ADDENDUM NO. 1

August 18, 2023

North Central High School Outdoor Athletic Facilities - Phase 4b –Main Package
1801 East 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 July 31, 2023, 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 1-1, ADD 1-2, and Schmidt Associates Addendum No. 1 dated August 17, 2023, consisting of three (3) Pages, and 97 attachment pages.

A. SPECIFICATION SECTION 01 12 00 MULTIPLE CONTRACT SUMMARY

3.03 Bid Categories

D. **BID CATEGORY NO. 4 – GENERAL TRADES**

Add the following Clarifications:

6. Provide over excavation for all curbs and walks. Provide aggregate courses for curbs and walks, foundation backfill and drainage course under slab on grade.
7. Provide stone aggregate courses at shot put area as shown on CL501.4.

E. **BID CATEGORY NO. 5 – PLUMBING & HVAC**

Add the following Specification Sections:

31 20 00 Earth Moving

F. **BID CATEGORY NO. 6 – ELECTRICAL & TECHNOLOGY**

Add the following Specification Sections:

26 56 68	Exterior Athletic Lighting
26 56 68.99	Exterior Athletic Lighting – Soccer Retrofit
31 20 00	Earthwork

ADDENDUM NO. 1.4B
AUGUST 17, 2023

PREPARED BY SCHMIDT ASSOCIATES FOR:
NORTH CENTRAL HIGH SCHOOL RENOVATION
WASHINGTON TOWNSHIP, M.S.D. OF

This Addendum consists of 3 Addendum page(s) and 97 attachment pages totaling 100 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 08 – OPENINGS

A. **Section 087100 "DOOR HARDWARE"**

1. DELETE AND REPLACE Section 087100 per the attached.

2.2 DIVISION 10 – SPECIALTIES

A. **Section 102800 "TOILET, BATH, AND LAUNDRY ACCESSORIES"**

1. ADD Subparagraph 2.5 B. 1. c. as follows:

"c. Saniflow: Speedflow Plus"

2.3 DIVISION 13 - SPECIAL CONSTRUCTION

A. **Section 133419.99 "PRESS BOXES"**

1. DELETE AND REPLACE Section 133419.99 per the attached.

2.4 DIVISION 26 – ELECTRICAL

A. **Section 265668 – EXTERIOR ATHLETIC LIGHTING**

1. ADD Section 265668 per the attached.

B. **Section 265668.99 – EXTERIOR ATHLETIC LIGHTING - SOCCER RETROFIT**

1. ADD Section 265668.99 per the attached.

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: ADD (A), DELETE (D), DELETE & REPLACE (R),
G-SERIES DRAWINGS	
G000.4	DELETE AND REPLACE
C-SERIES DRAWINGS	
CU102.4	DELETE AND REPLACE
CE501.4	DELETE AND REPLACE
S-SERIES DRAWINGS	
S-001.4	DELETE AND REPLACE
S-020.4	DELETE AND REPLACE
B-SF100.4	DELETE AND REPLACE
B-S-200.4	DELETE AND REPLACE
B-S-511.4	DELETE AND REPLACE
B-S-520.4	DELETE AND REPLACE
G-S-010.4	ADD
G-SF100.4	ADD
G-S-500.4	ADD
G-S-501.4	ADD
G-S-510.4	ADD
G-S-511.4	ADD
A-SERIES DRAWINGS	
B-AF101.4	DELETE AND REPLACE
B-A-300.4	DELETE AND REPLACE
M-SERIES DRAWINGS	
A-MH101.4	DELETE AND REPLACE
A-M-501.4	ADD
B-MH101.4	DELETE AND REPLACE
C-MH101.4	DELETE AND REPLACE
E-SERIES DRAWINGS	
E101-4	DELETE AND REPLACE
E102-4	DELETE AND REPLACE

E601-4	DELETE AND REPLACE
E801-4	ADD
E802-4	ADD
E803-4	ADD
E804-4	ADD
E805-4	ADD
E806-4	ADD
E807-4	ADD
E808-4	ADD
E809-4	ADD
E810-4	ADD
E811-4	ADD
E812-4	ADD
E813-4	ADD
E814-4	ADD
E815-4	ADD
E816-4	ADD
E817-4	ADD
E818-4	ADD
E819-4	ADD
E820-4	ADD
E821-4	ADD

T-SERIES DRAWINGS

C-TF200.4	DELETE AND REPLACE

3.2 A-SERIES DRAWINGS

A. **Drawing Number G-AF101.4**

1. DELETE AND REPLACE Building Elevation Note 9 in its entirety and replace with the following:

   "074213.13 - BI-PARTING STEEL SLIDING BARN DOOR AND TRACK SYSTEM. DOOR TO HAVE METAL WALL PANELS TO MATCH SALT BARN WITH BORDER TRIM - COLOR AS SELECTED BY ARCHITECT. PROVIDE STANDARD METAL COVER OVER TRACK - COLOR AS SELECTED BY ARCHITECT. TRACK TO BE EASY-TRAK BY HARVARD PRODUCTS, SIZED APPROPRIATELY FOR DOOR PANEL SIZES AND OPERATION. PROVIDE GUIDES AT BOTTOM OF DOOR AND HANDLES. HASP AND PADLOCK PER 087100"

END OF ADDENDUM 1.4B

SECTION 087100 - DOOR HARDWARE

PART 1 - GENERAL

1.01 SUMMARY

A. Section includes:

1. Mechanical door hardware

B. Section excludes:

1. Windows
2. Cabinets (casework), including locks in cabinets
3. Signage
4. Toilet accessories
5. Overhead doors

C. Related Sections:

1. Division 01 Section "Alternates" for alternates affecting this section.
2. Division 06 Section "Rough Carpentry"
3. Division 06 Section "Finish Carpentry"
4. Division 07 Section "Joint Sealants" for sealant requirements applicable to threshold installation specified in this section.
5. Division 08 Sections:
   a. "Metal Doors and Frames"

1.02 REFERENCES

A. UL LLC

1. UL 10B - Fire Test of Door Assemblies
2. UL 10C - Positive Pressure Test of Fire Door Assemblies
3. UL 1784 - Air Leakage Tests of Door Assemblies
4. UL 305 - Panic Hardware

B. DHI - Door and Hardware Institute

1. Sequence and Format for the Hardware Schedule
2. Recommended Locations for Builders Hardware
3. Keying Systems and Nomenclature
4. Installation Guide for Doors and Hardware

C. NFPA – National Fire Protection Association

1. NFPA 80 – 2016 Edition – Standard for Fire Doors and Other Opening Protectives
2. NFPA 101 – Life Safety Code
3. NFPA 105 – Smoke and Draft Control Door Assemblies
4. NFPA 252 – Fire Tests of Door Assemblies

D. ANSI - American National Standards Institute

1. ANSI A117.1 – 2017 Edition – Accessible and Usable Buildings and Facilities
2. ANSI/BHMA A156.1 - A156.29, and ANSI/BHMA A156.31 - Standards for Hardware and Specialties
3. ANSI/BHMA A156.28 - Recommended Practices for Keying Systems
4. ANSI/WDMA I.S. 1A - Interior Architectural Wood Flush Doors
5. ANSI/SDI A250.8 - Standard Steel Doors and Frames

1.03 SUBMITTALS

A. General:

1. Submit in accordance with Conditions of Contract and Division 01 Submittal Procedures.
2. Prior to forwarding submittal:
   a. Review drawings and Sections from related trades to verify compatibility with specified hardware.
   b. Highlight, encircle, or otherwise specifically identify on submittals: deviations from Contract Documents, issues of incompatibility or other issues which may detrimentally affect the Work.

B. Action Submittals:

1. Product Data: Submit technical product data for each item of door hardware, installation instructions, maintenance of operating parts and finish, and other information necessary to show compliance with requirements.
2. Samples for Verification: If requested by Architect, submit production sample of requested door hardware unit in finish indicated and tagged with full description for coordination with schedule.
   a. Samples will be returned to supplier. Units that are acceptable to Architect may, after final check of operations, be incorporated into Work, within limitations of key coordination requirements.

3. Door Hardware Schedule:
   a. Submit concurrent with submissions of Product Data, Samples, and Shop Drawings. Coordinate submission of door hardware schedule with scheduling requirements of other work to facilitate fabrication of other work critical in Project construction schedule.
   b. Submit under direct supervision of a Door Hardware Institute (DHI) certified Architectural Hardware Consultant (AHC) or Door Hardware Consultant (DHC) with hardware sets in vertical format as illustrated by Sequence of Format for the Hardware Schedule published by DHI.
   c. Indicate complete designations of each item required for each opening, include:
      1) Door Index: door number, heading number, and Architect's hardware set number.
      2) Quantity, type, style, function, size, and finish of each hardware item.
      3) Name and manufacturer of each item.
      4) Fastenings and other pertinent information.
      5) Location of each hardware set cross-referenced to indications on Drawings.
      6) Explanation of all abbreviations, symbols, and codes contained in schedule.
      7) Mounting locations for hardware.
      8) Door and frame sizes and materials.
      9) Degree of door swing and handing.

4. Key Schedule:

a. After Keying Conference, provide keying schedule that includes levels of keying, explanations of key system's function, key symbols used, and door numbers controlled.
b. Use ANSI/BHMA A156.28 "Recommended Practices for Keying Systems" as guideline for nomenclature, definitions, and approach for selecting optimal keying system.
c. Provide 3 copies of keying schedule for review prepared and detailed in accordance with referenced DHI publication. Include schematic keying diagram and index each key to unique door designations.
d. Index keying schedule by door number, keyset, hardware heading number, cross keying instructions, and special key stamping instructions.
e. Provide one complete bitting list of key cuts and one key system schematic illustrating system usage and expansion. Forward bitting list, key cuts and key system schematic directly to Owner, by means as directed by Owner.
f. Prepare key schedule by or under supervision of supplier, detailing Owner's final keying instructions for locks.

C. Informational Submittals:

1. Provide Qualification Data for Supplier, Installer and Architectural Hardware Consultant.
2. Provide Product Data:
   a. Certify that door hardware approved for use on types and sizes of labeled fire-rated doors complies with listed fire-rated door assemblies.
   b. Include warranties for specified door hardware.

D. Closeout Submittals:

1. Operations and Maintenance Data: Provide in accordance with Division 01 and include:
   a. Complete information on care, maintenance, and adjustment; data on repair and replacement parts, and information on preservation of finishes.
   b. Catalog pages for each product.
   c. Final approved hardware schedule edited to reflect conditions as installed.
   d. Final keying schedule
   e. Copy of warranties including appropriate reference numbers for manufacturers to identify project.

E. Inspection and Testing:

1. Submit written reports to the Owner and Authority Having Jurisdiction (AHJ) of the results of functional testing and inspection for:
   a. Fire door assemblies, in compliance with NFPA 80.
   b. Required egress door assemblies, in compliance with NFPA 101.

1.04 QUALITY ASSURANCE

A. Qualifications and Responsibilities:

1. Supplier: Recognized architectural hardware supplier with a minimum of 5 years documented experience supplying both mechanical and electromechanical door hardware similar in quantity, type, and quality to that indicated for this Project. Supplier to be recognized as a factory direct distributor by the manufacturer of the primary materials with a warehousing facility in the Project's vicinity. Supplier to have on staff, a certified Architectural Hardware Consultant (AHC) or Door Hardware Consultant (DHC) available to Owner, Architect, and Contractor, at reasonable times during the Work for consultation.
2. Installer: Qualified tradesperson skilled in the application of commercial grade hardware with experience installing door hardware similar in quantity, type, and quality as indicated for this Project.
3. Architectural Hardware Consultant: Person who is experienced in providing consulting services for door hardware installations that are comparable in material, design, and extent to that indicated for this Project and meets these requirements:
   a. For door hardware: DHI certified AHC or DHC.
   b. Can provide installation and technical data to Architect and other related subcontractors.
   c. Can inspect and verify components are in working order upon completion of installation.

4. Single Source Responsibility: Obtain each type of door hardware from single manufacturer.

B. Certifications:

1. Fire-Rated Door Openings:
   a. Provide door hardware for fire-rated openings that complies with NFPA 80 and requirements of authorities having jurisdiction.
   b. Provide only items of door hardware that are listed products tested by UL LLC, Intertek Testing Services, or other testing and inspecting organizations acceptable to authorities having jurisdiction for use on types and sizes of doors indicated, based on testing at positive pressure and according to NFPA 252 or UL 10C and in compliance with requirements of fire-rated door and door frame labels.

2. Smoke and Draft Control Door Assemblies:
   a. Provide door hardware that meets requirements of assemblies tested according to UL 1784 and installed in compliance with NFPA 105
   b. Comply with the maximum air leakage of 0.3 cfm/sq. ft. (3 cu. m per minute/sq. m) at tested pressure differential of 0.3-inch wg (75 Pa) of water.

3. Accessibility Requirements:
   a. Comply with governing accessibility regulations cited in "REFERENCES" article 087100, 1.02.D3 herein for door hardware on doors in an accessible route. This project must comply with all Federal Americans with Disability Act regulations and all Local Accessibility Regulations.

C. Pre-Installation Meetings

1. Keying Conference
   a. Incorporate keying conference decisions into final keying schedule after reviewing door hardware keying system including:
      1) Function of building, flow of traffic, purpose of each area, degree of security required, and plans for future expansion.
      2) Preliminary key system schematic diagram.
      3) Requirements for key control system.

4) Address for delivery of keys.

2. Pre-installation Conference
   a. Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
   b. Inspect and discuss preparatory work performed by other trades.
   c. Review required testing, inspecting, and certifying procedures.
   d. Review questions or concerns related to proper installation and adjustment of door hardware.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Inventory door hardware on receipt and provide secure lock-up for hardware delivered to Project site. Promptly replace products damaged during shipping.

B. Tag each item or package separately with identification coordinated with final door hardware schedule, and include installation instructions, templates, and necessary fasteners with each item or package. Deliver each article of hardware in manufacturer's original packaging.

C. Maintain manufacturer-recommended environmental conditions throughout storage and installation periods.

D. Provide secure lock-up for door hardware delivered to Project. Control handling and installation of hardware items so that completion of Work will not be delayed by hardware losses both before and after installation.

E. Handle hardware in manner to avoid damage, marring, or scratching. Correct, replace or repair products damaged during Work. Protect products against malfunction due to paint, solvent, cleanser, or any chemical agent.

F. Deliver keys to manufacturer of key control system for subsequent delivery to Owner.

1.06 COORDINATION

A. Coordinate layout and installation of floor-recessed door hardware with floor construction. Cast anchoring inserts into concrete.

B. Installation Templates: Distribute for doors, frames, and other work specified to be factory or shop prepared. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing door hardware to comply with indicated requirements.

1.07 WARRANTY

A. Manufacturer's standard form in which manufacturer agrees to repair or replace components of door hardware that fail in materials or workmanship within published warranty period.

   1. Warranty does not cover damage or faulty operation due to improper installation, improper use or abuse.
   2. Warranty Period: Beginning from date of Substantial Completion, for durations indicated in manufacturer's published listings.

a. Mechanical Warranty
   1) Locks: 3 Years
   2) Exit Devices: 3 Years
   3) Closers: 30 Years

1.08 MAINTENANCE

A. Furnish complete set of special tools required for maintenance and adjustment of hardware, including changing of cylinders.

B. Turn over unused materials to Owner for maintenance purposes.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. The Owner requires use of certain products for their unique characteristics and project suitability to ensure continuity of existing and future performance and maintenance standards. After investigating available product offerings, the Awarding Authority has elected to prepare proprietary specifications. These products are specified with the notation: "No Substitute."

   1. Where "No Substitute" is noted, submittals and substitution requests for other products will not be considered.

B. Approval of manufacturers and/or products other than those listed as "Scheduled Manufacturer" or "Acceptable Manufacturers" in the individual article for the product category shall be in accordance with QUALITY ASSURANCE article, herein.

C. Approval of products from manufacturers indicated in "Acceptable Manufacturers" is contingent upon those products providing all functions and features and meeting all requirements of scheduled manufacturer's product.

D. Where specified hardware is not adaptable to finished shape or size of members requiring hardware, furnish suitable types having same operation and quality as type specified, subject to Architect's approval.

2.02 MATERIALS

A. Fabrication

   1. Provide door hardware manufactured to comply with published templates generally prepared for machine, wood, and sheet metal screws. provide screws according to manufacturer’s recognized installation standards for application intended.
   2. Finish exposed screws to match hardware finish, or, if exposed in surfaces of other work, to match finish of this other work including prepared for paint surfaces to receive painted finish.

3. Provide concealed fasteners wherever possible for hardware units exposed when door is closed. Coordinate with "Metal Doors and Frames", "Flush Wood Doors", "Stile and Rail Wood Doors" to ensure proper reinforcements. Advise the Architect where visible fasteners, such as thru bolts, are required.

B. Provide screws, bolts, expansion shields, drop plates and other devices necessary for hardware installation.

1. Where fasteners are exposed to view: Finish to match adjacent door hardware material.
2. For closers and panic devices: Verify with Architect and/or Owner if thru-bolts are required at specific door materials.

2.03 HINGES

A. Manufacturers and Products:

1. Scheduled Manufacturer and Product:
   a. Ives 5BB series

2. Acceptable Manufacturers and Products:
   a. Hager BB series
   b. McKinney TB series

B. Requirements:

1. Provide hinges conforming to ANSI/BHMA A156.1.
2. Provide five knuckle, ball bearing hinges.
3. Hinge Height:
   a. 1-3/4 inch (44 mm) thick doors, up to and including 36 inches (914 mm) wide: 4-1/2 inches (114 mm) high
   b. 1-3/4 inch (44 mm) thick doors over 36 inches (914 mm) wide: 5 inches (127 mm) high
   c. 2 inches or thicker doors: 5 inches (127 mm) high, regardless of door width
4. Hinge Width: 4-1/2 inches (114 mm) wide typical. Adjust hinge width for door, frame, and wall conditions to allow proper degree of opening.
5. Hinge quantity: Provide three hinges per door leaf for doors 90 inches (2286 mm) or less in height, and one additional hinge for each 30 inches (762 mm) of additional door height.
6. Hinge Pins: Except as otherwise indicated, provide hinge pins as follows:
   a. Steel Hinges: Steel pins
   b. Non-Ferrous Hinges: Stainless steel pins
   c. Out-Swinging Exterior Doors: Non-removable pins
   d. Out-Swinging Interior Lockable Doors: Non-removable pins
   e. Interior Non-lockable Doors: Non-rising pins

2.04 CONTINUOUS HINGES

A. Manufacturers:

1. Scheduled Manufacturer:
   a. Ives

2. Acceptable Manufacturers:

a. Select
b. Pemko

B. Requirements:

1. Provide aluminum geared continuous hinges conforming to ANSI/BHMA A156.26, Grade 1.
2. Provide aluminum geared continuous hinges, where specified in the hardware sets, fabricated from 6063-T6 aluminum.
3. Provide split nylon bearings at each hinge knuckle for quiet, smooth, self-lubricating operation.
4. Provide hinges capable of supporting door weights up to 450 pounds, and successfully tested for 1,500,000 cycles.
5. On fire-rated doors, provide aluminum geared continuous hinges classified for use on rated doors by testing agency acceptable to authority having jurisdiction.
6. Provide hinges 1 inch (25 mm) shorter in length than nominal height of door, unless otherwise noted or door details require shorter length and with symmetrical hole pattern.

2.05 FLUSH BOLTS

A. Manufacturers:

1. Scheduled Manufacturer:
   a. Ives

2. Acceptable Manufacturers:
   a. Rockwood
   b. Trimco

B. Requirements:

1. Provide automatic, constant latching, and manual flush bolts with forged bronze or stainless-steel face plates, extruded brass levers, and with wrought brass guides and strikes. Provide 12 inch (305 mm) steel or brass rods at doors up to 90 inches (2286 mm) in height. For doors over 90 inches (2286 mm) in height increase top rods by 6 inches (152 mm) for each additional 6 inches (152 mm) of door height. Provide dust-proof strikes at each bottom flush bolt.

2.06 COORDINATORS

A. Manufacturers:

1. Scheduled Manufacturer:
   a. Ives

2. Acceptable Manufacturers:
   a. Rockwood
   b. Trimco

B. Requirements:

1. Where pairs of doors are equipped with automatic flush bolts, an astragal, or other hardware that requires synchronized closing of the doors, provide bar-type coordinating device, surface applied to underside of stop at frame head.
2. Provide filler bar of correct length for unit to span entire width of opening, and appropriate brackets for parallel arm door closers, surface vertical rod exit device strikes, or other stop mounted hardware. Factory-prepared coordinators for vertical rod devices as specified.

2.07 MORTISE LOCKS AND DEADBOLTS

A. Manufacturers and Products:

1. Scheduled Manufacturer and Product:
   a. Schlage L9000 series

2. Acceptable Manufacturers and Products:
   a. No Substitute

B. Requirements:

1. Provide mortise locks conforming to ANSI/BHMA A156.13 Series 1000, Grade 1, and UL Listed for 3-hour fire doors.
2. Indicators: Where specified, provide indicator window measuring a minimum 2-inch x 1/2 inch with 180-degree visibility. Provide messages color-coded with full text and/or symbols, as scheduled, for easy visibility.
3. Provide locks manufactured from heavy gauge steel, containing components of steel with a zinc dichromate plating for corrosion resistance.
4. Provide lock case that is multi-function and field reversible for handing without opening case. Cylinders: Refer to "KEYING" article, herein.
5. Provide locks with standard 2-3/4 inches (70 mm) backset with full 3/4 inch (19 mm) throw stainless steel mechanical anti-friction latchbolt. Provide deadbolt with full 1-inch (25 mm) throw, constructed of stainless steel.
6. Provide standard ASA strikes unless extended lip strikes are necessary to protect trim. Provide electrified options as scheduled in the hardware sets. Where scheduled, provide switches and sensors integrated into the locks and latches.
7. Lever Trim: Solid brass, bronze, or stainless steel, cast or forged in design specified, with wrought roses and external lever spring cages. Provide thru-bolted levers with 2-piece spindles.
   a. Lever Design: Schlage 17A.

2.08 EXIT DEVICES

A. Manufacturers and Products:

1. Scheduled Manufacturer and Product:
   a. Von Duprin 99 series

2. Acceptable Manufacturers and Products:
   a. No Substitute

B. Requirements:

1. Provide exit devices tested to ANSI/BHMA A156.3 Grade 1 and UL listed for Panic Exit or Fire Exit Hardware.
2. Cylinders: Refer to "KEYING" article, herein.
3. Provide grooved touchpad type exit devices, fabricated of brass, bronze, stainless steel, or aluminum, plated to standard architectural finishes to match balance of door hardware.
4. Touchpad must extend a minimum of one half of door width. No plastic inserts are allowed in touchpads.
5. Provide exit devices with weather resistant components that can withstand harsh conditions of various climates and corrosive cleaners used in outdoor pool environments.
6. Provide flush end caps for exit devices.
7. Provide exit devices with manufacturer's approved strikes.
8. Provide exit devices cut to door width and height. Install exit devices at height recommended by exit device manufacturer, allowable by governing building codes, and approved by Architect.
9. Mount mechanism case flush on face of doors or provide spacers to fill gaps behind devices. Where glass trim or molding projects off face of door, provide glass bead kits.
10. Provide cylinder or hex-key dogging as specified at non fire-rated openings.
11. Removable Mullions: 2 inches (51 mm) x 3 inches (76 mm) steel tube. Where scheduled as keyed removable mullion, provide type that can be removed by use of a keyed cylinder, which is self-locking when re-installed.
12. Provide factory drilled weep holes for exit devices used in full exterior application, highly corrosive areas, and where noted in hardware sets.
13. Top latch mounting: double- or single-tab mount for steel doors, face mount for aluminum doors eliminating requirement of tabs, and double tab mount for wood doors.
14. Provide exit devices with optional trim designs to match other lever and pull designs used on the project.

2.09 CYLINDER HOUSINGS

A. Manufacturers:

1. Scheduled Manufacturer and Product:
   a. Schlage

2. Acceptable Manufacturers and Products:
   a. Best

B. Requirements:

1. Provide cylinder housings from same manufacturer of locksets, compliant with ANSI/BHMA A156.5; latest revision; cylinder face finished to match lockset, manufacturer’s series as indicated. Refer to “KEYING” article, herein.
2. Provide cylinder housings in the below-listed configuration(s), distributed throughout the Project as indicated.
   a. Cylinder/Core Type: Small Format Interchangeable Core (SFIC)

3. Replaceable Construction Cores.
   a. Provide temporary construction cores replaceable by permanent cores, furnished in accordance with the following requirements.
      1) 3 construction control keys
      2) 12 construction change (day) keys.

4. Verify with Owner where permanent cores are to be shipped to.

2.10 PERMANENT CORES, KEYING, KEYS

A. Manufacturers:

1. Scheduled Manufacturer: Best

B. Acceptable Manufacturers:

1. No Substitute

C. Provide a factory registered keying system, complying with guidelines in ANSI/BHMA A156.28, incorporating decisions made at keying conference.

D. Permanent Core Requirements:

1. Provide permanent cores compliant with ANSI/BHMA A156.5; latest revision; cylinder face finished to match lockset, manufacturer's series as indicated. Refer to "KEYING" article, herein.
2. Provide cores in the below-listed configuration(s), distributed throughout the Project as indicated.
   a. Match Owner's existing system.
   b. Cylinder/Core Type: Small Format Interchangeable Core (SFIC).
   c. Nickel silver bottom pins.

E. Keying Requirements:

1. Provide a factory registered keying system, complying with guidelines in ANSI/BHMA A156.28, incorporating decisions made at keying conference.
2. Provide keying system capable of multiplex masterkeying.
3. Permanent cores keyed by the manufacturer according to the following key system.
   a. Keying system as directed by the Owner.
   b. Match Owner's existing system.
   c. (Great)Grand Master Key System: Cylinders/cores operated by change (day) keys and subsequent masters (including grand/great grand) keys.
4. Forward bitting list and keys separately from cylinders, by means as directed by Owner. Failure to comply with forwarding requirements shall be cause for replacement of cylinders/cores involved at no additional cost to Owner.
5. Provide keys with the following features:
   a. Material: Nickel silver; minimum thickness of .107-inch (2.3mm).
6. Identification:
   a. Mark permanent cylinders/cores and keys with applicable blind code per DHI publication "Keying Systems and Nomenclature" for identification. Blind code marks shall not include actual key cuts.
   b. Identification stamping provisions must be approved by the Architect and Owner.
   c. Stamp keys with Owner's unique key system facility code as established by the manufacturer; key symbol and embossed or stamped with "DO NOT DUPLICATE".
   d. Failure to comply with stamping requirements shall be cause for replacement of keys involved at no additional cost to Owner.
7. Quantity: Furnish in the following quantities.
   a. Change (Day) Keys: 3 per cylinder/core.
   b. Permanent Control Keys: 3 (if required).
   c. Master Keys: 6 per master.

d. Unused balance of key blanks shall be furnished to Owner with the cut keys.

8. Verify with owner where permanent cores and keys are to be shipped to.

2.11 KEY CONTROL SYSTEM

A. Manufacturers:

1. Scheduled Manufacturer:
   a. Telkee

2. Acceptable Manufacturers:
   a. HPC
   b. Lund

B. Requirements:

1. Provide key control system, including envelopes, labels, tags with self-locking key clips, receipt forms, 3-way visible card index, temporary markers, permanent markers, and standard metal cabinet, all as recommended by system manufacturer, with capacity for 150% of number of locks required for Project.
   a. Provide complete cross index system set up by hardware supplier, and place keys on markers and hooks in cabinet as determined by final key schedule.
   b. Provide hinged-panel type cabinet for wall mounting.

2.12 DOOR CLOSERS

A. Manufacturers and Products:

1. Scheduled Manufacturer and Product:
   a. LCN 4040XP series

2. Acceptable Manufacturers and Products:
   a. No Substitute

B. Requirements:

1. Provide door closers conforming to ANSI/BHMA A156.4 Grade 1 requirements by BHMA certified independent testing laboratory. ISO 9000 certify closers. Stamp units with date of manufacture code.
2. Provide door closers with fully hydraulic, full rack and pinion action with high strength cast iron cylinder, and full complement bearings at shaft.
3. Cylinder Body: 1-1/2-inch (38 mm) diameter piston with 5/8-inch (16 mm) diameter double heat-treated pinion journal. QR code with a direct link to maintenance instructions.
4. Hydraulic Fluid: Fireproof, passing requirements of UL10C, and requiring no seasonal closer adjustment for temperatures ranging from 120 degrees F to -30 degrees F.
5. Spring Power: Continuously adjustable over full range of closer sizes, and providing reduced opening force as required by accessibility codes and standards. Provide snap-on cover clip, with plastic covers, that secures cover to spring tube.
6. Hydraulic Regulation: By tamper-proof, non-critical valves, with separate adjustment for latch speed, general speed, and backcheck. Provide graphically labelled instructions on the closer body adjacent to each adjustment valve. Provide positive stop on reg valve that prevents reg screw from being backed out.

7. Provide closers with solid forged steel main arms and factory assembled heavy-duty forged forearms for parallel arm closers.
8. Pressure Relief Valve (PRV) Technology: Not permitted.
9. Finish for Closer Cylinders, Arms, Adapter Plates, and Metal Covers: Powder coating finish which has been certified to exceed 100 hours salt spray testing as described in ANSI Standard A156.4 and ASTM B117, or has special rust inhibitor (SRI).
10. Provide special templates, drop plates, mounting brackets, or adapters for arms as required for details, overhead stops, and other door hardware items interfering with closer mounting.

2.13 DOOR TRIM

A. Manufacturers:

1. Scheduled Manufacturer:
   a. Ives

2. Acceptable Manufacturers:
   a. Trimco
   b. Rockwood

B. Requirements:

1. Provide push plates, push bars, pull plates, pulls, and hands-free reversible door pulls with diameter and length as scheduled.

2.14 PROTECTION PLATES

A. Manufacturers:

1. Scheduled Manufacturer:
   a. Ives

2. Acceptable Manufacturers:
   a. Trimco
   b. Rockwood

B. Requirements:

1. Provide protection plates with a minimum of 0.050 inch (1 mm) thick, beveled four edges as scheduled. Furnish with sheet metal or wood screws, finished to match plates.
2. Sizes plates 2 inches (51 mm) less width of door on single doors, pairs of doors with a mullion, and doors with edge guards. Size plates 1 inch (25 mm) less width of door on pairs without a mullion or edge guards.
3. At fire rated doors, provide protection plates over 16 inches high with UL label.

2.15 OVERHEAD STOPS AND OVERHEAD STOP/HOLDERS

A. Manufacturers:

1. Scheduled Manufacturers:
   a. Glynn-Johnson

2. Acceptable Manufacturers:
   a. No Substitute

B. Requirements:

1. Provide overhead stop at any door where conditions do not allow for a wall stop or floor stop presents tripping hazard.
2. Provide friction type at doors without closer and positive type at doors with closer.

2.16 DOOR STOPS AND HOLDERS

A. Manufacturers:

1. Scheduled Manufacturer:
   a. Ives

2. Acceptable Manufacturers:
   a. Trimco
   b. Rockwood

B. Provide door stops at each door leaf:

1. Provide wall stops wherever possible. Provide concave type where lockset has a push button of thumbturn.
2. Where a wall stop cannot be used, provide universal floor stops.
3. Where wall or floor stop cannot be used, provide overhead stop.
4. Provide roller bumper where doors open into each other and overhead stop cannot be used.

2.17 THRESHOLDS, SEALS, DOOR SWEEPS, AUTOMATIC DOOR BOTTOMS, AND GASKETING

A. Manufacturers:

1. Scheduled Manufacturer:
   a. Zero International

2. Acceptable Manufacturers:
   a. National Guard
   b. Reese
   c. Pemko

B. Requirements:

1. Provide thresholds, weather-stripping, and gasketing systems as specified and per architectural details. Match finish of other items.
2. Smoke- and Draft-Control Door Assemblies: Where smoke- and draft-control door assemblies are required, provide door hardware that meets requirements of assemblies tested according to UL 1784 and installed in compliance with NFPA 105.
3. Provide door sweeps, seals, astragals, and auto door bottoms only of type where resilient or flexible seal strip is easily replaceable and readily available.
4. Size thresholds 1/2 inch (13 mm) high by 5 inches (127 mm) wide by door width unless otherwise specified in the hardware sets or detailed in the drawings.

2.18 SILENCERS

A. Manufacturers:

1. Scheduled Manufacturer:
   a. Ives

2. Acceptable Manufacturers:
   a. Rockwood
   b. Trimco

B. Requirements:

1. Provide "push-in" type silencers for hollow metal or wood frames.
2. Provide one silencer per 30 inches (762 mm) of height on each single frame, and two for each pair frame.
3. Omit where gasketing is specified.

2.19 FINISHES

A. Provide finish for each item as indicated in the sets.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Prior to installation of hardware, examine doors and frames, with Installer present, for compliance with requirements for installation tolerances, labeled fire-rated door assembly construction, wall and floor construction, and other conditions affecting performance. Verify doors, frames, and walls have been properly reinforced for hardware installation.

B. Submit a list of deficiencies in writing and proceed with installation only after unsatisfactory conditions have been corrected.

3.02 INSTALLATION

A. Mount door hardware units at heights to comply with the following, unless otherwise indicated or required to comply with governing regulations.

1. Standard Steel Doors and Frames: ANSI/SDI A250.8.
2. Custom Steel Doors and Frames: HMMA 831.
3. Interior Architectural Wood Flush Doors: ANSI/WDMA I.S. 1A
4. Installation Guide for Doors and Hardware: DHI TDH-007-20

B. Install door hardware in accordance with NFPA 80, NFPA 101 and provide post-install inspection, testing as specified in section 1.03.E unless otherwise required to comply with governing regulations.

C. Install each hardware item in compliance with manufacturer's instructions and recommendations, using only fasteners provided by manufacturer.

D. Do not install surface mounted items until finishes have been completed on substrate. Protect all installed hardware during painting.

E. Set units level, plumb and true to line and location. Adjust and reinforce attachment substrate as necessary for proper installation and operation.

F. Drill and countersink units that are not factory prepared for anchorage fasteners. Space fasteners and anchors according to industry standards.

G. Install operating parts so they move freely and smoothly without binding, sticking, or excessive clearance.

H. Hinges: Install types and in quantities indicated in door hardware schedule but not fewer than quantity recommended by manufacturer for application indicated.

I. Lock Cylinders:

1. Install construction cores to secure building and areas during construction period.
2. Replace construction cores with permanent cores as indicated in keying section.

J. Key Control System: Tag keys and place them on markers and hooks in key control system cabinet, as determined by final keying schedule.

K. Door Closers: Mount closers on room side of corridor doors, inside of exterior doors, and stair side of stairway doors from corridors. Mount closers so they are not visible in corridors, lobbies and other public spaces unless approved by Architect.

L. Closer/Holders: Mount closer/holders on room side of corridor doors, inside of exterior doors, and stair side of stairway doors.

M. Thresholds: Set thresholds in full bed of sealant complying with requirements specified in Division 07 Section "Joint Sealants."

N. Stops: Provide floor stops for doors unless wall or other type stops are indicated in door hardware schedule. Do not mount floor stops where they may impede traffic or present tripping hazard.

O. Perimeter Gasketing: Apply to head and jamb, forming seal between door and frame.

P. Meeting Stile Gasketing: Fasten to meeting stiles, forming seal when doors are closed.

Q. Door Bottoms and Sweeps: Apply to bottom of door, forming seal with threshold when door is closed.

3.03 ADJUSTING

A. Initial Adjustment: Adjust and check each operating item of door hardware and each door to ensure proper operation or function of every unit. Replace units that cannot be adjusted to operate as intended. Adjust door control devices to compensate for final operation of heating and ventilating equipment and to comply with referenced accessibility requirements.

1. Door Closers: Adjust sweep period to comply with accessibility requirements and requirements of authorities having jurisdiction.

B. Occupancy Adjustment: Approximately three to six months after date of Substantial Completion, examine and readjust each item of door hardware, including adjusting operating forces, as necessary to ensure function of doors and door hardware.

3.04 CLEANING AND PROTECTION

A. Clean adjacent surfaces soiled by door hardware installation.

B. Clean operating items per manufacturer's instructions to restore proper function and finish.

C. Provide final protection and maintain conditions that ensure door hardware is without damage or deterioration at time of Substantial Completion.

3.05 DOOR HARDWARE SCHEDULE

A. The intent of the hardware specification is to specify the hardware for interior and exterior doors, and to establish a type, continuity, and standard of quality. However, it is the door hardware supplier's responsibility to thoroughly review existing conditions, schedules, specifications, drawings, and other Contract Documents to verify the suitability of the hardware specified.

B. Discrepancies, conflicting hardware, and missing items are to be brought to the attention of the architect with corrections made prior to the bidding process. Omitted items not included in a hardware set should be scheduled with the appropriate additional hardware required for proper application.

C. Hardware items are referenced in the following hardware schedule. Refer to the above specifications for special features, options, cylinders/keying, and other requirements.

D. Hardware Sets:

93974 OPT0215937 Version 4

HARDWARE GROUP NO. 01

For use on Door #(s):
A103 A104

Provide each OPENING with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
1	EA	CONT. HINGE	224XY	628	IVE
1	EA	CLASSROOM DEAD LOCK	L463HD XB11-720	626	SCH
1	EA	PERMANENT CORE	1C7*2	626	BES
1	EA	LOCK GUARD	LG10	630	IVE
1	EA	PUSH PLATE	8200 4" X 16"	630	IVE
1	EA	PULL PLATE	8303 10" 4" X 16"	630	IVE
1	EA	SURFACE CLOSER (W/ DEAD STOP & HO)	4040XP HCUSH	689	LCN
1	EA	KICK PLATE	8400 10" X 1 1/2" LDW B-CS	630	IVE
1	SET	WEATHERSTRIPPING	429AA-S	AA	ZER
1	EA	DOOR SWEEP, BRUSH W/ DRIP	8198AA	AA	ZER
1	EA	THRESHOLD, 1/2"	655A	A	ZER

HARDWARE GROUP NO. 02

For use on Door #(s):
A100.1

Provide each OPENING with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
1	EA	CONT. HINGE	224XY	628	IVE
1	EA	OFFICE/ENTRY LOCK	L9050HD 17A L583-363	626	SCH
1	EA	PERMANENT CORE	1C7*2	626	BES
1	EA	SURFACE CLOSER	4040XP REG	689	LCN
1	EA	WALL STOP/HOLDER	WS20/WS20X	626	IVE
1	SET	WEATHERSTRIPPING	429AA-S	AA	ZER
1	EA	DOOR BOTTOM, INSWING HMD	381A	A	ZER
1	EA	THRESHOLD, 1/2"	655A	A	ZER

HARDWARE GROUP NO. 03

For use on Door #(s):
A102

Provide each OPENING with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
1	EA	CONT. HINGE	224XY	628	IVE
1	EA	OFFICE LOCK, AUTO UNLOCK (W/ OUTSIDE OCC IND)	L9056HD 17A L583-363 L283-722	626	SCH
1	EA	PERMANENT CORE	1C7*2	626	BES
1	EA	SURFACE CLOSER	4040XP REG	689	LCN
1	EA	FLOOR STOP	FS444	626	IVE
1	SET	WEATHERSTRIPPING	429AA-S	AA	ZER
1	EA	DOOR BOTTOM, INSWING HMD	381A	A	ZER
1	EA	THRESHOLD, 1/2"	655A	A	ZER

HARDWARE GROUP NO. 04

For use on Door #(s):
A100A

Provide each OPENING with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
3	EA	HINGE	5BB1 4.5 X 4.5 (NRP AS REQ'D)	652	IVE
1	EA	CLASSROOM LOCK	L9070BDC 17A	626	SCH
1	EA	PERMANENT CORE	1C7*2	626	BES
1	EA	OH STOP	450S	652	GLY
3	EA	SILENCER	SR64	GRY	IVE

HARDWARE GROUP NO. 05

For use on Door #(s):
A105.2

Provide each OPENING with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
3	EA	HINGE	5BB1 4.5 X 4.5 (NRP AS REQ'D)	652	IVE
1	EA	STOREROOM LOCK	L9080BDC 17A	626	SCH
1	EA	PERMANENT CORE	1C7*2	626	BES
1	EA	WALL STOP	WS406/407CVX	630	IVE
3	EA	SILENCER	SR64	GRY	IVE

HARDWARE GROUP NO. 06

For use on Door #(s):
A101 B100 B103 G100.2

Provide each OPENING with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
1	EA	CONT. HINGE	224XY	628	IVE
1	EA	STOREROOM LOCK	L9080HD 17A	626	SCH
1	EA	PERMANENT CORE	1C7*2	626	BES
1	EA	LOCK GUARD	LG10	630	IVE
1	EA	SURFACE CLOSER (W/ SPRING STOP)	4040XP SCUSH	689	LCN
1	EA	KICK PLATE	8400 10" X 1 1/2" LDW B-CS	630	IVE
1	EA	RAIN DRIP	142AA	AA	ZER
1	SET	WEATHERSTRIPPING	429AA-S	AA	ZER
1	EA	DOOR SWEEP, BRUSH W/ DRIP	8198AA	AA	ZER
1	EA	THRESHOLD, 1/2"	655A	A	ZER

HARDWARE GROUP NO. 07

For use on Door #(s):
A105.1

Provide each OPENING with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
1	EA	CONT. HINGE	224XY	628	IVE
1	EA	STOREROOM LOCK	L9080HD 17A	626	SCH
1	EA	PERMANENT CORE	1C7*2	626	BES
1	EA	LOCK GUARD	LG10	630	IVE
1	EA	SURFACE CLOSER (W/ SPRING STOP & HO)	4040XP SHCUSH	689	LCN
1	EA	KICK PLATE	8400 10" X 1 1/2" LDW B-CS	630	IVE
1	EA	RAIN DRIP	142AA	AA	ZER
1	SET	WEATHERSTRIPPING	429AA-S	AA	ZER
1	EA	DOOR SWEEP, BRUSH W/ DRIP	8198AA	AA	ZER
1	EA	THRESHOLD, 1/2"	655A	A	ZER

HARDWARE GROUP NO. 08

For use on Door #(s):
A106 C100

Provide each OPENING with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
2	EA	CONT. HINGE	224XY	628	IVE
1	EA	AUTO FLUSH BOLT	FB31P	630	IVE
1	EA	DUST PROOF STRIKE	DP2	626	IVE
1	EA	STOREROOM LOCK	L9080HD 17A	626	SCH
1	EA	PERMANENT CORE	1C7*2	626	BES
1	EA	COORDINATOR	COR X FL (MB AS REQ'D)	628	IVE
2	EA	SURFACE CLOSER (W/ SPRING STOP)	4040XP SCUSH	689	LCN
2	EA	KICK PLATE	8400 10" X 1" LDW B-CS	630	IVE
1	EA	RAIN DRIP	142AA	AA	ZER
2	SET	WEATHERSTRIPPING	429AA-S @ JAMBS	AA	ZER
1	EA	GASKETING	488SBK PSA @ HEAD & APPLY TO ASTRAGAL	BK	ZER
1	EA	SECURITY ASTRAGAL	43STST	STST	ZER
2	EA	DOOR SWEEP, BRUSH W/ DRIP	8198AA	AA	ZER
1	EA	THRESHOLD, 1/2"	655A	A	ZER

HARDWARE GROUP NO. 09

For use on Door #(s):
A105.5 C101

Provide each OPENING with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
2	EA	CONT. HINGE	224XY	628	IVE
1	EA	AUTO FLUSH BOLT	FB31P	630	IVE
1	EA	DUST PROOF STRIKE	DP2	626	IVE
1	EA	STOREROOM LOCK	L9080HD 17A	626	SCH
1	EA	PERMANENT CORE	1C7*2	626	BES
1	EA	COORDINATOR	COR X FL (MB AS REQ'D)	628	IVE
2	EA	SURFACE CLOSER (W/ SPRING STOP & HO)	4040XP SHCUSH	689	LCN
2	EA	KICK PLATE	8400 10" X 1" LDW B-CS	630	IVE
1	EA	RAIN DRIP	142AA	AA	ZER
2	SET	WEATHERSTRIPPING	429AA-S @ JAMBS	AA	ZER
1	EA	GASKETING	488SBK PSA @ HEAD & APPLY TO ASTRAGAL	BK	ZER
1	EA	SECURITY ASTRAGAL	43STST	STST	ZER
2	EA	DOOR SWEEP, BRUSH W/ DRIP	8198AA	AA	ZER
1	EA	THRESHOLD, 1/2"	655A	A	ZER

HARDWARE GROUP NO. 10

For use on Door #(s):
B102

Provide each OPENING with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
1	EA	CONT. HINGE	224XY	628	IVE
1	EA	PANIC HARDWARE	LD-99-NL	628	VON
1	EA	PERMANENT CORE	1C7*2	626	BES
1	EA	RIM CYL HOUSING (SFIC)	80-159 (W/ KEYED CONST CORE)	626	SCH
1	EA	SURFACE CLOSER (W/ SPRING STOP)	4040XP SCUSH	689	LCN
1	EA	KICK PLATE	8400 10" X 1 1/2" LDW B-CS	630	IVE
1	EA	RAIN DRIP	142AA	AA	ZER
1	SET	WEATHERSTRIPPING	429AA-S	AA	ZER
1	EA	DOOR SWEEP, BRUSH W/ DRIP	8198AA	AA	ZER
1	EA	THRESHOLD, 1/2"	655A	A	ZER

HARDWARE GROUP NO. 11

For use on Door #(s):
A100.3 A105.3 A105.4

Provide each OPENING with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
1	EA	PERMANENT CORE	1C7*2	626	BES
1	EA	MORTISE CYL HOUSING (SFIC)	80-110 (W/ DISP CONST CORE)	626	SCH

VERIFY EXACT CYLINDER TYPE REQUIRED. BALANCE OF HARDWARE BY DOOR MANUFACTURER.

HARDWARE GROUP NO. 12

For use on Door #(s):
C200 C201

Provide each OPENING with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
1	EA	PERMANENT CORE	1C7*2	626	BES
1	EA	MORTISE CYL HOUSING (SFIC)	80-110 (W/ DISP CONST CORE)	626	SCH

VERIFY EXACT CYLINDER TYPE REQUIRED. BALANCE OF HARDWARE BY PRESS BOX MANUFACTURER.

HARDWARE GROUP NO. 13

For use on Door #(s):
G100.1

Provide each OPENING with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
1	EA	PADLOCK (SFIC)	KS21F1200	606	SCH
1	EA	PERMANENT CORE	1C7*2	626	BES

BALANCE OF HARDWARE BY DOOR MANUFACTURER/SUPPLIER.

END OF SECTION

DOOR#	**HWSET#**
A100.1	02
A100.3	11
A100A	04
A101	06
A102	03
A103	01
A104	01
A105.1	07
A105.2	05
A105.3	11
A105.4	11
A105.5	09
A106	08
B100	06
B102	10
B103	06
B200	**06**
B300	**06**
C100	08
C101	09
C200	12
C201	12
G100.1	**13**
G100.2	**06**

DOOR#	**HWSET#**
A100.1	02
A100.3	11
A100A	04
A101	06
A102	03
A103	01
A104	01
A105.1	07
A105.2	05
A105.3	11
A105.4	11
A105.5	09
A106	08
B100	06
B102	06
B103	10
C100	08
C101	09
C200	12
C201	12

SECTION 133419.99 -PRESS BOXES

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:

1. Prefabricated press box.

1.3 ACTION SUBMITTALS

A. General: Submit each item in this Article according to the Conditions of the Contract and Division 01 Specification Sections.

B. Product Data with Shop Drawings:

1. Product Data: For each type of Pressbox, including details of construction relative to materials, dimensions of individual components, profiles, and finishes.
2. Shop Drawings: Provide complete set of shop drawings showing fabrication and installation of Pressbox, including plans, elevations, sections, details of components, and attachments to other units of Work.
    a. Include structural analysis data signed and sealed by the qualified professional engineer for their preparation.

C. Regulatory Submittals: Manufacturer shall be responsible for submitting all necessary documents required to the state and local jurisdictions applicable to achieve permit status for the press box to be provided for the project.

1.4 QUALITY ASSURANCE

A. Installer Qualifications: Engage an experienced, factory trained installer to perform Work of this Section, who has specialized in installing press boxes similar to those required for this Project, who is acceptable to, or certified by, manufacturer of press box and grandstands, and has a record of successful in-service performance.

B. Manufacturer Qualifications: Firm with not less than 10 years' continuous, successful experience in manufacturing press boxes similar to those indicated for this Project and with a record of successful in-service performance.

C. Professional Engineer Qualifications: A Professional Engineer who is legally authorized to practice in the jurisdiction where Project is located and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for installations of press boxes that are similar to that indicated for this Project in material, design, and extent.

D. Welding Standards: Comply with applicable provisions of AWS D1.1 "Structural Welding Code Steel" and AWS D1.3 "Structural Welding Code Sheet Steel. "

1. Engage certified welders that have satisfactorily passed AWS qualification tests for welding processes involved and, if pertinent, have undergone re certification.

E. Accessibility Requirements: Provide Press box that complies with the requirements in the U.S. Architectural & Transportation Barrier Compliance Board's "American with Disabilities Act (ADA, Accessibility Guidelines for Building and Facilities (ADAAG)".

F. Product Options: Drawings indicate size, profiles, and dimensional requirements of indicated manufacturers and are based upon the products indicated. Other manufacturers' products with equal performance characteristics may be considered, provided that deviations are minor and do not materially change the design concept as solely judged by the Architect/Engineer. Refer to Division 01 Section "Substitutions."

1.5 PROJECT CONDITIONS

A. Field Measurements: Check actual dimensions of construction affecting press box including coordination with grandstands and bleachers, by accurate field measurements before fabrication and show recorded measurements on shop drawings. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

1.6 WARRANTY

A. Warranty: Press box shall be guaranteed for ten (10) years against any and all leaks and water migration into the press box, defective material and workmanship. Any material damaged shall be replace at the expense of the Press Box Manufacturer. The Warranty shall cover all material and labor costs. Damage resulting from abnormal use or vandalism is not applicable. Submit sample warranty documents for review with the above stipulated requirements.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

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

1. Dant Clayton Corp.
2. Outdoor Aluminum
3. Southern Bleacher Co.
4. E&D Specialties
5. SturdiSteel
6. GT Grandstands
7. Equal approved by Architect prior to bidding.

2.2 SCOPE OF WORK

A. Size and layout of Press box: Refer to Drawings.

2.3 FLOOR CONSTRUCTION

A. Bottom Board: 1/2" CCX foundation grade treated plywood. Industrial grade asphalt-based paint. Continuous aluminum vents on 8' centers.

B. Insulation: 6" R-19 fiberglass batts, with vapor barrier.

C. Joists: 2" x 6" #2 on 16" centers, longitudinal framing.

D. Decking: 3/4" Sturdifloor, underlayment grade, tongue and groove fir plywood, (24"in O.C.)

E. Floor Coverings:

1. Carpet (CPT): Interface Walk Off Carpet Tiles, Interface Step Repeat SR999 104945 Onyx, Triseal Sealer and Releasable Adhesive.

2. Viny Composition Tile (VCT): Johnsonite, 12" x 12" x 1/8" t, ASTM F 1066, Class 2, through pattern tile. Two colors – equal:

a. VCT-1: Tarkett, 556 Sandstone
b. VCT-2: Tarkett, 565 Matador

3. Refer to Drawings for floor type locations.

F. Molding: 4" Thermoplastic continuous rubber base molding by Roppe.

2.4 WALL CONSTRUCTION

A. Studs: 2” x 4”, #2 or better SPF, on 16” centers, BOCA framing.

B. Bottom Plate: 2” x 4” #2 or better SPF.

C. Top Plates: (2) 2” x 4” #2 or better SPF.

D. Headers: As span and design load requires.

E. Ceiling Height: 8’-2” x 8’-0”, front to back

F. Covering: 5/8” vinyl-faced gypsum panels, Class A, F.S.R.

G. Insulation: 3-1/2” R-13 fiberglass batts with vapor barrier.

H. Sheathing: 1/2” CDX plywood.

I. Siding: .026 gauge ribbed steel panels with Kynar 500 finish (color to be determined by school).

J. Three internal rooms as indicated on Drawings (divider walls to have windows at the front to allow downfield viewing

K. Provide ¾” plywood blocking in walls between studs where wall mounted technology racks are indicated on floor plan.

2.5 ROOF CONSTRUCTION

A. Joists: 2” x 8”, #2 SYP, 16” O.C. spacing.

B. Overhang: 15-1/2” over front wall; 6” over rear wall. .019 metal fascia with perforated vinyl soffit panels.

C. Ceiling: 5/8” type-x fire-rated gypsum board, taped and bedded with spray textured finish, Class A F.S.R.

D. Insulation: 6” R-19 fiberglass batts with vapor barrier.

E. Decking: 3/4” tongue & groove oriented strand board (Index 24” O.C.).

F. Upgraded Roof Surface: .060 polyester reinforced skid and spike resistant PVC membrane, fully adhered.

G. Perimeter Edging, Gutter, Downspout: Provide perimeter aluminum edge flashing and continuous gutter on low-sloped edge. Provide aluminum downspout at one end of gutter and extend downspout to an elevation 1 foot below the floor structure of press box. Verify exact location of downspout with Owner's Representative.

2.6 WINDOWS

A. Wintech "6000 series" double horizontal slider window w/ extruded aluminum frames, AAMA LC-25 structural rating, w/ ¾" insulated low-E, argon filled tempered glass and removable insect screens.

B. Sloped front windows to improve sight lines and reduce glare

C. Interior Windows to be ¼" tempered safety glass fixed pan with stained jambs and casing.

2.7 DOORS

A. 36" x 80" Insulated vinyl-faced steel clad with wood jambs; 16" insulated/tempered lite, aluminum threshold with 1/2" raised threshold with stop/weatherstrip similar to PEMKO 279X224 FGV Latching Panic Saddle Threshold, rain-caps fastened to heads of frames similar to NGP (National Guard) 16A Overhead Rain Drip Guard, Anodized Aluminum, vinyl weather stops, heavy duty stainless steel hinges and heavy-duty retention chains. Doors equipped with commercial lever-handled keyed locksets. Provide heavy duty stainless lever-handles lockset with removable cores. Provide cores manufactured by Schlage to match Owner's Key System. Provide a total of 12 keys for distribution to the Owner.

1. Provide card access controls for openings identified on Drawings.

B. Doors (Interior) - 1-3/8" Solid-core stained birch with stained birch wood jambs and casing and passage lever handled hardware.

C. Overhead coiling counter doors:

1. Material: Aluminum

2. Operations: Manual, push-up – provide pull hook.

3. Curtain: No. 1F, interlocked flat-faced slats, 1-1/2 inches (38 mm) high by ½-inch (13 mm) deep, minimum 0.040-inch aluminum with extruded tubular aluminum bottom bar with continuous lift handle and vinyl astragal

4. Endlocks: Fabricate interlocking slat sections with high strength molded nylon endlocks riveted to ends of alternate slats.

5. Hood: 0.040 Aluminum with reinforced top and bottom edges and steel intermediate support angles.

6. Guides: Heavy duty extruded aluminum angle with snap on over to conceal fasteners.

7. Model: ESC10.

8. Manufacturer: Cornell, Cookson, Clopay.

2.8 ELECTRICAL

A. Provide all required work for lighting, power, and systems rough-ins.

1. All equipment and devices will be located during the shop drawing process.

B. Lighting

1. Provide (16) single gang back boxes in ceiling for future light fixtures.

2. Provide (6) single gang back boxes in wall for future lighting control devices.

3. Provide (6) single gang back boxes in exterior wall for future lighting.

i. Provide ¾” galvanized rigid conduit from one single gang back box to underside of press box.

4. Provide minimum ¾” EMT conduit between rough-in boxes and back to electrical panel as required.

i. Final conduit layout and routing will be determined during the shop drawing process.

C. Power

1. Provide provisions in wall for future recessed electrical panel.

i. Provide 2” galvanized rigid conduit from electrical panel to underside of press box.
ii. Size and location will be determined during the shop drawing process.

2. Provide (12) 4- 11/16"W x 4-11/16"T x 2-7/8"D back boxes with ½” single gang mud ring for future dual channel surface raceways.

3. Provide (4) two gang boxes in wall for future receptacles serving data racks.

4. Provide (6) single gang back boxes in exterior wall for future receptacles.

5. Provide (6) two gang back boxes in wall for future HVAC connection.

6. Provide minimum ¾” EMT conduit between rough-in boxes and back to electrical panel as required.

    i. Final conduit layout and routing will be determined during the shop drawing process.

D. Systems

1. Provide all boxes and conduit within walls,ceilings, and floors for data , audio visual, and security cabling provided by others. All box and conduit routing shall be placed by the Architect during the shop drawing review process.

2. Each location within the press box shall be provided with a 4 11/16" square box, min 2 7/8" deep box with 1" conduit routed to the telecom or AV rack location as required. Locations shall be provided with a single gang or two gang ring as required.

3. Provide a minimum of 12 locations within the pressbox interior side and a minimum of 14 locations on the exterior face of the pressbox.

4. Provide in wall/ceiling blocking to support exterior wall mounted and roof mounted speakers. A minimum of six wall mounted exterior speakers weighing 60 lbs each will be provided and installed by others.. A minimum of 2 roof mounted speakers weighting 125 lbs each will be provided and installed by others.

4. The Telecom rack to serve the press box will require a 6"x6"x3" box with 2-2" conduit routed above the ceiling and 2-2" conduits below the flooring to serve future telecom and AV cabling provided by others.

5. The AV rack to serve the press box will require a 6"x6"x3" box with 2-2" conduit routed above the ceiling and below the flooring to serve future telecom and AV cabling provided by others.

A. 6. A minimum of two door openings shall be provided with all rough-ins required for electronic access control hardware and a card reader to serve the pressbox. Each opening will require prep for a door position switch and request to exit at the top of the door frame. Provide a conduit pathway into the hinge side of the door frame for power and latch controls."

2.9 SCORERS' COUNTER

A. 20" deep x 1 ½" Clear Anodized finish aluminum countertop with rounded front nose. Mounted on brackets spaced a minimum of 24". Install grommets in countertop directly above electrical and data outlets wall mounted under countertop.

2.10 RESILIENT FLOORING

A. 12 BY 12" vinyl composition tile with smooth wear layer, .125" thick. Color to be selected by Architect from manufacturers full range. Lay tiles with grain direction alternating in adjacent tiles (basket-weave pattern) following manufacturers recommendations. Floor Polish: Remove soil, adhesive, and blemishes from floor tile surfaces before applying liquid floor polish, 5 coat(s).

2.11 RESILIENT BASE

A. Resilient wall base to be 4" rubber with toe. Lengths in coil form and job formed inside/outside corners. Color to be selected by Architect from manufacturers full range.

2.12 CAMERA DECKS

A. Upgraded Roof Surface: .060 polyester reinforced skid and spike resistant PVC membrane, fully adhered.

B. Railing Mounts: 1/2" galvanized threaded bolts & nuts through roof fascia on 48" centers along perimeter edge of roof. Railing mounts cannot be placed on the roof surface.

C. Camera deck chain-link fencing shall have continuous top and bottom rails. All camera deck fencing fabric, top and bottom rails and vertical supports shall be black vinyl coated.

2.13 HVAC

A. Manufacturer Standard heat pump unit per room.

2.14 STRUCTURAL SUPPORT AND FOUNDATIONS

A. Press box Style: Free Standing – on top of CMU structure.

B. Support to be designed by press box manufacturer and stamped by a state PE.

C. Structural shapes meet one of the following ASTM specifications: A36, A36/A572 grade 50, A572 grade 50, A529-50, or A500 grade B.

1. Shop connections are seal welds.

2. After fabrication, all steel is hot-dipped galvanized to ASTM-A-123 specifications.

D. See S-Series drawings for necessary loading criteria.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine areas where press box are to be installed, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of units.

B. Verify press box may be installed in strict accordance with the original design as indicated, shop drawings, and with the manufacturer’s written recommendations.

C. Discrepancies: In the event of a discrepancy, immediately notify the Architect/Engineer.

1. Do not proceed with installation in areas of discrepancy until all such discrepancies have been fully resolved.

3.2 INSTALLATION

A. Refer to Division 03 Section "Cast in Place Concrete" for concrete foundation, footings, and bases for grandstand and bleacher units.

B. Install Press box units in strict accordance with design as shown, approved shop drawings, and with manufacturer's instructions. Provide accessories indicated and anchors, fasteners, inserts, and other items required for securely installing and attaching units to adjoining construction.

3.3 CLEANING

A. Clean installed press box on exposed and semiexposed surfaces. Touch up shop applied finishes restoring damaged or soiled areas.

B. Units which are damaged and/or defective and cannot be repaired to eliminate all evidence of such damage shall be replaced as directed by the Architect/Engineer at no additional cost to the Owner.

3.4 PROTECTION

A. Provide final protection and maintain conditions, in a manner acceptable to manufacturer and Installer, that ensure press box are without damage or deterioration and ready for the Owner's use at the time of Substantial Completion.

END OF SECTION 133419.99

SECTION 26 56 68 – EXTERIOR ATHLETIC LIGHTING

Retrofit Lighting System with LED Upgrade

PART 1 – GENERAL

1.1 SUMMARY

A. Work covered by this section of the specifications shall conform to the contract documents, engineering plans as well as state and local codes.

B. The purpose of these specifications is to define the lighting system performance and design standards for **North Central High School Football** using an LED Lighting source. The manufacturer / contractor shall supply lighting equipment to meet or exceed the standards set forth in these specifications.

C. The sports lighting will be for the following venues:

1. Football (360'x160')

D. The primary goals of this sports lighting project are:

1. Energy Efficient Lighting Design – Upgrade by replacing existing HID luminaires with the same number of LED luminaires (or fewer), maintaining existing minimum required light levels and achieving the greatest possible amount of energy savings.

    a. Guaranteed Light Levels: Selection of appropriate light levels impact the safety of the players and the enjoyment of spectators. Therefore, light levels are guaranteed to not drop below specified target values for a period of 10 years.

    b. Environmental Light Control: It is the primary goal of this project to minimize spill light to adjoining properties and glare to the players, spectators and neighbors.

    c. Cost of Ownership: In order to reduce the operating budget, the preferred lighting system shall be energy efficient and cost effective to operate. All maintenance costs shall be eliminated for the duration of the warranty.

    d. All lighting designs shall comply with Indiana High School Athletic Association Standards.

2. Control and Monitoring – To allow for optimized use of labor resources and avoid unneeded operation of the facility, customer requires a remote on/off control system for the lighting system. Fields should be proactively monitored to detect luminaire outages over a 10-year life cycle. All communication and monitoring costs for 10-year period shall be included in the bid.

    a. Control and monitoring system shall provide contactor control of all existing circuits, replacing existing contactor cabinets. Key switches shall be provided to provide field-level control of existing circuit groups.

    b. Entertainment Features: Incorporation of theatrical light shows to enhance the presentation and enjoyment of players and spectators. Control system shall incorporate pre-programmed light shows such as "chase", "wave", and "score." Control system shall incorporate the ability to initiate these shows locally. System shall be able to time light shows to customer-supplied music.

    c. Accent Lighting: To allow for custom lighting effects, including team colors, lighting for special occasions, and theatrical effects, all poles should be equipped with RGB accent luminaires to illuminate the structures in various custom colors. Colors should be selectable via an onsite device.

1.2 ONFIELD LIGHTING PERFORMANCE

A. Illumination Levels and Design Factors: Playing surfaces shall be lit to an average target illumination level and uniformity as specified in the chart below. Lighting manufacturers will provide a guarantee that light levels will be sustained over the life of the warranty period. Lighting calculations shall be

developed and field measurements taken on the grid spacing with the minimum number of grid points specified below.

Manufacturers will provide lumen maintenance data of the LED luminaires used per TM-21-11 and will Incorporate the lumen maintenance projections Into the lighting designs to ensure target light levels are achieved throughout the guaranteed period of the system. Per IES guidelines, lumen maintenance hours should be reported based on the 6x multiplier of testing hours.

Area of Lighting	Average Target Illumination Levels	Maximum to Minimum Uniformity Ratio	Grid Points	Grid Spacing
Football	50 fc	2:1	72	30' x 30'

B. Color Temperature: The lighting system shall have a minimum color temperature of 5700K and a CRI of 75.

C. Playability: Lighting design and luminaire selection should be optimized for playability by reducing glare onfield and providing sufficient uplight.

1. Aiming Angles: To reduce glare, luminaire aiming should ensure the top of the luminaire field angle (based on sample photometric reports) is a minimum of 10 degrees below horizontal.
2. Glare control technology – Luminaires selected should have glare control technology including, but not limited to: external visors, internal shields and louvres. No symmetrical beam patterns are acceptable.
3. Aerial lighting – Adequate illumination must be provided above the field in order to see the ball in flight. It is recommended that a lighting analysis be performed above the field of play to evaluate the visibility of the ball over its typical trajectory to ensure the participants will adequately see the ball. Calculation planes should be evaluated up to the maximum anticipated height for the level of play.

1.3 ENVIRONMENTAL LIGHT CONTROL

A. Light Control Luminaires: All luminaires shall utilize spill light and glare control devices including, but not limited to, internal shields, louvers and external shields. No symmetrical beam patterns are accepted.

B. Spill Light and Glare Control: The lighting equipment manufacturer shall assess both spill and glare at all areas of concern on adjacent properties. To minimize impact, values must not exceed the following levels taken at 3 feet above grade. Field measurements of spill light shall be taken at the areas of concern.

Spill Along South Homes	Maximum
Horizontal Footcandles	0.1 fc
Vertical Footcandles	0.1 fc
Candela (taken at 5 ft above grade)	2,500 cd

E. Spill Scans: Spill scans must be submitted indicating the amount of horizontal and vertical footcandles along the specified lines. Light levels shall be taken at 30-foot intervals along the boundary line. Readings shall be taken with the meter orientation at both horizontal and aimed towards the most intense bank of lights. Illumination level shall be measured in accordance with the IESNA LM-5-04 after 1 hour warm up.

F. Sample Photometry: The first page of a photometric report for all luminaire types proposed showing horizontal and vertical axial candle power shall be provided to demonstrate the capability of achieving the specified performance. Reports shall be certified by a qualified testing laboratory with a minimum of five years experience or by a manufacturer's laboratory with a current accreditation under the National Voluntary Laboratory Accreditation Program for Energy Efficient Lighting Products. A

summary of the horizontal and vertical aiming angles for each luminaire shall be included with the photometric report.

G. Field Verification – Lighting manufacturer shall supply field verification of environmental light control using a meter calibrated within the last 12 months:

1. Spill verification: The light sensing surface of the light meter should be held 36 inches above the playing surface with the sensing surface horizontal (for horizontal readings) or vertically pointed at the brightest light bank (for max vertical readings)

1.4 Cost of Ownership

A. Manufacturer shall submit a 10-year Cost of Ownership summary that includes energy consumption, anticipated maintenance costs, and control costs. All costs associated with faulty luminaire replacement - equipment rentals, removal and installation labor, and shipping - are to be included in the maintenance costs.

PART 2 – PRODUCT

2.2 SPORTS LIGHTING SYSTEM CONSTRUCTION

A. Manufacturing Requirements: All components shall be designed and manufactured as a system. All luminaires, wire harnesses, drivers and other enclosures shall be factory assembled, aimed, wired and tested.

B. Durability: All exposed components shall be constructed of corrosion resistant material and/or coated to help prevent corrosion. All exposed carbon steel shall be hot dip galvanized per ASTM A123. All exposed aluminum shall be powder coated with high performance polyester or anodized. All exterior reflective inserts shall be anodized, coated, and protected from direct environmental exposure to prevent reflective degradation or corrosion. All exposed hardware and fasteners shall be stainless steel, passivated and coated with aluminum-based thermosetting epoxy resin for protection against corrosion and stress corrosion cracking. Structural fasteners may be carbon steel and galvanized meeting ASTM A153 and ISO/EN 1461 (for hot dipped galvanizing), or ASTM B695 (for mechanical galvanizing). All wiring shall be enclosed within the cross-arms, pole, or electrical components enclosure.

C. System Description: Lighting system is intended to mount to existing structures and shall reuse existing foundations, poles and underground supply wiring. The system shall consist of the following:

1. Existing equipment: Strength and condition of existing poles and foundations must be verified as strong enough to handle the weight and windloading of new equipment by calculation and visual inspection.

2. Poletop luminaire assembly: Galvanized steel poletop luminaire assemblies to replace existing poletop by slip fit over the pole sections, bolting to top flange, or clamping to pole. Lighting manufacturer must supply new crossarms, or supply calculations that show crossarms are strong enough to support new loads without deflection.

3. All luminaires, visors, and poletop luminaire assemblies shall withstand 150 mi/h winds and maintain luminaire aiming alignment.

4. Manufacturer will supply all drivers and supporting electrical equipment

a. Remote drivers and supporting electrical equipment shall be mounted approximately 10 feet above grade in aluminum enclosures. The enclosures shall be touch-safe and include drivers and fusing with indicator lights on fuses to notify when a fuse is to be replaced for each luminaire. Disconnect per circuit for each pole structure will be located in the enclosure. Integral drivers are not allowed.

b. ***Per IHSAA Lighting Standards (Page 5, Section 10 Ballast (MH) or Driver (LED) Weight). It is recommended that all ballast and drivers be remotely mounted on pole at step ladder height. Remote ballast/Remote drivers and supporting electrical equipment shall be mounted in aluminum enclosures. The enclosures shall be touch-safe and include drivers and fusing with indicator lights on fuses to notify when a fuse is to be replaced for each luminaire. Disconnect per***

circuit for each pole structure will be located in the enclosure.

c. ***Per IHSAA Lighting Standards (Page 5, Section 10 Ballast (MH) or Driver (LED) Weight); feels that remotely mounting ballast/drivers and supporting electrical equipment at step ladder height creates safer conditions and more economical solution for servicing and maintenance.***

d. Manufacturer shall provide surge protection at the pole equal to or greater than 40 kA for each line to ground (Common Mode) as recommended by IEEE C62.41.2_2002.

4. Wire harness complete with an abrasion protection sleeve, strain relief and plug-in connections for fast, trouble-free installation.

5. Control cabinet to provide remote on-off control, monitoring, and entertainment features of the lighting system. See Section 2.3 for further details.

8. Manufacturer shall provide lightning grounding as defined by NFPA 780 and be UL Listed per UL 96 and UL 96A.

a. Manufacturer or installer shall supply grounding electrodes, down conductors, and exothermic weld kits. For steel poles, down conductor required from bottom of steel. For concrete poles full length down conductor is required. Electrodes and conductors shall be sized as required by NFPA 780.

D. Safety: All system components shall be UL listed for the appropriate application.

2.2 ELECTRICAL

A. Electric Power Requirements for the Sports Lighting Equipment:
1. Electric power: 480 Volt, 3 Phase
2. Maximum total voltage drop: Voltage drop to the disconnect switch located on the poles shall not exceed three (3) percent of the rated voltage.

B. Energy Consumption: The kW consumption for the field lighting system shall be less than 83kW.

2.3 CONTROL

A. Instant On/Off Capabilities: System shall provide for instant on/off of luminaires.

B. Lighting contactor cabinet(s) constructed of NEMA Type 4 aluminum, designed for easy installation with contactors, labeled to match field diagrams and electrical design. Manual off-on-auto selector switches shall be provided.

C. Contactor control of lights: To minimize wear on drivers and other electrical components and prevent lights from turning on due to communication loss, circuits must be controlled via contactor switching, not dimming driver output to zero.

D. Dimming: System shall provide for 4-stage dimming (high-medium-low-blackout). Dimming will be set via scheduling options (Website, app, phone, fax, email) or via an onsite user interface tablet or device.

E. Remote Lighting Control System: System shall allow owner and users with a security code to schedule on/off system operation via a web site, phone, fax or email up to ten years in advance. Manufacturer shall provide and maintain a two-way TCP/IP communication link. Trained staff shall be available 24/7 to provide scheduling support and assist with reporting needs.

The owner may assign various security levels to schedulers by function and/or fields. This function must be flexible to allow a range of privileges such as full scheduling capabilities for all fields to only having permission to execute “early off” commands by phone. Scheduling tool shall be capable of setting curfew limits.

Controller shall accept and store 7-day schedules, be protected against memory loss during power outages, and shall reboot once power is regained and execute any commands that would have occurred during outage.

F. Remote Monitoring System: System shall monitor lighting performance and notify manufacturer if individual luminaire outage is detected so that appropriate maintenance can be scheduled. The

controller shall determine switch position (manual or auto) and contactor status (open or closed).

G. Management Tools: Manufacturer shall provide a web-based database and dashboard tool of actual field usage and provide reports by facility and user group. Dashboard shall also show current status of luminaire outages, control operation and service. Mobile application will be provided suitable for IOS, Android and Blackberry devices.

Hours of Usage: Manufacturer shall provide a means of tracking actual hours of usage for the field lighting system that is readily accessible to the owner.

1. Cumulative hours: shall be tracked to show the total hours used by the facility
2. Report hours saved by using early off and push buttons by users.

H. Communication Costs: Manufacturer shall include communication costs for operating the control and monitoring system for a period of 10 years.

I. Communication with luminaire drivers: Control system shall interface with drivers in electrical components enclosures by means of powerline communication.

J. Entertainment Features: Control System shall store (6) pre-programmed light shows and (4) minutes of light show programming set to licensed music supplied by the customer. Shows shall be initiated by a manufacturer-provided touchscreen user interface on the control system network.

2.4 STRUCTURAL PARAMETERS

A. Wind Loads: Wind loads shall be based on the 2012 International Building Code. Wind loads to be calculated using ASCE 7-10, an ultimate design wind speed of 115 and exposure category C.

B. Pole Structural Analysis: The stress analysis and safety factor of the poles shall conform to 2009 AASHTO Standard Specification for Structural Supports for Highway Signs, Luminaires, and Traffic Signals (LTS-5).

PART 3 – EXECUTION

3.1 DELIVERY TIMING

B. Delivery Timing Equipment On-Site: The equipment must be on-site 10-12 weeks from receipt of approved submittals and receipt of complete order information.

3.2 FIELD QUALITY CONTROL

A. Illumination Measurements: Upon substantial completion of the project and in the presence of the Contractor, Project Engineer, Owner's Representative, and Manufacturer's Representative, illumination measurements shall be taken and verified. The illumination measurements shall be conducted in accordance with IESNA LM-5-04.

B. Field Light Level and offsite Glare Accountability

1. Light levels are guaranteed not to fall below the target maintained light levels for the entire warranty period of 10 years. These levels will be specifically stated as “guaranteed” on the illumination summary provided by the manufacturer.

2. The contractor/manufacturer shall be responsible for conducting initial light level testing and an additional inspection of the system, in the presence of the owner, one year from the date of commissioning of the lighting.

3. The contractor/manufacturer will be held responsible for any and all changes needed to bring these fields back to compliance for light levels and uniformities. Contractor/Manufacturer will be held responsible for any damage to the fields during these repairs.

C. Correcting Non-Conformance: If, in the opinion of the Owner or his appointed Representative, the actual performance levels including footcandles, uniformity ratios, and uplight for aerial visibility are not in conformance with the requirements of the performance specifications and submitted

information, the Manufacturer shall be required to make adjustments to meet specifications and satisfy Owner.

3.4 WARRANTY AND GUARANTEE

A. 10-Year Warranty: Each manufacturer shall supply a signed warranty covering the entire system for 10 years from the date of shipment. Warranty shall guarantee specified light levels. Manufacturer shall maintain specifically-funded financial reserves to assure fulfillment of the warranty for the full term. Warranty does not cover weather conditions events such as lightning or hail damage, improper installation, vandalism or abuse, unauthorized repairs or alterations, or product made by other manufacturers.

B. Maintenance: Manufacturer shall monitor the performance of the lighting system, including on/off status, hours of usage and luminaire outage for 10 years from the date of equipment shipment. Parts and labor shall be covered such that individual luminaire outages will be repaired when the usage of any field is materially impacted. Manufacturer is responsible for removal and replacement of failed luminaires, including all parts, labor, shipping, and equipment rental associated with maintenance. Owner agrees to check fuses in the event of a luminaire outage.

PART 4 – DESIGN APPROVAL

4.0 PRE-BID SUBMITTAL REQUIREMENTS

A. Design Approval: The owner / engineer will review pre-bid submittals per section 4.0.B from all the manufacturers to ensure compliance to the specification 10 days prior to bid. If the design meets the design requirements of the specifications, an addendum will be issued indicating approval for the specific design submitted.

B. Basis-of-Design Product: Exterior Athletic Lighting design is based on Musco's SportsCluster System with TLC for LED™. All substitutions must provide a complete submittal package for approval as outlined in Submittal Information at the end of this section at least 10 days prior to bid. Special manufacturing to meet the standards of this specification may be required. Bidder shall be responsible for all costs associated with deviations required for non-Basis-of-Design Exterior Athletic Lighting system to meet performance levels indicated.

1. Acceptable Equal: Qualite Sports Lighting.

C. All listed manufacturers not pre-approved shall submit the information at the end of this section at least 10 days prior to bid. An addendum will be issued prior to bid; listing approved lighting manufacturers and the design method to be used.

D. Bidders are required to bid only products that have been approved by this specification or addendum by the owner or owner's representative. Bids received that do not utilize an approved system/design, will be rejected.

REQUIRED SUBMITTAL INFORMATION FOR ALL MANUFACTURERS (NOT PRE-APPROVED) 10 DAYS PRIOR TO BID

All items listed below are mandatory, shall comply with the specification and be submitted according to pre-bid submittal requirements. Complete the Yes/No column to indicate compliance (Y) or noncompliance (N) for each item. ***Submit checklist below with submittal.***

Yes/ No	Tab	Item	Description
	A	Letter/ Checklist	Listing of all information being submitted must be included on the table of contents. List the name of the manufacturer's local representative and his/her phone number. Signed submittal checklist to be included.
	B	Equipment Layout	Drawing(s) showing field layouts with pole locations
	C	On Field Lighting Design	Lighting design drawing(s) showing: a. Field Name, date, file number, prepared by b. Outline of field(s) being lighted, as well as pole locations referenced to the center of the field (x & y), Illuminance levels at grid spacing specified c. Pole height, number of fixtures per pole, horizontal and vertical aiming angles, as well as luminaire information including wattage, lumens and optics d. Height of light test meter above field surface. e. Summary table showing the number and spacing of grid points; average, minimum and maximum illuminance levels in foot candles (fc); uniformity including maximum to minimum ratio, coefficient of variance (CV), coefficient of utilization (CU) uniformity gradient; number of luminaries, total kilowatts, average tilt factor; light loss factor.
	D	Off Field Lighting Design	Lighting design drawing showing initial spill light levels along the boundary line (defined on bid drawings) in footcandles. Lighting design showing glare along the boundary line in candela. Light levels shall be taken at 30-foot intervals along the boundary line. Readings shall be taken with the meter orientation at both horizontal and aimed towards the most intense bank of lights.
	E	Photometric Report	Provide first page of photometric report for all luminaire types being proposed showing candela tabulations as defined by IESNA Publication LM-35-02. Photometric data shall be certified by laboratory with current National Voluntary Laboratory Accreditation Program or an independent testing facility with over 5 years experience.
	F	Performance Guarantee	Provide performance guarantee including a written commitment to undertake all corrections required to meet the performance requirements noted in these specifications at no expense to the owner. Light levels must be guaranteed to not fall below target levels for warranty period. Glare values in candela must be guaranteed to not be exceeded.
	G	Control & Monitoring System	Manufacturer of the control and monitoring system shall provide written definition and schematics for automated control system and entertainment packages. They will also provide 10 references of customers currently using proposed system in the state of Indiana.
	H	Warranty	Provide written warranty information including all terms and conditions. Provide 10 references of customers currently under specified warranty in the state of Indiana.
	I	Project References	Manufacturer to provide a list of 10 projects where the technology and specific fixture proposed for this project has been installed in the state of Indiana. Reference list will include project name, project city, installation date, and if requested, contact name and contact phone number.
	J	Product Information	Complete bill of material and current brochures/cut sheets for all product being provided.
	K	Delivery	Manufacturer shall supply an expected delivery timeframe from receipt of approved submittals and complete order information.
	L	Non-Compliance	Manufacturer shall list all items that do not comply with the specifications. If in full compliance, tab may be omitted.
	M	Cost of Ownership	Document cost of ownership as defined in the specification. Identify energy costs for operating the luminaires. Maintenance cost for the system must be included. All costs should be based on 10 Years

The information supplied herein shall be used for the purpose of complying with the specifications **for North Central High School Football**. By signing below I agree that all requirements of the specifications have been met and that the manufacturer will be responsible for any future costs incurred to bring their equipment into compliance for all items not meeting specifications and not listed in the Non-Compliance section.

Manufacturer: _____ **Signature:** _____

Contact Name: _____ **Date:** _____/_____/_____

Contractor: _____ **Signature:** _____

SECTION 26 56 68.99 – EXTERIOR ATHLETIC LIGHTING – SOCCER RETROFIT

Retrofit Lighting System with LED Upgrade

PART 1 – GENERAL

1.1 SUMMARY

A. Work covered by this section of the specifications shall conform to the contract documents, engineering plans as well as state and local codes.

B. The purpose of these specifications is to define the lighting system performance and design standards for ***North Central High School Soccer Retrofit*** using an LED Lighting source. The manufacturer / contractor shall supply lighting equipment to meet or exceed the standards set forth in these specifications.

C. The sports lighting will be for the following venues:

1. Soccer – 360'x225'

D. The primary goals of this sports lighting project are:

1. Energy Efficient Lighting Design – Upgrade by replacing existing HID luminaires with the same number of LED luminaires (or fewer), maintaining existing minimum required light levels and achieving the greatest possible amount of energy savings.

    a. Guaranteed Light Levels: Selection of appropriate light levels impact the safety of the players and the enjoyment of spectators. Therefore, light levels are guaranteed to not drop below specified target values for a period of 10 years.

    b. Environmental Light Control: It is the primary goal of this project to minimize spill light to adjoining properties and glare to the players, spectators and neighbors.

    c. Cost of Ownership: In order to reduce the operating budget, the preferred lighting system shall be energy efficient and cost effective to operate. All maintenance costs shall be eliminated for the duration of the warranty.

    d. All lighting designs shall comply with Indiana High School Athletic Association Standards.

2. Control and Monitoring – To allow for optimized use of labor resources and avoid unneeded operation of the facility, customer requires a remote on/off control system for the lighting system. Fields should be proactively monitored to detect luminaire outages over a 10-year life cycle. All communication and monitoring costs for 10-year period shall be included in the bid.

    a. Control and monitoring system shall provide contactor control of all existing circuits, replacing existing contactor cabinets. Key switches shall be provided to provide field-level control of existing circuit groups.

    b. Entertainment Features: Incorporation of theatrical light shows enhance the presentation and enjoyment of players and spectators. Control system shall incorporate pre-programmed light shows such as "chase", "wave", and "score." Control system shall incorporate the ability to initiate these shows locally. System shall be able to time light shows to customer-supplied music.

    c. Accent Lighting: To allow for custom lighting effects, including team colors, lighting for special occasions, and theatrical effects, all poles should be equipped with RGB accent luminaires to illuminate the structures in various custom colors. Colors should be selectable via an onsite device.

1.2 ONFIELD LIGHTING PERFORMANCE

A. Illumination Levels and Design Factors: Playing surfaces shall be lit to an average target illumination level and uniformity as specified in the chart below. Lighting manufacturers will provide a guarantee that light levels will be sustained over the life of the warranty period. Lighting calculations shall be

developed and field measurements taken on the grid spacing with the minimum number of grid points specified below.

Manufacturers will provide lumen maintenance data of the LED luminaires used per TM-21-11 and will Incorporate the lumen maintenance projections into the lighting designs to ensure target light levels are achieved throughout the guaranteed period of the system. Per IES guidelines, lumen maintenance hours should be reported based on the 6x multiplier of testing hours.

Area of Lighting	Average Target Illumination Levels	Maximum to Minimum Uniformity Ratio	Grid Points	Grid Spacing
Soccer	30fc	2.5:1	96	30' x 30'

B. Color Temperature: The lighting system shall have a minimum color temperature of 5700K and a CRI of 75.

C. Playability: Lighting design and luminaire selection should be optimized for playability by reducing on-field glare.

1. Aiming Angles: To reduce glare, luminaire aiming should ensure the top of the luminaire field angle (based on sample photometric reports) is a minimum of 10 degrees below horizontal.
2. Glare control technology – Luminaires selected should have glare control technology including, but not limited to: external visors, internal shields and louvres. No symmetrical beam patterns are acceptable.

1.3 ENVIRONMENTAL LIGHT CONTROL

A. Light Control Luminaires: All luminaires shall utilize spill light and glare control devices including, but not limited to, internal shields, louvers and external shields. No symmetrical beam patterns are accepted.

B. Spill Light and Glare Control: The lighting equipment manufacturer shall assess both spill and glare at all areas of concern on adjacent properties. To minimize impact, values must not exceed the following levels taken at 3 feet above grade. Field measurements of spill light be taken at the areas of concern.

Surrounding Spill at 150'	Maximum
Horizontal Footcandles	0.2 fc
Vertical Footcandles	0.4 fc
Candela (taken at 3 ft above grade)	8,000 cd

E. Spill Scans: Spill scans must be submitted indicating the amount of horizontal and vertical footcandles along the specified lines. Light levels shall be taken at 30-foot intervals along the boundary line. Readings shall be taken with the meter orientation at both horizontal and aimed towards the most intense bank of lights. Illumination level shall be measured in accordance with the IESNA LM-5-04 after 1 hour warm up.

F. Sample Photometry: The first page of a photometric report for all luminaire types proposed showing horizontal and vertical axial candle power shall be provided to demonstrate the capability of achieving the specified performance. Reports shall be certified by a qualified testing laboratory with a minimum of five years of experience or by a manufacturer's laboratory with a current accreditation under the National Voluntary Laboratory Accreditation Program for Energy Efficient Lighting Products. A summary of the horizontal and vertical aiming angles for each luminaire shall be included with the photometric report.

G. Field Verification – Lighting manufacturer shall supply field verification of environmental light control using a meter calibrated within the last 12 months:

1. Spill verification: The light sensing surface of the light meter should be held 36 inches above the playing surface with the sensing surface horizontal (for horizontal readings) or vertically pointed at

the brightest light bank (for max vertical readings)

1.4 Cost of Ownership

A. Manufacturer shall submit a 10-year Cost of Ownership summary that includes energy consumption, anticipated maintenance costs, and control costs. All costs associated with faulty luminaire replacement - equipment rentals, removal and installation labor, and shipping - are to be included in the maintenance costs.

PART 2 – PRODUCT

2.2 SPORTS LIGHTING SYSTEM CONSTRUCTION

A. Manufacturing Requirements: All components shall be designed and manufactured as a system. All luminaires, wire harnesses, drivers and other enclosures shall be factory assembled, aimed, wired and tested.

B. Durability: All exposed components shall be constructed of corrosion resistant material and/or coated to help prevent corrosion. All exposed carbon steel shall be hot dip galvanized per ASTM A123. All exposed aluminum shall be powder coated with high performance polyester or anodized. All exterior reflective inserts shall be anodized, coated, and protected from direct environmental exposure to prevent reflective degradation or corrosion. All exposed hardware and fasteners shall be stainless steel, passivated and coated with aluminum-based thermosetting epoxy resin for protection against corrosion and stress corrosion cracking. Structural fasteners may be carbon steel and galvanized meeting ASTM A153 and ISO/EN 1461 (for hot dipped galvanizing), or ASTM B695 (for mechanical galvanizing). All wiring shall be enclosed within the cross-arms, pole, or electrical components enclosure.

C. System Description: Lighting system is intended to mount to existing structures and shall reuse existing foundations, poles, and underground supply wiring. The system shall consist of the following:

1. Existing equipment: Strength and condition of existing poles and foundations must be verified as strong enough to handle the weight and windloading of new equipment by calculation and visual inspection.

2. Poletop luminaire assembly: Galvanized steel poletop luminaire assemblies to replace existing poletop by slip fit over the pole sections, bolting to top flange, or clamping to pole. Lighting manufacturer must supply new crossarms, or supply calculations that show crossarms are strong enough to support new loads without deflection.

3. All luminaires, visors, and poletop luminaire assemblies shall withstand 150 mi/h winds and maintain luminaire aiming alignment.

4. Manufacturer will supply all drivers and supporting electrical equipment

    a. Remote drivers and supporting electrical equipment shall be mounted approximately 10 feet above grade in aluminum enclosures. The enclosures shall be touch-safe and include drivers and fusing with indicator lights on fuses to notify when a fuse is to be replaced for each luminaire. Disconnect per circuit for each pole structure will be located in the enclosure. Integral drivers are not allowed.

    b. ***Per IHSAA Lighting Standards (Page 5, Section 10 Ballast (MH) or Driver (LED) Weight). It is recommended that all ballast and drivers be remotely mounted on pole at step ladder height. Remote ballast/Remote drivers and supporting electrical equipment shall be mounted in aluminum enclosures. The enclosures shall be touch-safe and include drivers and fusing with indicator lights on fuses to notify when a fuse is to be replaced for each luminaire. Disconnect per circuit for each pole structure will be located in the enclosure.***

    c. ***Per IHSAA Lighting Standards (Page 5, Section 10 Ballast (MH) or Driver (LED) Weight); feels that remotely mounting ballast/drivers and supporting electrical equipment at step ladder height creates safer conditions and more economical solution for servicing and maintenance.***

d. Manufacturer shall provide surge protection at the pole equal to or greater than 40 kA for each line to ground (Common Mode) as recommended by IEEE C62.41.2_2002.

4. Wire harness complete with an abrasion protection sleeve, strain relief and plug-in connections for fast, trouble-free installation.

5. Control cabinet to provide remote on-off control, monitoring, and entertainment features of the lighting system. See Section 2.3 for further details.

8. Manufacturer shall provide lightning grounding as defined by NFPA 780 and be UL Listed per UL 96 and UL 96A.

a. Manufacturer or installer shall supply grounding electrodes, down conductors, and exothermic weld kits. For steel poles, down conductor required from bottom of steel. For concrete poles full length down conductor is required. Electrodes and conductors shall be sized as required by NFPA 780.

D. Safety: All system components shall be UL listed for the appropriate application.

2.2 ELECTRICAL

A. Electric Power Requirements for the Sports Lighting Equipment:
1. Electric power: 480 Volt, 3 Phase
2. Maximum total voltage drop: Voltage drop to the disconnect switch located on the poles shall not exceed three (3) percent of the rated voltage.

B. Energy Consumption: The kW consumption for the field lighting system shall be less than 28 kW.

2.3 CONTROL

A. Instant On/Off Capabilities: System shall provide for instant on/off of luminaires.

B. Lighting contactor cabinet(s) constructed of NEMA Type 4 aluminum, designed for easy installation with contactors, labeled to match field diagrams and electrical design. Manual off-on-auto selector switches shall be provided.

C. Contactor control of lights: To minimize wear on drivers and other electrical components and prevent lights from turning on due to communication loss, circuits must be controlled via contactor switching, not dimming driver output to zero.

D. Dimming: System shall provide for 4-stage dimming (high-medium-low-blackout). Dimming will be set via scheduling options (Website, app, phone, fax, email) or via an onsite user interface tablet or device.

E. Remote Lighting Control System: System shall allow owner and users with a security code to schedule on/off system operation via a web site, phone, fax or email up to ten years in advance. Manufacturer shall provide and maintain a two-way TCP/IP communication link. Trained staff shall be available 24/7 to provide scheduling support and assist with reporting needs.

The owner may assign various security levels to schedulers by function and/or fields. This function must be flexible to allow a range of privileges such as full scheduling capabilities for all fields to only having permission to execute “early off” commands by phone. Scheduling tool shall be capable of setting curfew limits.

Controller shall accept and store 7-day schedules, be protected against memory loss during power outages, and shall reboot once power is regained and execute any commands that would have occurred during outage.

F. Remote Monitoring System: System shall monitor lighting performance and notify manufacturer if individual luminaire outage is detected so that appropriate maintenance can be scheduled. The controller shall determine switch position (manual or auto) and contactor status (open or closed).

G. Management Tools: Manufacturer shall provide a web-based database and dashboard tool of actual field usage and provide reports by facility and user group. Dashboard shall also show current status of luminaire outages, control operation and service. Mobile application will be provided suitable for

IOS, Android and Blackberry devices.

Hours of Usage: Manufacturer shall provide a means of tracking actual hours of usage for the field lighting system that is readily accessible to the owner.

1. Cumulative hours: shall be tracked to show the total hours used by the facility
2. Report hours saved by using early off and push buttons by users.

H. Communication Costs: Manufacturer shall include communication costs for operating the control and monitoring system for a period of 10 years.

I. Communication with luminaire drivers: Control system shall interface with drivers in electrical components enclosures by means of powerline communication.

J. Entertainment Features: Control System shall store (6) pre-programmed light shows and (4) minutes of light show programming set to licensed music supplied by the customer. Shows shall be initiated by a manufacturer-provided touchscreen user interface on the control system network.

2.4 STRUCTURAL PARAMETERS

A. Wind Loads: Wind loads shall be based on the 2012 International Building Code. Wind loads to be calculated using ASCE 7-10, an ultimate design wind speed of 115 and exposure category C.

B. Pole Structural Analysis: The stress analysis and safety factor of the poles shall conform to 2009 AASHTO Standard Specification for Structural Supports for Highway Signs, Luminaires, and Traffic Signals (LTS-5).

PART 3 – EXECUTION

3.1 DELIVERY TIMING

B. Delivery Timing Equipment On-Site: The equipment must be on-site 10-12 weeks from receipt of approved submittals and receipt of complete order information.

3.2 FIELD QUALITY CONTROL

A. Illumination Measurements: Upon substantial completion of the project and in the presence of the Contractor, Project Engineer, Owner's Representative, and Manufacturer's Representative, illumination measurements shall be taken and verified. The illumination measurements shall be conducted in accordance with IESNA LM-5-04.

B. Field Light Level and offsite Glare Accountability

1. Light levels are guaranteed not to fall below the target maintained light levels for the entire warranty period of 10 years. These levels will be specifically stated as “guaranteed” on the illumination summary provided by the manufacturer.

2. The contractor/manufacturer shall be responsible for conducting initial light level testing and an additional inspection of the system, in the presence of the owner, one year from the date of commissioning of the lighting.

3. The contractor/manufacturer will be held responsible for any and all changes needed to bring these fields back to compliance for light levels and uniformities. Contractor/Manufacturer will be held responsible for any damage to the fields during these repairs.

C. Correcting Non-Conformance: If, in the opinion of the Owner or his appointed Representative, the actual performance levels, including footcandles and uniformity ratios, are not in conformance with the requirements of the performance specifications and submitted information, the Manufacturer shall be required to make adjustments to meet specifications and satisfy Owner.

3.4 WARRANTY AND GUARANTEE

A. 10-Year Warranty: Each manufacturer shall supply a signed warranty covering the entire system for 10 years from the date of shipment. Warranty shall guarantee specified light levels. Manufacturer shall maintain specifically-funded financial reserves to assure fulfillment of the warranty for the full

term. Warranty does not cover weather conditions events such as lightning or hail damage, improper installation, vandalism or abuse, unauthorized repairs or alterations, or product made by other manufacturers.

B. Maintenance: Manufacturer shall monitor the performance of the lighting system, including on/off status, hours of usage and luminaire outage for 10 years from the date of equipment shipment. Parts and labor shall be covered such that individual luminaire outages will be repaired when the usage of any field is materially impacted. Manufacturer is responsible for removal and replacement of failed luminaires, including all parts, labor, shipping, and equipment rental associated with maintenance. Owner agrees to check fuses in the event of a luminaire outage.

PART 4 – DESIGN APPROVAL

4.0 PRE-BID SUBMITTAL REQUIREMENTS

A. Design Approval: The owner / engineer will review pre-bid submittals per section 4.0.B from all the manufacturers to ensure compliance to the specification 10 days prior to bid. If the design meets the design requirements of the specifications, a letter and/or addendum will be issued to the manufacturer indicating approval for the specific design submitted.

B. Basis-of-Design Product: Exterior Athletic Lighting – Soccer Retrofit design is based on Musco's SportsCluster System with TLC for LED™. All substitutions must provide a complete submittal package for approval as outlined in Submittal Information at the end of this section at least 10 days prior to bid. Special manufacturing to meet the standards of this specification may be required. Bidder shall be responsible for all costs associated with deviations required for non-Basis-of-Design Exterior Athletic Lighting – Soccer Retrofit system to meet performance levels indicated.

1. Acceptable Equal: Qualite Sports Lighting.

C. All listed manufacturers not pre-approved shall submit the information at the end of this section at least 10 days prior to bid. An addendum will be issued prior to bid; listing approved lighting manufacturers and the design method to be used.

D. Bidders are required to bid only products that have been approved by this specification or addendum by the owner or owner's representative. Bids received that do not utilize an approved system/design, will be rejected.

REQUIRED SUBMITTAL INFORMATION FOR ALL MANUFACTURERS (NOT PRE-APPROVED) 10 DAYS PRIOR TO BID

All items listed below are mandatory, shall comply with the specification and be submitted according to pre-bid submittal requirements. Complete the Yes/No column to indicate compliance (Y) or noncompliance (N) for each item. ***Submit checklist below with submittal.***

Yes/ No	Tab	Item	Description
	A	Letter/ Checklist	Listing of all information being submitted must be included on the table of contents. List the name of the manufacturer's local representative and his/her phone number. Signed submittal checklist to be included.
	B	Equipment Layout	Drawing(s) showing field layouts with pole locations
	C	On Field Lighting Design	Lighting design drawing(s) showing: a. Field Name, date, file number, prepared by b. Outline of field(s) being lighted, as well as pole locations referenced to the center of the field (x & y), Illuminance levels at grid spacing specified c. Pole height, number of fixtures per pole, horizontal and vertical aiming angles, as well as luminaire information including wattage, lumens and optics d. Height of light test meter above field surface. e. Summary table showing the number and spacing of grid points; average, minimum and maximum illuminance levels in foot candles (fc); uniformity including maximum to minimum ratio, coefficient of variance (CV), coefficient of utilization (CU) uniformity gradient; number of luminaries, total kilowatts, average tilt factor; light loss factor.
	D	Off Field Lighting Design	Lighting design drawing showing initial spill light levels along the boundary line (defined on bid drawings) in footcandles. Lighting design showing glare along the boundary line in candela. Light levels shall be taken at 30-foot intervals along the boundary line. Readings shall be taken with the meter orientation at both horizontal and aimed towards the most intense bank of lights.
	E	Photometric Report	Provide first page of photometric report for all luminaire types being proposed showing candela tabulations as defined by IESNA Publication LM-35-02. Photometric data shall be certified by laboratory with current National Voluntary Laboratory Accreditation Program or an independent testing facility with over 5 years experience.
	F	Performance Guarantee	Provide performance guarantee including a written commitment to undertake all corrections required to meet the performance requirements noted in these specifications at no expense to the owner. Light levels must be guaranteed to not fall below target levels for warranty period. Glare values in candela must be guaranteed to not be exceeded.
	G	Control & Monitoring System	Manufacturer of the control and monitoring system shall provide written definition and schematics for automated control system and entertainment packages. They will also provide 10 references of customers currently using proposed system in the state of Indiana.
	H	Warranty	Provide written warranty information including all terms and conditions. Provide 10 references of customers currently under specified warranty in the state of Indiana.
	I	Project References	Manufacturer to provide a list of 10 projects where the technology and specific fixture proposed for this project has been installed in the state of Indiana. Reference list will include project name, project city, installation date, and if requested, contact name and contact phone number.
	J	Product Information	Complete bill of material and current brochures/cut sheets for all product being provided.
	K	Delivery	Manufacturer shall supply an expected delivery timeframe from receipt of approved submittals and complete order information.
	L	Non-Compliance	Manufacturer shall list all items that do not comply with the specifications. If in full compliance, tab may be omitted.
	M	Cost of Ownership	Document cost of ownership as defined in the specification. Identify energy costs for operating the luminaires. Maintenance cost for the system must be included. All costs should be based on 10 Years

The information supplied herein shall be used for the purpose of complying with the specifications for ***North Central High School Soccer Retrofit***. By signing below I agree that all requirements of the specifications have been met and that the manufacturer will be responsible for any future costs incurred to bring their equipment into compliance for all items not meeting specifications and not listed in the Non-Compliance section.

Manufacturer: _____ **Signature:** _____

Contact Name: _____ **Date:** _____/_____/_____

Contractor: _____ **Signature:** _____

M.S.D of Washington Township

North Central High School Renovation - Field Improvements Phase 4B

1801 East 86th Street
Indianapolis, IN 46240

2019-067.NCH

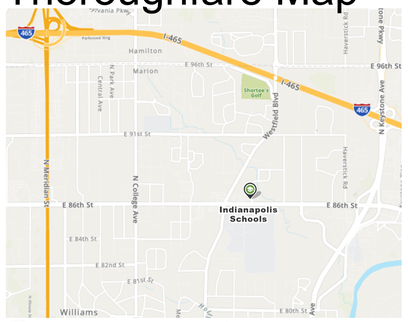
WASHINGTON TOWNSHIP SCHOOLS

07.27.2023

2019-067.NCH

Vicinity Map

Thoroughfare Map



General Notes

Nothing set forth in these Drawings shall release any Contractor from responsibility to provide appropriate quantities, field measurements, dimensional stability, installation, anchorage and coordination with other trades, or waive the Contractor's responsibility to identify and resolve deviations from the requirements of the Contract Documents, or waive the Contractor's responsibility to alert the Architect to errors or omissions contained therein.

Each Contractor shall verify in the field all existing applicable conditions and dimensions shown on the Drawings and as pertinent to the intent of these Drawings. Any discrepancy discovered shall be brought to the attention of the Architect prior to the commencement of any Work affected by, or related to, such discrepancy.

Each Contractor shall be responsible for all costs associated with, or caused by failure to comply with requirement.

Each Contractor shall review in advance all portions of the Work to verify that the Work will not prohibit completion of the Project as intended in these Contract Documents. Any questions shall be promptly referred to the Architect for resolution.

Each Contractor shall refer to the Project Manual for cleaning and disposal requirements.

Each Contractor shall be responsible for the protection of all surfaces and finishes at interior and exterior of building. Damaged surfaces and finishes resulting from the performance of the Work shall be repaired at no cost to the Owner by the responsible Contractor to match existing to the satisfaction of the Owner.

Each Contractor shall coordinate respective cutting and patching Work with the other Prime Contracts.

Each Contractor shall become completely familiar with all aspects of the Work, even those areas designated to be provided by others. This familiarization includes full and complete understanding of the Work described on all Sheets of the Drawings and in all Sections of the Project Manual. Failure by the Contractor to become completely familiar and cognizant of all aspects of the Work shall not relieve the Contractor of the responsibility to provide materials, assemblies, or services indicated in the Contract Documents.

SARAH KATHLEEN HEMPSTEAD REGISTERED NO. AR10400134 STATE OF INDIANA ARCHITECT

DAVID SHUCK REGISTERED No. 19700101 STATE OF INDIANA PROFESSIONAL ENGINEER

KBSO #20060 OLUWASEUN ODUKOMAIYA REGISTERED No. 11300632 STATE OF INDIANA PROFESSIONAL ENGINEER 7/27/2023

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

DYLAN SEESMAN REGISTERED No. PE11900810 STATE OF INDIANA PROFESSIONAL ENGINEER

BICSI REGISTERED COMMUNICATIONS DISTRIBUTION DESIGNER Matthew Connolly BICSI ID # 212593 EXPIRES 12-31-24 RCDD

SCHMIDT ASSOCIATES
schmidt-arch.com • 317.263.6226
415 Massachusetts Ave., Indianapolis, IN 46204
731 Brent St. #203, Louisville, KY 40204

SKILLMAN
The SKILLMAN Corporation
Project Administration
Construction Management

DESIGN 27 TECHNOLOGY + ACOUSTICS

kbso CONSULTING

JQOL QUALITY OF LIFE

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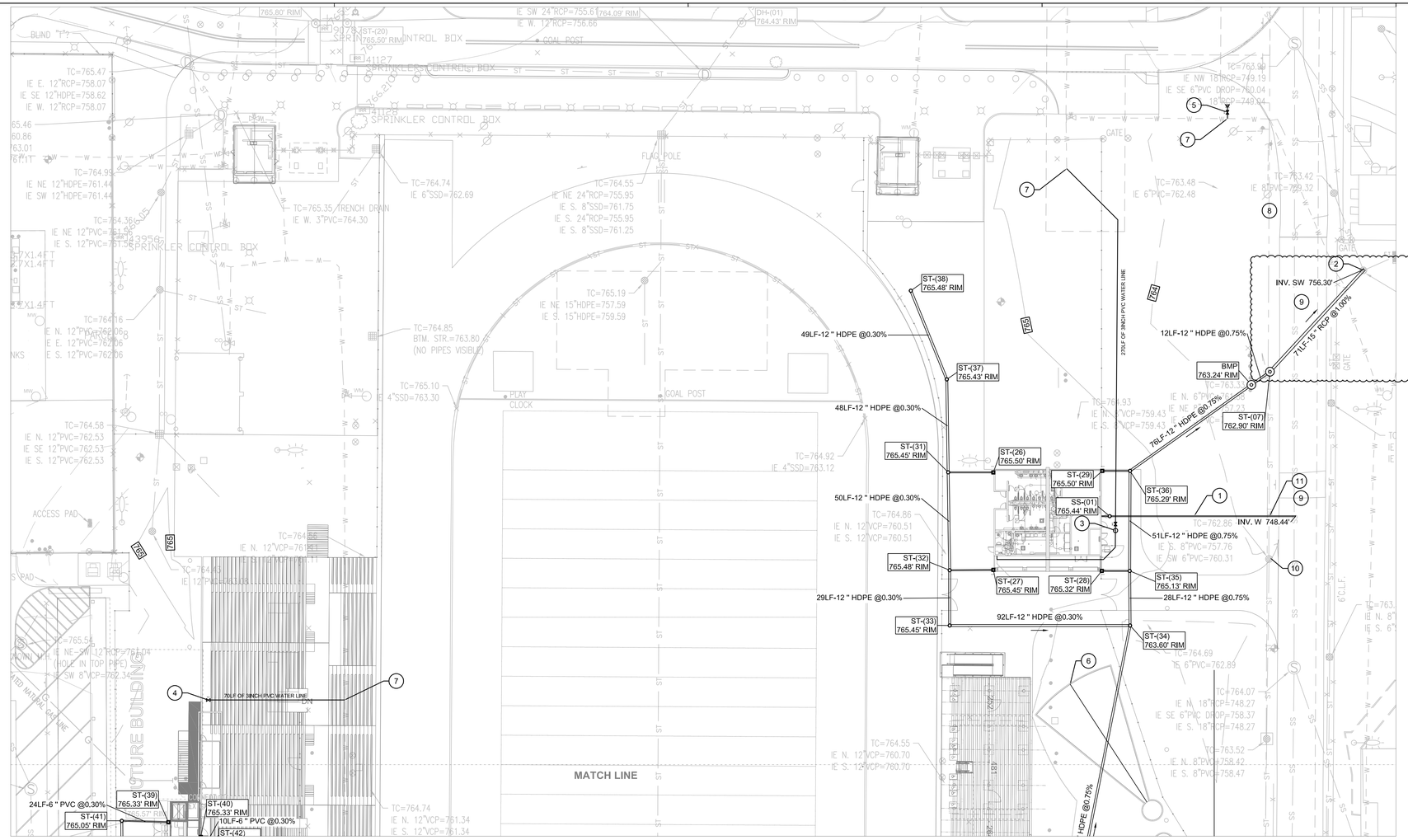
M.S.D of Washington Township
North Central High School Renovation-
Field Improvements Phase 4B

G-000.4



1A UTILITY PLAN
1" = 30'

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.
6. TRACER WIRE IS REQUIRED ON TOP OF SANITARY LATERAL FROM BUILDING TO DOWNSTREAM CONNECTION POINT. MINIMUM 10' HORIZONTAL AND 18" VERTICAL OF SEPARATION BETWEEN SANITARY AND WATER LINES IS REQUIRED.

UTILITY LEGEND

- 54LF-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

UTILITIES KEY NOTES

1. 95LF OF 6INCH PVC. MIN SLOPE 1.04% CREATE A DEEP SANITARY LATERAL CONNECTION. SEE DETAIL SHEET.
2. CONNECT NEW STORM LINE TO EXISTING STRUCTURE
3. WATER BLOW DOWN PIT. SEE DETAIL SHEET.
4. CAP WATER LINE FOR FUTURE CONNECTION
5. NEW 6INCH WATER LINE, FIRE HYDRANT AND VALVE. SEE DETAIL SHEET.
6. 6INCH UNDER DRAINS. CONNECT TO NEW STORM LINE.
7. WET TAP EXISTING WATER LINE.
8. SINCE SURVEY, OVERHEAD POWER LINE ON WEST SIDE OF ROAD IS/WILL BE BURIED. COORDINATE LOCATION WITH SKILLMAN AND VERIFY IN FIELD.
9. PATCH ROAD AS NEEDED AFTER INSTALL OF NEW UTILITIES.
10. ADJUST CASTING TO GRADE
11. CONCRETE SADDLE

SS STRUCTURE DATA TABLE

NUMBER	TYPE	CASTING	RIM ELEVATIONS	INVERTS
SS-(01)	"Clean out"	R-1976	765.44' RIM	6" INV. W 762.10' 6" INV. E 762.00'

ST STRUCTURE DATA TABLE

NUMBER	TYPE	CASTING	RIM ELEVATIONS	INVERTS
BMP	4.00 ' Manhole	See Detail Sheet	763.24' RIM	12" INV. SW 757.39' 12" INV. NE 757.29'
ST-(07)	4.00 ' Manhole	R-2560-G	762.90' RIM	12" INV. SW 757.20' 8" INV. S 757.23' 15" INV. NE 757.01'
ST-(26)	"Downspout Boot"	R-4929-A1C	765.50' RIM	6" INV. W 761.92'
ST-(27)	"Downspout Boot"	R-4929-A1C	765.45' RIM	6" INV. W 761.95'
ST-(28)	"Downspout Boot"	R-4929-A1C	765.32' RIM	6" INV. E 761.68'
ST-(29)	"Downspout Boot"	R-4929-A1C	765.50' RIM	6" INV. E 761.76'
ST-(31)	"Nyloplast"	Open ADA Inlet	765.45' RIM	6" INV. E 761.85' 12" INV. S 759.55' 12" INV. N 759.65'
ST-(32)	"Nyloplast"	Open ADA Inlet	765.48' RIM	6" INV. E 761.89' 12" INV. N 759.40' 12" INV. S 759.30'
ST-(33)	"Nyloplast"	Open ADA Inlet	765.45' RIM	12" INV. N 759.22' 12" INV. E 759.12'
ST-(34)	"Nyloplast"	Dome Inlet	763.60' RIM	12" INV. W 758.84' 12" INV. N 758.74' 12" INV. S 758.84'
ST-(35)	"Nyloplast"	Open ADA Inlet	765.13' RIM	6" INV. W 761.64' 12" INV. S 758.54' 12" INV. N 758.44'
ST-(36)	"Nyloplast"	Open ADA Inlet	765.29' RIM	6" INV. W 761.76' 12" INV. S 758.05' 12" INV. NE 757.95'
ST-(37)	"Nyloplast"	Open ADA Inlet	765.43' RIM	12" INV. N 759.89' 12" INV. S 759.79'
ST-(38)	"Nyloplast"	Open ADA Inlet	765.48' RIM	12" INV. S 760.04'
ST-(39)	"Downspout Boot"	R-4929-A1C	765.33' RIM	6" INV. W 761.82'
ST-(40)	"Downspout Boot"	R-4929-A1C	765.33' RIM	6" INV. E 761.57'
ST-(41)	"Nyloplast"	Dome Inlet	765.05' RIM	6" INV. E 761.75' 12" INV. S 758.88'
ST-(42)	"Nyloplast"	Open ADA Inlet	765.35' RIM	6" INV. W 761.54' 12" INV. SW 760.25'
ST-(44)	4.00 ' Manhole	R-2560-G	765.05' RIM	12" INV. N 758.66' 12" INV. S 757.57' 12" INV. NE 760.00'
ST-(48)	"Nyloplast"	Dome Inlet	764.10' RIM	12" INV. N 760.43'

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

Project No. 2019-067.NCH
Project Date 07.27.2023
Produced RR

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

#	Revision	Date
A1	ADDENDUM #1	08.17.23

1801 East 86th Street
Indianapolis, IN 46240

KEY PLAN

MSD of Washington Township

North Central High School Renovation Phase 4B

UTILITY PLAN

CU102.4

A–Construction Plan Elements

A1. INDEX SHOWING LOCATIONS OF REQUIRED PLAN ELEMENTS:
SEE SHEET G-001

A2. VICINITY MAP:
SEE SHEET G-001

A3. NARRATIVE DESCRIBING THE NATURE AND PURPOSE OF THE PROJECT:
THE PROJECT INCLUDES A NEW SYNTHETIC TURF FIELD, TRACK AND SIDEWALKS

A4. LATITUDE AND LONDITUDE:
SEE COVER SHEET G-001. LATITUDE: 40DEG 16'50" LONGITUDE: 85DEG 29'50"

A5. LEGAL DESCRIPTION OF THE PROJECT SITE:
SECTION 10, T21N, R9E, DELAWARE COUNTY, INDIANA.

A6. 11X17 PLAT SHOWING LAYOUT:
SEE SHEET CL101.

A7. BOUNDARIES OF 100YR FLOODWAY/FRINGES, AND FLOOPLAINS:
SEE SURVEY SHEETS

A8. LAND US OF ALL ADJACENT PROPERTIES:
SEE SURVEY SHEETS.

A9. IDENTIFICATION OF US EPA APPROVED OR ESTABLISHED TMDL:
WEST FORK WHITE RIVER AND KILLBUCK HAS A TMDL,

A10. NAME OF RECEIVING WATERS:
KILLBUCK CREEK

A11. IDENTIFICATION OF DISCHAGES TO A WATER ON THE CURRENT 303 LIST OF IMPAIR WATERS AND THE POLLUTANTS FOR WHICH IT IS IMPAIRED:
WHITE RIVER: E.COLI, METAILS, PCBS,

A12. SOIL MAP:
SEE CE501. SOILS TYPE: PKKA, GLRB2, AND BMLA. ALL SOILS TYPE ARE SLOW DRAINING

A13. IDENTIFICATION AND LOCATION OF ALL KNOWN WETLAND LAKES AND WATER COURSES ON ADJACENT TO THE PROJECT SITE:
SEE SURVEY SHEETS.

A14. IDENTIFICATION OF ANY OTHER STATE OR FEDERAL WATER QUALITY PERMITS OR AUTHORIZATION THAT ARE REQUIRED FOR CONSTRUCTION ACTIVITIES:
NO OTHER PERMITS REQUIRED

A15. IDENTIFICATION AND DELINEATION OF EXISTING COVER INCLUDING NATURAL BUFFERS:
SEE SURVEY SHEETS.

A16. EXISTING TOPOGRAPHY AT A CONTOUR INTERVAL APPROPRIATE TO INDICATE DRAINAGE PATTERNS:
SEE SURVEY SHEETS

A17. LOCATION OF WHERE RUNOFF ENTERS THE PROJECT SITE:
SEE CG101.

A18.LOCATION OF WHERE RUNOFF DISCHARGES FROM THE PROJECT SITE PRIOR TO LAND DISTURBANCE
SEE SURVEY SHEETS

A19. LOCATION OF ALL EXISTING STRUCTURE ON THE PROJECT SITE:
SEE SURVEY SHEETS.

A20. EXISTING PERMANENT RETENTION OR DETENTION FACILITIES, INCLUDING MANMADE WETLANDS, DESIGNED FOR THE PURPOSE OF STORMWATER MANAGEMENT.
SEE SURVEY SHEETS.

A21. LOCATIONS WHERE STROMWATER MAY BE DIRECTLY DISCHARGED INTO GROUNDWATER, SUCH AS ABANDONED WELLS, SINKHOLES OR KARST FEATURES.
NONE

A22. SIZE OF PROJECT AREA IN ACRES:
5.03 ACRES

A23. TOTAL EXPECTED LAND DISTURBANCES IN ACRES
5.03 ACRES

A24: PROPOSED FINAL TOPOGRAPHY:
SEE CG101 SHEETS

A25: LOCATION AND APPROXIMATE BOUNDARIES OF ALL DISTURBED AREAS:
SEE CL101 SHEETS.

A26: LOCATION SIZE AND DIMENSION OF ALL STORMWATER DRAINAGE SYSTEM.
SEE CU101 SHEETS

A27 LOCATION OF SPECIFIC POINT WHERE STORMWATER AND NON-STORMWATER DISCHARGES WILL LEAVE THE PROJECT SITE.
SEE CU101 SHEETS

A28 LOCATION OF ALL PROPOSED SITE IMPROVEMENTS:
SEE CL101 SHEETS

A29: LOCATION OF ALL ONSITE SOIL STOCKPILES AND BORROW AREAS.
SEE CE101 SHEETS.

A30 CONSTRUCTION SUPPORT ACTIVITIES:
NONE

A31 LOCATION OF ANY IN-STREAM ACTIVITIES:
NONE

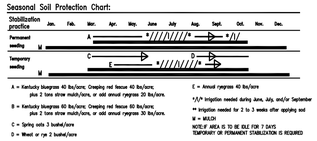
B–SWPPP–EROSION CONTROL

B1. DESCRIPTION OF POTENTIAL POLLUTANT SOURCES ASSOCIATED WITH CONSTRUCTION ACTIVITIES:
SILT AND SEDIMENT FROM EXPOSED SOILS, LEAVES, MULCH, VEHICULAR SOURCES SUCH AS LEAKING FUEL OR OIL, BRAKE FLUID, BRAKE DUST, TRASH, DEBRIS, BIOLOGICAL AGENTS FOUND IN TRASH, FERTILIZERS, HERBICIDES, PESTICIDES, ACID RAIN, LIME DUST AND CONCRETE WASHOUT.

B2. STABLE CONSTRUCTION ENTRANCE LOCATION AND SPECS:
SEE CE101 AND CE501 SHEETS

B3. SPECIFICATIONS FOR TEMPORARY AND PERMANENT STABILIZATION:
SEE CHART:

Seasonal Soil Protection Chart:



A = Kentucky bluegrass 40 lbs/acre, Creeping red fescue 40 lbs/acre, plus 2 tons straw mulch/acre, or add annual ryegrass 20 lbs/acre.
B = Kentucky bluegrass 60 lbs/acre, Creeping red fescue 60 lbs/acre, plus 2 tons straw mulch/acre, or add annual ryegrass 30 lbs/acre.
C = Spring oats 3 bushel/acre
D = Wheat or rye 2 bushel/acre
E = Annual ryegrass 40 lbs/acre
*/** Irrigation needed during June, July, and/or September
** Irrigation needed for 2 to 3 weeks after applying sod
M = MULCH
NOTE:IF AREA IS TO BE IDLE FOR 7 DAYS TEMPORARY OR PERMANENT STABILIZATION IS REQUIRED

B4. SEDIMENT CONTROL MEASURES FOR CONCENTRATED FLOW AREAS:
SEE SHEET CE101

B5: SEDIMENT CONTROL MEASURES FOR SHEET FLOW ARES.
SEE SHEET CE101.

B6. RUNOFF CONTROL MEASURES:
SEE SHEET CE101.

B7. STORMWATER OUTLET AND PROTECTION LOCATIONS AND SPECS.
SEE SHEET CE101.

B8. GRADE STABILIZATION STRUCTURE LOCATIONS AND SPECS.
SEE SHEET CE101

B9 DEWATER APPLICATIONS AND MANAGEMENT METHODS.
DEWATERING IS NOT ANTICIPATED, IF IT IS DETERMINED TO BE NEEDED PLEASE CONTACT THE PLAN PREPARER AND CONSTRUCTION COMPLIAN INSPECTOR AT (765) 747-4896 TO ENSURE PROPER DEWATERING PAD:

B10 MEASURES UTILIZED FOR WORK WITHIN WATERBODIES.
NONE.

B11. MAINTENANCE GUIDELINES FOR EACH PROPOSED TEMPORARY STORMWATER QUALITY MEASURE.
PER IDEM STORMWATER QUALITY MANUAL AND BELOW.

SILT FENCE MAINTENANCE REQUIREMENTS
1. Inspect the silt fence weekly, and within 24hours of storm events.
2.If fence fabric tears, starts to decompose or in any way becomes ineffective, replace the affected portion immediately.
3.Remove deposited sediment when it reaches half the height of the fence at its lowest point or is causing the fabric to bulge.
TEMPORARY INLET PROCETECTION MAINTENANCE REQUIREMENTS
1.Inspect temporary inlet after each storm event and immediately repair any erosion and piping holes.
2.If fabric tears, starts to decompose or in any way becomes ineffective, replace the affected portion immediately.
3.Remove deposited sediment when it reaches half full.
EROSION CONTROL BLANKET (SURFACE APPLIED) MAINTENANCE REQUIREMENTS
1.During vegetative establishment, inspect after each storm event for any erosion below the blanket.
2.If any area(s) shows erosion, pull back that portion of the blanket covering it, reseed the area and relay and staple the blanket.
3.After vegetative establishment check the treated area periodically.
TEMPORARY GRAVEL CONSTRUCTION ENTRANCE MAINTENANCE REQUIREMENTS
1.Inspect entrance pad and sediment disposal area weekly and after storm events or heavy use.
2.Reshape as needed for drainage and runoff control.
3.Topdress with clean stone as needed.
4.Immediately remove mud and sediment tracked or washed onto streets by brushing or sweeping. .
TEMPORARY CONCRETE WASHOUT MAINTENANCE REQUIREMENTS
1.Clean concrete washout when washout water is 50% full and if not evaporated it needs to be removed.
2.Dispose of concrete per local requirements.

B12. PLANNED CONSTRUCTION SEQUENCE DESCRIBING THE RELATIONSHIP BETWEEN IMPLEMENTATION OF STORMWATER QUALITY MEASURE IN REACTION TO LAND DISTURBANCE.
1.Conduct preconstruction meeting with Construction Compliance inspector
2.Call the Indiana Underground Plant Protection systems, Inc. ("Holey Moley") at 811 to check the location of any existing utilities. They should be notified two working days before construction takes place.
3. post 1 silt fence shall be installed at the edges of the project site where there is potential for any stormwater runoff.
4. Inlet protection shall be installed.
5. Evaluate, mark and protect important trees and associated root zones. Evaluate existing vegetation suitable
6. A construction entrance shall be placed per the plan location
7. Establish construction staging area for equipment and vehicles
8. Establish onsite location for approved plans/SWPPP plans and postings.
9. Establish SWPPP documents and reports
10. Once erosion and sediment control measures are in place, begin land clearing followed immediately by rough grading. Do not leave large areas unprotected for more than 7 days.
11. Conduct SWPP inspections
12. After grading, seed all disturbed areas
13. Install Utilities including Storm sewers, etc
14 Install inlet protections on new storm structures
15. Final Grade and Final Seed all areas.

B13. PROVISION FOR EROSION AND SEDIMENT CONTROL ON INDIVIDUAL BUILDING LOTS REGULATED UNDER THE PROPOSED PROJECT.
NONE

B14. MATERIAL HANDLING AND SPILL PREVENTION AND SPILL RESPONSE PLAN MEETING THE REQUIREMENT IN 327 IAC2-6.1
1. IF ANY SPILL EXCEEDS THE INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT LEVELS, THE CONTRACTOR SHALL ENGAGE A QUALIFIED ENVIRONMENTAL CLEAN UP CONTRACTOR TO DISPOSE OF CONTAMINATED AREAS AS REQUIRED BY THE INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT.
ALL CLEAN OUT OF CONCRETE TRUCKS SHALL ALSO BE DONE A MINIMUM OF 50 FEET FROM ANY STORM INLET, DRAINAGE SWALE OR EXCAVATED POND.
1.Any personnel observing a spill will immediately instigate the following procedure:
   Dialing "0" from any telephone.
   Notify the appropriate emergency personnel.
2. The Emergency Coordinator will then take the following actions:
   Barricade the area allowing no vehicles to enter or leave the spill zone.
   Notify the Indiana Department of Environmental Management, Office of Emergency Response by calling the appropriate telephone number: Office: 317-233-7745
   Notify National Response Center at 800-424-8802
   Notify bureau of Water Quality – (765)747-4896

B15. MATERIAL HANDLING AND STORAGE PROCEDURES ASSOCIATED WITH CONSTRUCTION ACTIVITY.
Only keep enough material on site to complete the job, make sure you have secondary containment and see sheet CE101 for layout

C–SWPPP POST CONSTRUCTION

C1.DESCRIPTION OF POLLUTANTS AND THEIR SOURCES ASSOCATITE WITH THE PROPOSED LAND US
SILT AND SEDIMENT FROM EXPOSED SOILS, LEAVES, MULCH, VEHICULAR SOURCES SUCH AS LEAKING FUEL OR OIL, BRAKE FLUID, BRAKE DUST, TRASH, DEBRIS, BIOLOGICAL AGENTS FOUND IN TRASH, FERTILIZERS, HERBICIDES, PESTICIDES, ACID RAIN, LIME DUST

C2. DESCRIPTION OF PROPOSED POST CONSTRUCTION STORMWATER MEASURES
1.VEGETATED STRIPS AND/OR SWALES
2.PERMANENT EROSION CONTROL SEEDING AND PLANTINGS

C3 PLAN DETAILS FOR EACH STORMWATER MEASURE
SEE CE501 AND SPECS

C4 SEQUENCE DESCRIBING STORMWATER MEASURE IMPLEMENTATION
AFTER ALL CONSTRUCTION ACTIVITIES ARE FINISHED, INSTALL ALL PERMANENT VEGETATION.

C5 MAINTENANCE GUIDELINE FOR PROPOSED POST CONSTRUCTION STORMWATER MEASURES
1. INSPECT ALL STORM WATER STRUCTURES, FOR DEBRIS QUARTERLY
2. INSPECT ORIFICE FOR DEBRIS AFTER ALL LARGE RAIN EVENTS AND QUARTERLY
3. INSPECT PERMANENT VEGETATION FOR BARE SPOTS.

C6 ENTITY THAT WILL BE RESPONSIBLE FOR OPERATION AND MAINTENANCE OF THE POST CONSTRUCTION STORMWATER MEASURES.
WCS-DEL COMMUNITY SCHOOLS.

L–LOCAL SWPPP

L1. A SWPP WAS NOT PREPARED AND APPROVED PRIOR TO CONSTRUCTION
N/A

L2. THE SWPPP IDENTIFIES THE LOCATION OF: CHEMICAL STORAGE, STRUCTURE, AND PIPE LISTS, PORTA-LETS, STAGING AREA, FUEL TANKS, AND DUMPSTER PADS.
SEE CE101 SHEETS.

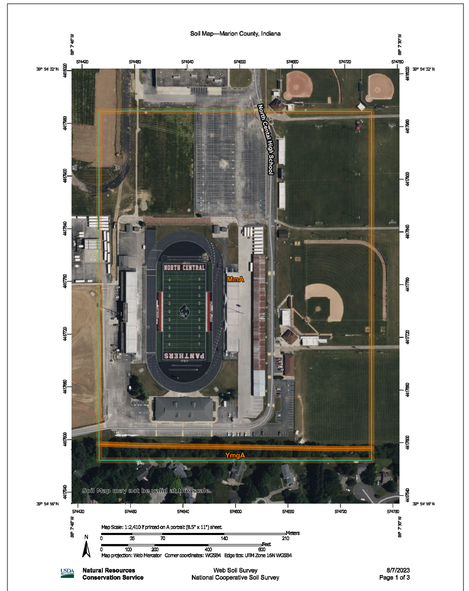
L3. SWPPP SITE DESCRIPTION INCLUDES TOTAL FINAL IMPERVIOUS AREA.
TOTAL IMPERVIOUS AREA = 1.59 ACRES = 69,283SF

L4. SWPPP REFERNCES THE IDEM INDIANA STORMWATER QUALITY MANUAL.
SEE B-SWPPP.

L5. IF A RETAIL GASOLINE OUTLET: THE SWPPP INCLUDES POLLUTION REDUCTION BMPS
N/A

L6. IF RETAIL GASOLINE OUTLET THE SWPPP INCLUES THE INSTALLATION DETAILS
N/A

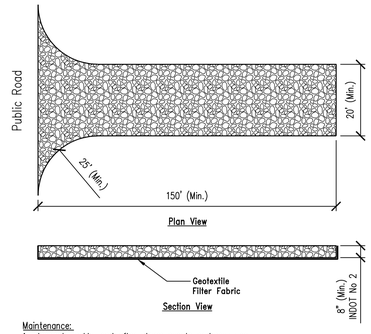
L7. IF A RETAIL GASOLINE OUTLET: THE POST CONSTRUCTION AGREEMENT INCLUDES BMPS, DETAILS, AND MAINTENANCE CRITERIA.
N/A



Soil Map—Marion County, Indiana

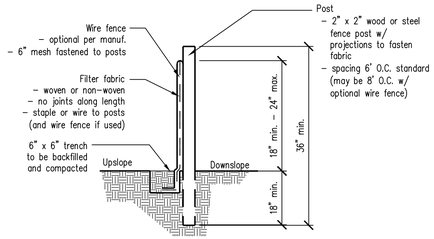
Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
MmA	Miami silt loam, 0 to 2 percent slopes, gravelly substratum	29.5	90.1%
YmgA	Miami silt loam-Urban land complex, 0 to 2 percent slopes, very gravelly substratum	1.2	3.9%
Totals for Area of Interest		30.7	100.0%



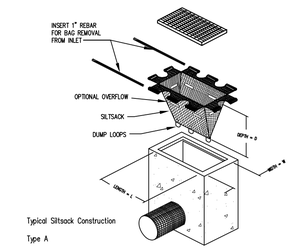
Maintenance:
1. Inspect weekly, and after storm events or heavy use.
2. Reshape as needed for drainage and runoff control.
3. Topdress with clean stone as required. Maintain minimum depth through construction.
4. Immediately remove mud and sediment tracked or washed onto public roads by sweeping or brushing.
5. Repair any broken pavement immediately.

STABILIZED CONSTRUCTION ENTRANCE
NOT TO SCALE – PRACTICE 3.01



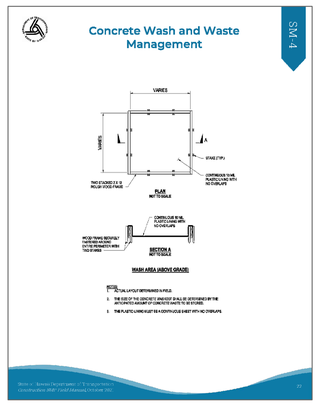
Maintenance:
1. Inspect silt fence periodically (weekly) and after each storm event.
2. If fabric is torn or damaged or in any way becomes ineffective, replace the affected portion immediately.
3. Remove deposited sediment when it reaches half the height of the fence, or it is causing the fabric to bulge.
4. Take care not to undermine the fence during sediment removal.
5. After the contributing area has been stabilized, remove the fence and remaining sediment, bring the disturbed area to grade, and stabilize.

Silt Fence Section
NOT TO SCALE – PRACTICE 3.74



Typical Siltsack Construction
Type A

Inlet Protection
Not to Scale



SCHMIDT
ASSOCIATES
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A1	ADDENDUM #1	08.17.23

1801 East 86th Street
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KEY PLAN

MSD of Washington Township

North Central High School Renovation Phase 4B

A1

EROSION CONTROL DETAILS

CE501.4

GENERAL NOTES

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 is 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.

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

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.

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.

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.

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

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.

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

Only use dimensions indicated on the drawings. Do not scale drawings.

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

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

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

Centerlines of framing members coincide with column centerlines, uno.

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

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

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

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.

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

Provisions for future expansion:
Horizontal: None
Vertical: None

CODES AND DESIGN CRITERIA

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	Elevated Risk	
Exposure Category:	C		
FLOOR LOADS	Dead	Live	Snow
C. Soccer Pressbox	20 psf	60 psf	-
G. Elevator	50 psf	100 psf	-
ROOF LOADS	Dead	Live	Snow
A. Visitor Restroom	20 psf	20 psf	20 psf
B. Electrical Building	20 psf	25 psf	25 psf
B. Elevator	10 psf	25 psf	25 psf
C. Soccer Pressbox	15 psf	25 psf	25 psf
D. Existing Soccer Pressbox	15 psf	20 psf	20 psf
G. Salt Barn	15 psf	20 psf	20 psf
SOILS			
Soils Report:	PSI Project Number: 00161395		
Report Date:	May 10, 2021		
	Spread	Wall	
Allowable Bearing Pressure, qa:	2300 psf	2300 psf	
Soil Density, yt:	125 pcf		
Minimum Foundation Bearing Depth:	30 in		
SLAB ON GRADE			
Compacted Fill Thickness	6 in		
Compaction Specification:	95% Modified Proctor D-1557		
SNOW DESIGN CRITERIA			
Ground Snow Load, Pg:	20 psf		
Flat Roof Snow Load, Pf			
A. Vistor Restroom:	16.6 psf		
B. Elevator/Electrical Building:	15.3 psf		
C. Soccer Pressbox:	16.6 psf		
D. Existing Soccer Pressbox:	16.6 psf		
G. Salt Storage:	16.6 psf		
Minimum Snow for Low-Slope Roof, Pm:	22 psf		
Importance Factor, Is:	1.1		
Exposure Factor,Ce			
A. Vistor Restroom:	0.9	Fully	
B. Elevator/Electrical Building:	1.0	Partially	
C. Soccer Pressbox:	0.9	Fully	
D. Existing Soccer Pressbox:	0.9	Fully	
G. Salt Storage:	0.9	Fully	
Thermal Factor, Ct			
A. Vistor Restroom:	1.2	Unheated	
B. Elevator/Electrical Building:	1.0	Heated	
C. Soccer Pressbox:	1.2	Unheated	
D. Existing Soccer Pressbox:	1.2	Unheated	
G. Salt Storage:	1.2	Unheated	
Warm Slope Factor, Cs:	1.0		
WIND DESIGN CRITERIA			
Ultimate Wind Speed, Vult:	120 mph		
Design Wind Speed, Vasd:	90 mph		
Enclosure Class:	Enclosed		
Internal Pressure Coefficient, GCpi:	0.18		
Roof Net Uplift:	See Loading Sheet		
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			
A. Vistor Restroom:	2.5		
B. Elevator/Electrical Building:	2.5		
C. Soccer Pressbox:	2.5		
D. Existing Soccer Pressbox:	2.5		
G. Salt Storage:	3		
Seismic Response Coefficient,Cs			
A. Vistor Restroom:	0.1		
B. Elevator/Electrical Building:	0.1		
C. Soccer Pressbox:	0.1		
D. Existing Soccer Pressbox:	0.1		
G. Salt Storage:	0.031		
Response Modification Coeff., R			
A. Vistor Restroom:	2		
B. Elevator/Electrical Building:	2		
C. Soccer Pressbox:	2		
D. Existing Soccer Pressbox:	2		
G. Salt Storage:	6.5		
Unfactored Design Base Shear,V (ELV,XSP,VRR,SPB):	10% * W		
Unfactored Design Base Shear, V (SAL):	3.1% * W		
Analysis Procedure:	ELFA		

Basic Seismic-Force-Resisting System (ELV,XSP,VRR,SPB):
A. Bearing Wall Systems
9. Ordinary reinforced masonry shear walls

Basic Seismic-Force-Resisting System (SAL):
A. Bearing Wall Systems
15. Light-frame (wood) walls sheathed with wood structural panels

010002 EXISTING STRUCTURE NOTES

The actual existing structure configuration, member sizes, etc. has not been field verified.

All existing structure indicated is for reference only.

Field verify existing structure. If existing structure varies from configuration, sizes, etc. from drawings, notify engineer of record immediately.

014000 DELEGATED DESIGN

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. Steel Joists, joist girders, bridging and accessories.
2. Structural Steel Connections, except as shown on drawings.
   AISC Option 2 (Detailer): Simple shear connections.
   AISC Option 3 (SSE): All other connections not shown.
3. Cold-Formed Steel CFS wall studs, CFS floor joists and accessories.
4. Stairs, ladders, and railings.
5. Post-Tensioned Slab and Beams.
6. Precast Prestressed Concrete elements and accessories.
7. Sprinkler supports and required loading.
8. Manufactured wood trusses
9. Soccer pressbox

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.

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

017900 DEMOLITION NOTES

All shoring shall be in place before demolition begins.

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

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

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.

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

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.

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

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

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.

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.

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.

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

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.

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

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.

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

1.4b

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

See concrete mix schedule for mix design requirements

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

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.

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

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

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

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.

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

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.

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

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

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.

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.

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

042000 MASONRY AND REINFORCED MASONRY NOTES

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.

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.

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

Course grout shall be used where grouting is required. Slump shall be 8" +/- 1". Minimum grout compressive strength shall be 2000 p.s.i.

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

Center vertical reinforcing in block cores, unless noted otherwise.

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

Provide ladder type horizontal joint reinforcement at 16" o.c. typical and 8" o.c. for parapets and below ground floor elevation. Side rods and cross rods shall be #9 wire, galvanized, see specifications. Cut joint reinforcement at control joints.

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

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

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.

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

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

Provide ties to all structural steel.

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.

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

042001 MASONRY ANCHORAGE NOTES

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

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.

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.

For Grout Filled Concrete Block, provide A36 threaded rod with Hilti HY-270 for drill and epoxy anchors.

For Hollow Concrete Block, provide Hilti HY-270 injection mortar with HIT-V threaded rod and sleeve HIT-SC for noted drill and epoxy anchors.

051200 STRUCTURAL STEEL NOTES

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

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"

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).

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.

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

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

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

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.

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

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.

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

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

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.

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

Remove erection bolts and fill holes in all exposed braces.

053100 STEEL DECK NOTES

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.

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.

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

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

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

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

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

061000 SAWN LUMBER NOTES

Size, species and grade for sawn lumber shall be as follows. All lumber shall be grade-stamped:

Size	Design Species	Design Grade
2x4, 2x6	Spruce-Pine-Fir (SPF)	No.1/No.2
2x8, 2x10, 2x12	Southern Pine (SP)	No. 1
4x4 and Larger	Southern Pine (SP)	No. 1

Alternates:

Size	Alternate Species	Alternate Grade
2x4, 2x6	Douglas Fir-Larch (North)	No.1/No.2
2x8, 2x10, 2x12	Douglas Fir-Larch	No.1 & Better
4x4 and Larger	Douglas Fir-Larch	No.1 & Better

All wood, connections, accessories, and erection shall be in conformance with the current edition of NFPA National Design Specification.

All connectors shall be Simpson Strong-Tie, galvanized, unless otherwise approved by the EOR.

All bolts, washers and nuts shall be carbon steel, unless noted.

All nails to be common type.

All sill plates shall be treated with preservative treatment.

All exterior lumber permanently exposed to weather shall be pressure-treated.

Attach all sill plates to studs with (4) 8d common nails (toenail) or (2) 16d common nails (end nail).

Attach all top plates to studs with (2) 16d nails.

Comply with International Building Code Table 2304.9.1 for all fasteners not indicated.

See Wood Framed Wall Schedule and Shear Wall Schedule for additional fastening requirements.

Provide double joists under all non-load bearing walls.

Provide double joists and headers at all floor or roof openings exceeding typical sheathing span. Provide single headers to support sheathing at edges of openings less than typical sheathing span.

061600 WOOD STRUCTURAL PANEL NOTES

All wood structural panels shall be plywood conforming to DOC PS-1 or DOC PS-2, or, oriented-strand-board (OSB) conforming to DOC PS-2. Sheathing shall meet the following minimum requirements, unless noted otherwise:

Roof: 19/32", Exposure 1, Structural 1, Span Rating 40/20, Square Edge, Nailed
Floor: 23/32", Exposure 1, Sturd-I-Floor, Span Rating 24" o.c., Tongue & Groove Edge, Glued and Nailed
Wall: 15/32", Exposure 1, Structural 1, Span Rating 32/16, Square Edge,Nailed

Floor structural panels shall be Combination Subfloor-Underlayment, uno.

Roof structural panel joints shall be staggered. Provide panel clips for all roof sheathing.

All structural panels shall have long dimension perpendicular to supports. Provide 1/8" gap for all sheathing joints.

Space all nails 3/8" minimum from panel or supporting member edge. Nails to penetrate supporting members by 1-5/8" minimum.

Edge of openings through roofs or walls shall be nailed per boundary nailing requirements indicated in typical detail.

See architectural roof plan to establish all elevations, openings, equipment and other requirements not indicated on structural drawings.

All nails to be 10d common, unless noted otherwise. For fastening not indicated, comply with International Building Code Table 2304.9.1.

All structural panels permanently exposed to weather shall be pressure-treated.

All fasteners to cold formed steel framing shall be screws in lieu of nails. See details for screw size and spacing requirements.

061753 MANUFACTURED WOOD TRUSS NOTES

WT-1 Wood trusses shall be designed by the manufacturer to support the following loads:

Top Chord Dead & Top Chord Live	See General Notes
Bottom Chord Dead	10 psf (Local Load, not added to Top Chord)
Wind & Seismic Loading:	Per the 2014 Indiana Building Code. Refer to the Design Criteria Notes for design info.

Trusses shall meet the following deflection criteria, unless otherwise noted. Maximum live load deflection shall not exceed:

Roofs	
Live Load:	L/360
Total Load:	L/240

WT-2 Wood trusses shall be designed by the manufacturer in accordance with the applicable provisions of the latest edition of the National Design Specification of the National Forest Products Association, The Design Specification for Metal Plate Connected Wood Trusses of the Truss Plate Institute (TPI), Wood Structural Building Components Association (SBCA) and the Indiana Building Code.

WT-3 Wood trusses shall be fabricated by a Truss Manufacturer who maintains written procedural and quality control manuals and engages in periodic auditing of fabrication practices and inspections as required by ANSI/TPI 1, Chapter 3. In addition, the Truss Manufacturer shall engage in periodic, unannounced auditing by an approved third-party inspection agency such as TPI for review. If the Truss Manufacturer cannot fulfill these requirements, the Structural Engineer of Record may, at his discretion, require or accept from the Truss Manufacturer, a letter sealed by a Professional Engineer registered in the State of Indiana verifying his inspection of the manufactured wood trusses supplied for this project. The SSE shall verify that the trusses are in compliance with the quality standards of ANSI/TPI 1, Chapter 3. The SSE shall have significant prior experience in the inspection of metal plate-connected wood trusses.

WT-4 Wood materials shall be Southern Pine, or Douglas Fir-Larch and shall be kiln-dried and used at 19% maximum moisture content. Provide Grade No. 2 or better as required to satisfy stress requirements.

WT-5 Connector plates shall be not less than 0.036 inches (20 gauge) in coated thickness, shall meet or exceed ASTM Grade A or higher and shall be hot-dip galvanized according to ASTM A-653 (coating G60). Minimum steel yield stress shall be 33,000 psi.

WT-6 Trusses shall be fabricated in a properly-equipped manufacturing facility of a permanent nature. Trusses shall be manufacture by experienced workmen, using precision cutting, jigging and pressing equipment under the requirements in quality control as indicated in ANSI/TPI 1, Chapter 3.

WT-7 Secondary bending stresses in truss top and bottom chords due to dead, live, and wind loads shall be considered in the design. Load duration factors shall be per the "NATIONAL DESIGN SPECIFICATION FOR WOOD CONSTRUCTION".

WT-8 All girder trusses supporting other trusses of 2x framing members shall be a MINIMUM of (2) plies, unless otherwise approved. Refer to the Manufacturer's Truss Design Drawing for girder ply-to-ply connection requirements. Attach framing members or loads only after all girder plies are in place and properly fastened together, and the girder truss is properly braced to prevent lateral displacement. Refer to BCSI-B9 "Multi-Ply Girders" as published by SBCA and TPI for additional information.

WT-9 Truss-to-girder connection information shall be on the Mfr's Truss Design Drawing of the carried-truss, girder truss, or the Mfr's Truss Placement Drawing. Unless otherwise approved, all truss/joist hangers, strapping, ties, etc. shall be as manufactured by the Simpson Strong Tie Company.

WT-10 Unless otherwise shown or noted, ALL truss bearings shall be anchored using a mechanical fastener. As a minimum, provide SDWC screw anchor by by the Simpson Strong Tie, installed as shown in the details on these plans.

WT-11 Wood trusses shall be erected in accordance with the Truss Manufacturer's requirements. This work shall be done by a qualified and experienced contractor. Truss erection by an inexperienced or non-qualified contractor can result in construction collapse and/or serious injury damage.

WT-12 Where long span trusses (greater than 60' span) are used, refer to BCSI (especially BCSI-B1 and BCSI-B2) special recommendations and requirements for the installation and temporary restraint/bracing of long span trusses. Follow all BCSI recommendations and requirements for the installation and temporary restraint/bracing of long span trusses including consulting a registered Professional Engineer familiar with the installation and temporary restraint/bracing of long span trusses.

WT-13 The contractor shall provide all temporary and permanent bracing/restraints as required for safe erection and performance of the trusses. The guidelines set forth by the following joint publications of the Truss Plate Institute (TPI) and Structural Building Components Association (SBCA) shall be adhered to unless otherwise noted in the Contract Documents:

BCSI-B1	GUIDE FOR HANDLING, INSTALLING AND BRACING OF METAL PLATE CONNECTED WOOD TRUSSES.
BCSI-B2	TRUSS INSTALLATION AND TEMPORARY BRACING.
BCSI-B3	WEB MEMBER PERMANENT BRACING/WEB REINFORCEMENT
BCSI-B4	CONSTRUCTION LOADING
BCSI-B5	TRUSS DAMAGE, JOBSITE MODIFICATIONS AND INSTALLATION ERRORS.
BCSI-B6	GABLE END FRAME BRACING
BCSI-B7	TEMPORARY AND PERMANENT BRACING FOR PARALLEL CHORD TRUSSES
BCSI-B8	TOE-NAILING FOR UPLIFT REACTIONS
BCSI-B9	MULTI-PLY GIRDERS
BCSI-B10	POST FRAME TRUSS INSTALLATION AND BRACING
BCSI-B11	FALL PROTECTION AND WOOD TRUSSES

WT-14 Unless otherwise noted, permanent bracing shall consist of 2x4 stress-graded members spanning a minimum of four trusses and nailed at each intersection with a minimum of (2) 16d nails. Lap continuous bracing a minimum of 2'-0" (2 trusses). **Design and layout of of temporary and permanent bracing is the responsibility of the manufacturer.**

WT-15 Refer to Manufacturer's Truss Design Drawing for web members requiring web member permanent restraint or reinforcement. Continuous lateral restraints must ALWAYS be diagonally braced for rigidity.

WT-16 Wherever possible, the temporary erection bracing as described in BCSI-B2 shall be left in place to function as permanent bracing.

WT-17 'T' or 'L' reinforcement of the type described in BCSI-B3 shall be used as the means of resisting web member buckling forces in girder trusses and small-quantity trusses. Girder trusses shall be those trusses supporting other trusses, beams, or framing, or trusses more than 24" o.c. Small quantity trusses shall be those where because of the small quantity of similar trusses with aligned web members requiring bracing/restraint (such as parallel step-down trusses), the installation of continuous lateral restraints and the diagonal bracing for the continuous lateral braces is impractical using the methods of BCSI. Such 'T' or 'L' reinforcement shall be designed by the Truss Design Engineer and shown on the sealed Truss Design Drawings.

WT-18 Design all wood truss bearings using the compression perpendicular-to-grain value of the truss lumber OR the wall plate lumber/nailer, WHICHEVER IS LESS. The bearing length or area shown on the sealed truss drawings shall be based on this lesser value. Use additional truss plies or truss bearing enhancement devices to achieve the required bearing area. If the bearing enhancement device has a valid ESR report, it may be shown on the Truss Placement Plan instead of being shown on the sealed Truss Drawings.

WT-19 Trusses which are too tall for delivery to the jobsite in one piece may be manufactured in two or more sections and "piggybacked" at the jobsite. The contractor MUST install temporary and permanent bracing for the lower supporting trusses as shown on the Manufacturer's Truss Design Drawing and/or the Contract Documents BEFORE installing the cap trusses. The connection between the cap and base truss shall be shown on the sealed Truss Design Drawing. Provide, as minimum, 4x2 sleepers laid flat on the top chord with a minimum of two 16d nails (see Truss Design Drawing for any other or additional requirement). Provide 4' o.c. (brace to brace) diagonal bracing at 45 degrees to brace the sleepers. Install diagonal braces on the bottom side of the top chord in the cap area, unless otherwise specified by the Truss Design Engineer.

WT-20 When indicated on the plans or when a cap truss length exceeds 20', in lieu of the sleepers and diagonal bracing indicated above, structural wood sheathing on the top chord of the base truss in the cap area shall be used as the means of bracing/restraining the base truss in the cap area. The connection between the cap and base truss, shown on the sealed Truss Design Drawing, shall take this into account. Cap trusses must be directly above base trusses.

WT-21 Truss members and components shall not be cut, notched, drilled nor otherwise altered in any way without the written approval of the Truss Design Engineer (See Specialty Structural Engineer notes).

WT-22 Where trusses and/or wood joists and rafters are called to be supported by steel beams, provide continuous double 2x nailer(s) field-bolted to the top of the steel beam with 1/2" diameter carriage bolts spaced a maximum of 24" on center and staggered each side of beam web. Width of nailer to be width of beam flange +1/2"/-1/4", unless otherwise noted. carriage bolts may be over-tightened to compress the rounded head in the nailer to facilitate installation of continuous band/rim joists, rafters, trusses, etc.

WT-23 Coordinate final truss layout and truss web member configuration with mechanical, electrical and plumbing trades. Keep all mechanical chases free of trusses. Align floor truss web layout, including open Vierendeel panels for all parallel trusses with similar spans to provide maximum flexibility of MEP installation. Do not locate trusses at parallel plumbing walls.

WT-24 Submit complete shop drawings for all wood trusses showing member sizes, species, grade, moisture content, span, camber, dimensions, number of plies and truss ply-to-ply connections, reactions and bearing requirements, chord pitch, restraint/bracing requirements, and loadings including any girder loads, field assembly of multi-part trusses, and required cap truss to base truss connection. No reference to another drawing sheet, note external to that individual truss drawing, or detail not shown on that individual truss drawing may be used to convey any of this required information. Shop Drawings shall be submitted to the Structural Engineer of Record and shall bear the seal of a Professional Engineer registered in the State of Indiana.

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

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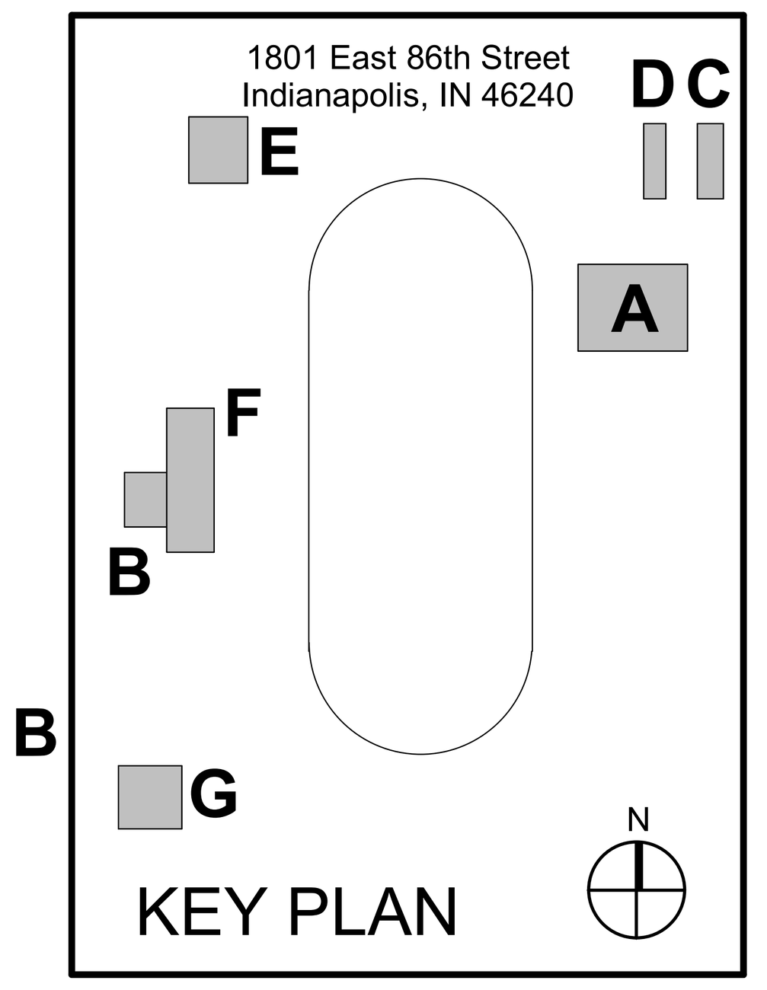
DYLAN SEESMAN REGISTERED No. PE11900810 STATE OF INDIANA PROFESSIONAL ENGINEER

#	Revision	Date
1.4b	ADDENDUM 1.4b	08.17.23



OWNER

North Central High School Renovation - Field Improvements

GENERAL NOTES & ABBREVIATIONS

S-001.4

S-001.4_ GENERAL NOTES & ABBREVIATIONS
2019.067-NCH_OWNER_North Central High School Renovation_
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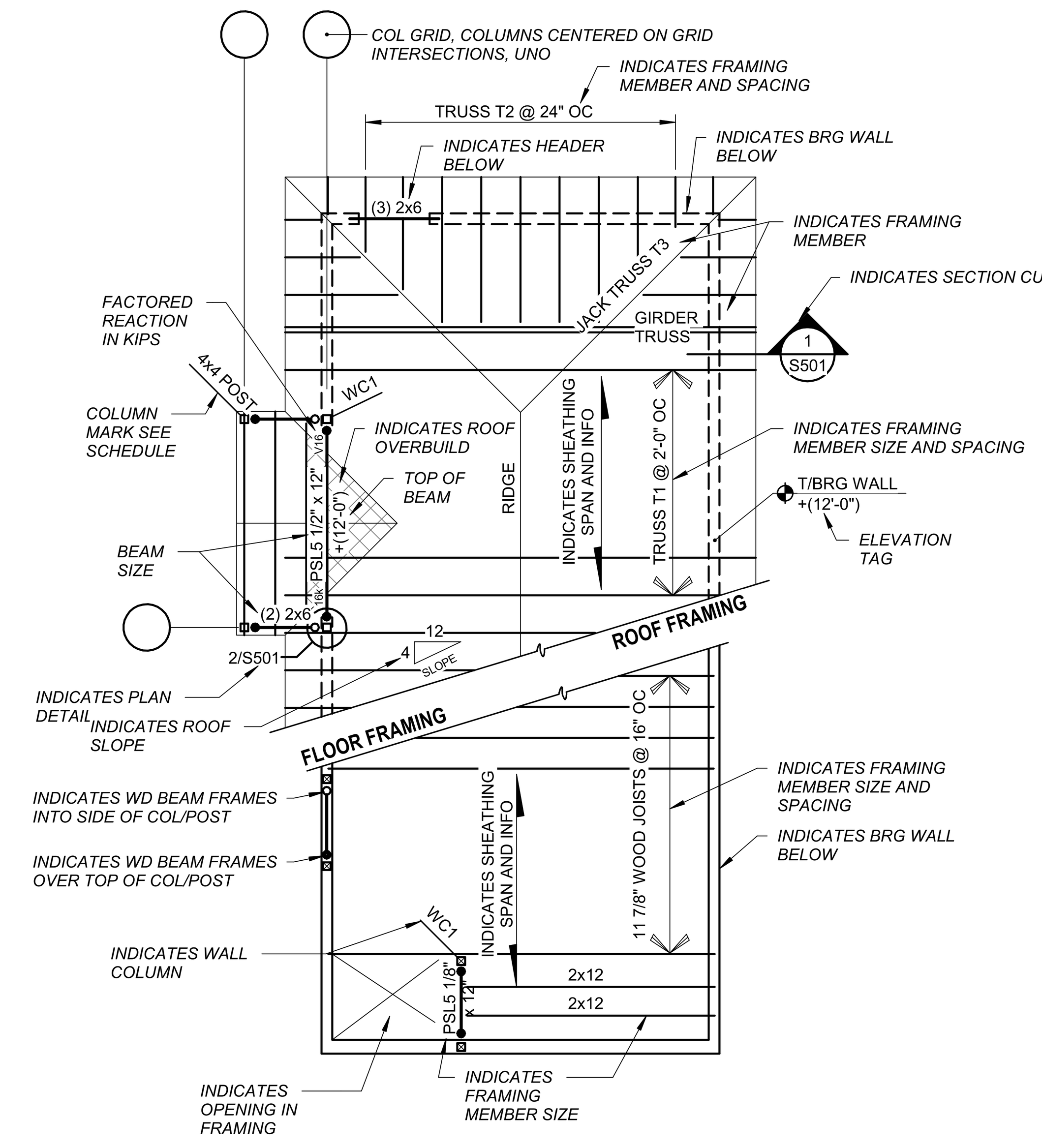
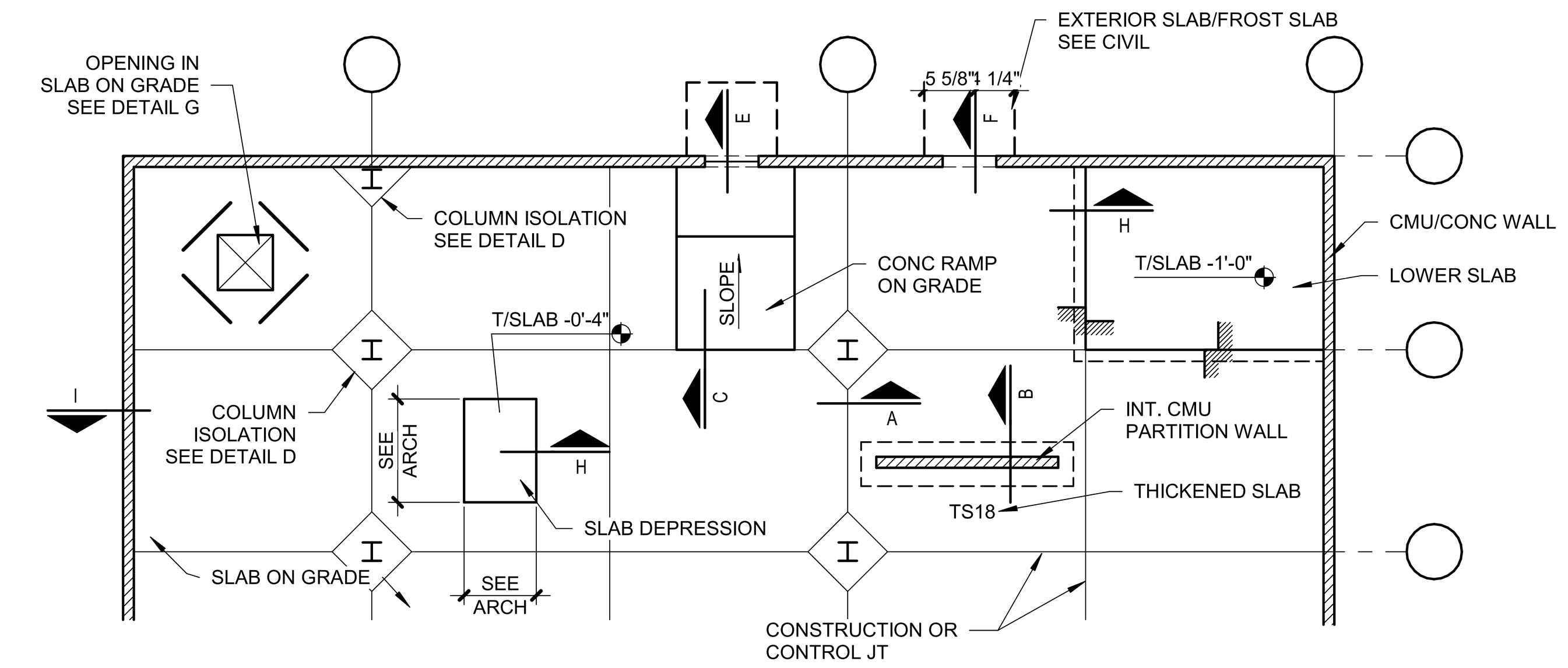


4 S-020.4 WOOD FRAMING PLAN LEGEND

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

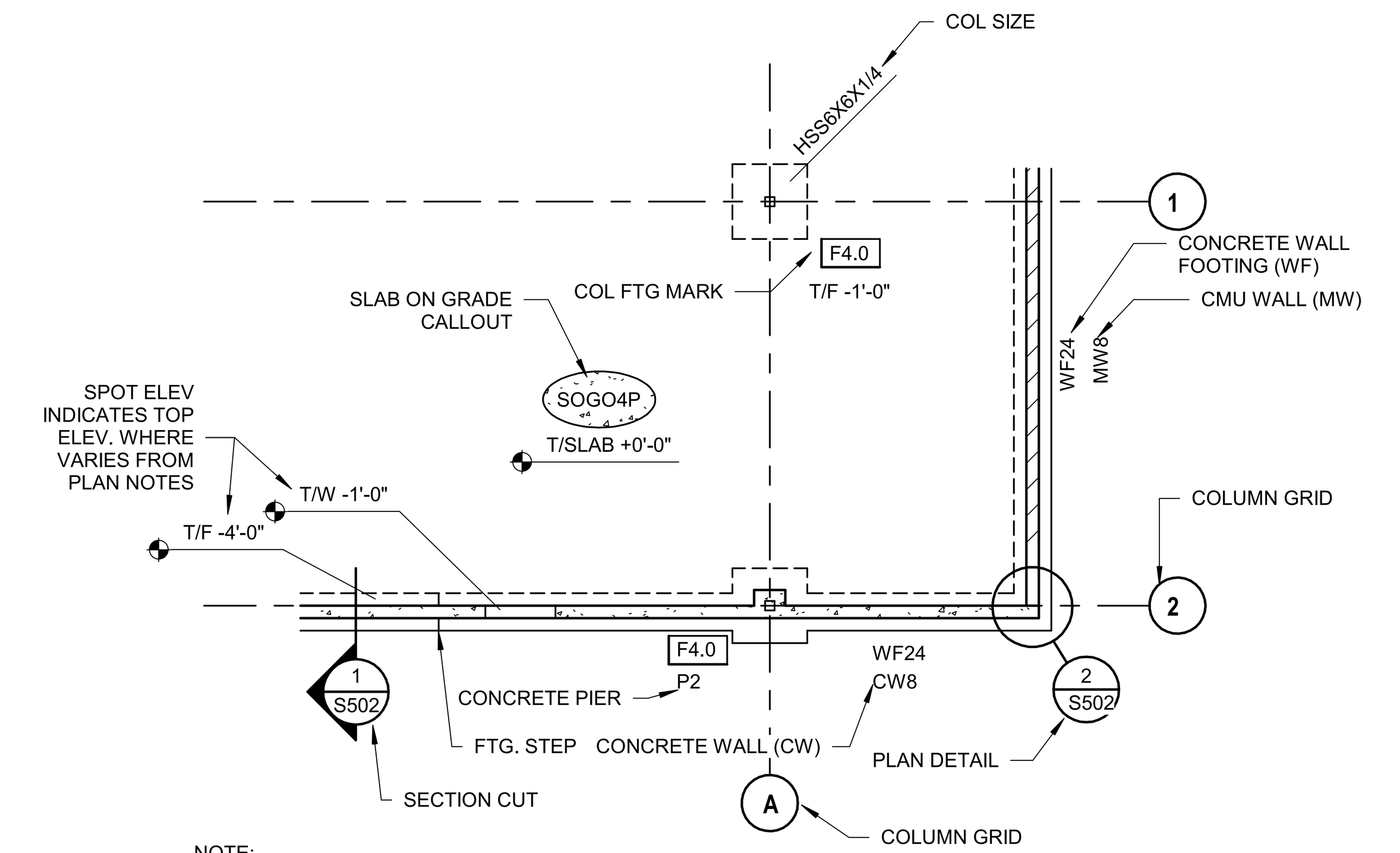


NOTE:
KEY PLAN IS AN ILLUSTRATION FOR THE INTENT OF CONSTRUCTION CONCEPTS ONLY. SEE PLAN VIEW FOR ACTUAL DETAILS/DIMENSIONS/INFORMATION

CONTRACTOR TO PROVIDE SLAB ON GRADE PLAN IF ONE IS NOT PROVIDED IN STRUCTURAL DRAWINGS.

1 S-020.4 TYPICAL SLAB ON GRADE KEY PLAN

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



NOTE:
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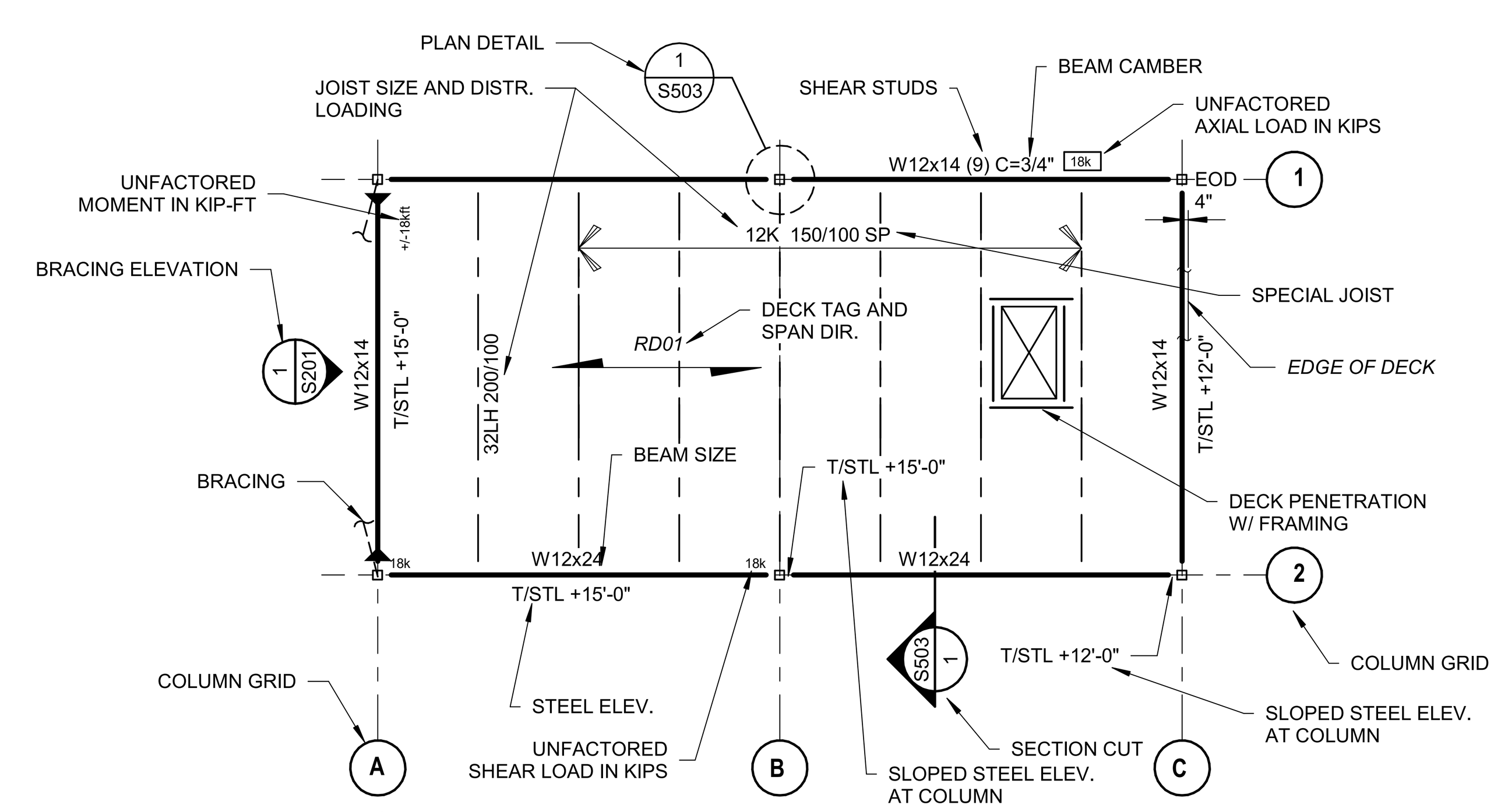
SEE PLAN VIEW FOR ACTUAL DETAILS/DIMENSIONS/INFORMATION

2 S-020.4 TYPICAL FOUNDATION PLAN LEGEND Global Sheet

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



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3 S-020.4 TYPICAL FRAMING PLAN LEGEND Global Sheet

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

6 5 4 3 2 1

SCHMIDT ASSOCIATES
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www.schmidt-arch.com

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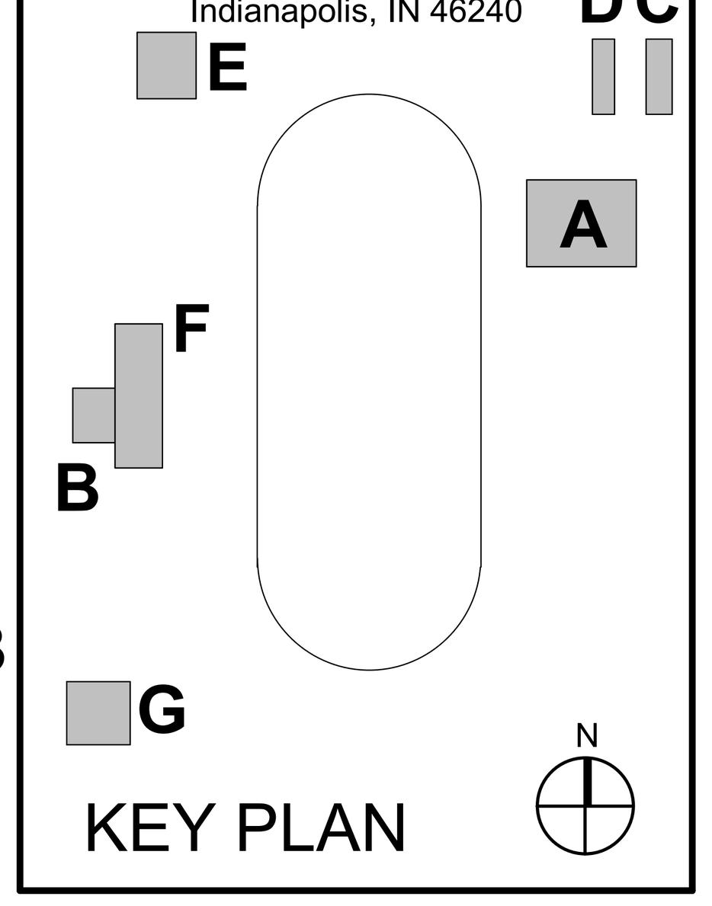
Indianapolis, IN 46240



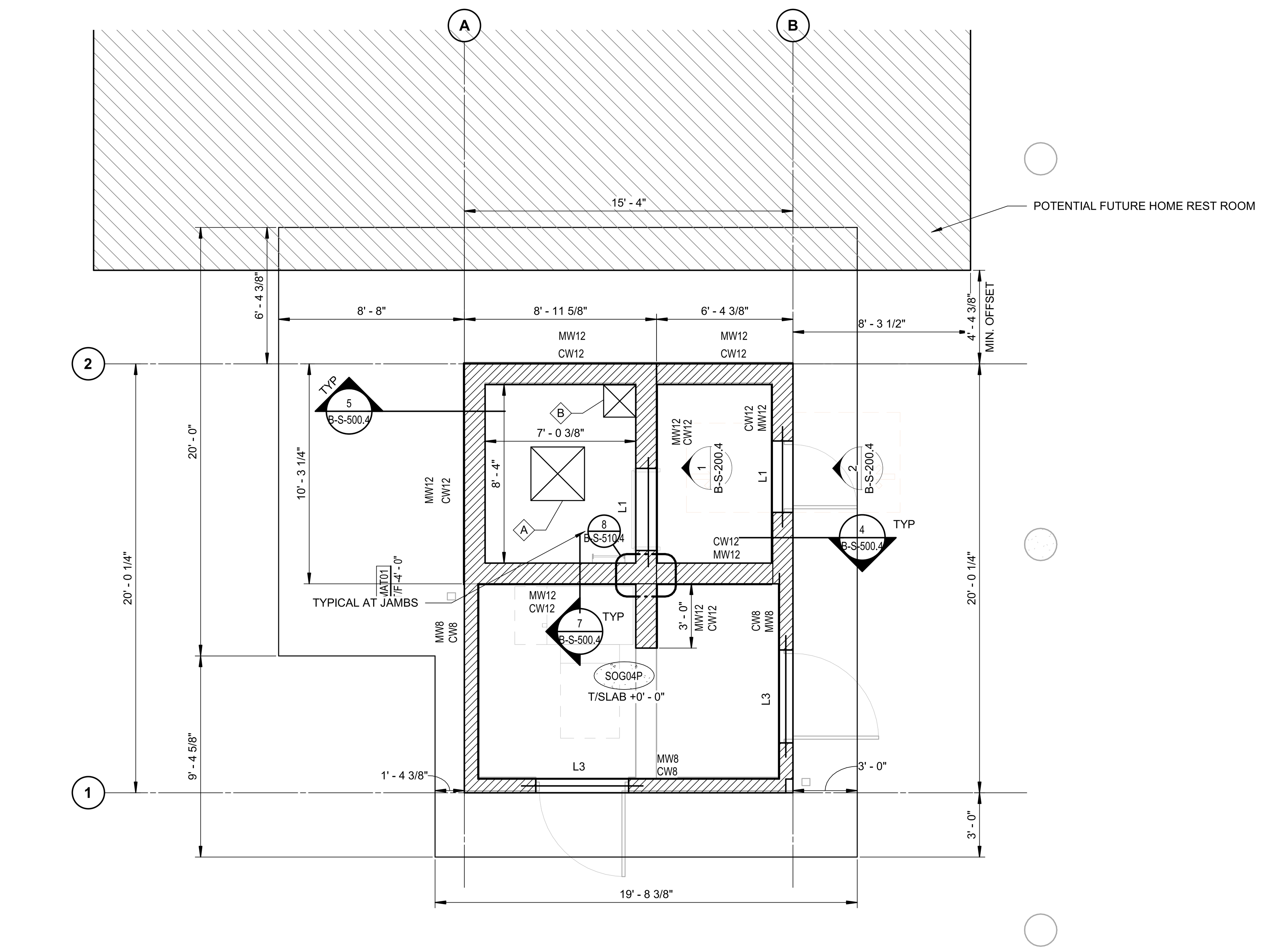
KEY PLAN

OWNER

North Central High School Renovation - Field Improvements

LEGENDS

S-020.4



FOUNDATION PLAN

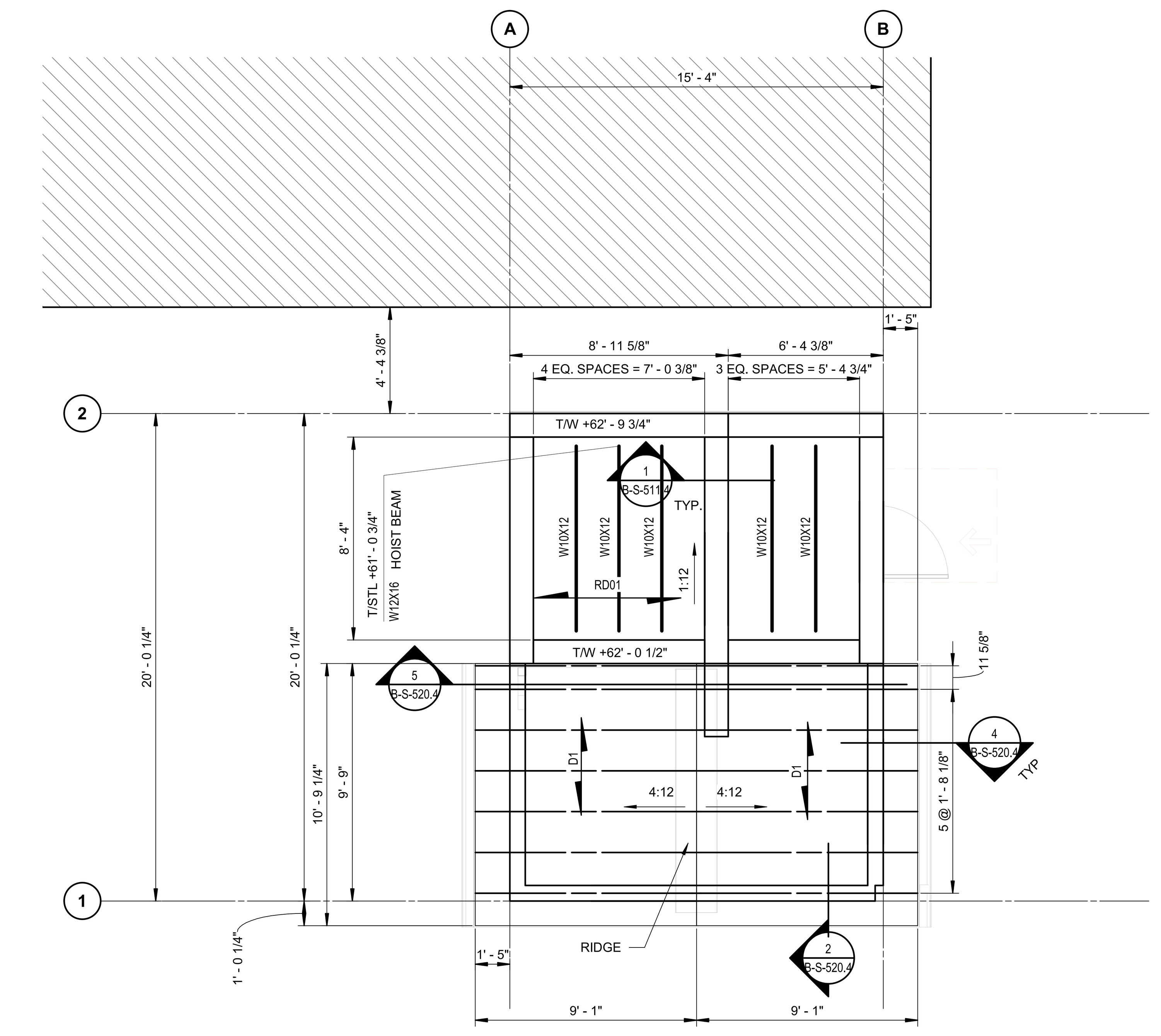
SCALE: 1/4" = 1'-0"

FOUNDATION 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. TOP OF FOOTING (T/F) -4'-0", UNO.
4. T/CW = -0'-8" UNO

B-SF100.4 - FOUNDATION PLANS

#	NOTE
A	2'-6" x 2'-6" BLOCKOUT REQUIRED FOR JACK
B	ROUGH SUMP PIT LOCATION. GC TO PROVIDE FINAL SIZE/LOCATION OF SUMP PIT PER ELEVATOR SHOPS.

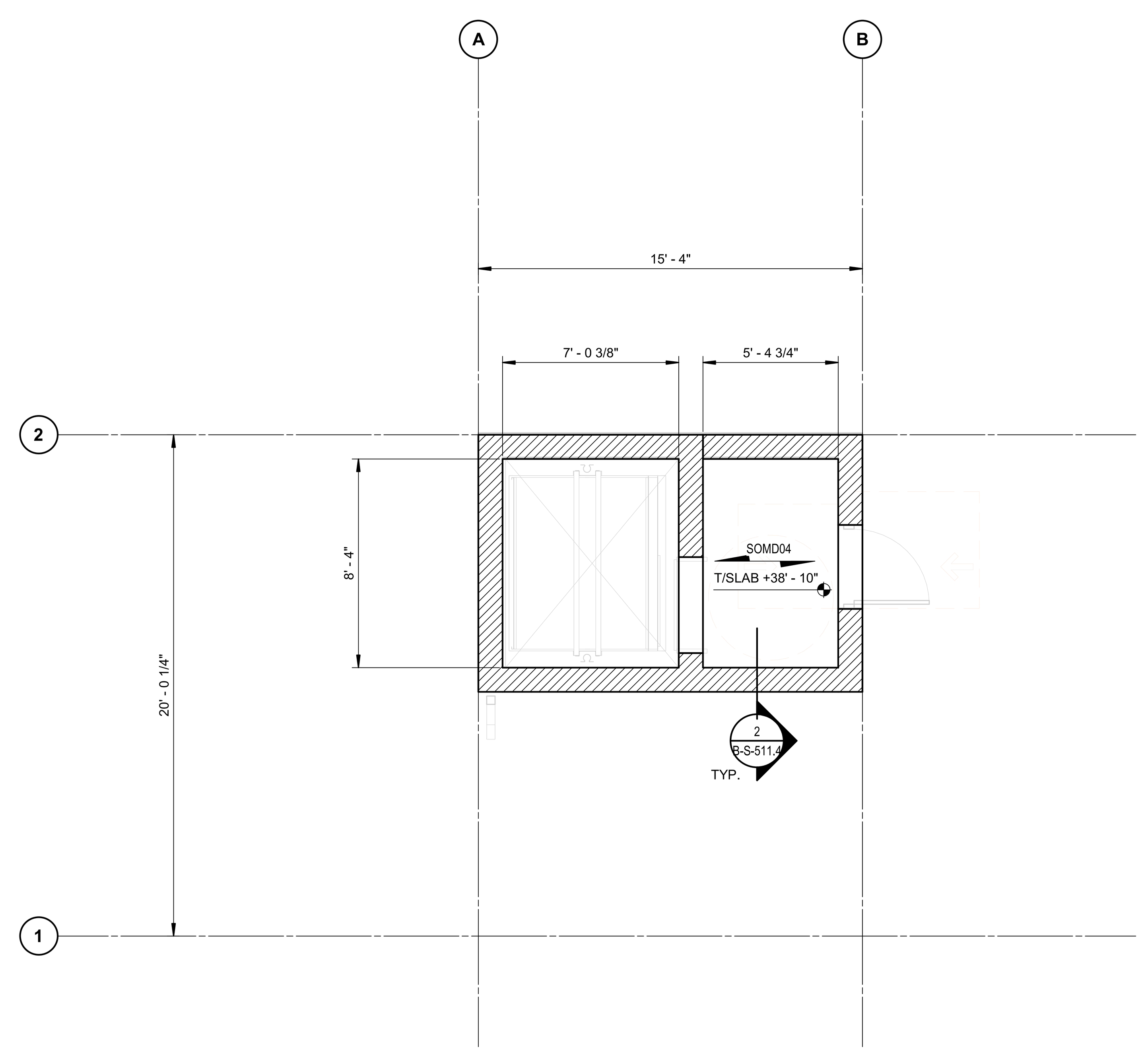


ROOF FRAMING PLAN

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 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. VERIFY EQUIPMENT SIZE, WEIGHT, AND LOCATION WITH MECHANICAL CONTRACTOR.

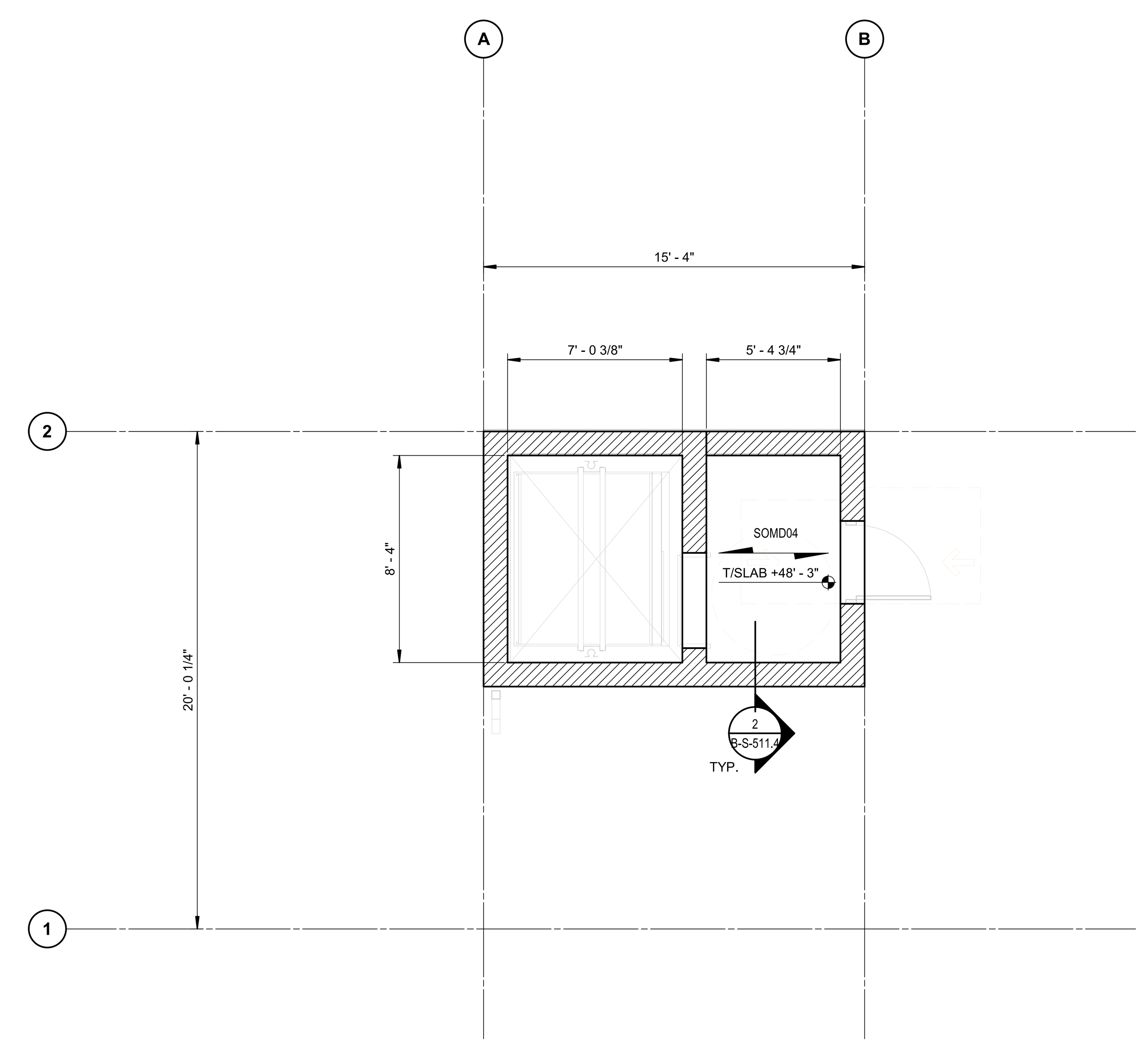


FIRST FLOOR PRESSBOX

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 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. VERIFY EQUIPMENT SIZE, WEIGHT, AND LOCATION WITH MECHANICAL CONTRACTOR.



SECOND FLOOR PRESSBOX

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 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. VERIFY EQUIPMENT SIZE, WEIGHT, AND LOCATION WITH MECHANICAL CONTRACTOR.

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

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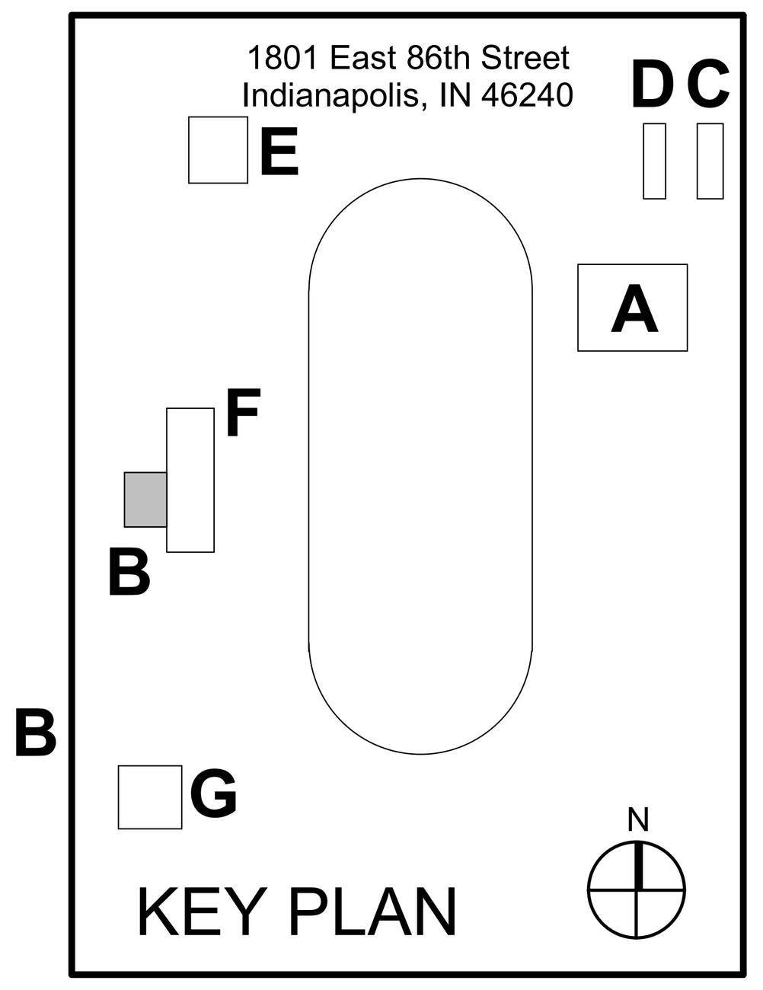
1.4b	ADDENDUM 1.4b	08.17.23

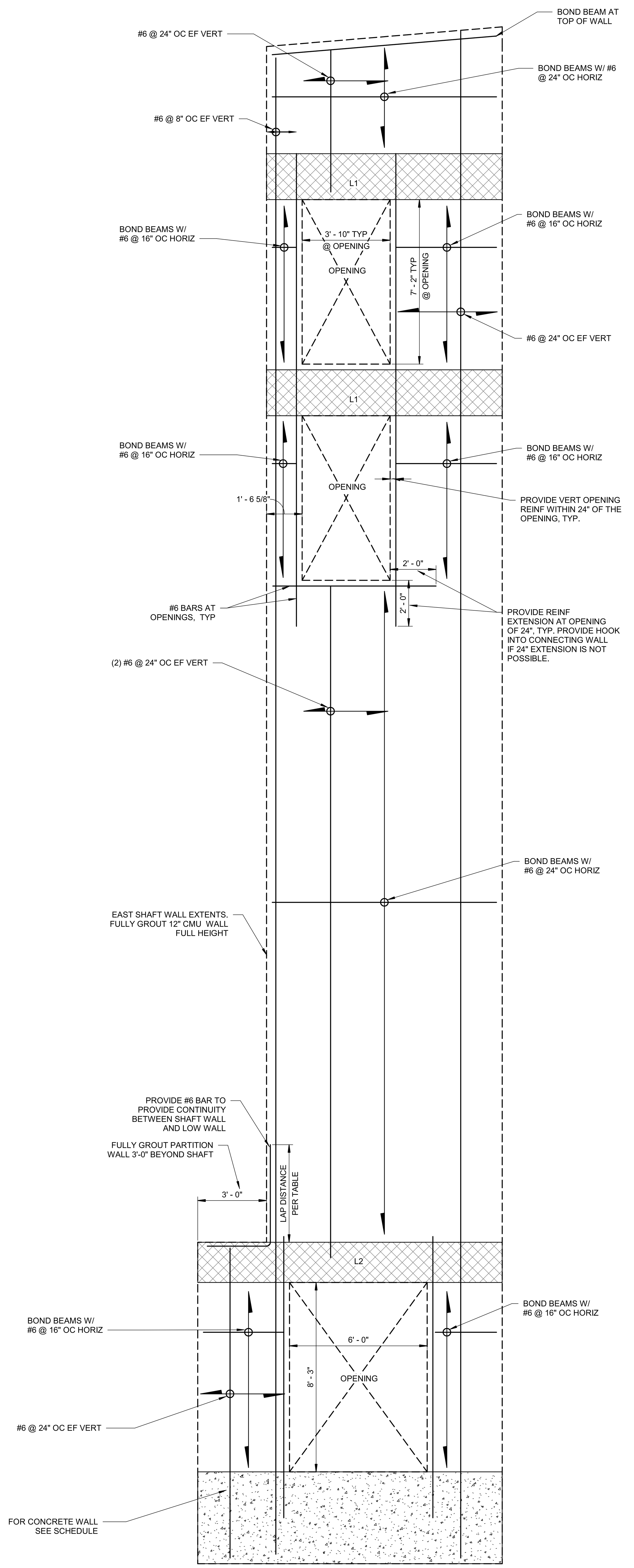


OWNER

North Central High School Renovation - Field Improvements

FRAMING PLANS

B-SF100.4



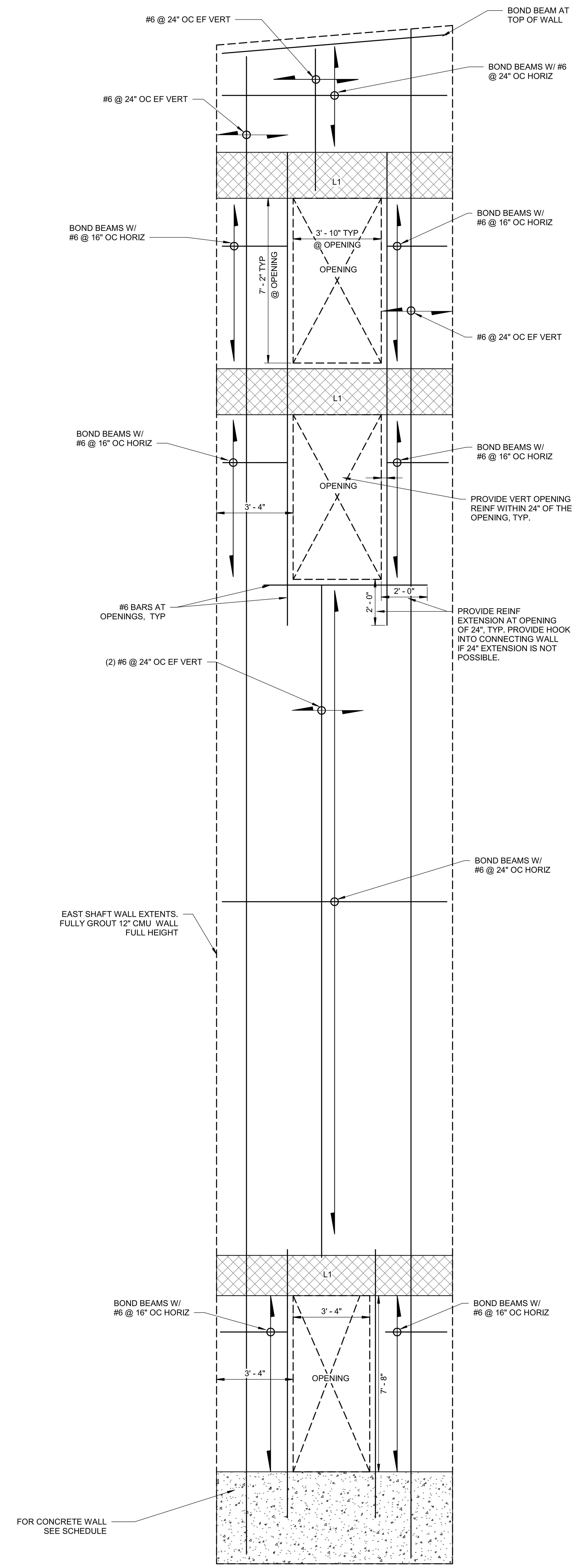
1
B-S-200.4

MASONRY REINFORCEMENT ELEVATION

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

ELEVATION 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. ALL LINTELS/BOND BEAMS CONTINUOUS TO RETURN WALLS.



2
B-S-200.4

MASONRY REINFORCEMENT ELEVATION

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

ELEVATION 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. ALL LINTELS/BOND BEAMS CONTINUOUS TO RETURN WALLS.

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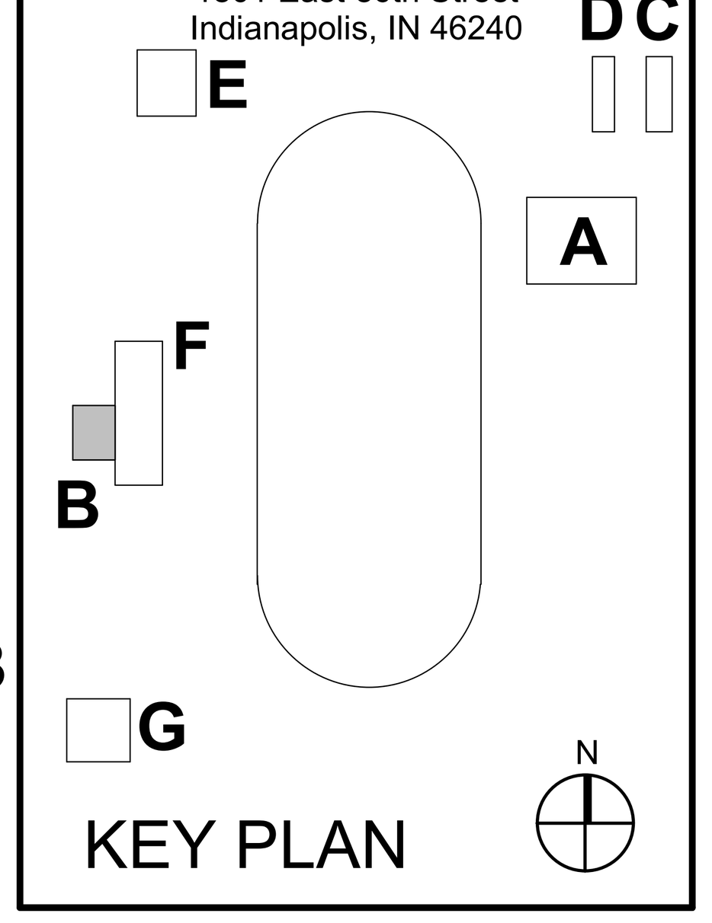


KEY PLAN

OWNER

North Central High School Renovation - Field Improvements

1.4b

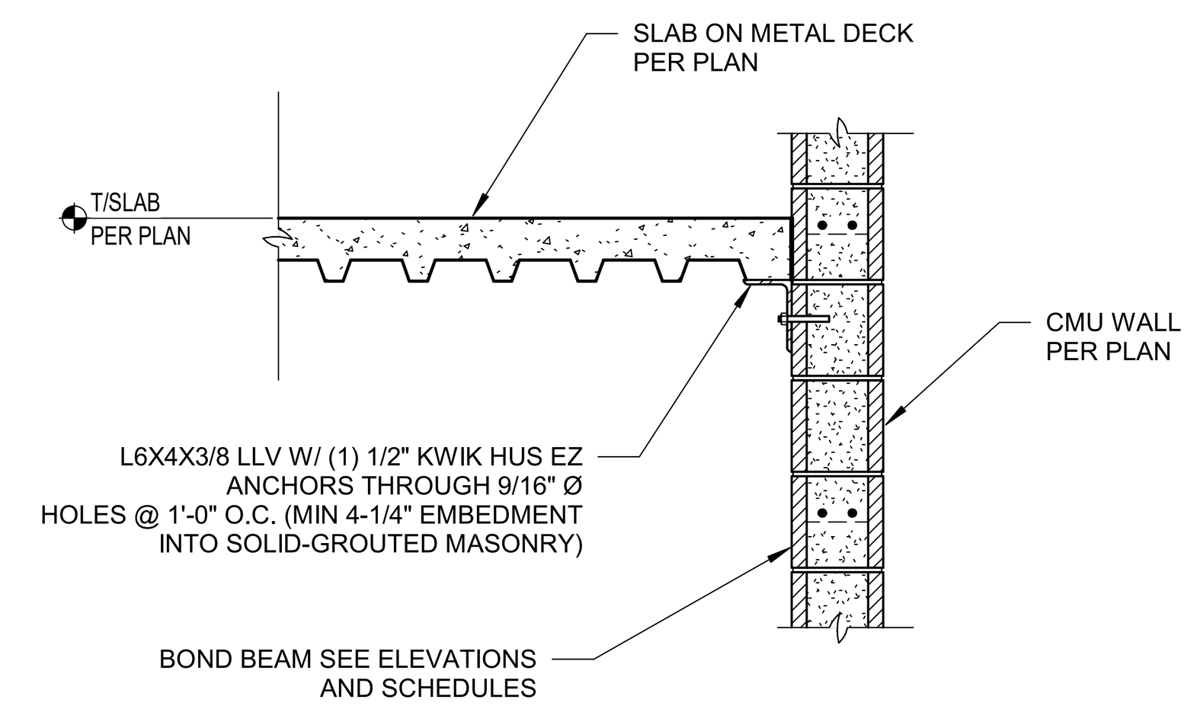
FRAMING ELEVATIONS

B-S-200.4

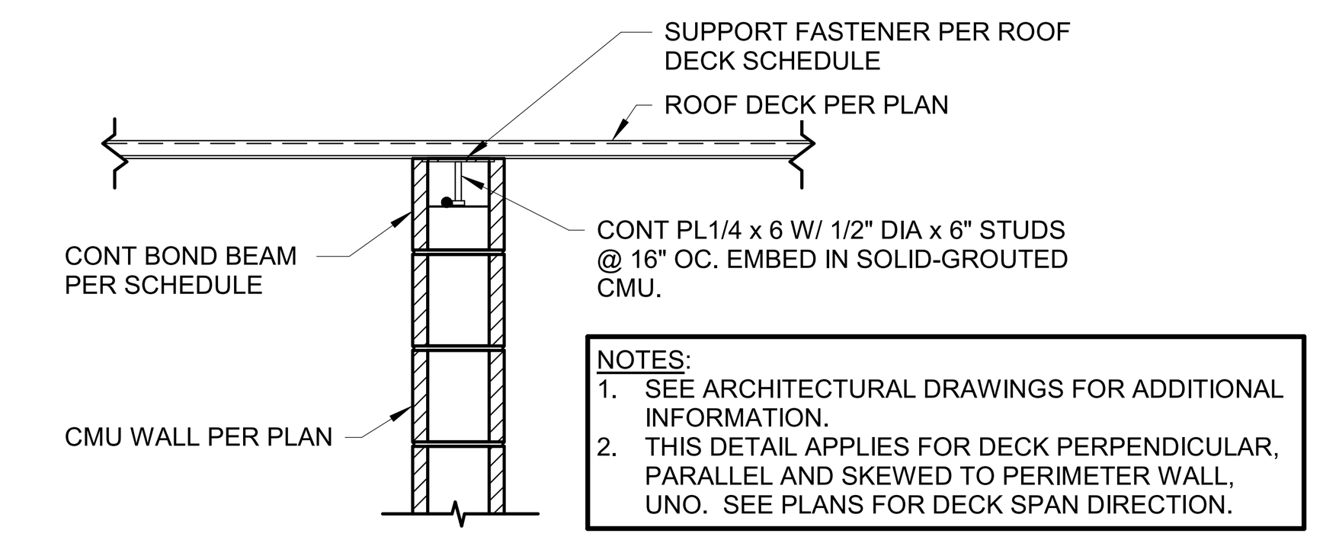
MASONRY WALL SCHEDULE

		Vertical Wall Reinforcing					Horiz Reinf		Bond Beam Reinforcing		
		Reinforcing			Dowel Reinforcing						
Mark	Thickness	Size	Spa	Location	Size	Spa	Size	Spa	No. of	Size	Remarks
MW8	7 5/8"	#5	4' - 0"	Center	#5	4' - 0"	Ladder	1' - 4"	2	#5	
MW12	11 5/8"	#6	2' - 0"	Ea Face	#6	2' - 0"	Bond Beam	2' - 0"	1	#6	SW12

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.



2 B-S-511.4 **FLOOR SLAB SUPPORT AT CMU WALL**
SCALE: 3/4" = 1'-0"

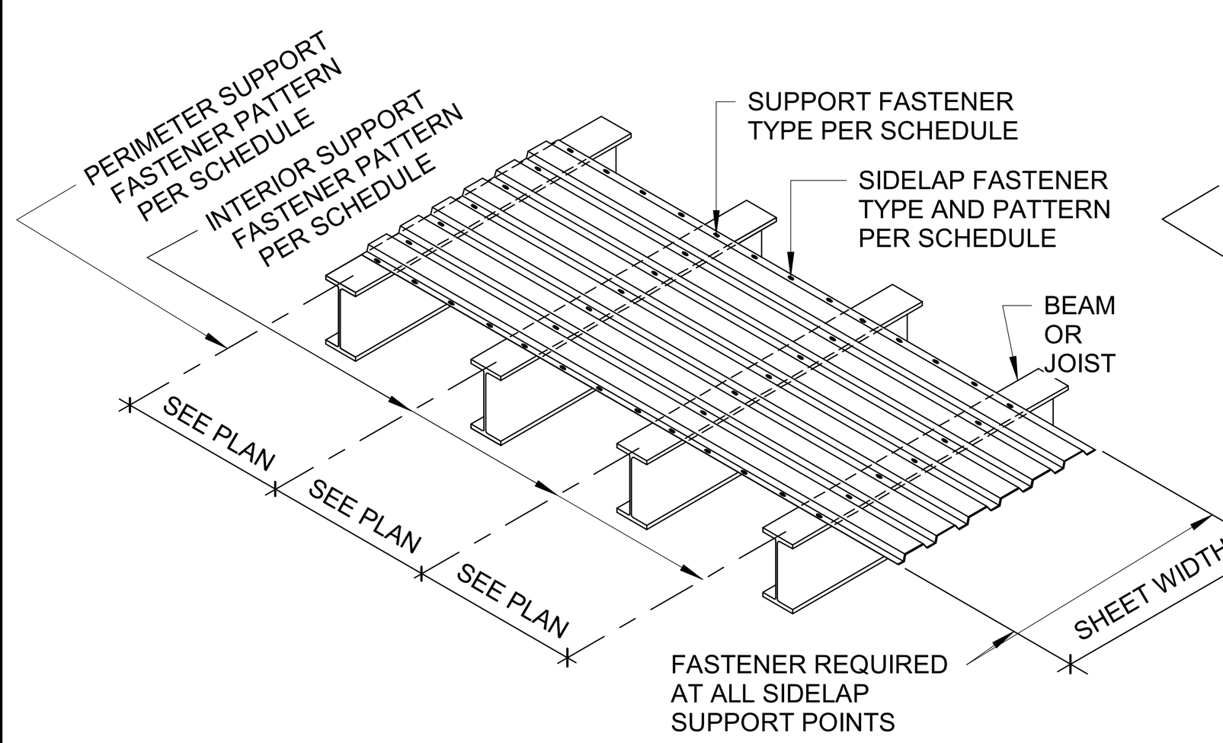


NOTES:
1. SEE ARCHITECTURAL DRAWINGS FOR ADDITIONAL INFORMATION.
2. THIS DETAIL APPLIES FOR DECK PERPENDICULAR, PARALLEL AND SKEWED TO PERIMETER WALL, UNO. SEE PLANS FOR DECK SPAN DIRECTION.

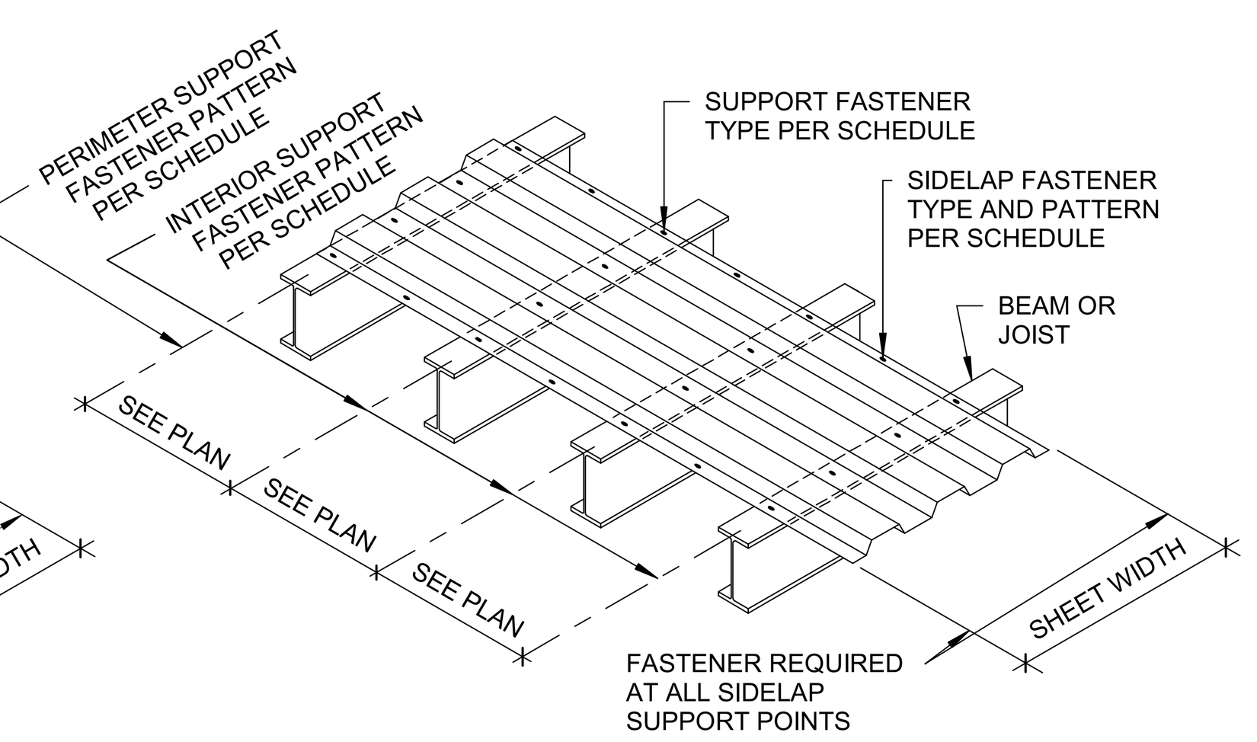
1 B-S-511.4 **TYPICAL ROOF DECK SUPPORT ON CMU WALL**
SCALE: 3/4" = 1'-0"

ROOF DECK SCHEDULE

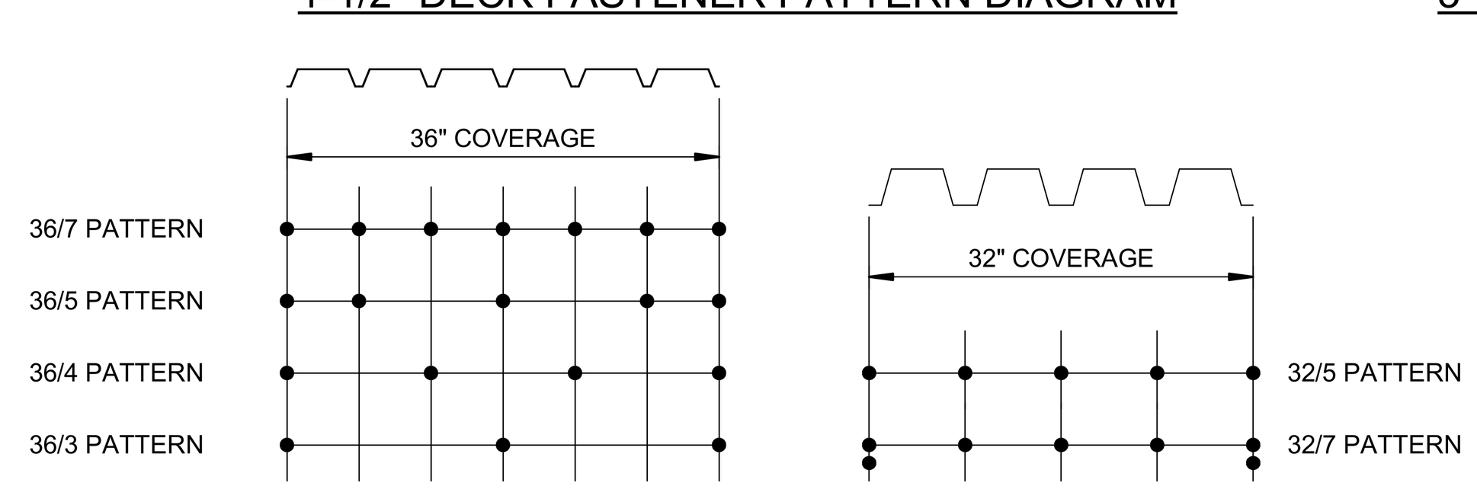
MARK	HEIGHT	GAUGE	TYPE	FINISH	SUPPORT FASTENER TYPE	PERIMETER SUPPORT FASTENER PATTERN	INTERIOR SUPPORT FASTENER PATTERN	SIDELAP FASTENER TYPE	SIDELAP FASTENER PATTERN	NOTES
RD01	1-1/2"	20 GA	TYPE B	PAINTED	3/4" DIA PUDDLE WELDS	SEE BELOW	36/4	#10 TEK SCREWS	4 PER SPAN	SEE NOTE 4



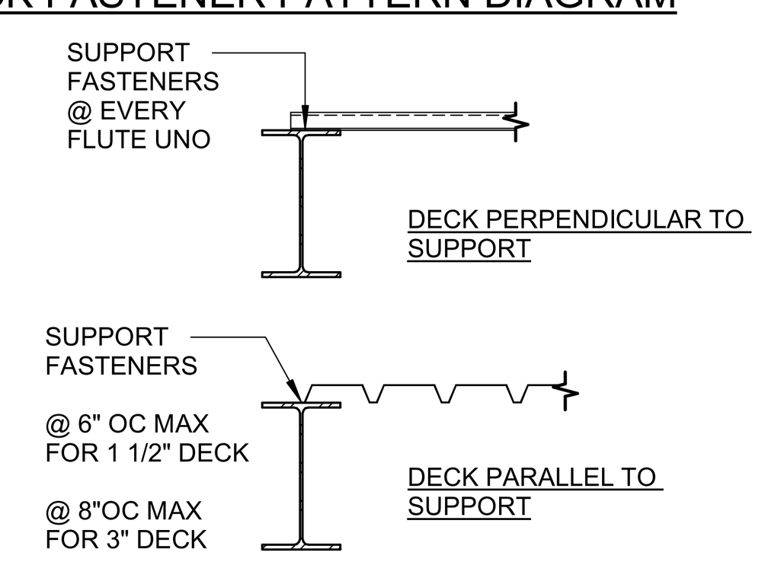
1-1/2" DECK FASTENER PATTERN DIAGRAM



3" DECK FASTENER PATTERN DIAGRAM



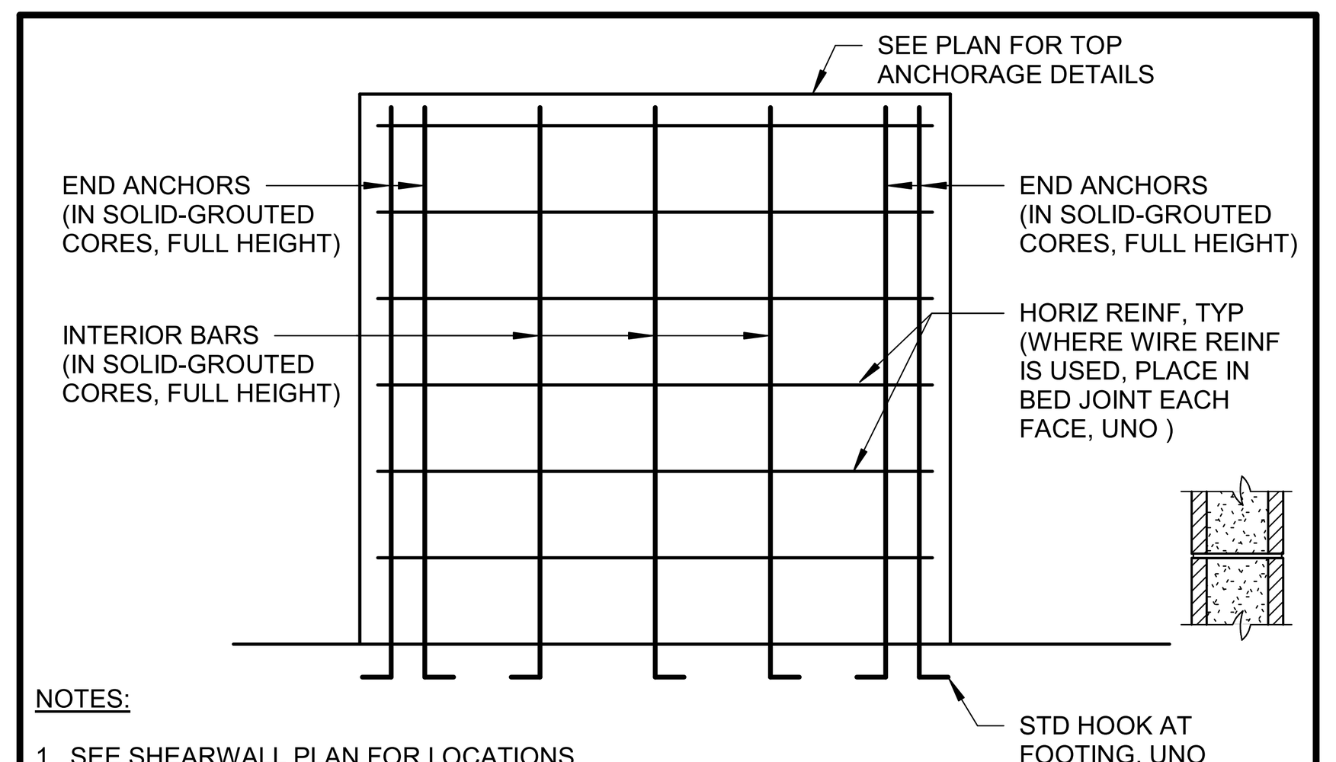
SUPPORT FASTENER PATTERN DEFINITION



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.



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.
5. NO CONTROL JOINTS ARE PERMITTED IN ELEVATOR SHAFT SHEARWALLS.

CMU SHEARWALL SCHEDULE

MARK	CMU SIZE	APPROX. LENGTH	END ANCHORS	INTERIOR BARS	GROUT SPACING	HORIZONTAL REINFORCING
SW12	12"	SEE PLAN	2 CORES EF 4 TOTAL	#6 EF	8"	BOND BEAM W/ (2) #6 BARS @ 24" OC

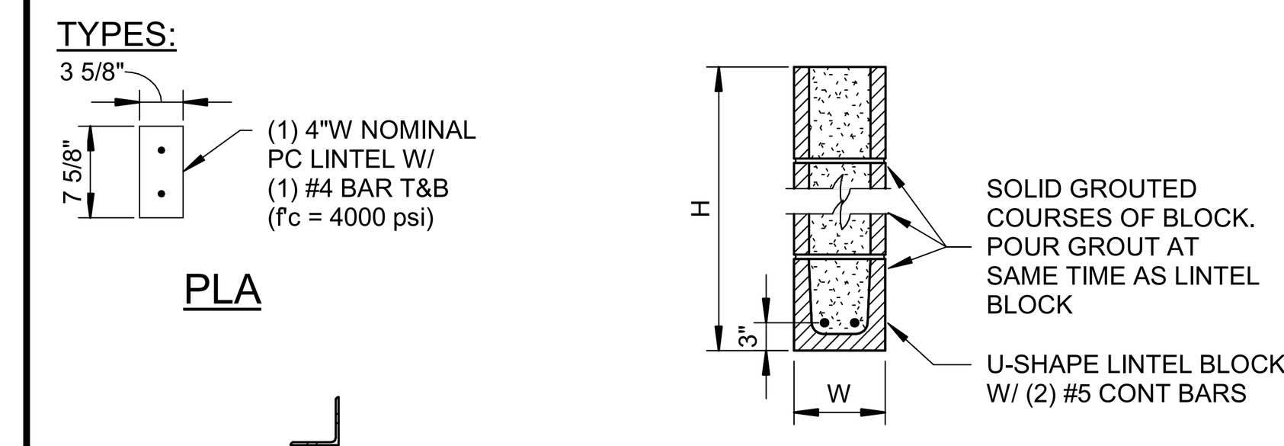
1. BOND BEAMS ARE CONTINUOUS AROUND CORNERS PER TYPICAL DETAILS.
2. TIGHTER BOND BEAM SPACING TO CONTROL IN REGIONS AS INDICATED ON ELEVATION.

PRESCRIPTIVE LINTEL SCHEDULE

GENERAL NOTE: PROVIDE LINTELS IN THIS SCHEDULE FOR MASONRY OPENINGS WHERE SPECIFIC LINTELS (L#) ARE NOT OTHERWISE INDICATED. WHERE A SPECIFIC LINTEL (L#) IS INDICATED FOR A PARTICULAR OPENING, PROVIDE THE SPECIFIC LINTEL (L#). FOR OPENINGS BEYOND THE LIMITS AND/OR MATERIALS IDENTIFIED IN THIS SCHEDULE WHERE SPECIFIC LINTELS (L#) ARE NOT OTHERWISE INDICATED, CONTACT THE STRUCTURAL ENGINEER FOR REQUIRED LINTEL SIZE AND TYPE.

SECTION	CLEAR OPENING	TYPE	NOTES
W x 8 H (NOMINAL) CMU	UP TO 3'-4"	PLB	6", 8", 10", 12" CMU
W x 16 H (NOMINAL) CMU	>3'-4" UP TO 6'-4"	PLB	6", 8", 10", 12" CMU
W x 24 H (NOMINAL) CMU	>6'-4" UP TO 10'-4"	PLB	6", 8", 10", 12" CMU
L3 1/2 x 3 1/2 x 5/16	UP TO 4'-0"	PLC	4" MASONRY VENEER
L5 x 3 1/2 x 5/16 (LLV)	>4'-0" UP TO 6'-0"	PLC	4" MASONRY VENEER
L6 x 3 1/2 x 3/8 (LLV)	>6'-0" UP TO 8'-0"	PLC	4" MASONRY VENEER

TYPES:

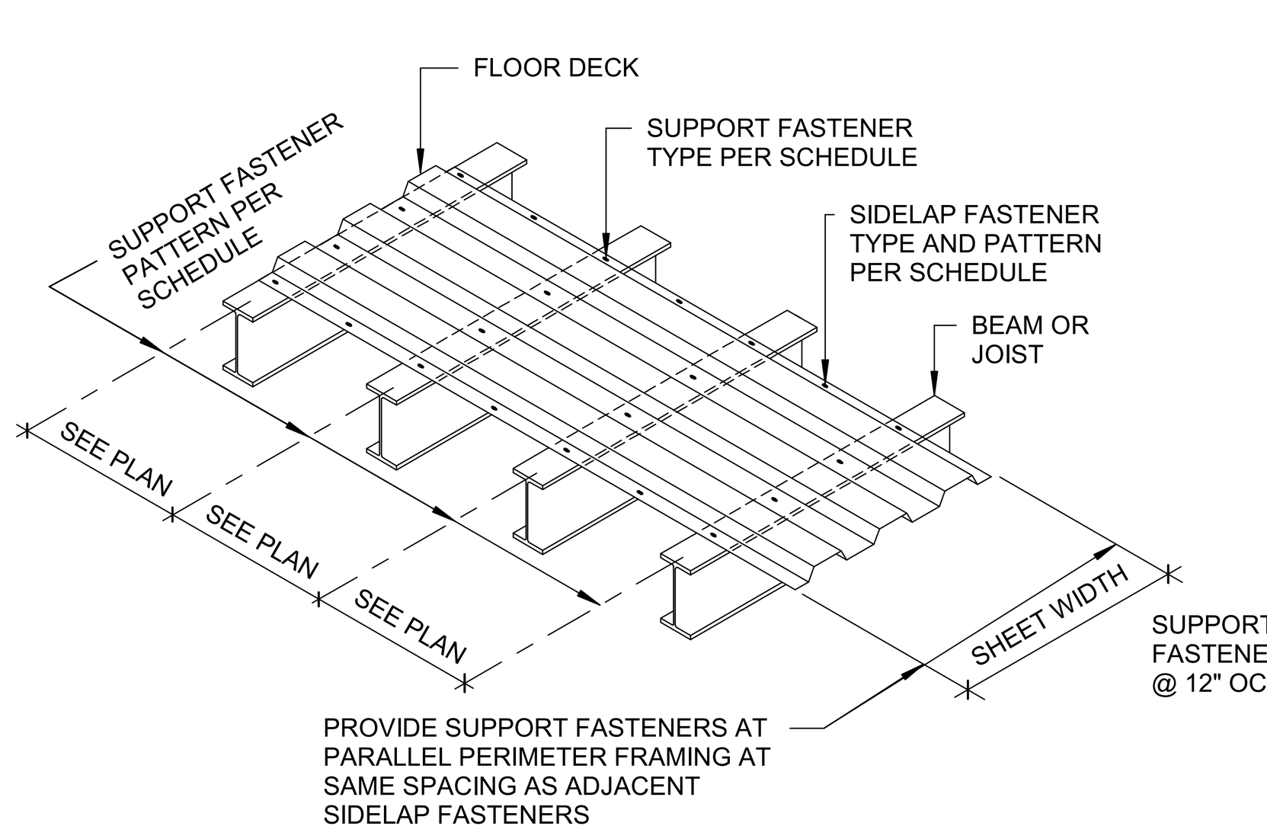


PRESCRIPTIVE LINTEL SCHEDULE NOTES:

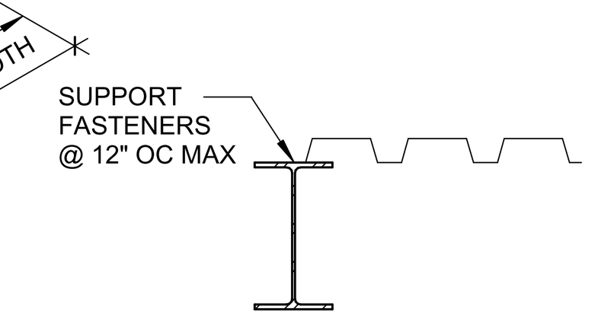
1. ALL LINTELS BEAR 0'-8" ONTO SUPPORTING WALLS, UNO.
2. ALL STEEL LINTELS IN EXTERIOR WALLS SHALL BE GALVANIZED.

SLAB ON METAL DECK SCHEDULE

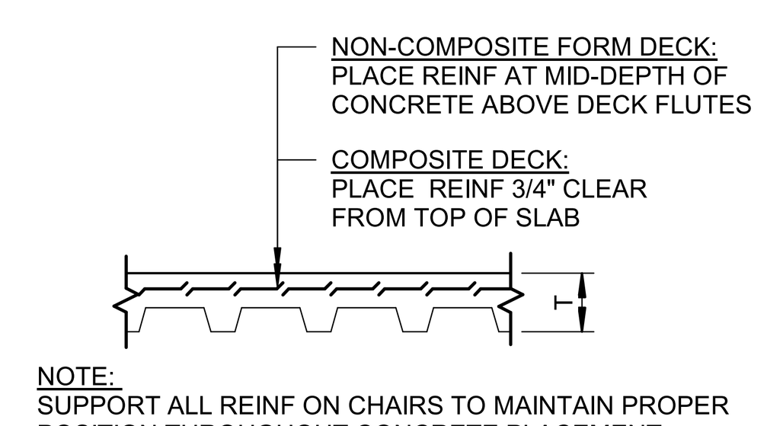
MARK	DECK HEIGHT	GAUGE	YIELD STRENGTH Fy	TYPE	FINISH	SLAB T	SLAB REINFORCING	SUPPORT FASTENER TYPE	SUPPORT FASTENER PATTERN	SIDELAP FASTENER TYPE	SIDELAP FASTENER PATTERN	BASIS OF DESIGN DECK (NOTE 6)	NOTES
SOMD04	2"	20 GA	50 KSI	COMPOSITE	GALV & PAINTED	4"	6x6-W1.4xW1.4 WWR		36-4	SEE NOTE 5	SEE NOTE 5	VULCRAFT 2VLI-36 OR NEW MILLENIUM 2.0CD	



FASTENER PATTERN DIAGRAM

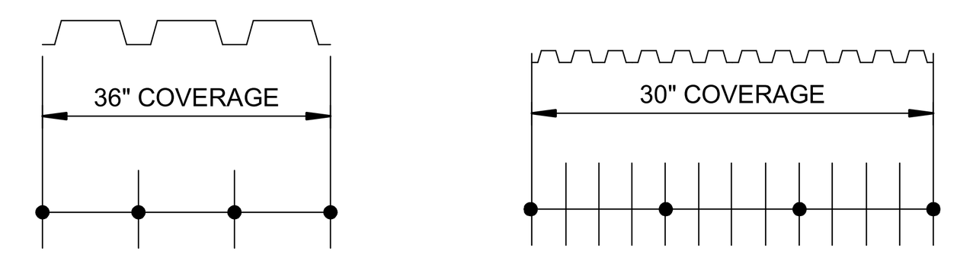


PERIMETER EDGE FASTENING



NOTE:
SUPPORT ALL REINF ON CHAIRS TO MAINTAIN PROPER POSITION THROUGHOUT CONCRETE PLACEMENT.

SLAB THICKNESS DEFINITION AND REINF PLACEMENT



SUPPORT FASTENER PATTERN DEFINITION

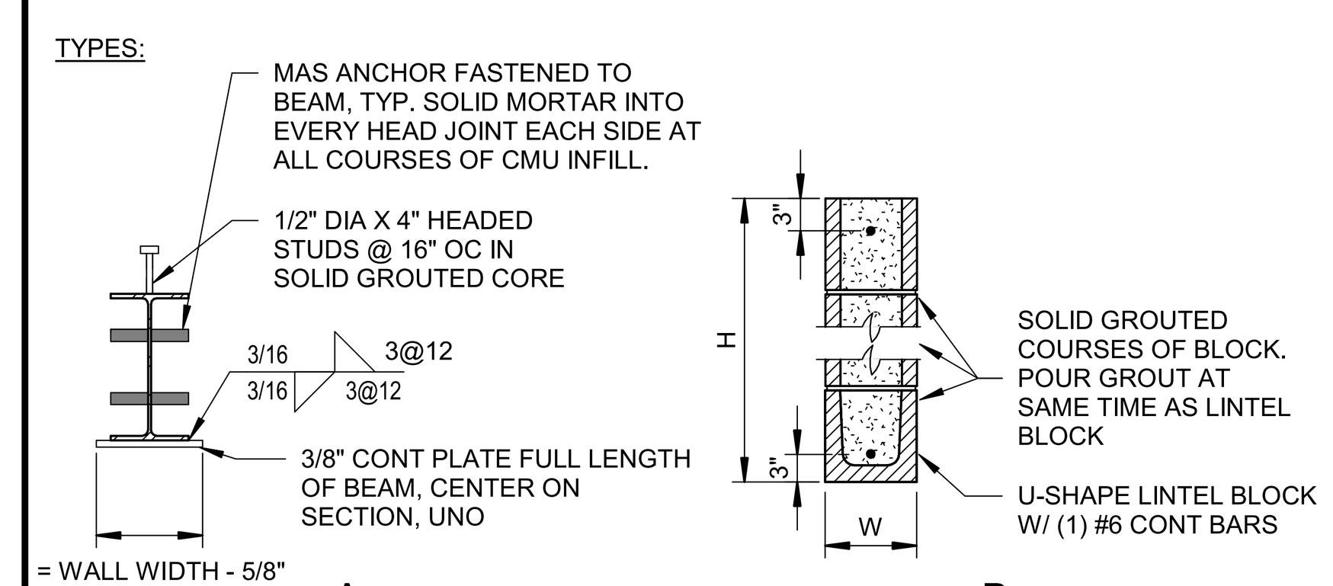
NOTES:

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.

LINTEL SCHEDULE

MARK	SECTION	CLEAR OPENING	TYPE	NOTES
L1	W x 24 H (NOMINAL CMU)	UP TO 3'-10"	B	TYP AT ELEVATOR
L2	W x 21 H (NOMINAL CMU)	6'	B	1ST LEVEL ELEVATOR OPG
L3	W x 24 H (NOMINAL CMU)	4'-4"	B	TYP AT EXTERIOR DOORS

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.
5. L1 REQUIRED FOR ALL ELEVATOR SHAFT OPENINGS.

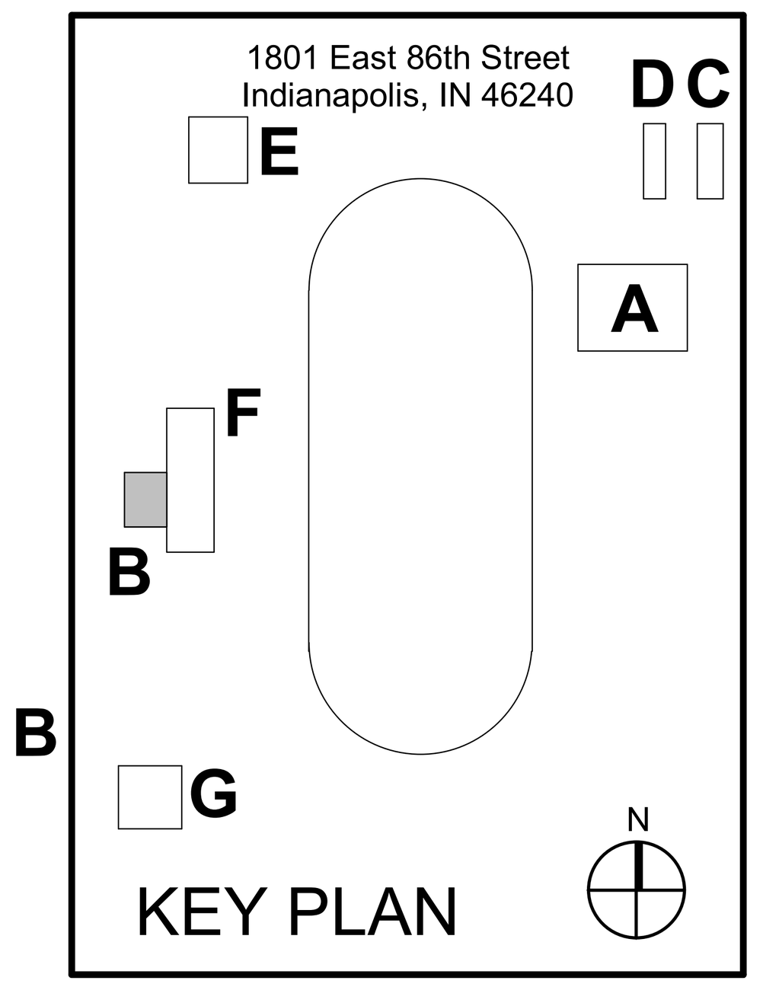
SCHMIDT ASSOCIATES
415 Massachusetts Avenue
Indianapolis, IN 46204
www.schmidt-arch.com

Project No. 2019.067-NCH
Project Date 07.27.2023
Bid Set 04
Produced DJS NRT

DYLAN SEESMAN REGISTERED No. PE11900810 STATE OF INDIANA PROFESSIONAL ENGINEER

#	Revision	Date
1.4b	ADDENDUM 1.4b	08.17.23

1801 East 86th Street
Indianapolis, IN 46240



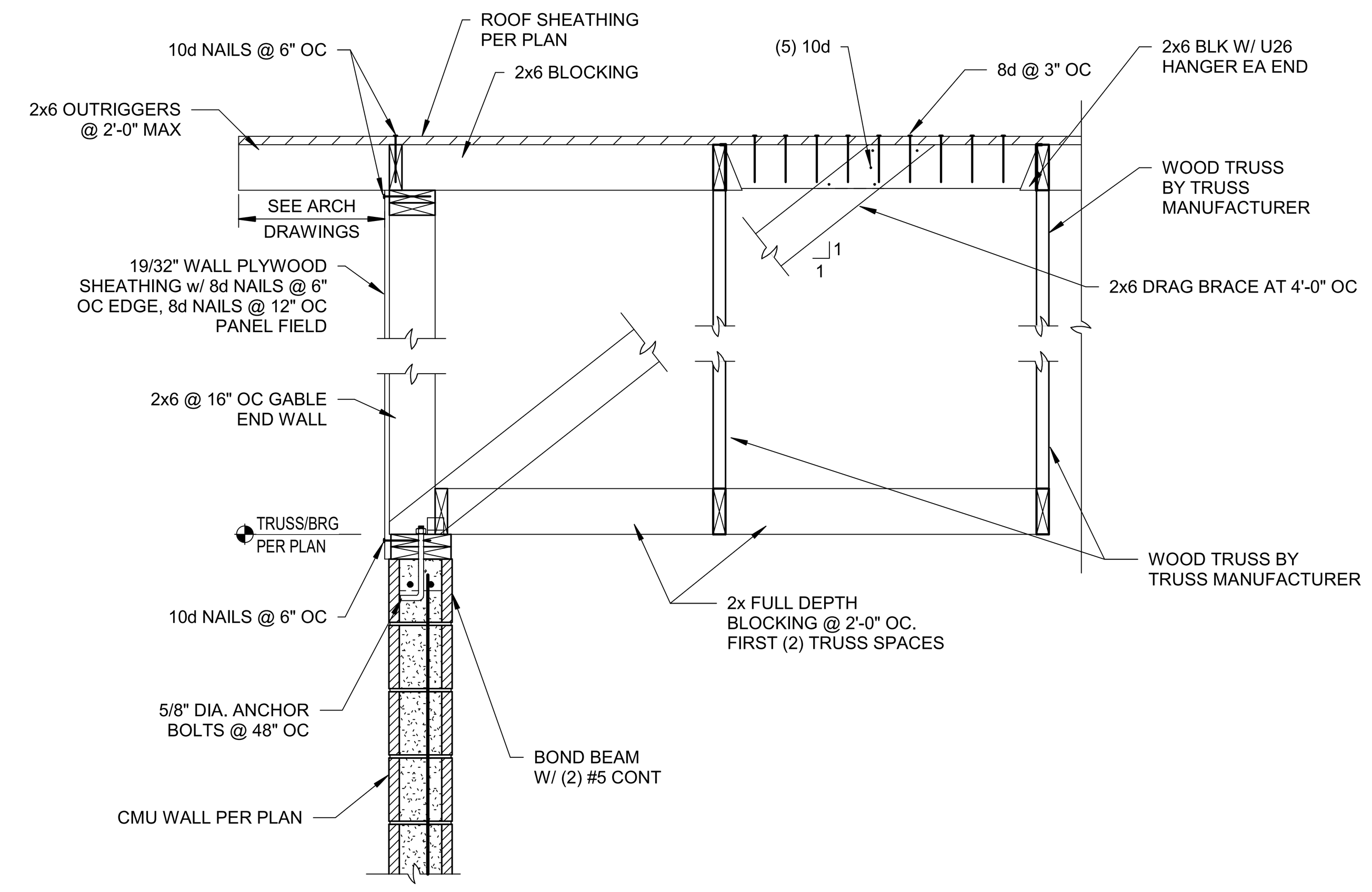
KEY PLAN

OWNER

North Central High School Renovation - Field Improvements

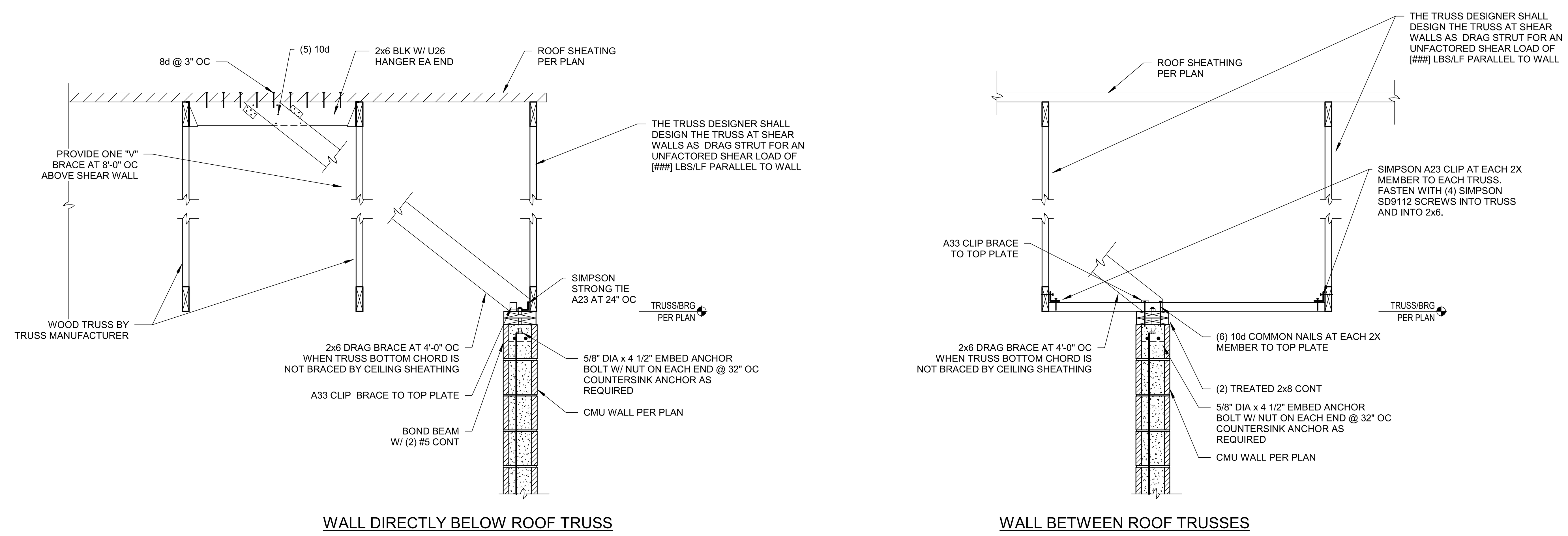
MASONRY SCHEDULES, SECTIONS, & DETAILS

B-S-511.4



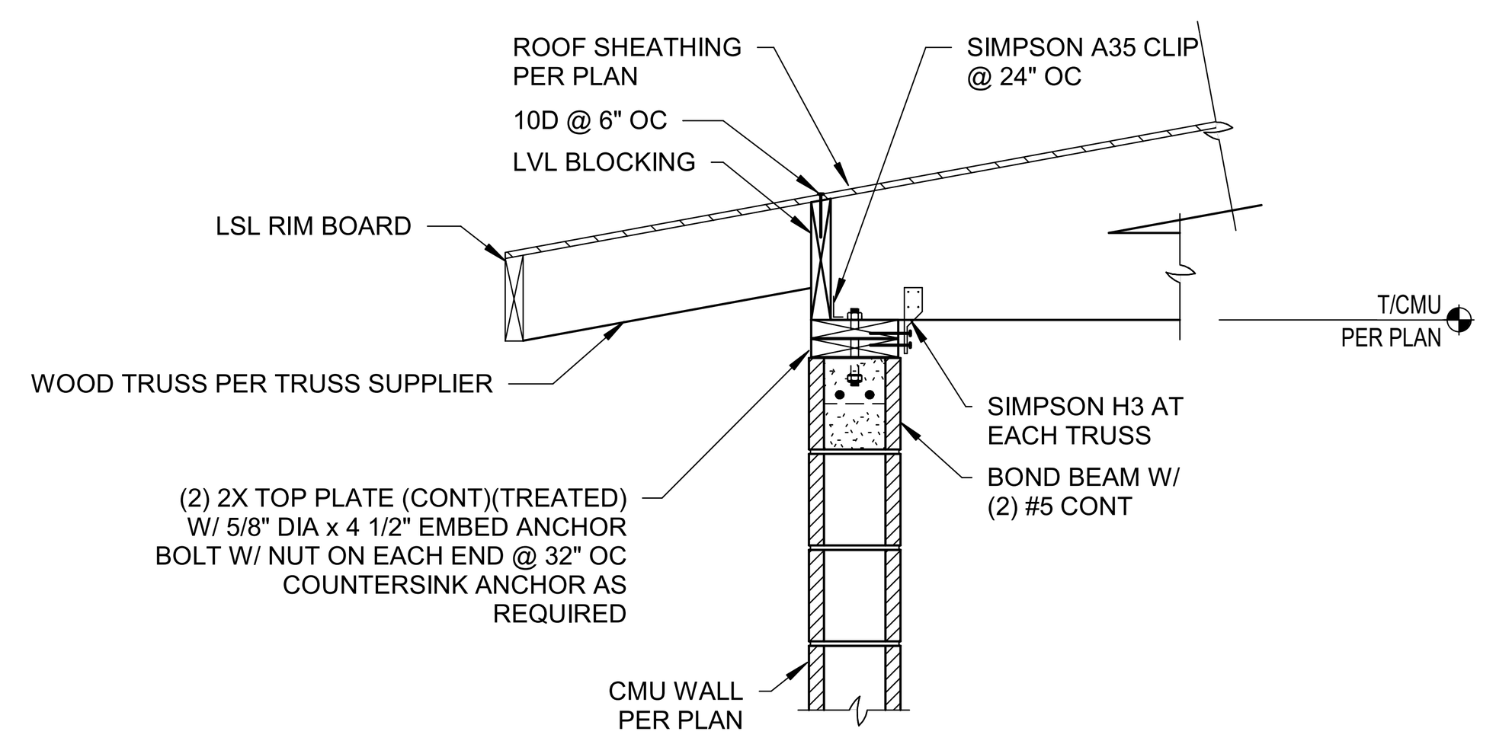
TYPICAL GABLE END WALL BRACE (CMU WALL)

2 B-S-520.4 SCALE: 3/4" = 1'-0"



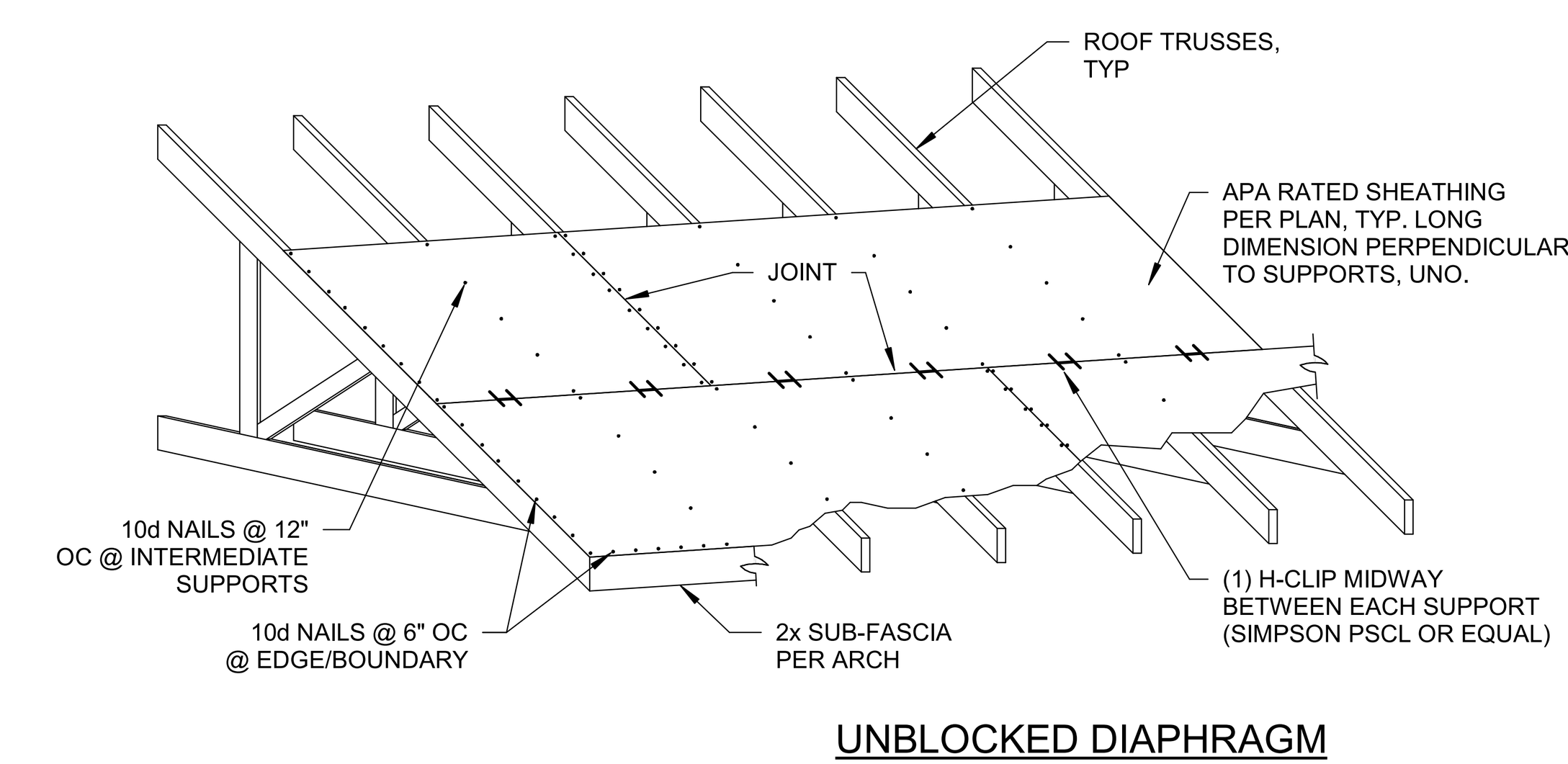
TYPICAL WOOD TRUSS CONNECTION AT CMU WALL

1 B-S-520.4 SCALE: 3/4" = 1'-0"



TYPICAL TRUSS BEARING AT CMU WALL

4 B-S-520.4 SCALE: 3/4" = 1'-0"



TYPICAL ROOF SHEATHING DETAIL AT WOOD TRUSSES

3 B-S-520.4 SCALE: 3/4" = 1'-0"

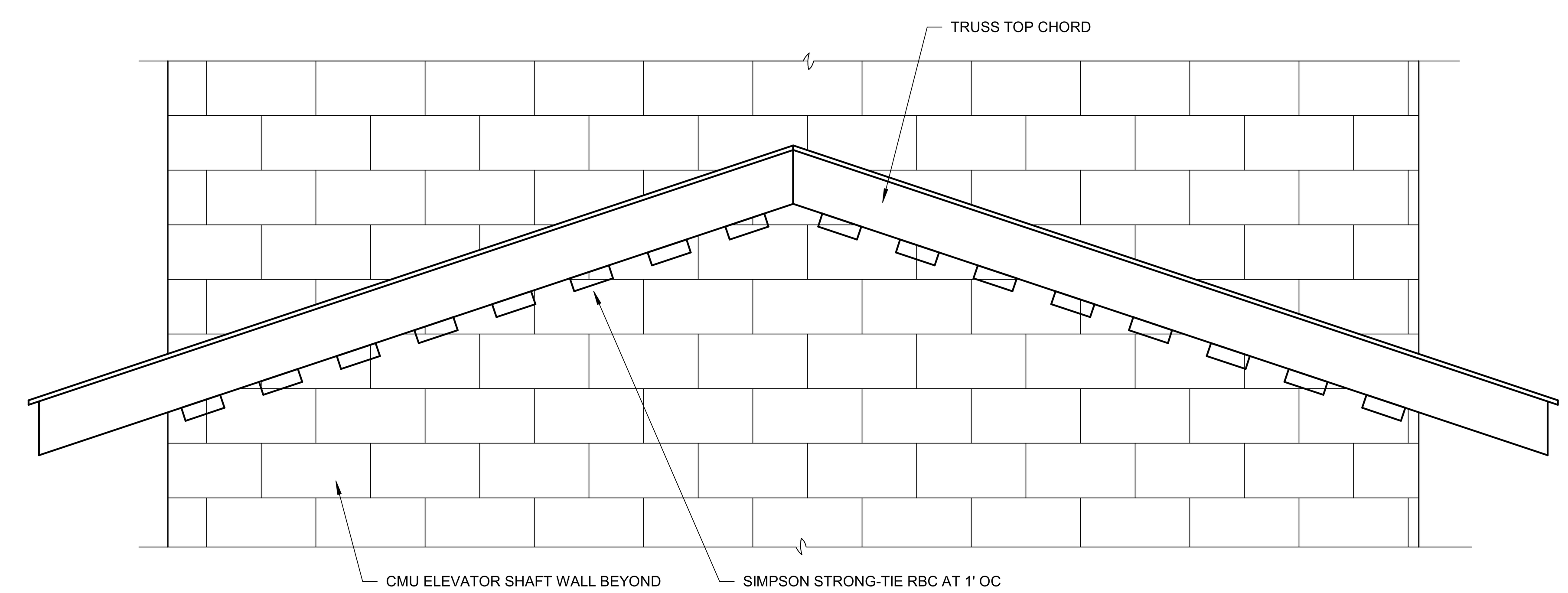
NAILING SCHEDULE

CONNECTION	NAILING
JOIST TO SILL OR GIRDER, TOENAIL	(3) 8d
BRIDGING TO JOIST, TOENAIL EACH END	(2) 8d
SOLE PLATE TO JOIST OR BLOCKING	16d @ 16"
TOP PLATE TO STUD, END NAIL	(2) 16d
STUD TO SOLE PLATE	(4) 8d TOENAIL OR (2) 16d END NAIL
DOUBLE STUDS, FACE NAIL	16d @ 12"
DOUBLE TOP PLATES, FACE NAIL	16d @ 12"
TOP PLATE INTERSECTIONS, FACE NAIL	(2) 16d
CONTINUOUS HEADER, TWO PIECES	16d @ 16" ALONG EACH EDGE
CEILING JOISTS TO PLATE, TOENAIL	(3) 8d
RAFTER OR TRUSS TO PLATE, TOENAIL	(3) 8d
BUILT-UP CORNER STUDS	16d @ 12"
BUILT-UP GIRDER AND BEAMS	16d @ 12"
BLOCKING BETWEEN JOISTS OR RAFTERS TO TOP PLATE, TOENAIL	(3) 8d
RIM JOIST TO TOP PLATE, TOENAIL	8d @ 6"
POST AND BEAM OR GIRDER CONSTRUCTION	PROVIDE POSITIVE CONNECTION AGAINST UPLIFT AND LATERAL DISPLACEMENT
BUILT-UP RIM JOIST	16d @ 16"

SHEATHING SCHEDULE

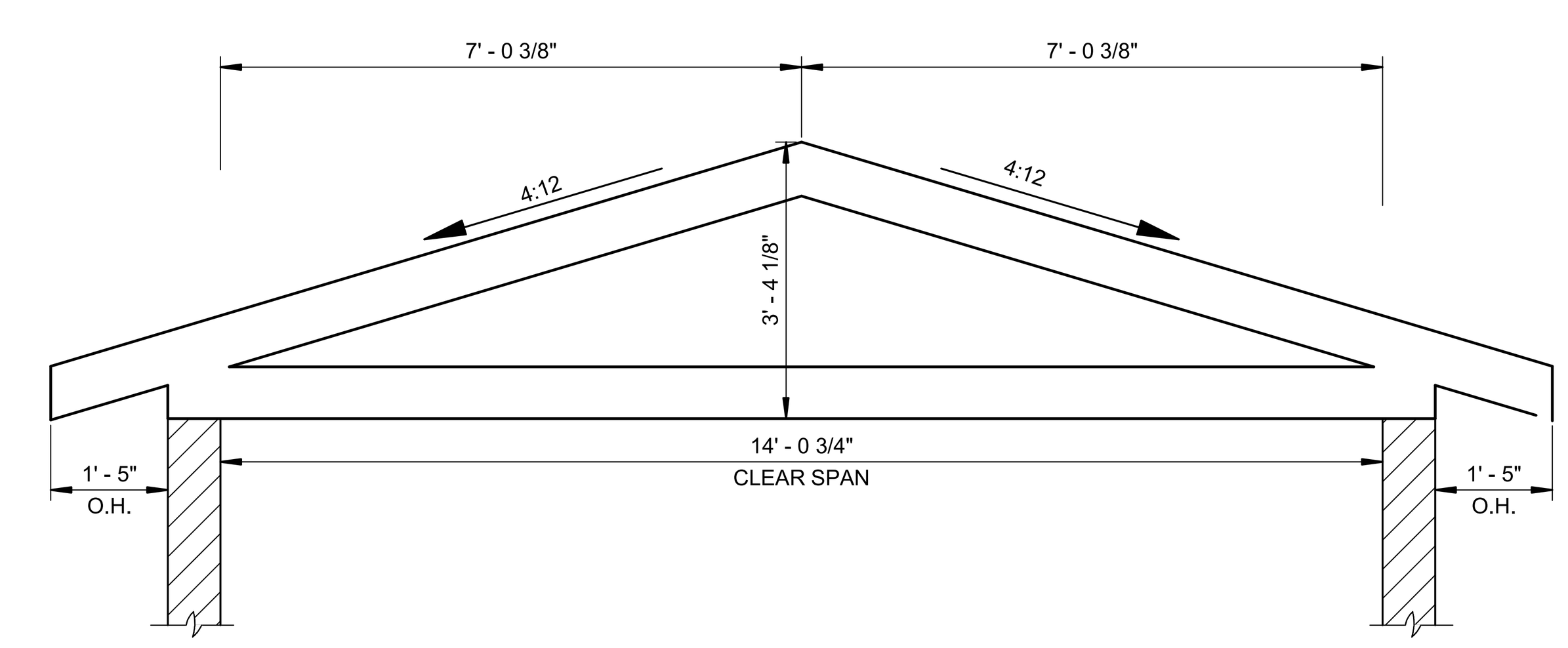
	Sheathing				Fasteners				
Mark	Grade	Thickness	Span Rating	Blocking	Nail	Boundry	Edge	Field	Remarks
D1	STRUCTURAL I	5/8"	40/24	PER DETAIL	8d	6"	6"	1' - 0"	

Sheathing Schedule Notes:
1. Exposure Class: Exposure 1, UNO.
2. Sheathing Grade: Sheathing, UNO.
3. Span Rating: 24/16, UNO.
4. Fasteners: 10d common nails, UNO. Edge spacing applies to all panel edges.
5. Continue nailing patterns above and below all openings for length of shear wall.
6. Boundary spacing is around perimeter of floor and roof, at wall line.
7. Edge spacing is along each interior sheet support.
8. Field spacing is along each interior sheet support.
9. Blocking: If "YES", Required at panel edges. Provide horizontal or vertical blocking to match studs.
10. Floor sheathing to be tounge and groove.



STRAP DETAIL FOR WOOD JOIST PARALLEL TO CMU WALL

5 B-S-520.4 SCALE: 3/4" = 1'-0"



STANDARD WOOD TRUSS PROFILE

8 B-S-520.4 SCALE: 1/2" = 1'-0"

SCHMIDT ASSOCIATES
415 Massachusetts Avenue
Indianapolis, IN 46204
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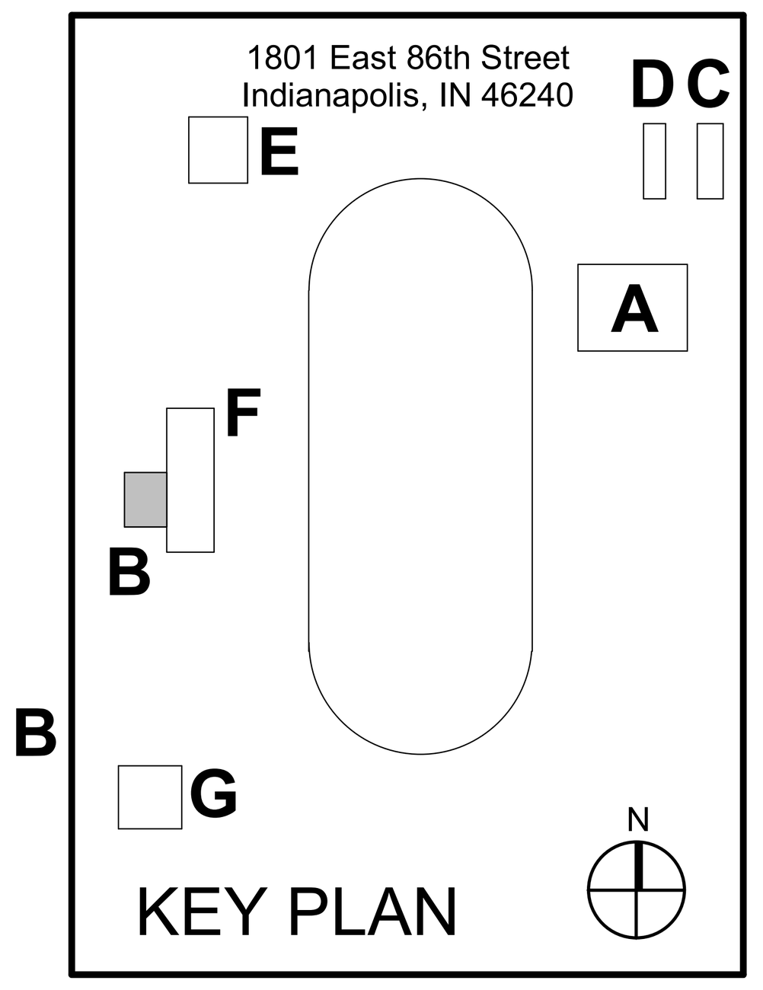


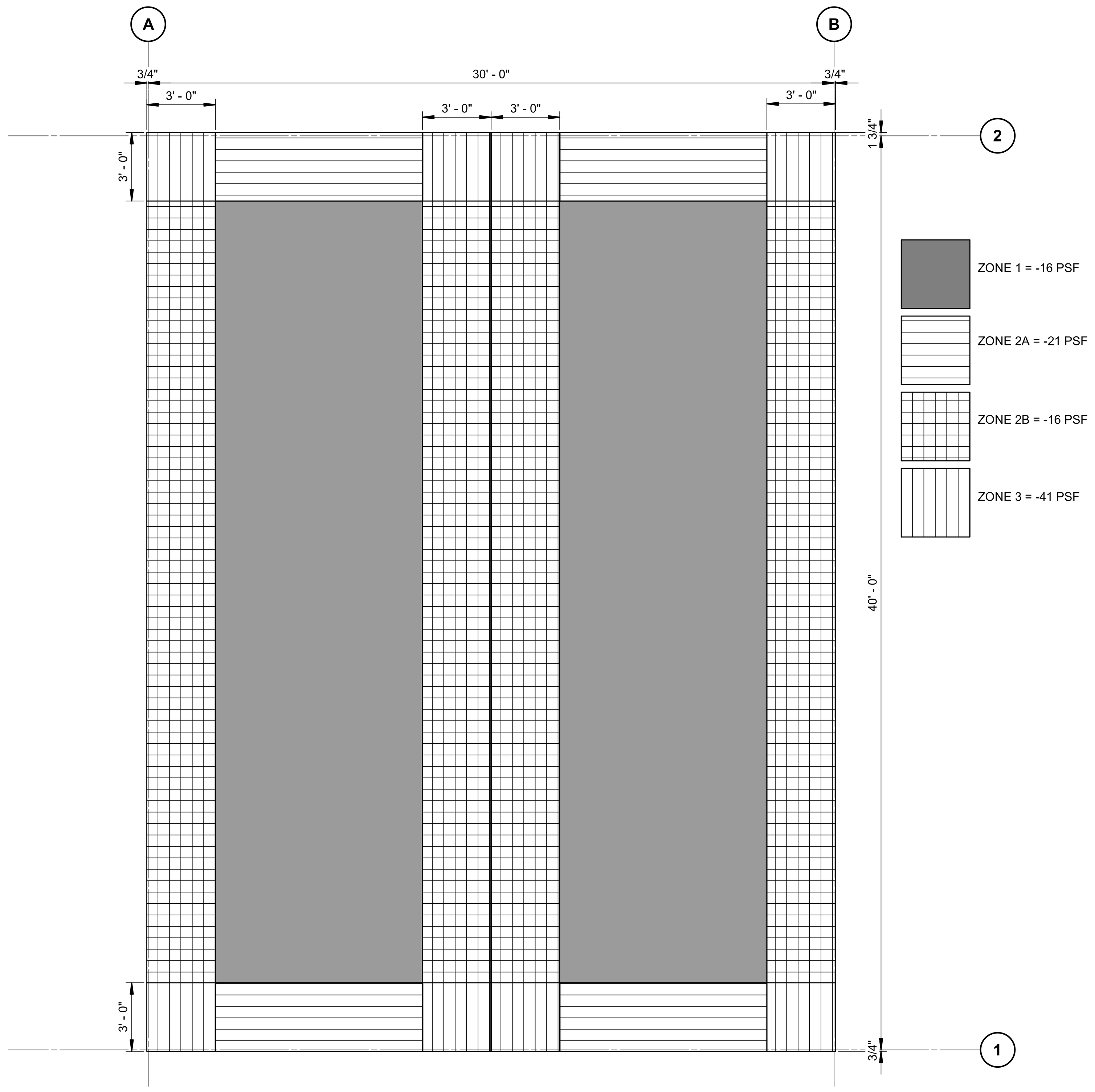
KEY PLAN

OWNER

North Central High School Renovation - Field Improvements

FRAMING SCHEDULES, SECTIONS, & DETAILS

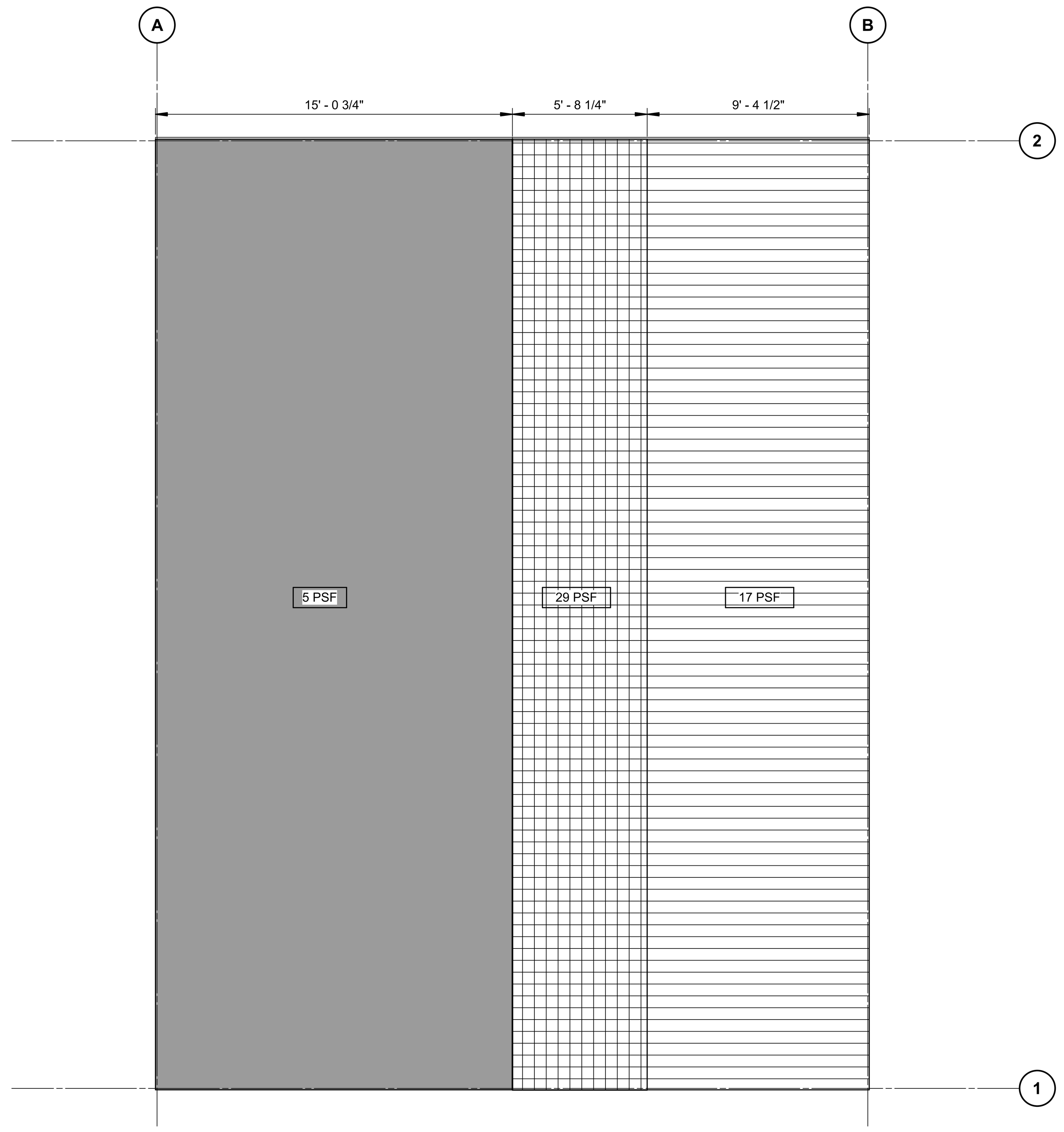
B-S-520.4



NET WIND UPLIFT DIAGRAM

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

NET UPLIFT PLAN NOTES
1. ALL WIND LOADS CALCULATED USING COMPONENTS AND CLADDING METHOD.
2. WORST CASE NET UPLIFT: 0.6D + 0.6W.



UNBALANCED SNOW DIAGRAM

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

NOTES
1. LOADING DOES NOT INCLUDE TRUSS SELF-WEIGHT. SEE GENERAL NOTES FOR ROOF DEAD LOAD.
2. ANALYZE UNBALANCED LOAD IN EACH DIRECTION.
3. DESIGN FOR WORST CASE CONDITION.
4. INDICATED LOADS ARE SERVICE LEVEL (ALLOWABLE STRESS DESIGN) LOADS.

SCHMIDT ASSOCIATES
415 Massachusetts Avenue
Indianapolis, IN 46204
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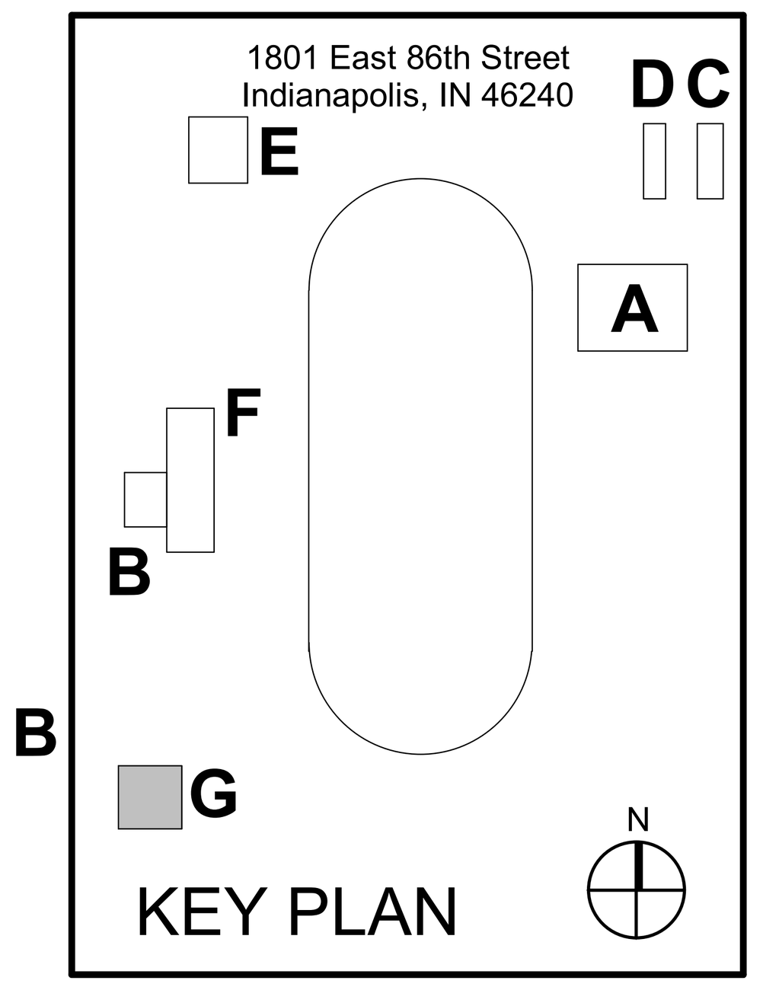

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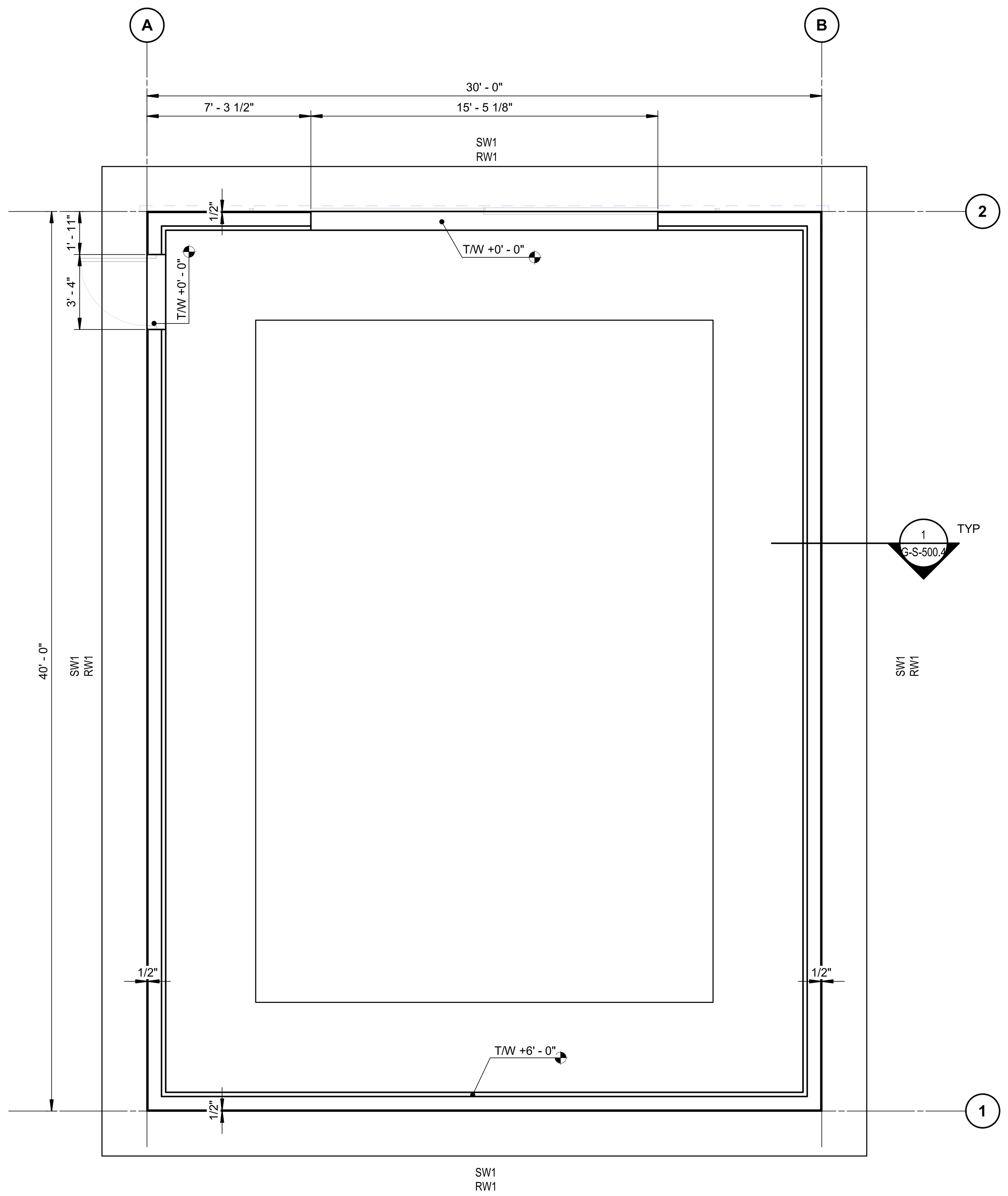
North Central High School Renovation - Field Improvements

LOAD MAPS

G-S-010.4



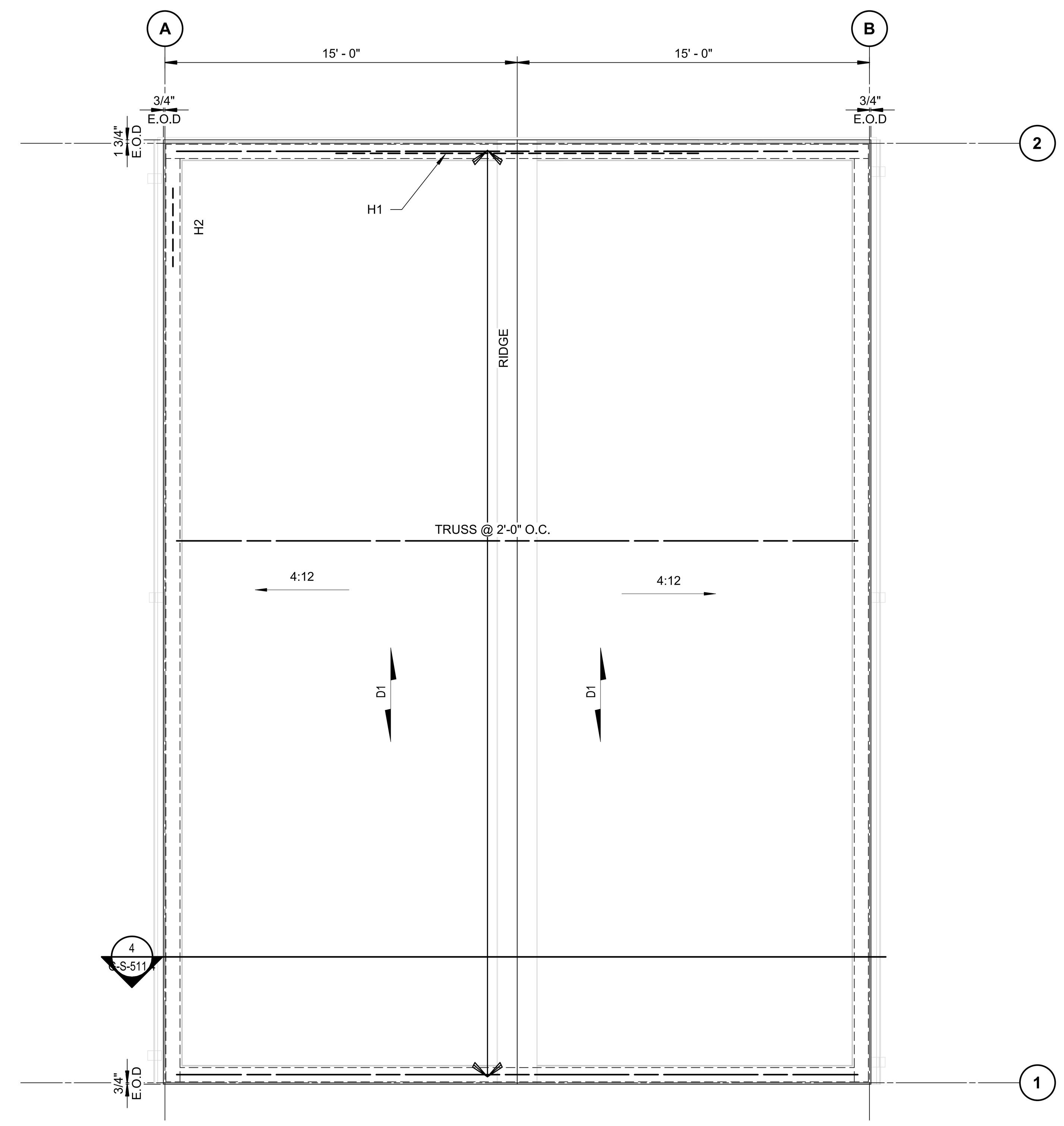
FOUNDATION PLAN

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

N

FOUNDATION 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. TOP OF FOOTING (T/F) -2'-0", UNO.



ROOF FRAMING PLAN

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

N

FRAMING PLAN NOTES:

1. TRUSS/BRG = +21'-0"
2. ELEVATIONS ±, ARE FROM NOMINAL FIRST FLOOR ELEV +0'-0", SEE CIVIL DRAWINGS.
3. SEE ARCHITECTURAL DRAWINGS FOR ALL DIMENSIONS NOT SHOWN. CONTRACTOR SHALL VERIFY ALL DIMENSIONS PRIOR TO CONSTRUCTION AND NOTIFY ARCHITECT/ENGINEER OF ANY DISCREPANCIES IMMEDIATELY.
4. COORDINATE DECK AND SLAB OPENINGS - EXACT SIZE AND LOCATION, WITH MECHANICAL AND PLUMBING CONTRACTOR DRAWINGS AND EQUIPMENT SUPPLIER.
5. VERIFY EQUIPMENT SIZE, WEIGHT, AND LOCATION WITH MECHANICAL CONTRACTOR.

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Indianapolis, IN 46204
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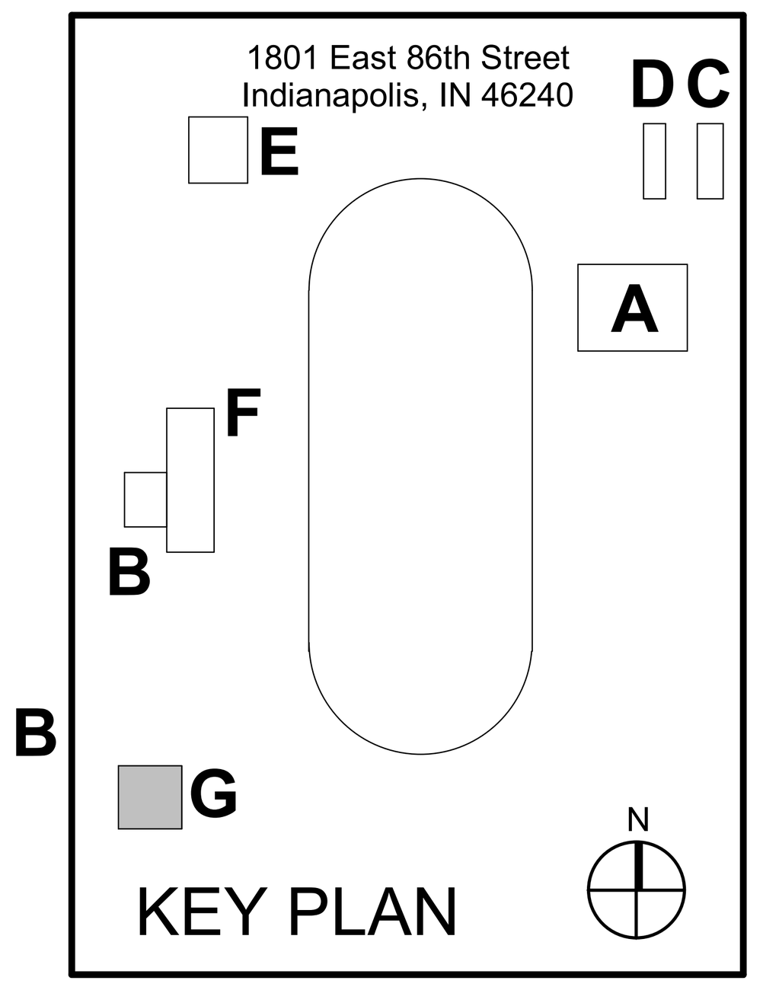


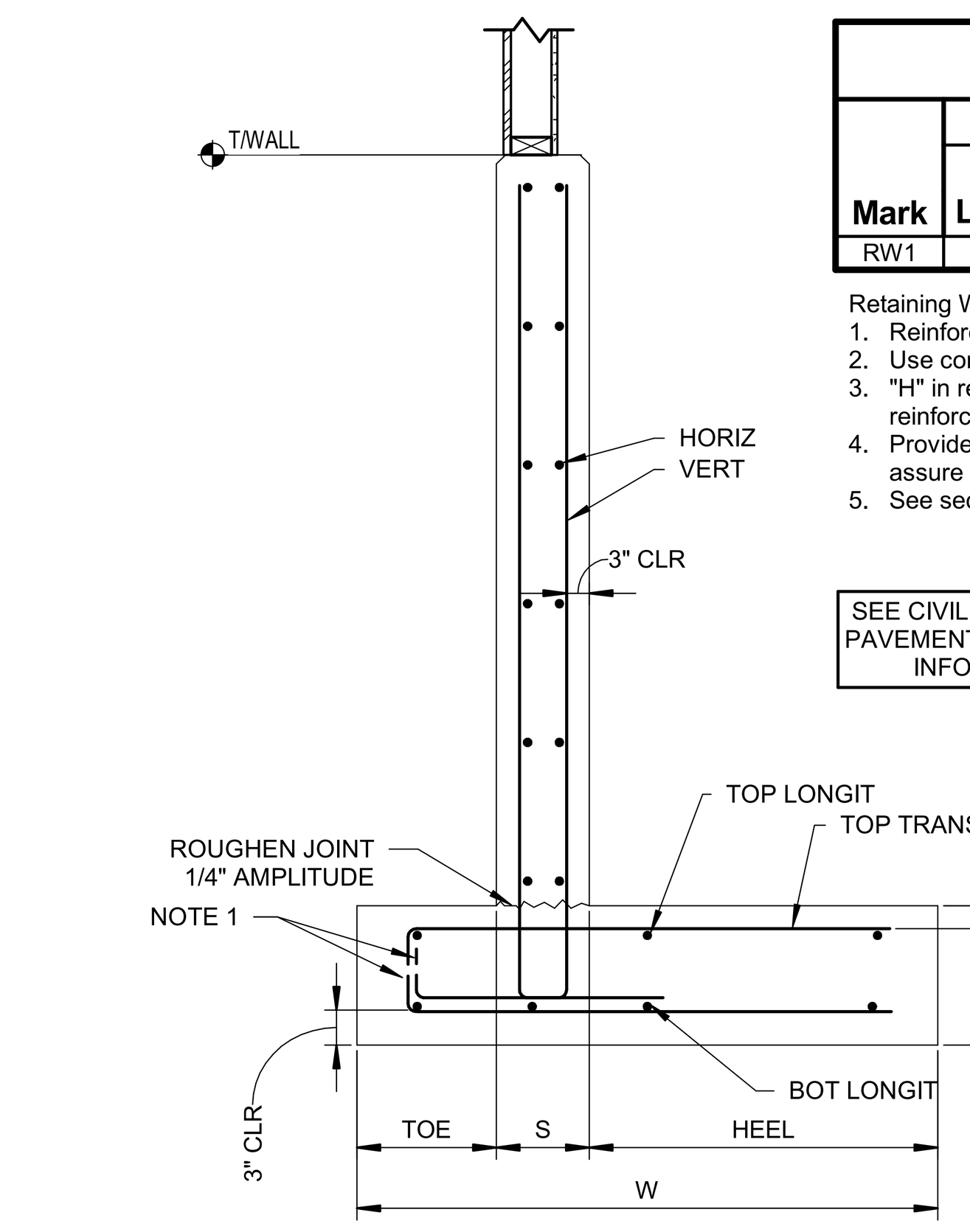
KEY PLAN

OWNER

North Central High School Renovation - Field Improvements

PLAN VIEWS

G-SF100.4



RETAINING WALL FOOTING SCHEDULE																	
	Dimensions				Reinforcement												
	Heel	Toe	Foundation	Wall	Bot Longit		Bot Trans		Top Longit		Top Trans		Wall Horz		Wall Vert		
Mark	Length	Length	Thickness	Thickness	No	Size	Size	Spa	No	Size	Size	Spa	Size	Spa	Size	Spa	
RW1	2' - 0"	4' - 0"	1' - 6"	10"	6	#7	#5	1' - 6"	6	#7	#5	1' - 6"	#5	1' - 0"	#7	1' - 6"	

Retaining Wall 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" in foundations
3. "H" in retaining wall schedule indicates standard hook required at end of noted reinforcing at toe of footing
4. Provide wheel spacers or CRSI Typ. Bar Bend T5 at 36" each way to assure adequate concrete cover.
5. See sections for all bars not included in schedule.

SEE CIVIL DRAWING FOR PAVEMENT AND GRADING INFORMATION.

1 TYPICAL RETAINING WALL DETAIL

G-S-500.4 SCALE: 3/4" = 1'-0"

COATED REINFORCING BAR DEVELOPMENT AND SPLICE LENGTHS

f'c = 4000 PSI				
BAR SIZE	Ld	Ldt	Lt	Ltt
#3	26	33	33	43
#4	34	44	44	58
#5	43	55	55	72
#6	51	67	67	87
#7	75	97	97	126
#8	85	111	111	144
#9	120	136	156	177
#10	133	151	173	197
#11	147	166	191	216

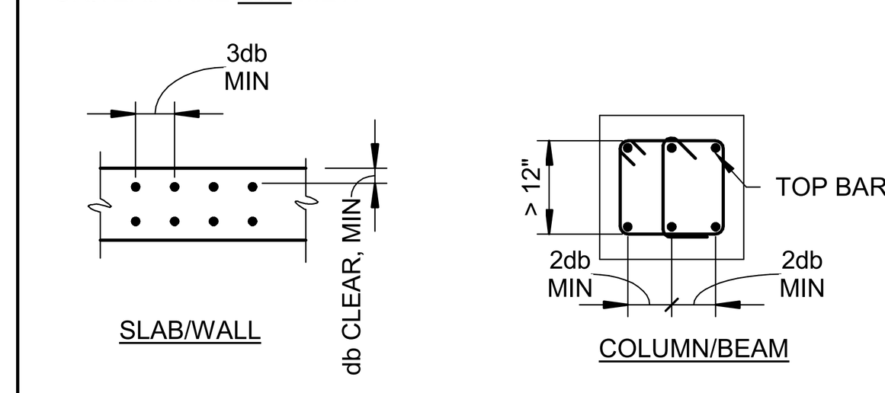
ALL CONCRETE STRENGTHS			
BAR SIZE	Lb	Lc	Lcs
#3	9	12	12
#4	11	13	12
#5	14	16	15
#6	17	19	17
#7	20	22	20
#8	22	25	23
#9	25	29	26
#10	28	32	29
#11	31	35	31

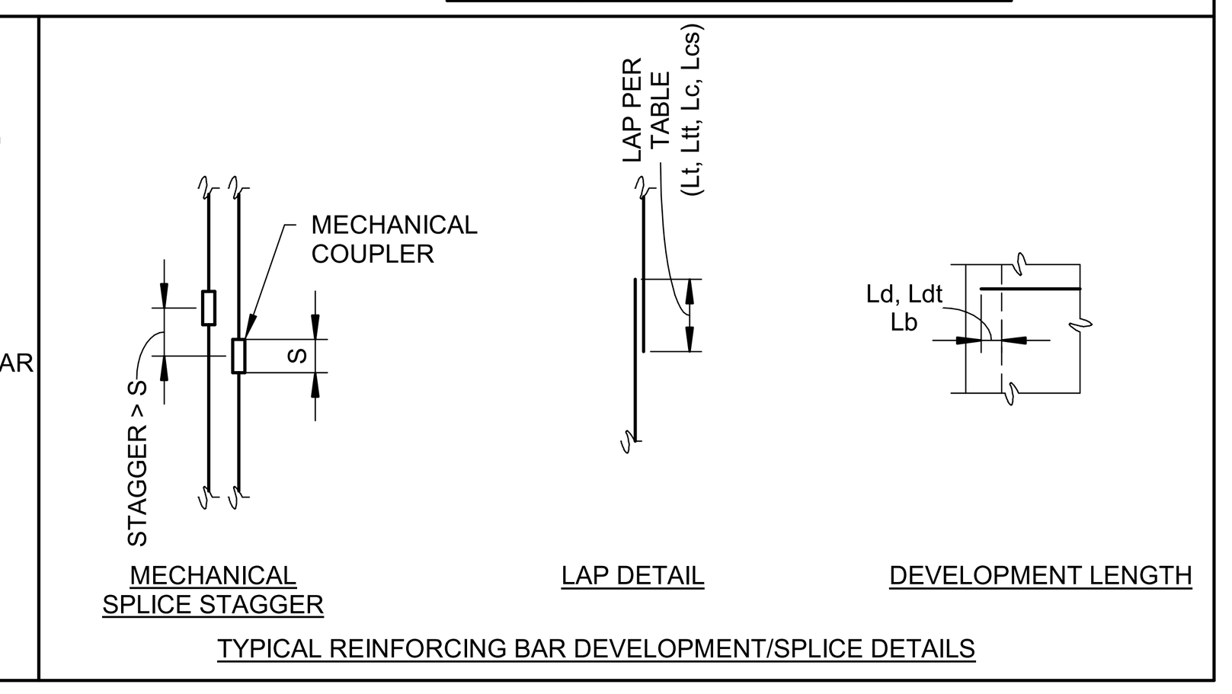
Hook Developement Length (f'c = 4000 psi)			
BAR SIZE	Hook Dev. Length	90 deg	180 deg
#3	9	5	2
#4	11	6	2
#5	14	8	3
#6	17	9	3
#7	20	11	4
#8	23	12	4
#9	26	14	6
#10	28	15	6
#11	31	17	7

NOTES:

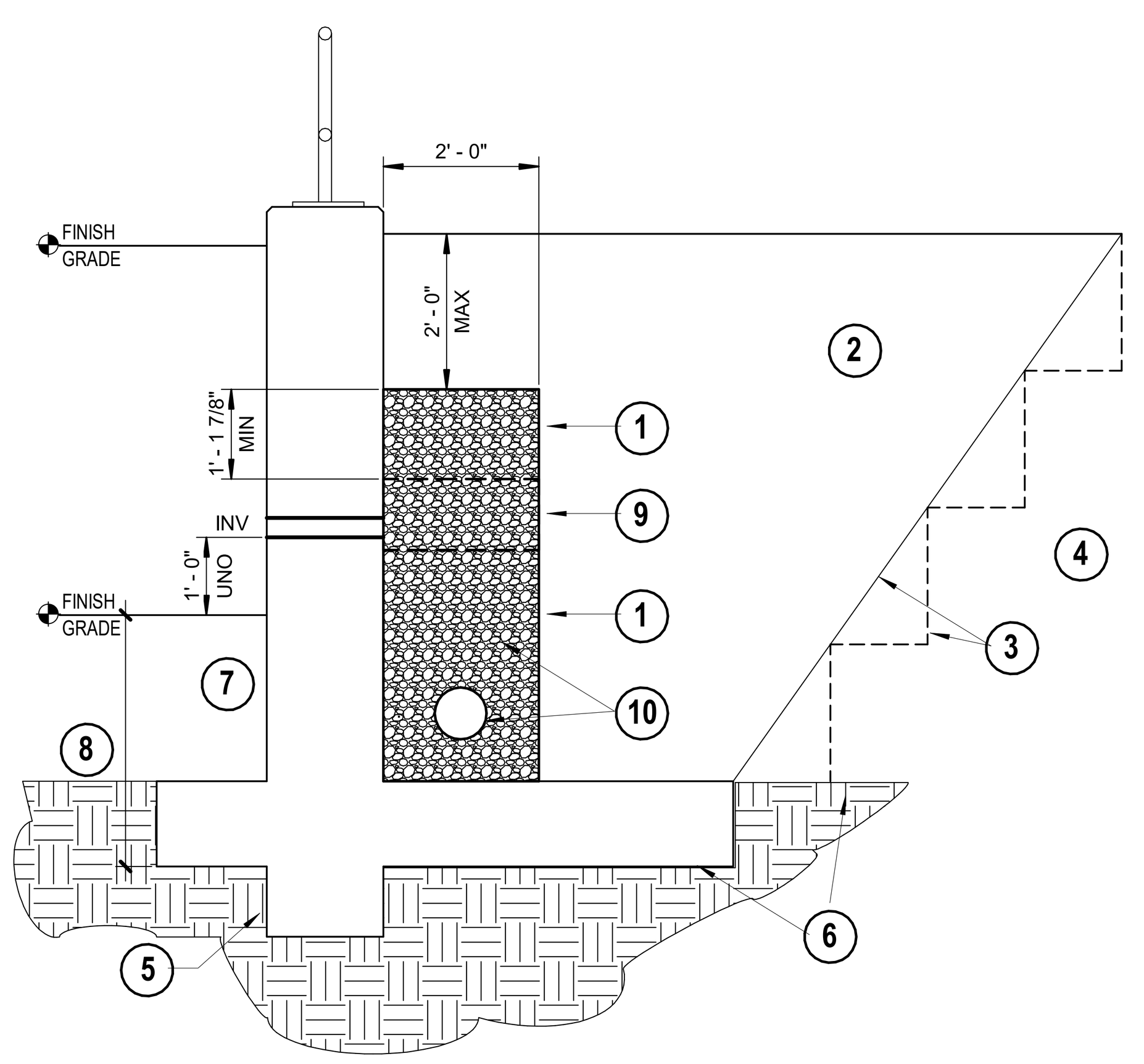
1. db = NOMINAL BAR DIAMETER
   Ld = TENSION DEVELOPMENT LENGTH
   Ldt = DEVELOPMENT LENGTH OF TOP BARS IN TENSION
   Lt = TENSION LAP SPLICE STRENGTH
   Ltt = TENSION LAP SPLICE LENGTH OF TOP BARS
   Lb = COMPRESSION DEVELOPMENT LENGTH
   Lc = TIED COLUMN LAP SPLICE IN COMPRESSION
   Lcs = SPIRAL COLUMN LAP SPLICE IN COMPRESSION
2. REBAR DEVELOPMENT/SPLICE LENGTHS ARE BASED ON ACI 318. REINFORCEMENT YIELD STRENGTH, Fy = 60 KSI.
3. "TOP BARS" = HORIZONTAL BEAM, MAT, OR SLAB REINFORCING WITH MORE THAN 12" CAST BELOW.
4. ALL SPLICES SHALL BE TENSION SPLICES, UNO.
5. LARGER DIAMETER SPLICE LENGTH GOVERN AT BAR SIZE TRANSITIONS.
6. FOR LIGHTWEIGHT CONCRETE MULTIPLY TABLE VALUES BY 1.33, UNO

TABLE VALUES SHALL BE MULTIPLIED BY 1.5 IF THE FOLLOWING CRITERIA ARE NOT MET:

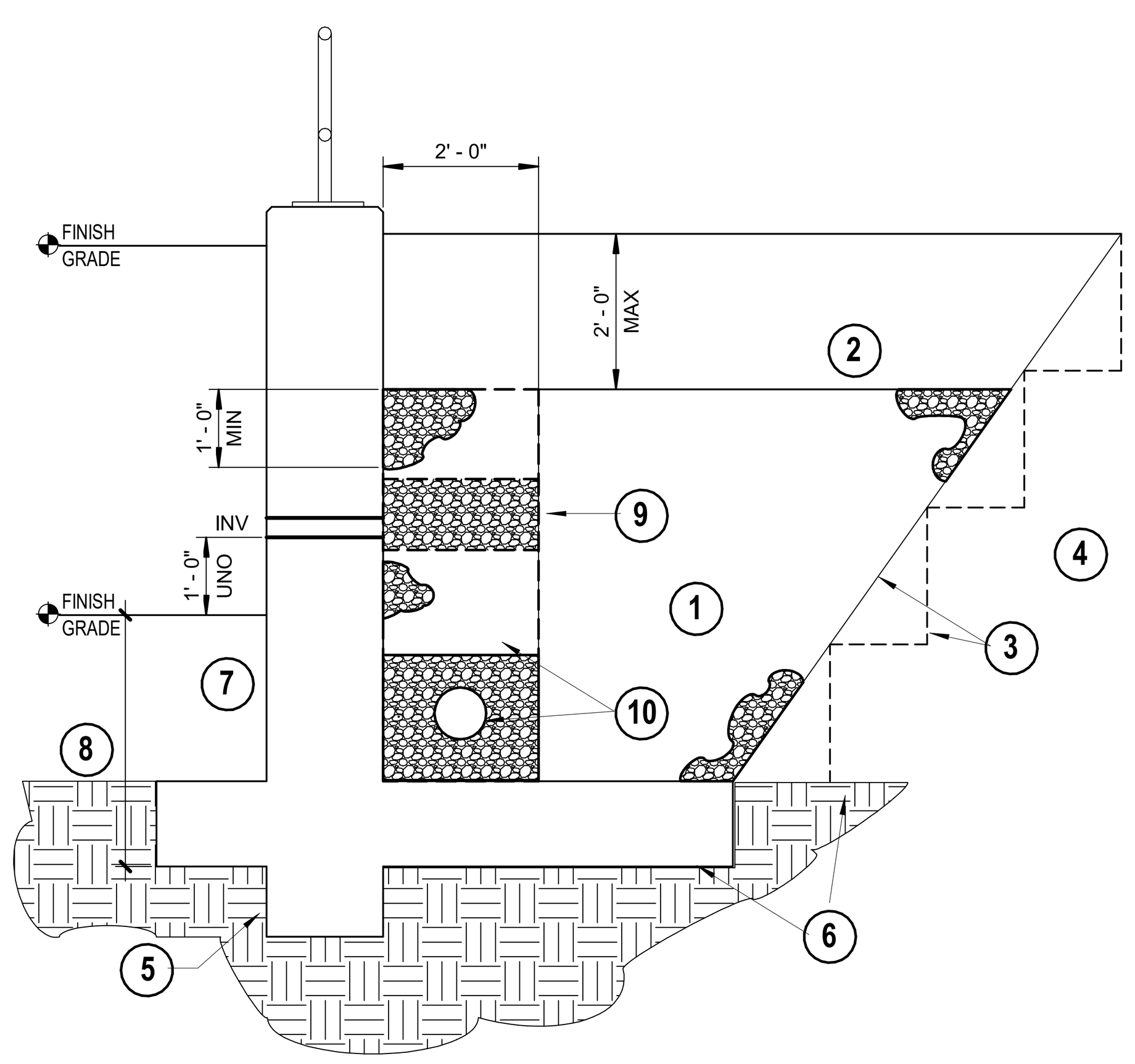




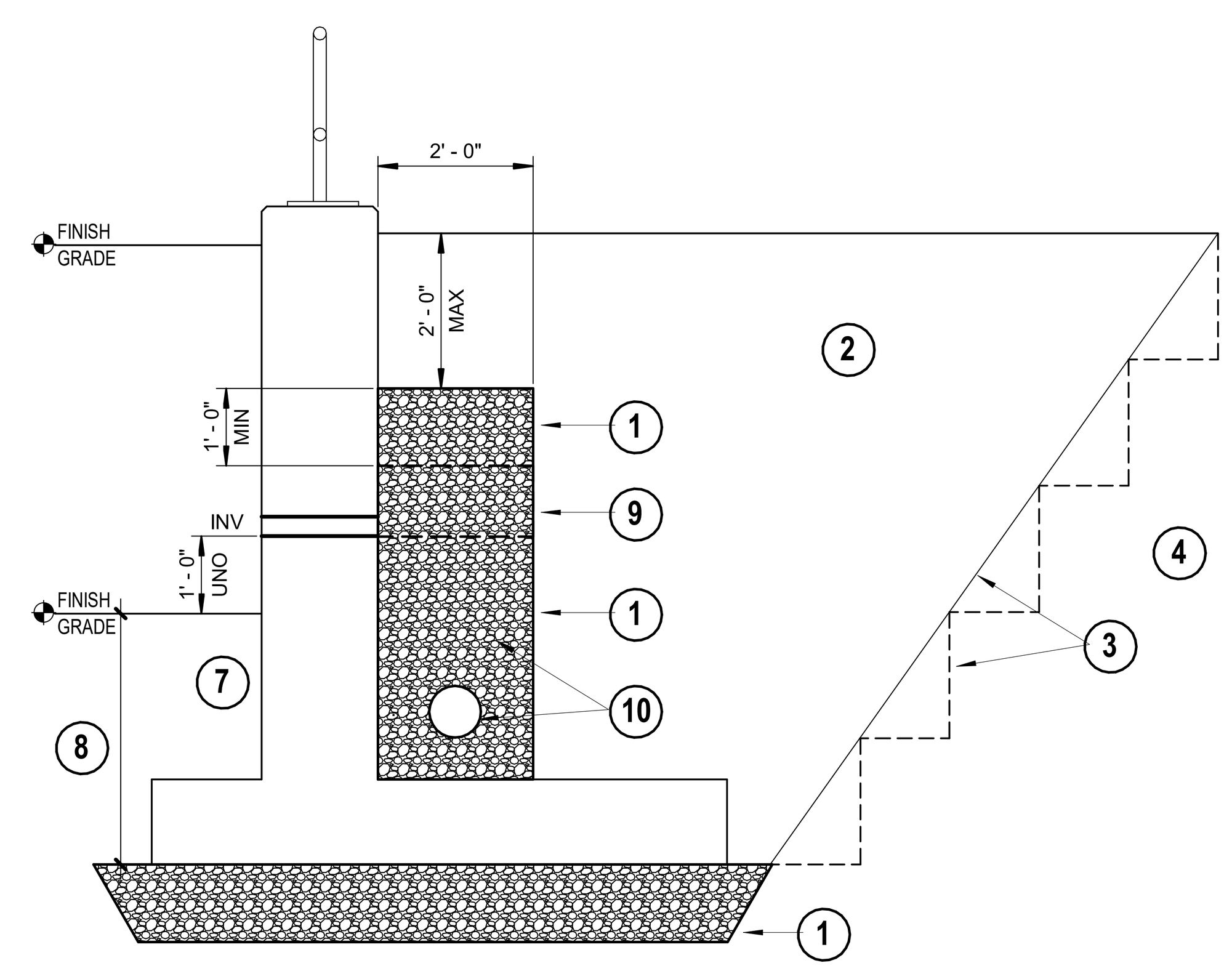
TYPICAL REINFORCING BAR DEVELOPMENT/SPLICE DETAILS



TYPE A



TYPE B



TYPE C

DETAIL NOTES: (#)

1. ZONE OF COMPACTED GRANULAR FILL.
2. ZONE OF COMPACTED FILL AND FINISH GRADE MATERIALS. SEE CIVIL DRAWINGS.
3. LINE OF EXCAVATION AND/OR BENCHING AS DETERMINED BY THE CONTRACTOR FOR THE SITE SOIL CONDITIONS IN ACCORDANCE WITH RECOMMENDATIONS OF THE PROJECT GEOTECHNICAL REPORT AND THE PROJECT GEOTECHNICAL TESTING AGENCY. CONTRACTOR IS SOLELY RESPONSIBLE FOR MAINTAINING SAFETY DURING ALL EARTH WORKS OPERATIONS.
4. EXISTING SOIL OR COMPACTED FILL.
5. KEY (WHERE REQUIRED). INSTALL IN SUITABLE EXISTING FIRM UNDISTURBED SOIL OR COMPACTED FILL.
6. INSTALL FOOTINGS ON AND WITHIN SUITABLE FIRM UNDISTURBED SOIL OR COMPACTED FILL.
7. ZONE OF COMPACTED FILL AND FINISH GRADE MATERIALS PER CIVIL DRAWINGS.
8. INSTALL FOOTINGS TO ELEVATIONS INDICATED ON THE DRAWINGS. IN NO CASE SHALL BOTTOMS OF FOOTINGS BE LESS THAN THE GREATER OF LOCAL FROST DEPTH OR 3'-0" BELOW LOWER FINISH GRADE ELEVATION. IF A DIMENSIONAL DISCREPANCY OCCURS THAT WOULD IMPLY PLACEMENT WITH LESS THAN REQUIRED SOIL COVER, NOTIFY THE STRUCTURAL ENGINEER IMMEDIATELY AND DO NOT INSTALL THE FOOTING WITHOUT PRIOR REVIEW BY THE STRUCTURAL ENGINEER.
9. WHERE WEEP HOLES ARE INDICATED ON STRUCTURAL DETAILS, INSTALL 2'-0" X 2'-0" CONTINUOUS BED OF COMPACTED GRANULAR FILL WRAPPED IN FILTER FABRIC, TIGHT TO WALL, CENTERED O WEEP HOLE CENTERLINE ELEVATION. WHERE WEEP HOLES ARE INDICATED BUT NOT OTHERWISE SIZED, USE 2-INCH DIAMETER PVC PIPE SPACED AT A MAXIMUM OF 10'-0" OC, UNO.
10. WHERE FOOTING DRAINS ARE INDICATED ON STRUCTURAL DETAILS, INSTALL 2'-0" WIDE BED OF COMPACTED GRANULAR FILL WRAPPED IN FILTER FABRIC, FULL HEIGHT FROM TOP OF FOOTING TO TOP OF GRANULAR FILL LAYER. WHERE FOOTING DRAINS ARE INDICATED BUT NOT OTHERWISE SIZED, USE MINIMUM OF 6-INCH DIAMETER PERFORATED PVC PIPER, EXTENDED TO DRAINAGE OUTLET AS INDICATED ON THE CIVIL DRAWINGS. FULLY WRAP DRAINS WITH FILTER FABRIC PRIOR TO SETTING IN PLACE.

RETAINING WALL BACKFILL DETAIL

GENERAL NOTES:

A. SEE RETAINING WALL STRUCTURAL DETAILS FOR REINFORCEMENT, DIMENSIONS, AND ADDITIONAL INFORMATION.
B. SEE CIVIL DRAWINGS FOR WALL LOCATIONS, LENGTHS, ELEVATIONS, GRADING AND ADDITIONAL INFORMATION.
C. ALL SOILS AND BACKFILL OPERATIONS SHALL BE INSPECTED AND APPROVED BY THE PROJECT GEOTECHNICAL TESTING AGENCY.
D. BACKFILL EQUALLY ON BOTH SIDES OF WALL UNTIL LOWER SIDE OF GRADE IS WITHIN 8 INCHES (MAX) OF FINAL GRADE BEFORE PLACING REMAINDER OF HIGH SIDE GRADE. USE HAND-OPERATED COMPACTION EQUIPMENT WITHIN 6 FEET OF WALL.
E. PLACE BACKFILL IN LIFTS AND COMPACT IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS.
F. COMPACTED GRANULAR FILL SHALL CONSIST OF NATURALLY OR ARTIFICIAL 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 (37.5-MM) SIEVE AND NOT MORE THAN 12 PERCENT PASSING A NO. 200 (0.075-MM) SIEVE OR OTHER SUITABLE GRANULAR FILL APPROVED BY THE PROJECT GEOTECHNICAL ENGINEER.
G. COMPACTED FILL SHALL BE A LIGHTWEIGHT, NONWOVEN, 100% POLYPROPYLENE GEOTEXTILE WEIGHING NOT LESS THAN 3.5 OUNCES PER SQUARE YARD, MEETING ASTM D-4632 50% ELONGATION AT BREAK, WITH APPARENT OPENING SIZE EQUAL TO A #50 SIEVE AND FLOW RATE PER ASTM D-4491 OF NOT LESS THAN 150 GAL/MIN PER SFT.

2 TYPICAL RETAINING WALL BACKFILL DETAIL

G-S-500.4 SCALE: 1/2" = 1'-0"

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

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DYLAN SEESMAN REGISTERED No. PE11900810 STATE OF INDIANA PROFESSIONAL ENGINEER

#	Revision	Date
1.4b	ADDENDUM 1.4b	08.17.2023

1801 East 86th Street
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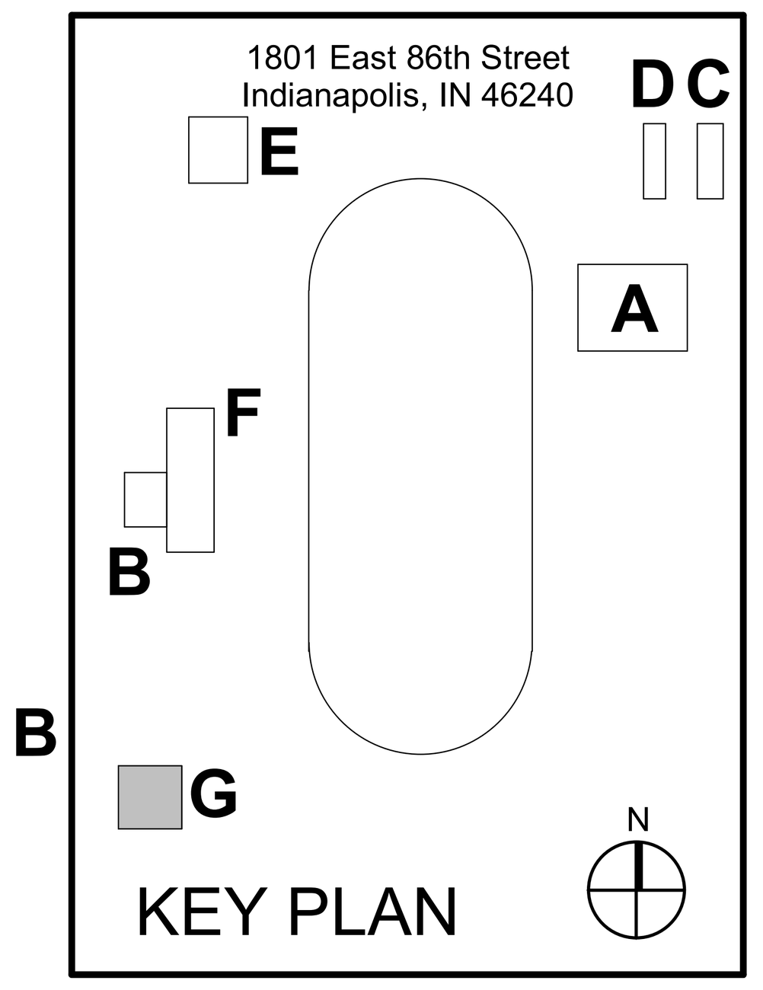


KEY PLAN

OWNER

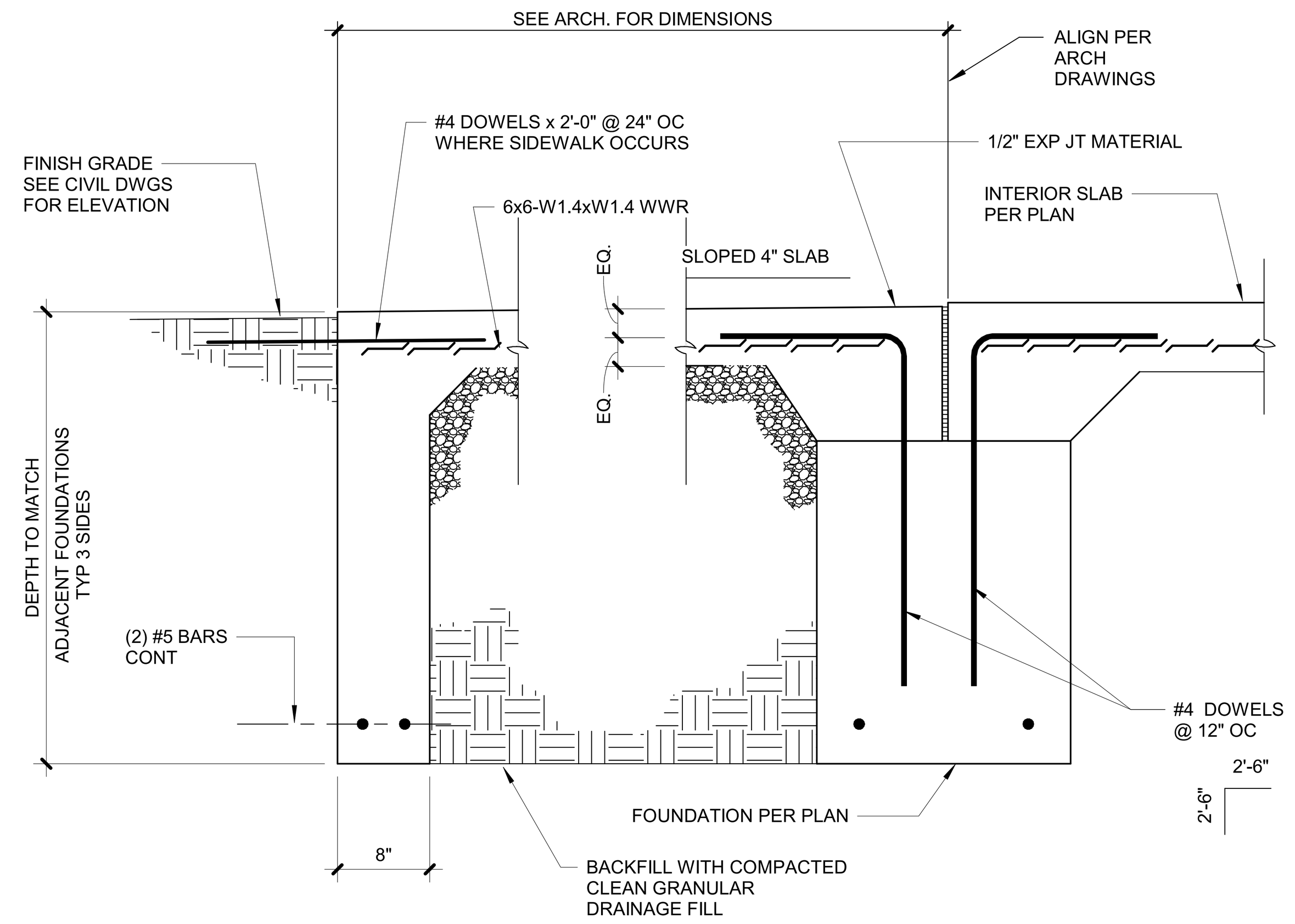
North Central High School Renovation - Field Improvements

FOUNDATION SCHEDULES, SECTIONS, & DETAILS

G-S-500.4

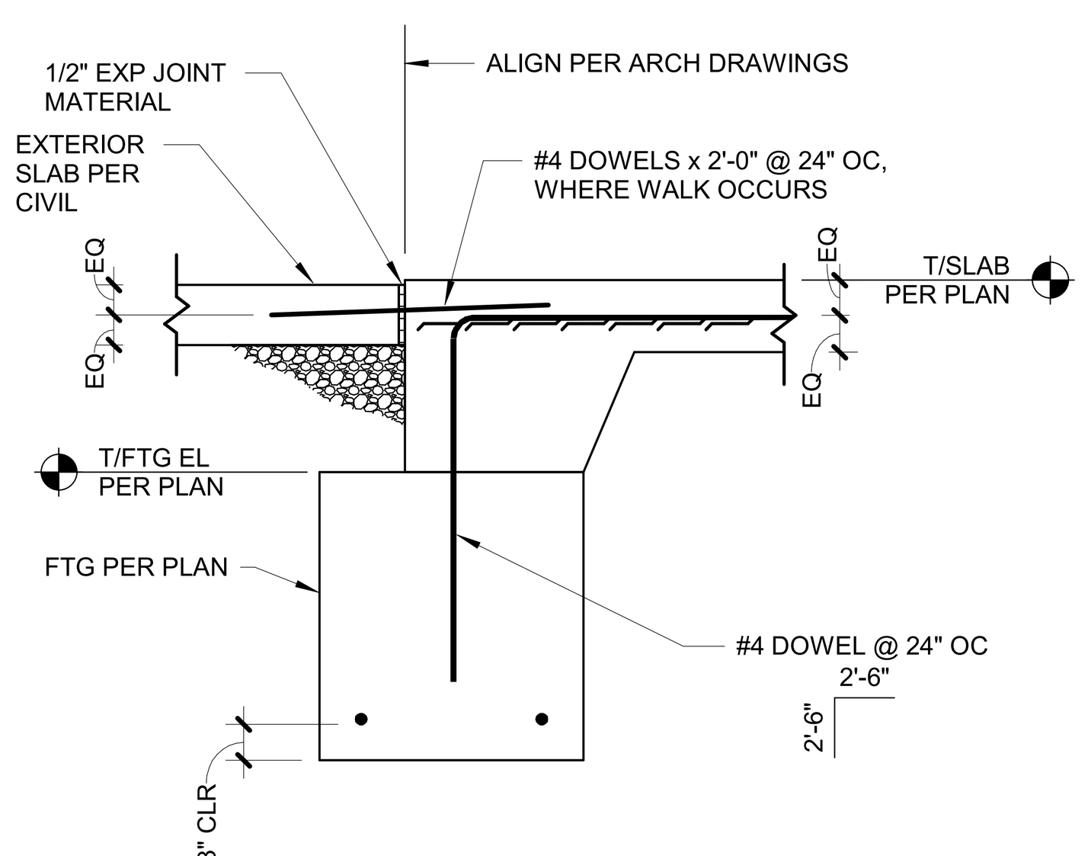
2 G-S-501.4 TYPICAL ENTRANCE SECTION

SCALE: 1" = 1'-0"



3 G-S-501.4 TYPICAL AT EXTERIOR SLAB

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

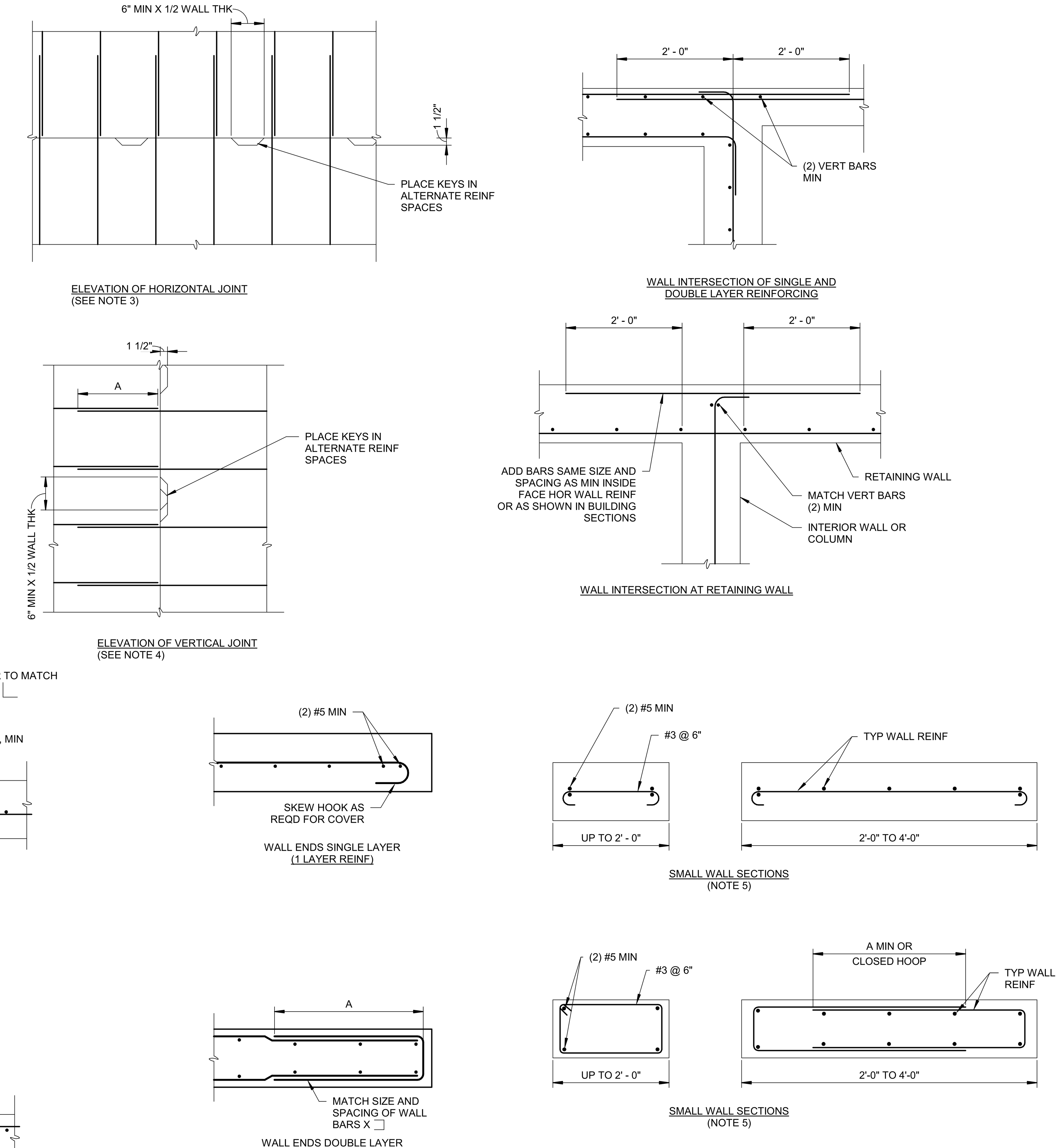


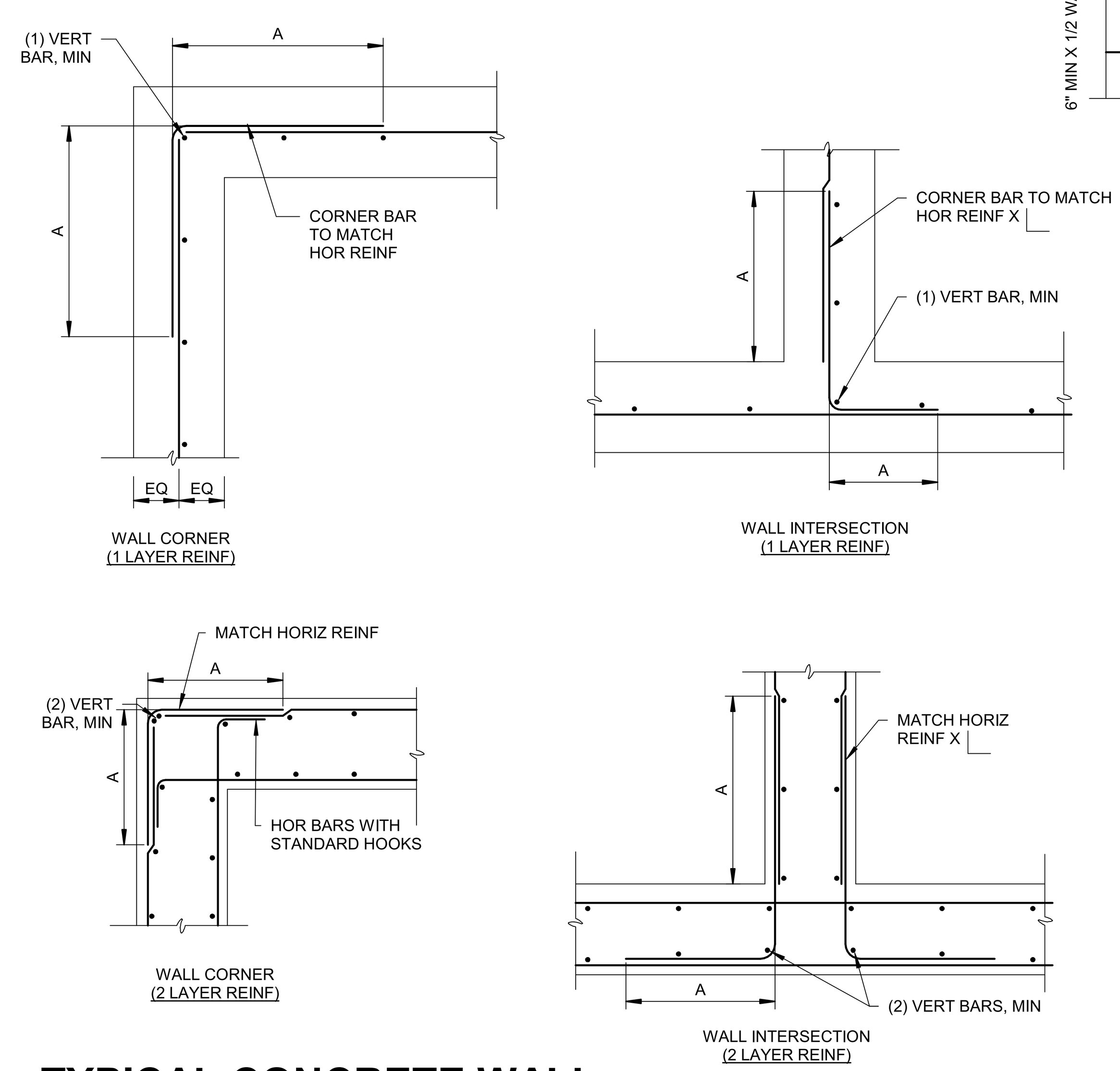
1 G-S-501.4 TYPICAL CONCRETE WALL REINFORCING DETAILS

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

MINIMUM WALL REINFORCEMENT			
WALL THICKNESS	HORIZ BARS	VERT BARS	LOCATION
6" AND UNDER	#4 @ 12"	#4 @ 12"	CENTERLINE
> 6" TO 8"	#5 @ 15"	#5 @ 15"	CENTERLINE
> 8" TO 10"	#5 @ 12"	#5 @ 12"	CENTERLINE
> 10" TO 12"	#4 @ 12"	#4 @ 12"	EACH FACE
> 12" TO 14"	#5 @ 18"	#5 @ 18"	EACH FACE
> 14" TO 16"	#5 @ 15"	#5 @ 15"	EACH FACE
> 16" TO 18"	#5 @ 14"	#5 @ 14"	EACH FACE

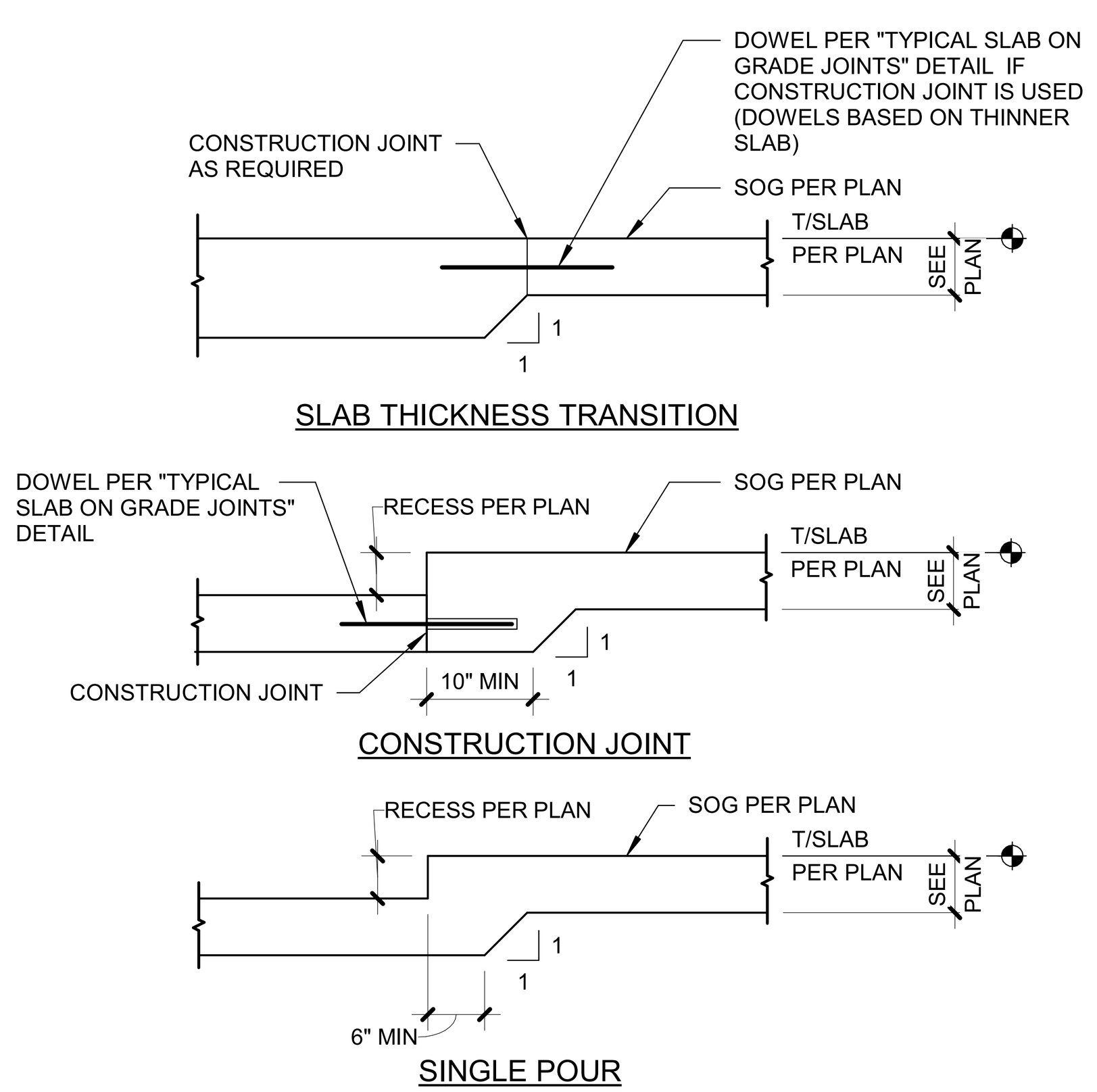
NOTES:
1) WALLS ARE TO BE REINFORCED WITH THE MINIMUM REINFORCEMENT INDICATED, UNO.
2) "A" INDICATES Lt LAP SPLICE, SEE TYPICAL LAP SPLICE TABLES.
3) PROVIDE KEYED HORIZONTAL JOINT AT SHEAR WALLS AND RETAINING WALLS.
4) PROVIDE KEYED VERTICAL JOINT AT SHEAR WALLS.
5) SMALL WALL SECTION DETAILS APPLY TO BOTH HORIZONTAL AND VERTICAL DIRECTIONS.





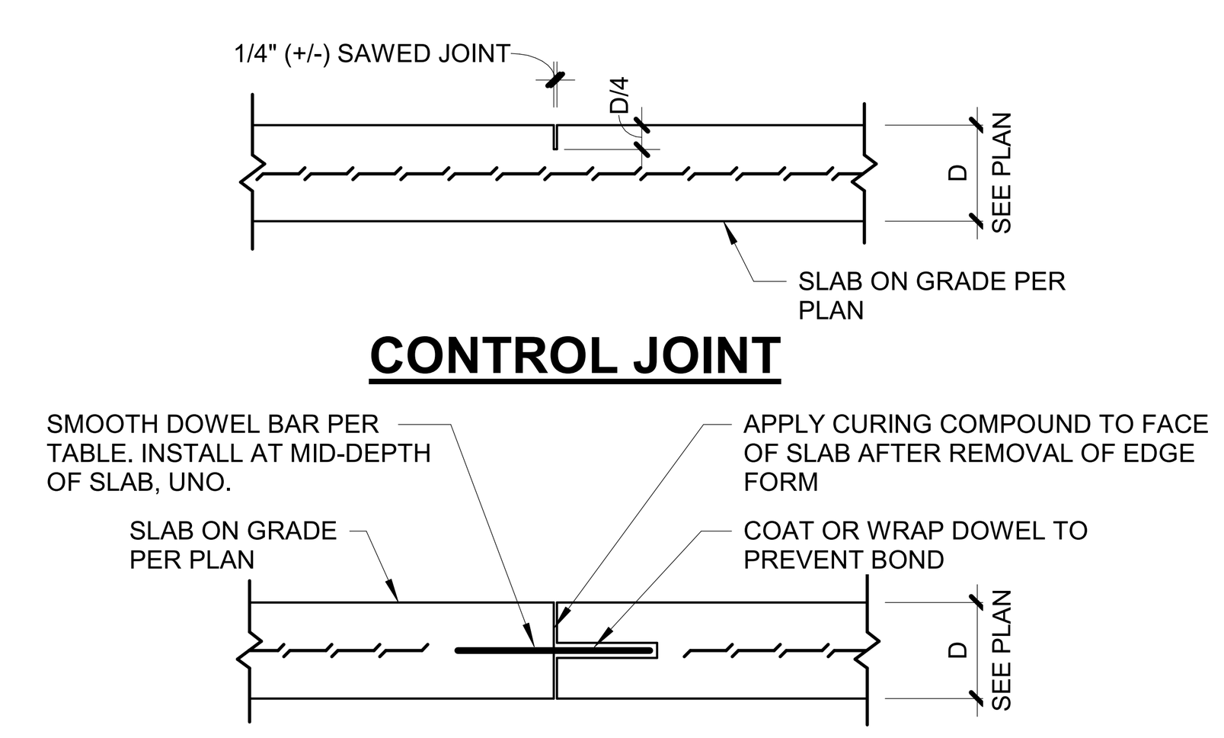
5 G-S-501.4 TYPICAL SLAB ON GRADE STEP DETAILS

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



4 G-S-501.4 TYPICAL SLAB ON GRADE JOINTS

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



DOWEL SIZE AND SPACING					
SLAB DEPTH (IN)	DOWEL BAR DIAMETER (IN)	TOTAL BAR LENGTH (IN)	BAR SPACING (CTR - CTR) (IN)	MAX JT SPACING (CTR - CTR) (IN)	JOINT DEPTH
4	3/4	16	24	12'-0"	1"
5-6	3/4	16	12	15'-0"	1 1/4"-1 1/2"

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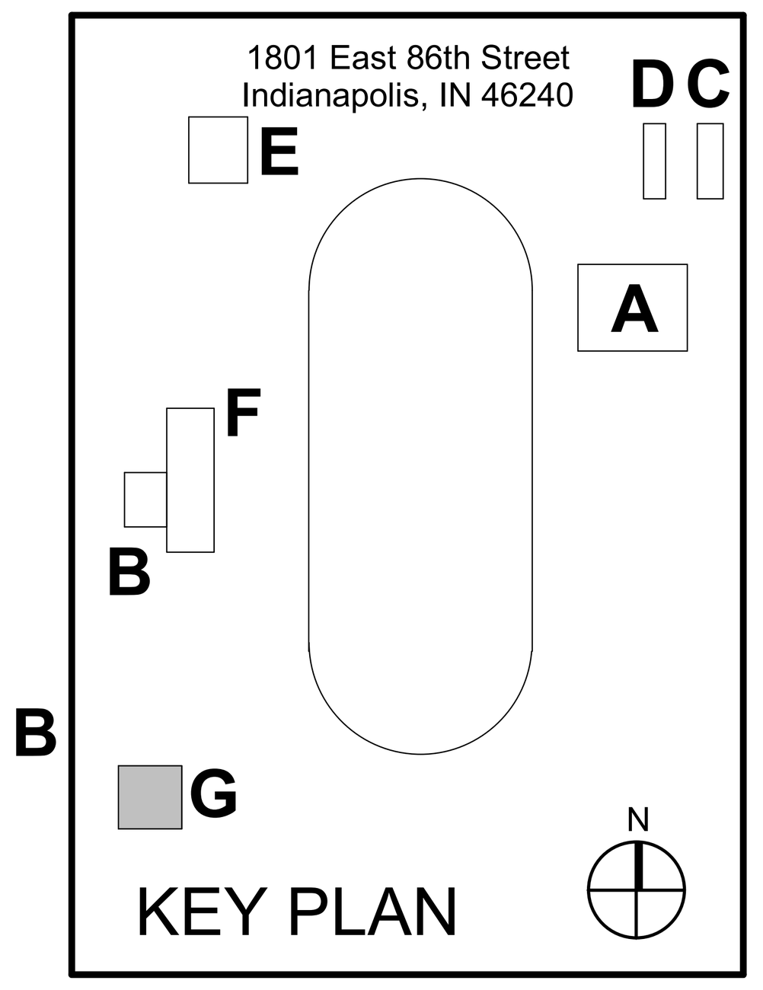


KEY PLAN

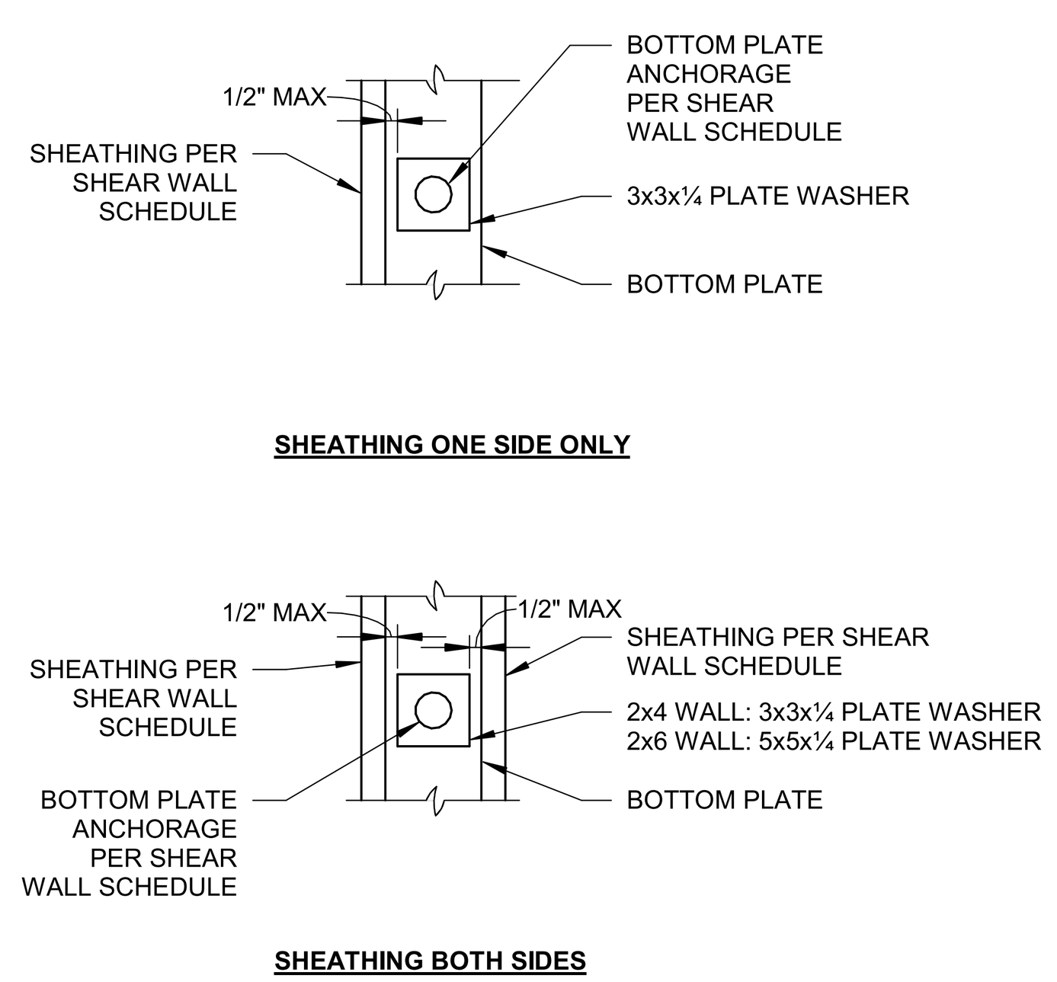
OWNER

North Central High School Renovation

FOUNDATION SCHEDULES, SECTIONS, & DETAILS

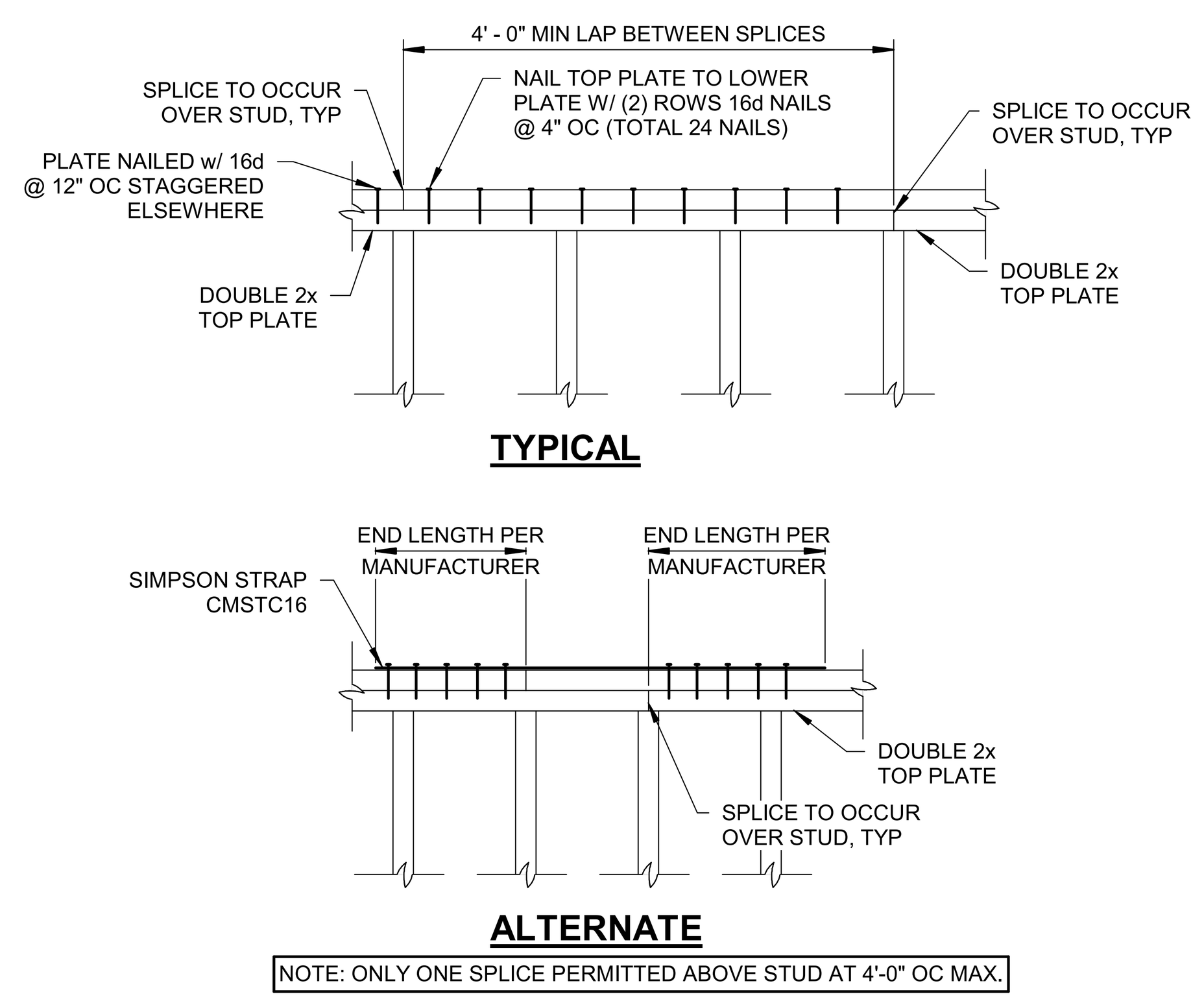
G-S-501.4

6 5 4 3 2 1



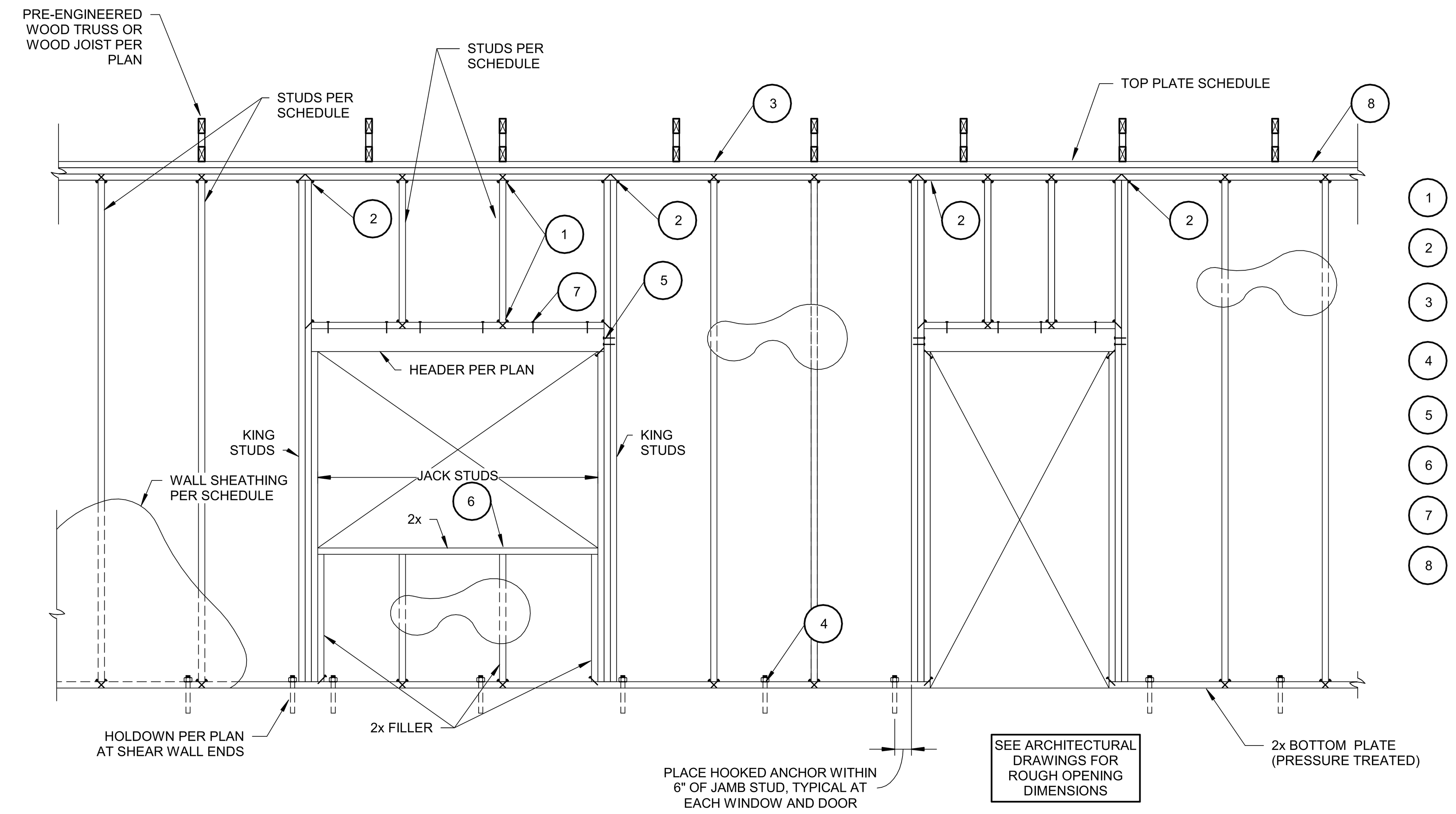
TYPICAL STEEL PLATE WASHER AT SHEAR WALL BOTTOM PLATE FOUNDATION ANCHORS

3 G-S-510.4 SCALE: 1 1/2" = 1'-0"



TYPICAL PLATE LAP DETAIL

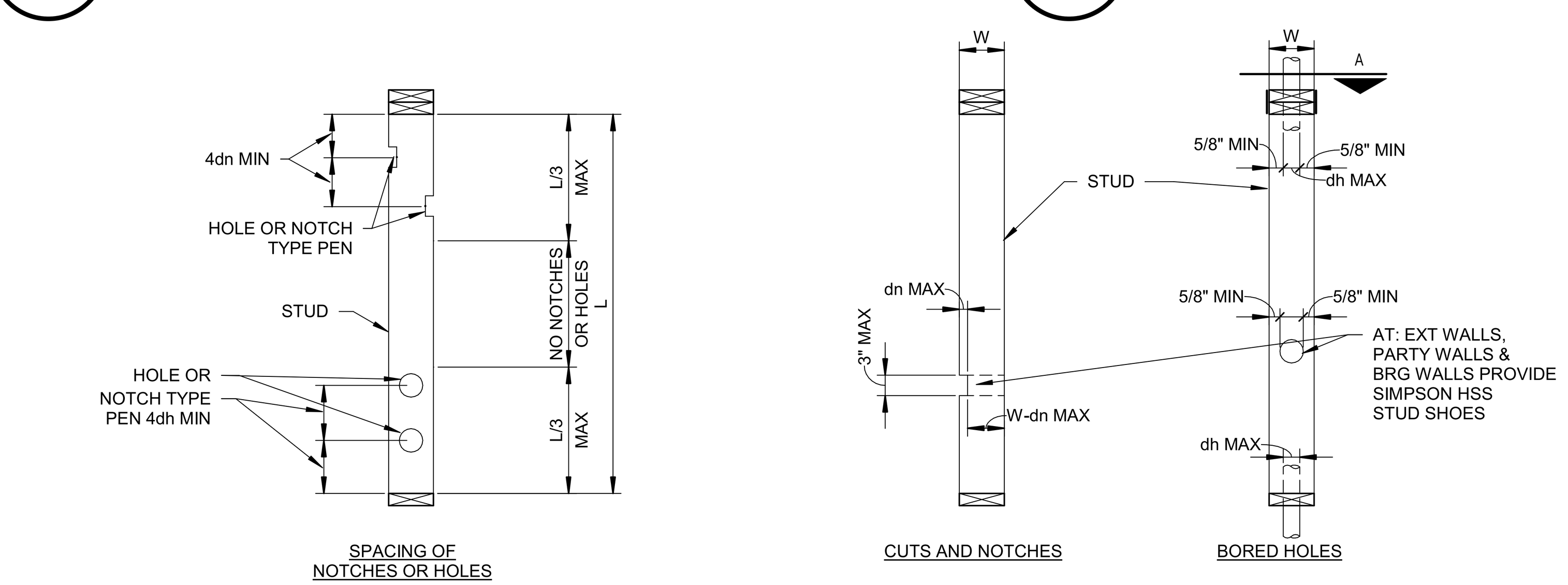
2 G-S-510.4 SCALE: 3/4" = 1'-0"



1. (3) 8d TOE NAIL EACH SIDE
2. (6) 8d TOE NAIL EACH SIDE
3. CONNECT TOP PLATE PER TYPICAL PLATE LAP DETAIL
4. 5/8" DIA HOOKED ANCHOR AT 4'-0" OC MAX
5. (2) 8d TOE NAIL EACH SIDE
6. (2) 8d NAIL
7. 8d NAIL @ 6" OC (STAGGER)
8. TOP PLATE SPLICE TO BE DIRECTLY ABOVE STUD. STAGGER SPLICES IN INDIVIDUAL PLATE MEMBERS (DO NOT SPLICE MORE THAN ONE PLATE AT ANY SINGLE LOCATION)

TYPICAL WALL FRAMING DETAIL

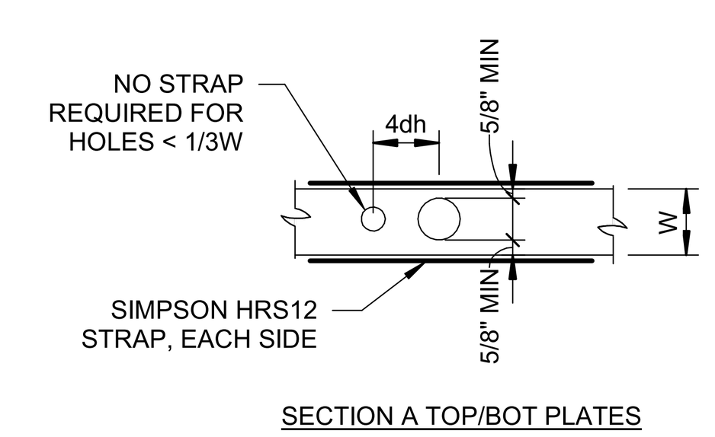
1 G-S-510.4 SCALE: 1/2" = 1'-0"



STUD SIZE	EXTERIOR WALL, PARTY WALLS, BEARING WALLS		INTERIOR NON-LOAD BEARING WALLS	
	dn MAX	dh MAX	dn MAX	dh MAX
2x4	7/8"	1-3/8"	1-3/8"	2"
2x6	1-3/8"	2-1/8"	2-1/8"	3-1/4"
2x8	1-3/4"	2-7/8"	2-7/8"	4-1/4"

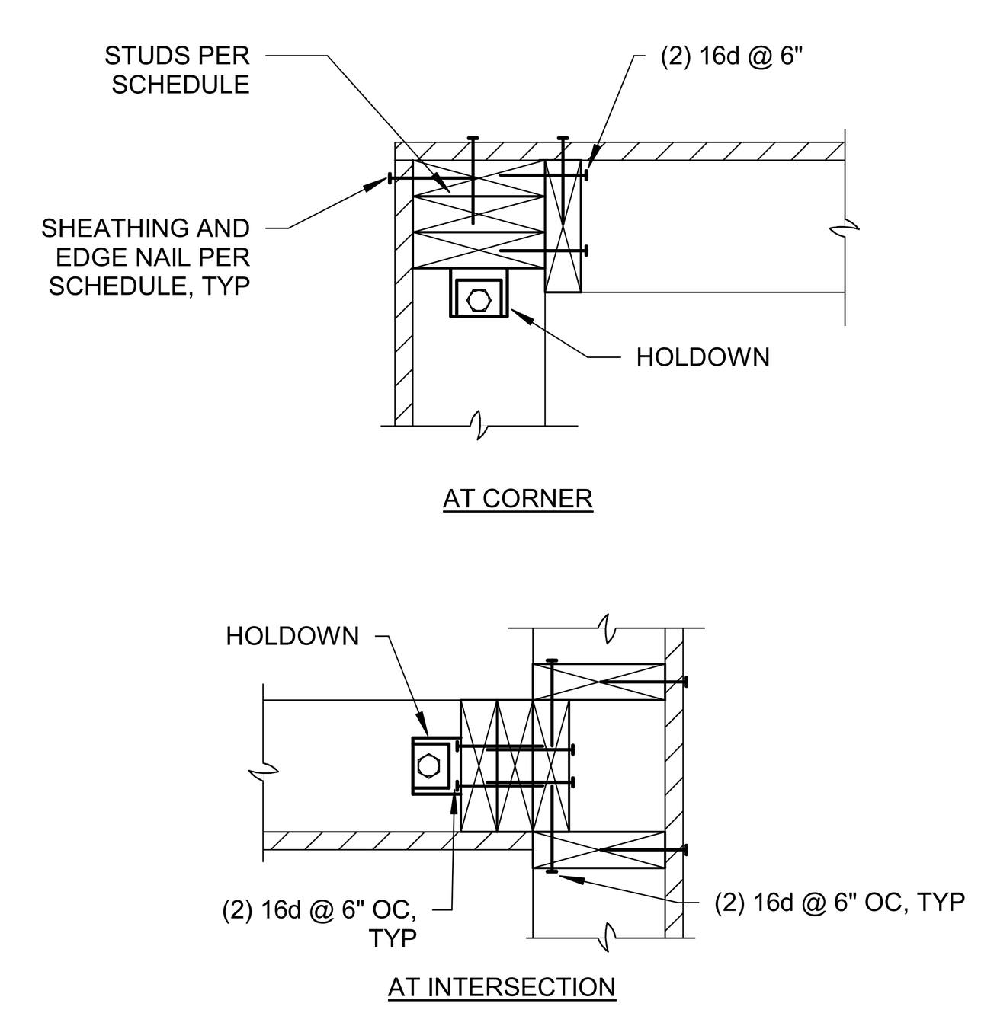
dn - DEPTH OF NOTCH
dh - DEPTH OF HOLE

NOTES:
1. MAXIMUM OF (2) PENETRATIONS PER STUD. NO MORE THAN (5) CONSECUTIVE STUDS WITH PENETRATIONS.
2. SEE SCHEDULE FOR MAXIMUM PENETRATION SIZES.
3. STUD PACKS OR POSTS SHALL NOT BE PENETRATED BY A CUT, NOTCH, OR HOLE WITHOUT VERIFYING WITH ENGINEER.
4. BORED HOLES SHALL NOT BE LOCATED AT THE SAME SECTION OF A STUD AS A CUT OR NOTCH.



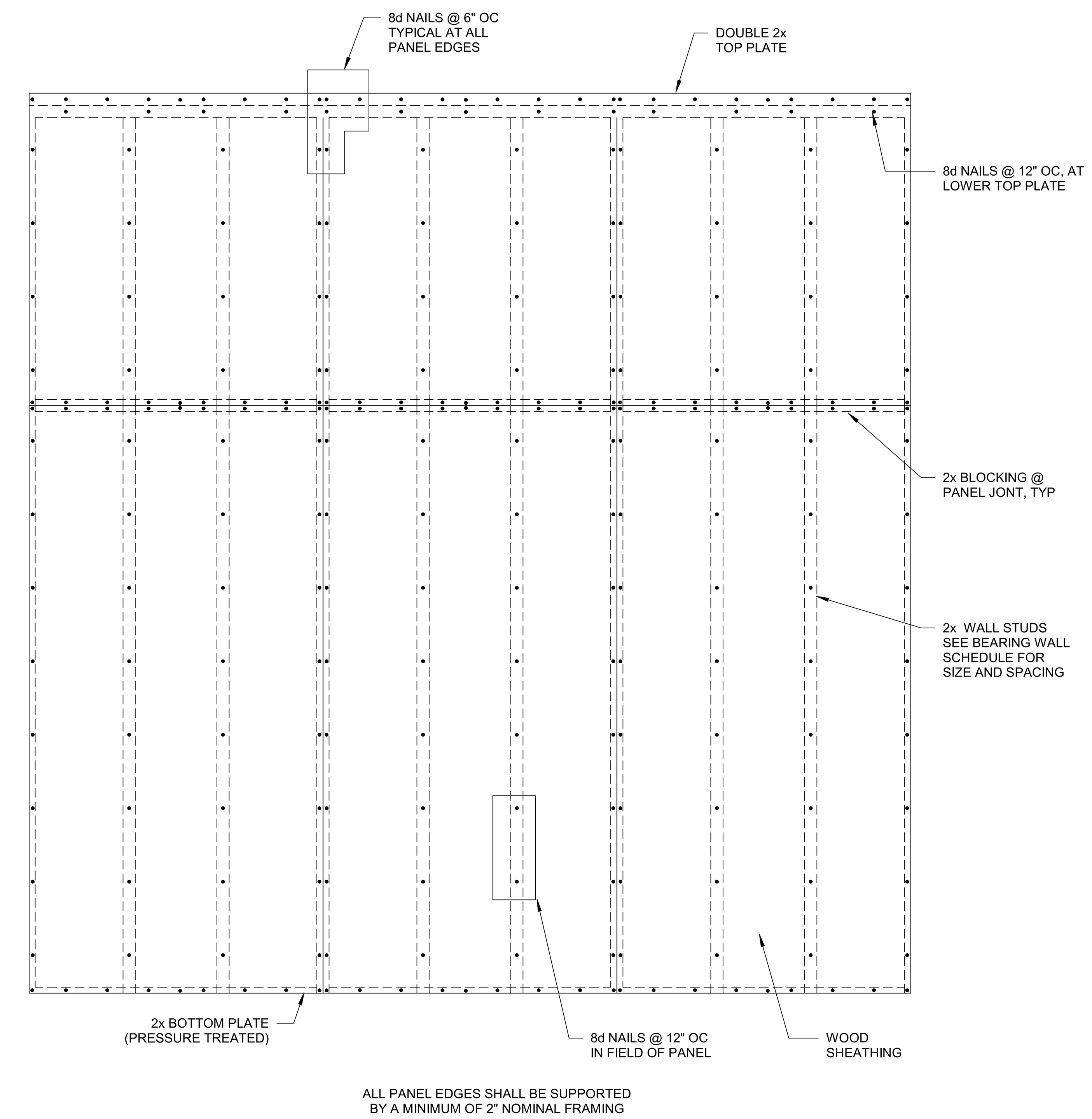
ALLOWABLE PENETRATIONS IN LOAD-BEARING STUDS

5 G-S-510.4 SCALE: 3/4" = 1'-0"



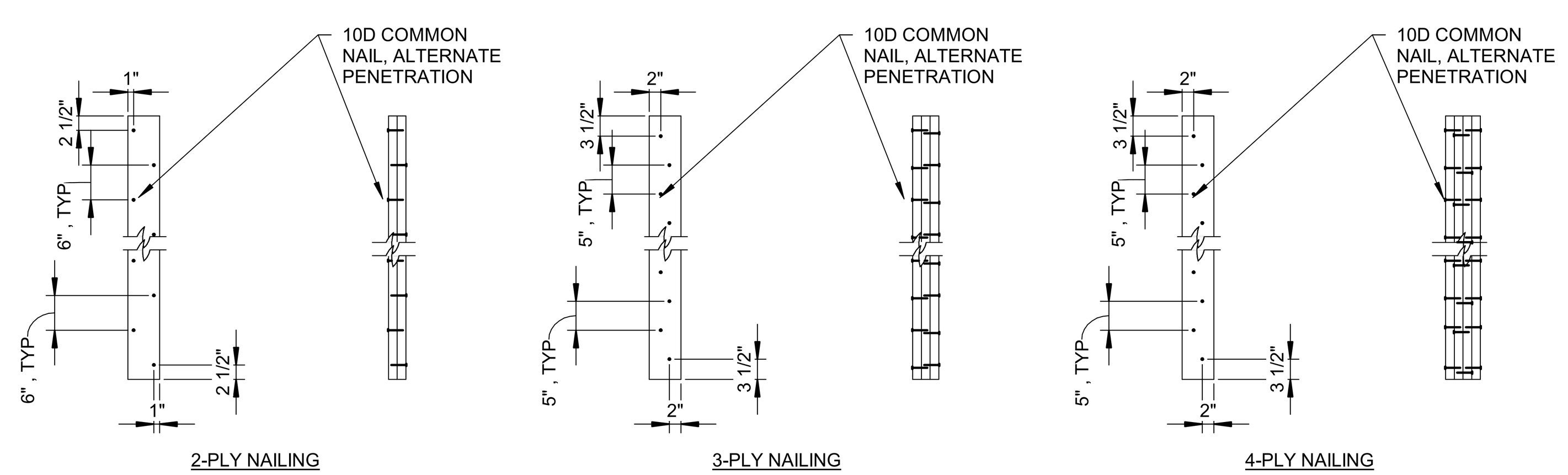
TYPICAL SHEAR WALL HOLDOWN DETAILS

4 G-S-510.4 SCALE: 1 1/2" = 1'-0"



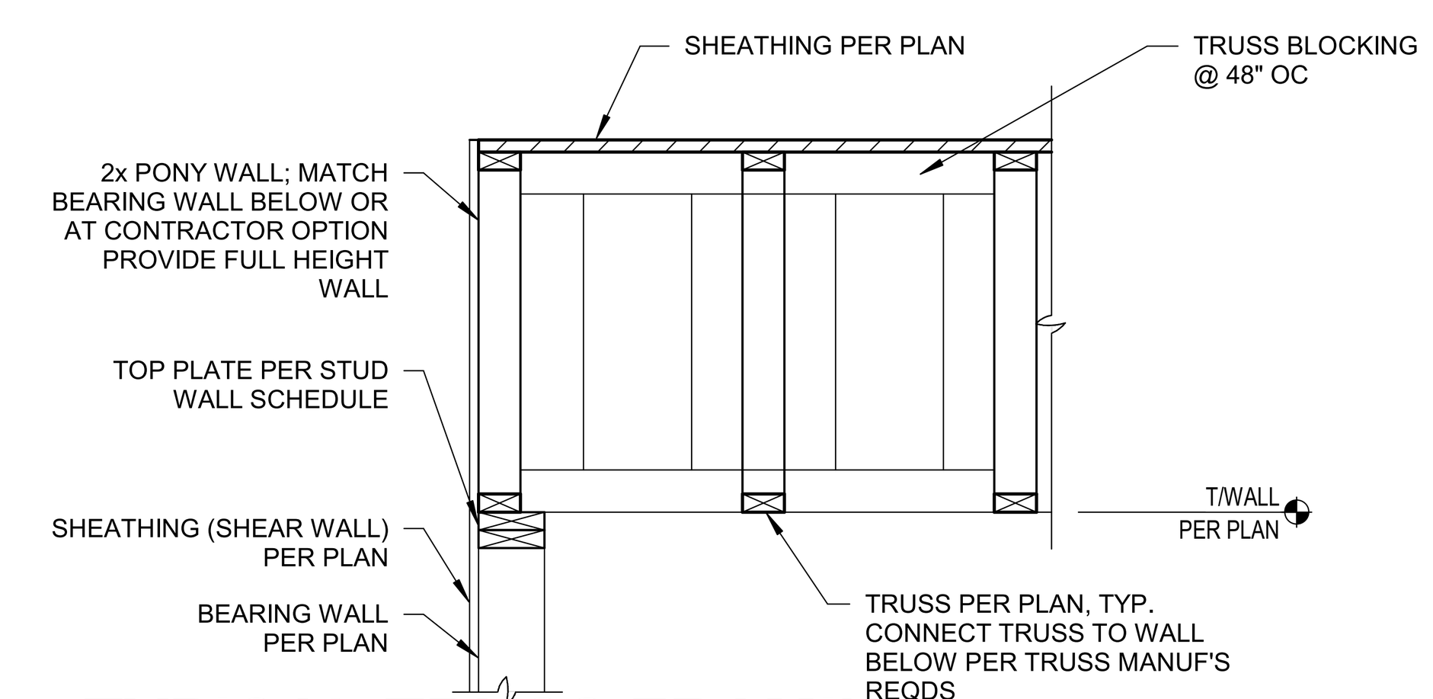
TYPICAL SHEARWALL

6 G-S-510.4 SCALE: 3/4" = 1'-0"



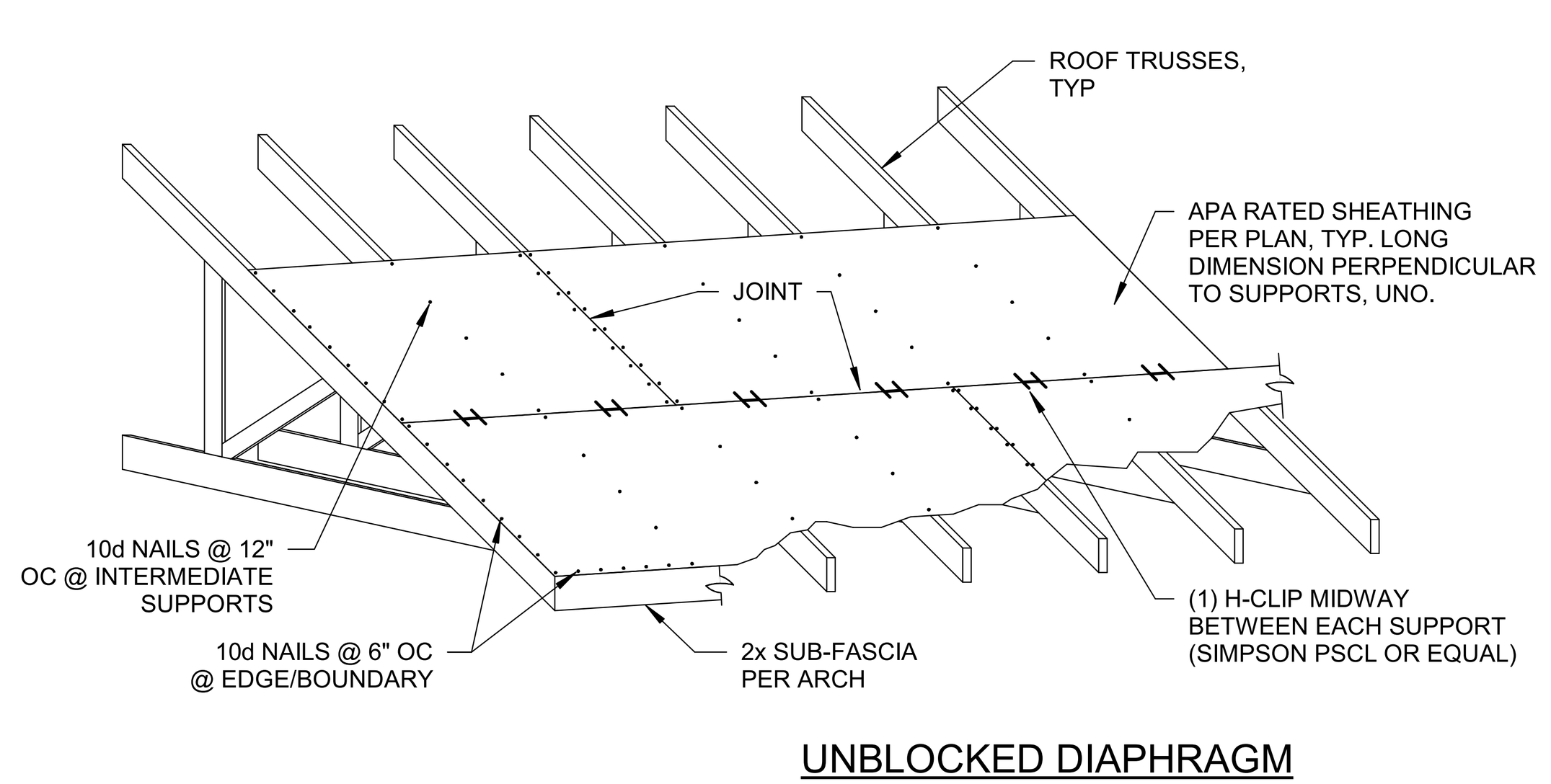
TYPICAL MULTIPLE PLY STUD / HEADER NAILING

8 G-S-510.4 SCALE: 1/2" = 1'-0"



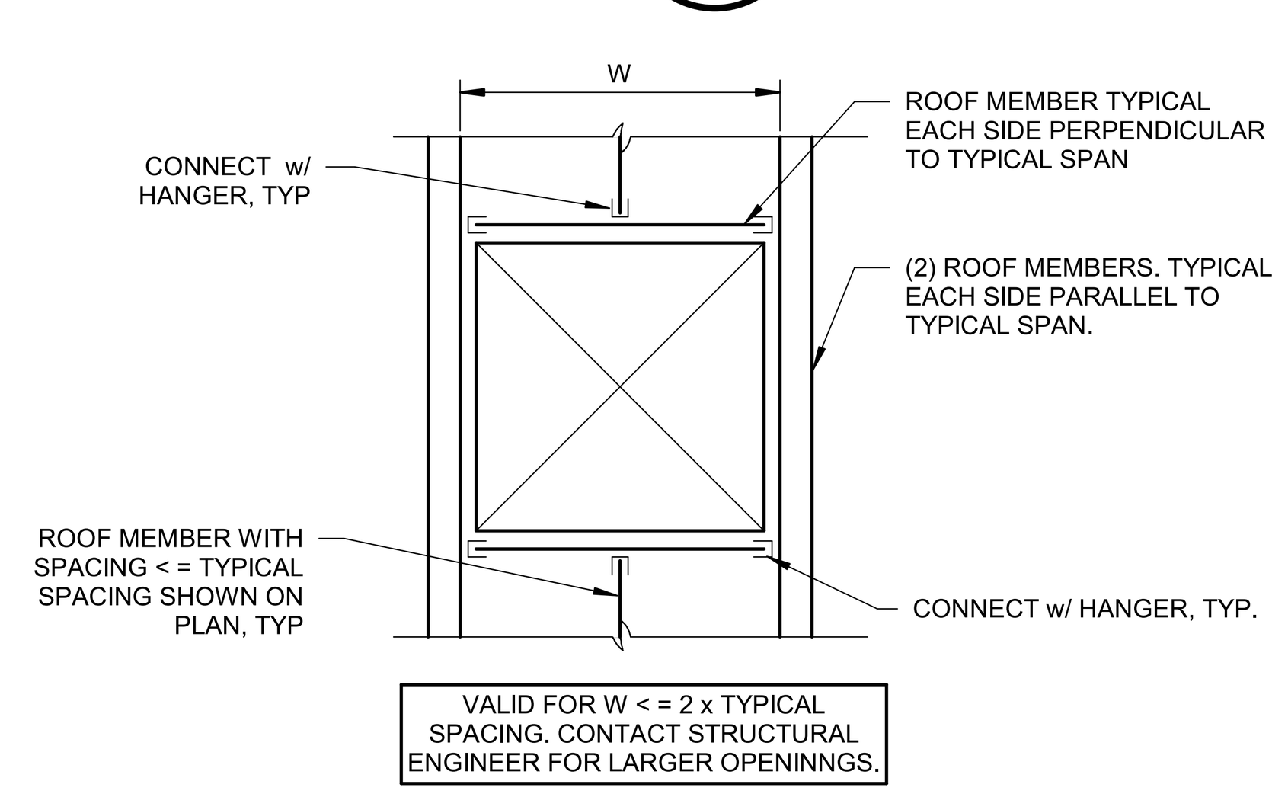
TYPICAL TRUSS FRAMING PARALLEL TO PERIMETER WALL

7 G-S-510.4 SCALE: 3/4" = 1'-0"



TYPICAL ROOF SHEATHING DETAIL AT WOOD TRUSSES

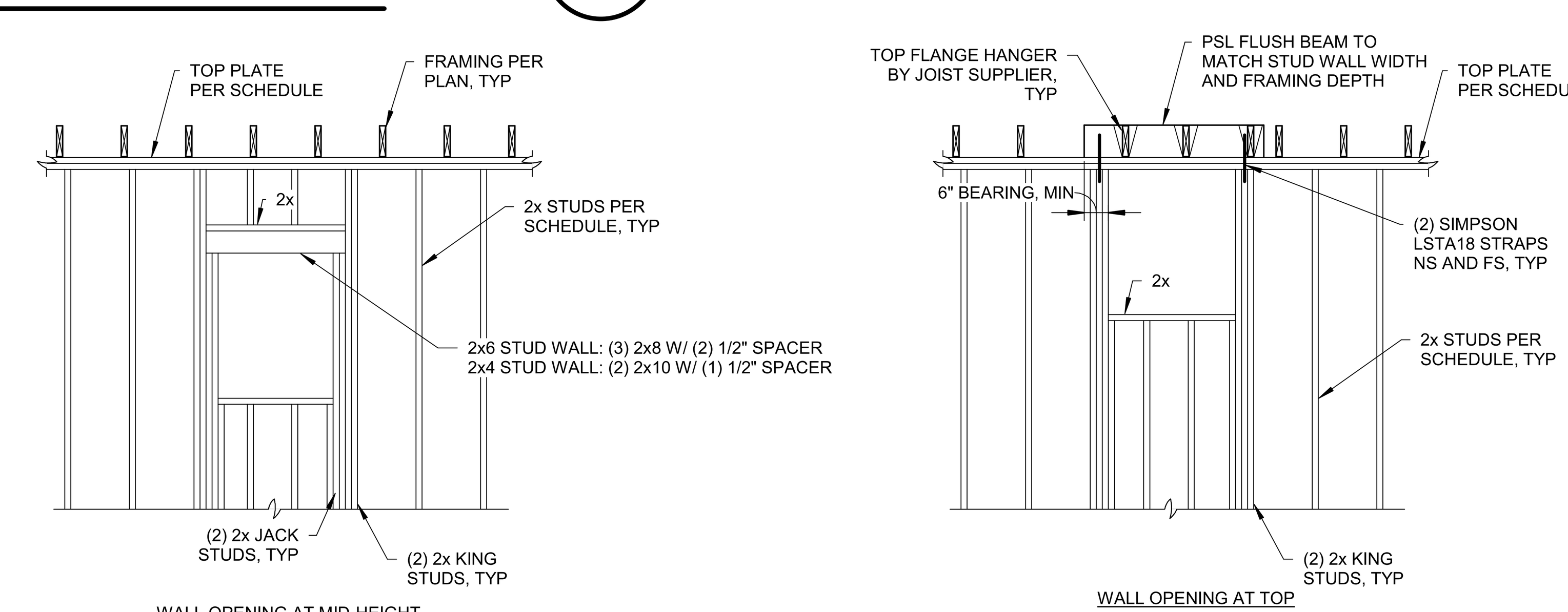
11 G-S-510.4 SCALE: 3/4" = 1'-0"



NOTES:
1. COORDINATE EXACT SIZE AND LOCATION OF OPENINGS WITH MECHANICAL CONTRACTOR.
2. COORDINATE EXACT SIZE AND LOCATION OF ROOF HATCH WITH ARCHITECTURAL DRAWINGS.
3. THE SYMBOL "<=" IS DEFINED AS "LESS THAN OR EQUAL TO".
4. SIZE OF ROOF MEMBERS TO MATCH TYPICAL SIZE SHOWN ON PLAN IN AREA OF OPENING.

TYPICAL ROOF OPENING DETAIL

10 G-S-510.4 SCALE: 1/2" = 1'-0"



NOTES:
1. COORDINATE LOCATIONS OF ALL WALL OPENINGS WITH MEP DRAWINGS PRIOR TO CONSTRUCTION
2. SEE TYPICAL HEADER DETAIL FOR ADDITIONAL INFORMATION.

TYPICAL WALL OPENING DETAIL (2'-6" MAX WIDTH ROUGH OPENING)

9 G-S-510.4 SCALE: 3/8" = 1'-0"

6 5 4 3 2 1

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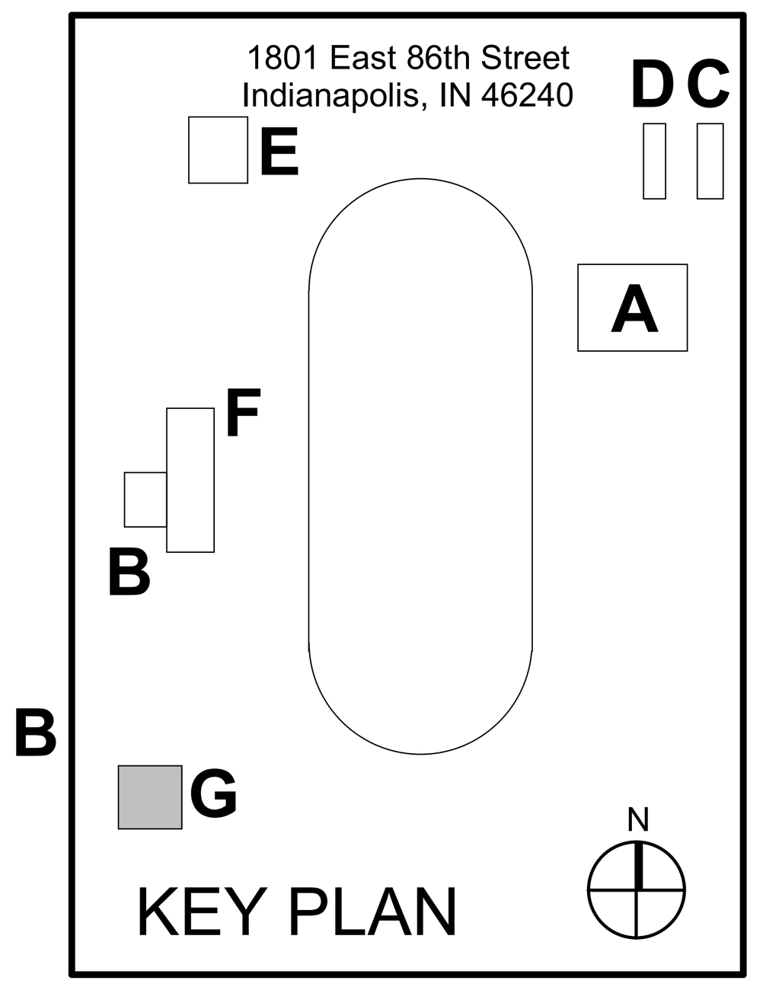


KEY PLAN

OWNER

North Central High School Renovation - Field Improvements

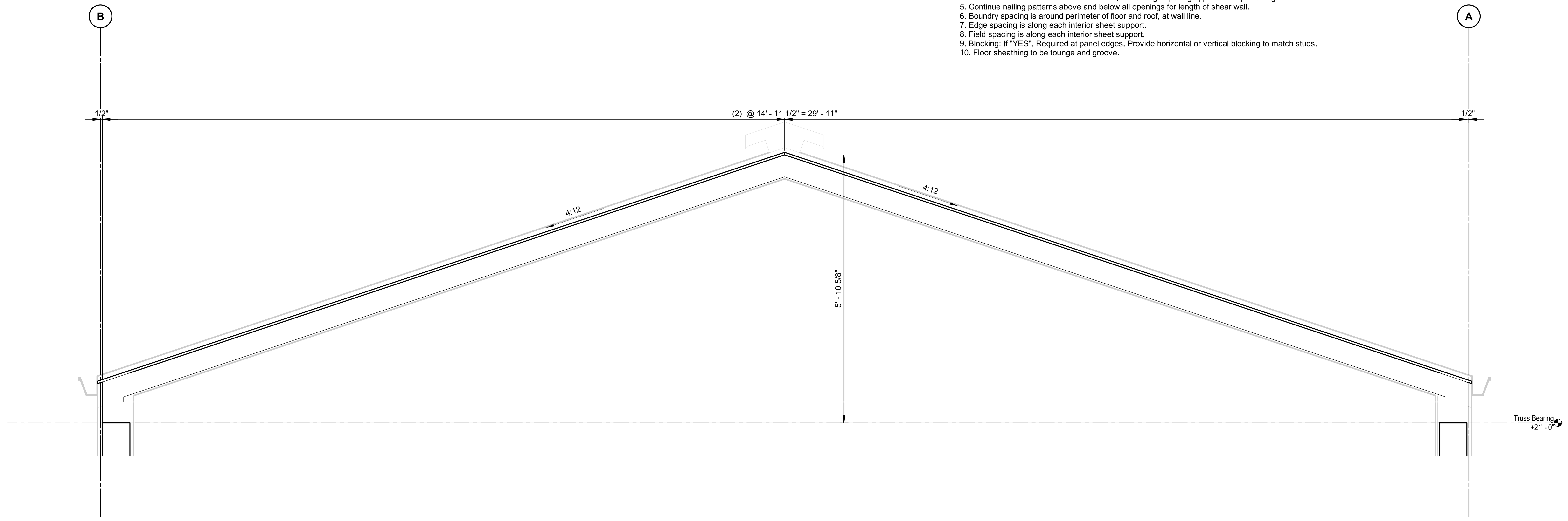
FRAMING SCHEDULES, SECTIONS, & DETAILS

G-S-510.4

6 5 4 3 2 1

ROOF SHEATHING SCHEDULE									
	Sheathing				Fasteners				
Mark	Grade	Thickness	Span Rating	Blocking	Nail	Boundry	Edge	Field	Remarks
D1	STRUCTURAL I	5/8"	40/20	UNBLOCKED	8d	6"	6"	1' - 0"	

Sheathing Schedule Notes:
1. Exposure Class: Exposure 1, UNO.
2. Sheathing Grade: Sheathing, UNO.
3. Span Rating: 24/16, UNO.
4. Fasteners: 10d common nails, UNO. Edge spacing applies to all panel edges.
5. Continue nailing patterns above and below all openings for length of shear wall.
6. Boundry spacing is around perimeter of floor and roof, at wall line.
7. Edge spacing is along each interior sheet support.
8. Field spacing is along each interior sheet support.
9. Blocking: If "YES", Required at panel edges. Provide horizontal or vertical blocking to match studs.
10. Floor sheathing to be tounge and groove.

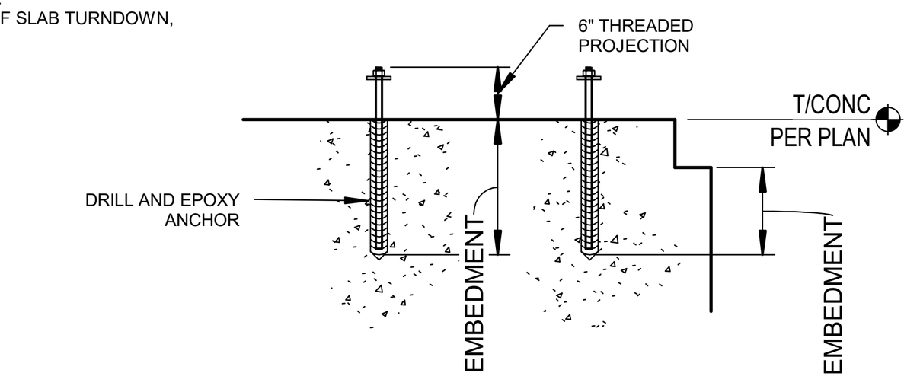


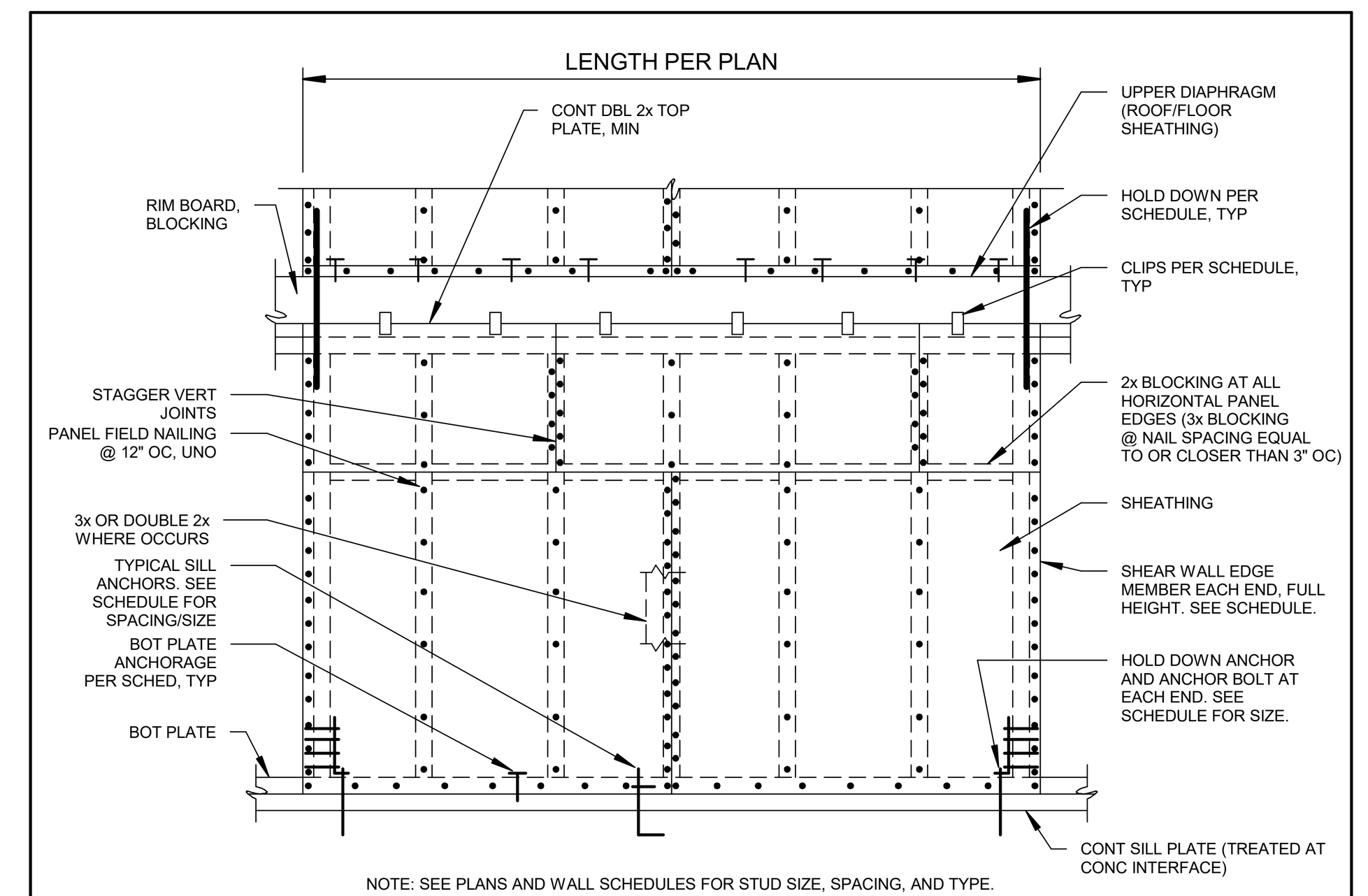
4
G-S-511.4
TYP. TRUSS PROFILE
SCALE: 3/4" = 1'-0"

SHEAR WALL HOLD DOWN SCHEDULE

MARK	HOLD DOWN	MIN EDGE MEMBER	ANCHOR ROD	EMBEDMENT	ALLOWABLE CAPACITY
HD1	HDU8-SDS2.5 BY SIMPSON	3 1/2 X 3 1/2	7/8" DIA THREADED ROD W/ SIMPSON SET	8"	6,970 LBS

NOTES:
1. SEE PLAN FOR GENERAL HOLD DOWN LOCATIONS.
2. WHEN SPECIFIED EMBEDMENT EXCEEDS DEPTH OF SLAB TURNDOWN, EMBEDMENT SHALL BE MEASURED FROM T/FTG.
3. TYPICAL HOLD DOWN FOUNDATION ANCHOR:
4. INDICATED LOADS ARE SERVICE LEVEL (ALLOWABLE STRESS DESIGN) LOADS.





WOOD SHEAR WALL SCHEDULE

MARK	SHEATHING	PANEL EDGE NAILING	TOP PL TO FRAMING BELOW	SHEAR WALL EDGE MEMBER	BOT PL TO CONCRETE BELOW	ALLOWABLE CAPACITY	
						SEISMIC	WIND
SW1	15/32" APA RATED SHEATHING, ONE SIDE	8d @ 6"	CLIPS @ 16"	(2) 2X8 S.P. No. 2	1/2" DIA SIMPSON TITEN HD @ 32"	520 PLF	730 PLF

NOTES:
1. INSTALL HOLD DOWNS IN STRICT ACCORDANCE WITH MANUFACTURER'S REQUIREMENTS. SEE FOUNDATION AND FLOOR FRAMING PLANS FOR HOLD DOWN TYPE AND LOCATIONS.
2. CONTINUE WALL SHEATHING AND NAILING PATTERNS ABOVE AND BELOW WINDOWS/DOORS FOR LENGTH OF SHEAR WALL INDICATED ON PLANS.
3. SEE TYPICAL MULTI-PLY STUD NAILING DETAIL FOR BUILT UP STUDS.
4. USE 3x FRAMING OR DOUBLE 2x FRAMING AT ALL ABUTTING PANEL EDGES AND SILL PLATES TO CONCRETE FOR NAIL SPACING LESS THAN OR EQUAL TO 2" OC FOR 8d NAILS AND LESS THAN OR EQUAL TO 3" OC FOR 10d NAILS.
5. STAGGER PANEL JOINTS ON WALLS SHEATHED ON BOTH SIDES.
6. FRAMING CLIPS SHALL BE A35 OR LTP4 OR APPROVED EQUAL.
7. INDICATED LOADS ARE SERVICE LEVEL (ALLOWABLE STRESS DESIGN) LOADS.

HEADER (H) SCHEDULE

MARK	MEMBER	END SUPPORT	REMARKS
H1	(3) 2x8 W/ (2) ½" SPACERS S.P. #2	JACK - (1) 2x8 KING - (3) 2x8	
H2	(1) 2x8 W/ (2) ½" SPACERS S.P. #2	JACK - (1) 2x8 KING - (1) 2x8	

NOTES:
1. ALL END SUPPORTS ARE S.P. #2, UNO
2. JACK STUDS ARE STUDS ON WHICH THE HEADER BEARS.
3. KING STUDS ARE FULL HEIGHT STUDS ADJACENT TO THE HEADER.
4. SEE TYPICAL EXTERIOR WALL FRAMING DETAIL FOR DIAGRAM OF JACK AND KING STUDS.
5. WHERE SHEAR WALL OCCURS AT END OF WINDOW PROVIDE THE GREATER OF THE NUMBER OF KING STUDS OF THE NUMBER OF STUDS SHOWN FOR SHEAR WALL END POSTS.

BEARING WALL (BW) SCHEDULE

MARK	SIZE AND SPACING	STRUCTURAL WOOD TYPE	TOP PLATE	REMARKS
SW1	2x8 @ 16" OC	S.P #2	(2) 2X8 S.P SS	

NOTES:
1. TOP PLATE SPLICE TO BE DIRECTLY ABOVE STUD.
2. MATCH WALL STUDS TO ALIGN VERTICALLY AT MULTI-LEVEL CONSTRUCTION.
3. ALL TOP AND BOTTOM PLATE MATERIAL SHALL BE SELECT STRUCTURAL (SS).

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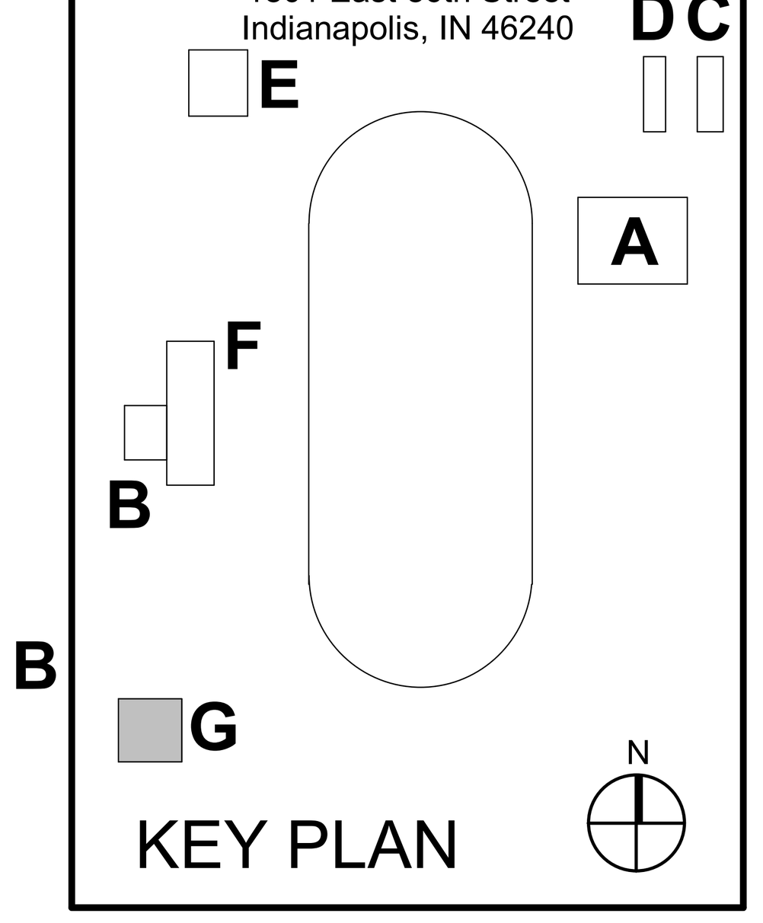


KEY PLAN

OWNER

North Central High School Renovation - Field Improvements

FRAMING SCHEDULES, SECTIONS, & DETAILS

G-S-511.4

6 5 4 3 2 1

DOOR & FRAME SCHEDULE

	DOOR PANEL							FRAME						
					SIZE									
MARK	TYPE	QTY	MATL	GLAZ	H	W	TH	MARK	MATL	GLAZ	LABEL	HDWR SET	NOTES	MARK
B100	F	1	HM	--	7' - 0"	3' - 0"	0' - 1 3/4"	F1	HM	--		06		B100
B102	F	1	HM	--	7' - 0"	4' - 0"	0' - 1 3/4"	F1	HM	--		10		B102
B103	F	1	HM	--	7' - 0"	4' - 0"	0' - 1 3/4"	F1	HM	--		06		B103
B200	F	1	HM	--	7' - 0"	3' - 0"	0' - 1 3/4"	F1	HM	--		06		B200
B300	F	1	HM	--	7' - 0"	3' - 0"	0' - 1 3/4"	F1	HM	--		06		B300

GENERAL NOTES

A. This Door Schedule(s) is furnished for whatever assistance it may afford the Contractor. Do not consider it as entirely inclusive. Carefully examine the Drawings (especially the Floor Plans) and the Specifications to determine the extent of door and frame quantities required (including interior borrowed lite or sidelite openings). Should any particular door, frame, or interior borrowed lite or sidelite shown on the Drawings be inadvertently omitted from this Schedule, supply same as required for similar openings.

B. The "QTY" column designates the number of leaves in the opening. The "Door Width" column designates the total width of all leaves. In multiple leaf conditions, the leaves shall equally divide the "Door Width" unless noted otherwise; however, the active leaf shall not be less than 3'-0" wide.

C. Door Type "X" denotes a frame with no door such as a borrowed lite, reference Frame Elevations.

D. An asterisk (*) in a dimension denotes a width that varies, reference plans, elevations, details and schedules.

E. Verify locksets with the Owner during submittals.

ABBREVIATIONS

AL	Aluminum
HM	Hollow Metal
ST	Steel
WD	Wood
TG	Tempered Glazing
IG	Insulated Glazing
LG	Laminated Glazing
FG	Frosted Glazing
SP	Spandrel Panel

DOOR & FRAME SCHEDULE NOTES

See Door Schedule

1. Existing door and frame to remain. New hardware only. Field verify all existing door and frame information as required for installation of new hardware.
2. New door/frame in existing masonry wall. Tooth in new masonry into existing as required.
3. Set door in frame to allow for 180° door swing.

ROOF PLAN NOTES

#	Note
1	07 53 23 - EPDM ROOFING MEMBRANE
2	07 71 00 - 6X6" METAL GUTTER
3	077100 - 4" X 4" METAL DOWNSPOUT
4	07 31 13 - RIDGE VENT / HIP VENT
5	07 27 13 -SELF-ADHERING SHEET UNDERLAYMENT AROUND PERIMETER EDGE TO 3FT UP ROOF LINE
6	07 71 00 - MANUFACTURED METAL ROOF EDGE FASCIA
7	07 31 13 - ASPHALT SHINGLE ROOFING, REF SECTION DETAILS

REFLECTED CEILING PLAN NOTES

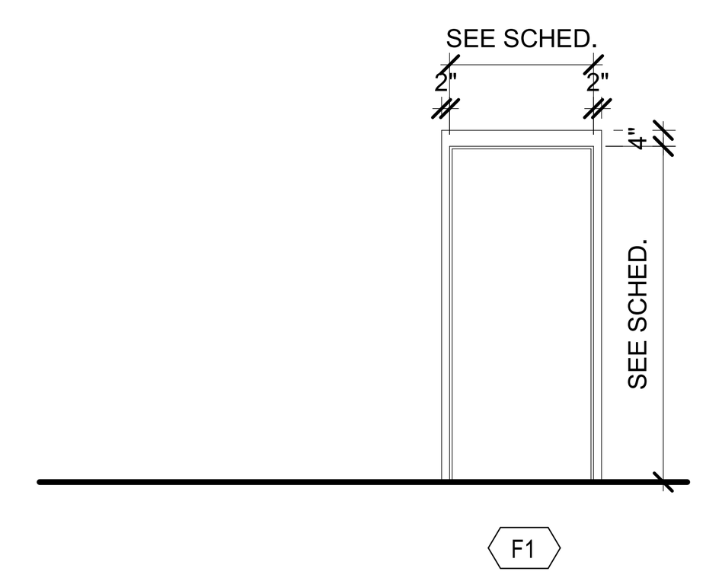
#	NOTE
1	NO CEILING
2	DEFS MOUNTED TO BOTTOM OF STRUCTURAL TRUSSES
3	07 42 93 - PERFORATED METAL SOFFIT
4	DEFS CEILING AT 8'-6" AFF.

FLOOR PLAN NOTES

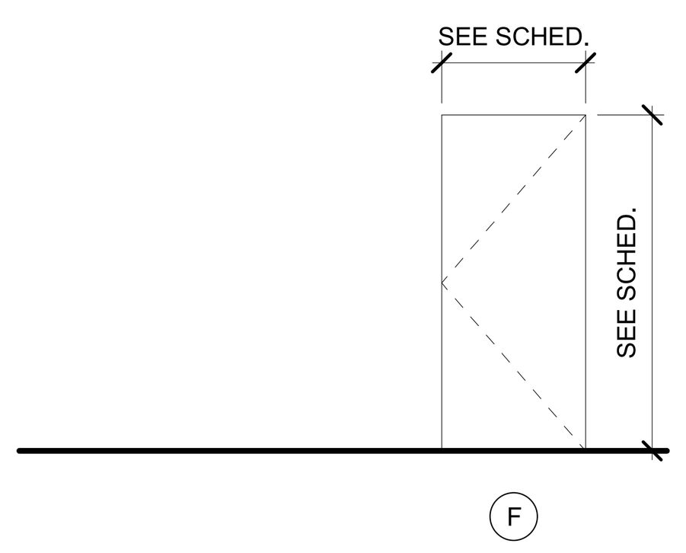
#	Note
1	07 71 00 - DOWNSPOUT, REF ROOF PLAN FOR SIZE. COORD WITH C-SERIES DWGS
i1	09 96 00.99 - PAINT ALL WALLS TO BE HP-1.
i2	09 65 13 - RESILIENT WALL BASE TO BE RWB-1.
i3	09 67 23.13 - FLOORING TO RECEIVE CONCRETE FLOOR COATING, CFC-1.
i4	09 65 13 - FLOORING TO RECEIVE VINYL TILE FLOOR, LVT-1.

BUILDING ELEVATION NOTES

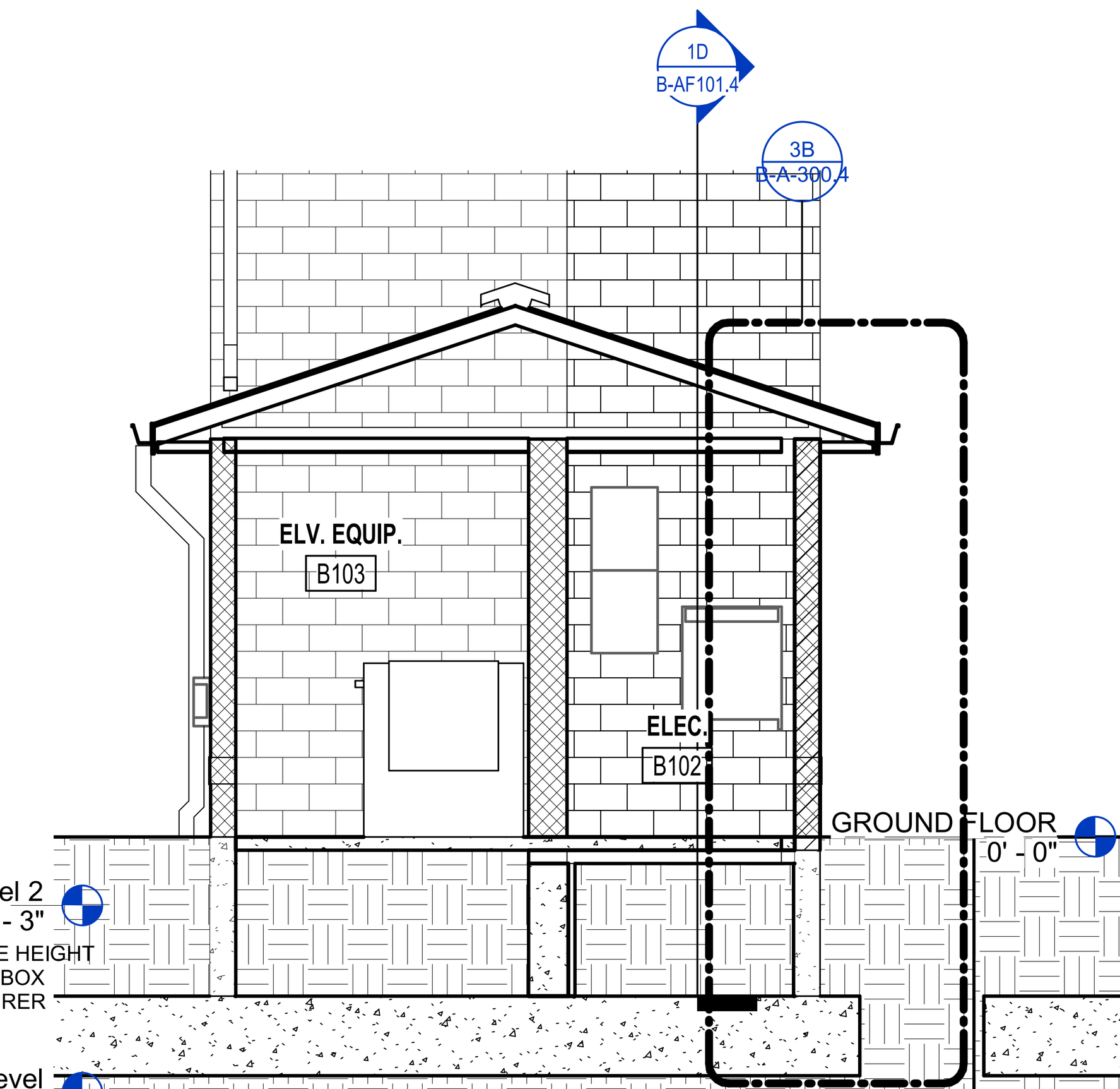
#	Note
1	04 20 00 - DECORATIVE CMU TYPE A (TAN)
2	04 20 00 - MASONRY CONTROL JOINT
3	081113 - HOLLOW METAL DOOR AND FRAME, REF. DOOR SCHEDULE
4	04 20 00 - DECORATIVE CMU TYPE B (RED)
5	077100 - GUTTER, REFER TO ROOF PLAN FOR SIZE
6	07 71 00 - MANUFACTURED METAL ROOF EDGE FASCIA
7	077100 - 4" X 4" METAL DOWNSPOUT
8	07 46 46 - FIBER CEMENT SIDING



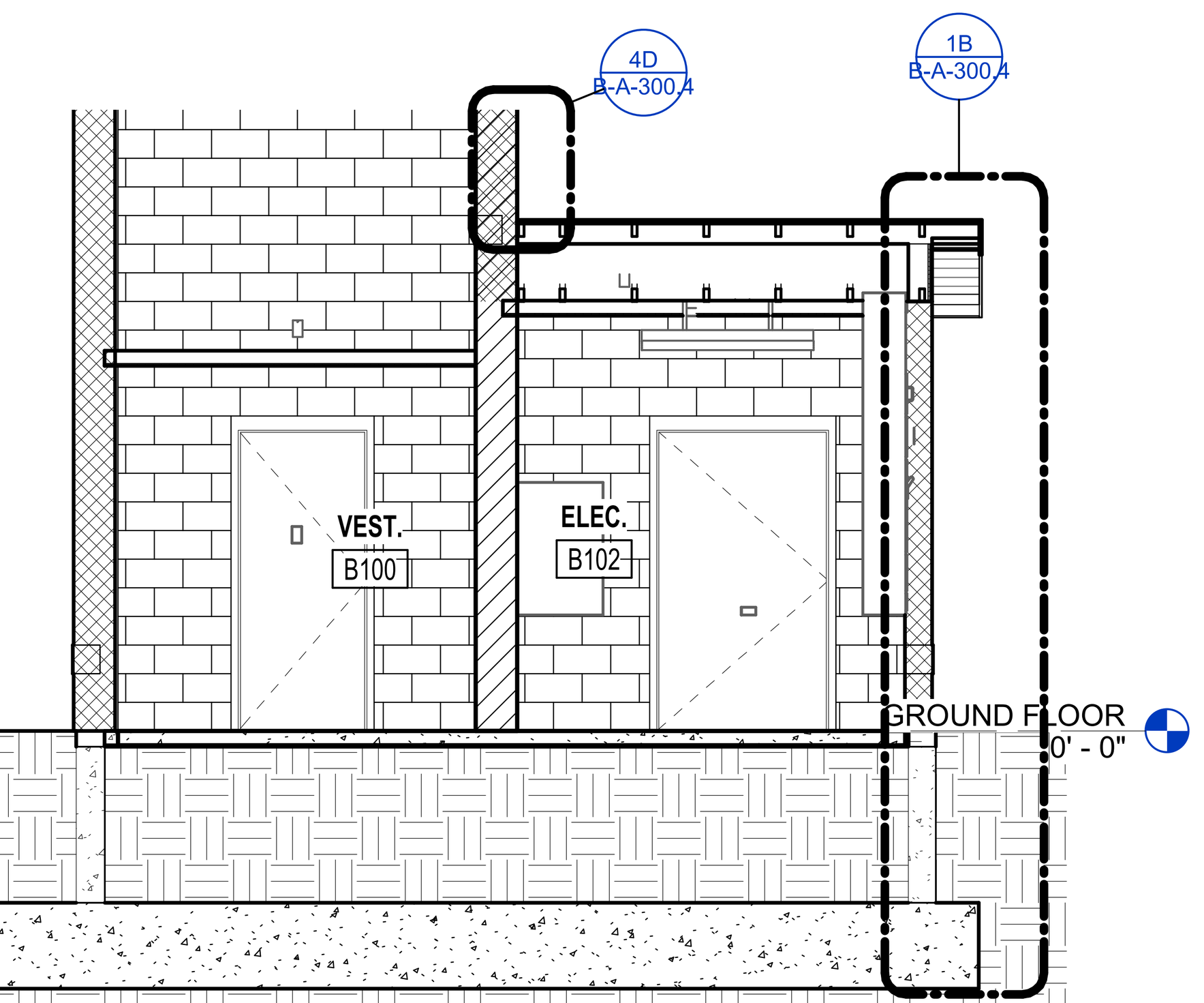
5.4.603 - FRAME ELEVATIONS
1/4" = 1'-0"



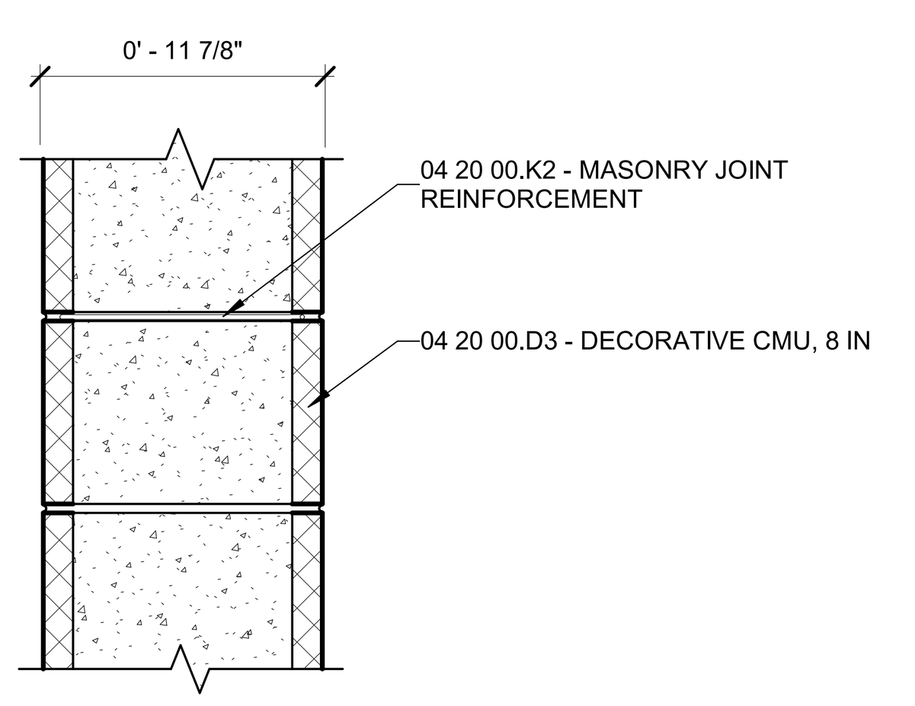
5.4.602 - DOOR PANEL ELEVATIONS
1/4" = 1'-0"



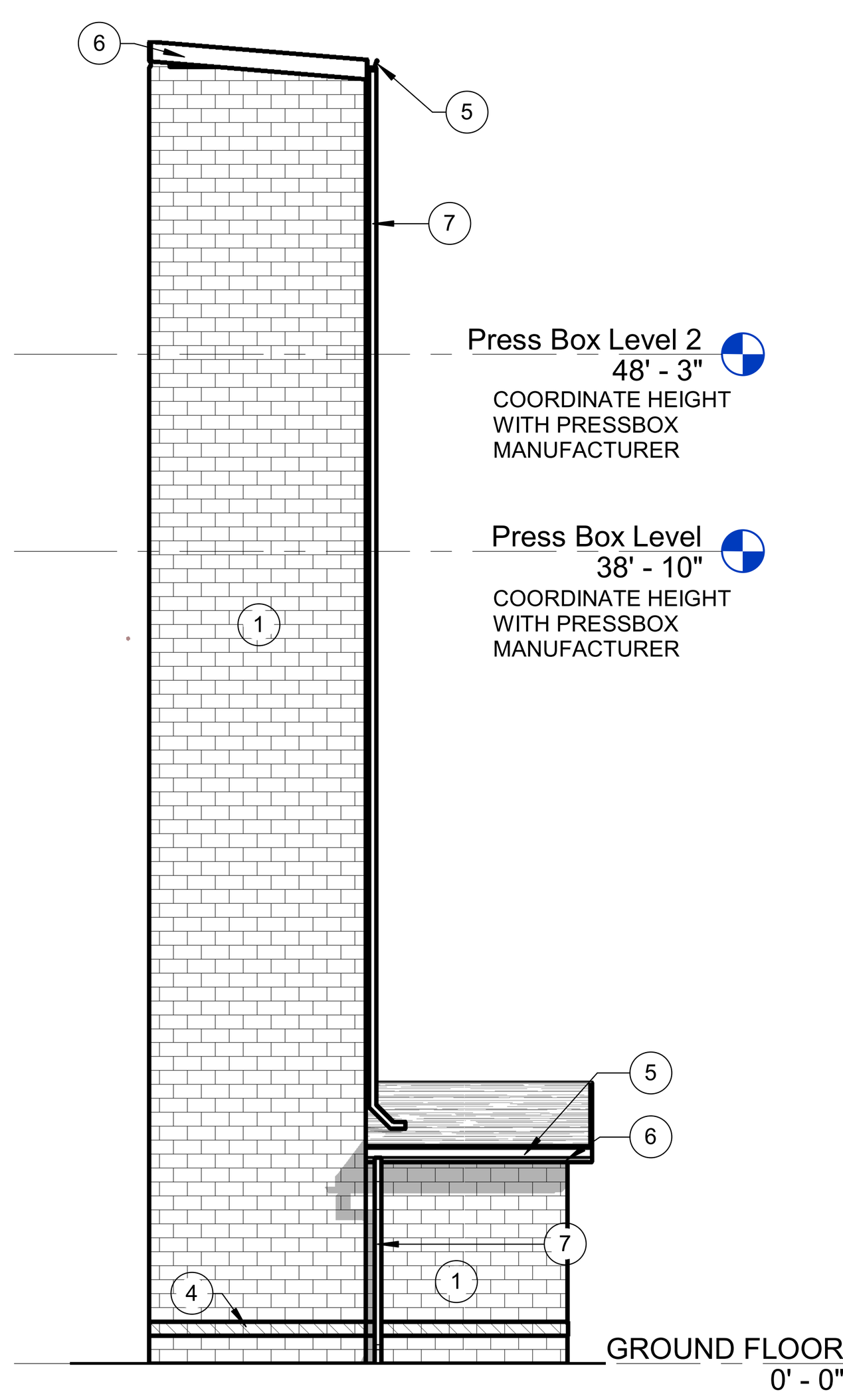
2D E/W BUILDING SECTION
1/4" = 1'-0"



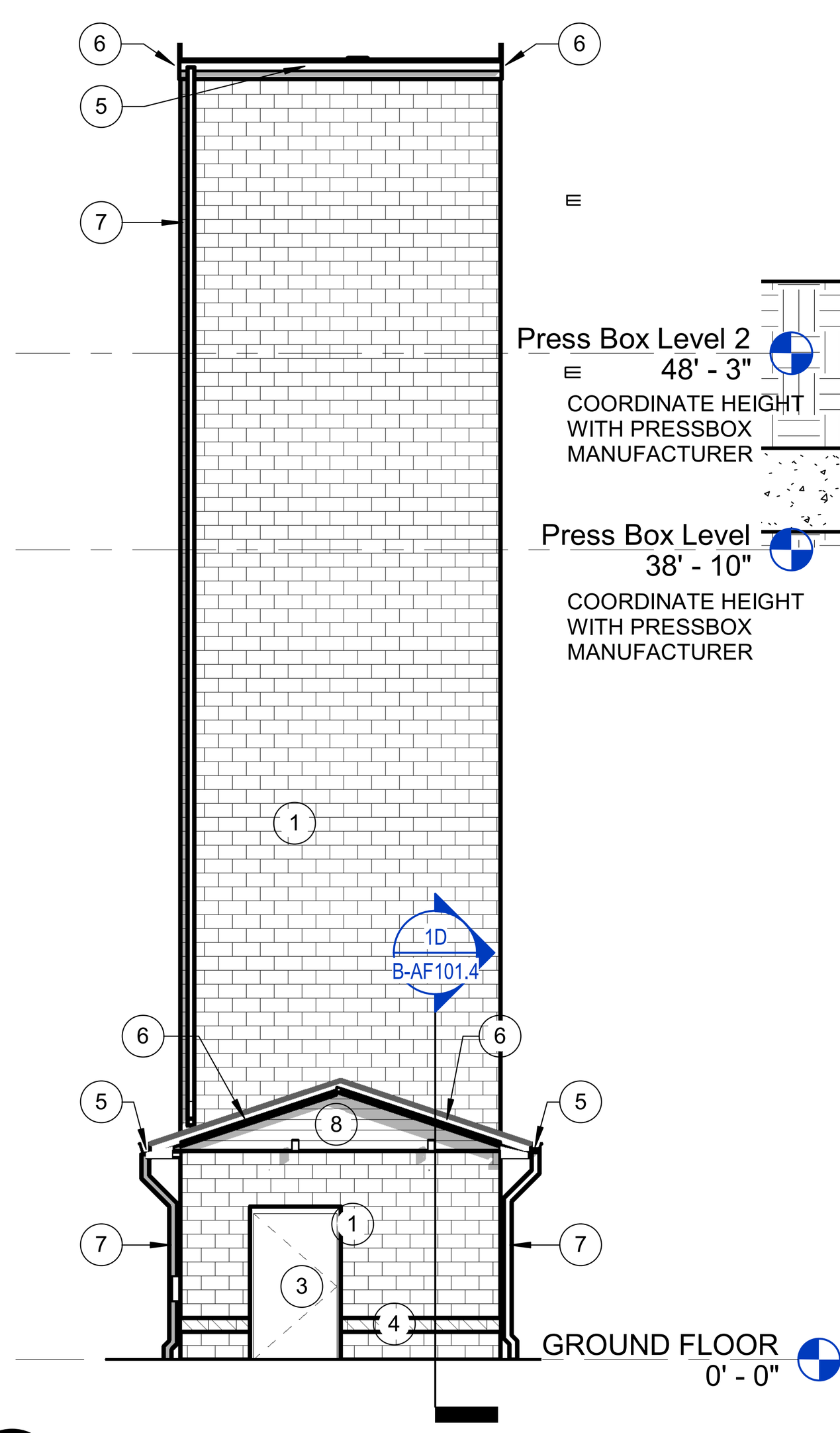
1D N/S BUILDING SECTION
1/4" = 1'-0"



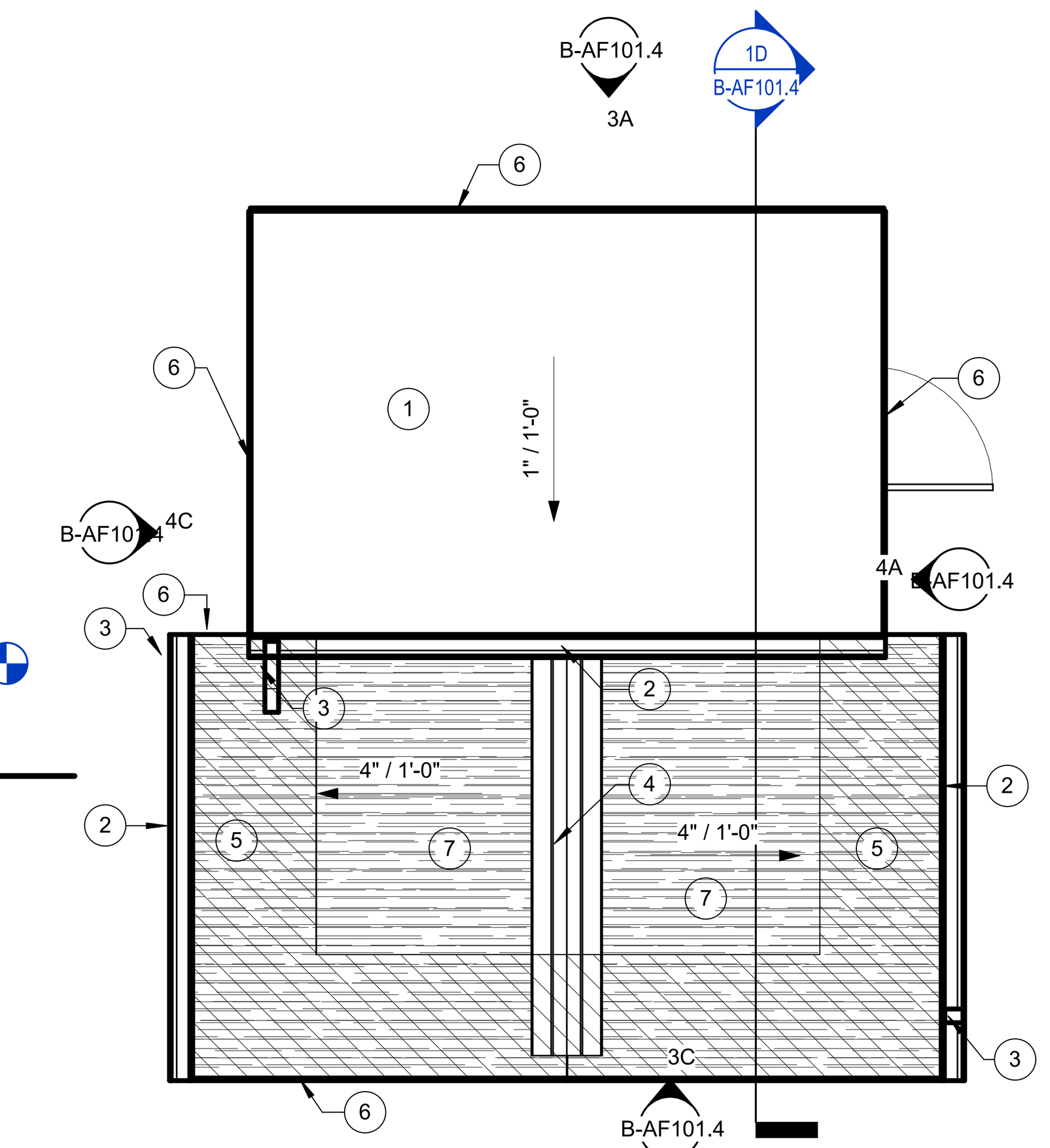
6C EM12 WALL TYPE
1 1/2" = 1'-0"



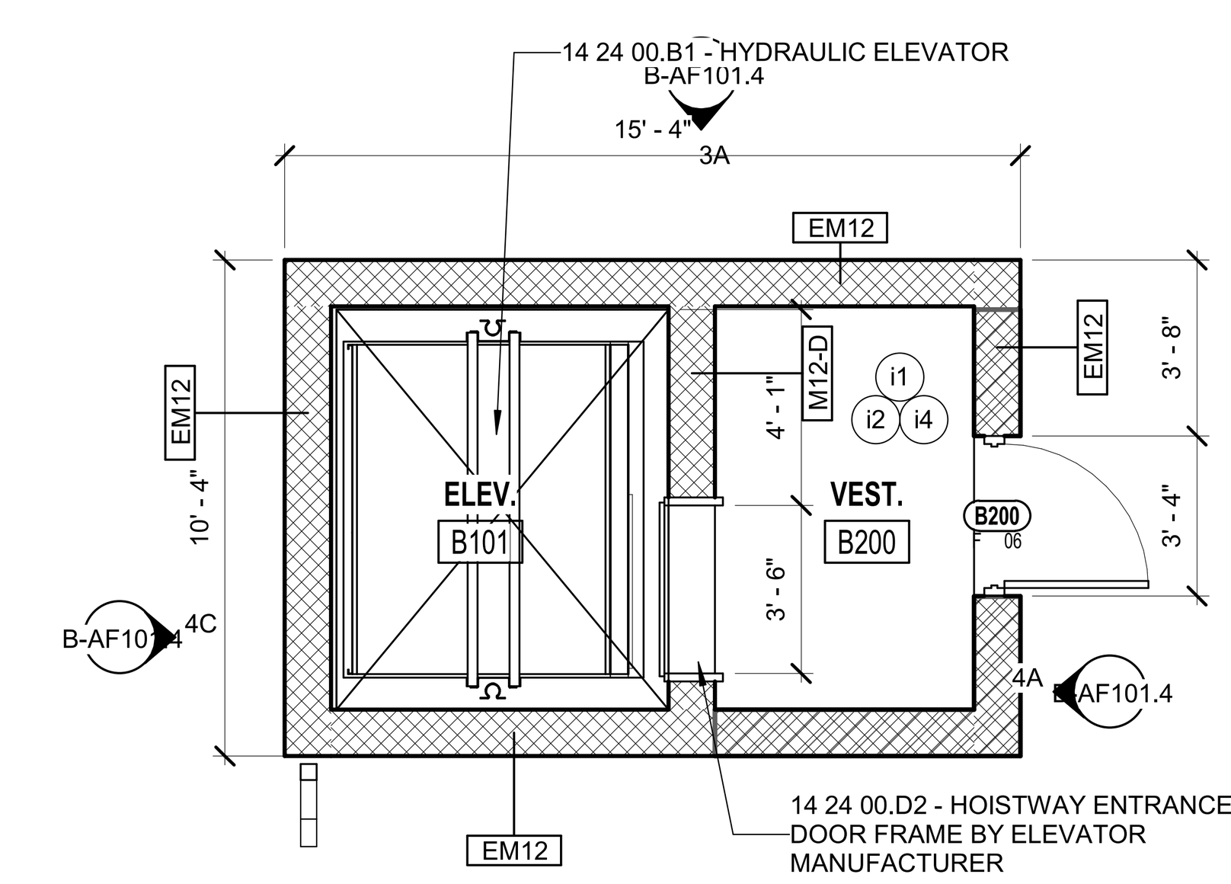
4C WEST ELEVATION
1/8" = 1'-0"



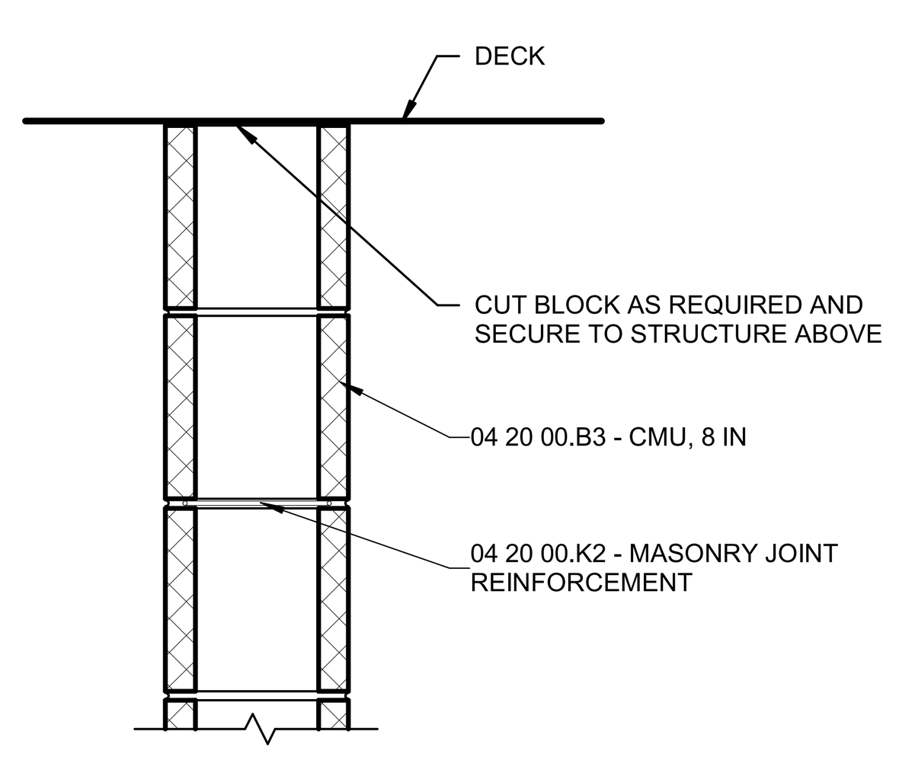
3C SOUTH ELEVATION
1/8" = 1'-0"



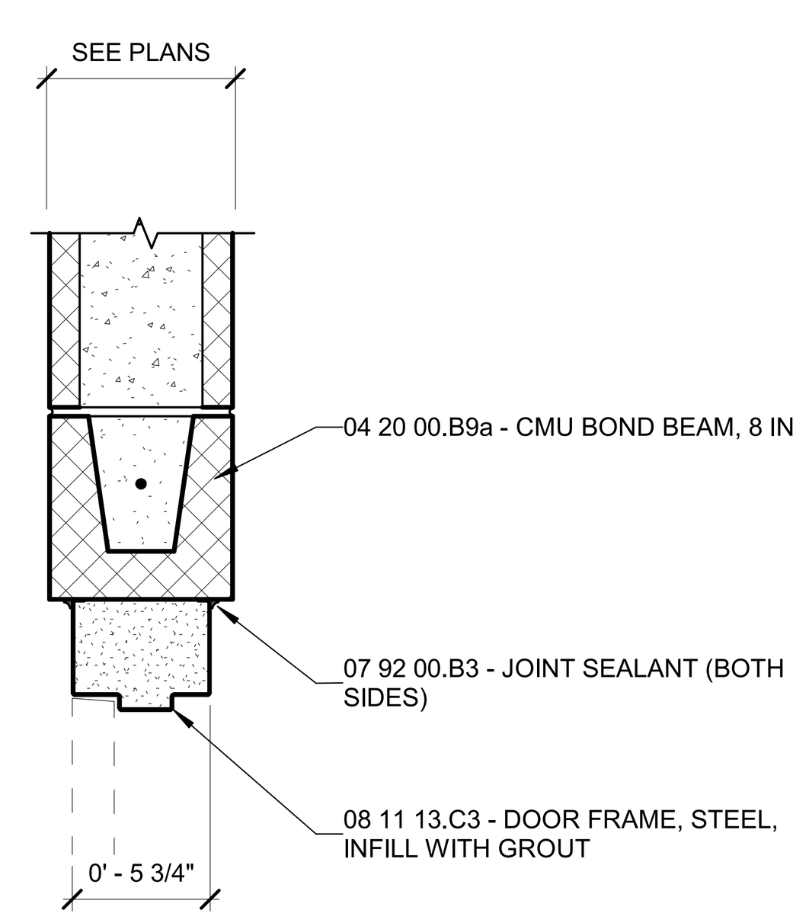
2B GROUND FLOOR ROOF PLAN
1/4" = 1'-0"



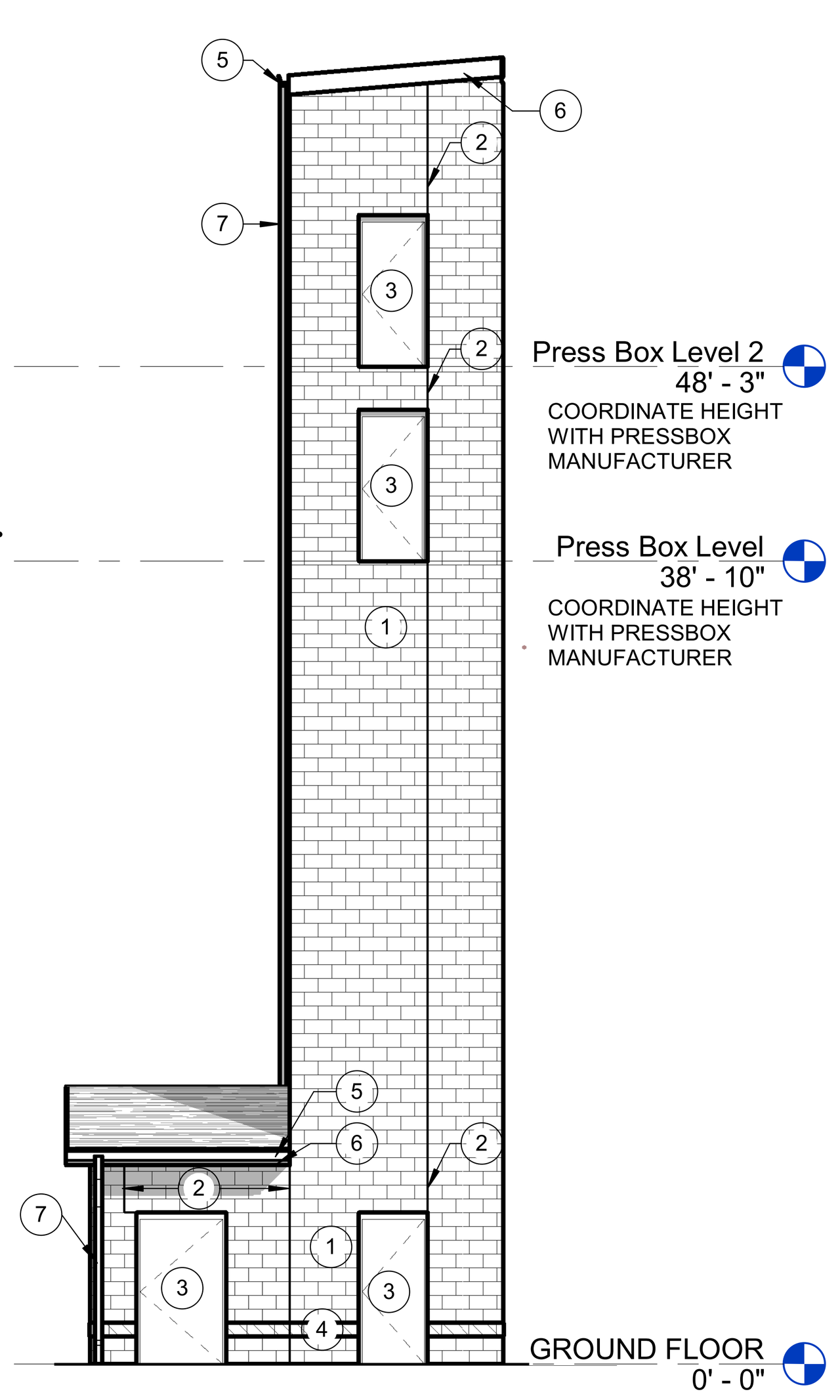
1B PRESS BOX LEVEL 1 & 2
1/4" = 1'-0"



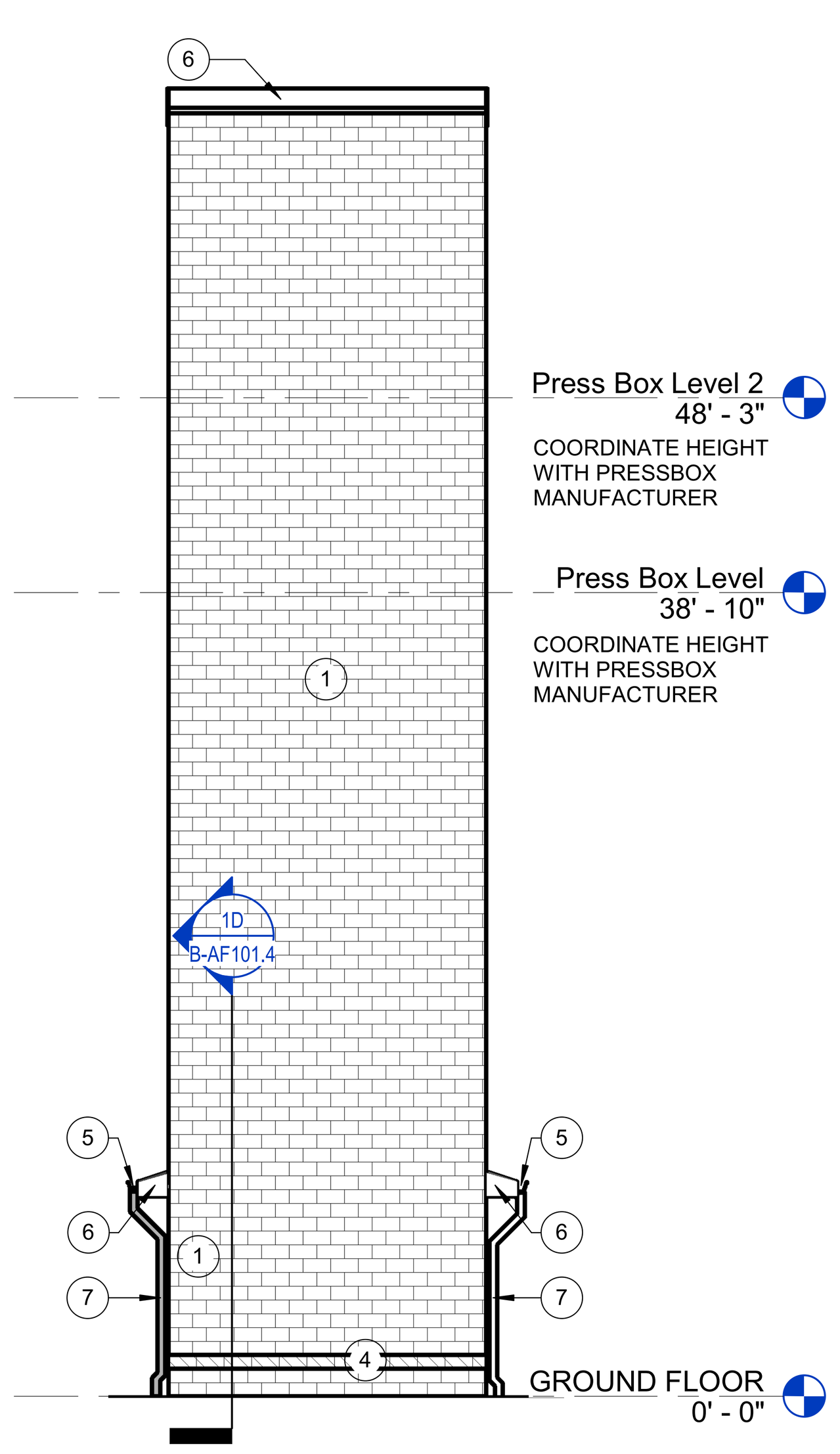
6B M8-D WALL TYPE
1 1/2" = 1'-0"



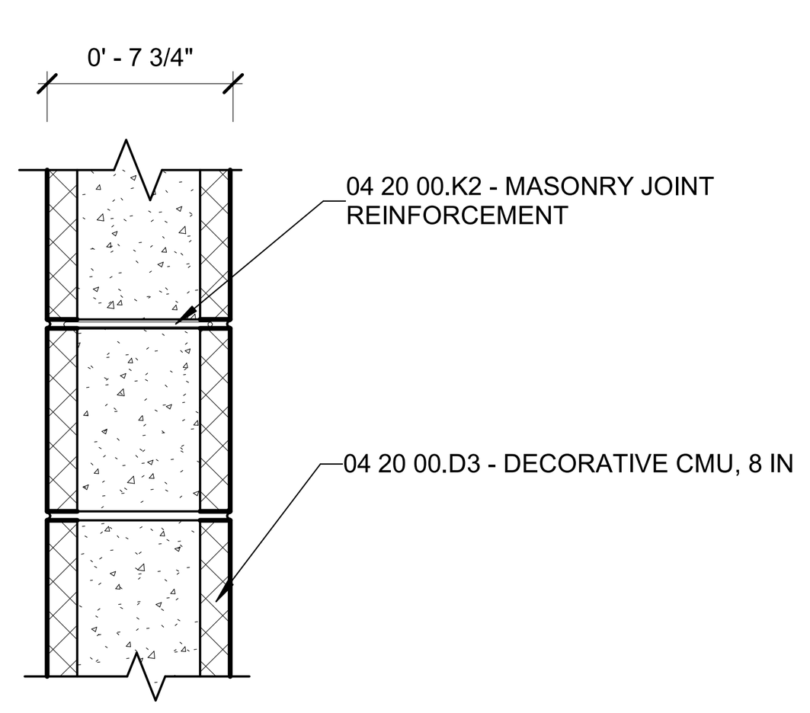
5B HEAD
1 1/2" = 1'-0"



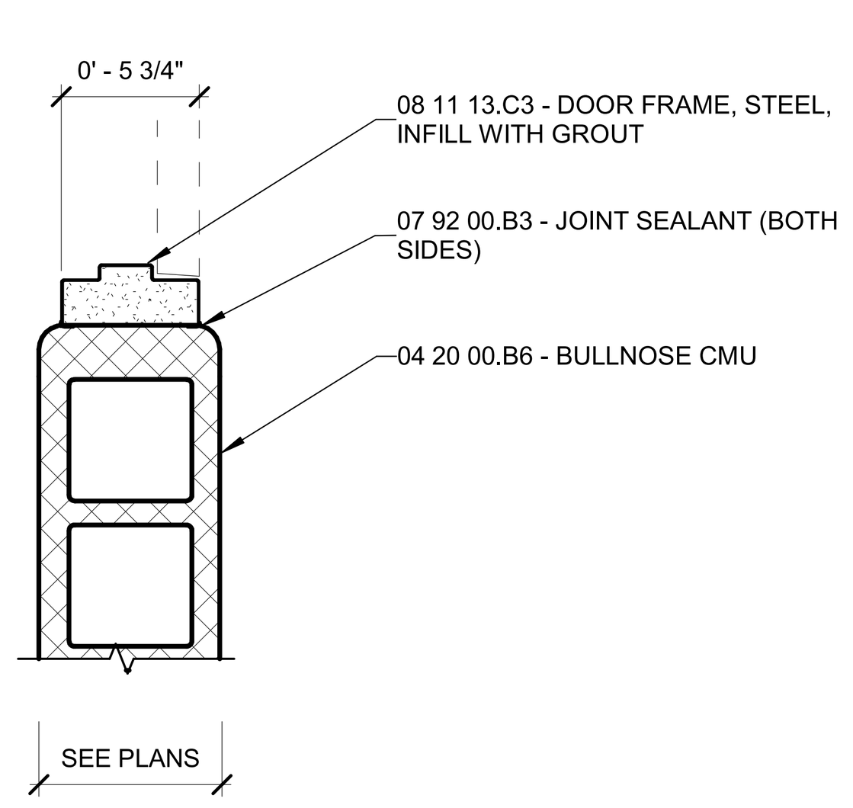
4A EAST ELEVATION
1/8" = 1'-0"



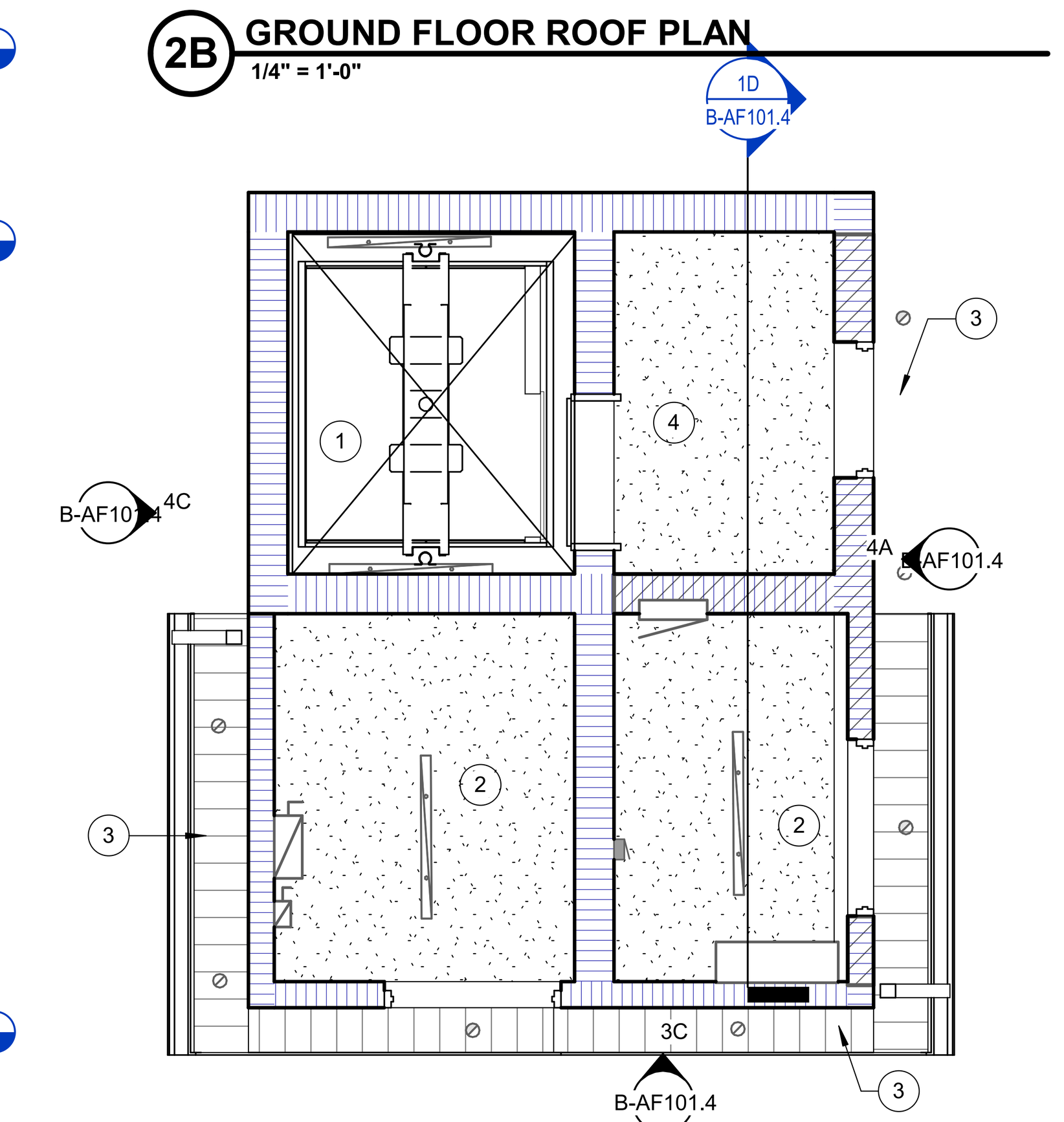
3A NORTH ELEVATION
1/8" = 1'-0"



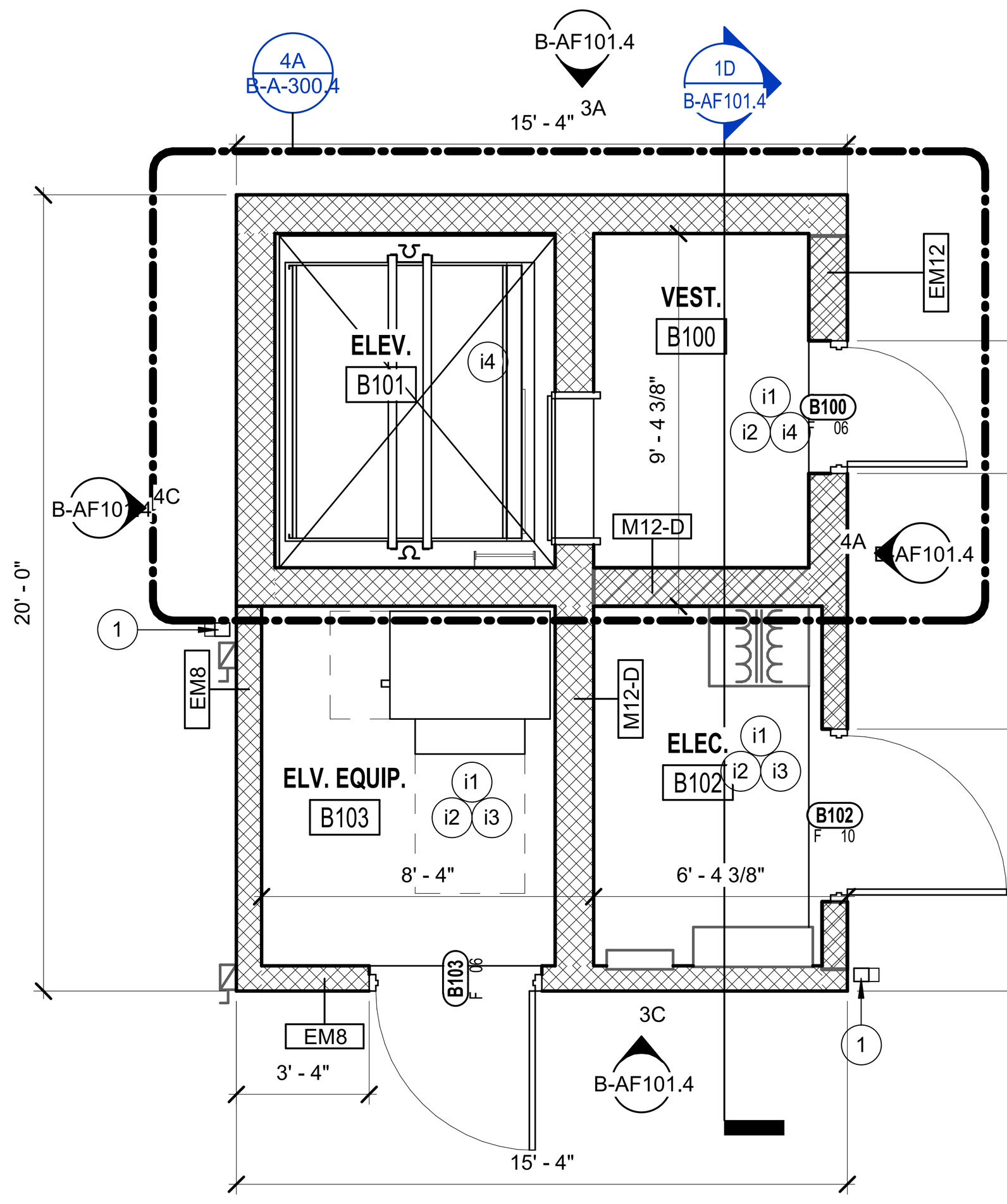
6A EM8 WALL TYPE
1 1/2" = 1'-0"



5A JAMB
1 1/2" = 1'-0"



2A GROUND FLOOR REFLECTED CEILING PLAN
1/4" = 1'-0"



1A GROUND FLOOR PLAN
1/8" = 1'-0"

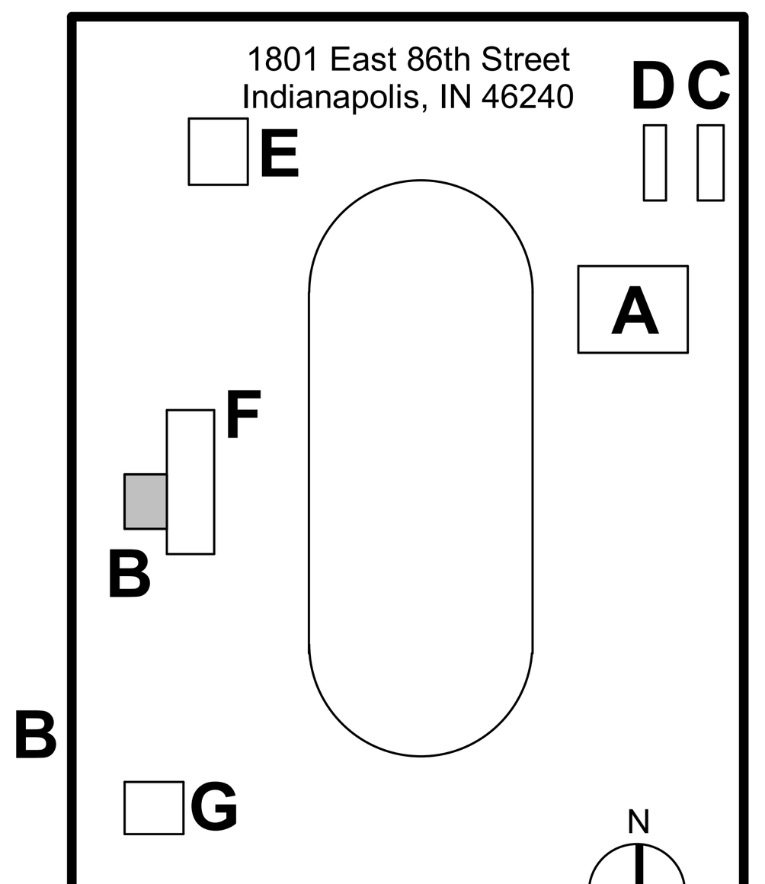
SCHMIDT ASSOCIATES
415 Massachusetts Avenue
Indianapolis, IN 46204
www.schmidt-arch.com

Project No. 2019-067.NCH
Project Date 07.27.2023
Bid Set 04
Produced SLS HEL

SARAH KATHLEEN HEMPSTEAD REGISTERED NO. AR10400134 STATE OF INDIANA ARCHITECT

#	Revision	Date
A1.4b	ADDENDUM #1.4b	08.17.2023

1801 East 86th Street
Indianapolis, IN 46240



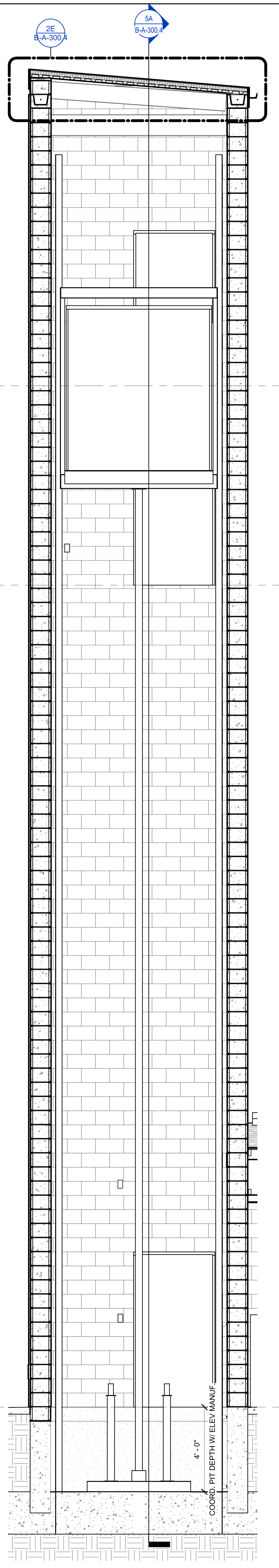
KEY PLAN

M.S.D of Washington Township

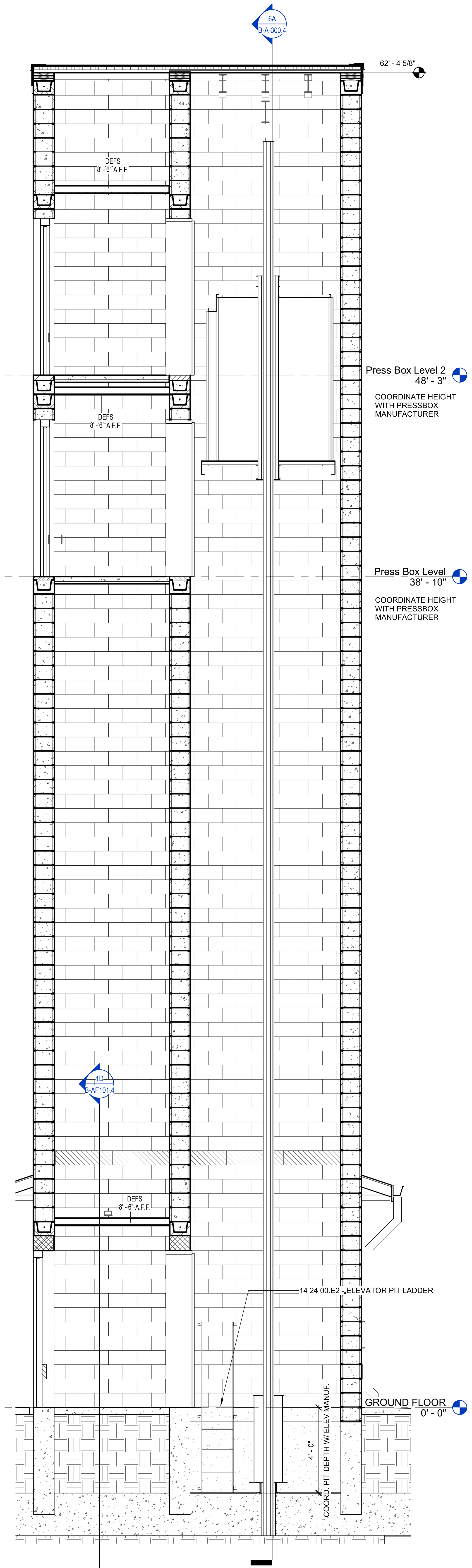
North Central High School Renovation - Field Improvements

ELEVATOR PLANS AND ELEVATIONS

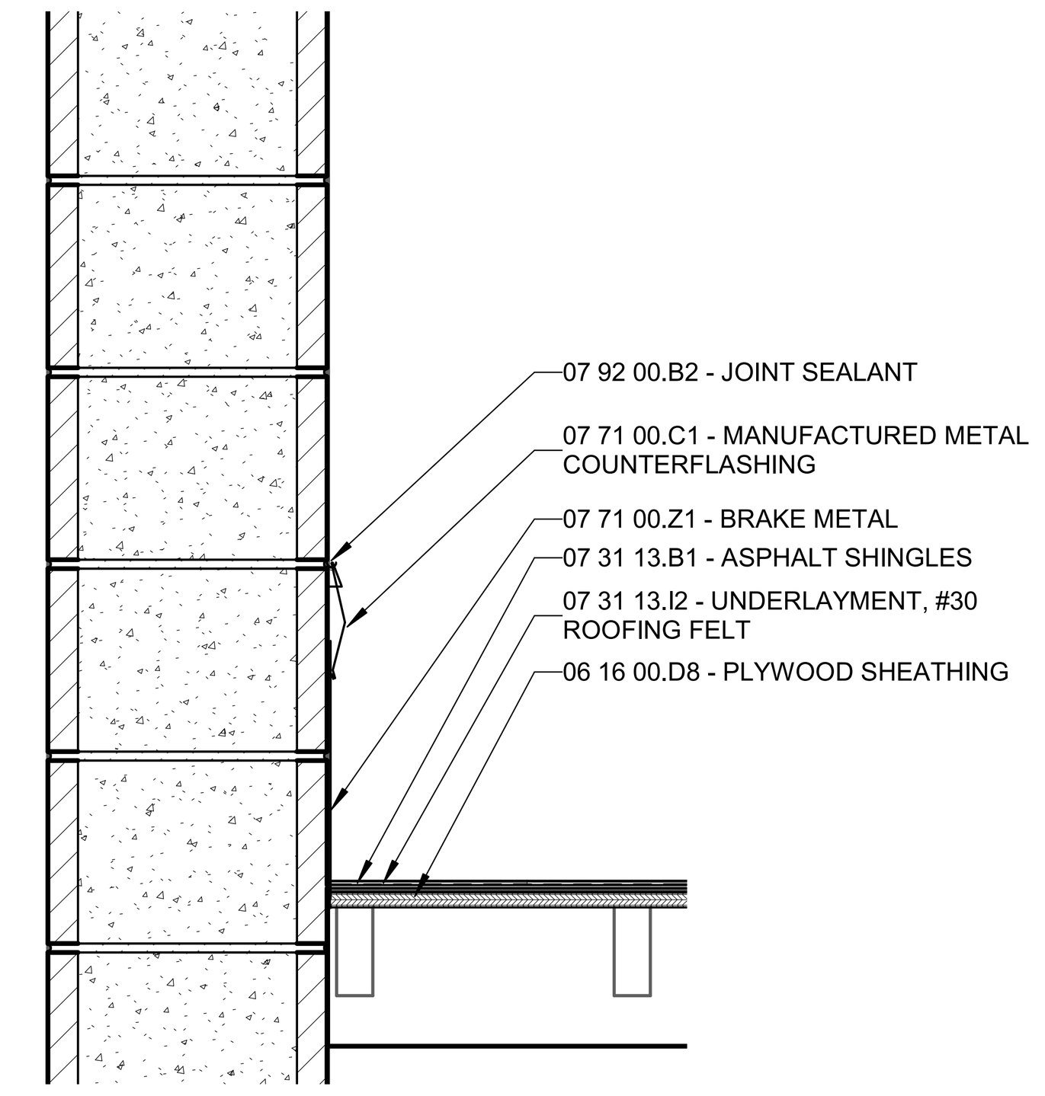
B-AF101.4



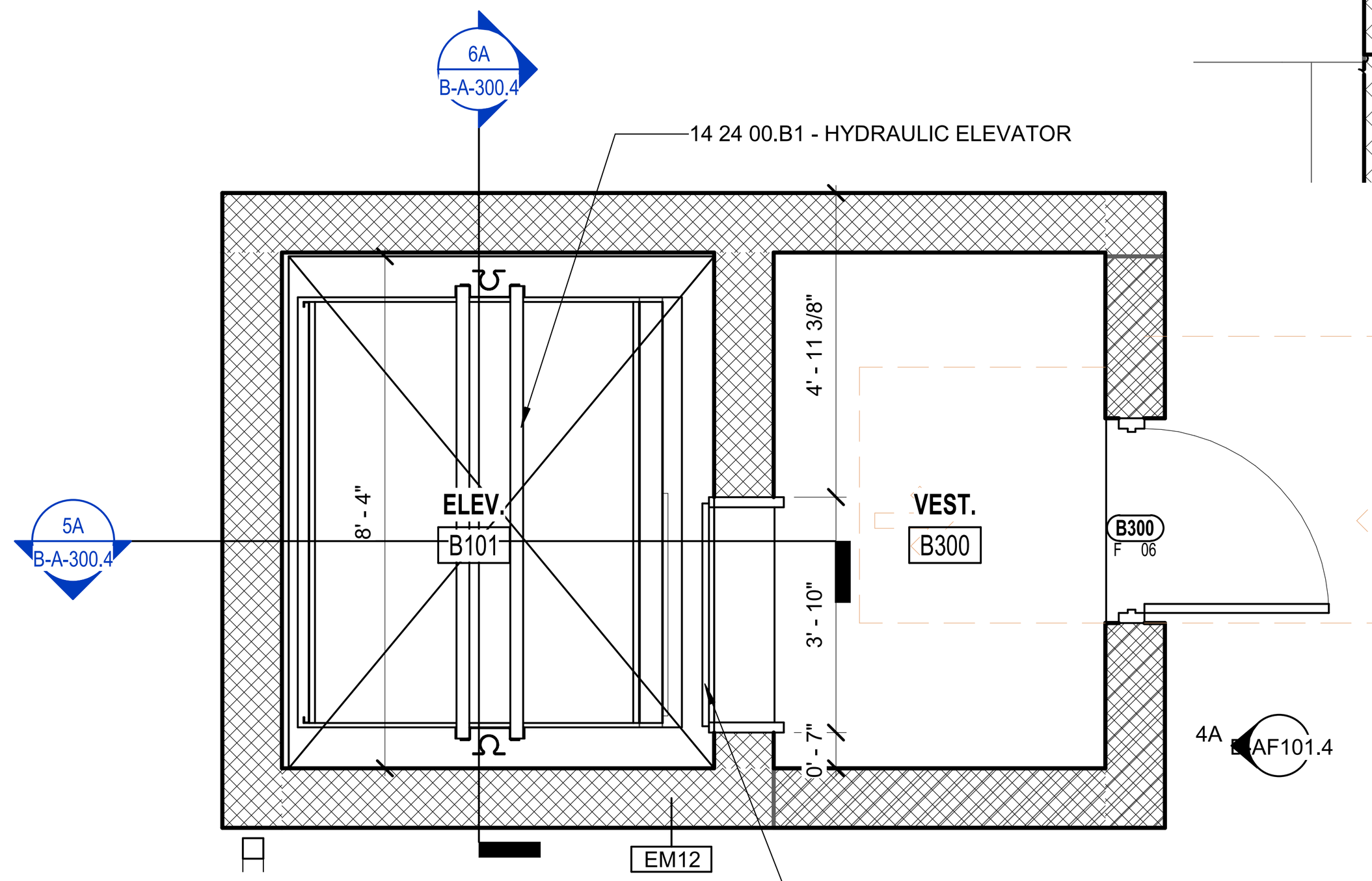
(6A) N/S ELEV. SECTION
3/8" = 1'-0"



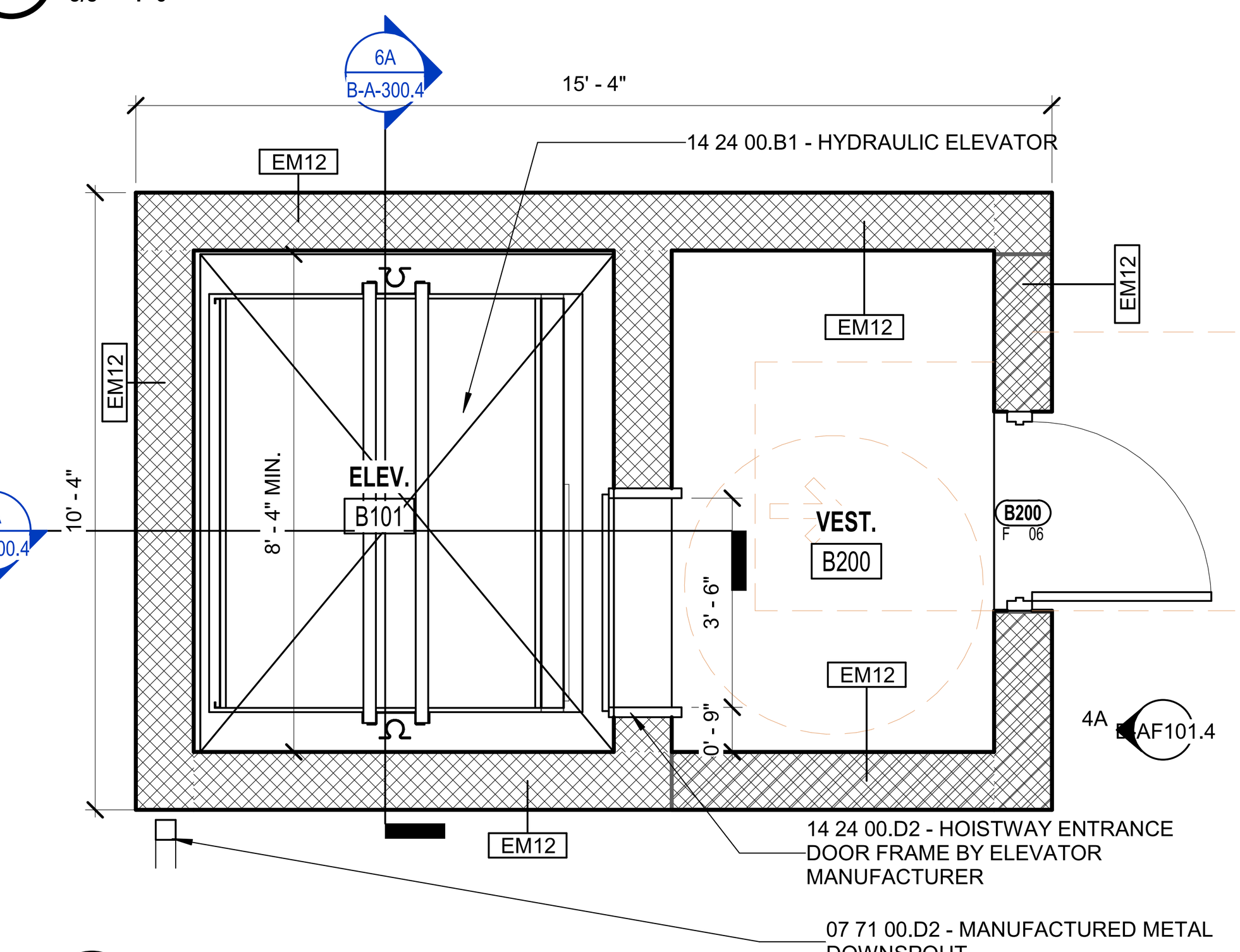
(5A) E/W ELEV. SECTION
3/8" = 1'-0"



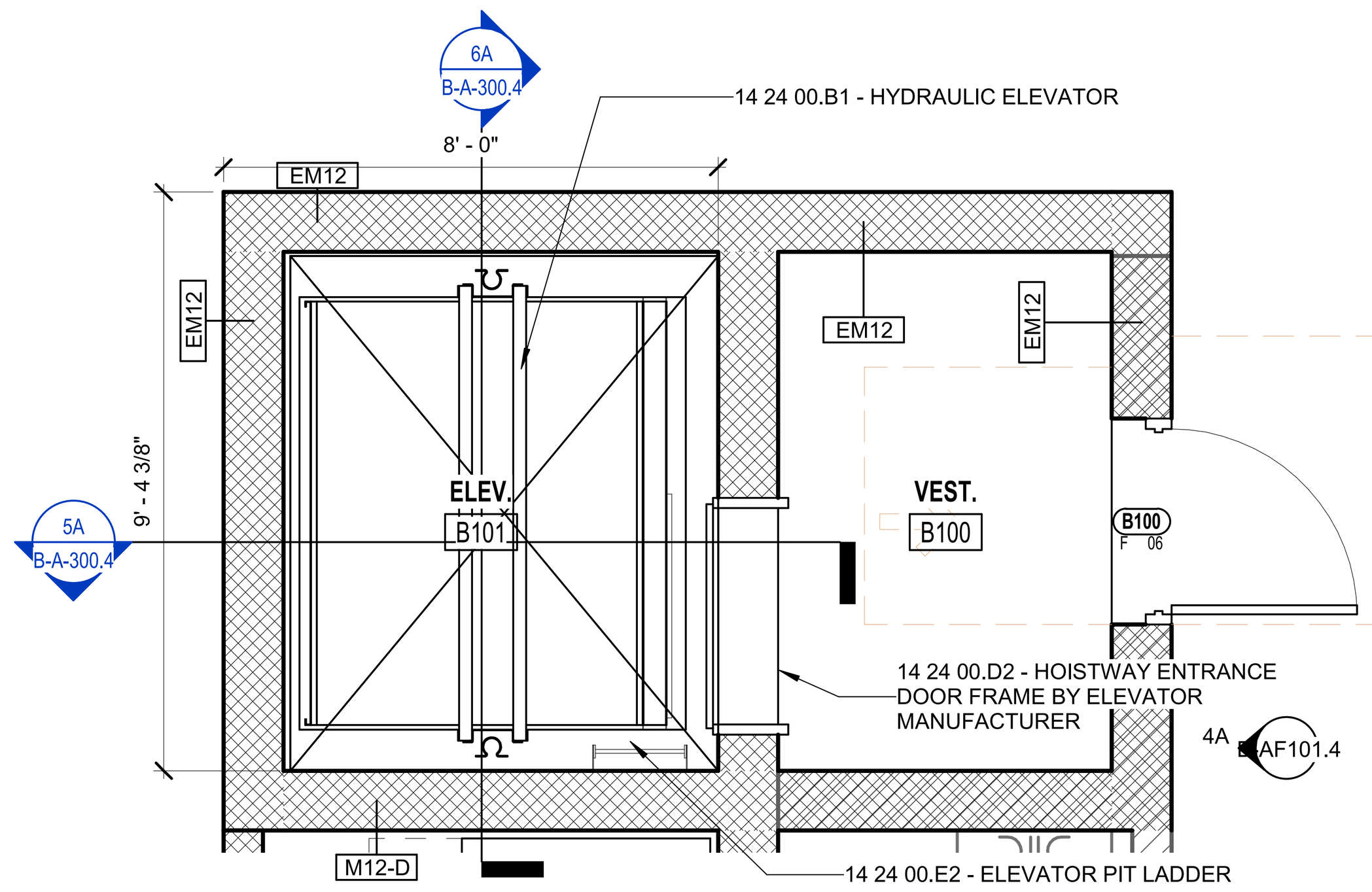
(4D) SECTION DETAIL @ ROOF TERMINATION
1 1/2" = 1'-0"



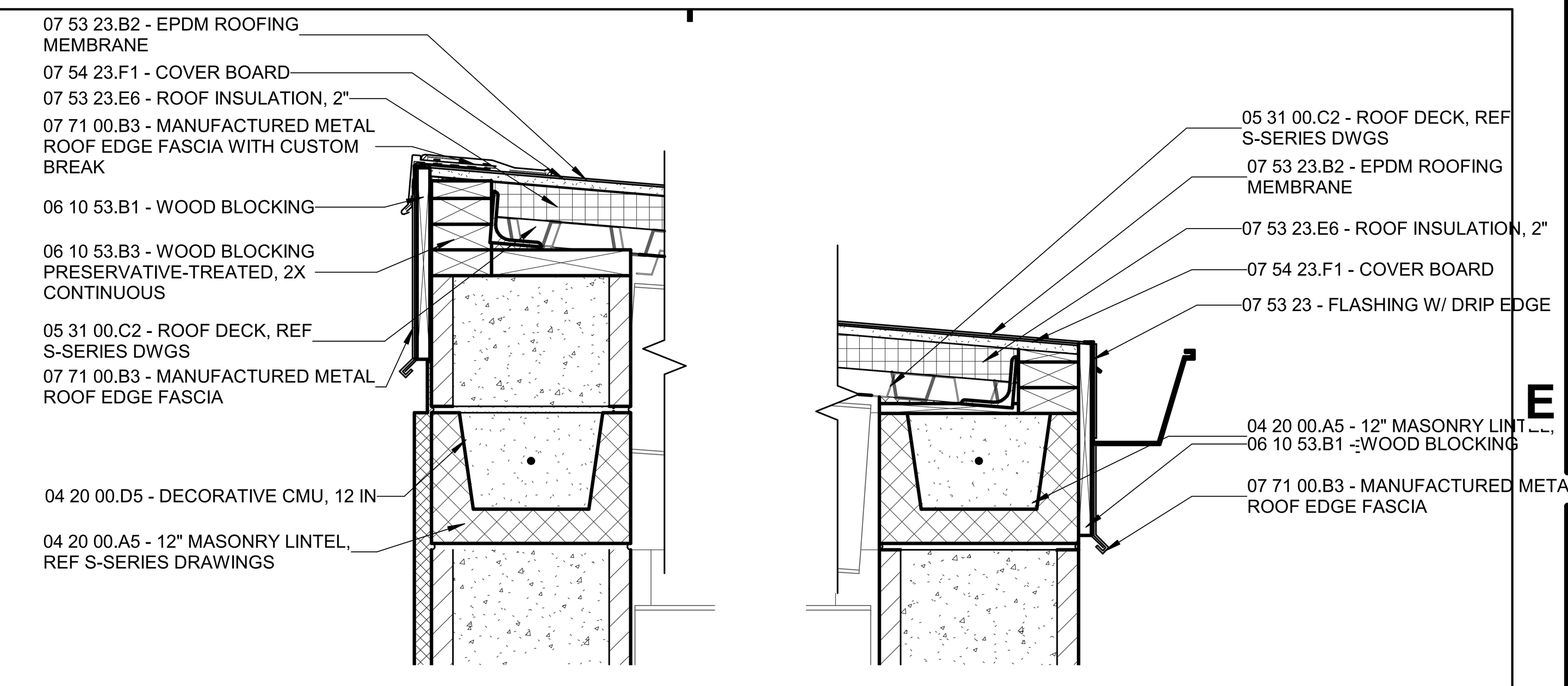
(4C) ENLARGED ELEV PRESS BOX LEVEL 2
3/8" = 1'-0"



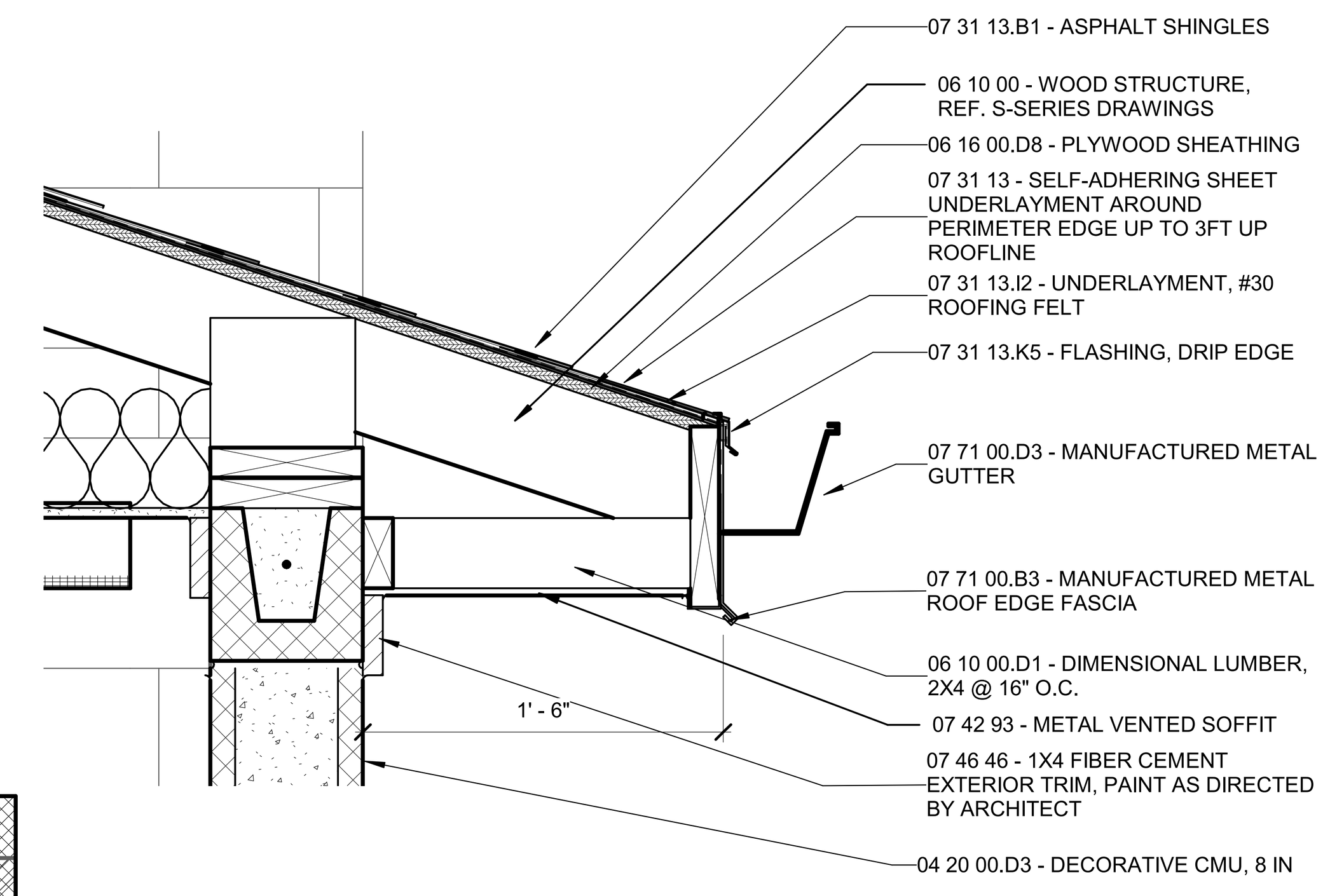
(4B) ENLARGED ELEV PRESS BOX LEVEL 1
3/8" = 1'-0"



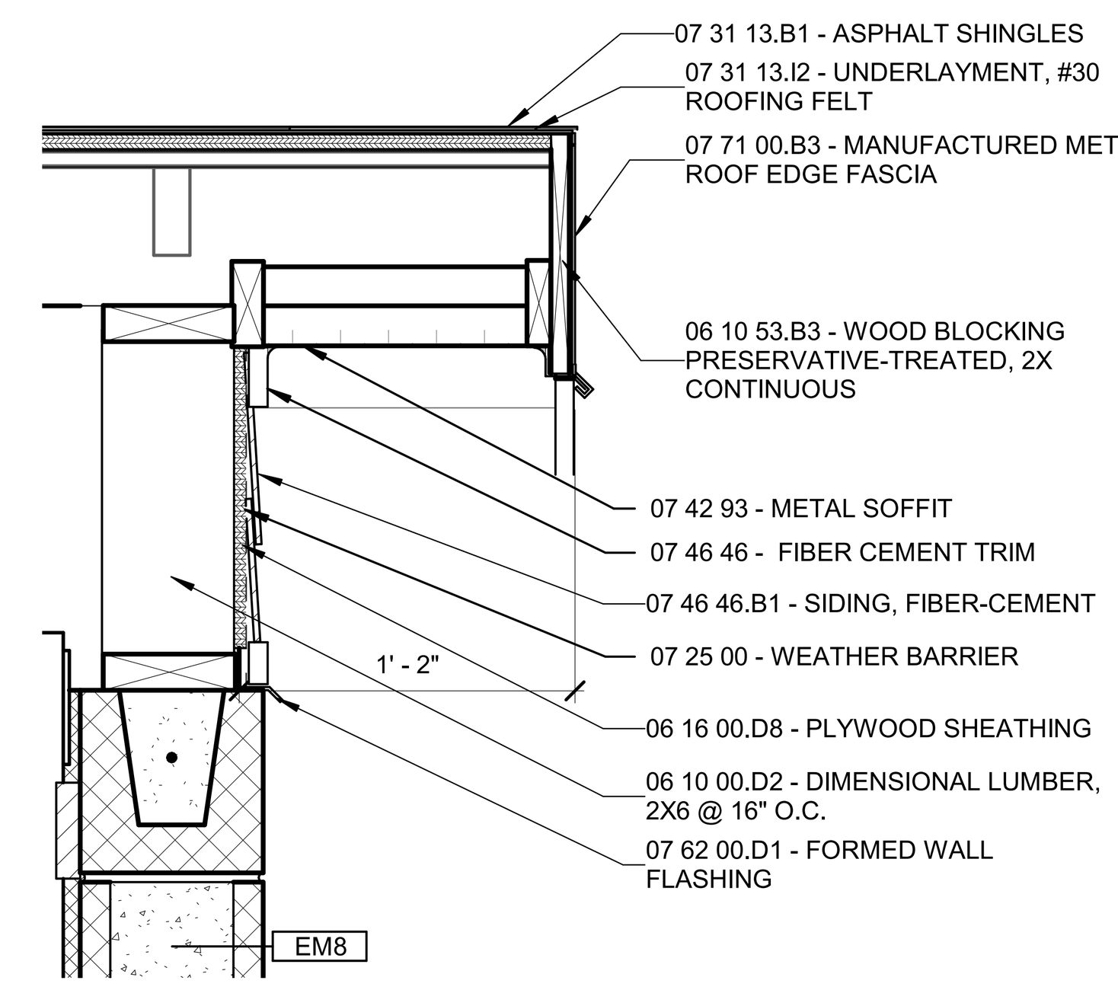
(4A) GROUND FLOOR PLAN ENLARGED ELEV. PLAN
3/8" = 1'-0"



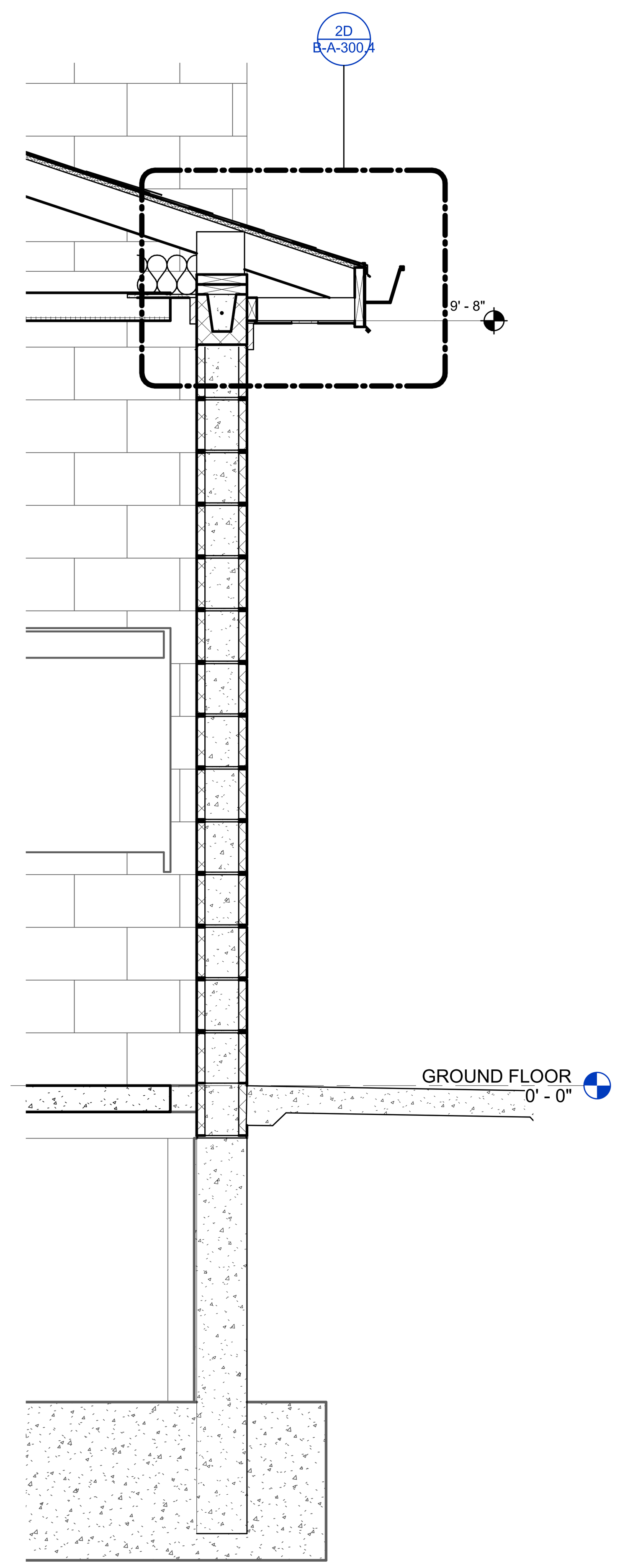
(2E) ELEVATOR SHAFT ROOF EDGE
1 1/2" = 1'-0"



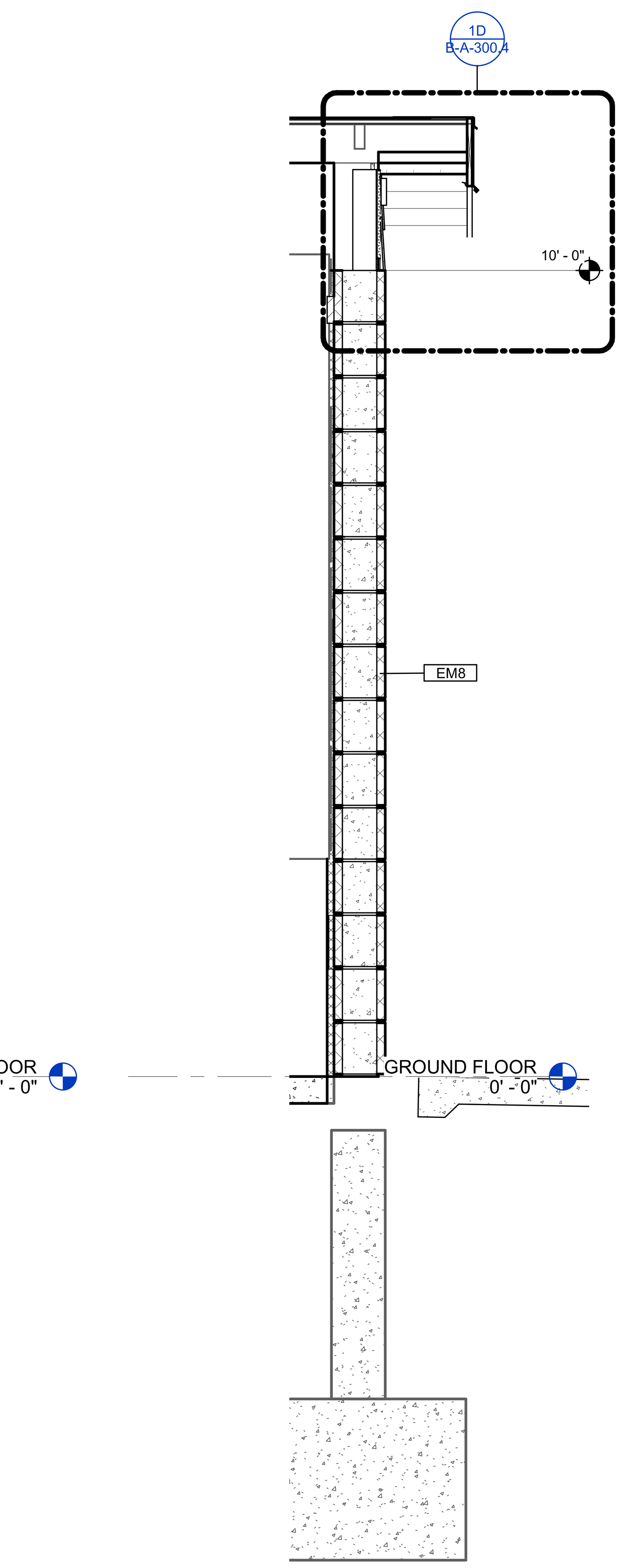
(2D) SOFFIT AND GUTTER DETAIL
1 1/2" = 1'-0"



(1D) WALL SECTION DETAIL
1 1/2" = 1'-0"



(3B) TYP WALL SECTION @ SOFFIT
3/4" = 1'-0"



(1B) WALL SECTION SOUTH WALL
3/4" = 1'-0"

SCHMIDT
ASSOCIATES
415 Massachusetts Avenue
Indianapolis, IN 46204
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SARAH KATHLEEN HEMPSTEAD
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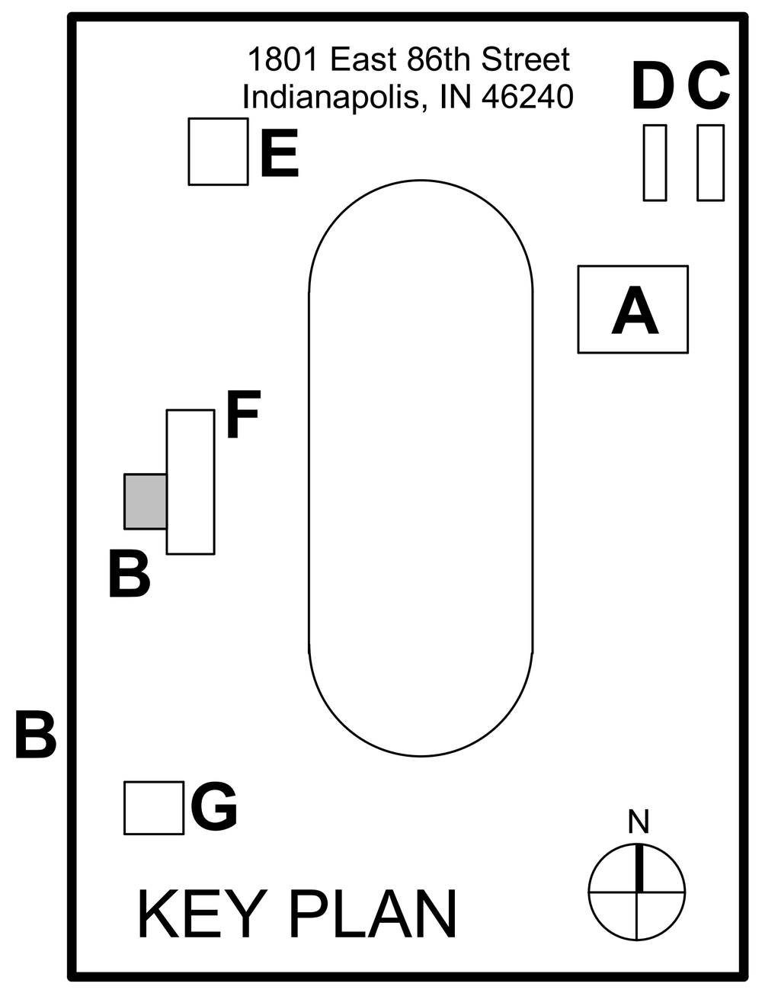
NO. AR10400134
STATE OF INDIANA
ARCHITECT

#	Revision	Date
A1.4b	ADDENDUM #1.4b	08.17.2023



KEY PLAN

M.S.D of Washington Township

North Central High School Renovation - Field Improvements

ELEVATOR BLDG SECTIONS & DETAILS

B-A-300.4

ELECTRIC CABINET UNIT HEATER SCHEDULE - VRR												
IDENTITY DATA				HEATING DATA			FAN DATA	ELECTRICAL DATA				
MARK	MANUFACTURER	MODEL	WEIGHT (LBS)	CAPACITY (KW)	TEMP RANGE (F)	BTU/HR	AIRFLOW (CFM)	VOLTS (V)	PH	FREQ (HZ)	FLA (A)	NOTES
EUH-01	QMARK	LFK404F	22	3.0	40-90	10,230	100	208	1	60	14.4	1-4
EUH-02	QMARK	LFK4083F	22	3.7	40-90	13,640	100	208	3	60	11.1	1-4
EUH-03	QMARK	LFK4883F	23	4.4	40-90	16,370	100	208	3	60	13.3	1-4
EUH-04	QMARK	LFK404F	22	2.7	40-90	10,230	100	208	1	60	14.4	1-4
EUH-05	QMARK	LFK151F	22	1.1	40-90	5,110	100	120	1	60	12.5	1-4
EUH-06	QMARK	LFK151F	22	1.1	40-90	5,110	100	120	1	60	12.5	1-4

ELECTRIC CABINET UNIT HEATER SCHEDULE NOTES:

1. DISCONNECT SWITCH BY MANUFACTURER. DISCONNECT SWITCH AND ALL INTERLOCK RELAYS TO BE INSTALLED WITHIN HEATER ENCLOSURE.
2. TAMPER-PROOF PLUG FOR THERMOSTAT HOLE.
3. 14 GAUGE SECURITY FRONT COVER.
4. 2" DEEP SURFACE MOUNTING FRAME FOR SEMI-RECESSED INSTALLATION.

233713 DIFFUSERS, REGISTERS, AND GRILLES							
IDENTITY DATA				NECK SIZE (IN)	MODULE SIZE		
MARK	DESCRIPTION	MANUFACTURER	MODEL	Ø	W	L	MATERIAL
EC12/12	EGG CRATE FACE RETURN	PRICE	80		12"	12"	ALUMINIUM
EC24/24	EGG CRATE FACE RETURN	PRICE	80		24"	24"	ALUMINIUM
SD12-8	SQUARE CONE DIFFUSER	PRICE	ASCDA	8"	12"	12"	ALUMINIUM
SD24-8	SQUARE CONE DIFFUSER	PRICE	ASCDA	8"	24"	24"	ALUMINIUM
SD24-12	SQUARE CONE DIFFUSER	PRICE	ASCDA	12"	24"	24"	ALUMINIUM

GENERAL HVAC NOTES

A. DARK LINES INDICATE NEW WORK.

B. LIGHT SOLID LINES INDICATE EXISTING MECHANICAL EQUIPMENT, DUCTWORK, PIPING, AND/OR MECHANICAL ACCESSORIES TO REMAIN AS-IS. CONTRACTOR TO FIELD VERIFY ACTUAL EXISTING CONDITIONS PRIOR TO BIDDING.

MECHANICAL HVAC PLAN NOTES	
#	NOTE
1	14" x 20" EA UP TO EF-1 ON ROOF.
2	14" x 20" OA FROM GV -1 ON ROOF.
3	INSTALL REFRIGERANT LINES PER MANUFACTURER'S INSTRUCTIONS.
4	5/8" CONDENSATE DRAIN TO DISCHARGE 3" ABOVE GRADE.

SPLIT SYSTEM SCHEDULE - VRR

INDOOR UNIT																
IDENTITY DATA				DIMENSIONS			COOLING CAPACITY				AIRFLOW DATA					
MARK	MANUFACTURER	MODEL	WEIGHT (LBS)	L	W	H	TOTAL (BTUH)	SHF	SENSIBLE (BTUH)	HEATING CAPACITY (BTUH)	MIN (CFM)	MAX (CFM)	SPEEDS	EXT. STATIC (IN-WG)	COND. PUMP
SS-1	MITSUBISHI	TPKA0A0121HA70A	29	35.375	9.8	11.6	12,000	0.81	9,720	-	290	425	3	-	YES

OUTDOOR UNIT																				
IDENTITY DATA				COOLING DATA			HEATING DATA		ENERGY DATA				ELECTRICAL DATA						
MARK	MODEL	SERVES	WEIGHT (LBS)	NOMINAL (BTUH)	SUM. AMB. (°F)	WIN. AMB. (°F)	CAPACITY (BTUH)	AMB. (°F)	COP	EER	SEER	REF. TYPE	VOLTS (V)	PH	FREQ (HZ)	MCA (A)	MOCP (A)	DISCONNECT PROVIDER	NOTES
SSCU-1	TRUYA0121KA70NA	SS-1	92	12,000	115	-40	-	-	-	12.0	20.8	R410A	208	1	60	11	28	MANUFACTURER	1-4

SPLIT SYSTEMS UNIT SCHEDULE NOTES:

1. DISCONNECT PROVIDED BY DIV. 26, LOCATED NEAR INDOOR UNIT. ALL INTERLOCKING WIRING BETWEEN INDOOR UNIT AND OUTDOOR UNIT PROVIDED BY DIVISION 23. ALL MAIN POWER WIRING PROVIDED BY DIVISION 26.
2. OPTIONAL LOW AMBIENT WIND BAFFLE KIT.
3. SPLIT SYSTEM OPERATES AS COOLING-ONLY, YEAR-ROUND.
4. PROVIDE MINI CONDENSATE PUMP WITH RESERVOIR AND SENSOR.

EXHAUST FAN SCHEDULE - VRR																	
IDENTITY DATA				FAN DATA							SOUND CRITERIA		ELECTRICAL DATA				
MARK	MANUFACTURER	MODEL	WEIGHT (LBS)	FAN TYPE	DRIVE TYPE	AIRFLOW (CFM)	ESP (IN-WG)	RPM	HP	BHP	SONES	DBA	VOLTS (V)	PH	FREQ (HZ)	UNIT CONTROL	NOTES
EF-1	LOREN COOK	150C11D	31	DOWNBLAST CENTIFUGAL	DIRECT	1865	0.57	1140	0.50	0.33	11	61	120	1	60	TOGGLE	1-4

EXHAUST FAN SCHEDULE NOTES:

1. DISCONNECT BY MANUFACTURER.
2. MANUFACTURER TO PROVIDE MOTORIZED BACKDRAFT DAMPER.
3. MINIMUM 16" CURB ON SHORT SIDE OF SLOPING ROOF.
4. REFERENCE ELECTRICAL PLANS FOR TOGGLE SWITCH LOCATION.

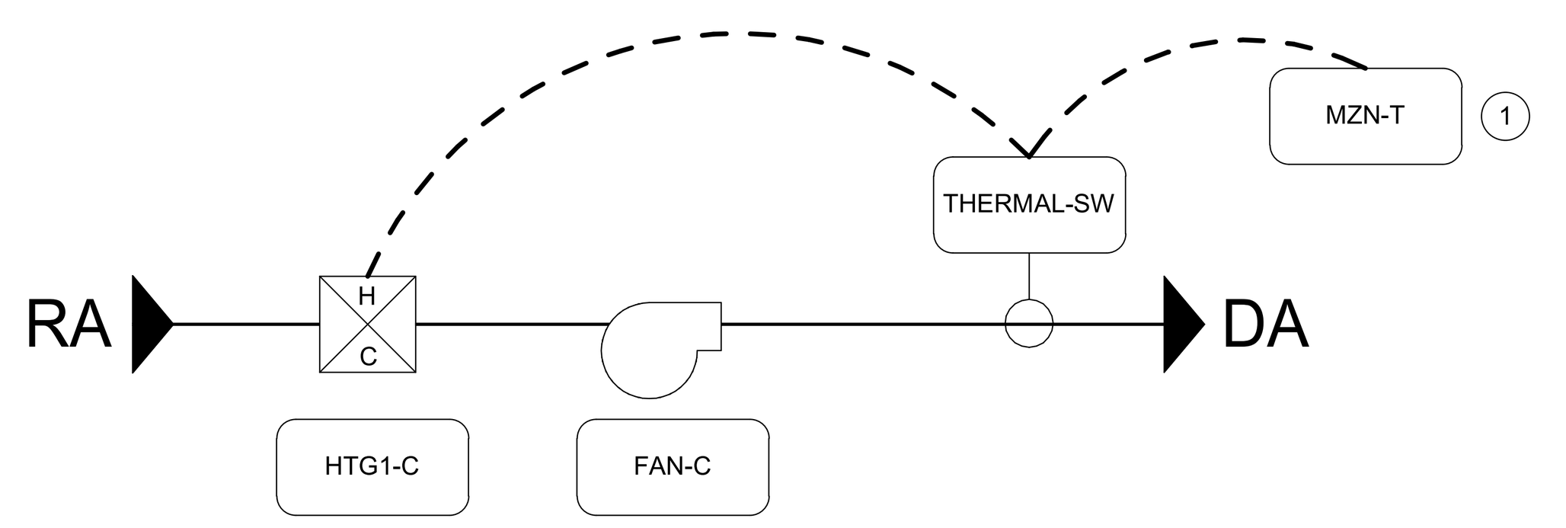
A1

GRAVITY VENTILATOR SCHEDULE - VRR											
IDENTITY DATA					HOOD DATA		THROAT DATA				
							DIMENSIONS (IN.)				
MARK	MANUFACTURER	MODEL	AIRFLOW	WEIGHT (LBS)	AIRFLOW (CFM)	TSP (IN-WG)	L	W	H	DAMPER	NOTES
GV-1	LOREN COOK	24 TR Intake	INTAKE	133	1,800	0.0	43	43	24	MOTORIZED	1-4

A1 A1

GRAVITY VENTILATOR SCHEDULE NOTES:

1. "IH" = INTAKE HOOD. "RH" = RELIEF HOOD.
2. SEE DETAIL 1A/A-M-501.4.
3. ROOF CURB SHALL BE PROVIDED BY HOOD MANUFACTURER.
4. DAMPER SHALL BE PROVIDED BY HOOD MANUFACTURER. ACTUATOR, WHERE APPLICABLE, SHALL BE PROVIDED BY T.C.C.; REFER TO M-700 SERIES DRAWINGS.



SCHEMATIC NOTES:

(1) MANUFACTURER SHALL PROVIDE INTEGRAL THERMOSTAT FOR CONTROL

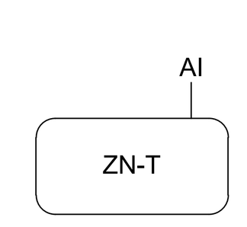
ELECTRIC CABINET UNIT HEATER SEQUENCE OF OPERATION

ZONE TEMPERATURE CONTROL: THE MANUFACTURER DOUBLE POLE THERMOSTAT (MZN-T) WILL ENABLE THE CABINET HEATER FAN TO RUN WHEN THE TEMPERATURE DROPS BELOW THE HEATING SETPOINT. A MANUAL RESET THERMAL CUTOUT SWITCH AND ONE SHOT THERMAL FUSE SHALL PREVENT ELECTRIC HEATING OPERATION DUE TO AIRFLOW RESTRICTION OR OTHERWISE. WHEN ENABLED BY THE SAFETY LOGIC, THE HEATING SHALL CYCLE AS REQUIRED TO MAINTAIN THE ZONE TEMPERATURE AT 52F (ADJ). UTILIZE A 2F DEADBAND TO PREVENT SHORT CYCLING. CIC TO PERFORM TCC CONTROL DEVICE INSTALLATION AND WIRING. CIC RESPONSIBLE TO ROTATE MANUFACTURER THERMOSTAT SETPOINT KNOB TO ACHIEVE 52F.

5C ELECTRIC CABINET UNIT HEATER EUH-1,2,3,4,5,6
NOT TO SCALE

A1

	Hardware Points				Software Points						
Point Name	AI	AO	BI	BO	AV	BV	Loop	Sched	Trend	Alarm	Show On Graphic
Space Temperature (ZN-T)	x								x		x
Low Space Temperature (<32F)						x			x	x	
High Space Temperature (>90F)						x			x	x	

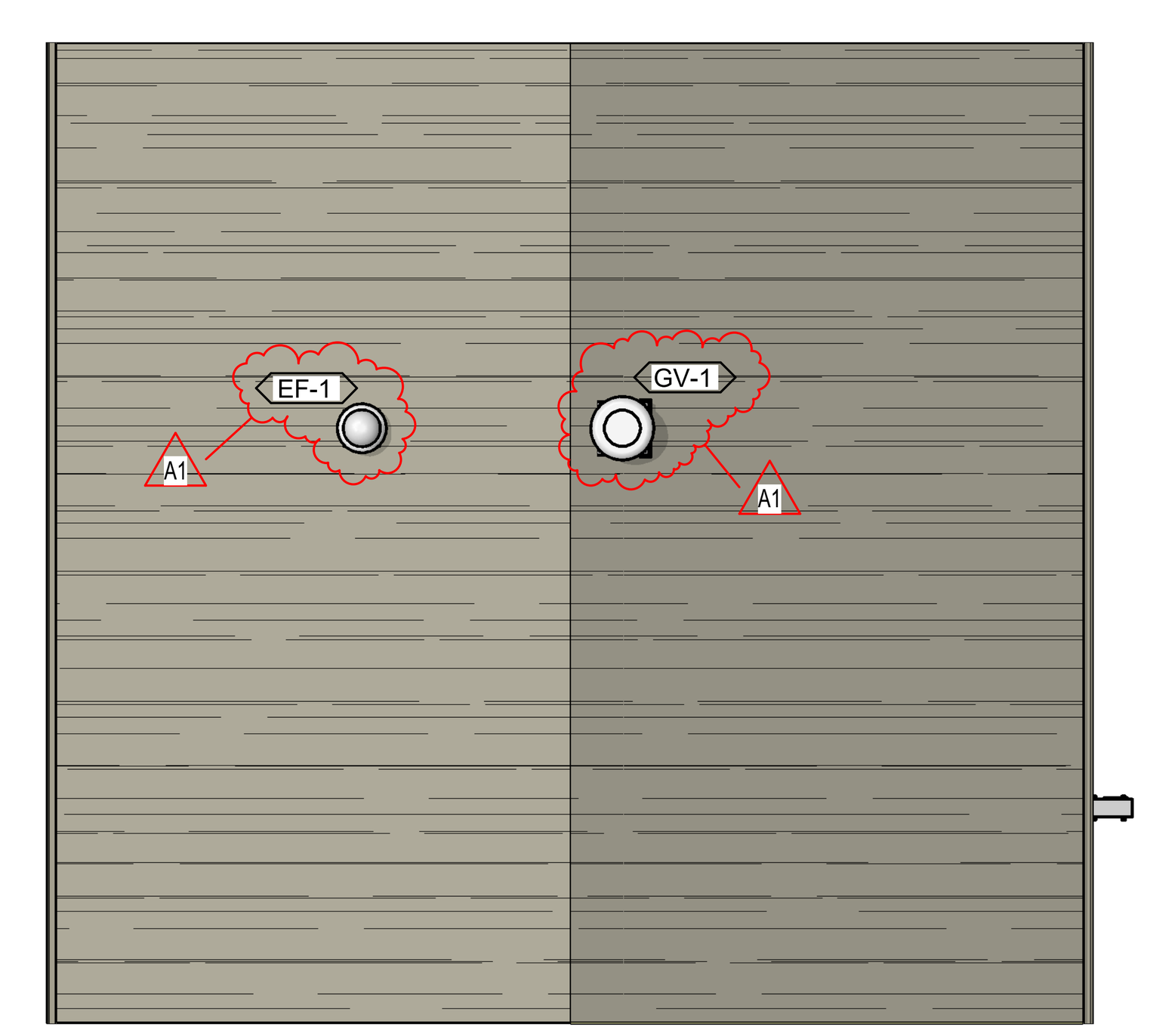


CONTROLS INSTALLATION CONTRACTOR (CIC) MISCELLANEOUS REQUIREMENTS

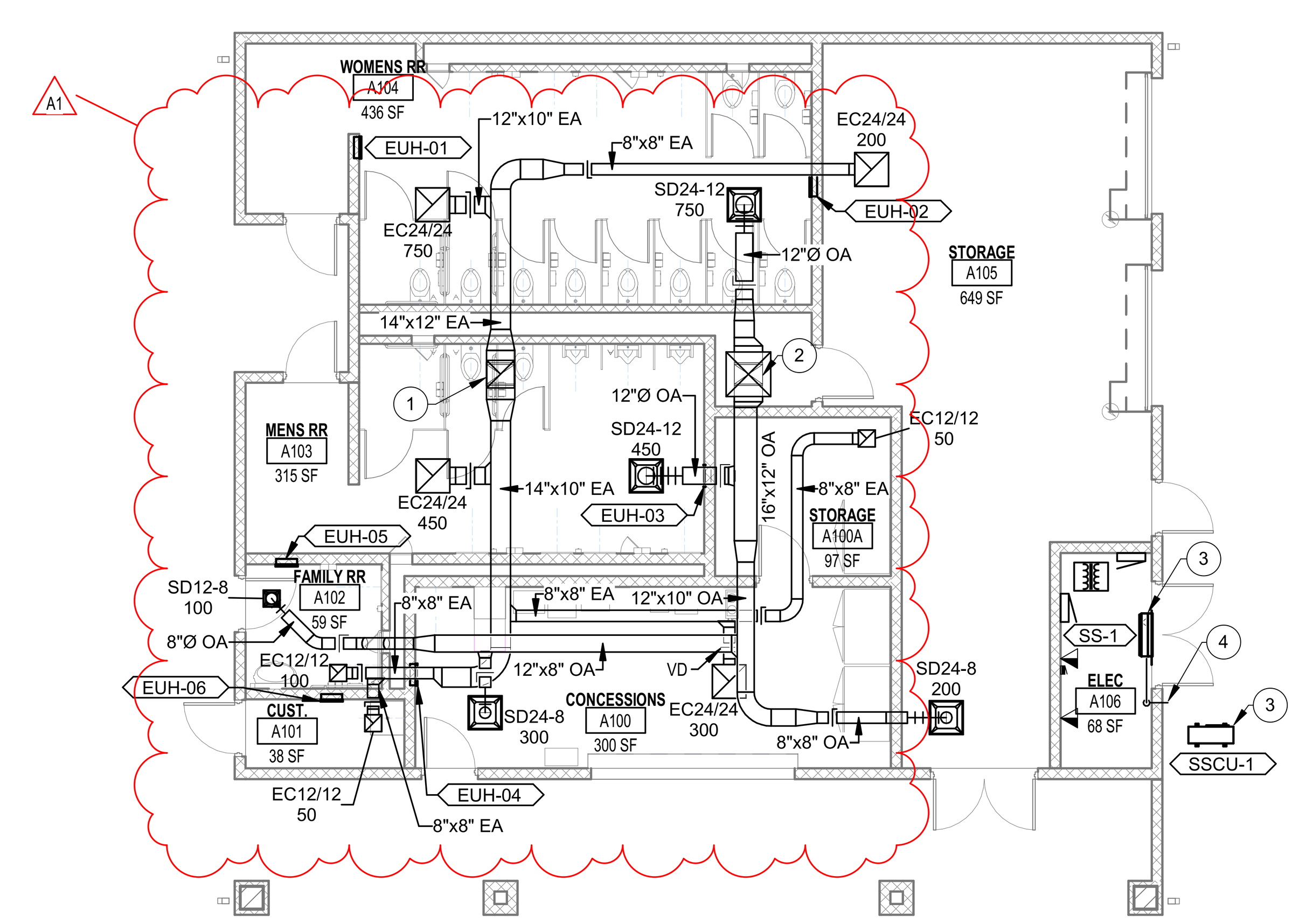
SPLIT SYSTEM ROOM CONTROL: CIC SHALL REFERENCE THE MECHANICAL SCHEDULE AND DRAWINGS TO FIELD INSTALL AND CONFIGURE THE SPACE TEMPERATURE SENSOR PROVIDED BY THE SPLIT SYSTEM MANUFACTURER PER OWNER INFORMATION SYSTEM STANDARDS. SETPOINT SHALL BE ADJUSTABLE BY THE OCCUPANT WITH LOCAL FEEDBACK OF SPACE TEMPERATURE AND SETPOINT.

SPLIT SYSTEM ROOM MONITORING: CIC SHALL INSTALL TCC PROVIDED FLAT PLATE SPACE TEMPERATURE SENSOR (ZN-T) FOR MONITORING AND ALARM PURPOSES ONLY. TCC LOGIC SHALL GENERATE AN ALARM IF THE SPACE TEMPERATURE RISES ABOVE 90F (ADJ) OR FALLS BELOW 32F (ADJ). TCC SHALL PROVIDE ETHERNET LEVEL CONTROLLER WITHIN A PANEL FOR CIC TO MOUNT IN THE SPACE SERVED BY THE SPLIT SYSTEM, LAND ETHERNET, AND TEMPERATURE SENSOR. DIVISION 26 CONTRACTOR SHALL PROVIDE THE 120 VAC CIRCUIT POWER FOR THE PANEL. CIC SHALL LAND THE POWER PER TCS DRAWINGS. CIC SHALL PULL AND LAND ETHERNET TO THE LOCAL BUILDING NETWORK SWITCH AFTER COORDINATION WITH THE OWNER.

5A SPLIT SYSTEM MISCELLANEOUS SCOPE OF WORK
NOT TO SCALE



3A MECHANICAL HVAC ROOF PLAN
3/32" = 1'-0"



1A MECHANICAL HVAC PLAN
1/8" = 1'-0"

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A1	ADDENDUM 1.4b	08.17.2023

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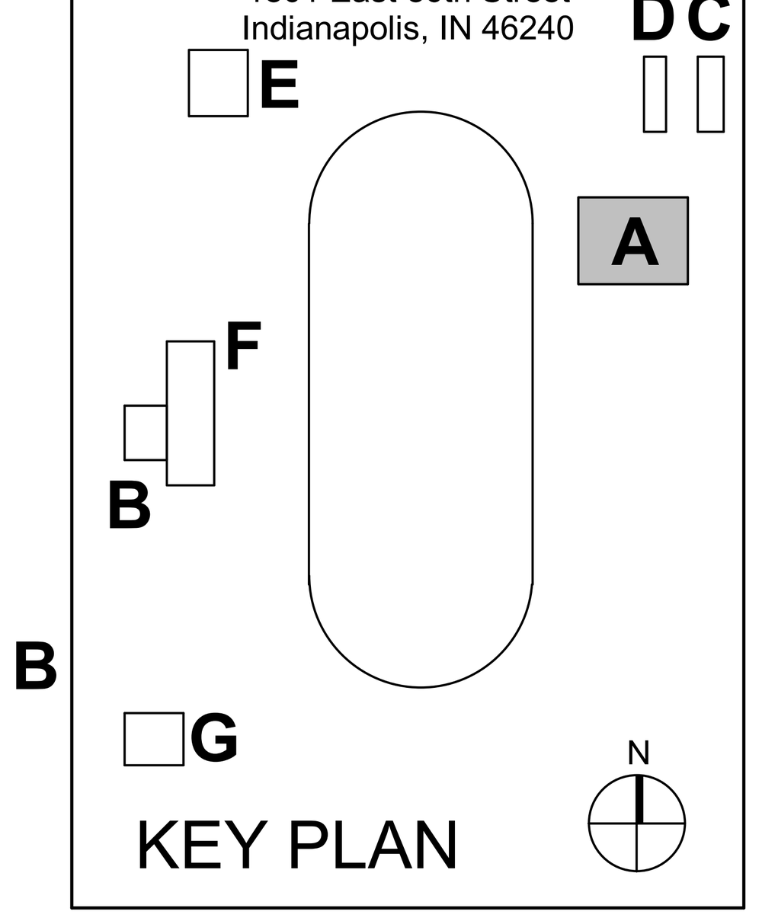


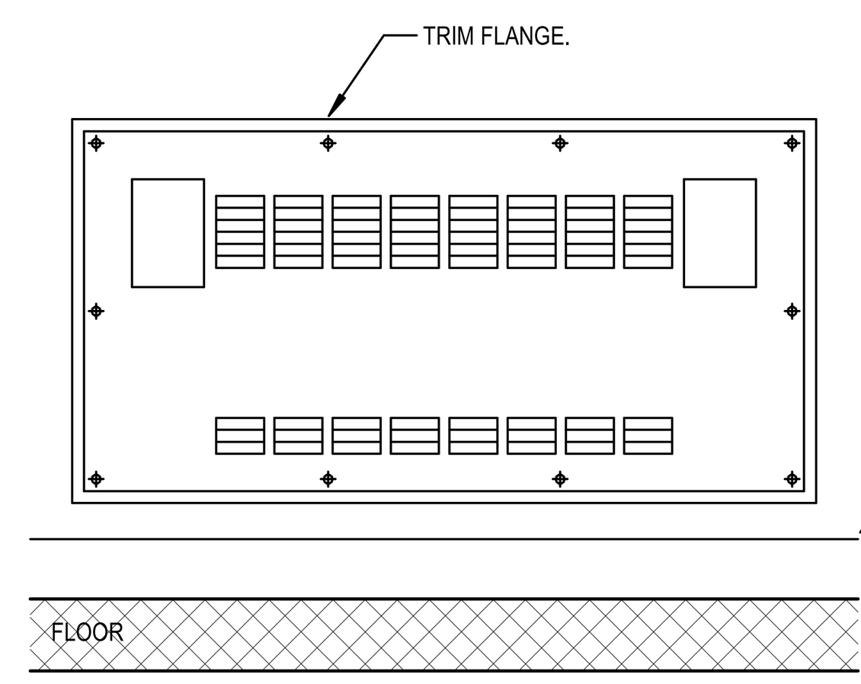
KEY PLAN

M.S.D. of Washington Township

North Central High School Renovation - Field Improvements

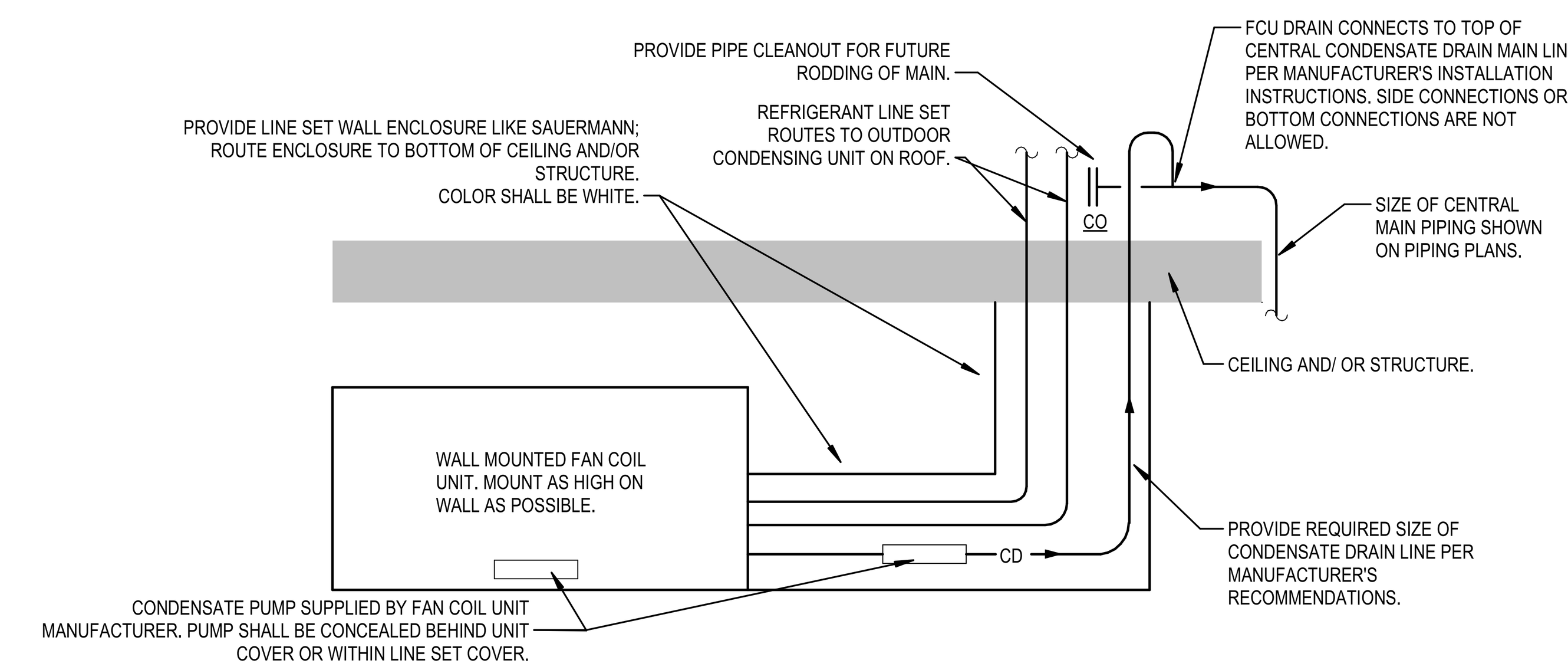
FIRST FLOOR HVAC PLAN

A-MH101.4

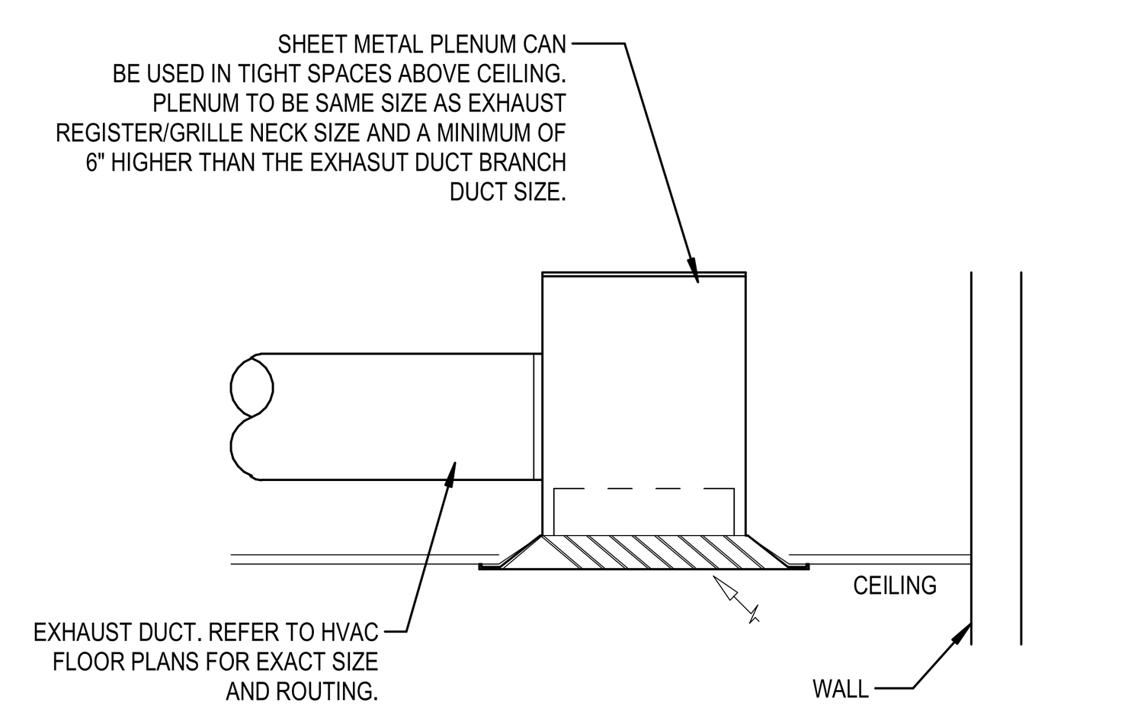


NOTES:
1. ADJUST INSTALLED HEIGHT OF THE CONCEALED VERTICAL FAN COIL UNIT TO BE 3" ABOVE WALL BASE.
2. PANEL TO BE ATTACHED TO TRIM FLANGE, NOT DIRECTLY TO WALL.
3. DO NOT OVER TIGHTEN PANEL FINISH SCREWS TO AVOID PUCKERING OF PANEL.
4. REFER TO MANUFACTURERS INSTALLATION MATERIAL.
5. PROVIDE SECURITY SCREWS/LOCKS ON ALL ACCESS DOORS.
6. COLOR AS SELECTED BY ARCHITECT.

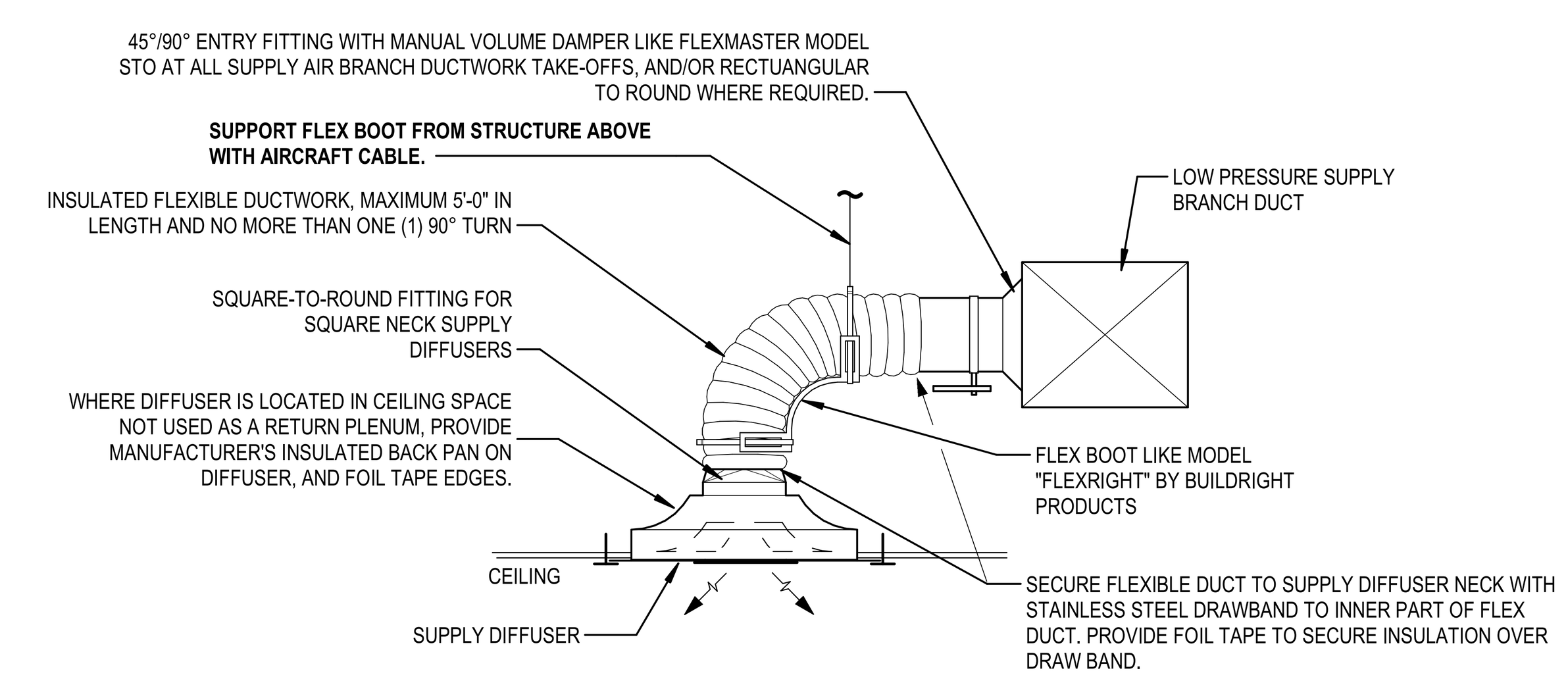
3C RECESSED WALL MOUNTED CUH OR FCU INSTALLATION DETAIL
NOT TO SCALE



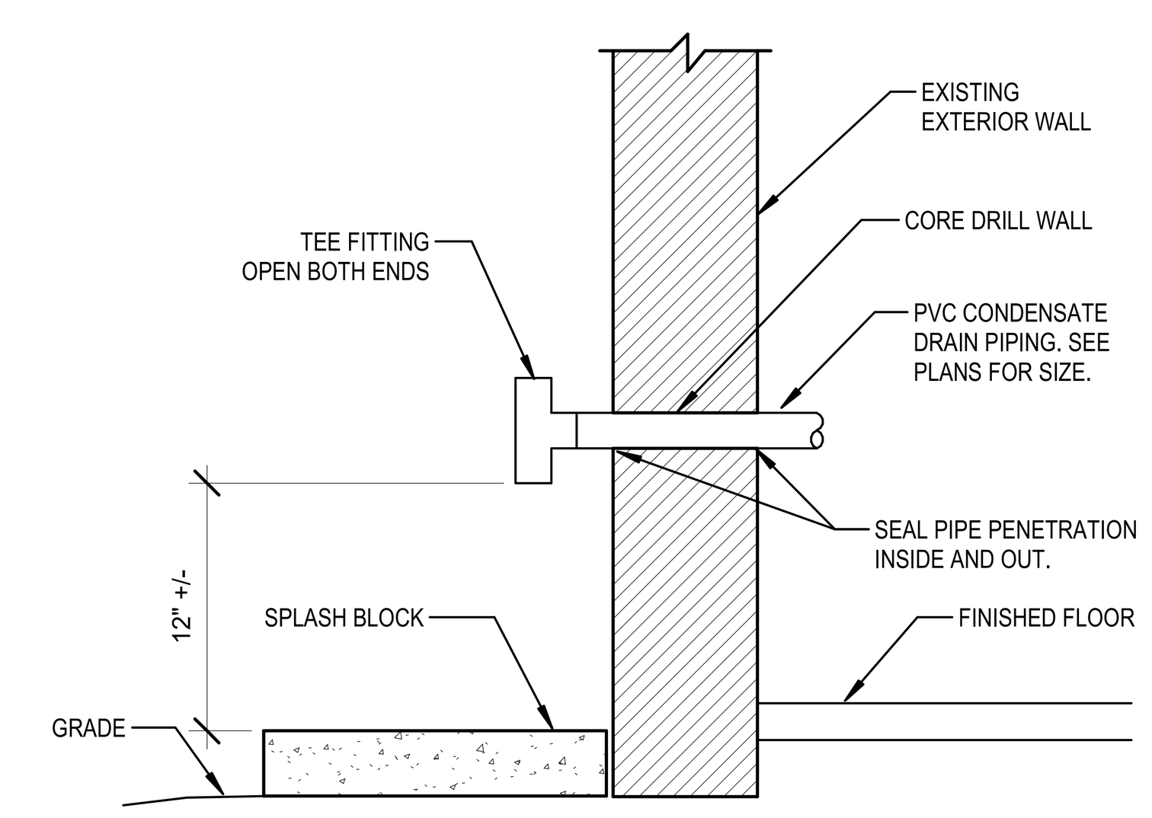
1C SPLIT SYSTEM WALL MOUNTED FAN COIL UNIT PIPING DIAGRAM
NOT TO SCALE



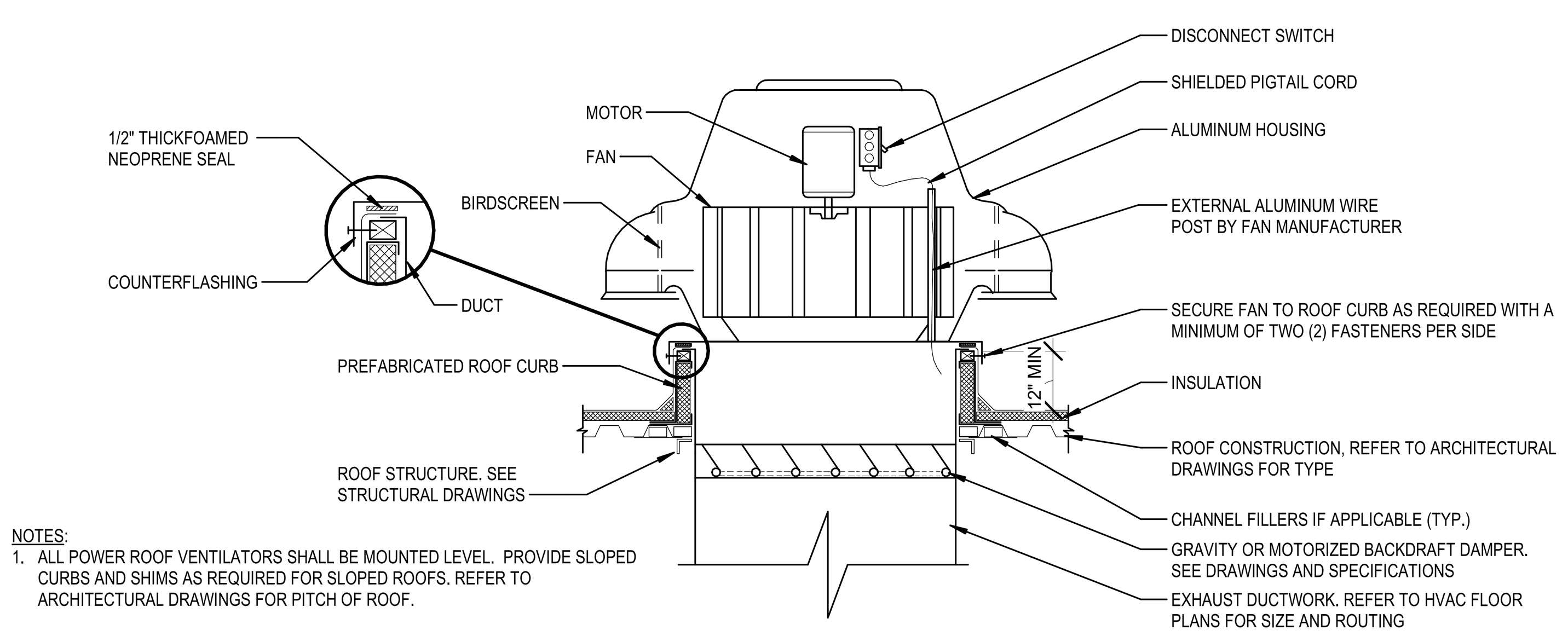
3B EXHAUST REGISTER/GRILLE INSTALLATION DETAIL
NOT TO SCALE



1B SUPPLY DIFFUSER FLEXIBLE DUCT CONNECTION DETAIL
NOT TO SCALE



3A EXTERIOR CONDENSATE DRAIN PIPING DETAIL
NOT TO SCALE



NOTES:
1. ALL POWER ROOF VENTILATORS SHALL BE MOUNTED LEVEL. PROVIDE SLOPED CURBS AND SHIMS AS REQUIRED FOR SLOPED ROOFS. REFER TO ARCHITECTURAL DRAWINGS FOR PITCH OF ROOF.

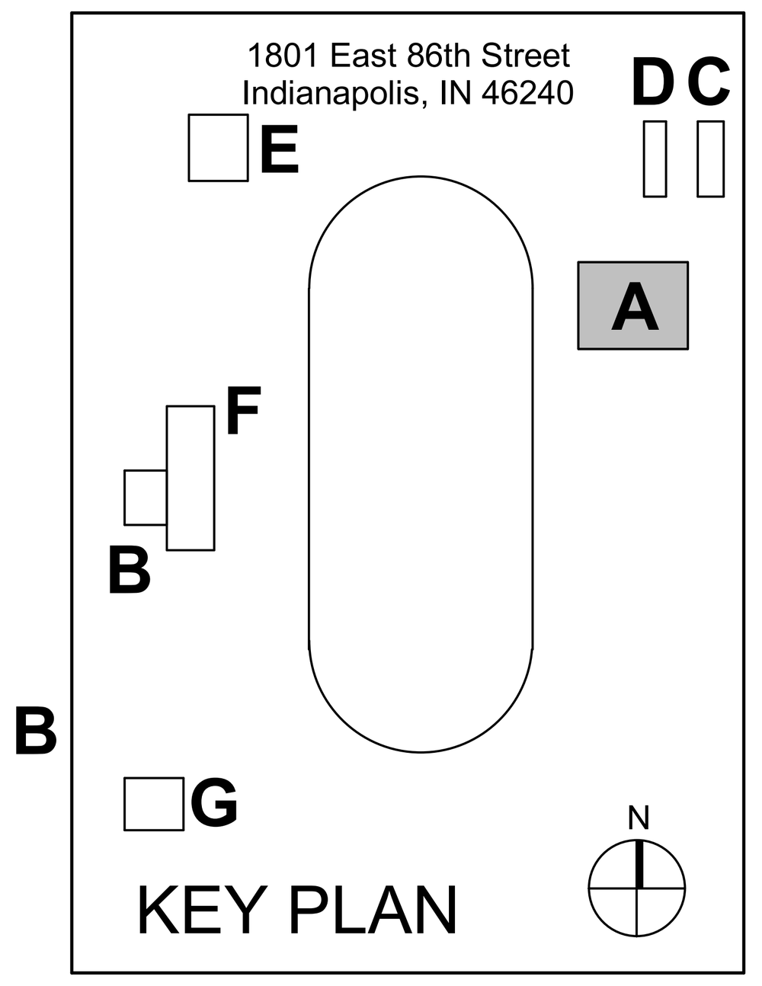
1A DOWNBLAST, DIRECT-DRIVE POWER ROOF VENTILATOR INSTALLATION DETAIL
NOT TO SCALE

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

Project No. 2019-067.NCH
Project Date 07.27.2023
Bid Set 04
Produced BNW / VLG

SARAH KATHLEEN HEMPSTEAD REGISTERED NO. AR10400134 STATE OF INDIANA ARCHITECT

#	Revision	Date
A1	ADDENDUM 1.4b	08.17.2023



KEY PLAN

M.S.D. of Washington Township

North Central High School Renovation - Field Improvements

MECHANICAL DETAILS & SCHEDULES

A1

A-M-501.4

6 5 4 3 2 1

E

ELECTRIC CABINET UNIT HEATER SCHEDULE - ELV

IDENTITY DATA				HEATING DATA			FAN DATA	ELECTRICAL DATA				
MARK	MANUFACTURER	MODEL	WEIGHT (LBS)	CAPACITY (KW)	TEMP RANGE (F)	BTU/HR	AIRFLOW (CFM)	VOLTS (V)	PH	FREQ (HZ)	FLA (A)	NOTES
EUH-07	QMARK	LFK151F	22	1.1	40-90	5,110	100	120	1	60	12.5	1-4

ELECTRIC CABINET UNIT HEATER SCHEDULE NOTES:

1. DISCONNECT SWITCH BY MANUFACTURER. DISCONNECT SWITCH AND ALL INTERLOCK RELAYS TO BE INSTALLED WITHIN HEATER ENCLOSURE.
2. TAMPER-PROOF PLUG FOR THERMOSTAT HOLE.
3. 14 GAUGE SECURITY FRONT COVER.
4. 2" DEEP SURFACE MOUNTING FRAME FOR SEMI-RECESSED INSTALLATION.

GENERAL HVAC NOTES

A. DARK LINES INDICATE NEW WORK.

B. LIGHT SOLID LINES INDICATE EXISTING MECHANICAL EQUIPMENT, DUCTWORK, PIPING, AND/OR MECHANICAL ACCESSORIES TO REMAIN AS-IS. CONTRACTOR TO FIELD VERIFY ACTUAL EXISTING CONDITIONS PRIOR TO BIDDING.

MECHANICAL HVAC PLAN NOTES

#	NOTE
1	INSTALL REFRIGERANT LINES PER MANUFACTURER'S INSTRUCTIONS.
2	5/8" CONDENSATE DRAIN TO DISCHARGE 3" ABOVE GRADE.

SPLIT SYSTEM SCHEDULE - ELV

INDOOR UNIT

IDENTITY DATA				DIMENSIONS			COOLING CAPACITY			HEATING	AIRFLOW DATA				
MARK	MANUFACTURER	MODEL	WEIGHT (LBS)	L	W	H	TOTAL (BTUH)	SHF	SENSIBLE (BTUH)	CAPACITY (BTUH)	MIN (CFM)	MAX (CFM)	SPEEDS	EXT. STATIC (IN-WG)	COND. PUMP
SS-2	MITSUBISHI	TPKA0A0181LA00A	28	35.4	9.3	11.8	18,000	0.73	13,140	-	215	455	3	-	YES
SS-3	MITSUBISHI	TPKA0A0121HA70A	29	35.4	9.8	11.6	12,000	0.81	9,720	-	290	425	3	-	YES

OUTDOOR UNIT

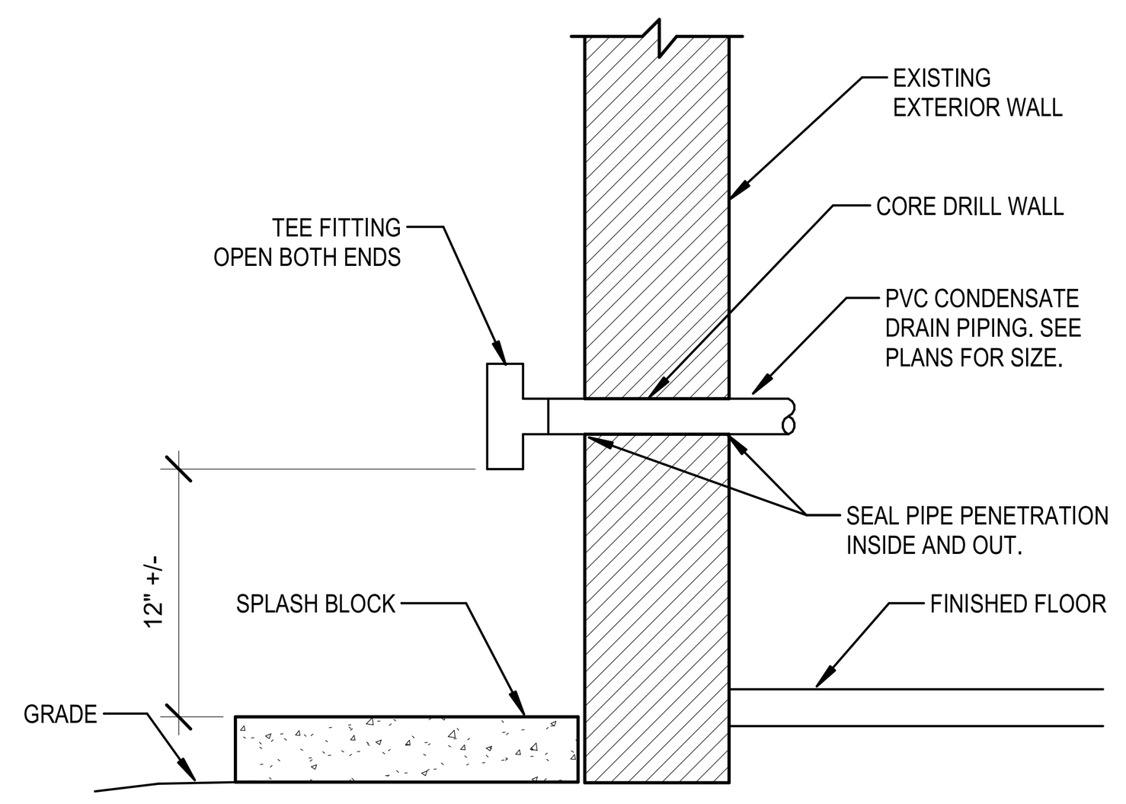
IDENTITY DATA				COOLING DATA			HEATING DATA		ENERGY DATA				ELECTRICAL DATA						
MARK	MODEL	SERVES	WEIGHT (LBS)	NOMINAL (BTUH)	SUM. AMB. (°F)	WIN. AMB. (°F)	CAPACITY (BTUH)	AMB. (°F)	COP	EER	SEER	REF. TYPE	VOLTS (V)	PH	FREQ (HZ)	MCA (A)	MOCP (A)	DISCONNECT PROVIDER	NOTES
SSCU-2	TRUYA0181KA70NA	SS-2	99	18,000	115	-40	-	-	-	10.7	19.7	R410A	208	1	60	11	28	MANUFACTURER	1-3
SSCU-3	TRUYA0121KA70NA	SS-3	92	12,000	115	-40	-	-	-	12.0	20.8	R410A	208	1	60	11	28	MANUFACTURER	1-3

SPLIT SYSTEMS UNIT SCHEDULE NOTES:

1. DISCONNECT PROVIDED BY DIV. 26, LOCATED NEAR INDOOR FCU. ALL INTERLOCKING WIRING BETWEEN INDOOR UNIT AND OUTDOOR UNIT PROVIDED BY DIVISION 23. ALL MAIN POWER WIRING PROVIDED BY DIVISION 26.
2. OPTIONAL LOW AMBIENT WIND BAFFLE KIT.
3. SPLIT SYSTEM OPERATES AS COOLING-ONLY, YEAR-ROUND.

A1

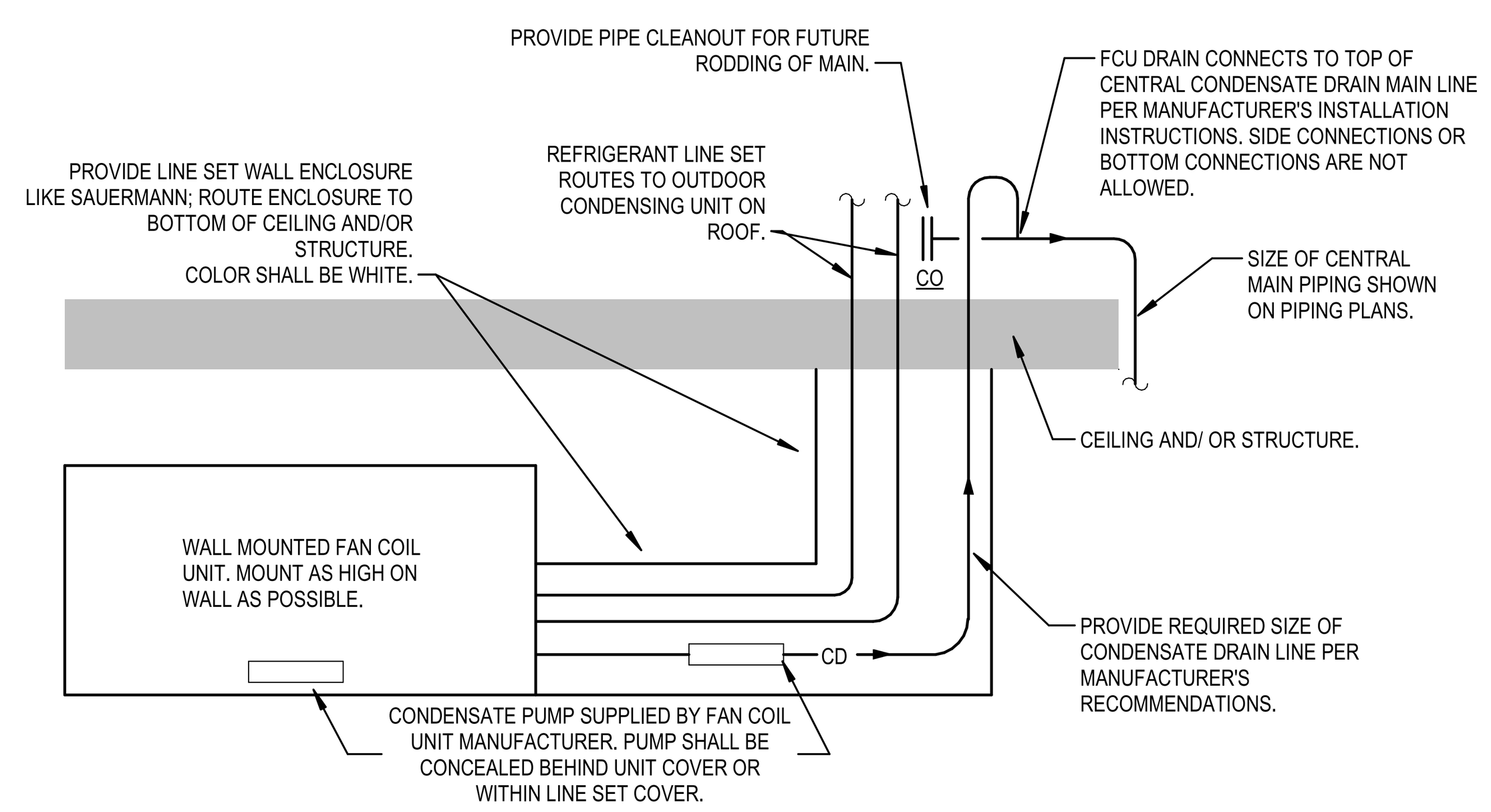
D



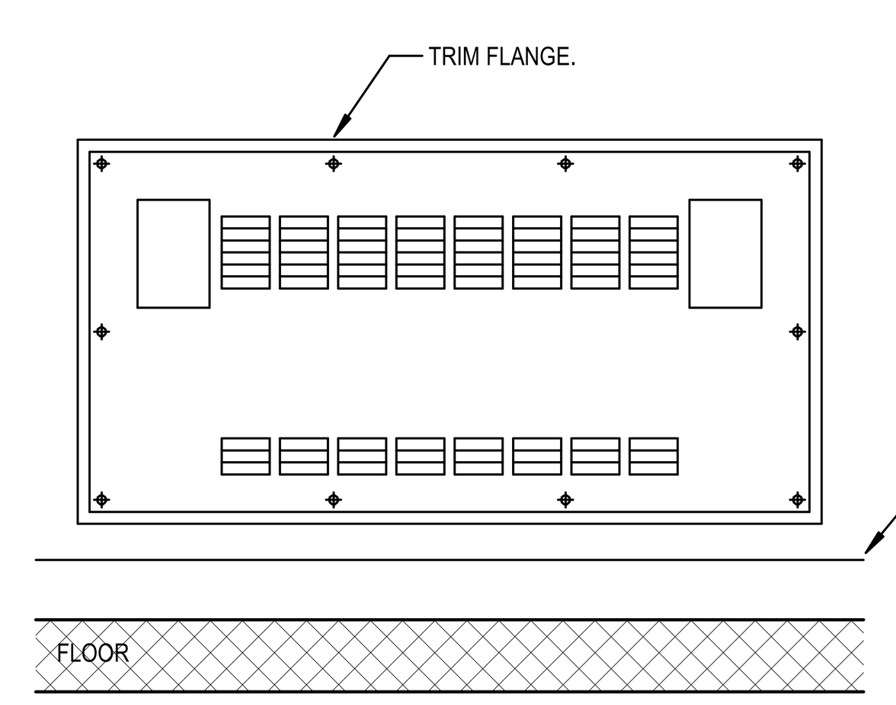
A1

5C **EXTERIOR CONDENSATE DRAIN PIPING DETAIL**
NOT TO SCALE

C



5B **SPLIT SYSTEM WALL MOUNTED FAN COIL UNIT PIPING DIAGRAM**
NOT TO SCALE



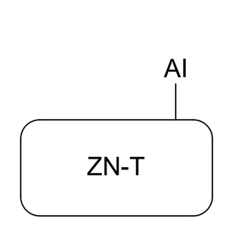
NOTES:

1. ADJUST INSTALLED HEIGHT OF THE CONCEALED VERTICAL FAN COIL UNIT TO BE 3" ABOVE WALL BASE.
2. PANEL TO BE ATTACHED TO TRIM FLANGE, NOT DIRECTLY TO WALL.
3. DO NOT OVER TIGHTEN PANEL FINISH SCREWS TO AVOID PUCKERING OF PANEL.
4. REFER TO MANUFACTURERS INSTALLATION MATERIAL.
5. PROVIDE SECURITY SCREWS/LOCKS ON ALL ACCESS DOORS.
6. COLOR AS SELECTED BY ARCHITECT.

4B **RECESSED WALL MOUNTED CUH OR FCU INSTALLATION DETAIL**
NOT TO SCALE

B

	Hardware Points				Software Points						
Point Name	AI	AO	BI	BO	AV	BV	Loop	Sched	Trend	Alarm	Show On Graphic
Space Temperature (ZN-T)	x								x		x
Low Space Temperature (<32F)						x			x	x	
High Space Temperature (>90F)						x			x	x	



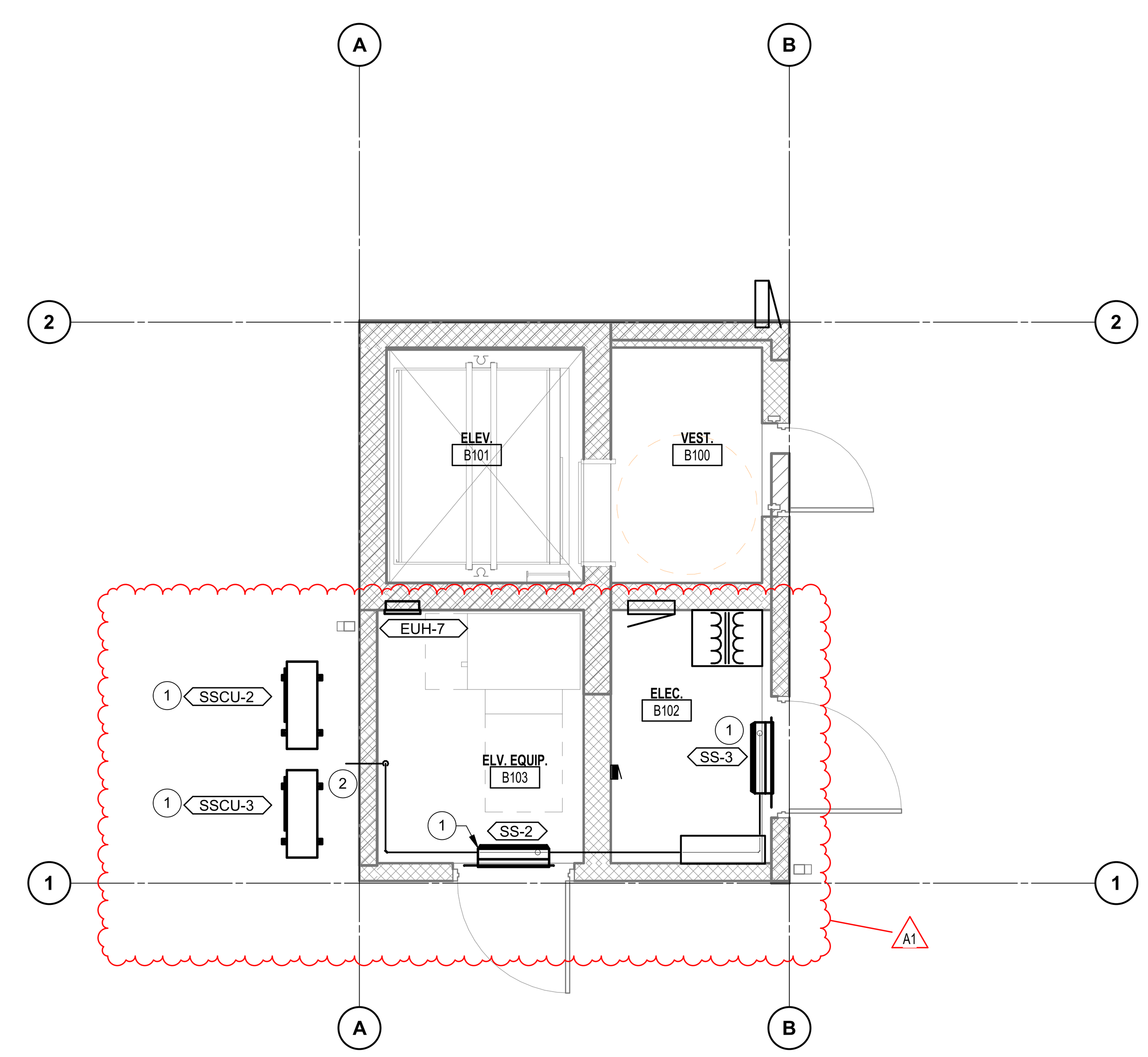
A

CONTROLS INSTALLATION CONTRACTOR (CIC) MISCELLANEOUS REQUIREMENTS

SPLIT SYSTEM ROOM CONTROL: CIC SHALL REFERENCE THE MECHANICAL SCHEDULE AND DRAWINGS TO FIELD INSTALL AND CONFIGURE THE SPACE TEMPERATURE SENSOR PROVIDED BY THE SPLIT SYSTEM MANUFACTURER PER OWNER INFORMATION SYSTEM STANDARDS. SETPOINT SHALL BE ADJUSTABLE BY THE OCCUPANT WITH LOCAL FEEDBACK OF SPACE TEMPERATURE AND SETPOINT.

SPLIT SYSTEM ROOM MONITORING: CIC SHALL INSTALL TCC PROVIDED FLAT PLATE SPACE TEMPERATURE SENSOR (ZN-T) FOR MONITORING AND ALARM PURPOSES ONLY. TCC LOGIC SHALL GENERATE AN ALARM IF THE SPACE TEMPERATURE RISES ABOVE 90F (ADJ) OR FALLS BELOW 32F (ADJ). TCC SHALL PROVIDE ETHERNET LEVEL CONTROLLER WITHIN A PANEL FOR CIC TO MOUNT IN THE SPACE SERVED BY THE SPLIT SYSTEM, LAND ETHERNET, AND TEMPERATURE SENSOR. DIVISION 26 CONTRACTOR SHALL PROVIDE THE 120 VAC CIRCUIT POWER FOR THE PANEL. CIC SHALL LAND THE POWER PER TCS DRAWINGS. CIC SHALL PULL AND LAND ETHERNET TO THE LOCAL BUILDING NETWORK SWITCH AFTER COORDINATION WITH THE OWNER.

5A **SPLIT SYSTEM MISCELLANEOUS SCOPE OF WORK**
NOT TO SCALE



1A **MECHANICAL HVAC PLAN**
1/4" = 1'-0"

6 5 4 3 2 1

SCHMIDT
ASSOCIATES
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Indianapolis, IN 46204
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Project No. 2019-067.NCH
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SARAH KATHLEEN HEMPSTEAD
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STATE OF INDIANA
ARCHITECT

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1801 East 86th Street
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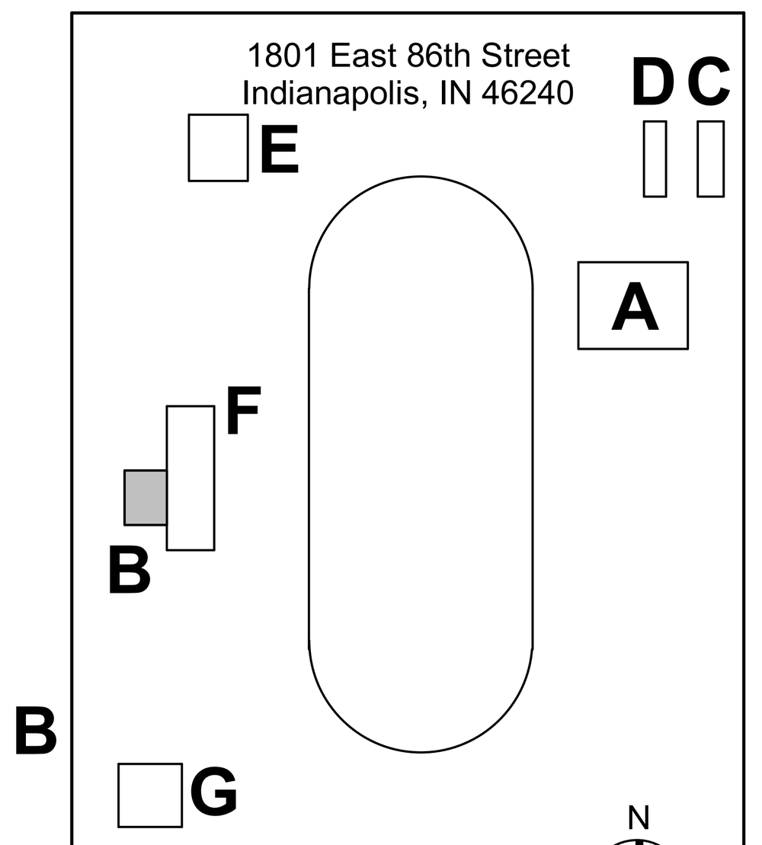


KEY PLAN

M.S.D of Washington Township

North Central High School Phase 4 - Field Improvements

FIRST FLOOR HVAC PLAN

B-MH101.4

GENERAL HVAC NOTES

A. DARK LINES INDICATE NEW WORK.

B. LIGHT SOLID LINES INDICATE EXISTING MECHANICAL EQUIPMENT, DUCTWORK, PIPING, AND/OR MECHANICAL ACCESSORIES TO REMAIN AS-IS. CONTRACTOR TO FIELD VERIFY ACTUAL EXISTING CONDITIONS PRIOR TO BIDDING.

MECHANICAL HVAC PLAN NOTES

#	NOTE
1	INSTALL REFRIGERANT LINES PER MANUFACTURER'S INSTRUCTIONS.
2	5/8" CONDENSATE DRAIN TO DISCHARGE 3" ABOVE GRADE.
3	MECHANICAL EQUIPMENT PAD BELOW SSCU-4.

SPLIT SYSTEM SCHEDULE - SPB

INDOOR UNIT

IDENTITY DATA				DIMENSIONS			COOLING CAPACITY				AIRFLOW DATA				
MARK	MANUFACTURER	MODEL	WEIGHT (LBS)	L	W	H	TOTAL (BTUH)	SHF	SENSIBLE (BTUH)	HEATING CAPACITY (BTUH)	MIN (CFM)	MAX (CFM)	SPEEDS	EXT. STATIC (IN-WG)	COND. PUMP
SS-4	MITSUBISHI	TPKA0A0121HA70A	29	35.4	9.8	11.6	12,000	0.81	9,720	-	290	425	3	-	NO

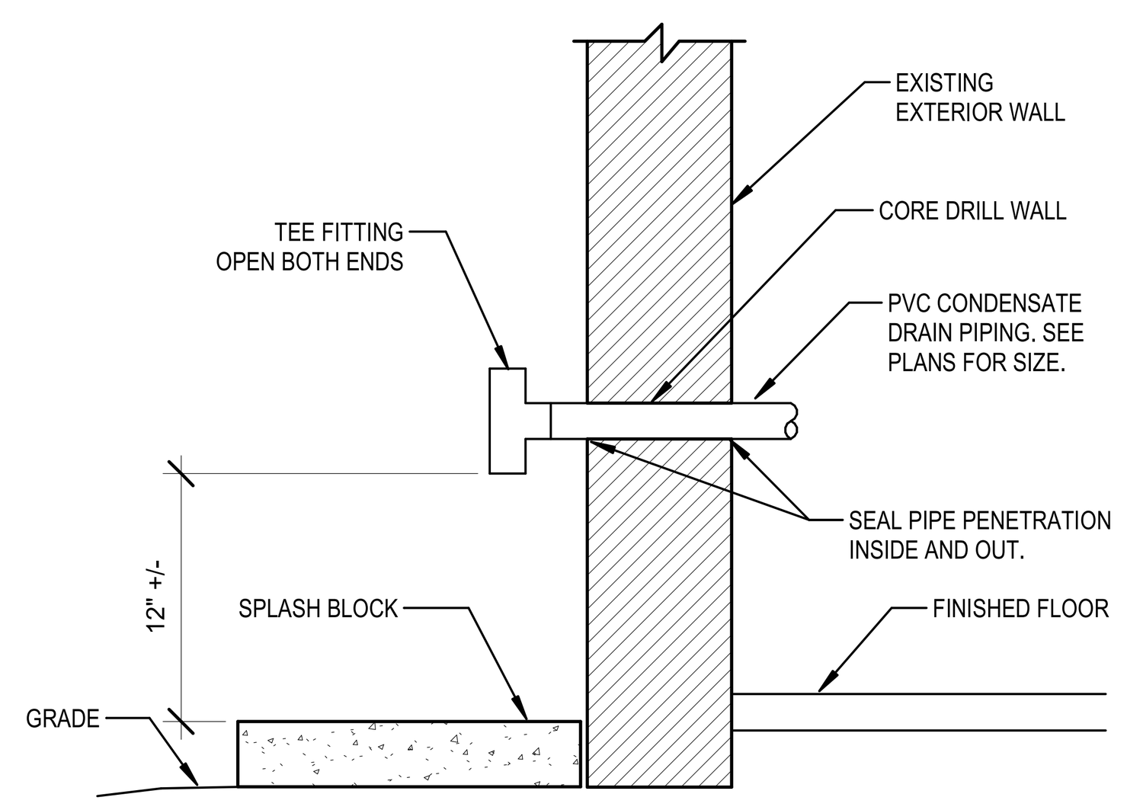
OUTDOOR UNIT

IDENTITY DATA				COOLING DATA			HEATING DATA		ENERGY DATA				ELECTRICAL DATA						
MARK	MODEL	SERVES	WEIGHT (LBS)	NOMINAL (BTUH)	SUM. AMB. (°F)	WIN. AMB. (°F)	CAPACITY (BTUH)	AMB. (°F)	COP	EER	SEER	REF. TYPE	VOLTS (V)	PH	FREQ (HZ)	MCA (A)	MOCP (A)	DISCONNECT PROVIDER	NOTES
SSCU-4	TRUYA0121KA70NA	SS-4	92	12,000	115	-40	-	-	-	12.0	20.8	R410A	208	1	60	11	28	MANUFACTURER	1-3

SPLIT SYSTEMS UNIT SCHEDULE NOTES:

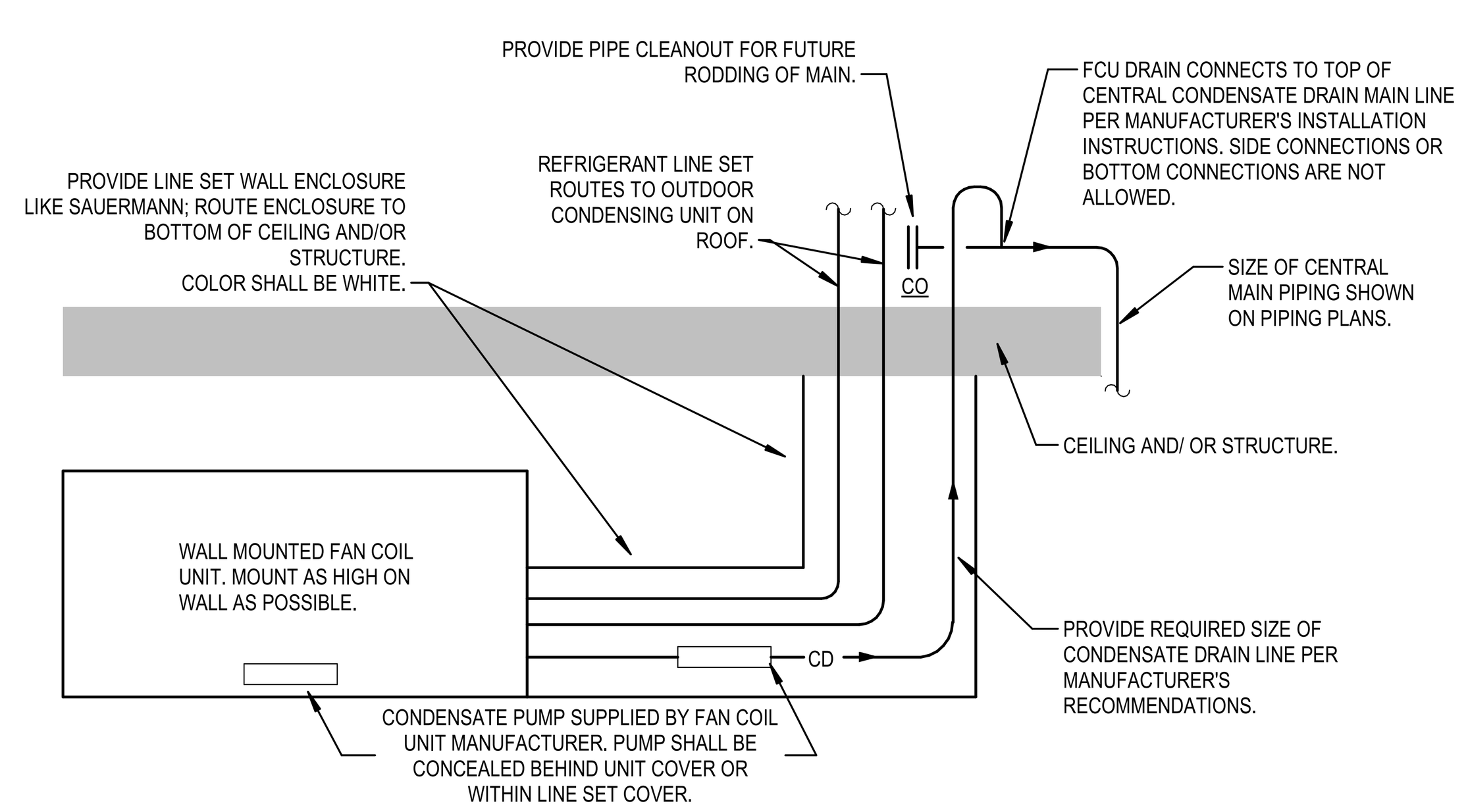
1. DISCONNECT PROVIDED BY DIV. 26, LOCATED NEAR INDOOR FCU. ALL INTERLOCKING WIRING BETWEEN INDOOR UNIT AND OUTDOOR UNIT PROVIDED BY DIVISION 23. ALL MAIN POWER WIRING PROVIDED BY DIVISION 26.
2. OPTIONAL LOW AMBIENT WIND BAFFLE KIT.
3. SPLIT SYSTEM OPERATES AS COOLING-ONLY, YEAR-ROUND.

A1



5C EXTERIOR CONDENSATE DRAIN PIPING DETAIL

NOT TO SCALE

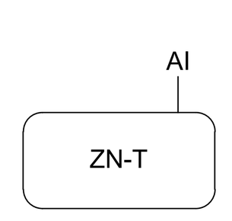


A1

5B SPLIT SYSTEM WALL MOUNTED FAN COIL UNIT PIPING DIAGRAM

NOT TO SCALE

	Hardware Points				Software Points						
Point Name	AI	AO	BI	BO	AV	BV	Loop	Sched	Trend	Alarm	Show On Graphic
Space Temperature (ZN-T)	x								x		x
Low Space Temperature (<32F)						x			x	x	
High Space Temperature (>90F)						x			x	x	



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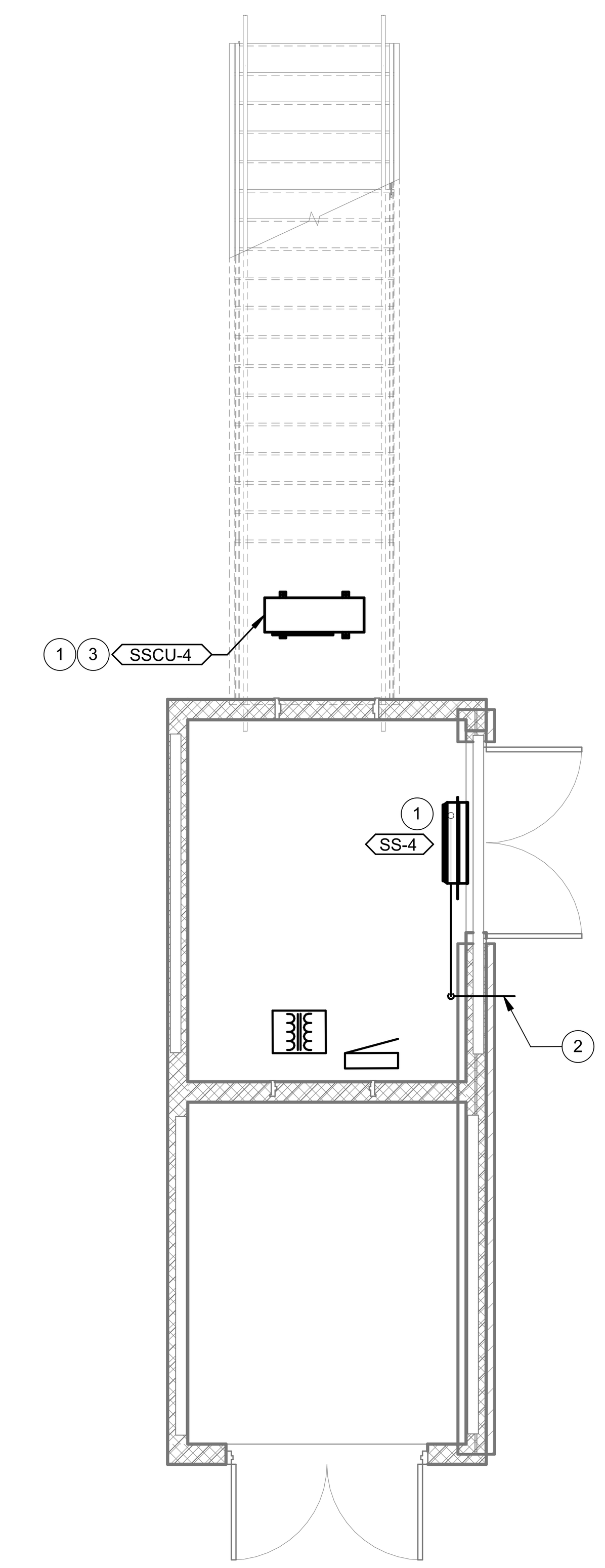
SPLIT SYSTEM ROOM CONTROL: CIC SHALL REFERENCE THE MECHANICAL SCHEDULE AND DRAWINGS TO FIELD INSTALL AND CONFIGURE THE SPACE TEMPERATURE SENSOR PROVIDED BY THE SPLIT SYSTEM MANUFACTURER PER OWNER INFORMATION SYSTEM STANDARDS. SETPOINT SHALL BE ADJUSTABLE BY THE OCCUPANT WITH LOCAL FEEDBACK OF SPACE TEMPERATURE AND SETPOINT.

SPLIT SYSTEM ROOM MONITORING: CIC SHALL INSTALL TCC PROVIDED FLAT PLATE SPACE TEMPERATURE SENSOR (ZN-T) FOR MONITORING AND ALARM PURPOSES ONLY. TCC LOGIC SHALL GENERATE AN ALARM IF THE SPACE TEMPERATURE RISES ABOVE 90F (ADJ) OR FALLS BELOW 32F (ADJ). TCC SHALL PROVIDE ETHERNET LEVEL CONTROLLER WITHIN A PANEL FOR CIC TO MOUNT IN THE SPACE SERVED BY THE SPLIT SYSTEM, LAND ETHERNET, AND TEMPERATURE SENSOR. DIVISION 26 CONTRACTOR SHALL PROVIDE THE 120 VAC CIRCUIT POWER FOR THE PANEL. CIC SHALL LAND THE POWER PER TCS DRAWINGS. CIC SHALL PULL AND LAND ETHERNET TO THE LOCAL BUILDING NETWORK SWITCH AFTER COORDINATION WITH THE OWNER.

5A SPLIT SYSTEM MISCELLANEOUS SCOPE OF WORK

NOT TO SCALE



1A MECHANICAL HVAC PLAN

1/4" = 1'-0"

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

Project No. 2019-067.NCH
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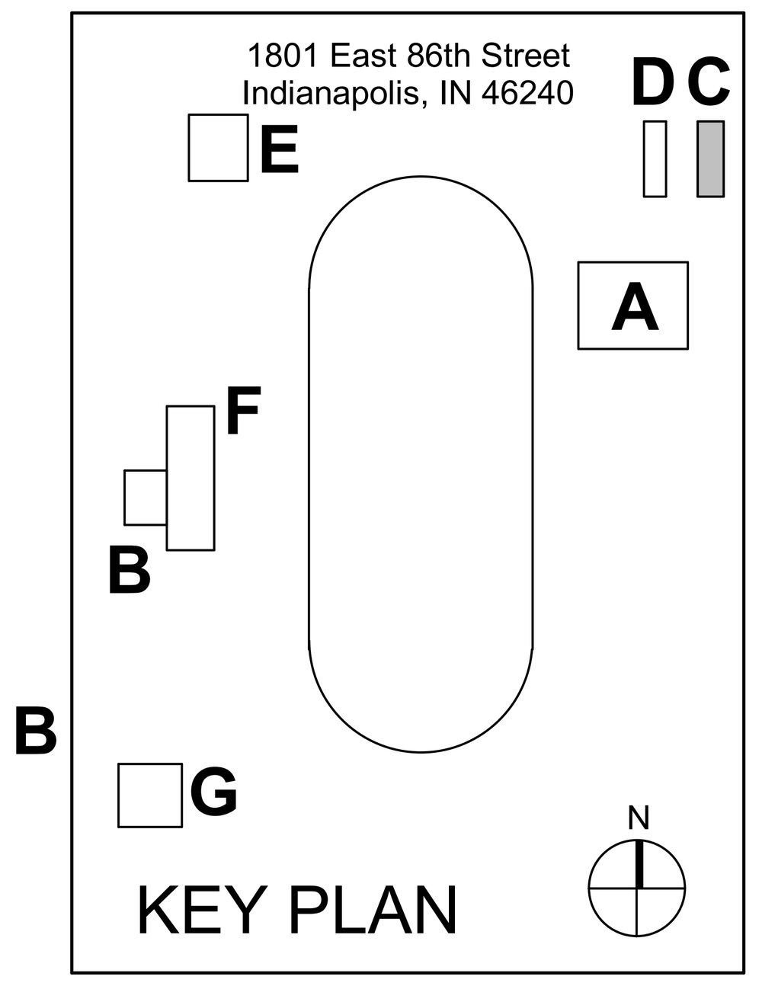
SARAH KATHLEEN HEMPSTEAD REGISTERED NO. AR10400134 STATE OF INDIANA ARCHITECT

#	Revision	Date
A1	ADDENDUM 1.4b	08.17.2023



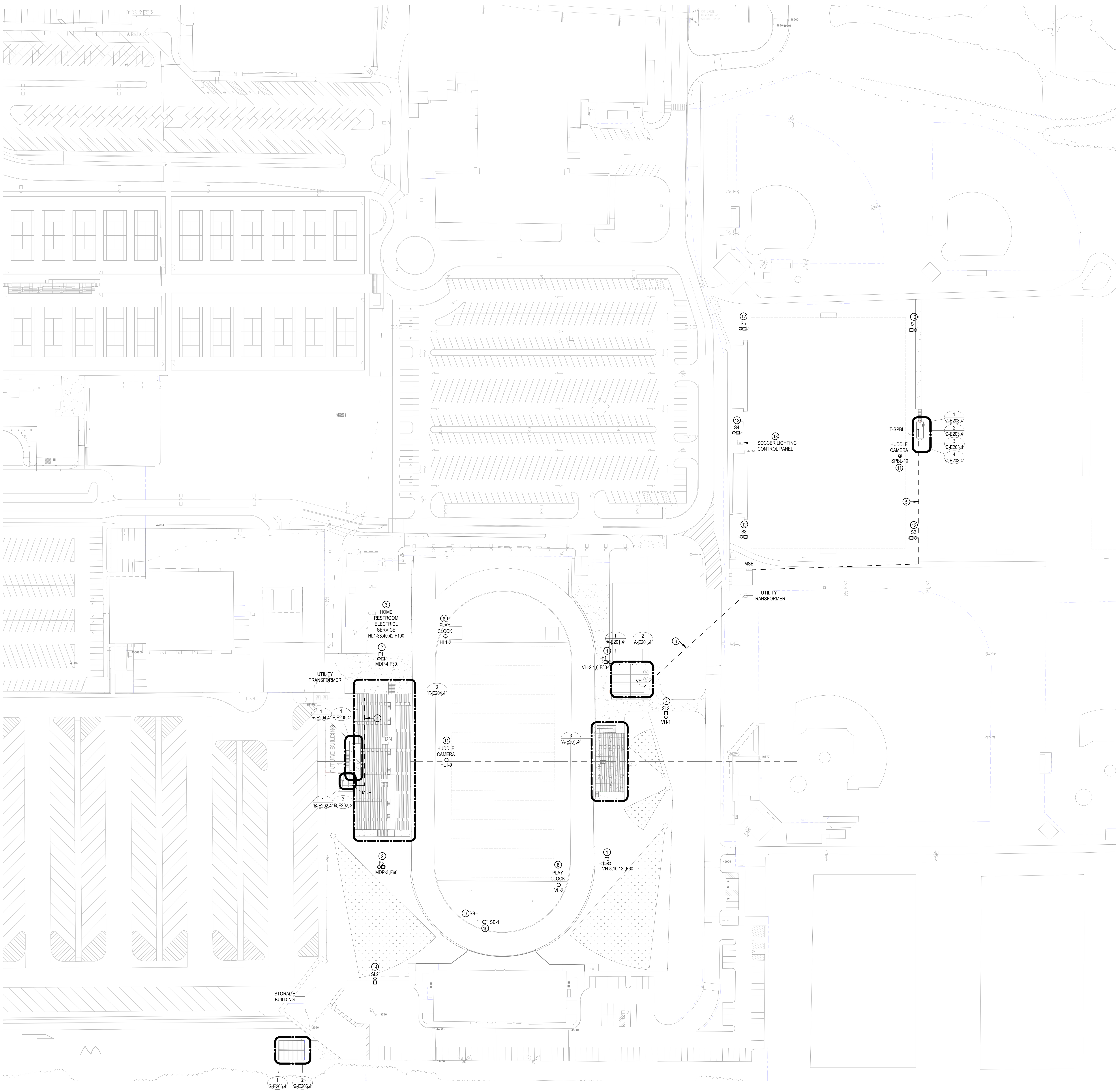
KEY PLAN

M.S.D. of Washington Township

North Central High School Renovation - Field Improvements

FIRST FLOOR HVAC PLAN

C-MH101.4



1 ELECTRICAL SITE PLAN
1" = 60'-0"

GENERAL NOTES

A. ALL WORK SHOWN IS NEW AND PROVIDED BY THE ELECTRICAL CONTRACTOR UNLESS OTHERWISE INDICATED.
B. REMOVE OR RELOCATE ANY AND ALL EXISTING SERVICES, POLES, ETC., AS MAY BE REQUIRED TO ACCOMMODATE NEW CONSTRUCTION UNLESS OTHERWISE INDICATED.
C. COORDINATE ALL INCOMING ELECTRICAL SERVICE WORK WITH THE ELECTRICAL UTILITY COMPANY. PAY ALL FEES AND OTHER COSTS NOT BORNE BY THE ELECTRICAL UTILITY COMPANY TO PROVIDE NEW ELECTRICAL SERVICES TO THE PROJECT BUILDINGS.
D. PROVIDE PULL STRINGS IN ALL UTILITY CONDUITS.
E. ALL EXTERIOR CONDUITS SHALL BE INSTALLED BELOW THE FROST LINE. COORDINATE LOCATIONS OF ALL UNDERGROUND CONDUITS, HANDHOLES AND MANHOLES, UNDERGROUND DRAINS, SERVICES, STRUCTURES, AND PAVING.
F. PROVIDE ADDITIONAL HANDHOLES AND MANHOLES AS REQUIRED BY THE UTILITY COMPANIES. COORDINATE REQUIREMENTS WITH UTILITY COMPANIES PRIOR TO BID.
G. COORDINATE ALL ROUTING AND TERMINATION LOCATIONS WITH THE UTILITY COMPANIES PRIOR TO BID.

PLAN NOTES

1 CONNECT NEW FOOTBALL FIELD LIGHTING ON EXISTING POLE. PROVIDE CONNECTION TO VISITOR FOOTBALL STADIUM LIGHTING CONTROL PANEL AS REQUIRED. PROVIDE ALL NEW WIRING AND CONDUIT AS REQUIRED. REFER TO ATHLETIC FIELD LIGHTING DRAWINGS FOR ADDITIONAL INFORMATION.
2 CONNECT NEW FOOTBALL FEILD LIGHTING ON EXISTING POLE. PROVIDE CONNECTION TO HOME FOOTBALL STADIUM LIGHTING CONTROL PANEL AS REQUIRED. PROVIDE ALL NEW WIRING AND CONDUIT AS REQUIRED. REFER TO ATHLETIC FIELD LIGHTING DRAWINGS FOR ADDITIONAL INFORMATION.
3 CONNECT EXISTING HOME RESTROOM ELECTRICAL SERVICE TO CIRCUIT INDICATED. CONTRACTOR SHALL PROVIDE NEW CONDUIT AND CONDUCTORS AS REQUIRED. HOWEVER THE CONTRACTOR CAN FIELD VERIFY THAT THE EXISTING CONDUIT CAN BE REUSED FOR NEW CONNECTION.
4 UTILITY TRANSFORMER SECONDARY. COORDINATE EXACT ROUTING TO AVOID FUTURE HOME RESTROOM / CONCESSIONS BUILDING. REFER TO CIVIL DRAWINGS AND ELECTRICAL ONELINE RISER DIAGRAMS FOR ADDITIONAL INFORMATION.
5 DIRECTIONAL BORE UNDERGROUND FEEDER . COORDINATE EXACT ROUTING TO AVOID EXISTING ELECTRICAL AND SPRINKLER LINES. REFER TO CIVIL DRAWINGS AND ELECTRICAL ONELINE RISER DIAGRAMS FOR ADDITIONAL INFORMATION. ROUTING SMALL BE COORDINATED WITH TELECOM CONDUIT ROUTING TO PROVIDE MINIMAL DISTURBANCE TO THE EXISTING FIELD CONDITIONS. REFER TO T-SERIES DRAWINGS FOR ADDITIONAL INFORMATION.
6 UTILITY TRANSFORMER SECONDARY. COORDINATE EXACT ROUTING. REFER TO CIVIL DRAWINGS AND ELECTRICAL ONELINE RISER DIAGRAMS FOR ADDITIONAL INFORMATION.
7 PROVIDE POLE BASE FOR FIXTURE 42" ABOVE FINISHED GRADE. REFER TO ELECTRICAL DETAILS FOR ADDITIONAL INFORMATION. CONNECT TO EXTERIOR LIGHTING CONTROL SYSTEM. REFER TO ELECTRICAL SCHEMATICS FOR ADDITIONAL INFORMATION.
8 CONNECT EXISTING PLAY CLOCK TO CIRCUIT INDICATED. CONTRACTOR SHALL PROVIDE NEW CONDUIT AND CONDUCTORS AS REQUIRED. HOWEVER THE CONTRACTOR CAN FIELD VERIFY THAT THE EXISTING CONDUIT CAN BE REUSED FOR NEW CONNECTION. PROVIDE NEW WEATHER PROOF GFCI RECEPTACLE ON POST.
9 PROVIDE NEW PANEL FOR FUTURE VIDEO SCOREBOARD. MOUNT PANEL TO SCOREBOARD STRUCTURE. VERIFY EXACT LOCATION WITH SCOREBOARD MANUFACTURER. CONTRACTOR SHALL DIRECTIONAL BORE FEEDER AND COORDINATE WITH OWNER TO PROVIDE MINIMAL DISTURBANCE TO THE EXISTING FIELD CONDITIONS. REFER TO ELECTRICAL ONELINE RISER DIAGRAM FOR ADDITIONAL INFORMATION.
10 CONNECT SCOREBOARD TO CIRCUIT INDICATED.
11 CIRCUIT CONNECTION TO HUDDLE CAMERA. VERIFY EXACT LOCATION WITH OWNER PRIOR TO INSTALLATION.
12 CONNECT NEW SOCCER FIELD LIGHTING ON EXISTING POLE. PROVIDE CONNECTION TO SOCCER LIGHTING CONTROL PANEL AS REQUIRED. CONNECT TO EXISTING WIRING THAT WAS MAINTAINED DURING DEMOLITION. REFER TO ATHLETIC FIELD LIGHTING DRAWINGS FOR ADDITIONAL INFORMATION.
13 CONNECT NEW LIGHTING CONTROL PANEL TO EXISTING WIRING THAT WAS MAINTAINED DURING DEMOLITION. REFER TO MUSCO DRAWINGS FOR ADDITIONAL INFORMATION.
14 PROVIDE POLE BASE FOR FIXTURE 42" ABOVE FINISHED GRADE. REFER TO ELECTRICAL DETAILS FOR ADDITIONAL INFORMATION. CONNECT TO EXISTING LIGHTING CIRCUIT MAINTAINED DURING DEMOLITION. MODIFY / EXTEND WIRING AND CONDUIT TO NEW LOCATION AS REQUIRED.

FOOTBALL AND SOCCER LIGHTING ALTERNATE

BASE BID: PROVIDE LIGHTING SYSTEM AND CONTROLS AS DETAILED ON THE ATHLETIC FIELD LIGHTING DRAWINGS AND SPECIFICATIONS.

ALTERNATE BID: PROVIDE ALTERNATE MANUFACTURER FOR THE LIGHTING AND CONTROLS DETAILED ON THE ATHLETIC FIELD LIGHTING DRAWINGS. ALTERNATE MANUFACTURER SHALL MEET OR EXCEED THE PHOTOMETRIC SUMMARY FOR ALL THE AREAS SHOWN ON THE ATHLETIC FIELD LIGHTING DRAWINGS. THE ALTERNATE MANUFACTURER SHALL PROVIDE PHOTOMETRIC PLANS WITH SUMMARIES TO BE REVIEWED AND APPROVED BY THE ENGINEER. THE ALTERNATE MANUFACTURER SHALL PROVIDE A CONTROL SYSTEM WITH SIMILAR PERFORMANCE TO THE ATHLETIC FIELD LIGHTING CONTROL DRAWINGS. ANY ADDITIONAL POWER REQUIREMENTS AND CIRCUITING REQUIREMENTS SHALL BE COMMUNICATED TO THE CONTRACTOR DURING THE BIDDING PROCESS TO ACCOUNT FOR ADDITIONAL CONDUIT, WIRING, PANELS, FEEDERS, ETC. THE FOOTBALL AND SOCCER FIELD LIGHTING IS BASED ON USING THE EXISTING POLES THAT MUST REMAIN. ALL LAYOUTS SHALL BE BASED ON USING THE EXISTING POLE LOCATIONS.

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

Project No. 2019-067.NCH
Project Date 07.27.2023
Bid Set 04
Produced JAW

DAVID SHUCK REGISTERED No. 19700101 STATE OF INDIANA PROFESSIONAL ENGINEER

#	Revision	Date
	ADDENDUM 1.4b	08/17/2023

1801 East 86th Street
Indianapolis, IN 46240

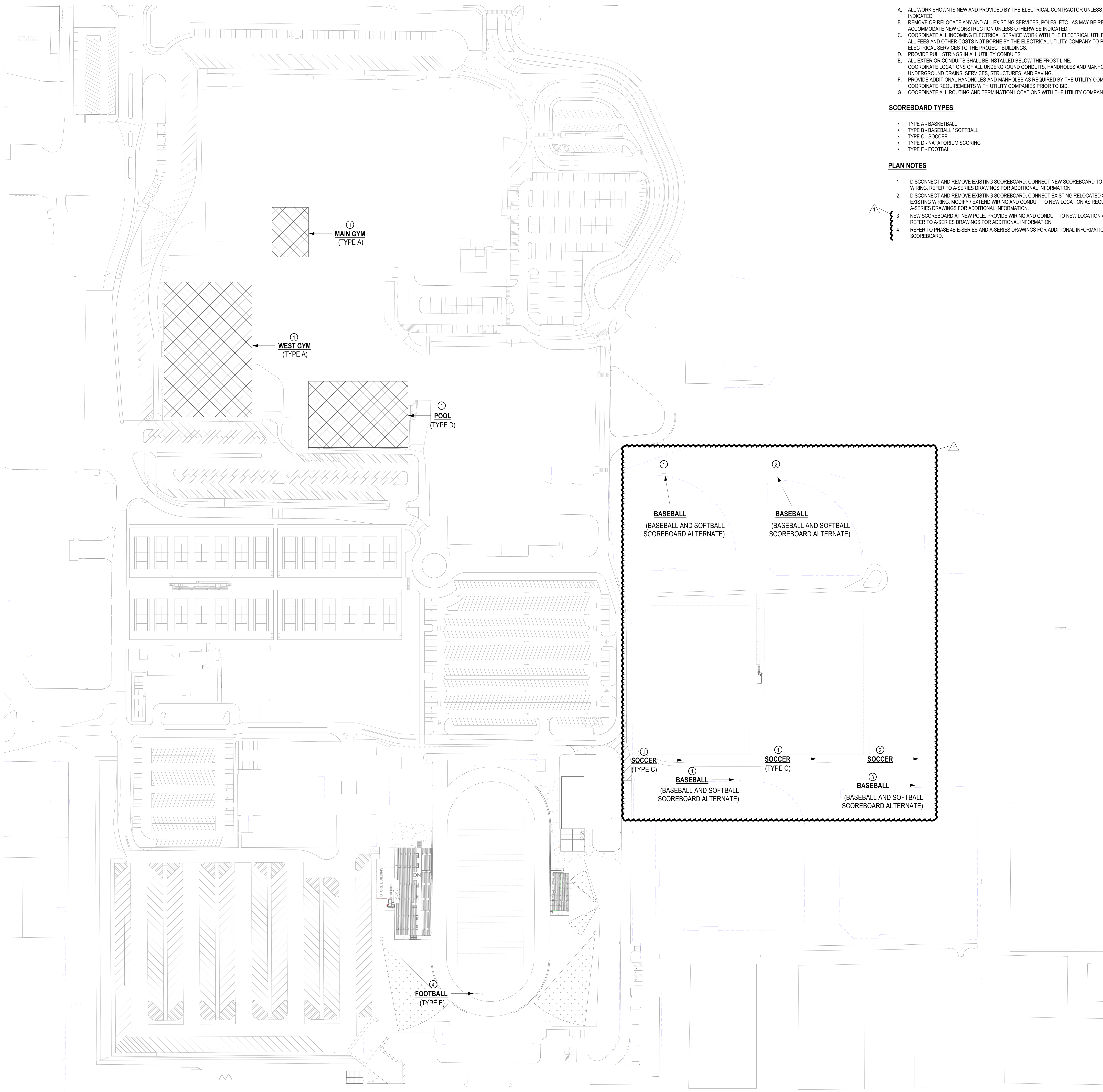
KEY PLAN

M.S.D of Washington Township

North Central High School Renovation - Field Improvements

ELECTRICAL SITE PLAN

E101.4



GENERAL NOTES

A. ALL WORK SHOWN IS NEW AND PROVIDED BY THE ELECTRICAL CONTRACTOR UNLESS OTHERWISE INDICATED.
B. REMOVE OR RELOCATE ANY AND ALL EXISTING SERVICES, POLES, ETC., AS MAY BE REQUIRED TO ACCOMMODATE NEW CONSTRUCTION UNLESS OTHERWISE INDICATED.
C. COORDINATE ALL INCOMING ELECTRICAL SERVICE WORK WITH THE ELECTRICAL UTILITY COMPANY. PAY ALL FEES AND OTHER COSTS NOT BORNE BY THE ELECTRICAL UTILITY COMPANY TO PROVIDE NEW ELECTRICAL SERVICES TO THE PROJECT BUILDINGS.
D. PROVIDE PULL STRINGS IN ALL UTILITY CONDUITS.
E. ALL EXTERIOR CONDUITS SHALL BE INSTALLED BELOW THE FROST LINE. COORDINATE LOCATIONS OF ALL UNDERGROUND CONDUITS, HANDHOLES AND MANHOLES, UNDERGROUND DRAINS, SERVICES, STRUCTURES, AND PAVING.
F. PROVIDE ADDITIONAL HANDHOLES AND MANHOLES AS REQUIRED BY THE UTILITY COMPANIES. COORDINATE REQUIREMENTS WITH UTILITY COMPANIES PRIOR TO BID.
G. COORDINATE ALL ROUTING AND TERMINATION LOCATIONS WITH THE UTILITY COMPANIES PRIOR TO BID.

SCOREBOARD TYPES

- TYPE A - BASKETBALL
- TYPE B - BASEBALL / SOFTBALL
- TYPE C - SOCCER
- TYPE D - NATATORIUM SCORING
- TYPE E - FOOTBALL

PLAN NOTES

1 DISCONNECT AND REMOVE EXISTING SCOREBOARD. CONNECT NEW SCOREBOARD TO EXISTING WIRING. REFER TO A-SERIES DRAWINGS FOR ADDITIONAL INFORMATION.
2 DISCONNECT AND REMOVE EXISTING SCOREBOARD. CONNECT EXISTING RELOCATED SCOREBOARD TO EXISTING WIRING. MODIFY / EXTEND WIRING AND CONDUIT TO NEW LOCATION AS REQUIRED. REFER TO A-SERIES DRAWINGS FOR ADDITIONAL INFORMATION.
3 NEW SCOREBOARD AT NEW POLE. PROVIDE WIRING AND CONDUIT TO NEW LOCATION AS REQUIRED. REFER TO A-SERIES DRAWINGS FOR ADDITIONAL INFORMATION.
4 REFER TO PHASE 4B E-SERIES AND A-SERIES DRAWINGS FOR ADDITIONAL INFORMATION ON SCOREBOARD.

1 ELECTRICAL SCOREBOARD PLAN
1" = 100'-0"

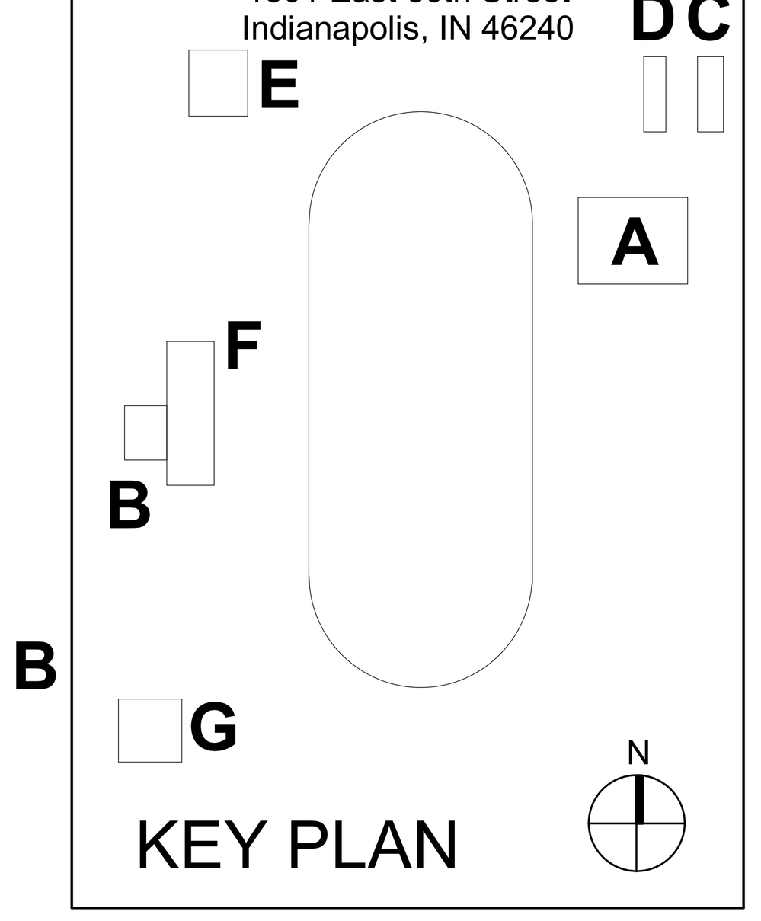
SCHMIDT ASSOCIATES
415 Massachusetts Avenue
Indianapolis, IN 46204
www.schmidt-arch.com

Project No. 2019-067.NCH
Project Date 07.27.2023
Bid Set 04
Produced JAW

DAVID SHUCK REGISTERED No. 19700101 STATE OF INDIANA PROFESSIONAL ENGINEER

#	Revision	Date
	ADDENDUM 1.4b	08/17/2023

1801 East 86th Street
Indianapolis, IN 46240



KEY PLAN

M.S.D of Washington Township

North Central High School Renovation - Field Improvements

ELECTRICAL SCOREBOARD PLAN

E102.4

6 | 5 | 4 | 3 | 2 | 1

TRANSFORMER SCHEDULE

DESIGNATION	LOCATION	SIZE	PHASE	PRIMARY VOLTAGE	SECONDARY VOLTAGE	PRIMARY CONNECTION	SECONDARY CONNECTION	MOUNTING	TYPE	COMMENTS
T-HL1	Space 2	112.5 kVA	3	480 V	208/120 V	DELTA	WYE	SURFACE	DRY	COMPLY WITH ENERGY CODE
T-SPBL	ELECTRICAL C100	30 kVA	3	480 V	208/120 V	DELTA	WYE	SURFACE	DRY	COMPLY WITH ENERGY CODE
T-VL1	Space 36	75 kVA	3	480 V	208/120 V	DELTA	WYE	SURFACE	DRY	COMPLY WITH ENERGY CODE

1

FOOTBALL FIELD LIGHT FIXTURE SCHEDULE

FIXTURE TYPE	FIXTURE NAME	DESCRIPTION	VOLTAGE	WATTAGE	LAMP	ACCEPTABLE MANUFACTURERS
F1	VISITOR FB FIELD LIGHT	UTILIZE EXISTING POLE.	480 V	19,050 W	LED	REFER TO ATHLETIC FIELD LIGHTING DRAWINGS
F2	VISITOR FB FIELD LIGHT	UTILIZE EXISTING POLE.	480 V	23,730 W	LED	REFER TO ATHLETIC FIELD LIGHTING DRAWINGS
F3	HOME FB FIELD LIGHT	UTILIZE EXISTING POLE.	480 V	23,010 W	LED	REFER TO ATHLETIC FIELD LIGHTING DRAWINGS
F4	HOME FB FIELD LIGHT	UTILIZE EXISTING POLE.	480 V	16,870 W	LED	REFER TO ATHLETIC FIELD LIGHTING DRAWINGS

SOCCER FIELD LIGHT FIXTURE SCHEDULE

FIXTURE TYPE	FIXTURE NAME	DESCRIPTION	VOLTAGE	WATTAGE	LAMP	ACCEPTABLE MANUFACTURERS
S1	SOCCER FILED LIGHT	UTILIZE EXISTING POLE.	480 V	9,532 W	LED	REFER TO ATHLETIC FIELD LIGHTING DRAWINGS
S2	SOCCER FILED LIGHT	UTILIZE EXISTING POLE.	480 V	9,532 W	LED	REFER TO ATHLETIC FIELD LIGHTING DRAWINGS
S3	SOCCER FILED LIGHT	UTILIZE EXISTING POLE.	480 V	5,937 W	LED	REFER TO ATHLETIC FIELD LIGHTING DRAWINGS
S4	SOCCER FILED LIGHT	UTILIZE EXISTING POLE.	480 V	7,855 W	LED	REFER TO ATHLETIC FIELD LIGHTING DRAWINGS
S5	SOCCER FILED LIGHT	UTILIZE EXISTING POLE.	480 V	5,937 W	LED	REFER TO ATHLETIC FIELD LIGHTING DRAWINGS

EXTERIOR LIGHTING CONTACTOR SCHEDULE

DESIGNATION	LOCATION	RATINGS	ACCESSORIES	CIRCUIT(S) CONTROLLED
HLC	Space 2	NEMA1 8 POLE 600V / 30A	H-O-A PILOT LIGHT DDC INTEGRATION	MDP-11, MDP-12
VLC	Space 36	NEMA1 8 POLE 600V / 30A	H-O-A PILOT LIGHT DDC INTEGRATION	VH-1, VH-3

LIGHT FIXTURE SCHEDULE

FIXTURE TYPE	FIXTURE NAME	DESCRIPTION	VOLTAGE	WATTAGE	LAMP	LUMENS	ACCEPTABLE MANUFACTURERS
L1	VANDAL RESISTANT SURFACE MOUNT	4"WX48"L WHITE STEEL HOUSING, HIGH IMPACT FROSTED POLYCARBONATE LENS. PROVIDE EXTERNAL OC FOR FIXTURES INDICATED ON THE LIGHTING PLANS.	277 V	46 W	LED 3500K	5,500	FAIL-SAFE - HVSL4 OR APPROVED EQUAL
L1-EM	VANDAL RESISTANT SURFACE MOUNT	4"WX48"L. WHITE STEEL HOUSING, HIGH IMPACT FROSTED POLYCARBONATE LENS. PROVIDE EXTERNAL OC FOR FIXTURES INDICATED ON THE LIGHTING PLANS. PROVIDE WITH INTEGRAL 90 MIN EMERGENCY BATTERY.	277 V	46 W	LED 3500K	5,500	FAIL-SAFE - HVSL4 OR APPROVED EQUAL
L2	VANDAL RESISTANT SURFACE MOUNT	4"WX24"L. WHITE STEEL HOUSING, HIGH IMPACT FROSTED POLYCARBONATE LENS. PROVIDE WITH WALL MOUNT ANGLE BRACKET.	277 V	23 W	LED 3500K	2,500	FAIL-SAFE - HVSL2 OR APPROVED EQUAL
L3	LENSED STRIP FIXTURE	2-3/8"W X 3-3/16"H X 96"L BAKED ENAMEL WHITE HOUSING FORMED FROM CODE GAUGE STEEL, 100% ACRYLIC FORMED DIFUSSER, 0-10V DIMMING TO 1%, FIVE YEAR WARRANTY, DAMP LOCATION LISTED.	277 V	92 W	LED 3500K	10,000	METALUX - SNLED OR APPROVED EQUAL
L3-EM	LENSED STRIP FIXTURE	2-3/8"W X 3-3/16"H X 96"L BAKED ENAMEL WHITE HOUSING FORMED FROM CODE GAUGE STEEL, 100% ACRYLIC FORMED DIFUSSER, 0-10V DIMMING TO 1%, FIVE YEAR WARRANTY, DAMP LOCATION LISTED. PROVIDE WITH INTEGRAL 90 MIN EMERGENCY BATTERY.	277 V	92 W	LED 3500K	10,000	METALUX - SNLED OR APPROVED EQUAL
L4	LENSED STRIP FIXTURE	2-3/8"W X 3-3/16"H X 48"L BAKED ENAMEL WHITE HOUSING FORMED FROM CODE GAUGE STEEL, 100% ACRYLIC FORMED DIFUSSER, 0-10V DIMMING TO 1%, FIVE YEAR WARRANTY, DAMP LOCATION LISTED.	277 V	48 W	LED 3500K	5,000	METALUX - SNLED OR APPROVED EQUAL
L4-EM	LENSED STRIP FIXTURE	2-3/8"W X 3-3/16"H X 48"L BAKED ENAMEL WHITE HOUSING FORMED FROM CODE GAUGE STEEL, 100% ACRYLIC FORMED DIFUSSER, 0-10V DIMMING TO 1%, FIVE YEAR WARRANTY, DAMP LOCATION LISTED. PROVIDE WITH INTEGRAL 90 MIN EMERGENCY BATTERY.	277 V	48 W	LED 3500K	5,000	METALUX - SNLED OR APPROVED EQUAL
L5	VAPORTITE FIXTURE	7"W X 6"H X 96"L FIBERGLASS HOUSING, FROSTED LENS, WIDE DISTRIBUTION, FIVE YEAR WARRANTY, WET LOCATION LISTED.	120 V	117 W	LED 4000K	16,000	METALUX - 8VT2 OR APPROVED EQUAL
SL1	EXTERIOR WALL PACK	WALL MOUNTED OUTDOOR AREA LIGHT, TYPE T4FT DISTRIBUTION, 0-10V DIMMING, COLOR DETERMINED BY THE ARCHITECT.	277 V	59 W	LED 4000K	6,000	STREETWORKS - GAW OR APPROVED EQUAL
SL1-EM	EXTERIOR WALL PACK	WALL MOUNTED OUTDOOR AREA LIGHT, TYPE T4FT DISTRIBUTION, 0-10V DIMMING, PROVIDE WITH INTEGRAL COLD WEATHER 90 MIN EMERGENCY BATTERY. COLOR DETERMINED BY THE ARCHITECT.	277 V	59 W	LED 4000K	6,000	STREETWORKS - GAW OR APPROVED EQUAL
SL2	SITE LIGHT	LED SITE FIXTURE. SINGLE-PIECE ALUMINUM HOUSING. ARM MOUNT. U.L. LISTED WET LOCATION. DARK BRONZE FINISH. ROUND, STRAIGHT, STEEL, POLE DESIGNED TO SUPPORT FIXTURE(S) IN 100 MPH WINDS WITH 1.3 GUST FACTOR. PRIMARY FUSES. FLAT LENS. SURGE PROTECTION. (1) HEAD. 30' POLE, BASE BY DIVISION 26 CONTRACTOR. TYPE III DISTRIBUTION; ZERO UPLIGHT.	480 V	270 W	LED 4000K	32,500	MCGRAW-EDISON - GLEON OR APPROVED EQUAL
SL3	DOWNLIGHT	NOMINAL 4" DIA x 5"H LED RECESSED DOWNLIGHT, 0-10V DIMMING TO 1%, FIVE YEAR WARRANTY, CLEAR SEMI-SPECULAR REFLECTOR, WHITE TRIM. WET LOCATION RATED.	277 V	18 W	LED 4000K	2,000	HALO - HC4 OR APPROVED EQUAL
SL3-EM	DOWNLIGHT	NOMINAL 4" DIA x 5"H LED RECESSED DOWNLIGHT, 0-10V DIMMING TO 1%, FIVE YEAR WARRANTY, CLEAR SEMI-SPECULAR REFLECTOR, WHITE TRIM. WET LOCATION RATED. PROVIDE WITH 90 MINUTE EMERGENCY BATTERY.	277 V	18 W	LED 4000K	2,000	HALO - HC4 OR APPROVED EQUAL
SL4	VANDAL RESISTANT SURFACE MOUNT	12"WX48"L WHITE STEEL HOUSING, HIGH IMPACT FROSTED POLYCARBONATE LENS. 0-10V DIMMING TO 1%.	277 V	130 W	LED 4000K	13,500	FAIL-SAFE - HVSL12 OR APPROVED EQUAL
SL4-EM	VANDAL RESISTANT SURFACE MOUNT	12"WX48"L WHITE STEEL HOUSING, HIGH IMPACT FROSTED POLYCARBONATE LENS. 0-10V DIMMING TO 1%. PROVIDE WITH INTEGRAL COLD WEATHER 90 MIN EMERGENCY BATTERY.	277 V	130 W	LED 4000K	13,500	FAIL-SAFE - HVSL12 OR APPROVED EQUAL

Distribution Panel: MDP

Location: ELEC. B102 | **Voltage:** 480/277 Wye | **Branch:** Normal
Supplied From: | **Phase:** 3 | **A.I.C. Rating:** 65,000
Mounting: Surface | **Wire:** 4 | **Main Type:** MCB
Enclosure Type: Type 1 | **Ground:** Yes | **Main Rating:** 800A

General Panel Comments:
SERVICE ENTRANCE RATED
PROVIDE WITH INTEGRAL TVSS

		Breaker Information											
		Thermal Mag		Electronic Trip									
Circuit Number	Circuit Description	Fixed	Adj. Inst.	L	S	I	G	100% Rated	Poles	Frame Size	Trip Rating	Load (kVA)	Remarks:
1	T-HL1	X							3	200 A	175 A	75.0	
2	ELEVATOR	X							3	200 A	100 A	56.5	
3	FB STADIUM LIGHTING 'F3'	X							3	100 A	60 A	23.0	
4	FB STADIUM LIGHTING 'F4'	X							3	100 A	30 A	16.9	
5	SPARE (FUTURE RESTROOM / CONCESSIONS BUILDING)	--	--	--	--	--	--	--	3	200 A	200 A	132.9	--
6	SPARE	--	--	--	--	--	--	--	3	200 A	100 A	0.0	--
7	SPARE	--	--	--	--	--	--	--	3	200 A	100 A	0.0	--
8	PROVISION	--	--	--	--	--	--	--	3	--	--	--	--
9	PROVISION	--	--	--	--	--	--	--	3	--	--	--	--
10	PROVISION	--	--	--	--	--	--	--	3	--	--	--	--
11	UNDER BLEACHER LIGHTING	X							1	20 A	20 A	2.6	
12	UNDER BLEACHER LIGHTING	X							1	20 A	20 A	2.7	
13	ELEVATOR & BLEACHER STORAGE LIGHITNG	X							1	20 A	20 A	1.3	
14	SPARE	--	--	--	--	--	--	--	1	20 A	20 A	0.0	--
15	SPARE	--	--	--	--	--	--	--	1	20 A	20 A	0.0	--
16	SPARE	--	--	--	--	--	--	--	1	20 A	20 A	0.0	--
17	SPARE	--	--	--	--	--	--	--	1	20 A	20 A	0.0	--
18	SPARE	--	--	--	--	--	--	--	1	20 A	20 A	0.0	--
19	SPARE	--	--	--	--	--	--	--	1	20 A	20 A	0.0	--
20	PROVISION	--	--	--	--	--	--	--	1	--	--	--	--
21	PROVISION	--	--	--	--	--	--	--	1	--	--	--	--
22	PROVISION	--	--	--	--	--	--	--	1	--	--	--	--
											Total Connected Load (kVA):	310.6	
											Total Connected Load (Amps):	373.6	

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
Elevator	58300 VA	95.00%	55385 VA		
HVAC	12200 VA	100.00%	12200 VA	Total Conn. Load:	310587 VA
Lighting	47130 VA	100.00%	47130 VA	Total Est. Demand:	288361 VA
Home Restroom Electrical Service	28787 VA	70.00%	20151 VA	Total Conn. Current:	374 A
Receptacle	31350 VA	65.95%	20675 VA	Total Est. Demand Current:	347 A
Spare	132864 VA	100.00%	132864 VA		

Remarks:

Branch Panel: HL1

Location: Space 2 | **Voltage:** 120/208 Wye | **Branch:** Normal
Supplied From: T-HL1 | **Phase:** 3 | **A.I.C. Rating:** 10,000
Mounting: Surface | **Wire:** 4 | **Main Type:** MCB
Enclosure Type: Type 1 | **Ground:** Yes | **Main Rating:** 300A

General Panel Comments:
PROVIDE WITH INTEGRAL TVSS
PROVIDE WITH FEED THRU LUGS

Circuit Number	Circuit Description	Trip	Poles	A		B		C		Poles	Trip	Circuit Description	Circuit Number
1	FIRE ALARM CONTROL PANEL	20 A	1	0.5	0.5					1	20 A	PLAY CLOCK	2
3	ELEVATOR CAB	20 A	1			1.8	0.3			1	20 A	FB STADIUM LIGTHING CONTROL PANEL	4
5	ELEVATOR HOISTWAY LIGHTING AND...	20 A	1					0.5	0.4	1	20 A	HOME GRANDSTAND RECEPTACLES	6
7	RECEPTACLES	20 A	1	0.5	0.4					1	20 A	HOME GRANDSTAND RECEPTACLES	8
9	HUDDLE CAMERA	20 A	1			0.5	1.5			2	30 A	DUCTLESS SPLIT	10
11	EUH-7	20 A	1					1.1	1.5				12
13	SPARE	20 A	1	0	1.5					2	30 A	DUCTLESS SPLIT	14
15	SPARE	20 A	1			0	1.5						16
17	SPARE	20 A	1					0	0	1	20 A	SPARE	18
19	SPARE	20 A	1	0	0					1	20 A	SPARE	20
21	PROVISION	--	1			--	0			1	20 A	SPARE	22
23	PROVISION	--	1					--	0	1	20 A	SPARE	24
25	PROVISION	--	1	--	0					1	20 A	SPARE	26
27	PROVISION	--	1			--	0			1	20 A	SPARE	28
29	PROVISION	--	1					--	--	1	--	PROVISION	30
31	PROVISION	--	1	--	--					1	--	PROVISION	32
33	PROVISION	--	1			--	--			1	--	PROVISION	34
35	PROVISION	--	1					--	--	1	--	PROVISION	36
37				1.6	9.6								38
39	PANEL 'SB'	60 A	3			0	9.6			3	100 A	HOME RESTROOM ELECTRICAL SERVICE	40
41								0	9.6				42
			Total Load:	26.3 kVA		25.6 kVA		23.1 kVA					

Load Sumamry:

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
Elevator	1800 VA	100.00%	1800 VA		
HVAC	12200 VA	100.00%	12200 VA	Total Conn. Load:	75050 VA
Lighting	960 VA	100.00%	960 VA	Total Est. Demand:	55739 VA
Home Restroom Electrical Service	28787 VA	70.00%	20151 VA	Total Conn. Current:	208 A
Receptacle	31350 VA	65.95%	20675 VA	Total Est. Demand Current:	155 A

Remarks:

Branch Panel: HL2

Location: ANNOUNCING 205 | **Voltage:** 120/208 Wye | **Branch:** Normal
Supplied From: HL1 | **Phase:** 3 | **A.I.C. Rating:** 10,000
Mounting: Recessed | **Wire:** 4 | **Main Type:** MLO
Enclosure Type: Type 1 | **Ground:** Yes | **Main Rating:** 300A

General Panel Comments:

Circuit Number	Circuit Description	Trip	Poles	A		B		C		Poles	Trip	Circuit Description	Circuit Number
1	PRESS BOX RECEPTACLES	20 A	1	0.7	0.4					2	20 A	HEAT PUMP	2
3	PRESS BOX RECEPTACLES	20 A	1			0.7	0.4						4
5	PRESS BOX RECEPTACLES	20 A	1					0.7	0.4	2	20 A	HEAT PUMP	6
7	PRESS BOX RECEPTACLES	20 A	1	0.7	0.4								8
9	PRESS BOX RECEPTACLES	20 A	1			0.7	0.4			2	20 A	HEAT PUMP	10
11	PRESS BOX RECEPTACLES	20 A	1					0.7	0.4				12
13	PRESS BOX RECEPTACLES	20 A	1	0.7	0.4					2	20 A	HEAT PUMP	14
15	PRESS BOX RECEPTACLES	20 A	1			0.7	0.4						16
17	PRESS BOX RECEPTACLES	20 A	1					1.1	0.4	2	20 A	HEAT PUMP	18
19	PRESS BOX RECEPTACLES	20 A	1	0.7	0.4								20
21	PRESS BOX RECEPTACLES	20 A	1			0.7	0.4			2	20 A	HEAT PUMP	22
23	PRESS BOX RECEPTACLES	20 A	1					0.7	0.4				24
25	PRESS BOX RECEPTACLES	20 A	1	0.7	1.6					1	20 A	IT RACK	26
27	PRESS BOX RECEPTACLES	20 A	1			0.7	1.6			1	20 A	IT RACK	28
29	PRESS BOX RECEPTACLES	20 A	1					0.7	1.6	1	20 A	IT RACK	30
31	PRESS BOX RECEPTACLES	20 A	1	0.7	1.6					1	20 A	IT RACK	32
33	PRESS BOX RECEPTACLES	20 A	1			0.7	0.5			1	20 A	FIRST FLOOR EXTERIOR RECEPTACLES	34
35	PRESS BOX RECEPTACLES	20 A	1					0.7	0.5	1	20 A	SECOND FLOOR EXTERIOR RECEPTACLES	36
37	PRESS BOX RECEPTACLES	20 A	1	0.7	0.8					1	20 A	LIGHTING	38
39	PRESS BOX RECEPTACLES	20 A	1			0.7	0.5			1	20 A	ROOF RECEPTACLES	40
41	PRESS BOX RECEPTACLES	20 A	1					0.7	0	1	20 A	SPARE	42
43	PRESS BOX RECEPTACLES	20 A	1	1.1	0					1	20 A	SPARE	44
45	PRESS BOX RECEPTACLES	20 A	1			1.1	0			1	20 A	SPARE	46
47	PRESS BOX RECEPTACLES	20 A	1					0.7	0	1	20 A	SPARE	48
49	SPARE	20 A	1	0	0					1	20 A	SPARE	50
51	SPARE	20 A	1			0	0			1	20 A	SPARE	52
53	SPARE	20 A	1					0	0	1	20 A	SPARE	54
55	SPARE	20 A	1	0	0					1	20 A	SPARE	56
57	SPARE	20 A	1			0	0			1	20 A	SPARE	58
59	SPARE	20 A	1					0	0	1	20 A	SPARE	60
			Total Load:	11.8 kVA		10.5 kVA		10.0 kVA					

Load Sumamry:

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
HVAC	5100 VA	100.00%	5100 VA		
Lighting	768 VA	100.00%	768 VA	Total Conn. Load:	32210 VA
Receptacle	26380 VA	68.95%	18190 VA	Total Est. Demand:	24021 VA
				Total Conn. Current:	89 A
				Total Est. Demand Current:	67 A

Remarks:

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

Project No. 2019-067.NCH
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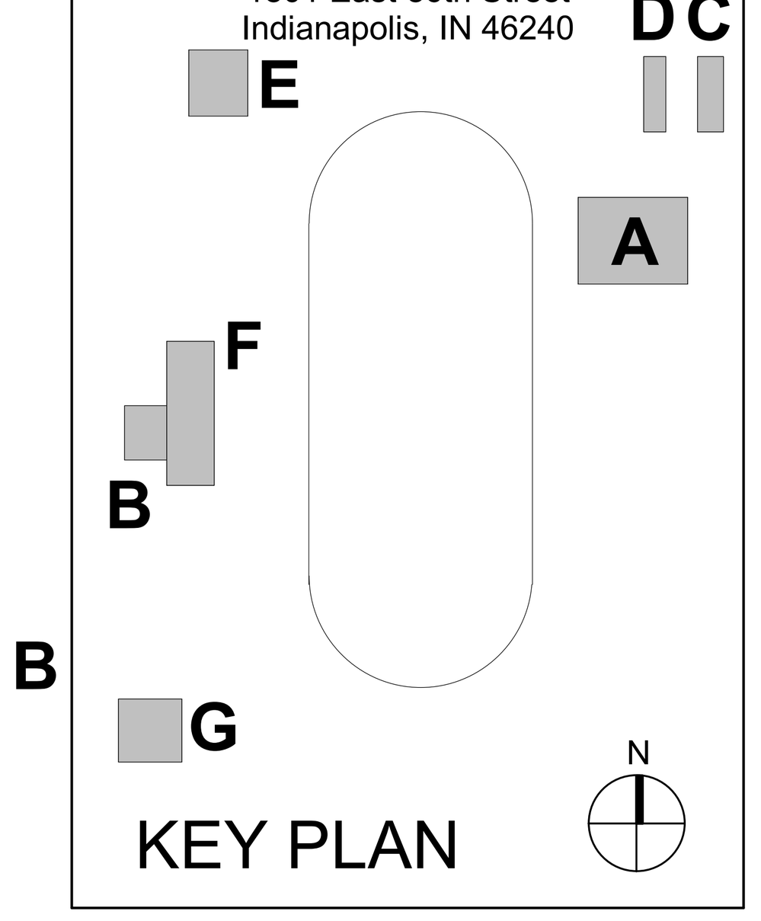
DAVID SHUCK REGISTERED No. 19700101 STATE OF INDIANA PROFESSIONAL ENGINEER

#	Revision	Date
	ADDENDUM 1.4b	08/17/2023

1801 East 86th Street
Indianapolis, IN 46240



KEY PLAN

M.S.D of Washington Township

North Central High School Renovation - Field Improvements

ELECTRICAL SCHEDULES

E601.4

6 | 5 | 4 | 3 | 2 | 1

North Central High School Football

Indianapolis, IN

Lighting System

Pole / Fixture Summary

Pole ID	Pole Height	Mtg Height	Fixture Qty	Luminaire Type	Load	Circuit
F1	75'	75'	1	TLC-LED-1200	1.17 kW	B
		75'	11	TLC-LED-1500	15.51 kW	B
		16'	3	TLC-BT-575	1.73 kW	B
		75'	1	TLC-RGBW	0.64 kW	B
F2	75'	75'	5	TLC-LED-1200	5.85 kW	B
		75'	11	TLC-LED-1500	15.51 kW	B
		16'	3	TLC-BT-575	1.73 kW	B
		75'	1	TLC-RGBW	0.64 kW	B
F3	85'	85'	1	TLC-LED-1200	1.17 kW	A
		85'	13	TLC-LED-1500	18.33 kW	A
		85'	2	TLC-RGBW	1.28 kW	A
		16'	3	TLC-BT-575	1.73 kW	A
F4	85'	85'	1	TLC-LED-1200	1.17 kW	A
		85'	9	TLC-LED-1500	12.69 kW	A
		85'	2	TLC-RGBW	1.28 kW	A
		16'	3	TLC-BT-575	1.73 kW	A
4			*70*		*82.14 kW*	

Circuit Summary

Circuit	Description	Load	Fixture Qty
A	Football Home	39.37 kW	34
B	Football Visitor	42.77 kW	36

Fixture Type Summary

Type	Source	Wattage	Lumens	L90	L80	L70	Quantity
TLC-RGBW	LED 5700K - 75 CRI	640W	28,500	>120,000	>120,000	>120,000	6
TLC-LED-1500	LED 5700K - 75 CRI	1410W	181,000	>120,000	>120,000	>120,000	44
TLC-LED-1200	LED 5700K - 75 CRI	1170W	150,000	>120,000	>120,000	>120,000	8
TLC-BT-575	LED 5700K - 75 CRI	575W	52,000	>120,000	>120,000	>120,000	12

Single Luminaire Amperage Draw Chart

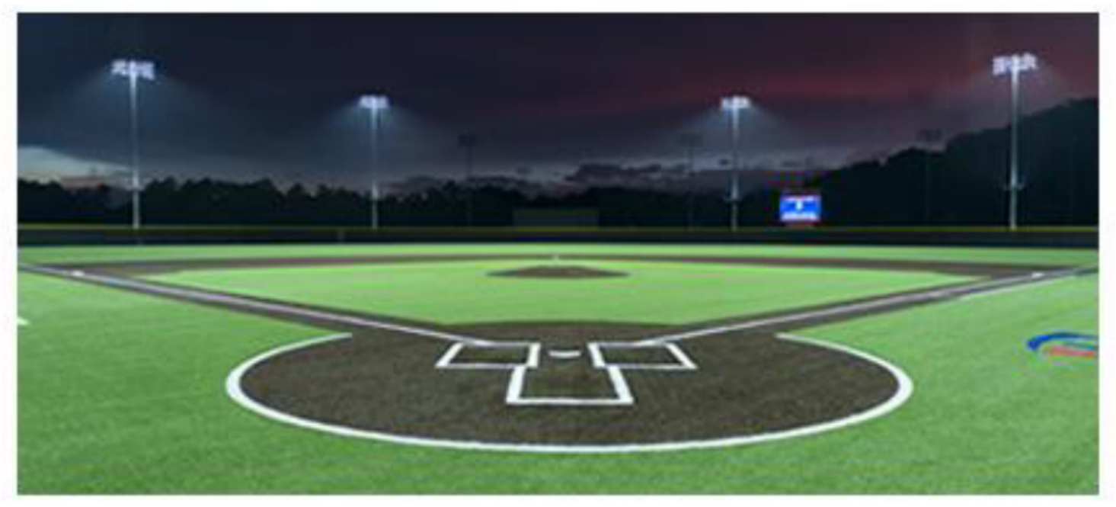
Driver (.90 min power factor)	Max Line Amperage Per Luminaire						
Single Phase Voltage	208 (60)	220 (60)	240 (60)	277 (60)	347 (60)	380 (60)	480 (60)
TLC-RGBW	4.5	4.3	3.8	3.3	2.7	1.9	1.9
TLC-LED-1500	8.4	7.9	7.3	6.3	5.0	4.6	3.6
TLC-LED-1200	6.9	6.5	6.0	5.2	4.2	3.8	3.0
TLC-BT-575	3.4	3.2	2.9	2.5	2.0	1.8	1.5

Light Level Summary

Calculation Grid Summary

Grid Name	Calculation Metric	Illumination					Circuits	Fixture Qty
		Ave	Min	Max	Max/Min	Ave/Min		
East Discus	Horizontal	25.1	12	38	3.03	2.09	A,B	70
Football	Horizontal Illuminance	51.5	46	61	1.32	1.12	A,B	70
Home Bleachers	Horizontal	13.1	4	44	12.22	3.28	A,B	70
House Spill	Horizontal	0	0	0.01	0.00		A,B	70
House Spill	Max Candela (by Fixture)	543	0	1576	0.00		A,B	70
House Spill	Max Vertical Illuminance Metric	0.01	0	0.03	0.00		A,B	70
Shot Put	Horizontal	28	19	42	2.26	1.47	B,A	70
Track	Horizontal Illuminance	32.1	3	62	19.21	10.70	A,B	70
Visitor Bleachers	Horizontal	20.8	17	28	1.63	1.22	A,B	70
West Discus	Horizontal	24.4	13	32	2.56	1.88	A,B	70

From Hometown to Professional



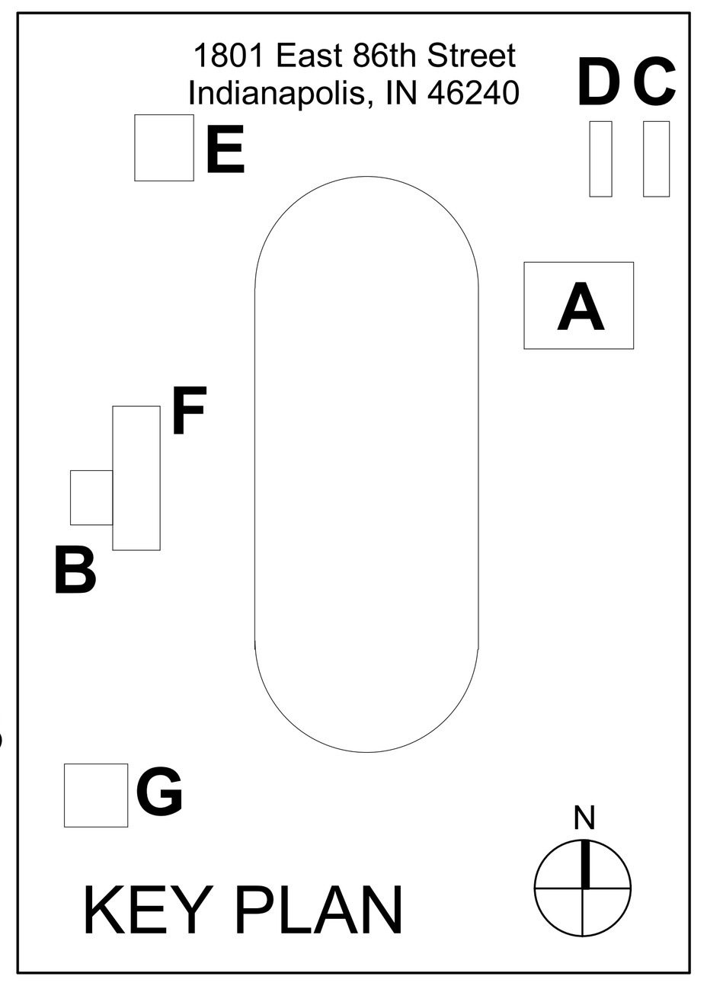
PROJECT SUMMARY

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

Project No. 2019-067.NCH
Project Date 07.27.2023
Bid Set 04
Produced JAW JAW

DAVID SHUCK REGISTERED No. 19700101 STATE OF INDIANA PROFESSIONAL ENGINEER

#	Revision	Date
	ADDENDUM 1.4b	08/17/2023



M.S.D of Washington Township

North Central High School Renovation - Field Improvements

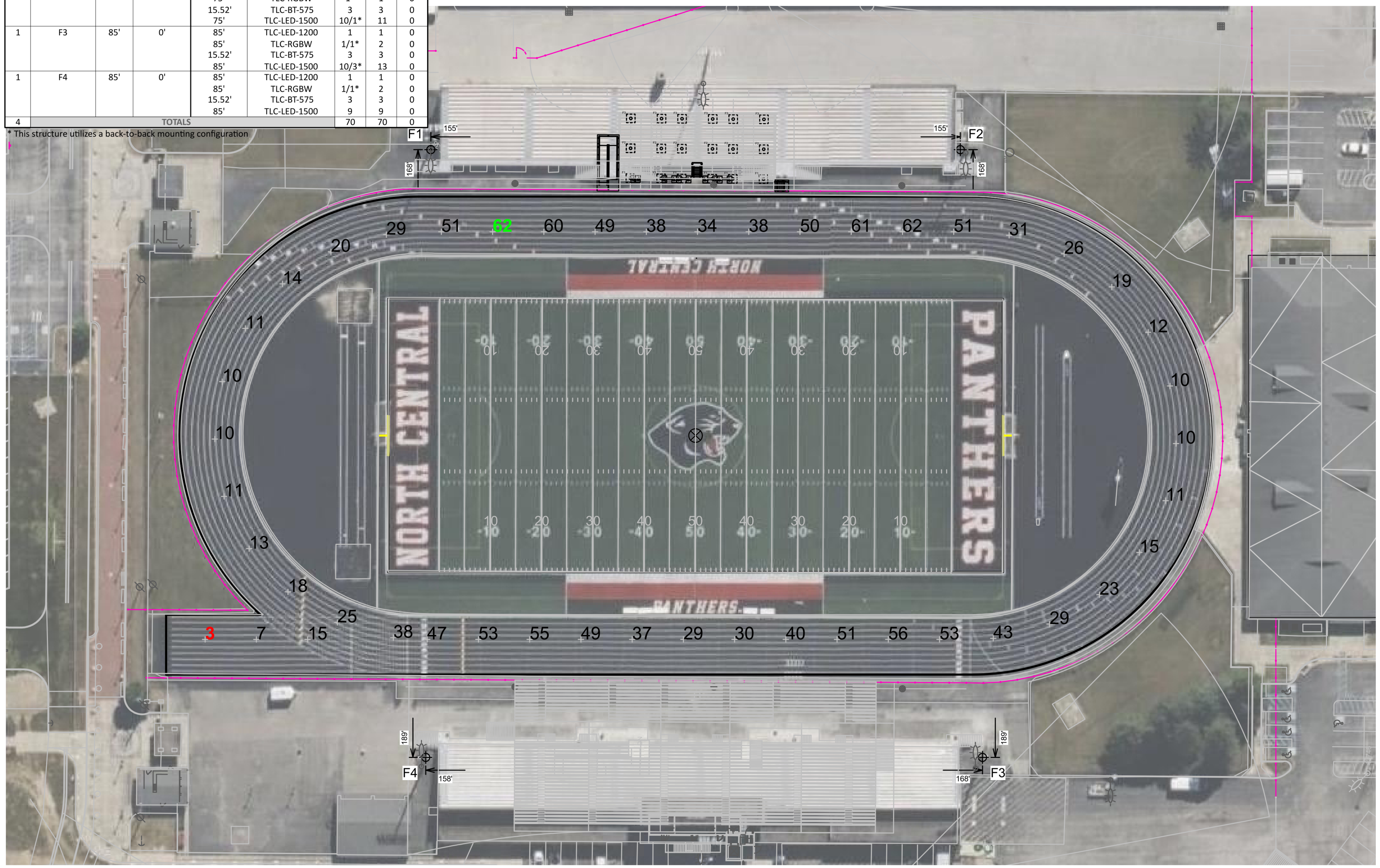
ATHLETIC FIELD LIGHTING

E801.4

EQUIPMENT LIST FOR AREAS SHOWN

Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	THIS GRID	OTHER GRIDS
1	F1	75'	0'	75'	TLC-LED-1200	1	1	0
				75'	TLC-RGBW	1*	1	0
				15.52'	TLC-BT-575	3	3	0
				75'	TLC-LED-1500	9/2*	11	0
1	F2	75'	0'	75'	TLC-LED-1200	1/4*	5	0
				75'	TLC-RGBW	1*	1	0
				15.52'	TLC-BT-575	3	3	0
				75'	TLC-LED-1500	10/1*	11	0
1	F3	85'	0'	85'	TLC-LED-1200	1	1	0
				85'	TLC-RGBW	1/1*	2	0
				15.52'	TLC-BT-575	3	3	0
				85'	TLC-LED-1500	10/3*	13	0
1	F4	85'	0'	85'	TLC-LED-1200	1	1	0
				85'	TLC-RGBW	1/1*	2	0
				15.52'	TLC-BT-575	3	3	0
				85'	TLC-LED-1500	9	9	0
4	TOTALS					70	70	0

* This structure utilizes a back-to-back mounting configuration



Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊗

North Central High School Football

Indianapolis, IN

GRID SUMMARY

Name:	**Track**
Size:	Irregular
Spacing:	30.0' x 30.0'
Height:	3.0' above grade

ILLUMINATION SUMMARY

MAINTAINED HORIZONTAL FOOTCANDLES

	Entire Grid
Scan Average:	**32.10**
Maximum:	62
Minimum:	3
Avg / Min:	9.90
Max / Min:	**19.21**
UG (adjacent pts):	0.00
CU:	0.14
No. of Points:	47

LUMINAIRE INFORMATION

Applied Circuits:	A, B
No. of Luminaires:	**70**
Total Load:	82.14 kW

Guaranteed Performance: The ILLUMINATION described above

includes a 0.95 dirt depreciation factor.

Field Measurements: Individual field measurements may vary from computer-calculated predictions and should be taken in accordance with IESNA RP-6-15.

Electrical System Requirements: Refer to Amperage Draw Chart for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.

ILLUMINATION SUMMARY

SCHMIDT ASSOCIATES
415 Massachusetts Avenue
Indianapolis, IN 46204
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Project No. 2019-067.NCH
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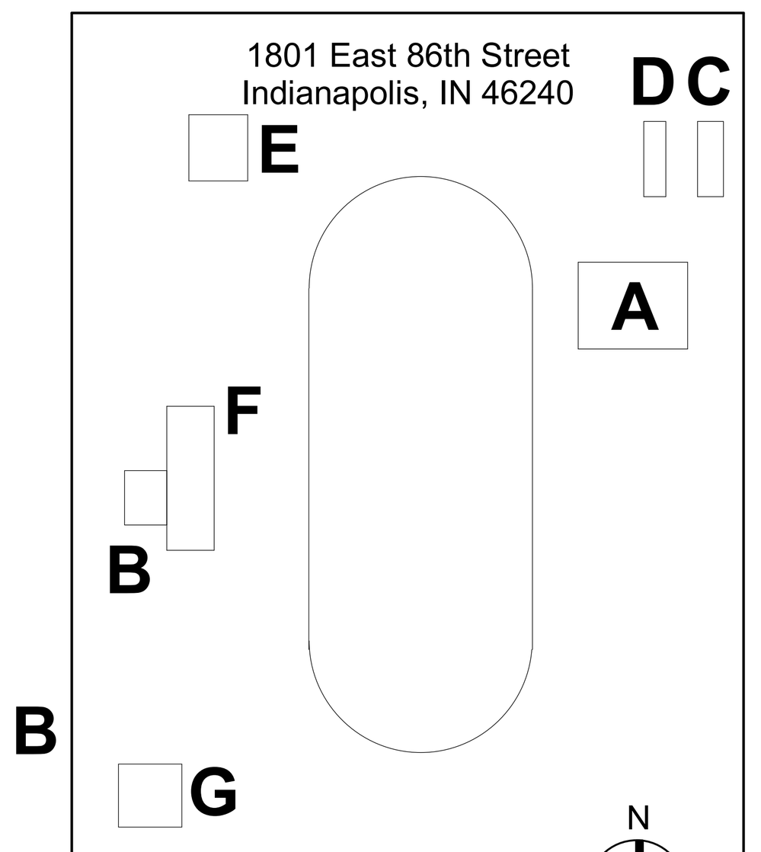
Produced JAW JAW

DAVID SHUCK REGISTERED No. 19700101 STATE OF INDIANA PROFESSIONAL ENGINEER

#	Revision	Date
	ADDENDUM 1.4b	08/17/2023



KEY PLAN

M.S.D of Washington Township

North Central High School Renovation - Field Improvements

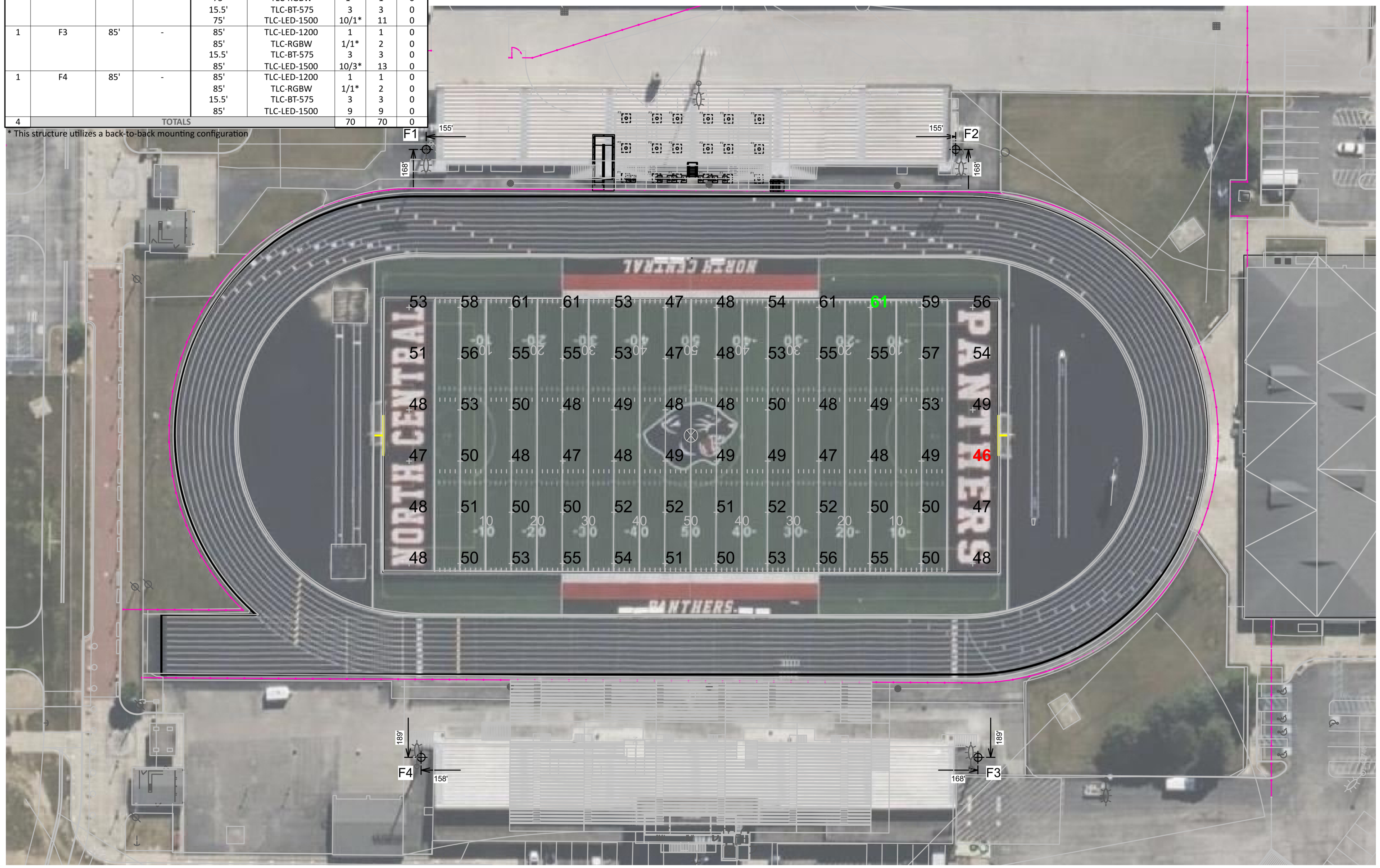
ATHLETIC FIELD LIGHTING

E802.4

EQUIPMENT LIST FOR AREAS SHOWN

Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	THIS GRID	OTHER GRIDS
1	F1	75'	-	75'	TLC-LED-1200	1	1	0
				75'	TLC-RGBW	1*	1	0
				15.5'	TLC-BT-575	3	3	0
				75'	TLC-LED-1500	9/2*	11	0
1	F2	75'	-	75'	TLC-LED-1200	1/4*	5	0
				75'	TLC-RGBW	1*	1	0
				15.5'	TLC-BT-575	3	3	0
				75'	TLC-LED-1500	10/1*	11	0
1	F3	85'	-	85'	TLC-LED-1200	1	1	0
				85'	TLC-RGBW	1/1*	2	0
				15.5'	TLC-BT-575	3	3	0
				85'	TLC-LED-1500	10/3*	13	0
1	F4	85'	-	85'	TLC-LED-1200	1	1	0
				85'	TLC-RGBW	1/1*	2	0
				15.5'	TLC-BT-575	3	3	0
				85'	TLC-LED-1500	9	9	0
4	TOTALS					70	70	0

* This structure utilizes a back-to-back mounting configuration



Pole location(s) ⌖ dimensions are relative to 0,0 reference point(s) ⊗

North Central High School Football

Indianapolis, IN

GRID SUMMARY

Name:	**Football**
Size:	360' x 160'
Spacing:	30.0' x 30.0'
Height:	3.0' above grade

ILLUMINATION SUMMARY

MAINTAINED HORIZONTAL FOOTCANDLES	
	Entire Grid
Guaranteed Average:	**50**
Scan Average:	51.48
Maximum:	61
Minimum:	46
Avg / Min:	1.11
Guaranteed Max / Min:	**2**
Max / Min:	1.32
UG (adjacent pts):	1.14
CU:	0.33
No. of Points:	72
LUMINAIRE INFORMATION	
Applied Circuits:	A, B
No. of Luminaires:	**70**
Total Load:	82.14 kW

Guaranteed Performance: The ILLUMINATION described above

includes a 0.95 dirt depreciation factor.

Field Measurements: Individual field measurements may vary from computer-calculated predictions and should be taken in accordance with IESNA RP-6-15.

Electrical System Requirements: Refer to Amperage Draw Chart for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.

ILLUMINATION SUMMARY

SCHMIDT ASSOCIATES
415 Massachusetts Avenue
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Project No. 2019-067.NCH
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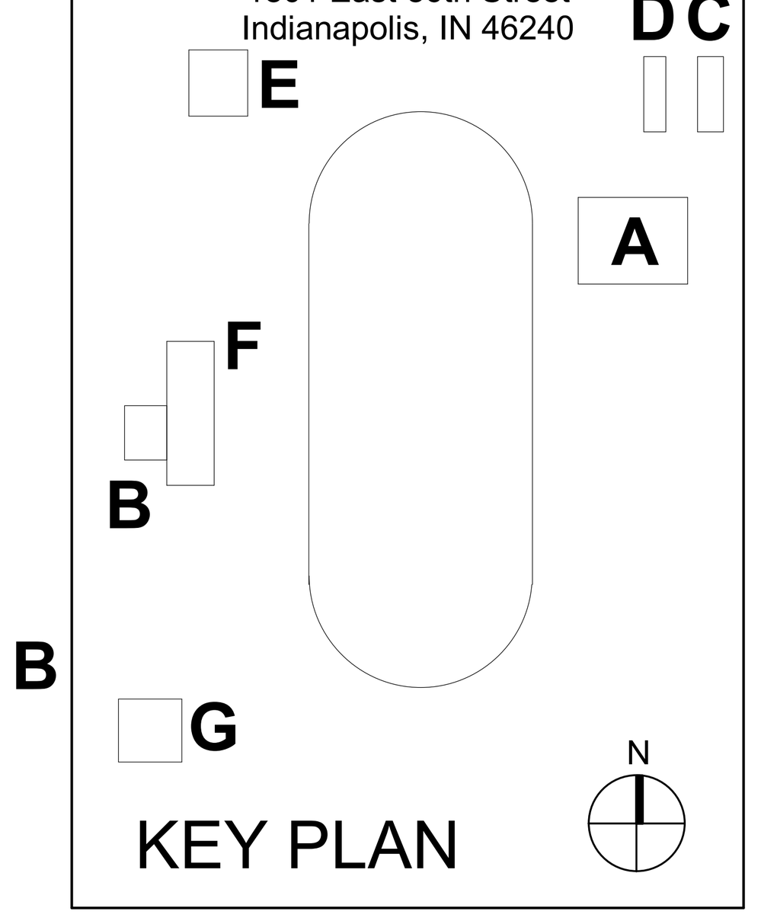
DAVID SHUCK REGISTERED No. 19700101 STATE OF INDIANA PROFESSIONAL ENGINEER

#	Revision	Date
	ADDENDUM 1.4b	08/17/2023

1801 East 86th Street
Indianapolis, IN 46240



KEY PLAN

M.S.D of Washington Township

North Central High School Renovation - Field Improvements

ATHLETIC FIELD LIGHTING

E803.4

EQUIPMENT LIST FOR AREAS SHOWN

Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	THIS GRID	OTHER GRIDS
1	F1	75'	-	75'	TLC-LED-1200	1	1	0
				75'	TLC-RGBW	1*	1	0
				15.5'	TLC-BT-575	3	3	0
				75'	TLC-LED-1500	9/2*	11	0
1	F2	75'	-	75'	TLC-LED-1200	1/4*	5	0
				75'	TLC-RGBW	1*	1	0
				15.5'	TLC-BT-575	3	3	0
				75'	TLC-LED-1500	10/1*	11	0
1	F3	85'	-	85'	TLC-LED-1200	1	1	0
				85'	TLC-RGBW	1/1*	2	0
				15.5'	TLC-BT-575	3	3	0
				85'	TLC-LED-1500	10/3*	13	0
1	F4	85'	-	85'	TLC-LED-1200	1	1	0
				85'	TLC-RGBW	1/1*	2	0
				15.5'	TLC-BT-575	3	3	0
				85'	TLC-LED-1500	9	9	0
4	TOTALS					70	70	0

* This structure utilizes a back-to-back mounting configuration

44	41	36	31	27	25	22	20	18	17	17	17	17	18	20	22	25	28	32	36	41
34	32	28	25	22	20	18	17	15	15	14	14	15	15	17	18	20	22	25	29	32
25	24	22	20	18	16	15	14	13	12	12	12	12	13	14	15	16	18	20	22	25
19	18	17	15	14	13	13	12	11	11	10	10	11	11	12	13	14	15	16	17	19
15	14	13	12	12	11	11	10	9	9	9	9	9	10	10	11	12	12	13	14	15
11	11	10	10	10	9	9	8	8	8	7	8	8	8	9	9	10	10	11	11	13
8	8	8	8	8	7	7	7	7	6	6	6	6	7	7	7	8	8	9	9	10
6	6	6	6	6	6	6	6	5	5	5	5	5	6	6	6	6	7	7	8	9
4	4	4	5	5	5	5	5	4	4	4	4	4	5	5	5	5	6	6	7	9

Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊗

North Central High School Football

Indianapolis, IN

GRID SUMMARY

Name:	**Home Bleachers**
Size:	360' x 160'
Spacing:	10.0' x 10.0'
Height:	3.0' above grade

ILLUMINATION SUMMARY

MAINTAINED HORIZONTAL FOOTCANDLES

	Entire Grid
Scan Average:	**13.13**
Maximum:	44
Minimum:	4
Avg / Min:	3.64
Max / Min:	**12.22**
UG (adjacent pts):	1.54
CU:	0.02
No. of Points:	189

LUMINAIRE INFORMATION

Applied Circuits:	A, B
No. of Luminaires:	**70**
Total Load:	82.14 kW

Guaranteed Performance: The ILLUMINATION described above

includes a 0.95 dirt depreciation factor.

Field Measurements: Individual field measurements may vary from computer-calculated predictions and should be taken in accordance with IESNA RP-6-15.

Electrical System Requirements: Refer to Amperage Draw Chart for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.

ILLUMINATION SUMMARY

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

Project No. 2019-067.NCH
Project Date 07.27.2023
Bid Set 04
Produced JAW JAW

DAVID SHUCK REGISTERED No. 19700101 STATE OF INDIANA PROFESSIONAL ENGINEER

#	Revision	Date
	ADDENDUM 1.4b	08/17/2023

1801 East 86th Street
Indianapolis, IN 46240

KEY PLAN

M.S.D of Washington Township

North Central High School Renovation - Field Improvements

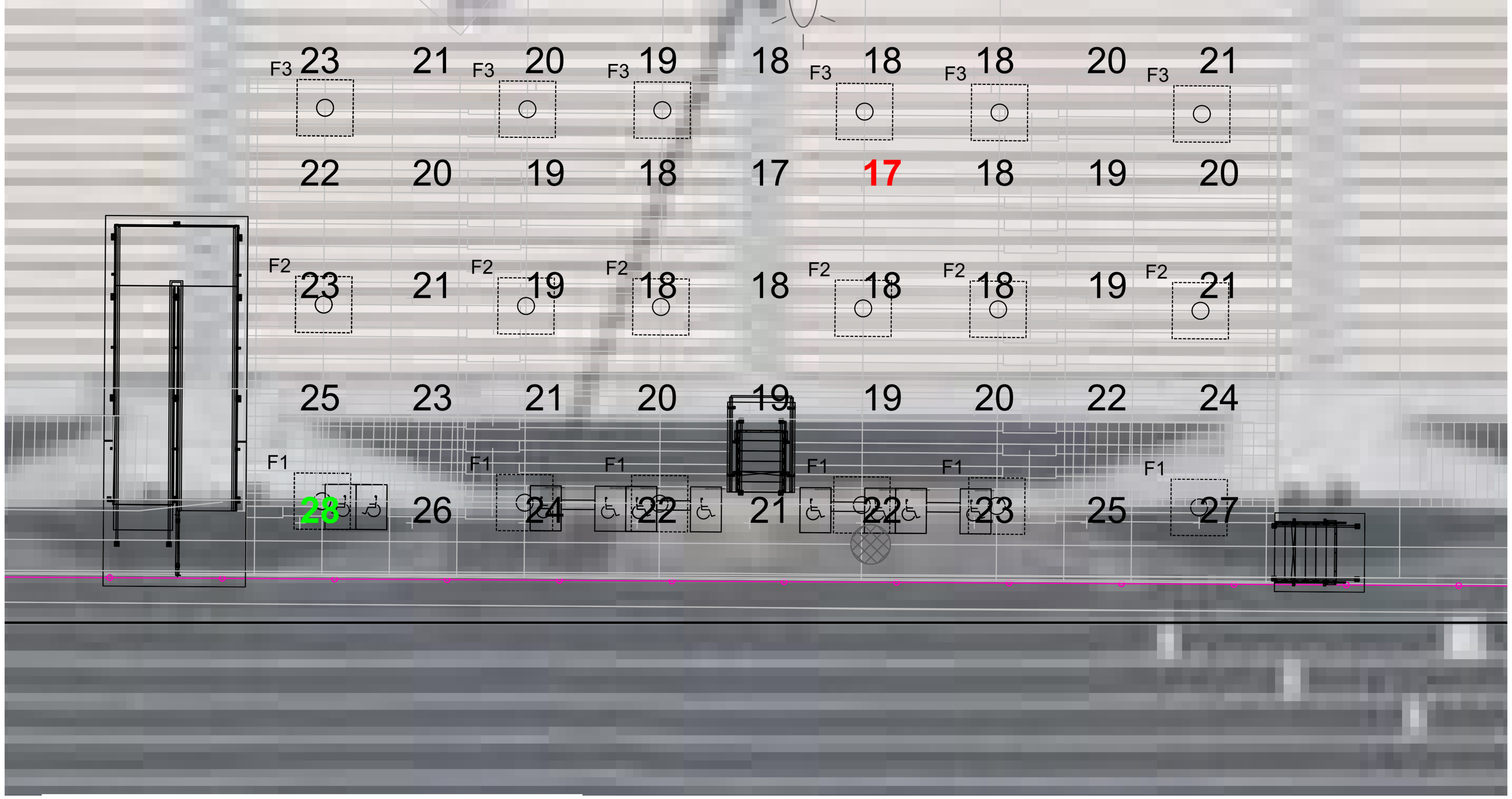
ATHLETIC FIELD LIGHTING

E804.4

EQUIPMENT LIST FOR AREAS SHOWN

Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	THIS GRID	OTHER GRIDS
1	F1	75'	-	75'	TLC-LED-1200	1	1	0
				75'	TLC-RGBW	1*	1	0
				15.5'	TLC-BT-575	3	3	0
				75'	TLC-LED-1500	9/2*	11	0
1	F2	75'	-	75'	TLC-LED-1200	1/4*	5	0
				75'	TLC-RGBW	1*	1	0
				15.5'	TLC-BT-575	3	3	0
				75'	TLC-LED-1500	10/1*	11	0
1	F3	85'	-	85'	TLC-LED-1200	1	1	0
				85'	TLC-RGBW	1/1*	2	0
				15.5'	TLC-BT-575	3	3	0
				85'	TLC-LED-1500	10/3*	13	0
1	F4	85'	-	85'	TLC-LED-1200	1	1	0
				85'	TLC-RGBW	1/1*	2	0
				15.5'	TLC-BT-575	3	3	0
				85'	TLC-LED-1500	9	9	0
4	TOTALS					70	70	0

* This structure utilizes a back-to-back mounting configuration



Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊗

North Central High School Football

Indianapolis, IN

GRID SUMMARY

Name:	Visitor Bleachers
Size:	360' x 160'
Spacing:	10.0' x 10.0'
Height:	3.0' above grade

ILLUMINATION SUMMARY

MAINTAINED HORIZONTAL FOOTCANDLES	
	Entire Grid
Scan Average:	20.80
Maximum:	28
Minimum:	17
Avg / Min:	1.20
Max / Min:	1.63
UG (adjacent pts):	1.15
CU:	0.01
No. of Points:	45
LUMINAIRE INFORMATION	
Applied Circuits:	A, B
No. of Luminaires:	70
Total Load:	82.14 kW

Guaranteed Performance: The ILLUMINATION described above includes a 0.95 dirt depreciation factor.

Field Measurements: Individual field measurements may vary from computer-calculated predictions and should be taken in accordance with IESNA RP-6-15.

Electrical System Requirements: Refer to Amperage Draw Chart for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.

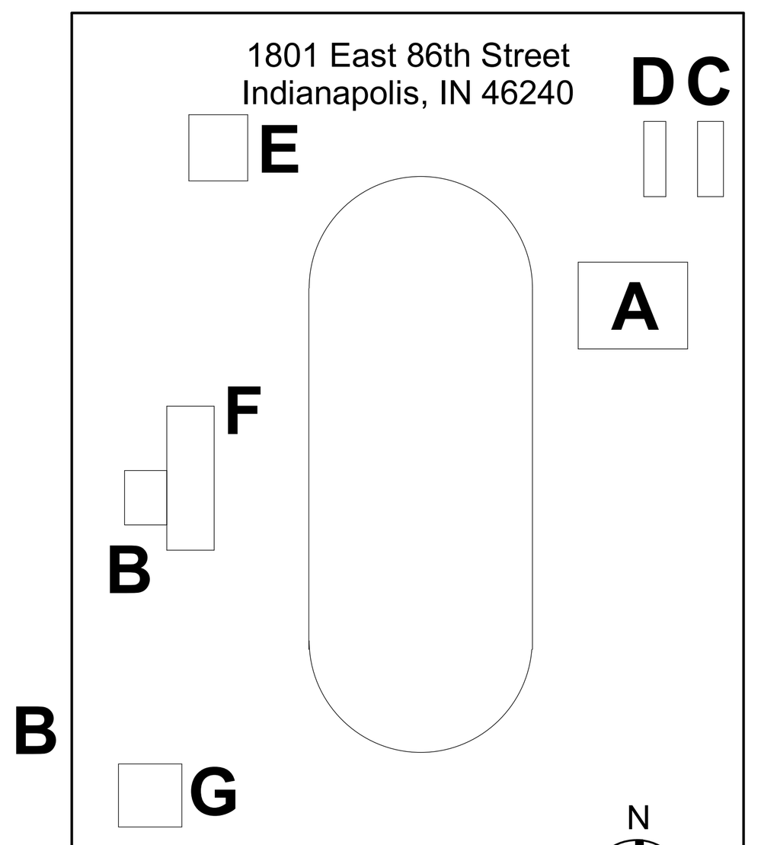
ILLUMINATION SUMMARY

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

Project No.	2019-067.NCH
Project Date	07.27.2023
Bid Set	04
Produced	JAW JAW

DAVID SHUCK REGISTERED No. 19700101 STATE OF INDIANA PROFESSIONAL ENGINEER

#	Revision	Date
	ADDENDUM 1.4b	08/17/2023



KEY PLAN

M.S.D of Washington Township

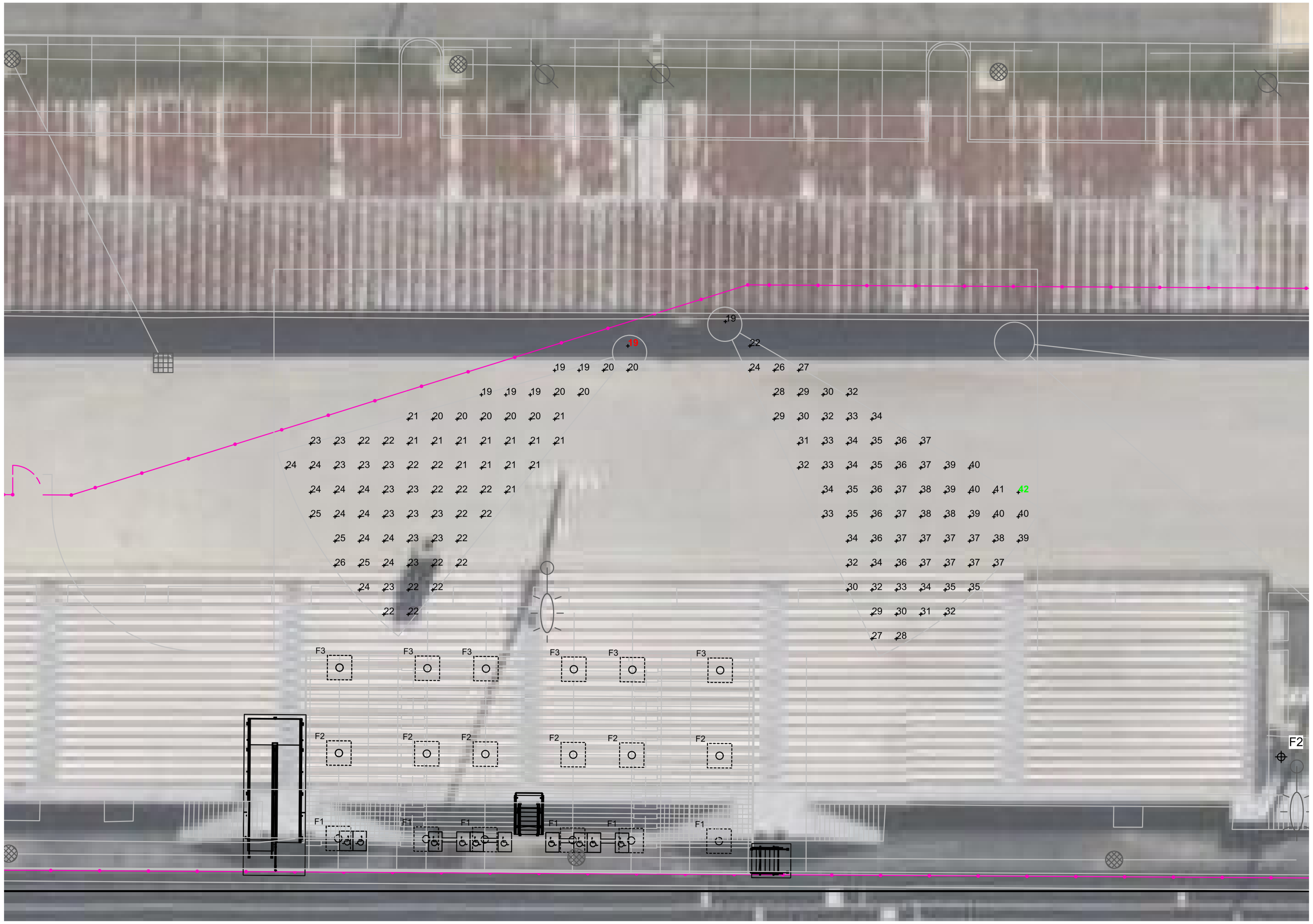
North Central High School Renovation - Field Improvements

ATHLETIC FIELD LIGHTING

E805.4

North Central High School Football

Indianapolis, IN



GRID SUMMARY	
Name:	**Shot Put**
Spacing:	5.0' x 5.0'
Height:	3.0' above grade

ILLUMINATION SUMMARY	
MAINTAINED HORIZONTAL FOOTCANDLES	
	Entire Grid
Scan Average:	**27.98**
Maximum:	42
Minimum:	19
Avg / Min:	1.51
Max / Min:	**2.26**
UG (adjacent pts):	1.10
CU:	0.01
No. of Points:	147
LUMINAIRE INFORMATION	
Applied Circuits:	A, B
No. of Luminaires:	**70**
Total Load:	82.14 kW

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Warranty document and includes a 0.95 dirt depreciation factor.

Field Measurements: Individual field measurements may vary from computer-calculated predictions and should be taken in accordance with IESNA RP-6-15.

Electrical System Requirements: Refer to Amperage Draw Chart for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.

Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊗

ILLUMINATION SUMMARY

SCHMIDT ASSOCIATES
415 Massachusetts Avenue
Indianapolis, IN 46204
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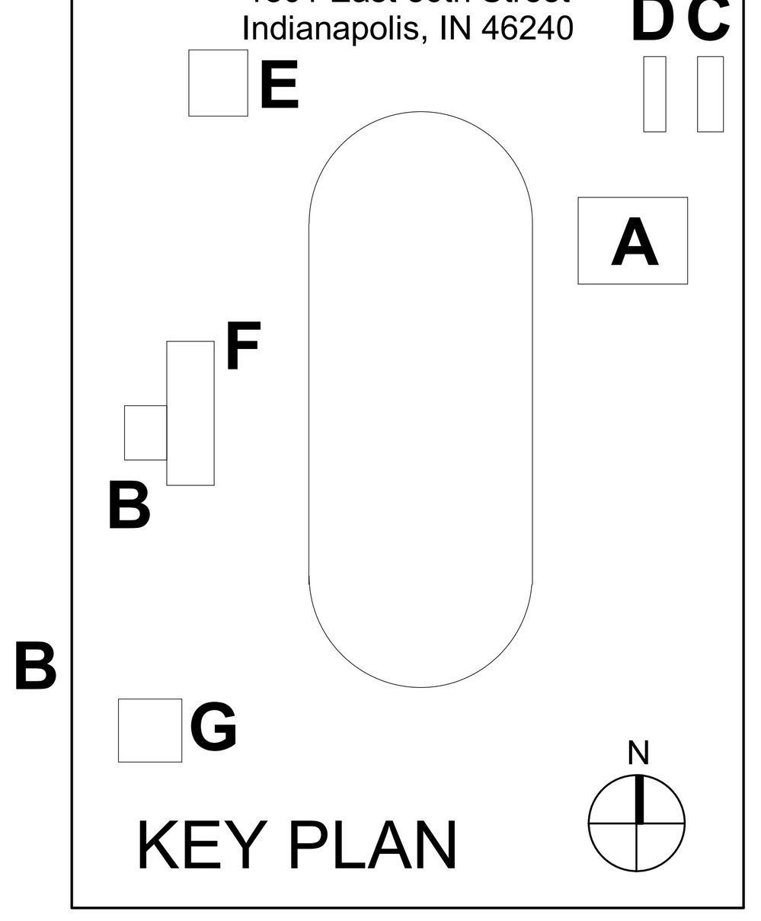
Project No. 2019-067.NCH
Project Date 07.27.2023
Bid Set 04
Produced JAW JAW

DAVID SHUCK REGISTERED No. 19700101 STATE OF INDIANA PROFESSIONAL ENGINEER

#	Revision	Date
	ADDENDUM 1.4b	08/17/2023

1801 East 86th Street
Indianapolis, IN 46240



KEY PLAN

M.S.D of Washington Township

North Central High School Renovation - Field Improvements

ATHLETIC FIELD LIGHTING

E806.4

North Central High School Football
Indianapolis, IN

GRID SUMMARY	
Name:	East Discus
Spacing:	10.0' x 10.0'
Height:	3.0' above grade

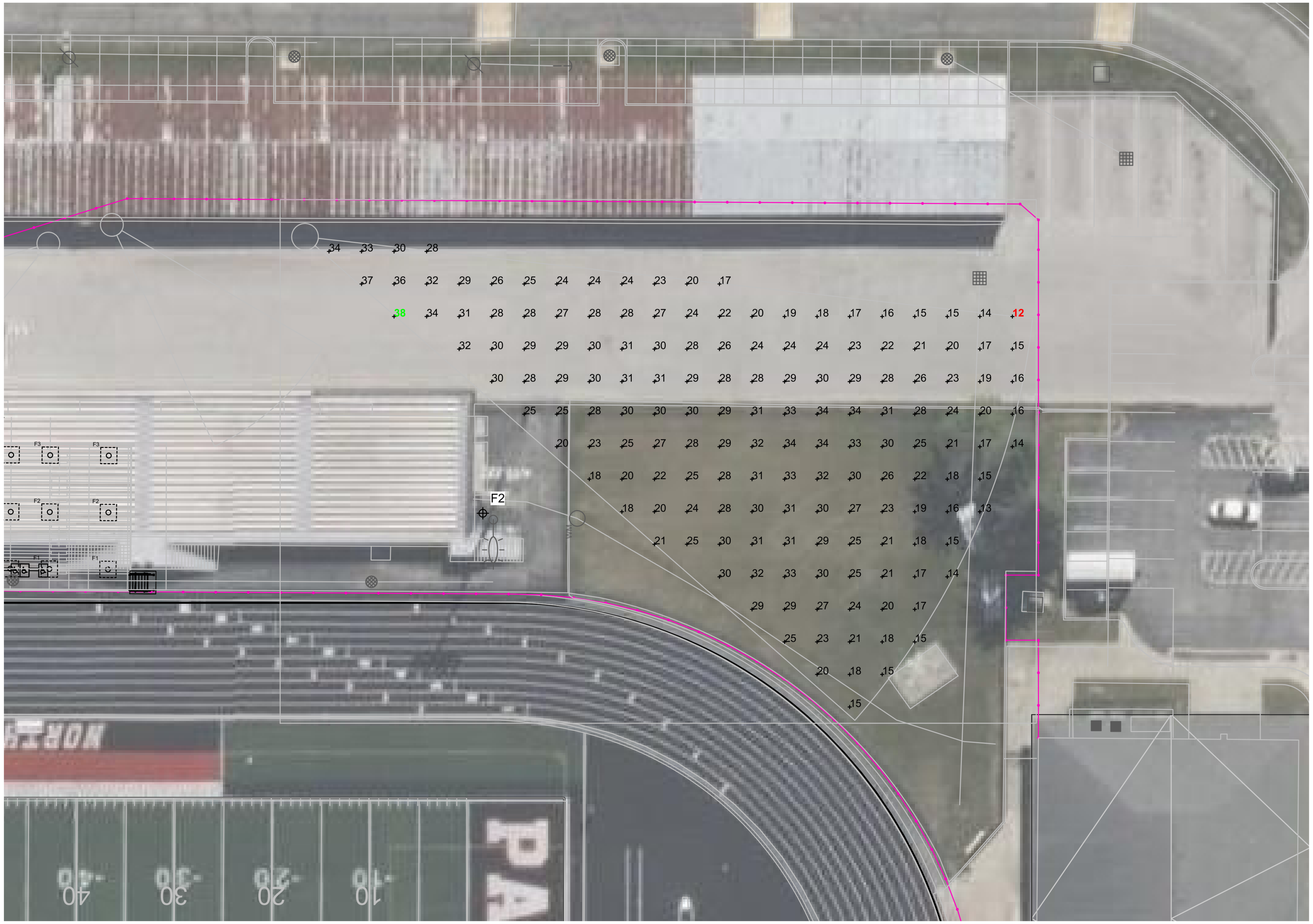
ILLUMINATION SUMMARY	
MAINTAINED HORIZONTAL FOOTCANDLES	
	Entire Grid
Scan Average:	**25.13**
Maximum:	38
Minimum:	12
Avg / Min:	2.02
Max / Min:	**3.03**
UG (adjacent pts):	1.39
CU:	0.04
No. of Points:	160
LUMINAIRE INFORMATION	
Applied Circuits:	A, B
No. of Luminaires:	**70**
Total Load:	82.14 kW

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Warranty document and includes a 0.95 dirt depreciation factor.

Field Measurements: Individual field measurements may vary from computer-calculated predictions and should be taken in accordance with IESNA RP-6-15.

Electrical System Requirements: Refer to Amperage Draw Chart for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.



Pole location(s) ✛ dimensions are relative to 0,0 reference point(s) ⊗

ILLUMINATION SUMMARY

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

Project No. 2019-067.NCH
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DAVID SHUCK REGISTERED No. 19700101 STATE OF INDIANA PROFESSIONAL ENGINEER

#	Revision	Date
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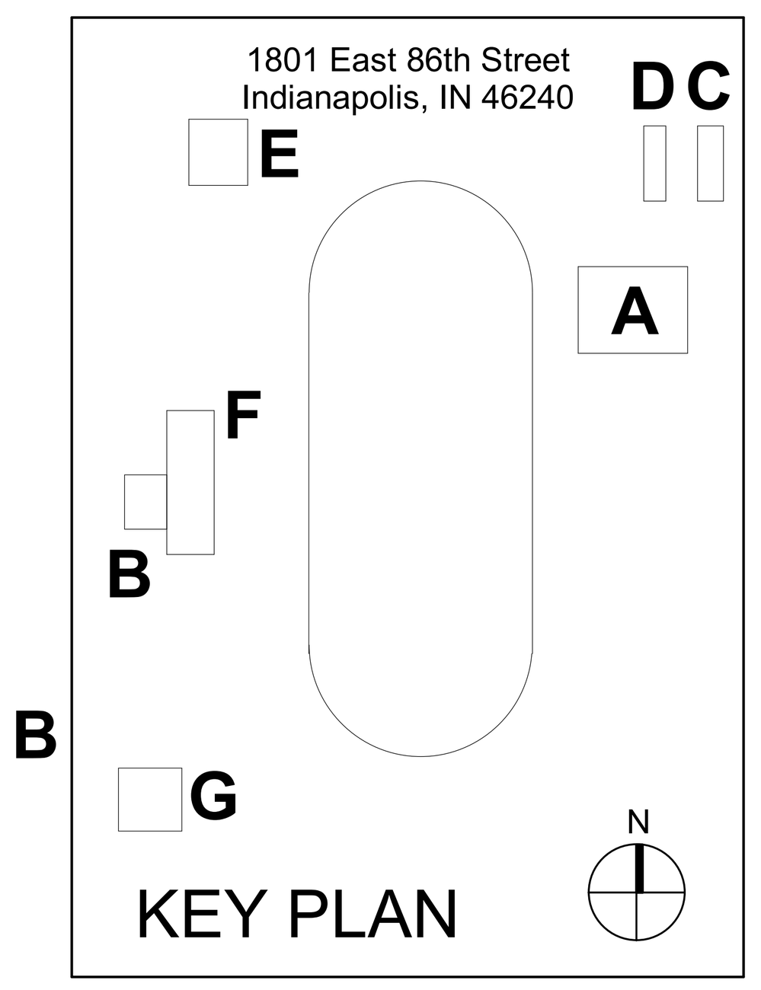


KEY PLAN

M.S.D of Washington Township

North Central High School Renovation - Field Improvements

ATHLETIC FIELD LIGHTING

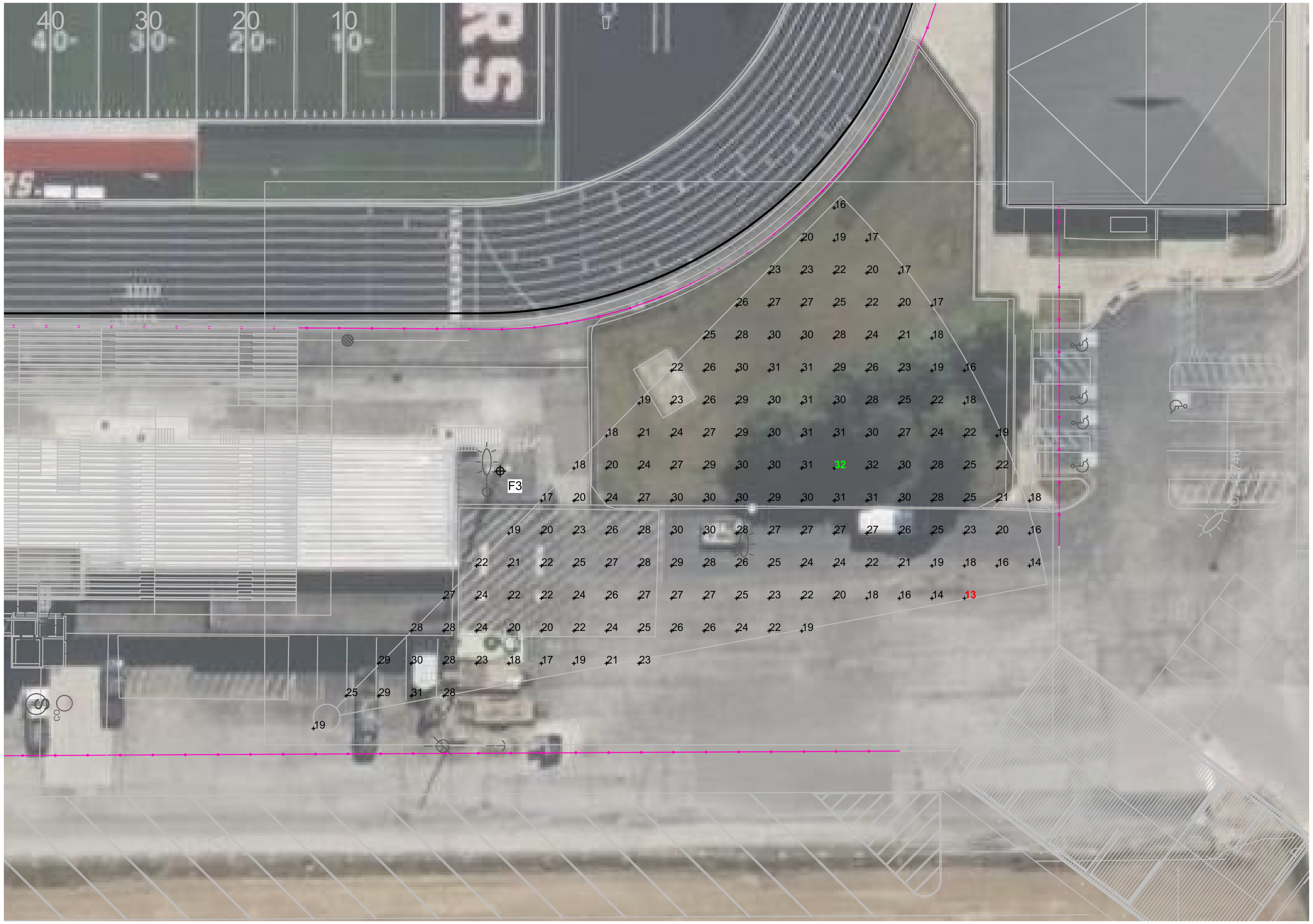
E807.4

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

Project No. 2019-067.NCH
Project Date 07.27.2023
Bid Set 04
Produced JAW JAW

DAVID SHUCK REGISTERED No. 19700101 STATE OF INDIANA PROFESSIONAL ENGINEER

#	Revision	Date
	ADDENDUM 1.4b	08/17/2023



North Central High School Football

Indianapolis, IN

GRID SUMMARY	
Name:	**West Discus**
Spacing:	10.0' x 10.0'
Height:	3.0' above grade

ILLUMINATION SUMMARY	
MAINTAINED HORIZONTAL FOOTCANDLES	
	Entire Grid
Scan Average:	**24.38**
Maximum:	32
Minimum:	13
Avg / Min:	1.95
Max / Min:	**2.56**
UG (adjacent pts):	1.42
CU:	0.04
No. of Points:	167
LUMINAIRE INFORMATION	
Applied Circuits:	A, B
No. of Luminaires:	**70**
Total Load:	82.14 kW

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Warranty document and includes a 0.95 dirt depreciation factor.

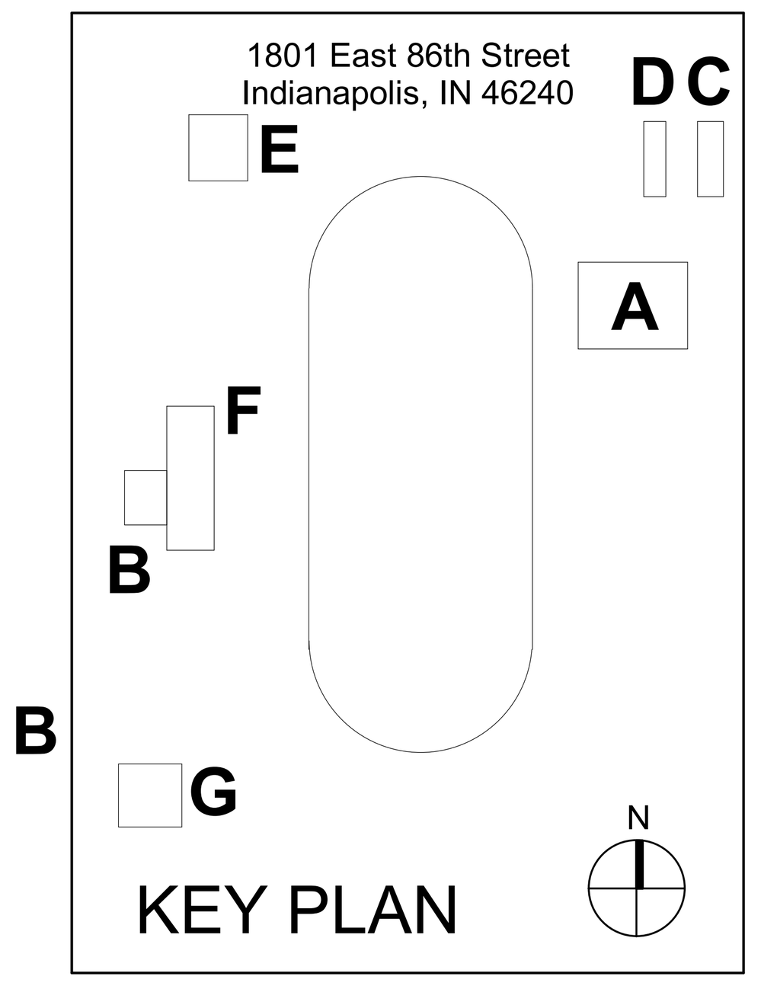
Field Measurements: Individual field measurements may vary from computer-calculated predictions and should be taken in accordance with IESNA RP-6-15.

Electrical System Requirements: Refer to Amperage Draw Chart for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.

Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊗

ILLUMINATION SUMMARY



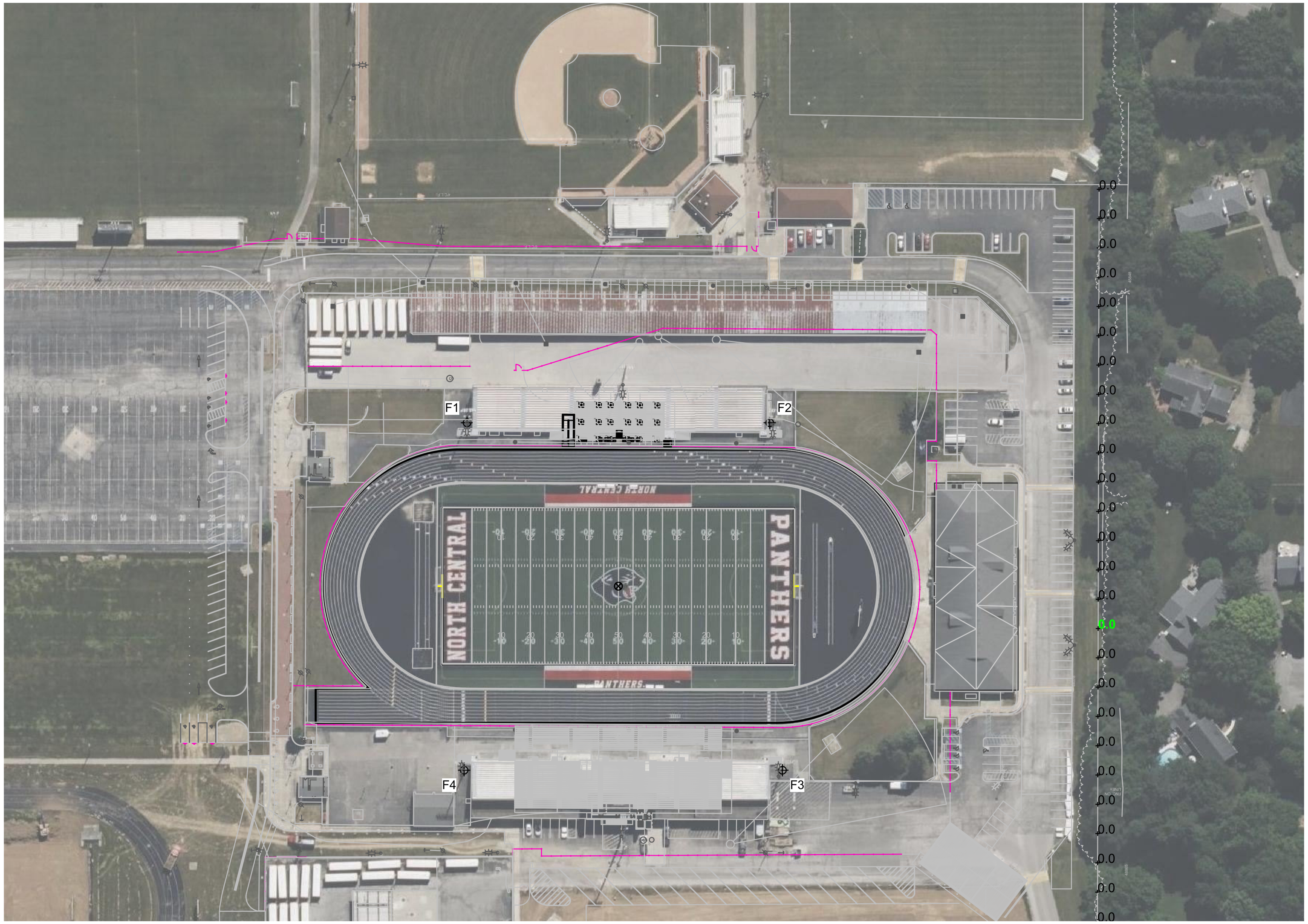
M.S.D of Washington Township

North Central High School Renovation - Field Improvements

ATHLETIC FIELD LIGHTING

E808.4

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



Pole location(s) ⌖ dimensions are relative to 0,0 reference point(s) ⊗

North Central High School Football
Indianapolis, IN

GRID SUMMARY	
Name:	**House Spill**
Spacing:	30.0'
Height:	3.0' above grade

ILLUMINATION SUMMARY	
HORIZONTAL FOOTCANDLES	
	Entire Grid
Scan Average:	0.0015
Maximum:	0.01
Minimum:	0.00
No. of Points:	39
LUMINAIRE INFORMATION	
Applied Circuits:	A, B
No. of Luminaires:	**70**
Total Load:	82.14 kW

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Warranty document.

Field Measurements: Individual field measurements may vary from computer-calculated predictions and should be taken in accordance with IESNA RP-6-15.

Electrical System Requirements: Refer to Amperage Draw Chart for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.

ILLUMINATION SUMMARY

Project No.	2019-067.NCH
Project Date	07.27.2023
Bid Set	04
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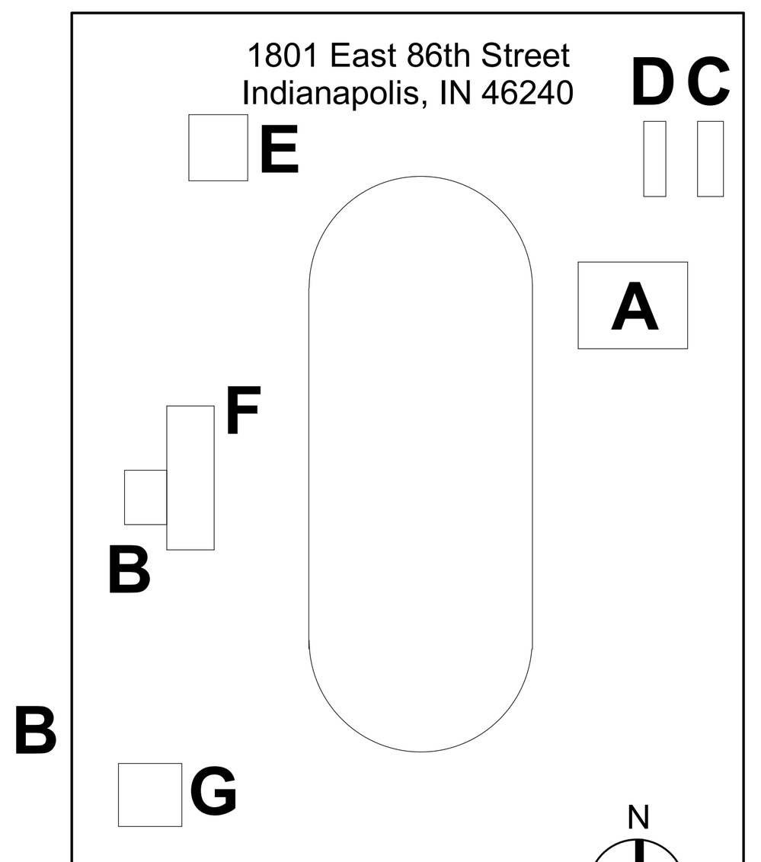
DAVID SHUCK REGISTERED No. 19700101 STATE OF INDIANA PROFESSIONAL ENGINEER

#	Revision	Date
	ADDENDUM 1.4b	08/17/2023



KEY PLAN

M.S.D of Washington Township

North Central High School Renovation - Field Improvements

ATHLETIC FIELD LIGHTING

E809.4

6 5 4 3 2 1

North Central High School Football

Indianapolis, IN

GRID SUMMARY

Name:	**House Spill**
Spacing:	30.0'
Height:	3.0' above grade

ILLUMINATION SUMMARY

MAX VERTICAL FOOTCANDLES

	Entire Grid
Scan Average:	0.0069
Maximum:	0.03
Minimum:	0.00
No. of Points:	39

LUMINAIRE INFORMATION

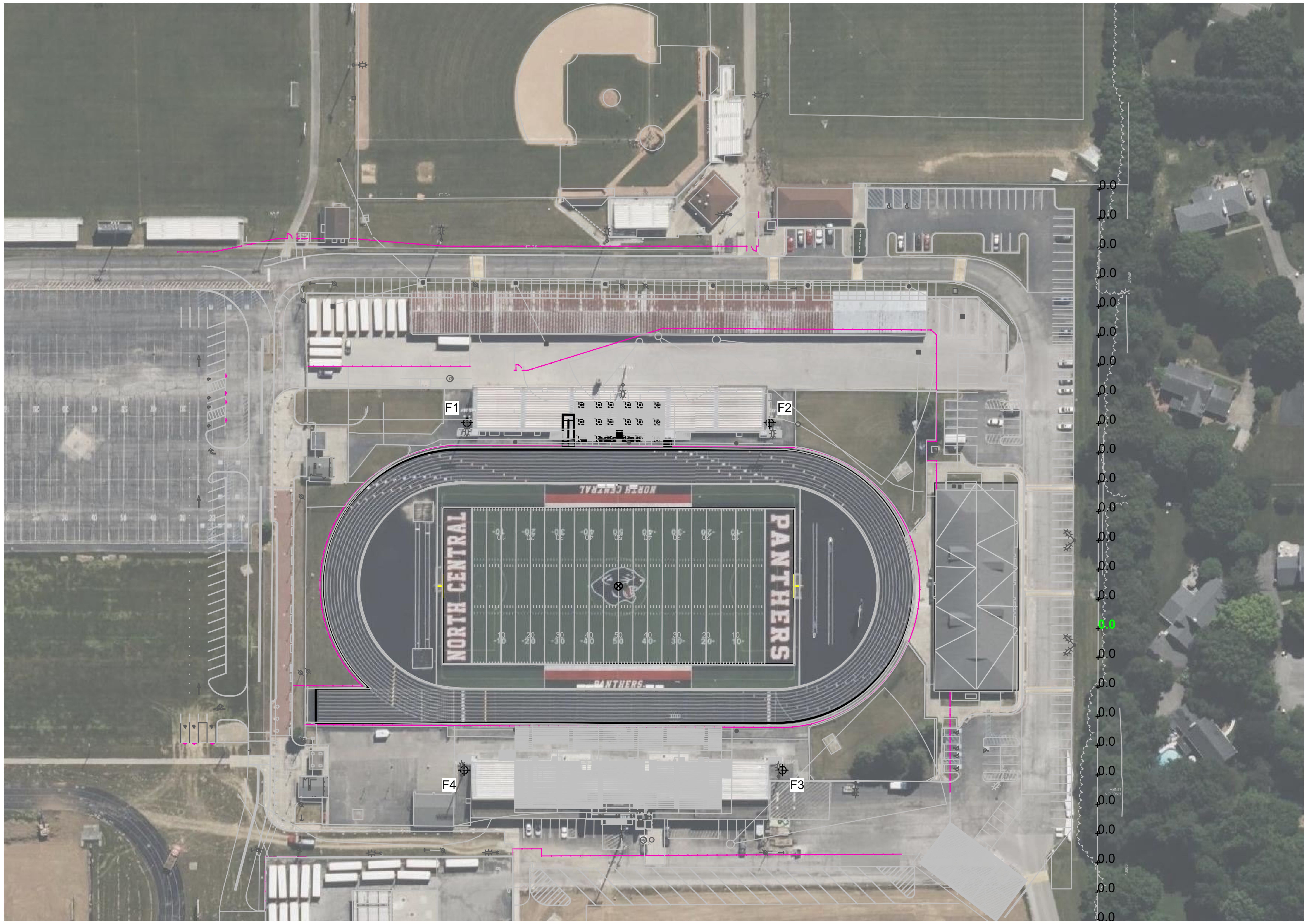
Applied Circuits:	A, B
No. of Luminaires:	**70**
Total Load:	82.14 kW

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Warranty document.

Field Measurements: Individual field measurements may vary from computer-calculated predictions and should be taken in accordance with IESNA RP-6-15.

Electrical System Requirements: Refer to Amperage Draw Chart for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.



Pole location(s) ✛ dimensions are relative to 0,0 reference point(s) ⊗

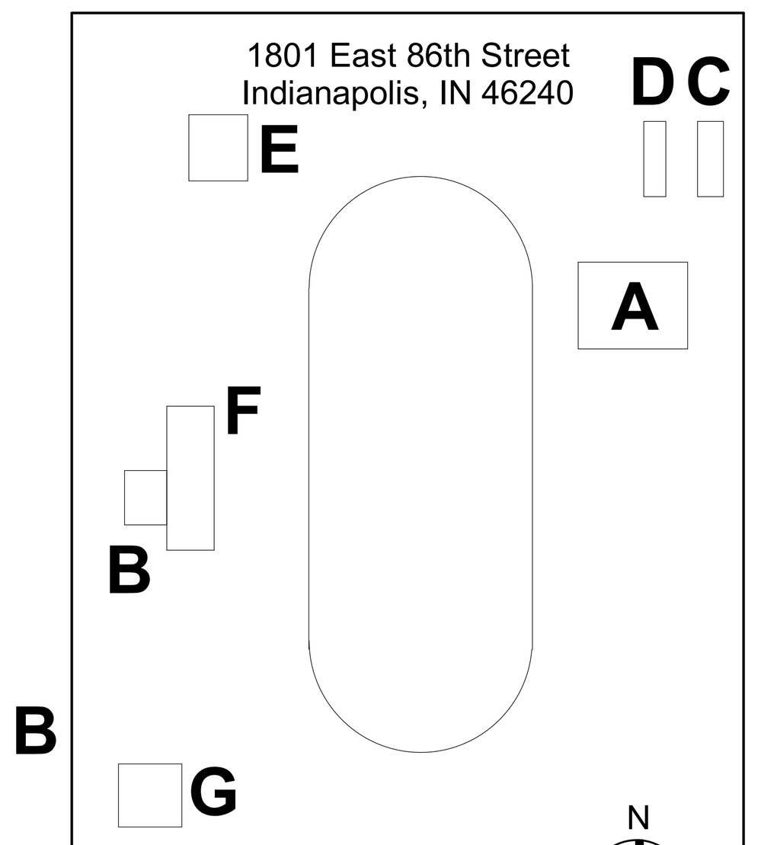
ILLUMINATION SUMMARY

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

Project No. 2019-067.NCH
Project Date 07.27.2023
Bid Set 04
Produced JAW JAW

DAVID SHUCK REGISTERED No. 19700101 STATE OF INDIANA PROFESSIONAL ENGINEER

#	Revision	Date
	ADDENDUM 1.4b	08/17/2023



KEY PLAN

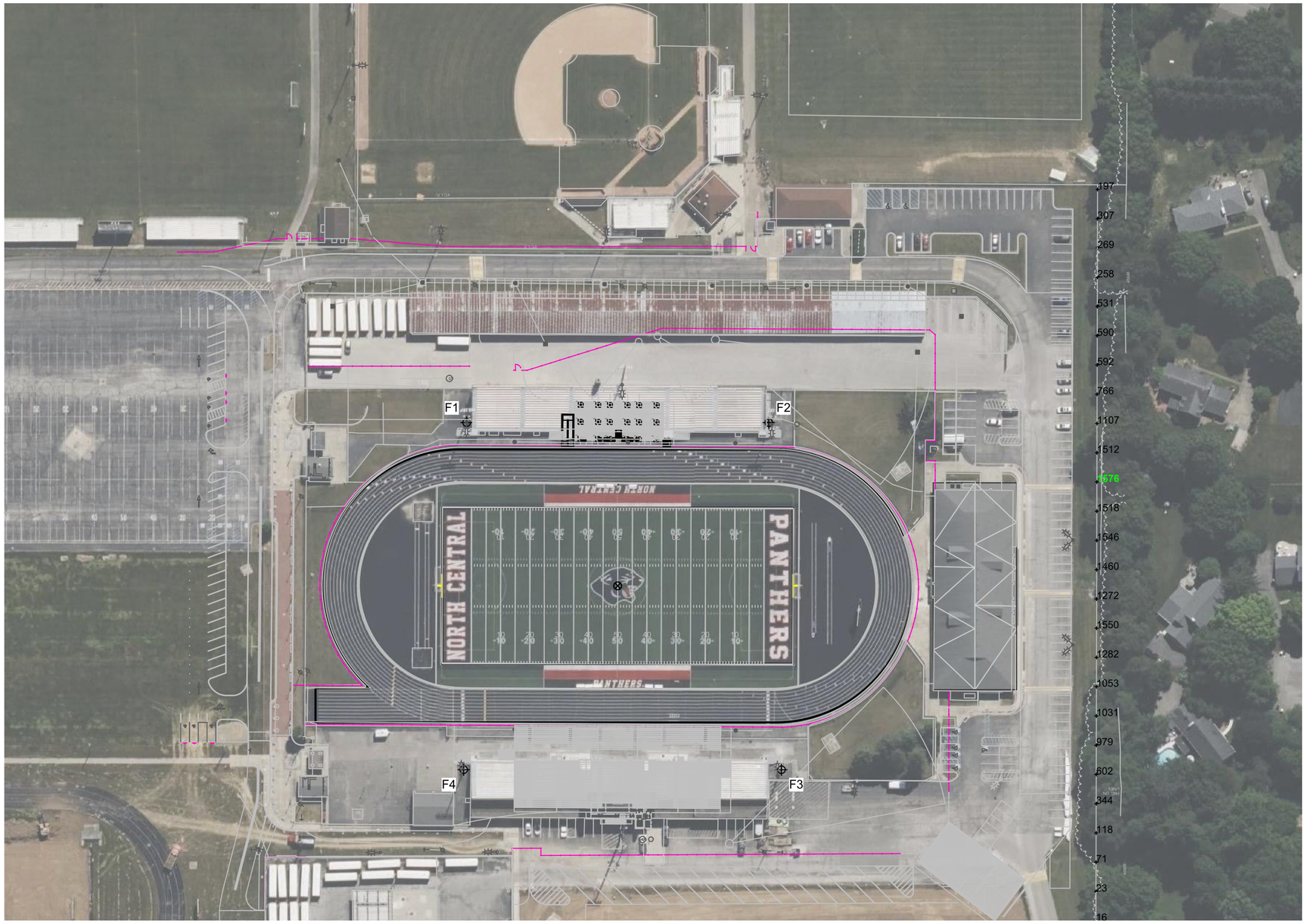
M.S.D of Washington Township

North Central High School Renovation - Field Improvements

ATHLETIC FIELD LIGHTING

E810.4

6 5 4 3 2 1



Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊗

North Central High School Football

Indianapolis, IN

GRID SUMMARY

Name:	**House Spill**
Spacing:	30.0'
Height:	3.0' above grade

ILLUMINATION SUMMARY

CANDELA (PER FIXTURE)

	Entire Grid
Scan Average:	543.2385
Maximum:	1576.05
Minimum:	0.00
No. of Points:	39

LUMINAIRE INFORMATION

Applied Circuits:	A, B
No. of Luminaires:	**70**
Total Load:	82.14 kW

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Warranty document.

Field Measurements: Individual field measurements may vary from computer-calculated predictions and should be taken in accordance with IESNA RP-6-15.

Electrical System Requirements: Refer to Amperage Draw Chart for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.

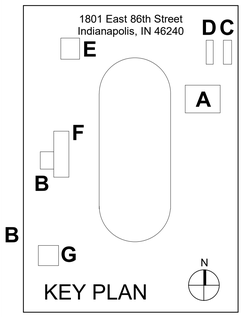
ILLUMINATION SUMMARY

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

Project No. 2019-067.NCH
Project Date 07.27.2023
Bid Set 04
Produced JAW JAW

DAVID SHUCK REGISTERED No. 19700101 STATE OF INDIANA PROFESSIONAL ENGINEER

#	Revision	Date
	ADDENDUM 1.4b	08/17/2023



M.S.D of Washington Township

North Central High School Renovation - Field Improvements

ATHLETIC FIELD LIGHTING

E811.4

North Central High School Football

Indianapolis, IN

EQUIPMENT LAYOUT

INCLUDES:
· Football
· Track

Electrical System Requirements: Refer to Amperage Draw Chart for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.

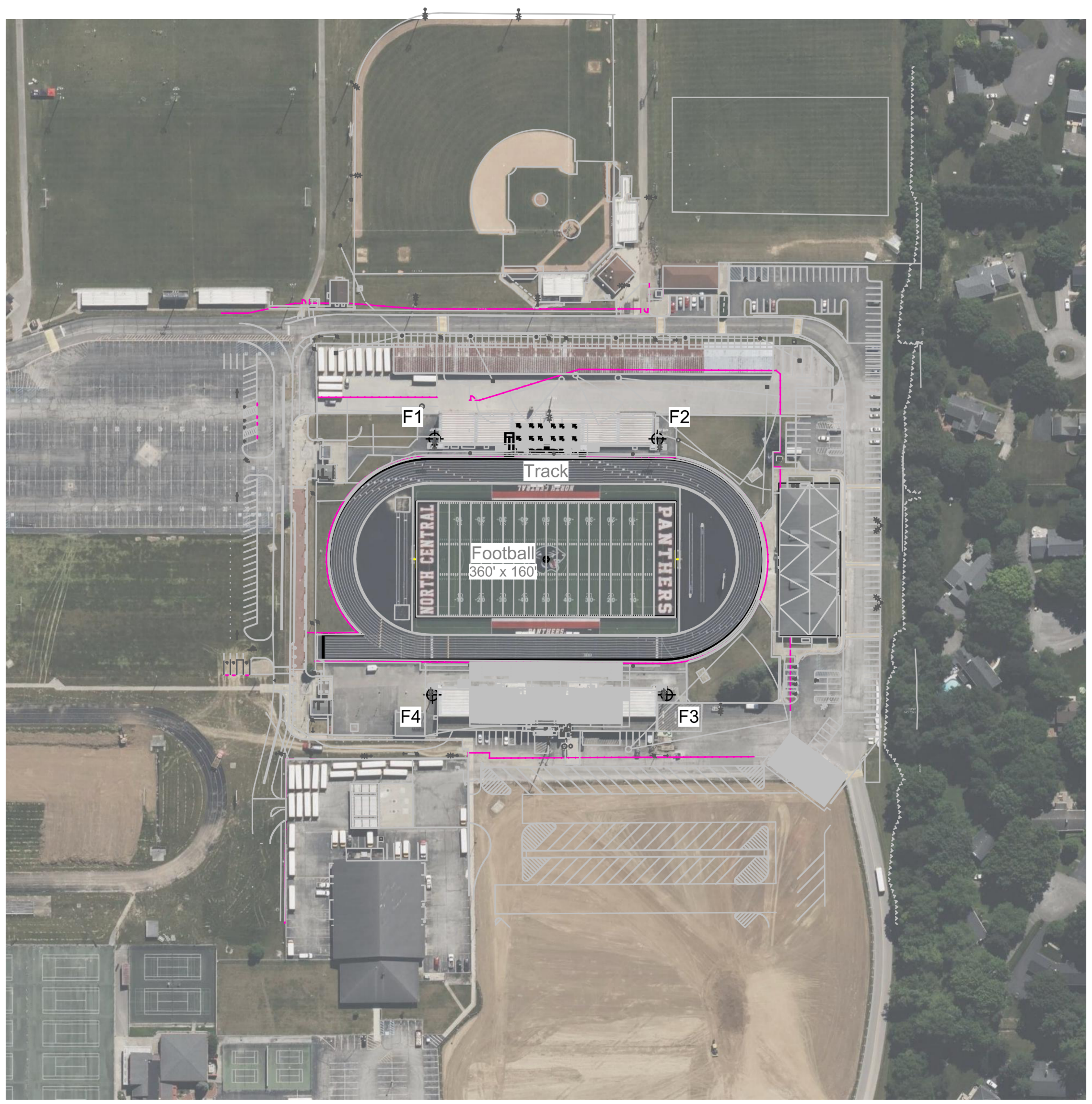
EQUIPMENT LIST FOR AREAS SHOWN

Pole				Luminaires		
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE
1	F1	75'	-	75'	TLC-LED-1200	1
				75'	TLC-RGBW	1*
				15.5'	TLC-BT-575	3
				75'	TLC-LED-1500	9/2*
1	F2	75'	-	75'	TLC-LED-1200	1/4*
				75'	TLC-RGBW	1*
				15.5'	TLC-BT-575	3
				75'	TLC-LED-1500	10/1*
1	F3	85'	-	85'	TLC-LED-1200	1
				85'	TLC-RGBW	1/1*
				15.5'	TLC-BT-575	3
				85'	TLC-LED-1500	10/3*
1	F4	85'	-	85'	TLC-LED-1200	1
				85'	TLC-RGBW	1/1*
				15.5'	TLC-BT-575	3
				85'	TLC-LED-1500	9
4	TOTALS					70

* This structure utilizes a back-to-back mounting configuration

SINGLE LUMINAIRE AMPERAGE DRAW CHART

Driver (.90 min power factor)	Line Amperage Per Luminaire (max draw)						
Single Phase Voltage	208 (60)	220 (60)	240 (60)	277 (60)	347 (60)	380 (60)	480 (60)
TLC-RGBW	4.5	4.3	3.8	3.3	2.7	1.9	1.9
TLC-LED-1500	8.4	7.9	7.3	6.3	5.0	4.6	3.6
TLC-LED-1200	6.9	6.5	6.0	5.2	4.2	3.8	3.0
TLC-BT-575	3.4	3.2	2.9	2.5	2.0	1.8	1.5



Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊗

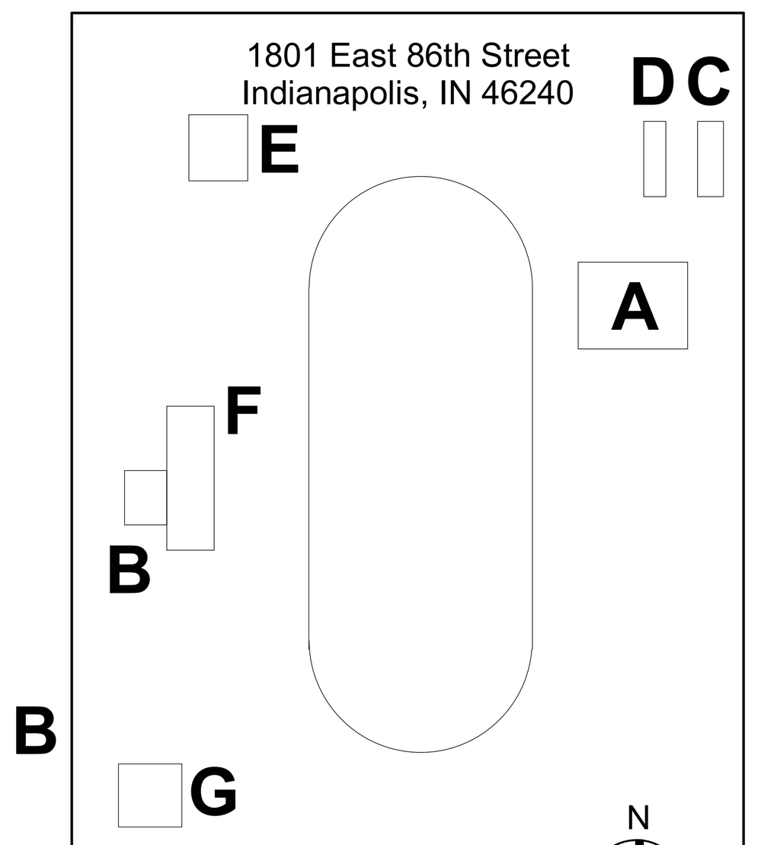
EQUIPMENT LAYOUT

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

Project No. 2019-067.NCH
Project Date 07.27.2023
Bid Set 04
Produced JAW JAW

DAVID SHUCK REGISTERED No. 19700101 STATE OF INDIANA PROFESSIONAL ENGINEER

#	Revision	Date
	ADDENDUM 1.4b	08/17/2023



KEY PLAN

M.S.D of Washington Township

North Central High School Renovation - Field Improvements

ATHLETIC FIELD LIGHTING

E812.4

System Requirements: Control System Summary

Project Name: North Central High School Football | Project #: 226628
Control System ID: 1 of 2
Distribution Panel Location/ID: Football Home

Project Information

Preliminary Plans: Confirm all details - see Note 1

Control System

Control System ID:	1 of 2
Control System Type:	Control-Link ® Control and Monitoring System with Show-Light ® Special Effects
Communication Type:	PowerLine-ST

Power Requirements

Control cabinet(s):	
Control voltage (phase to neutral)	120/60
VA loading - Inrush	1663.0
VA loading - Sealed	146.0
Lighting Circuits:	
Voltage/Hertz/Phase	480/60/3
Communication cabinet(s):	
Cabinet voltage (phase to neutral)	120/60
Touchscreen(s):	
Touchscreen power (receptacle)	120/60

Project Notes:

Equipment Listing

Description	Qty	Size (in)
Control and monitoring cabinet - primary	1	24 X 48
Communication cabinet	1	-
Touchscreen	1	-

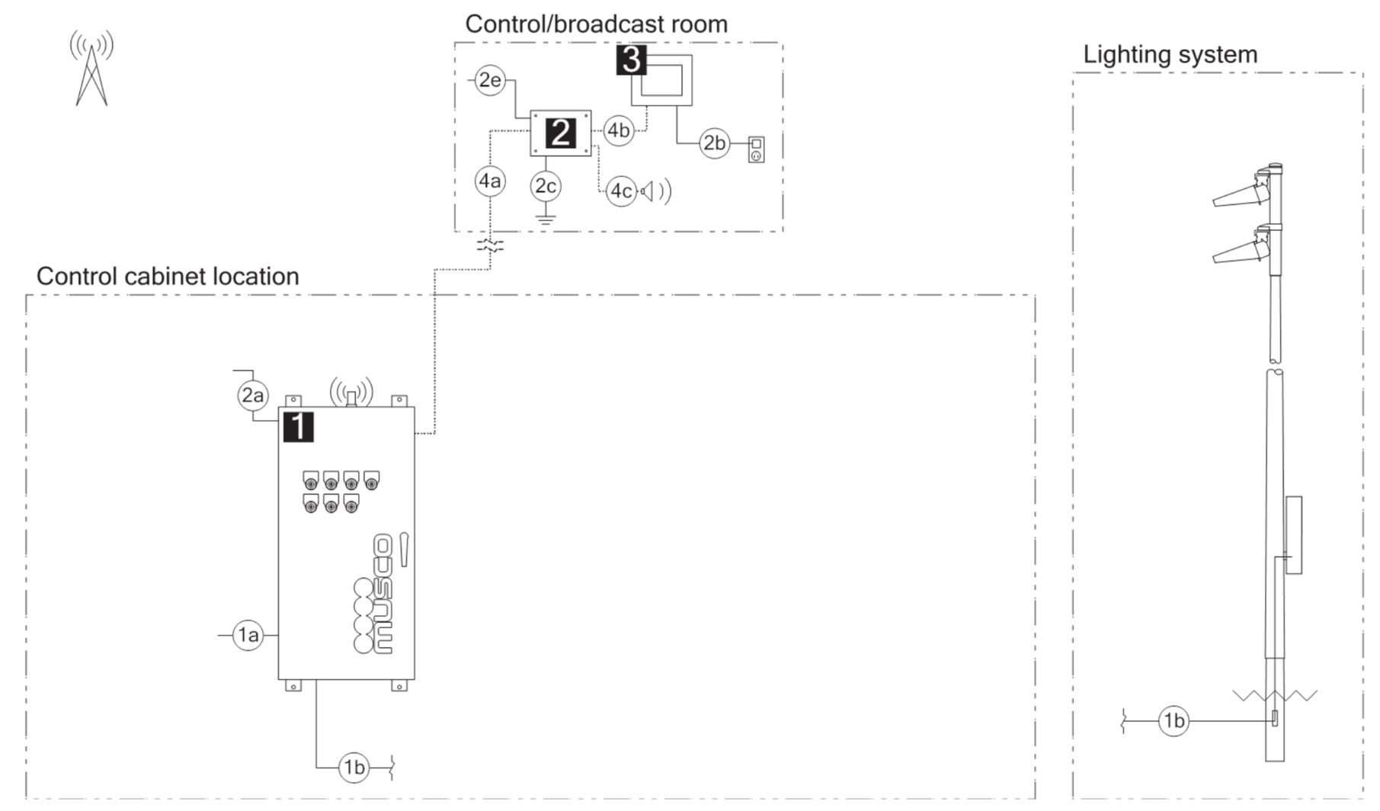
Important Notes:

1. Please confirm that the lighting circuit voltage listed above is accurate for this facility. This is the voltage/phase being connected and utilized at each lighting pole's electrical components enclosure disconnect. Inaccurate voltage/phase can result in additional costs and delays.
2. In a 3 phase design, all 3 phases are to be run to each pole location. single phase luminaires come pre-wired to utilize all 3 phases across the entire facility.
3. One contactor is required for each circuit at each pole location. Contactors are 3 pole and 100% rated for the published continuous load.
4. If the lighting system will be fed from more than one distribution location, additional equipment may be required.
5. Size overcurrent devices using the full load amps column of the Circuit Summary by Switch chart (Minimum power factor is 0.9). Size conduit per code unless otherwise specified as larger to allow for harness connectors.
6. Avoid use of in-ground junction/pull boxes when possible. If used, all wire connectors must be UL listed for Wet Locations to prevent leakage current.
7. Control power wiring must be in separate conduit from line or load power wiring. Communication cables must be in separate conduit from any power wiring.
8. Refer to Installation Instructions for more details on equipment information and the installation requirements.

System Requirements: Control System Summary

Project Name: North Central High School Football | Project #: 226628
Control System ID: 1 of 2
Distribution Panel Location/ID: Football Home

Equipment Layout and Connection Details



Connection Details

ID	Description
1a	Line power to contactors, and equipment grounding conductor. Requires one circuit per contactor, size wiring per load and voltage drop.
1b	Load power from contactors, and equipment grounding conductor. Requires one circuit per contactor, size wiring per load and voltage drop.
2a	Control power with equipment ground to control cabinet. Requires dedicated 20 A circuit. Provide transformer if control voltage not present.
2b	Power cord for touchscreen. Requires standard receptacle.
2c	Earth ground connection at communication cabinet location. Requires installation of ground electrode if existing earth gound not present.
2e	Control power with equipment ground.
4a	Communication cable - Communication cabinet to primary control cabinet. Requires Cat5e cable (Belden 7937A or equal), maximum of 1500 feet.
4b	Communication cable - Communication cabinet to touchscreen. 10-foot ethernet cable Ethernet cable provided by contractor if longer length is needed. Maximum cable length is 300 feet.

Equipment

ID	Description
1	Control and monitoring cabinet - primary
2	Communication cabinet
3	Touchscreen

System Requirements: Control System Summary

Project Name: North Central High School Football | Project #: 226628
Control System ID: 1 of 2
Distribution Panel Location/ID: Football Home

Equipment Layout and Connection Details

Connection Details - Cont'd

ID	Description
4c	Audio cable - Communication cabinet to audio system, provided by contractor. Requires audio cable with 3.5 mm audio plug.

Equipment - Cont'd

ID	Description

System Requirements: Control System Summary

Project Name: North Central High School Football | Project #: 226628
Control System ID: 1 of 2
Distribution Panel Location/ID: Football Home

Circuit Summary

Switching Schedule

Field/Switch Description	Switches
Football Home	1

Control Module ID: 1 — **Lighting Circuit Voltage: 480/60/3**

Circuit Summary by Switch

Switch	Zone Description	Pole ID	# of Fixtures	Full load amperes	Contactor Size (Amps)	Cabinet #	Contactor ID
1	Football Home	F3	19	36.73	60	1	C1
	Football Home	F4	15	26.18	30	1	C2

System Requirements: Control System Summary

Project Name: North Central High School Football | Project #: 226628
Control System ID: 2 of 2
Distribution Panel Location/ID: Football Visitor

Project Information

Preliminary Plans: Confirm all details - see Note 1

Control System

Control System ID:	2 of 2
Control System Type:	Control-Link ® Control and Monitoring System with Show-Light ® Special Effects
Communication Type:	PowerLine-ST

Power Requirements

Control cabinet(s):	
Control voltage (phase to neutral)	120/60
VA loading - Inrush	1663.0
VA loading - Sealed	146.0
Lighting Circuits:	
Voltage/Hertz/Phase	480/60/3
Communication cabinet(s):	
Cabinet voltage (phase to neutral)	120/60
Touchscreen(s):	
Touchscreen power (receptacle)	120/60

Project Notes:

Equipment Listing

Description	Qty	Size (in)
Control and monitoring cabinet - primary	1	24 X 48
Communication cabinet	1	-
Touchscreen	1	-

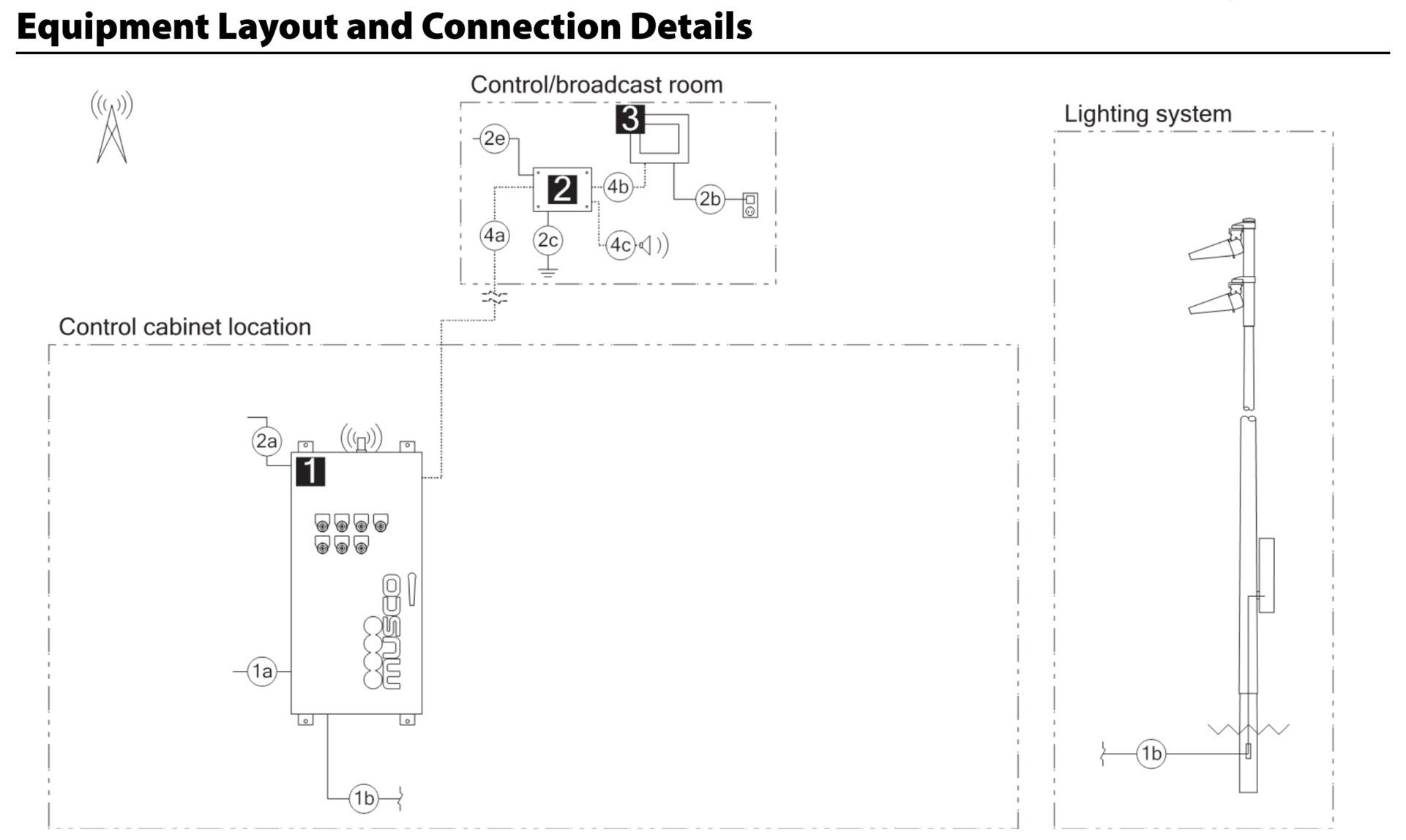
Important Notes:

1. Please confirm that the lighting circuit voltage listed above is accurate for this facility. This is the voltage/phase being connected and utilized at each lighting pole's electrical components enclosure disconnect. Inaccurate voltage/phase can result in additional costs and delays.
2. In a 3 phase design, all 3 phases are to be run to each pole location. single phase luminaires come pre-wired to utilize all 3 phases across the entire facility.
3. One contactor is required for each circuit at each pole location. Contactors are 3 pole and 100% rated for the published continuous load.
4. If the lighting system will be fed from more than one distribution location, additional equipment may be required.
5. Size overcurrent devices using the full load amps column of the Circuit Summary by Switch chart (Minimum power factor is 0.9). Size conduit per code unless otherwise specified as larger to allow for harness connectors.
6. Avoid use of in-ground junction/pull boxes when possible. If used, all wire connectors must be UL listed for Wet Locations to prevent leakage current.
7. Control power wiring must be in separate conduit from line or load power wiring. Communication cables must be in separate conduit from any power wiring.
8. Refer to Installation Instructions for more details on equipment information and the installation requirements.

System Requirements: Control System Summary

Project Name: North Central High School Football | Project #: 226628
Control System ID: 2 of 2
Distribution Panel Location/ID: Football Visitor

Equipment Layout and Connection Details



Connection Details

ID	Description
1a	Line power to contactors, and equipment grounding conductor. Requires one circuit per contactor, size wiring per load and voltage drop.
1b	Load power from contactors, and equipment grounding conductor. Requires one circuit per contactor, size wiring per load and voltage drop.
2a	Control power with equipment ground to control cabinet. Requires dedicated 20 A circuit. Provide transformer if control voltage not present.
2b	Power cord for touchscreen. Requires standard receptacle.
2c	Earth ground connection at communication cabinet location. Requires installation of ground electrode if existing earth gound not present.
2e	Control power with equipment ground.
4a	Communication cable - Communication cabinet to primary control cabinet. Requires Cat5e cable (Belden 7937A or equal), maximum of 1500 feet.
4b	Communication cable - Communication cabinet to touchscreen. 10-foot ethernet cable Ethernet cable provided by contractor if longer length is needed. Maximum cable length is 300 feet.

Equipment

ID	Description
1	Control and monitoring cabinet - primary
2	Communication cabinet
3	Touchscreen

System Requirements: Control System Summary

Project Name: North Central High School Football | Project #: 226628
Control System ID: 2 of 2
Distribution Panel Location/ID: Football Visitor

Equipment Layout and Connection Details

Connection Details - Cont'd

ID	Description
4c	Audio cable - Communication cabinet to audio system, provided by contractor. Requires audio cable with 3.5 mm audio plug.

Equipment - Cont'd

ID	Description

System Requirements: Control System Summary

Project Name: North Central High School Football | Project #: 226628
Control System ID: 2 of 2
Distribution Panel Location/ID: Football Visitor

Circuit Summary

Switching Schedule

Field/Switch Description	Switches
Football Visitor	1

Control Module ID: 2 — **Lighting Circuit Voltage: 480/60/3**

Circuit Summary by Switch

Switch	Zone Description	Pole ID	# of Fixtures	Full load amperes	Contactor Size (Amps)	Cabinet #	Contactor ID
1	Football Visitor	F1	16	29.32	30	2	C1
	Football Visitor	F2	20	37.12	60	2	C2

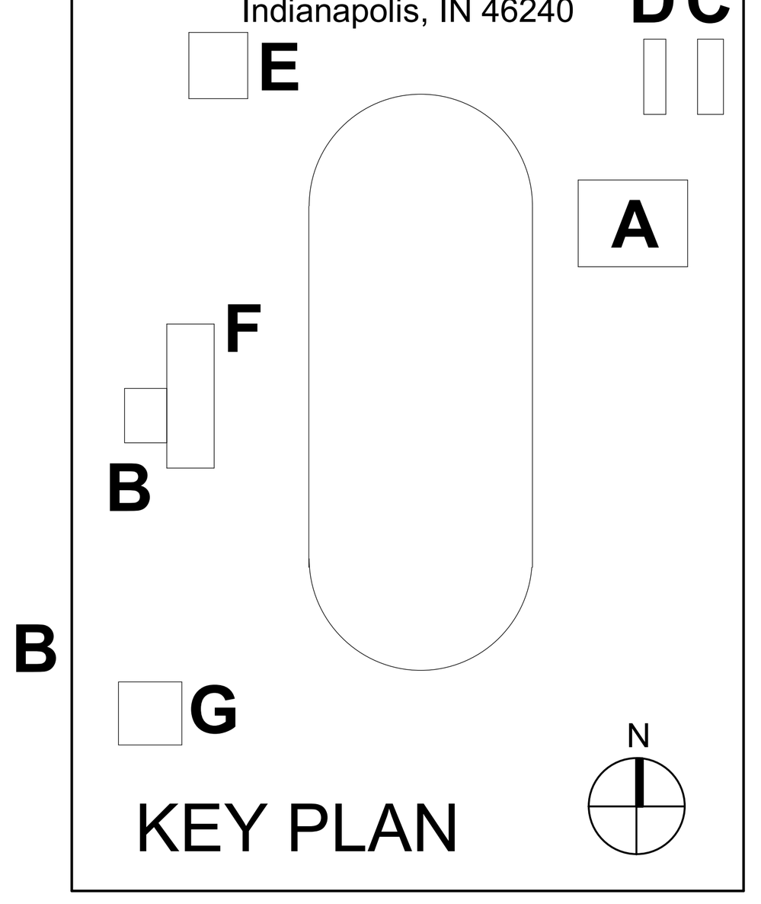
SCHMIDT ASSOCIATES
415 Massachusetts Avenue
Indianapolis, IN 46204
www.schmidt-arch.com

Project No.	2019-067.NCH
Project Date	07.27.2023
Bid Set	04
Produced	JAW JAW

DAVID SHUCK REGISTERED No. 19700101 STATE OF INDIANA PROFESSIONAL ENGINEER

#	Revision	Date
	ADDENDUM 1.4b	08/17/2023

1801 East 86th Street
Indianapolis, IN 46240



KEY PLAN

M.S.D of Washington Township

North Central High School Renovation - Field Improvements

ATHLETIC FIELD LIGHTING

E813.4

North Central High School Soccer Relight

Indianapolis, IN

Lighting System

Pole / Fixture Summary

Pole ID	Pole Height	Mtg Height	Fixture Qty	Luminaire Type	Load	Circuit
S1-S2	70'	70'	2	TLC-LED-1200	2.34 kW	A
		70'	3	TLC-LED-1500	4.23 kW	A
S3, S5	70'	70'	3	TLC-LED-1200	3.51 kW	A
		70'	1	TLC-LED-900	0.88 kW	A
S4	70'	70'	4	TLC-LED-1200	4.68 kW	A
		70'	2	TLC-RGBW	1.28 kW	A
5			*24*		*27.88 kW*	

Circuit Summary

Circuit	Description	Load	Fixture Qty
A	Soccer	27.88 kW	24

Fixture Type Summary

Type	Source	Wattage	Lumens	L90	L80	L70	Quantity
TLC-LED-1200	LED 5700K - 75 CRI	1170W	150,000	>120,000	>120,000	>120,000	14
TLC-RGBW	LED 5700K - 75 CRI	640W	28,500	>120,000	>120,000	>120,000	2
TLC-LED-1500	LED 5700K - 75 CRI	1410W	181,000	>120,000	>120,000	>120,000	6
TLC-LED-900	LED 5700K - 75 CRI	880W	104,000	>120,000	>120,000	>120,000	2

Single Luminaire Amperage Draw Chart

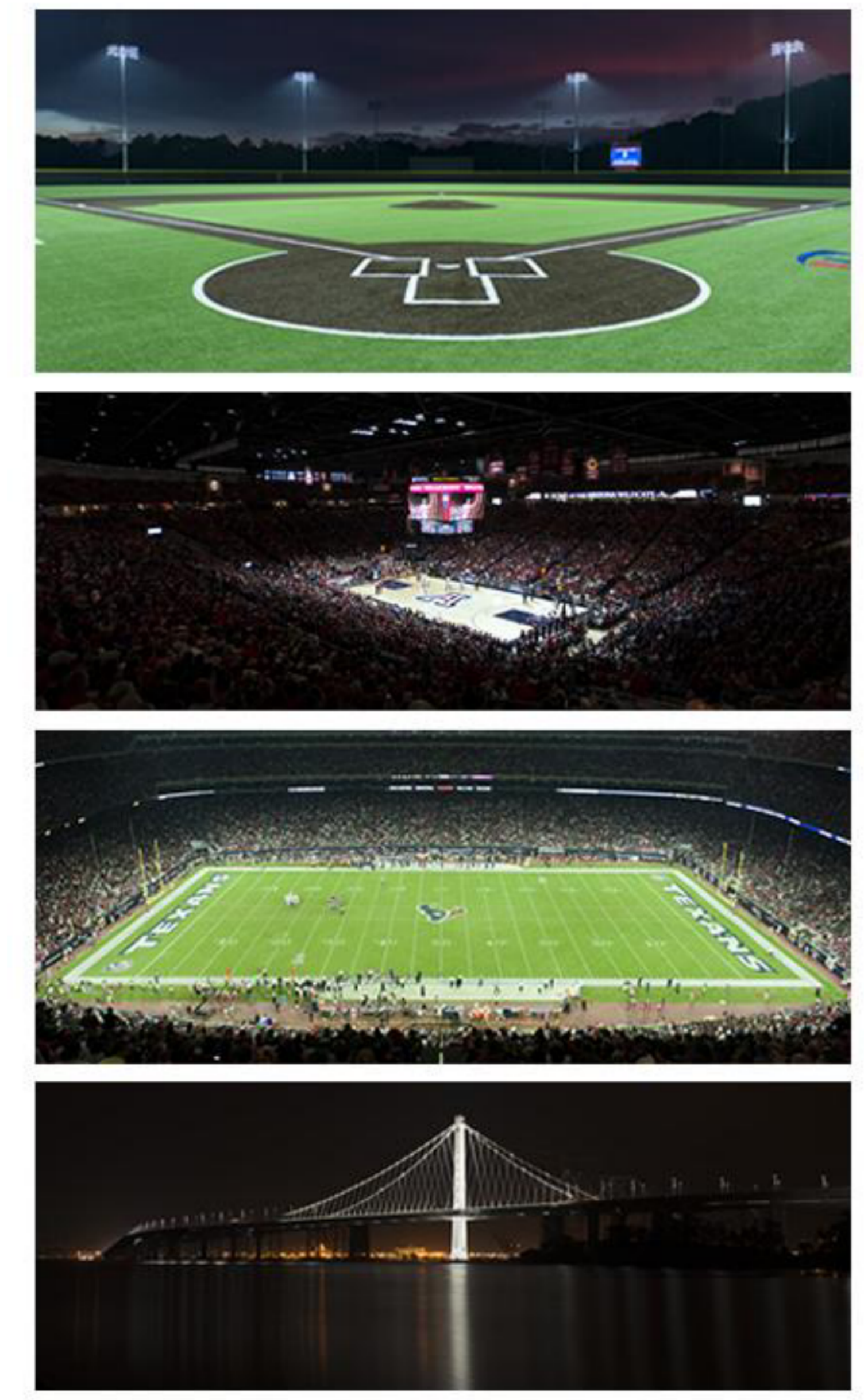
Driver (.90 min power factor)	Max Line Amperage Per Luminaire						
Single Phase Voltage	208 (60)	220 (60)	240 (60)	277 (60)	347 (60)	380 (60)	480 (60)
TLC-LED-1200	6.9	6.5	6.0	5.2	4.2	3.8	3.0
TLC-RGBW	4.5	4.3	3.8	3.3	2.7	1.9	1.9
TLC-LED-1500	8.4	7.9	7.3	6.3	5.0	4.6	3.6
TLC-LED-900	5.2	4.9	4.5	3.9	3.1	2.9	2.3

Light Level Summary

Calculation Grid Summary

Grid Name	Calculation Metric	Illumination					Circuits	Fixture Qty
		Ave	Min	Max	Max/Min	Ave/Min		
Bleachers	Horizontal	15.6	12	19	1.55	1.30	A	24
Soccer Spill	Horizontal Illuminance	0.02	0	0.13	423.99		A	24
Soccer Spill	Max Candela Metric	1756	96	7184	74.81	18.28	A	24
Soccer Spill	Max Vertical Illuminance Metric	0.06	0	0.32	217.69		A	24
Soccer	Horizontal Illuminance	30.6	24	36	1.53	1.27	A	24

From Hometown to Professional



PROJECT SUMMARY

SCHMIDT ASSOCIATES

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

Project No. 2019-067.NCH
Project Date 07.27.2023
Bid Set 04
Produced JAW JAW

DAVID SHUCK REGISTERED No. 19700101 STATE OF INDIANA PROFESSIONAL ENGINEER

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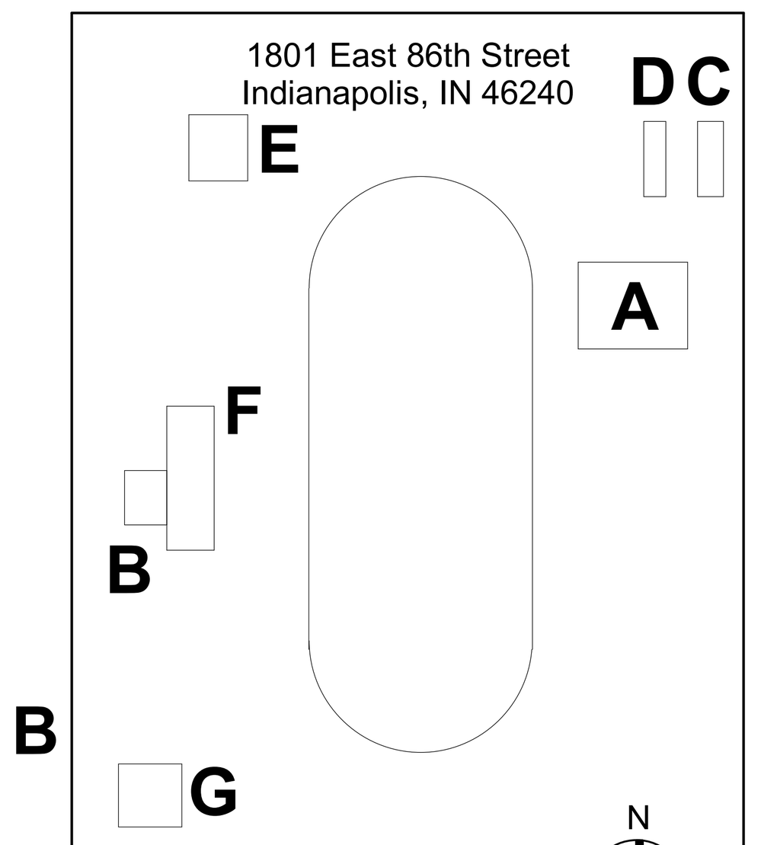


KEY PLAN

M.S.D of Washington Township

North Central High School Renovation - Field Improvements

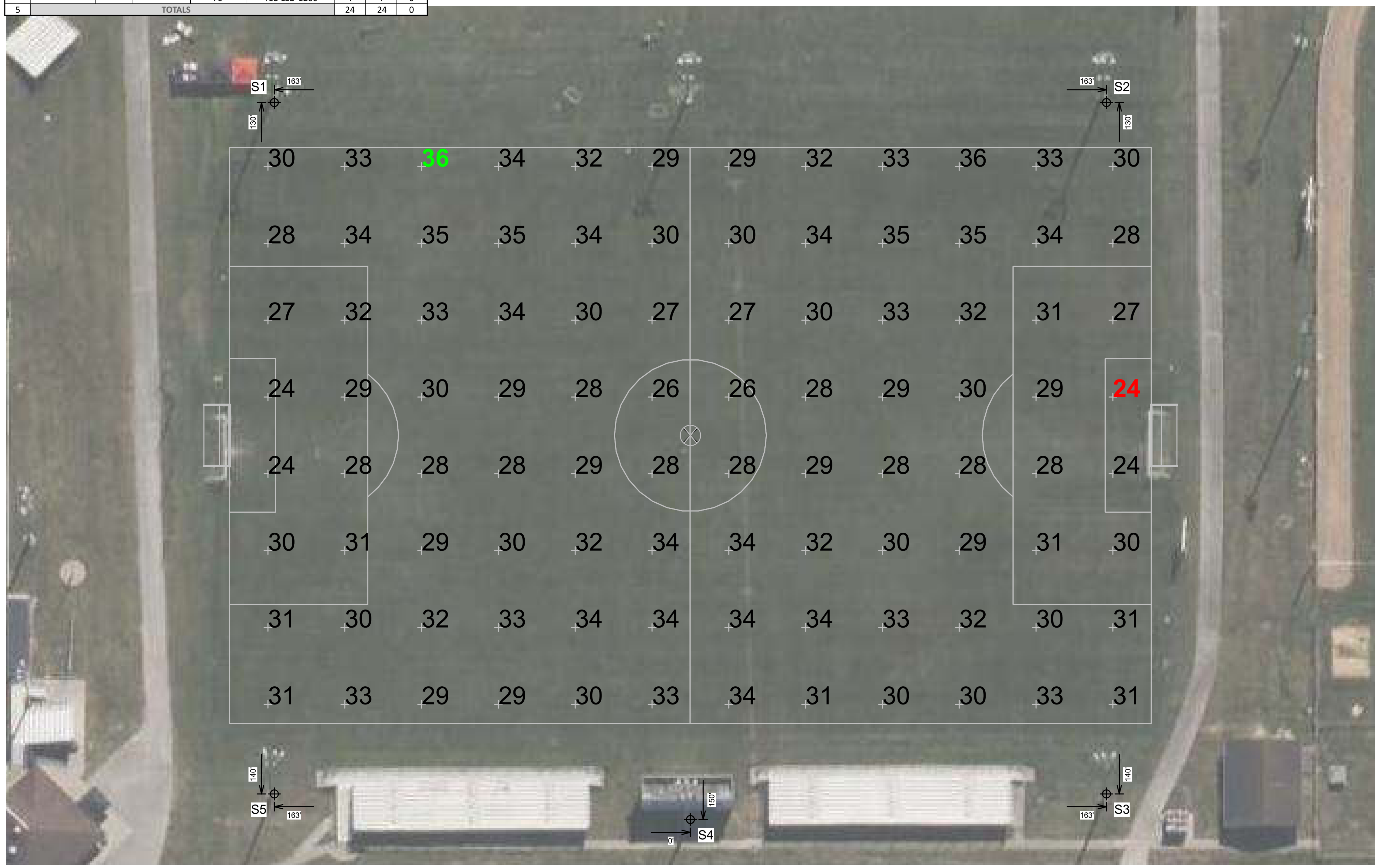
ATHLETIC FIELD LIGHTING

E814.4

6	5	4	3	2	1

EQUIPMENT LIST FOR AREAS SHOWN

Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	THIS GRID	OTHER GRIDS
2	S1-S2	70'	-	70'	TLC-LED-1500	3	3	0
				70'	TLC-LED-1200	2	2	0
2	S3, S5	70'	-	70'	TLC-LED-900	1	1	0
				70'	TLC-LED-1200	3	3	0
1	S4	70'	-	70'	TLC-RGBW	2	2	0
				70'	TLC-LED-1200	4	4	0
5	TOTALS					24	24	0



30	33	36	34	32	29	29	32	33	36	33	30
28	34	35	35	34	30	30	34	35	35	34	28
27	32	33	34	30	27	27	30	33	32	31	27
24	29	30	29	28	26	26	28	29	30	29	24
24	28	28	28	29	28	28	29	28	28	28	24
30	31	29	30	32	34	34	32	30	29	31	30
31	30	32	33	34	34	34	34	33	32	30	31
31	33	29	29	30	33	34	31	30	30	33	31

Pole location(s) ✛ dimensions are relative to 0,0 reference point(s) ⊗

North Central High School Soccer Relight
Indianapolis, IN

GRID SUMMARY

Name:	Soccer
Size:	360' x 225'
Spacing:	30.0' x 30.0'
Height:	3.0' above grade

ILLUMINATION SUMMARY

MAINTAINED HORIZONTAL FOOTCANDLES	
	Entire Grid
Guaranteed Average:	30
Scan Average:	30.58
Maximum:	36
Minimum:	24
Avg / Min:	1.28
Guaranteed Max / Min:	2.5
Max / Min:	1.53
UG (adjacent pts):	1.23
CU:	0.77
No. of Points:	96
LUMINAIRE INFORMATION	
Applied Circuits:	A
No. of Luminaires:	24
Total Load:	27.88 kW

Guaranteed Performance: The ILLUMINATION described above

includes a 0.95 dirt depreciation factor.

Field Measurements: Individual field measurements may vary from computer-calculated predictions and should be taken in accordance with IESNA RP-6-15.

Electrical System Requirements: Refer to Amperage Draw Chart for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.

ILLUMINATION SUMMARY

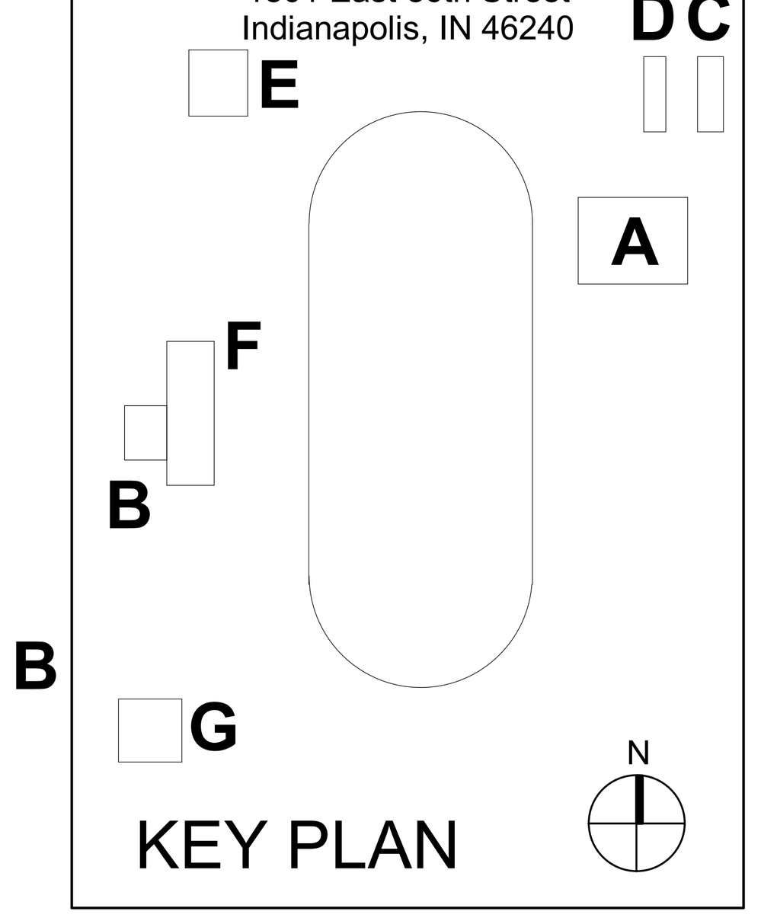
SCHMIDT ASSOCIATES
415 Massachusetts Avenue
Indianapolis, IN 46204
www.schmidt-arch.com

Project No. 2019-067.NCH
Project Date 07.27.2023
Bid Set 04
Produced JAW JAW

DAVID SHUCK REGISTERED No. 19700101 STATE OF INDIANA PROFESSIONAL ENGINEER

#	Revision	Date
	ADDENDUM 1.4b	08/17/2023

1801 East 86th Street
Indianapolis, IN 46240



KEY PLAN

M.S.D of Washington Township

North Central High School Renovation - Field Improvements

ATHLETIC FIELD LIGHTING

E815.4

North Central High School Soccer Relight
Indianapolis, IN

EQUIPMENT LIST FOR AREAS SHOWN

Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	THIS GRID	OTHER GRIDS
2	S1-S2	70'	-	70'	TLC-LED-1500	3	3	0
				70'	TLC-LED-1200	2	2	0
2	S3, S5	70'	-	70'	TLC-LED-900	1	1	0
				70'	TLC-LED-1200	3	3	0
1	S4	70'	-	70'	TLC-RGBW	2	2	0
				70'	TLC-LED-1200	4	4	0
5	TOTALS					24	24	0

GRID SUMMARY

Name:	Bleachers
Size:	360' x 225'
Spacing:	10.0' x 10.0'
Height:	3.0' above grade

ILLUMINATION SUMMARY

MAINTAINED HORIZONTAL FOOTCANDLES	
	Entire Grid
Scan Average:	**15.61**
Maximum:	19
Minimum:	12
Avg / Min:	1.25
Max / Min:	**1.55**
UG (adjacent pts):	1.46
CU:	0.02
No. of Points:	38
LUMINAIRE INFORMATION	
Applied Circuits:	A
No. of Luminaires:	**24**
Total Load:	27.88 kW

Guaranteed Performance: The ILLUMINATION described above

includes a 0.95 dirt depreciation factor.

Field Measurements: Individual field measurements may vary from computer-calculated predictions and should be taken in accordance with IESNA RP-6-15.

Electrical System Requirements: Refer to Amperage Draw Chart for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.

Pole location(s) ⌖ dimensions are relative to 0,0 reference point(s) ⊗

ILLUMINATION SUMMARY

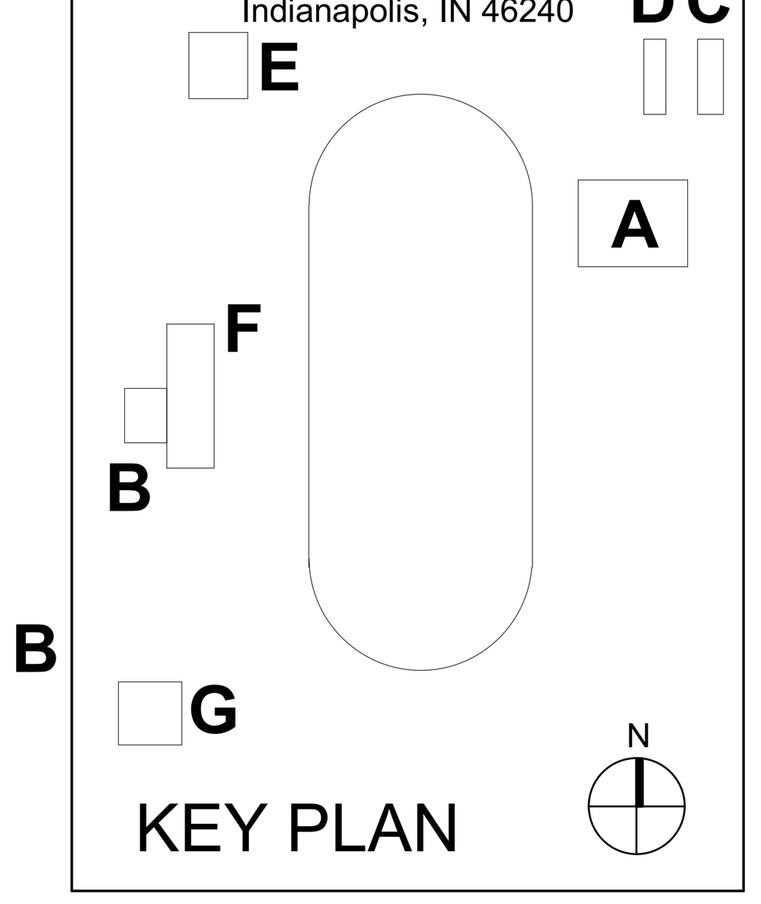
SCHMIDT
ASSOCIATES
415 Massachusetts Avenue
Indianapolis, IN 46204
www.schmidt-arch.com

Project No. 2019-067.NCH
Project Date 07.27.2023
Bid Set 04
Produced JAW JAW

DAVID SHUCK REGISTERED No. 19700101 STATE OF INDIANA PROFESSIONAL ENGINEER

#	Revision	Date
	ADDENDUM 1.4b	08/17/2023

1801 East 86th Street
Indianapolis, IN 46240



KEY PLAN

M.S.D of Washington Township

North Central High School Renovation - Field Improvements

ATHLETIC FIELD LIGHTING

E816.4

6	5	4	3	2	1

Pole location(s) ⌖ dimensions are relative to 0,0 reference point(s) ⊗

North Central High School Soccer Relight
Indianapolis, IN

GRID SUMMARY	
Name:	**Soccer Spill**
Spacing:	30.0'
Height:	3.0' above grade

ILLUMINATION SUMMARY	
HORIZONTAL FOOTCANDLES	
	Entire Grid
Scan Average:	0.0227
Maximum:	0.13
Minimum:	0.00
No. of Points:	71
LUMINAIRE INFORMATION	
Applied Circuits:	A
No. of Luminaires:	**24**
Total Load:	27.88 kW

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Warranty document.

Field Measurements: Individual field measurements may vary from computer-calculated predictions and should be taken in accordance with IESNA RP-6-15.

Electrical System Requirements: Refer to Amperage Draw Chart for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.

ILLUMINATION SUMMARY

SCHMIDT ASSOCIATES
415 Massachusetts Avenue
Indianapolis, IN 46204
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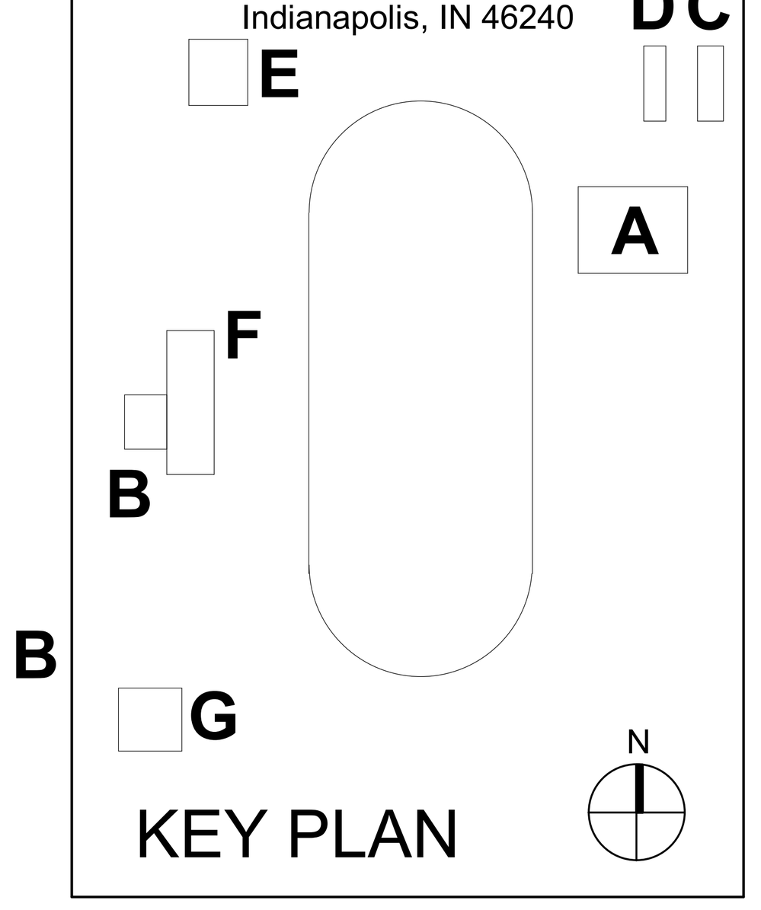

KEY PLAN

M.S.D of Washington Township

North Central High School Renovation - Field Improvements

ATHLETIC FIELD LIGHTING

E817.4

E817.4_ATHLETIC FIELD LIGHTING
2019-067 NCH_M.S.D of Washington Township_North Central High School Renovation_
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8/18/2023 10:24:04 AM

6 5 4 3 2 1

Pole location(s) ⌖ dimensions are relative to 0,0 reference point(s) ⊗

North Central High School Soccer Relight
Indianapolis, IN

GRID SUMMARY	
Name:	**Soccer Spill**
Spacing:	30.0'
Height:	3.0' above grade

ILLUMINATION SUMMARY	
MAX VERTICAL FOOTCANDLES	
	Entire Grid
Scan Average:	0.0611
Maximum:	0.32
Minimum:	0.00
No. of Points:	71
LUMINAIRE INFORMATION	
Applied Circuits:	A
No. of Luminaires:	**24**
Total Load:	27.88 kW

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Warranty document.

Field Measurements: Individual field measurements may vary from computer-calculated predictions and should be taken in accordance with IESNA RP-6-15.

Electrical System Requirements: Refer to Amperage Draw Chart for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.

ILLUMINATION SUMMARY

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

Project No. 2019-067.NCH
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Produced JAW JAW

DAVID SHUCK REGISTERED No. 19700101 STATE OF INDIANA PROFESSIONAL ENGINEER

#	Revision	Date
	ADDENDUM 1.4b	08/17/2023

1801 East 86th Street
Indianapolis, IN 46240

KEY PLAN

M.S.D of Washington Township

North Central High School Renovation - Field Improvements

ATHLETIC FIELD LIGHTING

E818.4

E818.4_ ATHLETIC FIELD LIGHTING
2019-067 NCH_M.S.D of Washington Township_North Central High School Renovation_
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8/18/2023 10:24:04 AM

6 5 4 3 2 1

6 5 4 3 2 1

Pole location(s) ✛ dimensions are relative to 0,0 reference point(s) ⊗

North Central High School Soccer Relight
Indianapolis, IN

GRID SUMMARY	
Name:	**Soccer Spill**
Spacing:	30.0'
Height:	3.0' above grade

ILLUMINATION SUMMARY	
CANDELA (PER FIXTURE)	
	Entire Grid
Scan Average:	1755.7241
Maximum:	7183.54
Minimum:	96.03
No. of Points:	71
LUMINAIRE INFORMATION	
Applied Circuits:	A
No. of Luminaires:	**24**
Total Load:	27.88 kW

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Warranty document.

Field Measurements: Individual field measurements may vary from computer-calculated predictions and should be taken in accordance with IESNA RP-6-15.

Electrical System Requirements: Refer to Amperage Draw Chart for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.

ILLUMINATION SUMMARY

SCHMIDT ASSOCIATES
415 Massachusetts Avenue
Indianapolis, IN 46204
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Project No. 2019-067.NCH
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DAVID SHUCK REGISTERED No. 19700101 STATE OF INDIANA PROFESSIONAL ENGINEER

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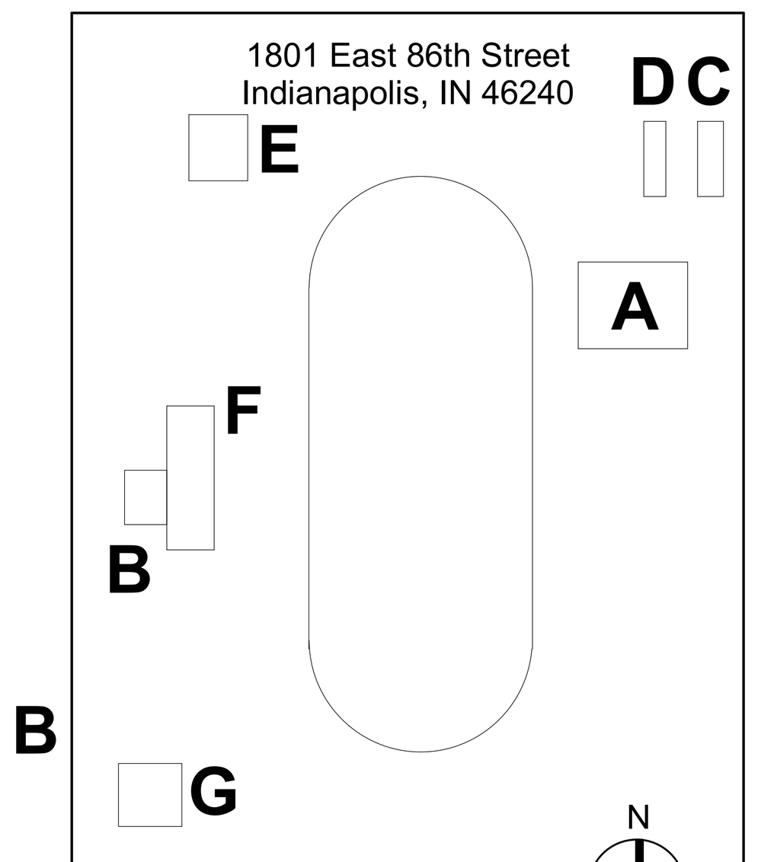

KEY PLAN

M.S.D of Washington Township

North Central High School Renovation - Field Improvements

ATHLETIC FIELD LIGHTING

E819.4

6 5 4 3 2 1

North Central High School Soccer Relight
Indianapolis, IN

Pole location(s) ⌖ dimensions are relative to 0,0 reference point(s) ⊗

EQUIPMENT LAYOUT

INCLUDES:
· Soccer

Electrical System Requirements: Refer to Amperage Draw Chart for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.

EQUIPMENT LIST FOR AREAS SHOWN

Pole				Luminaires		
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE
2	S1-S2	70'	-	70' 70'	TLC-LED-1500 TLC-LED-1200	3 2
2	S3, S5	70'	-	70' 70'	TLC-LED-900 TLC-LED-1200	1 3
1	S4	70'	-	70' 70'	TLC-RGBW TLC-LED-1200	2 4
5	TOTALS					24

SINGLE LUMINAIRE AMPERAGE DRAW CHART

Driver (.90 min power factor)	Line Amperage Per Luminaire (max draw)						
Single Phase Voltage	208 (60)	220 (60)	240 (60)	277 (60)	347 (60)	380 (60)	480 (60)
TLC-LED-1200	6.9	6.5	6.0	5.2	4.2	3.8	3.0
TLC-RGBW	4.5	4.3	3.8	3.3	2.7	1.9	1.9
TLC-LED-1500	8.4	7.9	7.3	6.3	5.0	4.6	3.6
TLC-LED-900	5.2	4.9	4.5	3.9	3.1	2.9	2.3

EQUIPMENT LAYOUT

SCHMIDT ASSOCIATES
415 Massachusetts Avenue
Indianapolis, IN 46204
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Project No. 2019-067.NCH
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#	Revision	Date
	ADDENDUM 1.4b	08/17/2023

1801 East 86th Street
Indianapolis, IN 46240

KEY PLAN

M.S.D of Washington Township

North Central High School Renovation - Field Improvements

ATHLETIC FIELD LIGHTING

E820.4

System Requirements: Control System Summary

Project Name: North Central High School Soccer Retrofit | Project #: 228413
Control System ID: 1 of 1
Distribution Panel Location/ID: Soccer

Project Information

Control System

Control System ID:	1 of 1
Control System Type:	Control-Link ® Control and Monitoring System with Show-Light ® Special Effects
Communication Type:	PowerLine-ST

Power Requirements

Control cabinet(s):	
Control voltage (phase to neutral)	120/60
VA loading - Inrush	2398.0
VA loading - Sealed	224.0
Lighting Circuits:	
Voltage/Hertz/Phase	480/60/3
Communication cabinet(s):	
Cabinet voltage (phase to neutral)	120/60
Touchscreen(s):	
Touchscreen power (receptacle)	120/60

Project Notes:

Equipment Listing

Description	Qty	Size (in)
Control and monitoring cabinet - primary	1	24 X 48
Communication cabinet	1	-
Touchscreen	1	-

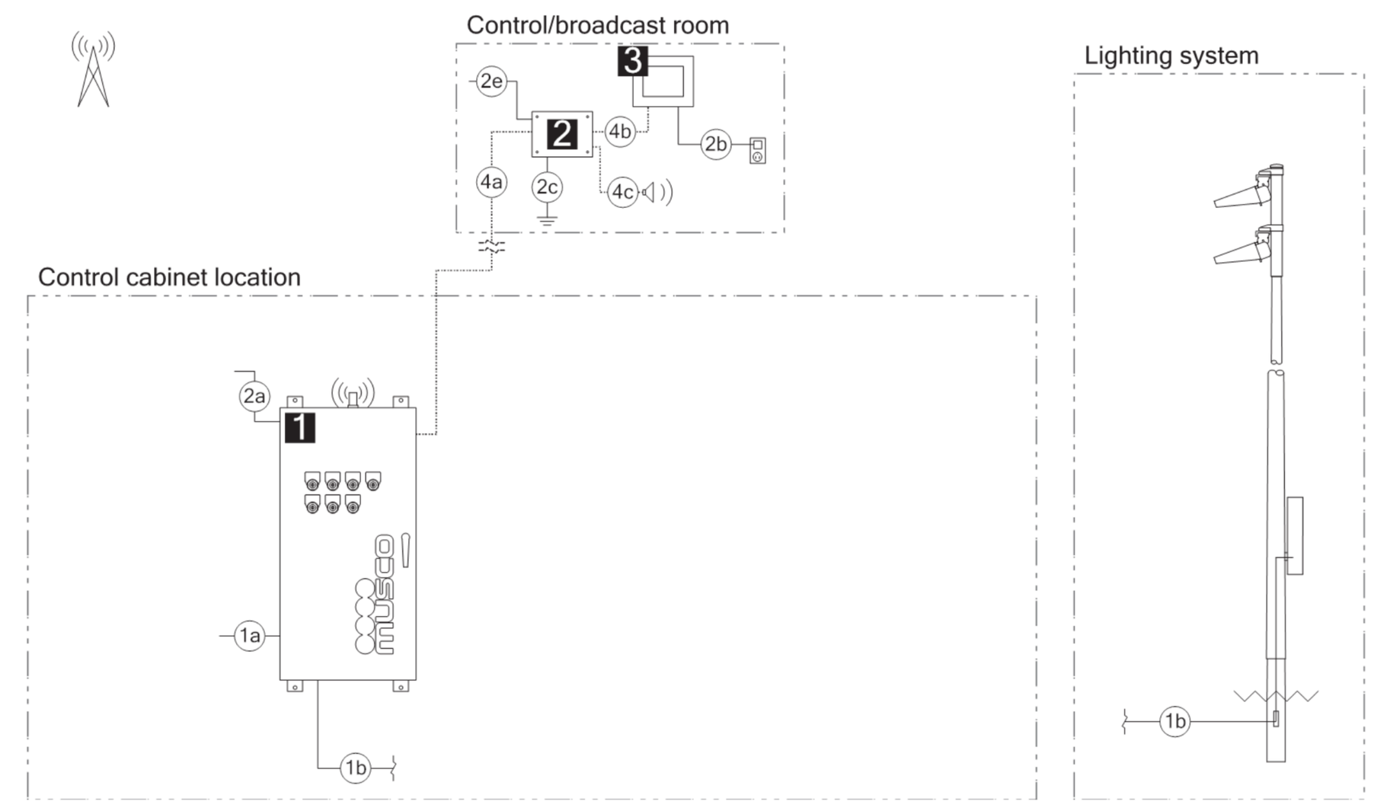
Important Notes:

1. Please confirm that the lighting circuit voltage listed above is accurate for this facility. This is the voltage/phase being connected and utilized at each lighting pole's electrical components enclosure disconnect. Inaccurate voltage/phase can result in additional costs and delays.
2. In a 3 phase design, all 3 phases are to be run to each pole location. single phase luminaires come pre-wired to utilize all 3 phases across the entire facility.
3. One contactor is required for each circuit at each pole location. Contactors are 3 pole and 100% rated for the published continuous load.
4. If the lighting system will be fed from more than one distribution location, additional equipment may be required.
5. Size overcurrent devices using the full load amps column of the Circuit Summary by Switch chart (Minimum power factor is 0.9). Size conduit per code unless otherwise specified as larger to allow for harness connectors.
6. Avoid use of in-ground junction/pull boxes when possible. If used, all wire connectors must be UL listed for Wet Locations to prevent leakage current.
7. Control power wiring must be in separate conduit from line or load power wiring. Communication cables must be in separate conduit from any power wiring.
8. Refer to Installation Instructions for more details on equipment information and the installation requirements.

System Requirements: Control System Summary

Project Name: North Central High School Soccer Retrofit | Project #: 228413
Control System ID: 1 of 1
Distribution Panel Location/ID: Soccer

Equipment Layout and Connection Details



Connection Details

ID	Description
1a	Line power to contactors, and equipment grounding conductor. Requires one circuit per contactor, size wiring per load and voltage drop.
1b	Load power from contactors, and equipment grounding conductor. Requires one circuit per contactor, size wiring per load and voltage drop.
2a	Control power with equipment ground to control cabinet. Requires dedicated 20 A circuit. Provide transformer if control voltage not present.
2b	Power cord for touchscreen. Requires standard receptacle.
2c	Earth ground connection at communication cabinet location. Requires installation of ground electrode if existing earth gound not present.
2e	Control power with equipment ground.
4a	Communication cable - Communication cabinet to primary control cabinet. Requires Cat5e cable (Belden 7937A or equal), maximum of 1500 feet.
4b	Communication cable - Communication cabinet to touchscreen. 10-foot ethernet cable Ethernet cable provided by contractor if longer length is needed. Maximum cable length is 300 feet.

Equipment

ID	Description
1	Control and monitoring cabinet - primary
2	Communication cabinet
3	Touchscreen

System Requirements: Control System Summary

Project Name: North Central High School Soccer Retrofit | Project #: 228413
Control System ID: 1 of 1
Distribution Panel Location/ID: Soccer

Equipment Layout and Connection Details

Connection Details - Cont'd

ID	Description
4c	Audio cable - Communication cabinet to audio system, provided by contractor. Requires audio cable with 3.5 mm audio plug.

Equipment - Cont'd

ID	Description

System Requirements: Control System Summary

Project Name: North Central High School Soccer Retrofit | Project #: 228413
Control System ID: 1 of 1
Distribution Panel Location/ID: Soccer

Circuit Summary

Switching Schedule

Field/Switch Description	Switches
Soccer	1

Control Module ID: 1 — **Lighting Circuit Voltage: 480/60/3**

Circuit Summary by Switch

Switch	Zone Description	Pole ID	Qty of Fixtures	Full load amperes	Contactor Size (Amps)	Cabinet #	Contactor ID
1	Soccer	S1	5	11.48	30	1	C1
	Soccer	S2	5	11.48	30	1	C2
	Soccer	S3	4	7.15	30	1	C3
	Soccer	S4	6	9.46	30	1	C4
	Soccer	S5	4	7.15	30	1	C5

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

Project No. 2019-067.NCH
Project Date 07.27.2023
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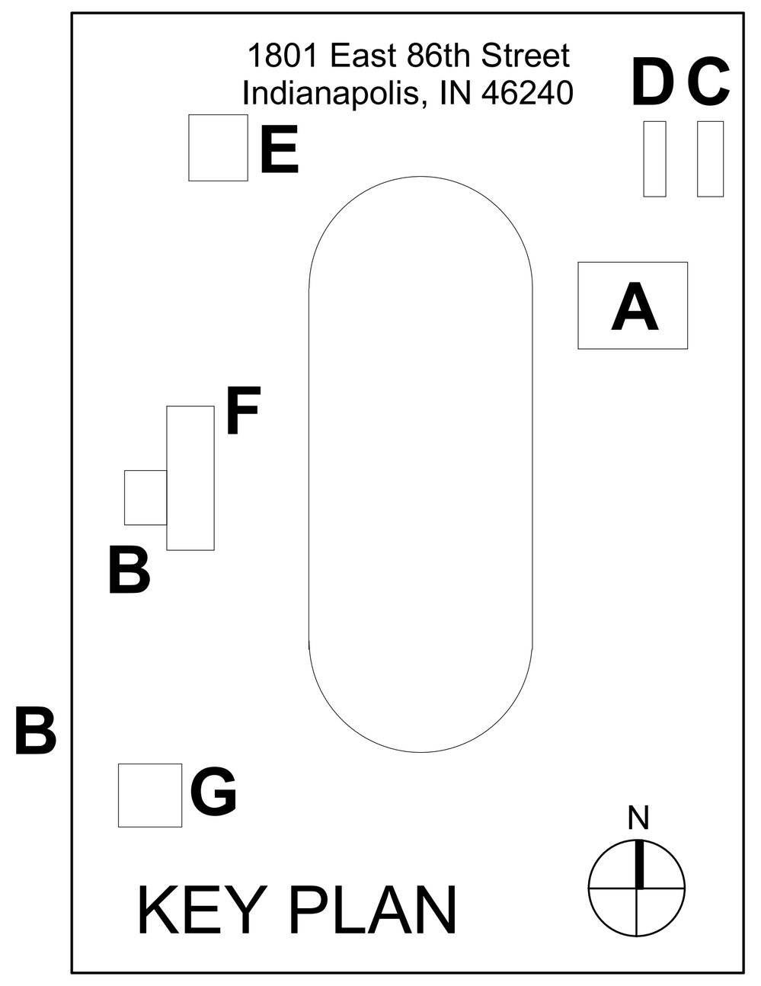
Produced JAW JAW

DAVID SHUCK REGISTERED No. 19700101 STATE OF INDIANA PROFESSIONAL ENGINEER

#	Revision	Date
	ADDENDUM 1.4b	08/17/2023

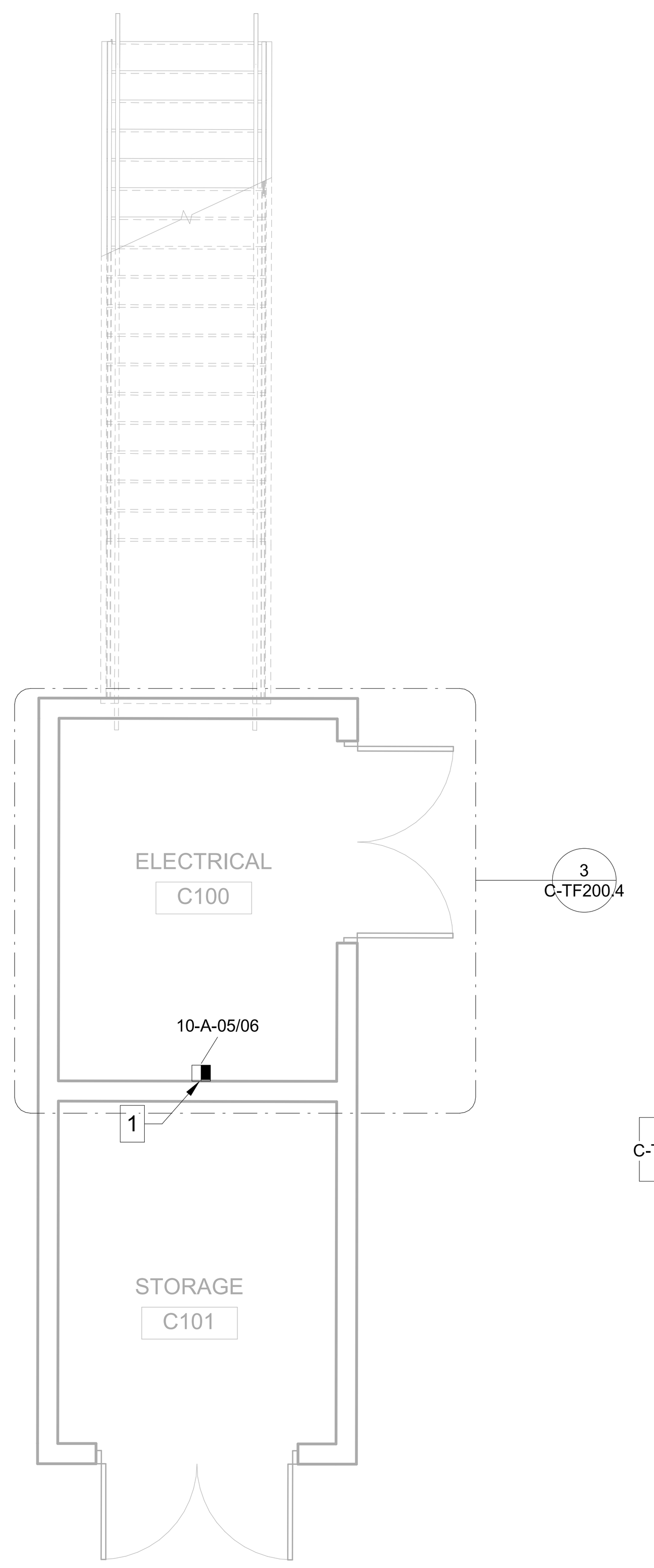


M.S.D of Washington Township

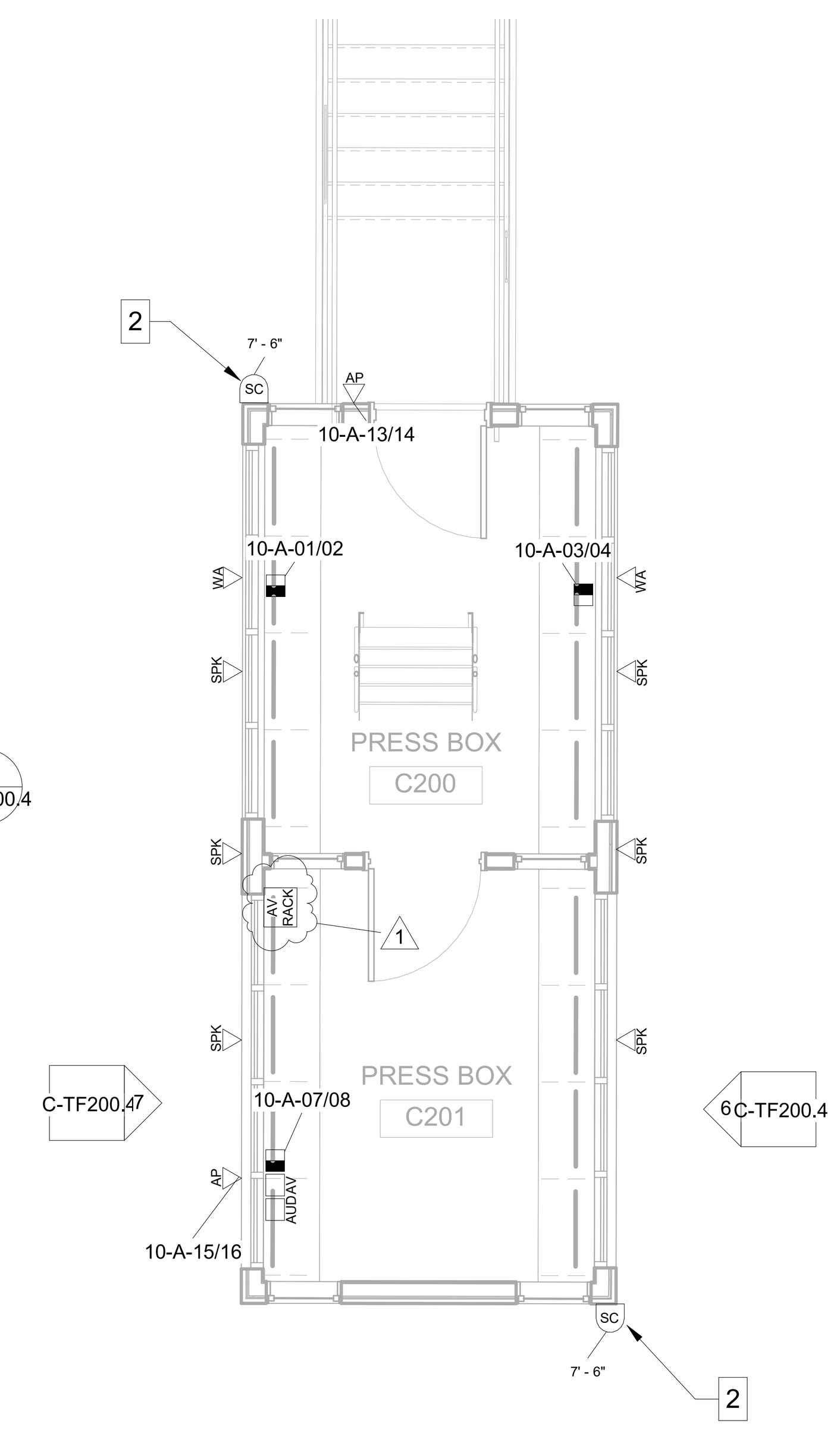
North Central High School Renovation - Field Improvements

ATHLETIC FIELD LIGHTING

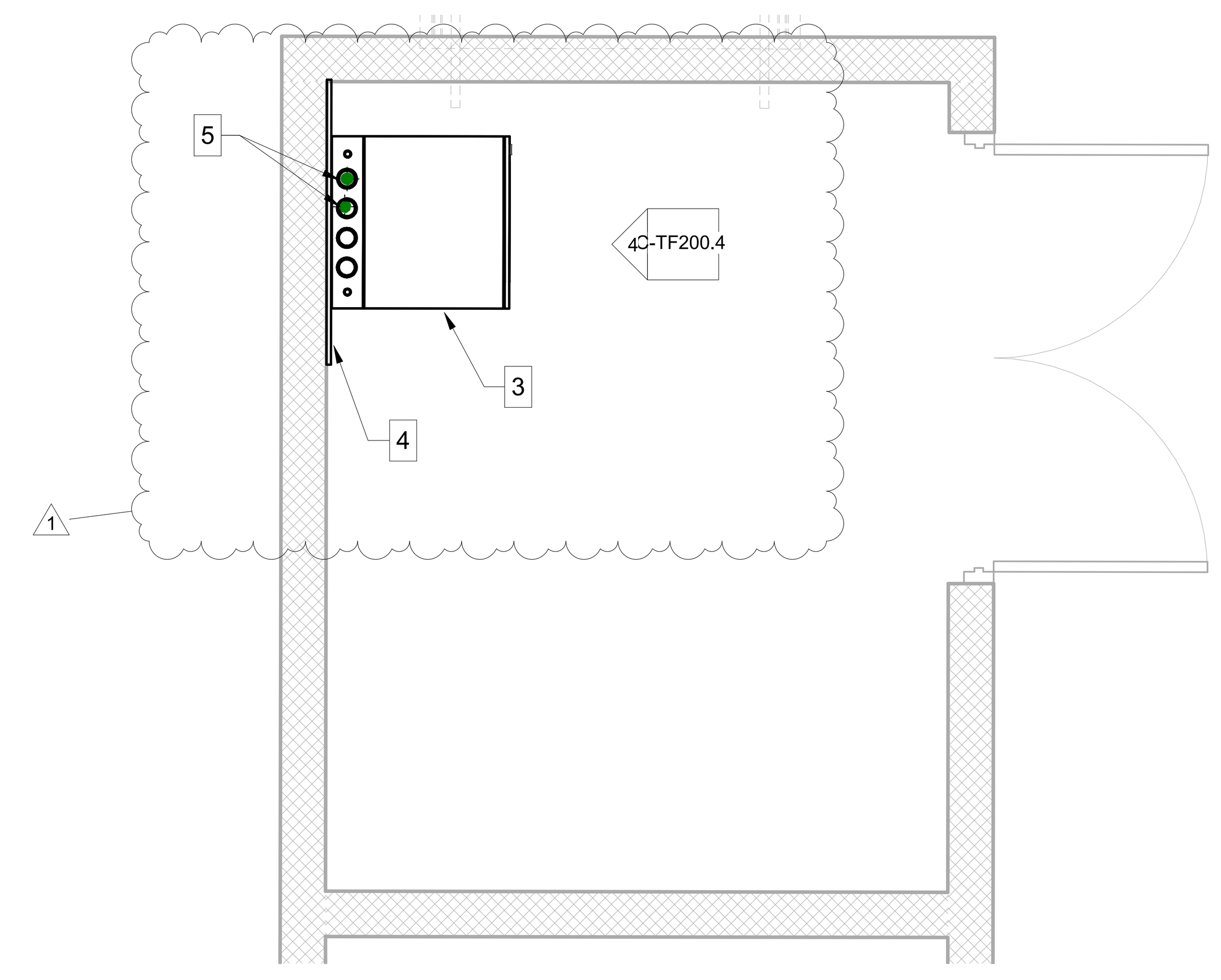
E821.4



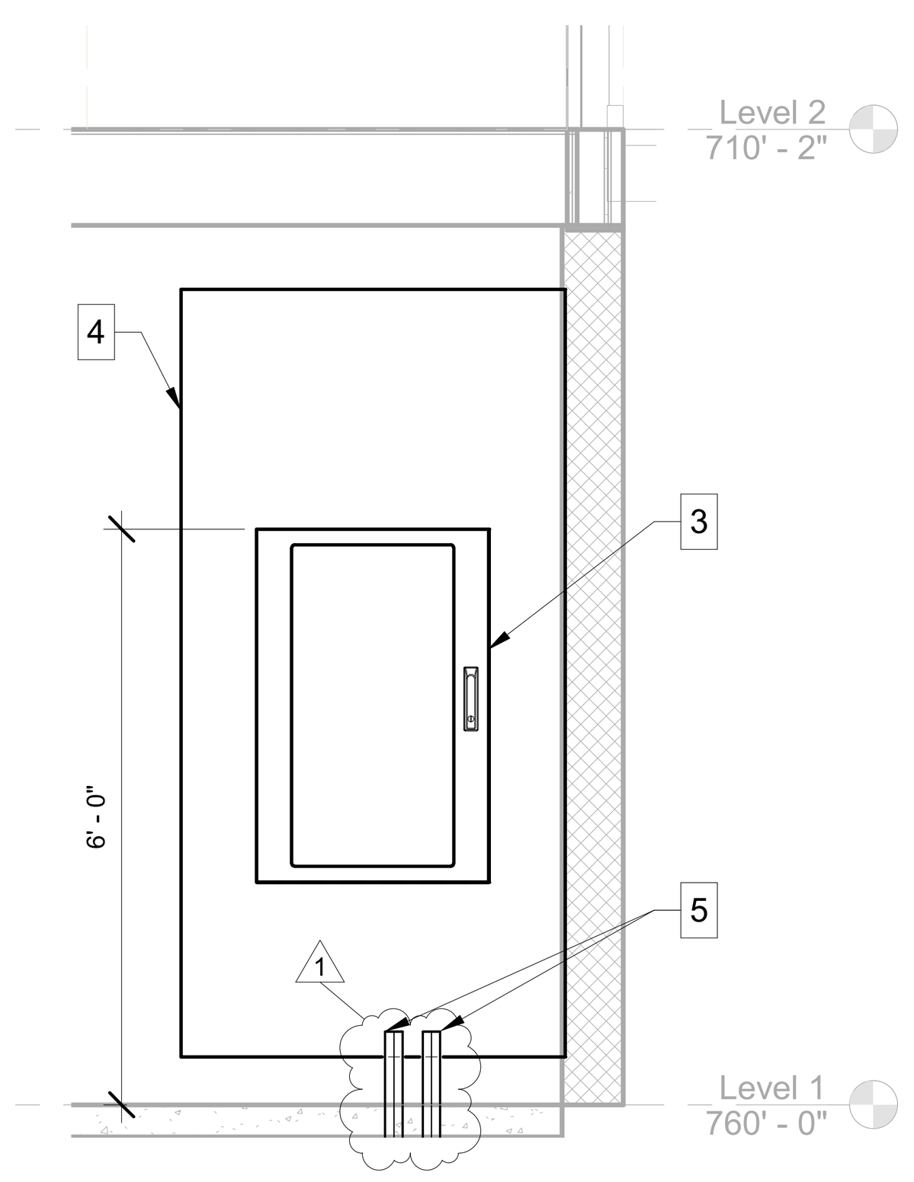
1 FIRST FLOOR TELECOM PLAN
1/4" = 1'-0"



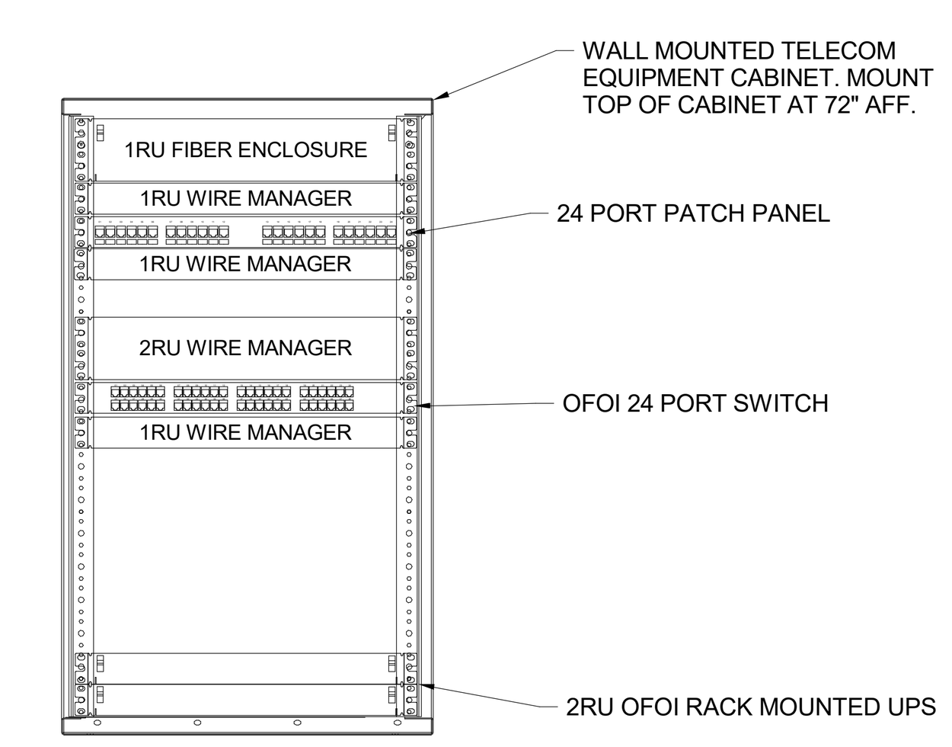
2 SECOND FLOOR TELECOM PLAN
1/4" = 1'-0"



3 PRESS BOX ROOM C100 - ENLARGED TR LAYOUT
1/2" = 1'-0"



4 PRESS BPX ROOM C200 - ENLARGED AV RACK LAYOUT ELEVATION
1/2" = 1'-0"



5 SOCCER PRESSBOX TELECOM RACK ELEVATION
N.T.S.

GENERAL HORIZONTAL CABLING NOTES

A	CONTRACTOR SHALL PROVIDE ALL REQUIRED PATHWAYS TO ALLOW FOR ALL HORIZONTAL CABLING TO BE INSTALLED.
B	CATEGORY 6A HORIZONAL CABLING, TERMINATIONS, AND TESTING WILL BE OWNER FURNISHED AND OWNER INSTALLED. ALL HORIZONTAL CABLING, TERMINATIONS AND LABELING SHOWN ON CONTRACT DRAWINGS ARE FOR THE OWNERS USE.
C	PAINTING OF THE STRUCTURED CABLING WILL VOID THE WARRANTY. ENSURE PROPER COORDINATION WITH PAINTING CONTRACTOR SO THAT ALL STRUCTURED CABLING IS PROTECTED PRIOR TO ANY PAINTING.
D	PROVIDE A MINIMUM 10 FOOT MAINTENANCE LOOP ON EACH HORIZONTAL CABLING RUN. MAINTENANCE LOOPS SHALL BE STORED ABOVE ACCESIBLE CEILINGS, IN CABLE TRAY, AND IN TELECOMMUNICATION ROOM CABLE TRAY. CABLING ABOVE CEILING SHALL BE SUSPENDED FROM APPROPRIATE SUPPORTS AND SHALL NOT TOUCH THE CEILING.
E	ALL PIN/PAIR ASSIGNMENTS SHALL BE T568B.
F	REFER TO SPECIFICATION SECTION 27 15 13 FOR CABLE JACKET COLOR REQUIREMENTS
G	LABELING SHALL BE COMPLETED AS DEFINED IN THE CONTRACT DOCUMENTS AND SHALL BE COORDINATED WITH THE OWNER.
H	PROVIDE ALL TELECOMMUNICATION OUTLETS AS SHOWN ON THE DRAWINGS AND AS REQUIRED TO PROVIDE CONNECTIONS FOR EACH DEVICE SHOWN ON THE DRAWINGS.
I	ALL TESTING OF HORIZONTAL CABLING SHALL BE COMPLETED AS DIRECTED BY THE PROJECT SPECIFICATIONS. ALL CABLING MUST BE TESTED AND CERTIFIED TO THE APPLICABLE STANDARDS.

TELECOM LEGEND

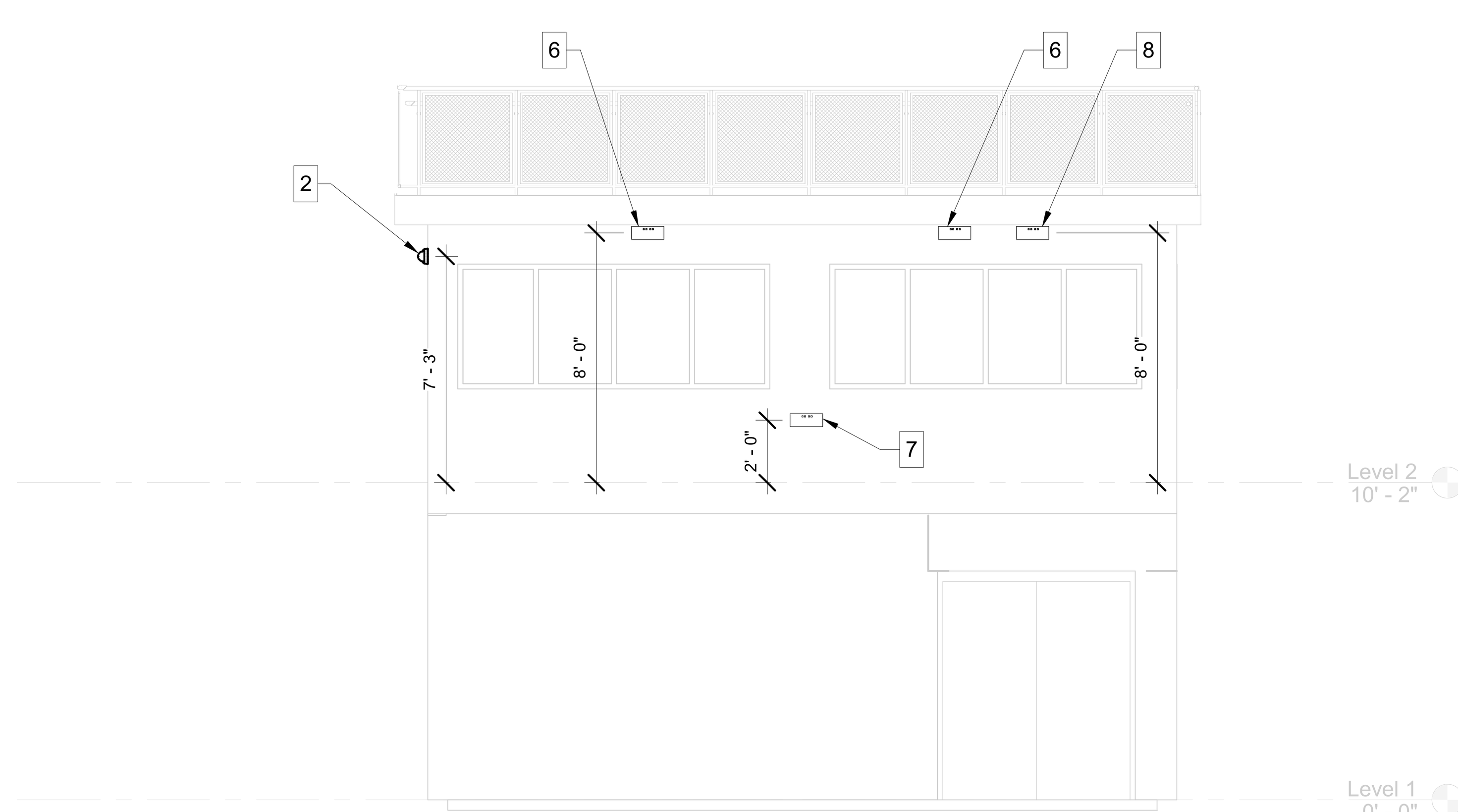
- DATA VOICE LOCATION
- AP — WIRELESS ACCESS POINT - CEILING MOUNTED
- AP — WIRELESS ACCESS POINT - WALL MOUNTED
- AV — AV EQUIPMENT RACK LOCATION
- AV — AV INPUT LOCATION
- AUD — AUDIO INPUT LOCATION
- SPK — SPEAKER - PAGING WALL MOUNTED
- WA — WIRELESS MIC ANTENNA LOCATION
- SC — SECURITY CAMERA ROUGH-IN LOCATION

SHEET NOTES

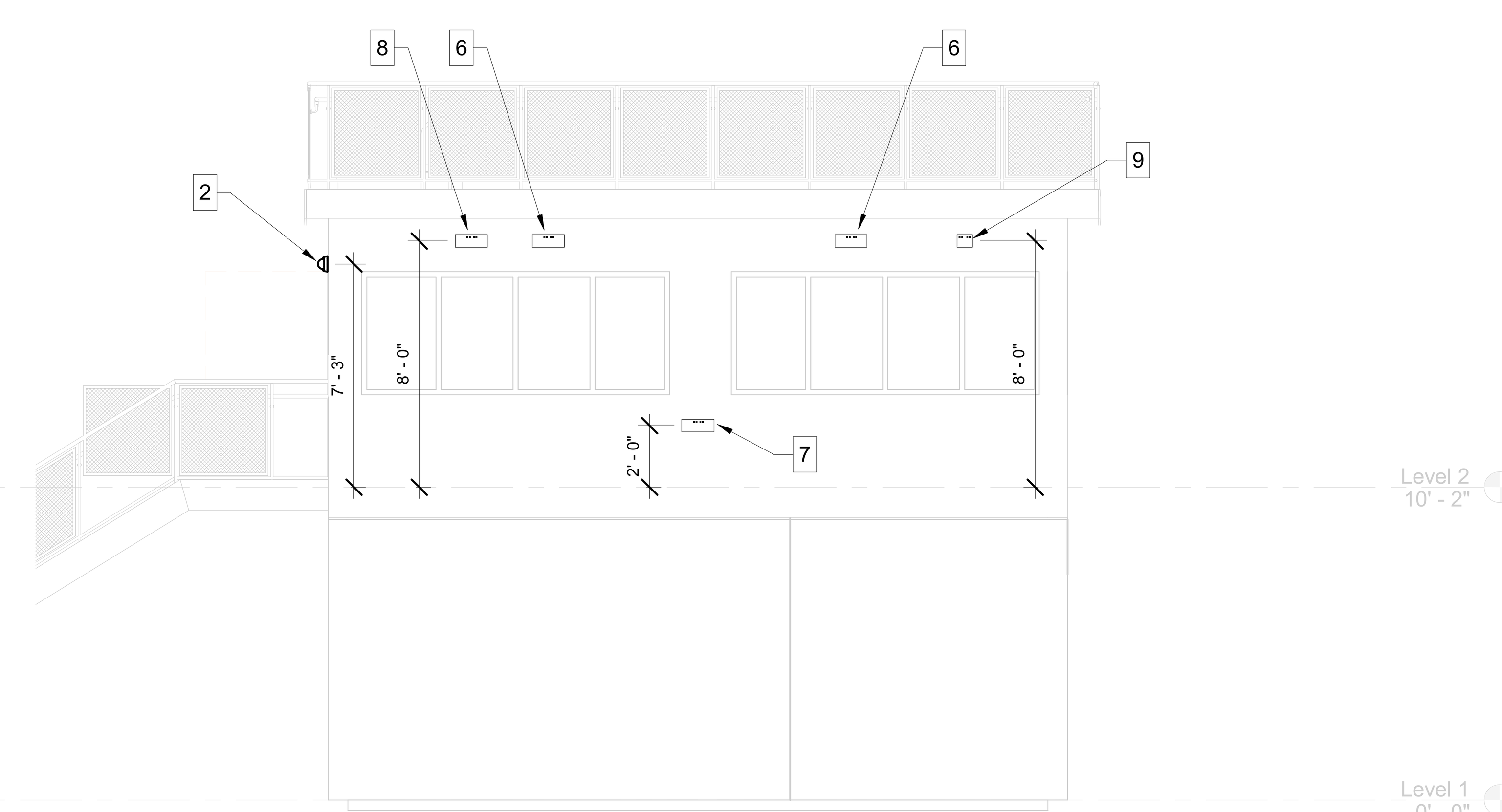
1 DATA VOICE LOCATION TO SERVE ELECTRICAL METER. CONFIRM FINAL LOCATION WITH ELECTRICAL EQUIPMENT INSTALLER PRIOR TO INSTALLATION.
2 SECURITY CAMERA ROUGH-IN LOCATION FOR FUTURE USE.
3 WALL MOUNTED EQUIPMENT RACK.
4 TR PLYWOOD MOUNTED VERTICALLY FROM 6" - 8'-6" A.F.F.
5 3" CONDUIT FOR OSP ENTRANCE CABLING
6 WALL MOUNTED SPEAKER TYPE 6
7 WALL MOUNTED SPEAKER TYPE 5
8 WALL MOUNTED WIRELESS MICROPHONE ANTENNA
9 WALL MOUNTED WIRELESS ACCESS POINT.

TELECOM SCHEDULE

ROOM NUMBER	LABEL	TELECOM ROOM	DATA PORTS	COMMENTS
C100	10-A-05/06	10	2	DATA LOCATION - SURFACE MOUNTED
C200	10-A-01/02	10	2	DATA LOCATION - SURFACE MOUNTED
C200	10-A-03/04	10	2	DATA LOCATION - SURFACE MOUNTED
C201	10-A-07/08	10	2	DATA LOCATION - SURFACE MOUNTED
EXT	10-A-13/14	10	2	WIRELESS ACCESS POINT - WALL MOUNTED
EXT	10-A-15/16	10	2	WIRELESS ACCESS POINT - WALL MOUNTED
Grand total: 6			12	



6 SOCCER PRESS BOX - EAST ELEVATION
1/4" = 1'-0"



7 SOCCER PRESS BOX - WEST ELEVATION
1/4" = 1'-0"

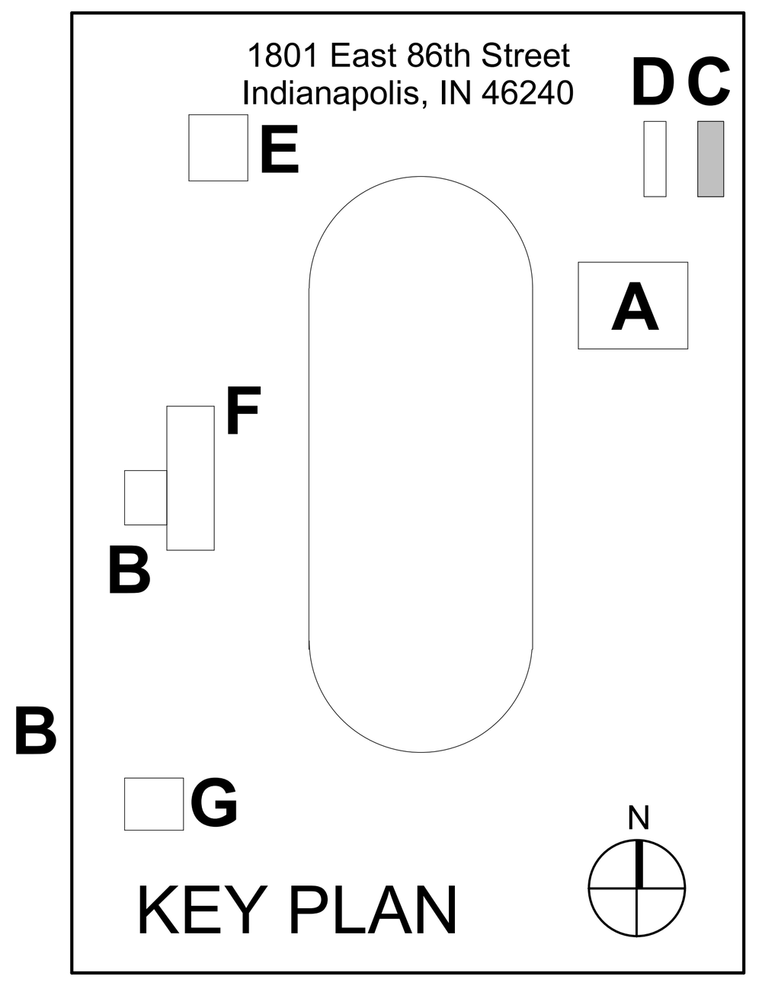
SCHMIDT
ASSOCIATES
415 Massachusetts Avenue
Indianapolis, IN 46204
www.schmidt-arch.com

Project No. 2019-067.NCH
Project Date 07.27.2023
Bid Set 04
Produced MJC MKD

REGISTERED COMMUNICATIONS DISTRIBUTION DESIGNER
BICSI
Matthew Connelly
BICSI ID # 212593
RCDD

#	Revision	Date
	ADDENDUM 1.4b	08/17/2023

1801 East 86th Street
Indianapolis, IN 46240



KEY PLAN

M.S.D. of Washington Township

North Central High School Renovation - Field Improvements

SOCCER PRESSBOX TECHNOLOGY PLAN

C-TF200.4