/2" = 1'-0"



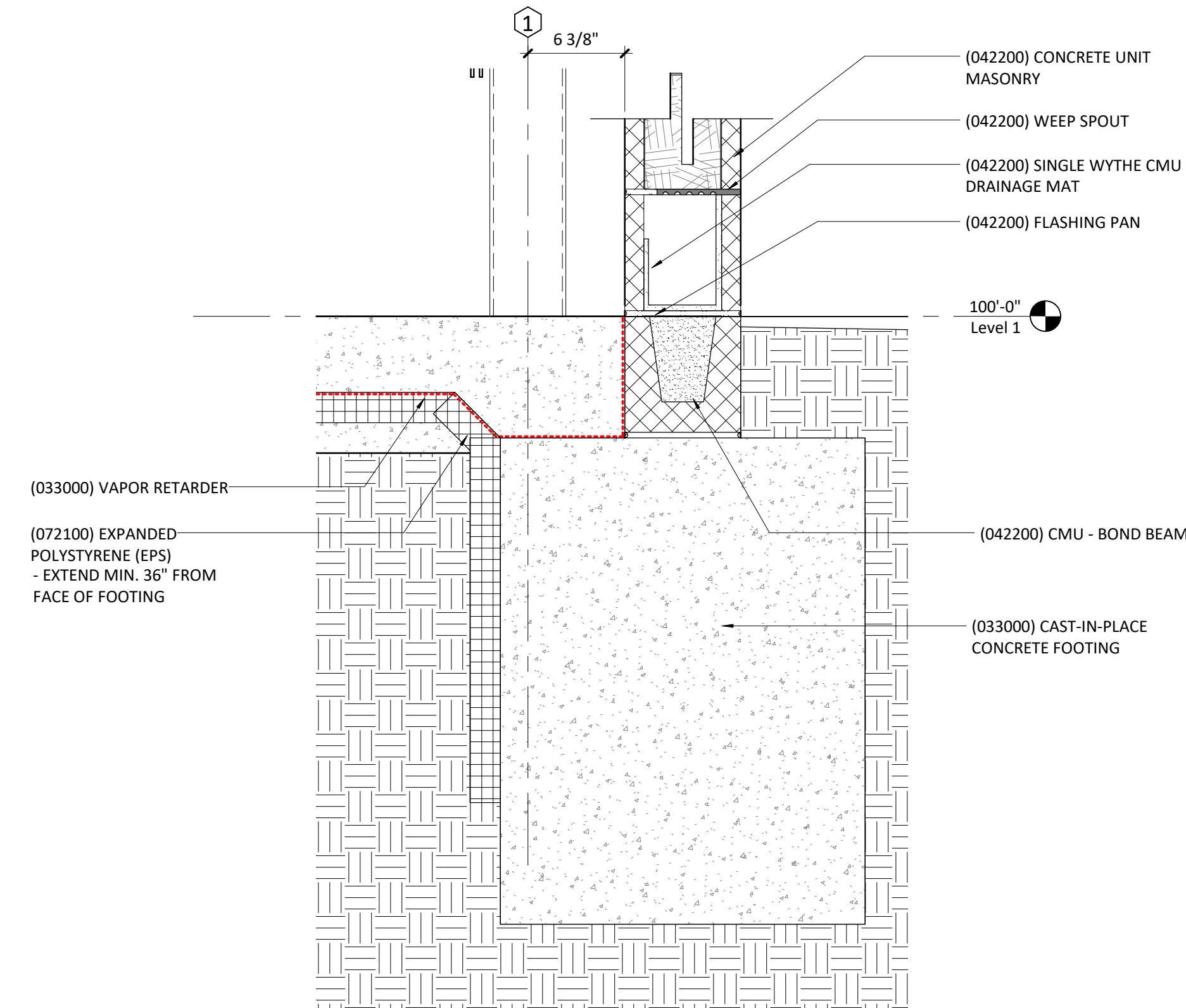
Foundation Detail @ Lee's Summit North F7
1 1/2" = 1'-0"



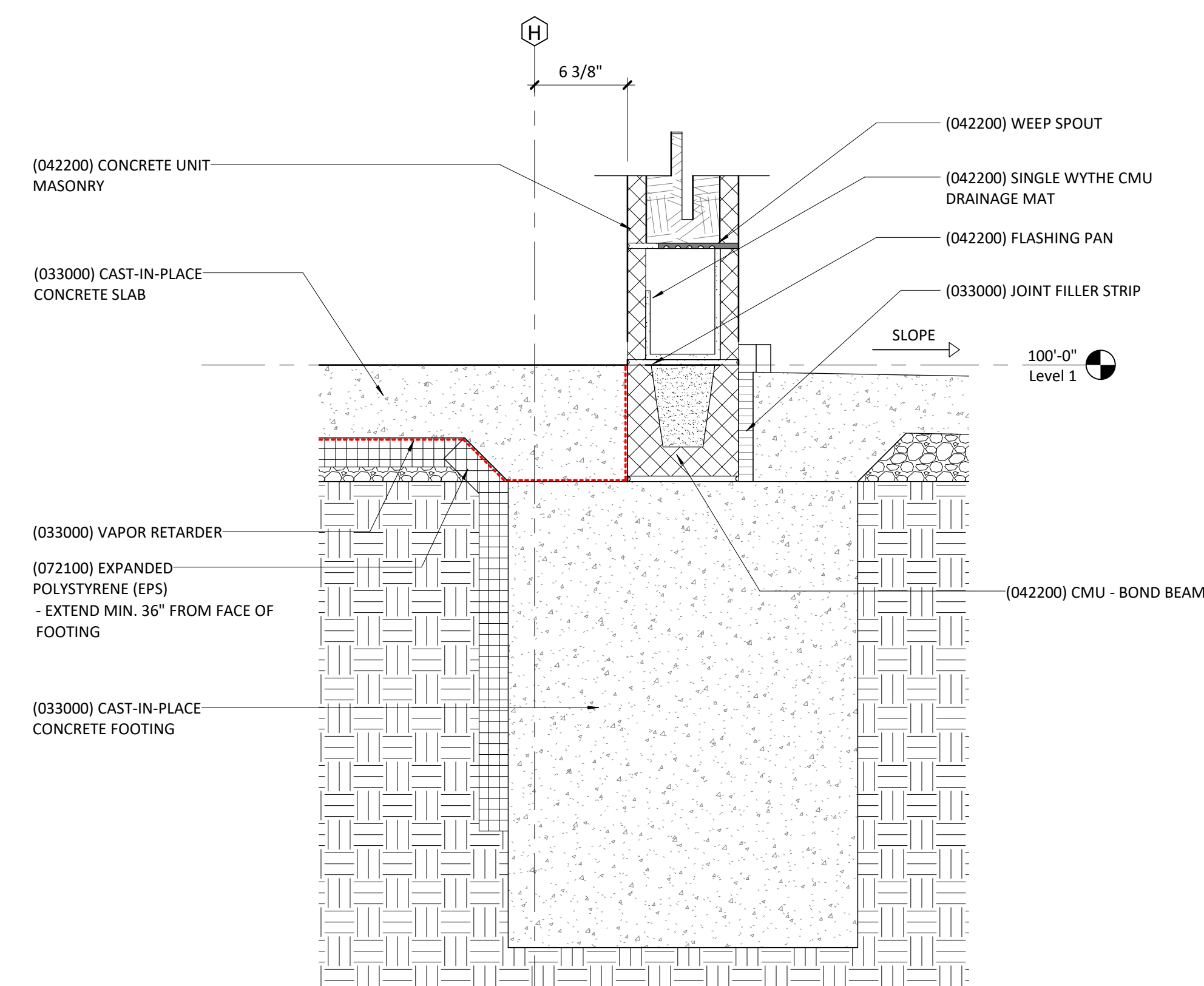
Foundation Detail @ Lee's Summit West F1
1 1/2" = 1'-0"



Foundation Detail @ Storefront Entry A13
1 1/2" = 1'-0"



Typical Foundation Detail @ Grade A7
1 1/2" = 1'-0"



Typical Foundation Detail @ Exterior Concrete A1
1 1/2" = 1'-0"

Issue Date: September 9, 2022

Revisions

NUMBER	DESCRIPTION	DATE
--------	-------------	------

UNLESS A PROFESSIONAL SEAL WITH SIGNATURE AND DATE IS
AFFIXED, THIS DOCUMENT IS PRELIMINARY AND IS NOT INTENDED FOR
CONSTRUCTION, RECORDING PURPOSES OR IMPLEMENTATION



**Exterior Section Details
- Foundation**

A320

**LSR7 Robotics, GiC &
Phys Education**

LSN: 901 NE Douglas St., Lee's Summit MO
64086
LSW: 2600 SW Ward Rd, Lee's Summit MO
64082
LSHS: 400 SE Blue Pkwy, Lee's Summit MO 64063

Project Number: 0121-0100

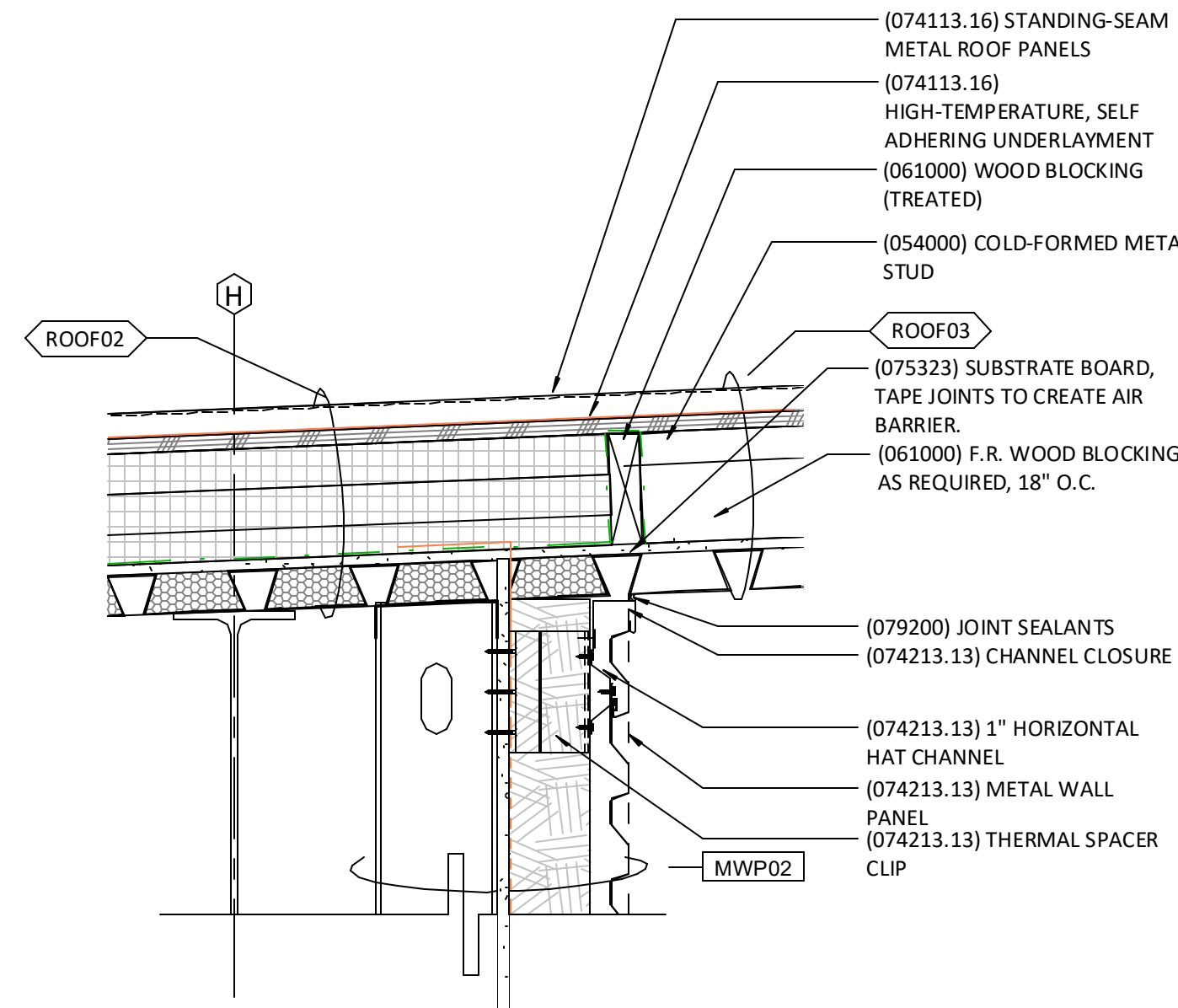
owner:
Lee's Summit R-7 School
301 NE Tudor Road
Lee's Summit, MO 64086

architect:
Multistudio
4300 Pennsylvania
Kansas City, MO 64111
816.931.6655
multistudio

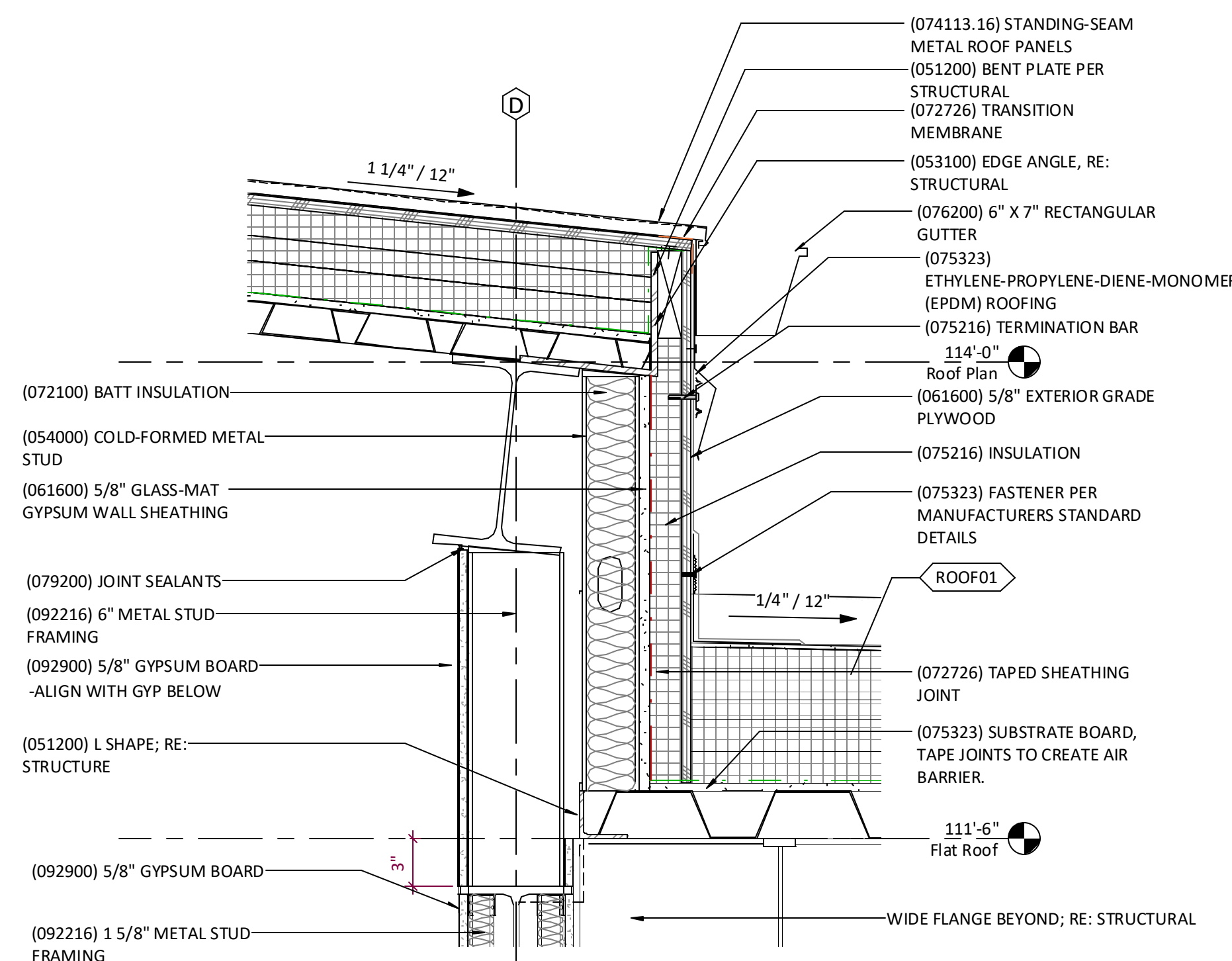
civil engineer:
Kaw Valley Engineering
14700 West 114th Terrace
Lenexa, KS 66215
913.485.0318
kveg.com

structural engineer:
Bob D. Campbell &
4338 Bellevue
Kansas City, MO 64111
816.531.4144
www.bdc-engrs.com

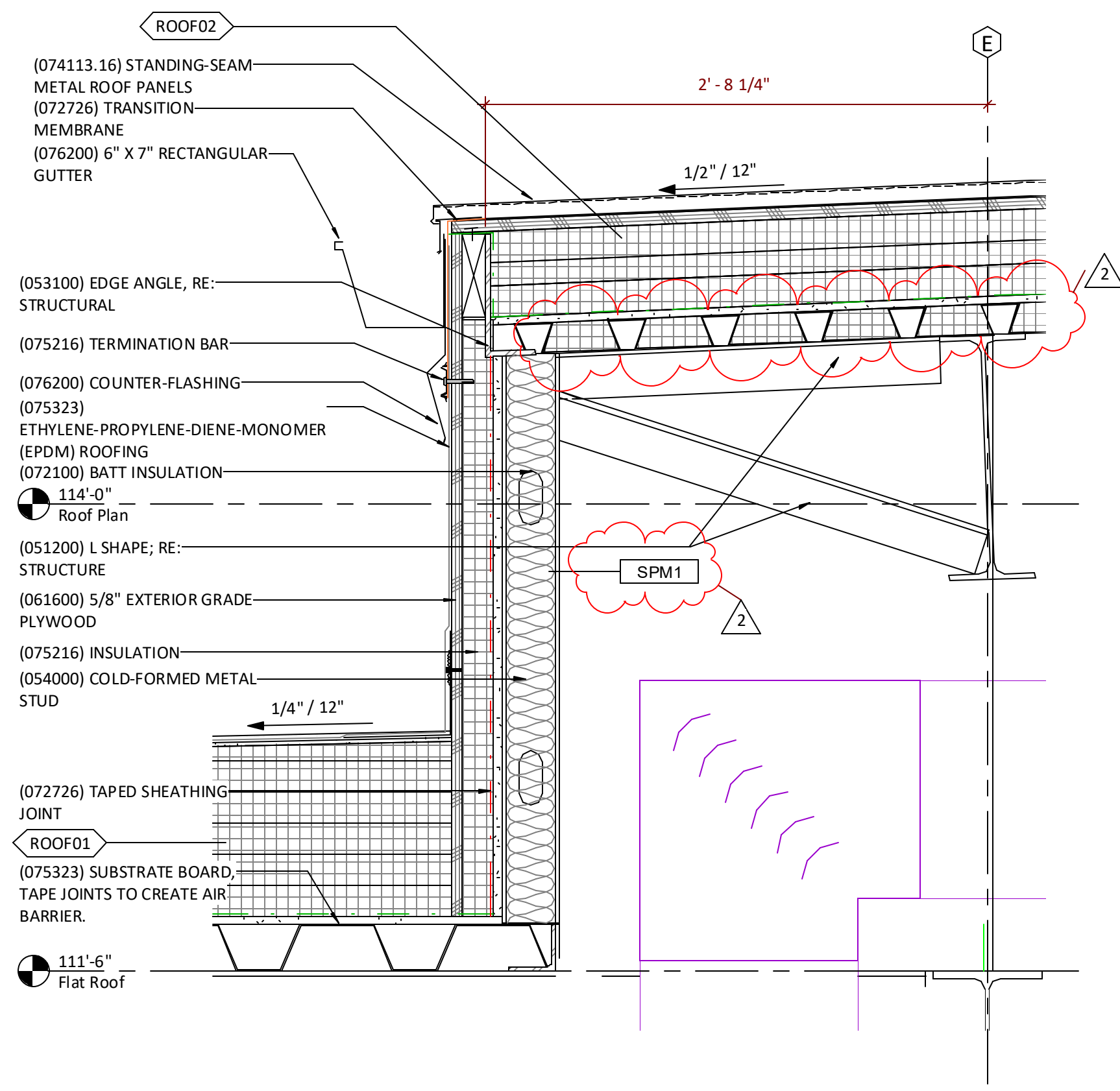
MEP/F/Code:
Henderson Engineers
8345 Lenexa Drive, Suite
300
Lenexa, KS 66214
816.742.5000
www.hendersonengineers.com



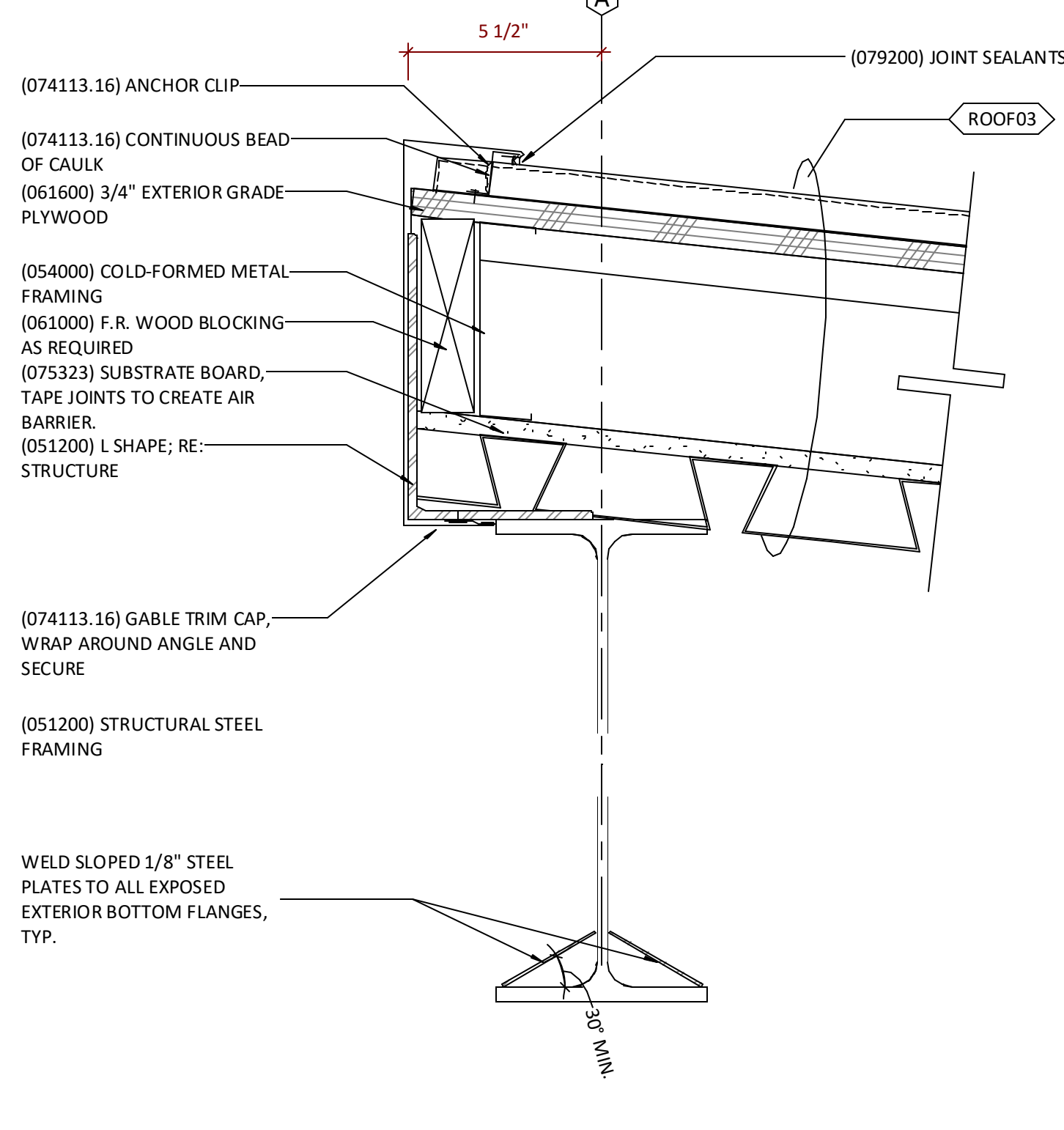
Section Detail @ Canopy Wall K1
1 1/2\"/>



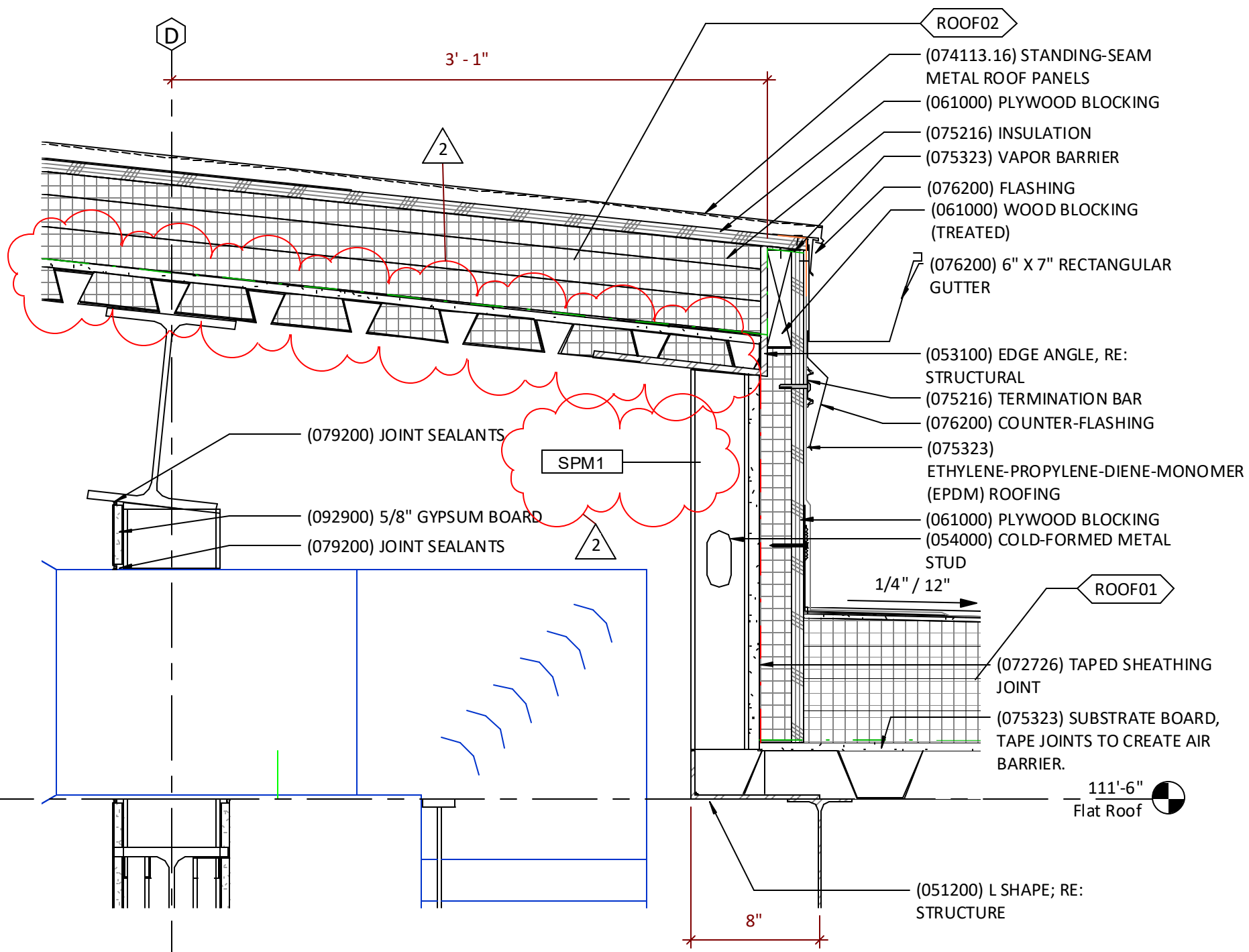
Section Detail @ Lower Roof West Transition K14
1 1/2\"/>



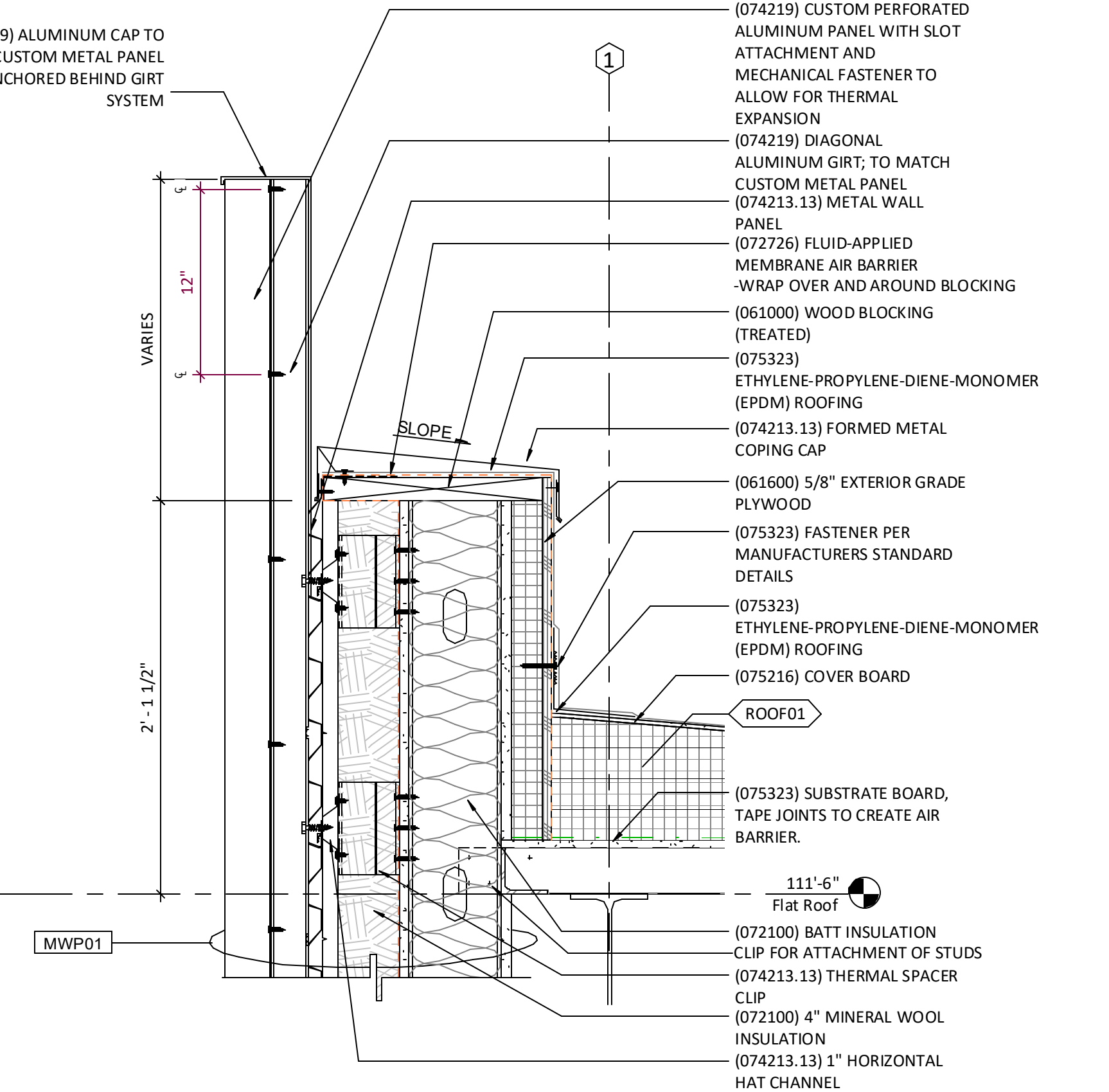
Section Detail @ Lower Roof East Transition A14
1 1/2\"/>



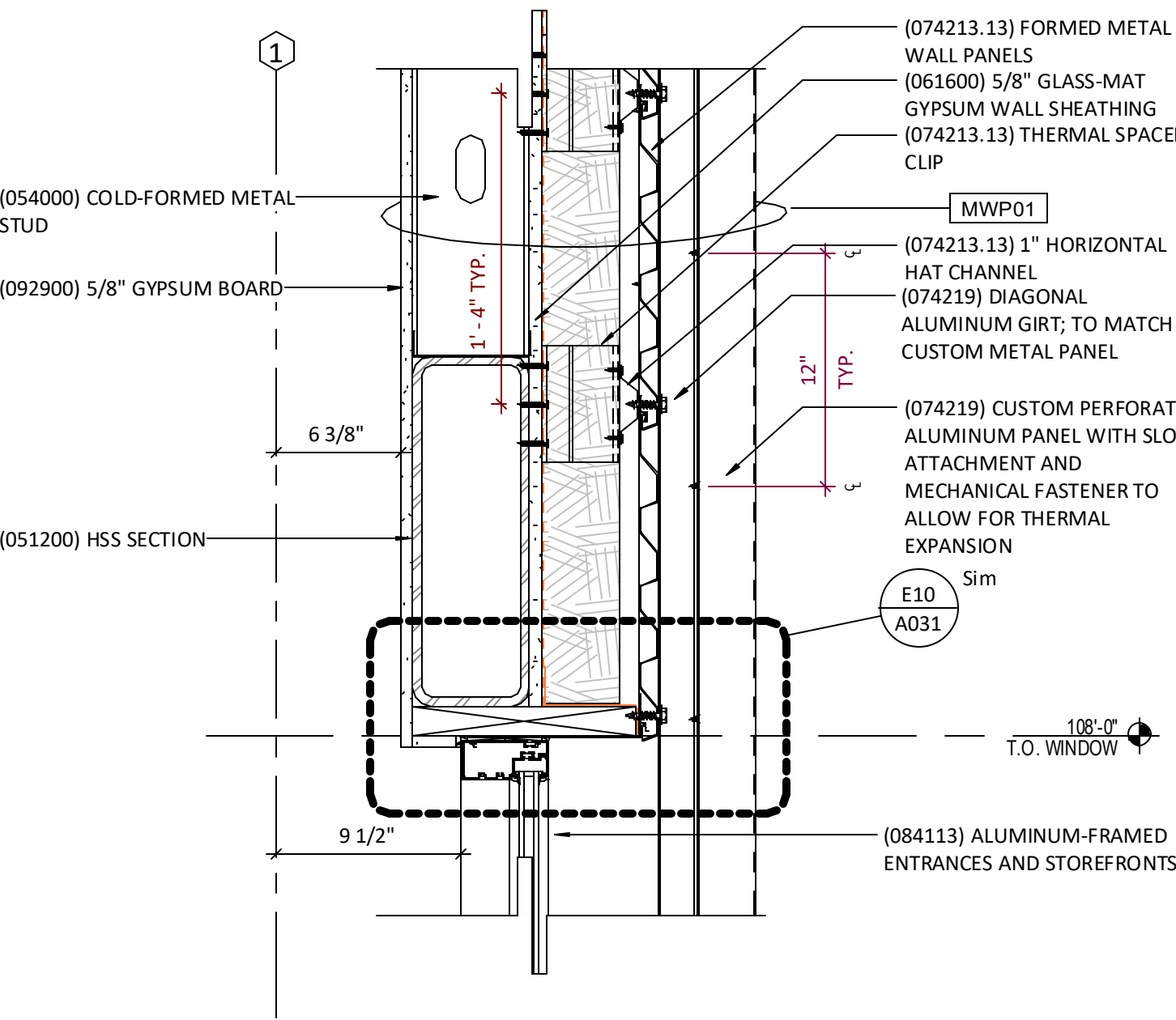
Section Detail @ Rake K5
3\"/>



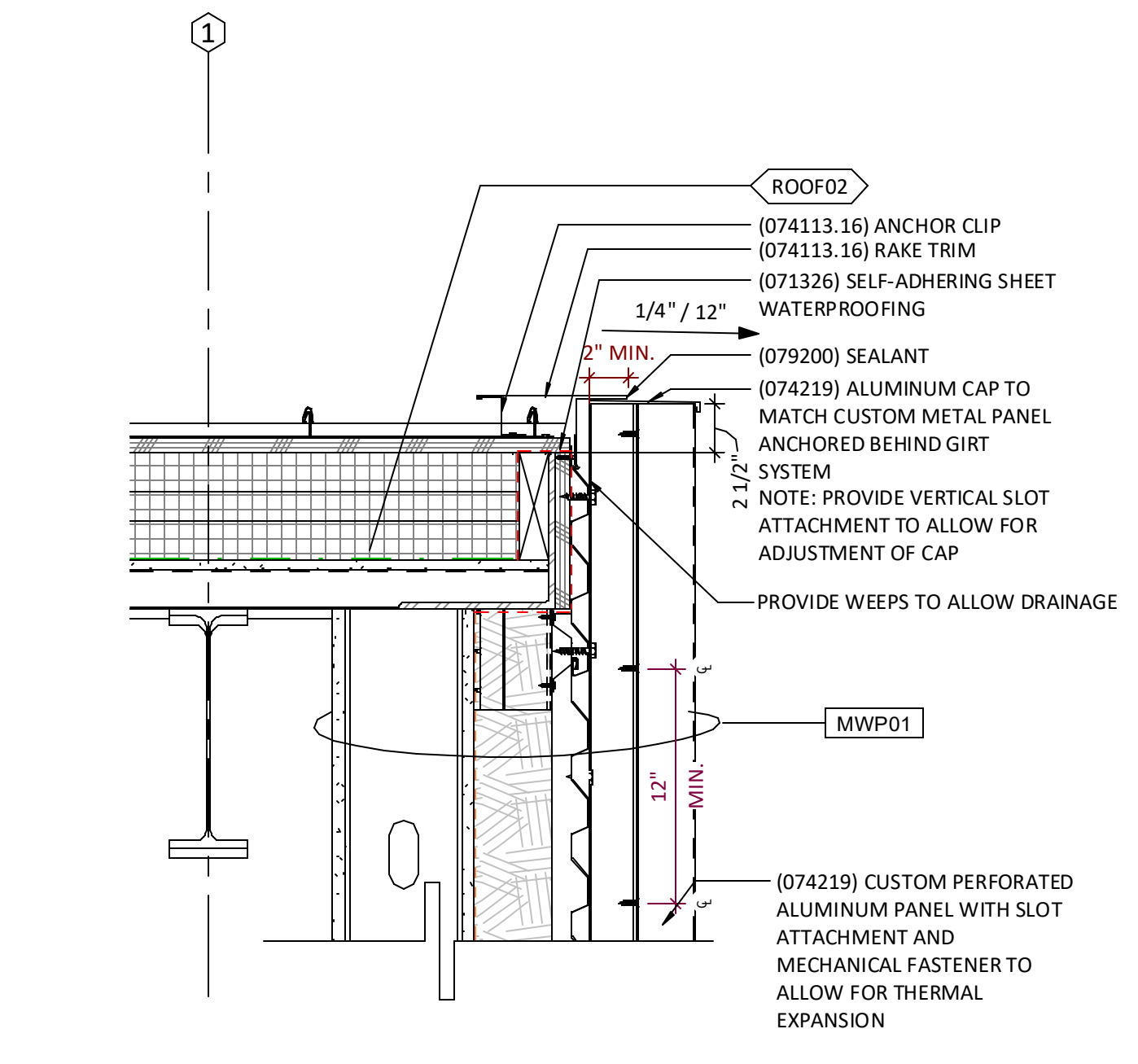
Section Detail @ Lower Roof Duct East Chase E14
Transitions 1 1/2\"/>



Section Detail @ Parapet E9
1 1/2\"/>



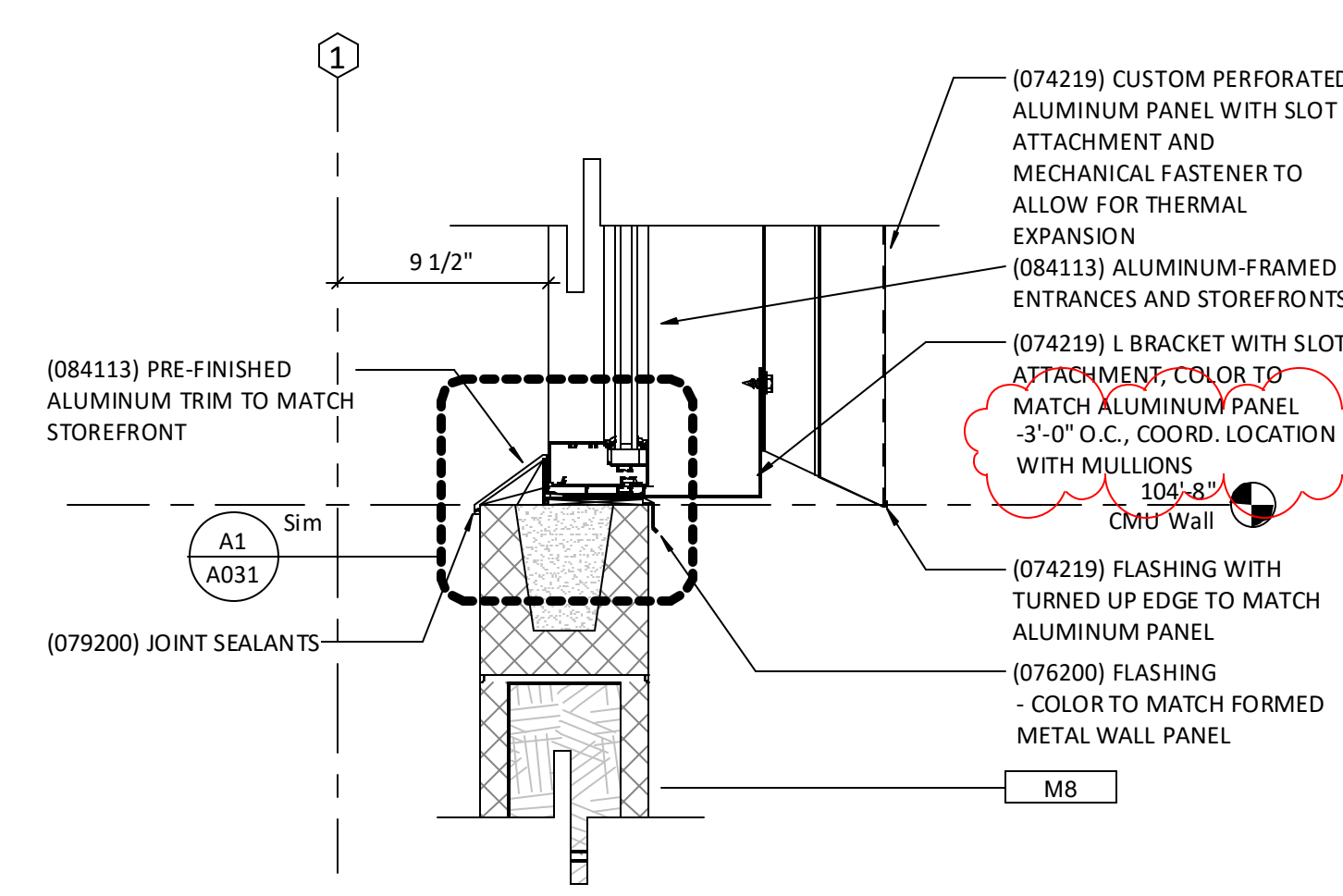
Section Detail @ T.O. Window behind
Metal Panel F5
1 1/2\"/>



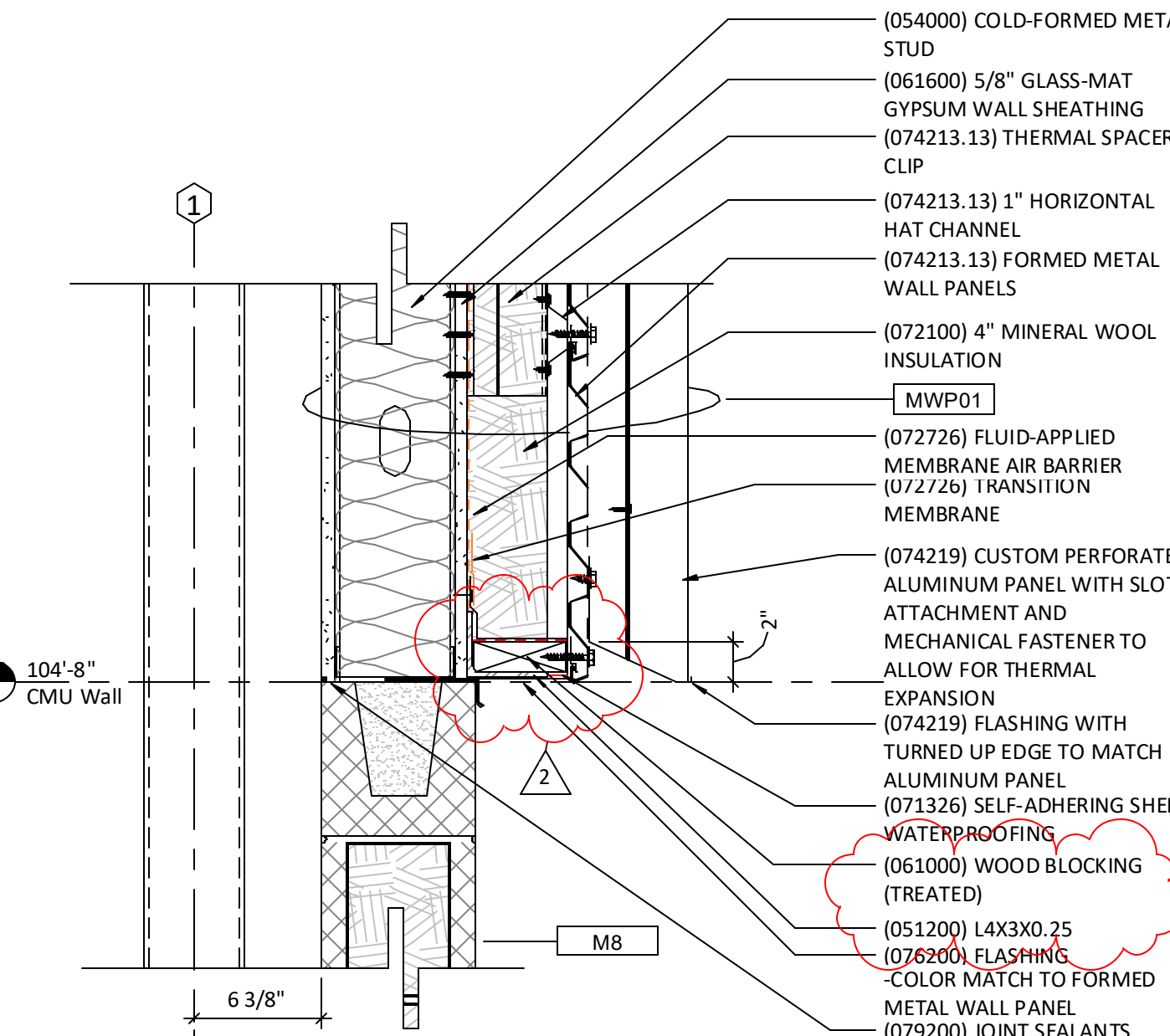
Section Detail @ T.O. Metal Panel F1
1 1/2\"/>



Section Detail @ Entry Canopy A9
1 1/2\"/>



Section Detail @ B.O. Metal Panel A5
Window Overlay 1 1/2\"/>



Section Detail @ B.O. Metal Panel A1
1 1/2\"/>

Issue Date: September 9, 2022

NUMBER	DESCRIPTION	DATE
2	Addendum 02	09/29/2022

UNLESS A PROFESSIONAL SEAL WITH SIGNATURE AND DATE IS
APPROVED, THIS DOCUMENT IS PRELIMINARY AND IS NOT INTENDED FOR
CONSTRUCTION, RECORDING PURPOSES OR IMPLEMENTATION



Exterior Section Details

A321

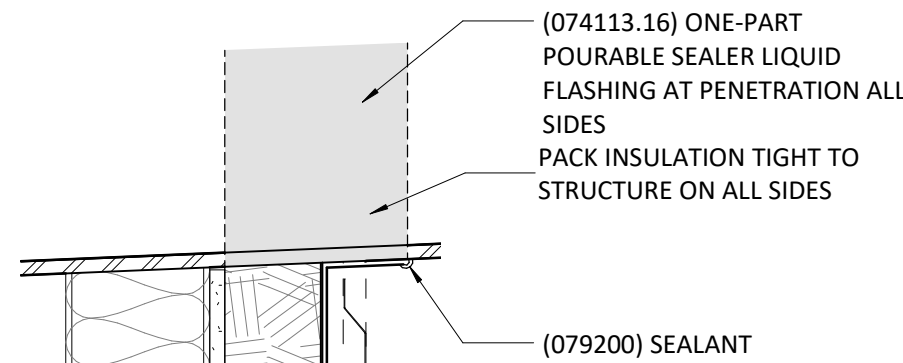
LSR7 Robotics, GiC & Phys Education

LSN: 901 NE Douglas St., Lee's Summit MO 64086
LSW: 2600 SW Ward Rd, Lee's Summit MO 64082
LSHS: 400 SE Blue Pkwy, Lee's Summit MO 64063

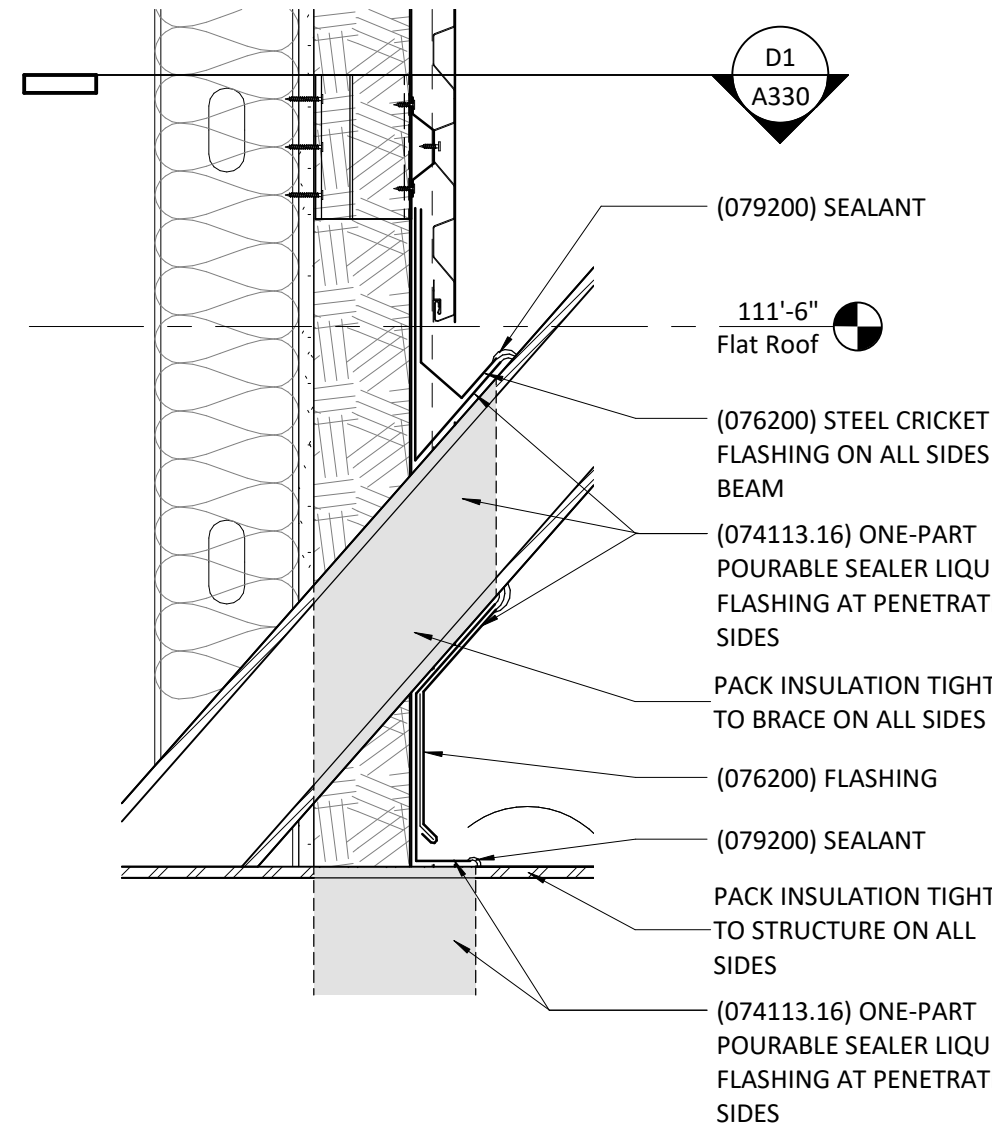
Project Number: 0121-0100

owner: Lee's Summit R-7 School 301 NE Tudor Road Lee's Summit, MO 64086 multi-studio	architect: Multistudio 4200 Pennsylvania Kansas City, MO 64111 816.931.6655 www.multistudio.com
civil engineer: Kaw Valley Engineering 14700 West 114th Terrace Lenexa, KS 66215 913.485.0318 kvang.com	structural engineer: Bob D. Campbell & 4338 Bellevue Kansas City, MO 64111 816.531.4144 www.bdc-engrs.com

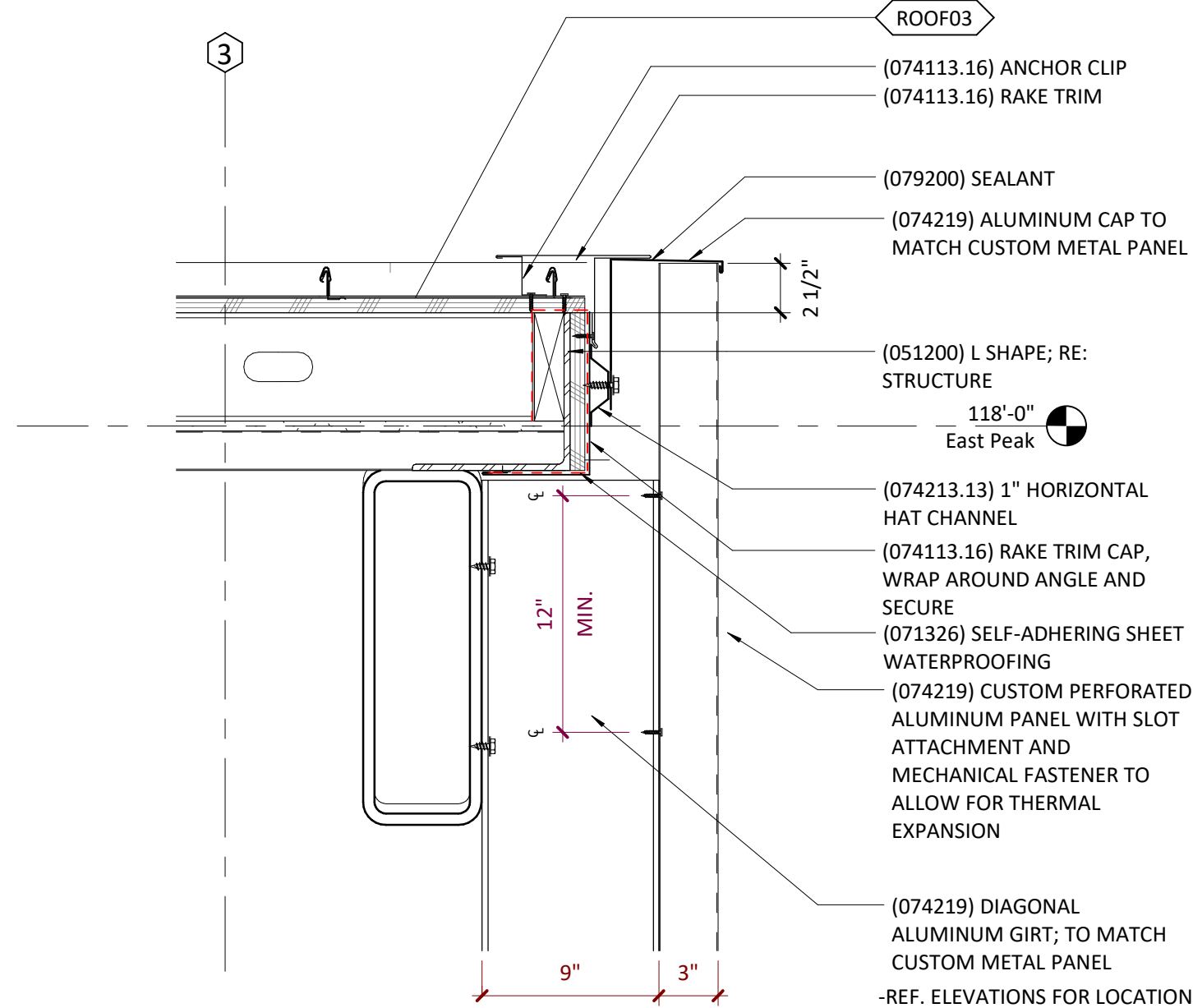
MEP/PT/Code:
Henderson Engineers
8345 Lenexa Drive, Suite
300
Lenexa, KS 66214
816.742.5000
www.hendersonengineers.com



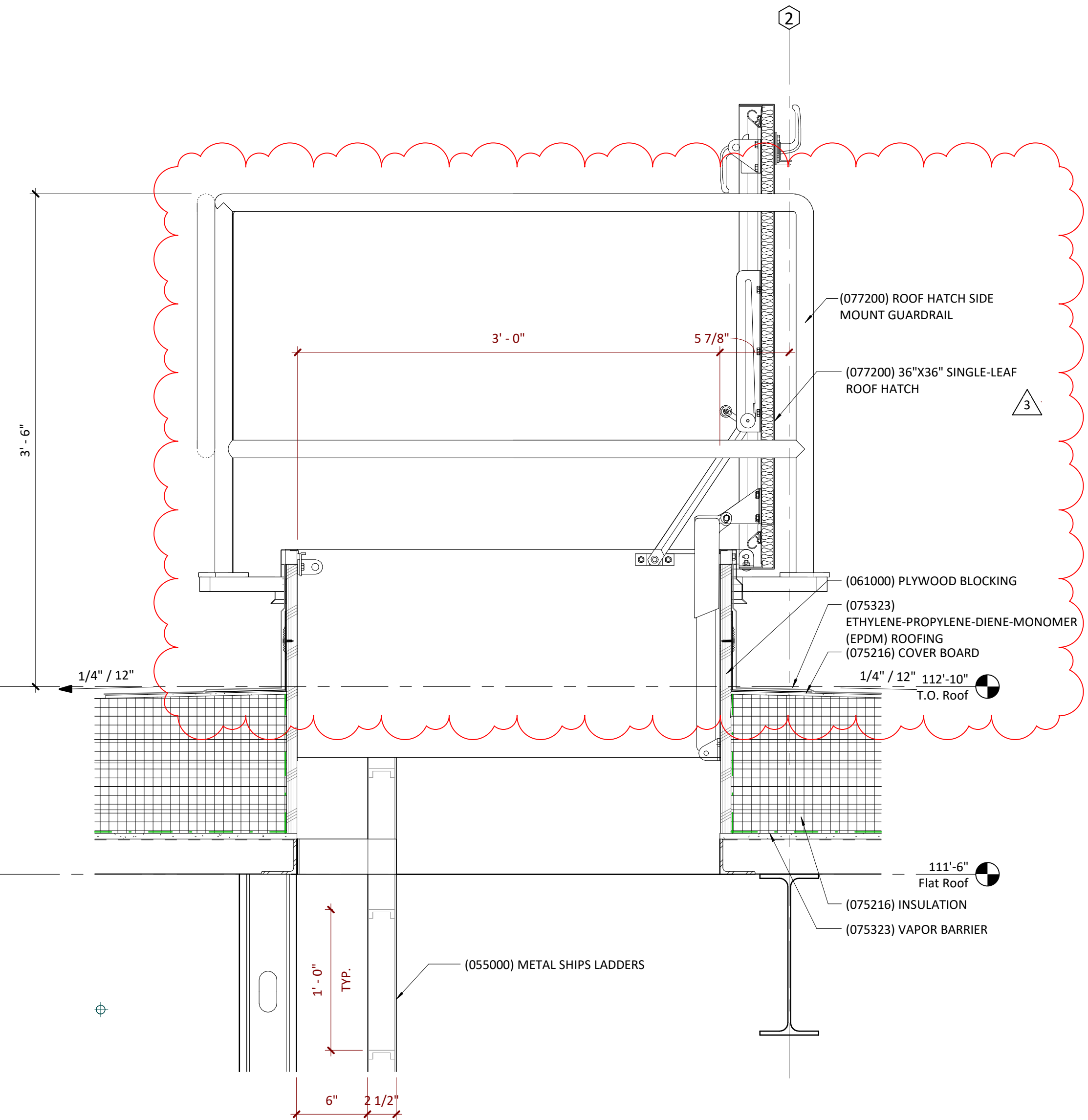
**Truss Penetrations Through M5
MWP02 1 1/2" x 1'-0"**



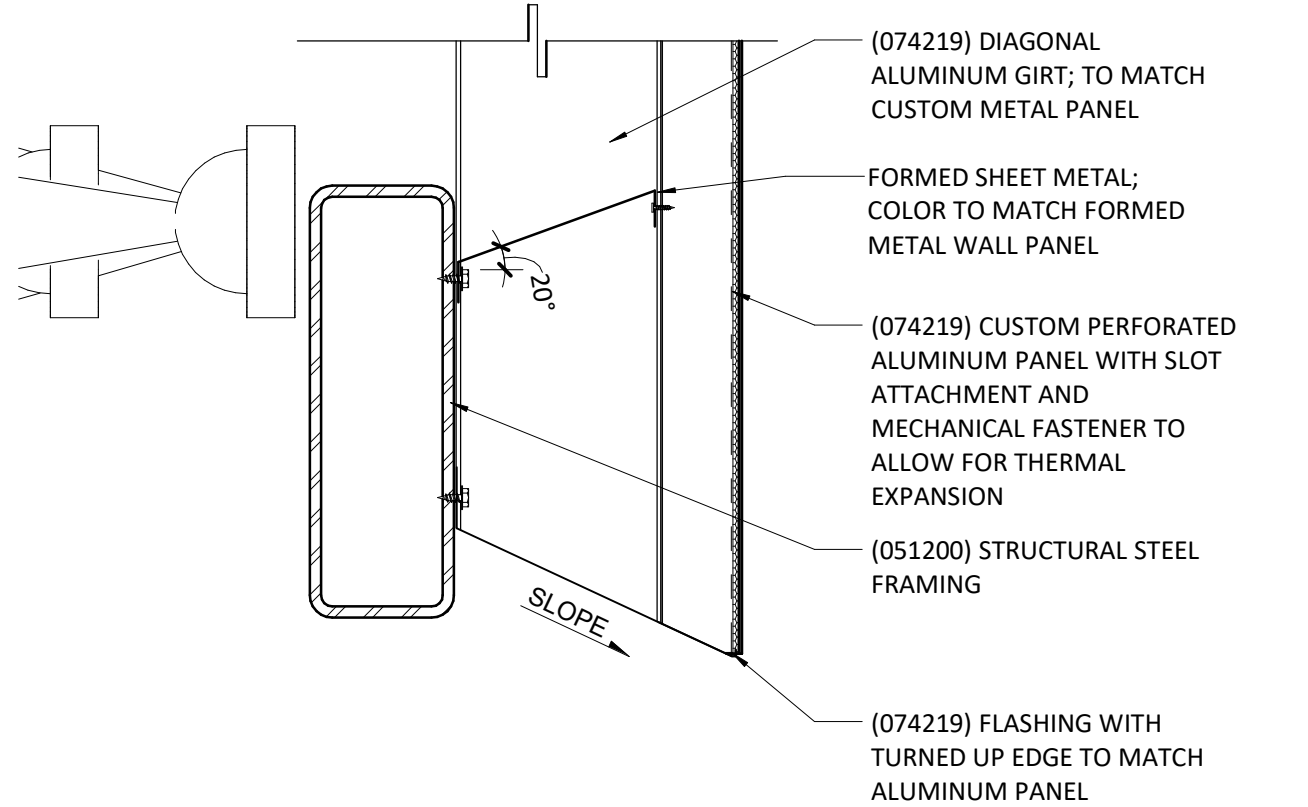
**Truss Penetrations Through H5
MWP02 1 1/2" x 1'-0"**



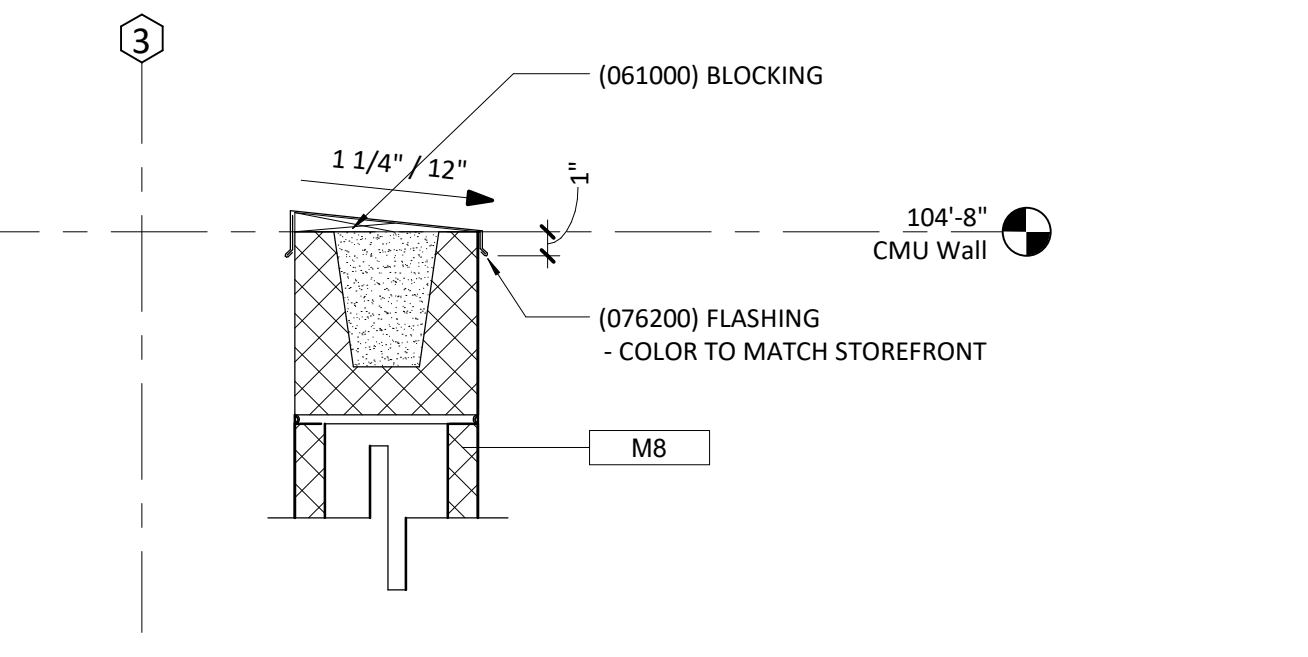
**Section Detail @ Top of Metal Skin at H1
Canopy 1 1/2" x 1'-0"**



**Section Detail @ Roof Hatch A5
1 1/2" x 1'-0"**



**Section Detail @ Bottom of Metal Skin at D1
Canopy 1 1/2" x 1'-0"**



**Section Detail @ Top of CMU at Canopy A1
1 1/2" x 1'-0"**

Issue Date: September 9, 2022

NUMBER	DESCRIPTION	DATE
3	AS01 - Code Comments	11/09/2022

UNLESS A PROFESSIONAL SEAL WITH SIGNATURE AND DATE IS AFFIXED, THIS DOCUMENT IS PRELIMINARY AND IS NOT INTENDED FOR CONSTRUCTION, RECORDING PURPOSES OR IMPLEMENTATION



**Exterior Section Details
A322**

LSR7 Robotics, GiC &
Phys Education

LSN: 901 NE Douglas St., Lee's Summit MO
64086
LSW: 2600 SW Ward Rd, Lee's Summit MO
64082
LSHS: 400 SE Blue Pkwy, Lee's Summit MO 64063

Project Number: 0121-0100

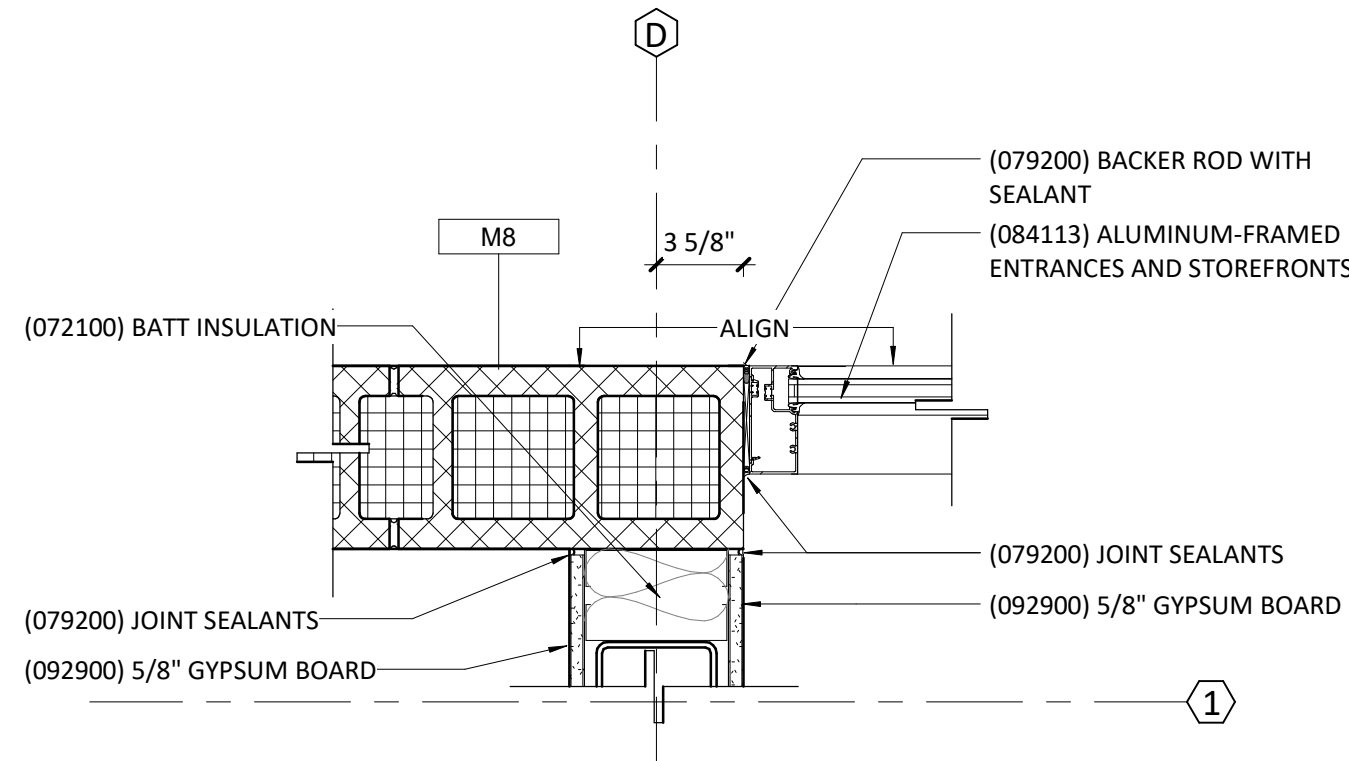
owner:
Lee's Summit R-7 School
303 NE Tudor Road
Lee's Summit, MO 64086

architect:
Multistudio
4200 Pennsylvania
Kansas City, MO 64111
816.931.6655
multi.studio

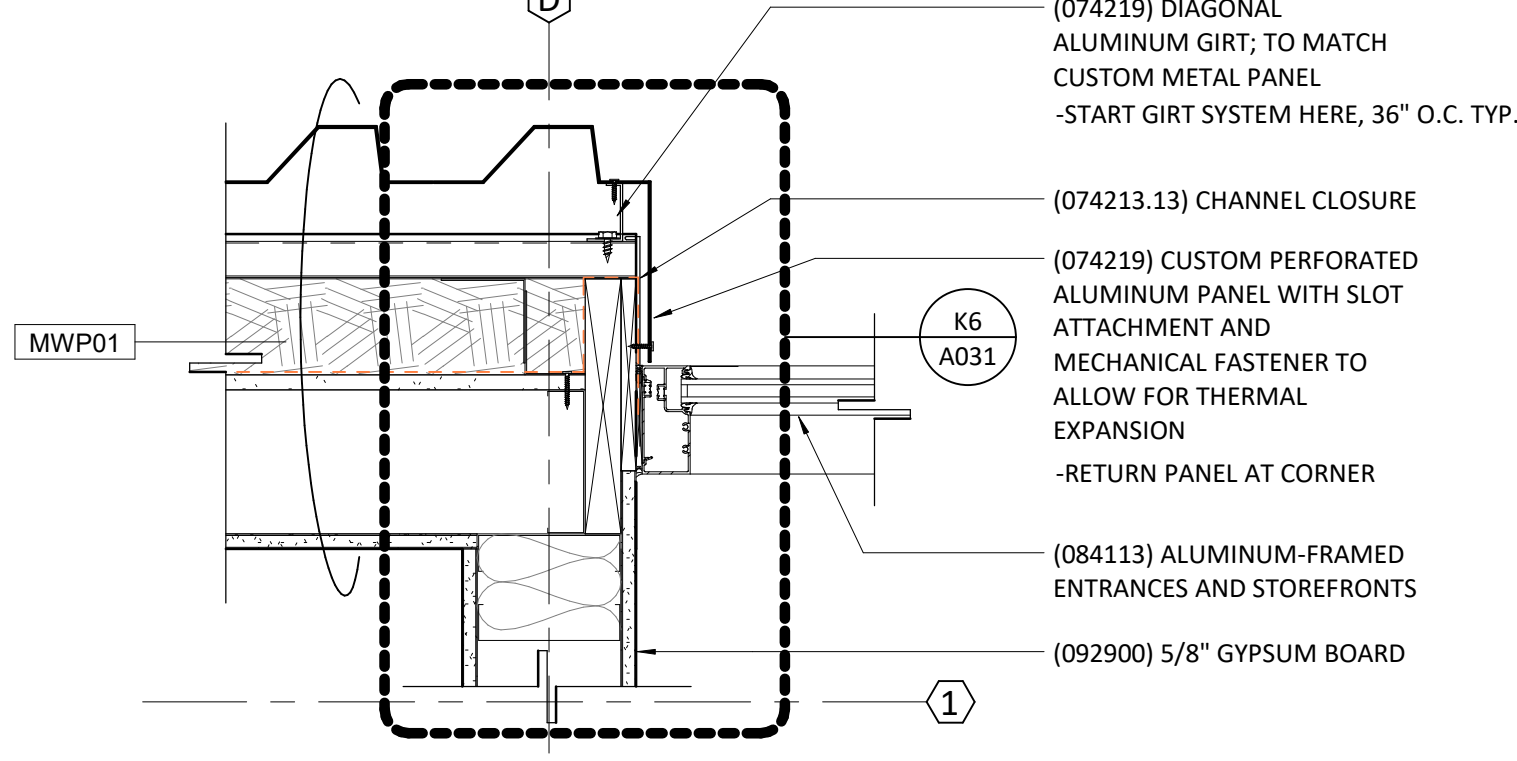
civil engineer:
Kaw Valley Engineering
14700 West 114th Terrace
Lenexa, KS 66215
913.485.0318
kveng.com

structural engineer:
Bob D. Campbell &
4338 Bellevue
Kansas City, MO 64111
816.531.4144
www.bdc-engrs.com

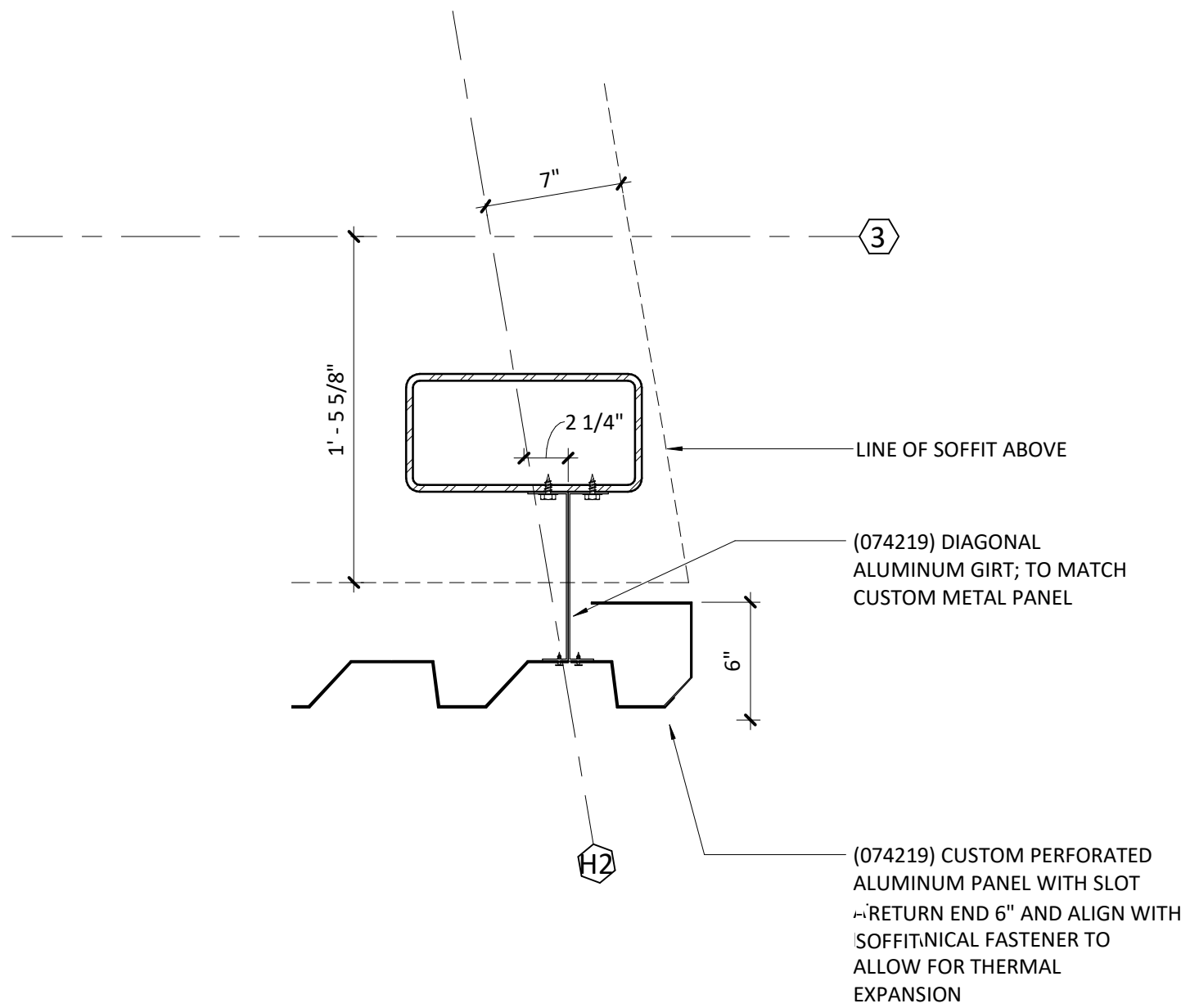
MEP/IT/Code:
Henderson Engineers
8345 Lenexa Drive, Suite
300
Lenexa, KS 66214
816.742.5000
www.hendersonengineers.com



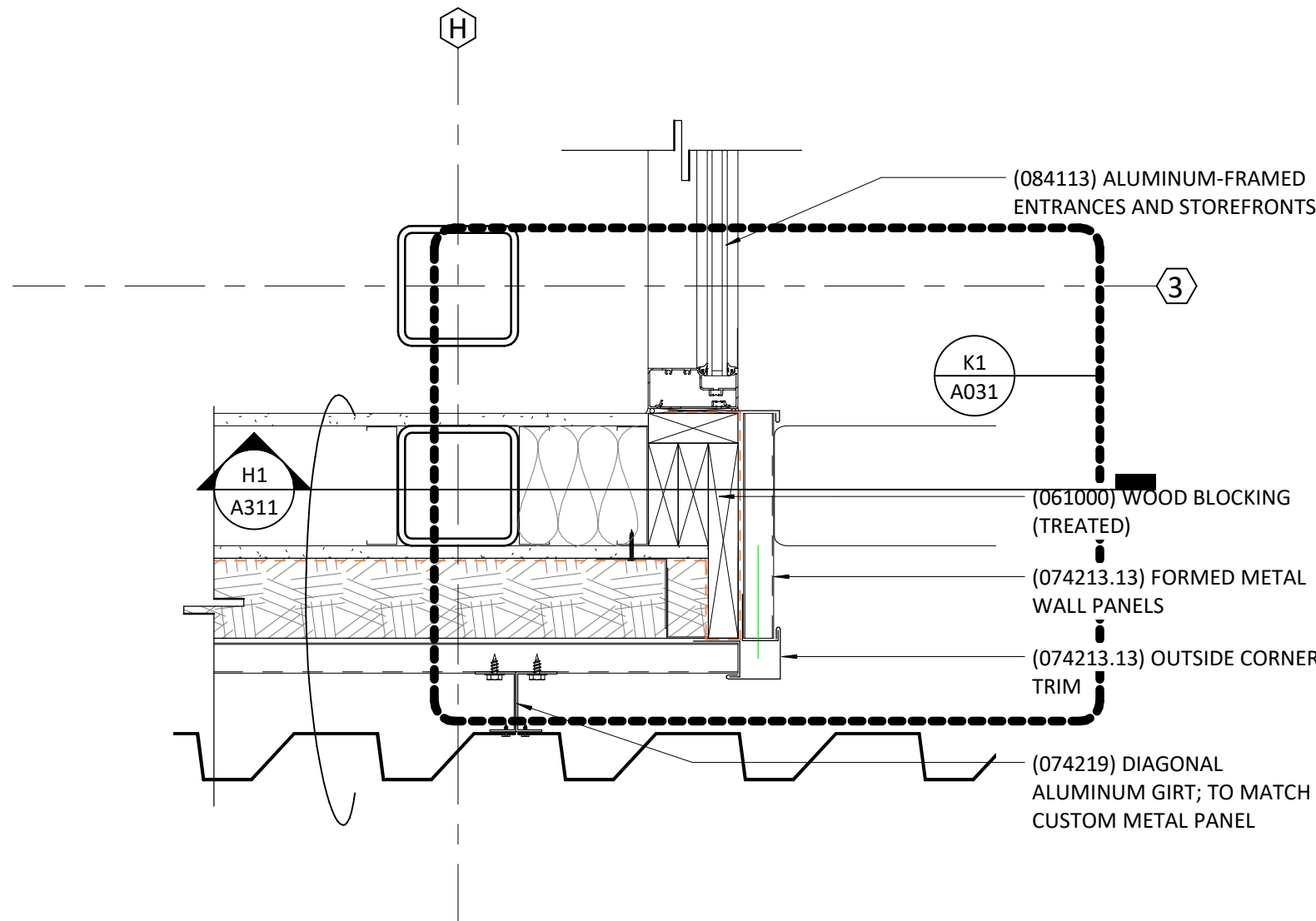
Plan Detail @ Entry Corner at CMU M6
1 1/2" = 1'-0"



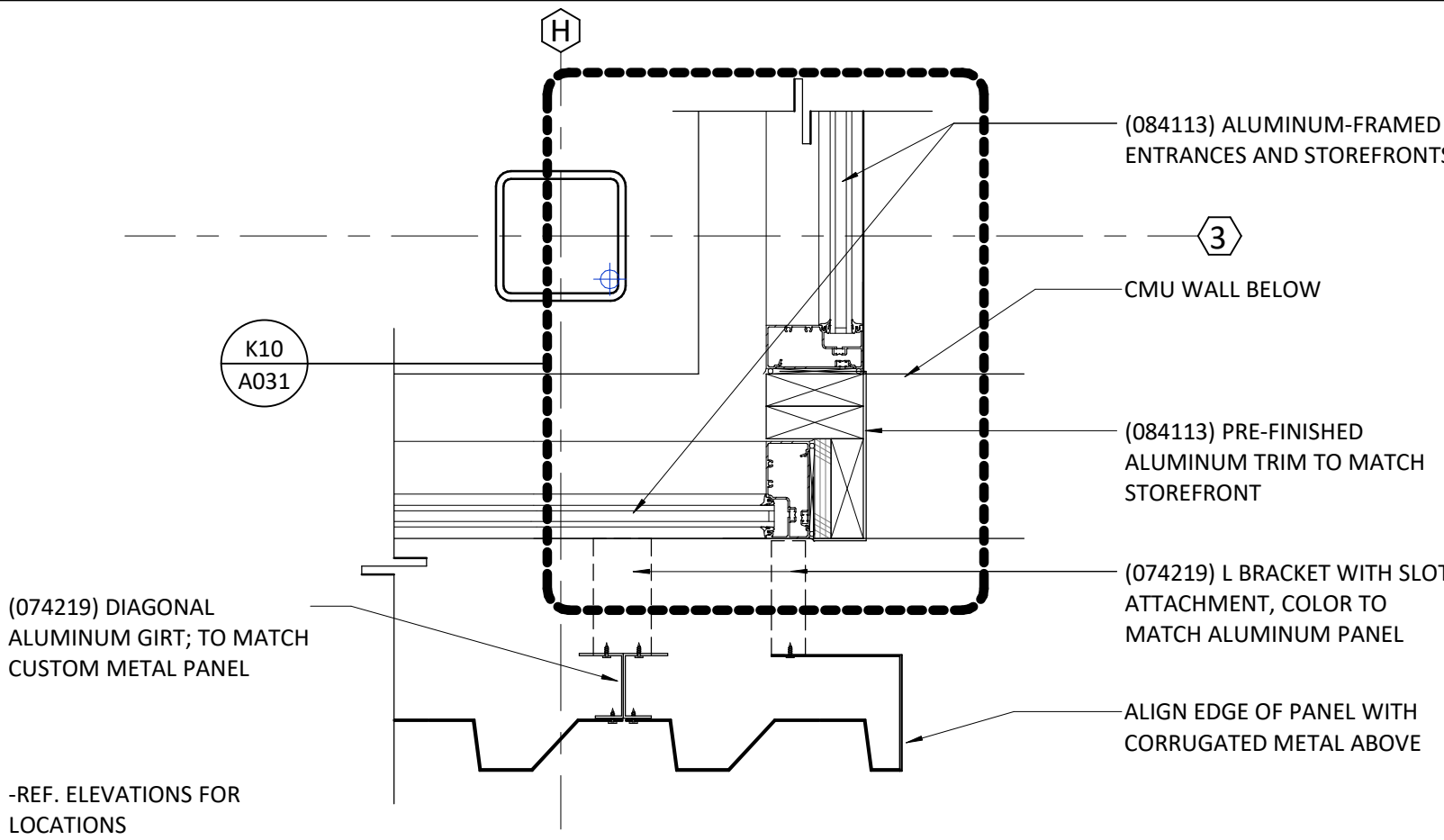
Plan Detail @ Entry Corner at Metal Panel M1
1 1/2" = 1'-0"



Plan Detail @ End of Metal Panel Canopy H1
1 1/2" = 1'-0"



Plan Detail @ Canopy Corner D1
1 1/2" = 1'-0"



Plan Detail @ Canopy Window Corner A1
1 1/2" = 1'-0"

Issue Date: September 9, 2022

Revisions

NUMBER	DESCRIPTION	DATE
--------	-------------	------

UNLESS A PROFESSIONAL SEAL WITH SIGNATURE AND DATE IS
AFFIXED, THIS DOCUMENT IS PRELIMINARY AND IS NOT INTENDED FOR
CONSTRUCTION, RECORDING PURPOSES OR IMPLEMENTATION



Exterior Plan & Section
Details

A330

LSR7 Robotics, GiC &
Phys Education

LSN: 901 NE Douglas St., Lee's Summit MO
64086
LSW: 2600 SW Ward Rd, Lee's Summit MO
64082
LSHS: 400 SE Blue Pkwy, Lee's Summit MO 64063

Project Number: 0121-0100

owner:
Lee's Summit R-7 School
301 NE Tudor Road
Lee's Summit, MO 64086
architect:
Multistudio
4200 Pennsylvania
Kansas City, MO 64111
816.931.6655
multi.studio
civil engineer:
Kaw Valley Engineering
14700 West 114th Terrace
Lenexa, KS 66215
913.485.0318
kvang.com
structural engineer:
Bob D. Campbell &
4338 Belview
Kansas City, MO 64111
816.531.4144
www.bdc-engrs.com

MEP/IT/Code:
Henderson Engineers
8345 Lenexa Drive, Suite
300
Lenexa, KS 66214
816.742.5000
www.hendersonengineers.com

Issue Date: September 9, 2022

Revisions		
NUMBER	DESCRIPTION	DATE

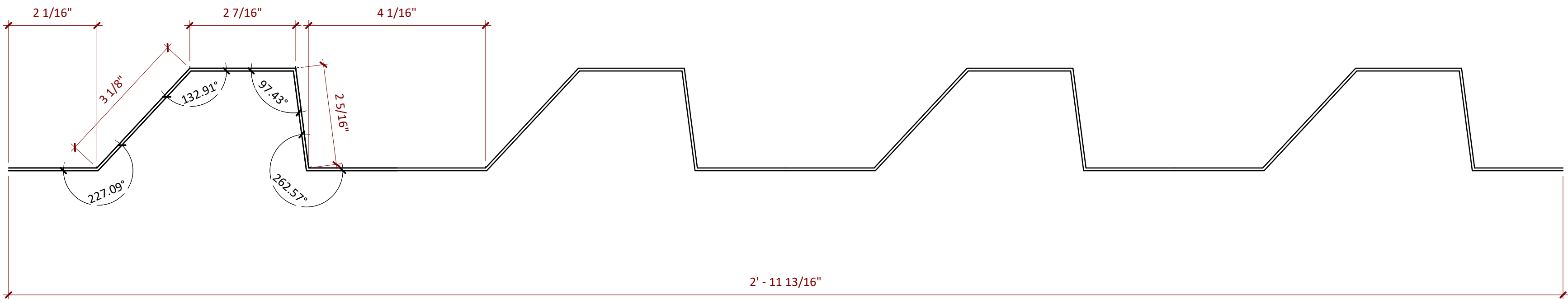
UNLESS A PROFESSIONAL SEAL WITH SIGNATURE AND DATE IS
AFFIXED, THIS DOCUMENT IS PRELIMINARY AND IS NOT INTENDED FOR
CONSTRUCTION, RECORDING PURPOSES OR IMPLEMENTATION



Exterior Envelope
Section & Details

A331

Axon Detail @ Typical Skin Panel E1
1 1/2" = 1'-0"



Plan Detail @ Typical Perforation Pattern Prior To Break Forming A12
1 1/2" = 1'-0"

Section Detail @ Typical Skin Panel A1
6" = 1'-0"

LSR7 Robotics, GiC & Phys Education

LSN: 901 NE Douglas St., Lee's Summit MO 64086
LSW: 2600 SW Ward Rd, Lee's Summit MO 64082
LSHS: 400 SE Blue Pkwy, Lee's Summit MO 64063

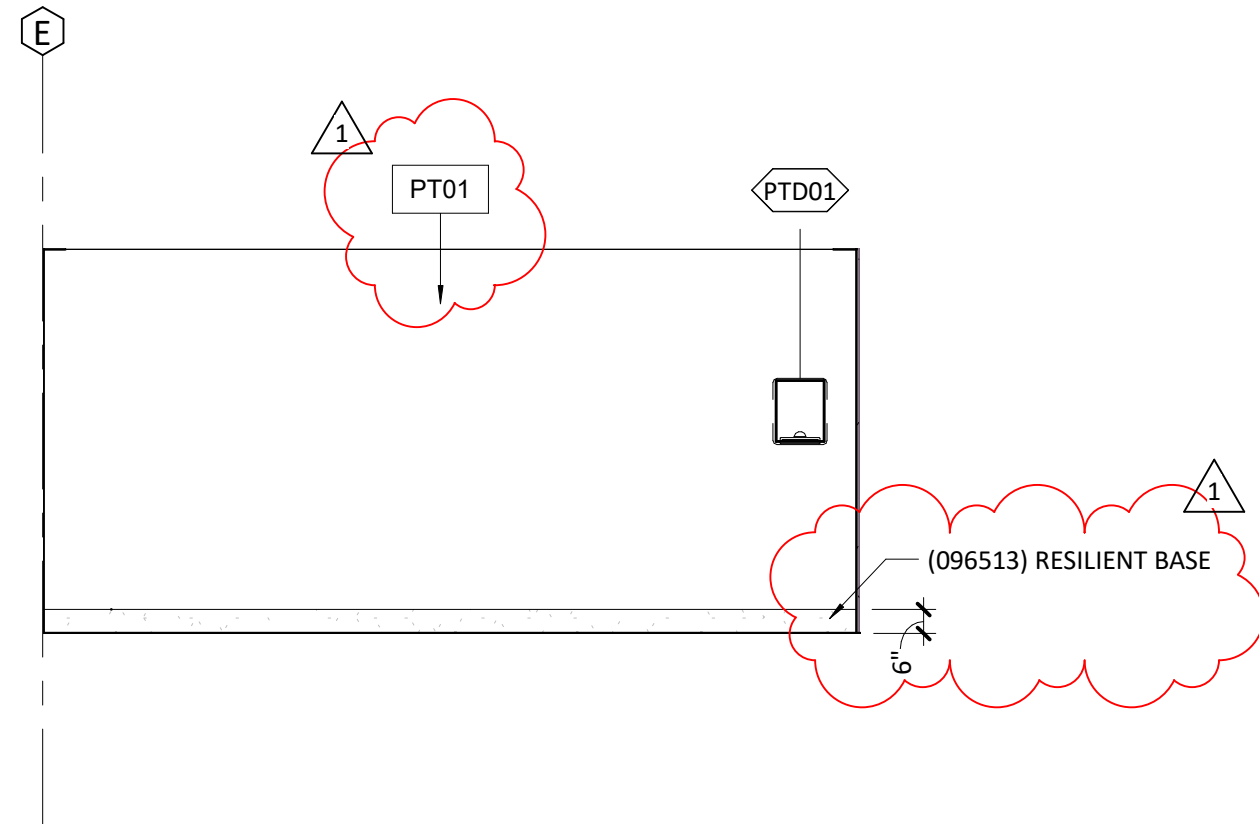
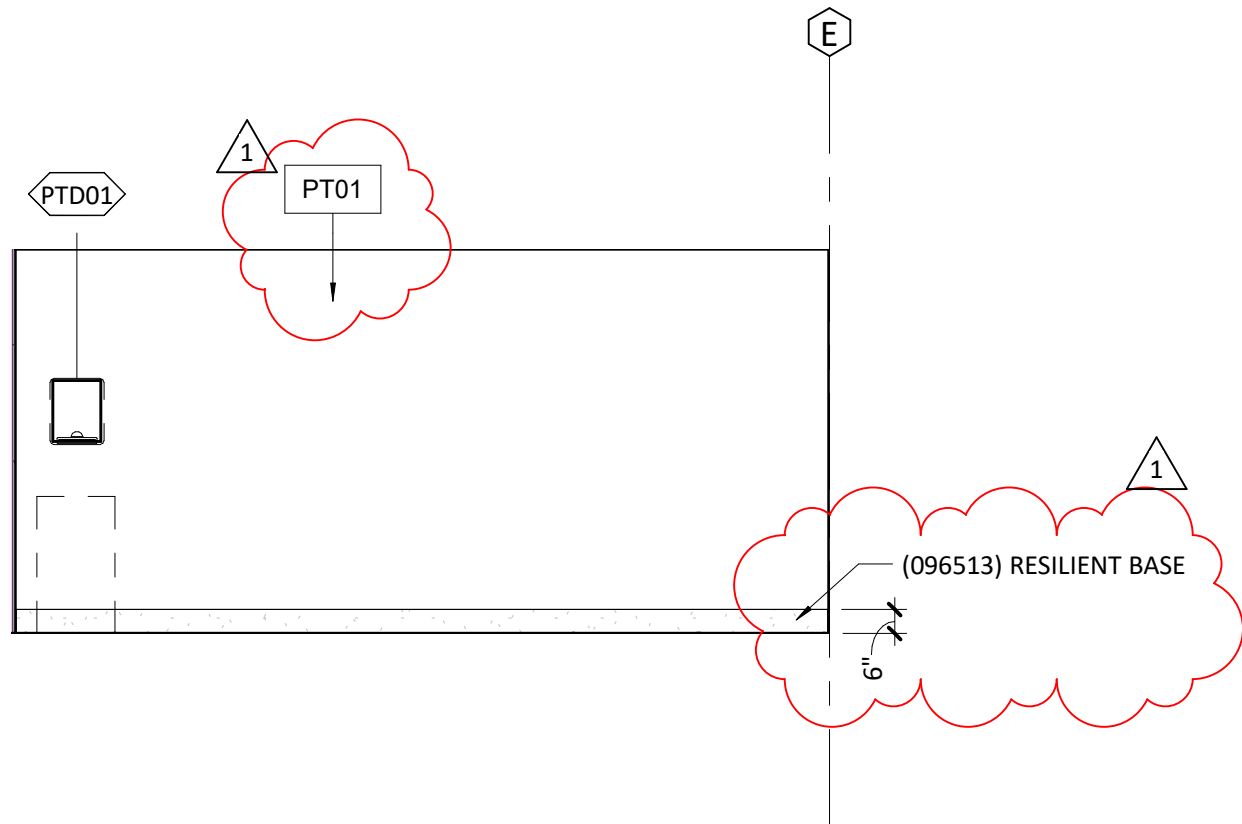
Project Number: 0121-0100

owner: Lee's Summit R-7 School 301 NE Tudor Road Lee's Summit, MO 64086 multi-studio	architect: Multistudio 4205 Pennsylvania Kansas City, MO 64111 816.931.6655 multi-studio
civil engineer: Kaw Valley Engineering 14700 West 114th Terrace Lenexa, KS 66215 913.485.0318 kvang.com	structural engineer: Bob D. Campbell & 4338 Bellevue Kansas City, MO 64111 816.531.4144 www.bdc-engrs.com

MEP/PT/Code:
Henderson Engineers
8345 Lenexa Drive, Suite 300
Lenexa, KS 66314
816.742.5000
www.hendersonengineers.com

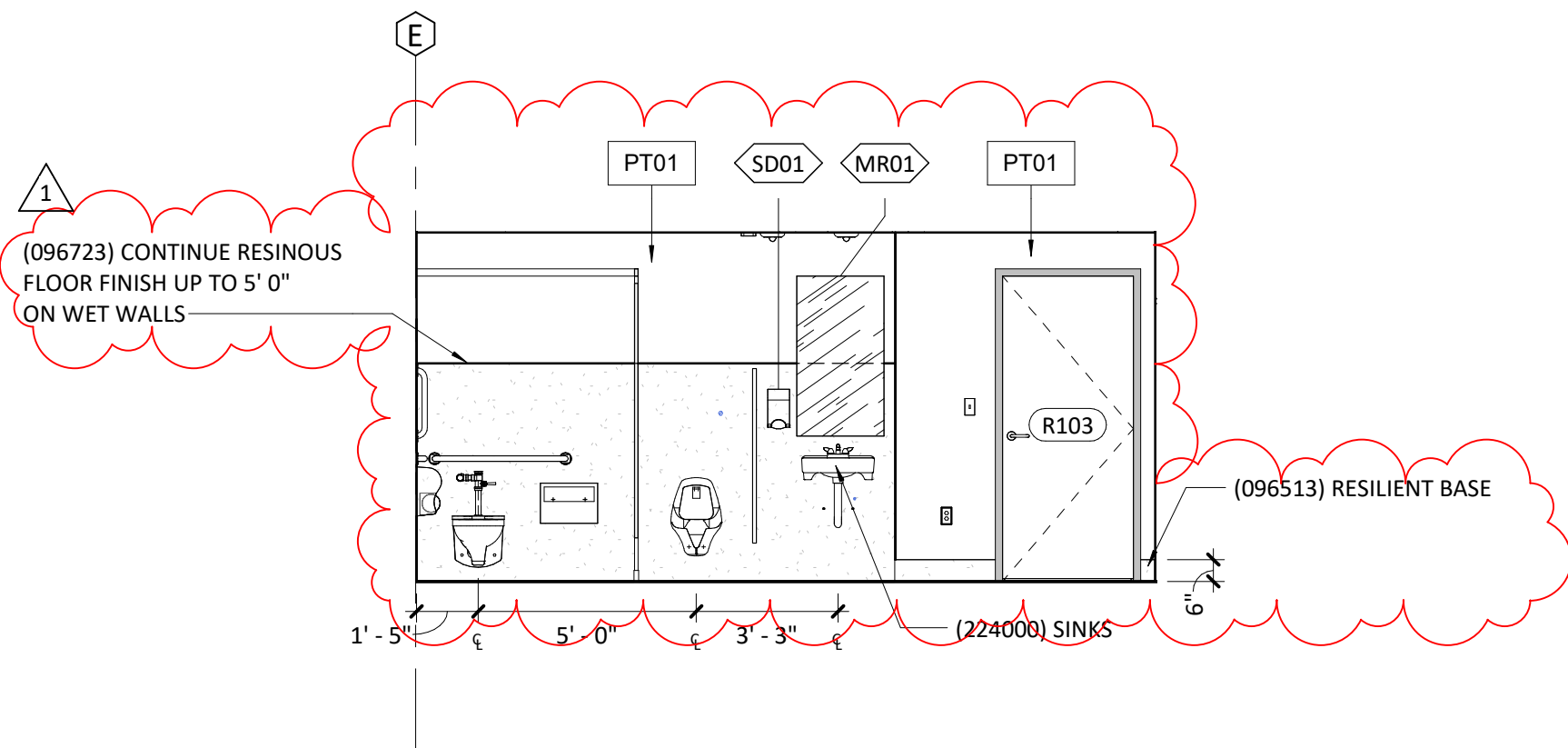
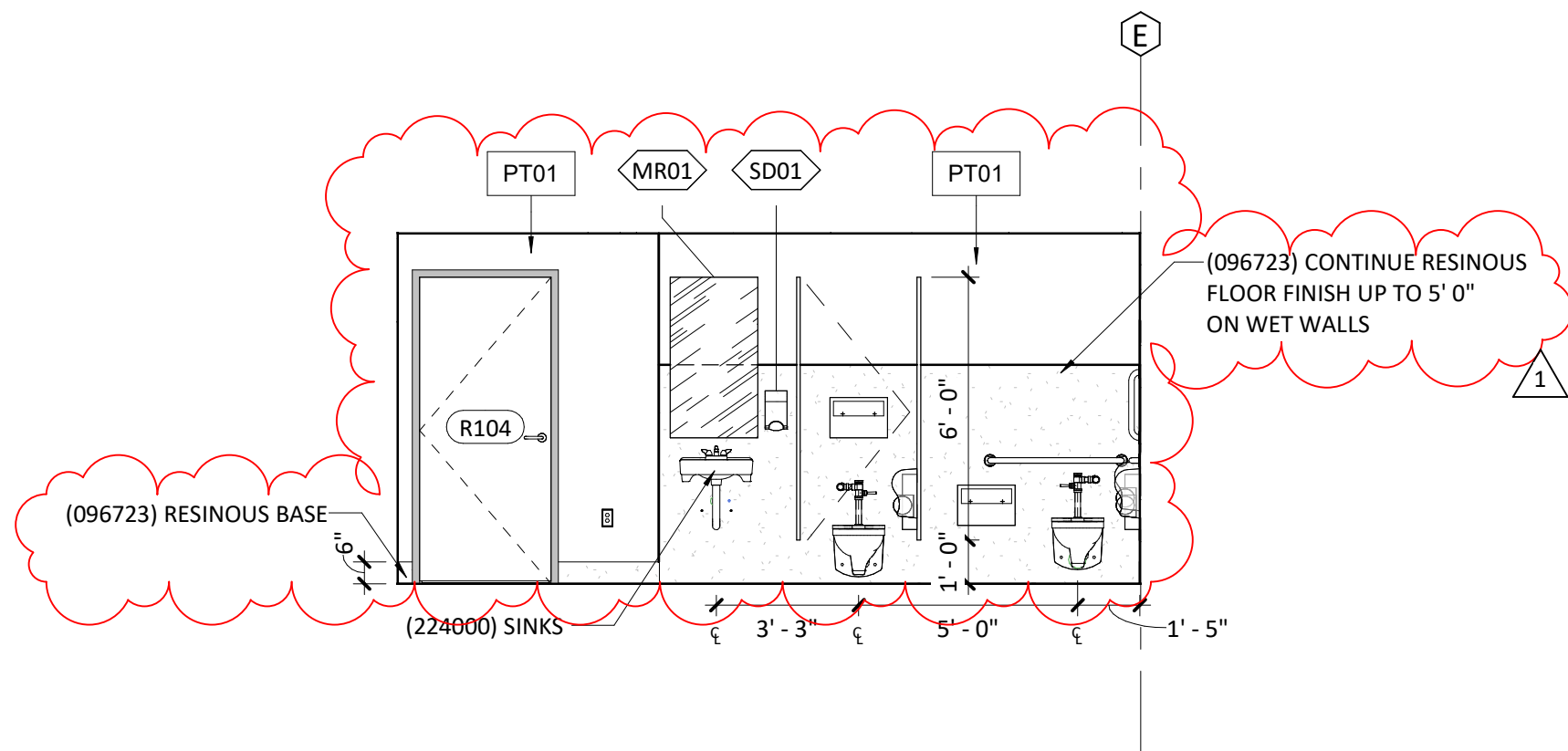
General Notes (Interior Elevations):

1. REFER TO FINISH LEGEND/SCHEDULE FOR COMPLETE LISTING OF FINISHES
2. REFER TO PROJECT STANDARDS FOR INSTALLATION INFORMATION FOR ACCESSORIES, TOILET FIXTURES, ETC.
3. REFER TO PROJECT STANDARDS FOR DEVICES FOR TYPICAL INSTALLATION INFORMATION.
4. AT GYP SOFFIT CONTROL JOINTS, CONTINUE CONTROL JOINT UP BOTH VERTICAL FACES OF SOFFIT.



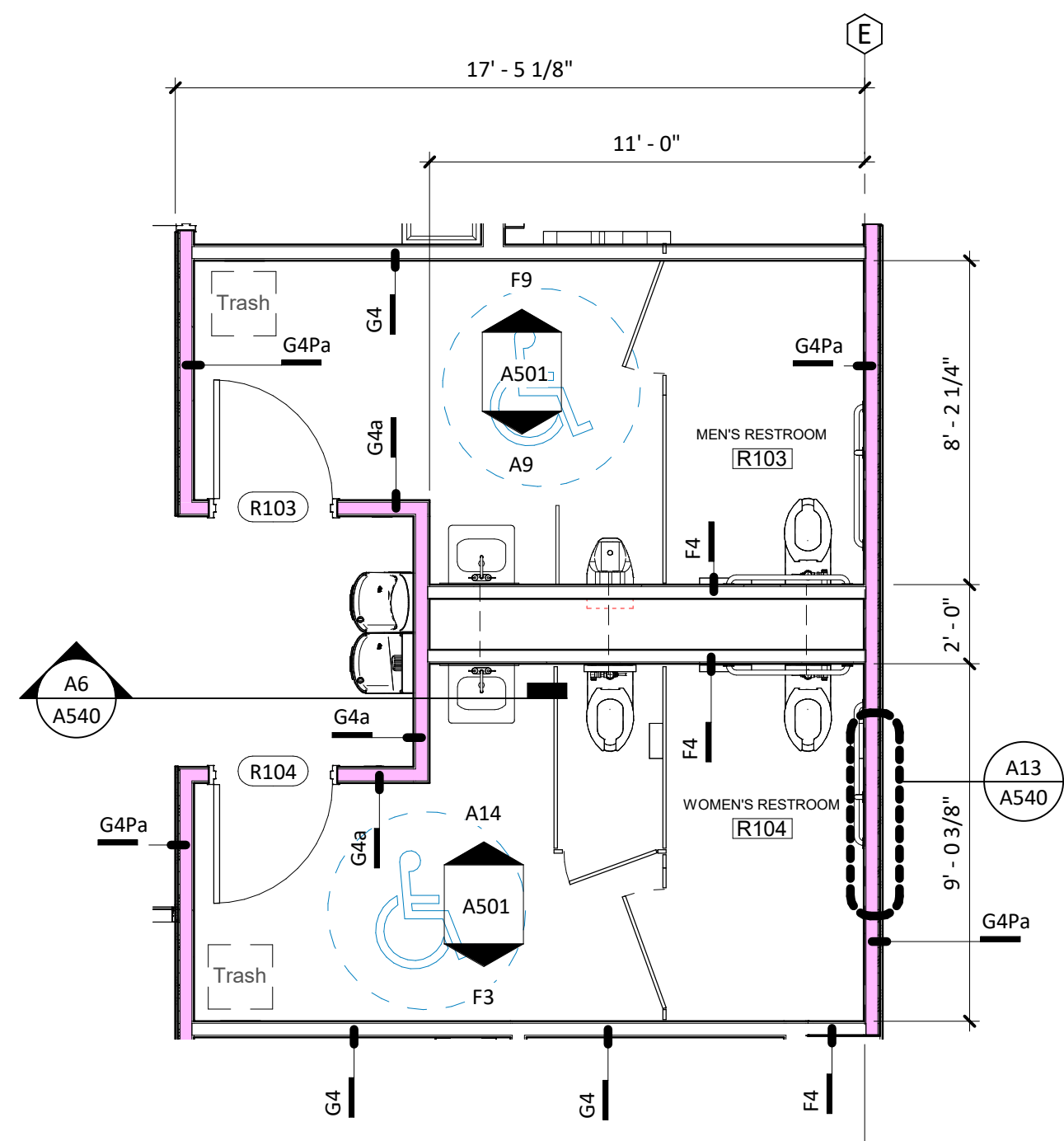
LSN/LSW Men's Restroom - Interior Elevation 2 F9
1/4" = 1'-0"

LSN/LSW Women's Restroom - Interior Elevation 2 F3
1/4" = 1'-0"



LSN/LSW Women's Restroom - Interior Elevation 1 A14
1/4" = 1'-0"

LSN/LSW Men's Restroom - Interior Elevation 1 A9
1/4" = 1'-0"



LSN / LSW - Enlarged Restroom Plan A3
1/4" = 1'-0"

Issue Date: September 9, 2022

Revisions		
NUMBER	DESCRIPTION	DATE
1	Addendum 01	09/19/2022

UNLESS A PROFESSIONAL SEAL WITH SIGNATURE AND DATE IS AFFIXED, THIS DOCUMENT IS PRELIMINARY AND IS NOT INTENDED FOR CONSTRUCTION, RECORDING PURPOSES OR IMPLEMENTATION



Enlarged Restroom
Plans & Elevations

A501

LSN: 901 NE Douglas St., Lee's Summit MO 64086
LSW: 2600 SW Ward Rd, Lee's Summit MO 64082
LSHS: 400 SE Blue Pkwy, Lee's Summit MO 64063

Project Number: 0121-0100

owner: Lee's Summit R-7 School 301 NE Tudor Road Lee's Summit, MO 64086	architect: Multistudio 4200 Pennsylvania Kansas City, MO 64111 816.931.6655 multi_studio
-----------------------------------------------------------------------------------------	----------------------------------------------------------------------------------------------------------------

civil engineer:
Kaw Valley Engineering
14700 West 114th Terrace
Lenexa, KS 66215
913.485.0318
kveng.com

MEPFT/Code::
Henderson Engineers
8345 Lenexa Drive, Suite
300
Lenexa, KS 66214
816.742.5000
www.hendersonengineers.com



**LSR7 Robotics, GiC &
Phys Education**

LSN: 901 NE Douglas St., Lee's Summit MO
64086
LSW: 2600 SW Ward Rd, Lee's Summit MO
64082
LSHS: 400 SE Blue Pkwy, Lee's Summit MO 64063

Project Number: 0121-0100

owner:
Lee's Summit R-7 School
301 NE Tudor Road
Lee's Summit, MO 64086

architect:
Multistudio
4200 Pennsylvania
Kansas City, MO 64111
816.931.6655
multi-studio

civil engineer:
Kaw Valley Engineering
14700 West 114th Terrace
Lenexa, KS 66215
913.485.0318
kveng.com

structural engineer:
Bob D. Campbell &
4338 Bellevue
Kansas City, MO 64111
816.531.4144
www.bdc-engrs.com

MEP/PT/Code:
Henderson Engineers
8345 Lenexa Drive, Suite
300
Lenexa, KS 66214
816.742.5000
www.hendersonengineers.com

MEP/PT/Code:
Henderson Engineers
8345 Lenexa Drive, Suite
300
Lenexa, KS 66214
816.742.5000
www.hendersonengineers.com

MEP/PT/Code:
Henderson Engineers
8345 Lenexa Drive, Suite
300
Lenexa, KS 66214
816.742.5000
www.hendersonengineers.com

MEP/PT/Code:
Henderson Engineers
8345 Lenexa Drive, Suite
300
Lenexa, KS 66214
816.742.5000
www.hendersonengineers.com

MEP/PT/Code:
Henderson Engineers
8345 Lenexa Drive, Suite
300
Lenexa, KS 66214
816.742.5000
www.hendersonengineers.com

MEP/PT/Code:
Henderson Engineers
8345 Lenexa Drive, Suite
300
Lenexa, KS 66214
816.742.5000
www.hendersonengineers.com

MEP/PT/Code:
Henderson Engineers
8345 Lenexa Drive, Suite
300
Lenexa, KS 66214
816.742.5000
www.hendersonengineers.com

MEP/PT/Code:
Henderson Engineers
8345 Lenexa Drive, Suite
300
Lenexa, KS 66214
816.742.5000
www.hendersonengineers.com

MEP/PT/Code:
Henderson Engineers
8345 Lenexa Drive, Suite
300
Lenexa, KS 66214
816.742.5000
www.hendersonengineers.com

MEP/PT/Code:
Henderson Engineers
8345 Lenexa Drive, Suite
300
Lenexa, KS 66214
816.742.5000
www.hendersonengineers.com

MEP/PT/Code:
Henderson Engineers
8345 Lenexa Drive, Suite
300
Lenexa, KS 66214
816.742.5000
www.hendersonengineers.com

MEP/PT/Code:
Henderson Engineers
8345 Lenexa Drive, Suite
300
Lenexa, KS 66214
816.742.5000
www.hendersonengineers.com

MEP/PT/Code:
Henderson Engineers
8345 Lenexa Drive, Suite
300
Lenexa, KS 66214
816.742.5000
www.hendersonengineers.com

MEP/PT/Code:
Henderson Engineers
8345 Lenexa Drive, Suite
300
Lenexa, KS 66214
816.742.5000
www.hendersonengineers.com

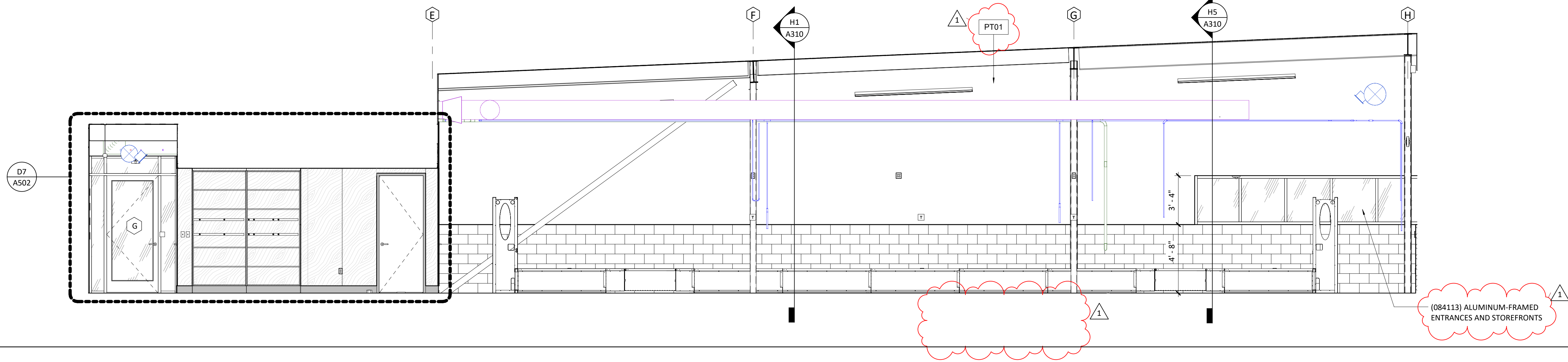
MEP/PT/Code:
Henderson Engineers
8345 Lenexa Drive, Suite
300
Lenexa, KS 66214
816.742.5000
www.hendersonengineers.com

MEP/PT/Code:
Henderson Engineers
8345 Lenexa Drive, Suite
300
Lenexa, KS 66214
816.742.5000
www.hendersonengineers.com

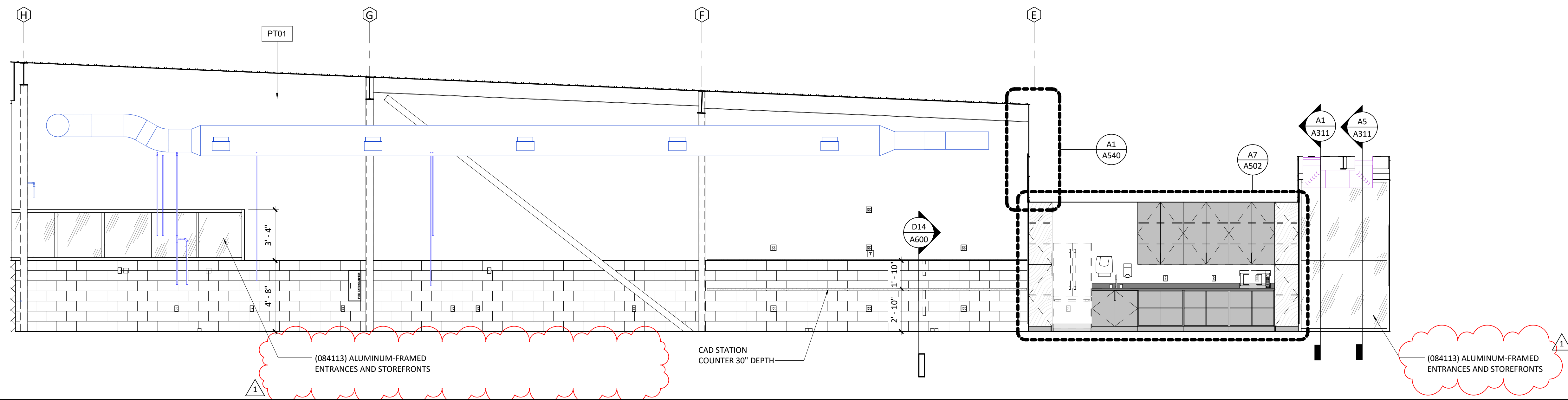
MEP/PT/Code:
Henderson Engineers
8345 Lenexa Drive, Suite
300
Lenexa, KS 66214
816.742.5000
www.hendersonengineers.com

MEP/PT/Code:
Henderson Engineers
8345 Lenexa Drive, Suite
300
Lenexa, KS 66214
816.742.5000
www.hendersonengineers.com

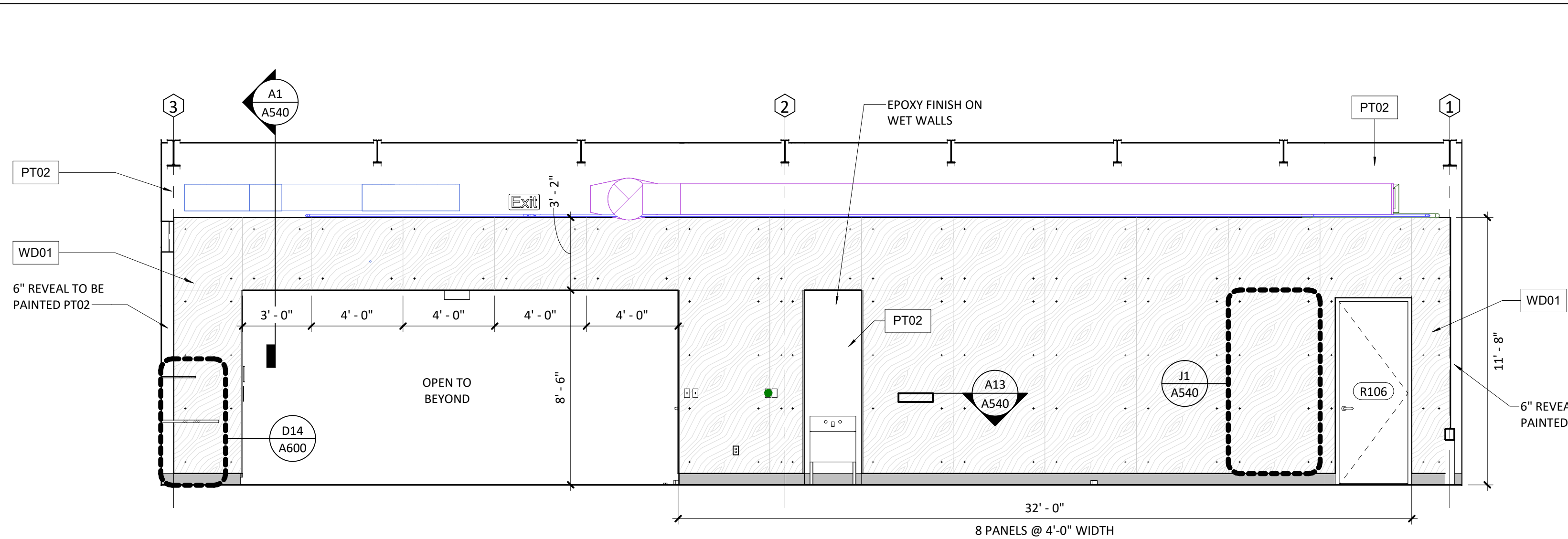
MEP/PT/Code:
Henderson Engineers
8345 Lenexa Drive, Suite
300
Lenexa, KS 66214
816.742.5000
www.hendersonengineers.com



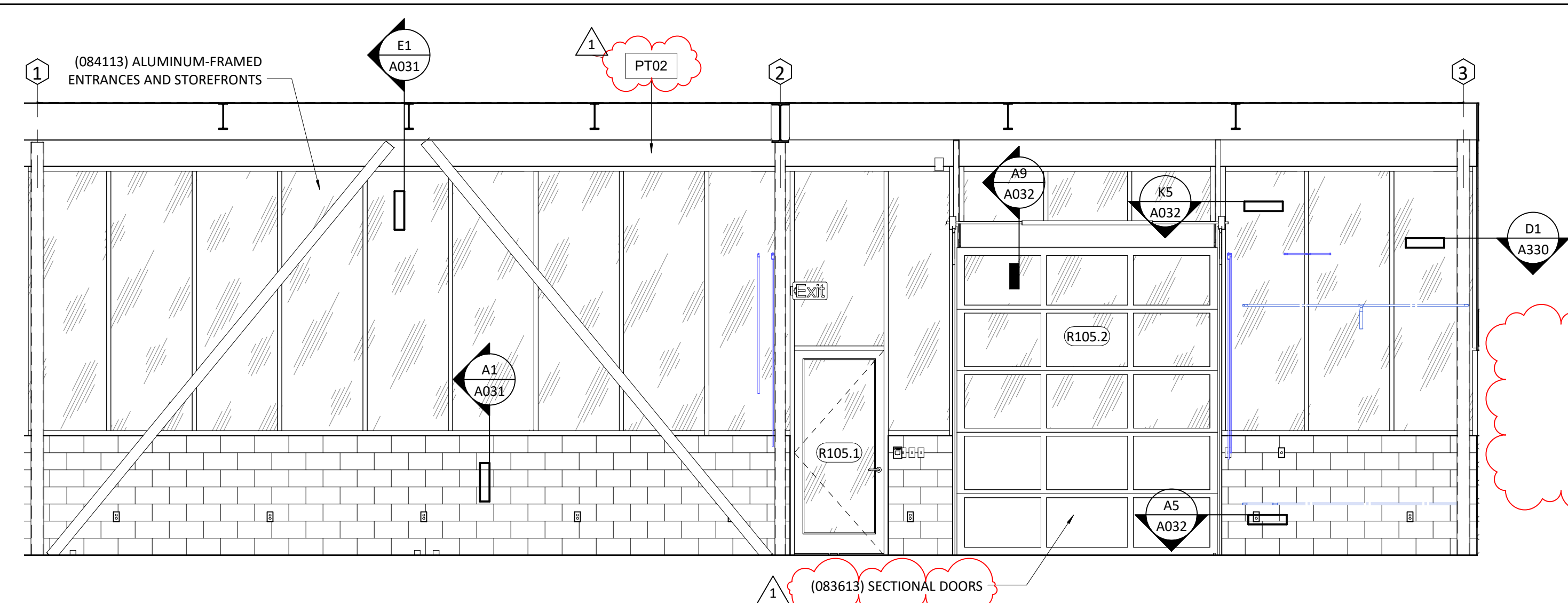
Interior Elevation - LSN / LSW Robotics North **L1**
1/4" = 1'-0"



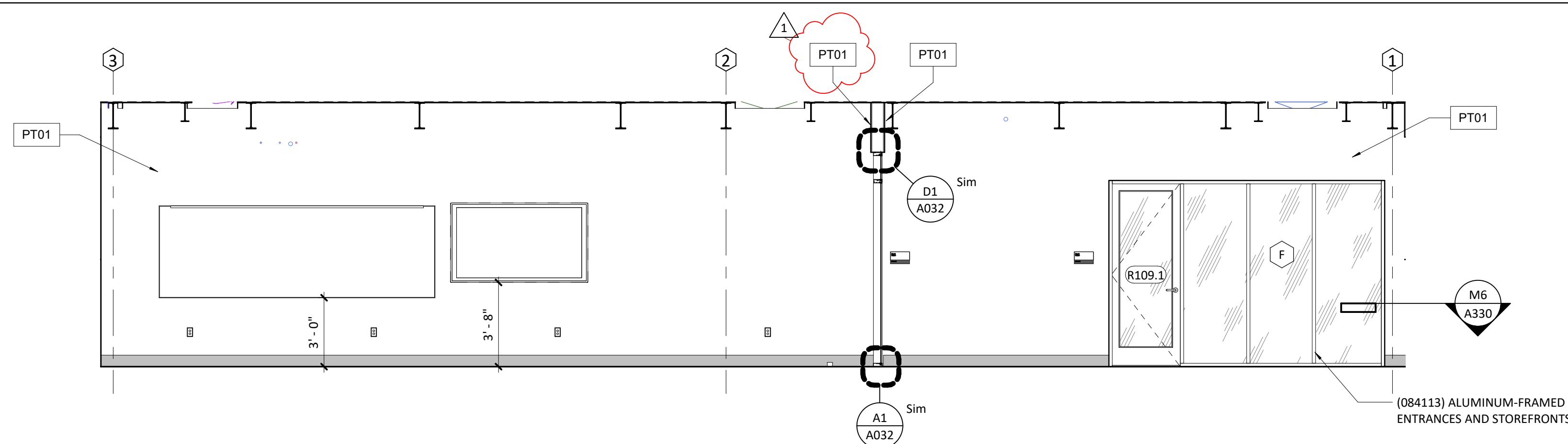
Interior Elevation - LSN / LSW Robotics South **G1**
1/4" = 1'-0"



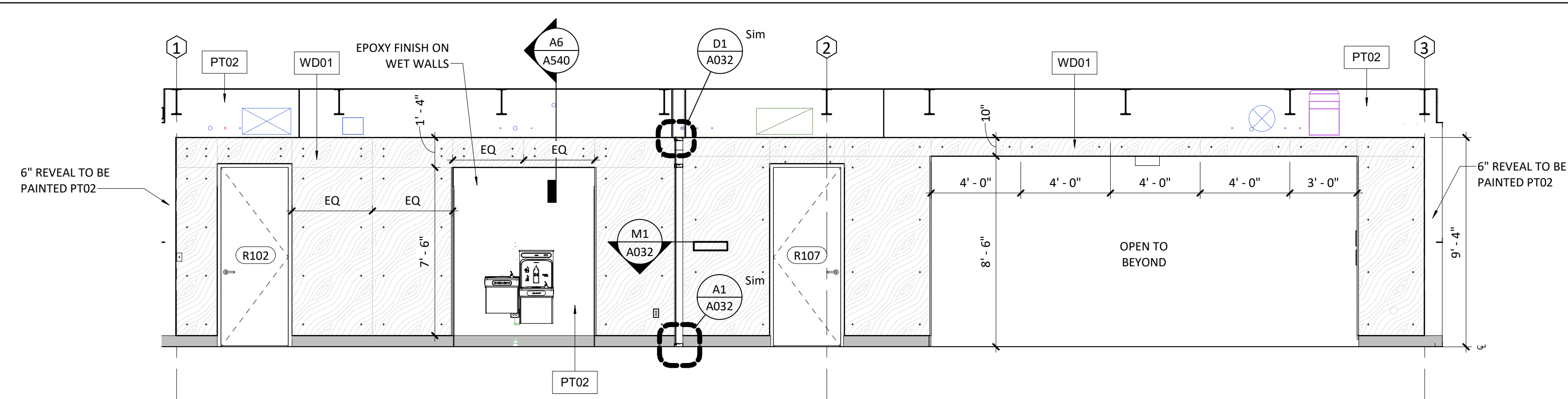
Interior Elevation - LSN / LSW Robotics West **D10**
1/4" = 1'-0"



Interior Elevation - LSN / LSW Robotics East **D1**
1/4" = 1'-0"



Interior Elevation - LSN / LSW Robotics Corridor West **A10**
1/4" = 1'-0"



Interior Elevation - LSN / LSW Robotics Corridor East **A1**
1/4" = 1'-0"

Issue Date: September 9, 2022

Revisions
NUMBER 1 DESCRIPTION Addendum 01 DATE 09/19/2022

UNLESS A PROFESSIONAL SEAL WITH SIGNATURE AND DATE IS
AFFIXED, THIS DOCUMENT IS PRELIMINARY AND IS NOT INTENDED FOR
CONSTRUCTION, RECORDING PURPOSES OR IMPLEMENTATION



Interior Elevations
A503

**LSR7 Robotics, GiC &
Phys Education**

LSN: 901 NE Douglas St., Lee's Summit MO
64086
LSW: 2600 SW Ward Rd, Lee's Summit MO
64082
LSHS: 400 SE Blue Pkwy, Lee's Summit MO 64063

Project Number: 0121-0100

owner:
Lee's Summit R-7 School
301 NE Tudor Road
Lee's Summit, MO 64086
multi-studio

architect:
Multistudio
4205 Pennsylvania
Kansas City, MO 64111
816.931.6655
multi-studio

civil engineer:
Kaw Valley Engineering
14700 West 114th Terrace
Lenexa, KS 66215
913.485.0318
kveng.com

structural engineer:
Bob D. Campbell &
4338 Bellevue
Kansas City, MO 64111
816.531.4144
www.bdc-engrs.com

MEP/PT/Code:
Henderson Engineers
8345 Lenexa Drive, Suite
300
Lenexa, KS 66214
816.742.5000
www.hendersonengineers.com

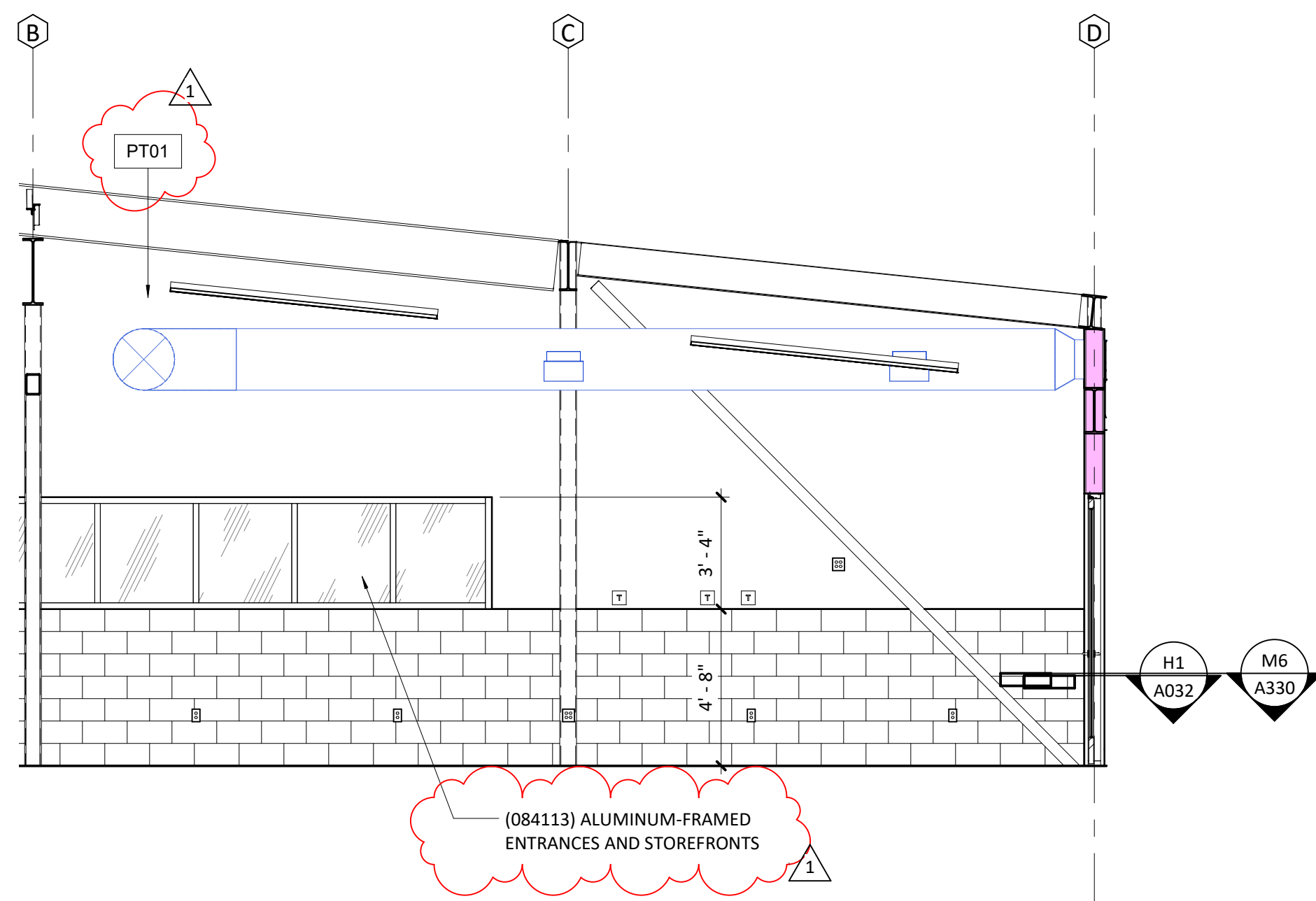
Issue Date: September 9, 2022

Revisions		
NUMBER	DESCRIPTION	DATE
1	Addendum 01	09/19/2022

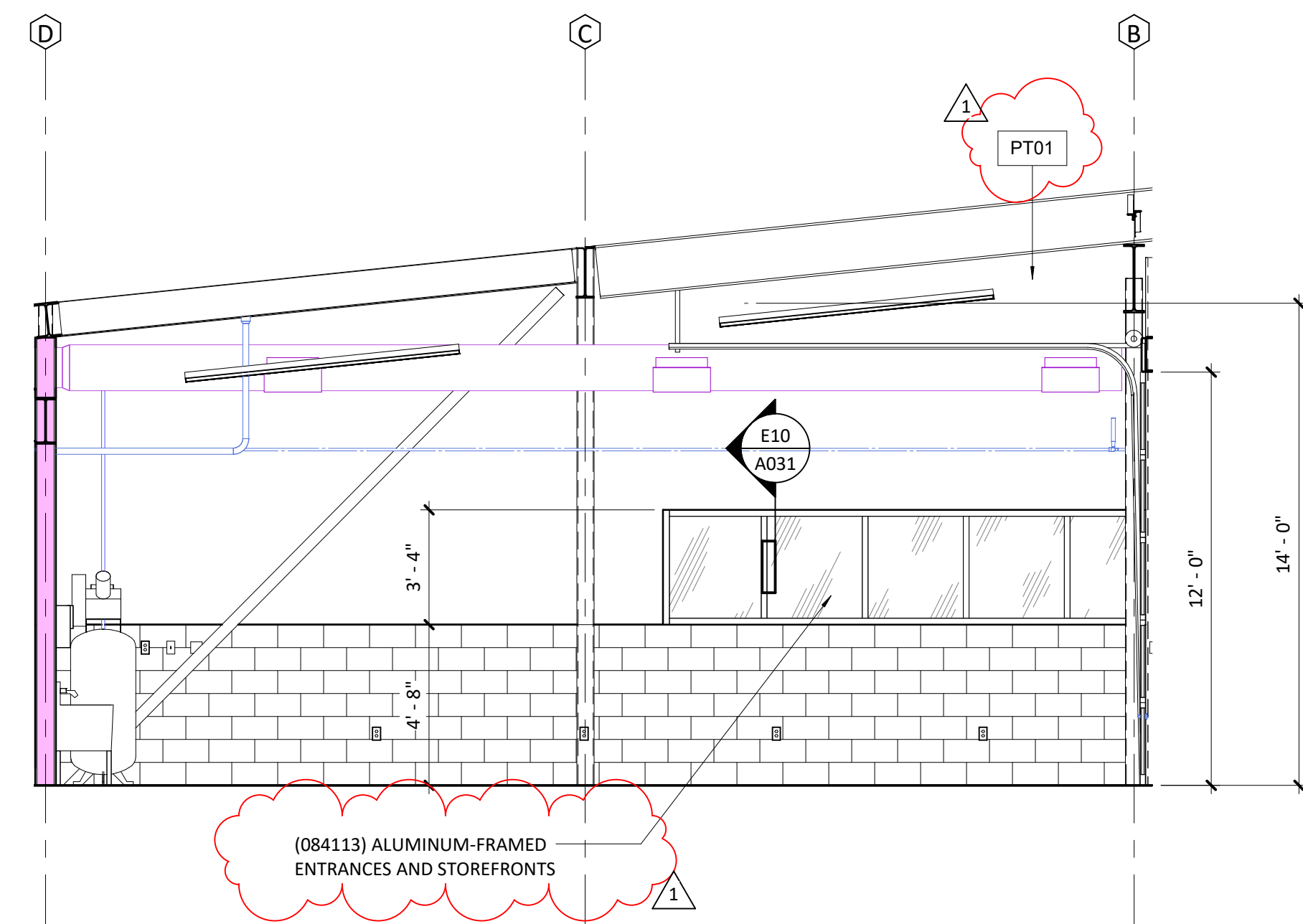
UNLESS A PROFESSIONAL SEAL WITH SIGNATURE AND DATE IS
AFFIXED, THIS DOCUMENT IS PRELIMINARY AND IS NOT INTENDED FOR
CONSTRUCTION, RECORDING PURPOSES OR IMPLEMENTATION



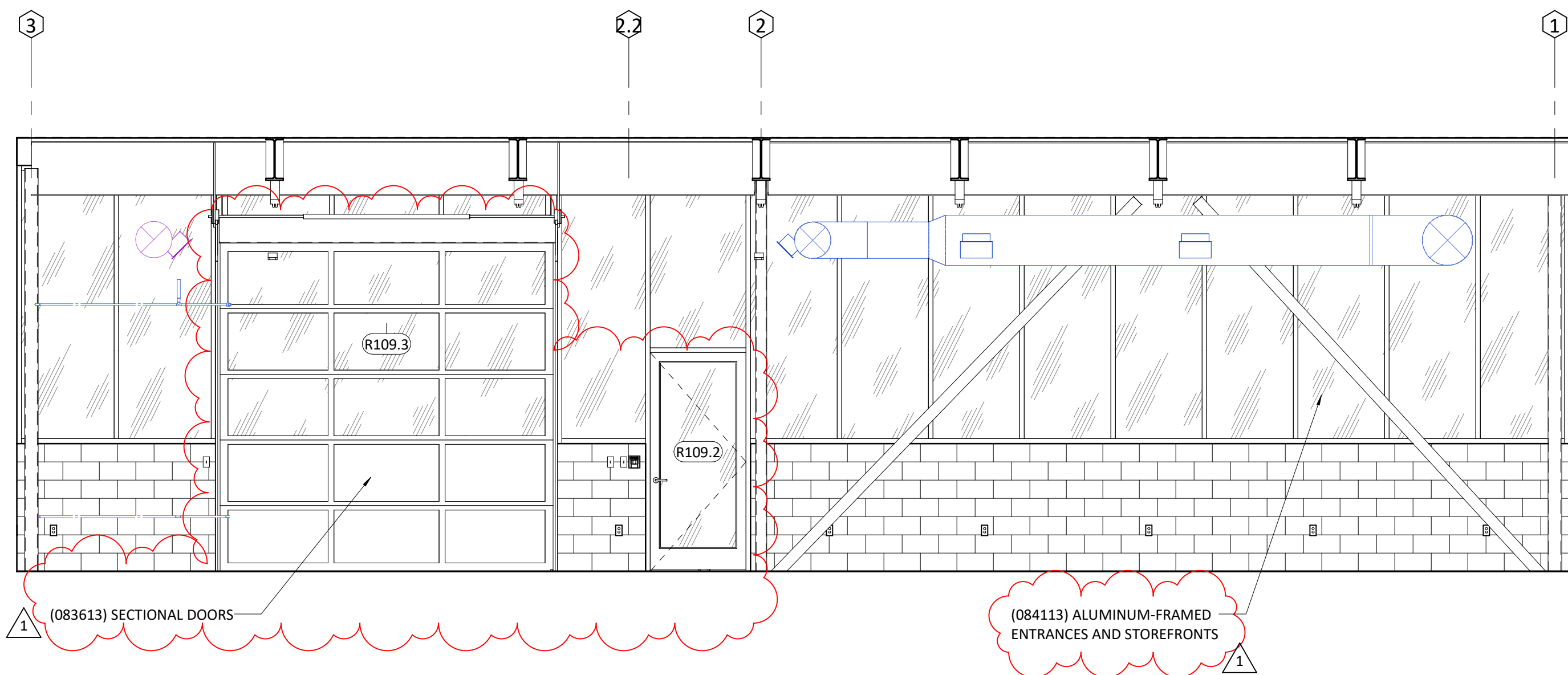
**Interior Elevations
A504**



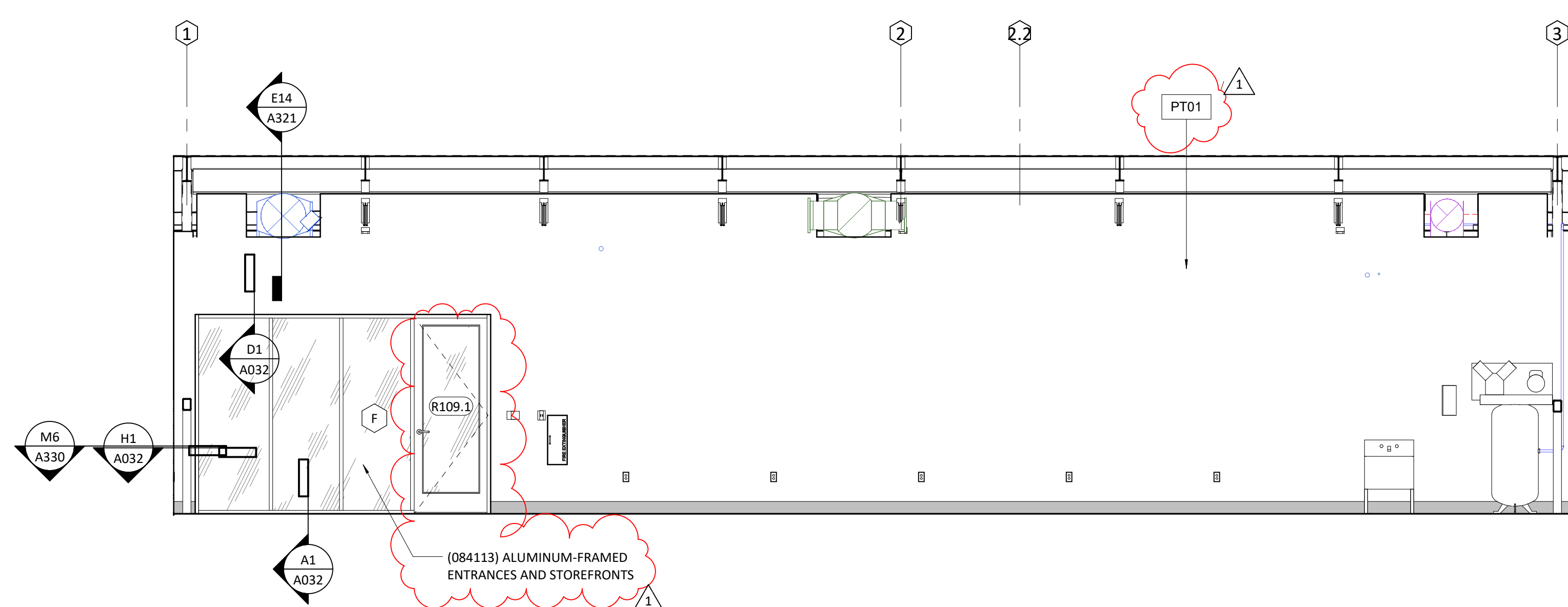
Interior Elevation - LSN / LSW GiC North **E10**
1/4" = 1'-0"



Interior Elevation - LSN / LSW GiC South **E1**
1/4" = 1'-0"



Interior Elevation - LSN / LSW GiC West **A10**
1/4" = 1'-0"



Interior Elevation - LSN / LSW GiC East **A1**
1/4" = 1'-0"

LSN: 901 NE Douglas St., Lee's Summit MO 64086
LSW: 2600 SW Ward Rd, Lee's Summit MO 64082
LSHS: 400 SE Blue Pkwy, Lee's Summit MO 64063

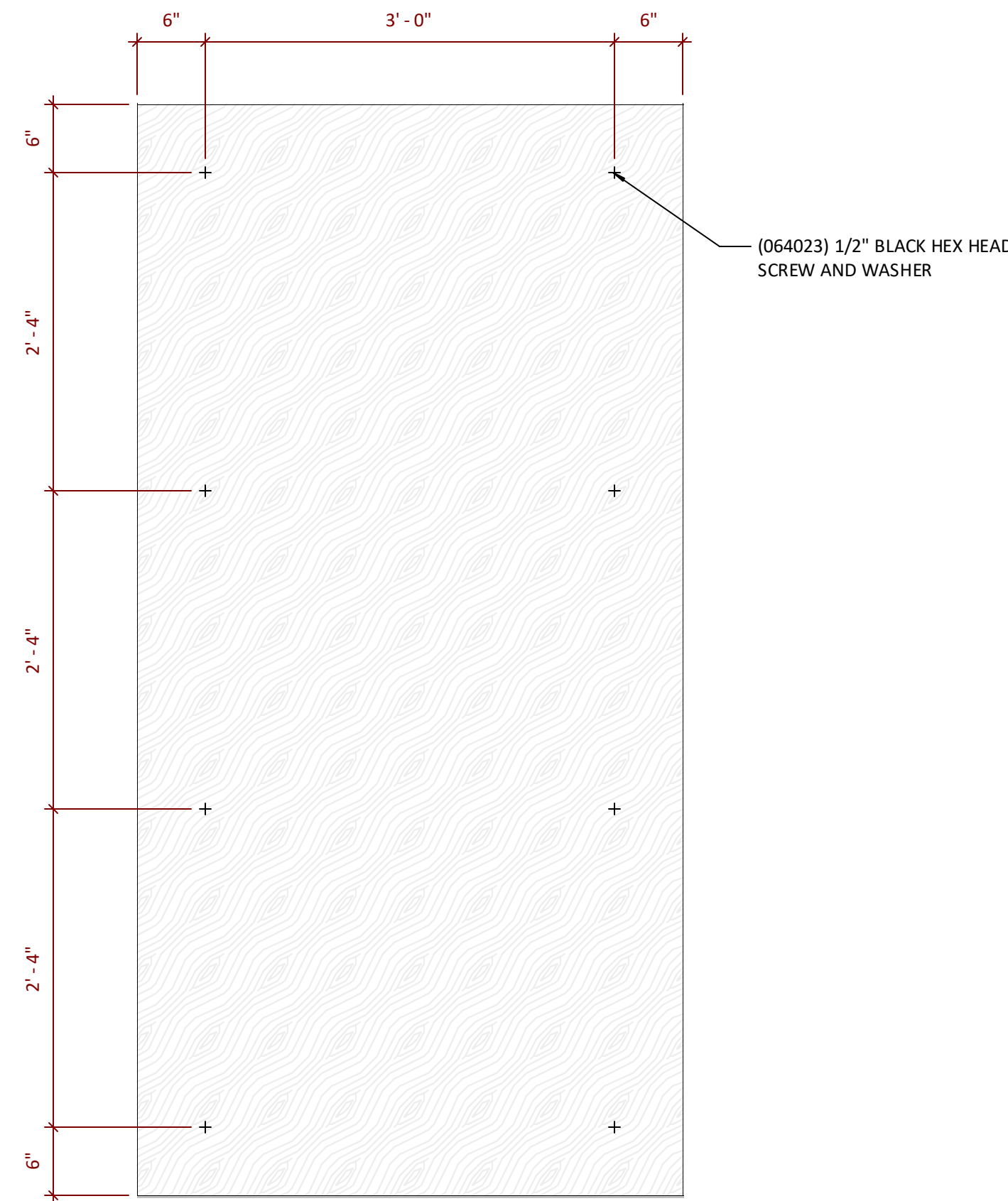
Project Number: 0121-010

owner:	architect:
Lee's Summit R-7 School	Multistudio
301 NE Tudor Road	4200 Pennsylvania
Lee's Summit, MO 64086	Kansas City, MO 64111
	816.931.6655

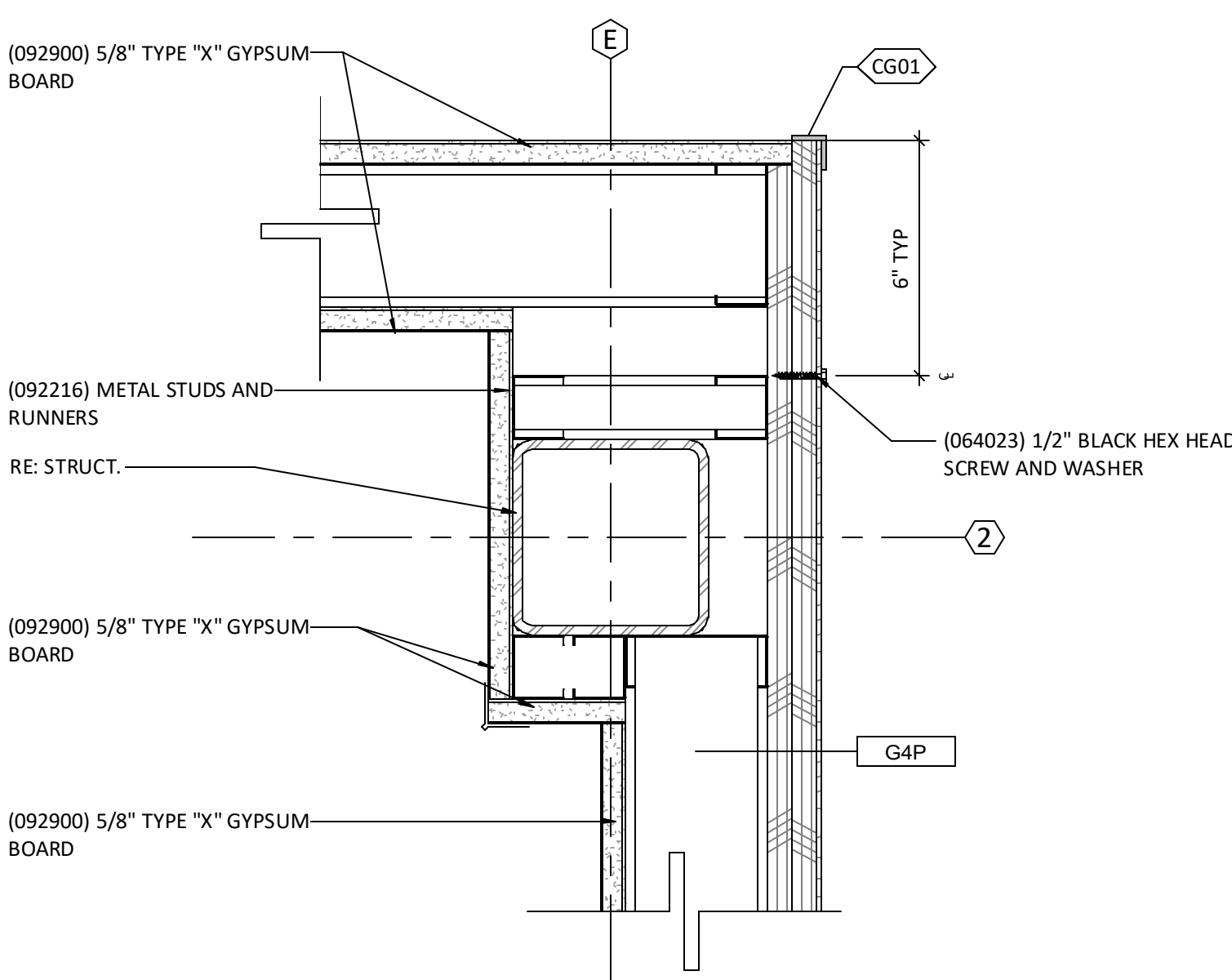
civil engineer:
Kaw Valley Engineering
14700 West 114th Terrace
Lenexa, KS 66215
913.485.0318
kveeng.com

structural engineer:
Bob D. Campbell &
4338 Belleview
Kansas City, MO 64111
816.531.4144
www.bdc-engrs.com

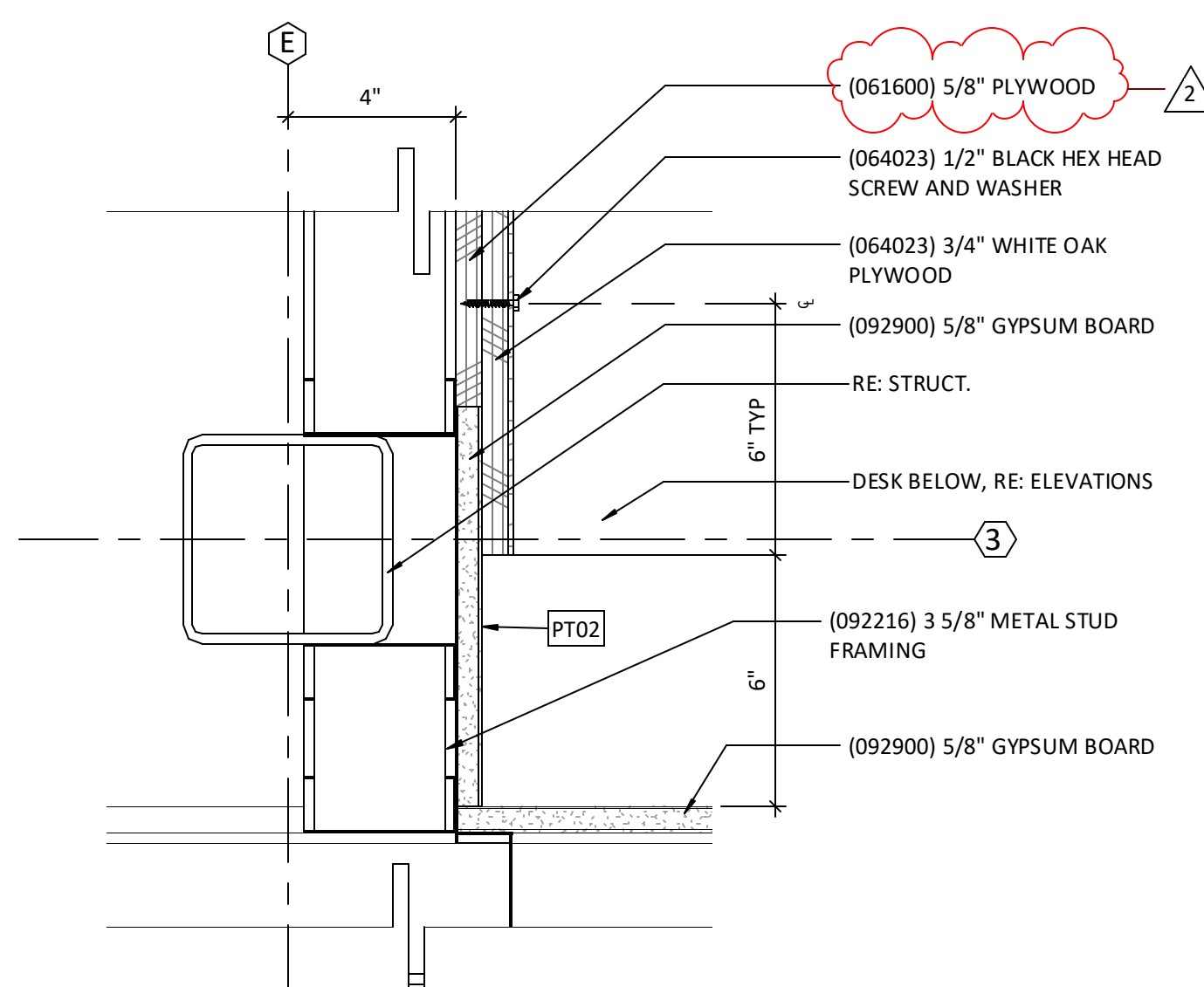
MEPFT/Code::
Henderson Engineers
8345 Lenexa Drive, Suite
300
Lenexa, KS 66214
816.742.5000
www.hendersonengineers.com



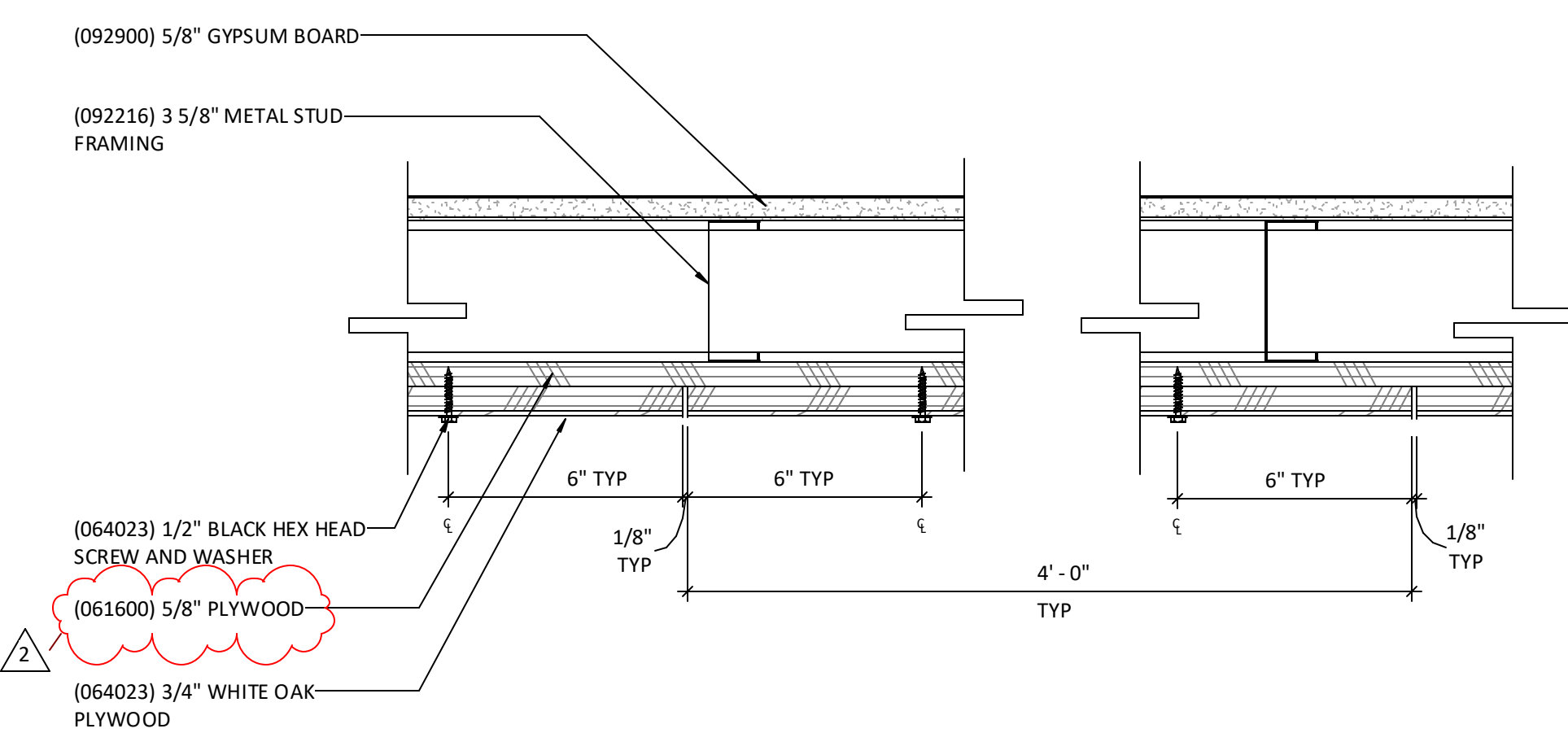
4' x 8' Finished Plywood Panel (TYP) **J1**
1" = 1'-0"



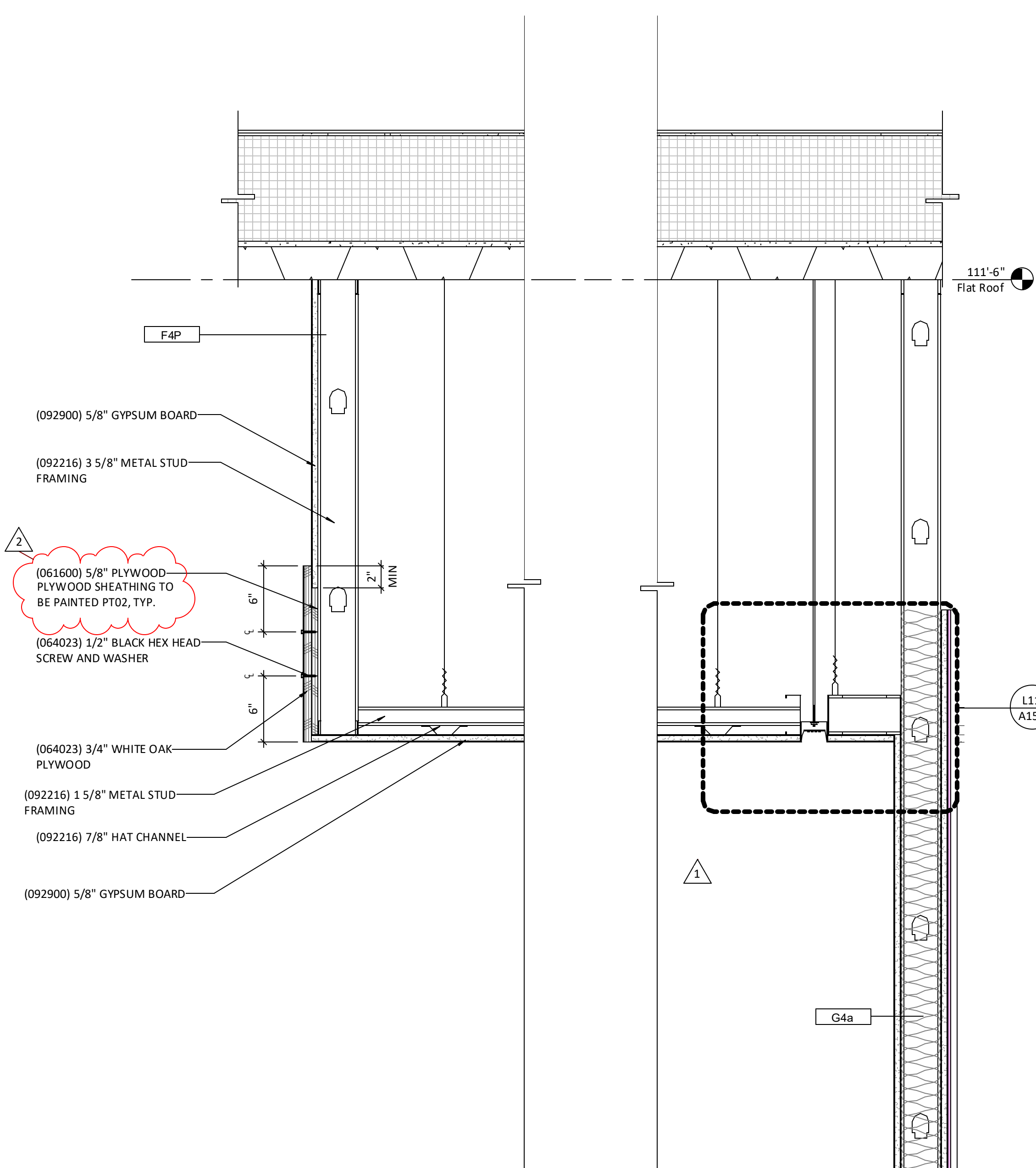
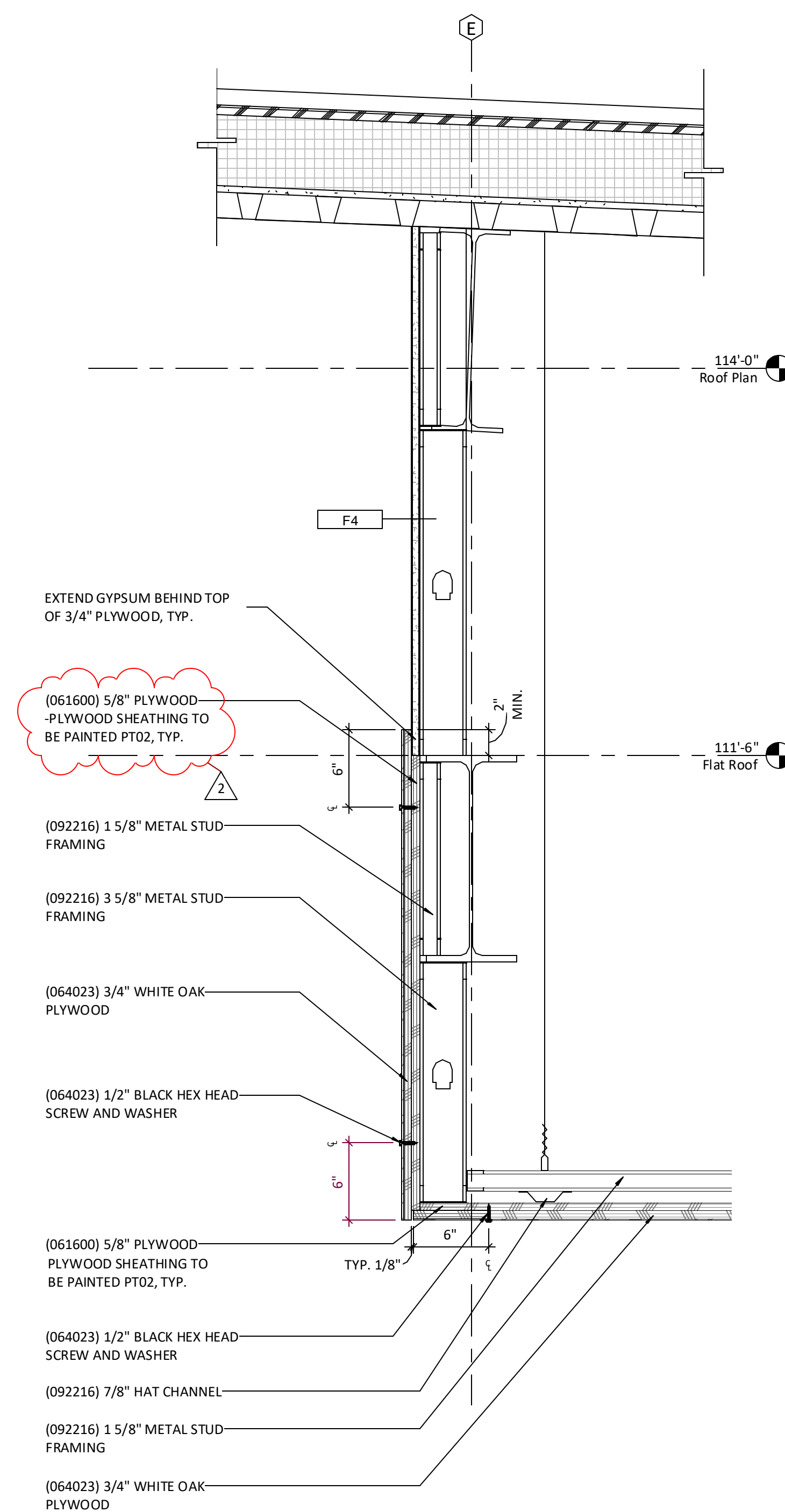
Plan Detail @ 1 Hour Rated Column J13
3" = 1'-0"



Plan Detail @ Wood Corner Reveal E13



Plan Detail @ Plywood Panel Vertical Joint A13

Section Detail @ Restroom Vestibule A6
1 1/2" = 1'-0"Section Detail @ Classroom Ceiling Edge **A1**
1 1/2" = 1'

Issue Date: September 9, 202

Revisions		
NUMBER	DESCRIPTION	DATE
1	Addendum 01	09/19/2012
2	Addendum 02	09/23/2012

UNLESS A PROFESSIONAL SEAL WITH SIGNATURE AND DATE IS
AFFIXED, THIS DOCUMENT IS PRELIMINARY AND IS NOT INTENDED FOR
CONSTRUCTION, RECORDING PURPOSES OR IMPLEMENTATION



Interior Details

A540

LSR7 Robotics, GiC &
Phys Education

LSN: 901 NE Douglas St., Lee's Summit MO
64086
LSW: 2600 SW Ward Rd, Lee's Summit MO
64082
LSHS: 400 SE Blue Pkwy, Lee's Summit MO 64063

Project Number: 0121-0100

owner:
Lee's Summit R-7 School
301 NE Tudor Road
Lee's Summit, MO 64086

architect:
Multistudio
4300 Pennsylvania
Kansas City, MO 64111
816.931.6655
multistudio

civil engineer:
Kaw Valley Engineering
14700 West 114th Terrace
Lenexa, KS 66215
913.485.0318
kveng.com

structural engineer:
Bob D. Campbell &
4338 Bellevue
Kansas City, MO 64111
816.531.4144
www.bdc-engrs.com

MEP/IT/Code:
Henderson Engineers
8345 Lenexa Drive, Suite
300
Lenexa, KS 66214
816.742.5000
www.hendersonengineers.com

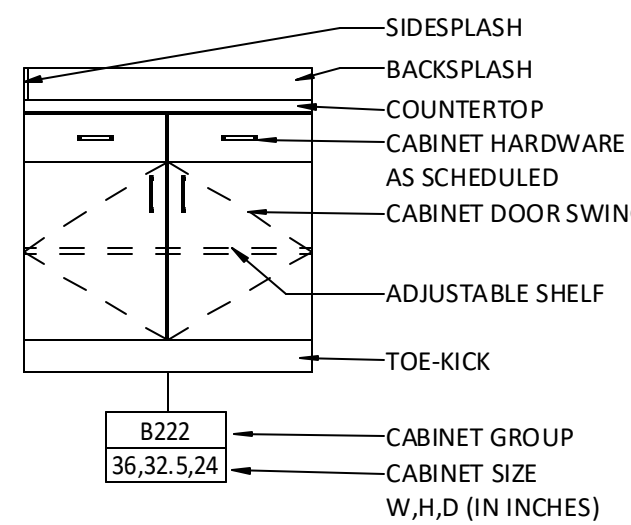
General Notes (Casework Standards):

1. ALL CASEWORK IS TO BE CONSTRUCTED TO MEET OR EXCEED ARCHITECTURAL WOODWORK INSTITUTE (AWI) STANDARDS.
2. FIELD VERIFY ALL DIMENSIONS PRIOR TO FABRICATION.
3. PROVIDE RUBBER BASE AT ALL CABINET BASES, UNLESS NOTED OTHERWISE.
4. REFER TO INTERIOR ELEVATIONS AND FINISH SCHEDULE FOR SPECIFIC MATERIAL LOCATIONS.
5. PROVIDE MOISTURE RESISTANT PLYWOOD AT COUNTERTOPS WITH SINKS.
6. SINKS SHOWN ON THESE DRAWINGS INDICATE LOCATIONS ONLY AND MAY NOTE REFLECT ACTUAL SIZES OR TYPES.
7. COORDINATE LOCATIONS OF ALL EQUIPMENT AND CONFIRM PROPER CLEARANCES. NOTIFY ARCHITECT OF ANY DISCREPANCIES.
8. CENTER ALL SINKS IN THE ASSOCIATED CASEWORK, UNLESS NOTED OTHERWISE.
9. PROVIDE SIDE SPLASH WHERE COUNTERTOP ABUTS WALL OR AT COUNTERTOPS WITH DIFFERENT HEIGHTS ABUT.
10. SEAL ALL JOINTS BETWEEN WORK SURFACES/CABINETS AND ADJOINING SURFACES.
11. PROVIDE IN WALL BLOCKING AS REQUIRED FOR UPPER CABINETS.
12. CONTRACTOR WILL BE RESPONSIBLE FOR PROTECTING FINISHED FLOORING SURFACES FROM DAMAGE DURING ALL CONSTRUCTION PHASES.
13. FIELD COORDINATE LOCATIONS OF GROMMETS IN COUNTERTOPS WITH OWNER/ARCHITECT.
14. PROVIDE FINISHED CLOSURE PANELS AT EXPOSED END CONDITIONS.
15. PROVIDE FILLER PANEL/Scribe AT ALL LOCATIONS WHERE CASEWORK MEETS A WALL.
16. PROVIDE LOCKS AT ALL CABINET DOORS. FINAL LOCK COORDINATION WILL BE DONE BY OWNER/ARCHITECT DURING SHOP DRAWING PROCESS.
17. ALL PENETRATIONS THROUGH CASEWORK SHALL BE SEALED OR COVERED WITH AN ESCUTCHEON.

CASEWORK CABINET GROUPS:

B BASE CABINET
BS BASE SCRIBE
T TALL CABINET
U UPPER CABINET
US UPPER SCRIBE

Casework Legend



Casework Schedule

Mark	Width	Height	Depth
Base - 301 - Open Cubby Shelving (34 inch)			
B301	36"	32 1/2"	23"
Base-101 Single-Plywood			
B101	17 1/2"	53"	12"
Base-102 Double			
B154	36"	32 1/2"	24"
Base-154 Double for ADA Sink			
B154	36"	32 1/2"	23"
T525 - Open Shelving Stack (9") 2' Depth			
T501	44"	100"	25 3/8"
Upper-301 Single-Plywood			
U301	17 1/2"	48 3/4"	12"
Upper-302 Double			
U302	36"	49"	12"

Issue Date: September 9, 2022

Revisions

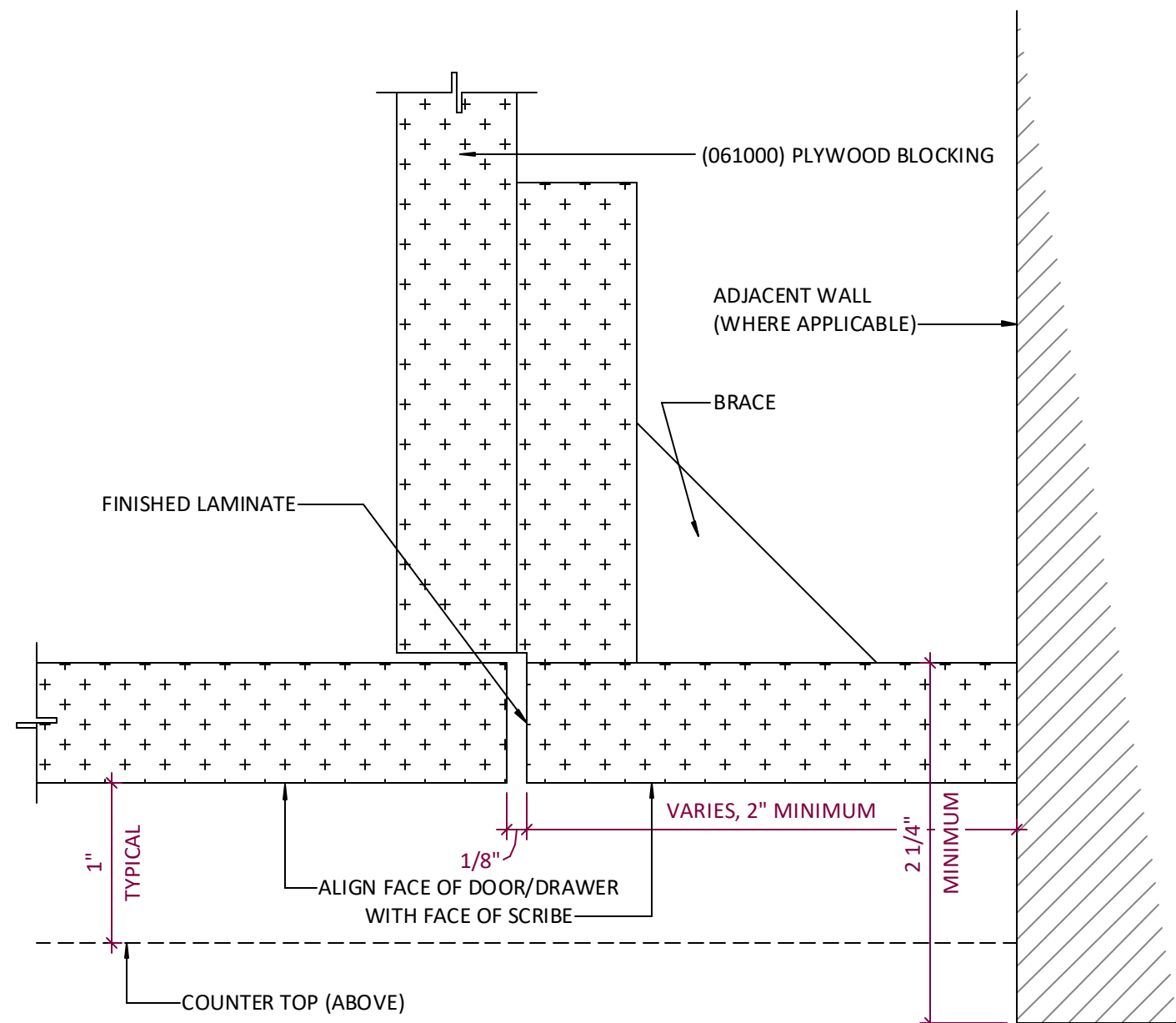
NUMBER	DESCRIPTION	DATE
2	Addendum 02	09/29/2022

UNLESS A PROFESSIONAL SEAL WITH SIGNATURE AND DATE IS AFFIXED, THIS DOCUMENT IS PRELIMINARY AND IS NOT INTENDED FOR CONSTRUCTION, RECORDING PURPOSES OR IMPLEMENTATION.

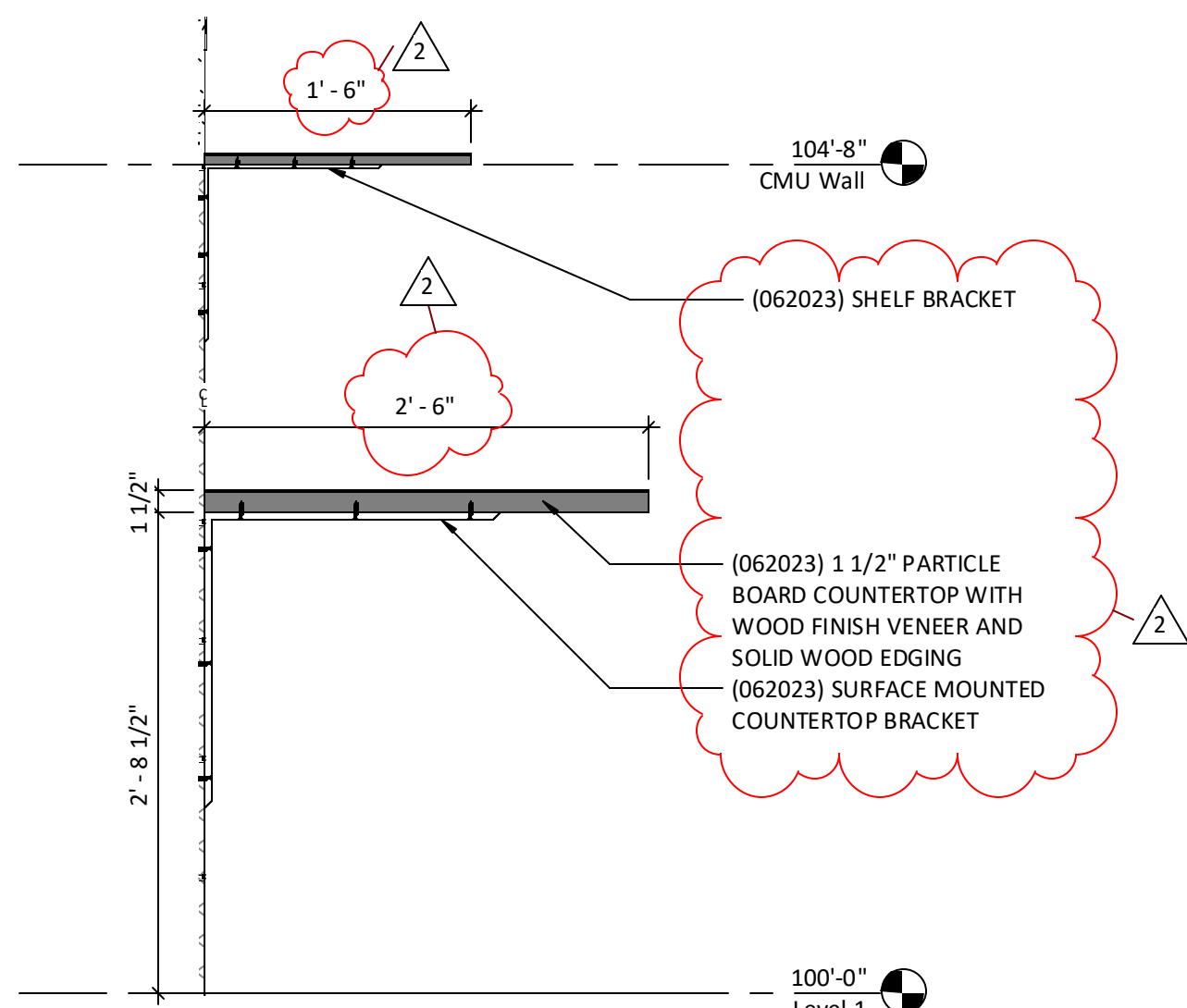


Casework Standards

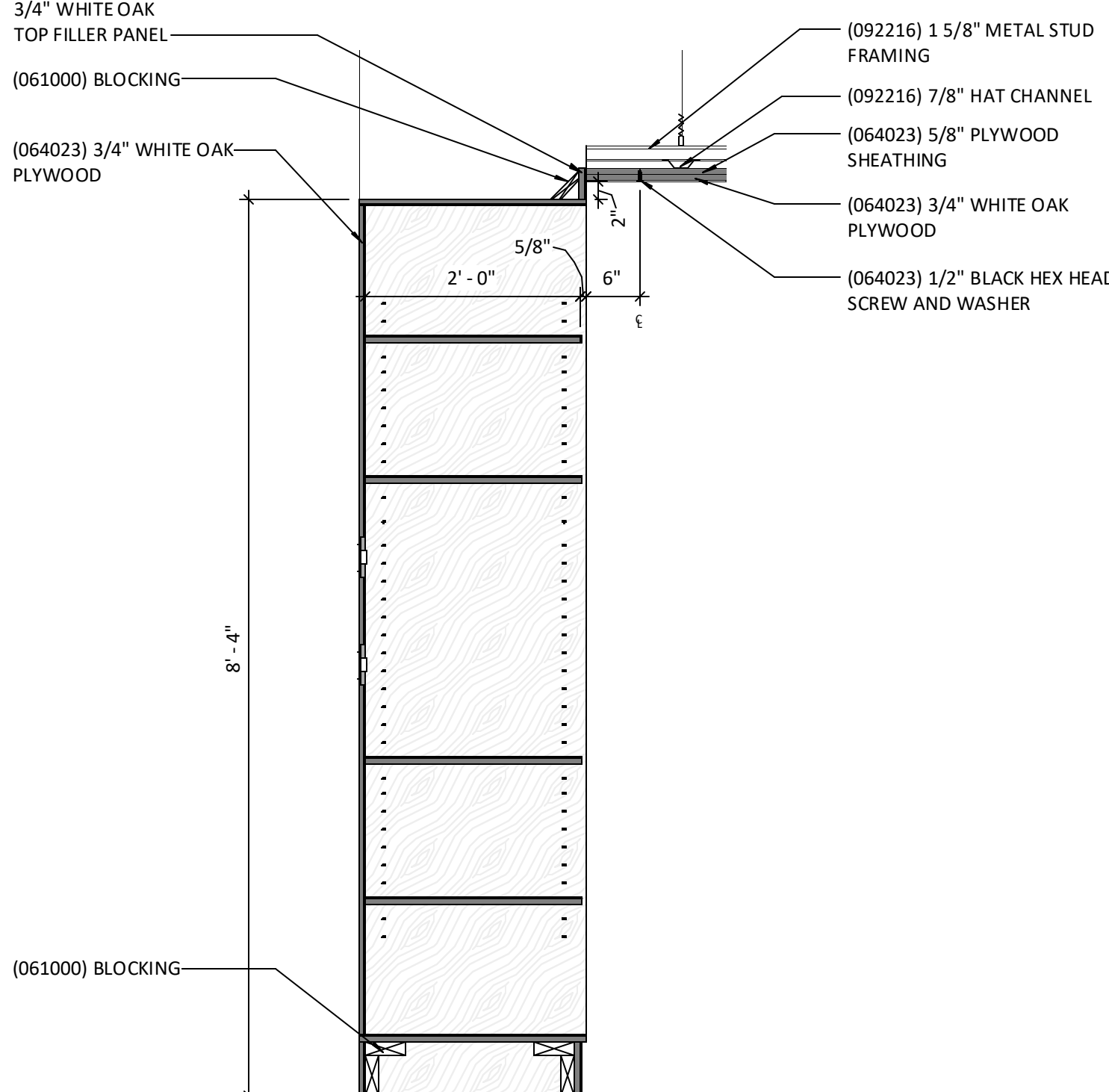
A600



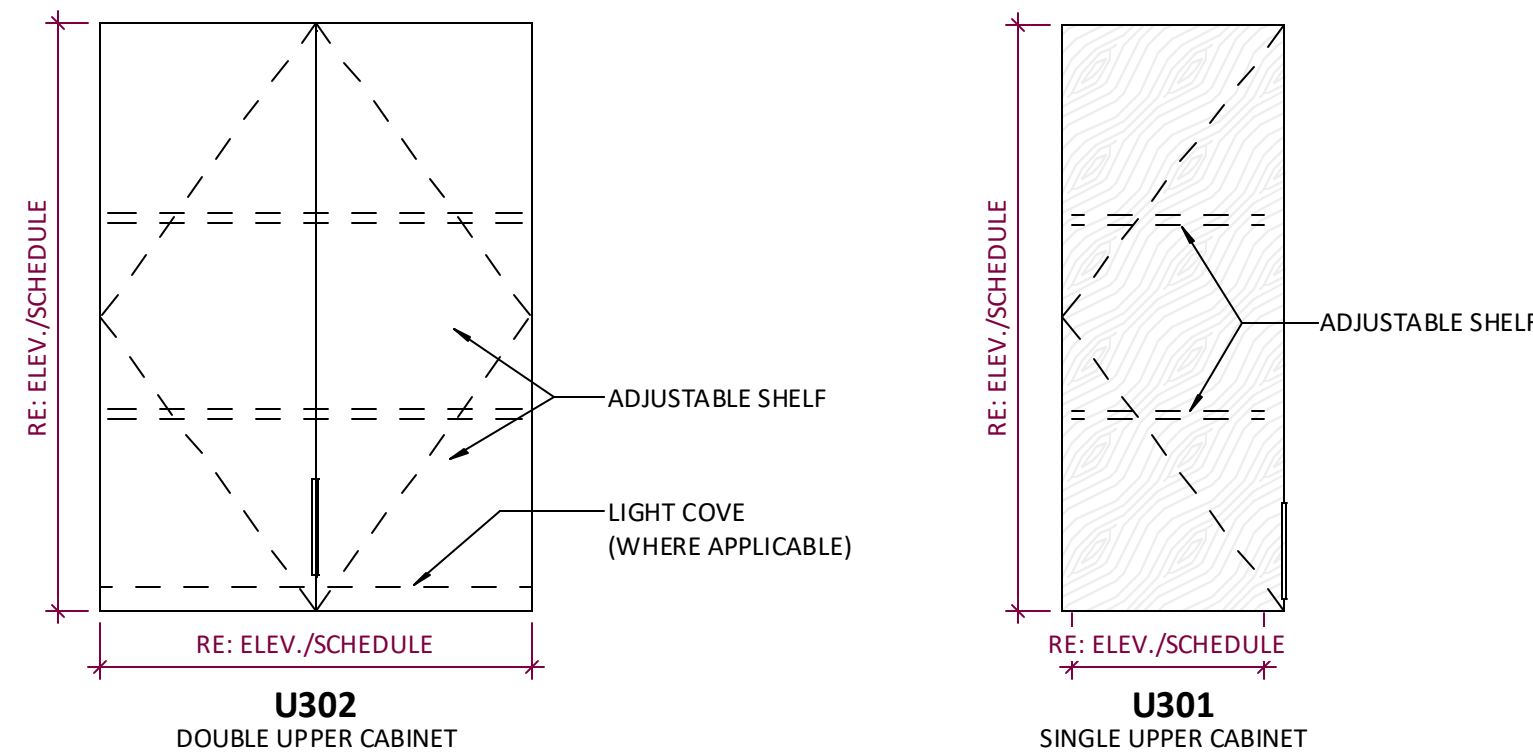
Plan Detail - Typical Scribe K14
12" = 1'-0"



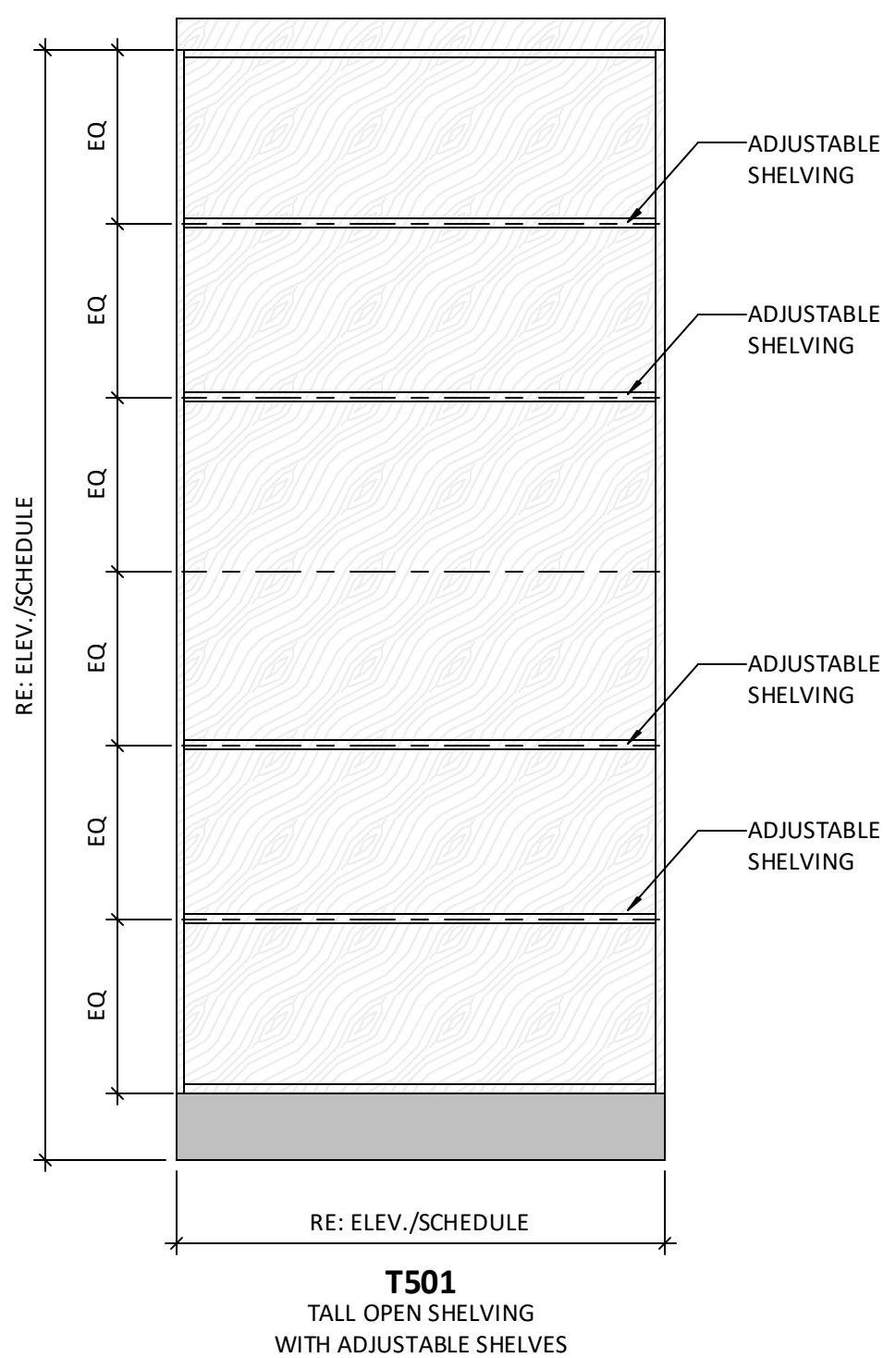
Section Detail @ CAD Station D14
1" = 1'-0"



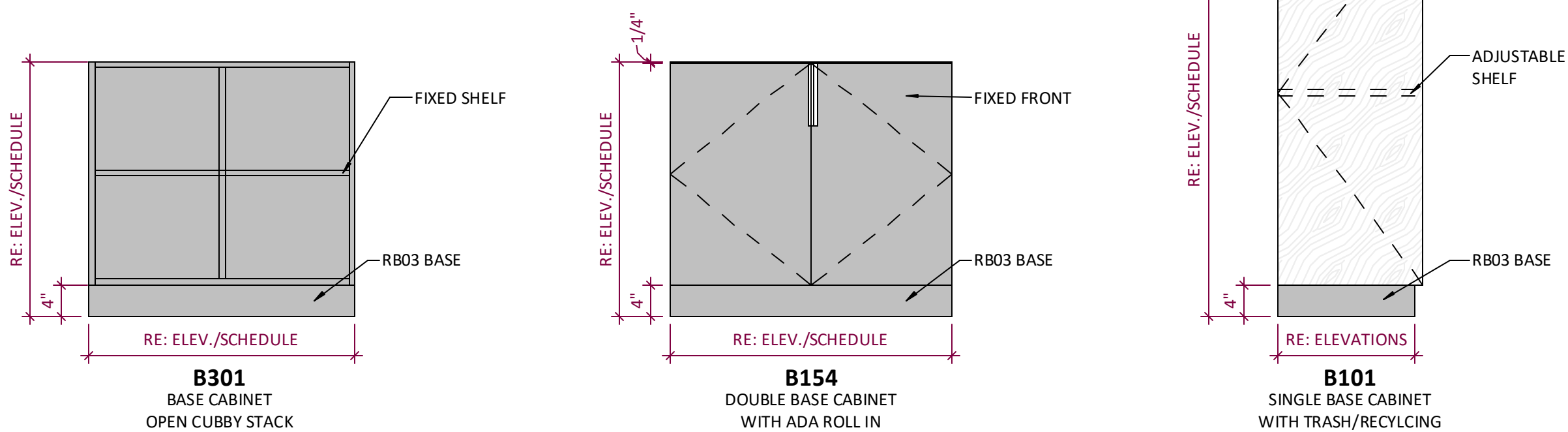
Section Detail @ Classroom Shelving D9
3/4" = 1'-0"



Cabinet Types - Upper K3
3/4" = 1'-0"



Cabinet Types - Tall D3
3/4" = 1'-0"



Cabinet Types - Base A3
3/4" = 1'-0"

LSR7 Robotics, GiC & Phys Education

LSN: 901 NE Douglas St., Lee's Summit MO 64086
LSW: 2600 SW Ward Rd, Lee's Summit MO 64082
LSHS: 400 SE Blue Pkwy, Lee's Summit MO 64063

Project Number: 0121-0100

owner: Lee's Summit R-7 School
301 NE Tudor Road
Lee's Summit, MO 64086
architect: Multistudio
4300 Pennsylvania
Kansas City, MO 64111
816.931.6655
multistudio
civil engineer: Kaw Valley Engineering
14700 West 114th Terrace
Lenexa, KS 66215
913.485.0318
kveg.com
structural engineer: Bob D. Campbell &
4338 Bellevue
Kansas City, MO 64111
816.531.4144
www.bdc-engrs.com

MEP/FIT/Code: Henderson Engineers
8345 Lenexa Drive, Suite 300
Lenexa, KS 66214
816.742.5000
www.hendersonengineers.com

Finish Legend - LSN & LSW

Mark	Manufacturer	Model	Material Color	Comments
033000	CAST-IN-PLACE CONCRETE			CONCRETE WITH SURFACE SEALER
062023	INTERIOR ARCHITECTURAL WOODWORK			
WD01	MURPHY PLYWOOD	3/4" PLYWOOD WALL PANEL WITH TYPE "A" VENEER CORE	WHITE OAK, PLAIN SLICED	REF ELEVATIONS AND RCP FOR LOCATIONS
064116	PLASTIC LAMINATE-CLAD ARCHITECTURAL CABINETS			
PL01	FORMICA	N/A	STORM 912	CLASSROOM CASEWORK, REF ELEVATIONS
081416	FLUSH WOOD DOORS			
WD02	-	N/A	WHITE OAK, PLAIN SLICED	DOOR FINISH
096513	RESILIENT BASE AND ACCESSORIES			
RB01	ROPPE	PINNACLE	123 CHARCOAL	6" COVE WALL BASE
RB02	ROPPE	PINNACLE	123 CHARCOAL	6" FLAT WALL BASE
RB03	ROPPE	PINNACLE	123 CHARCOAL	4" FLAT WALL BASE
096723	EPOXY RESINOUS FLOORING			
EP01	DESCO COATINGS	GRANITE SERIES	GUNMETAL	EPOXY RESINOUS FLOORING IN RESTROOMS, WITH INTEGRAL 6" BASE
096813	TILE CARPET			
CTP01	MATS INC	SUPER NOP 52	GRUUS/CHARCOAL	WALK OFF CARPET
099123	INTERIOR PAINTING			
PT01	SHERWIN WILLIAMS	N/A	LAZY GRAY SW6254	EPOXY PAINT REQUIRED FOR ALL WET WALL LOCATIONS IN RESTROOMS.
PT02	SHERWIN WILLIAMS	N/A	PEPPER CORN SW7674	ALL STRUCTURE TO BE PAINTED, TYP. EPOXY PAINT REQUIRED FOR ALL WET WALL LOCATIONS: KITCHEN, WATER FOUNTAINS, SHOP SINK ALCOVE.
101100	VISUAL DISPLAY UNITS			
WB01	CLARIDGE	LCS DELUXE PORCELAIN WHITEBOARD	WHITE	60" ROLL MOUNTED HORIZONTALLY. 3'-0" ALUM TRAY AT BASE. J TRIM CONTINUOUS AT TOP. 5'-6" HIGH STARTING 2'-6" AFF
123661	SIMULATED STONE COUNTERTOPS			
SS01	CORIAN SOLID SURFACE	N/A	CARBON AGGREGATE	CLASSROOM COUNTERTOPS

General Finish Notes:

- ALL FINISH MATERIALS MUST MEET THE FLAME SPREAD RATINGS PER THE BUILDING CODE.
- REFER TO INTERIOR ELEVATIONS AND PLANS FOR SPECIFIC MATERIAL LOCATIONS.
- REFERENCED FLOOR/WALL/CEILING TYPES ARE FOR TOP FINISH LAYER DETAILS ONLY. REFER TO ARCHITECTURAL AND STRUCTURAL DRAWINGS FOR FLOOR/WALL CEILING ASSEMBLY DETAILS PER LOCATION.
- PAINT ALL EXPOSED DUCTWORK, CONDUIT, ELECTRICAL EQUIPMENT, ETC TO MATCH ADJACENT SURFACES.
- PAINT ALL NON-FACTORY FINISHED EXPOSED METAL TO MATCH ADJACENT WALL COLOR, UNO.
- REFER TO TYPICAL FLOORING TRANSITION DETAILS FOR ALL FLOORING MATERIALS.
- FLOORING TRANSITIONS AT DOORS SHOULD BE LOCATED UNDER THE DOOR IN THE CLOSED POSITION, UNLESS NOTED OTHERWISE.
- CONTRACTOR WILL BE RESPONSIBLE FOR PROTECTING FINISHED FLOORING SURFACES FROM DAMAGE DURING ALL CONSTRUCTION PHASES.
- PROVIDE BULLNOSE TRIM AT TRANSITIONS FROM CERAMIC WALL TILE TO OTHER MATERIAL, UNLESS NOTED OTHERWISE.
- REFER TO REFLECTED CEILING PLANS FOR CEILING HEIGHTS.
- ALL ELECTRICAL DEVICE COVERS ARE TO BE WHITE UNLESS NOTED OTHERWISE.
- ALL HOLLOW METAL DOORS, FRAMES AND LITE KITS TO BE PAINTED TO MATCH ADJACENT WALL COLOR.
- WALLS AND COLUMNS TO BE PT01 UNO.

Room name

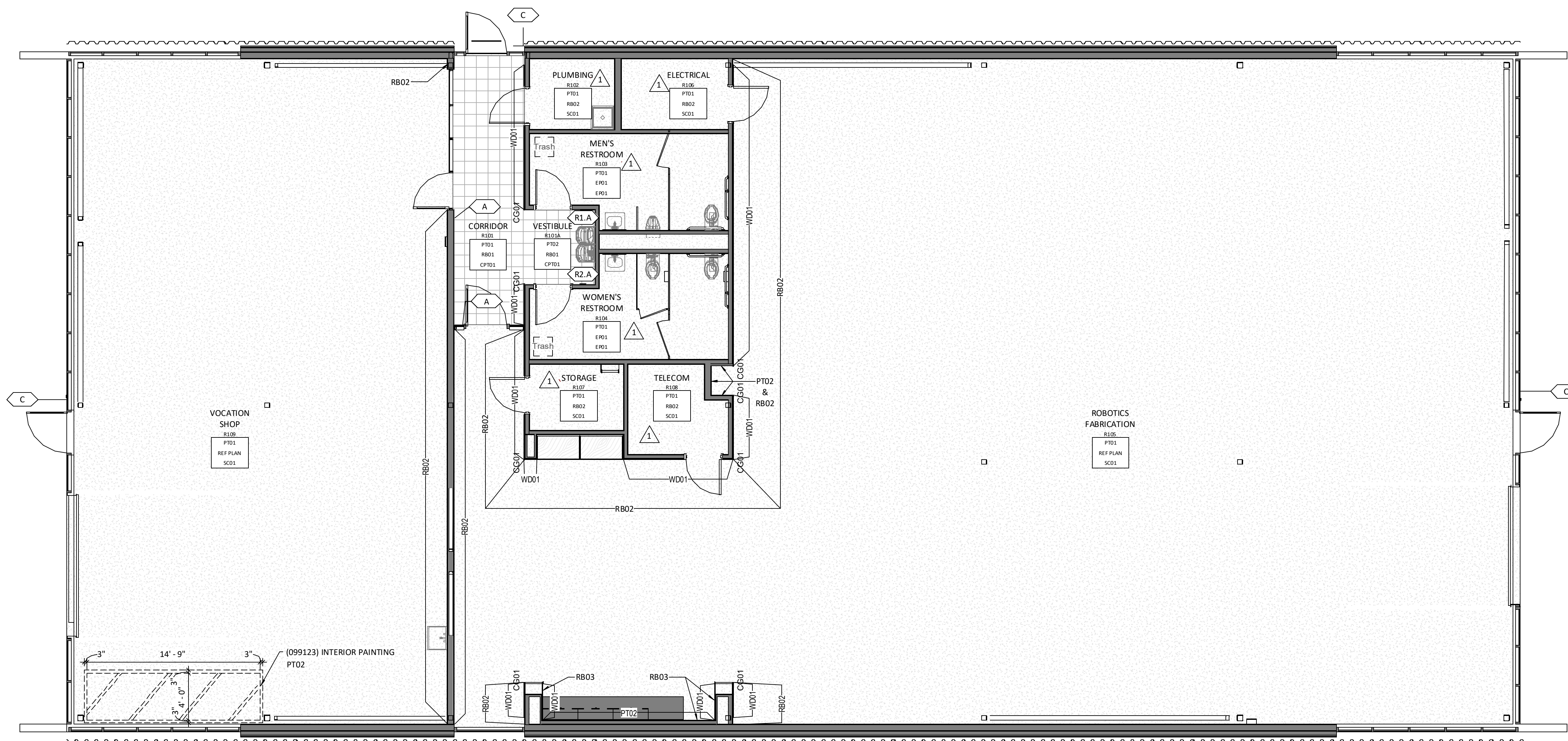
SS01
Wall Finish
Base Finish
Floor Finish

- Signage Schedule -

Type Mark	Type Comments
A	Room ID (Standard)
R1.A	Restroom - Men
R2.A	Restroom - Women
A	Room ID (Standard)
C	Exterior Door Vinyl Sign
C	Exterior Door Vinyl Sign
C	Exterior Door Vinyl Sign

Wall Base Details J12
6" = 1'-0"

Flooring Transitions J9
12" = 1'-0"



LSR7 Robotics, GiC &
Phys Education

LSN: 901 NE Douglas St., Lee's Summit MO
64086
LSW: 2600 SW Ward Rd, Lee's Summit MO
64082
LSHS: 400 SE Blue Pkwy, Lee's Summit MO 64063

Project Number: 0121-0100

owner:
Lee's Summit R-7 School
301 NE Tudor Road
Lee's Summit, MO 64086
multi-studio

architect:
Multistudio
4205 Pennsylvania
Kansas City, MO 64111
816.931.6655
multi-studio

civil engineer:
Kaw Valley Engineering
14700 West 114th Terrace
Lenexa, KS 66215
913.485.0318
kveng.com

structural engineer:
Bob D. Campbell &
4338 Bellevue
Kansas City, MO 64111
816.531.4144
www.bdc-engrs.com

MEP/IT/Code:
Henderson Engineers
8345 Lenexa Drive, Suite
300
Lenexa, KS 66314
816.742.5000
www.hendersonengineers.com

General Notes (Furniture Plans):

1. FURNITURE SHOWN FOR COORDINATION PURPOSES
ONLY. OWNER TO FINALIZE AND PROVIDE UNDER
SEPARATE CONTRACT.

GiC Equipment List:

1. AIR COMPRESSOR
2. MITER SAW
3. PANEL SAW
4. 6' X 2' ROLLING TABLES
5. 6' X 3' WORK TABLES
6. 3' X 10' TOOL CRIB
7. BUTCHER BLOCK WORK COUNTER

EXTERIOR TOOL CRIB
BY OWNER

LSN Equipment List:

1. BRIDGEPORT 3-AXIS CNC
2. BRIDGEPORT TORQ-CUT 22
3. BIRMINGHAM YCL-1340GH LATHE
4. WEN 3975T HORIZONTAL METAL BANDSAW
5. CRAFTSMAN VERTICAL METAL BANDSAW
6. CENTRAL MACHINERY METAL CUTTING BAND SAW
7. GRIZZLY G7947 DRILL PRESS
8. OPEN TABLE CNC ROUTER
9. BALDOR BUFFER
10. BALDOR DISC SANDER
11. CRAFTSMAN MITER SAW
12. CRAFTSMAN BENCHTOP/DISC SANDER
13. GRIZZLY DUST COLLECTOR
14. AIR COMPRESSOR
15. ARBOR PRESS
16. KARDEX STORAGE SYSTEM
17. RVORBI BENCH GRINDER
18. WELDING TABLE & TIG WELDER
19. 4.5' X 1.5' SHELVING
20. 8' X 3' SHELVING
21. 4' X 4' WORK TABLE
22. LARGE CRAFTSMAN TOOL BOX
23. SMALL CRAFTSMAN TOOL BOX

Issue Date: September 9, 2022

Revisions

NUMBER	DESCRIPTION	DATE
--------	-------------	------

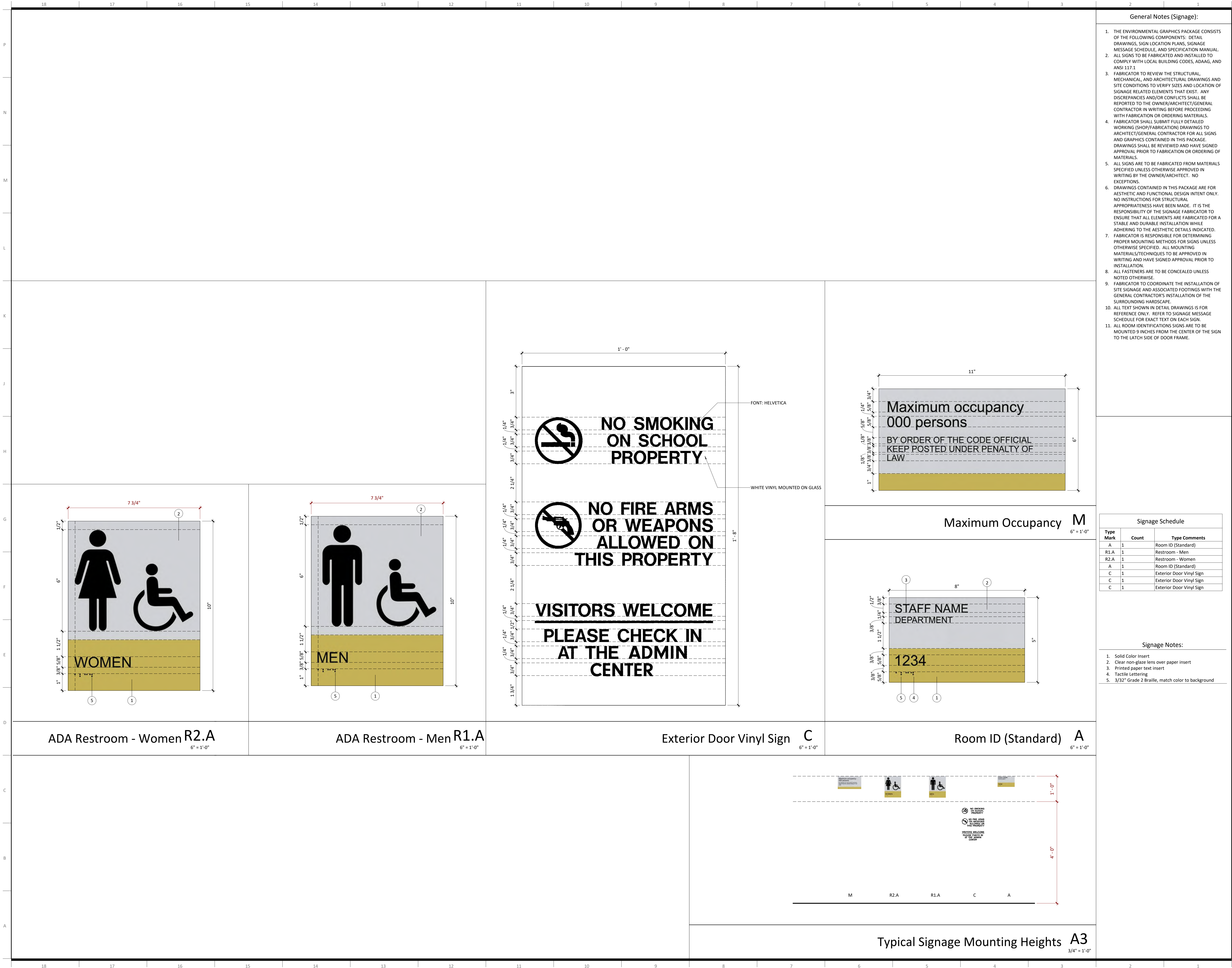
UNLESS A PROFESSIONAL SEAL WITH SIGNATURE AND DATE IS
AFFIXED, THIS DOCUMENT IS PRELIMINARY AND IS NOT INTENDED FOR
CONSTRUCTION, RECORDING PURPOSES OR IMPLEMENTATION



Furniture Plan - LSN

AF102-B

LSN - Level 1 Furniture Plan A3
3/16" = 1'-0"



RELEASED FOR CONSTRUCTION
As Noted on Plans Review

Development Services Department
Lee's Summit, Missouri
11/18/2022

multistudio

the evolution of gould evans

LSR7 Robotics, GiC & Phys Education

LSN: 901 NE Douglas St., Lee's Summit MO 64086
LSW: 2600 SW Ward Rd, Lee's Summit MO 64082
LSHS: 400 SE Blue Pkwy, Lee's Summit MO 64063

Project Number: 0121-0100

owner:
Lee's Summit R-7 School
301 NE Tudor Road
Lee's Summit, MO 64086

architect:
Multistudio
4200 Pennsylvania
Kansas City, MO 64111
816.931.6655
multi.studio

civil engineer:
Kaw Valley Engineering
14700 West 114th Terrace
Lenexa, KS 66215
913.485.0318
kveng.com

structural engineer:
Bob D. Campbell &
4338 Bellevue
Kansas City, MO 64111
816.531.4144
www.bdc-engrs.com

MEP/IT/Code:
Henderson Engineers
8345 Lenexa Drive, Suite 300
Lenexa, KS 66214
816.742.5000
www.hendersonengineers.com

General Notes (Signage):

- THE ENVIRONMENTAL GRAPHICS PACKAGE CONSISTS OF THE FOLLOWING COMPONENTS: DETAIL DRAWINGS, SIGN LOCATION PLANS, SIGNAGE MESSAGE SCHEDULE, AND SPECIFICATION MANUAL.
- ALL SIGNS TO BE FABRICATED AND INSTALLED TO COMPLY WITH LOCAL BUILDING CODES, ADAAG, AND ANSI 117.1
- FABRICATOR TO REVIEW THE STRUCTURAL, MECHANICAL, AND ARCHITECTURAL DRAWINGS AND SITE CONDITIONS TO VERIFY SIZES AND LOCATION OF SIGNAGE RELATED ELEMENTS THAT EXIST. ANY DISCREPANCIES AND/OR CONFLICTS SHALL BE REPORTED TO THE OWNER/ARCHITECT/GENERAL CONTRACTOR IN WRITING BEFORE PROCEEDING WITH FABRICATION OR ORDERING MATERIALS.
- FABRICATOR SHALL SUBMIT FULLY DETAILED WORKING (SHOP/FABRICATION) DRAWINGS TO ARCHITECT/GENERAL CONTRACTOR FOR ALL SIGNS AND GRAPHICS CONTAINED IN THIS PACKAGE. DRAWINGS SHALL BE REVIEWED AND HAVE SIGNED APPROVAL PRIOR TO FABRICATION OR ORDERING OF MATERIALS.
- ALL SIGNS ARE TO BE FABRICATED FROM MATERIALS SPECIFIED UNLESS OTHERWISE APPROVED IN WRITING BY THE OWNER/ARCHITECT. NO EXCEPTIONS.
- DRAWINGS CONTAINED IN THIS PACKAGE ARE FOR AESTHETIC AND FUNCTIONAL DESIGN INTENT ONLY. NO INSTRUCTIONS FOR STRUCTURAL APPROPRIATENESS HAVE BEEN MADE. IT IS THE RESPONSIBILITY OF THE SIGNAGE FABRICATOR TO ENSURE THAT ALL ELEMENTS ARE FABRICATED FOR A STABLE AND DURABLE INSTALLATION WHILE ADHERING TO THE AESTHETIC DETAILS INDICATED.
- FABRICATOR IS RESPONSIBLE FOR DETERMINING PROPER MOUNTING METHODS FOR SIGNS UNLESS OTHERWISE SPECIFIED. ALL MOUNTING MATERIALS/TECHNIQUES TO BE APPROVED IN WRITING AND HAVE SIGNED APPROVAL PRIOR TO INSTALLATION.
- ALL FASTENERS ARE TO BE CONCEALED UNLESS NOTED OTHERWISE.
- FABRICATOR TO COORDINATE THE INSTALLATION OF SITE SIGNAGE AND ASSOCIATED FOOTINGS WITH THE GENERAL CONTRACTOR'S INSTALLATION OF THE SURROUNDING HARDSCAPE.
- ALL TEXT SHOWN IN DETAIL DRAWINGS IS FOR REFERENCE ONLY. REFER TO SIGNAGE MESSAGE SCHEDULE FOR EXACT TEXT ON EACH SIGN.
- ALL ROOM IDENTIFICATIONS SIGNS ARE TO BE MOUNTED 9 INCHES FROM THE CENTER OF THE SIGN TO THE LATCH SIDE OF DOOR FRAME.

Signage Schedule

Type Mark	Count	Type Comments
A	1	Room ID (Standard)
R1.A	1	Restroom - Men
R2.A	1	Restroom - Women
A	1	Room ID (Standard)
C	1	Exterior Door Vinyl Sign
C	1	Exterior Door Vinyl Sign
C	1	Exterior Door Vinyl Sign

Signage Notes:

- Solid Color Insert
- Clear non-glass lens over paper insert
- Printed paper text insert
- Tactile Lettering
- 3/32" Grade 2 Braille, match color to background

Issue Date: September 9, 2022

Revisions

NUMBER	DESCRIPTION	DATE
--------	-------------	------

UNLESS A PROFESSIONAL SEAL WITH SIGNATURE AND DATE IS AFFIXED, THIS DOCUMENT IS PRELIMINARY AND IS NOT INTENDED FOR CONSTRUCTION, RECORDING PURPOSES OR IMPLEMENTATION

STATE OF MISSOURI

ADAM LEE STERNIS

NUMBER A-7460

REGISTERED PROFESSIONAL

Signage Types

SG001

LSR7 Robotics, GiC & Phys Education

LSN: 901 NE Douglas St., Lee's Summit MO 64086
LSW: 2600 SW Ward Rd, Lee's Summit MO 64082
LSHS: 400 SE Blue Pkwy, Lee's Summit MO 64063

owner:
Lee's Summit R-7 School
301 NE Tudor Road
Lee's Summit, MO 64086

architect:
Multistudio
4209 Pennsylvania
Kansas City, MO 64111
816.931.6655
multistudio

structural engineer:
Bob D. Campbell & Company, Inc.
4338 Bellevue
Kansas City, MO 64111
816.531.4144
www.bdc-engrs.com

civil engineer:
Kaw Valley Engineering
14700 West 114th Terrace
Lenexa, KS 66215
913.485.0318
kveng.com

MEP/ET/Code:
Henderson Engineers
8345 Lenexa Drive, Suite
300
Lenexa, KS 66214
816.742.5000
www.hendersonengineers.com

GENERAL NOTES:

1. PROVIDE A CONSTRUCTION RECORD SET OF "AS-BUILT" DOCUMENTS TO THE ARCHITECT REFLECTING ANY VARIANCES OF INSTALLED PIPING LOCATIONS OR EQUIPMENT CONTRARY TO THE CONSTRUCTION DOCUMENTS. REFER TO SPECIFICATIONS.
2. DRAWINGS ARE DIAGRAMMATIC ONLY AND REPRESENT THE GENERAL SCOPE OF THE WORK. REVIEW THE GENERAL NOTES, SPECIFICATIONS AND PLANS FOR ADDITIONAL REQUIREMENTS THAT MAY NOT BE SPECIFICALLY CALLED OUT IN THIS PORTION OF THE CONSTRUCTION DOCUMENTS. NOTIFY THE ARCHITECT OF ANY CONFLICTS OR DISCREPANCIES PRIOR TO SUBMISSION OF BID.
3. PROVIDE TO THE ARCHITECT A COPY OF INSPECTION REPORTS AND APPROVAL CERTIFICATES FROM LOCAL AND STATE INSPECTIONS. REFER TO SPECIFICATIONS.
4. INSTALLATION SHALL COMPLY WITH LEGALLY CONSTITUTED CODES AND THE REQUIREMENTS OF AUTHORITIES HAVING JURISDICTION.
5. PLANS AND SPECIFICATIONS GOVERN WHERE THEY EXCEED CODE REQUIREMENTS.
6. VERIFY LOCATION AND DEPTH OF UTILITIES AT POINTS OF CONNECTION BEFORE START OF PIPING INSTALLATION.
7. REFER TO ARCHITECTURAL PLANS FOR EXACT LOCATION AND MOUNTING HEIGHTS OF PLUMBING FIXTURES.
8. DO NOT SCALE FLOOR PLANS FOR EXACT HORIZONTAL LOCATION OF PIPE ROUTING.
9. INSTALL CONCEALED PIPING TIGHT TO THE STRUCTURE AND AS HIGH AS POSSIBLE.
10. VALVES SHALL BE LINE SIZE UNLESS OTHERWISE NOTED.
11. INSTALL EXPOSED PIPING, WHERE NECESSARY, IN FINISHED AREAS TIGHT TO THE STRUCTURE, WALL OR CEILING AND AS HIGH AS POSSIBLE. INSTALL PIPING PARALLEL AND / OR PERPENDICULAR TO WALLS.
12. INSTALL VALVES AND APPURTENANCES A MAXIMUM OF 24" ABOVE CEILING IN ACCESSIBLE LOCATION WITHIN 24" OF ACCESS DOORS OR ACCESSIBLE CEILING TILES. PROVIDE PIPE AND FITTINGS TO INSTALL VALVES AND APPURTENANCES AT REQUIRED HEIGHT AND WITHIN 24" OF ACCESS DOORS OR ACCESSIBLE CEILING TILES.
13. INSTALL NO PLASTIC PIPE OF ANY KIND ABOVE SLAB INSIDE THE BUILDING. INSTALL NO PLASTIC PIPE IN THE CEILING RETURN AIR PLENUM.
14. COORDINATE ALL WORK WITH OTHER TRADES AND CONTRACTORS.
15. COORDINATE PIPING INSTALLATION WITH STRUCTURAL GRADE BEAMS, FOOTINGS, COLUMN PIERS, ETC. SLEEVE PIPING THROUGH GRADE BEAMS, FOOTINGS, ETC. WHERE REQUIRED AND AS NOTED ON PLANS. COORDINATE SLEEVE INSTALLATIONS WITH THE ARCHITECT, STRUCTURAL ENGINEER, STRUCTURAL CONTRACTOR AND GENERAL CONTRACTOR BEFORE CONCRETE IS INSTALLED.
16. CLEAN FAUCET AERATORS AND PIPE STRAINERS PRIOR TO TURNING BUILDING OVER TO THE OWNER.
17. PROVIDE TRAP PRIMERS WHERE REQUIRED BY LOCAL AUTHORITIES.
18. COORDINATE PIPE ROUTING AWAY FROM ELECTRICAL PANELS. DO NOT INSTALL PIPING OVER ELECTRICAL PANELS.
19. PAINT ALL EXPOSED GAS AND WATER PIPING USING RUST INHIBITOR PAINT. PAINT AND COLOR SHALL BE COORDINATED WITH THE ARCHITECT AND / OR OWNER.
20. COORDINATE ALL ROOF PENETRATIONS WITH OTHER TRADES. MAINTAIN 10' MINIMUM CLEARANCE FROM ALL AIR INTAKES. MAINTAIN 2' CLEARANCE FROM ALL OTHER EQUIPMENT.
21. INSULATE PIPING ROUTED IN EXTERIOR BUILDING WALLS WITH MINIMUM 2" BATT INSULATION TO PREVENT FREEZING.
22. PROVIDE "HEAVY-DUTY" NO-HUB COUPLINGS ON SANITARY PIPING 4" AND LARGER. SEE DIVISION 22 SPECIFICATION SECTION "SANITARY DRAINAGE AND VENT AND PIPING SPECIALTIES" FOR MORE INFORMATION.
23. PROVIDE "HEAVY-DUTY" NO-HUB COUPLINGS ON STORM PIPING, INCLUDING CONNECTIONS TO ROOF DRAINS. SEE DIVISION 22 SPECIFICATION SECTION "STORM DRAINAGE PIPING AND SPECIALTIES" FOR MORE INFORMATION.
24. PROVIDE TRANSITION ADAPTER COUPLINGS FOR CONNECTION OF PVC DWV TO CAST IRON AT SLAB ON GRADE. SEE DIVISION 22 SPECIFICATION FOR MORE INFORMATION.
25. PROVIDE TRANSITION ADAPTER COUPLINGS FOR CONNECTION OF PVC DWV TO CAST IRON SANITARY, WASTE AND VENT PIPE AT SLAB ON GRADE. SEE DIVISION 22 SPECIFICATION SECTION "SANITARY DRAINAGE AND VENT PIPING AND SPECIALTIES" FOR MORE INFORMATION.
26. PROVIDE TRANSITION ADAPTER COUPLINGS FOR CONNECTION OF PVC DWV TO CAST IRON STORM PIPE AT SLAB ON GRADE. SEE DIVISION 22 SPECIFICATION SECTION "STORM DRAINAGE PIPING AND SPECIALTIES" FOR MORE INFORMATION.
27. FLOW CONTROL VALVES SHALL BE SIZE 1/2" AND SET AT 0.5 GPM UNLESS NOTED OTHERWISE.
28. WATER HAMMER ARRESTORS SHALL BE SIZE "A" UNLESS NOTED OTHERWISE.
29. PROVIDE VERTICAL LIFT SPRING LOADED CHECK VALVES IN HOT AND COLD WATER SUPPLIES FOR MOP SINK FAUCETS DOWNSTREAM OF SHUTOFF VALVES.
30. PROVIDE WALL PIPES AT PIPING PENETRATIONS OF ELEVATED WATERPROOF FLOOR SLABS, REFER TO SPECIFICATIONS.
31. PROVIDE SIZE AND LENGTH OF HOT WATER FIXTURE SUPPLY PIPE FROM CIRCULATED HOT WATER BRANCH OR MAIN TO TERMINATION OF HOT WATER FIXTURE SUPPLY PIPE AT EACH FIXTURE PER 2015 INTERNATIONAL ENERGY CONSERVATION CODE, TABLE C404.3.1. FOR 1/2" HOT WATER FIXTURE SUPPLY PIPE SIZE TO INDIVIDUAL LAVATORIES, PROVIDE MAXIMUM LENGTH OF TWO FEET. FOR 3/4" HOT WATER FIXTURE SUPPLY PIPE SIZE TO INDIVIDUAL SINKS, PROVIDE MAXIMUM LENGTH OF 45 FEET. FOR 3/4" HOT WATER FIXTURE SUPPLY PIPE SIZE TO INDIVIDUAL SINKS, PROVIDE MAXIMUM LENGTH OF 21 FEET.

PLUMBING SYMBOLS

THIS IS A MASTER LEGEND AND NOT ALL SYMBOLS OR ABBREVIATIONS ARE USED.

V2.02

STANDARD MOUNTING HEIGHTS

HOSE BIBB (CENTERLINE)	36"
ICE MAKER OUTLET BOX (CENTER OF BOX)	24"
JANITOR'S SINK FAUCET FITTINGS (CENTERLINE)	42"
NON FREEZE WALL HYDRANT (AFG TO CENTERLINE)	18"
WASHING MACHINE OUTLET BOX (RIM)	42"

PIPING SYMBOLS

	OXYGEN OUTLET
	NITROUS OXIDE OUTLET
	MEDICAL AIR OUTLET
	NITROGEN OUTLET
	MEDICAL VACUUM INLET
	FLOOR SINK (FS), SIZE & TYPE
	FLOOR DRAIN (FD), SIZE & TYPE
	ROOF DRAIN (RD), SIZE & TYPE
	BALL VALVE
	CONTROL VALVE
	SHUTOFF VALVE
	CHECK VALVE
	BALANCING VALVE WITH PRESSURE PORTS
	WATER METER
	STRAINER
	STRAINER WITH BLOWOFF
	RELIEF/SAFETY VALVE
	SOLENOID VALVE
	PRESSURE REDUCING VALVE
	GAS PRESSURE REGULATOR
	THERMOSTATIC MIXING VALVE
	PIPE ANCHOR
	EXPANSION JOINT
	BACKFLOW PREVENTER
	PRESSURE GAUGE
	THERMOMETER
	UNION
	FLANGE CONNECTION
	HOSE BIBB (HB)
	NON-FREEZING WALL HYDRANT (NW)
	MANUAL / AUTOMATIC AIR VENT OR VACUUM RELIEF VALVE
	PRESSURE / VACUUM SWITCH
	CLEANOUT
	CAP
	WALL CLEANOUT (WCO)
	FLOOR CLEANOUT (FCO)
	EXTERIOR CLEANOUT (ECO)
	ELBOW UP
	ELBOW DOWN
	TEE UP
	TEE DOWN
	ELBOW UP WITH SHUT-OFF VALVE (SOV)
	ELBOW DOWN WITH SHUT-OFF VALVE (SOV)
	TEE UP WITH SHUT-OFF VALVE (SOV)
	TEE DOWN WITH SHUT-OFF VALVE (SOV)
	WATER HAMMER ARRESTOR (WHA) WITH PDI SIZES, (A, B, C, D, & E)
	RECIRCULATION PUMP
	P-TRAP
	GAS COCK
	TRAP PRIMER
	TRAP PRIMER WITH DISTRIBUTION UNIT

PIPING LINETYPES

	DOMESTIC COLD WATER (CW)
	SOFTENED COLD WATER (SCW)
	DOMESTIC HOT WATER (HW)
	DOMESTIC HOT WATER RECIRC. (HWR)
	DOMESTIC HOT WATER (140°)
	TRAP PRIMER LINE (T)
	SOIL PIPING - ABOVE FLOOR (S)
	SOIL PIPING - BELOW FLOOR (S)
	WASTE PIPING - ABOVE FLOOR (W)
	WASTE PIPING - BELOW FLOOR (W)
	GREASE WASTE - ABOVE FLOOR (GW)
	GREASE WASTE - BELOW FLOOR (GW)
	COMBINATION GREASE WASTE AND VENT (CGWV)
	COMBINATION WASTE AND VENT (CWV)
	STORM DRAIN - ABOVE FLOOR (ST)
	STORM DRAIN - BELOW FLOOR (ST)
	OVERFLOW STORM DRAIN - ABOVE FLOOR (OST)
	VENT BELOW GRADE (VBG)
	VENT BELOW FLOOR (VBF)
	INDIRECT DRAIN (ID)
	CONDENSATE DRAIN - HIGH EFFICIENCY RTU (CDH)
	CONDENSATE DRAIN (CD)
	AUXILIARY CONDENSATE DRAIN (ACD)
	SUMP OR SEWAGE PUMP DISCHARGE (SPD)
	NATURAL GAS (G)
	NATURAL GAS ON ROOF (G)
	MEDIUM PRESSURE NATURAL GAS (MPG)
	MEDIUM PRESSURE NATURAL GAS ON ROOF (MPG)
	NON-POTABLE WATER (NPW)
	LIQUEFIED PETROLEUM GAS (LPG)
	WATER SERVICE (WS)
	FIRE PROTECTION SPRINKLER DRY (DFP)
	FIRE PROTECTION SPRINKLER WET (FP)
	FIRE PROTECTION STANDPIPE DRY (DSP)
	FIRE PROTECTION STANDPIPE WET (WSP)
	CONDENSATE PUMP DISCHARGE (PD)
	VENT PIPING (V)
	ACID WASTE - ABOVE FLOOR (AW)
	ACID WASTE - BELOW FLOOR (AW)
	ACID VENT (AV)
	GRAY WATER (GWS)
	COMPRESSED AIR (CA)
	MEDICAL AIR (MA)
	MEDICAL VACUUM (VE)
	HELIUM (HE)
	INSTRUMENT AIR (IA)
	INSTRUMENT VACUUM (IV)
	NITROGEN (N2)
	NITROUS OXIDE (N2O)
	OXYGEN (O2)
	EVAC/WAGD (EV)
	CARBON DIOXIDE (CO2)
	MEDICAL AIR INTAKE (AI)
	MEDICAL VACUUM EXHAUST (VE)
	DENTAL AIR (DA)
	DENTAL VACUUM (DV)
	FILTERED WATER (FW1)
	FILTERED WATER W/ SCALE INHIBITOR (FW2)
	REVERSE OSMOSIS (RO)
	REVERSE OSMOSIS REMINERALIZATION (ROR)

LINETYPE LEGEND

THROUGHOUT THE DRAWINGS DIFFERENT LINETYPES ARE USED IN COMBINATION WITH THE SYMBOLS TO INDICATE THE STATUS OF ITEMS AS EXISTING, TO BE DEMOLISHED, TO BE INCLUDED AS PART OF NEW WORK AND/OR ITEMS WHICH ARE ANTICIPATED TO BE PROVIDED IN THE FUTURE. THE STATUS OF ITEMS USING THESE LINETYPES ARE RELATIVE TO THE VIEW IN WHICH THEY APPEAR. PHASING SHOWN IN DRAWINGS IS NOT INTENDED TO FULLY DESCRIBE ALL NECESSARY CONSTRUCTION PHASING, WHICH IS DETERMINED BY THE CONTRACTOR AS PART OF THEIR RESPONSIBILITIES. ANY SUCH PHASES DESCRIBED IN THE CONSTRUCTION DOCUMENTS ARE GENERAL AND ONLY INTENDED TO INDICATE A BROAD ORDER FOR THE SAKE OF DESCRIBING THE PROJECT. THE FOLLOWING LINETYPES MAY BE USED ON ANY DEVICE, EQUIPMENT, NOTE, LINE, SHAPE, ETC.

EXISTING

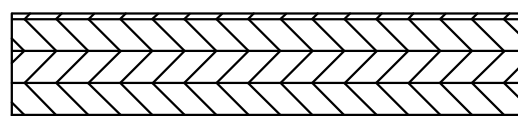
NEW

DEMOLISH

FUTURE

CALL OUTS

ENLARGED PLAN CALLOUT



NOT IN SCOPE



Issue Date: September 5, 2022

Revisions

NUMBER DESCRIPTION DATE



09/09/2022
CARL J. HOLDEN
LICENSE # PE-2020016283

PLUMBING LEGEND
AND GENERAL NOTES
P000

LSN: 901 NE Douglas St., Lee's Summit MO 64086
LSW: 2600 SW Ward Rd, Lee's Summit MO 64082
LSHS: 400 SE Blue Pkwy, Lee's Summit MO 64063

owner:
Lee's Summit R-7 School
301 NE Tudor Road
Lee's Summit, MO 64086

architect:
Multistudio
4200 Pennsylvania
Kansas City, MO 64111
816.931.6655
multi.studio

civil engineer:
Kaw Valley Engineering
14700 West 114th Terrace
Lenexa, KS 66215
913.485.0318
kveeng.com

structural engineer:
Bob D. Campbell & Company, Inc.
4338 Bellevue
Kansas City, MO 64111
816.531.4144
www.bdc-engrs.com

MEPFT/Code::
Henderson Engineers
8345 Lenexa Drive, Suite
300
Lenexa, KS 66214
816.742.5000
www.hendersonengineers.com



③ LSN - PLUMBING ENLARGED WATER & GAS PLAN
1/4" = 1'-0"

② LSN - PLUMBING ROOF PLAN
1/8" = 1'-0"



**LSN - PLUMBING PLAN -
LEVEL 1
P101-B**



CARL J. HOLDEN
LICENSE # PF-2020016283

LSR7 Robotics, GiC & Phys Education

LSN: 901 NE Douglas St., Lee's Summit MO 64086
LSW: 2600 SW Ward Rd, Lee's Summit MO 64082
LSHS: 400 SE Blue Pkwy, Lee's Summit MO 64063

owner: Lee's Summit R-7 School
301 NE Tudor Road
Lee's Summit, MO 64086

architect: Multistudio
4209 Pennsylvania
Kansas City, MO 64111
816.931.6655
multistudio

civil engineer: Kaw Valley Engineering
14700 West 114th Terrace
Lenexa, KS 66215
913.485.0318
kveeng.com

structural engineer: Bob D. Campbell & Company, Inc.
4338 Bellevue
Kansas City, MO 64111
816.531.4144
www.bdc-engrs.com

MEP/ET/Code: Henderson Engineers
8345 Lenexa Drive, Suite 300
Lenexa, KS 66214
816.742.5000
www.hendersonengineers.com

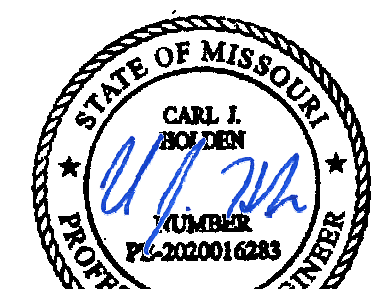


8345 LENEXA DRIVE, SUITE 300
LENEXA, KS 66214
TEL 913.742.5000 FAX 913.742.5001
WWW.HENDERSONENGINEERS.COM

2150005255
MO. CORPORATE NO. E-5680
EXPIRES 12/31/2022

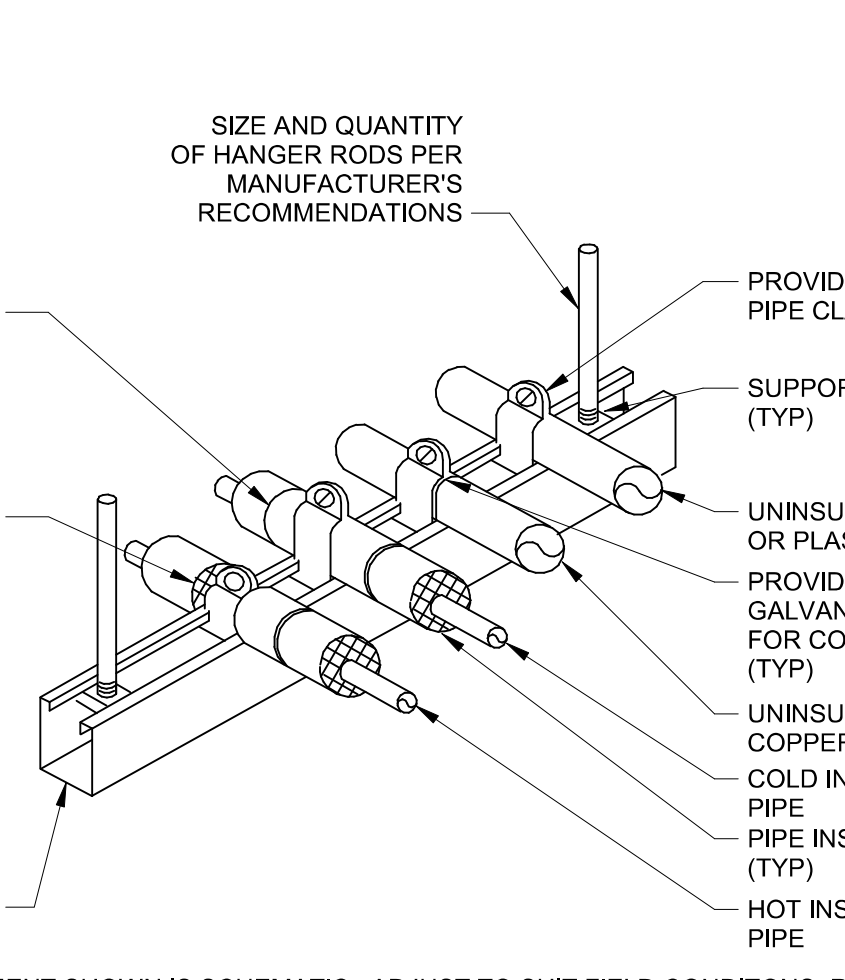
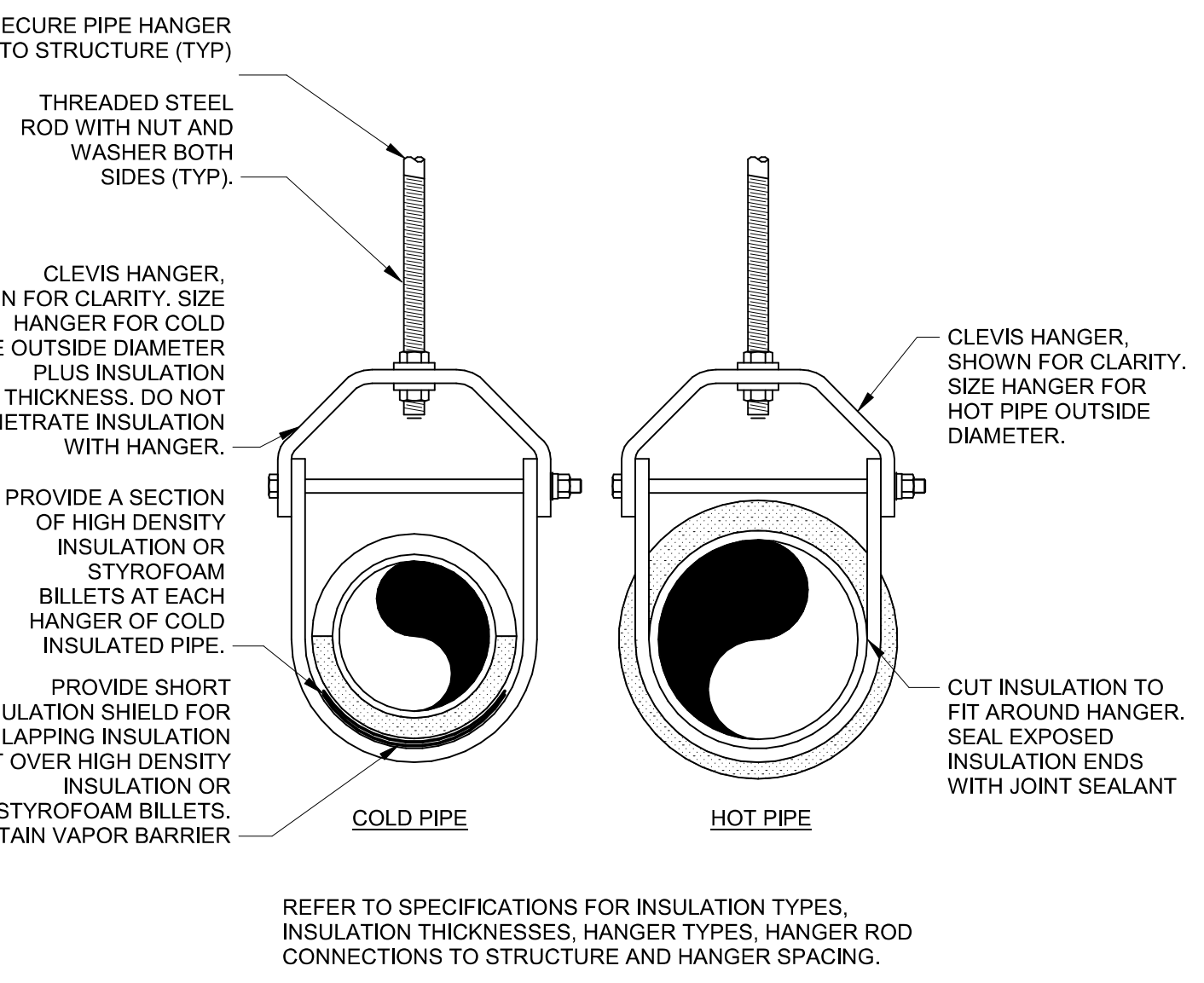
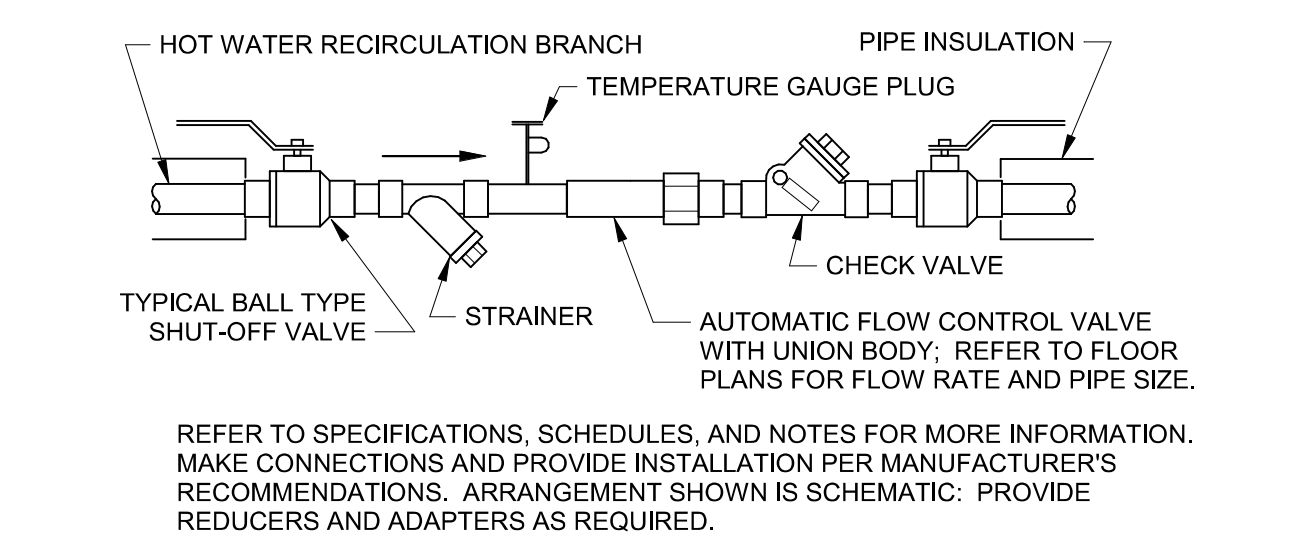
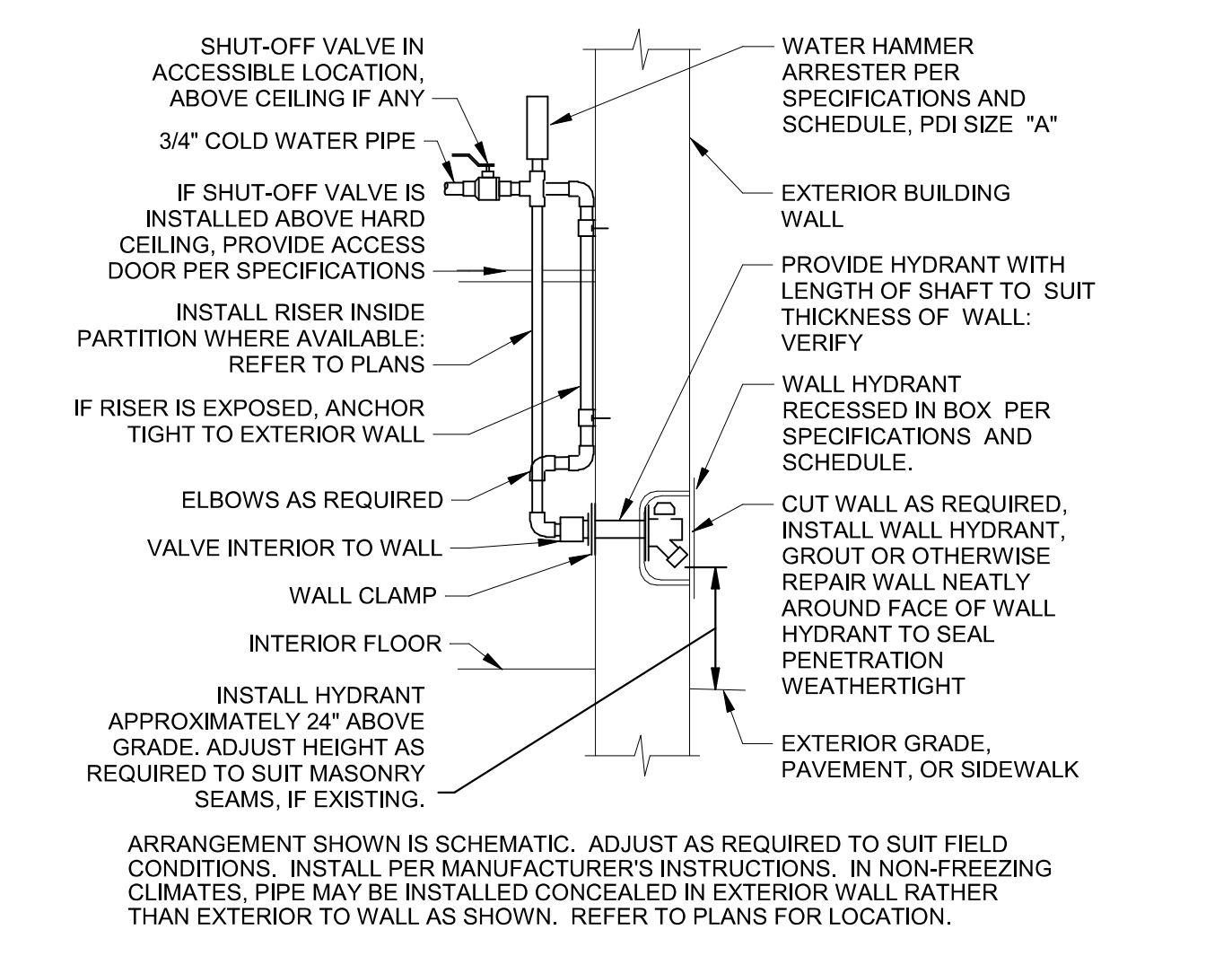
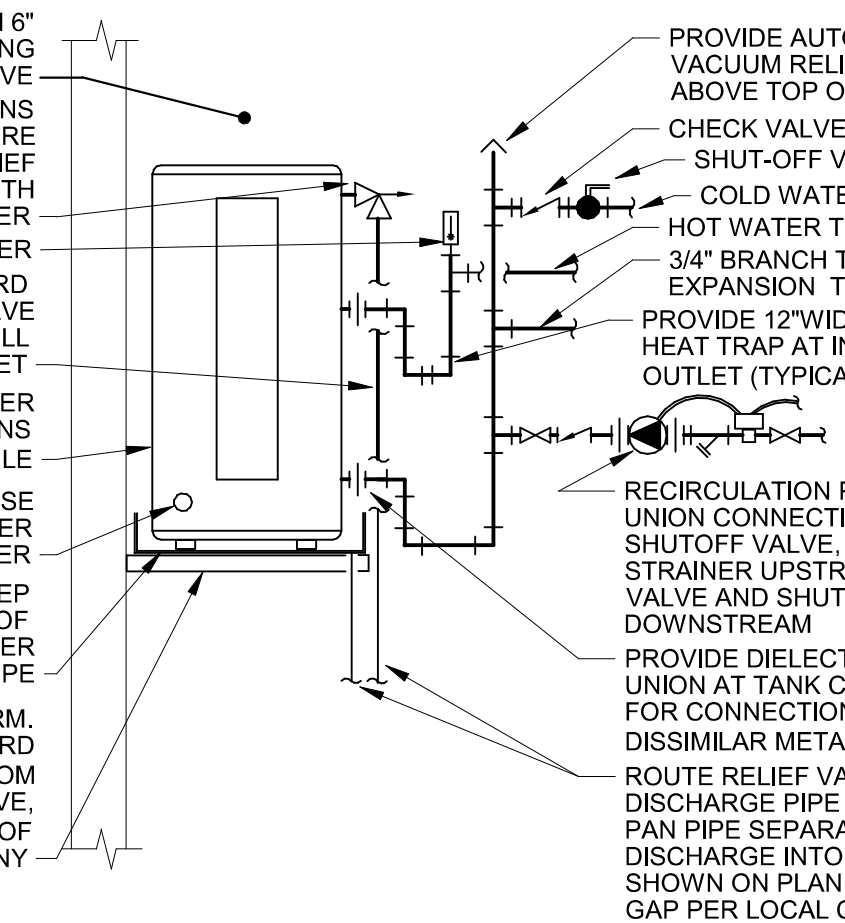
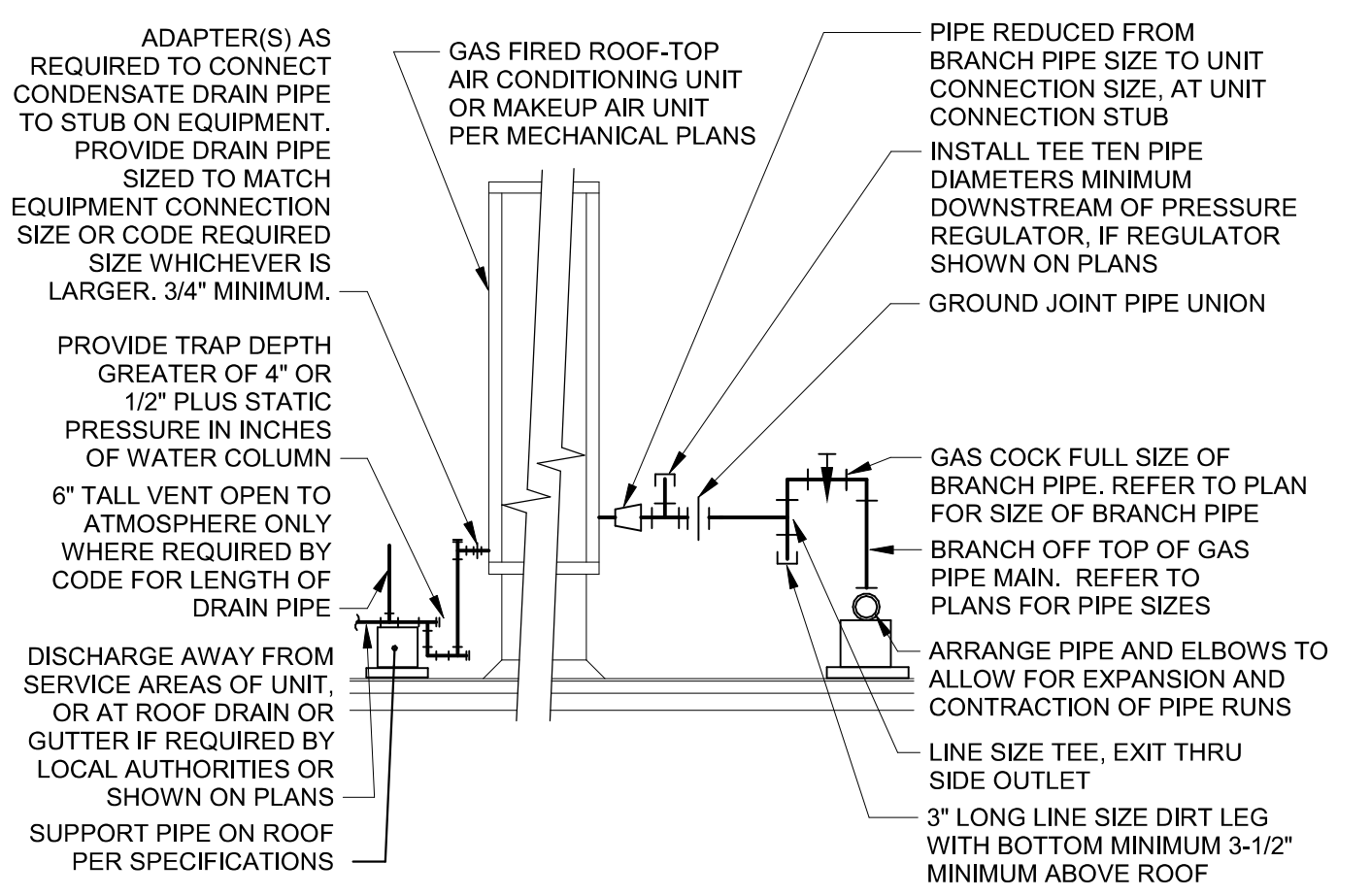
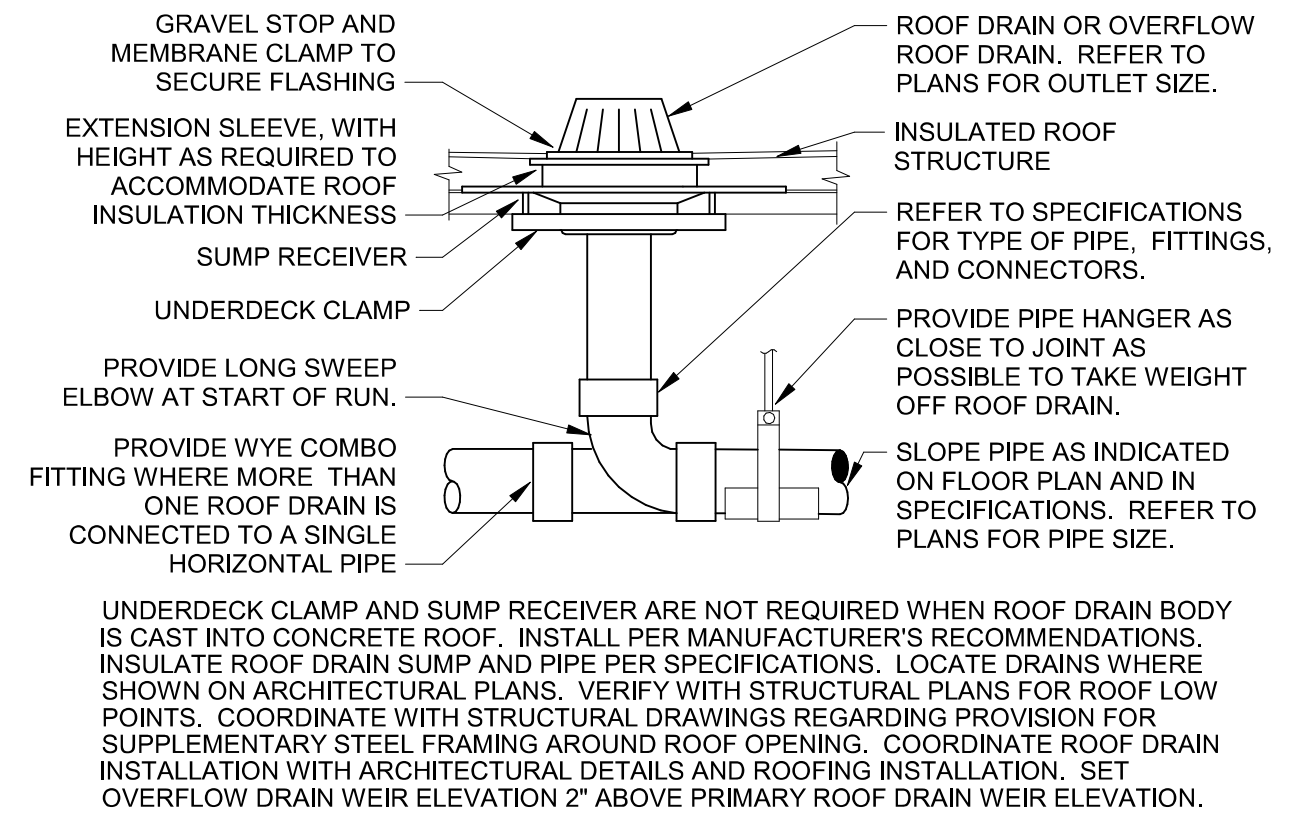
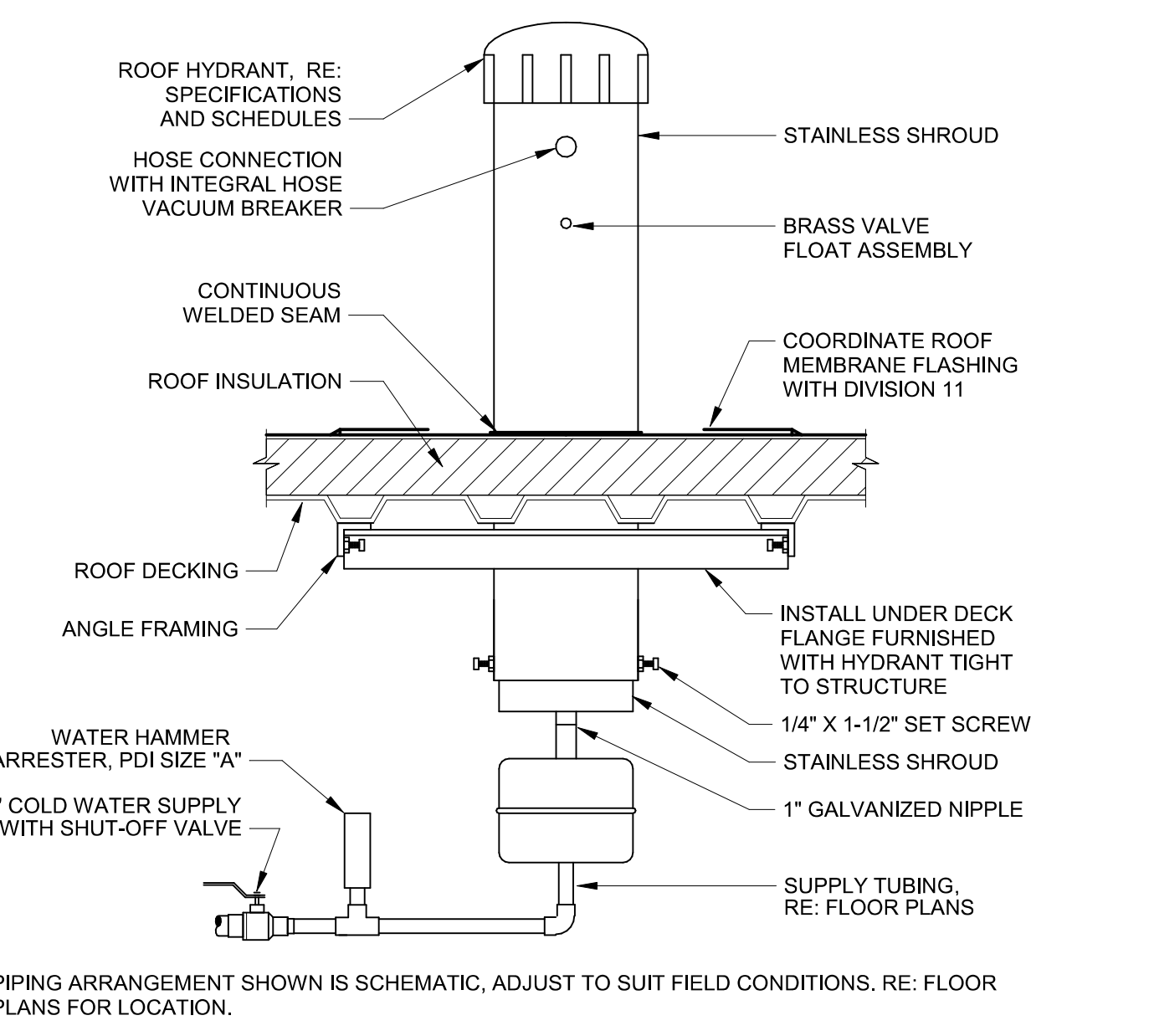
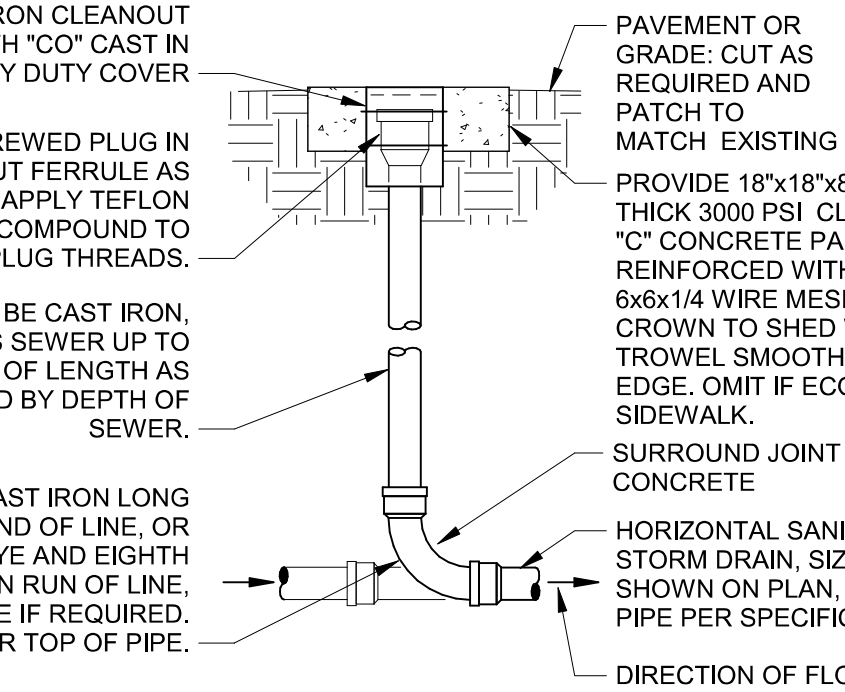
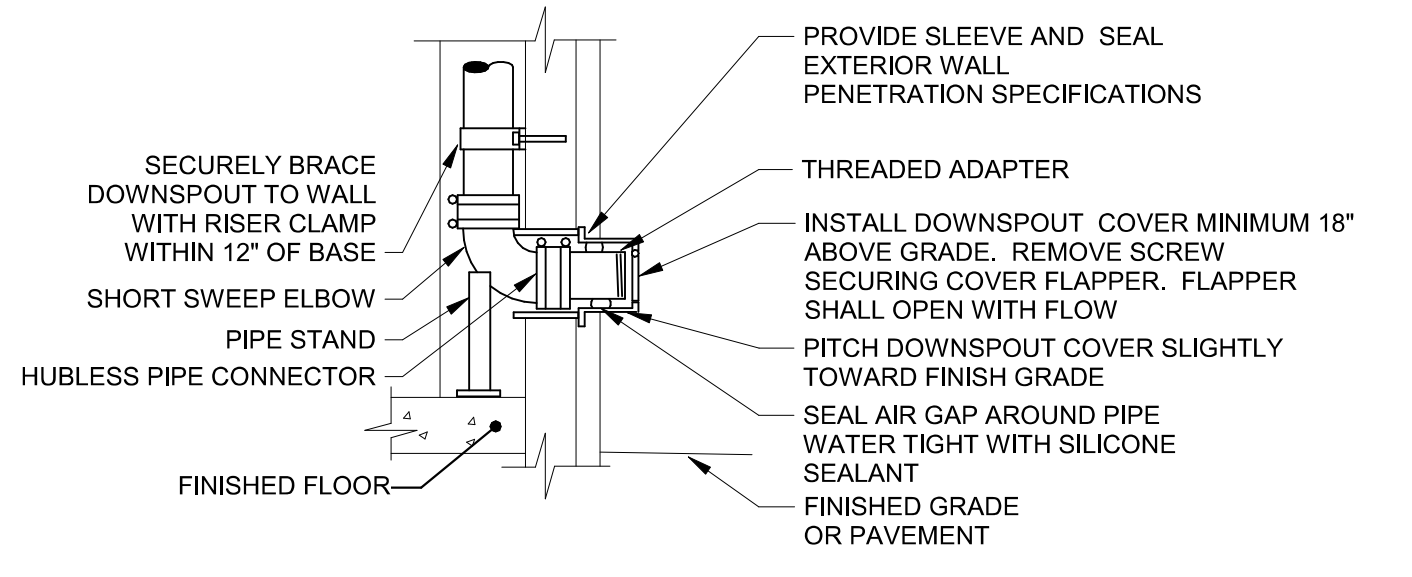
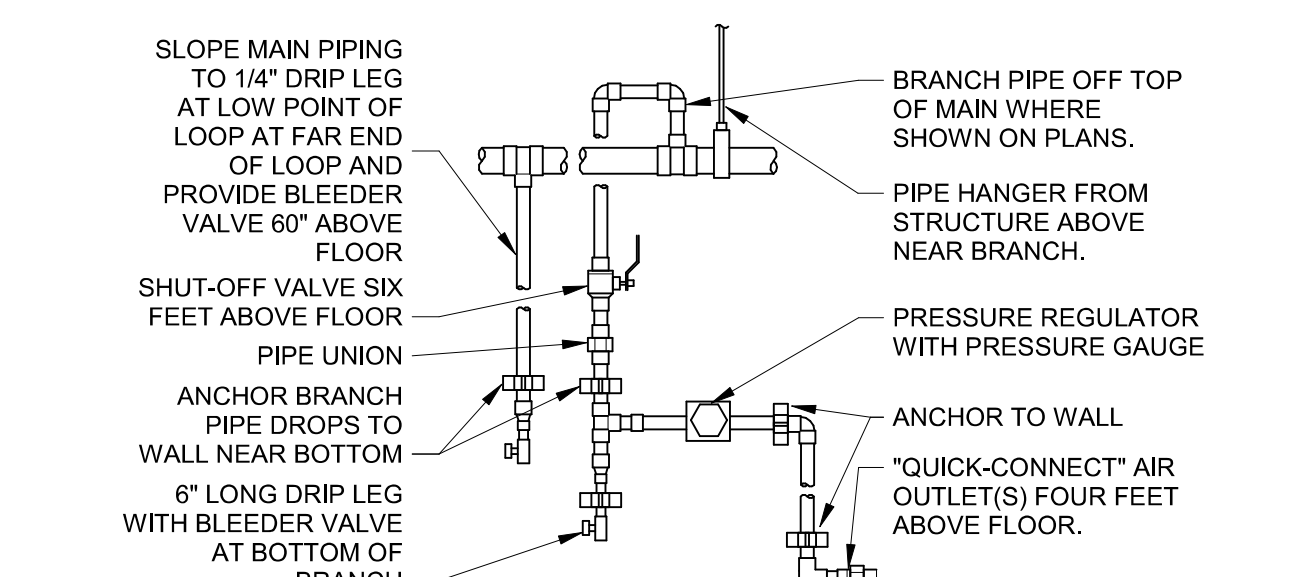
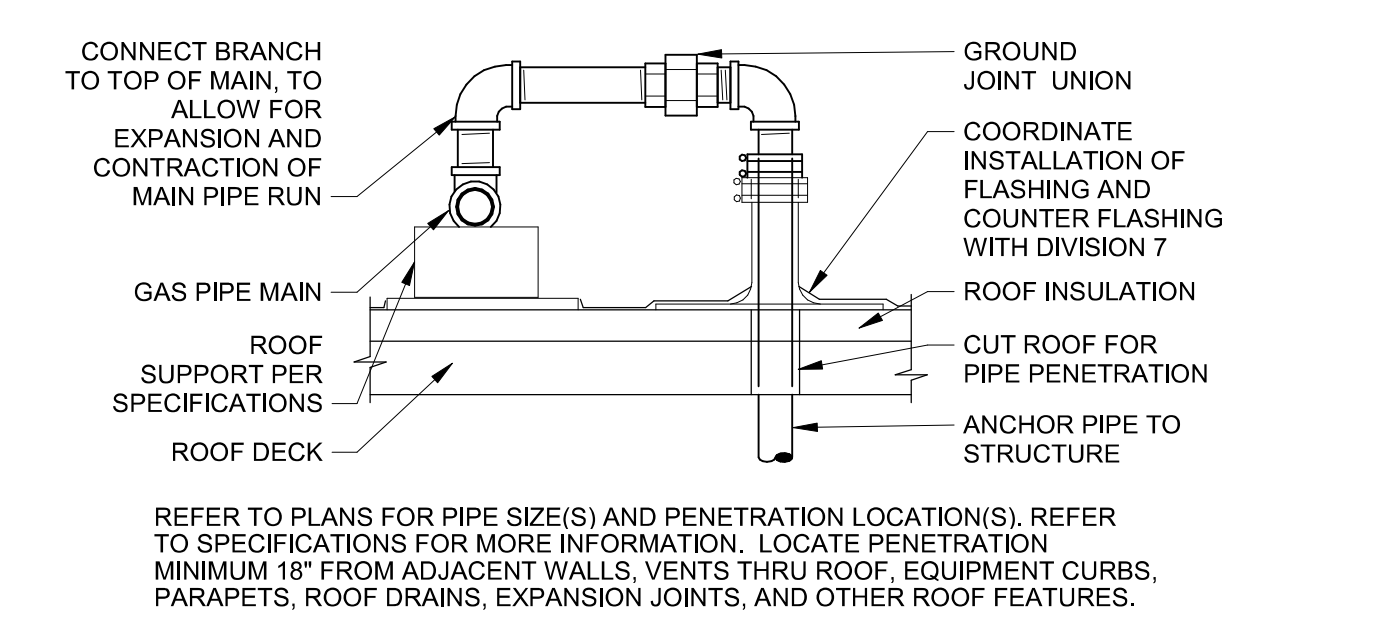
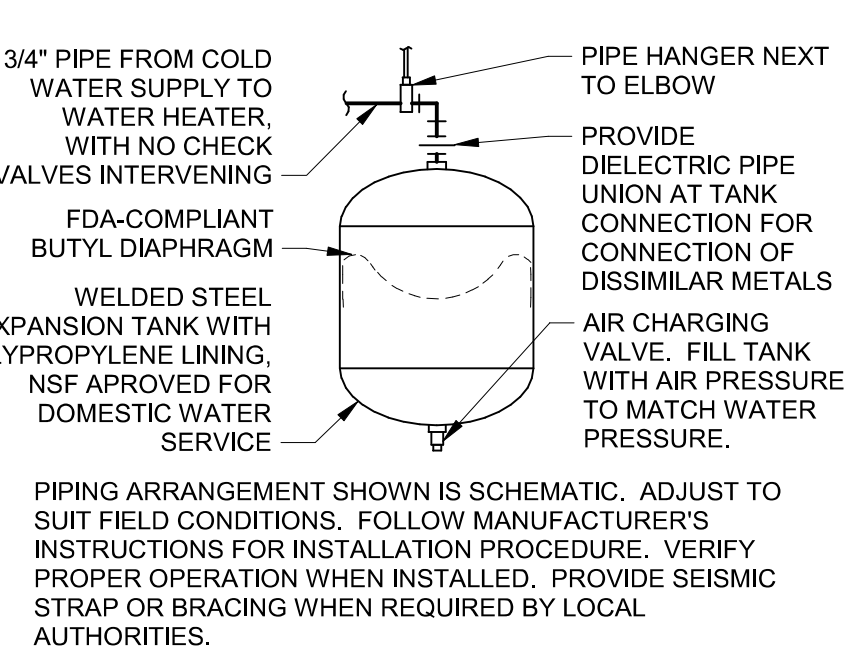
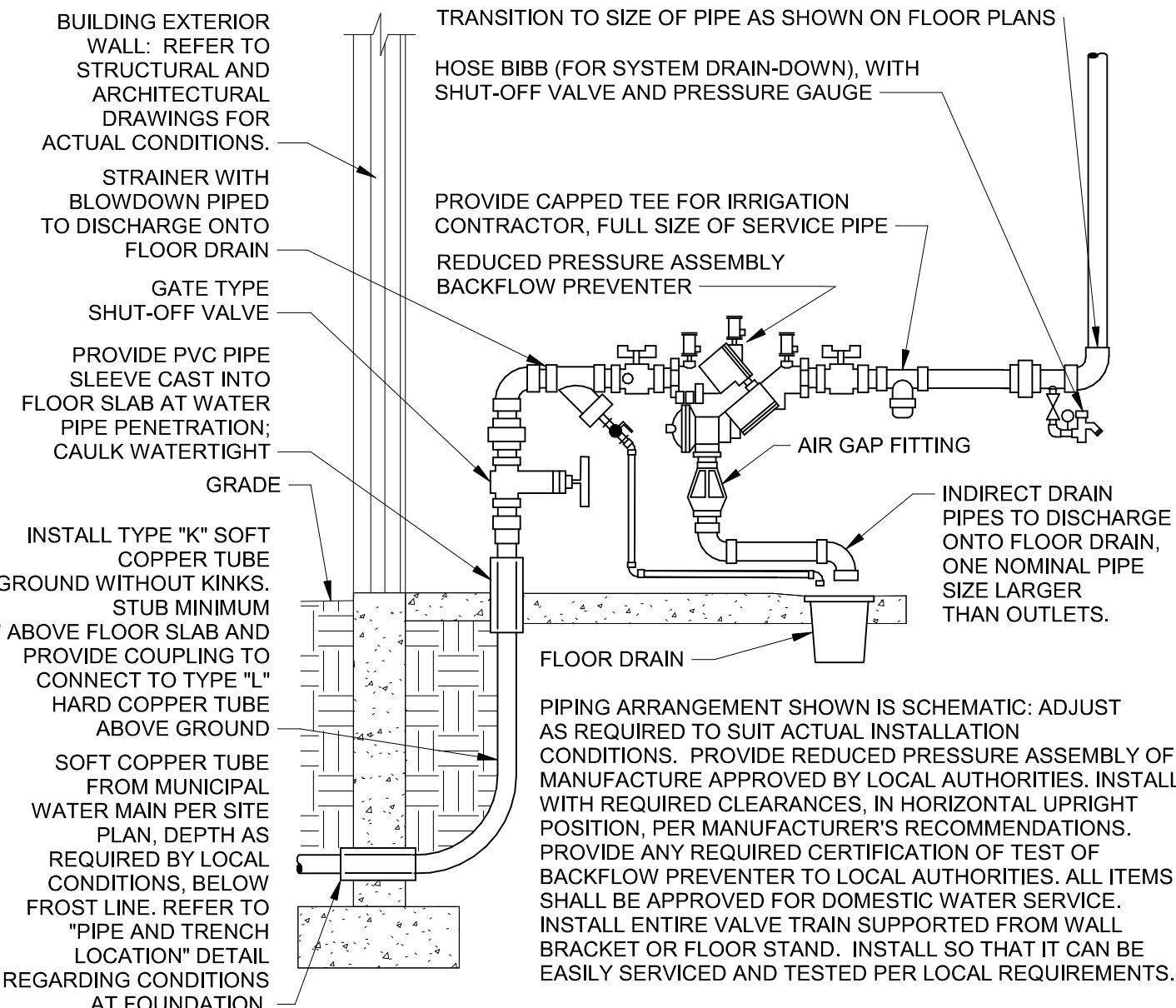
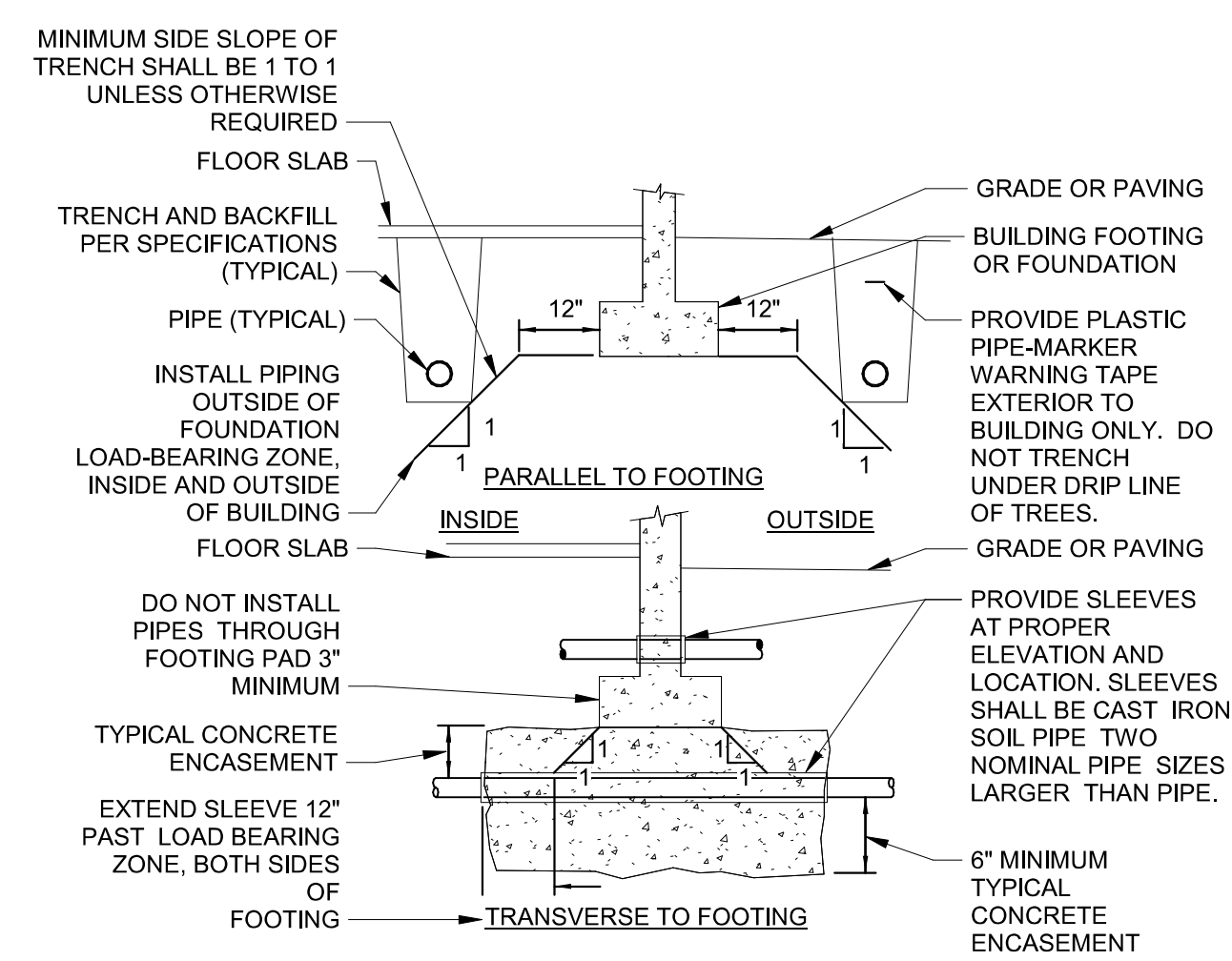
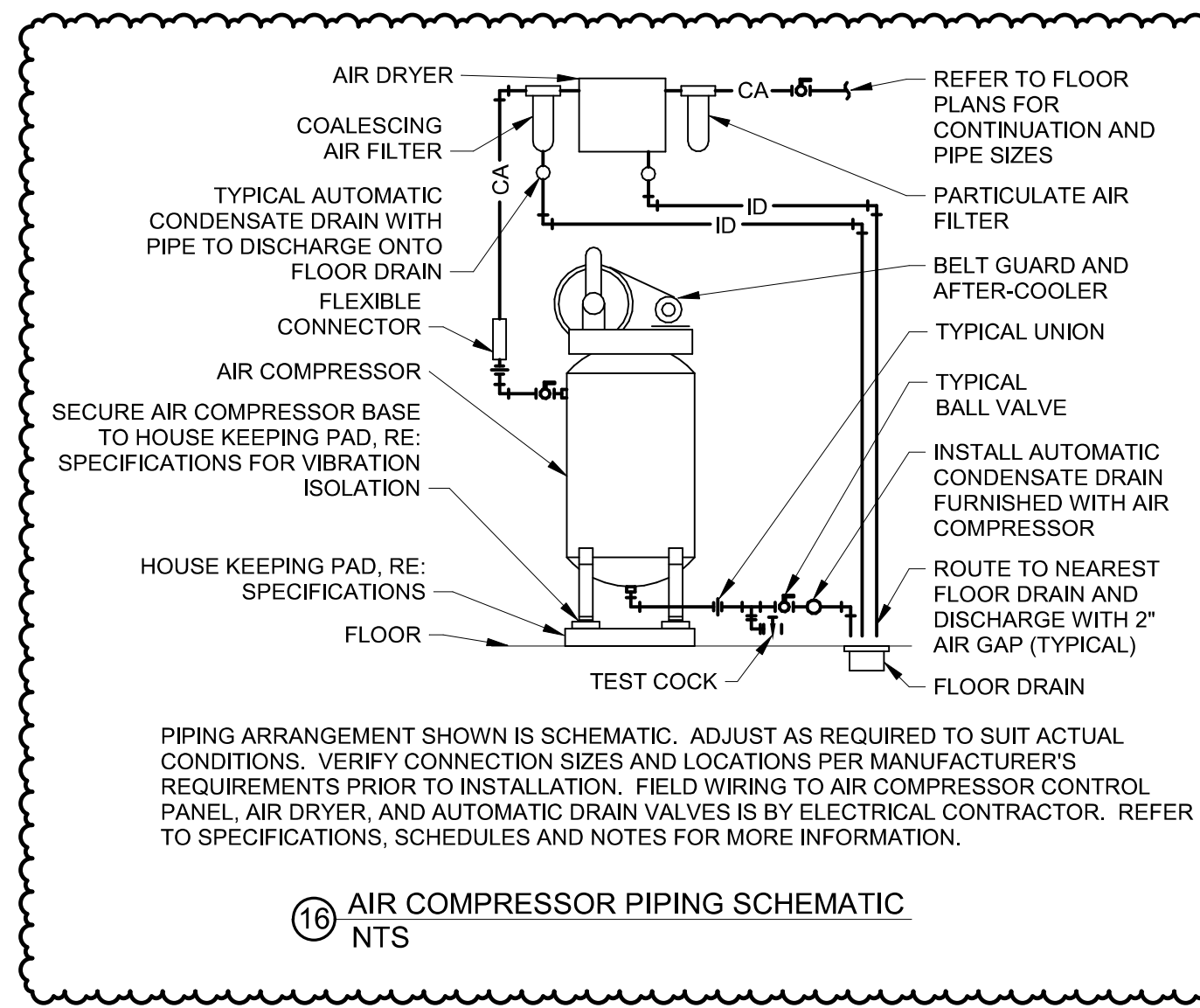
Issue Date: September 5, 2022

NUMBER	DESCRIPTION	DATE
1	Addendum 02	09/13/2022



CARL J. HOLDEN
LICENSE # PE-2020016283

**PLUMBING DETAILS
P501**



LSR7 Robotics, GiC & Phys Education

LSN: 901 NE Douglas St., Lee's Summit MO 64086
LSW: 2600 SW Ward Rd, Lee's Summit MO 64082
LSHS: 400 SE Blue Pkwy, Lee's Summit MO 64063

0121-0100

owner:
Lee's Summit R-7 School
301 NE Tudor Road
Lee's Summit, MO 64086

architect:
Multistudio
4209 Pennsylvania
Kansas City, MO 64111
816.931.6655
multi.studio

civil engineer:
Kaw Valley Engineering
14700 West 114th Terrace
Lenexa, KS 66215
913.485.0318
kveng.com

structural engineer:
Bob D. Campbell & Company, Inc.
4338 Bellevue
Kansas City, MO 64111
816.531.4144
www.bdc-engrs.com

MEP/PT/Code:
Henderson Engineers
8345 Lenexa Drive, Suite
300
Lenexa, KS 66214
816.742.5000
www.hendersonengineers.com

GENERAL NEW NOTES:

- PRIOR TO SUBMITTING BID, VISIT THE JOB SITE AND BECOME FULLY ACQUAINTED WITH THE EXISTING CONDITIONS OF THE PROJECT. REVIEW THE GENERAL NOTES, SPECIFICATIONS AND OTHER DRAWINGS FOR ADDITIONAL REQUIREMENTS WHICH MAY NOT BE SPECIFICALLY CALLED OUT IN THIS PORTION OF THE CONSTRUCTION DOCUMENTS. NOTIFY ARCHITECT, ENGINEER AND/OR OWNER OF CONFLICTS OR DISCREPANCIES PRIOR TO SUBMISSION OF BID.
- EXISTING CONDITIONS WERE TAKEN FROM ORIGINAL DRAWINGS AND SITE VISITS AND MAY NOT REFLECT EXACT "AS-BUILT" CONDITIONS. FIELD VERIFY EXISTING CONDITIONS PRIOR TO SUBMITTING FINAL BIDS. COORDINATE NEW WORK AND DEMOLITION WITH OTHER DISCIPLINES AND EXISTING CONDITIONS PRIOR TO CONSTRUCTION.
- COORDINATE THE INSTALLATION OF THE MECHANICAL SYSTEMS WITH OTHER TRADES TO ENSURE A NEAT AND ORDERLY INSTALLATION. INSTALL DUCTWORK AND PIPING AS TIGHT TO STRUCTURE AS POSSIBLE. COORDINATE WITH OTHER TRADES TO AVOID CONFLICTS. COORDINATE INSTALLATION OF DUCTWORK AND PIPING TO AVOID CONFLICTS WITH ELECTRICAL PANELS, LIGHTING FIXTURES, ETC. ANY MODIFICATIONS REQUIRED DUE TO LACK OF COORDINATION WILL BE THE RESPONSIBILITY OF THE CONTRACTOR AT NO EXTRA COST TO THE OWNER.
- DURING INSTALLATION OF NEW WORK, AVOID DAMAGING EXISTING SURFACES AND EQUIPMENT TO REMAIN. REPAIR DAMAGE CAUSED DURING CONSTRUCTION AT NO EXTRA COST TO THE OWNER.
- PROVIDE TEMPORARY BARRIERS TO CONTAIN DUST AND DEBRIS RESULTING FROM THE PERFORMANCE OF THE WORK TO THE AREA WHERE WORK IS BEING PERFORMED.
- ALL MECHANICAL EQUIPMENT SHOWN ON THE MECHANICAL PLANS SHALL BE PROVIDED BY DIVISION 23 UNLESS OTHERWISE NOTED.
- NEW MECHANICAL EQUIPMENT, DUCTWORK AND PIPING ARE SHOWN AT APPROXIMATE LOCATIONS. FIELD MEASURE FINAL DUCTWORK AND PIPING LOCATIONS PRIOR TO FABRICATION AND MAKE ADJUSTMENTS AS REQUIRED TO FIT THE DUCTWORK AND PIPING WITHIN THE AVAILABLE SPACE. VERIFY THAT FINAL EQUIPMENT LOCATIONS MEET MANUFACTURER'S RECOMMENDATIONS REGARDING SERVICE CLEARANCE AND PROPER AIRFLOW CLEARANCE AROUND EQUIPMENT.
- REFER TO ARCHITECTURAL DRAWINGS FOR RELATED CONSTRUCTION DETAILS AS APPLICABLE TO THE HVAC SYSTEM. VERIFY CHASES AND PENETRATIONS SHOWN ON ARCHITECTURAL DRAWINGS THAT ARE INTENDED FOR DUCTWORK AND PIPING MEET REQUIREMENTS.
- COORDINATE LOCATION OF ROOF MOUNTED HVAC EQUIPMENT AND ROOF PENETRATIONS WITH THE ARCHITECTURAL AND STRUCTURAL DRAWINGS.
- INDOOR AIR QUALITY MEASURES: PROTECT INSIDE OF (INSTALLED AND DELIVERED) DUCTWORK AND HVAC UNITS FROM EXPOSURE TO DUST, DIRT, PAINT AND MOISTURE. REPLACE INSULATION THAT HAS BECOME WET AT ANY TIME DURING CONSTRUCTION. DRYING THE INSULATION IS NOT ACCEPTABLE. SEAL ANY TEARS OR JOINTS OF INTERNAL FIBERGLASS INSULATION. REMOVE DEBRIS FROM CEILING/RETURN AIR PLENUM INCLUDING DUST. VACUUM CLEAN ANY DUCTWORK CONNECTED TO HVAC UNITS THAT WERE OPERATED DURING THE CONSTRUCTION PERIOD AFTER NEW FILTERS ARE INSTALLED AND PRIOR TO TURNING SYSTEM OVER TO THE OWNER. THE INTERNAL SURFACES AND ASSOCIATED COILS OF ANY HVAC UNITS THAT WERE OPERATED SHALL ALSO BE CLEANED.
- INSTALL DUCTWORK AND PIPING PARALLEL TO BUILDING COLUMN LINES UNLESS OTHERWISE SHOWN OR NOTED.
- OVERHEAD HANGERS AND SUPPORTS FOR EQUIPMENT, DUCTWORK AND PIPING SHALL BE FASTENED TO BUILDING JOISTS OR BEAMS. DO NOT ATTACH HANGERS AND SUPPORTS TO THE ABOVE FLOOR SLAB OR ROOF EXCEPT WHERE CONCRETE INSERTS IN CONCRETE SLABS ARE ALLOWED BY THE SPECIFICATIONS.
- COORDINATE LOCATION OF EQUIPMENT SUPPORTS WITH LOCATION OF EQUIPMENT ACCESS PANELS/DOORS TO ENABLE SERVICE OF EQUIPMENT AND/OR FILTER REPLACEMENT.
- SEAL PENETRATIONS THROUGH THE BUILDING COMPONENTS IN ACCORDANCE WITH THE CONTRACT SPECIFICATIONS. FIREPROOF PENETRATIONS THROUGH FIRE RATED COMPONENTS IN ACCORDANCE WITH U.L. REQUIREMENTS.
- DRAIN, FLUSH, AND REFILL ALL PIPING SYSTEMS NECESSARY TO PERFORM THE WORK. REFERENCE SPECIFICATIONS FOR FLUSHING PERFORMANCE REQUIREMENTS AND SUBMIT FLUSHING PLAN TO ENGINEER FOR REVIEW. PROVIDE CHEMICAL TREATMENT FOR ALL PIPING SYSTEMS AFTER FLUSHING AND REFILLING THE SYSTEM.
- COORDINATE THE EXACT MOUNTING SIZE AND FRAME TYPE OF DIFFUSERS, REGISTERS AND GRILLES WITH THE SUPPLIER TO MEET THE CEILING, WALL AND DUCT INSTALLATION REQUIREMENTS.
- ADJUST LOCATION OF CEILING DIFFUSERS, REGISTERS AND GRILLES AS REQUIRED TO ACCOMMODATE FINAL CEILING GRID AND LIGHTING LOCATIONS.
- PAINT PORTIONS OF DUCTWORK AND INSULATION THAT ARE EXPOSED TO VIEW BY THE INSTALLATION OF DIFFUSERS, REGISTERS, AND GRILLES IN CEILINGS OR WALLS FLAT BLACK. PORTIONS INCLUDE BOTH THE INTERIOR OF UNLINED DUCTWORK AND THE EXTERIOR OF DUCTWORK AND INSULATION.
- DUCTWORK CROSSING FIRE RATED WALLS OR OTHER FIRE RATED ASSEMBLIES SHALL BE MINIMUM 26 GAUGE SHEET METAL.
- PROVIDE FIRE OR FIRE/SMOKE DAMPERS, AS APPLICABLE, IN DUCTWORK AT CEILINGS AND WALLS AT LOCATIONS SHOWN ON THE PLANS. FIRE AND FIRE/SMOKE DAMPERS SHALL CONFORM TO NFPA AS APPLICABLE. COORDINATE SLEEVE LENGTH WITH REQUIREMENTS OF INSTALLED LOCATION.
- PROVIDE WALL OR DUCT ACCESS PANELS OR DOORS FOR ACCESS TO FIRE AND FIRE/SMOKE DAMPERS. ACCESS PANEL OR DOOR SHALL BE MINIMUM SIZE OF 10" BY 10" AND SHALL BE INSTALLED WITHIN 12" OF DAMPER. PROVIDE A REMOVABLE DUCT SECTION WHERE DUCT SIZE TOO SMALL FOR A 10" BY 10" ACCESS DOOR.
- LOCATE AND SET THERMOSTATS AND HUMIDISTATS AT LOCATIONS SHOWN ON PLANS. VERIFY EXACT LOCATIONS WITH ARCHITECT PRIOR TO INSTALLATION. INSTALL DEVICES WITH TOP OF DEVICE AT MAXIMUM 48" APT TO MEET ADA REQUIREMENTS UNLESS NOTED OTHERWISE ON PLANS. PROVIDE INSULATED BACKING FOR THERMOSTATS MOUNTED ON EXTERIOR BUILDING WALLS. INSTALL WIRING IN CONDUIT PROVIDED BY DIVISION 26. AT A MINIMUM, PROVIDE CONDUIT IN THE WALL FROM THE JUNCTION BOX TO 6" ABOVE THE CEILING.
- COORDINATE THE LOCATION AND ELEVATION OF WALL-MOUNTED DEVICES WITH PRESENTATION BOARDS, DISPLAY CABINETS, SHELVES OR OTHER COMPONENTS SHOWN ON THE ARCHITECTURAL DRAWINGS THAT ARE TO BE INSTALLED UNDER OTHER DIVISIONS. CONTRACTOR WILL NOT BE REIMBURSED FOR RELOCATION OF WALL-MOUNTED DEVICES CAUSED BY A LACK OF COORDINATION.
- PROVIDE A MANUAL BALANCING DAMPER IN EACH DUCT TAKEOFF FROM SUPPLY, RETURN, OUTDOOR AND EXHAUST AIR DUCTS.
- PROVIDE A PREFABRICATED 45 DEGREE, HIGH EFFICIENCY, RECTANGULAR/ROUND BRANCH DUCT TAKEOFF FITTING FOR BRANCH DUCT CONNECTIONS AND TAKE-OFFS TO INDIVIDUAL DIFFUSERS, REGISTERS AND GRILLES. PROVIDE WITH INTEGRAL MANUAL BALANCING DAMPER AND LOCKING QUADRANT WHERE INDICATED ON PLANS.
- BRANCH DUCTWORK TO AIR OUTLETS SHALL BE SAME SIZE AS OUTLET NECK SIZE UNLESS OTHERWISE NOTED.
- REFER TO SPECIFICATIONS FOR DUCTWORK AND PIPING INSULATION REQUIREMENTS. DUCT SIZES ON MECHANICAL PLANS INDICATE CLEAR INSIDE AIRFLOW DIMENSIONS. INCREASE SHEET METAL SIZES ACCORDINGLY TO ACCOUNT FOR THICKNESS OF DUCT LINER.
- FLEXIBLE DUCTWORK SHALL NOT EXCEED 5'-0" IN LENGTH AND SHALL BE INSTALLED AND SUPPORTED TO AVOID SHARP BENDS AND SAGGING. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
- PROVIDE EQUIPMENT VENTS AND FLUES PER EQUIPMENT MANUFACTURERS RECOMMENDATIONS AND EQUIPMENT SPECIFICATIONS. KEEP PENETRATIONS THROUGH ROOF A MINIMUM OF 10'-0" FROM HVAC EQUIPMENT FRESH AIR INLETS AND 2'-0" FROM ROOF PARAPETS.
- PROVIDE WALL MOUNTED LOUVERS AND DAMPERS WITH SUITABLE MOUNTING FRAME TO MATCH WALL CONSTRUCTION. COORDINATE WITH ARCHITECTURAL DRAWINGS.
- PROVIDE A NEW SET OF AIR FILTERS IN UNITS PRIOR TO TESTING, ADJUSTING AND BALANCING AND BEFORE TURNING SYSTEM(S) OVER TO OWNER.

MECHANICAL SYMBOLS

THIS IS A MASTER LEGEND AND NOT ALL SYMBOLS OR ABBREVIATIONS ARE USED.

STANDARD MOUNTING HEIGHT

THERMOSTATS (USER ADJUSTABLE) CONTROLS 46" 48"

INSTALL DEVICES AT THE MOUNTING HEIGHTS SHOWN ABOVE UNO IN THE CONSTRUCTION DOCUMENTS. MOUNTING HEIGHTS LISTED ABOVE OR ELSEWHERE IN THE CONSTRUCTION DOCUMENTS ARE AFF OR AFG TO TOP OF THE DEVICE UNO. ALL DEVICES SHALL BE INSTALLED IN COMPLIANCE WITH CURRENT ADA AND LOCAL REQUIREMENTS.

ANNOTATION

- MECHANICAL PLAN NOTE CALLOUT
- MECHANICAL EQUIPMENT DESIGNATION (CONTRACTOR FURNISHED AND INSTALLED UNLESS NOTED OTHERWISE)
- CONNECTION POINT OF NEW WORK TO EXISTING
- DETAIL REFERENCE. UPPER NUMBER INDICATES DETAIL NUMBER LOWER NUMBER INDICATES SHEET NUMBER
- SECTION CUT DESIGNATION
- DEDICATED EQUIPMENT ACCESS TILE
- ACCESS PANEL

ABBREVIATIONS

AIC AIR CONDITIONING
ACC AIR COOLED CHILLER
ACCU AIR COOLED CONDENSING UNIT
AFC ABOVE FINISHED CEILING
AFF ABOVE FINISHED FLOOR
AFG ABOVE FINISHED GRADE
AHJ AUTHORITY HAVING JURISDICTION
AHU AIR HANDLING UNIT
AI ANALOG INPUT
AO ANALOG OUTPUT
AP ACCESS PANEL
APD AIR PRESSURE DROP
AWG AMERICAN WIRE GAUGE
B BOILER
BAS BUILDING AUTOMATION SYSTEM
BB BACKBONE
BD BACKDRAFT DAMPER
BD BLOWDOWN
BFC BELOW FINISHED CEILING
BFF BELOW FINISHED FLOOR
BFG BELOW FINISHED GRADE
BFP BOILER FEED PUMP
BHP BRAKE HORSEPOWER
BI BINARY INPUT
BO BINARY OUTPUT
BOD BOTTOM OF DUCT
BOS BOTTOM OF STRUCTURE
BTU BRITISH THERMAL UNIT
CFM CUBIC FEET PER MINUTE
CH CHILLER
CLG COOLING
CP CONDENSATE PUMP
CPT CONTROL POWER
CRAC TRANSFORMER
CRU COMPUTER ROOM AIR
CT COOLING TOWER
CV CONTROL VALVE
CWP CONDENSER WATER PUMP
CU CONDENSING UNIT
CHWP CHILLED WATER PUMP
DB DECIBELS
DBA DECIBEL AVERAGE
DDC DIRECT DIGITAL CONTROL
DI DIGITAL INPUT
DISC DISCONNECT
DN DOWN
DS DUCT SILENCER
DX DIRECT EXPANSION
(E) EXISTING
EA EXHAUST AIR
EAT ENTERING
ET AIR TEMPERATURE
EDB EXHAUST DRY BULB
EF EXHAUST FAN
EFF EFFICIENCY
EMS ENERGY MANAGEMENT SYSTEM
ESP EXTERNAL STATIC PRESSURE
ETR EXISTING TO REMAIN
EWB ENTERING WET BULB
EWT ENTERING WATER TEMPERATURE
FCU FAN COIL UNIT
FFA FROM FLOOR ABOVE
FFB FROM FLOOR BELOW
FF FINISHED FLOOR
FFI FINS PER INCH
FPM FEET PER MINUTE
GC GENERAL CONTRACTOR
GPM GALLONS PER MINUTE
HCA HAND-OFF-AUTOMATIC
HP HORSEPOWER
HTG HEATING

HWP HEATING WATER PUMP
IN WC INCHES OF WATER COLUMN
L LOUVER
LAT LEAVING AIR TEMPERATURE
LDB LEAVING DRY BULB
LP LOW PRESSURE
LWB LEAVING WET BULB
LWT LEAVING WATER TEMPERATURE
MAU MAKE-UP AIR UNIT
MAX MAXIMUM
MBH 1000 BTU PER HOUR
MD MOTORIZED DAMPER
MFR MANUFACTURER
MIN MINIMUM
N/A NOT APPLICABLE
NIC NORMALLY CLOSED
NO NORMALLY OPEN
NOM NOMINAL
NC NOISE CRITERIA
NF NON-FUSED
NIC NOT IN CONTRACT
CA OUTSIDE AIR
PICV PRESSURE INDEP. CONTROL VALVE
PROVIDE FURNISH AND INSTALL
QTY QUANTITY
RA RETURN AIR
RC ROOM CRITERIA
RD RETURN DUCT
REL RELIEF AIR
RF RETURN FAN
RFR REFRIGERANT
RH RELATIVE HUMIDITY
RH ROOF HOOD
RPM REVOLUTIONS PER MINUTE
RTU ROOFTOP UNIT
SA SUPPLY AIR
SCP STEAM CONDENSATE PUMP
SD SMOKE DUCT DETECTOR
SD SUPPLY DUCT
SF SUPPLY FAN
SH SENSIBLE HEAT CAPACITY
SOW SCOPE OF WORK
SP STATIC PRESSURE
ST STEAM TRAP
STM STEAM
TBD TO BE DETERMINED
TCC CONTRACTOR TEMPERATURE CONTROLS
TCP TEMPERATURE CONTROL PANEL
TF TRANSFER FAN
TFA TO FLOOR ABOVE
TFB TO FLOOR BELOW
TH TOTAL HEAT CAPACITY
TSP TOTAL STATIC PRESSURE
TT TEMPERATURE TRANSMITTAL
TYP TYPICAL
UF UNDERFLOOR
UG UNDERGROUND
US UNDERSLAB
UH UNIT HEATER
UNO UNLESS NOTED OTHERWISE
VAV VARIABLE AIR VOLUME
VEL VELOCITY
VFD VARIABLE FREQUENCY DRIVE
VRF VARIABLE REFRIGERANT FLOW
VRV VARIABLE REFRIGERANT VOLUME
W/ WITH
WO WITHOUT
WB WET BULB
WC WATER COLUMN
WPD WATER PRESSURE DROP
XP EXPLOSION PROOF

HVAC DUCTWORK AND ACCESSORIES

- DUCTWORK/EQUIPMENT TO BE REMOVED OR RELOCATED
- EXISTING DUCTWORK/EQUIPMENT TO REMAIN
- LINEAR SLOT DIFFUSER
- INSULATED FLEXIBLE DUCT (MAX. 5'-0" LONG)
- BRANCH DUCT WITH 45° RECTANGLE-ROUND BRANCH FITTING AND MANUAL VOLUME DAMPER
- ELBOW WITH TURNING VANES
- BRANCH DUCT WITH BELL-MOUTH FITTING & MANUAL VOLUME CONTROL DAMPER
- DUCT UP
- DUCT DOWN
- EXHAUST AIR
- EXHAUST AIR - GREASE
- OUTSIDE AIR
- RELIEF AIR
- RETURN AIR
- SPECIAL EXHAUST
- SUPPLY AIR
- EQUIPMENT WITH FLEXIBLE DUCT CONNECTION
- 10" (NECK SIZE) CSD-1 (TYPE) 300 CFM (CFM OF SUPPLY DIFFUSER OR REGISTER)
- 24x24 (NECK SIZE) CEG-1 (TYPE) 800 CFM (CFM OF EXHAUST GRILLE)
- EQUIPMENT ACCESS TILE (IN ACT CEILINGS)
- ACCESS PANEL (IN GYPSUM)
- MANUAL VOLUME DAMPER
- SQUARE TO ROUND TRANSITION
- DUCT MOUNTED SMOKE DETECTOR (SD=SUPPLY/RD=RETURN)
- ROUND DUCT TAG INDICATING DIAMETER
- RECTANGULAR DUCT TAG INDICATING INTERNAL DUCT DIMENSIONS.
- FLAT OVAL DUCT TAG INDICATING INTERNAL DUCT DIMENSIONS
- RISER DESIGNATION
- FIRE DAMPER
- FIRE SMOKE DAMPER
- SMOKE DAMPER
- VOLUME DAMPER
- MOTORIZED DAMPER
- BACKDRAFT DAMPER

ALL DUCT DIMENSIONS SHOWN ON DRAWINGS ARE INSIDE DIMENSIONS. REFER TO DUCTWORK SPECIFICATIONS FOR DUCTWORK INSULATION AND LINER INFORMATION.

HVAC CONTROL DEVICES

- HUMIDISTAT
- THERMOSTAT
- CARBON MONOXIDE SENSOR
- CARBON DIOXIDE SENSOR
- DIFFERENTIAL PRESSURE SENSOR
- FLOW SWITCH
- HUMIDITY SENSOR
- PULL STATION
- REMOTE TESTING STATION WITH INDICATING LIGHT
- STATIC PRESSURE
- TEMPERATURE SENSOR

PIPING SYMBOLS

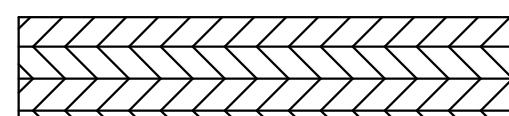
- DIRECTION OF FLOW
- CONTROL VALVE
- THREE-WAY CONTROL VALVE
- SHUTOFF VALVE
- CHECK VALVE
- BALANCING VALVE WITH PRESSURE PORTS
- TRIPLE DUTY VALVE WITH PRESSURE PORTS
- STRAINER
- STRAINER WITH BLOWOFF
- RELIEF / SAFETY VALVE
- SOLENOID VALVE
- PRESSURE REDUCING VALVE
- GAS PRESSURE REGULATOR
- THERMOSTATIC MIXING VALVE
- PIPE ANCHOR
- EXPANSION JOINT
- PIPE GUIDE
- PIPING SUPPORT
- F & T TRAP
- BUCKET TRAP
- THERMOSTATIC TRAP
- BACKFLOW PREVENTER
- PRESSURE GAUGE
- THERMOMETER
- PRESSURE AND TEMPERATURE TEST PLUG
- UNION
- FLANGE CONNECTION
- VACUUM RELIEF VALVE
- AUTOMATIC AIR VENT
- MANUAL AIR VENT
- PRESSURE / VACUUM SWITCH
- CLEANOUT
- CAP
- ELBOW UP
- ELBOW DOWN
- TEE UP
- TEE DOWN
- ELBOW UP WITH SHUT-OFF VALVE (SOV)
- ELBOW DOWN WITH SHUT-OFF VALVE (SOV)
- TEE UP WITH SHUT-OFF VALVE (SOV)
- TEE DOWN WITH SHUT-OFF VALVE (SOV)
- REDUCER
- RECIRCULATION PUMP
- P-TRAP
- GAS COCK
- TOP BEAM CLAMP
- TRAPEZE HANGER
- FLEXIBLE CONNECTION

PIPING LINETYPES

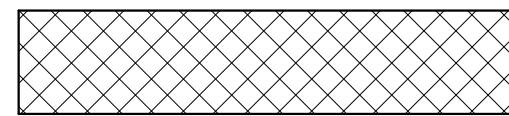
- EXISTING PIPING TO BE REMOVED OR RELOCATED
- EXISTING PIPING TO REMAIN
- CONDENSATE DRAIN (CD)
- AUXILIARY CONDENSATE DRAIN (ACD)
- NON-POTABLE WATER (NPW)
- NATURAL GAS (G)
- NATURAL GAS ON ROOF (G)
- MEDIUM PRESSURE NATURAL GAS (MPG)
- MEDIUM PRESSURE NATURAL GAS ON ROOF (MPG)
- FUEL OIL SUPPLY (FOS)
- FUEL OIL RETURN (FOR)
- FUEL OIL VENT (FOV)
- LIQUEFIED PETROLEUM GAS (LPG)
- BOILER FEED WATER (BFW)
- HIGH PRESSURE STEAM SUPPLY (HPS)
- HIGH PRESSURE STEAM CONDENSATE (HPC)
- LOW PRESSURE STEAM SUPPLY (LPS)
- LOW PRESSURE STEAM CONDENSATE (LPC)
- CONDENSATE PUMP DISCHARGE (CPD)
- HEATING HOT WATER SUPPLY (HWS)
- HEATING HOT WATER RETURN (HWR)
- CHILLED WATER SUPPLY (CHWS)
- CHILLED WATER RETURN (CHWR)
- HOT / CHILLED WATER SUPPLY (HCS)
- HOT / CHILLED WATER SUPPLY (HCR)
- CONDENSER WATER SUPPLY (CWS)
- CONDENSER WATER RETURN (CWR)
- REFRIGERANT LIQUID (RL)
- REFRIGERANT DISCHARGE (HOT GAS) (RD)
- REFRIGERANT SUCTION (RS)
- REFRIGERANT DISCHARGE BYPASS (RDB)
- REFRIGERANT VENT (RV)

CALL OUTS

ENLARGED PLAN CALLOUT



NOT IN SCOPE



LINETYPE LEGEND

THROUGHOUT THE DRAWINGS DIFFERENT LINETYPES ARE USED IN COMBINATION WITH THE SYMBOLS TO INDICATE THE STATUS OF ITEMS AS EXISTING, TO BE DEMOLISHED, TO BE INCLUDED AS PART OF NEW WORK AND/OR ITEMS WHICH ARE ANTICIPATED TO BE PROVIDED IN THE FUTURE. THE STATUS OF ITEMS USING THESE LINETYPES ARE RELATIVE TO THE VIEW IN WHICH THEY APPEAR. PHASING SHOWN IN DRAWINGS IS NOT INTENDED TO FULLY DESCRIBE ALL NECESSARY CONSTRUCTION PHASING, WHICH IS DETERMINED BY THE CONTRACTOR AS PART OF THEIR RESPONSIBILITIES. ANY SUCH PHASES DESCRIBED IN THE CONSTRUCTION DOCUMENTS ARE GENERAL AND ONLY INTENDED TO INDICATE A BROAD ORDER FOR THE SAKE OF DESCRIBING THE PROJECT. THE FOLLOWING LINETYPES MAY BE USED ON ANY DEVICE, EQUIPMENT, NOTE, LINE, SHAPE, ETC.

- EXISTING
- DEMOLISH
- NEW
- FUTURE

Issue Date: September 5, 2022

Revisions

NUMBER DESCRIPTION DATE



09/09/2022

CARL J. HOLDEN
LICENSE # PE-2020016283

MECHANICAL GENERAL NOTES AND LEGEND

M000

LSR7 Robotics, GiC &
Phys Education

LSN: 901 NE Douglas St., Lee's Summit MO
64086
LSW: 2600 SW Ward Rd, Lee's Summit MO
64082
LSHS: 400 SE Blue Pkwy, Lee's Summit MO 64063

0121-0100

owner:
Lee's Summit R-7 School
301 NE Tudor Road
Lee's Summit, MO 64086

architect:
Multistudio
4209 Pennsylvania
Kansas City, MO 64111
816.931.6655
multi-studio

civil engineer:
Kaw Valley Engineering
14700 West 114th Terrace
Lenexa, KS 66215
913.485.0318
kveg.com

structural engineer:
Bob D. Campbell & Company, Inc.
4338 Bellevue
Kansas City, MO 64111
816.531.4144
www.bdc-engrs.com

MEP/IT Codes:
Henderson Engineers
8345 Lenexa Drive, Suite
300
Lenexa, KS 66214
816.742.5000
www.hendersonengineers.com

MECHANICAL PLAN NOTES:

- M1 COORDINATE INSTALLATION OF EQUIPMENT, DUCTWORK, AND PIPING WITH ALL TRADES. DO NOT ROUTE DUCTWORK OR PIPING OVER ELECTRICAL PANELS AND EQUIPMENT.
- M2 ALL FULLY AND PARTIALLY EXPOSED SUPPLY SPIRAL AND RECTANGULAR DUCT SHALL BE INTERNALLY LINED AND FIELD PAINTED. COLOR BY ARCHITECT.
- M3 PROVIDE BUILDING BAS PANEL(S); QUANTITY OF PANELS TO BE DETERMINED BY CONTROLS CONTRACTOR; COORDINATE LOCATIONS WITH ARCHITECT AND OTHER TRADES.
- M4 INSTALL BUILDING DIFFERENTIAL PRESSURE SENSOR. EXTEND LOW PORT TUBING UP THRU ROOF TO MATCH MANUFACTURER RECOMMENDATIONS/REQUIREMENTS.
- M5 REFRIGERANT PIPING IS SCHEMATIC. ACTUAL ROUTING AND SIZING OF REFRIGERANT LINES SHALL BE DETERMINED PER MANUFACTURER'S RECOMMENDATIONS.
- M7 ALL PIPING SHALL BE ROUTED AS HIGH AS POSSIBLE TO ALLOW MAXIMUM CLEARANCES BELOW.
- M8 COORDINATE PIPING, CONDUIT, AND DUCT ROUTING THROUGH EXPOSED AREAS TO CLEANLY ROUTE/GROUP TOGETHER. COORDINATE WITH ALL OTHER TRADES.
- M9 ROUTE SUPPLY/RETURN DUCT UP THROUGH ROOF. TRANSITION TO DUCT/RTU CONNECTION SIZE IN CURB. SEAL ROOF PENETRATION AIR AND WATER TIGHT.
- M10 ROUTE EXHAUST DUCT UP THROUGH ROOF. TRANSITION TO DUCT/ROOF CONNECTION SIZE IN CURB. SEAL ROOF PENETRATION AIR AND WATER TIGHT.
- M11 ROUTE REFRIGERANT PIPE UP THROUGH ROOF. SEAL ROOF PENETRATION AIR AND WATER TIGHT.
- M14 ROUTE DUCT UP INTO SOFFIT AND ELBOW OUT INTO SHOP SPACE.
- M15 DO NOT INSTALL ANY DUCTWORK OR PIPING BELOW 12'-6" AFF IN ROBOTICS FIELD.
- M16 INSTALL BOTTOM OF TRANSFER DUCT 12'-6" AFF. DUCT INTO SOFFIT AND INTO ELECTRICAL ROOM FOR TRANSFER AIR CIRCULATION.
- M17 ROUTE DUCT DOWN THROUGH SOFFIT TO CONCEAL IN CEILING ABOVE RESTROOMS.

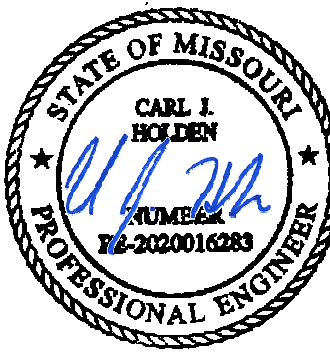
1 HVAC LEVEL 1 PLAN - LSN
3/16" = 1'-0"

HENDERSON
ENGINEERS
8345 LENEXA DRIVE, SUITE 300
LENEXA, KS 66214
TEL 913.742.5000 FAX 913.742.5001
WWW.HENDERSONENGINEERS.COM

2150005255
MO. CORPORATE NO. E-658D
EXPIRES 12/31/2022

Issue Date: September 9, 2022

Revisions		
NUMBER	DESCRIPTION	DATE
1	Addendum 01	09/16/2022



CARL J. HOLDEN
LICENSE # PE-2020016283

LSN - HVAC PLAN -
LEVEL 1

M101-B

LSN: 901 NE Douglas St., Lee's Summit MO
64086
LSW: 2600 SW Ward Rd, Lee's Summit MO
64082
LSHS: 400 SE Blue Pkwy, Lee's Summit MO 64063

0121-0100

owner:
Lee's Summit R-7 School
301 NE Tudor Road
Lee's Summit, MO 64086

architect:
Multistudio
4200 Pennsylvania
Kansas City, MO 64111
816.931.6655
multi.studio

civil engineer:
Kaw Valley Engineering
14700 West 114th Terra
Lenexa, KS 66215
913.485.0318
kveng.com

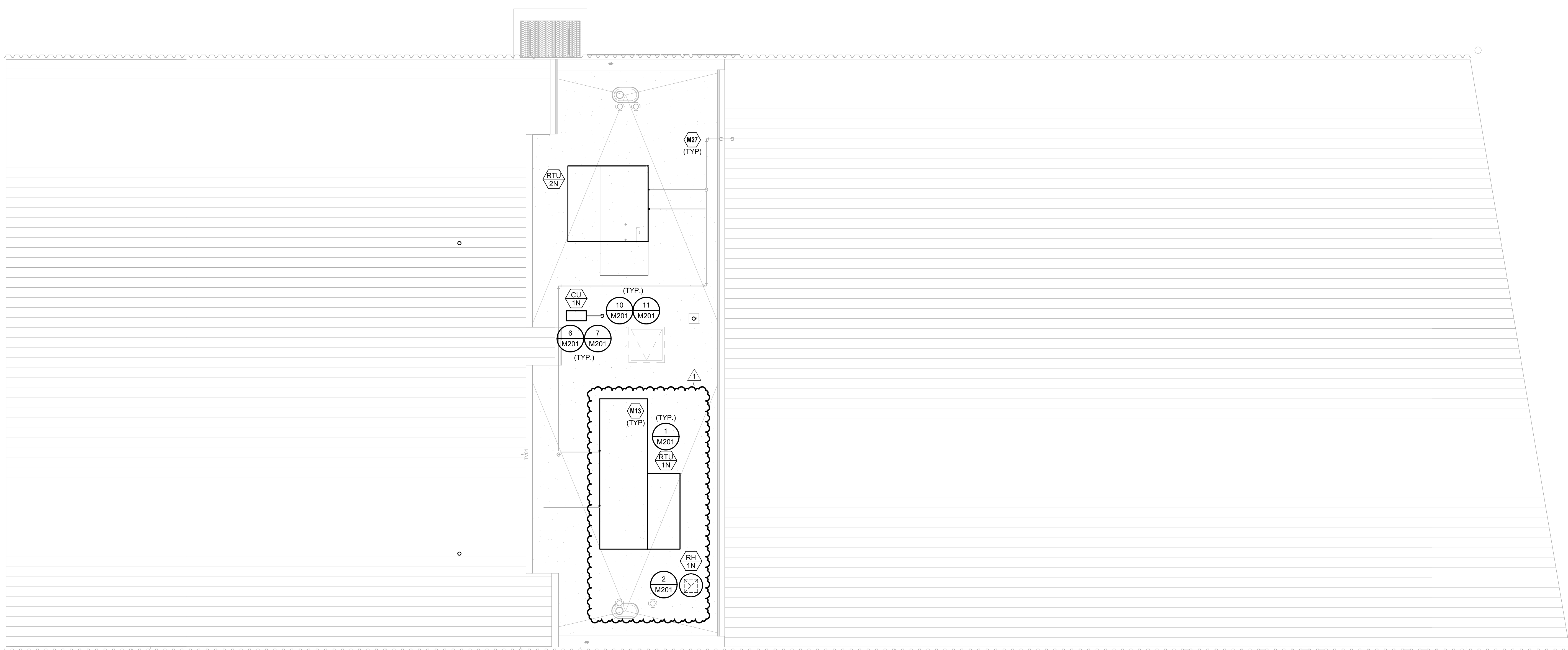
structural engineer:
Bob D. Campbell & Company, Inc.
4338 Belleview
Kansas City, MO 64111
816.531.4144
www.bdc-engrs.com

MEPFT/Code::
Henderson Engineers
8345 Lenexa Drive, Suite
300
Lenexa, KS 66214
816.742.5000

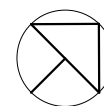
 MECHANICAL PLAN NOTES:

M13 INSTALL ALL SERVICEABLE ROOF MOUNTED EQUIPMENT AT A MINIMUM 10'-0" AWAY FROM ROOF EDGE UNLESS SPECIFIED OTHERWISE

M27 REFER TO PLUMBING PLANS FOR GAS AND CONDENSATE PIPE SIZING.



① MECHANICAL ROOF PLAN - LSN
3/16" = 1'-0"



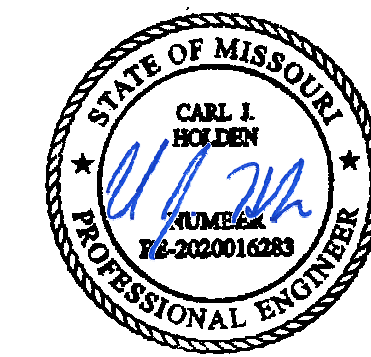
HENDERSON
ENGINEERS

8345 LENEXA DRIVE, SUITE 300
LENEXA, KS 66214
TEL 913.742.5000 FAX 913.742.5001
WWW.HENDERSONENGINEERS.COM
2150005255
MO. CORPORATE NO: E-556D
EXPIRES 12/31/2022

Issue Date: September 9, 2022

Revisions

NUMBER	DESCRIPTION	DATE
1	Addendum 01	09/16/2022



CARL J. HOLDEN 09/15/2022
LICENSE # PE-2020016283

**LSN - MECHANICAL
PLAN - ROOF**

M102-B

LSR7 Robotics, GiC &
Phys Education

LSN: 901 NE Douglas St., Lee's Summit MO
64086
LSW: 2600 SW Ward Rd, Lee's Summit MO
64082
LSHS: 400 SE Blue Pkwy, Lee's Summit MO 64063

owner:
Lee's Summit R-7 School
301 NE Tudor Road
Lee's Summit, MO 64086

architect:
Multistudio
301 NE Tudor Road
Lee's Summit, MO 64086
816.931.6655
multistudio

structural engineer:
Bob D. Campbell & Company, Inc.
4338 Bellevue
Kansas City, MO 64111
816.531.4144
www.bdc-engrs.com

MEP/Code:
Henderson Engineers
8345 Lenexa Drive, Suite
300
Lenexa, KS 66214
816.742.5000
www.hendersonengineers.com

0121-0100

owner:
Lee's Summit R-7 School
301 NE Tudor Road
Lee's Summit, MO 64086

architect:
Multistudio
301 NE Tudor Road
Lee's Summit, MO 64086
816.931.6655
multistudio

structural engineer:
Bob D. Campbell & Company, Inc.
4338 Bellevue
Kansas City, MO 64111
816.531.4144
www.bdc-engrs.com

MEP/Code:
Henderson Engineers
8345 Lenexa Drive, Suite
300
Lenexa, KS 66214
816.742.5000
www.hendersonengineers.com

0121-0100

owner:
Lee's Summit R-7 School
301 NE Tudor Road
Lee's Summit, MO 64086

architect:
Multistudio
301 NE Tudor Road
Lee's Summit, MO 64086
816.931.6655
multistudio

structural engineer:
Bob D. Campbell & Company, Inc.
4338 Bellevue
Kansas City, MO 64111
816.531.4144
www.bdc-engrs.com

MEP/Code:
Henderson Engineers
8345 Lenexa Drive, Suite
300
Lenexa, KS 66214
816.742.5000
www.hendersonengineers.com

0121-0100

owner:
Lee's Summit R-7 School
301 NE Tudor Road
Lee's Summit, MO 64086

architect:
Multistudio
301 NE Tudor Road
Lee's Summit, MO 64086
816.931.6655
multistudio

structural engineer:
Bob D. Campbell & Company, Inc.
4338 Bellevue
Kansas City, MO 64111
816.531.4144
www.bdc-engrs.com

MEP/Code:
Henderson Engineers
8345 Lenexa Drive, Suite
300
Lenexa, KS 66214
816.742.5000
www.hendersonengineers.com

0121-0100

MECHANICAL DETAILS
M201

18

17

16

15

14

13

12

11

10

9

8

7

6

5

4

3

2

1

P

N

M

L

K

J

H

G

F

E

D

C

B

A

P

N

M

L

K

J

H

G

F

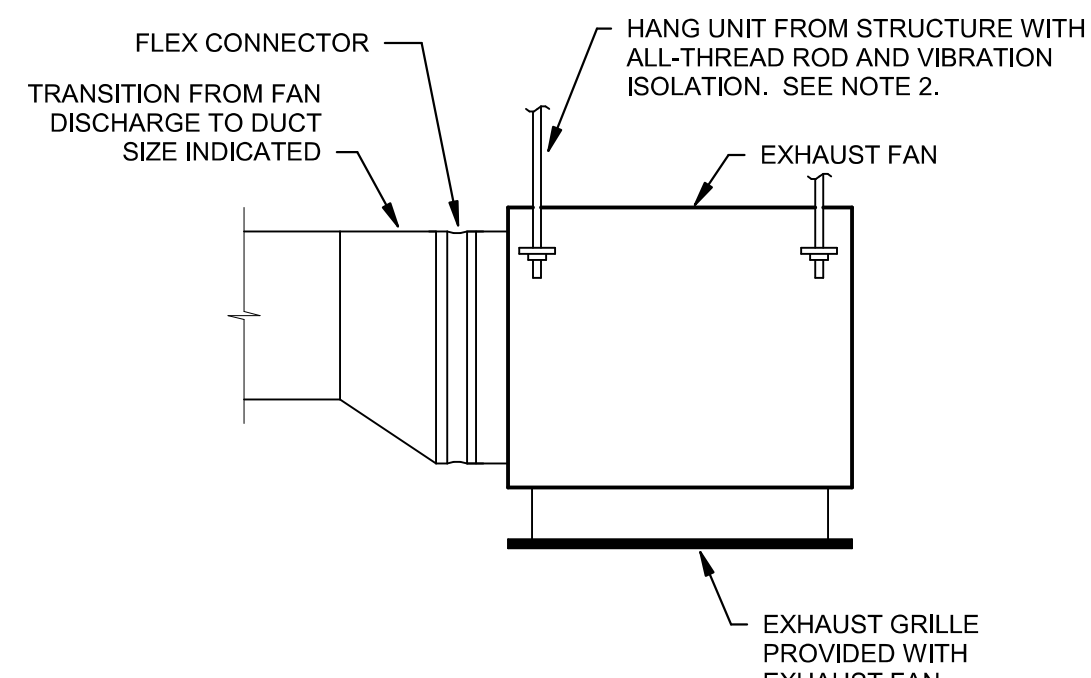
E

D

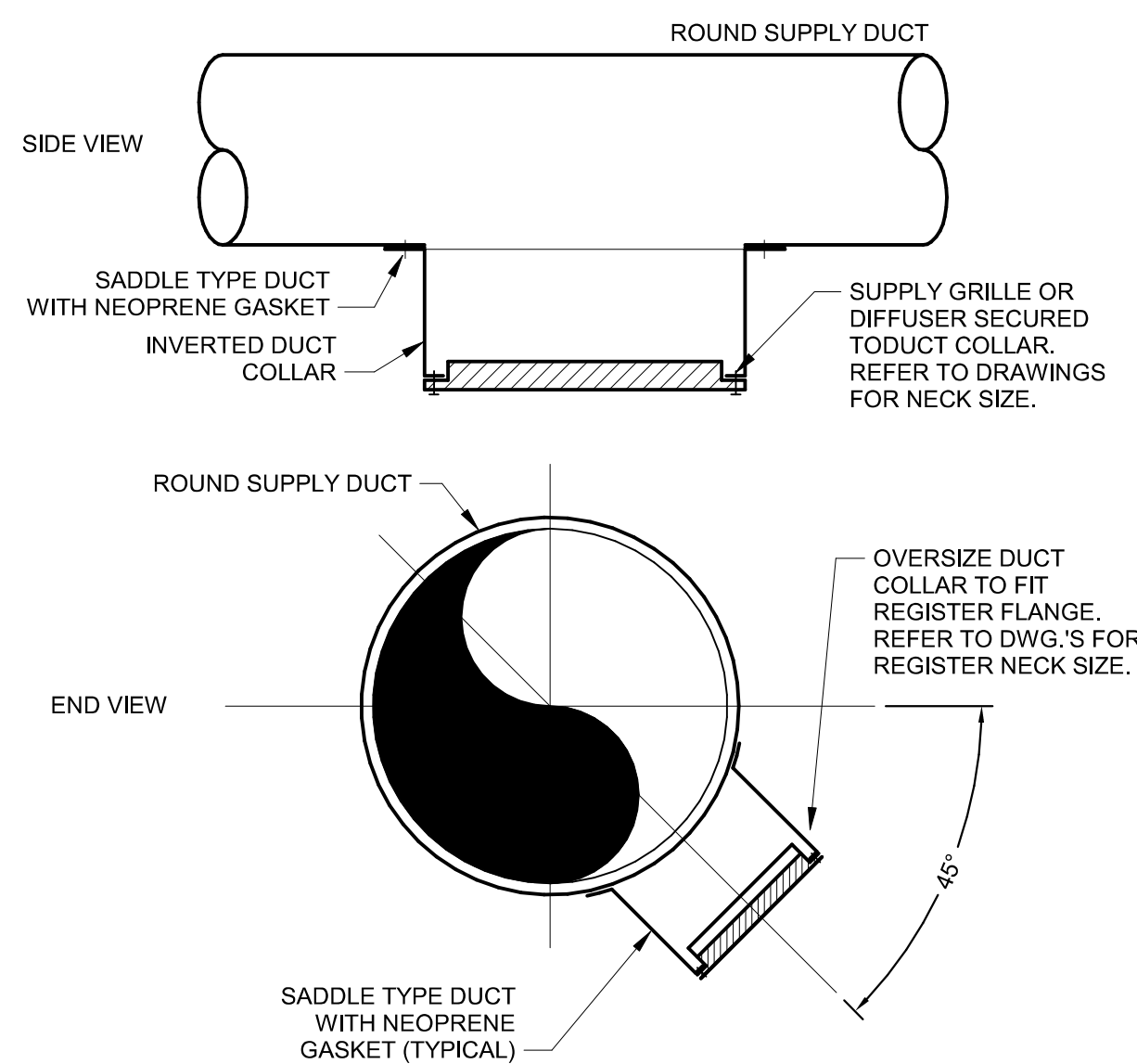
C

B

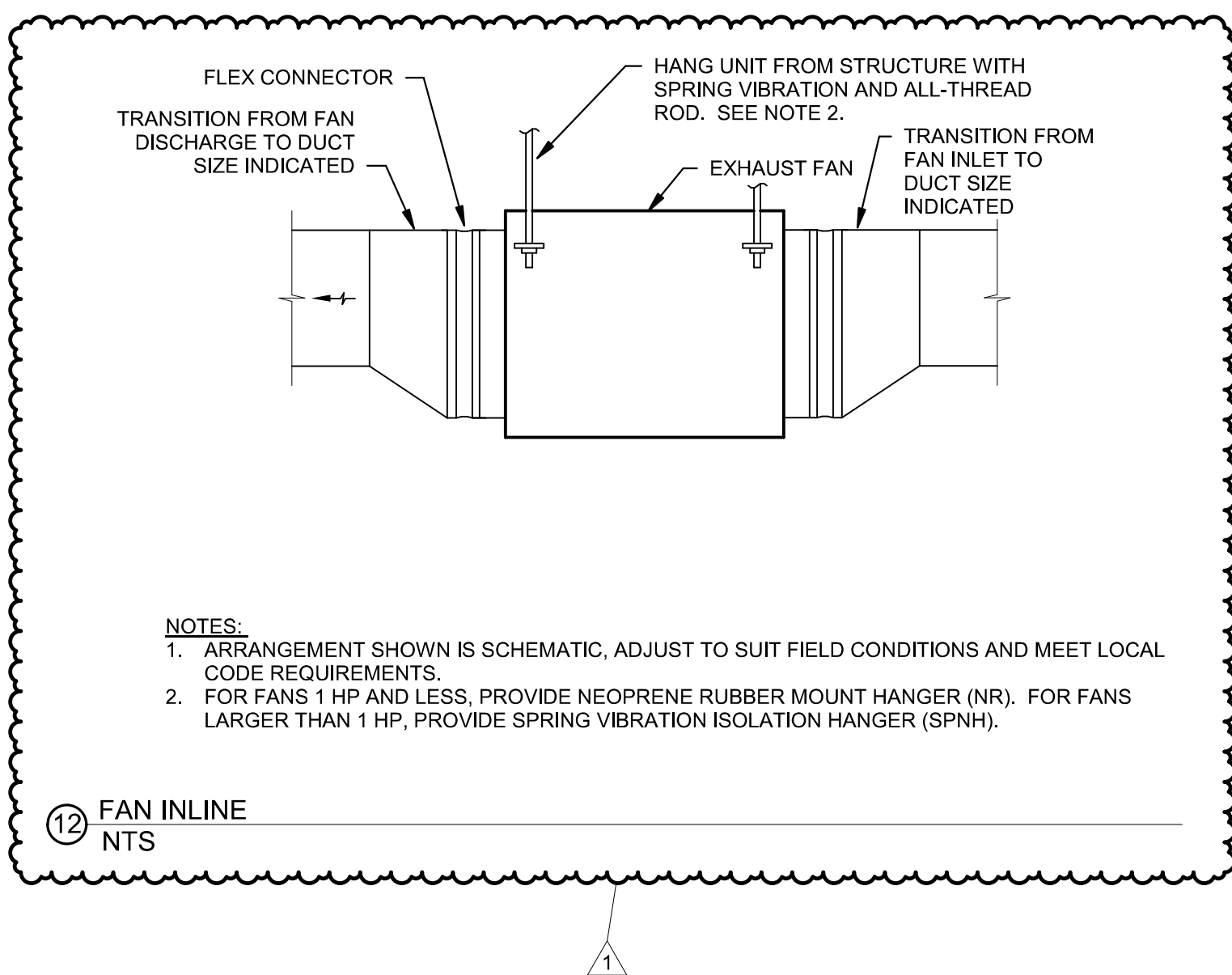
A



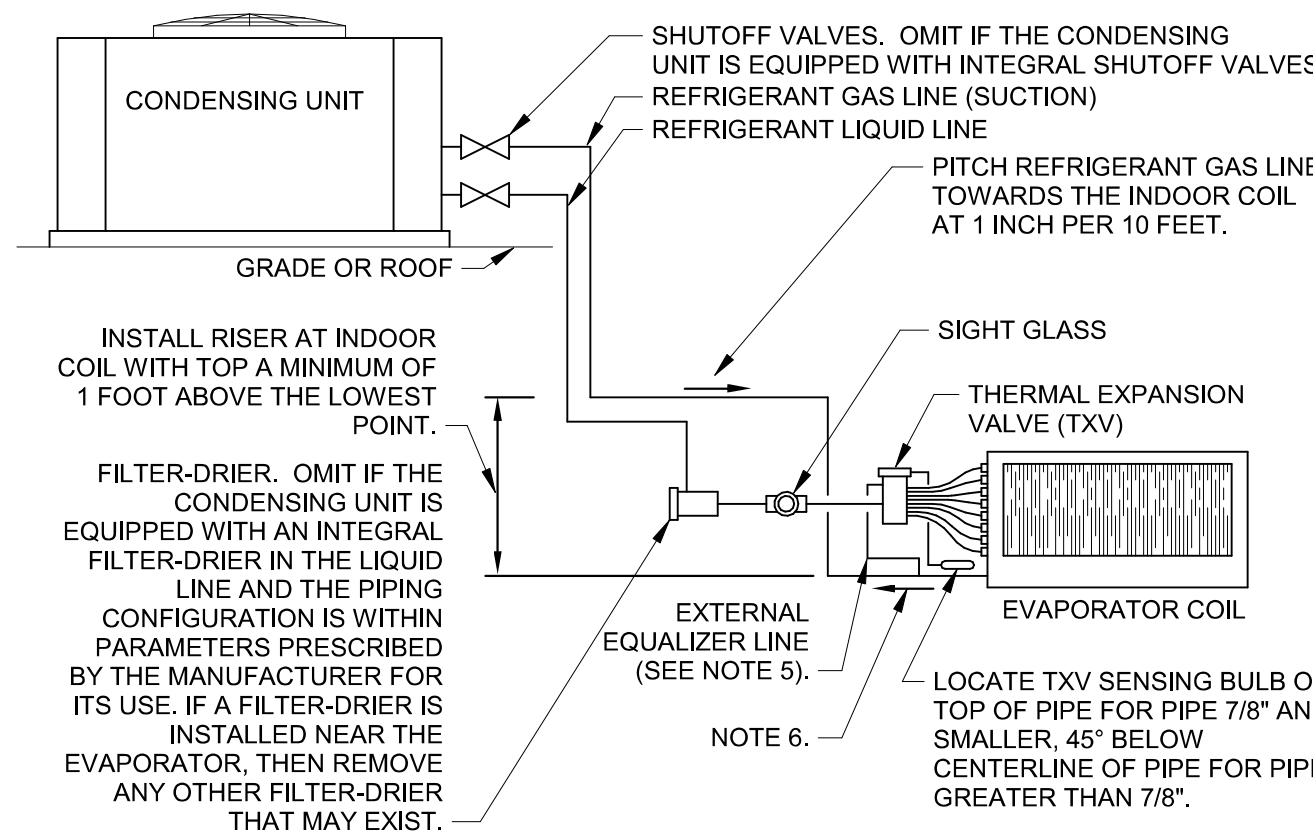
④ SUSPENDED EXHAUST FAN DETAIL
NTS



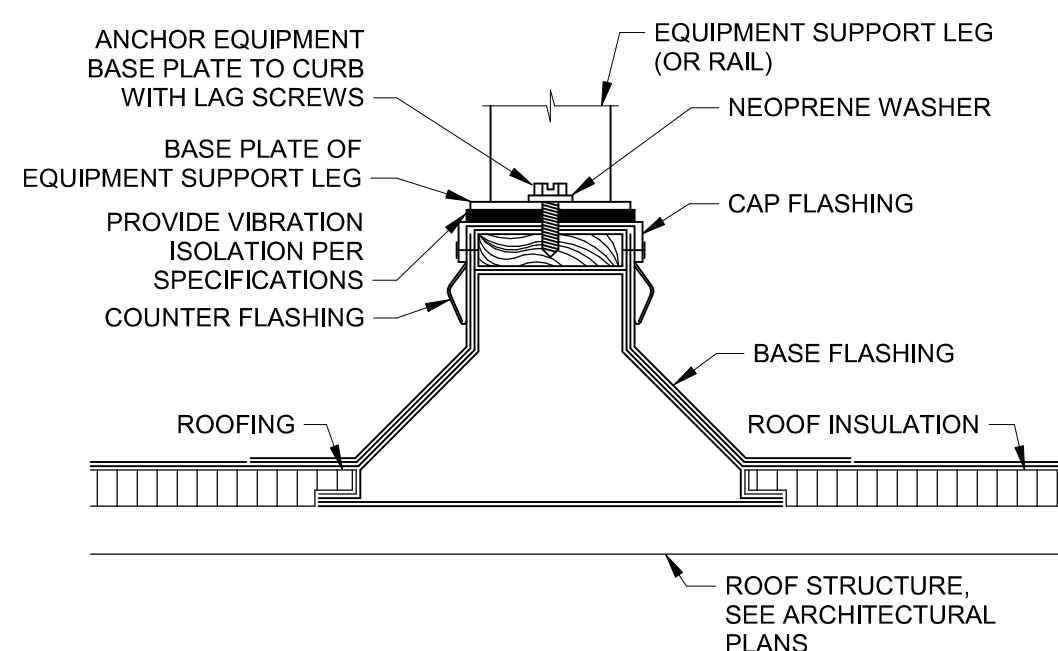
⑧ REGISTER MOUNTING TO ROUND DUCT DETAIL
NTS



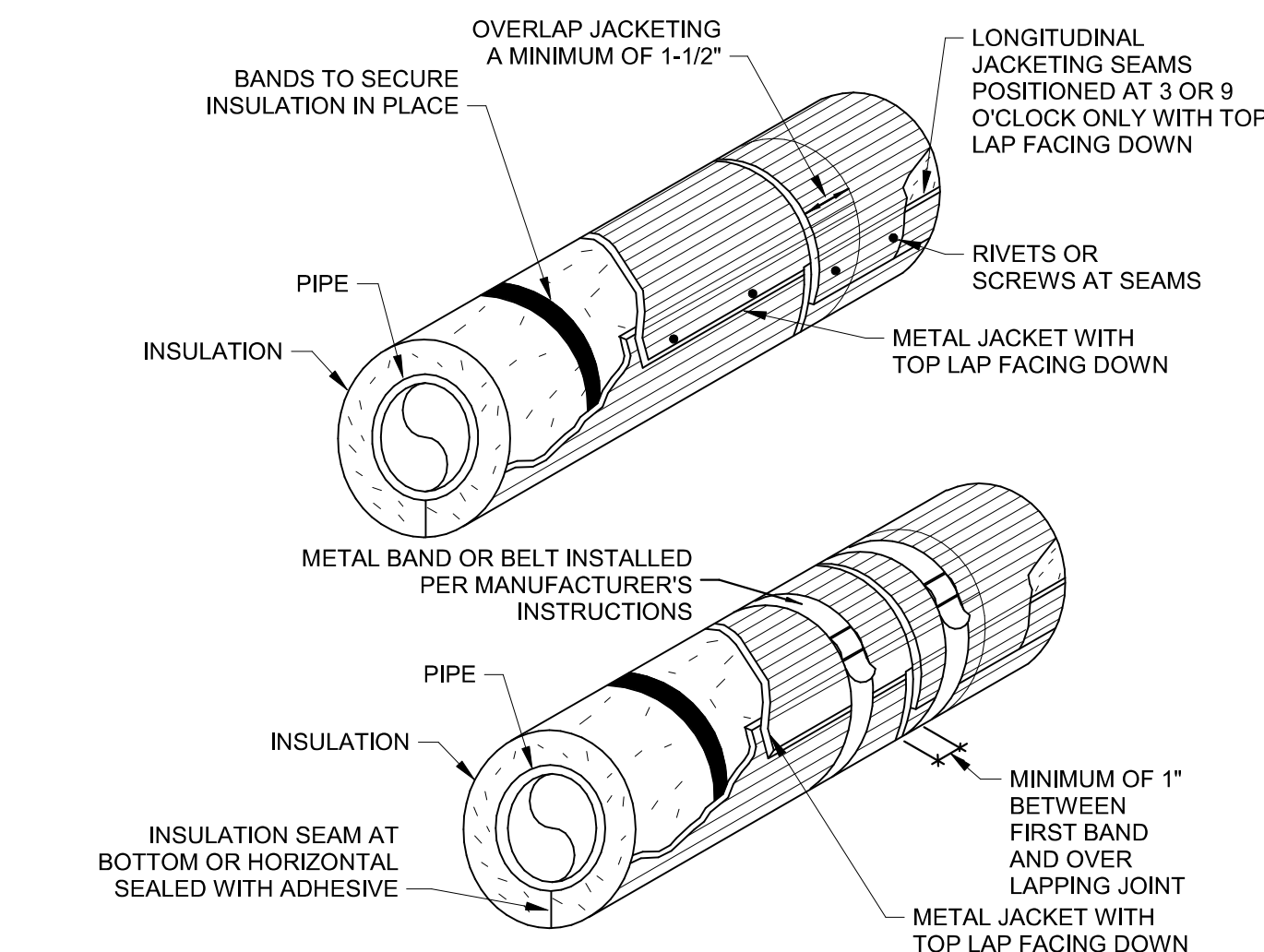
⑫ FAN INLINE
NTS



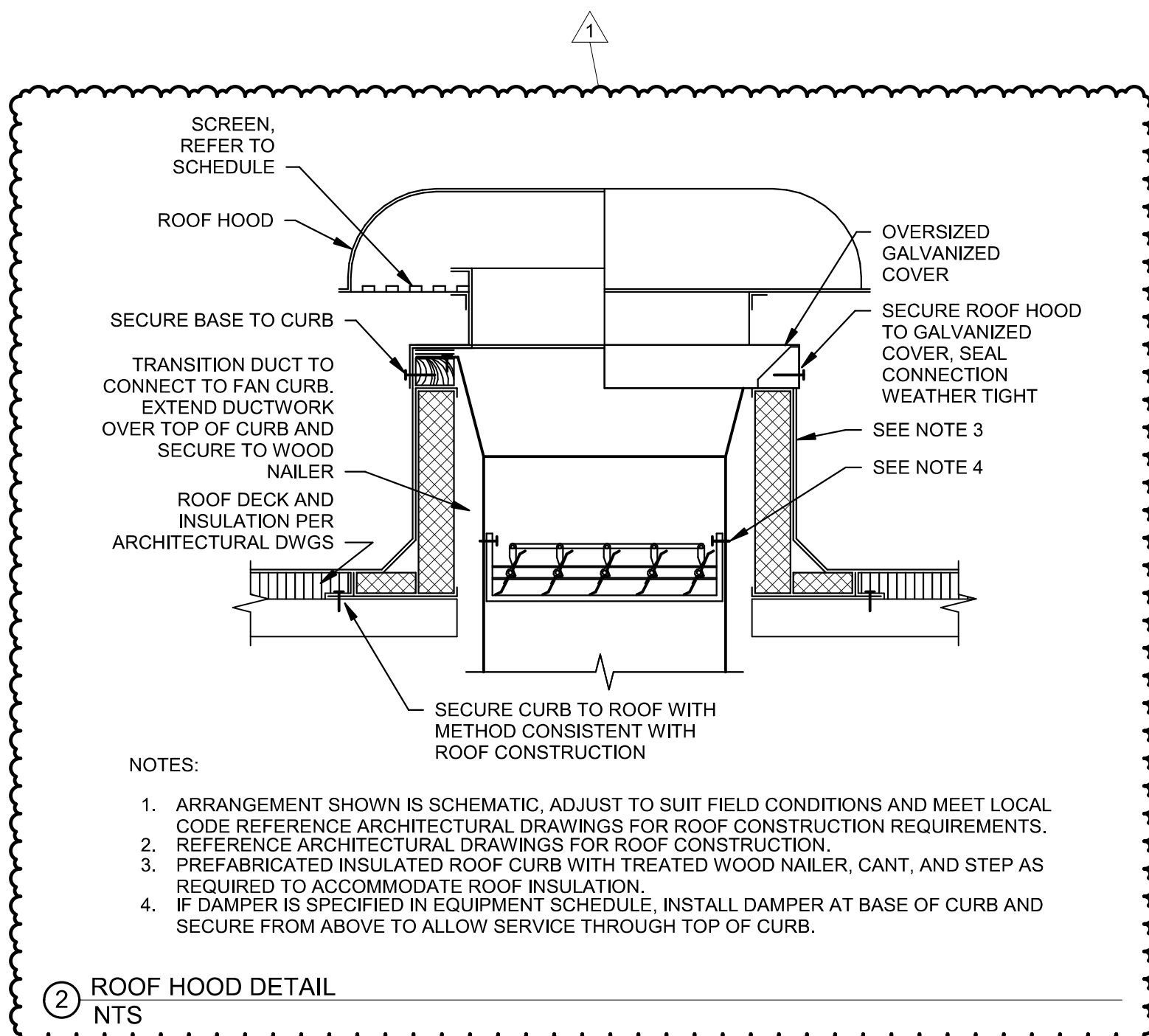
③ SPLIT SYSTEM PIPING DETAIL
NTS



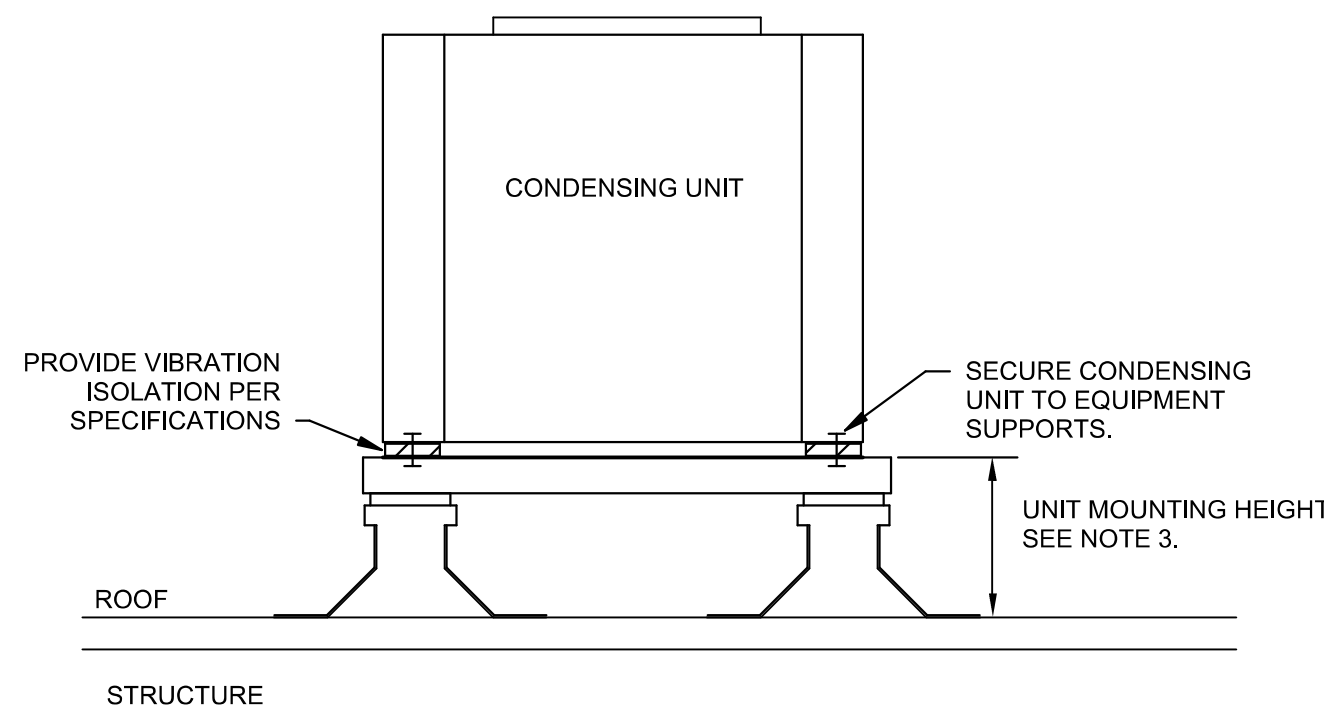
⑦ ROOF EQUIPMENT SUPPORT RAIL DETAIL
NTS



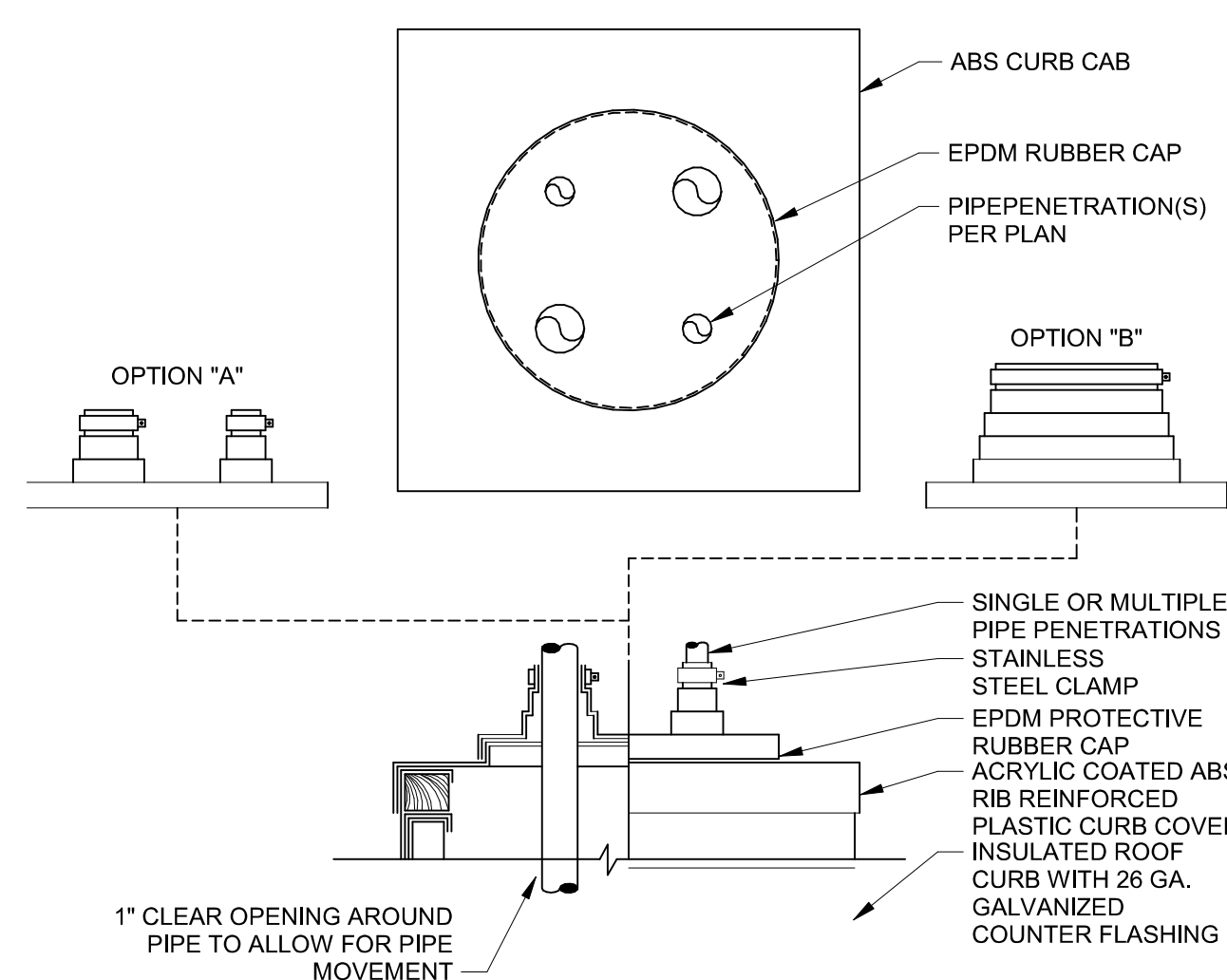
⑪ EXTERIOR PIPING WITH FIELD APPLIED METAL JACKET OVER INSULATION DETAIL
NTS



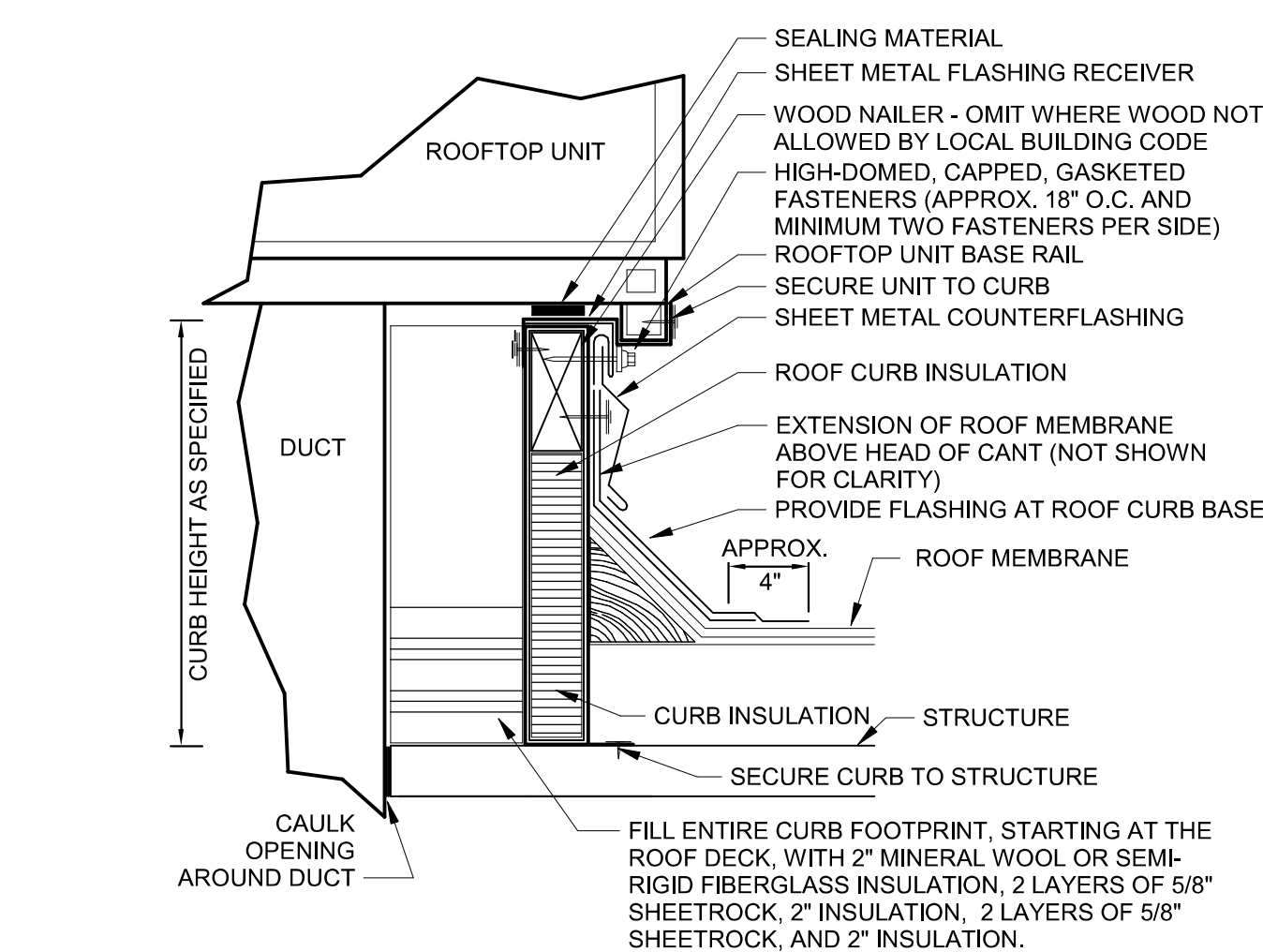
② ROOF HOOD DETAIL
NTS



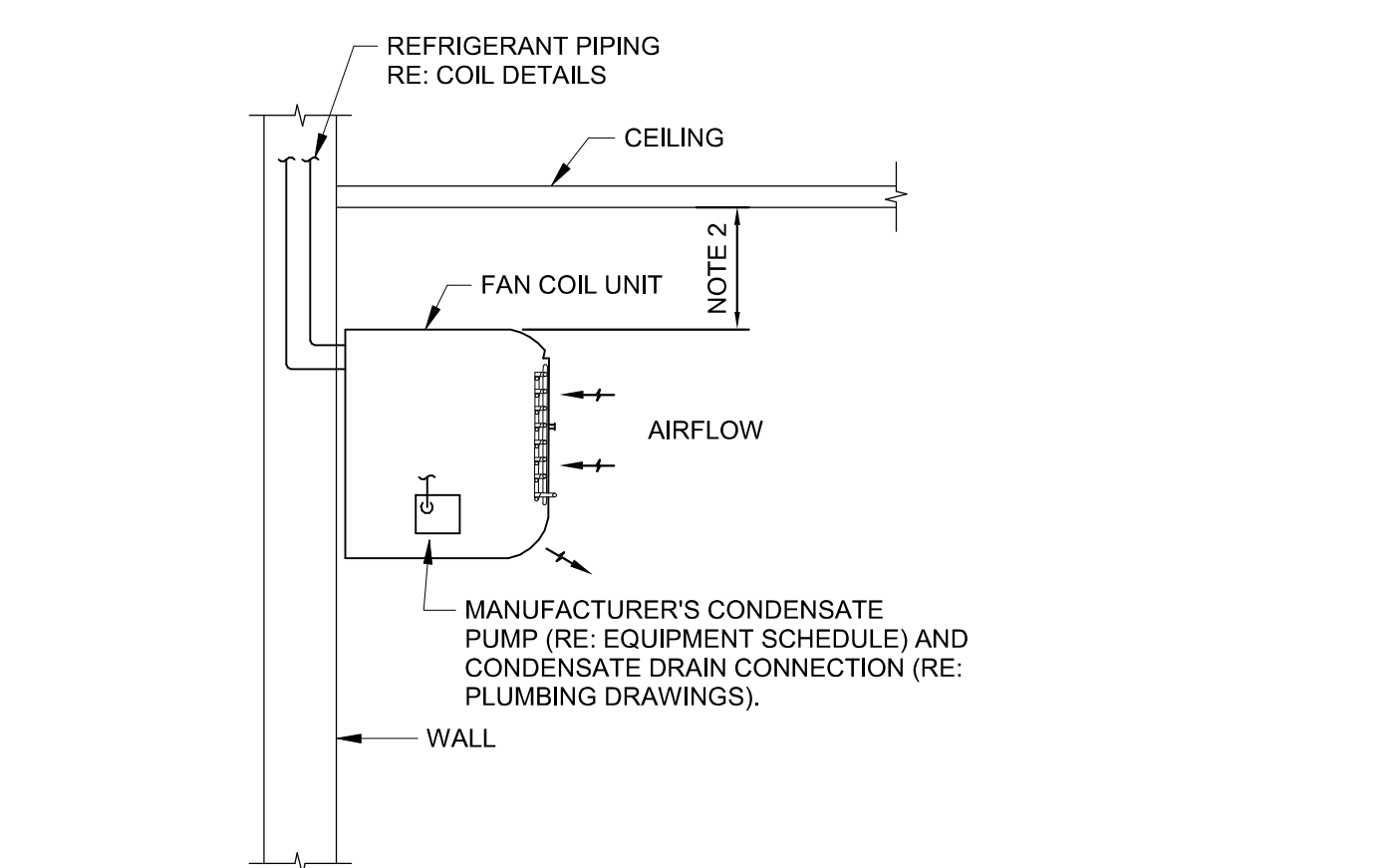
⑥ CONDENSING UNIT SUPPORT DETAIL
NTS



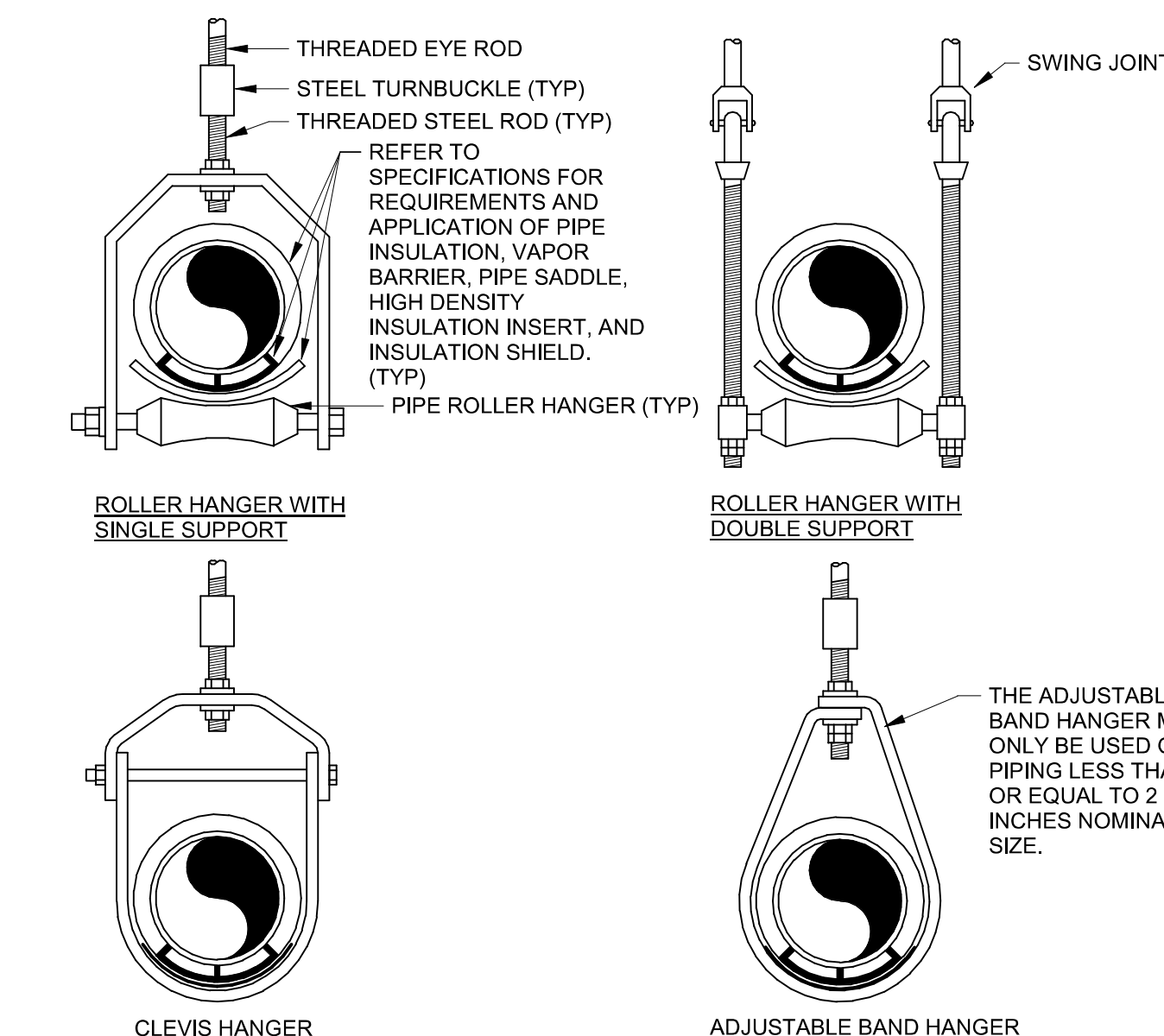
⑩ PIPE PORTAL ROOF PENETRATION DETAILS
NTS



① ROOF CURB DETAIL
NTS



⑤ VRF WALL-MOUNTED UNIT DETAIL
NTS



⑨ PIPE HANGERS DETAILS
NTS

LSR7 Robotics, GiC & Phys Education

LSN: 901 NE Douglas St., Lee's Summit MO 64086
LSW: 2600 SW Ward Rd, Lee's Summit MO 64082
LSHS: 400 SE Blue Pkwy, Lee's Summit MO 64063

0121-0100

owner:
Lee's Summit R-7 School
301 NE Tudor Road
Lee's Summit, MO 64086

architect:
Multistudio
4205 Pennsylvania
Kansas City, MO 64111
816.931.6655
multi-studio

civil engineer:
Kaw Valley Engineering
14700 West 114th Terrace
Lenexa, KS 66215
913.485.0318
kveeng.com

structural engineer:
Bob D. Campbell & Company, Inc.
4338 Bellevue
Kansas City, MO 64111
816.531.4144
www.bdc-engrs.com

MEP/IT/Code:
Henderson Engineers
8345 Lenexa Drive, Suite 300
Lenexa, KS 66214
816.742.5000
www.hendersonengineers.com

MECHANICAL SYMBOLS

NOTE: THIS IS A MASTER LEGEND AND NOT ALL SYMBOLS, ABBREVIATIONS, ETC. ARE NECESSARILY USED ON THE DRAWINGS.

CONTROLS SYMBOLS AND NOMENCLATURE

	FLUE DAMPER (BOILERS)		HOT GAS REHEAT COIL		RISER DESIGNATION		MOTORIZED DAMPER
	BOILER		COOLING COIL		FIRE DAMPER		BACKDRAFT DAMPER
	COOLING TOWER		FURNACE		FIRE SMOKE DAMPER		VOLUME DAMPER
	CONDENSING UNIT		HEATING COIL		SMOKE DAMPER		HUMIDISTAT
	FLUID COOLER		DAMPER - GENERIC BLADE TYPE		SMOKE DETECTOR		THERMOSTAT
	WATER-COOLED CHILLER		DAMPER - OPPOSED BLADE TYPE		SD (SD=Supply / RD=Return)		
	AIR-COOLED CHILLER		DAMPER - PARALLEL BLADE TYPE		BTU METER		PRESSURE SENSOR
	GENERIC HEAT EXCHANGER		FLEXIBLE SENSING ELEMENT		CARBON MONOXIDE SENSOR		POLLUTANT ALARM
	SHELL AND TUBE HEAT EXCHANGER		AIRFLOW STATION		CARBON DIOXIDE SENSOR		PULL STATION
	BASIN HEATER		PUMP		CONTROL PANEL		REFRIGERANT LEAK SENSOR
	HEAT RECOVERY WHEEL		FAN		CURRENT CIRCUIT RELAY		SENSOR - GENERIC
			HUMIDIFIER		DIFFERENTIAL PRESSURE SENSOR		STATIC PRESSURE PORT
			AIR FILTER		ELECTRIC METER		SWITCH
			3-WAY CONTROL VALVE		FLOW METER / FUEL METER		TEMPERATURE SENSOR
			2-WAY CONTROL VALVE		FLOW SWITCH		WATER METER
			AIR BYPASS DAMPER		HUMIDITY SENSOR		
			AIRFLOW MEASURING STATION				
			DIRECT EXPANSION COOLING UNIT CONTROLLER				
			FURNACE BURNER CONTROLLER				
			SILICON-CONTROLLED RECTIFIER ELECTRIC HEATER CONTROL (MODULATING)				
			ELECTRIC HEATER CONTROLLER (ON/OFF)				
			ELECTRONIC COMMUTATED MOTOR				
			VARIABLE FREQUENCY DRIVE				
			MOTOR STARTER				
			LOW LIMIT TEMPERATURE CONTROLLER (FREEZE/STAT)				
			EMERGENCY PUSH BUTTON				

-X	GENERIC INDICATOR OF PLAN MARK NUMBER OR QTY
<>	NOT EQUAL TO
AI	ANALOG INPUT (MODULATING)
AO	ANALOG OUTPUT (MODULATING)
AV	ANALOG VIRTUAL (VALUE)
BI	BINARY INPUT (ON/OFF, OPEN/CLOSED, ETC)
BO	BINARY OUTPUT (ON/OFF, OPEN/CLOSED, ETC)
BV	BINARY VIRTUAL (VALUE)
BAS	BUILDING AUTOMATION SYSTEM
CHWS	CHILLED WATER SUPPLY
CHWR	CHILLED WATER RETURN
CMD	COMMAND
COM	COMMUNICATION LINK
CP	CONTROL PANEL
CV	CONTROL VALVE
CWS	CONDENSER WATER SUPPLY
CWR	CONDENSER WATER RETURN
DCW	DOMESTIC COLD WATER
DDC	DIRECT DIGITAL CONTROL
E/C	ELECTRICAL CONTRACTOR
EOA	ECONOMIZER OUTSIDE AIR
EQ	EQUALIZER
EM	EQUIPMENT MANUFACTURER
FAC	FIRE ALARM CONTRACTOR
FIP	FAIL IN POSITION
G	NATURAL GAS
HWS	HEATING WATER SUPPLY
HWR	HEATING WATER RETURN
HPWS	HEAT PUMP WATER SUPPLY
HPWR	HEAT PUMP WATER RETURN
LPS	LOW PRESSURE STEAM SUPPLY
LPC	LOW PRESSURE STEAM CONDENSATE
M/C	MECHANICAL CONTRACTOR
MIN	MINIMUM MINUTES
MOA	MINIMUM OUTSIDE AIR
NC	NORMALLY CLOSED
NIA	NOT IN AUTO (IN HAND)
NO	NORMALLY OPEN
PID	PROPORTIONAL INTEGRAL DERIVATIVE
RA	RETURN AIR
REA	RELIEF/EXHAUST AIR
RH	RELATIVE HUMIDITY
SA	SUPPLY AIR
SCHE	AS SCHEDULED ON DRAWINGS
SPEC	SPECIFIED
SPT	SETPOINT
TBD	TO BE DETERMINED
TCC	TEMPERATURE CONTROLS CONTRACTOR
—/—	POWER WIRING
—/—	CONTROL WIRING
—/—	ETHERNET LAN WIRING
—/—	BAS COMMUNICATION WIRING

MISCELLANEOUS CONTROL POINTS - LSW/LSN

POINT ID	DESCRIPTION	POINT TYPE	DEFAULT SETPOINT	FAIL POSITION	STATUS ALARM	ALARM RANGE	NOTES
EXHAUST FANS (EF-XX)							
EF-C	EXHAUST FAN COMMAND (START/STOP)	BO					A
EA-AF	EXHAUST AIR FLOW QUANTITY	AI	CALC.				A,E
EF-BD	EXHAUST FAN BUILDING DIFFERENTIAL OFFSET	AV	100 CFM				A,B,E
SPLIT SYSTEM ROOM AC UNITS (CRU-XX)							
Z-T	ZONE TEMPERATURE	AI			X	Z-T < STPT-15 DEG F	A
Z-FLT	ZONE TEMPERATURE ALARM	AI					A, D
TRANSFER FAN (TF-XX)							
Z-T	ZONE TEMPERATURE	AI	80 F		X	Z-T > 90 DEG F	A
TF-C	TRANSFER FAN COMMAND (START/STOP)	BO					A
TF-ST	TRANSFER FAN COMMAND (START/STOP)	BI			X	TF-C-X=ON, TF-ST-X=OFF	A
DOMESTIC HOT WATER RECIRCULATING PUMP							
DHW-R-T	DOMESTIC HOT WATER RETURN TEMPERATURE	AI					
DHW-T	DOMESTIC HOT WATER SUPPLY TEMPERATURE	AI	110 DEG F		X	DHW-T > 115 DEG F	A, D
HWCP-C	HOT WATER RECIRCULATING PUMP COMMAND (START/STOP)	BO					
HWCP-ST	HOT WATER RECIRCULATING PUMP STATUS (CT)	BI			X	HWCP-C=ON, HWCP-ST=OFF	A, C
WATER HEATER MONITORING							
DHW-T	DOMESTIC HOT WATER SUPPLY TEMPERATURE	AI	110 DEG F		X	DHW-T-X > 115 DEG F	A, D

NOTES:
A. POINTS APPLY TO MULTIPLE UNITS. SEE CONTROL DIAGRAMS FOR NUMBER OF UNITS.
B. DETERMINE SETPOINT DURING TESTING AND BALANCING. COORDINATE WITH THE TEST AND BALANCE CONTRACTOR.
C. ALARM TO SIGNAL AFTER 30 SECOND TIME DELAY (ADJ.)
D. ALARM TO SIGNAL AFTER 10 MINUTE TIME DELAY (ADJ.)
E. POINT SHALL BE ADJUSTABLE

PROJECT DESIGN CONDITIONS - LSW/LSN

CLIMATE CONDITIONS										BUILDING OPERATING HOURS:													
WEATHER STATION:		LEE'S SUMMIT MUNICIPAL, MO								MONDAY - FRIDAY		TBD BY OWNER											
CLIMATE ZONE:		4A								SATURDAY		TBD BY OWNER											
HEATING (DB):		99.6%		4.7		°F								SUNDAY		TBD BY OWNER							
DESIGN HEATING CONDITIONS (DB):		0		°F				gr/lb				HOLIDAY		TBD BY OWNER									
HUMIDIFICATION (DPI/HR/MCDB):		99.6%		°F/				gr/lb		°F													
COOLING (DB/MCWB):		0.4%		96.4		°F/		74.7		°F/													
DESIGN COOLING CONDITIONS (DB/MCWB):		96.4		°F/		74.7		°F/		gr/lb													
DEHUMIDIFICATION (DPI/HR/MCDB):		0.4%		79.9		°F/		135.8		gr/lb		85.9		°F									

SPACE / UNIT DESCRIPTION		SET POINTS										SPACE OPERATING HOURS OCCUPIED / UNOCCUPIED			NOTES								
		COOLING / DE-HUMIDIFICATION				HEATING		HUMIDIFICATION		ZONE VENTILATION RESET													
		OCC		UNOCC		MAX		MIN		CONTROL		MAX		METHOD		PPM		M.F		SAT		SUN	
		°F		°F		RH %		RH %		°F		°F		RH %		RH %		CO2		400		900	
GIC		75		80		60%		NA		70		60		NA		NA		OCC		400		900	
ROBOTICS		75		80		60%		NA		70		60		NA		NA		OCC		400		900	

NOTES:

A. ZONE LEVEL VENTILATION RESET / DEMAND CONTROL VENTILATION (DCV) CONTROL METHOD: CARBON DIOXIDE SENSOR (CO2).

B. ZONE LEVEL SET POINT CONDITIONS SHALL BE AS SCHEDULED UNLESS OTHERWISE SCHEDULED OR NOTED ON THE DRAWINGS FOR ROOM SPECIFIC SPACE CONDITIONS.

C. ZONE LEVEL OCCUPANCY HOUR SCHEDULE SHALL BE PER BUILDING OPERATING HOURS UNLESS OTHERWISE SCHEDULED.

LSR7 Robotics, GiC & Phys Education

LSN: 901 NE Douglas St., Lee's Summit MO 64086
LSW: 2600 SW Ward Rd, Lee's Summit MO 64082
LSHS: 400 SE Blue Pkwy, Lee's Summit MO 64063

0121-0100

owner: Lee's Summit R-7 School
301 NE Tudor Road
Lee's Summit, MO 64086

architect: Multistudio
4209 Pennsylvania
Kansas City, MO 64111
816.591.6655
multi.studio

civil engineer: Kaw Valley Engineering
14700 West 114th Terrace
Lenexa, KS 66215
913.485.0318
kveeng.com

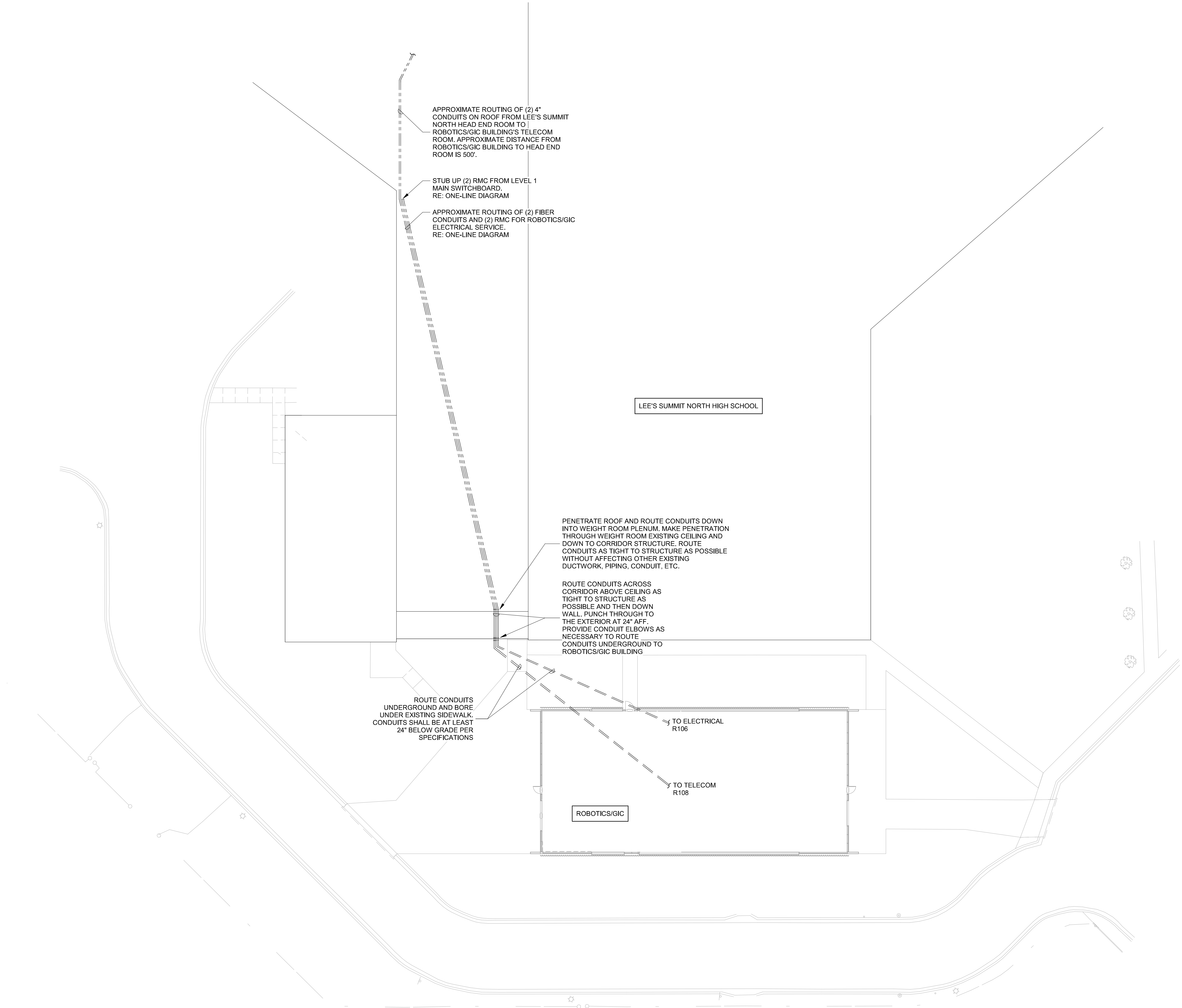
structural engineer: Bob D. Campbell & Company, Inc.
4338 Bellevue
Kansas City, MO 64111
816.531.4144
www.bdc-engrs.com

MEP/PT/Code: Henderson Engineers
8345 Lenexa Drive, Suite 300
Lenexa, KS 66214
816.742.5000
www.hendersonengineers.com

SITE ELECTRICAL GENERAL NOTES:

1. REFER TO CIVIL DRAWINGS AND SPECIFICATIONS FOR ADDITIONAL INFORMATION. COORDINATE THE FINAL LOCATION OF UNDERGROUND UTILITIES, CONDUITS, CIRCUITRY, TRANSFORMERS AND OTHER EQUIPMENT WITH CIVIL DRAWINGS, LANDSCAPING DRAWINGS AND OWNER PRIOR TO INSTALLATION.
2. SITE ELECTRICAL CONDUITS SHALL BE 1" MINIMUM, UNLESS NOTED OTHERWISE. WHERE PRACTICABLE, ALL SITE ELECTRICAL CONDUITS SHALL BE INSTALLED A MINIMUM OF 24" BELOW GRADE, UNLESS NOTED OTHERWISE. COORDINATE FINAL CONDUIT ROUTING WITH EXISTING OBSTRUCTIONS AND OTHER TRADES AND ADJUST AS NECESSARY.
3. MINIMUM WIRE SIZE FOR SITE ELECTRICAL CIRCUITS SHALL BE #10 AWG CU, UNLESS NOTED OTHERWISE. ALL SITE ELECTRICAL BRANCH CIRCUIT WIRING SHALL BE SIZED SUCH THAT THE MAXIMUM BRANCH CIRCUIT VOLTAGE DROP IS LESS THAN 3 PERCENT.
4. PROVIDE SPLICE AND PULL BOXES FOR SITE ELECTRICAL POWER TO LIMIT MAXIMUM CONDUIT RUN TO 300'. PLACE BOXES IN A PLANTER AREA CLEAR OF VEGETATION WHEREVER PRACTICABLE; (COORDINATE FINAL LOCATION WITH CIVIL, LANDSCAPE CONTRACTOR AND OWNER). BOXES SHALL BE SUITABLE FOR LOCATION AND PROPERLY SIZED FOR QUANTITY AND SIZE OF CONDUITS IN AND OUT AND SHALL BE MARKED "ELECTRICAL". NOT ALL OF THESE BOXES ARE SHOWN ON SITE ELECTRICAL DRAWINGS; CONTRACTOR SHALL PROVIDE LOCATION ON AS-BUILT DRAWINGS AND SUBMIT TO OWNER. SPLICE BOX SHALL BE APPROPRIATE FOR LOCATION AND SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS. SPLICE BOX SHALL HAVE A MINIMUM NOMINAL SIZE OF 12"x12"x12", SHALL BE AN OPEN BOTTOM NRTL LISTED UNDERGROUND ENCLOSURE, AND SHALL AT A MINIMUM BE TIER 15 TRAFFIC RATED.
5. PROVIDE SPLICE AND PULL BOXES FOR ROOFTOP CONDUIT ROUTING. PROVIDE MAXIMUM LENGTHS OF CONDUIT RUNS AND PULL BOXES PER NEC ARTICLE 314.
6. ALL CONDUIT ON ROOF SHALL BE MOUNTED AT A MINIMUM 7/8" ABOVE ROOFTOP.

EXTEND EXISTING LIGHTNING PROTECTION SYSTEM FOR MAIN HIGH SCHOOL TO NEW STRUCTURE.

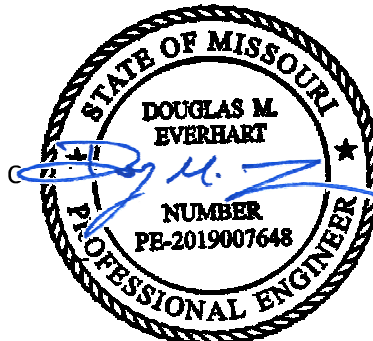


1 ELECTRICAL SITE PLAN - LSN
1" = 20'-0"

HENDERSON
ENGINEERS
8345 LENEXA DRIVE, SUITE 300
LENEXA, KS 66214
TEL 913.742.5000 FAX 913.742.5001
WWW.HENDERSONENGINEERS.COM
2150005255
MO. CORPORATE NO. E-858D
EXPIRES 12/31/2022

Issue Date: September 9, 2022

Revisions		
NUMBER	DESCRIPTION	DATE

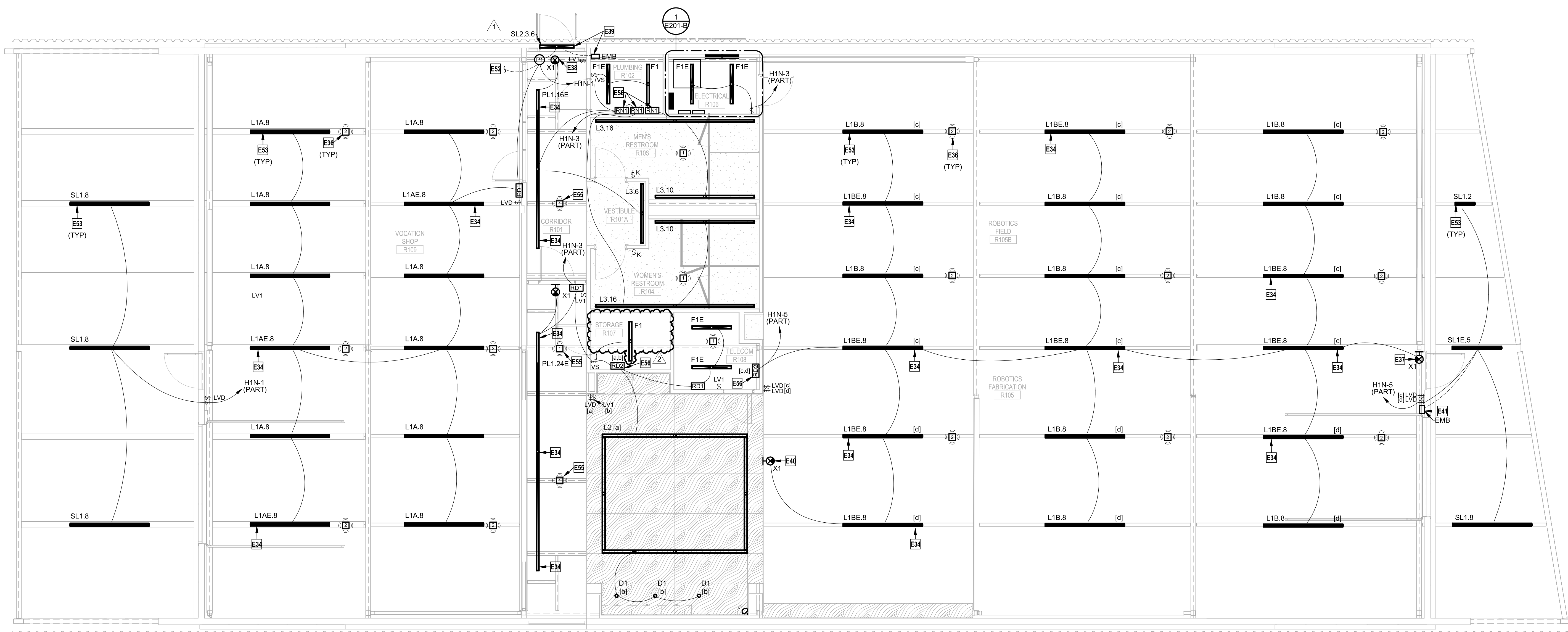


09/09/2022
DOUGLAS M. EVERHART
LICENSE # PE-2019007648

LSN - ELECTRICAL SITE
PLAN
E100-B

LSN: 901 NE Douglas St., Lee's Summit MO 64086
LSW: 2600 SW Ward Rd, Lee's Summit MO 64082
LSHS: 400 SE Blue Pkwy, Lee's Summit MO 64063

owner:	architect:
Lee's Summit R-7 School	MultiStudio
301 N Tudor Road	4200 Pennsylvania
Lee's Summit, MO 64086	Kansas City, MO 64111
	816.931.6655
	multi.studio
civil engineer:	structural engineer:
Kay Valley Engineering	Bob O. Campbell & Company, Inc.
14700 West 114th Terrace	4338 Belleview
Lenexa, KS 66215	Kansas City, MO 64111
913.485.0318	816.531.4144
kveeng.com	www.bobc-engrs.com
MEP/ET/Code:	
Henderson Engineers	
8345 Lenexa Drive, Suite	
300	
Lenexa, KS 66214	
816.742.5000	
www.hendersonengineers.com	

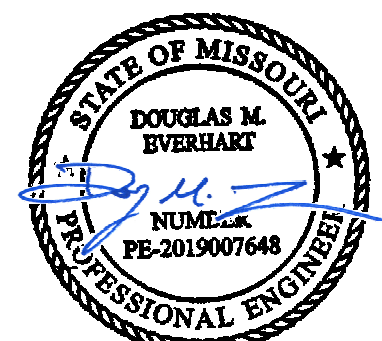


① LIGHTING LEVEL 1 RCP - LSN
3/16" = 1'-0"

HENDERSON
ENGINEERS
8345 LENEXA DRIVE, SUITE 300
LENEXA, KS 66214
TEL 913.742.5000 FAX 913.742.5001
WWW.HENDERSONENGINEERS.COM
2150005255
MO. CORPORATE NO: E-556D
EXPIRES 12/31/2022

Issue Date: September 9, 2022

Revisions		
NUMBER	DESCRIPTION	DATE
1	Addendum 01	09/16/2022
2	Addendum 02	09/23/2022



09/23/2022
DOUGLAS M. EVERHART
LICENSE # PE-2019007648

LSN - LIGHTING RCP

E101-B

LSN: 901 NE Douglas St., Lee's Summit MO 64086
LSW: 2600 SW Ward Rd, Lee's Summit MO 64082
LSHS: 400 SE Blue Pkwy, Lee's Summit MO 64063

owner:
Lee's Summit R-7 School
301 N Tudor Road
Lee's Summit, MO 64086

architect:
Multistudio
4200 Pennsylvania
Kansas City, MO 64111
816.931.6655
multistudio.com

civil engineer:
Kaw Valley Engineering
14700 West 114th Terrace
Lenexa, KS 66215
913.485-0318
lveng.com

structural engineer:
Bob D. Campbell & Company, Inc.
4338 Bellevue
Kansas City, MO 64111
816.531.4144
www.bdc-engrs.com

MEPT/Code:
Henderson Engineers
8345 Lenexa Drive, Suite
300
Lenexa, KS 66214
816.742.5000
www.hendersonengineers.com

ROBOTICS EQUIPMENT SCHEDULE					
TAG	EQUIPMENT DESCRIPTION	VOLTAGE	PHASE	RECEPTACLE TYPE	
1B	BRIDGEPORT 3-AXIS CNC	208 V	3	15-20R	
2B	BRIDGEPORT TORO CUT 22	208 V	3	15-50R	
3B-1	BIRMINGHAM YCL-1340H LATHE (MAIN)	208 V	1	6-30R	
3B-2	BIRMINGHAM YCL-1340H LATHE (CONTROL)	120 V	1	5-20R	
4B	WEN 39/57 HORIZONTAL METAL BANDSAW	120 V	1	5-20R	
5B	CRAFTSMAN VERTICAL METAL BANDSAW	120 V	1	RE PLAN NOTE	
6B	CENTRAL MACHINERY METAL CUTTING BANDSAW	120 V	1	5-20R	
7B	GRIZZLY G7947 DRILL PRESS	120 V	1	5-20R	
8B	OPEN CANTILE	208 V	3	HARDWIRED	
9B/12B	BALDOR BUFFER	120 V	1	RE PLAN NOTE	
	BALDOR OIL SANDER	120 V	1	RE PLAN NOTE	
10B/17B	BALDOR OIL SANDER	120 V	1	RE PLAN NOTE	
	RYOBI BENCH GRINDER	120 V	1	5-20R	
11B	GRIZZLY TUBSTER METAL SAW	208 V	1	5-20R	
13B	CRIFTSMAN COLLECTOR	120 V	1	5-20R	
16B	KARDEX STORAGE SYSTEM	120 V	1	5-20R	
18B-1	TIG WELDER (MAIN)	208 V	1	5-30R	
18B-2	TIG WELDER (MISC)	120 V	1	5-20R	

E0016 PROVIDE (2) DUAL CHANNEL ALUMINUM RACEWAYS, LEXGRAND AL4800 SERIES WITH RECEPTABLES AND DATA PLATES. COORDINATE WITH ELECTRICAL DRAWINGS AND 5' AFF. REFER TO ARCHITECTURAL ELEVATIONS FOR ADDITIONAL INFORMATION.

E010 PROVIDE RECEPTACLE FOR SIGNAL SYSTEM. COORDINATE WITH ELECTRICAL DRAWINGS AND ARCHITECTURAL DRAWINGS PRIOR TO ROUGH-IN.

E011 PROVIDE KH INDUSTRIES RTBBSL-WDD520-112F RETRACTABLE COIL REEL WITH APPROXIMATE EQUIVALENT, 25' COIL LENGTH WITH #12/3 WIRES RATED FOR 20A AT 120V. (2) DUPLICATE RECEPTABLES. NEMA 2 ENCLOSURE. SLOW DOWN 12-20 AMP ADJUSTABLE BALL STOP. 6" FEEDER COIL. ADJUSTABLE RATCHED AND BALL STOP. 6" FEEDER COIL.

E012 PROVIDE KH INDUSTRIES RTAN3LW-APC150-112F RETRACTABLE COIL REEL OR APPROXIMATE EQUIVALENT, 25' COIL LENGTH WITH #12/3 WIRES RATED FOR 20A AT 120V. (1) TWISTLOCK 15-20R RECEPTACLE. NEMA 2 ENCLOSURE. SLOW BLACK COIL. 4-POSITION ADJUSTABLE ARM WITH (4) 15-20 AMP ADJUSTABLE BALL STOP. 6" FEEDER COIL. WHITE FINISH.

E014 RECESS 15-20R TWISTLOCK RECEPTACLE IN WOOD CEILING

E015 PROVIDE GFCI FEED-THRU DEVICE ABOVE COUNTER AND UNDER COUNTER TO INSTALL.

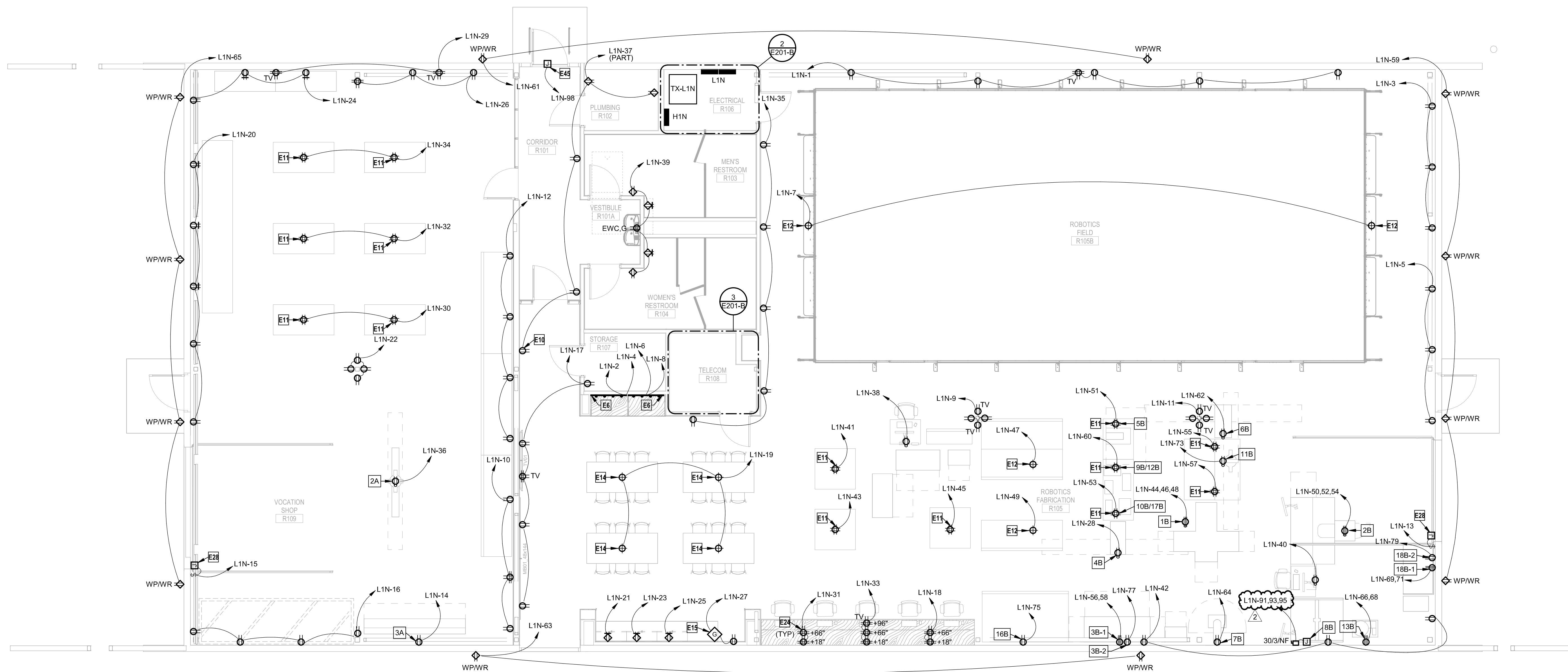
E022 PROVIDE POWER CONNECTION TO ACCESS CONTROL PANEL.

E023 MOUNTED RECEPTACLE TO LADDER RACK AT 7'-0" AFF. COORDINATE FINAL LOCATION AND ROUTING WITH OWNER PRIOR TO ROUGH-IN.

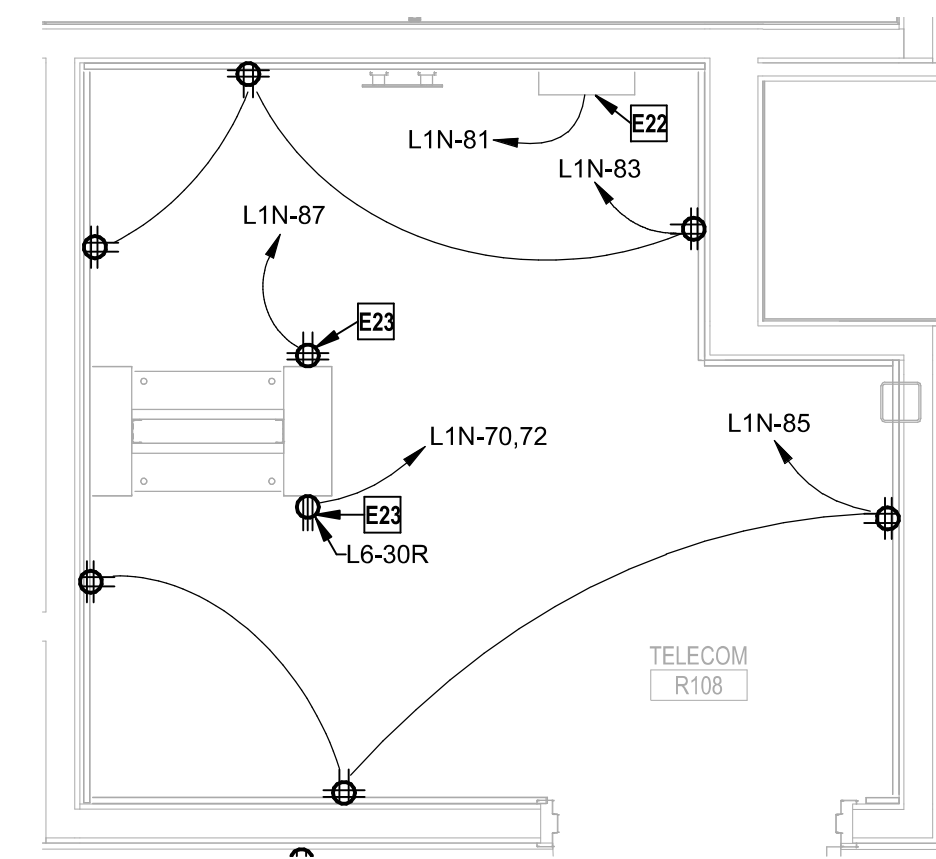
E024 REFER TO ARCHITECTURAL ELEVATIONS FOR RECEPTACLE MOUNTING HEIGHTS AT STATIONATIONS.

E025 PROVIDE 120V/240V LINE TO TRANSFORMER CONNECTION TO MOTORIZED OVERHEAD RATCH STOP. COORDINATE ROUGH-IN AND CONTROL LOGIC CONNECTIONS WITH APPROVED SUPPLIER PRIOR TO INSTALL.

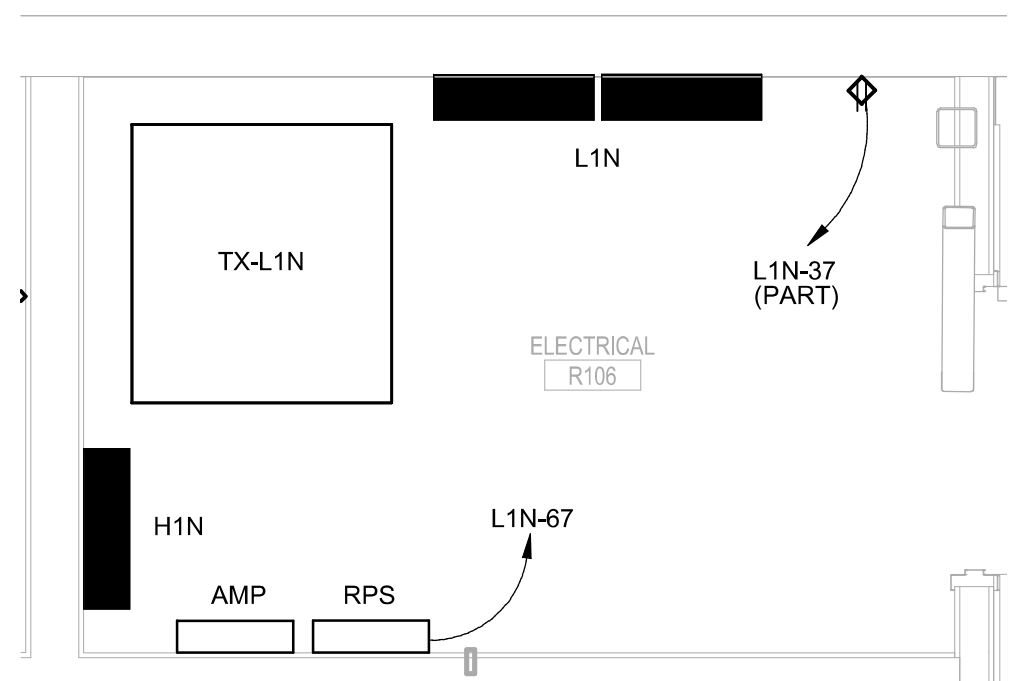
E045 PROVIDE LINE VOLTAGE CONNECTION TO ADD DOOR OPERATOR WITH LOW VOLTAGE WIRING TO PUSH BUTTON(S). COORDINATE WIRING CONFIGURATION WITH APPROVED MANUFACTURER PRIOR TO INSTALL.



① POWER LEVEL 1 PLAN - LSN
3/16" = 1'-0"



③ POWER LEVEL 1 PLAN - LSN - TELECOM ROOM
1/2" = 1'-0"

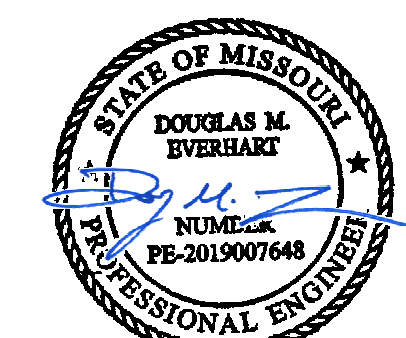


② POWER LEVEL 1 PLAN - LSN - ELEC ROOM
1/2" = 1'-0"

Issue Date: September 9, 2022

Revisions

NUMBER	DESCRIPTION	DATE
2	Addendum 02	09/23/2022



09/23/2022
DOUGLAS M. EVERHART
LICENSE # PE-2019007648

LSN - POWER PLAN

E201-B

LSR7 Robotics, GiC &
Phys Education

LSN: 901 NE Douglas St., Lee's Summit MO
64086
LSW: 2600 SW Ward Rd, Lee's Summit MO
64082
LSHS: 400 SE Blue Pkwy, Lee's Summit MO 64063

0121-0100

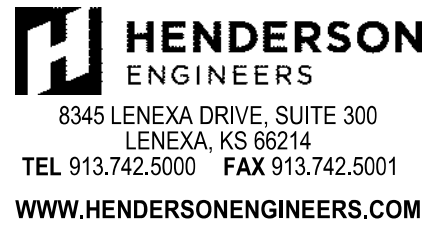
owner:
Lee's Summit R-7 School
301 NE Tudor Road
Lee's Summit, MO 64086

architect:
Multistudio
4209 Pennsylvania
Kansas City, MO 64111
816.931.6655
multi.studio

civil engineer:
Kaw Valley Engineering
14700 West 114th Terrace
Lenexa, KS 66215
913.485.0318
kveg.com

structural engineer:
Bob D. Campbell & Company, Inc.
4338 Bellevue
Kansas City, MO 64111
816.531.4144
www.bdc-engrs.com

MEP/IT/Code:
Henderson Engineers
8345 Lenexa Drive, Suite
300
Lenexa, KS 66214
816.742.5000
www.hendersonengineers.com

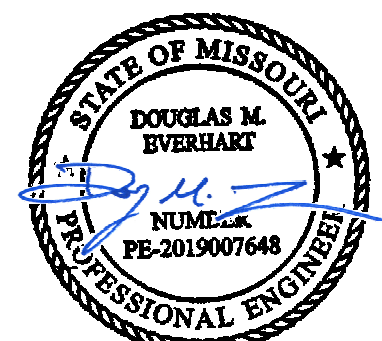


8345 LENEKA DRIVE, SUITE 300
LENEKA, KS 66214
TEL 913.742.5000 FAX 913.742.5001
WWW.HENDERSONENGINEERS.COM

2150005255
MO. CORPORATE NO. E-658D
EXPIRES 12/31/2022

Issue Date: September 9, 2022

Revisions		
NUMBER	DESCRIPTION	DATE
1	Addendum 01	09/16/2022
2	Addendum 02	09/19/2022



09/23/2022
DOUGLAS M. EVERHART
LICENSE # PE-2019007648

LSN - EQUIPMENT
CONNECTION PLAN
E301-B

NO EXPOSED CONDUITS SHALL PENETRATE FINISHED
PLYWOOD ON WALLS. ALL CONDUITS SHALL ROUTE ABOVE
PLYWOOD WHEN PENETRATING WALLS. REFER TO
ARCHITECTURAL SHEETS FOR EXACT HEIGHTS OF FINISHED
PLYWOOD.

ELECTRICAL PLAN NOTES:

- E44 PROVIDE CONNECTION TO BAS PANEL. COORDINATE FINAL
LOCATION WITH MECHANICAL CONTRACTOR PRIOR TO
ROUGH-IN.
- E63 PROVIDE PLUG AND CORD CONNECTION FOR AC1. REFER
TO PLUMBING PLANS FOR ADDITIONAL INFORMATION.
COORDINATE FINAL REQUIREMENTS WITH DIVISION 22
PRIOR TO ROUGH-IN.
- E64 PROVIDE HARDWIRE CONNECTION FOR RAD1. REFER TO
PLUMBING PLANS FOR ADDITIONAL INFORMATION.
COORDINATE FINAL REQUIREMENTS AND CONTROLS WITH
DIVISION 22 PRIOR TO ROUGH-IN.

**EQUIPMENT
CONNECTION SCHEDULE**

MARK	PANEL	CIRCUIT	NOTES
AIR COMPRESSOR	AC	L1N 16.90.82	B
Electric Storage Water Heater	H1N	14	B
FAN	TF 1N	94	A
Recirculation Pump	RP1	L1N 88	D
VRF INDOOR	CRU 1N	L1N 74.76	C

EQUIPMENT CONNECTION GENERAL NOTES:

- COORDINATE FINAL LOCATIONS WITH MECHANICAL
CONTRACTOR PRIOR TO ROUGH-IN.
- REFER TO MECHANICAL SCHEDULES FOR ADDITIONAL
INFORMATION WITHIN SCOPE OF DIVISION 26.
- COORDINATE WITH MECHANICAL CONTRACTOR TO
PROVIDE FINAL POWER REQUIREMENTS FOR ALL
SUBMITTED EQUIPMENT THAT DIFFERS FROM BASIS-OF-
DESIGN.

EQUIPMENT CONNECTION SCHEDULE NOTES:

- A. DISCONNECTING MEANS (FRACTIONAL HP SWITCH, FUSED
DISCONNECT SWITCH, ETC.) AND/OR CONTROLLER
(STARTER, VFD, ETC.) IS FACTORY MOUNTED OR
PROVIDED BY DIVISION 23.
- B. PROVIDE FUSED/NON-FUSED DISCONNECT SWITCH SIZED
PER EQUIPMENT MANUFACTURER'S SPECIFICATIONS AND
THE NEC. REFER TO ELECTRICAL SYMBOLS LEGEND FOR
NAMING DESIGNATIONS.
- C. PROVIDE POWER AND CONTROL WIRING FROM
ASSOCIATED CONDENSING UNIT PER MANUFACTURER'S
INSTALLATION INSTRUCTIONS. PROVIDE FRACTIONAL HP
SWITCH TO ACT AS DISCONNECTING MEANS.
- D. PROVIDE FRACTIONAL HP SWITCH SIZED PER EQUIPMENT
MANUFACTURER'S SPECIFICATIONS AND THE NEC.

1 EQUIPMENT CONNECTION LEVEL 1 PLAN - LSN
3/16" = 1'-0"

LSR7 Robotics, GiC &
Phys Education

LSN: 901 NE Douglas St., Lee's Summit MO
64086
LSW: 2600 SW Ward Rd, Lee's Summit MO
64082
LSHS: 400 SE Blue Pkwy, Lee's Summit MO 64063

owner: Lee's Summit R-7 School
301 NE Tudor Road
Lee's Summit, MO 64086

architect: Multistudio
4209 Pennsylvania
Kansas City, MO 64111
816.931.6655
mstudio

civil engineer: Kaw Valley Engineering
14700 West 114th Terrace
Lenexa, KS 66215
913.485.0318
kvang.com

structural engineer: Bob D. Campbell & Company, Inc.
4338 Bellevue
Kansas City, MO 64111
816.531.4144
www.bdc-engrs.com

MEP/T/Code: Henderson Engineers
8345 Lenexa Drive, Suite
300
Lenexa, KS 66214
816.742.5000
www.hendersonengineers.com



8345 LENEKA DRIVE, SUITE 300
LENEKA, KS 66214
TEL 913.742.5000 FAX 913.742.5001
WWW.HENDERSONENGINEERS.COM
2150005255
MO. CORPORATE NO. E-658D
EXPIRES 12/31/2022

Issue Date: September 9, 2022

NUMBER	DESCRIPTION	DATE
1	Addendum 01	09/16/2022



09/15/2022
DOUGLAS M. EVERHART
LICENSE # PE-2019007648

LSN - ELECTRICAL ROOF
PLAN

E302-B

ELECTRICAL PLAN NOTES:

E51 PROVIDE PHOTOELECTRIC SWITCH ON ROOFTOP AND ORIENT NORTH PER MANUFACTURER'S INSTALLATION INSTRUCTIONS. SWITCH IS POWERED VIA LOW-VOLTAGE CONNECTION TO POWER PACK ON FIRST FLOOR. REFER TO LIGHTING CONTROL DEVICE SCHEDULE FOR ADDITIONAL INFORMATION.

EQUIPMENT
CONNECTION SCHEDULE

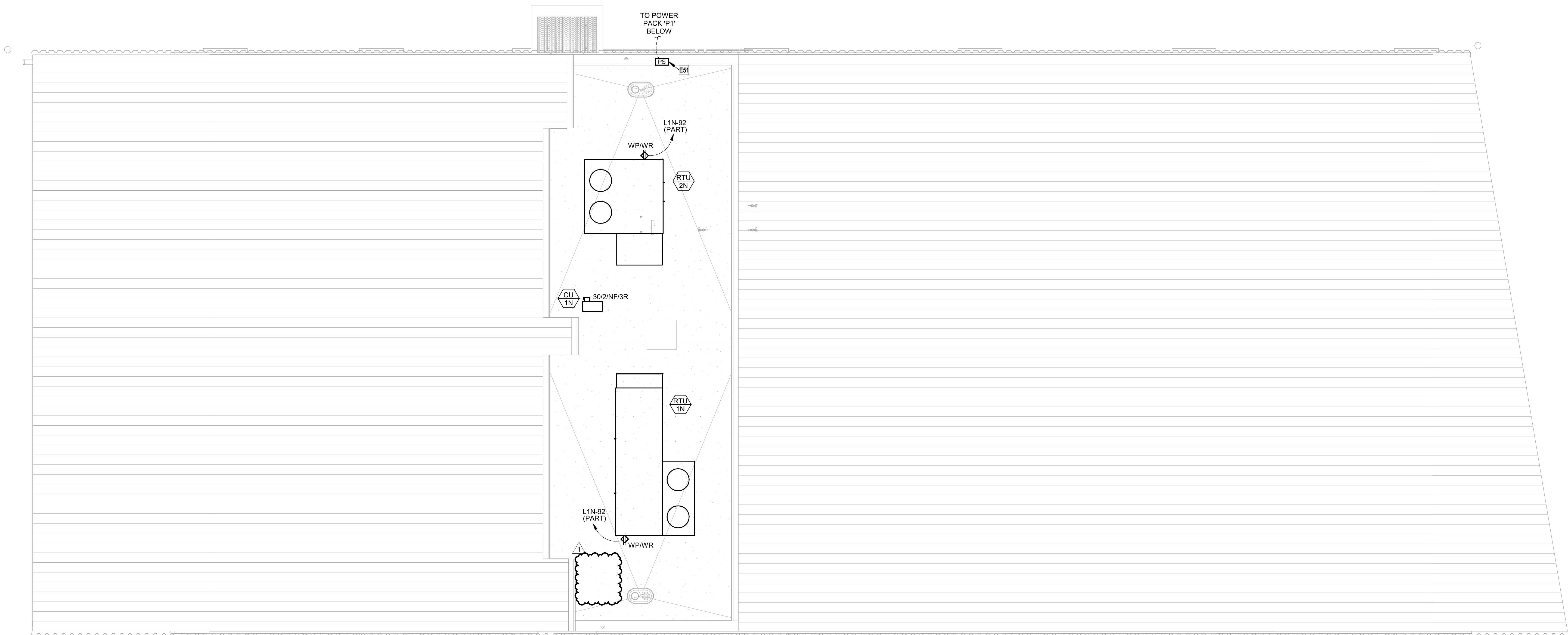
MARK	PANEL	CIRCUIT	NOTES
RTU 1N	H1N	2,4,6	A,D
RTU 2N	H1N	8,10,12	A,D
COMPUTER ROOM - OUTDOOR			
CU 1N	L1N	74,76	B
FAN			
EF 1N	L1N	90	A

EQUIPMENT CONNECTION GENERAL NOTES:

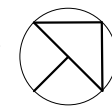
- COORDINATE FINAL LOCATIONS WITH MECHANICAL CONTRACTOR PRIOR TO ROUGH-IN.
- REFER TO MECHANICAL SCHEDULES FOR ADDITIONAL INFORMATION WITHIN SCOPE OF DIVISION 26.
- COORDINATE WITH MECHANICAL CONTRACTOR TO PROVIDE FINAL POWER REQUIREMENTS FOR ALL SUBMITTED EQUIPMENT THAT DIFFERS FROM BASIS-OF-DESIGN.

EQUIPMENT CONNECTION SCHEDULE NOTES:

- DISCONNECTING MEANS (FRACTIONAL HP SWITCH, FUSED DISCONNECT SWITCH, ETC.) AND/OR CONTROLLER (STARTER, VFD, ETC.) IS FACTORY MOUNTED OR PROVIDED BY DIVISION 25.
- PROVIDE FUSED/NON-FUSED DISCONNECT SWITCH SIZED PER EQUIPMENT MANUFACTURER'S SPECIFICATIONS AND THE NEC. REFER TO ELECTRICAL SYMBOLS LEGEND FOR NAMING DESIGNATIONS.
- PROVIDE POWER AND CONTROL WIRING FROM ASSOCIATED CONDENSING UNIT PER MANUFACTURER'S INSTALLATION INSTRUCTIONS.
- PROVIDE CONNECTION TO FACTORY PROVIDED 120V 20A GFCI RECEPTACLE.



1 ELECTRICAL ROOF PLAN - LSN
3/16" = 1'-0"



LSN: 901 NE Douglas St., Lee's Summit MO 64086
LSW: 2600 SW Ward Rd, Lee's Summit MO 64082
LSHS: 400 SE Blue Pkwy, Lee's Summit MO 64063

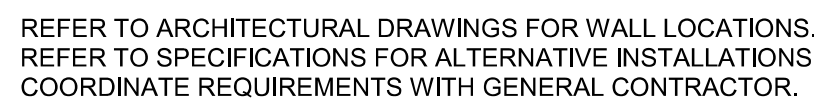
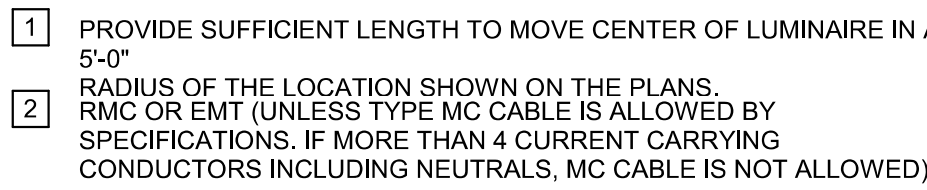
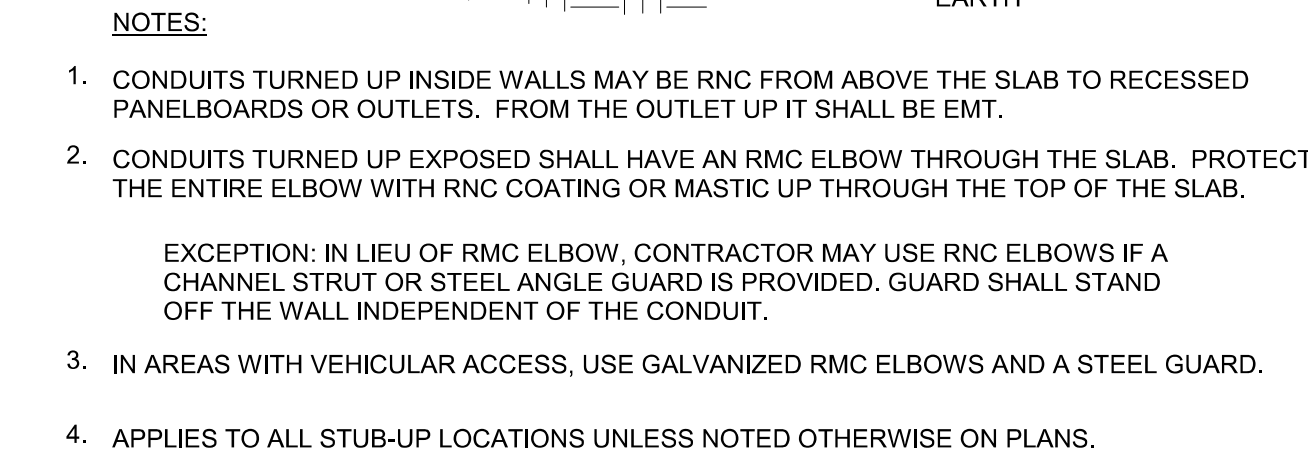
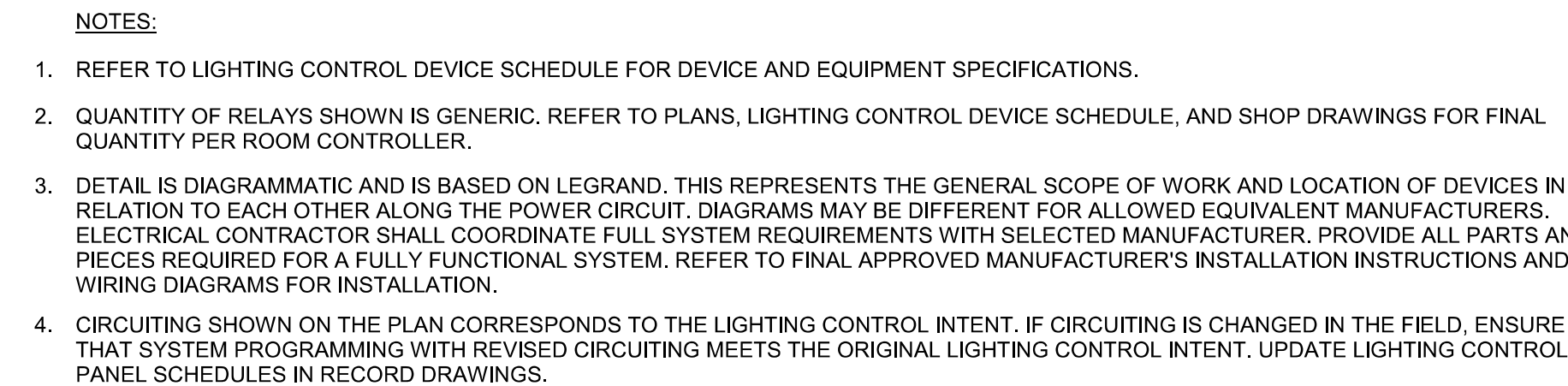
0121-0100

architect:
Multistudio
4200 Pennsylvania
Kansas City, MO 64111
816.221.0077

structural engineer

Bob D. Campbell
4338 Belleview
Kansas City, MO 64111
816.531.4144
www.bdc-engrs.com

.com



Issue Date: September 9, 2022

Revisions

NUMBER	DESCRIPTION	DATE
--------	-------------	------



DOUGLAS M. EVERHART
LICENSE # PE-2019007648

ELECTRICAL DETAILS

E500

LSR7 Robotics, GiC & Phys Education

LSN: 901 NE Douglas St., Lee's Summit MO 64086
LSW: 2600 SW Ward Rd, Lee's Summit MO 64082
LSHS: 400 SE Blue Pkwy, Lee's Summit MO 64063

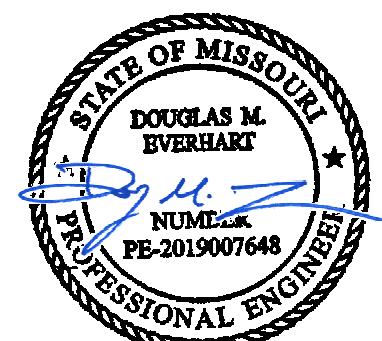
owner: Lee's Summit R-7 School
301 NE Tudor Road
Lee's Summit, MO 64086
architect: Multistudio
4200 Pennsylvania
Kansas City, MO 64111
816.931.6655
multistudio
civil engineer: Kaw Valley Engineering
14700 West 114th Terrace
Lenexa, KS 66215
913.485.0318
kveeng.com
structural engineer: Bob D. Campbell & Company, Inc.
4338 Bellevue
Kansas City, MO 64111
816.531.4144
www.bdc-engrs.com
MEP/IT/Code: Henderson Engineers
8345 Lenexa Drive, Suite 300
Lenexa, KS 66214
816.742.5000
www.hendersonengineers.com



8345 LENEXA DRIVE, SUITE 300
LENEXA, KS 66214
TEL 913.742.5000 FAX 913.742.5001
WWW.HENDERSONENGINEERS.COM
2150005255
MO. CORPORATE NO. E-5680
EXPIRES 12/31/2022

Issue Date: September 9, 2022

NUMBER	DESCRIPTION	DATE
2	Addendum 02	09/23/2022



09/23/2022
DOUGLAS M. EVERHART
LICENSE # PE-2019007648

LSN - PANELBOARD SCHEDULES

E600-B

PANELBOARD: H1N (NEW)

BUS AMPS: 400A
MAIN SIZE/TYPE: 400A MCB
VOLTS/PHASE: 480Y/277 V 3P/4W
SUPPLIED BY: MSB

SCHOOL
BUILDING SQUARE FOOTAGE: 7000

FAULT CURRENT: REFER TO ONE-LINE
AIC RATED: FULLY RATED
AIC RATING: FCA +10% MINIMUM
SERVES: ROBOTICS / GiC
MOUNTING: SURFACE
LOCATION: ELECTRICAL R106

EQUIPMENT GROUND BUS

SERVICE ENTRANCE RATED

LINE-SIDE LUGS: MECHANICAL

CKT NO.	DESCRIPTION	LOAD TYPE	NOTES	WIRE SIZE	BKR AMP	P	PHASE A	PHASE B	PHASE C	P	BKR AMP	WIRE SIZE	NOTES	LOAD TYPE	DESCRIPTION	CKT NO.
1	LTG - GiC CANOPY, N	LZ		12	20	1	1808	10641						C M	RTU-1N	2
3	LTG - CENTRAL CORE	LZ		12	20	1		1255	10641							4
5	LTG - ROBOTICS, E CANOPY	LZ		12	20	1			1889	10641						6
7	SPARE			20	1		0	7593								8
9	SPARE			20	1			0	7593							10
11	SPARE			20	1				0	7593						12
13	SPARE			20	1		0	6000								14
15	SPARE			20	1			0	0							16
17	SPARE			20	1				0	0						18
19	SPARE			20	1		0	0								20
21	SPARE			20	1			0	0							22
23	SPARE			20	1				0	0						24
25	SPARE			20	1		0	0								26
27	SPARE			20	1			0	0							28
29	SPARE			20	1				0	0						30
31	SPARE			20	1		0	0								32
33	SPARE			20	1			0	0							34
35	SPARE			20	1				0	0						36
37	EQUIPPED SPACE			1	0		0	33934								38
39	EQUIPPED SPACE			1				0	32582							40
41	EQUIPPED SPACE			1					0	35339						42
TOTAL LOAD (VA):							59977 VA	52071 VA	55463 VA							
TOTAL AMPS:							218 A	188 A	202 A							

LOAD TYPE	CONNECTED LOAD	DEMAND FACTOR	NEC DEMAND	PANELBOARD NOTES	PANELBOARD TOTALS
EXISTING LOAD (E)	0 VA	100%	0 VA		TOTAL CONNECTED LOAD 185775 VA
COOLING (C)	31510 VA	100%	31510 VA		TOTAL NEC LOAD 186924 VA
HEATING (H)	0 VA	0%	0 VA		TOTAL CONNECTED CURRENT 223 A
LIGHTING (L) (PER NEC-220)	21000 VA	125%	26250 VA		TOTAL NEC DEMAND CURRENT 225 A
RECEPTACLES (R)	25560 VA	70%	17780 VA		
MOTORS (M)	60906 VA	100%	60906 VA		
SUPPLEMENTAL HEAT (U)	6000 VA	100%	6000 VA		
MISC EQUIP (Z)	26044 VA	100%	26044 VA		
REFRIGERATION (F)	0 VA	100%	0 VA		
SIGNAGE (S)	0 VA	125%	0 VA		
KITCHEN (K)	0 VA	100%	0 VA		
LARGEST MOTOR	14715 VA	125%	18394 VA		
SHOW WINDOW (W)	0 VA	125%	0 VA		
TRACK LIGHTING	0 VA	100%	0 VA		

PANELBOARD: L1N (NEW)

BUS AMPS: 400A
MAIN SIZE/TYPE: 400A MCB
VOLTS/PHASE: 208Y/120 V 3P/4W
SUPPLIED BY: H1N VIA TX-L1N

FAULT CURRENT: REFER TO ONE-LINE
AIC RATED: FULLY RATED
AIC RATING: FCA +10% MINIMUM
SERVES: ROBOTICS / GiC
MOUNTING: SURFACE
LOCATION: ELECTRICAL R106

EQUIPMENT GROUND BUS

LINE-SIDE LUGS: MECHANICAL

CKT NO.	DESCRIPTION	LOAD TYPE	NOTES	WIRE SIZE	BKR AMP	P	PHASE A	PHASE B	PHASE C	P	BKR AMP	WIRE SIZE	NOTES	LOAD TYPE	DESCRIPTION	CKT NO.	
1	RCPT - N ROBOTICS FIELD	R		12	20	1	1260	360				1	20	12	R	PLGMLD 1 - 3D PRINTERS	2
3	RCPT - E ROB FIELD CKT 1	R		12	20	1		540	360			1	20	12	R	PLGMLD 2 - 3D PRINTERS	4
5	RCPT - E ROB FIELD CKT 2	R		12	20	1			540	360		1	20	12	R	PLGMLD 3 - 3D PRINTERS	6
7	RCPT - TWSTLCK ROB FIELD	R		12	20	1	360	360				1	20	12	R	PLGMLD 4 - 3D PRINTERS	8
9	RCPT - ROB FIELD COL 1	R		12	20	1		720	720			1	20	12	R	RCPT - GIC SE WALL	10
11	RCPT - ROB FIELD COL 2	R		12	20	1			720	720		1	20	12	R	RCPT - GIC E WALL	12
13	EAST GARAGE DOOR	M		12	20	1	500	1800				1	20	10	VD	M RCPT - GIC PANEL SAW	14
15	WEST GARAGE DOOR	M		12	20	1		500	720			1	20	12	R	RCPT - GIC S WALL	16
17	RCPT - ROB CLSRM W WALL	R Z		12	20	1			1080	720		1	20	12	R	RCPT - CAD STATION CKT 3	18
19	RCPT - ROB CLSRM TWSTLCKS	R		12	20	1	720	900				1	20	12	R	RCPT - GIC W WALL	20
21	RCPT - MICROWAVE	Z		12	20	1		1200	720			1	20	12	R	RCPT - GIC CTR COLUMN	22
23	RCPT - ABV CTR 1	Z		12	20	1			1200	540		1	20	12	R	RCPT - GIC NW WALL	24
25	RCPT - ABV CTR 2	Z		12	20	1	1200	720				1	20	12	R	RCPT - GIC NE WALL	26
27	RCPT - FRIDGE	Z		12	20	1		800	540			1	20	12	M	DROP RCPT - HORIZ BANDSAW	28
29	RCPT - GIC TVS	Z		12	20	1			720	720		1	20	12	R	CRD REEL - GIC TABLES 1	30
31	RCPT - CAD STATION CKT 1	R		12	20	1	720	720				1	20	12	R	CRD REEL - GIC TABLES 2	32
33	RCPT - CAD STATION CKT 2	R		12	20	1		1080	720			1	20	12	R	CRD REEL - GIC TABLES 3	34
35	RCPT - W ROB FIELD	R		12	20	1			900	1800		1	20	10	VD	Z DROP RCPT - GIC MITER SAW	36
37	RCPT - CORR PLMB ELEC	R		12	20	1	1080	500				1	20	12	Z	DROP RCPT - GEN ASSEMB COMP	38
39	RCPT - RESTROOMS, EWC	R Z		12	20	1		1200	500			1	20	12	Z	DROP RCPT - CNC COMP	40
41	CRD REEL - GEN ASSEMB 1	Z		12	20	1		1200	540			1	20	12	R	RCPT - ROB S WALL	42
43	CRD REEL - GEN ASSEMB 2	Z		12	20	1						3	20	12	M	DROP RCPT - 3 AXIS CNC	44
45	CRD REEL - GEN ASSEMB 3	Z		12	20	1		1200	841			1200	841				46
47	CRD REEL - GEN ASSEMB TL 1	Z		12	20	1			1200	841							48
49	CRD REEL - GEN ASSEMB TL 2	Z		12	20	1	1200	3038				3	20	12	M	DROP RCPT - TORO CUT 22	50
51	CRD REEL - SHOP AREA 1	M		12	20	1		300	3038			3	50	6	M	RCPT - BIRMINGHAM LATHE	52
53	CRD REEL - SHOP AREA 3	Z		12	20	1			1452	3038		2	30	10	M	RCPT - BIRMINGHAM LATHE	54
55	CRD REEL - SHOP AREA 4	Z		12	20	1	1200	1383				2	30	10	M	RCPT - BIRMINGHAM LATHE	56
57	CRD REEL - SHOP AREA 5	Z		12	20	1		1200	1383			2	30	10	M	RCPT - BIRMINGHAM LATHE	58
59	RCPT - E EXTERIOR	R		12	20	1	360	1920				1	20	12	Z	CRD REEL - SHOP AREA 2	60
61	RCPT - N EXTERIOR	R		12	20	1		360	1920			1	20	10	VD	M RCPT - METAL BANDSAW	62
63	RCPT - S EXTERIOR	R		12	20	1		360	1920			1	20	10	VD	M RCPT - GRIZZLY DRILL PRESS	64
65	RCPT - W EXTERIOR	R		12	20	1			720	1082		2	20	12	M	RCPT - GRIZZLY DUST COLLECTOR	66
67	FIRE RPS	Z		12	20	1		360	1082			2	30	10	Z	RCPT - TELECOM RACK (208V)	68
69	RCPT - TIG WELDER MAIN	M	VD	8	30	2		2496	1500			2	30	10	Z	RCPT - TELECOM RACK (208V)	70
71								2496	1500			2	20	12	M C	CJ-IN/CRU-IN	72
73	DROP RCPT - CRFTS MITER SAW	M	VD	10	20	1	1800	31				2	20	12	M	CJ-IN/CRU-IN	74
75	RCPT - KARDEX STOR SYST	R		12	20	1		180	31			1	20	12	R	EXT RCPT - ROOFTOP	92
77	RCPT - BIRMINGHAM LATHE CTRLS	R		12	20	1		180	3699			1	20	12	M	TF-IN	94
79	RCPT - TIG WELDER MISC	R		12	20	1	180	3699				1	20	12	Z	BAS PANEL	96
81	SECURITY PANEL	Z		12	20	1		500	3699			1	20	12	Z	N DOOR ACTUATOR	98
83	RCPT - TELECOM N WALL	R		12	20	1		1080	0			1	20	12		SPARE	100
85	RCPT - TELECOM S, E WALL	R		12	20	1	1080	0				1	20	12		SPARE	102
87	RCPT - TELECOM RACK	R		12	20	1		360	58			1	20	12	M	EF-IN	104
89	RCPT - TIG WELDER	R		12	20	1		964	0			1	20	12	R	EXT RCPT - ROOFTOP	106
91	OPEN TABLE CNC	M		10	30	5	2500	360				1	20	12	M	TF-IN	108
93							2500	696				1	20	12	Z	N DOOR ACTUATOR	110
95								0	500			1	20	12	Z	N DOOR ACTUATOR	112
101	EQUIPPED SPACE							0	0			1				EQUIPPED SPACE	114
103	EQUIPPED SPACE							0	0			1				EQUIPPED SPACE	116
105	EQUIPPED SPACE							0	0			1				EQUIPPED SPACE	118
107	EQUIPPED SPACE							0	0			1				EQUIPPED SPACE	120
TOTAL LOAD (VA):							33934 VA	32582 VA	35339 VA								
TOTAL AMPS:							285 A	272 A	296 A								

LOAD TYPE	CONNECTED LOAD	DEMAND FACTOR	NEC DEMAND	PANELBOARD NOTES	PANELBOARD TOTALS
EXISTING LOAD (E)	0 VA	100%	0 VA		TOTAL CONNECTED LOAD 104031 VA
COOLING (C)	2080 VA	100%	2080 VA		TOTAL NEC LOAD 99025 VA
HEATING (H)	0 VA	0%	0 VA		TOTAL CONNECTED CURRENT 289 A
LIGHTING (L)	0 VA	125%	0 VA		TOTAL NEC DEMAND CURRENT 275 A
RECEPTACLES (R)	25560 VA	70%	17780 VA		
MOTORS (M)	39251 VA	100%	39251 VA		
SUPPLEMENTAL HEAT (U)	0 VA	100%	0 VA		
MISC EQUIP (Z)	26044 VA	100%	26044 VA		
REFRIGERATION (F)	0 VA	100%	0 VA		
SIGNAGE (S)	0 VA	125%	0 VA		
KITCHEN (K)	0 VA	100%	0 VA		
LARGEST MOTOR	11096 VA	125%	13870 VA		
SHOW WINDOW (W)	0 VA	125%	0 VA		
TRACK LIGHTING	0 VA	100%	0 VA		

LSR7 Robotics, GiC & Phys Education

LSN: 901 NE Douglas St., Lee's Summit MO 64086
LSW: 2600 SW Ward Rd., Lee's Summit MO 64082
LSHS: 400 SE Blue Pkwy, Lee's Summit MO 64063

owner: Lee's Summit R-7 School
301 NE Tudor Road
Lee's Summit, MO 64086
architect: Multistudio
4200 Pennsylvania
Kansas City, MO 64111
816.931.6655
multi.studio
civil engineer: Kaw Valley Engineering
14700 West 114th Terrace
Lenexa, KS 66215
913.485.0318
kveg.com
structural engineer: Bob D. Campbell & Company, Inc.
4338 Bellevue
Kansas City, MO 64111
816.531.4144
www.bdc-engrs.com
MEP/ET/Code: Henderson Engineers
8345 Lenexa Drive, Suite 300
Lenexa, KS 66214
816.742.5000
www.hendersonengineers.com

ELECTRICAL PLAN NOTES:

- E2 PROVIDE GROUNDING ELECTRODE CONDUCTOR(S) AS REQUIRED BY NEC 250.32, DO NOT BOND GROUND AND NEUTRAL BAR TOGETHER.
E9 MAIN SERVICE ENTRANCE LOCATION IS ON MEZZANINE LEVEL ABOVE. EQUIPMENT IS ETR.

LOAD SUMMARY: MSB

PANEL DESCRIPTION: 480Y/277 V			
LOAD TYPE	CONNECTED LOAD KVA	DEMAND FACTOR	NEC DEMAND KVA
EXISTING PEAK UTILITY (@ 0.9 pf)	1666.67	125%	2083.33
COOLING (C)	31.51	100%	31.51
HEATING (H)	0.00	0%	0.00
LIGHTING (L)	4.88	125%	6.10
RECEPTACLES (R)	25.74	69%	17.87
MOTORS (M)	56.80	100%	56.80
SUPPLEMENTAL HEAT (U)	6.00	100%	6.00
MISC EQUIP (Z)	25.60	100%	25.60
REFRIGERATION (F)	0.00	100%	0.00
SIGNAGE (S)	0.00	125%	0.00
KITCHEN (K)	0.00	100%	0.00
LARGEST MOTOR	14.72	125%	18.39
SHOW WINDOW (W)	0.00	125%	0.00
TRACK LIGHTING	0.00	100%	0.00
EXISTING LOAD TO BE DELETED	0.00	100%	0.00
ELEVATOR (V)	0.00	100%	0.00
TOTAL LOAD	1831.92	KVA	2245.61
TOTAL AMPACITY	2203.47	AMPS	2701.07
PANEL AMPACITY		AMPS	4000.00
SPARE CAPACITY		AMPS	1298.93
*PER UTILITY COMPANY BILLING PEAK DEMAND OF:		1500.00 KW	01/2021

ONE-LINE DIAGRAM GENERAL NOTES:

- THE INFORMATION SHOWN IN THE SHORT-CIRCUIT AND VOLTAGE DROP CALCULATIONS SCHEDULE IS SHOWN FOR CALCULATION PURPOSES ONLY. CONTRACTOR SHALL NOT USE THE CONDUIT TYPES, CONDUCTOR TYPES, SIZES, QUANTITIES OR LENGTHS FOR TAKEOFFS OR BIDDING PURPOSES. CONTRACTOR SHALL NOTIFY ENGINEER OF ANY CONFLICTS BETWEEN THIS SCHEDULE AND OTHER PORTIONS OF THE CONSTRUCTION DOCUMENTS. CONTRACTOR SHALL NOTIFY ENGINEER OF AS-BUILT CONDITIONS THAT CONSTITUTE A CHANGE FROM WHAT IS SHOWN BELOW. THIS INCLUDES CONDUCTOR LENGTHS DIFFERING BY MORE THAN 10%.
- REFER TO THE SHORT-CIRCUIT AND VOLTAGE DROP CALCULATIONS TABLE ON THIS SHEET. AVAILABLE FAULT CURRENT INFORMATION IS LISTED UNDER THE "FAULT CURRENT" COLUMN. VOLTAGE DROP VALUES ARE LISTED UNDER THE "CUMULATIVE VOLTAGE DROP" COLUMN. THE AIC/SCOR RATING OF THE EQUIPMENT SHALL NOT BE LESS THAN THE AVAILABLE 3-PHASE SYMMETRICAL FAULT CURRENT. ALL SERIES RATED EQUIPMENT SHALL BE PROPERLY LISTED AND LABELED PER CODE.
- FEEDER SIZES ARE BASED ON COPPER (CU) THHN/THWN-2 INSULATION, UNLESS NOTED OTHERWISE. CONDUIT SIZES SHOWN ARE APPROPRIATE FOR SCHEDULE 40 PVC, EMT, GRS, IMC AND RMC. ADJUST SIZE AS NEEDED FOR OTHER RACEWAY TYPES. ALL CONDUCTOR SIZES ARE BASED ON 75 DEG C RATED TERMINATIONS, UNLESS NOTED OTHERWISE. FOR ANY OTHER CONDITIONS MODIFY SIZES PER CODE. REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION.
- INSTALL FEEDERS OVERHEAD AS HIGH AS PRACTICABLE AND ORTHOGONALLY ALONG BUILDING STRUCTURE, UNLESS NOTED OTHERWISE. COORDINATE FINAL ROUTING WITH OTHER TRADES.
- PROVIDE A PERMANENT LABEL ON FRONT OF EQUIPMENT ENCLOSURE. REFER TO SPECIFICATIONS FOR LABEL REQUIREMENTS. LABEL SHALL READ AS FOLLOWS (INCLUDE RESPECTIVE NAMES IN BLANKS):

SERVICE EQUIPMENT LABEL:

EXAMPLE:
208Y/120V, 60HZ
800A
SCCR = 65,000A
MAX AVAILABLE FAULT CURRENT = 58,815A
CALCULATED: 01/01/2018

PANELBOARD/SWITCHBOARD LABEL:
LINE 1: PANELBOARD - SUPPLIED BY UPSTREAM
LINE 2: PANELBOARD/SWITCHBOARD -
LINE 3: LOCATED IN -
LINE 4: PANELBOARD - SUPPLIES DOWNSTREAM
LINE 5: PANELBOARD(S) -

TRANSFORMERS LABEL:
LINE 1: TRANSFORMER - SUPPLIED BY UPSTREAM
LINE 2: PANELBOARD/SWITCHBOARD -
LINE 3: LOCATED IN -
LINE 4: TRANSFORMER - SUPPLIES DOWNSTREAM
LINE 5: PANELBOARD(S) -

ELECTRICAL UTILITY CONTACT NOTE:

UTILITY COMPANY: EVERGY
UTILITY CONTACT: PHILLIP INGRAM
PHONE: 816-347-4339
EMAIL: PHILLIP.INGRAM@EVERGY.COM

FAULT CURRENT GENERAL NOTE (ESTIMATED VALUE):

THE MAXIMUM AVAILABLE 3-PHASE SYMMETRICAL FAULT CURRENT VALUE AT THE UTILITY TRANSFORMER SECONDARY/POINT OF SERVICE COULD NOT BE DETERMINED AT THE TIME OF THIS SUBMITTAL. THE ESTIMATED WORST CASE VALUE OF 51,742A IS BASED ON AN INFINITE BUS CALCULATION AT THE UTILITY TRANSFORMER. CONTRACTOR SHALL VERIFY ACTUAL AVAILABLE FAULT CURRENT VALUE WITH UTILITY PRIOR TO BEGINNING CONSTRUCTION. NOTIFY ENGINEER IF ACTUAL VALUE EXCEEDS ESTIMATED CALCULATED VALUE. ESTIMATED DESIGN VALUE IS BASED ON THE FOLLOWING:

UTILITY TRANSFORMER SECONDARY VOLTAGE: 480V
UTILITY TRANSFORMER SIZE: 2000 KVA, 3PH 4W

OVERCURRENT PROTECTIVE DEVICE COORDINATION STUDY GENERAL NOTE:

CONTRACTOR SHALL PROVIDE AN OVERCURRENT PROTECTIVE DEVICE COORDINATION STUDY TO DETERMINE THE CORRECT SETTINGS FOR THE ADJUSTABLE TRIP CIRCUIT BREAKERS TO DOCUMENT ARC-FLASH HAZARDS, PROVIDE ALL NECESSARY AS-BUILT INFORMATION REQUIRED FOR COMPLETION OF THE STUDY TO THE ENGINEER DOING THE STUDY. PROVIDE SUBMITTALS INDICATED WITHIN THE SPECIFICATIONS TO OWNER AND ARCHITECT/ENGINEER TO CONFIRM STUDY HAS BEEN COMPLETED. CONTRACTOR SHALL INCLUDE THE COST FOR THIS WORK IN THEIR BID. REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION.

ONE-LINE DIAGRAM GENERAL NOTES:

- COORDINATE WORK WITH ARCHITECTURAL PHASING DRAWINGS TO PROPERLY STAGE TRANSITION TO PROVIDE POWER TO EXISTING, NEW AND TEMPORARY LOADS. MONITOR LOADS ON DISTRIBUTION SYSTEM TO MAKE SURE SHIFTING OF LOADS DOES NOT OVERLOAD ELECTRICAL EQUIPMENT.
- PRIOR TO BEGINNING CONSTRUCTION, THE CONTRACTOR SHALL VERIFY THE EXISTING AIC/SCOR RATING OF EACH PANELBOARD/SWITCHBOARD. ALL NEW AND EXISTING OVER-CURRENT PROTECTION DEVICES (CIRCUIT BREAKERS AND FUSES) MUST HAVE AN AIC/SCOR RATING EXCEEDING THE AVAILABLE FAULT CURRENT AT THAT POINT IN THE SYSTEM. NOTIFY THE OWNER AND THE ENGINEER IF THE EXISTING EQUIPMENT DOES NOT COMPLY WITH THIS REQUIREMENT.
- VERIFY THE INTEGRITY OF THE EXISTING GROUNDING ELECTRODE SYSTEM AND THAT THE NEUTRAL AND GROUND ARE PROPERLY BONDED TOGETHER AT THE POINT OF SERVICE ENTRANCE. NOTIFY THE LANDLORD, OWNER AND THE ENGINEER OF ANY EXISTING DEFICIENCIES.

ONE-LINE DIAGRAM SUPPLEMENTAL SPECIFICATIONS:

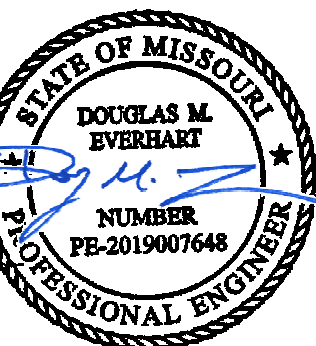
- GROUNDING ELECTRODE SYSTEM SHALL BE PER LOCAL REQUIREMENTS AND SHALL NOT BE LESS STRINGENT THAN THAT SPECIFIED IN THE CONSTRUCTION DOCUMENTS.
- PROVIDE PROPERLY SIZED LUGS FOR ALL EQUIPMENT, CIRCUIT BREAKERS, AND OTHER ELECTRICAL DEVICES TO ACCOMMODATE INSTALLED CONDUCTORS, A LARGER FRAME, OVERSIZED LUGS OR NON-STANDARD PRODUCT MAY BE REQUIRED IN SOME INSTANCES. UTILIZE PIN ADAPTERS ONLY IF NECESSARY AND ONLY AS ALLOWED BY MANUFACTURER AND AHJ.
- PROVIDE ANY AVAILABLE SPACE IN SWITCHBOARDS/PANELBOARDS WITH BUSSING.
- PROVIDE TYPED FINAL CIRCUIT DIRECTORY FOR ALL PANELBOARDS TO REFLECT ACTUAL AS-BUILT CONDITIONS. COORDINATE FINAL ROOM NAMES, NUMBERS AND DESCRIPTIONS WITH OWNER PRIOR TO COMPLETION. CIRCUIT DESCRIPTIONS SHALL BE PER CODE AND SHALL BE DISTINGUISHABLE FROM ALL OTHERS.

HENDERSON
ENGINEERS
8345 LENEXA DRIVE, SUITE 300
LENEXA, KS 66214
TEL 913.742.5000 FAX 913.742.5001
WWW.HENDERSONENGINEERS.COM
2150005255
MO. CORPORATE NO. E-8580
EXPENSE 12/31/2022

Issue Date: September 5, 2022

Revisions

NUMBER	DESCRIPTION	DATE
--------	-------------	------



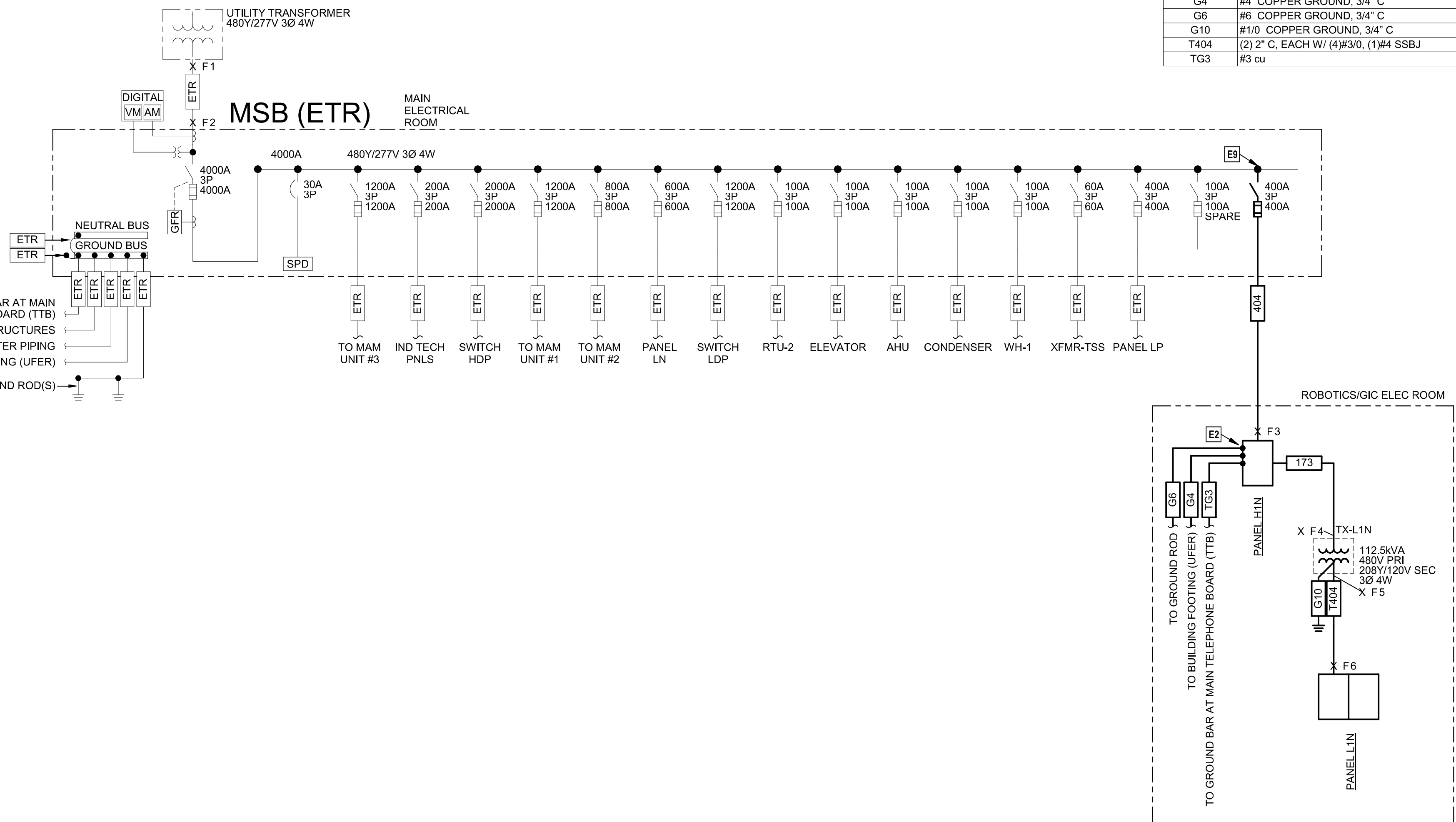
09/09/2022
DOUGLAS M. EVERHART
LICENSE # PE-2019007648

LSN - ELECTRICAL
ONE-LINE DIAGRAM
AND CALCULATIONS
E800-B

FEEDER SCHEDULE:

SIZES ARE BASED ON COPPER (CU) THHN/THWN-2 INSULATION, UNLESS NOTED OTHERWISE. CONDUIT SIZES ARE BASED ON 75 DEG C RATED TERMINATIONS, UNLESS NOTED OTHERWISE. CONDUIT SIZES SHOWN ARE APPROPRIATE FOR SCHEDULE 40 PVC, EMT, GRS, IMC AND RMC. ADJUST SIZE AS NEEDED FOR OTHER RACEWAY TYPES. FOR ANY OTHER CONDITIONS MODIFY SIZES PER CODE. REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION.

FEEDER TAG	FEEDER DESCRIPTION
T73	(3)W20, (1)W3, 1-1/2" C
404	(2) 2" C, EACH W/ (4)W30, (1)W3 G
G4	#4 COPPER GROUND, 3/4" C
G6	#6 COPPER GROUND, 3/4" C
G10	#10 COPPER GROUND, 3/4" C
T404	(2) 2" C, EACH W/ (4)W30, (1)W4 SSBJ
TG3	#3 CU



3 ELECTRICAL PARTIAL ONE-LINE DIAGRAM - LSN
NTS

Short-Circuit and Voltage Drop Calculations

Distances are for calculation purposes only and shall not be used for contractor takeoffs nor bidding - Contractor shall notify Engineer of any field condition that results in a change of 10% or greater circuit distance

The following calculations are based on the "Point-by-Point" method where:

ISC (2) = ISC(1) x M(1)

ISC (1) = short circuit current at fault point 1

ISC (2) = short circuit current at fault point 2

M= 1/(1+I)

Feeder: f (30) = 1.73 x I x Lsc

C x E

Feeder: f (10) = 2 x I x Lsc

C x E

XFMR: f (30) = I^2 Lsc x Vp x 1.73 x %Z

100,000 x KVA

XFMR: f (10) = I^2 Lsc x Vp x %Z

100,000 x KVA

IS(sec)= Vp x M x I(P) Lsc

Vs

VOLTAGE DROP (30):

%VD = ((R x cos(arccos(pf)) + X x sin(arccos(pf))) x I x L x 1.73) / E

VOLTAGE DROP (10):

%VD = ((R x cos(arccos(pf)) + X x sin(arccos(pf))) x 2 x I x L x 1) / E

%VD CUM = Cumulative Voltage Drop from Fault Point 1 to Fault Point #

R = resistance in ohms per LF

X = reactances in ohms per LF

System Voltage: 480Y/277V - 3 phase														Date of Calculations: 09/29/2022																	
Fault Point (F#)	Bus/Feeder Description	Source (Fault Point)	Phase	Source Isc (amps)	Conduit Type/ TX	Material	Feeder Quantity of Parallel Sets and Bus/ Phase & Neutral Size	Conductor 'C' Value	Busway 'C' Value	L-L Voltage (E)	Circuit Length (L)	Load Power Factor (pf)	Circuit Load (Amperage)	Resistance (R)	Conductor Reactance (X)	Arccos (pf) (Radians)	Type	Degree Rise	KVA	New Xfmr Z	Existing Xfmr Z	Secondary Voltage	Tap Setting	I	M	Fault Current (amps)	Voltage Drop (%VD)	Cumulative Voltage Drop (%VD)	Fault Point (F#)		
1	Utility Service Point			51,742	at the secondary of the utility transformer										Source Isc = 61,342 Motor Contribution = 61,342																
Motor Contribution																															
2	MSB (LSN)	1	3	61,342	NM	CU	12 Set(s) of 400 kcmil	24297	--	480	50	0.9	2,631	0.000033	0.000040	0.451027									0.038	0.96	59,099	-0.19%	-0.19%	2	
3	H1N	2	3	59,099	M	CU	2 Set(s) of 3/0 AWG	12844	--	480	305	0.9	230	0.000079	0.000052	0.451027									2.532	0.28	16,732	-1.19%	-1.37%	3	
4	TO TX-L1N	3	3	16,732	M	CU	1 Set(s) of 2/0 AWG	10755	--	480	10	0.9	230	0.000100	0.000054	0.451027									0.056	0.95	15,843	-0.09%	-1.47%	4	
5	TX-L1N	4	3	15,843	TX					480															5.116	0.16	5,978	-1.47%		5	
6	L1N	5	3	5,978	M	CU	2 Set(s) of 3/0 AWG	12844	--	208	10	0.9	300	0.000079	0.000052	0.451027	DOE	150	112.5	4.37		208			0.019	0.98	5,964	-0.12%	-1.58%	6	
7	RTU-1N	3	3	16,732	M	CU	1 Set(s) of 8 AWG	1567	--	480	75	0.85	38	0.000780	0.000065	0.554811									2.908	0.26	4,281	-0.72%	-2.09%	7	
8	RTU-2N	3	3	16,732	M	CU	1 Set(s) of 8 AWG	1567	--	480	50	0.85	28	0.000780	0.000065	0.554811									1.939	0.34	5,693	-0.35%	-1.73%	8	

LSR7 Robotics, GiC & Phys Education

LSN: 901 NE Douglas St., Lee's Summit MO 64086
LSW: 2600 SW Ward Rd, Lee's Summit MO 64082
LSHS: 400 SE Blue Pkwy, Lee's Summit MO 64063

owner:
Lee's Summit 8-7 School
301 NE Tudor Road
Lee's Summit, MO 64086

architect:
Multistudio
4209 Pennsylvania
Kansas City, MO 64111
816.931.6655
multi.studio

civil engineer:
Kaw Valley Engineering
14700 West 114th Terrace
Lenexa, KS 66215
913.485.0318
kveng.com







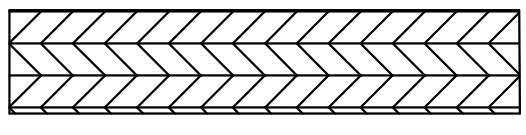
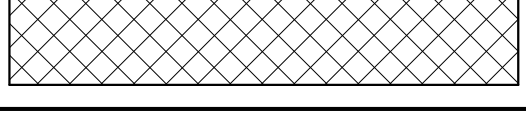
structural engineer:
Bob D. Campbell & Company, Inc.
4338 Bellevue
Kansas City, MO 64111
816.531.4144
www.bdc-engrs.com

MEP/PT/Code:
Henderson Engineers
8345 Lenexa Drive, Suite 300
Lenexa, KS 66214
816.742.5000
www.hendersonengineers.com

FIRE PROTECTION SYMBOLS

THIS IS A MASTER LEGEND AND NOT ALL SYMBOLS OR ABBREVIATIONS ARE USED. V2.02

ABBREVIATIONS			FIRE ALARM		
AF	ABOVE FINISHED FLOOR	NIC	NOT IN CONTRACT	FACP	FIRE ALARM CONTROL PANEL/UNIT
AFG	ABOVE FINISHED GRADE	OC	ON CENTER	FACP	RECESSED FIRE ALARM CONTROL PANEL/UNIT
CD	CANDELA	PV	POST INDICATOR VALVE	FAAP	FIRE ALARM ANNUNCIATOR PANEL
DI	DUCTILE IRON	PROV	PROVIDE FURNISH AND INSTALL	FAAP	RECESSED FIRE ALARM ANNUNCIATOR PANEL
ESFR	EARLY SUPPRESSION	PRV	PRESSURE REDUCING	AMP	AMPLIFIER PANEL
ETR	FAST RESPONSE	RD	RETURN DUCT	RPS	REMOTE POWER SUPPLY
FHC	FIRE HOSE CABINET	REV	REVISION	RT	REMOTE TEST STATION WITH INDICATING LIGHT
FP	FIRE PROTECTION	SD	SUPPLY DUCT	RT	REMOTE INDICATING LIGHT
GC	CONTRACTOR	SF	SQUARE FEET	PS	PRESSURE SWITCH LOW/HIGH
GPM	GALLONS PER MINUTE	TYP	TYPICAL	FS	WATERFLOW ALARM SWITCH
JB/J-BOX	JUNCTION BOX	UNO	UNLESS NOTES OTHERWISE	VT	CONTROL VALVE TAMPER SWITCH
MAX	MAXIMUM	V	VOLTS	DH	MAGNETIC DOOR HOLD OPEN DEVICE
MIN	MINIMUM	W	WATTS	CM	CONTROL MODULE
N/A	NOT APPLICABLE	WP	WEATHERPROOF	MM	MONITOR MODULE
				K	FIRE DEPARTMENT KEY BOX
				F	PULL STATION
				F	FIREFIGHTER'S PHONE JACK
				1	HEAT DETECTOR (E INDICATES ELEVATOR RECALL)
				1	SMOKE DETECTOR (E INDICATES ELEVATOR RECALL)
				1	SINGLE STATION SMOKE DETECTOR
				1	PROJECTED BEAM SMOKE DETECTOR
				1	DUCT MOUNTED SMOKE DETECTOR (SD=SUPPLY/RD=RETURN)
				1	CARBON MONOXIDE DETECTOR
				1	AREA OF REFUGE 2-WAY COMMUNICATION SYSTEM
				1	WALL MOUNTED AUDIBLE NOTIFICATION APPLIANCE
				1	WALL MOUNTED VISIBLE NOTIFICATION APPLIANCE
				1	WALL MOUNTED AUDIBLE/VISIBLE NOTIFICATION APPLIANCE
				1	CEILING MOUNTED AUDIBLE NOTIFICATION APPLIANCE
				1	CEILING MOUNTED VISIBLE NOTIFICATION APPLIANCE
				1	CEILING MOUNTED AUDIBLE/VISIBLE NOTIFICATION APPLIANCE
				1	END OF LINE RESISTOR
				1	ABORT SWITCH
				1	BELL

ANNOTATION	
	FIRE PROTECTION PLAN NOTE CALLOUT
	CONNECTION POINT OF NEW WORK TO EXISTING
	DETAIL REFERENCE UPPER NUMBER INDICATES DETAIL NUMBER LOWER NUMBER INDICATES SHEET NUMBER
	SECTION CUT DESIGNATION
	DEDICATED EQUIPMENT ACCESS TILE
	ACCESS PANEL
STANDARD MOUNTING HEIGHTS	
AUDIBLE APPLIANCE (TOP OF APPLIANCE)	90"
FIRE ALARM ANNUNCIATOR PANEL (TOP OF DISPLAY)	120"
FIRE ALARM BELL (EXTERIOR) (CENTERLINE)	120"
FIRE ALARM CONTROL PANEL/UNIT (TOP OF DISPLAY)	60"
PULL STATION (TOP OF DEVICE)	48"
VISIBLE APPLIANCE (CENTERLINE)	84"
INSTALL DEVICES AT THE MOUNTING HEIGHTS SHOWN ABOVE UNO IN THE CONSTRUCTION DOCUMENTS. MOUNTING HEIGHTS LISTED ABOVE, OR ELSEWHERE IN THE CONSTRUCTION DOCUMENTS, ARE AFF OR AFG. UNO, ALL DEVICES SHALL BE INSTALLED IN COMPLIANCE WITH CURRENT ADA AND LOCAL REQUIREMENTS.	
CALL OUTS	
ENLARGED PLAN CALLOUT	
NOT IN SCOPE	
LINETYPE LEGEND	
THROUGHOUT THE DRAWINGS DIFFERENT LINETYPES ARE USED IN COMBINATION WITH THE SYMBOLS TO INDICATE THE STATUS OF ITEMS AS EXISTING TO BE DEMOLISHED, TO BE INCLUDED AS PART OF NEW WORK AND/OR ITEMS WHICH ARE ANTICIPATED TO BE PROVIDED IN THE FUTURE. THE STATUS OF ITEMS USING THESE LINETYPES ARE RELATIVE TO THE ITEM WHICH THEY AFFECT. PHASING SHOWN IN DRAWINGS IS TO BE	

STANDARD MOUNTING HEIGHTS	
AUDIBLE APPLIANCE (TOP OF APPLIANCE)	90"
FIRE ALARM ANNUNCIATOR PANEL (TOP OF DISPLAY)	60"
FIRE ALARM BELL (EXTERIOR) (CENTERLINE)	120"
FIRE ALARM CONTROL PANEL/UNIT (TOP OF DISPLAY)	60"
PULL STATION (TOP OF DEVICE)	48"
VISIBLE APPLIANCE (CENTERLINE)	84"

INSTALL DEVICES AT THE MOUNTING HEIGHTS SHOWN ABOVE UNO IN THE CONSTRUCTION DOCUMENTS. MOUNTING HEIGHTS LISTED ABOVE, OR ELSEWHERE IN THE CONSTRUCTION DOCUMENTS, ARE AFF OR AFG. UNO, ALL DEVICES SHALL BE INSTALLED IN COMPLIANCE WITH CURRENT ADA AND LOCAL REQUIREMENTS.

CALL OUTS	
ENLARGED PLAN CALLOUT	
NOT IN SCOPE	

LINETYPE LEGEND	
THROUGHOUT THE DRAWINGS DIFFERENT LINETYPES ARE USED IN COMBINATION WITH THE SYMBOLS TO INDICATE THE STATUS OF ITEMS AS EXISTING, TO BE DEMOLISHED, TO BE INCLUDED AS PART OF NEW WORK AND/OR ITEMS WHICH ARE ANTICIPATED TO BE PROVIDED IN THE FUTURE. THE STATUS OF ITEMS USING THESE LINETYPES ARE RELATIVE TO THE VIEW IN WHICH THEY APPEAR. PHASING SHOWN IN DRAWINGS IS NOT INTENDED TO FULLY DESCRIBE ALL NECESSARY CONSTRUCTION PHASING, WHICH IS DETERMINED BY THE CONTRACTOR AS PART OF THEIR RESPONSIBILITIES. ANY SUCH PHASES DESCRIBED IN THE CONSTRUCTION DOCUMENTS ARE GENERAL AND ONLY INTENDED TO INDICATE A BROAD ORDER FOR THE SAKE OF DESCRIBING THE PROJECT. THE FOLLOWING LINETYPES MAY BE USED ON ANY DEVICE, EQUIPMENT, NOTE, LINE, SHAPE, ETC.	

EXISTING	NEW
DEMOLISH	FUTURE

FIRE ALARM SCOPE NOTES:

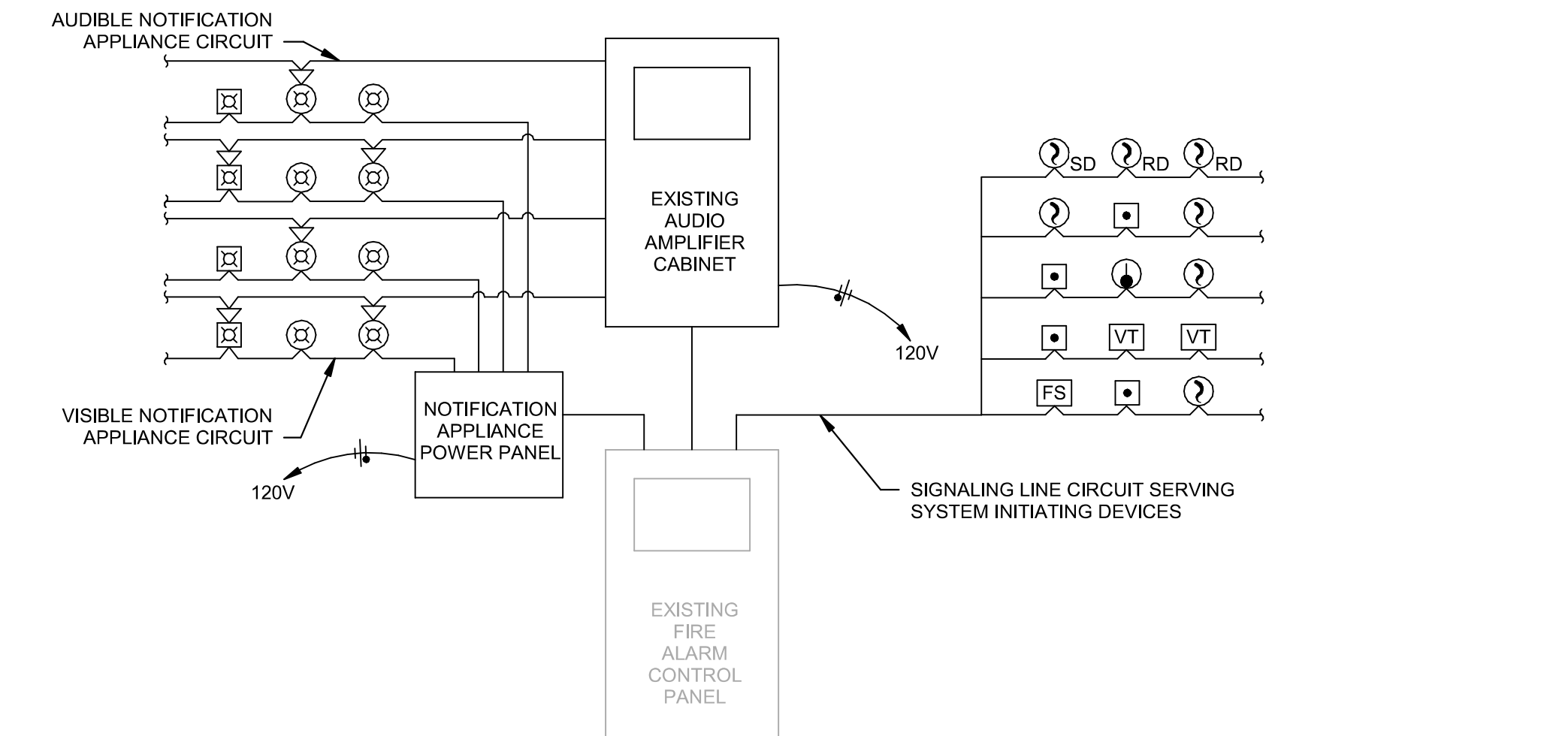
1. FIRE ALARM SCOPE AT LSN AND LSW BOTH INCLUDES THE MODIFICATION OF THE EXISTING FIRE ALARM SYSTEM. PROVIDE NEW EMERGENCY VOICE ALARM NOTIFICATION IN THE NEW LSSD ROBOTICS FACILITY IN ACCORDANCE WITH NFPA 72 AND ANY LOCAL LAWS.

FIRE ALARM GENERAL NOTES:

1. PRIOR TO SUBMITTING BID, VISIT THE JOB SITE AND BECOME FULLY ACQUAINTED WITH THE EXISTING CONDITIONS OF THE PROJECT. REVIEW THE GENERAL NOTES, SPECIFICATIONS AND OTHER DRAWINGS FOR ADDITIONAL REQUIREMENTS WHICH MAY NOT BE SPECIFICALLY CALLED OUT IN THIS PORTION OF THE CONSTRUCTION DOCUMENTS. NOTIFY ARCHITECT, ENGINEER AND/OR OWNER OF CONFLICTS OR DISCREPANCIES PRIOR TO SUBMISSION OF BID.
2. SYSTEM DESIGN, INSTALLATION AND MATERIALS SHALL BE IN ACCORDANCE WITH APPLICABLE NFPA STANDARDS. SYSTEM SHALL ALSO MEET ALL APPLICABLE BUILDING CODES, FIRE CODES AND THE REQUIREMENTS OF THE AUTHORITY HAVING JURISDICTION AND INSURANCE CARRIER. VERIFY REQUIREMENTS PRIOR TO BID SUBMITTAL.
3. INFORMATION ON CONTRACT DOCUMENTS IS GENERAL. INFORMATION AND FOR BID PURPOSES ONLY. CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR THE FINAL SYSTEM DESIGN AND LAYOUT OF ALL COMPONENTS, COORDINATION WITH ALL OTHER TRADES, AND SYSTEM CALCULATIONS REQUIRED FOR APPROVAL BY THE AUTHORITY HAVING JURISDICTION, ENGINEER, AND OWNER'S INSURER.
4. THE CONTRACTOR SHALL FOLLOW THE ENGINEER OF RECORD'S SYSTEM DESIGN AND LAYOUT OF ALL COMPONENTS EXCEPT WHERE MODIFICATION TO THE DESIGN IS NECESSARY. MODIFICATIONS SHALL BE REFLECTED IN THE CONTRACTOR'S SHOP DRAWINGS AND CALCULATIONS.
5. DEVIATIONS FROM ENGINEER'S DESIGN WILL NOT BE CONSIDERED UNLESS A FORMALLY SUBMITTED RFIS RECEIVED AND APPROVED.
6. THE CONTRACTOR SHALL PROVIDE ALL EQUIPMENT AND LABOR REQUIRED FOR A COMPLETE AND OPERATIONAL SYSTEM AS INDICATED IN THE DRAWINGS AND SPECIFICATIONS.
7. WHERE EXISTING SYSTEMS ARE PRESENT, CONTRACTOR SHALL MODIFY, RELOCATE AND/OR PROVIDE ADDITIONAL EQUIPMENT AS REQUIRED FOR SCOPE OF WORK AS REQUIRED FOR A COMPLETE AND OPERATIONAL SYSTEM. COORDINATE WITH WALLS, CEILINGS, LIGHTS, DIFFUSERS, STRUCTURE, OBSTRUCTIONS, ETC. IN AREAS AFFECTED BY SCOPE OF WORK, NEW EQUIPMENT SHALL BE COMPATIBLE WITH EXISTING SYSTEMS. CONTRACTOR SHALL REMOVE ALL ABANDONED EQUIPMENT. COORDINATE SYSTEM MODIFICATIONS TO MINIMIZE SYSTEM IMPAIRMENT, AND PROVIDE FIRE WATCH AND/OR INTERM FIRE PROTECTION MEASURES WHERE REQUIRED BY THE AUTHORITY HAVING JURISDICTION, INSURANCE CARRIER OR OWNER.
8. PROVIDE ADDITIONAL MATERIALS AND LABOR REQUIRED DUE TO LACK OF COORDINATION OR TO MEET AUTHORITY HAVING JURISDICTION AND INSURANCE CARRIER REQUIREMENTS AT NO ADDITIONAL COST TO THE OWNER.
9. FORWARD COMPLETED CERTIFICATE OF COMPLETION AND CONTRACTOR MATERIAL TEST CERTIFICATES TO THE OWNER.
10. REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION.

FIRE ALARM GENERAL DEMOLITION NOTES:

1. COORDINATE ALL DEMOLITION WITH WHAT IS SHOWN ON ARCHITECTURAL PLANS. NOTIFY ARCHITECT OF ANY DISCREPANCIES.
2. COORDINATE NEW WORK AND DEMOLITION WITH OTHER DISCIPLINES AND EXISTING CONDITIONS PRIOR TO CONSTRUCTION.
3. PRIOR TO SUBMITTING BID, VISIT THE JOB SITE AND BECOME FULLY ACQUAINTED WITH THE EXISTING CONDITIONS OF THE PROJECT. REVIEW GENERAL NOTES, SPECIFICATIONS AND OTHER DRAWINGS FOR ADDITIONAL REQUIREMENTS THAT MAY NOT BE SPECIFICALLY CALLED OUT IN THIS PORTION OF THE CONSTRUCTION DOCUMENTS. NOTIFY ARCHITECT, ENGINEER OR OWNER, AS DEFINED IN BID DOCUMENTS, OF CONFLICTS OR DISCREPANCIES PRIOR TO SUBMISSION OF BID. ADDITIONAL COMPENSATION WILL NOT BE PAID FOR LACK OF SUCH DETERMINATION, FAMILIARIZATION, AND/OR ALLOWANCE.
4. EXISTING CONDITIONS WERE TAKEN FROM ORIGINAL DRAWINGS AND SITE VISITS AND MAY NOT REFLECT EXACT "AS-BUILT" CONDITIONS. FIELD VERIFY EXISTING CONDITIONS PRIOR TO SUBMITTING FINAL BIDS. COORDINATE NEW WORK AND DEMOLITION WITH OTHER DISCIPLINES AND EXISTING CONDITIONS PRIOR TO CONSTRUCTION.
5. OWNER RETAINS RIGHTS OF SALVAGE FOR EQUIPMENT AND FIXTURES TO BE REMOVED. COORDINATE WITH THE OWNER THE EQUIPMENT AND FIXTURES TO BE SALVAGED AND THE LOCATION FOR STORAGE. AVOID DAMAGE TO EQUIPMENT DURING DEMOLITION WORK AND DURING TRANSPORT TO OWNER'S DESIGNATED STORAGE LOCATION. PROPERLY DISPOSE OF MATERIALS THAT ARE REMOVED AND ARE NOT REQUESTED TO BE SALVAGED BY THE OWNER.
6. EQUIPMENT TO BE REMOVED SHALL BE KEPT FOR REINSTALLATION DURING THE CONSTRUCTION PHASE WHEN POSSIBLE AND/OR INDICATED ON THE DRAWINGS. AVOID DAMAGING EXISTING SURFACES AND EQUIPMENT TO REMAIN FOR NEW INSTALLATION. REPAIR ANY DAMAGE CAUSED DURING WORK AT NO EXTRA COST TO THE OWNER.
7. SEAL PENETRATIONS THROUGH FLOORS, WALLS, CEILINGS AND ROOFS WHERE COMPONENTS ARE REMOVED AND WHERE THE EXISTING PENETRATION IS NOT USED FOR THE NEW INSTALLATION. REPAIR DAMAGED SURFACES TO MATCH ADJACENT AREAS OR AS INDICATED ON THE ARCHITECTURAL DRAWINGS.
8. PERFORM ALL WORK ACCORDING TO THE PHASING SCHEDULE FOR THIS PROJECT. PROVIDE ALL TEMPORARY DESIGN AND/OR CONFIGURATIONS THAT MEET APPLICABLE CODE REQUIREMENTS AS NECESSARY TO CONFORM TO THE REQUIRED CONSTRUCTION PHASING OF THE PROJECT.
9. ONLY THE PORTIONS OF THE BUILDING AFFECTED BY THE SCOPE OF THE PROJECT HAVE BEEN SHOWN. INFORMATION SHOWN AS EXISTING TO REMAIN IS NOT BEING MODIFIED AS A PART OF THIS PROJECT.
10. ALL WORK SHALL BE PERFORMED SO AS TO NOT INTERRUPT SERVICE. THE CONTRACTOR SHALL PROPERLY NOTIFY THE BUILDING OWNER, LANDLORD, THE LEASER AND ADJACENT TENANTS AS APPLICABLE A MINIMUM OF 48 HOURS IN ADVANCE BEFORE PROCEEDING WITH THIS WORK.
11. REMOVE ALL UNUSED AND DEMOLISHED EQUIPMENT AND ASSOCIATED MATERIALS FROM SITE. ABANDONING UNUSED PORTIONS WILL NOT BE ACCEPTABLE.
12. SYSTEM(S) NOT ASSOCIATED WITH THE DEMOLITION SHALL BE LEFT IN SERVICE AS APPLICABLE.
13. INSPECT EXISTING EQUIPMENT TO REMAIN TO VERIFY THAT EQUIPMENT IS OPERATING PROPERLY. NOTIFY OWNER OF DAMAGED AND/OR MALFUNCTIONING COMPONENTS.
14. ALL SYSTEMS TO BE LEFT IN SERVICE PRIOR TO THE END OF EACH WORKDAY.



RISER DIAGRAM IS SCHEMATIC IN NATURE. NOT ALL DEVICES ARE SHOWN. REFER TO PLANS FOR EQUIPMENT QUANTITIES AND LOCATIONS.

DUCT DETECTORS MAY HAVE INTEGRAL RELAYS FOR AIR HANDLING UNIT SHUT-DOWN AND FIRE/SMOKE DAMPER CONTROL. WIRING FOR THIS FUNCTION HAS NOT BEEN SHOWN. COORDINATE WITH MECHANICAL SYSTEM INSTALLER.

REFER TO PLANS AND SPECIFICATIONS FOR ADDITIONAL INFORMATION.

3 FIRE ALARM RISER DIAGRAM - ADDRESSABLE SYSTEM (VOICE) NTS

Issue Date: September 9, 2022

Revisions		
NUMBER	DESCRIPTION	DATE



CHRISTOPHER J. CULP
LICENSE # PE-201937646

09/08/2022

FIRE ALARM GENERAL
NOTES AND LEGEND
FA000

LSR7 Robotics, GiC & Phys Education

LSN: 901 NE Douglas St., Lee's Summit MO 64086
LSW: 2600 SW Ward Rd, Lee's Summit MO 64082
LSHS: 400 SE Blue Pkwy, Lee's Summit MO 64063

0121-0100

owner:
Lee's Summit R-7 School
301 NE Tudor Road
Lee's Summit, MO 64086

architect:
Multistudio
4209 Pennsylvania
Kansas City, MO 64111
816.931.6655
multi-studio

civil engineer:
Kaw Valley Engineering
14700 West 114th Terrace
Lenexa, KS 66215
913.485.0318
kvereng.com

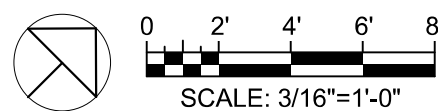
structural engineer:
Bob D. Campbell & Company, Inc.
4338 Bellevue
Kansas City, MO 64111
816.531.4144
www.bdc-engrs.com

MEP/IT/Codes:
Henderson Engineers
8345 Lenexa Drive, Suite 300
300
Lenexa, KS 66214
816.742.5000
www.hendersonengineers.com

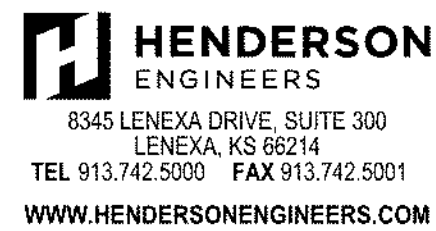
FIRE ALARM PLAN NOTES:

- F1 PROVIDE REMOTE POWER SUPPLY TO POWER VISIBLE NOTIFICATION APPLIANCES.
- F3 PROVIDE DUCT MOUNTED SMOKE DETECTOR FOR FAN POWERED MECHANICAL AIR HANDLING EQUIPMENT SHUTDOWN. INSTALL DETECTOR PER MANUFACTURER'S RECOMMENDATIONS. REFER TO MECHANICAL SHEETS FOR EQUIPMENT AND DUCTWORK LAYOUT AND DETAILS.
- F5 PROVIDE LOW VOLTAGE WIRING FROM DUCT DETECTOR TO REMOTE TEST STATION. MOUNT REMOTE TEST STATION IN CEILING.
- F6 PROVIDE A CARBON MONOXIDE DETECTOR IN ROOMS CONTAINING FIRST DIFFUSER FROM GAS POWERED AIR HANDLING UNITS. CARBON MONOXIDE DETECTOR SHALL EMIT A LOCAL ALARM TONE UPON DETECTION OF CARBON MONOXIDE.
- F7 PROVIDE NEW FIRE ALARM VOICE AMPLIFIER PANEL.

FIRE ALARM PLAN - LSN
3/16" = 1'-0"



FIRE ALARM PLAN - LSW
3/16" = 1'-0"



2150005255
MO. CORPORATE NO. E-558D
EXPIRES 12/31/2022

Issue Date: September 9, 2022

Revisions

NUMBER	DESCRIPTION	DATE
--------	-------------	------



CHRISTOPHER J. CULP
LICENSE # PE-2013037646

09/08/2022

FIRE ALARM PLAN
FA101

TELECOMMUNICATIONS SYMBOLS

THIS IS A MASTER LEGEND AND NOT ALL SYMBOLS OR ABBREVIATIONS ARE USED.

STANDARD MOUNTING HEIGHTS

TELECOM BACKBOARD (BOTTOM OF BACKBOARD)	4"
LADDER RACK IN TELECOM ROOMS (BOTTOM OF DEVICE)	90"
CABLE TRAY / CONDUIT AFC (BOTTOM OF PATHWAY)	3"(MIN)
LIGHT FIXTURE IN TELECOM ROOMS (BOTTOM OF DEVICE)	108"(MIN)
TELEPHONE WALL OUTLET (CENTERLINE)	48"
DATA WALL OUTLET	SAME AS ADJACENT DEVICE; UNO
TELEVISION OUTLET	REFER TO ARCH DRAWINGS
TMBG/TGB (CENTERLINE)	84"
WALL CLOCK (CENTERLINE)	84"
INTERCOM (CENTERLINE)	48"

USE THE DEFAULT MOUNTING HEIGHTS SHOWN ABOVE UNO IN THE CONSTRUCTION DOCUMENTS. MOUNTING HEIGHTS LISTED ARE ABOVE FINISHED FLOOR (AFF) OR ABOVE FINISHED GRADE (AFG) TO BOTTOM OF OUTLET BOX. ALL DEVICES SHALL BE INSTALLED IN COMPLIANCE WITH CURRENT ADA AND LOCAL REQUIREMENTS.

ABBREVIATIONS

A AMPERES	LAN LOCAL AREA NETWORK
ADA AMERICANS WITH DISABILITIES ACT	LCC LIMITED COMBUSTIBLE CABLE
AFC ABOVE FINISHED CEILING	LEC LOCAL EXCHANGE CARRIER
AFB ABOVE FINISHED FLOOR	LED LIGHT-EMITTING DIODE
AFG ABOVE FINISHED GRADE	LF LINEAR FEET
AHJ AUTHORITY HAVING JURISDICTION	MAN METROPOLITAN AREA NETWORK
ANISI AMERICAN NATIONAL STANDARDS INSTITUTE	MATV MASTER ANTENNA TELEVISION
AP ACCESS POINT	MC MAIN CROSS-CONNECT
AV AUDIO-VIDEO	MD MAIN DISTRIBUTION FRAME
AWG AMERICAN WIRE GAUGE	MFR MANUFACTURER
BAS BUILDING AUTOMATION SYSTEM	MH MAINTENANCE HOLE
BBC BACKBONE BONDING	MM MULTIMODE
BD BUILDING DISTRIBUTOR	MPE MAIN POINT OF ENTRANCE
BDF BUILDING DISTRIBUTION FRAME	MPO MAIN POINT OF PRESENCE
BFC BELOW FINISHED CEILING	MTD MOUNTED
C CONDUIT	N/A NOT APPLICABLE
CAT CATEGORY	NEC NATIONAL ELECTRICAL CODE
CATV COMMUNITY ANTENNA TELEVISION	NFPA NATIONAL FIRE PROTECTION ASSOCIATION
CCV CLOSED CIRCUIT TELEVISION	NIC NOT IN CONTRACT
CD CAMPUS DISTRIBUTOR	nm NANOMETER
CMP COMMUNICATIONS PLENUM JACKET	NRTL NATIONAL RECOGNIZED TESTING LAB
CMR COMMUNICATIONS RISER JACKET	OC OCCUPATIONAL SAFETY AND HEALTH
das DISTRIBUTED ANTENNA SYSTEM	OSP OUTSIDE PLANT
dB DECIBELS	PBB PRIMARY BONDING BUSBAR
DEMO DEMOLITION	PBX PRIVATE BRANCH EXCHANGE
(E) EXISTING	PDE POWER OVER ETHERNET
EC ELECTRICAL CONTRACTOR	PON PASSIVE OPTICAL NETWORK
ECIA ELECTRONIC COMPONENTS INDUSTRY ASSOCIATION	POTS PLAIN OLD TELEPHONE SERVICE
EMI ELECTROMAGNETIC INTERFERENCE	PSSTN PUBLIC SWITCHED TELEPHONE NETWORK
EMS ENERGY MANAGEMENT SYSTEM	QTY QUANTITY
EMT ELECTRICAL METALLIC TUBING	RCDD REGISTERED COMMUNICATIONS DISTRIBUTION DESIGNER
ER EQUIPMENT ROOM	RMC RIGID METAL CONDUIT
ETR EXISTING TO REMAIN	RU RACK UNIT
FAAP FIRE ALARM ANNUNCIATOR PANEL	SBB SECONDARY BONDING BUSBAR
FACP FIRE ALARM CONTROL PANEL	SCS STRUCTURED CABLING SYSTEM
FD FLOOR DISTRIBUTOR	SF SQUARE FEET
FMC FLEXIBLE METAL CONDUIT	SM SINGLEMODE
FS FIRE STOP SYSTEM	SPCS SPECIFICATIONS
FLR FLOOR	TBB TELECOMMUNICATIONS BONDING BACKBONE
FUTP SCREEN TWISTED PAIR (SHIELDED)	TBD TO BE DETERMINED
GC GENERAL CONTRACTOR	TIA TELECOMMUNICATIONS INDUSTRY ASSOCIATION
GYP GYPSUM BOARD	TR TELECOMMUNICATIONS ROOM
HC HORIZONTAL CROSS-CONNECT	TYP TYPICAL
HCM HORIZONTAL CABLE MANAGER	UNO UNLESS NOTED OTHERWISE
HH HAND HOLE	UL UNDERWRITER LABORATORIES, INC.
HZ HERTZ	UPS UNINTERRUPTIBLE POWER SUPPLY
IMC INTERMEDIATE METAL CONDUIT	U/UTP UNSHIELDED TWISTED PAIR
IP INTERNET PROTOCOL	V VOLTS
ISP INTERNET SERVICE PROVIDER	VCM VERTICAL CABLE MANAGER
ISP INSIDE PLANT CABLE	W WIRE
JB JUNCTION BOX	WAN WIDE AREA NETWORK
J-BOX JUNCTION BOX	WAO WORK AREA OUTLET
	WAP WIRELESS ACCESS POINT
	WP WEATHER PROOF
	WR WEATHER RESISTANT
	WT WATERTIGHT
	XP EXPLOSION-PROOF

ANNOTATION

①	TECHNOLOGY PLAN CALLOUT
1	EQUIPMENT DESIGNATION (OWNER FURNISHED, CONTRACTOR INSTALLED)
●	CONNECTION POINT OF NEW WORK TO EXISTING
① T1	DETAIL REFERENCE UPPER NUMBER INDICATES DETAIL NUMBER, LOWER NUMBER INDICATES SHEET NUMBER
① T1	SECTION CUT DESIGNATION
⊗	DEDICATED EQUIPMENT ACCESS TILE
⊠	ACCESS PANEL

LINE TYPE LEGEND

THROUGHOUT THE DRAWINGS DIFFERENT LINE-TYPES ARE USED IN COMBINATION WITH THE SYMBOLS TO INDICATE THE STATUS OF ITEMS AS EXISTING, TO BE DEMOLISHED, TO BE INCLUDED AS PART OF THE NEW WORK AND/OR ITEMS WHICH ARE ANTICIPATED TO BE PROVIDED IN THE FUTURE. THE STATUS OF ITEMS USING THESE LINE-TYPES ARE RELATIVE TO THE VIEW IN WHICH THEY APPEAR. PHASING SHOWN IN DRAWINGS IS NOT INTENDED TO FULLY DESCRIBE ALL NECESSARY CONSTRUCTION PHASING, WHICH IS DETERMINED BY THE CONTRACTOR AS PART OF THEIR RESPONSIBILITIES. ANY SUCH PHASES DESCRIBED IN THE CONSTRUCTION DOCUMENTS ARE GENERAL AND ONLY INTENDED TO INDICATE A BROAD ORDER FOR THE SAKE OF DESCRIBING THE PROJECT. THE FOLLOWING LINE-TYPES MAY BE USED ON ANY DEVICE, EQUIPMENT, NOTE, LINE, SHAPE, ETC.

EXISTING	—————	NEW	—————
DEMOLISH	- - - - -	FUTURE	- - - - -

CABLE TYPES

A	CATEGORY 6 CABLE
B	PAGING SPEAKER CABLE
C	HDMI CABLE

PATHWAYS

W×H	WIRE MESH CABLE TRAY (W"=WIDTH, "H"=HEIGHT)
—	VERTICAL CABLE TRAY
(#) D"	UNDERGROUND CONDUIT ("H"=QUANTITY, "D"=CONDUIT DIAMETER)
(#) D"	CONDUIT ("H"=QUANTITY, "D"=CONDUIT DIAMETER)
(#) D"	CABLE SUPPORTS OR J-HOOKS
(#) D"	CONDUIT SLEEVE ("H"=QUANTITY, "D"=CONDUIT DIAMETER)
FS	UL FIRESTOP SYSTEM ASSEMBLY
PB L"XW"XH"	PULL BOX (L"=LENGTH, W"=WIDTH, "H"=HEIGHT)
SC	SPLICE

RISER DIAGRAMS

—	FIBER OPTIC CROSS CONNECT
⊗	COPPER UTP CROSS CONNECT
P	110-TYPE PROTECTOR BLOCK
[PATCH PANEL]	PATCH PANEL
[SBB]	SECONDARY BONDING BUSBAR (SBB)
[PBB]	PRIMARY BONDING BUSBAR (PBB)
— — — —	TELECOMMUNICATIONS BACKBONE CABLING (REFER TO RISER DIAGRAM FOR MORE INFORMATION)

TELECOMMUNICATIONS ROOM

[LADDER RACK]	LADDER RACK
[PBB]	PRIMARY BONDING BUSBAR (PBB) - WALL ELEVATION VIEW
[SBB]	SECONDARY BONDING BUSBAR (SBB) - WALL ELEVATION VIEW
[PBB/SBB - PLAN VIEW]	PBB/SBB - PLAN VIEW
—	TELECOM BACKBOARD
[TWO-POST EQUIPMENT RACK]	TWO-POST EQUIPMENT RACK
[FOUR-POST EQUIPMENT RACK]	FOUR-POST EQUIPMENT RACK
[EQUIPMENT CABINET (REFER TO PLAN NOTES ON ENLARGED PLANS FOR MORE INFORMATION)]	EQUIPMENT CABINET (REFER TO PLAN NOTES ON ENLARGED PLANS FOR MORE INFORMATION)



TELECOMMUNICATIONS OUTLETS

SYMBOL	DESCRIPTION	CABLE(S)			DETAIL
		A	B	C	
▽ 2D	DATA WALL OUTLET	2	0	0	7/TN400-A/B
▽ 4D	DATA WALL OUTLET	4	0	0	7/TN400-A/B
▽ 4D	DATA WALL OUTLET	4	0	0	7/TN400-A/B
◇ 2D	DATA CEILING OUTLET	2	0	0	8/TN400-A/B
▽ W.2D	TELEPHONE, VoIP WALL OUTLET	2	0	0	7/TN400-A/B

TELECOMMUNICATIONS END-POINT DEVICES

DEVICE SCHEDULE					
SYMBOL	DESCRIPTION	CABLE(S)			DETAIL
		A	B	C	
(C) S	CLOCK, ANALOG SINGLE SIDED, WALL MOUNT	0	0	0	N/A
(S) RC	PAGING SPEAKER, RECESSED CAN CEILING MOUNT	0	1	0	5/TN400-A/B
(P)	PAGING SPEAKER, PENDANT CEILING MOUNT	0	1	0	5/TN400-A/B

AUDIO-VIDEO IP END-POINT DEVICES

REFER TO TA-SERIES DRAWINGS FOR AV DEVICES					
SYMBOL	DESCRIPTION	CABLE(S)			DETAIL
		A	B	C	
	TELEVISION WALL OUTLET	1	0	2	9/TN400-A/B
	HDMI INTERFACE PLATE	2	0	1	8/TN400-A/B

TELECOMMUNICATIONS RESPONSIBILITY MATRIX

Description	Furnish		Install		Comments
	Construction Team	Owner	Construction Team	Owner	
General Communications					
Grounding and Bonding	X		X		
Hangers and Supports	X		X		
Conduits and Backboxes	X		X		
Cable Trays	X		X		
Underground pathways for utility entrances and floor boxes	X		X		
Firestops, Conduit Sleeves, and Sleeve Seals	X		X		
Structured Cabling					
Telecom Room Cabinets, Racks, Frames, and Enclosures	X		X		
Telecom Room Buildout (ex. backboard and ladder rack)	X		X		
Telecom Room Uninterruptible Power Supply (UPS)		X		X	
Telecom Room Power Strips		X		X	
Optical Fiber Backbone Cable and Connectivity	X	X	X	X	
Copper Backbone Cable and Connectivity	X		X		
Copper Horizontal Cable and Connectivity	X		X		
Data Communications					
Router / Firewall		X		X	
Core Switch / Edge Switch		X		X	
Wireless Access Points		X		X	
Servers / Storage and Backup		X		X	
Laptops / Desktops / Copiers / Printers / Scanners		X		X	
Software		X		X	
Voice Communications					
VoIP Gateway / Analog handsets		X		X	
VoIP handset wall mount kit		X		X	
VoIP handsets		X		X	
VoIP Network licensing		X		X	
Audio-Video Communications					
Conduits and Backboxes for AV systems	X		X		
HDMI Classroom Cabling and Connectivity	X		X		
Refer to AV drawings for AV Scope					
Distributed & Monitoring Communications					
K12 Classroom Analog Paging	X		X		
Wireless Clock Systems	X		X		
Electronic Safety and Security					
Conduits and Backboxes for Security systems	X		X		
Refer to Security drawings for Security Scope					

GENERAL NEW WORK NOTES

- READ THE SPECIFICATIONS AND REVIEW DRAWINGS OF ALL DIVISIONS OF WORK. COORDINATE THIS WORK WITH ALL OTHER DIVISIONS OF WORK AND ALL SUBCONTRACTORS.
- ALL WORK SHALL CONFORM TO THE APPLICABLE SPECIFICATIONS (DIVISION 26, DIVISION 27, DIVISION 28, ETC.) AND THE CUSTOMER PRE-ESTABLISHED STRUCTURED CABLING STANDARDS. SHOULD DIFFERENCES EXIST IN THE SPECIFICATIONS RELATING TO TECHNOLOGY AND THE CLIENT'S PRE-ESTABLISHED STANDARDS THE CONTRACTOR SHALL CONTACT THE LOW VOLTAGE ENGINEER FOR CLARIFICATION THROUGH THE RFI PROCESS.
- FULLY COORDINATE ALL CABLE TRAY, FIRE STOP CONDUITS / SLEEVES, AND CONDUIT ROUTING WITH STRUCTURAL ELEMENTS. COORDINATE CABLE TRAY AND CONDUIT INSTALLATIONS WITH ARCHITECT, STRUCTURAL ENGINEER, STRUCTURAL CONTRACTOR, AND GENERAL CONTRACTOR PRIOR TO INSTALLATION. ROUTING IN CONCRETE SLAB OR UNDER SLAB (WHERE CONDUITS WOULD BE ON GRADE) REQUIRES THE USE OF WET LOCATION RATED CABLES.
- ALL TELECOMMUNICATIONS CONTINUOUS PATHWAYS SHALL BE BONDED TO THE TELECOMMUNICATIONS BONDING BACKBONE. FOR CONDUITS, INSULATION BUSHINGS SHALL BE USED AT THE END OF THE CONDUIT THE FARTHEST AWAY FROM THE SERVING TR. A BONDING BUSHING SHALL BE USED AT THE END CLOSEST TO THE SERVING TR. CONTRACTOR TO REFER TO THE ANSI-STD-J 607 STANDARD FOR ADDITIONAL INFORMATION AS TO THE INSTALLATION OF THE TELECOMMUNICATIONS BONDING BACKBONE.
- ALL FIRE RATED WALL / FLOOR ASSEMBLIES PENETRATED FOR TELECOMMUNICATIONS CABLING PATHWAYS SHALL BE FIRE STOPPED WITH THE APPROVED FIRE STOP SYSTEMS (F/S). ALL FIRESTOP SYSTEMS SHALL BE INSTALLED AS DIRECTED BY THE MANUFACTURER AND AS SPECIFIED IN DIVISION 07 07 54 00 - "FIRESTOPPING". FIRE STOP ASSEMBLY LOCATIONS ARE TO BE COORDINATED WITH CABLE TRAY PATHWAY TO TELECOMMUNICATIONS ROOM.
- BACK BOXES AND CONDUIT LOCATIONS IN PRECAST CONCRETE WALLS SHALL BE COORDINATED WITH ARCHITECT, STRUCTURAL ENGINEER, AND GC PRIOR TO ORDERING THE PRECAST WALLS.
- ROUTING OF CABLES SHALL BE CONCEALED. CABLES SHALL BE ROUTED IN CONDUIT IN EXPOSED AREAS. MINIMIZE AMOUNT OF EXPOSED CONDUIT BY EMBEDDING CONDUIT IN SLAB WHEN POSSIBLE. EMBEDDED CONDUITS AND PENETRATIONS OF STRUCTURE SHALL FOLLOW DETAILS IN STRUCTURAL DRAWINGS. WHEN CONDUITS CAN ONLY BE INSTALLED EXPOSED, NOTIFY ARCHITECT PRIOR TO START OF INSTALLATION OF CONDUITS. CABLES SHALL BE ROUTED IN CONDUIT WHEN ABOVE HARD CEILINGS. CONDUITS FOR ELEVATOR PHONES AND FIRE ALARM CONTROL PANEL SHALL BE CONTINUOUS (HOMERUN) FROM THE TELECOMMUNICATIONS ROOM TO THE APPLICABLE BOX / CABINET. CONTRACTOR SHALL SIZE AND PROVIDE CONDUITS TO MEET TIA-569.
- TELECOMMUNICATIONS ROOMS SHALL BE DEDICATED FOR INFORMATION TECHNOLOGY USE (I.E. NO SHARED SPACE WITH A JANITOR, FIRE ALARM SYSTEM, ETC.) NO SERVICES SHALL PASS THROUGH THE SPACE UNLESS DEDICATED TO THE SPACE (NO PLUMBING, MECHANICAL, ELECTRICAL, FIRE, ETC.)

CALL OUTS

ENLARGED PLAN CALLOUT	
NOT IN SCOPE	

Revisions

NUMBER	DESCRIPTION	DATE
--------	-------------	------

LSR7 Robotics, GiC &
Phys Education

LSN: 901 NE Douglas St., Lee's Summit MO
64086
LSW: 2600 SW Ward Rd, Lee's Summit MO
64082
LSHS: 400 SE Blue Pkwy, Lee's Summit MO 64063

0121-0100

owner:
Lee's Summit R-7 School
301 NE Tudor Road
Lee's Summit, MO 64086

architect:
Multistudio
4205 Pennsylvania
Kansas City, MO 64111
816.931.6655
multi-studio

civil engineer:
Kaw Valley Engineering
14700 West 114th Terrace
Lenexa, KS 66215
913.485.0318
kveg.com

structural engineer:
Bob D. Campbell & Company, Inc.
4338 Bellevue
Kansas City, MO 64111
816.531.4144
www.bdc-engrs.com

MEP/IT/Code:
Henderson Engineers
8345 Lenexa Drive, Suite
300
Lenexa, KS 66214
816.742.5000
www.hendersonengineers.com



8345 LENEXA DRIVE, SUITE 300
LENEXA, KS 66214
TEL 913.742.5000 FAX 913.742.5001
WWW.HENDERSONENGINEERS.COM
2150005255
MO. CORPORATE NO. E-658D
EXPIRES 12/31/2022

Issue Date: September 9, 2022

NUMBER	DESCRIPTION	DATE
1	Addendum 01	09/16/2022



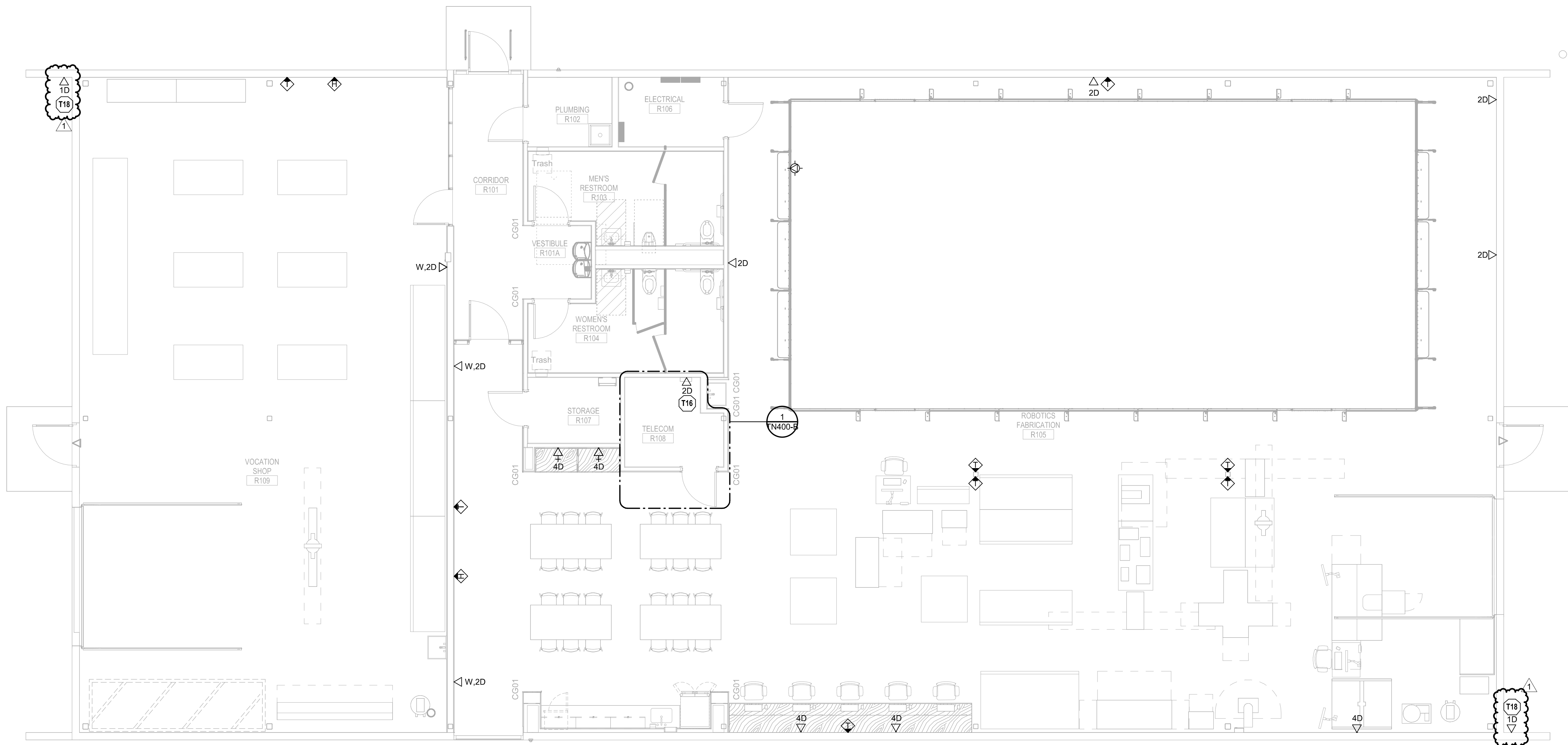
09/15/2022
DOUGLAS M. EVERHART
LICENSE # PE-201907648

LSN - TECHNOLOGY
PLAN - LEVEL 1

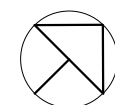
TN101-B

TECHNOLOGY PLAN NOTES:

T16 PROVIDE DATA FOR ACCESS CONTROL PANEL.
T18 DATA SHOWN FOR SECURITY CAMERA. REFER TO TY
DRAWINGS FOR EXACT LOCATION PRIOR TO INSTALLATION.



1 TECHNOLOGY LEVEL 1 PLAN - LSN
3/16" = 1'-0"



**LSR7 Robotics, GiC &
Phys Education**

LSN: 901 NE Douglas St., Lee's Summit MO
64086
LSW: 2600 SW Ward Rd, Lee's Summit MO
64082
LSHS: 400 SE Blue Pkwy, Lee's Summit MO 64063

0121-0100

owner:
Lee's Summit R-7 School
301 NE Tudor Road
Lee's Summit, MO 64086

architect:
Multistudio
4205 Pennsylvania
Kansas City, MO 64111
816.931.6655
multi.studio

civil engineer:
Kaw Valley Engineering
14700 West 114th Terrace
Lenexa, KS 66215
913.485.0318
kveng.com

structural engineer:
Bob D. Campbell & Company, Inc.
4338 Bellevue
Kansas City, MO 64111
816.531.4144
www.bdc-engrs.com

MEP/ET/Code:
Henderson Engineers
8345 Lenexa Drive, Suite
300
Lenexa, KS 66214
816.742.5000
www.hendersonengineers.com



8345 LENEXA DRIVE, SUITE 300
LENEXA, KS 66214
TEL 913.742.5000 FAX 913.742.5001
WWW.HENDERSONENGINEERS.COM

2150005255
MO. CORPORATE NO. E-6880
EXPIRES 12/31/2022

Issue Date: September 9, 2022

Revisions		
NUMBER	DESCRIPTION	DATE
2	Addendum 02	09/23/2022



09/23/2022
DOUGLAS M. EVERHART
LICENSE # PE-2019007648

**LSN - TECHNOLOGY RCP
- LEVEL 1**

TN201-B

① TECHNOLOGY LEVEL 1 RCP - LSN
3/16" = 1'-0"

LSR7 Robotics, GiC & Phys Education

LSN: 901 NE Douglas St., Lee's Summit MO 64086
LSW: 2600 SW Ward Rd, Lee's Summit MO 64082
LSHS: 400 SE Blue Pkwy, Lee's Summit MO 64063

0121-0100

owner:
Lee's Summit R-7 School
301 NE Tudor Road
Lee's Summit, MO 64086

architect:
Multistudio
4205 Pennsylvania
Kansas City, MO 64111
816.931.6655
multi.studio

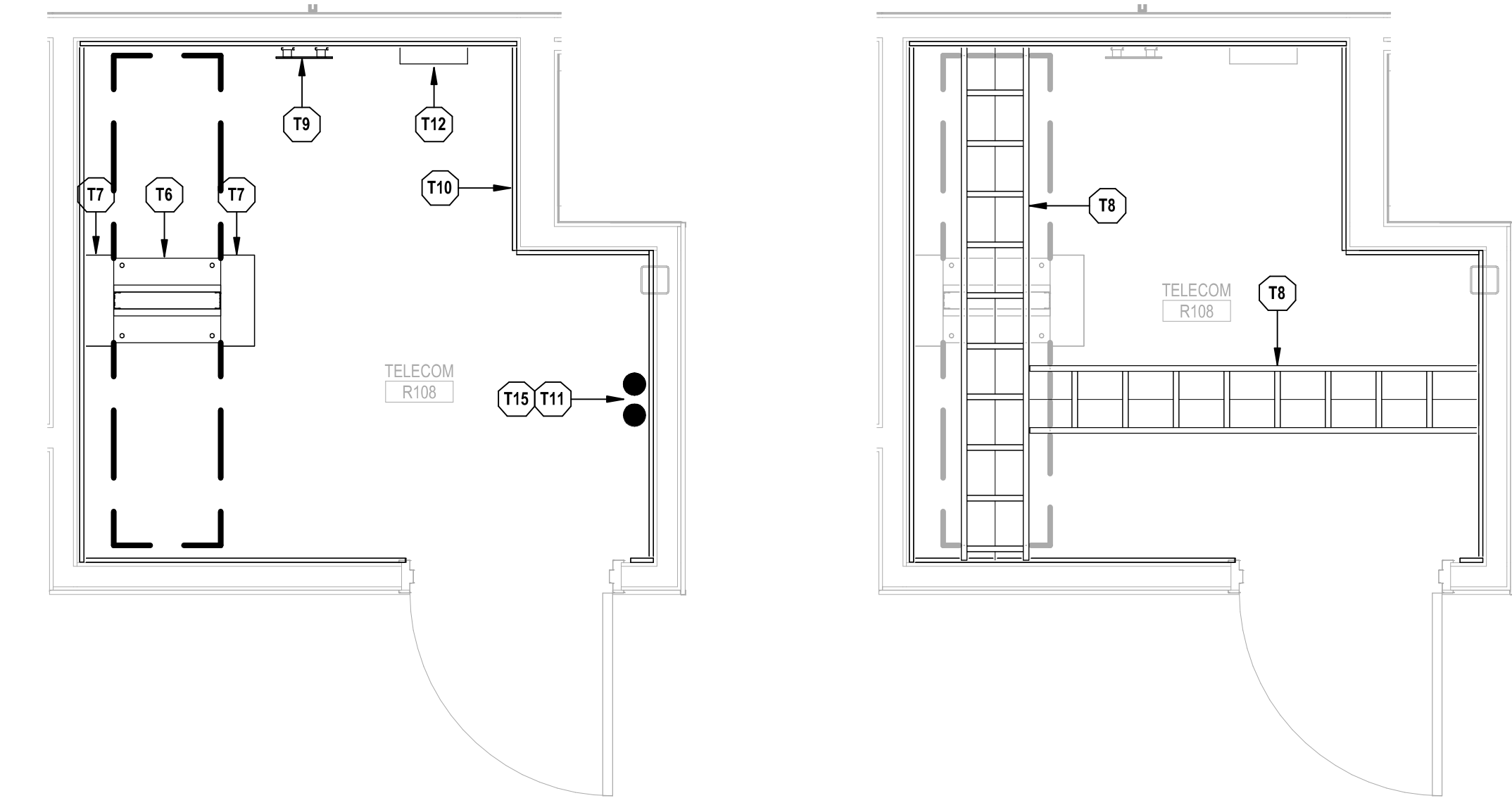
civil engineer:
Kaw Valley Engineering
14700 West 114th Terrace
Lenexa, KS 66215
913.485.0318
kveg.com

structural engineer:
Bob D. Campbell & Company, Inc.
4338 Bellevue
Kansas City, MO 64111
816.531.4144
www.bdc-engrs.com

MEP/IT Codes:
Henderson Engineers
8345 Lenexa Drive, Suite 300
Lenexa, KS 66214
816.742.5000
www.hendersonengineers.com

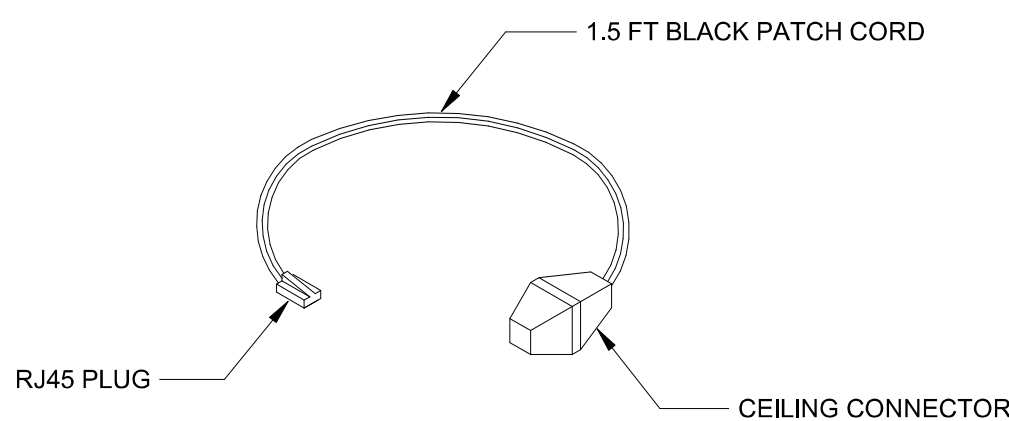
TECHNOLOGY PLAN NOTES:

- T6 PROVIDE 19" WIDE TWO-POST EQUIPMENT RACK. REFER TO SECTION 271100 FOR FURTHER REQUIREMENTS.
T7 PROVIDE 6" VERTICAL WIRE MANAGER. REFER TO SECTION 271100 FOR FURTHER REQUIREMENTS.
T8 PROVIDE 12" WIDE LADDER RACK. REFER TO SECTION 271100 FOR FURTHER REQUIREMENTS.
T9 PROVIDE TELECOMMUNICATIONS GROUNDING BUS BAR. SEE DETAILS SHEET AND SECTIONS 270500 FOR FURTHER REQUIREMENTS.
T10 PROVIDE 3/4" FIRE-RATED TELECOMMUNICATIONS PLYWOOD BACKBOARD DOUBLE COATED IN UL 723 CLASSIFIED FIRE RETARDANT LOW GLOSS WHITE PAINT. PLYWOOD SHALL BE PAINTED PRIOR TO INSTALLATION.
T11 (2) 4" CONDUIT INCOMING SERVICE CONDUITS. REFER TO ELECTRICAL SITE PLANS FOR EXACT ROUTING AND FURTHER INFORMATION.
T12 ACCESS CONTROL PANEL. REFER TO SECURITY DRAWINGS FOR FURTHER REQUIREMENTS.
T15 PROVIDE 12" WIDE VERTICAL LADDER RACK. REFER TO SECTION 271100 FOR FURTHER REQUIREMENTS.

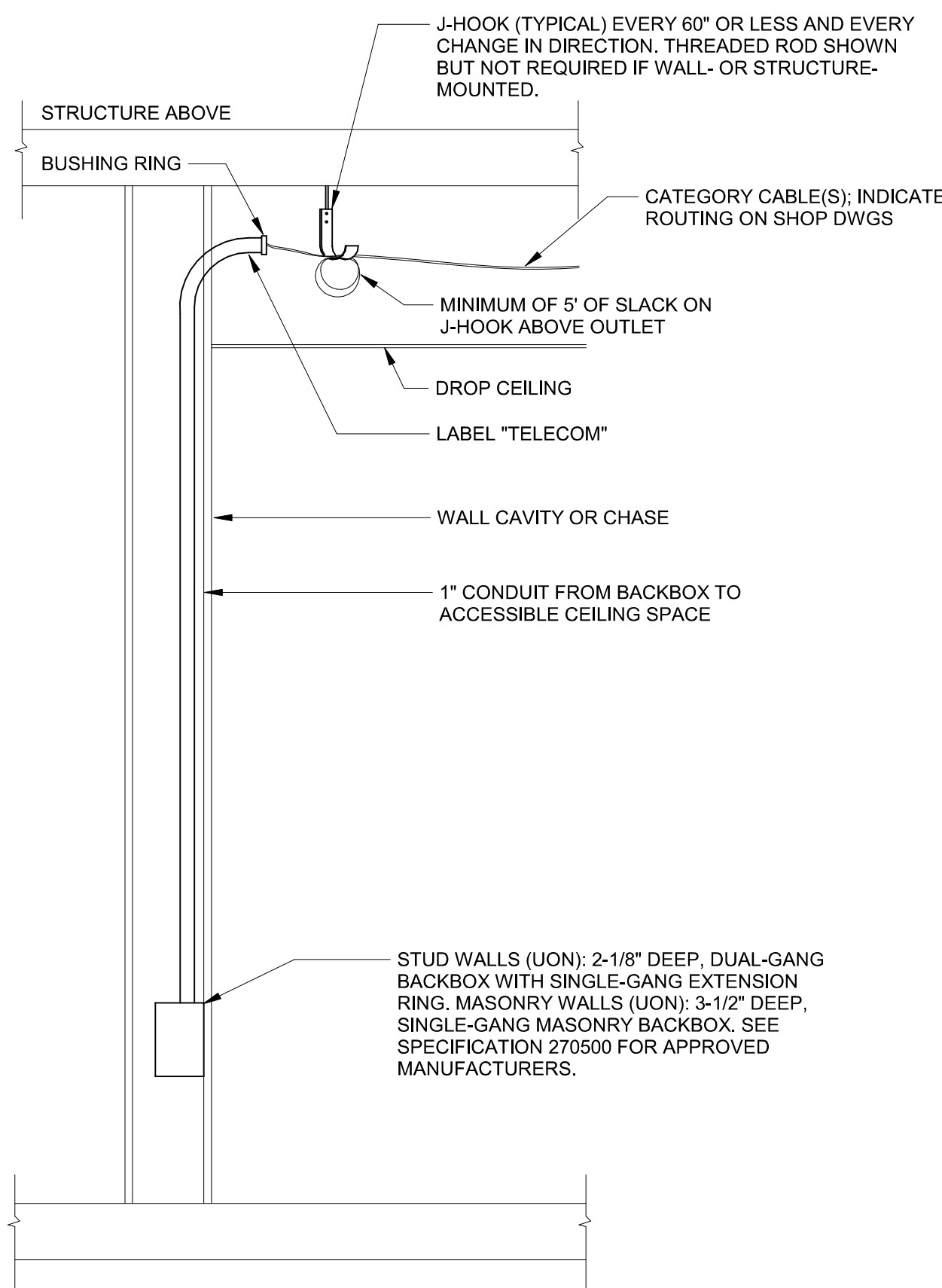


① LSN TELECOM ROOM #R108 - ENLARGED PLAN
1/2" = 1'-0"

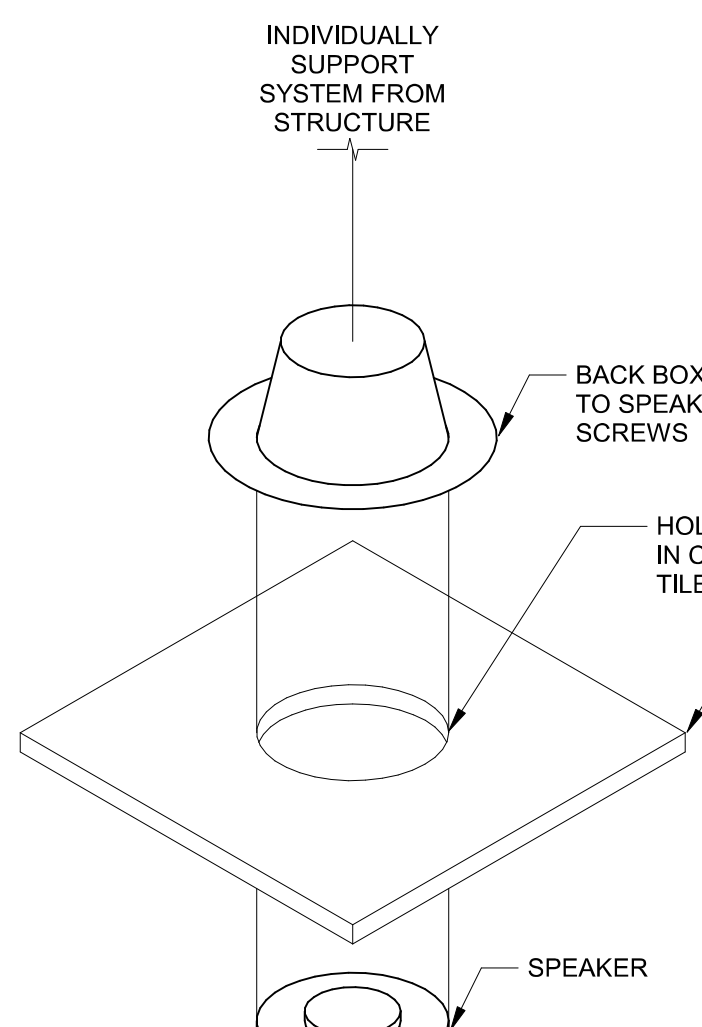
② LSN TELECOM ROOM #R108 - ENLARGED PATHWAY
1/2" = 1'-0"



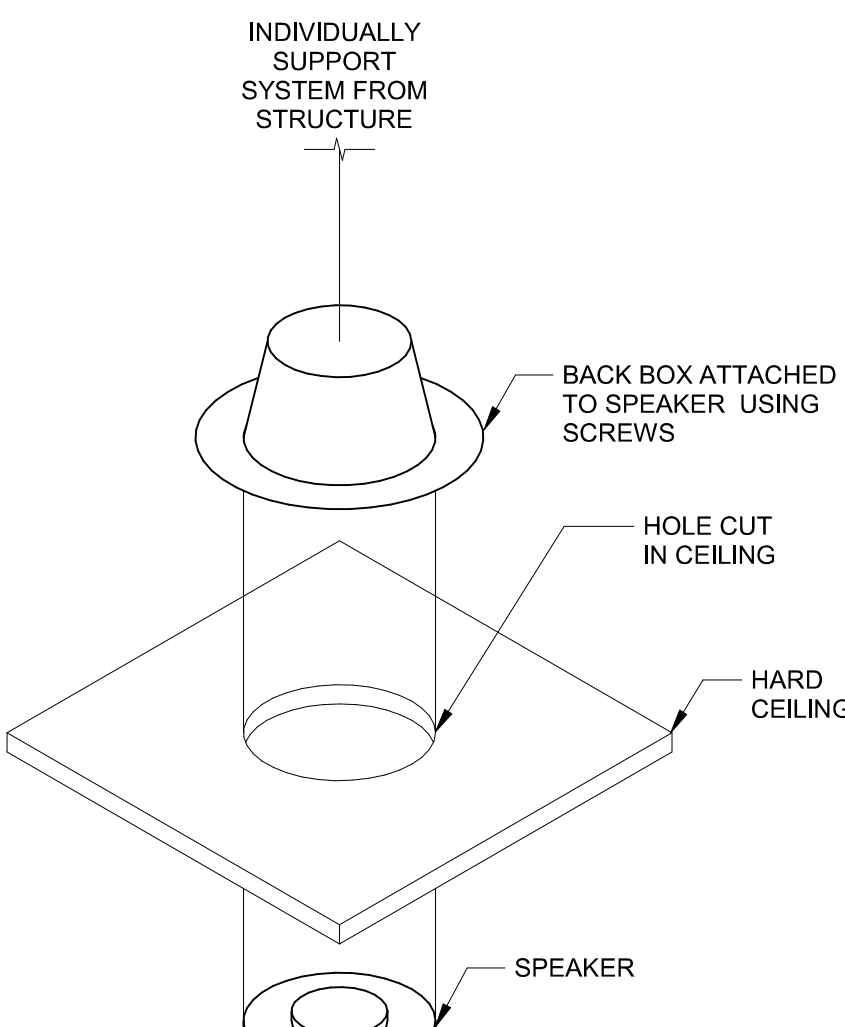
③ ACCESS POINT CONNECTOR ASSEMBLY
NTS



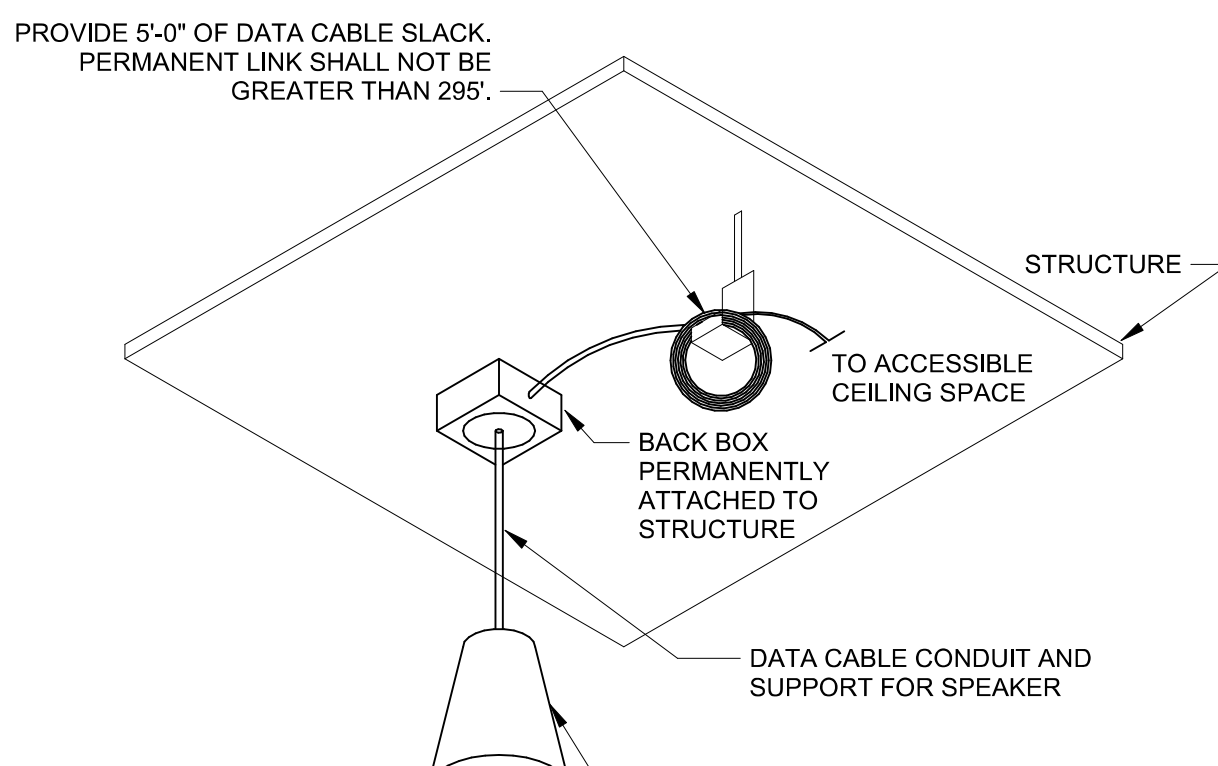
④ COMMUNICATIONS OUTLET MOUNTING
NTS



PAGING SPEAKER FOR ACCESSIBLE CEILING

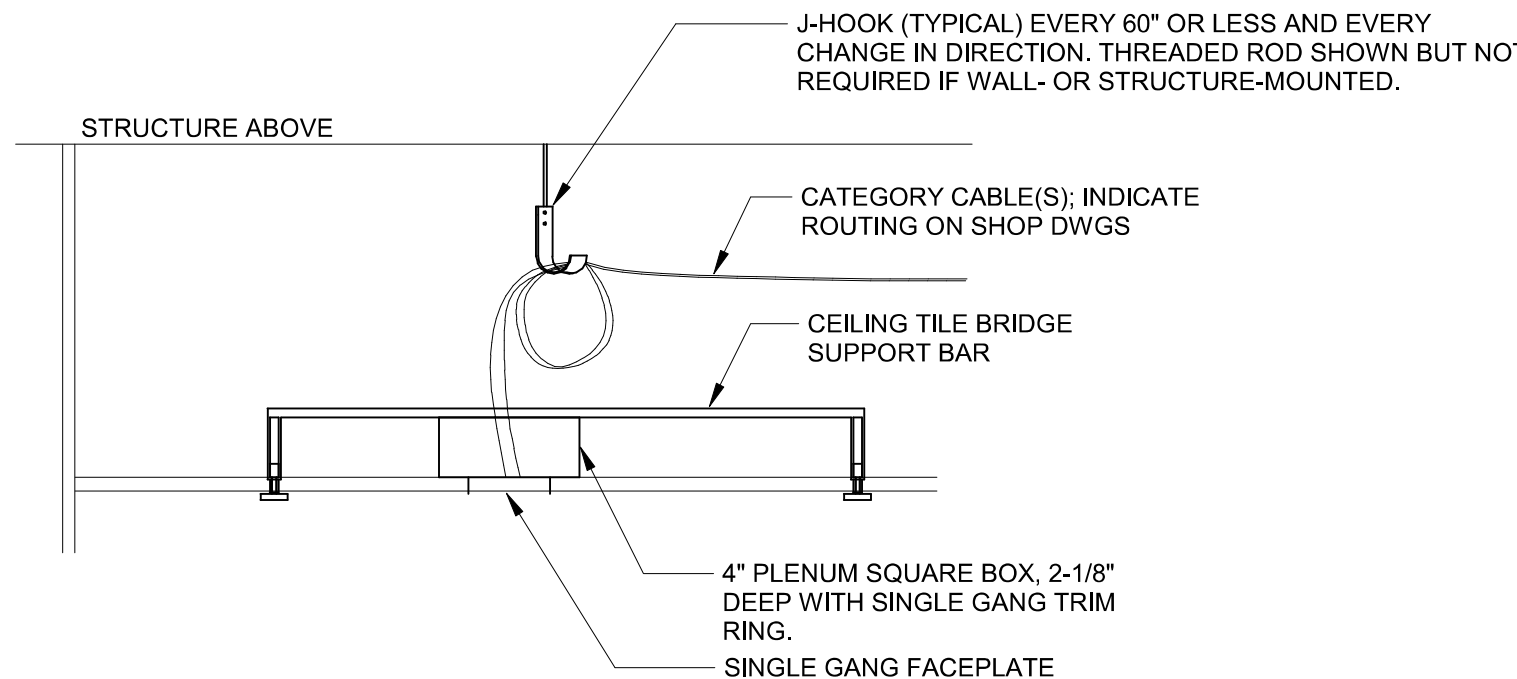


PAGING SPEAKER FOR HARD CEILING

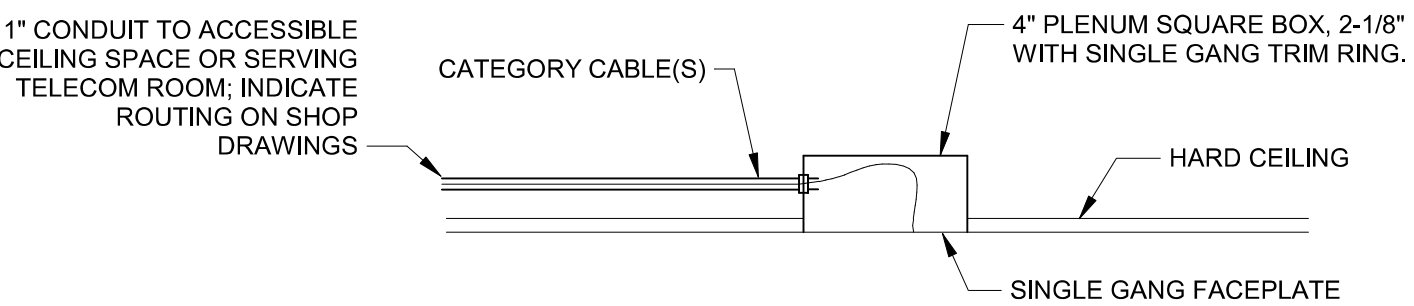


PAGING SPEAKER FOR EXPOSED CEILING

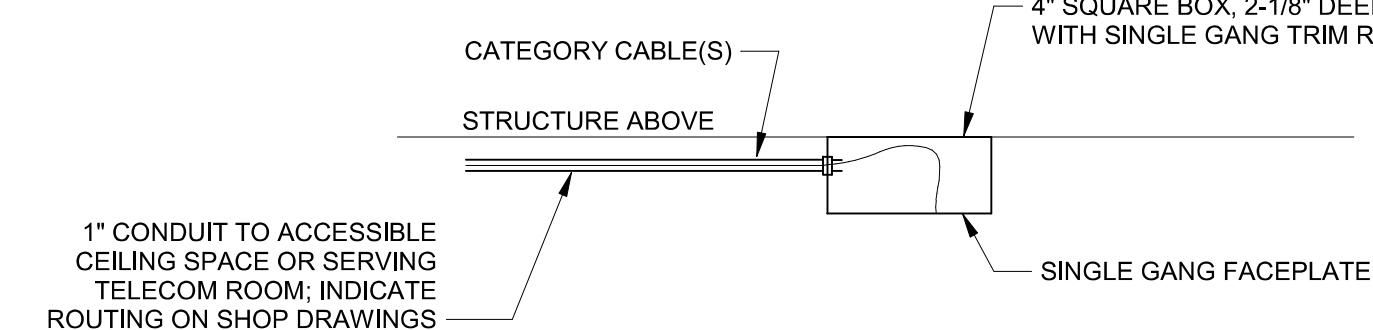
FOR OUTLETS IN SUSPENDED CEILING TILES



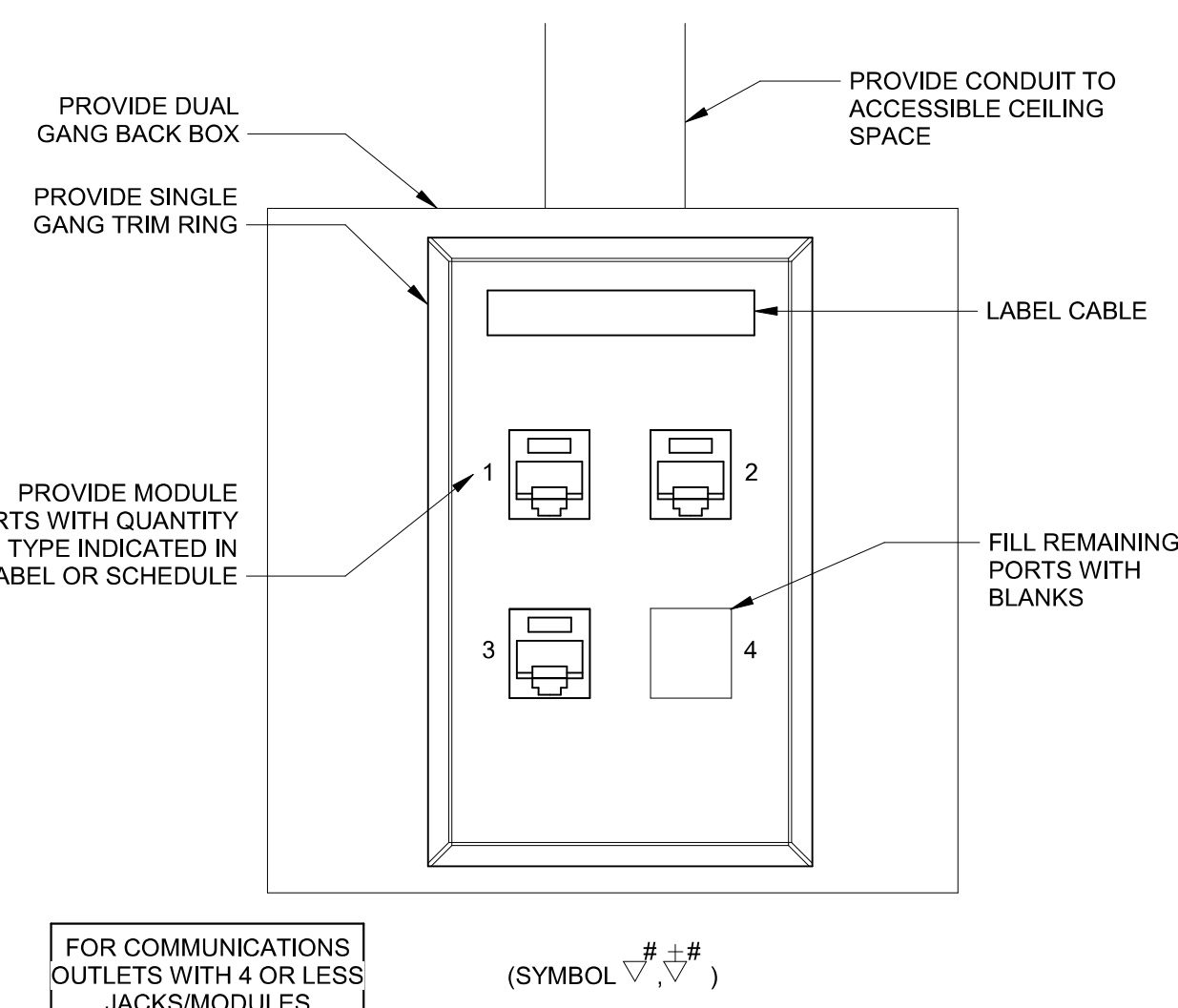
FOR OUTLETS IN GYPSUM BOARD CEILINGS



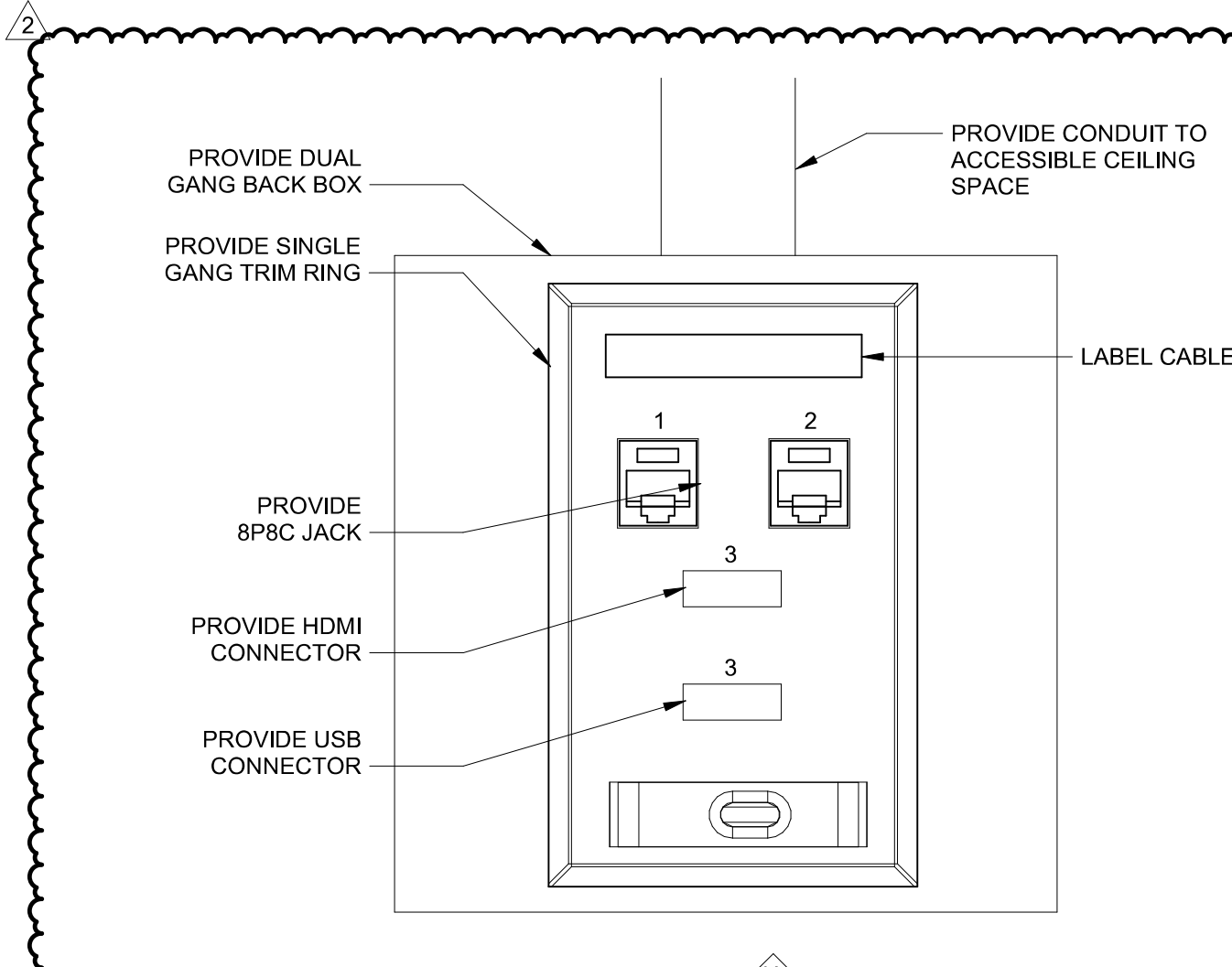
FOR OUTLETS IN EXPOSED TO STRUCTURE AREAS



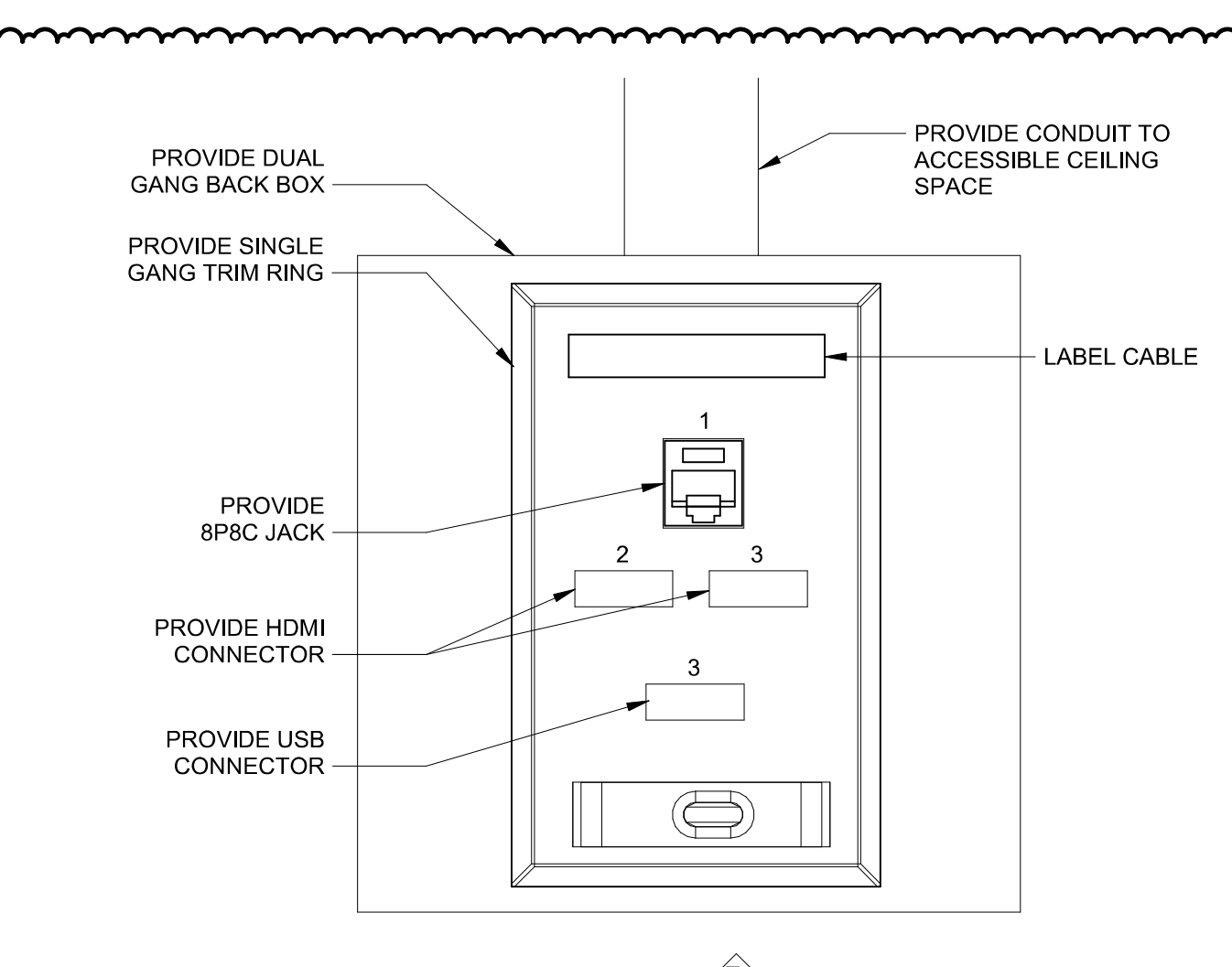
⑥ CEILING COMM OUTLET 2D
NTS



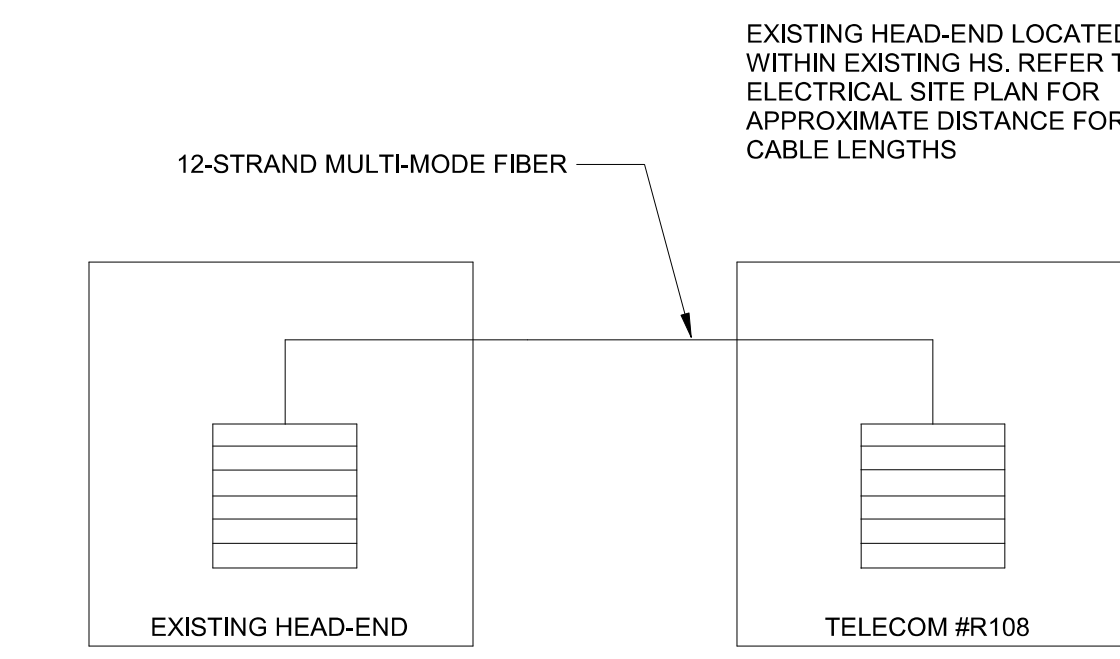
⑦ SINGLE GANG COMM OUTLET (2D)
NTS



⑧ SINGLE GANG COMM OUTLET FOR DISPLAY (2D)
NTS



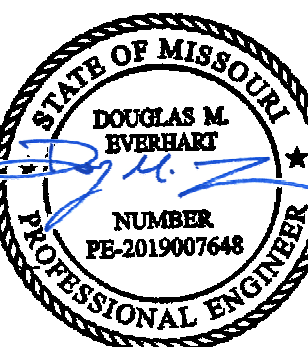
⑨ SINGLE GANG COMM OUTLET FOR DISPLAY (2D)
NTS



⑩ RISER DIAGRAM - BACKBONE CABLES
NTS

Issue Date: September 9, 2022

NUMBER	DESCRIPTION	DATE
2	Addendum 02	09/23/2022



09/23/2022
DOUGLAS M. EVERHART
LICENSE # PE-2019007648

**LSN - TECHNOLOGY
ENLARGED PLANS AND
DETAILS**

TN400-B

LSR7 Robotics, GiC &
Phys Education

LSN: 901 NE Douglas St., Lee's Summit MO
64086
LSW: 2600 SW Ward Rd, Lee's Summit MO
64082
LSHS: 400 SE Blue Pkwy, Lee's Summit MO 64063

owner:
Lee's Summit R-7 School
301 NE Tudor Road
Lee's Summit, MO 64086
architect:
Multistudio
4209 Pennsylvania
Kansas City, MO 64111
816.931.6655
multistudio.com
civil engineer:
Kaw Valley Engineering
14700 West 114th Terrace
Lenexa, KS 66215
913.485.0318
kvegeng.com
structural engineer:
Bob D. Campbell & Company, Inc.
4338 Bellevue
Kansas City, MO 64111
816.531.4144
www.bdc-engrs.com
MEP/IT/Codes:
Henderson Engineers
8345 Lenexa Drive, Suite
300
Lenexa, KS 66214
816.742.5000
www.hendersonengineers.com

SECURITY SYMBOLS

THIS IS A MASTER LEGEND AND NOT ALL SYMBOLS OR ABBREVIATIONS ARE USED.

STANDARD MOUNTING HEIGHTS

INTERCOM (OPERABLE PART)	48"
CARD READER (CENTER OR TOP WHERE OPERABLE PARTS EXIST)	44"
EMERGENCY LOCK RELEASE	48"
EMERGENCY PHONE (OPERABLE PARTS)	48"

DEFAULT MOUNTING HEIGHTS SHOWN ABOVE WHERE NO CALL-OUT IS PROVIDED. MOUNTING HEIGHTS LISTED ARE ABOVE FINISHED FLOOR (AFF) OR ABOVE FINISHED GRADE (AFG). ALL DEVICES SHALL BE INSTALLED IN COMPLIANCE WITH CURRENT ADA AND LOCAL REQUIREMENTS.

ABBREVIATIONS

A AMPERS	KVM KEYBOARD VIDEO MOUSE
ACP ACCESS CONTROL PANEL	SWITCH
ADA AMERICANS WITH DISABILITIES ACT	LAN LOCAL AREA NETWORK
AFB ABOVE FINISHED CEILING	LED LIGHT-EMITTING DIODE
AFF ABOVE FINISHED FLOOR	LF LINEAR FEET
AFG ABOVE FINISHED GRADE	MBS MAINTENANCE BYPASS SWITCH
AHJ AUTHORITY HAVING JURISDICTION	MDF MAIN DISTRIBUTION FRAME
ANSI AMERICAN NATIONAL STANDARDS INSTITUTE	MFR MANUFACTURER
AV AUDIO-VIDEO	MH MAINTENANCE HOLE
AWG AMERICAN WIRE GAUGE	MM MULTIMODE
BAS BUILDING AUTOMATION SYSTEM	MPOE MAIN POINT OF ENTRANCE
BD BUILDING DISTRIBUTOR	MPOP MAIN POINT OF PRESENCE
BDF BUILDING DISTRIBUTION FRAME	MTD MOUNTED
BFC BELOW FINISHED CEILING	N/A NOT APPLICABLE
BR BIOMETRIC READER	NEC NATIONAL ELECTRICAL CODE
C CONDUIT	NFPA NATIONAL FIRE PROTECTION ASSOCIATION
CAT CATEGORY	NIC NOT IN CONTRACT
CC CENTRAL CONTROL	nm NANOMETER
CCTV CLOSED CIRCUIT TELEVISION	NRTL NATIONALLY RECOGNIZED TESTING LAB
CD CAMPUS DISTRIBUTOR	NVR NETWORK VIDEO RECORDER
CMP COMMUNICATIONS PLENUM JACKET	OC OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION
CMR COMMUNICATIONS RISER JACKET	OSP OUTSIDE PLANT
(D) REMOTE DEVICE	POE POWER OVER ETHERNET
DAS DISTRIBUTED ANTENNA SYSTEM	PON PASSIVE OPTICAL NETWORK
dB DECIBELS	QTY QUANTITY
DCS DOOR CONTROL SYSTEM	(R) RELOCATED EXISTING DEVICE
DEMO DEMOLITION	(RE) REMOVE EXISTING DEVICE AND INSTALL AT ANOTHER LOCATION, SEE (R)
DSP DIGITAL SIGNAL PROCESSOR	RMC RIGID METAL CONDUIT
DVR DIGITAL VIDEO RECORDER	RMS REMOTE MONITORING STATION
(E) EXISTING DEVICE	RU RACK UNIT
EC ELECTRICAL CONTRACTOR	SCS STRUCTURED CABLING SYSTEM
ECA ELECTRONIC COMPONENTS INDUSTRY ASSOCIATION	SF SQUARE FEET
EMI ELECTROMAGNETIC INTERFERENCE	SM SINGLEMODE
EMS ENERGY MANAGEMENT SYSTEM	SP SCRAMBLE PAD
EMT ELECTRICAL METALLIC TUBING	TBD TO BE DETERMINED
ER EQUIPMENT ROOM	TIA TELECOMMUNICATIONS INDUSTRY ASSOCIATION
(ETR) EXISTING TO REMAIN	TGB TELECOMMUNICATIONS GROUND BUS BAR
(F) DOOR FRAME MOUNTED DEVICE	TMGB TELECOMMUNICATIONS MAIN GROUND BUS BAR
FAAP FIRE ALARM ANNUNCIATOR PANEL	TR TELECOMMUNICATIONS ROOM
FACP FIRE ALARM CONTROL PANEL	TYP TYPICAL
FD FLOOR DISTRIBUTOR	UNO UNLESS NOTED OTHERWISE
FMC FLEXIBLE METAL CONDUIT	UL UNDERWRITER LABORATORIES, INC.
FOR FIBER OPTIC RACK	UPS UNINTERRUPTIBLE POWER SUPPLY
FS FIRE STOP SYSTEM	UPSDF UNINTERRUPTIBLE POWER SUPPLY DISTRIBUTION
FLR FLOOR	PANEL
GC GENERAL CONTRACTOR	V VOL(T)S
(GT) GUARD TOUR	VCM VERTICAL CABLE MANAGER
GYP GYPSUM BOARD	VMS VIDEO MANAGEMENT SYSTEM
HH HAND HOLE	WAO WORK AREA OUTLET
HZ HERTZ	WP WEATHER PROOF
IMC INTERMEDIATE METAL CONDUIT	WR WEATHER RESISTANT
ICS INTERCOM CONTROL SYSTEM	WT WATERTIGHT
IP INTERNET PROTOCOL	XP EXPLOSION-PROOF
ISP INSIDE PLANT CABLE	
J-BOX JUNCTION BOX	
(K) ELECTRICALLY OPERATED BY KEY	
KP KEY PAD	

(-) INDICATES MODIFIER FOR SPECIAL OPERATION IN LABELING SCHEME

ANNOTATION

	SECURITY PLAN CALLOUT
	CONNECTION POINT OF NEW WORK TO EXISTING
	DETAIL REFERENCE UPPER NUMBER INDICATES DETAIL NUMBER, LOWER NUMBER INDICATES SHEET NUMBER
	SECTION CUT DESIGNATION

LINETYPE LEGEND

THROUGHOUT THE DRAWINGS DIFFERENT LINE-TYPES ARE USED IN COMBINATION WITH THE SYMBOLS TO INDICATE THE STATUS OF ITEMS AS EXISTING, TO BE DEMOLISHED, TO BE INCLUDED AS PART OF THE NEW WORK AND/OR ITEMS WHICH ARE ANTICIPATED TO BE PROVIDED IN THE FUTURE. THE STATUS OF ITEMS USING THESE LINETYPES ARE RELATIVE TO THE VIEW IN WHICH THEY APPEAR. PHASING SHOWN IN DRAWINGS IS NOT INTENDED TO FULLY DESCRIBE ALL NECESSARY CONSTRUCTION PHASING, WHICH IS DETERMINED BY THE CONTRACTOR AS PART OF THEIR RESPONSIBILITIES. ANY SUCH PHASES DESCRIBED IN THE CONSTRUCTION DOCUMENTS ARE GENERAL AND ONLY INTENDED TO INDICATE A BROAD ORDER FOR THE SAKE OF DESCRIBING THE PROJECT. THE FOLLOWING LINETYPES MAY BE USED ON ANY DEVICE, EQUIPMENT, NOTE, LINE, SHAPE, ETC.

EXISTING	NEW
DEMOLISH	FUTURE

SECURITY SYMBOLS

	AREA OF REFUGE CALL BOX
	CARD READER
	CLIENT WORKSTATION WHERE X = NUMBER OF MONITORS (AC) ACCESS CONTROL (SM) SECURITY MANAGEMENT (TS) TOUCHSCREEN CONTROL (VS) VIDEO SURVEILLANCE
	DOOR OPERATOR
	DOOR BELL (PB) PUSH BUTTON (CH) CHIME
	DOOR POSITION SWITCH SEE ARCHITECTURAL DOOR HARDWARE SCHEDULE
	DOOR POSITION SWITCH AND LATCHBOLT MONITOR SEE ARCHITECTURAL DOOR HARDWARE SCHEDULE
	ELECTRIFIED LOCKING DEVICE SEE ARCHITECTURAL DOOR HARDWARE SCHEDULE
	ELECTRIFIED LOCKING DEVICE SEE ARCHITECTURAL DOOR HARDWARE SCHEDULE
	EMERGENCY PHONE
	GLASS BREAK DETECTOR
	INTERCOM (CR) WITH CARD READER (DS) DOOR STATION (RS) RECEIVING (MASTER) STATION (VS) VIDEO STATION
	INMATE PHONE
	KEYPAD (ID) INTRUSION DETECTION SYSTEM (AC) ACCESS CONTROL
	LIGHTING CONTROL RELAYS
	MOTION DETECTOR
	PANIC ALARM THREE-COLOR INDICATOR LIGHT
	PANIC/DURESS BUTTON
	REQUEST-TO-EXIT PUSH PAD
	REMOTE UNLOCK/OPEN BUTTON
	MICROPHONE STATUS LIGHT, WALL MOUNT
	MICROPHONE
	MICROPHONE MUTE ILLUMINATED SWITCH
	SPEAKER (DOOR BELL)
	PAGING SPEAKER
	VAULT MONITOR
	WATER CONTROL VALVE VALVE BY DIVISION 22, CONTROL BY DIVISION 28
	WATCH TOUR

SECURITY CAMERAS

	FIXED CAMERA		TWO IMAGER CAMERA
	PTZ CAMERA		FOUR IMAGER CAMERA
	360 CAMERA		
	180 CAMERA		

MOUNTING TYPE SYMBOLS (APPLIES TO ANY SECURITY DEVICE SYMBOL)

	CEILING MOUNT
	WALL MOUNT
	POLE / BOLLARD MOUNT
	CORNER MOUNT
	PENDANT MOUNT
	WALL MOUNT PENDANT ARM

LABELING SCHEME

SECURITY DEVICES (TYPICAL)

	A: DEVICE SYMBOL
	XX: MODIFIER FOR SPECIAL OPERATION IF APPLICABLE
	YY: DEVICE TYPE

SEE MATCHING SCHEDULES ON THIS SHEET (IF APPLICABLE)

SECURITY CAMERAS (TYPICAL)

	XX: CAMERA NUMBER
	AA: CAMERA TYPE (SEE CAMERA SCHEDULE ON THIS PAGE)
	FOR WALL MOUNTED CAMERAS, HEIGHT ABOVE FINISHED FLOOR

SEE MATCHING SCHEDULES ON THIS SHEET (IF APPLICABLE)

GENERAL NOTES

- CONTRACTOR SHALL SUPPORT ALL CABLE WITH APPROVED PATHWAY.
- ALL CABLES SHALL BE ROUTED PARALLEL AND PERPENDICULAR TO THE BUILDING STRUCTURE, UNLESS OTHERWISE NOTED.
- DOOR HARDWARE AND OPENING CONDITIONS SHOULD BE EVALUATED PRIOR TO CONDUIT AND CABLING INSTALLATION AND COORDINATED WITH DIVISION 08.
- PROVIDE CONDUIT SLEEVE WITH NYLON BUSHINGS FOR NON-RATED WALL PENETRATIONS FOR COMMUNICATIONS CABLES. PATHWAYS SHALL BE SIZED FOR NO MORE THAN FOURTY (40) PERCENT FILL.
- PROVIDE CONDUIT SLEEVE WITH NYLON BUSHINGS FOR OVERHEAD CEILINGS THAT BLOCK ACCESS FOR MOVE/ADD/CHANGES TO CABLE PATHWAY, LIKE HARD GYPSUM CEILING. PATHWAYS SHALL BE SIZED FOR NO MORE THAN FOURTY (40) PERCENT FILL.
- PROVIDE UL LISTED FIRESTOP ASSEMBLY AT FIRE WALL PENETRATIONS FOR COMMUNICATIONS CABLES. MATERIAL AND INSTALLATION SHALL MAINTAIN THE RATED CAPACITY OF WALL AND MEET ALL APPLICABLE CODES.
- CONTRACTOR SHALL COORDINATE ALL COMMUNICATIONS AND CABLING PATHWAYS WITH OTHER DIVISIONS (08, 21, 22, 23, 26, AND 27) PRIOR TO INSTALL OF DUCTWORK, PIPING, CONDUITS, AND ETC.
- FULLY COORDINATE ALL CONDUIT ROUTING WITH STRUCTURAL ELEMENTS. COORDINATE CONDUIT INSTALLATIONS WITH ARCHITECT, STRUCTURAL ENGINEER, STRUCTURAL CONTRACTOR, AND GENERAL CONTRACTOR PRIOR TO INSTALLATION. ROUTING IN OR UNDER THE SLAB FLOOR REQUIRES THE USE OF CABLE RATED FOR A WET ENVIRONMENT.
- VERIFY ALL CAMERA LOCATIONS PRIOR TO ROUGH-IN. FIELD OF VIEW SHALL NOT BE OBSTRUCTED BY OTHER ELEMENTS INCLUDING, BUT NOT LIMITED TO, EXIT SIGNS, LIGHT FIXTURES, MILLWORK, SPRINKLERS, CURTAINS, AND SIGNAGE.
- ALL WIRING SHALL BE INSTALLED COMPLETE AND UNSPLICED FROM THE SERVING EQUIPMENT PANEL TO DEVICE.
- REFER TO TNO.1 FOR TECHNOLOGY GENERAL NOTES THAT ALSO DESCRIBES SECURITY COMPONENTS.

SECURITY ROUGH-IN

ROUGH-IN ONLY SCHEDULE					
SYMBOL	DESCRIPTION	BACK BOX	CONDUIT	CABLE(S)	MOUNTING HEIGHT
	SECURITY ELECTRIFIED LOCK	N/A	(1) 1/2" EMT TO C DOOR FRAME	N/A	
	SECURITY CARD READER, WALL	2-GANG BACKBOX WITH 1-GANG MUD RING	(1) 3/4" EMT	B	44"
	SECURITY CARD READER, MULLION	N/A	(1) 3/4" EMT	B	44"
	SECURITY REQUEST-TO-EXIT	1-GANG BACKBOX WITH 1-GANG MUD RING	(1) 1/2" EMT	E	REFER TO DOOR HARDWARE SCHEDULE
	SECURITY CAMERA, CEILING - RECESSED	PROVIDER'S BACKBOX	(1) 3/4" EMT	A	N/A
	SECURITY CAMERA, CEILING - SURFACE	2-GANG BACKBOX WITH 1-GANG MUD RING	(1) 3/4" EMT	A	N/A
	SECURITY CAMERA, WALL - INTERIOR	2-GANG BACKBOX WITH 1-GANG MUD RING	(1) 3/4" EMT	A	9' - 0"
	SECURITY CAMERA, WALL - EXTERIOR	2-GANG BACKBOX WITH 1-GANG MUD RING	(1) 3/4" EMT	A	10' - 0"
	SECURITY VIDEO INTERCOM, WALL	PROVIDER'S BACKBOX	(1) 3/4" EMT	A,E	48" TO PUSH BUTTON
	SECURITY PANIC BUTTON, DESK/WALL	1-GANG BACKBOX WITH 1-GANG MUD RING	(1) 1/2" EMT	D	N/A
	DOOR POSITION SWITCH	N/A	(1) 1/2" EMT TO D DOOR FRAME	N/A	

DEFAULT MOUNTING HEIGHTS SHOWN ABOVE WHERE NO CALL-OUT IS PROVIDED. MOUNTING HEIGHTS LISTED ARE ABOVE FINISHED FLOOR (AFF) OR ABOVE FINISHED GRADE (AFG). ALL DEVICES SHALL BE INSTALLED IN COMPLIANCE WITH CURRENT ADA AND LOCAL REQUIREMENTS.

CABLE TYPES

A	CATEGORY 6 CABLE
B	22 AWG, 6C SHIELDED
C	18 AWG, 4C UNSHIELDED
D	22 AWG, 2C UNSHIELDED
E	22 AWG, 4C UNSHIELDED

CABLE TYPES SHOWN ABOVE ARE TYPICAL FOR CABLE DISTANCES LESS THAN 500 FEET. REFER TO DEVICE MANUFACTURER'S INSTALLATION REQUIREMENTS FOR LONGER DISTANCES. COORDINATE WITH DOOR HARDWARE PROVIDER TO CONFIRM CABLING REQUIREMENTS FOR LOCK POWER.

HENDERSON
ENGINEERS
8345 LENEXA DRIVE, SUITE 300
LENEXA, KS 66214
TEL 913.742.5000 FAX 913.742.5001
WWW.HENDERSONENGINEERS.COM
2150052555
MO. CORPORATE NO. E-858D
EXPIRES 12/31/2022

Issue Date: September 9, 2022

Revisions

NUMBER	DESCRIPTION	DATE
--------	-------------	------



09/09/2022
DOUGLAS M. EVERHART
LICENSE # PE-2019007648

SECURITY GENERAL
NOTES AND LEGEND

TY000

LSR7 Robotics, GiC &
Phys Education

LSN: 901 NE Douglas St., Lee's Summit MO
64086
LSW: 2600 SW Ward Rd, Lee's Summit MO
64082
LSHS: 400 SE Blue Pkwy, Lee's Summit MO 64063

0121-0100

owner:
Lee's Summit R-7 School
301 NE Tudor Road
Lee's Summit, MO 64086

architect:
Multistudio
4205 Pennsylvania
Kansas City, MO 64111
816.931.6655
multi-studio

civil engineer:
Kaw Valley Engineering
14700 West 114th Terrace
Lenexa, KS 66215
913.485.0318
kveng.com

structural engineer:
Bob D. Campbell & Company, Inc.
4338 Bellevue
Kansas City, MO 64111
816.531.4144
www.bdc-engrs.com

MEP/T/Code:
Henderson Engineers
8345 Lenexa Drive, Suite
300
Lenexa, KS 66214
816.742.5000
www.hendersonengineers.com

SECURITY PLAN NOTES:

TY1 PROPOSED ACCESS CONTROL LOCATION, OWNER'S
VENDOR SHALL COORDINATE FINAL LOCATION.
TY3 ADA ACTUATOR, REFER TO DIVISION 08 DOOR HARDWARE.
ENSURE ADA ACTUATOR WILL ONLY OPERATE WHEN THE
DOOR IS UNLOCKED OR WITHIN 10 SECONDS OF A VALID
CARD READ.
TY4 CENTER BOX AT 9'-6" VERTICALLY ON THE STRUCTURAL
BEAM AND ROUTE HARD CONDUIT INTO NEAREST
ACCESSIBLE CEILING. ENSURE ALL PATHWAY IS
WEATHERTIGHT.

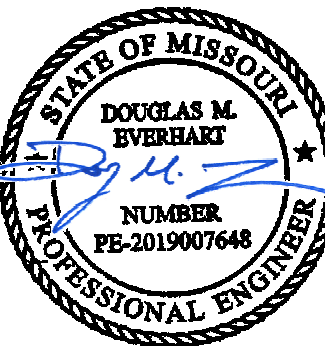
1 SECURITY LEVEL 1 PLAN - LSN
3/16" = 1'-0"

HENDERSON
ENGINEERS
8345 LENEXA DRIVE, SUITE 300
LENEXA, KS 66214
TEL 913.742.5000 FAX 913.742.5001
WWW.HENDERSONENGINEERS.COM

2150005255
MO. CORPORATE NO. E-6860
EXPIRES 12/31/2022

Issue Date: September 9, 2022

Revisions		
NUMBER	DESCRIPTION	DATE
1	Addendum 01	09/16/2022



09/15/2022
DOUGLAS M. EVERHART
LICENSE # PE-201907648

LSN - SECURITY PLAN -
LEVEL 1

TY101-B

LSR7 Robotics, GiC & Phys Education

LSN: 901 NE Douglas St., Lee's Summit MO 64086
LSW: 2600 SW Ward Rd, Lee's Summit MO 64082
LSHS: 400 SE Blue Pkwy, Lee's Summit MO 64063

0121-0100

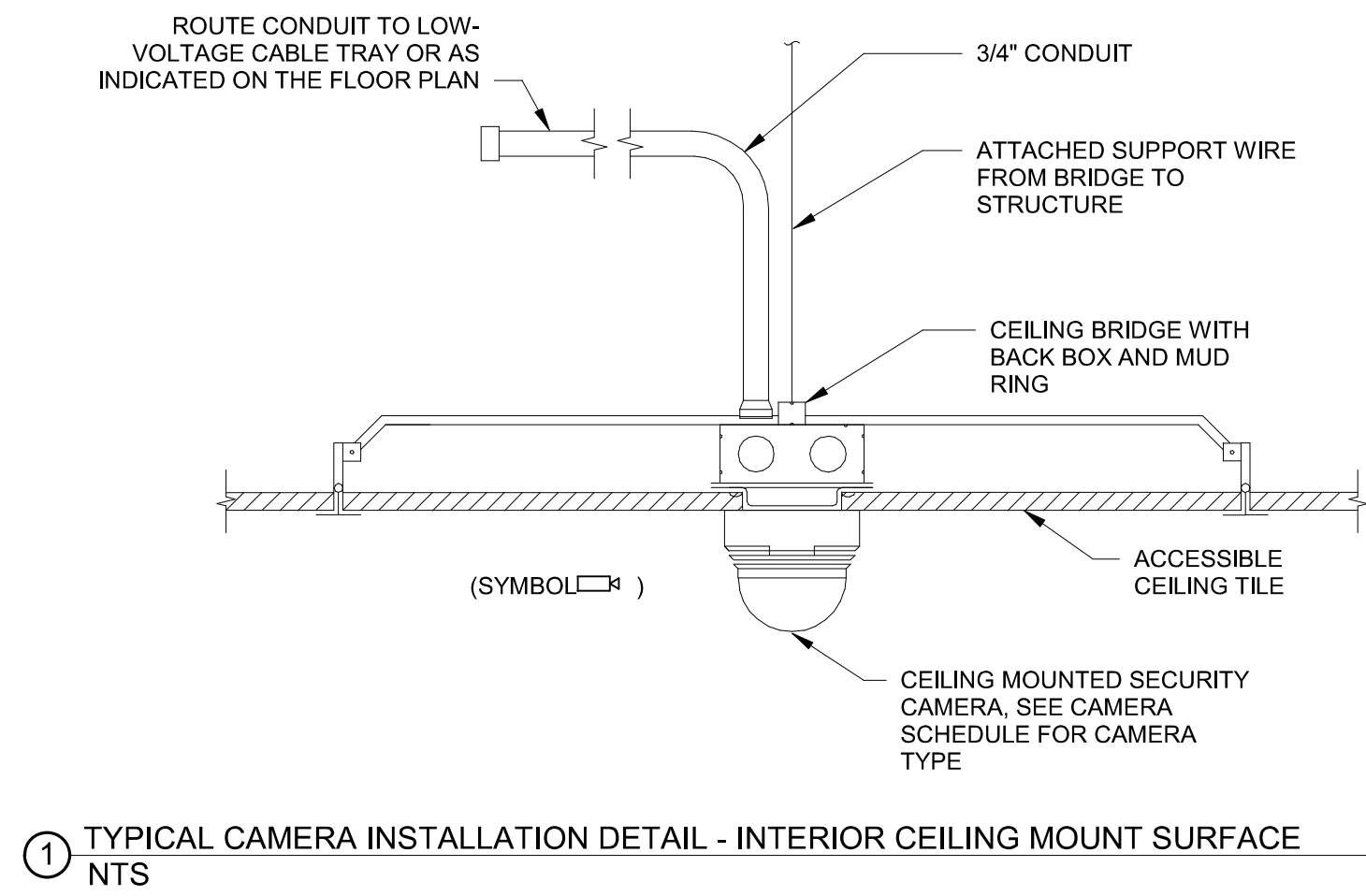
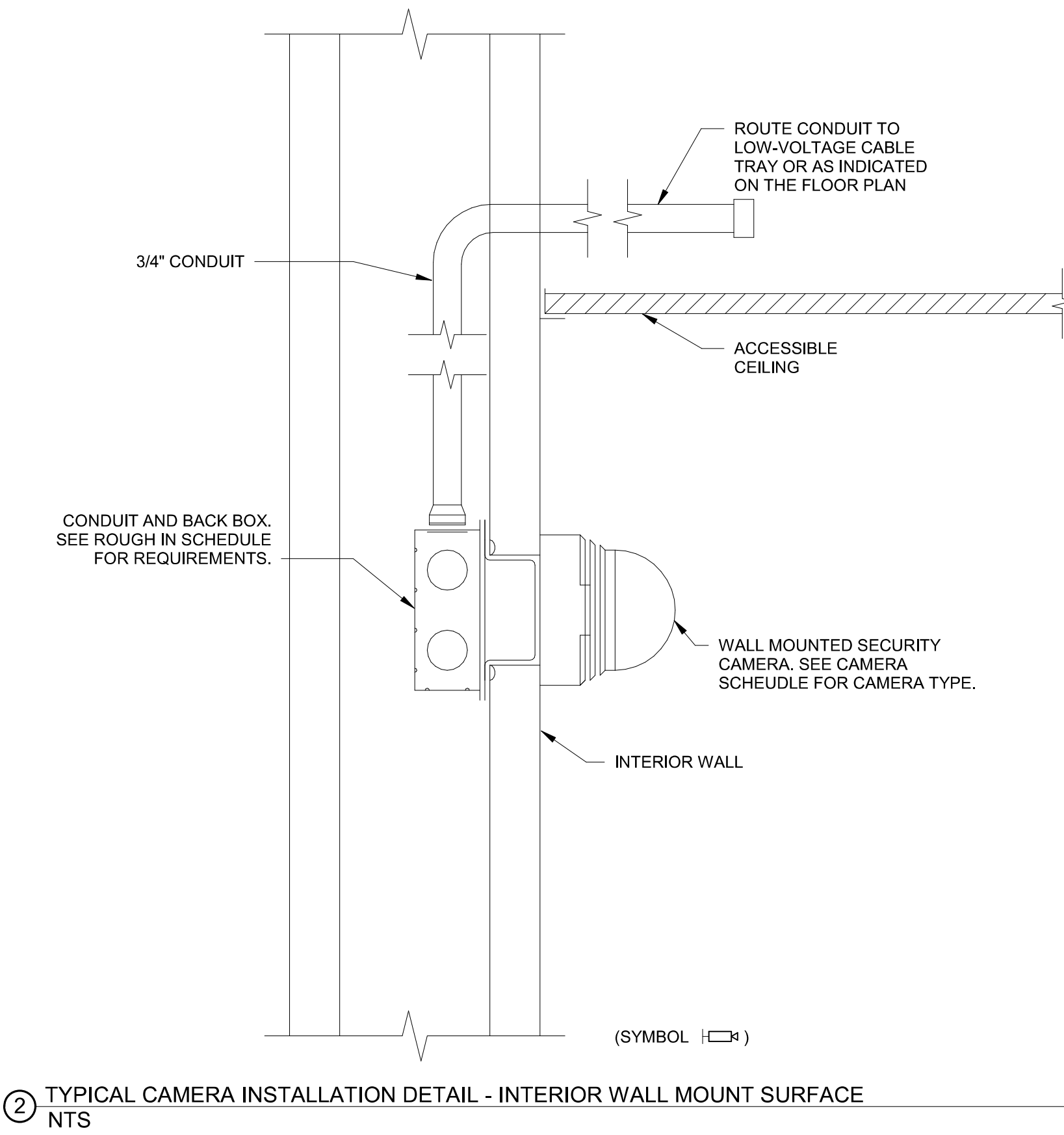
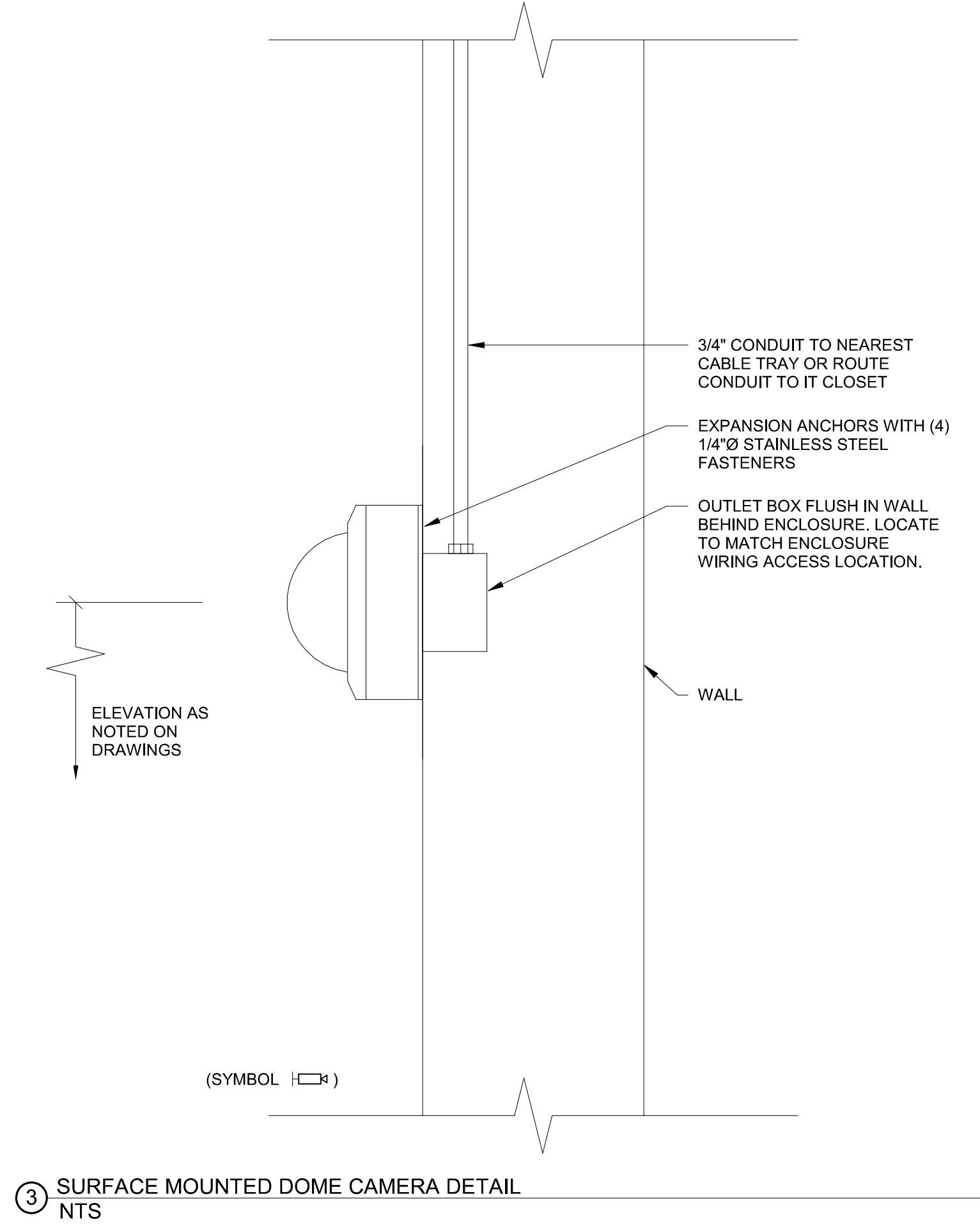
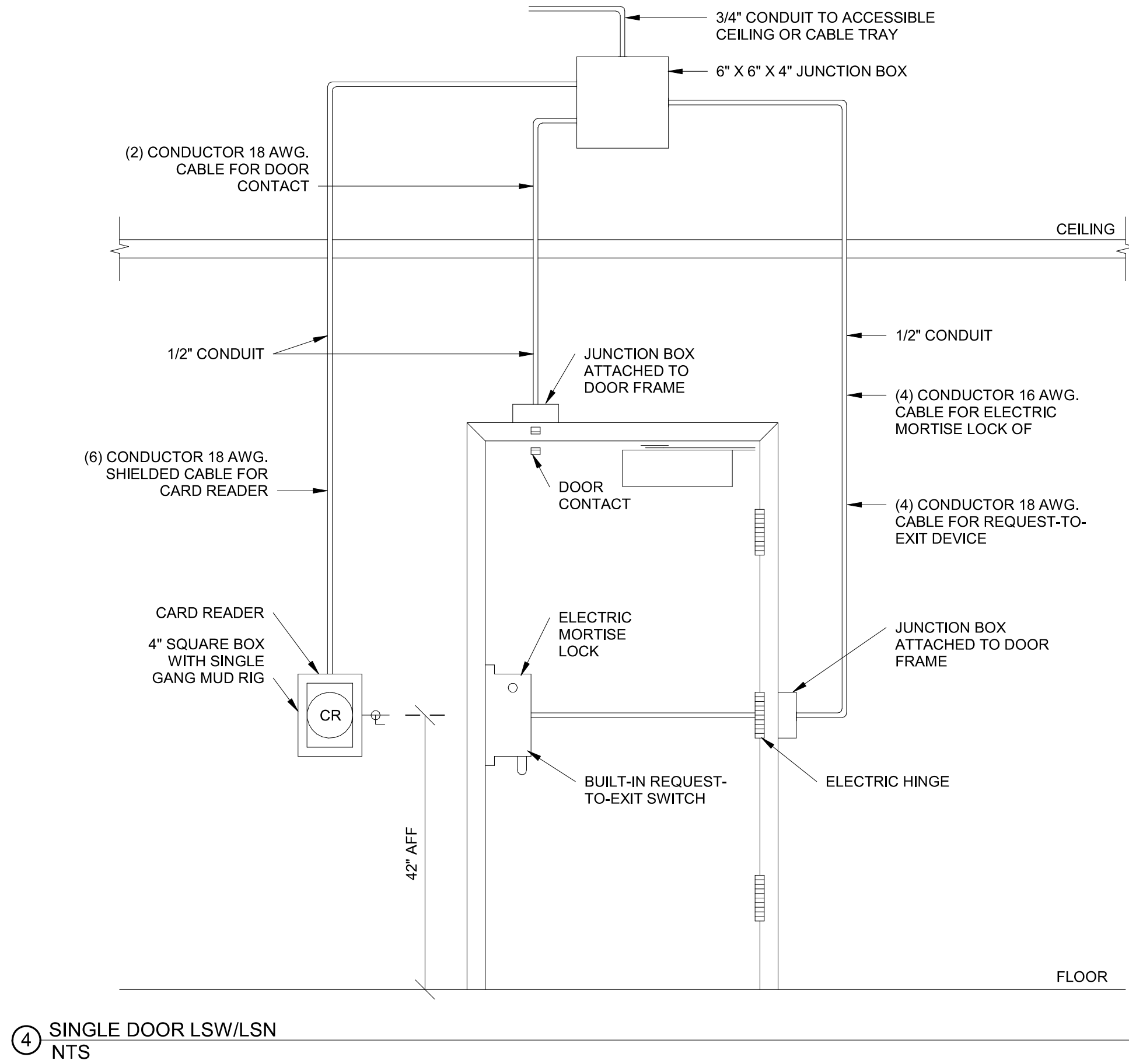
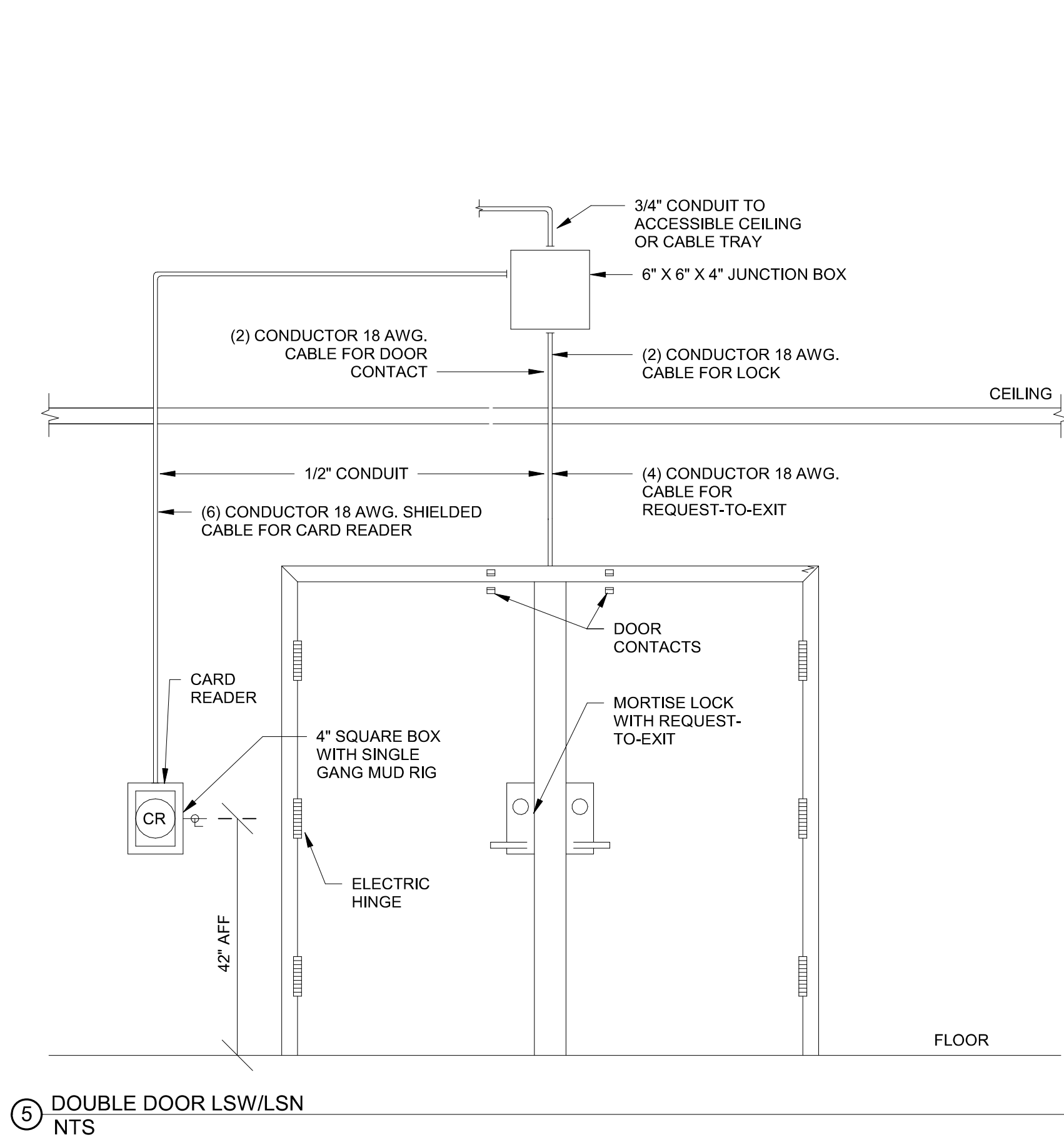
owner: Lee's Summit R-7 School
301 NE Tudor Road
Lee's Summit, MO 64086

architect: Multistudio
4209 Pennsylvania
Kansas City, MO 64111
816.931.6655
multi.studio

civil engineer: Kaw Valley Engineering
14700 West 114th Terrace
Lenexa, KS 66215
913.485.0318
kvenr.com

structural engineer: Bob D. Campbell & Company, Inc.
4338 Bellevue
Kansas City, MO 64111
816.531.4144
www.bdc-engrs.com

MEP/IT/Code: Henderson Engineers
8345 Lenexa Drive, Suite 300
Lenexa, KS 66214
816.742.5000
www.hendersonengineers.com

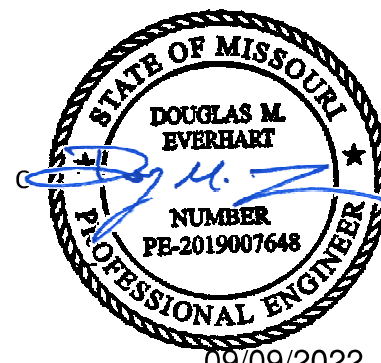


HENDERSON
ENGINEERS
8345 LENEKA DRIVE, SUITE 300
LENEKA, KS 66214
TEL 913.742.5000 FAX 913.742.5001
WWW.HENDERSONENGINEERS.COM
2150005255
MO. CORPORATE NO. E-8580
EXPIRES 12/31/2022

Issue Date: September 9, 2022

Revisions

NUMBER	DESCRIPTION	DATE
--------	-------------	------



09/09/2022
DOUGLAS M. EVERHART
LICENSE # PE-2019007648

SECURITY DETAILS
TY500

A

B

E

G

H

J

K

L

M

N

P