ROANE COUNTY BOARD OF EDUCATION
ROANE COUNTY, WEST VIRGINIA

SAFE SCHOOL ENTRANCE RENOVATIONS FOR
GEARY AND WALTON ELEMENTARY / MIDDLE SCHOOLS

ADDENDUM #2

JUNE 2, 2021

THRASHER PROJECT #060-0989

TO WHOM IT MAY CONCERN:

The following are clarifications and responses to questions posed by contractors for the above reference project.

A. GENERAL

1. Summer school will be held at the schools on June 21st – July 16th, Monday through Thursday. Contractor is to coordinate the Work with the Owner so as not to interfere with operations.

B. SPECIFICATIONS

1. ADD Section 087100 – Door Hardware for Walton Elementary / Middle School.

C. DRAWINGS

1. ADD S1.01
2. ADD S1.02
3. ADD S1.03
4. ADD S1.04

D. QUESTIONS AND RESPONSES – None

E. CLARIFICATIONS

1. Section 087100 – Door Hardware that was provided in the specifications was for Geary Elementary / Middle School.
   Section 087100 – Door Hardware provided in this Addendum is for Walton Elementary / Middle School.

If you have any questions or comments, please feel free to contact me at your earliest convenience. As a reminder, bids will be received until 3:00 p.m. on Wednesday, June 9, 2021, at the office of The Thrasher Group, Inc. Thank you for your interest in the project.

Sincerely,

THE THRASHER GROUP, INC.

Amanda Cheuvront
Project Manager

SECTION 087100 - DOOR HARDWARE (**WALTON ELEMENTARY / MIDDLE SCHOOL**)

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes commercial door hardware for the following:
   1. Swinging doors.

B. Door hardware includes, but is not necessarily limited to, the following:
   1. Mechanical door hardware.
   2. Electromechanical door hardware.
   3. Cylinders specified for doors in other sections.

C. Codes and References: Comply with the version year adopted by the Authority Having Jurisdiction.
   1. ANSI A117.1 - Accessible and Usable Buildings and Facilities.
   2. ICC/IBC - International Building Code.
   3. NFPA 70 - National Electrical Code.
   4. NFPA 80 - Fire Doors and Windows.
   5. NFPA 101 - Life Safety Code.
   6. NFPA 105 - Installation of Smoke Door Assemblies.
   7. State Building Codes, Local Amendments.

D. Standards: All hardware specified herein shall comply with the following industry standards as applicable. Any undated reference to a standard shall be interpreted as referring to the latest edition of that standard:
   1. ANSI/BHMA Certified Product Standards - A156 Series.
   2. UL10C - Positive Pressure Fire Tests of Door Assemblies.
   3. UL 305 - Panic Hardware.

1.2 SUBMITTALS

A. Product Data: Manufacturer's product data sheets including installation details, material descriptions, dimensions of individual components and profiles, operational descriptions and finishes.

B. Door Hardware Schedule: Prepared by or under the supervision of supplier, detailing fabrication and assembly of door hardware, as well as procedures and diagrams. Coordinate the final Door Hardware Schedule with doors, frames, and related work to ensure proper size, thickness, hand, function, and finish of door hardware.
   1. Format: Comply with scheduling sequence and vertical format in DHI's "Sequence and Format for the Hardware Schedule."
   2. Organization: Organize the Door Hardware Schedule into door hardware sets indicating complete designations of every item required for each door or opening. Organize door hardware sets in same order as in the Door Hardware Sets at the end of Part 3. Submittals that do not follow the same format and order as the Door Hardware Sets will be rejected and subject to resubmission.
   3. Content: Include the following information:
      a. Type, style, function, size, label, hand, and finish of each door hardware item.
      b. Manufacturer of each item.

c. Fastenings and other pertinent information.
d. Location of door hardware set, cross-referenced to Drawings, both on floor plans and in door and frame schedule.
e. Explanation of abbreviations, symbols, and codes contained in schedule.
f. Mounting locations for door hardware.
g. Door and frame sizes and materials.
h. Warranty information for each product.

4. Submittal Sequence: Submit the final Door Hardware Schedule at earliest possible date, particularly where approval of the Door Hardware Schedule must precede fabrication of other work that is critical in the Project construction schedule. Include Product Data, Samples, Shop Drawings of other work affected by door hardware, and other information essential to the coordinated review of the Door Hardware Schedule.

C. Shop Drawings: Details of electrified access control hardware indicating the following:
1. Wiring Diagrams: Upon receipt of approved schedules, submit detailed system wiring diagrams for power, signaling, monitoring, communication, and control of the access control system electrified hardware. Differentiate between manufacturer-installed and field-installed wiring. Include the following:
a. Elevation diagram of each unique access controlled opening showing location and interconnection of major system components with respect to their placement in the respective door openings.
b. Complete (risers, point-to-point) access control system block wiring diagrams.
c. Wiring instructions for each electronic component scheduled herein.
2. Electrical Coordination: Coordinate with related sections the voltages and wiring details required at electrically controlled and operated hardware openings.

D. Proof of Certification: Provide copy of manufacturer(s) official certification or accreditation document indicating proof of status as a qualified and authorized provider of the primary Integrated Wiegand Access Control Products.

E. Keying Schedule: After a keying meeting with the owner has taken place prepare a separate keying schedule detailing final instructions. Submit the keying schedule in electronic format. Include keying system explanation, door numbers, key set symbols, hardware set numbers and special instructions. Owner must approve submitted keying schedule prior to the ordering of permanent cylinders/cores.

F. Informational Submittals:
1. Product Test Reports: Indicating compliance with cycle testing requirements, based on evaluation of comprehensive tests performed by manufacturer and witnessed by a qualified independent testing agency.

G. Operating and Maintenance Manuals: Provide manufacturers operating and maintenance manuals for each item comprising the complete door hardware installation in quantity as required in Division 01, Closeout Procedures.

1.3 QUALITY ASSURANCE

A. Manufacturers Qualifications: Engage qualified manufacturers with a minimum 5 years of documented experience in producing hardware and equipment similar to that indicated for this Project and that have a proven record of successful in-service performance.

B. Certified Products: Where specified, products must maintain a current listing in the Builders Hardware Manufacturers Association (BHMA) Certified Products Directory (CPD).

C. Installer Qualifications: A minimum 3 years documented experience installing both standard and electrified door hardware similar in material, design, and extent to that indicated for this

Project and whose work has resulted in construction with a record of successful in-service performance.

D. Door Hardware Supplier Qualifications: Experienced commercial door hardware distributors with a minimum 5 years documented experience supplying both mechanical and electromechanical hardware installations comparable in material, design, and extent to that indicated for this Project. Supplier recognized as a factory direct distributor by the manufacturers of the primary materials with a warehousing facility in Project's vicinity. Supplier to have on staff a certified Architectural Hardware Consultant (AHC) available during the course of the Work to consult with Contractor, Architect, and Owner concerning both standard and electromechanical door hardware and keying.

E. Source Limitations: Obtain each type and variety of door hardware specified in this section from a single source unless otherwise indicated.
   1. Electrified modifications or enhancements made to a source manufacturer's product line by a secondary or third party source will not be accepted.
   2. Provide electromechanical door hardware from the same manufacturer as mechanical door hardware, unless otherwise indicated.

F. Each unit to bear third party permanent label demonstrating compliance with the referenced standards.

G. Keying Conference: Conduct conference to comply with requirements in Division 01 Section "Project Meetings." Keying conference to incorporate the following criteria into the final keying schedule document:
   1. Function of building, purpose of each area and degree of security required.
   2. Plans for existing and future key system expansion.
   3. Requirements for key control storage and software.
   4. Installation of permanent keys, cylinder cores and software.
   5. Address and requirements for delivery of keys.

H. Pre-Submittal Conference: Conduct coordination conference in compliance with requirements in Division 01 Section "Project Meetings" with attendance by representatives of Supplier(s), Installer(s), and Contractor(s) to review proper methods and the procedures for receiving, handling, and installing door hardware.
   1. Prior to installation of door hardware, conduct a project specific training meeting to instruct the installing contractors' personnel on the proper installation and adjustment of their respective products. Product training to be attended by installers of door hardware (including electromechanical hardware) for aluminum, hollow metal and wood doors. Training will include the use of installation manuals, hardware schedules, templates and physical product samples as required.
   2. Inspect and discuss electrical roughing-in, power supply connections, and other preparatory work performed by other trades.
   3. Review sequence of operation narratives for each unique access controlled opening.
   4. Review and finalize construction schedule and verify availability of materials.
   5. Review the required inspecting, testing, commissioning, and demonstration procedures

I. At completion of installation, provide written documentation that components were applied to manufacturer's instructions and recommendations and according to approved schedule.

1.4 DELIVERY, STORAGE, AND HANDLING

A. Inventory door hardware on receipt and provide secure lock-up and shelving for door hardware delivered to Project site. Do not store electronic access control hardware, software or accessories at Project site without prior authorization.

B. Tag each item or package separately with identification related to the final Door Hardware Schedule, and include basic installation instructions with each item or package.
C. Deliver, as applicable, permanent keys, cylinders, cores, access control credentials, software and related accessories directly to Owner via registered mail or overnight package service. Instructions for delivery to the Owner shall be established at the "Keying Conference".

1.5 COORDINATION
A. Templates: Obtain and distribute to the parties involved templates for doors, frames, and other work specified to be factory prepared for installing standard and electrified hardware. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing hardware to comply with indicated requirements.
B. Door Hardware and Electrical Connections: Coordinate the layout and installation of scheduled electrified door hardware and related access control equipment with required connections to source power junction boxes, low voltage power supplies, detection and monitoring hardware, and fire and detection alarm systems.
C. Door and Frame Preparation: Doors and corresponding frames are to be prepared, reinforced and pre-wired (if applicable) to receive the installation of the specified electrified, monitoring, signaling and access control system hardware without additional in-field modifications.

1.6 WARRANTY
A. General Warranty: Reference Division 01, General Requirements. Special warranties specified in this Article shall not deprive Owner of other rights Owner may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by Contractor under requirements of the Contract Documents.
B. Warranty Period: Written warranty, executed by manufacturer(s), agreeing to repair or replace components of standard and electrified door hardware that fails in materials or workmanship within specified warranty period after final acceptance by the Owner. Failures include, but are not limited to, the following:
    1. Structural failures including excessive deflection, cracking, or breakage.
    2. Faulty operation of the hardware.
    3. Deterioration of metals, metal finishes, and other materials beyond normal weathering.
    4. Electrical component defects and failures within the systems operation.
C. Standard Warranty Period: One year from date of Substantial Completion, unless otherwise indicated.
D. Special Warranty Periods:
    1. Seven years for heavy duty cylindrical (bored) locks and latches.
    2. Five years for exit hardware.
    3. Twenty five years for manual overhead door closer bodies.
    4. Five years for motorized electric latch retraction exit devices.
    5. Two years for electromechanical door hardware.

1.7 MAINTENANCE SERVICE
A. Maintenance Tools and Instructions: Furnish a complete set of specialized tools and maintenance instructions as needed for Owner's continued adjustment, maintenance, and removal and replacement of door hardware.

PART 2 - PRODUCTS

2.1 SCHEDULED DOOR HARDWARE

A. General: Provide door hardware for each door to comply with requirements in Door Hardware Sets and each referenced section that products are to be supplied under.

B. Designations: Requirements for quantity, item, size, finish or color, grade, function, and other distinctive qualities of each type of door hardware are indicated in the Door Hardware Sets at the end of Part 3. Products are identified by using door hardware designations, as follows:
   1. Named Manufacturer's Products: Product designation and manufacturer are listed for each door hardware type required for the purpose of establishing requirements. Manufacturers' names are abbreviated in the Door Hardware Schedule.

C. Products furnished, but not installed, under this Section include the following. Coordinating, purchasing, delivering, and scheduling remain requirements of this Section.
   1. Permanent cylinders, cores, and keys to be installed by Owner.

D. Substitutions: Requests for substitution and product approval for inclusive mechanical and electromechanical door hardware in compliance with the specifications must be submitted in writing and in accordance with the procedures and time frames outlined in Division 01, Substitution Procedures. Approval of requests is at the discretion of the architect, owner, and their designated consultants.

2.2 HANGING DEVICES

A. Hinges: ANSI/BHMA A156.1 certified butt hinges with number of hinge knuckles and other options as specified in the Door Hardware Sets.
   1. Quantity: Provide the following hinge quantity:
      a. Two Hinges: For doors with heights up to 60 inches.
      b. Three Hinges: For doors with heights 61 to 90 inches.
      c. Four Hinges: For doors with heights 91 to 120 inches.
      d. For doors with heights more than 120 inches, provide 4 hinges, plus 1 hinge for every 30 inches of door height greater than 120 inches.
   2. Hinge Size: Provide the following, unless otherwise indicated, with hinge widths sized for door thickness and clearances required:
      a. Widths up to 3’6”: 4-1/2” standard or heavy weight as specified.
      b. Sizes from 3’7” to 4’0”: 5” heavy weight.
   3. Hinge Options: Comply with the following:
      a. Non-removable Pins: Provide set screw in hinge barrel that, when tightened into a groove in hinge pin, prevents removal of pin while door is closed; for the all out-swinging lockable doors.
   4. Manufacturers:
      a. McKinney Products; ASSA ABLOY Architectural Door Accessories (MK).

B. Continuous Geared Hinges: ANSI/BHMA A156.26 Grade 1-600 certified continuous geared hinge. with minimum 0.120-inch thick extruded 6060 T6 aluminum alloy hinge leaves and a minimum overall width of 4 inches. Hinges are non-handed, reversible and fabricated to template screw locations. Factory trim hinges to suit door height and prepare for electrical cut-outs.
   1. Manufacturers:
      a. Pemko Products; ASSA ABLOY Architectural Door Accessories (PE).

2.3 POWER TRANSFER DEVICES

A. Concealed Quick Connect Electric Power Transfers: Provide concealed wiring pathway housing mortised into the door and frame for low voltage electrified door hardware. Furnish with Molex™ standardized plug connectors and sufficient number of concealed wires (up to 12) to accommodate the electrified functions specified in the Door Hardware Sets. Connectors plug directly to through-door wiring harnesses for connection to electric locking devices and power supplies. Wire nut connections are not acceptable.
   1. Manufacturers:
      a. Securitron (SU) - EL-CEPT Series.

B. Electric Door Wire Harnesses: Provide electric/data transfer wiring harnesses with standardized plug connectors to accommodate up to twelve (12) wires. Connectors plug directly to through-door wiring harnesses for connection to electric locking devices and power supplies. Provide sufficient number and type of concealed wires to accommodate electric function of specified hardware. Provide a connector for through-door electronic locking devices and from hinge to junction box above the opening. Wire nut connections are not acceptable. Determine the length required for each electrified hardware component for the door type, size and construction, minimum of two per electrified opening.
   1. Provide one each of the following tools as part of the base bid contract:
      a. McKinney Products; ASSA ABLOY Architectural Door Accessories (MK) - Electrical Connecting Kit: QC-R001.
      b. McKinney Products; ASSA ABLOY Architectural Door Accessories (MK) - Connector Hand Tool: QC-R003.
   2. Manufacturers:
      a. McKinney Products; ASSA ABLOY Architectural Door Accessories (MK) - QC-C Series.

2.4 DOOR OPERATING TRIM

A. Door Push Plates and Pulls: ANSI/BHMA A156.6 certified door pushes and pulls of type and design specified in the Hardware Sets. Coordinate and provide proper width and height as required where conflicting hardware dictates.
   1. Door Pull and Push Bar Design: Size, shape, and material as indicated in the hardware sets. Minimum clearance of 2 1/2-inches from face of door unless otherwise indicated.
   2. Offset Pull Design: Size, shape, and material as indicated in the hardware sets. Minimum clearance of 2 1/2-inches from face of door and offset of 90 degrees unless otherwise indicated.
   3. Fasteners: Provide manufacturer's designated fastener type as indicated in Hardware Sets.
   4. Manufacturers:
      a. Rockwood Products; ASSA ABLOY Architectural Door Accessories (RO).

2.5 CYLINDERS AND KEYING

A. General: Cylinder manufacturer to have minimum (10) years experience designing secured master key systems and have on record a published security keying system policy.

B. Source Limitations: Obtain each type of keyed cylinder and keys from the same source manufacturer as locksets and exit devices, unless otherwise indicated.

C. Cylinder Types: Original manufacturer cylinders able to supply the following cylinder formats and types:
   1. Threaded mortise cylinders with rings and cams to suit hardware application.

2. Rim cylinders with back plate, flat-type vertical or horizontal tailpiece, and raised trim ring.
3. Bored or cylindrical lock cylinders with tailpieces as required to suit locks.
4. Tubular deadlocks and other auxiliary locks.
5. Mortise and rim cylinder collars to be solid and recessed to allow the cylinder face to be flush and be free spinning with matching finishes.
6. Keyway: Match Facility Restricted Keyway.

D. Removable Cores: Provide removable cores as specified, core insert, removable by use of a special key, and for use with only the core manufacturer's cylinder and door hardware.

E. Patented Cylinders: ANSI/BHMA A156.5, Grade 1 Certified Products Directory (CPD) listed cylinders employing a utility patented and restricted keyway requiring the use of a patented key. Cylinders are to be protected from unauthorized manufacture and distribution by manufacturer's United States patents. Cylinders are to be factory keyed with owner having the ability for on-site original key cutting.
1. Patented key systems shall not be established with products that have an expired patent. Expired systems shall only be specified and supplied to support existing systems.
2. Manufacturers:
   a. Sargent (SA) - Degree DG1.
   b. No Substitution.

F. Keying System: Each type of lock and cylinders to be factory keyed.
1. Supplier shall conduct a "Keying Conference" to define and document keying system instructions and requirements.
2. Furnish factory cut, nickel-silver large bow permanently inscribed with a visual key control number as directed by Owner.
3. Existing System: Field verify and key cylinders to match Owner's existing system.

G. Key Quantity: Provide the following minimum number of keys:
1. Change Keys per Cylinder: Two (2)
2. Master Keys (per Master Key Level/Group): Five (5).
3. Construction Keys (where required): Ten (10).
4. Construction Control Keys (where required): Two (2).

H. Construction Keying: Provide construction master keyed cylinders.

I. Key Registration List (Bitting List):
1. Provide keying transcript list to Owner's representative in the proper format for importing into key control software.
2. Provide transcript list in writing or electronic file as directed by the Owner.

2.6 MECHANICAL LOCKS AND LATCHING DEVICES

A. Cylindrical Locksets, Grade 1 (Heavy Duty): ANSI/BHMA A156.2, Series 4000, Operational Grade 1 Certified Products Directory (CPD) listed.
1. Furnish with solid cast levers, standard 2 3/4" backset, and 1/2" (3/4" at rated paired openings) throw brass or stainless steel latchbolt.
2. Locks are to be non-handed and fully field reversible.
3. Extended cycle test: Locks to have been cycle tested in ordinance with ANSI/BHMA 156.2 requirements to 9 million cycles.
4. Manufacturers:
   a. Sargent Manufacturing (SA) - 10 Line.

2.7 ELECTROMECHANICAL LOCKING DEVICES

2.1 INTEGRATED WIRED OUTPUT LOCKING DEVICES – MULTI-CLASS READER

A. Integrated Wired Output Multi-Class Cylindrical Locks: Wiegand or Open Supervised Device Protocol (OSDP)output ANSI A156.2, Grade 1, Cylindrical Lockset with integrated card reader with or without keypad option, and request-to-exit signaling in one complete unit. Hard wired, solenoid driven locking/unlocking control of the lever handle trim with 1/2" deadlocking stainless steel latch. Lock is U.L listed and labeled for use on up to 3 hour fire rated openings.
   1. Open architecture, hard wired platform supports centralized control of locking units with new or existing Wiegand or OSDP compatible access control systems. Inside lever handle (request-to-exit) signaling standard with door position (open/closed status) monitoring (via separately connected DPS).
   2. Integrated reader supports the following credentials:
      a. 125kHz proximity credentials: HID, AWID, Indala, and EM4102.
      b. 13.56 MHz proximity credentials: HID Secure Identity Object™ (SIO) on iCLASS Seos, HID iCLASS, HID iCLASS SE/SR, MIFARE Classic, DESFire EV1 and EV2.
      c. 2.4 GHz credentials: Secure Identity Object™ (SIO) on Mobile IDs (Bluetooth Smart)
      d. ISO14443A/B (PIV-compatible Transparent FASC-N read) available with pivCLASS variant
      e. NFC-enabled mobile phones
      f. PIN code only or PIN + credential with keypad option
   3. 12VDC external power supply required for reader and lock, with optional 24VDC lock solenoid. Fail safe or fail secure options.
   4. Installation requires only one cable run from the lock to the access control panel without requirements for additional proprietary lock panel interface boards or modules.
   5. Installation to include manufacturer's access control panel interface board or module where required for Wiegand or OSDP output protocol.
   6. Manufacturers:
      a. Sargent Manufacturing (SA) – SN200/SN210 10 Line.

2.2 LOCK AND LATCH STRIKES

A. Strikes: Provide manufacturer's standard strike with strike box for each latch or lock bolt, with curved lip extended to protect frame, finished to match door hardware set, unless otherwise indicated, and as follows:
   1. Flat-Lip Strikes: For locks with three-piece antifriction latchbolts, as recommended by manufacturer.
   2. Extra-Long-Lip Strikes: For locks used on frames with applied wood casing trim.
   3. Aluminum-Frame Strike Box: Provide manufacturer's special strike box fabricated for aluminum framing.
   4. Double-lipped strikes: For locks at double acting doors. Furnish with retractable stop for rescue hardware applications.

B. Standards: Comply with the following:
   1. Strikes for Mortise Locks and Latches: BHMA A156.13.
   2. Strikes for Bored Locks and Latches: BHMA A156.2.
   3. Strikes for Auxiliary Deadlocks: BHMA A156.36.

4. Dustproof Strikes: BHMA A156.16.

2.3 ELECTRIC STRIKES

A. Standard Electric Strikes: Electric strikes tested to ANSI/BHMA A156.31, Grade 1, for use on non-rated or fire rated openings. Strikes shall be of stainless steel construction tested to a minimum of 1500 pounds of static strength and 70 foot-pounds of dynamic strength with a minimum endurance of 1 million operating cycles. Provide strikes with 12 or 24 VDC capability, fail-secure unless otherwise specified. Where specified provide latchbolt and latchbolt strike monitoring indicating both the position of the latchbolt and locked condition of the strike.
   1. Manufacturers:
      a. HES (HS) - 1500/1600 Series.

B. Provide electric strikes with in-line power controller and surge suppressor by the same manufacturer as the strike with the combined products having a five year warranty.

2.4 CONVENTIONAL EXIT DEVICES

A. General Requirements: All exit devices specified herein shall meet or exceed the following criteria:
   1. At doors not requiring a fire rating, provide devices complying with NFPA 101 and listed and labeled for "Panic Hardware" according to UL305. Provide proper fasteners as required by manufacturer including sex nuts and bolts at openings specified in the Hardware Sets.
   2. Where exit devices are required on fire rated doors, provide devices complying with NFPA 80 and with UL labeling indicating "Fire Exit Hardware". Provide devices with the proper fasteners for installation as tested and listed by UL. Consult manufacturer’s catalog and template book for specific requirements.
   3. Except on fire rated doors, provide exit devices with hex key dogging device to hold the pushbar and latch in a retracted position. Provide optional keyed cylinder dogging on devices where specified in Hardware Sets.
   4. Devices must fit flat against the door face with no gap that permits unauthorized dogging of the push bar. The addition of filler strips is required in any case where the door light extends behind the device as in a full glass configuration.
   5. Lever Operating Trim: Where exit devices require lever trim, furnish manufacturer's heavy duty escutcheon trim with threaded studs for thru-bolts.
      a. Lock Trim Design: As indicated in Hardware Sets, provide finishes and designs to match that of the specified locksets.
      b. Where function of exit device requires a cylinder, provide a cylinder (Rim or Mortise) as specified in Hardware Sets.
   6. Vertical Rod Exit Devices: Where surface or concealed vertical rod exit devices are used at interior openings, provide as less bottom rod (LBR) unless otherwise indicated. Provide dust proof strikes where thermal pins are required to project into the floor.
   7. Narrow Stile Applications: At doors constructed with narrow stiles, or as specified in Hardware Sets, provide devices designed for maximum 2” wide stiles.
   8. Dummy Push Bar: Nonfunctioning push bar matching functional push bar.
   9. Rail Sizing: Provide exit device rails factory sized for proper door width application.
   10. Through Bolt Installation: For exit devices and trim as indicated in Door Hardware Sets.

B. Conventional Push Rail Exit Devices (Heavy Duty): ANSI/BHMA A156.3, Grade 1 Certified Products Directory (CPD) listed panic and fire exit hardware devices furnished in the functions

specified in the Hardware Sets. Exit device latch to be stainless steel, pullman type, with deadlock feature.

1. Manufacturers:
    a. Sargent Manufacturing (SA) - 80 Series.

2.5 ELECTROMECHANICAL EXIT DEVICES

A. Electromechanical Push Rail Exit Devices (Heavy Duty): ANSI/BHMA A156.3, Grade 1 Certified Products Directory (CPD) listed panic and fire exit hardware devices subject to same compliance standards and requirements as mechanical exit devices. Electrified exit devices to be of type and design as specified below and in the hardware sets.
    1. Energy Efficient Design: Provide devices which have a holding current draw of 15mA maximum, and can operate on either 12 or 24 volts. Locks are to be field configurable for fail safe or fail secure operation.
    2. Where conventional power supplies are not sufficient, include any specific controllers required to provide the proper inrush current.
    3. Motorized Electric Latch Retraction: Devices with an electric latch retraction feature must use motors which have a maximum current draw of 600mA. Solenoid driven latch retraction is not acceptable.
    4. Manufacturers:
        a. Sargent Manufacturing (SA) - 80 Series.

2.6 DOOR CLOSERS

A. All door closers specified herein shall meet or exceed the following criteria:
    1. General: Door closers to be from one manufacturer, matching in design and style, with the same type door preparations and templates regardless of application or spring size. Closers to be non-handed with full sized covers.
    2. Standards: Closers to comply with UL-10C for Positive Pressure Fire Test and be U.L. listed for use of fire rated doors.
    3. Size of Units: Comply with manufacturer's written recommendations for sizing of door closers depending on size of door, exposure to weather, and anticipated frequency of use. Where closers are indicated for doors required to be accessible to the Americans with Disabilities Act, provide units complying with ANSI ICC/A117.1.
    4. Closer Arms: Provide heavy duty, forged steel closer arms unless otherwise indicated in Hardware Sets.
    5. Closers shall not be installed on exterior or corridor side of doors; where possible install closers on door for optimum aesthetics.
    6. Closer Accessories: Provide door closer accessories including custom templates, special mounting brackets, spacers and drop plates as required for proper installation. Provide through-bolt and security type fasteners as specified in the hardware sets.

B. Door Closers, Surface Mounted (Heavy Duty): ANSI/BHMA A156.4, Grade 1 Certified Products Directory (CPD) listed surface mounted, heavy duty door closers with complete spring power adjustment, sizes 1 thru 6; and fully operational adjustable according to door size, frequency of use, and opening force. Closers to be rack and pinion type, one piece cast iron or aluminum alloy body construction, with adjustable backcheck and separate non-critical valves for closing sweep and latch speed control. Provide non-handed units standard.
    1. Manufacturers:
        a. Norton Door Controls (NO) - 7500 Series.

C. Door Closers, Surface Mounted (Cam Action): ANSI/BHMA 156.4, Grade 1 Certified Products Directory (CPD) listed surface mounted, high efficiency door closers with complete spring power adjustment, sizes 1 thru 6; and fully operational adjustable according to door size, frequency of use, and opening force. Closers to be of the cam and roller design, one piece cast aluminum silicon alloy body with adjustable backcheck and independently controlled valves for closing sweep and latch speed.
   1. Manufacturers:
      a. Norton Door Controls (NO) - 2800ST Series.

2.7 ARCHITECTURAL TRIM

A. Door Protective Trim
   1. General: Door protective trim units to be of type and design as specified below or in the Hardware Sets.
   2. Size: Fabricate protection plates (kick, armor, or mop) not more than 2" less than door width (LDW) on stop side of single doors and 1” LDW on stop side of pairs of doors, and not more than 1" less than door width on pull side. Coordinate and provide proper width and height as required where conflicting hardware dictates. Height to be as specified in the Hardware Sets.
   3. Where plates are applied to fire rated doors with the top of the plate more than 16” above the bottom of the door, provide plates complying with NFPA 80. Consult manufacturer’s catalog and template book for specific requirements for size and applications.
   4. Protection Plates: ANSI/BHMA A156.6 certified protection plates (kick, armor, or mop), fabricated from the following:
      a. Stainless Steel: 300 grade, 050-inch thick.
   5. Options and fasteners: Provide manufacturer's designated fastener type as specified in the Hardware Sets. Provide countersunk screw holes.
   6. Manufacturers:
      a. Hiawatha, Inc. (HI).
      b. Rockwood Products; ASSA ABLOY Architectural Door Accessories (RO).
      c. Trimco (TC).

2.8 DOOR STOPS AND HOLDERS

A. General: Door stops and holders to be of type and design as specified below or in the Hardware Sets.

B. Door Stops and Bumpers: ANSI/BHMA A156.16, Grade 1 certified door stops and wall bumpers. Provide wall bumpers, either convex or concave types with anchorage as indicated, unless floor or other types of door stops are specified in Hardware Sets. Do not mount floor stops where they will impede traffic. Where floor or wall bumpers are not appropriate, provide overhead type stops and holders.
   1. Manufacturers:
      a. Rockwood Products; ASSA ABLOY Architectural Door Accessories (RO).

C. Overhead Door Stops and Holders: ANSI/BHMA A156.8, Grade 1 Certified Products Directory (CPD) listed overhead stops and holders to be surface or concealed types as indicated in Hardware Sets. Track, slide, arm and jamb bracket to be constructed of extruded bronze and shock absorber spring of heavy tempered steel. Provide non-handed design with mounting brackets as required for proper operation and function.
   1. Manufacturers:
      a. Rixson Door Controls (RF).

2.9 ARCHITECTURAL SEALS

A. General: Thresholds, weatherstripping, and gasket seals to be of type and design as specified below or in the Hardware Sets. Provide continuous weatherstrip gasketing on exterior doors and provide smoke, light, or sound gasketing on interior doors where indicated. At exterior applications provide non-corrosive fasteners and elsewhere where indicated.

B. Smoke Labeled Gasketing: Assemblies complying with NFPA 105 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for smoke control ratings indicated, based on testing according to UL 1784.
   1. Provide smoke labeled perimeter gasketing at all smoke labeled openings.

C. Fire Labeled Gasketing: Assemblies complying with NFPA 80 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for fire ratings indicated, based on testing according to UL-10C.
   1. Provide intumescent seals as indicated to meet UL10C Standard for Positive Pressure Fire Tests of Door Assemblies, and NPFA 252, Standard Methods of Fire Tests of Door Assemblies.

D. Sound-Rated Gasketing: Assemblies that are listed and labeled by a testing and inspecting agency, for sound ratings indicated.

E. Replaceable Seal Strips: Provide only those units where resilient or flexible seal strips are easily replaceable and readily available from stocks maintained by manufacturer.

F. Manufacturers:
   1. Pemko Products; ASSA ABLOY Architectural Door Accessories (PE).

2.10 ELECTRONIC ACCESSORIES

A. Push-Button Switches: Industrial grade momentary or alternate contact, back-lighted push buttons with stainless-steel switch enclosures. 12/24 VDC bi-color illumination suitable for either flush or surface mounting.
   1. Manufacturers:
      a. Securitron (SU) - PB Series.

B. Request-to-Exit Motion Sensor: Request-to-Exit Sensors motion detectors specifically designed for detecting exiting through a door from the secure area to a non-secure area. Include built-in timers (up to 60 second adjustable timing), door monitor with sounder alert, internal vertical pointability coverage, 12VDC or 24VDC power and selectable relay trigger with fail safe/fail secure modes.
   1. Manufacturers:
      a. Securitron (SU) - XMS Series.

C. Door Position Switches: Door position magnetic reed contact switches specifically designed for use in commercial door applications. On recessed models the contact and magnetic housing snap-lock into a 1" diameter hole. Surface mounted models include wide gap distance design complete with armored flex cabling. Provide SPDT, N/O switches with optional Rare Earth Magnet installation on steel doors with flush top channels.
   1. Manufacturers:
      a. Securitron (SU) - DPS Series.

D. Intelligent Switching Power Supplies: Provide power supplies with single, dual or multi-voltage configurations at 12 and/or 24VDC. Power Supply shall have battery backup function with an integrated battery charging circuit. The power supply shall have a standard, integrated Fire Alarm Interface (FAI). The power supply shall provide capability for secondary voltage, power distribution, direct lock control and network monitoring through add on modules. The power supply shall be expandable up to 16 individually protected outputs. Output modules shall

provide individually protected, continuous outputs and/or individually protected, relay controlled outputs. Network modules shall provide remote monitoring functions such as status reporting, fault reporting and information logging.

1. Manufacturers:
    a. Securitron (SU) - AQL Series.

2.11 FABRICATION

A. Fasteners: Provide door hardware manufactured to comply with published templates generally prepared for machine, wood, and sheet metal screws. Provide screws according to manufacturers recognized installation standards for application intended.

2.12 FINISHES

A. Standard: Designations used in the Hardware Sets and elsewhere indicate hardware finishes complying with ANSI/BHMA A156.18, including coordination with traditional U.S. finishes indicated by certain manufacturers for their products.
B. Provide quality of finish, including thickness of plating or coating (if any), composition, hardness, and other qualities complying with manufacturer's standards, but in no case less than specified by referenced standards for the applicable units of hardware
C. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine scheduled openings, with Installer present, for compliance with requirements for installation tolerances, labeled fire door assembly construction, wall and floor construction, and other conditions affecting performance.
B. Notify architect of any discrepancies or conflicts between the door schedule, door types, drawings and scheduled hardware. Proceed only after such discrepancies or conflicts have been resolved in writing.

3.2 PREPARATION

A. Hollow Metal Doors and Frames: Comply with ANSI/DHI A115 series.
B. Wood Doors: Comply with ANSI/DHI A115-W series.

3.3 INSTALLATION

A. Install each item of mechanical and electromechanical hardware and access control equipment to comply with manufacturer's written instructions and according to specifications.
    1. Installers are to be trained and certified by the manufacturer on the proper installation and adjustment of fire, life safety, and security products including: hanging devices; locking devices; closing devices; and seals.
B. Mounting Heights: Mount door hardware units at heights indicated in following applicable publications, unless specifically indicated or required to comply with governing regulations:

1. Standard Steel Doors and Frames: DHI's "Recommended Locations for Architectural Hardware for Standard Steel Doors and Frames."
2. Wood Doors: DHI WDHS.3, "Recommended Locations for Architectural Hardware for Wood Flush Doors."
3. Where indicated to comply with accessibility requirements, comply with ANSI A117.1 "Accessibility Guidelines for Buildings and Facilities."
4. Provide blocking in drywall partitions where wall stops or other wall mounted hardware is located.

C. Retrofitting: Install door hardware to comply with manufacturer's published templates and written instructions. Where cutting and fitting are required to install door hardware onto or into surfaces that are later to be painted or finished in another way, coordinate removal, storage, and reinstallation of surface protective trim units with finishing work specified in Division 9 Sections. Do not install surface-mounted items until finishes have been completed on substrates involved.

D. Thresholds: Set thresholds for exterior and acoustical doors in full bed of sealant complying with requirements specified in Division 7 Section "Joint Sealants."

E. Storage: Provide a secure lock up for hardware delivered to the project but not yet installed. Control the handling and installation of hardware items so that the completion of the work will not be delayed by hardware losses before and after installation.

3.4 FIELD QUALITY CONTROL

A. Field Inspection (Punch Report): Reference Division 01 Sections “Closeout Procedures”. Produce project punch report for each installed door opening indicating compliance with approved submittals and verification hardware is properly installed, operating and adjusted. Include list of items to be completed and corrected, indicating the reasons or deficiencies causing the Work to be incomplete or rejected.

1. Organization of List: Include separate Door Opening and Deficiencies and Corrective Action Lists organized by Mark, Opening Remarks and Comments, and related Opening Images and Video Recordings.
2. Submit documentation of incomplete items in the following formats:
    a. PDF electronic file.
    b. Electronic formatted file integrated with the Openings Studio™ door opening management software platform.

3.5 ADJUSTING

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

3.6 CLEANING AND PROTECTION

A. Protect all hardware stored on construction site in a covered and dry place. Protect exposed hardware installed on doors during the construction phase. Install any and all hardware at the latest possible time frame.

B. Clean adjacent surfaces soiled by door hardware installation.

C. Clean operating items as necessary to restore proper finish. Provide final protection and maintain conditions that ensure door hardware is without damage or deterioration at time of owner occupancy.

3.7 DEMONSTRATION

A. Instruct Owner's maintenance personnel to adjust, operate, and maintain mechanical and electromechanical door hardware.

3.8 DOOR HARDWARE SETS

A. The hardware sets represent the design intent and direction of the owner and architect. They are a guideline only and should not be considered a detailed hardware schedule. Discrepancies, conflicting hardware and missing items should be brought to the attention of the architect with corrections made prior to the bidding process. Omitted items not included in a hardware set should be scheduled with the appropriate additional hardware required for proper application and functionality.
   1. Quantities listed are for each pair of doors, or for each single door.
   2. The supplier is responsible for handing and sizing all products.
   3. Where multiple options for a piece of hardware are given in a single line item, the supplier shall provide the appropriate application for the opening.
   4. At existing openings with new hardware the supplier shall field inspect existing conditions prior to the submittal stage to verify the specified hardware will work as required. Provide alternate solutions and proposals as needed.

B. Manufacturer’s Abbreviations:
   1. MK - McKinney
   2. PE - Pemko
   3. SU - Securitron
   4. SA - SARGENT
   5. HS - HES
   6. RO - Rockwood
   7. RF - Rixson
   8. NO - Norton
   9. OT - Other

Hardware Sets

Set: 1.0

Doors: 100

1	Continuous Hinge	CFM__SLF-HD1 PT - DOOR HEIGHT		PE
1	Electric Power Transfer	EL-CEPT		SU
1	Rim Exit Device, Storeroom	DG164 16 55 56 AD8504 862	US32D	SA
2	Cylinder Core	DG1 6300	US15	SA

1	Conc Overhead Stop	6-X36	630	RF
1	Door Closer	J7500	689	NO
1	Threshold	279x224AFGT MSES25SS		PE
1	Rain Guard	346C		PE
1	Sweep (w/drip edge)	3452CNB		PE
1	Frame Harness	QC-C1500P		MK
1	Door Harness	QC-C___ - LENGTH TO SUIT		MK
1	Card Reader (CR)	BY SECURITY		OT
1	Door Position Switch	DPS-M-BK		SU
1	Power Supply	AQL4-R8E1		SU

Notes: Perimeter/meeting stile seals by frame/door supplier.
Electronic Operation: Valid card, release signal from intercom or key retracts latchbolt. Free egress at all times. In case of power loss, door remains locked and latched.

Set: 2.0

Doors: 108

1	Storeroom Lock	DG164 28 10G04 LL	US26D	SA
1	Cylinder Core	DG1 6300	US15	SA

Notes: Balance of existing hardware to remain.
Coordinate new hardware requirements with existing conditions.

Set: 3.0

Doors: 110, 111

1	Classroom Security Lock	DG160 28 10G38 LL	US26D	SA
2	Cylinder Core	DG1 6300	US15	SA
1	Door Closer	R7500 (or) PR7500	689	NO
1	Kick Plate	K1050 10" CSK BEV	US32D	RO

Notes: Balance of existing hardware to remain.
Coordinate new hardware requirements with existing conditions.

Set: 4.0

Doors: 109

1	Classroom Security Lock	DG160 28 10G38 LL	US26D	SA
2	Cylinder Core	DG1 6300	US15	SA
1	Door Closer	CLP7500	689	NO

1	Kick Plate	K1050 10" CSK BEV	US32D	RO

Notes: Balance of existing hardware to remain.
Coordinate new hardware requirements with existing conditions.

Set: 5.0

Doors: 112

1	Classroom Security Lock	DG160 28 10G38 LL	US26D	SA
2	Cylinder Core	DG1 6300	US15	SA
1	Door Closer	2800ST	689	NO
1	Kick Plate	K1050 10" CSK BEV	US32D	RO

Notes: Balance of existing hardware to remain.
Coordinate new hardware requirements with existing conditions.

Set: 6.0

Doors: 101

1	Continuous Hinge	CFM__SLF-HD1 - DOOR HEIGHT		PE
1	Push Bar & Pull	BF15847 T1HD T5	US32D	RO
1	Door Closer	J7500	689	NO
1	Door Stop (wall / floor)	403 (or) 441CU	US26D	RO

Notes: Perimeter/meeting stile seals by frame/door supplier.

Set: 7.0

Doors: 105

3	Hinge, Full Mortise	TA2714	US26D	MK
1	Storeroom Lock	DG164 28 10G04 LL	US26D	SA
1	Cylinder Core	DG1 6300	US15	SA
1	Door Stop (wall / floor)	403 (or) 441CU	US26D	RO
3	Silencer	608 (or) 609		RO

Set: 8.0

Doors: 106, 107

3	Hinge, Full Mortise	TA2714	US26D	MK
1	Classroom Security Lock	DG160 28 10G38 LL	US26D	SA

2	Cylinder Core	DG1 6300	US15	SA
1	Door Stop (wall / floor)	403 (or) 441CU	US26D	RO
1	Gasketing (head/jamb)	S88BL		PE

Set: 9.0

Doors: 103

3	Hinge (heavy weight)	T4A3786	US26D	MK
1	Storeroom Lock	DG164 28 10G04 LL	US26D	SA
1	Cylinder Core	DG1 6300	US15	SA
1	Bridge Rectifier	2005M3		HS
1	Electric Strike	1500C	630	HS
1	Door Closer	R7500 (or) PR7500	689	NO
1	Kick Plate	K1050 10" CSK BEV	US32D	RO
1	Door Stop (wall / floor)	403 (or) 441CU	US26D	RO
3	Silencer	608 (or) 609		RO
1	Card Reader (CR)	BY SECURITY		OT
1	Push Button	PB3ER		SU
1	Door Position Switch	DPS-M-BK		SU
1	Motion Sensor (REX)	XMS		SU
1	Power Supply	AQL4-R8E1		SU

Notes: Locate remote release with architect in the field.
Electronic Operation: Valid card releases or remote release button electric strike or key retracts latchbolt. Free egress at all times. In case of power loss, door remains locked and latched.

Set: 10.0

Doors: 102, 104

3	Hinge (heavy weight)	T4A3786	US26D	MK
1	Electric Power Transfer	EL-CEPT		SU
1	Card Reader Lock	DG164 28 SN200-10G271-24V-0E LL	US26D	SA
1	Cylinder Core	DG1 6300	US15	SA
1	Door Closer	R7500 (or) PR7500	689	NO
1	Kick Plate	K1050 10" CSK BEV	US32D	RO
1	Gasketing (head/jamb)	S88BL		PE
1	Frame Harness	QC-C1500P		MK
1	Door Harness	QC-C___ - LENGTH TO SUIT		MK
1	Push Button	PB3ER		SU
1	Door Position Switch	DPS-M-BK		SU

1	Power Supply	AQL4-R8E1	SU

Notes: Electronic Operation: Valid card or remote release signal unlocks outside lever; key retracts latchbolt. Free egress at all times. In case of power loss, door remains locked and latched.

END OF SECTION 087100

GENERAL STRUCTURAL NOTES

1. THESE STRUCTURAL DRAWINGS ARE TO BE USED IN CONJUNCTION WITH ALL OTHER DRAWINGS, SPECIFICATIONS & CONTRACT DOCUMENTS.
2. THE DESIGN, CONSTRUCTION, QUALITY CONTROL AND SAFETY OF ALL WORK PERFORMED ON THE PROJECT SHALL CONFORM TO THE REFERENCED CODES AND STANDARDS, INCLUDING ALL SPECIFICATIONS REFERENCED WITH THE LATEST EDITIONS SHALL APPLY UNLESS NOTED.
3. BUILDING CODE: INTERNATIONAL BUILDING CODE - 2015, INTERNATIONAL EXISTING BUILDING CODE - 2015
4. DEAD LOADS:

ROOFS:	30 PSF
CORRIDORS:	60 PSF
LOBBY:	60 PSF
OFFICE:	60 PSF
CLASSROOM:	60 PSF
MISC. MECH/ELEC:	5 PSF

5. DESIGN LIVE LOADS: (NO LIVE LOAD REDUCTIONS - SNOW DRIFT LOADS CONSIDERED WHERE APPLICABLE)

ROOFS:	25 PSF
CORRIDORS:	80 PSF
LOBBY/PUBLIC AREA:	100 PSF
OFFICE:	50 PSF
CLASSROOM:	40 PSF

6. ALL INFORMATION OF EXISTING CONSTRUCTION, INCLUDING CONSTRUCTION COMPOSITION AND DIMENSIONS, WAS TAKEN FROM OWNER FURNISHED DRAWINGS OF PAST CONSTRUCTION AND SHALL BE FIELD VERIFIED. DEVIATIONS FROM THOSE SHOWN SHALL BE FURNISHED TO THE ARCHITECT AND ENGINEER.
7. SHOP DRAWINGS, TEST REPORTS, AND CERTIFICATIONS ARE REQUIRED FOR THE FOLLOWING STRUCTURAL ITEMS:
   A. CONCRETE MIX DESIGNS
   B. CONCRETE CYLINDER TESTS
   C. GROUT MIX DESIGNS
   D. REINFORCING STEEL SHOP DRAWINGS
   E. MISCELLANEOUS AND STRUCTURAL STEEL SHOP DRAWINGS
   F. SHORING DESIGN DOCUMENTS , PREPARED AND SEALED BY WV PE.
   G. CONCRETE MASONRY UNIT CERTIFICATION AND DATA
   H. MORTAR CERTIFICATION AND DATA
   I. WALL REINFORCING DATA
8. CONSTRUCTION METHODS, PROCEDURES, AND SEQUENCES ARE THE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR SHALL TAKE ALL NECESSARY MEANS TO MAINTAIN AND PROTECT THE STRUCTURAL INTEGRITY OF ALL CONSTRUCTION AT ALL STAGES.
9. COORDINATION WITH THE ARCHITECTURAL, MECHANICAL, PLUMBING AND ELECTRICAL DRAWINGS TO VERIFY THE LOCATIONS AND SIZES OF ALL CHASES, INSERTS, OPENINGS, SLEEVES, FINISHES, DEPRESSIONS, AND OTHER PROJECT REQUIREMENTS ARE THE CONTRACTOR'S RESPONSIBILITY. ALL REQUIRED OPENINGS, SLEEVES, OR OTHER COMPONENTS MAY NOT BE SHOWN ON THE STRUCTURAL DRAWINGS.
10. IMPOSED CONSTRUCTION LOADS, INCLUDING CRANE LOADS, IN EXCESS OF THE STATED DESIGN LOADS MUST BE SUBMITTED TO THE ENGINEER FOR REVIEW PRIOR TO THE IMPOSITION OF SUCH LOADS.
11. IMPLEMENTING JOB SITE SAFETY AND CONSTRUCTION PROCEDURES ARE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
12. IN CASE OF CONFLICT BETWEEN THE GENERAL NOTES, DETAILS AND SPECIFICATIONS, THE MOST RIGID REQUIREMENTS SHALL GOVERN.

GENERAL FOUNDATION/GEOTECHNICAL NOTES

1. THE DRILLED PIER FOUNDATION SYSTEM WAS PREVIOUSLY DESIGNED TO BEAR APPROXIMATELY 3 FEET IN ROCK PER THE ORIGINAL GEOTECHNICAL REPORT.
2. MINIMUM BEARING FOR DRILLED PIER FOUNDATIONS IS 20 KSF

STRUCTURAL STEEL

1. ALL MATERIALS AND WORKMANSHIP SHALL COMPLY WITH THE REQUIREMENTS OF THE FOLLOWING CODES AND STANDARDS:
   "MANUAL OF STEEL CONSTRUCTION - AISC 360-10 FOURTEENTH EDITION, 2011, AMERICAN INSTITUTE OF STEEL CONSTRUCTION (INCLUDING SPECIFICATIONS FOR STRUCTURAL STEEL BUILDINGS, SPECIFICATIONS FOR STRUCTURAL JOINTS USING ASTM A325 OR A490 BOLTS, AND AISC CODE OF STANDARD PRACTICE).
   "DETAILING FOR STEEL CONSTRUCTION" AISC 326-09, AMERICAN INSTITUTE OF STEEL CONSTRUCTION.
   "STRUCTURAL WELDING CODE ANSI/AWS D1.1/D1.1M", AMERICAN WELDING SOCIETY.

W SHAPES	ASTM A992
PLATES & OTHER SHAPES	ASTM A36
STRUCTURAL TUBING	ASTM A500, GRADE B, Fy = 46 ksi
STRUCTURAL PIPE	ASTM A53, GRADE B, Fy=35 KSI OR ASTM A501, Fy=36 KSI
HIGH-STRENGTH BOLTS	ASTM A325-N
ANCHOR RODS	ASTM F1554
THREADED ROD	ASTM A36
HEADED SHEAR STUDS	ASTM A108
WELDING ELECTRODES	AWS A5.1 OR A5.5 E70XX
ADHESIVE ANCHORS	HILTI HIT HY200 SYSTEM, ITW RAMSET/REDHEAD EPCON SYSTEM OR APPROVED EQUAL, U.N.O., INSTALLED PER MANUFACTURER'S WRITTEN INSTRUCTIONS.

2. ALL SHOP AND FIELD CONNECTIONS SHALL BE MADE WITH HIGH STRENGTH BOLTS OR WELDS. ALL BOLTS AND NUTS SHALL BE CLEARLY MARKED AS REQUIRED BY AISC SPECIFICATIONS. ALL CONNECTIONS MADE WITH UNMARKED NUTS AND BOLTS WILL BE REJECTED. ALL BOLTED CONNECTIONS SHALL HAVE A MINIMUM OF 2 BOLTS.
3. ALL CONNECTIONS SHALL CONFORM TO AISC REQUIREMENTS AND SHALL BE DESIGNED FOR 100% OF THE MAXIMUM WEB SHEAR INDICATED IN THE AISC MANUAL OF STEEL CONSTRUCTION AISC 325-11 14TH EDITION "MAXIMUM TOTAL UNIFORM LOADS ON BEAMS", PAGES 3-35 TO 3-97.
4. ALL STEEL AT AND BELOW FINISHED GRADE OR FLOOR SLAB SHALL RECEIVE TWO COATS OF BITUMINOUS PAINT OR 3" MINIMUM CONCRETE COVER.
5. THE GENERAL CONTRACTOR SHALL NOTIFY THE STRUCTURAL ENGINEER OF ANY FABRICATION OR ERECTION ERRORS OR DEVIATIONS AND RECEIVE WRITTEN APPROVAL BEFORE ANY FIELD CORRECTIONS ARE MADE.
6. THE FRAMING SHOWN ON THE COMPLETED DRAWINGS HAS BEEN DESIGNED FOR THE LOADS INDICATED ON THE DRAWINGS. THE FABRICATOR AND ERECTOR ARE SOLELY RESPONSIBLE FOR THE DESIGN OF TEMPORARY BRACING AND RECOMMENDED ERECTION PROCEDURES.
7. CUTTING OR BURNING OF STRUCTURAL STEEL IN THE FIELD IS NOT ALLOWED, UNLESS BY WRITTEN APPROVAL BY ENGINEER.
8. ONE SHOP COAT OF PAINT SHALL BE APPLIED TO ALL STRUCTURAL MEMBERS EXCEPT:
   A. MEMBERS ENCASED IN CONCRETE.
   B. MEMBERS RECEIVING SPRAY FIREPROOFING.
   C. SURFACES TO BE FIELD WELDED.
   D. GALVANIZED SURFACES.
9. THE STEEL FABRICATOR SHALL DESIGN ALL STEEL TO STEEL CONNECTIONS NOT SHOWN ON THE DRAWINGS.
10. FOR MISCELLANEOUS STEEL NOT SHOWN ON THESE DRAWINGS, SEE ARCHITECTURAL AND OTHER ENGINEERING DRAWINGS.
11. CONTRACTOR AND ERECTOR ARE RESPONSIBLE FOR COMPLYING WITH ALL OSHA REGULATIONS.

CAST-IN-PLACE CONCRETE

1. ALL MATERIALS AND WORKMANSHIP SHALL COMPLY WITH THE REQUIREMENTS OF THE FOLLOWING CODES AND STANDARDS:
   "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE, ACI 318-14", AMERICAN CONCRETE INSTITUTE
   "ACI MANUAL OF CONCRETE PRACTICE - PARTS 1 THROUGH 5", LATEST EDITION
   "MANUAL OF STANDARD PRACTICE", CONCRETE REINFORCING STEEL INSTITUTE

CEMENT	ASTM C150: TYPE I OR III
AGGREGATES	ASTM C33 NORMAL WEIGHT
DEFORMED REINFORCING BARS	ASTM A615, GRADE 60
WELDED WIRE FABRIC	ASTM A185
AIR-ENTRAINING ADMIXTURE:	ASTM C260
CONCRETE:	

ACI 318-14 TABLE 19.3.1.1 - EXPOSURE CATEGORIES AND CLASSES

CATEGORY	SEVERITY	CLASS	CONDITION
F FREEZING AND THAWING	NOT APPLICABLE	F0	CONCRETE NOT EXPOSED TO FREEZING - AND-THAWING CYCLES
	MODERATE	F1	CONCRETE EXPOSED TO FREEZING -AND-THAWING CYCLES AND OCCASIONAL EXPOSURE TO MOISTURE
	SEVERE	F2	CONCRETE EXPOSED TO FREEZING -AND-THAWING CYCLES AND IN CONTINUOUS CONTACT WITH MOISTURE
	VERY SEVERE	F3	CONCRETE EXPOSED TO FREEZING -AND-THAWING AND IN CONTINUOUS CONTACT WITH MOISTURE AND EXPOSED TO DEICING CHEMICALS

f'c = 4,000 psi
NON-AIR-ENTRAINED

ACI 318-14 TABLE 19.3.2.1 - REQUIREMENTS FOR CONCRETE BY EXPOSURE CLASS

EXPOSURE CLASS	MAX. W/CM	MIN. f' PSI	ADDITIONAL MINIMUM REQUIREMENTS	
			AIR CONTENT	LIMITS ON CEMENTI-TIOUS MATERIALS
F0	N/A	2500	N/A	N/A
F1	O.45	4500	TABLE 19.3.3.1	N/A
F2	O.45	4500	TABLE 19.3.3.1	N/A
F3	O.45	4500	TABLE 19.3.3.1	TABLE 26.4.2.2(b)

ACI 318-14 TABLE 19.3.3.1 - TOTAL AIR CONTENT FOR CONCRETE EXPOSED TO CYCLES OF FREEZING AND THAWING

NOMINAL MAXIMUM AGGREGATE SIZE, IN.*	AIR CONTENT, PERCENT	
	EXPOSURE CLASS F1	EXPOSURE CLASSES F2 AND F3
3/8	6	7.5
1/2	5.5	7
3/4	5	6
1	4.5	6
1-1/2	4.5	5.5
2"	4	5
3"	3.5	4.5

*SEE ASTM C33 FOR TOLERANCE ON OVERSIZE FOR VARIOUS NOMINAL MAXIMUM SIZE DESIGNATIONS.
AIR CONTENTS APPLY TO TOTAL MIXTURE. WHEN TESTING CONCRETES, HOWEVER, AGGREGATE PARTICLES LARGER THAN 1-1/2 IN. ARE REMOVED BY SIEVING AND AIR CONTENT IS MEASURED ON THE SIEVED FRACTION (TOLERANCE ON AIR CONTENT AS DELIVERED APPLIES TO THIS VALUE). AIR CONTENT OF TOTAL MIXTURE IS COMPUTED FROM VALUE MEASURED ON THE SIEVED FRACTION PASSING THE 1-1/2 IN. SIEVE IN ACCORDANCE WITH ASTM C231.

ACI 318-14 TABLE 26.4.2.2(b) - REQUIREMENTS FOR CONCRETE SUBJECT TO EXPOSURE CLASS F3

CEMENTITIOUS MATERIALS	MAXIMUM PERCENT OF TOTAL CEMENTITIOUS MATERIALS BY WEIGHT*
FLY ASH OR OTHER POZZOLANS CONFORMING TO ASTM C618	25
SLAG CONFORMING TO ASTM C989	50
SILICA FUME CONFORMING TO ASTM C1240	10
TOTAL OF FLY ASH OR OTHER POZZOLANS, SLAG AND SILICA FUME	50 [I]
TOTAL OF FLY ASH OR OTHER POZZOLANS AND SILICA FUME	35 [I]

*THE TOTAL CEMENTITIOUS MATERIAL ALSO INCLUDES ASTM C150, C595, C845, AND C1157 CEMENT.
THE MAXIMUM PERCENTAGES ABOVE SHALL INCLUDE:
(a) FLY ASH OR OTHER POZZOLANS IN TYPE IP, BLENDED CEMENT, ASTM C595, OR ASTM C1157,
(b) SLAG USED IN THE MANUFACTURE OF AN IS BLENDED CEMENT, ASTM C595, OR ASTM C1157,
(c) SILICA FUME, ASTM C1240, PRESENT IN A BLENDED CEMENT.
FLY ASH OR OTHER POZZOLANS AND SILICA FUME SHALL CONSTITUTE NO MORE THAN 25 AND 10 PERCENT, RESPECTIVELY, OF THE TOTAL WEIGHT OF THE CEMENTITIOUS MATERIALS.

2. SLABS-ON-GRADE SHALL BE PLACED ON A VAPOR BARRIER OVER 4" MINIMUM OF WELL GRADED CRUSHED STONE OVER COMPACTED SUBGRADE.
3. IN SLABS-ON-GRADE, LAP WELDED WIRE FABRIC TWO FULL MESH PANELS AND WIRE TOGETHER.
4. CHAMFER ALL EXPOSED CONCRETE CORNERS UNLESS SHOWN ON THE ARCHITECTURAL DRAWINGS.
5. ALL FORM WORK, SHORING AND RESHORING SHALL BE DESIGNED BY THE CONTRACTOR'S ENGINEER REGISTERED IN THE PROJECT'S JURISDICTION.
6. PROVIDE ISOLATION JOINTS IN SLABS AS FOLLOWS;
   BETWEEN SLABS-ON-GRADE AND FOUNDATION WALLS
   BETWEEN SLABS AND INSERTS SUCH AS PIPES.
   AROUND STEEL COLUMNS AT SPREAD FOOTINGS.

MASONRY

1. ALL MATERIALS AND WORKMANSHIP SHALL COMPLY WITH THE REQUIREMENTS OF THE FOLLOWING CODES AND STANDARDS:
   "BUILDING CODE REQUIREMENTS AND SPECIFICATION FOR MASONRY STRUCTURES", (ACI 530-13/ASCE 5-13/TMS 402-13) AND "SPECIFICATION FOR MASONRY STRUCTURES", (ACI 530. 1-13/ASCE 6-13/TMS 602-13).

LOAD BEARING CONCRETE MASONRY UNITS	ASTM C90, TYPE I, GRADE N (MIN. COMPRESSIVE STRENGTH ON NET AREA = 1900 PSI) NORMAL WEIGHT
NON-LOAD BEARING CONCRETE MASONRY UNITS	ASTM C129, TYPE II
MORTAR	ASTM C270, TYPE S ABOVE GRADE: TYPE S BELOW GRADE
CONCRETE BUILDING BRICK	ASTM C55, GRADE N (MIN. COMPRESSIVE STRENGTH ON NET AREA = 3500 PSI)
CMU GROUT	ASTM C476, (MIN. COMPRESSIVE STRENGTH AT 28 DAYS = 2000 PSI)
CMU PRISM STRENGTH	F'm = 1500 PSI PER ACI 530/ASCE 5/TMS 402 UNIT STRENGTH METHOD
HORIZONTAL JOINT REINFORCING	ASTM A82, 9 GA. GALVANIZED TRUSS TYPE U.N.O.
REINFORCING BARS	ASTM A615, GRADE 60

2. PROVIDE GALVANIZED HORIZONTAL JOINT REINFORCING IN ALL WALLS AT 16" O.C.. PROVIDE ONE-PIECE PREFABRICATED "T" AND "L" SHAPED UNITS AT 8" O.C. AT ALL WALL CORNERS AND INTERSECTIONS.
3. IN GROUTED AND/OR REINFORCED MASONRY WALLS, USE MASONRY UNITS WITH CORES THAT ALIGN VERTICALLY. PROVIDE CONTINUOUS UNOBSTRUCTED CELLS FOR REINFORCEMENT PLACEMENT AND GROUTING.
4. ALL REINFORCING STEEL SHALL BE PLACED AND TIED IN THE PROPER POSITION AS THE WALLS ARE CONSTRUCTED. LOWERING THE BARS IN FROM THE TOP OF A COMPLETED WALL OR SECTION OF WALL IS NOT ALLOWED.
5. LAP SPLICES FOR REINFORCING BARS SHALL BE 50 BAR DIAMETERS UNLESS NOTED OTHERWISE.
6. CONTRACTOR SHALL PROVIDE BRACING AND SUPPORT FOR ALL MASONRY WORK UNTIL PERMANENT ROOF FRAMING IS IN PLACE.
7. DO NOT APPLY UNIFORM FLOOR OR ROOF LOADS FOR AT LEAST 12 HOURS AND CONCENTRATED LOADS FOR AT LEAST 3 DAYS AFTER BUILDING MASONRY WALLS OR COLUMNS.
8. PROVIDE VERTICAL MASONRY CONTROL JOINTS AT APPROXIMATELY 20'-0" O.C., AND IN ACCORDANCE WITH RECOMMENDATIONS IN THE MASONRY DESIGNER'S GUIDE. REFER TO ARCHITECTURAL PLANS FOR LOCATIONS, OR IF NOT SHOWN, COORDINATE LOCATIONS WITH THE ARCHITECT.
9. WATERPROOFING OF THE FOUNDATION WALLS SHALL BE IN ACCORDANCE WITH ARCHITECTURAL DWG.'S AND OR SPECIFICATIONS.

CAROL A. STEVENS REGISTERED 11291 STATE OF WEST VIRGINIA PROFESSIONAL ENGINEER
6/27/21

NO.	BY	DATE	DESCRIPTION

SCALE: 12" = 1'-0"
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PHASE No.
CONTRACT No.
PROJECT No. 060-0989

STRUCTURAL NOTES
GEARY ELEMENTARY/ MIDDLE SCHOOL
ROANE COUNTY SCHOOLS
MAY 12, 2021
CONSTRUCTION DOCUMENTS

SHEET No. S1.01

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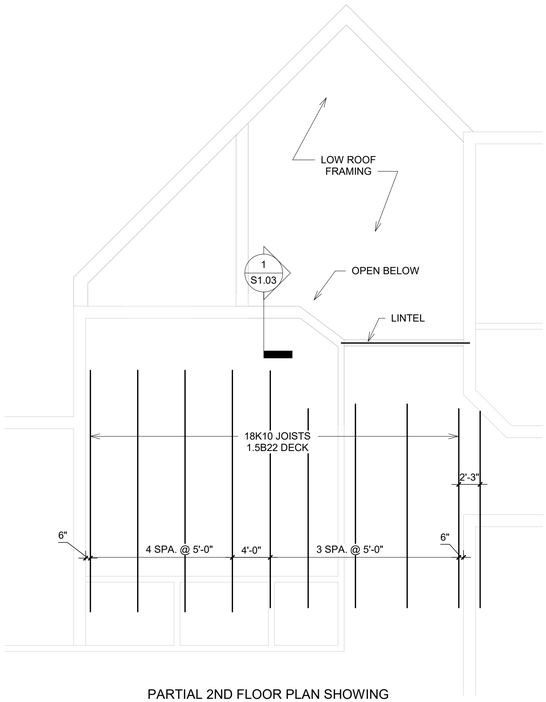
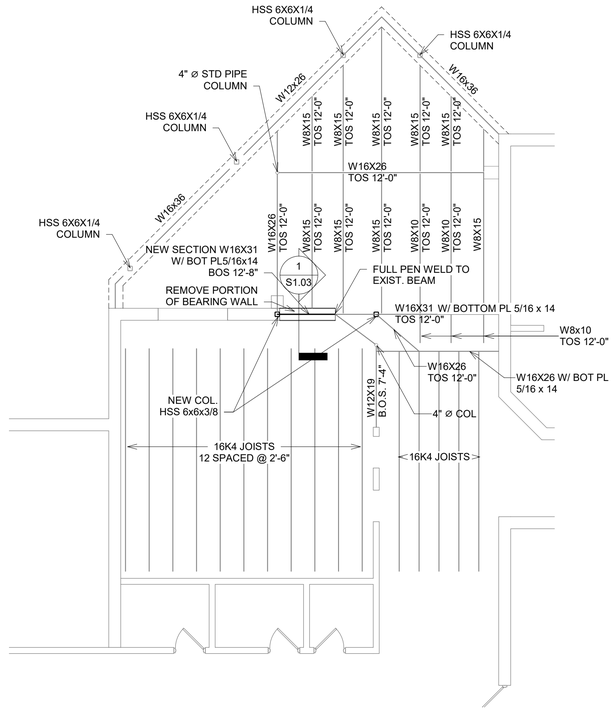
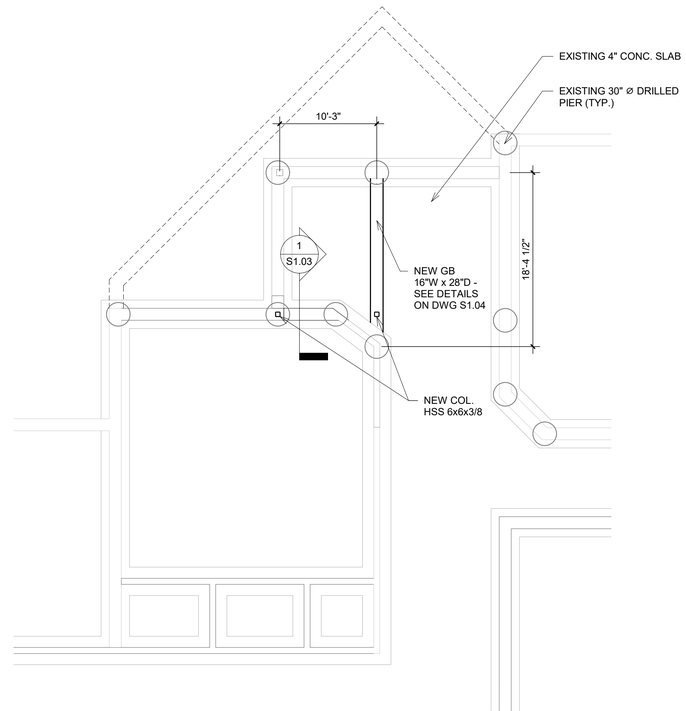


3 PARTIAL 2ND FLOOR PLAN SHOWING ROOF FRAMING PLAN
1/8" = 1'-0"



2 PARTIAL 1ST FLOOR PLAN SHOWING 2ND FLOOR/LOW ROOF FRAMING PLAN
1/8" = 1'-0"

NOTES: 1. FIELD LOCATE EXISTING W16x31



1 PARTIAL ENLARGED FOUNDATION PLAN
1/8" = 1'-0"

NOTES:
1. ALL EXISTING GRADE BEAMS ARE 24"W x 28"D.
2. COORDINATE EXACT LOCATION OF EXISTING DRILLED PIERS WITH LOCATION OF NEW GRADE BEAM. NOTIFY ARCHITECT OF ANY DISCREPANCIES.

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STRUCTURAL PLANS
GEARY ELEMENTARY/ MIDDLE SCHOOL
ROANE COUNTY SCHOOLS
MAY 12, 2021
CONSTRUCTION DOCUMENTS

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LAYOUT TAB: STRUCTURAL PLANS
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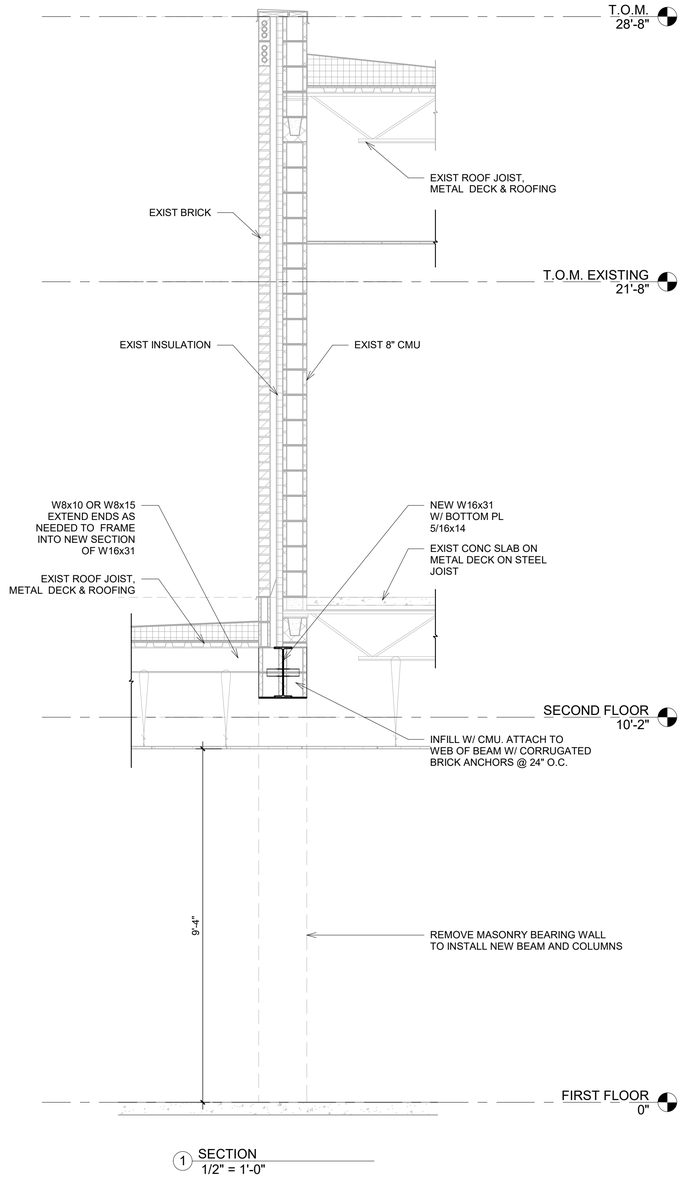

1 SECTION
1/2" = 1'-0"

NOTES:
1. SHORE EXISTING FRAMING PRIOR TO REMOVING BEARING WALL. SHORING DESIGN SHALL BE BY WV PE.
2. ALIGN NEW W16 WITH EXISTING.
3. FULL PENETRATION WELD NEW W16 & PLATE TO EXISTING. WELD SHALL BE INSPECTED BY CERTIFIED WELD INSPECTOR PRIOR TO REMOVING SHORING.

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LAYOUT TAB: STRUCTURAL WALL SECTION
CAD FILE: K:\060\0989\SHEETS\SCHOOL ENTRANCES\ROANE COUNTY SCHOOLS\Drawing\Revit2021 Project\GEARY ES-ME SCHOOL ENTRANCE.rvt
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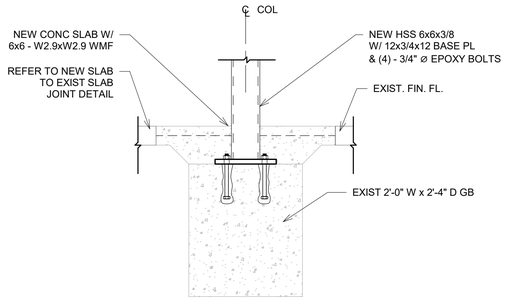
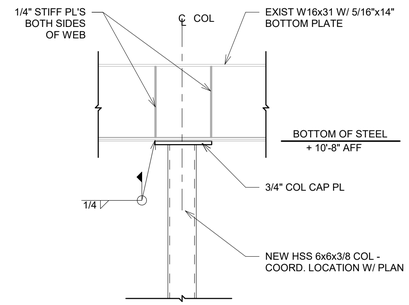
STRUCTURAL WALL SECTION
GEARY ELEMENTARY/ MIDDLE SCHOOL
ROANE COUNTY SCHOOLS
MAY 12, 2021
CONSTRUCTION DOCUMENTS

SHEET No.
S1.03

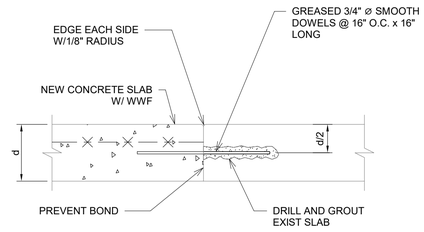


5 NEW COLUMN BASE @ EXIST GB
3/4" = 1'-0"

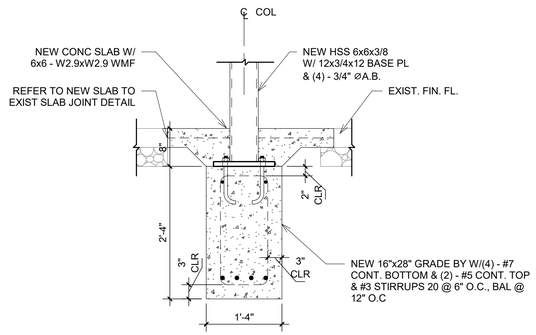
NOTES: 1. REMOVE PORTION OF SLAB AS REQUIRED TO INSTALL NEW COLUMN & BASE PLATE.
2. IF GB SURFACE IS NOT SMOOTH, INSTALL NON-SHRINK GROUT BELOW BASE PLATE.



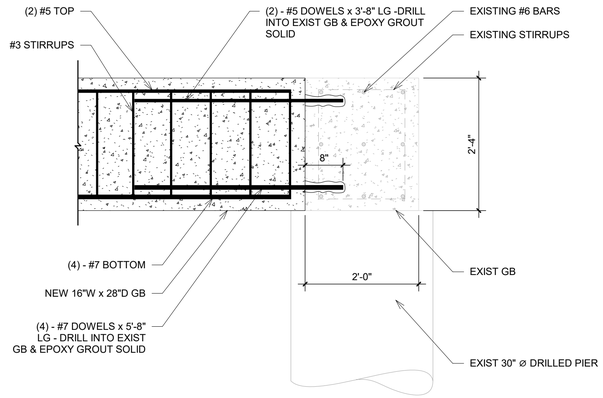
4 NEW COL TO EXIST BM DETAIL
3/4" = 1'-0"



3 NEW SLAB TO EXIST SLAB JOINT DETAIL
NTS



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



1 NEW TO EXIST GB DETAIL
3/4" = 1'-0"

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S1.04

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