

ADDENDUM NO. 2

August 25, 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 2-1, ADD 2-2, Specification Section 00 31 00 – Revised Indiana Bid Form, Specification 01 23 00 – Revised Bid Alternates, Pre-Award Meeting Schedule, and Schmidt Associates Addendum No. 2 dated August 24, 2023 consisting of four (4) Pages, and 28 attachment pages.

A. GENERAL INFORMATION

Pre-Award Meeting schedule is attached herein. Pre-Award Meetings will be conducted virtually via Microsoft TEAMS on date and times noted.

B. SPECIFICATION SECTION 00 00 10 - TITLE PAGE

Bid Opening Teams Link:

Microsoft Teams meeting

Join on your computer, mobile app or room device

[Click here to join the meeting](#)

Meeting ID: 241 320 744 807

Passcode: jd3VdV

[Download Teams](#) | [Join on the web](#)

Or call in (audio only)

[+1 317-762-3960,580441075#](#) United States, Indianapolis

Phone Conference ID: 580 441 075#

C. SPECIFICATION SECTION 00 31 00 - INDIANA BID FORM

1. Replace Section 00 31 00 – Indiana Bid Form in its entirety with attached herein Revised Indiana Bid Form.

D. SPECIFICATION SECTION 01 12 00 MULTIPLE CONTRACT SUMMARY

3.03 Bid Categories

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

Add the following specification section:

Section 32 13 16 Asphalt Paving

Add the following clarifications:

6. Provide aggregate courses for asphalt paving. Include all asphalt patching for utility trenches.
7. Provide all topsoil placement.

C. BID CATEGORY NO. 3 – ASPHALT PAVING

Delete this Bid Category in its entirety.

D. BID CATEGORY NO. 4 – GENERAL TRADES

Add the following specification sections:

Section 02 41 19 Selective Demolition

Section 07 17 00 Bentonite Waterproofing

F. BID CATEGORY NO. 6 – ELECTRICAL & TECHNOLOGY

Add the following specification section:

Section 28 46 21 Addressable Fire Alarm System

E. SPECIFICATION SECTION 01 23 00 – ALTERNATES

1. Replace Section 01 23 00 – Alternates in its entirety with attached herein Revised Alternates Section.

CONTRACTOR'S BID FOR PUBLIC WORKS FORM NO. 96

Format (Revised 2013)
(Amended for MSDWT)

**North Central High School Outdoor Athletic
Facilities – Phase 4b – Main Package**
(M.S.D. of Washington Township)
(Marion County, Indiana)

PART I

(To be completed for all bids. Please type or print)

Date (month, day, year): _____

BIDDER (Firm) _____

Address _____ P.O. Box _____

City/State/Zip _____

Telephone Number: _____ Email Address: _____

Person to contact regarding this Bid _____

Pursuant to notices given, the undersigned offers to furnish labor and/or materials necessary to complete the public works project of:

Insert Category No. (s) and Name(s)

Of public works project, **North Central High School Outdoor Athletic Facilities – Phase 4b – Main Package**, in accordance with Plans and Specifications prepared by *Schmidt Associates 415, Massachusetts Ave., Indianapolis, IN 46204*, as follows:

BASE BID

For the sum of _____
(Sum in words)

_____ DOLLARS (\$ _____)
(Sum in figures)

The undersigned acknowledges receipt of the following Addenda:

Receipt of Addenda No. (s) _____

PROPOSAL TIME

Bidder agrees that this Bid shall remain in force for a period of sixty (60) consecutive calendar days from the due date, and Bids may be accepted or rejected during this period. Bids not accepted within said sixty (60) consecutive calendar days shall be deemed rejected.

Attended pre-bid conference YES _____ NO _____

Has visited the jobsite YES _____ NO _____

The Bidder has reviewed the Guideline Schedule in Section 01 32 00 and the intent
Of the schedule can be met. YES _____ NO _____

Bidder has included their Written Drug Testing Plan that covers all employees of the bidder who will perform work on the public work project and meets or exceeds the requirements set in IC 4-13-18-5 or IC 4-13-18-6. YES _____ NO _____

The Skillman Corporation's diversity initiative is to create a program to encourage, assist and measure the active participation of Minority- Owned, Women-Owned, Veteran – Owned and Disabled Individual-Owned Businesses. The Program is to ensure that MWVDBEs are provided full and equal opportunity to participate in all Skillman Corporation's Projects.

Bidder has included: DBE: YES _____% NO _____
 MBE: YES _____% NO _____
 WBE: YES _____% NO _____
 VBE: YES _____% NO _____

The undersigned further agrees to furnish a bond or certified check with this Bid for an amount specified in the Notice to Bidders. If Alternate Bids apply, submit a proposal for each in accordance with the Plans and Specifications.

If additional units of material included in the contract are needed, the cost of units must be the same as that shown in the original contract if accepted by the governmental unit. If the bid is to be awarded on a unit bases, the itemization of the units shall be shown on a separate attachment.

The contractor and his subcontractors, if any, shall not discriminate against or intimidate any employee, or applicant for employment, to be employed in the performance of this contract, with respect to any matter directly or indirectly related to employment because of race, religion, color, sex, national origin or ancestry. Breach of this covenant may be regarded as a material breach of the contract.

CERTIFICATION OF USE OF UNITED STATES STEEL PRODUCTS
(if applicable)

I, the undersigned bidder or agent as a contractor on a public works project, understand my statutory obligation to use steel products made in the United States (I.C. 5-16-8-2). I hereby certify that I and all subcontractors employed by me for this project will use U.S. steel on this project if awarded. I understand that violations hereunder may result in forfeiture of contractual payments.

ALTERNATE BIDS

A blank entry or an entry of "No Bid", "N/A", or similar entry on any Alternate will cause the bid to be rejected as non-responsive only if that Alternate is selected. If no change in the bid amount is required, indicate "No Change".

****MARK "ADD" OR "DEDUCT" FOR EACH ALTERNATE****

Alternate Bid No. 1 – Football Video Board:

State the cost to provide Football Video Board (Scoreboard E2) to the existing football scoreboard over the Base Bid Football Scoreboard (E1) as indicated in Specification Section 116843.43 in the Contract Documents.

Change the Base Bid the sum of _____
(sum in words)

_____ DOLLARS (\$ _____) ADD
(sum in figures) DEDUCT

Alternate Bid No. 2 – Baseball and Softball Scoreboards:

State the cost to:

- a. Remove existing JV baseball and JV softball exterior scoreboards.
- b. Relocate existing Varsity baseball and Varsity softball scoreboards.
- c. Provide new Varsity baseball and Varsity softball scoreboards (Section 116843.43 – Type B)
- d. Refresh existing baseball and softball scoreboard structures to remain as indicated in the Contract Documents.

Change the Base Bid the sum of _____
(sum in words)

_____ DOLLARS (\$ _____) ADD
(sum in figures) DEDUCT

PART II

(For projects of \$150,000 or more – IC 36-1-12-4)

These statements to be submitted under oath by each bidder with and as a part of his bid. (Attach additional pages for each section as needed.)

SECTION I EXPERIENCE QUESTIONNAIRE

1. What public works projects has your organization completed for the period of one (1) year prior to the date of the current bid?

Contract Amount	Class of Work	Completion Date	Name and Address of Owner

2. What public works projects are now in process of construction by your organization?

Contract Amount	Class of Work	Completion Date	Name and Address of Owner

3. Have you ever failed to complete any work awarded to you? _____ If so, where and why?

4. List references from private firms for which you have performed work.

SECTION II PLAN AND EQUIPMENT QUESTIONNAIRE

1. Explain your plan or layout for performing proposed Work. (Examples could include a narrative of when you could begin, complete the project, number of workers, etc. and any other information which you believe would enable the governmental unit to consider your bid.)

2. Please list the names and addresses of all subcontractors (i.e. persons or firms outside your own firm who have performed part of the work) that you have used on public works projects during the past five (5) years along with a brief description of the work done by each subcontractor.

3. If you intend to sublet any portion of the work, state the name and addresses of each subcontractor, equipment to be used by the subcontractor, and whether you will required a bond. However, if you are unable to currently provide a listing, please understand a listing must be provided prior to contract approval. Until the completion of the proposed project, you are under a continuing obligation to immediately notify the governmental unit in the event that you subsequently determine that you will use a subcontractor on the proposed project.

4. What equipment do you have available to use for the proposed Project? Any equipment used by subcontractors may also be required to be listed by the governmental unit.

5. Have you into contracts or received offers for all materials which substantiate the prices used in preparing your proposal? If not, please explain the rationale used which corroborate the process listed.

SECTION III CONTRACTOR'S FINANCIAL STATEMENT

Attachment of Bidder's financial statement is mandatory. Any Bid submitted without said financial statement as required by statute shall thereby be rendered invalid. The financial statement provided hereunder to the governing body awarding the Contract must be specific enough in detail so that said governing body can make a proper determination of the Bidder's capability for completing the Project if awarded.

SECTION IV CONTRACTOR NON-COLLUSION AFFIDAVIT

The undersigned Bidder or agent, being duly sworn on oath, says that he has not, nor has any other member, representative, or agent of the firm, company, corporation or partnership represented by him, entered into any combination, collusion or agreement with any person relative to the price to be bid by anyone at such letting nor to prevent any person from bidding nor to induce anyone to refrain from bidding, and that this Bid is made without reference to any other bid and without any agreement, understanding or combination with any other person in reference to such bidding.

He further says that no person or persons, firms, or corporations has, have, or will receive directly or indirectly, any rebate, fee, gift, commission, or thing of value on account of such contract.

SECTION V OATH AND AFFIRMATION

I HEREBY AFFIRM UNDER THE PENALTIES OF PERJURY THAT THE FACTS AND INFORMATION CONTAINED IN THE FOREGOING BID FOR PUBLIC WORKS ARE TRUE AND CORRECT

Dated at _____ this _____ day of _____, 20

(Name of Organization)

By

(Title of Person Signing)

ACKNOWLEDGEMENT

STATE OF _____)

) SS:

COUNTY OF _____)

Before me, a Notary Public, personally appeared the above-named

Swore that the statements contained in the foregoing document are true and correct.

Subscribed and sworn to before me this _____ day of _____,

(Title)

Notary Public

My Commission Expires: _____

County of Residence: _____

END OF SECTION 00 31 00

SECTION 01 23 00 - ALTERNATES

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including amended General Conditions and other Division 1 Specification Sections, apply to work of this Section.

1.02 PURPOSE

- A. The Bids for the Alternates described herein are required in order for the Owner to obtain information necessary for the proper consideration of the Project in its entirety.

1.03 ALTERNATES

- A. Definitions: Alternates are defined as alternate products, materials, equipment, installations, or systems for the Work, which may, at Owner's option and under terms established by Instructions to Bidders, be selected and recorded in the Owner-Contractor Agreement to either supplement or displace corresponding basic requirements of Contract Documents. Alternates may or may not substantially change scope and general character of the Work; and must not be confused with "allowances", "unit prices", "change orders", "substitutions", and other similar provisions.

1.04 SCHEDULE OF ALTERNATES

- A. ALTERNATE NO. 1: Football Video Board
 - 1. Base Bid: Provide Football Scoreboard (Scoreboard E1) as indicated in the Contract Documents.
 - 2. Alternate: Provide Football Video Board (Scoreboard E2) to the existing football scoreboard over the Base Bid Football Scoreboard (E1) as indicated in Specification Section 116843.43 in the Contract Documents.

B. ALTERNATE NO. 2: Baseball and Softball Scoreboards.

1. Base Bid: Existing Baseball and Scoreboards to remain.
2. Alternate:
 - a. Remove existing JV baseball and JV softball exterior scoreboards.
 - b. Relocate existing Varsity baseball and Varsity softball scoreboards.
 - c. Provide new Varsity baseball and Varsity softball scoreboards (Section 116843.43 -Type B)
 - d. Refresh existing baseball and softball scoreboard structures to remain as indicated in the Contract Documents.

C. ALTERNATE NO. 3: Soccer Scoreboard

1. Base Bid: Provide Scoreboard (Type C) at Varsity and JV Fields (west and center fields) as indicating in the Contract Documents.
2. Alternate: Provide Scoreboard (Type C) to Practice (east field).
 - a. Remove existing Soccer scoreboard on Practice Field.
 - b. Provide new Soccer scoreboard (Section 116843.43 -Type C)

D. ALTERNATE NO. 4: Salt Barn

1. Base Bid: No Salt Barn
2. Alternate: Provide the salt barn building in its entirety, including access drive and associated sidewalk to the building just west of the existing pavement access to the existing Transportation Storage Building as indicated in Contract Documents.

E. ALTERNATE NO. 5a: Athletic Lighting

Base Bid: Provide Musco Athletic Lighting

Provide Qualite Athletic Lighting in lieu of Musco. As part of the alternate bid, Qualite must provide documentation showing that the performance criteria for the athletic lighting outlined in the Contract Documents and the IHSAA Lighting Standards can be met.

F. ALTERNATE NO. 5b: Athletic Lighting

Base Bid: Provide Musco Athletic Lighting

Provide IKIO Athletic Lighting in lieu of Musco. As part of the alternate bid, IKIO must provide documentation showing that the performance criteria for the athletic lighting outlined in the Contract Documents and the IHSAA Lighting Standards can be met.

PART 2 - PRODUCTS, PART 3 - EXECUTION (Not Used)

END OF SECTION 01 23 00

PRE-AWARD MEETING SCHEDULE



- Bid Category No. 2 – September 1, 2023 @ 9:00AM
- Bid Category No. 4 – September 1, 2023 @ 10:00AM
- Bid Category No. 5 – September 1, 2023 @ 11:00AM
- Bid Category No. 6 – September 1, 2023 @ 1:00PM

ADDENDUM NO. 2.4B

AUGUST 25, 2023

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

This Addendum consists of 4 Addendum pages and 28 attachment pages totaling 31 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 07 – THERMAL AND MOISTURE PROTECTION

A. Section 071700 “BENTONITE WATERPROOFING”

1. ADD Section 071700 per the attached.

2.2 DIVISION 28 - ELECTRONIC SAFETY AND SECURITY

A. Section 284621 “ADDRESSABLE FIRE-ALARM SYSTEM”

1. ADD Section 284621 in its entirety per the attached.

2.3 DIVISION 32 - EXTERIOR IMPROVEMENTS

A. Section 323113 “CHAIN LINK FENCES AND GATES”

1. MODIFY Text 2.2.A.9 as follows:
“9. Rail Diameter: 1.66 inches”
2. MODIFY Text 2.3.D.2 as follows:
“2. Lock: standard drop fork latches”

3. DELETE Article 2.4 completely.
4. DELETE Article 2.6 completely.
5. DELETE Article 2.7 completely.
6. DELETE Article 2.10 completely.

PART 3 - CHANGES TO THE DRAWINGS

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

3.1 DRAWING SHEETS: ADDITIONS, DELETIONS AND REPLACEMENTS

DRAWING NO.	INDICATE ACTION: ADD (A), DELETE (D), DELETE & REPLACE (R),
C-SERIES DRAWINGS	
CL103.4	DELETE AND REPLACE
E-SERIES DRAWINGS	
E002.4	DELETE AND REPLACE
E102.4	DELETE AND REPLACE
T-SERIES DRAWINGS	
TF003.4	DELETE AND REPLACE
TF004.4	DELETE AND REPLACE
TF005.4	DELETE AND REPLACE
F-TF201.4	DELETE AND REPLACE
F-TF400.4	DELETE AND REPLACE
C-TF400.R	DELETE AND REPLACE
A-TF200.4	DELETE AND REPLACE

3.1 G-SERIES DRAWINGS

A. Drawing Number GF103.4

1. DELETE Note 05 in its entirety and replace with the following:
“SOCCER SCOREBOARD ALTERNATE: 116843.43 - REMOVE EXISTING SOCCER SCOREBOARD. STORE AND PROTECT FOR RELOCATION TO OTHER SOCCER FIELD. PROVIDE NEW EXTERIOR SCOREBOARD TYPE C ON EXISTING SUPPORT STRUCTURE. PREP AND COAT EXISTING STRUCTURE WITH 099600.99 HIGH PERFORMANCE COATING.”
2. DELETE Note 06 in its entirety and replace with the following:
“SOCCER SCOREBOARD ALTERNATE: 116843.43 - REMOVE EXISTING SOCCER SCOREBOARD. INSTALL RELOCATED VARSITY SOCCER SCOREBOARD (SEE NOTE 5) ON EXISTING SUPPORT STRUCTURE. PREP AND COAT EXISTING STRUCTURE WITH 099600.99 HIGH PERFORMANCE COATING.”

3.2 A-SERIES DRAWINGS

A. Drawing Number B-A-300.4

1. ADD Note to Wall Section 5A as follows:

“07 17 00 - BENTONITE WATERPROOFING, TYP. ALL ELEVATOR PIT WALLS BELOW GRADE”

END OF ADDENDUM 2.4B

BIDDER QUESTIONS AND ANSWERS

The following Bidder Questions and Answers are being made available to Bidders for informational purposes only and are not a part of the Addendum.

1. On sheet TF002, please clarify work required for note 18. I understand that we need to feed a security camera on the visitors grandstand from the visitors concession but do we just run a 1” conduit through the handhole and then on to the grandstand. How high above the ground will this camera be mounted.
 - a. **Answer: Camera shall be mounted to vertical support column at back of grandstand structure at 16’ 0” above finish grade. Conduit shall be routed from handhole up support column to camera mount.**
2. On sheet 2/TF004, note 13 says to put a 6 strand MM cable in from JEL to splice point in new handhole and then splice (4) 6 strand MM in the handhole. The cabling from JEL to handhole would have to be a 24 strand MM. Please clarify.
 - a. **Answer: 6 strand MM to JEL to remain. All other new 6 strand cabling shall be Single-mode in lieu of multi-mode. Contractor shall refer to updated riser diagram included in Addendum #2 for clarification.**
3. On drawing A-TF200.4, Visitor Concession, camera 09-A-09, which type of single camera is required? Bullet, Dome, wide lens, or narrow lens?
 - a. **Answer: Refer to Addendum #2 documentation for clarification of this camera location.**
4. On drawing C-TF200.4, Soccer Pressbox, the cameras on the West and East Pressbox, is the telecom room C100?
 - a. **Answer: These are rough-in only type locations. Locations require boxes and conduit only. No cabling is required.**
5. On drawing TF003.4 , Home concession, the camera 08-A-34, the IDF Telcom schedule does not show this camera.
 - a. **Answer: See answer to #6 below.**
6. On drawing TF-201.4, Main Press Box Concession, camera 08-A-32, camera is on Telecom Schedule, but not on the drawing.
 - a. **Answer: labeling information for this camera location has been clarified in Addendum #2 documentation.**

7. For Speaker Type 1, ARE THERE ROOFTOP BLOCKING/MOUNTING CONSIDERATIONS FOR SPEAKER WEIGHT?
 - a. Answer: Rooftop blocking/mounting including speaker weight have been communicated to the press box manufacturer
8. For Speaker Type 2, 90Hz HIGH PASS FILTER REQUIRED? XFMR REQUIRED?
 - a. Answer: Refer to functional diagram on F-TF301.4. Follow manufacturer's recommendation of 90Hz HPF within digital signal processor output chain. Each Loudspeaker Type 2 is connected to a dedicated channel of Power amplifier type 1. Amplifier output to be set as Low Z. No transformer is required.
9. For Speaker Type 2, request to ADD: ADAPTIVE TECH (SAS-200-24-G) BRACKET TO ACHIEVE X,Y COORDINATES AND ACCOMMODATE WEIGHT?
 - a. Answer: No issues with additional mount.
10. For Speaker Type 3, CONFIRM SPEAKER TYPE - 2 DIFFERENT SPEAKER TYPES ARE INDICATED ON LOUDSPEAKER DIMENSIONAL DATA CHART ON F-TF201.4
 - a. Answer: After further review, all Speaker Type 3 can be R.5-3896.
11. For Speaker Type 4, CONFIRM SPEAKER TYPE - SPEC CALLS OUT R.35-3896 BUT LOUDSPEAKER DIMENSIONAL DATA CHART ON F-TF201.4 CALLS OUT R.15COAX. CONFIRM CORRECT SPEAKER.
 - a. Answer: Spec section 275116.2.13.A.a should read Community Pro R.15COAX. The remainder of section 275116.2.13.A is accurate.
12. For Speaker Type 6, 24dB/Oct HIGH PASS FILTER REQUIRED?
 - a. Answer: Follow manufacturer's recommendation of 90Hz HPF 24 dB/Oct within digital signal processor output chain
13. For Equipment Cabinet(s), NO VENTS/COOLING CALLED OUT IN RACK - NEEDED? total of (5) amps for Football, (2) for Soccer.
 - a. Answer: Refer to spec sections 275116.2.2 and 275116.2.3 for ventilation requirements.

SECTION 071700 - BENTONITE WATERPROOFING

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. Bentonite waterproofing at elevator pit and where otherwise indicated.
- B. Related Requirements:
 - 1. Section 312000 "Earth Moving" for excavating and backfilling.

1.3 ACTION SUBMITTALS

- A. Product Data, Shop Drawings:
 - 1. Product Data: For each type of product.
 - a. Include construction details, material descriptions, and installation instructions.
 - 2. Shop Drawings: Include installation details for waterproofing, penetrations, and interface with other work.

1.4 INFORMATIONAL SUBMITTALS

- A. Product Certificates: For each type of waterproofing material.
- B. Field quality-control reports.

1.5 FIELD CONDITIONS

- A. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit bentonite waterproofing to be installed according to manufacturer's written instructions and warranty requirements.
 - 1. Do not apply waterproofing materials to surfaces where ice or frost is visible. Do not apply bentonite waterproofing materials in areas with standing water.

2. Do not place bentonite clay products in panel or composite form on damp surfaces unless such practice is approved in writing by manufacturer.

1.6 WARRANTY

- A. Special Warranty: Manufacturer and installer agree(s) to repair or replace components of bentonite waterproofing system that fail in materials or workmanship within specified warranty period.
 1. Warranty Period: Five years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 GEOTEXTILE/BENTONITE SHEETS

- A. Regular Geotextile/Bentonite Sheet: Minimum of 1.0 lb/sq. ft. of bentonite clay granules between two layers of polypropylene geotextile fabric, one woven and one nonwoven, needle punched and heat fused together.
 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Carlisle Coatings & Waterproofing Inc.
 - b. CETCO, a Minerals Technologies company.
 2. Grab Tensile Strength: 95 lbf according to ASTM D4632.
 3. Puncture Resistance: 100 lbf according to ASTM D4833.

2.2 PROTECTION COURSE

- A. Protection Course: Protection mat of type and thickness as recommended in writing by waterproofing manufacturer for each Project condition.
 1. Adhesive: As recommended in writing by waterproofing manufacturer.

2.3 ACCESSORIES

- A. Granular Bentonite: Sodium bentonite clay containing a minimum of 90 percent montmorillonite (hydrated aluminum silicate), with a minimum of 90 percent passing a No. 20 sieve.
- B. Bentonite Mastic: Bentonite compound of trowelable consistency, specifically formulated for application at joints and penetrations.

- C. Bentonite Tubes: Manufacturer's standard 2-inch- diameter, water-soluble tube containing approximately 1.5 lb/ft. of granular bentonite; hermetically sealed; designed specifically for placing on wall footings at line of joint with exterior base of wall.
- D. Termination Bar: Extruded-aluminum or formed-stainless-steel bars with upper flange to receive sealant.
- E. Plastic Protection Sheet: Polyethylene sheeting according to ASTM D4397; thickness as recommended in writing by waterproofing manufacturer to suit application but at least 6 mils thick.
- F. Cement Grout Patching Material: Grout mix compatible with substrate being patched and recommended in writing by waterproofing manufacturer.
- G. Masonry Fasteners: Case-hardened nails or hardened-steel, powder-actuated fasteners. Depending on manufacturer's written requirements, provide 1/2- or 1-inch- diameter washers under fastener heads.
- H. Sealants: As recommended in writing by waterproofing manufacturer. Comply with requirements specified in Section 079200 "Joint Sealants."
- I. Tapes: Waterproofing manufacturer's recommended waterproof tape for joints between sheets, membranes, or panels.
- J. Adhesive: Waterproofing manufacturer's water-based adhesive used to secure waterproofing to both vertical and horizontal surfaces.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for substrate preparations and other conditions affecting performance of bentonite waterproofing.
- B. Examine bentonite materials before installation. Reject materials that have been prematurely exposed to moisture.
- C. Verify that substrate is complete and that work that will penetrate waterproofing is complete and rigidly installed.
- D. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Clean, prepare, and treat substrates according to manufacturer's written instructions.

- B. Formed Concrete Surfaces: Remove fins and projections. Fill voids, rock pockets, form-tie holes, and other defects with bentonite mastic or cement grout patching material according to manufacturer's written instructions.
- C. Horizontal Concrete Surfaces: Remove debris, standing water, oily substances, mud, and similar substances that could impair the bonding ability of concrete or the effectiveness of waterproofing. Fill voids, cracks greater than 1/8 inch, honeycomb areas, and other defects with bentonite mastic or cement grout patching material according to manufacturer's written instructions.

3.3 INSTALLATION, GENERAL

- A. Prepare substrates, voids, cracks, and cavities; and install waterproofing and accessories according to manufacturer's written instructions.
 - 1. Before installing, verify the correct side of waterproofing that shall face substrate surface.
 - 2. Apply granular bentonite around penetrations in horizontal surfaces and changes in plane according to manufacturer's details in preparation for bentonite tubes and mastic.
 - 3. Apply bentonite tubes, bentonite mastic, or both at changes of plane, construction joints in substrate, projections, and penetrations.
 - 4. Prime concrete substrates. Primer may be omitted on concrete surfaces that comply with manufacturer's written requirements for dryness, surface texture, and freedom from imperfections.
- B. Apply bentonite tubes continuously on footing against base of wall to be waterproofed.
- C. Protect waterproofing from damage and wetting before and during subsequent construction operations. Repair punctures, tears, and cuts.
- D. Install protection course before backfilling or placing overburden when recommended in writing by waterproofing manufacturer.

3.4 INSTALLATION OF GEOTEXTILE/BENTONITE SHEETS

- A. Install a continuous layer of waterproofing sheets directly against surface to be waterproofed. Lap ends and edges a minimum of 4 inches on horizontal and vertical substrates unless otherwise indicated. Stagger end joints between sheets a minimum of 24 inches. Fasten seams by stapling to adjacent sheet or nailing to substrate.
- B. Below Structural Slabs-on-Grade: Place waterproofing sheets on compacted substrate with ends and edges lapped and stapled.
 - 1. Install a layer of waterproofing sheets under footings, grade beams, and pile caps; or continue waterproofing through key joints between footings and foundation walls, and extend a minimum of 8 inches up or beyond perimeter slab forms.
- C. Concrete Walls: Starting at bottom of wall, apply waterproofing sheets horizontally against wall. Secure with masonry fasteners spaced according to manufacturer's written instructions. Extend to bottom of footing, grade beam, or wall, and secure.

1. Termination at Grade: Extend waterproofing sheets to within 12 inches of finish grade unless otherwise indicated. Secure top edge with termination bar. Apply sealant to top edge of termination bar.
- D. Excavation Support and Protection (Permanent Shoring): Encase tieback heads, rods, nuts, and plates according to waterproofing manufacturer's written instructions for each configuration.
1. Install a layer of waterproofing sheets, with ends and edges lapped and nailed to shoring. Cover waterproofing with plastic protection sheets if needed for protection from precipitation; remove plastic sheets before placing concrete.
 2. Inspect and repair waterproofing after reinforcing steel has been placed. Coordinate and control concrete placement to avoid damage to waterproofing.

END OF SECTION

SECTION 284621 - ADDRESSABLE FIRE-ALARM SYSTEMS

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. Fire-alarm control unit.
 - 2. Manual fire-alarm boxes.
 - 3. System smoke detectors.
 - 4. Heat detectors.
 - 5. Notification appliances.
 - 6. Device guards.
 - 7. Addressable interface device.
 - 8. Fire alarm wire and cable.

1.3 DEFINITIONS

- A. EMT: Electrical Metallic Tubing.
- B. FACP: Fire Alarm Control Panel.
- C. NICET: National Institute for Certification in Engineering Technologies.

1.4 ACTION SUBMITTALS

- A. Product Data, Shop Drawings, General Submittal Requirements,
 - 1. Product Data: For each type of product, including furnished options and accessories.
 - a. Include construction details, material descriptions, dimensions, profiles, and finishes.
 - b. Include rated capacities, operating characteristics, and electrical characteristics.
 - 2. Shop Drawings: For fire-alarm system.
 - a. Comply with recommendations and requirements in the "Documentation" section of the "Fundamentals" chapter in NFPA 72.
 - b. Include plans, elevations, sections, details, and attachments to other work.

- c. Include details of equipment assemblies. Indicate dimensions, weights, loads, required clearances, method of field assembly, components, and locations. Indicate conductor sizes, indicate termination locations and requirements, and distinguish between factory and field wiring.
 - d. Detail assembly and support requirements.
 - e. Include light output settings for visual notification appliances.
 - f. Include voltage drop calculations for notification-appliance circuits.
 - g. Include battery-size calculations.
 - h. Include input/output matrix.
 - i. Include statement from manufacturer that all equipment and components have been tested as a system and meet all requirements in this Specification and in NFPA 72.
 - j. Include performance parameters and installation details for each detector.
 - k. Verify that each duct detector is listed for complete range of air velocity, temperature, and humidity possible when air-handling system is operating.
 - l. Include plans, sections, and elevations of heating, ventilating, and air-conditioning ducts, drawn to scale; coordinate location of duct smoke detectors and access to them.
 - 1) Show critical dimensions that relate to placement and support of sampling tubes, detector housing, and remote status and alarm indicators.
 - 2) Show field wiring required for HVAC unit shutdown on alarm.
 - 3) Locate detectors according to manufacturer's written recommendations.
 - m. Include floor plans to indicate final outlet locations showing address of each addressable device. Show size and route of cable and conduits and point-to-point wiring diagrams.
3. General Submittal Requirements:
- a. Shop Drawings shall be prepared by persons with the following qualifications:
 - 1) Trained and certified by manufacturer in fire-alarm system design.
 - 2) NICET-certified, fire-alarm technician; Level IV minimum.

1.5 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For Installer.
- B. Field quality-control reports.
- C. Sample Warranty: For special warranty.

1.6 CLOSEOUT SUBMITTALS

- A. Operation and Maintenance Data: For fire-alarm systems and components to include in emergency, operation, and maintenance manuals.
 - 1. In addition to items specified in Section 017823 "Operation and Maintenance Data," include the following:

- a. Comply with the "Records" section of the "Inspection, Testing and Maintenance" chapter in NFPA 72.
- b. Complete wiring diagrams showing connections between all devices and equipment. Each conductor shall be numbered at every junction point with indication of origination and termination points.
- c. Riser diagram.
- d. Device addresses.
- e. Record copy of site-specific software.
- f. Provide "Inspection and Testing Form" according to the "Inspection, Testing and Maintenance" chapter in NFPA 72, and include the following:
 - 1) Equipment tested.
 - 2) Frequency of testing of installed components.
 - 3) Frequency of inspection of installed components.
 - 4) Requirements and recommendations related to results of maintenance.
 - 5) Manufacturer's user training manuals.
- g. Manufacturer's required maintenance related to system warranty requirements.
- h. Abbreviated operating instructions for mounting at fire-alarm control unit and each annunciator unit.

B. Software and Firmware Operational Documentation:

- 1. Software operating and upgrade manuals.
- 2. Program Software Backup: On magnetic media or compact disk, complete with data files.
- 3. Device address list.
- 4. Printout of software application and graphic screens.

1.7 MAINTENANCE MATERIAL SUBMITTALS

- A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
 - 1. Detector Bases: Quantity equal to two percent of amount of each type installed, but no fewer than one unit of each type.
 - 2. Keys and Tools: One extra set for access to locked or tamperproofed components.
 - 3. Audible and Visual Notification Appliances: One of each type installed.
 - 4. Fuses: Two of each type installed in the system. Provide in a box or cabinet with compartments marked with fuse types and sizes.

1.8 QUALITY ASSURANCE

- A. Installer Qualifications: Installation shall be by personnel certified by NICET as fire-alarm Level III technician.
- B. NFPA Certification: Obtain certification according to NFPA 72 by a UL-listed alarm company.

1.9 PROJECT CONDITIONS

- A. Interruption of Existing Fire-Alarm Service: Do not interrupt fire-alarm service to facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary guard service according to requirements indicated:
 - 1. Notify Construction Manager no fewer than seven days in advance of proposed interruption of fire-alarm service.
 - 2. Do not proceed with interruption of fire-alarm service without Construction Manager's written permission.

- B. Use of Devices during Construction: Protect devices during construction unless devices are placed in service to protect the facility during construction.

1.10 WARRANTY

- A. Special Warranty: Manufacturer agrees to repair or replace fire-alarm system equipment and components that fail in materials or workmanship within specified warranty period.
 - 1. Warranty Extent: All equipment and components not covered in the Maintenance Service Agreement.
 - 2. Warranty Period: Five years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 SYSTEM DESCRIPTION

- A. Basis for Pricing: Simplex
 - 1. Provide all equipment, devices, accessories, programming, etc. as required for a complete operational system.

- B. Source Limitations for Fire-Alarm System and Components: Components shall be compatible with, and operate as an extension of, existing system. Provide system manufacturer's certification that all components provided have been tested as, and will operate as, a system.

- C. Noncoded, UL-certified addressable system, with multiplexed signal transmission and horn/strobe evacuation.

- D. Automatic sensitivity control of certain smoke detectors.

- E. All components provided shall be listed for use with the selected system.

- F. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

2.2 SYSTEMS OPERATIONAL DESCRIPTION

- A. Fire-alarm signal initiation shall be by one or more of the following devices and systems:
1. Manual stations.
 2. Heat detectors.
 3. Smoke detectors.
 4. Duct smoke detectors.
 5. Automatic sprinkler system water flow.
- B. Fire-alarm signal shall initiate the following actions:
1. Continuously operate alarm notification appliances, including voice evacuation notices.
 2. Identify alarm and specific initiating device at fire-alarm control unit, connected network control panels, off-premises network control panels, and remote annunciators.
 3. Transmit an alarm signal to the remote alarm receiving station.
 4. Release fire and smoke doors held open by magnetic door holders on local alarm from smoke detectors adjacent to door(s) only.
 5. Record events in the system memory.
 6. Indicate device in alarm on remote annunciator.
- C. Supervisory signal initiation shall be by one or more of the following devices and actions:
1. Valve supervisory switch.
 2. User disabling of zones or individual devices.
 3. Loss of communication with any panel on the network.
- D. System trouble signal initiation shall be by one or more of the following devices and actions:
1. Open circuits, shorts, and grounds in designated circuits.
 2. Opening, tampering with, or removing alarm-initiating and supervisory signal-initiating devices.
 3. Loss of communication with any addressable sensor, input module, relay, control module, remote annunciator, printer interface, or Ethernet module.
 4. Loss of primary power at fire-alarm control unit.
 5. Ground or a single break in internal circuits of fire-alarm control unit.
 6. Abnormal ac voltage at fire-alarm control unit.
 7. Break in standby battery circuitry.
 8. Failure of battery charging.
 9. Abnormal position of any switch at fire-alarm control unit or annunciator.
- E. System Supervisory Signal Actions:
1. Initiate notification appliances.
 2. Identify specific device initiating the event at fire-alarm control unit, connected network control panels, off-premises network control panels, and remote annunciators.
 3. After a time delay of 200 seconds, transmit a trouble or supervisory signal to the remote alarm receiving station.
 4. Transmit system status to building management system.
 5. Display system status on remote annunciator.

2.3 FIRE-ALARM CONTROL UNIT

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
- B. Description: Field-programmable, microprocessor-based, modular, power-limited design with electronic modules.

2.4 MANUAL FIRE-ALARM BOXES

- A. General Requirements for Manual Fire-Alarm Boxes: Comply with UL 38. Boxes shall be finished in red with molded, raised-letter operating instructions in contrasting color; shall show visible indication of operation; and shall be mounted on recessed outlet box. If indicated as surface mounted, provide manufacturer's surface back box.
- B. Match existing devices.

2.5 SYSTEM SMOKE DETECTORS

- A. General Requirements for System Smoke Detectors:
- B. Match existing devices.
- C. Photoelectric Smoke Detectors:
- D. Match existing devices.
- E. Duct Smoke Detectors: Photoelectric type complying with UL 268A.
- F. Match existing devices.

2.6 HEAT DETECTORS

- A. General Requirements for Heat Detectors: Comply with UL 521.
 - 1. Temperature sensors shall test for and communicate the sensitivity range of the device.
- B. Match existing devices.

2.7 NOTIFICATION APPLIANCES

- A. General Requirements for Notification Appliances:
- B. Match existing devices.

2.8 ADDRESSABLE INTERFACE DEVICE

- A. General:
 - 1. Include address-setting means on the module.
 - 2. Store an internal identifying code for control panel use to identify the module type.
 - 3. Listed for controlling HVAC fan motor controllers.
- B. Monitor Module: Microelectronic module providing a system address for alarm-initiating devices for wired applications with normally open contacts.
- C. Integral Relay: Capable of providing a direct signal to elevator controller to initiate elevator recall.
 - 1. Allow the control panel to switch the relay contacts on command.
 - 2. Have a minimum of two normally open and two normally closed contacts available for field wiring.
- D. Control Module:
 - 1. Operate notification devices.
 - 2. Operate solenoids for use in sprinkler service.

2.9 DEVICE GUARDS

- A. Description: Welded wire mesh of size and shape for the manual station, smoke detector, gong, or other device requiring protection, where indicated on Drawings.
 - 1. Factory fabricated and furnished by device manufacturer.
 - 2. Finish: Paint of color to match the protected device.

2.10 FIRE ALARM WIRE AND CABLE

- A. General Wire and Cable Requirements: NRTL listed and labeled as complying with NFPA 70, Article 760.
- B. Power-Limited Circuits: Solid-copper conductors with 300-V rated, 75 deg C, red color-coded, plenum-rated PVC insulation, and complying with requirements in UL 2196 for a two-hour rating.
 - 1. Signal Line Circuits (SLC): Shielded No. 18-2 AWG, minimum.
 - 2. Initiating Device Circuits (IDC): Shielded NO. 18-2 AWG, minimum.
 - 3. Notification Appliance Circuit (NAC): Stranded No. 14-2 AWG, minimum (strobes). Twisted-shielded No. 18-2 AWG, minimum (audible).
- C. Wiring installed underground shall have insulation rated for wet locations.
- D. Coordinate with fire alarm system manufacturer for recommended wire size and type.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine areas and conditions for compliance with requirements for ventilation, temperature, humidity, and other conditions affecting performance of the Work.
 - 1. Verify that manufacturer's written instructions for environmental conditions have been permanently established in spaces where equipment and wiring are installed, before installation begins.
- B. Examine roughing-in for electrical connections to verify actual locations of connections before installation.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 EQUIPMENT INSTALLATION

- A. Comply with NFPA 72, NFPA 101, and requirements of authorities having jurisdiction for installation and testing of fire-alarm equipment. Install all electrical wiring to comply with requirements in NFPA 70 including, but not limited to, Article 760, "Fire Alarm Systems."
 - 1. Devices placed in service before all other trades have completed cleanup shall be replaced.
 - 2. Devices installed but not yet placed in service shall be protected from construction dust, debris, dirt, moisture, and damage according to manufacturer's written storage instructions.
- B. Connecting to Existing Equipment: Verify that existing fire-alarm system is operational before making changes or connections.
 - 1. Connect new equipment to existing control panel in existing part of the building.
 - 2. Connect new equipment to existing monitoring equipment at the supervising station.
 - 3. Expand, modify, and supplement existing control and monitoring equipment as necessary to extend existing control and monitoring functions to the new points. New components shall be capable of merging with existing configuration without degrading the performance of either system.
- C. Install wall-mounted equipment, with tops of cabinets not more than 78 inches above the finished floor.
- D. Manual Fire-Alarm Boxes:
 - 1. Install manual fire-alarm box in the normal path of egress within 60 inches of the exit doorway.
 - 2. Mount manual fire-alarm box on a background of a contrasting color.
 - 3. The center line of the manual fire-alarm box shall be 46 inches above floor level. All devices shall be mounted at the same height unless otherwise indicated.

- E. Smoke- or Heat-Detector Spacing:
 - 1. Comply with the "Smoke-Sensing Fire Detectors" section in the "Initiating Devices" chapter in NFPA 72, for smoke-detector spacing.
 - 2. Comply with the "Heat-Sensing Fire Detectors" section in the "Initiating Devices" chapter in NFPA 72, for heat-detector spacing.
 - 3. Smooth ceiling spacing shall not exceed 30 feet.
 - 4. Spacing of detectors for irregular areas, for irregular ceiling construction, and for high ceiling areas shall be determined according to Annex A or Annex B in NFPA 72.
 - 5. HVAC: Locate detectors not closer than 36 inches from air-supply diffuser or return-air opening.
 - 6. Lighting Fixtures: Locate detectors not closer than 12 inches from any part of a lighting fixture and not directly above pendant mounted or indirect lighting.
- F. Install a cover on each smoke detector that is not placed in service during construction. Cover shall remain in place except during system testing. Remove cover prior to system turnover.
- G. Duct Smoke Detectors: Comply with NFPA 72 and NFPA 90A. Install sampling tubes so they extend the full width of duct. Tubes more than 36 inches long shall be supported at both ends.
 - 1. Do not install smoke detector in duct smoke-detector housing during construction. Install detector only during system testing and prior to system turnover.
- H. Remote Status and Alarm Indicators: Install in a visible location near each smoke detector, sprinkler water-flow switch, and valve-tamper switch that is not readily visible from normal viewing position.
- I. Audible/visible and visible-only devices: Install at +80" above finished floor to bottom of device housing. Install on flush-mounted boxes unless noted otherwise.
- J. Device Location-Indicating Lights: Locate in public space near the device they monitor.
- K. Connect all flow switches and tamper switches as indicated on Drawings.
- L. Connect all post indicator valves as indicated on Drawings. Install conduit and wiring from device location to the interior of the building.
- M. Install device guards in locations indicated on Drawings per manufacturer recommendations.
- N. Provide 120 volt power to all fire alarm control panels and notification appliance circuit panels as required. Verify and add as required, a smoke detector located within 5' of the panels.

3.3 FIRE ALARM WIRING INSTALLATION

- A. General
 - 1. Comply with NECA 1 and NFPA 72.
 - 2. Cable and raceways used for fire alarm circuits, and equipment control wiring associated with the fire alarm system, may not contain any other wire or cable.

3. Where conduit is required, fire alarm circuits and equipment control wiring associated with the fire alarm system shall be installed in a dedicated raceway system. This system shall not be used for any other wire or cable.
4. Where raceways are required for the installation of fire alarm cables, use EMT. Install raceways according to Section 260533 "Raceways and Boxes for Electrical Systems."
5. Exposed EMT and junction shall be painted red enamel.
6. Fire-Rated Cables: Use of two-hour, fire-rated fire alarm cables, NFPA 70. Types MI and CI, is not permitted.

B. Wiring Method

1. Install plenum rated cable above ceiling only. Install cable parallel and perpendicular to surfaces or structural members, and follow surface contours. Secure and support cables by straps, staples, or similar fittings so designed at intervals not exceeding 48" and not more than 6" from every cabinet, box, or fitting.
2. Install cable in raceways when concealed within walls.
3. Install cable in raceways in all exposed locations.

C. Wiring within Enclosures: Separate power-limited and non-power-limited conductors as recommended by manufacturer. Install conductors parallel with or at right angles to sides and back of the enclosure. Bundle, lace, and train conductors to terminal points with no excess. Connect conductors that are terminated, spliced, or interrupted in any enclosure associated with the fire alarm system to terminal blocks. Mark each terminal according to the system's wiring diagrams. Make all connections with approved crimp-on terminal spade lugs, pressure-type terminal blocks, or plug connectors.

D. Cable Taps: Use numbered terminal strips in junction, pull, and outlet boxes, cabinets, or equipment enclosures where circuit connections are made.

3.4 CONNECTIONS

A. For fire-protection systems related to doors in fire-rated walls and partitions and to doors in smoke partitions, comply with requirements in Section 087100 "Door Hardware." Connect hardware and devices to fire-alarm system.

1. Verify that hardware and devices are listed for use with installed fire-alarm system before making connections.

B. Make addressable connections with a supervised interface device to the following devices and systems. Install the interface device less than 36 inches from the device controlled. Make an addressable confirmation connection when such feedback is available at the device or system being controlled.

1. Magnetically held-open doors.
2. Electronically locked doors and access gates.
3. Rolling shutters.
4. Air handling units.
5. Supervisory connections at valve flow switches.
6. Supervisory connections at valve supervisory switches.
7. Supervisory connections at post indicator valve switches.

3.5 IDENTIFICATION

- A. Identify system components, wiring, cabling, and terminals. Comply with requirements for identification specified in Section 260553 "Identification for Electrical Systems."
- B. Install framed instructions in a location visible from fire-alarm control unit.

3.6 GROUNDING

- A. Ground fire-alarm control unit and associated circuits; comply with IEEE 1100. Install a ground wire from main service ground to fire-alarm control unit.
- B. Ground shielded cables at the control panel location only. Insulate shield at device location.

3.7 FIELD QUALITY CONTROL

- A. Field tests shall be witnessed by Architect.
- B. Manufacturer's Field Service: Engage a factory-authorized service representative to test and inspect components, assemblies, and equipment installations, including connections.
- C. Perform the following tests and inspections with the assistance of a factory-authorized service representative:
 - 1. Visual Inspection: Conduct visual inspection prior to testing.
 - a. Inspection shall be based on completed record Drawings and system documentation that is required by the "Completion Documents, Preparation" table in the "Documentation" section of the "Fundamentals" chapter in NFPA 72.
 - b. Comply with the "Visual Inspection Frequencies" table in the "Inspection" section of the "Inspection, Testing and Maintenance" chapter in NFPA 72; retain the "Initial/Reacceptance" column and list only the installed components.
 - 2. System Testing: Comply with the "Test Methods" table in the "Testing" section of the "Inspection, Testing and Maintenance" chapter in NFPA 72.
 - 3. Test audible appliances for the private operating mode according to manufacturer's written instructions.
 - 4. Test visible appliances for the public operating mode according to manufacturer's written instructions.
 - 5. Factory-authorized service representative shall prepare the "Fire Alarm System Record of Completion" in the "Documentation" section of the "Fundamentals" chapter in NFPA 72 and the "Inspection and Testing Form" in the "Records" section of the "Inspection, Testing and Maintenance" chapter in NFPA 72.
- D. Reacceptance Testing: Perform reacceptance testing to verify the proper operation of added or replaced devices and appliances.
- E. Fire-alarm system will be considered defective if it does not pass tests and inspections.

- F. Prepare test and inspection reports.

3.8 MAINTENANCE SERVICE

- A. Initial Maintenance Service: Beginning at Substantial Completion, maintenance service shall include 12 months' full maintenance by skilled employees of manufacturer's designated service organization. Include preventive maintenance, repair or replacement of worn or defective components, lubrication, cleaning, and adjusting as required for proper operation. Parts and supplies shall be manufacturer's authorized replacement parts and supplies.
 - 1. Include visual inspections according to the "Visual Inspection Frequencies" table in the "Testing" paragraph of the "Inspection, Testing and Maintenance" chapter in NFPA 72.
 - 2. Perform tests in the "Test Methods" table in the "Testing" paragraph of the "Inspection, Testing and Maintenance" chapter in NFPA 72.
 - 3. Perform tests per the "Testing Frequencies" table in the "Testing" paragraph of the "Inspection, Testing and Maintenance" chapter in NFPA 72.

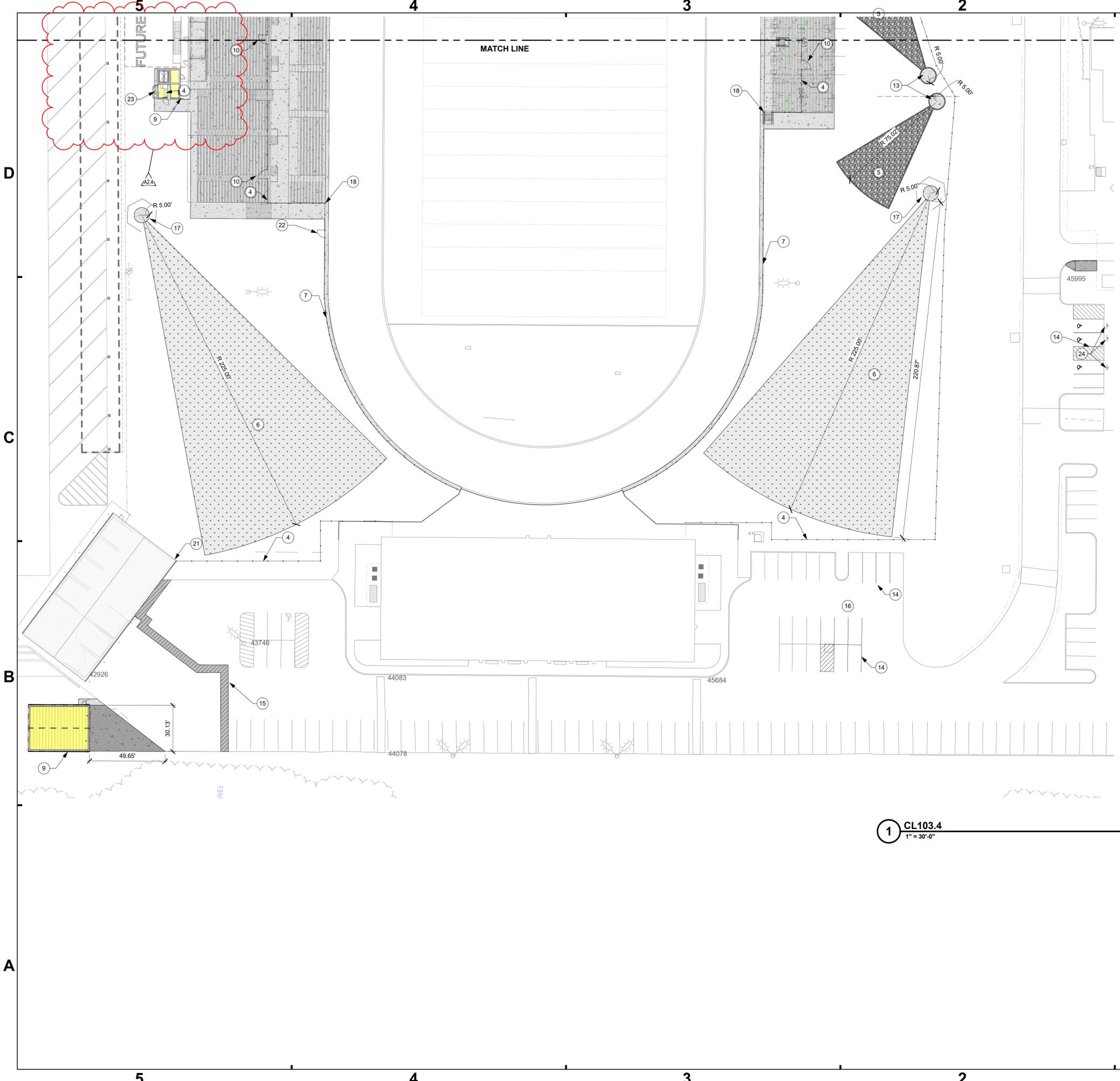
3.9 SOFTWARE SERVICE AGREEMENT

- A. Comply with UL 864.
- B. Technical Support: Beginning at Substantial Completion, service agreement shall include software support for two years.
- C. Upgrade Service: At Substantial Completion, update software to latest version. Install and program software upgrades that become available within two years from date of Substantial Completion. Upgrading software shall include operating system and new or revised licenses for using software.
 - 1. Upgrade Notice: At least 30 days to allow Owner to schedule access to system and to upgrade computer equipment if necessary.

3.10 DEMONSTRATION

- A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain fire-alarm system.

END OF SECTION



GENERAL LAYOUT NOTES

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

SITE LAYOUT LEGEND

	HEAVY DUTY ASPHALT PAVING, SEE DETAIL SHEET
	STANDARD CONCRETE PAVING, SEE DETAIL SHEET
	HEAVY DUTY CONCRETE PAVING, SEE DETAIL SHEET

SITE LAYOUT NOTES - Phase 4

Key	Note
1	MIDDLE OF PRESSBOX SHALL BE CENTERED WITH SOCCER FIELD TO WEST (FIELD VERIFY EXISTING SOCCER STRIPING)
2	6" CONCRETE INTEGRAL CURB, SEE DETAIL SHEET.
3	ADA ACCESSIBLE SIDEWALK RAMP, SEE DETAIL SHEET.
4	6' TALL BLACK VINYL CHAINLINK FENCE- SEE SPECS
5	SHOT PUT AREA SEE DETAIL SHEET.
6	NEW DISCUS AREA TO BE SEEDED. STAKE CORNERS OF AREA WITH REBAR WITH CAP.
7	4' TALL BLACK VINYL CHAINLINK FENCE. FENCE TO BE INSTALLED IN NEW CONCRETE.
8	6' TALL 10' WIDE BLACK VINYL CHAIN-LINK DOUBLE SWING GATE, SEE SPECS
9	NEW BUILDING. SEE A-SERIES.
10	6' TALL 5' WIDE BLACK VINYL CHAIN-LINK SWING GATE, SEE SPECS
11	FOR REFERENCE ONLY: NEW BLEACHERS BY DIFFERENT PACKAGE.
12	CONNECT NEW FENCE INTO EXISTING FENCE.
13	CONCRETE SHOT PUT PAD WITH SHOTPUT RING AND TOEBOARD
14	WHITE PAVEMENT STRIPING
15	PATCH ASPHALT AS NEEDED AND TIE INTO EXISTING ASPHALT/CONCRETE
16	PATCH ASPHALT AS NEEDED, WHERE EXISTING FENCE USED TO BE
17	CONCRETE DISCUS PAD WITH RING AND DISCUS CAGE (SEE DETAIL SHEET)
18	TIE FENCING INTO BLEACHERS
19	4' TALL BLACK VINYL CHAINLINK 16' DOUBLE SWING GATE
20	6' TALL BLACK VINYL CHAINLINK 16' DOUBLE SWING GATE
21	TIE FENCING INTO BUILDING
22	4' TALL 5' WIDE BLACK VINYL CHAIN-LINK SWING GATE, SEE SPECS
23	6' TALL 8' WIDE BLACK VINYL CHAIN-LINK DOUBLE SWING GATE, SEE SPECS
24	ADA PARKING STALL SIGN

1 CL103.4
1" = 30'-0"

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Project No. 2019-067.NCH
Project Date 7.27.2023
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KYLE E. MILLER
REGISTERED PROFESSIONAL ENGINEER
NO. 19900465
STATE OF INDIANA

#	Revision	Date
A2	Addendum 2.4	08.24.2023

1801 E 86th St
Indianapolis, IN 46240

M.S.D. of Washington Township

North Central High School
Renovations-Phase 4B - Phase 4B

SITE LAYOUT PLAN

CL103.4

GENERAL ELECTRICAL RENOVATION NOTES

- 1. THE CONTRACTOR IS RESPONSIBLE FOR VISITING AND INSPECTING THE PROJECT SITE PRIOR TO BID AND BECOMING FAMILIAR WITH THE CONDITIONS AFFECTING THE WORK. VERIFY SIZE, LOCATION, AND OTHER PARAMETERS OF THE EXISTING CONDITIONS. NO ADDITIONAL COSTS WILL BE PAID TO THE CONTRACTOR DUE TO THE CONTRACTOR'S FAILURE TO OBTAIN INFORMATION OF THE EXISTING CONDITIONS.
- 2. NOT ALL EXISTING ELECTRICAL EQUIPMENT, PANELS, FIXTURES, WIRING DEVICES, OUTLETS, AND OTHER ELECTRICAL ITEMS ARE NECESSARILY SHOWN ON THE PLANS. THE CONTRACTOR SHALL PERFORM A SURVEY OF THE PROJECT SITE TO DETERMINE THE EXTENT OF THE EXISTING ELECTRICAL EQUIPMENT AND ITEMS.
- 3. THE ELECTRICAL CONTRACTOR SHALL WORK CLOSELY WITH THE OWNER TO IDENTIFY ALL SYSTEMS, EQUIPMENT, WIRING DEVICES, ETC., THAT MUST REMAIN OPERATIONAL DURING THE CONSTRUCTION.
- 4. COORDINATE ALL ELECTRICAL SYSTEM DOWNTIME WITH THE OWNER AND OTHER TRADES. IT IS MANDATORY THAT THE EXISTING BUILDING REMAIN IN CONTINUOUS AND NON-INTERRUPTED OPERATION DURING THE REMODELING / ALTERING OF THE EXISTING BUILDING UNLESS OTHERWISE INDICATED. THE SPECIFIC AREA(S) BEING REMODELED / ALTERED AT ANY TIME ARE OBVIOUSLY EXCLUSIVE OF THE STATEMENT. SERVICES TO EXISTING BUILDING SHALL BE KEPT ON CONTINUOUS OPERATION INCLUDING POWERS, FIRE ALARM LIGHTING, TELEPHONE, ETC. DOWNTIME OF THESE SYSTEMS SHALL BE MINIMIZED. WEEKEND AND AFTER HOURS WORK MAY BE REQUIRED TO PREVENT OR MINIMIZE INTERFERENCE WITH OWNERS OPERATION.
- 5. THE FIRE ALARM SYSTEM SHALL REMAIN OPERATIONAL AT ALL TIMES. EXCEPT FOR SHUTDOWNS ARRANGED WITH AND APPROVED BY THE OWNER AND THE AUTHORITY HAVING JURISDICTION.
- 6. IN REMODELED / ALTERED AREA ANY FEEDERS, CONDUITS, BRANCH CIRCUITS, SIGNAL AND TELEPHONE CIRCUITS, ETC., PASSING THROUGHOUT THE REMODELED / ALTERED AREAS TO SERVE OR BE SERVED FROM EXISTING ADJACENT, REMOTE, OR SURROUNDING AREAS THAT ARE TO REMAIN SHALL BE RETAINED AND KEPT OPERATIONAL AND SHALL BE REROUTED IN ALL CASES WHERE THEY INTERFERE WITH ANY NEW WORK OR USAGE TO BE ACCOMPLISHED IN THE REMODELED / ALTERED AREA.
- 7. WHERE EXISTING DEVICES ARE TO BE REMOVED OR OMITTED FROM EXISTING BRANCH CIRCUITS, THE REMAINING DEVICES SHALL BE REWIRED, AS NEEDED AND REQUIRED, TO REMAIN IN THEIR RESPECTIVE CIRCUITS AND IN OPERATING CONDITION.
- 8. THE ELECTRICAL CONTRACTOR SHALL PROVIDE ADDITIONAL RACEWAYS AND WIRING AS REQUIRED TO MAINTAIN EXISTING CIRCUITS TO EQUIPMENT AND DEVICES NOT AFFECTED BY THE RENOVATION WORK DUE TO THE REMOVAL OF DEVICES AND EQUIPMENT SHOWN ON THE DRAWINGS.
- 9. EXISTING RACEWAYS AND CABLING THAT ARE TO REMAIN AND NOT BE REMOVED SHALL BE PROTECTED DURING ALL PHASES OF THE CONSTRUCTION.
- 10. FOR ELECTRICAL EQUIPMENT AND DEVICES INDICATED TO BE RELOCATED OR REMOVED AND REINSTALLED, DISCONNECT AND REMOVE THESE ITEMS AND ASSOCIATED RACEWAYS, WIRING, SUPPORTS, ETC., NO LONGER REQUIRED FOR THE NEW CONSTRUCTION. EQUIPMENT AND DEVICES SHALL BE CLEANED AND PLACED IN PROTECTIVE STORAGE UNTIL ITEMS ARE READY TO BE REINSTALLED. IF ITEMS ARE DAMAGED, THEY SHALL BE REPAIRED OR REPLACED WITH NEW ITEMS AS APPROVED BY THE ENGINEER. INTERCEPT AND EXTEND OR REROUTE ASSOCIATED CIRCUITS, FEEDERS, RACEWAYS, WIRING, ETC., THAT SERVE THESE ITEMS FOR RELOCATED EQUIPMENT AND DEVICES UNLESS OTHERWISE INDICATED.
- 11. REFER TO ARCHITECTURAL, CIVIL, MECHANICAL, AND PLUMBING DRAWINGS AND SPECIFICATIONS FOR ALL MECHANICAL, PLUMBING, AND OTHER EQUIPMENT WITH ELECTRICAL CONNECTIONS THAT ARE TO BE RELOCATED. FOR ALL SUCH ITEMS, DISCONNECT AND REMOVE ALL ASSOCIATED ELECTRICAL EQUIPMENT, DEVICES, RACEWAYS, WIRING, ETC., NO LONGER REQUIRED FOR THE NEW CONSTRUCTION UNLESS OTHERWISE INDICATED. COORDINATE THE WORK WITH OTHER TRADES FOR ALL SUCH ITEMS.
- 12. REUSE OF EXISTING RACEWAYS AND BOXES IN PLACE IS PERMITTED WHERE RACEWAYS AND BOXES ARE IN GOOD CONDITION, MEET THE DESIGN INTENT OF THE CONTRACT DOCUMENTS, AND PERMITTED BY APPLICABLE CODES.
- 13. REMOVE AND REINSTALL ELECTRICAL EQUIPMENT, DEVICES, ETC., THAT ARE TO REMAIN AS REQUIRED TO ACCOMMODATE NEW WALL AND CEILING FINISHES. REFER TO ARCHITECTURAL DRAWINGS AND SPECIFICATIONS FOR NEW FINISH LOCATIONS.
- 14. THE ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR REMOVING AND REINSTALLING ALL CEILING PANS AND CEILING GRIDS NOT INDICATED ON THE ARCHITECTURAL DRAWINGS OR SPECIFICATIONS NECESSARY TO COMPLETE ALL ELECTRICAL WORK.
- 15. NEW DEVICES AND WALL PLATES SHALL MATCH EXISTING DEVICES AND WALL PLATES UNLESS OTHERWISE INDICATED.

GENERAL ELECTRICAL DEMOLITION NOTES

- 1. THE OWNER HAS FIRST RIGHT OF REFUSAL TO KEEP ALL EXISTING MATERIALS AND EQUIPMENT BEING REMOVED FROM THE PROJECT. ALL EQUIPMENT AND DEVICES (LIGHTING FIXTURES, EXIT SIGNS, FIRE ALARM, ETC.) THAT ARE TAKEN OUT OF SERVICE AND NOT REUSED SHALL BE TURN OVER TO THE OWNER UNLESS DIRECTED OTHERWISE BY THE OWNER.
- 2. THE CONTRACTOR IS RESPONSIBLE FOR VISITING AND INSPECTING THE PROJECT SITE PRIOR TO BID AND BECOMING FAMILIAR WITH THE CONDITIONS AFFECTING THE WORK. VERIFY SIZE, LOCATION, AND OTHER PARAMETERS OF THE EXISTING CONDITIONS. NO ADDITIONAL COSTS WILL BE PAID TO THE CONTRACTOR DUE TO THE CONTRACTOR'S FAILURE TO OBTAIN INFORMATION OF THE EXISTING CONDITIONS.
- 3. ALL EQUIPMENT AND DEVICES SHOWN ON THESE DRAWINGS TO BE REMOVED SHALL BE REMOVED COMPLETE INCLUDING ALL ASSOCIATED CONDUITS, RACEWAYS, BOXES, AND CONDUCTORS BACK TO SOURCE UNLESS OTHERWISE NOTED. ALL CIRCUIT BREAKERS OR EQUIPMENT MADE SPARE BY THE DEMOLITION, SHALL BE TURNED OFF AND MARKED AS SPARE. IT IS THE INTENT THAT ALL EXISTING ELECTRICAL DEVICES, CONDUIT, RACEWAYS, WIRING, ETC., THAT ARE NOT REUSED AND ARE ABANDONED SHALL BE REMOVED COMPLETE. CONTRACTOR SHALL FIELD VERIFY EXACT REQUIREMENTS.
- 4. NOT ALL EQUIPMENT, DEVICES, RACEWAYS, WIRING, ETC., TO BE REMOVED ARE NECESSARILY SHOWN ON THE DRAWINGS. FIELD VERIFY ALL SUCH EQUIPMENT, DEVICES, RACEWAYS, WIRING, ETC., THAT ARE INDICATED TO BE REMOVED WHETHER OR NOT SHOWN ON THE DRAWINGS.
- 5. THE ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR HIS OWN DEMOLITION, REMOVAL, CAPPING, STORING, ABANDONING, DISCONNECTION, RELOCATION, AND RECONNECTION OF EXISTING ELECTRICAL EQUIPMENT AND MATERIALS. ALL CUTTING, PATCHING, REPAIRING, REPLACEMENT, AND REFINISHING SHALL MATCH THE EXISTING AND/OR NEW CONSTRUCTION AS NEARLY AS POSSIBLE.
- 6. THE ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR REMOVING AND REINSTALLING ALL CEILING PANS AND CEILING GRIDS NOT INDICATED ON THE ARCHITECTURAL DRAWINGS OR SPECIFICATIONS NECESSARY TO COMPLETE ALL ELECTRICAL WORK.
- 7. COORDINATE ALL DEMOLITION WITH THE OWNER PRIOR TO ANY DEMOLITION WORK.
- 8. THE ELECTRICAL CONTRACTOR SHALL PROVIDE ADDITIONAL RACEWAYS AND WIRING AS REQUIRED TO MAINTAIN EXISTING CIRCUITS TO EQUIPMENT AND DEVICES NOT AFFECTED BY THE RENOVATION WORK DUE TO THE REMOVAL OF DEVICES AND EQUIPMENT SHOWN ON THE DRAWINGS.
- 9. THE ELECTRICAL CONTRACTOR SHALL PROVIDE ADDITIONAL RACEWAYS AND WIRING AS REQUIRED TO MAINTAIN EXISTING CIRCUITS TO EQUIPMENT AND DEVICES NOT AFFECTED BY THE RENOVATION WORK DUE TO THE REMOVAL OF DEVICES AND EQUIPMENT SHOWN ON THE DRAWINGS.
- 10. EXISTING RACEWAYS AND CABLING THAT ARE TO REMAIN AND NOT BE REMOVED SHALL BE PROTECTED DURING ALL PHASES OF THE CONSTRUCTION.
- 11. EXISTING CEILING MOUNTED DEVICES THAT ARE TO REMAIN AND INSTALLED IN NEW CEILINGS SHALL BE SUPPORTED FROM STRUCTURE ABOVE DURING CONSTRUCTION BEFORE BEING INSTALLED IN NEW CEILINGS.
- 12. REMOVE DEVICES IN WALLS, CEILINGS, FLOORS, ETC., SCHEDULED FOR DEMOLITION.
- 13. FOR ELECTRICAL EQUIPMENT AND DEVICES INDICATED TO BE REMOVED DISCONNECT AND REMOVE THESE ITEMS, INCLUDING ALL RACEWAYS, WIRING, SUPPORTS, ETC., NO LONGER REQUIRED WITH NEW CONSTRUCTION UNLESS OTHERWISE INDICATED.
- 14. REFER TO ARCHITECTURAL, CIVIL, MECHANICAL, AND PLUMBING DRAWINGS AND SPECIFICATIONS DEMOLITION FOR ALL MECHANICAL, PLUMBING, AND OTHER EQUIPMENT WITH ELECTRICAL CONNECTIONS THAT ARE TO BE REMOVED. FOR ALL SUCH ITEMS, DISCONNECT AND REMOVE ALL ASSOCIATED ELECTRICAL EQUIPMENT, DEVICES, RACEWAYS, WIRING, ETC., NO LONGER REQUIRED FOR THE NEW CONSTRUCTION UNLESS OTHERWISE INDICATED. COORDINATE THE WORK WITH OTHER TRADES FOR ALL SUCH ITEMS.
- 15. ALL RACEWAYS AND WIRING (POWER, LIGHTING, COMMUNICATIONS, ETC.) NOT REUSED FOR REMODELED AREAS SHALL BE COMPLETELY REMOVED BACK TO SOURCE UNLESS OTHERWISE INDICATED.
- 16. ALL DEVICES OR LIGHT FIXTURES REMOVED FROM EXISTING DRYWALL OR PLASTER WALLS OR CEILINGS THAT REMAIN SHALL HAVE DEVICES OR FIXTURES AND ASSOCIATED CONDUIT REMOVED AND THE WALL OR CEILING SHALL BE PATCHED UNLESS OTHERWISE INDICATED.
- 17. ALL EXISTING OUTLET BOXES THAT REMAIN AND ARE NOT REUSED SHALL HAVE BLANK COVERS INSTALLED ON THEM UNLESS OTHERWISE INDICATED.
- 18. CONTRACTOR SHALL SEAL ALL ELECTRICAL WIRING AND RACEWAY PENETRATIONS THROUGH FLOORS, WALLS, AND CEILING LEFT OPEN DURING DEMOLITION WORK.
- 19. TELEPHONE / DATA SYSTEMS: THE OWNER'S CONTRACTOR WILL REMOVE ALL TELEPHONE/DATA SYSTEMS DEVICES AND WIRING IN AREAS OF DEMOLITION. ALL OTHER TELEPHONE / DATA SYSTEMS WIRING, EQUIPMENT, AND DEVICES SHALL REMAIN. COORDINATE REMOVAL OF THESE SYSTEMS AND THEIR COMPONENTS WITH THE OWNER PRIOR TO WORK.
- 20. TELEVISION SYSTEM: THE OWNER'S CONTRACTOR WILL REMOVE ALL TELEVISION SYSTEM DEVICES AND WIRING THAT ARE INSTALLED IN AREAS OF DEMOLITION. ALL OTHER TELEVISION SYSTEM WIRING, EQUIPMENT, AND DEVICES SHALL REMAIN. COORDINATE REMOVAL OF THIS SYSTEM AND ITS COMPONENTS WITH THE OWNER PRIOR TO WORK.
- 21. SECURITY/CCTV AND ACCESS CONTROL SYSTEMS: THE OWNER'S CONTRACTOR WILL REMOVE ALL SECURITY, CCTV, AND ACCESS CONTROL SYSTEMS DEVICES AND WIRING IN AREAS OF DEMOLITION. ALL OTHER SECURITY, CCTV, AND ACCESS CONTROL SYSTEMS WIRING, EQUIPMENT AND DEVICES SHALL REMAIN. COORDINATE REMOVAL OF THIS SYSTEM AND ITS COMPONENTS WITH THE OWNER PRIOR TO WORK.
- 22. FIRE ALARM SYSTEM: REMOVE ALL FIRE ALARM SYSTEM DEVICES AND WIRING THAT ARE INSTALLED IN WALLS OR CEILINGS IN AREAS OF DEMOLITION. ALL OTHER FIRE ALARM WIRING, EQUIPMENT AND DEVICES SHALL REMAIN. THE FIRE ALARM SYSTEM SHALL REMAIN OPERATIONAL AT ALL TIMES, EXCEPT FOR SHUTDOWNS ARRANGED WITH AND APPROVED BY THE OWNER AND THE AUTHORITY HAVING JURISDICTION. COORDINATE ALL WORK ON THIS SYSTEM AND ITS COMPONENTS WITH THE OWNER PRIOR TO WORK.
- 23. THE ELECTRICAL CONTRACTORS IS RESPONSIBLE FOR PROPERLY DISPOSING OF TRANSFORMERS, LAMPS, AND BALLASTS IN ACCORDANCE WITH ALL APPLICABLE LAWS, CODES, AND ORDINANCES.

EXISTING WALLS AND SURFACES NOTES

- 1. NEW DEVICES SHOWN TO BE INSTALLED ON EXISTING DRYWALL OR OTHER STUD CONSTRUCTION WALLS SHALL BE INSTALLED FLUSH IN THE WALLS WITH RACEWAYS AND WIRING CONCEALED WITHIN THE WALLS. CUT AND PATCH EXISTING WALLS AS REQUIRED.
- 2. NEW DEVICES SHOWN TO BE INSTALLED ON EXISTING BLOCK OR CONCRETE WALLS SHALL BE SURFACE MOUNTED INSTALLED UTILIZING SURFACE RACEWAYS. PAINT SURFACE RACEWAYS TO MATCH FINISH OF WALLS ON WHICH IT IS MOUNTED.
- 3. NEW DEVICES SHOWN TO BE INSTALLED ON EXISTING MARBLE SHALL BE INSTALLED FLUSH IN MARBLE. INSTALL ASSOCIATED WIRING WITHIN EXISTING PLASTER WALLS ACCESSED FROM OTHER SIDE OF MARBLE. WALL. CUT AND PATCH EXISTING PLASTER AS REQUIRED.

GENERAL ELECTRICAL NOTES

- 1. ALL CONTRACT DOCUMENTS (SPECIFICATIONS AND DRAWINGS) ARE COMPLIMENTARY AND MUST BE USED IN COMBINATION TO OBTAIN COMPLETE CONSTRUCTION INFORMATION. ALL CONFLICTS SHALL BE BROUGHT TO THE ARCHITECTS AND ENGINEER'S ATTENTION IN ORDER TO ALLOW A CLARIFICATION TO BE ISSUED. ANY WORK COMPLETED WITHOUT THE CLARIFYING INFORMATION IS AT THE CONTRACTOR'S FINANCIAL RISK.
- 2. REFER TO THE COMPLETE SET OF PROJECT DRAWINGS AND SPECIFICATIONS FOR THE EXTENT OF THE ELECTRICAL WORK SHOWN ON THE ELECTRICAL DRAWINGS IS NEW AND PROVIDED BY THIS CONTRACTOR UNLESS OTHERWISE INDICATED.
- 3. PROVIDE A ONE-YEAR WARRANTY FOR ALL EQUIPMENT AND LABOR PROVIDED BY THIS CONTRACTOR UNLESS OTHERWISE INDICATED.
- 4. ALL WORK SHALL CONFORM TO OR EXCEED THE MINIMUM REQUIREMENTS OF THE CURRENT ADOPTED AND APPLICABLE ANS/NFPA 70 WITH STATE AMENDMENTS, ENERGY CODE, ANS/IEEE C2, AND ALL FEDERAL, STATE, LOCAL, AND MUNICIPAL CODES AND ORDINANCES. THE ELECTRICAL CONTRACTOR SHALL COMPLY WITH THE DIRECTIONS OF ALL AUTHORITIES HAVING JURISDICTION.
- 5. INSTALL WORK USING PROCEDURES DEFINED IN NECA STANDARDS OF INSTALLATION. ALL WORK SHALL PRESENT A NEAT MECHANICAL APPEARANCE WHEN COMPLETED.
- 6. THIS CONTRACTOR IS RESPONSIBLE FOR VISITING AND INSPECTING THE PROJECT SITE PRIOR TO BID AND BECOMING FAMILIAR WITH THE CONDITIONS AFFECTING THE WORK. VERIFY SIZE, LOCATION, AND OTHER PARAMETERS OF THE EXISTING CONDITIONS. NO ADDITIONAL COSTS WILL BE PAID TO THE CONTRACTOR DUE TO THE CONTRACTOR'S FAILURE TO OBTAIN INFORMATION OF THE EXISTING CONDITIONS.
- 7. PROVIDE ALL STARTERS, DISCONNECTS, FUSES, BREAKERS, OUTLETS, DEVICES, RACEWAYS, WIRING, ETC., REQUIRED TO PROPERLY CONNECT ALL EQUIPMENT. FIELD VERIFY REQUIREMENTS WITH APPROVED SUBMITTALS, NAME PLATES, EQUIPMENT SUPPLIERS, ETC., PRIOR TO INSTALLATION. ADJUST SIZE AND RATINGS OF STARTERS, DISCONNECTS, FUSES, BREAKERS, RACEWAYS, WIRING, ETC., AS REQUIRED FOR THE PROPER ELECTRICAL CONNECTION OF EQUIPMENT.
- 8. VERIFY ALL DIMENSIONS FROM THE ARCHITECTURAL PLANS. ALL DIMENSIONS GIVEN ARCHITECTURAL AND ELECTRICAL PLANS SHALL BE FIELD VERIFIED. DRAWINGS MAY NOT BE SCALED TO OBTAIN EXACT DIMENSIONS OR LOCATIONS. PROVIDE SHOP DRAWINGS WITH DIMENSIONS TO THE PROJECT ENGINEER AND GENERAL CONTRACTOR FOR REVIEW.
- 9. REFER TO THE ARCHITECTURAL DRAWINGS FOR CEILING WORK BY THE GENERAL CONTRACTOR. COORDINATE ALL ELECTRICAL WORK WITH THE GENERAL CONTRACTOR.
- 10. REVIEW THE MECHANICAL, PLUMBING, KITCHEN EQUIPMENT, INTERIOR DESIGN, CIVIL DRAWINGS, AND VERIFY THE ELECTRICAL CONNECTIONS REQUIRED FOR ALL EQUIPMENT. COORDINATE ALL ELECTRICAL WORK WITH ALL OTHER TRADES TO ENSURE EFFECTIVE AND EFFICIENT OVERALL INSTALLATION.
- 11. COORDINATE ALL ELECTRICAL SYSTEMS DOWNTIME WITH THE OWNER AND OTHER TRADES. DOWNTIME OF THE ELECTRICAL SYSTEMS SHALL BE MINIMIZED. WEEKEND AND AFTERHOURS WORK MAY BE REQUIRED TO PREVENT OR MINIMIZE INTERFERENCE WITH THE OWNERS OPERATION.
- 12. COORDINATE LOCATIONS AND INSTALLATION OF LIGHT FIXTURES, RECEPTACLES, FIRE ALARM DEVICES, OUTLETS, ETC., WITH ARCHITECTURAL, MECHANICAL AND PLUMBING PLANS, ELEVATIONS, SCHEDULES, AND APPROVED EQUIPMENT SUBMITTALS PRIOR TO ROUGH-IN AND ADJUST ACCORDINGLY.
- 13. COORDINATE LOCATIONS OF LIGHT FIXTURES AND OTHER CEILING MOUNTED DEVICES WITH ARCHITECTURAL, REFLECTED CEILING PLAN, HVAC EQUIPMENT, DUCTWORK, DIFFUSERS, PIPING, SUPPORTS, AND STRUCTURE.
- 14. FIELD VERIFY LOCATIONS OF LIGHTING FIXTURES, PANELBOARDS, STARTERS, DISCONNECTS, FIRE ALARM DEVICES, SECURITY SYSTEM DEVICES, ELECTRICAL OUTLETS, ETC., IN ROOMS WITH EXPOSED DUCTWORK AND PIPING. WHERE CONFLICTS OCCUR, RELOCATED ELECTRICAL EQUIPMENT AND DEVICES TO UNOBSTRUCTED LOCATIONS AND SPACES AS DIRECTED BY THE ENGINEER.
- 15. THE ELECTRICAL CONTRACTOR SHALL PROVIDE PENETRATIONS THROUGH ALL FLOORS, WALLS, CEILINGS, AND OTHER CONSTRUCTION ELEMENTS REQUIRED TO COMPLETE HIS WORK.
- 16. PROVIDE SEISMIC BRACING FOR MATERIALS AND EQUIPMENT WHERE REQUIRED BY APPLICABLE CODES. SUCH BRACING SHALL BE IN ACCORDANCE WITH APPLICABLE CODES.
- 17. ALL NEW EQUIPMENT SHALL BE SUBMITTED FOR APPROVAL PRIOR TO ORDERING SAID EQUIPMENT.
- 18. THE LOCATIONS OF NEW RECEPTACLES, PHONE/VOICE OUTLETS, DATA OUTLETS, AND ROOM EQUIPMENT SHOWN ON THESE DRAWINGS ARE APPROXIMATE. FINAL LOCATIONS WILL BE DETERMINED WITH THE ARCHITECT DURING THE CONSTRUCTION PHASE.
- 19. PHYSICAL SIZES AND LOCATIONS OF ALL MECHANICAL AND PLUMBING EQUIPMENT SHOWN ON THE DRAWINGS ARE APPROXIMATE. COORDINATE ELECTRICAL WORK FOR THE MECHANICAL AND PLUMBING EQUIPMENT WITH THE TRADES PROVIDING THE EQUIPMENT.
- 20. PROVIDE COVERS ON ALL OUTLET BOXES, JUNCTION BOXES, AND PULL BOXES. COVERS FOR CEILING AND CLOUD MOUNTED BOXES SHALL BE STYLE AND COLOR AS SELECTED BY THE ARCHITECT OR ENGINEER.
- 21. ALL CIRCUITS ARE 20 AMPERE, SINGLE-POLE UNLESS OTHERWISE INDICATED.
- 22. MINIMUM CONDUCTOR SIZE FOR CIRCUITS WITH 15 AMPERE OVERCURRENT PROTECTION SHALL BE 14 AWG. ALL OTHER CONDUCTOR SIZES SHALL BE A MINIMUM OF 12 AWG UNLESS OTHERWISE INDICATED. CONDUCTORS #10 AWG AND SMALL SHALL BE SOLID CONDUCTORS UNLESS OTHERWISE INDICATED.
- 23. ALL BRANCH CIRCUITS SHALL UTILIZE SEPARATE, INDEPENDENT NEUTRAL CONDUCTORS. DO NOT COMBINE NEUTRALS OR UTILIZE SHARED NEUTRAL CONDUCTOR FOR MULTIPLE CIRCUITS.
- 24. ALL FEEDER NEUTRAL / GROUNDED CONDUCTORS SHALL BE CONSIDERED CURRENT CARRYING. DERATE / ADJUST MULTIPLE CONDUCTORS IN A RACEWAY IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE.
- 25. ALL FEEDER AND BRANCH CIRCUITS SHALL INCLUDE A GROUNDING CONDUCTOR.
- 26. RACEWAYS OR "LOOPING" SHOWN TO LIGHTING FIXTURES IS SHOWN TO INDICATE SWITCHING OR CONNECTION, AND DOES NOT INDICATED QUANTITY OR EXACT LOCATION OF RACEWAYS OR CIRCUITING.
- 27. VERIFY HEIGHT AND LOCATION OF OUTLETS BEHIND WATER COOLERS WITH OTHER TRADES SO THAT OUTLETS ARE CONCEALED FROM VIEW.
- 28. VERIFY EXACT LOCATIONS OF ALL OUTLETS IN BUILT-IN EQUIPMENT AND CASEWORK FURNITURE WITH EQUIPMENT AND FURNITURE SUPPLIERS SHOP DRAWINGS PRIOR TO ELECTRICAL ROUGH-IN.
- 29. ALL NEW DEVICE BACKBOXES INSTALLED IN FIRE RATED WALLS SHALL BE RATED 1 HOUR. PROVIDE BACKBOXES RATED FOR THIS USE.
- 30. BLOCKING: THE ELECTRICAL CONTRACTOR SHALL PROVIDE ANY AND ALL BLOCKING REQUIRED TO MOUNT ELECTRICAL EQUIPMENT.
- 31. THE ELECTRICAL CONTRACTOR SHALL PROVIDE TELECOMMUNICATIONS SYSTEMS OUTLETS AND RACEWAYS AS INDICATED.
- 32. LABEL JUNCTION BOX COVERS TO INDICATE CIRCUITS CONTAINED WITHIN THE BOXES.
- 33. PROVIDE LABELING FOR ALL PANELBOARDS, SWITCHBOARDS, AND DISCONNECT SWITCHES TO INCLUDE AN ENGRAVED PLASTIC LABEL OR SELF-ADHESIVE HEAT TRANSFER LABEL IDENTIFYING THE EQUIPMENT AND THE FEEDER/BRANCH CIRCUIT. ALSO LABEL ALL BRANCH DEVICES IN SWITCHBOARDS THAT DO NOT INCLUDE A DIRECTORY CARD. ALL LABELS SHALL MATCH THE EXISTING FACILITY LABELING STYLE, COLOR, AND SCHEME.
- 34. ALL PANELBOARDS SHALL INCLUDE A TYPED WRITTEN DIRECTORY. IN ACCORDANCE WITH THE ELECTRICAL CODE, LEGIBLY IDENTIFY EACH CIRCUIT ON THE PANEL, SCHEDULES AND CIRCUIT DIRECTORIES WHICH SHALL INCLUDE ROOM NAME AND DEVICES, EQUIPMENT, OR FIXTURES TO WHICH THE CIRCUITS ARE CONNECTED.
- 35. THE ELECTRICAL CONTRACTOR IS TO ACCEPT, UNLOAD, AND ASSEMBLE LIGHTING FIXTURES AS REQUIRED. THE FIXTURE MAY OR MAY NOT INCLUDE WHIPS OR HAVE THE REQUIRED VOLTAGE PREWIRED. THE CONTRACTOR SHALL SIGN FREIGHT SLIPS WITH "ED DAMAGE" TO EASE THE PROCESS FOR FREIGHT CLAIMS.
- 36. VERIFY THE COLORS OF ALL NEW WIRING DEVICES AND DEVICE FACEPLATES WITH THE ARCHITECT UNLESS OTHERWISE INDICATED. FACEPLATE COLORS SHALL MATCH DEVICE COLORS ON WHICH THEY ARE INSTALLED UNLESS OTHERWISE INDICATED.
- 37. ALL RECEPTACLES SHALL BE COMMERCIAL GRADE DEVICES.

GENERAL LIGHTING NOTES

- 1. PROVIDE SUPPORT WIRES FOR ALL LIGHT FIXTURES. REFER TO FIXTURE SUPPORT DETAILS ON THE DRAWINGS FOR ADDITIONAL INFORMATION.
- 2. WHERE OCCUPANCY SENSORS ARE INDICATED ON PLANS, THE ENTIRE ROOM SHALL BE COVERED. SENSOR MANUFACTURER IS RESPONSIBLE FOR SENSOR LAYOUT. ADDITIONAL SENSORS REQUIRED DUE TO LACK OF COVERAGE SHALL BE THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR. PROVIDE QUANTITY OF SENSORS AS REQUIRED. CEILING AND WALL MOUNTED SENSORS SHALL BE DUAL TECHNOLOGY TYPE. SENSORS SHALL INCLUDE ALL POWER SUPPLIES AND RELAYS NECESSARY TO CONTROL LIGHT FIXTURES IN ROOM/AREA. SENSORS SHALL OPERATE IN "VACANCY" MODE - MANUAL ON/AUTO OFF.
 - A. TYPE OQ2 SQUARE - INDICATES A WALL MOUNTED SINGLE CIRCUIT SENSOR WITH ONE SWITCH.
 - B. TYPE OQ2 SQUARE - INDICATES A WALL MOUNTED SENSOR WITH TWO SWITCHES.
 - C. TYPE OQ3 SQUARE - INDICATES A WALL MOUNTED DUAL-CIRCUIT, DUAL-RELAY SENSOR WITH TWO SWITCHES.
 - D. TYPE OC CIRCLE - INDICATES A CEILING MOUNTED SENSOR. PROVIDE EACH OCCUPANCY SENSOR WITH AN AUXILIARY SPOT RELAY CONTACT FOR SENSOR STATUS MONITOR BY BMS/HVAC CONTROL SYSTEM.
 - E. ACCEPTABLE SENSOR MANUFACTURERS ARE HUBBELL, LEVITON, LIGHTOLIER, SENSOR SWITCH, AND WATTS/TOPPER.
- 3. ALL LIGHT FIXTURES WITH EMERGENCY BATTERY BALLASTS, INVERTERS, OR OTHER BATTERY BACKUP, OR INDICATED AS A NIGHT LIGHT ("NL") SHALL BE PROVIDED WITH AN UNSWITCHED "HOT" CIRCUIT CONDUCTOR INSTALLED TO THE FIXTURE.
- 4. ALL EXIT SIGNS SHALL BE CONNECTED TO THEIR INDICATED CIRCUIT WITH AN UNSWITCHED "HOT" CIRCUIT CONDUCTOR INSTALLED TO THE FIXTURE.

RACEWAYS, WIRING AND CABLING NOTES

- 1. PROVIDE PULL STRING IN EACH EMPTY CONDUIT.
- 2. MINIMUM CONDUIT SIZE SHALL BE 3/4 INCH UNLESS OTHERWISE INDICATED.
- 3. MINIMUM CONDUIT SIZE FOR ALL TELECOM SYSTEM CONDUITS SHALL BE ONE INCH (1").
- 4. INSTALL ALL CONDUITS, RACEWAYS, AND CABLE TRAY FOR MAXIMUM HEAD CLEARANCE IN MECHANICAL AREAS AND CEILING AND ATTIC SPACES. COORDINATE CLEARANCES WITH THE OTHER TRADES ON THE PROJECT AND WITH THE OWNER.
- 5. PROVIDE CONDUIT STUBS OR SLEEVES FOR ALL WIRING AND CABLING PENETRATIONS THROUGH FLOORS, WALLS, AND CEILINGS.
- 6. ALL CONDUIT PENETRATIONS THRU THE FLOOR SLAB SHALL BE MADE WITH CAUTION. CONTRACTOR SHALL COORDINATE ALL HOLE LOCATIONS WITH STRUCTURAL ENGINEER PRIOR TO CUTTING ANY NEW HOLES. NEW HOLES SHALL BE ADJUSTED AS REQUIRED TO MISS REBAR AS DETERMINED BY THE STRUCTURAL ENGINEER.
- 7. PROVIDE PLASTIC BUSHINGS ON ENDS OF ALL CONDUIT STUBS, CONDUIT SLEEVES, AND ALL COMMUNICATIONS SYSTEMS CONDUITS UNLESS OTHERWISE INDICATED.
- 8. RACEWAYS, WIRING AND CABLING SHALL BE INSTALLED CONCEALED ABOVE ACCESSIBLE CEILINGS AND WITHIN STUD WALLS WHEREVER POSSIBLE.
- 9. RACEWAYS, WIRING AND CABLING THAT IS TO BE INSTALLED IN AREAS WHERE THERE ARE NO CEILINGS SHALL BE INSTALLED EXPOSED.
- 10. RACEWAYS, WIRING AND CABLING SHALL BE INSTALLED NEATLY AND PARALLEL AND AT RIGHT ANGLES TO BUILDING STRUCTURE. RACEWAYS AND CABLING SHALL BE INDEPENDENTLY SUPPORTED AS REQUIRED. WIRING SHALL NOT LAY OVER OR BE SUPPORTED BY THE WORK OF OTHER TRADES.
- 11. ALL CONDUIT INSIDE THE BUILDING SHALL BE ELECTRICAL METALLIC TUBING (EMT) UNLESS OTHERWISE INDICATED.
- 12. PROVIDE GRMC CONDUIT AT FLOOR PENETRATIONS.
- 13. ALL CONDUIT INSTALLED UNDERGROUND SHALL BE NONMETALLIC SCHEDULE 40 PVC UNLESS OTHERWISE INDICATED.
- 14. ALL CONDUIT INSTALLED ABOVE GRADE OUTSIDE THE BUILDING SHALL BE RIGID STEEL.
- 15. NO PVC CONDUIT SHALL BE USED ABOVE THE FLOOR SLAB INSIDE THE BUILDING.
- 16. NO PVC CONDUIT SHALL BE USED ABOVE GRADE OUTSIDE THE BUILDING UNLESS OTHERWISE INDICATED.
- 17. PROVIDE WATERPROOF SEALS IN ALL CONDUITS THAT ENTER OR LEAVE THE BUILDING ENVELOPE.
- 18. PROVIDE CONDUIT SEALS IN ALL CONDUITS THAT ENTER AIR HANDLERS, AND SIMILAR AREAS WHERE A TEMPERATURE DIFFERENCE OCCURS.
- 19. PROVIDE EXPANSION FITTINGS ON CONDUITS AT ALL BUILDING EXPANSION JOINTS.

WIRING DEVICE AND WALL PLATE COLORS

- 1. THE COLOR OF WIRING DEVICES AND ASSOCIATED WALL PLATES SHALL BE WHITE EXCEPT AS FOLLOWS:
 - A. WHERE OTHERWISE NOTED.
 - B. IN LOCATIONS WITHIN WOOD COVERED, MIRRORRED, WALL PAPERED OR TILED AREAS. AT THESE LOCATIONS COORDINATE THE COLOR SELECTIONS WITH THE ARCHITECT.

GENERAL ADA REQUIREMENT NOTES

- 1. FOR ACCESSIBLE AREAS:
 - A. ELECTRICAL CONTRACTOR SHALL VERIFY ALL ACCESSIBLE REQUIREMENTS PRIOR TO ANY WORK.
 - B. ALL DEVICES SHALL BE INSTALLED IN ACCORDANCE WITH ADA REQUIREMENTS.
 - C. ALL FIRE ALARM SIGNAL DEVICES SHALL COMPLY WITH ADA REQUIREMENTS.

MECHANICAL EQUIPMENT DISCONNECT NOTES

- 1. THE ELECTRICAL CONTRACTOR SHALL VERIFY THE MAXIMUM OVERCURRENT PROTECTION (MOCP) VALUE FOR MECHANICAL EQUIPMENT WHERE THE EQUIPMENT DISCONNECT IS PROVIDED BY THE EQUIPMENT MANUFACTURER.
- 2. THE ELECTRICAL CONTRACTOR SHALL ADJUST THE EQUIPMENT CIRCUIT CONDUCTOR AND CIRCUIT BREAKER SIZES AS REQUIRED TO NOT EXCEED THE EQUIPMENT MOCP.
- 3. THE ELECTRICAL CONTRACTOR SHALL VERIFY ALL REQUIREMENTS PRIOR TO ORDERING AND INSTALLING PANELBOARDS, CONDUCTORS, AND CONDUITS.

UNDERSLAB UTILITIES NOTES

- 1. ALL UTILITIES WITHIN THE BUILDING FOOTPRINT SHALL BE LAID OUT, TRENCHED, PLACED, AND FORMED UP PRIOR TO PLACEMENT OF THE MAT SLAB REINFORCEMENT AND MAT SLAB CONCRETE IS TO BE POURED. PROVIDE SLEEVE COVERS FOR ALL UTILITIES GOING THROUGH BOTH THE TRENCH FROST WALL AND MAT SLAB FOUNDATION. THE MAT SLAB FOUNDATION SHALL NOT BE SAW CUT AFTER BEING CAST IN PLACE SO AS TO KEEP THE INTEGRITY OF THE FOUNDATION SYSTEM.
- 2. PROVIDE MAGNETIC MARKERS BELOW SLAB AND ABOVE UTILITIES.

EXCAVATION AND BACKFILL NOTES

- 1. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR ALL EXCAVATION AND BACKFILL REQUIRED FOR THE ELECTRICAL WORK INDICATED. PROVIDE SPECIFIED OR APPROVED BACKFILL. PATCH AND REPAIR ALL CUTS TO FINAL FINISHED SURFACE OF ALL SURFACES.

CUTTING AND PATCHING NOTES

- 1. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CUTTING AND PATCHING REQUIRED FOR NEW ELECTRICAL WORK. REFER TO ARCHITECTURAL SPECIFICATIONS FOR REQUIREMENTS.

FIRESTOPPING NOTES

- 1. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR ALL FIRE STOPPING REQUIRED FOR ALL PENETRATIONS MADE BY THIS CONTRACTOR FOR NEW ELECTRICAL WORK.
 - 2. PROVIDE PROPER FIRE SAFING FOR ALL PENETRATIONS MADE. PROVIDE APPROPRIATE SEALANT (I.E. FIRESEFENG) TO MAINTAIN CONSTRUCTION INTEGRITY AND MEET ULL LISTINGS OF INSTALLED ASSEMBLIES FOR ALL PENETRATIONS MADE OR REUSED FOR NEW WORK THROUGH FLOORS, STRUCTURAL CEILINGS, AND FIRE RATED WALLS. THE ELECTRICAL CONTRACTOR SHALL COORDINATE WITH ARCHITECTURAL PLANS FOR FINAL RATINGS AND PROVIDE APPROPRIATE FIRE RATING MATERIALS.
 - 3. REFER TO ARCHITECTURAL SPECIFICATIONS FOR FIRESTOPPING REQUIREMENTS.

VOLTAGE DROP NOTES

- 1. VOLTAGE DROP IS NOT SHOWN ON THE DRAWINGS. CONTRACTOR SHALL BE RESPONSIBLE FOR ADJUSTING ALL BRANCH CIRCUIT AND FEEDER SIZES TO COMPLY WITH STATE AND LOCAL VOLTAGE DROP REQUIREMENTS.
 - 2. CONTRACTOR SHALL UPSIZE ALL BRANCH CIRCUITS AS REQUIRED BASED ON ACTUAL INSTALLED DISTANCES.
 - 3. VOLTAGE DROP ON ALL BRANCH CIRCUITS SHALL NOT EXCEED 3%.
 - 4. VOLTAGE DROP ON FEEDERS SHALL NOT EXCEED 2%.

INCIDENT ENERGY / SHORT CIRCUIT / COORDINATION STUDY

- 1. THE CONTRACTOR SHALL INCLUDE IN BID AND SUBMIT FOR REVIEW INCIDENT ENERGY, SHORT CIRCUIT, AND COORDINATION STUDY FOR THE PROJECT. THIS STUDY SHALL BE PERFORMED BY A LICENSED ENGINEER.
- 2. ALL EQUIPMENT SHORT CIRCUIT RATINGS SHALL BE ADJUSTED IN ACCORDANCE WITH THE SHORT CIRCUIT STUDY PRIOR TO ORDERING SAID EQUIPMENT.
- 3. PROVIDE INCIDENT ENERGY LABELS ON ALL EQUIPMENT AND PANELBOARDS.

TELEPHONE / DATA SYSTEMS NOTES

- 1. THE ELECTRICAL CONTRACTOR SHALL PROVIDE OUTLET BOXES AND RACEWAYS FOR NEW TELEPHONE/DATA OUTLETS UNLESS OTHERWISE INDICATED. REFER TO "T" SERIES DRAWINGS FOR ADDITIONAL INFORMATION.

AUDIO / VIDEO SYSTEMS NOTES

- 1. THE ELECTRICAL CONTRACTOR SHALL PROVIDE OUTLET BOXES AND RACEWAYS FOR NEW AUDIO AND VIDEO SYSTEMS OUTLETS UNLESS OTHERWISE INDICATED. REFER TO "T" SERIES DRAWINGS FOR ADDITIONAL INFORMATION.

SECURITY / ACCESS CONTROL SYSTEMS NOTES

- 1. THE ELECTRICAL CONTRACTOR SHALL PROVIDE OUTLET BOXES AND RACEWAYS FOR NEW SECURITY/CCTV/ACCESS CONTROL OUTLETS UNLESS OTHERWISE INDICATED. REFER TO "T" SERIES DRAWINGS FOR ADDITIONAL INFORMATION.

NOTES ON THIS SHEET APPLY TO ALL ELECTRICAL DRAWING SHEETS



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

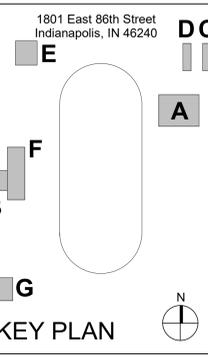


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#	Revision	Date
	ADDENDUM 2.4b	08/24/2023

SECURITY / ACCESS CONTROL SYSTEMS NOTES

- 1. THE ELECTRICAL CONTRACTOR SHALL PROVIDE OUTLET BOXES AND RACEWAYS FOR NEW SECURITY/CCTV/ACCESS CONTROL OUTLETS UNLESS OTHERWISE INDICATED. REFER TO "T" SERIES DRAWINGS FOR ADDITIONAL INFORMATION.



ELECTRICAL GENERAL NOTES

E002.4

6

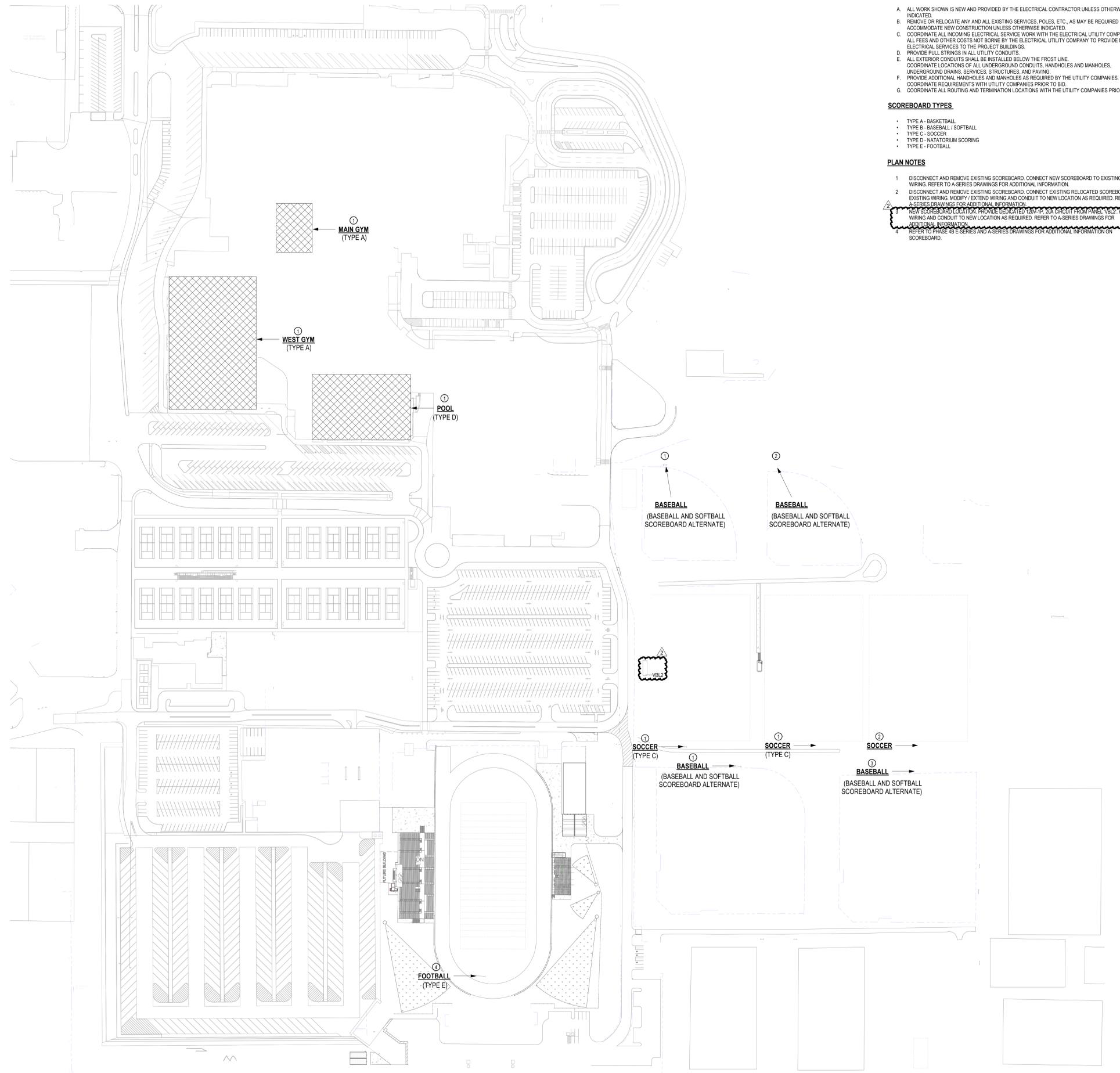
5

4

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2

1



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 FULL 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 LOCATION. PROVIDE DEDICATED 120V-1P, 20A CIRCUIT FROM PANEL VBL2. 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.

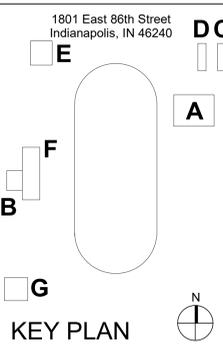


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#	Revision	Date
	ADDENDUM 1.4b	08/17/2023
	ADDENDUM 2.4b	08/24/2023



M.S.D of Washington Township

 North Central High School Renovation - Field Improvements

ELECTRICAL SCOREBOARD PLAN
 E102.4

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

6

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3

2

1



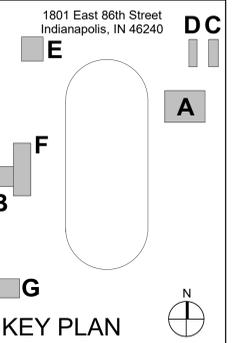
SCHMIDT ASSOCIATES
 415 Massachusetts Avenue
 Indianapolis, IN 46204
 www.schmidt-arch.com

Project No. 2019-067.NCH
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#	Revision	Date
	ADDENDUM #2	08/24/2023

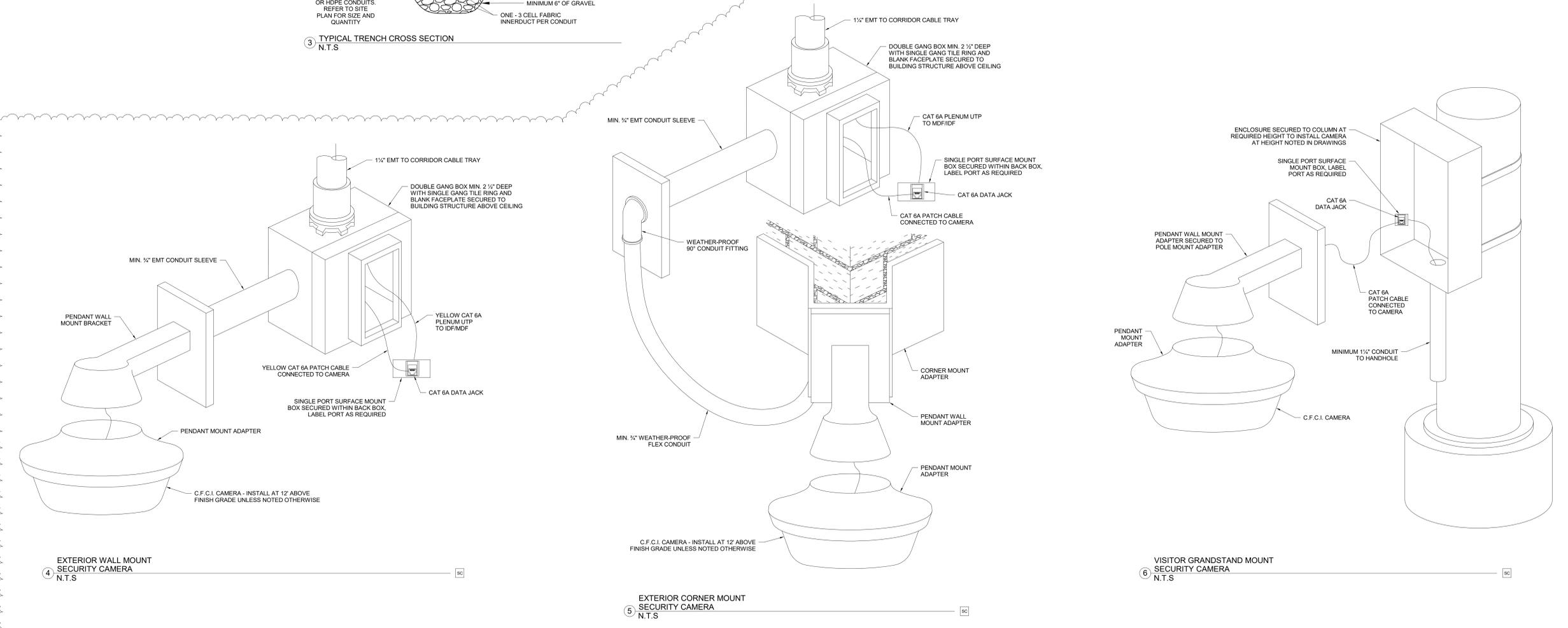
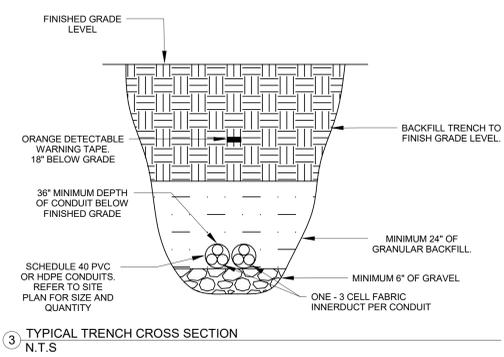
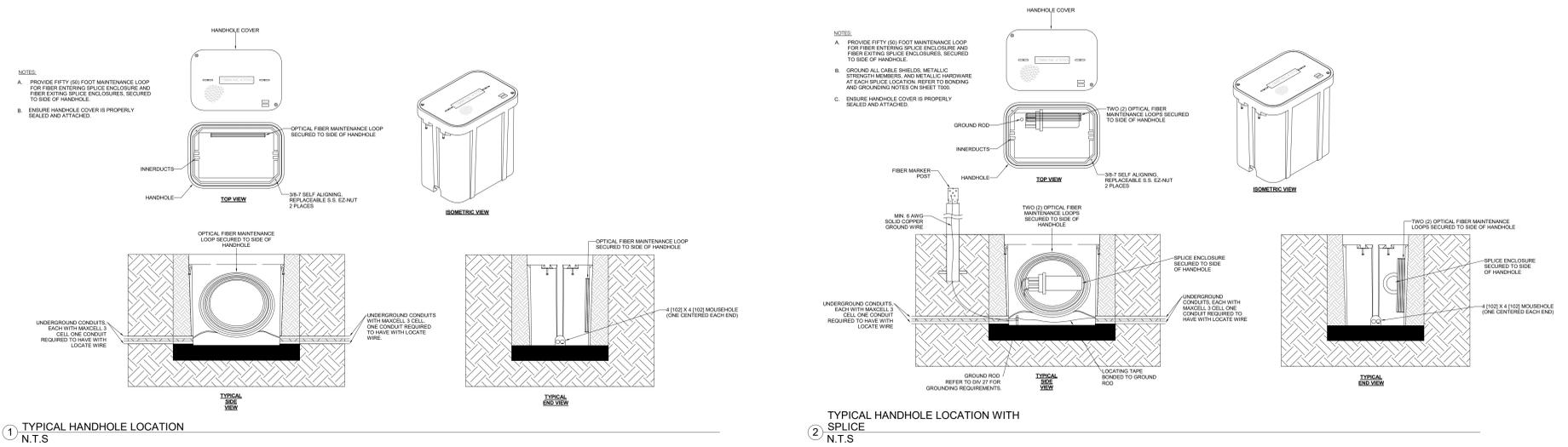


M.S.D. of
 Washington
 Township

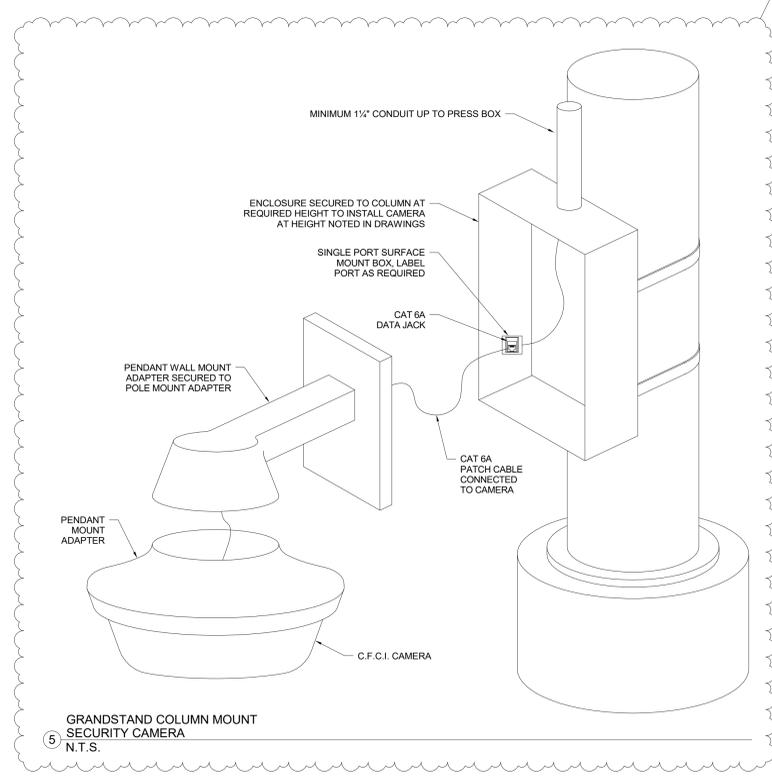
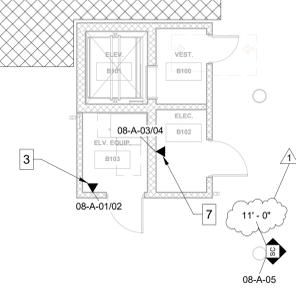
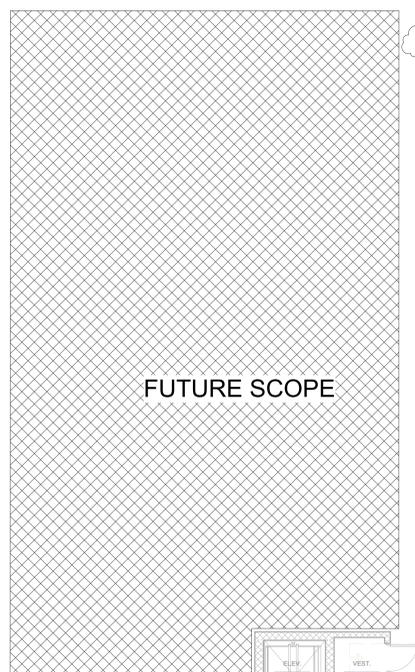
North Central High School Renovation - Field Improvements

DETAILS

TF005.4



DATE PLOTTED: 08/24/2023 10:00 AM
 PLOTTER: HP DesignJet T1100e
 FILE: TF005.4.dwg
 USER: mjc



- GENERAL HORIZONTAL CABLING NOTES**
- A CONTRACTOR SHALL PROVIDE ALL REQUIRED PATHWAYS TO ALLOW FOR ALL HORIZONTAL CABLING TO BE INSTALLED.
 - B CATEGORY 6A HORIZONTAL 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 ACCESSIBLE CEILING, 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 PINPAIR 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 AND DEVICES 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 - FLUSH MOUNTED
 - DATA VOICE LOCATION - SURFACE MOUNTED
 - ⊕ WIRELESS ACCESS POINT - CEILING MOUNTED
 - ⊕ AV INPUT LOCATION
 - ⊕ AUDIO INPUT LOCATION
 - AV AV RACK LOCATION
 - ⊕ LOUDSPEAKER LOCATION
 - ⊕ WALL MOUNTED LOUDSPEAKER
 - ⊕ SECURITY CAMERA - WALL MOUNTED
- SHEET NOTES**
- 1 DATA VOICE LOCATION SHALL BE INSTALLED WITH WEATHER RESISTANT COVER
 - 3 DATA VOICE LOCATION TO SERVE ELEVATOR PHONE LOCATION. ROUTE CONDUIT UNDERGROUND TO HANDHOLE SERVING PRESSBOX.
 - 4 ROOF PENETRATION FOR ROOF MOUNTED LOUDSPEAKER.
 - 5 DATA LOCATION TO SERVE OFI HUDDLE CAMERA LOCATION.
 - 6 SECURITY CAMERA ROUGH-IN LOCATION FOR FUTURE USE.
 - 7 DATA LOCATION TO SERVE FACP LOCATION. ROUTE CONDUIT UNDERGROUND TO HANDHOLE SERVING PRESSBOX.
 - 8 SECURITY CAMERA FOR COVERAGE OF VISITOR STANDS. PROVIDE CAMERA CAPABLE OF 17MM OR GREATER FOCAL LENGTH. ADJUST FOR OPTIMUM FIELD-OF-VIEW AND CONFIRM VIEW WITH OWNER.

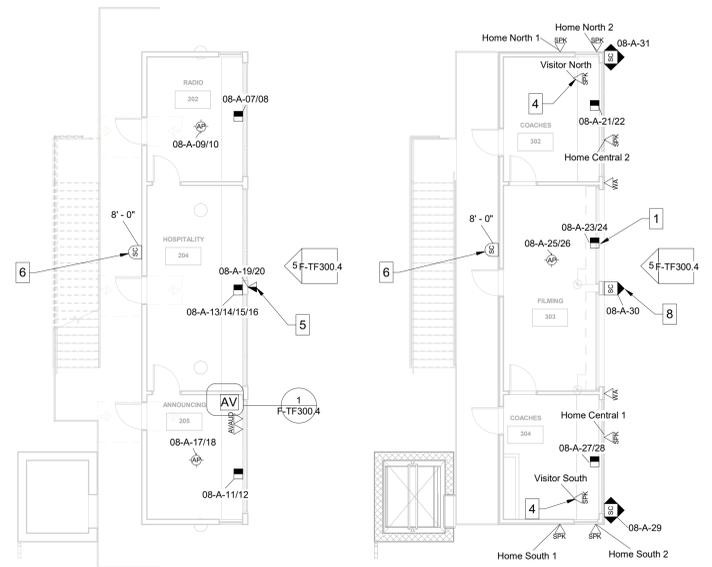
LOUDSPEAKER DIMENSIONAL DATA

Loudspeaker	Speaker Model	x [ft]	y [ft]	z [ft]	ver [deg]	hor [deg]
Home Central 1	R.35-3896	0.54	-17.02	58.00	-30	68
Home Central 2	R.35-3896	0.54	17.02	58.00	-30	112
Home North 1	R1-642	-5.00	27.24	58.00	-12	180
Home North 2	R.35-3896	0.00	27.24	58.00	-20	139
Home South 1	R1-642	-5.00	-27.28	58.00	-12	0
Home South 2	R.35-3896	0.00	-27.28	58.00	-20	41
Under Bleachers 1	R.15COAX	-6.00	-99.00	20.00	-90	90
Under Bleachers 2	R.15COAX	-6.00	-63.00	20.00	-90	90
Under Bleachers 3	R.15COAX	-6.00	-27.00	20.00	-90	90
Under Bleachers 4	R.15COAX	-6.00	9.00	20.00	-90	90
Under Bleachers 5	R.15COAX	-6.00	45.00	20.00	-90	90
Under Bleachers 6	R.15COAX	-6.00	81.00	20.00	-90	90
Visitor North	R2-66MAX	-3.00	-24.00	60.00	-4	90
Visitor South	R2-66MAX	-3.00	24.00	60.00	-4	90

FOOTBALL IDF (08) TELECOM SCHEDULE

ROOM NUMBER	LABEL	TELECOM ROOM	DATA PORTS	COMMENTS
B103	08-A-01/02	08	2	DATA LOCATION - FLUSH MOUNTED
B102	08-A-03/04	08	2	DATA LOCATION - FLUSH MOUNTED
EXT	08-A-05	08	1	SECURITY CAMERA - WALL MOUNTED
EXT	08-A-06	08	1	SECURITY CAMERA - WALL MOUNTED
202	08-A-07/08	08	2	DATA LOCATION - SURFACE MOUNTED
202	08-A-09/10	08	2	WIRELESS ACCESS POINT - CEILING MOUNTED
204	08-A-11/12	08	2	DATA LOCATION - SURFACE MOUNTED
205	08-A-13/14/15/16	08	4	DATA LOCATION - SURFACE MOUNTED
205	08-A-17/18	08	2	WIRELESS ACCESS POINT - CEILING MOUNTED
EXT	08-A-19/20	08	2	DATA LOCATION - FLUSH MOUNTED
302	08-A-21/22	08	2	DATA LOCATION - SURFACE MOUNTED
303	08-A-23/24	08	2	DATA LOCATION - SURFACE MOUNTED
303	08-A-25/26	08	2	WIRELESS ACCESS POINT - CEILING MOUNTED
304	08-A-27/28	08	2	DATA LOCATION - SURFACE MOUNTED
EXT	08-A-29	08	1	SECURITY CAMERA - WALL MOUNT AT 12\"/>

Grand total: 19 33



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

2 FIRST FLOOR PRESSBOX TECHNOLOGY PLAN
1/8" = 1'-0"

3 SECOND FLOOR PRESSBOX TECHNOLOGY PLAN
1/8" = 1'-0"

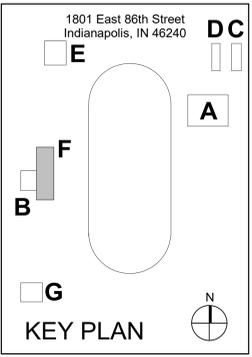


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	ADDENDUM #2	08/24/2023

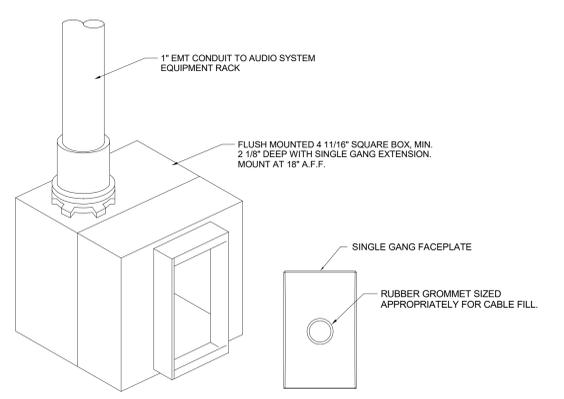
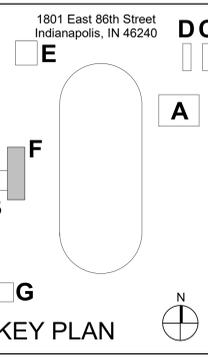


MAIN PRESSBOX/CONCESSION TECHNOLOGY FLOOR PLAN
F-TF201.4

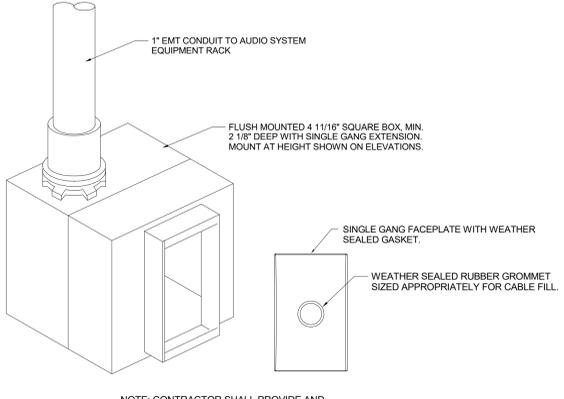


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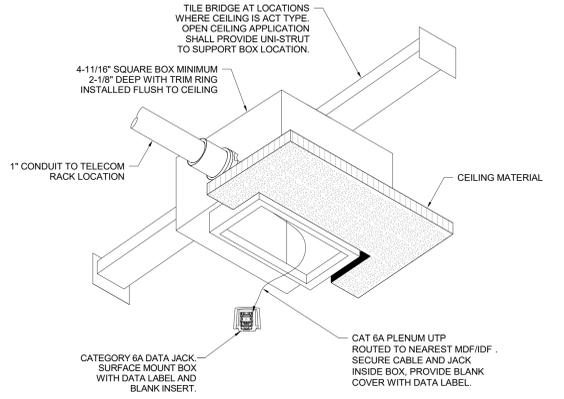
#	Revision	Date
	ADDENDUM #2	08/24/2023



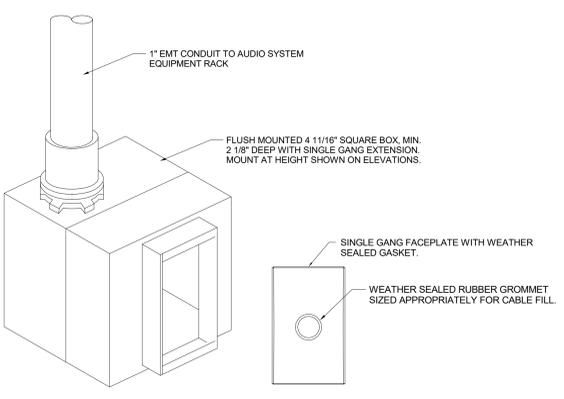
1 AV INPUT LOCATION
N.T.S.



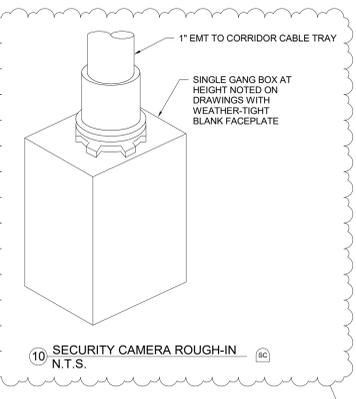
2 WIRELESS ANTENNA ROUGH-IN LOCATION
N.T.S.



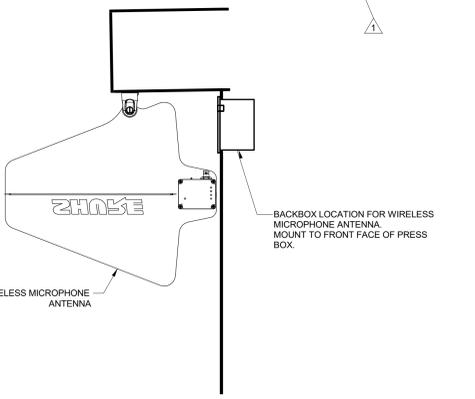
3 WIRELESS ACCESS POINT - GYPSUM BOARD CEILING
N.T.S.



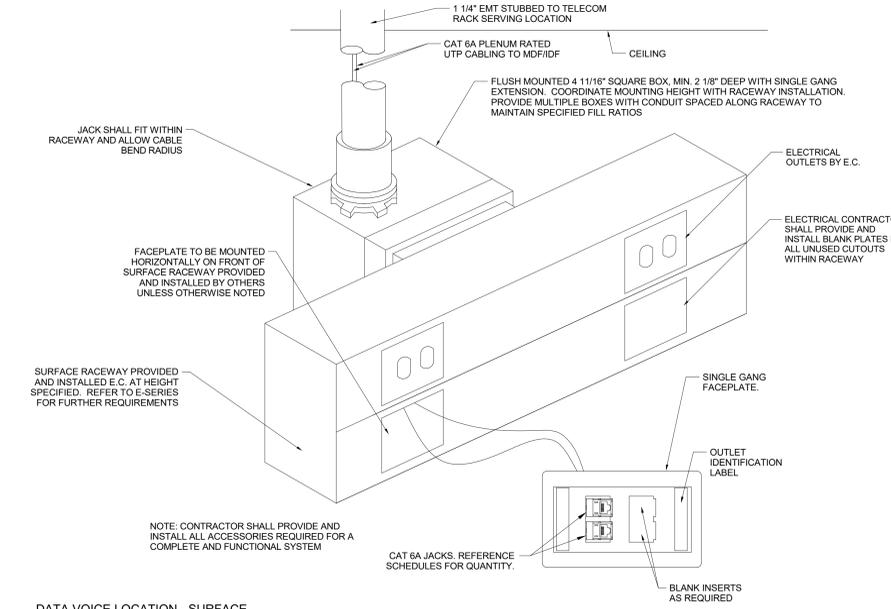
4 LOUDSPEAKER LOCATION
N.T.S.



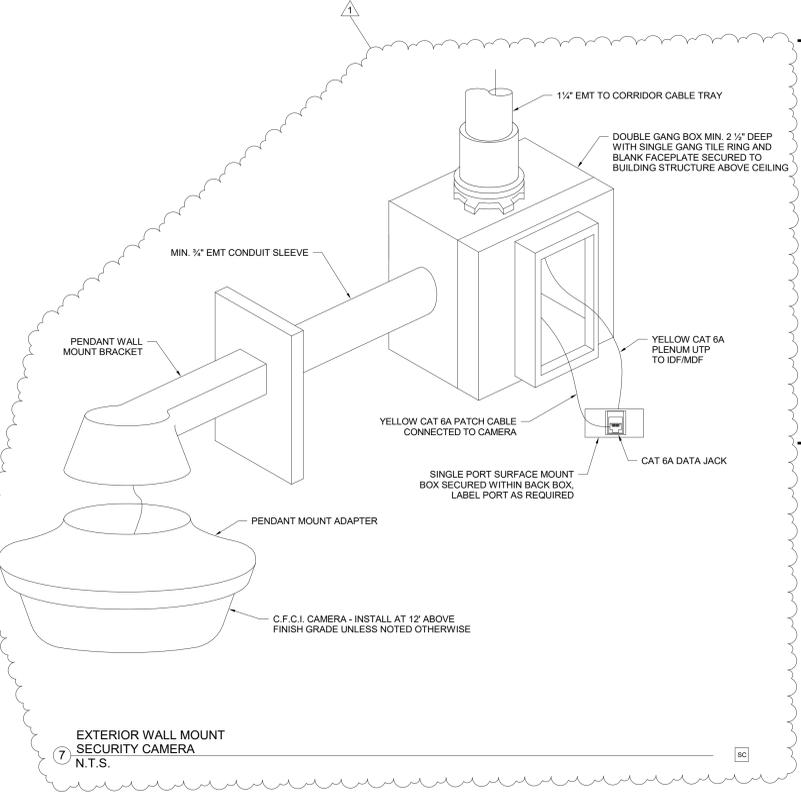
10 SECURITY CAMERA ROUGH-IN
N.T.S.



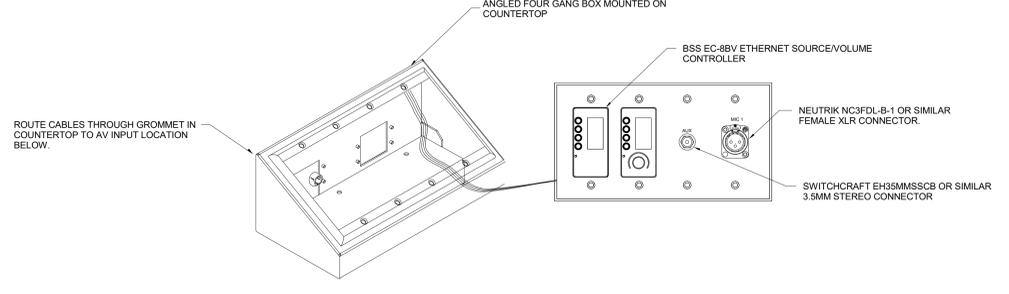
5 WIRELESS ANTENNA LOCATION
N.T.S.



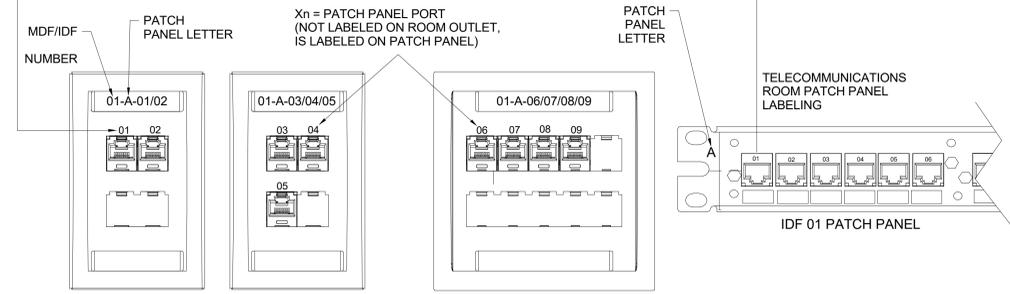
6 DATA VOICE LOCATION - SURFACE MOUNTED
N.T.S.



7 EXTERIOR WALL MOUNT SECURITY CAMERA
N.T.S.



8 ANNOUNCER DESKTOP LOCATION
N.T.S.



9 TYPICAL LABELING DETAIL
N.T.S.

PROJECT: NORTH CENTRAL HIGH SCHOOL RENOVATION - FIELD IMPROVEMENTS
 DRAWING: AV/SECURITY DETAILS
 SHEET: F-TF400.4
 DATE: 08/24/2023
 DESIGNED: MJC
 CHECKED: MKD
 APPROVED: [Signature]
 PROJECT MANAGER: [Signature]

