

February 17, 2022

**UV REPLACEMENT AT HAVERSTRAW ELEMENTARY SCHOOL**

**MSA File No. 41048**

**North Rockland High School**

**SED No. 50-02-01-06-0-009-018**

**NOTICE TO BIDDERS**

**Re: ADDENDUM NO. 7**

**THE FOLLOWING REVISIONS TO THE PROJECT MANUAL AND OR THE DRAWINGS REFERENCED HEREIN SHALL BECOME A PART OF THE CONTRACT DOCUMENTS AND SHALL SUPERSEDE ANY PRIOR OR CONFLICTING INFORMATION.**

- 1) SEALED BIDS will be received until 2:00 P.M. in the office of facilities, on the 24<sup>th</sup> of February 2022, at the North Rockland Central School District, 65 Chapel Street, Garnerville, NY 10923, at which time and place they will be publicly opened and read. Faxed bids will NOT be accepted. Bids must be in sealed envelope(s) approximately labeled with the following label:  
“UV Replacement at Haverstraw Elementary School – General Construction”  
“UV Replacement at Haverstraw Elementary School – Mechanical Construction”  
“UV Replacement at Haverstraw Elementary School – Electrical Construction”
- 2) A site inspection and pre-bidders' conference has been scheduled promptly at 10:00AM on the 22nd day of February, at Haverstraw Elementary School, 16 Grant Street, Haverstraw, NY 10923.
- 3) Alternate No. 4 has been added to the project. Alternate No. 4 replaces the wood line set enclosures with gypsum line set enclosures. Please refer to detail 4/A-503 Line Set Enclosure – Detail. See attached revised drawing A-000 Cover Sheet, and specification sections 003000G Bid Form and 012300 Alternates dated 02-17-22. Remove originals and replace with attached.
- 4) Alternate No. 5 has been added to the project. Alternate No. 5 steam coils for units labeled HC-2A/2B and HC-3A/3B shall have steam coils shipped loose and field installed in supply ductwork. See attached revised drawing M-002, M-103, M-104 and M-303, and specification sections 003000G Bid Form and 012300 Alternates dated 02-17-22. Remove originals and replace with attached.
- 5) Paint finishes. Drawings A-500, A-502 and A-503 have been revised to apply PT1 at all new surfaces and disturbed areas. See attached revised drawings A-500, A-502 and A-503 dated 02-17-22. Remove originals and replace with attached.
- 6) Electrical drawings have been revised. Base bid work has been revised to provide a new electric panel on the second floor. See attached revised drawings E-101, E-102, E-103, E-104 and E-201 dated 02-17-22. Remove originals and replace with attached.
- 7) Mechanical drawings have been revised. Base bid work has been revised to incorporate the use of either Trane or Daiken or approved equal. Humidity sensor added to all new UV locations. See attached revised drawings M-002, M-003, M-004 and M-006, dated 02-17-22. Remove originals and replace with attached.

END OF ADDENDUM NO. 7

C:\Users\alazaro\Dropbox (MSA LLP)\- M DRIVE\2021\41048 UV Replacement at Hav Elementary\6BN\Addenda\Addendum No. 7\41048 Addendum No 7.doc

PART 1 - GENERAL

1.01 GENERAL

- A. Pursuant to, and in compliance with, your Advertisement for Bids and the Information to Bidders relative thereto and all of the Contract Documents, including any Addenda issued by the Architect and mailed to the undersigned prior to the opening Bids, whether received by the undersigned or not, we

\_\_\_\_\_ (CONTRACTOR NAME)

hereby proposes to furnish all plant, labor, supplies, materials, and equipment for UV Replacement at Haverstraw Elementary School – General Construction, as required by and in strict accord with the applicable provisions of the Drawings and Specifications entitled “UV Replacement at Haverstraw Elementary School – General Construction at Haverstraw Elementary School, 16 Grant Street, Haverstraw, NY 10927 for the North Rockland Central School District, 65 Chapel Street, Garnerville, NY 10923 ", all to the satisfaction and approval of the Architect and the Owner in accordance with the terms and conditions of the Contract Documents for the following prices:

1. \_\_\_\_\_ Dollars

(Write out in words)

( \_\_\_\_\_ ) Base Bid for all work.

\_\_\_\_\_ Consecutive Calendar Days for substantial completion \_\_\_\_\_ with base bid.

The undersigned further proposes and agrees hereby to commence work with an adequate force and equipment immediately after being notified in writing to do so, and to achieve substantial completion for all work as required by the plans and specifications within the number of consecutive calendar days as itemized above.

- A. UV Replacement at Haverstraw Elementary School

Total Project General Construction (\$ \_\_\_\_\_)

- B. ALTERNATES

The undersigned further proposes and agrees that, should any of the following alternates be accepted and included in the Contract, the amount of the Base Bid, is hereto stated, shall be increased or decreased by the amounts indicated below.

Alternate No. 1

Work phasing. Phase A to be in summer of 2022 and phase B to be in summer of 2023. See architectural and mechanical floor plans for phase A and phase B locations. (Indicate add or deduct amount to Base Bid.)

(\$ \_\_\_\_\_)

Alternate No. 2

Work phasing. Phase A to be in summer of 2022 and phase B to be during fall of 2022 2nd shift. See architectural and mechanical floor plans for phase A and phase B locations. (Indicate add or deduct amount to Base Bid.)

(\$ \_\_\_\_\_)

Alternate No. 3

Not Used

(\$ \_\_\_\_\_)

Alternate No. 4  
 Gypsum Line Set Enclosures. Line set enclosures to be made of gypsum instead of wood at all locations. See detail 4/A-503.  
 (deduct amount to Base Bid.) (\$ \_\_\_\_\_)

Alternate No. 5  
 Not Used (\$ \_\_\_\_\_)

C. ALLOWANCES

The undersigned further proposes and agrees that, should any of the following alternates be accepted and included in the Contract, the amount of the Base Bid, is hereto stated, shall be increased or decreased by the amounts indicated below.

Allowance No. 1  
 Not used. (\$ \_\_\_\_\_)

Allowance No. 2  
 Not used. (\$ \_\_\_\_\_)

Allowance No. 3  
 Not used. (\$ \_\_\_\_\_)

Allowance No. 4  
 Not used. (\$ \_\_\_\_\_)

Allowance No. 5:  
 Contractors to include allowance for LF of line set enclosure noted on drawings.  
 Adjustment to increase/decrease the LF will be in Unit Price No. 1. (\$ \_\_\_\_\_)

Allowance No. 6:  
 Not used. (\$ \_\_\_\_\_)

Allowance No. 7:  
 Not used. (\$ \_\_\_\_\_)

1.02 TIME OF COMPLETION

A. It is agreed by the undersigned that after receipt of Notice of Award and a consummation of a Contract Agreement in accord with the terms of the Contract Documents, he will start work on June 27, 2022. Substantial completion will be August 19, 2022. The punch list work will be completed by September 16, 2022 and performed after school hours.

1.03 BID SECURITY

A. Attached hereto is Bid Security in the amount of five percent (5%) of the Base Bid.

1.04 UNIT PRICES

- A. Unit Price No. 1: Provide unit price to increase or reduce by 10<sup>-0</sup> the line set enclosure. (\$ \_\_\_\_\_)
- B. Unit Price No. 2: Provide unit price per square foot of VCT replacement. (\$ \_\_\_\_\_)
- C. Unit Price No. 3: Provide a unit price for linear feet of wood base replacement. (\$ \_\_\_\_\_)
- D. Unit Price No. 4: Not used (\$ \_\_\_\_\_)
- E. Unit Price No. 5: Not used (\$ \_\_\_\_\_)

1.06 NON-COLLUSIVE BIDDING CERTIFICATION

A. By submission of this bid, each bidder and each person signing on behalf of any bidder certifies, and in the case of a joint bid each party thereto certifies as to its own organization, under penalty of perjury, that to the best of knowledge and belief:

- 1. The prices in this bid have been arrived at independently without collusion, consultation, communication, or agreement, for the purpose of restricting competition, as to any matter relating to such prices with any other bidder or with any competitor.
- 2. Unless otherwise required by law, the prices which have been quoted in this bid have not been knowingly disclosed by the bidder and will not knowingly be disclosed by the bidder prior to opening, directly or indirectly, to any other bidder or to any competitor; and
- 3. No attempt has been made or will be made by the bidder to induce any other person, partnership or corporation to submit or not submit a bid for the purpose of restricting competition.

Resolved that \_\_\_\_\_  
(Name of Individual)

be authorized to sign and submit the bid or proposal of this corporation for the following project \_\_\_\_\_ and to include in such bid or proposal the certificate as to non-collusion required by Section One Hundred Three (d) (103d) of the General Municipal Law as the act and deed of such corporation, and for any inaccuracies or misstatements in such certificate this corporate bidder shall be liable under the penalty of perjury.

The foregoing is a true and correct cop of the resolution by \_\_\_\_\_  
Corporation at a meeting of its Board of Directors held on the \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_.

(SEAL OF THE CORPORATION)

\_\_\_\_\_  
Secretary

1.07 ACCEPTANCE

A. When this Proposal is accepted, the undersigned agrees to enter into Contract with the Owner as provided in the Form of Agreement.

1.08 AFFIRMS

A. The undersigned affirms and agrees that this Proposal is a firm one which remains in effect and will be irrevocable for a period of forty-five (45) days after opening of Bids.

1.09 TYPE OF BUSINESS

A. The undersigned hereby represents that it is a \_\_\_\_\_ (Corporation, Partnership, or an Individual). If a Corporation, then the undersigned further represents that it is duly qualified as a Corporation under laws of New York State and it is authorized to do business in this State.

1.10 PLACE OF BUSINESS

A. The following is the name and address of the person to whom all notices required in the connection with this Proposal may be telephoned, mailed or delivered.

\_\_\_\_\_  
(Name)

\_\_\_\_\_  
(Address)

\_\_\_\_\_  
(Telephone)

1.11 EXECUTION OF CONTRACT

A. When written Notice of Acceptance of the Proposal is mailed or delivered to the undersigned within forty-five (45) days after the opening of Bids, or anytime thereafter should the Proposal not be withdrawn, the undersigned, within ten (10) days, will execute the Form of Agreement with the Owner.

1.12 ADDENDA

A. Any Addenda issued by the Architect and mailed or delivered to the undersigned prior to the Bid opening date shall become part of the Contract Documents. The Bidder shall enter on this list any addenda issued after this Form of Proposal has been received and shall fill in the addenda number and date.

Addendum # _____	Dated _____

1.13 ASBESTOS

A. The Contractor certifies that no asbestos or asbestos-containing material will be incorporated into the Work of this Contract.

(Sign Bid Here)

Dated \_\_\_\_\_, 20\_\_\_\_  
\_\_\_\_\_  
Legal Name of Person, Partnership  
or Corporation

By \_\_\_\_\_

Title \_\_\_\_\_

Address \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

PART 1 - GENERAL

1.01 GENERAL

- A. Pursuant to, and in compliance with, your Advertisement for Bids and the Information to Bidders relative thereto and all of the Contract Documents, including any Addenda issued by the Architect and mailed to the undersigned prior to the opening Bids, whether received by the undersigned or not, we

\_\_\_\_\_ (CONTRACTOR NAME)

hereby proposes to furnish all plant, labor, supplies, materials, and equipment for UV Replacement at Haverstraw Elementary School – Mechanical, as required by and in strict accord with the applicable provisions of the Drawings and Specifications entitled “UV Replacement at Haverstraw Elementary School – Mechanical at Haverstraw Elementary School, 16 Grant Street, Haverstraw, NY 10927 for the North Rockland Central School District, 65 Chapel Street, Garnerville, NY 10923”, all to the satisfaction and approval of the Architect and the Owner in accordance with the terms and conditions of the Contract Documents for the following prices:

1. \_\_\_\_\_ Dollars  
 (Write out in words)  
 ( \_\_\_\_\_ ) Base Bid for all work.

\_\_\_\_\_ Consecutive Calendar Days for substantial completion \_\_\_\_\_ with base bid.

The undersigned further proposes and agrees hereby to commence work with an adequate force and equipment immediately after being notified in writing to do so, and to achieve substantial completion for all work as required by the plans and specifications within the number of consecutive calendar days as itemized above.

- A. UV Replacement at Haverstraw Elementary School

Total Project Mechanical Construction (\$ \_\_\_\_\_)

- B. ALTERNATES

The undersigned further proposes and agrees that, should any of the following alternates be accepted and included in the Contract, the amount of the Base Bid, is hereto stated, shall be increased, or decreased by the amounts indicated below.

Alternate No. 1

Work phasing. Phase A to be in summer of 2022 and phase B to be in summer of 2023. See architectural and mechanical floor plans for phase A and phase B locations.  
 (Indicate add or deduct amount to Base Bid.)

(\$ \_\_\_\_\_)

Alternate No. 2

Work phasing. Phase A to be in summer of 2022 and phase B to be during fall of 2022 2nd shift. See architectural and mechanical floor plans for phase A and phase B locations.  
 (Indicate add or deduct amount to Base Bid.)

(\$ \_\_\_\_\_)

Alternate No. 3

Not Used

(\$ \_\_\_\_\_)

Alternate No. 4  
Not Used (\$ \_\_\_\_\_)

Alternate No. 5  
Steam coils for units labeled HC-2A/2B and HC-3A/3B shall have steam coils shipped loose and field installed in supply ductwork (deduct amount to Base Bid.) (\$ \_\_\_\_\_)

C. ALLOWANCES

The undersigned further proposes and agrees that, should any of the following alternates be accepted and included in the Contract, the amount of the Base Bid, is hereto stated, shall be increased, or decreased by the amounts indicated below.

Allowance No. 1: Unit-Cost, Clean Existing Main Ductwork. Provide allowance to clean existing main ductwork for 20 linear feet per unit. (\$ \_\_\_\_\_)

Allowance No. 2: Unit Cost Allowance: Replace Existing Supply and Return Steam Piping and Insulation. Provide Allowance to replace existing supply and return steam piping and insulation for 20 linear feet per unit. (\$ \_\_\_\_\_)

Allowance No. 3: Commissioning Allowance: Provide a proposal from a third-party HVAC Commissioning Agent Contractor is to include this amount in their base bid. Contractor will issue a credit change order to the Owner for the commissioning proposal amount. Owner will contract directly with the commissioning agent. (\$ \_\_\_\_\_)

Allowance No. 4: Not used (\$ \_\_\_\_\_)

Allowance No. 5: Not used (\$ \_\_\_\_\_)

Allowance No. 6: Contractor shall include in their bid an allowance 10' of piping/insulation for each UV and 20' at each RTU. See drawings 3/M-501 and 4/M-501. Adjustment to increase/decrease the LF will be in Unit Price No. 5. (\$ \_\_\_\_\_)

Allowance No. 7: Not used (\$ \_\_\_\_\_)

1.02 TIME OF COMPLETION

A. It is agreed by the undersigned that after receipt of Notice of Award and a consummation of a Contract Agreement in accord with the terms of the Contract Documents, he will start work on June 27, 2022. Substantial completion will be August 19, 2022. The punch list work will be completed by September 16, 2022 and performed after school hours.

1.03 BID SECURITY

A. Attached hereto is Bid Security in the amount of five percent (5%) of the Base Bid.

1.04 UNIT PRICES

A. Unit Price No. 1: Not used (\$ \_\_\_\_\_)

- B. Unit Price No. 2: Not used (\$ \_\_\_\_\_)
- C. Unit Price No. 3: Not used (\$ \_\_\_\_\_)
- D. Unit Price No. 4: Not used (\$ \_\_\_\_\_)
- E. Unit Price No. 5: Provide unit price to increase or reduce by 10'- 0" of piping/insulation. (\$ \_\_\_\_\_)

1.06 NON-COLLUSIVE BIDDING CERTIFICATION

A. By submission of this bid, each bidder and each person signing on behalf of any bidder certifies, and in the case of a joint bid each party thereto certifies as to its own organization, under penalty of perjury, that to the best of knowledge and belief:

- 1. The prices in this bid have been arrived at independently without collusion, consultation, communication, or agreement, for the purpose of restricting competition, as to any matter relating to such prices with any other bidder or with any competitor.
- 2. Unless otherwise required by law, the prices which have been quoted in this bid have not been knowingly disclosed by the bidder and will not knowingly be disclosed by the bidder prior to opening, directly or indirectly, to any other bidder or to any competitor; and
- 3. No attempt has been made or will be made by the bidder to induce any other person, partnership or corporation to submit or not submit a bid for the purpose of restricting competition.

Resolved that \_\_\_\_\_  
(Name of Individual)

be authorized to sign and submit the bid or proposal of this corporation for the following project \_\_\_\_\_ and to include in such bid or proposal the certificate as to non-collusion required by Section One Hundred Three (d) (103d) of the General Municipal Law as the act and deed of such corporation, and for any inaccuracies or misstatements in such certificate this corporate bidder shall be liable under the penalty of perjury.

The foregoing is a true and correct cop of the resolution by \_\_\_\_\_  
Corporation at a meeting of its Board of Directors held on the \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_.

(SEAL OF THE CORPORATION)

\_\_\_\_\_  
Secretary

1.07 ACCEPTANCE

A. When this Proposal is accepted, the undersigned agrees to enter into Contract with the Owner as provided in the Form of Agreement.

1.08 AFFIRMS

A. The undersigned affirms and agrees that this Proposal is a firm one which remains in effect and will be irrevocable for a period of forty-five (45) days after opening of Bids.

1.09 TYPE OF BUSINESS

A. The undersigned hereby represents that it is a \_\_\_\_\_

(Corporation, Partnership, or an Individual). If a Corporation, then the undersigned further represents that it is duly qualified as a Corporation under laws of New York State and it is authorized to do business in this State.

1.10 PLACE OF BUSINESS

- A. The following is the name and address of the person to whom all notices required in the connection with this Proposal may be telephoned, mailed or delivered.

\_\_\_\_\_  
(Name)

\_\_\_\_\_  
(Address)

\_\_\_\_\_  
(Telephone)

1.11 EXECUTION OF CONTRACT

- A. When written Notice of Acceptance of the Proposal is mailed or delivered to the undersigned within forty-five (45) days after the opening of Bids, or anytime thereafter should the Proposal not be withdrawn, the undersigned, within ten (10) days, will execute the Form of Agreement with the Owner.

1.12 ADDENDA

- A. Any Addenda issued by the Architect and mailed or delivered to the undersigned prior to the Bid opening date shall become part of the Contract Documents. The Bidder shall enter on this list any addenda issued after this Form of Proposal has been received and shall fill in the addenda number and date.

Addendum # _____	Dated _____

1.13 ASBESTOS

- A. The Contractor certifies that no asbestos or asbestos-containing material will be incorporated into the Work of this Contract.

(Sign Bid Here)

Dated \_\_\_\_\_, 20\_\_\_\_

\_\_\_\_\_  
Legal Name of Person, Partnership  
or Corporation

By \_\_\_\_\_

Title \_\_\_\_\_

Address \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

## SECTION 012300 - ALTERNATES

## PART 1 - GENERAL

## 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

## 1.2 SUMMARY

- A. Section includes administrative and procedural requirements for alternates.

## 1.3 DEFINITIONS

- A. Alternate: An amount proposed by bidders and stated on the Bid Form for certain work defined in the bidding requirements that may be added to or deducted from the base bid amount if the Owner decides to accept a corresponding change either in the amount of construction to be completed or in the products, materials, equipment, systems, or installation methods described in the Contract Documents.
  - 1. Alternates described in this Section are part of the Work only if enumerated in the Agreement.
  - 2. The cost or credit for each alternate is the net addition to or deduction from the Contract Sum to incorporate alternates into the Work. No other adjustments are made to the Contract Sum.

## 1.4 PROCEDURES

- A. Coordination: Revise or adjust affected adjacent work as necessary to completely integrate work of the alternate into Project.
  - 1. Include, as part of each alternate, miscellaneous devices, accessory objects, and similar items incidental to or required for a complete installation, whether or not indicated as part of alternate.
- B. Execute accepted alternates under the same conditions as other Work of the Contract.
- C. Schedule: A Part 3 "Schedule of Alternates" Article is included at the end of this Section. Specification Sections referenced in schedule contain requirements for materials necessary to achieve the work described under each alternate.

## PART 2 - PRODUCTS (Not Used)

## PART 3 - EXECUTION

## 3.1 SCHEDULE OF ALTERNATES

- A. Alternate No. 1: Work phasing. Phase A will begin on site on June 2022 and complete by August 2022, and Phase B begin on site on June 2023 and complete by August 2023. Phase A will include the work related to the mechanical installation in the Western portion of the building (containing the three floors of classrooms), and any additional GC work not related to installation of mechanical equipment. Phase B will include the work related to the mechanical installation in the Eastern portion of the building (containing the gymnasium, auditorium, and locker rooms). Refer to

drawings A-000, A-101, A-102, A-103, A-104, M-101, M-102, M-103 and M-104 dated 01-24-22 for additional location information.

- B. Alternate No. 2: Work phasing. Phase A will begin on site on June 2022 and complete by August 2022, and Phase B as second shift work starting in September 2022. Phase A will include the work related to the mechanical installation in the Western portion of the building (containing the three floors of classrooms), and any additional GC work not related to installation of mechanical equipment. Phase B will include the work related to the mechanical installation in the Eastern portion of the building (containing the gymnasium, auditorium, and locker rooms). Refer to drawings A-000, A-101, A-102, A-103, A-104, M-101, M-102, M-103 and M-104 dated 01-24-22 for additional location information.
- C. Alternate No. 3: Provide new power supply to UVs as shown on E-101, E-102, and E-103 dated 12-17-21. New conduit shall be installed within the line set enclosure.
- D. Alternate No. 4: Gypsum Line Set Enclosures. Line set enclosures to be made of gypsum instead of wood at all locations. See detail 4/A-503.
- E. Alternate No. 5: Steam coils for units labeled HC-2A/2B and HC-3A/3B shall have steam coils shipped loose and field installed in supply ductwork.

END OF SECTION 012300

# UNIVENT REPLACEMENT AT HAVERSTRAW ELEMENTARY

**HAVERSTRAW ELEMENTARY SCHOOL**  
**16 Grant Street**  
**Haverstraw, NY 10927**  
**SED# 50-02-01-06-0-009-018**

**OWNER:**  
**NORTH ROCKLAND**  
**CENTRAL SCHOOL DISTRICT**  
**65 Chapel Street**  
**Garnerville, NY 10923**

**ARCHITECT:**  
**MICHAEL SHILALE ARCHITECTS, LLP**  
**140 Park Avenue**  
**New City, NY 10956**

**PME ENGINEER:**  
**GREENMAN-PEDERSON, INC.**  
**400 Rella Boulevard, Suite 207**  
**Montabello, NY 10901**

Material	Description
	CONCRETE MASONRY UNIT
	BRICK
	RIGID INSULATION
	CONCRETE
	GRAVEL OR STONE
	EARTH
	EIFS
	ASPHALT PAVING
	SAND/MORTAR/GYPSUM BOARD
	STEEL
	ACT
	ROUGH WOOD
	BRONZE

Symbol	Description
	DOOR NUMBER
	KEY NOTE
	PARTITION TYPE
	REVISION NUMBER
	WINDOW TYPE
	MECHANICAL EQUIPMENT
	EXISTING PARTITION
	EXISTING PARTITION TO BE REMOVED
	NEW PARTITION (SEE PARTITION LEGEND A-101)
	NEW DOOR
	EXISTING DOOR
	EXISTING DOOR TO BE REMOVED
	EXISTING WINDOW
	NEW WINDOW

Symbol	Description
	ROOM NAME
	ROOM NAME/ NUMBER IDENTIFICATION
	ROOM NUMBER
	ROOM AREA
	DRAWING NUMBER
	WALL SECTION/ ELEVATION REFERENCE
	SHEET NUMBER

Symbol	Description
	DETAIL NUMBER
	DETAIL REFERENCE
	SHEET NUMBER
	COLUMN LINE DESIGNATION

**ALTERNATE NO. 1:** WORK PHASING. PHASE A TO BE IN SUMMER OF 2022 AND PHASE B TO BE IN SUMMER OF 2023. SEE ARCHITECTURAL AND MECHANICAL FLOOR PLANS FOR PHASE A AND PHASE B LOCATIONS.

**ALTERNATE NO. 2:** WORK PHASING. PHASE A TO BE IN SUMMER OF 2022 AND PHASE B TO BE DURING FALL OF 2022 2ND SHIFT. SEE ARCHITECTURAL AND MECHANICAL FLOOR PLANS FOR PHASE A AND PHASE B LOCATIONS.

**ALTERNATE NO. 3:** PROVIDE NEW POWER SUPPLY TO UVS AS SHOWN ON E-101, E-102 AND E-103.

**ALTERNATE NO. 4:** GYPSUM LINE SET ENCLOSURES. LINE SET ENCLOSURES TO BE MADE OF GYPSUM INSTEAD OF WOOD AT ALL LOCATIONS. SEE DETAIL 4/A-503.

DRAWING No.	DRAWING TITLE	DATE
A-000	COVER SHEET	02-17-22
B-100	CODE ANALYSIS	12-17-21
S-101	ROOF PLAN & GENERAL NOTES	12-17-21
S-102	ROOF PARTIAL PLANS	12-17-21
S-103	SECTIONS & TYPICAL DETAILS	12-17-21
S-104	SECTIONS & TYPICAL DETAILS S-2	12-17-21
D-101	FIRST FLOOR DEMO PLAN	12-17-21
D-102	SECOND FLOOR DEMO PLAN	12-17-21
D-103	THIRD FLOOR DEMO PLAN	12-17-21
D-104	ROOF DEMO PLAN	12-17-21
A-101	PROPOSED FIRST FLOOR PLAN	01-28-22
A-102	PROPOSED SECOND FLOOR PLAN	01-24-22
A-103	PROPOSED THIRD FLOOR PLAN	01-24-22
A-104	PROPOSED ROOF PLAN	12-17-21
A-400	REFLECTED CEILING PLAN	12-17-21
A-500	DETAILS	02-17-22
A-501	UNIT ELEVATIONS	12-17-21
A-501.1	UNIT ELEVATIONS	12-17-21
A-502	DETAILS	02-17-22
A-503	DETAILS	02-17-22
M-001	MECHANICAL NOTES	01-24-22
M-002	MECHANICAL SCHEDULES	02-17-22
M-003	MECHANICAL SCHEDULES 2	02-17-22
M-004	CONTROLS	02-17-22
M-005	VENTILATION SCHEDULE	12-17-21
M-006	UV SCHEDULE	02-17-22
M-061	HVAC DEMO FIRST FLOOR PLAN	01-24-22
M-062	HVAC DEMO SECOND FLOOR PLAN	01-24-22
M-063	HVAC DEMO THIRD FLOOR PLAN	01-24-22
M-101	FIRST FLOOR PLAN MECHANICAL	01-24-22
M-102	SECOND FLOOR PLAN MECHANICAL	01-24-22
M-103	THIRD FLOOR PLAN MECHANICAL	02-17-22
M-104	ROOF PLAN MECHANICAL	02-17-22
M-301	HVAC PIPING - 1ST FLOOR PLAN	12-17-21
M-302	HVAC PIPING - 2ND FLOOR PLAN	12-17-21
M-303	HVAC PIPING - 3RD FLOOR PLAN	02-17-22
M-401	VRF PIPING RISERS	12-17-21
M-501	MECHANICAL DETAILS	01-24-22
M-502	MECHANICAL DETAILS 2	12-17-21
FA-001	FIRE ALARM SYSTEM COVER SHEET	12-17-21
FA-101	THIRD FLOOR PLAN FIRE ALARM	12-17-21
FA-102	ROOF PLAN FIRE ALARM	12-17-21
E-001	ELECTRICAL COVER SHEET	12-17-21
E-060	BASEMENT DEMO PLAN ELECTRICAL	01-28-22
E-061	FIRST FLOOR ELECTRICAL DEMO PLAN	12-17-21
E-062	SECOND FLOOR ELECTRICAL DEMO PLAN	12-17-21
E-063	THIRD FLOOR ELECTRICAL DEMO PLAN	12-17-21
E-100	BASEMENT PLAN ELECTRICAL	01-28-22
E-101	FIRST FLOOR PLAN ELECTRICAL	02-17-22
E-102	SECOND FLOOR PLAN ELECTRICAL	02-17-22
E-103	THIRD FLOOR PLAN ELECTRICAL	02-17-22
E-104	ROOF PLAN ELECTRICAL	02-17-22
E-201	ELECTRICAL SCHEDULES & RISER	02-17-22
E-301	ELECTRICAL DETAILS	12-17-21

**LIST OF DRAWINGS**

ACT	ACUSTICAL CEILING TILE
A.F.F.	ABOVE FINISH FLOOR
ASPH	ASPHALT
BLK	BLOCK
BLK'G	BLOCKING
BUR	BUILT UP ROOFING
CLS	CEILING
CONC	CONCRETE
CONT	CONTINUOUS
C.J.	CONTROL JOINT
DN	DOWN
DIA	DIAMETER
DWG	DRAWING
E.F.	EACH FACE
EIFS	EXTERIOR INSULATION AND FINISH SYSTEM
E.W.	EACH WAY
E.W.C.	ELECTRICAL WATER COOLER
EL	ELEVATION
ELC	ELECTRICAL CONTRACTOR
EXIST	EXISTING
EXP	EXPANSION
EXT'G	EXISTING
EXTR	EXTERIOR
FP	FIREPROOF
FIN.	FINISH(ED)
GA	GAUGE
GC	GENERAL CONTRACTOR
GALV	GALVANIZED
GL	GLASS
GWB	GYPSUM WALL BOARD
HM	HOLLOW METAL
H.P.	HIGH POINT
HAC	HEATING & A/C CONTRACTOR
ITR	INDIVIDUAL TREATMENT ROOM
JT	JOINT
LAM	LAMINATE
LAV	LAVATORY
LP	LOW POINT
MAX	MAXIMUM
MFR	MANUFACTURER
MTL	METAL
MIN	MINIMUM
MO	MASONRY OPENING
N.O.	NOT IN CONTRACT
NO.	NUMBER
OC	ON CENTER
OPN'G	OPENING
PBC	PLUMBING CONTRACTOR
PLAS.LAM.	PLASTIC LAMINATE
PL	PLATE
PLY'D	PLYWOOD
RAD	RADIUS
REF.CLG.	REFLECTED CEILING
REQ'D	REQUIRED
RO	ROUGH OPENING
SIM	SIMILAR
STL	STEEL
SUSP.CLG.	SUSPENDED CEILING
T.O.M.	TOP OF MASONRY
T.O.S.	TOP OF STEEL
TYP	TYPICAL
U.O.N.	UNLESS OTHERWISE NOTED
V.I.F.	VERIFY IN FIELD
VCT	VINYL COMPOSITE TILE
W/	WITH
WD	WOOD

**ALLOWANCES**

ALLOWANCE NO. 1: PROVIDE ALLOWANCE TO CLEAN EXISTING MAIN DUCTWORK FOR 20 LINEAR FEET PER UNIT.

ALLOWANCE NO. 2: PROVIDE ALLOWANCE TO REPLACE EXISTING SUPPLY AND RETURN PIPING AND INSULATION FOR 20 LINEAR FEET PER UNIT.

ALLOWANCE NO. 3: PROVIDE A PROPOSAL FROM A THIRD PARTY HVAC COMMISSIONING AGENT CONTRACTOR IS TO INCLUDE THIS AMOUNT IN THEIR BASE BID. CONTRACTOR WILL ISSUE A CREDIT CHANGE ORDER TO THE OWNER FOR THE COMMISSIONING PROPOSAL AMOUNT, OWNER WILL CONTRACT DIRECTLY WITH THE COMMISSIONING AGENT.

ALLOWANCE NO. 4: PROVIDE ALLOWANCE FOR THE RELOCATION OF 40 ELECTRICAL DEVICES THAT REQUIRE RELOCATION DUE TO THE INCREASED SIZE OF THE NEW UNIT VENTILATORS.

ALLOWANCE NO. 5: CONTRACTOR TO INCLUDE ALLOWANCE FOR LF OF LINE SET ENCLOSURE NOTED ON DRAWINGS.

ALLOWANCE NO. 6: CONTRACTOR SHALL INCLUDE IN THEIR BID AN ALLOWANCE FOR 10' OF PIPING/INSULATION FOR EACH UV AND 20' AT EACH RTU. SEE DRAWINGS 3/M-501 AND 4/M-501.

ALLOWANCE NO. 7: CONTRACTOR TO INCLUDE ALLOWANCE FOR LF OF WIRE MOLD NOTED ON DRAWINGS.

ALLOWANCE NO. 8: ELECTRICAL CONTRACTOR TO PROVIDE NEW POWER CONNECTIONS TO 10 UVS.

**UNIT PRICES**

UNIT PRICE NO. 1: PROVIDE UNIT PRICE TO INCREASE OR REDUCE BY 10'-0" THE LINE SET COVER. SEE DETAIL 5/A-500.

UNIT PRICE NO. 2: PROVIDE UNIT PRICE PER SQUARE FOOT OF VCT REPLACEMENT.

UNIT PRICE NO. 3: PROVIDE A UNIT PRICE FOR LF OF WOOD BASE REPLACEMENT.

UNIT PRICE NO. 4: PROVIDE A UNIT PRICE TO INCREASE OR REDUCE BY 10'-0" OF WIRE MOLD.

UNIT PRICE NO. 5: PROVIDE A UNIT PRICE TO INCREASE OR REDUCE BY 10'-0" OF PIPING/INSULATION.

UNIT PRICE NO. 6: PROVIDE A UNIT PRICE TO PROVIDE NEW POWER SUPPLY WHERE EXISTING POWER SUPPLY IS NOT USABLE.

**GENERAL NOTES**

1. ALL PLAN DIMENSIONS ARE NOMINAL U.O.N. DIMENSIONS TO THE FINISHED FACE OF AN ELEMENT OR WALL WILL BE DESIGNATED WITH AN "F" AS SHOWN.

2. G.C. TO VERIFY ALL DIMENSIONS IN THE FIELD AND IS TO NOTIFY ARCHITECT IF THERE ARE ANY DISCREPANCIES.

**ALTERNATES**

1. ALL PLAN DIMENSIONS ARE NOMINAL U.O.N. DIMENSIONS TO THE FINISHED FACE OF AN ELEMENT OR WALL WILL BE DESIGNATED WITH AN "F" AS SHOWN.

2. G.C. TO VERIFY ALL DIMENSIONS IN THE FIELD AND IS TO NOTIFY ARCHITECT IF THERE ARE ANY DISCREPANCIES.

No.	Date	Revisions
7	02-17-22	ADDENDUM 7
6	01-28-22	ADDENDUM 5
5	01-24-22	ADDENDUM 3
4	01-14-22	ADDENDUM 1
3	12-17-21	ISSUED FOR BID
2	11-19-21	SED ADDENDUM 1
1	08-30-21	BIDDING DOCUMENTS

Drawn by	MAL
Checked by	MS/JC
Project No.	41048
Scale	AS NOTED
Date	08-30-21

<b>GREENMAN PEDERSON, INC.</b> 400 Rella Boulevard Montabello, NY 10901	Mechanical & Electrical Engineer:
	Structural Engineer:

**UNIVENT REPLACEMENT AT HAVERSTRAW ELEMENTARY**  
**SED# 50-02-01-06-0-009-018**  
 16 Grant Street  
 Haverstraw, NY 10927  
 COUNTY OF ROCKLAND

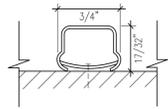


**COVER SHEET**

Drawing No. **A-000**

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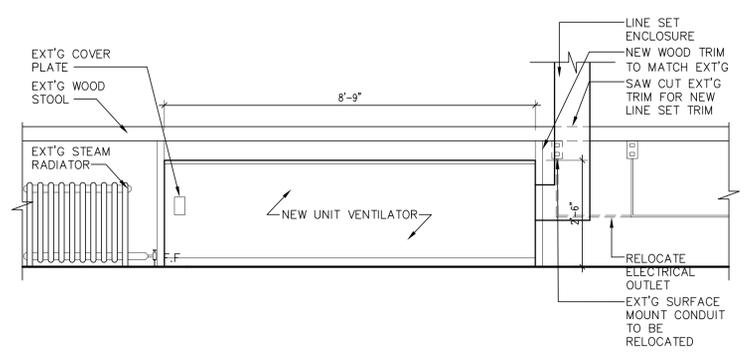


**7 WIRE MOLD DETAIL**  
SCALE: 1:1

CODE	MATERIAL	MANUFACTURER	PRODUCT	CATALOG NO.	FINISH	COLOR	REMARKS
PT1	LATEX FINISH	BENJAMIN MOORE	REGAL AQUA PEARL	310	EGGSHELL	BY ARCH	(1) COAT PT4, (2) COATS PT1
PT4	LATEX PRIMER	BENJAMIN MOORE	LATEX PRIMER	273	FLAT	BY ARCH	
PT5	LATEX FINISH	BENJAMIN MOORE	DTM ACRYLIC	M29	SEMI-GLOSS	BY ARCH	(3) COAT PT6

**FINISH MATERIAL SCHEDULE**

NOTE: CONTRACTOR SHALL PATCH PLASTER AND PAINT ALL DAMAGED AREA AROUND UV CASE.

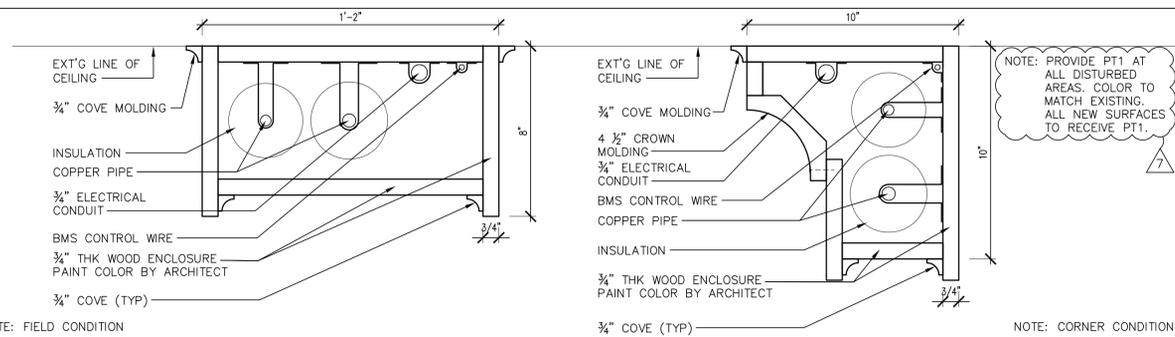


**4 NEW 1500 CFM UNIVENT ELEVATION (TYP.)**  
SCALE: 1/2" = 1'-0"



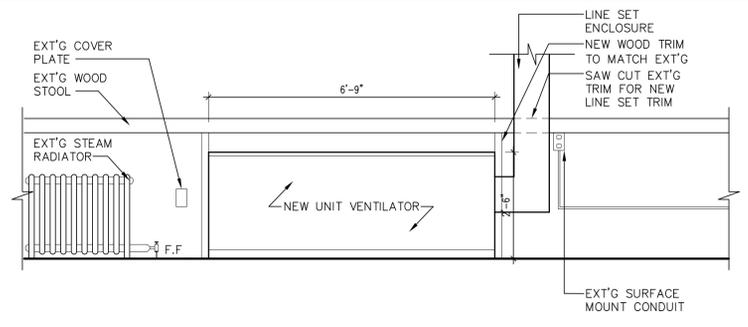
PLAN DESIGNATION C

No.	Date	Revisions
1	08-30-21	BIDDING DOCUMENTS
2	11-19-21	ADDENDUM 1
3	12-17-21	ISSUED FOR BID
6	01-28-21	ADDENDUM 5
7	02-17-22	ADDENDUM 7



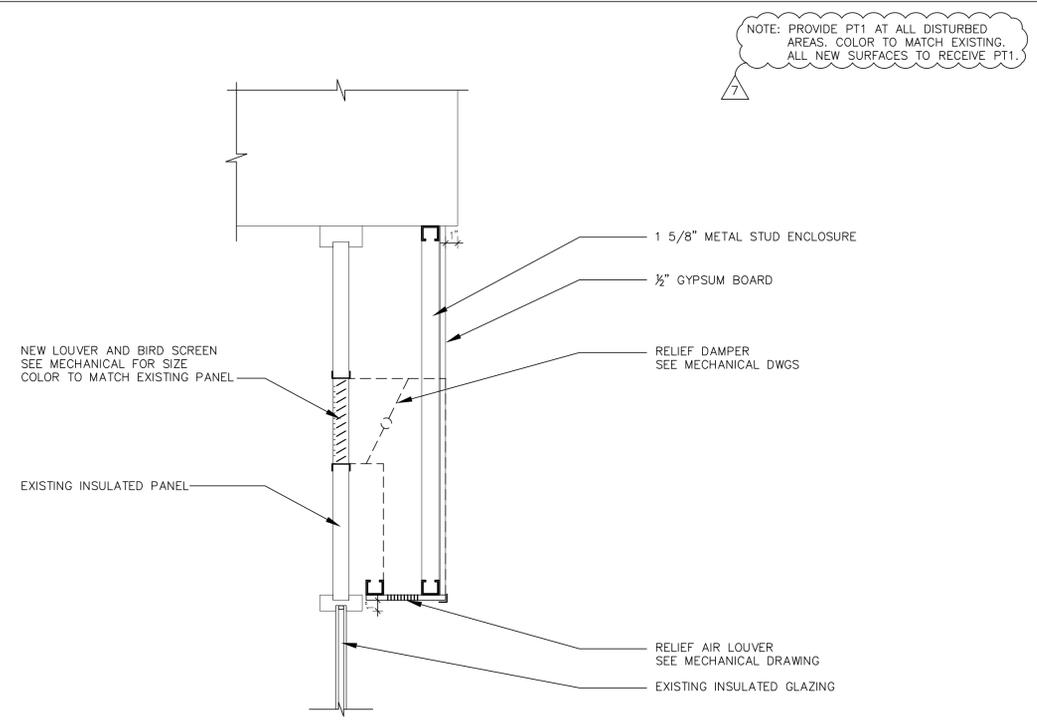
**6 LINE SET ENCLOSURE**  
SCALE: 3" = 1'-0"

NOTE: CONTRACTOR SHALL PATCH PLASTER AND PAINT ALL DAMAGED AREA AROUND UV CASE.



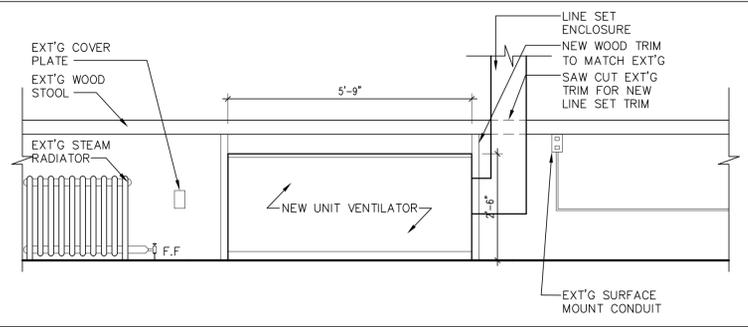
**3 NEW 1000 CFM UNIVENT ELEVATION (TYP.)**  
SCALE: 1/2" = 1'-0"

PLAN DESIGNATION D



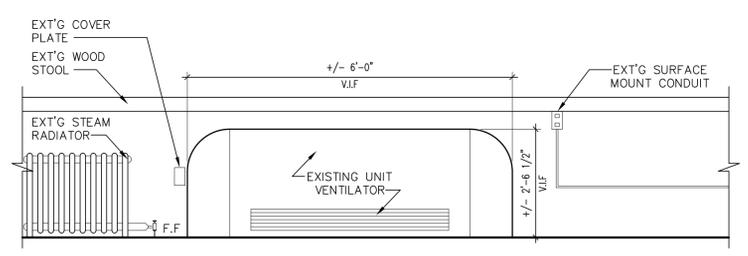
**5 RELIEF AIR GYPSUM ENCLOSURE**  
SCALE: 1 1/2" = 1'-0"

NOTE: CONTRACTOR SHALL PATCH PLASTER AND PAINT ALL AREAS EXPOSED BY THE NEW SMALLER UV CASE.



**2 NEW 750 CFM UNIVENT ELEVATION (TYP.)**  
SCALE: 1/2" = 1'-0"

PLAN DESIGNATION A

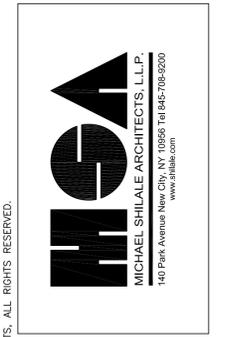


**1 EXISTING UNIVENT ELEVATION (TYP.)**  
SCALE: 1/2" = 1'-0"

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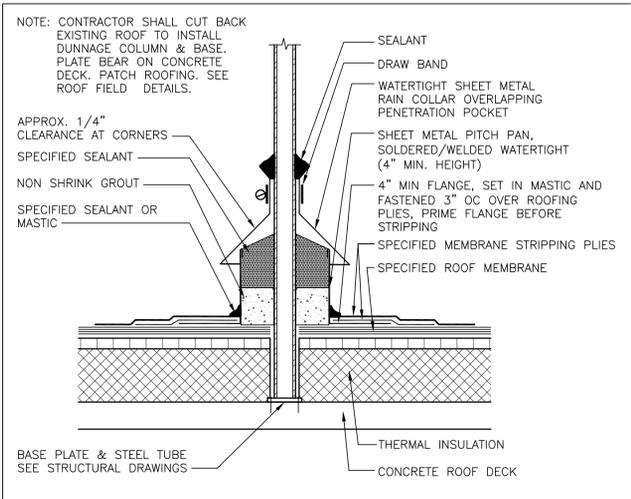
Drawn by	MAL/JJR
Checked by	MS/JC
Project No.	41048
Scale	AS NOTED
Date	08-30-21

**UNIVENT REPLACEMENT AT HAVERSTRAY ELEMENTARY**  
SED# 50-02-01-06-0-009-018  
18 Grant Street Haverstray, NY 10927

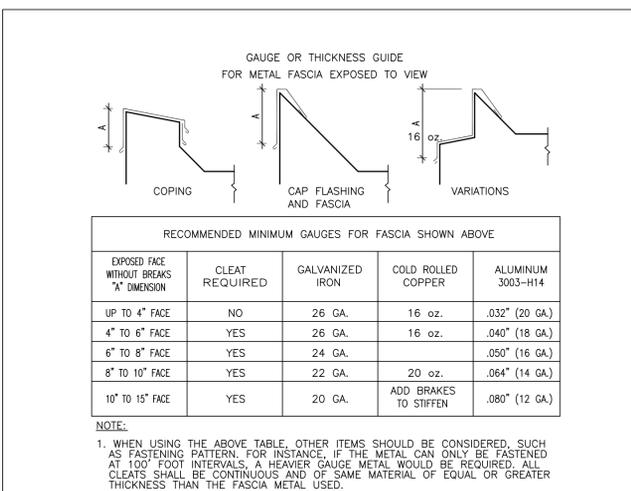


**DETAILS**  
Drawing No. **A-500**

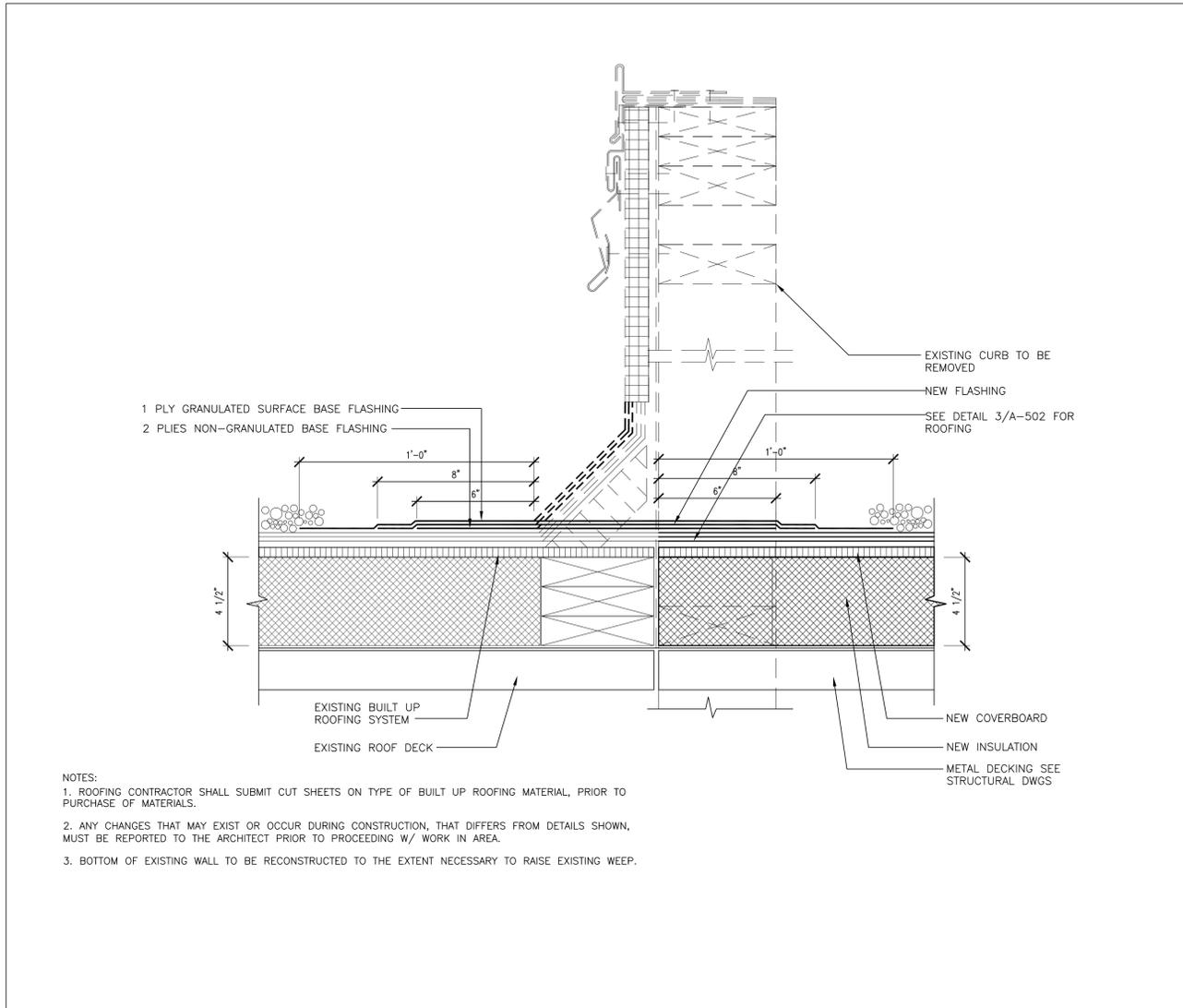
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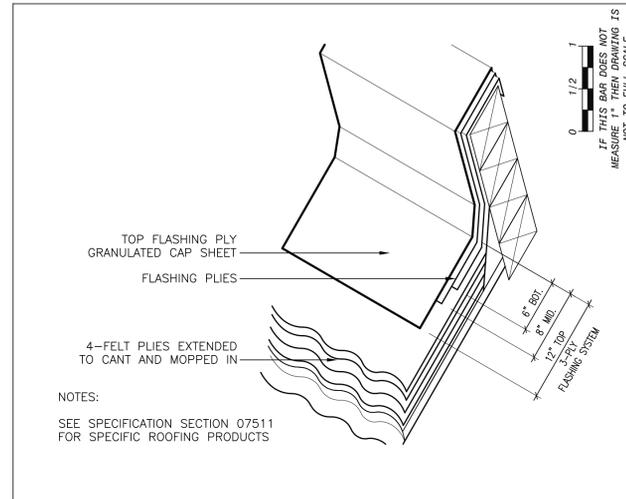
**7 PITCH POCKET AT ROOF DUNNAGE**  
SCALE: 3" = 1'-0"



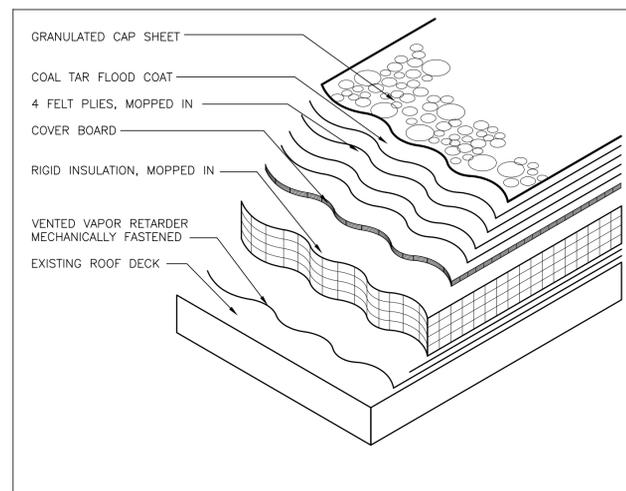
**6 FASCIA THICKNESS**  
SCALE: N.T.S.



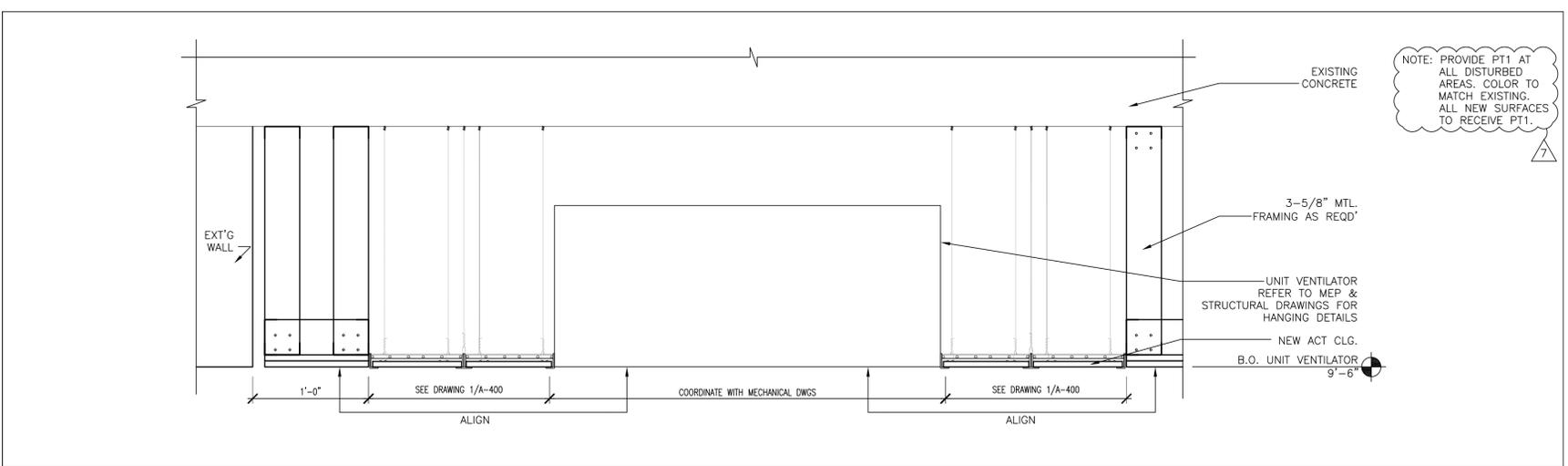
**5 ROOFING DETAIL AT REMOVED GRAVITY VENT CURB**  
SCALE: 3" = 1'-0"



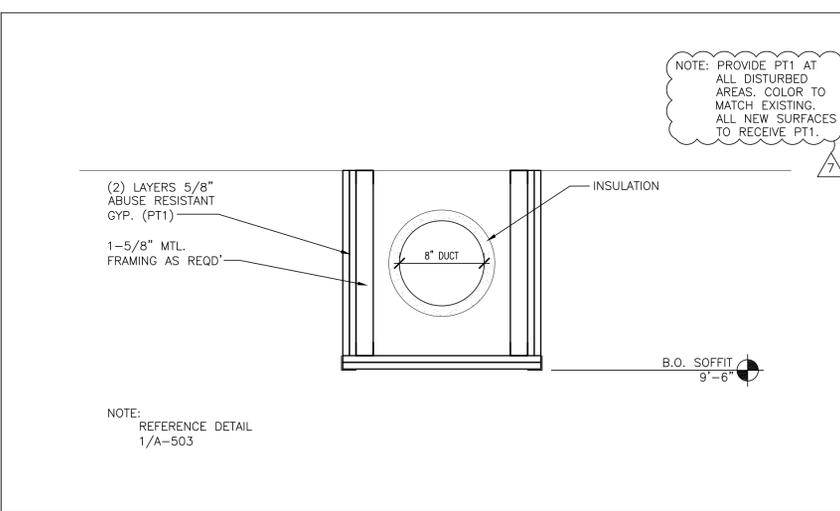
**4 TYP. B.U.R. FLASHING**  
SCALE: N.T.S.



**3 TYP. B.U.R. FIELD W/ GRAVEL SURFACE**  
SCALE: N.T.S.



**2 SOFFIT DETAIL**  
SCALE: 1 1/2" = 1'-0"



**1 SOFFIT DETAIL**  
SCALE: 1 1/2" = 1'-0"

7	02-17-22	ADDENDUM 7
3	12-17-21	ISSUED FOR BID
2	11-19-21	ISSUED ADDENDUM 1
1	08-30-21	BIDDING DOCUMENTS
No.	Date	Revisions

Drawn by: MAL/JJR  
Checked by: MS/JC  
Project No.: 41048  
Scale: AS NOTED  
Date: 08-30-21

GREENMAN PEDERSEN, INC  
400 BELLA BOULEVARD  
MONTBELLE, NY 10801

Mechanical & Electrical Engineer

Structural Engineer

UNIVENT REPLACEMENT AT HAVERSTRAY ELEMENTARY

SED# 50-02-01-06-0-009-018

16 Grant Street  
Haverstray, NY 10627

COUNTY OF ROCKLAND

MSA

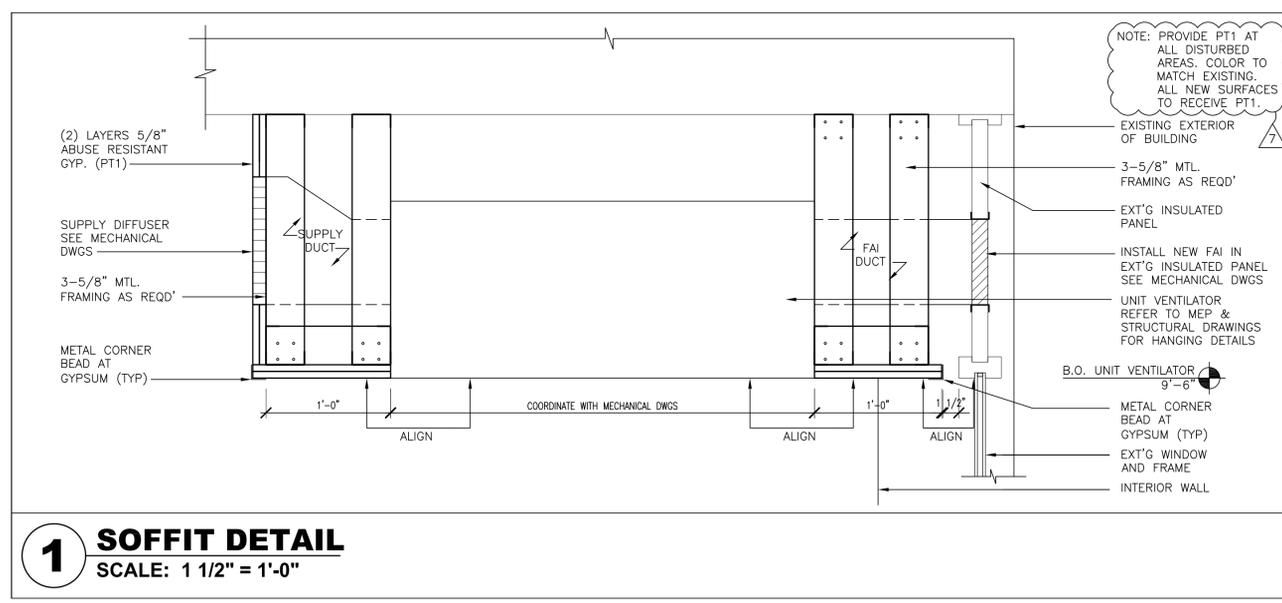
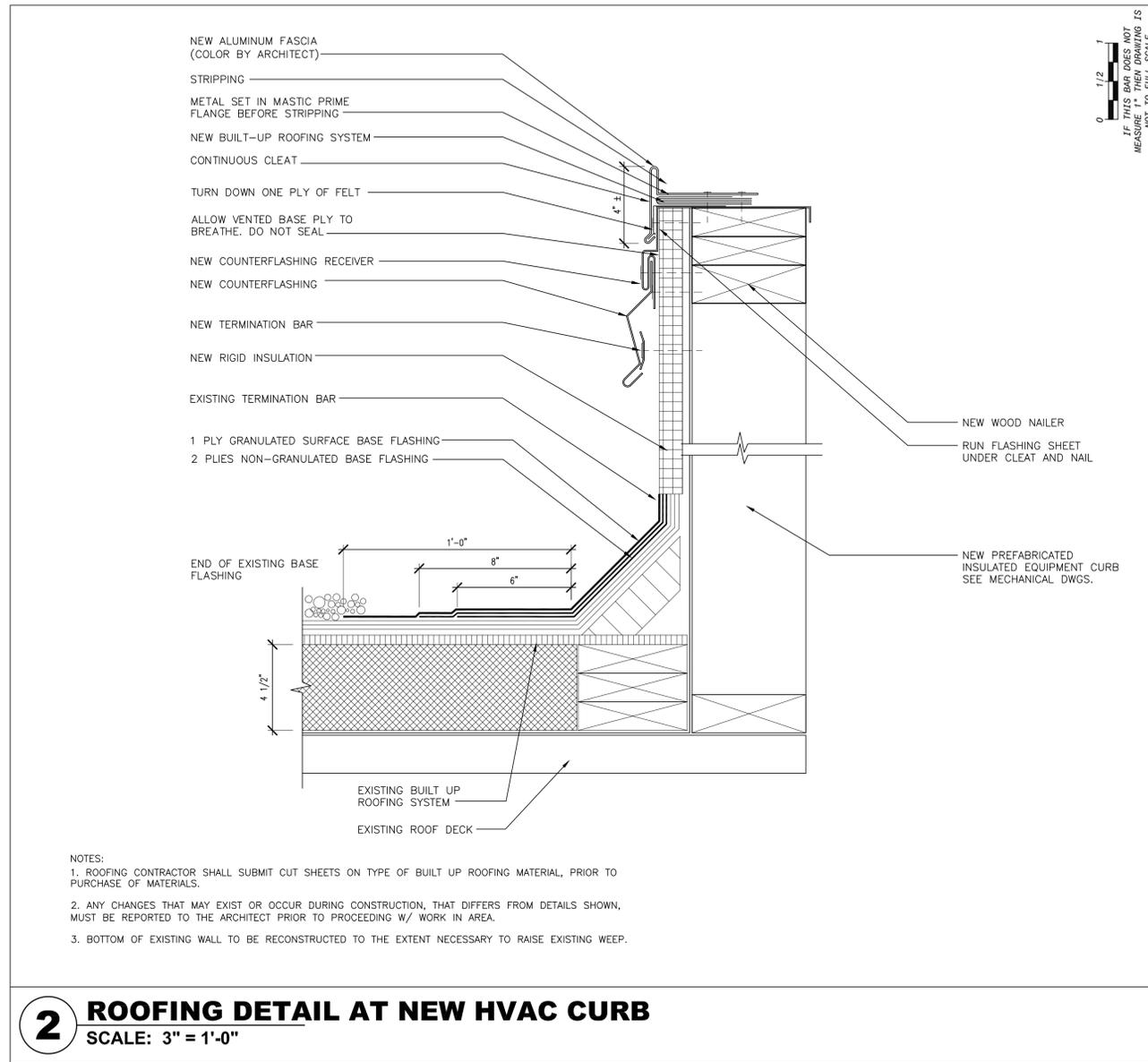
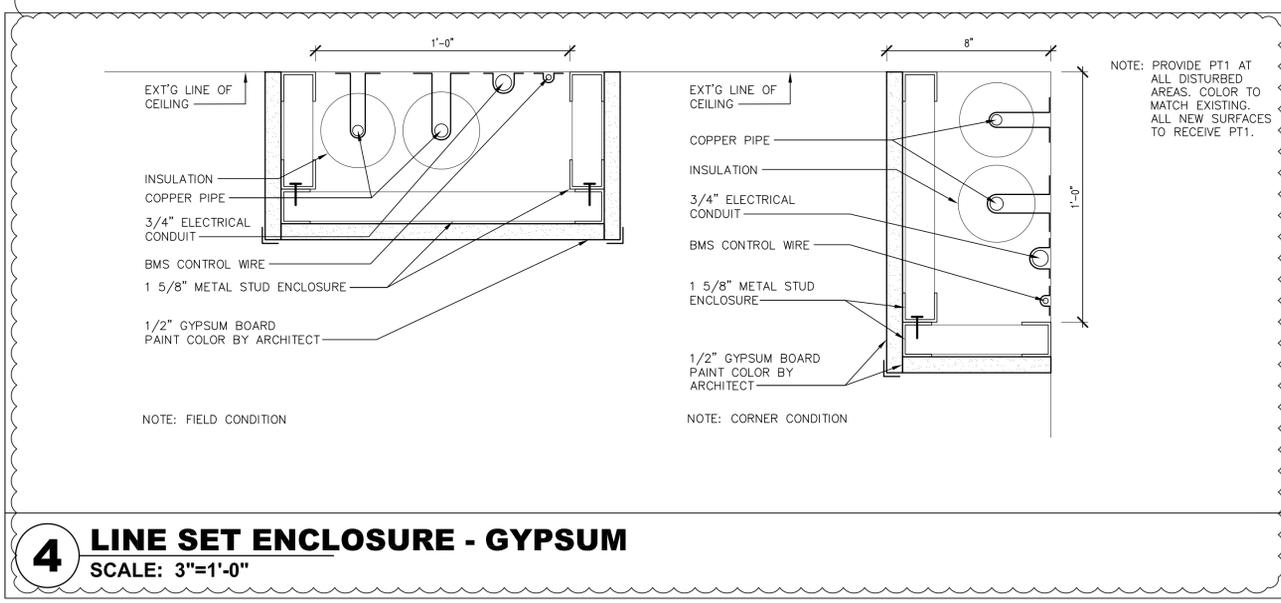
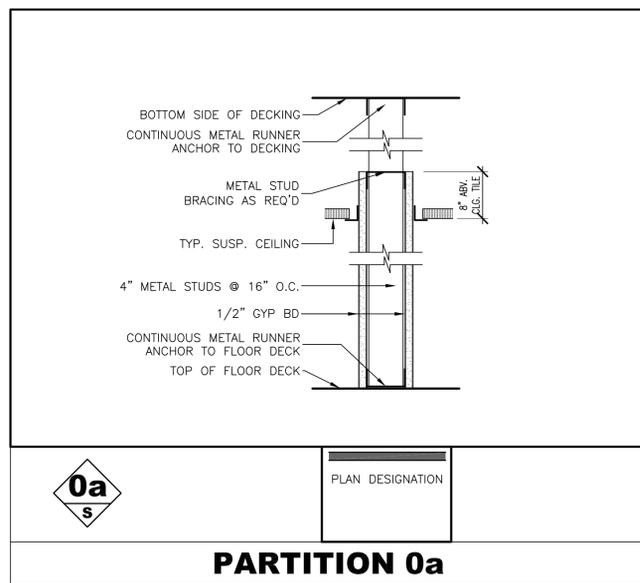
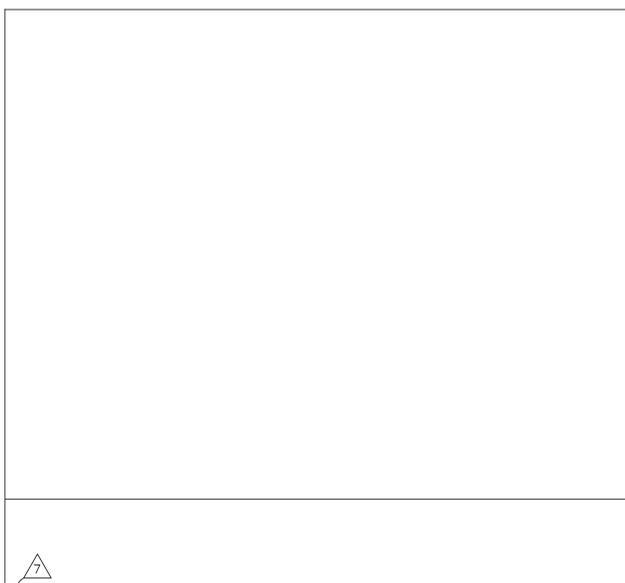
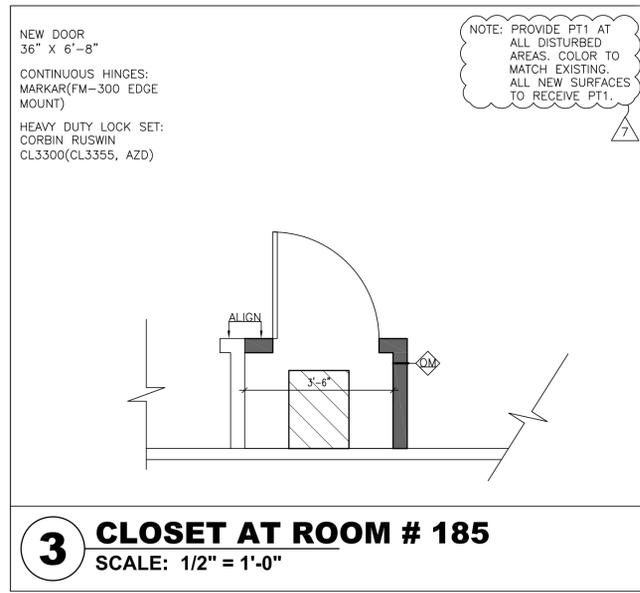
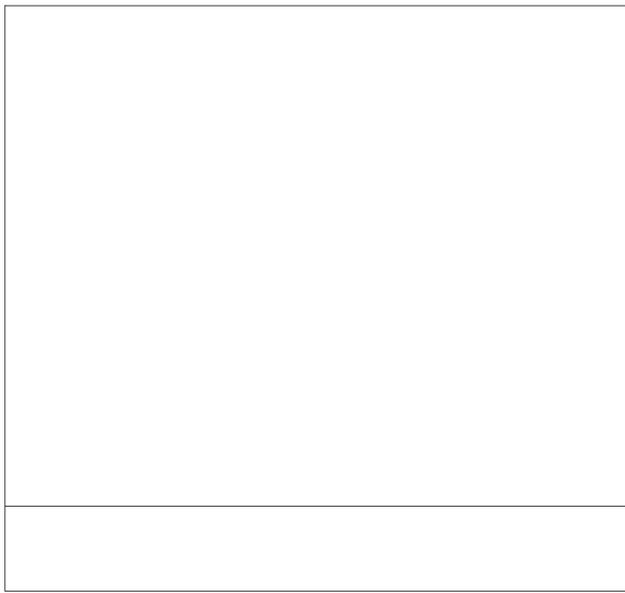
MICHAEL SHLALE ARCHITECTS, L.L.P.

140 Park Avenue New York, NY 10022 Tel 646-706-9200  
www.msaarch.com

DETAILS

Drawing No. A-502

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0 1/2 1

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Drawn by	MAL/JJR
Checked by	MS/JC
Project No.	41048
Scale	AS NOTED
Date	08-30-21

GREENMAN PEDERSEN, INC  
400 BELLA BOULEVARD  
MONTROSE, NY 10901

Mechanical & Electrical Engineer

Structural Engineer

UNIVENT REPLACEMENT AT HAVERSTRAW ELEMENTARY  
SED# 50-02-01-06-0-009-018  
18 Grant Street Haverstraw, NY 10927

COUNTY OF ROCKLAND

MSA  
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www.mshale.com

DETAILS

Drawing No. **A-503**

Revisions

No.	Date
1	08-30-21
2	11-19-21
3	12-17-21
7	02-17-22

VRF HEAT RECOVERY OUTDOOR CONDENSING UNIT SCHEDULE																		
Tag Reference	Model Number	Modules	Nominal Cooling Capacity (BTU/h)	Nominal Heating Capacity (BTU/h)	Cooling Efficiency IEER/EER	Heating COP @ 47°F [HSPF]	Nom System Connected Capacity (% of NOM)	Design Cooling Outdoor Temp DB (°F)	Design Heating Outdoor Temp WB (°F)	Refrigerant Pipe Dim. (See Note 4)	Corrected Cooling Total Capacity (BTU/h)	Corrected Heating Capacity (BTU/h)	Preliminary Added Field Charge (lbs) (See Note 5)	Electrical 208/230			Notes / Options	
														Voltage / Phase	MCA	RFS		MOC
CU-1	TURYE1683AN40AN	P168	168,000.0	188,000.0	25.7 / 11.55	3.55	95.2%	87.0	10.8	7/8 / 1 1/8	161,812.2	116,233.7	41.4	208/230V / 3-phase 3-wire	57/53	70/70	90/80	SEE NOTES
CU-2	TURYE1683AN40AN	P168	168,000.0	188,000.0	25.7 / 11.55	3.55	89.3%	87.0	10.8	7/8 / 1 1/8	168,904.3	117,081.5	37.2	208/230V / 3-phase 3-wire	57/53	70/70	90/80	SEE NOTES
CU-3	TURYE1683AN40AN	P168	168,000.0	188,000.0	25.7 / 11.55	3.55	97.6%	87.0	10.8	7/8 / 1 1/8	165,288.8	117,637.5	32.5	208/230V / 3-phase 3-wire	57/53	70/70	90/80	SEE NOTES
CU-4	TURYE1683AN40AN	P168	168,000.0	188,000.0	25.7 / 11.55	3.55	92.9%	87.0	10.8	7/8 / 1 1/8	162,384.3	115,947.9	46.6	208/230V / 3-phase 3-wire	57/53	70/70	90/80	SEE NOTES
CU-5	TURYE1683AN40AN	P168	168,000.0	188,000.0	25.7 / 11.55	3.55	88.1%	87.0	10.8	7/8 / 1 1/8	157,289.8	113,679.3	54.5	208/230V / 3-phase 3-wire	57/53	70/70	90/80	SEE NOTES
CU-6	TURYE1443AN40AN	P144	144,000.0	160,000.0	26.9 / 12.3	3.67	91.7%	87.0	10.8	7/8 / 1 1/8	141,585.8	98,636.2	33.5	208/230V / 3-phase 3-wire	49/45	60/60	80/70	SEE NOTES
CU-7	TURYE1203AN40AN	P120	120,000.0	135,000.0	27.55 / 13.2	3.87	76.7%	87.0	10.8	3/4 / 1 1/8	123,425.0	83,382.0	26.0	208/230V / 3-phase 3-wire	41/38	60/60	60/60	SEE NOTES
CU-8	TURYE1443AN40AN	P144	144,000.0	160,000.0	26.9 / 12.3	3.67	97.2%	87.0	10.8	7/8 / 1 1/8	142,210.2	99,763.9	26.8	208/230V / 3-phase 3-wire	49/45	60/60	80/70	SEE NOTES
CU-9	TURYE1683AN40AN	P168	168,000.0	188,000.0	25.7 / 11.55	3.55	100.6%	87.0	10.8	7/8 / 1 1/8	157,679.7	115,937.2	52.3	208/230V / 3-phase 3-wire	57/53	70/70	90/80	SEE NOTES
CU-10	TURYE1683AN40AN	P168	168,000.0	188,000.0	25.7 / 11.55	3.55	94.0%	87.0	10.8	7/8 / 1 1/8	163,431.9	116,457.7	38.9	208/230V / 3-phase 3-wire	57/53	70/70	90/80	SEE NOTES
CU-11	TURYE1443AN40AN	P144	144,000.0	160,000.0	26.9 / 12.3	3.67	70.8%	87.0	10.8	7/8 / 1 1/8	148,717.8	100,475.3	24.9	208/230V / 3-phase 3-wire	49/45	60/60	80/70	SEE NOTES
CU-12	TURYE1683AN40AN	P168	168,000.0	188,000.0	25.7 / 11.55	3.55	89.3%	87.0	10.8	7/8 / 1 1/8	170,280.6	117,464.2	33.9	208/230V / 3-phase 3-wire	57/53	70/70	90/80	SEE NOTES

**OUTDOOR CONDENSING UNIT SCHEDULE NOTES:**

- NOMINAL COOLING CAPACITIES ARE BASED ON INDOOR COIL EAT OF 80/67°F (DB/WB), OUTDOOR OF 95°F (DB)
- NOMINAL HEATING CAPACITIES ARE BASED ON INDOOR COIL EAT OF 70°F (DB), OUTDOOR OF 43°F (WB)
- EFFICIENCY VALUES FOR EER, IEER, COP ARE BASED ON AHRI 1230 TEST METHOD FOR MIXTURE OF DUCTED & NON-DUCTED INDOOR UNITS.
- FOR SYSTEMS WITH MULTIPLE MODULES, REFRIGERANT PIPE DIMENSIONS INDICATE TOTAL SYSTEM COMBINED PIPING DOWNSTREAM OF MODULE TWINNING.
- ADDED FIELD CHARGE LISTED IS IN ADDITION TO FACTORY CHARGE, THIS MUST BE UPDATED BASED UPON FINAL AS-BUILT PIPING LAYOUT.
- COOLING EFFICIENCY FOR CONDENSING UNITS MUST BE 10% GREATER THAN LIMITS SET IN 2020 ECC NYS C406.2-10.5 EER, 11.8 IEER.
- FACTORY REPRESENTATIVES SHALL STARTUP AND COMMISSION CITY MULTI EQUIPMENT UPON COMPLETION OF EQUIPMENT INSTALLATION.
- FACTORY REPRESENTATIVES SHALL PROVIDE ON-SITE ASSISTANCE FOR THE BMS INTEGRATION OF THE CITY MULTI EQUIPMENT.
- ACCEPTABLE MANUFACTURER'S ARE DAIKIN OR TRANE

VRF HEAT RECOVERY BRANCH CIRCUIT CONTROLLER SCHEDULE												
Tag Reference	System Tag	Model Number	Type (double / Main / Sub)	Number of Ports	Connected Capacity to BC	Voltage / Phase	Power Cooling 208V/230V (KW)	Power Heating 208V/230V (KW)	MCA 208/230	Notes / Options		
BC-1	CU-1	TCMBM0108JA11N4	Main	8	160,000.0	208/230V/1-phase	0.137/0.176	0.076/0.098	0.83/0.97	1, 2, 3, 4		
BC-2	CU-2	TCMBM0108JA11N4	Main	8	150,000.0	208/230V/1-phase	0.137/0.176	0.076/0.098	0.83/0.97	1, 2, 3, 4		
BC-3	CU-3	TCMBM0108JA11N4	Main	8	164,000.0	208/230V/1-phase	0.137/0.176	0.076/0.098	0.83/0.97	1, 2, 3, 4		
BC-4	CU-4	TCMBM0108JA11N4	Main	8	156,000.0	208/230V/1-phase	0.137/0.176	0.076/0.098	0.83/0.97	1, 2, 3, 4		
BC-5	CU-5	TCMBM0108JA11N4	Main	8	148,000.0	208/230V/1-phase	0.137/0.176	0.076/0.098	0.83/0.97	1, 2, 3, 4		
BC-6	CU-6	TCMBM0108JA11N4	Main	8	132,000.0	208/230V/1-phase	0.137/0.176	0.076/0.098	0.83/0.97	1, 2, 3, 4		
BC-7	CU-7	TCMBM0108JA11N4	Main	8	92,000.0	208/230V/1-phase	0.137/0.176	0.076/0.098	0.83/0.97	1, 2, 3, 4		
BC-8	CU-8	TCMBM0108JA11N4	Main	8	140,000.0	208/230V/1-phase	0.137/0.176	0.076/0.098	0.83/0.97	1, 2, 3, 4		
BC-9	CU-9	TCMBM1016JA11N4	Main	16	169,000.0	208/230V/1-phase	0.258/0.333	0.137/0.176	1.57/1.82	1, 2, 3, 4		
BC-10	CU-10	TCMBM0108JA11N4	Main	8	158,000.0	208/230V/1-phase	0.137/0.176	0.076/0.098	0.83/0.97	1, 2, 3, 4		
BC-11	CU-11	TCMBM0108JA11N4	Main	8	102,000.0	208/230V/1-phase	0.137/0.176	0.076/0.098	0.83/0.97	1, 2, 3, 4		
BC-12	CU-12	TCMBM0108JA11N4	Main	8	150,000.0	208/230V/1-phase	0.137/0.176	0.076/0.098	0.83/0.97	1, 2, 3, 4		

**BC CONTROLLER SCHEDULE NOTES:**

- INCLUDE DIAMONDBACK BALL VALVES BV-SERIES, 700PSIG WORKING PRESSURE, FULL PORT, 410A RATED.
- A SUB BC CONTROLLER IS NOT REQUIRED FOR THIS PROJECT. FOR SUB BC CONTROLLER INFO, SEE MANUFACTURER'S INSTALLATION INSTRUCTIONS.
- PROVIDE REFRIGERATION BALL VALVE-BRAZE/SCHRADER/INSULATED - 3/8" SIZE
- PROVIDE REFRIGERATION BALL VALVE-BRAZE/SCHRADER/INSULATED - 5/8" SIZE
- ACCEPTABLE MANUFACTURER'S ARE DAIKIN OR TRANE

STEAM HEATING COIL				
UNIT SERVED	RTU-2	RTU-3	HC-2A/2B	HC-3A/3B
LOCATION	RTU-2	RTU-3	FAN RMS	FAN RMS
BTU/HR	125,000	137,500	62,500	68,750
STEAM FLOW RATE (LB/H)	318	318	233	223
AIRFLOW (CFM)	8,085	8,328	6000	5750
ENTERING AIR TEMP (F)	45.4	45.4	45.4	45.4
LEAVING AIR TEMP (F)	80.5	80.5	80.5	80.5
ENTERING STEAM PRESSURE (PSIG)	2	2	2	2
STEAM PRESSURE DROP (PSIG)	1	1	1	1
AIRSIDE PRESSURE DROP (IN WC)	0.25	0.25	0.25	0.25
NOMINAL TUBE DIAMETER (IN)	1	1	1	1
TUBE THICKNESS (IN)	0.035	0.035	0.035	0.035

REMARKS:  
 1. PROVIDE STEAM DISTRIBUTING TYPE COIL.  
 2. THIS COIL SHALL BE A STANDARD PRODUCT OF THE RTU HEATING MANUFACTURER AND SHALL BE INTEGRAL TO THE RTU HEATING SECTION. REFER TO THE ROOFTOP UNIT SCHEDULE FOR RTU DETAILS.  
 3. ALTERNATE 5 UNITS LABELED HC-2A/2B AND HC-3A/3B TO BE SHIPPED LOOSE AND FIELD INSTALLED IN SUPPLY DUCTWORK.

**ROOFTOP AIR HANDLING UNITS**

UNIT TAG	AREA SERVED	REFRIGERANT	TOTAL SUPPLY AIRFLOW (CFM)	MINIMUM OUTSIDE AIRFLOW (CFM)		MAXIMUM OUTSIDE AIRFLOW (CFM)	EXTERNAL STATIC PRESSURE (IN W.C.)	COOLING					HEATING (SEE STEAM HEATING COIL SCHEDULE)		FILTER	ELECTRICAL			SUPPLY FAN MOTOR INFO		UNIT WEIGHT (LBS)	UNIT DIMENSIONS (LxWxH, IN)	BASIS OF DESIGN	REMARKS	
				COOLING	HEATING			NOMINAL CAPACITY (TONS)	MIN. TOTAL CAPACITY (MBH)	MIN. SENSIBLE CAPACITY (MBH)	MINIMUM EER	MINIMUM IEER	CONDENSER EAT (°F DB)	MERV		MCA	MOP	VOLT/PH/Hz	HP	BHP					
RTU-2	AUDITORIUM (218)	R410A	12000	6200	6200	12000	1.0	27.50	364.82	261.04	11.0	13.6	95	-	-	14	161.97	175	208/3/60	10	8.30	5000	180x90x72	TRANE TCD330BE	SEE NOTES
RTU-3	GYMNASIUM (220)	R410A	11500	2500	2500	11500	1.0	30.00	350.91	247.60	10.6	13.3	95	-	-	14	170.53	200	208/3/60	10	7.67	5000	180x90x72	TRANE TCD360BE	SEE NOTES

**PACKAGED ROOFTOP UNIT SCHEDULE NOTES:**

- PROVIDE SINGLE ZONE VARIABLE AIR VOLUME (SZVAV) CONTROL AND VARIABLE SPEED COMPRESSORS (TRANE eFLEX OR EQUAL).
- PROVIDE LOW LEAKAGE REFERENCE OR COMPARATIVE ENTHALPY ECONOMIZER WITH FAULT DETECTION DIAGNOSIS AND BAROMETRIC RELIEF DAMPER.
- PROVIDE CO2 BASED DEMAND CONTROLLED VENTILATION WITH FIELD INSTALLED, WALL MOUNTED CO2 SENSORS. SEE SPEC 237313, 2.20 FOR MORE INFO.
- PROVIDE ROOF CURB, 24" HIGH U.O.N. REFER TO DETAIL 6/M502.
- PROVIDE DISCONNECT SWITCH AND POWERED CONVENIENCE OUTLET.
- PROVIDE WITH MANUFACTURER'S STANDARD STEAM HEATING COIL SECTION. REFER TO THE STEAM COIL SCHEDULE ON THIS DRAWING.
- PROVIDE DUCT SMOKE DETECTORS FOR BOTH THE SUPPLY AND RETURN AIR, SEE GENERAL NOTE #5 ON M-004.
- PROVIDE MOTORIZED DAMPERS AT OUTSIDE AND EXHAUST AIR OPENINGS. SEE HVAC NOTE #16 ON M-001.
- PROVIDE FREEZE/STAT FOR FROST PROTECTION. FOR OTHER REQUIRED SENSORS AND CONTROLS, SEE DRAWING M-004, SPEC 230993 AND 237313.
- PROVIDE UNIT MOUNTED DISCONNECT SWITCH WITH VFD, SEE DRAWING M-004.
- PROVIDE ENERGY RECOVERY VENTILATOR (ENERGY WHEEL) FOR RTU-2, AUDITORIUM.

0 1/2  
 IF THIS BAR DOES NOT MEASURE 1", THEN DRAWING IS NOT TO FULL SCALE

7	02-17-22	ADDENDUM 7
6	01-26-21	ADDENDUM 6
3	12-17-21	ISSUED FOR BID
2	11-19-21	ISSUED ADDENDUM 1
1	09-30-21	BIDDING DOCUMENTS
No.	Date	Revisions

Drawn by	WM
Checked by	ERF
Project No.	41048
Scale	AS NOTED
Date	08-30-21

<b>GREENMAN PEDERSEN, INC</b> 400 BELLA BOULEVARD MONTROSE, NY 10601	
Mechanical Electrical Engineer	Structural Engineer

<b>UNIVENT REPLACEMENT AT HAVERSTRAW ELEMENTARY</b> SED# 50-02-01-06-0-009-018 18 Grant Street Haverstraw, NY 10627	COUNTY OF ROCKLAND
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<b>MSA</b> MICHAEL SHILALE ARCHITECTS, L.L.P. 140 Park Avenue New City, NY 10958 Tel: 845-708-9200 www.shilale.com
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<b>MECHANICAL SCHEDULES</b>	<b>M-002</b>
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 Drawing Title

VRF HEAT RECOVERY INDOOR UNIT SCHEDULE																		
Tag Reference	Related System	Room Name	Model	Type	Nominal Cooling Capacity (BTU/h)	Nominal Heating Capacity (BTU/h)	Cooling Design Entering Temp (DB/WB (°F))	Heating Design Entering Temp (DB/WB (°F))	Cooling Total Capacity (BTU/h)	Cooling Sensible Capacity (BTU/h)	Heating Capacity (BTU/h)	Estimated Cooling Coil LAT (°F)	Estimated Heating Coil LAT (°F)	Refrig Pipe Dim Liquid/Suction (inch)	Voltage / Phase	Power 208V Cooling/Heating (kW)	Electrical MCA/MFS	Notes / Options
UV-101	CU-1	CR 101	30000 Btu/h LEV Kit	LEV KIT	30,000.0	34,000.0	78.0/67.9	72.0	30,157.2	Dependent on 3rd Party Coil	21,809.8	78.0	72.0	3/8 / 5/8	208/230V/1-phase	0.012 / 0.012	/16	1, 2, 3, 4, 5, 6
UV-102	CU-1	CR 102	30000 Btu/h LEV Kit	LEV KIT	30,000.0	34,000.0	78.0/67.9	72.0	30,157.2	Dependent on 3rd Party Coil	21,809.8	78.0	72.0	3/8 / 5/8	208/230V/1-phase	0.012 / 0.012	/16	1, 2, 3, 4, 5, 6
UV-103	CU-1	CR 103	30000 Btu/h LEV Kit	LEV KIT	30,000.0	34,000.0	78.0/67.9	72.0	30,157.2	Dependent on 3rd Party Coil	21,809.8	78.0	72.0	3/8 / 5/8	208/230V/1-phase	0.012 / 0.012	/16	1, 2, 3, 4, 5, 6
UV-104	CU-1	CR 104	30000 Btu/h LEV Kit	LEV KIT	30,000.0	34,000.0	78.0/67.9	72.0	30,157.2	Dependent on 3rd Party Coil	21,809.8	78.0	72.0	3/8 / 5/8	208/230V/1-phase	0.012 / 0.012	/16	1, 2, 3, 4, 5, 6
AC-1A	CU-1	AP 105D	TPLFY005FM140A	Ceiling-Cassette (Four-Way)	5,000.0	5,600.0	78.0/67.9	72.0	5,026.2	3,757.3	3,592.2	65.4	83.9	1/4 / 1/2	208/230V/1-phase	0.02 / 0.02	0.24/15	1, 2, 3, 4, 5, 6
AC-1B	CU-1	Kitchenette 105	TPLFY005FM140A	Ceiling-Cassette (Four-Way)	5,000.0	5,600.0	78.0/67.9	72.0	5,026.2	3,757.3	3,592.2	65.4	83.9	1/4 / 1/2	208/230V/1-phase	0.02 / 0.02	0.24/15	1, 2, 3, 4, 5, 6
UV-106	CU-1	CR 106	30000 Btu/h LEV Kit	LEV KIT	30,000.0	34,000.0	78.0/67.9	72.0	30,157.2	Dependent on 3rd Party Coil	21,809.8	78.0	72.0	3/8 / 5/8	208/230V/1-phase	0.012 / 0.012	/16	1, 2, 3, 4, 5, 6
UV-201	CU-2	CR 201	30000 Btu/h LEV Kit	LEV KIT	30,000.0	34,000.0	78.0/67.9	72.0	30,157.2	Dependent on 3rd Party Coil	23,416.3	78.0	72.0	3/8 / 5/8	208/230V/1-phase	0.012 / 0.012	/16	1, 2, 3, 4, 5, 6
UV-202	CU-2	CR 202	30000 Btu/h LEV Kit	LEV KIT	30,000.0	34,000.0	78.0/67.9	72.0	30,157.2	Dependent on 3rd Party Coil	23,416.3	78.0	72.0	3/8 / 5/8	208/230V/1-phase	0.012 / 0.012	/16	1, 2, 3, 4, 5, 6
UV-203	CU-2	CR 203	30000 Btu/h LEV Kit	LEV KIT	30,000.0	34,000.0	78.0/67.9	72.0	30,157.2	Dependent on 3rd Party Coil	23,416.3	78.0	72.0	3/8 / 5/8	208/230V/1-phase	0.012 / 0.012	/16	1, 2, 3, 4, 5, 6
UV-204	CU-2	CR 204	30000 Btu/h LEV Kit	LEV KIT	30,000.0	34,000.0	78.0/67.9	72.0	30,157.2	Dependent on 3rd Party Coil	23,416.3	78.0	72.0	3/8 / 5/8	208/230V/1-phase	0.012 / 0.012	/16	1, 2, 3, 4, 5, 6
UV-205	CU-2	CR 205	30000 Btu/h LEV Kit	LEV KIT	30,000.0	34,000.0	78.0/67.9	72.0	30,157.2	Dependent on 3rd Party Coil	23,416.3	78.0	72.0	3/8 / 5/8	208/230V/1-phase	0.012 / 0.012	/16	1, 2, 3, 4, 5, 6
UV-301	CU-3	CR 301	30000 Btu/h LEV Kit	LEV KIT	30,000.0	34,000.0	78.0/67.9	72.0	30,157.2	Dependent on 3rd Party Coil	21,619.9	78.0	72.0	3/8 / 5/8	208/230V/1-phase	0.012 / 0.012	/16	1, 2, 3, 4, 5, 6
UV-302	CU-3	CR 302	30000 Btu/h LEV Kit	LEV KIT	30,000.0	34,000.0	78.0/67.9	72.0	30,157.2	Dependent on 3rd Party Coil	21,619.9	78.0	72.0	3/8 / 5/8	208/230V/1-phase	0.012 / 0.012	/16	1, 2, 3, 4, 5, 6
UV-303	CU-3	CR 303	36000 Btu/h LEV Kit	LEV KIT	36,000.0	40,000.0	78.0/67.9	72.0	36,188.6	Dependent on 3rd Party Coil	25,435.1	78.0	72.0	3/8 / 5/8	208/230V/1-phase	0.012 / 0.012	/16	1, 2, 3, 4, 5, 6
UV-304	CU-3	CR 304	30000 Btu/h LEV Kit	LEV KIT	30,000.0	34,000.0	78.0/67.9	72.0	30,157.2	Dependent on 3rd Party Coil	21,619.9	78.0	72.0	3/8 / 5/8	208/230V/1-phase	0.012 / 0.012	/16	1, 2, 3, 4, 5, 6
AC-3A	CU-3	CR 305	TPEFY008MA143A	Ceiling-Concealed (Ducted)	8,000.0	9,000.0	78.0/67.9	72.0	8,041.9	5,558.7	5,722.9	60.6	89.8	1/4 / 1/2	208/230V/1-phase	0.06 / 0.04	1.05/15	1, 2, 3, 4, 5, 6, 8
UV-306	CU-3	CR 306	30000 Btu/h LEV Kit	LEV KIT	30,000.0	34,000.0	78.0/67.9	72.0	30,157.2	Dependent on 3rd Party Coil	21,619.9	78.0	72.0	3/8 / 5/8	208/230V/1-phase	0.012 / 0.012	/16	1, 2, 3, 4, 5, 6
AC-4A	CU-4	Main Office 105A	TPEFY008MA143A	Ceiling-Concealed (Ducted)	8,000.0	9,000.0	78.0/67.9	72.0	8,041.9	5,558.7	5,939.3	60.6	90.4	1/4 / 1/2	208/230V/1-phase	0.06 / 0.04	1.05/15	1, 2, 3, 4, 5, 6, 8
AC-4B	CU-4	Principal 105C	TPEFY008MA143A	Ceiling-Concealed (Ducted)	6,000.0	6,700.0	78.0/67.9	72.0	6,031.4	4,892.2	4,421.5	78.0	85.7	1/4 / 1/2	208/230V/1-phase	0.06 / 0.04	1.05/15	1, 2, 3, 4, 5, 6, 8
AC-4C	CU-4	Conference 105B	TPEFY008MA143A	Ceiling-Concealed (Ducted)	8,000.0	9,000.0	78.0/67.9	72.0	8,041.9	5,558.7	5,939.3	60.6	90.4	1/4 / 1/2	208/230V/1-phase	0.06 / 0.04	1.05/15	1, 2, 3, 4, 5, 6, 8
UV-206	CU-4	CR 206	30000 Btu/h LEV Kit	LEV KIT	30,000.0	34,000.0	78.0/67.9	72.0	30,157.2	Dependent on 3rd Party Coil	21,619.9	78.0	72.0	3/8 / 5/8	208/230V/1-phase	0.012 / 0.012	/16	1, 2, 3, 4, 5, 6
UV-207	CU-4	CR 207	30000 Btu/h LEV Kit	LEV KIT	30,000.0	34,000.0	78.0/67.9	72.0	30,157.2	Dependent on 3rd Party Coil	22,437.3	78.0	72.0	3/8 / 5/8	208/230V/1-phase	0.012 / 0.012	/16	1, 2, 3, 4, 5, 6
UV-208	CU-4	CR 208	30000 Btu/h LEV Kit	LEV KIT	30,000.0	34,000.0	78.0/67.9	72.0	30,157.2	Dependent on 3rd Party Coil	22,437.3	78.0	72.0	3/8 / 5/8	208/230V/1-phase	0.012 / 0.012	/16	1, 2, 3, 4, 5, 6
UV-307	CU-4	CR 307	36000 Btu/h LEV Kit	LEV KIT	36,000.0	40,000.0	78.0/67.9	72.0	36,188.6	Dependent on 3rd Party Coil	26,396.8	78.0	72.0	3/8 / 5/8	208/230V/1-phase	0.012 / 0.012	/16	1, 2, 3, 4, 5, 6
AC-4D	CU-4	CR 309	TPEFY008MA143A	Ceiling-Concealed (Ducted)	8,000.0	9,000.0	78.0/67.9	72.0	8,041.9	5,558.7	5,939.3	60.6	90.4	1/4 / 1/2	208/230V/1-phase	0.06 / 0.04	1.05/15	1, 2, 3, 4, 5, 6, 8
UV-186	CU-5	Music 186	30000 Btu/h LEV Kit	LEV KIT	30,000.0	34,000.0	78.0/67.9	72.0	30,157.2	Dependent on 3rd Party Coil	23,116.6	78.0	72.0	3/8 / 5/8	208/230V/1-phase	0.012 / 0.012	/16	1, 2, 3, 4, 5, 6
AC-5C	CU-5	Music 185	TPVFP018AM141A	Multi-Position Air Handler	18,000.0	40,000.0	78.0/67.9	72.0	18,094.3	11,937.6	13,598.0	58.8	93.6	1/4 / 1/2	208/230V/1-phase	0.13 / 0.13	3.0/15	1, 2, 3, 4, 5, 6
UV-190	CU-5	Home Ec 190	30000 Btu/h LEV Kit	LEV KIT	30,000.0	34,000.0	78.0/67.9	72.0	30,157.2	Dependent on 3rd Party Coil	23,116.6	78.0	72.0	3/8 / 5/8	208/230V/1-phase	0.012 / 0.012	/16	1, 2, 3, 4, 5, 6
UV-195A	CU-5	Home Ec 195A	30000 Btu/h LEV Kit	LEV KIT	30,000.0	34,000.0	78.0/67.9	72.0	30,157.2	Dependent on 3rd Party Coil	23,116.6	78.0	72.0	3/8 / 5/8	208/230V/1-phase	0.012 / 0.012	/16	1, 2, 3, 4, 5, 6
AC-5A	CU-5	Office 220A	TPLFY005FM140A	Ceiling-Cassette (Four-Way)	5,000.0	5,600.0	78.0/67.9	72.0	5,026.2	3,757.3	3,807.4	65.4	84.7	1/4 / 1/2	208/230V/1-phase	0.02 / 0.02	0.24/15	1, 2, 3, 4, 5, 6
AC-5B	CU-5	Office 220B	TPLFY005FM140A	Ceiling-Cassette (Four-Way)	5,000.0	5,600.0	78.0/67.9	72.0	5,026.2	3,757.3	3,807.4	65.4	84.7	1/4 / 1/2	208/230V/1-phase	0.02 / 0.02	0.24/15	1, 2, 3, 4, 5, 6
UV-105B	CU-5	Conference 105B	30000 Btu/h LEV Kit	LEV KIT	30,000.0	34,000.0	78.0/67.9	72.0	30,157.2	Dependent on 3rd Party Coil	23,116.6	78.0	72.0	3/8 / 5/8	208/230V/1-phase	0.012 / 0.012	/16	1, 2, 3, 4, 5, 6
UV-180A-1	CU-6	Room 180A	36000 Btu/h LEV Kit	LEV KIT	36,000.0	40,000.0	78.0/67.9	72.0	36,188.6	Dependent on 3rd Party Coil	27,023.6	78.0	72.0	3/8 / 5/8	208/230V/1-phase	0.012 / 0.012	/16	1, 2, 3, 4, 5, 6
UV-180A-2	CU-6	Room 180A	36000 Btu/h LEV Kit	LEV KIT	36,000.0	40,000.0	78.0/67.9	72.0	36,188.6	Dependent on 3rd Party Coil	27,023.6	78.0	72.0	3/8 / 5/8	208/230V/1-phase	0.012 / 0.012	/16	1, 2, 3, 4, 5, 6
UV-175	CU-6	Room 175	60000 Btu/h LEV Kit	LEV KIT	60,000.0	66,000.0	78.0/67.9	72.0	60,314.4	Dependent on 3rd Party Coil	44,589.0	78.0	72.0	3/8 / 3/4	208/230V/1-phase	0.012 / 0.012	/16	1, 2, 3, 4, 5, 6
UV-221	CU-7	Locker Rm 221	36000 Btu/h LEV Kit	LEV KIT	36,000.0	40,000.0	78.0/67.9	72.0	36,188.6	Dependent on 3rd Party Coil	32,571.1	78.0	72.0	3/8 / 5/8	208/230V/1-phase	0.012 / 0.012	/16	1, 2, 3, 4, 5, 6
UV-222	CU-7	Locker Rm 222	36000 Btu/h LEV Kit	LEV KIT	36,000.0	40,000.0	78.0/67.9	72.0	36,188.6	Dependent on 3rd Party Coil	32,571.1	78.0	72.0	3/8 / 5/8	208/230V/1-phase	0.012 / 0.012	/16	1, 2, 3, 4, 5, 6
AC-7A	CU-7	Office 222C	TPLFY005FM140A	Ceiling-Cassette (Four-Way)	5,000.0	5,600.0	78.0/67.9	72.0	5,026.2	3,757.3	4,560.0	65.4	87.2	1/4 / 1/2	208/230V/1-phase	0.02 / 0.02	0.24/15	1, 2, 3, 4, 5, 6, 7
AC-7B	CU-7	Office 222B	TPLFY005FM140A	Ceiling-Cassette (Four-Way)	5,000.0	5,600.0	78.0/67.9	72.0	5,026.2	3,757.3	4,560.0	65.4	87.2	1/4 / 1/2	208/230V/1-phase	0.02 / 0.02	0.24/15	1, 2, 3, 4, 5, 6, 7
AC-7C	CU-7	Office 221B	TPLFY005FM140A	Ceiling-Cassette (Four-Way)	5,000.0	5,600.0	78.0/67.9	72.0	5,026.2	3,757.3	4,560.0	65.4	87.2	1/4 / 1/2	208/230V/1-phase	0.02 / 0.02	0.24/15	1, 2, 3, 4, 5, 6, 7
AC-7D	CU-7	Office 221C	TPLFY005FM140A	Ceiling-Cassette (Four-Way)	5,000.0	5,600.0	78.0/67.9	72.0	5,026.2	3,757.3	4,560.0	65.4	87.2	1/4 / 1/2	208/230V/1-phase	0.02 / 0.02	0.24/15	1, 2, 3, 4, 5, 6, 7
UV-207-1	CU-8	Library 207	36000 Btu/h LEV Kit	LEV KIT	36,000.0	40,000.0	78.0/67.9	72.0	36,188.6	Dependent on 3rd Party Coil	25,745.5	78.0	72.0	3/8 / 5/8	208/230V/1-phase	0.012 / 0.012	/16	1, 2, 3, 4, 5, 6
UV-207-2	CU-8	Library 207	36000 Btu/h LEV Kit	LEV KIT	36,000.0	40,000.0	78.0/67.9	72.0	36,188.6	Dependent on 3rd Party Coil	25,745.5	78.0	72.0	3/8 / 5/8	208/230V/1-phase	0.012 / 0.012	/16	1, 2, 3, 4, 5, 6
UV-311	CU-8	Science 311	60000 Btu/h LEV Kit	LEV KIT	60,000.0	66,000.0	78.0/67.9	72.0	60,314.4	Dependent on 3rd Party Coil	42,480.1	78.0	72.0	3/8 / 3/4	208/230V/1-phase	0.012 / 0.012	/16	1, 2, 3, 4, 5, 6
AC-8A	CU-8	Office 209A	TPEFY008MA143A	Ceiling-Concealed (Ducted)	8,000.0	9,000.0	78.0/67.9	72.0	8,041.9	5,558.7	5,792.7	60.6	90.0	1/4 / 1/2	208/230V/1-phase	0.06 / 0.04	1.05/15	1, 2, 3, 4, 5, 6, 8
AC-9A	CU-9	Office 107B	TPEFY006MA143A	Ceiling-Concealed (Ducted)	6,000.0	6,700.0	78.0/67.9	72.0	5,598.1	4,738.6	4,071.2	63.1	84.6	1/4 / 1/2	208/230V/1-phase	0.06 / 0.04	1.05/15	1, 2, 3, 4, 5, 6, 8
AC-9B	CU-9	Office 107F	TPEFY006MA143A	Ceiling-Concealed (Ducted)	6,000.0	6,700.0	78.0/67.9	72.0	5,598.1	4,738.6	4,071.2	63.1	84.6	1/4 / 1/2	208/230V/1-phase	0.06 / 0.04	1.05/15	1, 2, 3, 4, 5, 6, 8
AC-9C	CU-9	Office 107D	TPEFY006MA143A	Ceiling-Concealed (Ducted)	6,000.0	6,700.0	78.0/67.9	72.0	5,598.1	4,738.6	4,071.2	63.1	84.6	1/4 / 1/2	208/230V/1-phase	0.06 / 0.04	1.05/15	1, 2, 3, 4, 5, 6, 8
AC-9E	CU-9	Office 107E	TPEFY006MA143A	Ceiling-Concealed (Ducted)	6,000.0	6,700.0	78.0/67.9	72.0	5,598.1	4,738.6	4,071.2	63.1	84.6	1/4 / 1/2	208/230V/1-phase	0.06 / 0.04	1.05/15	1, 2, 3, 4, 5, 6, 8
AC-9I	CU-9	Office 108E	TPLFY005FM140A	Ceiling-Cassette (Four-Way)	5,000.0	5,600.0	78.0/67.9	72.0	4,665.1	3,626.6</								

- DUCT SMOKE DETECTORS SHALL BE PROVIDED IN MAIN SUPPLY AND RETURN DUCT FOR SYSTEMS OVER 1,000 CFM AND ALSO UPSTREAM OF EACH STORY RETURN DUCT/ RISER CONNECTION WHERE RETURN AIR RISERS SERVE TWO OR MORE STORIES FOR SYSTEMS OVER 15,000 CFM.
- INTEGRATE AIR FLOW MEASURING APPARATUS INTO THE BMS/DDC NETWORK. PROVIDE ONE OUTSIDE AIR FLOW MEASURING STATION FOR EACH OUTSIDE AIR INTAKE PORT. PROVIDE FACTORY INSTALLED AIRFLOW STATION.
- PROVIDE NEW THERMOSTATS WITH LOCK BOXES IN ROOMS BEING SERVED BY AHU. CONTRACTOR SHALL PROVIDE ALL ASSOCIATED CONTROL WIRING.
- SAFETY SHUTDOWN DEVICES SHALL BE HARDWIRED TO THE FAN STARTER CIRCUIT IN ADDITION TO THE DDC SYSTEM. COORDINATE WITH MANUFACTURER FOR SHUTDOWN UNDER ALL MODES OF OPERATION.
- MECHANICAL CONTRACTOR SHALL HIRE A FIRE ALARM SUBCONTRACTOR. FIRE ALARM CONTRACTOR TO FURNISH FIRE ALARM SYSTEM COMPLIANT SMOKE DETECTORS TO THE MECHANICAL CONTRACTOR WHO SHALL IN TURN FURNISH THEM TO THE CENTRAL AIR HANDLING UNIT MANUFACTURER FOR FACTORY INSTALLATION OR TO THE SHEET METAL CONTRACTOR FOR FIELD DUCTWORK INSTALLATION FOR THE FLOOR RETURN/RISER RETURN CONNECTIONS AS APPLICABLE. CONTRACTOR SHALL PROVIDE ALL SIGNAL AND CONTROL POWER WIRING TO UNIT.
- ACCEPTABLE MANUFACTURER: DAIKIN OR TRANE

**GENERAL NOTES**

VFD	VARIABLE FREQUENCY DRIVE	DCV	DEMAND CONTROL VENTILATION
TLL-1	TEMPERATURE LOW LIMIT	CO2	CARBON DIOXIDE
TCC	TEMPERATURE CONTROLS CONTRACTOR	DI	DIGITAL INPUT
TS-1	OUTSIDE AIR TEMP	DO	DIGITAL OUTPUT
TS-2	MIXED AIR TEMP	AI	ANALOG INPUT
TS-3	HEATING COIL DISCHARGE	AO	ANALOG OUTPUT
TS-4	DISCHARGE AIR TEMP	LO	LOWWORKS NETWORK CONNECTION
TS-5	RETURN AIR TEMP	PSL	PRESSURE SWITCH LOW
FE	FLOW ELEMENT	PSH	PRESSURE SWITCH HIGH
FM	FLOW METER	DPS/I	DIFF. PRESSURE SWITCH/INDICATOR
BI	BINARY INPUT	AD	DPR ACTUATORS
BO	BINARY OUTPUT	BMS	BUILDING MANAGEMENT SYSTEM
DA	DISCHARGE AIR	RTU	ROOFTOP UNIT
OA	OUTSIDE AIR	VRF	VARIABLE REFRIGERANT FLOW
SA	SUPPLY AIR	STM SUP	STEAM SUPPLY
RA	RETURN AIR	COND	CONDENSATE RETURN
IDU	INDOOR UNIT	WCI	WIRELESS COMMUNICATION INTERFACE
ODU	OUTDOOR UNIT	MA ACT	MIXED AIR ACTIVE
FLTC	FLOATING TEMPERATURE	SF STS	SUPPLY FAN STATUS
TEMP	TEMPERATURE	SPD	SPEED
STPT	SETPOINT	CMD	COMMAND
VAL	VALVE	---	FIELD INSTALLED WIRING
EC	ELECTRICAL CONTRACTOR		

**LEGEND**

**POINTS LIST NOTES:**  
**LEGEND:**  
 X = PROVIDE QUANTITY AS REQUIRED TO INCLUDE ALL INSTANCES OF THE INDICATED FEATURE. INCLUDE MULTIPLE POINTS WITHIN EACH MECHANICAL SYSTEM AS NECESSARY. COORDINATE WITH EQUIPMENT VENDOR.  
 B = INFORMATION PROVIDED TO EACH SYSTEM VIA NETWORK BROADCAST.  
 NVO = NETWORK VARIABLE OUTPUT, NVI = NETWORK VARIABLE INPUT

**KEY NOTES:**

- THE POINT LISTED HEREIN ARE THE MINIMUM POINTS REQUIRED FOR THE CONTROL AND MONITORING OF THIS EQUIPMENT. THIS POINT LIST IS TYPICAL FOR EACH MECHANICAL/ELECTRICAL SYSTEM OF THIS TYPE. IF THE SEQUENCE OF OPERATION REQUIRES ADDITIONAL OR DIFFERING INFORMATION, IT MUST BE PROVIDED BY THE RESPECTIVE PROVIDER OF THE CONTROLS FOR THIS TYPE OF EQUIPMENT AS COORDINATED BY THE GENERAL AND MECHANICAL CONTRACTORS.
- THE TCC SHALL PROVIDE ALL DIGITAL ALARM LOGIC. ALL DIGITAL ALARMS SHALL BE COMPATIBLE WITH THE EXISTING SIEMENS BMS SYSTEM.
- THE TCC SHALL PROVIDE ALL TRENDDING AND ANALOG ALARMING VIA THE SOFTWARE USED AT THE EXISTING SIEMENS BMS SYSTEM.
- PROVIDE ACCUMULATED AIR FLOW FOR VALIDATION OF PURGE-MODE AND FOR PERMANENT VALIDATION OF OCCUPANT VENTILATION.
- PROVIDE MANUAL RESET DEVICE. NOTE THAT THIS DEVICE BOTH ALARMS IN THE BMS AND IS HARDWIRED TO THE VFDs FOR SHUTDOWN OF THE FANS IN ALL OPERATING CONDITIONS OF THE VFD.
- PROVIDE THE ALARM WHEN AT THE CALCULATED DIFFERENTIAL BETWEEN OUTSIDE AIR AND SPACE AIR CO2 VALUE IS 1000 ppm.
- PROVIDE LOW COMMUNICATION CONNECTION TO THIS DEVICE MAPPING ALL REQUIRED POINTS INTO THE LNS DATABASE.

Reference No.	Point Name	Input/Output (Note 1)				Software/Firmware Features (Note 2,3)					Notes	
		Sensed	Calculated	Alarms and Advisories (with instructions)	Misc. Features	Network Variable Type	Notes					
1	Outside Air Temp	X										
2	Outside Air CO2	X										
3	Supply Airflow	X				20% over SP	20% under SP					
4	Exhaust/Return Airflow	X				20% over SP	20% under SP					
5	Supply Air Enthalpy Wheel Discharge Temp	X										
6	Supply Air Temp Heating Setpoint (Leaving The Wheel)		X									
7	Heating Coil Discharge Air Temp	X										
8	Cooling Coil Discharge Air Temp	X										
9	Supply Air Temp	X										
10	Exhaust/Return Air Temp	X										
11	Room Temp	X										
12	Room CO2	X										
13	Differential CO2 (Calculated)		X					1000 ppm				⑥
14	SF High Static Pressure		X					[TBD]				⑤
15	EF/RF Low Suction Pressure		X					[TBD]				⑤
16	Supply Fan Status		X					1,000				
17	Supply Fan VFD		X									⑦
18	Supply Fan VFD Fault		X									
19	Supply Fan VFD Speed		X									
20	Supply Fan Failure		X									②
21	Exhaust Fan Status		X					1,000				
22	Exhaust Fan VFD		X									②
23	Exhaust Fan VFD Fault		X									
24	Exhaust Fan VFD Speed		X									
25	Exhaust Fan Failure		X									②
26	Outside Air Flow	X		cfm	CCF			SP-20%	SP+20%			②
27	Common Fire Alarm		X									
28	Freeze Alarm		X					39F				
29	HVAC Mode		X									
30	Occupancy Mode (Bypass Mode)		X									
31	Occupancy Mode		X									
32	DX Cooling Command		X									
33	DX Compressor Status		X					1,000				

0 1/2  
 IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

7	02-17-22 ADDENDUM 5
6	01-28-22 ADDENDUM 7
3	12-17-21 ISSUED FOR BID
2	11-19-21 ISSUED ADDENDUM 1
1	08-30-21 BIDDING DOCUMENTS
No.	Date

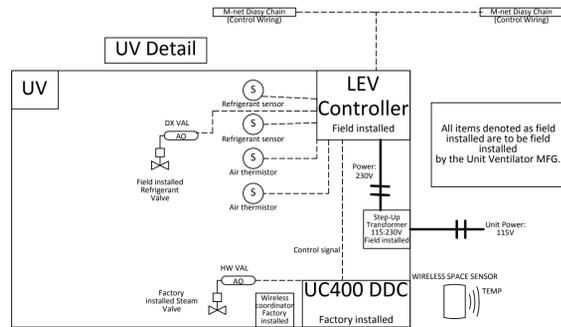
Drawn by	WM
Checked by	ERF
Project No.	41048
Scale	AS NOTED
Date	08-30-21

**GREENMAN PEDERSEN, INC**  
 Mechanical Electrical Engineer  
 400 BELLA BOULEVARD  
 MONROEVILLE, NY 10901

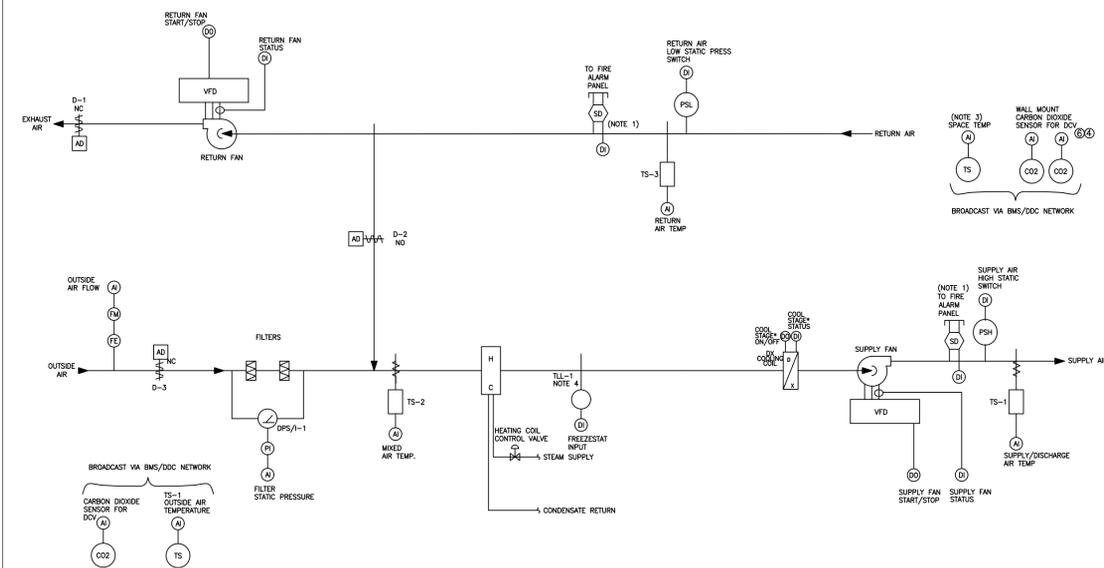
**UNIVENT REPLACEMENT AT HAVERSTRAW ELEMENTARY**  
 SED# 50-02-01-06-0-009-018  
 COUNTY OF ROCKLAND  
 18 Grant Street  
 Haverstraw, NY 10927

**SHILA**  
**MICHAEL SHILA ARCHITECTS, L.L.P.**  
 New City, NY 10958 Tel: 845-708-8200  
 140 Park Avenue  
 www.shila.com

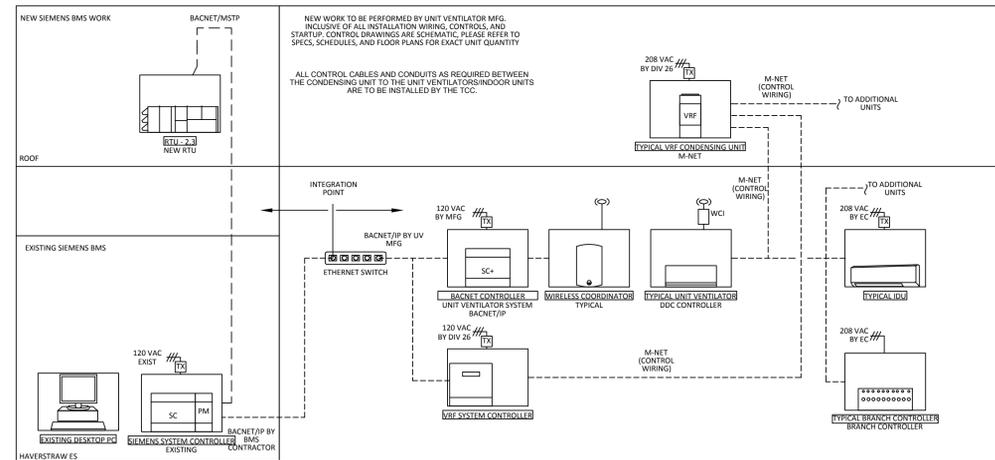
**CONTROLS**  
 Drawing No. **M-004**



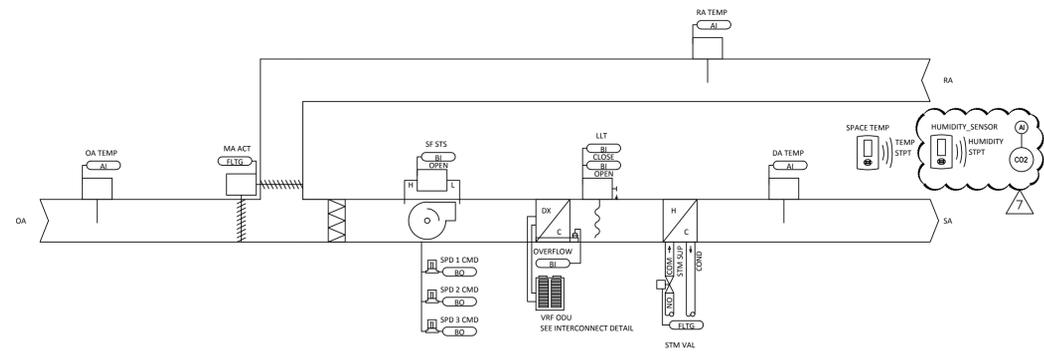
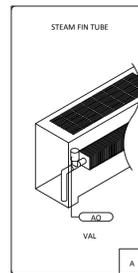
**4 LEV KIT WIRING DIAGRAM**  
 SCALE: N.T.S.



**1 RTU CONTROL DIAGRAM**  
 SCALE: N.T.S.



**3 VRF BMS WIRING DIAGRAM**  
 SCALE: N.T.S.



**2 UV CONTROL DIAGRAM**  
 SCALE: N.T.S.

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 Drawing Title

UNIT VENTILATOR SCHEDULE

SEE SCHEDULE NOTES 14, 15, 16 FOR ALL UNITS

UNIT TAG	LOCATION	TOTAL SUPPLY AIRFLOW (CFM)	MINIMUM OUTSIDE AIRFLOW (CFM)		MAXIMUM OUTSIDE AIRFLOW (CFM)	COOLING						HEATING				FILTER	ELECTRICAL				UNIT WEIGHT (LBS)	UNIT DIMENSIONS (LxDxH, IN) (V.I.F.)	BASIS OF DESIGN	REMARKS
			COOLING	HEATING		EADB (°F)	EAWB (°F)	LADB (°F)	LADB (°F)	MIN. SENSIBLE CAPACITY (BTU/H)	MIN. TOTAL CAPACITY (BTU/H)	EADB (°F)	LADB (°F)	STEAM PRESSURE (PSIG)	REQUIRED TOTAL CAPACITY (BTU/H)		MERV	MCA	MAX FUSE SIZE	VOLT/PH/HZ				
UV-101	101	750	400	400	750	80.0	67.0	54.7	52.4	17,810	28,250	12.0	102.6	2.0	63,200	13	4.5	15	115/1/60	320	69x21.25x30	TRANE VUVE0750	SEE NOTES 1-10	
UV-102	102	750	400	400	750	80.0	67.0	54.7	52.4	17,810	28,250	12.0	102.6	2.0	63,200	13	4.5	15	115/1/60	320	69x21.25x30	TRANE VUVE0750	SEE NOTES 1-10	
UV-103	103	750	400	400	750	80.0	67.0	54.7	52.4	17,810	28,250	12.0	102.6	2.0	63,200	13	4.5	15	115/1/60	320	69x21.25x30	TRANE VUVE0750	SEE NOTES 1-10	
UV-104	104	750	375	375	750	80.0	67.0	54.7	52.4	17,810	28,250	12.0	102.6	2.0	63,200	13	4.5	15	115/1/60	320	69x21.25x30	TRANE VUVE0750	SEE NOTES 1-10	
UV-105B	105	750	375	375	750	80.0	67.0	54.7	52.4	17,810	28,250	12.0	102.6	2.0	63,200	13	4.5	15	115/1/60	320	69x21.25x30	TRANE VUVE0750	SEE NOTES 1-10,11	
UV-106	106	750	375	375	750	80.0	67.0	54.7	52.4	17,810	28,250	12.0	102.6	2.0	63,200	13	4.5	15	115/1/60	320	69x21.25x30	TRANE VUVE0750	SEE NOTES 1-10	
UV-107	107	750	400	400	750	80.0	67.0	54.7	52.4	17,810	28,250	12.0	102.6	2.0	63,200	13	4.5	15	115/1/60	320	69x21.25x30	TRANE VUVE0750	SEE NOTES 1-10	
UV-109	109	750	400	400	750	80.0	67.0	54.7	52.4	17,810	28,250	12.0	102.6	2.0	63,200	13	4.5	15	115/1/60	320	69x21.25x30	TRANE VUVE0750	SEE NOTES 1-10	
UV-110	110	750	475	475	750	80.0	67.0	54.7	52.4	17,810	28,250	12.0	102.6	2.0	63,200	13	4.5	15	115/1/60	320	69x21.25x30	TRANE VUVE0750	SEE NOTES 1-10	
UV-111	111	750	400	400	750	80.0	67.0	54.7	52.4	17,810	28,250	12.0	102.6	2.0	63,200	13	4.5	15	115/1/60	320	69x21.25x30	TRANE VUVE0750	SEE NOTES 1-10	
UV-175	175	1500	850	850	1500	80.0	67.0	55.4	52.2	30,890	51,010	12.0	116.3	2.0	129,700	13	9.0	15	115/1/60	470	105x21.25x30	TRANE VUVE1500	SEE NOTES 1-10	
UV-180A-1	180A	1000	525	525	1000	80.0	67.0	54.7	51.8	21,720	35,670	12.0	124.2	2.0	106,950	13	4.5	15	120/1/60	375	82.25x35.6x16.6	TRANE HUVCI001	SEE NOTES 1-10,12	
UV-180A-2	180A	1000	525	525	1000	80.0	67.0	54.7	51.8	21,720	35,670	12.0	124.2	2.0	106,950	13	4.5	15	120/1/60	375	82.25x35.6x16.6	TRANE HUVCI001	SEE NOTES 1-10,12	
UV-186	186	1000	500	500	1000	80.0	67.0	54.7	51.8	21,720	35,670	12.0	112.5	2.0	85,380	13	4.5	15	115/1/60	405	81x21.25x30	TRANE VUVE1000	SEE NOTES 1-10,11	
UV-190	190	750	365	365	750	80.0	67.0	54.7	52.4	17,810	28,250	12.0	102.6	2.0	63,200	13	4.5	15	115/1/60	320	69x21.25x30	TRANE VUVE0750	SEE NOTES 1-10	
UV-195A	195A	750	435	435	750	80.0	67.0	54.7	52.4	17,810	28,250	12.0	102.6	2.0	63,200	13	4.5	15	115/1/60	320	69x21.25x30	TRANE VUVE0750	SEE NOTES 1-10	
UV-201	201	750	400	400	750	80.0	67.0	54.7	52.4	17,810	28,250	12.0	102.6	2.0	63,200	13	4.5	15	115/1/60	320	69x21.25x30	TRANE VUVE0750	SEE NOTES 1-10	
UV-202	202	750	400	400	750	80.0	67.0	54.7	52.4	17,810	28,250	12.0	102.6	2.0	63,200	13	4.5	15	115/1/60	320	69x21.25x30	TRANE VUVE0750	SEE NOTES 1-10	
UV-203	203	750	400	400	750	80.0	67.0	54.7	52.4	17,810	28,250	12.0	102.6	2.0	63,200	13	4.5	15	115/1/60	320	69x21.25x30	TRANE VUVE0750	SEE NOTES 1-10	
UV-204	204	750	300	300	750	80.0	67.0	54.7	52.4	17,810	28,250	12.0	102.6	2.0	63,200	13	4.5	15	115/1/60	320	69x21.25x30	TRANE VUVE0750	SEE NOTES 1-10	
UV-205	205	750	375	375	750	80.0	67.0	54.7	52.4	17,810	28,250	12.0	102.6	2.0	63,200	13	4.5	15	115/1/60	320	69x21.25x30	TRANE VUVE0750	SEE NOTES 1-10	
UV-206	206	750	250	250	750	80.0	67.0	54.7	52.4	17,810	28,250	12.0	102.6	2.0	63,200	13	4.5	15	115/1/60	320	69x21.25x30	TRANE VUVE0750	SEE NOTES 1-10	
UV-207	207	750	375	375	750	80.0	67.0	54.7	52.4	17,810	28,250	12.0	102.6	2.0	63,200	13	4.5	15	115/1/60	320	69x21.25x30	TRANE VUVE0750	SEE NOTES 1-10	
UV-208	208	750	250	250	750	80.0	67.0	54.7	52.4	17,810	28,250	12.0	102.6	2.0	63,200	13	4.5	15	115/1/60	320	69x21.25x30	TRANE VUVE0750	SEE NOTES 1-10	
UV-207A-1	207A	1000	500	500	1000	80.0	67.0	54.7	51.8	21,720	35,670	12.0	112.5	2.0	85,380	13	4.5	15	115/1/60	405	81x21.25x30	TRANE VUVE1000	SEE NOTES 1-10,11	
UV-207A-2	207A	1000	500	500	1000	80.0	67.0	54.7	51.8	21,720	35,670	12.0	112.5	2.0	85,380	13	4.5	15	115/1/60	405	81x21.25x30	TRANE VUVE1000	SEE NOTES 1-10,11	
UV-209	209	750	375	375	750	80.0	67.0	54.7	52.4	17,810	28,250	12.0	102.6	2.0	63,200	13	4.5	15	115/1/60	320	69x21.25x30	TRANE VUVE0750	SEE NOTES 1-10	
UV-210	210	750	400	400	750	80.0	67.0	54.7	52.4	17,810	28,250	12.0	102.6	2.0	63,200	13	4.5	15	115/1/60	320	69x21.25x30	TRANE VUVE0750	SEE NOTES 1-10	
UV-213	213	750	375	375	750	80.0	67.0	54.7	52.4	17,810	28,250	12.0	102.6	2.0	63,200	13	4.5	15	115/1/60	320	69x21.25x30	TRANE VUVE0750	SEE NOTES 1-10	
UV-214	214	750	400	400	750	80.0	67.0	54.7	52.4	17,810	28,250	12.0	102.6	2.0	63,200	13	4.5	15	115/1/60	320	69x21.25x30	TRANE VUVE0750	SEE NOTES 1-10	
UV-215	215	750	400	400	750	80.0	67.0	54.7	52.4	17,810	28,250	12.0	102.6	2.0	63,200	13	4.5	15	115/1/60	320	69x21.25x30	TRANE VUVE0750	SEE NOTES 1-10	
UV-216	216	750	400	400	750	80.0	67.0	54.7	52.4	17,810	28,250	12.0	102.6	2.0	63,200	13	4.5	15	115/1/60	320	69x21.25x30	TRANE VUVE0750	SEE NOTES 1-10	
UV-221	221	1000	100	100	1000	80.0	67.0	54.7	51.8	21,720	35,670	12.0	112.5	2.0	85,380	13	4.5	15	115/1/60	405	81x21.25x30	TRANE VUVE1000	SEE NOTES 1-10	
UV-222	222	1000	100	100	1000	80.0	67.0	54.7	51.8	21,720	35,670	12.0	112.5	2.0	85,380	13	4.5	15	115/1/60	405	81x21.25x30	TRANE VUVE1000	SEE NOTES 1-10	
UV-301	301	750	400	400	750	80.0	67.0	54.7	52.4	17,810	28,250	12.0	102.6	2.0	63,200	13	4.5	15	115/1/60	320	69x21.25x30	TRANE VUVE0750	SEE NOTES 1-10	
UV-302	302	750	375	375	750	80.0	67.0	54.7	52.4	17,810	28,250	12.0	102.6	2.0	63,200	13	4.5	15	115/1/60	320	69x21.25x30	TRANE VUVE0750	SEE NOTES 1-10	
UV-303	303	1000	475	475	1000	80.0	67.0	54.7	51.8	21,720	35,670	12.0	112.5	2.0	85,380	13	4.5	15	115/1/60	405	81x21.25x30	TRANE VUVE1000	SEE NOTES 1-10	
UV-304	304	750	350	350	750	80.0	67.0	54.7	52.4	17,810	28,250	12.0	102.6	2.0	63,200	13	4.5	15	115/1/60	320	69x21.25x30	TRANE VUVE0750	SEE NOTES 1-10	
UV-306	306	1000	500	500	1000	80.0	67.0	54.7	51.8	21,720	35,670	12.0	112.5	2.0	85,380	13	4.5	15	115/1/60	405	81x21.25x30	TRANE VUVE1000	SEE NOTES 1-10	
UV-307	307	1000	400	400	1000	80.0	67.0	54.7	51.8	21,720	35,670	12.0	112.5	2.0	85,380	13	4.5	15	115/1/60	405	81x21.25x30	TRANE VUVE1000	SEE NOTES 1-10	
UV-310	310	750	400	400	750	80.0	67.0	54.7	52.4	17,810	28,250	12.0	102.6	2.0	63,200	13	4.5	15	115/1/60	320	105x21.25x30	TRANE VUVE1500	SEE NOTES 1-10	
UV-311	311	1500	625	625	1500	80.0	67.0	55.4	52.2	30,890	51,010	12.0	116.3	2.0	129,700	13	9.0	15	115/1/60	470	105x21.25x30	TRANE VUVE1500	SEE NOTES 1-10	
UV-312	312	750	400	400	750	80.0	67.0	54.7	52.4	17,810	28,250	12.0	102.6	2.0	63,200	13	4.5	15	115/1/60	320	69x21.25x30	TRANE VUVE0750	SEE NOTES 1-10	
UV-313	313	1500	575	575	1500	80.0	67.0	55.4	52.2	30,890	51,010	12.0	116.3	2.0	129,700	13	9.0	15	115/1/60	470	105x21.25x30	TRANE VUVE1500	SEE NOTES 1-10	
UV-314	314	750	400	400	750	80.0	67.0	54.7	52.4	17,810	28,250	12.0	102.6	2.0	63,200	13	4.5	15	115/1/60	320	69x21.25x30	TRANE VUVE0750	SEE NOTES 1-10	
UV-319	319	750	400	400	750	80.0	67.0	54.7	52.4	17,810	28,250	12.0	102.6	2.0	63,200	13	4.5	15	115/1/60	320	69x21.25x30	TRANE VUVE0750	SEE NOTES 1-10	
UV-321	321	750	400	400	750	80.0	67.0	54.7	52.4	17,810	28,250	12.0	102.6	2.0	63,200	13	4.5	15	115/1/60	320	69x21.25x30	TRANE VUVE0750	SEE NOTES 1-10	

0 1/2  
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

7	02-17-22	ADDENDUM 7
6	01-26-21	ADDENDUM 6
5	12-17-21	ISSUED FOR BID
3	11-19-21	ISSUED ADDENDUM 1
2	09-30-21	BIDDING DOCUMENTS
1		
No.	Date	Revisions



Drawn by	WM
Checked by	ERF
Project No.	41048
Scale	AS NOTED
Date	08-30-21

<b>GREENMAN PEDERSEN, INC</b> Mechanical Electrical Engineer	400 BELLA BOULEVARD MONTEBELLO, NY 10601
Mechanical Electrical Engineer	Structural Engineer

**UNIVENT REPLACEMENT AT HAVERSTRAW ELEMENTARY**  
SED# 50-02-01-06-0-009-0

**NOTES:**

- ① FURNISH AND INSTALL NEW VERTICAL UNIT VENTILATOR. REFER TO THE UNIT VENTILATOR SCHEDULE ON DRAWING M-006 AND DETAILS ON DRAWING M-501. CONNECT OUTSIDE AIR DUCT TO EXISTING OUTSIDE AIR OPENING/LOUVER.
- ② FURNISH AND INSTALL NEW VERTICAL UNIT VENTILATOR. UTILIZE EXISTING ORIGINAL BUILT-IN CABINETS ENCLASURE. REFER TO THE UNIT VENTILATOR SCHEDULE ON DRAWING M-006 AND DETAILS ON DRAWING M-501. CONNECT OUTSIDE AIR DUCT TO EXISTING OUTSIDE AIR OPENING/LOUVER.
- ③ FURNISH AND INSTALL NEW HORIZONTAL UNIT VENTILATOR WITH NEW CEILING SUPPORTS. REFER TO THE UNIT VENTILATOR SCHEDULE ON DRAWING M-006 AND DETAILS ON DRAWING M-501.
- ④ FURNISH AND INSTALL NEW EVAPORATOR/AC INDOOR UNIT. REFER TO VRF HEAT RECOVERY INDOOR UNIT SCHEDULE ON DRAWING M-003 AND DETAILS ON DRAWING M-501.
- ⑤ FURNISH AND INSTALL NEW OUTSIDE AIR INTAKE LOUVER AT WINDOW INSULATED PANEL. GC TO PROVIDE OPENING TO ACCOMMODATE NEW LOUVER. COORDINATE OPENINGS WITH THE ARCHITECT AND GC. FURNISH AND INSTALL OUTSIDE AIR DUCT CONNECTION TO LOUVER WITH VOLUME DAMPER, SEE PLANS FOR DUCT SIZE.
- ⑥ EXISTING OUTSIDE AIR WALL LOUVER TO REMAIN. SIZE VARIES PER EACH ROOM. CONNECT OA INTAKE DUCT TO EXISTING LOUVER. SEE DETAILS ON DRAWING M-501.
- ⑦ FURNISH AND INSTALL NEW PROGRAMMABLE ELECTRONIC THERMOSTAT WITH LOCKING GUARD. INTEGRATE WITH THE SIEMENS BMS.
- ⑧ FURNISH AND INSTALL NEW RELIEF AIR LOUVER 24X12 WITH MOTORIZED DAMPER(24X12). PROVIDE NEW OPENING AT INSULATED PANEL. COORDINATE OPENINGS WITH GC, SEE ARCHITECTURAL DETAILS. SEE DETAIL 9/M-501.
- ⑨ PROVIDE SUPPLY DIFFUSER WITH VOLUME DAMPER AND ASSOCIATED INSULATED DUCTWORK AS INDICATED. FLEX DUCT SHALL BE LIMITED TO 3'-0" MAX. BASIS OF DESIGN, FOR CEILING: TITUS TMS OR EQUAL, FOR SIDE: TITUS 300/350 OR EQUAL.
- ⑩ PROVIDE 24x24 RETURN GRILLE IN EXISTING LAY-IN ACOUSTIC CEILING OR NEW SOFFIT. BASIS OF DESIGN: TITUS 45F OR EQUAL.
- ⑪ THE EXISTING DOOR UNDERCUT IS SUFFICIENT FOR AIR TRANSFER TO THE ADJACENT SPACE.
- ⑫ PROVIDE NEW DOOR UNDERCUT IN SPACE FOR SUFFICIENT AIR TRANSFER OF RELIEF AIR, SEE ARCHITECT DRAWINGS.
- ⑬ FURNISH AND INSTALL NEW WALL MOUNT CARBON DIOXIDE SENSOR FOR NEW RTU. REFER TO DRAWING M-004 FOR CONTROL DIAGRAM. MOUNT THE SENSOR ON INSIDE WALL OR PANEL APPROXIMATELY 54" ABOVE THE FLOOR (OR OTHERWISE DIRECTED) TO ALLOW EXPOSURE TO THE AVERAGE ZONE TEMPERATURE. FOR ACCURATE TEMPERATURE SENSING DO NOT MOUNT DEVICE ON OUTSIDE WALL, ADJACENT TO PIPES, IN DIRECT SUNLIGHT, NEAR RADIANT HEAT SOURCES, AIR DUCTS, ETC. THAT COULD IMPACT SENSING ACCURACY. REFER TO MANUFACTURER'S IOM INSTRUCTIONS FOR MORE INFO.
- ⑭ PROVIDE NEW NON-FLANGED LOUVER AT EXISTING OPENING. INFILL EXISTING OPENING TO ACCOMMODATE NEW LOUVER. SEE ARCHITECT'S PLANS FOR PATCHING AND REPAIR DETAILS AT BUILDING FACADE.
- ⑮ FURNISH AND INSTALL DUCT SMOKE DETECTOR ON STRAIGHT DUCT, COORDINATE INSTALLATION WITH ELECTRICAL. FURNISH AND INSTALL FIRE SMOKE DAMPER AT ROOF PENETRATION. (TYP. 4).
- ⑯ CONTRACTOR RESPONSIBLE TO FIELD VERIFY AND MEASURE ROUTING OF NEW DUCTWORK AT STAGE AREA FOR THE NEW RTUs. AVOID ANY CONFLICTS/INTERFERENCE WITH EXISTING CONDITIONS, SUCH AS THE CABLES AND PULLEYS FOR THE STAGE CURTAINS. DUCTWORK SHALL BE ROUTED HIGH AT WALL. SUPPLY DUCTWORK IS TO BE INSULATED. RETURN DUCTWORK TO BE PAINTED BLACK. VERIFY FINISH REQUIREMENTS WITH ARCHITECT.
- ⑰ ALTERNATE 5: INSTALL NEW STEAM HEATING COIL. SEE STEAM HEATING COIL SCHEDULE ON M-002. SEE DRAWING M-303 FOR PIPING LOCATION AND DETAIL 3/M501.

**GENERAL NOTE:**

FOR PIPING LAYOUT FOR EACH NEW EQUIPMENT, REFER TO DRAWINGS M-301, M-302 AND M-303.

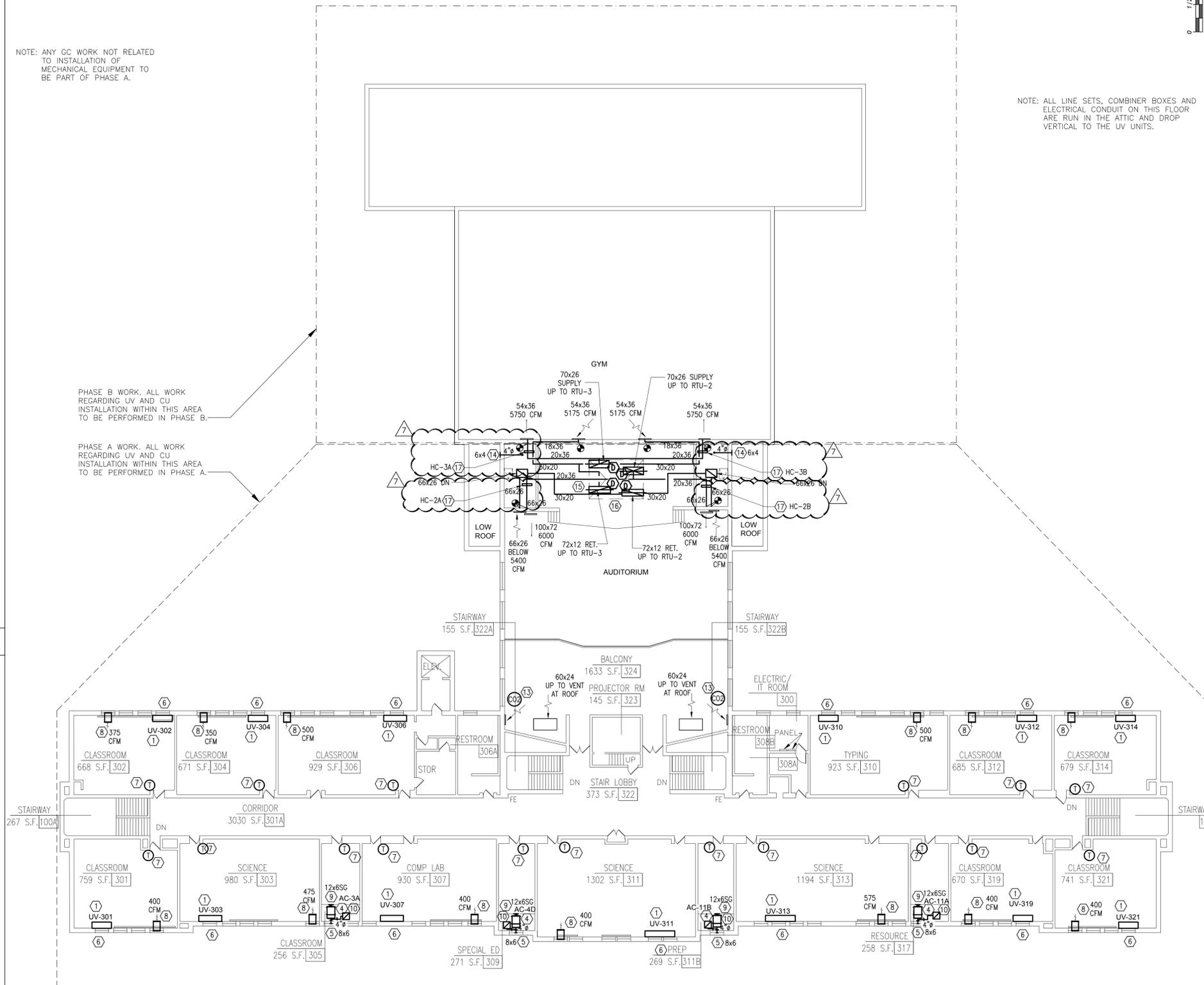
**NOTES**

NOTE: ANY GC WORK NOT RELATED TO INSTALLATION OF MECHANICAL EQUIPMENT TO BE PART OF PHASE A.

PHASE B WORK. ALL WORK REGARDING UV AND CU INSTALLATION WITHIN THIS AREA TO BE PERFORMED IN PHASE B.

PHASE A WORK. ALL WORK REGARDING UV AND CU INSTALLATION WITHIN THIS AREA TO BE PERFORMED IN PHASE A.

NOTE: ALL LINE SETS, COMBINER BOXES AND ELECTRICAL CONDUIT ON THIS FLOOR ARE RUN IN THE ATTIC AND DROP VERTICAL TO THE UV UNITS.



**1 THIRD FLOOR PLAN**  
SCALE: 1/16" = 1'-0"



PLAN NORTH

0 1/2  
IF THIS BAR DOES NOT MEASURE 1" THEIR DRAWING IS NOT TO FULL SCALE

No.	Date	Revisions
7	02-17-22	ADDENDUM 5
6	01-28-21	ADDENDUM 7
3	12-17-21	ISSUED FOR BID
2	11-19-21	ISSUED ADDENDUM 1
1	09-30-21	BIDDING DOCUMENTS

Drawn by	WM
Checked by	ERF
Project No.	41048
Scale	AS NOTED
Date	08-30-21

<b>GREENMAN PEDERSEN, INC</b> 400 BELLA BOULEVARD MONTEBELLO, NY 10601	
Mechanical Electrical Engineer:	
Structural Engineer:	

<b>UNIVENT REPLACEMENT AT HAVERSTRAY ELEMENTARY</b> SED# 50-02-01-06-0-009-018 18 Grant Street Haverstray, NY 10627	COUNTY OF ROCKLAND
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<b>MSA</b> MICHAEL SHILALE ARCHITECTS, L.L.P. 140 Park Avenue New City, NY 10958 Tel: 845-708-9200 www.shilale.com
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Drawing Title <b>3RD FLOOR PLAN - MECHANICAL</b>
Drawing No. <b>M-103</b>

**NOTES:**

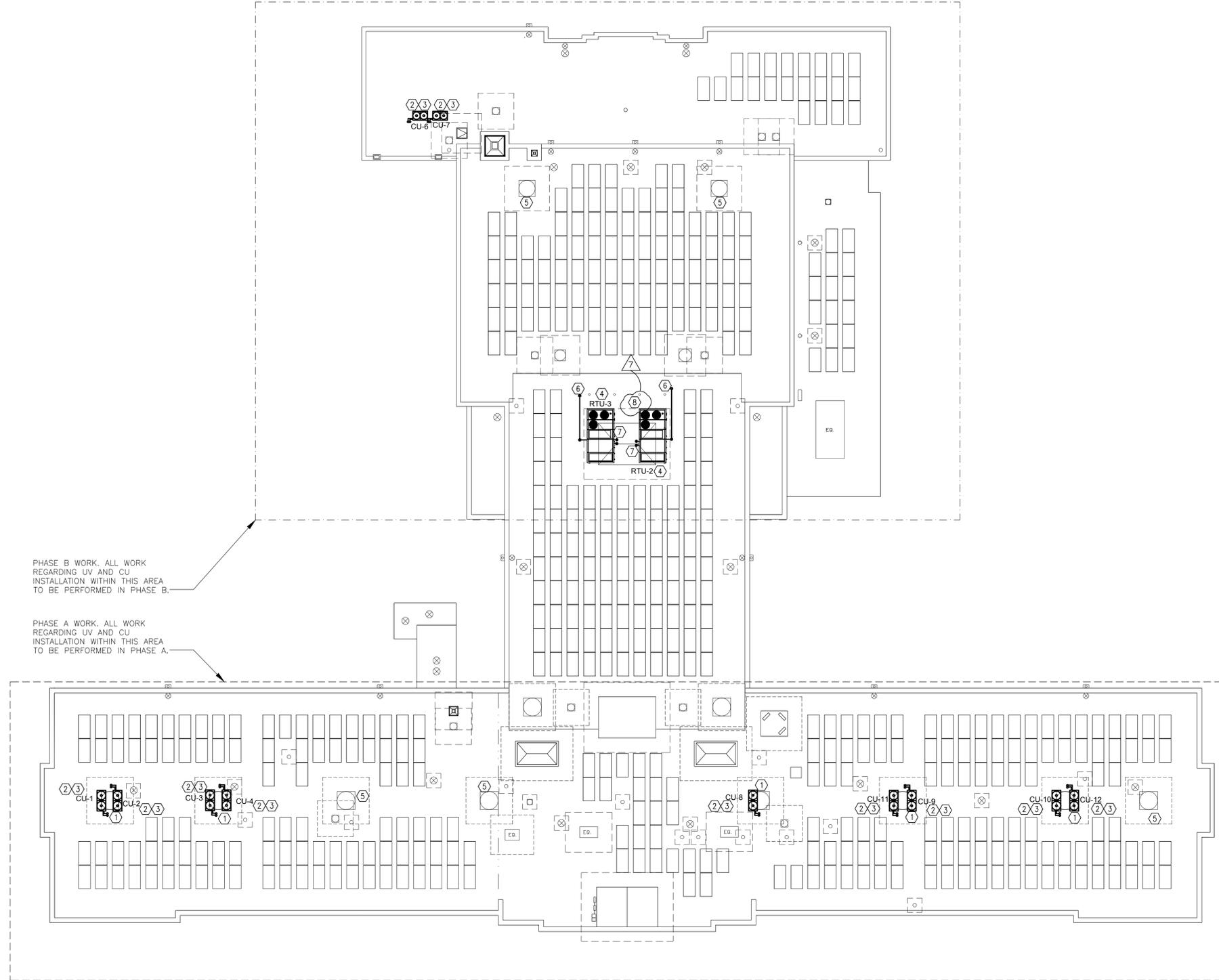
- ① DEMOLISH EXISTING GRAVITY VENTILATOR AND DAMPER AT ROOF. DEMOLISH ASSOCIATED DUCTWORK DIRECTLY BELOW ROOF. DISCONNECT DAMPER FROM SIEMENS BMS CONTROL.
- ② PROVIDE NEW OUTDOOR CONDENSING UNIT, SEE SCHEDULE ON DRAWING M-002. MOUNT UNIT ON MODIFIED ROOF CURB/DUNNAGE, SEE STRUCTURAL DRAWINGS.
- ③ PROVIDE NEW DX PIPING FROM BRANCH CONTROLLER, SEE FLOOR BELOW. FOR ROOF CURB AND ROOF SUPPORT DETAIL, SEE DRAWING M-502 AND ARCHITECTURAL DRAWINGS FOR PROPER SEALING FOR PIPE SIZES, SEE DRAWING M-401.
- ④ PROVIDE NEW ROOFTOP AIR HANDLING UNIT AT LOCATION OF EXISTING SKYLIGHT, SEE SCHEDULE ON DRAWING M-002. GC TO DEMO EXISTING SKYLIGHT. MOUNT AHUS ON NEW ROOF CURB. PROVIDE ADEQUATE CLEARANCE AS PER MANUFACTURER'S IOM. SEE DETAILS FOR MORE INFO.
- ⑤ EXISTING GRAVITY VENTILATOR TO REMAIN.
- ⑥ PROVIDE NEW CONDENSATE DRAINAGE, TERMINATE ON ROOF TO NEAREST DRAIN. PROVIDE SPLASH BLOCK. SEE DETAIL 5/M501 FOR SUPPORT OF PIPING ON ROOF.
- ⑦ PROVIDE NEW STEAM AND CONDENSATE PIPING, CONNECT TO EXISTING MAIN, SEE DETAIL 3/M501. PROVIDE FACTORY ASSEMBLED PIPE CABINET WITH ROOFTOP AIR HANDLING UNIT, EXTEND BASE FLASHING TO CURB.
- ⑧ ALTERNATE 5: OMIT INSTALLATION OF NEW STEAM & CONDENSATE PIPING ON ROOF. SEE DRAWING M-303 FOR SCOPE OF WORK.

NOTE: ANY GC WORK NOT RELATED TO INSTALLATION OF MECHANICAL EQUIPMENT TO BE PART OF PHASE A.

**NOTES**

PHASE B WORK. ALL WORK REGARDING UV AND CU INSTALLATION WITHIN THIS AREA TO BE PERFORMED IN PHASE B.

PHASE A WORK. ALL WORK REGARDING UV AND CU INSTALLATION WITHIN THIS AREA TO BE PERFORMED IN PHASE A.



No.	Date	Revisions
1	08-30-21	BIDDING DOCUMENTS
2	11-19-21	ISSUED ADDENDUM 1
3	12-17-21	ISSUED FOR BID
6	01-26-22	ADDENDUM 5
7	02-17-22	ADDENDUM 7

Drawn by WM  
 Checked by ERF  
 Project No. 41048  
 Scale AS NOTED  
 Date 08-30-21

**GREENMAN PEDERSEN, INC**  
 Mechanical/Electrical Engineer  
 400 BELLA BOULEVARD  
 MONTEBELLO, NY 10901

**UNIVENT REPLACEMENT AT HAVERSTRAW ELEMENTARY**  
 SED# 50-02-01-06-0-009-018  
 COUNTY OF ROCKLAND  
 Haverstraw, NY 10827

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**ROOF PLAN - MECHANICAL**  
 Drawing No. **M-104**

**1 ROOF PLAN**  
 SCALE: 1/16" = 1'-0"



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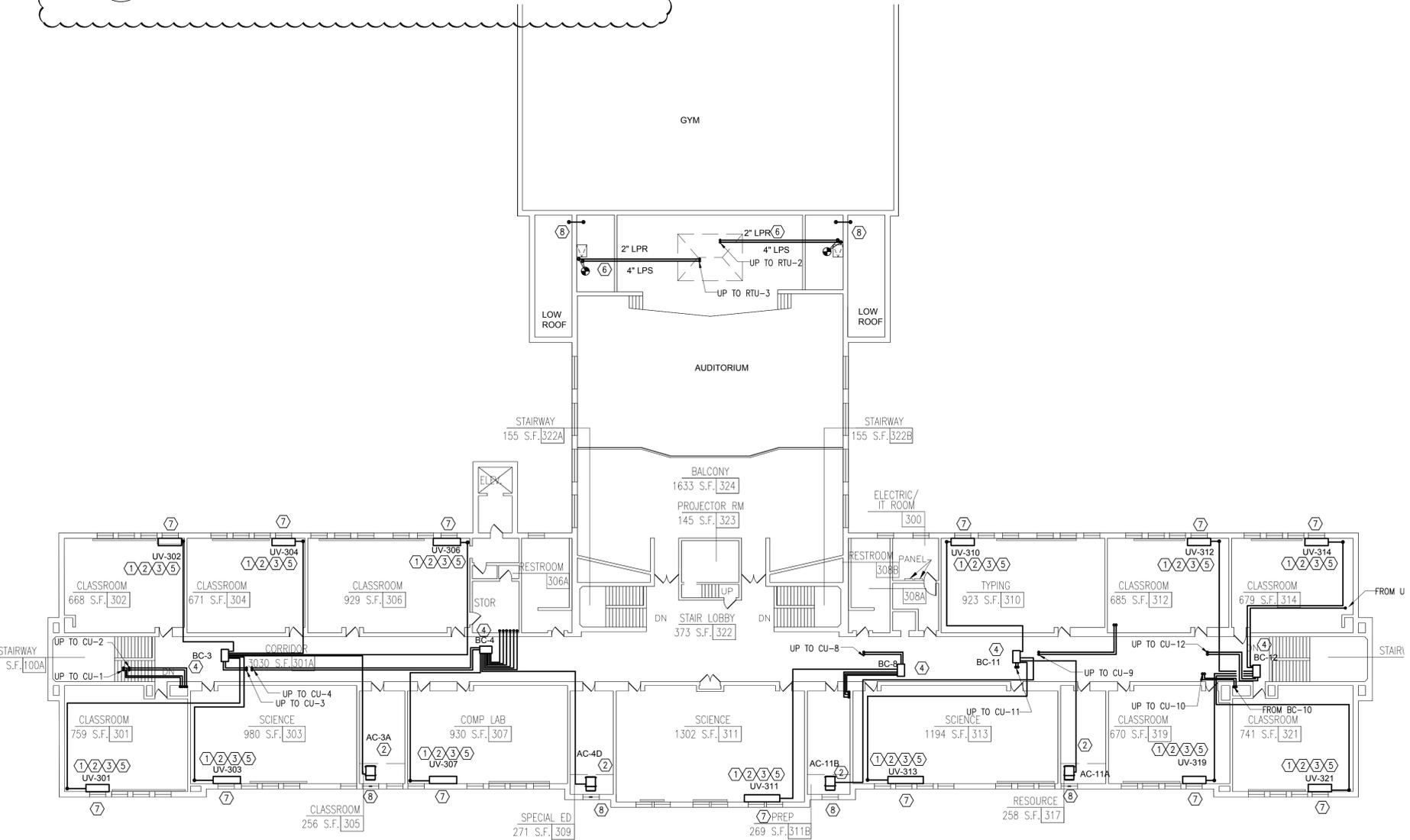
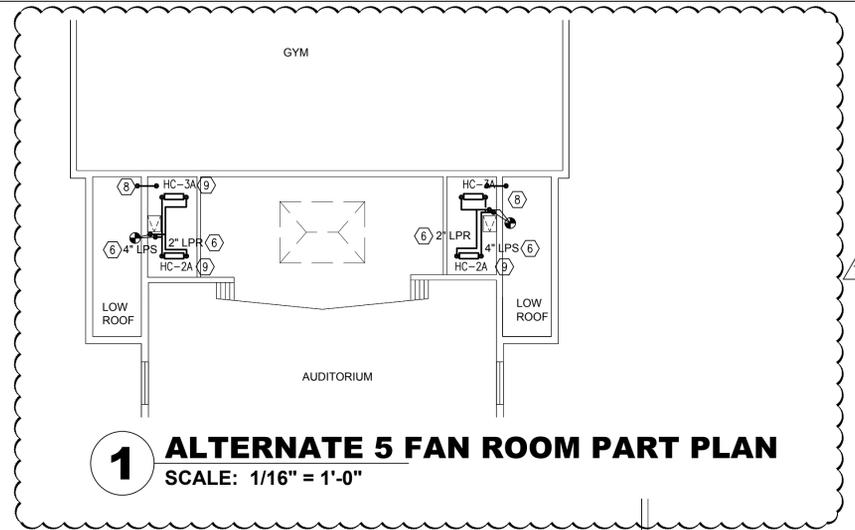
**NOTES:**

- ① FURNISH AND INSTALL NEW STEAM PIPING AND INSULATION AT COIL CONNECTIONS AT NEW UNIT VENTILATOR. SEE DETAIL 4/M-501. ALL PENETRATIONS THROUGH FIRE-RATED CONSTRUCTION SHALL BE SLEEVED/FIRESTOPPED, SEE DETAILS ON M-502. PROVIDE ADEQUATE SUPPORTS THROUGHOUT, SEE DETAILS ON M-502.
- ② FURNISH AND INSTALL NEW DX PIPING WITH INSULATION AT NEW INDOOR UNIT. FOR PIPE SIZES REFER TO DRAWING M-401. ALL PENETRATIONS THROUGH FIRE-RATED CONSTRUCTION SHALL BE SLEEVED/FIRESTOPPED, SEE DETAILS ON M-502. PROVIDE ADEQUATE SUPPORTS THROUGHOUT, SEE DETAILS ON M-502.
- ③ FURNISH AND INSTALL LEV KIT FOR NEW UNIT VENTILATOR, SEE VRF INDOOR UNIT SCHEDULE ON DRAWING M-003.
- ④ FURNISH AND INSTALL NEW BRANCH CIRCUIT CONTROLLER, SEE BC CONTROLLER SCHEDULE ON DRAWING M-002. FURNISH AND INSTALL 3/4" CONDENSATE DRAINAGE PIPING FOR EACH BRANCH CONTROLLER. TERMINATE DRAIN IN AIR GAP AT NEAREST JANITOR SINK. FOLLOW MANUFACTURER'S IOM MANUAL FOR ADDITIONAL INSTRUCTIONS.
- ⑤ FURNISH AND INSTALL ENCLOSURE TO CONCEAL EXPOSED PIPING CONNECTED TO UNIT. SEE ARCH PLANS FOR DETAILS, FINISH AND COLOR. ENCLOSURE SHALL BE REMOVABLE AND CONSTRUCTED OF 24 GA STEEL. ENCLOSURE SHALL BE PAINTED TO MATCH EXISTING FINISHES. VERIFY COLOR FINISH WITH ARCHITECT AND FACILITIES.
- ⑥ FURNISH AND INSTALL NEW STEAM SUPPLY AND RETURN PIPING AND INSULATION AT COIL CONNECTIONS FOR NEW RTU. SEE DETAIL 3/M-501. FIRESTOP ALL RATED PENETRATIONS, SEE DRAWING M-502.
- ⑦ AT EACH UNIT VENTILATOR, FURNISH AND INSTALL NEW 3/4" CONDENSATE DRAIN FROM DRAIN PAN. TERMINATE AT BUILDING EXTERIOR WALL, SEE DETAIL 1/M501.
- ⑧ AT EACH EVAPORATOR INDOOR UNIT, FURNISH AND INSTALL NEW 3/4" CONDENSATE DRAIN. TERMINATE DRAIN AT BUILDING EXTERIOR WALL THROUGH INSULATED PANEL BENEATH NEW OUTSIDE AIR LOUVER.
- ⑨ ALTERNATE #5: PROVIDE NEW STEAM HEATING COIL. SEE STEAM HEATING COIL SCHEDULE ON M-002. SEE DET. 3/M501 FOR PIPING, VALVE AND CONTROL ARRANGEMENTS.

**GENERAL NOTE:**

FOR APPROXIMATE REFRIGERANT PIPE SIZES AND LENGTHS, SEE VRF PIPING RISERS DRAWING M-401.

**NOTES**



**1 THIRD FLOOR PLAN**  
SCALE: 1/16" = 1'-0"



No.	Date	Revisions
7	02-17-22	ADDENDUM 7
6	07-28-21	ADDENDUM 5
3	12-17-21	ISSUED FOR BID
2	11-19-21	ISSUED ADDENDUM 1
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Checked by ERF  
Project No. 41048  
Scale AS NOTED  
Date 08-30-21

**GREENMAN PEDERSEN, INC**  
400 BELLA BOULEVARD  
MONTEBELLO, NY 10601

Mechanical Electrical Engineer  
Structural Engineer

**UNIVENT REPLACEMENT AT HAVERSTRAW ELEMENTARY**  
SBD# 50-02-01-06-0-009-018  
18 Grant Street  
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COUNTY OF ROCKLAND

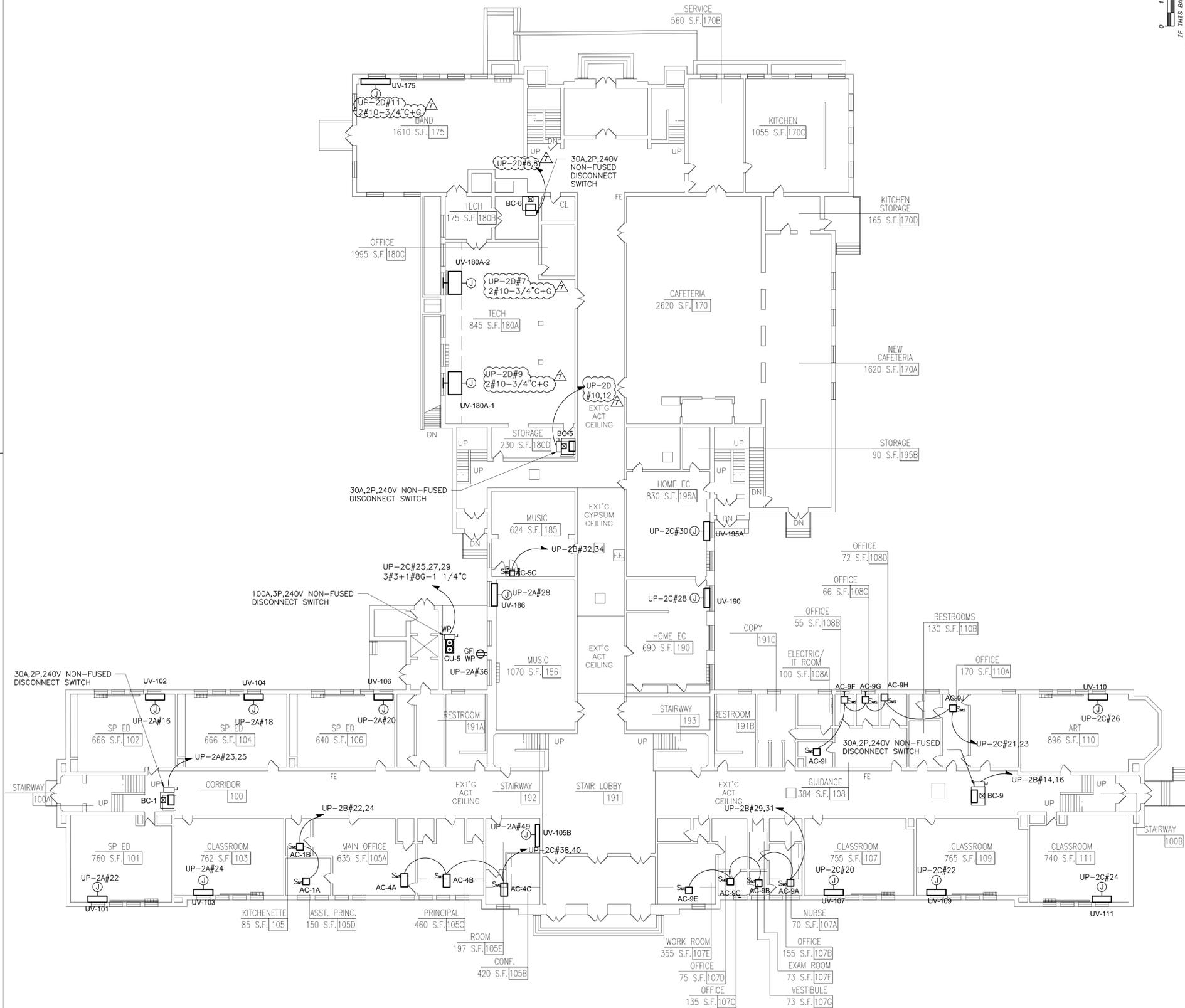
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Drawing Title  
**HVAC PIPING - 3RD FLOOR PLAN**  
Drawing No.  
**M-303**

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# ELECTRICAL NOTES:

- REFER TO ADDITIONAL INSTALLATION NOTES ON DRAWING E-001.
- ALL NEW BRANCH CIRCUIT SHALL BE RUN WITH MINIMUM OF 2#12+1#12G IN 3/4" CONDUIT, UNLESS OTHERWISE NOTED. FOR LIGHTING AND POWER BRANCH CIRCUIT, MC CABLE SHALL BE INSTALLED FOR RECESSED INSTALLATION ONLY, EITHER IN NEW WALLS OR ABOVE HUNG CEILING WHERE POSSIBLE. REFER TO PANEL SCHEDULES IN DRAWING E-201 FOR ALL OTHER FEEDER AND BRANCH CIRCUIT SIZE INFORMATION.
- PROVIDE LABELS ON ALL ELECTRICAL EQUIPMENT INDICATING CIRCUIT ORIGINATION.
- UPDATE ALL EXISTING PANEL DIRECTORIES AFFECTED BY NEW WORK.
- CONTRACTOR SHALL PERFORM AMP PROBE READINGS ON EXISTING SERVICE EQUIPMENT BEFORE AND AFTER WORK TO ENSURE EQUIPMENT WILL NOT BE LOADED BEYOND ITS MAX AMPACITY.
- CONTRACTOR SHALL MAINTAIN CONTINUITY TO ALL EXISTING CIRCUITRY TO REMAIN WHICH ARE AFFECTED BY THE SCOPE OF WORK; CONTRACTOR SHALL FURNISH ALL NECESSARY JUNCTION BOXES, CONDUIT, AND WIRES AS REQUIRED TO KEEP CONTINUITY.
- REFER TO MECHANICAL PLANS FOR EQUIPMENT TO BE SUPPLIED BY OTHER TRADES AND INSTALLED/WIRED UNDER THIS SECTION. COORDINATE LOCATION OF DEVICES WITH OTHER CONTRACTORS.
- PROVIDE FIRESTOPPING FOR ALL PENETRATIONS TO MATCH EXISTING FIRE RATING WHERE APPLICABLE. ALL CORE DRILLS SHALL BE VERIFIED BY BUILDING REPRESENTATIVE PRIOR TO COMMENCING WORK. XRAY ALL FLOOR SLABS PRIOR TO ROUGH-INS FOR CORE DRILL WORK.
- THE CONTRACTOR SHALL FIELD ROUTE FEEDER FOR NEW POWER PANELS. COORDINATE EXACT ROUTING PATH WITH OWNER. SUBMIT A PROPOSED ROUTING PATH TO ENGINEER OF RECORD FOR APPROVAL PRIOR TO RUNNING ANY CONDUIT OR WIRE ASSOCIATED WITH THIS FEEDER.
- REFER TO DRAWING E-102 FOR LOCATIONS OF NEW PANELS THAT WILL FEED NEW EQUIPMENTS.
- AT EACH NEW UNIVENT, THE CONTRACTOR SHALL RELOCATE TWO (2) EXISTING DUPLEX RECEPTACLES AND TWO (2) EXISTING DATA OUTLETS. EXTEND ALL WIRING AND CONDUIT TO THE NEW LOCATION. FIELD DETERMINE WITH THE SCHOOL THE IDEAL LOCATION FOR THE NEW DEVICES. RELOCATE THESE OUTLETS TOWARDS THE EXISTING ROUTING OF EXISTING CONDUIT IN ORDER TO AVOID NEW HOME RUNS OF DATA CABLE.
- DISCONNECT SWITCH FOR UNIT VENTILATORS IS PROVIDED BY HVAC CONTRACTOR. COORDINATE WITH HVAC CONTRACTOR.
- ALL GROUNDING SHALL BE PROVIDED BY THE CONTRACTOR AS PER NEC 2017.



**1** FIRST FLOOR PLAN  
SCALE: 1/16" = 1'-0"



0 1/2  
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

No.	Date	Revisions
7	02-17-22	ADDENDUM 7
6	01-28-21	ADDENDUM 5
3	12-17-21	ISSUED FOR BID
2	11-19-21	ISSUED ADDENDUM 1
1	09-30-21	BIDDING DOCUMENTS

Drawn by	FC
Checked by	SH
Project No.	41048
Scale	AS NOTED
Date	08-30-21

**GREENMAN PEDERSEN, INC**  
400 BELLA BOULEVARD  
MONTEBELLO, NY 10601

Mechanical Electrical Engineer:  
Structural Engineer:

**UNIVENT REPLACEMENT AT HAVERSTRAY ELEMENTARY**  
SED# 50-02-01-06-0-009-018  
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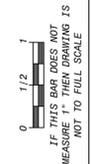
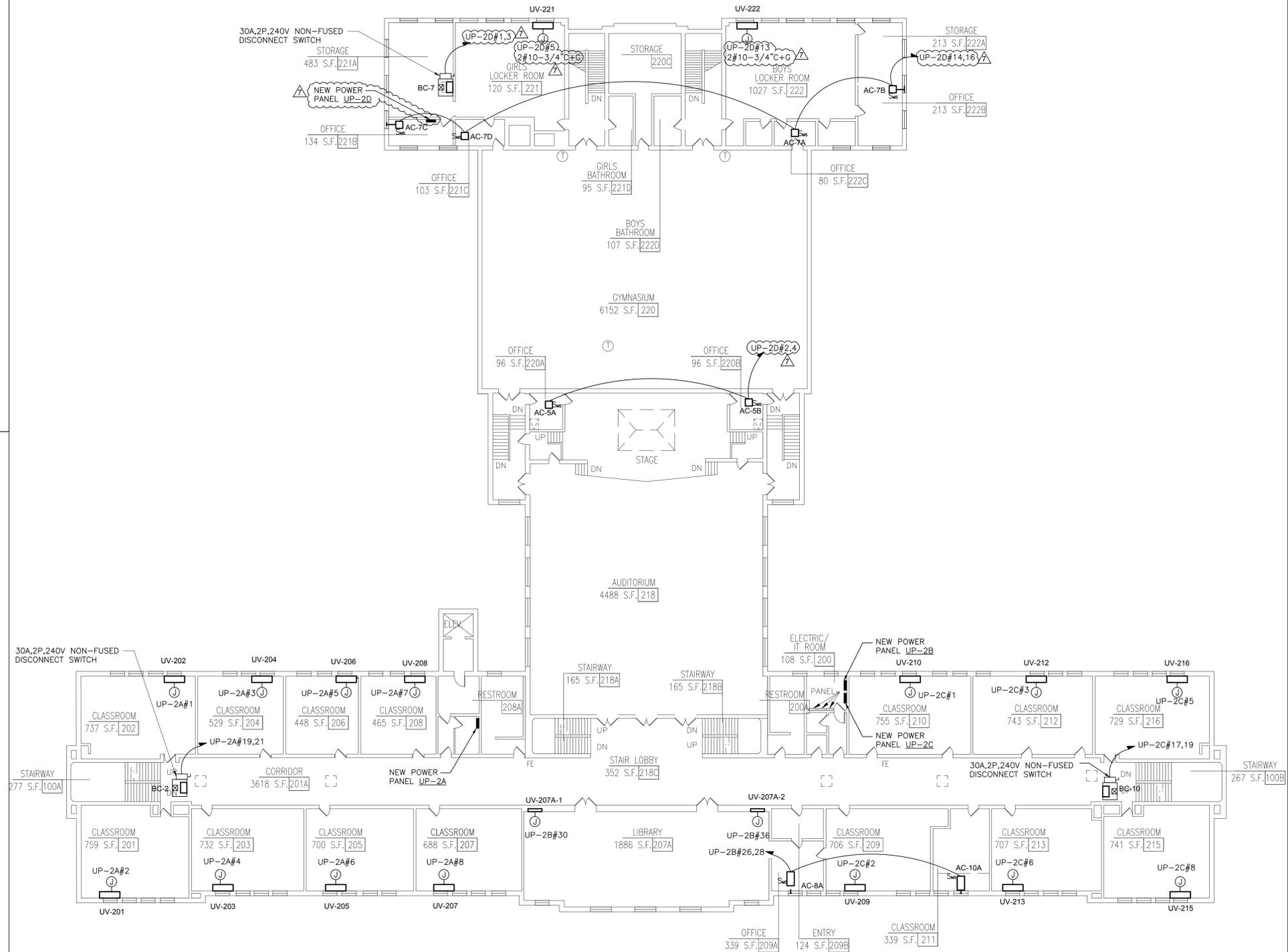
Drawing Title  
**FIRST FLOOR PLAN - ELECTRICAL**

Drawing No.  
**E-101**

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# ELECTRICAL NOTES:

- REFER TO ADDITIONAL INSTALLATION NOTES ON DRAWING E-001.
- ALL NEW BRANCH CIRCUIT SHALL BE RUN WITH MINIMUM OF 2#12+1#12G IN 3/4" CONDUIT, UNLESS OTHERWISE NOTED. FOR LIGHTING AND POWER BRANCH CIRCUIT, MC CABLE SHALL BE INSTALLED FOR RECESSED INSTALLATION ONLY, EITHER IN NEW WALLS OR ABOVE HUNG CEILING WHERE POSSIBLE. REFER TO PANEL SCHEDULES IN DRAWING E-201 FOR ALL OTHER FEEDER AND BRANCH CIRCUIT SIZE INFORMATION.
- PROVIDE LABELS ON ALL ELECTRICAL EQUIPMENT INDICATING CIRCUIT ORIGINATION.
- UPDATE ALL EXISTING PANEL DIRECTORIES AFFECTED BY NEW WORK.
- CONTRACTOR SHALL PERFORM AMP PROBE READINGS ON EXISTING SERVICE EQUIPMENT BEFORE AND AFTER WORK TO ENSURE EQUIPMENT WILL NOT BE LOADED BEYOND ITS MAX AMPACITY.
- CONTRACTOR SHALL MAINTAIN CONTINUITY TO ALL EXISTING CIRCUITRY TO REMAIN WHICH ARE AFFECTED BY THE SCOPE OF WORK; CONTRACTOR SHALL FURNISH ALL NECESSARY JUNCTION BOXES, CONDUIT, AND WIRES AS REQUIRED TO KEEP CONTINUITY.
- REFER TO MECHANICAL PLANS FOR EQUIPMENT TO BE SUPPLIED BY OTHER TRADES AND INSTALLED/WIRED UNDER THIS SECTION. COORDINATE LOCATION OF DEVICES WITH OTHER CONTRACTORS.
- PROVIDE FIRESTOPPING FOR ALL PENETRATIONS TO MATCH EXISTING FIRE RATING WHERE APPLICABLE. ALL CORE DRILLS SHALL BE VERIFIED BY BUILDING REPRESENTATIVE PRIOR TO COMMENCING WORK. XRAY ALL FLOOR SLABS PRIOR TO ROUGH-INS FOR CORE DRILL WORK.
- THE CONTRACTOR SHALL FIELD ROUTE FEEDER FOR NEW POWER PANELS. COORDINATE EXACT ROUTING PATH WITH OWNER. SUBMIT A PROPOSED ROUTING PATH TO ENGINEER OF RECORD FOR APPROVAL PRIOR TO RUNNING ANY CONDUIT OR WIRE ASSOCIATED WITH THIS FEEDER.
- REFER TO DRAWING E-102 FOR LOCATIONS OF NEW PANELS THAT WILL FEED NEW EQUIPMENTS.
- AT EACH NEW UNIVENT, THE CONTRACTOR SHALL RELOCATE TWO (2) EXISTING DUPLEX RECEPTACLES AND TWO (2) EXISTING DATA OUTLETS. EXTEND ALL WIRING AND CONDUIT TO THE NEW LOCATION. FIELD DETERMINE WITH THE SCHOOL THE IDEAL LOCATION FOR THE NEW DEVICES. RELOCATE THESE OUTLETS TOWARDS THE EXISTING ROUTING OF EXISTING CONDUIT IN ORDER TO AVOID NEW HOME RUNS OF DATA CABLE.
- DISCONNECT SWITCH FOR UNIT VENTILATORS IS PROVIDED BY HVAC CONTRACTOR. COORDINATE WITH HVAC CONTRACTOR.
- ALL GROUNDING SHALL BE PROVIDED BY THE CONTRACTOR AS PER NEC 2017.
- ALL 120/208V PANELS AND DISTRIBUTION BOARD NEEDS TO BE INSTALLED IN SUCH A WAY SO THAT A 3 FEET CLEARANCE IN FRONT OF THE PANELS IS BEING MAINTAINED AS REQUIRED BY NEC 2017.



**1 SECOND FLOOR PLAN**  
SCALE: 1/16" = 1'-0"



No.	Date	Revisions
7	02-17-22	ADDENDUM 7
6	01-28-21	ADDENDUM 5
3	12-17-21	ISSUED FOR BID
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Checked by	SH
Project No.	41048
Scale	AS NOTED
Date	08-30-21

<b>GREENMAN PEDERSEN, INC</b> 400 BELLA BOULEVARD MONTICELLO, NY 10801	
Mechanical Electrical Engineer:	---
Structural Engineer:	---

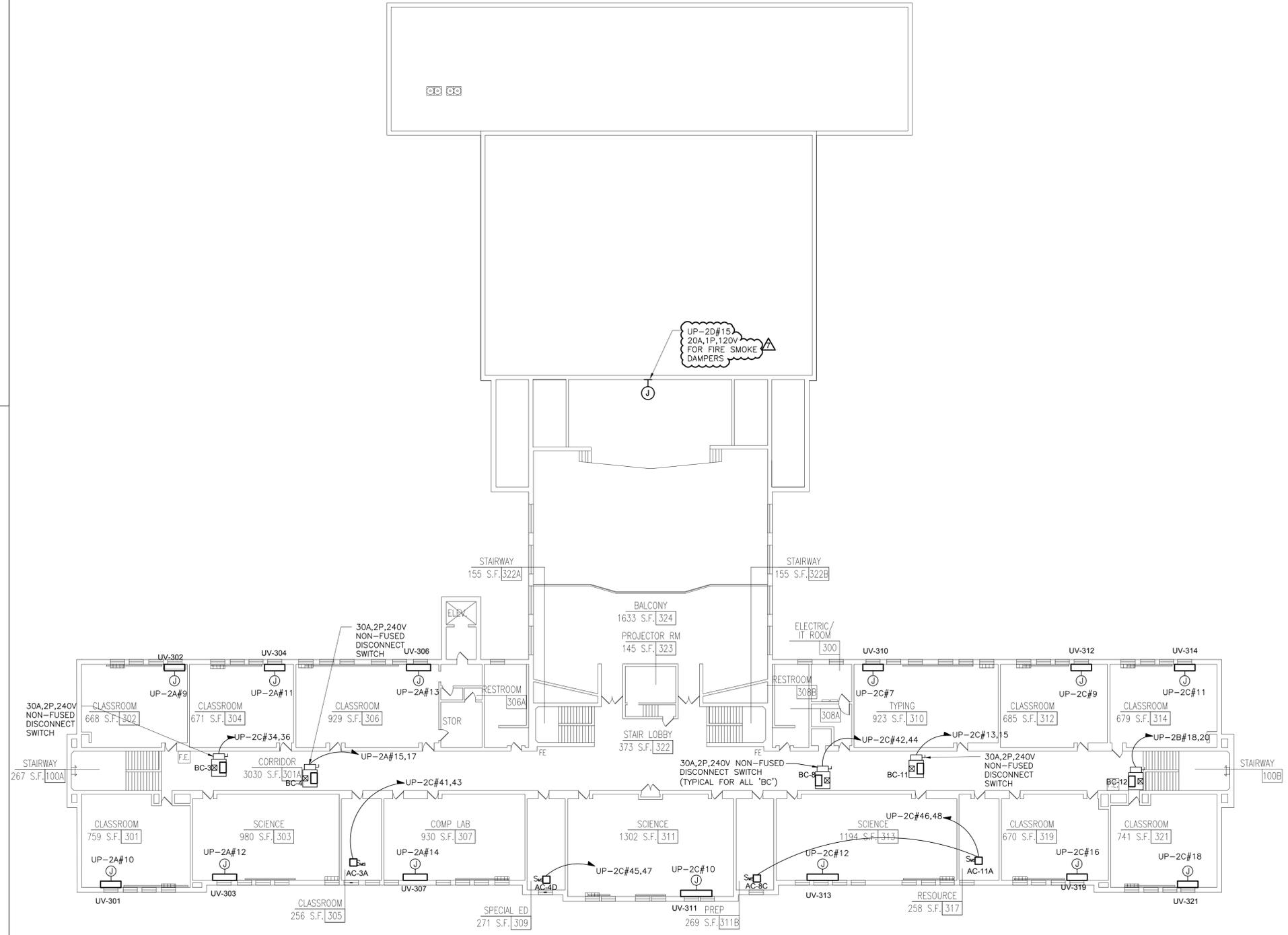
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www.shilale.com

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Drawing Title  
**2ND FLOOR PLAN - ELECTRICAL**  
Drawing No.  
**E-102**

# ELECTRICAL NOTES:

- REFER TO ADDITIONAL INSTALLATION NOTES ON DRAWING E-001.
- ALL NEW BRANCH CIRCUIT SHALL BE RUN WITH MINIMUM OF 2#12+1#12G IN 3/4" CONDUIT, UNLESS OTHERWISE NOTED. FOR LIGHTING AND POWER BRANCH CIRCUIT, MC CABLE SHALL BE INSTALLED FOR RECESSED INSTALLATION ONLY, EITHER IN NEW WALLS OR ABOVE HUNG CEILING WHERE POSSIBLE. REFER TO PANEL SCHEDULES IN DRAWING E-201 FOR ALL OTHER FEEDER AND BRANCH CIRCUIT SIZE INFORMATION.
- PROVIDE LABELS ON ALL ELECTRICAL EQUIPMENT INDICATING CIRCUIT INFORMATION.
- UPDATE ALL EXISTING PANEL DIRECTORIES AFFECTED BY NEW WORK.
- CONTRACTOR SHALL PERFORM AMP PROBE READINGS ON EXISTING SERVICE EQUIPMENT BEFORE AND AFTER WORK TO ENSURE EQUIPMENT WILL NOT BE LOADED BEYOND ITS MAX AMPACITY.
- CONTRACTOR SHALL MAINTAIN CONTINUITY TO ALL EXISTING CIRCUITRY TO REMAIN WHICH ARE AFFECTED BY THE SCOPE OF WORK; CONTRACTOR SHALL FURNISH ALL NECESSARY JUNCTION BOXES, CONDUIT, AND WIRES AS REQUIRED TO KEEP CONTINUITY.
- REFER TO MECHANICAL PLANS FOR EQUIPMENT TO BE SUPPLIED BY OTHER TRADES AND INSTALLED/WIRED UNDER THIS SECTION. COORDINATE LOCATION OF DEVICES WITH OTHER CONTRACTORS.
- PROVIDE FIRESTOPPING FOR ALL PENETRATIONS TO MATCH EXISTING FIRE RATING WHERE APPLICABLE. ALL CORE DRILLS SHALL BE VERIFIED BY BUILDING REPRESENTATIVE PRIOR TO COMMENCING WORK. XRAY ALL FLOOR SLABS PRIOR TO ROUGH-INS FOR CORE DRILL WORK.
- THE CONTRACTOR SHALL FIELD ROUTE FEEDER FOR NEW POWER PANELS. COORDINATE EXACT ROUTING PATH WITH OWNER. SUBMIT A PROPOSED ROUTING PATH TO ENGINEER OF RECORD FOR APPROVAL PRIOR TO RUNNING ANY CONDUIT OR WIRE ASSOCIATED WITH THIS FEEDER.
- REFER TO DRAWING E-102 FOR LOCATIONS OF NEW PANELS THAT WILL FEED NEW EQUIPMENTS.
- AT EACH NEW UNIVENT, THE CONTRACTOR SHALL RELOCATE TWO (2) EXISTING DUPLEX RECEPTACLES AND TWO (2) EXISTING DATA OUTLETS. EXTEND ALL WIRING AND CONDUIT TO THE NEW LOCATION. FIELD DETERMINE WITH THE SCHOOL THE IDEAL LOCATION FOR THE NEW DEVICES. RELOCATE THESE OUTLETS TOWARDS THE EXISTING ROUTING OF EXISTING CONDUIT IN ORDER TO AVOID NEW HOME RUNS OF DATA CABLE.
- DISCONNECT SWITCH FOR UNIT VENTILATORS IS PROVIDED BY HVAC CONTRACTOR. COORDINATE WITH HVAC CONTRACTOR.
- ALL GROUNDING SHALL BE PROVIDED BY THE CONTRACTOR AS PER NEC 2017.



**1 THIRD FLOOR PLAN**  
SCALE: 1/16" = 1'-0"



0 1/2 1  
IF THIS BAR DOES NOT MEASURE 1", THEN DRAWING IS NOT TO FULL SCALE

No.	Date	Revisions
7	02-17-22	ADDENDUM 7
6	01-28-21	ADDENDUM 5
3	12-17-21	ISSUED FOR BID
2	11-19-21	SED ADDENDUM 1
1	08-30-21	BIDDING DOCUMENTS

Drawn by	FC
Checked by	SH
Project No.	41048
Scale	AS NOTED
Date	08-30-21

<b>GREENMAN PEDERSEN, INC</b> 400 BELLA BOULEVARD MONTEBELLO, NY 10601	Mechanical Electrical Engineer:	Structural Engineer:
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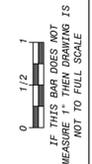
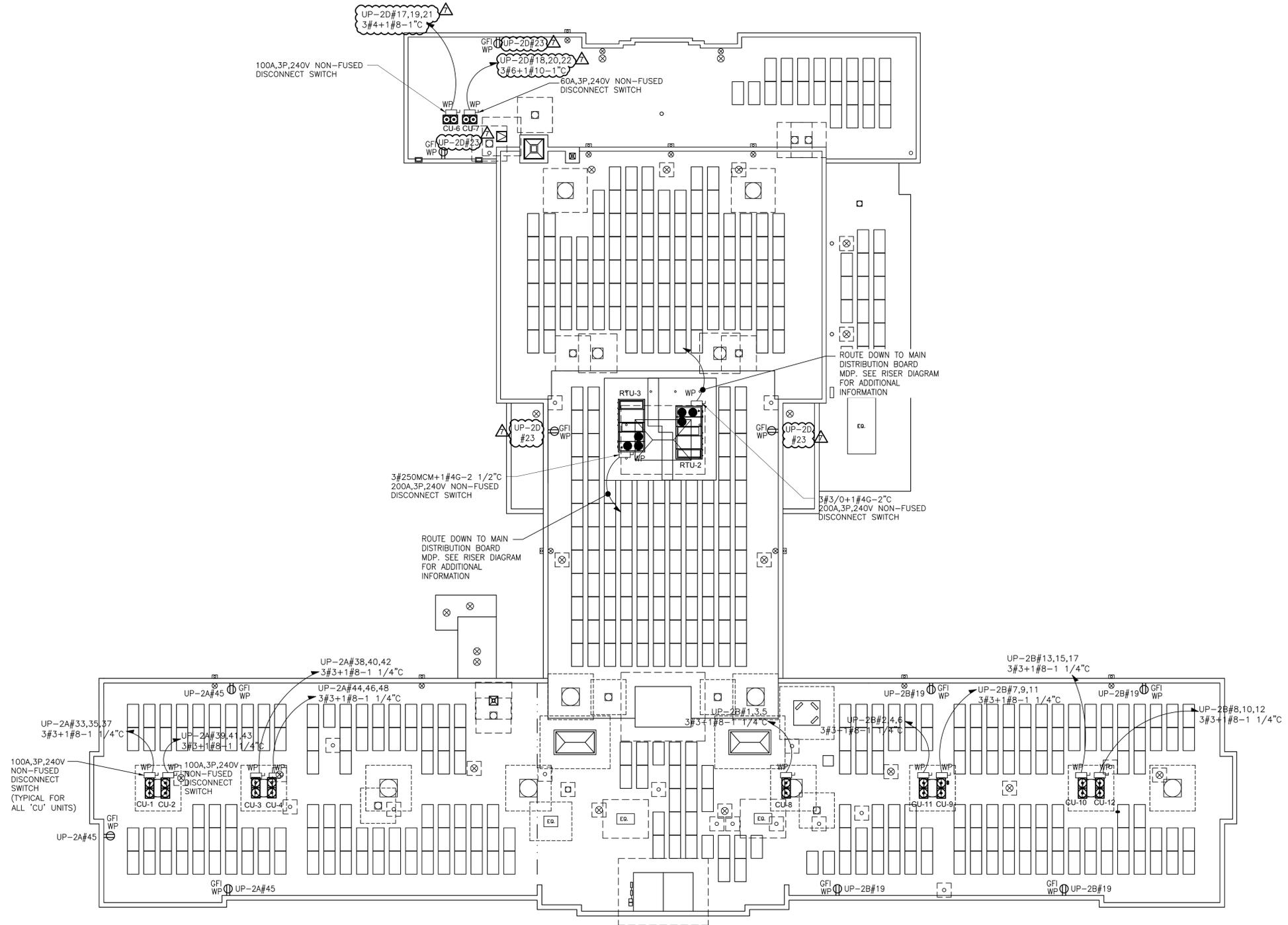
**UNIVENT REPLACEMENT AT HAVERSTRAW ELEMENTARY**  
SED# 50-02-01-06-0-009-018  
18 Grant Street  
Haverstraw, NY 10827  
COUNTY OF ROCKLAND

**MSA**  
MICHAEL SHILALE ARCHITECTS, L.L.P.  
140 Park Avenue  
New City, NY 10958  
Tel: 845-708-9200  
www.shilale.com

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Drawing Title  
**3RD FLOOR PLAN - ELECTRICAL**  
Drawing No.  
**E-103**

# ELECTRICAL NOTES:

- REFER TO ADDITIONAL INSTALLATION NOTES ON DRAWING E-001.
- ALL NEW BRANCH CIRCUIT SHALL BE RUN WITH MINIMUM OF 2#12+1#12G IN 3/4" CONDUIT, UNLESS OTHERWISE NOTED. FOR LIGHTING AND POWER BRANCH CIRCUIT, MC CABLE SHALL BE INSTALLED FOR RECESSED INSTALLATION ONLY, EITHER IN NEW WALLS OR ABOVE HUNG CEILING WHERE POSSIBLE. REFER TO PANEL SCHEDULES IN DRAWING E-201 FOR ALL OTHER FEEDER AND BRANCH CIRCUIT SIZE INFORMATION.
- PROVIDE LABELS ON ALL ELECTRICAL EQUIPMENT INDICATING CIRCUIT ORIGIN.
- UPDATE ALL EXISTING PANEL DIRECTORIES AFFECTED BY NEW WORK.
- CONTRACTOR SHALL PERFORM AMP PROBE READINGS ON EXISTING SERVICE EQUIPMENT BEFORE AND AFTER WORK TO ENSURE EQUIPMENT WILL NOT BE LOADED BEYOND ITS MAX AMPACITY.
- CONTRACTOR SHALL MAINTAIN CONTINUITY TO ALL EXISTING CIRCUITRY TO REMAIN WHICH ARE AFFECTED BY THE SCOPE OF WORK; CONTRACTOR SHALL FURNISH ALL NECESSARY JUNCTION BOXES, CONDUIT, AND WIRES AS REQUIRED TO KEEP CONTINUITY.
- REFER TO MECHANICAL PLANS FOR EQUIPMENT TO BE SUPPLIED BY OTHER TRADES AND INSTALLED/WIRED UNDER THIS SECTION. COORDINATE LOCATION OF DEVICES WITH OTHER CONTRACTORS.
- PROVIDE FIRESTOPPING FOR ALL PENETRATIONS TO MATCH EXISTING FIRE RATING WHERE APPLICABLE. ALL CORE DRILLS SHALL BE VERIFIED BY BUILDING REPRESENTATIVE PRIOR TO COMMENCING WORK. XRAY ALL FLOOR SLABS PRIOR TO ROUGH-INS FOR CORE DRILL WORK.
- THE CONTRACTOR SHALL FIELD ROUTE FEEDER FOR NEW POWER PANELS. COORDINATE EXACT ROUTING PATH WITH OWNER. SUBMIT A PROPOSED ROUTING PATH TO ENGINEER OF RECORD FOR APPROVAL PRIOR TO RUNNING ANY CONDUIT OR WIRE ASSOCIATED WITH THIS FEEDER.
- ALL EXTERIOR RUNS SHALL BE IN RIGID GALVANIZED STEEL CONDUIT.
- ALL GROUNDING SHALL BE PROVIDED BY THE CONTRACTOR AS PER NEC 2017.
- ALL DISCONNECT SWITCH ON ROOF SHALL BE WEATHER PROOF.



**1** **ROOF PLAN**  
SCALE: 1/16" = 1'-0"



No.	Date	Revisions
7	02-17-22	ADDENDUM 7
6	01-28-21	ADDENDUM 5
3	12-17-21	ISSUED FOR BID
2	11-19-21	ISSUED ADDENDUM 1
1	09-30-21	BIDDING DOCUMENTS

Drawn by	FC
Checked by	SH
Project No.	41048
Scale	AS NOTED
Date	08-30-21

<b>GREENMAN PEDERSEN, INC</b> 400 BELLA BOULEVARD MONTEBELLO, NY 10601	
Mechanical Electrical Engineer:	
Structural Engineer:	

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Drawing Title  
**ROOF PLAN - ELECTRICAL**  
Drawing No.  
**E-104**

PANEL SCH. UP-2A		MLO										M.C.B. / M.L.O.		
PANEL LOC. CLOSET		AMP BUS SIZE 400 AMP										PANEL SHORT CIRCUIT RATING: > 22 KAIC		
FDR.DATA	CIR. NO.	LOAD DESCRIPTION	C.B. POLE NO.	C.B. TRIP A	C.B. LOAD VA	PHASE A	PHASE B	PHASE C	C.B. LOAD VA	C.B. TRIP A	C.B. TRIP A	LOAD DESCRIPTION	CIR. NO.	FDR.DATA
No. WIRE GND													No. WIRE GND	
2 12 12	1	2ND FLOOR UNIVENT	1	15	600	1200			600	15	1	2ND FLOOR UNIVENT	2	2 12 12
2 12 12	3	2ND FLOOR UNIVENT	1	15	600		1200		600	15	1	2ND FLOOR UNIVENT	4	2 12 12
2 12 12	5	2ND FLOOR UNIVENT	1	15	600			1200	600	15	1	2ND FLOOR UNIVENT	6	2 12 12
2 12 12	7	2ND FLOOR UNIVENT	1	15	600	1200			600	15	1	2ND FLOOR UNIVENT	8	2 12 12
2 12 12	9	3RD FLOOR UNIVENT	1	15	600		1200		600	15	1	3RD FLOOR UNIVENT	10	2 12 12
2 12 12	11	3RD FLOOR UNIVENT	1	15	600			1200	600	15	1	3RD FLOOR UNIVENT	12	2 12 12
2 12 12	13	3RD FLOOR UNIVENT	1	15	600	1200			600	15	1	3RD FLOOR UNIVENT	14	2 12 12
2 12 12	15	BC-4	2	20	250		850		600	15	1	1ST FLOOR UNIVENT	16	2 12 12
2 12 12	17	SPARE	1	20	250			850	600	15	1	1ST FLOOR UNIVENT	18	2 12 12
2 12 12	19	BC-2	2	20	250		850		600	15	1	1ST FLOOR UNIVENT	20	2 12 12
2 12 12	21	SPARE	1	20	250			850	600	15	1	1ST FLOOR UNIVENT	22	2 12 12
2 12 12	23	BC-1	2	20	250		250		20	1		SPARE	24	2 12 12
2 12 12	25	SPARE	1	20	250		850		600	15	1	1ST FLOOR UNIVENT	26	2 12 12
2 12 12	27	SPARE	1	20	250			600	600	15	1	1ST FLOOR UNIVENT	28	2 12 12
2 12 12	29	SPARE	1	20	250			600	600	15	1	1ST FLOOR UNIVENT	30	2 12 12
2 12 12	31	SPARE	1	20	250			20	20	1		SPARE	32	2 12 12
2 12 12	33	SPARE	1	20	250			20	20	1		SPARE	34	2 12 12
3 3 8	35	CU-1	3	90	6840		6840		6840	20	1	EXTERIOR RECEPTACLE (1)	36	2 12 12
3 3 8	37	SPARE	1	20	250			6840	6840	90	3	CU-3	38	3 3 8
3 3 8	39	SPARE	1	20	250			6840	6840	90	3	CU-3	40	3 3 8
3 3 8	41	SPARE	1	20	250			6840	6840	90	3	CU-3	42	3 3 8
3 3 8	43	SPARE	1	20	250			6840	6840	90	3	CU-3	44	3 3 8
2 12 12	45	ROOF RECEPTACLES	1	20	500		7380		6840	90	3	CU-4	46	3 3 8
2 12 12	47	SPARE	1	20	250			600	600	15	1	SPARE	48	2 12 12
2 12 12	49	SPARE	1	20	250			600	600	15	1	SPARE	50	2 12 12
2 12 12	51	SPARE	1	20	250			0	0	0	0	SPARE	52	2 12 12
2 12 12	53	SPARE	1	20	250			0	0	0	0	SPARE	54	2 12 12
2 12 12	55	SPARE	1	20	250			0	0	0	0	SPARE	56	2 12 12
2 12 12	57	SPARE	1	20	250			0	0	0	0	SPARE	58	2 12 12
2 12 12	59	SPARE	1	20	250			0	0	0	0	SPARE	60	2 12 12

PANEL SCH. UP-2B		MLO										M.C.B. / M.L.O.		
PANEL LOC. CLOSET		AMP BUS SIZE 400 AMP										PANEL SHORT CIRCUIT RATING: > 22 KAIC		
FDR.DATA	CIR. NO.	LOAD DESCRIPTION	C.B. POLE NO.	C.B. TRIP A	C.B. LOAD VA	PHASE A	PHASE B	PHASE C	C.B. LOAD VA	C.B. TRIP A	C.B. TRIP A	LOAD DESCRIPTION	CIR. NO.	FDR.DATA
No. WIRE GND													No. WIRE GND	
3 3 8	1	CU-8	3	80	5880	12720			6840	80	3	CU-11	2	3 3 8
3 3 8	3	SPARE	1	20	250			12720	6840	80	3	CU-11	4	3 3 8
3 3 8	5	SPARE	1	20	250			12720	6840	80	3	CU-11	6	3 3 8
3 3 8	7	CU-9	3	90	6840	13680			6840	90	3	CU-12	8	3 3 8
3 3 8	9	SPARE	1	20	250			13680	6840	90	3	CU-12	10	3 3 8
3 3 8	11	SPARE	1	20	250			13680	6840	90	3	CU-12	12	3 3 8
3 3 8	13	CU-10	3	90	6840	7090			250	20	2	BC-9	14	2 12 12
3 3 8	15	SPARE	1	20	250			7090	250	20	2	BC-9	16	2 12 12
3 3 8	17	SPARE	1	20	250			7090	250	20	2	BC-9	18	2 12 12
2 12 12	19	ROOF RECEPTACLES	1	20	500		970		250	20	2	BC-12	20	2 12 12
2 12 12	21	SPARE	1	20	250			250	250	20	2	AC-1(A,B)	22	2 12 12
2 12 12	23	SPARE	1	20	250			250	250	20	2	AC-1(A,B)	24	2 12 12
2 12 12	25	SPARE	1	20	250			250	250	20	2	AC-8A & AC-10A	26	2 12 12
2 12 12	27	SPARE	1	20	250			250	250	20	2	AC-8A & AC-10A	28	2 12 12
2 12 12	29	AC-9(A,B,C,E)	2	20	250		500		600	15	1	2ND FLOOR UNIVENT	30	2 12 12
2 12 12	31	SPARE	1	20	250			250	250	20	2	AC-5C	32	2 12 12
2 12 12	33	SPARE	1	20	250			250	250	20	2	AC-5C	34	2 12 12
3 3 8	35	SPARE	1	20	250			600	600	20	1	2ND FLOOR UNIVENT	36	2 12 12
3 3 8	37	SPARE	1	20	250			0	0	0	0	SPARE	38	2 12 12
3 3 8	39	SPARE	1	20	250			0	0	0	0	SPARE	40	2 12 12
3 3 8	41	SPARE	1	20	250			0	0	0	0	SPARE	42	2 12 12

PANEL SCH. UP-2C		MLO										M.C.B. / M.L.O.			
PANEL LOC. CLOSET		AMP BUS SIZE 200 AMP										PANEL SHORT CIRCUIT RATING: > 22 KAIC			
FDR.DATA	CIR. NO.	LOAD DESCRIPTION	C.B. POLE NO.	C.B. TRIP A	C.B. LOAD VA	PHASE A	PHASE B	PHASE C	C.B. LOAD VA	C.B. TRIP A	C.B. TRIP A	LOAD DESCRIPTION	CIR. NO.	FDR.DATA	
No. WIRE GND													No. WIRE GND		
2 12 12	1	2ND FLOOR UNIVENT	1	15	600	1200			600	15	1	2ND FLOOR UNIVENT	2	2 12 12	
2 12 12	3	2ND FLOOR UNIVENT	1	15	600		600		600	15	1	SPARE	4	2 12 12	
2 12 12	5	2ND FLOOR UNIVENT	1	15	600			1200	600	15	1	2ND FLOOR UNIVENT	6	2 12 12	
2 10 10	7	3RD FLOOR UNIVENT	1	15	1200	1800			600	15	1	2ND FLOOR UNIVENT	8	2 12 12	
2 12 12	9	3RD FLOOR UNIVENT	1	15	600		1200		600	15	1	3RD FLOOR UNIVENT	10	2 12 12	
2 12 12	11	3RD FLOOR UNIVENT	1	15	600			1800	600	15	1	3RD FLOOR UNIVENT	12	2 12 12	
2 12 12	13	BC-11	2	20	250	250			20	1		SPARE	14	2 12 12	
2 12 12	15	SPARE	1	20	250		850		600	15	1	3RD FLOOR UNIVENT	16	2 12 12	
2 12 12	17	BC-10	2	20	250		850		850	600	15	1	3RD FLOOR UNIVENT	18	2 12 12
2 12 12	19	SPARE	1	20	250			850	600	15	1	1ST FLOOR UNIVENT	20	2 12 12	
2 12 12	21	AC-9(F,G,H,I,J)	2	20	250		850		600	15	1	1ST FLOOR UNIVENT	22	2 12 12	
2 12 12	23	SPARE	1	20	250			850	600	15	1	1ST FLOOR UNIVENT	24	2 12 12	
3 3 8	25	CU-5	3	90	6840	7440			600	15	1	1ST FLOOR UNIVENT	26	2 12 12	
3 3 8	27	SPARE	1	20	250			7440	600	15	1	1ST FLOOR UNIVENT	28	2 12 12	
3 3 8	29	SPARE	1	20	250			7440	600	15	1	1ST FLOOR UNIVENT	30	2 12 12	
2 12 12	31	SPARE	1	20	250			0	250	20	2	SPARE	32	2 12 12	
2 12 12	33	SPARE	1	20	250			250	250	20	2	BC-3	34	2 12 12	
2 12 12	35	SPARE	1	20	250			250	250	20	2	BC-3	36	2 12 12	
2 12 12	37	SPARE	1	20	250			250	250	20	2	AC-4(A,B,C)	38	2 12 12	
2 12 12	39	SPARE	1	20	250			250	250	20	2	AC-4(A,B,C)	40	2 12 12	
2 12 12	41	AC-3A	2	20	250		500		250	20	2	BC-8	42	2 12 12	
2 12 12	43	SPARE	1	20	250			500	250	20	2	BC-8	44	2 12 12	
2 12 12	45	AC-4D	2	20	250		500		500	250	20	2	AC-11A & AC-8C	46	2 12 12
2 12 12	47	SPARE	1	20	250			500	500	250	20	2	AC-11A & AC-8C	48	2 12 12
2 12 12	49	SPARE	1	20	250			0	0	0	0	SPARE	50	2 12 12	
2 12 12	51	SPARE	1	20	250			0	0	0	0	SPARE	52	2 12 12	
2 12 12	53	SPARE	1	20	250			0	0	0	0	SPARE	54	2 12 12	
2 12 12	55	SPARE	1	20	250			0	0	0	0	SPARE	56	2 12 12	
2 12 12	57	SPARE	1	20	250			0	0	0	0	SPARE	58	2 12 12	
2 12 12	59	SPARE	1	20	250			0	0	0	0	SPARE	60	2 12 12	

PANEL SCH. UP-2D		MLO										M.C.B. / M.L.O.		
PANEL LOC. CLOSET		AMP BUS SIZE 200 AMP										PANEL SHORT CIRCUIT RATING: > 22 KAIC		
FDR.DATA	CIR. NO.	LOAD DESCRIPTION	C.B. POLE NO.	C.B. TRIP A	C.B. LOAD VA	PHASE A	PHASE B	PHASE C	C.B. LOAD VA	C.B. TRIP A	C.B. TRIP A	LOAD DESCRIPTION	CIR. NO.	FDR.DATA
No. WIRE GND													No. WIRE GND	
2 12 12	1	BC-7	2	20	250	500			250	20	1	AC-5(A,B)	2	2 12 12
2 10 10	3	2ND FLOOR UNIVENT	1	20	600			500	250	20	1	AC-5(A,B)	4	2 12 12
2 10 10	5	1ST FLOOR UNIVENT	1	20	600	850			250	20	1	BC-6	6	2 12 12
2 10 10	7	1ST FLOOR UNIVENT	1	20	600		850		250	20	1	BC-6	8	2 12 12
2 12 12	9	1ST FLOOR UNIVENT	1	20	1200			1450	250	20	1	BC-5	10	2 12 12
2 12 12	11	1ST FLOOR UNIVENT	1	20	600		850		250	20	1	AC-7(A,B,C,D)	12	2 12 12
2 12 12	13	2ND FLOOR UNIVENT	1	20	600		850		250	20	1	AC-7(A,B,C,D)	14	2 12 12
2 12 12	15	FIRE SMOKE DAMPERS	1	20	500			750	250	20	1	AC-7(A,B,C,D)	16	2 12 12
3 4 8	17	CU-6	3	80	5884	10804			4920	60	3	CU-7	18	3 6 10
3 4 8	19	SPARE	1	20	250			10804	4920	60	3	CU-7	20	