The attention of bidders submitting proposals for the subject project noted above is called to the following Addendum to the Contract Forms and Specifications.

The items set forth herein, whether of omission, addition, substitution, or clarification are to be included in and form a part of the proposal submitted.

This Addendum consists of the following information:



## Part 1 Division 00, Procurement and Contract Requirements

1) Section 004010
    a. ADD This contract shall also include all labor, materials, services and equipment necessary for completion of the Work shown on the Drawings and the Technical Specifications for **Steel Work**.
    b. All reference made to Contract No. G4 – Steel Work within the Drawings & Project Manual / Specifications shall be the responsibility of Contract No. G1 – General Construction Work and shall be included in the G1 Bid.
2) OMIT Section 004013. All reference made to Contract No. G4 – Steel Work shall be the responsibility of Contract No. G1 – General Construction Work.
3) Section 007000 General Conditions of the Contract – REVISE as follows:
    a. **§ 12.2.2.1** REMOVE “The obligation set forth hereunder shall survive acceptance by the Owner of the Work or termination of the Contract. The Owner shall give such notice promptly after discovery of the condition. The contractor’s performance bond shall remain in full force and effect through this two-year comeback correction period.”
    b. **§ 12.2.2.1** ADD “The Owner shall give such notice promptly after discovery of the condition. During the two-year period for correction of Work, if the Owner fails to notify the Contractor and give the Contractor an opportunity to make the correction, the Owner waives the rights to require correction by the Contractor and to make a claim for breach of warranty. If the Contractor fails to correct nonconforming Work within a reasonable time during that period after receipt of notice from the Owner, Construction Manager or Architect, the Owner may correct it in accordance with Section 2.5.”
    c. **§ 12.2.2.3** CHANGE to “The two-year period for correction of Work shall not be extended by corrective Work performed by the Contractor pursuant to this Section 12.2.”
4) Section 011000 Attachment: Scope of Work for Prime Contractors
    a. G1 – Prime Contractor for General Construction
        i. Exterior Wall Thermal & Moisture Protection – CHANGE sheathing shall be by Prime General Contractor (G1).
        ii. Window Removals – ADD Prime General Construction Contractor (G1) shall be responsible for maintaining & removal of temporary window protection installed by the Prime Abatement Contractor (G2).

iii. Interior Openings – ADD “this contractor shall provide all interior glazing assemblies (exception: interior vestibules in the new addition, which shall be provided by the Prime Window Contractor (G6)).”
iv. ADD Fireproofing – This prime contractor shall be responsible for Applied & Intumescent Mastic Fireproofing including finish coat. This prime contractor is directed towards cleaning, protecting and repairing requirements outlined in the specifications.
v. ADD Equipment – This prime contractor shall provide (Division 11) Loading Dock Equipment & Residential Appliances.

b. G2 – Prime Contractor for Abatement
   i. Window Removals – ADD Prime General Construction Contractor (G1) shall be responsible for maintaining & removal of temporary window protection installed by the Prime Abatement Contractor (G2).
c. G3 – Prime Contractor for Masonry
   i. Exterior Wall Thermal & Moisture Protection – CHANGE sheathing shall be by Prime Contractor for General Construction (G1).
   ii. Louvers & Vents – CHANGE Louvers shall be provided, installed & caulked by the Prime Contractor for General Construction (G1).
d. G6 – Prime Contractor for Windows
   i. CHANGE “all interior vestibules” to “all interior vestibules <u>in the new additions</u>.”
e. G7 – Prime Contractor for Flooring
   i. ADD The following Division 09 Finishes shall be included within this contract: Resilient flooring and accessories, Resilient athletic flooring, Portland Cement terrazzo flooring restoration, Resinous matrix terrazzo flooring, Resinous flooring, Tile carpeting.
   ii. ADD At locations where existing walls are to be removed adjacent to existing terrazzo flooring to remain (such as at existing corridors), this prime contractor (G7) shall provide hydraulic cement underlayment and/or concrete subbase & patching of terrazzo flooring. Note that locations of required floor finish infill are shown on plans.
f. G8 – Prime Contractor for Tiling
   i. ADD The following Division 09 Finishes shall be included within this contract: Ceramic tiling, Ultracompact (porcelain) wall panels. This prime contractor shall provide appropriate substrate (including masonry surface prep, cement board or other) for tile installation on existing walls. Prime Contractor for General Construction (G1) shall provide cement board substrate at new walls of their work.
g. M1 – Prime Contractor for Mechanical
   i. Louvers & Vents – CHANGE Louvers shall be provided, installed (& caulked) by the Prime Contractor for General Construction (G1).

5) Section 012300 Alternates
   a. Alternate #A2 – CHANGE “Base Bid includes porcelain tile with stone saddles as scheduled.” to “Base Bid includes finishes as scheduled.” This is intended to clarify that not all base bid floor finishes and bases are limited to porcelain tile.
   b. Alternate #A3 – CHANGE “Base Bid includes porcelain tile with stone saddles as scheduled.” to “Base Bid includes finishes as scheduled.”

**Part 2 Technical Changes, Architectural, Structural and Civil**

1) Section 076200 Sheet Metal Flashing, Fabrications and Trim (9 pages) replaces the prior (10 page) section in its entirety. See included documents.

2) Section 077200 Roof Accessories, Part 1.2, A, 1 – (REMOVE) item K Galvanized steel roof access ladders. AND Part 2.10 which is to be (REMOVED) in its entirety. *Refer to Section 055000 (Part 14) for Aluminum Ladders with crossover platforms.*

3) Section 085113
    a. Part 2.3, B (Change to Read) For single hung **Courtyard windows**, provide interior and exterior tape applied muntins on glazing; finish to match windows. Muntin shall be Traco (division of Kawneer) H-1906.
    b. Part 2.11, C
        i. DELETE - Item 1 in its entirety. *Anodized finish is not desired.*
        *ii.* DELETE - Item 2. *the words* "Two or" – *Design Intent is to call for Three-Coat system called for.* For all **New windows**. Color: shall be As Selected by Architect from manufactures full range for new addition windows.
        *iii.* Item 3. (ADD) Three-Coat Fluoropolymer: AAMA 2605 etc. *(same finish as for Item 2)* **For all Courtyard Windows.** Finish color for **Courtyard windows** shall be Antique Bronze

4) Section 088300, Part 2, Products, 2.1 A 2. Provide (4) Mirrors in the Fitness room on the North wall oriented vertically 4'w x 6'h. Butt together to create one large mirror with perimeter stainless edges.
5) Section 092800 - The GRGF round column cover detail is found on A441/13 and is applicable to all round column covers shown throughout the Drawings. Include a Rubber Base unless otherwise specified.
6) Section 093100. Part 2.3 Tile product,
    a. Item D5. Color to be PF06 Iron grey, not PF05 Ash Grey as indicated.
    b. Item L – Porcelain tile shall receive Schluter edges at outside vertical edge /corners. Wood cap shall run continuously along the tile top edge and turn corners, typ. Include 3'w x full height mockup of porcelain wall tile assembly for owner / architect review and approval. (Attachment A) prior to ordering tile.
    c. Item M. Review drawings for detailed locations.
7) OMIT Section 095423 Metal Panel Ceilings in its entirety.
8) Section 096623 Resinous Matrix Terrazzo Flooring. Tile is poured epoxy. The tile colors are mentioned for appearance reference only. 2.3 Mixes A. 2 Colors and Patterns Clarification:
    a. Field – (TZ1) Key Epoxy resin 16327. It is composed of 10% Italian Botticino #2, 15% Georgia White #2, 20 % Georgia White #0, 25% China White #0, 30% China White #2, and 100% Key Resins Epoxy #001 white w/XO white filler, plus finish grit/coats.
    b. Accent 1 - (TZ 2) and Base (Grey) Similar to Wausau Reflection series Color TZ303 Sterling.
    c. Accent 2 - (TZ3) (Blue) Key # 16325, 100% KCI clear glass #1-2, 100% Key resign epoxy #MTBlue, 03212023 w/40/200 filler, plus grit/ finish coats.
    d. Accent 3 - (TZ4) (Dark grey) Similar to Wausau Reflection series TZ309 Coal

9) Section 096723, Products D 12. Color- CHANGE "Mid grey" color to "Winter sky" color.
10) Section 096813, Part 2 products, 2.1G. The correct Style number for CPT4 is NAV 13-6
11) Section 101200 - Display Cases are Illuminated. Refer to electrical drawings for details.

12) Section 102600 - Corner guards are required on any non-tiled wall.
13) Section 142100 Electric Traction Elevator - Revise 2.10.A.9.g to read "g. Provide automatic battery lowering in case of power outage."

**Part 4 Drawing Changes, Architectural, Civil and Landscape**

1) Drawing A104 – See (this addendum) drawing A811 for head, jamb & sill details for the replacement windows.
2) Drawing A200-A – ADD approx. 10sf concrete trenching & infill in Mech G22b.
3) Drawing A200-B – ADD type F3 furring wall to entire length & height of the North wall of rooms G70n & G70m.
4) Drawing A201-B – ADD 30”x36” type S1 1hr shaft wall assembly in NE corner of Elec/Data 172e.
5) Drawing A201-C = ADD window type 1Y to doors C106a. See revised drawing A905 for type.
6) Drawing A201-N
    a. ADD window type 1Y to doors, 102n, SE1, SF. See revised drawing A905 for type.
    b. ADD 36” wide wall type 6 plumbing chase to Stor 104, Jan 204, & Jan 304.
7) Drawing A201-S – ADD window type 1Y to doors SG. See revised drawing A905 for type.
8) Drawing A301 - Elevation NA (North Façade) -- Delete the 2 small windows, Type 2T & Cast Stone sills from the project. Wall infill shall be Brick & 6” stud Backup Wall indicated for adjacent exterior wall.
9) Drawing A401 – 4/A401 & 5/A401 – REMOVE note “provide translucent window film.” This film is intended to be provided by a contract previously awarded.
10) Drawing A600-A & A600-C – ADD note “Diagonal hatch at ACT-1 ceilings indicates accent color ceiling tile, see spec.”
11) ADD drawing A811 ADDITIONAL DETAILS. See included documents.
12) Drawing A902 – Door Schedule
    a. CHANGE C110 door material to AL and hardware set to 17 AL. This interior vestibule glazing & door assembly is intended to be provided by the same prime contractor supplying the exterior assembly to maintain a similar appearance. This condition is similar to Vestibule G34.
    b. CHANGE doors 101 & 113 to note that existing frame & glazing assembly to remain (historic).
13) Drawing A903 – Door Schedule – REMOVE all references to an add alternate in the Comments column. Doors to be included in Add Alternate bids are as described & shown on the floor plans.
14) Drawing A905
    a. ADD aluminum window type 1Y. See included documents.
    b. CHANGE dimensions of types 4A & 4B. See included documents.

**Part 6 Drawing Changes, Mechanical, Electrical and Plumbing**

1) Drawing P101.N – Revised drawing to show reinstallation of water fountain. Refer to revised drawing included with addendum.
2) Drawing P200.1 – Refer to revised drawing for changes. Refer to revised drawing included with addendum.
3) Drawing P200.A – Revised drawing to show vent and sanitary piping. Refer to revised drawing included with addendum.
4) Drawing P201.A – Revised drawing to show additional sanitary and vent piping. Refer to revised drawing included with addendum.
5) Drawing P203.NS - Revised drawing to show vent and sanitary piping. Refer to revised drawing included with addendum.

6) Drawing P401 - Revised drawing to show gas, hot water and hot water recirc piping. Refer to revised drawing included with addendum.
7) Drawing P604 – Revised drawing to revise gas riser diagrams. Refer to revised drawing included with addendum.
8) Drawing P609 – Added drawing to add riser diagrams. Refer to revised drawing included with addendum.
9) Drawing M604 – Revised drawing to remove flow switch from pump detail.
10) Drawing M702 – Revised drawing to show Bacnet MS-TP controls.
11) Drawing M703 – Revised drawing to show master controller, sound kit and supervisory controls.
12) Drawing ESP200 – Revise drawing to show relocation of (4) site lights. Refer to revised drawing included in addendum.
13) Drawings E101.N, E101.S, E102.N, E102.S & E103 – Revise drawings to show removal of existing water cooler receptacle circuitry. Refer to revised drawing included in addendum.
14) Drawings E201.N, E201.S, E202.N, E202.S & E203.NS – Revise drawings to show new circuitry to existing receptacles associate with existing water coolers. Refer to revised drawing included in addendum.
15) Drawing E301.A – Revise drawings to show update lighting layout in Library Media Center 144. Refer to revised drawing included in addendum.
16) Drawing E704 – Revise drawing to show additional existing water cooler circuits in panel schedules. Refer to revised drawing included with addendum.
17) Drawing E706 – Revise drawing to show additional existing water cooler circuits in panel schedules. Refer to revised drawing included with addendum.
18) Drawing E708 – Revise drawing to show additional existing water cooler circuits in panel schedules. Refer to revised drawing included with addendum.

## Part 7 Clarifications

1) At walls along grids AA & BB between grid 8 to grid 15, refer to section 10/S211 for detail.
2) At walls along grids AA & BB between grid 15 to grid 17, see 1/S203 for similar sections, wall thickness shall be 1’-4”, 5” slab-on-grade at inside of building (exterior grade lower than slab per C400).
3) At walls along grid 8 between grid EE to grid AA, refer to 10/S211 for detail.
4) At walls along grid 8 between grid B to grid EE, see 1/S203 for similar section. Wall thickness shall be 1’-4”, 5” slab-on-grade at inside of building (exterior grade higher than slab per C400).
5) Footing detail shown on wall section 1/S214 shall apply continuous along full length of wall running from Stair U to Stair V.
6) Slab construction for the Terrace Area shall be typical 5” slab-on-grade for exterior use.
7) Site retaining walls shall follow typical retaining wall details 1/S203 and 2/S203. Refer to Civil & Architectural drawings for wall detailing, extent and height. Also see ASK-01, ASK-02.
8) This is to clarify that for the 4-story new addition (Area A) the Design Intent is that the Primary Structural Frame (per CC001) for Type IIA construction shall also include:
   a) Vertical posts (WP & WPS wind posts) shall be coated with Intumescent Paint
   b) Vertical & horizontal Tube Steel within Stairs A & B shall be coated with Intumescent Paint.
9) Section 093100- Stone thresholds. Clarification: Marble saddles shall be used at toilet rooms. Terrazzo saddles shall be used where new or existing terrazzo exists. Slate saddles shall be used where stone is indicated on A904, and it is not terrazzo or a toilet room.

10) With regards to the Abatement **(Contract G2)** of existing building materials, deemed hot in the report or on abatement plans, the Design Intent is to fully remove building elements, in their entirety, and legally dispose of such as **Hazardous Materials**. (Also, see Addendum 1 for more info and for enclosing such openings)

    Examples include Elevation EA / A104 (among others) which shows items identified on drawings AA100 thru AA103 as being in need of abatement, prior to disposal of as general debris.

11) The design intent of this project, relating to the Courtyard East Façade window work (on dwg A104) shall be as follows:
    a) Window removal & window replacement shall be done by the **Windows Contractor G6** (for windows designated as Type 'n') and shall be coordinated with demolition & infill work on that façade. Note: if temporary removal of these windows is desired, see Addendum 1 for temporary sealing & insulation of openings.
    b) Removal of windows and infilling called for on the same façade, shall be by the **G1 Contractor**.
    c) Cutting of new openings for (Type n) windows and for Doors shall be by the **G1 Contractor** and shall include prepping openings at head, sill & jambs including furnish & installation of cast stone sills, similar in all respects to others on that façade. **Window Contractor G6** shall install (Type n) windows in such openings, coordinated w/G1 Contractor.
    d) **G1 Contractor** shall install doors and adjacent concrete work for access to the courtyard.
12) Glazing where shown &/or specified (such as for Openings, Specialties, Equipment, Furnishings, etc ) shall be provided by the same Prime Contractor responsible for providing such assembly / product.

## Part 8 New Issues - List of Included Documents

| | | |
|---|---|---|
| 076200 - Sheet Metal Flashing, Fabrications and Trim | | 9 pages |
| CSK-01 | 11x17 sketch | 1 page |
| ASK-01 | 11x17 sketch | 1 page |
| ASK-02 | 11x17 sketch | 1 page |
| Drawing A811 | 30x42 drawing | 1 sheet |
| Drawing A905 | 30x42 drawing | 1 sheet |
| Drawing P101.N – FIRST FLOOR DEMOLITION PLAN – AREA NORTH | | 1 sheet |
| Drawing P200.1 – BELOW SLAB PLAN – AREA A | | 1 sheet |
| Drawing P200.A – GROUND FLOOR PLAN – AREA A | | 1 sheet |
| Drawing P201.A – FIRST FLOOR PLAN – AREA A | | 1 sheet |
| Drawing P203.NS – THIRD FLOOR PLAN – AREA N&S | | 1 sheet |
| Drawing P401 – ENLARGED PREP. COMMISSARY PLAN | | 1 sheet |
| Drawing P604 – PLUMBING DETAILS | | 1 sheet |
| Drawing P609 – PLUMBING DETAILS | | 1 sheet |
| Drawing M604 – MECHANICAL: DETAILS | | 1 sheet |
| Drawing M702 – MECHANICAL: SCHEDULES | | 1 sheet |
| Drawing M703 – MECHANICAL: SCHEDULES | | 1 sheet |
| Drawing ESP200 – SITE PLAN | | 1 sheet |
| Drawing E101.N - FIRST FLOOR DEMOLITION PLAN - AREA NORTH | | 1 sheet |
| Drawing E101.S – FIRST FLOOR DEMOLITION PLAN – AREA SOUTH | | 1 sheet |

| | |
|---|---|
| Drawing E102.N – SECOND FLOOR DEMOLITION PLAN - AREA NORTH | 1 sheet |
| Drawing E102.S - SECOND FLOOR DEMOLITION PLAN - AREA SOUTH | 1 sheet |
| Drawing E103 - THIRD FLOOR DEMOLITION PLAN | 1 sheet |
| Drawing E201.N - FIRST FLOOR POWER PLAN - AREA N | 1 sheet |
| Drawing E201.S - FIRST FLOOR POWER PLAN - AREA S | 1 sheet |
| Drawing E202.N - SECOND FLOOR POWER PLAN - AREA N | 1 sheet |
| Drawing E202.S - SECOND FLOOR POWER PLAN - AREA S | 1 sheet |
| Drawing E203.NS - THIRD FLOOR POWER PLAN - AREAS N & S | 1 sheet |
| Drawing E301.A - FIRST FLOOR LIGHTING PLAN - AREA A | 1 sheet |
| Drawing E704 – EQUIPMENT SCHEDULES | 1 sheet |
| Drawing E706 – EQUIPMENT SCHEDULES | 1 sheet |
| Drawing E708 – EQUIPMENT SCHEDULES | 1 sheet |

End of Addendum

# SECTION 076200 - SHEET METAL FLASHING, FABRICATIONS AND TRIM

## PART 1 - GENERAL

### 1.1 SUMMARY

A. This Section includes sheet metal flashing and trim in the following categories:

1. Metal flashing.
2. Reglets.
3. Scuppers.
4. Downspouts and conductor heads.
5. Downspout boots
6. Metal trim.

B. Related Work Specified elsewhere:

1. Aluminum composite copings/cornice fabrications are specified in Division 07 Section “Composite Metal Wall and Soffit Panels.”

### 1.2 PERFORMANCE REQUIREMENTS

A. General: Sheet metal flashing and trim assemblies as indicated shall withstand wind loads, structural movement, thermally induced movement, and exposure to weather without failure due to defective manufacture, fabrication, installation, or other defects in construction. Completed sheet metal flashing and trim shall not rattle, leak, or loosen, and shall remain watertight.

B. Low-slope membrane roof system metal edge securement, except gutters, shall be designed and installed for wind loads in accordance with Building Code of NY, Chapter 16 and tested for resistance in accordance with ANSI/SPRI ES-1.

1. Fabricate and install roof edge flashing, metal edge securement, facae and copings capable of resisting the following forces:

a. Wind Zone 2 (roof edge perimeter, vertical load direction): As indicated on Structural Drawings.
b. Wind Zone 3 (roof edge corners, vertical load direction): As indicated on Structural Drawings.
c. Wind Zone 4 (wall edge perimeter, horizontal load direction): As indicated on Structural Drawings.
d. Wind Zone 5 (wall edge corners, horizontal load direction): As indicated on Structural Drawings.

2. Dimension of perimeter and corner zones shall be as indicated on Structural Drawings.

C. Thermal Movements: Provide sheet metal flashing and trim that allows for thermal movements from ambient and surface temperature changes.

1. Temperature Change (Range): 120 deg F (67 deg C), ambient; 180 deg F (100 deg C), material surfaces

1.3 ACTION SUBMITTALS

A. Product Data including manufacturer's material and finish data, installation instructions, and general recommendations for each specified flashing material and fabricated product.

B. Shop Drawings of each item specified showing layout, profiles, methods of joining, and anchorage details.

C. Samples for Verification: Samples of sheet metal flashing, trim, and accessory items, in the specified finish. Where finish involves normal color and texture variations, include Sample sets composed of 2 or more units showing the full range of variations expected.

1. 8-inch- (200-mm-) square Samples of specified sheet materials to be exposed as finished surfaces.
2. 12-inch- (300-mm-) long samples of factory-fabricated products exposed as finished Work and accessories, as specified below.
   a. Dowspouts.

1.4 INFORMATIONAL SUBMITTALS

A. Qualification data for firms and persons specified in the "Quality Assurance" Article to demonstrate their capabilities and experience. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.

B. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency, for copings and roof-edge flashings.

C. Warranty: Sample of special warranty.

1.5 QUALITY ASSURANCE

A. Installer Qualifications: Engage an experience Installer who has completed sheet metal flashing and trim work similar in material, design, and extent to that indicated for this Project and with a record of successful in-service performance.

B. Sheet Metal Flashing and Trim Standard: Comply with SMACNA's "Architectural Sheet Metal Manual." Conform to dimensions and profiles shown unless more stringent requirements are indicated.

1.6 PROJECT CONDITIONS

A. Coordinate Work of this Section with interfacing and adjoining Work for proper sequencing of each installation. Ensure best possible weather resistance, durability of Work, and protection of materials and finishes.

1.7 WARRANTY

A. Special Warranty on Painted Finishes: Manufacturer's standard form in which manufacturer agrees to repair finish or replace roof specialties that show evidence of deterioration of factory-applied finishes within specified warranty period.

1. Fluoropolymer Finish: Deterioration includes, but is not limited to, the following:
   a. Color fading more than 5 Hunter units when tested according to ASTM D 2244.
   b. Chalking in excess of a No. 8 rating when tested according to ASTM D 4214.
   c. Cracking, checking, peeling, or failure of paint to adhere to bare metal.

2. Finish Warranty Period: 20 years from date of Substantial Completion.

B. Performance Warranty: Include copings, fascae and roof edge flashings in Total System Warranty provided by roofing membrane manufacturer; refer to Section 075419.

PART 2 - PRODUCTS

2.1 METALS

A. Aluminum: Alloy and temper recommended by aluminum producer and finisher for type of use and finish indicated and with not less than the strength and durability of alloy and temper designated below:

1. Aluminum Sheet: ASTM B 209, Alclad 3003-H14, with a minimum thickness as indicated.
2. Extruded Aluminum: ASTM B 221, alloy 6063-T52, with a minimum thickness of 0.080 inch for primary legs of extrusions, unless otherwise indicated.

B. Stainless Steel: ASTM 240/A 240M, Type 304 sheet.

2.2 MISCELLANEOUS MATERIALS AND ACCESSORIES

A. Fasteners: Same metal as sheet metal flashing or other noncorrosive metal as recommended by sheet metal manufacturer. Match finish of exposed heads with material being fastened.

B. Asphalt Mastic: SSPC-Paint 12, solvent-type asphalt mastic, nominally free of sulfur and containing no asbestos fibers, compounded for 15-mil (0.4-mm) dry film thickness per coat.

C. Mastic Sealant: Polyisobutylene; nonhardening, nonskinning, nondrying, nonmigrating sealant.

D. Elastomeric Sealant: Generic type recommended by sheet metal manufacturer and fabricator of components being sealed and complying with requirements for joint sealants as specified in Division 07 Section "Joint Sealants."

E. Solder for Stainless Steel: ASTM B32, Grade Sn60, with acid flux of type recommended by stainless steel sheet manufacturer.

F. Epoxy Seam Sealer: 2-part, noncorrosive, aluminum seam-cementing compound, recommended by aluminum manufacturer for exterior and interior nonmoving joints, including riveted joints.

G. Adhesives: Type recommended by flashing sheet metal manufacturer for waterproof and weather-resistant seaming and adhesive application of flashing sheet metal.

H. Felt Underlayment: ASTM D 226, Type II (No. 30), asphalt-saturated organic felt, nonperforated.

I. Slip Sheet: 3-lb. rosin-sized building paper or Tyvek by DuPont.

J. Self-Adhering Sheet Underlayment, Polyethylene Faced: ASTM D 1970, minimum of 40 mils (1.0 mm) thick; slip-resisting, polyethylene-film-reinforced top surface laminated to SBS-modified asphalt adhesive, with release-paper backing; cold applied. Provide primer when recommended by underlayment manufacturer.

1. Product: Ice and Water Shield by GCP Applied Technologies.or equal.

K. Metal Accessories: Provide sheet metal clips, straps, anchoring devices, and similar accessory units as required for installation of Work, matching or compatible with material being installed; noncorrosive; size and thickness required for performance.

L. Roofing Cement: ASTM D 4586, Type I, asbestos free, asphalt based.

M. Cast Iron Downspout Boots: Size as indicted on Drawings, by JR Hoe,or equal.

2.3 MANUFACTURED SHEET METAL FLASHING AND TRIM

A. General: Provide items designed and fabricated to fit applications indicated and to perform optimally with respect to weather resistance, water tightness, durability, strength, and uniform appearance.

B. Expansion Provisions: Fabricate running lengths to allow controlled expansion not only for movement of metal components in relationship to one another but also to adjoining dissimilar materials, including flashing and roofing membrane materials, in a manner sufficient to prevent water leakage, deformation or damage.

C. Reglets: Units of type, material, and profile indicated, formed to provide secure interlocking of separate reglet and counterflashing pieces and compatible with flashing indicated.

1. Surface-Mounted Type: Provide with slotted holes for fastening to substrate, with neoprene or other suitable weatherproofing washers, and with channel for sealant at top edge.
2. Concrete Type: Provide temporary closure tape to keep reglet free of concrete materials, special fasteners for attaching reglet to concrete forms, and guides to ensure alignment of reglet section ends.
3. Masonry Type: Provide with offset top flange for embedment in masonry mortar joint.
4. Flexible Flashing Retainer: Provide resilient plastic or rubber accessory to secure flexible flashing in reglet where clearance does not permit use of standard metal counterflashing or where Drawings show reglet without metal counterflashing.
5. Counterflashing Wind-Restraint Clips: Provide clips to be installed before counterflashing to prevent wind uplift of the counterflashing lower edge.
6. Material: Fabricate reglets from the following metal, in thickness indicated:
   a. Stainless steel, 0.020 inch thick.

7. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
   a. Fry Reglet Corporation.
   b. Metal-Era Inc
   c. Hickman Edge Systems.

2.4 FABRICATION, GENERAL

A. General Metal Fabrication: Shop-fabricate work to greatest extent possible. Comply with details shown and with applicable requirements of SMACNA "Architectural Sheet Metal Manual" and other recognized industry practices. Fabricate for waterproof and weather-resistant performance, with expansion provisions for running work, sufficient to permanently prevent leakage, damage, or deterioration of the work. Form work to fit substrates. Comply with material manufacturer instructions and recommendations for forming material. Form exposed sheet metal work without excessive oil-canning, buckling, and tool marks, true to line and levels indicated, with exposed edges folded back to form hems.

B. Seams in Stainless Steel: Fabricate nonmoving seams with flat-lock seams. Tin edges to be seamed, form seams, and solder.

C. Seams in Aluminum: Fabricate nonmoving seams in aluminum with flat-lock seams. Form seams and seal with epoxy seam sealer. Rivet joints for additional strength.

D. Expansion Provisions: Space movement joints at maximum of 10 feet with no joints allowed within 24 inches (600 mm )of corner or intersection. Where lapped or bayonet-type expansion provisions in Work cannot be used or would not be sufficiently

weatherproof and waterproof, form expansion joints of intermeshing hooked flanges, not less than 1 inch (25.4 mm) deep, filled with mastic sealant (concealed within joints.)

E. Sealed Joints: Form nonexpansion, but movable, joints in metal to accommodate elastomeric sealant to comply with SMACNA standards.

F. Separate metal from noncompatible metal or corrosive substrates by coating concealed surfaces at locations of contact with asphalt mastic or other permanent separation as recommended by manufacturer.

G. Conceal fasteners and expansion provisions unless noted otherwise. Exposed fasteners are not allowed on faces of sheet metal exposed to public view.

H. Fabricate cleats and attachment devices from same material as sheet metal component being anchored or from compatible, noncorrosive metal recommended by sheet metal manufacturer.

1. Size: As recommended by SMACNA manual or sheet metal manufacturer for application but never less than thickness of metal being secured.

I. Scuppers: Fabricate scuppers of dimensions required with closure flange trim to exterior, 4-inch- (100-mm-) wide wall flanges to interior, and base extending 4 inches (100 mm) beyond cant or tapered strip into field of roof.

J. Downspouts: Fabricate rectangular downspouts complete with mitered elbows. Furnish with metal hangers, from same material as downspouts, and anchors.

1. Metal Material: Aluminum.
2. Metal Thickness: 0.024" min.
3. Size: As indicated on Drawings.
4. Finish: Fluoropolymer 2-Coat System, color as selected by Architect.

## 2.5 SHEET METAL FABRICATIONS

A. General: Fabricate sheet metal items in thickness or weight needed to comply with performance requirements but not less than that listed below for each application and metal.

B. Miscellaneous Exposed Trim, Scuppers, Base Flashing, Conductor Head: Fabricate from the following material:

1. Stainless Steel: 24 gauge

C. Counterflashing, Cap Flashing Flashing Receivers: Fabricate from the following material:

1. Stainless Steel: 26 gauge

## 2.6 ALUMINUM FINISHES

A. General: Comply with Aluminum Association's (AA) "Designation System for Aluminum Finishes" for finish designations and application recommendations.

B. High-Performance Organic Finish: AA-C12C42R1x (Chemical Finish: cleaned with inhibited chemicals; Chemical Finish: acid-chromate-fluoride-phosphate conversion coating; Organic Coating: as specified below). Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.

1. Fluoropolymer 2-Coat System: Manufacturer's standard 2-coat thermocured system consisting of specially formulated inhibitive primer and fluoropolymer color topcoat containing not less than 70 percent polyvinylidene fluoride resin by weight; complying with AAMA 2605.
2. Colors: As selected by Architect for each location.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

A. Examine substrates and conditions under which sheet metal flashing and trim are to be installed and verify that Work may properly commence. Do not proceed with installation until unsatisfactory conditions have been corrected.

### 3.2 INSTALLATION

A. General: Unless otherwise indicated, install sheet metal flashing and trim to comply with performance requirements, manufacturer's installation instructions, and SMACNA's "Architectural Sheet Metal Manual." Anchor units of Work securely in place by methods indicated, providing for thermal expansion of metal units; conceal fasteners where possible, and set units true to line and level as indicated. Install Work with laps, joints, and seams that will be permanently watertight and weatherproof.

B. Install exposed sheet metal Work that is without excessive oil canning, buckling, and tool marks and that is true to line and levels indicated, with exposed edges folded back to form hems. Install sheet metal flashing and trim to fit substrates and to result in waterproof and weather-resistant performance. Verify shapes and dimensions of surfaces to be covered before fabricating sheet metal.

C. Roof-Edge Flashings and Edge Securement: Secure metal flashings, copings and edge securement at roof edges according to Building Code of NY, Chapter 16 for specified wind zone.

D. Isolation: Where metal surfaces of units are installed in contact with dissimilar metal or corrosive substrates, including wood, apply bituminous coating on concealed metal

surfaces, or provide other permanent separation as recommended by sheet metal producer.

E. Expansion Provisions: Provide for thermal expansion of exposed sheet metal Work. Space movement joints at maximum of 10 feet with no joints allowed within 24 inches of corner or intersection. Where lapped or bayonet-type expansion provisions in Work cannot be used or would not be sufficiently weatherproof and waterproof, form expansion joints of intermeshing hooked flanges, not less than 1 inch deep, filled with mastic sealant (concealed within joints).

F. Sealed Joints: Form nonexpansion, but movable, joints in aluminum to accommodate elastomeric sealant to comply with SMACNA standards. Fill joint with sealant and form metal to completely conceal sealant.

1. Use joint adhesive for nonmoving joints specified not to be soldered.

G. Seams in Stainless Steel: Fabricate nonmoving seams with flat-lock seams. Tin edges to be seamed, form seams, and solder.

H. Seams in Aluminum: Fabricate nonmoving seams in aluminum with flat-lock seams. Form seams and seal with epoxy seam sealer. Rivet joints for additional strength.

I. Separations: Separate metal from noncompatible metal or corrosive substrates by coating concealed surfaces, at locations of contact, with asphalt mastic or other permanent separation as recommended by manufacturer.

1. Underlayment: Where installing copper or aluminum directly on cementitious or wood substrates, install a slip sheet of red-rosin paper over one layer of felt underlayment before installing sheet metal.
2. Bed flanges in a thick coat of roofing cement where required for waterproof performance.

J. Install reglets to receive counterflashing according to the following requirements:

1. Where reglets are shown in concrete, furnish reglets for installation under Division 03 Section "Cast-in-Place Concrete."
2. Where reglets are shown in masonry, furnish reglets for installation under Division 04 Sections.

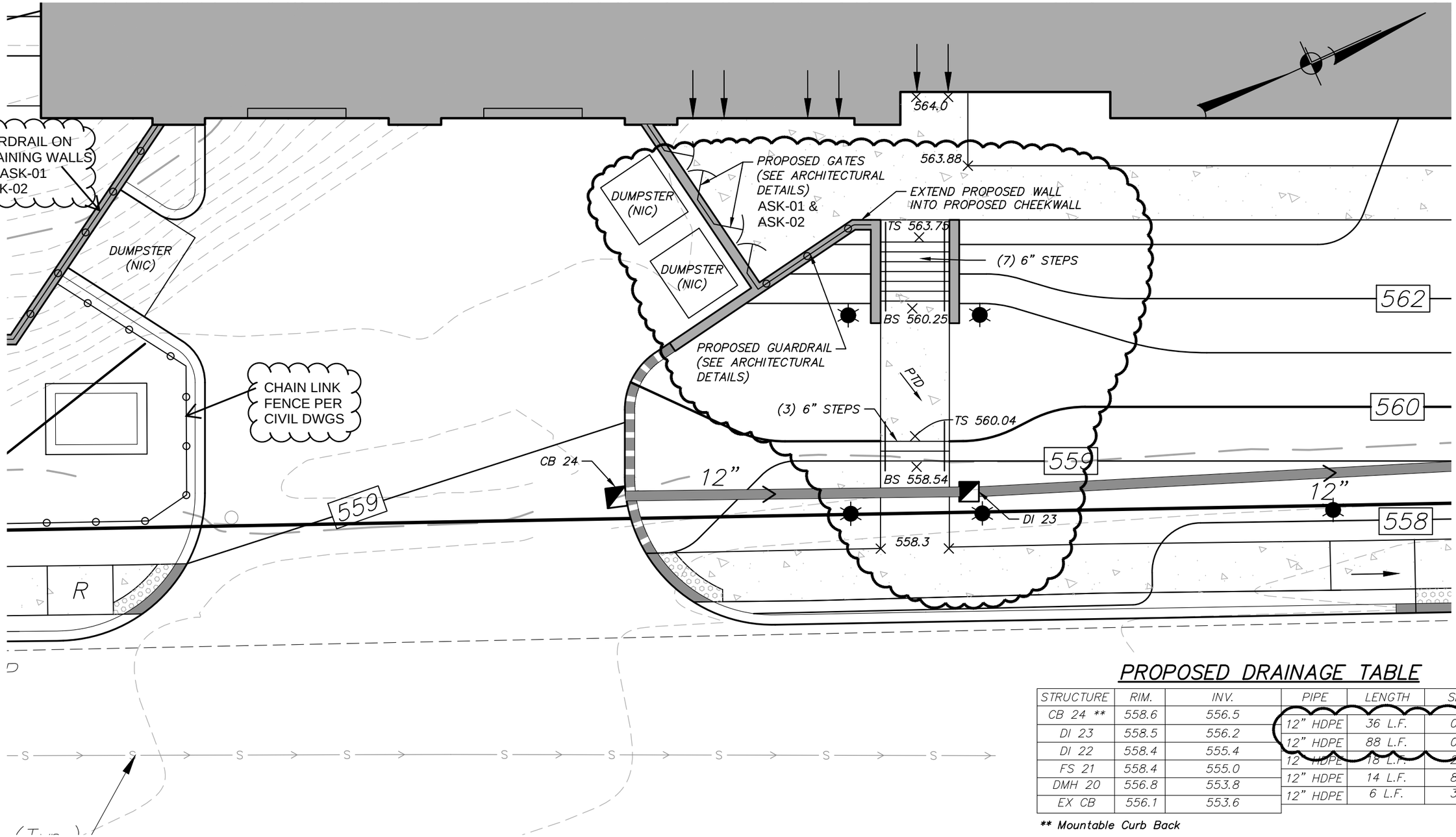
K. Counterflashings: Coordinate installation of counterflashings with installation of assemblies to be protected by counterflashing. Install counterflashings in reglets or receivers. Secure in a waterproof manner by means of snap-in installation and sealant, lead wedges and sealant, interlocking folded seam, or blind rivets and sealant. Lap counterflashing joints a minimum of 2 inches (50 mm) and bed with sealant.

3.3 CLEANING AND PROTECTION

A. Clean exposed metal surfaces, removing substances that might cause corrosion of metal or deterioration of finishes.

B. Provide final protection and maintain conditions that ensure sheet metal flashing and trim Work during construction is without damage or deterioration other than natural weathering at the time of Substantial Completion.

END OF SECTION 076200




## PROPOSED DRAINAGE TABLE

| STRUCTURE | RIM. | INV. | PIPE | LENGTH | SLOPE |
|---|---|---|---|---|---|
| CB 24 ** | 558.6 | 556.5 | | | |
| DI 23 | 558.5 | 556.2 | 12" HDPE | 36 L.F. | 0.8% |
| DI 22 | 558.4 | 555.4 | 12" HDPE | 88 L.F. | 0.9% |
| FS 21 | 558.4 | 555.0 | 12" HDPE | 18 L.F. | 2.2% |
| DMH 20 | 556.8 | 553.8 | 12" HDPE | 14 L.F. | 8.6% |
| EX CB | 556.1 | 553.6 | 12" HDPE | 6 L.F. | 3.3% |

** Mountable Curb Back

**ADDENDUM 4**

KG+D listen imagine build

INSITE ENGINEERING, SURVEYING & LANDSCAPE ARCHITECTURE, P.C.

# TWIN TOWERS MIDDLE SCHOOL

ENLARGED CITY SCHOOL DISTRICT OF MIDDLETOWN

Project Issue Date: ADDENDUM 4 2/12/24 ONSTRUCTION DOCUMENTS

Sheet Title

## LOADING DOCK WALL & RAILING

S.E.D. Control No.

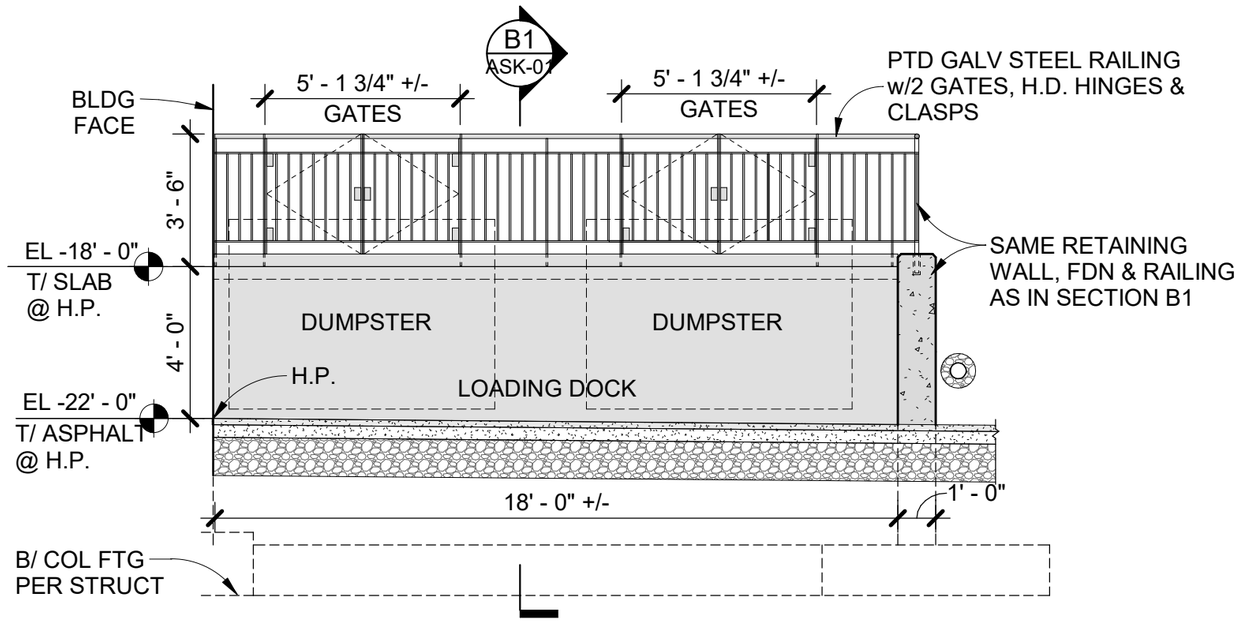
Job No. 2021-1087

Date 2/12/24

Scale 1" = 10'

Drawn / Checked TM/AT

Sheet No. CSK-01




## B2 LOADING DOCK RAILING ELEVATION B2

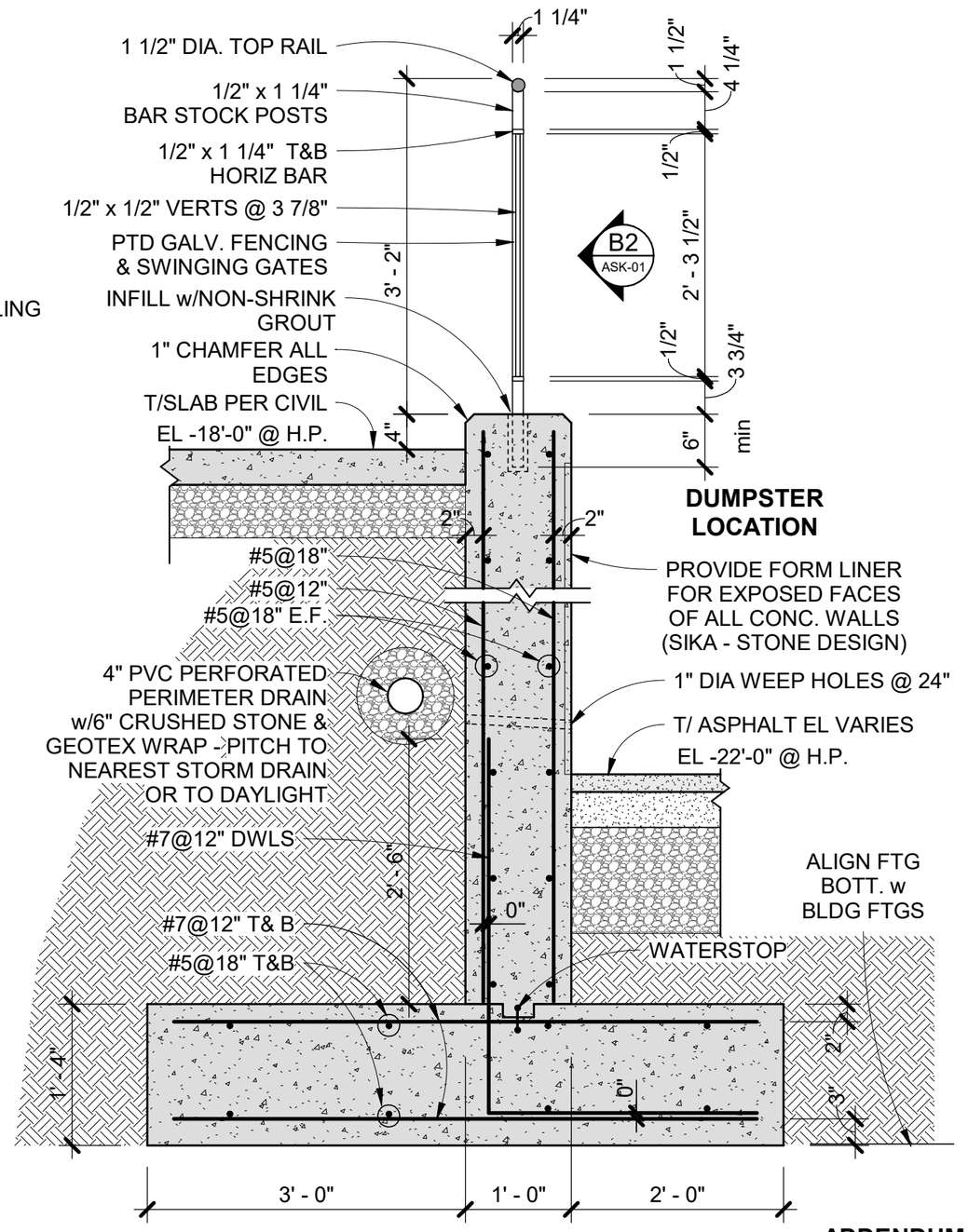
1/4" = 1'-0"

### RETAINING WALL NOTES

THE BALANCE OF RETAINING WALLS SHOWN IN THIS AREA OF THE PROJECT, INCLUDING THE WALLS BEHIND THE TRANSFORMER, GENERATOR SHALL USE THE SAME FINISH CRITERIA CHAMFER EDGES, (FORM LINER), RAILINGS AS WALL SECTION B1 / ASK- 01

## B1 LOADING DOCK RETAINING WALL SECTION B1

3/4" = 1'-0"




**ADDENDUM 4**

KG+D listen imagine build

# TWIN TOWERS MIDDLE SCHOOL

ENLARGED CITY SCHOOL DISTRICT OF MIDDLETOWN

Project Issue Date: ADDENDUM 4 2/12/24 CONSTRUCTION DOCUMENTS

Sheet Title

## LOADING DOCK WALL & RAILING

S.E.D. Control No.

Job No. 2021-1087

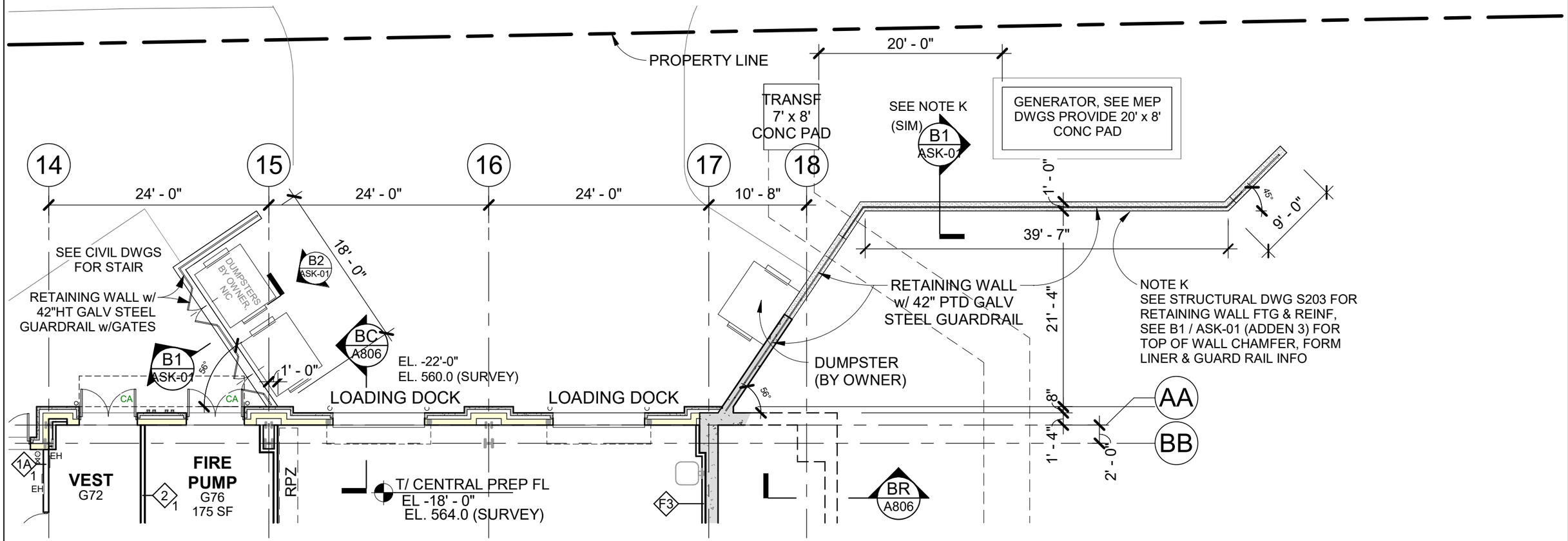
Date 2/12/24

Scale As indicated

Drawn / Checked -

Sheet No.

# ASK-01




## 1 PARTIAL GROUND FL PLAN - AREA B

3/32" = 1'-0" REF. DWG A200-B

**ADDENDUM 4**

KG+D listen imagine build

# TWIN TOWERS MIDDLE SCHOOL

ENLARGED CITY SCHOOL DISTRICT OF MIDDLETOWN

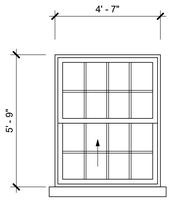
Project Issue Date: ADDENDUM 4 2/12/24 CONSTRUCTION DOCUMENTS

Sheet Title
PART GR FL PLAN - AREA B
AT LOADING DOCK

S.E.D. Control No.

Job No. 2021-1087
Date 2/12/24
Scale 3/32" = 1'-0"
Drawn / Checked .

Sheet No.
ASK-02




n — SINGLE HUNG WINDOW TYPE n

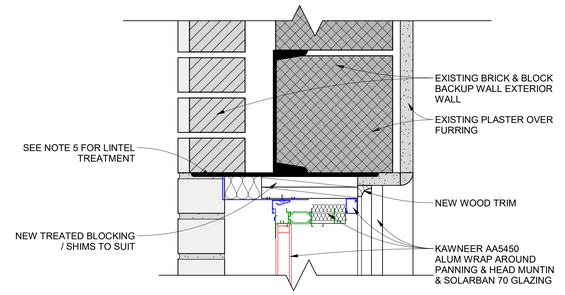
(NEW - 25 THUS)

COURTYARD - EAST FACADE

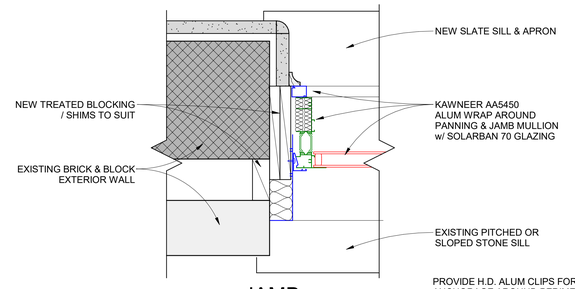
## 2 COURTYARD WINDOW REPLACEMENT TYPE

3/8" = 1'-0"

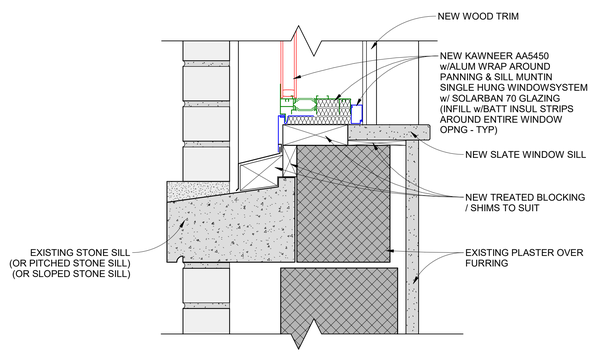
WORK THIS WITH DWG A905




HEAD




JAMB




SILL

# COURTYARD REPLACEMENT WINDOW DETAILS

## 1 COURTYARD SINGLE HUNG WINDOW DETAILS

3" = 1'-0"

ADDENDUM 3

# TWIN TOWERS MIDDLE SCHOOL

Additions & Alterations

ENLARGED CITY SCHOOL DISTRICT OF MIDDLETOWN

112 Grand Avenue
Middletown, NY 10940

KG+D ARCHITECTS, PC
285 MAIN STREET • MOUNT KISCO, NEW YORK 10549
P: 914.666.5900 KGDARCHITECTS.COM

NY SED PROJECT CONTROL NO.

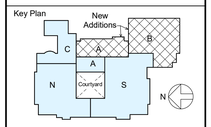
44-10-00-01-0-001-041

CONSTRUCTION DOCUMENTS

## TYPICAL WINDOW REPLACEMENT NOTES

1. (X) DENOTES WINDOW TYPE, SEE A-4 FOR SIZES & OTHER INFO
2. RW DENOTES RESCUE WINDOW MINIMUM CLEAR OPENING SHALL BE 6 SQ FT and MINIMUM DIMENSION SHALL BE 24"
3. DIMENSIONS SHOWN FOR WINDOW REPLACEMENTS SHALL BE FIELD VERIFIED PRIOR TO ORDERING, IN ALL CASES
4. LOUVER REPLACEMENTS ARE NOT PART OF THIS PROJECT
5. ALL STEEL LINTELS SHALL RECEIVE SCRAPING, TOUCH-UP COLD GALVANIZING, & PAINTING - COLOR SELECTION(S) TBD
6. NOTIFY THE ARCHITECT OF DETERIORATED LINTEL CONDITIONS UPON DISCOVERY
7. ALL OPERABLE WINDOWS SHALL BE PROVIDED WITH ALUM. INSECT SCREENS
8. RESCUE WINDOW (RW) SCREENS SHALL BE HINGED & SHALL BE OPERABLE FROM THE INSIDE WITH ONE HAND & WITHOUT THE USE OF A KEY OR OTHER DEVICE
9. RESCUE WINDOW (RW) HARDWARE SHALL COMPLY WITH ADA + NYSED
10. SEE SPECS FOR RESCUE WINDOW STICKER REQUIREMENTS
11. TOILET ROOM WINDOWS SHALL USE OBSCURE INSULATED GLASS UNITS
12. SEE SPECIFICATIONS FOR WINDOW DIVIDED LITES REQUIREMENTS
13. SEE SPECIFICATIONS FOR HAZARDOUS MATERIAL REPORT ASSOCIATED WITH EXISTING WINDOWS

Key Plan






Professional Seal

| No. | Date | Issue |
|---|---|---|
| 4 | 02/12/2024 | BID ADDENDUM 4 |

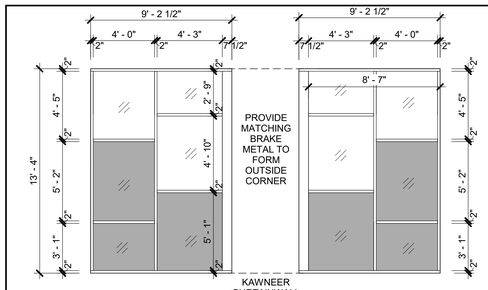
Sheet Title

ADDITIONAL DETAILS

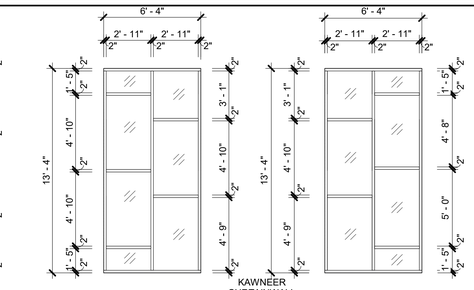
| Job No. | Date |
|---|---|
| 2021-1087 | 02/12/2024 |
| Scale | Drawn / Checked |
| AS NOTED | KG+D |

Sheet Number

A811




1Q EAST ELEVATION OFFICE
1/4" = 1'-0"



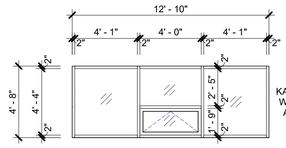

1R NORTH ELEVATION OFFICE
1/4" = 1'-0"



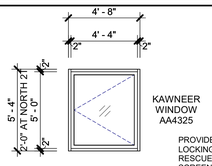

1S FITNESS SOUTH ELEVATION
1/4" = 1'-0"




1S' FITNESS SOUTH ELEVATION
1/4" = 1'-0"



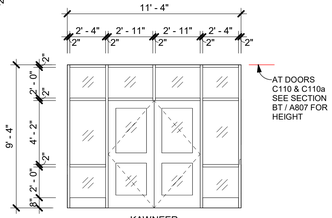

GQ PREP KITCHEN EAST ELEVATION
1/4" = 1'-0"




PROVIDE KEYED LOCKING SYSTEM & RESCUE WINDOW SCREEN FOR WINDOW TYPE 2T AT SOUTH FACADE

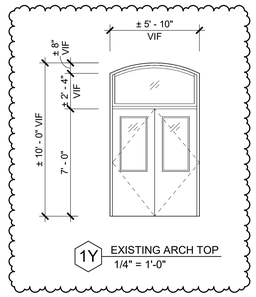
2T NORTH & SOUTH ELEVATION CORRIDOR
1/4" = 1'-0"

3T 2T AT NORTH FACADE SHALL BE FIXED

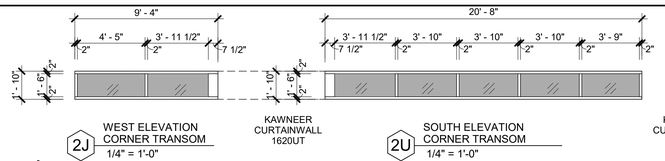



AT DOORS C110 & C110a SEE SECTION BT / A807 FOR HEIGHT

1T SOUTH ELEVATION ENTRY
1/4" = 1'-0"




1Y EXISTING ARCH TOP
1/4" = 1'-0"



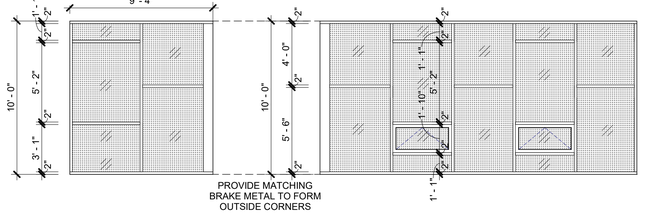

2J WEST ELEVATION CORNER TRANSOM
1/4" = 1'-0"

KAWNEER CURTAINWALL 1620UT

2U SOUTH ELEVATION CORNER TRANSOM
1/4" = 1'-0"

KAWNEER CURTAINWALL 1620UT

2V SOUTH ELEVATION CAFETERIA TRANSOM
1/4" = 1'-0"




PROVIDE MATCHING BRAKE METAL TO FORM OUTSIDE CORNERS

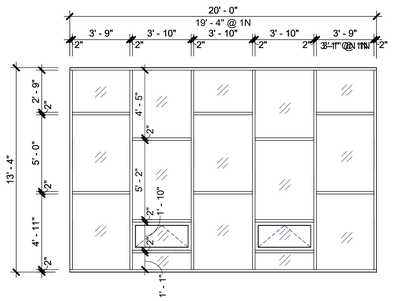
1J WEST ELEVATION CAFETERIA CORNER
1/4" = 1'-0"

KAWNEER CURTAINWALL 1620UT

1U SOUTH ELEVATION CAFETERIA CORNER
1/4" = 1'-0"

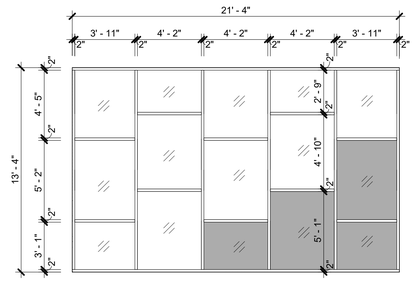
KAWNEER CURTAINWALL 1620UT

1V SOUTH ELEVATION CAFETERIA
1/4" = 1'-0"



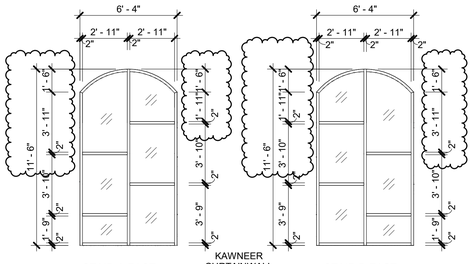

1M EAST ELEVATION CAFETERIA
1/4" = 1'-0"

1N



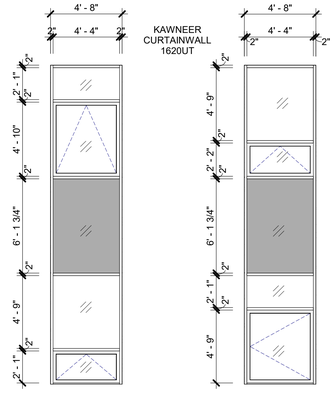

KAWNEER CURTAINWALL 1620UT

1P STAIR C EXTERIOR WINDOW
1/4" = 1'-0"




4A STAIR A EAST ELEVATION @ ROOF
1/4" = 1'-0"

4B STAIR B EAST ELEVATION @ ROOF
1/4" = 1'-0"




2C EAST ELEVATION CLASSROOM
1/4" = 1'-0"



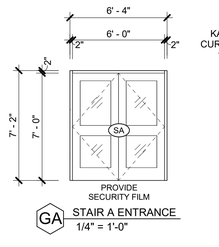

2D EAST ELEVATION CLASSROOM
1/4" = 1'-0"



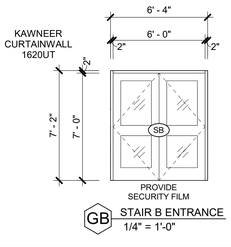

1A STAIR A EAST ELEVATION
1/4" = 1'-0"



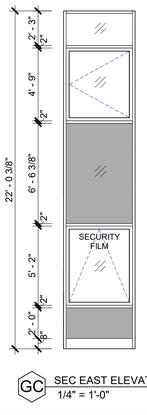

1B STAIR B EAST ELEVATION
1/4" = 1'-0"



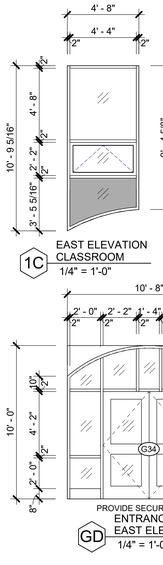

GA STAIR A ENTRANCE
1/4" = 1'-0"



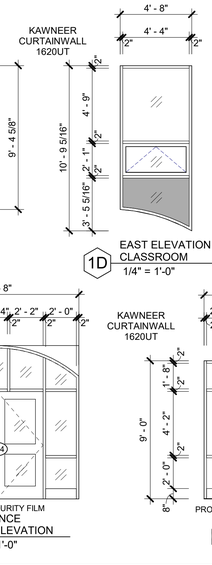

GB STAIR B ENTRANCE
1/4" = 1'-0"




GC SEC EAST ELEVATION
1/4" = 1'-0"



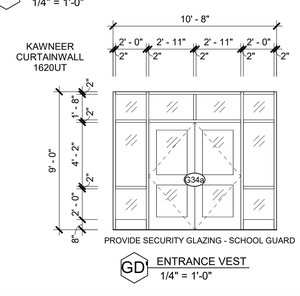

1C EAST ELEVATION CLASSROOM
1/4" = 1'-0"



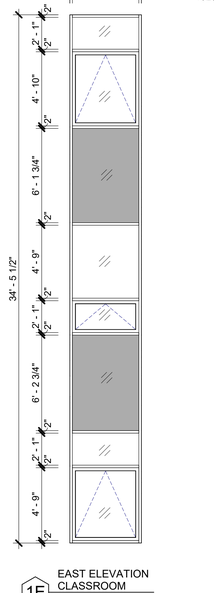

1D EAST ELEVATION CLASSROOM
1/4" = 1'-0"



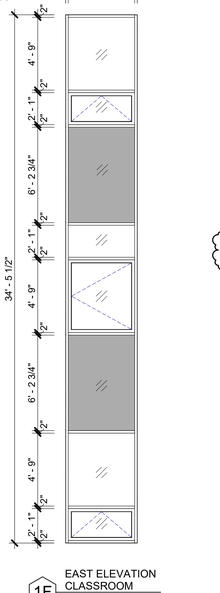

GD ENTRANCE EAST ELEVATION
1/4" = 1'-0"



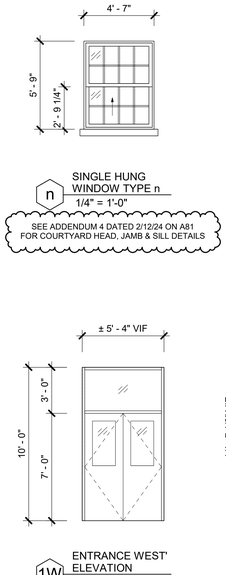

GD1 ENTRANCE VEST
1/4" = 1'-0"




1E EAST ELEVATION CLASSROOM
1/4" = 1'-0"




1F EAST ELEVATION CLASSROOM
1/4" = 1'-0"




GE EAST ELEVATION
1/4" = 1'-0"

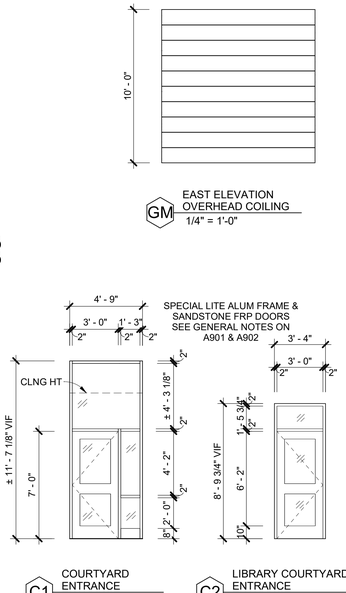
GF EAST ELEVATION
1/4" = 1'-0"

KAWNEER WINDOW AA5450




n SINGLE HUNG WINDOW TYPE n
1/4" = 1'-0"

SEE ADDENDUM 4 DATED 2/12/24 ON A81 FOR COURTYARD HEAD, JAMB & SILL DETAILS




GM EAST ELEVATION OVERHEAD COILING
1/4" = 1'-0"



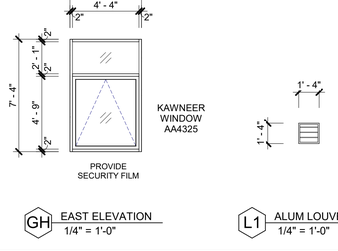

1W ENTRANCE WEST' ELEVATION
1/4" = 1'-0"




SPECIAL LITE ALUM FRAME & SANDSTONE FRP DOORS SEE GENERAL NOTES ON A901 & A902

C1 COURTYARD ENTRANCE
1/4" = 1'-0"

C2 LIBRARY COURTYARD ENTRANCE
1/4" = 1'-0"




GG RESCUE WINDOW EAST ELEVATION
1/4" = 1'-0"




GH EAST ELEVATION
1/4" = 1'-0"




L1 ALUM LOUVER
1/4" = 1'-0"

# TWIN TOWERS MIDDLE SCHOOL

Additions & Alterations

ENLARGED CITY SCHOOL DISTRICT OF MIDDLETOWN

112 Grand Avenue
Middletown, NY 10940

KG+D ARCHITECTS, PC
285 MAIN STREET • MOUNT KISCO, NEW YORK 10549
P: 914.666.5900
KGDARCHITECTS.COM

NY SED PROJECT CONTROL NO.

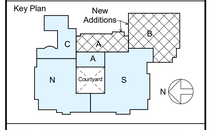
44-10-00-01-0-001-041

CONSTRUCTION DOCUMENTS

## GENERAL NOTES

1 DENOTES INSULATED CLEAR GLAZING
2 DENOTES INSULATED SPANDREL GLAZING
3 DENOTES INSULATED REFLECTIVE GLAZING
4 DENOTES CERAMIC FRIT GLAZING
5 GLAZING IN DOORS, SIDELIGHTS & WITHIN 18" OF GRADE, FLOORS, STAIR LANDINGS SHALL USE LAMINATED SAFETY GLASS
6 ALL EXTERIOR LOUVERS SHALL BE 4" DEEP ALUM. HORIZONTAL BLADE, STORM-PROOF, DRAINABLE, w/ 50% FREE AREA (MIN) IN PREMIUM (KYNAR) METALLIC (OR CUSTOM) COLOR SELECTED BY ARCHITECT, w/ BIRD SCREEN (SIM TO RUSKIN ELF375DX)
7 G.C. SHALL PROVIDE LOUVERS & SHALL COORDINATE FREE AREA REQ'D w/ H.C.
8 H.C. CONTRACTOR SHALL BLANK-OFF w/ BLACK PTD SHEETMETAL & INSULATE ALL UNUSED PORTIONS OF LOUVERS
9 (101) DENOTES DOOR NUMBER, SEE A902 & A903 FOR DOOR & DOOR HARDWARE INFO
10 (1A) DENOTES WINDOW TYPE, SEE A905 FOR SIZES & OTHER INFO
11 RW DENOTES RESCUE WINDOW. PROVIDE 24" MINIMUM "CLEAR" WIDTH, 6 SF MINIMUM "CLEAR" AREA - SEE SCREEN INFO BELOW
12 PROVIDE INSECT SCREENS FOR ALL OPERABLE WINDOWS. SCREENS FOR RESCUE WINDOWS SHALL BE HINGED & SHALL BE OPERABLE FROM THE INSIDE WITH ONE HAND & WITHOUT THE USE OF A KEY OR OTHER DEVICE
13 SEE GENERAL NOTES ON A902 & A903

Key Plan






Professional Seal

| No. | Date | Issue |
|---|---|---|
| 4 | 02/12/2024 | BID ADDENDUM 4 |
| 3 | 12/14/2023 | ISSUE FOR BID |
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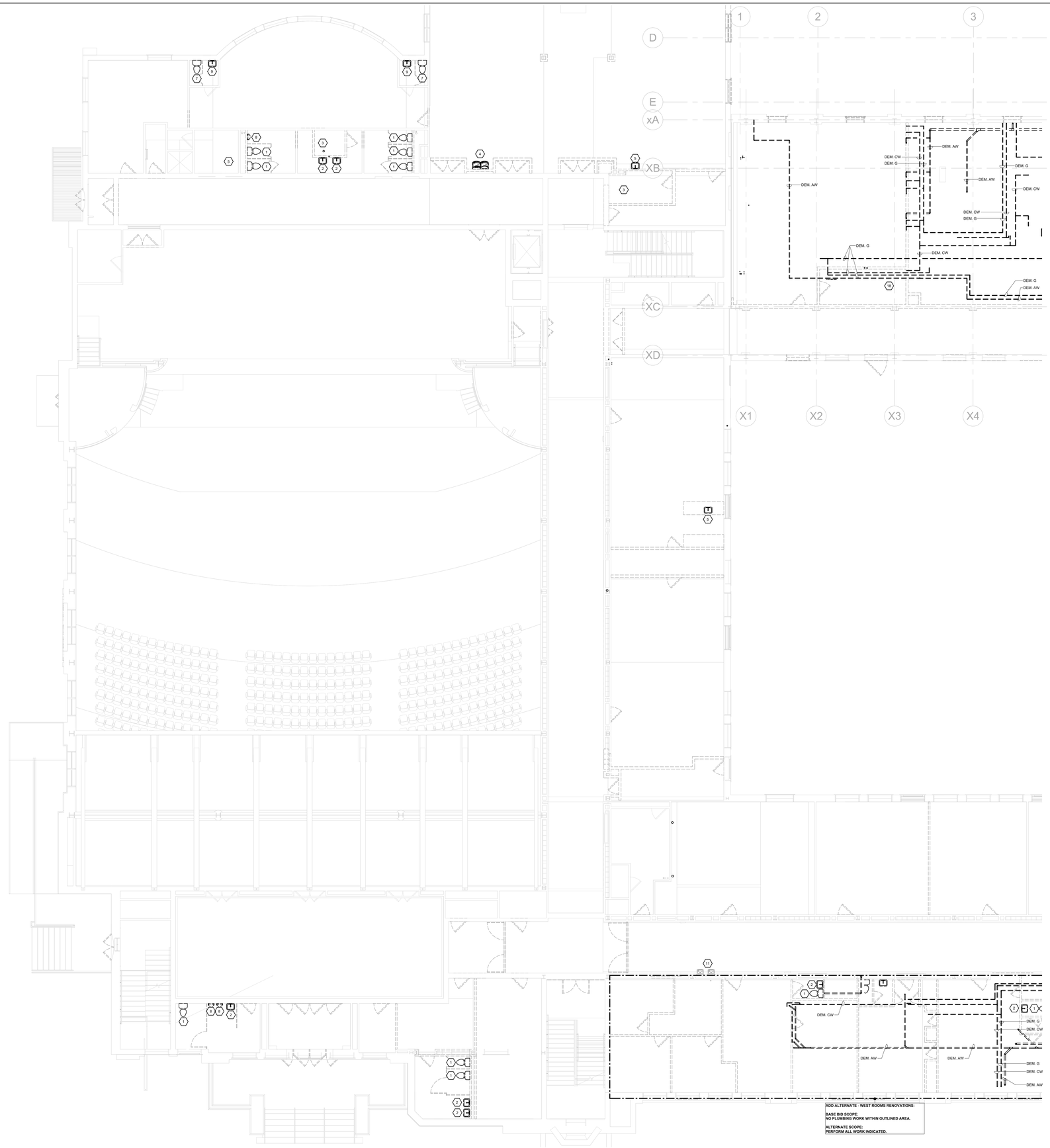
Sheet Title

## ALUMINUM WINDOW & DOOR ASSEMBLIES

| Job No. | Date |
|---|---|
| 2021-1087 | 04/14/2023 |
| Scale | Drawn / Checked |
| AS NOTED | KG+D |

Sheet Number

# A905




1 PLUMBING - FIRST FLOOR DEMOLITION PLAN - AREA NORTH
1/8" = 1'-0"

## PLUMBING PLAN DEMOLTION KEYED NOTES

| # | NOTE TEXT |
|---|---|
| 1 | DEMOLISH WATER CLOSET COMPLETE. DEMOLISH ALL ASSOCIATED COLD WATER, SANITARY AND VENT PIPING TO NEAREST CONNECTION TO MAIN AND CAP. SANITARY PIPING SHALL BE CAPPED BELOW FLOOR SLAB. |
| 2 | DEMOLISH LAVATORY COMPLETE. DEMOLISH ALL ASSOCIATED COLD AND HOT WATER, SANITARY AND VENT PIPING TO NEAREST CONNECTION TO MAIN AND CAP. SANITARY PIPING SHALL BE CAPPED BELOW FLOOR SLAB. |
| 3 | DEMOLISH JANITOR'S SINK COMPLETE. DEMOLISH ALL ASSOCIATED COLD AND HOT WATER, SANITARY AND VENT PIPING TO NEAREST CONNECTION TO MAIN AND CAP. SANITARY PIPING SHALL BE CAPPED BELOW FLOOR SLAB. |
| 4 | DEMOLISH WATER COOLER COMPLETE. DEMOLISH ALL ASSOCIATED COLD WATER, SANITARY AND VENT PIPING TO NEAREST CONNECTION TO MAIN AND CAP. SANITARY PIPING SHALL BE CAPPED BELOW FLOOR SLAB. |
| 5 | DEMOLISH SINK COMPLETE. DEMOLISH ALL ASSOCIATED COLD AND HOT WATER, SANITARY AND VENT PIPING TO NEAREST CONNECTION TO MAIN AND CAP. SANITARY PIPING SHALL BE CAPPED BELOW FLOOR SLAB. |
| 6 | DEMOLISH HOSE-BIBB COMPLETE. DEMOLISH ALL ASSOCIATED COLD WATER PIPING TO NEAREST CONNECTION TO MAIN AND CAP. |
| 7 | DEMOLISH WATER CLOSET COMPLETE. PREPARE EXISTING COLD WATER, SANITARY AND VENT PIPING AS REQUIRED FOR INSTALLATION OF REPLACEMENT WATER CLOSET. COORDINATE ALL WALL AND FLOOR CUTTING/PATCHING WITH GENERAL CONTRACTOR. |
| 8 | DEMOLISH URINAL COMPLETE. DEMOLISH ALL ASSOCIATED COLD WATER, SANITARY AND VENT PIPING TO NEAREST CONENCTION TO MAIN AND CAP. |
| 9 | DEMOLISH LAVATORY COMPLETE. PREPARE EXISTING COLD AND HOT WATER, SANITARY AND VENT PIPING AS REQUIRED FOR INSTALLATION OF REPLACEMENT LAVATORY. COORDINATE ALL WALL CUTTING/PATCHING WITH GENERAL CONTRACTOR. |
| 11 | EXISTING WATER COOLER TO BE REMOVED FOR DURATION OF CONSTRUCTION ACTIVITIES AND REINSTALLED AFTER COMPLETION OF CONSTRUCTION ACTIVITIES. CONTRACTOR SHALL STORE WATER COOLER UNTIL COMPLETION OF CONSTRUCTION ACTIVITES. ANY WATER COOLERS DAMAGED DURING CONSTRUCTION SHALL BE REPLACED BY PLUMBING CONTRACTOR AT NO COST TO SCHOOL DISTRICT. |
| 12 | DEMOLISH ALL KITCHEN PLUMBING EQUIPMENT WITHIN AREA COMPLETE. DEMOLISH ALL ASSOCIATED COLD AND HOT WATER,GAS, SANITARY AND VENT PIPING TO NEAREST CONNECTION TO MAIN AND CAP. SANITARY PIPING SHALL BE CAPPED BELOW FLOOR SLAB. |
| 13 | DEMOLISH EMERGENCY SHOWER AND EYE-WASH COMPLETE. DEMOLISH ALL ASSOCIATED WATER SUPPLY PIPING AND MIXING VALVES. SUPPLY PIPING SHALL BE REMOVED TO NEAREST CONNECTION TO MAIN AND SHALL BE CAPPED. |
| 14 | DEMOLISH SINK COMPLETE. DEMOLISH ALL ASSOCIATED COLD WATER TO NEAREST CONNECTION TO MAIN AND CAP. DEMOLISH ACID WASTE SANITARY AND VENT PIPING COMPLETE. |
| 15 | DEMOLISH GAS TURRET COMPLETE. DEMOLISH ALL ASSOCIATED GAS PIPING TO NEAREST CONNECTION TO MAIN AND CAP. |
| 16 | DEMOLISH ACID WASTE NEUTRILIZATION TANK AND ALL ASSOCIATED SANITARY AND VENT PIPING COMPLETE. CAP SANITARY PIPING AT SANITARY MAIN. |
| 17 | DEMOLISH GAS CONTROL VALVE AND ASSOCIATED KEYED SWITCH COMPLETE. |
| 18 | DEMOLISH WASHER OUTLET BOX COMPLETE. DEMOLISH ALL ASSOCIATED COLD WATER, SANITARY AND VENT PIPING TO NEAREST CONNECTION TO MAIN AND CAP. SANITARY PIPING SHALL BE CAPPED BELOW FLOOR SLAB. |
| 19 | DEMOLISH SANITARY LINE COMPLETE. COORDINATE ALL FLOOR CUTTING/PATCHING WITH GENERAL CONTRACTOR. |
| 20 | DEMOLISH COLD WATER, HOT WATER, SANITARY, VENT AND GAS PIPING TO MAIN AND CAP. |

# TWIN TOWERS MIDDLE SCHOOL

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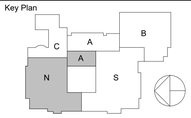
GA22017-A

NY SED PROJECT CONTROL NO.

44-10-00-01-0-001-041

CONSTRUCTION DOCUMENTS

Key Plan






Professional Seal

| No. | Date | Issue |
|---|---|---|
| 4 | 02/12/2024 | ADDENDUM 4 |
| 3 | 12/14/2023 | ISSUE FOR BID |
| 2 | 04/14/2023 | NYSED ISSUE |
| 1 | 09/08/2022 | SCHEMATIC DESIGN |

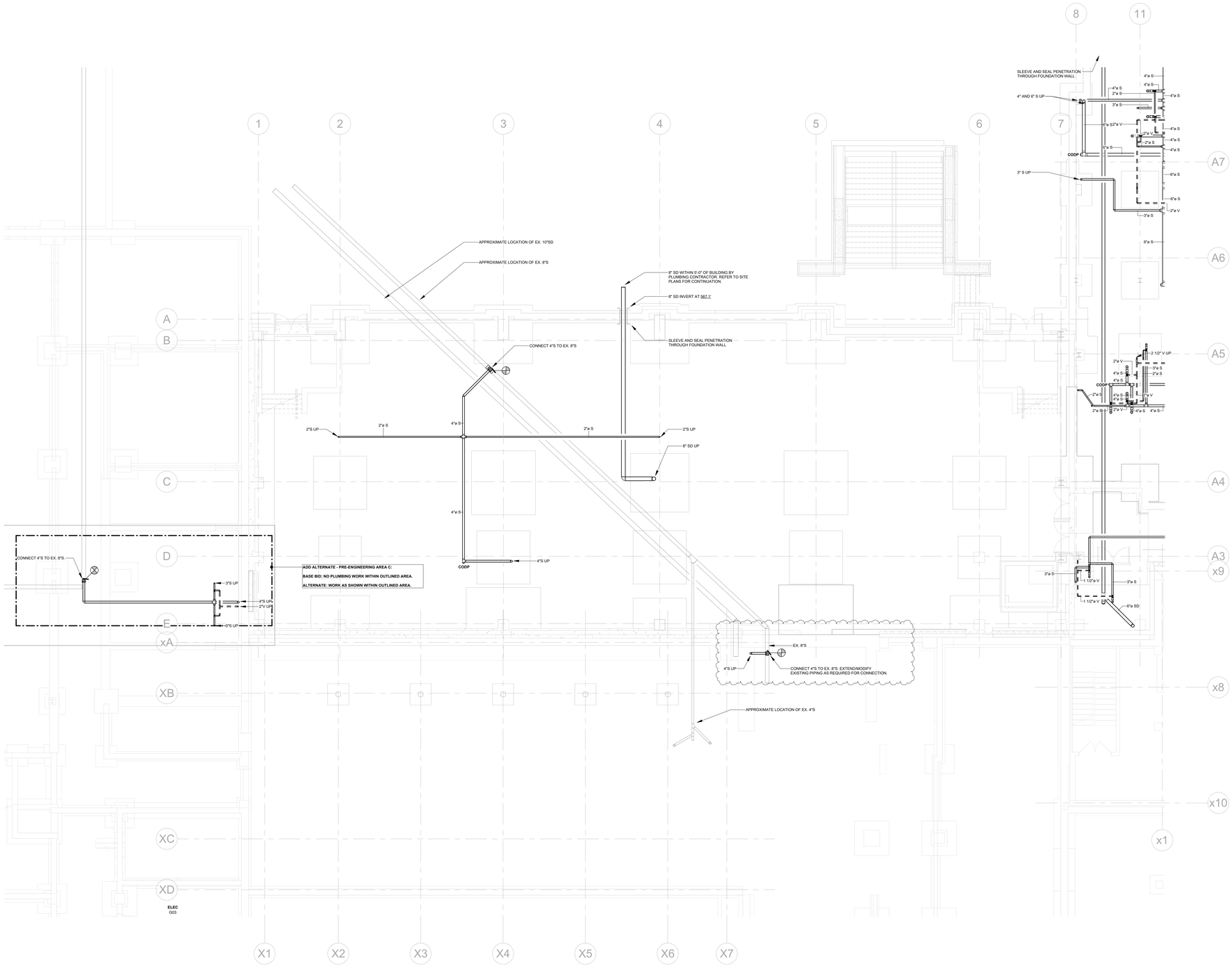
Sheet Title

**PLUMBING:**
FIRST FLOOR DEMOLITION PLAN - AREA NORTH

| Job No. | Date |
|---|---|
| 2021-1087 | 09/08/2022 |
| Scale: AS NOTED | Drawn / Checked: BH/DC SZ |

Sheet Number

P101.N




1 PLUMBING - BELOW SLAB - AREA A
1/8" = 1'-0"

# TWIN TOWERS MIDDLE SCHOOL

Additions & Alterations

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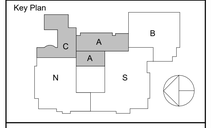




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| 3 | 02.12.2024 | ADDENDUM 4 |
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| 1 | 04/14/2023 | NYSED ISSUE |

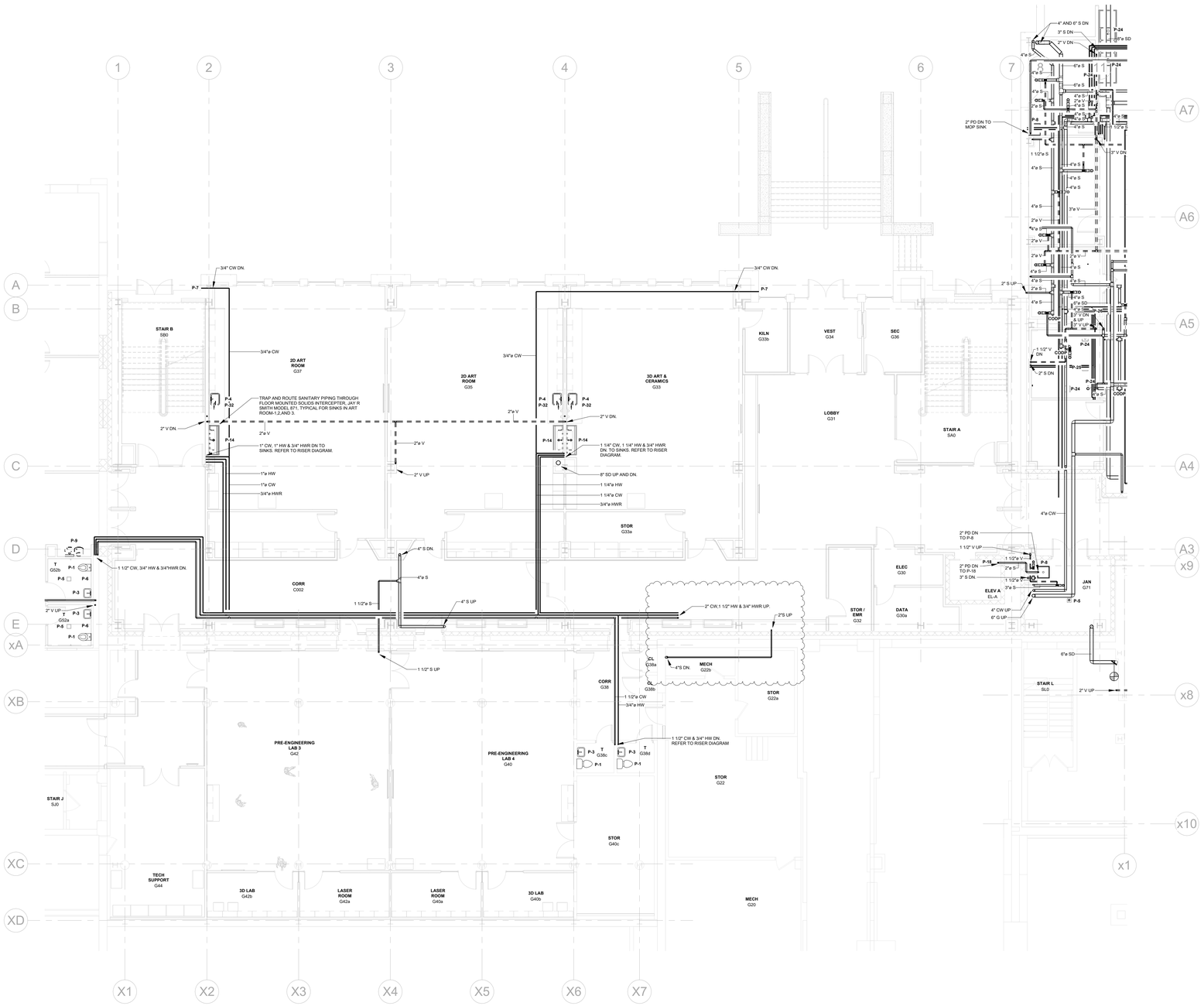
Sheet Title

**PLUMBING:**
BELOW SLAB PLAN - AREA A

| Job No. | Date |
|---|---|
| 2021-1087 | 09/08/2022 |
| Scale | Drawn / Checked |
| AS NOTED | BH/DC SZ |

Sheet Number

P200.1




1 PLUMBING - GROUND FLOOR PLAN - AREA A

1/8" = 1'-0"

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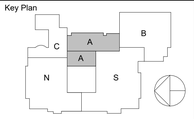
44-10-00-01-0-001-041

CONSTRUCTION DOCUMENTS

Key Plan






Professional Seal

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| 5 | 02/12/2024 | ADDENDUM 4 |
| 4 | 02/02/2024 | ADDENDUM #2 |
| 3 | 12/14/2023 | ISSUE FOR BID |
| 2 | 04/14/2023 | NYSED ISSUE |
| 1 | 09/08/2022 | SCHEMATIC DESIGN |

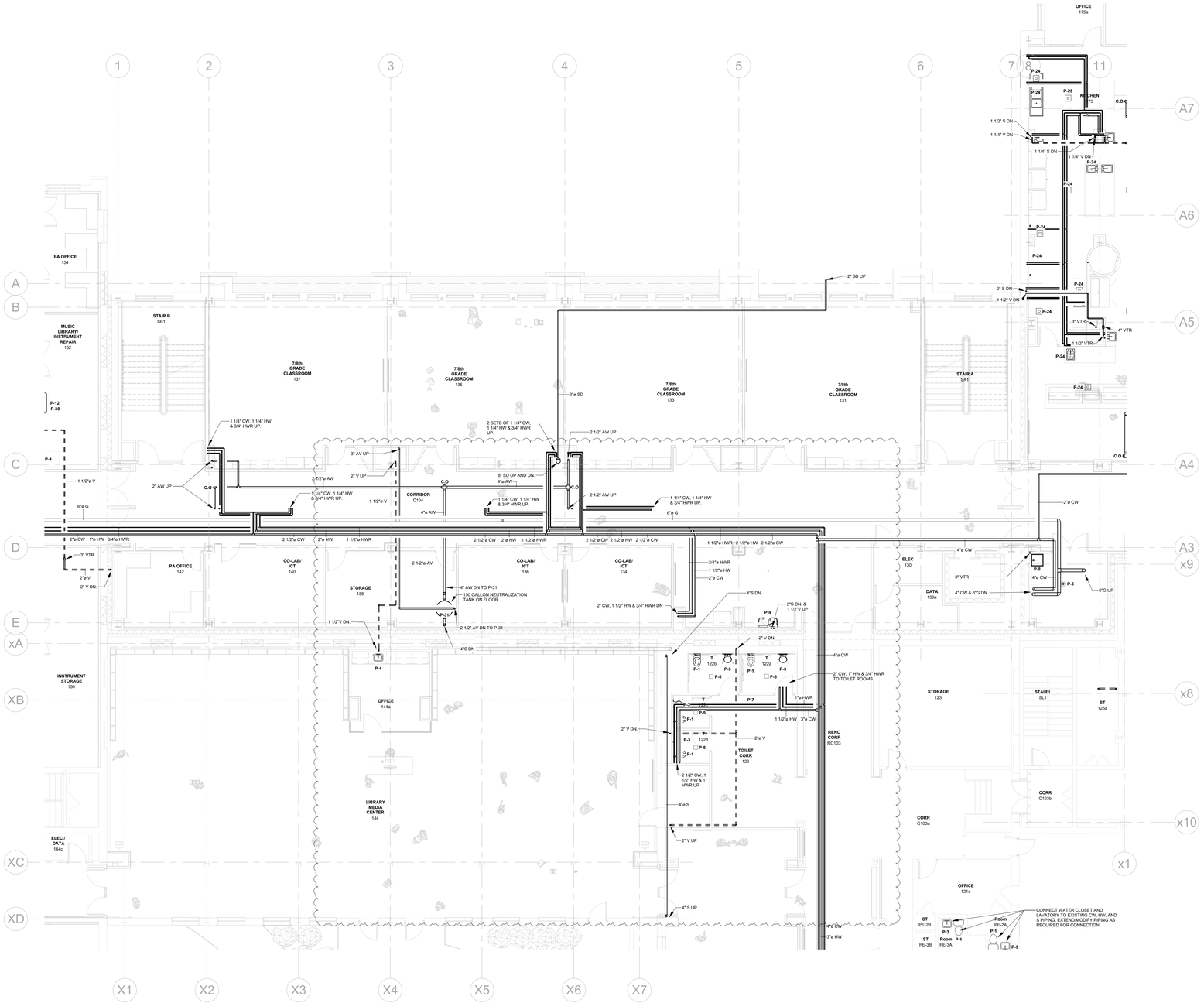
Sheet Title

**PLUMBING:**
GROUND FLOOR PLAN - AREA A

| Job No. | Date |
|---|---|
| 2021-1087 | 09/08/2022 |
| Scale: AS NOTED | Drawn / Checked: BH/DC SZ |

Sheet Number

P200.A




1 PLUMBING - FIRST FLOOR PLAN - AREA A

1/8" = 1'-0"

# TWIN TOWERS MIDDLE SCHOOL

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CONSTRUCTION DOCUMENTS

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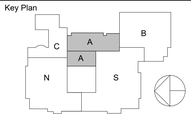




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| 3 | 12/14/2023 | ISSUE FOR BID |
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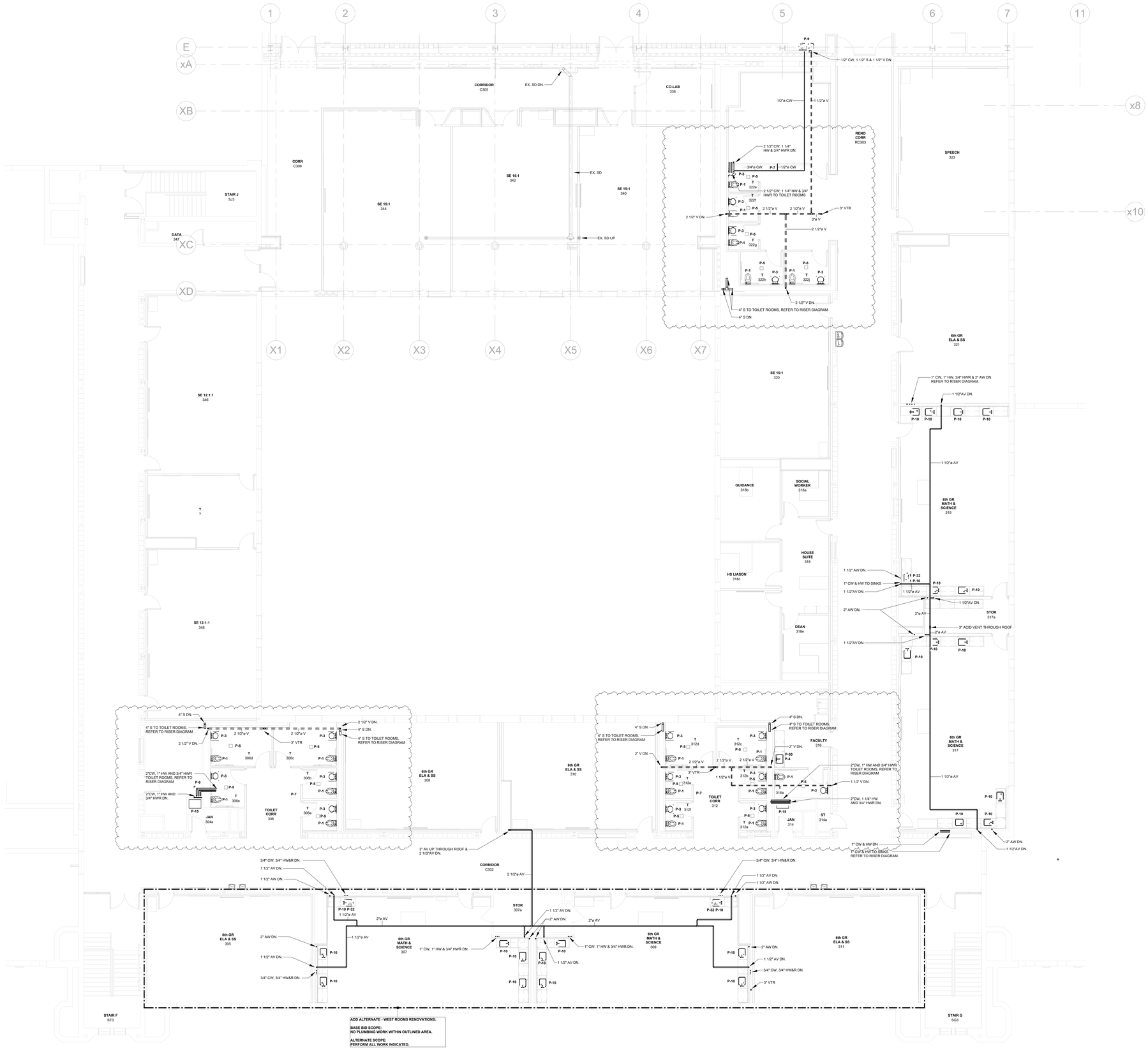
Sheet Title

**PLUMBING:**
FIRST FLOOR PLAN - AREA A

| Job No. | Date |
|---|---|
| 2021-1087 | 09/08/2022 |
| Scale: AS NOTED | Drawn / Checked: BH/DC SZ |

Sheet Number

# P201.A




1 PLUMBING - THIRD FLOOR PLAN - AREAS N & S

1/8" = 1'-0"

# TWIN TOWERS MIDDLE SCHOOL

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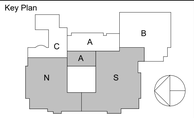
Key Plan



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| 3 | 12/14/2023 | ISSUE FOR BID |
| 2 | 04/14/2023 | NYSED ISSUE |
| 1 | 09/08/2022 | SCHEMATIC DESIGN |

Sheet Title

**PLUMBING:**
THIRD FLOOR PLAN - AREAS N & S

| Job No. | Date |
|---|---|
| 2021-1087 | 09/08/2022 |
| Scale | Drawn / Checked |
| AS NOTED | BH/DC SZ |

Sheet Number

P203.NS

1 PLUMBING - ENLARGED PREP. COMMISSARY PLAN
1/4" = 1'-0"

# TWIN TOWERS MIDDLE SCHOOL

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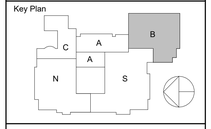
CONSTRUCTION DOCUMENTS

Key Plan



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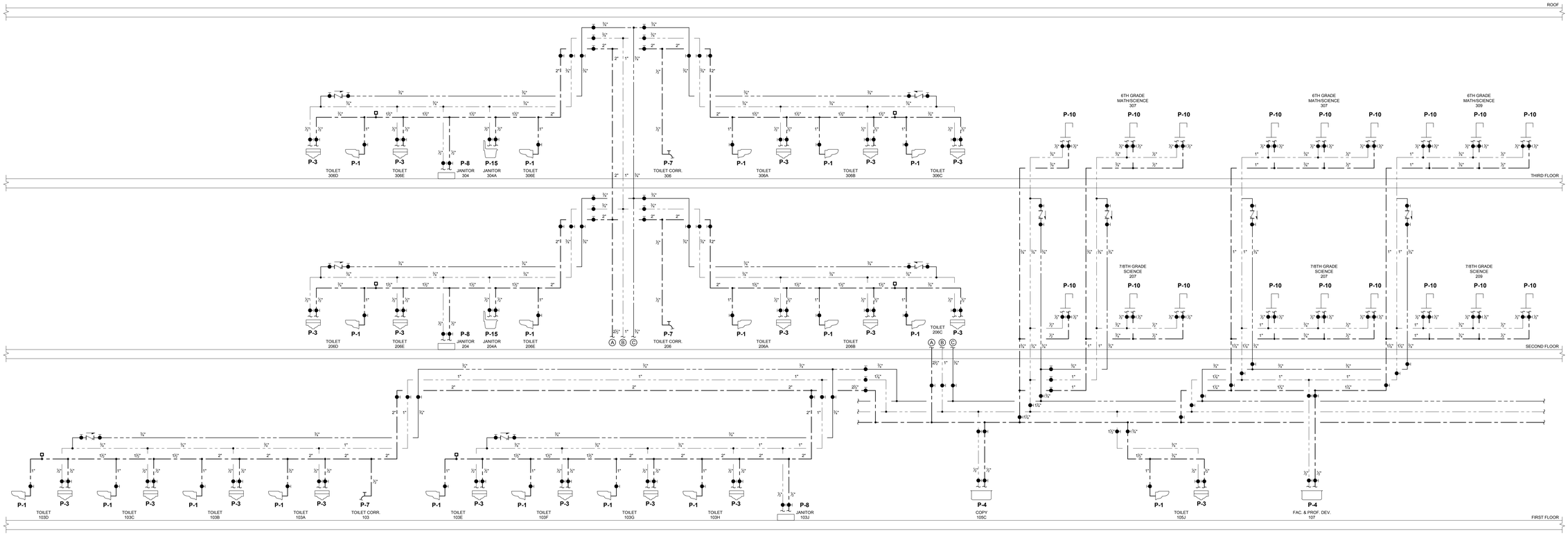
Sheet Title

**PLUMBING:**
ENLARGED PREP. COMMISSARY PLAN

| Job No. | Date |
|---|---|
| 2021-1087 | 09/08/2022 |
| Scale: AS NOTED | Drawn / Checked: BH/DC SZ |

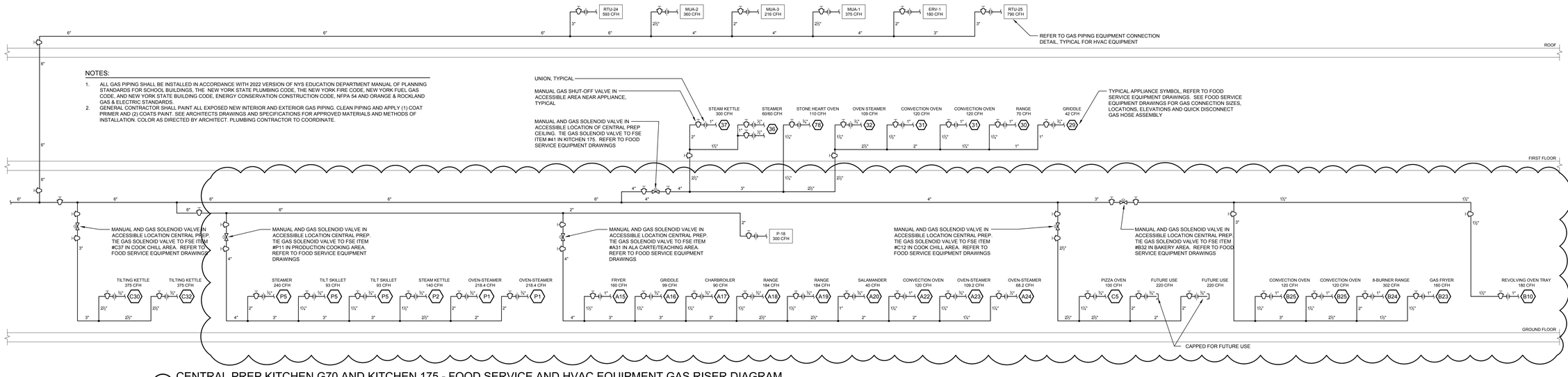
Sheet Number

P401




1 AREA "N" - DOMESTIC WATER RISER DIAGRAM

NOT TO SCALE




2 CENTRAL PREP KITCHEN G70 AND KITCHEN 175 - FOOD SERVICE AND HVAC EQUIPMENT GAS RISER DIAGRAM

NOT TO SCALE

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| 1 | 09/08/2022 | SCHEMATIC DESIGN |

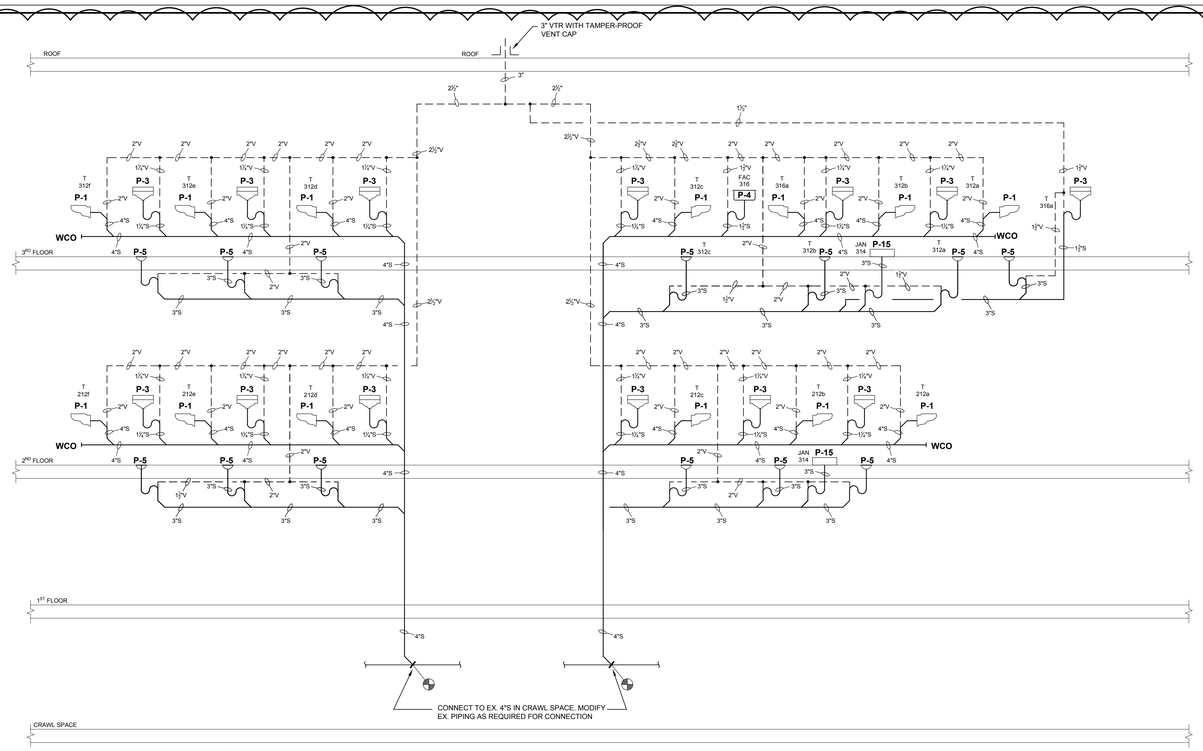
Sheet Title

**PLUMBING:**
DETAILS

| Job No. | Date |
|---|---|
| 2021-1087 | 09/08/2022 |
| Scale | Drawn / Checked |
| AS NOTED | BH/DC SZ |

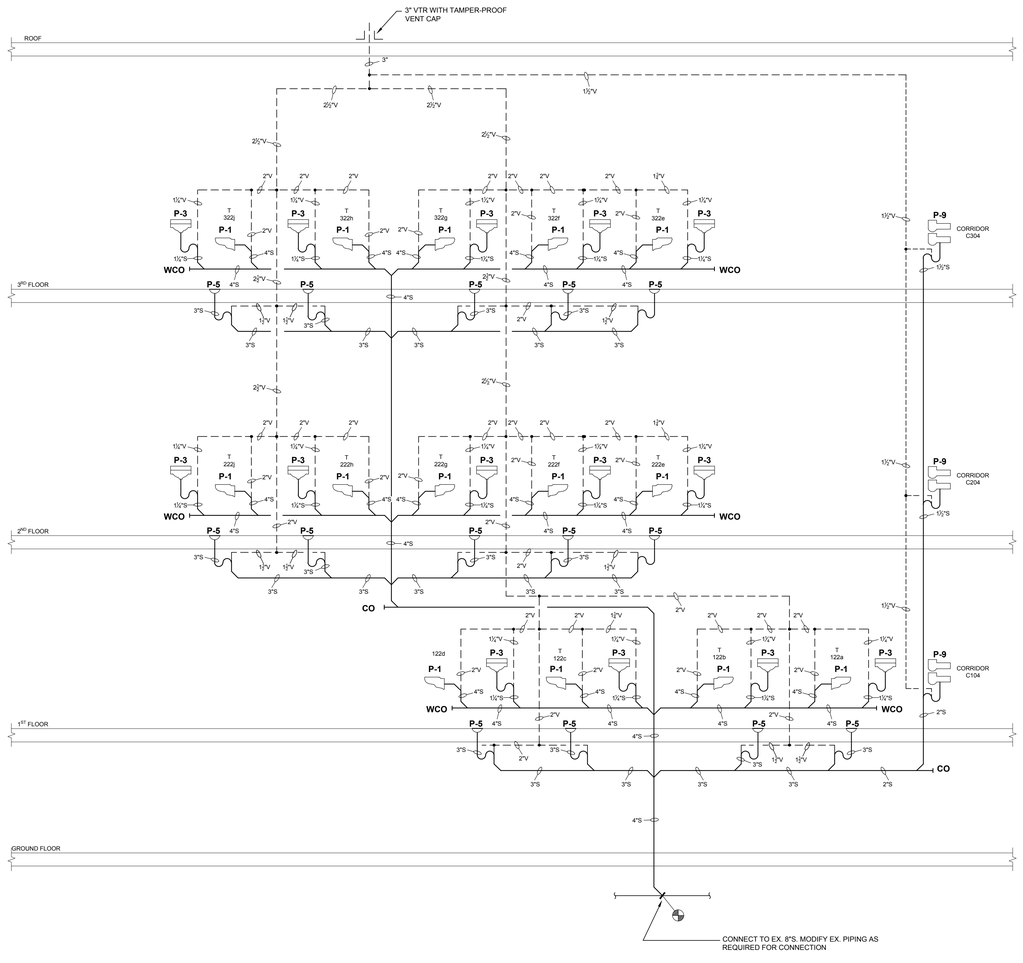
Sheet Number

P604




1 TOILETS T206a-T206e & T306a-T306e RISER DIAGRAM

NOT TO SCALE




2 AREA A TOILETS RISER DIAGRAM

NOT TO SCALE

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CONSTRUCTION DOCUMENTS



Professional Seal

| No. | Date | Issue |
|---|---|---|
| 1 | 02/12/2024 | ADDENDUM 4 |

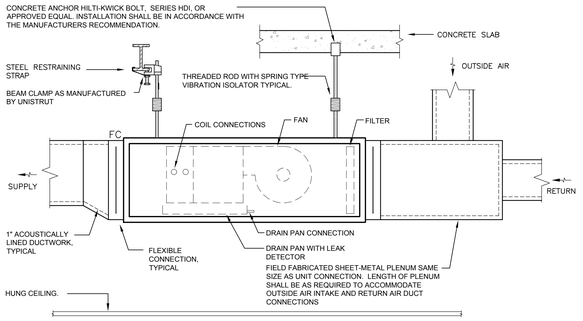
Sheet Title

**PLUMBING:**
DETAILS

| Job No. | Date |
|---|---|
| 2021-1087 | 09/08/2022 |
| Scale: AS NOTED | Drawn / Checked: BH/DC SZ |

Sheet Number

P609



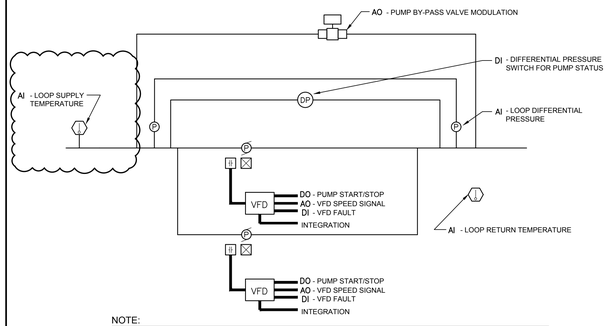

NOTES:

1. CONTRACTOR TO COORDINATE COIL CONNECTIONS AS RIGHT OR LEFT HAND IN FIELD PRIOR TO ORDERING.
2. HANG UNIT AS HIGH AS POSSIBLE FROM STRUCTURE ABOVE. COORDINATE ELEVATIONS WITH FIELD CONDITIONS.
3. REFER TO COIL PIPING AND CONDENSATE DRAIN PIPING DETAILS ELSEWHERE.
4. REFER TO FLOOR PLANS FOR DUCT SIZES.
5. FAN COIL ARRANGEMENT SHOWN IS FOR UNITS WITH DUCTED OUTSIDE AIR INTAKE AND RETURN. FAN COIL CONFIGURATION VARIES BASED ON LOCATION, REFER TO FLOOR PLANS FOR EXACT ARRANGEMENT.

## 1 CONCEALED HORIZONTAL FAN COIL UNIT DETAIL
NOT TO SCALE

### PUMP WITH VFD POINTS LIST

| POINT NAME | AI | AO | DI | DO | SCHED | TREND | ALARM | SHOW ON GRAPHICS |
|---|---|---|---|---|---|---|---|---|
| DIFFERENTIAL PRESSURE SWITCH PUMP STATUS | | | X | | | X | | X |
| PUMP START/STOP | | | | X | | X | | X |
| LOOP DIFFERENTIAL PRESSURE | X | | | | | X | X | X |
| PUMP FAILURE | | | | | | | X | X |
| SCHEDULE | | | | | X | | | |
| PUMP VFD SIGNAL | | X | | | | X | | X |
| PUMP VFD FAULT | | | X | | | | X | X |
| LOOP SUPPLY TEMPERATURE | X | | | | | X | | X |
| LOOP RETURN TEMPERATURE | X | | | | | X | | X |
| PUMP BY-PASS VALVE MODULATION | | | | X | | | X | X |



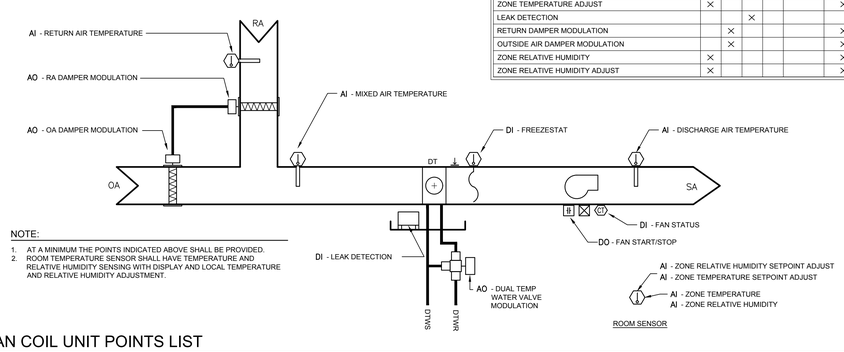

NOTE:

1. AT A MINIMUM THE POINTS INDICATED ABOVE SHALL BE PROVIDED.
2. SHALL BE USED FOR ALL PUMPS.
3. LOCATE LOOP DIFFERENTIAL PRESSURE SENSORS IN PIPING APPROXIMATELY 2/3 THE DISTANCE AWAY FROM THE PUMPS, BASED ON THE FARTHEST PIPED UNIT. PRESSURE SENSOR DIFFERENTIAL SHALL CONTROL PUMP DRIVE SPEED TO MAINTAIN ACCEPTABLE PRESSURE DIFFERENTIAL.
4. PUMP BY-PASS VALVE SHALL BE SIZED FOR 30% SYSTEM FLOW. VALVE SHALL MODULATE OPEN/CLOSED BASED ON LOOP DIFFERENTIAL PRESSURE AS REQUIRED TO MAINTAIN PUMP MINIMUM FLOW RATE.

## 2 PUMP WITH VARIABLE FREQUENCY DRIVE POINTS LIST
NOT TO SCALE

### FAN COIL UNIT POINTS LIST

| POINT NAME | AI | AO | DI | DO | SCHED | TREND | ALARM | SHOW ON GRAPHICS |
|---|---|---|---|---|---|---|---|---|
| SUPPLY FAN STATUS | | | X | | | X | | X |
| SUPPLY FAN START/STOP | | | | X | | X | | X |
| SUPPLY FAN FAILURE | | | | | | | X | X |
| DUAL TEMP WATER VALVE MODULATION | | X | | | | X | | X |
| RETURN AIR TEMPERATURE | X | | | | | X | | X |
| FREEZESTAT | | | X | | | X | X | X |
| DISCHARGE AIR TEMPERATURE | X | | | | | X | X | X |
| SCHEDULE | | | | | X | | | |
| ZONE TEMPERATURE | X | | | | | X | X | X |
| ZONE TEMPERATURE ADJUST | X | | | | | X | | X |
| LEAK DETECTION | | | X | | | | X | X |
| RETURN DAMPER MODULATION | | X | | | | X | | X |
| OUTSIDE AIR DAMPER MODULATION | | X | | | | X | | X |
| ZONE RELATIVE HUMIDITY | X | | | | | X | X | X |
| ZONE RELATIVE HUMIDITY ADJUST | X | | | | | X | | X |



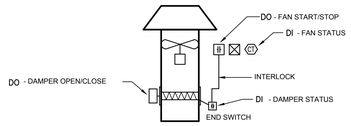

NOTE:

1. AT A MINIMUM THE POINTS INDICATED ABOVE SHALL BE PROVIDED.
2. ROOM TEMPERATURE SENSOR SHALL HAVE TEMPERATURE AND RELATIVE HUMIDITY SENSING WITH DISPLAY AND LOCAL TEMPERATURE AND RELATIVE HUMIDITY ADJUSTMENT.

## 3 FAN COIL UNIT POINTS LIST
NOT TO SCALE

### GENERAL EXHAUST FAN POINTS LIST

| POINT NAME | AI | AO | DI | DO | SCHED | TREND | ALARM | SHOW ON GRAPHICS |
|---|---|---|---|---|---|---|---|---|
| DAMPER STATUS | | | X | | | X | | X |
| FAN STATUS | | | X | | | X | | X |
| FAN START/STOP | | | | X | | X | | X |
| DAMPER OPEN/CLOSE | | | | X | | X | | X |
| SCHEDULE | | | | | X | | | |
| DAMPER FAILURE | | | | | | | X | X |
| FAN FAILURE | | | | | | | X | X |




NOTE:

1. SHALL BE USED FOR EXHAUST FANS: 7, 8 AND 12.
2. FAN TYPE VARIES BASED ON LOCATION.
3. AT A MINIMUM THE POINTS INDICATED ABOVE SHALL BE PROVIDED.

## 4 GENERAL ROOF EXHAUST FAN CONTROLS SCHEMATIC
NOT TO SCALE

### MAKE-UP AIR UNIT POINTS LIST

| POINT NAME | AI | AO | DI | DO | SCHED | TREND | ALARM | SHOW ON GRAPHICS |
|---|---|---|---|---|---|---|---|---|
| UNIT STATUS | | | | X | | | X | X |
| UNIT START/STOP | | | | | X | | X | X |
| UNIT FAILURE | | | | | | | | X |
| DISCHARGE AIR TEMPERATURE | X | | | | | X | X | X |
| FILTER STATIC PRESSURE DROP | X | | | | | X | X | X |
| SCHEDULE | | | | | X | | | |
| ZONE TEMPERATURE | X | | | | | X | X | X |
| ZONE TEMPERATURE ADJUST | X | | | | | X | | X |
| FREEZESTAT | | | X | | | X | X | X |
| ZONE HUMIDITY | X | | | | | X | X | X |
| ZONE HUMIDITY ADJUST | X | | | | | X | | X |

NOTE:

1. AT A MINIMUM THE POINTS INDICATED ABOVE SHALL BE PROVIDED.

## 5 MAKE-UP AIR UNIT POINTS LIST
NOT TO SCALE

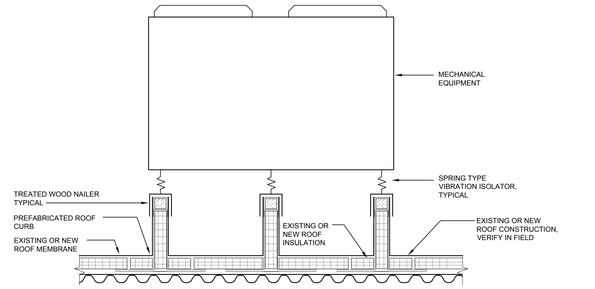
### PACKAGED ROOFTOP UNIT POINTS LIST

| POINT NAME | AI | AO | DI | DO | SCHED | TREND | ALARM | SHOW ON GRAPHICS |
|---|---|---|---|---|---|---|---|---|
| UNIT STATUS | | | X | | | X | | X |
| UNIT START/STOP | | | | X | | X | | X |
| UNIT FAILURE | | | | | | | X | X |
| RETURN AIR TEMPERATURE | X | | | | | X | | X |
| DISCHARGE AIR TEMPERATURE | X | | | | | X | X | X |
| FILTER STATIC PRESSURE DROP | X | | | | | X | X | X |
| SMOKE DETECTOR SHUTDOWN SIGNAL | | | X | | | | X | X |
| SCHEDULE | | | | | X | | | |
| SUPPLY AIR STATIC PRESSURE (RTU-1 AND 3) | X | | | | | X | X | X |
| ZONE TEMPERATURE (RTU-4 AND 5) | X | | | | | X | X | X |
| ZONE TEMPERATURE ADJUST (RTU-4 AND 5) | X | | | | | X | | X |
| FREEZESTAT | | | X | | | X | X | X |
| OUTSIDE AIRFLOW MEASURING STATION | X | | | | | X | X | X |

NOTE:

1. SHALL BE USED FOR ROOFTOP UNITS: 1, 3, 4 AND 5.
2. AT A MINIMUM THE POINTS INDICATED ABOVE SHALL BE PROVIDED.

## 6 PACKAGED ROOFTOP UNIT POINTS LIST
NOT TO SCALE




NOTES

1. GENERAL CONTRACTOR SHALL MAKE PENETRATION WEATHER-TIGHT, REFER TO ARCHITECTURAL AND ROOFING DRAWINGS.
2. THIS DETAIL SHALL BE USED FOR ALL ROOF MOUNTED MECHANICAL EQUIPMENT WITHOUT FACTORY ROOF CURB.
3. EQUIPMENT SUPPORT RAILS SHALL BE BASED ON THYBAR MODEL TEMS-3, 24" HIGH. CONSTRUCTION SHALL BE WELDED 18 GAUGE GALVANIZED STEEL SHELL, BASE PLATE AND COUNTER FLASHING WITH FACTORY INSTALLED 2"x4" WOOD NAILER AND INTERNAL BULKHEAD REINFORCEMENT. RAIL LENGTH TO EXTEND 6" ON BOTH ENDS OF UNIT. PROVIDE (2) RAILS PER UNIT. EQUIPMENT RAILS SHALL BE PROVIDED BY THE MECHANICAL CONTRACTOR AND INSTALLED BY THE GENERAL CONTRACTOR. REFER TO ARCHITECTURAL ROOF DETAILS FOR MORE INFORMATION. PROVIDE MINIMUM OF 2 RAILS.

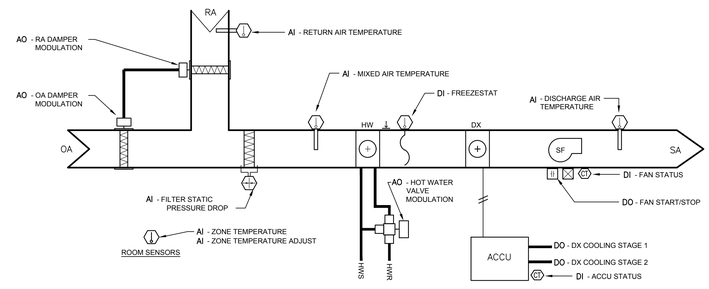
## 7 EQUIPMENT SUPPORT RAIL DETAIL
NOT TO SCALE

### HEATING, VENTILATING AND AIR CONDITIONING UNIT POINTS LIST

| POINT NAME | AI | AO | DI | DO | SCHED | TREND | ALARM | SHOW ON GRAPHICS |
|---|---|---|---|---|---|---|---|---|
| SUPPLY FAN STATUS | | | X | | | X | | X |
| SUPPLY FAN START/STOP | | | | X | | X | | X |
| SUPPLY FAN FAILURE | | | | | | | X | X |
| HOT WATER VALVE MODULATION | | X | | | | X | | X |
| DX COOLING STAGE 1 | | | | X | | X | | X |
| DX COOLING STAGE 2 | | | | X | | X | | X |
| RETURN AIR TEMPERATURE | X | | | | | X | | X |
| MIXED AIR TEMPERATURE | X | | | | | X | | X |
| FREEZESTAT | | | X | | | X | X | X |
| DISCHARGE AIR TEMPERATURE | X | | | | | X | X | X |
| RETURN DAMPER MODULATION | | X | | | | X | | X |
| OUTSIDE AIR DAMPER MODULATION | | X | | | | X | | X |
| FILTER STATIC PRESSURE DROP | X | | | | | X | X | X |
| SCHEDULE | | | | | X | | | |
| ZONE TEMPERATURE | X | | | | | X | X | X |
| ZONE TEMPERATURE ADJUST | X | | | | | X | | X |
| OUTDOOR UNIT STATUS | | | X | | | X | | X |
| OUTDOOR UNIT FAILURE | | | | | | | X | X |

NOTES:

1. AT A MINIMUM THE POINTS INDICATED SHALL BE PROVIDED.
2. SHALL BE USED FOR EXISTING AUDITORIUM AIR HANDLER.
3. CONTROL ELEMENTS INDICATED ARE TO BE PROVIDED BY CONTROLS CONTRACTOR.
4. REMOVE AND REPLACE PNEUMATIC OUTSIDE AIR AND RETURN AIR DAMPER ACTUATORS WITH ELECTRONIC CONTROL DAMPERS AND INTEGRATE TO BUILDING MANAGEMENT SYSTEM.
5. REMOVE AND REPLACE 2" PNEUMATIC CONTROL VALVE WITH 2" ELECTRONIC CONTROL VALVE AND INTEGRATE TO BUILDING MANAGEMENT SYSTEM.




## 8 EXISTING AUDITORIUM AIR HANDLER POINTS LIST
NOT TO SCALE

# TWIN TOWERS MIDDLE SCHOOL

Additions & Alterations

ENLARGED CITY SCHOOL DISTRICT OF MIDDLETOWN

112 Grand Avenue
Middletown, NY 10940

KG+D ARCHITECTS, PC
285 MAIN STREET• MOUNT KISCO, NEW YORK 10549
P: 914.666.5900 KGDARCHITECTS.COM

GERARD ASSOCIATES
CONSULTING ENGINEERS, D.P.C.
223 MAIN STREET, GOSHEN, NY 10924
(845) 291 1272 GerardAssociates.com

GA22017-A

NY SED PROJECT CONTROL NO.
44-10-00-01-0-001-041

CONSTRUCTION DOCUMENTS



Professional Seal

| No. | Date | Issue |
|---|---|---|
| 5 | 02/12/2024 | ADDENDUM 4 |
| 4 | 02/02/2024 | ADDENDUM #2 |
| 3 | 12/14/2023 | ISSUE FOR BID |
| 2 | 04/14/2023 | NYSED ISSUE |
| 1 | 09/08/2022 | SCHEMATIC DESIGN |

Sheet Title

**MECHANICAL:**
DETAILS

| | |
|---|---|
| Job No. 2021-1087 | Date 09/08/2022 |
| Scale AS NOTED | Drawn / Checked BH/DC SZ |

Sheet Number

M604

| Middletown CSD - Twin Towers ES | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Unit | | | | | | | | | | | | | | | Energy Recovery (Summer OA = 95/75, Winter OA = 0/-1) | | | | | | | | | Cooling | | | | | | | | | | | Heat Pump | | | |
| TAG | Weight (lbs) | Model | Electrical | | | Efficiency | Supply Fan | | | | Exhaust Fan | | | Filters | Recovered Capacity (Summer RA = 72/61.5, Winter RA = 65/48) | | Mixed Air LAT | | | Effectiveness | | | | EAT | | LAT | | Total Capacity | Sensible Capacity | Ambient | Compressor | | | | EAT | LAT | Total Capacity (Btu/hr) | Ambient |
| | | | Voltage | MCA (A) | MROPD (A) | EER | Airflow (CFM) | ESP (inH₂O) | TSP (inH₂O) | Motor Size (HP) | Airflow (CFM) | ESP (inH₂O) | HP(MTR QTY) | Efficiency | Cooling (Btu/hr) | Heating (Btu/hr) | Cooling (°F) | Heating (°F) | APD (inH₂O) | Total Cooling | Sensible Cooling | Total Heating | Sensible Heating | EDB (°F) | EWB (°F) | LDB (°F) | LWB (°F) | | | DB (°F) | Stages | Qty | Compressor Power (kW) | Refrigerant | EDB (°F) | LDB (°F) | | DB (°F) |
| RTU-1 | 3914 | DPS018A | 460/60/3 | 45 | 60 | 10.6 | 3875 | 0.55 | 2.41 | 5.0 | 3875 | 0.74 | (1) 4.3 HP | COMBO RACK-2" MERV8 & 4" MERV14 from factory | 86988 | 191052 | 82.5 | 40.3 | 0.76 | 45.26 | 54.47 | 57.52 | 59.75 | 82.5 | 69.3 | 53.9 | 53.9 | 188590 | 121062 | 95 | Modulating Control with Inverter Compressors | 1 | 12.7 | R410A | 45 | 70.1 | 106489 | 10 |
| RTU-2 | 3949 | DPS016A | 460/60/3 | 42.7 | 60 | 11.3 | 3280 | 0.53 | 2.03 | 3.0 | 3280 | 0.52 | (1) 4.0 HP | COMBO RACK-2" MERV8 & 4" MERV14 from factory | 79909 | 171309 | 81.4 | 43.7 | 0.63 | 49.03 | 59.22 | 60.86 | 63.26 | 81.4 | 68.7 | 51.7 | 51.7 | 171978 | 106360 | 95 | Modulating Control with Inverter Compressors | 1 | 11.3 | R410A | 45 | 72.2 | 97417 | 10 |
| RTU-3 | 2539 | DPS012A | 460/60/3 | 27.7 | 35 | 11.2 | 3425 | 0.60 | 2.20 | 4.0 | 3425 | 0.65 | (1) 4.0 HP | COMBO RACK-2" MERV8 & 4" MERV14 from factory | 81740 | 176100 | 81.6 | 40.6 | 0.66 | 48.01 | 58.11 | 60.13 | 62.44 | 81.6 | 68.9 | 55.4 | 55.4 | 147592 | 98231 | 95 | Modulating Control with Inverter Compressors | 2 | 10.5 | R410A | 45 | 66.0 | 78615 | 10 |
| RTU-4 | 3949 | DPS016A | 460/60/3 | 42.7 | 60 | 11.3 | 3480 | 0.50 | 2.12 | 3.0 | 3480 | 0.46 | (1) 4.0 HP | COMBO RACK-2" MERV8 & 4" MERV14 from factory | 82415 | 178355 | 81.7 | 42.5 | 0.67 | 47.64 | 57.68 | 59.71 | 62.11 | 81.7 | 68.9 | 52.8 | 52.8 | 174960 | 110030 | 95 | Modulating Control with Inverter Compressors | 1 | 11.3 | R410A | 45 | 70.6 | 97408 | 10 |
| RTU-5A | 1521 | DPS005A | 460/60/3 | 15.6 | 20 | 12.6 | 1425 | 0.55 | 2.72 | 4.0 | 1425 | 0.53 | (1) 4.0 HP | COMBO RACK-2" MERV8 & 4" MERV14 from factory | 41215 | 73680 | 80.3 | 40.7 | 1.04 | 60.00 | 63.00 | 62.00 | 63.00 | 80.3 | 67.2 | 52.3 | 52.2 | 64859 | 43675 | 95 | Modulating Control with Inverter Compressors | 1 | 3.3 | R410A | 45 | 65.4 | 31832 | 10 |
| RTU-5B | 2274 | DPS007A | 460/60/3 | 18.2 | 20 | 12.8 | 2000 | 0.55 | 1.43 | 2.3 | 2000 | 0.57 | (1) 4.0 HP | COMBO RACK-2" MERV8 & 4" MERV14 from factory | 55302 | 112500 | 80.0 | 44.2 | 0.46 | 56.16 | 65.28 | 66.29 | 67.99 | 80.0 | 67.8 | 53.8 | 53.8 | 87062 | 57242 | 95 | Modulating Control with Inverter Compressors | 2 | 5.8 | R410A | 45 | 65.9 | 45784 | 10 |
| RTU-6 | 2452 | DPS010A | 460/60/3 | 26.5 | 30 | 12.2 | 2625 | 0.58 | 1.86 | 8.0 | 2625 | 0.50 | (1) 4.0 HP | COMBO RACK-2" MERV8 & 4" MERV14 from factory | 64543 | 137988 | 81.3 | 41.5 | 0.63 | 49.47 | 59.78 | 61.51 | 63.84 | 81.3 | 68.7 | 53.2 | 53.2 | 126836 | 80510 | 95 | Modulating Control with Inverter Compressors | 2 | 9.5 | R410A | 45 | 68.8 | 58032 | 10 |
| RTU-7 | 2539 | DPS012A | 460/60/3 | 27.7 | 35 | 11.2 | 3250 | 0.61 | 2.10 | 4.0 | 3250 | 0.91 | (1) 4.0 HP | COMBO RACK-2" MERV8 & 4" MERV14 from factory | 79521 | 169899 | 81.3 | 41.9 | 0.62 | 49.25 | 59.45 | 61.13 | 63.43 | 81.3 | 68.7 | 54.5 | 54.5 | 145685 | 95160 | 95 | Modulating Control with Inverter Compressors | 2 | 10.5 | R410A | 45 | 67.1 | 78506 | 10 |
| RTU-8 | 3949 | DPS016A | 460/60/3 | 42.7 | 60 | 11.3 | 3200 | 0.55 | 2.01 | 3.0 | 3200 | 0.30 | (1) 4.0 HP | COMBO RACK-2" MERV8 & 4" MERV14 from factory | 78866 | 167960 | 81.2 | 41.4 | 0.61 | 49.62 | 59.83 | 61.45 | 63.71 | 81.2 | 68.7 | 51.3 | 51.3 | 170710 | 104923 | 95 | Modulating Control with Inverter Compressors | 1 | 11.3 | R410A | 45 | 72.8 | 97446 | 10 |
| RTU-9 | 4124 | DPS020A | 460/60/3 | 53.4 | 80 | 10.8 | 5230 | 0.57 | 2.50 | 5.0 | 5230 | 0.48 | (1) 4.0 HP | COMBO RACK-2" MERV8 & 4" MERV14 from factory | 131287 | 278054 | 81.0 | 41.9 | 0.59 | 50.57 | 60.78 | 62.29 | 64.51 | 81.0 | 68.5 | 53.4 | 53.4 | 246946 | 157769 | 95 | Modulating Control with Inverter Compressors | 1 | 17.6 | R410A | 45 | 69.0 | 137287 | 10 |
| RTU-10 | 3959 | DPS016A | 460/60/3 | 42.6 | 60 | 11.3 | 3900 | 0.53 | 1.86 | 3.0 | 3900 | 0.48 | (1) 4.3 HP | COMBO RACK-2" MERV8 & 4" MERV14 from factory | 110621 | 221985 | 79.8 | 44.6 | 0.43 | 57.82 | 66.21 | 67.26 | 68.65 | 79.8 | 67.6 | 53.0 | 53.0 | 174841 | 114013 | 95 | Modulating Control with Inverter Compressors | 1 | 11.3 | R410A | 45 | 67.8 | 97371 | 10 |
| RTU-11 | 4265 | DPS020A | 460/60/3 | 60.5 | 90 | 10.8 | 5950 | 0.80 | 2.94 | 7.5 | 5950 | 0.91 | (2) 4.0 HP | COMBO RACK-2" MERV8 & 4" MERV14 from factory | 140543 | 304209 | 81.8 | 40.4 | 0.68 | 47.53 | 57.50 | 59.79 | 62.08 | 81.8 | 69.0 | 55.6 | 55.6 | 254859 | 170209 | 95 | Modulating Control with Inverter Compressors | 1 | 17.7 | R410A | 45 | 66.1 | 137026 | 10 |
| RTU-12 | 2274 | DPS007A | 460/60/3 | 18.2 | 20 | 12.8 | 1925 | 0.67 | 1.60 | 2.3 | 1925 | 0.66 | (1) 4.0 HP | COMBO RACK-2" MERV8 & 4" MERV14 from factory | 54028 | 109134 | 79.8 | 44.5 | 0.45 | 57.11 | 65.88 | 66.90 | 68.46 | 79.8 | 67.7 | 53.2 | 53.2 | 86106 | 56091 | 95 | Modulating Control with Inverter Compressors | 2 | 5.8 | R410A | 45 | 66.7 | 45705 | 10 |
| RTU-13 | 2274 | DPS007A | 460/60/3 | 18.2 | 20 | 12.8 | 1875 | 0.73 | 1.69 | 2.3 | 1875 | 0.70 | (1) 4.0 HP | COMBO RACK-2" MERV8 & 4" MERV14 from factory | 53156 | 106854 | 79.8 | 44.7 | 0.43 | 57.76 | 66.28 | 67.31 | 68.77 | 79.8 | 67.6 | 52.8 | 52.8 | 85445 | 55328 | 95 | Modulating Control with Inverter Compressors | 2 | 5.8 | R410A | 45 | 67.3 | 45649 | 10 |
| RTU-14 | 2274 | DPS007A | 460/60/3 | 18.2 | 20 | 12.8 | 1800 | 0.99 | 1.89 | 2.3 | 1800 | 0.65 | (1) 4.0 HP | COMBO RACK-2" MERV8 & 4" MERV14 from factory | 51812 | 103381 | 79.6 | 45.0 | 0.41 | 58.77 | 66.87 | 67.93 | 69.23 | 79.6 | 67.5 | 52.1 | 52.1 | 84402 | 54185 | 95 | Modulating Control with Inverter Compressors | 2 | 5.8 | R410A | 45 | 68.1 | 45555 | 10 |

NOTES:

1. UNITS BASED ON DAIKIN.
2. PROVIDE (1) COMPLETE EXTRA SET OF FILTERS FOR EACH UNIT.
3. UNITS SHALL BE COMPLETE WITH:
   - NON-FUSED DISCONNECT SWITCH
   - FACTORY POWERED 115 VOLT GFI OUTLET
   - INVERTER RATED PREMIUM EFFICIENCY MOTORS SUITABLE FOR VARIABLE SPEED AND TORQUE APPLICATIONS.
   - COMPARATIVE ENTHALPY ECONOMIZER.
   - STAINLESS STEEL DRAIN PANS.
   - BACNET MS-TP INTERFACE. PROVIDE FACTORY START-UP SUPPORT FOR INTERFACE WITH THE BUILDING MANAGEMENT SYSTEM.
   - 5 YEAR COMPRESSOR PARTS WARRANTY.
   - LOW AMBIENT CONTROL.
4. ROOF CURBS SHALL BE TURNED OVER TO THE GENERAL CONTRACTOR FOR INSTALLATION.
5. ALL UNITS SHALL BE PROVIDED WITH VARIABLE FREQUENCY DRIVES.
6. ALL UNITS SHALL BE SUPPLIED CAMBRIDGEPORT CUSTOM ROOF CURB OR APPROVED EQUAL. ROOF CURB SHALL HAVE ONE-PIECE WELDED CONSTRUCTION, BE MADE OF HEAVY GAUGE GALVANIZED STEEL, GALVANIZED COMPOUND COATED WELDS, GASKETING FOR UNIT TO CURB SEALING, FULLY INSULATED AND HAVE SUPPLY TRANSITION AND RETURN PLENUM WITH A OVERALL HEIGHT OF 36".
7. ALL UNITS SHALL BE PROVIDED WITH KINETICS KIP-RT EQUIPMENT PADS AND RT-7 IN CURB ACOUSTICAL TREATMENT WITH STC 37.

### MUA FAN INFORMATION – JOB#5928671

| FAN UNIT NO | TAG | QTY | FAN UNIT MODEL # | BLOWER | HOUSING | MIN CFM | DESIGN CFM | ESP | RPM | MOTOR ENCL | HP | BHP | PHASE | VOLT | FLA | MCA | MOCP | WEIGHT (LBS) | SONES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | MUA-1 | 1 | A3-D.500-24D | 24MF-3-MOD | A3-D.500 | 3500 | 5000 | 0.750 | 1185 | ODP,PREMIUM | 5.000 | 3.1370 | 3 | 460 | 7.2 | 9A | 15A | 856 | 9.5 |
| 2 | MUA-2 | 1 | A3-D.500-24D | 24MF-3-MOD | A3-D.500 | 3500 | 4800 | 0.750 | 1151 | ODP,PREMIUM | 5.000 | 2.8620 | 3 | 460 | 7.2 | 9A | 15A | 856 | 9 |
| 3 | MUA-3 | 1 | A2-D.250-20D | 20MF-2-MOD | A2-D.250 | 2000 | 3375 | 0.750 | 1418 | ODP,PREMIUM | 3.000 | 1.6220 | 3 | 460 | 4.3 | 5.9A | 15A | 687 | 12.7 |

### GAS FIRED MAKE-UP AIR UNIT(S)

| FAN UNIT NO | TAG | INPUT BTUs | OUTPUT BTUs | TEMP RISE | REQUIRED INPUT GAS PRESSURE | GAS TYPE | BURNER EFFICIENCY(%) |
|---|---|---|---|---|---|---|---|
| 1 | MUA-1 | 374755 | 344775 | 66°F | 7 IN. W.C. - 14 IN. W.C. | NATURAL | 92 |
| 2 | MUA-2 | 359765 | 330984 | 66°F | 7 IN. W.C. - 14 IN. W.C. | NATURAL | 92 |
| 3 | MUA-3 | 215228 | 198010 | 55°F | 7 IN. W.C. - 14 IN. W.C. | NATURAL | 92 |

### DOAS/RTU FAN SCHEDULE – JOB#5928671

| FAN INFORMATION | | | | | | | | | | | ELECTRICAL INFORMATION | | | | | COOLING INFORMATION | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FAN UNIT NO | TAG | QTY | DOAS/RTU MODEL # | MANUFACTURER | BLOWER | RETURN AIR CFM | MAX OUTSIDE AIR CFM | TOTAL CFM | WEIGHT (LBS) | ESP | HP | PHASE | VOLT | MCA | MOCP | OUTSIDE AIR | | MIXED AIR | | LEAVING AIR | | | CAPACITY | |
| | | | | | | | | | | | | | | | | DB | WB | DB | WB | DB | WB | DP | TOTAL | |
| 4 | RTU-24 | 1 | CASRTU4-I.600-24-30T | CAPTIVEAIRE | 24P-4 | 0-5700 | 5700 | 5700 | 4684 | 0.750 | 5.00 | 3 | 460 | 74A | 80A | 95.0°F | 75.0°F | 95.0°F | 75.0°F | 56.1°F | 53.7°F | 52.1°F | 384.0 MBH | [illegible] |
| 5 | RTU-25 | 1 | CASRTU4-I.800-30-40T-2 | CAPTIVEAIRE | 30P-4 | 0-7100 | 7100 | 7100 | 5261 | 0.750 | 7.50 | 3 | 460 | 92.2A | 100A | 95.0°F | 72.0°F | 95.0°F | 72.0°F | 47.2°F | 47.2°F | 47.3°F | 500.0 MBH | [illegible] |

NOTES:

1. INVERTER SCROLL COMPRESSOR WITH INTEGRATED OIL SENSOR. DIGITAL OR STAGED SCROLL NOT AN APPROVED EQUAL
2. DIRECT DRIVE PLENUM BLOWER. BELT DRIVEN BLOWERS ARE NOT ACCEPTABLE
3. INTEGRATED MONITORING VIA CELLULAR CONNECTION BY MANUFACTURER
4. REFRIGERATION PRESSURE MONITORING ON HIGH AND LOW PRESSURE SIDE OF SYSTEM INCLUDED THROUGH DIGITAL INTERFACE
5. EC MOTOR CONDENSING FANS
6. ELECTRONIC EXPANSION VALVE. TXV NOT ACCEPTABLE
7. SUCTION LINE ACCUMULATOR
8. FACTORY COMMISSIONING WITH 5 YEAR PARTS WARRANTY, 25 YEAR WARRANTY ON STAINLESS STEEL HEAT EXCHANGER
9. AVERAGING INTAKE, EVAP AND DISCHARGE TEMPERATURE SENSORS (DISCHARGE SENSOR TO BE FACTORY MOUNTED WITHIN UNIT)
10. 2" EXTERIOR DUAL-WALL CONSTRUCTION W/ R-13 INSULATION-MINIMUM 20GA EXTERIOR W/ 14GA BASE
11. 81% EFFICIENT FURNACE, WITH MODULATING INDUCER TO MAINTAIN CONSTANT COMBUSTION EFFICIENCY ACROSS FIRING RANGE. 6:1 TURNDOWN WITH NG AND 5:1 TURNDOWN WITH LP
12. SUPPLY CFM MONITORING INTEGRAL TO UNIT WITH CFM MEASUREMENT INCLUDED THROUGH DIGITAL INTERFACE
13. FULLY MODULATING HOT GAS REHEAT
14. FACTORY INSTALLED COMPRESSOR SOUND BLANKET
15. SIDE DISCHARGE/SIDE RETURN

### FAN OPTIONS

| FAN UNIT NO | TAG | QTY | DESCRIPTION |
|---|---|---|---|
| 1 | MUA-1 | 1 | INLET PRESSURE GAUGE, 0-35" |
| | | 1 | MANIFOLD PRESSURE GAUGE, -5 TO 15" WC |
| | | 1 | BUTTERFLY MOD VALVE OPTION FOR MOD SIZE 3 (1" MOD VALVE) |
| | | 1 | MOTORIZED BACKDRAFT DAMPER FOR A3-D HOUSING - MEETS AMCA CLASS 1A RATING |
| | | 1 | SEPARATE 120V WIRING PACKAGE (REQUIRED AND USED ONLY FOR DCV OR PREWIRE WITH VFD) - THREE PHASE ONLY |
| | | 1 | BACNET MS/TP CONTROLLER |
| | | 1 | 2 YEAR PARTS WARRANTY |
| 2 | MUA-2 | 1 | INLET PRESSURE GAUGE, 0-35" |
| | | 1 | MANIFOLD PRESSURE GAUGE, -5 TO 15" WC |
| | | 1 | BUTTERFLY MOD VALVE OPTION FOR MOD SIZE 3 (1" MOD VALVE) |
| | | 1 | MOTORIZED BACKDRAFT DAMPER FOR A3-D HOUSING - MEETS AMCA CLASS 1A RATING |
| | | 1 | SEPARATE 120V WIRING PACKAGE (REQUIRED AND USED ONLY FOR DCV OR PREWIRE WITH VFD) - THREE PHASE ONLY |
| | | 1 | BACNET MS/TP CONTROLLER |
| | | 1 | 2 YEAR PARTS WARRANTY |
| 3 | MUA-3 | 1 | INLET PRESSURE GAUGE, 0-35" |
| | | 1 | MANIFOLD PRESSURE GAUGE, -5 TO 15" WC |
| | | 1 | BUTTERFLY MOD VALVE OPTION FOR MOD SIZE 2 (1" MOD VALVE) |
| | | 1 | SHIP LOOSE GAS STRAINER 1" |
| | | 1 | MOTORIZED BACKDRAFT DAMPER FOR A2-D HOUSING - MEETS AMCA CLASS 1A RATING |
| | | 1 | FREEZESTAT |
| | | 1 | VAV PACKAGE W/ MANUAL/DDC CONTROL (571 VFD INCLUDED) |
| | | 1 | VFD FACTORY MOUNTED AND WIRED IN COMMERCIAL CONTROL VESTIBULE FOR TEMPERED SUPPLY FAN |
| | | 1 | SIZE 2 DIRECT FIRED HEATER LOW CFM PROFILE PACKAGE - USED ON HEATERS UNDER 2500 CFM |
| | | 1 | BACNET MS/TP CONTROLLER |
| | | 1 | LOAD REACTOR MOUNTED IN FAN |
| | | 1 | 2 YEAR PARTS WARRANTY |
| 4 | RTU-24 | 1 | INLET PRESSURE GAUGE, 0-35" |
| | | 1 | MANIFOLD PRESSURE GAUGE, 0 TO 10" WC, 1 FURNACE |
| | | 1 | RTU TOTAL CFM MONITORING |
| | | 1 | SHIP LOOSE GAS STRAINER 1" |
| | | 1 | SINGLE POINT ELECTRICAL CONNECTION FOR RTU. 750VA TRANSFORMER USED. IF A NON-DCV PREWIRE CONTROLS THIS UNIT, THE #28, #47, "MA", OR "E2" PREWIRE OPTION MUST BE SELECTED. DOES NOT PROVIDE SUPPLY STARTER IN PREWIRE |
| | | 1 | CASLINK BUILDING MONITORING SYSTEM - INTERNET OR CELLULAR CONNECTION REQUIRED |
| | | 1 | 2" MERV 13 FILTERS FOR RTU4 (QTY. 12) |
| | | 1 | 2" MERV 8 FILTERS FOR RTU4 (QTY. 12) |
| | | 1 | OVERHEAT STAT |
| | | 1 | VFD FACTORY MOUNTED AND WIRED IN RTU COMMERCIAL CONTROL VESTIBULE |
| | | 1 | 30 TON MODULATING COOLING OPTION, 460/480V. 3CFS. R410A REFRIGERANT, VARIABLE SPEED COMPRESSOR, ECM CONDENSING FANS |
| | | 1 | 30 TON MODULATING REHEAT OPTION - SPACE DEWPOINT CONTROL |
| | | 1 | REMOTE TEMPERATURE AND HUMIDITY SPACE SENSOR |
| | | 1 | RTU4 SIDE DISCHARGE |
| | | 1 | OCCUPIED SCHEDULING |
| | | 1 | RTU4 CURB DUCT HANGER |
| | | 1 | 24VAC FIRE INPUT |
| | | 1 | COMMERCIAL SMOKE DETECTOR/ALARM INTERLOCK - ALARM SUPPLIED BY OTHERS |
| | | 1 | DDC IP BACNET MS-TP REMOTE UNIT MONITORING - ALLOWS FOR REMOTE DDC OCCUPIED OVERRIDE AND SETPOINT CHANGES |
| | | 1 | CLOGGED FILTER SWITCH - NOTIFICATION ON HMI |
| | | 1 | RTU4 SIDE RETURN |
| | | 1 | FREEZESTAT |
| | | 1 | VAV PACKAGE W/ MANUAL/DDC CONTROL (571 VFD INCLUDED) |
| | | 1 | LOAD REACTOR MOUNTED IN FAN |
| | | 1 | RTU INTAKE/RETURN DAMPER - OA PERCENTAGE CONTROL |
| | | 1 | DAMPER PRESET POSITIONS |
| | | 1 | RTUVZH170 COMPRESSOR SOUND BLANKET 460/575V - FACTORY INSTALLED |
| | | 1 | 5 YEAR ENTIRE UNIT PARTS WARRANTY, 10 YEAR ENTIRE UNIT PARTS WARRANTY WITH REMOTE MONITORING AND CAPTIVEAIRE SERVICE CONTRACT, 25 YEAR STAINLESS STEEL FURNACE PARTS WARRANTY (SEE ADDITIONAL DETAILS) |
| 5 | RTU-25 | 1 | INLET PRESSURE GAUGE, 0-35" |
| | | 1 | MANIFOLD PRESSURE GAUGE, 0 TO 10" WC, 2 FURNACES |
| | | 1 | RTU TOTAL CFM MONITORING |
| | | 1 | SHIP LOOSE GAS STRAINER 1" |
| | | 1 | SINGLE POINT ELECTRICAL CONNECTION FOR RTU. 750VA TRANSFORMER USED. IF A NON-DCV PREWIRE CONTROLS THIS UNIT, THE #28, #47, "MA", OR "E2" PREWIRE OPTION MUST BE SELECTED. DOES NOT PROVIDE SUPPLY STARTER IN PREWIRE |
| | | 1 | CASLINK BUILDING MONITORING SYSTEM - INTERNET OR CELLULAR CONNECTION REQUIRED |
| | | 1 | 2" MERV 13 FILTERS FOR RTU4 (QTY. 12) |
| | | 1 | 2" MERV 8 FILTERS FOR RTU4 (QTY. 12) |
| | | 1 | OVERHEAT STAT |
| | | 1 | VFD FACTORY MOUNTED AND WIRED IN RTU COMMERCIAL CONTROL VESTIBULE |
| | | 1 | REMOTE TEMPERATURE AND HUMIDITY SPACE SENSOR |
| | | 1 | RTU4 SIDE DISCHARGE |
| | | 1 | OCCUPIED SCHEDULING |
| | | 1 | RTU4 CURB DUCT HANGER |
| | | 1 | 24VAC FIRE INPUT |
| | | 1 | COMMERCIAL SMOKE DETECTOR/ALARM INTERLOCK - ALARM SUPPLIED BY OTHERS |
| | | 1 | DDC IP BACNET MS-TP REMOTE UNIT MONITORING - ALLOWS FOR REMOTE DDC OCCUPIED OVERRIDE AND SETPOINT CHANGES |
| | | 1 | CLOGGED FILTER SWITCH - NOTIFICATION ON HMI |
| | | 1 | 40 TON MODULATING COOLING OPTION, 460/480V. 4CFS. R410A REFRIGERANT, 20 TON VARIABLE SPEED COMPRESSOR/20 TON VARIABLE SPEED COMPRESSOR, ECM CONDENSING FANS |
| | | 1 | 40 TON MODULATING REHEAT OPTION - SPACE DEWPOINT CONTROL |
| | | 1 | RTU4 SIDE RETURN |
| | | 1 | FREEZESTAT |
| | | 1 | VAV PACKAGE W/ MANUAL/DDC CONTROL (571 VFD INCLUDED) |
| | | 1 | LOAD REACTOR MOUNTED IN FAN |
| | | 1 | RTU SIZE 4 40T COMPRESSOR SOUND BLANKETS 460/575V - FACTORY INSTALLED |
| | | 1 | RTU INTAKE/RETURN DAMPER - OA PERCENTAGE CONTROL |
| | | 1 | DAMPER PRESET POSITIONS |
| | | 1 | 5 YEAR ENTIRE UNIT PARTS WARRANTY, 10 YEAR ENTIRE UNIT PARTS WARRANTY WITH REMOTE MONITORING AND CAPTIVEAIRE SERVICE CONTRACT, 25 YEAR STAINLESS STEEL FURNACE PARTS WARRANTY (SEE ADDITIONAL DETAILS) |

### DOAS/RTU FAN SCHEDULE – JOB#5883841

| FAN INFORMATION | | | | | | | | | | | ELECTRICAL INFORMATION | | | | | COOLING INFORMATION | | | | | | | | | | | REHEAT INFORMATION | | | | | GAS HEAT INFORMATION | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FAN UNIT NO | TAG | QTY | DOAS/RTU MODEL # | MANUFACTURER | BLOWER | RETURN AIR CFM | MAX OUTSIDE AIR CFM | TOTAL CFM | WEIGHT (LBS) | ESP | HP | PHASE | VOLT | MCA | MOCP | OUTSIDE AIR | | MIXED AIR | | LEAVING AIR | | | CAPACITY | | IEER | ISMRE | DISCHARGE | | CAPACITY | | MOISTURE REMOVAL RATE | GAS TYPE | INPUT BTUs | OUTPUT BTUs | TEMP RISE | REQUIRED INPUT GAS PRESSURE | |
| | | | | | | | | | | | | | | | | DB | WB | DB | WB | DB | WB | DP | TOTAL | SENS. | | | DB | WB | DESIRED | MAX | | | | | | | |
| 1 | ERV-1 | 1 | EARTU1-I.200-16-5T-ERV | ECON-AIR | 16Z-1 | 0 | 1600 | 1600 | 1635 | 1.000 | 2.50 | 3 | 208 | 36.8A | 40A | 80.7°F | 75.2°F | 75.9°F | 67.3°F | 53.5°F | 53.5°F | 53.6°F | 65.8 MBH | 38.0 MBH | 17.9 | 6.1 | 70.0°F | 65.6°F | 29.1 MBH | 53 MBH | 25.5 LBS/HR | NATURAL | 190704 | 154470 | 81°F | 7 IN. W.C. - 14 IN. W.C. | [illegible] |

NOTES:

1. INVERTER SCROLL COMPRESSOR WITH INTEGRATED OIL SENSOR. DIGITAL OR STAGED SCROLL NOT AN APPROVED EQUAL
2. DIRECT DRIVE PLENUM BLOWER. BELT DRIVEN BLOWERS ARE NOT ACCEPTABLE
3. INTEGRATED MONITORING VIA CELLULAR CONNECTION BY MANUFACTURER
4. REFRIGERATION PRESSURE MONITORING ON HIGH AND LOW PRESSURE SIDE OF SYSTEM INCLUDED THROUGH DIGITAL INTERFACE
5. EC MOTOR CONDENSING FANS
6. ELECTRONIC EXPANSION VALVE. TXV NOT ACCEPTABLE
7. SUCTION LINE ACCUMULATOR
8. FACTORY COMMISSIONING WITH 5 YEAR PARTS WARRANTY, 25 YEAR WARRANTY ON STAINLESS STEEL HEAT EXCHANGER
9. AVERAGING INTAKE, EVAP AND DISCHARGE TEMPERATURE SENSORS (DISCHARGE SENSOR TO BE FACTORY MOUNTED WITHIN UNIT)
10. TOTAL ENERGY RECOVERY WHEEL WITH SPEED CONTROLS FOR FROST PROTECTION AND MODULATION TO CAPACITY. INCLUDES SUPPLY AND EXHAUST FILTER & WHEEL MONITORING
11. 81% EFFICIENT FURNACE, WITH MODULATING INDUCER TO MAINTAIN CONSTANT COMBUSTION EFFICIENCY ACROSS FIRING RANGE. 6:1 TURNDOWN WITH NG AND 5:1 TURNDOWN WITH LP
12. EXHAUST CFM MONITORING INTEGRAL TO UNIT WITH CFM MEASUREMENT INCLUDED THROUGH DIGITAL INTERFACE
13. FILTERED SUPPLY AND EXHAUST AIR STREAMS WITHIN ENERGY RECOVERY VENTILATOR MODULE
14. SUPPLY CFM MONITORING INTEGRAL TO UNIT WITH CFM MEASUREMENT INCLUDED THROUGH DIGITAL INTERFACE
15. FULLY MODULATING HOT GAS REHEAT
16. 4" MERV-15 IN-UNIT FILTRATION
17. HAIL GUARD FOR CONDENSING COIL
18. BAROMETRIC RELIEF DAMPER
19. 1" EXTERIOR DUAL-WALL CONSTRUCTION W/ R-4.3 INSULATION-MINIMUM 24GA EXTERIOR W/ 18GA BASE
20. DOWN DISCHARGE/DOWN RETURN

### DOAS/RTU ENERGY RECOVERY SCHEDULE

| FAN UNIT NO | TAG | EXHAUST AIR FAN (ECM) | | | | SUPPLY AIR SUMMER | | RETURN AIR DB/WB TEMP(°F) | DESIGN RECOVERED SUMMER CAPACITY | | | SUPPLY AIR WINTER | | RETURN AIR DB/WB TEMP(°F) | DESIGN RECOVERED WINTER CAPACITY | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | CFM | SP | MOTOR HP | V/Ø/HZ | ENTERING AIR DB/WB TEMP(°F) | LEAVING AIR DB/WB TEMP(°F) | | TOTAL | SENSIBLE | LATENT | ENTERING AIR DB/WB TEMP(°F) | LEAVING AIR DB/WB TEMP(°F) | | TOTAL | SENSIBLE | LATENT |
| 1 | ERV-1 | 1600 | 1.666 | 2.5 | 208/3/60 | 80.7/75.2 | 75.9/67.3 | 74.0/63.0 | 47.9 MBH | 7.8 MBH | 40.1 MBH | 9.0/6.2 | 53.9/49.6 | 74.0/63.0 | 124.3 MBH | 76.5 MBH | 47.8 MBH |

### FAN OPTIONS

| FAN UNIT NO | TAG | QTY | DESCRIPTION | IMPORTANT NOTE |
|---|---|---|---|---|
| 1 | | 1 | INLET PRESSURE GAUGE, 0-35" | THIS UNIT CONTAINS AN ENERGY RECOVERY WHEEL. BY VIRTUE OF THEIR DESIGN, ALL ENERGY RECOVERY WHEELS ALLOW A LEVEL OF RETURN/EXHAUST AIR AND CONTAMINANTS TO BE RECIRCULATED INTO THE SUPPLY AIRSTREAM. ACCEPTING AND OPERATING THIS UNIT WITH OR WITHOUT THE ENERGY RECOVERY WHEEL IN OPERATION INCREASES THE RISK OF AIRBORNE BACTERIA, VIRUS AND CONTAMINANT SPREAD BETWEEN THE RETURN/EXHAUST AIR, INTO THE FRESH AIRSTREAM.<br>IN ACCORDANCE WITH ANSI/ASHRAE/ASHE STANDARD 170-2017, ENERGY RECOVERY WHEEL TECHNOLOGY SHOULD NOT BE USED AS A MEANS OF VENTILATION FOR CERTAIN HEALTH CARE FACILITIES.AN ASHRAE POSITION DOCUMENT ON INFECTIOUS AEROSOLS, APPROVED BY ASHRAE BOARD OF DIRECTORS, DATED APRIL 14, 2020, ALSO RECOMMENDS THAT ENERGY RECOVERY DEVICES BE BYPASSED FOR NON-HEALTH CARE FACILITY VENTILATION TO HELP REDUCE THE SPREAD OF VIRUS.<br>ANY REDUCTION OF OUTDOOR AIR % OR VOLUME BELOW WHAT THIS UNIT WAS DESIGNED FOR ELEVATES THE RISK OF AIRBORNE BACTERIA, VIRUS AND CONTAMINANT RECIRCULATION BACK INTO THE FRESH AIRSTREAM AND THE SPACE.<br>OPERATING THIS UNIT WITH AN EXHAUST LEVEL LESS THAN 50% OF THE SUPPLY LEVEL NULLIFIES ALL RETURN ON INVESTMENT STATEMENTS AND LIMITS THE AMOUNT OF ENERGY RECOVERY.<br>THIS UNIT, INCLUDING THE ENERGY RECOVERY WHEEL, MUST BE SERVICED AND MAINTAINED AS PER THE INSTALLATION AND OPERATION MANUAL'S RECOMMENDED FREQUENCIES. |
| | | 1 | MANIFOLD PRESSURE GAUGE, 0 TO 10" WC, 1 FURNACE | |
| | | 1 | RTU TOTAL CFM MONITORING | |
| | | 1 | SHIP LOOSE GAS STRAINER 3/4" | |
| | | 1 | SINGLE POINT ELECTRICAL CONNECTION FOR RTU. 750VA TRANSFORMER USED. IF A NON-DCV PREWIRE CONTROLS THIS UNIT, THE #28, #47, "MA", OR "E2" PREWIRE OPTION MUST BE SELECTED. DOES NOT PROVIDE SUPPLY STARTER IN PREWIRE | |
| | | 1 | BACNET MS-TP CONTROLLER | |
| | | 1 | OVERHEAT STAT | |
| | | 1 | RTU1 DOWN DISCHARGE | |
| | | 1 | REMOTE TEMPERATURE AND HUMIDITY SPACE SENSOR | |
| | | 1 | RTU1 HAIL GUARD | |
| | | 1 | 5 TON MODULATING COOLING OPTION WITH HEAT PUMP, 208/230V. R410A REFRIGERANT, VARIABLE SPEED COMPRESSOR, ECM CONDENSING FAN | |
| | | 1 | ECM FAN DOAS - 3 PHASE | |
| | | 1 | 5 TON MODULATING REHEAT OPTION WITH HEAT PUMP - SPACE DEWPOINT CONTROL | |
| | | 1 | RTU1 DOWN RETURN | |
| | | 1 | ENERGY RECOVERY VENTILATOR FOR 208/230V RTU1 | |
| | | 1 | RTU1 ECONOMIZER BAROMETRIC RELIEF | |
| | | 1 | 2" MERV 13 SUPPLY FILTERS FOR ERV1 | |
| | | 1 | 4" MERV 15 RETURN FILTERS FOR ERV1 | |
| | | 1 | COMMERCIAL SMOKE DETECTOR/ALARM INTERLOCK - ALARM SUPPLIED BY OTHERS | |
| | | 1 | ECM WIRING PACKAGE - SUPPLY FAN CONTROL RTU MUA BOARD | |
| | | 1 | ERV EXHAUST FAN - MANUAL CONTROL VIA HMI | |
| | | 1 | OCCUPIED SCHEDULING | |
| | | 1 | CLOGGED FILTER SWITCH - NOTIFICATION ON HMI | |
| | | 1 | 4" MERV 15 FILTERS FOR RTU1 (QTY. 4) | |
| | | 1 | RTU INTAKE/RETURN DAMPER - MANUAL CONTROL VIA HMI | |
| | | 1 | FREEZESTAT | |
| | | 1 | RTU1 CURB DUCT HANGER | |
| | | 1 | 5 YEAR ENTIRE UNIT PARTS WARRANTY, 10 YEAR ENTIRE UNIT PARTS WARRANTY WITH REMOTE MONITORING AND CAPTIVEAIRE SERVICE CONTRACT, 25 YEAR STAINLESS STEEL FURNACE PARTS WARRANTY (SEE ADDITIONAL DETAILS) | |

### CURB ASSEMBLIES

| NO | ON FAN | WEIGHT | ITEM | SIZE |
|---|---|---|---|---|
| 1 | # 1 | 130 LBS | CURB | 41.000"W X 111.000"L X 20.000"H ALONG WIDTH, RIGHT INSULATED. |

EQUIPMENT NOTES:

1. VERIFY ALL FINISH COLORS WITH ARCHITECT PRIOR TO ORDERING FOR ALL EQUIPMENT VISIBLE WITHIN SPACE OR FROM EXTERIOR. ALL EQUIPMENT SHALL BE FINISHED USING MANUFACTURER'S FULL RANGE OF STANDARD AND CUSTOM COLORS/FINISHES UNLESS OTHERWISE NOTED.
2. MECHANICAL CONTRACTOR SHALL PROVIDE A DELEGATED DESIGN FOR WIND RESTRAINT OF ALL ROOF MOUNTED MECHANICAL EQUIPMENT. REFER TO WIND DESIGN DATA ON DRAWING S001.

## WATER SOURCE HEAT PUMP ROOFTOP UNIT

| UNIT TAG | RTU 15/16 | RTU-17 | RTU-18 | RTU 19 | RTU 20/21 | RTU 22 | RTU 23 |
|---|---|---|---|---|---|---|---|
| UNIT MANUFACTURE | DESERT AIRE | DESERT AIRE | DESERT AIRE | DESERT AIRE | DESERT AIRE | DESERT AIRE | DESERT AIRE |
| MODEL NO | QS20X | QS05H | QS08X | QS20X | QS20X | QS10X | QS10X |
| LOCATION | Outdoor | Outdoor | Outdoor | Outdoor | Outdoor | Outdoor | Outdoor |
| SERVICE AREA | Gym 115 | Locker Room | Weight Room | Small Gym 125 | Café "A"/Café "B" | Fitness 173 | Kitchen |
| UNIT WEIGHT | 8,074 lbs | 2,196 lbs | 4,538 lbs | 8,074 lbs | 8,074 lbs | 4,559 lbs | 4,559 lbs |
| **FAN & MOTOR DATA** | | | | | | | |
| OA ESP \| SA ESP | 0.0 "wc \| 2.0 "wc | 0.0 "wc \| 2.0 "wc | 0.0 "wc \| 2.0 "wc | 0.0 "wc \| 2.0 "wc | 0.0 "wc \| 2.0 "wc | 0.0 "wc \| 2.0 "wc | 0.0 "wc \| 1.5 "wc |
| EA ESP \| RA ESP | 0.0 "wc \| 2.0 "wc | 0.0 "wc \| 2.0 "wc | 0.0 "wc \| 2.0 "wc | 0.0 "wc \| 2.0 "wc | 0.0 "wc \| 2.0 "wc | 0.0 "wc \| 2.0 "wc | 0.0 "wc \| 1.5 "wc |
| SUPPLY AIR FLOW - CFM | 5,200 | 1,800 | 3,000 | 6,000 | 5,400 | 3,650 | 3,150 |
| SUPPLY FAN ESP (OA MODE) | 2 "wc | 2 "wc | 2 "wc | 2 "wc | 2 "wc | 2 "wc | 1.5 "wc |
| SUPPLY FAN ESP (RECIRC MODE) | 4 "wc | 4 "wc | 4 "wc | 4 "wc | 4 "wc | 4 "wc | 3 "wc |
| SUPPLY AIR FAN HP \| BHP w/ DRIVE LOSS | 20.00 \| 07.67 | \| 01.58 | 05.00 \| 04.60 | 20.00 \| 11.46 | 20.00 \| 08.02 | 07.50 \| 06.43 | 05.00 \| 03.97 |
| EXHAUST AIR FLOW - CFM | 2,600 | 2,300 | 1,600 | 3,550 | 2,920 | 1,900 | 1,575 |
| EXHAUST FAN HP \| BHP w/ DRIVE LOSS | 05.00 \| 01.54 | 02.00 \| 01.91 | 05.00 \| 04.60 | 05.00 \| 02.52 | 05.00 \| 01.82 | 05.00 \| 01.33 | 05.00 \| 00.84 |
| ENTHALYP WHEEL DRIVE MOTOR HP | 0.25 | 0.13 | 0.13 | 0.25 | 0.25 | 0.13 | 0.13 |
| **COOLING / DEHUMIDIFICATION MODE** | | | | | | | |
| WHEEL EAT DB / WB DEG F | 95.0 75.0 | 95.0 75.0 | 95.0 75.0 | 95.0 75.0 | 95.0 75.0 | 95.0 75.0 | 95.0 75.0 |
| WHEEL LAT DB / WB DEG F | 76.2 64.3 | 76.8 65.1 | 76.9 64.9 | 76.8 64.8 | 76.4 64.5 | 77.3 65.2 | 79.0 66.2 |
| D/X EAT DB I WB °F | 75.1 \| 63.7 | 76.58 \| 65.1 | 75.2 \| 64.0 | 75.4 \| 64.0 | 75.3 \| 63.8 | 75.7 \| 64.2 | 77 \| 65 |
| D/X LAT DB I WB °F | 52.8 52.4 | 50.3 49.9 | 52.3 51.9 | 52.5 52.2 | 52.0 51.7 | 51.3 50.9 | 51.0 50.7 |
| HGRH LAT DB I WB °F | 55.0 53.4 | 55.0 52.0 | 55.0 53.1 | 55.0 53.2 | 55.0 52.9 | 55.0 52.5 | 55.0 52.4 |
| SYSTEM TOTAL CAP BTUH | 313,298 | 140,809 | 185,380 | 428,750 | 339,818 | 232,242 | 207,107 |
| SYSTEM SENSIBLE BTUH | 174,451 | 85,271 | 104,533 | 240,223 | 190,432 | 130,122 | 119,015 |
| D/X COIL TOTAL CAP BTUH | 165,419 | 76,596 | 102,536 | 236,391 | 184,450 | 135,692 | 127,116 |
| D/X SENSIBLE BTUH | 123,078 | 50,816 | 74,076 | 172,451 | 133,408 | 94,807 | 89,980 |
| LEAVING AIR DEWPOINT F | 53.6 | 49.7 | 52.8 | 52.5 | 53.5 | 50.7 | 50.5 |
| COMPRESSOR HP | 20 HP VFD | 5.0 | 10 HP VFD | 20 HP VFD | 20 HP VFD | 10 HP VFD | 10 HP VFD |
| | | | | | | | |
| MOISTURE REMOVAL CAPACITY - LB/HR | 131 | 52 | 76 | 178 | 141 | 96 | 83 |
| COOLING EWT \| LWT | 85.0 °F 91 °F | 85.0 °F 94 °F | 85.0 °F 95 °F | 85.0 °F 94 °F | 85.0 °F 92 °F | 85.0 °F 98 °F | 85.0 °F 95.0°F |
| THR TO WATER LOOP BTUH | 198,673 | 93,699 | 124,429 | 244,010 | 221,624 | 166,624 | 158,229 |
| MAX NET SENSIBLE TO SPACE @ 60°F LAT WITH 75°F ZONE | 82,039 | 28,398 | 47,330 | 112,014 | 85,194 | 57,585 | 49,696 |
| **HEAT PUMP MODE** | 160000.0 | | | 169000.0 | 139000.0 | 100000.0 | |
| WHEEL EAT DB \| WB | 0.0 -1.5 | 0.0 -1.5 | 0.0 -1.5 | 0.0 -1.5 | 0.0 -1.5 | 0.0 -1.5 | 0.0 -1.5 |
| WHEEL LAT DB \| WB DEG F | 62.6 46.3 | 60.7 46.1 | 60.3 44.8 | 60.5 44.9 | 61.9 45.8 | 58.9 43.9 | 53.4 40.7 |
| SYSTEM TOTAL HEATING (Wheel & D/X) BTUH | 370,806 | 168,748 | 232,457 | 480,022 | 402,050 | 247,074 | 237,181 |
| Mixed Air DB I WB °F | 66 \| 53 | 65.0 52.0 | 65.0 52.0 | 65 \| 52 | 66 \| 52 | 64 \| 51 | 60 \| 48 |
| D/X HEATING CAPACITY | 199,559 | 53,897 | 130,936 | 248,122 | 211,969 | 129,359 | 130,397 |
| Heating LAT | 100 | 89.1 | 100 | 99.3 | 100 | 97.9 | 99.4 |
| HEATING EWT \| LWT | 38.0 °F 33 °F | 38.0 °F 33.8°F | 38.0 °F 31.7°F | 38.0 °F 31 °F | 38.0 °F 33 °F | 38.0 °F 31 °F | 38.0 °F 31.0°F |
| COP @ DESIGN | 2.4 | 5.1 | 3.4 | 2.2 | 2.4 | 2.0 | 2.2 |
| **WATER DATA** | | | | | | | |
| GPM / PD (PSI): | 60.0 | 19.0 | 34 \| 6.6 | 60.0 | 60.0 | 30.0 | 30 \| 5.6 |
| GLYCOL AMOUNT | Rated with 30% Glycol | Rated with 30% Glycol | Rated with 30% Glycol | Rated with 30% Glyco | Rated with 30% Glyco | Rated with 30% Glyco | Rated with 30% Glyco |
| **UNIT ELECTRICAL DATA** | | | | | | | |
| VOLTAGE | 460/3/60 | 460/3/60 | 460/3/60 | 460/3/60 | 460/3/60 | 460/3/60 | 460/3/60 |
| MOPD | 90 | 35 | 60 | 125 | 100 | 70 | 60 |
| MCA | 65 | 20 | 43 | 86 | 68 | 47 | 44 |
| SHORT CIRCUIT CURRENT RATING(SCCR) | 65.0 | 65.0 | 65.0 | 65.0 | 65.0 | 65.0 | 65.0 |
| FUSED DICONNECT | 100 | 30 | 60 | 100 | 100 | 60 | 60 |
| NON-FUSED DISCONNECT | 100 | 30 | 60 | 100 | 100 | 60 | 60 |

NOTES:

1. UNITS BASED ON DESERT AIRE.
2. PROVIDE (1) COMPLETE EXTRA SET OF FILTERS FOR EACH UNIT.
3. UNITS SHALL BE COMPLETE WITH:
   - NON-FUSED DISCONNECT SWITCH
   - 24" HIGH INSULATED ROOF CURB, CURB SHALL BE PITCHED TO MATCH PITCH OF ROOF.
   - INVERTER RATED PREMIUM EFFICIENCY MOTORS SUITABLE FOR VARIABLE SPEED AND TORQUE APPLICATIONS.
   - COMPARATIVE ENTHALPY ECONOMIZER.
   - STAINLESS STEEL DRAIN PANS.
   - BACNET MS-TP INTERFACE. PROVIDE FACTORY START-UP SUPPORT FOR INTERFACE WITH THE BUILDING MANAGEMENT SYSTEM.
   - 5 YEAR COMPRESSOR PARTS WARRANTY.
   - SPRING ISOLATION MOUNT FOR BLOWER ASSEMBLY.
   - DIRTY FILTER SWITCH.
   - VOLTAGE MONITOR.
   - 2-WAY FLOW CONTROL PACKAGE.
   - MIST ELMINATOR
   - CONDENSATE OVERFLOW.
   - INVERTER SCROLL COMPRESSOR.
   - MERV-13 FILTERS.
   - ENTHALPY ENERGY RECOVERY WHEEL.
   - BACNET MS-TP MS-TP CONTROL CONNECTION
4. ROOF CURBS SHALL BE TURNED OVER TO THE GENERAL CONTRACTOR FOR INSTALLATION.
5. ALL UNITS SHALL BE PROVIDED WITH VARIABLE FREQUENCY DRIVES.
6. ALL UNITS SHALL BE PROVIDED WITH KINETICS KIP-RT EQUIPMENT PADS AND RT-7 IN CURB ACOUSTICAL TREATMENT WITH STC 37.

# TWIN TOWERS MIDDLE SCHOOL

Additions & Alterations

ENLARGED CITY SCHOOL
DISTRICT OF MIDDLETOWN

112 Grand Avenue
Middletown, NY 10940

KG+D listen imagine build
KG+D ARCHITECTS, PC
285 MAIN STREET • MOUNT KISCO, NEW YORK 10549
P: 914.666.5900 KGDARCHITECTS.COM

GERARD ASSOCIATES
CONSULTING ENGINEERS, D.P.C.
223 MAIN STREET, GOSHEN, NY 10924
(845) 291 1272 GerardAssociates.com

GA22017-A

NY SED PROJECT CONTROL NO.
44-10-00-01-0-001-041

CONSTRUCTION DOCUMENTS

Professional Seal

| No. | Date | Issue |
|---|---|---|
| 4 | 02/12/2024 | ADDENDUM 4 |
| 3 | 02/02/2024 | ADDENDUM #2 |
| 2 | 12/14/2023 | ISSUE FOR BID |
| 1 | 04/14/2023 | NYSED ISSUE |

Sheet Title

**MECHANICAL:**
SCHEDULES

| | |
|---|---|
| Job No.<br>2021-1087 | Date<br>09/08/2022 |
| Scale<br>AS NOTED | Drawn / Checked<br>BH/DC SZ |

Sheet Number
M702

## HVAC EQUIPMENT SCHEDULE

| TAG | MANUFACTURER | MODEL # | DESCRIPTION |
|---|---|---|---|
| **CD-A** | TITUS | TMS | STEEL HIGH PERFORMANCE CEILING DIFFUSER. MAXIMUM CORE VELOCITY: 550 FPM. MAXIMUM NOISE CRITERIA: 15 NC. SURFACE MOUNTED WITH FRAMES AND BORDERS SUITABLE FOR THE CONSTRUCTION IN WHICH THEY WILL BE INSTALLED, CONTRACTOR TO COORDINATE. FINISH, COLOR SELECTED BY ARCHITECT. 4-WAY DEFLECTION. 24" x 24" MODULE SIZE. ALL DIFFUSERS SHALL BE EQUIPPED WITH OPPOSED BLADE VOLUME DAMPER.<br>CFM RANGE: NECK SIZE:<br>0-100 → 6"Ø<br>101-200 → 8"Ø<br>201-300 → 10" Ø<br>301-450 → 12" Ø<br>451-650 → 14" Ø |
| **ER-A**<br>**RG-A**<br>**RR-A** | TITUS | 23RL | STEEL AEROBLADE RETURN REGISTER WITH 3/4" BLADE SPACING. MAXIMUM CORE VELOCITY: 500 FPM. MAXIMUM NOISE CRITERIA: 25 NC. SURFACE MOUNTED 45° FIXED DEFLECTION BLADES. BLADES PARALLEL TO LONG DIMENSION UNLESS OTHERWISE NOTED. FINISH, COLOR SELECTED BY ARCHITECT. REGISTERS SHALL HAVE FRAMES AND BORDERS SUITABLE FOR THE CONSTRUCTION IN WHICH THEY WILL BE INSTALLED, CONTRACTOR TO COORDINATE. REGISTERS SHALL BE PROVIDED WITH OPPOSED BLADE VOLUME DAMPERS. UNLESS OTHERWISE NOTED ON PLANS REGISTERS AND GRILLES SHALL BE SIZED PER SCHEDULE.<br>CFM RANGE: NECK SIZE:<br>0-150 → 8"x8"<br>151-250 → 10"x10"<br>251-350 → 12"x12"<br>351-725 → 18"x18"<br>726-1125 → 24"x24" |
| **CD-B** | TITUS | TMR | STEEL, ROUND CEILING DIFFUSER WITH (3) CONES AND 360° DISCHARGE PATTERN. DIFFUSERS SHALL HAVE ROUND NECK INLETS AND (2) HORIZONTAL DISCHARGE SETTINGS. BAKED ENAMEL FINISH, COLOR SELECTED BY ARCHITECT. MAXIMUM NECK VELOCITY: 600 FPM. MAXIMUM NOISE CRITERIA: 25 NC. PROVIDE NECK MOUNTED OPPOSED BLADE VOLUME DAMPER. DIFFUSERS SHALL HAVE 20"Ø NECK. |
| **RR-B** | KRUEGER | S580H | ALUMINUM RETURN GRILLE WITH 3/4" BLADE SPACING. MAXIMUM CORE VELOCITY: 350 FPM. MAXIMUM NOISE CRITERIA: 25NC. GRILLE SHALL HAVE 2" FILTER FRAME WITH 1/4 TURN FASTENER. FINISH, COLOR SELECTED BY ARCHITECT. 4-WAY DEFLECTION. 23.75" x 23.75 MODULE SIZE WITH 20" x 20" NOMINAL DUCT SIZE. ALL DIFFUSERS SHALL BE EQUIPPED WITH OPPOSED BLADE VOLUME DAMPER. |
| **RR-C** | TITUS | 33RL | HEAVY DUTY GYM STEEL BAR RETURN GRILLE WITH 1/2" BLADE SPACING. MAXIMUM CORE VELOCITY: 500 FPM. MAXIMUM NOISE CRITERIA: 30 NC. SURFACE MOUNTED 38° FIXED DEFLECTION BLADES. BLADES PARALLEL TO LONG DIMENSION UNLESS OTHERWISE NOTED. FINISH, COLOR SELECTED BY ARCHITECT. REGISTERS SHALL HAVE FRAMES AND BORDERS SUITABLE FOR THE CONSTRUCTION IN WHICH THEY WILL BE INSTALLED, CONTRACTOR TO COORDINATE. REGISTERS SHALL BE PROVIDED WITH OPPOSED BLADE VOLUME DAMPERS, SUPPORT BARS 6" ON CENTER, 16 GAUGE STEEL BORDER AND 14 GAUGE STEEL BLADES. |
| **SR-A** | TITUS | 271RL | ALUMINUM AEROBLADE SUPPLY REGISTER WITH 3/4" BLADE SPACING. MAXIMUM CORE VELOCITY: 500 FPM. MAXIMUM NOISE CRITERIA: 20NC. SINGLE DEFLECTION AIRFOIL BLADES PARALLEL TO LONG DIMENSION. REGISTERS SHALL HAVE FRAMES AND BORDERS SUITABLE FOR THE CONSTRUCTION IN WHICH THEY WILL BE INSTALLED, CONTRACTOR TO COORDINATE. REGISTERS SHALL BE PROVIDED WITH OPPOSED BLADE VOLUME DAMPERS. UNLESS OTHERWISE NOTED ON PLANS, SIZE PER REGISTER SCHEDULE. FINISH COLORS SELECTED BY ARCHITECT.<br>CFM RANGE: NECK SIZE:<br>0-250 → 8"x8"<br>251-400 → 10"x10"<br>401-600 → 12"x12"<br>601-1000 → 18"x18"<br>1001-2000 → 24"x24" |
| **LD-A** | KRUEGER | 1975 | SINGLE SLOT ALUMINUM LINEAR DIFFUSER. MAXIMUM CORE VELOCITY: 550 FPM. MAXIMUM NOISE CRITERIA: 25 NC. SURFACE MOUNTED WITH CONCEALED FASTENING AND WITH FRAMES AND BORDERS SUITABLE FOR THE CONSTRUCTION IN WHICH THEY WILL BE INSTALLED, CONTRACTOR TO COORDINATE. COLOR SELECTED BY ARCHITECT. HORIZONTAL THROW PATTERN CONTROLLER. SLOTS SHALL BE ¾" WIDE. PROVIDE STEEL PLENUM BOOT WITH 12" OVAL CONNECTION AND INTERNAL INSULATION, REMOTE CONTROL DAMPER WITH 5' WIRE, END ALIGNMENT STRIPS, MITERED CORNERS. LD-A SHALL HAVE NOMINAL LENGTH OF 5'-0". DIFFUSER SHALL BE ADJUSTED FOR STRAIGHT HORIZONTAL PROJECTION. |
| **LD-B** | KRUEGER | 1975 | DOUBLE SLOT ALUMINUM LINEAR DIFFUSER. MAXIMUM CORE VELOCITY: 550 FPM. MAXIMUM NOISE CRITERIA: 25 NC. SURFACE MOUNTED WITH CONCEALED FASTENING AND WITH FRAMES AND BORDERS SUITABLE FOR THE CONSTRUCTION IN WHICH THEY WILL BE INSTALLED, CONTRACTOR TO COORDINATE. COLOR SELECTED BY ARCHITECT. HORIZONTAL THROW PATTERN CONTROLLER. SLOTS SHALL BE ¾" WIDE. PROVIDE STEEL PLENUM BOOT WITH 12" OVAL CONNECTION AND INTERNAL INSULATION, REMOTE CONTROL DAMPER WITH 5' WIRE, END ALIGNMENT STRIPS, MITERED CORNERS. LD-B SHALL HAVE NOMINAL LENGTH OF 5'-0". DIFFUSER SHALL HAVE ONE SLOT ADJUSTED FOR ANGLED FLOW DOWN/TOWARDS WINDOWS, AND ONE SLOT ADJUSTED FOR STRAIGHT VERTICAL PROJECTION. |
| **LD-C** | KRUEGER | DFL15 | DOUBLE SLOT ALUMINUM LINEAR DIFFUSER. MAXIMUM CORE VELOCITY: 550 FPM. MAXIMUM NOISE CRITERIA: 25 NC. SURFACE MOUNTED WITH FRAMES AND BORDERS SUITABLE FOR THE CONSTRUCTION IN WHICH THEY WILL BE INSTALLED, CONTRACTOR TO COORDINATE. COLOR SELECTED BY ARCHITECT. HORIZONTAL THROW PATTERN CONTROLLER. SLOTS SHALL BE 1½" WIDE. PROVIDE END ALIGNMENT STRIPS, MITERED CORNERS. LD-C SHALL HAVE NOMINAL LENGTH OF 10'-0" |
| **LD-D** | KRUEGER | 1910 | DOUBLE SLOT ALUMINUM LINEAR DIFFUSER. MAXIMUM CORE VELOCITY: 550 FPM. MAXIMUM NOISE CRITERIA: 25 NC. SURFACE MOUNTED WITH CONCEALED FASTENING AND WITH FRAMES AND BORDERS SUITABLE FOR THE CONSTRUCTION IN WHICH THEY WILL BE INSTALLED, CONTRACTOR TO COORDINATE. COLOR SELECTED BY ARCHITECT. HORIZONTAL THROW PATTERN CONTROLLER. SLOTS SHALL BE 1" WIDE. PROVIDE STEEL PLENUM BOOT WITH 10" OVAL CONNECTION AND INTERNAL INSULATION, REMOTE CONTROL DAMPER WITH 5' WIRE, END ALIGNMENT STRIPS, MITERED CORNERS. LD-D SHALL HAVE NOMINAL LENGTH OF 3'-0". DIFFUSER SHALL HAVE ONE SLOT ADJUSTED FOR ANGLED FLOW DOWN/TOWARDS CENTER OF ROOM AND ONE SLOT ADJUSTED FOR STRAIGHT VERTICAL PROJECTION. |
| **LD-E** | KRUEGER | 1910 | SINGLE SLOT ALUMINUM LINEAR DIFFUSER. MAXIMUM CORE VELOCITY: 550 FPM. MAXIMUM NOISE CRITERIA: 25 NC. SURFACE MOUNTED WITH CONCEALED FASTENING AND WITH FRAMES AND BORDERS SUITABLE FOR THE CONSTRUCTION IN WHICH THEY WILL BE INSTALLED, CONTRACTOR TO COORDINATE. COLOR SELECTED BY ARCHITECT. HORIZONTAL THROW PATTERN CONTROLLER. SLOTS SHALL BE 1" WIDE. PROVIDE STEEL PLENUM BOOT WITH 12" OVAL CONNECTION AND INTERNAL INSULATION, REMOTE CONTROL DAMPER WITH 5' WIRE, END ALIGNMENT STRIPS, MITERED CORNERS. LD-E SHALL HAVE NOMINAL LENGTH OF 5'-0". DIFFUSER SHALL BE ADJUSTED FOR STRAIGHT HORIZONTAL PROJECTION. |
| **FD** | RUSKIN | DIBD2 | 1-1/2 HOUR UL555 RATED, SUITABLE FOR INSTALLATION IN WALL AND FLOOR PARTITIONS WITH FIRE RATINGS OF LESS THAN 3 HOURS. DAMPER SHALL BE A COMPLETE FACTORY PACKAGE INCLUDING UL APPROVED ANGLES, WALL SLEEVE, AND BREAKAWAY CONNECTIONS. DAMPER SHALL BE RATED FOR DYNAMIC AIRFLOW CONDITIONS OF 2,000 FPM AND 4.0" ESP. 165°F FUSIBLE LINK. ALL FIRE DAMPERS IN DUCTWORK SERVING AUDITORIUM SHALL HAVE BLADES OUT OF AIRSTREAM. |
| **VFD** | ABB | - | UNLESS PROVIDED AS PART OF EQUIPMENT BY MANUFACTURER, VARIABLE FREQUENCY DRIVES SHALL BE BASED ON ABB WITH BACNET MS-TP MS/TP-MS/TP COMMUNICATION FACTORY INSTALLED. THE VFD SHALL BE IN A NEMA 1 TYPE ENCLOSURE WITH A CIRCUIT BREAKER DISCONNNECT SWITCH, INDUSTRIAL RATED OPERATOR CONTROLS, USER TERMINAL STRIP CONNECTIONS AND BYPASS CONTROLS. POWER CIRCUIT CONFIGURATION SHALL BE "POWER Y CIRCUIT". VFD SHALL BE COMPLETE WITH: HAND-OFF-AUTO SWITCH AND MANUAL SPEED POTENTIOMETER, IEC-RATED ISOLATION AND BYPASS CONTACTORS WITH MECHANICAL AND ELECTRICAL INTERLOCKING AND A CLASS 20 OVERLOAD RELAY, 120 V FUSED CONTROL TRANSFORMER AND CIRCUIT BREAKER WITH LOCKOUT/TAG CAPABILITY, AFC-OFF-BYPASS SWITCH, TEST-NORMAL SWITCH, PILOT LIGHT CLUSTER "B08" (POWER ON, AFC RUN, BYPASS RUN AND AFC FAULT), LINE ISOLATION CONTACTOR AND "H09" ANALOG OUTPUT. PROVIDE AUXILIARYCONTACTS FOR "STATUS/RUN", "FAULT", AND ANALOG OUTPUT FOR "SPEED". |
| M | RUSKIN | CD40/CDR82 | UNLESS PROVIDED WITH A SPECIFIC PIECE OF EQUIPMENT RECTANGULAR MOTORIZED DAMPERS SHALL BE CONSTRUCTED OF 4" DEEP EXTRUDED ALUMINUM AIRFOIL DAMPER BLADES. DAMPER SHALL HAVE OPPOSED BLADES, MOTOR AND LINKAGE. FOR ROUND DUCTWORK USE RUSKIN CDR82 DAMPER. DAMPER SHALL BE BUTTERFLY TYPE, CONSISTING OF CIRCULAR BLADE, MOUNTED TO AXLE WITHIN FORMED FLANGED FRAME, FRAME SHALL BE CONSTRCUTED OF STEEL CHANNEL AND SHALL HAVE FULL CIRCUMFERENCE BLADE STOP LOCATED IN AIRSTREAM. PROPORTIONAL DAMPER ACTUATORS SHALL BE 24VAC/60Hz., MAXIMUM 6 WATTS RUNNING AND 2 WATTS HOLDING POWER CONSUMPTION, COMPLETE WITH DISCONNECT SWITCH AND END SWITCH KITS, SIMILAR TO BELIMO NF24-SR. PROVIDE 120 VOLT TO 24 VOLT TRANSFORMER. DAMPER SHALL MEET AMCA CLASS 1 LEAKAGE REQUIREMENTS. |
| **WF** | WATER FURNACE | WCRDMB060E4 | MODULAR WATER COOLED CHILLER AND HEAT PUMP WITH MICROPROCESSOR CONTROL FOR TWO HERMETICALLY SEALED, SCROLL COMPRESSORS WITH BRAZED PLATE HEAT EXHANGERS AND EXPANSION CONTROL VALVES. ELECTRICAL: 480V/ 3 Ø 60Hz, AND 150 MOCP. UNIT SHALL HAVE FACTORY INSTALLED 8" HEADER RACK AND BACNET MS-TP CONTROL OPTION. UNIT SHALL HAVE COMPRESSOR BLANKET AND ENCLOSURE INSULATION. UNITS SHALL HAVE SINGLE POINT POWER CONNECTIONS WITH THRU-DOOR DISCONNECTS AND SHALL BE MOUNTED ON SPRING TYPE VIBRATION ISOLATORS. UNITS SHALL BE 86.7"(L) x 75.1"(H) x 33"(W). COOLING CAPACITY: 63.83 TONS. 15.4 EER. COOLING CHARACTERISTICS (WELL SIDE): 85°F EWT/97.48° LWT, 30% PROPYLENE GLYCOL, 150 GPM, 8.47 PSI PRESSURE DROP. COOLING CHARACTERISTICS (SYSTEM SIDE): 56°F EWT/ 42° LWT, 106.5 GPM, 2.84 PSI PRESSURE DROP. HEATING CAPACITY: 733.2 MBH. HEATING CHARACTERISTICS (WELL SIDE): 38°F EWT/ 30.9° LWT, 30% PROPYLENE GLYCOL, 150 GPM, 7.8 PSI PRSSURE DROP. HEATING CHARACTERISTICS (SYSTEM SIDE): 100°F EWT/120 LWT, 70.6 GPM, 1.4 PSI PRESSURE DROP. R-454B REFRIGERANT. ELECTRICAL CHARACTERISTICS: 101.3 FLA, 113.9 MCA, AND 150 AMPS MAX FUSE. UNIT SHALL BE COMPLETE WITH: SOUND KIT, MASTER CONTROLLER, LEAD VFD DUAL SCROLL COMPRESSORS, FUSED DISCONNECT SWITCH, HYDROLINK2 BACNET MS-TP CONTROL WITH SUPERVISORY CONTROLS, 4-PIPE STANDARD PIPE RACK, TEMPERATURE HEADER 8" GROOVED HEADER INLET, FACTORY START-UP, AND (4) HOURS OF OWNER TRAINING BY FACTORY REPRESENTATIVE. |
| **AS-1** | BELL AND GOSSETT | R-10F | CENTRIFUGAL, CARBON STEEL, FLANGED AIR SEPARATOR WITH STRAINER. MAXIMUM CAPACITY OF 2000 GPM. PRESSURE DROP AT 1800 GPM SHALL BE APPROXIMATELY 3FT. SEPARATOR SHALL HAVE 10" FLANGED TANGENTIAL CONNECTIONS. AIR SEPARATOR SHALL BE DESIGNED, CONSTRUCTED AND STAMPED IN ACCORDANCE WITH SECTION VIII, DIVISION 1 OF THE ASME BOILER AND PRESSURE VESSEL CODE. AIR SEPARATOR SHALL BE COMPLETE WITH SUPPORT BRACKETS FOR OVERHEAD SUPPORT, HIGH CAPACITY AIR VENT, TYPE 304 STAINLESS STEEL STRAINER, AND BLOW DOWN VALVE. MAXIMUM WORKING PRESSURE UP TO 125 PSI AND MAXIMUM OPERATING TEMPERATURE OF 350°F. |
| **AS-2** | BELL AND GOSSETT | R-6F | CENTRIFUGAL, CARBON STEEL, FLANGED AIR SEPARATOR WITH STRAINER. MAXIMUM CAPACITY OF 700 GPM. PRESSURE DROP AT 660 GPM SHALL BE APPROXIMATELY 3 FT. SEPARATOR SHALL HAVE 6" FLANGED TANGENTIAL CONNECTIONS. AIR SEPARATOR SHALL BE DESIGNED, CONSTRUCTED AND STAMPED IN ACCORDANCE WITH SECTION VIII, DIVISION 1 OF THE ASME BOILER AND PRESSURE VESSEL CODE. AIR SEPARATOR SHALL BE COMPLETE WITH SUPPORT BRACKETS FOR OVERHEAD SUPPORT, HIGH CAPACITY AIR VENT, TYPE 304 STAINLESS STEEL STRAINER, AND BLOW DOWN VALVE. MAXIMUM WORKING PRESSURE UP TO 125 PSI AND MAXIMUM OPERATING TEMPERATURE OF 350°F. |
| **ET-1** | AMTROL | 2500-L | SERIES "L", ASME RATED, VERTICAL, PRESSURIZED EXPANSION TANK WITH SIGHT GLASS. THE PRECHARGED BLADDER-TYPE TANK SHALL HAVE A TANK AND ACCEPTANCE VOLUME OF 660 GALLONS. TANK SHALL HAVE CARBON STEEL SHELL AND HEAVY DUTY BUTYL RUBBER BLADDER. MAXIMUM DESIGN PRESSURE OF 125 PSI AND DESIGN TEMPERATURE OF 240°F. EXPANSION TANK SHALL BE DESIGNED, CONSTRUCTED AND STAMPED (125 PSI) IN ACCORDANCE WITH SECTION VIII, DIVISION 1 OF THE ASME BOILER AND PRESSURE VESSEL CODE. |
| **ET-2** | AMTROL | 300-L | SERIES "L", ASME RATED, VERTICAL, PRESSURIZED EXPANSION TANK WITH SIGHT GLASS. THE PRECHARGED BLADDER-TYPE TANK SHALL HAVE A TANK AND ACCEPTANCE VOLUME OF 80 GALLONS. TANK SHALL HAVE CARBON STEEL SHELL AND HEAVY DUTY BUTYL RUBBER BLADDER. MAXIMUM DESIGN PRESSURE OF 125 PSI AND DESIGN TEMPERATURE OF 240°F. EXPANSION TANK SHALL BE DESIGNED, CONSTRUCTED AND STAMPED (125 PSI) IN ACCORDANCE WITH SECTION VIII, DIVISION 1 OF THE ASME BOILER AND PRESSURE VESSEL CODE. |
| **EH-A** | BERKO | FRC4020FNW | ARCHITECTURAL, HEAVY-DUTY, FAN FORCED WALL HEATER. CAPACITY: 2000 WATTS, 6825 BTUH, 100 CFM. ELECTRICAL: 208V/1Ø, 9.6 AMPS. FINISH SHALL BE NORTHERN WHITE. HEATER SHALL HAVE: CONCEALED TAMPER-PROOF THERMOSTAT, MANUAL RESET THERMAL CUT-OUT, CONCEALED POWER ON/OFF SWITCH, BACK BOX, SURFACE MOUNTING FRAME, DISCONNECT SWITCH, AND 16 GAUGE BAR GRILLE. |
| **EH-B** | BERKO | FRC40203FNW | ARCHITECTURAL, HEAVY-DUTY, FAN FORCED WALL HEATER. CAPACITY: 4,000 WATTS, 13,650 BTUH, 100 CFM. ELECTRICAL: 208V/3Ø, 11.1 AMPS. FINISH SHALL BE NORTHERN WHITE. HEATER SHALL HAVE: CONCEALED TAMPER-PROOF THERMOSTAT, MANUAL RESET THERMAL CUT-OUT, CONCEALED POWER ON/OFF SWITCH, BACK BOX, SURFACE MOUNTING FRAME, DISCONNECT SWITCH, AND 16 GAUGE BAR GRILLE. |
| **EH-C** | BERKO | HUHAA1520 | HORIZONTAL/VERITCAL UNIT HEATER. CAPACITY: 15,000 WATTS, 51,180 BTUH, 910 CFM. ELECTRICAL: 208V/3Ø, 42 AMPS. ARCHITECT TO SELECT FINISH. HEATER SHALL HAVE: CONCEALED TAMPER-PROOF THERMOSTAT, MANUAL RESET, TWO-STAGE ELEMENT CONTROL, BIRD SCREEN, INDIVIDUAL ADJUSTABLE LOUVERS WITH 30° DOWNWARD STOPS, 18 GAUGE CABINET, WALL SWIVEL MOUNTING BRACKETS, AND DISCONNECT SWITCH. |

## HVAC EQUIPMENT SCHEDULE

| TAG | MANUFACTURER | MODEL # | DESCRIPTION |
|---|---|---|---|
| HIGH PERFORMANCE BUTTERFLY VALVE | BRAY/McCANNALOK | HIGH PERFORMANCE | • HIGH PERFORMANCE BUTTERFLY VALVES, ANSI CLASS 150.<br>• VALVES SHALL PROVIDE ABSOLUTE SHUT-OFF (ZERO LEAKAGE) TO FULL ANSI CLASS RATING WITH PRESSURE IN EITHER DIRECTION.<br>• BODY SHALL BE FULL LUG STYLE. VALVE SHALL PROVIDE DRIP-TIGHT-SHUT-OFF ON DEAD END SERVICE, WITH PRESSURE IN EITHER DIRECTION TO ALLOW FOR PIPING CHANGES OR EQUIPMENT REMOVAL. EXTENDED NECK SHALL ALLOW FOR PIPING INSULATION AND ACCESS TO PACKING ADJUSTMENT AND OPERATOR MOUNTING.<br>• VALVE BODY AND SEAT RETAINER RING SHALL BE CARBON STEEL, ASTM A216 GR WCB / A516 GR 70. DISC SHALL BE STAINLESS STEEL ASTM A351 GR CF8M, FOR LONG TERM CORROSION RESISTANCE. DISC SHALL BE DOUBLE OFFSET DESIGN. SEAT SHALL BE LIVE LOADED RPTFE. SHAFT SHALL BE ONE-PIECE CONTSRUCTION, 17-4PH STAINLESS STEEL.<br>• VALVES SHALL COMPLY WITH PED 97/23/EC.<br>• FOR MANUAL VALVES, PROVIDE LEVER OPERATORS UP TO 6" SIZE, AND GEAR OPERATORS FOR VALVES LARGER THAN 6". |
| **FF** | GRISWOLD WATER SYSTEM | DB-12-GE-CS-A-250 | CHEMICAL BY-PASS FEEDER WITH FILTER. DEVICE SHALL BE DESIGNED, CONSTRUCTED AND STAMPED IN ACCORDANCE WITH SECTION VII, DIVISION 1 OF THE ASME BOILER AND PRESSURE VESSEL CODE. FEEDER SHALL HAVE A 12 GALLON CAPACITY AND A SERVICE TEMPERATURE OF 250°F. FEEDER SHALL BE COMPLETE WITH 250°F 25 MICRON CARTRIDGE FILTER. PROVIDE (1) EXTRA FILTER CARTRIDGE. FEEDER SHALL HAVE SUPPORT LEGS. |
| **BT-1** | TACO | BHS2000F-02-125N | ASME RATED 2,000 GALLON HORIZONTAL BUFFER TANK RATED AT 125 PSI AT 375°F. TANK SHALL HAVE INTERNAL BAFFLE, FLANGED SIDE CONNECTIONS, AIR VENT, DRAIN, AND WELDED SADDLES FOR HORIZONTAL INSTALLATION. |
| EQUIPMENT SUPPORT RAILS | THYBAR | TEMS-3 | 24" HIGH EQUIPMENT SUPPORT RAIL CONSTRUCTED OF WELDED 18 GAUGE GALVANIZED STEEL SHELL, BASE PLATE AND COUNTER FLASHING WITH FACTORY INSTALLED 2"x4" WOOD NAILERS AND INTERNAL BULKHEAD REINFORCEMENT. RAIL LENGTH TO EXTEND 6" ON BOTH ENDS OF EQUIPMENT. EQUIPMENT SUPPORT RAILS SHALL BE PROVIDED BY THE MECHANICAL CONTRACTOR AND INSTALLED BY THE GENERAL CONTRACTOR. |
| **AC-1** | DAIKIN | FTK09NMVJU | WALL MOUNTED DUCTLESS INDOOR UNIT. 9,000 BTUH RATED COOLING CAPACITY. ELECTRICAL CHARACTERISTICS: 1.0 AMPS MCA. 19 SEER. UNIT SHALL BE COMPLETE WITH: WALL-MOUNTED WIRELESS REMOTE CONTROLLER WITH LOCK-DOWN BRACKET, DISCONNECT SWITCH, CONDENSATE PUMP AND DRAIN PAN SENSOR. |
| **ACCU-1** | DAIKIN | RK09NMVJU | AIR COOLED CONDENSING UNIT. ELECTRICAL CHARACTERISTICS: 12.1 AMPS MCA. TOTAL SYSTEM ELECTRICAL ϕ CHARACTERISTICS (WITH INDOOR UNIT): 208V/1 /60HZ, 15A BREAKER SIZE. UNIT SHALL BE COMPLETE WITH: NEMA 3R DISCONNECT SWITCH AND WIND BAFFLE. R-410A REFRIGERANT. FULL CAPACITY LOW AMBIENT COOLING OPERATION DOWN TO 0°F. |
| **AC-2** | DAIKIN | FTK12NMVJU | WALL MOUNTED DUCTLESS INDOOR UNIT. 12,000 BTUH RATED COOLING CAPACITY. ELECTRICAL CHARACTERISTICS: 1.0 AMPS MCA. 19 SEER. UNIT SHALL BE COMPLETE WITH: WALL-MOUNTED WIRELESS REMOTE CONTROLLER WITH LOCK-DOWN BRACKET, DISCONNECT SWITCH, CONDENSATE PUMP AND DRAIN PAN SENSOR. |
| **ACCU-2** | DAIKIN | RK12NMVJU | AIR COOLED CONDENSING UNIT. ELECTRICAL CHARACTERISTICS: 12.2 AMPS MCA. TOTAL SYSTEM ELECTRICAL ϕ CHARACTERISTICS (WITH INDOOR UNIT): 208V/1 /60HZ, 15A BREAKER SIZE. UNIT SHALL BE COMPLETE WITH: NEMA 3R DISCONNECT SWITCH AND WIND BAFFLE. R-410A REFRIGERANT. FULL CAPACITY LOW AMBIENT COOLING OPERATION DOWN TO 0°F. |
| **AC-3** | DAIKIN | FTX6NVJUA | WALL MOUNTED DUCTLESS INDOOR UNIT. 36,000 BTUH RATED COOLING CAPACITY AND 36,000 BTUH HEATING CAPACITY. ELECTRICAL CHARACTERISTICS: 1.0 AMPS MCA. 15.9 SEER. UNIT SHALL BE COMPLETE WITH: WALL-MOUNTED WIRELESS REMOTE CONTROLLER WITH LOCK-DOWN BRACKET, DISCONNECT SWITCH, CONDENSATE PUMP AND DRAIN PAN SENSOR. |
| **ACCU-3** | DAIKIN | RK36NMVJUA | AIR COOLED CONDENSING UNIT. ELECTRICAL CHARACTERISTICS: 19.8 AMPS MCA. TOTAL SYSTEM ELECTRICAL ϕ CHARACTERISTICS (WITH INDOOR UNIT): 208V/1 /60HZ, 20A BREAKER SIZE. UNIT SHALL BE COMPLETE WITH: NEMA 3R DISCONNECT SWITCH AND WIND BAFFLE. R-410A REFRIGERANT. FULL CAPACITY LOW AMBIENT COOLING OPERATION DOWN TO 0°F. |
| **FCU-A** | DAIKIN | FBQ36PVJU | HEAT PUMP HORIZONTAL-DUCTED UNIT. NOMINAL COOLING 3.0 TON (36,000 BTUH), HEATING 40,000 BTUH @ 5° OAT, HIGH EFFICIENT MULTI-SPEED DIRECT-DIVE BLOWER MOTOR, DISCONNECT SWITCH, FILTER RACK AND BUILT IN CONDENSATE PUMP. 1,130 CFM @ .8" W.C. (17.5 SEER)/(9.1 HSPF (IV). REFRIGERANT R-410A - 208V/1, 2.9 MCA, AND 15 MOCP. |
| **HP-A** | DAIKIN | RZQ36TAVJUA | 3.0 TON OUTDOOR HEAT PUMP COMPLETE WITH NEMA 3R DISCONNECT SWITCH, DRAIN PAN HEATER, AIR OUTLET GUIDE, AND SNOW HOOD. 17.5 SEER, 11.1 EER, AND 9.1 HSPF. R-410A. RATED COOLING PERFORMANCE: 36,000 BTUH. RATED HEATING PERFORMANCE: 40,000 BTUH. SYSTEM ELECTRICAL: 208V/1ϕ/60Hz, 29.1MCA, AND 35 AMPS MOCP. |
| **FCU-B** | DAIKIN | FBQ42PVJU | HEAT PUMP HORIZONTAL-DUCTED UNIT. NOMINAL COOLING 3.5 TON (40,500 BTUH), HEATING 47,000 BTUH @ 5° OAT, HIGH EFFICIENT MULTI-SPEED DIRECT-DIVE BLOWER MOTOR, DISCONNECT SWITCH, FILTER RACK, AND BUILT IN CONDENSATE PUMP. 1,377 CFM @ .8" W.C. (16.0 SEER)/(8.8 HSPF (IV). REFRIGERANT R-410A - 208V/1, 3.4 MCA, AND 15 MOCP. |
| **HP-B** | DAIKIN | RZQ42TAVJUA | 3.5 TON OUTDOOR HEAT PUMP COMPLETE WITH NEMA 3R DISCONNECT SWITCH, DRAIN PAN HEATER, AIR OUTLET GUIDE, AND SNOW HOOD. 16 SEER, 10.1 EER, AND 8.8 HSPF. R-410A. RATED COOLING PERFORMANCE: 40,500 BTUH. RATED HEATING PERFORMANCE: 47,000 BTUH. SYSTEM ELECTRICAL: 208V/1ϕ/60Hz, 29.1MCA, AND 35 AMPS MOCP. |
| **FCU-C** | DAIKIN | FFQ18Q2VJU | 2'x2' CEILING CASSETTE, 4-WAY AIRFLOW PATTERN, INDOOR UNIT WITH BUILT-IN CONDENSATE PUMP AND FRESH AIR INTAKE KNOCKOUT. UNITS SHALL BE COMPLETE WITH FRESH AIR INTAKE DUCT FLANGE KIT, DISCONNECT SWITCH, AND BRC1E73 REMOTE CONTROLLER. EACH UNIT SHALL HAVE 50 CFM OUTSIDE AIR. PERFORMANCE: 448 CFM, 18,000 BTUH COOLING CAPACITY AT 80°F DB/67°F WB EAT AND 95°F AMBIENT, 18,900 BTUH HEATING CAPACITY AT 70°F DB/60°F WB EAT AND 5° AMBIENT. ELECTRICAL: 208V/1ϕ/60Hz, .52 AMPS. |
| **HP-C** | DAIKIN | 2MXL18QMVJU | 2 PORT, 1.5 TON OUTDOOR HEAT PUMP COMPLETE WITH NEMA 3R DISCONNECT SWITCH, DRAIN PAN HEATER, SIDE PLATE SNOW HOOD, REAR PLATE SNOW HOOD, AND OUTLET SNOW HOOD. 17 SEER, 12.7 EER, AND 10.3 HSPF. R-410A. RATED COOLING PERFORMANCE: 18,000 BTUH. RATED HEATING PERFORMANCE: 18,900 BTUH. SYSTEM ELECTRICAL: 208V/1ϕ/60Hz, 17.1 MCA, AND 20 AMPS MOCP. |
| **FCU-D** | DAIKIN | FFQ12Q2VJU | 2'x2' CEILING CASSETTE, 4-WAY AIRFLOW PATTERN, INDOOR UNIT WITH BUILT-IN CONDENSATE PUMP AND FRESH AIR INTAKE KNOCKOUT. UNITS SHALL BE COMPLETE WITH FRESH AIR INTAKE DUCT FLANGE KIT, DISCONNECT SWITCH, AND BRC1E73 REMOTE CONTROLLER. EACH UNIT SHALL HAVE 100 CFM OUTSIDE AIR. PERFORMANCE: 406 CFM, 12,000 BTUH COOLING CAPACITY AT 80°F DB/67°F WB EAT AND 95°F AMBIENT, 12,200 BTUH HEATING CAPACITY AT 70°F DB/60°F WB EAT AND 5° AMBIENT. ELECTRICAL: 208V/1ϕ/60Hz, .27 AMPS. |
| **HP-D** | DAIKIN | 2MXL24RMVJU | 3 PORT, 2.0 TON OUTDOOR HEAT PUMP COMPLETE WITH NEMA 3R DISCONNECT SWITCH, DRAIN PAN HEATER, SIDE PLATE SNOW HOOD, REAR PLATE SNOW HOOD, AND OUTLET SNOW HOOD. 18.0 SEER, 12.7 EER, AND 12.5 HSPF. R-410A. RATED COOLING PERFORMANCE: 24,000 BTUH. RATED HEATING PERFORMANCE: 24,000 BTUH. SYSTEM ELECTRICAL: 208V/1ϕ/60Hz, 22.6 MCA, AND 25 AMPS MOCP. |
| **CFSD** | RUSKIN | FSD60 | CONSTRUCTED AND INSTALLED ACCORDING TO NFPA90A AND UL LABELS. UL 555S OPPOSED AIRFOIL BLADE DAMPER, HIGH PERFORMANCE AND LOW LEAKAGE CLASS 1. DAMPER SHALL BE RATED FOR DYNAMIC AIRFLOW CONDITIONS OF 2,000 FPM AND 4.0" SP. FURNISH UL RATED ELECTRIC DAMPER ACTUATOR AND CONTROL SWITCHES AS REQUIRED. FURNISH WITH FACTORY WELDED INTEGRAL WALL SLEEVE, FRAME MOUNTING ANGLES, G STYLE WITH ¾" MOUNTING FLANGE, AND EITHER DUCTMATE OR SLIP DRIVE BREAK AWAY CONNECTIONS. 120V/1Ø/60Hz; 0.25 AMPS; 23 WATTS. COORDINATE ROTATION IN FIELD. PROVIDE DISCONNECT, DAMPER TEST SWITCH, END SWITCH, AND FLOW RATED SMOKE DETECTOR. |
| **CFSD-B** | RUSKIN | FSD60GA | CONSTRUCTED AND INSTALLED ACCORDING TO NFPA90A AND UL LABELS. UL 555S OPPOSED AIRFOIL BLADE DAMPER, HIGH PERFORMANCE AND LOW LEAKAGE CLASS 1. DAMPER SHALL BE RATED FOR DYNAMIC AIRFLOW CONDITIONS OF 2,000 FPM AND 4.0" SP. FURNISH UL RATED ELECTRIC DAMPER ACTUATOR AND CONTROL SWITCHES AS REQUIRED. FURNISH WITH GRILLE ACCESS AND FACTORY WELDED INTEGRAL WALL SLEEVE, FRAME MOUNTING ANGLES, G STYLE WITH 3/4" MOUNTING FLANGE, AND EITHER DUCTMATE OR SLIP DRIVE BREAK AWAY CONNECTIONS. 120V/1Ø/60Hz; 0.25 AMPS; 23 WATTS. COORDINATE ROTATION IN FIELD. PROVIDE DISCONNECT, DAMPER TEST SWITCH, END SWITCH, AND FLOW RATED SMOKE DETECTOR. |
| **L-1** | RUSKIN | ELF375DX | EXTRUDED ALUMINUM, DRAINABLE STATIONARY LOUVER. FRAME: 4" DEEP, EXTRUDED ALUMINUM WITH 0.081" NOMINAL WALL THICKNESS. BLADES: EXTRUDED ALUMINUM, DRAINABLE, 0.081" NOMINAL WALL THICKNESS, AND 37.5° BLADE ANGLE. LOUVER SHALL HAVE 54% FREE AREA. LOUVER SHALL HAVE MILL FINISH, BIRD SCREEN, EXTENDED SILL AND INSTALLATION ANGLE. LOUVER SIZE: 12"x12" WITH 0.5 FT$^2$ FREE AREA. LOUVER SHALL BEAR THE AMCA SEAL. |
| **FD** | RUSKIN | DIBD23 | 3 HOUR UL555 RATED, SUITABLE FOR INSTALLATION IN WALL AND FLOOR PARTITIONS WITH FIRE RATINGS OF 3 HOURS OR MORE. DAMPER SHALL BE A COMPLETE FACTORY PACKAGE INCLUDING UL APPROVED ANGLES, WALL SLEEVE, AND BREAKAWAY CONNECTIONS. DAMPER SHALL BE RATED FOR DYNAMIC AIRFLOW CONDITIONS OF 2,000 FPM AND 4.0" ESP. 165°F FUSIBLE LINK. |
| **HX** | KELVION | NA06S BA-150 | GASKETED, PLATE AND FRAME, HEAT EXCHANGER. HEAT EXCHANGER SHALL BE DESIGNED, CONSTRUCTED AND STAMPED IN ACCORDANCE WITH SECTION VIII, DIVISION 1 OF THE ASME BOILER AND PRESSURE VESSEL CODE. HEAT EXCHANGER SHALL HAVE: TYPE 304, 0.40 MM THICK STAINLESS STEEL PLATES, AND NITRILE HT GASKETS. THE HEAT EXCHANGER SHALL BE SINGLE PASS WITH 61 CHANNELS, 122 PLATES, 150 PSIG DESIGN PRESSURE, 195 PSIG TEST PRESSURE, 0°F DESIGN TEMPERATURE, 220°F MAXIMUM TEMPERATURE, 6"Ø 150 POUND ANSI INLET/OUTLET FLANGED CONNECTIONS (ON BOTH SIDES). WELL WATER SIDE CHARACTERISTICS WITH 30% PROPYLENE GLYCOL: 1,250 GPM, 26°F EWT, 39.34°F LWT, AND 9.90 PSIG PRESSURE DROP. BOILER SIDE CHARACTERISTICS WITH WATER: 800 GPM, 180°F EWT, 160°F LWT, AND 2.60 PSIG PRESSURE DROP. 7,815,610 BTUH TOTAL HEAT EXCHANGED. CLEAN/NEEDED HEAT TRANSFER COEFFICIENT: 464/77. EFFECTIVE SURFACE AREA: 736.25 FT^2. |
| **ARC-1** | BERNER | IDC12-3120E | WALL MOUNTED, ELECTRIC HEATED AIR CURTAIN WITH FRONT AIR INTAKE. CURTAIN SHALL HAVE (3) 1/2 HP DIRECT-DRIVE, CONTINUOUS-DUTY, TEN SPEED MOTORS, ADJUSTABLE AIR DIRECTIONAL VANES, CUSTOM COLOR POWDER COATING FINISH AND BE 120" IN LENGTH. HEATER CAPACITY: 30,000 WATTS, 20° TEMPERATURE RISE AND 4,678 CFM. ELECTRICAL: 480V/3Ø, 40.3 AMPS. FINISH SHALL BE SELECTED BY OWNER. HEATER SHALL HAVE:FACTORY MOUNTED CONTROL PANEL INTELLISWITCH DIGITAL CONTROLLER, BERNER AIR SMART CONTROLLER, THERMAL CUT-OUT, POWER ON/OFF SWITCH, TEMPERATURE PROBE, WALL SUPPORT BRACKETS, DISCONNECT SWITCH, AND (1) MAGNETIC REED DOOR SWITCHES. |
| **ARC-2** | BERNER | ARD12-2072A | CEILING MOUNTED AIR CURTAIN. CURTAIN SHALL HAVE (2) 1/2 HP DIRECT-DRIVE, CONTINUOUS-DUTY, TEN SPEED MOTORS, ADJUSTABLE AIR DIRECTIONAL VANES, CUSTOM COLOR POWDER COATING FINISH AND BE 77" IN LENGTH. 3,014 CFM. ELECTRICAL: 208V/1Ø, 8.6 AMPS. FINISH SHALL BE SELECTED BY OWNER. HEATER SHALL HAVE: INTELLISWITCH DIGITAL CONTROLLER, BERNER AIR SMART CONTROLLER, THERMAL CUT-OUT, POWER ON/OFF SWITCH, DISCONNECT SWITCHES, AND (2) MAGNETIC REED DOOR SWITCHES. |
| CONDENSATE PUMP | LITTLE GIANT | VCCA-20-P | HARDWIRED AUTOMATIC CONDENSATE PUMP WITH FLOAT ACTIVATED AUXILIARY HIGH LEVEL SWITCH. ELECTRICAL: 115V/1Ø/60Hz, 1.5 AMPS, 93 WATTS, $\frac{1}{30}$ HP. SHUT-OFF HEAD 20 FEET. PERFORMANCE: 70 GALLONS PER HOUR AT 5 FEET OF HEAD. PUMP SHALL BE COMPLETE WITH DISCONNECT SWITCH. PROVIDE AT ALL FAN COIL UNITS. |
| DS-1 | VIBROACOUSTICS | RL60/XC | 60"x20"x32" (LxWxH) RECTANGULAR DUCT SILENCER. DUCT SILENCER SHALL HAVE 22 GUAGE GALVANZIED CASING AND PERFORATED LINER, GLASS FIBER ACOUSTIC MEDIA AND 2" SLIP INLET AND OUTLET CONNECTIONS. SILENCER SHALL BE RATED FOR 3,000 CFM AND HAVE A INSTALLED PD OF 0.07". SILENCER SHALL HAVE A TARGET DESIGN CRITERIA OF 8dB AT 125Hz. |
| DS-2 | VIBROACOUSTICS | RL60/XC | 60"x20"x32" (LxWxH) RECTANGULAR DUCT SILENCER. DUCT SILENCER SHALL HAVE 22 GUAGE GALVANZIED CASING AND PERFORATED LINER, GLASS FIBER ACOUSTIC MEDIA AND 2" SLIP INLET AND OUTLET CONNECTIONS. SILENCER SHALL BE RATED FOR 3,000 CFM AND HAVE A INSTALLED PD OF 0.06". SILENCER SHALL HAVE A TARGET DESIGN CRITERIA OF 8dB AT 125Hz. |
| DS-3 | VIBROACOUSTICS | RL60/UC | 60"x16"x28" (LxWxH) RECTANGULAR DUCT SILENCER. DUCT SILENCER SHALL HAVE 22 GUAGE GALVANZIED CASING AND PERFORATED LINER, GLASS FIBER ACOUSTIC MEDIA AND 2" SLIP INLET AND OUTLET CONNECTIONS. SILENCER SHALL BE RATED FOR 3,000 CFM AND HAVE A INSTALLED PD OF 0.04". SILENCER SHALL HAVE A TARGET DESIGN CRITERIA OF 8dB AT 125Hz. |

## MECHANICAL PIPING FITTING SCHEDULE

| SERVICE | SIZE (IN) | MATERIAL | TYPE/WEIGHT | STANDARD |
|---|---|---|---|---|
| DUAL TEMPERATURE WATER AND GEOTHERMAL | 4" & UP | CARBON STEEL | BUTT WELDED OR FLANGED | ASME B 16.9<br>ASME 234 |
| DUAL TEMPERATURE WATER AND GEOTHERMAL | 3" & DOWN | WROUGHT COPPER | SOLDER | ASME B 16.22 |
| CONDENSATE DRAIN AND PUMP DISCHARGE (INTERIOR) | ALL | COPPER | HARD DRAWN TYPE L TUBING | ASTM B 88 |
| CONDENSATE DRAIN (EXTERIOR) | ALL | PVC | SCHEDULE 40 DWV SOLVENT CEMENT | ASTM D 3034<br>ASTM D 2855 |
| REFRIGERANT | ALL | COPPER | SILVER SOLDER 300 PSI | ANSI B 16.22 |

## MECHANICAL PIPING MATERIAL SCHEDULE

| SERVICE | SIZE (IN) | MATERIAL | TYPE/WEIGHT | STANDARD |
|---|---|---|---|---|
| DUAL TEMPERATURE WATER AND GEOTHERMAL | 4" AND UP | BLACK STEEL | SCHED 40 | ASTM A 53 |
| DUAL TEMPERATURE WATER AND GEOTHERMAL | 3" & DOWN | COPPER | HARD DRAWN TYPE L TUBING | ASTM B 88 |
| CONDENSATE DRAIN AND PUMP DISCHARGE (INTERIOR) | ALL | COPPER | HARD DRAWN TYPE L TUBING | ASTM B 88 |
| CONDENSATE DRAIN (EXTERIOR) | ALL | PVC | SCHEDULE 40 DWV | ASTM D 2665 |
| REFRIGERANT | ALL | COPPER | HARD OR ANNEALED TYPE ACR | ASTM B 280 |

### EQUIPMENT NOTES:

1. VERIFY ALL FINISH COLORS WITH ARCHITECT PRIOR TO ORDERING FOR ALL EQUIPMENT VISIBLE WITHIN SPACE OR FROM EXTERIOR. ALL EQUIPMENT SHALL BE FINISHED USING MANUFACTURER'S FULL RANGE OF STANDARD AND CUSTOM COLORS/FINISHES UNLESS OTHERWISE NOTED.
2. MECHANICAL CONTRACTOR SHALL PROVIDE A DELEGATED DESIGN FOR WIND RESTRAINT OF ALL ROOF MOUNTED MECHANICAL EQUIPMENT. REFER TO WIND DESIGN DATA ON DRAWING S001.

## MINIMUM DUCT INSULATION

COMMERCIAL

ALL SUPPLY AND RETURN AIR DUCTS AND PLENUMS SHALL BE INSULATED WITH A MINIMUM OF R-6 INSULATION WHEN LOCATED IN UNCONDITIONED SPACES AND WITH A MINIMUM OF R-12 INSULATION WHEN LOCATED OUTSIDE THE BUILDING ENVELOPE. WHEN LOCATED WITHIN A BUILDING ENVELOPE ASSEMBLY, THE DUCT OR PLENUM SHALL BE SEPARATED FROM THE BUILDING EXTERIOR OR UNCONDITIONED OR EXEMPT SPACES BY A MINIMUM OF R-12 INSULATION.

EXCEPTIONS:
1. WHEN LOCATED WITHIN EQUIPMENT.
2. WHEN THE DESIGN TEMPERATURE DIFFERENCE BETWEEN THE INTERIOR AND EXTERIOR OF THE DUCT OR PLENUM DOES NOT EXCEED 15°F (8°C).

ALL JOINTS, LONGITUDINAL AND TRANSVERSE SEAMS, AND CONNECTIONS IN DUCTWORK, SHALL BE SECURELY FASTENED AND SEALED WITH WELDS, GASKETS, MASTICS (ADHESIVES), MASTIC-PLUS- EMBEDDED FABRIC SYSTEMS OR TAPES. TAPES AND MASTICS USED TO SEAL DUCTWORK SHALL BE LISTED AND LABELED IN ACCORDANCE WITH UL 181A OR UL 181B. DUCT CONNECTIONS TO FLANGES OF AIR DISTRIBUTION SYSTEM EQUIPMENT SHALL BE SEALED AND MECHANICALLY FASTENED. UNLISTED DUCT TAPE IS NOT PERMITTED AS A SEALANT ON ANY METAL DUCTS.

NOTE:

DUCT INSULATION, COVERINGS AND LINING MATERIALS AND ADHESIVES SHALL HAVE A FLAME SPREAD INDEX OF NOT MORE THAN 25, AND A SMOKE DEVELOPED INDEX OF NOT MORE THAN 50, IN ACCORDANCE WITH 2020 NYSECCC SECTION 604.3.

## HEATING AND COOLING MINIMUM PIPE INSULATION COMMERCIAL

(THICKNESS IN INCHES)

| FLUID | NOMINAL PIPE DIAMETER | | | |
|---|---|---|---|---|
| | < 1-1/2" | 1-1/2" < 4.0" | 4.0" to 8.0" | ≤ 8.0" |
| REFRIGERANT | 1.0 | 1.0 | 1.0 | 1.0 |
| DUAL TEMPERATURE WATER AND GEOTHERMAL | 1.5 | 2.0 | 2.0 | 2.0 |
| CONDENSATE & CONDENSATE PUMP DISCHARGE | 1.0 | 1.0 | 1.0 | 1.0 |
| HOT WATER | 1.5 | 2.0 | 2.0 | 2.0 |

NOTES:
1. PIPE COVERING SHALL BE FIBERGLASS PREFORMED PIPE AND PREMOLDED FITTING INSULATION WITH: FIRE RETARDANT VAPOR BARRIER JACKET, 0.23 K-FACTOR AT 75°F MEAN TEMPERATURE, FLAME SPREAD = 25, SMOKE DEVELOPED = 50.
2. ALL INTERIOR AND EXTERIOR PIPING, FITTINGS, AND VALVES SHALL BE INSTALLED WITH 20 MIL THICK, WHITE PVC JACKETING. PVC JACKETING SHALL BE HIGH IMPACT RESISTANT, UV RESISTANT COMPLYING WITH ASTM D 1784, CLASS 16354-C. PROVIDE FACTORY FABRICATED FITTING AND VALVE COVERS WHERE AVAILABLE.
3. REFRIGERANT AND CONDENSATE PIPE INSULATION SHALL BE FLEXIBLE ELASTOMERIC FOAM SIMILAR TO ARMAFLEX. EXTERIOR INSULATIONS TO BE COATED WITH ARMAFLEX WB OR BE INSTALLED WITH PVC JACKETING.

## MINIMUM HANGER SIZES FOR ROUND DUCT

| DIAMETER | MAXIMUM SPACING | WIRE DIAMETER | ROD | STRAP |
|---|---|---|---|---|
| ≤ 10" | 12' | —— | 1/4" | 1" X 22 ga. |
| 11" - 18" | 12' | —— | 1/4" | 1" X 22 ga. |
| 19" - 24" | 12' | —— | 1/4" | 1" X 22 ga. |
| 25" - 36" | 12' | —— | 3/8" | 1" X 20 ga. |
| 37" - 50" | 12' | —— | TWO 3/8" | TWO 1" X 20 ga. |
| 51" - 60" | 12' | —— | TWO 3/8" | TWO 1" X 18 ga. |
| 61" - 84" | 12' | —— | TWO 3/8" | TWO 1" X 16 ga. |

NOTES:
1. STRAPS AND RODS ARE GALVANIZED STEEL
2. TABLE ALLOWS FOR CONVENTIONAL WALL THICKNESS, AND JOINT SYSTEMS PLUS ONE lb/sf OF INSULATION WEIGHT. IF HEAVIER DUCTS ARE TO BE INSTALLED, ADJUST HANGER SIZES TO BE WITHIN THEIR LOAD LIMITS.

## MINIMUM HANGER SIZES FOR RECTANGULAR DUCT

| MINIMUM HALF OF DUCT PERIMETER | PAIR AT 10Ft SPACING | | PAIR AT 8Ft SPACING | | PAIR AT 5Ft SPACING | | PAIR AT 4Ft SPACING | |
|---|---|---|---|---|---|---|---|---|
| | STRAP | ROD | STRAP | ROD | STRAP | ROD | STRAP | ROD |
| P/2 = 30" | 1" x 22ga | ¼" | 1" x 22ga | ¼" | 1" x 22ga | ¼" | 1" x 22ga | ¼" |
| P/2 = 72" | 1" x 18ga | ⅜" | 1" x 20ga | ¼" | 1" x 22ga | ¼" | 1" x 22ga | ¼" |
| P/2 = 96" | 1" x 16ga | ⅜" | 1" x 18ga | ⅜" | 1" x 20ga | ⅜" | 1" x 22ga | ⅜" |
| P/2 = 120" | 1½" x 16ga | ½" | 1" x 16ga | ⅜" | 1" x 18ga | ⅜" | 1" x 20ga | ⅜" |
| P/2 = 168" | 1½" x 16ga | ½" | 1" x 16ga | ½" | 1" x 16ga | ⅜" | 1" x 18ga | ⅜" |
| P/2 = 192" | - | - | 1" x 16ga | ½" | 1" x 16ga | ⅜" | 1" x 18ga | ⅜" |

WHEN STRAPS ARE LAP JOINED USE THESE MINIMUM FASTENERS:

| | | |
|---|---|---|
| 1" x 18, 20, 22ga | - | ONE ¼" BOLT |
| 1" X 16ga | - | TWO ¼" Dia. |
| 1" X 16ga | - | TWO ⅜" Dia. |

PLACE FASTENERS IN SERIES, NOT SIDE BY SIDE.

SINGLE HANGER MAXIMUM ALLOWABLE LOAD

| STRAP | ROD (Dia.) |
|---|---|
| 1" x 22ga - 260Lbs. | ¼" - 270Lbs. |
| 1" x 20ga - 32Lbs. | ⅜" - 680Lbs. |
| 1" x 18ga - 420Lbs. | ½" - 1250Lbs. |
| 1" x 16ga - 700Lbs. | ⅝" - 2000Lbs. |
| 1½" x 16ga - 1100Lbs. | ¾" - 3000Lbs. |

NOTES:
1. DIMENSIONS OTHER THAN GAUGE ARE IN INCHES.
2. TABLES ALLOW FOR DUCT WEIGHT, 1 LB./SF. INSULATION WEIGHT AND NORMAL REINFORCEMENT AND TRAPEZE WEIGHT, BUT NO EXTERNAL LOADS.
3. STRAPS ARE GALVANIZED STEEL.
4. ALLOWABLE LOADS FOR P/2 ASSUME THAT DUCTS ARE 16 GA. MAXIMUM, EXCEPT WHEN MAXIMUM DUCT DIMENSION (W) IS OVER 60" THEN P/2 MAXIMUM IS 1.25 W.

## PIPE HANGER SCHEDULE

| PIPE SIZE (INCHES) | MAXIMUM HORIZONTAL SPACING (FEET) | | | SINGLE STEEL ROD HANGER SIZE (INCHES) | | HANGER TYPE STEEL | MAXIMUM VERTICAL SPACING (FEET) | | |
|---|---|---|---|---|---|---|---|---|---|
| | COPPER TUBE | STEEL PIPE | PVC PIPE | TUBING | PIPING | | COPPER TUBE | STEEL PIPE | PVC PIPE |
| ½" | 6 | 8 | 4 | ¼" | ⅜" | BAND | 10 | 15 | 10 |
| ¾" | 6 | 8 | 4 | ¼" | ⅜" | BAND | 10 | 15 | 10 |
| 1" | 6 | 8 | 4 | ¼" | ⅜" | BAND | 10 | 15 | 10 |
| 1¼" | 6 | 9 | 4 | ¼" | ⅜" | CLEVIS | 10 | 15 | 10 |
| 1½" | 6 | 9 | 4 | ¼" | ⅜" | CLEVIS | 10 | 15 | 10 |
| 2" | 10 | 10 | 4 | ¼" | ⅜" | CLEVIS | 10 | 15 | 10 |
| 2½" | 10 | 12 | 4 | ⅜" | ½" | CLEVIS | 10 | 15 | 10 |
| 3" | 10 | 12 | 4 | ⅜" | ½" | CLEVIS | 10 | 15 | 10 |
| 4" | —— | 12 | 4 | ½" | ⅝" | CLEVIS OR ROLLER | —— | 15 | 10 |
| 6" | —— | 12 | —— | —— | ¾" | CLEVIS OR ROLLER | —— | 15 | —— |

NOTES:
1. INSTALL HANGER OR SUPPORT CLOSE TO THE POINT OF CHANGE OF DIRECTION IN ALL PIPE RUNS.
2. INSTALL ADDITIONAL HANGERS ON SUPPORTS AT CONCENTRATED LOADS.
3. SUPPORT ALL BRANCH PIPING OVER 5'-0" IN LENGTH.
4. USE ROLLER TYPE HANGERS (MSS TYPE 41) WHERE PIPING IS SUBJECT TO MOVEMENT CAUSED BY EXPANSION AND CONTRACTION.
5. HANGERS AND ANCHORS SHALL BE ATTACHED TO THE BUILDING CONSTRUCTION IN AN APPROVED MANNER.
6. PIPING SHALL BE SUPPORTED AT DISTANCES NOT EXCEEDING THE SPACING SPECIFIED IN SCHEDULE OR IN ACCORDANCE WITH MSS SP-69.

## PUMP SCHEDULE

| DESIGNATION | P-1A/P-1B | P-2A/P-2B | P-3A/P-3B | P-4A/P-4B | P-5A/P-5B |
|---|---|---|---|---|---|
| LOCATION | MECHANICAL STORAGE ROOM | MECHANICAL STORAGE ROOM | MECHANICAL STORAGE ROOM | MECHANICAL STORAGE ROOM | MECHANICAL STORAGE ROOM |
| SYSTEM SERVED | GEOTHERMAL LOOP | PRIMARY LOOP | DUAL TEMPERATURE LOOP | DUAL TEMPERATURE LOOP | DUAL TEMPERATURE LOOP |
| TYPE | SERIES e-HSC DOUBLE SUCTION SPLIT CASE | SERIES e-1510 BASE MOUNTED | SERIES e-1510 BASE MOUNTED | SERIES e-1510 BASE MOUNTED | SERIES e-1510 BASE MOUNTED |
| MODEL | 5x8x15.5 | 4EB | 2EB | 2EB | 2EB |
| IMPELLER DIAMETER (IN.) | 14.875" | 10.5" | 10.625" | 10.625" | 10.625" |
| EFFICIENCY | 82% | 78.0% | 73.6% | 73.7% | 73.7% |
| GPM | 1800 | 660 | 220 | 220 | 220 |
| TOTAL DYNAMIC HEAD (FT $H_2O$) | 210' | 85' | 85' | 90' | 90' |
| RPM | 1800 | 1800 | 1800 | 1800 | 1800 |
| **MOTOR:** | | | | | |
| HP | 150 | 20 | 10 | 10 | 10 |
| VOLTAGE/Ø/Hz | 480/3/60 | 480/3/60 | 480/3/60 | 480/3/60 | 480/3/60 |
| **STARTER:** | | | | | |
| TYPE | VFD | VFD | VFD | VFD | VFD |
| LOCATION | MECHANICAL STORAGE ROOM | MECHANICAL STORAGE ROOM | MECHANICAL STORAGE ROOM | MECHANICAL STORAGE ROOM | MECHANICAL STORAGE ROOM |

NOTES:
1. PUMPS BASED ON BELL AND GOSSETT.
2. ALL MOTORS 1 HP AND LARGER SHALL BE PREMIUM EFFICIENCY, BALDOR.
3. ALL PUMPS FURNISHED WITH VARIABLE FREQUENCY DRIVES SHALL HAVE INVERTER DUTY RATED MOTORS APPROVED FOR VARIABLE SPEED AND TORQUE APPLICATIONS.
4. VARIABLE FREQUENCY DRIVES SHALL BE FURNISHED WITH A DISCONNECT SWITCH. VARIABLE FREQUENCY DRIVES TO BE PURCHASED BY MECHANICAL CONTRACTOR AND INSTALLED BY ELECTRICAL CONTRACTOR. VARIABLE FREQUENCY DRIVES SHALL HAVE NEMA 1 ENCLOSURE. VARIABLE FREQUENCY DRIVES SHALL HAVE BY-PASS OPERATION, H-O-A SELECTOR SWITCH, AND HAVE A TURN DOWN RATIO OF 10:1.
5. PUMP 1A AND 1B ARE SELECTED WITH 30% PROPYLENE GLYCOL SOLUTION.
6. COMBINATION MOTOR STARTER/DISCONNECT SWITCHES SHALL HAVE NEMA 1 ENCLOSURE AND H-O-A SELECTOR SWITCH. DEVICES SHALL BE PURCHASED BE MECHANICAL CONTRACTOR AND INSTALLED BE ELECTRICAL CONTRACTOR.
7. SEALS SHALL BE BUNA-CARBON/CERAMIC.
8. ALL BASE MOUNTED PUMPS SHALL BE COMPLETE WITH OSHA COUPLING GUARD, CENTER DROPOUT COUPLING AND STEEL HEAVY DUTY BASE PLATE.
9. PUMPS SHALL BE STAINLESS STEEL FITTED.
10. PUMPS SHALL BE SUPPLIED WITH TRIPLE DUTY VALVE AND SUCTION DIFFUSER.

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TWIN TOWERS
MIDDLE SCHOOL

Additions & Alterations

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DISTRICT OF MIDDLETOWN

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Middletown, NY 10940

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CONSULTING ENGINEERS, D.P.C.
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(845) 291 1272 GerardAssociates.com

GA22017-A

NY SED PROJECT CONTROL NO.
44-10-00-01-0-001-041

CONSTRUCTION DOCUMENTS

Professional Seal

| No. | Date | Issue |
|---|---|---|
| 4 | 02/12/2024 | ADDENDUM 4 |
| 3 | 02/02/2024 | ADDENDUM #2 |
| 2 | 12/14/2023 | ISSUE FOR BID |
| 1 | 04/14/2023 | NYSED ISSUE |

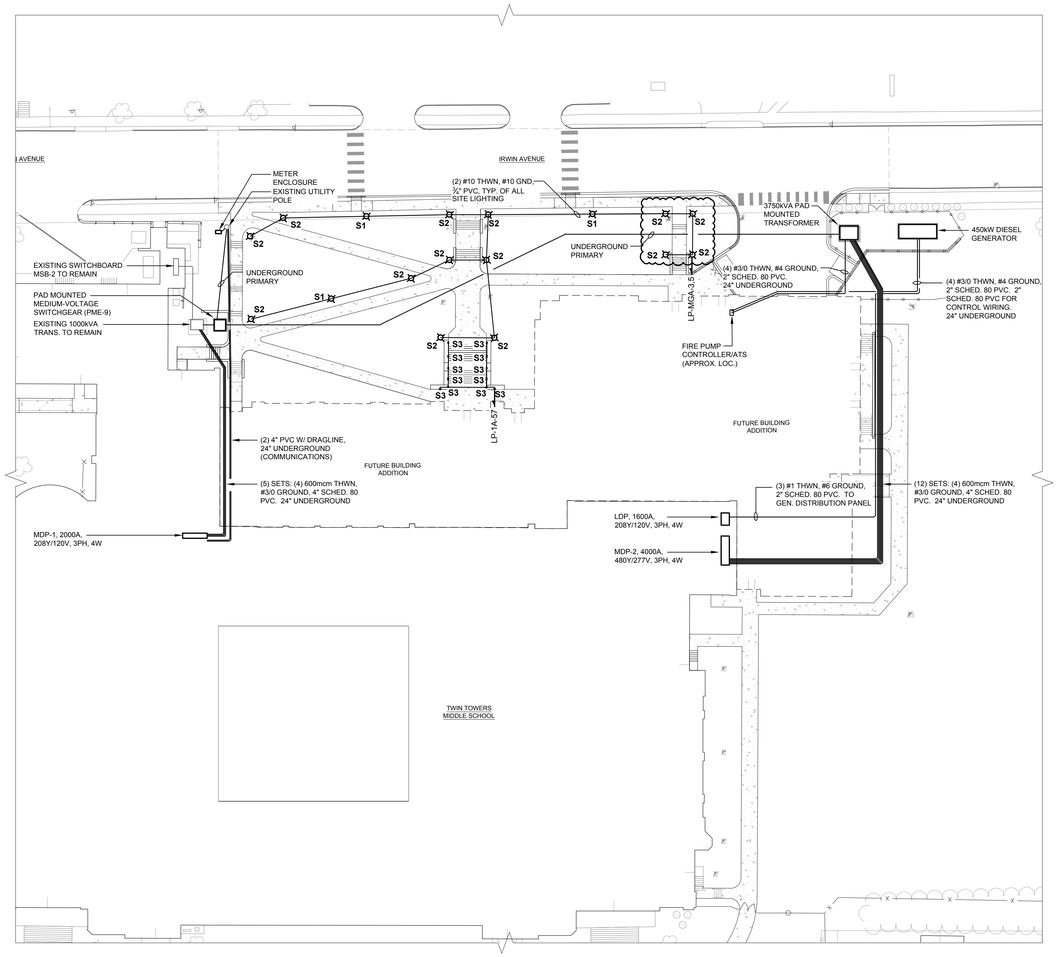
Sheet Title

**MECHANICAL:**
SCHEDULES

| Job No. | Date |
|---|---|
| 2021-1087 | 09/08/2022 |

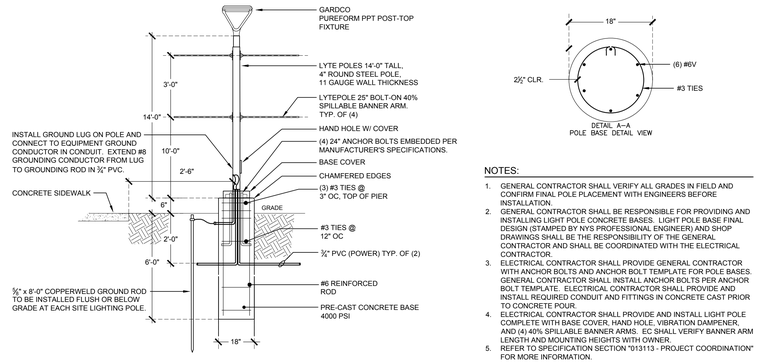
| Scale | Drawn / Checked |
|---|---|
| AS NOTED | BH/DC SZ |

Sheet Number
M703




## 1 ELECTRICAL : SITE PLAN

1" = 30'-0"




NOTES:

1. GENERAL CONTRACTOR SHALL VERIFY ALL GRADES IN FIELD AND CONFIRM FINAL POLE PLACEMENT WITH ENGINEERS BEFORE INSTALLATION.
2. GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING AND INSTALLING LIGHT POLE CONCRETE BASES. LIGHT POLE BASE FINAL DESIGN (STAMPED BY NYS PROFESSIONAL ENGINEER) AND SHOP DRAWINGS SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR AND SHALL BE COORDINATED WITH THE ELECTRICAL CONTRACTOR.
3. ELECTRICAL CONTRACTOR SHALL PROVIDE GENERAL CONTRACTOR WITH ANCHOR BOLTS AND ANCHOR BOLT TEMPLATE FOR POLE BASES. GENERAL CONTRACTOR SHALL INSTALL ANCHOR BOLTS PER ANCHOR BOLT TEMPLATE. ELECTRICAL CONTRACTOR SHALL PROVIDE AND INSTALL REQUIRED CONDUIT AND FITTINGS IN CONCRETE CAST PRIOR TO CONCRETE POUR.
4. ELECTRICAL CONTRACTOR SHALL PROVIDE AND INSTALL LIGHT POLE COMPLETE WITH BASE COVER, HAND HOLE, VIBRATION DAMPENER, AND (4) 40% SPILLABLE BANNER ARMS. EC SHALL VERIFY BANNER ARM LENGTH AND MOUNTING HEIGHTS WITH OWNER.
5. REFER TO SPECIFICATION SECTION "013113 - PROJECT COORDINATION" FOR MORE INFORMATION.

## 2 POST-TOP LIGHT 'TYPE S1 & S2' DETAIL

NOT TO SCALE

### SITE ELECTRICAL NOTES:

1. ALL UNDERGROUND CONDUITS SHALL HAVE A MINIMUM OF 24" COVER FROM TOP OF CONDUIT TO TOP OF FINISHED SURFACE.
2. ALL CONDUIT ROUTING AND LIGHT FIXTURE LOCATIONS SHALL BE COORDINATED IN FIELD WITH GENERAL CONTRACTOR AND ELECTRICAL ENGINEER. LOCATIONS SHALL NOT BE SCALED FROM THIS DRAWING.
3. GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR ALL TRENCHING, EXCAVATING, AND BACKFILLING ASSOCIATED WITH INSTALLATION OF ELECTRICAL CONDUIT AND PULL BOXES. ELECTRICAL CONTRACTOR TO COORDINATE.
4. GENERAL CONTRACTOR SHALL BE RESPONSIBLE PROVIDING AND INSTALLING LIGHT POLE BASES, DIGGING NECESSARY HOLES FOR INSTALLATION OF LIGHT POLE BASES, AND BACKFILLING AFTER INSTALLATION. BACKFILL AROUND POLE BASES SHALL BE DONE IN COMPACTED LIFTS OF 12". ELECTRICAL CONTRACTOR TO COORDINATE.
5. GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING AND INSTALLING THE CONCRETE PADS FOR THE TRANSFORMER, MEDIUM VOLTAGE SWITCH (PME-9) AND GENERATOR PER THE MANUFACTURER'S SPECIFICATIONS. ELECTRICAL CONTRACTOR SHALL COORDINATE.

### ENERGY CONSERVATION CODE NOTES:

1. CONTRACTOR SHALL PROVIDE ALL TIME-SWITCH CONTROLS DOCUMENTATION REQUIRED PER 2020 ENERGY CONSERVATION CONSTRUCTION CODE OF NYS SECTION C408.3.1.2

### ELECTRICAL FIXTURE SCHEDULE

| DESIGNATION | FIXTURE MANUFACTURER | CATALOG # | POLE DESIGNATION | SOURCE | LUMENS | WATTS | VOLTAGE | COLOR TEMP. | DISTRIBUTION TYPE | DISCRIPTION |
|---|---|---|---|---|---|---|---|---|---|---|
| S1 | GARDCO | PPT-140L-450-NW-G2-T2-3-208-F2 | GARDCO SRS-CB-4-11-14-T2D4L-VDA | L.E.D. | 2,411 | 21 | 208 | 4000K | 3 | POST-TOP FIXTURE MOUNTED ON 14'-0" TALL 4" ROUND NON-TAPERED STEEL POLE, 6"(AFG) x 18"(W) ROUND CONCRETE BASE |
| S2 | GARDCO | PPT-140L-450-NW-G2-T2-5-208-F2 | GARDCO SRS-CB-4-11-14-T2D4L-VDA | L.E.D. | 2,323 | 21 | 208 | 4000K | 5 | POST-TOP FIXTURE MOUNTED ON 14'-0" TALL 4" ROUND NON-TAPERED STEEL POLE, 6"(AFG) x 18"(W) ROUND CONCRETE BASE |
| S3 | HADCO | RSC2-AK5DG2 | - | L.E.D. | 175 | 9.2 | 120 | 4000K | - | 9" x 3½" RECESSED STEP LIGHT, ALUMINUM, W/ ALUMINUM LOUVERS. CAST STONE SHALL BE CUT BY GC, FIXTURE INSTALLATION AND WIRING BY EC |

### LIGHTING FIXTURE NOTES:

1. ELECTRICAL CONTRACTOR SHALL VERIFY ALL LIGHT FIXTURE AND POLE QUANTITIES, MOUNTING TYPE, AND HEIGHTS IN FIELD.
2. ELECTRICAL CONTRACTOR SHALL VERIFY ALL LIGHT FIXTURE AND POLE COLORS AND FINISHES WITH ARCHITECT. COLOR CHOICES FOR SELECTION SHALL BE MANUFACTURER'S FULL RANGE OF STANDARD AND CUSTOM COLORS/FINISHED UNLESS OTHERWISE NOTED.

NORTH

# TWIN TOWERS MIDDLE SCHOOL

Additions & Alterations

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**ELECTRICAL**
SITE PLAN

| Job No. | Date |
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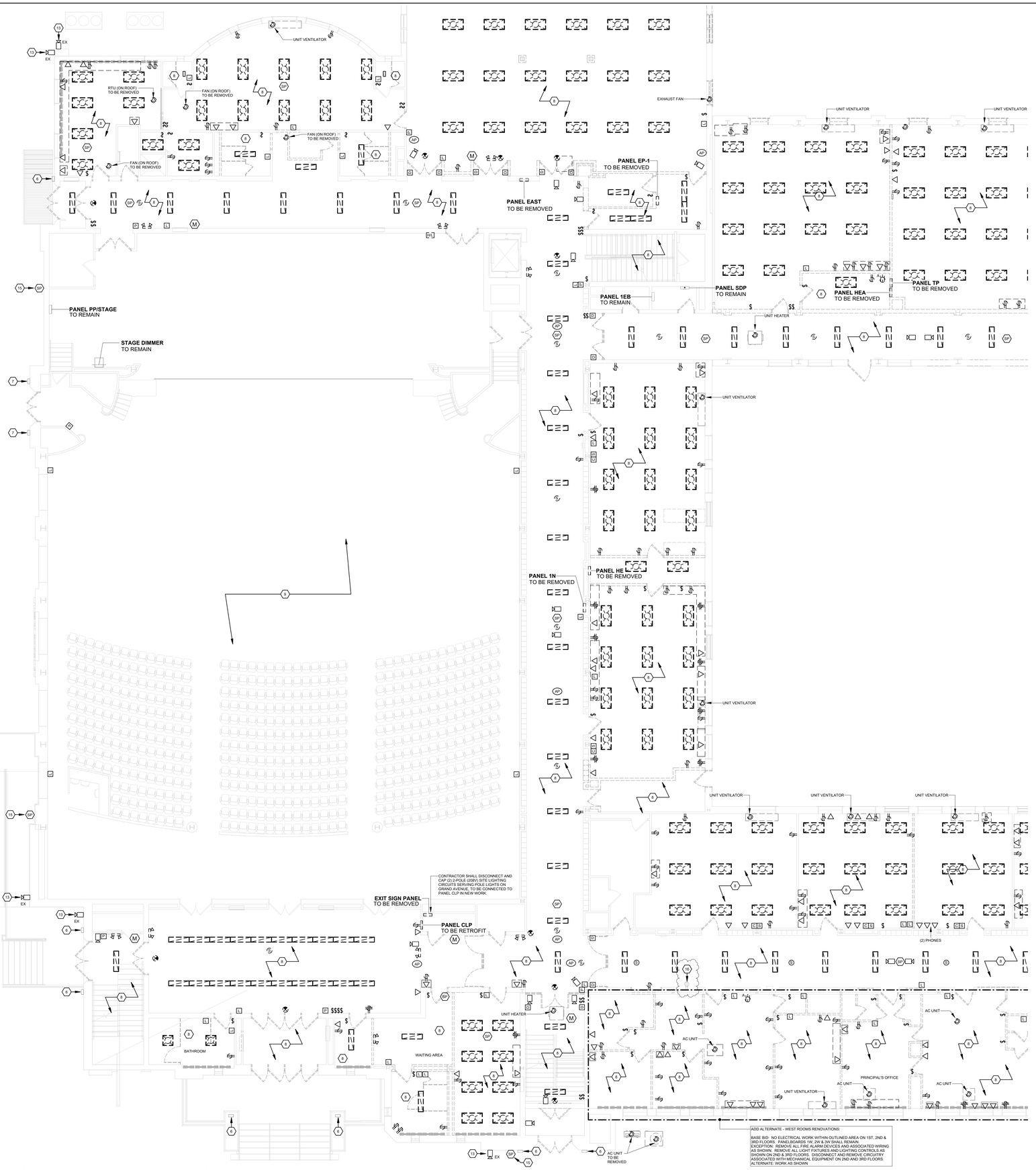
Sheet Number

ESP200




1 ELECTRICAL - FIRST FLOOR DEMOLITION PLAN - AREA NORTH
1/8" = 1'-0"

**NOTES:**

1. ALL DEVICES, FIXTURES, PANELS, ETC. ARE SHOWN BASED ON CASUAL FIELD OBSERVATIONS AND SHOULD BE VERIFIED IN FIELD BY CONTRACTOR.
2. ALL CONDUIT ROUTING AND SIZES SHOWN IS BASED ON CASUAL FIELD OBSERVATION AND SHOULD BE VERIFIED IN FIELD BY CONTRACTOR.
3. CONTRACTOR SHALL REMOVE ALL FIRE ALARM DEVICES, PANELS, ETC AND ASSOCIATED WIRING/RACEWAYS THROUGHOUT EXISTING BUILDING.

**POWER PLAN REMOVAL KEYED NOTES**

| # | NOTE TEXT |
|---|---|
| 1 | (2) 4" CONDUITS FED UNDERGROUND AND THROUGH CRAWL SPACE BELOW TO SERVE PANEL SDP1/SDP2. PULL CONDUCTORS BACK TO STUB UP LOCATION, TO BE USED IN NEW WORK. CONTRACTOR SHALL PERFORM MEGGER TEST ON (2) SETS OF (4) 500MCM TO VERIFY THE INTEGRITY OF CABLE INSULATIONS. TEST SHALL BE PERFORMED PER ANSI/NETA ATS-2021 'STANDARD FOR ACCEPTANCE TESTING SPECIFICATIONS FOR ELECTRICAL POWER EQUIPMENT AND SYSTEMS' REQUIREMENTS. CONTRACTOR SHALL PROVIDE WRITTEN REPORT OF TEST RESULTS TO ENGINEER PRIOR TO RE-ENERGIZING FEEDER. |
| 2 | REMOVE ALL LIGHT FIXTURES AND ASSOCIATES SWITCH IN BASEMENT PREP AREA WITH THE EXCEPTION OF THE ELEVATOR AND ELEVATOR MACHINE ROOM. TO REMAIN. REMOVE ALL ASSOCIATED CONDUCTORS AND CONDUIT BACK TO SOURCE. |
| 3 | EXTERIOR WALL MOUNTED LIGHT FIXTURE TO BE REPLACED. CONTRACTOR SHALL REMOVE FIXTURE AND ALL ASSOCIATED CIRCUITRY. EXISTING BOX TO REMAIN FOR USE IN NEW WORK. |
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| 6 | EXTERIOR DECORATIVE LIGHT FIXTURE TO REMAIN. DISCONNECT CIRCUITRY AND EXTEND NEW AS SHOWN IN NEW PLANS. |
| 7 | EXTERIOR DECORATIVE LIGHT FIXTURE TO REMAIN. |
| 8 | REMOVE ALL LIGHT FIXTURES, LIGHTING CONTROL DEVICES, WIRING DEVICES, DATA DEVICES, SECURITY EQUIPMENT, FIRE ALARM DEVICES, ELECTRICAL EQUIPMENT ASSOCIATED WITH DEMOLISHED MECHANICAL EQUIPMENT AND ALL ASSOCIATED WIRING/ RACEWAYS BACK TO SOURCE IN INDICATED AREA |
| 9 | REMOVE ALL FIRE ALARM DEVICES AND ASSOCIATED WIRING/RACEWAY IN INDICATED AREA. |
| 10 | REMOVE ALL ELECTRICAL APPURTENANCES ASSOCIATED WITH KITCHEN EQUIPMENT, LIGHT FIXTURES, LIGHTING CONTROL DEVICES, WIRING DEVICES, DATA DEVICES, SECURITY EQUIPMENT, FIRE ALARM DEVICES, ELECTRICAL EQUIPMENT ASSOCIATED WITH DEMOLISHED MECHANICAL EQUIPMENT AND ALL ASSOCIATED WIRING/ RACEWAYS BACK TO SOURCE IN INDICATED AREA |
| 11 | DISCONNECT AND REMOVE ALL LIGHT FIXTURES IN GYMNASIUM. CIRCUITRY SHALL REMAIN TO BE RECONNECTED IN NEW WORK. |
| 12 | EXTERIOR WALL MOUNTED CAMERA TO BE REMOVED. CONTRACTOR SHALL REMOVE CAMERA AND ALL ASSOCIATED CIRCUITRY AND BOXES. PATCH HOLE TO MATCH EXISTING. |
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| 16 | EXISTING GFCI RECEPTACLE FOR WATER COOLER, TO REMAIN. DISCONNECT AND REMOVE ALL ASSOCIATED CONDUCTORS AND SURFACE MOUNTED RACEWAY BACK TO SOURCE. RECEPTACLE TO BE CONNECTED TO NEW POWER SOURCE IN NEW WORK. |

# TWIN TOWERS MIDDLE SCHOOL

Additions & Alterations

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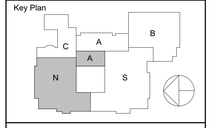
Key Plan



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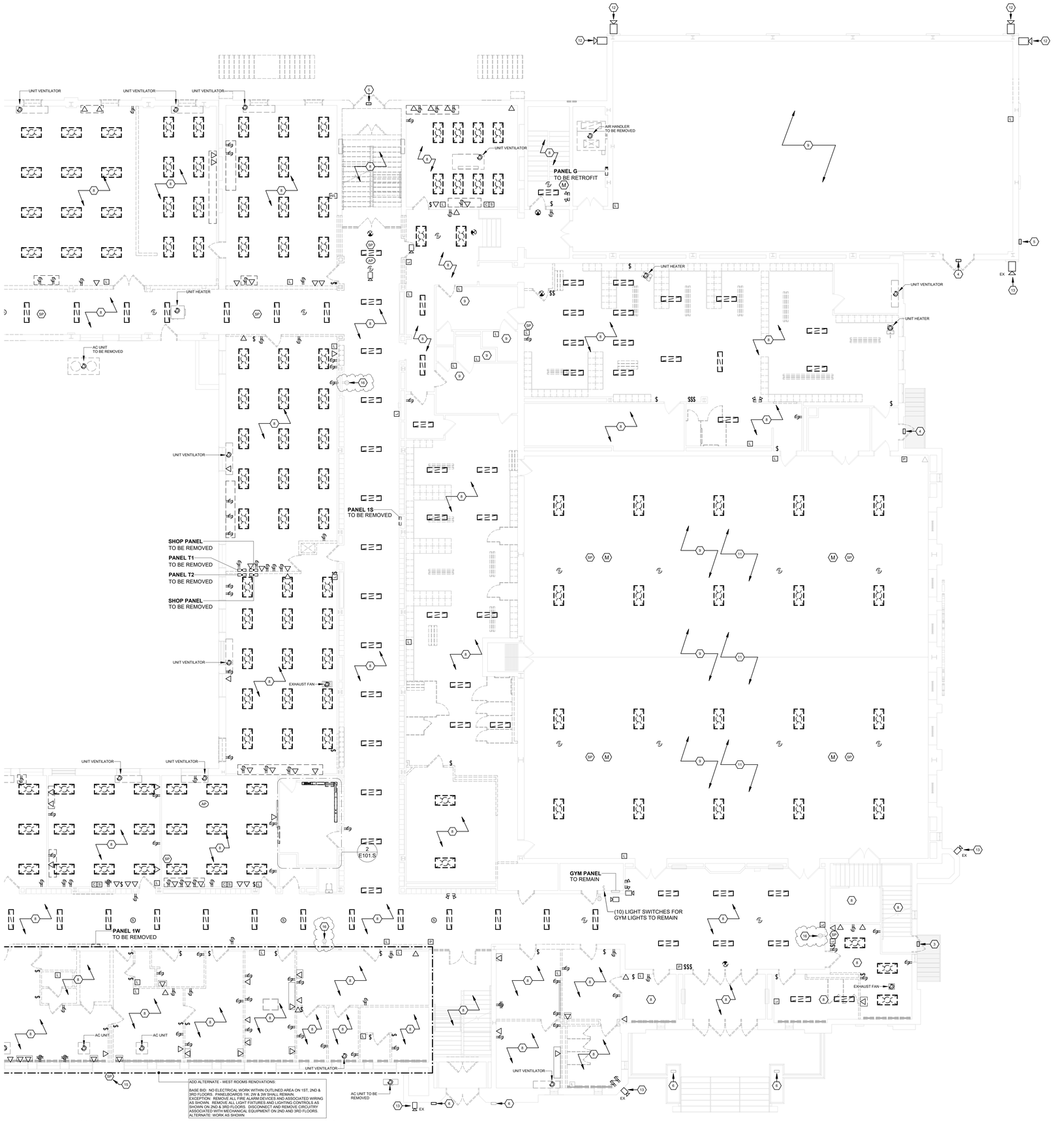
**ELECTRICAL:**
FIRST FLOOR DEMOLITION PLAN - AREA NORTH

| Job No. | Date |
|---|---|
| 2021-1087 | 09/08/2022 |
| Scale: AS NOTED | Drawn / Checked: BH/DC SZ |

Sheet Number

E101.N




1 ELECTRICAL - FIRST FLOOR DEMOLITION PLAN - AREA SOUTH
1/8" = 1'-0"

**NOTES:**

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**POWER PLAN REMOVAL KEYED NOTES**

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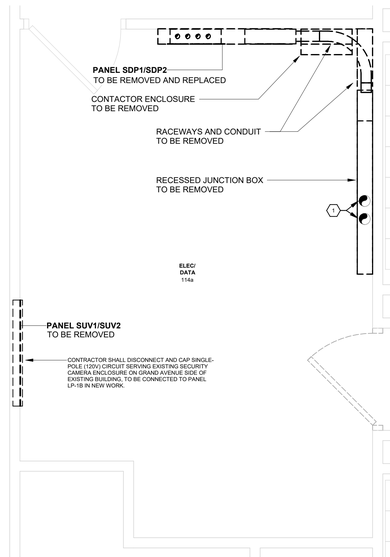


2 ELECTRICAL - ELEC/DATA 116 DEMOLITION PLAN
1/2" = 1'-0"

# TWIN TOWERS MIDDLE SCHOOL

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**ELECTRICAL:**
FIRST FLOOR DEMOLITION PLAN - AREA SOUTH

| Job No. | Date |
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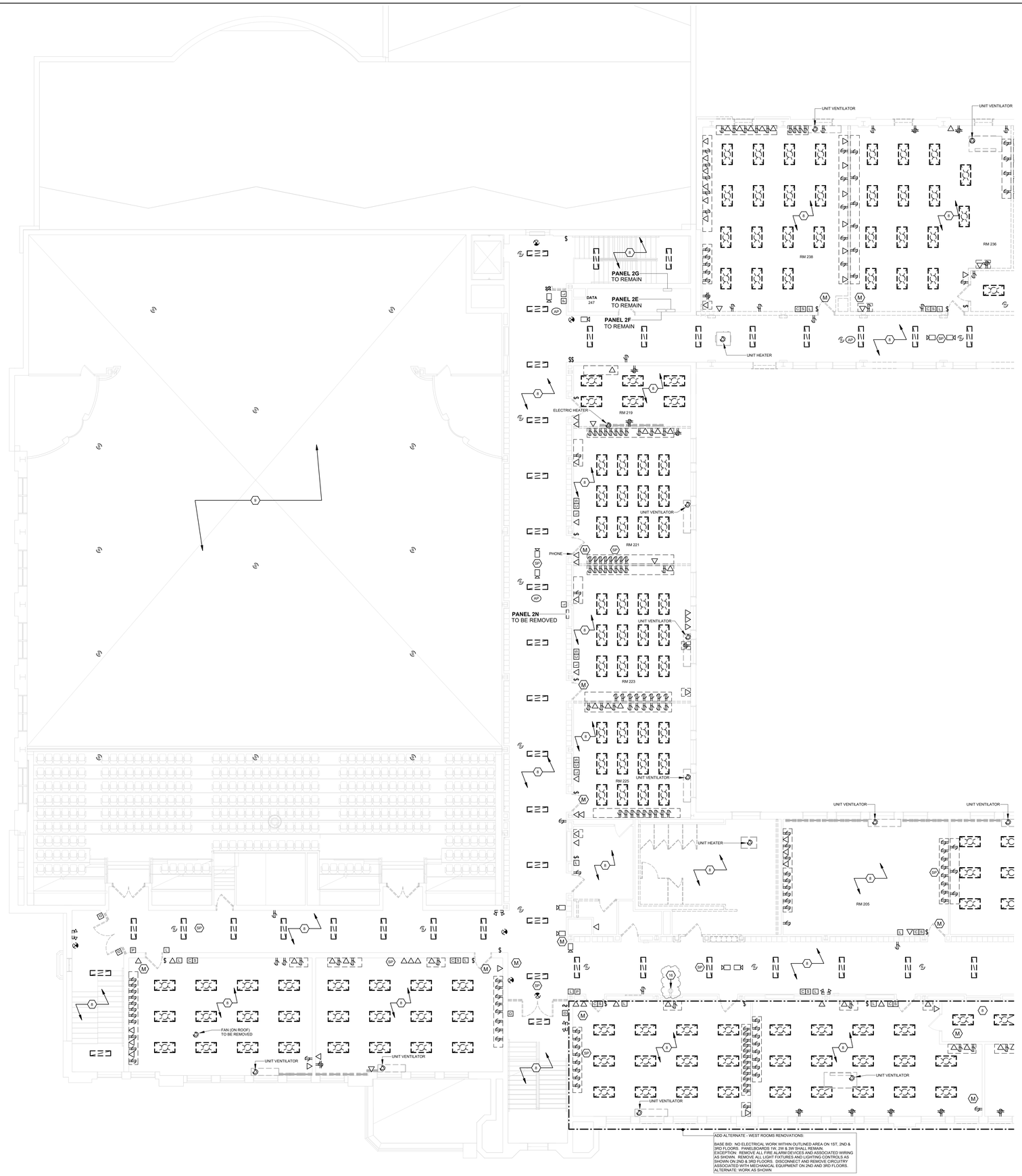
**E101.S**

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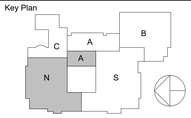




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SECOND FLOOR DEMOLITION PLAN - AREA NORTH

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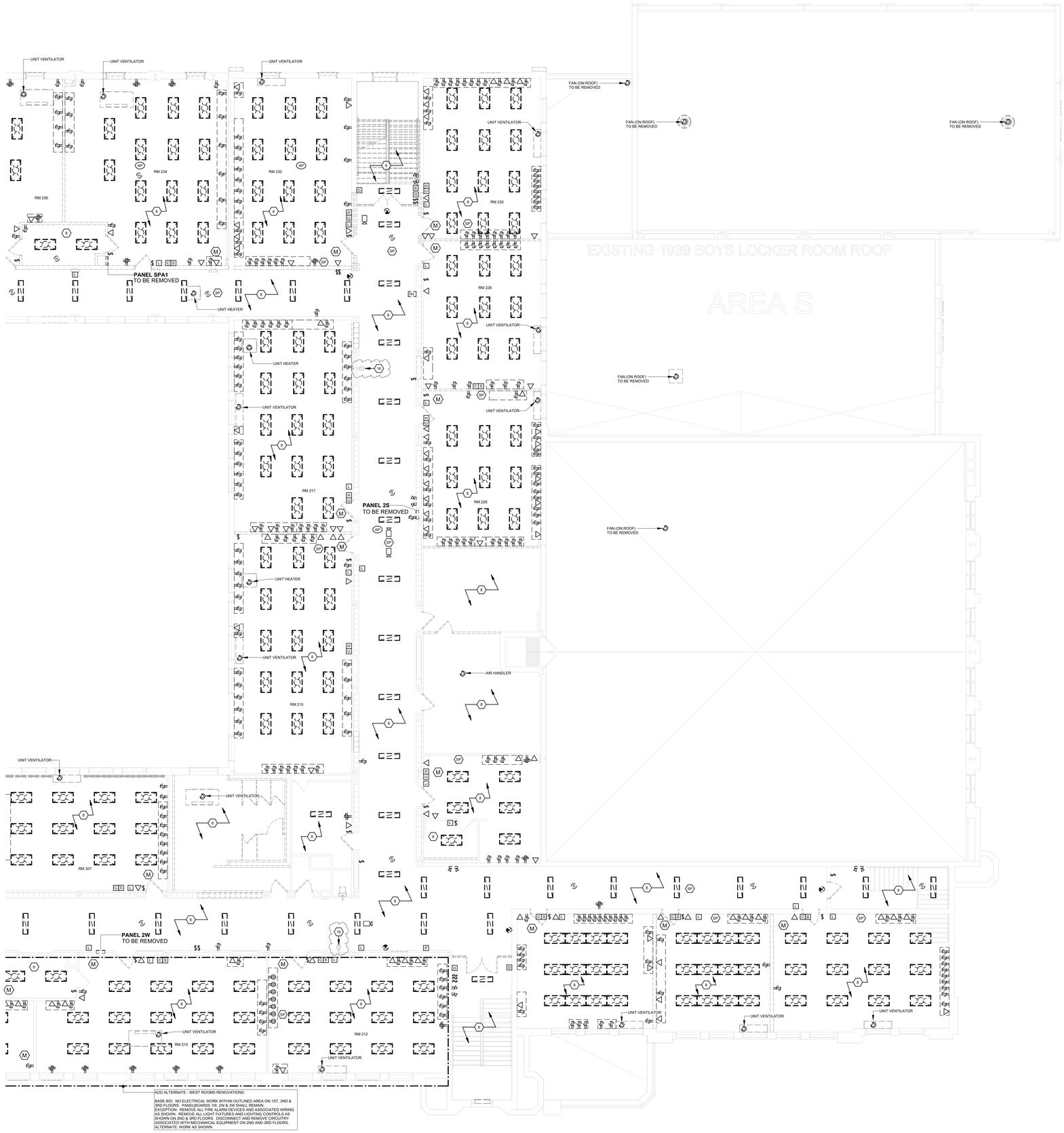
E102.N




1 ELECTRICAL - SECOND FLOOR DEMOLITION PLAN - AREA SOUTH

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1. ALL DEVICES, FIXTURES, PANELS, ETC. ARE SHOWN BASED ON CASUAL FIELD OBSERVATIONS AND SHOULD BE VERIFIED IN FIELD BY CONTRACTOR.
2. ALL CONDUIT ROUTING AND SIZES SHOWN IS BASED ON CASUAL FIELD OBSERVATION AND SHOULD BE VERIFIED IN FIELD BY CONTRACTOR.
3. CONTRACTOR SHALL REMOVE ALL FIRE ALARM DEVICES, PANELS, ETC AND ASSOCIATED WIRING/RACEWAYS THROUGHOUT EXISTING BUILDING.

**POWER PLAN REMOVAL KEYED NOTES**

| # | NOTE TEXT |
|---|---|
| 1 | (2) 4" CONDUITS FED UNDERGROUND AND THROUGH CRAWL SPACE BELOW TO SERVE PANEL SDP1/SDP2. PULL CONDUCTORS BACK TO STUB UP LOCATION, TO BE USED IN NEW WORK. CONTRACTOR SHALL PERFORM MEGGER TEST ON (2) SETS OF (4) 500MCM TO VERIFY THE INTEGRITY OF CABLE INSULATIONS. TEST SHALL BE PERFORMED PER ANSI/NETA ATS-2021 'STANDARD FOR ACCEPTANCE TESTING SPECIFICATIONS FOR ELECTRICAL POWER EQUIPMENT AND SYSTEMS' REQUIREMENTS. CONTRACTOR SHALL PROVIDE WRITTEN REPORT OF TEST RESULTS TO ENGINEER PRIOR TO RE-ENERGIZING FEEDER. |
| 2 | REMOVE ALL LIGHT FIXTURES AND ASSOCIATES SWITCH IN BASEMENT PREP AREA WITH THE EXCEPTION OF THE ELEVATOR AND ELEVATOR MACHINE ROOM, TO REMAIN. REMOVE ALL ASSOCIATED CONDUCTORS AND CONDUIT BACK TO SOURCE. |
| 3 | EXTERIOR WALL MOUNTED LIGHT FIXTURE TO BE REPLACED. CONTRACTOR SHALL REMOVE FIXTURE AND ALL ASSOCIATED CIRCUITRY. EXISTING BOX TO REMAIN FOR USE IN NEW WORK. |
| 4 | EXTERIOR WALL MOUNTED LIGHT FIXTURE TO BE REPLACED. CONTRACTOR SHALL REMOVE FIXTURE. EXISTING CIRCUITRY TO REMAIN FOR USE IN NEW WORK. |
| 5 | EXTERIOR WALL MOUNTED LIGHT FIXTURE TO BE REMOVED. CONTRACTOR SHALL REMOVE FIXTURE AND ALL ASSOCIATED CIRCUITRY AND BOXES. PATCH HOLE TO MATCH EXISTING. |
| 6 | EXTERIOR DECORATIVE LIGHT FIXTURE TO REMAIN. DISCONNECT CIRCUITRY AND EXTEND NEW AS SHOWN IN NEW PLANS. |
| 7 | EXTERIOR DECORATIVE LIGHT FIXTURE TO REMAIN. |
| 8 | REMOVE ALL LIGHT FIXTURES, LIGHTING CONTROL DEVICES, WIRING DEVICES, DATA DEVICES, SECURITY EQUIPMENT, FIRE ALARM DEVICES, ELECTRICAL EQUIPMENT ASSOCIATED WITH DEMOLISHED MECHANICAL EQUIPMENT AND ALL ASSOCIATED WIRING/ RACEWAYS BACK TO SOURCE IN INDICATED AREA |
| 9 | REMOVE ALL FIRE ALARM DEVICES AND ASSOCIATED WIRING/RACEWAY IN INDICATED AREA. |
| 10 | REMOVE ALL ELECTRICAL APPURTENANCES ASSOCIATED WITH KITCHEN EQUIPMENT, LIGHT FIXTURES, LIGHTING CONTROL DEVICES, WIRING DEVICES, DATA DEVICES, SECURITY EQUIPMENT, FIRE ALARM DEVICES, ELECTRICAL EQUIPMENT ASSOCIATED WITH DEMOLISHED MECHANICAL EQUIPMENT AND ALL ASSOCIATED WIRING/ RACEWAYS BACK TO SOURCE IN INDICATED AREA. |
| 11 | DISCONNECT AND REMOVE ALL LIGHT FIXTURES IN GYMNASIUM. CIRCUITRY SHALL REMAIN TO BE RECONNECTED IN NEW WORK. |
| 12 | EXTERIOR WALL MOUNTED CAMERA TO BE REMOVED. CONTRACTOR SHALL REMOVE CAMERA AND ALL ASSOCIATED CIRCUITRY AND BOXES. PATCH HOLE TO MATCH EXISTING. |
| 13 | EXTERIOR WALL MOUNTED CAMERA TO REMAIN. |
| 14 | EXTERIOR WALL MOUNTED ACCESS CARD READER TO BE REMOVED. CONTRACTOR SHALL REMOVE READER AND ALL ASSOCIATED CIRCUITRY AND BOXES. PATCH HOLE TO MATCH EXISTING. |
| 15 | EXTERIOR WALL MOUNTED SPEAKER TO BE REMOVED. CONTRACTOR SHALL REMOVE SPEAKER AND ALL ASSOCIATED CIRCUITRY AND BOXES. PATCH HOLE TO MATCH EXISTING. |
| 16 | EXISTING GFCI RECEPTACLE FOR WATER COOLER, TO REMAIN. DISCONNECT AND REMOVE ALL ASSOCIATED CONDUCTORS AND SURFACE MOUNTED RACEWAY BACK TO SOURCE. RECEPTACLE TO BE CONNECTED TO NEW POWER SOURCE IN NEW WORK. |

# TWIN TOWERS MIDDLE SCHOOL

Additions & Alterations

ENLARGED CITY SCHOOL DISTRICT OF MIDDLETOWN

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GA22017-A

NY SED PROJECT CONTROL NO.
44-10-00-01-0-001-041

CONSTRUCTION DOCUMENTS

Key Plan




Professional Seal

| No. | Date | Issue |
|---|---|---|
| 4 | 02.12.2024 | ADDENDUM 4 |
| 3 | 02/02/2024 | ADDENDUM #2 |
| 2 | 12/14/2023 | ISSUE FOR BID |
| 1 | 04/14/2023 | NYSED ISSUE |

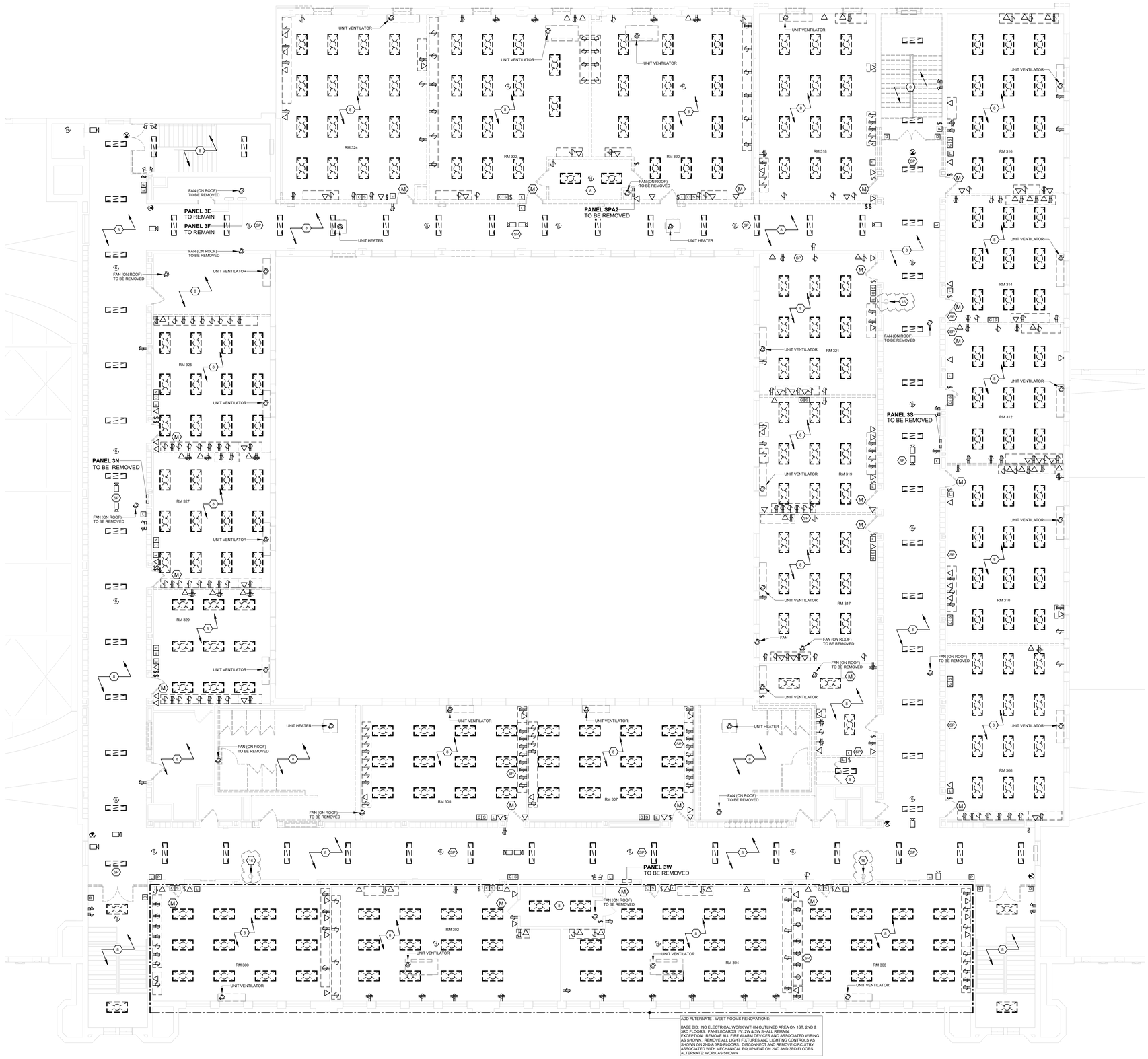
Sheet Title

**ELECTRICAL:**
SECOND FLOOR DEMOLITION PLAN - AREA SOUTH

| Job No. | Date |
|---|---|
| 2021-1087 | 09/08/2022 |
| Scale | Drawn / Checked |
| AS NOTED | BH/DC SZ |

Sheet Number

E102.S




1 ELECTRICAL - THIRD FLOOR DEMOLITION PLAN
1/8" = 1'-0"

**NOTES:**

1. ALL DEVICES, FIXTURES, PANELS, ETC. ARE SHOWN BASED ON CASUAL FIELD OBSERVATIONS AND SHOULD BE VERIFIED IN FIELD BY CONTRACTOR.
2. ALL CONDUIT ROUTING AND SIZES SHOWN IS BASED ON CASUAL FIELD OBSERVATION AND SHOULD BE VERIFIED IN FIELD BY CONTRACTOR.
3. CONTRACTOR SHALL REMOVE ALL FIRE ALARM DEVICES, PANELS, ETC AND ASSOCIATED WIRING/RACEWAYS THROUGHOUT EXISTING BUILDING.

**POWER PLAN REMOVAL KEYED NOTES**

| # | NOTE TEXT |
|---|---|
| 1 | (2) 4" CONDUITS FED UNDERGROUND AND THROUGH CRAWL SPACE BELOW TO SERVE PANEL SDP-1SDP2. PULL CONDUCTORS BACK TO STUB UP LOCATION, TO BE USED IN NEW WORK. CONTRACTOR SHALL PERFORM MEGGER TEST ON (2) SETS OF (4) 500MCM TO VERIFY THE INTEGRITY OF CABLE INSULATIONS. TEST SHALL BE PERFORMED PER ANSI/NETA ATS-2021 'STANDARD FOR ACCEPTANCE TESTING SPECIFICATIONS FOR ELECTRICAL POWER EQUIPMENT AND SYSTEMS' REQUIREMENTS. CONTRACTOR SHALL PROVIDE WRITTEN REPORT OF TEST RESULTS TO ENGINEER PRIOR TO RE-ENERGIZING FEEDER. |
| 2 | REMOVE ALL LIGHT FIXTURES AND ASSOCIATES SWITCH IN BASEMENT PREP AREA WITH THE EXCEPTION OF THE ELEVATOR AND ELEVATOR MACHINE ROOM, TO REMAIN. REMOVE ALL ASSOCIATED CONDUCTORS AND CONDUIT BACK TO SOURCE. |
| 3 | EXTERIOR WALL MOUNTED LIGHT FIXTURE TO BE REPLACED. CONTRACTOR SHALL REMOVE FIXTURE AND ALL ASSOCIATED CIRCUITRY. EXISTING BOX TO REMAIN FOR USE IN NEW WORK. |
| 4 | EXTERIOR WALL MOUNTED LIGHT FIXTURE TO BE REPLACED. CONTRACTOR SHALL REMOVE FIXTURE. EXISTING CIRCUITRY TO REMAIN FOR USE IN NEW WORK. |
| 5 | EXTERIOR WALL MOUNTED LIGHT FIXTURE TO BE REMOVED. CONTRACTOR SHALL REMOVE FIXTURE AND ALL ASSOCIATED CIRCUITRY AND BOXES. PATCH HOLE TO MATCH EXISTING. |
| 6 | EXTERIOR DECORATIVE LIGHT FIXTURE TO REMAIN. DISCONNECT CIRCUITRY AND EXTEND NEW AS SHOWN IN NEW PLANS. |
| 7 | EXTERIOR DECORATIVE LIGHT FIXTURE TO REMAIN. |
| 8 | REMOVE ALL LIGHT FIXTURES, LIGHTING CONTROL DEVICES, WIRING DEVICES, DATA DEVICES, SECURITY EQUIPMENT, FIRE ALARM DEVICES, ELECTRICAL EQUIPMENT ASSOCIATED WITH DEMOLISHED MECHANICAL EQUIPMENT AND ALL ASSOCIATED WIRING/ RACEWAYS BACK TO SOURCE IN INDICATED AREA. |
| 9 | REMOVE ALL FIRE ALARM DEVICES AND ASSOCIATED WIRING/RACEWAY IN INDICATED AREA. |
| 10 | REMOVE ALL ELECTRICAL APPURTENANCES ASSOCIATED WITH KITCHEN EQUIPMENT, LIGHT FIXTURES, LIGHTING CONTROL DEVICES, WIRING DEVICES, DATA DEVICES, SECURITY EQUIPMENT, FIRE ALARM DEVICES, ELECTRICAL EQUIPMENT ASSOCIATED WITH DEMOLISHED MECHANICAL EQUIPMENT AND ALL ASSOCIATED WIRING/ RACEWAYS BACK TO SOURCE IN INDICATED AREA. |
| 11 | DISCONNECT AND REMOVE ALL LIGHT FIXTURES IN GYMNASIUM. CIRCUITRY SHALL REMAIN TO BE RECONNECTED IN NEW WORK. |
| 12 | EXTERIOR WALL MOUNTED CAMERA TO BE REMOVED. CONTRACTOR SHALL REMOVE CAMERA AND ALL ASSOCIATED CIRCUITRY AND BOXES. PATCH HOLE TO MATCH EXISTING. |
| 13 | EXTERIOR WALL MOUNTED CAMERA TO REMAIN. |
| 14 | EXTERIOR WALL MOUNTED ACCESS CARD READER TO BE REMOVED. CONTRACTOR SHALL REMOVE READER AND ALL ASSOCIATED CIRCUITRY AND BOXES. PATCH HOLE TO MATCH EXISTING. |
| 15 | EXTERIOR WALL MOUNTED SPEAKER TO BE REMOVED. CONTRACTOR SHALL REMOVE SPEAKER AND ALL ASSOCIATED CIRCUITRY AND BOXES., PATCH HOLE TO MATCH EXISTING. |
| 16 | EXISTING GFCI RECEPTACLE FOR WATER COOLER, TO REMAIN. DISCONNECT AND REMOVE ALL ASSOCIATED CONDUCTORS AND SURFACE MOUNTED RACEWAY BACK TO SOURCE. RECEPTACLE TO BE CONNECTED TO NEW POWER SOURCE IN NEW WORK. |

TWIN TOWERS MIDDLE SCHOOL

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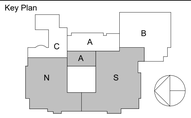
NY SED PROJECT CONTROL NO.
44-10-00-01-0-001-041

CONSTRUCTION DOCUMENTS

Key Plan



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| No. | Date | Issue |
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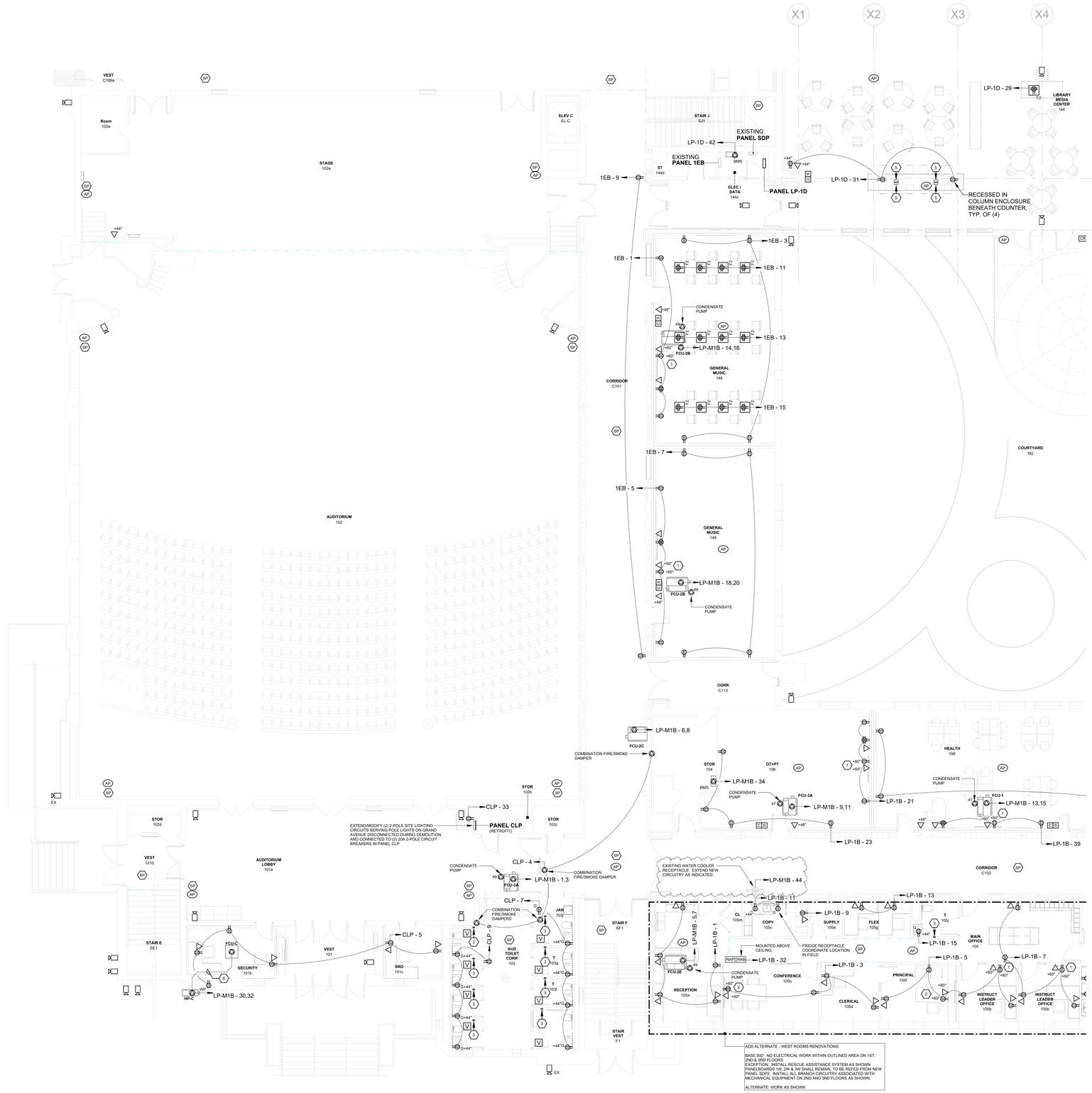
Sheet Title

**ELECTRICAL:**
THIRD FLOOR
DEMOLITION PLAN

| Job No. | Date |
|---|---|
| 2021-1087 | 09/08/2022 |
| Scale | Drawn / Checked |
| AS NOTED | BH/DC SZ |

Sheet Number

E103




1 ELECTRICAL - FIRST FLOOR POWER PLAN - AREA N
1/8" = 1'-0"

NOTES:

1. ALL DISCONNECT SWITCHES SUPPLIED WITH MECHANICAL AND PLUMBING EQUIPMENT SHALL BE INSTALLED AND WIRED BY ELECTRICAL CONTRACTOR. REFER TO MECHANICAL AND PLUMBING EQUIPMENT SCHEDULES.
2. ALL DISCONNECT SWITCHES SHALL BE LABELED WITH ENGRAVED LAMACOID NAMEPLATE WITH LETTERING INDICATING CIRCUIT NUMBER AND SOURCE. FASTEN LABEL WITH SILICON ADHESIVE.
3. ALL BRANCH CIRCUITRY FEEDING ROOFTOP EQUIPMENT SHALL BE EXTENDED ABOVE CEILING AND BELOW ROOF TO PENETRATE THROUGH ROOF WITHIN EQUIPMENT OR AS CLOSE AS POSSIBLE TO EQUIPMENT. COORDINATE IN FIELD WITH MECHANICAL AND PLUMBING CONTRACTORS.
4. ALL FAN COIL UNITS (FCU) SHOWN ON PLAN SHALL BE FURNISHED WITH (2) MOTORIZED DAMPERS (BY MC). ELECTRICAL CONTRACTOR SHALL EXTEND POWER CIRCUITRY FOR FAN COIL UNIT TO EACH ASSOCIATED MOTORIZED DAMPER. COORDINATE WITH MECHANICAL CONTRACTOR.

**E201.N POWER PLAN KEYED NOTES**

| # | NOTE TEXT |
|---|---|
| 1 | TV MONITOR LOCATION. PROVIDE AND INSTALL LEGRAND EFSB2 RECESSED AV BACK BOX WITH DATA OUTLET AND RECEPTACLE TO BE MOUNTED BEHIND MONITOR. INSTALL A RECESSED DUAL GANG METAL BOX AT 18" AFF. PROVIDE 1-1/4" EMT WITH DRAGLINE BETWEEN DUAL GANG BOX AT 18" AND A/V BOX BEHIND MONITOR AND 1-1/2" EMT WITH DRAGLINE FROM A/V BOX TO ABOVE ACCESSIBLE CEILING. VERIFY HEIGHT AND LOCATION WITH OWNER. DATA WIRNG BY OTHERS. |
| 2 | TV MONITOR LOCATION. PROVIDE AND INSTALL LEGRAND EFSB2 RECESSED AV BACK BOX WITH DATA OUTLET AND RECEPTACLE TO BE MOUNTED BEHIND MONITOR. INSTALL A RECESSED DUAL GANG METAL BOX AND A DUPLEX RECEPTACLE AT 18" AFF. PROVIDE 1-1/4" EMT WITH DRAGLINE BETWEEN DUAL GANG BOX AT 18" AND A/V BOX BEHIND MONITOR AND 1-1/2" EMT WITH DRAGLINE FROM A/V BOX TO ABOVE ACCESSIBLE CEILING. VERIFY HEIGHT AND LOCATION WITH OWNER. DATA WIRNG BY OTHERS. |
| 3 | FUTURE HAND DRYER LOCATION. INSTALL 2-GANG RECESSED METAL OUTLET BOX WITH METAL COVER PLATE AT 44" AFF. EXTEND 3/4" EMT FROM BOX TO ACCESSIBLE SPACE ABOVE CEILING. |
| 8 | EXTEND (3) #12 THHN, #12 GND IN 3/4" EMT FROM FCU-C TO ASSOCIATED OUTDOOR AC UNIT (HP-C). COORDINATE ROUTING WITH REFRIGERANT PIPING. |

# TWIN TOWERS MIDDLE SCHOOL

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NY SED PROJECT CONTROL NO.

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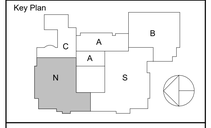
CONSTRUCTION DOCUMENTS

Key Plan






Professional Seal

| No. | Date | Issue |
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| 4 | 02.12.2024 | ADDENDUM 4 |
| 3 | 02/02/2024 | ADDENDUM #2 |
| 2 | 12/14/2023 | ISSUE FOR BID |
| 1 | 04/14/2023 | NYSED ISSUE |

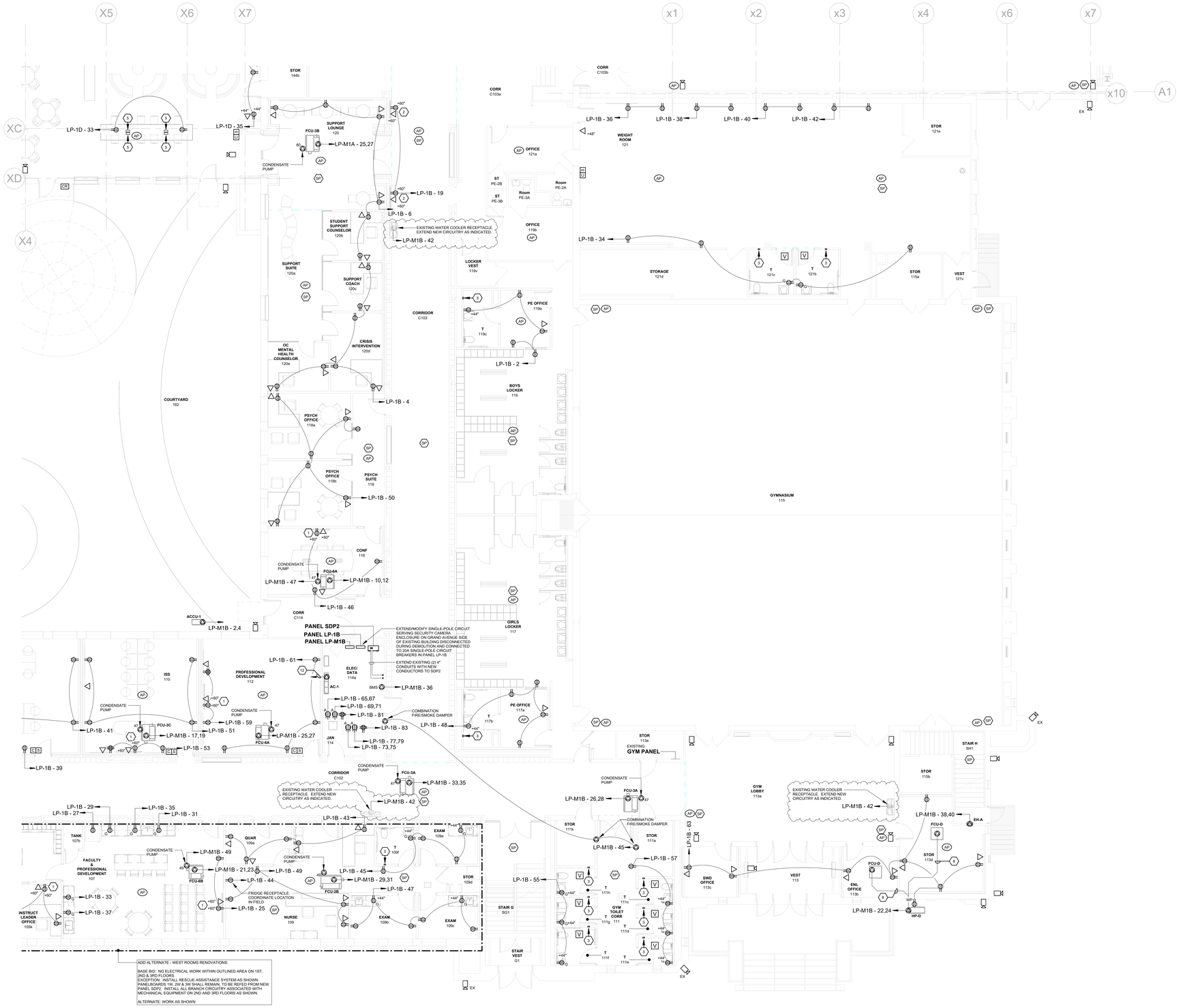
Sheet Title

**ELECTRICAL:**
FIRST FLOOR POWER PLAN - AREA N

| Job No. | Date |
|---|---|
| 2021-1087 | 09/08/2022 |
| Scale: AS NOTED | Drawn / Checked: BH/DC SZ |

Sheet Number

E201.N




ADD ALTERNATE - WEST ROOMS RENOVATIONS

BASE BID: NO ELECTRICAL WORK WITHIN OUTLINED AREA ON 1ST, 2ND & 3RD FLOORS.
EXCEPTION: INSTALL RESCUE ASSISTANCE SYSTEM AS SHOWN. PANELBOARDS 1W, 2W & 3W SHALL REMAIN, TO BE REFED FROM NEW PANEL SDP2. INSTALL ALL BRANCH CIRCUITRY ASSOCIATED WITH MECHANICAL EQUIPMENT ON 2ND AND 3RD FLOORS AS SHOWN.

ALTERNATE: WORK AS SHOWN

NOTES:

1. ALL DISCONNECT SWITCHES SUPPLIED WITH MECHANICAL AND PLUMBING EQUIPMENT SHALL BE INSTALLED AND WIRED BY ELECTRICAL CONTRACTOR. REFER TO MECHANICAL AND PLUMBING EQUIPMENT SCHEDULES.
2. ALL DISCONNECT SWITCHES SHALL BE LABELED WITH ENGRAVED LAMACOID NAMEPLATE WITH LETTERING INDICATING CIRCUIT NUMBER AND SOURCE. FASTEN LABEL WITH SILICON ADHESIVE.
3. ALL BRANCH CIRCUITRY FEEDING ROOFTOP EQUIPMENT SHALL BE EXTENDED ABOVE CEILING AND BELOW ROOF TO PENETRATE THROUGH ROOF WITHIN EQUIPMENT OR AS CLOSE AS POSSIBLE TO EQUIPMENT. COORDINATE IN FIELD WITH MECHANICAL AND PLUMBING CONTRACTORS.
4. ALL FAN COIL UNITS (FCU) SHOWN ON PLAN SHALL BE FURNISHED WITH (2) MOTORIZED DAMPERS (BY MC). ELECTRICAL CONTRACTOR SHALL EXTEND POWER CIRCUITRY FOR FAN COIL UNIT TO EACH ASSOCIATED MOTORIZED DAMPER. COORDINATE WITH MECHANICAL CONTRACTOR.

**E201.S POWER PLAN KEYED NOTES**

| # | NOTE TEXT |
|---|---|
| 1 | TV MONITOR LOCATION. PROVIDE AND INSTALL LEGRAND EFSB2 RECESSED A/V BACK BOX WITH DATA OUTLET AND RECEPTACLE TO BE MOUNTED BEHIND MONITOR. INSTALL A RECESSED DUAL GANG METAL BOX AT 18" AFF. PROVIDE 1-1/4" EMT WITH DRAGLINE BETWEEN DUAL GANG BOX AT 18" AND A/V BOX BEHIND MONITOR AND 1-1/2" EMT WITH DRAGLINE FROM A/V BOX TO ABOVE ACCESSIBLE CEILING. VERIFY HEIGHT AND LOCATION WITH OWNER. DATA WIRNG BY OTHERS. |
| 3 | FUTURE HAND DRYER LOCATION. INSTALL 2-GANG RECESSED METAL OUTLET BOX WITH METAL COVER PLATE AT 44" AFF. EXTEND 3/4" EMT FROM BOX TO ACCESSIBLE SPACE ABOVE CEILING. |
| 8 | EXTEND (3) #12 THHN, #12 GND IN 3/4" EMT FROM FCU-D TO ASSOCIATED OUTDOOR AC UNIT (HP-D). COORDINATE ROUTING WITH REFRIGERANT PIPING. |
| 12 | EXTEND (3) #12 THHN, #12 GND IN 3/4" EMT FROM AC-1 TO ASSOCIATED OUTDOOR AC UNIT (ACCU-1). COORDINATE ROUTING WITH REFRIGERANT PIPING. |

1 ELECTRICAL - FIRST FLOOR POWER PLAN - AREA S
1/8" = 1'-0"

# TWIN TOWERS MIDDLE SCHOOL

Additions & Alterations

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CONSTRUCTION DOCUMENTS

Key Plan




Professional Seal

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| 4 | 02.12.2024 | ADDENDUM 4 |
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| 2 | 12/14/2023 | ISSUE FOR BID |
| 1 | 04/14/2023 | NYSED ISSUE |

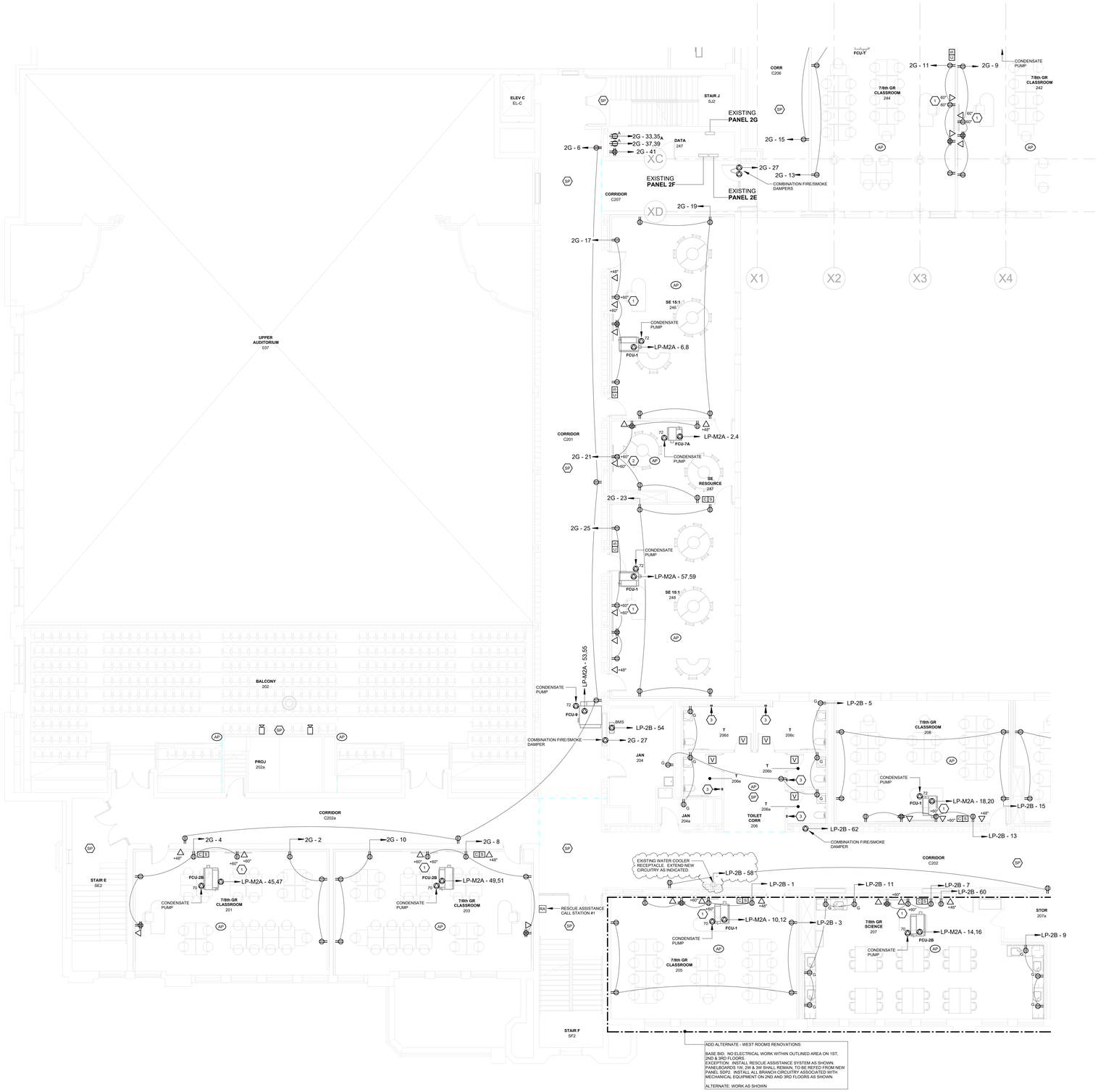
Sheet Title

**ELECTRICAL:**
FIRST FLOOR POWER PLAN - AREA S

| Job No. | Date |
|---|---|
| 2021-1087 | 09/08/2022 |
| Scale: AS NOTED | Drawn / Checked: BH/DC SZ |

Sheet Number

E201.S




1 ELECTRICAL - SECOND FLOOR POWER PLAN - AREA N
1/8" = 1'-0"

NOTES:

1. ALL DISCONNECT SWITCHES SUPPLIED WITH MECHANICAL AND PLUMBING EQUIPMENT SHALL BE INSTALLED AND WIRED BY ELECTRICAL CONTRACTOR. REFER TO MECHANICAL AND PLUMBING EQUIPMENT SCHEDULES.
2. ALL DISCONNECT SWITCHES SHALL BE LABELED WITH ENGRAVED LAMACOID NAMEPLATE WITH LETTERING INDICATING CIRCUIT NUMBER AND SOURCE. FASTEN LABEL WITH SILICON ADHESIVE.
3. ALL BRANCH CIRCUITRY FEEDING ROOFTOP EQUIPMENT SHALL BE EXTENDED ABOVE CEILING AND BELOW ROOF TO PENETRATE THROUGH ROOF WITHIN EQUIPMENT OR AS CLOSE AS POSSIBLE TO EQUIPMENT. COORDINATE IN FIELD WITH MECHANICAL AND PLUMBING CONTRACTORS.
4. ALL FAN COIL UNITS (FCU) SHOWN ON PLAN SHALL BE FURNISHED WITH (2) MOTORIZED DAMPERS (BY MC). ELECTRICAL CONTRACTOR SHALL EXTEND POWER CIRCUITRY FOR FAN COIL UNIT TO EACH ASSOCIATED MOTORIZED DAMPER. COORDINATE WITH MECHANICAL CONTRACTOR.

**E202.N POWER PLAN KEYED NOTES**

| # | NOTE TEXT |
|---|---|
| 1 | TV MONITOR LOCATION. PROVIDE AND INSTALL LEGRAND EFSB2 RECESSED AV BACK BOX WITH DATA OUTLET AND RECEPTACLE TO BE MOUNTED BEHIND MONITOR. INSTALL A RECESSED DUAL GANG METAL BOX AT 18" AFF. PROVIDE 1-1/4" EMT WITH DRAGLINE BETWEEN DUAL GANG BOX AT 18" AND A/V BOX BEHIND MONITOR AND 1-1/2" EMT WITH DRAGLINE FROM A/V BOX TO ABOVE ACCESSIBLE CEILING. VERIFY HEIGHT AND LOCATION WITH OWNER. DATA WIRNG BY OTHERS. |
| 2 | TV MONITOR LOCATION. PROVIDE AND INSTALL LEGRAND EFSB2 RECESSED AV BACK BOX WITH DATA OUTLET AND RECEPTACLE TO BE MOUNTED BEHIND MONITOR. INSTALL A RECESSED DUAL GANG METAL BOX AND A DUPLEX RECEPTACLE AT 18" AFF. PROVIDE 1-1/4" EMT WITH DRAGLINE BETWEEN DUAL GANG BOX AT 18" AND A/V BOX BEHIND MONITOR AND 1-1/2" EMT WITH DRAGLINE FROM A/V BOX TO ABOVE ACCESSIBLE CEILING. VERIFY HEIGHT AND LOCATION WITH OWNER. DATA WIRNG BY OTHERS. |
| 3 | FUTURE HAND DRYER LOCATION. INSTALL 2-GANG RECESSED METAL OUTLET BOX WITH METAL COVER PLATE AT 44" AFF. EXTEND 3/4" EMT FROM BOX TO ACCESSIBLE SPACE ABOVE CEILING. |

# TWIN TOWERS MIDDLE SCHOOL

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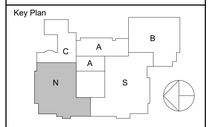




Professional Seal

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| 4 | 02.12.2024 | ADDENDUM 4 |
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Sheet Title

**ELECTRICAL:**
SECOND FLOOR POWER PLAN - AREA N

| Job No. | Date |
|---|---|
| 2021-1087 | 09/08/2022 |
| Scale: AS NOTED | Drawn / Checked: BH/DC SZ |

Sheet Number

E202.N


ADD ALTERNATE - WEST ROOMS RENOVATIONS:

BASE BID: NO ELECTRICAL WORK WITHIN OUTLINED AREA ON 1ST, 2ND & 3RD FLOORS.
EXCEPTION: INSTALL RESCUE ASSISTANCE SYSTEM AS SHOWN. PANELBOARDS 1W, 2W & 3W SHALL REMAIN. TO BE REFED FROM NEW PANEL SDP2. INSTALL ALL BRANCH CIRCUITRY ASSOCIATED WITH MECHANICAL EQUIPMENT ON 2ND AND 3RD FLOORS AS SHOWN.

ALTERNATE: WORK AS SHOWN

1 ELECTRICAL - SECOND FLOOR POWER PLAN - AREA S
1/8" = 1'-0"

NOTES:

1. ALL DISCONNECT SWITCHES SUPPLIED WITH MECHANICAL AND PLUMBING EQUIPMENT SHALL BE INSTALLED AND WIRED BY ELECTRICAL CONTRACTOR. REFER TO MECHANICAL AND PLUMBING EQUIPMENT SCHEDULES.
2. ALL DISCONNECT SWITCHES SHALL BE LABELED WITH ENGRAVED LAMACOID NAMEPLATE WITH LETTERING INDICATING CIRCUIT NUMBER AND SOURCE. FASTEN LABEL WITH SILICON ADHESIVE.
3. ALL BRANCH CIRCUITRY FEEDING ROOFTOP EQUIPMENT SHALL BE EXTENDED ABOVE CEILING AND BELOW ROOF TO PENETRATE THROUGH ROOF WITHIN EQUIPMENT OR AS CLOSE AS POSSIBLE TO EQUIPMENT. COORDINATE IN FIELD WITH MECHANICAL AND PLUMBING CONTRACTORS.
4. ALL FAN COIL UNITS (FCU) SHOWN ON PLAN SHALL BE FURNISHED WITH (2) MOTORIZED DAMPERS (BY MC). ELECTRICAL CONTRACTOR SHALL EXTEND POWER CIRCUITRY FOR FAN COIL UNIT TO EACH ASSOCIATED MOTORIZED DAMPER. COORDINATE WITH MECHANICAL CONTRACTOR.

**E202.S POWER PLAN KEYED NOTES**

| # | NOTE TEXT |
|---|---|
| 1 | TV MONITOR LOCATION. PROVIDE AND INSTALL LEGRAND EFSB2 RECESSED AV BACK BOX WITH DATA OUTLET AND RECEPTACLE TO BE MOUNTED BEHIND MONITOR. INSTALL A RECESSED DUAL GANG METAL BOX AT 18" AFF. PROVIDE 1-1/4" EMT WITH DRAGLINE BETWEEN DUAL GANG BOX AT 18" AND A/V BOX BEHIND MONITOR AND 1-1/2" EMT WITH DRAGLINE FROM A/V BOX TO ABOVE ACCESSIBLE CEILING. VERIFY HEIGHT AND LOCATION WITH OWNER. DATA WIRNG BY OTHERS. |
| 2 | TV MONITOR LOCATION. PROVIDE AND INSTALL LEGRAND EFSB2 RECESSED AV BACK BOX WITH DATA OUTLET AND RECEPTACLE TO BE MOUNTED BEHIND MONITOR. INSTALL A RECESSED DUAL GANG METAL BOX AND A DUPLEX RECEPTACLE AT 18" AFF. PROVIDE 1-1/4" EMT WITH DRAGLINE BETWEEN DUAL GANG BOX AT 18" AND A/V BOX BEHIND MONITOR AND 1-1/2" EMT WITH DRAGLINE FROM A/V BOX TO ABOVE ACCESSIBLE CEILING. VERIFY HEIGHT AND LOCATION WITH OWNER. DATA WIRNG BY OTHERS. |
| 3 | FUTURE HAND DRYER LOCATION. INSTALL 2-GANG RECESSED METAL OUTLET BOX WITH METAL COVER PLATE AT 44" AFF. EXTEND 3/4" EMT FROM BOX TO ACCESSIBLE SPACE ABOVE CEILING. |
| 10 | EXTEND (3) #12 THHN, #12 GND IN 3/4" EMT FROM AC-1 TO ASSOCIATED OUTDOOR AC UNIT (ACCU-1) ON ROOF. COORDINATE ROUTING WITH REFRIGERANT PIPING. |

# TWIN TOWERS MIDDLE SCHOOL

Additions & Alterations

ENLARGED CITY SCHOOL DISTRICT OF MIDDLETOWN

112 Grand Avenue
Middletown, NY 10940


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(845) 291 1272 GerardAssociates.com

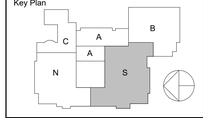

GA22017-A

NY SED PROJECT CONTROL NO.

44-10-00-01-0-001-041

CONSTRUCTION DOCUMENTS

Key Plan






Professional Seal

| No. | Date | Issue |
|---|---|---|
| 4 | 02.12 /2024 | ADDENDUM 4 |
| 3 | 02/02/2024 | ADDENDUM #2 |
| 2 | 12/14/2023 | ISSUE FOR BID |
| 1 | 04/14/2023 | NYSED ISSUE |

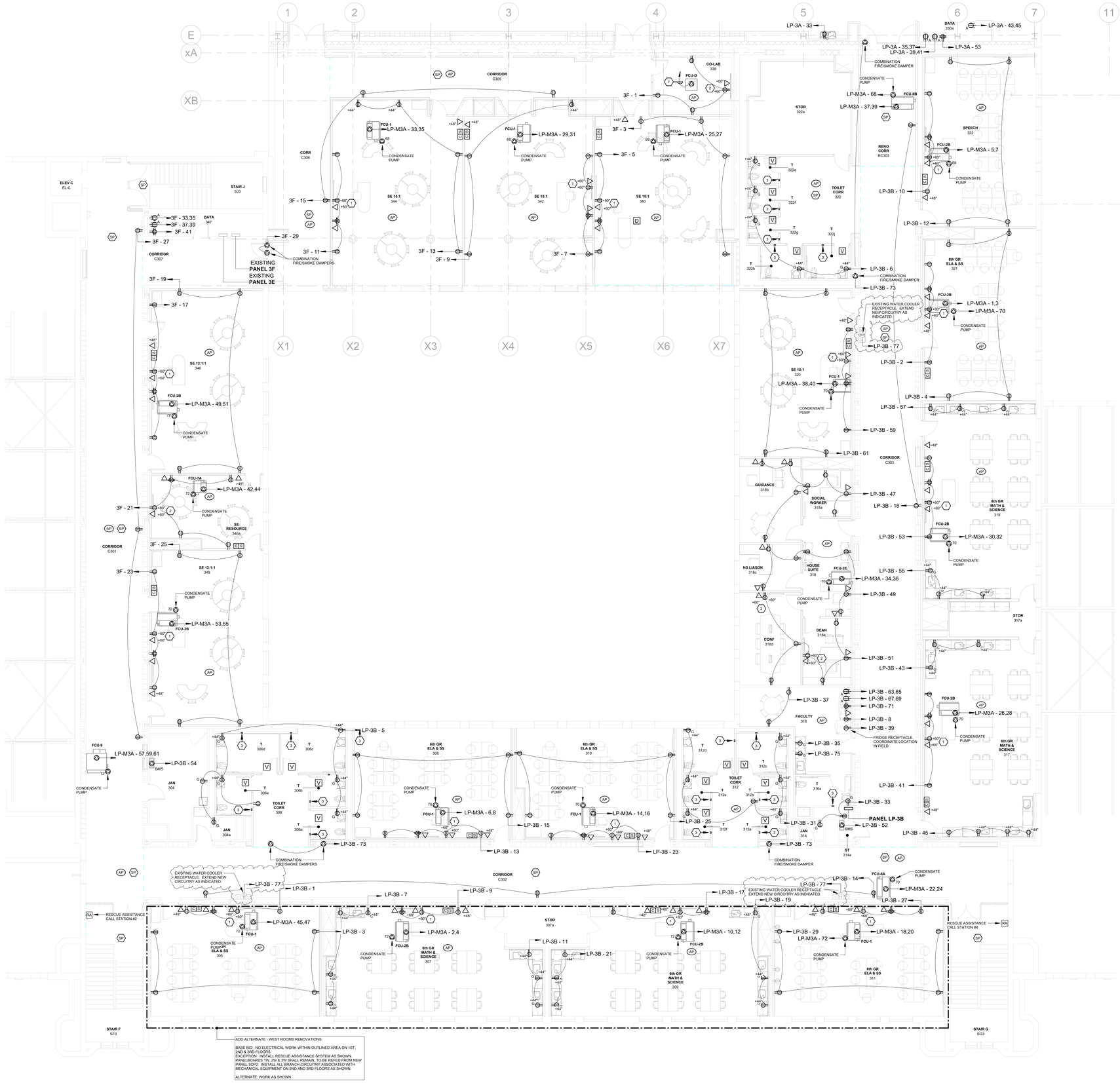
Sheet Title

**ELECTRICAL:**
SECOND FLOOR POWER PLAN - AREA S

| Job No. | Date |
|---|---|
| 2021-1087 | 09/08/2022 |
| Scale: AS NOTED | Drawn / Checked: BH/DC SZ |

Sheet Number

E202.S




1 ELECTRICAL - THIRD FLOOR POWER PLAN - AREAS N & S
1/8" = 1'-0"

NOTES:

1. ALL DISCONNECT SWITCHES SUPPLIED WITH MECHANICAL AND PLUMBING EQUIPMENT SHALL BE INSTALLED AND WIRED BY ELECTRICAL CONTRACTOR. REFER TO MECHANICAL AND PLUMBING EQUIPMENT SCHEDULES.
2. ALL DISCONNECT SWITCHES SHALL BE LABELED WITH ENGRAVED LAMACOID NAMEPLATE WITH LETTERING INDICATING CIRCUIT NUMBER AND SOURCE. FASTEN LABEL WITH SILICON ADHESIVE.
3. ALL BRANCH CIRCUITRY FEEDING ROOFTOP EQUIPMENT SHALL BE EXTENDED ABOVE CEILING AND BELOW ROOF TO PENETRATE THROUGH ROOF WITHIN EQUIPMENT OR AS CLOSE AS POSSIBLE TO EQUIPMENT. COORDINATE IN FIELD WITH MECHANICAL AND PLUMBING CONTRACTORS.
4. ALL FAN COIL UNITS (FCU) SHOWN ON PLAN SHALL BE FURNISHED WITH (2) MOTORIZED DAMPERS (BY MC). ELECTRICAL CONTRACTOR SHALL EXTEND POWER CIRCUITRY FOR FAN COIL UNIT TO EACH ASSOCIATED MOTORIZED DAMPER. COORDINATE WITH MECHANICAL CONTRACTOR.

**E203.NS POWER PLAN KEYED NOTES**

| # | NOTE TEXT |
|---|---|
| 1 | TV MONITOR LOCATION. PROVIDE AND INSTALL LEGRAND EFSB2 RECESSED AV BACK BOX WITH DATA OUTLET AND RECEPTACLE TO BE MOUNTED BEHIND MONITOR. INSTALL A RECESSED DUAL GANG METAL BOX AT 18" AFF. PROVIDE 1-1/4" EMT WITH DRAGLINE BETWEEN DUAL GANG BOX AT 18" AND A/V BOX BEHIND MONITOR AND 1-1/2" EMT WITH DRAGLINE FROM A/V BOX TO ABOVE ACCESSIBLE CEILING. VERIFY HEIGHT AND LOCATION WITH OWNER. DATA WIRNG BY OTHERS. |
| 2 | TV MONITOR LOCATION. PROVIDE AND INSTALL LEGRAND EFSB2 RECESSED AV BACK BOX WITH DATA OUTLET AND RECEPTACLE TO BE MOUNTED BEHIND MONITOR. INSTALL A RECESSED DUAL GANG METAL BOX AND A DUPLEX RECEPTACLE AT 18" AFF. PROVIDE 1-1/4" EMT WITH DRAGLINE BETWEEN DUAL GANG BOX AT 18" AND A/V BOX BEHIND MONITOR AND 1-1/2" EMT WITH DRAGLINE FROM A/V BOX TO ABOVE ACCESSIBLE CEILING. VERIFY HEIGHT AND LOCATION WITH OWNER. DATA WIRNG BY OTHERS. |
| 3 | FUTURE HAND DRYER LOCATION. INSTALL 2-GANG RECESSED METAL OUTLET BOX WITH METAL COVER PLATE AT 44" AFF. EXTEND 3/4" EMT FROM BOX TO ACCESSIBLE SPACE ABOVE CEILING. |

# TWIN TOWERS MIDDLE SCHOOL

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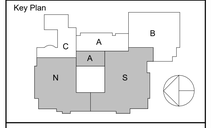
GA22017-A

NY SED PROJECT CONTROL NO.
44-10-00-01-0-001-041

CONSTRUCTION DOCUMENTS

Key Plan






Professional Seal

| No. | Date | Issue |
|---|---|---|
| 4 | 02.12/2024 | ADDENDUM 4 |
| 3 | 02/02/2024 | ADDENDUM #2 |
| 2 | 12/14/2023 | ISSUE FOR BID |
| 1 | 04/14/2023 | NYSED ISSUE |

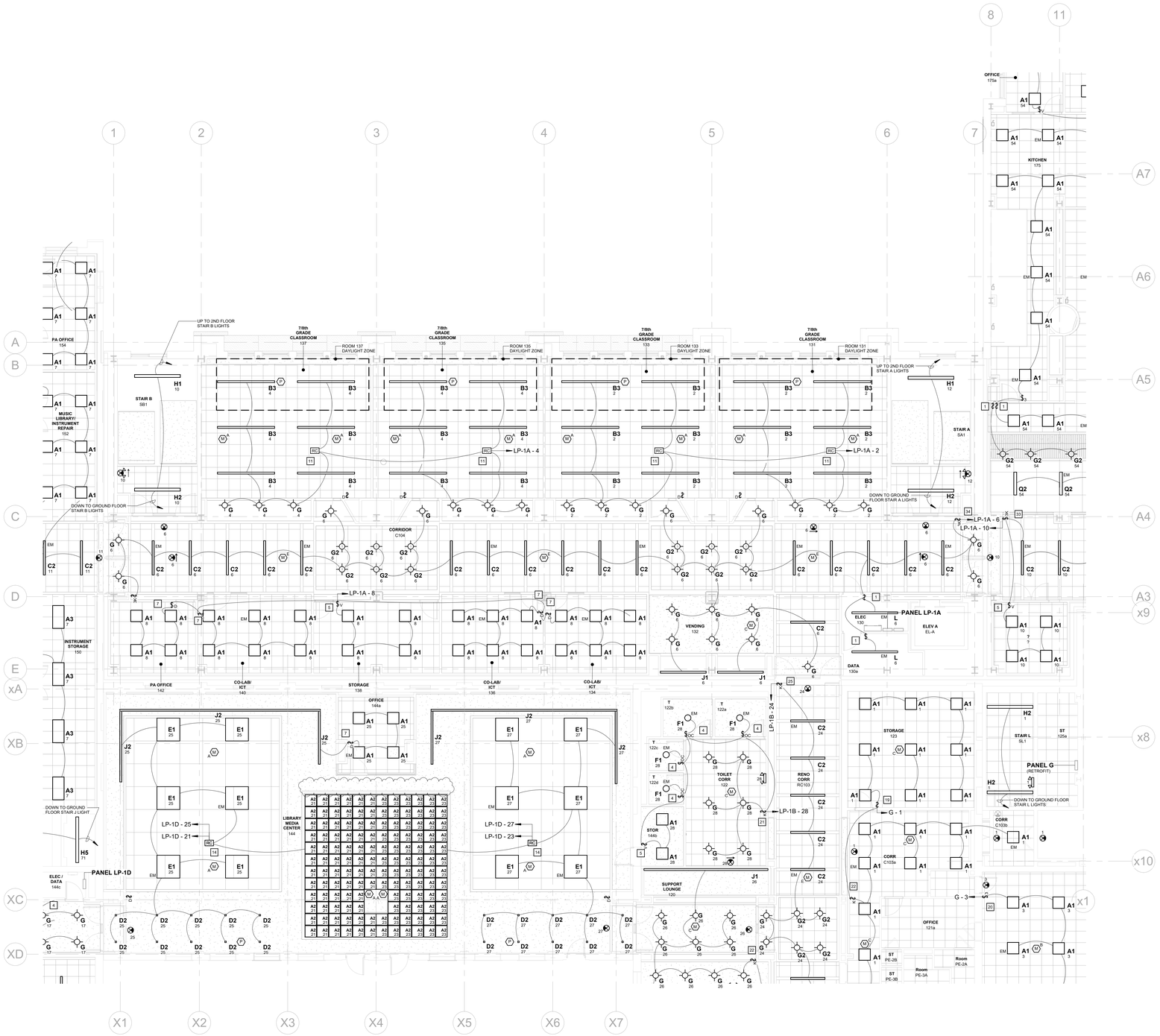
Sheet Title

**ELECTRICAL:**
THIRD FLOOR POWER PLAN - AREAS N & S

| | |
|---|---|
| Job No. 2021-1087 | Date 09/08/2022 |
| Scale AS NOTED | Drawn / Checked BH/DC SZ |

Sheet Number

# E203.NS




1 ELECTRICAL - FIRST FLOOR LIGHTING PLAN - AREA A
1/8" = 1'-0"

LIGHTING CONTROL NOTE

[#] REFER TO LIGHTING CONTROL EQUIPMENT SCHEDULE AND LIGHTING CONTROL ROOM SCHEDULE FOR SENSOR AND SWITCH PART SPECIFICATION AND OPERATION MODE.

# TWIN TOWERS MIDDLE SCHOOL

Additions & Alterations

ENLARGED CITY SCHOOL DISTRICT OF MIDDLETOWN

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Middletown, NY 10940


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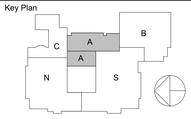
GA22017-A

NY SED PROJECT CONTROL NO.
44-10-00-01-0-001-041

CONSTRUCTION DOCUMENTS

Key Plan






Professional Seal

| No. | Date | Issue |
|---|---|---|
| 3 | 02.12.2024 | ADDENDUM 4 |
| 2 | 12/14/2023 | ISSUE FOR BID |
| 1 | 04/14/2023 | NYSED ISSUE |

Sheet Title

**ELECTRICAL:**
FIRST FLOOR LIGHTING PLAN - AREA A

| Job No. | Date |
|---|---|
| 2021-1087 | 09/08/2022 |
| Scale | Drawn / Checked |
| AS NOTED | BH/DC SZ |

Sheet Number

E301.A

## Branch Panel: LP-GRA

**Location:** ELEC G30 | **Supply From:** LDP | **Mounting:** Surface | **Enclosure:** NEMA 1 Indoor
**Volts:** 120/208 Wye | **Phases:** 3 | **Wires:** 4
**A.I.C. Rating:** 65kA | **Mains Type:** MLO | **Mains Rating:** 225 A

| NOTES | CKT NO. | CIRCUIT DESCRIPTION | CONDUCTORS | CB SIZE | POLES | A | B | C | POLES | CB SIZE | CONDUCTORS | CIRCUIT DESCRIPTION | CKT NO. | NOTES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | G33 RECEPTACLES | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | 1340 VA 194 VA | | | 1 | 20 A | (2) #12 THHN, #12 GND, 3/4" EMT | ELEVATOR PIT LIGHT AND... | 2 | |
| | 3 | G33 RECEPTACLES | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | | 720 VA 1535 VA | | 1 | 20 A | (2) #12 THHN, #12 GND, 3/4" EMT | G35, G37 LIGHTING | 4 | |
| | 5 | G33 RECEPTACLES | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | | | 720 VA 851 VA | 1 | 20 A | (2) #12 THHN, #12 GND, 3/4" EMT | G33 LIGHTING | 6 | |
| | 7 | G33 RECEPTACLES | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | 360 VA 1800 VA | | | 1 | 20 A | (2) #12 THHN, #12 GND, 3/4" EMT | C001, C002, G31 LIGHTING | 8 | |
| | 9 | G35 RECEPTACLES | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | | 1340 VA 588 VA | | 1 | 20 A | (2) #12 THHN, #12 GND, 3/4" EMT | STAIR B LIGHTING | 10 | |
| | 11 | G35 RECEPTACLES | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | | | 900 VA 807 VA | 1 | 20 A | (2) #12 THHN, #12 GND, 3/4" EMT | STAIR A LIGHTING | 12 | |
| | 13 | G35 RECEPTACLES | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | 720 VA 682 VA | | | 1 | 20 A | (2) #12 THHN, #12 GND, 3/4" EMT | C009 LIGHTING | 14 | |
| | 15 | G37 RECEPTACLES | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | | 1340 VA 400 VA | | 1 | 20 A | (2) #12 THHN, #12 GND, 3/4" EMT | ELEVATOR A SMOKE CURTAINS | 16 | |
| | 17 | G37 RECEPTACLES | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | | | 900 VA 135 VA | 1 | 20 A | (2) #12 THHN, #12 GND, 3/4" EMT | DISPLAY CASE LIGHTING | 18 | |
| | 19 | G37 RECEPTACLES | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | 720 VA 0 VA | | | 1 | 20 A | | SPARE | 20 | |
| | 21 | G31 RECEPTACLES | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | | 1420 VA 0 VA | | 1 | 20 A | | SPARE | 22 | |
| | 23 | G33b, G34 RECEPTACLES | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | | | 360 VA 0 VA | 1 | 20 A | | SPARE | 24 | |
| | 25 | G36 RECEPTACLES | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | 540 VA 0 VA | | | 1 | 20 A | | SPARE | 26 | |
| | 27 | G31 & C001 RECEPTACLES | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | | 1080 VA 0 VA | | 1 | 20 A | | SPARE | 28 | |
| | 29 | G30 & G30a RECEPTACLES | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | | | 360 VA 0 VA | 1 | 20 A | | SPARE | 30 | |
| | 31 | G32 RECEPTACLE | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | 180 VA 0 VA | | | 1 | 20 A | | SPARE | 32 | |
| | 33 | G30a DATA RACK RECEPTACLE | (2) #10 THHN, #10 GND, 3/4" EMT | 30 A | 2 | | 250 VA -- | | 1 | -- | | SPACE ONLY | 34 | |
| | 35 | | | | | | | 250 VA -- | 1 | -- | | SPACE ONLY | 36 | |
| | 37 | G30a DATA RACK RECEPTACLE | (2) #10 THHN, #10 GND, 3/4" EMT | 30 A | 2 | 250 VA -- | | | 1 | -- | | SPACE ONLY | 38 | |
| | 39 | | | | | | 250 VA -- | | 1 | -- | | SPACE ONLY | 40 | |
| | 41 | G30a DATA RACK RECEPTACLE | (2) #10 THHN, #10 GND, 3/4" EMT | 30 A | 2 | | | 250 VA -- | 1 | -- | | SPACE ONLY | 42 | |
| | 43 | | | | | 250 VA -- | | | 1 | -- | | SPACE ONLY | 44 | |
| | 45 | G30a DATA RACK RECEPTACLE | (2) #10 THHN, #10 GND, 3/4" EMT | 30 A | 2 | | 250 VA -- | | 1 | -- | | SPACE ONLY | 46 | |
| | 47 | | | | | | | 250 VA -- | 1 | -- | | SPACE ONLY | 48 | |
| | 49 | G30a DATA RACK RECEPTACLE | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | 360 VA -- | | | 1 | -- | | SPACE ONLY | 50 | |
| | 51 | G30a DATA RACK RECEPTACLE | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | | 360 VA -- | | 1 | -- | | SPACE ONLY | 52 | |
| | 53 | SPARE | | 20 A | 1 | | | 0 VA -- | 1 | -- | | SPACE ONLY | 54 | |
| | 55 | SPARE | | 20 A | 1 | 0 VA -- | | | 1 | -- | | SPACE ONLY | 56 | |
| | 57 | KILN | (2) #6 THHN, #10 GND, 1" EMT | 60 A | 2 | | 4990 VA -- | | 1 | -- | | SPACE ONLY | 58 | |
| | 59 | | | | | | | 4990 VA 1160 VA | 1 | 20 A | (2) #12 THHN, #12 GND, 3/4" EMT | G30 NAC BOOSTER PANELS | 60 | 1* |
| | | | | | | 7392 VA | 14523 VA | 11933 VA | | | | | | |
| | | | | | | 62 A | 127 A | 105 A | | | | | | |

**NOTES:**
1* - CIRCUIT BREAKER SHALL BE LOCKABLE IN THE CLOSED POSITION.

## Branch Panel: LP-GRC

**Location:** DELIVERIES G70b | **Supply From:** LDP | **Mounting:** Surface | **Enclosure:** NEMA 1 Indoor
**Volts:** 120/208 Wye | **Phases:** 3 | **Wires:** 4
**A.I.C. Rating:** 65kA | **Mains Type:** MLO | **Mains Rating:** 225 A

| NOTES | CKT NO. | CIRCUIT DESCRIPTION | CONDUCTORS | CB SIZE | POLES | A | B | C | POLES | CB SIZE | CONDUCTORS | CIRCUIT DESCRIPTION | CKT NO. | NOTES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | G70b, G72, G76 RECEPTACLES | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | 720 VA 5000 VA | | | 3 | 50 A | (3) #8 THHN, #10 GND, 1" EMT | HEATER EH-C | 2 | |
| | 3 | G70b RECEPTACLES | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | | 540 VA 5000 VA | | | | | | 4 | |
| | 5 | MOTORIZED SLIDING DOOR | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | | | 600 VA 5000 VA | | | | | 6 | |
| | 7 | AIR CURTAIN ARC-2 | (2) #12 THHN, #12 GND, 3/4" EMT | 15 A | 2 | 895 VA 5000 VA | | | 3 | 50 A | (3) #8 THHN, #10 GND, 1" EMT | HEATER EH-C | 8 | |
| | 9 | | | | | | 895 VA 5000 VA | | | | | | 10 | |
| | 11 | COILING DOOR | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | | | 373 VA 5000 VA | | | | | 12 | |
| | 13 | COILING DOOR | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | 373 VA -- | | | 1 | -- | | SPACE ONLY | 14 | |
| | 15 | HEATER EH-A | (2) #12 THHN, #12 GND, 3/4" EMT | 15 A | 2 | | 1000 VA -- | | 1 | -- | | SPACE ONLY | 16 | |
| | 17 | | | | | | | 1000 VA -- | 1 | -- | | SPACE ONLY | 18 | |
| | 19 | HEATER EH-A | (2) #12 THHN, #12 GND, 3/4" EMT | 15 A | 2 | 1000 VA -- | | | 1 | -- | | SPACE ONLY | 20 | |
| | 21 | | | | | | 1000 VA -- | | 1 | -- | | SPACE ONLY | 22 | |
| | 23 | SPARE | | 20 A | 1 | | | 0 VA -- | 1 | -- | | SPACE ONLY | 24 | |
| | 25 | SPARE | | 20 A | 1 | 0 VA -- | | | 1 | -- | | SPACE ONLY | 26 | |
| | 27 | SPARE | | 20 A | 1 | | 0 VA -- | | 1 | -- | | SPACE ONLY | 28 | |
| | 29 | SPARE | | 20 A | 1 | | | 0 VA -- | 1 | -- | | SPACE ONLY | 30 | |
| | 31 | SPARE | | 20 A | 1 | 0 VA -- | | | 1 | -- | | SPACE ONLY | 32 | |
| | 33 | SPARE | | 20 A | 1 | | 0 VA -- | | 1 | -- | | SPACE ONLY | 34 | |
| | 35 | SPACE ONLY | | -- | 1 | | | -- -- | 1 | -- | | SPACE ONLY | 36 | |
| | 37 | SPACE ONLY | | -- | 1 | -- -- | | | 1 | -- | | SPACE ONLY | 38 | |
| | 39 | SPACE ONLY | | -- | 1 | | -- -- | | 1 | -- | | SPACE ONLY | 40 | |
| | 41 | SPACE ONLY | | -- | 1 | | | -- -- | 1 | -- | | SPACE ONLY | 42 | |
| | | | | | | 12988 VA | 13435 VA | 11973 VA | | | | | | |
| | | | | | | 110 A | 113 A | 100 A | | | | | | |

**NOTES:**

## Branch Panel: LP-GRB

**Location:** ELEC G50 | **Supply From:** MDP-1 | **Mounting:** Surface | **Enclosure:** NEMA 1 Indoor
**Volts:** 120/208 Wye | **Phases:** 3 | **Wires:** 4
**A.I.C. Rating:** 65kA | **Mains Type:** MLO | **Mains Rating:** 225 A

| NOTES | CKT NO. | CIRCUIT DESCRIPTION | CONDUCTORS | CB SIZE | POLES | A | B | C | POLES | CB SIZE | CONDUCTORS | CIRCUIT DESCRIPTION | CKT NO. | NOTES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | WATER COOLER P-5 | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | 120 VA 1780 VA | | | 1 | 20 A | (2) #12 THHN, #12 GND, 3/4" EMT | G40 RECEPTACLES | 2 | |
| | 3 | G50, G52 RECEPTACLES | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | | 360 VA 540 VA | | 1 | 20 A | | G40 RECEPTACLES | 4 | |
| | 5 | G51 RECEPTACLES | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | | | 1160 VA 1600 VA | 1 | 20 A | (2) #12 THHN, #12 GND, 3/4" EMT | G40 RECEPTACLES | 6 | |
| | 7 | G51 RECEPTACLES | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | 540 VA 1600 VA | | | 1 | 20 A | (2) #12 THHN, #12 GND, 3/4" EMT | G40 RECEPTACLES | 8 | |
| | 9 | G51 COMPUTER RECEPTACLES | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | | 1200 VA 1600 VA | | 1 | 20 A | (2) #12 THHN, #12 GND, 3/4" EMT | G40 RECEPTACLES | 10 | |
| | 11 | G51 COMPUTER RECEPTACLES | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | | | 1200 VA 540 VA | 1 | 20 A | (2) #12 THHN, #12 GND, 3/4" EMT | G38 RECEPTACLES | 12 | |
| | 13 | G51 COMPUTER RECEPTACLES | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | 1600 VA 360 VA | | | 1 | 20 A | (2) #12 THHN, #12 GND, 3/4" EMT | G42b RECEPTACLES | 14 | |
| | 15 | G53 RECEPTACLES | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | | 1160 VA 360 VA | | 1 | 20 A | (2) #12 THHN, #12 GND, 3/4" EMT | G42b RECEPTACLES | 16 | |
| | 17 | G53 COMPUTER RECEPTACLES | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | | | 1600 VA 360 VA | 1 | 20 A | (2) #12 THHN, #12 GND, 3/4" EMT | G42b RECEPTACLES | 18 | |
| | 19 | G53 COMPUTER RECEPTACLES | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | 1600 VA 180 VA | | | 1 | 20 A | (2) #12 THHN, #12 GND, 3/4" EMT | G42b RECEPTACLES | 20 | |
| | 21 | G53 COMPUTER RECEPTACLES | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | | 1600 VA 360 VA | | 1 | 20 A | (2) #12 THHN, #12 GND, 3/4" EMT | G42a RECEPTACLES | 22 | |
| | 23 | G53 COMPUTER RECEPTACLES | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | | | 1600 VA 360 VA | 1 | 20 A | (2) #12 THHN, #12 GND, 3/4" EMT | G42a RECEPTACLES | 24 | |
| | 25 | G53 RECEPTACLES | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | 540 VA 360 VA | | | 1 | 20 A | (2) #12 THHN, #12 GND, 3/4" EMT | G42a RECEPTACLES | 26 | |
| | 27 | G55 RECEPTACLES | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | | 1160 VA 180 VA | | 1 | 20 A | (2) #12 THHN, #12 GND, 3/4" EMT | G42a RECEPTACLES | 28 | |
| | 29 | G55 COMPUTER RECEPTACLES | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | | | 1600 VA 180 VA | 1 | 20 A | (2) #12 THHN, #12 GND, 3/4" EMT | G40a RECEPTACLES | 30 | |
| | 31 | G55 COMPUTER RECEPTACLES | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | 1600 VA 360 VA | | | 1 | 20 A | (2) #12 THHN, #12 GND, 3/4" EMT | G42a RECEPTACLES | 32 | |
| | 33 | G55 COMPUTER RECEPTACLES | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | | 1600 VA 360 VA | | 1 | 20 A | (2) #12 THHN, #12 GND, 3/4" EMT | G42a RECEPTACLES | 34 | |
| | 35 | G55 COMPUTER RECEPTACLES | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | | | 1600 VA 360 VA | 1 | 20 A | (2) #12 THHN, #12 GND, 3/4" EMT | G42a RECEPTACLES | 36 | |
| | 37 | G55 RECEPTACLES | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | 540 VA 360 VA | | | 1 | 20 A | (2) #12 THHN, #12 GND, 3/4" EMT | G12b RECEPTACLES | 38 | |
| | 39 | G54, G56, G58 RECEPTACLES | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | | 720 VA 360 VA | | 1 | 20 A | (2) #12 THHN, #12 GND, 3/4" EMT | G12b RECEPTACLES | 40 | |
| | 41 | C006, C007, C008 RECEPTACLES | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | | | 1080 VA 360 VA | 1 | 20 A | (2) #12 THHN, #12 GND, 3/4" EMT | G12b RECEPTACLES | 42 | |
| | 43 | C005, C006 RECEPTACLES | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | 540 VA 180 VA | | | 1 | 20 A | (2) #12 THHN, #12 GND, 3/4" EMT | G12b RECEPTACLES | 44 | |
| | 45 | G50 RECEPTACLE | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | | 180 VA 250 VA | | 2 | 30 A | (2) #10 THHN, #10 GND, 3/4" EMT | G44a DATA RECEPTACLE | 46 | |
| | 47 | G42 RECEPTACLES | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | | | 1780 VA 250 VA | | | | | 48 | |
| | 49 | G42 RECEPTACLES | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | 720 VA 250 VA | | | 2 | 30 A | (2) #10 THHN, #10 GND, 3/4" EMT | G44a DATA RECEPTACLE | 50 | |
| | 51 | G42 COMPUTER RECEPTACLES | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | | 1600 VA 250 VA | | | | | | 52 | |
| | 53 | G42 COMPUTER RECEPTACLES | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | | | 1600 VA 250 VA | 2 | 30 A | (2) #10 THHN, #10 GND, 3/4" EMT | G44a DATA RECEPTACLE | 54 | |
| | 55 | G42 COMPUTER RECEPTACLES | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | 1600 VA 250 VA | | | | | | | 56 | |
| | 57 | G42 COMPUTER RECEPTACLES | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | | 1600 VA 360 VA | | 1 | 20 A | (2) #12 THHN, #12 GND, 3/4" EMT | G44a DATA RECEPTACLE | 58 | |
| | 59 | G44 RECEPTACLES | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | | | 540 VA 360 VA | 1 | 20 A | (2) #12 THHN, #12 GND, 3/4" EMT | G44a DATA RECEPTACLE | 60 | |
| | 61 | G44 RECEPTACLES | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | 540 VA 360 VA | | | 1 | 20 A | (2) #12 THHN, #12 GND, 3/4" EMT | G44a DATA RECEPTACLE | 62 | |
| | 63 | G40, G42 LIGHTING | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | | 1278 VA 0 VA | | 1 | 20 A | | SPARE | 64 | |
| | 65 | C003, G38, G44 LIGHTING | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | | | 408 VA 0 VA | 1 | 20 A | | SPARE | 66 | |
| | 67 | G51, G53, G55 LIGHTING | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | 1257 VA 0 VA | | | 1 | 20 A | | SPARE | 68 | |
| | 69 | C004 - C008 LIGHTING | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | | 1322 VA 0 VA | | 1 | 20 A | | SPARE | 70 | |
| | 71 | STAIR J LIGHTING | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | | | 509 VA 0 VA | 1 | 20 A | | SPARE | 72 | |
| | 73 | G44a DATA RECEPTACLE | (2) #10 THHN, #10 GND, 3/4" EMT | 30 A | 2 | 250 VA 0 VA | | | 1 | 20 A | | SPARE | 74 | |
| | 75 | | | | | | 250 VA 1160 VA | | 1 | 20 A | (2) #12 THHN, #12 GND, 3/4" EMT | G50 NAC BOOSTER PANELS | 76 | 1* |
| | 77 | G44a DATA RECEPTACLE | (2) #10 THHN, #10 GND, 3/4" EMT | 30 A | 2 | | | 250 VA 0 VA | 1 | 20 A | | SPARE (FUTURE HAND DRYER) | 78 | |
| | 79 | | | | | 250 VA 0 VA | | | 1 | 20 A | | SPARE (FUTURE HAND DRYER) | 80 | |
| | 81 | G44a DATA RECEPTACLE | (2) #10 THHN, #10 GND, 3/4" EMT | 30 A | 2 | | 250 VA 0 VA | | 1 | 20 A | | SPARE (FUTURE HAND DRYER) | 82 | |
| | 83 | | | | | | | 250 VA 0 VA | 1 | 20 A | | SPARE (FUTURE HAND DRYER) | 84 | |
| | | | | | | 17734 VA | 20051 VA | 19797 VA | | | | | | |
| | | | | | | 148 A | 170 A | 168 A | | | | | | |

**NOTES:**
1* - CIRCUIT BREAKER SHALL BE LOCKABLE IN THE CLOSED POSITION.

## Branch Panel: LP-3B

**Location:** ST 314a | **Supply From:** SDP2 | **Mounting:** Surface | **Enclosure:** NEMA 1 Indoor
**Volts:** 120/208 Wye | **Phases:** 3 | **Wires:** 4
**A.I.C. Rating:** 22kA | **Mains Type:** MLO | **Mains Rating:** 225 A

| NOTES | CKT NO. | CIRCUIT DESCRIPTION | CONDUCTORS | CB SIZE | POLES | A | B | C | POLES | CB SIZE | CONDUCTORS | CIRCUIT DESCRIPTION | CKT NO. | NOTES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 305 RECEPTACLES | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | 1340 VA 1340 VA | | | 1 | 20 A | (2) #12 THHN, #12 GND, 3/4" EMT | 321 RECEPTACLES | 2 | |
| | 3 | 305 RECEPTACLES | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | | 720 VA 720 VA | | 1 | 20 A | (2) #12 THHN, #12 GND, 3/4" EMT | 321 RECEPTACLES | 4 | |
| | 5 | TOILET 306 RECEPTACLES | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | | | 1440 VA 900 VA | 1 | 20 A | (2) #12 THHN, #12 GND, 3/4" EMT | TOILET 322 RECEPTACLES | 6 | |
| | 7 | 307 RECEPTACLES | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | 720 VA 180 VA | | | 1 | 20 A | (2) #12 THHN, #12 GND, 3/4" EMT | COPIER | 8 | |
| | 9 | 307 RECEPTACLES | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | | 1160 VA 1340 VA | | 1 | 20 A | (2) #12 THHN, #12 GND, 3/4" EMT | 323 RECEPTACLES | 10 | |
| | 11 | 307 RECEPTACLES | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | | | 540 VA 720 VA | 1 | 20 A | (2) #12 THHN, #12 GND, 3/4" EMT | 323 RECEPTACLES | 12 | |
| | 13 | 308 RECEPTACLES | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | 1340 VA 707 VA | | | 1 | 20 A | (2) #12 THHN, #12 GND, 3/4" EMT | C302 RECEPTACLES | 14 | |
| | 15 | 308 RECEPTACLES | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | | 720 VA 360 VA | | 1 | 20 A | (2) #12 THHN, #12 GND, 3/4" EMT | C303 RECEPTACLES | 16 | |
| | 17 | 309 RECEPTACLES | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | | | 1160 VA 0 VA | 1 | 20 A | | SPARE (FUTURE HAND DRYER) | 18 | |
| | 19 | 309 RECEPTACLES | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | 540 VA 0 VA | | | 1 | 20 A | | SPARE (FUTURE HAND DRYER) | 20 | |
| | 21 | 309 RECEPTACLES | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | | 540 VA 0 VA | | 1 | 20 A | | SPARE (FUTURE HAND DRYER) | 22 | |
| | 23 | 310 RECEPTACLES | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | | | 1340 VA 0 VA | 1 | 20 A | | SPARE (FUTURE HAND DRYER) | 24 | |
| | 25 | 310 RECEPTACLES | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | 720 VA 0 VA | | | 1 | 20 A | | SPARE (FUTURE HAND DRYER) | 26 | |
| | 27 | 311 RECEPTACLES | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | | 1340 VA 0 VA | | 1 | 20 A | | SPARE (FUTURE HAND DRYER) | 28 | |
| | 29 | 311 RECEPTACLES | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | | | 720 VA 0 VA | 1 | 20 A | | SPARE (FUTURE HAND DRYER) | 30 | |
| | 31 | TOILET 312 RECEPTACLES | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | 1260 VA 0 VA | | | 1 | 20 A | | SPARE (FUTURE HAND DRYER) | 32 | |
| | 33 | 314, 316a RECEPTACLES | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | | 540 VA 0 VA | | 1 | 20 A | | SPARE (FUTURE HAND DRYER) | 34 | |
| | 35 | 316 RECEPTACLE | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | | | 180 VA 0 VA | 1 | 20 A | | SPARE (FUTURE HAND DRYER) | 36 | |
| | 37 | 316 RECEPTACLES | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | 360 VA 0 VA | | | 1 | 20 A | | SPARE (FUTURE HAND DRYER) | 38 | |
| | 39 | 316 FRIDGE RECEPTACLE | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | | 1000 VA 0 VA | | 1 | 20 A | | SPARE (FUTURE HAND DRYER) | 40 | |
| | 41 | 317 RECEPTACLES | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | | | 1340 VA 0 VA | 1 | 20 A | | SPARE (FUTURE HAND DRYER) | 42 | |
| | 43 | 317 RECEPTACLES | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | 540 VA 0 VA | | | 1 | 20 A | | SPARE (FUTURE HAND DRYER) | 44 | |
| | 45 | 317 RECEPTACLES | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | | 720 VA 0 VA | | 1 | 20 A | | SPARE (FUTURE HAND DRYER) | 46 | |
| | 47 | 318a, 318b RECEPTACLES | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | | | 1440 VA 0 VA | 1 | 20 A | | SPARE (FUTURE HAND DRYER) | 48 | |
| | 49 | 318, 318c RECEPTACLES | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | 1260 VA 0 VA | | | 1 | 20 A | | SPARE (FUTURE HAND DRYER) | 50 | |
| | 51 | 318d, 318e RECEPTACLES | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | | 2320 VA 200 VA | | 1 | 20 A | (2) #12 THHN, #12 GND, 3/4" EMT | BMS PANEL | 52 | |
| | 53 | 319 RECEPTACLES | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | | | 1340 VA 200 VA | 1 | 20 A | (2) #12 THHN, #12 GND, 3/4" EMT | BMS PANEL | 54 | |
| | 55 | 319 RECEPTACLES | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | 540 VA 0 VA | | | 1 | 20 A | | SPARE | 56 | |
| | 57 | 319 RECEPTACLES | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | | 540 VA 0 VA | | 1 | 20 A | | SPARE | 58 | |
| | 59 | 320 RECEPTACLES | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | | | 1340 VA 0 VA | 1 | 20 A | | SPARE | 60 | |
| | 61 | 320 RECEPTACLES | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | 720 VA 0 VA | | | 1 | 20 A | | SPARE | 62 | |
| | 63 | 316 DATA RACK RECEPTACLE | (2) #10 THHN, #10 GND, 3/4" EMT | 30 A | 2 | | 250 VA 0 VA | | 1 | 20 A | | SPARE | 64 | |
| | 65 | | | | | | | 250 VA 0 VA | 1 | 20 A | | SPARE | 66 | |
| | 67 | 316 DATA RACK RECEPTACLE | (2) #10 THHN, #10 GND, 3/4" EMT | 30 A | 2 | 250 VA 1160 VA | | | 1 | 20 A | (2) #12 THHN, #12 GND, 3/4" EMT | 304, 314a NAC BOOSTER PANELS | 68 | 1* |
| | 69 | | | | | | 250 VA 1536 VA | | 1 | 20 A | (2) #12 THHN, #12 GND, 3/4" EMT | C302, C303 LIGHTING | 70 | |
| | 71 | 316 DATA RACK RECEPTACLE | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | | | 360 VA 1075 VA | 1 | 20 A | (2) #12 THHN, #12 GND, 3/4" EMT | 305,307 LIGHTING | 72 | |
| | 73 | COMBO FIRE/SMOKE... | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | 105 VA 1117 VA | | | 1 | 20 A | (2) #12 THHN, #12 GND, 3/4" EMT | 307a, 309, 311 LIGHTING | 74 | |
| | 75 | 316 RECEPTACLE | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | | 180 VA 1220 VA | | 1 | 20 A | (2) #12 THHN, #12 GND, 3/4" EMT | 306, 308,310 LIGHTING | 76 | |
| | 77 | WATER COOLERS | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | | | 874 VA 981 VA | 1 | 20 A | (2) #12 THHN, #12 GND, 3/4" EMT | 317, 317a LIGHTING | 78 | |
| | 79 | SPACE ONLY | | -- | 1 | -- 959 VA | | | 1 | 20 A | (2) #12 THHN, #12 GND, 3/4" EMT | 318, 320 LIGHTING | 80 | |
| | 81 | SPACE ONLY | | -- | 1 | | -- 1613 VA | | 1 | 20 A | (2) #12 THHN, #12 GND, 3/4" EMT | 319,321,323 LIGHTING | 82 | |
| | 83 | SPACE ONLY | | -- | 1 | | | -- 271 VA | 1 | 20 A | (2) #12 THHN, #12 GND, 3/4" EMT | 322 LIGHTING | 84 | |
| | | | | | | 15158 VA | 17268 VA | 16464 VA | | | | | | |
| | | | | | | 126 A | 146 A | 139 A | | | | | | |

**NOTES:**
1* - CIRCUIT BREAKER SHALL BE LOCKABLE IN THE CLOSED POSITION.

# TWIN TOWERS MIDDLE SCHOOL

Additions & Alterations

ENLARGED CITY SCHOOL DISTRICT OF MIDDLETOWN

112 Grand Avenue
Middletown, NY 10940


KG+D ARCHITECTS, PC
285 MAIN STREET • MOUNT KISCO, NEW YORK 10549
P: 914.666.5900 KGDARCHITECTS.COM

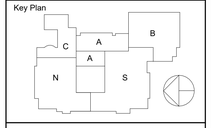
GERARD ASSOCIATES
CONSULTING ENGINEERS, D.P.C.
223 MAIN STREET, GOSHEN, NY 10924
(845) 291 1272 gerardAssociates.com


GA22017-A

NY SED PROJECT CONTROL NO.
44-10-00-01-0-001-041

CONSTRUCTION DOCUMENTS

Key Plan






Professional Seal

| No. | Date | Issue |
|---|---|---|
| 3 | 02.12.2024 | ADDENDUM 4 |
| 2 | 12/14/2023 | ISSUE FOR BID |
| 1 | 04/14/2023 | NYSED ISSUE |

Sheet Title

**ELECTRICAL:**
EQUIPMENT SCHEDULES

| Job No. | Date |
|---|---|
| 2021-1087 | 09/08/2022 |
| Scale: AS NOTED | Drawn / Checked: BH/DC SZ |

Sheet Number

E704

## Branch Panel: LP-2A

**Location:** ELEC 230
**Supply From:** LDP
**Mounting:** Surface
**Enclosure:** NEMA 1 Indoor

**Volts:** 120/208 Wye
**Phases:** 3
**Wires:** 4

**A.I.C. Rating:** 65kA
**Mains Type:** MLO
**Mains Rating:** 225 A

| NOTES | CKT NO. | CIRCUIT DESCRIPTION | CONDUCTORS | CB SIZE | POLES | A | | B | | C | | POLES | CB SIZE | CONDUCTORS | CIRCUIT DESCRIPTION | CKT NO. | NOTES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 231 RECEPTACLES | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | 1340 VA | 0 VA | | | | | 1 | 20 A | | SPARE | 2 | |
| | 3 | 231 RECEPTACLES | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | | | 1080 VA | 0 VA | | | 1 | 20 A | | SPARE | 4 | |
| | 5 | 233 RECEPTACLES | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | | | | | 1340 VA | 0 VA | 1 | 20 A | | SPARE | 6 | |
| | 7 | 233 RECEPTACLES | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | 720 VA | 0 VA | | | | | 1 | 20 A | | SPARE | 8 | |
| | 9 | 233 RECEPTACLES | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | | | 900 VA | 0 VA | | | 1 | 20 A | | SPARE | 10 | |
| | 11 | 235 RECEPTACLES | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | | | | | 1340 VA | 0 VA | 1 | 20 A | | SPARE | 12 | |
| | 13 | 235 RECEPTACLES | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | 720 VA | 0 VA | | | | | 1 | 20 A | | SPARE | 14 | |
| | 15 | 235 RECEPTACLES | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | | | 900 VA | 0 VA | | | 1 | 20 A | | SPARE | 16 | |
| | 17 | 237 RECEPTACLES | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | | | | | 1340 VA | 0 VA | 1 | 20 A | | SPARE | 18 | |
| | 19 | 237 RECEPTACLES | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | 720 VA | 0 VA | | | | | 1 | 20 A | | SPARE | 20 | |
| | 21 | 237 RECEPTACLES | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | | | 900 VA | -- | | | 1 | -- | | SPACE ONLY | 22 | |
| | 23 | 237 FRIDGE RECEPTACLE | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | | | | | 1000 VA | -- | 1 | -- | | SPACE ONLY | 24 | |
| | 25 | C204 RECEPTACLES | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | 720 VA | -- | | | | | 1 | -- | | SPACE ONLY | 26 | |
| | 27 | 230 RECEPTACLE | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | | | 360 VA | -- | | | 1 | -- | | SPACE ONLY | 28 | |
| | 29 | VENDING MACHINE RECEPTACLE | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | | | | | 1200 VA | -- | 1 | -- | | SPACE ONLY | 30 | |
| | 31 | VENDING MACHINE RECEPTACLE | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | 1200 VA | -- | | | | | 1 | -- | | SPACE ONLY | 32 | |
| | 33 | WATER COOLER P-9 | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | | | 120 VA | -- | | | 1 | -- | | SPACE ONLY | 34 | |
| | 35 | 230 DATA RACK RECEPTACLE | (2) #10 THHN, #10 GND, 3/4" EMT | 30 A | 2 | | | | | 250 VA | -- | 1 | -- | | SPACE ONLY | 36 | |
| | 37 | | | | | 250 VA | -- | | | | | 1 | -- | | SPACE ONLY | 38 | |
| | 39 | 230 DATA RACK RECEPTACLE | (2) #10 THHN, #10 GND, 3/4" EMT | 30 A | 2 | | | 250 VA | -- | | | 1 | -- | | SPACE ONLY | 40 | |
| | 41 | | | | | | | | | 250 VA | -- | 1 | -- | | SPACE ONLY | 42 | |
| | 43 | 230 DATA RACK RECEPTACLE | (2) #10 THHN, #10 GND, 3/4" EMT | 30 A | 2 | 250 VA | -- | | | | | 1 | -- | | SPACE ONLY | 44 | |
| | 45 | | | | | | | 250 VA | -- | | | 1 | -- | | SPACE ONLY | 46 | |
| | 47 | 230 DATA RACK RECEPTACLE | (2) #10 THHN, #10 GND, 3/4" EMT | 30 A | 2 | | | | | 250 VA | -- | 1 | -- | | SPACE ONLY | 48 | |
| | 49 | | | | | 250 VA | -- | | | | | 1 | -- | | SPACE ONLY | 50 | |
| | 51 | 230 DATA RACK RECEPTACLE | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | | | 360 VA | -- | | | 1 | -- | | SPACE ONLY | 52 | |
| | 53 | 230 DATA RACK RECEPTACLE | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | | | | | 360 VA | 580 VA | 1 | 20 A | (2) #12 THHN, #12 GND, 3/4" EMT | 230 NAC BOOSTER PANEL | 54 | |
| | 55 | C204 RECEPTACLES | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | 980 VA | 1109 VA | | | | | 1 | 20 A | (2) #12 THHN, #12 GND, 3/4" EMT | C204 LIGHTING | 56 | |
| | 57 | GOGGLE CASE RECEPTACLES | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | | | 540 VA | 1334 VA | | | 1 | 20 A | (2) #12 THHN, #12 GND, 3/4" EMT | 231, 233 LIGHTING | 58 | |
| | 59 | SPACE ONLY | | -- | 1 | | | | | -- | 1473 VA | 1 | 20 A | (2) #12 THHN, #12 GND, 3/4" EMT | 235, 237 LIGHTING | 60 | |
| | | | | | | 8248 VA | | 6994 VA | | 9383 VA | | | | | | | |
| | | | | | | 70 A | | 58 A | | 80 A | | | | | | | |

**NOTES:**
1* - CIRCUIT BREAKER SHALL BE LOCKABLE IN THE CLOSED POSITION.

## Branch Panel: LP-2B

**Location:** STOR 214a
**Supply From:** SDP2
**Mounting:** Surface
**Enclosure:** NEMA 1 Indoor

**Volts:** 120/208 Wye
**Phases:** 3
**Wires:** 4

**A.I.C. Rating:** 22kA
**Mains Type:** MLO
**Mains Rating:** 225 A

| NOTES | CKT NO. | CIRCUIT DESCRIPTION | CONDUCTORS | CB SIZE | POLES | A | | B | | C | | POLES | CB SIZE | CONDUCTORS | CIRCUIT DESCRIPTION | CKT NO. | NOTES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 205 RECEPTACLES | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | 1340 VA | 720 VA | | | | | 1 | 20 A | (2) #12 THHN, #12 GND, 3/4" EMT | 219e RECEPTACLES | 2 | |
| | 3 | 205 RECEPTACLES | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | | | 720 VA | 1340 VA | | | 1 | 20 A | (2) #12 THHN, #12 GND, 3/4" EMT | 220 RECEPTACLES | 4 | |
| | 5 | TOILET 206 RECEPTACLES | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | | | | | 1440 VA | 720 VA | 1 | 20 A | (2) #12 THHN, #12 GND, 3/4" EMT | 220 RECEPTACLES | 6 | |
| | 7 | 207 RECEPTACLES | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | 1160 VA | 1340 VA | | | | | 1 | 20 A | (2) #12 THHN, #12 GND, 3/4" EMT | 221 RECEPTACLES | 8 | |
| | 9 | 207 RECEPTACLES | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | | | 540 VA | 720 VA | | | 1 | 20 A | (2) #12 THHN, #12 GND, 3/4" EMT | 221 RECEPTACLES | 10 | |
| | 11 | 207 RECEPTACLES | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | | | | | 720 VA | 900 VA | 1 | 20 A | (2) #12 THHN, #12 GND, 3/4" EMT | TOILET 222 RECEPTACLES | 12 | |
| | 13 | 208 RECEPTACLES | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | 1340 VA | 180 VA | | | | | 1 | 20 A | (2) #12 THHN, #12 GND, 3/4" EMT | COPIER | 14 | |
| | 15 | 208 RECEPTACLES | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | | | 720 VA | 1340 VA | | | 1 | 20 A | (2) #12 THHN, #12 GND, 3/4" EMT | 223 RECPETACLES | 16 | |
| | 17 | 209 RECEPTACLES | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | | | | | 1160 VA | 720 VA | 1 | 20 A | (2) #12 THHN, #12 GND, 3/4" EMT | 223 RECEPTACLES | 18 | |
| | 19 | 209 RECEPTACLES | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | 540 VA | 720 VA | | | | | 1 | 20 A | (2) #12 THHN, #12 GND, 3/4" EMT | C202 RECEPTACLES | 20 | |
| | 21 | 209 RECEPTACLES | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | | | 540 VA | 360 VA | | | 1 | 20 A | (2) #12 THHN, #12 GND, 3/4" EMT | C203 RECEPTACLES | 22 | |
| | 23 | 210 RECEPTACLES | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | | | | | 1340 VA | 0 VA | 1 | 20 A | | SPARE (FUTURE HAND DRYER) | 24 | |
| | 25 | 210 RECEPTACLES | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | 720 VA | 0 VA | | | | | 1 | 20 A | | SPARE (FUTURE HAND DRYER) | 26 | |
| | 27 | 211 RECEPTACLES | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | | | 1340 VA | 0 VA | | | 1 | 20 A | | SPARE (FUTURE HAND DRYER) | 28 | |
| | 29 | 211 RECEPTACLES | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | | | | | 720 VA | 0 VA | 1 | 20 A | | SPARE (FUTURE HAND DRYER) | 30 | |
| | 31 | 212 RECEPTACLES | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | 1260 VA | 0 VA | | | | | 1 | 20 A | | SPARE (FUTURE HAND DRYER) | 32 | |
| | 33 | 213 RECEPTACLES | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | | | 1340 VA | 0 VA | | | 1 | 20 A | | SPARE (FUTURE HAND DRYER) | 34 | |
| | 35 | 213 RECEPTACLES | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | | | | | 720 VA | 0 VA | 1 | 20 A | | SPARE (FUTURE HAND DRYER) | 36 | |
| | 37 | 214 RECEPTACLES | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | 360 VA | 0 VA | | | | | 1 | 20 A | | SPARE (FUTURE HAND DRYER) | 38 | |
| | 39 | 215 RECEPTACLES | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | | | 1340 VA | 0 VA | | | 1 | 20 A | | SPARE (FUTURE HAND DRYER) | 40 | |
| | 41 | 215 RECEPTACLES | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | | | | | 720 VA | 0 VA | 1 | 20 A | | SPARE (FUTURE HAND DRYER) | 42 | |
| | 43 | 216 RECEPTACLES | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | 1340 VA | 0 VA | | | | | 1 | 20 A | | SPARE (FUTURE HAND DRYER) | 44 | |
| | 45 | 216 RECEPTACLES | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | | | 720 VA | 0 VA | | | 1 | 20 A | | SPARE (FUTURE HAND DRYER) | 46 | |
| | 47 | 217/217a RECEPTACLES | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | | | | | 720 VA | 0 VA | 1 | 20 A | | SPARE (FUTURE HAND DRYER) | 48 | |
| | 49 | 217 RECEPTACLE | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | 180 VA | 0 VA | | | | | 1 | 20 A | | SPARE (FUTURE HAND DRYER) | 50 | |
| | 51 | 217 FRIDGE RECEPTACLE | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | | | 180 VA | 0 VA | | | 1 | 20 A | | SPARE (FUTURE HAND DRYER) | 52 | |
| | 53 | 218 RECEPTACLES | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | | | | | 1520 VA | 200 VA | 1 | 20 A | (2) #10 THHN, #10 GND, 3/4" EMT | BMS PANEL | 54 | |
| | 55 | 219 RECEPTACLES | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | 1260 VA | 200 VA | | | | | 1 | 20 A | | BMS PANEL | 56 | |
| | 57 | 219a RECEPTACLES | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | | | 1340 VA | 1041 VA | | | 1 | 20 A | (2) #12 THHN, #12 GND, 3/4" EMT | WATER COOLERS | 58 | |
| | 59 | 219b RECEPTACLES | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | | | | | 900 VA | 360 VA | 1 | 20 A | (2) #12 THHN, #12 GND, 3/4" EMT | GOGGLE CASE RECEPTACLES | 60 | |
| | 61 | 219c RECEPTACLES | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | 720 VA | 90 VA | | | | | 1 | 20 A | (2) #12 THHN, #12 GND, 3/4" EMT | COMBINATION FIRE/SMOKE... | 62 | |
| | 63 | 219d RECEPTACLES | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | | | 720 VA | 1160 VA | | | 1 | 20 A | (2) #12 THHN, #12 GND, 3/4" EMT | 214a NAC BOOSTER PANELS | 64 | 1* |
| | 65 | 217b DATA RACK RECEPTACLE | (2) #10 THHN, #10 GND, 3/4" EMT | 30 A | 2 | | | | | 250 VA | 580 VA | 1 | 20 A | (2) #12 THHN, #12 GND, 3/4" EMT | 204 NAC BOOSTER PANEL | 66 | 1* |
| | 67 | | | | | 250 VA | 1113 VA | | | | | 1 | 20 A | (2) #12 THHN, #12 GND, 3/4" EMT | C202, C202b LIGHTING | 68 | |
| | 69 | 217b DATA RACK RECEPTACLE | (2) #10 THHN, #10 GND, 3/4" EMT | 30 A | 2 | | | 250 VA | 693 VA | | | 1 | 20 A | (2) #12 THHN, #12 GND, 3/4" EMT | C203 LIGHTING | 70 | |
| | 71 | | | | | | | | | 250 VA | 1220 VA | 1 | 20 A | (2) #12 THHN, #12 GND, 3/4" EMT | 204, 206, 208, 210 LIGHTING | 72 | |
| | 73 | 217b DATA RACK RECEPTACLE | (2) #10 THHN, #10 GND, 3/4" EMT | 30 A | 2 | 250 VA | 1075 VA | | | | | 1 | 20 A | (2) #12 THHN, #12 GND, 3/4" EMT | 205, 207 LIGHTING | 74 | |
| | 75 | | | | | | | 250 VA | 1117 VA | | | 1 | 20 A | (2) #12 THHN, #12 GND, 3/4" EMT | 209, 211 LIGHTING | 76 | |
| | 77 | 217b DATA RACK RECEPTACLE | (2) #10 THHN, #10 GND, 3/4" EMT | 30 A | 2 | | | | | 250 VA | 1210 VA | 1 | 20 A | (2) #12 THHN, #12 GND, 3/4" EMT | 213, 215 LIGHTING | 78 | |
| | 79 | | | | | 250 VA | 1210 VA | | | | | 1 | 20 A | (2) #12 THHN, #12 GND, 3/4" EMT | 216, 218, 220 LIGHTING | 80 | |
| | 81 | 217b DATA RACK RECEPTACLE | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | | | 360 VA | 832 VA | | | 1 | 20 A | (2) #12 THHN, #12 GND, 3/4" EMT | 217, 219 LIGHTING | 82 | |
| | 83 | 217b DATA RACK RECEPTACLE | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | | | | | 360 VA | 1277 VA | 1 | 20 A | (2) #12 THHN, #12 GND, 3/4" EMT | 223, 225 LIGHTING | 84 | |
| | | | | | | 17618 VA | | 18961 VA | | 18255 VA | | | | | | | |
| | | | | | | 147 A | | 159 A | | 153 A | | | | | | | |

**NOTES:**
1* - CIRCUIT BREAKER SHALL BE LOCKABLE IN THE CLOSED POSITION.

## Branch Panel: LP-3A

**Location:** ELEC 330
**Supply From:** LDP
**Mounting:** Surface
**Enclosure:** NEMA 1 Indoor

**Volts:** 120/208 Wye
**Phases:** 3
**Wires:** 4

**A.I.C. Rating:** 65kA
**Mains Type:** MLO
**Mains Rating:** 225 A

| NOTES | CKT NO. | CIRCUIT DESCRIPTION | CONDUCTORS | CB SIZE | POLES | A | | B | | C | | POLES | CB SIZE | CONDUCTORS | CIRCUIT DESCRIPTION | CKT NO. | NOTES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 331 RECEPTACLES | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | 1340 VA | 1000 VA | | | | | 1 | 20 A | (2) #12 THHN, #12 GND, 3/4" EMT | ELEVATOR A CAB | 2 | |
| | 3 | 331 RECEPTACLES | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | | | 1080 VA | 194 VA | | | 1 | 20 A | (2) #12 THHN, #12 GND, 3/4" EMT | ELEVATOR RECEPTACLE | 4 | |
| | 5 | 333 RECEPTACLES | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | | | | | 1340 VA | 540 VA | 1 | 20 A | (2) #12 THHN, #12 GND, 3/4" EMT | COGGLE CASE RECEPTACLES | 6 | |
| | 7 | 333 RECEPTACLES | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | 720 VA | 0 VA | | | | | 1 | 20 A | | SPARE | 8 | |
| | 9 | 333 RECEPTACLES | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | | | 900 VA | 0 VA | | | 1 | 20 A | | SPARE | 10 | |
| | 11 | 335 RECEPTACLES | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | | | | | 1340 VA | 0 VA | 1 | 20 A | | SPARE | 12 | |
| | 13 | 335 RECEPTACLES | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | 720 VA | 0 VA | | | | | 1 | 20 A | | SPARE | 14 | |
| | 15 | 335 RECEPTACLES | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | | | 900 VA | 0 VA | | | 1 | 20 A | | SPARE | 16 | |
| | 17 | 337 RECEPTACLES | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | | | | | 1340 VA | 0 VA | 1 | 20 A | | SPARE | 18 | |
| | 19 | 337 RECEPTACLES | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | 720 VA | 0 VA | | | | | 1 | 20 A | | SPARE | 20 | |
| | 21 | 337 RECEPTACLES | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | | | 900 VA | 0 VA | | | 1 | 20 A | | SPARE | 22 | |
| | 23 | C304 RECEPTACLES | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | | | | | 980 VA | 0 VA | 1 | 20 A | | SPARE | 24 | |
| | 25 | C304 RECEPTACLES | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | 720 VA | 0 VA | | | | | 1 | 20 A | | SPARE | 26 | |
| | 27 | 330 RECEPTACLE | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | | | 360 VA | -- | | | 1 | -- | | SPACE ONLY | 28 | |
| | 29 | VENDING MACHINE RECEPTACLE | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | | | | | 1200 VA | -- | 1 | -- | | SPACE ONLY | 30 | |
| | 31 | VENDING MACHINE RECEPTACLE | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | 1200 VA | -- | | | | | 1 | -- | | SPACE ONLY | 32 | |
| | 33 | WATER COOLER P-9 | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | | | 120 VA | -- | | | 1 | -- | | SPACE ONLY | 34 | |
| | 35 | 330a DATA RACK RECEPTACLE | (2) #10 THHN, #10 GND, 3/4" EMT | 30 A | 2 | | | | | 250 VA | -- | 1 | -- | | SPACE ONLY | 36 | |
| | 37 | | | | | 250 VA | -- | | | | | 1 | -- | | SPACE ONLY | 38 | |
| | 39 | 330a DATA RACK RECEPTACLE | (2) #10 THHN, #10 GND, 3/4" EMT | 30 A | 2 | | | 250 VA | -- | | | 1 | -- | | SPACE ONLY | 40 | |
| | 41 | | | | | | | | | 250 VA | -- | 1 | -- | | SPACE ONLY | 42 | |
| | 43 | 330a DATA RACK RECEPTACLE | (2) #10 THHN, #10 GND, 3/4" EMT | 30 A | 2 | 250 VA | -- | | | | | 1 | -- | | SPACE ONLY | 44 | |
| | 45 | | | | | | | 250 VA | -- | | | 1 | -- | | SPACE ONLY | 46 | |
| | 47 | 330a DATA RACK RECEPTACLE | (2) #10 THHN, #10 GND, 3/4" EMT | 30 A | 2 | | | | | 250 VA | -- | 1 | -- | | SPACE ONLY | 48 | |
| | 49 | | | | | 250 VA | -- | | | | | 1 | -- | | SPACE ONLY | 50 | |
| | 51 | 330a DATA RACK RECEPTACLE | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | | | 360 VA | -- | | | 1 | -- | | SPACE ONLY | 52 | |
| | 53 | 330a DATA RACK RECEPTACLE | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | | | | | 360 VA | -- | 1 | -- | | SPACE ONLY | 54 | |
| | 55 | 331, 333 LIGHTING | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | 1334 VA | -- | | | | | 1 | -- | | SPACE ONLY | 56 | |
| | 57 | 335, 337 LIGHTING | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | | | 1473 VA | -- | | | 1 | -- | | SPACE ONLY | 58 | |
| | 59 | C304 LIGHTING | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | | | | | 1109 VA | 580 VA | 1 | 20 A | (2) #12 THHN, #12 GND, 3/4" EMT | 330 NAC BOOSTER PANEL | 60 | 1* |
| | | | | | | 8504 VA | | 6787 VA | | 9528 VA | | | | | | | |
| | | | | | | 73 A | | 57 A | | 82 A | | | | | | | |

**NOTES:**
1* - CIRCUIT BREAKER SHALL BE LOCKABLE IN THE CLOSED POSITION.

TWIN TOWERS MIDDLE SCHOOL

Additions & Alterations

ENLARGED CITY SCHOOL DISTRICT OF MIDDLETOWN

112 Grand Avenue
Middletown, NY 10940


KG+D ARCHITECTS, PC
285 MAIN STREET • MOUNT KISCO, NEW YORK 10549
P: 914.666.5900 KGDARCHITECTS.COM

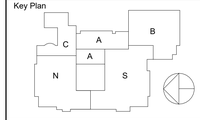
GERARD ASSOCIATES
CONSULTING ENGINEERS, D.P.C.
223 MAIN STREET, GOSHEN, NY 10924
(845) 291 1272 GerardAssociates.com


GA22017-A

NY SED PROJECT CONTROL NO.
44-10-00-01-0-001-041

CONSTRUCTION DOCUMENTS

Key Plan






Professional Seal

| No. | Date | Issue |
|---|---|---|
| 3 | 02.12/2024 | ADDENDUM 4 |
| 2 | 12/14/2023 | ISSUE FOR BID |
| 1 | 04/14/2023 | NYSED ISSUE |

Sheet Title

**ELECTRICAL:**
EQUIPMENT SCHEDULES

| Job No. | Date |
|---|---|
| 2021-1087 | 09/08/2022 |
| Scale: AS NOTED | Drawn / Checked: BH/DC SZ |

Sheet Number

E706

## Branch Panel: LP-M1B

**Location:** ELEC/ DATA 114a
**Supply From:** SDP2
**Mounting:** Surface
**Enclosure:** NEMA 1 Indoor

**Volts:** 120/208 Wye
**Phases:** 3
**Wires:** 4

**A.I.C. Rating:** 22kA
**Mains Type:** MLO
**Mains Rating:** 225 A

| NOTES | CKT NO. | CIRCUIT DESCRIPTION | CONDUCTORS | CB SIZE | POLES | A | B | C | POLES | CB SIZE | CONDUCTORS | CIRCUIT DESCRIPTION | CKT NO. | NOTES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | FCU-3A RM 101a | (2) #10 THHN, #10 GND, 3/4" EMT | 15 A | 2 | 832 VA 742 VA | | | 2 | 15 A | (3) #12 THHN, #12 GND, 3/4" EMT | ACCU-1/AC-1 | 2 | |
| | 3 | | | | | | 832 VA 742 VA | | | | | | 4 | |
| | 5 | FCU-2E RM 105 | (2) #12 THHN, #12 GND, 3/4" EMT | 15 A | 2 | | | 853 VA 832 VA | 2 | 15 A | (2) #10 THHN, #10 GND, 3/4" EMT | FCU-2C C101 | 6 | |
| | 7 | | | | | 853 VA 832 VA | | | | | | | 8 | |
| | 9 | FCU-3A RM 106 | (2) #12 THHN, #12 GND, 3/4" EMT | 15 A | 2 | | 832 VA 832 VA | | 2 | 15 A | (2) #10 THHN, #10 GND, 3/4" EMT | FCU-6A RM 116 | 10 | |
| | 11 | | | | | | | 832 VA 832 VA | | | | | 12 | |
| | 13 | FCU-1 RM 108 | (2) #12 THHN, #12 GND, 3/4" EMT | 15 A | 2 | 832 VA 832 VA | | | 2 | 15 A | (2) #10 THHN, #10 GND, 3/4" EMT | FCU-2B RM 146 | 14 | |
| | 15 | | | | | | 832 VA 832 VA | | | | | | 16 | |
| | 17 | FCU-3C RM 110 | (2) #12 THHN, #12 GND, 3/4" EMT | 15 A | 2 | | | 832 VA 832 VA | 2 | 15 A | (2) #10 THHN, #10 GND, 3/4" EMT | FCU-2B RM 148 | 18 | |
| | 19 | | | | | 832 VA 832 VA | | | | | | | 20 | |
| | 21 | FCU-6B RM 107 | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 2 | | 832 VA 1755 VA | | 2 | 25 A | (2) #10 THHN, #10 GND, 3/4" EMT | HP-D | 22 | |
| | 23 | | | | | | | 832 VA 1755 VA | | | | | 24 | |
| | 25 | FCU-6A RM 112 | (2) #12 THHN, #12 GND, 3/4" EMT | 15 A | 2 | 832 VA 832 VA | | | 2 | 15 A | (2) #12 THHN, #12 GND, 3/4" EMT | FCU-6B RM 111, 113 | 26 | |
| | 27 | | | | | | 832 VA 832 VA | | | | | | 28 | |
| | 29 | FCU-2B RM 109 | (2) #12 THHN, #12 GND, 3/4" EMT | 15 A | 2 | | | 832 VA 1647 VA | 2 | 20 A | (2) #10 THHN, #10 GND, 3/4" EMT | HP-C | 30 | |
| | 31 | | | | | 832 VA 1647 VA | | | | | | | 32 | |
| | 33 | FCU-3B RM C102 | (2) #12 THHN, #12 GND, 3/4" EMT | 15 A | 2 | | 832 VA 200 VA | | 1 | 20 A | (2) #12 THHN, #12 GND, 3/4" EMT | BMS PANEL | 34 | |
| | 35 | | | | | | | 832 VA 200 VA | 1 | 20 A | (2) #12 THHN, #12 GND, 3/4" EMT | BMS PANEL | 36 | |
| | 37 | SPARE | | 15 A | 2 | 0 VA 1000 VA | | | 2 | 15 A | (2) #12 THHN, #12 GND, 3/4" EMT | HEATER EH-A | 38 | |
| | 39 | | | | | | 0 VA 1000 VA | | | | | | 40 | |
| | 41 | SPARE | | 15 A | 2 | | | 0 VA 1041 VA | 1 | 20 A | (2) #12 THHN, #12 GND, 3/4" EMT | WATER COOLERS | 42 | |
| | 43 | | | | | 0 VA 347 VA | | | 1 | 20 A | (2) #12 THHN, #12 GND, 3/4" EMT | WATER COOLER | 44 | |
| | 45 | COMBO FIRE/SMOKE... | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | | 75 VA -- | | 1 | -- | | SPACE ONLY | 46 | |
| | 47 | (7) CONDENSATE PUMPS | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | | | 1260 VA -- | 1 | -- | | SPACE ONLY | 48 | |
| | 49 | (6) CONDENSATE PUMPS | (2) #12 THHN, #12 GND, 3/4" EMT | 20 A | 1 | 1080 VA -- | | | 1 | -- | | SPACE ONLY | 50 | |
| | 51 | SPACE ONLY | | -- | 1 | | -- -- | | 1 | -- | | SPACE ONLY | 52 | |
| | 53 | SPACE ONLY | | -- | 1 | | | -- -- | 1 | -- | | SPACE ONLY | 54 | |
| | 55 | SPACE ONLY | | -- | 1 | -- -- | | | 1 | -- | | SPACE ONLY | 56 | |
| | 57 | SPACE ONLY | | -- | 1 | | -- -- | | 1 | -- | | SPACE ONLY | 58 | |
| | 59 | SPACE ONLY | | -- | 1 | | | -- -- | 1 | -- | | SPACE ONLY | 60 | |
| | | | | | | 13156 VA | 11259 VA | 13411 VA | | | | | | |
| | | | | | | 112 A | 94 A | 114 A | | | | | | |

**NOTES:**
1* - CIRCUIT BREAKER SHALL BE LOCKABLE IN THE CLOSED POSITION.

## Branch Panel: LP-M2A

**Location:** ELEC 230
**Supply From:** LDP
**Mounting:** Surface
**Enclosure:** NEMA 1 Indoor

**Volts:** 120/208 Wye
**Phases:** 3
**Wires:** 4

**A.I.C. Rating:** 65kA
**Mains Type:** MLO
**Mains Rating:** 225 A

| NOTES | CKT NO. | CIRCUIT DESCRIPTION | CONDUCTORS | CB SIZE | POLES | A | B | C | POLES | CB SIZE | CONDUCTORS | CIRCUIT DESCRIPTION | CKT NO. | NOTES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | FCU-1 RM 231 | (2) #12 THHN, #12 GND, 3/4" EMT | 15 A | 2 | 832 VA 832 VA | | | 2 | 15 A | (2) #10 THHN, #10 GND, 3/4" EMT | FCU-7A RM 247 | 2 | |
| | 3 | | | | | | 832 VA 832 VA | | | | | | 4 | |
| | 5 | FCU-2A RM 233 | (2) #12 THHN, #12 GND, 3/4" EMT | 15 A | 2 | | | 853 VA 832 VA | 2 | 15 A | (2) #10 THHN, #10 GND, 3/4" EMT | FCU-1 RM 246 | 6 | |
| | 7 | | | | | 853 VA 832 VA | | | | | | | 8 | |
| | 9 | FCU-2A RM 235 | (2) #12 THHN, #12 GND, 3/4" EMT | 15 A | 2 | | 853 VA 832 VA | | 2 | 15 A | (2) #10 THHN, #10 GND, 3/4" EMT | FCU-1 RM 205 | 10 | |
| | 11 | | | | | | | 853 VA 832 VA | | | | | 12 | |
| | 13 | FCU-2A RM 233 | (2) #12 THHN, #12 GND, 3/4" EMT | 15 A | 2 | 853 VA 853 VA | | | 2 | 15 A | (2) #10 THHN, #10 GND, 3/4" EMT | FCU-2B RM 207 | 14 | |
| | 15 | | | | | | 853 VA 853 VA | | | | | | 16 | |
| | 17 | FCU-2C RM C204 | (2) #12 THHN, #12 GND, 3/4" EMT | 15 A | 2 | | | 832 VA 832 VA | 2 | 15 A | (2) #10 THHN, #10 GND, 3/4" EMT | FCU-1 RM 208 | 18 | |
| | 19 | | | | | 832 VA 832 VA | | | | | | | 20 | |
| | 21 | FCU-1 RM 240 | (2) #12 THHN, #12 GND, 3/4" EMT | 15 A | 2 | | 832 VA 853 VA | | 2 | 15 A | (2) #10 THHN, #10 GND, 3/4" EMT | FCU-2B RM 209 | 22 | |
| | 23 | | | | | | | 832 VA 853 VA | | | | | 24 | |
| | 25 | FCU-1 RM 242 | (2) #12 THHN, #12 GND, 3/4" EMT | 15 A | 2 | 832 VA 832 VA | | | 2 | 15 A | (2) #10 THHN, #10 GND, 3/4" EMT | FCU-1 RM 210 | 26 | |
| | 27 | | | | | | 832 VA 832 VA | | | | | | 28 | |
| | 29 | FCU-1 RM 244 | (2) #12 THHN, #12 GND, 3/4" EMT | 15 A | 2 | | | 832 VA 832 VA | 2 | 15 A | (2) #10 THHN, #10 GND, 3/4" EMT | FCU-1 RM 211 | 30 | |
| | 31 | | | | | 832 VA 832 VA | | | | | | | 32 | |
| | 33 | FCU-C RM RC203 | (2) #12 THHN, #12 GND, 3/4" EMT | 15 A | 2 | | 832 VA 853 VA | | 2 | 15 A | (2) #10 THHN, #10 GND, 3/4" EMT | FCU-8A C202 | 34 | |
| | 35 | | | | | | | 832 VA 853 VA | | | | | 36 | |
| | 37 | FCU-1 RM 223 | (2) #12 THHN, #12 GND, 3/4" EMT | 15 A | 2 | 832 VA 853 VA | | | 2 | 15 A | (2) #10 THHN, #10 GND, 3/4" EMT | FCU-2B RM 213 | 38 | |
| | 39 | | | | | | 832 VA 853 VA | | | | | | 40 | |
| | 41 | FCU-1 RM 225 | (2) #12 THHN, #12 GND, 3/4" EMT | 15 A | 2 | | | 832 VA 853 VA | 2 | 15 A | (2) #10 THHN, #10 GND, 3/4" EMT | FCU-2B RM 215 | 42 | |
| | 43 | | | | | 832 VA 853 VA | | | | | | | 44 | |
| | 45 | FCU-2B RM 201 | (2) #8 THHN, #10 GND, 3/4" EMT | 15 A | 2 | | 853 VA 281 VA | | 2 | 15 A | (2) #12 THHN, #12 GND, 3/4" EMT | FCU-A RM 219 | 46 | |
| | 47 | | | | | | | 853 VA 281 VA | | | | | 48 | |
| | 49 | FCU-2B RM 203 | (2) #8 THHN, #10 GND, 3/4" EMT | 15 A | 2 | 853 VA 832 VA | | | 2 | 15 A | (2) #12 THHN, #12 GND, 3/4" EMT | FCU-1 RM 216 | 50 | |
| | 51 | | | | | | 853 VA 832 VA | | | | | | 52 | |
| | 53 | FCU-9 RM C201 | (2) #8 THHN, #10 GND, 3/4" EMT | 20 A | 2 | | | 924 VA 832 VA | 2 | 15 A | (2) #12 THHN, #12 GND, 3/4" EMT | FCU-1 RM 218 | 54 | |
| | 55 | | | | | 924 VA 832 VA | | | | | | | 56 | |
| | 57 | FCU-1 RM 248 | (2) #10 THHN, #10 GND, 3/4" EMT | 15 A | 2 | | | 832 VA 832 VA | 2 | 15 A | (2) #12 THHN, #12 GND, 3/4" EMT | FCU-1 RM 220 | 58 | |
| | 59 | | | | | | | 832 VA 832 VA | | | | | 60 | |
| | 61 | SPARE | | 20 A | 2 | 0 VA 200 VA | | | 1 | 20 A | (2) #12 THHN, #12 GND, 3/4" EMT | BMS PANEL | 62 | |
| | 63 | | | | | | | 0 VA 900 VA | 1 | 20 A | (2) #12 THHN, #12 GND, 3/4" EMT | (5) CONDENSATE PUMPS | 64 | |
| | 65 | SPARE | | 20 A | 2 | | | 0 VA 900 VA | 1 | 20 A | (2) #12 THHN, #12 GND, 3/4" EMT | (5) CONDENSATE PUMPS | 66 | |
| | 67 | | | | | 0 VA 1260 VA | | | 1 | 20 A | (2) #12 THHN, #12 GND, 3/4" EMT | (7) CONDENSATE PUMPS | 68 | |
| | 69 | SPARE | | 20 A | 1 | | | 0 VA 1080 VA | 1 | 20 A | (2) #10 THHN, #10 GND, 3/4" EMT | (6) CONDENSATE PUMPS | 70 | |
| | 71 | SPARE | | 20 A | 1 | | | 0 VA 1080 VA | 1 | 20 A | (2) #10 THHN, #10 GND, 3/4" EMT | (6) CONDENSATE PUMPS | 72 | |
| | | | | | | 18318 VA | 18237 VA | 18287 VA | | | | | | |
| | | | | | | 153 A | 152 A | 152 A | | | | | | |

## Branch Panel: LP-M3A

**Location:** ELEC 330
**Supply From:** LDP
**Mounting:** Surface
**Enclosure:** NEMA 1 Indoor

**Volts:** 120/208 Wye
**Phases:** 3
**Wires:** 4

**A.I.C. Rating:** 65kA
**Mains Type:** MLO
**Mains Rating:** 225 A

| NOTES | CKT NO. | CIRCUIT DESCRIPTION | CONDUCTORS | CB SIZE | POLES | A | B | C | POLES | CB SIZE | CONDUCTORS | CIRCUIT DESCRIPTION | CKT NO. | NOTES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | FCU-2B RM 321 | (2) #12 THHN, #12 GND, 3/4" EMT | 15 A | 2 | 853 VA 853 VA | | | 2 | 15 A | (2) #10 THHN, #10 GND, 3/4" EMT | FCU-2B RM 307 | 2 | |
| | 3 | | | | | | 853 VA 853 VA | | | | | | 4 | |
| | 5 | FCU-2B RM 323 | (2) #12 THHN, #12 GND, 3/4" EMT | 15 A | 2 | | | 853 VA 832 VA | 2 | 15 A | (2) #10 THHN, #10 GND, 3/4" EMT | FCU-1 RM 308 | 6 | |
| | 7 | | | | | 853 VA 832 VA | | | | | | | 8 | |
| | 9 | FCU-1 RM 331 | (2) #12 THHN, #12 GND, 3/4" EMT | 15 A | 2 | | 832 VA 853 VA | | 2 | 15 A | (2) #10 THHN, #10 GND, 3/4" EMT | FCU-2B RM 309 | 10 | |
| | 11 | | | | | | | 832 VA 853 VA | | | | | 12 | |
| | 13 | FCU-2A RM 333 | (2) #12 THHN, #12 GND, 3/4" EMT | 15 A | 2 | 853 VA 832 VA | | | 2 | 15 A | (2) #10 THHN, #10 GND, 3/4" EMT | FCU-1 RM 310 | 14 | |
| | 15 | | | | | | 853 VA 832 VA | | | | | | 16 | |
| | 17 | FCU-2A RM 335 | (2) #12 THHN, #12 GND, 3/4" EMT | 15 A | 2 | | | 853 VA 832 VA | 2 | 15 A | (2) #10 THHN, #10 GND, 3/4" EMT | FCU-1 RM 311 | 18 | |
| | 19 | | | | | 853 VA 832 VA | | | | | | | 20 | |
| | 21 | FCU-2A RM 337 | (2) #12 THHN, #12 GND, 3/4" EMT | 15 A | 2 | | 853 VA 853 VA | | 2 | 15 A | (2) #10 THHN, #10 GND, 3/4" EMT | FCU-8A RM C302 | 22 | |
| | 23 | | | | | | | 853 VA 853 VA | | | | | 24 | |
| | 25 | FCU-1 RM 340, FCU-D RM 338 | (2) #12 THHN, #12 GND, 3/4" EMT | 15 A | 2 | 832 VA 853 VA | | | 2 | 15 A | (2) #12 THHN, #12 GND, 3/4" EMT | FCU-2B RM 317 | 26 | |
| | 27 | | | | | | 832 VA 853 VA | | | | | | 28 | |
| | 29 | FCU-1 RM 342 | (2) #12 THHN, #12 GND, 3/4" EMT | 15 A | 2 | | | 832 VA 853 VA | 2 | 15 A | (2) #12 THHN, #12 GND, 3/4" EMT | FCU-2B RM 319 | 30 | |
| | 31 | | | | | 832 VA 853 VA | | | | | | | 32 | |
| | 33 | FCU-1 RM 342 | (2) #12 THHN, #12 GND, 3/4" EMT | 15 A | 2 | | 832 VA 853 VA | | 2 | 15 A | (2) #12 THHN, #12 GND, 3/4" EMT | FCU-2D RM 318 | 34 | |
| | 35 | | | | | | | 832 VA 853 VA | | | | | 36 | |
| | 37 | FCU-8B RM RC303 | (2) #12 THHN, #12 GND, 3/4" EMT | 15 A | 2 | 853 VA 832 VA | | | 2 | 15 A | (2) #12 THHN, #12 GND, 3/4" EMT | FCU-1 RM 320 | 38 | |
| | 39 | | | | | | 853 VA 832 VA | | | | | | 40 | |
| | 41 | FCU-2C RM C304 | (2) #12 THHN, #12 GND, 3/4" EMT | 15 A | 2 | | | 832 VA 832 VA | 2 | 15 A | (2) #10 THHN, #10 GND, 3/4" EMT | FCU-7A RM 346a | 42 | |
| | 43 | | | | | 832 VA 832 VA | | | | | | | 44 | |
| | 45 | FCU-1 RM 305 | (2) #10 THHN, #10 GND, 3/4" EMT | 15 A | 2 | | 832 VA 1930 VA | | 2 | 25 A | (3) #10 THHN, #10 GND, 3/4" EMT | HP-D | 46 | |
| | 47 | | | | | | | 832 VA 1930 VA | | | | | 48 | |
| | 49 | FCU-2B RM 346 | (2) #10 THHN, #10 GND, 3/4" EMT | 15 A | 2 | 853 VA 1930 VA | | | 2 | 25 A | (3) #10 THHN, #10 GND, 3/4" EMT | HP-D | 50 | |
| | 51 | | | | | | 853 VA 1930 VA | | | | | | 52 | |
| | 53 | FCU-2B RM 348 | (2) #10 THHN, #10 GND, 3/4" EMT | 15 A | 2 | | | 853 VA 1930 VA | 2 | 25 A | (3) #10 THHN, #10 GND, 3/4" EMT | HP-D | 54 | |
| | 55 | | | | | 853 VA 1930 VA | | | | | | | 56 | |
| | 57 | FCU-9 RM C301 | (3) #10 THHN, #10 GND, 3/4" EMT | 15 A | 3 | | 1066 VA 742 VA | | 2 | 15 A | (3) #12 THHN, #10 GND, 3/4" EMT | ACCU-1/AC-1 | 58 | |
| | 59 | | | | | | | 1066 VA 742 VA | | | | | 60 | |
| | 61 | | | | | 1066 VA 742 VA | | | 2 | 15 A | (3) #12 THHN, #10 GND, 3/4" EMT | ACCU-1/AC-1 | 62 | |
| | 63 | ACCU-1/AC-1 | (3) #12 THHN, #10 GND, 3/4" EMT | 15 A | 2 | | 742 VA 742 VA | | | | | | 64 | |
| | 65 | | | | | | | 742 VA 900 VA | 1 | 20 A | (2) #12 THHN, #12 GND, 3/4" EMT | (5) CONDENSATE PUMPS | 66 | |
| | 67 | ACCU-1/AC-1 | (3) #12 THHN, #12 GND, 3/4" EMT | 15 A | 2 | 742 VA 900 VA | | | 1 | 20 A | (2) #12 THHN, #12 GND, 3/4" EMT | (5) CONDENSATE PUMPS | 68 | |
| | 69 | | | | | | 742 VA 1440 VA | | 1 | 20 A | (2) #12 THHN, #12 GND, 3/4" EMT | (8) CONDENSATE PUMPS | 70 | |
| | 71 | EF-7, EF-9, EF-13 | (2) #12 THHN, #12 GND, 3/4" EMT | 15 A | 1 | | | 336 VA 1440 VA | 1 | 20 A | (2) #10 THHN, #10 GND, 3/4" EMT | (8) CONDENSATE PUMPS | 72 | |
| | 73 | ACCU-1/AC-1 | (3) #10 THHN, #10 GND, 3/4" EMT | 15 A | 2 | 742 VA 200 VA | | | 1 | 20 A | (2) #10 THHN, #10 GND, 3/4" EMT | BMS PANEL | 74 | |
| | 75 | | | | | | 742 VA 1000 VA | | | | | | 76 | |
| | 77 | HP-A | (3) #8 THHN, #10 GND, 3/4" EMT | 35 A | 2 | | | 1976 VA 1000 VA | 2 | 15 A | (2) #12 THHN, #12 GND, 3/4" EMT | HEATER EH-A | 78 | |
| | 79 | | | | | 1976 VA 1000 VA | | | | | | | 80 | |
| | 81 | HVAC SERVICE RECEPTACLES | (2) #10 THHN, #10 GND, 3/4" EMT | 20 A | 1 | | 360 VA 1000 VA | | 2 | 15 A | (2) #12 THHN, #12 GND, 3/4" EMT | HEATER EH-A | 82 | |
| | 83 | HVAC SERVICE RECEPTACLES | (2) #10 THHN, #10 GND, 3/4" EMT | 20 A | 1 | | | 360 VA -- | 1 | -- | | SPACE ONLY | 84 | |
| | | | | | | 26410 VA | 25953 VA | 25899 VA | | | | | | |
| | | | | | | 220 A | 216 A | 216 A | | | | | | |

# TWIN TOWERS MIDDLE SCHOOL

Additions & Alterations

ENLARGED CITY SCHOOL DISTRICT OF MIDDLETOWN

112 Grand Avenue
Middletown, NY 10940


KG+D ARCHITECTS, PC
285 MAIN STREET • MOUNT KISCO, NEW YORK 10549
P: 914.666.5900 KGDARCHITECTS.COM

GERARD ASSOCIATES
CONSULTING ENGINEERS, D.P.C.
223 MAIN STREET, GOSHEN, NY 10924
(845) 291 1272 GerardAssociates.com


GA22017-A

NY SED PROJECT CONTROL NO.
44-10-00-01-0-001-041

CONSTRUCTION DOCUMENTS

Key Plan




Professional Seal

| No. | Date | Issue |
|---|---|---|
| 4 | 02.12 /2024 | ADDENDUM 4 |
| 3 | 02/02/2024 | ADDENDUM #2 |
| 2 | 12/14/2023 | ISSUE FOR BID |
| 1 | 04/14/2023 | NYSED ISSUE |

Sheet Title

**ELECTRICAL:**
EQUIPMENT SCHEDULES

| | |
|---|---|
| Job No. 2021-1087 | Date 09/08/2022 |
| Scale AS NOTED | Drawn / Checked BH/DC SZ |

Sheet Number

E708