ADDENDUM NO. 2

November 30, 2021

North Central High School Phase 2a - West Gym Addition And Site Work
1801 E. 86TH Street
Indianapolis, IN 46240

TO: ALL BIDDERS OF RECORD

This Addendum forms a part of and modifies the Bidding Requirements, Contract Forms, Contract Conditions, the Specifications and the Drawings dated November 1, 2021, by Schmidt Associates. Acknowledge receipt of the Addendum in the space provided on the Bid Form. Failure to do so may subject the Bidder to disqualification.

This Addendum consists of Pages ADD 2-1 through ADD 2-4, Phase 2A Pre-Award Schedule, and Schmidt Associates Addendum No. 2 dated November 30, 2021, consisting of eight (8) pages, Specification Section 088300 Mirrors and Addendum 2 Drawings: C002.2, CD104.2, CD107.2, CL101.2, CL103.2, CL107.2, CL501.2, CL502.2, CU101.2, CU102.2, S-001.2, S-020.2, SF1W1.2, SF1W2.2, SF1W3.2, SF1X1.2, SF1X3.2, SF1Y1.2, SF1Z1.2, SF1Z2.2, SF101.2, S-300.2, S-502.2, S-503.2, S-505.2, S-507.2, S-508.2, S-509.2, S-601.2, S-602.2, 1-S-001, AD1M1.2, A-322.2, A-323.2, A-324.2, A-325.2, A-900.2, MP1Z1.2, M-601.2, M-602.2, PF1Z1.2.

A. GENERAL INFORMATION:

1. Virtual Bid Opening Link is:

   Microsoft Teams Meeting
   Join on your computer or mobile app
   Click here to join the meeting
   Or call in (audio only)
   +1 317-762-3960,,110274480#

2. Pre-Award Meeting Schedule is attached herein.

B. SPECIFICATION SECTION 01 12 00 MULTIPLE CONTRACT SUMMARY

3.03 BID CATEGORIES:

A. BID CATEGORY NO. 1 – GENERAL TRADES

Delete the following specification section:

Section 11 66 43.99 Interior Scoreboards

Revise the following Clarification:

13. Bid Category No. 4 to provide chain link fencing and gates at perimeter of post tension tennis courts. All other fencing and gates to be provided by Bid Category No. 1.

Add the following Clarifications:

17. Provide all bollards per specification section 12 93 00.

18. Provide stainless steel handrails per Note 46 on Site Layout Plans.

19. Provide all site concrete excluding site concrete at the inside and outside perimeter of the post tension tennis courts shown on CL103.2 – this site concrete will be provided by Bid Category No. 4. The break line between Bid Category No. 1 and Bid Category No. 4 can be referenced at the northeast corner (thick black line/seat wall and stairs). All site concrete at the quick start tennis courts shall be by Bid Category No. 1.

20. Provide all seeding shown on the landscape and erosion control plans. Plantings will be bid in a future phase.

21. Include installation of Owner furnished scoreboards.

B. BID CATEGORY NO. 2 – SITE DEMOLITION, EARTHWORK & UTILITIES

Revise the following clarification:

7. Provide temporary construction entrance drives shown on the Erosion Control Plans and Construction Site Management Plan (included in Addendum 2). Provide temporary stone lot shown on Site Layout Plan. Include an additional 10,000SF of access road stone for use at the discretion of the Construction Manager. Provide removal of all stone at the completion of project. The temporary contractor/trailer/parking/staging area shown on the Construction Site Management Plan is by others.

Add the following Clarification:

10. Provide concrete collars at utility structures.
11. Provide all site demolition shown on the Construction Site Management Plan included in Addendum 2.

C. **BID CATEGORY NO. 3 – ASPHALT PAVING**

Add the following Clarification:

5. Provide asphalt paving and striping as shown on the Construction Site Management Plan C-002.2 included in Addendum 2.

D. **BID CATEGORY NO. 4 – TENNIS COURTS**

Revise the following Clarification:

3. Provide all site concrete and joint sealants at the inside and outside perimeter of the post tension tennis courts shown on CL103.2. The break line between Bid Category No. 1 and Bid Category No. 4 can be referenced at the northeast corner (thick black line and stairs). All site concrete at the quick start tennis courts shall be by Bid Category No. 1.

4. Provide chain link fencing and gates at perimeter of post tension tennis courts. All other fencing and gates to be provide by Bid Category No. 1.

5. Provide stone sub-base, intermediate course and tennis court surfacing at quick start tennis courts.

E. **BID CATEGORY NO. 5 – BUS CANOPIES**

Delete the following specification section:

Section 31 20 00 Earth Moving

G. **BID CATEGORY NO. 7 – PRE-CAST CONCRETE**

Add the following Clarification:

6. Section 3.18.1 of AIA A201-2019 solely for this bid category shall be stricken and replaced with:

   § 3.18.1 To the fullest extent permitted by law, the Contractor shall indemnify, defend and hold harmless the Owner and its board members, officers, directors, employees,

PRE-AWARD MEETING SCHEDULE – Phase 2A

- Bid Category No. 1 – 12/8/21 @ 9:00AM
- Bid Category No. 2 – 12/8/21 @ 10:00AM
- Bid Category No. 3 – 12/8/21 @ 11:00AM
- Bid Category No. 4 – 12/8/21 @ 1:00PM
- Bid Category No. 5 – 12/8/21 @ 2:00PM
- Bid Category No. 6 – 12/8/21 @ 3:00PM
- Bid Category No. 7 – 12/9/21 @ 8:00AM
- Bid Category No. 8 – 12/9/21 @ 9:00AM
- Bid Category No. 9 – 12/9/21 @ 10:00AM
- Bid Category No. 10 – 12/9/21 @ 11:00AM
- Bid Category No. 11 – 12/10/21 @ 8:00AM
- Bid Category No. 12 – 12/10/21 @ 9:00AM
- Bid Category No. 13 – 12/10/21 @ 10:00AM
- Bid Category No. 14 – 12/10/21 @ 11:00AM
- Bid Category No. 15 – 12/10/21 @ 1:00PM
- Bid Category No. 16 – 12/10/21 @ 1:30PM
- Bid Category No. 17 – 12/10/21 @ 2:00PM
- Bid Category No. 18 – 12/10/21 @ 3:00PM

managers, consultants and agents, as well as the Architect and the Architect's consultants, and any of their employees or agents ("the Indemnitees") from and against claims, damages, agreed judgments, settlements, default judgments, other judgments, losses, and expenses, including but not limited to attorneys' fees, arising out of or resulting from performance of the Work, or relating to or resulting from this Agreement, including loss of use resulting therefrom, to the extent caused by the negligent acts and/or intentional acts or omissions of the Contractor, a Subcontractor, anyone directly or indirectly employed by them, or anyone for whose acts they may be liable, regardless of whether or not such claim, damage, loss, or expense is caused in part by a party indemnified hereunder. The agreement of indemnity under this Section shall not be construed to negate, abridge, or reduce other rights or obligations of indemnity which would otherwise exist as to a party or person described in this Section 3.18 or any Section thereunder. The Contractor's indemnification under this Section shall survive both final payment and termination. If one or more of the Indemnitees demand performance by the Contractor of obligations under this Section or any other provision of the Contract Documents and if Contractor refuses to assume or perform such obligations, or delays assuming or performing such obligations regardless of the merits of the allegations asserted against the Indemnitee, Contractor shall pay each Indemnitee who has made such demand, its respective attorneys' fees, costs and other expenses incurred and the amount of any settlement or judgment, by default or agreement, arising out of or resulting from the Contractor's performance of the Work or relating to or arising from this Agreement and Contractor shall pay all attorneys' fees, costs and other expenses incurred in enforcing this provision.

I. **BID CATEGORY NO. 9 – STEEL**

Add the following clarification:

2. Bid Category No. 1 to provide all bollards.

L. **BID CATEGORY NO. 12 – GLAZING**

Add the following specification section:

Section 08 83 00 Mirrors

R. **BID CATEGORY NO. 18 – PLUMBING AND HVAC**

Delete the following specification section:

Section 23 11 23.2A Natural Gas Piping

ADDENDUM NO. 2
NOVEMBER 30, 2021

PREPARED BY SCHMIDT ASSOCIATES FOR:

NORTH CENTRAL HIGH SCHOOL – WEST GYM ADDITION AND SITE WORK
WASHINGTON TOWNSHIP, M.S.D. OF

This Addendum consists of 8 Addendum pages and 79 attachment pages totaling 87 pages.

Acknowledge receipt of this Addendum by inserting its number on the Bid Form. Failure to do so may subject the Bid to disqualification. This Addendum is part of the Contract Documents.

Bidder is encouraged to verify with reprographer of record all Addenda issued (do not rely exclusively on third party plan room services).

PART 1 - CHANGES TO PRIOR ADDENDA (NOT APPLICABLE)

PART 2 - CHANGES TO THE PROJECT MANUAL

Modifications described herein shall be incorporated in the Project Manual. All other Work shall remain unchanged.

2.1 DIVISION 03 – CONCRETE

A. **Section 034100.99 "PRECAST SOUND WALL"**

1. DELETE AND REPLACE Subparagraph 2.1.A.1 in its entirety and replace with the following:

   "Durisol Precast Noise Barrier: NB15 system with Plain Flat panels"

2. ADD Text 2.2.D.1 in as follows:

   "Galvanized steel Columns shall be used to connect panels together. Steel column shall be sized per manufacturer recommendation."

2.2 DIVISION 04 – MASONRY

A. **Section 042000 "UNIT MASONRY"**

1. DELETE Subparagraph 2.5 B. 5. a. 1) a) in its entirety and replace with the following:
   "a) Indian Red Clear, Fine Grind, by The Belden Brick Company"

2. ADD Subparagraph 2.5 B. 5. a. 1) d) as follows:

   "d) Commerce Red, Fine Mattex, by McAvoy Brick"

2.3 DIVISION 05 – METALS

A. **Section 057300 "DECORATIVE METAL RAILINGS"**

1. ADD Paragraph 2.1 A and associated subparagraph as follows:

"A. Aluminum Decorative Railings:

1. Basis-of-Design Product: Subject to compliance with requirements, provide "Interna-Rail" handrail System as manufactured by Hollaender Manufacturing or comparable product by one of the following:"

2. DELETE Paragraph 2.9 B. in its entirety and replace with the following:
"B. Clear Anodic Finish: AAMA 611, AA-M12C22A41, Class I, 0.018mm or thicker.07

2.4 DIVISION 07 – THERMAL AND MOISTURE PROTECTION

A. **Section 072713 "MODIFIED BITUMINOUS SHEET AIR BARRIERS"**

1. ADD Subparagraph 2.1 A. 1. e. as follows:
"e. W.R. Meadows, Inc.; Air Shield"

B. **Section 074213.23 "METAL COMPOSIOTE MATERIAL WALL PANELS"**

1. DELETE Subparagraph 2.2 A. 1. d. in its entirety.

2. DELETE Subparagraph 2.2 A. 2. b. in its entirety and replace with the following:
"b. Castle Metal Products"

3. DELETE Subparagraph 2.2 A. 2. e. in its entirety.

4. DELETE Subparagraph 2.2 B. 1. in its entirety and replace with the following:

"1. Panel Thickness: 0.157 inch (4mm)."

5. DELETE Paragraph 2.2 B. 3. and associated subparagraphs in its entirety and replace with the following:
"3. Exterior Finish:
   a. Three-coat fluoropolymer
      1) Color B: Custom to match Architect's sample of Scholl color – red.
   b. Two-coat fluoropolymer
      1) Color A: As selected from manufacturer's full range."

2.5 DIVISION 08 – OPENINGS

A. **Section 084113 "ALUMINUM-FRAMED ENTRANCES AND STOREFRONTS"**

1. ADD Paragraph 2.11 as follows:
"2.11 ALUMINUM FLUSH DOORS
A. Basis-of-Design Product: Subject to compliance with requirements provide "SL-16 Aluminum Flush Door" by Special-Lite, Inc. or comparable product listed below:
1. Cross Aluminum Doors; FL-400

B. **Section 084126 "ALL-GLASS ENTRANCES AND STOREFRONTS"**

1. DELETE Paragraph 2.5 C. in its entirety.

C. **Section 084513 "STRUCTURED POLYCARBONATE PANEL ASSEMBLIES"**

1. DELETE Subparagraph 2.3 A. 1. In its entirety.

D. **Section 088300 "MIRRORS"**

1. ADD Section 088300 per the attached.

2.6 DIVISION 09 – FINISHES

A. **Section 096566 "RESILIENT ATHLETIC FLOORING"**

1. DELETE AND REPLACE Paragraph 2.1, A., 1 in its entirety and replace with the following:

    1. Manufacturer Mondo; Advance Vulcanized (10 mm)

        a. Material: calendered and vulcanized, with a base of natural and synthetic rubbers, stabilizing agents and pigmentation. Solid background colors with random marbleization throughout the wear layer's entire depth.
        b. Installation Method: Adhered
        c. Surface Texture: Smooth, Matte
        d. Roll Size: not less than 72 inches wide by longest length that is practical to minimize splicing during installation.
        e. Thickness: .394" (10 mm)
        f. Color and Pattern:

            1) RAF-1: L62 Sand

    2. Manufacturer: Mondo; Sportflex M.
        a. Material: Recycled-rubber compound Rubber wear layer and rubber shock-absorbent layer, vulcanized together Insert description.
        b. Installation Method: Adhered.
        c. Traffic-Surface Texture: ATS Embossing.
        d. Roll Size: Not less than 48 inches wide by longest length that is practical to minimize splicing during installation.
        e. Thickness: 3/8 inch.
        f. Color and Pattern:

            1) RAF-2: P31 Medium Grey
            2) RAF-3: P70 Light Grey.

B. **Section 096723.17 "RESINOUS FLOORING LEVEL 1"**

1. ADD Subparagraph 2.3, A., 1., e. as follows:

"e. Florock Polymer Flooring"

C. **Section 096723.17 "RESINOUS FLOORING LEVEL 3"**

1. ADD Subparagraph 2.3, A., 1., e. as follows:

"e. Florock Polymer Flooring"

2.7 DIVISION 11 – EQUIPMENT

A. **Section 116643.99 "INTERIOR SCOREBOARDS"**

1. DELETE Section 116643.99 in its entirety. Scoreboards will be provided by the Owner.

2.8 DIVISION 13 – SPECIAL CONSTRUCTION

A. **Section 131200 "PRE-ENGINEERED STRUCTURE – METAL CANOPY SYSTEMS"**

1. DELETE Subparagraph 1.2 A. 5. in its entirety and replace with the following:

"5. Structural design of canopy concrete foundations and accessories."

2. DELETE Subparagraph 1.4 B. 5. In its entirety and replace with the following:
"5. Structural Foundation Drawings: Show complete layout of structural foundations, including pier and footing schedules, and concrete footing details."

2.9 DIVISION 22 – PLUMBING

A. **Section 221316.2A "SANITARY WASTE AND VENT PIPING"**

1. DELETE Article 3.5 VALVE INSTALLATION in its entirety.

2.10 DIVISION 23 - HEATING, VENTILATING, AND AIR-CONDITIONING(HVAC)

A. Section 230900.99 "**DIRECT DIGITAL CONTROL SYSTEMS**"

1. ADD Document O-P-0004 as Section 3.27 per the attached.

"Document O-P-0004 includes 32 pages of 11x17 Temperature Control Services (TCS) drawings dated 11/28/2021 under Project Number O-P-0004 that include installation standards, riser diagrams, and temperature control schematic with points and wiring diagram details that shall be installed by the controls installation contractor (CIC) as performed by the mechanical, technology, and electrical contractors and indicated on the M-701.2 through M-703.2 drawings up to and including addendum 2."

B. **Section 231123.2A "NATURAL GAS PIPING**"

1. DELETE Section in its entirety.

"Natural Gas piping removed from PH 2."

2.11 DIVISION 32 - EXTERIOR IMPROVEMENTS

A. **Section 321400.99 "CONCRETE PAVER"**

1. ADD Paragraph 2.C. in its entirety.

   "Concrete blocks shall have a penetrating sealant applied to each block. Sealant to be per manufacturer recommendations."

B. **Section 323223** "**SEGMENTAL RETAINING WALLS**"

1. ADD Subparagraph 2.1.A.1.D in its entirety.

   "Allan Block"

C. Section 323113 "**CHAIN LINK FENCE AND GATES**"

1. MODIFY Subparagraph 2.2.A.9 as follows.

   "1.66 inches"

2. MODIFY Subparagraph 2.1.A.1.C as follows.

   "1.75 inches"

PART 3 - CHANGES TO THE DRAWINGS

Modifications described herein shall be incorporated in the Drawings. All other Work shall remain un-changed.

3.1 DRAWING SHEETS: ADDITIONS, DELETIONS AND REPLACEMENTS

DRAWING NO.	INDICATE ACTION: REPLACE (R), ADD (A), DELETE (D)
C-SERIES DRAWINGS	
C002.2	DELETE AND REPLACE
CD104.2	DELETE AND REPLACE
CD107.2	ADD
CL101.2	DELETE AND REPLACE
CL103.2	DELETE AND REPLACE
CL107.2	ADD
CL501.2	DELETE AND REPLACE
CL502.2	DELETE AND REPLACE
CU101.2	DELETE AND REPLACE
CU102.2	DELETE AND REPLACE

DRAWING NO.	INDICATE ACTION: REPLACE (R), ADD (A), DELETE (D)
S-SERIES DRAWINGS	
S-001.2	DELETE AND REPLACE
S-020.2	DELETE AND REPLACE
SF1W1.2	DELETE AND REPLACE
SF1W2.2	DELETE AND REPLACE
SF1W3.2	DELETE AND REPLACE
SF1X1.2	DELETE AND REPLACE
SF1X3.2	DELETE AND REPLACE
SF1Y1.2	DELETE AND REPLACE
SF1Z1.2	DELETE AND REPLACE
SF1Z2.2	DELETE AND REPLACE
SF101.2	DELETE AND REPLACE
S-300.2	DELETE AND REPLACE
S-502.2	DELETE AND REPLACE
S-503.2	DELETE AND REPLACE
S-505.2	DELETE AND REPLACE
S-507.2	DELETE AND REPLACE
S-508.2	DELETE AND REPLACE
S-509.2	ADD
S-601.2	DELETE AND REPLACE
S-602.2	DELETE AND REPLACE
1-S-001	DELETE AND REPLACE
A-SERIES DRAWINGS	
AD1M1.2	DELETE AND REPLACE
A-322.2	DELETE AND REPLACE
A-323.2	DELETE AND REPLACE
A-324.2	DELETE AND REPLACE
A-325.2	DELETE AND REPLACE
A-900.2	ADD
M-SERIES DRAWINGS	
MP1Z1.2	DELETE AND REPLACE
M-601.2	DELETE AND REPLACE
M-602.2	DELETE AND REPLACE
P-SERIES DRAWINGS	
PF1Z1.2	DELETE AND REPLACE

3.1 G-SERIES DRAWINGS

A. **Sheet Number G-000.2**

1. ADD the following sheets to the Sheet Index in its entirety.

Under 2-Site:

"CD107.2 – SITE DEMOLITION PLAN
CL107.2 – SITE LAYOUT PLAN"

Under 3-Structural:
"S-509.2 TYPICAL SECTIONS AND DETAILS
1-S-001 – GENERAL NOTES SCHEDULES"

Under 4-Architectural:
"A-900.2 – ISOMETRICS"

3.2 A-SERIES DRAWINGS

A. **Sheet Number AC1W1.2**

1. DELETE Reflected Ceiling Plan note 3 Storage Room N273 and add the following note:

   "PROVIDE APC-1 CEILNG IN THIS ROOM AT 9'-0" A.F.F. – GRID TO BE CENTERED IN THE ROOM"

B. **Sheet Number AD1T1.2**

1. DELETE Demolition Floor Plan Note 22 in its entirety and replace with the following:

   "22. REMOVE EXISTING WALL MIRRORS AND ASSOCIATED MASTIC. PREPARE WALL TO RECEIVE NEW FINISHES."

C. **Sheet Number AF1T1.2**

1. DELETE Floor Plan Note 31 in its entirety and replace with the following:
   "31. 088300 – WALL MIRRORS – 5'-0" TALL X 3'-3" WIDE MAX. – EQUALLY SPACE JOINTS BETWEEN PILASTERS. MOUNT WITH BOTTOM EDGE AT 2'-0" A.F.F."

D. **Sheet Number AF1W2.2**

1. ADD Floor Plan Note 37 to Display Case DC-1 located on the south wall of Corridor E – E002 east of column line 6.2.

E. **Sheet Number AP103.2**

1. DELETE Precast Elevation Note 5 and replace with the following:
   "5. INTERIOR SCOREBOARD TO BE PROVIDED BY OWNER AND INSTALLED BY CONTRACTOR. REFER TO E-SERIES DRAWINGS FOR BACK BOX LOCATIONS AND COUNT"

F. **Sheet Number A-601.2**

1. DELETE Hardware set indicated for Opening N679 (modified in Addendum 1) and replace with the following Hardware Set reference:
   "21"

3.3 I-SERIES DRAWINGS

A. **Drawing Number 2A/I-202.2**

1. MODIFY Elevation Finish Note “Solid Surface Countertop” as follows:
   “25" D COUNTERTOP W/ 4" BACKSPLASH”

B. **Drawing Number 4A/I-202.2**

1. MODIFY Elevation Finish Note “SPECIFICATION: 06 40 23 ” Insert below as follows:
   “(QUANTITY: 2)”

END OF ADDENDUM 2

SECTION 088300 - MIRRORS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes the following types of silvered flat glass mirrors:

1. Annealed monolithic glass mirrors with film backing for Safety Mirrors.

B. Related Sections:

1. Section 088000 "Glazing" for glass with reflective coatings used for vision and spandrel lites.
2. Section 102800 "Toilet, Bath, and Laundry Accessories" for metal-framed mirrors.

1.3 ACTION SUBMITTALS

A. Product Data with Shop Drawings:

1. Product Data: For each type of product indicated.

a. Mirrors. Include description of materials and process used to produce each type of silvered flat glass mirror specified that indicates sources of glass, glass coating components, edge sealer, and quality-control provisions.

2. Shop Drawings: Include mirror elevations, edge details, mirror hardware, and attachments to other work.

1.4 QUALITY ASSURANCE

A. Installer Qualifications: A qualified installer who employs glass installers for this Project who are certified under the National Glass Association's Certified Glass Installer Program.

B. Source Limitations for Mirrors: Obtain mirrors from single source from single manufacturer.

C. Source Limitations for Mirror Accessories: Obtain mirror glazing accessories from single source.

D. Glazing Publications: Comply with the following published recommendations:

1. GANA's "Glazing Manual" unless more stringent requirements are indicated. Refer to this publication for definitions of glass and glazing terms not otherwise defined in this Section or in referenced standards.
2. GANA Mirror Division's "Mirrors, Handle with Extreme Care: Tips for the Professional on the Care and Handling of Mirrors."

E. Safety Glazing Products: For film-backed mirrors, provide products complying with testing requirements in 16 CFR 1201 for Category II materials.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Protect mirrors according to mirror manufacturer's written instructions and as needed to prevent damage to mirrors from moisture, condensation, temperature changes, direct exposure to sun, or other causes.

B. Comply with mirror manufacturer's written instructions for shipping, storing, and handling mirrors as needed to prevent deterioration of silvering, damage to edges, and abrasion of glass surfaces and applied coatings. Store indoors.

1.6 PROJECT CONDITIONS

A. Environmental Limitations: Do not install mirrors until ambient temperature and humidity conditions are maintained at levels indicated for final occupancy.

1.7 WARRANTY

A. Special Warranty: Manufacturer's standard form in which mirror manufacturer agrees to replace mirrors that deteriorate within specified warranty period. Deterioration of mirrors is defined as defects developed from normal use that are not attributed to mirror breakage or to maintaining and cleaning mirrors contrary to manufacturer's written instructions. Defects include discoloration, black spots, and clouding of the silver film.

1. Warranty Period: Five years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 SILVERED FLAT GLASS MIRRORS

A. Glass Mirrors, General: ASTM C 1503.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

    a. Arch Aluminum & Glass Co., Inc.
    b. Gardner Glass, Inc.
    c. Gilded Mirrors, Inc.
    d. Guardian Industries.
    e. Independent Mirror Industries, Inc.
    f. Lenoir Mirror Company.
    g. Stroupe Mirror Co., Inc.
    h. Sunshine Mirror; Westshore Glass Corp.
    i. Virginia Mirror Company, Inc.
    j. Walker Glass Co., Ltd.

B. Clear Glass: Mirror Select Quality; ultraclear (low-iron) float glass with a minimum 91 percent visible light transmission.

1. Nominal Thickness: 6.0 mm.

2.2 MISCELLANEOUS MATERIALS

A. Setting Blocks: Elastomeric material with a Shore, Type A durometer hardness of 85, plus or minus 5.

B. Edge Sealer: Coating compatible with glass coating and approved by mirror manufacturer for use in protecting against silver deterioration at mirrored glass edges.

C. Mirror Mastic: An adhesive setting compound, asbestos-free, produced specifically for setting mirrors and certified by both mirror manufacturer and mastic manufacturer as compatible with glass coating and substrates on which mirrors will be installed.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

    a. Laurence, C. R. Co., Inc.
    b. Palmer Products Corporation.
    c. Pecora Corporation.

D. Film Backing for Safety Mirrors: Film backing and pressure-sensitive adhesive; both compatible with mirror backing paint as certified by mirror manufacturer.

2.3 MIRROR HARDWARE

A. Top and Bottom Aluminum J-Channels: Aluminum extrusions with a return deep enough to produce a glazing channel to accommodate mirrors of thickness indicated and in lengths required to cover bottom and top edges of each mirror in a single piece.

1. Bottom Trim: J-channels formed with front leg and back leg not less than 3/8 and 7/8 inch in height, respectively, and a thickness of not less than 0.05 inch.

    a. Products: Subject to compliance with requirements, provide one of the following:

        1) Laurence, C. R. Co., Inc.; CRL Standard "J" Channel.

2. Top Trim: J-channels formed with front leg and back leg not less than 5/8 and 1 inch in height, respectively, and a thickness of not less than [0.04 inch] [0.062 inch].

    a. Products: Subject to compliance with requirements, provide one of the following:

        1) Laurence, C. R. Co., Inc.; CRL Deep "J" Channel.

3. Finish: Clear bright anodized.

B. Fasteners: Fabricated of same basic metal and alloy as fastened metal and matching it in finished color and texture where fasteners are exposed.

C. Anchors and Inserts: Provide devices as required for mirror hardware installation. Provide toothed or lead-shield expansion-bolt devices for drilled-in-place anchors. Provide galvanized anchors and inserts for applications on inside face of exterior walls and where indicated.

2.4 FABRICATION

A. Mirror Sizes: To suit Project conditions, cut mirrors to final sizes and shapes.

B. Cutouts: Fabricate cutouts for notches and holes in mirrors without marring visible surfaces. Locate and size cutouts so they fit closely around penetrations in mirrors.

C. Mirror Edge Treatment: Flat polished.

1. Seal edges of mirrors with edge sealer after edge treatment to prevent chemical or atmospheric penetration of glass coating.
2. Require mirror manufacturer to perform edge treatment and sealing in factory immediately after cutting to final sizes.

D. Film-Backed Safety Mirrors: Apply film backing with adhesive coating over mirror backing paint as recommended in writing by film-backing manufacturer to produce a surface free of bubbles, blisters, and other imperfections.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, over which mirrors are to be mounted, with Installer present, for compliance with installation tolerances, substrate preparation, and other conditions affecting performance of the Work.

B. Verify compatibility with and suitability of substrates, including compatibility of mirror mastic with existing finishes or primers.

C. Proceed with installation only after unsatisfactory conditions have been corrected and surfaces are dry.

3.2 PREPARATION

A. Comply with mastic manufacturer's written installation instructions for preparation of substrates, including coating substrates with mastic manufacturer's special bond coating where applicable.

3.3 INSTALLATION

A. General: Install mirrors to comply with mirror manufacturer's written instructions and with referenced GANA publications. Mount mirrors accurately in place in a manner that avoids distorting reflected images.

B. Provide a minimum air space of 1/8 inch between back of mirrors and mounting surface for air circulation between back of mirrors and face of mounting surface.

C. Wall-Mounted Mirrors: Install mirrors with mastic and mirror hardware. Attach mirror hardware securely to mounting surfaces with mechanical fasteners installed with anchors or inserts as applicable. Install fasteners so heads do not impose point loads on backs of mirrors.

1. Top and Bottom Aluminum J-Channels: Provide setting blocks 1/8 inch thick by 4 inches long at quarter points. To prevent trapping water, provide, between setting blocks, two slotted weeps not less than 1/4 inch wide by 3/8 inch long at bottom channel.
2. Install mastic as follows:

    a. Apply barrier coat to mirror backing where approved in writing by manufacturers of mirrors and backing material.
    b. Apply mastic to comply with mastic manufacturer's written instructions for coverage and to allow air circulation between back of mirrors and face of mounting surface.

c. After mastic is applied, align mirrors and press into place while maintaining a minimum air space of 1/8 inch between back of mirrors and mounting surface.

3.4 CLEANING AND PROTECTION

A. Protect mirrors from breakage and contaminating substances resulting from construction operations.

B. Do not permit edges of mirrors to be exposed to standing water.

C. Maintain environmental conditions that will prevent mirrors from being exposed to moisture from condensation or other sources for continuous periods of time.

D. Wash exposed surface of mirrors not more than four days before date scheduled for inspections that establish date of Substantial Completion. Wash mirrors as recommended in writing by mirror manufacturer.

END OF SECTION 088300

NCHS WEST GYM PHASE 2
BUILDING AUTOMATION CONTROL SYSTEM
PROJECT NUMBER O-P-0004

North Central High School

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DRAWING NUMBER	DRAWING DESCRIPTION	DRAWING NUMBER	DRAWING DESCRIPTION
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SECTION 98.04	VFD SCHEDULE		
SECTION 98.05	MISC SCHEDULES PG1		
SECTION 98.06	MISC SCHEDULES PG2		
SECTION 98.07	MASTER BOM		

OWNER	M.E.P. ENGINEERS
, -	, -
ARCHITECT	**MECHANICAL CONTRACTOR**
, -	, -

PROJECT TITLE: NCHS WEST GYM PHASE 2			DRAWING TITLE: TABLE OF CONTENTS
PROJECT NUMBER: O-P-0004	BY: KK SUBMITTAL: 2 PRINTED 11/28/2021 Ver. 4.8.0	A Delta Group Company	DRAWING NUMBER: DWG 00.00

INSTALLATION STANDARDS - LEGEND

TAG	DESCRIPTION
AHU	AIR HANDLING UNIT
AI	ANALOG INPUT
ALM	ALARM
AO	ANALOG OUTPUT
BI	BINARY INPUT
BO	BINARY OUTPUT
BYP	BYPASS
C	START/STOP
CC	COOLING COIL
CFM	AIRFLOW
CIC	CONTROLS INSTALLATION CONTRACTOR
CO2	CARBON DIOXIDE SENSOR
DA	DISCHARGE AIR
DPR	DAMPER
EA	EXHAUST AIR
ERU	ENERGY RECOVERY UNIT
ES	ENDSWITCH
EW	HEAT WHEEL
FPP	FREEZE PROTECTION
H	HUMIDITY
HL	HIGH LIMIT
HTG	HEATING
LL	LOW LIMIT
LT	LOW TEMPERATURE
MA	MIXED AIR

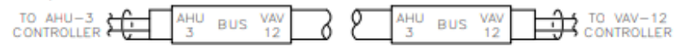
TAG	DESCRIPTION
MOA	MINIMUM OUTSIDE AIR
O	SPEED
OA	OUTSIDE AIR
OAH	OUTSIDE AIR HUMIDITY
OAT	OUTSIDE AIR TEMPERATURE
OCC	OCCUPANCY
PH	PREHEAT
PLG	PANEL LIGHT GREEN
PLR	PANEL LIGHT RED
RA	RETURN AIR
RE-#	RELAY
RF	RETURN FAN
S	STATUS
SA	SUPPLY AIR
SD	SMOKE DETECTOR
SF	SUPPLY FAN
SP	STATIC PRESSURE
T	TEMPERATURE
TCC	TEMPERATURE CONTROL CONTRACTOR
VAV	VARIABLE AIR VOLUME
VFD	VARIABLE FREQUENCY DRIVE
VLV	VALVE
ZN	ZONE

PROJECT TITLE: NCHS WEST GYM PHASE 2		Delta CONTROLS A Delta Group Company	DRAWING TITLE: INSTALLATION STANDARDS - LEGEND
PROJECT NUMBER: O-P-0004	BY: KK SUBMITTAL: 2 PRINTED 11/28/2021 Ver. 4.8.0		DRAWING NUMBER: DWG 00.01

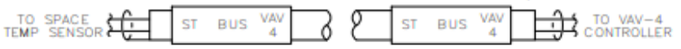
INSTALLATION STANDARDS - ELECTRICAL

MS/TP BUS CABLE LABELING

1. THE LABELING SHOWN BELOW SHALL BE PROVIDED ON ALL MS/TP BUS CABLES RUNNING FROM ONE CONTROL PANEL TO ANOTHER, OR FROM A CONTROLLER TO A SPACE TEMPERATURE SENSOR. MS/TP BUS CABLES CONNECTING CONTROLLERS WITHIN A SINGLE CONTROL PANEL SHALL NOT BE LABELED.
   - ON CABLES RUNNING BETWEEN CONTROL PANELS: EACH LABEL SHALL INDICATE THE NAMES OF THE CONTROLLERS CONNECTED AT EACH END OF THE CABLE. THE NAME PRINTED ON THE LEFT SIDE OF THE LABEL SHALL BE THE NAME OF THE CONTROLLER CONNECTED TO THE LEFT END OF THE CABLE & VICE-VERSA (SEE EXAMPLE BELOW). THE WORD "BUS" SHALL BE PRINTED NEAR THE MIDDLE OF THE LABEL TO IDENTIFY THE CABLE AS AN MS/TP BUS CABLE.



   - ON CABLES RUNNING TO SPACE TEMPERATURE SENSORS: EACH LABEL SHALL INDICATE THE NAME OF THE CONTROLLER ON THE RIGHT SIDE AND THE LETTERS "ST" ON THE LEFT SIDE. THE CABLE SHALL BE INSTALLED AS SHOWN BELOW. THE WORD "BUS" SHALL BE PRINTED NEAR THE MIDDLE OF THE LABEL TO IDENTIFY THE CABLE AS AN MS/TP BUS CABLE.



2. EACH LABEL SHALL BE MADE OF TRANSPARENT VINYL FILM BACKED WITH AN ACRYLIC, PRESSURE-SENSITIVE ADHESIVE. THE LABEL MATERIAL SHALL BE OIL & SOLVENT RESISTANT WITH GOOD CONFORMABILITY & FLEXIBILITY. THE MEANS OF PRINTING ON THE LABEL SHALL RESULT IN A CLEARLY LEGIBLE, PERMANENT MARKING. LABELS SHALL REMAIN INTACT & CLEARLY LEGIBLE WHEN SUBJECTED TO ULTRAVIOLET LIGHT, EXTREME HUMIDITY & SURFACE TEMPERATURES FROM -40° F TO 150° F (-40° C TO 66° C).
3. EACH CABLE SHALL BE IDENTIFIED WITH (2) LABELS. A LABEL SHALL BE LOCATED WITHIN 18" OF EACH END OF THE CABLE & SHALL BE VISIBLE WITHIN THE CONTROL ENCLOSURE. THE SAME NOTATION THAT APPEARS ON THE LABEL SHALL BE MARKED ON THE COVER OF EACH JUNCTION BOX THAT THE CABLE PASSES THROUGH.

WIRING TERMINATION LEGEND - PANEL

[#] = VDC TERMINATION AT CONTROL PANEL
[L##] = VAC TERMINATION AT CONTROL PANEL
1##. = 120-460VAC INTRA-PANEL TERMINATION
2##. 4## = 24VAC INTRA-PANEL TERMINATION
3##. 5## = 24VDC INTRA-PANEL TERMINATION

WIRING TERMINATION LEGEND - BACNet ID

XX ## (NOTE: LEADING ZEROS NOT USED)
INSTANCE NUMBER: FROM PANEL I/O = PHYSICAL CONNECTION NUMBER
N* INSTANCE NUMBER INDICATES A NETWORK (SOFTWARE) POINT
I/O TYPE: AI=ANALOG INPUT, BI=BINARY INPUT, MI=MULTISTATE INPUT
AO=ANALOG OUTPUT, BO=BINARY OUTPUT
DEVICE BASIC ADDRESS FROM SWITCH
DEVICE BACNET ADDRESS = DEVICE SWITCH ADDRESS * DEVICE TYPE FACTOR
DEVICE TYPE: = AREA (FACTOR = 10000)
= SYSTEM (FACTOR = 100)
= SUBLAN (FACTOR = 1)
= LINKNET DEVICE (BACNET ADDRESS USES HOSTPANEL_ID)

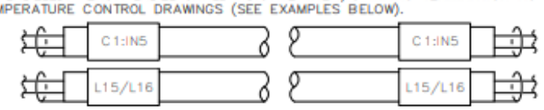
EXAMPLES:
AREA DEVICE # 3, BINARY INPUT NUMBER 4: [BACNET ADDRESS = 30000.BI4]
LINKNET DEVICE # 2, BINARY INPUT NUMBER 3: [BACNET ADDRESS = HOSTPANEL_ID.BI203]

INPUT / OUTPUT WIRING STANDARDS

1. ALL I/O CABLE SHALL MEET THE FOLLOWING SPECIFICATIONS:
   - STRANDED 18 GAUGE, TWISTED/SHIELDED-PAIR COPPER WIRE WITH 300 VOLT INSULATION
2. PLENUM-RATED CABLE SHALL BE USED WHERE REQUIRED BY LOCAL OR NATIONAL CODES.
3. I/O WIRING SHALL NOT BE RUN IN THE SAME CONDUIT AS A.C. POWER WIRING THAT CARRIES MORE THAN 24 VOLTS.
4. WITHIN ANY CONTROL PANEL:
   - I/O WIRING SHALL NOT CROSS OVER A.C. POWER WIRING THAT CARRIES MORE THAN 24 VOLTS.
   - I/O WIRING SHALL NOT BE RUN IN THE SAME CABLE GROUP AS A.C. POWER WIRING THAT CARRIES MORE THAN 24 VOLTS.
5. ONLY SHIELDED 24 VAC POWER WIRING SHALL BE ALLOWED TO CROSS OVER, RUN IN THE SAME CONDUIT, OR RUN IN THE SAME CABLE GROUP AS I/O WIRING.
6. WHERE UNAVOIDABLE, I/O WIRING MAY BE LOCATED NO CLOSER THAN 6" AND SHOULD BE LOCATED AS FAR APART AS POSSIBLE FROM POWER WIRING CARRYING MORE THAN 24 VOLTS. AVOID RUNNING PARALLEL TO POWER WIRING ANY FURTHER THAN NECESSARY, CROSS POWER WIRING AT 90 DEGREE ANGLES ONLY IF REQUIRED.
7. SHIELDS ON INPUT AND OUTPUT WIRING TO BE GROUNDED AT PANEL (OR CONTROLLER) LOCATION ONLY. THEY SHOULD BE TIED TO A TRUE EARTH GROUND.
8. STRIP ONLY ENOUGH CABLE BACK TO ALLOW TERMINATION OF SHIELD AND WIRE.

INPUT / OUTPUT CABLE LABELING

1. THE LABELING SHOWN BELOW SHALL BE PROVIDED ON ALL I/O WIRING TO & FROM CONTROLLERS AND FIELD DEVICES. I/O WIRING CONTAINED WITHIN A CONTROL PANEL SHALL NOT BE LABELED. EACH LABEL SHALL INDICATE THE I/O WIRING TERMINATION AS SHOWN ON THE TEMPERATURE CONTROL DRAWINGS (SEE EXAMPLES BELOW).



2. EACH LABEL SHALL BE MADE OF TRANSPARENT VINYL FILM BACKED WITH AN ACRYLIC, PRESSURE-SENSITIVE ADHESIVE. THE LABEL MATERIAL SHALL BE OIL & SOLVENT RESISTANT WITH GOOD CONFORMABILITY & FLEXIBILITY. THE MEANS OF PRINTING ON THE LABEL SHALL RESULT IN A CLEARLY LEGIBLE, PERMANENT MARKING. LABELS SHALL REMAIN INTACT & CLEARLY LEGIBLE WHEN SUBJECTED TO ULTRAVIOLET LIGHT, EXTREME HUMIDITY & SURFACE TEMPERATURES FROM -40° F TO 150° F (-40° C TO 66° C).
3. EACH CABLE SHALL BE IDENTIFIED WITH (2) LABELS. A LABEL SHALL BE LOCATED WITHIN 18" OF EACH END OF THE CABLE & SHALL BE VISIBLE AT THE CONTROL PANEL OR FIELD DEVICE. THE SAME NOTATION THAT APPEARS ON THE LABEL SHALL BE MARKED ON THE COVER OF EACH JUNCTION BOX THAT THE CABLE PASSES THROUGH.

GENERAL ELECTRICAL STANDARDS

1. ALL CURRENT SENSING DEVICES SHALL HAVE THE POWER WIRE LOOPED THROUGH THE SENSOR MULTIPLE TIMES, IF NECESSARY, TO PROVIDE AN AMPERAGE THAT IS WELL WITHIN THE RANGE OF THE SENSOR (REFER TO MANUFACTURER'S LITERATURE FOR AMPERAGE RANGE).
2. ALL FIELD WIRING TO TERMINAL STRIPS IN CONTROL PANELS SHALL BE TERMINATED AT THE OUTERMOST TERMINALS. INNER TERMINALS OF TERMINAL STRIPS ARE RESERVED FOR INTERNAL WIRING TERMINATIONS.
3. 120 VAC POWER WIRING SHALL ENTER ANY CONTROL PANEL AT THE UPPER RIGHT CORNER UNLESS OTHERWISE INDICATED.
4. 240 VAC POWER WIRING SHALL ENTER ANY CONTROL PANEL AT THE LOWER LEFT CORNER UNLESS OTHERWISE INDICATED.
5. THE GROUND WIRE CONNECTED TO ANY CONTROL PANEL MUST BE A CONTINUOUS CONDUCTOR BACK TO THE GROUND CONNECTION AT THE BREAKER PANEL. GROUNDING TO BUILDING STEEL IS NOT ACCEPTABLE.
6. ALL JUMPER & DIP SWITCH CONFIGURATIONS SHOWN ON THE TEMPERATURE CONTROL DRAWINGS SHALL BE SET BY THE INSTALLER. IF NO SPECIFIC CONFIGURATION IS SHOWN FOR A DEVICE, NO CHANGE SHALL BE MADE TO THE DEFAULT SETTINGS.
7. ALL FIELD WIRING THAT DIFFERS FROM THE WIRING SHOWN ON THE TEMPERATURE CONTROL DRAWINGS SHALL BE NOTED ON THE DRAWINGS (BY THE INSTALLER) WITH RED INK OR PENCIL. THE COMPLETE SET OF NOTED DRAWINGS SHALL BE PROVIDED TO THE PROJECT MANAGER UPON COMPLETION OF THE PROJECT OR SOONER UPON REQUEST.

ELECTRICAL NOTES

- ALL CONTROL DEVICES & WIRING SHALL BE INSTALLED IN ACCORDANCE WITH: MANUFACTURER'S INSTALLATION INSTRUCTIONS, AND INSTALLATION STANDARDS PROVIDED ON THE "INSTALLATION STANDARDS" SHEET.
- THESE DRAWINGS PROVIDE SCHEMATIC REPRESENTATIONS OF EQUIPMENT & FIELD DEVICES BASED ON THE BID PROPOSAL. ACTUAL INSTALLATION OF ALL CONTROL DEVICES IS SUBJECT TO FIELD VERIFICATION. ANY CHANGES THAT MAY RESULT IN A DEVIATION FROM THE GENERAL INTENT OF THE CONTROL SYSTEM DESIGN SHALL BE APPROVED BY THE DESIGNER PRIOR TO INSTALLATION.
- FIELD VERIFICATION OF WIRING TERMINATIONS REQUIRED.

- GROUND CIRCUIT MUST BE A CONTINUOUS PATH BACK TO THE BREAKER PANEL.
- ELECTRICAL NOTE: CONTROLLER GROUND CONNECTION MUST BE A COMPLETE PATH BACK TO BREAKER PANEL.

- REMOVE SHUNT JUMPER IF SHIELD IS GROUNDED DIRECTLY AT ANY OTHER POINT OR SHUNT IS INSTALLED AT OTHER END OF NETWORK.
- ADP-45-MSTP-TB-Y AND ADP-45-MSTP-Y BOARDS MAY BE FLUSH MOUNTED ONTO METAL PANELBOARDS WITHOUT AN INSULATOR BETWEEN THE TWO.
- FIELD DEVICES SHOULD ONLY BE GROUNDED IN THE CONTROL PANEL. DO NOT GROUND I/O WIRING IN BOTH THE FIELD AND THE PANEL.
- THESE DRAWINGS PROVIDE SCHEMATIC REPRESENTATIONS OF EQUIPMENT & FIELD DEVICES BASED ON THE CHILDREN'S EDUCATION ADDITION PROPOSAL. ACTUAL INSTALLATION OF ALL CONTROL DEVICES IS SUBJECT TO FIELD VERIFICATION. ANY CHANGES THAT MAY RESULT IN A DEVIATION FROM THE GENERAL INTENT OF THE CONTROL SYSTEM DESIGN SHALL BE APPROVED BY THE DESIGNER PRIOR TO INSTALLATION.
- SEE FIELD DEVICE TERMINATION DETAIL SHEET(S) FOR POINT WIRING REQUIREMENTS.

FROM BAPI:

- BAPI recommends using twisted pair of at least 22AWG and sealant filled connectors for all wire connections. Larger gauge wire may be required for long runs. All wiring must comply with the National Electric Code (NEC) and local codes.
Do NOT run this device's wiring in the same conduit as AC power wiring of NEC class 1, NEC class 2, NEC class 3 or with wiring used to supply highly inductive loads such as motors, contactors and relays. BAPI's tests show that fluctuating and inaccurate signal levels are possible when AC power wiring is present in the same conduit as the signal lines. If you are experiencing any of these difficulties, please contact your BAPI representative.

Cable Requirements:

	Cable Type	Equal to	Max Cable Length	Wiring Precautions
RS-485 Network	22-24 AWG twisted pair, shielded, jacketed communication cable	Belden 9841, 82841	4000 ft (1220 m)	- Braided or Aluminum foil shield, Impedence 100-200 Ω, Capacitance 17 pF/ft or less. - Use for BACnet MS/TP, LINKNet, V2 Subnet, MODBUS-RTU
Ethernet	10/100 Base T, Cat5e, Cat6		no limit (w/ switches)	Follow IEEE 802.3 standards
Fiber Optic	Grade 3 (62.5/125μ) / Grade 4 (50/125μ), min 2 fiber, Multimode, SC connector	Belden FDxM006P0	1000 ft (550 m) for Gigabit Ethernet	Suggest 4 or more fibers for redundancy in case of damage
10k Ω / Dry Contact Input	2 conductor 18 AWG	Belden 8461NH	3900 ft (1200 m)	Ground only at controller input GND terminal
	2 conductor 22 AWG	Belden 88442	1500 ft (450 m)	Ground only at controller input GND terminal
5 V Input	2 conductor 22 AWG shielded	Belden 83552	100 ft (30 m)	Keep Cable Short Use dedicated shielded cable
	2 conductor 20 AWG shielded	Belden 83602	330 ft (100m) w 20 kΩ load resistor	
	3 conductor 20 AWG shielded	Belden 8772		

Cable Requirements:

	Cable Type	Equal to	Max Cable Length	Wiring Precautions
10 V Input	3 conductor 18 AWG unshielded	Belden 88870	330 ft (100 m)	
4-20 mA Input	2 conductor 18 AWG unshielded	Belden 8461NH	3300 ft (1000 m)	
	4 conductor 18 AWG unshielded	Belden 88489		
Digital Input	2 conductor 18 AWG	Belden 8461NH	3900 ft (1200 m)	
	2 conductor 22 AWG	Belden 88442	1500 ft (450 m)	
RTD Input	2 conductor 18 AWG	Belden 8461NH	No practical limit	Ground only at controller input GND terminal
	2 conductor 22 AWG	Belden 88442		
Analog 0-10 VDC Output	2 conductor 18 AWG unshielded	Belden 8461NH	330 ft (100 m)	
Analog 4-20 mA Output	2 conductor 18 AWG unshielded	Belden 8461NH	Depends upon impedence	ft = 1000 (500 - end dev imp) / 12.8 m = 1000 (500 - end dev imp) / 42
Binary Triac Output	2 conductor 18 AWG unshielded	Belden 8461NH	330 ft (100 m)	min turn-on current = 25 mA
Binary SS Relay Output	2 conductor 18 AWG unshielded	Belden 8461NH	330 ft (100 m)	No min turn-on current, Max External Voltages: 28 VAC, 28 VDC
Binary Relay Output	2 conductor 18 AWG unshielded	Belden 8461NH	330 ft (100 m)	Max External Voltages: 28 VAC, 28 VDC

PROJECT TITLE: NCHS WEST GYM PHASE 2		DRAWING TITLE: INSTALLATION STANDARDS - ELECTRICAL
PROJECT NUMBER: O-P-0004	BY: KK SUBMITTAL: 2 PRINTED 11/28/2021 Ver. 4.8.0	Delta CONTROLS A Delta Group Company
		DRAWING NUMBER: DWG 00.02

INSTALLATION STANDARDS - NETWORK

BACNET MS/TP (RS-485) BUS STANDARDS

1. THE MS/TP BUS SHIELD MUST BE KEPT SEPARATE FROM OTHER SHIELDS & MUST NOT BE GROUNDED. THE MS/TP BUS SHIELD SHALL BE PROTECTED FROM CONTACTING ANY SURFACE OTHER THAN THE TERMINATION BLOCK.
2. SPLICES IN MS/TP BUS WIRING ARE NOT ACCEPTABLE. MS/TP BUS WIRING SHALL BE TERMINATED ONLY AT A CONTROLLER, REPEATER, OR TRM-768: RS-485 LAN TERMINATOR.
3. THE BLACK WIRE IN AN MS/TP BUS CABLE SHALL ALWAYS BE CONNECTED TO THE (-) BUS TERMINAL ON THE DEVICE AT EACH END OF THE CABLE.
4. ALL 2-CONDUCTOR MS/TP BUS CABLE SHALL MEET THE FOLLOWING SPECIFICATIONS:
   - 22-24 GAUGE, SINGLE TWISTED-PAIR, TINNED, SHIELDED COPPER WIRE WITH GREEN JACKET
   - NOMINAL IMPEDANCE = 100-120 OHMS BETWEEN CONDUCTORS
   - CAPACITANCE < OR = TO 17 pF/FT BETWEEN GROUNDED CONDUCTOR & NEXT CONDUCTOR
   - ACCEPTABLE CABLE = BELDEN 9841, 82841 OR WINDY CITY WIRE 42002-S. (PLENUM-RATED)

   APPROVAL OF EQUIVALENT CABLE IS REQUIRED PRIOR TO INSTALLATION
5. PLENUM-RATED CABLE SHALL BE USED WHERE REQUIRED BY LOCAL OR NATIONAL CODES.
6. MS/TP BUS WIRING SHALL NOT BE RUN IN THE SAME CONDUIT AS A.C. POWER WIRING THAT CARRIES MORE THAN 24 VOLTS.
7. WITHIN ANY CONTROL PANEL:
   - MS/TP BUS WIRING SHALL NOT CROSS OVER A.C. POWER WIRING THAT CARRIES MORE THAN 24 VOLTS.
   - MS/TP BUS WIRING SHALL NOT BE RUN IN THE SAME CABLE GROUP AS A.C. POWER WIRING THAT CARRIES MORE THAN 24 VOLTS.
8. ONLY SHIELDED 24 VAC POWER WIRING SHALL BE ALLOWED TO CROSS OVER, RUN IN THE SAME CONDUIT, OR RUN IN THE SAME CABLE GROUP AS MS/TP BUS WIRING.

BACNET MS/TP (RS-485) BUS NOTES

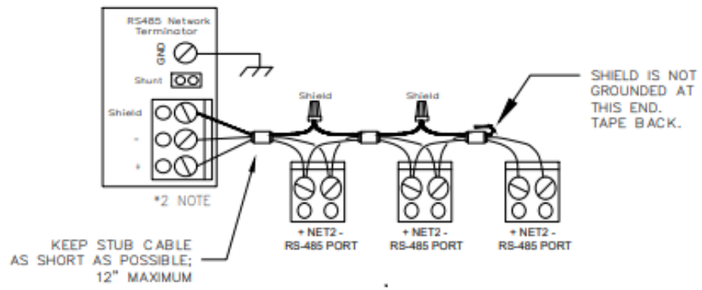
- EACH SEGMENT OF THE DZNT COMMUNICATION BUS CAN HAVE UP TO 50 DEVICES AND 2,000' TOTAL CAT5 CABLE LENGTH (COMBINED DISTANCE BETWEEN TERMINATION BOARDS AND FROM TERMINATION BOARD TO DZNT-TO-VAV (THE WALL MOUNTED DEVICE)) TO A MAXIMUM OF 99 DEVICES TOTAL.
- TOTAL NETWORK LENGTH IS DETERMINED BY SUM OF CABLE LENGTHS BETWEEN TERMINATION BOARDS, PLUS THE SUM OF THE DROP CABLES BETWEEN TERMINATION BOARD AND THERMOSTAT.
- IF ONLY 1 SEGMENT IS REQUIRED, AN ADP45-MSTP-TB-Y MAY BE USED INSTEAD OF AN ADP45-MSTP-Y.
- THERE IS NO HARD LIMIT TO THE NUMBER OF BRANCHES CREATED BY ADP45-MSTP-Y CONNECTORS, PROVIDED TOTAL OF ALL BRANCHES IS WITHIN THE LENGTH AND DEVICE LIMIT FOR THE SEGMENT. DAISY CHAIN STRUCTURE IS MAINTAINED DUE TO THE DESIGN OF THE CABLING SYSTEM.
- AFTER SPLITTING A NETWORK INTO TWO (2) BRANCHES, DO NOT RECOMBINE TO A SINGLE BRANCH AT THE OPPOSITE END OR NETWORK PROBLEMS WILL OCCUR.
- LOOPBACK TERMINATION, ADP45-MSTP-ENDLOOP, MUST BE USED AT THE END OF EACH NETWORK BRANCH OR SEGMENT. NETWORK WILL CONTINUE TO FUNCTION IF ON LOOPBACK OR DEVICE IS REMOVED FROM THE NETWORK BUT DEVICES WILL DROP OFF THE NETWORK BETWEEN ANY TWO (2) REMOVED DZNT-TO-VAV OR ADP45-MSTP-LOOP.
- 12" LENGTH OF NETWORK CABLE ATTACHED TO THE ADP45-MSTP-TB-Y IS MAXIMUM ALLOWED. TERMINATE GROUND LEAD TO GND ON THE CONTROLLER TO MAINTAIN NETWORK INTEGRITY.
- CABLING IS DESIGNED TO USE STANDARD STRAIGHT-THROUGH UNSHIELDED TWISTED PAIR (UTP) CAT3 OR HIGHER CABLES (CAT5, CAT5e, CAT6) TO CONNECT BOXES TO BOXES, AND INDIVIDUAL BOXES TO THEIR THERMOSTATS.
- CABLING IS DESIGNED TO MAINTAIN THE REQUIRED DAISY-CHAIN CONFIGURATION EVEN WITH THE USE OF NETWORK Y's.

- DO NOT EXCEED (64) NODES ON A NETWORK SEGMENT. THERE IS A MAXIMUM OF 99 NOTES ALLOWED ON A SINGLE MS/TP NETWORK. ANY MORE THAN (64) NODES ON A NETWORK REQUIRES THE USE OF A REPEATER!
- DO NOT EXCEED 4,000 FEET (1,220 m) TOTAL LENGTH ON ANY SINGLE TWISTED PAIR RS-485 NETWORK SEGMENT.
- DO NOT EXCEED 2,000 FEET (610 m) TOTAL LENGTH ON ANY SINGLE CAT5 RS-485 NETWORK SEGMENT.
- DO NOT EXCEED (3) NODES ON A SINGLE LINKNET SEGMENT.
- DO NOT EXCEED 100 FEET (30 m) TOTAL LENGTH ON ANY SINGLE LINKNET NETWORK.
- SHIELD FOR MS/TP BUS MUST BE KEPT SEPARATE FROM OTHER SHIELDS AND FROM GROUND TERMINATIONS.
- MS/TP BUS SHIELD MUST BE TIED THROUGH EACH NODE TO MAKE A CONTINUOUS SHIELD THAT RUNS THE ENTIRE LENGTH OF THE RS-485 SEGMENT. DO NOT CONNECT THE SHIELD TO GROUND AT THE NODE.
- PROTECT FROM CONTACT WITH ANY SURFACE OTHER THAN THE TRM-768 TERMINAL BOARD OR DNZR-768 REPEATER.
- COMMUNICATION WIRING MUST NOT BE SPLICED. ALL TERMINATIONS MUST OCCUR AT CONTROLLERS UNLESS SPECIFICALLY NOTED OTHERWISE.
- BLACK COMMUNICATION WIRE SHALL ALWAYS BE CONNECTED TO (-) TERMINAL AT ALL CONTROLLERS.
- REFER TO "INSTALLATION STANDARDS" SHEET FOR ACCEPTABLE CABLE SPECIFICATIONS AND WIRING PRACTICES.
- ALL DEVICES CONNECTED TO THE MS/TP NETWORK MUST BE PROPERLY GROUNDED.
- ALL DEVICES ON THE NETWORK MUST RUN AT THE SAME BAUD RATE.

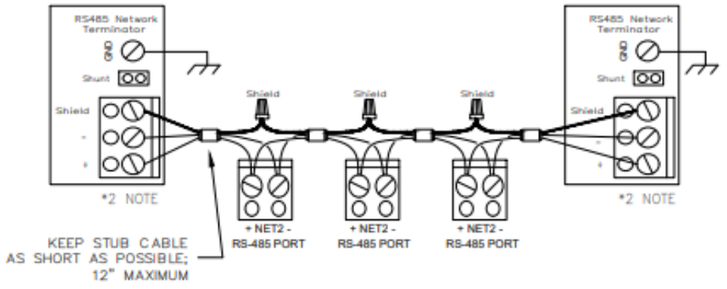
- THE LAYOUTS REPRESENTED ARE EXAMPLES OF HOW THE NETWORK MAY BE CONFIGURED. THERE IS NO REQUIREMENT TO FOLLOW THESE PROPOSED LAYOUTS, OTHER THAN MAINTAINING THE GROUPING UNDER EACH SYSTEM CONTROLLER.
- EACH APPLICATION CONTROLLER ON A GIVEN MS/TP BUS (UNDER EACH SYSTEM CONTROLLER) MUST HAVE UNIQUE ADDRESSING SET VIA THE DIP SWITCHES.

BACNET MS/TP (RS-485) BUS TERMINATIONS

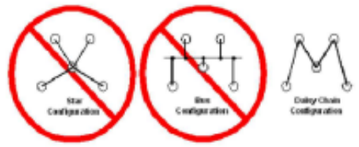
MS/TP TERMINATIONS USING ONE TRM-768 AND BUILT-IN TERMINATION



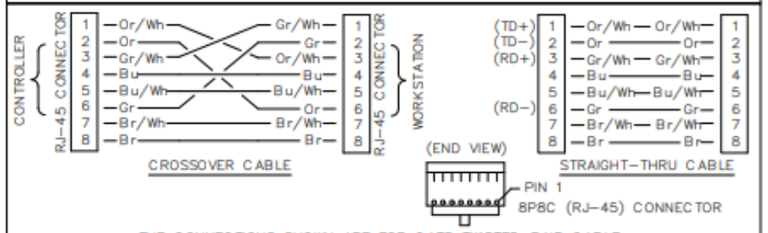
MS/TP TERMINATIONS USING TWO TRM-768s



ONLY A DAISY-CHAIN RS-485 MS/TP TOPOLOGY IS ALLOWED!



ETHERNET CABLE CONNECTIONS



- THE CONNECTIONS SHOWN ARE FOR CAT5 TWISTED-PAIR CABLE.

ETHERNET CABLE STANDARDS

1. ALL ETHERNET CABLE SHALL MEET THE FOLLOWING SPECIFICATIONS:
   - 10/100-BASE-T: 22 OR 24 AWG, (4) TWISTED-PAIR, SOLID COPPER WIRE (CAT-5 EQUIV.)
     MAX. SEGMENT LENGTH = 330 FT (100 m)
     MAX. NETWORK LENGTH = 2,000 FT (610 m)
   - 10/100-BASE-F: 62.5/125 MICRON CABLE
     MAX. SEGMENT LENGTH = 1,351 FT (412 m)
2. PLENUM-RATED CABLE SHALL BE USED WHERE REQUIRED BY LOCAL OR NATIONAL CODES.

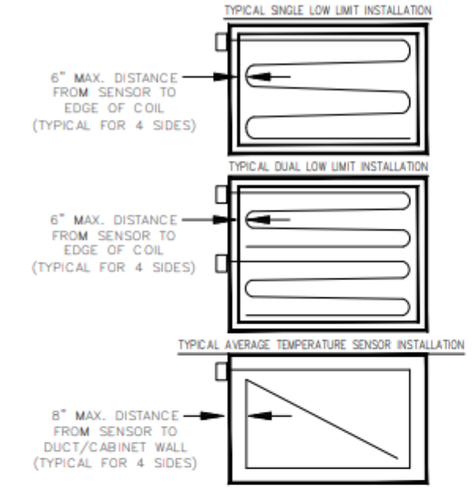
PROJECT TITLE: NCHS WEST GYM PHASE 2		DRAWING TITLE: INSTALLATION STANDARDS - NETWORK
PROJECT NUMBER: O-P-0004	BY: KK SUBMITTAL: 2 PRINTED 11/28/2021 Ver. 4.8.0	Delta CONTROLS A Delta Group Company
		DRAWING NUMBER: DWG 00.03

INSTALLATION STANDARDS - MECHANICAL

GENERAL MECHANICAL STANDARDS

1. VALVE PORT DETAILS SHOWN ON THE TEMPERATURE CONTROL DRAWINGS DO NOT NECESSARILY INDICATE THE ACTUAL VALVE CONFIGURATION. REFER TO MANUFACTURER'S LITERATURE FOR ACTUAL VALVE PORT CONFIGURATION.
2. ALL LIQUID PRESSURE SENSORS SHALL BE INSTALLED ON VERTICAL PIPING OR BELOW THE CENTERLINE OF HORIZONTAL PIPING TO PREVENT AIR ENTRAPMENT AT THE SENSOR.

DUCT / COIL TEMPERATURE SENSOR INSTALLATION



- ALL SENSORS SHALL BE PROTECTED FROM DAMAGE AT THE POINT OF ENTRY INTO THE DUCT/CABINET. EACH SENSOR SHALL BE PROTECTED BY A RUBBER GROMMET, BUSHING, PLASTIC TUBING OR ELECTRICAL TAPE AT THE POINT OF ENTRY.
- ALL SENSORS SHALL BE SECURELY ANCHORED ALONG THE FULL LENGTH TO PREVENT DAMAGE CAUSED BY VIBRATION.

PNEUMATIC TERMINATION LEGEND

- = PNEUMATIC SIGNAL TERMINATION AT CONTROL PANEL
- = INTRA-PANEL PNEUMATIC SIGNAL TERMINATION
- = SUPPLY AIR TERMINATION AT CONTROL PANEL (## = PSI)
- = INTRA-PANEL SUPPLY AIR TERMINATION (## = PSI)

RED-LINE REQUIREMENTS

ALL SUBCONTRACTORS ARE REQUIRED TO SUBMIT DETAILED RED-LINE MODIFICATIONS TO THESE PRINTS FOR INCLUSION IN THE AS-BUILT SET. RED-LINES MUST INCLUDE BUT ARE NOT NECESSARILY LIMITED TO:

1. ACCURATE EQUIPMENT LOCATIONS INDICATED ON FLOOR PLANS, INCLUDING ROOF MOUNTED EQUIPMENT RELATIVE TO THE UPPERMOST FLOOR IF NO ROOF PLAN IS PROVIDED.
2. SENSOR LOCATIONS INDICATED ON FLOOR PLANS.
3. EXACT MS/TP AND ETHERNET BUS WIRING CONFIGURATION SHOWN ON FLOOR PLANS (WHEN PROVIDED) AS WELL AS IN TABLE FORMAT.
4. ALL WIRING AND EQUIPMENT CHANGES MADE ON ANY PORTION OF THE JOB.
5. FOR JOBS WITH NO FLOOR PLANS, ALL EQUIPMENT (INCLUDING SENSORS) WILL BE NOTED WITH ROOM NAME AND NUMBER.
6. ALL BACKUP BATTERY TABS ARE TO BE PULLED AT TIME OF CONTROLLER INSTALLATION.
7. ALL CONTROLLER SERIAL NUMBERS ARE TO BE RECORDED BY INSTALLING CONTRACTOR AT TIME OF INSTALLATION. THIS INFORMATION IS TO BE PASSED TO TEMPERATURE CONTROL SERVICES, LLC., AS THE JOB PROGRESSES.

MECHANICAL NOTES

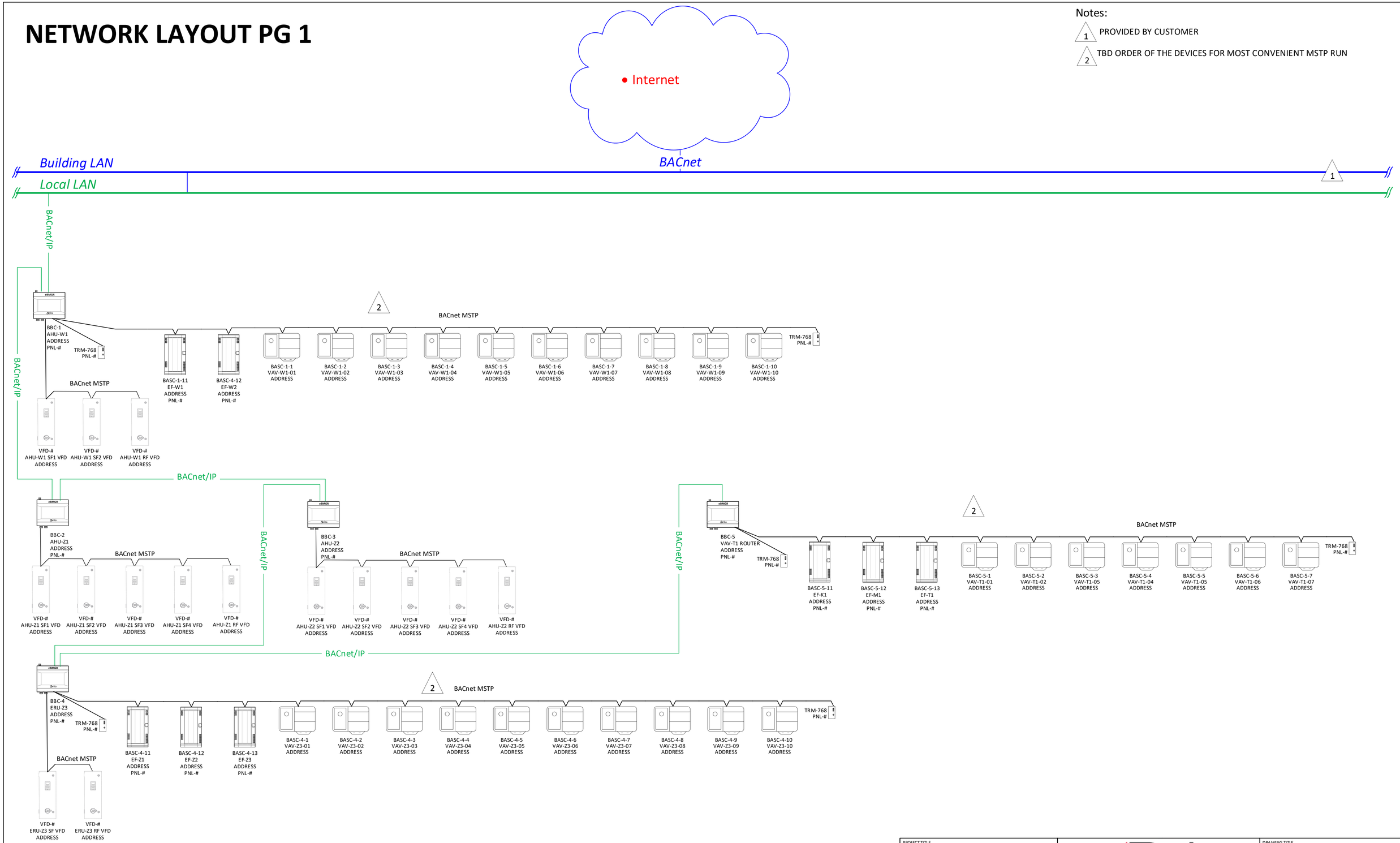
- NOT ALL PANELS MAY CONTAIN THE TRM-768 END-OF-LINE TERMINATION BOARD. SEE CONTROLLER WIRING AND/OR SCHEDULE SHEETS FOR DETAILS.
- VAV CONTROLLERS MAY OPERATE IN A STAND-ALONE CONFIGURATION. HOWEVER, THIS PROJECT CALLS FOR BUS COMMUNICATION BETWEEN CONTROLLERS.
- FOR CLARITY, NOT ALL FACTORY PROVIDED ELECTRICAL WIRING AND COMPONENTS WHICH INTERFACE WITH THIRD-PARTY CONTROLLERS ARE SHOWN. FIELD VERIFICATION OF INSTALLED COMPONENTS AND WIRING CONNECTIONS REQUIRED!
- ZONE PRESSURE SENSOR LOCATED IN CONTROL PANEL.
*- DX UNITS WILL BE CONTROLLED BY FACTORY-PROVIDED ZONE SENSOR, WIRED TO FACTORY SUPPLIED CONTROLLERS. WIRING TO BE INSTALLED BY OTHERS.

PROJECT TITLE: NCHS WEST GYM PHASE 2		Delta CONTROLS A Delta Group Company	DRAWING TITLE: INSTALLATION STANDARDS - MECHANICAL
PROJECT NUMBER: O-P-0004	BY: KK SUBMITTAL: 2 PRINTED 11/28/2021	Ver. 4.8.0	DRAWING NUMBER: DWG 00.04

NETWORK LAYOUT PG 1

Notes:

1. PROVIDED BY CUSTOMER
2. TBD ORDER OF THE DEVICES FOR MOST CONVENIENT MSTP RUN

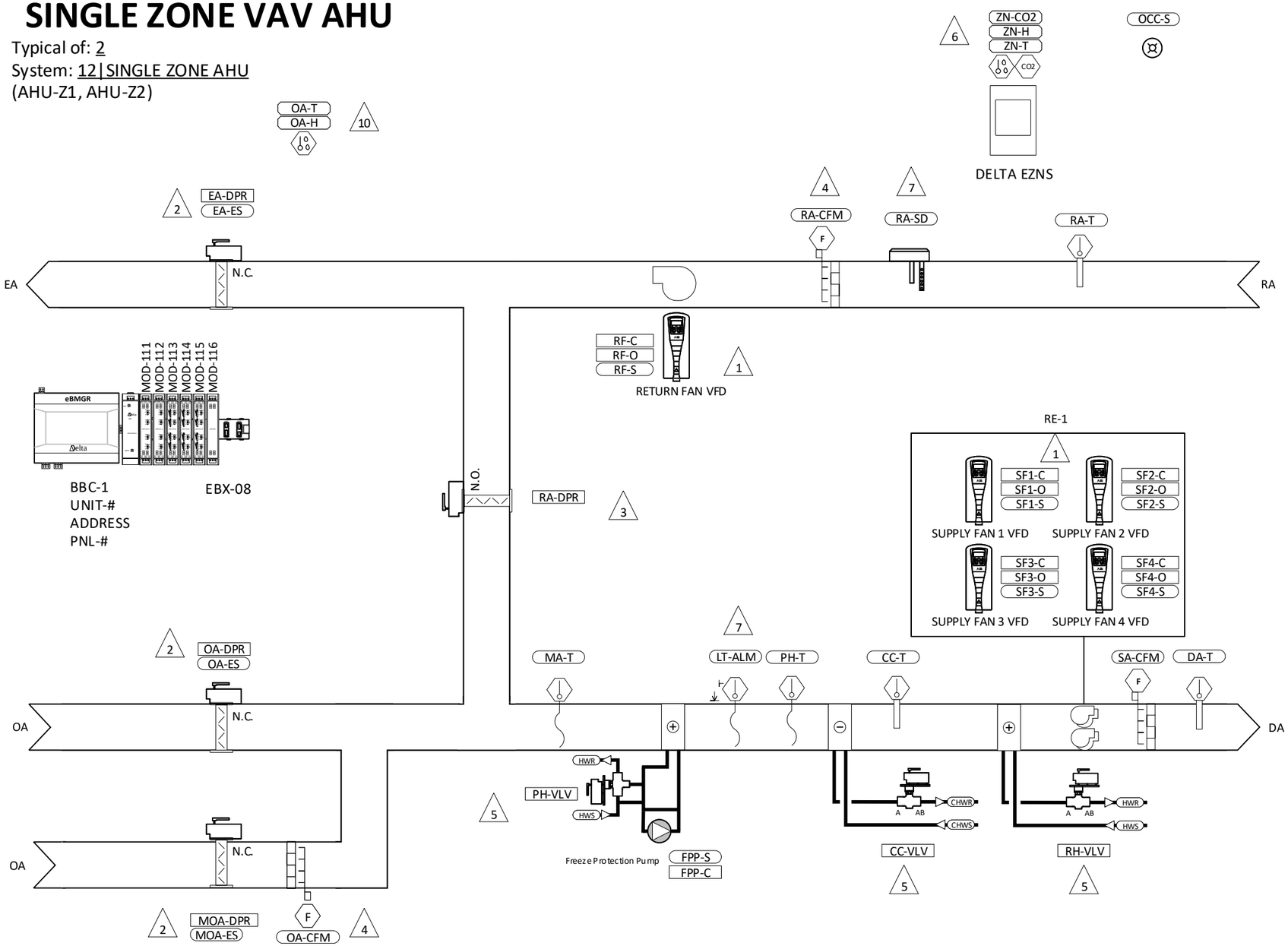


BILL OF MATERIALS				
DEVICE ID	VENDOR P/N	QTY	DESCRIPTION	MANUFACTURER
TRM-768,768,768,768,768,768	151924	6	151924 TRM768 NETWORK TERMINATOR (MS/TP)	DELTA CONTROLS PRODUCTS

PROJECT TITLE: NCHS WEST GYM PHASE 2			DRAWING TITLE: NETWORK LAYOUT PG 1
PROJECT NUMBER: O-P-0004	BY: KK	Delta CONTROLS — A Delta Group Company	DRAWING NUMBER: DWG 01.00
	SUBMITTAL: 2		
	PRINTED 11/28/2021	Ver. 4.8.0	

SINGLE ZONE VAV AHU

Typical of: 2
System: 12|SINGLE ZONE AHU
(AHU-Z1, AHU-Z2)



Notes:

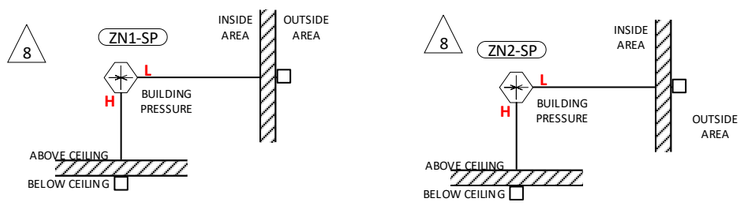
6 TCC SHALL PROVIDE AND CIC SHALL INSTALL ZONE SENSOR WITH TEMPERATURE, HUMIDITY AND CO2 SENSING.

7 TCC SHALL PROVIDE AND CIC SHALL WIRE INTERLOCK TO ASSOCIATED VFD TO EMERGENCY STOP OPERATIONS IF ANY SAFETY CIRCUIT IS ACTIVATED

8 TCC SHALL PROVIDE AND CIC SHALL INSTALL TWO EXTERIOR BUILDING STATIC PRESSURE SENSORS

9 MANUFACTURER PROVIDED AFMS SHALL BE INSTALLED AND TUBED AT THE FACTORY. FOR THE ENTIRE ARRAY, ONE FAN SHALL BE TUBED AND ONE TRANSMITTER SHALL BE SUPPLIED BY THE MANUFACTURER FOR TCC TO MONITOR

10 VALUES TRANSFERED FROM ERU-Z3



Notes:

1 VFD PROVIDED BY TCC TO ELECTRICAL CONTRACTOR FOR INSTALLATION AND POWER. SEE MECHANICAL DRAWINGS FOR UNIT OR WALL MOUNTED LOCATIONS AND NUMBER OF FANS REQUIRED. CIC RESPONSIBLE FOR AUX CONTACT SAFETY WIRING FROM DISCONNECT.

2 CONTROL DAMPER ASSEMBLY INCLUDING ACTUATOR WITH ENDSWITCH PROVIDED BY TCC TO SHEET METAL CONTRACTOR FOR INSTALLATION. CIC TO PROVIDE AND INSTALL CONTROL AND POWER WIRING.

3 CONTROL DAMPER ASSEMBLY INCLUDING ACTUATOR PROVIDED BY TCC TO SHEET METAL CONTRACTOR FOR INSTALLATION. CIC TO PROVIDE AND INSTALL CONTROL AND POWER WIRING.

4 TCC SHALL PROVIDE 24VAC AIRFLOW MEASURING STATION. TCC SHALL INSTALL AS COORDINATED WITH THE SHEETMETAL CONTRACTOR TO ENSURE ENOUGH STRAIGHT DUCT. CIC TO PROVIDE AND INSTALL CONTROL AND POWER WIRING.

5 TCC SHALL PROVIDE COMPLETE VALVE ASSEMBLIES WITH FACTORY MOUNTED ACTUATORS TO MECHANICAL CONTRACTOR FOR INSTALLATION. SEE MECHANICAL SCHEDULE FOR TWO AND THREE WAY REQUIREMENTS. CIC TO PROVIDE AND INSTALL CONTROL AND POWER WIRING.

Point Summary

System	Qty.	Typ.	Device ID	Point Name	Point Type
SINGLE ZONE AHU	1	2	CC-T	Cooling Discharge Air Temperature	AI
SINGLE ZONE AHU	1	2	CC-VLV	Cooling Valve	AO
SINGLE ZONE AHU	1	2	DA-T	Supply Air Temperature	AI
SINGLE ZONE AHU	1	2	EA-DPR	Exhaust Air Damper	AO
SINGLE ZONE AHU	1	2	EA-ES	Exhaust Air Damper Endswitch	BI
SINGLE ZONE AHU	1	2	FPP-C	Freeze Protection Pump Start/Stop	BO
SINGLE ZONE AHU	1	2	FPP-S	Freeze Protection Pump Status	BI
SINGLE ZONE AHU	1	2	LT-ALM	Freezestat	BI
SINGLE ZONE AHU	1	2	MA-T	Mixed Air Temperature	AI
SINGLE ZONE AHU	1	2	MOA-	Min Outside Air Damper	AO
SINGLE ZONE AHU	1	2	MOA-ES	Min Outside Air Damper Endswitch	BI
SINGLE ZONE AHU	1	2	OA-CFM	Outside Airflow	AI
SINGLE ZONE AHU	1	2	OA-DPR	Outside Air Damper	AO
SINGLE ZONE AHU	1	2	OA-ES	Outside Air Damper Endswitch	BI
SINGLE ZONE AHU	1	2	OA-H	Outdoor Air Humidity	SOFTWARE
SINGLE ZONE AHU	1	2	OA-T	Outside Air Temperature	SOFTWARE
SINGLE ZONE AHU	1	2	OCC-S	Occupancy Sensor	BI
SINGLE ZONE AHU	1	2	PH-T	Preheat Discharge Air Temperature	AI
SINGLE ZONE AHU	1	2	PH-VLV	Heating Valve	AO
SINGLE ZONE AHU	1	2	RA-CFM	Return Airflow	AI
SINGLE ZONE AHU	1	2	RA-DPR	Return Air Damper	AO
SINGLE ZONE AHU	1	2	RA-SD	Return Air Smoke Detector	BI
SINGLE ZONE AHU	1	2	RA-T	Return Air Temperature	AI
SINGLE ZONE AHU	1	2	RE-1	HARDWIRED	HARDWIRE
SINGLE ZONE AHU	1	2	RF-C	Return Fan Start/Stop	BO
SINGLE ZONE AHU	1	2	RF-O	Return Fan VFD Speed	AO
SINGLE ZONE AHU	1	2	RF-S	Return Fan Status	BI
SINGLE ZONE AHU	1	2	RH-VLV	Reheating Valve	AO
SINGLE ZONE AHU	1	2	SA-CFM	Supply Airflow	AI
SINGLE ZONE AHU	1	2	SF1-C	Supply Fan 1 Start/Stop	BO
SINGLE ZONE AHU	1	2	SF1-O	Supply Fan 1 VFD Speed	AO
SINGLE ZONE AHU	1	2	SF1-S	Supply Fan 1 Status	BI
SINGLE ZONE AHU	1	2	SF2-C	Supply Fan 2 Start/Stop	BO
SINGLE ZONE AHU	1	2	SF2-O	Supply Fan 2 VFD Speed	AO
SINGLE ZONE AHU	1	2	SF2-S	Supply Fan 2 Status	BI
SINGLE ZONE AHU	1	2	SF3-C	Supply Fan 3 Start/Stop	BO
SINGLE ZONE AHU	1	2	SF3-O	Supply Fan 3 VFD Speed	AO
SINGLE ZONE AHU	1	2	SF3-S	Supply Fan 3 Status	BI
SINGLE ZONE AHU	1	2	SF4-C	Supply Fan 4 Start/Stop	BO
SINGLE ZONE AHU	1	2	SF4-O	Supply Fan 4 VFD Speed	AO
SINGLE ZONE AHU	1	2	SF4-S	Supply Fan 4 Status	BI
SINGLE ZONE AHU	1	2	ZN1-SP	Space 1 Static Pressure	AI
SINGLE ZONE AHU	1	2	ZN2-SP	Space 2 Static Pressure	AI
SINGLE ZONE AHU	1	2	ZN-CO2	Space CO2 Concentration Level	LINKNET
SINGLE ZONE AHU	1	2	ZN-H	Space Humidity	LINKNET
SINGLE ZONE AHU	1	2	ZN-T	Space Temperature	LINKNET

Devices	Points	PointType
10	20	AI
12	24	AO
12	24	BI
6	12	BO
1	2	HARDWIRE
3	6	LINKNET
2	4	SOFTWARE
46	92	Total

PROJECT TITLE: NCHS WEST GYM PHASE 2
PROJECT NUMBER: O-P-0004
BY: KK
SUBMITTAL: 2
PRINTED 11/28/2021
Ver. 4.8.0

Delta CONTROLS
A Delta Group Company

DRAWING TITLE: SINGLE ZONE VAV AHU
DRAWING NUMBER: DWG 12.00

SINGLE ZONE VAV AHU BOM

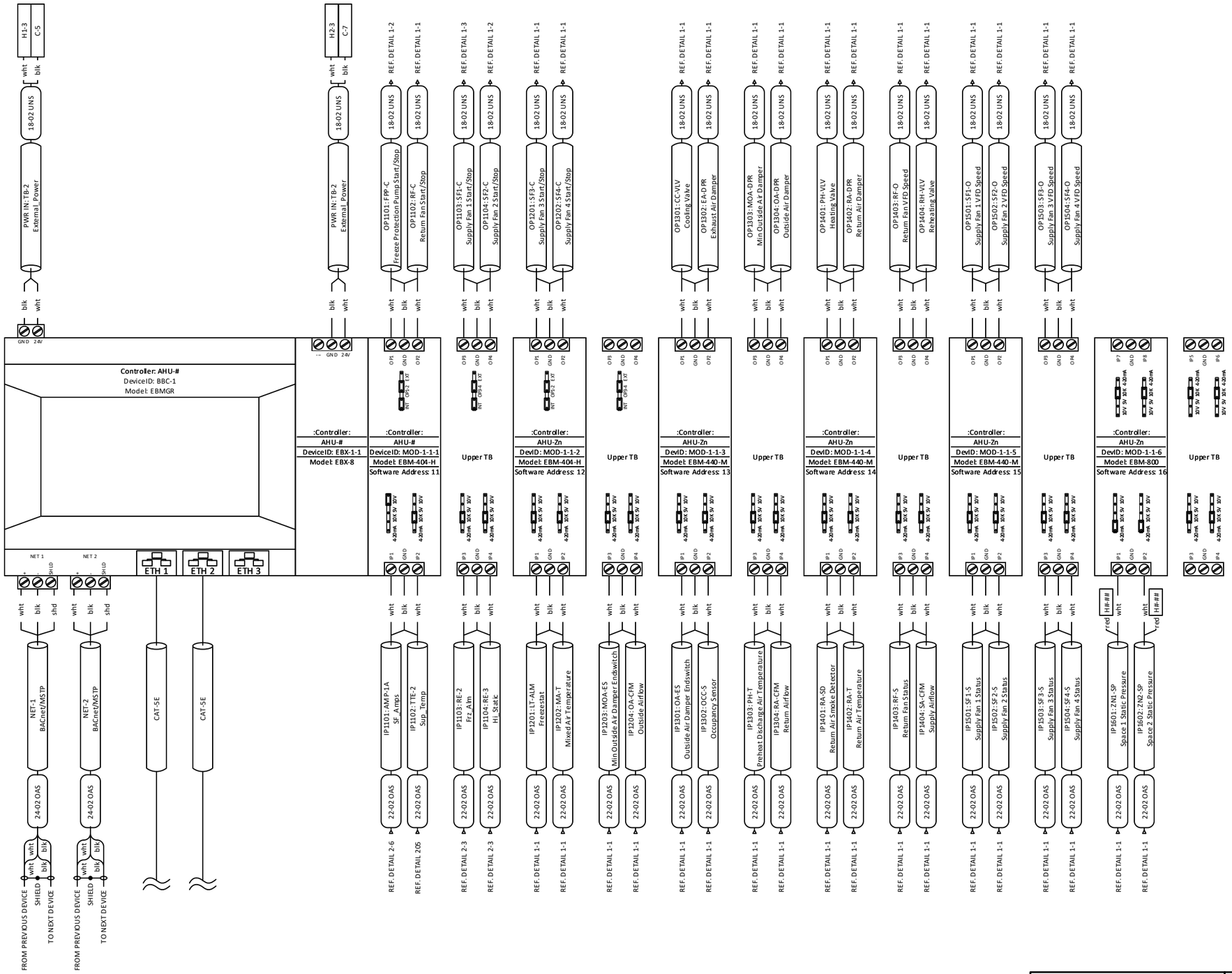
Combined BOM of AHU-Z1, AHU-Z2

BILL OF MATERIALS				
DEVICE ID	VENDOR P/N	QTY	DESCRIPTION	MANUFACTURER
BBC-1	301604	2	301604 EBM GR-2 ENTELIBUS SYSTEM CONTROLLER	DELTA CONTROLS PRODUCTS
CC-T,DA-T,RA-T	402986	6	BA/10K-3-D-8"-BBX DUCT TEMP SENSOR, 8" STAINLESS S	BAPI
CC-VLV,PH-VLV,RH-VLV	*SEE VALVE SCHEDULE	6	SEE VALVE SCHEDULE	
EA-DPR,ES,MOA-DPR,ES,DPR,ES,RA-DPR	*SEE DAMPER SCHEDULE	14	SEE DAMPER SCHEDULE	
EBX-08	311602	2	311602 EBX-08 ENTELIBUS EXPANDER BACKPLANE (8 SLOT	DELTA CONTROLS PRODUCTS
FPP-C,RF-C,SF1-C,SF2-C,SF3-C,SF4-C	403455	12	RIBU1C ENCLOSED RELAY 10AMP SPDT 10-30VAC/DC/120VA	FUNCTIONAL DEVICES INC.
FPP-S,RF-S,SF1-S,SF2-S,SF3-S,SF4-S	403501	12	RIBXKTA SOLID CORE, ADJUSTABLE CURRENT SWITCH, 0.5	FUNCTIONAL DEVICES INC.
LT-ALM	499777	2	TSA-DOP LOW LIMIT,MANUAL RESET, SPDT	KELE
MA-T,PH-T	400152	4	BA/10K-3-A-24' DUCT AVERAGING TEMP SENSOR, 24', AL	BAPI
MOD-111,112	375604	4	375604 EBM-404-H ENTELIBUS MODULE (4 UIS,4 BOS WIT	DELTA CONTROLS PRODUCTS
MOD-113,114,115	375601	6	375601 EBM-440-M ENTELIBUS MODULE (4 UIS,4 AOS WIT	DELTA CONTROLS PRODUCTS
MOD-116	375606	2	375606 EBM-800 ENTELIBUS MODULE (8 UIS)	DELTA CONTROLS PRODUCTS
OA-CFM	QUOTE	2	GTX116-P+	EBTRON
OCC-S	MSCD2000	2	SENSOR,MOTION,CEILING,DUAL,2000FT	VERIS
RA-CFM	QUOTE	2	GTX116-P+	EBTRON
RA-SD,SA-CFM	*BY OTHERS	4	DEVICE BY OTHERS	
RE-1	403386	2	RIBMNLB-4 PANEL RELAY 2.75 TRACK-MOUNT RELAY LOGIC	FUNCTIONAL DEVICES INC.
RF-O	QUOTE	2	SEE VFD SCHEDULE	
SF1-O	QUOTE	2	SEE VFD SCHEDULE	
SF2-O	QUOTE	2	SEE VFD SCHEDULE	
SF3-O	QUOTE	2	SEE VFD SCHEDULE	
SF4-O	QUOTE	2	SEE VFD SCHEDULE	
ZN1-SP,ZN2-SP	400970	4	ZPS-20-LR52-EZ-NT-D PRESSURE TRANSMITTER	BAPI
ZN1-SP,ZN2-SP	902447	4	A-306 OUTDOOR STATIC PRESSURE SENSOR, INCLUDES 50'	DWYER INSTRUMENTS, INC.
ZN1-SP,ZN2-SP	902595	4	A-489 4" 303 SS STRAIGHT STATIC PRESSURE TIP W/FLA	DWYER INSTRUMENTS, INC.
ZN-H,T	337364	2	337364 EZNS-T100CH-ND-SC-000-WWG ENTELIZONE NETWOR	DELTA CONTROLS PRODUCTS

PROJECT TITLE: NCHS WEST GYM PHASE 2		Delta™ CONTROLS A Delta Group Company	DRAWING TITLE: SINGLE ZONE VAV AHU BOM
PROJECT NUMBER: O-P-0004	BY: KK SUBMITTAL: 2 PRINTED 11/28/2021 Ver. 4.8.0		DRAWING NUMBER: DWG 12.01

SINGLE ZONE VAV AHU I/O PG 1

Typical of 2 (AHU-Z1, AHU-Z2)

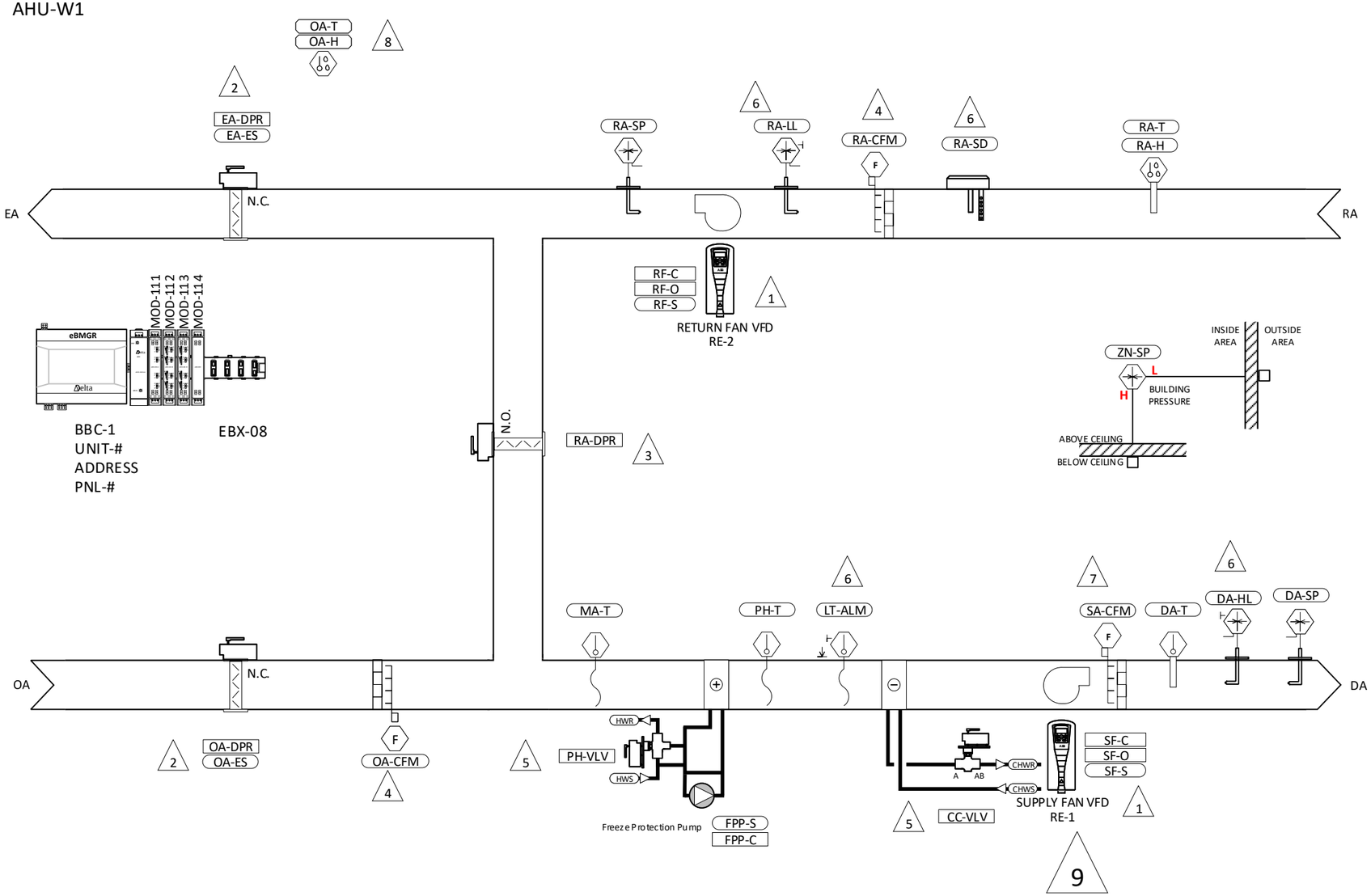


1 AHU-Z1 CONTROLLER TO HAVE 2 ADDITIONAL EBX MODULES TO PICKUP HYDRONIC UNIT HEATER POINTS. SEE CABINET UNIT HEATER I/O PAGE FOR DETAILS

PROJECT TITLE: NCHS WEST GYM PHASE 2		Delta CONTROLS A Delta Group Company	DRAWING TITLE: SINGLE ZONE VAV AHU I/O PG 1
PROJECT NUMBER: O-P-0004	BY: KK SUBMITTAL: 2 PRINTED 11/28/2021 Ver. 4.8.0		DRAWING NUMBER: DWG 12.02

VAV AIR HANDLING UNIT AHU-W1

Typical of: 1
System: 12|VAV AIR HANDLING UNIT AHU-W1
AHU-W1



Notes:

1. VFD PROVIDED BY TCC TO ELECTRICAL CONTRACTOR FOR INSTALLATION AND POWER. SEE MECHANICAL DRAWINGS FOR UNIT OR WALL MOUNTED LOCATIONS. CIC RESPONSIBLE FOR AUX CONTACT SAFETY WIRING FROM DISCONNECT.
2. CONTROL DAMPER ASSEMBLY ACTUATOR WITH ENDSWITCH PROVIDED BY TCC TO SHEET METAL CONTRACTOR FOR INSTALL. CIC TO PROVIDE AND INSTALL CONTROL AND POWER WIRING.
3. CONTROL DAMPER ASSEMBLY ACTUATOR PROVIDED BY TCC TO SHEET METAL CONTRACTOR FOR INSTALL. CIC TO PROVIDE AND INSTALL CONTROL AND POWER WIRING.
4. TCC SHALL PROVIDE 24VAC AIRFLOW MEASURING STATION. TCC SHALL INSTALL AS COORDINATED WITH THE SHEETMETAL CONTRACTOR TO ENSURE ENOUGH STRAIGHT DUCT. CIC TO PROVIDE AND INSTALL CONTROL AND POWER WIRING.
6. TCC SHALL PROVIDE AND CIC SHALL WIRE INTERLOCK TO ASSOCIATED VARIABLE FREQUENCY DRIVE TO EMERGENCY STOP OEPRATION IF ANY SAFETY CIRCUIT IS ACTIVATED
5. TCC SHALL PROVIDE COMPLETE VALVE ASSEMBLIES WITH FACTORY MOUNTED ACTUATORS TO MECHANICAL CONTRACTOR FOR INSTALLATION. SEE MECHANICAL SCHEDULE FOR TWO AND TREE WAY REQUIREMENTS. CIC TO PROVIDE AND INSTALL CONTROLS AND POWER WIRING.
7. MANUFACTURER PROVIDED AIRFLOW MEASURING SHALL BE INSTALLED AND TUBED AT THE FACTORY. FOR THE ENTIRE ARRAY, ONE FAN SHALL BE TUBED AND ONE TRANSMITTER SHALL BE SUPPLIED TO TCC TO MONITOR
8. VALUES TRANSFERED ON NETWORK FROM ERU-Z3

Point Summary

System	Qty.	Typ.	Device ID	Point Name	Point Type
VAV AIR HANDLING UNIT	1	1	CC-VLV	Cooling Valve	AO
VAV AIR HANDLING UNIT	1	1	DA-HL	High Static Shutdown	BI
VAV AIR HANDLING UNIT	1	1	DA-SP	Supply Air Static Pressure	AI
VAV AIR HANDLING UNIT	1	1	DA-T	Supply Air Temperature	AI
VAV AIR HANDLING UNIT	1	1	EA-DPR	Exhaust Air Damper	AO
VAV AIR HANDLING UNIT	1	1	EA-ES	Exhaust Air Damper Endswitch	BI
VAV AIR HANDLING UNIT	1	1	FPP-C	Freeze Protection Pump Start/Stop	BO
VAV AIR HANDLING UNIT	1	1	FPP-S	Freeze Protection Pump Status	BI
VAV AIR HANDLING UNIT	1	1	LT-ALM	Freezestat	BI
VAV AIR HANDLING UNIT	1	1	MA-T	Mixed Air Temperature	AI
VAV AIR HANDLING UNIT	1	1	OA-CFM	Outside Airflow	AI
VAV AIR HANDLING UNIT	1	1	OA-DPR	Outside Air Damper	AO
VAV AIR HANDLING UNIT	1	1	OA-ES	Outside Air Damper Endswitch	BI
VAV AIR HANDLING UNIT	1	1	OA-H	Outdoor Air Humidity	SOFTWARE
VAV AIR HANDLING UNIT	1	1	OA-T	Outside Air Temperature	SOFTWARE
VAV AIR HANDLING UNIT	1	1	PH-T	Preheat Discharge Air Temperature	AI
VAV AIR HANDLING UNIT	1	1	PH-VLV	Heating Valve	AO
VAV AIR HANDLING UNIT	1	1	RA-CFM	Return Airflow	AI
VAV AIR HANDLING UNIT	1	1	RA-DPR	Return Air Damper	AO
VAV AIR HANDLING UNIT	1	1	RA-H	Return Air Humidity	AI
VAV AIR HANDLING UNIT	1	1	RA-LL	Low Static Shtudown	BI
VAV AIR HANDLING UNIT	1	1	RA-SD	Return Air Smoke Detector	BI
VAV AIR HANDLING UNIT	1	1	RA-SP	Return Air Static Pressure	AI
VAV AIR HANDLING UNIT	1	1	RA-T	Return Air Temperature	AI
VAV AIR HANDLING UNIT	1	1	RE-1	HARDWIRED	HARDWIRED
VAV AIR HANDLING UNIT	1	1	RE-2	HARDWIRED	HARDWIRED
VAV AIR HANDLING UNIT	1	1	RF-C	Return Fan Start/Stop	BO
VAV AIR HANDLING UNIT	1	1	RF-O	Return Fan VFD Speed	AO
VAV AIR HANDLING UNIT	1	1	RF-S	Return Fan Status	BI
VAV AIR HANDLING UNIT	1	1	SA-CFM	Supply Airflow	AI
VAV AIR HANDLING UNIT	1	1	SF-C	Supply Fan Start/Stop	BO
VAV AIR HANDLING UNIT	1	1	SF-O	Supply Fan VFD Speed	AO
VAV AIR HANDLING UNIT	1	1	SF-S	Supply Fan Status	BI
VAV AIR HANDLING UNIT	1	1	ZN-SP	Zone Static Pressure	AI

Devices	Points	PointType
11	11	AI
7	7	AO
9	9	BI
3	3	BO
2	2	HARDWIRED
2	2	SOFTWARE
34	34	Total

9 NEED TO CLARIFY, SCHEDULE SHOWS 2 SUPPLY FANS BUT M-700 SERIES DRAWINGS SHOW ONLY 1 SUPPLY FAN AND VFD FOR AHU-W1. MAY NEED ADDITIONAL IO MODULE TO PICK UP ADDITIONAL VFD POINTS

PROJECT TITLE: NCHS WEST GYM PHASE 2		DRAWING TITLE: VAV AIR HANDLING UNIT AHU-W1
PROJECT NUMBER: O-P-0004	BY: KK SUBMITTAL: 2 PRINTED 11/28/2021 Ver. 4.8.0	DRAWING NUMBER: DWG 12.03

Delta CONTROLS™ A Delta Group Company

VAV AIR HANDLING UNIT AHU-W1 BOM

BILL OF MATERIALS				
DEVICE ID	VENDOR P/N	QTY	DESCRIPTION	MANUFACTURER
BBC-1	301604	1	301604 EBM GR-2 ENTELIBUS SYSTEM CONTROLLER	DELTA CONTROLS PRODUCTS
CC-VLV,PH-VLV	*SEE VALVE SCHEDULE	2	SEE VALVE SCHEDULE	
DA-HL	413077	1	1900-5-MR DIFFERENTIAL PRESSURE SWITCH, RANGE 140	DWYER INSTRUMENTS, INC.
DA-HL,RA-LL,ZN-SP	902595	3	A-489 4" 303 SS STRAIGHT STATIC PRESSURE TIP W/FLA	DWYER INSTRUMENTS, INC.
DA-SP,RA-SP	435217	2	PX3DXX02 DRY MEDIA DIFFERENTIAL PRESSURE	VERIS
DA-T	402986	1	BA/10K-3-D-8"-BBX DUCT TEMP SENSOR, 8" STAINLESS S	BAPI
EA-DPR,ES,OA-DPR,ES,RA-DPR	*SEE DAMPER SCHEDULE	5	SEE DAMPER SCHEDULE	
EBX-08	311602	1	311602 EBX-08 ENTELIBUS EXPANDER BACKPLANE (8 SLOT	DELTA CONTROLS PRODUCTS
FPP-C,RF-C,SF-C	403455	3	RIBU1C ENCLOSED RELAY 10AMP SPDT 10-30VAC/DC/120VA	FUNCTIONAL DEVICES INC.
FPP-S	402996	1	BA/10K-3-A-12'-BBX 12' AVERAGING TEMPERATURE SENSO	BAPI
LT-ALM	499777	1	TSA-DOP LOW LIMIT,MANUAL RESET, SPDT	KELE
MA-T,PH-T	400152	2	BA/10K-3-A-24' DUCT AVERAGING TEMP SENSOR, 24', AL	BAPI
MOD-111	375604	1	375604 EBM-404-H ENTELIBUS MODULE (4 UIS,4 BOS WIT	DELTA CONTROLS PRODUCTS
MOD-112,113	375601	2	375601 EBM-440-M ENTELIBUS MODULE (4 UIS,4 AOS WIT	DELTA CONTROLS PRODUCTS
MOD-114	375606	1	375606 EBM-800 ENTELIBUS MODULE (8 UIS)	DELTA CONTROLS PRODUCTS
OA-CFM	QUOTE	1	GTX116-P+	EBTRON
RA-CFM	QUOTE	1	GTX116-P+	EBTRON
RA-H,T	400369	1	BA/10K-3-H200-D-BB DUCT TEMP/HUMIDITY SENSOR, 2%	BAPI
RA-LL	466001	1	AFS-222 FIELD ADJUSTABLE DIFFERENTIAL PRESSURE SWI	ACI
RA-SD,SA-CFM	*BY OTHERS	2	DEVICE BY OTHERS	
RE-1,2	403386	2	RIBMNLB-4 PANEL RELAY 2.75 TRACK-MOUNT RELAY LOGIC	FUNCTIONAL DEVICES INC.
RF-O	QUOTE	1	SEE VFD SCHEDULE	
RF-S,SF-S	403501	2	RIBXKTA SOLID CORE, ADJUSTABLE CURRENT SWITCH, 0.5	FUNCTIONAL DEVICES INC.
SF-O	QUOTE	1	SEE VFD SCHEDULE	
ZN-SP	400970	1	ZPS-20-LR52-EZ-NT-D PRESSURE TRANSMITTER	BAPI
ZN-SP	902447	1	A-306 OUTDOOR STATIC PRESSURE SENSOR, INCLUDES 50'	DWYER INSTRUMENTS, INC.

PROJECT TITLE: NCHS WEST GYM PHASE 2

PROJECT NUMBER: O-P-0004

BY: KK

SUBMITTAL: 2

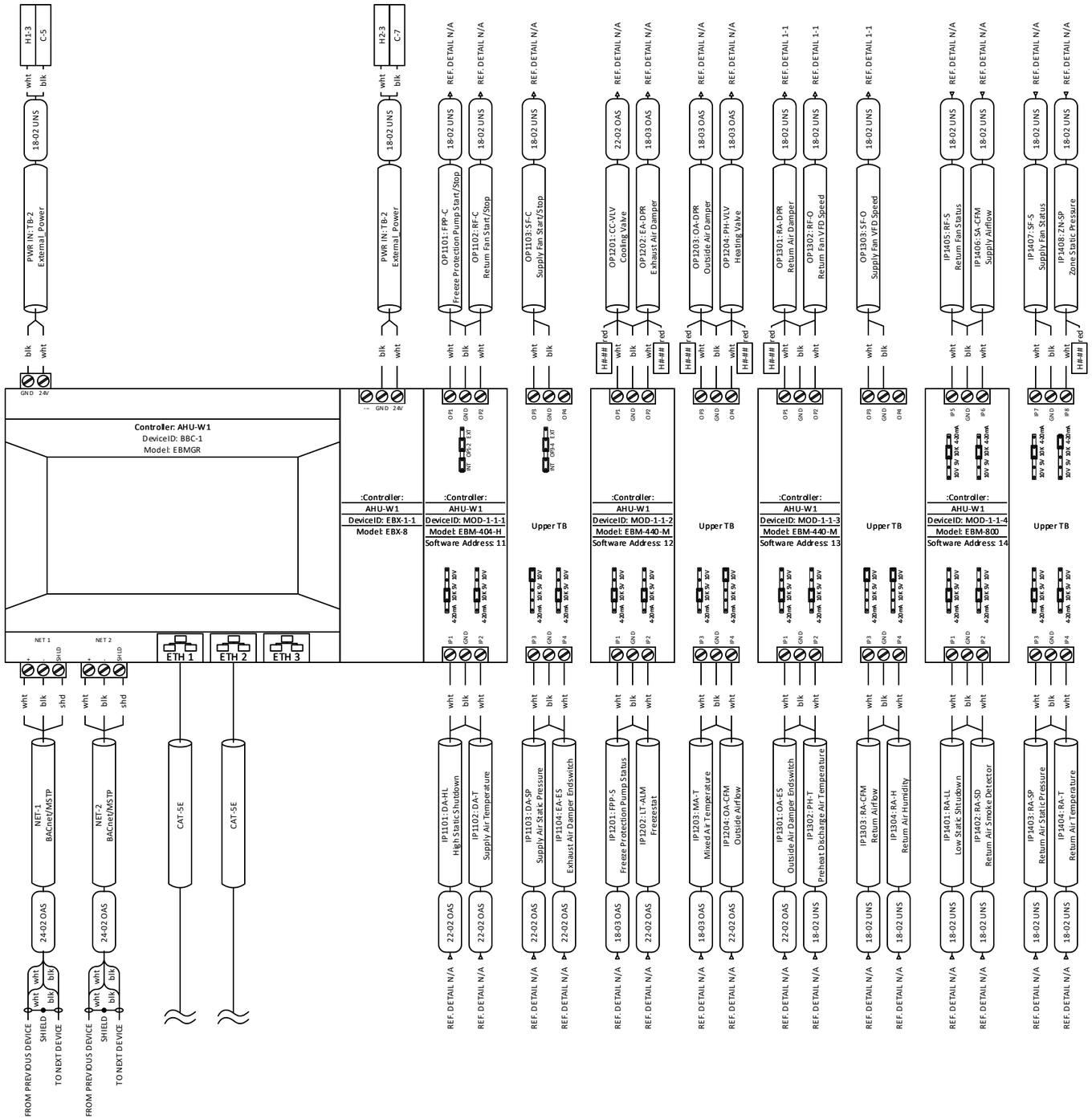
PRINTED 11/28/2021 Ver. 4.8.0

Delta CONTROLS — A Delta Group Company

DRAWING TITLE: VAV AIR HANDLING UNIT AHU-W1 BOM

DRAWING NUMBER: DWG 12.04

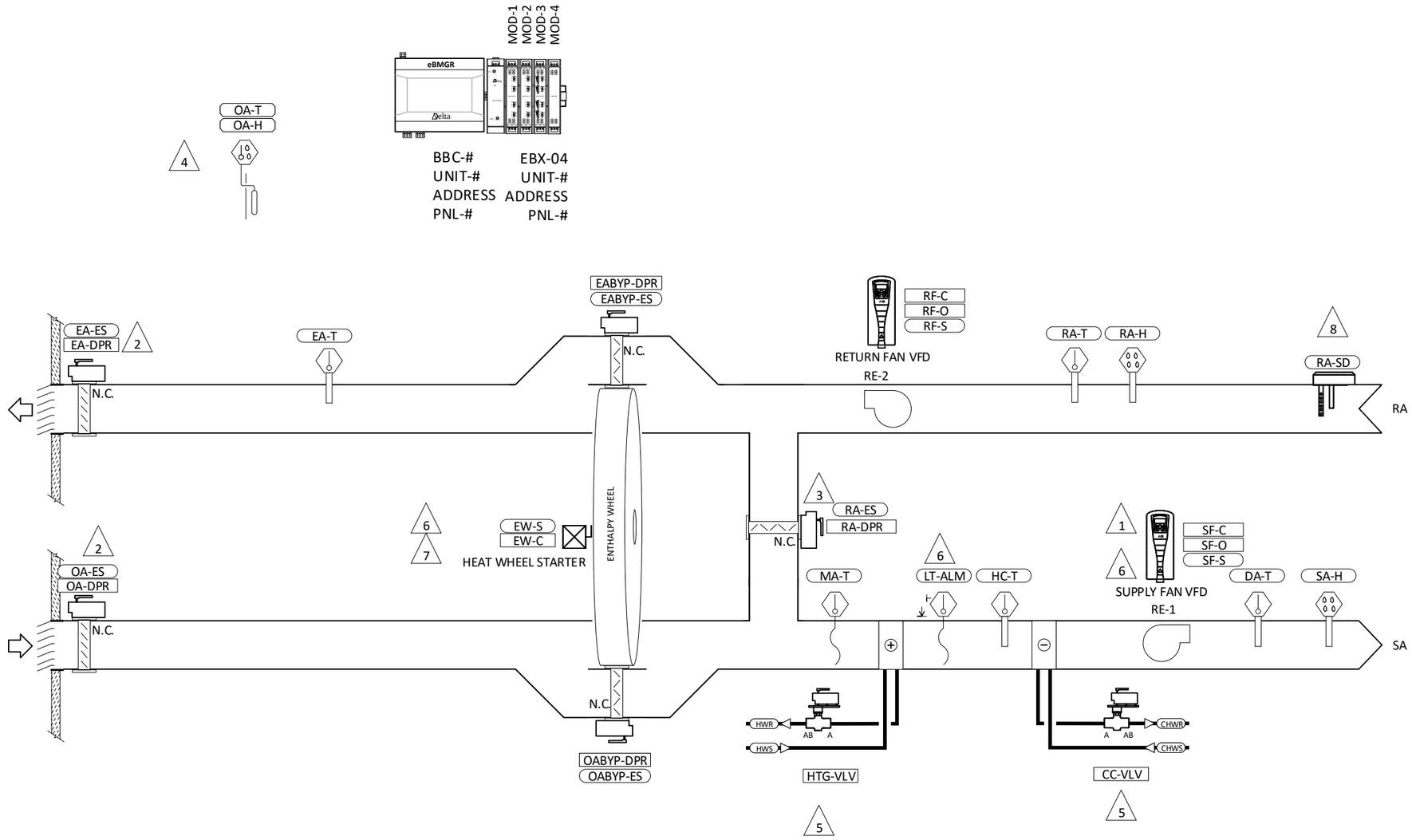
VAV AIR HANDLING UNIT AHU-W1 I/O PG 1



PROJECT TITLE: NCHS WEST GYM PHASE 2		Delta CONTROLS A Delta Group Company	DRAWING TITLE: VAV AIR HANDLING UNIT AHU-W1 I/O PG 1
PROJECT NUMBER: O-P-0004	BY: KK SUBMITTAL: 2 PRINTED 11/28/2021 Ver. 4.8.0		DRAWING NUMBER: DWG 12.05

ENERGY RECOVERY UNIT ERU-Z3

Typical of: 1
System: 15|ENERGY RECOVERY UNIT ERU-Z3
ERU-Z3



Notes:

1. VARIABLE FREQUENCY DRIVE PROVIDED BY TCC TO ELECTRICAL CONTRACTOR FOR INSTALLATION AND POWER. SEE MECHANICAL DRAWINGS FOR UNIT OR WALL MOUNTED LOCATIONS AND NUMBER OF FANS REQUIRED. TCC SHALL PROVIDE A VFD FOR EACH MOTOR.
   CIC SHALL PROVIDE AND INSTALL ALL CONTROL AND INTERLOCK WIRING.
2. CONTROL DAMPER ASSMEMBLY WITH ENDSWITCH PROVIDED BY MANUFACTURER. CONTROLS INSTALLATION CONTRACTOR TO PROVIDE AND INSTALL CONTROL AND POWER WIRING
3. CONTROL DAMPER ASSEMBLY INCLUDING ACTUATOR PROVIDED BY TCC TO SHEET METAL CONTRACTOR FOR INSTALLATION. CIC TO PROVIDE AND INSTALL CONTROL AND POWER WIRING.
4. VALUES FROM THIS SENSOR WILL BE ALSO TRANSFERED TO OTHER SYSTEMS
5. TCC SHALL PROVIDE COMPLETE VALVE ASSEMBLIES WITH FACTORY MOUNTED ACTUATORS TO MECHANICAL CONTRACTOR FOR INSTALLATION. SEE MECHANICAL SCHEDULE FOR TWO AND THREE WAY REQUIREMENTS. CIC TO PROVIDE AND INSTALL CONTROL AND POWER WIRING.
6. TCC SHALL PROVIDE AND CIC SHALL WIRE INTERLOCK TO ASSOCIATED MOTOR STARTER AND VARIABLE FREQUENCY DRIVE TO EMERGENCY STOP OPERATION IF ANY SAFETY CIRCUIT IS ACTIVATED.
7. MANUFACTURER TO PROVIDE STARTER FOR ELECTRICAL CONTRACTOR TO POWER. CIC SHALL PROVIDE AND INSTALL ALL CONTROL AND INTERLOCK WIRING.
8. PROVIDED AND INSTALLED BY OTHERS. CONTACTS WILL BE PROVIDED FOR HARDWIRE FAN INTERLOCK

Point Summary					
System	Qty.	Typ.	Device ID	Point Name	Point Type
ENERGY	1	1	CC-VLV	Cooling Valve	AO
ENERGY	1	1	DA-T	Discharge Air Temperature	AI
ENERGY	1	1	EABYP-DPR	EA Bypass Damper	BO
ENERGY	1	1	EABYP-ES	EA Bypass Damper Endwtich	BI
ENERGY	1	1	EA-DPR	Exhaust Air Damper	BO
ENERGY	1	1	EA-ES	Exhaust Air Damper Endswitch	BI
ENERGY	1	1	EA-T	Exhaust Air Temperature	AI
ENERGY	1	1	EW-C	Heat Wheel Start/Stop	BO
ENERGY	1	1	EW-S	Heat Wheel Status	BI
ENERGY	1	1	HC-T	Heating Discharge Air Temperature	AI
ENERGY	1	1	HTG-VLV	Heating Valve	AO
ENERGY	1	1	LT-ALM	Freezestat	BI
ENERGY	1	1	MA-T	Mixed Air Temperature	AI
ENERGY	1	1	OABYP-DPR	OA Bypass Damper	BO
ENERGY	1	1	OABYP-ES	OA Bypass Damper Endwtich	BI
ENERGY	1	1	OA-DPR	Outside Air Damper	BO
ENERGY	1	1	OA-ES	Outside Air Damper Endswitch	BI
ENERGY	1	1	OA-H	Outdoor Air Humidity	AI
ENERGY	1	1	OA-T	Outside Air Temperature	AI
ENERGY	1	1	RA-DPR	Return Air Damper	BO
ENERGY	1	1	RA-ES	Return Air Damper Endswitch	BI
ENERGY	1	1	RA-H	Return Air Humidity	AI
ENERGY	1	1	RA-SD	Smoke Detector	BI
ENERGY	1	1	RA-T	Return Air Temperature	AI
ENERGY	1	1	RE-1	HARDWIRED	HARDWIR
ENERGY	1	1	RE-2	HARDWIRED	HARDWIR
ENERGY	1	1	RF-C	Return Fan Start/Stop	BO
ENERGY	1	1	RF-O	Return Fan VFD Speed	AO
ENERGY	1	1	RF-S	Return Fan Status	BI
ENERGY	1	1	SA-H	Supply Air Humidity	AI
ENERGY	1	1	SF-C	Supply Fan Start/Stop	BO
ENERGY	1	1	SF-O	Supply Fan VFD Speed	AO
ENERGY	1	1	SF-S	Supply Fan Status	BI

Devices	Points	PointType
9	9	AI
4	4	AO
10	10	BI
8	8	BO
2	2	HARDWIR
33	33	Total

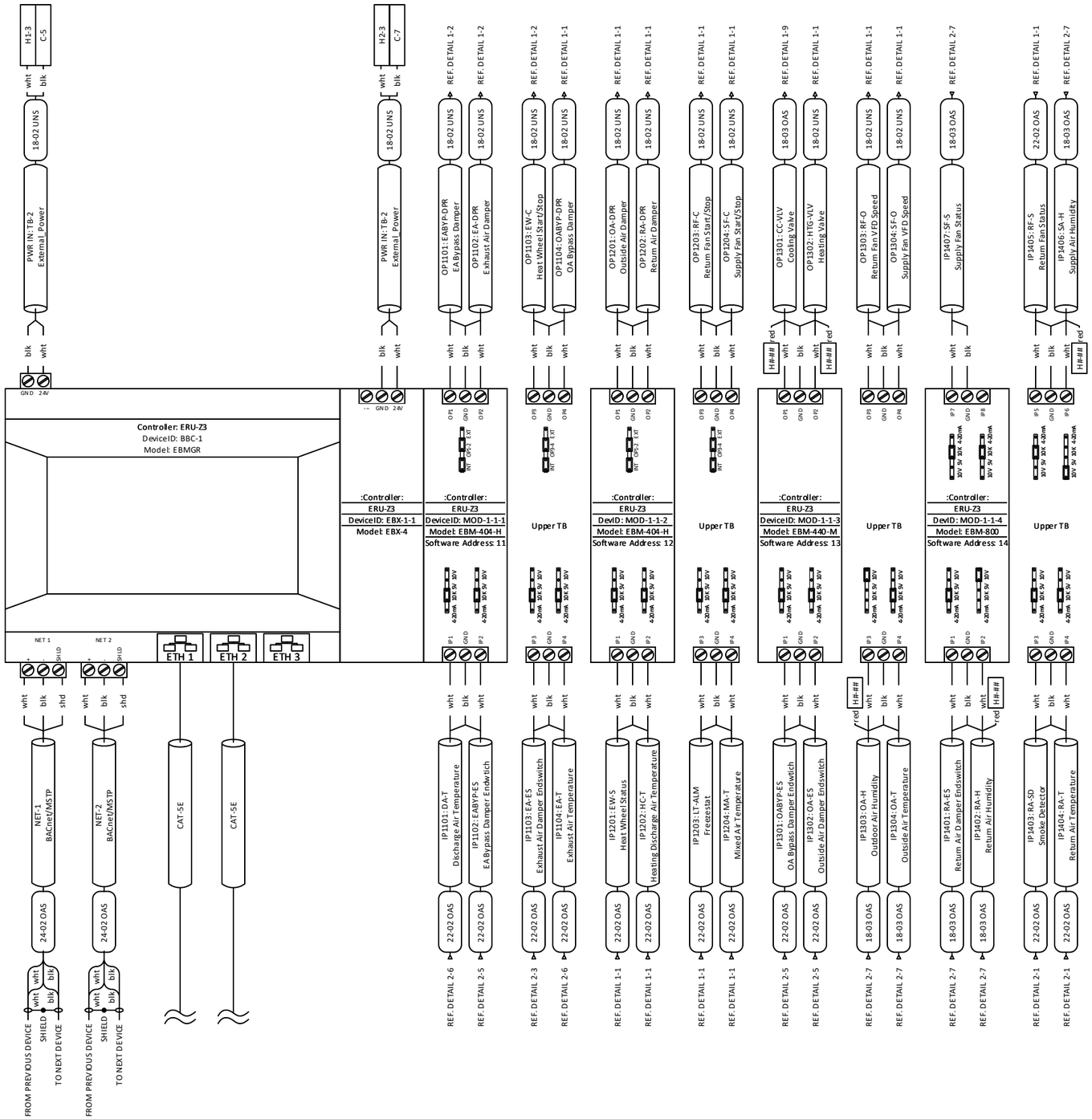
BILL OF MATERIALS				
DEVICE ID	VENDOR P/N	QTY	DESCRIPTION	MANUFACTURER
BBC-#	301604	1	301604 EBMGR-2 ENTELIBUS SYSTEM CONTROLLER	DELTA CONTROLS PRODUCTS
CC-VLV,HTG-VLV	*SEE VALVE SCHEDULE	2	SEE VALVE SCHEDULE	
DA-T,EA-T,HC-T,RA-T	402986	4	BA/10K-3-D-8"-BBX DUCT TEMP SENSOR, 8" STAINLESS S	BAPI
EABYP-DPR,ES,OABYP-DPR,ES,RA-DPR,ES	*SEE DAMPER SCHEDULE	6	SEE DAMPER SCHEDULE	
EA-DPR,ES,EW-C,S,OA-DPR,ES,RA-SD	*BY OTHERS	7	DEVICE BY OTHERS	
EBX-04	311601	1	311601 EBX-04 ENTELIBUS EXPANDER BACKPLANE (4 SLOT	DELTA CONTROLS PRODUCTS
LT-ALM	499777	1	TSA-DOP LOW LIMIT,MANUAL RESET, SPDT	KELE
MA-T	400152	1	BA/10K-3-A-24' DUCT AVERAGING TEMP SENSOR, 24', AL	BAPI
MOD-1,2	375604	2	375604 EBM-404-H ENTELIBUS MODULE (4 UIS,4 BOS WIT	DELTA CONTROLS PRODUCTS
MOD-3	375601	1	375601 EBM-440-M ENTELIBUS MODULE (4 UIS,4 AOS WIT	DELTA CONTROLS PRODUCTS
MOD-4	375606	1	375606 EBM-800 ENTELIBUS MODULE (8 UIS)	DELTA CONTROLS PRODUCTS
OA-H,T	402205	1	BA/10K-3-H210-O-BB2 OUTSIDE AIR TEMP/HUMIDITY SENS	BAPI
OA-T	400224	1	BA/WSK WEATHER SHADE	BAPI
RA-H,SA-H	400782	2	BA/H210-D-BBX 0-10V,IP10 BAPI-BOX CROSSOVER ENCLO	BAPI
RE-1,2	403386	2	RIBM NLB-4 PANEL RELAY 2.75 TRACK-MOUNT RELAY LOGIC	FUNCTIONAL DEVICES INC.
RF-C,SF-C	403455	2	RIBU1C ENCLOSED RELAY 10AMP SPDT 10-30VAC/DC/120VA	FUNCTIONAL DEVICES INC.
RF-O	QUOTE	1	SEE VFD SCHEDULE	
RF-S,SF-S	403501	2	RIBXKTA SOLID CORE, ADJUSTABLE CURRENT SWITCH, 0.5	FUNCTIONAL DEVICES INC.
SF-O	QUOTE	1	SEE VFD SCHEDULE	

PROJECT TITLE: NCHS WEST GYM PHASE 2
PROJECT NUMBER: O-P-0004
BY: KK
SUBMITTAL: 2
PRINTED 11/28/2021
Ver. 4.8.0

Delta CONTROLS — A Delta Group Company

DRAWING TITLE: ENERGY RECOVERY UNIT ERU-Z3
DRAWING NUMBER: DWG 15.00

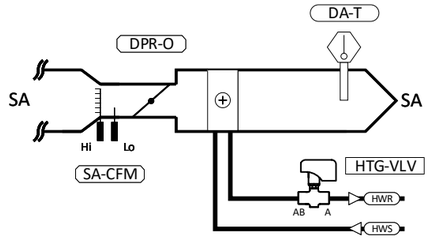
ENERGY RECOVERY UNIT ERU-Z3 I/O PG 1



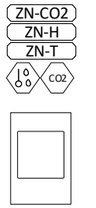
PROJECT TITLE: NCHS WEST GYM PHASE 2		Delta CONTROLS A Delta Group Company	DRAWING TITLE: ENERGY RECOVERY UNIT ERU-Z3 I/O PG 1
PROJECT NUMBER: O-P-0004	BY: KK SUBMITTAL: 2 PRINTED 11/28/2021 Ver. 4.8.0		DRAWING NUMBER: DWG 15.01

VAV BOX WITH REHEAT

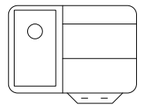
Typical of: 27
System: 31|TU-VAV W/REHEAT
(SEE VAV SCHEDULE)



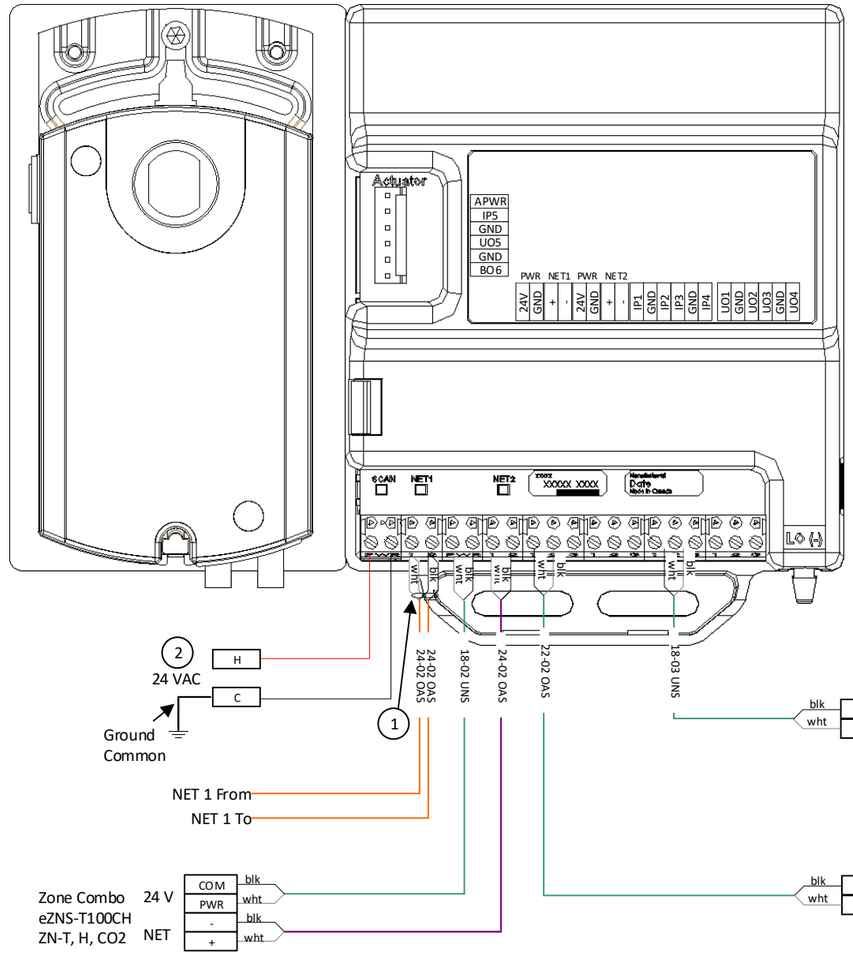
VAV Terminal HW Htg



DELTA EZNS



BASC-1
VAV-#
ADDRESS



Point Summary					
System	Qty.	Typ.	Device ID	Point Name	Point Type
TU-VAV	1	27	DA-T	Discharge Air Temp	AI
TU-VAV	1	27	DPR-O	Zone Damper	SOFTWARE
TU-VAV	1	27	HTG-VLV	Reheating Valve	AO
TU-VAV	1	27	SA-CFM	Airflow	SOFTWARE
TU-VAV	1	27	ZN-CO2	Space CO2	LINKNET
TU-VAV	1	27	ZN-H	Space Humidity	LINKNET
TU-VAV	1	27	ZN-T	Space Temperature	LINKNET

Devices	Points	PointType
1	27	AI
1	27	AO
3	81	LINKNET
2	54	SOFTWARE
7	189	Total

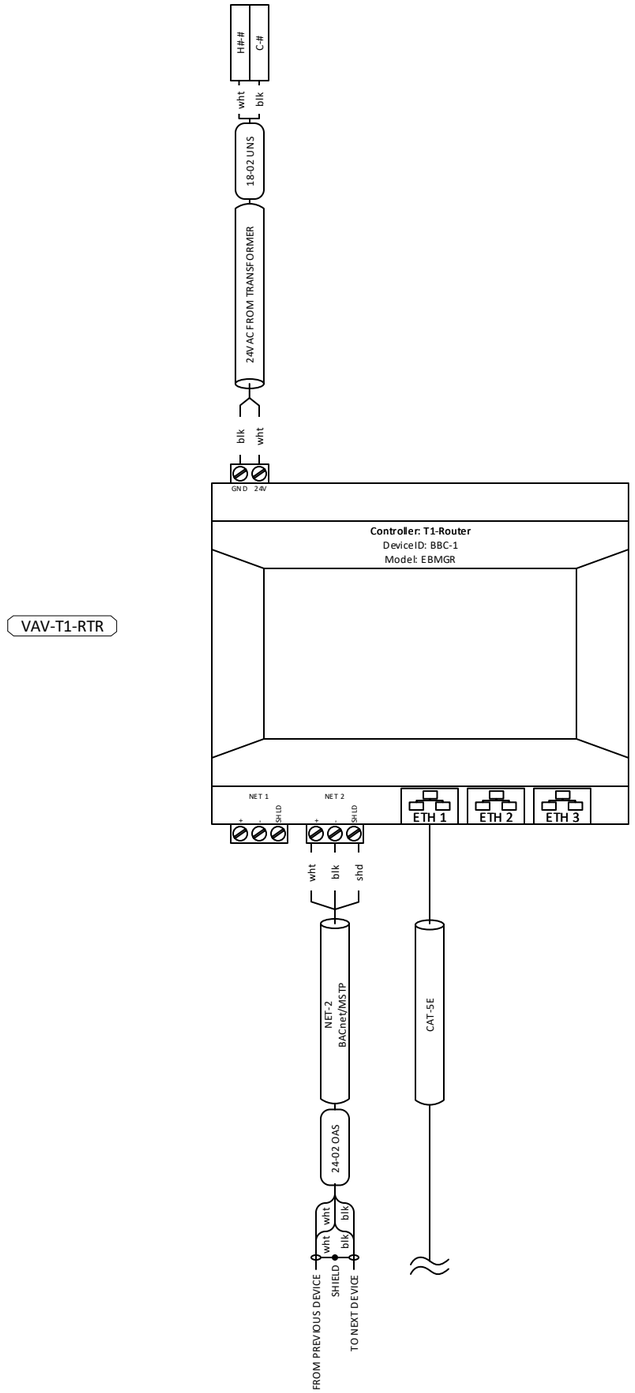
Installation Notes:

1. CONNECT SHIELDS.
2. PROVIDED/INSTALLED/WIRED BY MANUFACTURER.

BILL OF MATERIALS				
DEVICE ID	VENDOR P/N	QTY	DESCRIPTION	MANUFACTURER
BASC-1	333010	27	333010 EZVP-440-AB ENTELIZONE VAV CONTROLLER (PROG	DELTA CONTROLS PRODUCTS
DA-T	400160	27	BA/10K-3-D-4" DUCT TEMP SENSOR, 4 STAINLESS STEEL	BAPI
HTG-VLV	*SEE VALVE SCHEDULE	27	SEE VALVE SCHEDULE	
ZN-H,T	337364	27	337364 EZNS-T100CH-ND-SC-000-WWG ENTELIZONE NETWOR	DELTA CONTROLS PRODUCTS

PROJECT TITLE: NCHS WEST GYM PHASE 2
PROJECT NUMBER: O-P-0004
BY: KK
SUBMITTAL: 2
PRINTED 11/28/2021
Ver. 4.8.0
Delta CONTROLS — A Delta Group Company
DRAWING TITLE: VAV BOX WITH REHEAT
DRAWING NUMBER: DWG 31.00

VAV-T1 ROUTER I/O



VAV-T1-RTR

BILL OF MATERIALS

DEVICE ID	VENDOR P/N	QTY	DESCRIPTION	MANUFACTURER
VAV-T1-RTR	301604	1	301604 EBMGR-2 ENTELIBUS SYSTEM CONTROLLER	DELTA CONTROLS PRODUCTS

PROJECT TITLE: NCHS WEST GYM PHASE 2

PROJECT NUMBER: O-P-0004

BY: KK

SUBMITTAL: 2

PRINTED 11/28/2021 Ver. 4.8.0

Delta CONTROLS
A Delta Group Company

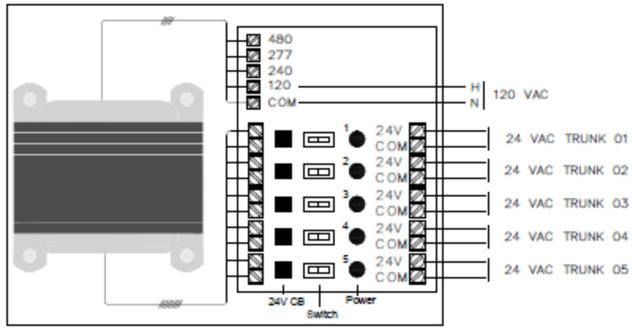
DRAWING TITLE: VAV-T1 ROUTER I/O

DRAWING NUMBER: DWG 31.01

VAV POWER DISTRIBUTION

(LOCATE STRATEGICALLY THROUGHOUT BUILDING)

TX1



24 VAC Power Trunks:

1. Typically utilizes #14 Gauge or heaver cable.
2. Typically, each leg is intended to support four (4) to five (5) VAV box controllers maximum.
3. See table for cable requirements for long runs and/or high VA requirements.

24 VAC Power Cable Sizing - Maximum allowable voltage drop

1. Supply voltage deviation should not exceed 2 VAC at any given terminal controller.
2. Table indicates the maximum one-way distance for power wiring based on load and wire size.
   a. These values will limit the voltage drop as indicated above.
3. To calculate the required wire size and maximum length:
   a. Determine power requirements for the controller and all connected devices including but not limited to:
      i. The controller itself with all onboard devices.
      ii. LINKNet controllers and devices
      iii. eZNS T-100 room sensors powered from the controller
      iv. Valve and damper actuators.
      v. Powered sensors.
      vi. Control relays.
4. Data for 18 AWG and greater wire in the accompanying table are from Chapter 9, Table 8 of the 2005 NEC. Resistance values based on a temperature of 75°C.
5. Data in the following table is based on the formula:
   a. Wire length (ft) = (Voltage Drop / (ohms per kFt * load in amps) * 1000) /2

		AWG (ohms / kFt)						
		22 Ga	20 Ga	18 Ga	16 Ga	14 Ga	12 Ga	10 Ga
		16.46	10.35	7.95	4.99	3.14	1.98	1.24
A	VA	Max One-Way Distance to Load (ft)						
0.11	2.5	552	878	1144	1822	2895	4591	7331
0.21	5	289	460	599	954	1517	2405	3840
0.42	10	145	230	302	481	764	1212	1935
0.83	20	73	116	151	240	382	606	968
1.25	30	49	77	101	160	255	404	645
1.67	40	36	58	75	120	191	303	484
2.08	50	29	46	60	96	153	242	387
2.5	60	24	39	50	80	127	202	323
2.92	70	21	33	43	69	109	173	276
3.33	80	18	29	38	60	96	152	242
3.75	90	16	26	34	53	85	135	215
4	96	15	24	31	50	80	126	202

Typical Power Calculations:

eZV-440	11 VA
eZFC-424R4-24	15 VA
DVC-V322A-B	15 VA
DNS-24L/LB/H24LB	1.5 VA
DNS-C24/CH24	3 VA
eZNS-T100 (ST)	2 VA (no backlight)
eZNS-T100 (ST)	4 VA (with backlight)
eZNS-T100 (ST/CO2)	6 VA (with backlight)
CQB24-SR	1 VA
LF24-SR	5 VA
TFB24-S	5 VA

BILL OF MATERIALS

DEVICE ID	VENDOR P/N	QTY	DESCRIPTION	MANUFACTURER
TX1	403195	2	PSH500A ENCLOSED 5-100VA 120/240 TO 24VAC UL CLASS	FUNCTIONAL DEVICES INC.

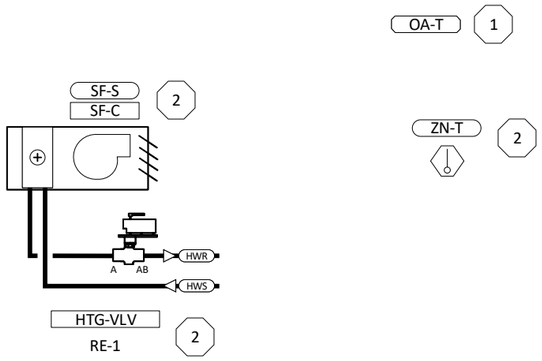
PROJECT TITLE: NCHS WEST GYM PHASE 2
PROJECT NUMBER: O-P-0004
BY: KK
SUBMITTAL: 2
PRINTED 11/28/2021 Ver. 4.8.0

Delta CONTROLS
A Delta Group Company

DRAWING TITLE: VAV POWER DISTRIBUTION
DRAWING NUMBER: DWG 31.02

CABINET UNIT HEATER

Typical of: 7
System: 38|CABINET UNIT HEATER



1 *Outdoor Air Temperature transfered from network*

2 *IO points to be picked up by nearby controller*

MARK	Notes
CH-M1	pickup by VAV-T1-01
CH-M2	pickup by VAV-T1-02
UH-Z1	pickup by VAV-Z3-01
UH-Z2	pickup by VAV-Z3-02
UH-Z3	pickup by VAV-Z3-03
UH-Z4	pickup by VAV-Z3-04
UH-Z5	pickup in mech room by additional ebx's on AHU-Z1
UH-Z6	pickup in mech room by additional ebx's on AHU-Z1
UH-Z7	pickup in mech room by additional ebx's on AHU-Z1

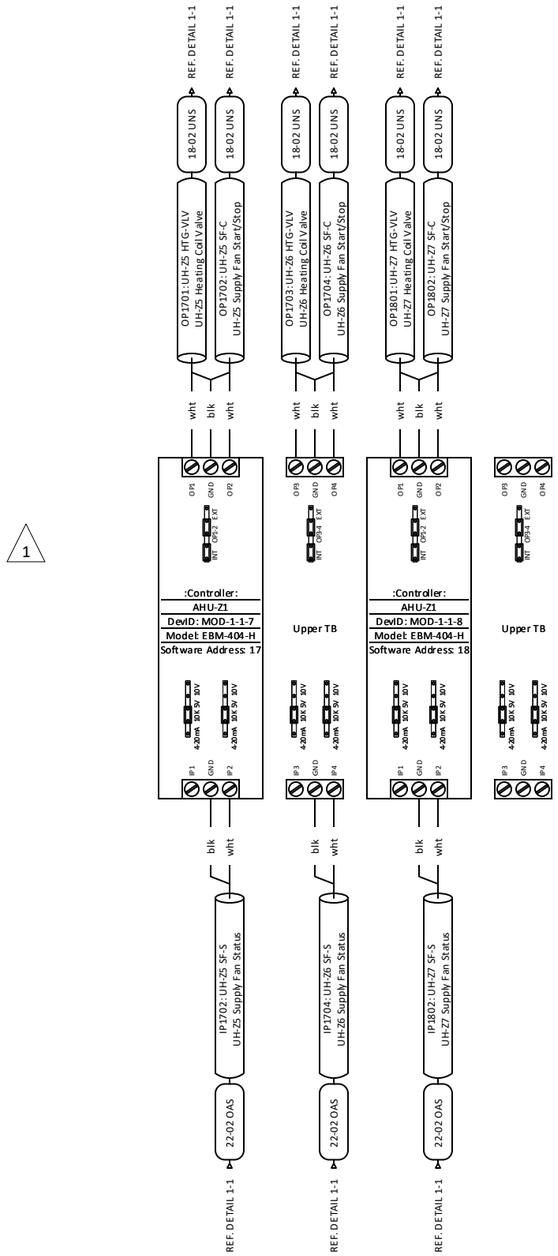
Point Summary					
System	Qty.	Typ.	Device ID	Point Name	Point Type
CABINET UNIT	1	7	HTG-VLV	Heating Coil Valve	BO
CABINET UNIT	1	7	OA-T	Outdoor Air Temperature	SOFTWARE
CABINET UNIT	1	7	RE-1	HARDWIRED	HARDWIRE
CABINET UNIT	1	7	SF-C	Supply Fan Start/Stop	BO
CABINET UNIT	1	7	SF-S	Supply Fan Status	BI
CABINET UNIT	1	7	ZN-T	Space Temperature	LINKNET

Devices	Points	PointType
1	7	BI
2	14	BO
1	7	HARDWIRE
1	7	LINKNET
1	7	SOFTWARE
6	42	Total

BILL OF MATERIALS				
DEVICE ID	VENDOR P/N	QTY	DESCRIPTION	MANUFACTURER
HTG-VLV	*SEE VALVE SCHEDULE	7	SEE VALVE SCHEDULE	
RE-1,SF-C	403464	7	RIBU2C ENCLOSED RELAYS 10AMP 2 SPDT 10-30VAC/DC/12	FUNCTIONAL DEVICES INC.
SF-S	403501	7	RIBXKTA SOLID CORE, ADJUSTABLE CURRENT SWITCH, 0.5	FUNCTIONAL DEVICES INC.
ZN-T	337364	7	337364 EZNS-T100CH-ND-SC-000-WWG ENTELIZONE NETWOR	DELTA CONTROLS PRODUCTS

PROJECT TITLE: NCHS WEST GYM PHASE 2
PROJECT NUMBER: O-P-0004
BY: KK
SUBMITTAL: 2
PRINTED 11/28/2021 Ver. 4.8.0
Delta CONTROLS A Delta Group Company
DRAWING TITLE: CABINET UNIT HEATER
DRAWING NUMBER: DWG 38.00

CABINET UNIT HEATER I/O



1 INSTALL ADDITIONAL EBM-404-H ON EXISTING BACKPLANE OF AHU-Z1 CONTROLLER TO PICK UP MECHANICAL ROOM UNIT HEATER POINTS

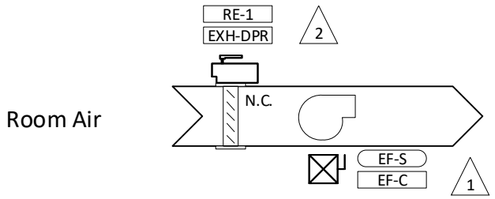
BILL OF MATERIALS				
DEVICE ID	VENDOR P/N	QTY	DESCRIPTION	MANUFACTURER
MOD-117,118	375604	2	375604 EBM-404-H ENTELIBUS MODULE (4 UIS,4 BOS WIT	DELTA CONTROLS PRODUCTS

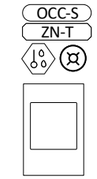
PROJECT TITLE: NCHS WEST GYM PHASE 2		Delta CONTROLS A Delta Group Company	DRAWING TITLE: CABINET UNIT HEATER I/O
PROJECT NUMBER: O-P-0004	BY: KK SUBMITTAL: 2 PRINTED 11/28/2021 Ver. 4.8.0		DRAWING NUMBER: DWG 38.01

BAS CONTROLLED EXHAUST FAN

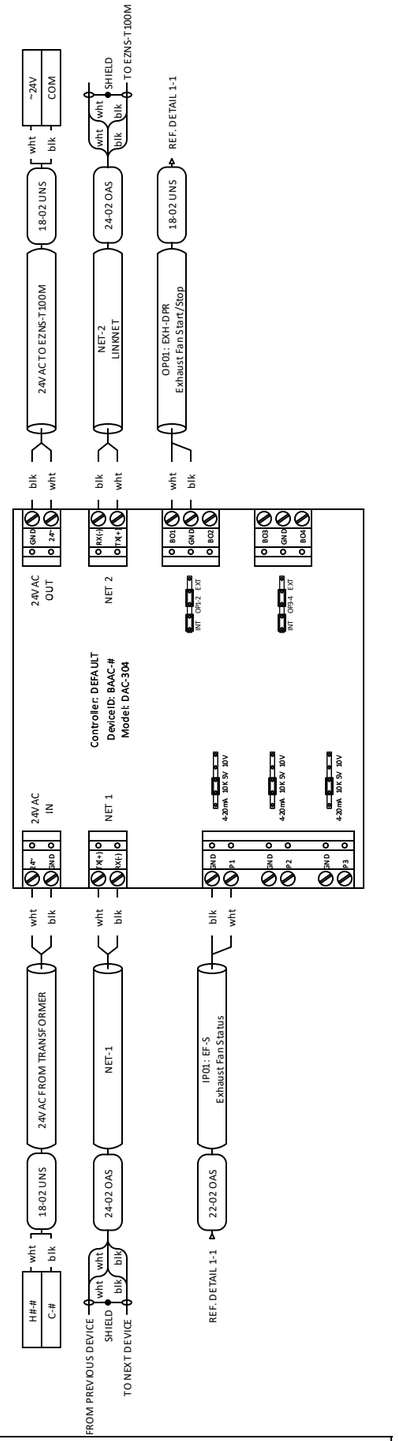
Typical of: 7

System: 41|BAS CONTROLLED EXHAUST FAN





DELTA EZNS



Notes:

1. PROGRAM ANTI SHORT CYCLE TIMER TO ENSURE FAN DOES NOT SHORT CYCLE

2. TCC SHALL HARDWIRE ENDSWITCH CONTACT TO EHAUST FAN STARTED TO PREVENT OPERATION UNTIL DAMPER IS PROVEN OPEN

Point Summary					
System	Qty.	Typ.	Device ID	Point Name	Point Type
BAS	1	7	EF-C	HARDWIRE	HARDWIRE
BAS	1	7	EF-S	Exhuast Fan Status	BI
BAS	1	7	EXH-DPR	Exhaust Fan Start/Stop	MATERIAL
BAS	1	7	OCC-S	Occupancy Sensor	LINKNET
BAS	1	7	RE-1	HARDWIRE	BO
BAS	1	7	ZN-T	Space Temperature	LINKNET

Devices	Points	PointType
1	7	BI
1	7	BO
1	7	HARDWIRE
2	14	LINKNET
1	7	MATERIAL
6	42	Total

BILL OF MATERIALS				
DEVICE ID	VENDOR P/N	QTY	DESCRIPTION	MANUFACTURER
BAAC-#	323053	7	323053 DAC-304-R3 APPLICATION CONTROLLER (3 UIS,4	DELTA CONTROLS PRODUCTS
EF-C,RE-1	403455	14	RIBU1C ENCLOSED RELAY 10AMP SPDT 10-30VAC/DC/120VA	FUNCTIONAL DEVICES INC.
EF-S	403501	7	RIBXKTA SOLID CORE, ADJUSTABLE CURRENT SWITCH, 0.5	FUNCTIONAL DEVICES INC.
EXH-DPR	*SEE DAMPER SCHEDULE	7	SEE DAMPER SCHEDULE	
OCC-S,ZN-T	335368	7	335368 EZNS-T100M-ND-SM-000-WWG ENTELIZONE	DELTA CONTROLS PRODUCTS

PROJECT TITLE: NCHS WEST GYM PHASE 2

PROJECT NUMBER: O-P-0004

BY: KK

SUBMITTAL: 2

PRINTED 11/28/2021

Ver. 4.8.0

Delta CONTROLS — A Delta Group Company

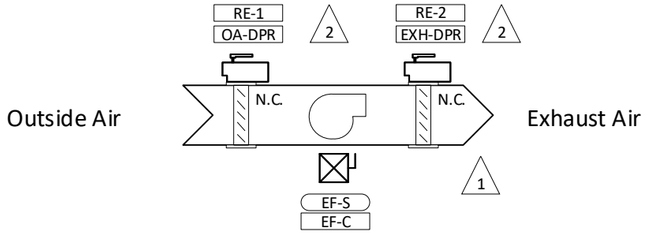
DRAWING TITLE: BAS CONTROLLED EXHAUST FAN

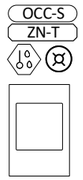
DRAWING NUMBER: DWG 41.00

BAS CONTROLLED MECHANICAL ROOM EXHAUST FAN

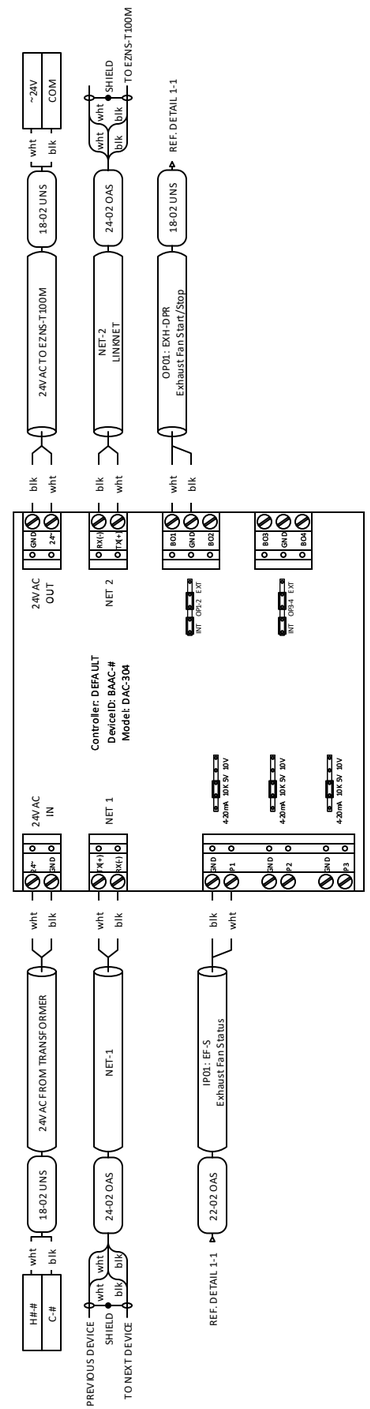
Typical of: 1
System: 41|BAS CONTROLLED MECHANICAL ROOM EXHAUST FAN

(EF-Z3)





DELTA EZNS



Notes:

1. PROGRAM ANTI SHORT CYCLE TIMER TO ENSURE FAN DOES NOT SHORT CYCLE

2. TCC SHALL HARDWIRE ENDSWITCH CONTACT TO EHAUST FAN STARTED TO PREVENT OPERATION UNTIL DAMPER IS PROVEN OPEN

Point Summary					
System	Qty.	Typ.	Device ID	Point Name	Point Type
BAS	1	1	EF-C	Exhaust Fan	BO
BAS	1	1	EF-S	Exhuast Fan	BI
BAS	1	1	EXH-DPR	Exhaust Fan	MATERIAL
BAS	1	1	OA-DPR	Outside Air	MATERIAL
BAS	1	1	OCC-S	Occupancy	LINKNET
BAS	1	1	RE-1	HARDWIRE	BO
BAS	1	1	RE-2	HARDWIRE	BO
BAS	1	1	ZN-T	Space	LINKNET

Devices	Points	PointType
1	1	BI
3	3	BO
2	2	LINKNET
2	2	MATERIAL
8	8	Total

BILL OF MATERIALS				
DEVICE ID	VENDOR P/N	QTY	DESCRIPTION	MANUFACTURER
BAAC-#	323053	1	323053 DAC-304-R3 APPLICATION CONTROLLER (3 UIS,4	DELTA CONTROLS PRODUCTS
EF-C,RE-1,2	403455	3	RIBU1C ENCLOSED RELAY 10AMP SPDT 10-30VAC/DC/120VA	FUNCTIONAL DEVICES INC.
EF-S	403501	1	RIBXKTA SOLID CORE, ADJUSTABLE CURRENT SWITCH, 0.5	FUNCTIONAL DEVICES INC.
EXH-DPR,OA-DPR	*SEE DAMPER SCHEDULE	2	SEE DAMPER SCHEDULE	
OCC-S,ZN-T	335368	1	335368 EZNS-T100M-ND-SM-000-WWG ENTELIZONE	DELTA CONTROLS PRODUCTS

PROJECT TITLE
NCHS WEST GYM PHASE 2

PROJECT NUMBER
O-P-0004

BY: KK
SUBMITTAL: 2
PRINTED 11/28/2021
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Delta CONTROLS
A Delta Group Company

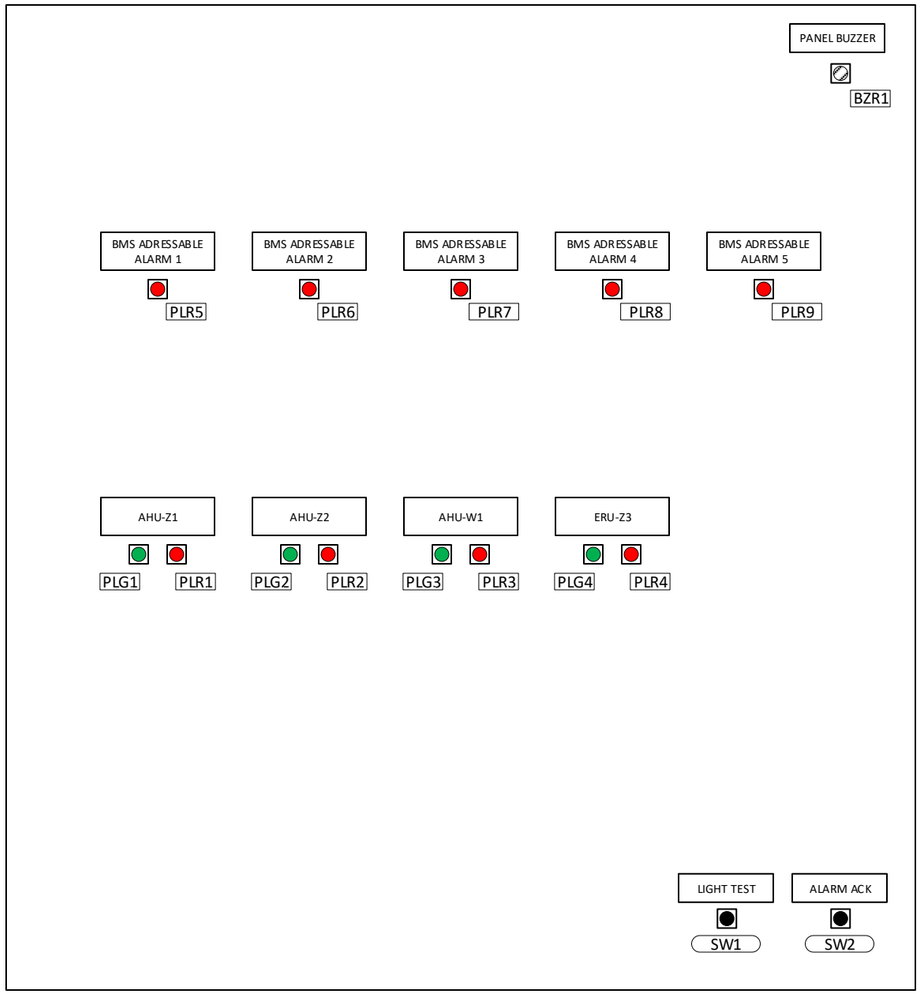
DRAWING TITLE
BAS CONTROLLED MECHANICAL ROOM EXHAUST FAN

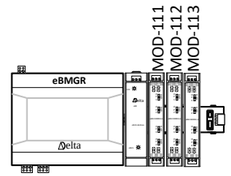
DRAWING NUMBER
DWG 41.01

ANNUNCIATOR PANEL LAYOUT

Typical of: 1

System: 54|ANNUNCIATOR PANEL





BBC-# EBX-#
UNIT-# UNIT-#
ADDRESS ADDRESS
PNL-# PNL-#

Point Summary					
System	Qty.	Typ.	Device ID	Point Name	Point Type
ANNU	1	1	BZR1	Panel Buzzer	BO
ANNU	1	1	PLG1	AHU-Z1Normal	HARDWIRE
ANNU	1	1	PLG2	AHU-Z2 Normal	HARDWIRE
ANNU	1	1	PLG3	AHU-W1Normal	HARDWIRE
ANNU	1	1	PLG4	ERU-Z3 Normal	HARDWIRE
ANNU	1	1	PLR1	AHU-Z1Alarm	BO
ANNU	1	1	PLR2	AHU-Z2 Alarm	BO
ANNU	1	1	PLR3	AHU-W1Alarm	BO
ANNU	1	1	PLR4	ERU-Z3 Alarm	BO
ANNU	1	1	PLR5	Addressable Red Light 1	BO
ANNU	1	1	PLR6	Addressable Red Light 2	BO
ANNU	1	1	PLR7	Addressable Red Light 3	BO
ANNU	1	1	PLR8	Addressable Red Light 4	BO
ANNU	1	1	PLR9	Addressable Red Light 5	BO
ANNU	1	1	SW1	Light Test	BI
ANNU	1	1	SW2	Acknowledge Alarm	BI

Devices	Points	PointType
2	2	BI
10	10	BO
4	4	HARDWIRE
16	16	Total

BILL OF MATERIALS				
DEVICE ID	VENDOR P/N	QTY	DESCRIPTION	MANUFACTURER
BBC-#	301604	1	301604 EBMGR-2 ENTELIBUS SYSTEM CONTROLLER	DELTA CONTROLS PRODUCTS
BZR1	QUOTE	1	ECX2070-24 BUZZER, 25MA, 24VAC/DC, 80DB	AUTOMATION DIRECT
EBX-#	311601	1	311601EBX-04 ENTELIBUS EXPANDER BACKPLANE (4 SLOT	DELTA CONTROLS PRODUCTS
MOD-111,112,113	375609	3	375609 EBM-D400R4-HENTELIBUS MODULE (4 BIS,4 RELA	DELTA CONTROLS PRODUCTS
PLG1,PLG2,PLG3,PLG4	AP8M122-G	4	PILOT LIGHT MINIATURE 8MM FLAT LENS ACDC 24V GREE	IDEC
PLG1,PLG2,PLG3,PLG4	403319	4	RIBRL1C DIN MOUNT RELAY 10 AMP SPDT WITH 10-30 VAC	FUNCTIONAL DEVICES INC.
PLR1,PLR2,PLR3,PLR4,PLR5,PLR6,PLR7,PLR8,PLR9	AP8M122-R	9	PILOT LIGHT MINIATURE 8MM FLAT LENS AC/DC 24V RED	IDEC
SW1,SW2	499915	2	ABW111PUSH BUTTON 1NO 1NC MOMENTARY FLUSH-3 COLO	KELE

PROJECT TITLE: NCHS WEST GYM PHASE 2

PROJECT NUMBER: O-P-0004

BY: KK

SUBMITTAL: 2

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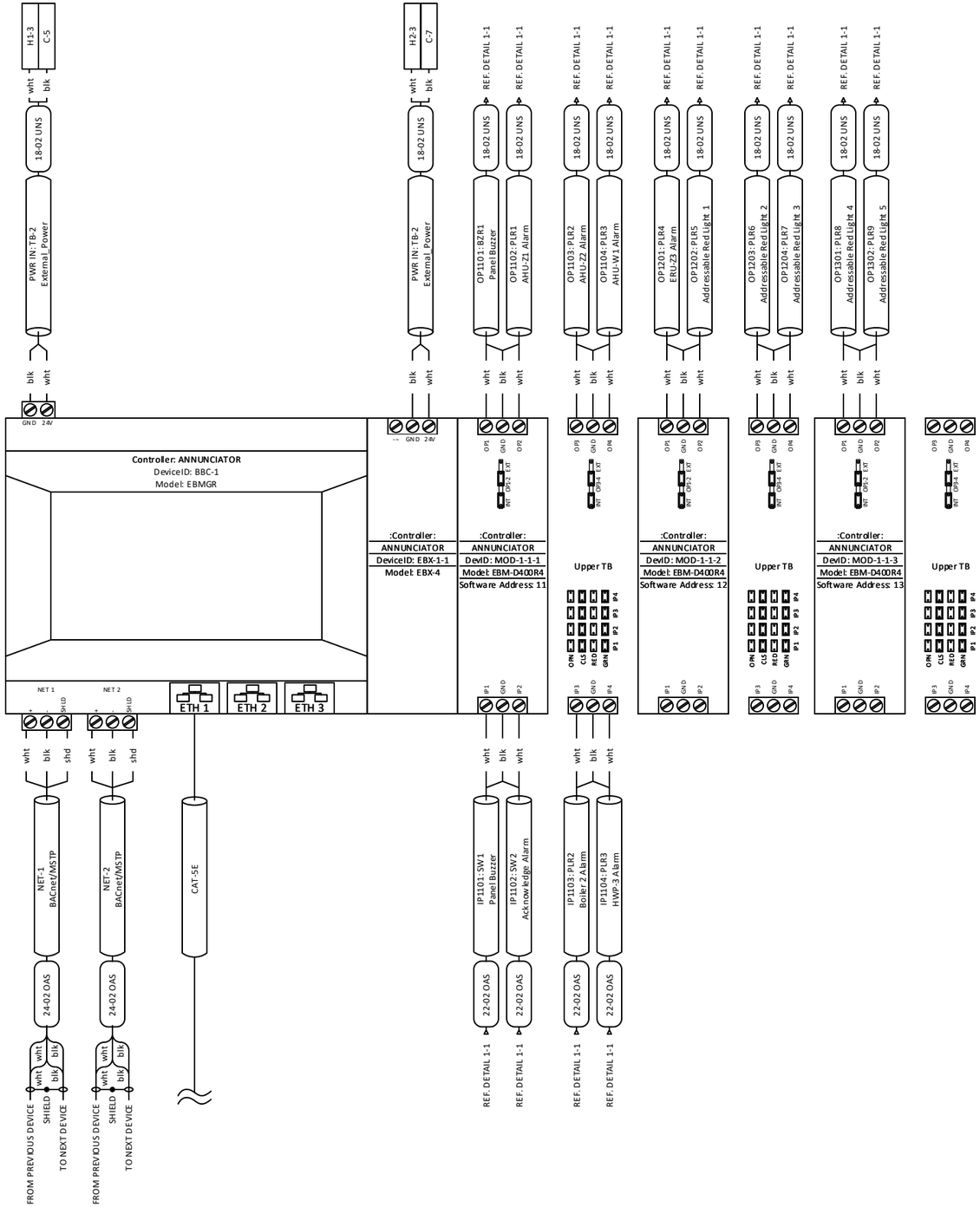
Delta CONTROLS A Delta Group Company

DRAWING TITLE: ANNUNCIATOR PANEL LAYOUT

DRAWING NUMBER: DWG 54.00

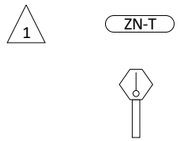
ANNUNCIATOR PANEL I/O PG 1



PROJECT TITLE: NCHS WEST GYM PHASE 2			DRAWING TITLE: ANNUNCIATOR PANEL I/O PG 1
PROJECT NUMBER: O-P-0004	BY: KK	Delta CONTROLS — A Delta Group Company	DRAWING NUMBER: DWG 54.01
	SUBMITTAL: 2		
	PRINTED 11/28/2021	Ver. 4.8.0	

SPLIT SYSTEM ROOM MONITORING

Typical of: 2
System: 54|SPLIT SYSTEM ROOM MONITORING
(IDF N264, ELEC.P102)



1 INPUTS TO BE PICKED UP BY SPARE INPUTS ON VAV-T1-07

Point Summary					
System	Qty.	Typ.	Device ID	Point Name	Point Type
SPLIT	1	2	ZN-T	Space	AI

Devices	Points	PointType
1	2	AI
1	2	Total

BILL OF MATERIALS				
DEVICE ID	VENDOR P/N	QTY	DESCRIPTION	MANUFACTURER
ZN-T	336250	2	336250 EZTS-SM-000-WWG ENTELIZONE TEMPERATURE	DELTA CONTROLS PRODUCTS

PROJECT TITLE: NCHS WEST GYM PHASE 2
PROJECT NUMBER: O-P-0004
BY: KK
SUBMITTAL: 2
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Delta CONTROLS A Delta Group Company
DRAWING TITLE: SPLIT SYSTEM ROOM MONITORING
DRAWING NUMBER: DWG 54.02

VALVE SCHEDULE PG1

VAV WITH HOT WATER REHEAT															
IDENTITY				REHEAT COI DATA									PART		
MARK	MANUFACTURER	MODEL	INLET DIAMETER	CAPACITY (BTUH)	EAT (F)	LAT (F)	APD (IN-WG)	FLOW (GPM)	EWT (F)	LWT (F)	WPD (FT-WG)	ROWS	CV	PIPE (IN)	VALVE
T1-01	TRANE	VCWF	8	7,590	55	90	0.1	0.3	140	128	3.5	1	0.24	1	Z2075Q-K+CQB24-SR-R
T1-02	TRANE	VCWF	10	17,080	55	90	0.3	1.1	140	108	0.2	2	3.74	1	Z2075Q-K+CQB24-SR-R
T1-03	TRANE	VCWF	12	12,340	55	90	0.1	1.1	140	118	0.8	1	1.87	1	Z2075Q-K+CQB24-SR-R
T1-04	TRANE	VCWF	4	3,800	55	90	0	0.4	140	119	0.3	1	1.11	1	Z2075Q-K+CQB24-SR-R
T1-05	TRANE	VCWF	14	28,470	55	90	0.3	1.9	140	109	0.2	2	6.45	1	Z2075Q-K+CQB24-SR-R
T1-06	TRANE	VCWF	14	28,470	55	90	0.3	1.9	140	109	0.2	2	6.45	1	Z2075Q-K+CQB24-SR-R
T1-07	TRANE	VCWF	5	3,800	55	90	0.1	0.4	140	119	0.3	1	1.11	1	Z2075Q-K+CQB24-SR-R

VAV WITH HOT WATER REHEAT														
IDENTITY				REHEAT COIL DATA								PART		
MARK	MANUFACTURER	MODEL	INLET DIAMETER	CAPACITY (BTUH)	EAT (F)	LAT (F)	FLOW (GPM)	EWT (F)	LWT (F)	WPD (FT-WG)	ROWS	CV	PIPE (IN)	VALVE + ACTUATOR
VAV-W1-01	PRICE	SDV	12"	29.6	55	90	1.77	140	106	0.84	2	2.93	0.75	Z2055Q-K+CQB24-SR-R
VAV-W1-02	PRICE	SDV	12"	28.4	55	90	1.66	140	106	0.75	2	2.91	1	Z2075Q-K+CQB24-SR-R
VAV-W1-03	PRICE	SDV	12"	28.4	55	90	1.66	140	106	0.75	2	2.91	1	Z2075Q-K+CQB24-SR-R
VAV-W1-04	PRICE	SDV	12"	28.4	55	90	1.66	140	106	0.75	2	2.91	1	Z2075Q-K+CQB24-SR-R
VAV-W1-05	PRICE	SDV	6"	4.4	55	80	0.18	140	91	0.01	2	2.73	0.75	Z2055Q-K+CQB24-SR-R
VAV-W1-06	PRICE	SDV	6"	5.7	55	90	0.31	140	103	0.01	2	4.71	0.75	Z2055Q-K+CQB24-SR-R
VAV-W1-07	PRICE	SDV	12"	9.6	55	90	0.57	140	106	0.07	2	3.27	0.75	Z2055Q-K+CQB24-SR-R
VAV-W1-08	PRICE	SDV	12"	22.4	55	90	1.42	140	108	0.57	2	2.86	0.75	Z2055Q-K+CQB24-SR-R
VAV-W1-09	PRICE	SDV	10"	17	55	90	1.12	140	110	0.3	2	3.11	0.75	Z2055Q-K+CQB24-SR-R
VAV-W1-10	PRICE	SDV	6"	5.8	55	85	0.29	140	100	0.01	2	4.4	0.75	Z2055Q-K+CQB24-SR-R
VAV-Z3-01	PRICE	SDV	12"	34	55	90	2.24	140	109	1.27	2	3.02	0.75	Z2055Q-K+CQB24-SR-R
VAV-Z3-02	PRICE	SDV	12"	34	55	90	2.24	140	109	1.27	2	3.02	0.75	Z2055Q-K+CQB24-SR-R
VAV-Z3-03	PRICE	SDV	12"	34	55	90	2.24	140	109	1.27	2	3.02	0.75	Z2055Q-K+CQB24-SR-R
VAV-Z3-04	PRICE	SDV	6"	5.7	55	90	0.31	140	103	0.01	2	4.71	0.75	Z2055Q-K+CQB24-SR-R
VAV-Z3-05	PRICE	SDV	6"	7.8	55	90	0.49	140	108	0.04	2	3.72	0.75	Z2055Q-K+CQB24-SR-R
VAV-Z3-06	PRICE	SDV	6"	7.8	55	90	0.49	140	108	0.04	2	3.72	0.75	Z2055Q-K+CQB24-SR-R
VAV-Z3-07	PRICE	SDV	4"	2.5	55	90	0.1	140	93	0.01	2	1.52	0.75	Z2055Q-K+CQB24-SR-R
VAV-Z3-08	PRICE	SDV	4"	2.1	55	90	0.08	140	93	0.01	2	1.22	0.75	Z2055Q-K+CQB24-SR-R
VAV-Z3-09	PRICE	SDV	10"	23	55	90	1.95	140	116	0.81	2	3.29	0.75	Z2055Q-K+CQB24-SR-R
VAV-Z3-10	PRICE	SDV	16"	47.9	55	90	3.22	140	110	1.16	2	4.54	0.75	Z2055Q-K+CQB24-SR-R

PROJECT TITLE: NCHS WEST GYM PHASE 2
PROJECT NUMBER: O-P-0004
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Delta CONTROLS A Delta Group Company
DRAWING TITLE: VALVE SCHEDULE PG1
DRAWING NUMBER: DWG 98.00

VALVE SCHEDULE PG2

CABINET UNIT HEATER VALVE SCHEDULE

IDENTITY DATA				ROOM		HEATING DATA								VALVE			
MARK	MANUFACTURER	MODEL	ENCLOSURE MODEL	#	NAME	MIN MBH	EWT (°F)	LWT (°F)	WPD (FT-WG)	FLOW (GPM)	EAT (°F)	LAT (°F)	AIRFLOW (CFM)	CV	PIPE (IN)	VALVE+ACTUAT	Notes
CH-M1	MODINE	CW	002-08	N269	MENS	7.08	140	120	0.2	1.3	60	106	250	4.4149	1	B217+LF24 US	pickup by VAV-T1-01
CH-M2	MODINE	CW	002-08	E205	Space	7.08	140	120	0.2	1.3	60	106	250	4.4149	1	B217+LF24 US	pickup by VAV-T1-02
UH-Z1	TRANE	UHS-036	-	E100E	STOR	20.1	140	120	0.05	2.1	60	106	480	14.263	0.75	B216+LF24 US	pickup by VAV-Z3-01
UH-Z2	TRANE	UHS-036	-	E100E	STOR	20.1	140	120	0.05	2.1	60	106	480	14.263	0.75	B216+LF24 US	pickup by VAV-Z3-02
UH-Z3	TRANE	UHS-036	-	P002	STOR	20.1	140	120	0.05	2.1	60	106	480	14.263	0.75	B216+LF24 US	pickup by VAV-Z3-03
UH-Z4	TRANE	UHS-036	-	P002	STOR	20.1	140	120	0.05	2.1	60	106	480	14.263	0.75	B216+LF24 US	pickup by VAV-Z3-04
UH-Z5	TRANE	UHS-036	-	E203	MECHANICAL	20.1	140	120	0.05	2.1	60	106	480	14.263	1	B220+LF24 US	pickup in mech room by additional ebx's on AHU-Z1
UH-Z6	TRANE	UHS-036	-	E203	MECHANICAL	20.1	140	120	0.05	2.1	60	106	480	14.263	1	B220+LF24 US	pickup in mech room by additional ebx's on AHU-Z1
UH-Z7	TRANE	UHS-036	-	E203	MECHANICAL	20.1	140	120	0.05	2.1	60	106	480	14.263	1	B220+LF24 US	pickup in mech room by additional ebx's on AHU-Z1

AHU PRE-HEATING COIL VALVE SCHEDULE

IDENTITY DATA				PRE-HEAT COIL												VALVE			
MARK	EQUIPMENT SERVED	AIRFLOW (CFM)	MIN OSA (CFM)	CAPACITY (MBH) (BTU/H)	EAT DB (°F)	LAT DB (°F)	DESCRIPTION	ROWS	FPI	APD (IN-WG)	FACE VELOCITY (FPM)	EWT (°F)	LWT (°F)	WPD (FT-WG)	FLOW (GPM) (GPM)	CV	WAYS	PIPE (IN)	VALVE+ACTUATOR
AHU-W1	AHU-W1	12,300	6,060	500	-10	65	PRE-HEAT COIL	2	7.66	0.04	260	140	110	1.2	33	45.75	3	2	B341+AFRB24-SR
AHU-Z1	AHU-Z1	35,745	17,875	1,454	-10	65	PRE-HEAT COIL	2	7.08	0.03	230	140	110	2.77	97	88.52	3	4	G780+AFX24-MFT-X1
AHU-Z2	AHU-Z2	35,745	17,875	1,454	-10	65	PRE-HEAT COIL	2	7.08	0.03	230	140	110	2.77	97	88.52	3	4	G780+AFX24-MFT-X2
ERU-Z3	ERU-Z1	9,000	9,000	546	31	85	PRE-HEAT COIL	2	10.9	0.19	470	140	110	1.38	36	46.54	2	2.5	B249+AFRB24-SR

AHU RE-HEATING COIL VALVE SCHEDULE

IDENTITY DATA		RE-HEAT COIL												VALVE			
MARK	EQUIPMENT SERVED	CAPACITY (MBH)	EAT DB	LAT DB	DESCRIPTION	ROWS	FPI	APD	FACE VELOCITY	EWT	LWT	WPD psi	FLOW GPM	CV	WAYS	PIPE (IN)	VALVE+ACTUATOR
AHU-Z1	AHU-Z1	678.49	55 °F	65 °F	RE-HEAT COIL	1	9.58	0.03 in-wg	230 FPM	140 °F	110 °F	2.83	45	26.7497	2	2	B239+AFRB24-SR
AHU-Z2	AHU-Z2	678.49	55 °F	65 °F	RE-HEAT COIL	1	9.58	0.03 in-wg	230 FPM	140 °F	110 °F	2.83	45	26.7497	2	2	B239+AFRB24-SR

AHU CHILLED WATER COIL VALVE SCHDULE

IDENTITY DATA		CHILLED WATER COIL				VALVE			
MARK	EQUPMENT SERVED	EWT (°F)	LWT (°F)	WPD (FT-WG)	FLOW (GPM)	CV	WAYS	PIPE (IN)	VALVE+ ACT
AHU-W1	AHU-W1	42	56	4.89	86	59.06575	2	3	B261+AFRX24-MFT
AHU-Z1	AHU-Z1	42	61	11.73	186	82.48132	2	4	B278+AFRX24-MFT
AHU-Z2	AHU-Z2	42	61	11.73	186	82.48132	2	4	B278+AFRX24-MFT
ERU-Z3	ERU-Z1	42	63	4.17	52	38.6747	2	2.5	B249+AFRB24-SR

PROJECT TITLE: NCHS WEST GYM PHASE 2
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DRAWING TITLE: VALVE SCHEDULE PG2
DRAWING NUMBER: DWG 98.01

DAMPER SCHEDULE

AHU Damper Schedule

Location	tag	Length (in)	Width (in)	Area (Sq-ft)	torque required CI	fail position	manufacturer	damper model	actuator
AHU-W1	OA-DPR,ES	40	24	6.7	46.7	NC	ruskin	cd36	AFB24-SR-S
AHU-W1	EA-DPR,ES	48	40	13.3	93.3	NC	ruskin	cd36	AFB24-SR-S
AHU-W1	RA-DPR	26	44	7.9	55.6	NO	ruskin	cd36	AFB24-SR
AHU-Z1	MOA-DPR,ES	60	30	12.5	87.5	NC	ruskin	cd36	AFB24-SR-S
AHU-Z1	OA-DPR,ES	112	32	24.9	174.2	NC	ruskin	cd36	AFB24-SR-S
AHU-Z1	EA-DPR,ES	54	44	16.5	115.5	NC	ruskin	cd36	AFB24-SR-S
AHU-Z1	RA-DPR,ES	54	44	16.5	115.5	NO	ruskin	cd36	AFB24-SR
AHU-Z1	MOA-DPR,ES	60	30	12.5	87.5	NC	ruskin	cd36	AFB24-SR-S
AHU-Z1	OA-DPR,ES	112	32	24.9	174.2	NC	ruskin	cd36	AFB24-SR-S
AHU-Z1	EA-DPR,ES	54	44	16.5	115.5	NC	ruskin	cd36	AFB24-SR-S
AHU-Z1	RA-DPR	54	44	16.5	115.5	NO	ruskin	cd36	AFB24-SR
ERU-Z3	RA-DPR,ES	38	24	6.3	44.3	NO	ruskin	cd36	AFB24-SR-S

Exhaust Fan Damper Schedule

Location	tag	Length (in)	Width (in)	Area (Sq-ft)	torque required	fail position	manufacturer	damper model	actuator
EF-K1	EXH-DPR	?	?	?	tbd	NC	tbd	tbd	tbd
EF-M1	EXH-DPR	?	?	?	tbd	NC	tbd	tbd	tbd
EF-T1	EXH-DPR	?	?	?	tbd	NC	tbd	tbd	tbd
EF-W1	EXH-DPR	?	?	?	tbd	NC	tbd	tbd	tbd
EF-W2	EXH-DPR	?	?	?	tbd	NC	tbd	tbd	tbd
EF-Z1	EXH-DPR	?	?	?	tbd	NC	tbd	tbd	tbd
EF-Z2	EXH-DPR	?	?	?	tbd	NC	tbd	tbd	tbd
EF-Z3	OA-DPR	?	?	?	tbd	NC	tbd	tbd	tbd
EF-Z3	EXH-DPR	?	?	?	tbd	NC	tbd	tbd	tbd

PROJECT TITLE: NCHS WEST GYM PHASE 2
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DRAWING TITLE: DAMPER SCHEDULE
DRAWING NUMBER: DWG 98.02

VAV SCHEDULE

VAV BOX WITH HOT WATER REHEAT SCHEDULE																		
IDENTITY DATA				AIRFLOW DATA						REHEAT COIL DATA								
MARK	MANUFACTURER	MODEL	INLET DIAMETER	MAX. COOLING (CFM)	MAX. HEATING (CFM)	MIN. COOLING / HEATING (CFM)	MAX APD (IN-WG)	MAX N.C. DISCHARGED	MAX N.C. RADIATED	CAPACITY (BTUH)	EAT (°F)	LAT (°F)	FLOW (GPM)	EWT (°F)	LWT (°F)	WPD (FT-WG)	ROWS	NOTES
VAV-W1-01	PRICE	SDV	12"	1,160	780	780	0.43	25	25	29.6	55	90	1.77	140.0	106	0.84	2	1,2,3,4,5
VAV-W1-02	PRICE	SDV	12"	1,120	745	745	0.4	25	25	28.4	55	90	1.66	140.0	106	0.75	2	1,2,3,4,5
VAV-W1-03	PRICE	SDV	12"	1,120	745	745	0.4	25	25	28.4	55	90	1.66	140.0	106	0.75	2	1,2,3,4,5
VAV-W1-04	PRICE	SDV	12"	1,120	745	745	0.4	25	25	28.4	55	90	1.66	140.0	106	0.75	2	1,2,3,4,5
VAV-W1-05	PRICE	SDV	6"	315	158	94	0.15	25	25	4.4	55	80	0.18	140.0	91	0.01	2	2,3,4,5
VAV-W1-06	PRICE	SDV	6"	300	150	90	0.14	25	25	5.7	55	90	0.31	140.0	103	0.01	2	2,3,4,5
VAV-W1-07	PRICE	SDV	12"	500	250	150	0.25	25	25	9.6	55	90	0.57	140.0	106	0.07	2	2,3,4,5
VAV-W1-08	PRICE	SDV	12"	1,175	588	352	0.33	25	25	22.4	55	90	1.42	140.0	108	0.57	2	2,3,4,5
VAV-W1-09	PRICE	SDV	10"	890	445	267	0.35	25	25	17	55	90	1.12	140.0	110	0.3	2	2,3,4,5
VAV-W1-10	PRICE	SDV	6"	350	175	105	0.18	25	25	5.8	55	85	0.29	140.0	100	0.01	2	2,3,4,5
VAV-Z3-01	PRICE	SDV	12"	1,140	893	893	0.42	25	25	34	55	90	2.24	140.0	109	1.27	2	1,2,3,4,5
VAV-Z3-02	PRICE	SDV	12"	1,140	893	893	0.42	25	25	34	55	90	2.24	140.0	109	1.27	2	1,2,3,4,5
VAV-Z3-03	PRICE	SDV	12"	1,140	893	893	0.42	25	25	34	55	90	2.24	140.0	109	1.27	2	1,2,3,4,5
VAV-Z3-04	PRICE	SDV	6"	300	150	90	0.14	25	25	5.7	55	90	0.31	140.0	103	0.01	2	2,3,4,5
VAV-Z3-05	PRICE	SDV	6"	405	202	122	0.23	25	25	7.8	55	90	0.49	140.0	108	0.04	2	2,3,4,5
VAV-Z3-06	PRICE	SDV	6"	405	202	122	0.23	25	25	7.8	55	90	0.49	140.0	108	0.04	2	2,3,4,5
VAV-Z3-07	PRICE	SDV	4"	125	65	50	0.03	25	25	2.5	55	90	0.1	140.0	93	0.01	2	2,3,4,5
VAV-Z3-08	PRICE	SDV	4"	90	50	50	0.02	25	25	2.1	55	90	0.08	140.0	93	0.01	2	2,3,4,5
VAV-Z3-09	PRICE	SDV	10"	1,205	602	362	0.59	25	25	23	55	90	1.95	140.0	116	0.81	2	2,3,4,5
VAV-Z3-10	PRICE	SDV	16"	2,525	1,262	758	0.46	25	25	47.9	55	90	3.22	140.0	110	1.16	2	2,3,4,5

NOTES:

1. HIGH CAPACITY COIL.
2. SEE M-700 SERIES SHEETS FOR TEMPERATURE CONTROLS INFORMATION.
3. COORDINATE LOCATION OF BOX ABOVE CEILING WITH LIGHT FIXTURES, FIRE PROTECTION, HEATING AND COOLING SYSTEM PIPING, PLUMBING SYSTEMS AND WIRE TRAYS.
4. INSULATED BOTTOM ACCESS DOOR UPSTREAM OF COIL WITH SNAP LATCH FASTENERS.
5. PROVIDE 2-WAY CONTROL VALVE.

PROJECT TITLE: NCHS WEST GYM PHASE 2	Delta™ CONTROLS A Delta Group Company	DRAWING TITLE: VAV SCHEDULE
PROJECT NUMBER: O-P-0004	BY: KK SUBMITTAL: 2 PRINTED 11/28/2021 Ver. 4.8.0	DRAWING NUMBER: DWG 98.03

VFD SCHEDULE

VFD SCHEDULE														
IDENTITY					MOTOR							VFD		
MARK	EQUIPMENT SERVED	location	room #	room name	HP	BHP	RPM	VOLTS	PH	MCA	FLA	VFD	DISCONNECT	VFD Model
Supply Fan 1 VFD	AHU-W1	UNIT W MECH ROOM	N679	MECH	10	7.8	1800	460	3	16		YES	YES	ACH-580
Supply Fan 2 VFD	AHU-W1	UNIT W MECH ROOM	N679	MECH	10	7.8	1800	460	4	16		YES	YES	ACH-580
Return Fan VFD	AHU-W1	UNIT W2 MECH ROOM	N679	MECH	7.5	5.63	1725	460	3		11	YES	YES	ACH-580
Supply Fan 1 VFD	AHU-Z1	UNIT Z MECH ROOM	E203	MECHANICAL	40	36.7	1800	460	3	60		YES	YES	ACH-580
Supply Fan 2 VFD	AHU-Z1	UNIT Z MECH ROOM	E203	MECHANICAL	40	36.7	1800	460	3	60		YES	YES	ACH-580
Supply Fan 3 VFD	AHU-Z1	UNIT Z MECH ROOM	E203	MECHANICAL	40	36.7	1800	460	3	60		YES	YES	ACH-580
Supply Fan 4 VFD	AHU-Z1	UNIT Z MECH ROOM	E203	MECHANICAL	40	36.7	1800	460	3	60		YES	YES	ACH-580
Return Fan VFD	AHU-Z1	UNIT Z MECH ROOM	E203	MECHANICAL	15	13.2	1725	460	3		21	YES	YES	ACH-580
Supply Fan 1 VFD	AHU-Z2	UNIT Z MECH ROOM	E203	MECHANICAL	40	36.7	1800	460	3	60		YES	YES	ACH-580
Supply Fan 2 VFD	AHU-Z2	UNIT Z MECH ROOM	E203	MECHANICAL	40	36.7	1800	460	3	60		YES	YES	ACH-580
Supply Fan 3 VFD	AHU-Z2	UNIT Z MECH ROOM	E203	MECHANICAL	40	36.7	1800	460	3	60		YES	YES	ACH-580
Supply Fan 4 VFD	AHU-Z2	UNIT Z MECH ROOM	E203	MECHANICAL	40	36.7	1800	460	3	60		YES	YES	ACH-580
Return Fan VFD	AHU-Z2	UNIT Z MECH ROOM	E203	MECHANICAL	15	13.2	1725	460	3		21	YES	YES	ACH-580
Supply Fan VFD	ERU-Z3	MECH	E203	MECHANICAL	15	11.2	1800	460	3	23		YES	YES	ACH-580
Return Fan VFD	ERU-Z3	MECH	E203	MECHANICAL	?	?	?	?	?	?	?	?	?	?

PROJECT TITLE: NCHS WEST GYM PHASE 2
PROJECT NUMBER: O-P-0004
BY: KK
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Delta CONTROLS — A Delta Group Company
DRAWING TITLE: VFD SCHEDULE
DRAWING NUMBER: DWG 98.04

MISC SCHEDULES PG1

23 73 13 - MODULAR AIR HANDLING UNIT AIR HANDLING UNIT - OVERVIEW SCHEDULE

IDENTITY DATA							CAPACITY		AIRFLOW			UNIT SIZE			UNIT WEIGHT	
				ROOM												
MARK	MANUFACTURER	MODEL	LOCATION	#	NAME	AREA SERVED	COOLING (MBH)	HEATING (MBH)	SUPPLY (CFM)	MIN OSA (CFM)	EXHAUST (CFM)	L	W	H	(LBS)	NOTES
AHU-W1	TRANE	CSAA025	UNIT W MECH ROOM	N679	MECH	MULITPUROSE ROOMS	606.1	500.2	12,300	6,060	0	16'-9"	6'-8"	5'-5"	3,893	1,2,3
AHU-Z1	TRANE	CSAA080	UNIT Z MECH ROOM	E203	MECHANICAL	WEST GYM	1,772.7	1,453.9	35,745	17,875	0	20'-0"	11'-9"	9'-0"	12,173	1,2,3
AHU-Z2	TRANE	CSAA080	UNIT Z MECH ROOM	E203	MECHANICAL	WEST GYM	1,772.7	1,453.9	35,745	17,875	0	20'-0"	11'-9"	9'-0"	12,173	1,2,3
ERU-Z3	TRANE	CSAA021	UNIT Z MECH ROOM	E203	MECHANICAL	LOCKERS/WRESTLING ROOM	394.5	545.7	9,000	9,000	9,000	17'-7"	6'-8"	9'-1"	6,036	1, 4

NOTES:
1. MOTORS SHALL BE VFD READY, MOTORS PROVIDED BY AHU MANUFACTURER.
2. FACTORY MOUNTED UNIT DISCONNECTS, SINGLE POINT POWER CONNECTION.
3. FAN STATIC PRESSURE CALCULATIONS SHALL BE WITH DIRTY FILTERS DEFINED AS 1" STATIC PRESSURE LOSS THROUGH FILTER.
4. PROVIDE VFD FOR ALL MOTORS; SUPPLY, EXHAUST, AND ENERGY WHEEL.

ENERGY RECOVERY WHEEL SCHEDULE

IDENTITY DATA							SUPPLY FAN DATA					EXHAUST FAN DATA							SUMMER								WINTER							
				LOCATION												ELECTRICAL DATA			EAT (°F)		LAT (°F)			EFFECTIVENESS			EAT (°F)		LAT (°F)			EFFECTIVENESS			
MARK	MANUFACTURER	MODEL	LOCATION	#	NAME	EQUIPMENT SERVED	WEIGHT (LBS)	AIRFLOW (CFM)	HEAT EXCH SP (IN-WG)	FILTER SP (IN-WG)	ES (IN-WG)	TSP (IN-WG)	AIRFLOW (CFM)	SUPPLY SP (IN-WG)	ESP (IN-WG)	TSP (IN-WG)	MOTOR HP	VOLTS	PH	DB	WB	DB	WB	TOTAL (MBH)	LATENT (%)	SENSIBLE (%)	TOTAL (%)	DB	WB	DB	WB	TOTAL (MBH)	LATENT (%)	SENSIBLE (%)	TOTAL (%)	NOTES
ERU-Z3	TRANE	CSAA021	UNIT Z MECH ROOM	E203	MECHANICAL	ERU-Z1	6,036	9,000	0.25	0.57	2	4.79	9,000	1.85	1	2.85	7.5	460	3	95	76	80.8	68.1	273.33	71.2	76.3	73.4	-10	-11	31.23	26.11	394.88	71.9	77.7	75.8	1, 4

23 73 13 - MODULAR AIR HANDLING UNIT - SUPPLY FAN SCHEDULE

IDENTITY DATA										SOUND POWER (SUPPLY OPENING)								MOTOR								
				ROOM						OCTIVE BAND																
MARK	QUANTITY OF FANS	EQUIPMENT SERVED	LOCATION	#	NAME	AIRFLOW (CFM)	TYPE	ESP (IN-WG)	FAN RPM	DRIVE	1	2	3	4	5	6	7	8	HP	BHP	RPM	VOLTS	PH	MCA	VFD	DISCONNECT	NOTES
AHU-W1	2 FANS	AHU-W1	UNIT W MECH ROOM	N679	MECH	12300 CFM	PLENUM	2.40 in-wg	2008	DIRECT	89	88	98	91	88	83	83	75	10.0	7.8	1800	460 V	3	16 A	Yes	YES	1,2,3
AHU-Z1	4 FANS	AHU-Z1	UNIT Z MECH ROOM	E203	MECHANICAL	35745 CFM	PLENUM	2.50 in-wg	1778	DIRECT	86	81	97	90	87	87	82	70	40.0	36.7	1800	460 V	3	60 A	Yes	YES	1,2,3
AHU-Z2	4 FANS	AHU-Z2	UNIT Z MECH ROOM	E203	MECHANICAL	35745 CFM	PLENUM	2.50 in-wg	1778	DIRECT	86	81	97	90	87	87	82	70	40.0	36.7	1800	460 V	3	60 A	Yes	YES	1,2,3
ERU-Z3	1 FAN	ERU-Z1	UNIT Z MECH ROOM	E203	MECHANICAL	9000 CFM	PLENUM	2.00 in-wg	1753	DIRECT	79	79	89	83	81	80	73	67	15.0	11.2	1800	460 V	3	23 A	Yes	YES	1, 4

23 73 13 - RETURN FAN SCHEDULE

IDENTITY DATA												SOUND CRITERIA								MOTOR								
					ROOM							OCTAVE BAND																
MARK	Equipment Served	MANUFACTURER	MODEL	LOCATION	#	NAME	AIRFLOW (CFM)	TYPE	ESP (IN-WG)	FAN RPM	DRIVE	1	2	3	4	5	6	7	8	HP	BHP	RPM	VOLTS	PH	FLA	VFD	DISCONNECT	NOTES
RF-W1	AHU-W1	GREENHECK	QEI-27	UNIT W2 MECH ROOM	N679	MECH	12,173	INLINE MIXED FLOW	2	1126	BELT	83	87	82	85	80	77	71	64	7.5	5.63	1725	460	3	11	Yes	YES	
RF-Z1	AHU-Z1	GREENHECK	QEI-44	UNIT Z MECH ROOM	E203	MECHANICAL	35,745	INLINE MIXED FLOW	1.5	672	BELT	87	86	78	71	66	61	53	46	15	13.22	1725	460	3	21	Yes	YES	
RF-Z2	AHU-Z2	GREENHECK	QEI-44	UNIT Z MECH ROOM	E203	MECHANICAL	35,745	INLINE MIXED FLOW	1.5	672	BELT	87	86	78	71	66	61	53	46	15	13.22	1725	460	3	21	Yes	YES	

23 73 13 - MODULAR AIR HANDLING UNIT - HEATING COIL SCHEDULE

IDENTITY DATA				PRE-HEAT COIL												RE-HEAT COIL												
MARK	EQUIPMENT SERVED	AIRFLOW (CFM)	MIN OSA (CFM)	CAPACITY (MBH) (BTU/H)	EAT DB (°F)	LAT DB (°F)	DESCRIPTION	ROWS	FPI	APD (IN-WG)	FACE VELOCITY (FPM)	EWT (°F)	LWT (°F)	WPD (FT-WG)	FLOW (GPM) (GPM)	CAPACITY (MBH)	EAT DB	LAT DB	DESCRIPTION	ROWS	FPI	APD	FACE VELOCITY	EWT	LWT	WPD	FLOW	NOTES
AHU-W1	AHU-W1	12,300	6,060	500	-10	65	PRE-HEAT COIL	2	7.66	0.04	260	140	110	1.2	33		0 °F	0 °F		0	0	0.00 in-wg	0 FPM	0 °F	0 °F	0.00 psi	0 GPM	1,2,3
AHU-Z1	AHU-Z1	35,745	17,875	1,454	-10	65	PRE-HEAT COIL	2	7.08	0.03	230	140	110	2.77	97	678.49	55 °F	65 °F	RE-HEAT COIL	1	9.58	0.03 in-wg	230 FPM	140 °F	110 °F	2.83 psi	45 GPM	1,2,3
AHU-Z2	AHU-Z2	35,745	17,875	1,454	-10	65	PRE-HEAT COIL	2	7.08	0.03	230	140	110	2.77	97	678.49	55 °F	65 °F	RE-HEAT COIL	1	9.58	0.03 in-wg	230 FPM	140 °F	110 °F	2.83 psi	45 GPM	1,2,3
ERU-Z3	ERU-Z1	9,000	9,000	546	31	85	PRE-HEAT COIL	2	10.9	0.19	470	140	110	1.38	36		0 °F	0 °F		0	0	0.00 in-wg	0 FPM	0 °F	0 °F	0.00 psi	0 GPM	1, 4

23 73 13 - MODULAR AIR HANDLING UNIT - COOLING COIL SCHEDULE

IDENTITY DATA				TOTAL CAPACITY (MBH)	SENSIBLE CAPACITY (MBH)	EAT DB (°F)	EAT WB (°F)	LAT DB (°F)	LAT WB (°F)					FACE VELOCITY (FPM)	CHILLED WATER COIL				
MARK	EQUIPMENT SERVED	AIRFLOW (CFM)	MIN OSA (CFM)							DESCRIPTION	ROWS	FPI	APD (IN-WG)		EWT (°F)	LWT (°F)	WPD (FT-WG)	FLOW (GPM)	NOTES
AHU-W1	AHU-W1	12,300	6,060	606.1	407.6	85	70	55	55	COOLING COIL	6	9.83	0.75	511	42	56	4.89	86	1,2,3
AHU-Z1	AHU-Z1	35,745	17,875	1,772.7	1,184.4	85	70	55	55	COOLING COIL	8	7.16	0.59	454	42	61	11.73	186	1,2,3
AHU-Z2	AHU-Z2	35,745	17,875	1,772.7	1,184.4	85	70	55	55	COOLING COIL	8	7.16	0.59	454	42	61	11.73	186	1,2,3
ERU-Z3	ERU-Z1	9,000	9,000	394.5	266.4	81	68	55	54	COOLING COIL	4	12.41	0.55	472	42	63	4.17	52	1, 4

MODULAR AIR HANDLING UNIT - FINAL FILTER SCHEDULE

IDENTITY DATA					FINAL FILTER				
			ROOM						
MARK	EQUIPMENT SERVED	LOCATION	#	NAME	TYPE	FACE AREA (SF)	DEPTH (IN)	APD (IN-WG)	MERV	NOTES
AHU-W1	AHU-W1	UNIT W MECH ROOM	N679	MECH	CARTRIDGE	27	4"	0.79	13	1,2,3
AHU-Z1	AHU-Z1	UNIT Z MECH ROOM	E203	MECHANICAL	CARTRIDGE	86	4"	0.78	13	1,2,3
AHU-Z2	AHU-Z2	UNIT Z MECH ROOM	E203	MECHANICAL	CARTRIDGE	86	4"	0.78	13	1,2,3
ERU-Z3	ERU-Z1	UNIT Z MECH ROOM	E203	MECHANICAL						1, 4

PROJECT TITLE: NCHS WEST GYM PHASE 2
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MISC SCHEDULES PG2

EXHAUST FAN SCHEDULE

IDENTITY DATA						FAN DATA					NOISE CRITERIA		ELECTRICAL DATA						
MARK	MANUFACTURER	MODEL	SERVES	WEIGHT (LBS)	LOCATION	FAN TYPE	DRIVE TYPE	EXHAUST AIRFLOW (CFM)	ESP (IN-WG)	RPM	SONES	DBA	HP	BHP	VOLTS (V)	PHASE	FLA	UNIT CONTROL	NOTES
EF-K1	GREENHECK	G-090-VG	EXIST STORAGE	20	ROOF	DOWNBLAST CENTRIFUGAL	DIRECT	560	0.5	1681	8.4	56	0.1	0.09	115	1		BAS	1,2,3
EF-M1	GREENHECK	G-099-A	RESTROOMS	46	ROOF	DOWNBLAST CENTRIFUGAL	DIRECT	800	0.5	1445	9.6	59	0.25	0.14	115	1		BAS	1,2,3
EF-T1	GREENHECK	G-097-B	STORAGE	46	ROOF	DOWNBLAST CENTRIFUGAL	DIRECT	100	0.5	1140	4.6	47	0.17	0.03	115	1		BAS	1,2,3
EF-W1	GREENHECK	G-099-VG	GENERAL EXHAUST	40	UNIT W ROOF	DOWNBLAST CENTRIFUGAL	DIRECT	800	0.75	1725	10.6	60	0.25	0.2	115	1	2.85	BAS	1,2,3
EF-W2	GREENHECK	G-080-VG	GENERAL EXHAUST	28	UNIT W ROOF	DOWNBLAST CENTRIFUGAL	DIRECT	300	0.5	1725	8.4	57	0.1	0.07	115	1	1.38	BAS	1,2,3
EF-Z1	GREENHECK	G-099-VG	GENERAL EXHAUST	40	UNIT Z ROOF	DOWNBLAST CENTRIFUGAL	DIRECT	770	0.75	1725	10.3	60	0.25	0.19	115	1	2.85	BAS	1,2,3
EF-Z2	GREENHECK	G-099-VG	STORAGE ROOM VENTILATION	40	UNIT Z ROOF	DOWNBLAST CENTRIFUGAL	DIRECT	770	0.75	1725	10.3	60	0.25	0.19	115	1	2.85	BAS	1,2,3
EF-Z3	GREENHECK	SBCE-3H24-5	MECH ROOM VENTILATION	77	UNIT Z MECH ROOM	SIDEWALL	BELT	1,810	0.5	1725	19.8	69	0.5	0.44	115	1	9.80	BAS	1,2,3

NOTES:
1. DISCONNECT BY MANUFACTURER.
2. SEE M-700 SERIES SHEETS FOR TEMPERATURE CONTROL INFORMATION.
3. FAN SPEED CONTROLLER FOR BALANCING.

HYDRONIC UNIT HEATER SCHEDULE

IDENTITY DATA				ROOM		HEATING DATA							FAN DATA			ELECTRICAL DATA				
MARK	MANUFACTURER	MODEL	ENCLOSURE MODEL	#	NAME	MIN MBH	EWT (°F)	LWT (°F)	WPD (FT-WG)	FLOW (GPM)	EAT (°F)	LAT (°F)	AIRFLOW (CFM)	FAN TYPE	DRIVE	HP	SPEEDS	VOLTS (V)	PHASE	NOTES
CH-M1	MODINE	CW	002-08	N269	MENS	7.08	140	120	0.20	1.3	60	106	250	FC CENTRIFUGAL	DIRECT	0.03	3	115	1	1,2,3,4,5,6
CH-M2	MODINE	CW	002-08	E205	Space	7.08	140	120	0.20	1.3	60	106	250	FC CENTRIFUGAL	DIRECT	0.03	3	115	1	1,2,3,4,5,6
UH-Z1	TRANE	UHS-036	-	E100E	STOR	20.1	140	120	0.05	2.1	60	106	480	HORIZONTAL	DIRECT	0.05	3	115	1	7,8
UH-Z2	TRANE	UHS-036	-	E100E	STOR	20.1	140	120	0.05	2.1	60	106	480	HORIZONTAL	DIRECT	0.05	3	115	1	7,8
UH-Z3	TRANE	UHS-036	-	P002	STOR	20.1	140	120	0.05	2.1	60	106	480	HORIZONTAL	DIRECT	0.05	3	115	1	7,8
UH-Z4	TRANE	UHS-036	-	P002	STOR	20.1	140	120	0.05	2.1	60	106	480	HORIZONTAL	DIRECT	0.05	3	115	1	7,8
UH-Z5	TRANE	UHS-036	-	E203	MECHANICAL	20.1	140	120	0.05	2.1	60	106	480	HORIZONTAL	DIRECT	0.05	3	115	1	7,8
UH-Z6	TRANE	UHS-036	-	E203	MECHANICAL	20.1	140	120	0.05	2.1	60	106	480	HORIZONTAL	DIRECT	0.05	3	115	1	7,8
UH-Z7	TRANE	UHS-036	-	E203	MECHANICAL	20.1	140	120	0.05	2.1	60	106	480	HORIZONTAL	DIRECT	0.05	3	115	1	7,8

NOTES:
1. DISCONNECT SWITCH BY MANUFACTURER. DISCONNECT SWITCH AND ALL INTERLOCK RELAYS TO BE INSTALLED WITHIN HEATER ENCLOSURE.
2. PROVIDE WITH 1 ROW COIL.
3. PROVIDE WITH PSC MOTOR.
4. PROVIDE RECESSED WALL UNIT.
5. PROVIDE 2-WAY CONTROL VALVES.
6. PROVIDE WITH TAMPER PROOF ACCESS DOOR AND 16-GA STEEL FACE BARS.
7. HORIZONTAL DISCHARGE WITH ADJUSTABLE LOUVERS.
8. MAINTAIN ALL MANUFACTURERS CLEARANCE RECOMMENDATIONS.

DUCTLESS SPLIT AIR CONDITIONER UNIT SCHEDULE

IDENTITY DATA				COOLING DATA		HEATING DATA		ENERGY DATA			ELECTRICAL DATA				
MARK	MANUFACTURER	MODEL (INDOOR UNIT / OUTDOOR UNIT)	LOCATION	TOTAL COOLING (MBH)	AMBIENT DRY BULB	TOTAL HEATING (MBH)	MIN HSPF	CFM (HIGH)	CFM (LOW)	MIN SEER	VOLTS (V)	PHASE	MCA (A)	MOP (A)	NOTES
MSI-Z1	LG	LSN090HSV5 / LSU090HSV5	IDF N264	12.6	95	17	11	459	195	23.5	208	1	10.0	15	1,2,3
MSI-Z2	LG	LSN090HSV5 / LSU090HSV5	ELEC. P102	12.6	95	17	11	459	195	23.5	208	1	10.0	15	1,2,3

NOTES:
1. PROVIDE WITH CONDENSATE PUMP KIT.
2. PROVIDE WITH LOW AMBIENT WIND BAFFLE KIT.
3. PROVIDE WITH WIRED THERMOSTAT.

PUMP SCHEDULE

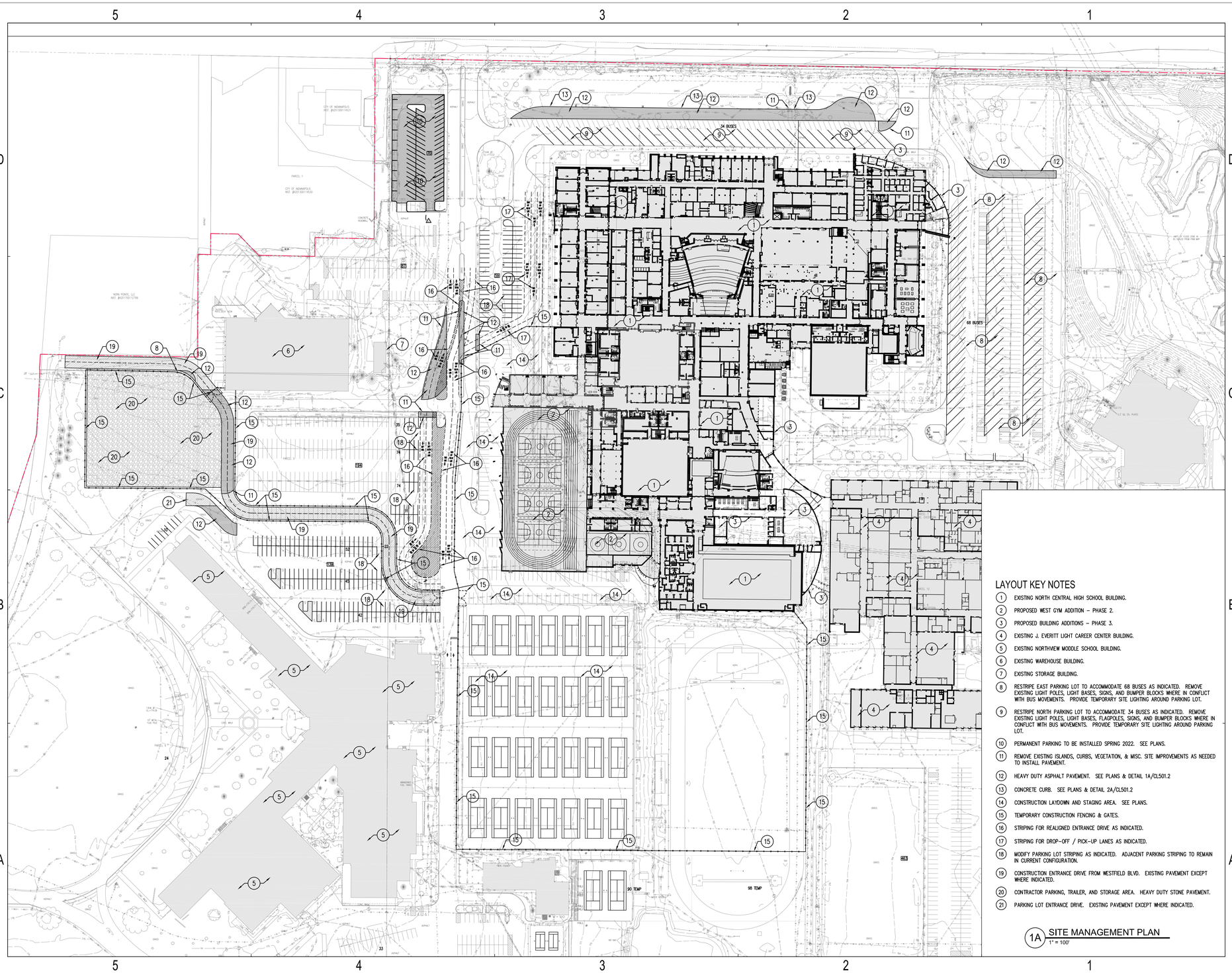
IDENTITY DATA				ROOM			FLUID DATA				MOTOR DATA	ELECTRICAL DATA			
MARK	MANUFACTURER	MODEL	SYSTEM SERVED	#	NAME	TYPE	FLUID TYPE	FLOW (GPM)	HEAD (ftH2O)	TEMP (°F)	HP	SPEED (RPM)	VOLTS (V)	PHASE	NOTES
CP-W1	Bell & Gossett	PL-130	ERU-1 PRE-HEAT COIL	N679	MECH	In-Line Centrifugal	WATER	33	2.5	140	0.4	3200	120	1	
CP-Z1	Bell & Gossett	PL-130	AHU-Z1 PRE-HEAT COIL	E203	MECHANICAL	In-Line Centrifugal	WATER	95	5	140	0.4	3200	120	1	
CP-Z2	Bell & Gossett	PL-130	AHU-Z2 PRE-HEAT COIL	E203	MECHANICAL	In-Line Centrifugal	WATER	95	5	140	0.4	3200	120	1	
CP-Z3	Bell & Gossett	PL-130	ERU-1 PRE-HEAT COIL	E203	MECHANICAL	In-Line Centrifugal	WATER	36	2.5	140	0.4	3200	120	1	

PROJECT TITLE: NCHS WEST GYM PHASE 2
PROJECT NUMBER: O-P-0004
BY: KK
SUBMITTAL: 2
PRINTED 11/28/2021 Ver. 4.8.0
Delta CONTROLS — A Delta Group Company
DRAWING TITLE: MISC SCHEDULES PG2
DRAWING NUMBER: DWG 98.06

MASTER BOM

BILL OF MATERIALS				
MANUFACTURER	VENDOR	VENDOR P/N	DESCRIPTION	QTY
	TEAM SOLU	QUOTE	SEE VFD SCHEDULE	4
	TEAM SOLU	QUOTE	SEE VFD SCHEDULE	2
	TEAM SOLU	QUOTE	SEE VFD SCHEDULE	2
	TEAM SOLU	QUOTE	SEE VFD SCHEDULE	2
	TEAM SOLU	QUOTE	SEE VFD SCHEDULE	2
	TEAM SOLU	QUOTE	SEE VFD SCHEDULE	2
ACI	DELTACON	466001	AFS-222 FIELD ADJUSTABLE DIFFERENTIAL PRESSURE SWI	1
AUTOMATION DIRECT	TEAM SOLU	QUOTE	ECX2070-24 BUZZER, 25MA, 24VAC/DC, 80DB	1
BAPI	DELTACON	400152	BA/10K-3-A-24' DUCT AVERAGING TEMP SENSOR, 24', AL	7
BAPI	DELTACON	400160	BA/10K-3-D-4" DUCT TEMP SENSOR, 4 STAINLESS STEEL	27
BAPI	DELTACON	400224	BA/WSK WEATHER SHADE	1
BAPI	DELTACON	400369	BA/10K-3-H200-D-BB DUCT TEMP/HUMIDITY SENSOR, 2%	1
BAPI	DELTACON	400782	BA/H210-D-BBX 0-10V,IP10 BAPI-BOX CROSSOVER ENCLO	2
BAPI	DELTACON	400970	ZPS-20-LR52-EZ-NT-D PRESSURE TRANSMITTER	5
BAPI	DELTACON	402205	BA/10K-3-H210-O-BB2 OUTSIDE AIR TEMP/HUMIDITY SENS	1
BAPI	DELTACON	402986	BA/10K-3-D-8"-BBX DUCT TEMP SENSOR, 8" STAINLESS S	11
BAPI	DELTACON	402996	BA/10K-3-A-12'-BBX 12' AVERAGING TEMPERATURE SENSO	1
DELTA CONTROLS PRODUCTS	DELTACON	151924	151924 TRM768 NETWORK TERMINATOR (MS/TP)	6
DELTA CONTROLS PRODUCTS	DELTACON	301604	301604 EBMGR-2 ENTELIBUS SYSTEM CONTROLLER W/ETHER	6
DELTA CONTROLS PRODUCTS	DELTACON	311601	311601 EBX-04 ENTELIBUS EXPANDER BACKPLANE (4 SLOT	2
DELTA CONTROLS PRODUCTS	DELTACON	311602	311602 EBX-08 ENTELIBUS EXPANDER BACKPLANE (8 SLOT	3
DELTA CONTROLS PRODUCTS	DELTACON	323053	323053 DAC-304-R3 APPLICATION CONTROLLER (3 UIS,4	8
DELTA CONTROLS PRODUCTS	DELTACON	333010	333010 EZVP-440-AB ENTELIZONE VAV CONTROLLER (PROG	27
DELTA CONTROLS PRODUCTS	DELTACON	335368	335368 EZNS-T100M-ND-SM-000-WWG ENTELIZONE	8
DELTA CONTROLS PRODUCTS	DELTACON	336250	336250 EZTS-SM-000-WWG ENTELIZONE TEMPERATURE	2
DELTA CONTROLS PRODUCTS	DELTACON	337364	337364 EZNS-T100CH-ND-SC-000-WWG ENTELIZONE NETWOR	36
DELTA CONTROLS PRODUCTS	DELTACON	375601	375601 EBM-440-M ENTELIBUS MODULE (4 UIS,4 AOS WIT	9
DELTA CONTROLS PRODUCTS	DELTACON	375604	375604 EBM-404-H ENTELIBUS MODULE (4 UIS,4 BOS WIT	9
DELTA CONTROLS PRODUCTS	DELTACON	375606	375606 EBM-800 ENTELIBUS MODULE (8 UIS)	4
DELTA CONTROLS PRODUCTS	DELTACON	375609	375609 EBM-D400R4-H ENTELIBUS MODULE (4 BIS,4 RELA	3
DWYER INSTRUMENTS, INC.	DELTACON	413077	1900-5-MR DIFFERENTIAL PRESSURE SWITCH, RANGE 140	1
DWYER INSTRUMENTS, INC.	DELTACON	902447	A-306 OUTDOOR STATIC PRESSURE SENSOR, INCLUDES 50'	5
DWYER INSTRUMENTS, INC.	DELTACON	902595	A-489 4" 303 SS STRAIGHT STATIC PRESSURE TIP W/FLA	7
EBTRON	RAMSCOMP	QUOTE	GTX116-P+	3
EBTRON	TEAM SOLU	QUOTE	GTX116-P+	3
FUNCTIONAL DEVICES INC.	DELTACON	403195	PSH500A ENCLOSED 5-100VA 120/240 TO 24VAC UL CLASS	2
FUNCTIONAL DEVICES INC.	DELTACON	403319	RIBRL1C DIN MOUNT RELAY 10 AMP SPDT WITH 10-30 VAC	4
FUNCTIONAL DEVICES INC.	DELTACON	403386	RIBMNLB-4 PANEL RELAY 2.75 TRACK-MOUNT RELAY LOGIC	6
FUNCTIONAL DEVICES INC.	DELTACON	403455	RIBU1C ENCLOSED RELAY 10AMP SPDT 10-30VAC/DC/120VA	34
FUNCTIONAL DEVICES INC.	DELTACON	403464	RIBU2C ENCLOSED RELAYS 10AMP 2 SPDT 10-30VAC/DC/12	7
FUNCTIONAL DEVICES INC.	DELTACON	403501	RIBXKTA SOLID CORE, ADJUSTABLE CURRENT SWITCH, 0.5	31
IDEC	KELE	AP8M122-G	PILOT LIGHT MINIATURE 8MM FLAT LENS ACDC 24V GREE	4
IDEC	KELE	AP8M122-R	PILOT LIGHT MINIATURE 8MM FLAT LENS AC/DC 24V RED	9
KELE	DELTACON	499777	TSA-DOP LOW LIMIT,MANUAL RESET, SPDT	4
KELE	DELTACON	499915	ABW111PUSH BUTTON 1NO 1NC MOMENTARY FLUSH-3 COLO	2
VERIS	DELTACON	435217	PX3DXX02 DRY MEDIA DIFFERENTIAL PRESSURE	2
VERIS	VERIS	MSCD2000	SENSOR,MOTION,CEILING,DUAL,2000FT	2

PROJECT TITLE: NCHS WEST GYM PHASE 2		Delta CONTROLS A Delta Group Company	DRAWING TITLE: MASTER BOM
PROJECT NUMBER: O-P-0004	BY: KK		DRAWING NUMBER: DWG 98.07
	SUBMITTAL: 2		
	PRINTED 11/28/2021	Ver. 4.8.0	



LAYOUT KEY NOTES

1. EXISTING NORTH CENTRAL HIGH SCHOOL BUILDING.
2. PROPOSED WEST GYM ADDITION – PHASE 2.
3. PROPOSED BUILDING ADDITIONS – PHASE 3.
4. EXISTING J. EVERITT LIGHT CAREER CENTER BUILDING.
5. EXISTING NORTHVIEW MIDDLE SCHOOL BUILDING.
6. EXISTING WAREHOUSE BUILDING.
7. EXISTING STORAGE BUILDING.
8. RESTRIPE EAST PARKING LOT TO ACCOMMODATE 68 BUSES AS INDICATED. REMOVE EXISTING LIGHT POLES, LIGHT BASES, SIGNS, AND BUMPER BLOCKS WHERE IN CONFLICT WITH BUS MOVEMENTS. PROVIDE TEMPORARY SITE LIGHTING AROUND PARKING LOT.
9. RESTRIPE NORTH PARKING LOT TO ACCOMMODATE 34 BUSES AS INDICATED. REMOVE EXISTING LIGHT POLES, LIGHT BASES, FLAGPOLES, SIGNS, AND BUMPER BLOCKS WHERE IN CONFLICT WITH BUS MOVEMENTS. PROVIDE TEMPORARY SITE LIGHTING AROUND PARKING LOT.
10. PERMANENT PARKING TO BE INSTALLED SPRING 2022. SEE PLANS.
11. REMOVE EXISTING ISLANDS, CURBS, VEGETATION, & MISC. SITE IMPROVEMENTS AS NEEDED TO INSTALL PAVEMENT.
12. HEAVY DUTY ASPHALT PAVEMENT. SEE PLANS & DETAIL 1A/CL501.2
13. CONCRETE CURB. SEE PLANS & DETAIL 2A/CL501.2
14. CONSTRUCTION LAYDOWN AND STAGING AREA. SEE PLANS.
15. TEMPORARY CONSTRUCTION FENCING & GATES.
16. STRIPING FOR REALIGNED ENTRANCE DRIVE AS INDICATED.
17. STRIPING FOR DROP–OFF / PICK–UP LANES AS INDICATED.
18. MODIFY PARKING LOT STRIPING AS INDICATED. ADJACENT PARKING STRIPING TO REMAIN IN CURRENT CONFIGURATION.
19. CONSTRUCTION ENTRANCE DRIVE FROM WESTFIELD BLVD. EXISTING PAVEMENT EXCEPT WHERE INDICATED.
20. CONTRACTOR PARKING, TRAILER, AND STORAGE AREA. HEAVY DUTY STONE PAVEMENT.
21. PARKING LOT ENTRANCE DRIVE. EXISTING PAVEMENT EXCEPT WHERE INDICATED.

1A SITE MANAGEMENT PLAN
1" = 100'

SCHMIDT
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415 Massachusetts Avenue
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www.schmidt-arch.com

Project No. 2019-067.NCH
Project Date 11.01.2021
Produced ATJ

W. E. MILLER
REGISTERED
NO. 19900465
STATE OF INDIANA
PROFESSIONAL ENGINEER

#	Revision	Date
A2	ADDENDUM 2	11.29.2021

1801 East 86th Street
Indianapolis, IN 46240

KEY PLAN

MSD of Washington Township

North Central High School Renovation Phase 2

CONSTRUCTION SITE MANAGEMENT PLAN

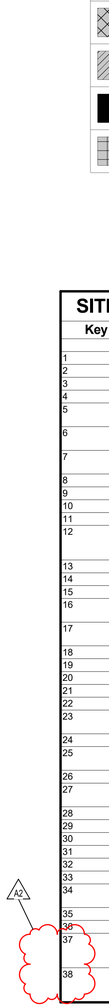
C-002.2 A2

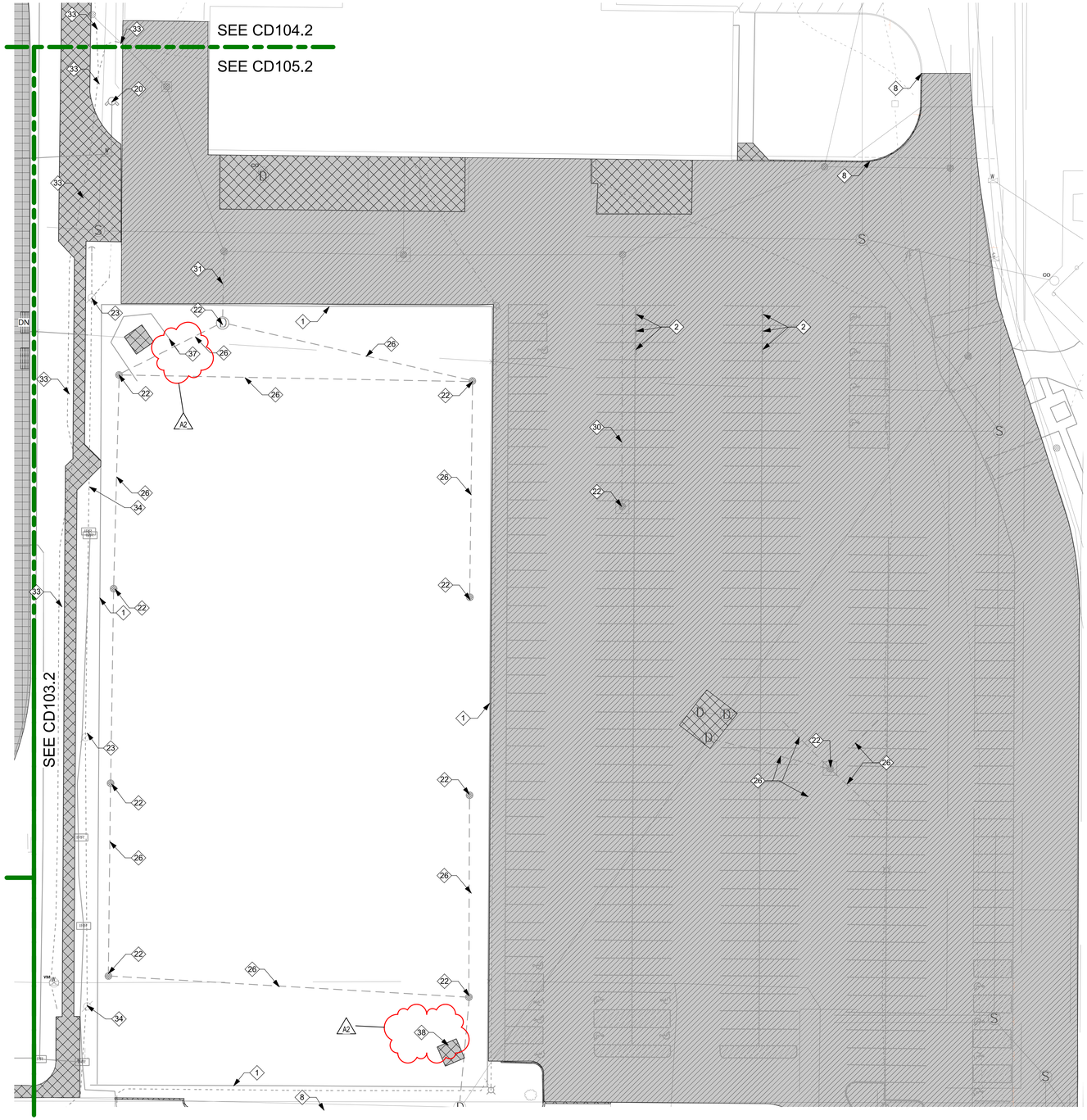
SITE DEMOLITION LEGEND

	CONCRETE TO BE REMOVED
	ASPHALT TO BE REMOVED
	RETAINING WALL TO BE REMOVED
	REMOVE RUNNING TRACK INCLUDING LATEX SURFACE AND ASPHALT

SITE DEMOLITION NOTES - Phase 2

Key	Note
1	REMOVE FENCE IN ITS ENTIRETY
2	REMOVE SIGN AND POST.
3	REMOVE TREES, SHRUBS, STUMPS & ROOT SYSTEM.
4	TREES TO REMAIN. PROTECT DURING CONSTRUCTION.
5	REMOVE ALL TURF AND MISCELLANEOUS PLANTINGS, CLEAR & GRUB.
6	REMOVE ATHLETIC LIGHTING SYSTEM INCLUDING FIXTURES, POLES & FOOTINGS
7	REMOVE ATHLETIC EQUIPMENT, DUGOUTS, SCOREBOARDS, GOAL POSTS, ETC
8	REMOVE CONCRETE CURB.
9	CONCRETE CURB TO REMAIN, REPAIR IF DAMAGED.
10	REMOVE WATER MAIN OR WATER SERVICE LINE.
11	REMOVE RETAINING WALL.
12	REMOVE EXISTING SPORTS FIELD IN ITS ENTIRETY INCLUDING BUT NOT LIMITED TO FENCING, BENCHES, INFIELD DIRT, ETC
13	SEE E-SERIES DRAWINGS
14	REMOVE EXISTING STAIRS IN ITS ENTIRETY
15	REMOVE EXISTING WALL
16	EXISTING RUNNING TRACK, SURFACE AND ASPHALT TO BE REMOVED IN ITS ENTIRETY.
17	EXISTING BLEACHERS TO REMAIN. MOVE AS REQUIRED TO REMOVE AND PLACE CONCRETE.
18	REMOVE EXISTING BLEACHERS.
19	REMOVE SAND PIT.
20	REMOVE FIRE HYDRANT
21	REMOVE END SECTION.
22	REMOVE STORM STRUCTURE.
23	REMOVE ELECTRIC POLE. COORDINATE WITH UTILITY COMPANY AND E-SERIES DRAWINGS.
24	REMOVE BENCH.
25	REMOVE GAS LINE COORDINATE WITH UTILITY COMPANY AND OWNER TO SHUT OFF UTILITY.
26	REMOVE PIPE.
27	REMOVE SANITARY PIPE AND CONCRETE CAP AT STRUCTURES.
28	REMOVE PULL BOX, SEE E-SERIES DRAWINGS.
29	REMOVE AND CAP WATERLINE.
30	REMOVE PIPE UNTIL NEW ISLAND.
31	REMOVE PIPE AND CONCRETE CAP AT STRUCTURE.
32	REMOVE ACCESS CONTROLS.
33	REMOVE EXISTING UNDERGROUND ELECTRIC CIRCUIT.
34	EXISTING OVERHEAD PRIMARY ELECTRIC CIRCUITS & EQUIPMENT TO BE RELOCATED UNDERGROUND BY IPL.
35	REMOVE ELECTRICAL LINE.
36	RETAIN FLAGPOLE FOR REUSE.
37	EXISTING DISCUS POLES TO BE REMOVED AND RELOCATED, SEE LAYOUT SHEETS FOR NEW LOCATION.CONTRACTOR TO REPLACE IF DAMAGED.
38	EXISTING DISCUS RING TO BE REMOVED AND RELOCATED, SEE LAYOUT SHEETS FOR NEW LOCATION. CONTRACTOR TO REPLACE IF DAMAGED.





1 **DEMO PLAN - CD104.2**
1" = 30'-0"

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Project No. 2019-067.NCH
Project Date 11.01.2021
Bid Set 02
Produced KL

NILE E. MILLER
REGISTERED
NO.
19900465
STATE OF
INDIANA
PROFESSIONAL ENGINEER

#	Revision	Date
A2	ADDENDUM 2	11.29.2021

1801 E 86th St
Indianapolis, IN 46240

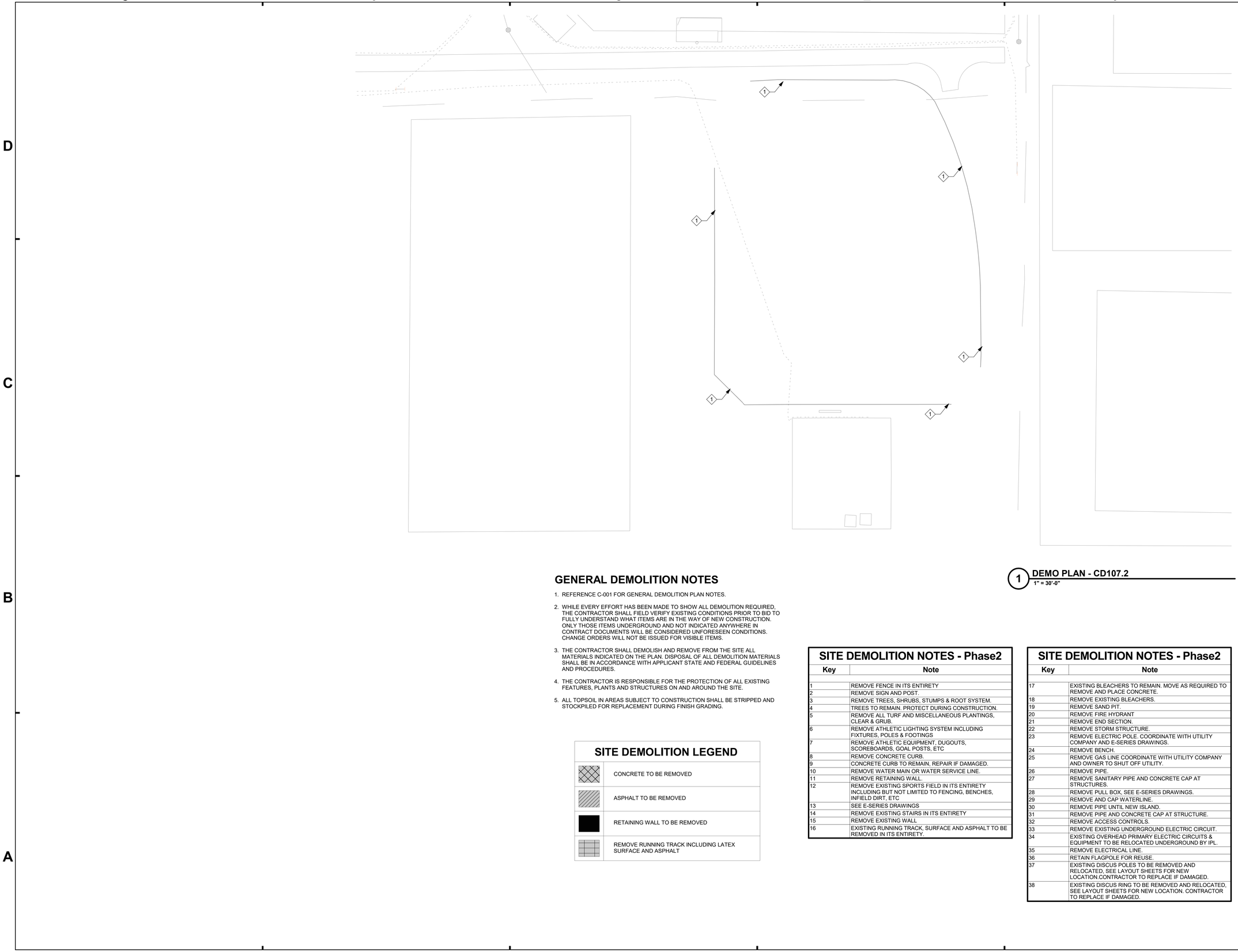
N

M.S.D. of Washington Township

North Central High School Renovation - West Gym Addition

SITE DEMOLITION PLAN

CD104.2



GENERAL DEMOLITION NOTES

1. REFERENCE C-001 FOR GENERAL DEMOLITION PLAN NOTES.
2. WHILE EVERY EFFORT HAS BEEN MADE TO SHOW ALL DEMOLITION REQUIRED, THE CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS PRIOR TO BID TO FULLY UNDERSTAND WHAT ITEMS ARE IN THE WAY OF NEW CONSTRUCTION. ONLY THOSE ITEMS UNDERGROUND AND NOT INDICATED ANYWHERE IN CONTRACT DOCUMENTS WILL BE CONSIDERED UNFORESEEN CONDITIONS. CHANGE ORDERS WILL NOT BE ISSUED FOR VISIBLE ITEMS.
3. THE CONTRACTOR SHALL DEMOLISH AND REMOVE FROM THE SITE ALL MATERIALS INDICATED ON THE PLAN. DISPOSAL OF ALL DEMOLITION MATERIALS SHALL BE IN ACCORDANCE WITH APPLICANT STATE AND FEDERAL GUIDELINES AND PROCEDURES.
4. THE CONTRACTOR IS RESPONSIBLE FOR THE PROTECTION OF ALL EXISTING FEATURES, PLANTS AND STRUCTURES ON AND AROUND THE SITE.
5. ALL TOPSOIL IN AREAS SUBJECT TO CONSTRUCTION SHALL BE STRIPPED AND STOCKPILED FOR REPLACEMENT DURING FINISH GRADING.

SITE DEMOLITION LEGEND

	CONCRETE TO BE REMOVED
	ASPHALT TO BE REMOVED
	RETAINING WALL TO BE REMOVED
	REMOVE RUNNING TRACK INCLUDING LATEX SURFACE AND ASPHALT

1 **DEMO PLAN - CD107.2**
1" = 30'-0"

SITE DEMOLITION NOTES - Phase2

Key	Note
1	REMOVE FENCE IN ITS ENTIRETY
2	REMOVE SIGN AND POST.
3	REMOVE TREES, SHRUBS, STUMPS & ROOT SYSTEM.
4	TREES TO REMAIN. PROTECT DURING CONSTRUCTION.
5	REMOVE ALL TURF AND MISCELLANEOUS PLANTINGS, CLEAR & GRUB.
6	REMOVE ATHLETIC LIGHTING SYSTEM INCLUDING FIXTURES, POLES & FOOTINGS
7	REMOVE ATHLETIC EQUIPMENT, DUGOUTS, SCOREBOARDS, GOAL POSTS, ETC
8	REMOVE CONCRETE CURB.
9	CONCRETE CURB TO REMAIN, REPAIR IF DAMAGED.
10	REMOVE WATER MAIN OR WATER SERVICE LINE.
11	REMOVE RETAINING WALL.
12	REMOVE EXISTING SPORTS FIELD IN ITS ENTIRETY INCLUDING BUT NOT LIMITED TO FENCING, BENCHES, INFIELD DIRT, ETC
13	SEE E-SERIES DRAWINGS
14	REMOVE EXISTING STAIRS IN ITS ENTIRETY
15	REMOVE EXISTING WALL
16	EXISTING RUNNING TRACK, SURFACE AND ASPHALT TO BE REMOVED IN ITS ENTIRETY.

SITE DEMOLITION NOTES - Phase2

Key	Note
17	EXISTING BLEACHERS TO REMAIN. MOVE AS REQUIRED TO REMOVE AND PLACE CONCRETE.
18	REMOVE EXISTING BLEACHERS.
19	REMOVE SAND PIT.
20	REMOVE FIRE HYDRANT
21	REMOVE END SECTION.
22	REMOVE STORM STRUCTURE.
23	REMOVE ELECTRIC POLE. COORDINATE WITH UTILITY COMPANY AND E-SERIES DRAWINGS.
24	REMOVE BENCH.
25	REMOVE GAS LINE COORDINATE WITH UTILITY COMPANY AND OWNER TO SHUT OFF UTILITY.
26	REMOVE PIPE.
27	REMOVE SANITARY PIPE AND CONCRETE CAP AT STRUCTURES.
28	REMOVE PULL BOX, SEE E-SERIES DRAWINGS.
29	REMOVE AND CAP WATERLINE.
30	REMOVE PIPE UNTIL NEW ISLAND.
31	REMOVE PIPE AND CONCRETE CAP AT STRUCTURE.
32	REMOVE ACCESS CONTROLS.
33	REMOVE EXISTING UNDERGROUND ELECTRIC CIRCUIT.
34	EXISTING OVERHEAD PRIMARY ELECTRIC CIRCUITS & EQUIPMENT TO BE RELOCATED UNDERGROUND BY IPL.
35	REMOVE ELECTRICAL LINE.
36	RETAIN FLAGPOLE FOR REUSE.
37	EXISTING DISCUS POLES TO BE REMOVED AND RELOCATED, SEE LAYOUT SHEETS FOR NEW LOCATION.CONTRACTOR TO REPLACE IF DAMAGED.
38	EXISTING DISCUS RING TO BE REMOVED AND RELOCATED, SEE LAYOUT SHEETS FOR NEW LOCATION. CONTRACTOR TO REPLACE IF DAMAGED.

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Project No. 2019-067.NCH
Project Date 11.01.2021
Bid Set 02
Produced RR

#	Revision	Date
A2	ADDENDUM 2	11.29.2021

1801 E 86th St
Indianapolis, IN 46240

N

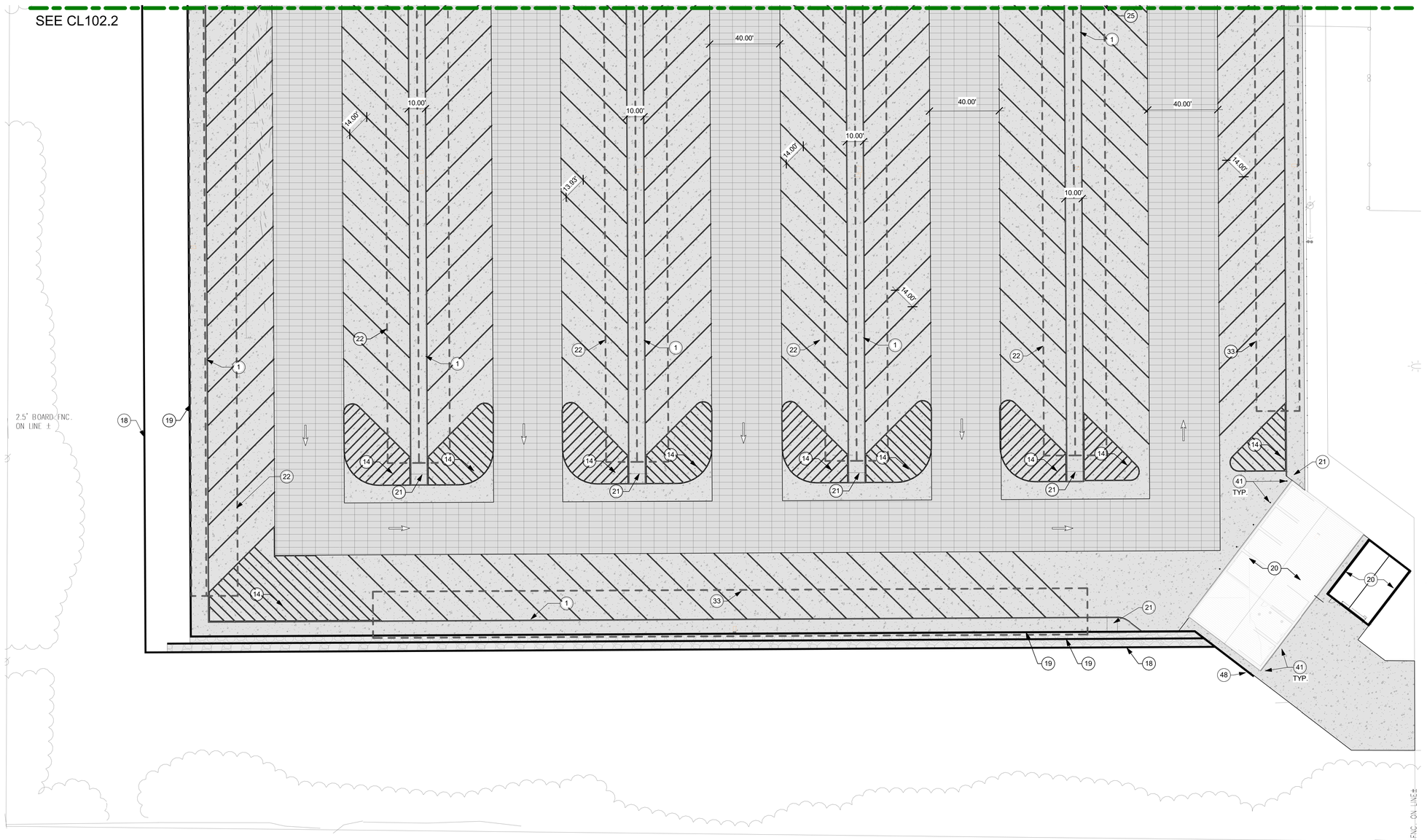
M.S.D. of Washington Township

North Central High School Renovation - Phase 2

SITE DEMOLITION PLAN

A2

CD107.2



GENERAL LAYOUT NOTES

1. REFERENCE C-001 FOR GENERAL LAYOUT PLAN NOTES.
2. NORTHING AND EASTING COORDINATES ARE STATE PLANE COORDINATES BASED ON A TOPOGRAPHIC SURVEY. REFER TO SURVEY DRAWINGS FOR HORIZONTAL CONTROL POINT DATA.
3. ALL EXISTING PAVEMENT DAMAGED DURING CONSTRUCTION SHALL BE REPAIRED TO MATCH EXISTING CONDITIONS.

SITE LAYOUT NOTES - Phase 2

Key	Note
1	CONCRETE INTEGRAL CURB. SEE DETAIL SHEET.
2	CONCRETE STRAIGHT CURB. SEE DETAIL SHEET.
3	NEW POST-TENSION CONCRETE TENNIS COURTS. SEE DETAIL SHEET
4	NEW WHITE PARKING STRIPES, SEE SPECS.
5	NEW TENNIS COURT NETS, TENNIS COURT NET POST AND CENTER ANCHOR, SEE DETAILS
6	PAINTED TENNIS COURT SURFACING & MARKINGS. FIELD MARKINGS TO BE LAID OUT IN ACCORDANCE WITH THE USTA TENNIS COURT DESIGN MANUAL, LATEST REVISION. PAINT COLORS TO BE APPROVED BY OWNER PRIOR OT INSTALLATION.
7	10' TALL, 5' WIDE BLACK VINYL SINGLE SWING CHAINLINK GATE
8	10' TALL BLACK VINYL CHAINLINK FENCE AT TENNIS COURTS, SEE SPECS AND DETAILS
9	ALTERNATE BID: NEW BACK-LOADED BLEACHERS. SEE DETAIL SHEET
10	CONCRETE SPEED TABLE. SEE SPECS.
11	CROSSWALK PAVEMENT STRIPING, WHITE TRAFFIC PAINT. SEE DETAIL
12	HEAVY DUTY BOLLARDS, 2 PER STALL.
13	4" YELLOW TRAFFIC PAINT
14	ISLAND STRIPING, 4" WHITE TRAFFIC PAINT

SITE LAYOUT NOTES - Phase 2

Key	Note
16	NEW 10' TALL BLACK VINYL CHAINLINK FENCE WITH ACOUSTICAL SOUND COVERING
17	EXISTING HERITAGE TREE, DO NOT REMOVE.
18	NEW 10'H PRECAST SOUND WALL - SEE DETAIL SHEET
19	NEW 5'H SEGMENTAL RETAINING WALL - SEE DETAIL SHEET
20	NEW BUILDING. SEE A-SERIES DRAWINGS
21	ADA RAMP
22	NEW CANOPY BASE BIDE - SEE A-SERIES DRAWINGS
23	SEE E-SERIES DRAWINGS
24	6' TALL BLACK VINYL CHAINLINK FENCE- SEE SPECS
25	NEW CANOPY STRUCTURE. SEE A-SERIES DRAWINGS
26	STANDARD PARKING STALL, 9'W x 20'D, 4" WHITE TRAFFIC PAINT
27	NEW 50 SEAT TIP AND ROLL BLEACHERS. SEE SPECS.
28	6' TALL 6' WIDE BLACK VINYL SINGLE CHAIN-LINK SWING GATE, SEE SPECS
29	NEW TENNIS COURT WALL. SEE SPECS.
30	NEW CONCRETE RETAINING WALL
31	NEW PAINT STRIPING. STRIPING TO BE LAID OUT AS A FOOTBALL FIELD. LAYOUT AND COLORS TO BE APPROVED DURING SUBMITTAL PROCESS.
32	EXISTING BLEACHERS

SITE LAYOUT NOTES - Phase 2

Key	Note
33	NEW CANOPY - ALTERNATE BID - SEE A -SERIES DRAWINGS
37	NEW WHITE PARKING BUS STRIPES, SEE SPECS.
38	ADA ACCESSIBLE SIDEWALK RAMP, SEE DETAIL SHEET.
39	**CROSSWALK PAVEMENT STRIPING, WHITE TRAFFIC PAINT. SEE DETAIL
40	SLIDING ACCESS CONTROL GATE. SEE SPECS.
41	HEAVY DUTY BOLLARDS.
42	6' TALL BLACK VINYL CHAINLINK FENCE ON TOP OF 3'H SEGMENTAL RETAINING WALL - SEE DETAIL SHEET.
43	NEW SEAT WALL- SEE DETAIL SHEET
44	ADA PARKING SPOT. SEE DETAIL SHEET.
45	ADA VAN PARKING SPOT. SEE DETAIL SHEET.
46	STAINLESS STEEL HANDRAILS. SEE DETAIL SHEET.
47	NEW ELECTRICAL CONTROL GATE. GATE TO BE DOORKING 1602-091 WITH 24FT ARM AND WIRELESS CONTROLS OR APPROVED EQUAL
48	NEW 20' TALL CONCRETE RETAINING WALLS. RETAINING WALL TO THEN FOLLOW BERM SLOPE - SEE DETAIL SHEET
49	RESET EXISTING FLAGPOLES
50	TEMP. STONE LOT
51	NEW ASPHALT QUICK START TENNIS COURTS. SEE DETAIL SHEET.
52	NEW 10'X10' CONCRETE PAD. NO BROOM FINISH. INSTALL EXISTING DISCUS RING PER ISHAA REQUIREMENTS.
53	RELOCATE EXISTING DISCUS POLES HERE. INSTALL POLES IN SLEEVES PER GILL REQUIREMENTS.
54	10' TALL, 5' WIDE BLACK VINYL SINGLE SWING CHAINLINK GATE

SITE LAYOUT LEGEND

	STANDARD ASPHALT PAVING, SEE DETAIL SHEET
	HEAVY DUTY ASPHALT PAVING, SEE DETAIL SHEET
	STANDARD CONCRETE PAVING, SEE DETAIL SHEET
	HEAVY DUTY CONCRETE PAVING, SEE DETAIL SHEET
	PAVERS, SEE DETAIL SHEET
	TEMPORARY ASPHALT PAVING
	DONOR PAVING
	FILL STONE AREAS BETWEEN WALLS WITH #2 STONE
	ASPHALT MILL & OVERLAY

1 **SITE LAYOUT - CL101.2**
1" = 30'-0"

SCHMIDT
ASSOCIATES
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Indianapolis, IN 46204
www.schmidt-arch.com

Project No.	2019-067.NCH
Project Date	11.01.2021
Bid Set	02
Produced	RR,AJ,KL

#	Revision	Date
A2	ADDENDUM 2	11.29.2021

1801 E 86th St
Indianapolis, IN 46240

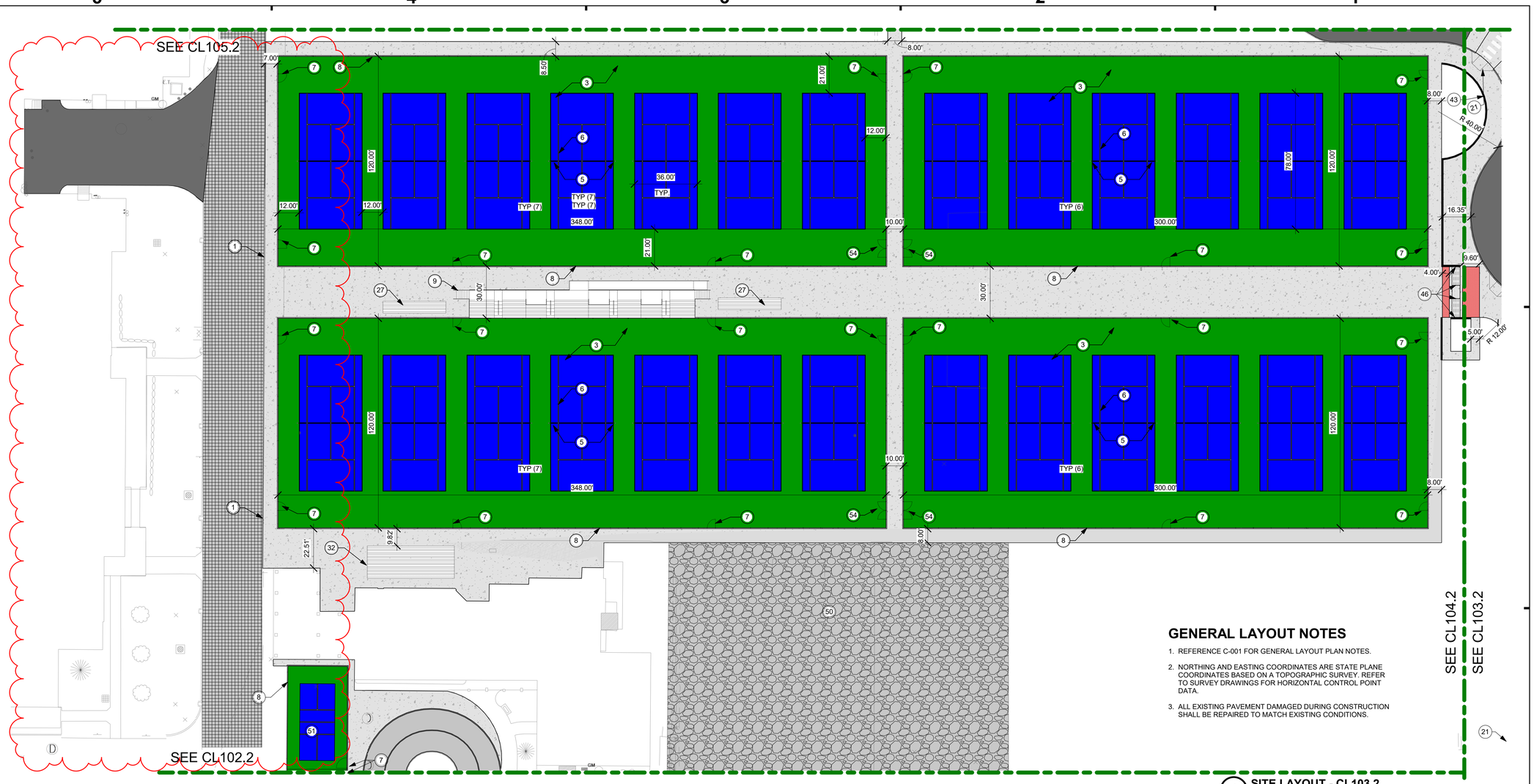
N

M.S.D. of Washington Township

North Central High School Renovation - West Gym Addition

SITE LAYOUT PLAN

CL101.2



GENERAL LAYOUT NOTES

1. REFERENCE C-001 FOR GENERAL LAYOUT PLAN NOTES.
2. NORTHING AND EASTING COORDINATES ARE STATE PLANE COORDINATES BASED ON A TOPOGRAPHIC SURVEY. REFER TO SURVEY DRAWINGS FOR HORIZONTAL CONTROL POINT DATA.
3. ALL EXISTING PAVEMENT DAMAGED DURING CONSTRUCTION SHALL BE REPAIRED TO MATCH EXISTING CONDITIONS.

1 SITE LAYOUT - CL103.2
1" = 30'-0"

SITE LAYOUT NOTES - Phase 2

Key	Note
1	CONCRETE INTEGRAL CURB. SEE DETAIL SHEET.
2	CONCRETE STRAIGHT CURB. SEE DETAIL SHEET.
3	NEW POST-TENSION CONCRETE TENNIS COURTS. SEE DETAIL SHEET
4	NEW WHITE PARKING STRIPES, SEE SPECS.
5	NEW TENNIS COURT NETS. TENNIS COURT NET POST AND CENTER ANCHOR, SEE DETAILS
6	PAINTED TENNIS COURT SURFACING & MARKINGS. FIELD MARKINGS TO BE LAID OUT IN ACCORDANCE WITH THE USTA TENNIS COURT DESIGN MANUAL, LATEST REVISION. PAINT COLORS TO BE APPROVED BY OWNER PRIOR OT INSTALLATION.
7	10' TALL, 5' WIDE BLACK VINYL SINGLE SWING CHAINLINK GATE
8	10' TALL BLACK VINYL CHAINLINK FENCE AT TENNIS COURTS, SEE SPECS AND DETAILS
9	ALTERNATE BID: NEW BACK-LOADED BLEACHERS. SEE DETAIL SHEET
10	CONCRETE SPEED TABLE. SEE SPECS.
11	CROSSWALK PAVEMENT STRIPING, WHITE TRAFFIC PAINT. SEE DETAIL
12	HEAVY DUTY BOLLARDS, 2 PER STALL.
13	4" YELLOW TRAFFIC PAINT
14	ISLAND STRIPING, 4" WHITE TRAFFIC PAINT

SITE LAYOUT NOTES - Phase 2

Key	Note
16	NEW 10' TALL BLACK VINYL CHAINLINK FENCE WITH ACOUSTICAL SOUND COVERING
17	EXISTING HERITAGE TREE, DO NOT REMOVE.
18	NEW 10'H PRECAST SOUND WALL - SEE DETAIL SHEET
19	NEW 5'H SEGMENTAL RETAINING WALL - SEE DETAIL SHEET
20	NEW BUILDING. SEE A-SERIES DRAWINGS
21	ADA RAMP
22	NEW CANOPY BASE BIDE - SEE A-SERIES DRAWINGS
23	SEE E-SERIES DRAWINGS
24	6' TALL BLACK VINYL CHAINLINK FENCE- SEE SPECS
25	NEW CANOPY STRUCTURE. SEE A-SERIES DRAWINGS
26	STANDARD PARKING STALL, 9'W x 20'D, 4" WHITE TRAFFIC PAINT
27	NEW 50 SEAT TIP AND ROLL BLEACHERS. SEE SPECS.
28	6' TALL 6' WIDE BLACK VINYL SINGLE CHAIN-LINK SWING GATE, SEE SPECS
29	NEW TENNIS COURT WALL, SEE SPECS.
30	NEW CONCRETE RETAINING WALL
31	NEW PAINT STRIPING. STRIPING TO BE LAID OUT AS A FOOTBALL FIELD. LAYOUT AND COLORS TO BE APPROVED DURING SUBMITTAL PROCESS.
32	EXISTING BLEACHERS

SITE LAYOUT NOTES - Phase 2

Key	Note
33	NEW CANOPY - ALTERNATE BID - SEE A -SERIES DRAWINGS
37	NEW WHITE PARKING BUS STRIPES, SEE SPECS.
38	ADA ACCESSIBLE SIDEWALK RAMP, SEE DETAIL SHEET.
39	**CROSSWALK PAVEMENT STRIPING, WHITE TRAFFIC PAINT. SEE DETAIL
40	SLIDING ACCESS CONTROL GATE. SEE SPECS.
41	HEAVY DUTY BOLLARDS.
42	6' TALL BLACK VINYL CHAINLINK FENCE ON TOP OF 3'H SEGMENTAL RETAINING WALL - SEE DETAIL SHEET.
43	NEW SEAT WALL- SEE DETAIL SHEET
44	ADA PARKING SPOT. SEE DETAIL SHEET.
45	ADA VAN PARKING SPOT. SEE DETAIL SHEET.
46	STAINLESS STEEL HANDRAILS. SEE DETAIL SHEET.
47	NEW ELECTRICAL CONTROL GATE. GATE TO BE DOORKING 1602-091 WITH 24FT ARM AND WIRELESS CONTROLS OR APPROVED EQUAL
48	NEW 20' TALL CONCRETE RETAINING WALLS. RETAINING WALL TO THEN FOLLOW BERM SLOPE - SEE DETAIL SHEET
49	RESET EXISTING FLAGPOLES
50	TEMP. STONE LOT
51	NEW ASPHALT QUICK START TENNIS COURTS. SEE DETAIL SHEET.
52	NEW 10'X10' CONCRETE PAD. NO BROOM FINISH. INSTALL EXISTING DISCUS RING PER ISHAA REQUIREMENTS.
53	RELOCATE EXISTING DISCUS POLES HERE. INSTALL POLES IN SLEEVES PER GILL REQUIREMENTS.
54	10' TALL, 5' WIDE BLACK VINYL SINGLE SWING CHAINLINK GATE

SITE LAYOUT LEGEND

	STANDARD ASPHALT PAVING, SEE DETAIL SHEET
	HEAVY DUTY ASPHALT PAVING, SEE DETAIL SHEET
	STANDARD CONCRETE PAVING, SEE DETAIL SHEET
	HEAVY DUTY CONCRETE PAVING, SEE DETAIL SHEET
	PAVERS, SEE DETAIL SHEET
	TEMPORARY ASPHALT PAVING
	DONOR PAVING
	FILL STONE AREAS BETWEEN WALLS WITH #2 STONE
	ASPHALT MILL & OVERLAY

SCHMIDT ASSOCIATES
415 Massachusetts Avenue
Indianapolis, IN 46204
www.schmidt-arch.com

Project No.	2019-067.NCH
Project Date	11.01.2021
Bid Set	02
Produced	AJ,KL

NILE E. MILLER REGISTERED NO. 19900465 STATE OF INDIANA PROFESSIONAL ENGINEER

#	Revision	Date
A1	ADDENDUM 1	11.18.2021
A2	ADDENDUM 2	11.29.2021

1801 E 86th St
Indianapolis, IN 46240

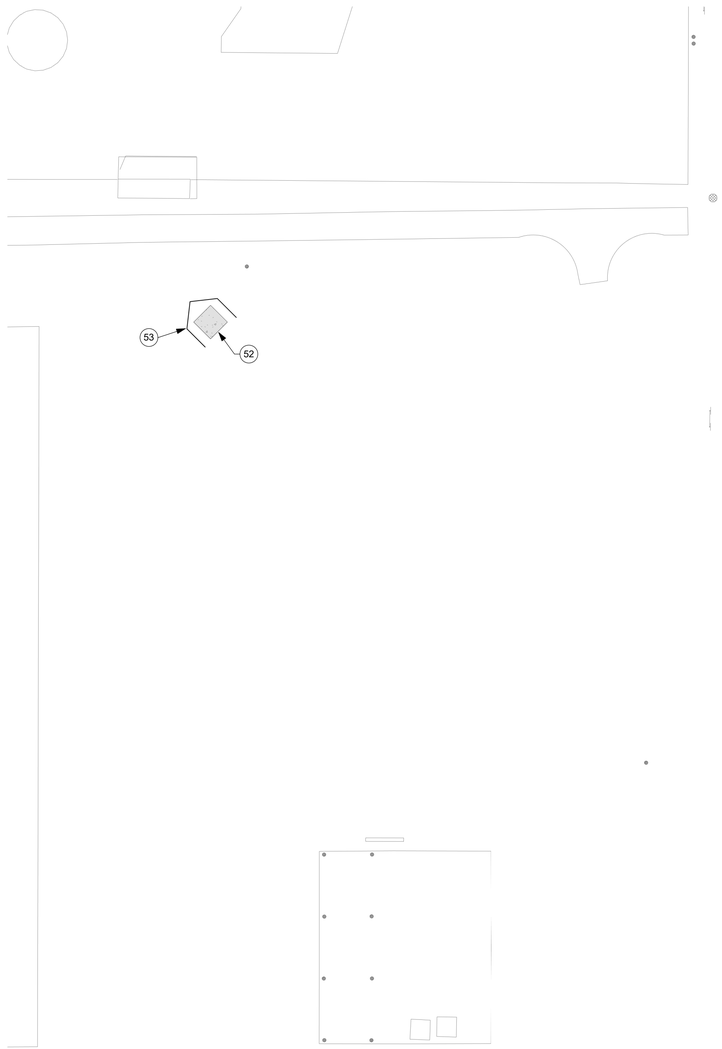
N

M.S.D. of Washington Township

North Central High School Renovation - West Gym Addition

SITE LAYOUT PLAN

CL103.2



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	PAVERS, SEE DETAIL SHEET
	TEMPORARY ASPHALT PAVING
	DONOR PAVING
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	ASPHALT MILL & OVERLAY

1 **SITE LAYOUT - CL107.2**
1" = 30'-0"

SITE LAYOUT NOTES - Phase 2

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Project No. 2019-067.NCH
Project Date 11.01.2021
Bid Set 02
Produced RR

#	Revision	Date
A2	ADDENDUM 2	11.29.2021

1801 E 86th St
Indianapolis, IN 46240

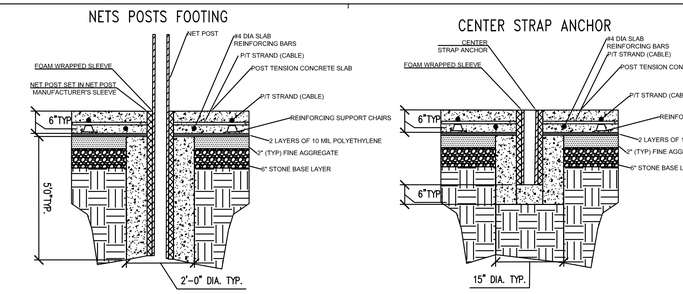
N

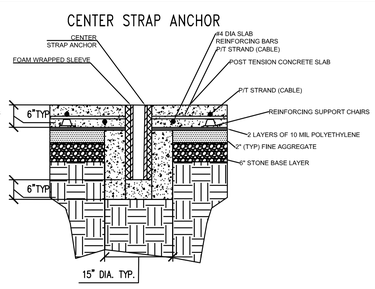
M.S.D. of Washington Township

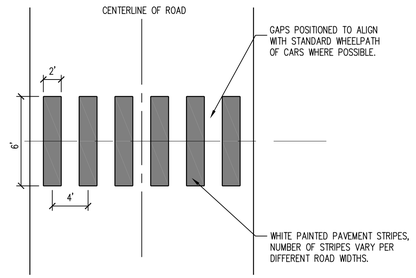
North Central High School Renovation - Phase 2

SITE LAYOUT PLAN

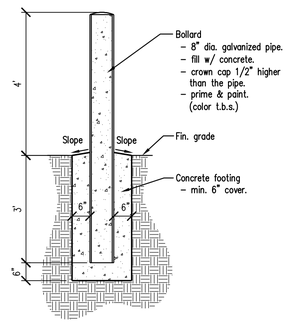
CL107.2



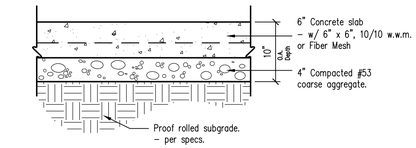




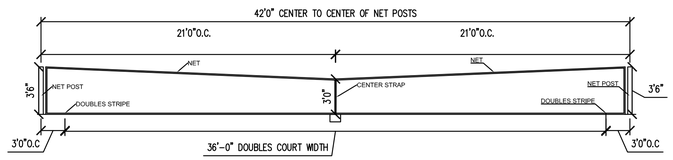
3D Crosswalk Detail
Scale: 1/8"=1'-0"

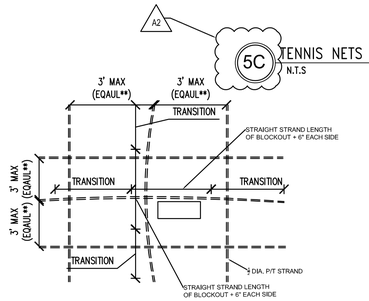


2D Pipe Bollard Detail
Scale: 1/2" = 1'-0"



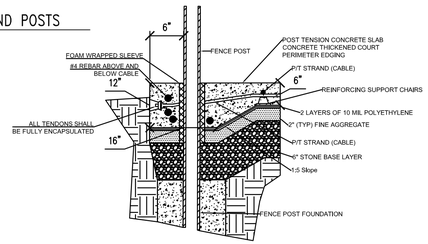
1D Heavy Duty Concrete Paving Detail
Scale: 1" = 1'-0"



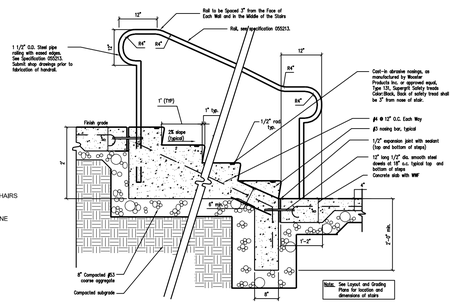


5C TENNIS NETS AND POSTS
N.T.S

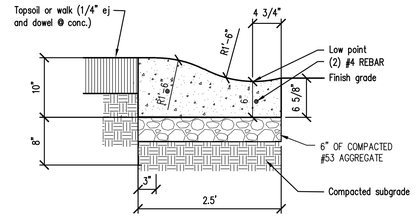
5C PT SLAB ON GRADE LAYOUT
N.T.S



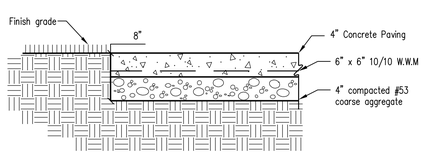
4C PT SLAB EDGE
N.T.S



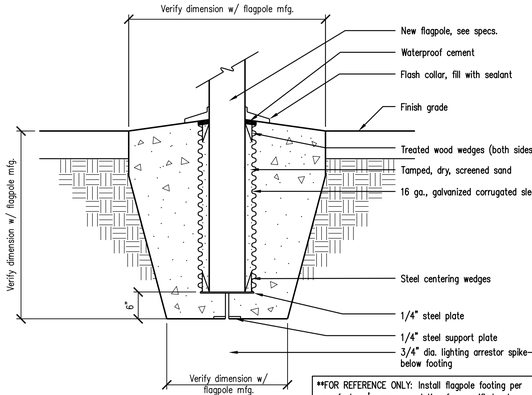
3C Typical Concrete Stair & Hand Rail Detail
n.t.s.



2C Rolled Curb Section
Scale 1"=1'-0"

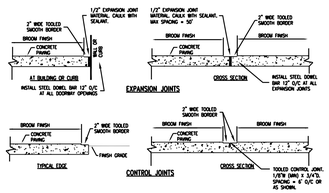


1C Standard Concrete Paving
Scale 1"=1'-0"

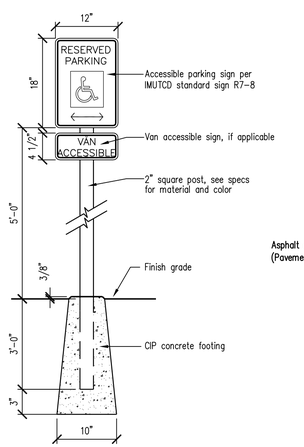


**FOR REFERENCE ONLY: Install flagpole footing per manufacturer's recommendation for specified pole.

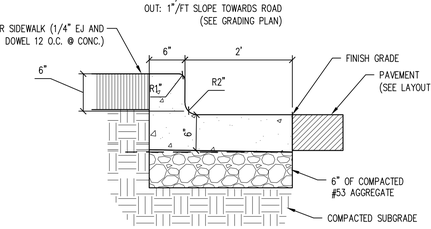
4B Flagpole Footing Detail
Scale: 1" = 1'-0"



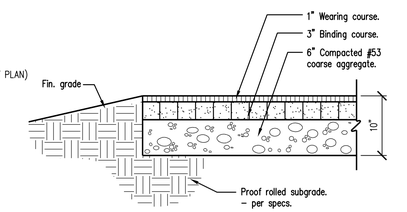
3B Concrete Finishing Detail
Scale: 1" =1'-0"



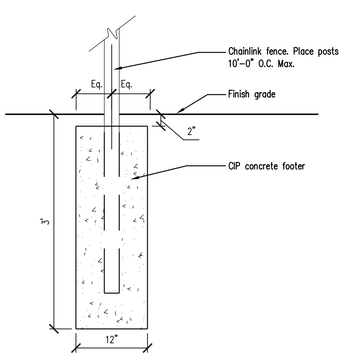
3A Accessible Parking Sign Detail
Scale:1"=1'-0"



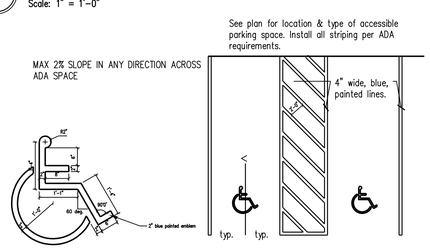
2B Curb and Gutter
Scale 1" = 1'-0"



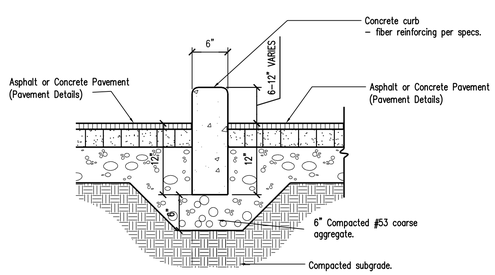
1B Standard Asphalt Paving Detail
Scale: 1" = 1'-0"



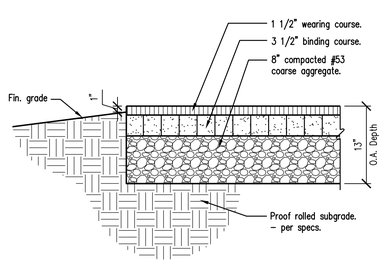
5A Fence Post Footing Detail
Scale: 1" = 1'-0"



4A ADA Pavement Markings
Scale: NTS



2A Curb Detail
Scale: 1" = 1'-0"



1A Heavy Duty Asphalt Detail
Scale: 1" = 1'-0"

SCHMIDT
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KYLE E. MILLER REGISTERED NO. 19900465 STATE OF INDIANA PROFESSIONAL ENGINEER

#	Revision	Date
A2	ADDENDUM #2	11.29.2021

1801 East 86th Street
Indianapolis, IN 46240

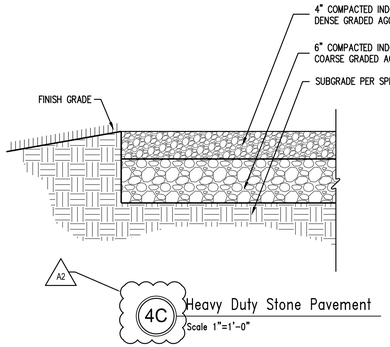
KEY PLAN

MSD of Washington Township

North Central High School Renovation Phase 2

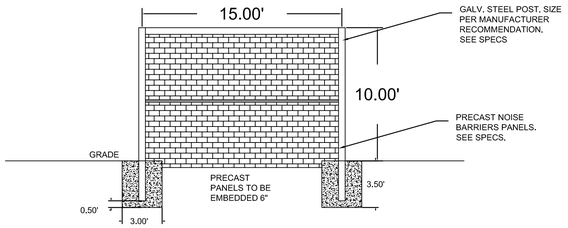
SITE LAYOUT DETAILS

CL501.2



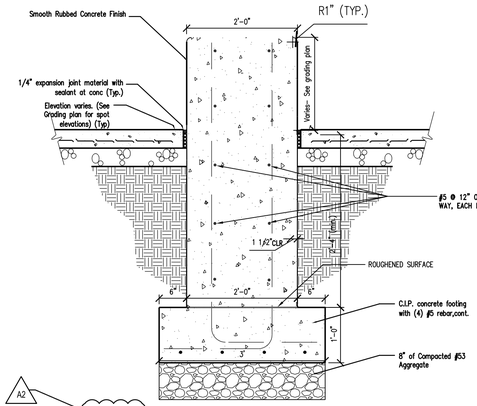
Heavy Duty Stone Pavement

Scale 1"=1'-0"



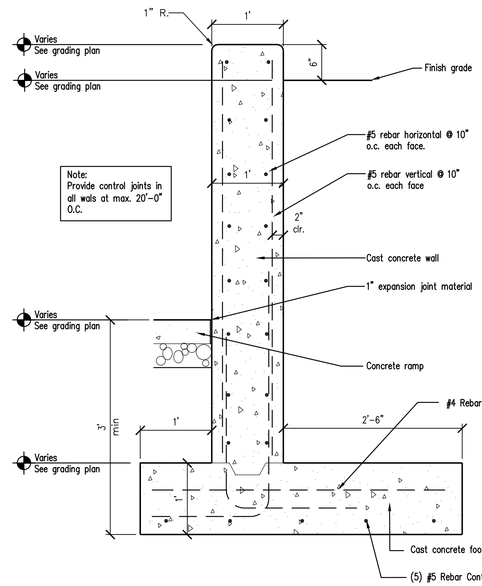
PRECAST SOUND WALL

NTS



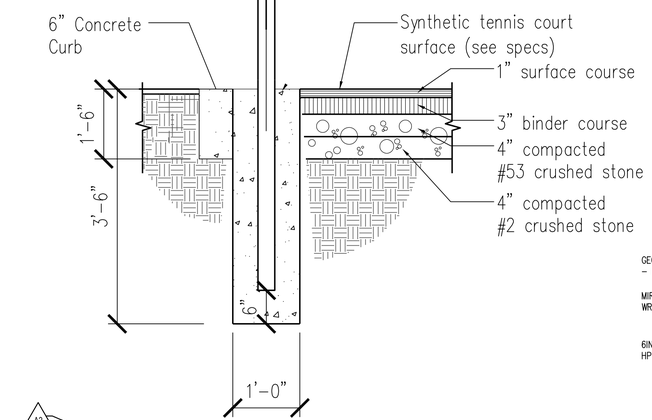
Concrete Seatwall

N.T.S.



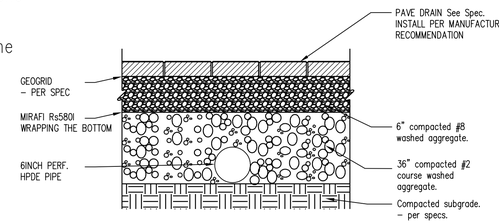
Concrete Retaining Wall

Scale: 1"= 1'-0"



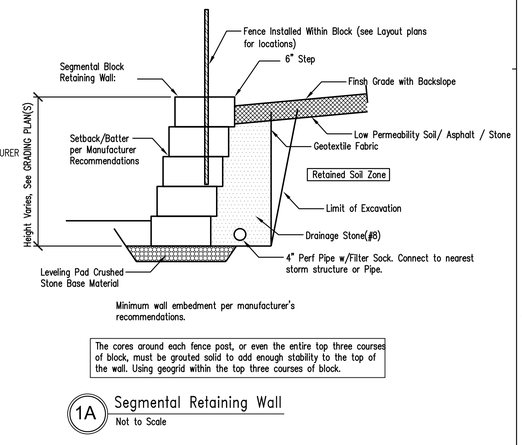
Tennis Court Section Detail Quick start Courts

Scale: 1" = 1'-0"



Paver Detail

Scale: 1" = 1'-0"



Segmental Retaining Wall

Not to Scale

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#	Revision	Date
A2	ADDENDUM #2	11.29.2021

1801 East 86th Street
Indianapolis, IN 46240

KEY PLAN

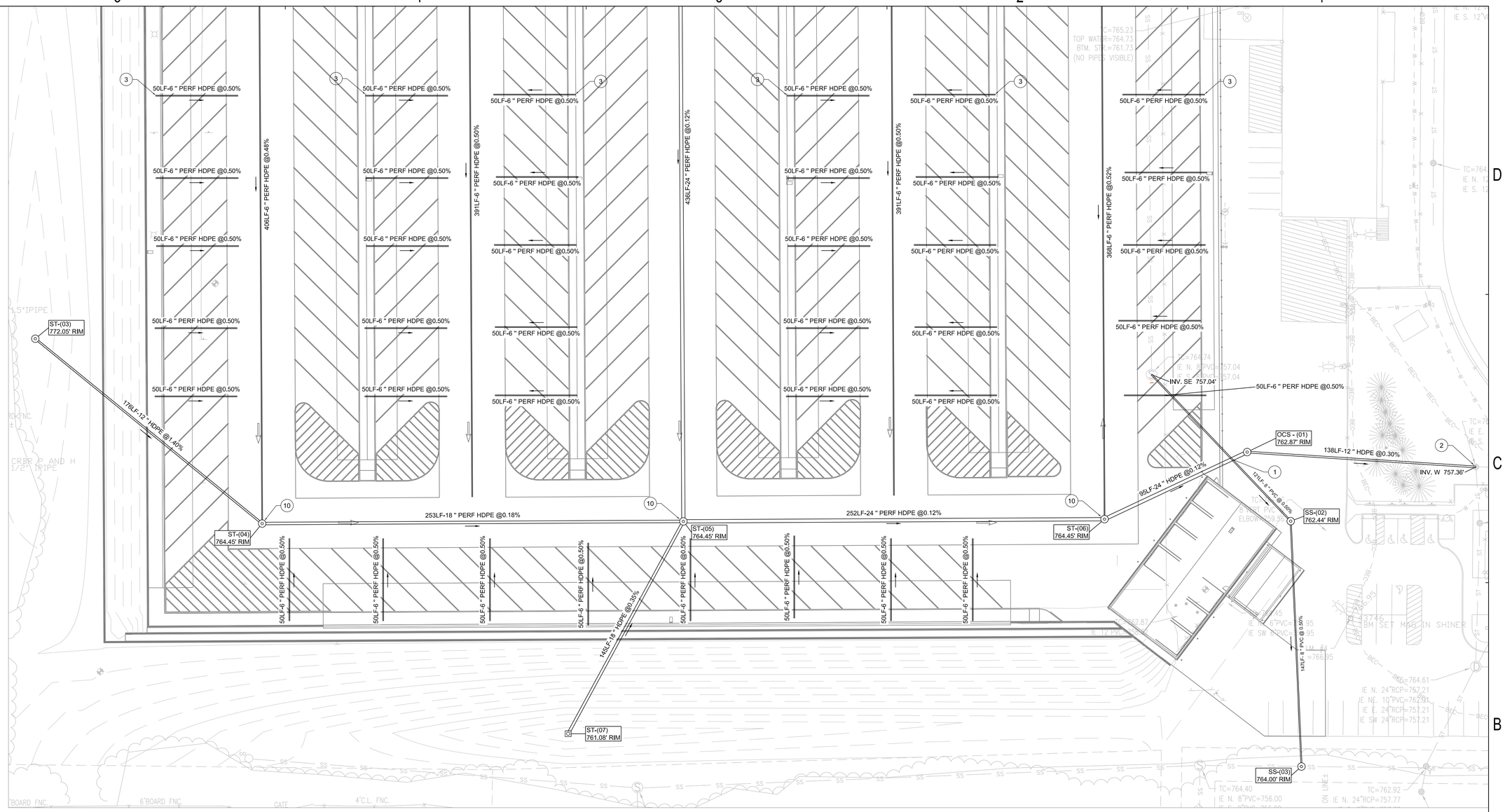
N

MSD of Washington Township

North Central High School Renovation Phase 2

SITE LAYOUT DETAILS

CL502.2



GENERAL UTILITIES NOTES

1. IF THE LOCAL BENCHMARK(S) WILL BE DISTURBED DURING CONSTRUCTION, IT THE CONTRACTOR'S RESPONSIBILITY TO ESTABLISH ADDITIONAL BENCHMARKS AS NEEDED.
2. ALL LIDS, CASTINGS, GRATES, BOXES, AND HATCHES ASSOCIATED WITH EXISTING UTILITY STRUCTURES THAT ARE NOT INDICATED FOR MODIFICATION SHALL BE MAINTAINED AND PROTECTED DURING CONSTRUCTION.
3. COMPACTED GRANULAR BACKFILL IS REQUIRED FOR ALL UTILITY TRENCHES LOCATED UNDER PAVED AREAS. SEE SPECIFICATIONS.
4. PIPE LENGTHS INDICATED ON THE DRAWINGS ARE FOR HYDRAULIC CALCULATION PURPOSES ONLY. CONTRACTOR IS RESPONSIBLE FOR FURNISHING THE AMOUNT OF PIPE MATERIALS NECESSARY FOR A COMPLETE INSTALLATION.
5. ALL EXISTING PIPES INVERTS ARE APPROXIMATE. VERIFY ALL INVERTS IN FIELD. IF INVERTS DO NOT MATCH THE PLAN, CONTACT THE ARCHITECT.
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9. MINIMUM 10' HORIZONTAL AND 18" VERTICAL OF SEPARATION BETWEEN SANITARY AND WATER LINES IS REQUIRED

UTILITY LEGEND

- 50LF-6 " HDPE @0.50% — PIPE
- WV — WATER VALVE
- FIRE HYDRANT
- MANHOLE
- END SECTION
- BOX STRUCTURE
- DOWNSPOUT BOOT
- CLEAN OUT
- ST-XXX / XXX.XX' RIM / INV. N XXX.XX' — STORM NETWORK
- SS-XXX / XXX.XX' RIM / INV. N XXX.XX' — SANITARY NETWORK

1A UTILITY PLAN
1" = 30'

UTILITIES KEY NOTES

1. UTILITIES CROSSING. SEE DETAIL SHEET
2. CONNECT TO EXISTING STRUCTURE.
3. NEW DOWNSPOUT BOOT AND PIPE TO CONNECT TO CANOPY. DOWNSPOUT WILL BE DETERMINED DURING SUBMITTAL PROCESS. FIELD VERIFY LOCATIONS BEFORE INSTALLING.
4. CONNECT TO EXISTING SANITARY LINE. CREATE WYE CONNECTION. SEE DETAIL SHEET.
5. NEW FIRE HYDRANT AND WATER VALVE. SEE DETAIL SHEET.
6. NEW UNDERGROUND DETENTION STORAGE SYSTEM. SYSTEM TO BE 48"CMP WITH 60,293 CUFT
7. 271LF OF TRENCH DRAIN. TRENCH DRAIN TO BE ABT PDX08 8" PRECAST WITH E-COATED FRAME AND UNCOATED DUCTILE IRON GRATE (HD HEEL PROOF/ADA) INSTALL PER MANUFACTURER RECOMMENDATIONS. CONNECT TRENCH DRAIN TO STORM STRUCTURES
8. WET TAP EXISTING WATER LINE AND INSTALL NEW WATER VALVE. SEE DETAIL SHEET.
9. NEW GAS LINE. GAS LINE TO BE INSTALLED BY UTILITY COMPANY. COORDINATE INSTALL WITH UTILITY COMPANY.
10. INSTALL 5'X5' CONCRETE COLLAR AROUND CASTING
11. RESET CASTING TO GRADE. INSTALL CONCRETE COLLAR AROUND CASTING

A2

SCHMIDT
ASSOCIATES
415 Massachusetts Avenue
Indianapolis, IN 46204
www.schmidt-arch.com

Project No. 2019-067.NCH
Project Date 11.01.2021
Produced RR

KYLE E. MILLER REGISTERED NO. 19900465 STATE OF INDIANA PROFESSIONAL ENGINEER

#	Revision	Date
A2	ADDENDUM #2	11.29.2021

1801 East 86th Street
Indianapolis, IN 46240

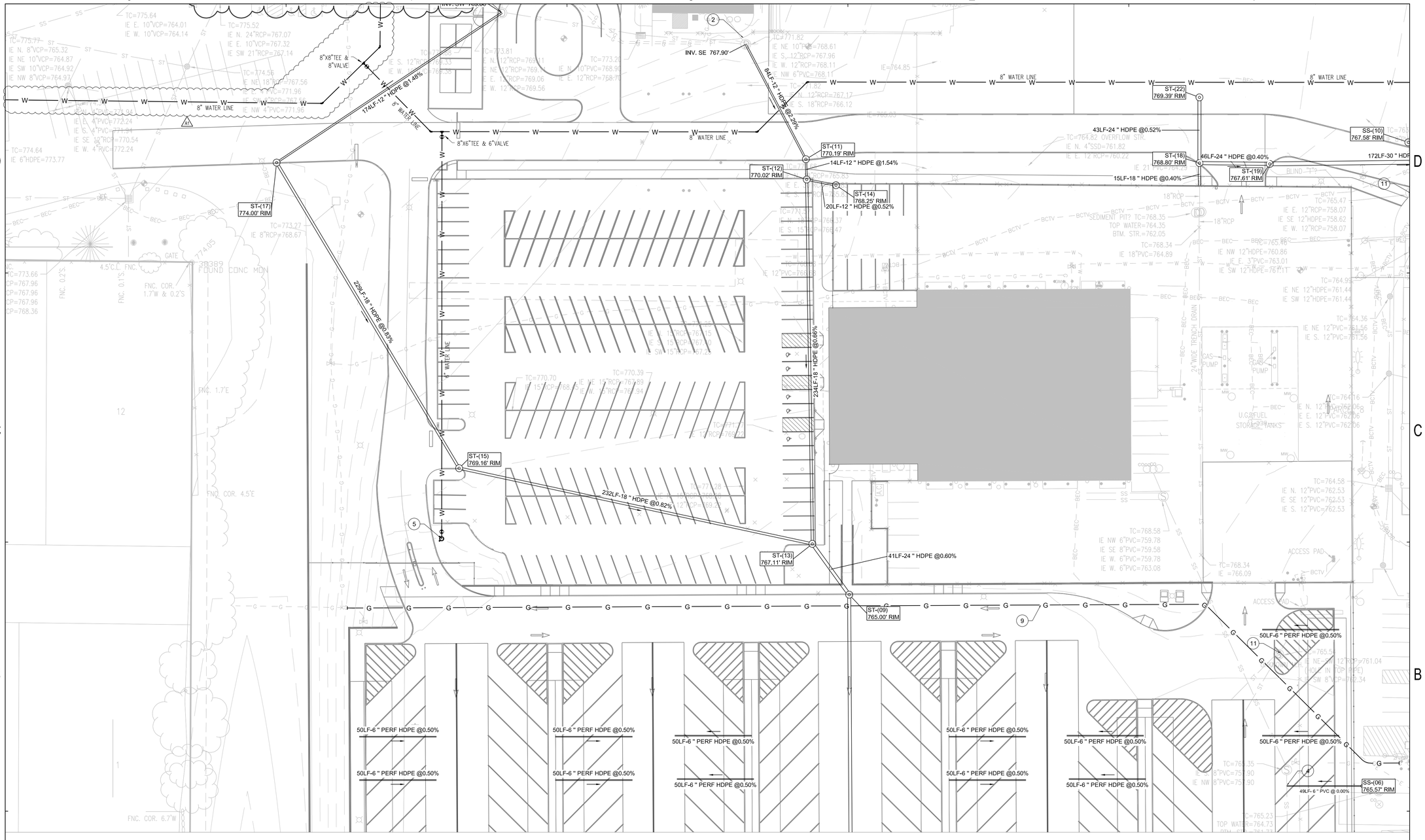
KEY PLAN

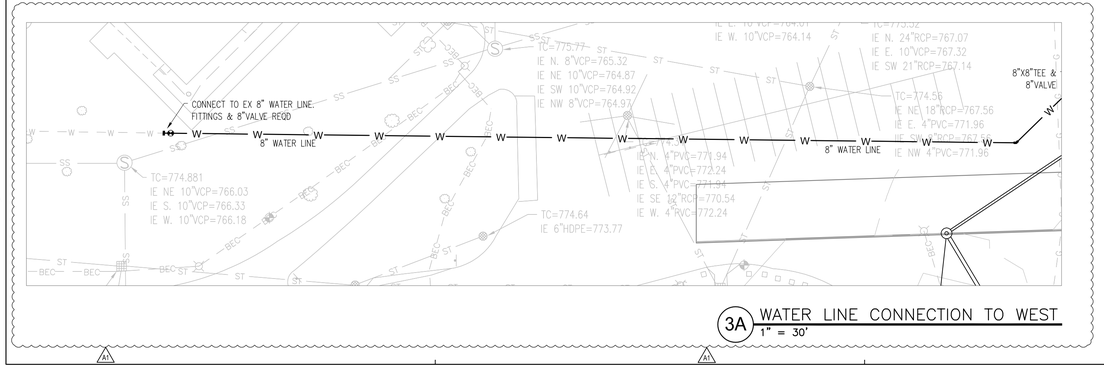
MSD of Washington Township

North Central High School Renovation Phase 2

UTILITY PLAN

CU101.2





3A WATER LINE CONNECTION TO WEST
1" = 30'

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#	Revision	Date
A1	ADDENDUM 1	11.18.2021

A2 ADDENDUM #2 11.29.2021

1801 East 86th Street
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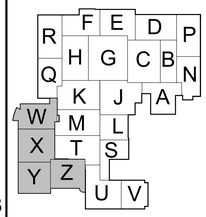
KEY PLAN

MSD of Washington Township

North Central High School Renovation Phase 2

UTILITY PLAN

CU102.2



GENERAL NOTES

GN-1 As used in these General Notes:
"Drawings" means the latest structural design drawings, uno.
"Specifications" means the latest project specifications, uno.
"Contract Documents" is defined as the design drawings and the specifications.
"SER" is defined as the structural engineer of record for the structure in its final condition.
"Design Professionals" is defined as the owner's architect
"MEP" includes, but id not limted to Mechanical, Electrical, Plumbing, Fire Protection.
"Contractor" is defined to include any of the following: General Contractor and their Subcontractors, Construction Manager and their Subcontractors, Structural Steel Fabricator or Structural Steel Erector.
"Base Building Structure" is defined as the structural frame desinged by JQOL Global LLC.
"Structure in its final condition" means all structural elements shown on the structural contract documents are installed and completely connected and inspected with no outstanding non-comliance issues.

GN-2 The Contractor is solely responsible for the stability of the structure until the construction of the structure reaches its final condition.

GN-3 The Contractor is responsible for coordination of the Structural work with the Architectural, Civil, MEP contract documents, as well as any other applicable trades. The architectural, mechanical, electrical and plumbing aspects are not in the scope of these drawings. Therefore, all required materials and work may not be indicated. Refer to architectural drawings for all dimensions not shown on these drawings. Locations, sizes and numbers of all openings may not be completely indicated in the structural drawings. The respective contractor shall verify their work with all other disciplines.

GN-4 The contractor is solely responsible for the design, installation, and removal of temporary bracing and construction supports, for new and existing structures, as necessary to complete the project. No portion of the project while under construction is intended to be stable in the absence of the contractor's temporary supports and braces. Contractor shall retain a structural engineer licensed in the state in which the project is located to design temporary bracing and construction supports.

GN-5 The contract documents represent the structure only. They do not indicate the method of construction. The contractor shall provide all measures necessary to protect the structure during construction. Such measures shall include, but not limited to, bracing, shoring, underpinning, etc. the Engineer of Record is not responsible for the contractor's means, methods, techniques, sequences or safety procedures during construction.

GN-6 The specifications are an integral part of the contract documents and shall be used in conjunction with the structural drawings.

GN-7 The contractor shall verify all existing dimensions and conditions and coordinate with the structural drawings, architectural drawings, drawings from other consultants, project shop drawings and field conditions.

GN-8 Apply details, sections, and notes on the drawings where conditions are similar to those indicated by detail, detail title or note.

GN-9 Only use dimensions indicated on the drawings. Do not scale drawings.

GN-10 Assume equal spacing between established dimensions, if not indicated on drawings.

GN-11 Centerlines of columns and foundations coincide with grid line intersections, uno.

GN-12 Centerlines of grade beams and walls coincide with centerlines of foundations, uno.

GN-13 Centerlines of framing members coincide with column centerlines, uno.

GN-14 The contractor shall verify that construction loads do not exceed the capacity of the structure at the time the load is applied.

GN-15 Reactions and forces indicated are unfactored, Allowable Strength Design (ASD) loads.

GN-16 If Drawings and specifications are in conflict, the most stringent restrictions and requirements shall govern.

GN-17 Notes and details shall take precedence over general structural notes. Where no details or sections are shown, construction shall conform to similar work on the project. Typical sections and details may not be cut on the plans, but apply unless noted otherwise.

GN-18 Verify all existing conditions prior to any construction or fabrication. If different than shown, notify engineer/architect immediately for modification of drawings.

GN-19 Provisions for future expansion:
Horizontal: None
Vertical: None

CODES AND DESIGN CRITERIA

CD-1 CODES

Building Code:	2012 International Building Code
Local Building Code:	Indiana Building Code 2014
Code Standard:	ASCE 7-10
Steel Standard:	AISC 360-10 ASD
Steel Seismic Standard:	AISC 341-10 ASD
Concrete Standard:	ACI 318-11
Masonry Standard:	TMS 402/602-11
Wood Standard:	AITC/APA/NDS Current Ed.
Risk Category:	III
Exposure Category:	C

CD-2 ROOF LOADS	Dead	Live	Snow
Main	20 psf	25 psf	20 psf + DRIFT
Bus Canopies	10 psf	25 psf	20 psf

CD-3 FLOOR LOADS	Dead	Live	Partition
Main	20 psf	100 psf	20 psf
2nd Floor Corridors	60 psf	80 psf	20 psf
Mechanical	60 psf	150 psf	
Storage	60 psf	125 psf	

CD-4 SOILS

Soils Report:	PSI Project Number: 00161395	
Date:	May 10, 2021	
	Spread	Wall
West Gym Allowable Bearing Pressure, qa:	2400 psf	2400 psf
Bus Canopies Allowable Bearing Pressure, qa:	2300 psf	2300 psf
Soil Density, yt:	120 pcf	
Minimum Foundation Bearing Depth:	30 in	

CD-5 SLAB ON GRADE

Compacted Fill Thickness	6 in
Compaction Specification:	95% Modified Proctor D-1557

CD-6 SNOW DESIGN CRITERIA

Ground Snow Load, Pg:	20 psf	
Flat Roof Snow Load, Pf:	22 psf	
Minimum Snow, Pm:	20 psf	
Importance Factor, Is:	1.1	
Exposure Factor, Ce:	1.0	Partially
Thermal Factor, Ct:	1.0	Heated
Warm Slope Factor, Cs:	1.0	

CD-7 WIND DESIGN CRITERIA

Ultimate Wind Speed, Vult:	120 mph
Design Wind Speed, Vasd:	90 mph
Enclosure Class (West Gym):	Enclosed
Enclosure Class (Bus Canopies):	Open
Internal Pressure Coefficient, GCpi:	0.18

CD-8 SEISMIC DESIGN CRITERIA

Importance Factor, Ie:	1.25
Ss:	0.15
S1:	0.083
SDS:	0.16
SD1:	0.132
Site Class:	D
Seismic Design Category:	B
Overstrength Factor, Ω:	3
Seismic Response Coefficient, CS:	0.08
Response Modification Coeff., R:	3
Unfactored Design Base Shear, V:	8% * W
Analysis Procedure:	ELFA
Basic Seismic-Force-Resisting System:	H. Steel Systems not Specifically Detailed for Seismic Resistance 1. Steel Systems, R=3

010002 EXISTING STRUCTURE NOTES

ES-1 The actual existing structure configuration, member sizes, etc. has not been field verified.
ES-2 All existing structure indicated is for reference only.
ES-3 Field verify existing structure. If existing structure varies from configuration, sizes, etc. from drawings, notify engineer of record immediately.
ES-4 Existing structural information has been obtained from drawings prepared by EVERETT I. BROWN COMPANY, dated 1961.

014000 DELEGATED DESIGN

SSE-1 DELEGATED DESIGN REQUIREMENTS
A Specialty Structural Engineer (SSE), registered in the state of the project, shall be responsible for the structural design of the following products and systems complying with specific performance and design criteria indicated.

1. Precast Concrete and Connections
2. Metal Pan Stairs and Connections
3. Structural Steel Bus Canopies, Connections, and Elements Associated with Canopy Designs.

SSE-2 The contractor is to review each submittal prior to forwarding to architect and structural engineer. The contractor is to stamp each submittal verifying that the following is addressed:
1. The shop drawing is requested.
2. The shop drawing is based on the latest design.
3. The architect' s and structural engineer' s comments from any previous submittals are addressed.
4. The work is coordinated among all construction trades.
5. Revisions from previous submittals are clearly marked by circling or clouds.
6. Submittal is complete.
7. Submittal does not include substitution request
8. Submittal shall include a stamp indicating project name and location, submittal number, specification section number.

The structural engineer shall return, without comment, submittals which the contractor has not stamped or which do not meet the above requirements. The structural engineer' s review of submittals shall be for general conformance with the design intent. No work shall be started without such review.

SSE-3 The structural engineer will return the shop drawing items within ten working days after having received the reproducible shop drawing.

017900 DEMOLITION NOTES

DE-1 All shoring shall be in place before demolition begins.

DE-2 It is the Contractor's responsibility to select the appropriate shoring system for the loads and work indicated.

DE-3 Reactions and forces indicated for shoring are actual, working loads.

DE-4 If Drawings and specifications are in conflict, the most stringent restrictions and requirements shall govern. Contractor shall bring all discrepancies to the attention of the engineer immediately.

DE-5 Verify all existing conditions prior to any demolition, construction or fabrication. If different than shown, notify engineer/architect immediately for modification of drawings.

DE-6 All contractors are required to coordinate their work with all disciplines to avoid conflicts. The architectural, mechanical, electrical and plumbing aspects are not in the scope of these drawings. Therefore, all required materials and work may not be indicated. It is the contractor's responsibility to coordinate these drawings with all other construction documents. Refer to architectural drawings for all dimensions not shown on these drawings. Locations, sizes and numbers of all openings may not be completely indicated in the structural drawings, the respective contractor shall verify their work with all other disciplines.

DE-7 The contract documents represent the structure only. They do not indicate the method of demolition, shoring or construction. The contractor shall provide all measures necessary to protect the structure during demolition and construction. The Engineer of Record is not responsible for the contractor's means, methods, techniques, sequences or safety procedures during construction.

020000 SHALLOW FOUNDATION AND SLAB ON GRADE NOTES

SF-1 Soil to be stripped, compacted and tested in accordance with the recommendations of the soils engineer and project specifications.

SF-2 Footings shall be placed on firm, undisturbed soil or on engineered fill. Engineered Fill: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940; with at least 90 percent passing a 1-1/2-inch sieve and not more than 12 percent passing a No. 200 sieve.

SF-3 Slabs shall be placed on 6" compacted, free-draining, frost-free drainage course. Drainage Course: Narrowly graded mixture of washed crushed stone, or crushed or uncrushed gravel; ASTM D 448; coarse-aggregate grading Size 57; with 100 percent passing a 1-1/2-inch sieve and 0 to 5 percent passing a No. 8 sieve. All fill shall be compacted to a minimum dry density of 95% of the standard Proctor maximum dry density (ASTM-D698), placed in 6" to 8" lifts. Pea gravel may not be used as fill. Utility trenches and excavations under the foundations or slabs shall meet the same requirements. See soils investigation report for further recommendations.

SF-4 Undercutting of the soil for foundation and/or slab placement may be required. These drawings do not indicate the entire scope of undercutting, fill or bad soil removal that may be required to attain the design soil bearing pressures. It is the responsibility of the contractor to obtain a soils investigation report, before bidding, to assess the extent of excavation and compaction that may be required to meet the design criteria. The contractor shall retain the services of a soils engineer to monitor all backfilling operations and to inspect footing bearing material. A report certified by the soils engineer shall be furnished to the architect/engineer verifying that all foundations were placed on a material capable of sustaining the design bearing pressures.

SF-5 If dewatering is required, sumps shall not be placed within the foundation excavation.

SF-6 Maintain a maximum slope between adjacent footing bearing elevations of 2 horizontal to 1 vertical. Maintain a 2 horizontal to 1 vertical slope next to existing foundations to avoid undermining foundations.

SF-7 No horizontal joints are permitted in any foundation. Vertical joints are permitted only in wall footings.

SF-8 Shallow foundations may be earth-formed where the excavation permits. If earth-forming is used, add 2" to the width and length of all foundations.

SF-9 The bottom of all foundations shall be a minimum of 30" depth below final grade.

316329 DRILLED CAISSON NOTES

DC-1 Contractor shall base bids on the indicated number, diameter, and desig length of caissons.
Pile contractor shall submit with bid that the contractor has the technical qualifications, experience, trained personnel and facilities to install caissons as indicated.

DC-2 Submit to the structural engineer the proposed concrete mix design for review prior to commencement of caisson placement operations

DC-3 Locate exisitng underground utilities prior to installing caissons. If adjacent are to remain in place, provide protection from damage during caisson operations. Should uncharted or incorrectly charted utilities be encountered during excavation, adapt installation procedure, if necessary, to prevent damage to utilities. Cooperate with owner and utility companies in keeping services and facilities in operation without interruption. Repair damaged utilities to satisfaction of utility owner.

DC-4 Protect structures, utilities, sidewalks, pavements, ad other facilities from damage caused by caisson installation operations. Contractor shall utilize temporary casings as required during construction, drilling, and installation of caissons.

DC-5 Engage a qualified land surveyor or professions engineer to perform surveys, layouts, and measurements for caissons.

DC-6 Record and maintain detailed information pertinent to each caissonand coordinate with independent testing and inspecting agency to provide data for required reports.

DC-7 Install caissons to depths and elevations indicated. Cast tops of caissons square with caisson axis. Use bar spacers to center reinforcing bars and properly position for embedment in pile caps and grade beams.

DC-8 Install caissons to the following tolerances:

Horizontal: Maximum 3 inches from design location.
Top of caisson: Maximum 1 inch from design top elevation
Plumbness: Maximum 2 percent from plumb

DC-9 All drilled piers hall meet or exceed the following minimum criteria, unless noted.
Capacities shown are ASD (working)

Minimum Diameter:	24 in
Allowable soil bearing capacity:	2,300 psf
Minimum 28 day compressive concrete strength =	4,000 psi
Base bid drilled pier length =	20 ft

DC-10 Provide steel reinforcement for all drilled piers, ASTM A615, grade 60.

DC-11 Extend all drilled piers into bottom of cap, grade beam or foundation 6".

DC-12 Contractor shall have a geotechnical engineer on site to keep drilled pier logs and verify pier capacities. All logs and reports shall be certified by the soils engineer and copies provided to the architect and engineer. The independant geotechnical engineer shall continuously inspect all caisson operations verifying adequacy of installer's construction methods, equipment, standards of workmanship, and tolerances. The caisson contractor shall cooperate with the inspector in the performance of the caisson work. The inspector shall immediately notify the owner, caisson contractor, and structural engineer if any caisson is not in conformance with the design documents.If the structural engineerdeems that modifications or additional caissons are required, the cost of modifying, removing, and replacing caissons that are not in conformance shall be borne by the caisson contractor, at no additional cost to the owner.Abandoned caissons shall be cut off a minimum of 12 inches below the bottom of the caisson cap and will not be paid for by the owner.

A2.2

033000 CAST IN PLACE CONCRETE NOTES (Foundations, Slabs, & Walls)

RC-1 All concrete shall have the following 28 day compressive strengths:

STRENGTH	LOCATION
4000 psi-0% AE	All foundations and footings
4000 psi-6% AE	Exterior slabs, piers, walls, columns, grade beams and concrete exposed to freezing
4000 psi-0% AE	Interior slabs, fill for metal deck and all other interior concrete

RC-2 All reinforcing shall conform to the following concrete cover:

COVER	LOCATION
3"	Foundations & Footings: All surfaces; Exterior Slabs: Bottom; Grade Beams & Trench Footings: All surfaces; All concrete cast against soil.
2"	Exterior Walls, All Piers & All Pilasters: All surfaces; Exterior Slabs: Top; All exterior concrete
1 1/2"	Interior beams & columns: All surfaces; All concrete not exposed to weather or in contact with ground.
3/4"	Interior slabs, Walls & joists

RC-3 Welded Wire Reinforcement (WWR) for slabs and fill for metal deck shall be placed in the upper-third of the slab or fill. See details.

RC-4 All reinforcing steel shall be detailed, supplied and placed in accordance with ACI 315, ACI 318 and CRSI MSP-1.

RC-5 All reinforcing steel shall be shop fabricated and, where applicable, shall be wired together and conform to ASTM A-615, Grade 60.

RC-6 Chamfer edges of exposed concrete 3/4", unless noted otherwise.

RC-7 Contractor shall make four, 6"x12" test cylinders for each 50 cubic yards of concrete poured for each days operation. Break 1 at 7 days, 2 at 28 days and retain spare.

RC-8 All welded wire fabric shall conform to ASTM A1064, Fy(min) of 65 ksi. All welded wire fabric laps shall be 8".

RC-9 All finished concrete, concrete formwork and falsework shall be in accordance with ACI 301. Contractor is solely responsible for the design and construction of all formwork, falsework and shoring.

RC-10 Provide sleeves for all openings in grade beams or walls to totally separate pipe from concrete.

RC-11 Foundations may be earth-formed where the excavation permits. If earth-forming is used, add 2" to the width, length & thickness of all foundations.

RC-12 Plastic Vapor Retarder: ASTM E 1745, Class A, not less than 10 mils (0.25 mm) thick, see specifications. Include manufacturer's recommended adhesive or pressure-sensitive joint tape.

RC-13 Adhesive Anchors and Adhesives Used for Reinforcing Anchorage:
1. The adhesive anchor system used for post-installed anchorage to concrete shall conform to the requirements of the most recently published ACI 355.4.
2. Adhesive anchors indicated are the Basis-of-Design. Approved equal meeting ACI 355.4 is permitted.
3. Bulk-mixed adhesives are not permitted.
4. Anchors shall be supplied as an entire system with manufacturer's recommendations adhered to.
5. Adhesive anchors shall be installed by qualified personnel trained to install adhesive anchors.
6. Installation of adhesive anchors horizontally or upwardly inclined shall be performed by personnel certified by the ACI/CRSI Adhesive Anchor Installer Certification program.
7. Adhesive anchors installed in horizontal or upwardly inclined orientations shall be continuously inspected during installation by an inspector specially approved for that purpose.

RC-14 Bonding agent for bonding fresh concrete to hardened concrete: ASTM C 1059/C 1059M, Type II, nonredispersible, acrylic emulsion or styrene butadiene.

034101 PRECAST CONCRETE ELEMENTS NOTES

PC-1 Delegated Design: A Specialty Structural Engineer (SSE), registered in the state of the project, shall be responsible for the structural design of all precast concrete design, products and systems complying with specific performance and design criteria indicated.

PC-2 The minimum 28 day compressive strength of all precast elements shall be 5000 psi.

PC-3 See architectural drawings for all architectural finishes, textures, reveals, etc. All embeds may not be indicated on structural drawings. See other trade drawings for required embeds.

PC-4 Coordinate with Architectural, Mechanical, Electrical, Plumbing, Civil plans for openings and penetrations to be cast into pre-cast elements.

PC-5 The layout and arrangement of all precast elements is schematic in nature and is intended to show the scope of the precast system. The precast manufacturer is responsible for the final layout, size, spacing etc. of all precast elements and connections.

PC-6 Precast connections shown are schematic in nature. Final detail and design is the responsibility of the precast manufacturer.

PC-7 The precast manufacturer or erector is responsible for all temporary bracing that may be required until the lateral load resisting systems for the building are complete and has attained their design capacity.

PC-8 All precast elements shall be capable of supporting their own weight as well as specified loadings and reactions indicated.

PC-9 If applicable, camber all beam elements per PCI standards.

042000 MASONRY AND REINFORCED MASONRY NOTES

M-1 Minimum 28 day compressive strength of concrete masonry units shall be 2800 p.s.i. based on net area of the unit. Specified design compressive strength of masonry shall be f'm = 2000 p.s.i. All units for exterior walls, load-bearing walls and shear walls shall be normal weight block.

M-2 All mortar shall be Type S. No admixtures may used unless approved by architect/engineer. Mortar shall not be used for grouting cores or filling bond beams.

M-3 Lay masonry units in running bond uno with units designed to align with webs on each course.

M-4 Course grout shall be used where grouting is required. Slump shall be 8" +/- 1". Minimum grout compressive strength shall be 3000 p.s.i.

M-5 All reinforcing shall be ASTM A615 Grade 60 (Fy=60 ksi). Lap all reinforcing a minimum of 48 bar diameters.

M-6 Center vertical reinforcing in block cores, unless noted otherwise.

M-7 See architectural and specifications for all control joint locations. Reinforcing in bond beams shall be discontinuous at control joints.

M-8 Provide ladder type horizontal joint reinforcement at 16" o.c. Side rods and cross rods shall be #9 wire, galvanized, see specifications. Cut joint reinforcement at control joints.

M-9 Provide "L" bars at all bond beam corners as required.

M-10 Fill cores of block solid with grout two full courses below the bearing of all beams or lintels supported on masonry.

M-11 All attachments to block shall be made with Hilti HLC 1/2" diameter x 3" sleeve anchors, unless noted otherwise. Anchors shall be installed per manufacturer's recommendations.

M-12 See typical schedules for masonry and steel lintels not indicated on plans.

M-13 Grout solid cores with reinforcment. Grout solid cells in below grade construction where masonry is in contact with soil.

M-14 Provide ties to all structural steel.

M-15 All interior, non-load bearing masonry walls over 12'-0" high, shall be supported on thickened slab as per typical detail. Wall vertical reinforcing shall be #5 @ 48" OC full height. Unless noted otherwise.

M-16 Place grout by low-lift method. Maximum grout pour shall be 5 feet.

042001 MASONRY ANCHORAGE NOTES

M-1 All attachments to masonry shall be made with Hilti anchors as scheduled below unless noted otherwise. Anchors shall be installed per manufacturer's recommendations.

M-2 At steel connections to masonry construction, provide the following hole diameters in steel elements to accommodate field tolerances:
1/2" anchors: 9/16" dia std, 13/16" dia w/ 1/4"x2"x2" weld washer where noted.
3/4" anchors:13/16" dia std, 1" dia w/ 3/8"x3"x3" weld washers where noted.

M-3 Where weld washers are indicated, do not weld until epoxy adhesives have fully cured. Do not apply excessive heat which may adversely affect epoxy adhesives. Weld two opposite edges of weld washer typically with 3/16" fillet weld.

M-4 Type 1-A: Grout Filled Concrete Block.
3/4"x6 5/8" embedment HIT, or A36 threaded rod, secured with Hilti HY200 epoxy.
Design values: 3740lb T, 2020lb V.
Type 1-B:Hollow Concrete Block (NW or LW).
1/2"x2"embedment Hilti HIT-A rod w/screen tube and Hilti HY20 epoxy.
Design values: 525lb T, 1230 lb V.
Type 1-C:Hollow Concrete Block Through-bolt.
3/4"x8" or 13" Hilti HIT, or A36 threaded rod, w/ Hilti HY20 epoxy, screen tube, steel sleeve, 3/8"x6"x6" plate washer.
Design values: 1400lb T, 1800lb V.
Type 1-D:Grout Filled Concrete Block.
3/4"x4-3/4" embedment Hilti Kwik Bolt 3 expansion bolt.
Design values: 1620 T, 3110 V (>16" from edges)

M-5 Type 2-A:Hollow Brick and Clay Tile.
1/2"x3-3/8" embedment Hilti HIT-A, or A36 threaded rod, w/ Hilti HY20 epoxy and screen tube.
Design values: 775lb T, 1375lb V (Brick)
150lb T, 500lb V (Clay tile)
Type 2-B:Hollow Brick and Clay Tile.
1/2"x3-3/8" embedment Hilti HIT-A, or A36 threaded rod, w/ Hilti HIT-I insert, Hilti HY20 epoxy, screen tube.
Design values:1160lb T, 1635lb V (Hollow Brick)
185lb T, 500lb V (Clay Tile)
Type 2-C:Multiwythe Brick through-bolt.
3/4"x8"embedment Hilti HIT, or A36 threaded rod, w/ Hilti HY20 epoxy, screen tube, steel sleeve, 3/8"x6"x6" plate washer.
Design values: 1400lb T, 1800lb V.
Type 2-D: Multiwythe Brick, voided wythes.
3/4"x8"embedment Hilti HIT, or A36 threaded rod, w/ Hilti HY20 epoxy, screen tube, steel sleeve.
Design values: 800lb T, 1400lb V.

051200 STRUCTURAL STEEL NOTES

SS-1 All structural steel shall conform to the following, UNO:

W Shapes	ASTM A992, Grade 50.
Angles, Channels, Plates, Bars	ASTM A36 (Fy=36 ksi)
HSS Tubes	ASTM A500, Grade C (Fy=50 ksi)
HSS Pipes	ASTM A53, Grade B (Fy=35 ksi)
Anchor Rods	ASTM F1554, Grade 36

SS-2 All steel shall be detailed, fabricated and erected in accordance with:
- AISC 360 "Specification for Structural Steel Buildings", Allowable Strength Design (ASD)
- AISC 303 "Code of Standard Practice"

SS-3 Submit connections not specifically detailed on the drawins to the SER for review prior to review of shop drawings. Where no shear is indicated on drawings design connection for minimum 10 k reaction and where no moment is indicated on drawings provide full moment capacity of member (0.9 Fy Z).

SS-4 All bolted connections shall be made with 3/4" diameter, A325 bolts with nuts and washers, unless otherwise noted. All connections shall be shear bearing connections tightened to snug-tight condition, unless otherwise noted.

SS-5 All shop and field welds shall be made using E70 electrodes or equivalent.

SS-6 Splices shall be allowed only at locations specifically indicated on the structural drawings unless approved otherwise by the SER in writting.

SS-7 For steel members and embedments exposed to weather, provide hot-dipped galvanized finish, uno.

SS-8 Provide holes in all steel as required to prevent any accumulation of water. All penetrations through main members shall not exceed 1 1/8" dia. and shall be ground smooth. These drains must be kept clean and open.

SS-9 Field modification of structural steel is prohibited without prior approval of the architect and structural engineer.

SS-10 Steel fabricator shall obtain the size and location of all openings for grilles, louvers, etc. before proceeding with the fabrication and erection of any required frames.

SS-11 Provide Heckman #129 and #130 channel slot anchors and channel slot at all columns that abut masonry walls, uno.

SS-12 Provide temporary bracing of the structure until all permanent lateral support is in place.

SS-13 Structure Stability: The entire roof and/or floor decking materials must be fully erected and connected to the supporting steel before temporary, erection bracing is removed.

SS-14 Remove erection bolts and fill holes in all exposed braces.

052100 STEEL JOIST NOTES

SJ-1 Provide all joists, bridging and accessories for the complete erection of joists in accordance with the current Steel Joist Institute "STANDARD SPECIFICATIONS AND LOAD TABLES FOR OPEN WEB STEEL JOISTS AND JOIST GIRDERS" and Underwriters Laboratories "STANDARD, FIRE TESTS OF BUILDING CONSTRUCTION AND MATERIALS".

SJ-2 Bridging shall be completely erected and joists aligned before any construction loads are placed on joists.

SJ-3 Do not weld bottom chord of joists to columns unless noted on drawings.

SJ-4 Install erection bolts at all joist girder to column and joist to column connections.

053100 STEEL DECK NOTES

MD-1 All metal deck material, fabrication and installation shall conform to Steel Deck Institute" SDI SPECIFICATIONS AND COMMENTARY" and "CODE OF RECOMMENDED STANDARD PRACTICE", Current edition, unless noted.

MD-2 FASTENING DECK
1. Roof deck shall be welded using 5/8" diameter puddle welds, 36/4 pattern with (1) #10 TEK sidelap fastener unless otherwise shown in typical detail or indicated on drawings.
2. Floor deck shall be welded using 3/4" diameter puddle welds, 36/4 pattern unless otherwise shown in typical detail or indicated on drawings.

MD-3 Provide TS 2 1/2x 2 1/2x 1/8 deck support, field welded to joist or beam at all deck span changes.

MD-4 Provide L3x3x1/4 deck support at all columns where required, unless noted.

MD-5 Provide 20 gauge cover plate at all roof deck span changes.

MD-6 Provide L3x3x1/4 at all unsupported edges of deck and around roof perimeter, unless otherwise noted.

MD-7 All deck shall be provided in a minimum of 3-span lengths where possible.

ABBREVIATIONS LIST

AR	ANCHOR RODS
ABV	ABOVE
ACI	AMERICAN CONCRETE INSTITUTE
ADD'L	ADDITIONAL
ADH	ADHESIVE
ADJ	ADJACENT
AESS	ARCHITECTURALLY EXPOSED STRUCTURAL STEEL
AFF	ABOVE FINISHED FLOOR
AGGR	AGGREGATE
AHU	AIR HANDLING UNIT
AISC	AMERICAN INSTITUTE OF STEEL CONSTRUCTION
AISI	AMERICAN IRON AND STEEL INSTITUTE
ALUM	ALUMINUM
ALT	ALTERNATE
APPROX	APPROXIMATE
ARCH	ARCHITECT
ARCH'L	ARCHITECTURAL
ASTM	AMERICAN SOCIETY OF TESTING MATERIALS
AWS	AMERICAN WELDING SOCIETY
L	ANGLE
BAL	BALANCE
BB	BOND BEAM
B/B	BACK TO BACK
BC	BOTTOM CHORD
BD	BOARD
BLDG	BUILDING
BLK	BLOCK
BLW	BELOW
BM	BEAM
BOTT	BOTTOM
BP	BEARING PLATE
BRDG	BRIDGING
BRG	BEARING
BRK	BRICK
BS	BOTH SIDES
BSMT	BASEMENT
BTWN	BETWEEN
BUC	BUILT UP COLUMN
c	CAMBER
C/C	CENTER TO CENTER
CANT	CANTILEVER
CAIS	CAISSON
CFS	COLD FORMED STEEL
CJ	CONTROL AND/OR CONSTRUCTION JOINT
CL	CENTERLINE
CLR	CLEAR
CMU	CONCRETE MASONRY UNIT
COL	COLUMN
COORD	COORDINATE
COMP	COMPACTED
CONC	CONCRETE
CONN	CONNECTION
CONST	CONSTRUCTION
CONT	CONTINUOUS
CONTR	CONTRACTOR
CTR	CENTER
CTR'D	CENTERED
DIA	DIAMETER
DIAG	DIAGONAL
DIM	DIMENSION
DL	DEAD LOAD
DLT	DEEP LEG TRACK
DO	DITTO
DN	DOWN
DTL	DETAIL
DWG	DRAWING
DWL	DOWEL
EA	EACH
EE	EACH END
EF	EACH FACE
EJ	EXPANSION JOINT
ENG	ENGINEER
ELEV	ELEVATION
ELECT	ELECTRICAL
EOD	EDGE OF DECK
EOS	EDGE OF SLAB
EQ	EQUAL
EQUIV	EQUIVALENT
ES	EACH SIDE
EW	EACH WAY
EXIST	EXISTING
EXP	EXPANSION
EXT	EXTERIOR
F/	FACE OF
FD	FLOOR DRAIN
FDN	FOUNDATION
FIN	FINISH
FLR	FLOOR
FLG	FLANGE
FS	FARSIDE
FTG	FOOTING
GA	GAUGE
GALV	GALVANIZED
GB	GRADE BEAM
GC	GENERAL CONTRACTOR
GL	GLULAM
GR	GRADE
HC	HOLLOW CORE
HD	HOLD DOWN
HGT	HEIGHT
HI	HIGH
HK	HOOK
HORIZ	HORIZONTAL
HP	HIGH POINT
HS	HEADED STUD
HSS	HOLLOW STRUCTURAL SECTION
ID	INSIDE DIAMETER
IF	INSIDE FACE
INFO	INFORMATION
INT	INTERIOR
INV	INVERT
JST	JOIST
JT	JOINT
K	KIP
KO	KNOCK OUT
LB	POUND
LDG	LEDGE
LG	LONG
LL	LIVE LOAD
LLH	LONG LEG HORIZONTAL
LLV	LONG LEG VERTICAL
LNTL	LINTEL
LSL	LONG SLOTTED HOLES
LONG	LONGITUDINAL
LP	LOW POINT
LVL	LAMINATED VENEER LUMBER
MAS	MASONRY
MAT'L	MATERIAL
MAX	MAXIMUM
MBM	METAL BUILDING MFR
MCJ	MASONRY CONTROL JT
MECH	MECHANICAL
MEZZ	MEZZANINE
MFR	MANUFACTURER
MIN	MINIMUM
MISC	MISCELLANEOUS
MO	MASONRY OPENING
MOM	MOMENT
MSW	MASONRY SHEAR WALL
MSL	MEAN SEA LEVEL
MTL	METAL
NO	NUMBER
NS	NEAR SIDE
NTS	NOT TO SCALE
O/O	OUT TO OUT
OA	OVERALL
OC	ON CENTER
OD	OUTSIDE DIAMETER
OF	OUTSIDE FACE
OH	OVER HEAD
OPNG	OPENING
OPP	OPPOSITE
OPP HD	OPPOSITE HAND
OSB	ORIENTED STRAND BOARD
OSL	OUTSTANDING LEG
OVS	OVERSIZE HOLE
PAF	POWDER ACTUATED FASTENER
PC	PRECAST
PL	PLATE
PLF	POUNDS PER LINEAR FOOT
PLYWD	PLYWOOD
PNL	PANEL
PROJ	PROJECTION
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PSL	PARALLEL STRAND LUMBER
PT	PRESSURE TREATED
PTN	PARTITION
R	RADIUS
RD	ROOF DRAIN
REF	REFERENCE
REINF	REINFORCE(D) (ING) (MENT)
REQ'D	REQUIRED
REV	REVISION/REVISED
RO	ROUGH OPENING
RRD	ROOF RELIEF DRAIN
RTN	RETURN
RTU	ROOF TOP UNIT
RW	RETAINING WALL
SCHED	SCHEDULE
SECT	SECTION
SHT	SHEET
SIM	SIMILAR
SJ	SAWCUT JOINT
SJI	STEEL JOIST INSTITUTE
SL	SLOPED
SPA	SPACE(S)
SPECS	SPECIFICATIONS
SQ	SQUARE
SS	STAINLESS STEEL
SSL	SHORT SLOTTED HOLES
STD	STANDARD
STIFF	STIFFENERS
STL	STEEL
STRUCT	STRUCTURAL
SYMM	SYMMETRICAL
T&B	TOP AND BOTTOM
T&G	TONGUE AND GROOVE
TB	TIE BEAM
TC	TOP CHORD
TCX	TOP CHORD EXTENSION
TEMP	TEMPERATURE
TF	TRENCH FOOTING
THK	THICK
THKS	THICKENED SLAB
THR'D	THREADED
TL	TOTAL LOAD
TOP'G	TOPPING
TRANS	TRANSVERSE
TYP	TYPICAL
UNO	UNLESS NOTED OTHERWISE
VERT	VERTICAL
VIF	VERIFY IN FIELD
w/	WITH
WD	WOOD
WO	WINDOW OPENING (MASONRY)
WP	WORKING POINT
WT	WEIGHT
WWF	WELDED WIRE FABRIC

ELEVATION TOP AND BOTTOM OF LIST

T/	"ELEVATION, TOP OF"
B/	"ELEVATION, BOTTOM OF"
T/BB	TOP OF BOND BEAM
T/BM	TOP OF BEAM
T/CONC	TOP OF CONCRETE
T/F	TOP OF FOOTING
T/LDG	TOP OF LEDGE
T/MAS	TOP OF MASONRY
T/P	TOP OF PIER
T/SLAB	TOP OF SLAB
T/STL	TOP OF STEEL
T/W	TOP OF WALL
T/GB	TOP OF GRADE BEAM
T/CAIS	TOP OF CAISSON
B/PL	BOTTOM OF PLATE
B/F	BOTTOM OF FOOTING

SPECIAL CHARACTERS

°	DEGREE
±	PLUS OR MINUS
⊕	ELEVATION
Ø	DIAMETER

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Project No. 2019-067.NCH
Project Date 11.01.2021
Bid Set 02
Produced DJS CDL

DYLAN SEESMAN
No. PE11900810

Dylan Seesman

#	Revision	Date
A2.2	Addendum 2	11.29.2021

1801 East 86th Street
Indianapolis, IN 46240

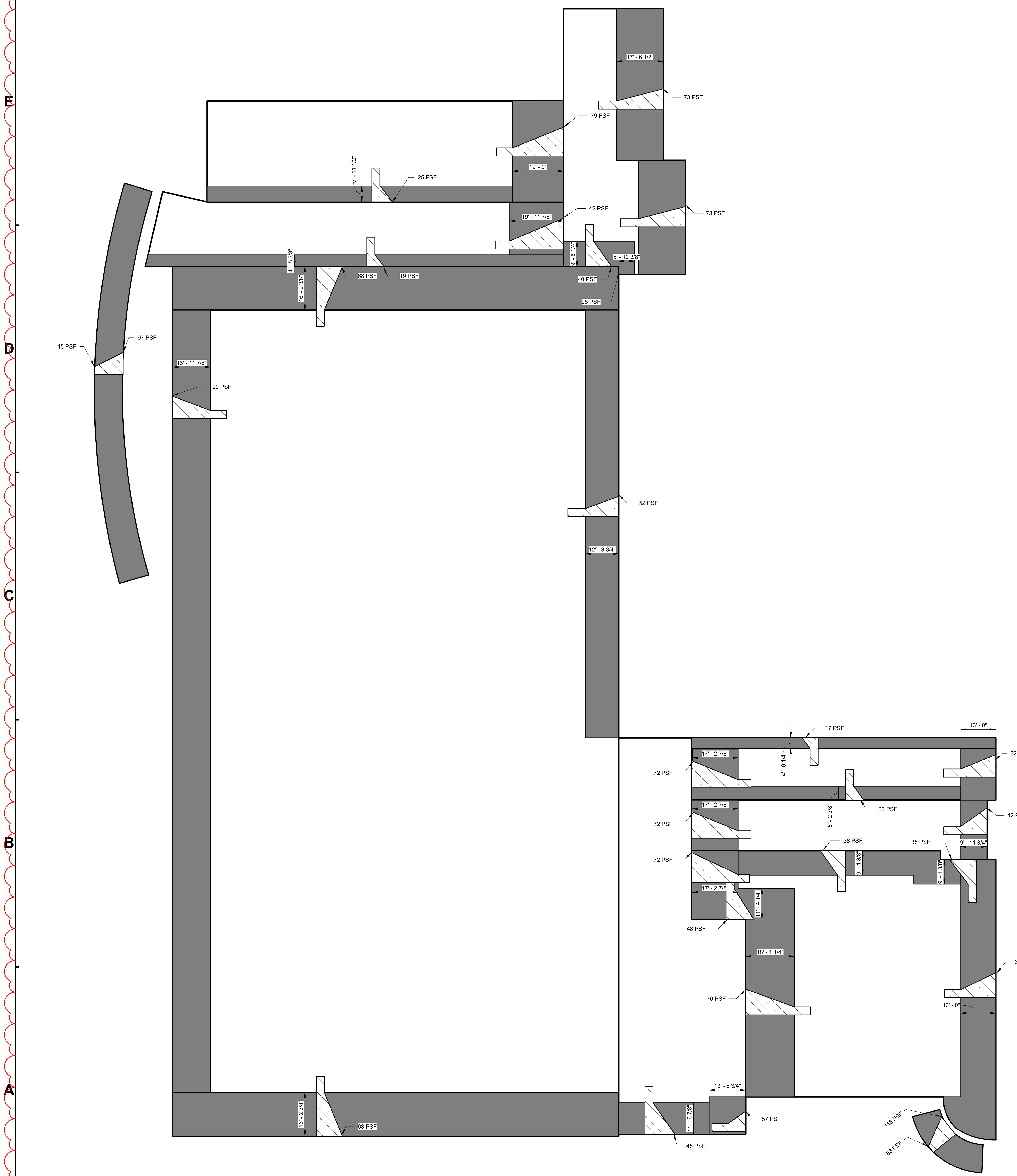
KEY PLAN

M.S.D. of Washington Township

North Central High School Renovation - West Gym Addition

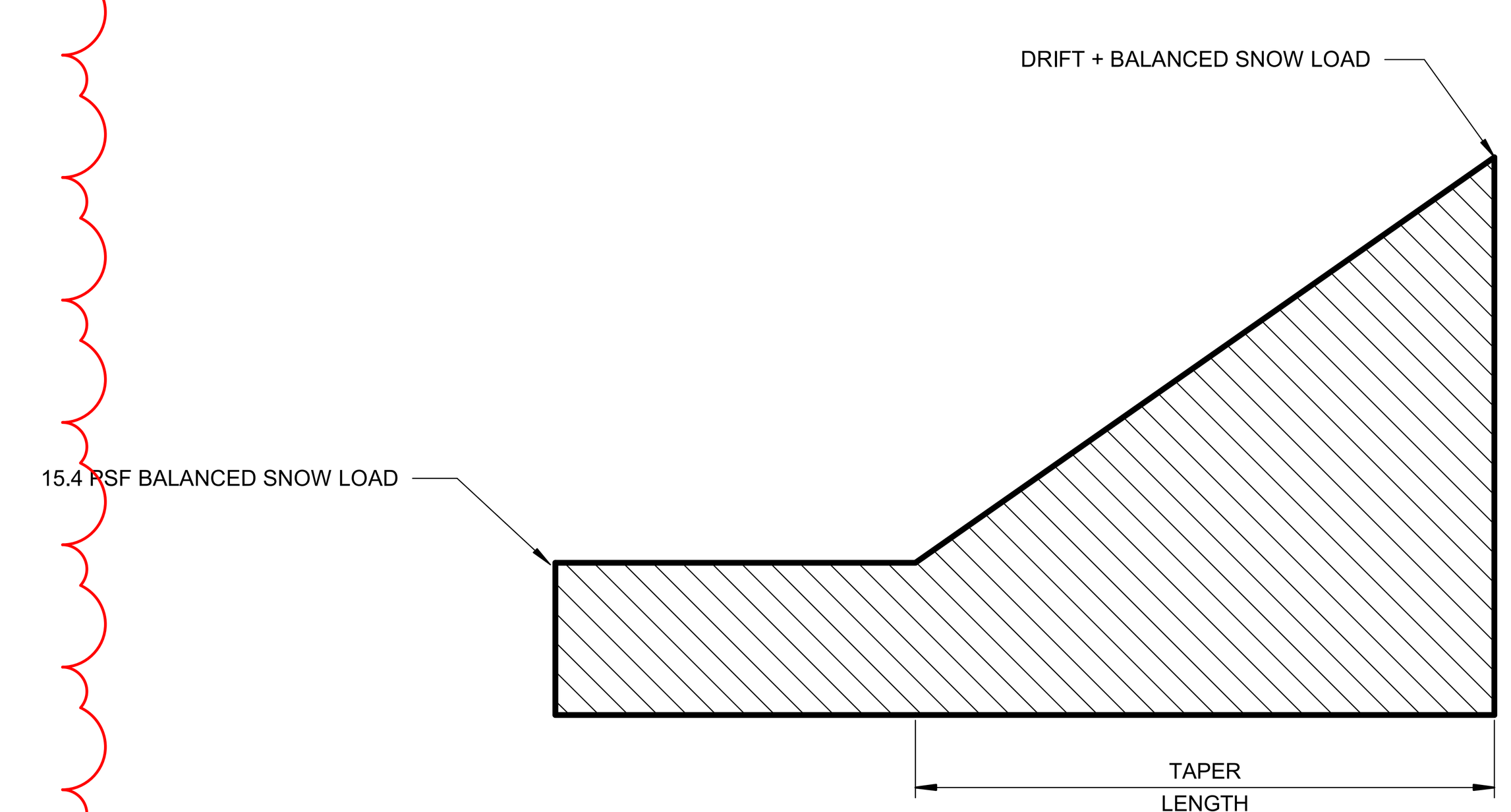
GENERAL NOTES SCHEDULES

S-001.2



SNOW DRIFT PLAN

SCALE: NTS



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Project No. 2019-067.NCH
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DYLAN SEESMAN REGISTERED No. PE11900810 STATE OF INDIANA PROFESSIONAL ENGINEER

#	Revision	Date
A2.2	Addendum 2	11.29.2021

1801 East 86th Street
Indianapolis, IN 46240

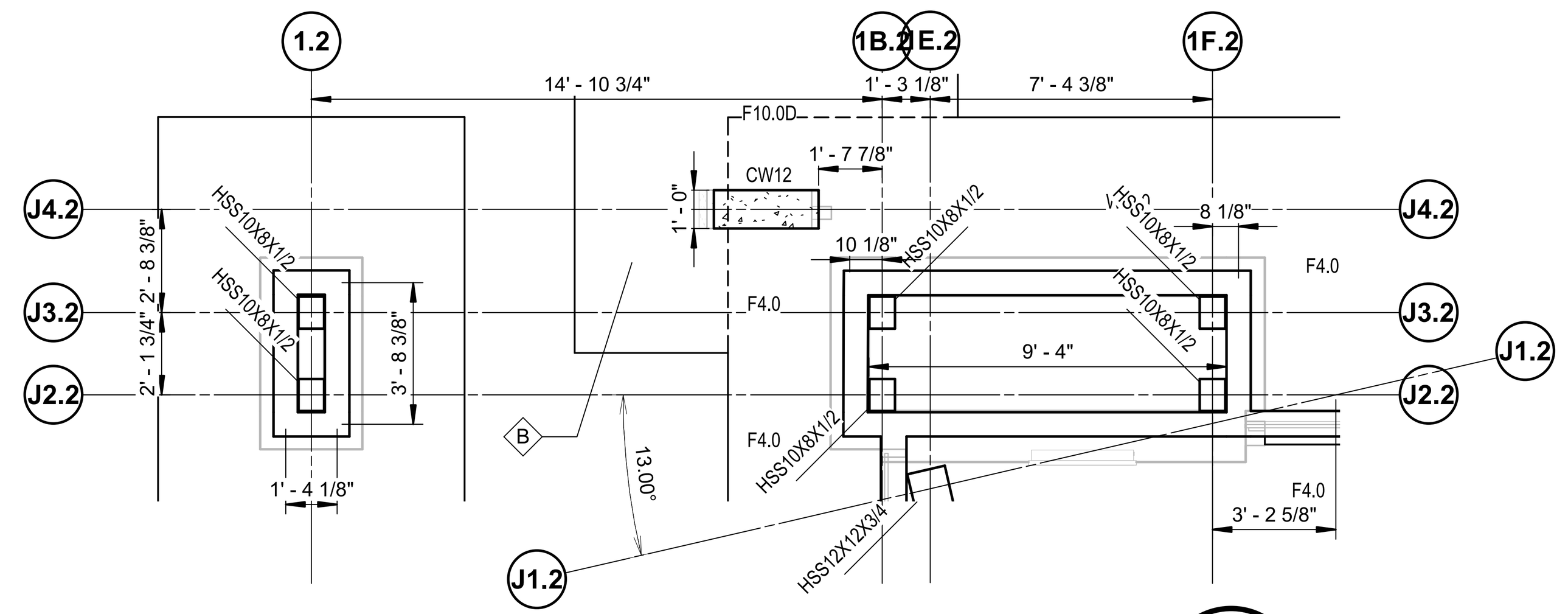
KEY PLAN

M.S.D. of Washington Township

North Central High School Renovation - West Gym Addition

SNOW DRIFT PLAN

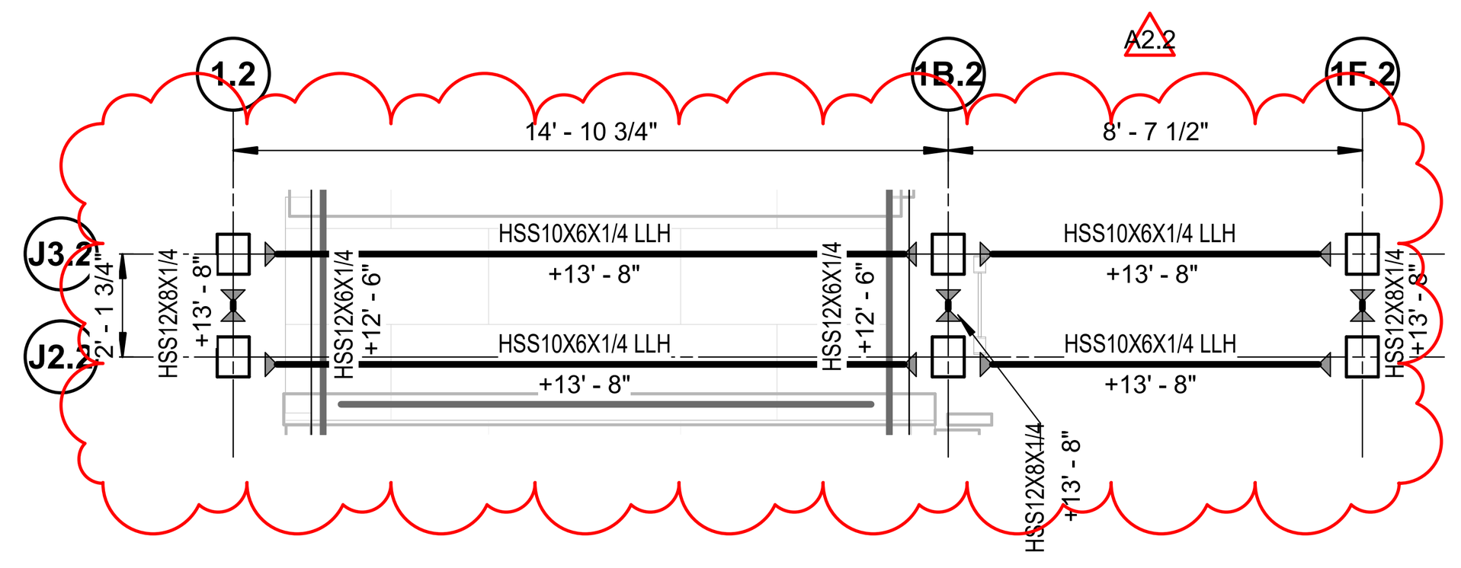
S-020.2



UNIT W SIGN FOUNDATION PLAN
1 S-300.2

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

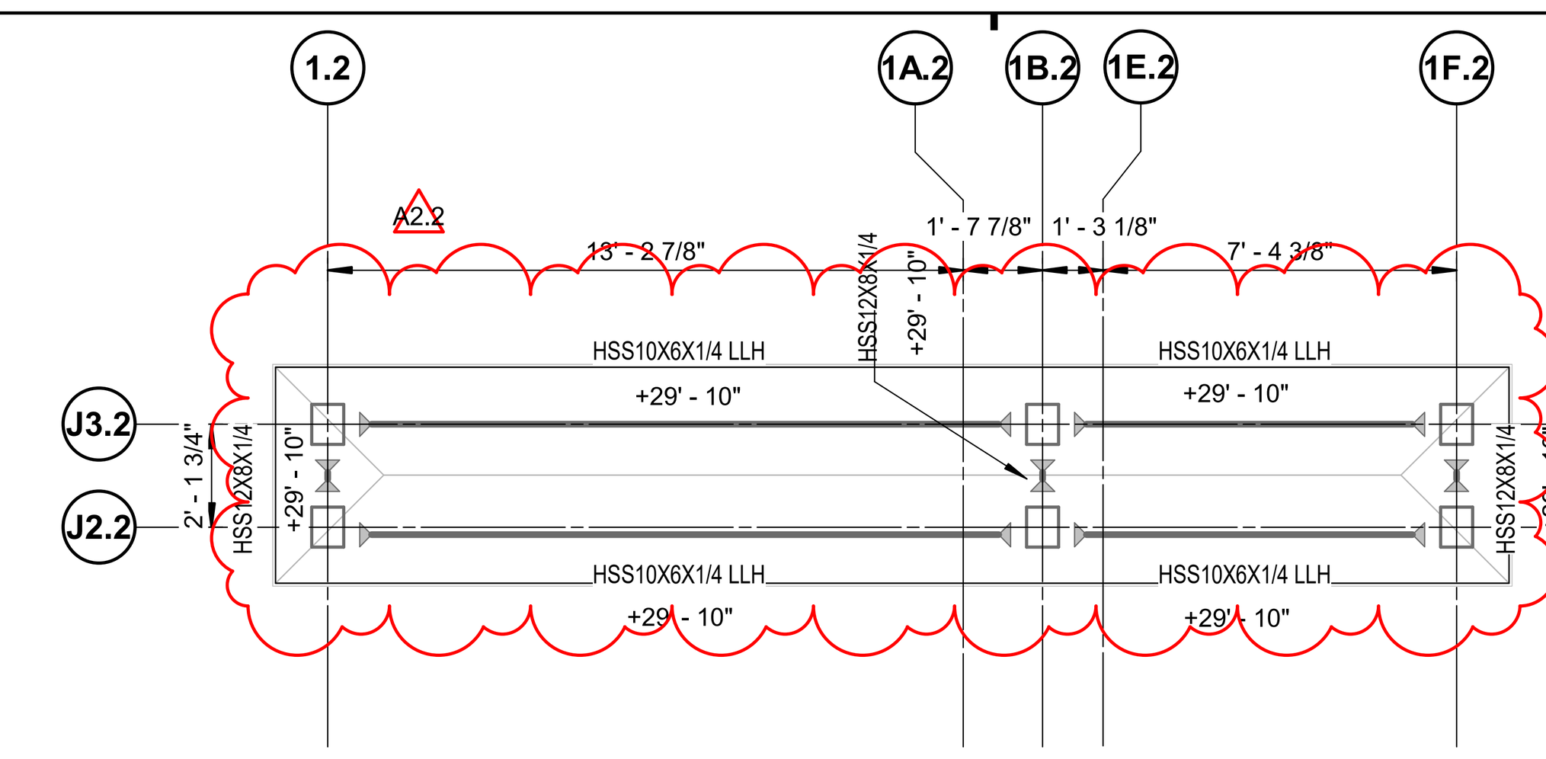
FRAMING PLAN NOTES:
1. ELEVATIONS ±, ARE FROM NOMINAL FIRST FLOOR ELEV +0'-0", SEE CIVIL DRAWINGS.
2. SEE ARCHITECTURAL DRAWINGS FOR ALL DIMENSIONS NOT SHOWN. CONTRACTOR SHALL VERIFY WITH ARCHITECT/ENGINEER OF ANY DISCREPANCIES IMMEDIATELY.
3. COORDINATE DECK AND SLAB OPENINGS - EXACT SIZE AND LOCATION, WITH MECHANICAL AND PLUMBING CONTRACTOR DRAWINGS AND EQUIPMENT SUPPLIER.
4. FIELD VERIFY ALL DIMENSIONS AND ELEVATIONS



UNIT W SIGN MIDDLE FRAMING PLAN
2 S-300.2

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

FRAMING PLAN NOTES:
1. ELEVATIONS ±, ARE FROM NOMINAL FIRST FLOOR ELEV +0'-0", SEE CIVIL DRAWINGS.
2. SEE ARCHITECTURAL DRAWINGS FOR ALL DIMENSIONS NOT SHOWN. CONTRACTOR SHALL VERIFY WITH ARCHITECT/ENGINEER OF ANY DISCREPANCIES IMMEDIATELY.
3. COORDINATE DECK AND SLAB OPENINGS - EXACT SIZE AND LOCATION, WITH MECHANICAL AND PLUMBING CONTRACTOR DRAWINGS AND EQUIPMENT SUPPLIER.
4. FIELD VERIFY ALL DIMENSIONS AND ELEVATIONS



UNIT W SIGN TOP FRAMING PLAN
3 S-300.2

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

FRAMING PLAN NOTES:
1. ELEVATIONS ±, ARE FROM NOMINAL FIRST FLOOR ELEV +0'-0", SEE CIVIL DRAWINGS.
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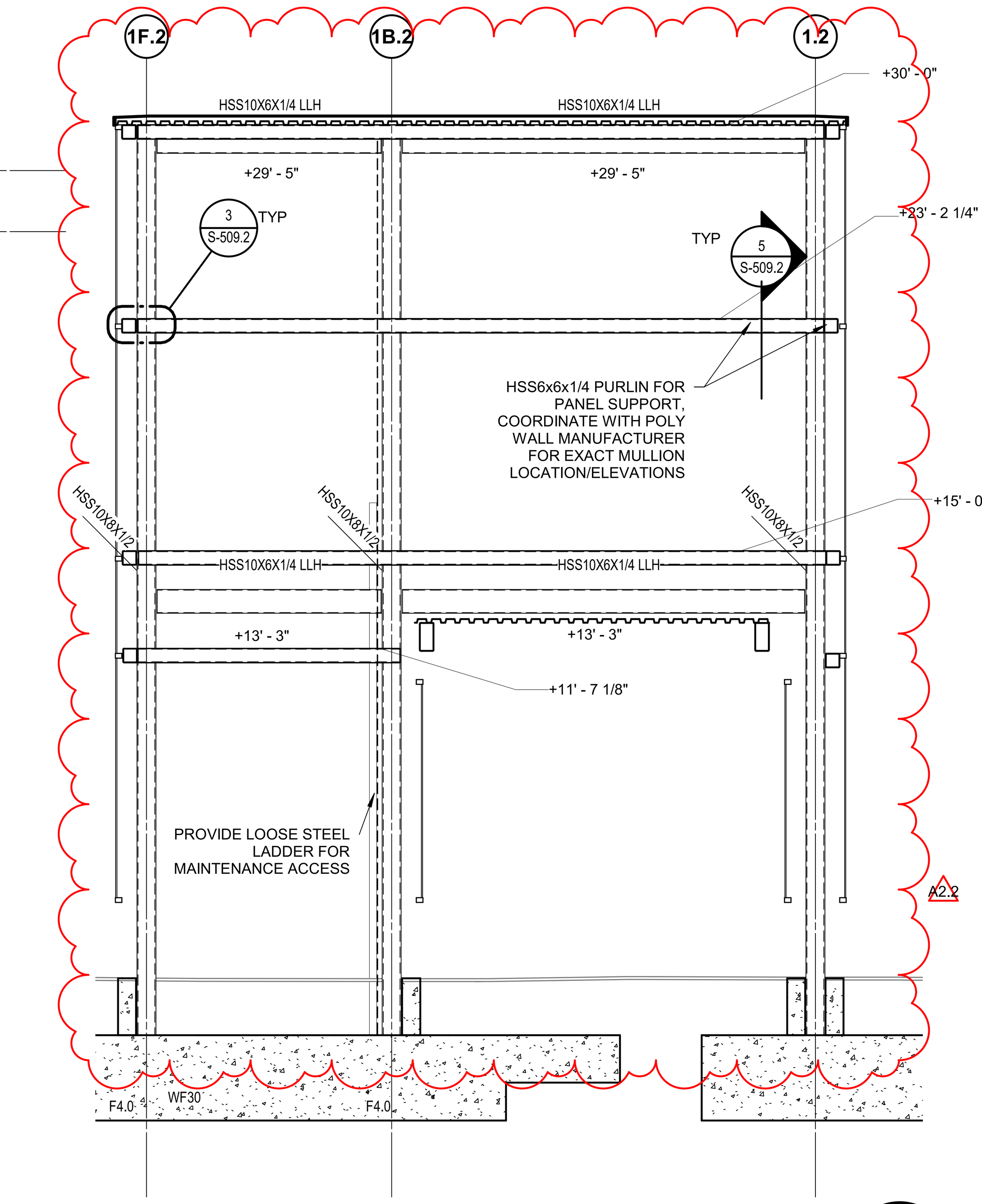
3. COORDINATE DECK AND SLAB OPENINGS - EXACT SIZE AND LOCATION, WITH MECHANICAL AND PLUMBING CONTRACTOR DRAWINGS AND EQUIPMENT SUPPLIER.
4. FIELD VERIFY ALL DIMENSIONS AND ELEVATIONS



UNIT W SIGN ELEVATION PLAN
4 S-300.2

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

ELEVATION NOTES:
1. ELEVATIONS ±, ARE FROM NOMINAL FIRST FLOOR ELEV +0'-0", SEE CIVIL DRAWINGS.
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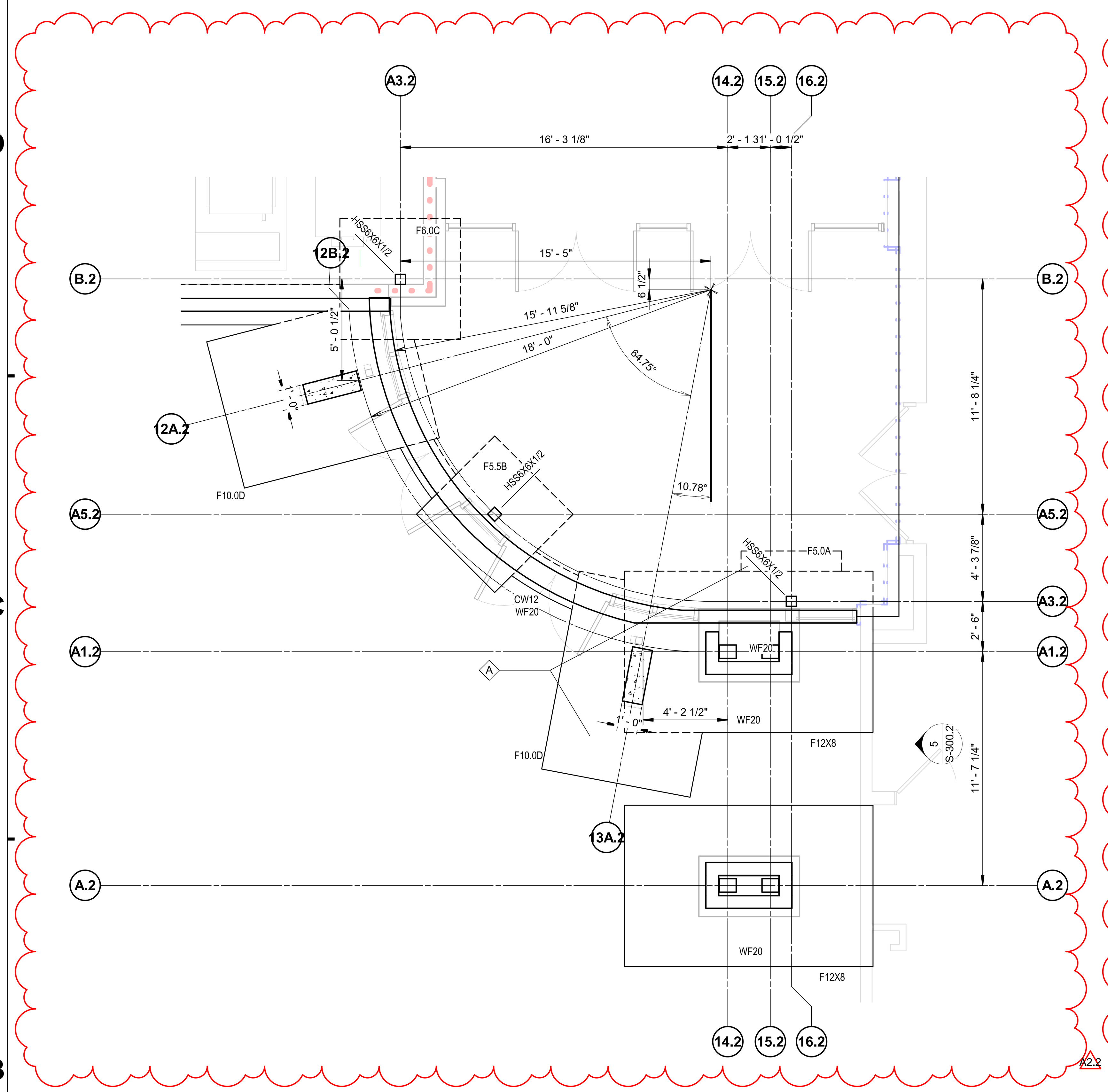


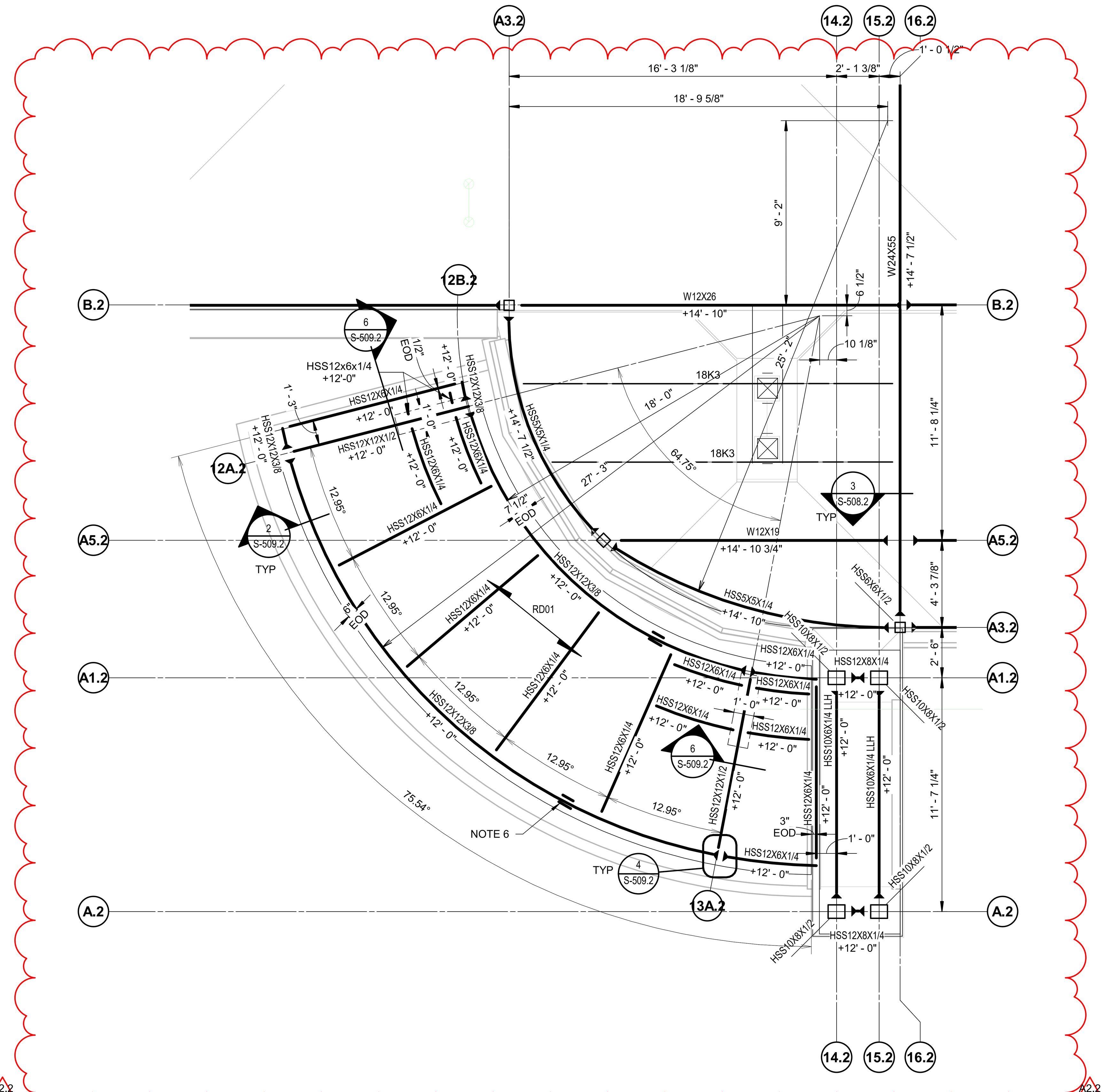
UNIT Z CANOPY & SIGN FOUNDATION PLAN
6 S-300.2

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

FLOOR PLAN NOTES:
1. ELEVATIONS ±, ARE FROM NOMINAL FIRST FLOOR ELEV +0'-0", SEE CIVIL DRAWINGS.
2. SEE ARCHITECTURAL DRAWINGS FOR ALL DIMENSIONS NOT SHOWN. CONTRACTOR SHALL VERIFY AND NOTIFY ARCHITECT/ENGINEER OF ANY DISCREPANCIES IMMEDIATELY.
3. T/F = -2' - 0" U.N.O.
4. FIELD VERIFY ALL DIMENSIONS AND ELEVATIONS
5. ELEVATION AT BOTTOM OF NEW FOOTINGS TO MATCH ELEVATION AT BOTTOM OF EXISTING FOOTINGS WHERE APPLICABLE. VERIFY IN FIELD. FOLLOW DETAILS FOR DOWEL REQUIREMENTS.

Foundation Plan Enlarged Plan

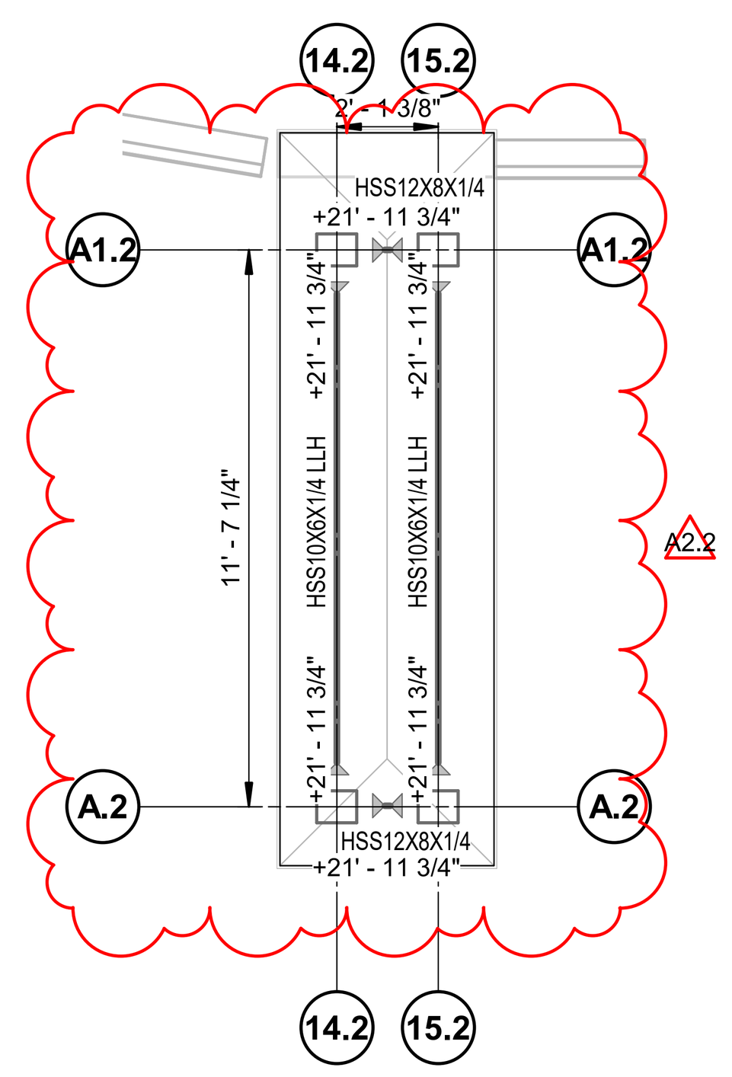
#	NOTE
A	MATCH F12X8 FOOTING THICKNESS (3'-0")
B	MATCH F12X8 FOOTING THICKNESS (3'-0")



UNIT Z CANOPY & MID SIGN FRAMING PLAN
7 S-300.2

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

FRAMING PLAN NOTES:
1. ELEVATIONS ±, ARE FROM NOMINAL FIRST FLOOR ELEV +0'-0", SEE CIVIL DRAWINGS.
2. SEE ARCHITECTURAL DRAWINGS FOR ALL DIMENSIONS NOT SHOWN. CONTRACTOR SHALL VERIFY AND NOTIFY ARCHITECT/ENGINEER OF ANY DISCREPANCIES IMMEDIATELY.
3. COORDINATE DECK AND SLAB OPENINGS - EXACT SIZE AND LOCATION, WITH MECHANICAL AND PLUMBING CONTRACTOR DRAWINGS AND EQUIPMENT SUPPLIER.
4. FIELD VERIFY ALL DIMENSIONS AND ELEVATIONS
5. PROVIDE GALVANIZE FINISH AT ALL EXTERIOR STEEL.
6. PROVIDE FULL CJP WELDED FIELD SPLICE AT LOCATIONS CHOSEN BY FABRICATOR/ERECTOR



UNIT Z SIGN TOP FRAMING PLAN
8 S-300.2

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

FRAMING PLAN NOTES:
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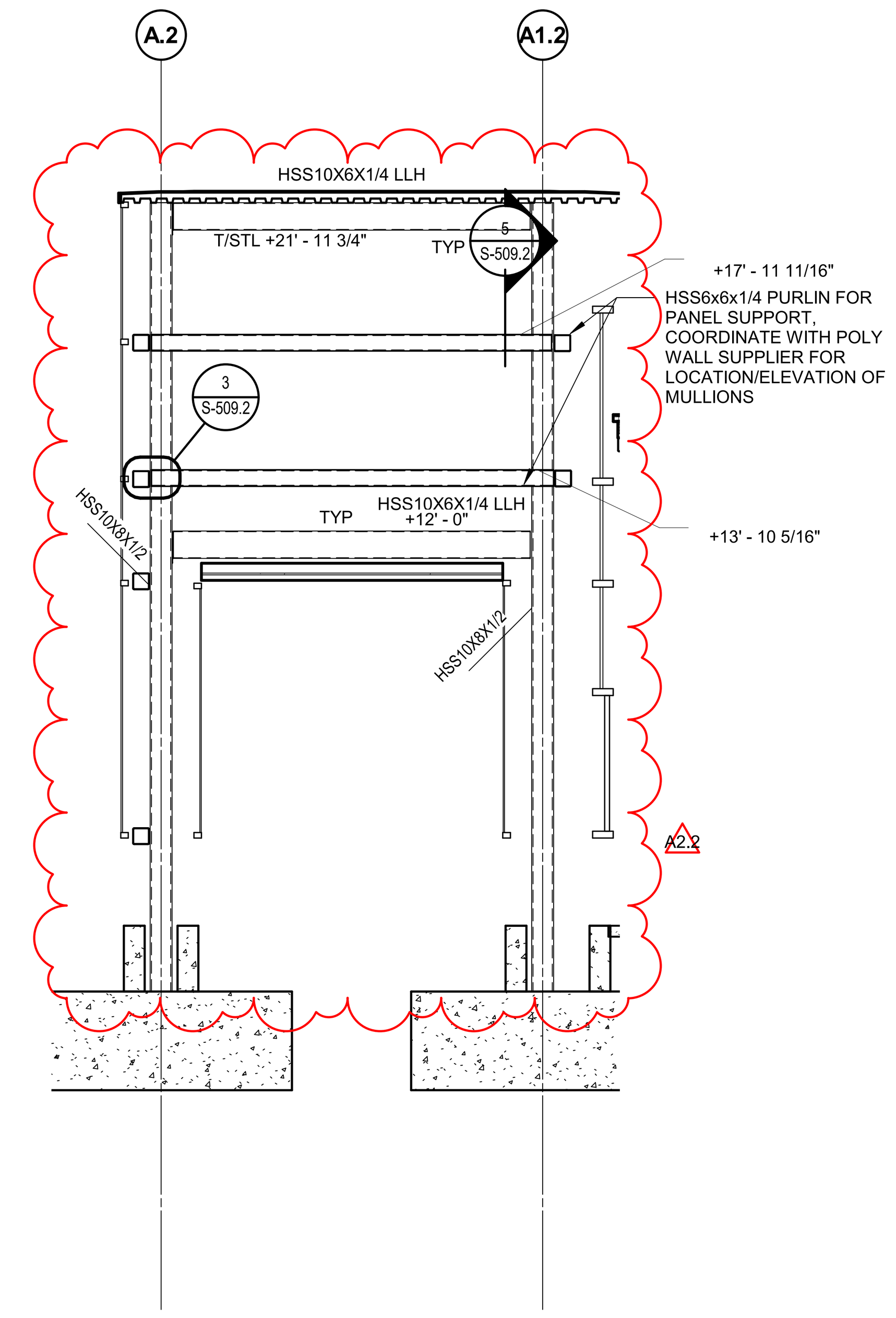

UNIT Z SIGN ELEVATION PLAN
5 S-300.2

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

ELEVATION NOTES:
1. ELEVATIONS ±, ARE FROM NOMINAL FIRST FLOOR ELEV +0'-0", SEE CIVIL DRAWINGS.
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A2.2	Addendum 2	11.29.2021

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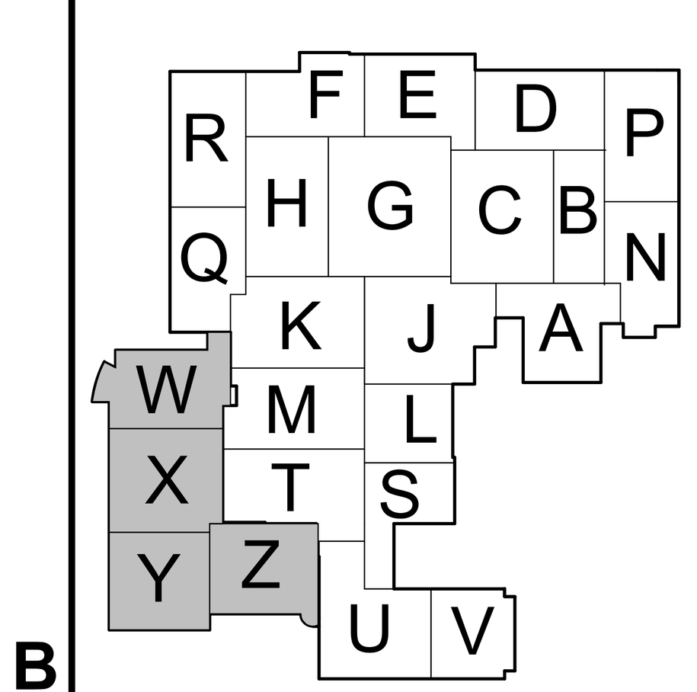


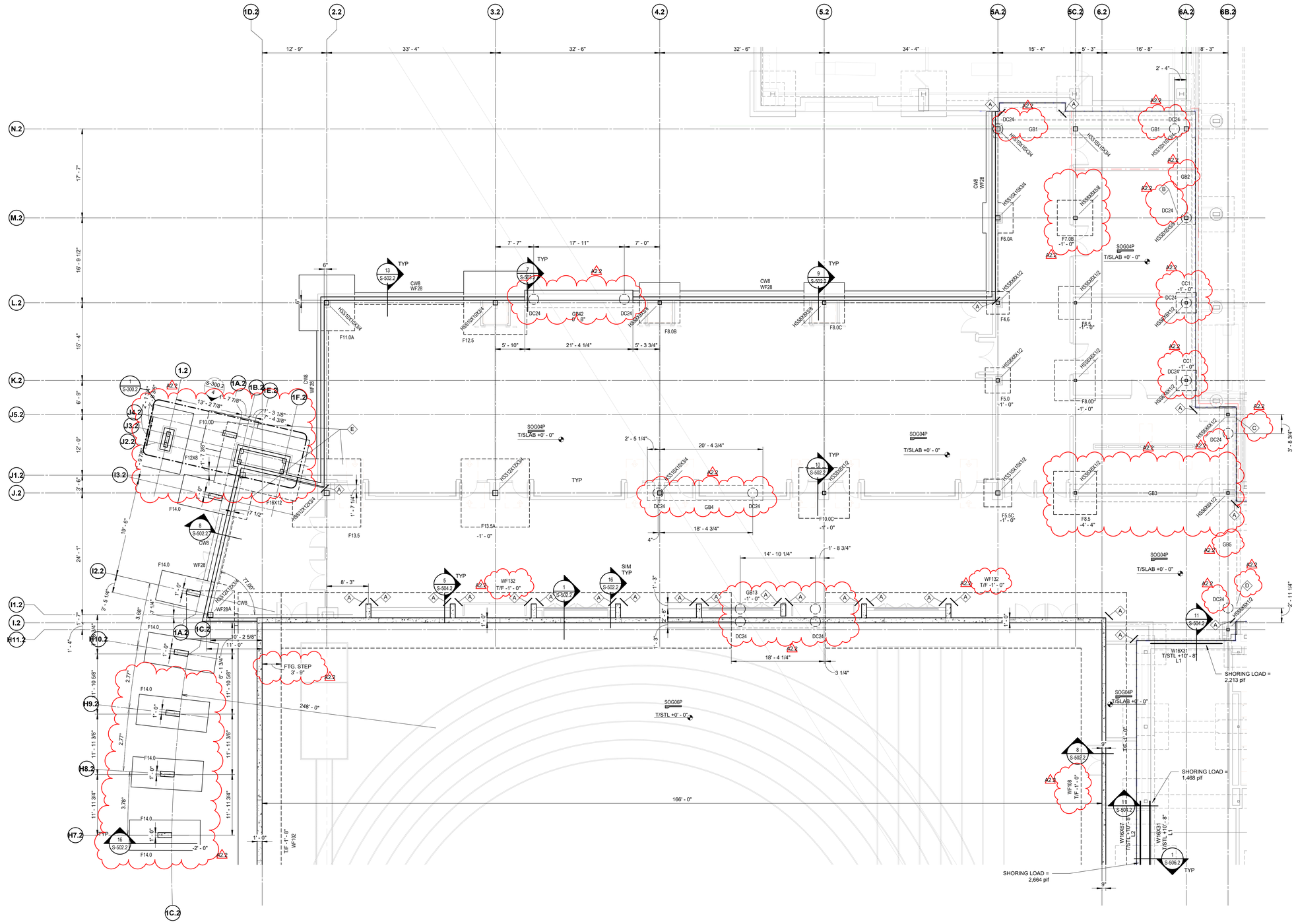
KEY PLAN

M.S.D. of Washington Township

North Central High School Renovation - West Gym Addition

ENLARGED PLANS

S-300.2



#	NOTE
A	REINFORCEMENT AT RE-ENTRANT CORNER PER 4/S-503.2, TYPICAL
B	TYPE C REINFORCEMENT THIS SIDE 63" FROM GRID M.2
C	TYPE C REINFORCEMENT THIS SIDE FROM GRID J5.2 TO J.2
D	TYPE C REINFORCEMENT THIS SIDE 186" FROM GRID H11.2
E	MATCH F16X12 FOOTING THICKNESS (3'-0")

Foundation Plan Unit W

A2.2

FOUNDATION PLAN UNIT W

N

FLOOR PLAN NOTES:

1. ELEVATIONS ±, ARE FROM NOMINAL FIRST FLOOR ELEV +0'-0", SEE CIVIL DRAWINGS.
2. SEE ARCHITECTURAL DRAWINGS FOR ALL DIMENSIONS NOT SHOWN. CONTRACTOR SHALL VERIFY ALL DIMENSIONS PRIOR TO CONSTRUCTION AND NOTIFY ARCHITECT/ENGINEER OF ANY DISCREPANCIES IMMEDIATELY.
3. T/F = -2' - 0" U.N.O.
4. FIELD VERIFY ALL DIMENSIONS AND ELEVATIONS
5. ELEVATION AT BOTTOM OF NEW FOOTINGS TO MATCH ELEVATION AT BOTTOM OF EXISTING FOOTINGS WHERE APPLICABLE. VERIFY IN FIELD. FOLLOW DETAILS FOR DOWEL REQUIREMENTS.

SF1W1.2_ UNIT W FOUNDATION PLAN
2019-067.NCH_M.S.D. of Washington Township_North Central High School Renovation_
C:_RevitLocal\2019-067.NCH_Bldg001_S_2020_Central_clileVTKQQ.rvt
11/30/2021 11:36:18 AM

SCHMIDT
ASSOCIATES
415 Massachusetts Avenue
Indianapolis, IN 46204
www.schmidt-arch.com

Project No.	2019-067.NCH
Project Date	11.01.2021
Bid Set	02
Produced	DJS CDL

DYLAN SEESMAN
No. PE11900810
STATE OF INDIANA

Dylan Seesman

#	Revision	Date
A2.2	Addendum 2	11.29.2021

1801 East 86th Street
Indianapolis, IN 46240

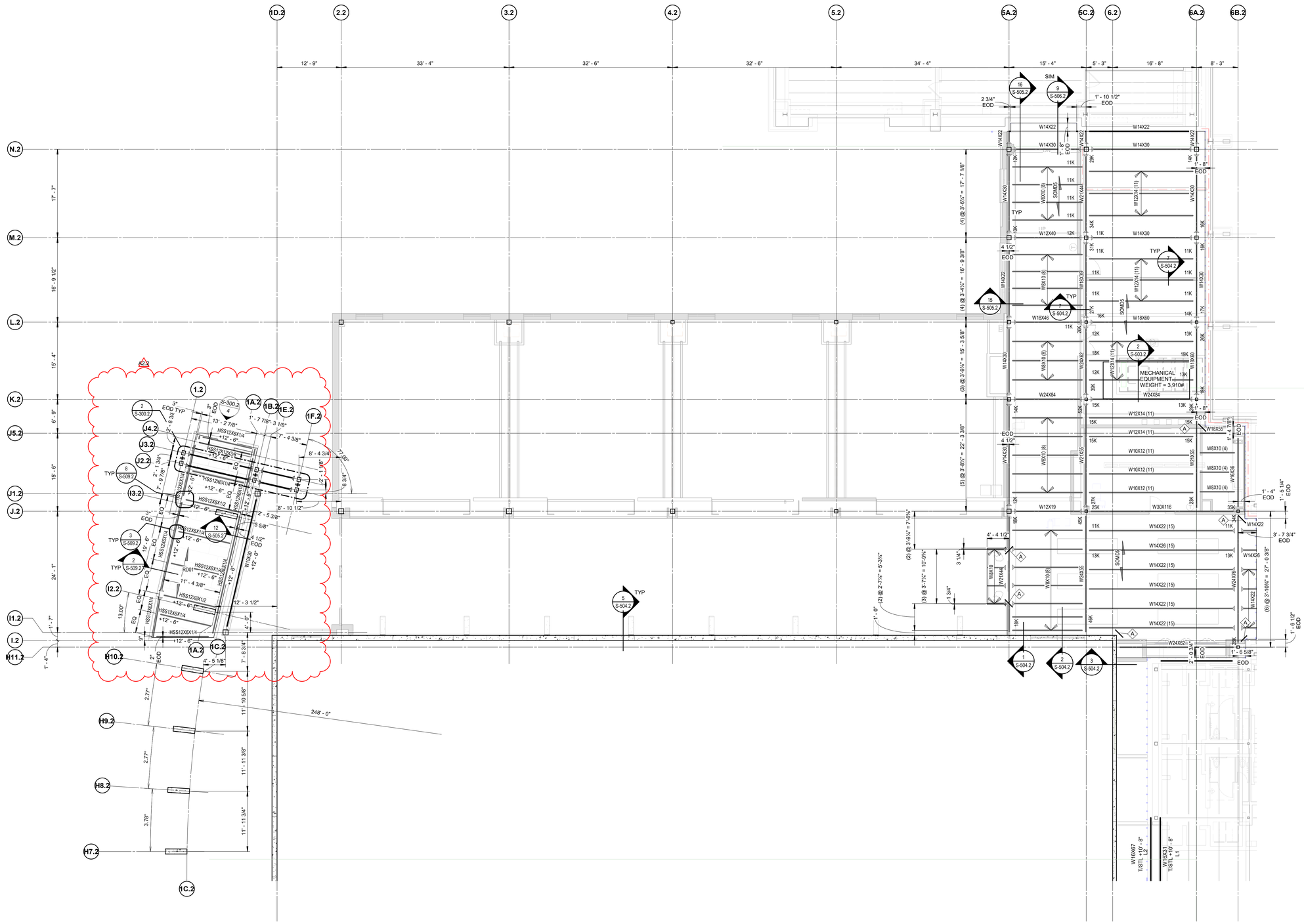
KEY PLAN

M.S.D. of Washington Township

North Central High School
Renovation - West Gym
Addition

UNIT W FOUNDATION PLAN

SF1W1.2



#	NOTE
A	REINFORCEMENT AT RE-ENTRANT CORNER PER 4/S-503.2, TYPICAL

Plan note schedule Unit W Second Floor Plan

SECOND FLOOR PLAN UNIT W

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

N

FRAMING PLAN NOTES:

1. ELEVATIONS ±, ARE FROM NOMINAL FIRST FLOOR ELEV +0'-0", SEE CIVIL DRAWINGS.
2. SEE ARCHITECTURAL DRAWINGS FOR ALL DIMENSIONS NOT SHOWN. CONTRACTOR SHALL VERIFY ALL DIMENSIONS PRIOR TO CONSTRUCTION AND NOTIFY ARCHITECT/ENGINEER OF ANY DISCREPANCIES IMMEDIATELY.
3. COORDINATE DECK AND SLAB OPENINGS - EXACT SIZE AND LOCATION, WITH MECHANICAL AND PLUMBING CONTRACTOR DRAWINGS AND EQUIPMENT SUPPLIER.
4. FIELD VERIFY ALL DIMENSIONS AND ELEVATIONS
5. T/STEEL = 11' - 7" U.N.O.
6. PROVIDE GALVANIZE FINISH AT ALL EXTERIOR STEEL.

SF1W2.2_ UNIT W SECOND FLOOR PLAN
2019-067.NCH_M.S.D. of Washington Township_North Central High School Renovation_
C:_RevitLocal\2019-067.NCH_Bldg001_S_2020_Central_clileVTKQQ.rvt
11/30/2021 11:36:22 AM

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Project No. 2019-067.NCH
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Bid Set 02
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DYLAN SEESMAN
No. PE11900810

Dylan Seesman

#	Revision	Date
A2.2	Addendum 2	11.29.2021

1801 East 86th Street
Indianapolis, IN 46240

KEY PLAN

M.S.D. of Washington Township

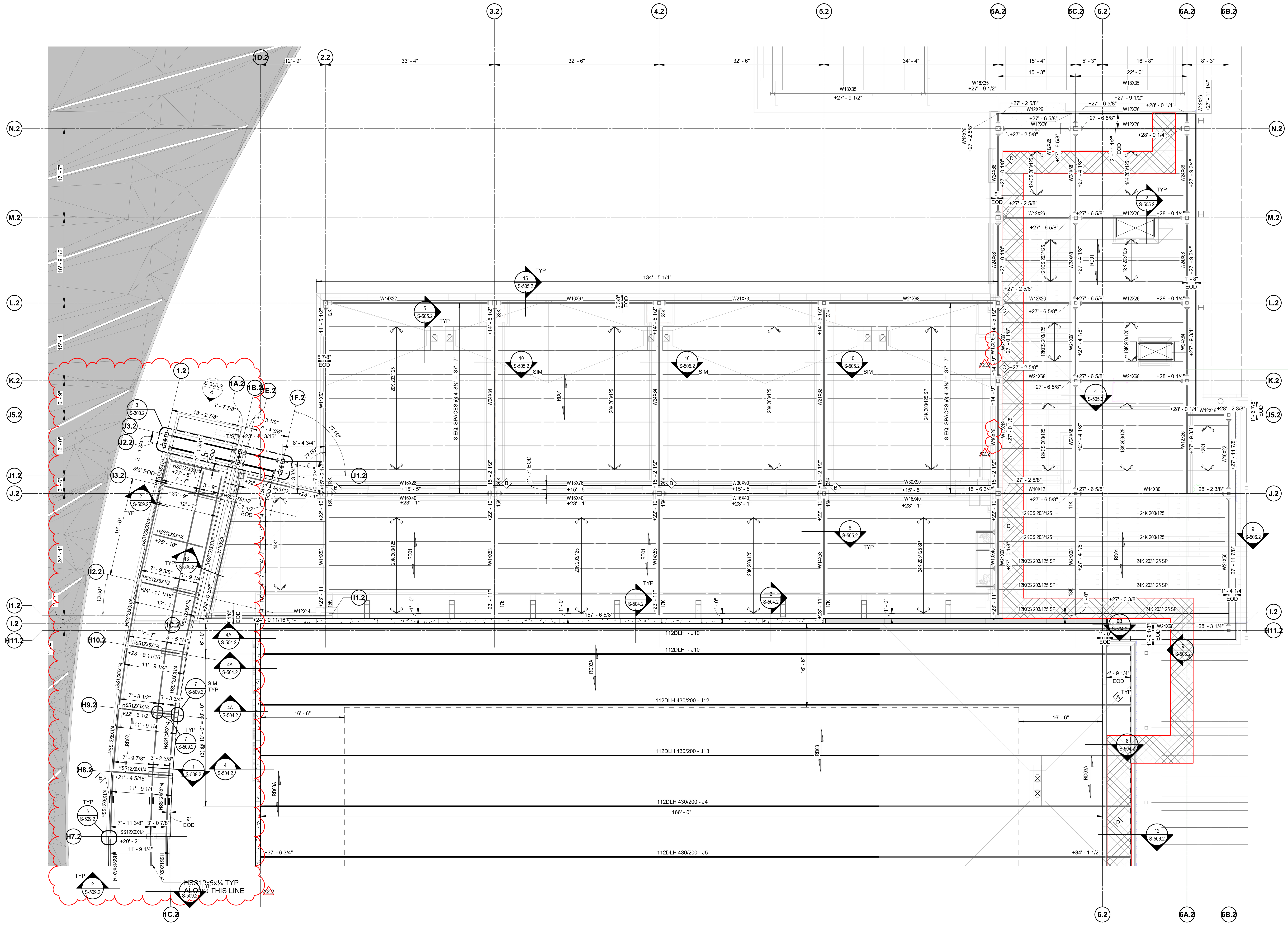
North Central High School Renovation - West Gym Addition

UNIT W SECOND FLOOR PLAN

SF1W2.2

#	NOTE
A	TOP CHORD EXTENSION BY JOIST MANUFACTURER
B	MOMENT CONNECTION LOW BEAMS ONLY TYPICAL THIS PLAN
C	MOMENT CONNECTION HIGH BEAMS ONLY
D	HEAVY PIPING LOAD OF 200 plf LOCATED IN THIS REGION. HANG FROM MIN. 2 JOISTS IN THE PARALLEL CONDITION SEE MEP FOR EXACT LOCATIONS
E	PROVIDE FULL CJP WELDED FIELD SPLICE AT LOCATIONS CHOSEN BY FABRICATOR/ERECTOR

Plan note schedule Unit W Roof Plan



ROOF FRAMING PLAN - UNIT W

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

N

FRAMING PLAN NOTES:

1. ELEVATIONS ±, ARE FROM NOMINAL FIRST FLOOR ELEV +0'-0", SEE CIVIL DRAWINGS.
2. SEE ARCHITECTURAL DRAWINGS FOR ALL DIMENSIONS NOT SHOWN. CONTRACTOR SHALL VERIFY ALL DIMENSIONS PRIOR TO CONSTRUCTION AND NOTIFY ARCHITECT/ENGINEER OF ANY DISCREPANCIES IMMEDIATELY.
3. COORDINATE DECK AND SLAB OPENINGS - EXACT SIZE AND LOCATION, WITH MECHANICAL AND PLUMBING CONTRACTOR DRAWINGS AND EQUIPMENT SUPPLIER.
4. FIELD VERIFY ALL DIMENSIONS AND ELEVATIONS
5. T/STEEL = 14' 8" U.N.O.
6. PROVIDE GALVANIZE FINISH AT ALL EXTERIOR STEEL

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Project No. 2019-067.NCH
Project Date 11.01.2021
Bid Set 02
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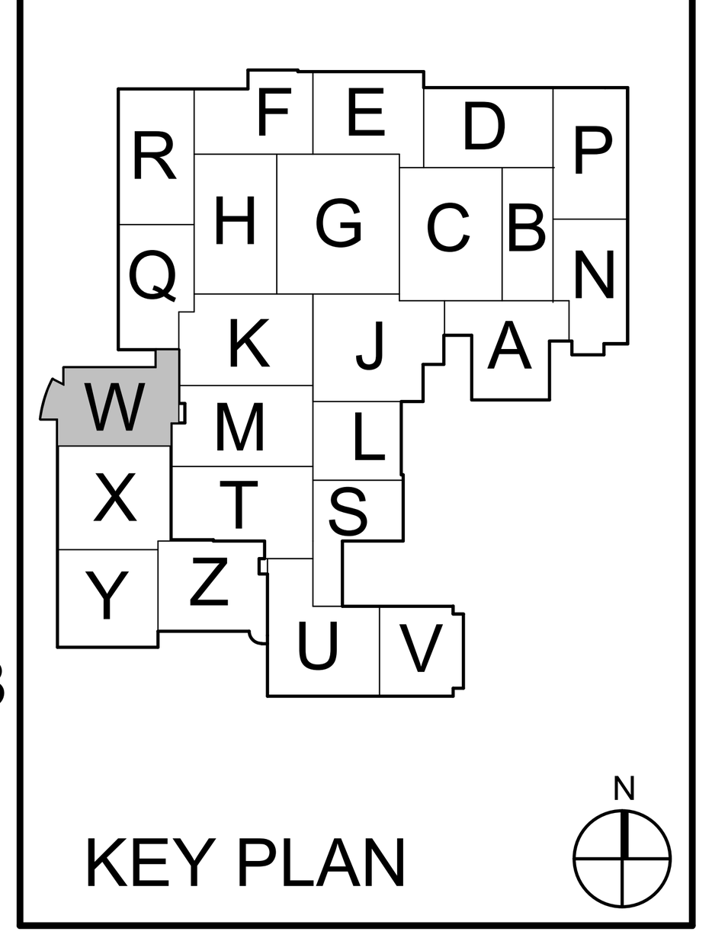
DYLAN SEESMAN REGISTERED No. PE11900810 STATE OF INDIANA PROFESSIONAL ENGINEER

#	Revision	Date
A2.2	Addendum 2	11.29.2021

1801 East 86th Street
Indianapolis, IN 46240



KEY PLAN

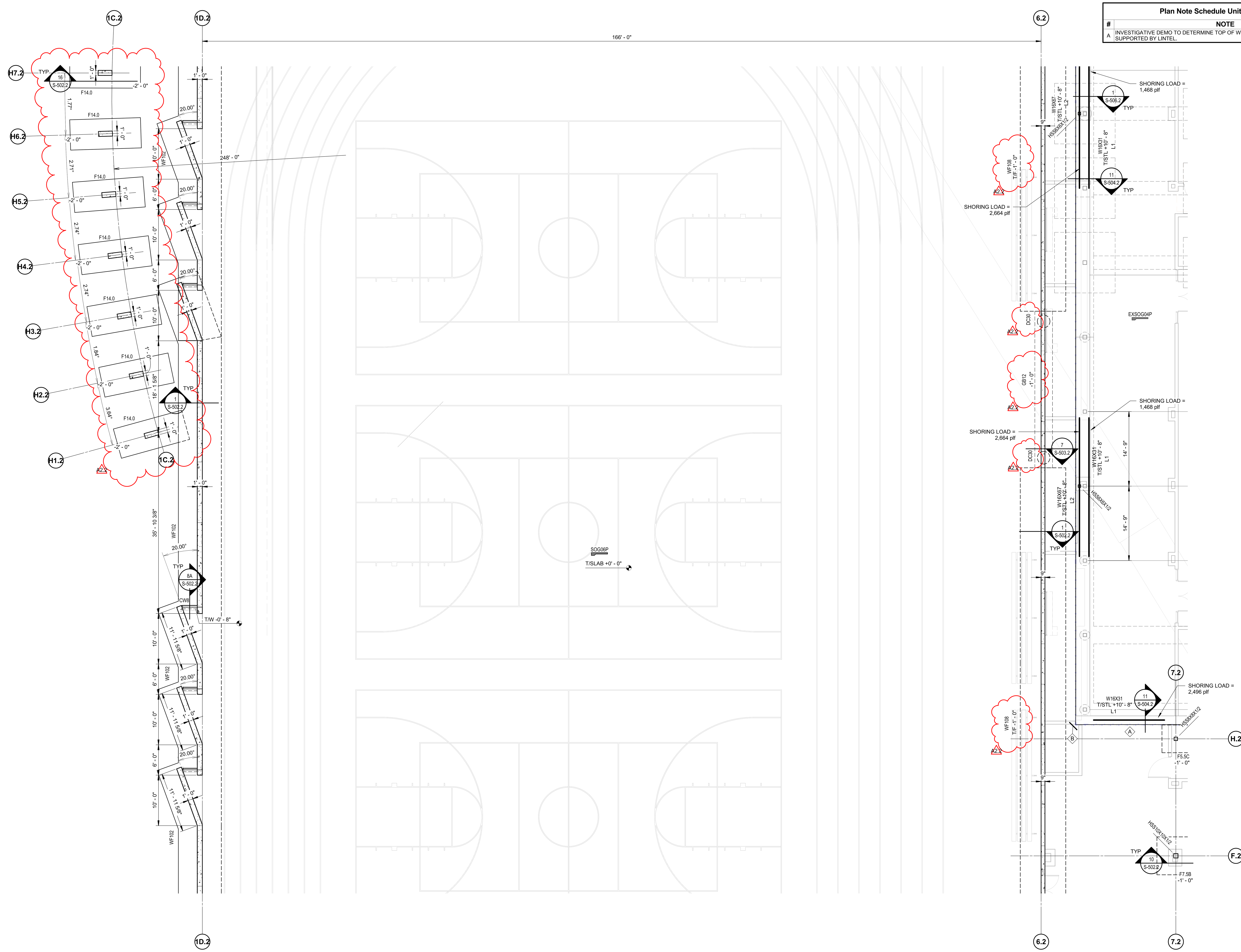
M.S.D. of Washington Township

North Central High School Renovation - West Gym Addition

UNIT W ROOF PLAN

SF1W3.2

Plan Note Schedule Unit X Fdn Plan	
#	NOTE
A	INVESTIGATIVE DEMO TO DETERMINE TOP OF WALL TERMINATION THAT IS SUPPORTED BY LINTEL.



FOUNDATION PLAN UNIT X

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

N

FLOOR PLAN NOTES:

1. ELEVATIONS ±, ARE FROM NOMINAL FIRST FLOOR ELEV +0'-0", SEE CIVIL DRAWINGS.
2. SEE ARCHITECTURAL DRAWINGS FOR ALL DIMENSIONS NOT SHOWN. CONTRACTOR SHALL VERIFY ALL DIMENSIONS PRIOR TO CONSTRUCTION AND NOTIFY ARCHITECT/ENGINEER OF ANY DISCREPANCIES IMMEDIATELY.
3. T/F = -1' - 8" U.N.O.
4. FIELD VERIFY ALL DIMENSIONS AND ELEVATIONS

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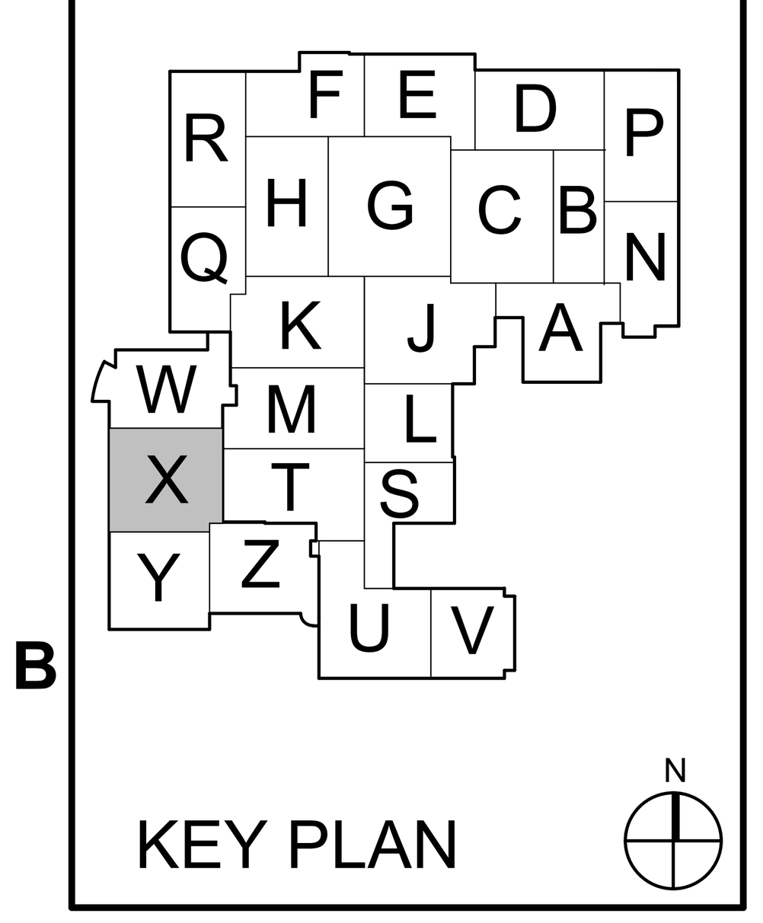


KEY PLAN

M.S.D. of Washington Township

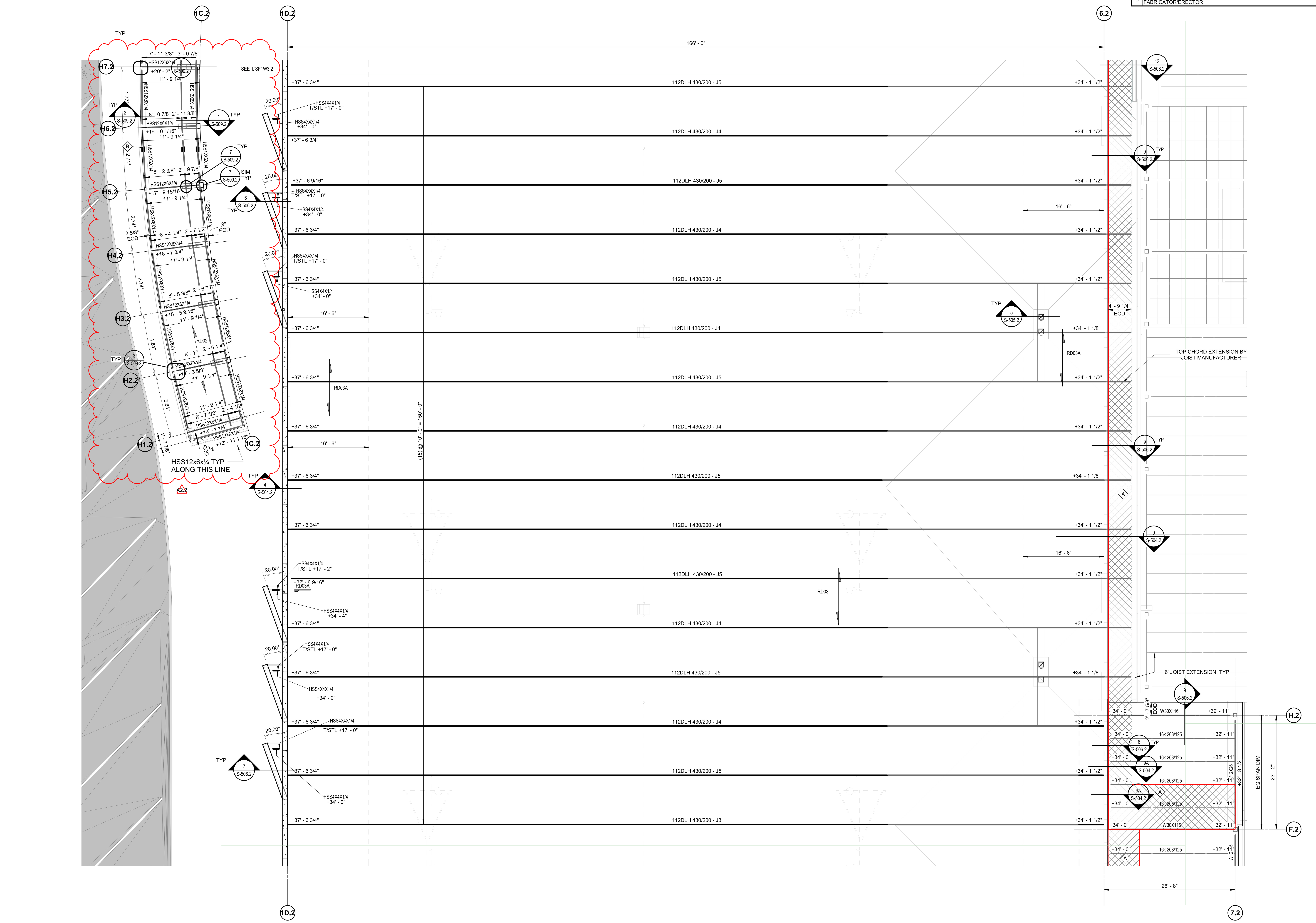
North Central High School Renovation - West Gym Addition

UNIT X FOUNDATION PLAN

SF1X1.2

#	NOTE
A	HEAVY PIPING LOAD OF 200 plf LOCATED IN THIS REGION. HANG FROM MIN. 2 JOISTS IN THE PARALLEL CONDITION SEE MEP FOR EXACT LOCATIONS
B	PROVIDE FULL CJP WELDED FIELD SPLICE AT LOCATIONS CHOSEN BY FABRICATOR/ERECTOR

Plan Note Schedule Unit X Roof Plan



ROOF FRAMING PLAN - UNIT X

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

FRAMING PLAN NOTES:

1. ELEVATIONS ±, ARE FROM NOMINAL FIRST FLOOR ELEV +0'-0", SEE CIVIL DRAWINGS.
2. SEE ARCHITECTURAL DRAWINGS FOR ALL DIMENSIONS NOT SHOWN. CONTRACTOR SHALL VERIFY ALL DIMENSIONS PRIOR TO CONSTRUCTION AND NOTIFY ARCHITECT/ENGINEER OF ANY DISCREPANCIES IMMEDIATELY.
3. COORDINATE DECK AND SLAB OPENINGS - EXACT SIZE AND LOCATION, WITH MECHANICAL AND PLUMBING CONTRACTOR DRAWINGS AND EQUIPMENT SUPPLIER.
4. FIELD VERIFY ALL DIMENSIONS AND ELEVATIONS
5. PROVIDE GALVANIZE FINISH AT ALL EXTERIOR STEEL.

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#	Revision	Date
A2.2	Addendum 2	11.29.2021

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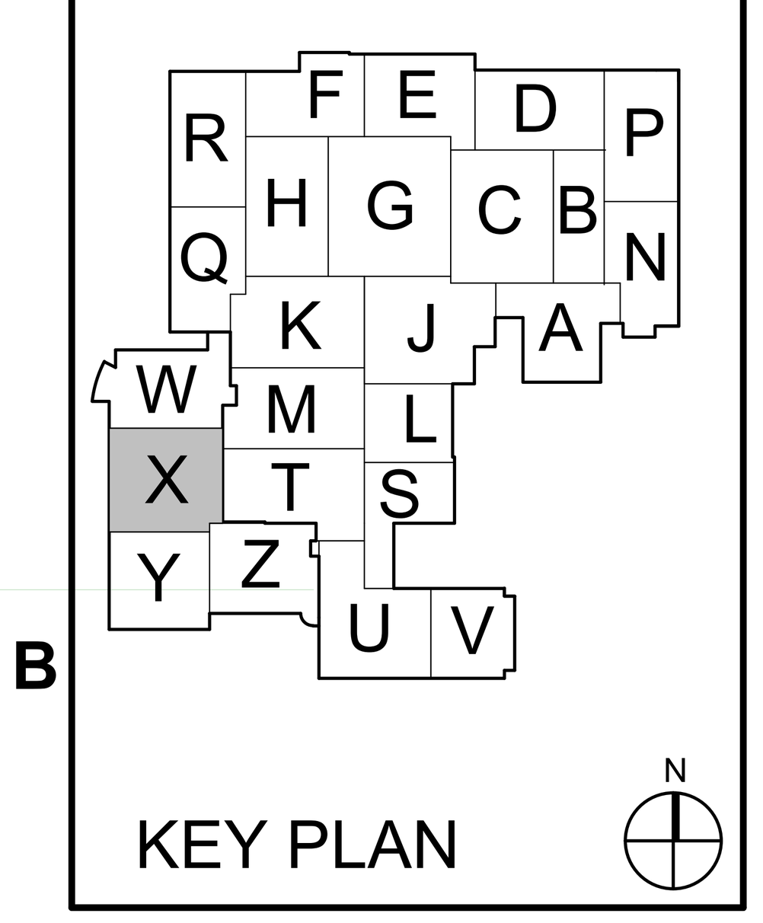


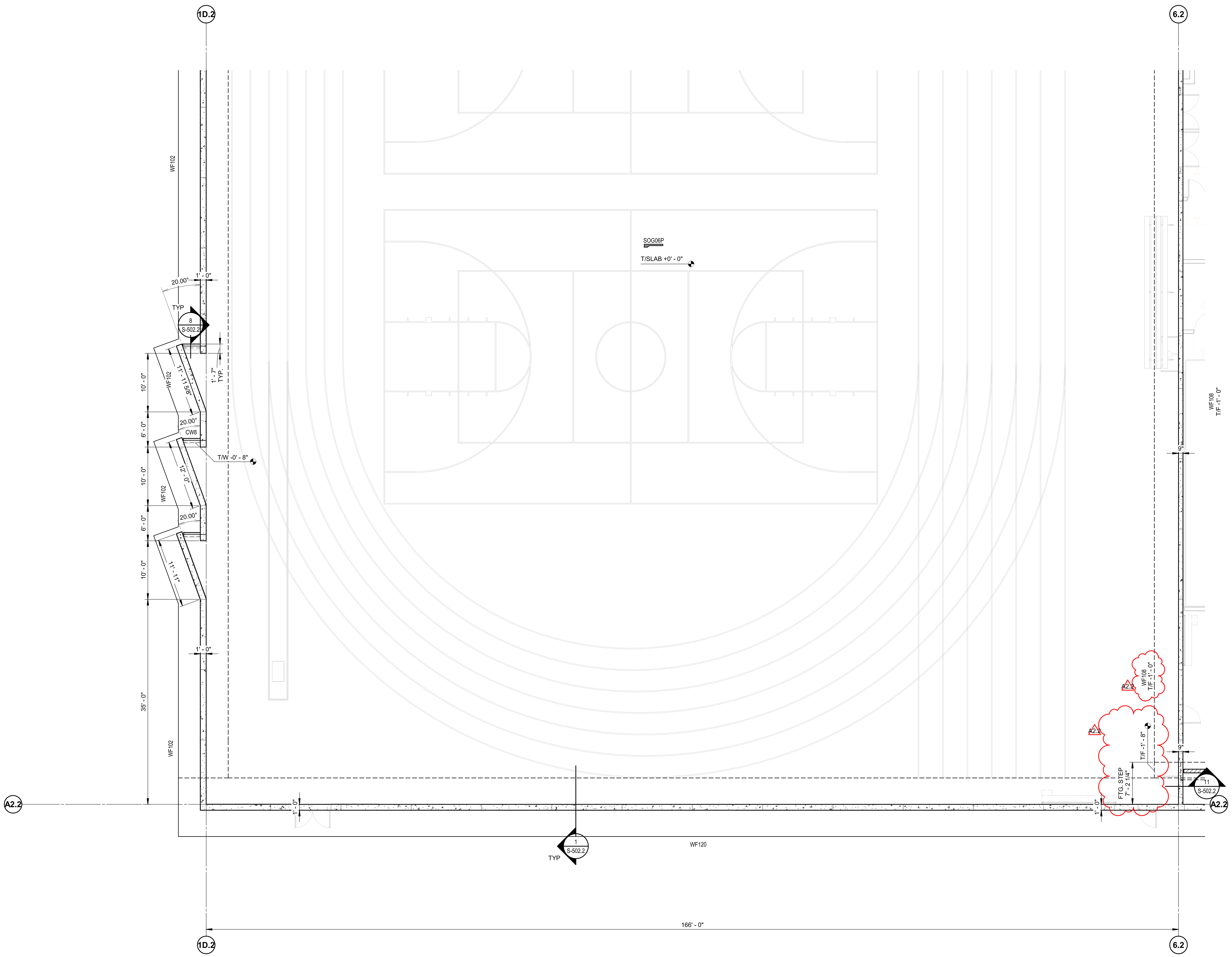
KEY PLAN

M.S.D. of Washington Township

North Central High School Renovation - West Gym Addition

UNIT X ROOF PLAN

SF1X3.2



FOUNDATION PLAN UNIT Y

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

FLOOR PLAN NOTES:

1. ELEVATIONS ±, ARE FROM NOMINAL FIRST FLOOR ELEV +0'-0", SEE CIVIL DRAWINGS.
2. SEE ARCHITECTURAL DRAWINGS FOR ALL DIMENSIONS NOT SHOWN. CONTRACTOR SHALL VERIFY ALL DIMENSIONS PRIOR TO CONSTRUCTION AND NOTIFY ARCHITECT/ENGINEER OF ANY DISCREPANCIES IMMEDIATELY.
3. T/F = -1' - 8" U.N.O.
4. FIELD VERIFY ALL DIMENSIONS AND ELEVATIONS

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#	Revision	Date
A2.2	Addendum 2	11.29.2021

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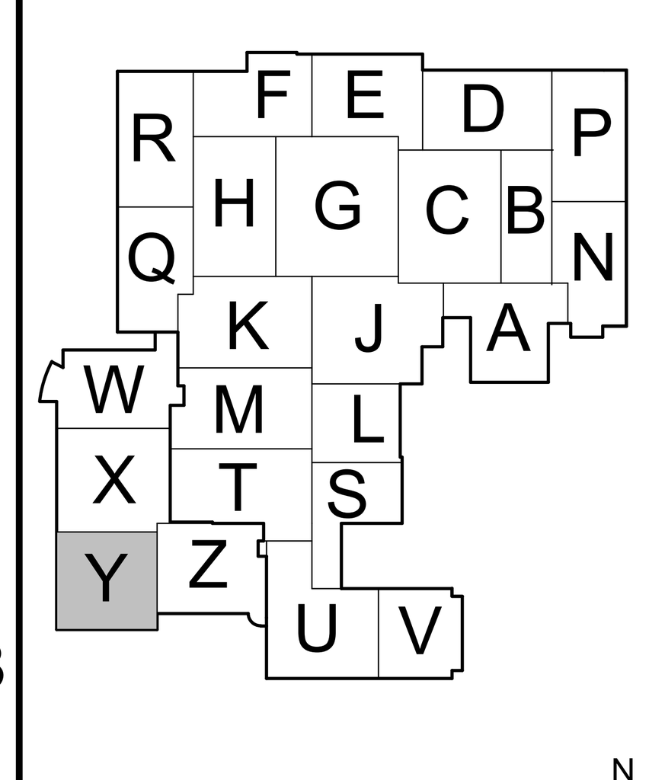


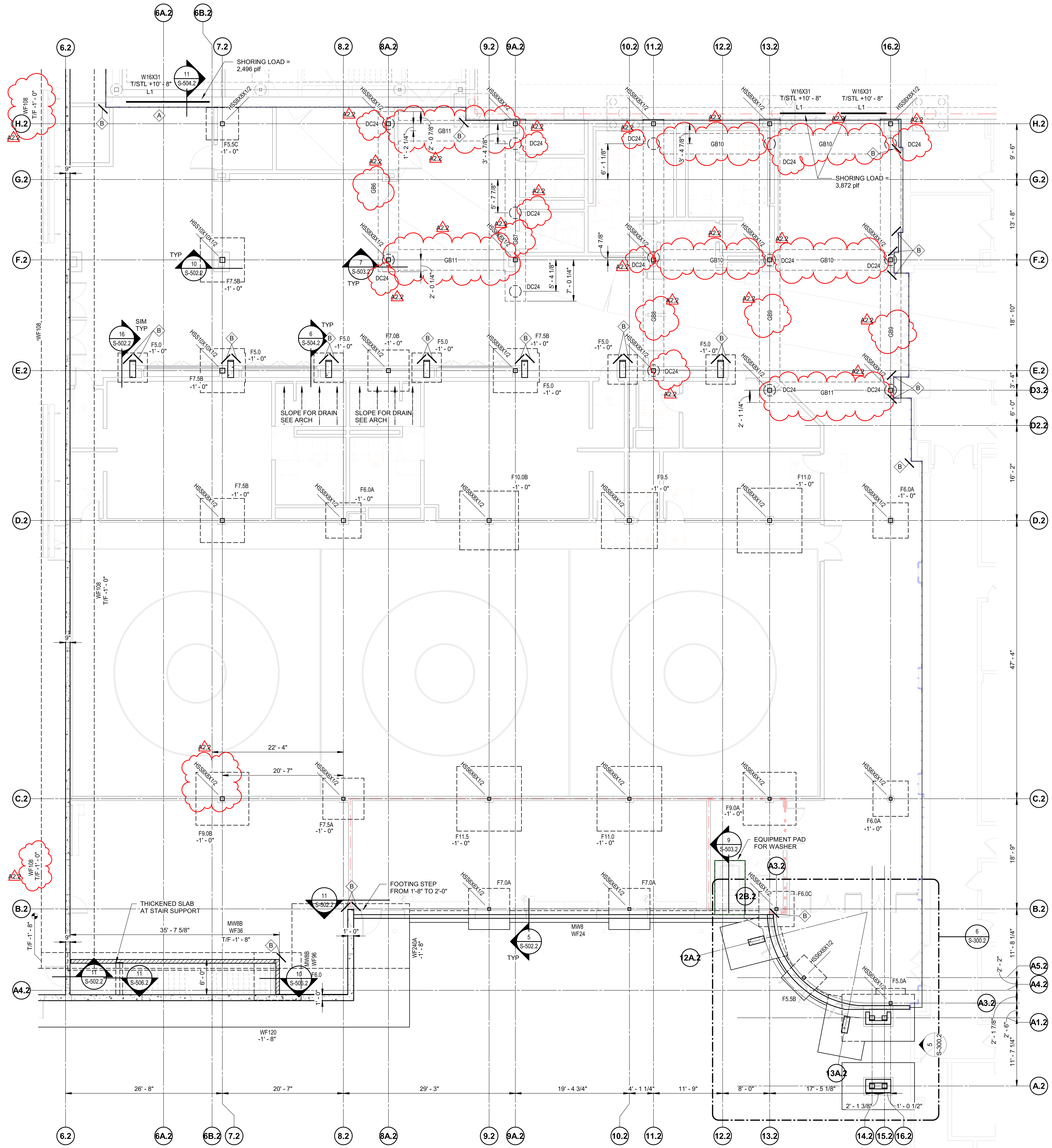
KEY PLAN

M.S.D. of Washington Township

North Central High School Renovation - West Gym Addition

UNIT Y FOUNDATION PLAN

SF1Y1.2



Plan Note Schedule Unit Z Foundation Plan	
#	NOTE
A	INVESTIGATIVE DEMO TO DETERMINE TOP OF WALL TERMINATION THAT IS SUPPORTED BY LINTEL.
B	REINFORCEMENT AT RE-ENTRANT CORNER PER 4/S-503.2, TYPICAL

FOUNDATION PLAN - UNIT Z

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

FLOOR PLAN NOTES:

1. ELEVATIONS ±, ARE FROM NOMINAL FIRST FLOOR ELEV +0'-0", SEE CIVIL DRAWINGS.
2. SEE ARCHITECTURAL DRAWINGS FOR ALL DIMENSIONS NOT SHOWN. CONTRACTOR SHALL VERIFY ALL DIMENSIONS PRIOR TO CONSTRUCTION AND NOTIFY ARCHITECT/ENGINEER OF ANY DISCREPANCIES IMMEDIATELY.
3. T/F = -2' - 0" U.N.O.
4. FIELD VERIFY ALL DIMENSIONS AND ELEVATIONS
5. ELEVATION AT BOTTOM OF NEW FOOTINGS TO MATCH ELEVATION AT BOTTOM OF EXISTING FOOTINGS WHERE APPLICABLE. VERIFY IN FIELD. FOLLOW DETAILS FOR DOWEL REQUIREMENTS.

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Project No. 2019-067.NCH
Project Date 11.01.2021
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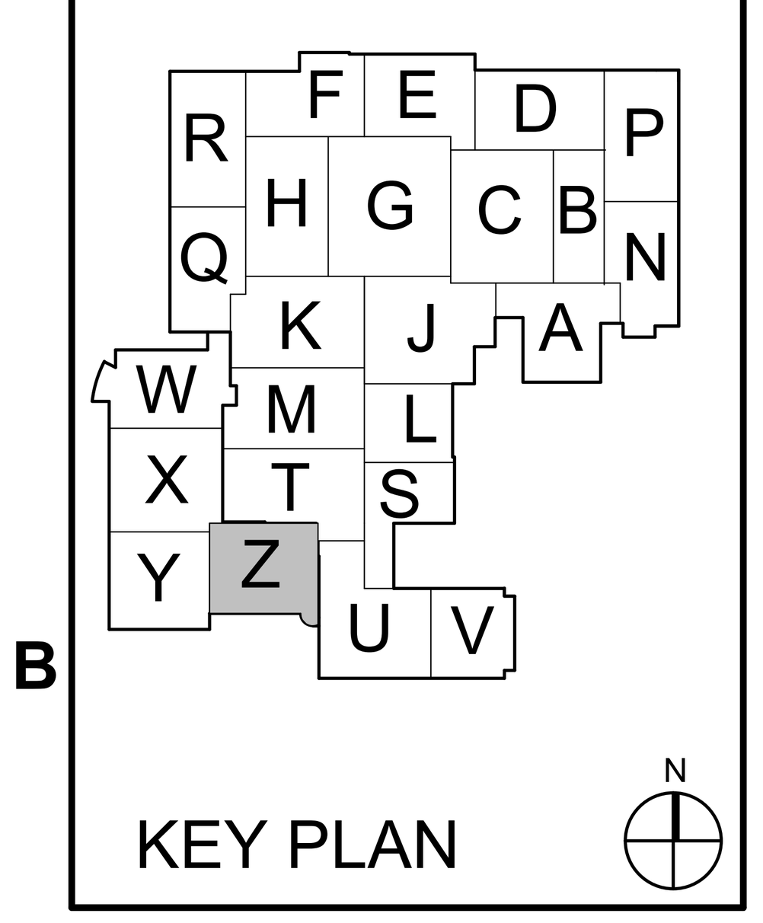
DYLAN SEESMAN REGISTERED No. PE11900810 STATE OF INDIANA PROFESSIONAL ENGINEER

#	Revision	Date
A2.2	Addendum 2	11.29.2021

1801 East 86th Street
Indianapolis, IN 46240



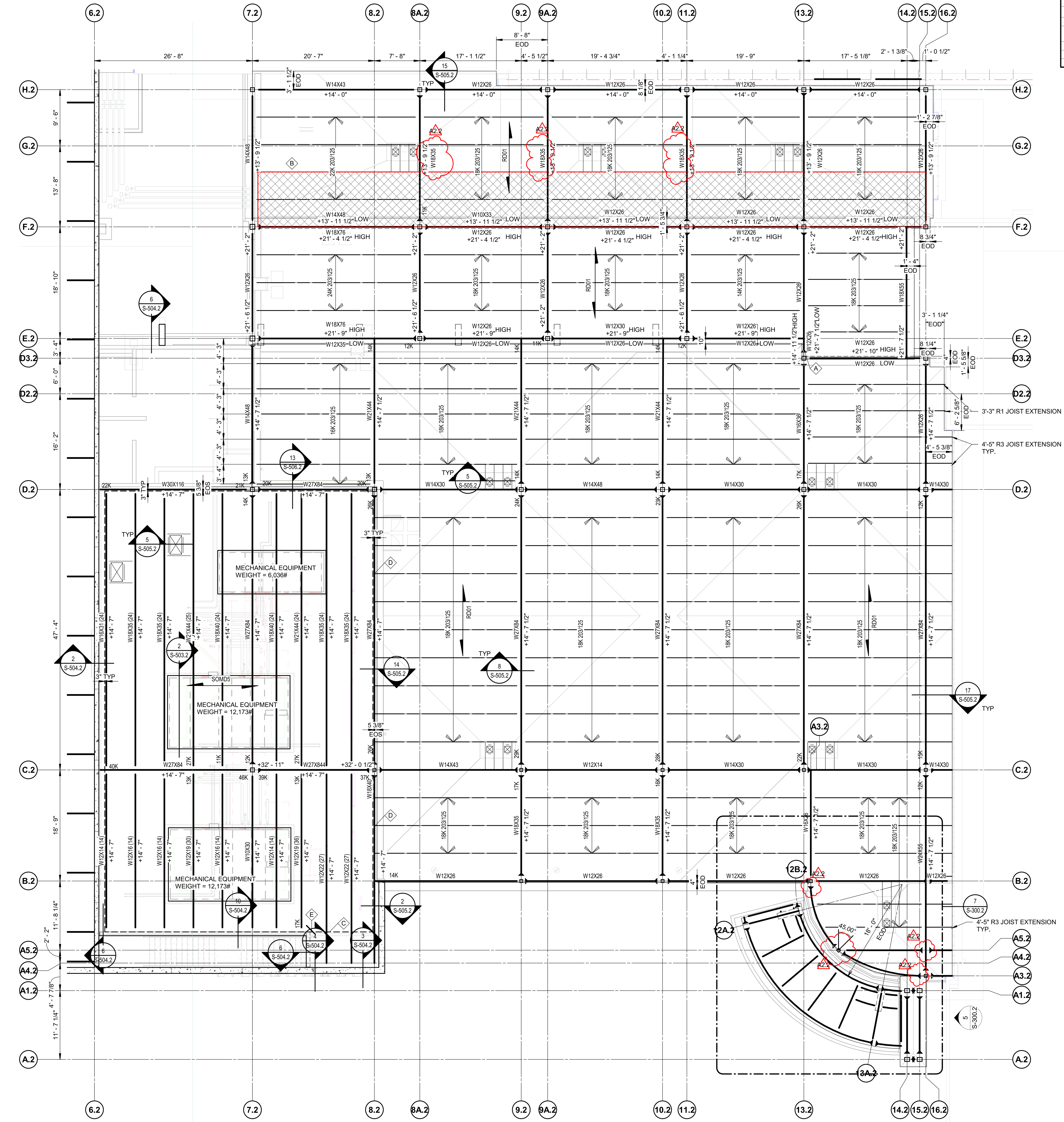
KEY PLAN

M.S.D. of Washington Township

North Central High School Renovation - West Gym Addition

UNIT Z FOUNDATION PLAN

SF1Z1.2



#	NOTE
A	W16X36 LOW CANTILEVER
B	HEAVY PIPING LOAD OF 200 plf LOCATED IN THIS REGION. HANG FROM MIN. 2 JOISTS IN THE PARALLEL CONDITION SEE MEP FOR EXACT LOCATIONS
C	4" CURB AROUND PERIMETER AND AT STAIR LANDING
D	3" JOIST BEARING SEAT THIS END TYP
E	REINFORCEMENT AT RE-ENTRANT CORNER PER 4/S-503.2, TYPICAL

Plan Note Schedule Unit Z Roof

UNIT Z ROOF PLAN

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

N

FRAMING PLAN NOTES:

1. ELEVATIONS ±, ARE FROM NOMINAL FIRST FLOOR ELEV +0'-0", SEE CIVIL DRAWINGS.
2. SEE ARCHITECTURAL DRAWINGS FOR ALL DIMENSIONS NOT SHOWN. CONTRACTOR SHALL VERIFY ALL DIMENSIONS PRIOR TO CONSTRUCTION AND NOTIFY ARCHITECT/ENGINEER OF ANY DISCREPANCIES IMMEDIATELY.
3. COORDINATE DECK AND SLAB OPENINGS - EXACT SIZE AND LOCATION, WITH MECHANICAL AND PLUMBING CONTRACTOR DRAWINGS AND EQUIPMENT SUPPLIER.
4. FIELD VERIFY ALL DIMENSIONS AND ELEVATIONS
5. T/STEEL = 14' 10" U.N.O.
6. MOMENT CONNECTIONS SHOWN ON STACKED BEAMS SHOULD BE MADE ON BOTH HIGH AND LOW BEAM U.N.O.
7. PROVIDE GALVANIZE FINISH AT ALL EXTERIOR STEEL.

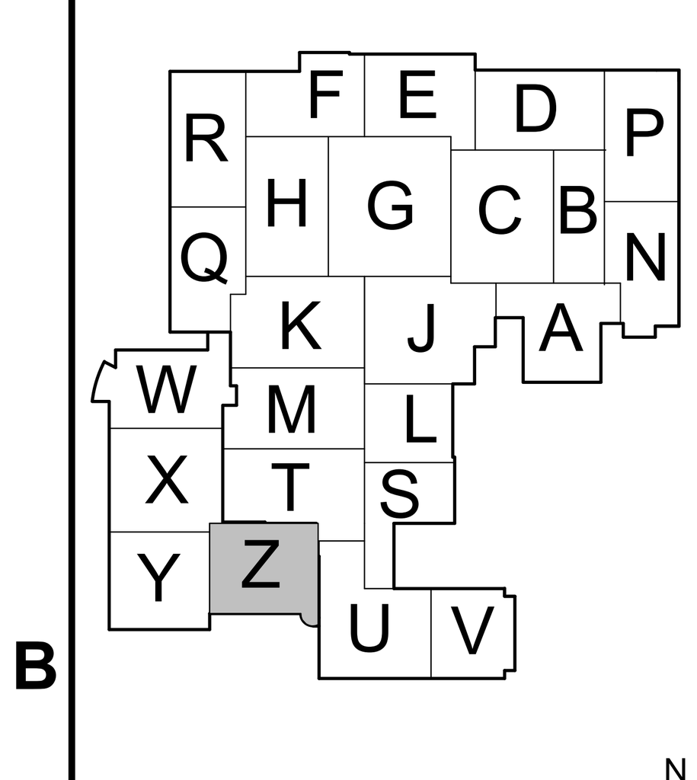
SCHMIDT
ASSOCIATES
415 Massachusetts Avenue
Indianapolis, IN 46204
www.schmidt-arch.com

Project No. 2019-067.NCH
Project Date 11.01.2021
Bid Set 02
Produced DJS CDL

DYLAN SEESMAN REGISTERED No. PE11900810 STATE OF INDIANA PROFESSIONAL ENGINEER

#	Revision	Date
A2.2	Addendum 2	11.29.2021

1801 East 86th Street
Indianapolis, IN 46240



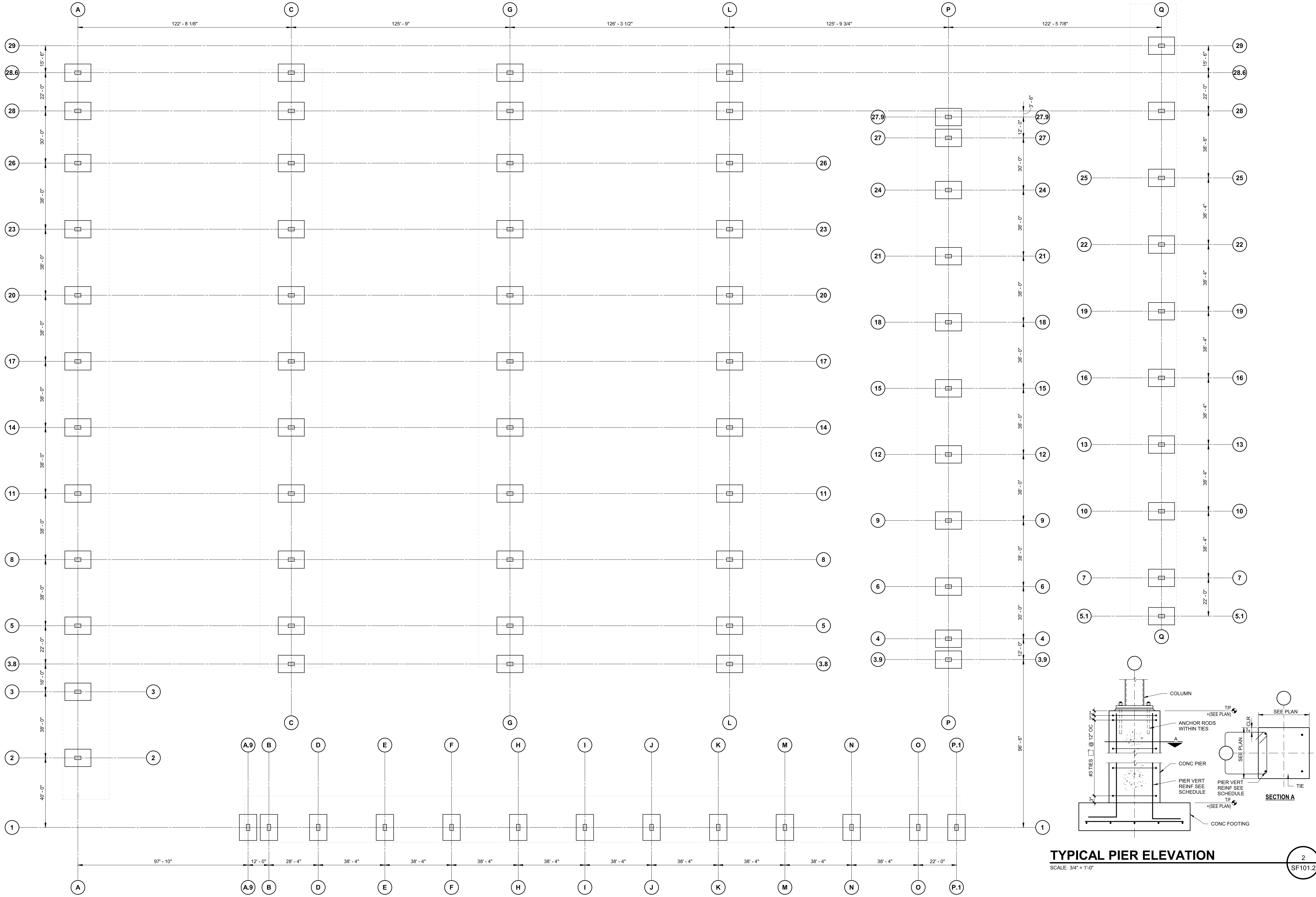
KEY PLAN

M.S.D. of Washington Township

North Central High School Renovation - West Gym Addition

UNIT Z LOW ROOF AND MEZZ PLAN

SF1Z2.2



CANOPY FOUNDATION PLAN

SCALE: 3/64" = 1'-0"

TYPICAL PIER ELEVATION

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

2 SF101.2

FOUNDATION PLAN NOTES:

1. ELEVATIONS ±, ARE FROM NOMINAL FIRST FLOOR ELEV +0'-0", SEE CIVIL DRAWINGS.
2. SEE ARCHITECTURAL/CIVIL DRAWINGS FOR ALL DIMENSIONS NOT SHOWN. CONTRACTOR SHALL VERIFY ALL DIMENSIONS PRIOR TO CONSTRUCTION AND NOTIFY ARCHITECT/ENGINEER OF ANY DISCREPANCIES IMMEDIATELY.
3. TOP OF FOOTING (T/F) -2'-0", UNO.
4. TOP OF PIER (T/PIER) 0'-0", UNO.

NOTE: ALL DESIGNS AND SIZES ARE THE RESPONSIBILTY OF THE CANOPY CONTRACTOR BASED ON THE LOADING CRITERIA PROVIDED IN THESE DOCUMENTS. SIZES, DETAILS, AND LOCATIONS ARE MEANT TO BE SCHEMATIC IN NATURE AND ARE SUBJECT TO CHANGE BASED ON THE DESIGN PERFORMED BY THE CONTRACTOR. REFER TO SPECIFICATION SECTION 131200.

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Project No. 2019-067.NCH
Project Date 11.1.2021
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DYLAN SEESMAN REGISTERED No. PE11900810 STATE OF INDIANA PROFESSIONAL ENGINEER

#	Revision	Date
A2.2	Addendum 2	11.29.2021

JQOL QUALITY OF LIFE
6280 N. Shadeland Ave.
Indianapolis, IN 46220
www.jqolusa.com
Project No: 2020.704

1815 E. 86th Street
Indianapolis, IN 46240

KEY PLAN

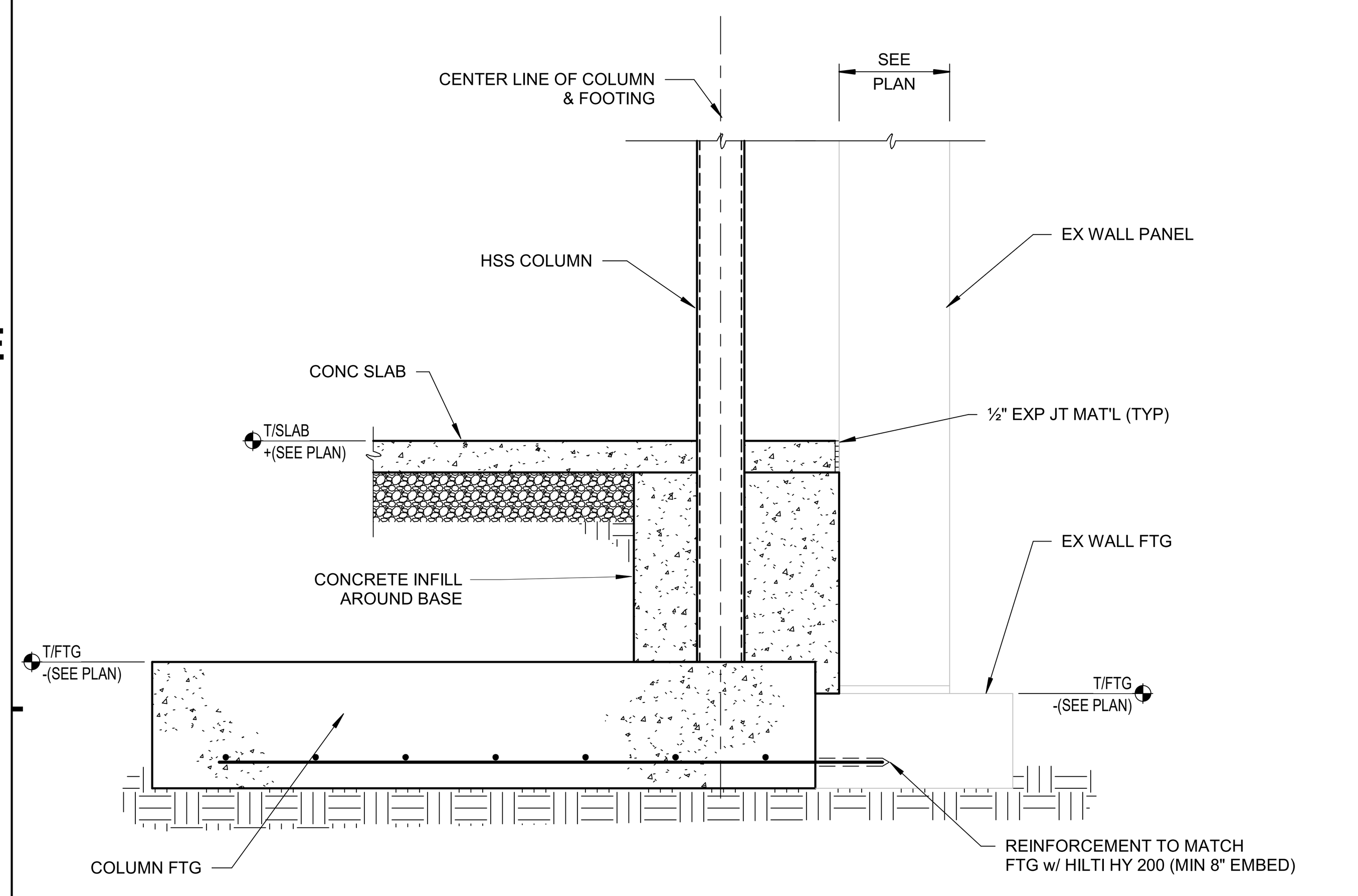
M.S.D Washington Township

WASHINGTON TOWNSHIP SCHOOLS

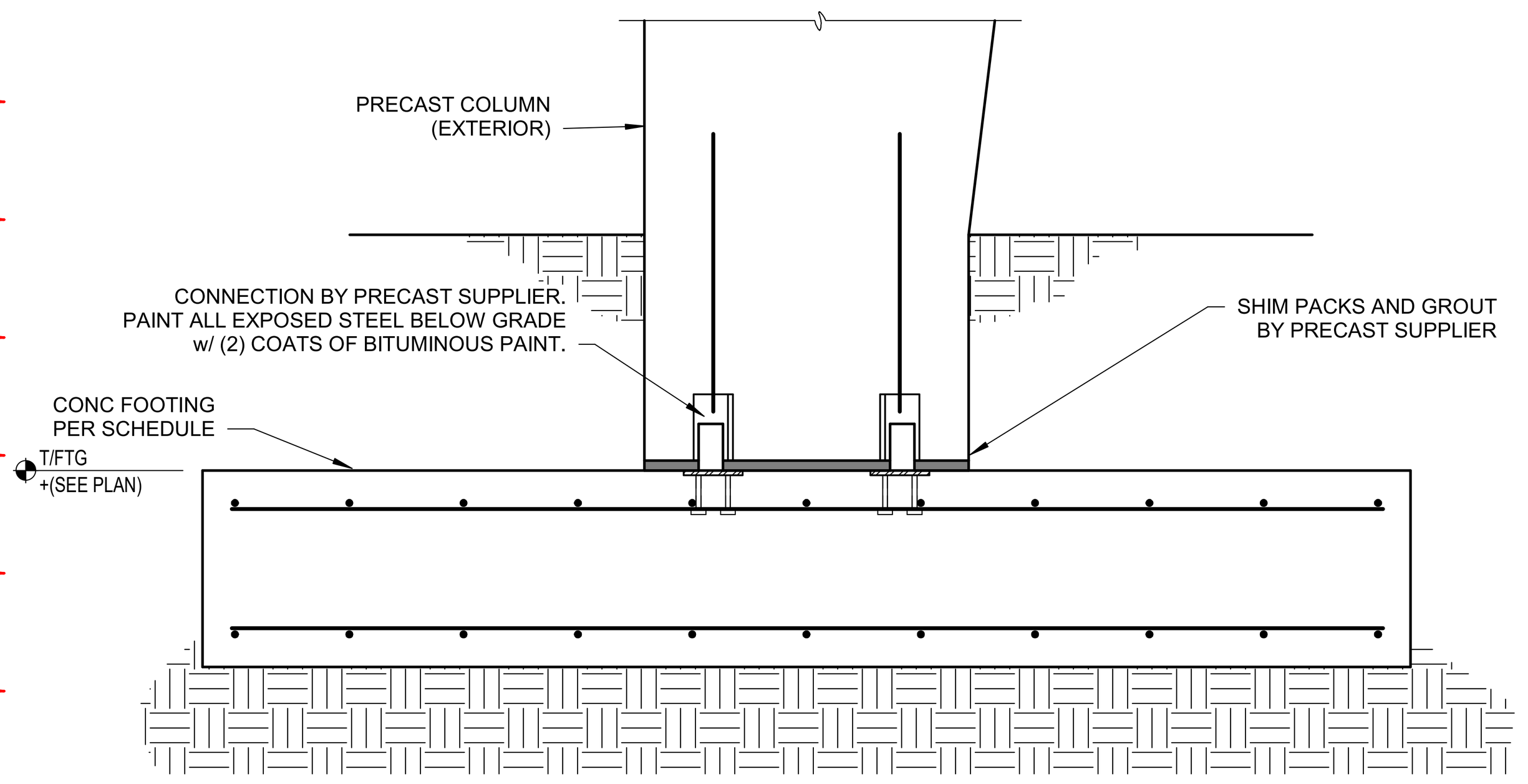
CENTRALIZED BUS STORAGE
Bus Canopies

FOUNDATION PLAN

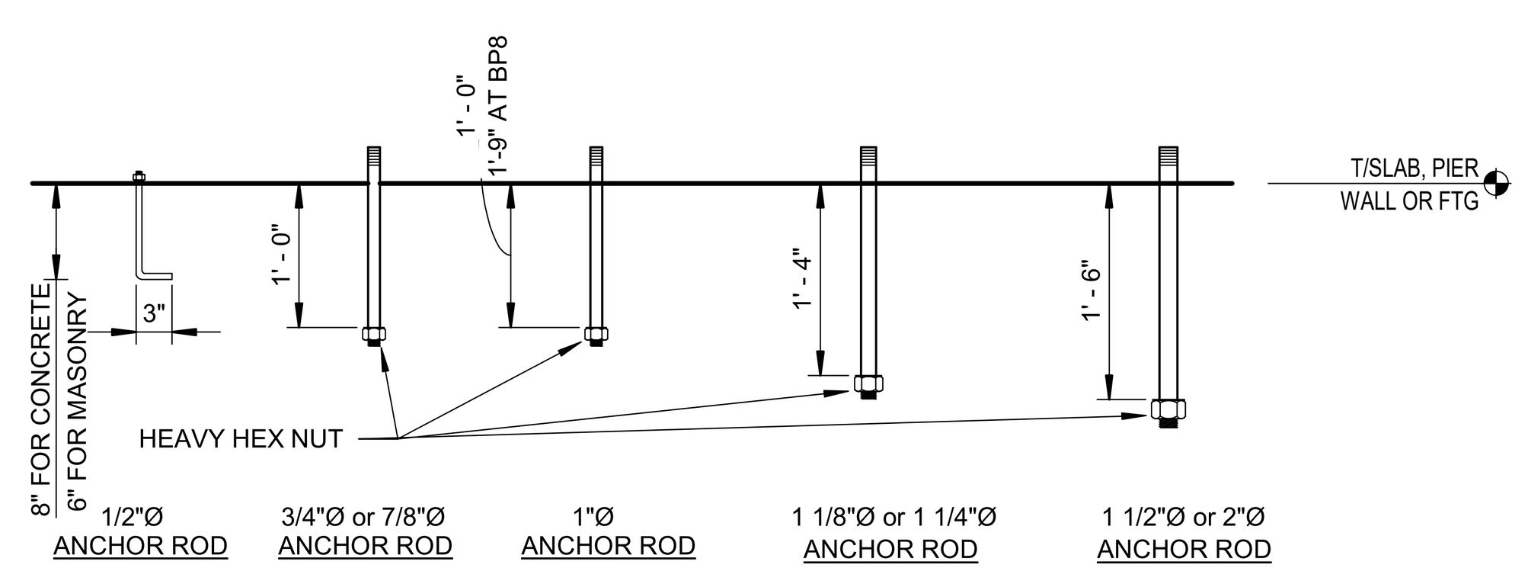
SF101.2



FTG AT EX WALL FOOTING
SCALE: 3/4" = 1'-0"
15 S-502.2



EXTERIOR PRECAST COLUMN FOUNDATION
SCALE: 3/4" = 1'-0"
16 S-502.2

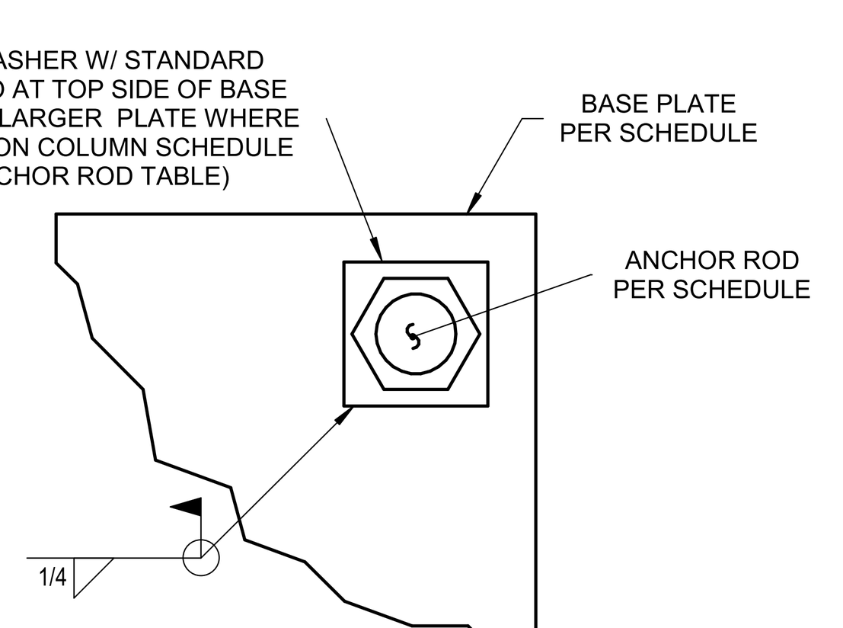


NOTES:
1. SEE SCHEDULE OR SECTIONS FOR REQUIRED ANCHOR ROD SIZE AND SPACING.
2. PROVIDE NUTS AND WASHERS FOR ALL ANCHOR RODS.

TYPICAL ANCHOR ROD DETAILS
SCALE: 3/4" = 1'-0"
17 S-502.2

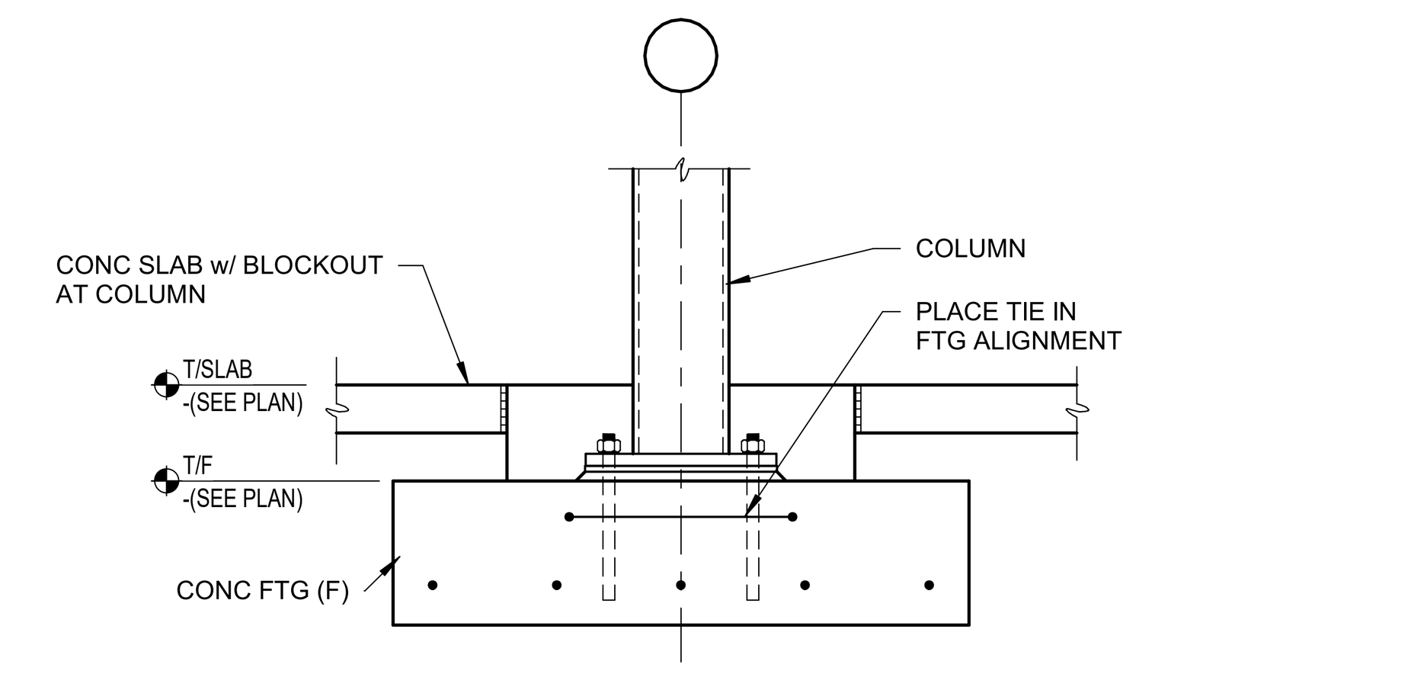
PLATE WASHER DIMENSIONS

ANCHOR ROD DIA	REQD PLATE WASHER
<= 3/4"	1/4x2-1/2x2-1/2
1"	3/8x3-1/2x3-1/2
>1" TO 1.5"	1/2x3-1/2x3-1/2
> 1.5"	1/2x4x4

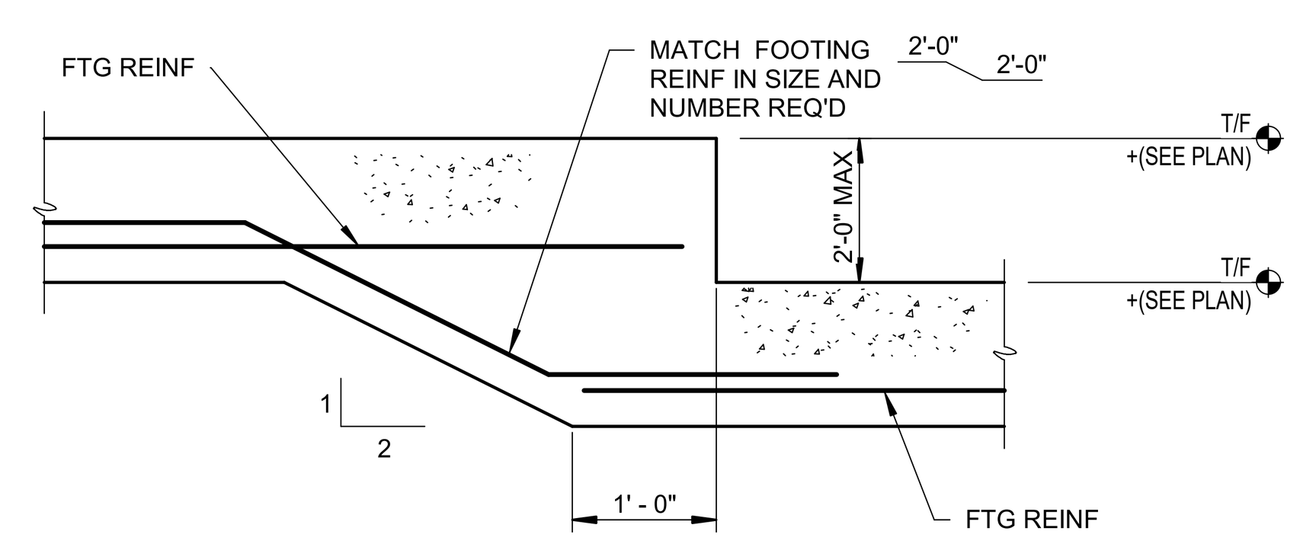


NOTES:
1: THIS DETAIL APPLIES AT ALL COLUMN ANCHOR RODS AT BRACED FRAMES AND MOMENT FRAMES UNO.

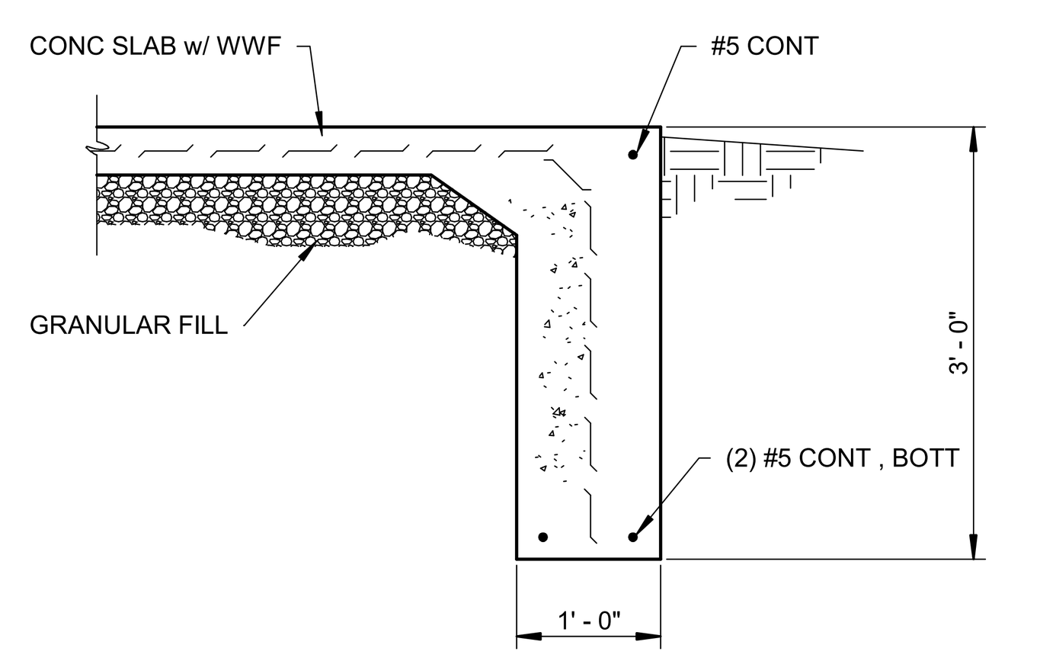
PLATE WASHER DIMENSIONS
SCALE: 1/2" = 1'-0"
18 S-502.2



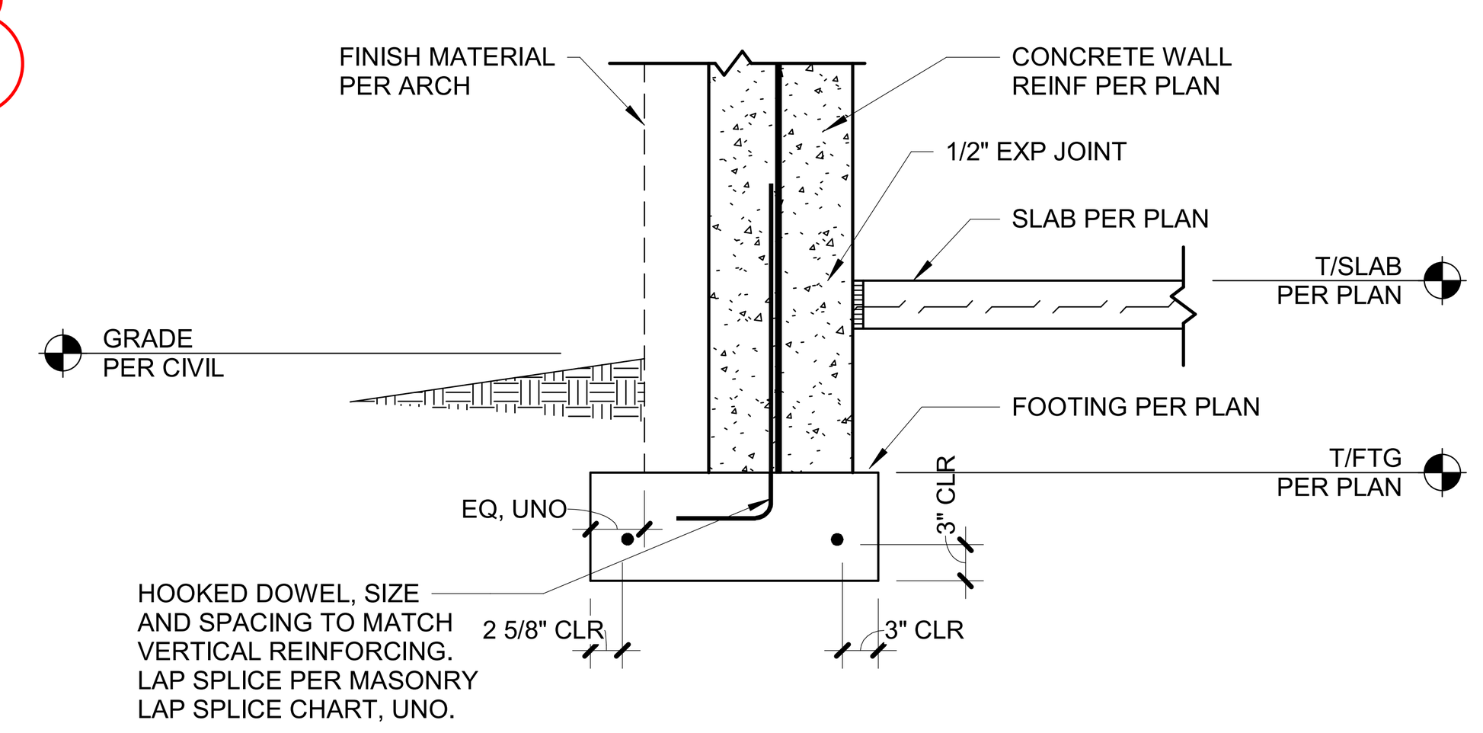
TYPICAL COLUMN BASE SECTION
SCALE: 3/4" = 1'-0"
10 S-502.2



TYP TOP OF FOOTING STEP
SCALE: 3/4" = 1'-0"
11 S-502.2

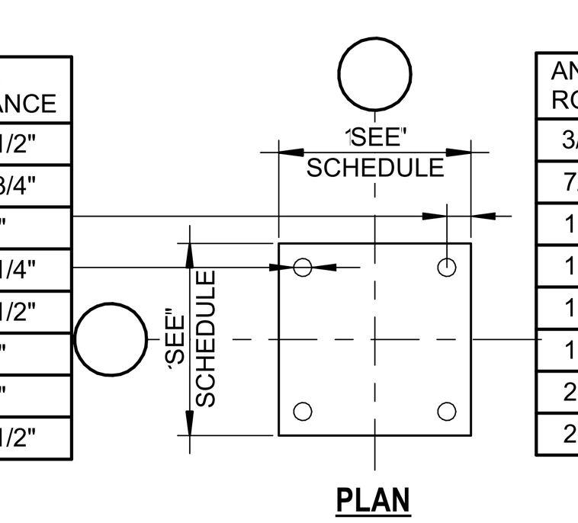


TYP TURNED DOWN SLAB SECTION
SCALE: 3/4" = 1'-0"
12 S-502.2

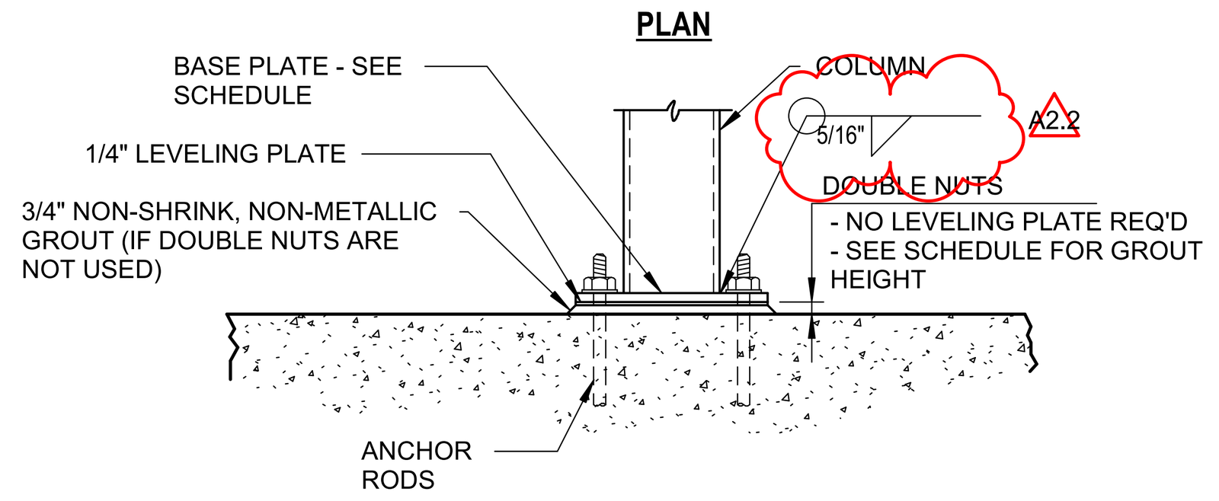


TYP PERIMETER CONCRETE WALL FOOTING
SCALE: 3/4" = 1'-0"
13 S-502.2

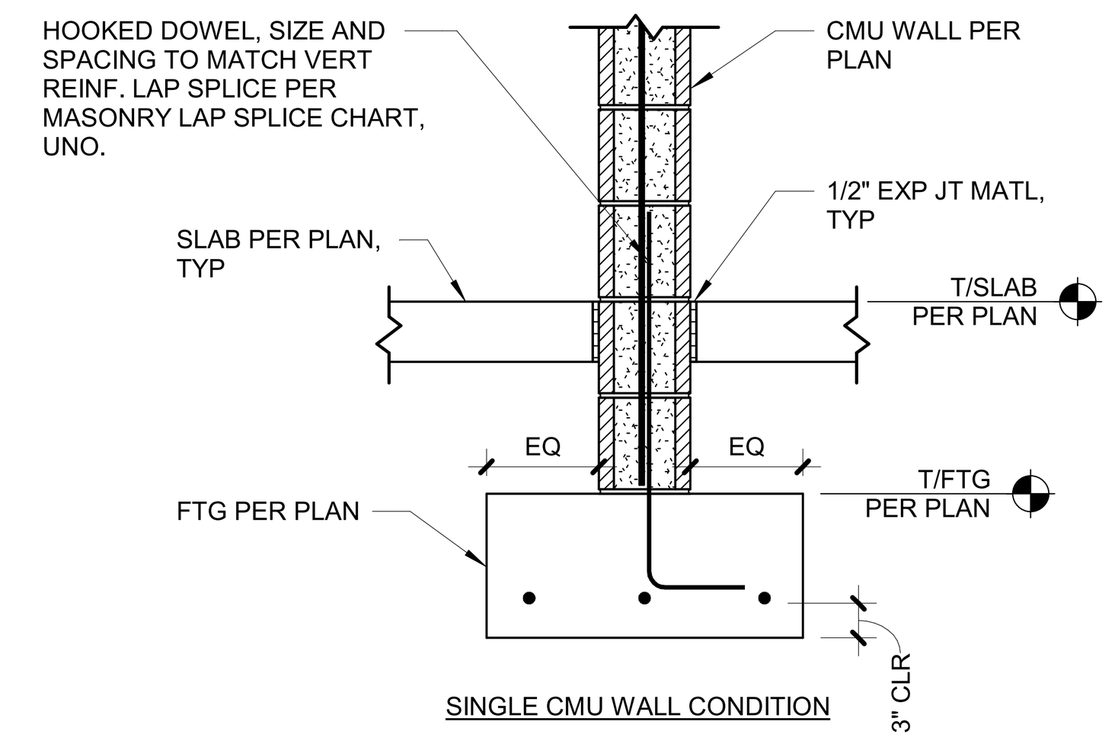
ANCHOR ROD	HOLE DIAMETER	EDGE DISTANCE
3/4"Ø	1 1/16"Ø	1 1/2"
7/8"Ø	1 3/16"Ø	1 3/4"
1"Ø	1 1/2"Ø	2"
1 1/8"Ø	1 5/8"Ø	2 1/4"
1 1/4"Ø	1 3/4"Ø	2 1/2"
1 1/2"Ø	2"Ø	3"
2"Ø	2 1/2"Ø	4"
2 1/2"Ø	3"Ø	4 1/2"



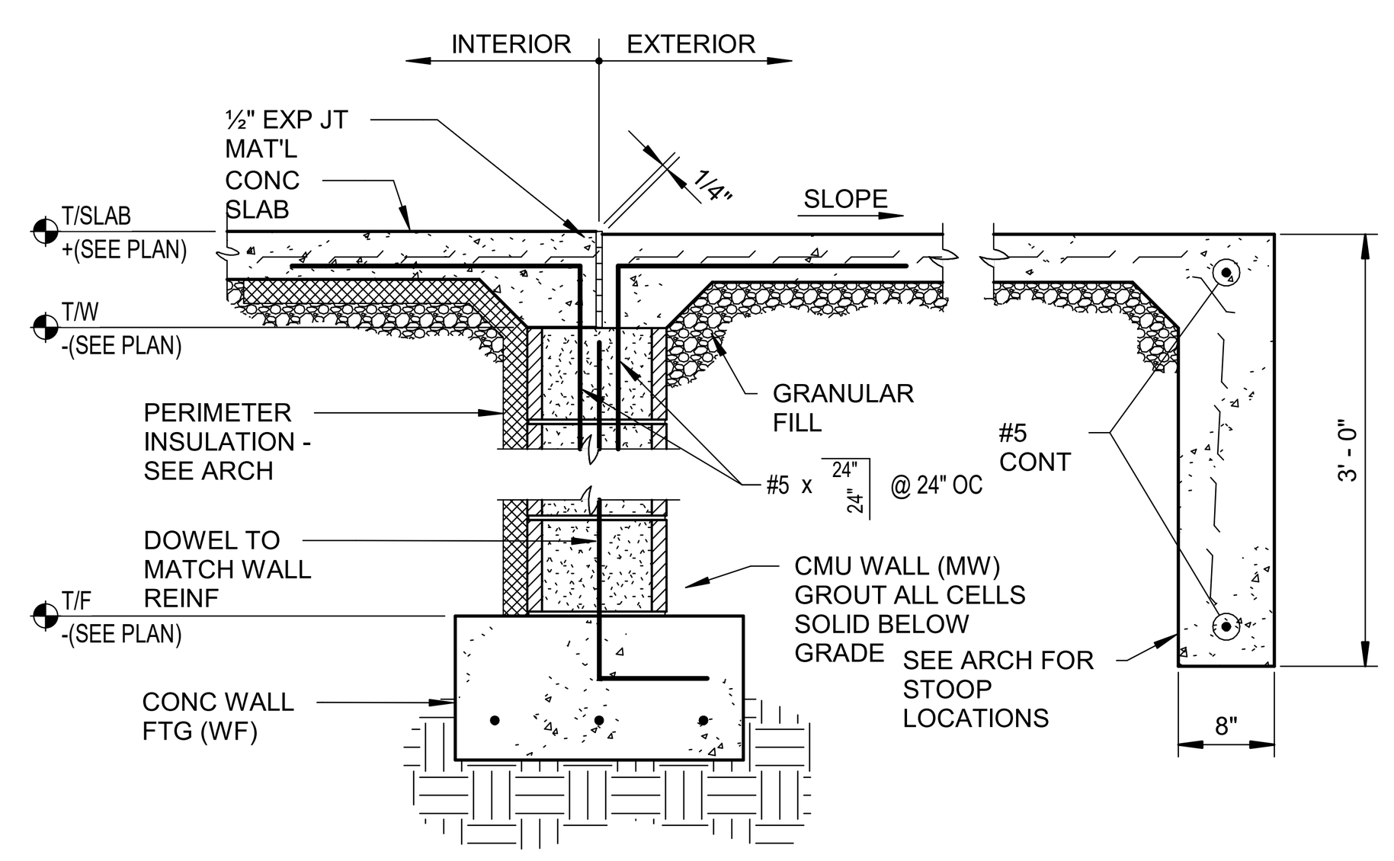
ANCHOR ROD	DOUBLE NUT GROUT HEIGHT
3/4"Ø	2"
7/8"Ø	2"
1"Ø	2"
1 1/8"Ø	2"
1 1/4"Ø	2"
1 1/2"Ø	2"
2"Ø	3"
2 1/2"Ø	3"



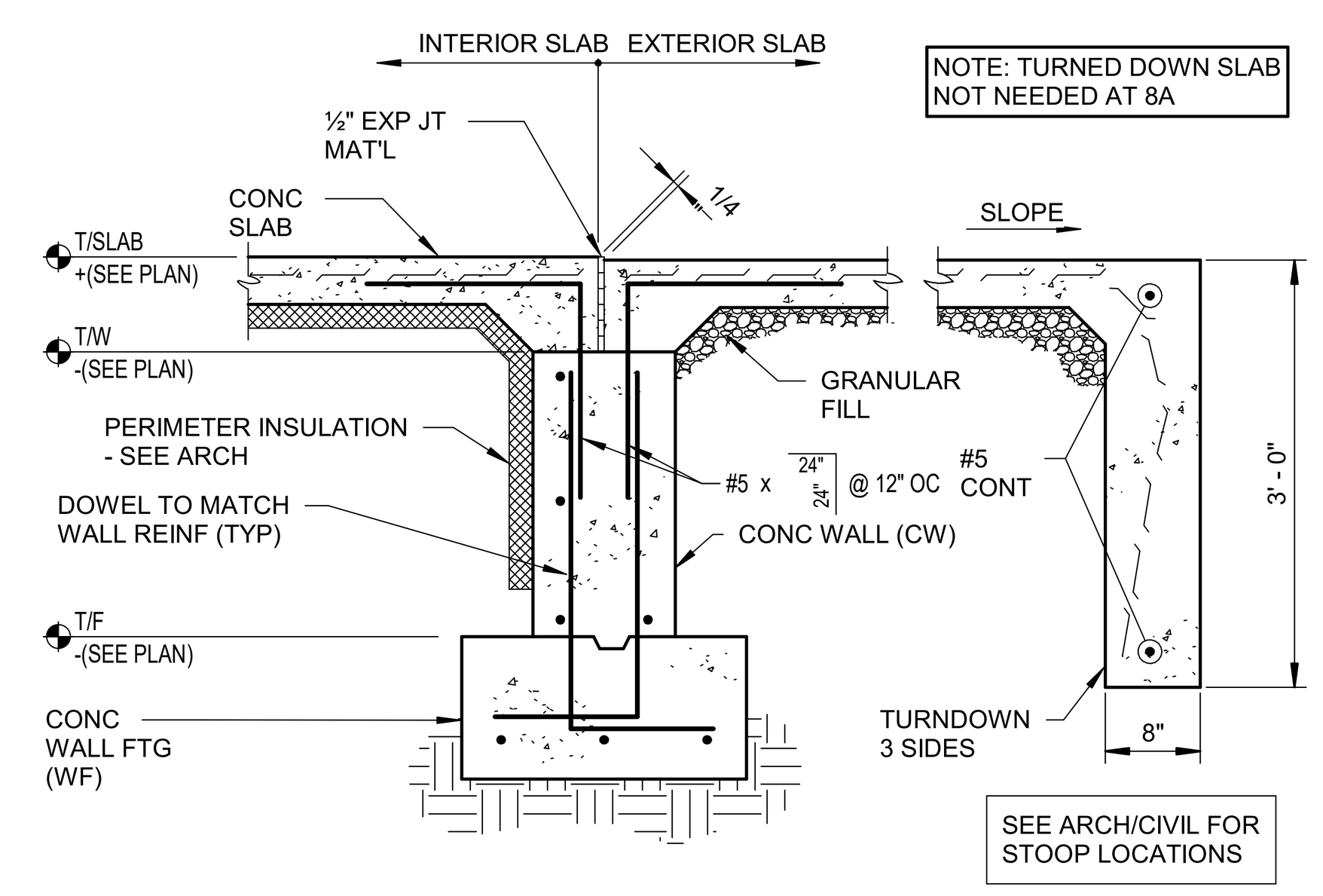
COLUMN BASE DETAIL
SCALE: 3/4" = 1'-0"
14 S-502.2



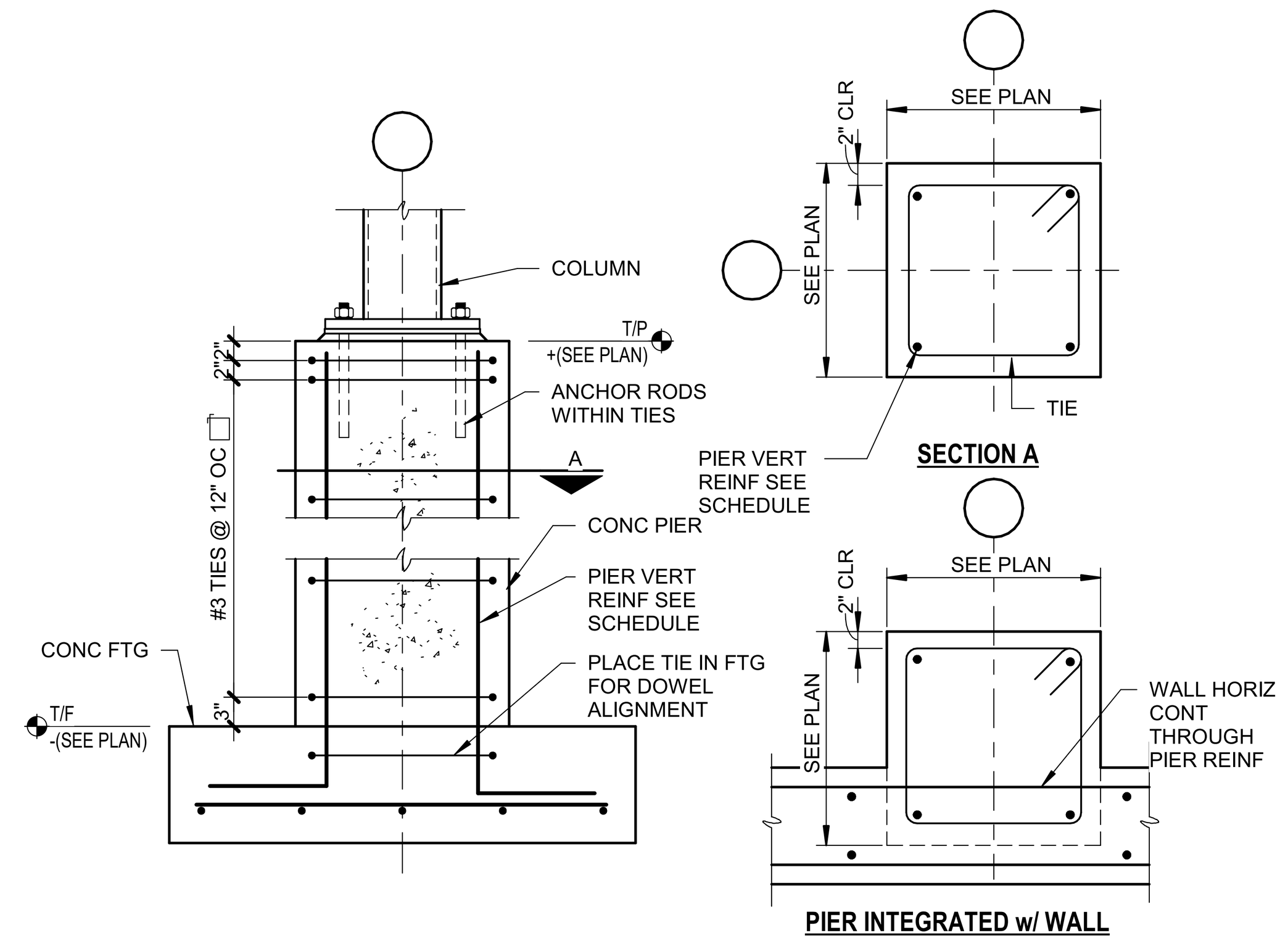
TYP INTERIOR CMU WALL FOOTING
SCALE: 3/4" = 1'-0"
6 S-502.2



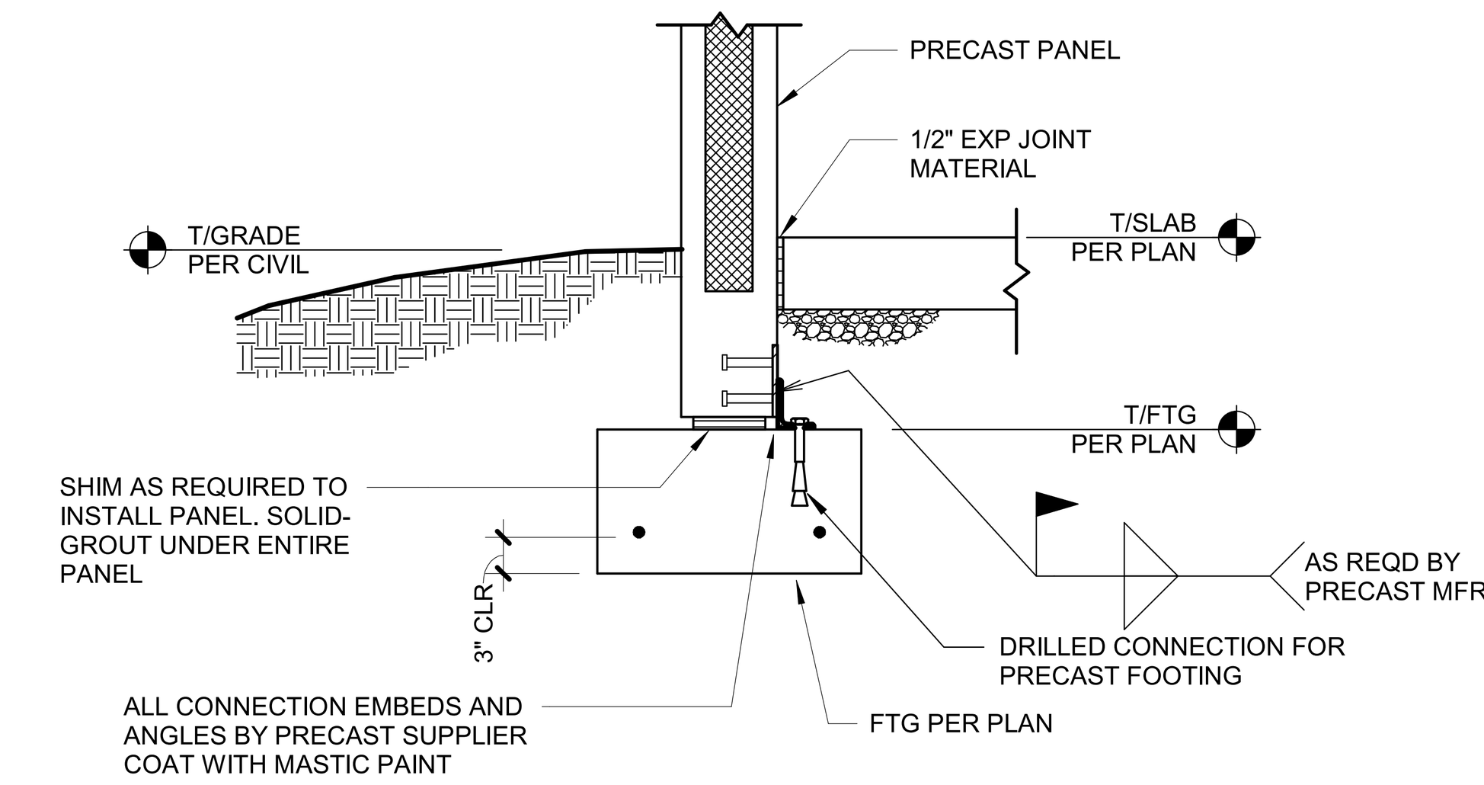
TYPICAL SECTION @ ENTRY
SCALE: 3/4" = 1'-0"
7 S-502.2



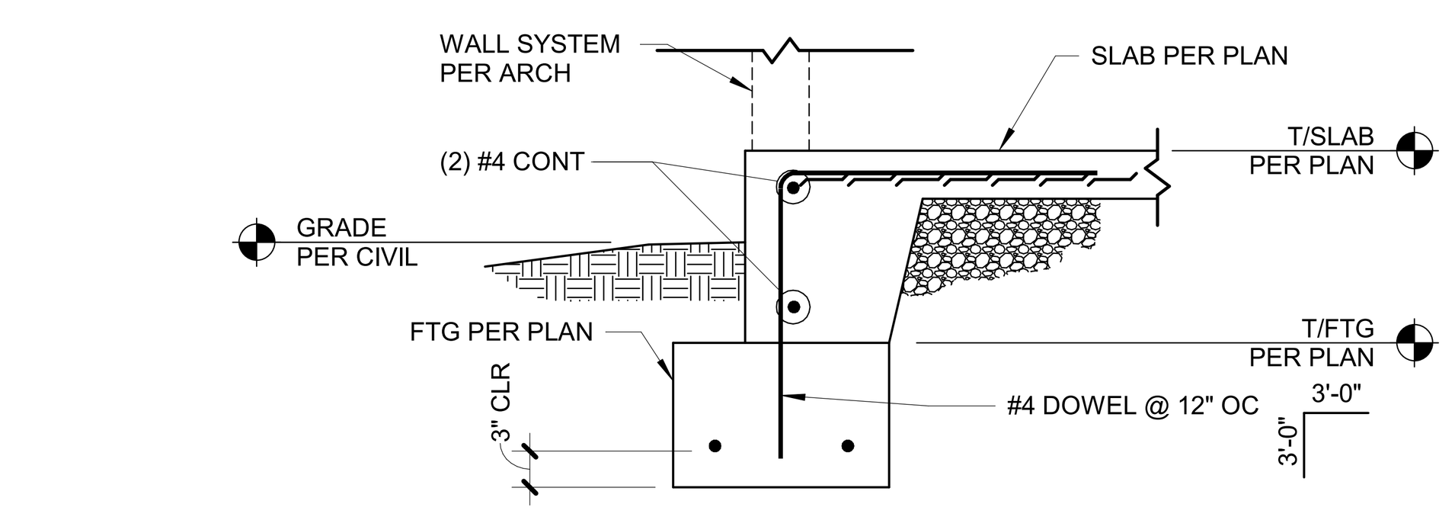
TYPICAL SECTION AT ENTRY
SCALE: 3/4" = 1'-0"
8 S-502.2



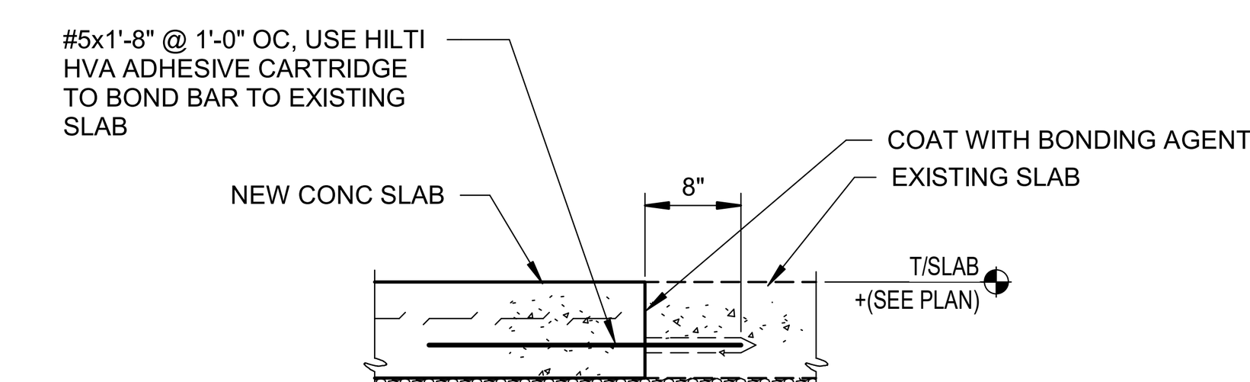
TYPICAL PIER ELEVATION
SCALE: 3/4" = 1'-0"
9 S-502.2



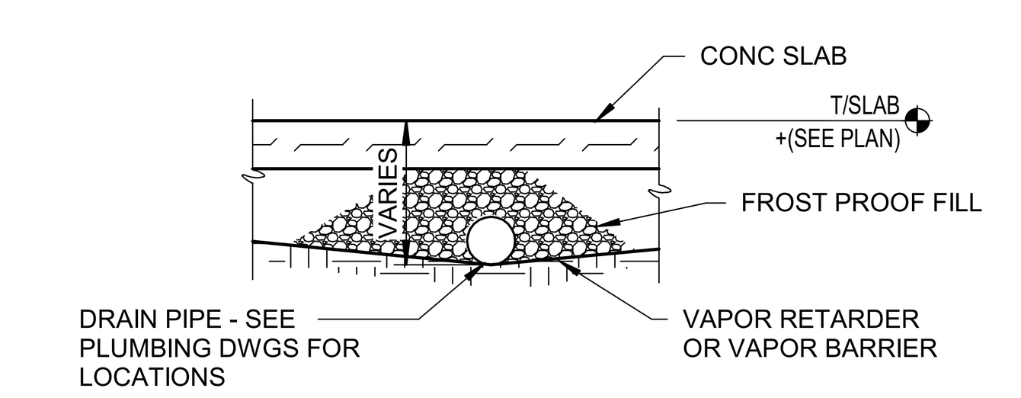
PRECAST WALL BASE CONN
SCALE: 3/4" = 1'-0"
1 S-502.2



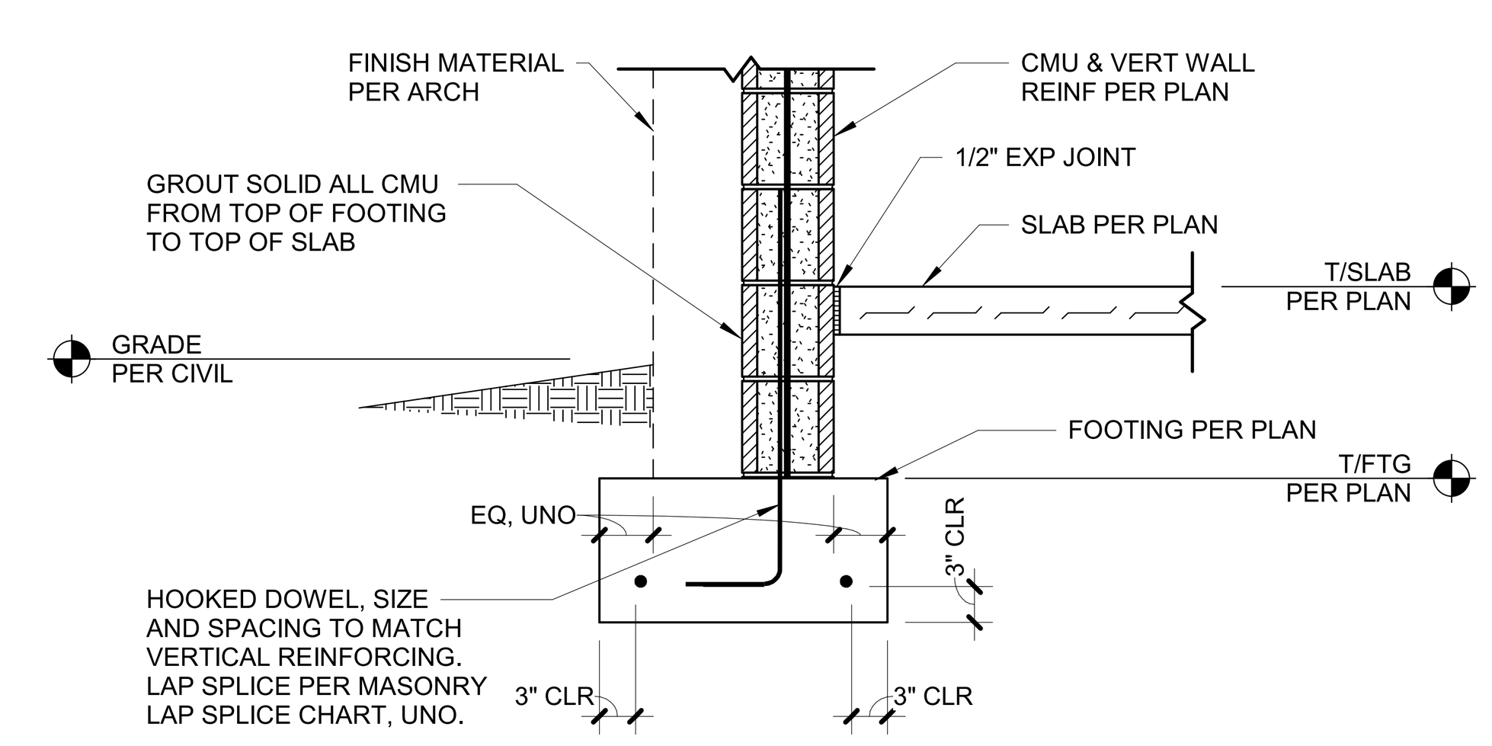
SECTION
SCALE: 3/4" = 1'-0"
2 S-502.2



NEW SLAB TO EX SLAB
SCALE: 3/4" = 1'-0"
3 S-502.2



PIPE UNDER SLAB SECTION
SCALE: 3/4" = 1'-0"
4 S-502.2



TYP PERIMETER CMU WALL FOOTING
SCALE: 3/4" = 1'-0"
5 S-502.2

SCHMIDT ASSOCIATES
415 Massachusetts Avenue
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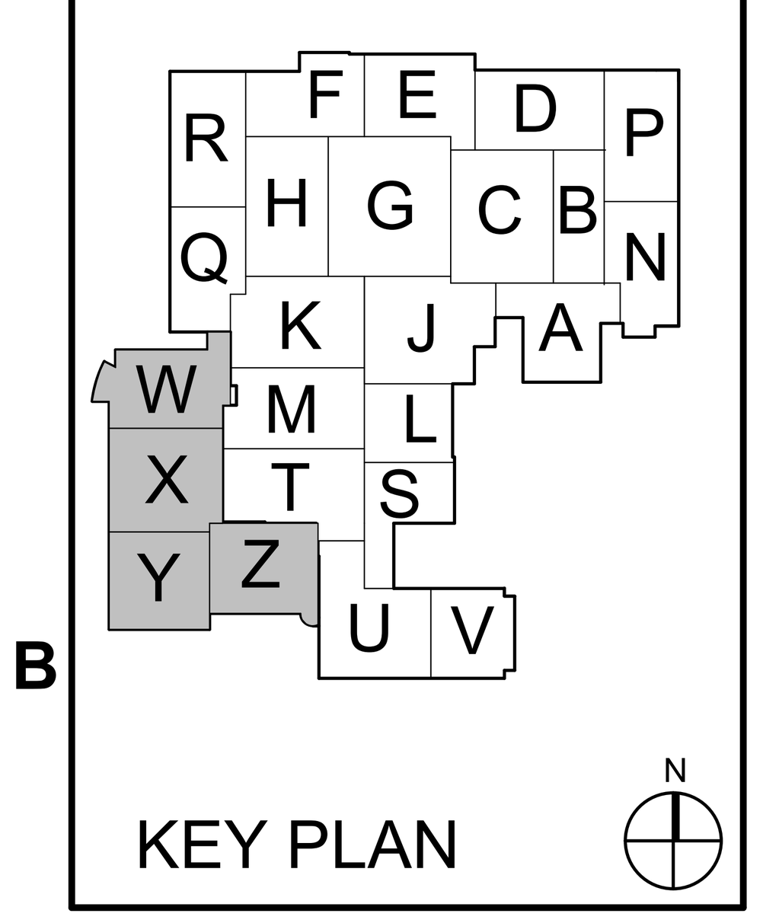
Project No. 2019-067.NCH
Project Date 11.01.2021
Bid Set 02
Produced DJS CDL

DYLAN SEESMAN REGISTERED No. PE11900810 STATE OF INDIANA PROFESSIONAL ENGINEER

#	Revision	Date
A2.2	Addendum 2	11.29.2021

1801 East 86th Street
Indianapolis, IN 46240



KEY PLAN

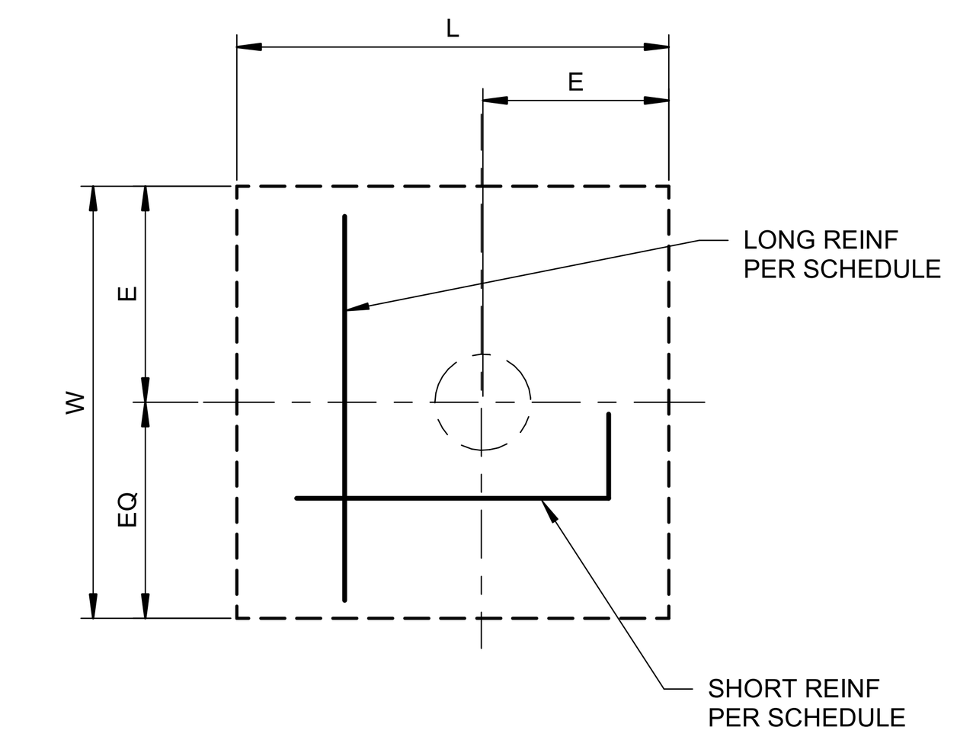
M.S.D. of Washington Township

North Central High School Renovation - West Gym Addition

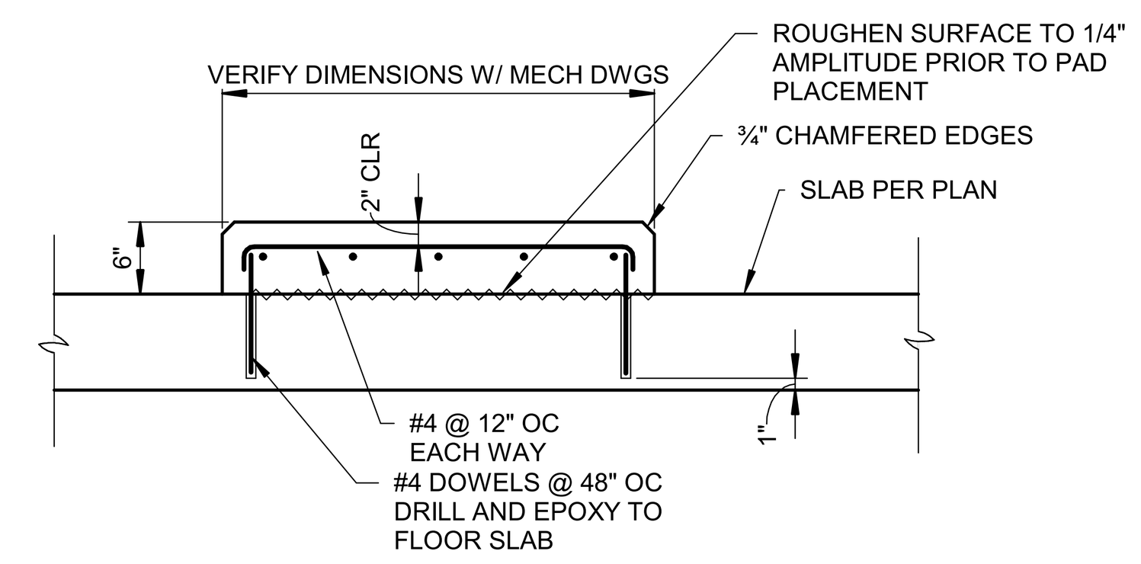
TYPICAL SECTIONS AND DETAILS

S-502.2

6 5 4 3 2 1

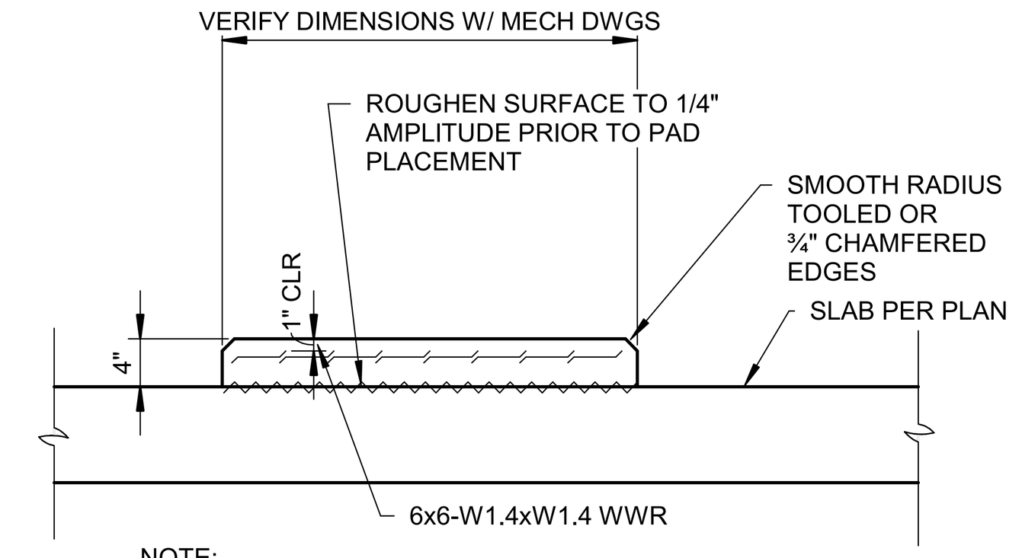


CAISSON CAP DETAIL
SCALE: 3/4" = 1'-0" — 5 / S-503.2



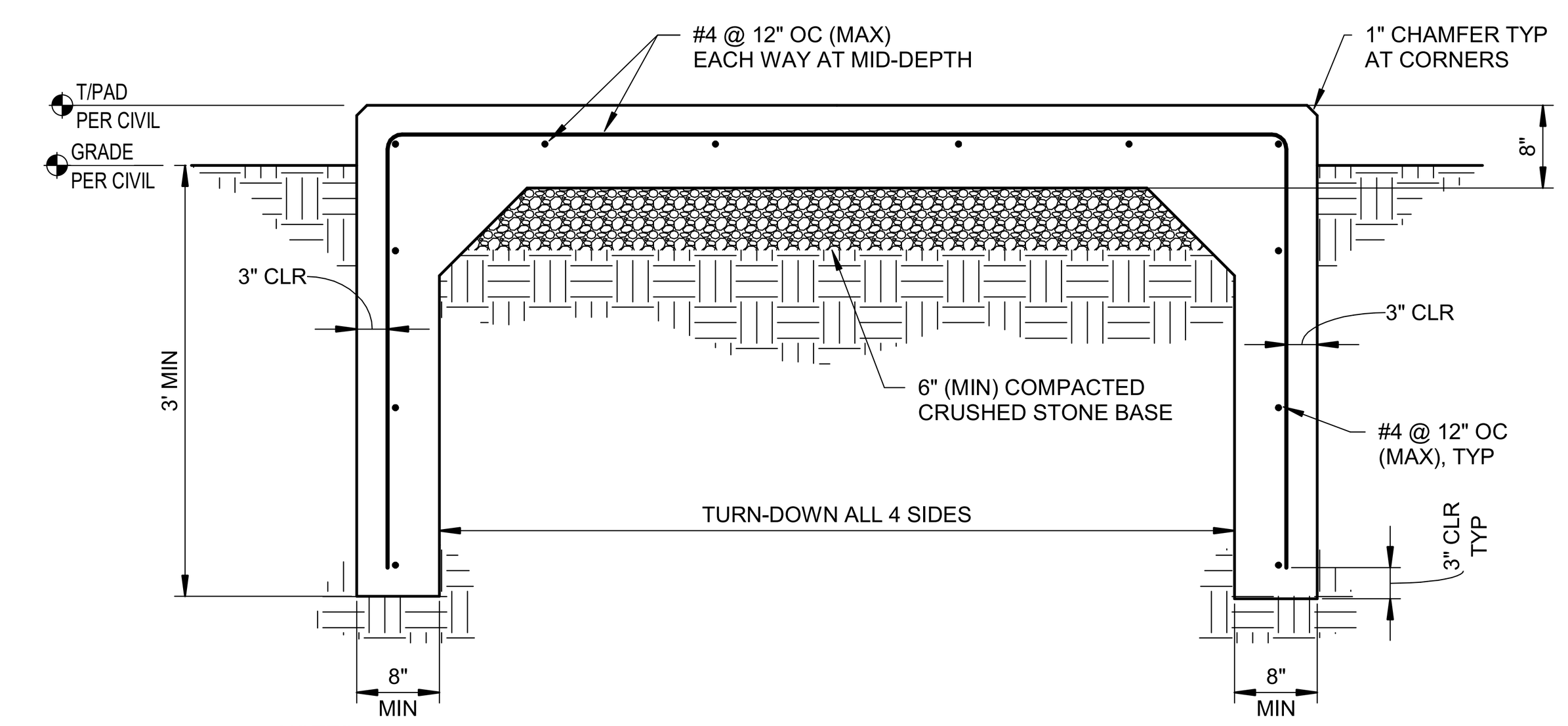
NOTE:
COORDINATE EXACT LOCATIONS WITH ARCHITECTURAL AND MECHANICAL DRAWINGS AND EQUIPMENT SUPPLIER.

TYPICAL EQUIPMENT PAD
SCALE: 3/4" = 1'-0" — 1 / S-503.2



NOTE:
COORDINATE EXACT LOCATIONS WITH ARCHITECTURAL AND MECHANICAL DRAWINGS AND EQUIPMENT SUPPLIER.

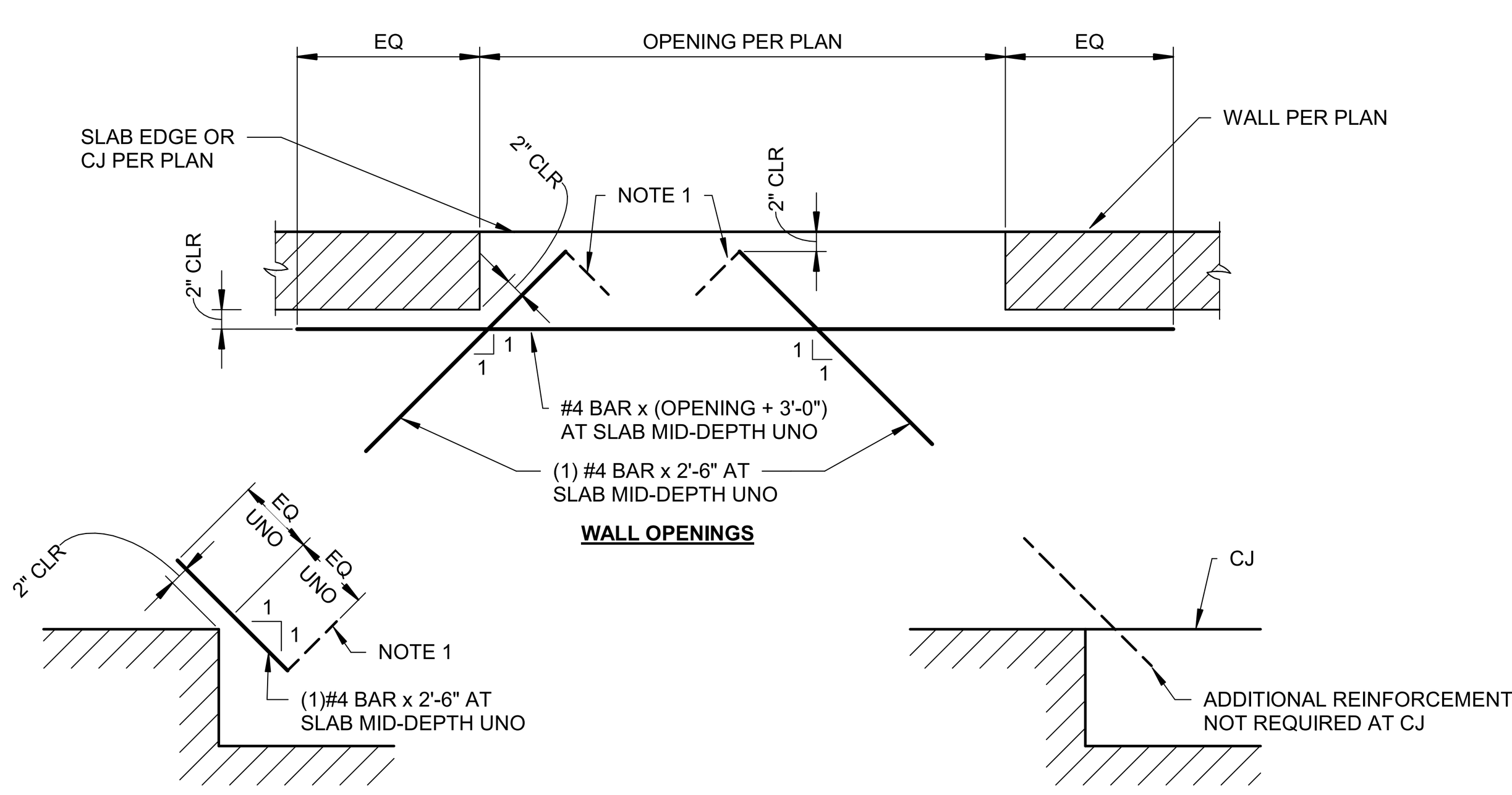
TYPICAL HOUSEKEEPING PAD
SCALE: 3/4" = 1'-0" — 2 / S-503.2



NOTES:

1. CONCRETE 28-DAY COMPRESSIVE STRENGTH = 4000 PSI, MINIMUM.
   AIR ENTRAINMENT = 6" ± 1%
   MAX W/C RATIO = 0.45
   BROOM FINISH SURFACE.
2. PROVIDE SAW-CUT CONTROL JOINTS SPACED NOT MORE THAN 24 TIMES THE SLAB THICKNESS CENTER-TO-CENTER, UNO. SEAL JOINTS WITH WEATHER-RESISTANT SEALANT.
3. SEE PLANS FOR OVERALL PAD DIMENSIONS.
4. COORDINATE EXACT LOCATION WITH CIVIL AND MECHANICAL DRAWINGS, AND EQUIPMENT SUPPLIER.

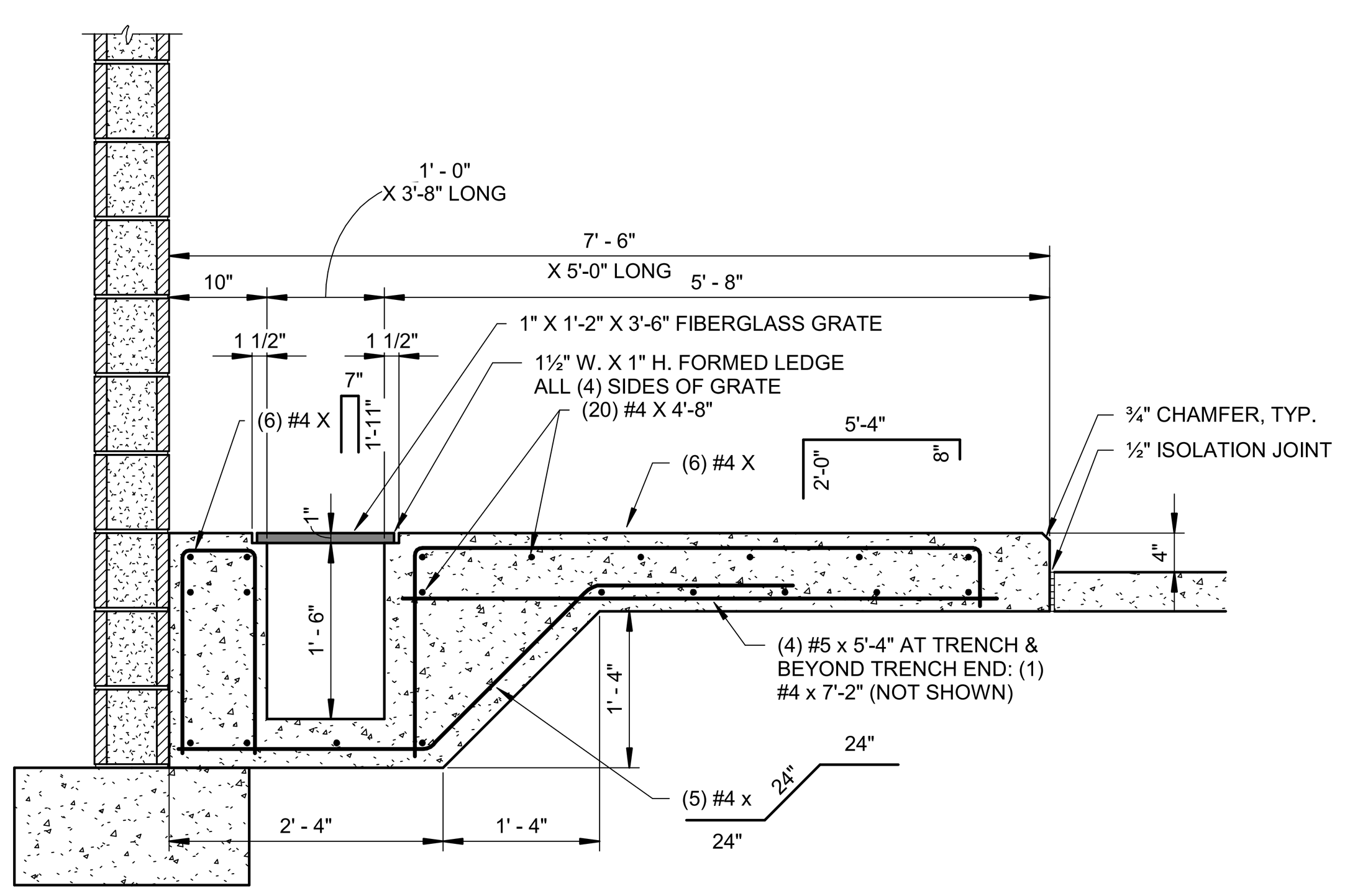
TYPICAL EXTERIOR EQUIPMENT PAD DETAIL
SCALE: 3/4" = 1'-0" — 3 / S-503.2



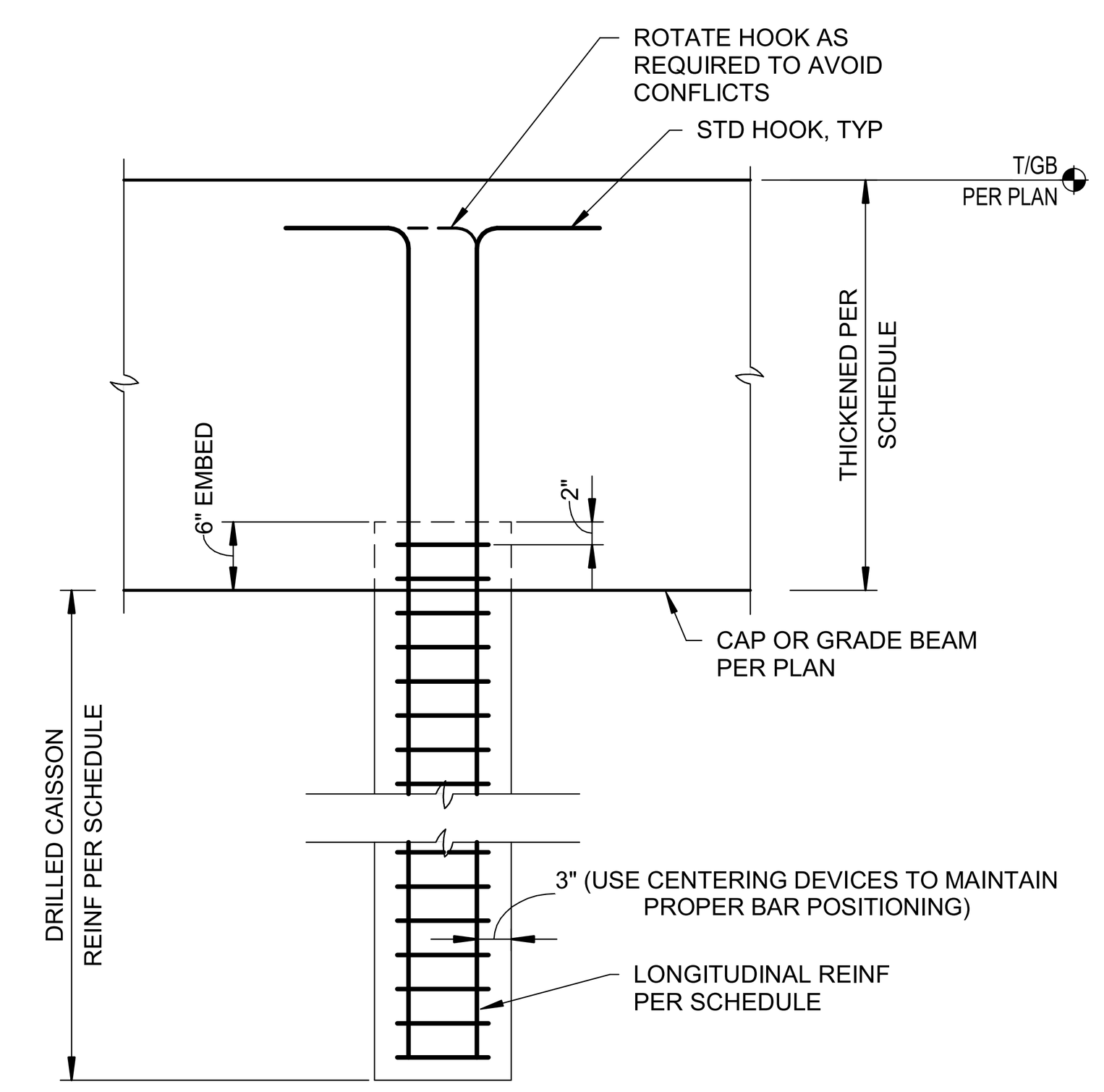
NOTES:

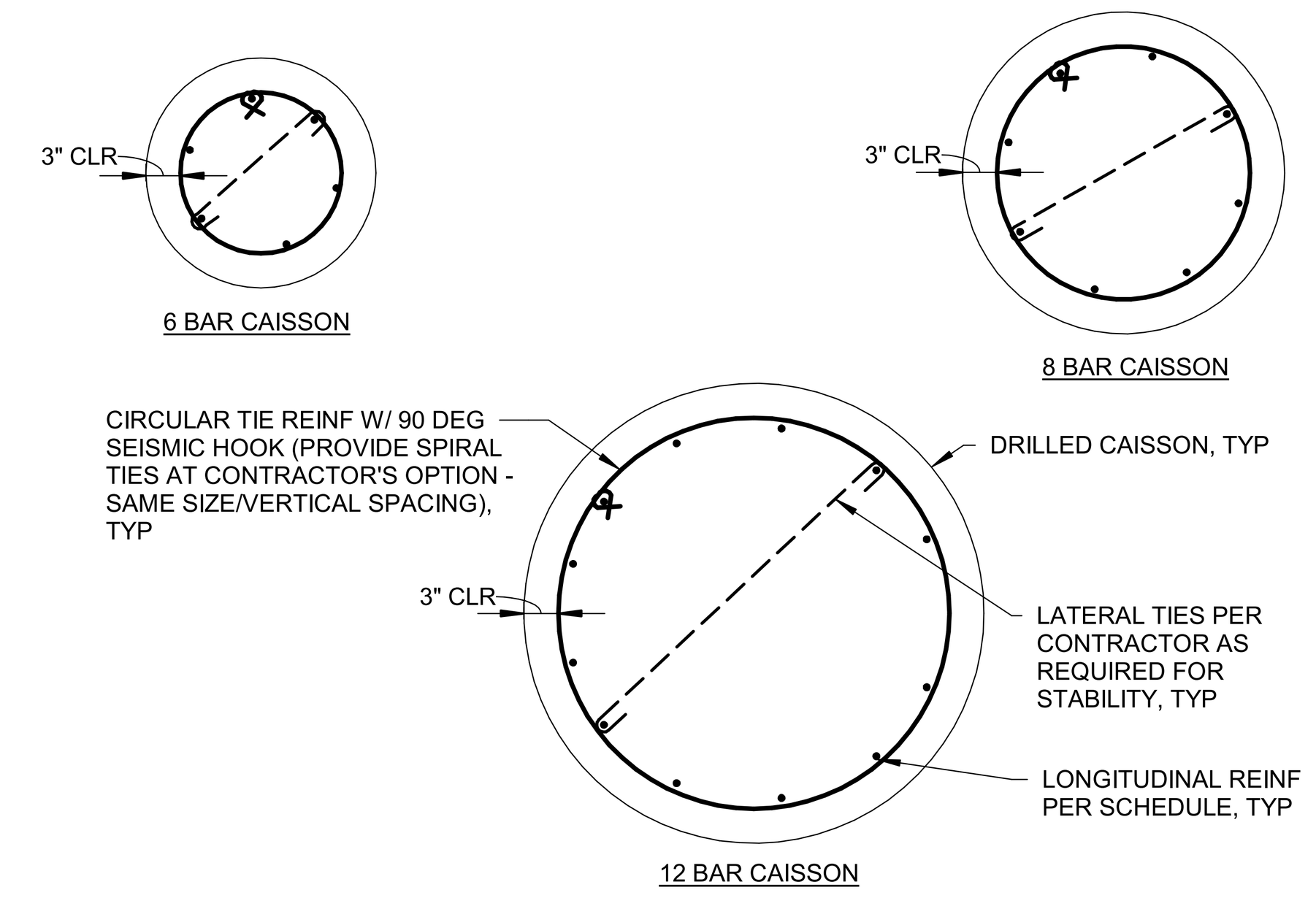
1. WHERE THERE IS INSUFFICIENT ROOM TO INSTALL A STRAIGHT BAR AS SHOWN CENTERED WITH EQUAL LENGTH EACH SIDE OF THE RE-ENTRANT CORNER, PROVIDE BAR WITH A 90- OR 180- DEGREE HOOK INSTALLED ON THE SIDE WITH SHORTER EMBEDMENT.
2. FOR SLABS WITH 2 LAYERS OF REINFORCEMENT, INSTALL ADDITIONAL REINFORCEMENT AT ELEVATION OF TOP LAYER ONLY.

TYPICAL ADDITIONAL SLAB ON GRADE REINFORCEMENT AT RE-ENTRANT CORNERS
SCALE: 3/4" = 1'-0" — 4 / S-503.2

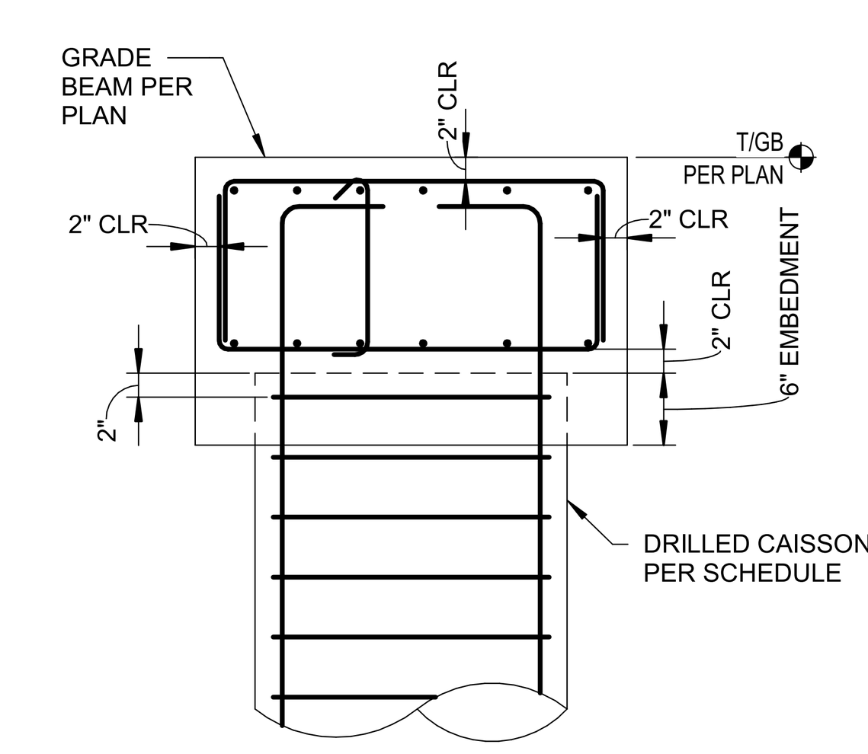


LAUNDRY SLAB DETAIL
SCALE: 3/4" = 1'-0" — 9 / S-503.2





TYPICAL DRILLED CAISSON DETAIL
SCALE: 3/4" = 1'-0" — 6 / S-503.2



TYPICAL DRILLED CAISSON AT GRADE BEAM
SCALE: 3/4" = 1'-0" — 7 / S-503.2

A B C D E

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Project No. 2019-067.NCH
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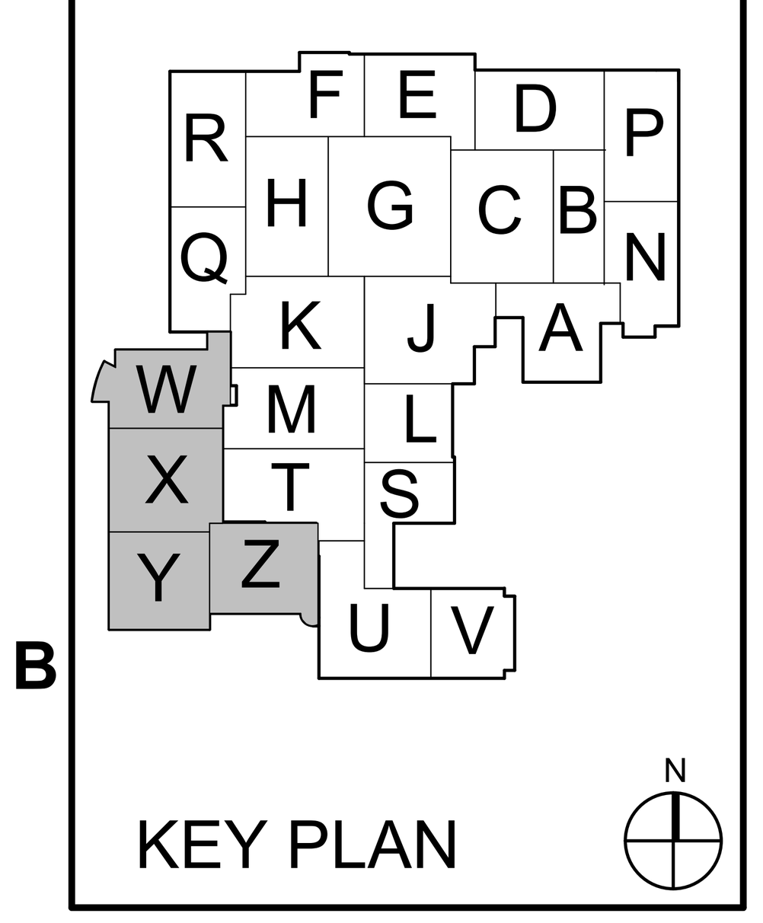


KEY PLAN

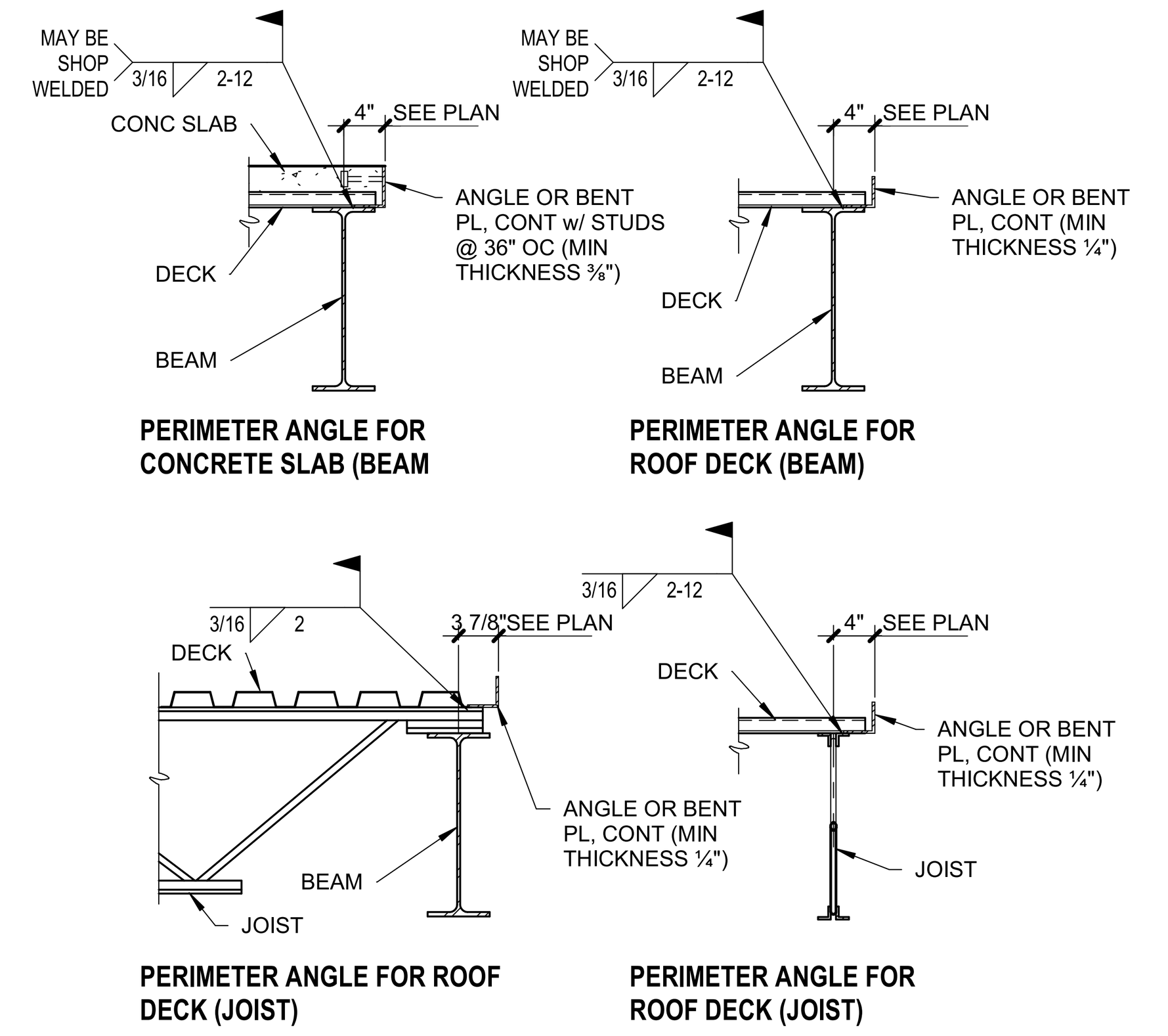
M.S.D. of Washington Township

North Central High School Renovation - West Gym Addition

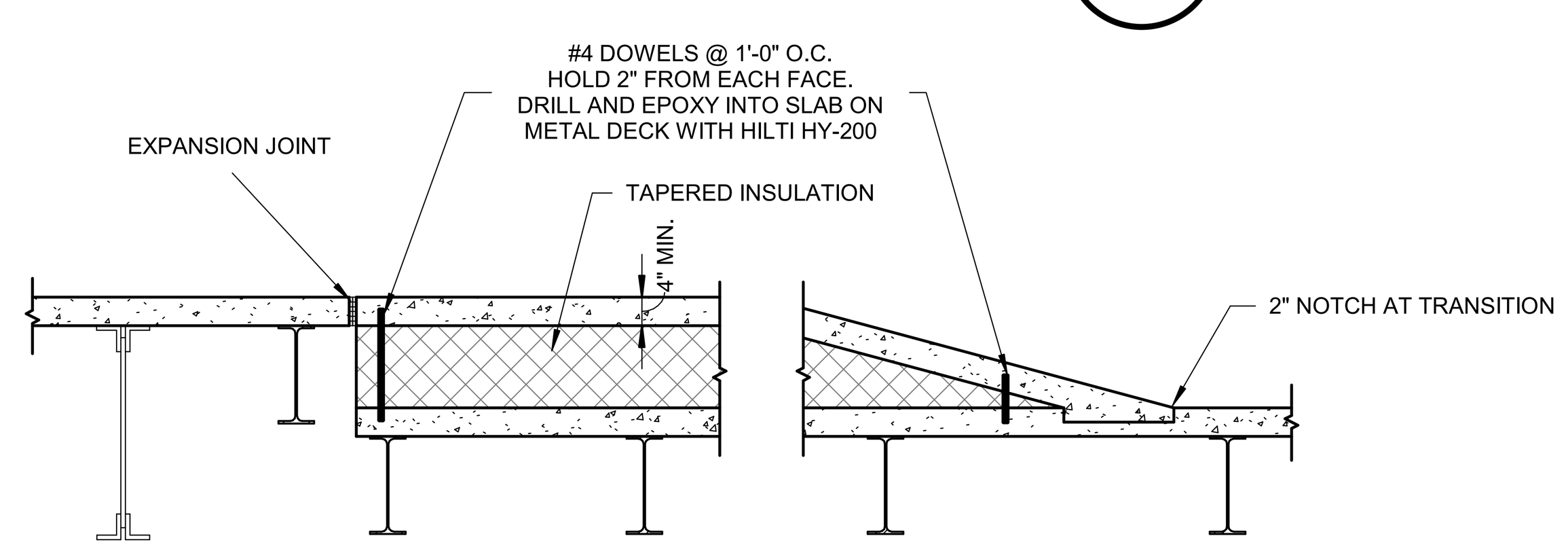
TYPICAL SECTIONS AND DETAILS

S-503.2

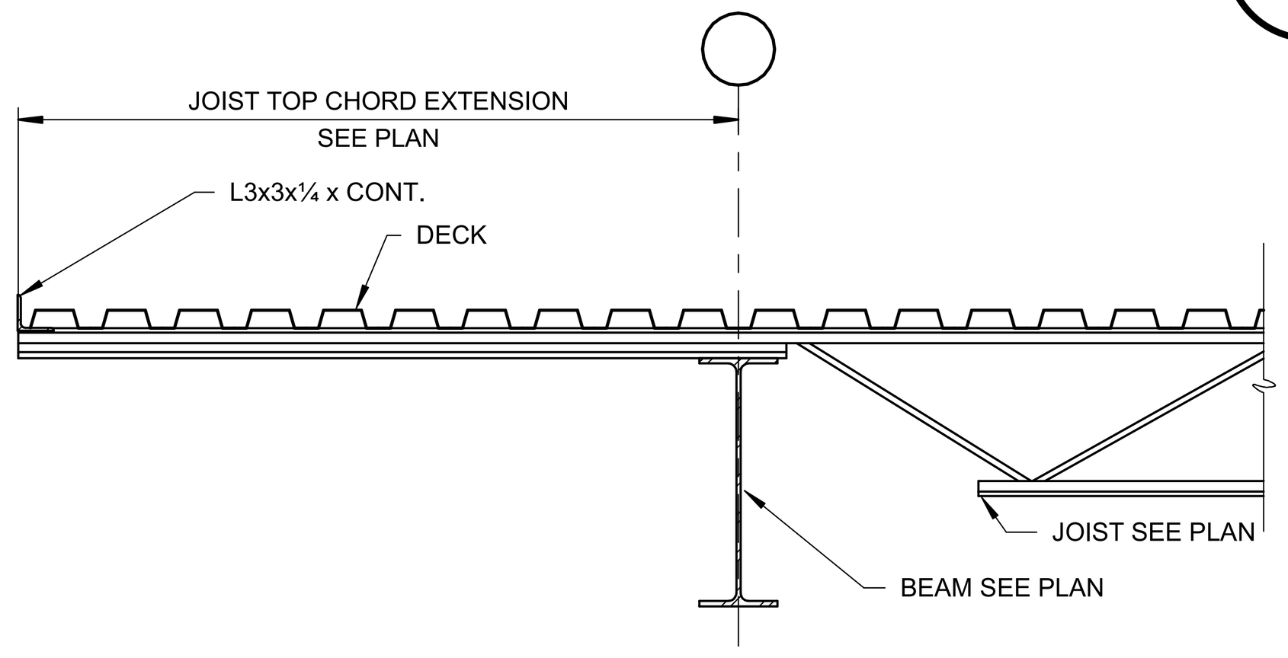
6 5 4 3 2 1



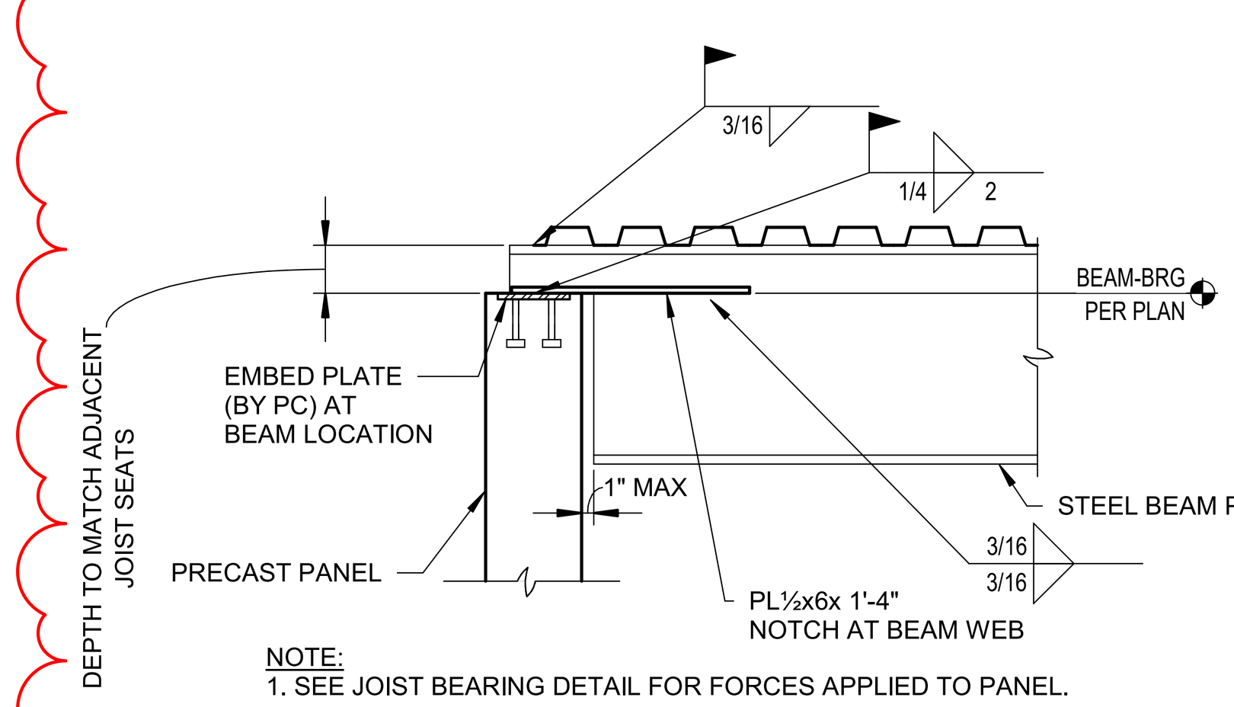
TYP PERIMETER ANGLE CONN
SCALE: 3/4" = 1'-0" — 15 / S-505.2



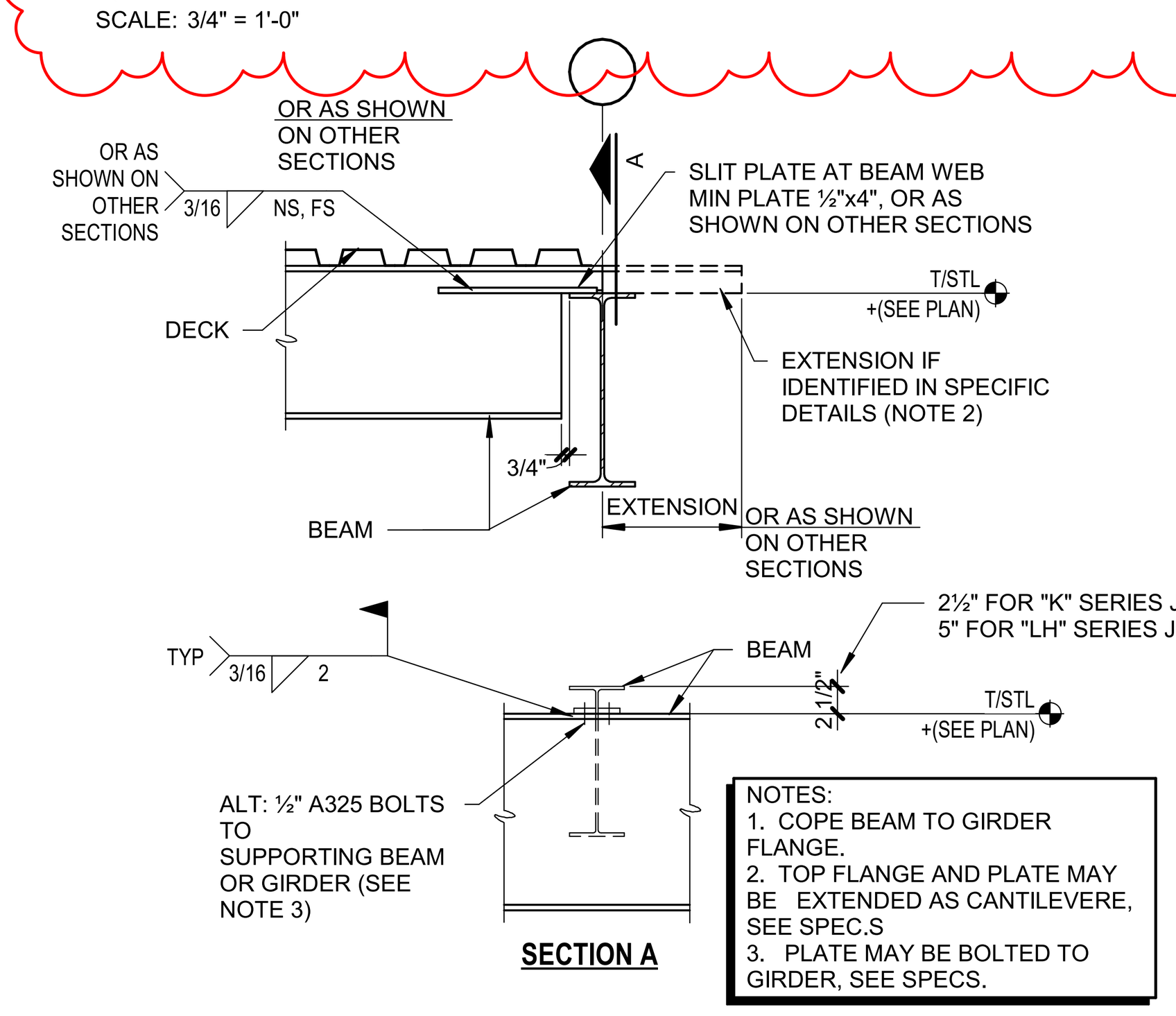
RAMP DETAIL
SCALE: 1/2" = 1'-0" — 16 / S-505.2



TYP TOP CHORD EXTENSION
SCALE: 3/4" = 1'-0" — 17 / S-505.2



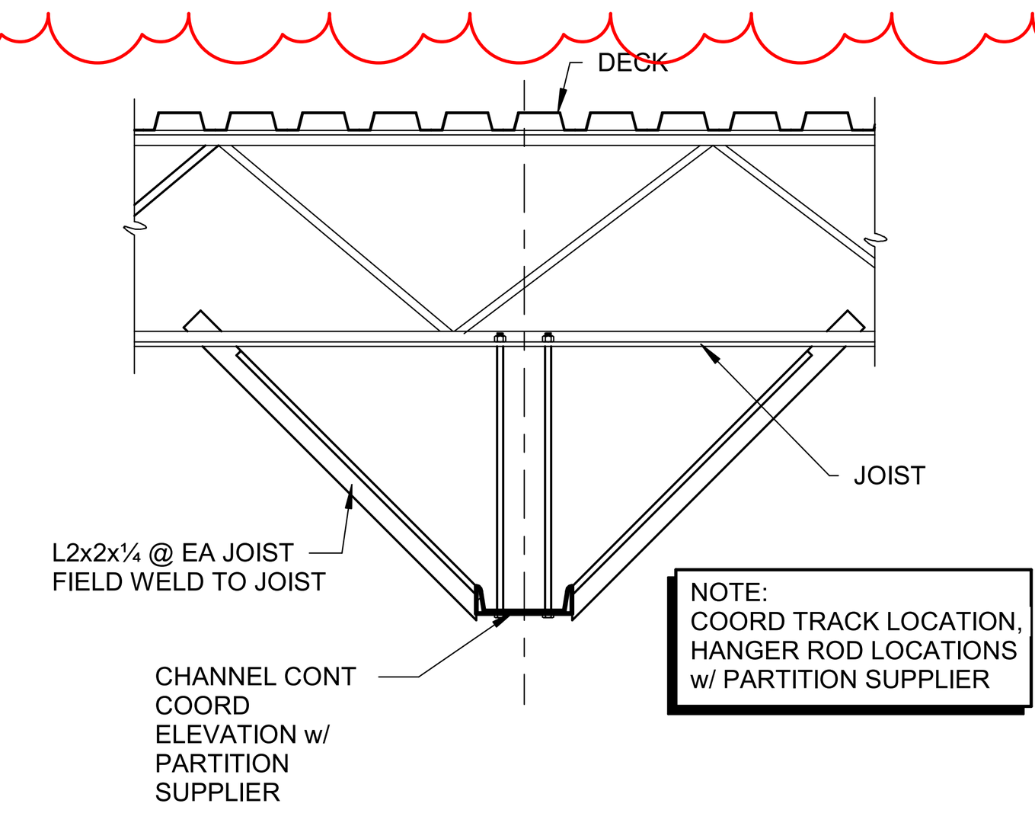
BEAM BEARING ON PRECAST PANEL
SCALE: 3/4" = 1'-0" — 18 / S-505.2 — A2.2



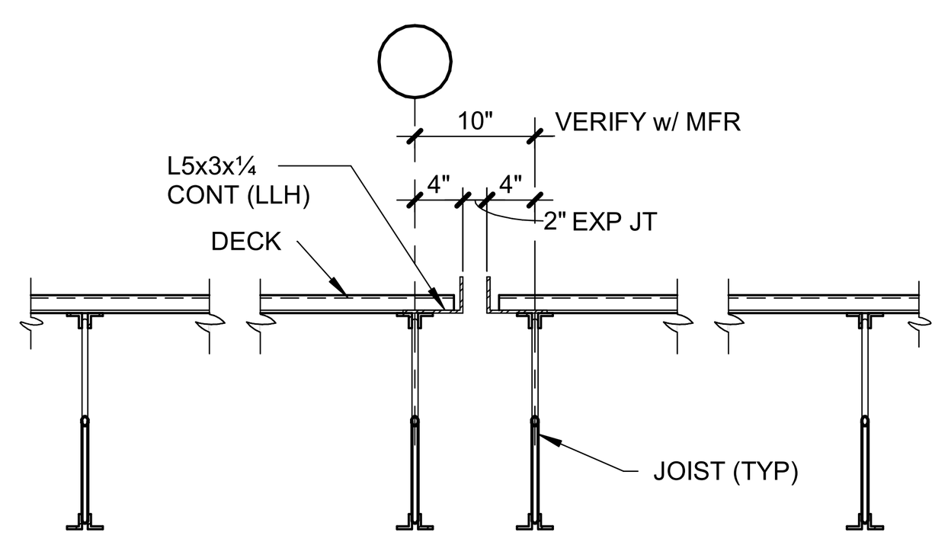
TYP SEAT BRG FOR BEAMS
SCALE: 3/4" = 1'-0" — 19 / S-505.2

A2.2

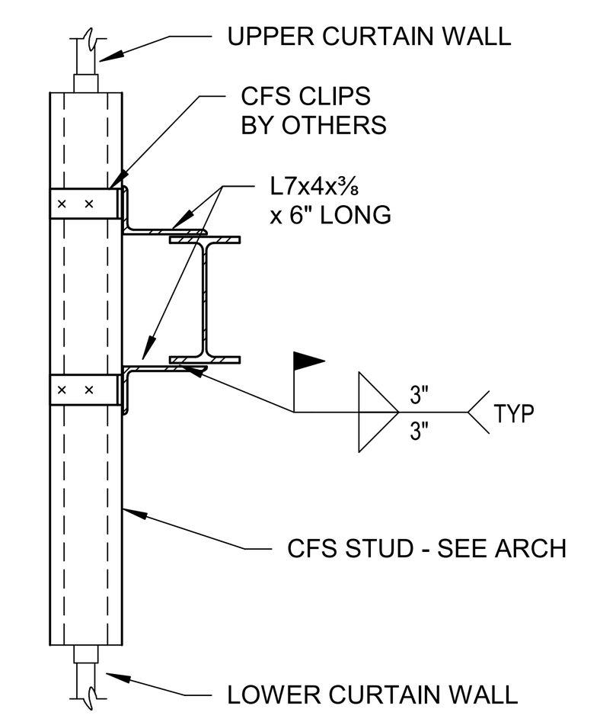
NOT USED
SCALE: 3/4" = 1'-0" — 9 / S-505.2



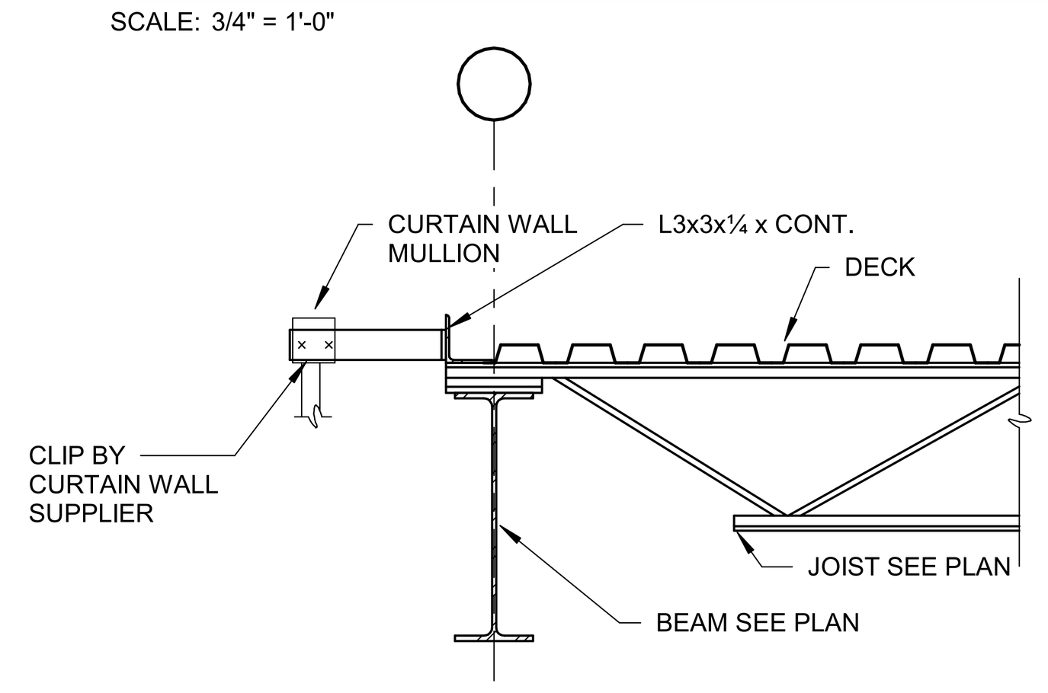
FOLDING PARTITION SUPPORT
SCALE: 3/4" = 1'-0" — 10 / S-505.2



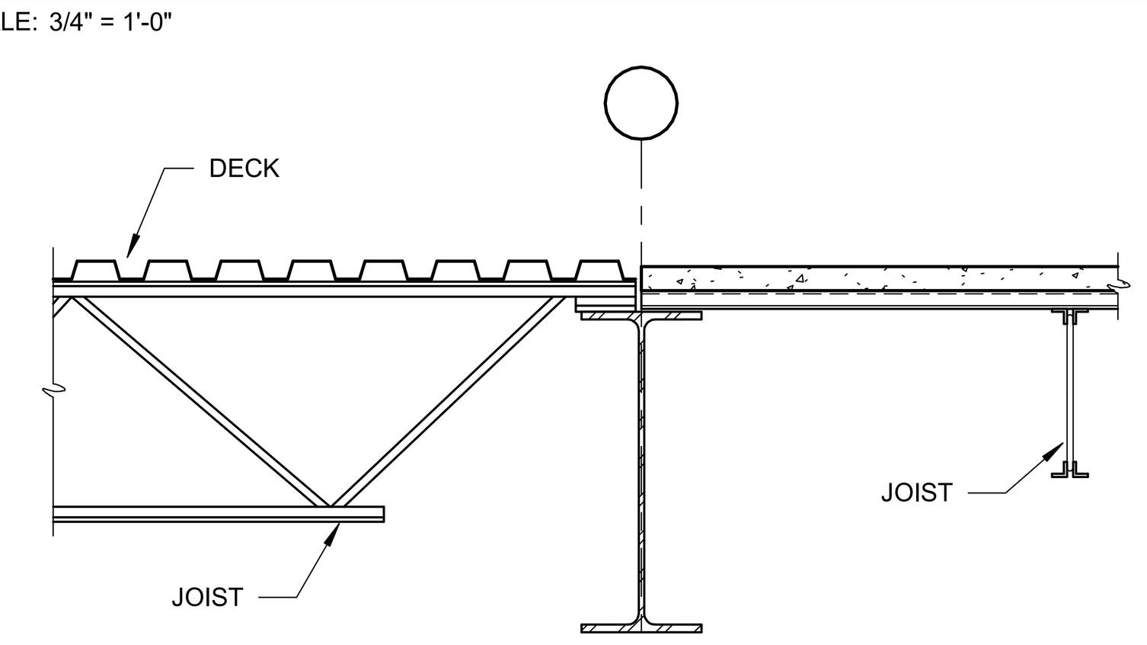
TYP ROOF EXPANSION JOINT
SCALE: 3/4" = 1'-0" — 11 / S-505.2



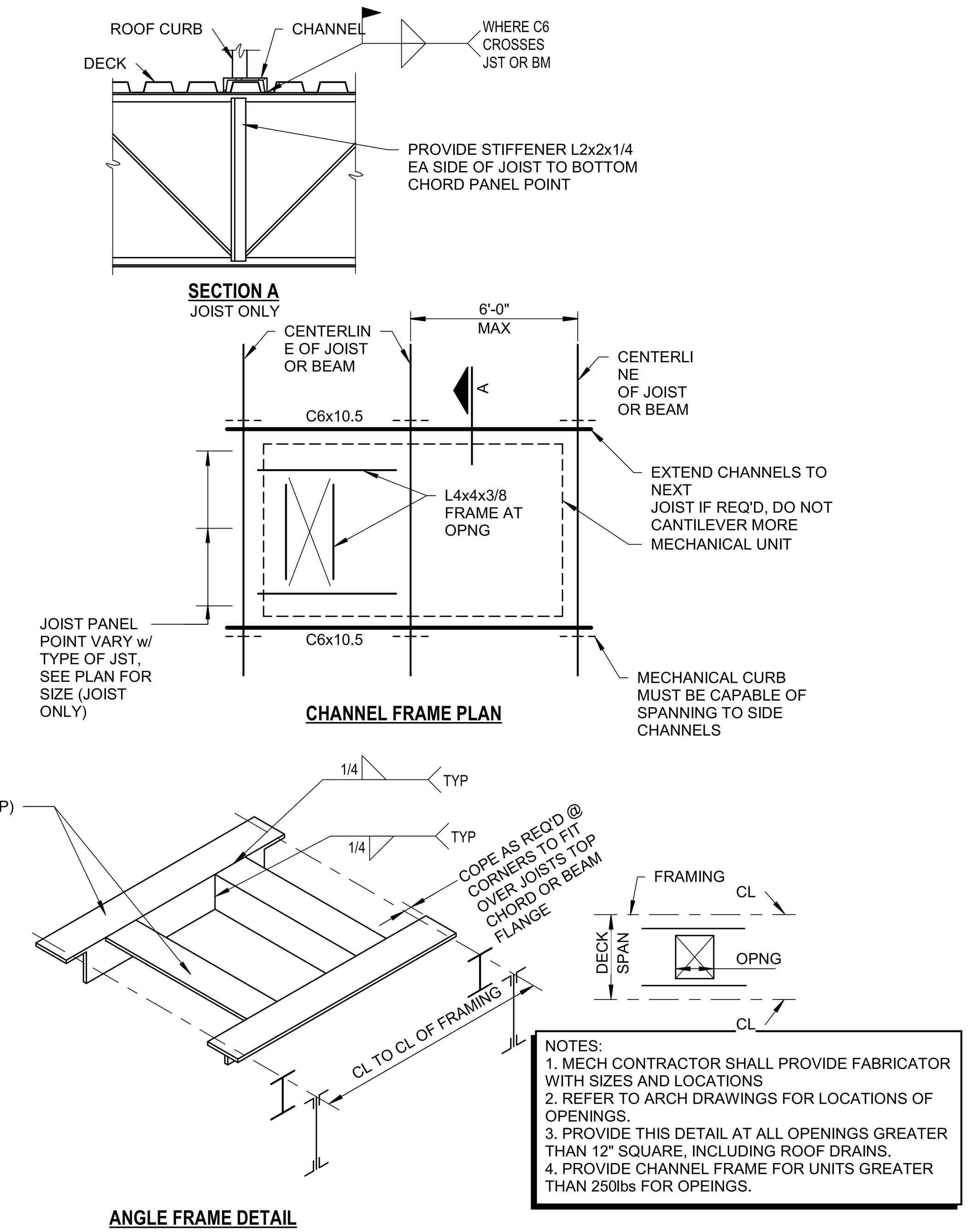
WIDE FLANGE TO METAL STUD CONN
SCALE: 3/4" = 1'-0" — 12 / S-505.2



CURTAIN WALL CONN TO EOD
SCALE: 3/4" = 1'-0" — 13 / S-505.2

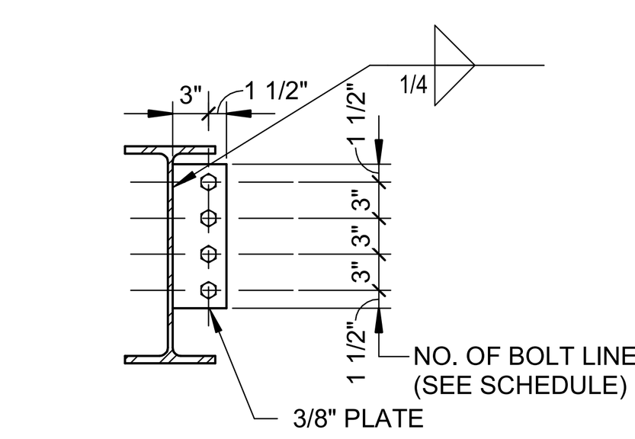


DECK SPAN DIRECTION CHANGE
SCALE: 3/4" = 1'-0" — 14 / S-505.2

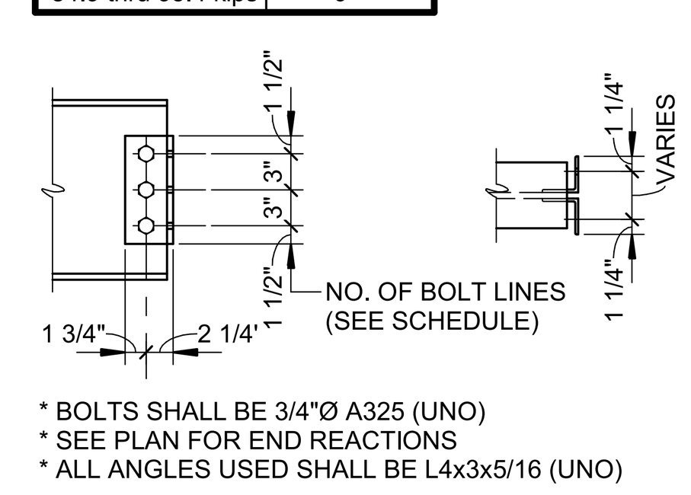


TYPICAL ROOF OPENING FRAME
SCALE: 3/4" = 1'-0" — 5 / S-505.2

SINGLE SHEAR PLATE CONNECTION SCHEDULE	
END REACTION	NO. OF BOLT LINES
0 thru 21.2 kips	2
21.3 thru 31.8 kips	3
31.9 thru 42.4 kips	4
42.5 thru 53.0 kips	5
53.1 thru 63.6 kips	6
63.7 thru 74.2 kips	7
74.3 thru 84.8 kips	8
84.9 thru 95.4 kips	9



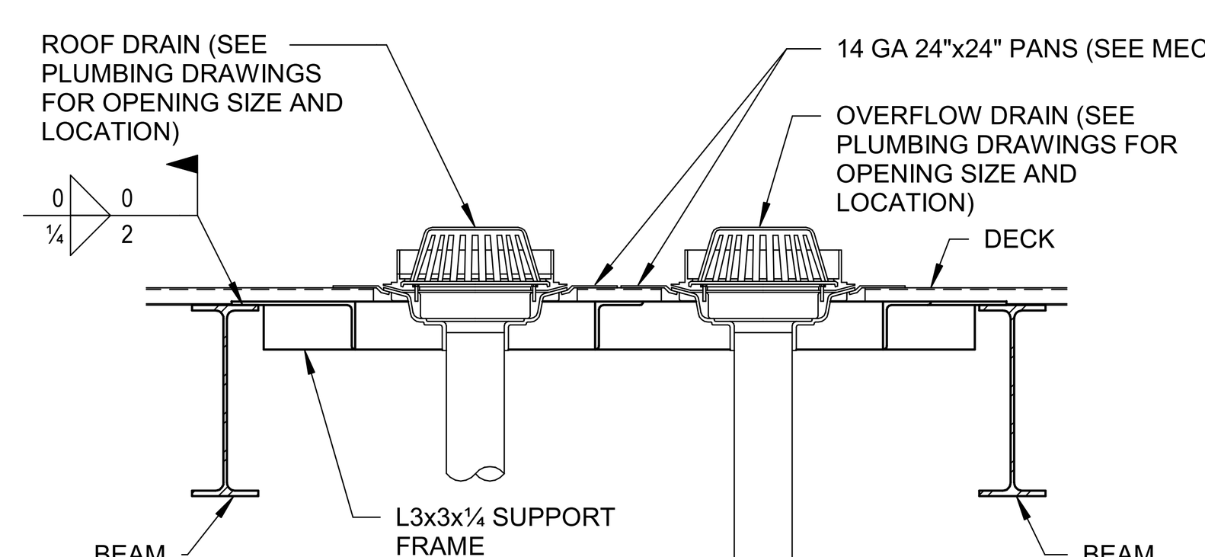
* BOLTS SHALL BE 3/4"Ø A325 (UNO)
* SEE PLAN FOR END REACTIONS
* ALL PLATES ARE 3/8" THICK (UNO)



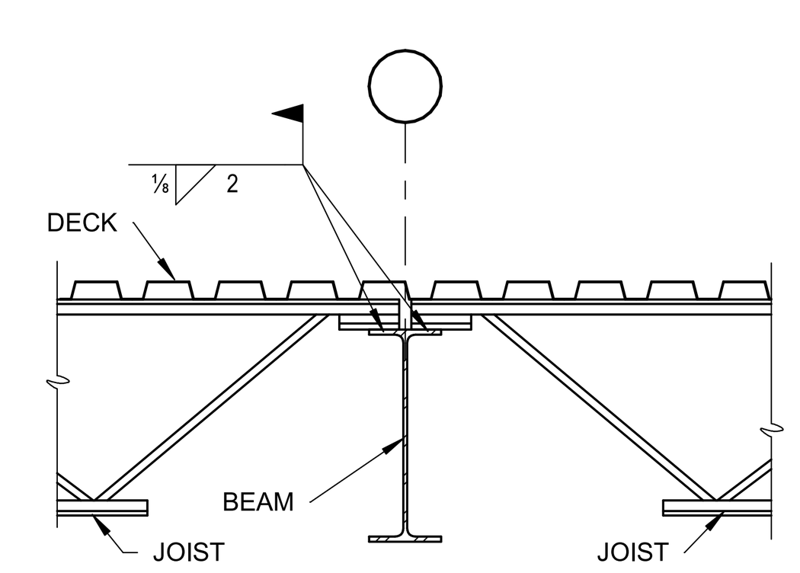
* BOLTS SHALL BE 3/4"Ø A325 (UNO)
* SEE PLAN FOR END REACTIONS
* ALL ANGLES USED SHALL BE L4x3x5/16 (UNO)

ALL-BOLTED DOUBLE ANGLE CONNECTION SCHEDULE	
END REACTION	NO. OF BOLT LINES
0 thru 40.8 kips	2
40.9 thru 63.6 kips	3
63.7 thru 83.9 kips	4
84.0 thru 104.0 kips	5
104.1 thru 124.0 kips	6
124.1 thru 145.0 kips	7
145.1 thru 165.0 kips	8
165.1 thru 185.0 kips	9

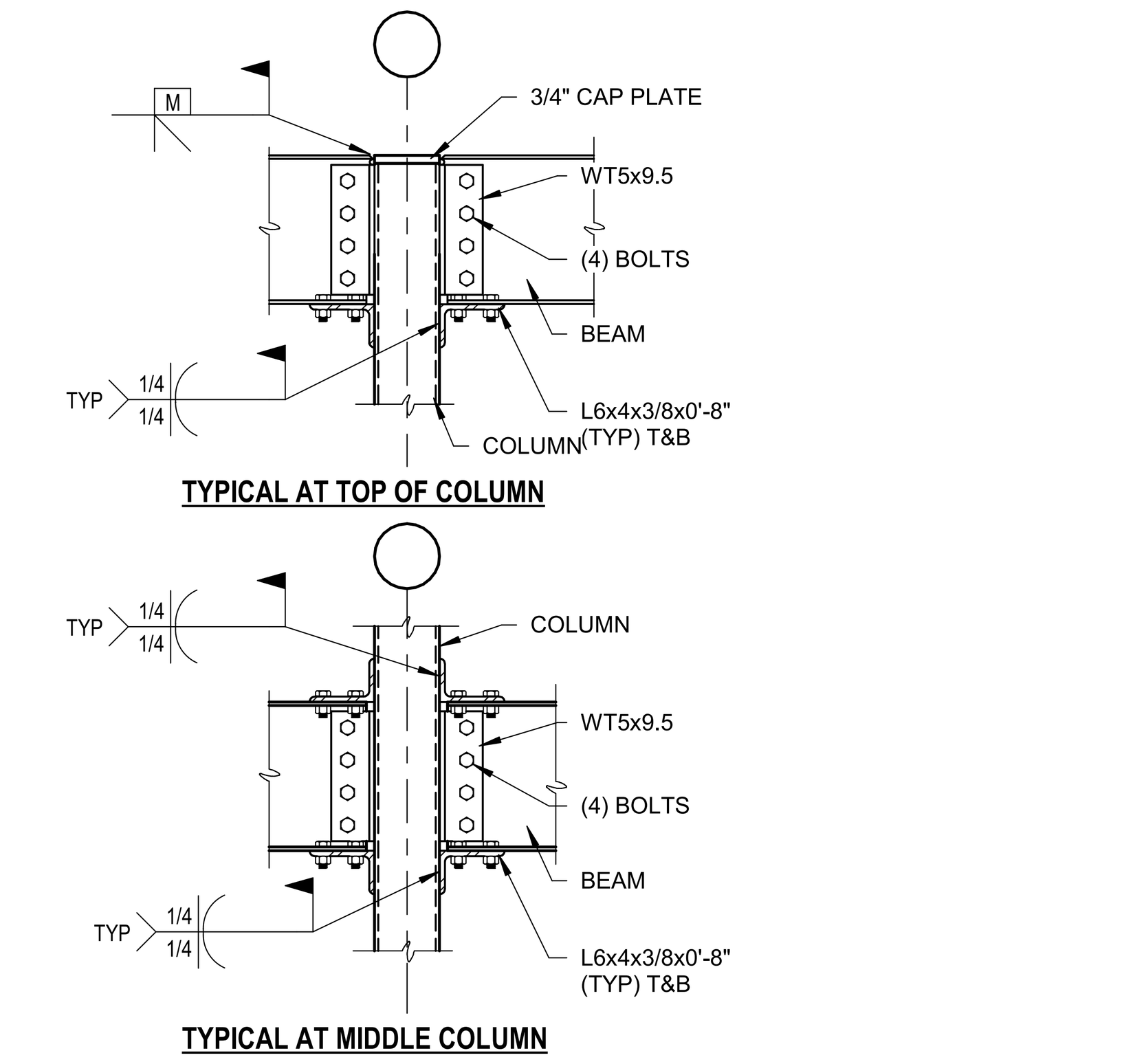
TYPICAL BEAM CONNECTIONS
SCALE: 3/4" = 1'-0" — 6 / S-505.2



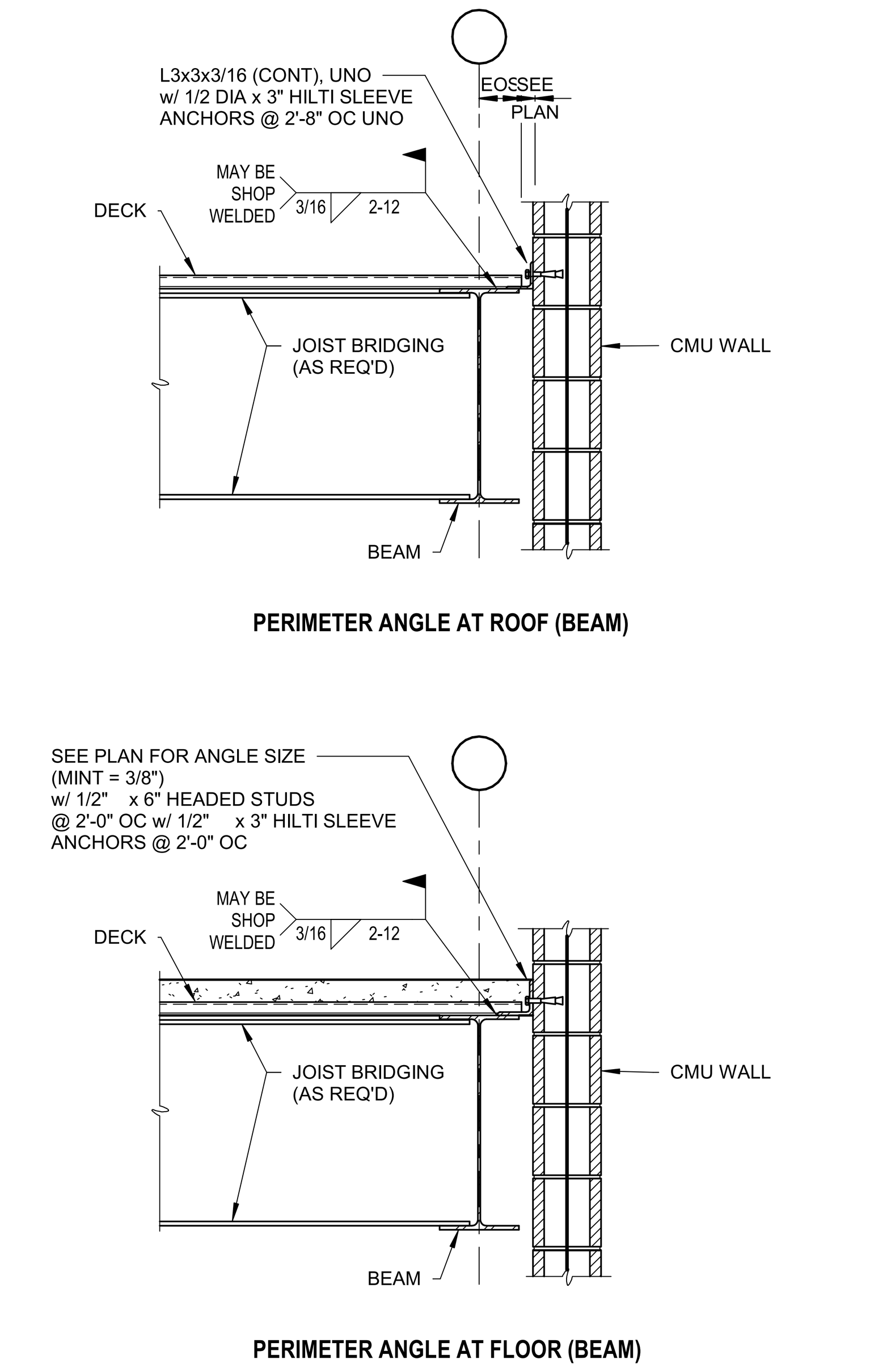
SECTION @ ROOF DRAIN
SCALE: 3/4" = 1'-0" — 7 / S-505.2



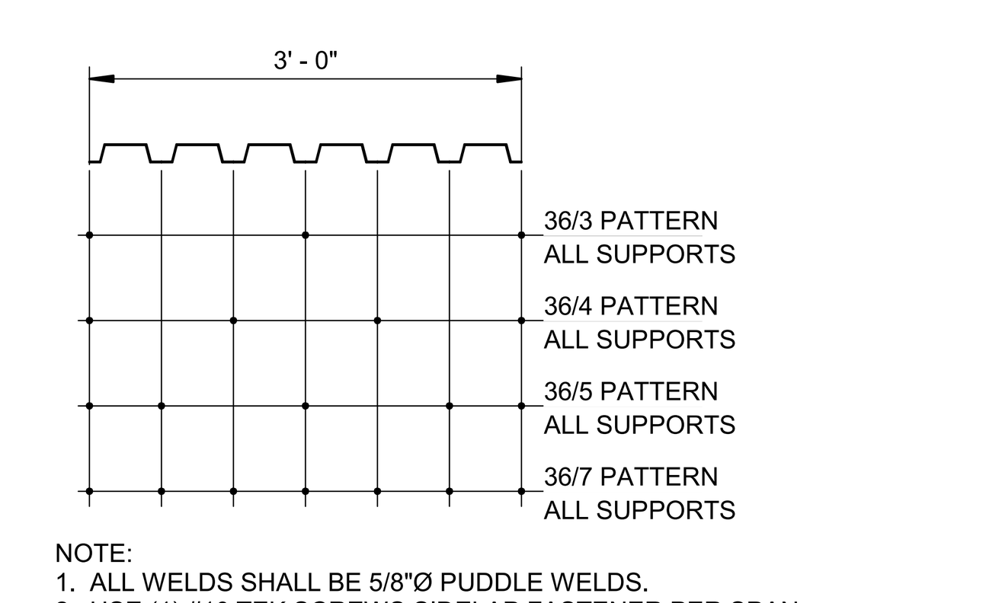
JSTS TO BEAM CONN DETAIL
SCALE: 3/4" = 1'-0" — 8 / S-505.2



TYP HSS COL MOMENT CONN
SCALE: 3/4" = 1'-0" — 1 / S-505.2

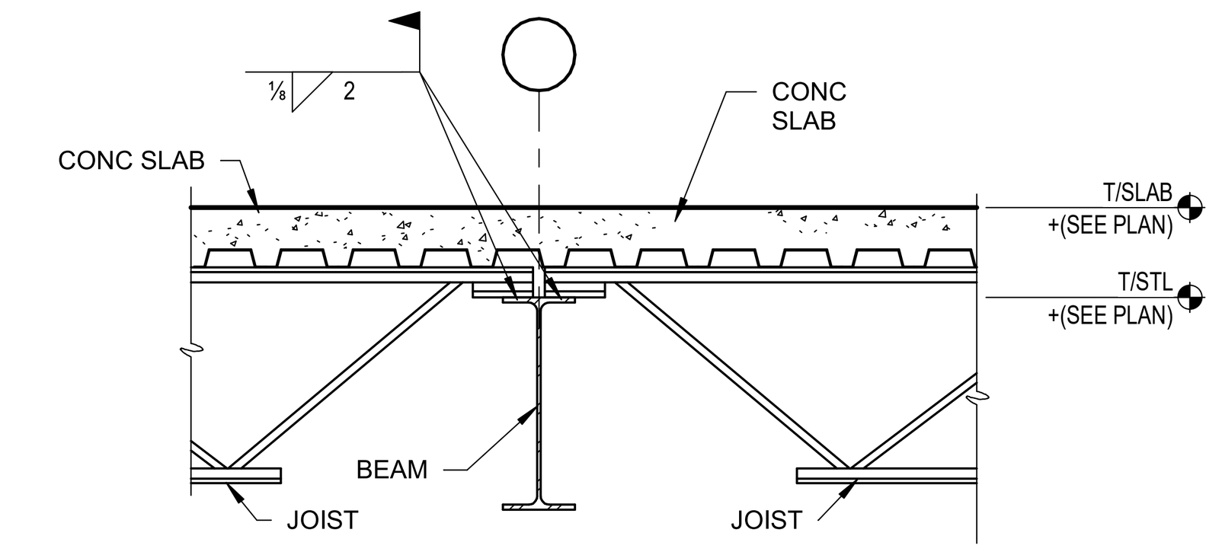


TYPICAL PERIMETER ANGLE CONNECTIONS
SCALE: 3/4" = 1'-0" — 2 / S-505.2



NOTE:
1. ALL WELDS SHALL BE 5/8"Ø PUDDLE WELDS.
2. USE (1) #10 TEK SCREWS SIDELAP FASTENER PER SPAN

ROOF DECK FASTENER PATTERN
SCALE: 3/4" = 1'-0" — 3 / S-505.2



JSTS TO BEAM CONN DETAIL
SCALE: 3/4" = 1'-0" — 4 / S-505.2

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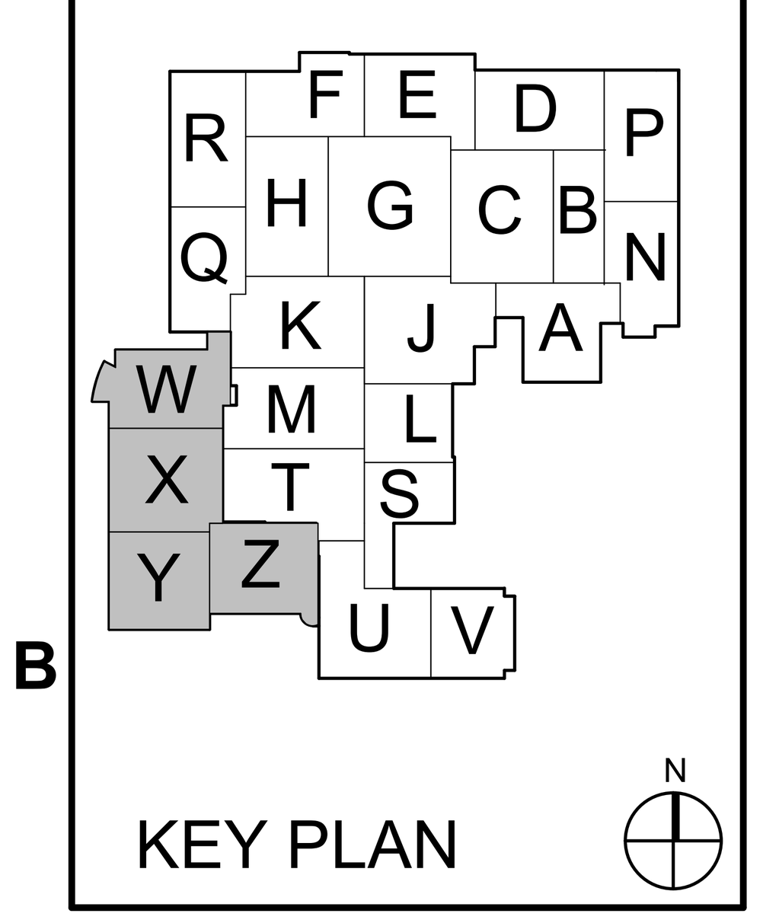


KEY PLAN

M.S.D. of Washington Township

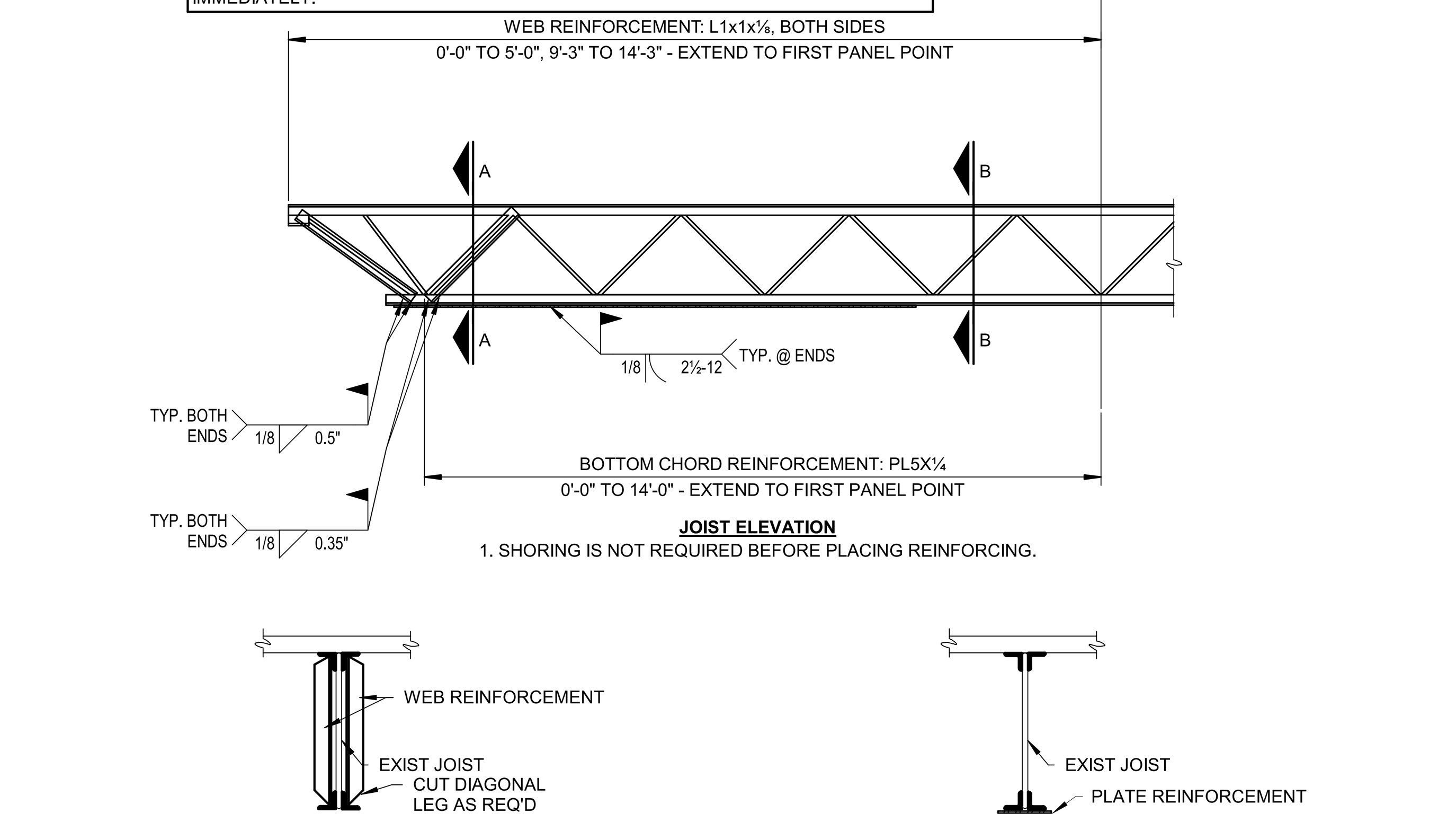
North Central High School Renovation - West Gym Addition

TYPICAL SECTIONS AND DETAILS

S-505.2

6 5 4 3 2 1

CONTRACTOR NOTE:
EXISTING JOISTS ARE ASSUMED (10S2) TO HAVE THE FOLLOWING MEMBERS:
TOP CHORD: (2)L1x1x¼
BOTTOM CHORD: (2)L1x1x¼
COMPRESSION WEB: (2)15/32"Ø BAR
TENSION WEB: (2)15/32"Ø BAR
END WEB: (2) 19/32"Ø BAR
IF EXISTING JOIST DEVIATES FROM WHAT IS SHOWN HERE, NOTIFY ENGINEER IMMEDIATELY.

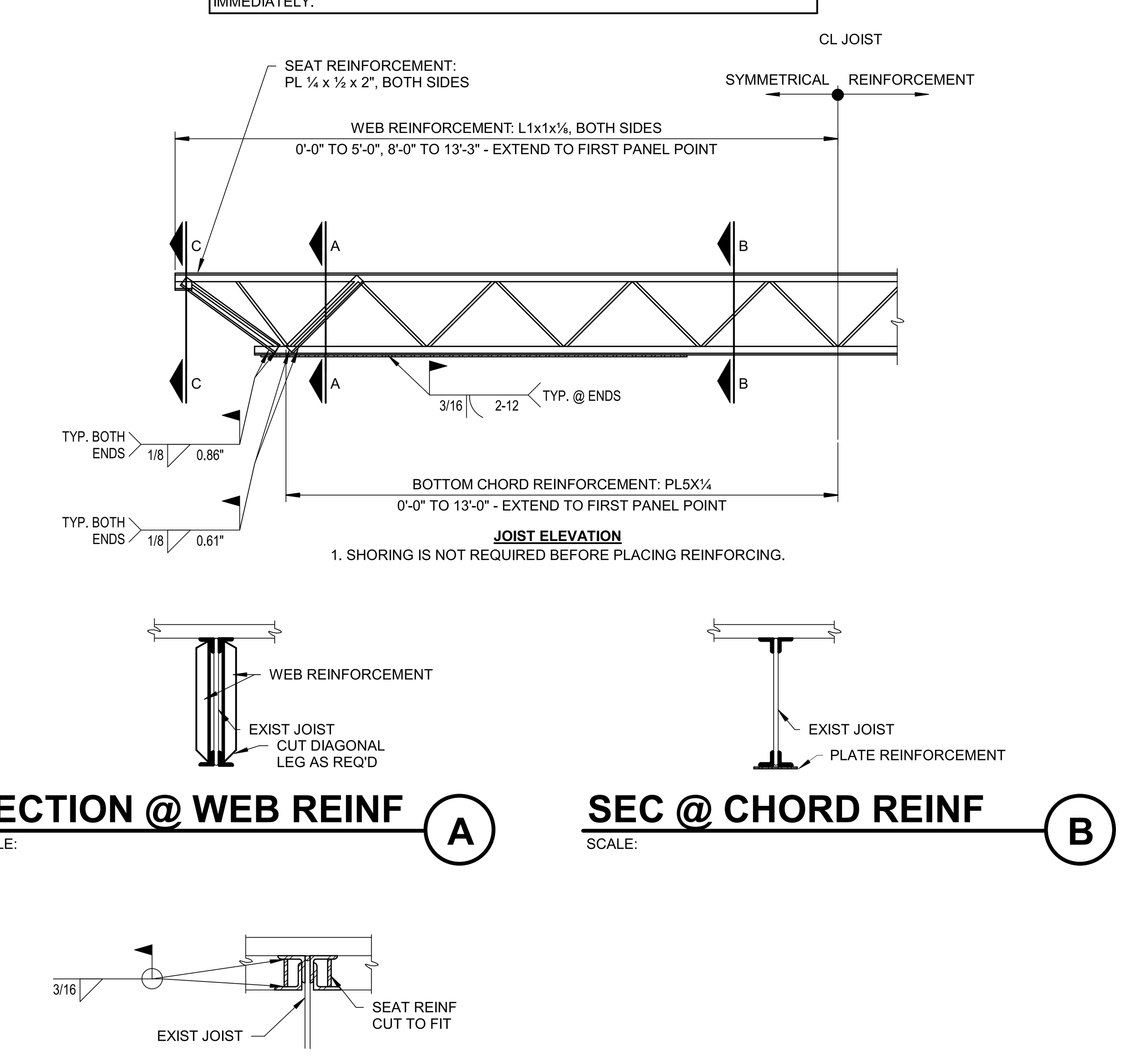


SECTION @ WEB REINF (A)
SCALE:

SEC @ CHORD REINF (B)
SCALE:

10S2 JOIST REINF PARALLEL PIPE (6 / S-507.2)
SCALE: 3/4" = 1'-0"

CONTRACTOR NOTE:
EXISTING JOISTS ARE ASSUMED (12S4) TO HAVE THE FOLLOWING MEMBERS:
TOP CHORD: (2)L1½x1½x⅛
BOTTOM CHORD: (2)19/32"Ø
COMPRESSION WEB: (2)17/32"Ø BAR
TENSION WEB: (2)17/32"Ø BAR
END WEB: (2) 21/32"Ø BAR
IF EXISTING JOIST DEVIATES FROM WHAT IS SHOWN HERE, NOTIFY ENGINEER IMMEDIATELY.



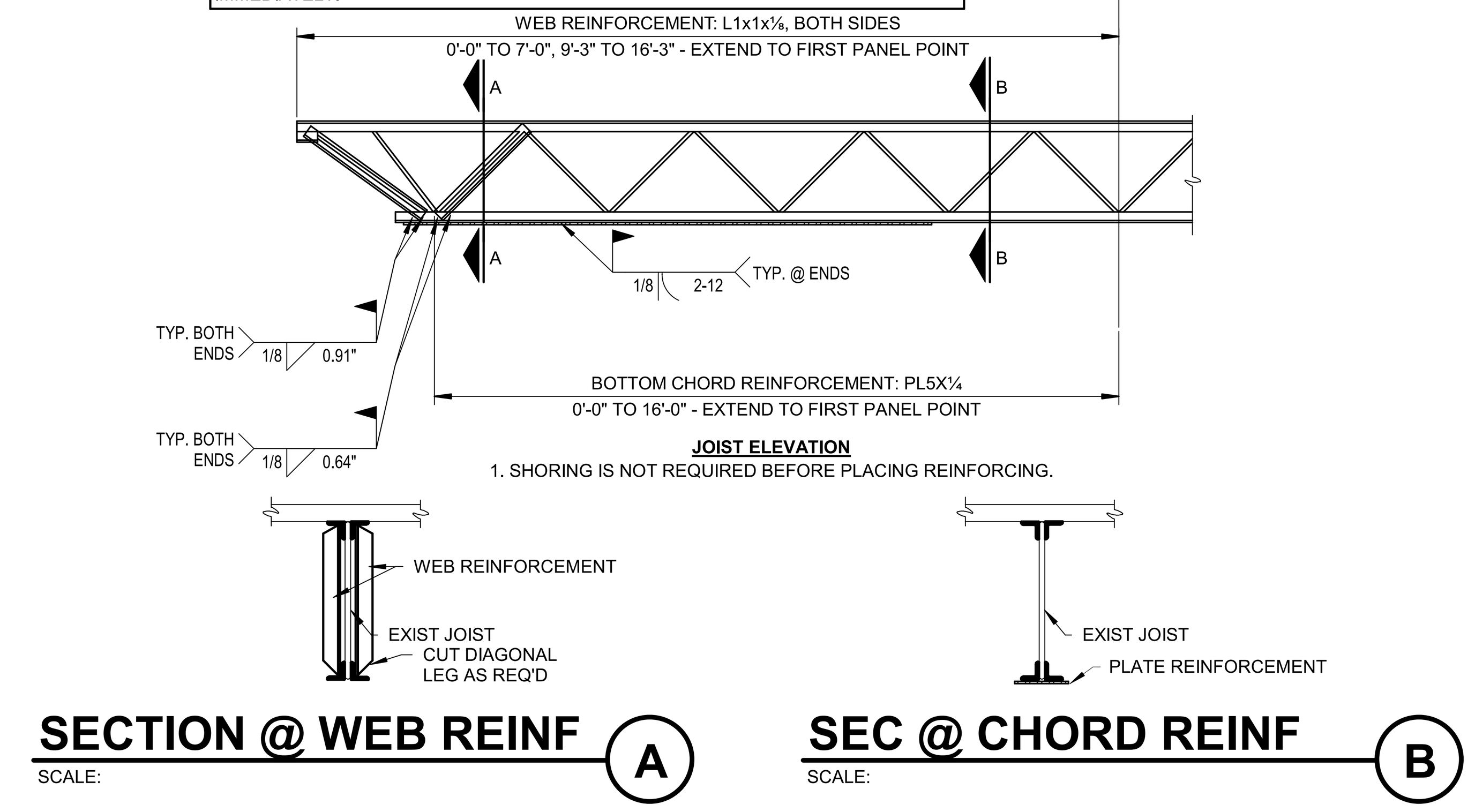
SECTION @ WEB REINF (A)
SCALE:

SEC @ CHORD REINF (B)
SCALE:

SEC @ SEAT REINF (C)
SCALE:

12S4 JOIST REINF PARALLEL PIPE (7 / S-507.2)
SCALE: 3/4" = 1'-0"

CONTRACTOR NOTE:
EXISTING JOISTS ARE ASSUMED (12S6) TO HAVE THE FOLLOWING MEMBERS:
TOP CHORD: (2)L1½x1½x3/16
BOTTOM CHORD: (2)L1½x1½x3/16
COMPRESSION WEB: (2)17/32"Ø BAR
TENSION WEB: (2)17/32"Ø BAR
END WEB: (2) 21/32"Ø BAR
IF EXISTING JOIST DEVIATES FROM WHAT IS SHOWN HERE, NOTIFY ENGINEER IMMEDIATELY.

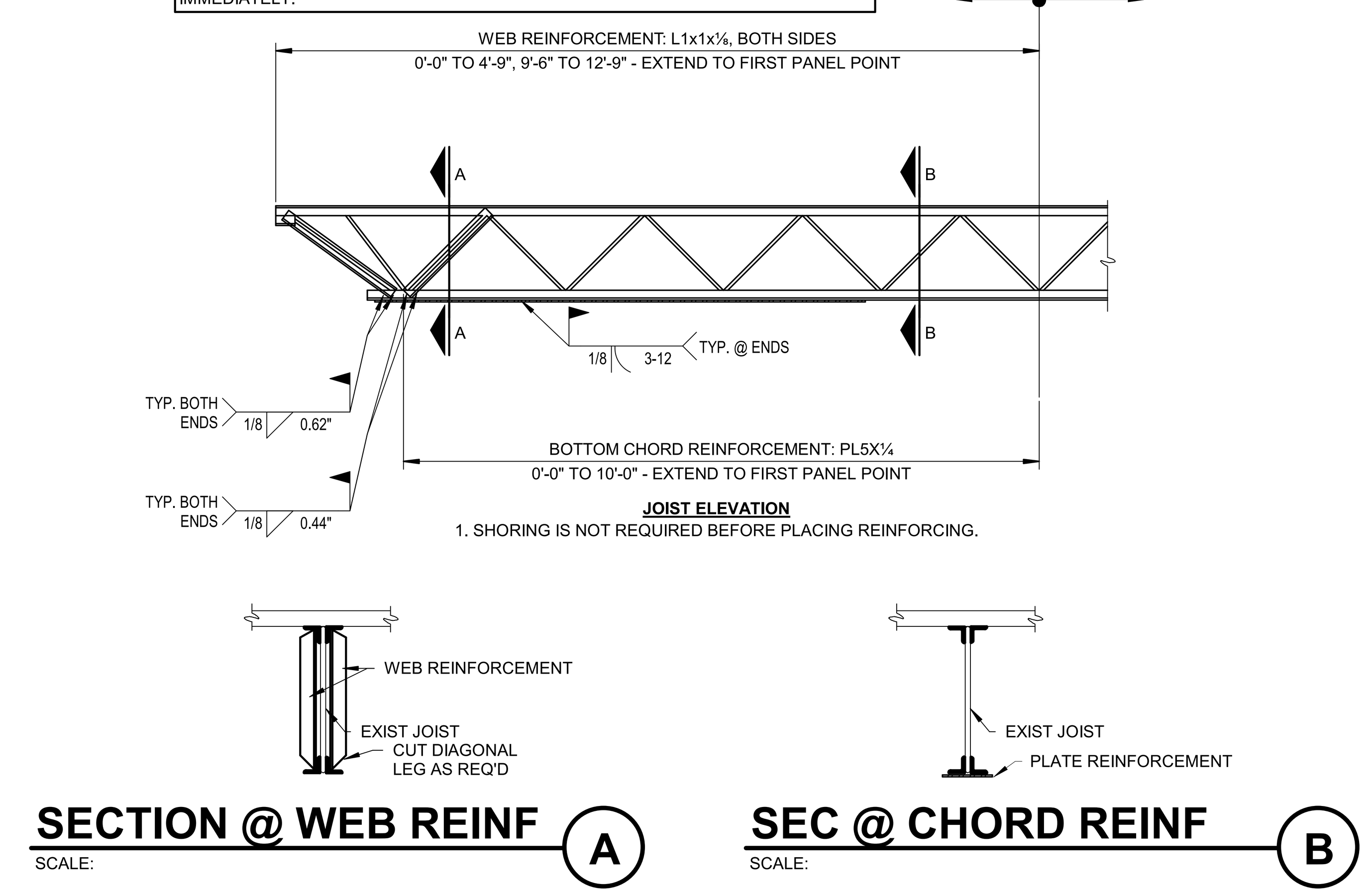


SECTION @ WEB REINF (A)
SCALE:

SEC @ CHORD REINF (B)
SCALE:

12S6 JOIST REINF PERP PIPE (3 / S-507.2)
SCALE: 3/4" = 1'-0"

CONTRACTOR NOTE:
EXISTING JOISTS ARE ASSUMED (10S3) TO HAVE THE FOLLOWING MEMBERS:
TOP CHORD: (2)L1¼x1¼x⅛
BOTTOM CHORD: (2)L1¼x1¼x⅛
COMPRESSION WEB: (2)15/32"Ø BAR
TENSION WEB: (2)15/32"Ø BAR
END WEB: (2) 19/32"Ø BAR
IF EXISTING JOIST DEVIATES FROM WHAT IS SHOWN HERE, NOTIFY ENGINEER IMMEDIATELY.

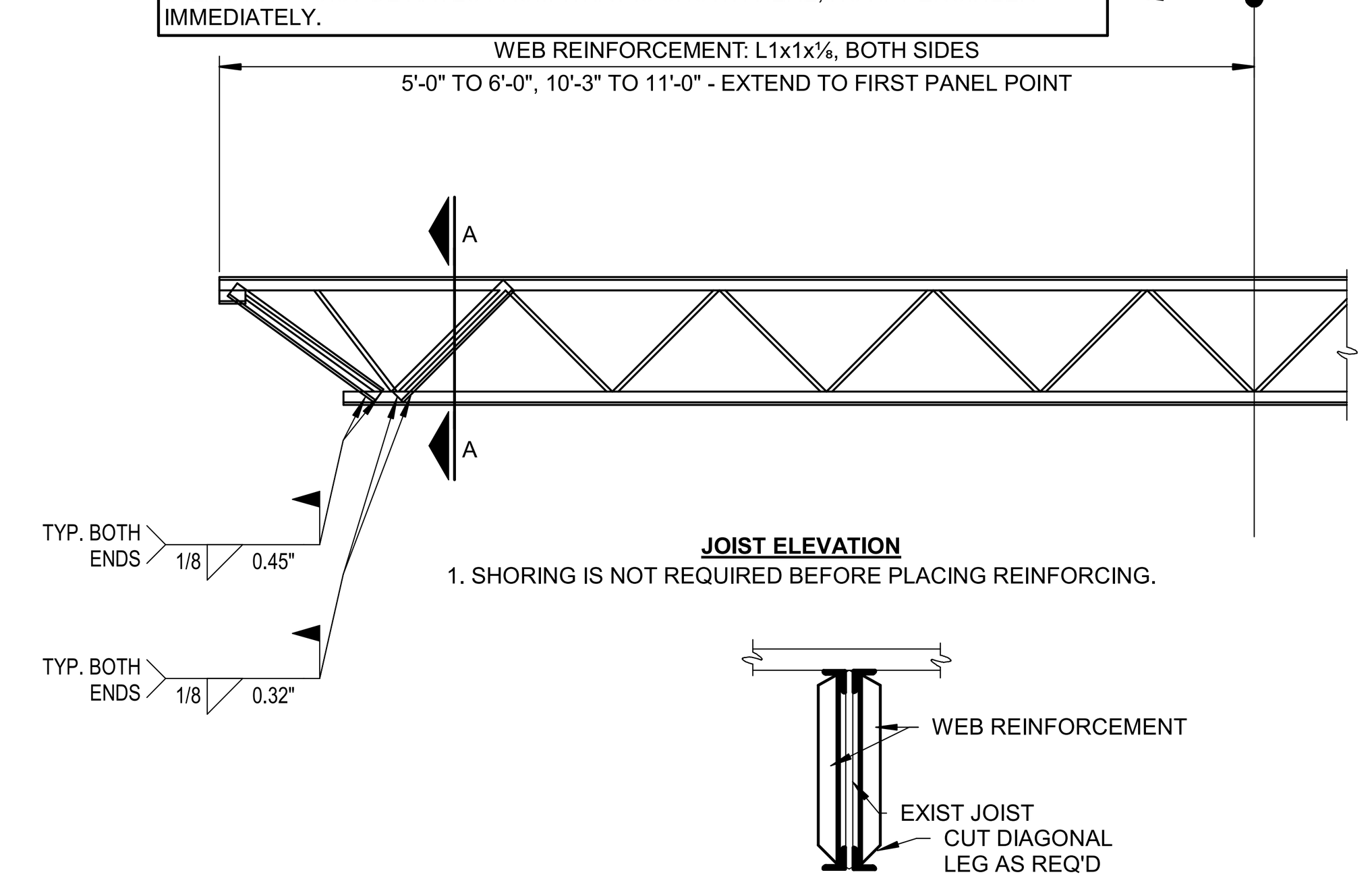


SECTION @ WEB REINF (A)
SCALE:

SEC @ CHORD REINF (B)
SCALE:

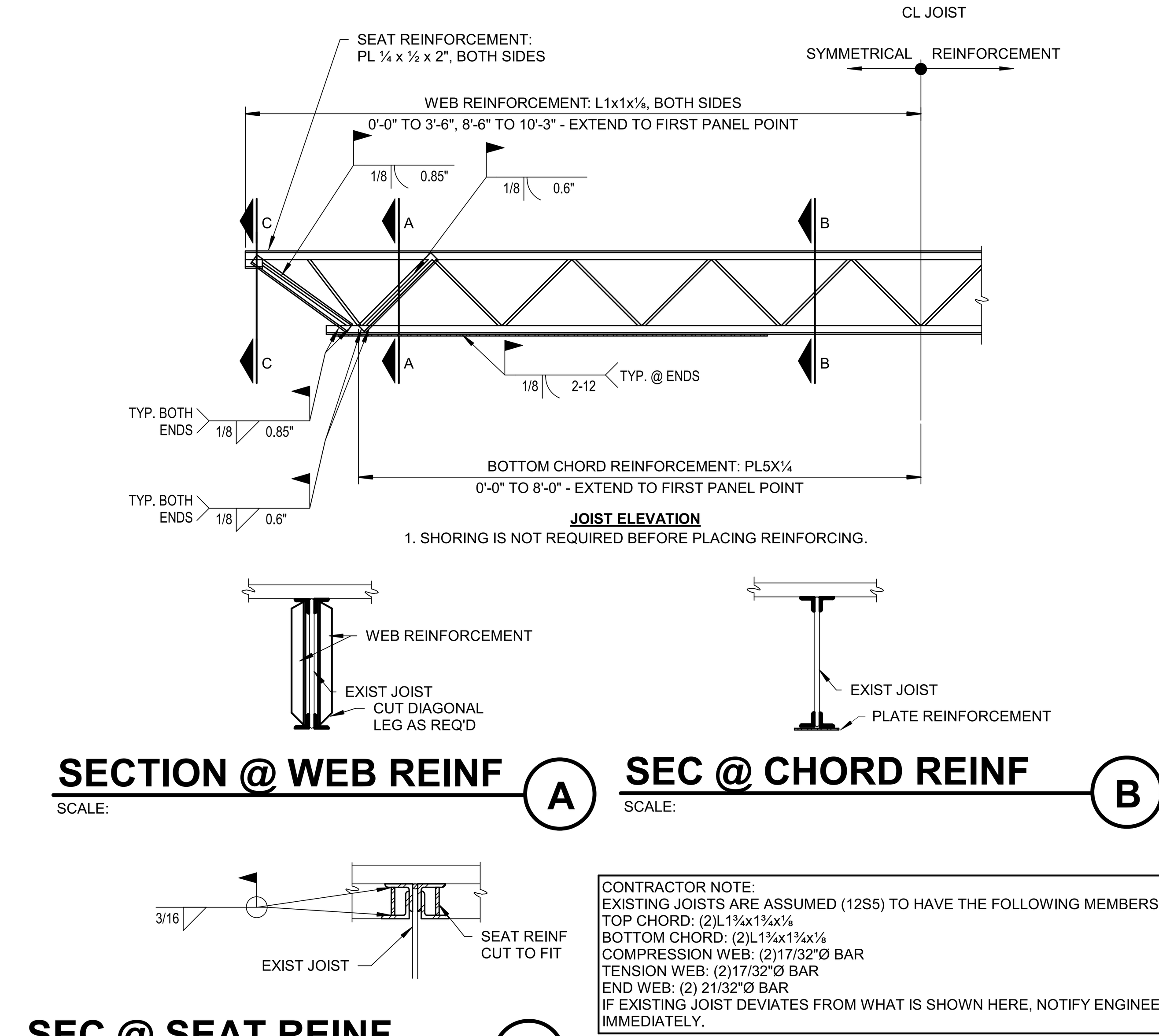
10S3 JOIST REINF PARALLEL PIPE (4 / S-507.2)
SCALE: 3/4" = 1'-0"

CONTRACTOR NOTE:
EXISTING JOISTS ARE ASSUMED (10S3) TO HAVE THE FOLLOWING MEMBERS:
TOP CHORD: (2)L1¼x1¼x⅛
BOTTOM CHORD: (2)L1¼x1¼x⅛
COMPRESSION WEB: (2)15/32"Ø BAR
TENSION WEB: (2)15/32"Ø BAR
END WEB: (2) 19/32"Ø BAR
IF EXISTING JOIST DEVIATES FROM WHAT IS SHOWN HERE, NOTIFY ENGINEER IMMEDIATELY.



SECTION @ WEB REINF (A)
SCALE:

10S3 JOIST REINF PERP PIPE (5 / S-507.2)
SCALE: 3/4" = 1'-0"



SECTION @ WEB REINF (A)
SCALE:

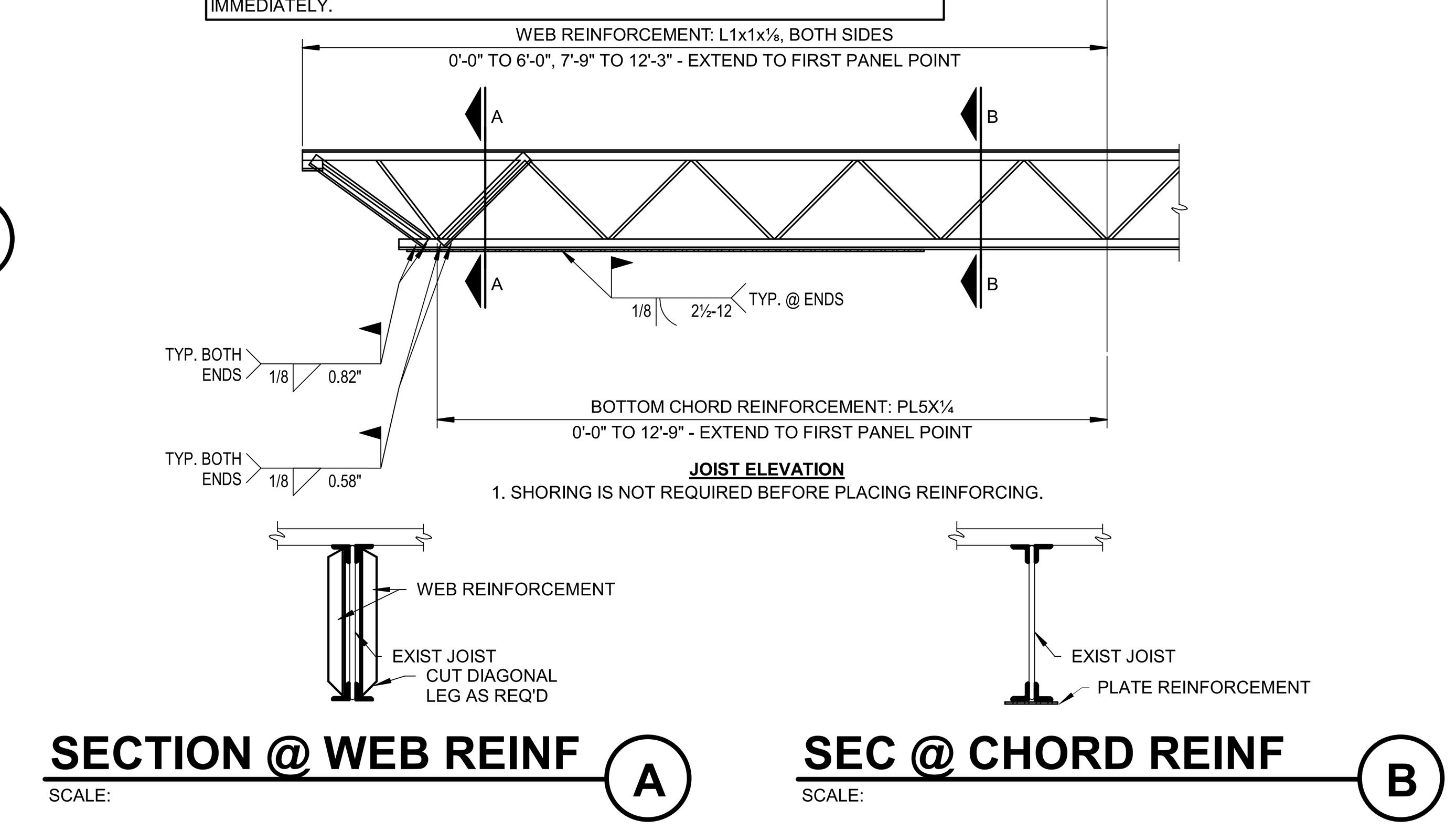
SEC @ CHORD REINF (B)
SCALE:

SEC @ SEAT REINF (C)
SCALE:

CONTRACTOR NOTE:
EXISTING JOISTS ARE ASSUMED (12S5) TO HAVE THE FOLLOWING MEMBERS:
TOP CHORD: (2)L1¼x1¼x¼
BOTTOM CHORD: (2)L1¼x1¼x¼
COMPRESSION WEB: (2)17/32"Ø BAR
TENSION WEB: (2)17/32"Ø BAR
END WEB: (2) 21/32"Ø BAR
IF EXISTING JOIST DEVIATES FROM WHAT IS SHOWN HERE, NOTIFY ENGINEER IMMEDIATELY.

12S5 JOIST REINF PARALLEL PIPE (1 / S-507.2)
SCALE: 3/4" = 1'-0"

CONTRACTOR NOTE:
EXISTING JOISTS ARE ASSUMED (12S5) TO HAVE THE FOLLOWING MEMBERS:
TOP CHORD: (2)L1¼x1¼x¼
BOTTOM CHORD: (2)L1¼x1¼x¼
COMPRESSION WEB: (2)17/32"Ø BAR
TENSION WEB: (2)17/32"Ø BAR
END WEB: (2) 21/32"Ø BAR
IF EXISTING JOIST DEVIATES FROM WHAT IS SHOWN HERE, NOTIFY ENGINEER IMMEDIATELY.



SECTION @ WEB REINF (A)
SCALE:

SEC @ CHORD REINF (B)
SCALE:

12S5 JOIST REINF PERP PIPE (2 / S-507.2)
SCALE: 3/4" = 1'-0"

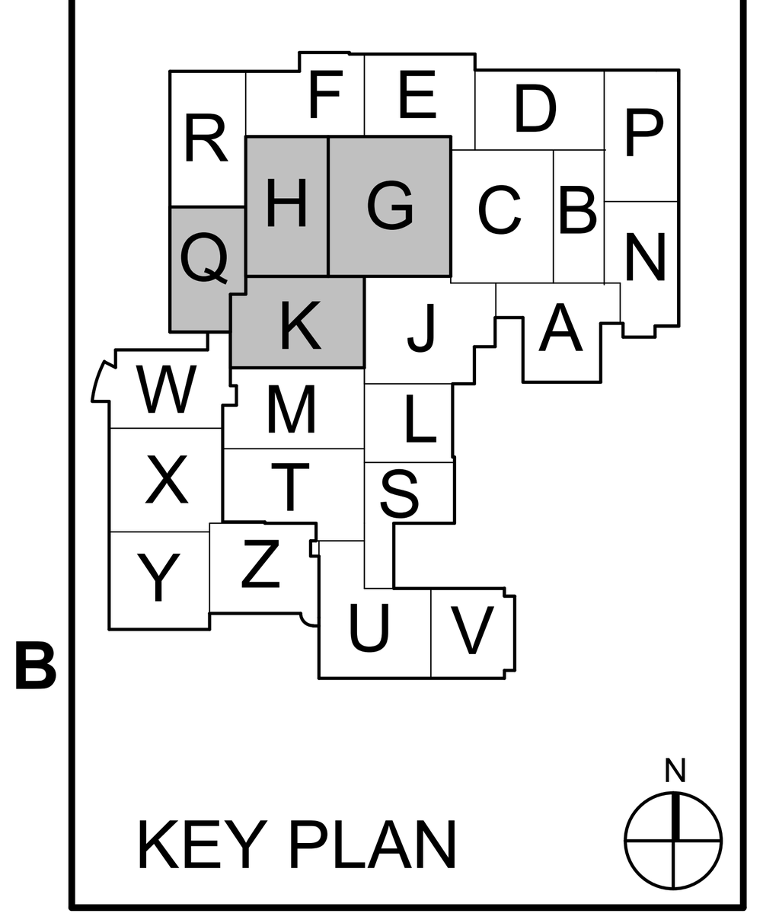
SCHMIDT ASSOCIATES
415 Massachusetts Avenue
Indianapolis, IN 46204
www.schmidt-arch.com

Project No. 2019-067.NCH
Project Date 11.01.2021
Bid Set 02
Produced DJS NRT

DYLAN SEESMAN REGISTERED No. PE11900810 STATE OF INDIANA PROFESSIONAL ENGINEER

#	Revision	Date
A2.2	Addendum 2	11.29.2021

1801 East 86th Street
Indianapolis, IN 46240



KEY PLAN

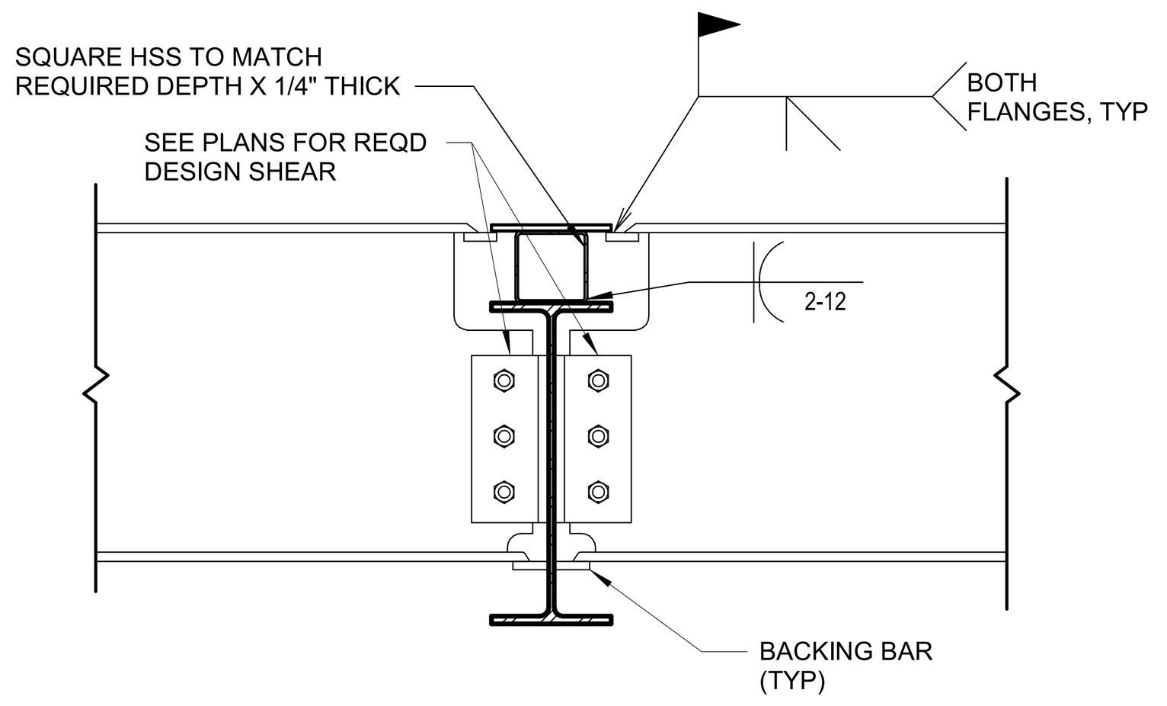
M.S.D. of Washington Township

North Central High School Renovation - West Gym Addition

TYPICAL SECTIONS AND DETAILS

S-507.2

A2.2

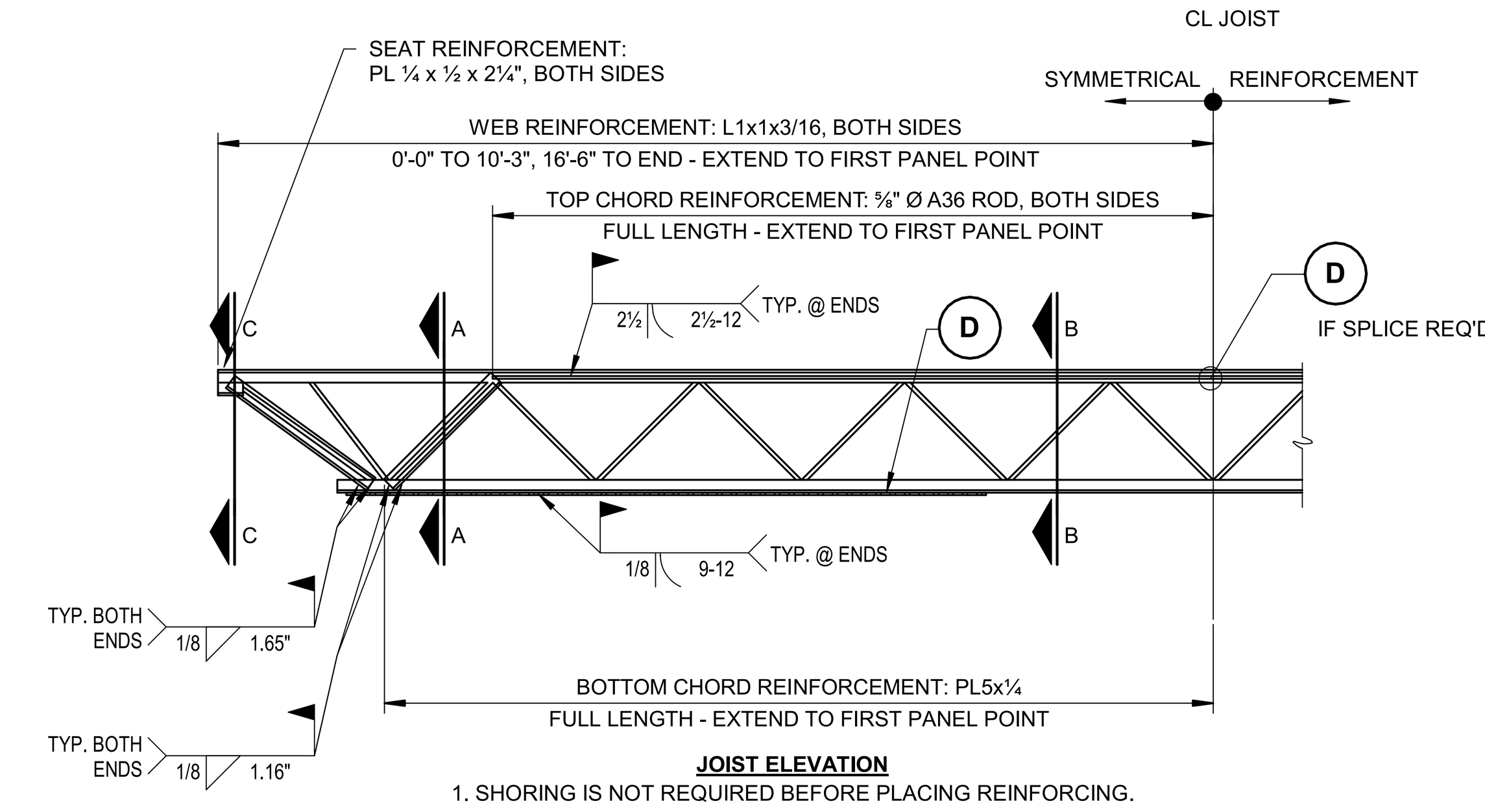


TYPICAL MOMENT CONNECTION
UNEQUAL BEAM CONNECTION

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

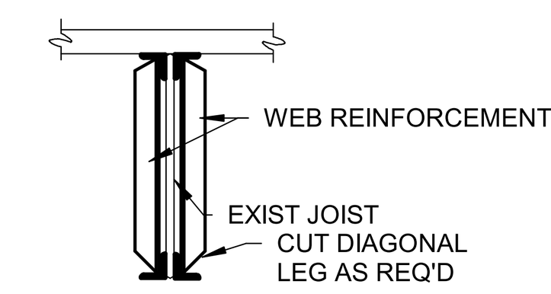
3 / S-508.2

CONTRACTOR NOTE:
EXISTING JOISTS ARE ASSUMED (20K3) TO HAVE THE FOLLOWING MEMBERS:
TOP CHORD: (2)L1¼X1¼X0.133
BOTTOM CHORD: (2)L1¼X1¼X0.109
COMPRESSION WEB: (2)1/2"Ø ROD
TENSION WEB: (2)1/2"Ø ROD
IF EXISTING JOIST DEVIATES FROM WHAT IS SHOWN HERE, NOTIFY ENGINEER IMMEDIATELY.



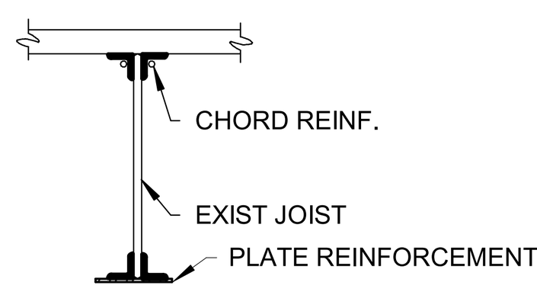
JOIST ELEVATION

1. SHORING IS NOT REQUIRED BEFORE PLACING REINFORCING.



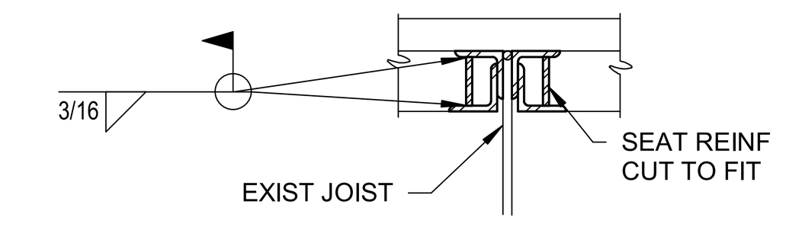
SECTION @ WEB REINF (A)

SCALE:



SEC @ CHORD REINF (B)

SCALE:



SECTION @ SEAT REINF (C)

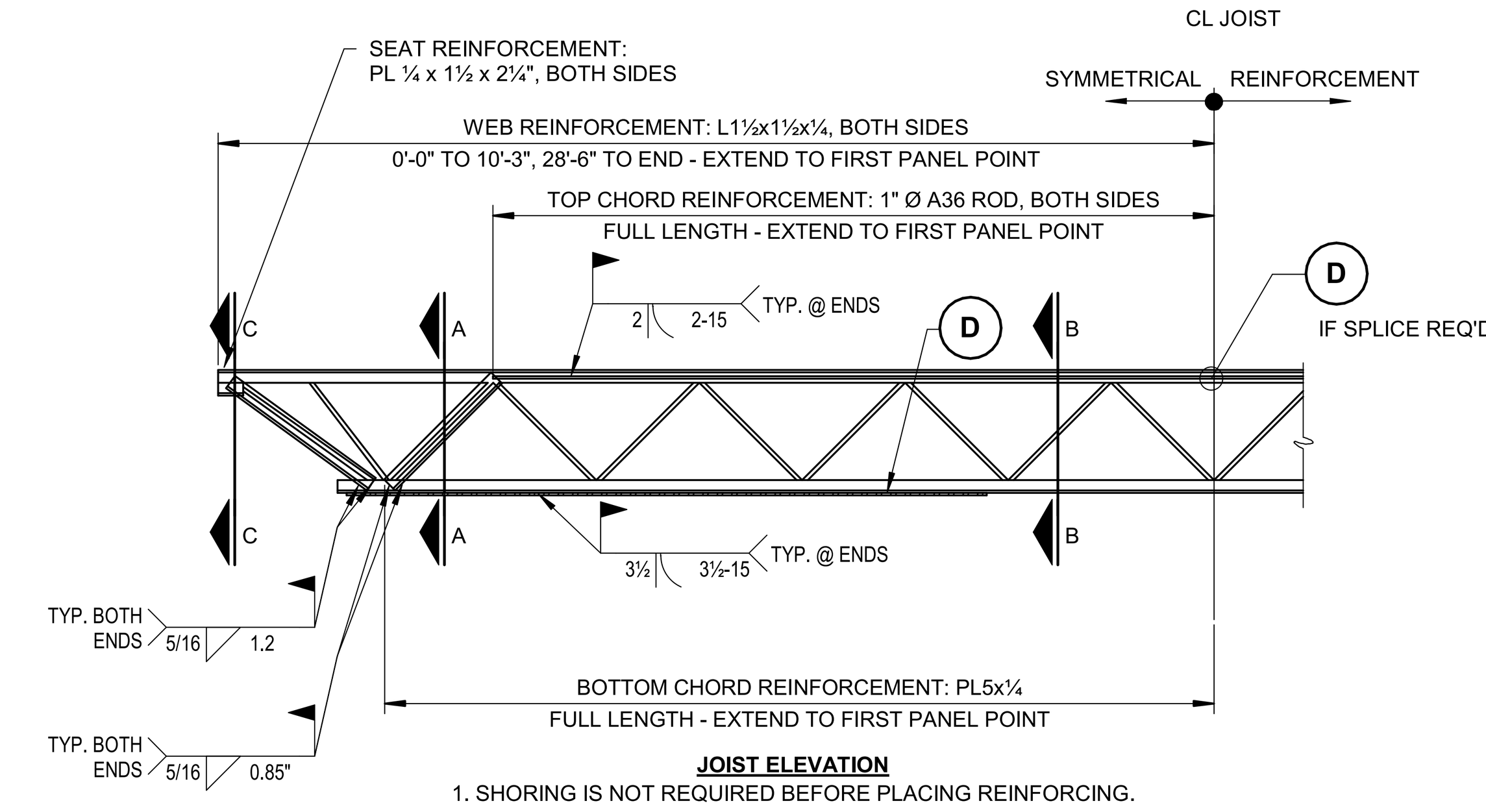
SCALE:

20K3 JOIST REINF PARALLEL PIPE

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

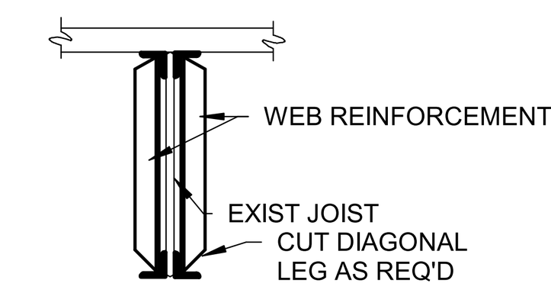
1 / S-508.2

CONTRACTOR NOTE:
EXISTING JOISTS ARE ASSUMED (30K10) TO HAVE THE FOLLOWING MEMBERS:
TOP CHORD: (2)L2X2X0.188
BOTTOM CHORD: (2)L12X2X0.142
COMPRESSION WEB: (2)3/4"Ø ROD
TENSION WEB: (2)3/4"Ø ROD
IF EXISTING JOIST DEVIATES FROM WHAT IS SHOWN HERE, NOTIFY ENGINEER IMMEDIATELY.



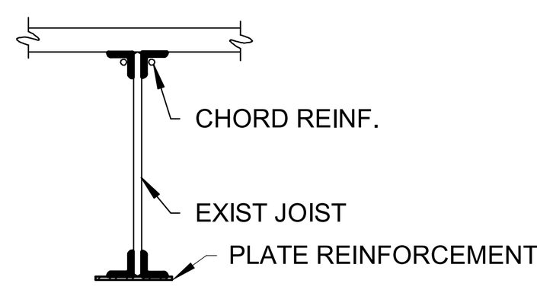
JOIST ELEVATION

1. SHORING IS NOT REQUIRED BEFORE PLACING REINFORCING.



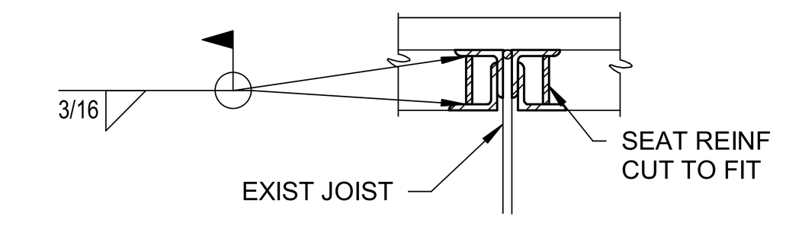
SECTION @ WEB REINF (A)

SCALE:



SEC @ CHORD REINF (B)

SCALE:



SECTION @ SEAT REINF (C)

SCALE:

30K10 JOIST REINF PARA/PERP PIPE

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

2 / S-508.2

SCHMIDT ASSOCIATES
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Project No. 2019-067.NCH
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DYLAN SEESMAN REGISTERED No. PE11900810 STATE OF INDIANA PROFESSIONAL ENGINEER

#	Revision	Date
A2.2	Addendum 2	11.29.2021

A2.2

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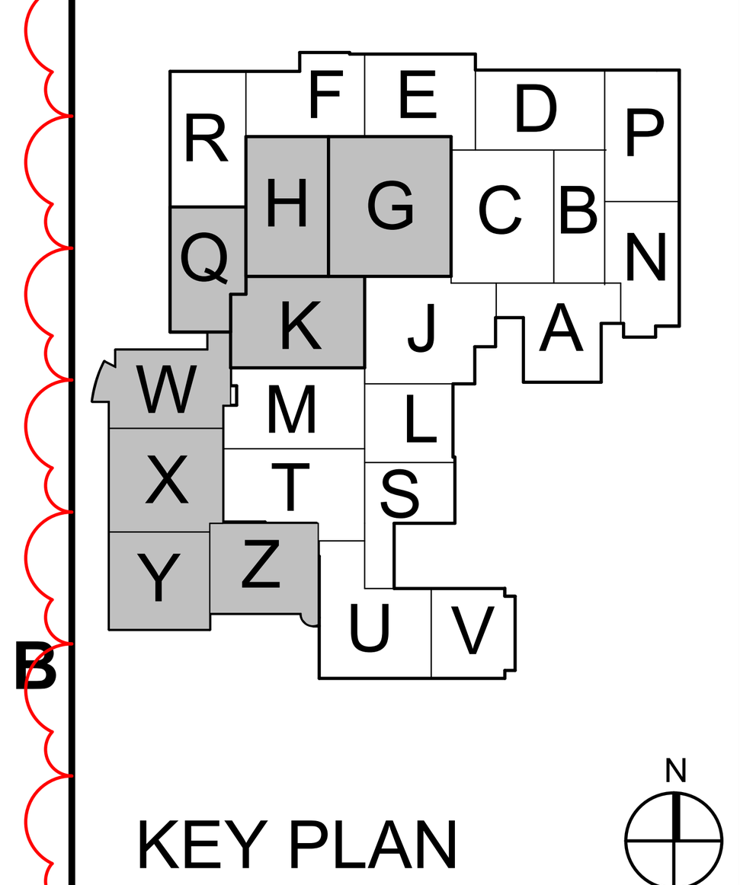


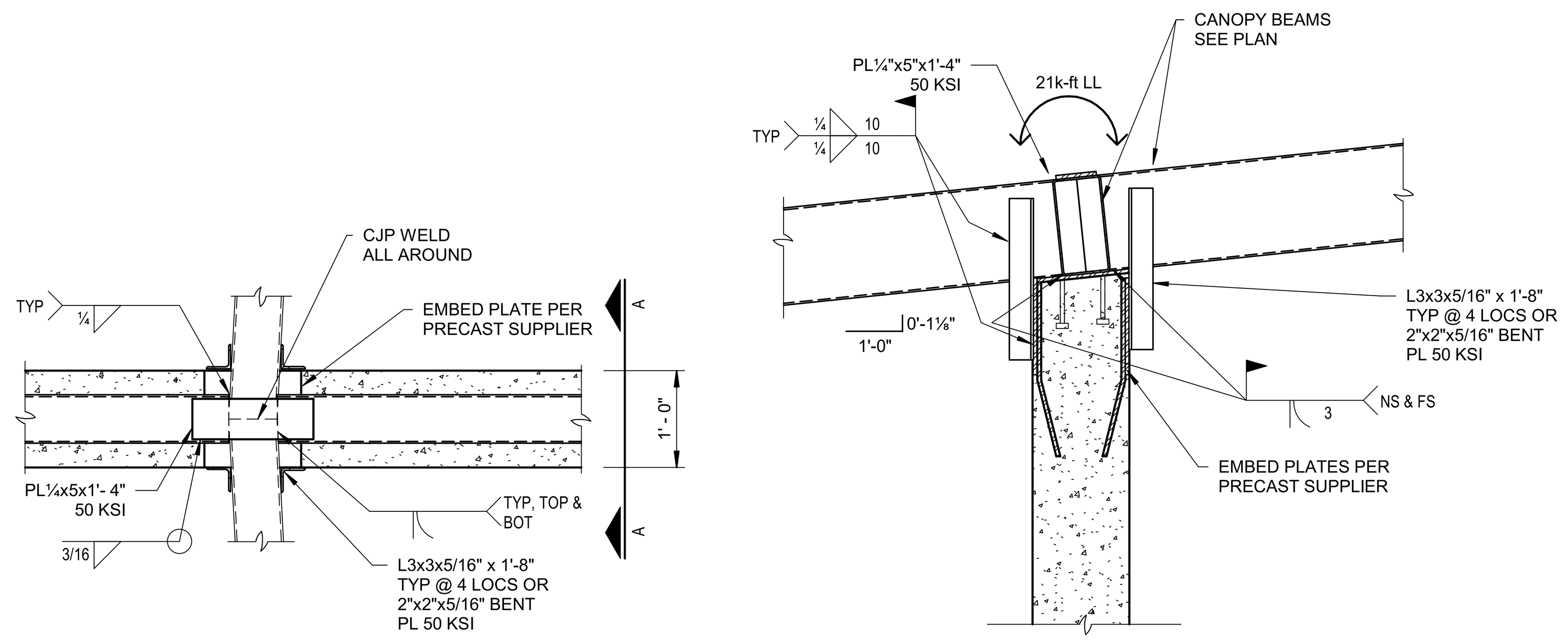
KEY PLAN

M.S.D. of Washington Township

North Central High School Renovation - West Gym Addition

TYPICAL SECTIONS AND DETAILS

S-508.2



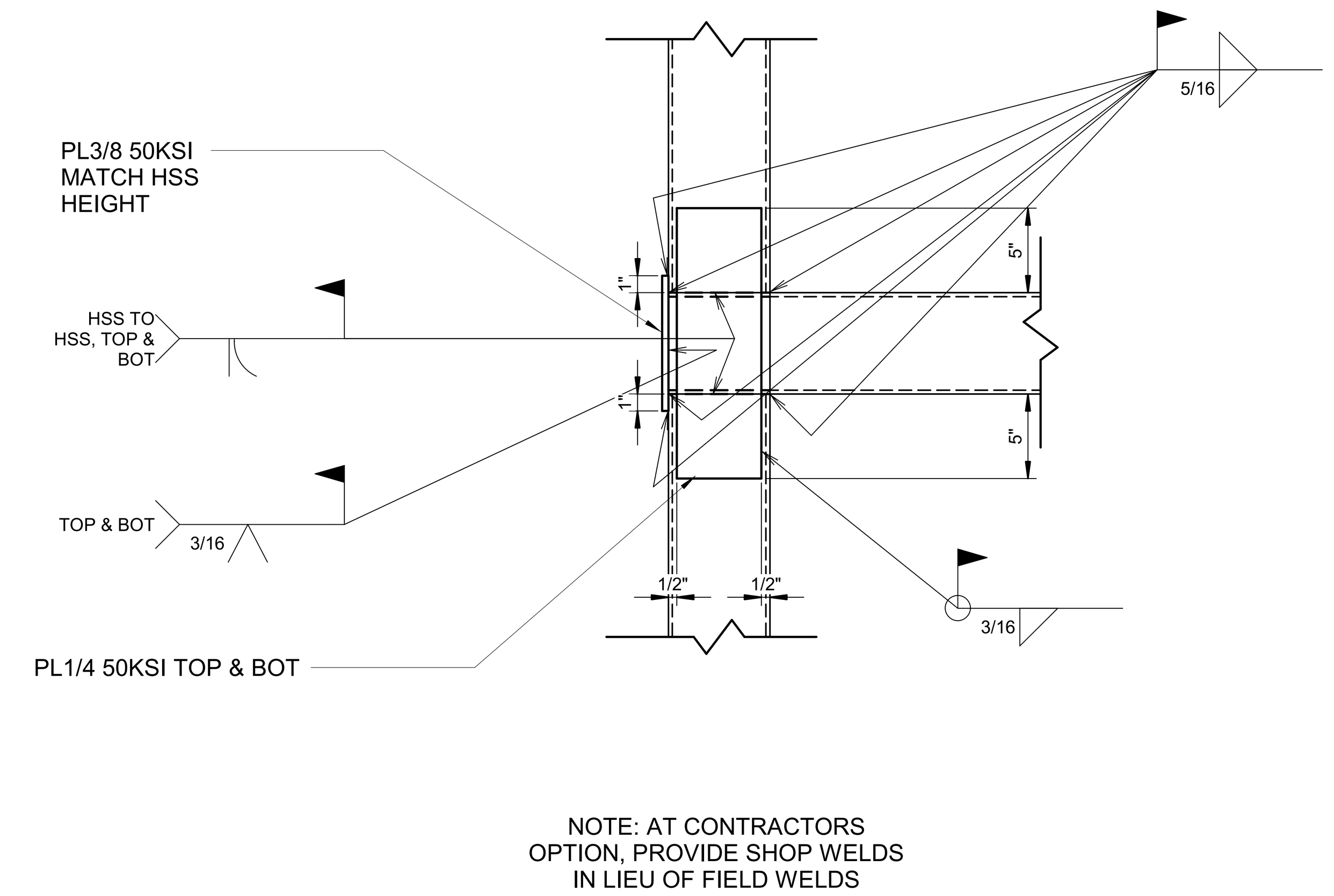
PLAN VIEW

SECTION A-A

HIGH CANOPY CONN DETAIL TYP

7 / S-509.2

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

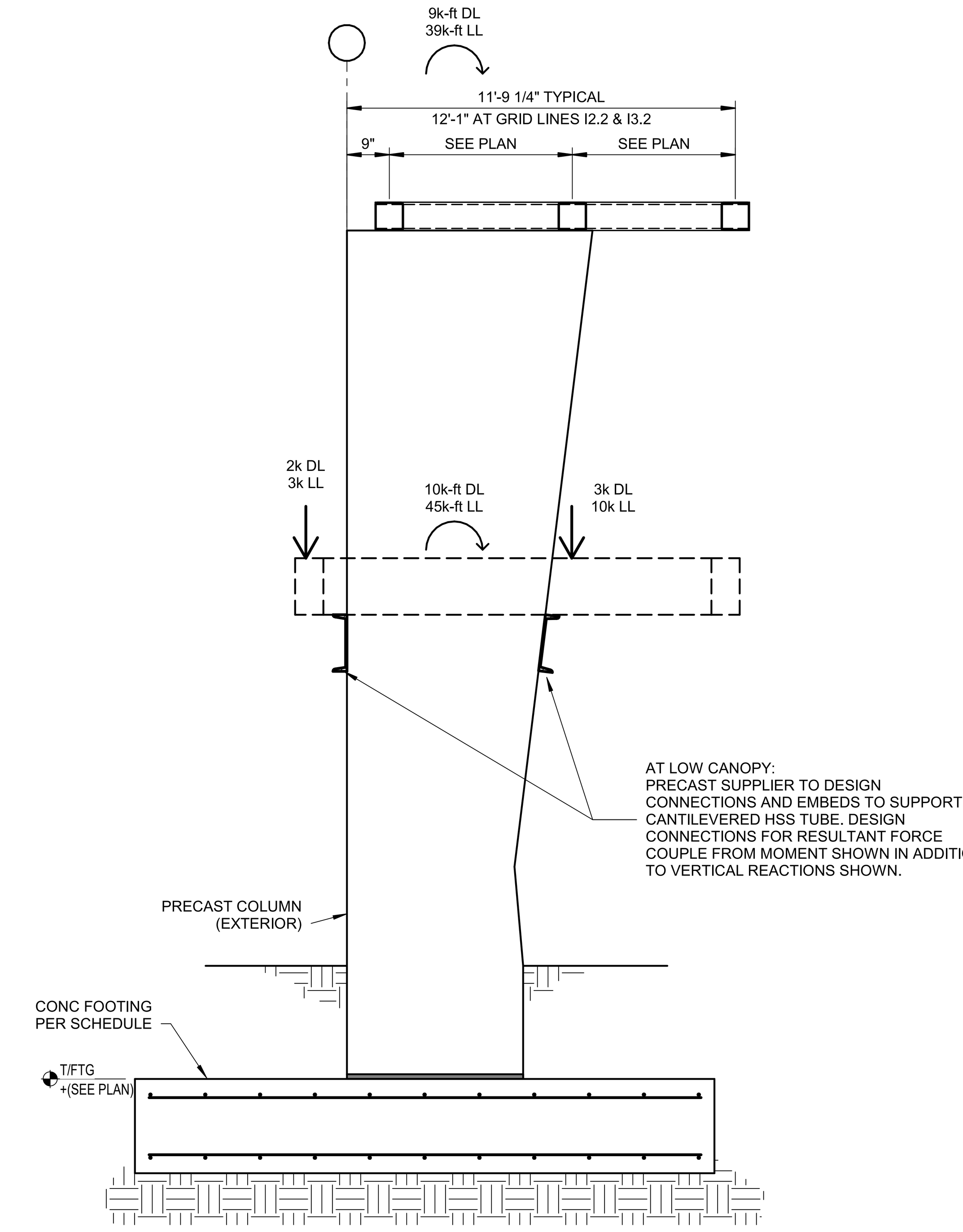


NOTE: AT CONTRACTORS OPTION, PROVIDE SHOP WELDS IN LIEU OF FIELD WELDS

CONNECTION DETAIL

4 / S-509.2

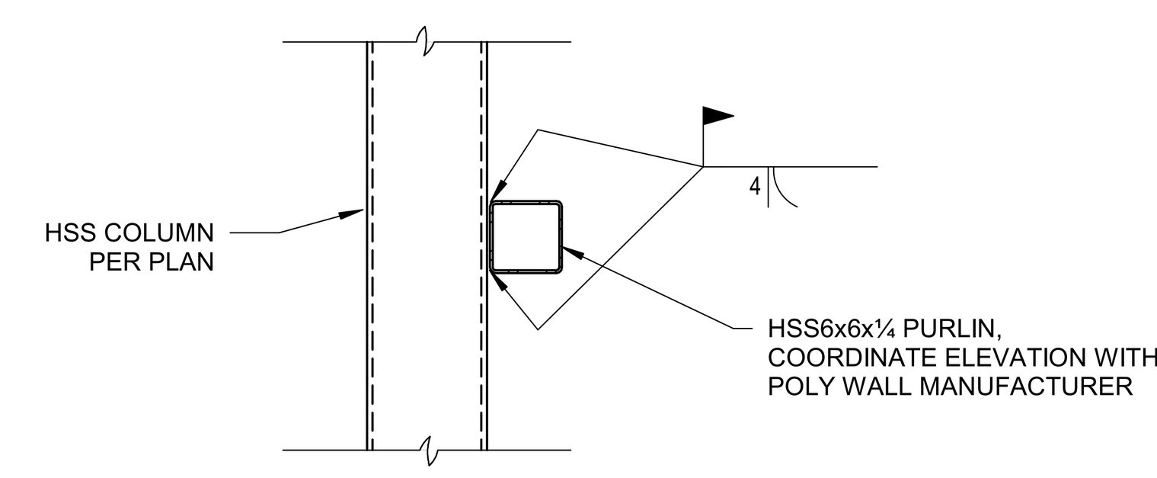
SCALE: 1 1/2" = 1'-0"



NORTH CANOPY SECTION

1 / S-509.2

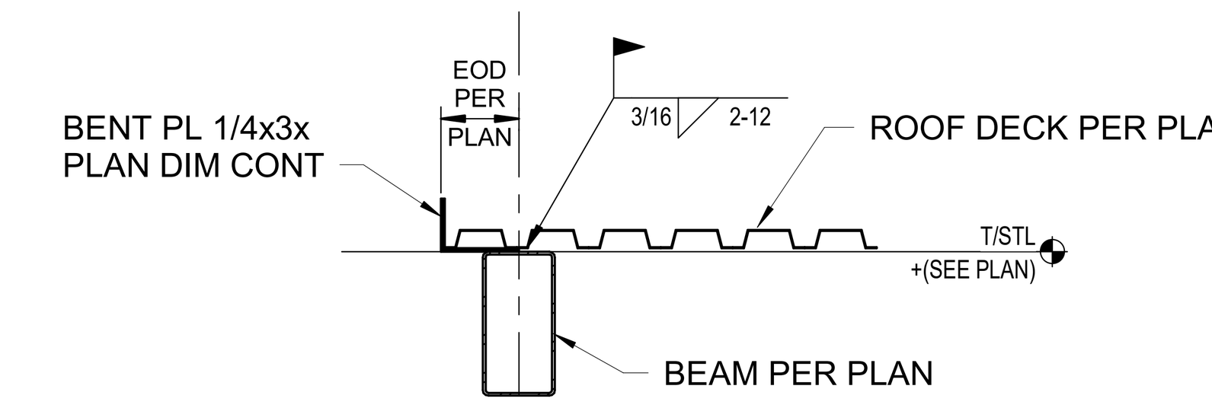
SCALE: 1/2" = 1'-0"



HSS PURLIN TO HSS COLUMN

5 / S-509.2

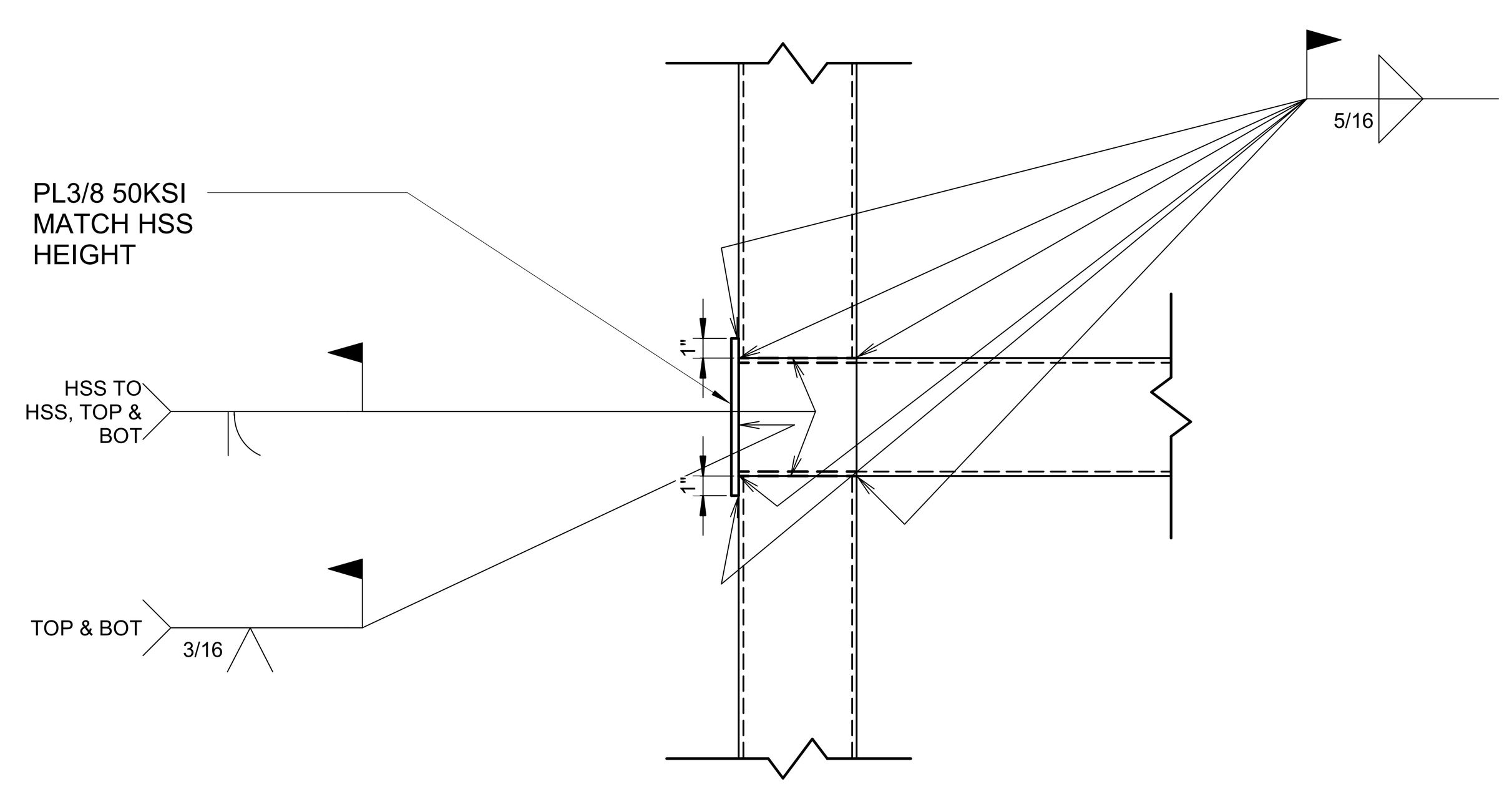
SCALE: 3/4" = 1'-0"



EDGE OF DECK SECTION

2 / S-509.2

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

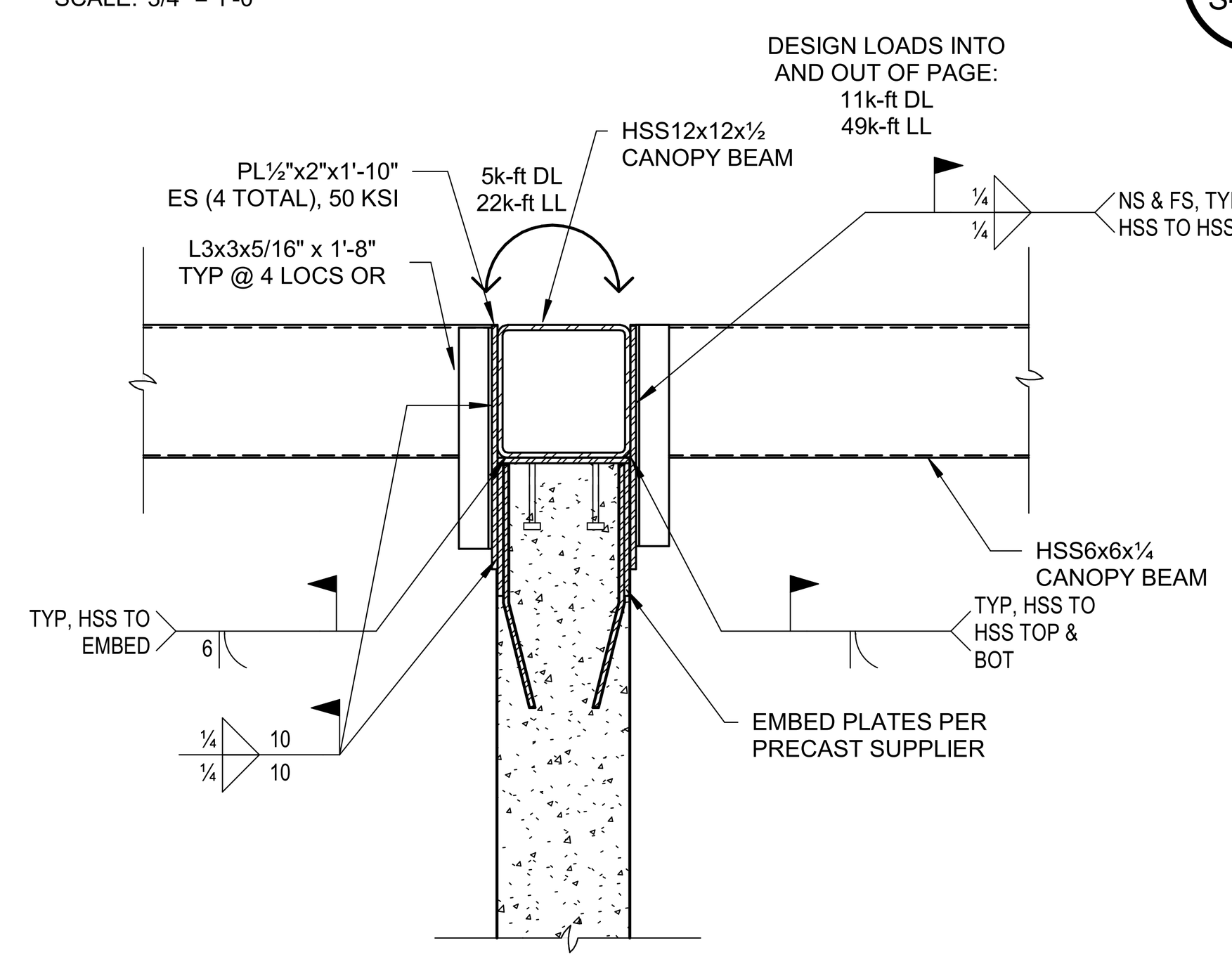


NOTE: AT CONTRACTORS OPTION, PROVIDE SHOP WELDS IN LIEU OF FIELD WELDS

CONNECTION DETAIL

8 / S-509.2

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

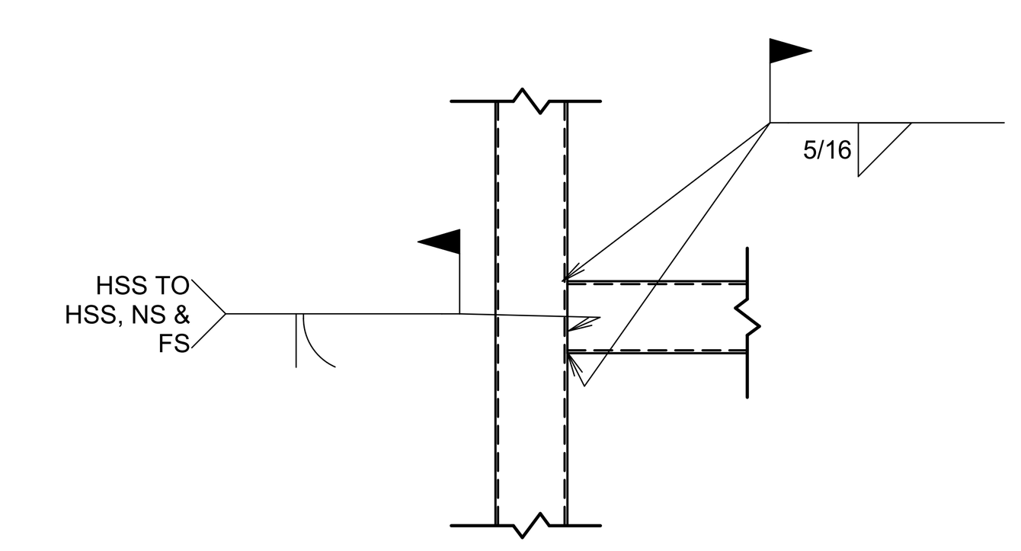


NOTE: AT CONTRACTORS OPTION, PROVIDE SHOP WELDS IN LIEU OF FIELD WELDS

TYPICAL HSS CANOPY BEAM TO PRECAST COL

6 / S-509.2

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



NOTE: AT CONTRACTORS OPTION, PROVIDE SHOP WELDS IN LIEU OF FIELD WELDS

CONNECTION DETAIL

3 / S-509.2

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

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KEY PLAN

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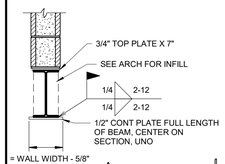

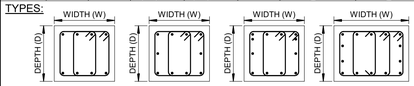

COLUMN SCHEDULE (grid intersection)

Grid Intersection	Size	Base Level	Top Level	Base Plate	Phase Created
QQE(-1' - 0 3/4")-44E	HSS6X6X1/2	1.00 Top/ FTG	Top/ Stage	BP7	Phase 2
QQE(-1' - 0 3/4")-49E	HSS6X6X1/2	1.00 Top/ FTG	Top/ Stage	BP7	Phase 2
I1.2-1E.2	HSS12X12X3/4	1.00 Top/ FTG	2.85 Top/West Entry	BP6	Phase 2
J1.2-1E.2	HSS12X12X3/4	1.00 Top/ FTG	2.85 Top/West Entry	BP6	Phase 2
J.2-2.2	HSS12X12X3/4	1.00 Top/ FTG	2.85 Top/West Entry	BP6	Phase 2
J2.2-1.2	HSS10X8X1/2	1.00 Top/ FTG	3.10 UNIT Z Top/Steel Roof OLD	BP8	Phase 2
J2.2-1B.2	HSS10X8X1/2	1.00 Top/ FTG	3.10 UNIT Z Top/Steel Roof OLD	BP8	Phase 2
J2.2-1F.2	HSS10X8X1/2	1.00 Top/ FTG	3.10 UNIT Z Top/Steel Roof OLD	BP8	Phase 2
J3.2-1.2	HSS10X8X1/2	1.00 Top/ FTG	3.10 UNIT Z Top/Steel Roof OLD	BP8	Phase 2
J3.2-1B.2	HSS10X8X1/2	1.00 Top/ FTG	3.10 UNIT Z Top/Steel Roof OLD	BP8	Phase 2
J3.2-1F.2	HSS10X8X1/2	1.00 Top/ FTG	3.10 UNIT Z Top/Steel Roof OLD	BP8	Phase 2
C.2-9.2	HSS6X6X1/2	1.10 Top/Slab	2.30 MEZZ UNIT Z	BP3	Phase 2
C.2-13.2	HSS6X6X1/2	1.10 Top/Slab	2.30 MEZZ UNIT Z	BP3	Phase 2
C.2-16.2	HSS6X6X1/2	1.10 Top/Slab	2.30 MEZZ UNIT Z	BP3	Phase 2
D.2-9.2	HSS8X8X1/2	1.10 Top/Slab	2.30 MEZZ UNIT Z	BP3	Phase 2
D.2-13.2	HSS8X8X1/2	1.10 Top/Slab	2.30 MEZZ UNIT Z	BP3	Phase 2
D.2-16.2	HSS8X8X1/2	1.10 Top/Slab	2.30 MEZZ UNIT Z	BP3	Phase 2
H.2-8A.2	HSS8X8X1/2	1.10 Top/Slab	2.30 MEZZ UNIT Z	BP4	Phase 2
H.2-9A.2	HSS8X8X1/2	1.10 Top/Slab	2.30 MEZZ UNIT Z	BP4	Phase 2
H.2-11.2	HSS8X8X1/2	1.10 Top/Slab	2.30 MEZZ UNIT Z	BP4	Phase 2
H.2-13.2	HSS8X8X1/2	1.10 Top/Slab	2.30 MEZZ UNIT Z	BP4	Phase 2
H.2-16.2	HSS8X8X1/2	1.10 Top/Slab	2.30 MEZZ UNIT Z	BP4	Phase 2
C.2-10.2	HSS6X6X1/2	1.10 Top/Slab	2.301 UNIT Z Low Roof	BP3	Phase 2
D.2-10.2	HSS8X8X1/2	1.10 Top/Slab	2.301 UNIT Z Low Roof	BP3	Phase 2
D3.2-16.2	HSS8X8X1/2	1.10 Top/Slab	2.325 Unit Z Corridor Top/Corridor	BP4	Phase 2
E.2-8A.2	HSS8X8X1/2	1.10 Top/Slab	2.325 Unit Z Corridor Top/Corridor	BP4	Phase 2
E.2-9A.2	HSS8X8X1/2	1.10 Top/Slab	2.325 Unit Z Corridor Top/Corridor	BP4	Phase 2
E.2-11.2	HSS8X8X1/2	1.10 Top/Slab	2.325 Unit Z Corridor Top/Corridor	BP4	Phase 2
F.2-8A.2	HSS8X8X1/2	1.10 Top/Slab	2.325 Unit Z Corridor Top/Corridor	BP4	Phase 2
F.2-9A.2	HSS8X8X1/2	1.10 Top/Slab	2.325 Unit Z Corridor Top/Corridor	BP4	Phase 2
F.2-11.2	HSS8X8X1/2	1.10 Top/Slab	2.325 Unit Z Corridor Top/Corridor	BP4	Phase 2
F.2-13.2	HSS8X8X1/2	1.10 Top/Slab	2.325 Unit Z Corridor Top/Corridor	BP4	Phase 2
F.2-16.2	HSS8X8X1/2	1.10 Top/Slab	2.325 Unit Z Corridor Top/Corridor	BP4	Phase 2
J.2-3.2	HSS12X12X3/4	1.10 Top/Slab	2.85 Top/West Entry	BP6	Phase 2
J.2-4.2	HSS10X10X3/4	1.10 Top/Slab	2.85 Top/West Entry	BP5	Phase 2
J.2-5.2	HSS8X8X1/2	1.10 Top/Slab	2.85 Top/West Entry	BP4	Phase 2
J.2-5A.2	HSS10X10X1/2	1.10 Top/Slab	2.60 Top/ West Gym Corridor Roof	BP5	Phase 2
J.2-5C.2	HSS6X6X1/2	1.10 Top/Slab	2.60 Top/ West Gym Corridor Roof	BP1	Phase 2
J.2-6B.2	HSS6X6X1/2	1.10 Top/Slab	2.60 Top/ West Gym Corridor Roof	BP1	Phase 2
K.2-5A.2	HSS8X8X1/2	1.10 Top/Slab	2.60 Top/ West Gym Corridor Roof	BP4	Phase 2
K.2-5C.2	HSS6X6X1/2	1.10 Top/Slab	2.60 Top/ West Gym Corridor Roof	BP1	Phase 2
K.2-6A.2	HSS6X6X1/2	1.10 Top/Slab	2.60 Top/ West Gym Corridor Roof	BP3	Phase 2
L.2-5C.2	HSS6X6X1/2	1.10 Top/Slab	2.60 Top/ West Gym Corridor Roof	BP3	Phase 2
L.2-6A.2	HSS6X6X1/2	1.10 Top/Slab	2.60 Top/ West Gym Corridor Roof	BP3	Phase 2
M.2-5C.2	HSS8X8X5/8	1.10 Top/Slab	2.60 Top/ West Gym Corridor Roof	BP4	Phase 2
M.2-6A.2	HSS8X8X5/8	1.10 Top/Slab	2.60 Top/ West Gym Corridor Roof	BP5	Phase 2
N.2-5C.2	HSS10X10X3/4	1.10 Top/Slab	2.60 Top/ West Gym Corridor Roof	BP5	Phase 2
N.2-6A.2	HSS10X10X3/4	1.10 Top/Slab	2.60 Top/ West Gym Corridor Roof	BP5	Phase 2
H11.2-6B.2	HSS6X6X1/2	1.10 Top/Slab	2.90 Top/ Auditorium	BP4	Phase 2
J5.2-6B.2	HSS6X6X1/2	1.10 Top/Slab	2.90 Top/ Auditorium	BP3	Phase 2
C.2-7.2	HSS8X8X1/2	1.10 Top/Slab	3.10 UNIT Z Top/Steel Roof OLD	BP2	Phase 2
D3.2-13.2	HSS8X8X1/2	1.10 Top/Slab	3.10 UNIT Z Top/Steel Roof OLD	BP4	Phase 2
D.2-7.2	HSS8X8X1/2	1.10 Top/Slab	3.10 UNIT Z Top/Steel Roof OLD	BP1	Phase 2
D.2-8.2	HSS8X8X1/2	1.10 Top/Slab	3.10 UNIT Z Top/Steel Roof OLD	BP1	Phase 2
E.2-7.2	HSS10X10X1/2	1.10 Top/Slab	3.10 UNIT Z Top/Steel Roof OLD	BP5	Phase 2
F.2-7.2	HSS10X10X1/2	1.10 Top/Slab	3.10 UNIT Z Top/Steel Roof OLD	BP5	Phase 2
H.2-7.2	HSS8X8X1/2	1.10 Top/Slab	3.10 UNIT Z Top/Steel Roof OLD	BP4	Phase 2
C.2-8.2	HSS6X6X1/2	1.10 Top/Slab	3.20 Unit Z High Roof Top/Steel	BP1	Phase 2
L.2-2.2	HSS10X10X3/4	Top/ Stage	2.20 Top/Multi-Purp Roof LP	BP5	Phase 2
L.2-3.2	HSS10X10X3/4	Top/ Stage	2.20 Top/Multi-Purp Roof LP	BP5	Phase 2
L.2-4.2	HSS8X8X5/8	Top/ Stage	2.20 Top/Multi-Purp Roof LP	BP4	Phase 2

COLUMN SCHEDULE (grid intersection)

Grid Intersection	Size	Base Level	Top Level	Base Plate	Phase Created
L.2-5.2	HSS8X8X5/8	Top/ Stage	2.20 Top/Multi-Purp Roof LP	BP4	Phase 2
A1.2-14.2	HSS10X8X1/2	Top/ Stage	2.30 MEZZ UNIT Z	BP3	Phase 2
A1.2-15.2	HSS10X8X1/2	Top/ Stage	2.30 MEZZ UNIT Z	BP3	Phase 2
A3.2-16.2	HSS6X6X1/2	Top/ Stage	2.30 MEZZ UNIT Z	BP3	Phase 2
A3.2-A5.2	HSS6X6X1/2	Top/ Stage	2.30 MEZZ UNIT Z	BP3	Phase 2
A3.2-B.2	HSS6X6X1/2	Top/ Stage	2.30 MEZZ UNIT Z	BP3	Phase 2
A.2-14.2	HSS10X8X1/2	Top/ Stage	2.30 MEZZ UNIT Z	BP8	Phase 2
A.2-15.2	HSS10X8X1/2	Top/ Stage	2.30 MEZZ UNIT Z	BP8	Phase 2
B.2-9.2	HSS6X6X1/2	Top/ Stage	2.30 MEZZ UNIT Z	BP3	Phase 2
B.2-10.2	HSS6X6X1/2	Top/ Stage	2.301 UNIT Z Low Roof	BP3	Phase 2
L.2-5A.2	HSS8X8X1/2	Top/ Stage	2.60 Top/ West Gym Corridor Roof	BP4	Phase 2
M.2-5A.2	HSS10X10X3/4	Top/ Stage	2.60 Top/ West Gym Corridor Roof	BP5	Phase 2
N.2-5A.2	HSS10X10X3/4	Top/ Stage	2.60 Top/ West Gym Corridor Roof	BP5	Phase 2

ELEVATED FORMED CONCRETE SLAB FLATNESS/LEVELNESS SCHEDULE

CLASSIFICATION	OVERALL FF	OVERALL FL	MIN LOCAL FF	MIN LOCAL FL
CONVENTIONAL	20	15	15	10
MODERATELY FLAT	25	20	20	15
FLAT	35	25	25	15
VERY FLAT	45	35	30	25
SUPER FLAT	60	40	40	25

FLOOR TYPE/LOCATION	REQUIRED SLAB
EXPOSED WAREHOUSE, MANUFACTURING AREAS, UNO	FLAT
EXPOSED UTILITY/MECHANICAL AREAS, UNO	MODERATELY FLAT
FLOORS WITH CARPET, VCT FINISH, UNO	MODERATELY FLAT
FLOORS WITH POLISHED CONCRETE FINISH	FLAT
TILE UP TO 16" LONG DIMENSION, >=1/4" GROUT JOINTS	FLAT
TILE UP TO 16" LONG DIMENSION, 3/16" GROUT JOINTS	VERY FLAT
TILE UP TO 16" LONG DIMENSION, 1/8" GROUT JOINTS	SUPER FLAT
TILE>16" TO <36" LONG DIMENSION, >=1/4" GROUT JOINTS	VERY FLAT
TILE>16" TO <36" LONG DIMENSION, <1/4" GROUT JOINTS	SUPER FLAT
TILE >36" LONG DIMENSION	SUPER FLAT

NOTES:
1. GENERAL CONTRACTOR SHALL REVIEW ALL FLOOR FINISH REQUIREMENTS FOR THE PROJECT AND PROVIDE CONCRETE SLAB SURFACE FINISHES IN ACCORDANCE WITH THE REQUIREMENTS OF THE SPECIFIED FLOOR FINISH MATERIALS. WHERE TOLERANCES FOR THE FLOOR FINISH MATERIALS DIFFER FROM THIS SCHEDULE, THE MORE STRINGENT REQUIREMENTS SHALL APPLY.
2. GENERAL CONTRACTOR SHALL COORDINATE WITH THE FINISH FLOORING SUPPLIER TO PROVIDE ALL NECESSARY REPAIR, GRINDING, AND/OR LEVELING OF THE CONCRETE SLAB TO ACCOMMODATE ALL FLOOR FINISHES PRIOR TO INSTALLATION OF FINISH MATERIALS WITH NO ADDITIONAL COST TO THE PROJECT.

DRILLED CAISSON (DC) SCHEDULE

MARK	DIAMETER	CAISSON DEPTH	LONGITUDINAL REINF	TIES
DC24	24"	NOTE 3	(8) #8	#4 @ 12" OC
DC30	30"	NOTE 3	(12) #9	#4 @ 12" OC

NOTES:
1. SEE GEOTECHNICAL REPORT FOR INFORMATION RELATED TO GENERAL EXISTING SOIL PROFILE AND APPARENT BEDROCK ELEVATIONS.
2. A GEOTECHNICAL ENGINEER SHALL BE PRESENT AT THE TIME OF DRILLING TO INDICATE AT WHAT ELEVATION COMPETENT BEDROCK IS ACHIEVED FOR EACH CAISSON.
3. INSTALL CAISSON TO DEPTH INDICATED BY GEOTECHNICAL ENGINEER

ELEVATED FORMED CONCRETE SLAB FLATNESS/LEVELNESS SCHEDULE

CLASSIFICATION	OVERALL FF	OVERALL FL	MIN LOCAL FF	MIN LOCAL FL
CONVENTIONAL	20	15	15	10
MODERATELY FLAT	25	20	20	15
FLAT	35	25	25	15
VERY FLAT	45	35	30	25
SUPER FLAT	60	40	40	25

FLOOR TYPE/LOCATION	REQUIRED SLAB
EXPOSED WAREHOUSE, MANUFACTURING AREAS, UNO	FLAT
EXPOSED UTILITY/MECHANICAL AREAS, UNO	MODERATELY FLAT
FLOORS WITH CARPET, VCT FINISH, UNO	MODERATELY FLAT
FLOORS WITH POLISHED CONCRETE FINISH	FLAT
TILE UP TO 16" LONG DIMENSION, >=1/4" GROUT JOINTS	FLAT
TILE UP TO 16" LONG DIMENSION, 3/16" GROUT JOINTS	VERY FLAT
TILE UP TO 16" LONG DIMENSION, 1/8" GROUT JOINTS	SUPER FLAT
TILE>16" TO <36" LONG DIMENSION, >=1/4" GROUT JOINTS	VERY FLAT
TILE>16" TO <36" LONG DIMENSION, <1/4" GROUT JOINTS	SUPER FLAT
TILE >36" LONG DIMENSION	SUPER FLAT

NOTES:
1. GENERAL CONTRACTOR SHALL REVIEW ALL FLOOR FINISH REQUIREMENTS FOR THE PROJECT AND PROVIDE CONCRETE SLAB SURFACE FINISHES IN ACCORDANCE WITH THE REQUIREMENTS OF THE SPECIFIED FLOOR FINISH MATERIALS. WHERE TOLERANCES FOR THE FLOOR FINISH MATERIALS DIFFER FROM THIS SCHEDULE, THE MORE STRINGENT REQUIREMENTS SHALL APPLY.
2. GENERAL CONTRACTOR SHALL COORDINATE WITH THE FINISH FLOORING SUPPLIER TO PROVIDE ALL NECESSARY REPAIR, GRINDING, AND/OR LEVELING OF THE CONCRETE SLAB TO ACCOMMODATE ALL FLOOR FINISHES PRIOR TO INSTALLATION OF FINISH MATERIALS WITH NO ADDITIONAL COST TO THE PROJECT.

CONCRETE MIX SCHEDULE

CONCRETE USAGE	28-DAY COMPRESSIVE STRENGTH (PSI)	MAX CEMENT REPLACEMENT (NOTE 3)	MAXIMUM W/CM RATIO	AIR CONTENT (PERCENT)	MAX AGGREGATE SIZE (INCHES)	NOTES
FOOTINGS	3,000	20%	0.55	0-3	1.5	
PILE CAPS, MAT FOUNDATIONS	4,000	20%	0.50	0-3	1.5	
GRADE BEAMS, PIERS, FOUNDATION WALS	4,000	20%	0.50	0-3	1	
EXTERIOR RETG WALLS, STOOPS AND PADS	4,000	20%	0.45	6 ± 1	1	
BASEMENT WALLS	4,000	20%	0.50	0-3	1	
SLABS ON GRADE (6 INCHES OR LESS)	4,000	20%	0.48	0-3	1	
SLABS ON GRADE (GREATER THAN 6 INCHES)	4,000	20%	0.48	0-3	1.5 (NOTE 5)	
WAREHOUSE SLABS (GREATER THAN 6 INCHES)	4,000	20%	0.48	0-3	1.5 (NOTE 5)	700 PSI FLEXURAL TENSILE STRENGTH
SLABS ON METAL DECK	4,000	20%	0.48	0-3	1	4.0 LBS/CYD MACRO-FIBER
INTERIOR TOPPING SLABS	4,000	20%	0.48	0-3	0.75	
ELEVATED STRUCTURAL SLABS	5,000	15%	0.48	0-3	0.75	
POLISHED SLABS ON GRADE	4,000	0%	0.45	0-3	1	4.0 LBS/CYD MACRO-FIBER (NOTE 6)
POLISHED SLABS ON METAL DECK	4,000	0%	0.45	0-3	1	4.0 LBS/CYD MACRO-FIBER (NOTE 6)
POLISHED ELEVATED STRUCTURAL SLABS	5,000	0%	0.45	0-3	1	4.0 LBS/CYD MACRO-FIBER (NOTE 6)
BEAMS	5,000	15%	0.48	0-3	0.75	
COLUMNS	5,000	15%	0.48	0-3	0.75	
EXTERIOR EXPOSED COLUMNS	5,000	15%	0.45	5 ± 1	0.75	
CORE WALLS AND SHEAR WALLS	5,000	15%	0.48	0-3	0.75	
INTERIOR PT BEAMS AND SLABS	5,000	15%	0.40	0-3	0.75	
EXTERIOR EXPOSED PT BEAMS AND SLABS	5,000	15%	0.40	6 ± 1	0.75	3 GAL/CYD CORROSION INHIBITOR ADMIXTURE
PARKING GARAGE TOPPING SLABS AND WASHES	5,000	15%	0.40	6 ± 1	0.75	
WATER/WASTEWATER TANKS & STRUCTURES	4,500	25%	0.42	5.5 ± 1	1	
TILT-UP PANELS	4,000	15%	0.45	0-3	0.75	
FREEZER SLABS	4,000	20%	0.45	6 ± 1	1	
LIGHTWEIGHT SLABS ON METAL DECK	4,000	N/A	0.48	6 ± 1	1	4.0 LBS/CYD MACRO-FIBER

NOTES:
1. SEE GENERAL NOTES AND SPECIFICATIONS FOR ADDITIONAL INFORMATION.
2. ALL CONCRETE IS NORMAL WEIGHT AND CEMENT IS ASTM C150 TYPE 1, UNO. DO NOT USE LIGHTWEIGHT CONCRETE UNLESS SPECIFICALLY INDICATED.
3. ACCEPTABLE CEMENT REPLACEMENT MATERIAL, WHERE PERMITTED, SHALL BE FLY ASH, ASTM C618 TYCE C OR F, UNO.
4. TARGET SLUMP SHALL BE DETERMINED BY THE CONTRACTOR AS NEEDED FOR PROPER PLACEMENT.
5. WHERE NOTED, BLENDED AGGREGATE WITH ZONE 2 COARSENESS PER ACI 302 IS MANDATORY.
6. COORDINATE OF LOCATIONS OF ALL POLISHED CONCRETE SLABS (WHEN USED) AND REVIEW THE CONCRETE MIX REQUIREMENTS WITH THE POLISHED CONCRETE CONTRACTOR PRIOR TO SUBMITTAL OF CONCRETE MIXES. IF THE POLISHED CONCRETE CONTRACTOR REQUESTS TO DEVIATE FROM THE REQUIREMENTS OF THIS SCHEDULE, CONTACT THE STRUCTURAL ENGINEER TO REVIEW THE REQUESTS PRIOR TO SUBMISSION OF THE POLISHED CONCRETE MIX(ES).

DRILLED CAISSON CAP SCHEDULE

MARK	# OF CAISSONS	CAISSONS TYPE	CAP DIM				CAP BOT REINF				CAP TOP REINF				REMARKS
							LONG		SHORT		LONG		SHORT		
			THK	L	W	E	QTY	SIZE	QTY	SIZE	QTY	SIZE	QTY	SIZE	
CC1	1	DC24	1'-4"	4'-0"	4'-0"	1'-9"	6	#6	6	#6	6	#6	6	#6	1

NOTES:
1. PROVIDE STANDARD HOOKS AT END CLOSEST TI CAISSON. SEE DETAIL FOR FURTHER INFORMATION

LINTEL SCHEDULE

MARK	SECTION	CLEAR OPENING	TYPE	NOTES
L1	W16x31	PER ARCH	A	1/2" THICK CONT. PLATE
L2	W16x67	PER ARCH	A	1/2" THICK CONT. PLATE

TYPES:

LINTEL SCHEDULE NOTES:

1. ALL LINTELS BEAR 0'-8" ONTO SUPPORTING WALLS, UNO.
2. ALL STEEL LINTELS AND SHELF ANGLES IN EXTERIOR WALLS SHALL BE GALVANIZED.
3. BOTTOM PLATES SHALL EXTEND THE FULL LENGTH OF THE LINTEL, INCLUDING BEARING LENGTH, UNO.
4. AT CMU INFILL (SOAPS) AT STEEL LINTELS, PROVIDE METAL ANCHORAGE AT EVERY COURSE @ 16" OC TO TIE CMU TO STEEL.

COLUMN FOOTING SCHEDULE

Mark	Ftg Dimensions			Bottom Reinforcing						Remarks	Phase Created
				Short Direction			Long Direction				
	Width	Length	Thickness	No	Size	Length	No	Size	Length		
F4.0	4' - 0"	4' - 0"	1' - 2"	4	#5	3' - 6"	4	#5	3' - 6"		Phase 2
F4.6	4' - 6"	4' - 6"	1' - 2"	3	#5	4' - 0"	3	#5	4' - 0"	TYP. TOP AND BOTTOM REINF	Phase 2
F5.0	5' - 0"	5' - 0"	1' - 2"	5	#5	4' - 6"	5	#5	4' - 6"		Phase 2
F5.0A	5' - 0"	5' - 0"	1' - 2"	5	#5	4' - 6"	5	#5	4' - 6"	TYP. TOP AND BOTTOM REINF	Phase 2
F5.5B	5' - 6"	5' - 6"	1' - 4"	5	#5	5' - 0"	5	#5	5' - 0"	TYP. TOP AND BOTTOM REINF	Phase 2
F5.5C	5' - 6"	5' - 6"	1' - 2"	5	#5	5' - 0"	5	#5	5' - 0"		Phase 2
F6.0	6' - 0"	6' - 0"	1' - 0"	7	#5	5' - 6"	7	#5	5' - 6"		Phase 2
F6.0A	6' - 0"	6' - 0"	1' - 0"	7	#5	5' - 6"	7	#5	5' - 6"	TYP. TOP AND BOTTOM REINF	Phase 2
F6.0C	6' - 0"	6' - 0"	2' - 0"	7	#5	5' - 6"	7	#5	5' - 6"	TYP. TOP AND BOTTOM REINF	Phase 2
F6.5	6' - 6"	6' - 6"	1' - 2"	7	#5	6' - 0"	7	#5	6' - 0"	TYP. TOP AND BOTTOM REINF	Phase 2
F7.0A	7' - 0"	7' - 0"	1' - 8"	8	#6	6' - 6"	8	#6	6' - 6"	TYP. TOP AND BOTTOM REINF	Phase 2
F7.0B	7' - 0"	7' - 0"	1' - 2"	8	#6	6' - 6"	8	#6	6' - 6"	TYP. TOP AND BOTTOM REINF	Phase 2
F7.5A	7' - 0"	7' - 0"	1' - 8"	8	#6	6' - 6"	8	#6	6' - 6"	TYP. TOP AND BOTTOM REINF	Phase 2
F7.5B	7' - 6"	7' - 6"	1' - 2"	8	#6	7' - 0"	8	#6	7' - 0"	TYP. TOP AND BOTTOM REINF	Phase 2
F8.0B	8' - 0"	8' - 0"	2' - 0"	9	#5	7' - 6"	9	#5	7' - 6"	TYP. TOP AND BOTTOM REINF	Phase 2
F8.0C	8' - 0"	8' - 0"	2' - 4"	9	#5	7' - 6"	9	#5	7' - 6"	TYP. TOP AND BOTTOM REINF	Phase 2
F8.0D	8' - 0"	8' - 0"	1' - 2"	9	#5	7' - 6"	9	#5	7' - 6"	TYP. TOP AND BOTTOM REINF	Phase 2
F8.5	8' - 6"	8' - 6"	1' - 4"	9	#5	8' - 0"	9	#5	8' - 0"	TYP. TOP AND BOTTOM REINF	Phase 2
F9.0A	9' - 0"	9' - 0"	1' - 2"	12	#6	8' - 6"	12	#6	8' - 6"	TYP. TOP AND BOTTOM REINF	Phase 2
F9.0B	9' - 0"	9' - 0"	1' - 4"	12	#6	8' - 6"	12	#6	8' - 6"	TYP. TOP AND BOTTOM REINF	Phase 2
F9.5	9' - 6"	9' - 6"	2' - 0"	12	#6	9' - 0"	12	#6	9' - 0"	TYP. TOP AND BOTTOM REINF	Phase 2
F9.5A	9' - 6"	9' - 6"	2' - 6"	12	#6	9' - 0"	12	#6	9' - 0"		Phase 2
F10.0B	10' - 0"	10' - 0"	1' - 2"	11	#8	9' - 6"	11	#6	9' - 6"	TYP. TOP AND BOTTOM REINF	Phase 2
F10.0C	10' - 0"	10' - 0"	1' - 4"	11	#8	9' - 6"	11	#6	9' - 6"	TYP. TOP AND BOTTOM REINF	Phase 2
F10.0D	7' - 6"	10' - 0"	1' - 8"	9	#6	7' - 0"	10	#6	9' - 6"	TYP. TOP AND BOTTOM REINF	Phase 2
F11.0	11' - 0"	11' - 0"	2' - 4"	12	#8	10' - 6"	12	#8	10' - 6"	TYP. TOP AND BOTTOM REINF	Phase 2
F11.0A	11' - 0"	11' - 0"	1' - 8"	12	#8	10' - 6"	12	#8	10' - 6"	TYP. TOP AND BOTTOM REINF	Phase 2
F11.5	11' - 0"	11' - 0"	2' - 4"	12	#8	10' - 6"	12	#8	10' - 6"	TYP. TOP AND BOTTOM REINF	Phase 2
F12.5	12' - 6"	12' - 6"	1' - 8"	11	#8	12' - 0"	11	#8	12' - 0"	TYP. TOP AND BOTTOM REINF	Phase 2
F12X8	12' - 4"	8' - 0"	3' - 0"	12	#9	11' - 10"	9	#9	7' - 6"	TYP. TOP AND BOTTOM REINF	Phase 2
F13.5	13' - 6"	13' - 6"	1' - 6"	14	#8	13' - 0"	14	#8	13' - 0"	TYP. TOP AND BOTTOM REINF	Phase 2
F13.5A	13' - 6"	13' - 6"	1' - 4"	14	#8	13' - 0"	14	#8	13' - 0"	TYP. TOP AND BOTTOM REINF	Phase 2
F14.0	14' - 0"	6' - 0"	1' - 8"	12	#7	13' - 6"	7	#7	5' - 6"	TYP. TOP AND BOTTOM REINF	Phase 2
F16X12	16' - 8"	12' - 4"	3' - 0"	24	#9	16' - 2"	9	#9	11' - 10"	TYP. TOP AND BOTTOM REINF	Phase 2

Column Footing Schedule Notes:
1. Reinforcing clearance at bottom and sides of footings = 3"
2. Use concrete brick of CRSI Class 3, CHCP wire bar supports @ 36".

COLUMN BASE PLATE SCHEDULE

MARK	PLATE SIZE	ANCHOR RODS		REMARKS
	B" X N" X T"	QTY	DIA	
BP1	14" X 14" X 1"	4	3/4"	
BP2	14" X 14" X 1 1/4"	4	3/4"	
BP3	14" X 14" X 3/4"	4	3/4"	
BP4	16" X 16" X 3/4"	4	3/4"	
BP5	18" X 18" X 1 1/4"	4	1"	
BP6	20" X 20" X 1 1/4"	4	1"	
BP7	12" X 12" X 3/4"	4	3/4"	
BP8	24" X 20" X 1-5/8""	8	1"	50 KSI PLATE, SHEAR LUG 1"x4"xCONT

ANCHOR ROD TABLE

ANCHOR ROD DIA	BASEPLATE HOLE DIA	MINIMUM WASHER SIZE	MINIMUM WASHER THICKNESS	MINIMUM PROJ ABOVE T/CONC	NON-SHRINK GROUT BED THK	MIN EDGE DISTANCE, E
3/4"	1 5/16"	2"	1/4"	8"	2"	1 1/2"
1"	1 13/16"	3"	3/8"	8"	2"	2"

NOTES:

1. ANCHOR RODS ARE ASTM F1554 GR. 36 UNO.
2. PROVIDE WELDED PLATE WASHERS IN ACCORDANCE WITH TYPICAL DETAIL AT ALL STEEL BRACED FRAMES AND MOMENT FRAMES, UNO.
3. REFER TO DETAIL 17-S502.2 FOR ANCHOR ROD EMBEDMENT DEPTH.

GRADE BEAM SCHEDULE

MARK	SIZE		LONGITUDINAL REINFORCEMENT		TYPE	TIES	STIRRUPS	SKIN REINFORCEMENT EA. SIDE	REMARKS
	WIDTH	DEPTH	TOP	BTM					
GB1	42"	40"	(8) #9	(6) #5	B	#4 @ 1'-0"	#4 @ 1'-0"	(4) #5	
GB2	42"	40"	(9) #9	(6) #5	B	#4 @ 1'-0"	#4 @ 1'-0"	(4) #5	TYPE C W/ (2) #8 ONE SIDE SEE PLAN
GB3	42"	40"	(4) #5	(6) #5	B	#4 @ 1'-0"	#4 @ 1'-0"	(2) #5	
GB4	36"	36"	(4) #5	(4) #5	A	#4 @ 1'-0"	#4 @ 1'-0"		
GB5	42"	40"	(6) #8	(4) #7	B	#4 @ 1'-0"	#4 @ 1'-0"	(5) #6 (1) #5	TYPE C W/ (4) #7 ONE SIDE SEE PLAN TYPE C W/ (3) #6 ONE SIDE SEE PLAN
GB6	42"	40"	(4) #5	(4) #5	B	#4 @ 1'-0"	#4 @ 1'-0"	(1) #5	
GB7	42"	40"	(5) #5	(6) #5	B	#4 @ 1'-0"	#4 @ 1'-0"	(2) #5	
GB8	42"	40"	(6) #5	(6) #5	B	#4 @ 1'-0"	#4 @ 1'-0"	(1) #5	
GB9	42"	40"	(6) #5	(6) #5	B	#4 @ 1'-0"	#4 @ 1'-0"	(1) #5	
GB10	42"	40"	(4) #5	(4) #5	B	#4 @ 1'-0"	#4 @ 1'-0"	(1) #5	
GB11	42"	40"	(4) #5	(7) #5	B	#4 @ 1'-0"	#4 @ 1'-0"	(1) #5	
GB12	42"	40"	(8) #8	(8) #8	B	#4 @ 1'-0"	#4 @ 1'-0"	(1) #5	
GB13	60"	40"	(12) #8	(12) #8	D	#4 @ 1'-0"	#4 @ 1'-0"	(1) #5	

TYPES:

NOTES:

1. FOLLOW ACI REQ. SPACING
2. REINFORCEMENT SHALL HAVE EQ/ SPACING UNO

CMU LINTEL SCHEDULE

FOR ALL LINTELS NOT INDICATED ON PLANS

Opening	Concrete Lintel
Up to 6'-8"	Precast concrete (3000 psi 145 pcf). (1) #5 T&B 8"deep x 4" wide, multiples to match wall thickness. Scored to match wall bond pattern
6'-9" to 10'-0"	Concrete bond beam lintel block, filled with concrete or grout (3000 psi), w/ (2) #5 T&B 8" deep x wall thickness.

CMU LINTEL SCHEDULE NOTES
1. Provide 2" cover from outside face for bars in each face.
2. Precast lintels shall have 8" bearing on each side of opening.
3. Bond beam lintels shall extend 16" into wall on each side of opening.
4. Precast lintels shall be shored in center for 3 days.
5. Bond beam lintels shall be shored in center for 28 days.

SLAB ON GRADE SCHEDULE

Mark	Thickness	Reinforcing	Control Jt Depth	Reinf Clearance	Control Jt Spa	Vapor Retarder	Sub-Base Depth	Remarks	Phase Created
SOG04P	4"	6x6-W1.4xW1.4 WWF	1"	1 1/2"	13' - 0"	Plastic	6"		Phase 2
SOG06P	6"	6x6-W1.4xW1.4 WWF	1 1/2"	2"	15' - 0"	Plastic	6"		Phase 2

Slab on Grade Schedule Notes:
1. Reinforcing clearance is from the top of slab.

SCHMIDT
ASSOCIATES
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Indianapolis, IN 46204
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Project No. 2019-067.NCH
Project Date 11.01.2021
Bid Set 02
Produced DJS CDL

DYLAN SEESMAN
No. PE11900810

Dylan Seesman

#	Revision	Date
A2.2	Addendum 2	11.29.2021

1801 East 86th Street
Indianapolis, IN 46240

KEY PLAN

M.S.D. of Washington Township

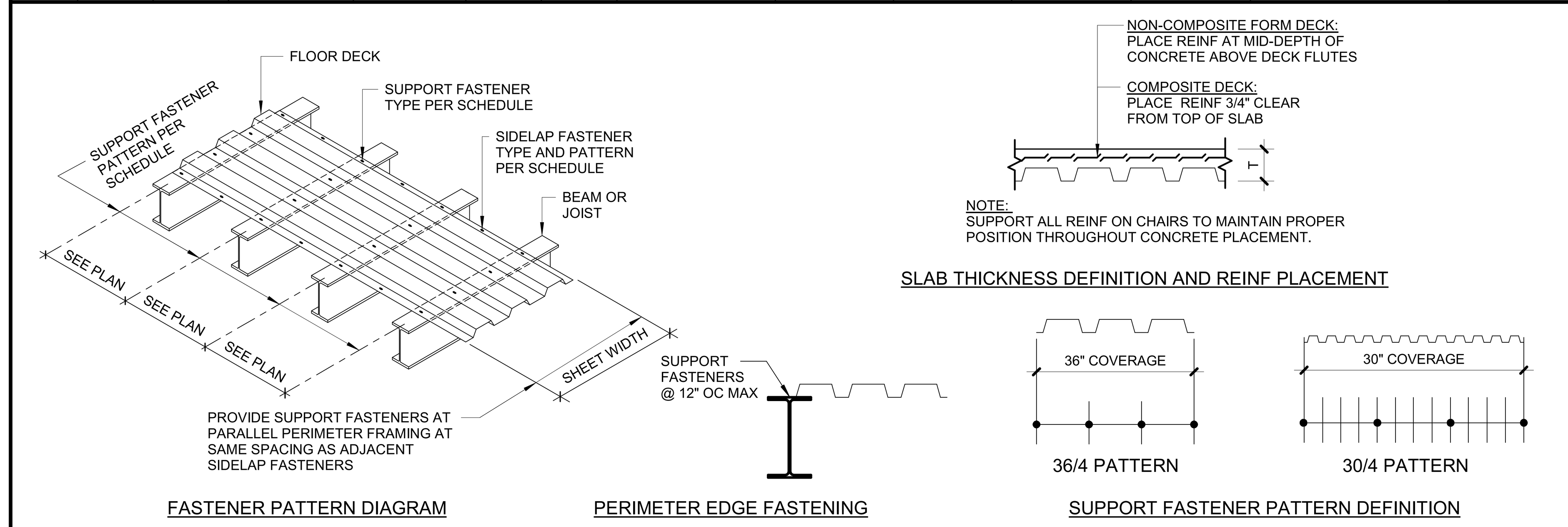
North Central High School
Renovation - West Gym
Addition

SCHEDULES

S-601.2

SLAB ON METAL DECK SCHEDULE

MARK	DECK HEIGHT	GAUGE	YIELD STRENGTH Fy	TYPE	FINISH	SLAB T	SLAB REINFORCING	SUPPORT FASTENER TYPE	SUPPORT FASTENER PATTERN	SIDELAP FASTENER TYPE	SIDELAP FASTENER PATTERN	BASIS OF DESIGN DECK (NOTE 6)	NOTES
SOMD05	2"	18 GA	40 OR 50 KSI	COMPOSITE	GALV & PAINTED	5"	6x6-W1.4xW1.4 WWR		#-#	SEE NOTE 5	SEE NOTE 5	VULCRAFT 2VLI-36 OR NEW MILLENIUM 2.0CD	



FASTENER PATTERN DIAGRAM

PERIMETER EDGE FASTENING

SLAB THICKNESS DEFINITION AND REINF PLACEMENT

SUPPORT FASTENER PATTERN DEFINITION

NOTES:

1. CONCRETE TO BE NORMAL WEIGHT, UNO.
2. FASTEN THROUGH MULTIPLE SHEETS AT ALL END AND SIDE LAPS.
3. END LAPS SHALL OCCUR ONLY AT SUPPORT POINTS.
4. DECK SHALL BE INSTALLED IN A MINIMUM THREE SPAN CONDITION WHEREVER POSSIBLE. WHERE THREE SPAN CONDITION IS NOT POSSIBLE, NOTIFY STRUCTURAL ENGINEER PRIOR TO FABRICATION OF DECK SO THAT EVALUATION OF THE LESSER SPAN CONDITION(S) CAN BE PERFORMED.
5. FOR DECK SPANS 5'-0" OR LESS, PROVIDE ONE SIDELAP FASTENER AT MID-SPAN OF EACH JOIST OR BEAM SPACE. FOR DECK SPANS EXCEEDING 5'-0", PROVIDE SIDELAP FASTENERS AT 3'-0" OC, MAX. USE DECK MANUFACTURER'S RECOMMENDED PUNCHED SIDELAPS FOR COMPOSITE DECK AND NON-NESTING FORM DECK,UNO. USE #10 TEK SCREWS AT DECK WITH NESTED SIDELAPS, UNO.
6. PROVIDE DECK WITH ALL PROPERTIES MEETING OR EXCEEDING THE INDICATED BASIS OF DESIGN DECK.

WALL FOOTING SCHEDULE

Mark	Dimensions: Width	Dimensions: Thickness	Bottom Reinf – Longitudinal Reinf: No	Longitudinal Reinf: Size	Transverse Reinf: Size	Transverse Reinf: Spa	Remarks	Phase Created
WF20	1' - 8"	1' - 0"	3	#5	NA	0"		Phase 2
WF24	2' - 0"	1' - 0"	4	#5	NA	0"		Phase 2
WF28	2' - 4"	1' - 0"	4	#5	NA	0"		Phase 2
WF30	2' - 6"	1' - 0"	3	#5	NA	0"		Phase 2
WF36	3' - 0"	1' - 0"	4	#5	#5	1' - 0"		Phase 2
WF96	8' - 0"	1' - 0"	5	#5	NA	0"		Phase 2
WF102	8' - 6"	1' - 4"	6	#6	NA	0"		Phase 2
WF108	9' - 0"	1' - 4"	6	#6	NA	0"		Phase 2
WF120	10' - 0"	2' - 0"	6	#5	NA	0"		Phase 2
WF132	11' - 0"	1' - 4"	5	#5	NA	0"		Phase 2
WF240A	20' - 0"	1' - 4"	5	#5	NA	0"		Phase 2

Wall Footing Schedule Notes:
1. Reinforcing clearance at bottom and sides of footings = 3"
2. Use concrete brick of CRSI Class 3, CHCP wire bar supports @ 36".

CONCRETE WALL SCHEDULE

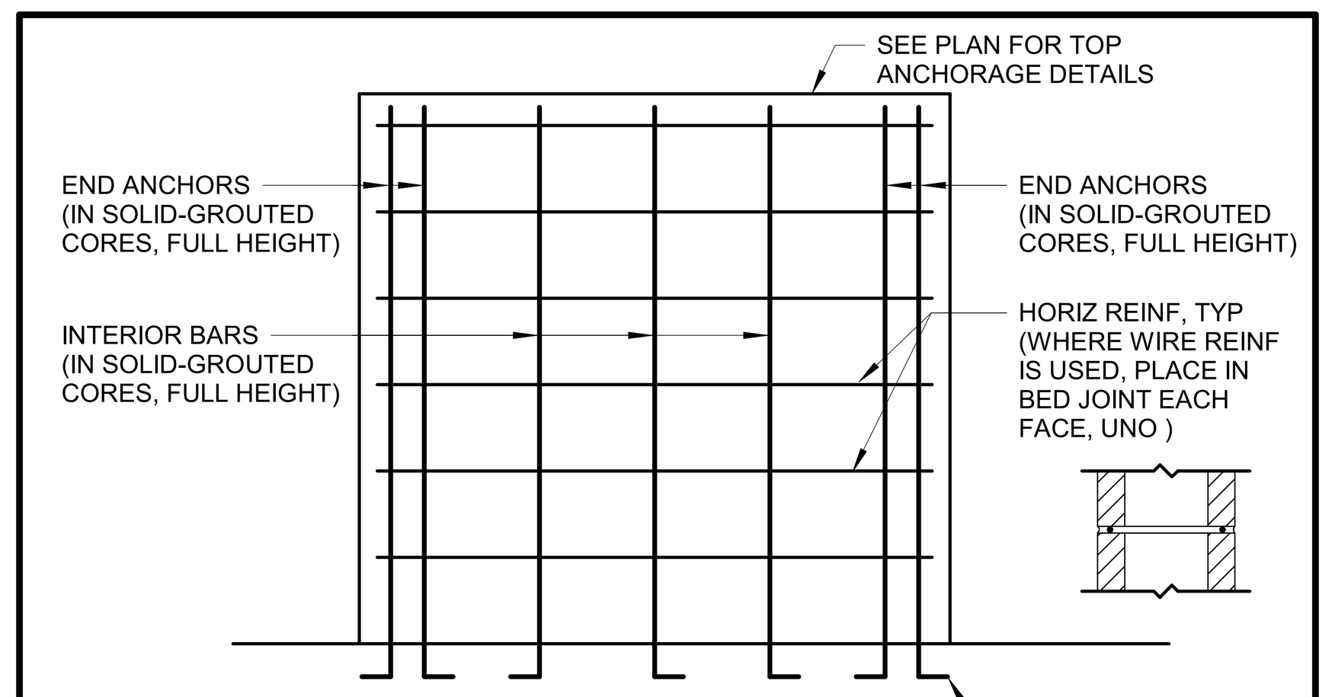
Mark	Width	Horiz Reinf: Size	Horiz Reinf: Spa	Horiz Reinf: Location	Vert Reinf: Size	Vert Reinf: Spa	Dowel Reinf: Size	Dowel Reinf: Spa	Reinf Location	Cover	Horz. Reinf. Location	Phase Created
CW8	8"	#5	1' - 0"	Center	#5	1' - 0"	#5	1' - 0"	Center	2"	IN	Phase 2
CW9	9"	#5	1' - 0"	Center	#5	1' - 0"	#5	1' - 0"	Center	2"	IN	Phase 2
CW12	1' - 0"	#5	1' - 0"	Ea Face	#5	1' - 0"	#5	1' - 0"	Ea Face	2"	IN	Phase 2

Concrete Wall Schedule Notes:
1. Provide concrete cover to closest bar as indicated.
2. Provide wheel spacers or CRSI Typ. Bar Bend T5 at 36" each way to assure adequate concrete cover.
3. See sections for all bars not included in schedule.
4. Horizontal Bar Location: In = Horiz. bars inside of verical bars, Out = Horiz. Bars outside of vert. bars.

MASONRY WALL SCHEDULE

Mark	Thickness	Vertical Wall Reinforcing – Reinforcing: Size	Reinforcing: Spa	Reinforcing: Location	Dowel Reinforcing: Size	Dowel Reinforcing: Spa	Horiz Reinf: Size	Horiz Reinf: Spa	Top of Wall Bond Beam Reinforcing: No. of	Top of Wall Bond Beam Reinforcing: Size	Remarks	Phase Created
MW8	7 5/8"	#5	4' - 0"	Center	#5	4' - 0"	Ladder	1' - 4"	2	#5		Phase 2
MW8B	7 5/8"	#5	2' - 8"	Center	#5	2' - 8"	Ladder	1' - 4"	2	#5	SW8	Phase 2

Masonry Wall Schedule Notes"
1. Provide 2" cover from outside face for bars in each face.
2. Grout all cores with rebar solid, unless solid grouted wall is shown.
3. Provide ladder type horizontal reinforcement at 16" o.c., unless noted otherwise. Side and cross rods shall be #9 wire, galvanized, see specifications. Cut joint reinforcement at control joints.
4. Provide bond beam with (2) #5 cont. at top of wall, unless noted otherwise. See schedule for additional bond beams.



NOTES:

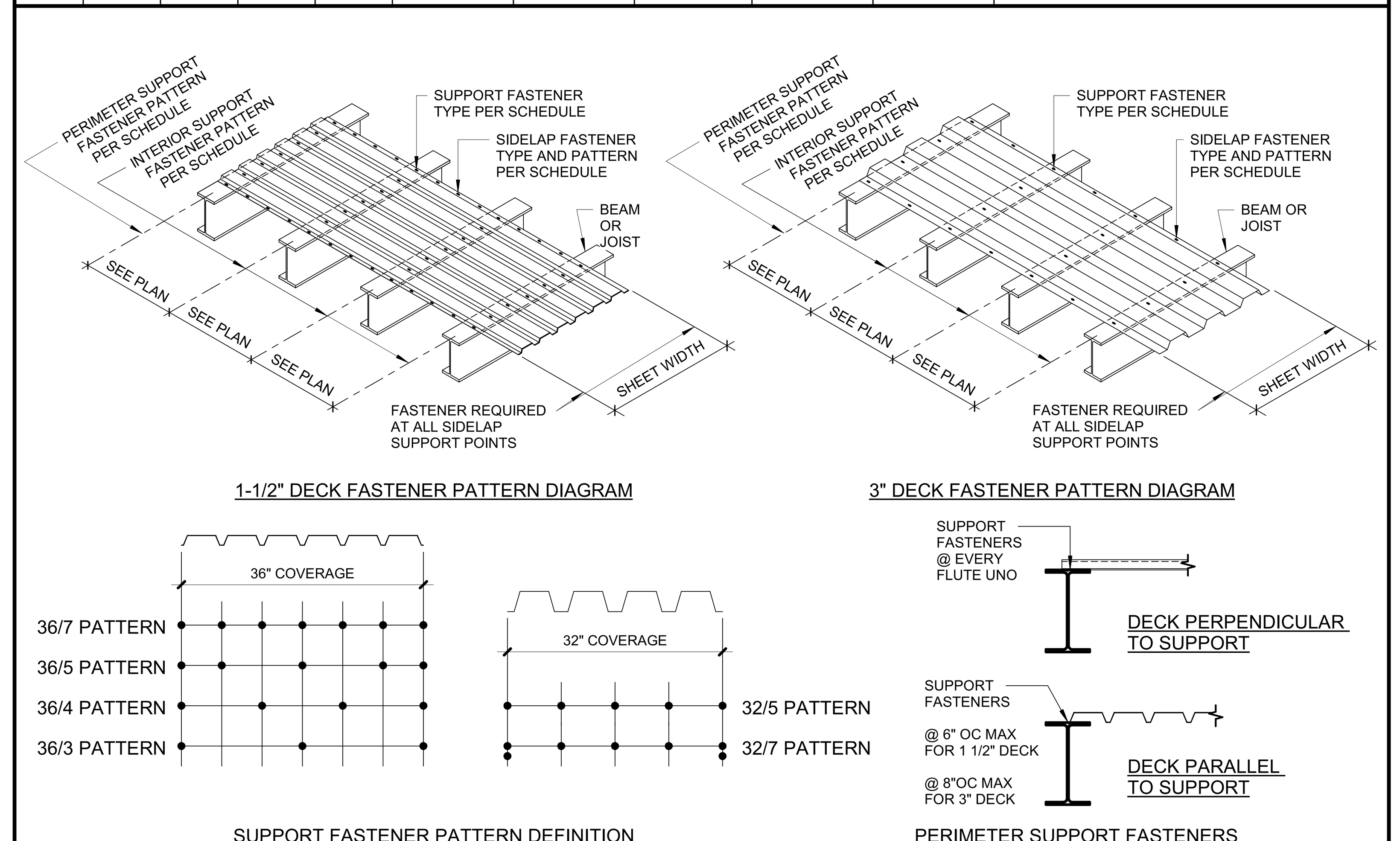
1. SEE SHEARWALL PLAN FOR LOCATIONS.
2. WHERE MULTIPLE END ANCHORS ARE REQUIRED, PLACE AT 8" OC IN SOLID GROUTED CORES.
3. WHERE SHEARWALL REQUIREMENTS DIFFER FROM GENERAL REQUIREMENTS INDICATED ELSEWHERE, THE MORE STRINGENT REQUIREMENTS SHALL APPLY.
4. USE BOND BEAM LINTELS FOR ALL OPENINGS WITHIN, OR TYING INTO SHEARWALLS, UNO.

CMU SHEARWALL SCHEDULE

MARK	CMU SIZE	APPROX. LENGTH	END ANCHORS	INTERIOR BARS	GROUT SPACING	HORIZONTAL REINFORCING
SW8	8"	X	1	#5	32"	9 GAUGE LADDER @ 16"OC

ROOF DECK SCHEDULE

MARK	HEIGHT	GAUGE	TYPE	FINISH	SUPPORT FASTENER TYPE	PERIMETER SUPPORT FASTENER PATTERN	INTERIOR SUPPORT FASTENER PATTERN	SIDELAP FASTENER TYPE	SIDELAP FASTENER PATTERN	NOTES
RD01	1-1/2"	20 GA	TYPE B	GALV & PAINTED	3/4" DIA PUDDLE WELDS	SEE BELOW	36/4	#10 TEK SCREWS	2 PER SPAN	SEE NOTE 4
RD02	3-1/2"	18 GA	TYPE D	GALV & PAINTED	3/4" DIA PUDDLE WELDS	SEE BELOW	24/4	#10 TEK SCREWS	4 PER SPAN	EXPOSED DOVE TAIL A2.2
RD03	3"	20 GA	TYPE N-32	GALV & PAINTED	3/4" DIA PUDDLE WELDS	SEE BELOW	32/5	#10 TEK SCREWS	3 PER SPAN	
RD03A	3"	20 GA	TYPE N-32	GALV & PAINTED	3/4" DIA PUDDLE WELDS	32/7	32/7	#10 TEK SCREWS	3 PER SPAN	



1-1/2" DECK FASTENER PATTERN DIAGRAM

3" DECK FASTENER PATTERN DIAGRAM

SUPPORT FASTENER PATTERN DEFINITION

PERIMETER SUPPORT FASTENERS

NOTES:

1. FASTEN THROUGH MULTIPLE SHEETS AT ALL END AND SIDE LAPS.
2. END LAPS SHALL OCCUR ONLY AT SUPPORT POINTS.
3. DECK SHALL BE INSTALLED IN A MINIMUM THREE SPAN CONDITION WHEREVER POSSIBLE. WHERE THREE SPAN CONDITION IS NOT POSSIBLE, NOTIFY STRUCTURAL ENGINEER PRIOR TO FABRICATION OF DECK SO THAT EVALUATION OF THE LESSER SPAN CONDITION(S) CAN BE PERFORMED.
4. PROVIDE 36/7 FASTENER PATTERN AT ALL BRACED FRAMES AND MOMENT FRAMES.

SCHMIDT ASSOCIATES
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Project No. 2019-067.NCH
Project Date 11.01.2021
Bid Set 02
Produced DJS NRT

DYLAN SEESMAN REGISTERED No. PE11900810 STATE OF INDIANA PROFESSIONAL ENGINEER

#	Revision	Date
A2.2	Addendum 2	11.29.2021

1801 East 86th Street
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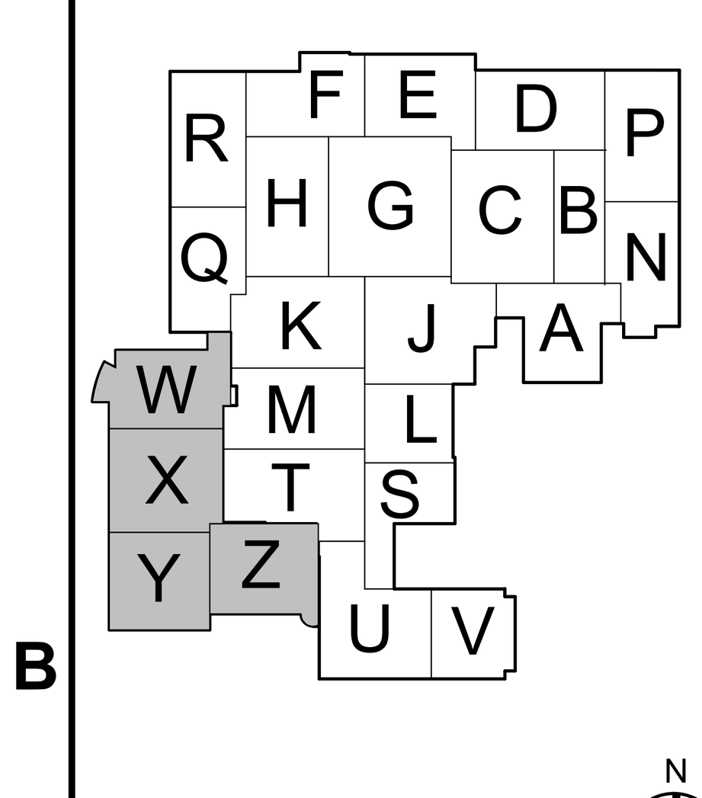

KEY PLAN

M.S.D. of Washington Township

North Central High School Renovation - West Gym Addition

SCHEDULES

S-602.2

A2.2

GENERAL NOTES

GN-1 As used in these General Notes:
"Drawings" means the latest structural design drawings, uno.
"Specifications" means the latest project specifications, uno.
"Contract Documents" is defined as the design drawings and the specifications.
"SER" is defined as the structural engineer of record for the structure in its final condition.
"Design Professionals" is defined as the owner's architect
"MEP" includes, but id not limted to Mechanical, Electrical, Plumbing, Fire Protection.
"Contractor" is defined to include any of the following: General Contractor and their Subcontractors, Construction Manager and their Subcontractors, Structural Steel Fabricator or Structural Steel Erector.
"Base Building Structure" is defined as the structural frame desinged by JQOL Global LLC.
"Structure in its final condition" means all structural elements shown on the structural contract documents are installed and completely connected and inspected with no outstanding non-comliance issues.

GN-2 The Contractor is solely responsible for the stability of the structure until the construction of the structure reaches its final condition.

GN-3 The Contractor is responsible for coordination of the Structural work with the Architectural, Civil, MEP contract documents, as well as any other applicable trades. The architectural, mechanical, electrical and plumbing aspects are not in the scope of these drawings. Therefore, all required materials and work may not be indicated. Refer to architectural drawings for all dimensions not shown on these drawings. Locations, sizes and numbers of all openings may not be completely indicated in the structural drawings. The respective contractor shall verify their work with all other disciplines.

GN-4 The contractor is solely responsible for the design, installation, and removal of temporary bracing and construction supports, for new and existing structures, as necessary to complete the project. No portion of the project while under construction is intended to be stable in the absence of the contractor's temporary supports and braces. Contractor shall retain a structural engineer licensed in the state in which the project is located to design temporary bracing and construction supports.

GN-5 The contract documents represent the structure only. They do not indicate the method of construction. The contractor shall provide all measures necessary to protect the structure during construction. Such measures shall include, but not limited to, bracing, shoring, underpinning, etc. the Engineer of Record is not responsible for the contractor's means, methods, techniques, sequences or safety procedures during construction.

GN-6 The specifications are an integral part of the contract documents and shall be used in conjunction with the structural drawings.

GN-7 The contractor shall verify all existing dimensions and conditions and coordinate with the structural drawings, architectural drawings, drawings from other consultants, project shop drawings and field conditions.

GN-8 Apply details, sections, and notes on the drawings where conditions are similar to those indicated by detail, detail title or note.

GN-9 Only use dimensions indicated on the drawings. Do not scale drawings.

GN-10 Assume equal spacing between established dimensions, if not indicated on drawings.

GN-11 Centerlines of columns and foundations coincide with grid line intersections, uno.

GN-12 Centerlines of grade beams and walls coincide with centerlines of foundations, uno.

GN-13 Centerlines of framing members coincide with column centerlines, uno.

GN-14 The contractor shall verify that construction loads do not exceed the capacity of the structure at the time the load is applied.

GN-15 Reactions and forces indicated are unfactored, Allowable Strength Design (ASD) loads.

GN-16 If Drawings and specifications are in conflict, the most stringent restrictions and requirements shall govern.

GN-17 Notes and details shall take precedence over general structural notes. Where no details or sections are shown, construction shall conform to similar work on the project. Typical sections and details may not be cut on the plans, but apply unless noted otherwise.

GN-18 Verify all existing conditions prior to any construction or fabrication. If different than shown, notify engineer/architect immediately for modification of drawings.

GN-19 Provisions for future expansion:
Horizontal: None
Vertical: None

CODES AND DESIGN CRITERIA

CD-1 CODES

Building Code:	2012 International Building Code
Local Building Code:	Indiana Building Code 2014
Code Standard:	ASCE 7-10
Steel Standard:	AISC 360-10 ASD
Steel Seismic Standard:	AISC 341-10 ASD
Concrete Standard:	ACI 318-11
Masonry Standard:	TMS 402/602-11
Wood Standard:	AITC/APA/NDS Current Ed.
Risk Category:	III
Exposure Category:	C

CD-2 ROOF LOADS

	Dead	Live	Snow
CANOPIES	10 psf	25 psf	20 psf

CD-3 FLOOR LOADS

	Dead	Live	Partition
Main	-	-	-

CD-4 SOILS

Soils Report:	PSI Project Number: 0016395	
Report Date:	May 10, 2021	
	Spread	Wall
Allowable Bearing Pressure, qa:	2300 psf	2300 psf
Soil Density, yt:	120 pcf	
Minimum Foundation Bearing Depth:	36 in	

CD-5 SLAB ON GRADE

Compacted Fill Thickness	6 in
Compaction Specification:	95% Modified Proctor D-1557

CD-6 SNOW DESIGN CRITERIA

Ground Snow Load, Pg:	20 psf	
Flat Roof Snow Load, Pf:	20 psf	
Minimum Snow, Pm:	20 psf	
Importance Factor, Is:	1.0	
Exposure Factor, Ce:	1.0	Partially
Thermal Factor, Ct:	1.0	Heated
Warm Slope Factor, Cs:	1.0	

CD-7 WIND DESIGN CRITERIA

Ultimate Wind Speed, Vult:	120 mph
Design Wind Speed, Vasd:	90 mph
Enclosure Class:	Open
Internal Pressure Coefficient, GCpi:	0.18
Component & Cladding:	See S-010 Loading Sheet
Roof Net Uplift:	See S-010 Loading Sheet

CD-8 SEISMIC DESIGN CRITERIA

Importance Factor, Ie:	1.0
Ss:	0.156
S1:	0.083
SDS:	0.160
SD1:	0.133
Site Class:	D
Seismic Design Category:	B
Overstrength Factor, Ω:	1.25
Seismic Response Coefficient, CS:	0.128
Response Modification Coeff., R:	1.25
Unfactored Design Base Shear, V:	12.8% * W
Analysis Procedure:	ELFA
Basic Seismic-Force-Resisting System:	G. Cantilevered Column Systems Detailed to Conform to the Requirements 2. Steel ordinary cantilever column systems

014000 DELEGATED DESIGN

SSE-1 DELEGATED DESIGN REQUIREMENTS
A Specialty Structural Engineer (SSE), registered in the state of the project, shall be responsible for the structural design of the following products and systems complying with specific performance and design criteria indicated.

1. Structural Steel Canopies, Connections, and Elements Associated with Canopy Designs.
2. Canopy foundations and piers.

SSE-2 The contractor is to review each submittal prior to forwarding to architect and structural engineer. The contractor is to stamp each submittal verifying that the following is addressed:
1. The shop drawing is requested.
2. The shop drawing is based on the latest design.
3. The architect' s and structural engineer' s comments from any previous submittals are addressed.
4. The work is coordinated among all construction trades.
5. Revisions from previous submittals are clearly marked by circling or clouds.
6. Submittal is complete.
7. Submittal does not include substitution request
8. Submittal shall include a stamp indicating project name and location, submittal number, specification section number.

The structural engineer shall return, without comment, submittals which the contractor has not stamped or which do not meet the above requirements. The structural engineer' s review of submittals shall be for general conformance with the design intent. No work shall be started without such review.

SSE-3 The structural engineer will return the shop drawing items within ten working days after having received the reproducible shop drawing.

020000 SHALLOW FOUNDATION AND SLAB ON GRADE NOTES

SF-1 Soil to be stripped, compacted and tested in accordance with the recommendations of the soils engineer and project specifications.

SF-2 Footings shall be placed on firm, undisturbed soil or on engineered fill. Engineered Fill: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940; with at least 90 percent passing a 1-1/2-inch sieve and not more than 12 percent passing a No. 200 sieve.

SF-3 Slabs shall be placed on 6" compacted, free-draining, frost-free drainage course. Drainage Course: Narrowly graded mixture of washed crushed stone, or crushed or uncrushed gravel; ASTM D 448; coarse-aggregate grading Size 57; with 100 percent passing a 1-1/2-inch sieve and 0 to 5 percent passing a No. 8 sieve. All fill shall be compacted to a minimum dry density of 95% of the standard Proctor maximum dry density (ASTM-D698), placed in 6" to 8" lifts. Pea gravel may not be used as fill. Utility trenches and excavations under the foundations or slabs shall meet the same requirements. See soils investigation report for further recommendations.

SF-4 Undercutting of the soil for foundation and/or slab placement may be required. These drawings do not indicate the entire scope of undercutting, fill or bad soil removal that may be required to attain the design soil bearing pressures. It is the responsibility of the contractor to obtain a soils investigation report, before bidding, to assess the extent of excavation and compaction that may be required to meet the design criteria. The contractor shall retain the services of a soils engineer to monitor all backfilling operations and to inspect footing bearing material. A report certified by the soils engineer shall be furnished to the architect/engineer verifying that all foundations were placed on a material capable of sustaining the design bearing pressures.

SF-5 If dewatering is required, sumps shall not be placed within the foundation excavation.

SF-6 Maintain a maximum slope between adjacent footing bearing elevations of 2 horizontal to 1 vertical. Maintain a 2 horizontal to 1 vertical slope next to existing foundations to avoid undermining foundations.

SF-7 No horizontal joints are permitted in any foundation. Vertical joints are permitted only in wall footings.

SF-8 Shallow foundations may be earth-formed where the excavation permits. If earth-forming is used, add 2" to the width and length of all foundations.

SF-9 The bottom of all foundations shall be a minimum of 36" depth below final grade.

033000 CAST IN PLACE CONCRETE NOTES (Foundations, Slabs, & Walls)

RC-1 All concrete shall have the following 28 day compressive strengths:

STRENGTH	LOCATION
4000 psi-0% AE	All foundations and footings
4000 psi-6% AE	Exterior slabs, piers, walls, columns, grade beams and concrete exposed to freezing
4000 psi-0% AE	Interior slabs, fill for metal deck and all other interior concrete

RC-2 All reinforcing shall conform to the following concrete cover:

COVER	LOCATION
3"	Foundations & Footings: All surfaces; Exterior Slabs: Bottom; Grade Beams & Trench Footings: All surfaces; All concrete cast against soil.
2"	Exterior Walls, All Piers & All Pilasters: All surfaces; Exterior Slabs: Top; All exterior concrete
1 1/2"	Interior beams & columns: All surfaces; All concrete not exposed to weather or in contact with ground.
3/4"	Interior slabs, Walls & joists

RC-3 Welded Wire Reinforcement (WWR) for slabs and fill for metal deck shall be placed in the upper-third of the slab or fill. See details.

RC-4 All reinforcing steel shall be detailed, supplied and placed in accordance with ACI 315, ACI 318 and CRSI MSP-1.

RC-5 All reinforcing steel shall be shop fabricated and, where applicable, shall be wired together and conform to ASTM A-615, Grade 60.

RC-6 Chamfer edges of exposed concrete 3/4", unless noted otherwise.

RC-7 Contractor shall make four, 6"x12" test cylinders for each 50 cubic yards of concrete poured for each days operation. Break 1 at 7 days, 2 at 28 days and retain spare.

RC-8 All welded wire fabric shall conform to ASTM A1064, Fy(min) of 65 ksi. All welded wire fabric laps shall be 8".

RC-9 All finished concrete, concrete formwork and falsework shall be in accordance with ACI 301. Contractor is solely responsible for the design and construction of all formwork, falsework and shoring.

RC-10 Provide sleeves for all openings in grade beams or walls to totally separate pipe from concrete.

RC-11 Foundations may be earth-formed where the excavation permits. If earth-forming is used, add 2" to the width, length & thickness of all foundations.

RC-12 Plastic Vapor Retarder: ASTM E 1745, Class A, not less than 10 mils (0.25 mm) thick, see specifications. Include manufacturer's recommended adhesive or pressure-sensitive joint tape.

RC-13 Adhesive Anchors and Adhesives Used for Reinforcing Anchorage:
1. The adhesive anchor system used for post-installed anchorage to concrete shall conform to the requirements of the most recently published ACI 355.4.
2. Adhesive anchors indicated are the Basis-of-Design. Approved equal meeting ACI 355.4 is permitted.
3. Bulk-mixed adhesives are not permitted.
4. Anchors shall be supplied as an entire system with manufacturer's recommendations adhered to.
5. Adhesive anchors shall be installed by qualified personnel trained to install adhesive anchors.
6. Installation of adhesive anchors horizontally or upwardly inclined shall be performed by personnel certified by the ACI/CRSI Adhesive Anchor Installer Certification program.
7. Adhesive anchors installed in horizontal or upwardly inclined orientations shall be continuously inspected during installation by an inspector specially approved for that purpose.

RC-14 Bonding agent for bonding fresh concrete to hardened concrete: ASTM C 1059/C 1059M, Type II, nonredispersible, acrylic emulsion or styrene butadiene.

051200 STRUCTURAL STEEL NOTES

SS-1 All structural steel shall conform to the following:

W Shapes	ASTM A992, Grade 50.
Angles, Channels, Plates, Bars	ASTM A36 (Fy=36 ksi)
HSS Tubes	ASTM A500, Grade C (Fy=50 ksi)
HSS Pipes	ASTM A53, Grade B (Fy=35 ksi)
Anchor Rods	ASTM F1554, Grade 36

SS-2 All steel shall be detailed, fabricated and erected in accordance with:
- AISC 360 "Specification for Structural Steel Buildings", Allowable Strength Design (ASD)
- AISC 303 "Code of Standard Practice"

SS-3 Submit connections not specifically detailed on the drawins to the SER for review prior to review of shop drawings. Where no shear is indicated on drawings design connection for minimum 10 k reaction and where no moment is indicated on drawings provide full moment capacity of member (0.9 Fy Z).

SS-4 All bolted connections shall be made with 3/4" diameter, A325 bolts with nuts and washers, unless otherwise noted. All connections shall be shear bearing connections tightened to snug-tight condition, unless otherwise noted.

SS-5 All shop and field welds shall be made using E70 electrodes or equivalent.

SS-6 Splices shall be allowed only at locations specifically indicated on the structural drawings unless approved otherwise by the SER in writting.

SS-7 For steel members and embedments exposed to weather, provide hot-dipped galvanized finish, uno.

SS-8 Provide holes in all steel as required to provent any accumulation of water. All penetrations through main members shall not exceed 1 1/8" dia. and shall be ground smooth. These drains must be kept clean and open.

SS-9 Field modification of structural steel is prohibited without prior approval of the architect and structural engineer.

SS-10 Steel fabricator shall obtain the size and location of all openings for grilles, louvers, etc. before proceeding with the fabrication and erection of any required frames.

SS-11 Provide Heckman #129 and #130 channel slot anchors and channel slot at all columns that abut masonry walls, uno.

SS-12 Provide temporary bracing of the structure until all permanent lateral support is in place.

SS-13 Structure Stability: The entire roof and/or floor decking materials must be fully erected and connected to the supporting steel before temporary, erection bracing is removed.

SS-14 RD = Roof Drain location. Provide steel frame for drains. See other drawings for actual drain type, number, size, etc. Coordinate with drain contractor.

SS-15 Remove erection bolts and fill holes in all exposed braces.

ABBREVIATIONS LIST

AR	ANCHOR RODS
ABV	ABOVE
ACI	AMERICAN CONCRETE INSTITUTE
ADD'L	ADDITIONAL
ADH	ADHESIVE
ADJ	ADJACENT
AESS	ARCHITECTURALLY EXPOSED STRUCTURAL STEEL
AFF	ABOVE FINISHED FLOOR
AGGR	AGGREGATE
AHU	AIR HANDLING UNIT
AISC	AMERICAN INSTITUTE OF STEEL CONSTRUCTION
AISI	AMERICAN IRON AND STEEL INSTITUTE
ALUM	ALUMINUM
ALT	ALTERNATE
APPROX	APPROXIMATE
ARCH	ARCHITECT
ARCH'L	ARCHITECTURAL
ASTM	AMERICAN SOCIETY OF TESTING MATERIALS
AWS	AMERICAN WELDING SOCIETY
L	ANGLE
BAL	BALANCE
BB	BOND BEAM
B/B	BACK TO BACK
BC	BOTTOM CHORD
BD	BOARD
BLDG	BUILDING
BLK	BLOCK
BLW	BELOW
BM	BEAM
BOTT	BOTTOM
BP	BEARING PLATE
BRDG	BRIDGING
BRG	BEARING
BRK	BRICK
BS	BOTH SIDES
BSMT	BASEMENT
BTWN	BETWEEN
BUC	BUILT UP COLUMN
c	CAMBER
C/C	CENTER TO CENTER
CANT	CANTILEVER
CAIS	CAISSON
CFS	COLD FORMED STEEL
CJ	CONTROL AND/OR CONSTRUCTION JOINT
CL	CENTERLINE
CLR	CLEAR
CMU	CONCRETE MASONRY UNIT
COL	COLUMN
COORD	COORDINATE
COMP	COMPACTED
CONC	CONCRETE
CONN	CONNECTION
CONST	CONSTRUCTION
CONT	CONTINUOUS
CONTR	CONTRACTOR
CTR	CENTER
CTR'D	CENTERED
DIA	DIAMETER
DIAG	DIAGONAL
DIM	DIMENSION
DL	DEAD LOAD
DLT	DEEP LEG TRACK
DO	DITTO
DN	DOWN
DTL	DETAIL
DWG	DRAWING
DWL	DOWEL
EA	EACH
EE	EACH END
EF	EACH FACE
EJ	EXPANSION JOINT
ENG	ENGINEER
ELEV	ELEVATION
ELECT	ELECTRICAL
EOD	EDGE OF DECK
EOS	EDGE OF SLAB
EQ	EQUAL
EQUIV	EQUIVALENT
ES	EACH SIDE
EW	EACH WAY
EXIST	EXISTING
EXP	EXPANSION
EXT	EXTERIOR
F/	FACE OF
FD	FLOOR DRAIN
FDN	FOUNDATION
FIN	FINISH
FLR	FLOOR
FLG	FLANGE
FS	FARSIDE
FTG	FOOTING
GA	GAUGE
GALV	GALVANIZED
GB	GRADE BEAM
GC	GENERAL CONTRACTOR
GL	GLULAM
GR	GRADE
HC	HOLLOW CORE
HD	HOLD DOWN
HGT	HEIGHT
HI	HIGH
HK	HOOK
HORIZ	HORIZONTAL
HP	HIGH POINT
HS	HEADED STUD
HSS	HOLLOW STRUCTURAL SECTION
ID	INSIDE DIAMETER
IF	INSIDE FACE
INFO	INFORMATION
INT	INTERIOR
INV	INVERT
JST	JOIST
JT	JOINT
K	KIP
KO	KNOCK OUT
LB	POUND
LDG	LEDGE
LG	LONG
LL	LIVE LOAD
LLH	LONG LEG HORIZONTAL
LLV	LONG LEG VERTICAL
LNTL	LINTEL
LSL	LONG SLOTTED HOLES
LONG	LONGITUDINAL
LP	LOW POINT
LVL	LAMINATED VENEER LUMBER
MAS	MASONRY
MAT'L	MATERIAL
MAX	MAXIMUM
MBM	METAL BUILDING MFR
MCJ	MASONRY CONTROL JT
MECH	MECHANICAL
MEZZ	MEZZANINE
MFR	MANUFACTURER
MIN	MINIMUM
MISC	MISCELLANEOUS
MO	MASONRY OPENING
MOM	MOMENT
MSW	MASONRY SHEAR WALL
MSL	MEAN SEA LEVEL
MTL	METAL
NO	NUMBER
NS	NEAR SIDE
NTS	NOT TO SCALE
O/O	OUT TO OUT
OA	OVERALL
OC	ON CENTER
OD	OUTSIDE DIAMETER
OF	OUTSIDE FACE
OH	OVER HEAD
OPNG	OPENING
OPP	OPPOSITE
OPP HD	OPPOSITE HAND
OSB	ORIENTED STRAND BOARD
OSL	OUTSTANDING LEG
OVS	OVERSIZE HOLE
PAF	POWDER ACTUATED FASTENER
PC	PRECAST
PL	PLATE
PLF	POUNDS PER LINEAR FOOT
PLYWD	PLYWOOD
PNL	PANEL
PROJ	PROJECTION
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PSL	PARALLEL STRAND LUMBER
PT	PRESSURE TREATED
PTN	PARTITION
R	RADIUS
RD	ROOF DRAIN
REF	REFERENCE
REINF	REINFORCE(D) (ING) (MENT)
REQ'D	REQUIRED
REV	REVISION/REVISED
RO	ROUGH OPENING
RRD	ROOF RELIEF DRAIN
RTN	RETURN
RTU	ROOF TOP UNIT
RW	RETAINING WALL
SCHED	SCHEDULE
SECT	SECTION
SHT	SHEET
SIM	SIMILAR
SJ	SAWCUT JOINT
SJI	STEEL JOIST INSTITUTE
SL	SLOPED
SPA	SPACE(S)
SPECS	SPECIFICATIONS
SQ	SQUARE
SS	STAINLESS STEEL
SSL	SHORT SLOTTED HOLES
STD	STANDARD
STIFF	STIFFENERS
STL	STEEL
STRUCT	STRUCTURAL
SYMM	SYMMETRICAL
T&B	TOP AND BOTTOM
T&G	TONGUE AND GROOVE
TB	TIE BEAM
TC	TOP CHORD
TCX	TOP CHORD EXTENSION
TEMP	TEMPERATURE
TF	TRENCH FOOTING
THK	THICK
THKS	THICKENED SLAB
THR'D	THREADED
TL	TOTAL LOAD
TOP'G	TOPPING
TRANS	TRANSVERSE
TYP	TYPICAL
UNO	UNLESS NOTED OTHERWISE
VERT	VERTICAL
VIF	VERIFY IN FIELD
w/	WITH
WD	WOOD
WO	WINDOW OPENING (MASONRY)
WP	WORKING POINT
WT	WEIGHT
WWF	WELDED WIRE FABRIC

ELEVATION TOP AND BOTTOM OF LIST

T/	"ELEVATION, TOP OF"
B/	"ELEVATION, BOTTOM OF"
T/BB	TOP OF BOND BEAM
T/BM	TOP OF BEAM
T/CONC	TOP OF CONCRETE
T/F	TOP OF FOOTING
T/LDG	TOP OF LEDGE
T/MAS	TOP OF MASONRY
T/P	TOP OF PIER
T/SLAB	TOP OF SLAB
T/STL	TOP OF STEEL
T/W	TOP OF WALL
T/GB	TOP OF GRADE BEAM
T/CAIS	TOP OF CAISSON
B/PL	BOTTOM OF PLATE
B/F	BOTTOM OF FOOTING

SPECIAL CHARACTERS

°	DEGREE
±	PLUS OR MINUS
⯐	ELEVATION
Ø	DIAMETER

SCHMIDT ASSOCIATES
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Project No.	2019-067.NCH
Project Date	11.1.2021
Bid Set	02
Produced	DJS CDL

DYLAN SEESMAN
REGISTERED
No. PE11900810
STATE OF
INDIANA
PROFESSIONAL ENGINEER

#	Revision	Date
A2.2	Addendum 2	11.29.2021

JQOL
QUALITY OF LIFE
6280 N. Shadeland Ave.
Indianapolis, IN 46220
www.jqolusa.com
Project No: 2020.704

1815 E. 86th Street
Indianapolis, IN 46240

KEY PLAN

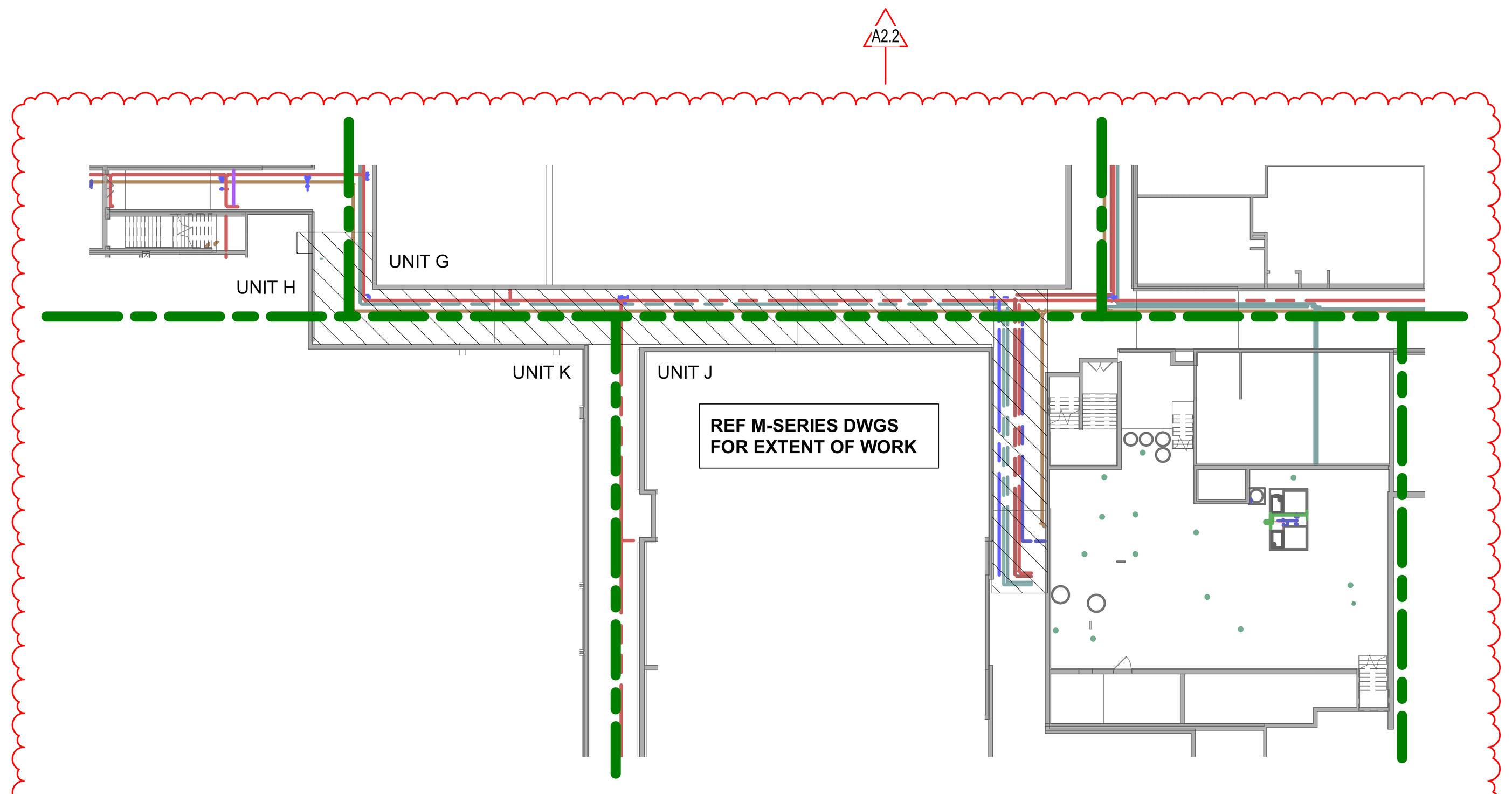
M.S.D Washington Township

WASHINGTON TOWNSHIP SCHOOLS

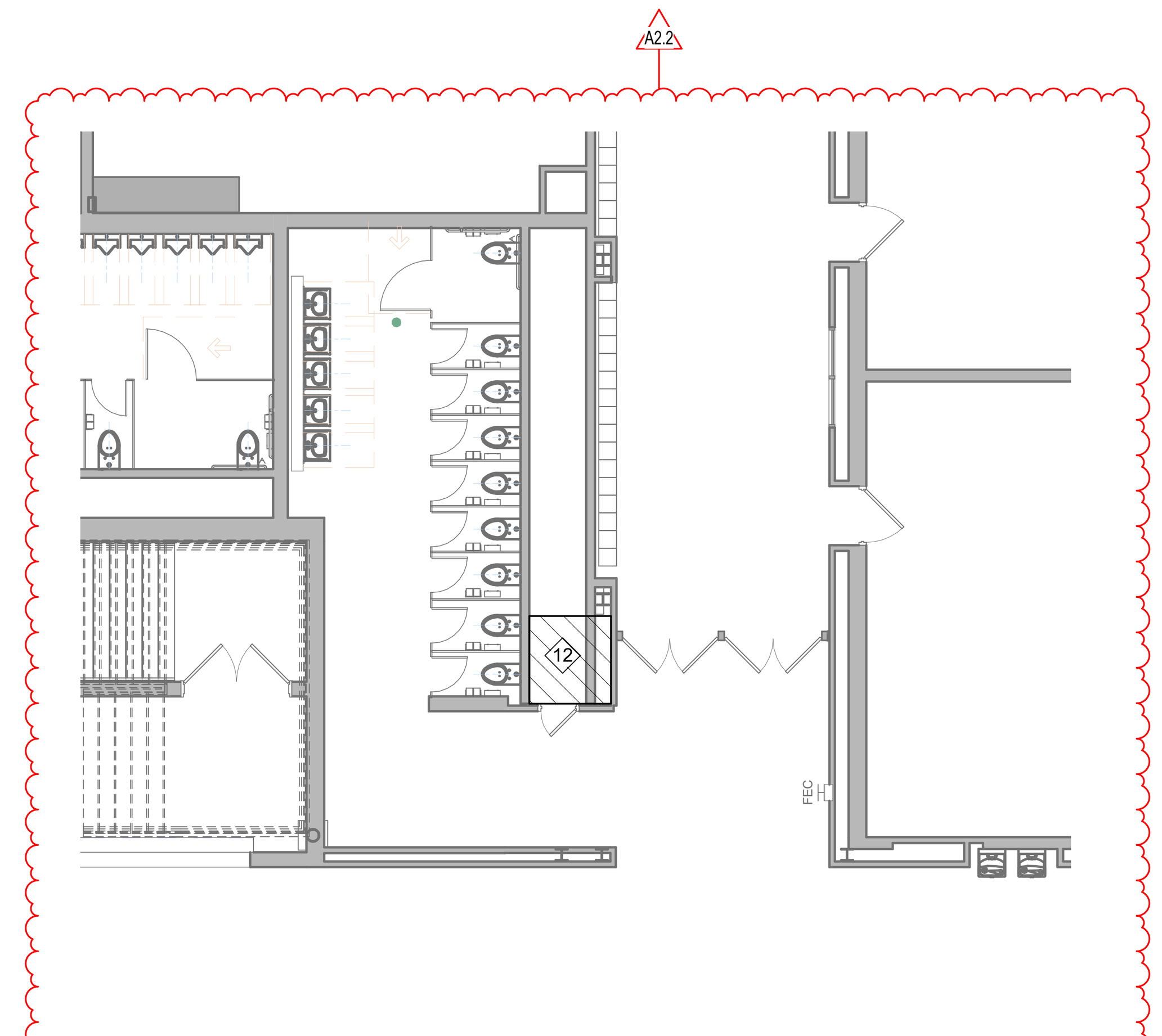
CENTRALIZED BUS STORAGE
Bus Canopies

GENERAL NOTES SCHEDULES

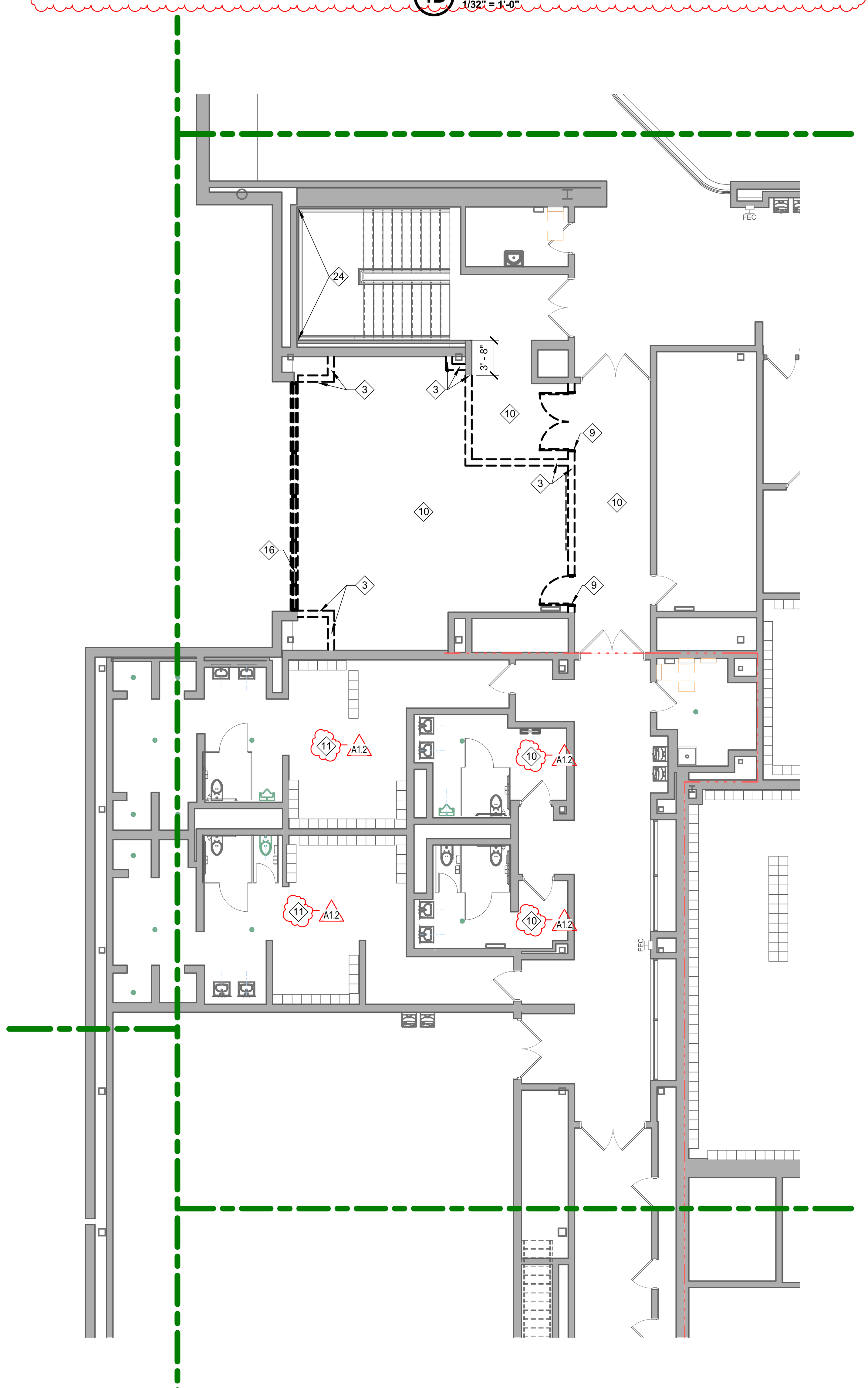
1-S-001



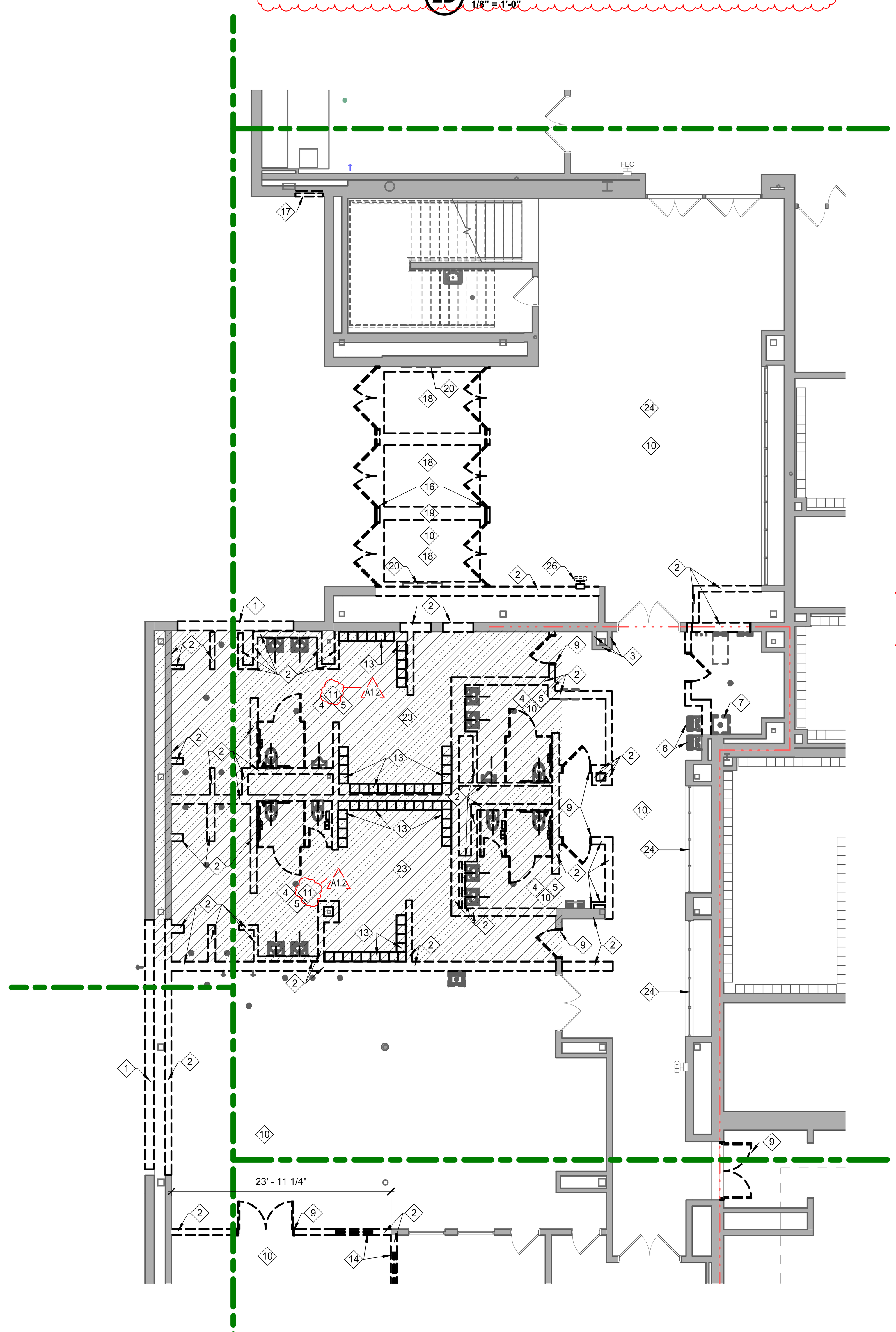
4D PARTIAL TUNNEL PLAN
1/32" = 1'-0"



2D DEMOLITION FIRST FLOOR PLAN - UNIT H
1/8" = 1'-0"



4A DEMOLITION SECOND FLOOR PLAN-UNIT M
1/8" = 1'-0"



2A DEMOLITION FIRST FLOOR PLAN- PARTIAL UNIT M
1/8" = 1'-0"

General Demolition Notes

A. Contractor shall field-verify all existing conditions, dimensions, and arrangements.

B. Contractor is responsible for protection of all existing surfaces, materials, and components to remain or be relocated. Damage to these resulting from performance of Work shall be repaired by Contractor to satisfaction of Owner and Architect at no additional expense to Owner.

C. Contractor shall provide temporary dust protection as required to prevent construction debris and dust from migrating out of Project Area. Owner/Architect shall confirm all dust prevention measures/locations and shall determine changes to these measures.

D. All existing equipment and fixtures shall remain property of Owner. All reusable items salvaged during demolition operations shall be retained for Owner's inspection. Only items so inspected and rejected by Owner shall be disposed. All other such items shall be turned over to Owner for disposition.

E. All existing surfaces located adjacent to, or exposed by demolition work and scheduled to receive new construction shall be patched and repaired as required to cleanly receive new work.

F. All existing surfaces located adjacent to, or exposed by demolition work and scheduled to remain exposed after completion of new const. shall be repaired and patched as required to receive new finishes.

G. Owner will be responsible for removal/rearrangement of all existing loose furnishings during construction, unless noted otherwise.

H. Refer to Mech./Elec. Drawings for additional patching and preparation work related to M.E.P. demolition items.

I. Existing sleeves, holes, and other penetrations or new damage of existing building structure above grade exposed by demolition and removal of piping, appurtenances, equipment shall be patched and repaired as part of the Work. Maintain fire ratings of all and adjacent construction affected.

J. Cap all piping to remain or abandoned in accordance with requirements of authority having jurisdiction and in accordance with all local and state plumbing and health codes. Utilize only pre-manufactured and approved fittings to cap existing piping.

K. Each Contractor is responsible for all demolition work required or noted for installation of new Work. Demolition may include associated distribution systems, appurtenances, equipment supporting controls, and miscellaneous supports, unless noted otherwise.

L. Coordinate all demolition with Project sequencing as directed by General Contractor or Construction Manager.

M. Remove all work made obsolete by new construction.

DEMOLITION FLOOR PLAN NOTES

#	NOTE
1	REMOVE EXISTING EXTERIOR WALL TO 8" BELOW FINISH FLOOR LINE IN ITS ENTIRETY TO LIMITS INDICATED. REMOVE ALL DOORS, FRAMES, WINDOWS AND MISCELLANEOUS FRAMING IN ITS ENTIRETY. PROTECT ALL EXISTING STRUCTURAL MEMBERS TO REMAIN. PREPARE ADJACENT SURFACES TO REMAIN FOR NEW WORK. REFERENCE A-SERIES AND I-SERIES FLOOR PLANS FOR FINISH CONDITIONS. REFER TO SECTION(S) FOR FURTHER DEFINITION OF DEMOLITION WORK.
2	REMOVE EXISTING INTERIOR WALL CONSTRUCTION IN ITS ENTIRETY TO LIMITS INDICATED INCLUDING, BUT NOT LIMITED TO, DOORS, FRAMES, WINDOWS AND ALL MISCELLANEOUS FRAMING. FIELD VERIFY ALL EXISTING WALL CONSTRUCTION PRIOR TO DEMOLITION. REFER TO ARCHITECTURAL AND INTERIOR FLOOR PLANS FOR FINISH CONDITIONS AND DIMENSIONS. NEW CONSTRUCTION TO TOOTH-IN TO EXISTING MASONRY COURSING WHERE APPLICABLE. PATCH AND REPAIR EXISTING ADJACENT SURFACES TO REMAIN AND PREP FOR NEW CONSTRUCTION.
3	REMOVE EXISTING INTERIOR WALL CONSTRUCTION IN ITS ENTIRETY TO LIMITS INDICATED INCLUDING, BUT NOT LIMITED TO DOORS, FRAMES, WINDOWS AND ALL MISCELLANEOUS FRAMING. FIELD VERIFY ALL EXISTING WALL CONSTRUCTION PRIOR TO DEMOLITION. REFER TO ARCHITECTURAL AND INTERIOR FLOOR PLANS FOR FINISH CONDITIONS AND DIMENSIONS. PATCH AND REPAIR EXISTING ADJACENT SURFACES TO REMAIN AND PREP FOR NEW CONSTRUCITON.
4	REMOVE EXISTING TOILETS, SINKS, URINALS AND ALL RELATED ACCESSORIES IN THEIR ENTIRETY INCLUDING, BUT NOT LIMITED TO TOILET PAPER DISPENSERS, GRAB BARS, MIRRORS AND SOAP DISPENSERS. PATCH AND REPAIR ALL EXISTING SURFACES TO REMAIN. PREP FOR NEW CONSTRUCTION/FINISH. SEE P-SERIES DRAWINGS FOR PLUMBING SCOPE.
5	REMOVE EXISTING TOILET PARTIONS AND URINAL PARTITIONS IN THEIR ENTIRETY. PATCH AND REPAIR EXISTING SURFACES TO REMAIN AND PREP FOR NEW CONSTRUCTION/FINISH.
6	REMOVE EXISTING DRINKING FOUNTAINS IN ITS ENTIRETY INCLUDING, BUT NOT LIMITED TO, THE DRINKING FOUNTAIN, SEALANTS, PIPING, POWER, AND ALL RELATED ANCHORS. REF P-SERIES DWGS
7	REMOVE EXISTING SERVICE SINK IN ITS ENTIRETY INCLUDING BUT NOT LIMITED TO SINK, SEALANTS, PIPING, AND RELATED ANCHORS AND/ OR ACCESSORIES. PATCH AND REPAIR EXISTING SURFACES TO REMAIN. PREP FOR NEW CONSTRUCTION
8	REMOVE EXISTING CURTAIN WALL SYSTEM IN ITS ENTIRETY INCLUDING, BUT NOT LIMITED TO THE GLAZING, FRAMING, SEALANTS, DOORS, HARDWARE AND ALL RELATED ANCHORS. PATCH AND REPAIR ADJACENT SURFACES TO REMAIN AND PREP FOR NEW CONSTRUCTION/FINISH.
9	REMOVE EXISTING DOOR SYSTEM IN ITS ENTIRETY INCLUDING, BUT NOT LIMITED TO THE DOOR, FRAME, SIDELIGHTS, GLAZING, HARDWARE AND ALL RELATED ANCHORS. PREP EXISTING OPENING FOR NEW CONSTRUCTION. PATCH AND REPAIR ALL ADJACENT SURFACES TO REMAIN FOR NEW CONSTRUCTION/FINISH.
10	REMOVE EXISTING SUSPENDED LAY-IN PANEL CEILING SYSTEM IN ITS ENTIRETY INCLUDING, BUT NOT LIMITED TO THE CEILING PADS, GRID, SUSPENSION WIRES, AND ALL RELATED ANCHORS. PATCH AND REPAIR EXISTING SURFACES TO REMAIN AND PREP FOR NEW CONSTRUCTION/FINISH.
11	REMOVE EXISTING GYPSUM BOARD CEILING SYSTEM IN ITS ENTIRETY INCLUDING, BUT NOT LIMITED TO THE GYPSUM BOARD, SUSPENDED FRAMING AND ALL RELATED ANCHORS/FASTENERS. PATCH AND REPAIR EXISTING SURFACES TO REMAIN AND PREP FOR NEW CONSTRUCTION/FINISH. (A1.2)
12	REMOVE EXISTING FLOOR SLAB AND EXCAVATE TO TUNNEL ELEVATION TO ACCOMMODATE NEW MECHANICAL PIPES. REF S AND M SERIES DWGS. (A2.2)
13	REMOVE EXISTING LOCKER(S) IN ITS ENTIRETY INCLUDING, BUT NOT LIMITED TO THE LOCKERS, TRIMS, SLOPPED TOPS, CURB AND ALL ASSOCIATED ANCHORS TO LIMITS INDICATED. PATCH AND REPAIR EXISTING SURFACES TO REMAIN AND PREP FOR NEW CONSTRUCTION.
14	REMOVE EXISTING WINDOW SYSTEM IN ITS ENTIRETY INCLUDING, BUT NOT LIMITED TO THE GLAZING, SPANDREL PANELS, WINDOW FRAME, SEALANTS, AND ALL RELATED ANCHORS. PATCH AND REPAIR ADJACENT SURFACES TO REMAIN AND PREP FOR NEW CONSTRUCTION/FINISH.
15	REMOVE EXISTING CANOPY INCLUDING BUT NOT LIMITED TO ROOF SYSTEM, STRUCTURE, FASCIA, AND SOFFIT.
16	REMOVE EXISTING STOREFRONT/ENTRY SYSTEM IN ITS ENTIRETY INCLUDING, BUT NOT LIMITED TO THE GLAZING, FRAMING, SEALANTS, DOORS, HARDWARE AND ALL RELATED ANCHORS. PATCH AND REPAIR ADJACENT SURFACES TO REMAIN AND PREP FOR NEW CONSTRUCTION/FINISH.
17	REMOVE EXISTING LOUVER
18	REMOVE EXISTING RECESSED FLOOR MAT. PREPARE AREA FOR NEW CONSTRUCTION
19	REMOVE EXISTING FLOORING SYSTEM IN ITS ENTIRETY INCLUDING ADHESIVES, GROUT, ETC. AND ASSOCIATED FLOOR BASE
20	EXISTING UNIT VENTILATOR TO BE REMOVED. REFER TO M-SERIES DWGS. PREPARE OPENING TO RECEIVE NEW CONST.
21	REMOVE EXISTING CONCRETE FLOOR SLAB IN ITS ENTIRETY TO LIMITS INDICATED. REFERENCE MEP-SERIES DRAWINGS FOR ADDITIONAL INFORMATION. CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND EXISTING BUILDING CONDITIONS IN THE FIELD.
22	EXISTING MIRRORS TO BE REMOVED AND REINSTALLED IN NEW LOCATION. PROTECT DURING CONSTRUCTION.
23	REMOVE EXISTING CONCRETE FLOOR SLAB IN ITS ENTIRETY TO LIMITS INDICATED. REFERENCE MEP-SERIES DRAWINGS FOR ADDITIONAL INFORMATION. CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND EXISTING BUILDING CONDITIONS IN THE FIELD.
24	REMOVE EXISTING ACOUSTICAL WALLCOVERING IN ITS ENTIRETY. PATCH AND REPAIR EXISTING SURFACE TO REMAIN AND PREP FOR NEW WALL FINISH. REFER TO I-SERIES DRAWINGS FOR APPLIED INTERIOR FINISHES.
25	SALVAGE POOL WALL PANELS FOR EXISTING POOL LOBBY CLERESTORY WINDOW INFILL - REF. NEW CONSTRUCTION DRAWINGS.
26	REMOVE EXISTING FIRE EXTINGUISHER AND ASSOCIATED ACCESSORIES AND TURN THEM OVER TO OWNER IN GOOD WORKING CONDITION.

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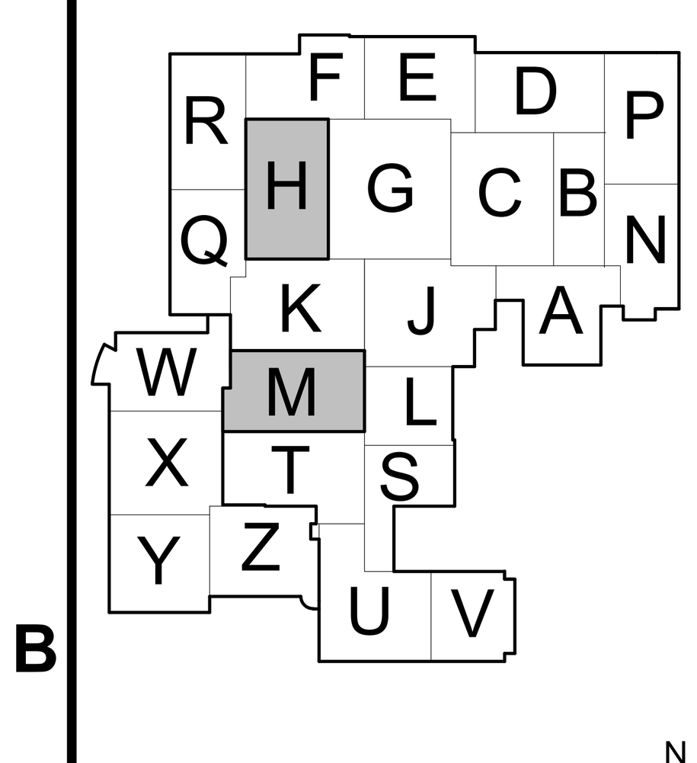
Project No. 2019-067.NCH
Project Date 11.01.2021
Bid Set 02
Produced SLS HEL

SARAH KATHLEEN HEMPSTEAD REGISTERED NO. AR10400134 STATE OF INDIANA ARCHITECT

#	Revision	Date
A1.2	ADDENDUM 1.2	11.18.2021
A2.2	ADDENDUM 2.2	11.29.2021

1801 East 86th Street
Indianapolis, IN 46240



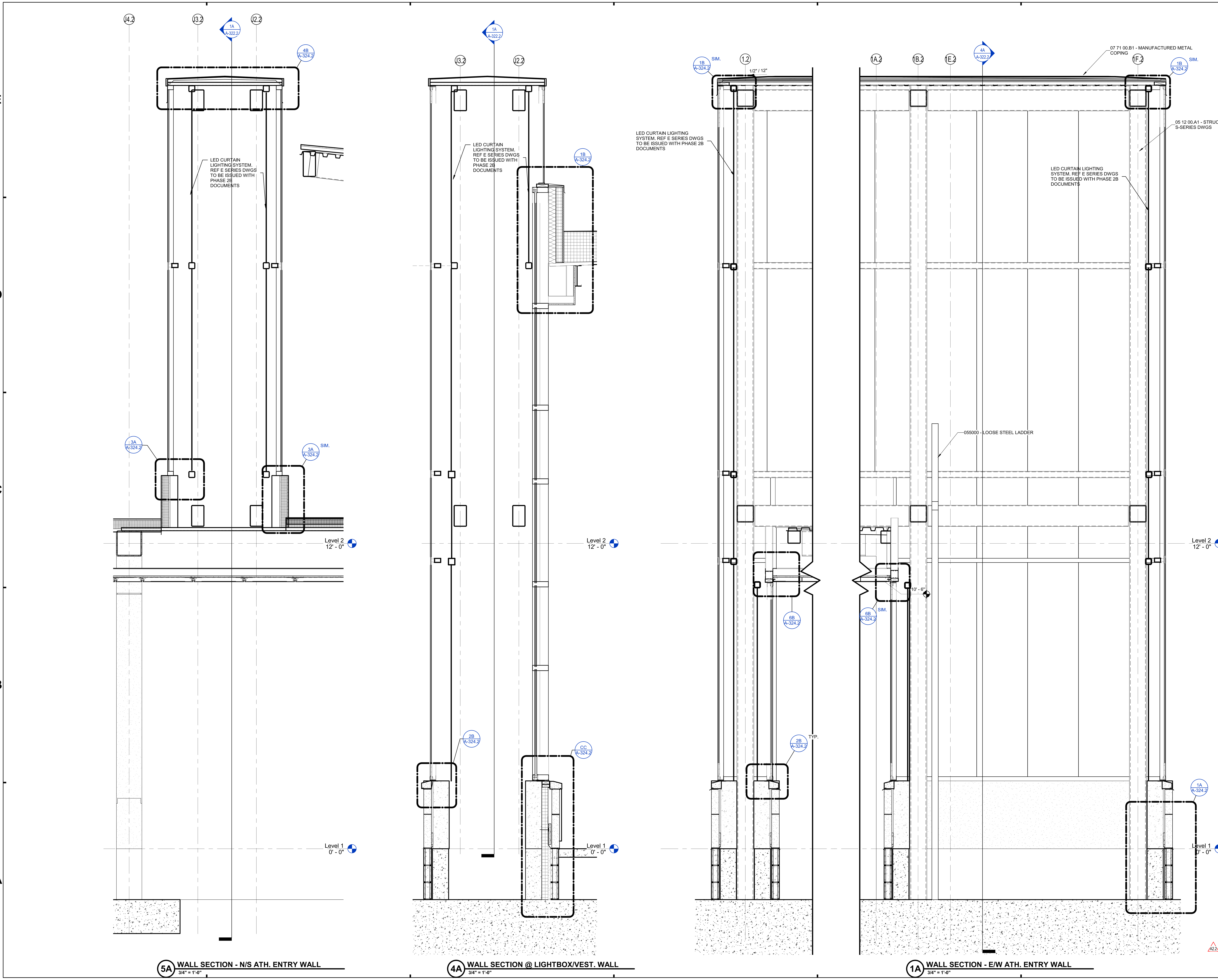
KEY PLAN

M.S.D. of Washington Township

North Central High School Renovation - West Gym Addition

FIRST AND SECOND FLOOR DEMOLITION PLAN - UNIT M

AD1M1.2



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Project No.	2019-067.NCH
Project Date	11.01.2021
Bid Set	02
Produced	SLS MM

SARAH KATHLEEN HEMPSTEAD
REGISTERED
NO. AR10400134
STATE OF INDIANA
ARCHITECT

#	Revision	Date
A2.2	ADDENDUM 2.2	11.29.2021

1801 East 86th Street
Indianapolis, IN 46240

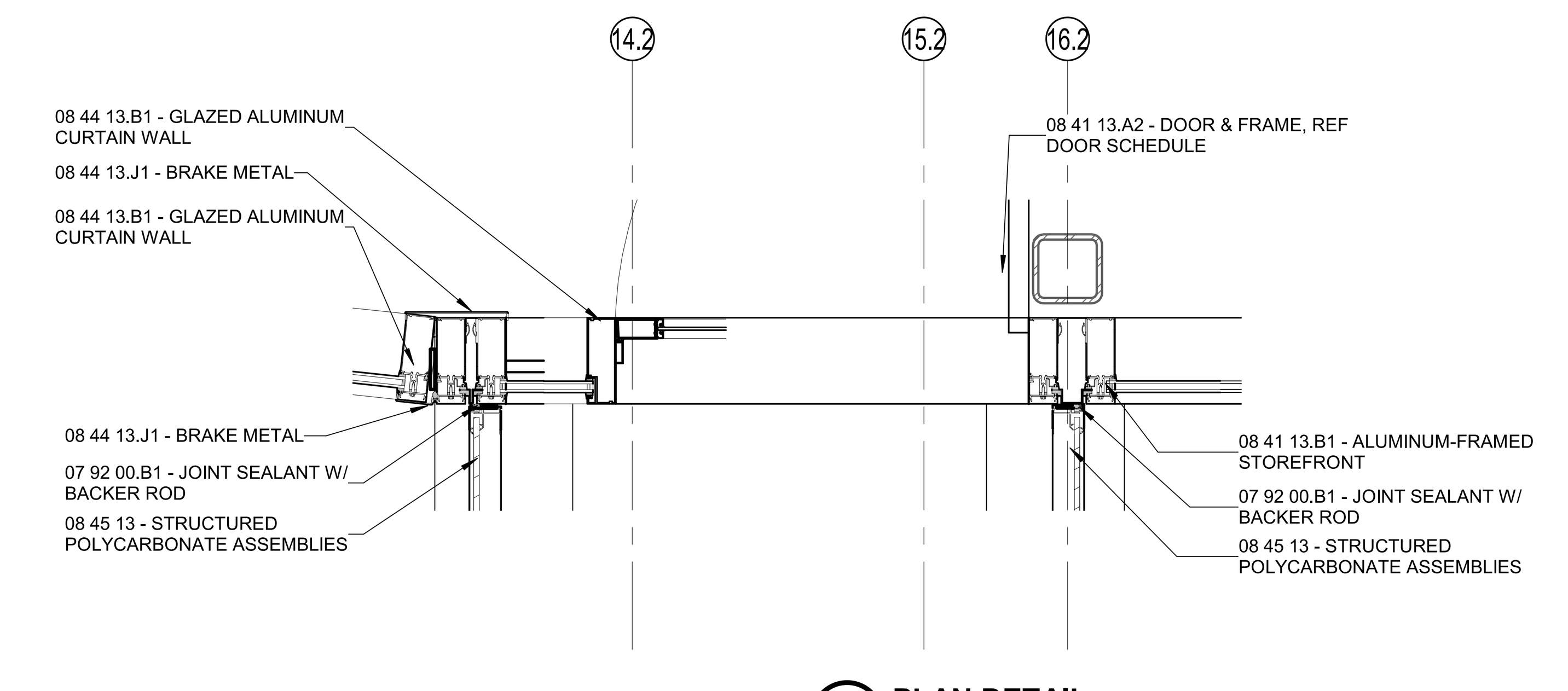
KEY PLAN

M.S.D. of Washington Township

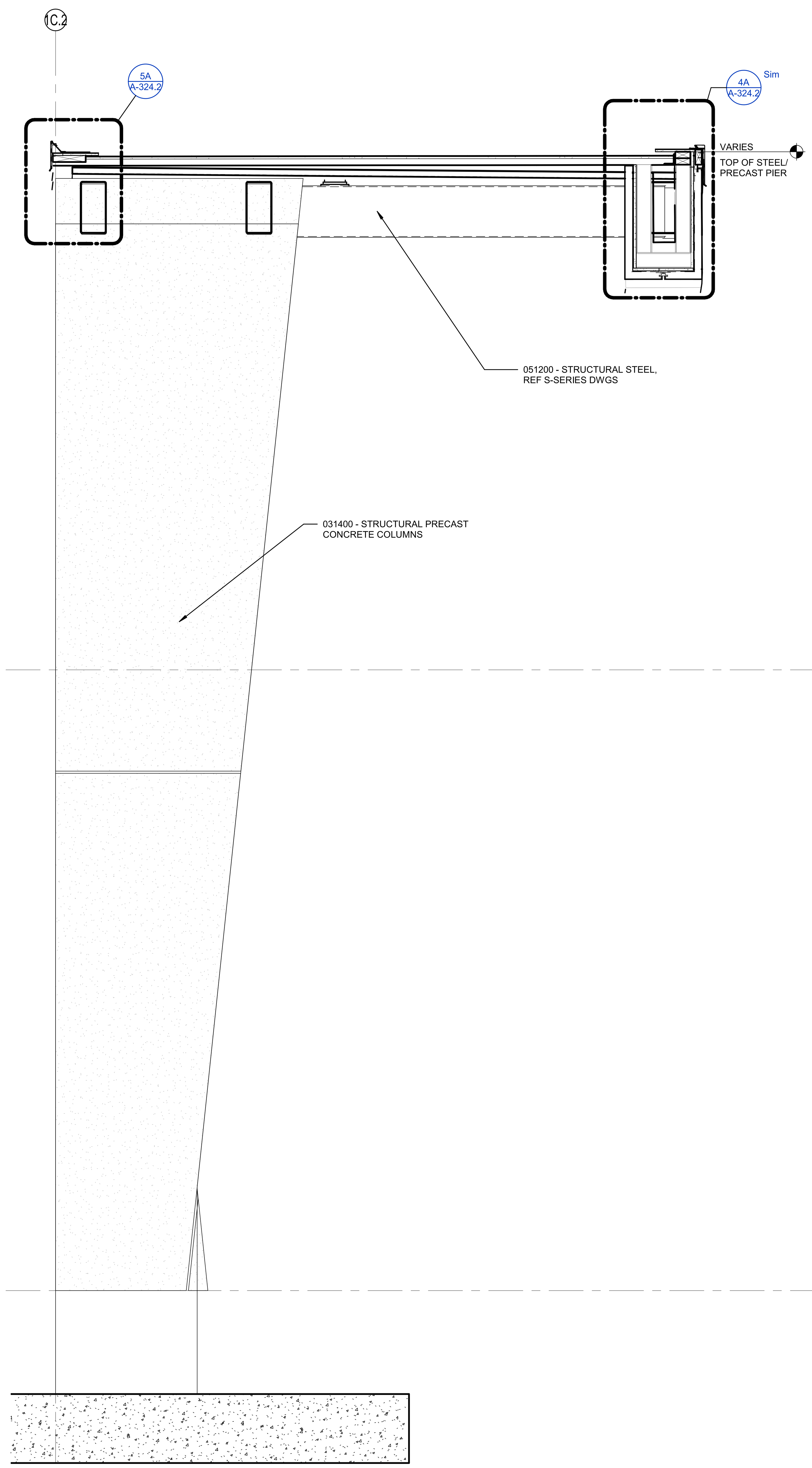
North Central High School Renovation - West Gym Addition

LIGHTBOX AND CANOPY DETAILS

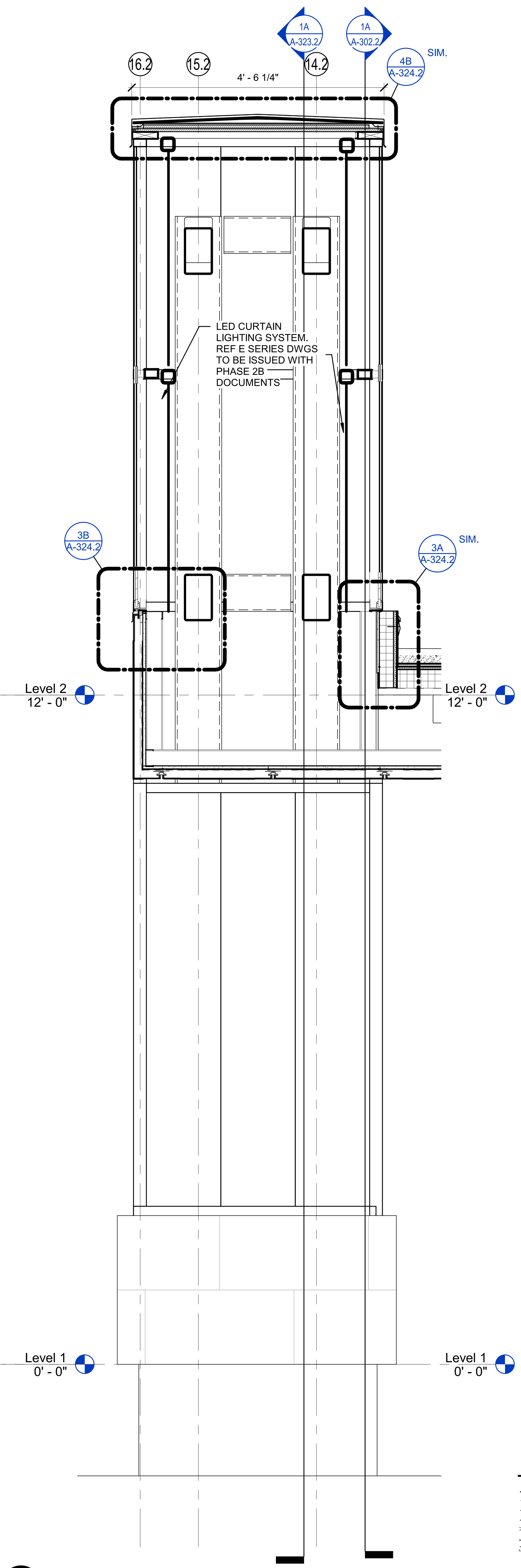
A-322.2



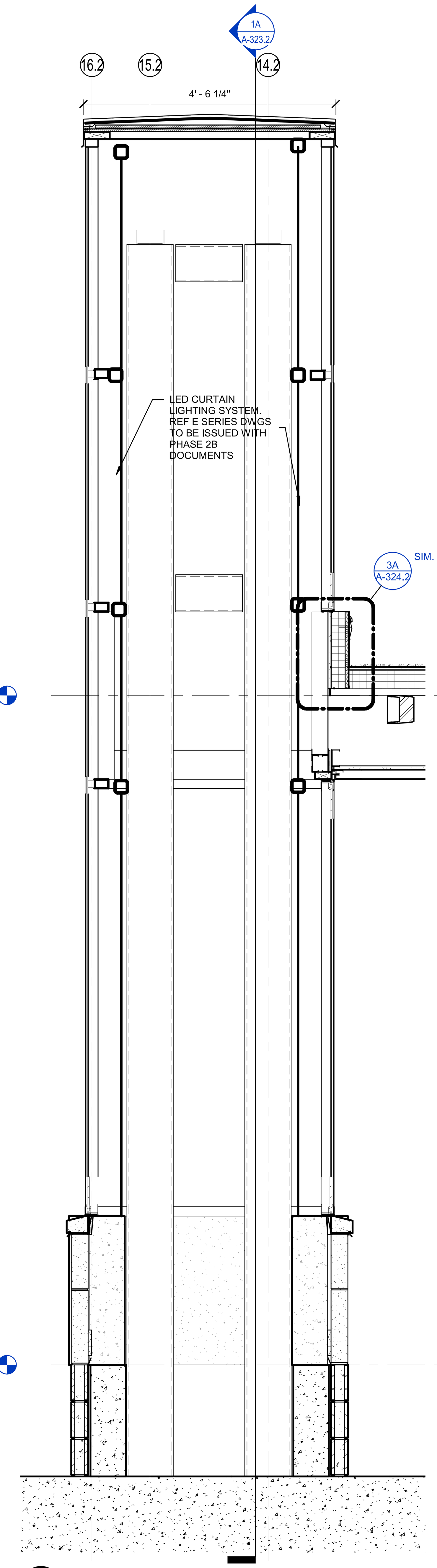
1E PLAN DETAIL
1" = 1'-0"



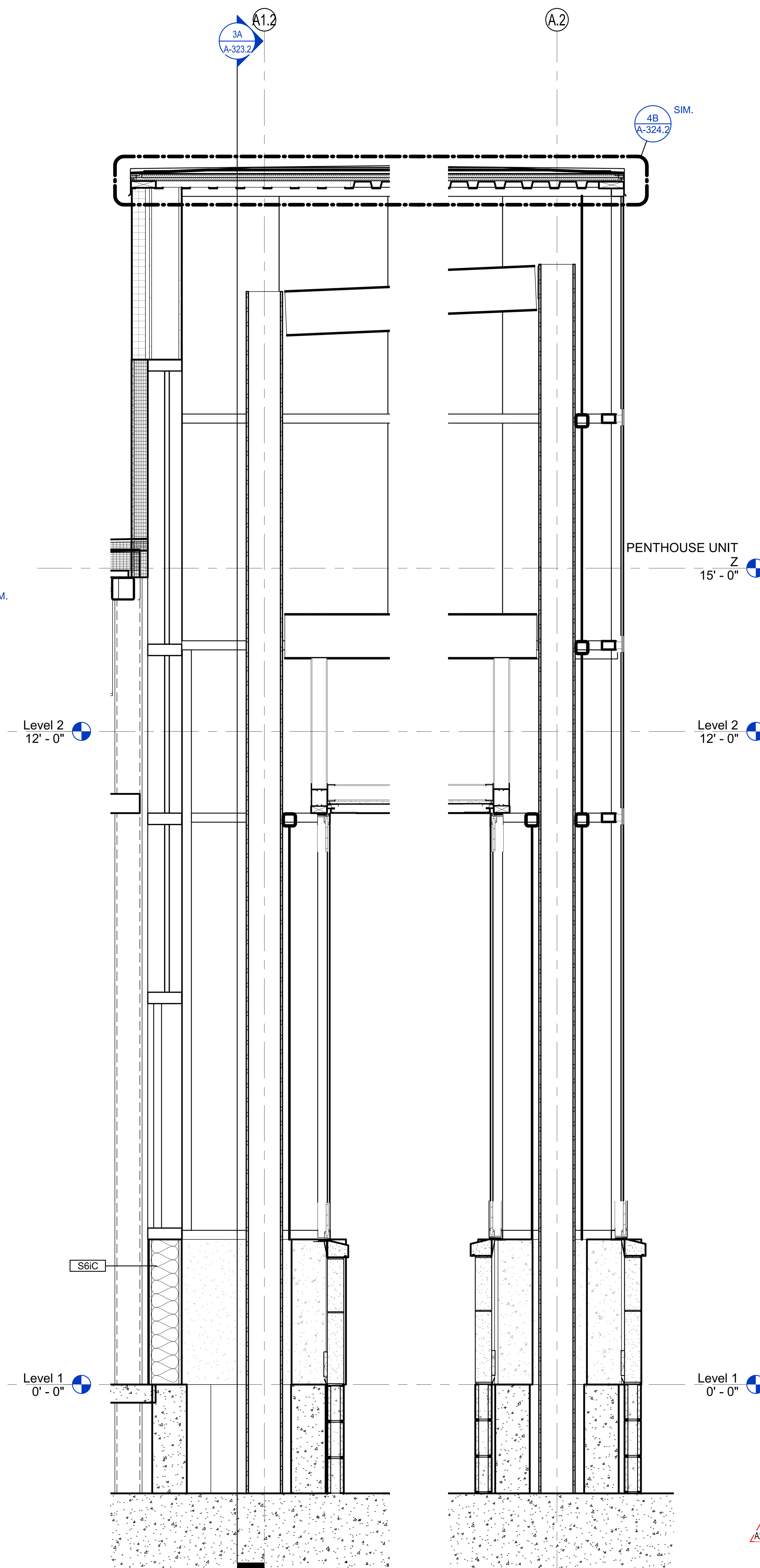
5A UPPER CANOPY SECTION
3/4" = 1'-0"



4A WALL SECTION THROUGH SOFFIT @ UNIT Z ENTRY WALL
3/4" = 1'-0"



3A WALL SECTION - E/W UNIT Z ENTRY WALL
3/4" = 1'-0"



1A WALL SECTION - N/S UNIT Z ENTRY WALL
3/4" = 1'-0"

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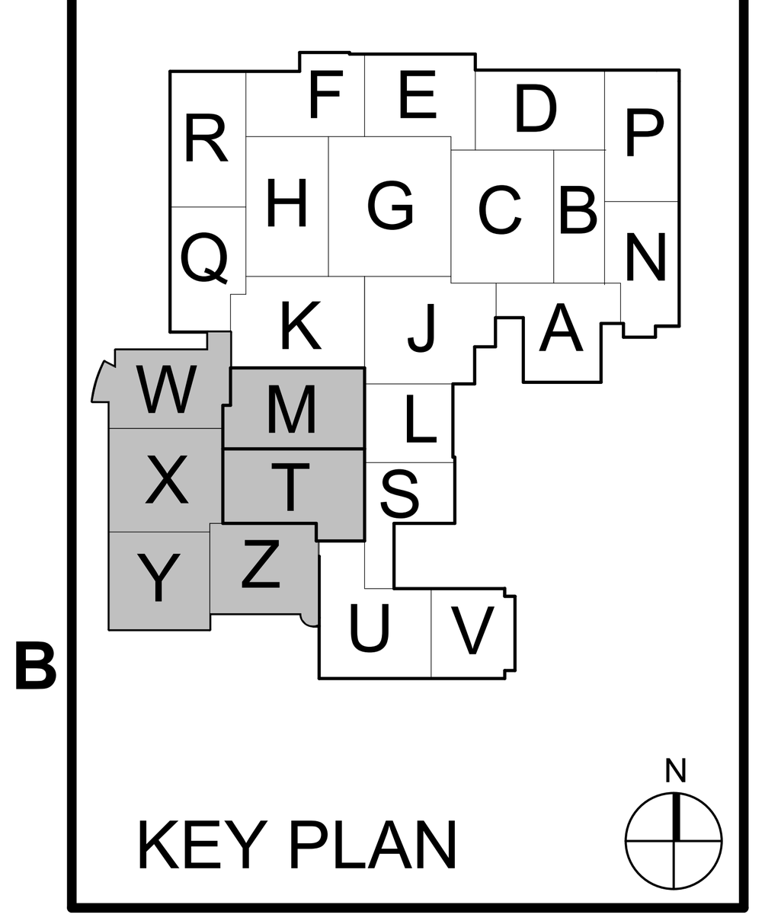
#	Revision	Date
A2.2	ADDENDUM 2.2	11.29.2021

1801 East 86th Street
Indianapolis, IN 46240



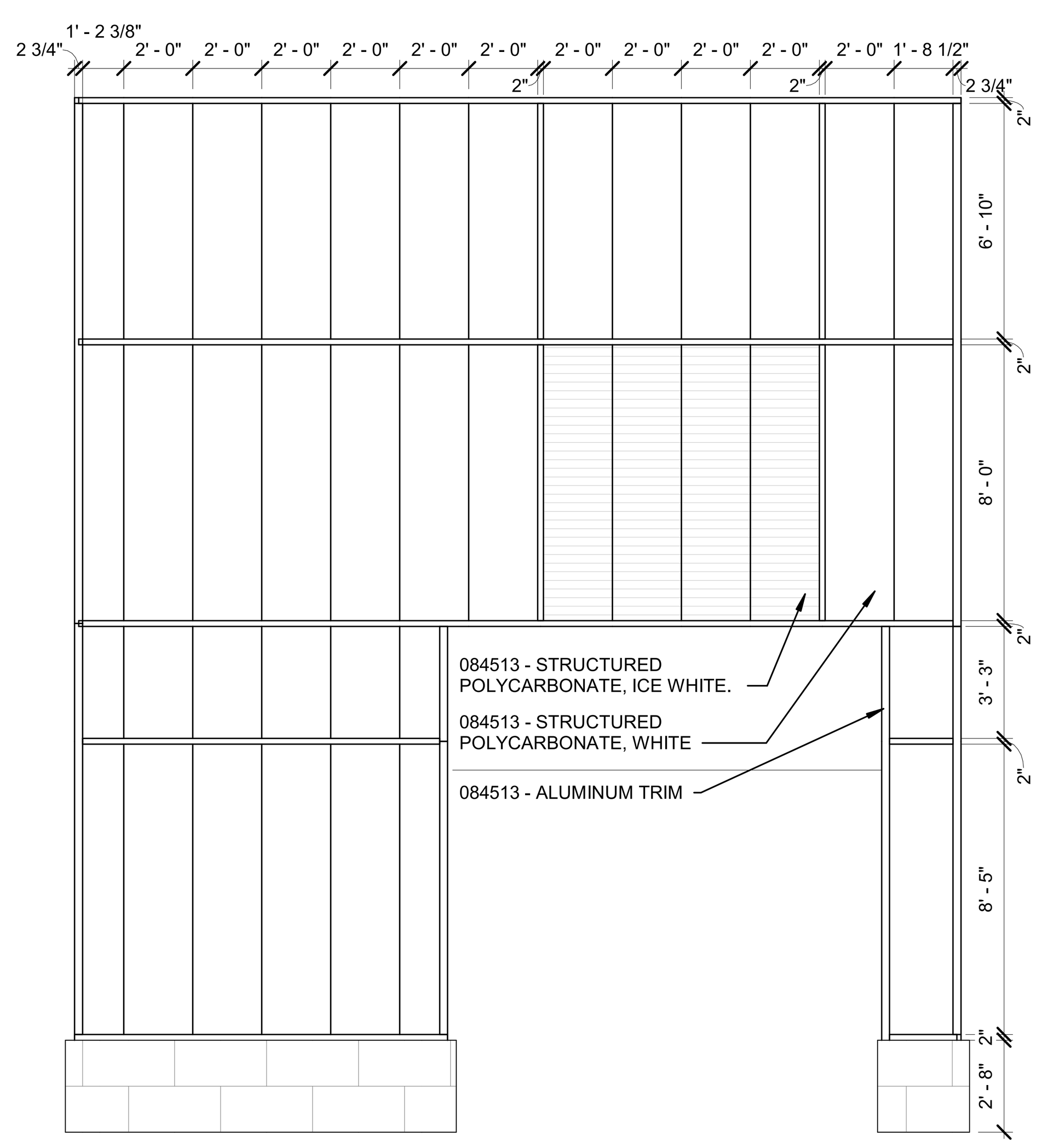
KEY PLAN

M.S.D. of Washington Township

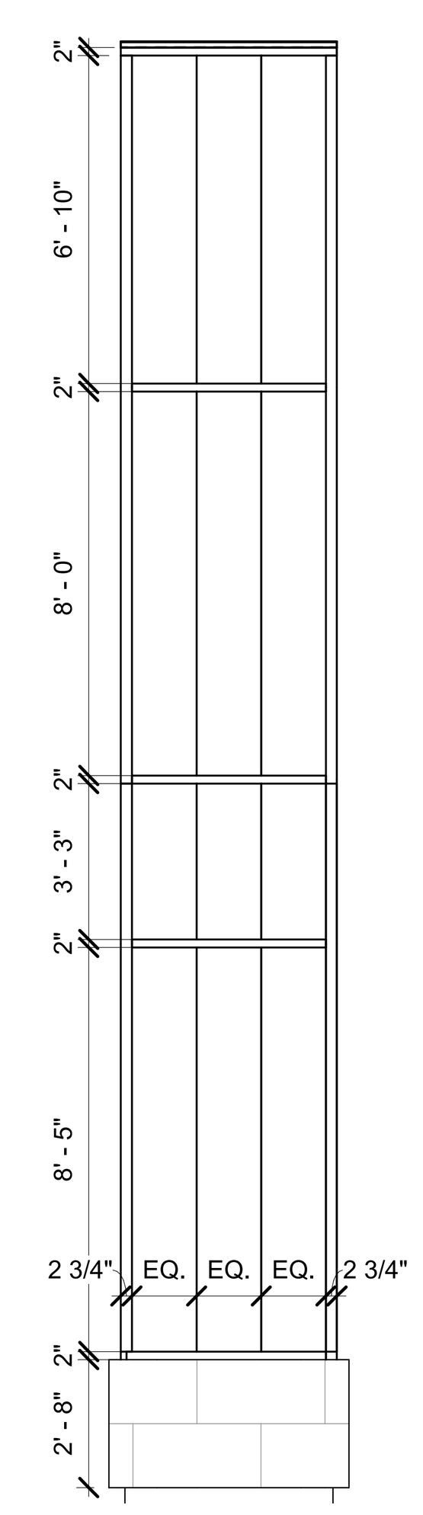
North Central High School Renovation - West Gym Addition

LIGHTBOX AND CANOPY DETAILS

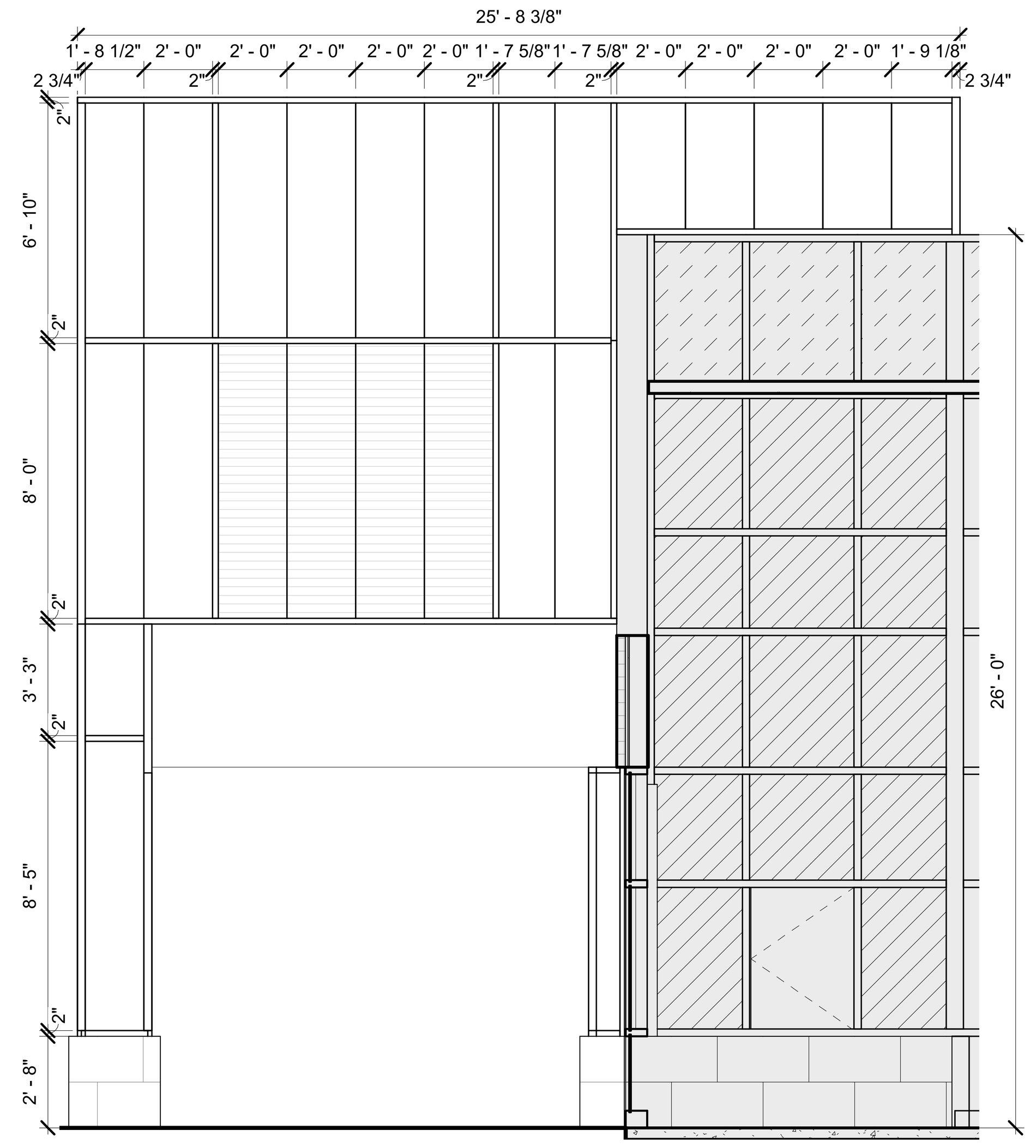
A-323.2



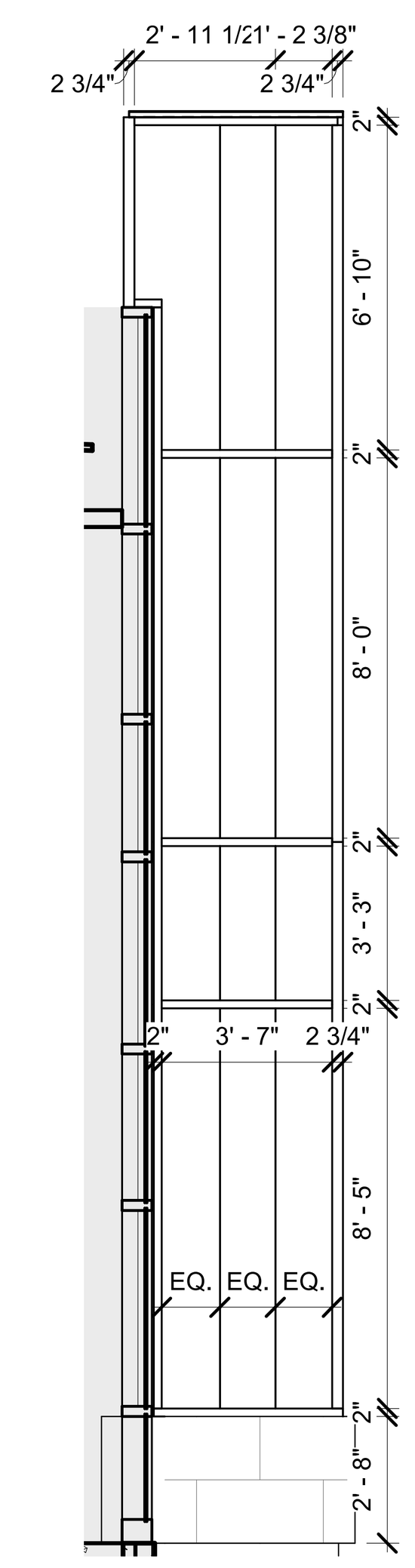
6E ATH ENT WALL NE ELEVATION
1/4" = 1'-0"



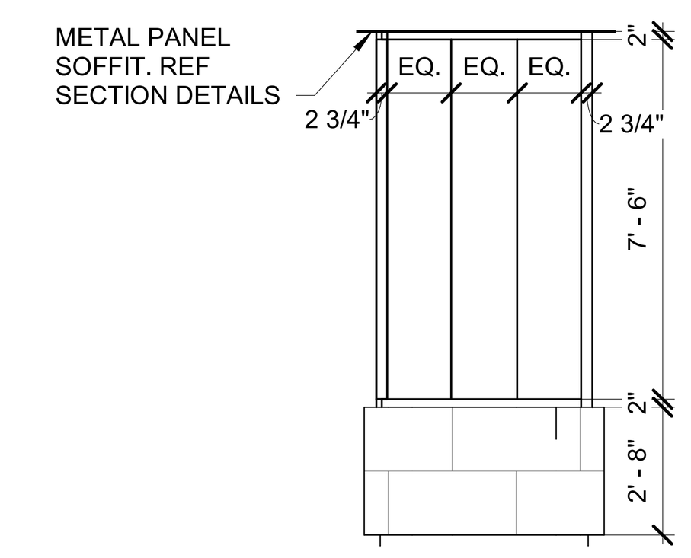
5E ATH ENT WALL NW ELEVATION
1/4" = 1'-0"



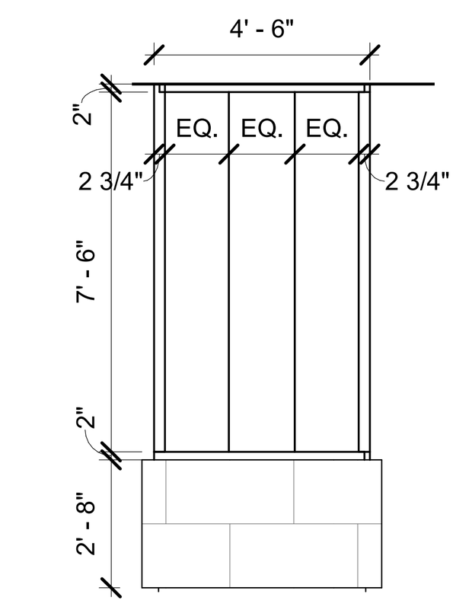
4E ATH ENT WALL SOUTHWEST ELEVATION
1/4" = 1'-0"



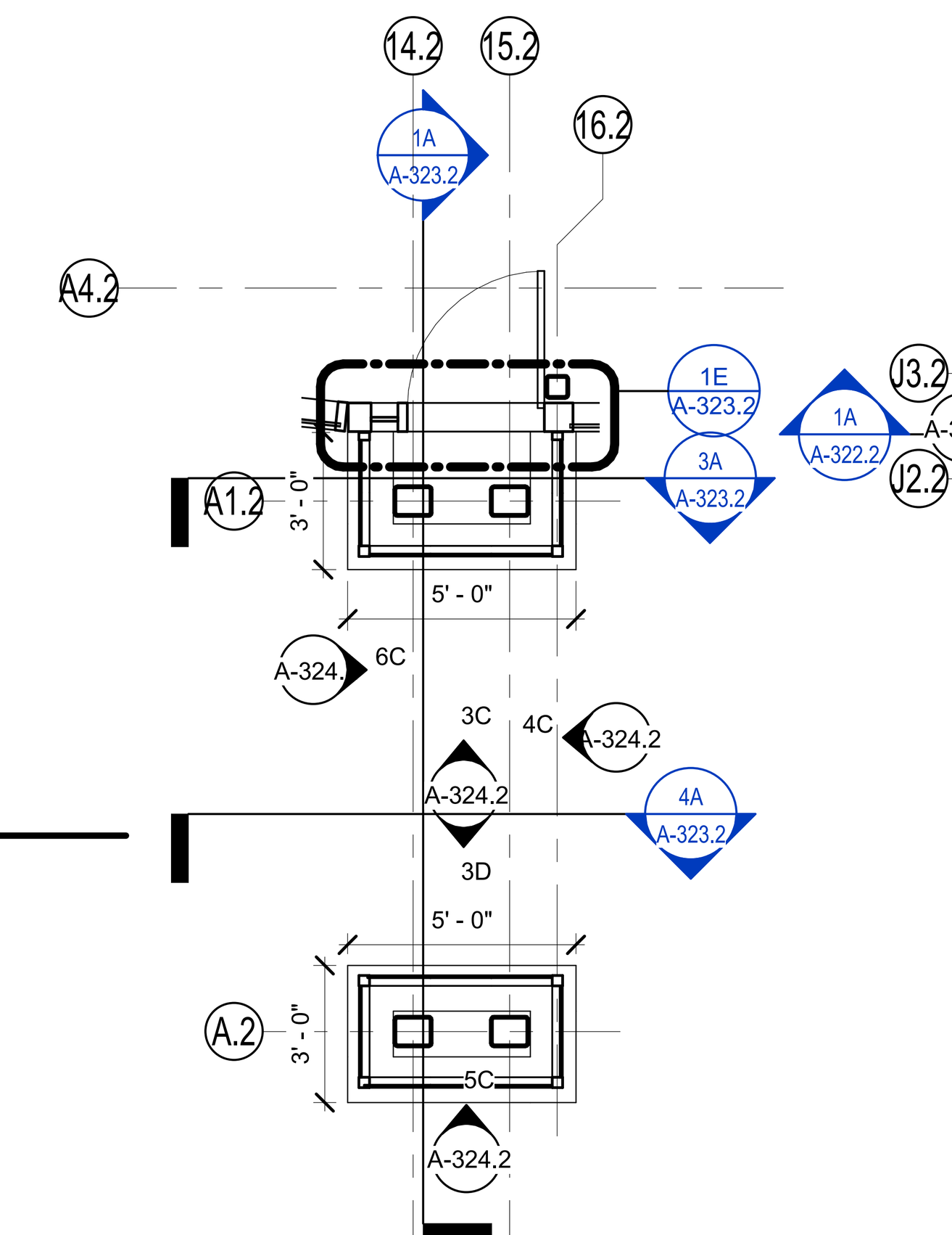
3E ATH ENT WALL SE ELEVATION
1/4" = 1'-0"



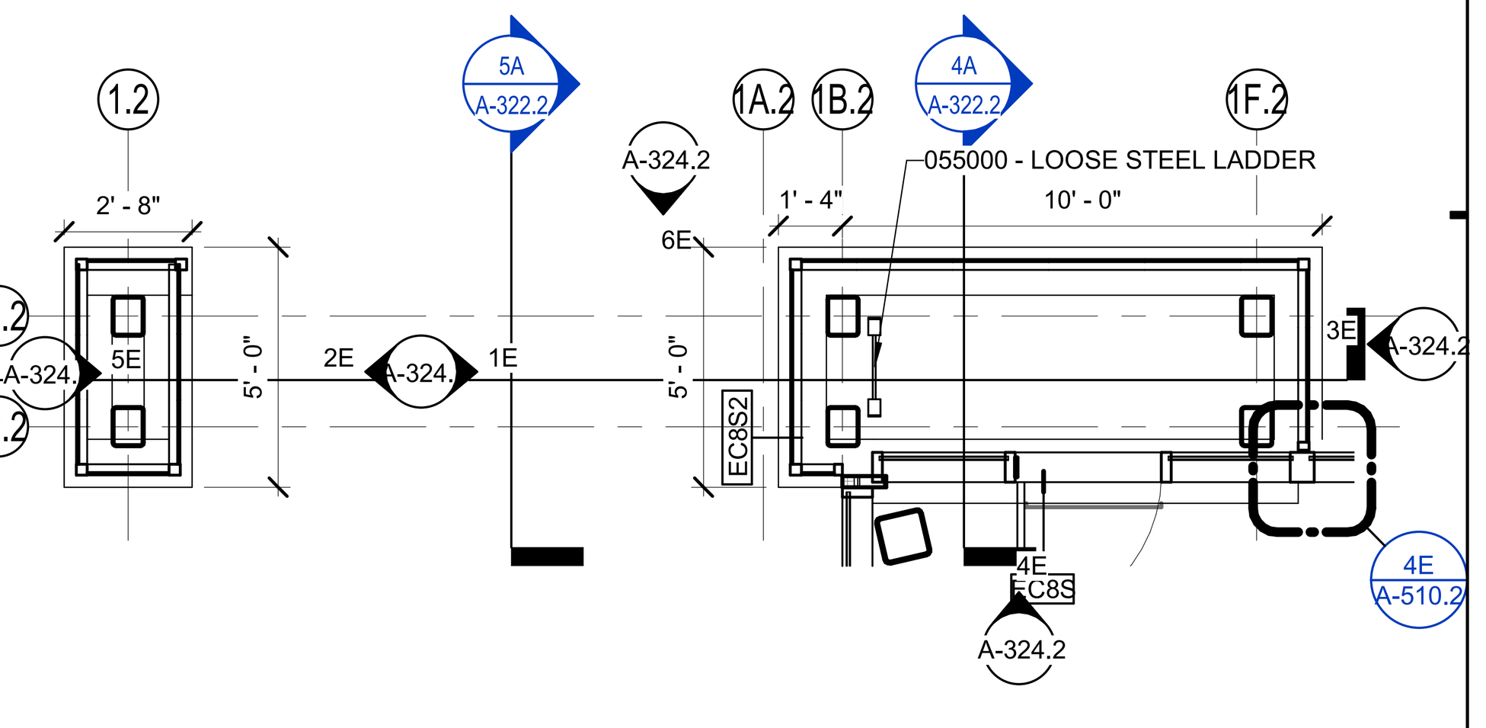
2E ATH ENT SE ELEVATION UNDER CANOPY
1/4" = 1'-0"



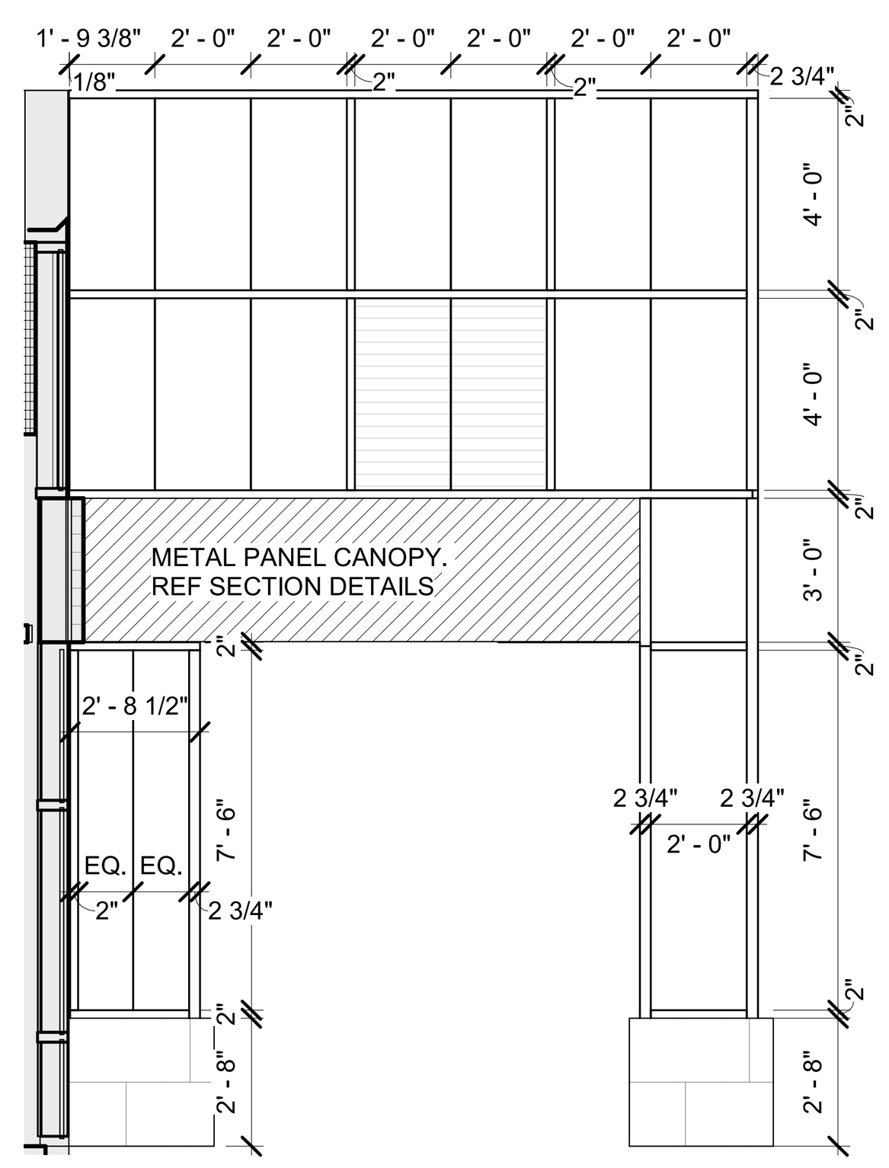
1E ATH ENT NW ELEVATION UNDER CANOPY
1/4" = 1'-0"



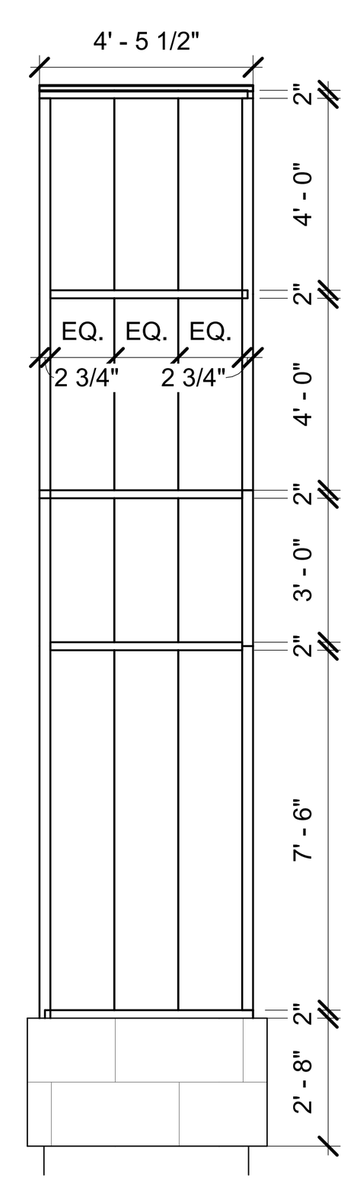
2C ENLARGED PLAN - UNIT Z ENTRY
1/4" = 1'-0"



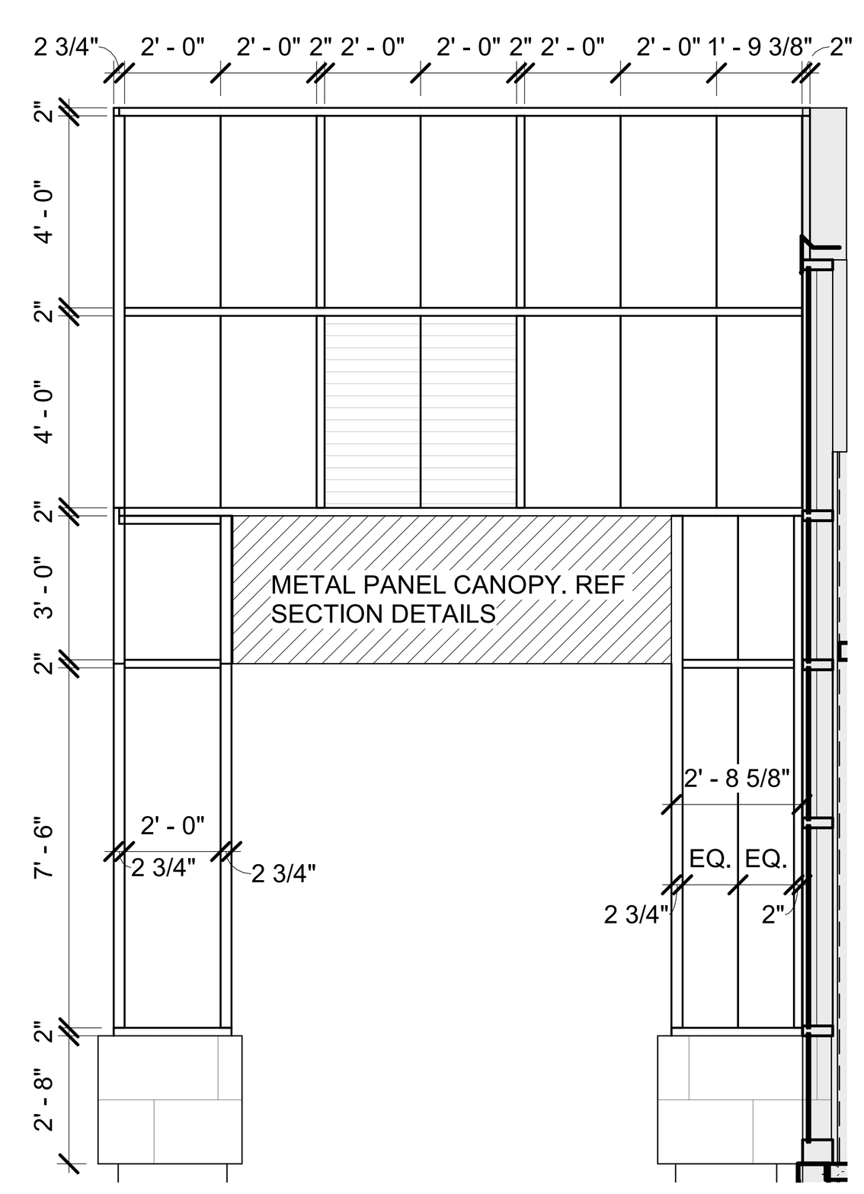
1D ENLARGED PLAN - ATH ENTRY LIGHTBOX
1/4" = 1'-0"



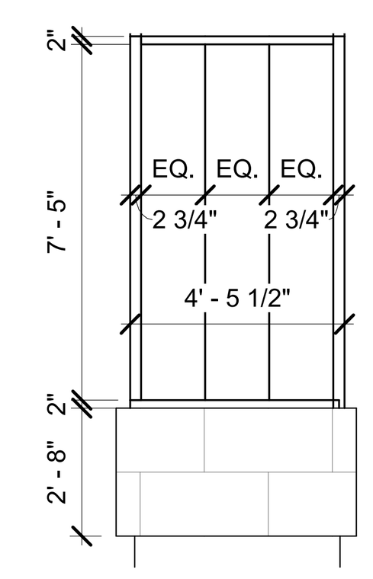
6C UNIT Z WALL WEST ELEVATION
1/4" = 1'-0"



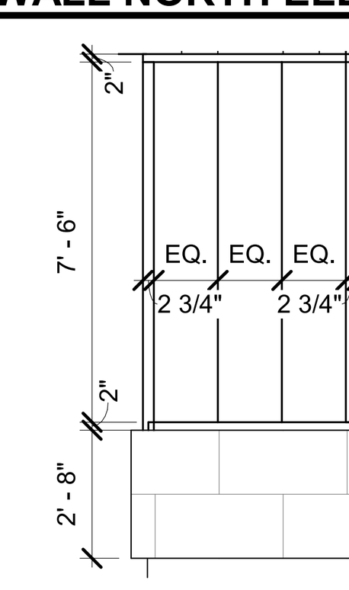
5C UNIT Z WALL SOUTH ELEVATION
1/4" = 1'-0"



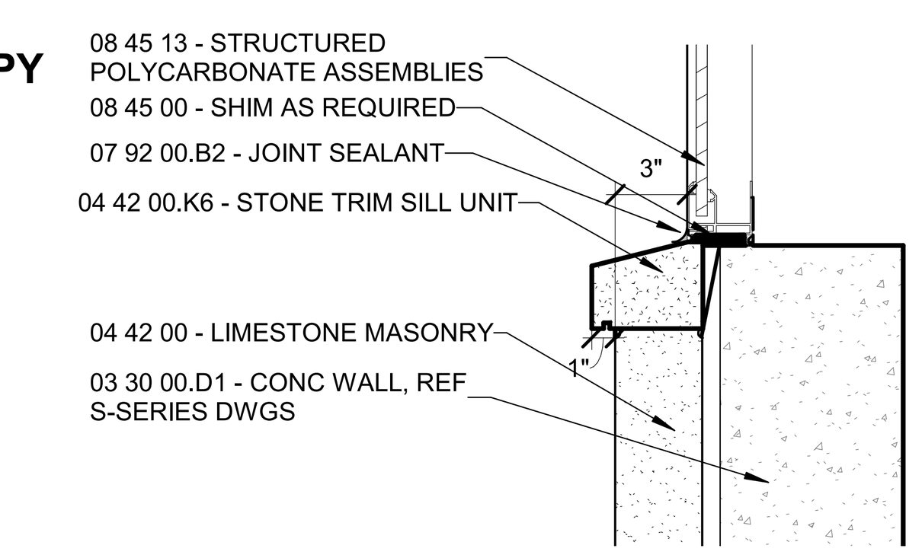
4C UNIT Z WALL EAST ELEVATION
1/4" = 1'-0"



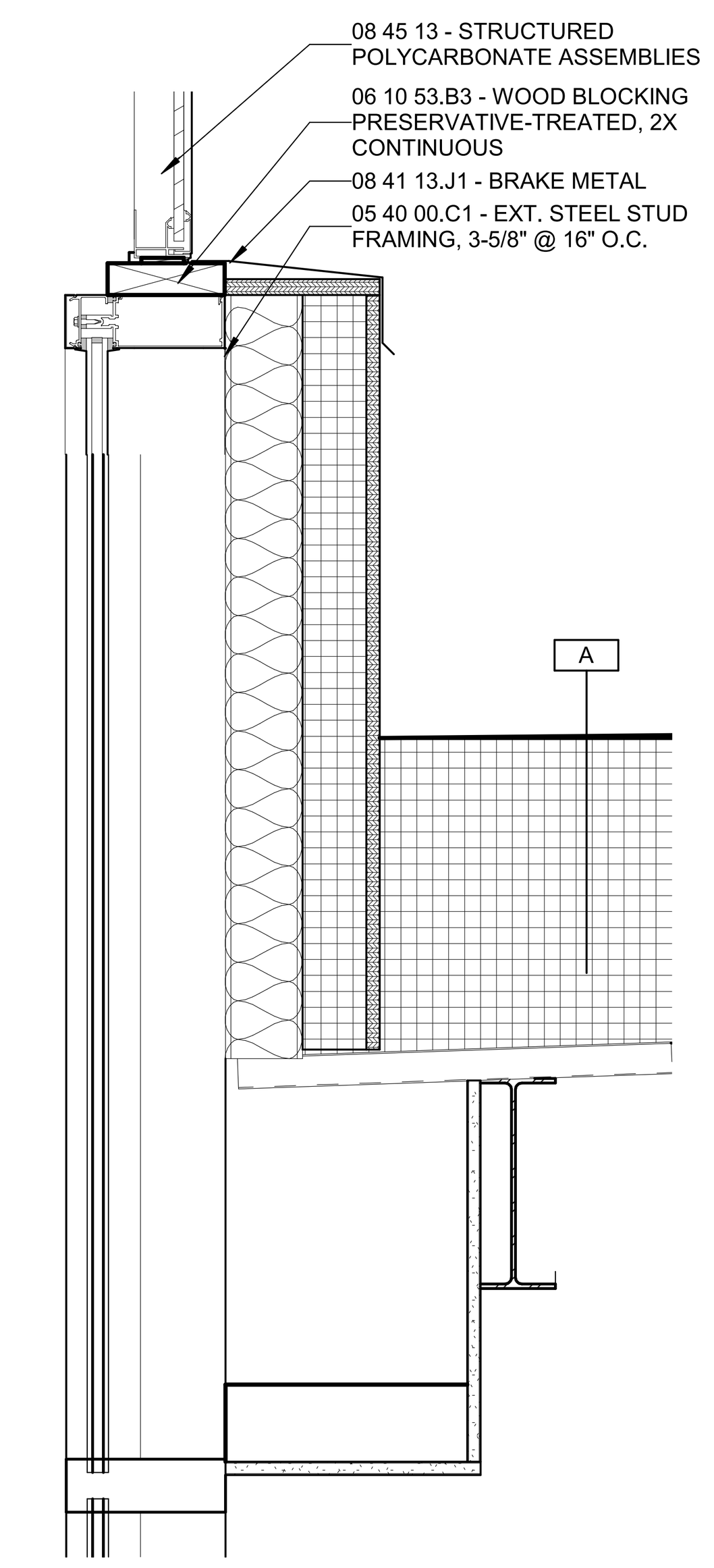
3D UNIT Z WALL NORTH ELEVATION UNDER CANOPY
1/4" = 1'-0"



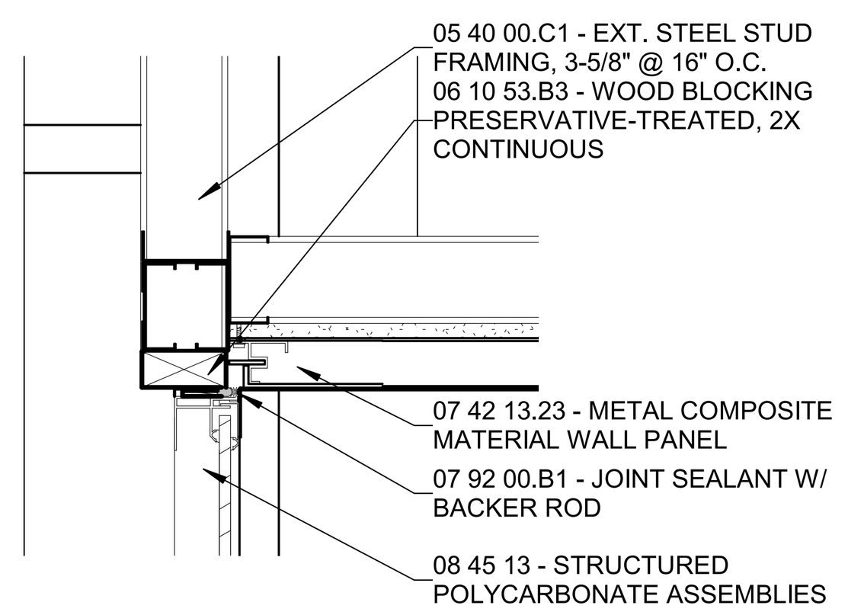
3C UNIT Z WALL SOUTH ELEVATION UNDER CANOPY
1/4" = 1'-0"



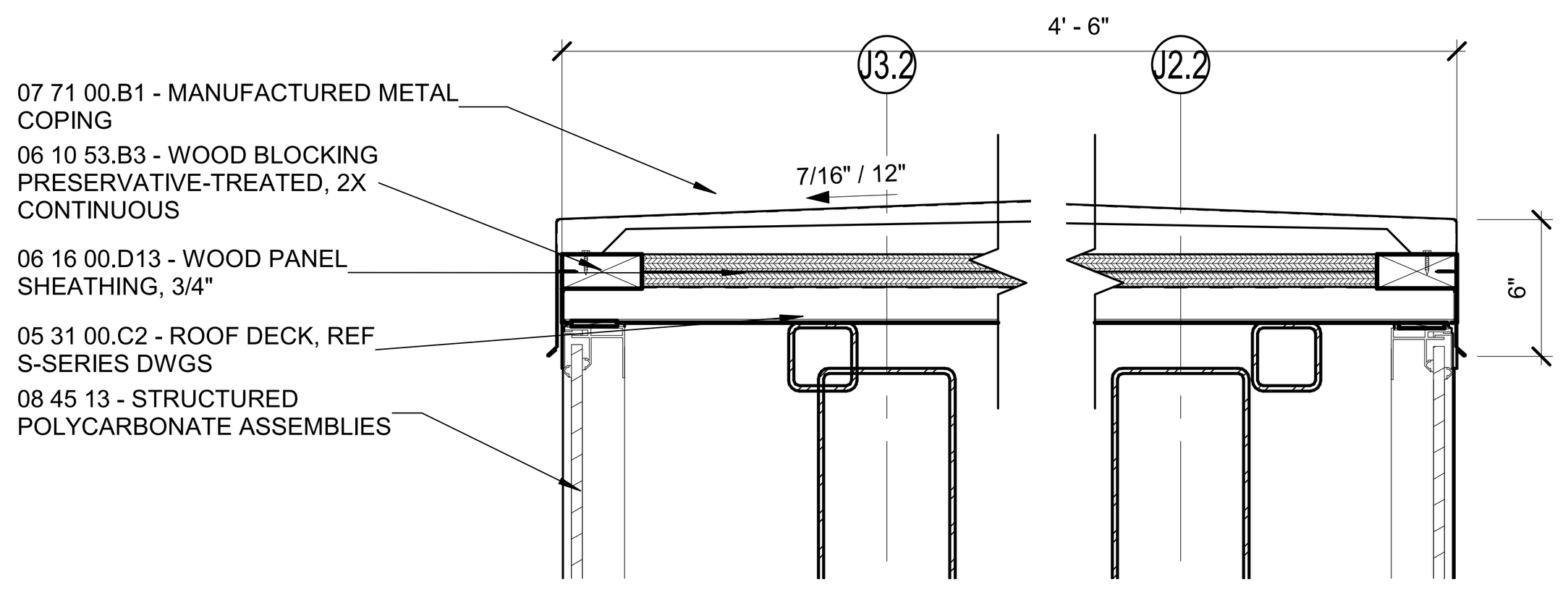
2B SILL - EXTERIOR SCREEN
1 1/2" = 1'-0"



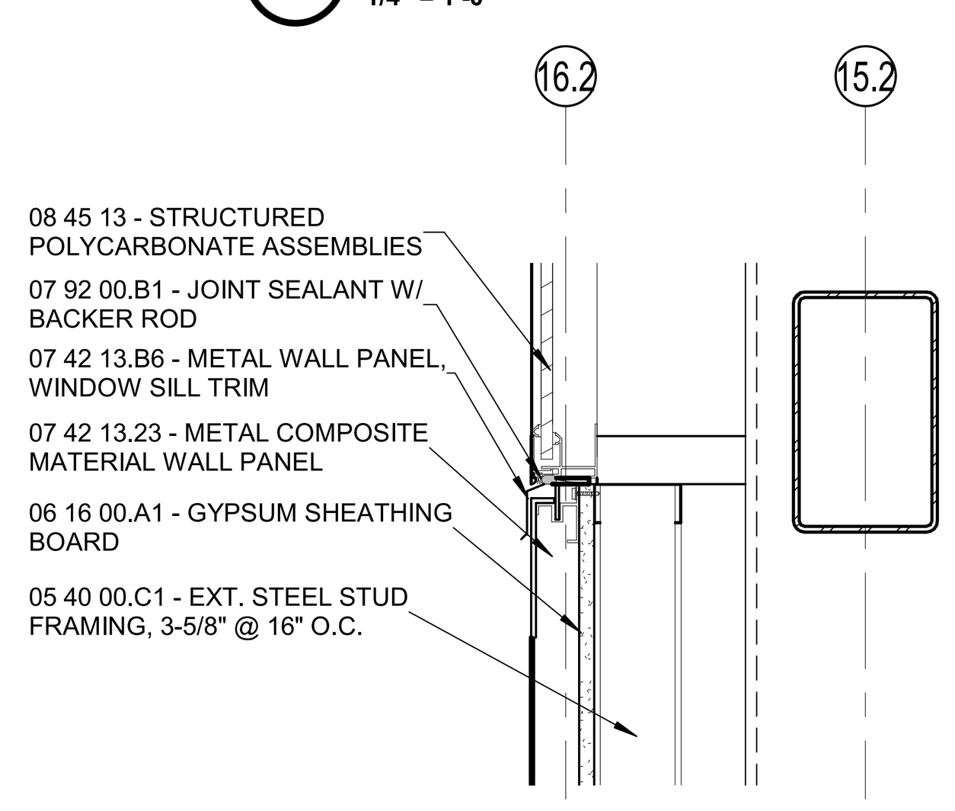
1B SECTION DETAIL - ROOF TERMINATION
1 1/2" = 1'-0"



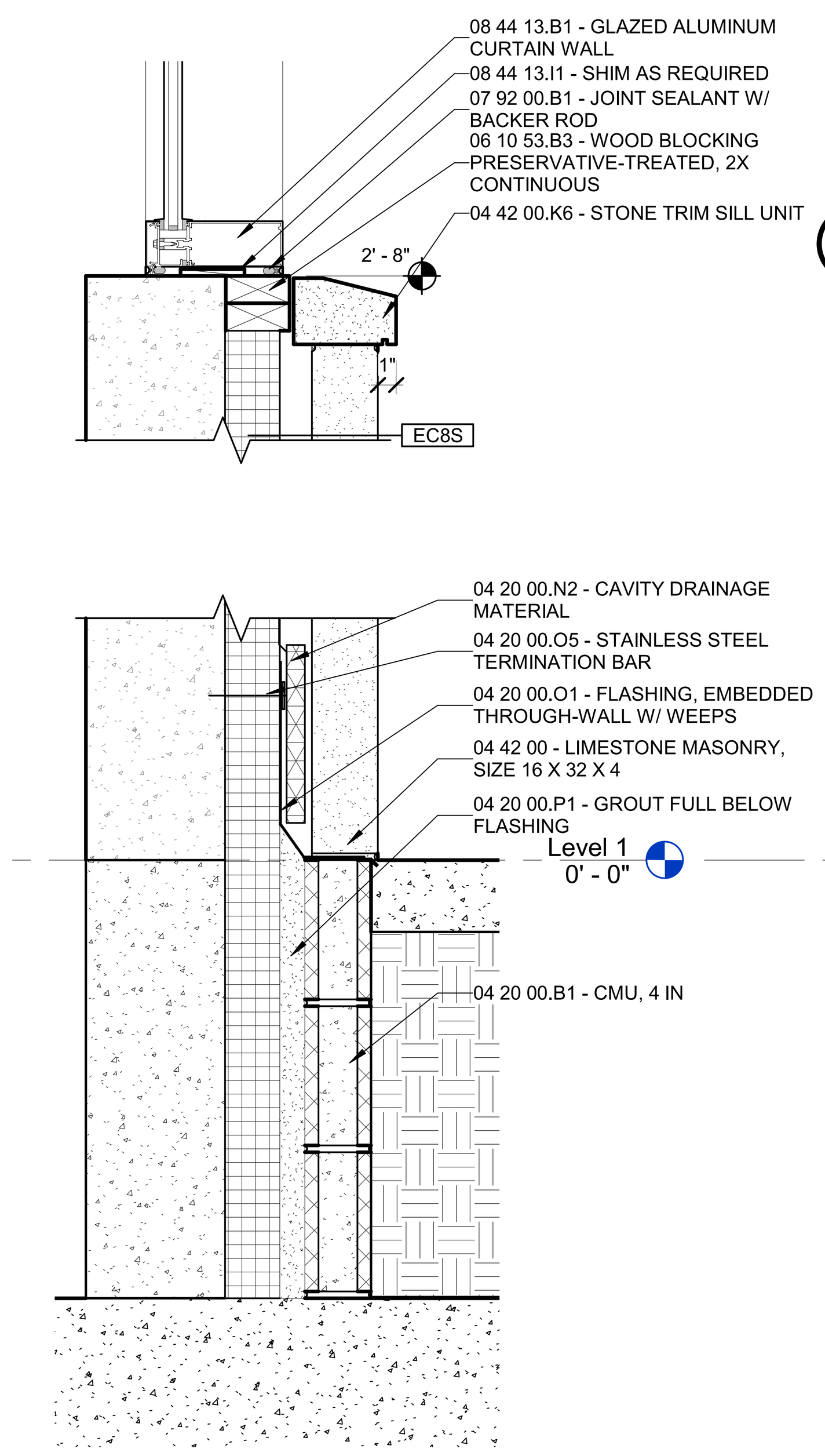
6B SECTION DETAIL - SOFFIT TO POLYCARBONATE
1 1/2" = 1'-0"



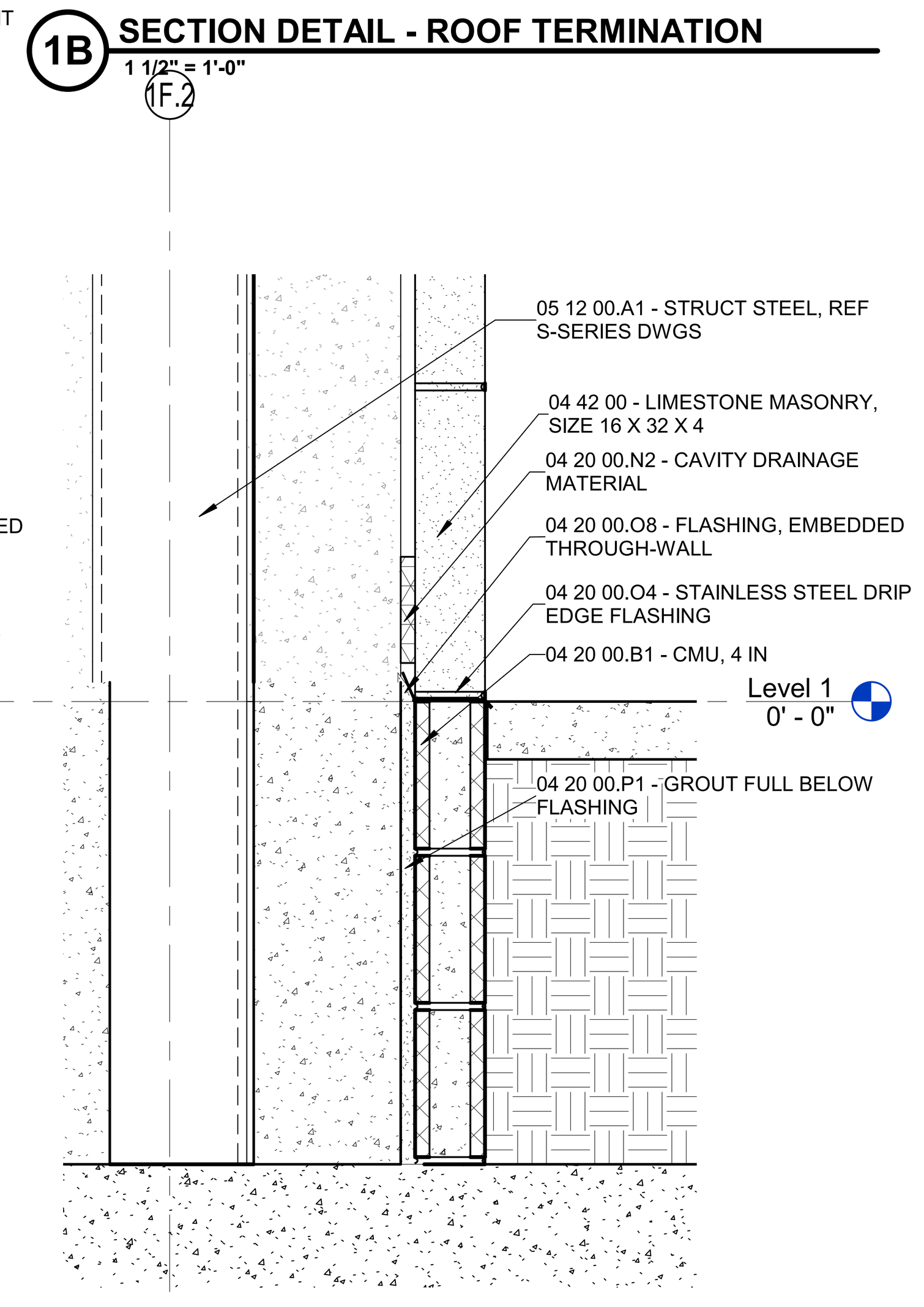
4B METAL COPING CAP DETAIL
1 1/2" = 1'-0"



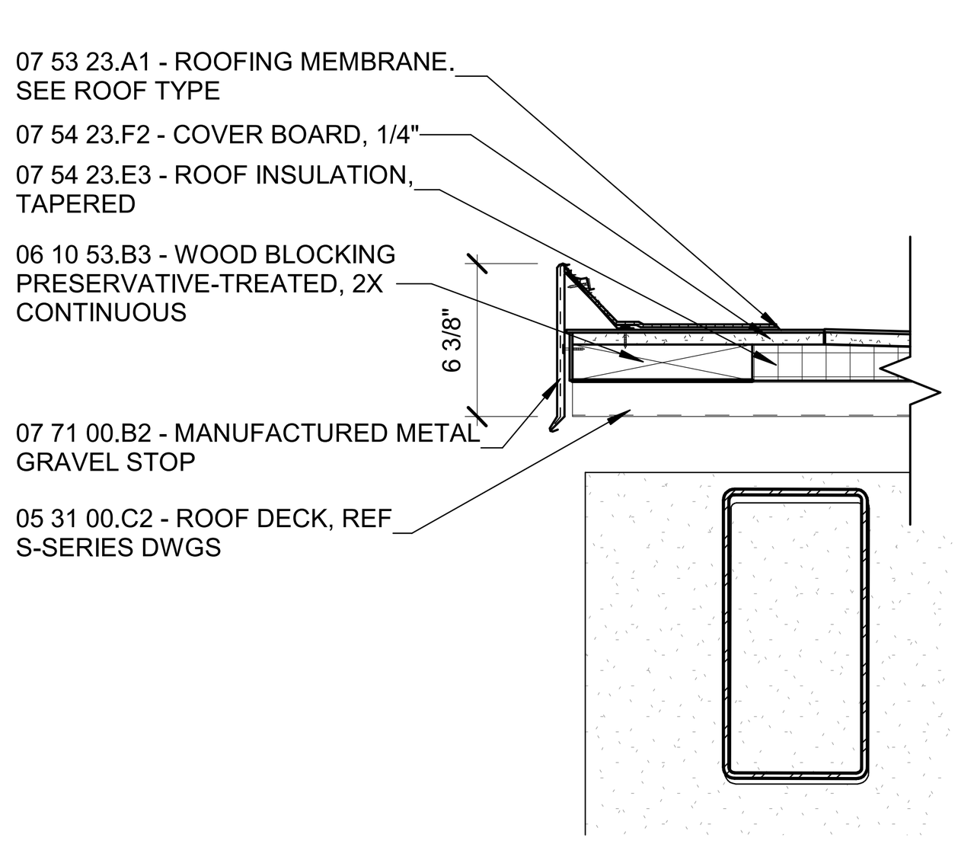
3B SECTION DETAIL - UNIT Z SOFFIT
1 1/2" = 1'-0"



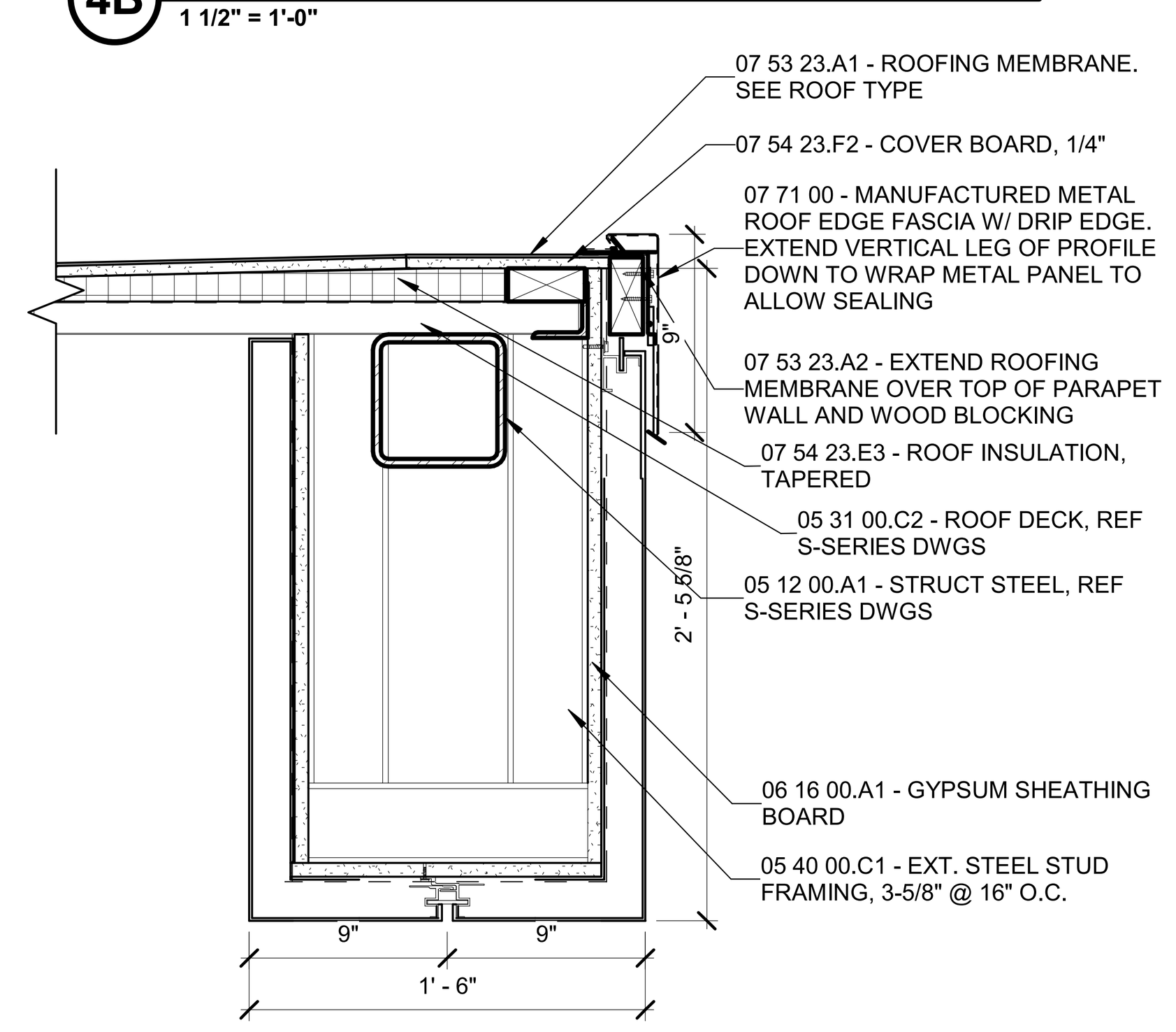
CC SILL - INTERIOR INSULATED
1 1/2" = 1'-0"



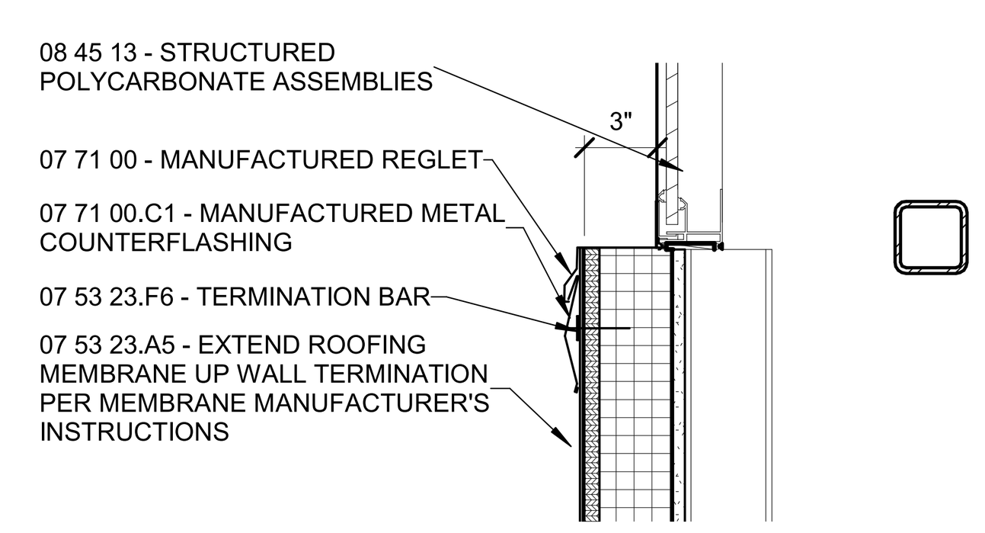
1A SECTION DETAIL - LIMESTONE WALL FOUNDATION
1 1/2" = 1'-0"



5A CANOPY SECTION ROOF TERMINATION
1 1/2" = 1'-0"



4A SECTION DETAIL - TYP. EXTERIOR CANOPY
1 1/2" = 1'-0"



3A SECTION DETAIL - MEMBRANE TERMINATION
1 1/2" = 1'-0"

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Project No. 2019-067.NCH
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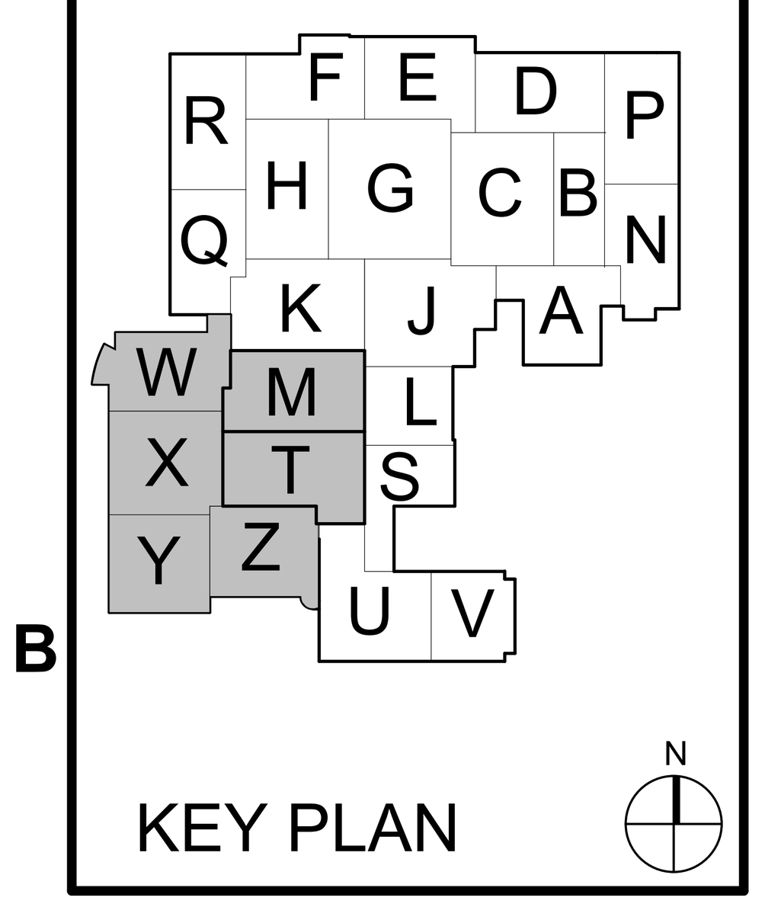
SARAH KATHLEEN HEMPSTEAD
REGISTERED
NO. AR10400134
STATE OF INDIANA
ARCHITECT

#	Revision	Date
A2.2	ADDENDUM 2.2	11.29.2021

1801 East 86th Street
Indianapolis, IN 46240



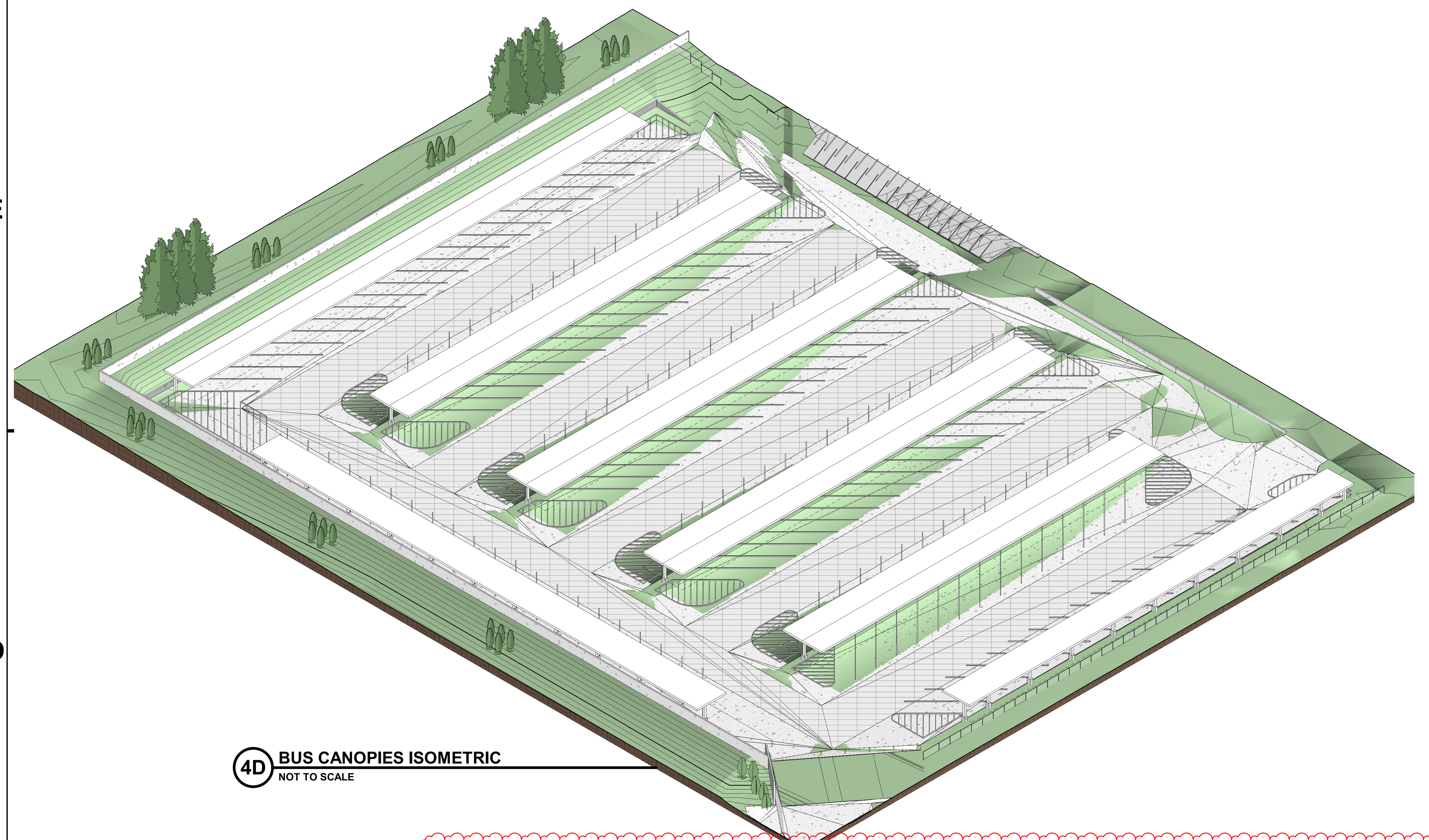
KEY PLAN

M.S.D. of Washington Township

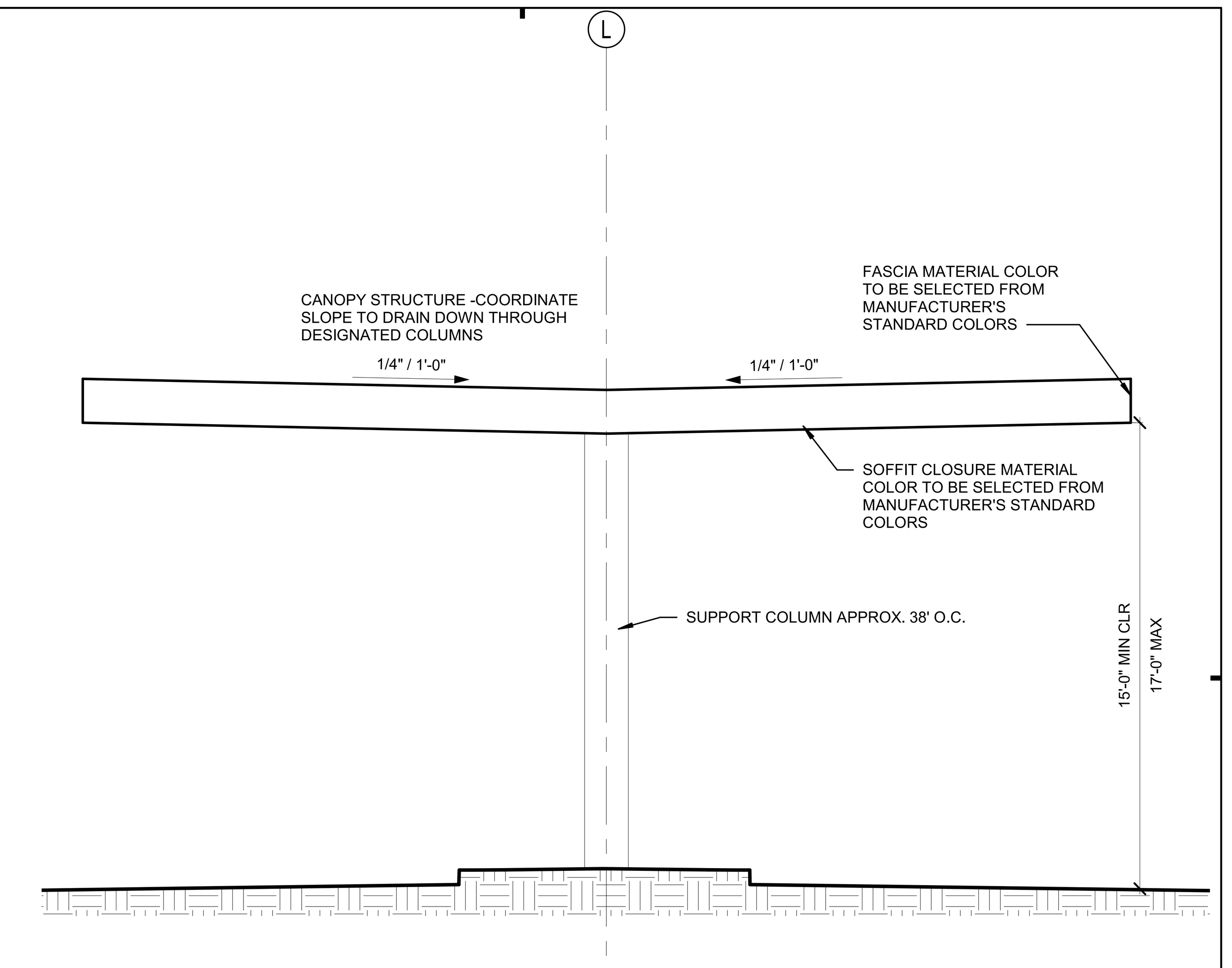
North Central High School Renovation - West Gym Addition

LIGHTBOX AND CANOPY DETAILS

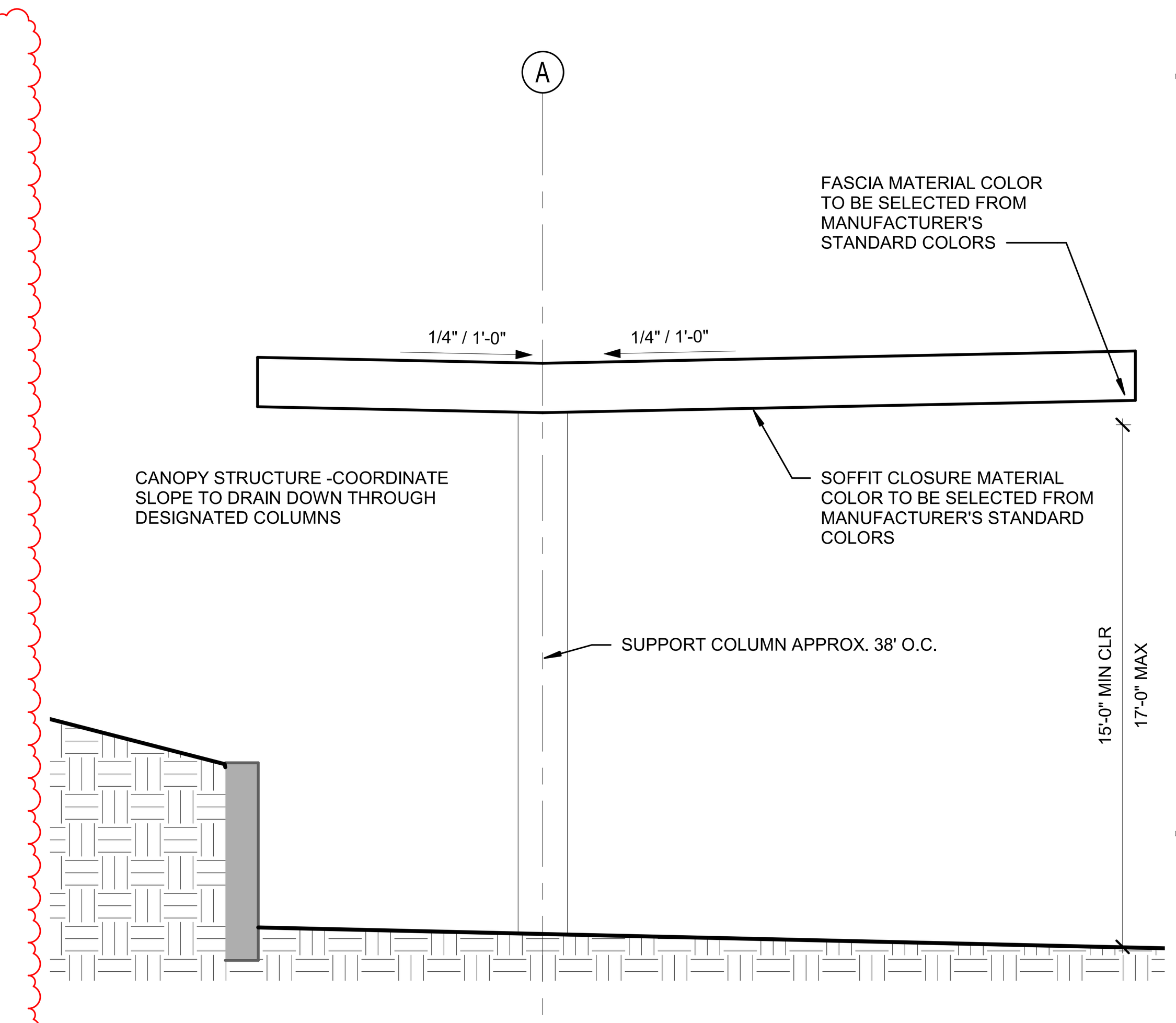
A-324.2



4D BUS CANOPIES ISOMETRIC
NOT TO SCALE



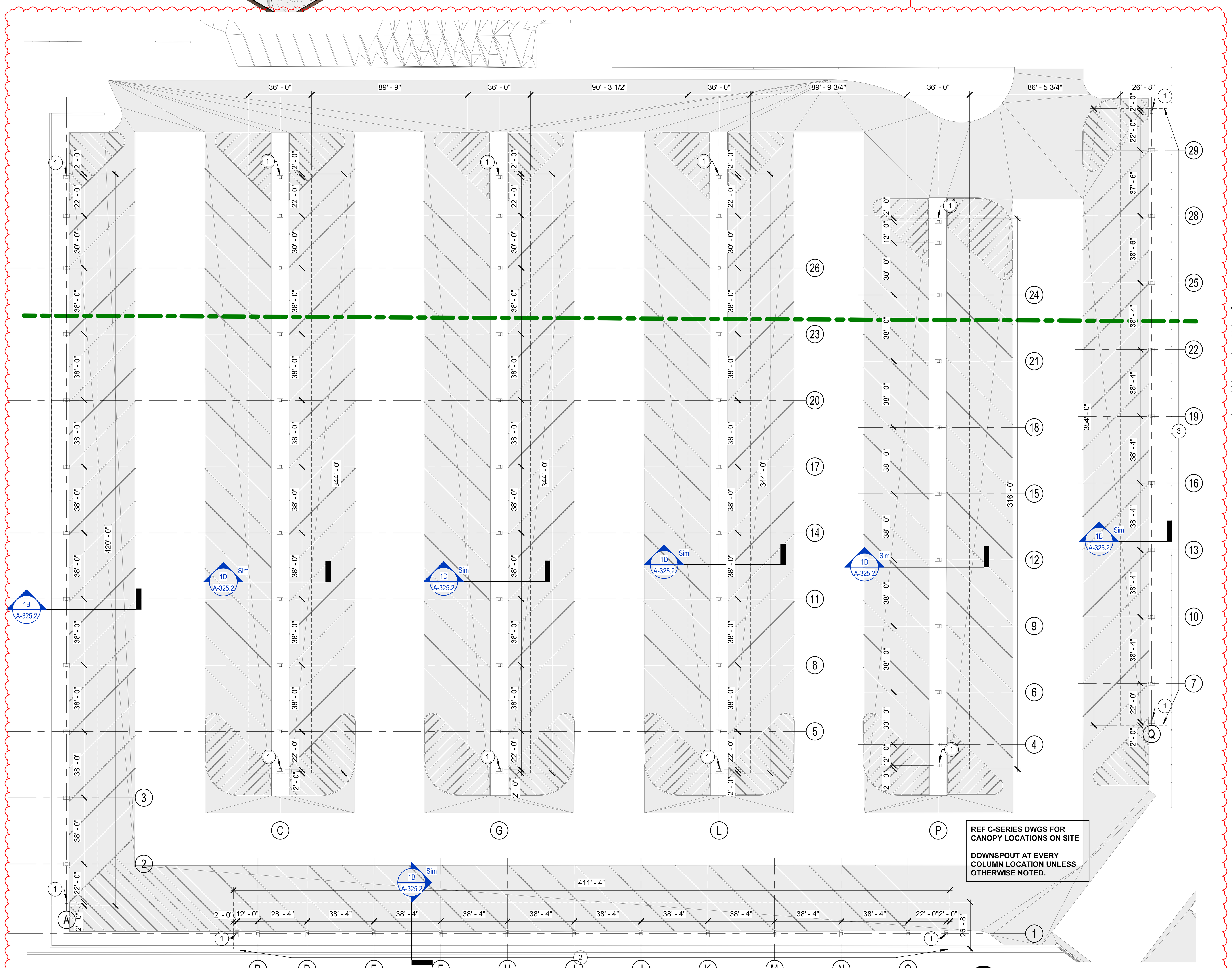
1D 131200 - BUS CANOPY FULL SECTION
1/4" = 1'-0"



1B 131200 - BUS CANOPY HALF SECTION
1/4" = 1'-0"

FLOOR PLAN NOTES

#	Note
1	NO DOWNSPOUT AT THIS COLUMN LOCATION
2	BASE BID: NO CANOPY. ALT: BUS CANOPY AS SHOWN. (SOUTH BUS CANOPY ALTERNATE)
3	BASE BID: NO CANOPY. ALT: BUS CANOPY AS SHOWN. (EAST BUS CANOPY ALTERNATE)



3A BUS CANOPY PLAN
1/32" = 1'-0"

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Project No. 2019-067.CBS
Project Date 11.01.2021
Bid Set 02
Produced SLS HEL

SARAH KATHLEEN HEMPSTEAD
REGISTERED
NO. AR10400134
STATE OF INDIANA
ARCHITECT

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#	Revision	Date
A2.2	ADDENDUM 2.2	11.29.2021

1815 E. 86th Street
Indianapolis, IN 46240

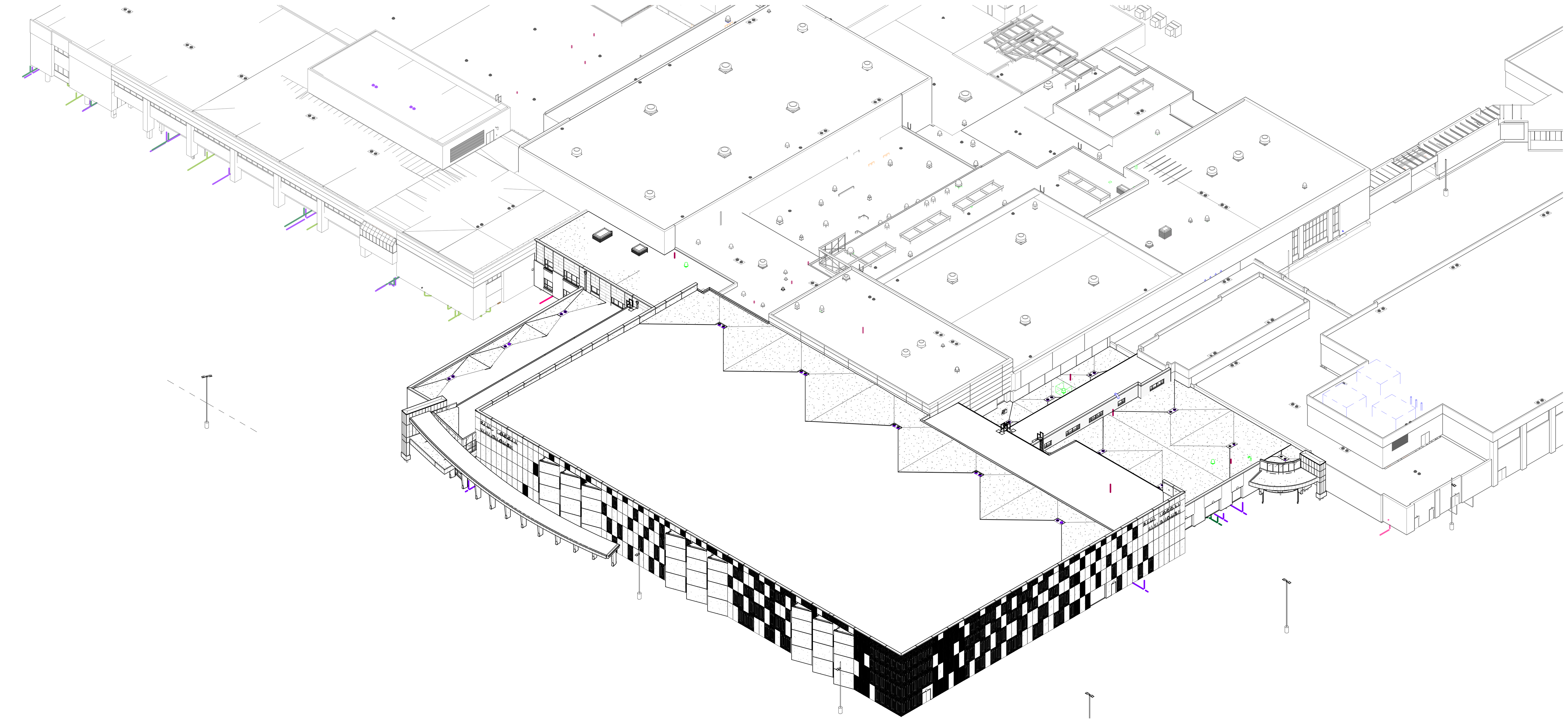
M.S.D. Washington Township

North Central High School Renovation - West Gym Addition

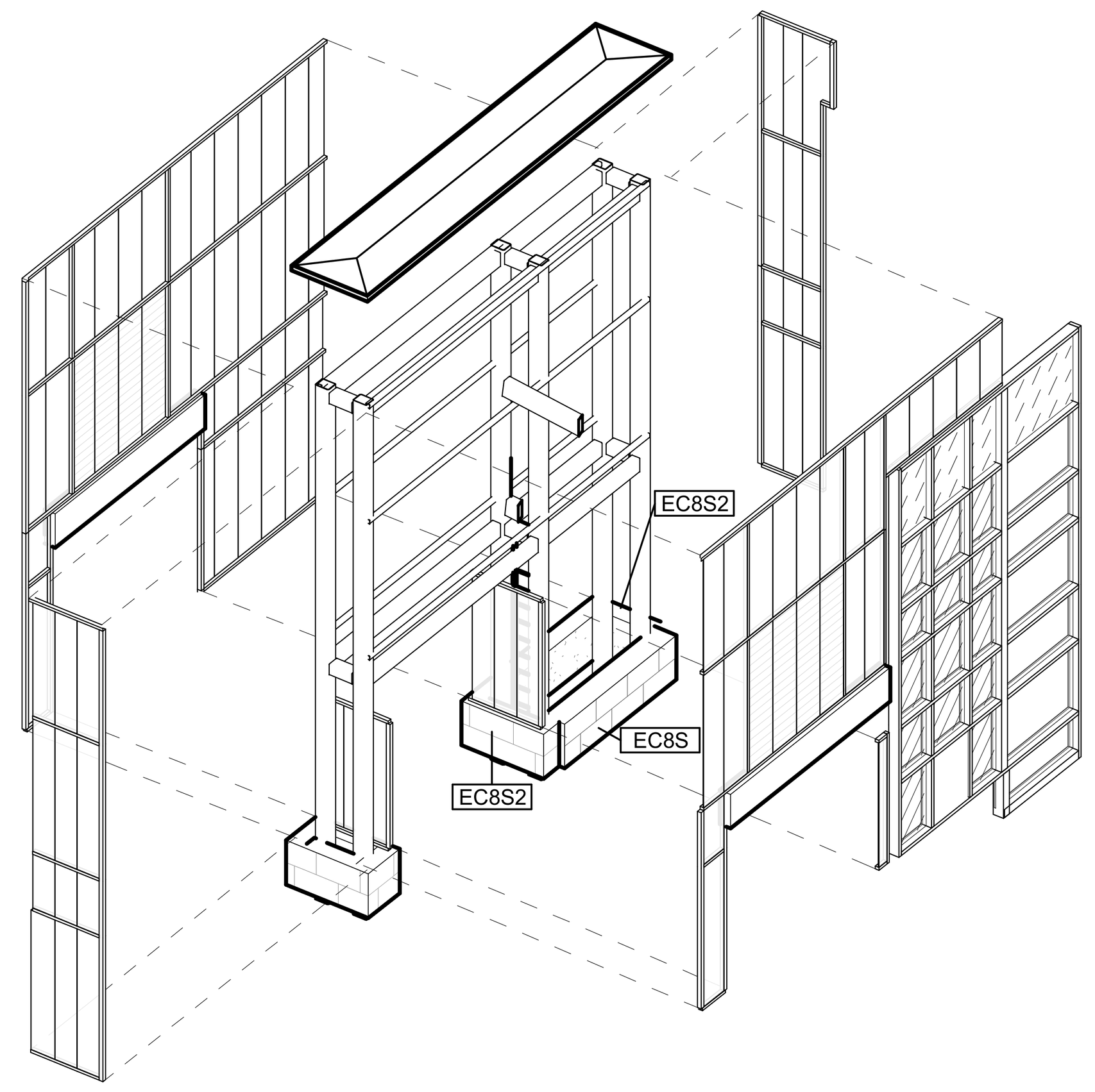
BUS CANOPIES

A-325.2

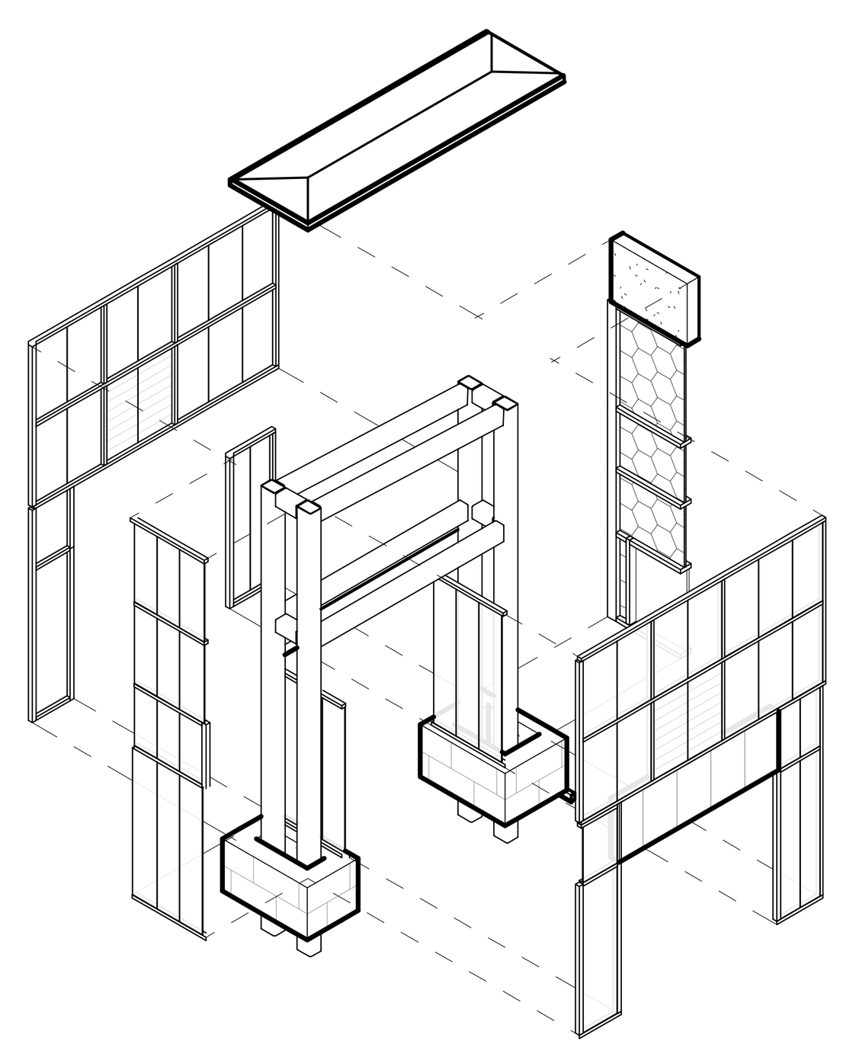
6	5	4	3	2	1



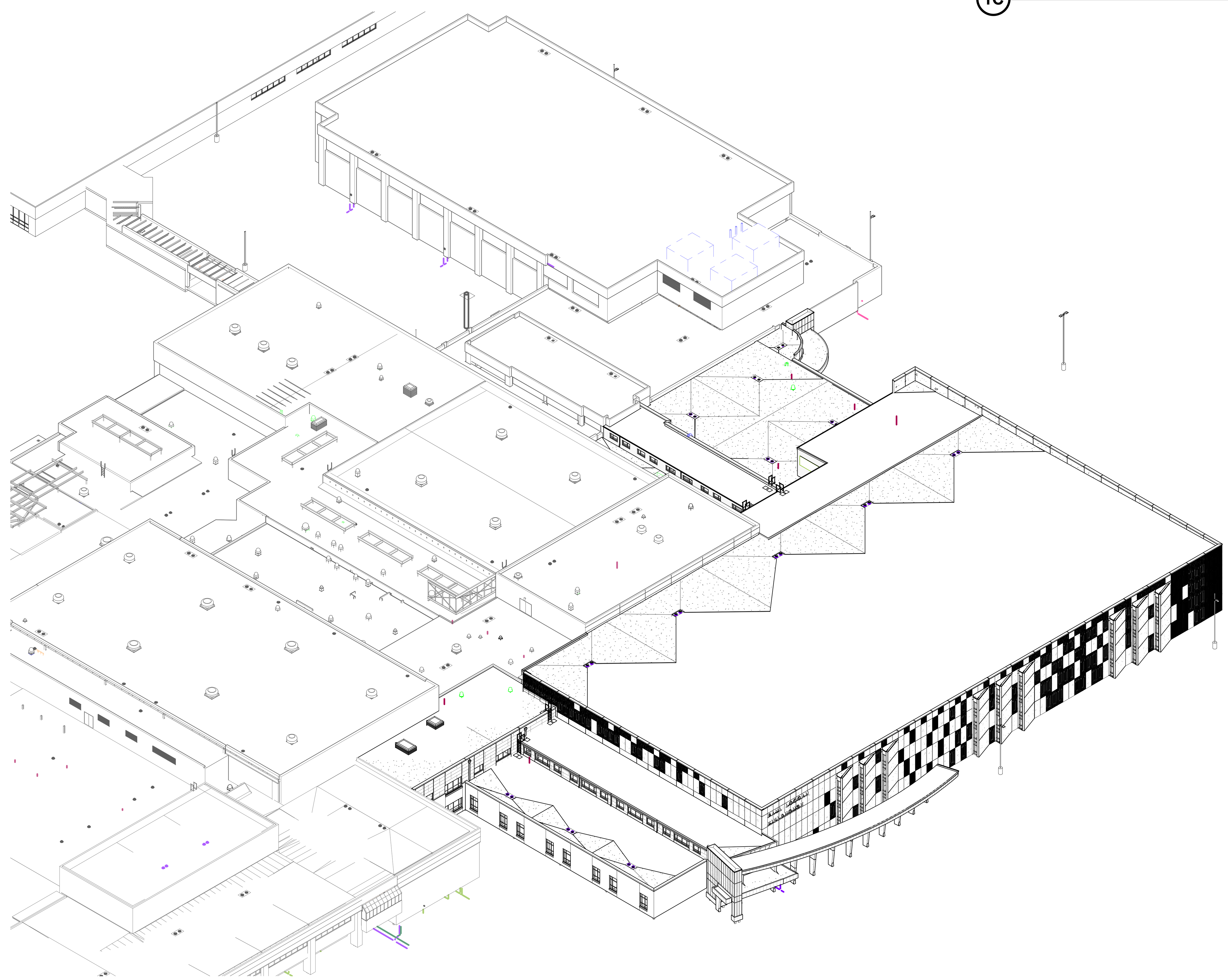
1C SW ISOMETRIC



3A ATH ENT WALL EXPLODED ISOMETRIC



3B UNIT Z WALL EXPLODED AXONOMETRIC



1A NW ISOMETRIC

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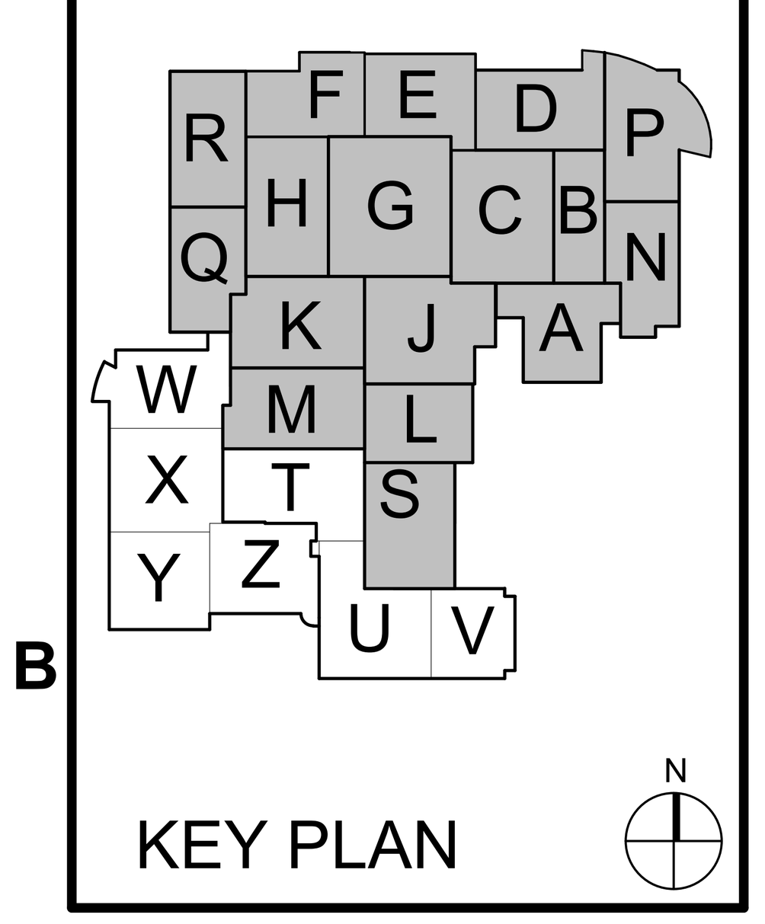
Project Date 11/23/21
Bid Set 02
Produced Designer Author

SARAH KATHLEEN HEMPSTEAD REGISTERED NO. AR10400134 STATE OF INDIANA ARCHITECT

Sarah K Hempstead

#	Revision	Date
A2.2	ADDENDUM 2.2	11.29.2021

1801 East 86th Street
Indianapolis, IN 46240



KEY PLAN

M.S.D. of Washington Township

North Central High School Renovation - West Gym Addition

A2.2

ISOMETRICS

A-900.2

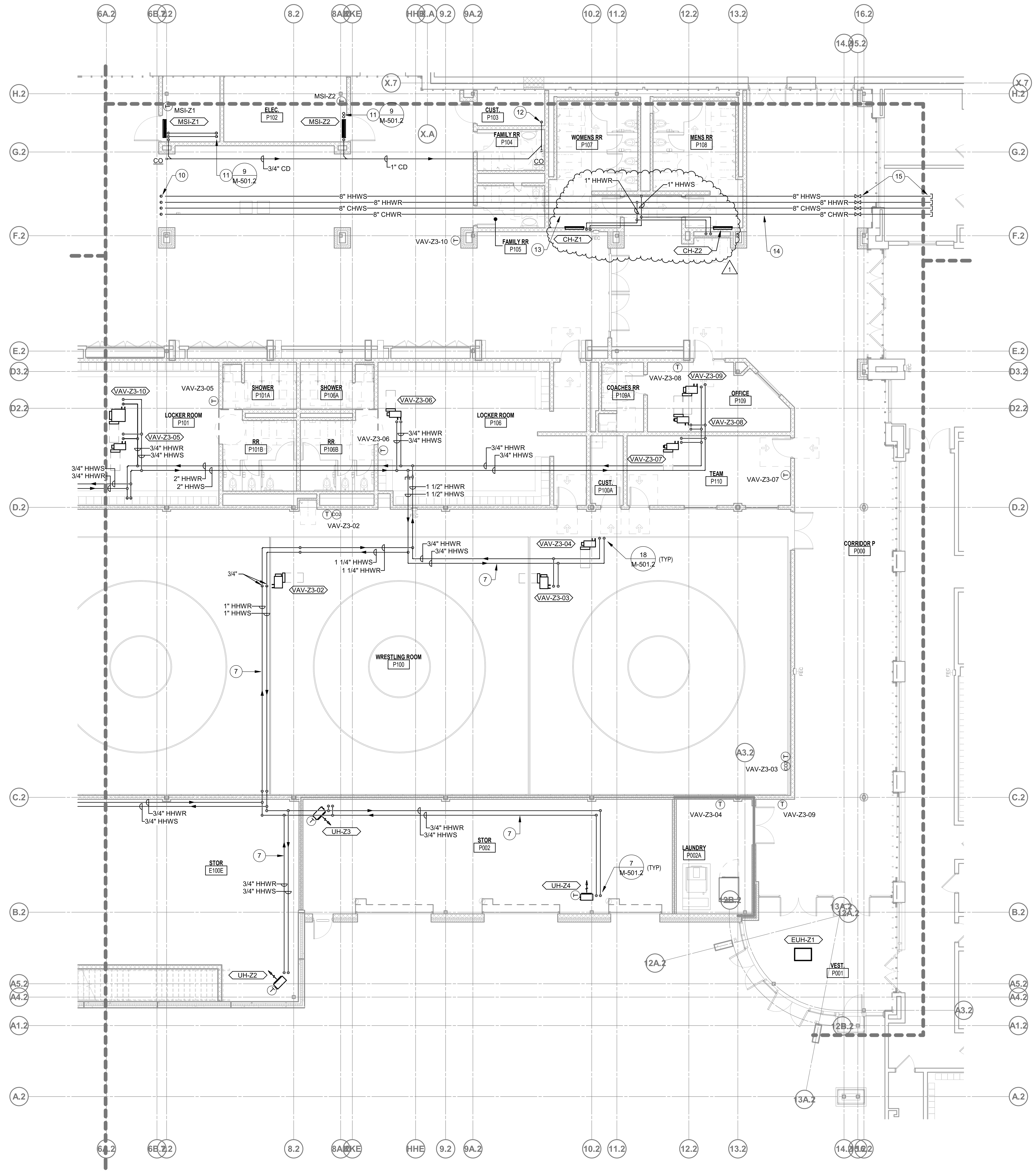
6	5	4	3	2	1

GENERAL NOTES:

A. NOT ALL PLAN NOTES ARE USED ON SHEET.
B. ALL PIPING RUNOUTS TO TERMINAL DEVICES SHALL BE 3/4" UNLESS NOTED.

MECHANICAL PIPING PLAN NOTES

#	NOTE
1	1 1/2" HHWR/HHWS LINES UP IN CHASE ABOVE. SEE SHEET MP1W2.2 FOR CONTINUATION OF PIPING.
2	1 1/2" HHWR/HHWS LINES DOWN IN CHASE. SEE SHEET MP1W1.2 FOR CONTINUATION OF PIPING.
3	OFFSET PIPING MAINS AS REQUIRED.
4	OFFSET PIPING MAINS DOWN.
5	MAINTAIN ALL REQUIRED PULL CLEARANCES FOR AHU AND FUTURE AHU.
6	ROUTE 1 1/2" CONDENSATE DRAIN LINE TO FLOOR DRAIN AND TERMINATE WITH AIR GAP.
7	ROUTE PIPING AS HIGH AS POSSIBLE.
8	ROUTE CENTERLINE OF PIPING AT APPROXIMATELY 31'-0" AFF. COORDINATE WITH STRUCTURE.
9	SEE SHEET M-402.2 FOR CONTINUATION OF PIPING.
10	OFFSET PIPING MAINS UP IN SIDEWALL BULKHEAD TO GET ABOVE CEILING. SEE SHEET MP1Z2.2 FOR CONTINUATION OF PIPING.
11	REFRIGERANT LINE SETS UP TO OUTDOOR MINI-SPLIT ON ROOF. PIPING SIZES AND QUANTITIES BY UNIT MANUFACTURER.
12	ROUTE 1" CONDENSATE DRAIN LINE DOWN TO MOP SINK AND TERMINATE JUST BELOW RIM OF SINK.
13	OFFSET PIPING MAIN UP.
14	OFFSET PIPING DOWN.
15	VALVE AND CAP PIPING MAINS AS SHOWN FOR FUTURE CONNECTION IN PHASE 3.
16	PIPING MAINS FROM 1ST FLOOR IN SIDEWALL BULKHEAD. SEE SHEET MP1Z1.2 FOR CONTINUATION OF PIPING.
17	REFRIGERANT PIPING LINE SETS FROM FIRST FLOOR. SEE SHEET MP1Z1.2 FOR CONTINUATION OF PIPING.
18	EXPANSION JOINT IN ALL (4) PIPING MAINS HANGING DOWN, SIMILAR TO METRAFLEX METRALOOP MODEL # MLW80800. REFER TO MANUFACTURER'S RECOMMENDATIONS FOR INSTALLATION AND PIPE GUIDES.
19	PIPE GUIDES AS REQUIRED PER EXPANSION LOOP MANUFACTURER.
20	PIPE ANCHOR, COORDINATE WITH STRUCTURAL ENGINEER AND DRAWINGS.
21	2" CHWS/R AND 2 1/2" HHWS/R PIPING VALVED AND CAPPED FOR FUTURE CONNECTION IN PHASE 3.



1 FIRST FLOOR HVAC PIPING PLAN - UNIT Z
1/8" = 1'-0"

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Project No. 2019-067.NCH
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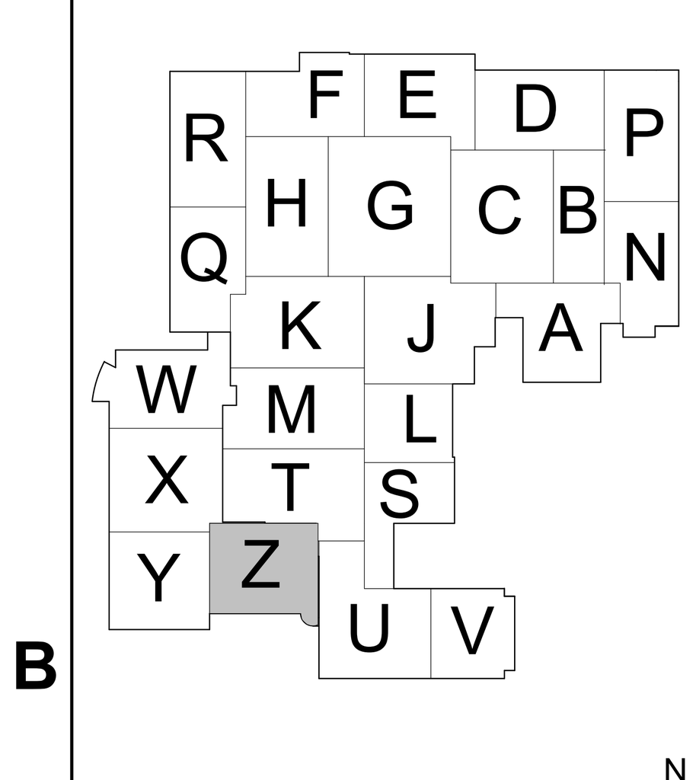
ANDREW P. STEINER
REGISTERED
PE11400737
STATE OF INDIANA
PROFESSIONAL ENGINEER
11-01-2021

kbso CONSULTING

#	Revision	Date
A2.2	ADDENDUM 2.2	11/29/2021

1801 East 86th Street
Indianapolis, IN 46240



KEY PLAN

M.S.D. of Washington Township

North Central High School Renovation - West Gym Addition

FIRST FLOOR HVAC PIPING PLAN - UNIT Z

MP1Z1.2

23 73 13 - MODULAR AIR HANDLING UNIT AIR HANDLING UNIT - OVERVIEW SCHEDULE

IDENTITY DATA							CAPACITY		AIRFLOW			UNIT SIZE			UNIT WEIGHT (LBS)	NOTES
MARK	MANUFACTURER	MODEL	LOCATION	ROOM #	ROOM NAME	AREA SERVED	COOLING (MBH)	HEATING (MBH)	SUPPLY (CFM)	MIN OSA (CFM)	EXHAUST (CFM)	L	W	H		
AHU-W1	TRANE	CSAA025	UNIT W MECH ROOM	N679	MECH	MULITPUROSE ROOMS	606.1	500.2	12,300	6,060	0	16'-9"	6'-8"	5'-5"	3,893	1,2,3,5
AHU-Z1	TRANE	CSAA080	UNIT Z MECH ROOM	E203	MECHANICAL	WEST GYM	1,772.7	1,453.9	35,745	17,875	0	20'-0"	11'-9"	9'-0"	12,173	1,2,3,5
AHU-Z2	TRANE	CSAA080	UNIT Z MECH ROOM	E203	MECHANICAL	WEST GYM	1,772.7	1,453.9	35,745	17,875	0	20'-0"	11'-9"	9'-0"	12,173	1,2,3,5
ERU-Z3	TRANE	CSAA021	UNIT Z MECH ROOM	E203	MECHANICAL	LOCKERS/WRESTLING ROOM	394.5	545.7	9,000	9,000	9,000	17'-7"	6'-8"	9'-1"	6,036	1, 4, 5

NOTES:
1. MOTORS SHALL BE VFD READY, MOTORS PROVIDED BY AHU MANUFACTURER.
2. FACTORY MOUNTED UNIT DISCONNECTS, SINGLE POINT POWER CONNECTION.
3. FAN STATIC PRESSURE CALCULATIONS SHALL BE WITH DIRTY FILTERS DEFINED AS 1" STATIC PRESSURE LOSS THROUGH FILTER.
4. PROVIDE VFD FOR ALL MOTORS; SUPPLY, EXHAUST, AND ENERGY WHEEL.
5. SEE AHU DETAILS ON SHEET M-502.2 FOR AHU SECTIONS AND DETAILS.

ENERGY RECOVERY WHEEL SCHEDULE

IDENTITY DATA								SUPPLY FAN DATA					EXHAUST FAN DATA				ELECTRICAL DATA			SUMMER								WINTER								NOTES
MARK	MANUFACTURER	MODEL	LOCATION	LOCATION #	LOCATION NAME	EQUIPMENT SERVED	WEIGHT (LBS)	AIRFLOW (CFM)	HEAT EXCH SP (IN-WG)	FILTER SP (IN-WG)	ES (IN-WG)	TSP (IN-WG)	AIRFLOW (CFM)	SUPPLY SP (IN-WG)	ESP (IN-WG)	TSP (IN-WG)	MOTOR HP	VOLTS	PH	EAT (°F) DB	EAT (°F) WB	LAT (°F) DB	LAT (°F) WB	TOTAL (MBH)	EFFECTIVENESS LATENT (%)	EFFECTIVENESS SENSIBLE (%)	EFFECTIVENESS TOTAL (%)	EAT (°F) DB	EAT (°F) WB	LAT (°F) DB	LAT (°F) WB	TOTAL (MBH)	EFFECTIVENESS LATENT (%)	EFFECTIVENESS SENSIBLE (%)	EFFECTIVENESS TOTAL (%)	
ERU-Z3	TRANE	CSAA021	UNIT Z MECH ROOM	E203	MECHANICAL	ERU-Z1	6,036	9,000	0.25	0.61	2	4.79	9,000	1.85	1	2.85	7.5	460	3	95	76	80.8	68.1	273.33	71.2	76.3	73.4	-10	-11	31.23	26.11	394.88	71.9	77.7	75.8	1, 4, 5

23 73 13 - MODULAR AIR HANDLING UNIT - SUPPLY FAN SCHEDULE

IDENTITY DATA						AIRFLOW (CFM)	TYPE	ESP (IN-WG)	FAN RPM	DRIVE	SOUND POWER (SUPPLY OPENING) OCTIVE BAND 1	2	3	4	5	6	7	8	MOTOR HP	BHP	RPM	VOLTS	PH	MCA	VFD	DISCONNECT	NOTES
MARK	QUANTITY OF FANS	EQUIPMENT SERVED	LOCATION	ROOM #	ROOM NAME																						
AHU-W1	2 FANS	AHU-W1	UNIT W MECH ROOM	N679	MECH	12300 CFM	PLENUM	2.40 in-wg	2008	DIRECT	89	88	98	91	88	83	83	75	10.0	7.8	1800	460 V	3	16 A	Yes	YES	1,2,3,5
AHU-Z1	4 FANS	AHU-Z1	UNIT Z MECH ROOM	E203	MECHANICAL	35745 CFM	PLENUM	2.50 in-wg	1778	DIRECT	86	81	97	90	87	87	82	70	40.0	36.7	1800	460 V	3	60 A	Yes	YES	1,2,3,5
AHU-Z2	4 FANS	AHU-Z2	UNIT Z MECH ROOM	E203	MECHANICAL	35745 CFM	PLENUM	2.50 in-wg	1778	DIRECT	86	81	97	90	87	87	82	70	40.0	36.7	1800	460 V	3	60 A	Yes	YES	1,2,3,5
ERU-Z3	1 FAN	ERU-Z1	UNIT Z MECH ROOM	E203	MECHANICAL	9000 CFM	PLENUM	2.00 in-wg	1753	DIRECT	79	79	89	83	81	80	73	67	15.0	11.2	1800	460 V	3	23 A	Yes	YES	1, 4, 5

23 73 13 - RETURN FAN SCHEDULE

IDENTITY DATA							AIRFLOW (CFM)	TYPE	ESP (IN-WG)	FAN RPM	DRIVE	SOUND CRITERIA OCTAVE BAND 1	2	3	4	5	6	7	8	MOTOR HP	BHP	RPM	VOLTS	PH	FLA	VFD	DISCONNECT	NOTES
MARK	Equipment Served	MANUFACTURER	MODEL	LOCATION	ROOM #	ROOM NAME																						
RF-W1	AHU-W1	GREENHECK	QEI-27	UNIT W2 MECH ROOM	N679	MECH	12,173	INLINE MIXED FLOW	2	1126	BELT	83	87	82	85	80	77	71	64	7.5	5.63	1725	460	3	11	Yes	YES	
RF-Z1	AHU-Z1	GREENHECK	QEI-44	UNIT Z MECH ROOM	E203	MECHANICAL	35,745	INLINE MIXED FLOW	1.5	672	BELT	87	86	78	71	66	61	53	46	15	13.22	1725	460	3	21	Yes	YES	
RF-Z2	AHU-Z2	GREENHECK	QEI-44	UNIT Z MECH ROOM	E203	MECHANICAL	35,745	INLINE MIXED FLOW	1.5	672	BELT	87	86	78	71	66	61	53	46	15	13.22	1725	460	3	21	Yes	YES	

23 73 13 - MODULAR AIR HANDLING UNIT - HEATING COIL SCHEDULE

IDENTITY DATA		AIRFLOW (CFM)	MIN OSA (CFM)	HEATING (CFM)	PRE-HEAT COIL												RE-HEAT COIL												NOTES
MARK	EQUIPMENT SERVED				CAPACITY (MBH) (BTU/H)	EAT DB (°F)	LAT DB (°F)	DESCRIPTION	ROWS	FPI	APD (IN-WG)	FACE VELOCITY (FPM)	EWT (°F)	LWT (°F)	WPD (FT-WG)	FLOW (GPM) (GPM)	CAPACITY (MBH)	EAT DB	LAT DB	DESCRIPTION	ROWS	FPI	APD	FACE VELOCITY	EWT	LWT	WPD	FLOW	
AHU-W1	AHU-W1	12,300	6,060	6,150	500	-10	65	PRE-HEAT COIL	2	7.66	0.04	510	140	110	1.2	33		~~0 °F~~	~~0 °F~~		~~0~~	~~0~~	~~0.00 in-wg~~	~~0 FPM~~	~~0 °F~~	~~0 °F~~	~~0.00 psi~~	~~0 GPM~~	1,2,3,5
AHU-Z1	AHU-Z1	35,745	17,875	17,875	1,454	-10	65	PRE-HEAT COIL	2	7.08	0.03	450	140	110	2.77	97	678.49	55 °F	65 °F	RE-HEAT COIL	1	9.58	0.03 in-wg	450 FPM	140 °F	110 °F	2.83 psi	45 GPM	1,2,3,5
AHU-Z2	AHU-Z2	35,745	17,875	17,875	1,454	-10	65	PRE-HEAT COIL	2	7.08	0.03	450	140	110	2.77	97	678.49	55 °F	65 °F	RE-HEAT COIL	1	9.58	0.03 in-wg	450 FPM	140 °F	110 °F	2.83 psi	45 GPM	1,2,3,5
ERU-Z3	ERU-Z1	9,000	9,000	9,357	546	31	85	PRE-HEAT COIL	2	10.9	0.19	470	140	110	1.38	36		~~0 °F~~	~~0 °F~~		~~0~~	~~0~~	~~0.00 in-wg~~	~~0 FPM~~	~~0 °F~~	~~0 °F~~	~~0.00 psi~~	~~0 GPM~~	1, 4, 5

2 2

23 73 13 - MODULAR AIR HANDLING UNIT - COOLING COIL SCHEDULE

IDENTITY DATA		AIRFLOW (CFM)	MIN OSA (CFM)	TOTAL CAPACITY (MBH)	SENSIBLE CAPACITY (MBH)	EAT DB (°F)	EAT WB (°F)	LAT DB (°F)	LAT WB (°F)	DESCRIPTION	ROWS	FPI	APD (IN-WG)	FACE VELOCITY (FPM)	CHILLED WATER COIL				NOTES
MARK	EQUPMENT SERVED														EWT (°F)	LWT (°F)	WPD (FT-WG)	FLOW (GPM)	
AHU-W1	AHU-W1	12,300	6,060	606.1	407.6	85	70	55	55	COOLING COIL	6	9.83	0.75	511	42	56	4.89	86	1,2,3,5
AHU-Z1	AHU-Z1	35,745	17,875	1,772.7	1,184.4	85	70	55	55	COOLING COIL	8	7.16	0.59	454	42	61	11.73	186	1,2,3,5
AHU-Z2	AHU-Z2	35,745	17,875	1,772.7	1,184.4	85	70	55	55	COOLING COIL	8	7.16	0.59	454	42	61	11.73	186	1,2,3,5
ERU-Z3	ERU-Z1	9,000	9,000	394.5	266.4	81	68	55	54	COOLING COIL	4	12.41	0.55	472	42	63	4.17	52	1, 4, 5

MODULAR AIR HANDLING UNIT - FILTER SCHEDULE

IDENTITY DATA					PRE-FILTER					FINAL FILTER					NOTES
MARK	EQUIPMENT SERVED	LOCATION	ROOM #	ROOM NAME	TYPE	FACE AREA (SF)	DEPTH (IN)	APD (IN-WG)	MERV	TYPE	FACE AREA (SF)	DEPTH (IN)	APD (IN-WG)	MERV	
AHU-W1	AHU-W1	UNIT W MECH ROOM	N679	MECH	CARTRIDGE	27.11	2"	0.63 in-wg	8"	CARTRIDGE	27.11	4"	0.79	13	1,2,3,5
AHU-Z1	AHU-Z1	UNIT Z MECH ROOM	E203	MECHANICAL	CARTRIDGE	85.56	2"	0.62 in-wg	8"	CARTRIDGE	85.56	4"	0.78	13	1,2,3,5
AHU-Z2	AHU-Z2	UNIT Z MECH ROOM	E203	MECHANICAL	CARTRIDGE	85.56	2"	0.62 in-wg	8"	CARTRIDGE	85.56	4"	0.78	13	1,2,3,5
ERU-Z3	ERU-Z1	UNIT Z MECH ROOM	E203	MECHANICAL	PLEATED	21.53	2"	0.61 in-wg	8"	PLEATED	33.33	2"	0.57	8	1, 4, 5

EXHAUST FAN SCHEDULE

IDENTITY DATA						FAN DATA					NOISE CRITERIA		ELECTRICAL DATA						NOTES
MARK	MANUFACTURER	MODEL	SERVES	WEIGHT (LBS)	LOCATION	FAN TYPE	DRIVE TYPE	EXHAUST AIRFLOW (CFM)	ESP (IN-WG)	RPM	SONES	DBA	HP	BHP	VOLTS (V)	PHASE	FLA	UNIT CONTROL	
EF-K1	GREENHECK	G-090-VG	EXIST STORAGE	20	ROOF	DOWNBLAST CENTRIFUGAL	DIRECT	560	0.5	1681	8.4	56	0.1	0.09	115	1		BAS	1,2,3
EF-M1	GREENHECK	G-099-A	RESTROOMS	46	ROOF	DOWNBLAST CENTRIFUGAL	DIRECT	800	0.5	1445	9.6	59	0.25	0.14	115	1		BAS	1,2,3
EF-T1	GREENHECK	G-097-B	STORAGE	46	ROOF	DOWNBLAST CENTRIFUGAL	DIRECT	100	0.5	1140	4.6	47	0.17	0.03	115	1		BAS	1,2,3
EF-W1	GREENHECK	G-099-VG	GENERAL EXHAUST	40	UNIT W ROOF	DOWNBLAST CENTRIFUGAL	DIRECT	800	0.75	1725	10.6	60	0.25	0.2	115	1	2.85	BAS	1,2,3
EF-W2	GREENHECK	G-080-VG	GENERAL EXHAUST	28	UNIT W ROOF	DOWNBLAST CENTRIFUGAL	DIRECT	300	0.5	1725	8.4	57	0.1	0.07	115	1	1.38	BAS	1,2,3
EF-Z1	GREENHECK	G-099-VG	GENERAL EXHAUST	40	UNIT Z ROOF	DOWNBLAST CENTRIFUGAL	DIRECT	770	0.75	1725	10.3	60	0.25	0.19	115	1	2.85	BAS	1,2,3
EF-Z2	GREENHECK	G-099-VG	STORAGE ROOM VENTILATION	40	UNIT Z ROOF	DOWNBLAST CENTRIFUGAL	DIRECT	770	0.75	1725	10.3	60	0.25	0.19	115	1	2.85	BAS	1,2,3
EF-Z3	GREENHECK	SBCE-3H24-5	MECH ROOM VENTILATION	77	UNIT Z MECH ROOM	SIDEWALL	BELT	1,810	0.5	1725	19.8	69	0.5	0.44	115	1	9.80	BAS	1,2,3

NOTES:
1. DISCONNECT BY MANUFACTURER.
2. SEE M-700 SERIES SHEETS FOR TEMPERATURE CONTROL INFORMATION.
3. FAN SPEED CONTROLLER FOR BALANCING.

SCHMIDT ASSOCIATES
415 Massachusetts Avenue
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www.schmidt-arch.com

Project No. 2019-067.NCH
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Bid Set 02
Produced CME CME

ANDREW P. STEINER REGISTERED PE11400737 STATE OF INDIANA PROFESSIONAL ENGINEER
11-01-2021

kbso CONSULTING

#	Revision	Date
A1.2	ADDENDUM 1.2	11/19/2021
A2.2	ADDENDUM 2.2	11/29/2021

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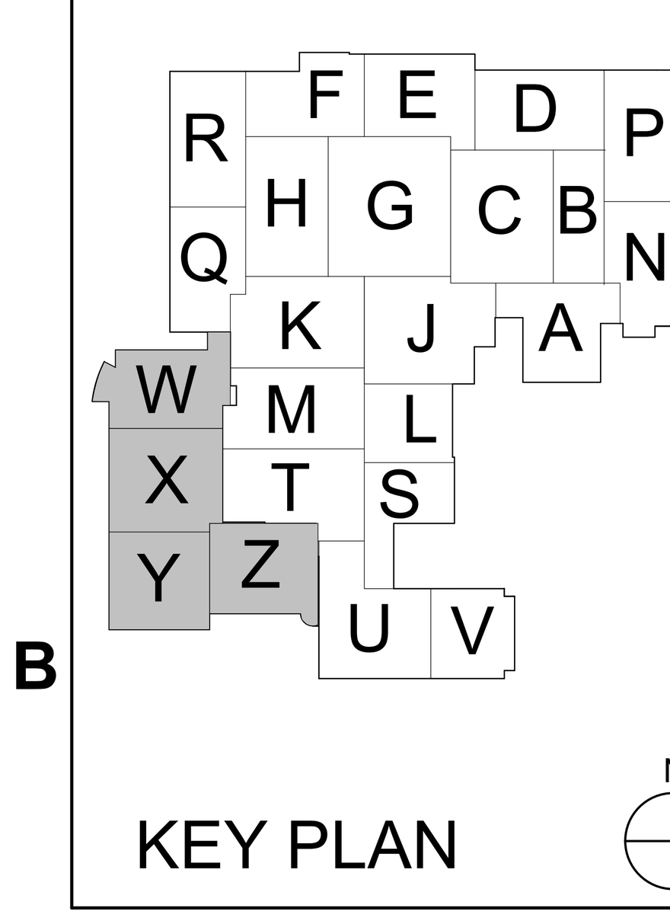

KEY PLAN

M.S.D. of Washington Township

North Central High School Renovation - West Gym Addition

MECHANICAL SCHEDULES

M-601.2

INTAKE/RELIEF HOOD SCHEDULE SPECIFICATION SECTION 233723														
MARK	CFM	HOOD SIZE L	HOOD SIZE W	HOOD SIZE H	THROAT SIZE L	THROAT SIZE W	CURB CAP L	CURB CAP W	CURB HEIGHT	INTAKE VELOCITY (FPM)	PRESS DROP (IN WC)	BACKDRAFT DAMPER	MANUFACTURER WITH MODEL NUMBER	NOTES
GIH-W1-1	15300	7' - 10"	4' - 6"	2' - 7"	80"	40"	88"	48"	18"	700	0.086	NO	GREENHECK WIH	
GRH-W1-2	15300	5' - 2"	4' - 6"	2' - 3 1/4"	48"	40"	56"	48"	18"	1200	0.202	NO	GREENHECK WRH	

LOUVER SCHEDULE SPECIFICATION SECTION 233300												
UNIT ID	LOCATION NAME	LOCATION NUMBER	TYPE	WIDTH (INCHES)	HEIGHT (INCHES)	DEPTH (INCHES)	FREE AREA (SQ. FT.)	MAX AIRFLOW (CFM)	MAX AIR VELOCITY (FPM)	PLENUM BOX	MANUFACTURER WITH MODEL NUMBER	NOTES
L-Y1	STOR	N265	STATIONARY	108"	108"	6"	55.41	35745 CFM	645	Yes	RUSKIN ELF6350DMP	
L-W1			STATIONARY	108"	108"	6"	55.41	35745 CFM	645	Yes	RUSKIN ELF6350DMP	
L-Z1	STOR	P002	STATIONARY DRAINABLE	24"	18"	6"	1.1	770 CFM	700	Yes	RUSKIN ELF6375DX	

ELECTRIC CABINET UNIT HEATER SCHEDULE									
IDENTITY DATA				ROOM		HEATING DATA			
MARK	MANUFACTURER	MODEL	WEIGHT (LBS)	#	NAME	CAPACITY (KW)	VOLTS	AMPS	NOTES
EUH-W1	QMARK	EFQ80048	50	E101	VESTIBULE	8	480	16.7	
EUH-Z1	QMARK	CDF558	27	P001	VEST.	5	208	24	

233713 DIFFUSERS, REGISTERS, AND GRILLES								
IDENTITY DATA				NECK SIZE (IN)	MODULE SIZE			
MARK	DESCRIPTION	MANUFACTURER	MODEL	Ø	W	L	MATERIAL	NOTES
LBG60	LINEAR BAR GRILLES PRESSED CORE HEAVY DUTY	PRICE	LBPH		3"	60"	STEEL	4, 5
SDS48	LINEAR SLOT DIFFUSER	PRICE	TBD3100	8"	0"	48"	STEEL	2, 5
EC24/24	EGG CRATE FACE RETURN	PRICE	80		24"	24"	STEEL	3, 5
ER12/12	LOUVER FACE GRILLE EXHAUST WITH DAMPER	PRICE	530	0"	12"	12"	STEEL	5
ER12/12A	LOUVER FACE GRILLE EXHAUST WITH DAMPER	PRICE	530	0"	12"	12"	ALUMINUM	1, 5
ER24/12	LOUVER FACE GRILLE EXHAUST WITH DAMPER	PRICE	530	0"	24"	12"	STEEL	5, 9
ER24/24	LOUVER FACE GRILLE EXHAUST WITH DAMPER	PRICE	530	0"	24"	24"	STEEL	5
ER24/24	LOUVER FACE GRILLE EXHAUST WITH DAMPER	PRICE	530	0"	24"	24"	STEEL	5
RG24/12	LOUVER FACE RETURN GRILLE	PRICE	535FL		24"	12"	STEEL	5, 6
RG24/24	LOUVER FACE RETURN GRILLE	PRICE	535FL		24"	24"	STEEL	5, 6
SD24-6	SQUARE CONE DIFFUSER	PRICE	ASCDA	6"	24"	24"	ALUMINUM	5, 7
SD24-8	SQUARE CONE DIFFUSER	PRICE	ASCDA	8"	24"	24"	ALUMINUM	5, 7
SD24-10	SQUARE CONE DIFFUSER	PRICE	ASCDA	10"	24"	24"	ALUMINUM	5, 7
SR12/12	LOUVER FACE GRILLE SUPPLY WITH DAMPER	PRICE	620DAL	0"	12"	12"	STEEL	5
SR12/8	SPIRAL DUCT GRILLE	PRICE	SDG	0"	12"	8"	STEEL	8

NOTES:
1. FOR WET LOCATIONS USE ALUMINUM GRILLES.
2. FURNISH WITH (2) SLOTS, 1" WIDTH, ICE-TONG PATTERN CONTROLLER. AND INTEGRAL DAMPER. PLENUM TO BE INSULATED IN THE FIELD.
3. FURNISH WITH 1/2"x1/2"x1/2" CORE.
4. 3" TALL, CORE - 25B SPACING. PLENUM TO BE INSULATED IN THE FIELD.
5. FURNISH WITH PLASTER FRAMES AS REQUIRED. SEE ARCHITECTURAL RCP'S.
6. FURNISH WITH 45 DEGREE DEFLECTION, 1/2" SPACED BLADES PARALLEL TO THE LONG DIMENSION.
7. FURNISH WITH (3) CONES.
8. FURNISH WITH AIR SCOOP, COLOR SELECTION BY ARCHITECT.
9. FURNISH WITH INTEGRAL DAMPER WHERE NOTED ON PLANS.

VAV BOX WITH HOT WATER REHEAT SCHEDULE - 23 36 00																				
IDENTITY DATA				AIRFLOW DATA				NOISE DATA		REHEAT COIL DATA										
MARK	MANUFACTURER	MODEL	INLET DIAMETER	COOLING MAX AIRFLOW (CFM)	HEATING MAX AIRFLOW (CFM)	OCCUPIED MINIMUM AIRFLOW (CFM)	STATIC INLET (IN-WG)	MAX DISCH.	MAX RAD.	CAPACITY (BTUH)	EAT (°F)	LAT (°F)	APD (IN-WG)	FLOW (GPM)	EWT (°F)	LWT (°F)	WPD (FT-WG)	ROWS	NOTES
T1-01	TRANE	VCWF	8	400	200	200	1.0	-	-	7,590	55	90	0.1	0.3	140	128	3.5	1	[1-4]
T1-02	TRANE	VCWF	10	900	450	450	1.0	-	-	17,080	55	90	0.3	1.1	140	108	0.2	2	[1-4]
T1-03	TRANE	VCWF	12	1,300	650	650	1.0	-	-	12,340	55	90	0.1	1.1	140	118	0.8	1	[1-4]
T1-04	TRANE	VCWF	4	125	63	63	1.0	20	-	3,800	55	90	0.0	0.4	140	119	0.3	1	[1-4]
T1-05	TRANE	VCWF	14	1,500	750	750	1.0	-	-	28,470	55	90	0.3	1.9	140	109	0.2	2	[1-4]
T1-06	TRANE	VCWF	14	1,500	750	750	1.0	-	-	28,470	55	90	0.3	1.9	140	109	0.2	2	[1-4]
T1-07	TRANE	VCWF	5	200	100	100	1.0	19	-	3,800	55	90	0.1	0.4	140	119	0.3	1	[1-4]

VAV BOX WITH HOT WATER REHEAT SCHEDULE NOTES
1. SEE M-700 SERIES SHEETS FOR TEMPERATURE CONTROLS INFORMATION
2. COORDINATE LOCATION OF BOX ABOVE CEILING WITH LIGHT FIXTURES, FIRE PROTECTION, HEATING AND COOLING SYSTEM PIPING, PLUMBING SYSTEMS AND WIRE TRAYS.
3. INSULATED BOTTOM ACCESS DOOR UPSTREAM OF COIL WITH SNAP LATCH FASTENERS.
4. PROVIDE NEW 2-WAY CONTROL VALVE.

VAV BOX WITH HOT WATER REHEAT SCHEDULE																		
IDENTITY DATA				AIRFLOW DATA						REHEAT COIL DATA								
MARK	MANUFACTURER	MODEL	INLET DIAMETER	MAX. COOLING (CFM)	MAX. HEATING (CFM)	MIN. COOLING / HEATING (CFM)	MAX APD (IN-WG)	MAX N.C. DISCHARGED	MAX N.C. RADIATED	CAPACITY (BTUH)	EAT (°F)	LAT (°F)	FLOW (GPM)	EWT (ºF)	LWT (ºF)	WPD (FT-WG)	ROWS	NOTES
VAV-W1-01	PRICE	SDV	12"	1,160	780	780	0.43	25	25	29.6	55	90	1.77	140.0	106	0.84	2	1,2,3,4
VAV-W1-02	PRICE	SDV	12"	1,120	745	745	0.4	25	25	28.4	55	90	1.66	140.0	106	0.75	2	1,2,3,4
VAV-W1-03	PRICE	SDV	12"	1,120	745	745	0.4	25	25	28.4	55	90	1.66	140.0	106	0.75	2	1,2,3,4
VAV-W1-04	PRICE	SDV	12"	1,120	745	745	0.4	25	25	28.4	55	90	1.66	140.0	106	0.75	2	1,2,3,4
VAV-W1-05	PRICE	SDV	6"	315	158	94	0.15	25	25	4.4	55	80	0.18	140.0	91	0.01	2	2,3,4
VAV-W1-06	PRICE	SDV	6"	300	150	90	0.14	25	25	5.7	55	90	0.31	140.0	103	0.01	2	2,3,4
VAV-W1-07	PRICE	SDV	12"	500	250	150	0.25	25	25	9.6	55	90	0.57	140.0	106	0.07	2	2,3,4
VAV-W1-08	PRICE	SDV	12"	1,175	588	352	0.33	25	25	22.4	55	90	1.42	140.0	108	0.57	2	2,3,4
VAV-W1-09	PRICE	SDV	10"	890	445	267	0.35	25	25	17	55	90	1.12	140.0	110	0.3	2	2,3,4
VAV-W1-10	PRICE	SDV	6"	350	175	105	0.18	25	25	5.8	55	85	0.29	140.0	100	0.01	2	2,3,4
VAV-Z3-01	PRICE	SDV	12"	1,140	893	893	0.42	25	25	34	55	90	2.24	140.0	109	1.27	2	1,2,3,4
VAV-Z3-02	PRICE	SDV	12"	1,140	893	893	0.42	25	25	34	55	90	2.24	140.0	109	1.27	2	1,2,3,4
VAV-Z3-03	PRICE	SDV	12"	1,140	893	893	0.42	25	25	34	55	90	2.24	140.0	109	1.27	2	1,2,3,4
VAV-Z3-04	PRICE	SDV	6"	300	150	90	0.14	25	25	5.7	55	90	0.31	140.0	103	0.01	2	2,3,4
VAV-Z3-05	PRICE	SDV	6"	405	202	122	0.23	25	25	7.8	55	90	0.49	140.0	108	0.04	2	2,3,4
VAV-Z3-06	PRICE	SDV	6"	405	202	122	0.23	25	25	7.8	55	90	0.49	140.0	108	0.04	2	2,3,4
VAV-Z3-07	PRICE	SDV	4"	125	65	50	0.03	25	25	2.5	55	90	0.1	140.0	93	0.01	2	2,3,4
VAV-Z3-08	PRICE	SDV	4"	90	50	50	0.02	25	25	2.1	55	90	0.08	140.0	93	0.01	2	2,3,4
VAV-Z3-09	PRICE	SDV	10"	1,205	602	362	0.59	25	25	23	55	90	1.95	140.0	116	0.81	2	2,3,4
VAV-Z3-10	PRICE	SDV	16"	2,525	1,262	758	0.46	25	25	47.9	55	90	3.22	140.0	110	1.16	2	2,3,4

NOTES:
1. HIGH CAPACITY COIL.
2. SEE M-700 SERIES SHEETS FOR TEMPERATURE CONTROLS INFORMATION.
3. COORDINATE LOCATION OF BOX ABOVE CEILING WITH LIGHT FIXTURES, FIRE PROTECTION, HEATING AND COOLING SYSTEM PIPING, PLUMBING SYSTEMS AND WIRE TRAYS.
4. INSULATED BOTTOM ACCESS DOOR UPSTREAM OF COIL WITH SNAP LATCH FASTENERS.

HYDRONIC UNIT HEATER SCHEDULE																				
IDENTITY DATA				ROOM		HEATING DATA							FAN DATA			ELECTRICAL DATA				
MARK	MANUFACTURER	MODEL	ENCLOSURE MODEL	#	NAME	MIN MBH	EWT (°F)	LWT (°F)	WPD (FT-WG)	FLOW (GPM)	EAT (°F)	LAT (°F)	AIRFLOW (CFM)	FAN TYPE	DRIVE	HP	SPEEDS	VOLTS (V)	PHASE	NOTES
CH-M1	MODINE	CW	002-08	N269	MENS	7.08	140	120	0.20	1.3	60	106	250	FC CENTRIFUGAL	DIRECT	0.03	3	115	1	1,2,3,4,5,6
~~CH-M2~~	~~MODINE~~	~~CW~~	~~002-08~~	~~E205~~	~~Space~~	~~7.08~~	~~140~~	~~120~~	~~0.20~~	~~1.3~~	~~60~~	~~106~~	~~250~~	~~FC CENTRIFUGAL~~	~~DIRECT~~	~~0.03~~	~~3~~	~~115~~	~~1~~	~~1,2,3,4,5,6~~
CH-Z1	MODINE	CW	002-08	P107-1	WOMENS RR-1	7.08	140	120	0.20	1.3	60	106	250	FC CENTRIFUGAL	DIRECT	0.03	3	115	1	1,2,3,4,5,6,9
CH-Z2	MODINE	CW	002-08	P108-1	MENS RR-1	7.08	140	120	0.20	1.3	60	106	250	FC CENTRIFUGAL	DIRECT	0.03	3	115	1	1,2,3,4,5,6,9
UH-Z1	TRANE	UHS-036	-	E100E	STOR	20.1	140	120	0.05	2.1	60	106	480	HORIZONTAL	DIRECT	0.05	3	115	1	7,8
UH-Z2	TRANE	UHS-036	-	E100E	STOR	20.1	140	120	0.05	2.1	60	106	480	HORIZONTAL	DIRECT	0.05	3	115	1	7,8
UH-Z3	TRANE	UHS-036	-	P002	STOR	20.1	140	120	0.05	2.1	60	106	480	HORIZONTAL	DIRECT	0.05	3	115	1	7,8
UH-Z4	TRANE	UHS-036	-	P002	STOR	20.1	140	120	0.05	2.1	60	106	480	HORIZONTAL	DIRECT	0.05	3	115	1	7,8
UH-Z5	TRANE	UHS-036	-	E203	MECHANICAL	20.1	140	120	0.05	2.1	60	106	480	HORIZONTAL	DIRECT	0.05	3	115	1	7,8
UH-Z6	TRANE	UHS-036	-	E203	MECHANICAL	20.1	140	120	0.05	2.1	60	106	480	HORIZONTAL	DIRECT	0.05	3	115	1	7,8
UH-Z7	TRANE	UHS-036	-	E203	MECHANICAL	20.1	140	120	0.05	2.1	60	106	480	HORIZONTAL	DIRECT	0.05	3	115	1	7,8

2

NOTES:
1. DISCONNECT SWITCH BY MANUFACTURER. DISCONNECT SWITCH AND ALL INTERLOCK RELAYS TO BE INSTALLED WITHIN HEATER ENCLOSURE.
2. PROVIDE WITH 1 ROW COIL.
3. PROVIDE WITH PSC MOTOR.
4. PROVIDE RECESSED WALL UNIT.
5. PROVIDE 2-WAY CONTROL VALVES.
6. PROVIDE WITH TAMPER PROOF ACCESS DOOR AND 16-GA STEEL FACE BARS.
7. HORIZONTAL DISCHARGE WITH ADJUSTABLE LOUVERS.
8. MAINTAIN ALL MANUFACTURERS CLEARANCE RECOMMENDATIONS.
9. PROVIDE WITH UNIT MOUNTED RETURN AIR THERMOSTAT.

2

DUCTLESS SPLIT AIR CONDITIONER UNIT SCHEDULE																
IDENTITY DATA				COOLING DATA		HEATING DATA		ENERGY DATA			ELECTRICAL DATA					
MARK	MANUFACTURER	MODEL (INDOOR UNIT / OUTDOOR UNIT)	LOCATION	TOTAL COOLING (MBH)	AMBIENT DRY BULB	TOTAL HEATING (MBH)	MIN HSPF	CFM (HIGH)	CFM (LOW)	MIN SEER	VOLTS (V)	PHASE	MCA (A)	MOP (A)	NOTES
MSI-Z1	LG	LSN090HSV5 / LSU090HSV5	IDF N264	12.6	95	17	11	459	195	23.5	208	1	10.0	15	1,2,3
MSI-Z2	LG	LSN090HSV5 / LSU090HSV5	ELEC. P102	12.6	95	17	11	459	195	23.5	208	1	10.0	15	1,2,3

NOTES:
1. PROVIDE WITH CONDENSATE PUMP KIT.
2. PROVIDE WITH LOW AMBIENT WIND BAFFLE KIT.
3. PROVIDE WITH WIRED THERMOSTAT.

PUMP SCHEDULE																
IDENTITY DATA				ROOM			FLUID DATA				MOTOR DATA		ELECTRICAL DATA		
MARK	MANUFACTURER	MODEL	SYSTEM SERVED	#	NAME	TYPE	FLUID TYPE	FLOW (GPM)	HEAD (ftH2O)	TEMP (°F)	HP	SPEED (RPM)	VOLTS (V)	PHASE	NOTES
CP-W1	Bell & Gossett	PL-130	ERU-1 PRE-HEAT COIL	N679	MECH	In-Line Centrifugal	WATER	33	2.5	140	0.4	3200	120	1	
CP-Z1	Bell & Gossett	PL-130	AHU-Z1 PRE-HEAT COIL	E203	MECHANICAL	In-Line Centrifugal	WATER	95	5	140	0.4	3200	120	1	
CP-Z2	Bell & Gossett	PL-130	AHU-Z2 PRE-HEAT COIL	E203	MECHANICAL	In-Line Centrifugal	WATER	95	5	140	0.4	3200	120	1	
CP-Z3	Bell & Gossett	PL-130	ERU-1 PRE-HEAT COIL	E203	MECHANICAL	In-Line Centrifugal	WATER	36	2.5	140	0.4	3200	120	1	

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Project No. 2019-067.NCH
Project Date 11.01.2021
Bid Set 02
Produced CME CME

ANDREW P. STEINER
REGISTERED
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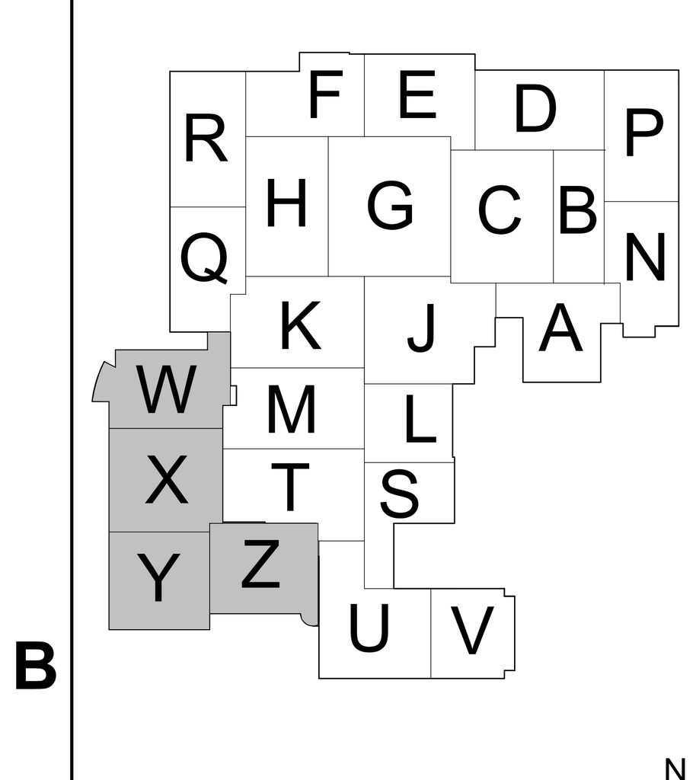
STATE OF INDIANA
PROFESSIONAL ENGINEER
11-01-2021

kbso CONSULTING

#	Revision	Date
A1.2	ADDENDUM 1.2	11/19/2021
A2.2	ADDENDUM 2.2	11/29/2021

1801 East 86th Street
Indianapolis, IN 46240



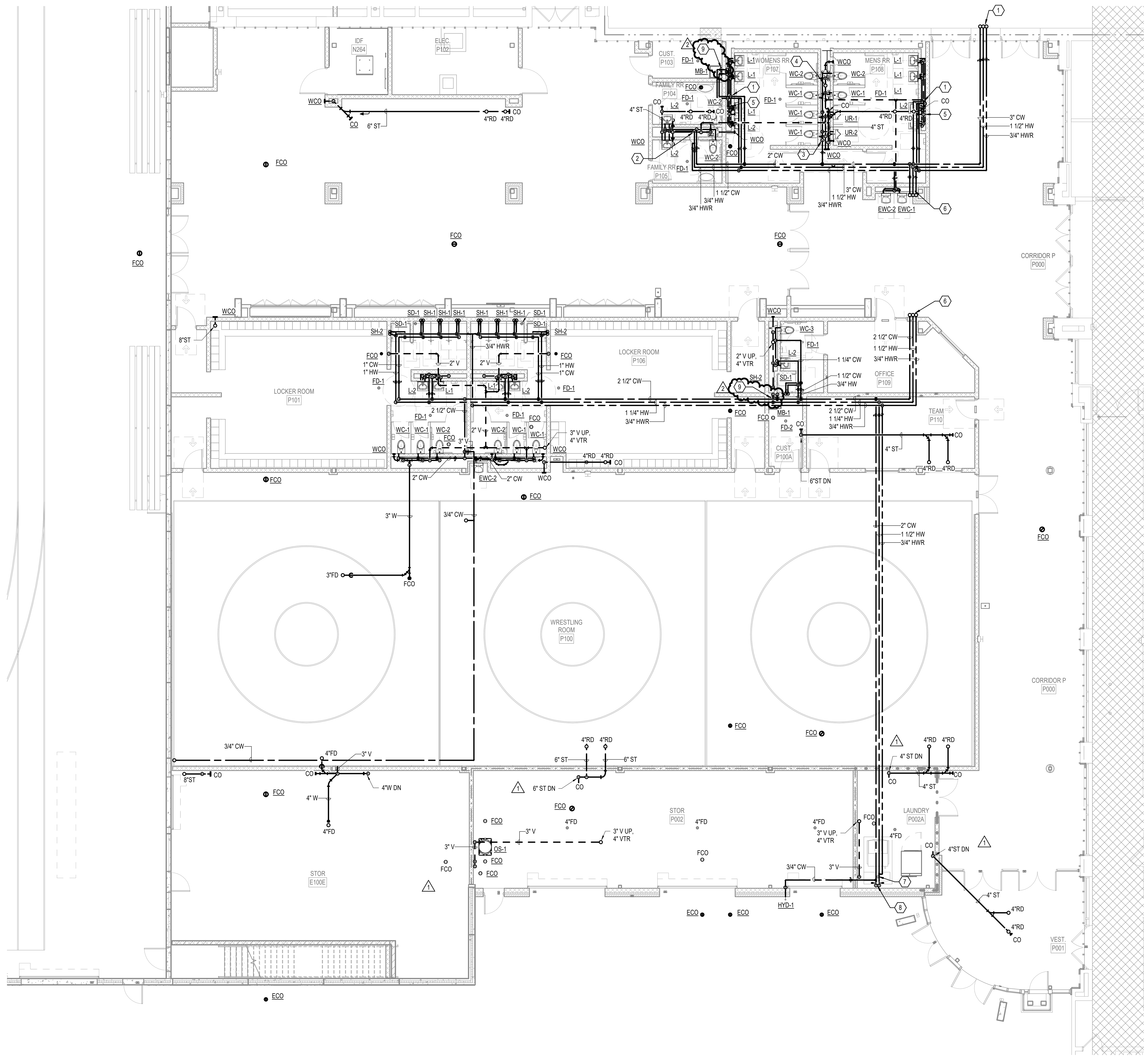
KEY PLAN

M.S.D. of Washington Township

North Central High School Renovation - West Gym Addition

MECHANICAL SCHEDULES

M-602.2



FIRST FLOOR PLUMBING PLAN - UNITS Y & Z

1/8" = 1'-0"

GENERAL NOTES

A REFER TO ARCHITECTURAL AND STRUCTURAL DRAWINGS AND SPECIFICATIONS FOR INSTRUCTIONS FOR PATCHING FLOORS.

B COORDINATE WITH CIVIL ON ALL UTILITY TIE-INS. VERIFY SIZES, LOCATIONS, AND ELEVATIONS OF TIE-IN LOCATIONS PRIOR TO ROUTING NEW PIPING. COORDINATE REMOVAL AND ABANDONMENT OF PIPE RUNS AND MANHOLES AS WELL.

SHEET KEYNOTES

1. 1" CW AND 1" HW DOWN IN CHASE - ROUTE FULL SIZE HEADERS TO FIXUTRES.
2. 1-1/2" CW AND 1/2" HW DOWN IN CHASE - ROUTE FULL SIZE HEADERS TO FIXTURES. PROVIDE WATER HAMMER ARRESTOR (WHA-B) PRIOR TO LAST FLUSH VALVE.
3. 1-1/2" CW DOWN IN CHASE - ROUTE FULL SIZE HEADER IN CHASE TO FIXTURES. PROVIDE WATER HAMMER ARRESTOR (WHA-B) PRIOR TO FLUSH VALVE.
4. 3"V VENT RISER IN CHASE - ROUTE 4"W AND 2"V TO WATER CLOSETS, 2"W AND 2"V TO URINALS. 3" V UP WITH 4" VTR.
5. 2"V VENT RISER IN CHASE - ROUTE 2"W AND 2"V TO LAVATORIES.
6. 2-1/2" CW, 1-1/2" HW, 3/4" HWR TO RISE UP TO LEVEL 02, RUN ACROSS LEVEL 02 CEILING, AND DROP BACK TO LEVEL 01 CEILING. THE CEILING IN THIS CORRIDOR IS AT LEVEL 02 CEILING LEVEL.
7. CONNECT TO WASHER WITH 3" CAST IRON DRAIN LINE, TERMINATE DRAIN LINE ABOVE DRAIN TROUGH.
8. 1-1/2" CW AND 1-1/2" HW DOWN WITH SHUT-OFF VALVE AND HOSE THREAD OUTLET AT 42" A.F.F. CONNECT TO WASHER - COORDINATE WITH MANUFACTURER'S INSTALLATION INSTRUCTIONS.
9. PROVIDE SHUT-OFF VALVES AND CHECK VALVES ON HW AND CW SUPPLY TO MOP BASIN. (2)

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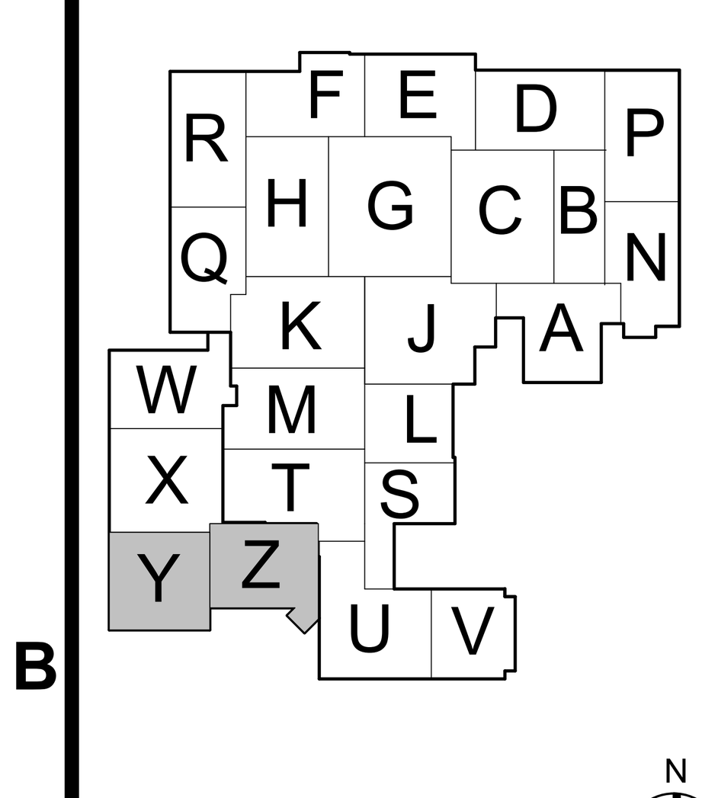

KEY PLAN

M.S.D. of Washington Township

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FIRST FLOOR PLUMBING PLAN - UNITS Y & Z

PF1Z1.2