DESIGN & CONSTRUCTION GROUP
THE GOVERNOR NELSON A. ROCKEFELLER
EMPIRE STATE PLAZA
ALBANY, NY 12242

ADDENDUM NO. 1 TO PROJECT NO. 46123

CONSTRUCTION, HVAC, PLUMBING AND ELECTRICAL WORK
PROVIDE ELEVATOR ADDITION & MODERINZE EXISTING ELEVATOR
NYS ACADEMY OF FIRE SCIENCE
600 COLLEGE AVE
MONTOUR FALLS, NY 14865-9634

July 1, 2024

NOTE: This Addendum forms a part of the Contract Documents. Insert it in the Project Manual. Acknowledge receipt of this Addendum in the space provided on the Bid Form.

PLUMBING WORK

1. 211313 SPRINKLER SYSTEMS: Discard the Section bound in the Project Manual and substitute the accompanying Section (pages 211313-1 thru 211313-12) noted "Revised 06/24/2024"

2. 220523 VALVES: Discard the Section bound in the Project Manual and substitute the accompanying Section (pages 220523-1 thru 220523-3) noted "Revised 06/25/2024"

3. 220576 DRAINAGE ACCESSORIES: Discard the Section bound in the Project Manual and substitute the accompanying Section (pages 220576-1 thru 220576-3) noted "Revised 06/25/2024"

4. 221119 WATER SUPPLY ACCESSORIES: Discard the Section bound in the Project Manual and substitute the accompanying Section (pages 221119-1 thru 221119-7) noted "Revised 06/25/2024"

5. 221426 ROOF DRAINS: Discard the Section bound in the Project Manual and substitute the accompanying Section (pages 221426-1 thru 221426-4) noted "Revised 06/25/2024"

6. 221429 SUMP PUMPS, SUBMERSIBLE: Discard the Section bound in the Project Manual and substitute the accompanying Section (pages 221429-1 thru 221429-5) noted "Revised 06/25/2024"

ELECTRICAL WORK

7. 260531 EXPOSED CONDUIT- WET LOCATIONS: Discard the Section bound in the Project Manual and substitute the accompanying Section (pages 260531-1 thru 260531-5) noted "Revised 06/25/2024"

CONSTRUCTION WORK DRAWINGS

8. Revised Drawings:
   a. Drawing Nos. S-002, S-007, S-106, A-120, A-202, A-520, A-710, and A-810, noted "June 25, 2024 – Addendum #1" accompany this Addendum and supersede the same numbered originally issued drawings.

HVAC WORK DRAWINGS

9. Revised Drawing:
   a. Drawing No. M-001, noted "June 25, 2024 – Addendum #1" accompanies this Addendum and supersedes the same numbered originally issued drawing.

END OF ADDENDUM

Brady M. Sherlock, P.E.
Director, Division of Design
Design & Construction

SECTION 211313

SPRINKLER SYSTEMS

PART 1 GENERAL

1.01 RELATED WORK SPECIFIED ELSEWHERE

A. Painting: Section 099103.

B. Hangers and Supports: Section 210529.

C. Sprinkler Piping: Section 211300.

1.02 REFERENCES

A. NFPA 13 - National Fire Protection Association Standard for the Installation of Sprinkler Systems.

1.03 SYSTEM DESCRIPTION

A. Type of System:
   1. Wet System – Hydraulically Designed System

B. Occupancy Classification:
   1. Light Hazard Occupancy.
   2. Ordinary Hazard Occupancy.

1.04 SUBMITTALS

A. Shop Drawings:

   1. Complete sprinkler system layout indicating the locations of sprinkler heads, devices, and accessories. Include separate details of special or not easily visualized piping arrangements and inspector's test valves and connections.
   2. Hydraulic calculations shall be complete and cross referenced to the appropriate drawing sheets.

B. Product Data: Catalog sheets, specifications, and installation instructions. Indicate UL or FM approval for each product. Include the following additional information:
   1. Electrical Devices: Complete description of intended use, wiring diagrams, data plate information and, in the case of switching devices, whether normally on, or normally off. Include motor test data.
   2. Mechanical Devices: Complete description of intended use, including normal operating capacities and working pressures.
   3. Enclosures: Dimensions, materials, gages of metals; type of door hinges and locks, and methods of securing the enclosure members to the building construction.

4. Hose Threads: Verify that hose threads on fire department connections match threads on equipment used by the local or servicing fire department.

C. Quality Control Submittals:
1. Design Data: The portions of the sprinkler system not sized on the Contract Drawings shall be sized in accordance with NFPA requirements for Hydraulically Designed Systems. Submit drawings and hydraulic calculations for approval.
2. Certificates: As required under Quality Assurance Article.
3. Installers Qualification Data:
   a. Name of each person who will be performing the Work.
   b. Upon request, furnish names and addresses of the required number of similar projects that each person has worked on which meet the experience criteria.

D. Contract Closeout Submittals:
1. Operation and Maintenance Data. Deliver 2 copies to the Director's Representative:
   a. Instruction manual describing the operation and maintenance of the system.
   b. Parts list for each mechanical and electrical device.
   c. Publication NFPA 25, Inspection, Testing, and Maintenance of Water Based Fire Protection Systems.

1.05 QUALITY ASSURANCE

A. Qualifications: The persons employed to perform the Work of this Section and their supervisor shall be personally experienced in sprinkler work and shall have been regularly performing such work for a minimum of 5 years while in the employ of a company or companies engaged in the installation of sprinkler systems.
1. Upon request, furnish to the Director the names and addresses of five similar projects which the foregoing people have worked on during the past 3 years.

B. Regulatory Requirements:
1. Materials for the Work of this Section shall be Underwriter's Laboratories listed, and/or Factory Mutual approved.

C. Certification: NFPA Contractor's Material and Test Certificate.

1.06 MAINTENANCE

A. Spare Parts: Furnish the following items and deliver to the Director's Representative for storage in spare sprinkler head cabinets:

1. Spare sprinkler heads of required temperature range as follows:

QUANTITY	TYPE

QUANTITY	TYPE
6	standard upright
6	standard pendent
6	sidewall horizontal

2. One sprinkler head wrench to fit each type sprinkler head listed above.

PART 2 PRODUCTS

2.01 VALVES AND ACCESSORIES

A. Gate Valves (175 psig non-shock working pressure):
   1. 3/4 inch to 2 inch: Bronze body, OS & Y indicating type; double or wedge disc with threaded ends.
   2. 2-1/2 inch and larger: IBBM, OS & Y indicating type; double or wedge disc with end connections as required to suit the piping system.
   3. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
      a. Milwaukee Valve Company.
      b. NIBCO INC.
      c. United Brass Works, Inc.
      d. Zurn Industries, LLC.
   4. Description:
      a. Standard: UL 262 and FM Global standard for fire-service water control valves (OS&Y- and NRS-type gate valves).
      b. Minimum Pressure Rating: 175 psig.
      c. Body and Bonnet Material: Bronze or brass.
      d. Wedge: One-piece bronze or brass.
      e. Wedge Seat: Bronze.
      f. Stem: Bronze or brass.
      g. Packing: Non-asbestos PTFE.
      h. Supervisory Switch: External.
      i. End Connections: Threaded

B. Inspector's Test Outlet Valve: Ball type, bronze body, Type 316 stainless steel ball and stem, teflon seats and stem packing, 400 psi WOG. Valve shall have padlocking feature in both the open and closed position.

C. Valve Locking Devices:
   1. Chain: 3/16 inch galvanized steel, welded link.
   2. Padlock: Series 800 by Yale, Eaton Corp., Charlotte, NC: Key all locks alike. Furnish 2 keys for each lock.
   3. Key Tags: 1-1/2 inch dia., brass, stamped with valve number and service.
   4. "S" Hooks: Brass, for securing keys to key tags.

D. Alarm Check Valve:
   1. Two piece cast iron body, bolted and gasketed.

2. Moving parts brass, bronze, or stainless steel with replaceable rubber clapper facing.
3. Right or left hand trimming as required.
4. Suitable for horizontal or vertical installation.
5. Two pressure gages.
6. Main drain tap.
7. Factory finish with corrosion resistant red paint.
8. Trim Package: Angle valve, globe valve, alarm line strainer, orifice restriction, pipe nipples and fittings.

E. Check Valves: IBBM, single clapper swing check with metal to metal or rubber faced checks, suitable for horizontal and vertical installation; end connections as required to suit the piping system; 175 psig non-shock working pressure.

1. Description
   j. Standard: UL 312 and FM Global standard for swing check valves, Class Number 1210
   k. Type: Single swing check.
   l. Body Material: Cast iron, ductile iron or bronze.
   m. Clapper: Bronze, ductile iron or stainless steel with elastomeric seal.
   n. Clapper Seat: Brass, bronze or stainless steel.
   o. Hinge Shaft: Bronze or stainless steel.
   p. Hinge Spring: Stainless steel.
   q. End Connections: Flanged, grooved or threaded.

F. TRIM AND DRAIN VALVES
1. Ball Valves:
   a. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
      1). Apollo Valves; a part of Aalberts Integrated Piping Systems.
      2). Fire Protection Products, Inc.
      3). Fire-End & Croker Corporation.
      4) Legend Valve & Fitting, Inc.
      5) Milwaukee Valve Company.
      6) NIBCO INC.
      7) Potter Roemer LLC; a Division of Morris Group International.
      8) Red-White Valve Corp.
      9) Tyco by Johnson Controls Company.
      10) Victaulic Company.
      11) Watts Water Technologies
      12) Zurn Industries, LLC.
   b. Description:
      1) Pressure Rating: 175 psig.
      2) Body Design: Two piece.
      3) Body Material: Forged brass or bronze.
      4) Port size: Full or standard.
      5) Seats: PTFE.

6) Stem: Bronze or stainless steel.
7) Ball: Chrome-plated brass.
8) Actuator: Hand lever.
9) End Connections for Valves NPS 1 inch through NPS 2-1/2 inches: Threaded ends.
10) End Connections for Valves NPS 2-1/2 inches and larger: Grooved ends.

G. Angle Valves:
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
   a. Fire Protection Products, Inc.
   b. NIBCO INC.
   c. United Brass Works, Inc.
2. Description:
   a. Pressure Rating: 175 psig.
   b. Body Material: Brass or bronze.
   c. Ends: Threaded.
   d. Stem: Bronze.
   e. Disc: Bronze.
   f. Packing: Asbestos free.
   g. Handwheel: Malleable iron or steel.

H. TEST AND DRAIN VALVES
1. Description:
   a. Pressure Rating: 175 psig minimum
   b. Body Material: bronze housing with orifice, sight glass and integral test valve.
   c. Include pressure relief.
   d. Size: Same as connected piping.
   e. Inlet and Outlet: Threaded or grooved.
   f. Locking plate kit to prevent unintentional alarms
   g. Valve Locking Devices: Test and Drain Valves shall have padlocking feature in both the open and closed position.
      1. Padlock: FPPI Break Shackle Locks-#764.40/keyed alike furnished with 2 keys for each lock.
      2. Key Tags: 1-1/2 in. dia., brass, stamped with valve number and service specified in Section 210553.
      3. Fasteners: Brass wire link chain with S-hooks.

I. Pressure Gages: Range of 2 times system working pressure at point where installed. Equip with gage cock and provisions for draining.

J. Flow Detection and Test Assemblies:
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
   a. Reliable Automatic Sprinkler Co., Inc.
   b. Tyco Fire & Building Products LP.
   c. Victaulic Company.
2. Standard: UL's "Fire Protection Equipment Directory" listing or "Approval Guide," published by FM Global, listing.

3. Pressure Rating: 250 psig minimum.
4. Body Material: Cast- or ductile-iron housing with orifice, sight glass, and integral test valve.
5. Size: Same as connected piping.
6. Inlet and Outlet: Grooved or Threaded.
7. Basis of Design: Victaulic Series UTD.

K. Pressure Relief Valve
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
   a. Victaulic Company.
   b. AGF Manufacturing Inc.
   c. Tyco Fire & Building Products LP
   d. Viking Corporation.
2. Standard: UL listed and FM approved.
3. Description: Where relief valves are specified for use in wet-pipe sprinkler systems, per the requirements of NFPA, they shall be specifically listed for such use.
4. Body Material: Shall be of bronze body construction, incorporating stainless steel components.
5. Pressure Rating: Working pressure of 310 psi and shall be factory set for 175 psi and field adjustable to 310 psi.
6. Basis of Design: Victaulic Series ARV

2.02 SPRINKLER HEADS AND APPURTENANCES

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
1. Victaulic Company.
2. Reliable Automatic Sprinkler Co., Inc.
3. Tyco Fire & Building Products LP.
4. Viking Corporation.

B. Refer to ‘Sprinkler Schedule’ on plans for basis of design sprinklers.

C. General Requirements:
1. Standard: UL's "Fire Protection Equipment Directory" listing or "Approval Guide," published by FM Global, listing.
2. Pressure Rating for Automatic Sprinklers: 250 psig minimum.
3. Connections: Connection to the piping system with NPT, BSPT, or Victaulic ‘IGS Innovative Grooved System.’

D. Automatic Sprinklers with Heat-Responsive Element:
1. Early-Suppression, Fast-Response Applications: UL 176.
2. Characteristics: Nominal 1/2-inch orifice with Discharge Coefficient K of 5.6, and for "Ordinary" temperature classification rating unless otherwise indicated or required by application.

E. Sprinkler Finishes:
1. Refer to ‘Sprinkler Schedule’ on plans.

F. Sprinkler Escutcheons: Materials, types, and finishes for the following sprinkler mounting applications. Escutcheons for concealed, flush, and recessed-type sprinklers are specified with sprinklers.
   1. Ceiling Mounting: Chrome-plated steel, one piece, flat, plastic, white factory finish, one piece, flat.
   2. Sidewall Mounting: Chrome-plated steel, plastic, white factory finish, one piece, flat.

G. Sprinkler Guards:
   1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
      a. Victaulic Company.
      b. Reliable Automatic Sprinkler Co., Inc.
      c. Tyco Fire & Building Products LP
      d. Viking Corporation.
   2. Standard: UL 199.
   3. Type: Wire cage with fastening device for attaching to sprinkler.
   4. Head guards shall be UL listed and FM approved for use with the sprinkler in which it is attached.

H. Flexible Sprinkler Fittings:
   1. Manufacturers: Refer to 'Sprinkler Schedule' on plans for basis of design.
   2. Requirements and Applications: Shall be UL listed and FM approved and be used in lieu of rigid pipe offsets or return bends for sprinkler drops. Flexible hose shall consist of a true 1" ID corrugated braided type 304/316 stainless steel.
   3. Listings and Approvals: Listed per UL-2443 and Approved per FM-1637.
   4. UL Pressure Rating and Bend Radius: 175 psi with a 2" minimum bend radius.
   5. FM Pressure Rating and Bend Radius: 200 psi with a 7" minimum bend radius.

I. Pressure Gages: Range of 2 times system working pressure at point where installed. Equip with gage cock and provisions for draining.

J. Inspector's Test Connection: Cast brass, capped, sprinkler line tester fitting; Elkhart Brass Mfg. Co.'s. No. 112, or Seco Mfg., Inc.'s No. 445 or 446.

2.03 SPRINKLER HEADS AND APPURTENANCES

A. Sprinkler Heads: Brass or bronze, with standard 1/2 inch orifice, and deflector:
   1. Upright or Pendent Type: Deflector designed to distribute water downward in a uniform hemispherical spray pattern.
   2. Dry Pendent Type: Designed to prevent water and condensation from being trapped below the drainable system piping.
   3. Flush Pendent Type: All or part of sprinkler body including shank thread mounts above lower plane of finished ceiling.
   4. Sidewall Type: Horizontal or vertical sprinklers with special deflectors designed to discharge most of the water away from nearby wall in a pattern resembling 1/4 of a sphere with a small portion of discharge directed at wall behind sprinkler.

5. Institutional Pendent Type: Star Sprinkler Corporation's (Grunau Co.) Model PH-2, Style A and Style B, 165 degree temperature rating.
   a. Style A: Flat escutcheon (for rooms with recessed lighting).
   b. Style B: Conical escutcheon (for rooms with surface mounted lighting).
6. Markings: Stamp sprinkler type on deflector in addition to NFPA's color code requirements covering temperature classification.
7. Finish:
   a. Concealed: Factory Finish White
   b. Upturned Exposed: Chrome
   c. Horizontal Sidewall: Chrome

B. Escutcheons:
1. Material: Brass
2. Finish: Chrome

C. Spare Sprinkler Head Cabinet: Steel, with hinged cover, constructed of minimum 20 gage material and fitted with 16 gage steel racks designed to hold quantities and types of spare sprinkler heads and sprinkler head wrenches.
1. Finish: Bright red, baked on enamel.

2.04 WATER FLOW ALARM DEVICE

A. Vane Type Waterflow Switch: Autocall Div., Federal Signal Corp.'s 4160, Potter Electric Signal Co.'s VSR-F, or Reliable's Model A., having:
1. Corrosion-resistant vane.
2. Splash/dust resistant enclosure with anti-tamper switch.
3. Adjustable pneumatic retard.
4. Screw type wiring terminals.
5. Switch rated minimum 7.0 amps at 125 V ac and 0.25 amps at 125 V dc.

2.05 VALVE SUPERVISORY SWITCHES

A. Mechanically actuated, designed to close contacts and sound an alarm when supervised valve is closed and when switch cover removed.
1. For Gate Valves: Potter Electric Signal Co.'s OSYSU-A, or Grinnell's F640.
2. For Post Indicator Valves: Potter Electric Signal Co.'s PIVSU-A2, or Potter-Roemer, Inc.'s 6223.

2.06 SIGNS

A. Steel with vitreous enamel finish, lettering on contrasting background to identify and indicate the function of:
1. Control valves.
2. Drain, test, air supply and alarm check valves.
3. Water motor alarm.
4. Anti-freeze loop.
5. Anti-freeze loop drain and test valves.
6. Hydraulic Design Nameplate Data: Size approx. 9 x 12 inches, inscribed with the following::

a. SPRINKLER SYSTEM HYDRAULICALLY DESIGNED (in block letters).
b. Location and area of hydraulically designed section.
c. Discharge density over designed area in gallons per minute.
d. Residual pressure at base of riser supplying water to designed section.

2.07 PIPE LABELS

A. General Requirements for Manufactured Pipe Labels: Preprinted, color-coded, with lettering indicating service and showing flow direction.

B. Self-Adhesive Pipe Labels: Printed plastic with contact-type, permanent-adhesive backing.

C. Pipe-Label Contents: Include identification of piping service using same designations or abbreviations as used on Drawings; pipe size; and an arrow indicating flow direction.
1. Flow-Direction Arrows: Integral with piping-system service lettering to accommodate both directions, or as separate unit on each pipe label to indicate flow direction.
2. Lettering Size: At least 1-1/2 inches high.

D. Pipe-Label Colors:
1. Background Color: Red.
2. Letter Color: White.

2.08 VALVE TAGS

A. Valve Tags: Stamped or engraved with 1/4-inch letters for piping-system abbreviation and 1/2-inch numbers.
1. Tag Material: Brass, 0.032-inch-thick, with predrilled holes for attachment hardware.
2. Fasteners: Brass wire-link chain.
3. Valve-Tag Color: Red.
4. Letter Color: White.

B. Valve Schedules: For each piping system, on 8-1/2-by-11-inch bond paper. Tabulate valve number, piping system, system abbreviation (as shown on valve tag), location of valve (room or space), normal-operating position (open, closed, or modulating), and variations for identification. Mark valves for emergency shutoff and similar special uses.
1. Valve-tag schedule shall be included in operation and maintenance data.

PART 3 EXECUTION

3.01 VERIFICATION OF CONDITIONS

A. Testing Existing System: Prior to installing the new system, test the existing system, as prescribed for new systems in accordance with NFPA 13, to ascertain its operating condition.

1. Prepare a written report for the Director's Representative indicating the repairs required, if any, to make the existing system function properly.
2. Repairs to the existing system are not included in the Work unless requested by Order on Contract.

3.02 PREPARATION

A. Existing Sprinkler System Shutdown:
   1. Before shutting down the sprinkler system to perform the Work, notify the Director's Representative in writing, and the local fire department that the system is to be shut down temporarily. Give schedule which states date and time of proposed shut down and the approximate length of time that the system will be out of service. Request instructions for precautions that should be taken during the shut down period.
   2. Do not shut down the system until schedule is approved by the Director's Representative.
   3. Return the existing system to pre-shutdown operation immediately after the Work has been completed. Give written notice to the Director's Representative that the system has been returned to pre-shutdown operation.

3.03 INSTALLATION

A. Unless otherwise shown or specified, install the Work of this section in accordance with NFPA 13, and the item manufacturer's installation instructions.

B. Locking Valves:
   1. Lock gate valves in open position with chain looped through handwheel and around adjacent sprinkler pipe. Secure with padlock.
   2. Lock test outlet valve in closed position with padlock.

C. Spare Sprinkler Head Cabinet: Secure to building wall or other permanent structure in vicinity of main valve controlling sprinkler system, unless otherwise directed.

D. Connection to Existing Main: A bolted mechanical branch connection may be used. Refer to Section 211300.

E. Signs: Install signs identifying the following:
   1. Valves: One for each size, type and function.
   2. Water Motor Alarm.
   3. Anti-Freeze Loop.
   4. Hydraulically Designed System.

3.02 LABEL INSTALLATION

A. Coordinate installation of identifying devices with completion of covering and painting of surfaces where devices are to be applied.

B. Coordinate installation of identifying devices with locations of access panels and doors.

C. Provide or permanently fasten labels on each major item of mechanical equipment with rivets or stainless-steel coated wire ties.

D. Locate equipment labels where accessible and visible from a standing position on the floor.

E. Pipe-Label Locations: Locate pipe labels where piping is exposed or above accessible ceilings in finished spaces; machine rooms; accessible maintenance spaces such as plenums and exterior exposed locations as follows:
1. Near each fire protection control valve and control device.
2. Near each branch connection excluding short takeoffs. Where flow pattern is not obvious, mark each pipe at branch.
3. Near penetrations through walls, floors, ceilings and inaccessible enclosures.
4. Near access doors and similar access points that permit view of concealed piping.
5. Near major fire protection equipment items.
6. Spaced at maximum intervals of 30 feet along each run. 15 feet on short runs.
7. On piping above removable acoustical ceilings. Omit intermediately spaced labels.

F. NFPA compliant signage shall be provided at the system riser to include, system type, system discharge density, gallons per minute, hose allowance and dates of system installation.

G. NFPA compliant signage shell be provided at the fire department and backflow prevention test inspection inlets and outlets. Signage shall be 18 by 18 inches, reflective and visible from the street. “Fire Dept. Hose Conn.” “Backflow Prev. Test Station”.

H. NFPA compliant signage shall be provide at all system drains and test locations on exterior walls. “System Test”, “System Drain”.

I. Provide and locate all signage 48 inches above finish grade and anchored securely to the building wall.

3.03 VALVE-TAG INSTALLATION

A. Provide tags on fire protection control valves and control devices in piping systems. List tagged valves in a valve-tag schedule.

B. Valve-Tag Application Schedule: Tag valves according to size, shape, and with captions similar to those indicated in "Valve-Tag Size and Shape" Subparagraph below:
1. Valve-Tag Size and Shape:

a. Wet-Pipe Sprinkler System: 1-1/2 inches square.

C. Provide a valve tag chart to include the following listed in a schedule or table. Provide a frame and plastic cover. Provide valve number, pipe size, location, and service type. Valve chart shall be anchored to the wall near the fire protection riser and 42 to 60 inches above the finished floor in a visible location.

3.04 WARNING-TAG INSTALLATION

A. Provide required message on and attach warning tags to equipment and other items where required.

3.05 FIELD QUALITY CONTROL

A. Tests: Unless otherwise shown or specified, perform tests in accordance with NFPA 13.
   1. Flushing: In addition to the requirements of the Standard, flush new piping before making final connection to existing systems and before performing hydrostatic test. Flush at rates of flow prescribed in the Contractor's Material and Test Certificate. After making final connections, flush entire system and assure that debris is removed from piping and there are no stoppages or obstructions in the system.
   2. System Tests:
      a. Test all new Work.
      b. Notify the Director's Representative when the Work of this Section is ready for testing.
      c. Perform the tests when directed, and in the Director's Representatives presence.

END OF SECTION

SECTION 220523

VALVES

PART 1 GENERAL

1.01 ABBREVIATIONS

A. IBBM: Iron body, bronze mounted.

B. WOG: Water, oil, gas.

1.02 SUBMITTALS

A. Product Data: Manufacturer's catalog sheets and specifications for each valve type.

B. Valve Schedule: List type of valve, manufacturer's model number, and size for each service application.

PART 2 PRODUCTS

2.01 VALVES - GENERAL

A. Valve Standardization: Valves from one or more manufacturers may be used, however valves supplied for each specific valve type shall be the product of one manufacturer.

B. Valves shall be first quality, free from all imperfections and defects, with body markings indicating manufacturer and rating.

C. Valve parts of same manufacturer, size and type shall be interchangeable.

D. Manually operated gate, globe and angle valves shall be of rising stem type, unless otherwise specified.

E. Valves which use packing, shall be capable of being packed when wide open and under full working pressure.

F. Size valves the same size as the piping in which they are installed, unless specified otherwise.

2.02 CHECK VALVES

A. Type S: 125 psig WSP, 200 psig WOG, bronze body, brass or bronze trim, horizontal swing, renewable and regrindable disc, and threaded ends. Face discs for cold water service with teflon. Acceptable Valves: Crane 37, Hammond IB940, Jenkins 4092, Milwaukee 509, Nibco T413Y, and Stockham B319Y.

B. Type U: 125 psig WSP, 200 psig WOG, bronze body, brass or bronze trim, horizontal swing, renewable and regrindable disc, and solder ends. Face discs for cold water service with teflon. Acceptable Valves: Crane 1340, Hammond IB912, Jenkins 4093, Milwaukee 1509, Nibco S413Y, and Stockham 309Y.

2.09 NEEDLE STOP VALVES

A. For Temperatures to 300 degrees F.: All brass or forged carbon steel construction, union bonnet, threaded ends, built for 1000 psi at 300 degrees F. Acceptable Manufacturers: Marsh Instrument Co., H.O. Trerice Co., Weksler Instruments Co.

2.10 GAGE COCKS

A. Gage Cocks: All brass construction, "T" or lever handles, threaded ends, built for 300 psig hydraulic pressure. Acceptable Manufacturers: Marsh Instrument Company, Mueller Instruments Co., H.O. Trerice Co. and Weksler Instruments Corp.

2.11 BALL VALVES

A. Type BV: 150 psig WSP, 600 psig WOG, 2 piece bronze body, solid blow-out proof stem, teflon seats, chrome plated brass ball, teflon seals, corrosion resistant steel lever handles with vinyl grips, balancing stop, and threaded or solder ends.

1. Two-Piece, Brass Ball Valves with Full Port and Brass Trim:

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

1) American Valve, Inc.
2) Conbraco Industries, Inc.
3) Crane; Crane Energy Flow Solutions.
4) DynaQuip Controls.
5) Hammond Valve.
6) Jomar Valve.
7) KITZ Corporation.
8) Legend Valve & Fitting, Inc.
9) Marwin Valve; Richards Industries.
10) Milwaukee Valve Company.
11) NIBCO INC.
12) Red-White Valve Corporation.
13) Stockham; Crane Energy Flow Solutions.
14) Watts; a Watts Water Technologies company.

b. Description:

1) Standard: MSS SP-110.
2) CWP Rating: 600 psig.
3) Body Design: Two piece, lead free.

4) Body Material: Forged brass, lead free.
5) Ends: Threaded and soldered.
6) Seats: PTFE.
7) Stem: Brass.
8) Ball: Chrome-plated brass.
9) Port: Full.

2. Two-Piece, Bronze Ball Valves with Full Port, and Bronze or Brass Trim:

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

1) Conbraco Industries, Inc.
2) Crane; Crane Energy Flow Solutions.
3) Hammond Valve.
4) Lance Valves.
5) Milwaukee Valve Company.
6) NIBCO INC.
7) Watts; a Watts Water Technologies company.
8) Zurn Industries, LLC.

b. Description:

1) Standard: MSS SP-110.
2) CWP Rating: 600 psig.
3) Body Design: Two piece, lead free.
4) Body Material: Bronze, lead free.
5) Ends: Threaded and soldered.
6) Seats: PTFE.
7) Stem: Bronze or brass.
8) Ball: Chrome-plated brass.
9) Port: Full.

PART 3 EXECUTION

3.01 INSTALLATION

A. General: Install valves at locations noted on the drawings or specified.

3.02 VALVE APPLICATION SCHEDULE

A. Schedule of valve applications for the different services is as follows:
1. Cold Water In Buildings and Tunnels (CW) 125 psig and Less:
a. 3 inch and Less: BV balls and S or U checks.
2. Domestic Hot Water and Circulating (DHW & DHWC) 125 psig and Less:
a. 3 inch and Less: BV balls and S or U checks.

END OF SECTION

SECTION 220576

DRAINAGE ACCESSORIES

PART 1 GENERAL

1.01 REFERENCES

A. Comply with the applicable requirements of ASME A112.36.2M - Cleanouts, and ASME A112.1.2 - Drainage Funnels and Air Gaps.

1.02 SUBMITTALS

A. Product Data: Catalog sheets, specifications, and installation instructions for each item specified except fasteners.

1.03 MAINTENANCE

A. Special Tools: Deliver the following to the Director's Representative:
   1. Tools for Vandal Resistant Fasteners: One for each type and size.
   2. T-Handle Wrench for Cleanout Plugs: One for each type and size.

PART 2 PRODUCTS

2.01 CLEANOUT PLUG

A. Cast brass or bronze, with threaded end, and raised or countersunk head.
   1. Tapped head for attachment of cleanout wall or deck plate covers where required.

B. Anti-Seize Lubricant: Never-Seez by Bostik Chemical Group, Broadview, IL; Molycote 1000 by Dow Corning Corp, Midland, MI; Anti-Seize Lubricant by Loctite Corp, Newington, CT.

2.02 CLEANOUT

A. Threaded pipe fitting or cast iron ferrule with gas tight cleanout plug.

2.03 CLEANOUT WALL PLATE

A. Round, stainless steel or polished chrome plated bronze cover plate with stainless steel vandal resistant fastener to secure to cleanout plug.

2.04 CLEANOUT DECK PLATE

A. Standard duty floor cleanout fitting with coated cast iron body; round, polished nickel bronze scoriated top secured to cleanout plug with stainless steel vandal resistant fastener; threaded height adjustment, cast iron head, gas tight cleanout plug, and connection to match piping option selected.

B. Membrane flange and clamping collar, secured with corrosion resistant fasteners.

2.05 FRESH AIR INLET

A. Pipe Materials: Same as drainage system at point of connection.

B. Mushroom Cap: Coated cast iron, secured with vandal resistant fasteners.

2.06 CONDUCTOR EXPANSION JOINT

A. Coated cast iron body with brass telescoping sleeve, adjustable packing gland with graphite, neoprene or mineral fiber gasket, and connection to match piping option selected.

2.07 AIR GAP FITTING

A. Coated cast iron body with air gaps, set screw or threaded inlet, and outlet connection to match piping option selected.

2.08 INDIRECT WASTE FUNNEL

A. Combination Funnel Drain and P Trap: Polished chrome plated cast brass construction.
   1. Funnel: 4 inch top dia., 4 inches deep, with threaded outlet.
   2. P Trap: Bottom cleanout, threaded inlet, and outlet connection to match piping option selected.

2.09 FASTENERS

A. Corrosion Resistant Fasteners: Brass, bronze, or Type 302 or 304 stainless steel bolts.

B. Vandal Resistant Fasteners: Torx head with center pin.

2,10. LINT INTERCEPTOR

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

   a. Josam Company.
   b. Mifab.
   c. Smith, Jay R. Mfg. Co.
   d. Wade.
   e. Watts; a Watts Water Technologies company.
   f. Zurn Industries, LLC

B. Recessed in floor mounted epoxy coated steel lint interceptor with gasketed epoxy coated steel skid-proof cover secured with hex-head center bolt(s), removable steel filter screens, and IPS threaded inlet and outlet connections. 30 gallons per minute and for up to 3 washing machines.

C. Basis of Design Manufacturer and Model: Refer to drawing plans and equipment schedules.

PART 3 EXECUTION

3.01 INSTALLATION

A. Install the Work of this section in accordance with the manufacturer's printed installation instructions, unless otherwise specified.

B. Cleanout Plug: Lubricate threads with anti-seize lubricant before final installation.

C. Fresh Air Inlets:
   1. Free Standing Type:
      a. Set vertical portion in bed of concrete for stability.
      b. Installation Height: Minimum 18 inches above finished grade.
      c. Paint mushroom cap and pipe exposed above grade level.

D. Secure external components in place with vandal resistant fasteners or devices which cannot be removed without special tools.

END OF SECTION

SECTION 221119

WATER SUPPLY ACCESSORIES

PART 1 GENERAL

1.01 SUBMITTALS

A. Product Data: Catalog sheets, specifications, dimensional data, and installation instructions for each item specified, excluding fasteners.

1.02 MAINTENANCE

A. Special Tools: Deliver to the Director's Representative.
   1. Wall Hydrant T-Handle Locking Key: One for each wall hydrant.
   2. Tools For Vandal Resistant Fasteners: One for each type and size.

PART 2 PRODUCTS

2.01 WATER HAMMER ARRESTORS

A. Hydropneumatically controlled with permanently sealed expansion chamber pre-charged with non-combustible gas, threaded connection, and conforming to ASME A112.26.1M - Water Hammer Arrestors, and ASSE 1010 - Water Hammer Arrestors.
   1. Bellows Type: Stainless steel construction with elastomer or stainless steel bellows.
   2. Piston Type: Hard drawn copper body with brass piston, cap and adapter; and elastomer seals.

2.02 HOSE BIBBS

A. Compression type with polished chrome plated bronze body, renewable units, vacuum breaker with breakaway screw or vandal resistant fastener (ASSE 1011), removable T-handle, and integral threaded wall flange.
   1. Connections: 3/4 inch female threaded inlet, and 3/4 inch hose bibb outlet.

2.03 DRAIN VALVE

A. Cast brass body with renewable units, hose bibb vacuum breaker (ASSE 1011) with drainage feature, and removable cast iron handwheel with vandal resistant fastener.
   1. Valve must be completely assembled to make hose connection.
   2. Connections: 1/2 or 3/4 inch threaded or solder end inlet, and 3/4 inch hose bibb outlet.

2.04 FASTENERS

A. Vandal Resistant Fasteners: Torx head with center pin.

2.05 BALANCING VALVES

A. Memory-Stop Balancing Valves:

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

    a. Conbraco Industries, Inc.
    b. Crane; Crane Energy Flow Solutions.
    c. Hammond Valve.
    d. Jenkins Valves; Crane Energy Flow Solutions.
    e. Milwaukee Valve Company.
    f. NIBCO INC.
    g. Red-White Valve Corporation.
    h. Stockham; Crane Energy Flow Solutions.
    i. Bell & Gossett.
    j. Armstrong.

2. Standard: MSS SP-110 for two-piece, copper-alloy ball valves.

3. Pressure Rating: 400-psig minimum CWP.
4. Size: Refer to plans for sizes.
5. Body: Copper alloy, lead free.
6. Port: Full port and field adjustable.
7. Ball: Chrome-plated brass.
8. Seats and Seals: Replaceable.
9. End Connections: Solder joint or threaded.
10. Handle: Vinyl-covered steel with memory-setting device.

B. Thermostatic Balancing Device

1. Provide a circuit solver type balancing device as indicated on the plans. Circuit solver shall be self-contained and fully automatic without additional piping or control mechanisms. Valve shall be a circuit solver as manufactured by Therm-Omega-Tech, Inc. or engineer approved equivalent.

    a. Valve shall regulate the flow of recirculated domestic hot water based on water temperature entering the valve regardless of system operating pressure.

        1) Even when full closed the valve shall bypass a small amount hot water to maintain dynamic control of the recirculating loop.
        2) Valve shall be factor adjustable as required by project conditions.
        3) Valve shall be available in sizes ranging from 1/2-inch NPT to 2” NPT.

2. Circuit Solver body and all internal components shall be constructed of stainless steel with major components constructed of type 303 stainless steel.

   a. Valve sizes 1/2 inch through 2-inches shall be rated to 200 PSIG maximum working pressure.

      1) All valves shall be standard tapered female pipe, thread, NPT.

   b. All valves shall be rated 300 degrees F. maximum working temperature.
   c. All valves shall be NSF-61 certified for use in all domestic water systems.
   d. Thermal actuator shall be spring loaded and self-cleaning, delivering closing thrust sufficient to keep orifice opening free of scale deposits.

3. Installation of the valve shall be made by qualified tradesmen. Provide a valve in each domestic hot water return piping branch beyond last hot water device in that branch.

   a. Provide suitable line size isolation valves, unions, and strainer as indicated in piping detail shown on the drawings.
   b. Provide suitable access panel as required in non-accessible ceilings and walls.

2.06 TEMPERATURE-ACTUATED, WATER MIXING VALVES

A. Primary, Thermostatic, Water Mixing Valves **(TMV):**

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

   a. Armstrong International, Inc.
   b. Acorn
   c. Lawler Manufacturing Company, Inc.
   d. Leonard Valve Company.
   e. Powers.
   f. Symmons Industries, Inc.
   g. Zurn Industries, LLC.

2. Standard: ASSE 1017.
3. Pressure Rating: 125 psig minimum unless otherwise indicated.
4. Type: Exposed-mounting on wall, adjustable, thermostatically controlled, water mixing valve. Includes internal wax operation mechanism, ASSE 1070 and CSA certified and can continuously maintain temperature at a flow rate as low as 0.5 gpm.
5. Material: Bronze body, lead free with corrosion-resistant interior components.
6. Connections: Threaded unions at inlets and outlet and full port ball valves.

7. Accessories: Manual temperature controls, integral check stops on hot- and cold-water supplies, and adjustable, temperature-control handle.
8. Tempered-Water Setting: Field adjust to supply and not exceed 110 degrees F. at fixtures.
9. Tempered-Water Design Flow Rate: Refer to plans
10. Pressure Drop at Design Flow Rate: Refer to plans.
11. Body and Valve Finishes: Rough bronze.
12. Supplied complete with temperature gauges at inlets and outlet.
13. Provide full port ball valves matching main sizes, pipe reducers and unions at inlets and outlet connections at final connection point to valve.
14. Basis of Design Manufacturer/Model: Refer to plans for equipment schedules for manufacturer, models and sizes.

2.07 STRAINERS FOR DOMESTIC WATER PIPING

A. Y-Pattern Strainers:

1. Pressure Rating: 125 psig minimum unless otherwise indicated.
2. Body: Bronze for NPS 2 and smaller; cast iron with interior lining that complies with AWWA C550 or that is FDA approved, epoxy coated and for NPS 2-1/2 and larger.
3. End Connections: Threaded for NPS 2 and smaller; flanged for NPS 2-1/2 and larger.
4. Screen: Stainless steel with round perforations unless otherwise indicated.
5. Perforation Size:

    a. Strainers NPS 2 and Smaller: 0.033 inch.
    b. Strainers NPS 2-1/2 to NPS 4: 0.062 inch.

6. Drain: Factory-installed, hose-end drain valve.
7. Basis of Design Manufacturer/Model: Refer to plans for equipment schedules for manufacturer, models and sizes.

2.08 OUTLET BOXES

A. Clothes Washer Outlet Boxes (**WMB-1**)

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

    a. Oatey, Co.
    b. Sioux Chief Manufacturing Company, Inc.
    c. IPS Corporation.

2. Mounting: Recessed, Fire-rated.
3. Material and Finish: Fire-rated ABS frame.
4. Faucet: Combination valved fitting or separate hot- and cold-water valved fittings complying with ASME A112.18.1. Include garden-hose thread complying with ASME B1.20.7 on outlets.

5. Drain Outlet Connection: NPS 2.
6. Accessory: Water hammer arresters.
7. Supply Shutoff Fittings: NPS 1/2 gate, globe, or ball valves and NPS 1/2 copper, water tubing.
8. Drain: NPS 2 standpipe and P-trap for direct waste connection to drainage piping.

PART 3 EXECUTION

3.01 INSTALLATION

A. Install the Work of this section in accordance with the manufacturer's printed installation instructions, unless otherwise specified.

B. Wall Hydrants:
1. Installation Height: Minimum 18 inches above finished grade.

C. Secure external components in place with vandal resistant fasteners or devices which cannot be removed without special tools.

D. Provide temperature-actuated, water mixing valves with thermometers, dielectric fittings or unions, check stops full port ball valves on inlets and outlet. Provide for the adjustment of flow and temperature settings of the mixing valve while flowing hot water at all hot supplied fixtures. The final mixed temperature set point of the valve shall permit a distribution temperature not to exceed 110 degrees F at any fixture. Provide a written test report for the final O & Manual to include the final set point temperatures.

E. Provide water-hammer arresters in water piping according to PDI-WH 201. Locate arrestors on the supplies to flush valve water closets and washing machines. Devices shall be installed to permit replacement and adjacent to removable ceiling tile or behind access panels.

F. Provide strainers on the inlet sides of domestic water pumps and inlet side of domestic water meters.

G. Provide wall hydrants on the building exterior wall as indicated on plans. Reference Architectural general Construction plans and Wall sections for the locations of wall hydrants. Provide insulated cold-water supplies to wall hydrants in exterior wall or an adjoining stud wall with a full port ball valve in an accessible location to isolate wall hydrant. Confirm final elevation on exterior wall prior to commencing with work.

H. Provide nonfreeze, draining-type roof hydrants and install with drain connection piped to nearest sanitary connection point.

I. Provide vacuum breaker equipped hose bibbs on cold water supply piping in mechanical rooms and boiler rooms 30 to 36 inches above the finished floor.

J. Provide hose end drain valves on cold, hot and recirculation hot water piping mains and near vertical risers to permit draining to mop service sinks. Locate at the low points of piping systems.

K. Install clothes washer outlet boxes recessed in wall. Install 1-1/2-by-3-1/2-inch fire-retardant-treated-wood blocking, wall reinforcement between studs. Comply with requirements for fire-retardant-treated-wood blocking in Section 061000 "Rough Carpentry."

3.02 IDENTIFICATION

A. Plastic Labels for Equipment: Install engraved plastic-laminate equipment nameplate or sign on or near each of the following:
1. Vacuum breakers.
2. Backflow prevention devices.
3. Balancing valves.
4. Temperature-actuated, water mixing valves.
5. Wall hydrants.
6. Roof hydrants.
7. Outlet boxes.

B. Distinguish among multiple units, inform operator of operational requirements, indicate safety and emergency precautions, and warn of hazards and improper operations, in addition to identifying unit. Nameplates and signs are specified in Section 220553 "Identification for Plumbing Piping and Equipment."

3.03 ADJUSTING

A. Set field-adjustable flow set points of balancing valves.

B. Set field-adjustable temperature set points of temperature-actuated, water mixing valves.

C. Adjust each backflow prevention device in accordance with manufacturer's written instructions, authorities having jurisdiction, and the device's reference standard.

3.04 FIELD QUALITY CONTROL

A. Provide for and perform the following tests and inspections:

1. Test each double check valve backflow prevention device according to the manufacturer's written instructions.
2. Backflow prevention devices shall be provided and located in compliance with the 2018 International Plumbing Code and the New York State Health Department Cross Connection Control Manual the local Water Authorities having jurisdiction written requirements and the device's reference standard.

B. Domestic water piping specialties will be considered defective if they do not pass tests and inspections. Repeat flow test and pressure settings as necessary for good flow and pressure at each device.

C. Provide written pressure test and inspection reports on New York State Health Department forms for each backflow prevention device and for the final O & M Manuals. Forms shall be submitted to the Engineer for signature by the Contractor and then submitted to the local Water Authority having jurisdiction by the Contractor.

END OF SECTION

SECTION 221426

ROOF DRAINS

PART 1 GENERAL

1.01 PRODUCTS NOT PROVIDED UNDER THIS SECTION

A. Flashing and Trim: Construction Work Contract.

B. Openings in Steel, Precast Concrete and Prestressed Concrete Deck Units: Construction Work Contract.

1.02 REFERENCES

A. Unless otherwise specified, the Work of this Section shall meet the applicable requirements of ASME A112.21.2 - Roof Drains.

1.03 SUBMITTALS

A. Product Data: Catalog sheets, specifications and installation instructions.

B. Contract Closeout Submittals:
   1. Operation and Maintenance Data: Deliver 2 copies, covering the installed products, to the Director's Representative.

1.04 MAINTENANCE

A. Special Tools: Deliver to the Director's Representative.
   1. Tools for Vandal Resistant Fasteners: One for each type and size.

PART 2 PRODUCTS

2.01 ROOF DRAINS

A. Drain Body: Coated cast iron, large size sump, minimum 15 inch dia, with integral bosses or lugs drilled and tapped for fastening flashing clamp and underdeck clamp, corrosion resistant bolts, bottom outlet, and connection to match piping option selected.

B. Flashing Clamp: Coated cast iron, non-puncturing type compression ring with integral, notched gravel stop and dome locking receiver.

C. Dome Strainer: Coated cast iron, low profile type, with narrow vertical slotted openings, bayonet locking flange, secured with stainless steel vandal resistant fasteners.
   1. Minimum Dome Strainer Opening Area:

CONNECTING PIPE SIZES (Inches Nominal)	DOME STRAINER FREE AREA (Square inches)
2	18
3	25
4	36
5	50
6	70

D. Sump Receiver: Galvanized steel plate, 22 gage minimum thickness, with opening sized to accept drain body flange, and flange recess of depth equal to drain sump flange thickness.
   1. Minimum Size: 4 sq. ft.

E. Underdeck Clamp: Coated cast iron or cast aluminum, drilled to match size of bolts and tap locations in drain body.

F. Available Manufacturers: Subject to compliance with requirements, provide products by the following:
   1. Smith, Jay R. Mfg. Co.; Division of Smith Industries, Inc.
   2. Watts Drainage Products Inc.
   3. Zurn Plumbing Products Group; Specification Drainage Operation.

G. Roof Drain Type: Combination roof drain/overflow. Epoxy coated cast iron body with combination membrane flashing clamp/gravel guard, with:

   1. Cast iron dome.
   2. Acceptable product: Shown on Plumbing Fixture Schedule.
   3. Combination Primary and Secondary Drain.
   4. Under deck clamp.
   5. Vandal proof dome.
   6. 4” high internal standpipe on secondary drain.
   7. No hub outlet.
   8. Refer to plans for sizes.

2.02 FASTENERS

A. Corrosion Resistant Fasteners: Brass, bronze, or Type 302 or 304 stainless steel bolts acceptable.

B. Vandal Resistant Fasteners: Torx head with center pin.

C. Anti-Seize Lubricant: Never-Seez by Bostik Chemical Group, Broadview, IL; Molycote 1000 by Dow Corning Corp, Midland, MI; Anti-Seize Lubricant by Loctite Corp, Newington, CT.

2.03 FLASHING MATERIALS

A. Copper Sheet: ASTM B 152/B 152M, 12 oz./square ft.

B. Zinc-Coated Steel Sheet: ASTM A 653/A 653M, with 0.20 percent copper content and 0.04-inch minimum thickness unless otherwise indicated. Include G90 hot-dip galvanized, mill-phosphatized finish for painting if indicated.

C. Elastic Membrane Sheet: ASTM D 4068, flexible, chlorinated polyethylene, 40-mil minimum thickness.

D. Fasteners: Metal compatible with material and substrate being fastened.

E. Metal Accessories: Sheet metal strips, clamps, anchoring devices, and similar accessory units required for installation; matching or compatible with material being installed.

F. Solder: ASTM B 32, lead-free alloy.

2.04 DOWNSPOUT NOZZLES

A. Downspout Nozzle, All nickel bronze body, optional threaded, PVC slip-on, or No-Hub inlet and decorative face of wall flange and outlet nozzle.

B. Basis of Design Manufacturer: Watts ‘RD-950’ series or Engineer approved equal.

PART 3 EXECUTION

3.01 INSTALLATION

A. Install the Work of this Section in accordance with manufacturer’s printed installation instructions, unless otherwise specified.

B. Coordinate drain installation with deck and roofing Work.

C. Coordinate drain installation with Construction Work Contractor.

D. Unless otherwise indicated by dimensions on the Drawings, locate drains as follows:
   1. Place drains minimum 3 feet away from items on roof (parapets, walls, gravelstops, pipes, vents, scuttles, equipment and curbs, etc.) to allow for flashing.
   2. Install drains at low points of roof deck and where normal deck deflection will be at its maximum.

E. Drains in Cast Concrete: Set and securely brace drain body so that sump flange is level with, or slightly below surface of concrete.

F. Drains in Wood Decks: Set sump receiver surface level with the deck surface. Secure drain body with underdeck clamp.

G. Drains in Steel Decks: Install drains as shown on the Construction Work Drawings.
   1. Do not core drill or cut openings. Coordinate roof deck openings with Construction Work Contractor.
   2. Set sump receiver surface level with deck surface.
   3. Secure drain body with underdeck clamp.

H. Drains in Pre-cast and Pre-stressed Concrete Deck Units: Install drains as shown on the Construction Work Drawings.
   1. Do not core drill or cut openings.
   2. Coordinate roof deck openings with Construction Work Contractor. Set sump receiver surface level with deck surface.
   3. Secure drain body with underdeck clamp.

I. Fasteners:
   1. Coat bolt threads with anti-seize lubricant before final installation.
   2. Secure external components in place with vandal resistant fasteners or devices which cannot be removed without special tools.

END OF SECTION

SECTION 221429

SUMP PUMP, SUBMERSIBLE

PART 1 GENERAL

1.01 PRODUCTS FURNISHED BUT NOT INSTALLED UNDER THIS SECTION

A. Deliver the sump frame to the Construction Work contractor for installation.

1.02 RELATED WORK SPECIFIED ELSEWHERE

A. Earthwork: Section 310000.

B. Cast-In-Place Concrete: Section 033001.

C. Painting: Section 099103.

D. Pipe and Pipe Fittings: Section 221100.

E. Valves: Section 220523.

F. Wiring for Motors and Motor Controllers: Section 260523.

G. Motors and Motor Controllers: 260221.

1.03 SUBMITTALS

A. Product Data:
   1. Catalog sheets, specifications, installation instructions, including pump capacity curve (capacity vs. head) and electrical schematics.
   2. Catalog sheets, specifications, and installation instructions for the sump basin and cover.
   3. Catalog sheets, specifications and installation instructions for the sump cover and sump frame.

PART 2 PRODUCTS

2.01 ELEVATOR SUMP PUMP

A. Type: Completely submersible, automatic operation, with a screenless suction, non-clog impeller, and lifting bail.
   1. Motor Requirements (Supplementary to Section 260221):
      a. Equip submersible motor with built-in thermal overload protection.
      b. Power Requirements: Design to operate on a single phase, 60 Hertz, 120 volt circuit (NEMA standard motor voltage 115 V).
      c. Power Cord: Waterproof, oil resistant, terminating with a 3 prong grounding type cord cap. Length as required.

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

a. Liberty Pumps (Basis of Design).
b. Bell & Gossett Domestic Pump; ITT Corporation.
c. Goulds Pumps; ITT Corporation.
d. Grundfos Pumps Corp.
e. Little Giant Pump Co.
f. Stancor, Inc.
g. Weil Pump Company, Inc.
h. Zoeller Company.

C. Construction:

The castings shall be constructed of class 25 cast iron. The motor housing shall be oil filled to dissipate heat. Air filled motors shall not be considered equal. All mating parts shall be machined and sealed with a "Buna-N" O-ring. All fasteners exposed to the liquid shall be stainless steel. The motor shall be protected on the top side with sealed cord entry plate with molded pins to conduct electricity, eliminating the ability of water to enter internally through the cord. The motor shall be protected on the lower side with a unitized ceramic / carbon seal with stainless steel housings and spring or engineered double lip seal with stainless steel springs. The pump shall be furnished with a stainless steel handle having a nitrile grip.

D. Electrical Power Cord:

1. The submersible pump shall be supplied with a multi-conductor power cord which is a maximum 50 feet in length. The cord shall be capable of continued exposure to the pumped liquid. The power cord shall be sized for the rated full load amps of the pump in accordance with the National Electric Code. The power cable shall not enter the motor housing directly, but will conduct electricity to the motor by means of a water-tight compression fitting cord plate assembly, with molded pins to conduct electricity.

E. Motors:

1. Single phase motors shall be oil filled, capacitor start, class B insulated NEMA B design, rated for continuous duty. Air filled motors shall not be considered equal. At maximum load, the winding temperature shall not exceed 275°F unsubmerged. The pump motor shall have an integral thermal overload switch in the windings for protecting the motor.
2. Comply with NEMA designation, temperature rating, service factor, enclosure type, and efficiency requirements for motors.
    a. Motor Sizes: Minimum size as indicated. If not indicated, large enough so driven load will not require motor to operate in service factor range above 1.0.
3. Motors for submersible pumps shall be hermetically sealed.

F. Bearings and Shaft:

1. Upper and lower ball bearing shall be required. Both the upper and lower bearing shall be a single ball / race type bearing. Both bearings shall be permanently lubricated by the oil, which fills the motor housing. The motor shaft shall be made of 300 or 400 series stainless steel.

G. Seals:

1. The pump shall have a unitized ceramic / carbon seal with stainless steel housings and spring, or engineered double lip seal with stainless steel springs. The motor plate / housing interface shall be sealed with a "Buna-N" O-ring.

H. Impeller:

1. The impeller shall be vortex style made of an engineered polymer, with pump out vanes on the back shroud to keep debris away from the seal area. The impeller shall be threaded to the motor shaft.

I. Paint:

1. The exterior of the casting shall be protected with powder coat paint.

J. Supports:

1. The pump shall have cast iron support legs enabling it to be a freestanding unit.

K. Controls:

1. The control unit has three probes and a float ball switch. The pump shall activate when the middle probe contacts water, and will remain on unit the first, longest probe is no longer in contact with water. A high water alarm is activated when the third or shortest probe contacts water. The system will ignore a small film of oil, however, larger volumes of oil will be detected when the alarm probe does not detect water and the float ball activates. The system will continue to operate, removing water, not oil, from the vault even when oil has been detected.
2. Enclosure: NEMA 4X wall-mounted.
3. Switch: UL 508 and 778 Approved.
4. Control-Interface Features:

    a. Remote Alarm Contacts: For remote alarm interface.
    b. Building Automation System Interface: Auxiliary contacts in pump controls for interface to building automation system and capable of providing the following:

        1) On-off status of pump.
        2) Alarm status.

L. Sump Pump Capacities and Characteristics

1. Refer to equipment schedules, details and plans.

2.02 PUMP CONTROLS AND ACCESSORIES

A. Liquid Level Control Device: Construct of corrosion resistant materials, with components designed for installation within the sump completely waterproof, including oil resistant grounding type power cord.
1. Type: Integral with sump pump.

B. High Water Alarm: Factory wired assembly consisting of a 4 inch alarm bell, transformer, warning light, silencing switch, housed in a NEMA-1 enclosure, and liquid level control actuated.

C. Control Panel: Factory wired, housed in a NEMA-1 enclosure; alternator liquid level control actuated. Include motor controller, H-O-A switch, run light, and circuit breaker for each pump motor.

D. Floor Stand: 1-1/2 inch angle iron, welded construction, not less than 48 inches high, rigidly braced, with flanged feet drilled for bolting to the floor. Provide 1-1/2 x 1-7/8 inch steel cross members spaced for mounting high water alarm and control panel.

E. Wall Panel: 3/4 inch plywood, APA grade A-D; exterior glue, plain sliced face veneer, finished, beveled edges all around. Construct of sufficient size for mounting high water alarm and control panel.

2.04 SUMP COVER AND FRAME

A. Cover: Steel or cast iron, coal tar enamel coated, with openings for pump access, power cord and discharge pipe. Provide rubber grommet in cover to protect power cord.

B. Frame: Steel, 1/2 inch minimum thickness, square shaped and provided with concrete anchors. Fabricate with recessed shoulder for flush mounting cover with finished floor.

2.05 COVER THICKNESS SCHEDULE

SUMP SIZE (INCHES)	MINIMUM COVER THICKNESS (INCHES)	
Round or Square	Steel	Cast Iron
24	1/2	5/8

PART 3 EXECUTION

3.01 INSTALLATION

A. Install the Work of this Section in accordance with the manufacturer's printed installation instructions unless otherwise specified.

B. High Water Alarm: Install high water alarm and make electrical connections. Install liquid level control device at proper elevation to activate alarm at specified liquid depth. Secure control device to pump discharge pipe with clamps or to side of sump basin with corrosion resistant brackets and fasteners.

C. Control Panel: Install and make electrical connections. Install liquid level control devices at elevation required to produce specified sump drawdown. Secure control devices to pump discharge pipe with clamps, or to side of sump basin with corrosion resistant brackets and fasteners.

E. Floor Stand: Secure to floor with lag bolts and expansion shields.

F. Wall Panel: Mount wall panel where directed and secure with suitable fasteners.

G. Sump Frame: Install level at proper elevation.

H. Install sump cover.

3.02 PUMP OPERATION

A. Single Pump System: Set level controls to start pump when liquid depth in sump reaches 12 inches and stop pump when liquid depth is 3 inches.

B. High Water Alarm Setting: Set control device to sound alarm when liquid depth in the sump reaches 15 inches.

3.03 FIELD QUALITY CONTROL

A. Test sump pump system for proper operation at specified liquid depths.

B. Test high water alarm for proper operation at specified liquid depth.

END OF SECTION

SECTION 260531

EXPOSED CONDUIT - WET LOCATIONS

PART 1 GENERAL

1.01 REFERENCES

A. NEMA, ANSI, and UL.

1.02 SUBMITTALS

A. Product Data: Catalog sheets, specifications and installation instructions.

B. Submit an Environmental Product Declaration (EPD) from the manufacturer for steel this specification section, if available. A statement of the contractor's good faith effort to obtain the EPD shall be provided if not available.
   1. Manufacturer-provided EPDs must be Product Specific Type III (Third-Party Reviewed), in adherence with ISO 14025 *Environmental labels and declarations*, ISO 14044 *Environmental management – Life cycle assessment*, and ISO 21930 *Core rules for environmental product declarations of construction products and services.*

1.03 MAINTENANCE

A. Spare Parts: Furnish the following items in the manufacturer's original containers labeled with the names of the items and locations where the items would be used. Store them at the site where directed:
   1. Touch up coating compound for plastic coated rigid metal conduit (one spray type can and one non-spray can with brush top).

PART 2 PRODUCTS

2.01 RACEWAYS

A. Rigid Ferrous Metal Conduit: Steel, hot dipped galvanized on the outside and inside UL categorized as Rigid Ferrous Metal Conduit (identified on UL Listing Mark as Rigid Metal Conduit - Steel, or Rigid Steel Conduit), by Allied Tube & Conduit Corp., LTV Copperweld, or Wheatland Tube Co.

B. Liquid-tight Flexible Metal Conduit: UL categorized as liquid-tight flexible metal conduit (identified on UL Listing Mark as Liquid-Tight Flexible Metal Conduit, also specifically marked with temperature and environment application data), by AFC Cable Systems Inc., Anamet Electrical Inc., Electri-Flex Co., or Universal Metal Hose Co.

C. Rigid Nonmetallic PVC Conduit, Fittings, and Accessories: UL categorized as Rigid Nonmetallic, Schedule 40 and Schedule 80 PVC conduit (identified on UL Listing Mark as Rigid Nonmetallic Conduit Aboveground and Underground

Schedule 40; Rigid Nonmetallic Conduit Aboveground and Underground Extra Heavy Wall Schedule 80), by Beck Mfg./Picoma Industries, Cantex Inc., Carlon/Div. Of Lamson and Sessions, Ipex Inc., J-M Mfg. Co., Inc., National Pipe & Plastics Inc., or Queen City Plastics, Inc.

D. Plastic Coated Rigid Metal Conduit, Fittings, and Accessories: Rigid ferrous metal conduit, fittings and accessories coated with 40 mils thick polyvinylchloride coating; Ocal/T&B Corp.'s Ocal-Blue System, PCD Inc.'s KorKap, KorKap XL, or Robroy Industries' Plastibond or Perma-Cote System.

2.02 FITTINGS AND ACCESSORIES

A. Connectors and Couplings:
   1. Couplings (For Rigid Metal Conduit): Standard threaded couplings as furnished by conduit manufacturer.
   2. Watertight Conduit Hubs: Cooper/Crouse Hinds' Myers Hubs (stainless steel), OZ/Gedney Co.'s Type CH-T (hot dipped galvanized finish).
   3. Liquid-tight Flexible Metal Conduit Connectors: OZ/Gedney Co.'s 4Q-TG Series (hot-dip/mechanically galvanized), or Thomas & Betts Corp.'s 3322 Series (PVC coated).

B. Conduit Bodies (Threaded): Malleable iron or cast iron alloy bodies and covers with hot dipped galvanized or other specified corrosion resistant finish; Cooper/Crouse-Hinds' Condulets (Corro-free epoxy powder coat), Thomas & Betts Corp.'s Conduit Bodies (hot dipped galvanized), or OZ/Gedney Co.'s Conduit Bodies (hot dipped galvanized). Stainless steel cover screws, covers gasketed to suit application.

C. Expansion Fittings: Cooper/Crouse-Hinds XJG (Corro-free epoxy powder coat), OZ Gedney Co.'s AX, EXE (end type, hot dipped galvanized), or Thomas & Betts Corp.'s XJG (hot dipped galvanized).

D. Deflection Fittings: Ductile iron couplings with hot dipped galvanized finish, neoprene sleeve, and stainless steel bands, Appleton Electric Co.'s CF; or bronze couplings, neoprene sleeve, and stainless steel bands, OZ/Gedney Co.'s Type DX.

E. Sealing Fittings: Malleable iron body with hot dipped/mechanically galvanized finish, neoprene sleeve, and stainless steel bands, Appleton electric Co.'s CF; or bronze couplings, neoprene sleeve, and stainless steel bands, OZ/Gedney Co.'s Type DX.
   1. Horizontal: Cooper/Crouse-Hinds' EYS with Chico A sealing compound and Chico X filler, OZ/Gedney Co.'s EYD with EYC sealing compound and EYF damming fiber, or Thomas & Betts Corp.'s. EYS w/Chico A sealing compound and Chico X filler.
   2. Vertical (with Drain): Cooper/Crouse-Hinds with Chico A sealing compound and Chico X filler, OZ/Gedney Co.'s EY, EYA with EYC sealing compound and EYF damming fiber, or Thomas & Betts Corp.'s. w/Chico A sealing compound and Chico X filler.

3. Other Type Fittings. As required to suit installation requirements, by Cooper/Crouse-Hinds, OZ/Gedney Co., or Thomas & Betts Corp. with hot dipped/mechanically galvanized finish or epoxy powder coat.

F. Service Entrance Caps/Heads: Hot dipped/mechanically galvanized finish; OZ/Gedney Co.'s 17-50G Series.

G. Vertical Conductor Supports: Kellems/Hubbell Inc.'s Conduit Riser Grips (stainless steel or tin coated bronze), or OZ/Gedney Co.'s hot dipped galvanized finish Type CMT or Type W.

H. Conduit Clamps and Back Spacers: Malleable iron, hot dipped/mechanically galvanized finish; Cooper/Crouse-Hinds' 510 and CB1 Series, OZ/Gedney Co.'s 14-G and 141G Series, or Thomas & Betts Corp.'s 1275 and 1350 Series.

I. Drains and Breathers: Stainless steel; Appleton Electric Co.'s ECBD, Cooper/Crouse-Hinds' ECD, OZ/Gedney Co.'s Type DB, or Thomas & Betts Corp.'s Type ECD.

PART 3 EXECUTION

3.01 RACEWAY INSTALLATION - GENERAL

A. Number of Raceways: Do not change number of raceways to less than the number indicated on the drawings.
1. Each raceway shall enclose one circuit unless otherwise indicated on the drawings.

B. Conduit Size: Not smaller than 1/2 inch electrical trade size. Where type THWN, THWN-2, XHHW, or XHHW-2 conductors are specified for use under Section 260519, the minimum allowable conduit size for new Work shall be based on Type THW conductors.

C. Conduit Bends: For 1/2 and 3/4 inch conduits, bends may be made with manual benders. For all conduit sizes larger than 3/4 inch, manufactured or field fabricated offsets or bends may be used. Make field fabricated offsets or bends with an approved hydraulic bender.

D. Conduit Exposed In Indoor Wet Locations: Install entire wiring system including conduit, boxes, and fittings so that there is a 1/4 inch air space between it and the wall or supporting surface.

E. Conduit in Hazardous Areas: Install Work in hazardous areas in accordance with NFPA 70. The hazardous areas and the degree of hazard for each area are indicated on the drawings.

3.02 RACEWAY SCHEDULE - TYPES & USE

A. Rigid Ferrous Metal Conduit: Install in all wet locations unless otherwise specified or indicated on the drawings.

B. Liquid-tight Flexible Metal Conduit: Install equipment grounding conductor in liquid-tight flexible metal conduit and bond at each box or equipment to which conduit is connected:
   1. Use 1 to 3 feet of liquid-tight flexible metal conduit (UL listed and marked for the installation's temperature and environmental conditions) for final conduit connection to:
      a. Motors with weather-protected or totally enclosed housings.
      b. Equipment subject to vibration.
      c. Equipment requiring flexible connection for adjustment or alignment.

C. Rigid Nonmetallic PVC Conduit: Use at locations indicated on drawings.

D. Plastic Coated Rigid Metal Conduit: Use at locations indicated on drawings.

3.03 FITTINGS AND ACCESSORIES SCHEDULE

A. General:
   1. Use malleable iron or cast iron alloy fittings and accessories having hot dipped/mechanically galvanized finish or other specified corrosion resistant finish in conjunction with ferrous raceways unless otherwise specified or indicated on the drawings.
   2. Use caps or plugs to seal ends of conduits until wiring is installed (to exclude foreign material).
   3. Use expansion fittings:
      a. Where raceways cross expansion joints.
      b. At intervals not exceeding 75 feet in straight runs (outside installations).
      c. Between fixed equipment (outside installations).
   4. Use deflection fittings where raceways cross expansion joints that move in more than one plane.
   5. Use watertight hub on end of each conduit entering cabinets or boxes that are not constructed with integral threaded hubs.
   6. Use back spacers behind each conduit clamp to keep raceway off surface to which it is attached and arranged to allow raceway to move due to expansion and contraction (outside installations).
   7. Use drains in low points of the system to drain condensation, keeping interior of raceway system free of moisture. Also use breather at high point of the system for outside installations.

B. For Rigid Metal Conduit: Use threaded fittings.

C. For Liquid-tight Flexible Metal Conduit: Use liquid-tight connectors.

D. For Rigid Nonmetallic PVC Conduit: Use conduit manufacturer's corrosion resistant fittings and accessories.

E. For Plastic Coated Rigid Metal Conduit: Use conduit manufacturer's PVC coated fittings and accessories.

END OF SECTION

REINFORCING BAR EMBEDMENT / LAP SPLICE SCHEDULE

BAR SIZE	CONCRETE COVER < 1 1/2"								CONCRETE COVER ≥ 1 1/2"							
	TOP BARS				OTHER BARS				TOP BARS				OTHER BARS			
	3,000 psi		4,000 psi		3,000 psi		4,000 psi		3,000 psi		4,000 psi		3,000 psi		4,000 psi	
	EMBED.	LAP	EMBED.	LAP	EMBED.	LAP	EMBED.	LAP	EMBED.	LAP	EMBED.	LAP	EMBED.	LAP	EMBED.	LAP
#3	13"	17"	12"	15"	12"	15"	12"	12"	13"	17"	12"	15"	12"	15"	12"	12"
#4	22"	28"	19"	24	17"	22"	15"	19"	17"	23"	15"	20"	13"	17"	12"	15"
#5	32"	41"	28"	36"	24"	32"	21"	28"	22"	28"	19"	24"	17"	22"	15"	19"
#6	43"	56"	37"	48"	33"	43"	29"	37"	26"	34"	22"	29"	20"	26"	17"	22"
#7	69"	90"	60"	78"	53"	69"	46"	60"	43"	55"	37"	48"	33"	43"	28"	37"
#8	86"	111"	74"	96"	66"	86"	57"	64"	54"	70"	47"	60"	41"	54"	36"	47"
#9	104"	135"	90"	117"	80"	104"	69"	90"	66"	86"	57"	74"	51"	66"	44"	57"
#10	125"	162"	108"	140"	96"	125"	83"	108"	81"	105"	70"	91"	62"	81"	54"	70"

NOTES:

1.) TOP BARS ARE THOSE WHICH ARE ORIENTED HORIZONTALLY AND HAVE MORE THAN 12" OF CONCRETE BELOW THE BAR.

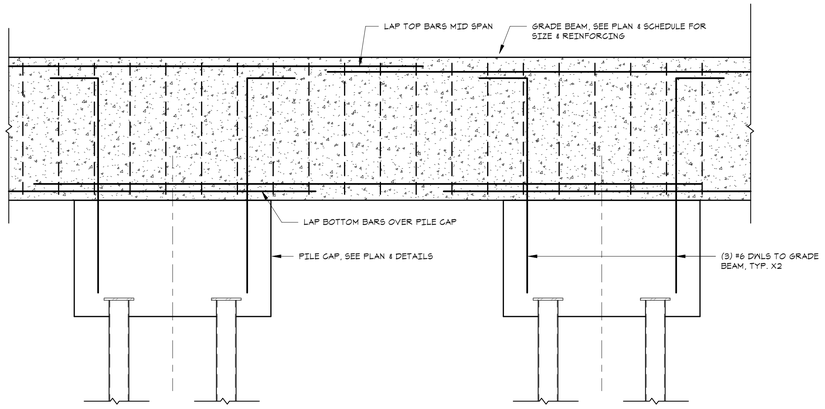
2.) EMBEDMENT AND LAP SPLICE LENGTHS SHOWN ARE APPLICABLE TO ASTM A615 GR. 60 REINFORCING BARS. FOR GR. 75 REINFORCING BARS, MULTIPLY LENGTHS BY 1.25.

3.) TABULATED VALUES ARE BASED ON CONCRETE COVER CONTROLLING. FOR BARS WITH CENTER-TO-CENTER SPACING LESS THAN 1.0Db (BAR DIAMETER) PLUS TWICE THE CONCRETE COVER, NOTIFY THE ENGINEER.

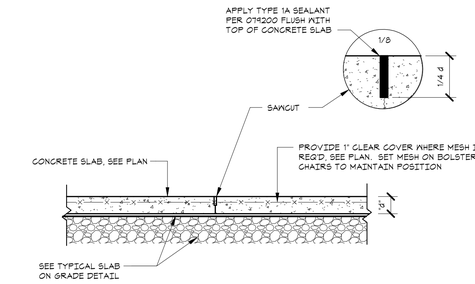
4.) WHERE CONCRETE DEPTH PRECLUDES FULL EMBEDMENT, PROVIDE 90 DEGREE HOOK.

5.) PROVIDE CONCRETE PROTECTION FOR REINFORCEMENT AS DESCRIBED IN ACI 318, CHAPTER 7.

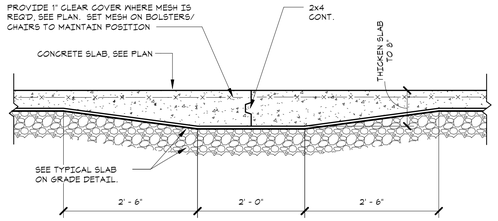
6.) TABULATED VALUES ARE BASED ON NORMAL WEIGHT AGGREGATE. FOR LIGHTWEIGHT AGGREGATE, MULTIPLY LENGTHS BY 1.33.



TYPICAL GRADE BEAM ELEVATION

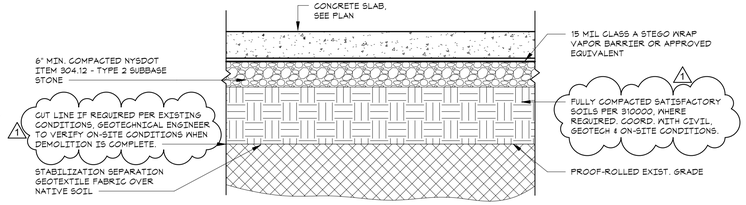


CONTRACTION

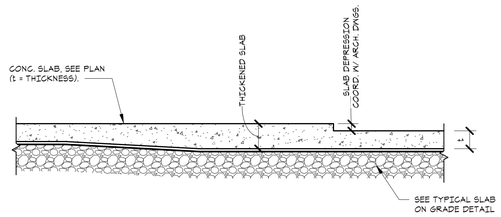


CONSTRUCTION JOINT

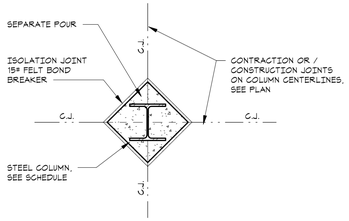
TYPICAL CONTROL JOINT DETAILS



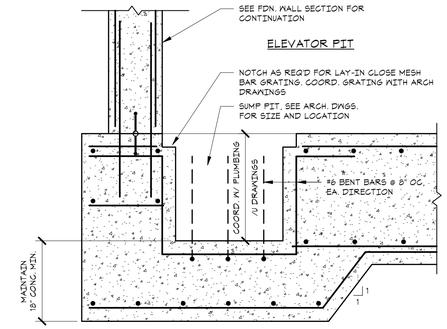
TYPICAL SLAB ON GRADE DETAIL



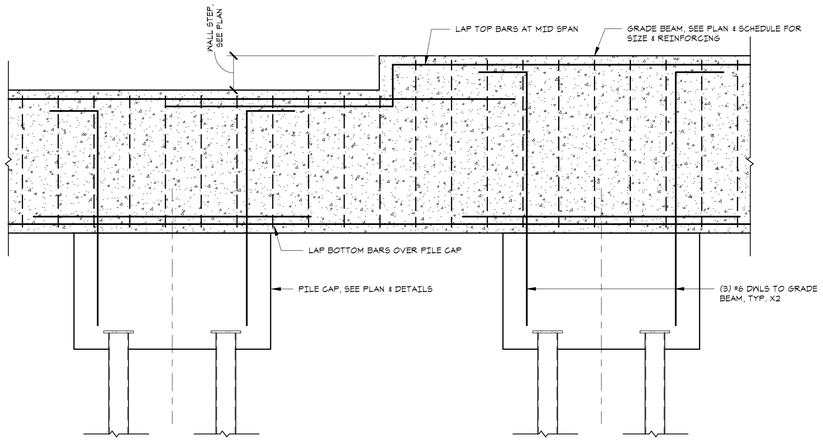
TYPICAL SLAB ON GRADE DEPRESSION DETAIL



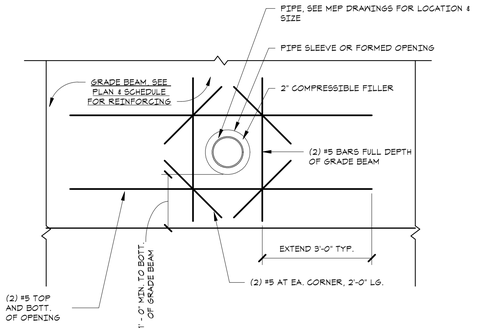
TYPICAL ISOLATION JOINT DETAIL



TYPICAL ELEVATOR SUMP DETAIL



TYPICAL GRADE BEAM REINFORCING AT STEPPED WALL DETAIL



NOTES:

1. OPENING SIZE AND LOCATIONS SHALL BE SUBMITTED TO ENGINEER FOR REVIEW PRIOR TO CONSTRUCTION.
2. THIS DETAIL APPLIES TO ALL OPENINGS 10" AND SMALLER.

TYPICAL REINFORCING AT GRADE BEAM PENETRATION DETAIL

NEW YORK STATE OF OPPORTUNITY. Office of General Services

DESIGN & CONSTRUCTION

CONSULTANT: SIRACUSE ENGINEERS

CERTIFICATE OF AUTHORIZATION #: 020780

Watts Architects &Engineers

BUFFALO ENGINEERING, P.C. MECHANICAL/ELECTRICAL ENGINEERS

Architectural Resources

Siracuse Engineers PC

WARNING:

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STATE OF NEW YORK JULIE MARWIN LICENSED PROFESSIONAL ENGINEER 090235

REGISTRATION EXPIRES: 01/31/2026

WE HEREBY AFFIRM THAT TO THE BEST OF OUR KNOWLEDGE, BELIEF, AND PROFESSIONAL JUDGEMENT, THESE PLANS AND SPECIFICATIONS ARE IN COMPLIANCE WITH THE 2020 ENERGY CONSERVATION CONSTRUCTION CODE OF NEW YORK STATE AND THE 2020 NEW YORK STATE UNIFORM BUILDING CODE.

CONTRACT:

CONSTRUCTION

TITLE:

PROVIDE ELEVATOR ADDITION & MODERNIZE EXISTING ELEVATOR

LOCATION: NYS ACADEMY OF FIRE SCIENCE
600 COLLEGE AVE
MONTOUR FALLS, NY

CLIENT: DIVISION OF HOMELAND SECURITY & EMERGENCY SERVICES

MARK	DATE	DESCRIPTION
	APRIL 01, 2024	BID DOCUMENTS
1	JUNE 25, 2024	ADDENDUM #1

PROJECT NUMBER:	46123 – C
DESIGNED BY:	JM
DRAWN BY:	CB
FIELD CHECK:	CM
APPROVED:	JM

SHEET TITLE:

TYPICAL CONCRETE DETAILS

DRAWING NUMBER:

S-002

SHEET 20 OF 143

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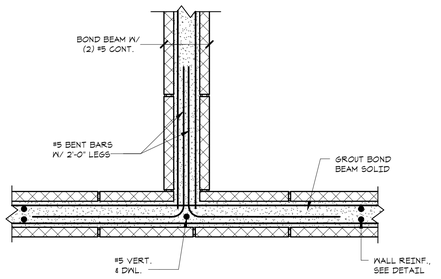
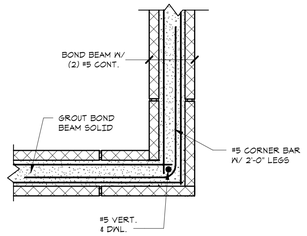
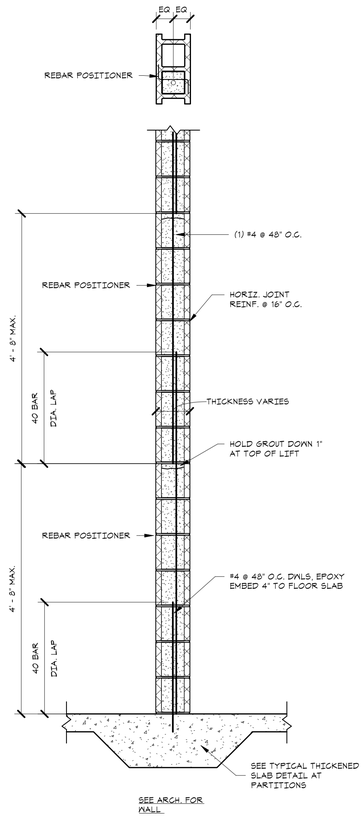
36x24 PLOT SHEET



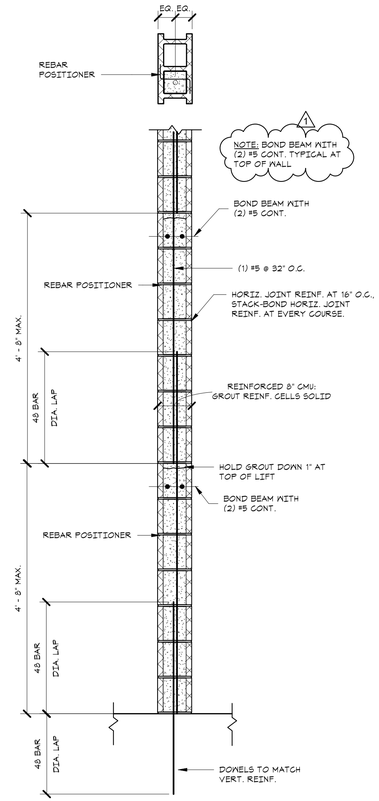
TYPICAL REINF. MASONRY INTERSECTION DETAIL



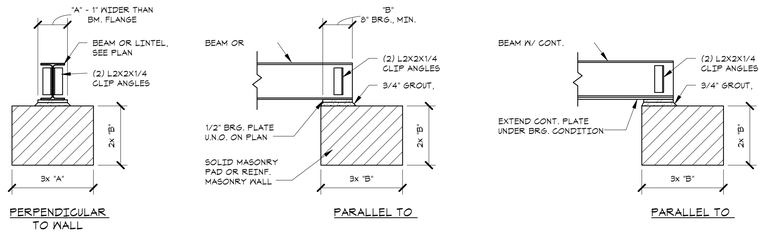
TYPICAL REINF. MASONRY CORNER DETAIL



TYP. INTERIOR MASONRY PARTITION WALL DETAIL

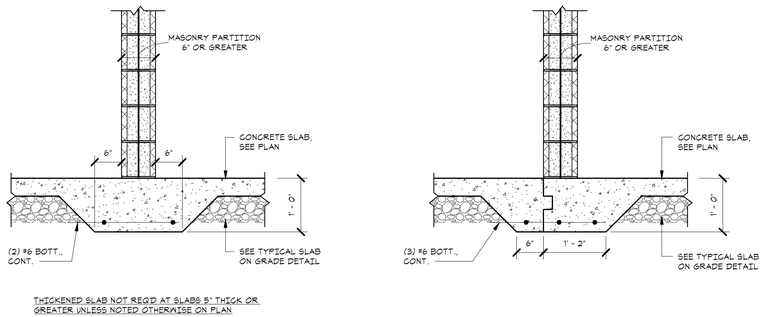


TYPICAL 8" REINFORCED MASONRY WALL DETAIL



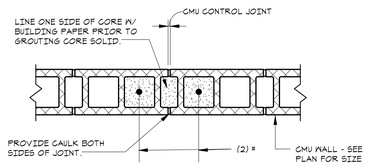
NOTE: DO NOT WELD BEAM TO BEARING PLATE, TYPICAL

TYPICAL LINTEL BEARING DETAILS



THICKENED SLAB NOT REQ'D AT SLABS 5" THICK OR GREATER UNLESS NOTED OTHERWISE ON PLAN

TYPICAL THICKENED SLAB @ CMU PARTITION DETAIL



TYPICAL MASONRY CONTROL JOINT DETAIL

5/21/2024 3:44:50 PM
36x24 PLOT SHEET

NEW YORK STATE OF OPPORTUNITY. Office of General Services

DESIGN & CONSTRUCTION

CONSULTANT: SIRACUSE ENGINEERS

CERTIFICATE OF AUTHORIZATION #: 020780

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STATE OF NEW YORK JULIE MARWIN 090235 LICENSED PROFESSIONAL ENGINEER

REGISTRATION EXPIRES: 01/31/2026

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CONTRACT:

CONSTRUCTION

TITLE:

PROVIDE ELEVATOR ADDITION & MODERNIZE EXISTING ELEVATOR

LOCATION: NYS ACADEMY OF FIRE SCIENCE
600 COLLEGE AVE
MONTOUR FALLS, NY

CLIENT: DIVISION OF HOMELAND SECURITY & EMERGENCY SERVICES

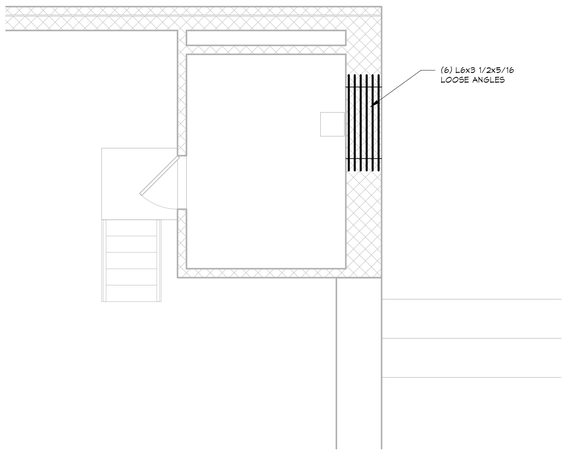
MARK	DATE	DESCRIPTION
1	JUNE 25, 2024	ADDENDUM #1
	APRIL 01, 2024	BID DOCUMENTS

PROJECT NUMBER:	46123 – C
DESIGNED BY:	JM
DRAWN BY:	CB
FIELD CHECK:	CM
APPROVED:	JM

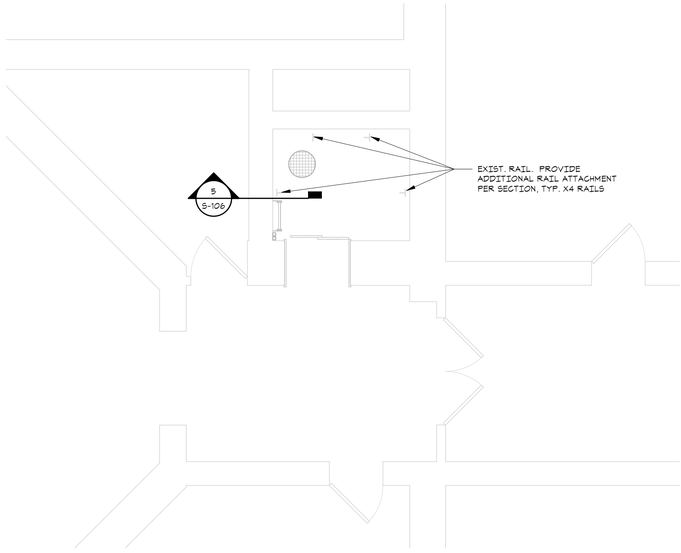
SHEET TITLE:
TYPICAL MASONRY DETAILS

DRAWING NUMBER:
S-007

SHEET 25 OF 143



3 FIFTH FLOOR FRAMING PLAN
3 / S-106
SCALE: 1/4" = 1'-0"



2 FIRST FLOOR FRAMING PLAN
2 / S-106
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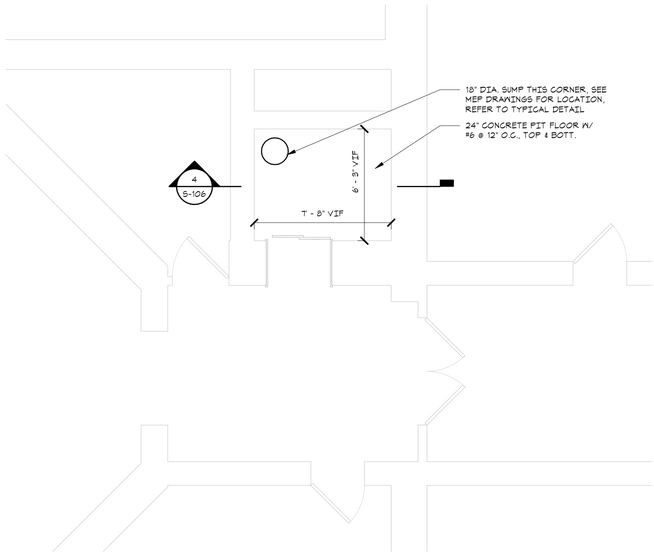
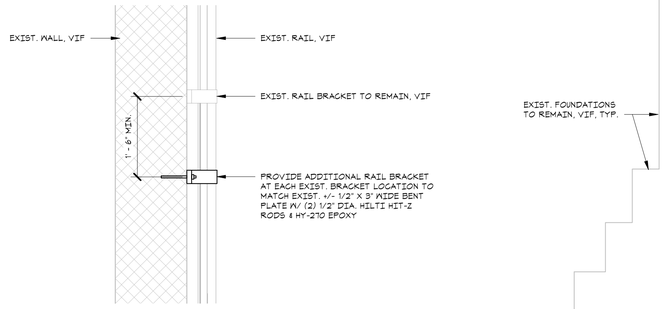
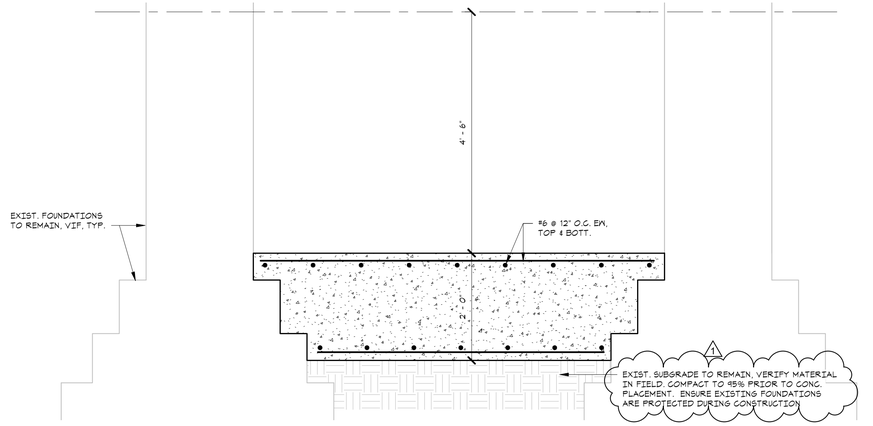


1 FOUNDATION/GROUND FLOOR PLAN
1 / S-106
SCALE: 1/4" = 1'-0"



SECTION 5
SCALE: 3/4" = 1'-0"
5 / S-106



SECTION 4
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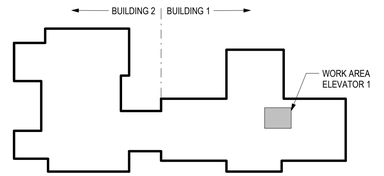
4 / S-106



KEY PLAN

NORTH

5/21/2024 3:44:51 PM
36x24 PLOT SHEET

NEW YORK STATE OF OPPORTUNITY. Office of General Services
DESIGN & CONSTRUCTION

CONSULTANT: SIRACUSE ENGINEERS
CERTIFICATE OF AUTHORIZATION #: 020780

Watts Architects &Engineers
BUFFALO ENGINEERING, P.C.
MECHANICAL/ELECTRICAL ENGINEERS
Architectural Resources
Siracuse Engineers PC

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STATE OF NEW YORK · JULIE MARWIN · 090235 · LICENSED PROFESSIONAL ENGINEER
REGISTRATION EXPIRES: 01/31/2026

WE HEREBY AFFIRM THAT TO THE BEST OF OUR KNOWLEDGE, BELIEF, AND PROFESSIONAL JUDGEMENT, THESE PLANS AND SPECIFICATIONS ARE IN COMPLIANCE WITH THE 2020 ENERGY CONSERVATION CONSTRUCTION CODE OF NEW YORK STATE AND THE 2020 NEW YORK STATE UNIFORM BUILDING CODE.

CONTRACT:
CONSTRUCTION

TITLE:
PROVIDE ELEVATOR ADDITION & MODERNIZE EXISTING ELEVATOR

LOCATION: **NYS ACADEMY OF FIRE SCIENCE 600 COLLEGE AVE MONTOUR FALLS, NY**

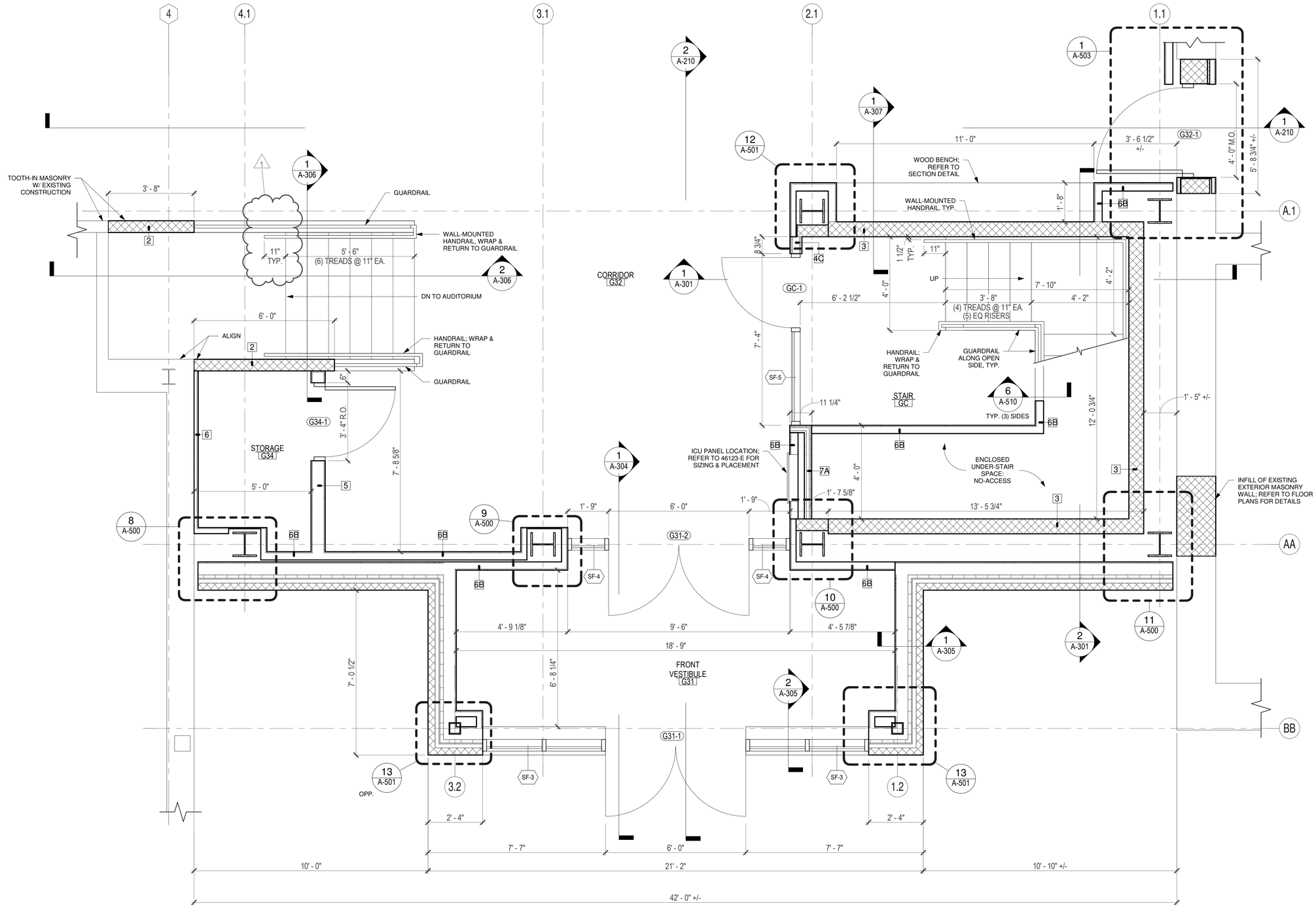
CLIENT: **DIVISION OF HOMELAND SECURITY & EMERGENCY SERVICES**

MARK	DATE	DESCRIPTION
1	JUNE 25, 2024	ADDENDUM #1
	APRIL 01, 2024	BID DOCUMENTS

PROJECT NUMBER:	46123 – C
DESIGNED BY:	JM
DRAWN BY:	CB
FIELD CHECK:	CM
APPROVED:	JM

SHEET TITLE:
PLANS & DETAILS - ELEVATOR 1

DRAWING NUMBER:
S-106



1 ENLARGED GROUND FLOOR PLAN
1/2" = 1'-0"

6/26/2024 9:00:16 AM
36x24 PLOT SHEET

NEW YORK STATE OF OPPORTUNITY. Office of General Services

DESIGN & CONSTRUCTION

CONSULTANT: WATTS ARCHITECTURE & ENGINEERING

CERTIFICATE OF AUTHORIZATION #: 018827

Watts Architects &Engineers

BUFFALO ENGINEERING, P.C.
MECHANICAL/ELECTRICAL ENGINEERS

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Architectural Resources

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REGISTERED ARCHITECT ROBERT A. SANDERS JR. No. 22388 STATE OF NEW YORK

REGISTRATION EXPIRES: 06/30/2024

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CONTRACT:

CONSTRUCTION

TITLE:
PROVIDE ELEVATOR ADDITION & MODERNIZE EXISTING ELEVATOR

LOCATION: **NYS ACADEMY OF FIRE SCIENCE 600 COLLEGE AVE MONTOUR FALLS, NY**

CLIENT: **DIVISION OF HOMELAND SECURITY & EMERGENCY SERVICES**

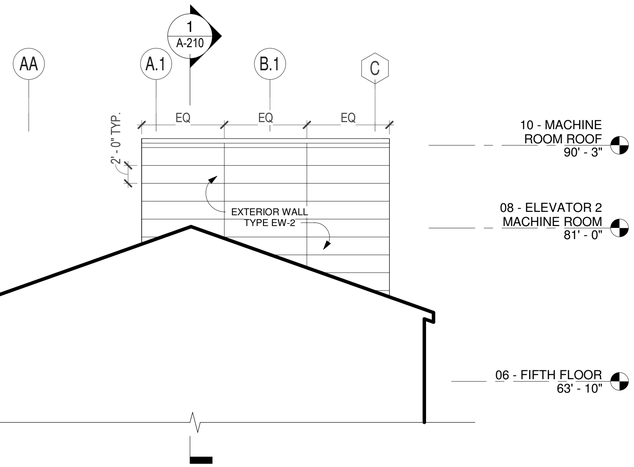
MARK	DATE	DESCRIPTION
1	JUNE 25, 2024	ADDENDUM #1
	APRIL 01, 2024	BID DOCUMENTS

PROJECT NUMBER:	46123 – C
DESIGNED BY:	DJC
DRAWN BY:	MGH
FIELD CHECK:	DJC
APPROVED:	RAS

SHEET TITLE:
ENLARGED GROUND FLOOR PLAN

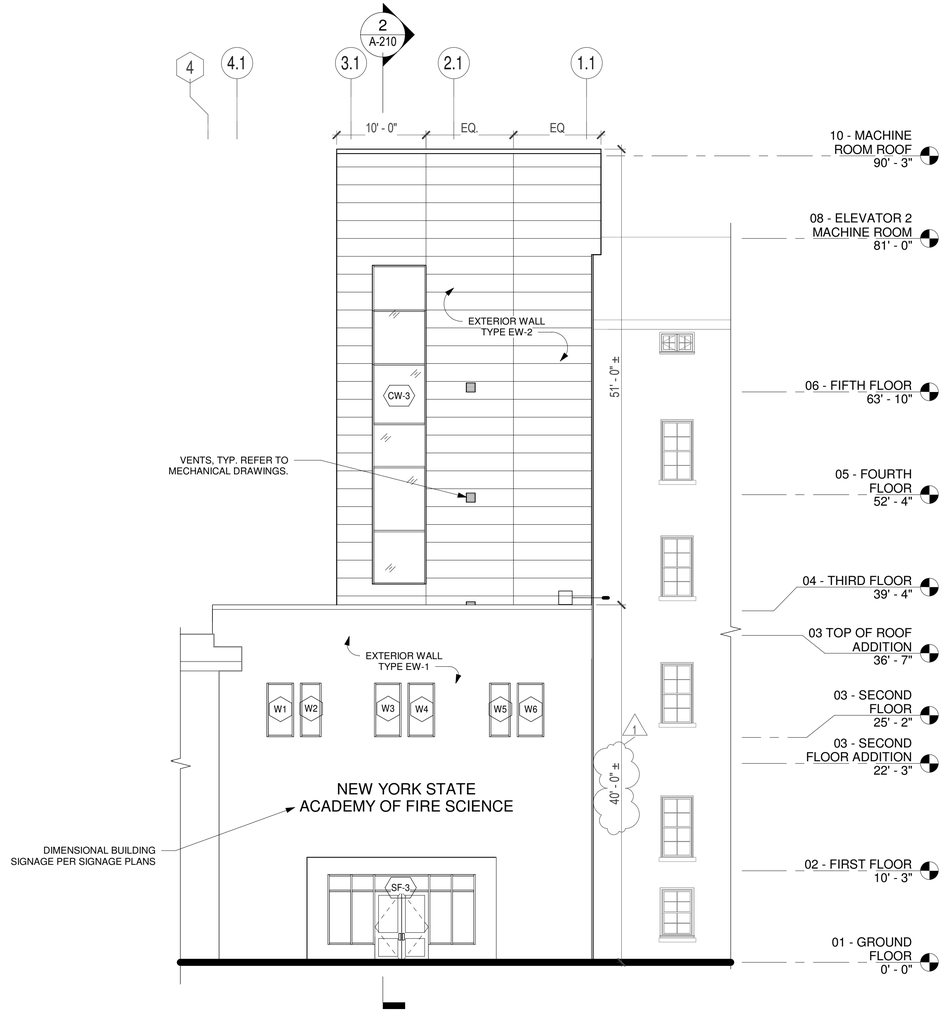
DRAWING NUMBER:
A-120

SHEET 55 OF 143



1 SOUTH ELEVATION

1/8" = 1'-0"



2 WEST ELEVATION

1/8" = 1'-0"

NEW YORK STATE OF OPPORTUNITY. Office of General Services

DESIGN & CONSTRUCTION

CONSULTANT: WATTS ARCHITECTURE & ENGINEERING

CERTIFICATE OF AUTHORIZATION #: 018827

Watts Architects &Engineers

BUFFALO ENGINEERING, P.C.
MECHANICAL/ELECTRICAL ENGINEERS

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REGISTERED ARCHITECT ROBERT A. SANDERS JR. No. 022369 STATE OF NEW YORK

REGISTRATION EXPIRES: 06/30/2024

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CONTRACT:

CONSTRUCTION

TITLE:

PROVIDE ELEVATOR ADDITION & MODERNIZE EXISTING ELEVATOR

LOCATION: **NYS ACADEMY OF FIRE SCIENCE**
600 COLLEGE AVE
MONTOUR FALLS, NY

CLIENT: **DIVISION OF HOMELAND SECURITY & EMERGENCY SERVICES**

MARK	DATE	DESCRIPTION
1	JUNE 25, 2024	ADDENDUM #1
	APRIL 01, 2024	BID DOCUMENTS

PROJECT NUMBER:	46123 – C
DESIGNED BY:	DJC
DRAWN BY:	MGH
FIELD CHECK:	DJC
APPROVED:	RAS

SHEET TITLE:

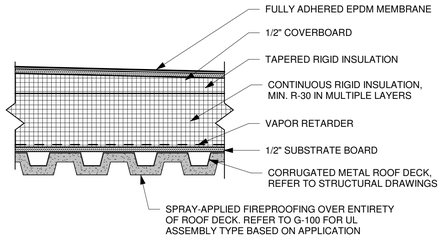
BUILDING ELEVATIONS

DRAWING NUMBER:

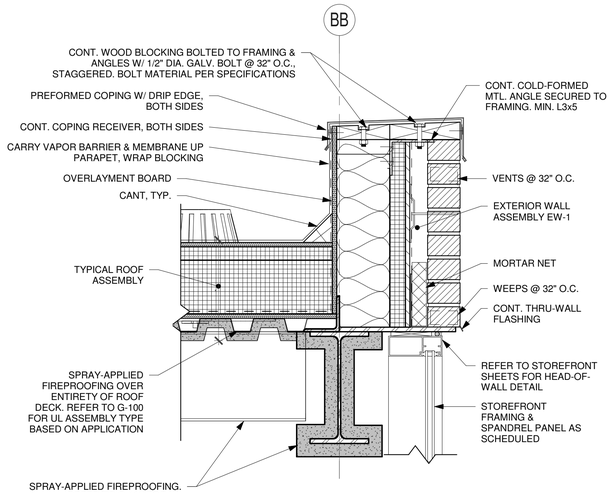
A-202

SHEET 66 OF 143

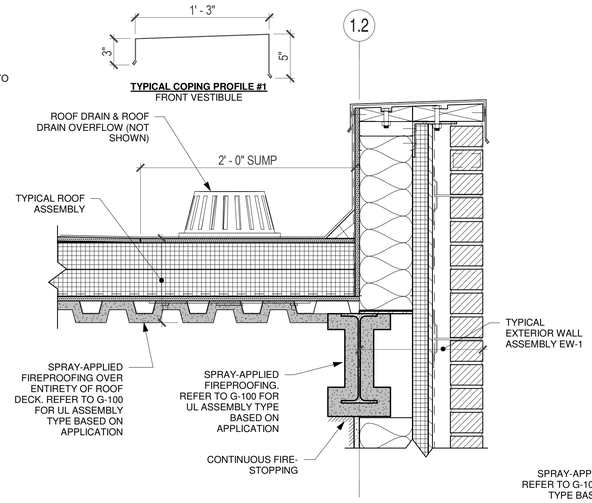
6/26/2024 9:00:17 AM
36x24 PLOT SHEET



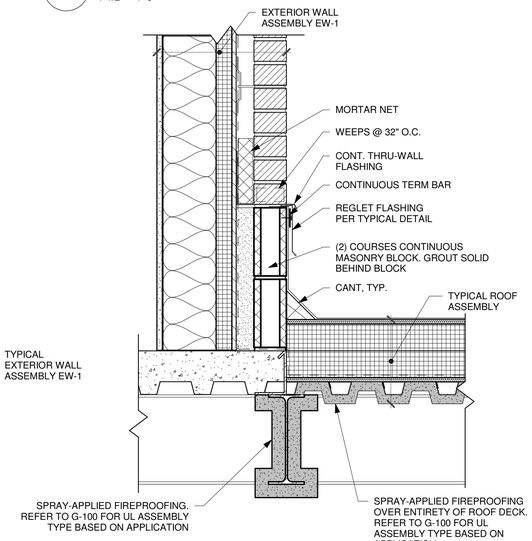
1 TYPICAL ROOF ASSEMBLY
1 1/2" = 1'-0"

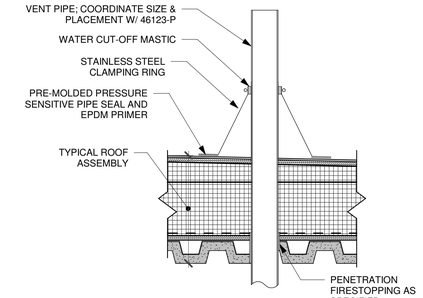


2 NOT USED

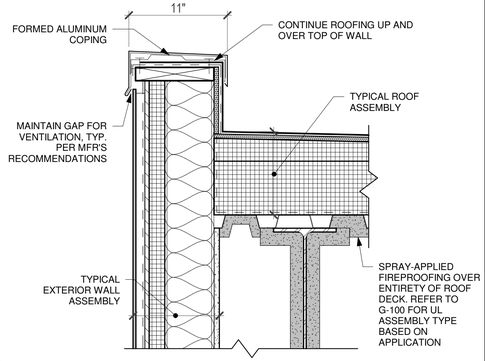


3 ROOF ANCHOR POINT DETAIL
1 1/2" = 1'-0"

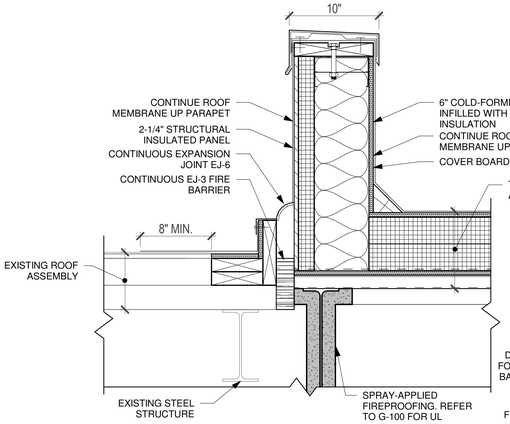




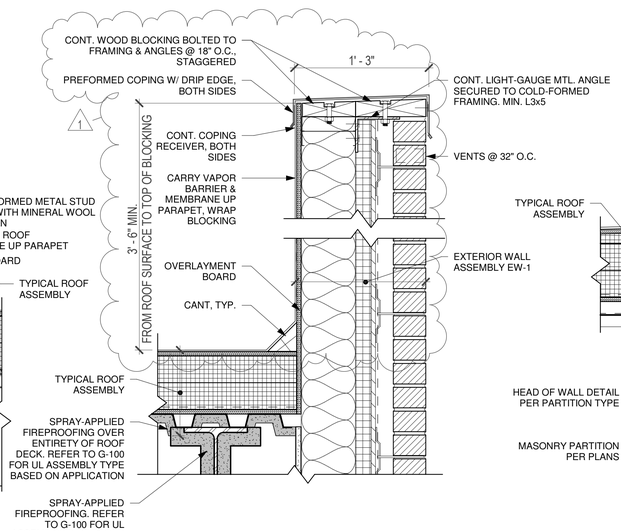
4 PIPE PENETRATION DETAIL
1 1/2" = 1'-0"



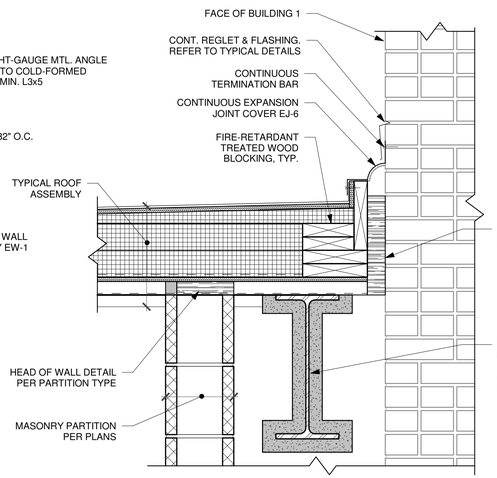
8 TYPICAL ROOF COPING DETAIL
1 1/2" = 1'-0"



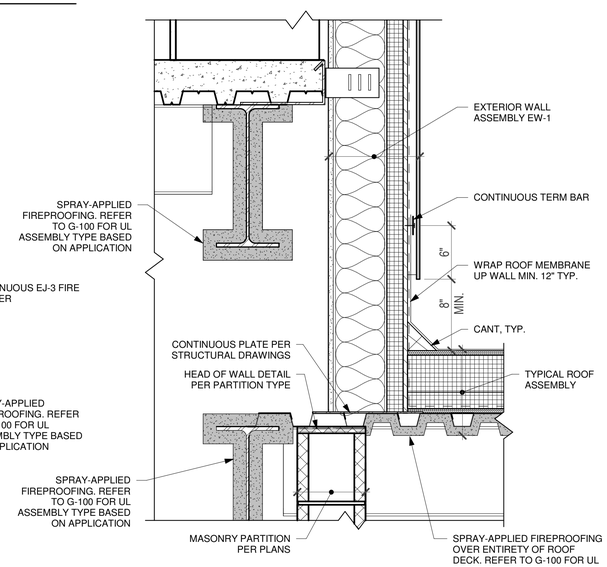
5 FRONT VESTIBULE TYPICAL COPING DETAIL
1 1/2" = 1'-0"



6 FRONT VESTIBULE COPING/SUMP DETAIL
1 1/2" = 1'-0"



7 FRONT VESTIBULE - ROOF-TO-WALL DETAIL
1 1/2" = 1'-0"



12 SECOND FLOOR ROOF - ROOF-TO-WALL DETAIL
1 1/2" = 1'-0"

9 SECOND FLOOR ROOF - INTERSECTION @ EXISTING ROOF
1 1/2" = 1'-0"

10 SECOND FLOOR ROOF - TYPICAL COPING DETAIL
1 1/2" = 1'-0"

11 SECOND FLOOR ROOF - ROOF-TO-EXISTING WALL DETAIL
1 1/2" = 1'-0"

6/26/2024 9:00:21 AM
36x24 PLOT SHEET

NEW YORK STATE OF OPPORTUNITY. Office of General Services
DESIGN & CONSTRUCTION

CONSULTANT: WATTS ARCHITECTURE & ENGINEERING
CERTIFICATE OF AUTHORIZATION #: 018827

Watts Architects &Engineers
BUFFALO ENGINEERING, P.C. MECHANICAL/ELECTRICAL ENGINEERS
Architectural Resources
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REGISTERED ARCHITECT ROBERT A. SANDERS JR. No. 22388 STATE OF NEW YORK
REGISTRATION EXPIRES: 06/30/2024

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CONTRACT:
CONSTRUCTION

TITLE:
PROVIDE ELEVATOR ADDITION & MODERNIZE EXISTING ELEVATOR

LOCATION: NYS ACADEMY OF FIRE SCIENCE 600 COLLEGE AVE MONTOUR FALLS, NY

CLIENT: DIVISION OF HOMELAND SECURITY & EMERGENCY SERVICES

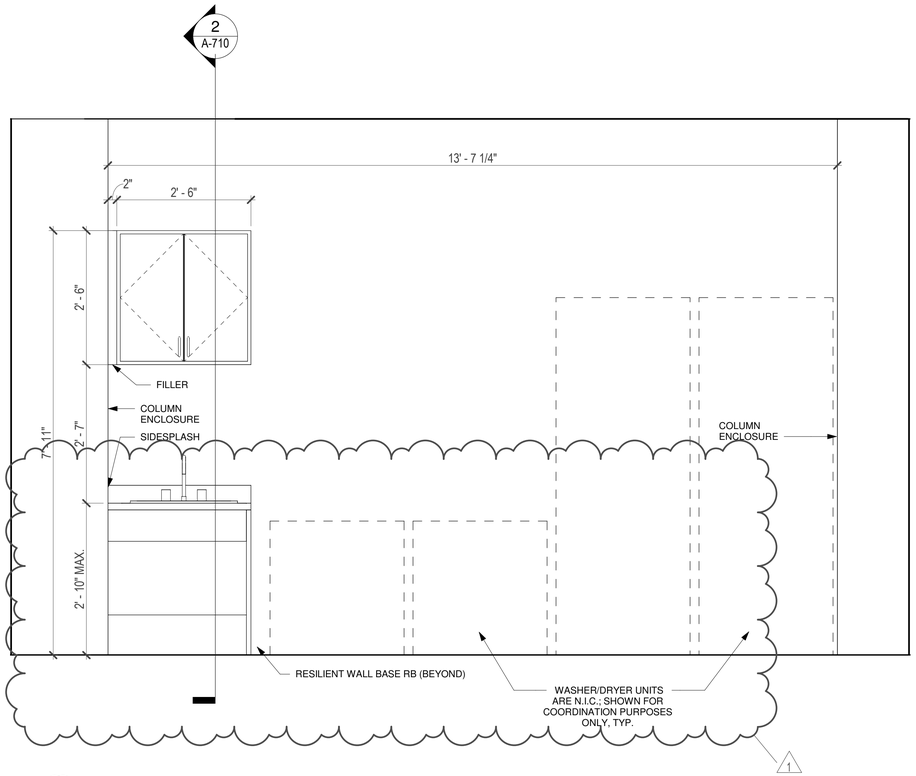
MARK	DATE	DESCRIPTION
1	JUNE 25, 2024	ADDENDUM #1
	APRIL 01, 2024	BID DOCUMENTS

PROJECT NUMBER:	46123 – C
DESIGNED BY:	DJC
DRAWN BY:	MGH
FIELD CHECK:	DJC
APPROVED:	RAS

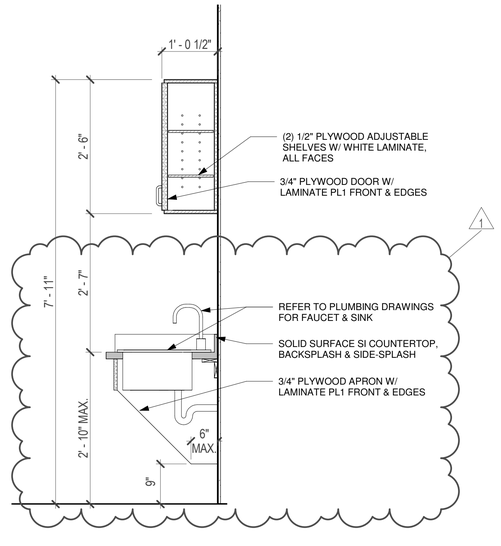
SHEET TITLE:
ROOF DETAILS

DRAWING NUMBER:
A-520

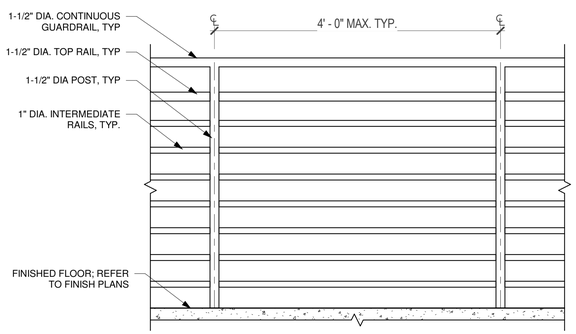
SHEET 81 OF 143



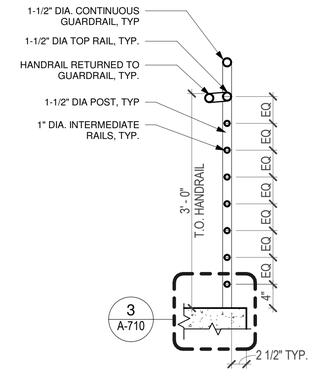
1 LAUNDRY MILLWORK ELEVATION
3/4" = 1'-0"



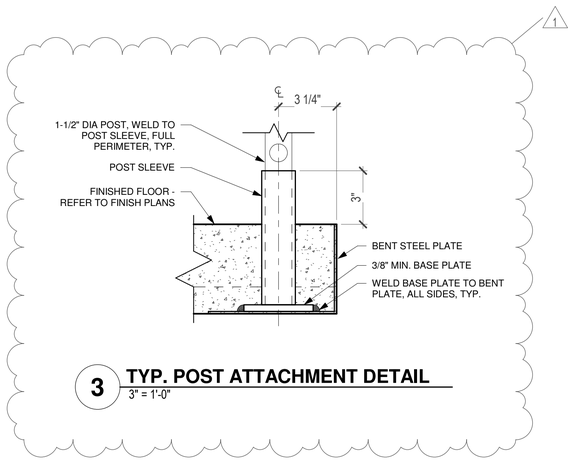
2 MILLWORK SECTION
3/4" = 1'-0"



5 TYPICAL GUARDRAIL ELEVATION
1" = 1'-0"



4 TYP. RAILING SECTION
1" = 1'-0"



3 TYP. POST ATTACHMENT DETAIL
3" = 1'-0"

NEW YORK STATE OF OPPORTUNITY. | Office of General Services

DESIGN & CONSTRUCTION

CONSULTANT: WATTS ARCHITECTURE & ENGINEERING

CERTIFICATE OF AUTHORIZATION #: 018827

Watts Architects &Engineers

BUFFALO ENGINEERING, P.C.
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CONTRACT:

CONSTRUCTION

TITLE:
PROVIDE ELEVATOR ADDITION & MODERNIZE EXISTING ELEVATOR

LOCATION: **NYS ACADEMY OF FIRE SCIENCE 600 COLLEGE AVE MONTOUR FALLS, NY**

CLIENT: **DIVISION OF HOMELAND SECURITY & EMERGENCY SERVICES**

MARK	DATE	DESCRIPTION
1	JUNE 25, 2024	ADDENDUM #1
	APRIL 01, 2024	BID DOCUMENTS

PROJECT NUMBER:	46123 – C
DESIGNED BY:	DJC
DRAWN BY:	MGH
FIELD CHECK:	DJC
APPROVED:	RAS

SHEET TITLE:
MILLWORK & RAILING DETAILS

DRAWING NUMBER:
A-710

SHEET 89 OF 143

6/26/2024 9:00:22 AM
36x24 PLOT SHEET

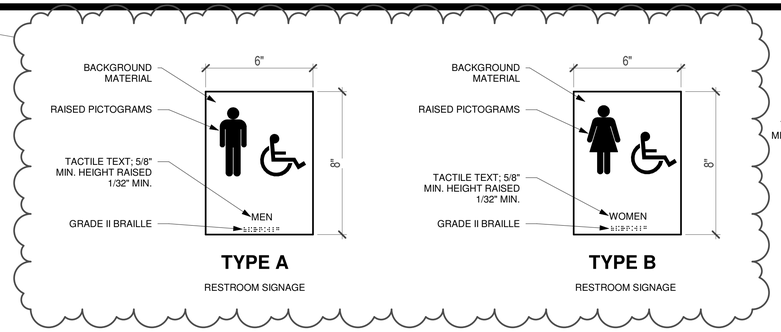
SIGNAGE GENERAL NOTES:

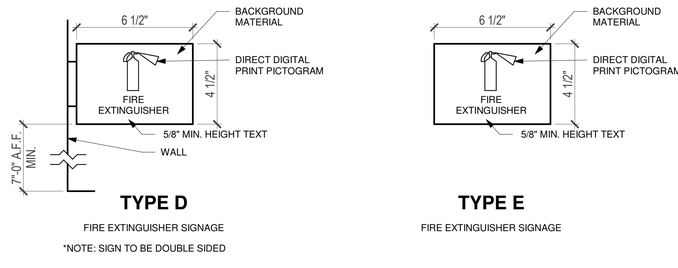
1. SIGNAGE SHALL COMPLY WITH ADA REQUIREMENTS.
2. SIGNAGE SHALL BE MOUNTED PER DETAIL 2/A-810 UNLESS OTHERWISE NOTED.
3. NUMBERING AND LETTERING DISPLAYED ARE FOR REFERENCE ONLY; REFER TO SIGNAGE SCHEDULES FOR SPECIFIC NUMBERS, TITLES, ETC. FINAL SIGNAGE COPY WILL BE SELECTED DURING PRODUCT APPROVAL AND FABRICATION.

SIGNAGE SCHEDULE					
ROOM #	ROOM NAME	MARK	SIGN TYPE	SIGN TEXT	NOTES
GROUND FLOOR					
GC	STAIR	C.1	C	STAIR	
G32	CORRIDOR	D.1	D	FIRE EXTINGUISHER	
G32	CORRIDOR	F.1	F	-	1
G32	CORRIDOR	G.1	G	-	1
G34	STORAGE	C.2	C	STORAGE	
G37	MEN'S TOILET	A.1	A	MEN'S	
G38	WOMEN'S TOILET	B.1	B	WOMEN'S	
FIRST FLOOR					
1C	STAIR	C.3	C	STAIR	
127	WOMENS TOILET	B.2	B	WOMEN'S	
128	CORRIDOR	E.1	E	FIRE EXTINGUISHER	
128	CORRIDOR	F.2	F	-	1
128	CORRIDOR	G.2	G	-	1
130	MENS TOILET	A.2	A	MEN'S	
SECOND FLOOR					
2C	STAIR	C.4	C	STAIR	
230	LAUNDRY	C.5	C	LAUNDRY	
231	STORAGE	C.6	C	STORAGE	
232	CORRIDOR	E.2	E	FIRE EXTINGUISHER	
232	CORRIDOR	F.3	F	-	1
232	CORRIDOR	F.4	F	-	1
232	CORRIDOR	G.3	G	-	1
THIRD FLOOR					
330	STORAGE	C.7	C	STORAGE	
332	ELEVATOR LOBBY	E.3	E	FIRE EXTINGUISHER	
332	ELEVATOR LOBBY	F.5	F	-	1
332	ELEVATOR LOBBY	G.4	G	-	1
FOURTH FLOOR					
430	STORAGE	C.8	C	STORAGE	
432	ELEVATOR LOBBY	E.4	E	FIRE EXTINGUISHER	
432	ELEVATOR LOBBY	F.6	F	-	1
432	ELEVATOR LOBBY	G.5	G	-	1
FIFTH FLOOR					
530	CONTROL ROOM	C.9	C	CONTROL ROOM	
532	CONTROL ROOM	E.5	E	FIRE EXTINGUISHER	
532	ELEVATOR LOBBY	E.6	E	FIRE EXTINGUISHER	
532	ELEVATOR LOBBY	F.7	F	-	1
532	ELEVATOR LOBBY	G.6	G	-	1
FIFTH FLOOR					
530	CONTROL ROOM	E.7	E	FIRE EXTINGUISHER	
EXTERIOR					
-	-	H.1	H	NEW YORK STATE ACADEMY OF FIRE SCIENCE	2

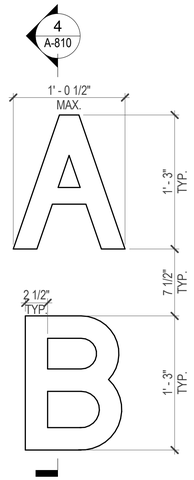
1. SEE SIGNAGE TYPES FOR SIGN TEXT.
2. REFER TO EXTERIOR ELEVATION FOR APPROXIMATE PLACEMENT OF SIGN.

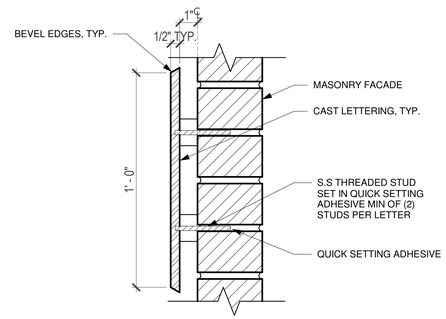
1





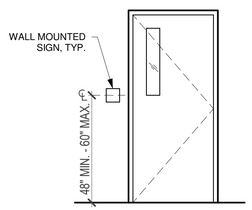
1 SIGNAGE TYPES
3" = 1'-0"

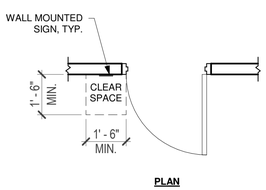




2 EXTERIOR SIGNAGE TYPE H
1 1/2" = 1'-0"

3 EXTERIOR SIGNAGE MOUNTING
3" = 1'-0"





NOTE:
COORDINATE FINAL HEIGHT OF SIGN WITH ARCHITECT IN FIELD

4 MOUNTING HEIGHTS
NOT TO SCALE

6/26/2024 9:00:24 AM
36x24 PLOT SHEET

NEW YORK STATE OF OPPORTUNITY. Office of General Services
DESIGN & CONSTRUCTION

CONSULTANT: WATTS ARCHITECTURE & ENGINEERING
CERTIFICATE OF AUTHORIZATION #: 018827
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BUFFALO ENGINEERING, P.C. MECHANICAL/ELECTRICAL ENGINEERS
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REGISTERED ARCHITECT ROBERT A. SANDERS JR. No. 22388 STATE OF NEW YORK
REGISTRATION EXPIRES: 06/30/2024

WE HEREBY AFFIRM THAT TO THE BEST OF OUR KNOWLEDGE, BELIEF, AND PROFESSIONAL JUDGEMENT, THESE PLANS AND SPECIFICATIONS ARE IN COMPLIANCE WITH THE 2020 ENERGY CONSERVATION CONSTRUCTION CODE OF NEW YORK STATE AND THE 2020 NEW YORK STATE UNIFORM BUILDING CODE.

CONTRACT:
CONSTRUCTION

TITLE:
PROVIDE ELEVATOR ADDITION & MODERNIZE EXISTING ELEVATOR

LOCATION: **NYS ACADEMY OF FIRE SCIENCE 600 COLLEGE AVE MONTOUR FALLS, NY**

CLIENT: **DIVISION OF HOMELAND SECURITY & EMERGENCY SERVICES**

MARK	DATE	DESCRIPTION
1	JUNE 25, 2024	ADDENDUM #1
	APRIL 01, 2024	BID DOCUMENTS

PROJECT NUMBER:	46123 – C
DESIGNED BY:	DJC
DRAWN BY:	MGH
FIELD CHECK:	DJC
APPROVED:	RAS

SHEET TITLE:
SIGNAGE SCHEDULE & SIGN TYPES

DRAWING NUMBER:
A-810

SHEET 95 OF 143

HOT WATER FIN TUBE RADIATION SCHEDULE (FR)

UNIT TAG	LOCATION	ENCL. HEIGHT (IN)	ROWS	TUBE SIZE (NOMINAL)	TUBE MATERIAL	FIN SIZE (HxW)	FIN MATERIAL	FINS/FT	AVERAGE WATER TEMP (°F)	EAT (°F)	BTU/FT	MANUFACTURER	MODEL	REMARKS
FR-1	SEE PLANS	24"	1	3/4"Ø	TYPE-L COPPER	4½ X 4½	ALUMINIUM	48	140.0	65.0	1036	RITTLING	FS5	SEE NOTES
FR-2	SEE PLANS	24"	2	3/4"Ø	TYPE-L COPPER	4½ x 4½	ALUMINIUM	48	140.0	65.0	1248	RITTLING	FS5	SEE NOTES

NOTES:
1. HEATING CAPACITIES ARE BASED ON 150°F EWT & 70°F EAT.
2. PROVIDE ALL NECESSARY COMPONENTS FOR A COMPLETE INSTALLATION, INCLUDING BUT NOT LIMITED TO END CAPS, ACCESS DOORS, ANCHORS, TRIM SECTIONS, ETC-COMPLETE.
3. PROVIDE TAMPER PROOF KEY OPERATED ACCESS DOORS.
4. PROVIDE 14-GAUGE SOLID STEEL ENCLOSURE.
5. PROVIDE TAMPER PROOF KNOB DAMPER.

HOT WATER CABINET HEATER SCHEDULE (CH)

UNIT TAG	LOCATION	EWT (°F) / TEMPERATURE DROP (°F)	EAT / LAT (°F)	CAPACITY (BTU/HR)	GPM	PD (FT H20)	CFM	TYPE	NOMINAL DIMENSIONS			ELECTRICAL		MANUFACTURER	MODEL No.	REMARKS
									LENGTH (IN)	HEIGHT (IN)	DEPTH (IN)	POWER	WATTS			
CH-1	VESTIBULE	150°F / 20°F	60.0 / 93.9	13,567	1.5	0.20	370	SURFACE	44.2"	26.5"	10"	120V-1PH-60HZ	80.0	RITTLING	RC	SEE NOTES
CH-2	VESTIBULE	150°F / 20°F	60.0 / 93.9	13,567	1.5	0.20	370	SURFACE	44.2"	26.5"	10"	120V-1PH-60HZ	80.0	RITTLING	RC	SEE NOTES

NOTES:
1. E.C. TO PROVIDE STARTER/DISCONNECT AND POWER TO THE STARTER/DISCONNECT.
2. PROVIDE 1" ALUMINUM MESH FILTER WITH ALUMINUM FRAME AND DRAIN HOLES.
3. PROVIDE UNIT MOUNTED SENSOR/THERMOSTAT.

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ELECTRIC WALL HEATER SCHEDULE (EH)

UNIT TAG	LOCATION	MANUFACTURER	MODEL	WATTS	BTU'S	POWER	AMPS	WEIGHT (LBS)	REMARKS
EH-1	ELEVATOR-1 MACHINE ROOM	MARKEL	HF3324TD-RP	1500	5,120	208-1-60	7.2	27	SEE NOTES

NOTES:
1. PROVIDE FACTORY INSTALLED STARTER/DISCONNECT. E.C. TO PROVIDE POWER TO THE STARTER/DISCONNECT.
2. PROVIDE SURFACE MOUNTED FRAME.
3. PROVIDE INTEGRAL THERMOSTAT SET TO 55°F (ADJ).

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SPLIT SYSTEM SCHEDULE (EVAP / ACCU)

INDOOR UNIT No.	OUTDOOR UNIT No.	BUILDING	SERVICE	MANUFACTURER	INDOOR UNIT					OUTDOOR UNIT - AIR COOLED CONDENSER							REMARKS
					MODEL No.	AIRFLOW (CFM)	COOLING CAPACITY (MBH)	HEATING CAPACITY (MBH)	HEATING CAPACITY @ 5°F (MBH)	MODEL No.	POWER	MCA	MOP	SEER	HSPF	WEIGHT (LBS)	
EVAP-1	ACCU-1	BUILDING-1	EX. ELEVATOR MACHINE RM.	SAMSUNG	AC018BNADCH/AA	441-614	18.0	N/A	N/A	AC018BXSCCC	208/1/60	11.8	15A	20.0	N/A	95	1,2,4-9,12,13
EVAP-2	ACCU-2	ADDITION	ELEVATOR MACHINE RM.	SAMSUNG	AR24TSFABWKNCV	399-713	21.0	41.0	27.4	AR24TSFACWKXCV	208/1/60	20.0	30A	20.0	10.0	151	1-11

NOTES:
1. E.C. TO PROVIDE ELECTRICAL DISCONNECT AND POWER TO THE STARTER/DISCONNECT.
2. REFRIGERATION PIPING SIZED BY THE EQUIPMENT MANUFACTURER.
3. PROVIDE 24" HIGH ROOF MOUNTED EQUIPMENT RAILS (ACCU-2 ONLY).
4. PROVIDE WIRED REMOTE CONTROLLER.
5. INDOOR UNIT POWERED FROM OUTDOOR UNIT.
6. PROVIDE ADDITIONAL R-410A CHARGE AS REQUIRED BY THE EQUIPMENT MANUFACTURER. VERIFY FINAL REFRIGERANT PIPING LENGTHS IN THE FIELD.
7. PROVIDE TRAPS AS REQUIRED BY THE EQUIPMENT MANUFACTURER'S INSTALLATION LITERATURE.
8. PROVIDE 1"Ø SCHEDULE 40 PVC CONDENSATE DRAIN PIPING.
9. PROVIDE LOW AMBIENT COOLING OPERATION.
10. PROVIDE WIND BAFFLES.
11. PROVIDE 100% HEATING CAPACITY AT 5°F AMBIENT AIR CONDITIONS.
12. PROVIDE LOW AMBIENT COOLING OPERATION DOWN TO -40°F AMBIENT CONDITIONS.
13. PROVIDE "SAMSUNG" MODEL "CKN-250" WALL BRACKETS OR APPROVED EQUAL (ACCU-1 ONLY).
14. REFRIGERANT LINE SET LENGTH

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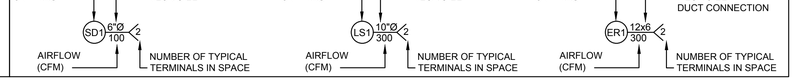
AIR TERMINAL SCHEDULE

UNIT TAG	SERVICE	SIZE	TYPE	"PRICE" MODEL No.	DESCRIPTION	SYMBOL
RG1 / TG1	RETURN	SEE PLANS	STEEL RETURN GRILLE	535	FURNISH AND INSTALL "PRICE" MODEL "535" STEEL RETURN/TRANSFER GRILLES OF THE SIZES AND MOUNTING TYPES INDICATED ON THE PLANS AND OUTLET SCHEDULE. GRILLES SHALL BE 45 DEGREE DEFLECTION FIXED LOUVER TYPE WITH BLADES SPACED 1/2 IN. ON CENTER. THE BLADES SHALL RUN PARALLEL TO THE LONG DIMENSION OF THE GRILLE. THE GRILLE SHALL BE FINISHED IN B12 POWDER COAT.	
RR1 / ER2	EXHAUST	SIZE INDICATED ON PLANS	STEEL EXHAUST REGISTER	535D	FURNISH AND INSTALL "PRICE" MODEL "535D" EXHAUST REGISTERS FOR FOR THE SIZES AND MOUNTING TYPES INDICATED ON THE PLANS. REGISTERS SHALL BE LOUVERED BLADE SPACED 1/2" ON CENTER. THE INTEGRAL VOLUME CONTROL DAMPER SHALL BE OF THE OPPOSED TYPE. THE DAMPER SHALL BE OPERABLE FROM THE REGISTER FACE. FINISH SHALL BE B12 POWDER COAT	

NOTES:
1. ALL AIR TERMINAL FINISHES AND COLORS SELECTED BY DIRECTORS REPRESENTATIVE.



FAN COIL UNIT SCHEDULE (FC)

UNIT TAG	NOMINAL TONS	S.A. (CFM)	HEATING COIL (100%-HOT WATER)					COOLING COIL (CHILLED WATER)						ELECTRICAL			MANUFACTURER	MODEL No.	REMARKS
			EAT/LAT (°F)	EWT/LWT (°F)	GPM	CAPACITY (BTU/HR)	COIL PD (FT H20)	EAT/LAT (°F)	EWT/LWT (°F)	GPM	TOTAL CAPACITY (BTU/HR)	SENSIBLE CAPACITY (BTU/HR)	COIL PD (FT H20)	POWER	MCA (A)	MOP			
FCU-1	1.0	400	70.0 / 104.0	150.0 / 130.0	1.7	15,000	2.9	75.0 / 62.0	42.0 / 54.2	2.2	11,200	8,000	2.6	115-1-60	1.2	15A	MODINE	SCW12AAEBA	SEE NOTES
FCU-2	1.0	400	70.0 / 104.0	150.0 / 130.0	1.7	15,000	2.9	75.0 / 62.0	42.0 / 54.2	2.2	11,200	8,000	2.6	115-1-60	1.2	15A	MODINE	SCW12AAEBA	SEE NOTES
FCU-3	3/4	300	70.0 / 104.0	150.0 / 130.0	1.1	11,017	2.9	75.0 / 62.0	42.0 / 53.6	1.1	6,366	4,530	6.1	115-1-60	0.88	15A	MODINE	SCW08AAEBA	SEE NOTES
FCU-4	1.5	540	70.0 / 100.0	150.0 / 130.0	1.8	17,479	1.3	75.0 / 56.5	42.0 / 54.2	2.4	14,634	10,610	2.6	115-1-60	1.4	15A	MODINE	SCW18AAEBA	SEE NOTES
FCU-5	1.5	540	70.0 / 100.0	150.0 / 130.0	1.8	17,479	1.3	75.0 / 56.5	42.0 / 54.2	2.4	14,634	10,610	2.6	115-1-60	1.4	15A	MODINE	SCW18AAEBA	SEE NOTES
FCU-6	1.5	540	70.0 / 100.0	150.0 / 130.0	1.8	17,479	1.3	75.0 / 56.5	42.0 / 54.2	2.4	14,634	10,610	2.6	115-1-60	1.4	15A	MODINE	SCW18AAEBA	SEE NOTES
FCU-7	1.5	540	70.0 / 100.0	150.0 / 130.0	1.8	17,479	1.3	75.0 / 56.5	42.0 / 54.2	2.4	14,634	10,610	2.6	115-1-60	1.4	15A	MODINE	SCW18AAEBA	SEE NOTES
FCU-8	3/4	300	70.0 / 104.0	150.0 / 130.0	1.1	11,017	2.9	75.0 / 62.0	42.0 / 53.6	1.1	6,366	4,530	6.1	115-1-60	0.88	15A	MODINE	SCW08AAEBA	SEE NOTES
FCU-9	1.5	540	70.0 / 100.0	150.0 / 130.0	1.8	17,479	1.3	75.0 / 56.5	42.0 / 54.2	2.4	14,634	10,610	2.6	115-1-60	1.4	15A	MODINE	SCW18AAEBA	SEE NOTES
FCU-10	3/4	300	70.0 / 104.0	150.0 / 130.0	1.1	11,017	2.9	75.0 / 62.0	42.0 / 53.6	1.1	6,366	4,530	6.1	115-1-60	0.88	15A	MODINE	SCW08AAEBA	SEE NOTES
FCU-11	1.5	540	70.0 / 100.0	150.0 / 130.0	1.8	17,479	1.3	75.0 / 56.5	42.0 / 54.2	2.4	14,634	10,610	2.6	115-1-60	1.4	15A	MODINE	SCW18AAEBA	SEE NOTES
FCU-12	1.0	400	70.0 / 104.0	150.0 / 130.0	1.7	15,000	2.9	75.0 / 62.0	42.0 / 54.2	2.2	11,200	8,000	2.6	115-1-60	1.2	15A	MODINE	SCW12AAEBA	SEE NOTES

NOTES:
1. PROVIDE FACTORY INSTALLED STARTER/DISCONNECT. E.C. TO PROVIDE POWER TO THE STARTER/DISCONNECT.
2. REFER TO FLOOR PLANS FOR UNITS REQUIRING OUTDOOR AIR CONNECTIONS.

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EXHAUST FAN SCHEDULE (EF)

UNIT No.	MANUFACTURER	MODEL No.	TYPE	AREA SERVED	AIRFLOW (CFM)	ESP ("W.C.)	DRIVE	ELECTRICAL		SONES	WEIGHT (LBS)	REMARKS
								POWER	HP			
EF-1	GREENHECK	G-100-VG	ROOF	BATHROOMS	800	0.60	DIRECT	115-1-60	¼ HP	7.3	36.0	1, 8, 9, 10
EF-2	GREENHECK	AER-E24C-610-VG	SIDEWALL	ATTIC VENTILATION	2500	0.50	DIRECT	115/60/1	¾ HP	26.0	80.0	1 THRU 7

NOTES:
1. E.C. TO PROVIDE STARTER/DISCONNECT AND POWER TO THE STARTER/DISCONNECT.
2. SCHEDULED WEIGHT (LBS) INCLUDES ALL ACCESSORIES.
3. PROVIDE 'VARI-GREEN' VARIABLE SPEED ECM MOTOR.
4. PROVIDE INSULATED SHEET METAL PLENUM CONNECTION TO LOUVER BY OTHERS.
5. PROVIDE FAN MOTOR GUARD WITH OSHA GUARD.
6. PROVIDE CLOSURE ANGLES.
7. PROVIDE BACK DRAFT DAMPER.
8. PROVIDE MANUFACTURER'S ROOF CURB.
9. PROVIDE SPEED CONTROLLER.
10. PROVIDE 120V MOTORIZED OPERATED DAMPER LOCATED IN THE ROOF CURB.

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HOT WATER CONVECTOR SCHEDULE (CV)

UNIT TAG	AVE. WATER TEMPERATURE (°F)	EAT (°F)	CAPACITY (BTU/HR)	GPM	TYPE	NOMINAL DIMENSIONS			MANUFACTURER	MODEL No.	REMARKS
						LENGTH (IN)	HEIGHT (IN)	DEPTH (IN)			
CV-1	140.0	65.0	7,280	1.0	EXPOSED	60"	32"	8"	RITTLING	SL	SEE NOTES
CV-2	140.0	65.0	6,398	1.0	RECESSED	64"	32"	8"	RITTLING	PL	SEE NOTES
CV-3	140.0	65.0	2,485	1.0	RECESSED	28"	32"	8"	RITTLING	PL	SEE NOTES
CV-4	140.0	65.0	4,837	1.0	EXPOSED	40"	32"	8"	RITTLING	SL	SEE NOTES

NOTES:
1. PROVIDE BAKED POWDER FINISH.
2. PROVIDE Cu/Al MECHANICALLY EXPANDED ELEMENT.

MECHANICAL DRAWING LEGEND

EXTERNAL STATIC PRESSURE	ESP
HEATING SEASONAL PERFORMANCE FACTOR	HSPF
SEASONAL ENERGY EFFICIENCY RATIO	SEER
MAXIMUM OVER CURRENT PROTECTION	MOP
MINIMUM CIRCUIT AMPS	MCA
ENTERING WATER TEMPERATURE	EWT
LEAVING WATER TEMPERATURE	LWT
ENTERING AIR TEMPERATURE	EAT
LEAVING AIR TEMPERATURE	LAT
GALLONS PER MINUTE	GPM
PRESSURE DROP	PD
CUBIC FEET PER MUNUTE	CFM
SUPPLY AIR	SA
EXHAUST AIR	EA
OUTDOOR AIR	OA
EVAP	EVAP
AIR COOLED CONDENSING UNIT	ACCU
EXHAUST FAN	EF
TRANSFER GRILLE	TG
EXHAUST REGISTER	ER
OPEN ENDED DUCT	OED
ABOVE FINISHED FLOOR	AFF
TYPICAL	TYP.
CONDENSATE DRAIN PIPING	CD
REFRIGERANT SUCTION GAS PIPING	RS
REFRIGERANT LIQUID LINE PIPING	RL
DRAIN CLEAN OUT	CO
PLUMBING CONTRACTOR	P.C.
MECHANICAL CONTRACTOR	M.C.
ELECTRICAL CONTRACTOR	E.C.
DIAMETER	Ø
ELECTRIC HEATER	EH
PIPING SIZE (FLOW RATE IN GALLONS PER MINUTE)	3/4"Ø(1.1)
BUILDING MANAGEMENT SYSTEM	BMS
EXHAUST DUCT RISER	
RETURN/TRANSFER AIR GRILLE	
SINGLE ROWFIN TUBE RADIATION SHOWN ON FLOOR ABOVE FOR REFERENCE	
2-ROW FIN TUBE RADIATION WITH SAME END CONNECTIONS SHOWN ON FLOOR ABOVE FOR REFERENCE	

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HOT/CHILLED WATER FAN COIL UNIT	FCU
HOT WATER CONVECTOR	CV
HOT WATER CABINET UNIT HEATER	CH
ANALOG INPUT	AI
ANALOG OUTPUT	AO
DIGITAL INPUT	DI
DIGITAL OUTPUT	DO
HEATING COIL	HC
ELECTRONIC COMMUNICATED VALVE	
DUCT MOUNTED DISCHARGE AIR SENSOR	
DDC TEMPERATURE SENSOR	
STARTER	
CONTACTOR	CT
PIPING RISE/DROP	
MANUAL VOLUME DAMPER	
120V MOTOR OPERATED DAMPER	M
AIRFLOW (SUPPLY)	
AIRFLOW (RETURN/EXHAUST)	
THERMOSTAT	T
SENSOR	S
DIRECTION OF SLOPE	DN
HOT WATER SERVICE PIPING	HWS
HOT WATER RETURN PIPING	HWR
CHILLED WATER SERVICE PIPING	CHWS
CHILLED WATER RETURN PIPING	CHWR
DIRECTION OF FLUID FLOW	
SHUT-OFF VALVE	
BALANCING VALVE	
2-WAY CONTROL VALVE	
UNION	
CAPPED PIPING/DUCTWORK	
STRAINER	
DIRECT DIGITAL CONTROL	DDC
FILTER RACK	
FAN ASSEMBLY	
PRESSURE/TEMPERATURE PLUG	P/T
FLEXIBLE PIPING CONNECTOR	
EXISTING DIRECT DIGITAL CONTROL SYSTEM PANEL	DDC

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36x24 PLOT SHEET

NEW YORK STATE OF OPPORTUNITY. Office of General Services

DESIGN & CONSTRUCTION

CONSULTANT: BUFFALO ENGINEERING, P.C.

CERTIFICATE OF AUTHORIZATION #: 0020076

Watts Architects &Engineers

BUFFALO ENGINEERING, P.C.
MECHANICAL/ELECTRICAL ENGINEERS

Architectural Resources

Siracuse Engineers PC

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STATE OF NEW YORK — BRIAN P. ZINTEL — 099870 — LICENSED PROFESSIONAL ENGINEER

REGISTRATION EXPIRES: 02/28/2027

WE HEREBY AFFIRM THAT TO THE BEST OF OUR KNOWLEDGE, BELIEF, AND PROFESSIONAL JUDGEMENT, THESE PLANS AND SPECIFICATIONS ARE IN COMPLIANCE WITH THE 2020 ENERGY CONSERVATION CONSTRUCTION CODE OF NEW YORK STATE AND THE 2020 NEW YORK STATE UNIFORM BUILDING CODE.

CONTRACT:

HVAC

TITLE:

REHABILITATE ELEVATORS, BUILDING 1

LOCATION: **NYS ACADEMY OF FIRE SCIENCE 600 COLLEGE AVE MONTOUR FALLS, NY**

CLIENT: **DIVISION OF HOMELAND SECURITY & EMERGENCY SERVICES**

MARK	DATE	DESCRIPTION
	JUNE 25, 2024	ADDENDUM #1
	APRIL 01, 2024	BID DOCUMENTS

PROJECT NUMBER:	46123 – H
DESIGNED BY:	BPZ
DRAWN BY:	BPZ
FIELD CHECK:	BPZ
APPROVED:	BPZ

SHEET TITLE:

MECHANICAL SCHEDULES & LEGEND

DRAWING NUMBER:

M-001

SHEET 117 OF 143