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-PEDERSEN, INC.
400 Rella Boulevard, Suite 207
Montabello, NY 10901

MATERIALS LEGEND

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

SYMBOLS LEGEND

- (1) DOOR NUMBER
- <1> KEY NOTE
- /1\ PARTITION TYPE
- △1 REVISION NUMBER
- [1] WINDOW TYPE
- (1) 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
- OFFICE / 100 SF 101 — ROOM NAME / ROOM NAME/ NUMBER IDENTIFICATION / ROOM NUMBER / ROOM AREA
- 1 / A-100 — DRAWING NUMBER / WALL SECTION/ ELEVATION REFERENCE / SHEET NUMBER
- 1 / A-100 — DETAIL NUMBER / DETAIL REFERENCE / SHEET NUMBER
- 1 — COLUMN LINE DESIGNATION

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

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.

5

DRAWING No.	DRAWING TITLE	DATE
A-000	COVER SHEET	01-24-22
B-100	CODE ANALYSIS	12-17-21
S-101	ROOF PLAN & GENERAL NOTES	12-17-21 5
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	01-24-22
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 5
A-400	REFLECTED CEILING PLAN	12-17-21
A-500	DETAILS	12-17-21
A-501	UNIT ELEVATIONS	12-17-21
A-501.1	UNIT ELEVATIONS	12-17-21
A-502	DETAILS	12-17-21
A-503	DETAILS	12-17-21
M-001	MECHANICAL NOTES	01-24-22
M-002	MECHANICAL SCHEDULES	01-24-22
M-003	MECHANICAL SCHEDULES 2	01-24-22
M-004	CONTROLS	01-24-22 5
M-005	VENTILATION SCHEDULE	12-17-21
M-006	UV SCHEDULE	01-24-22
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	01-24-22
M-104	ROOF PLAN MECHANICAL	01-24-22 5
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	12-17-21
M-401	VRF PIPING RISERS	12-17-21
M-501	MECHANICAL DETAILS	01-24-22
M-502	MECHANICAL DETAILS 2	12-17-21 5
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	12-17-21
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	12-17-21
E-101	FIRST FLOOR PLAN ELECTRICAL	12-17-21
E-102	SECOND FLOOR PLAN ELECTRICAL	12-17-21
E-103	THIRD FLOOR PLAN ELECTRICAL	12-17-21
E-104	ROOF PLAN ELECTRICAL	12-17-21
E-201	ELECTRICAL SCHEDULES & RISER	12-17-21
E-301	ELECTRICAL DETAILS	12-17-21

LIST OF DRAWINGS

ACT	ACOUSTICAL CEILING TILE
A.F.F.	ABOVE FINISH FLOOR
ASPH	ASPHALT
BLK	BLOCK
BLK'G	BLOCKING
BUR	BUILT UP ROOFING
CLG	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.I.C.	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

ABBREVIATIONS

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 COMMISIONING 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.

ALLOWANCES

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 PRICES

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

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

IT IS A VIOLATION OF THE LAW FOR ANY PERSON, UNLESS ACTING UNDER THE DIRECTION OF A LICENSED ARCHITECT TO ALTER AN ITEM IN ANY WAY.

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

GREENMAN PEDERSEN, INC
400 RELLA BOULEVARD
MONTEBELLO, 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

MSA
MICHAEL SHILALE ARCHITECTS, L.L.P.
140 Park Avenue New City, NY 10956 Tel 845-708-9200
www.shilale.com

Drawing Title: COVER SHEET

Drawing No.: A-000

EXISTING THROUGH WALL LOUVER

SUPPLY REGISTER

NEW UNIT VENT
UV-00

NEW FAN COIL UNIT
FC-00

NEW CASSETTE
CS-00

EXISTING UNIT VENT
(TO REMAIN)

EXISTING UNIT VENT
(TO BE REMOVED)

NEW RELIEF VENT
ENCLOSURE

AREA OF NEW ROOF

*LF LE — LINE SET ENCLOSURE
NUMBER INDICATES AMOUNT OF LINEAR FEET
FOR EACH ROOM. SEE DETAIL 6/A-500

*LF WM — WIRE MOLD
NUMBER INDICATES AMOUNT OF LINEAR FEET
FOR EACH ROOM. SEE DETAIL 7/A-500

LEGEND

A1 INSTALL NEW UNIT VENTILATORS.

A2 INSTALL NEW CEILING AS REQUIRED: 095113. INSTALL DUCTS AND REGISTERS AS REQUIRED.

A3 REMOVE EXISTING CEILING TO ACCESS DUCT WORK. REPLACE WITH NEW CLG TILE: 095113

A4 PROVIDE NEW FIN TUBE ENCLOSURES IN ENTIRE ROOM.

A5 VOID

A6 REROUTE EXISTING ELECTRICAL SUPPLY TO NEW CEILING MOUNTED UNIT.

A7 PROVIDE METAL STUD AND GYPSUM ENCLOSURE AROUND NEW INTAKE AIR DUCT AT FLOOR LEVEL AND DUCT TO CEILING. MODIFY GYPSUM CEILING FOR NEW DUCT.

A8 CONSTRUCT GYPSUM ENCLOSURE TO COVER RELIEF AIR DUCT. COORDINATE WITH MECHANICAL DRAWINGS AND DRAWING 5/A-500.

A9 INSTALL NEW GYPSUM SOFFIT FOR NEW CEILING MOUNTED UNIT VENTILATORS. SEE DRAWINGS 1/A-502 AND 2/A-502.

A10 INSTALL NEW ACCESS PANEL IN PLASTER CEILING.

A11 PATCH EXISTING MASONRY AT DUCTWORK PENETRATIONS IN FAN ROOM.

A12 PATCH AND PAINT EXISTING PLASTER CEILING WHERE NEW UNIT IS MOUNTED IN CEILING.

A13 INSTALL LINESET AND POWER ABOVE CEILING AND IN TO CHASE FOR HVAC UNITS. ALL WIRE AND MECHANICAL EQUIPMENT SHALL BE CONCEALED.

A14 REINSTALL EXISTING DOORS TO SWING IN DIRECTION OF EGRESS.

A15 INSTALL NEW HOLLOW METAL DOOR AT BOILER ROOM. PROVIDE 1 ½" HR LABEL DOOR WITH CLOSER. REUSE EXISTING LOCKSET. PAINT DOOR AND FRAME (COLOR BY ARCHITECT)(BOILER ROOM DOOR IN BASEMENT)

A16 PROVIDE AND INSTALL (1) 10 LB FIRE EXTINGUISHER AT SELECTED LOCATION.

A17 SAW CUT PLASTER CEILING FOR INSTALLATION OF HVAC COMBINER BOX. REINSTALL EXISTING CEILING TILE.

A18 PATCH WALL WHERE EXISTING UNIVENT IS REMOVED. PAINT TO MATCH EXISTING.

A19 REMOVE EXISTING DOOR TO UNDERCUT EXISTING DOOR TO ALLOW FOR 2" AIR SPACE. REINSTALL DOOR.

A20 GLAZING PANEL IN AREA TO BE REMOVED AND TESTED TO DETERMINE THAT IT IS SAFETY GLAZING. GLAZING TO BE REPLACED WITH LAMINATED GLAZING. OWNER AND ARCHITECT TO DETERMINE WHICH PANELS TO BE REMOVED.

A21 CONSTRUCT NEW CLOSET TO HOUSE NEW AC UNIT. COORDINATE CLOSET SIZING WITH UNIT. PROVIDE NEW DOOR AND FINISHES. CONFIRM SIZE AND COLOR WITH OWNER AND ARCHITECT.

KEY NOTES

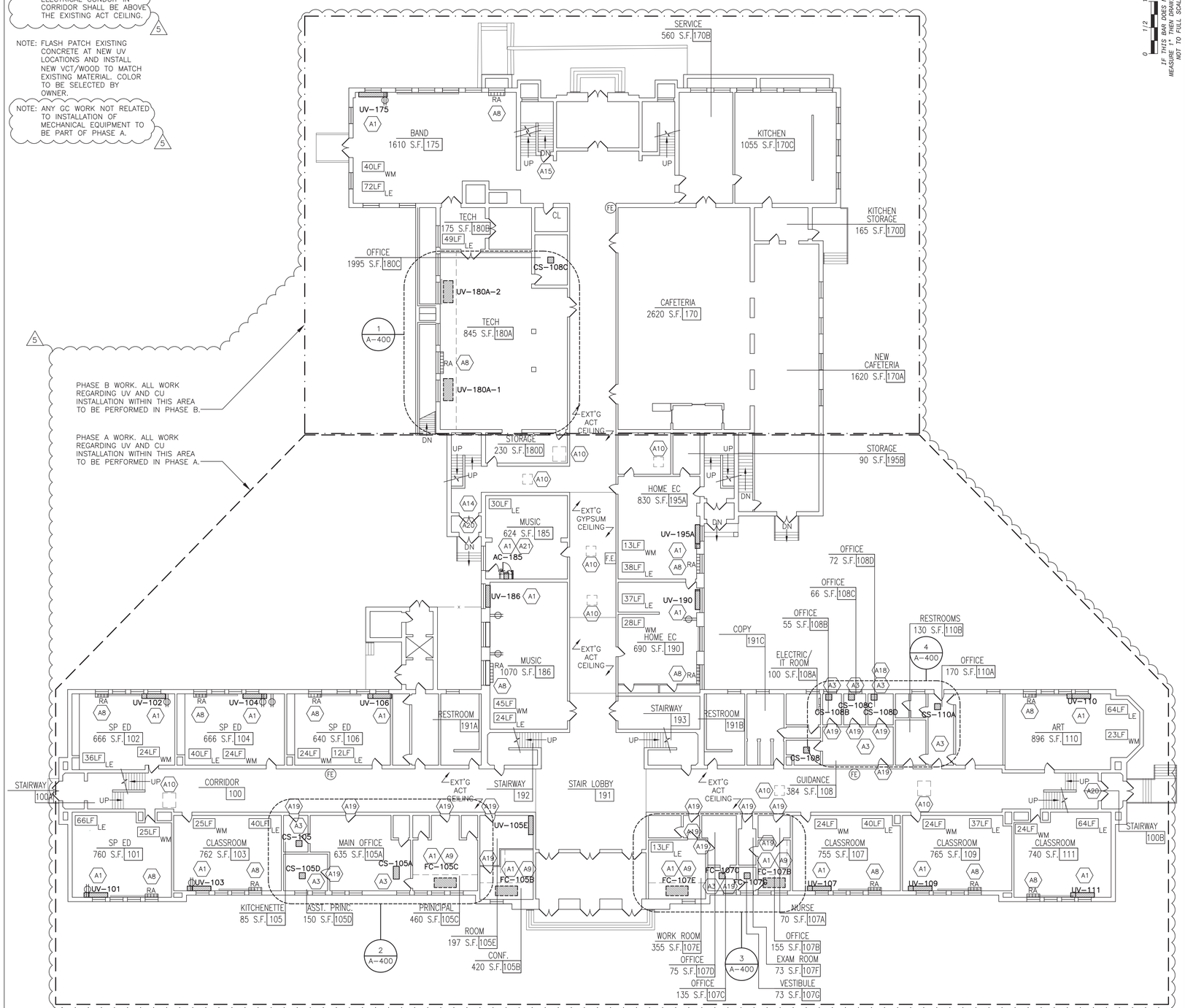
1. CONTRACTOR SHALL BE REQUIRED TO CORE DRILL ALL HOLES IN WALLS, FLOORS AND CEILINGS TO FACILITATE NEW LINESETS, ELECTRICAL CONDUITS AND CONDENSATE LINES.
2. PATCH EXISTING VCT FLOORING AT BASE UNDER UNI-VENT.
3. WIRE MOLD RUNS ALONG THE EXISTING TRIM UNDER WINDOW SILL INTO RELIEF VENT FOR FIRST AND SECOND FLOORS UNLESS OTHERWISE NOTED. CONTRACTOR WILL REVIEW LAYOUT WITH ARCHITECT/OWNER PRIOR TO INSTALLATION.
4. WIRE MOLD RUNS UP WALL 9FT ABOVE DROPPED CEILING, THEN DOWN 5FT INTO RELIEF VENT FOR 3RD FLOOR ONLY. CONTRACTOR WILL REVIEW LAYOUT WITH ARCHITECT/OWNER PRIOR TO INSTALLATION.

GENERAL NOTES

NOTE: ALL LINE SETS AND ELECTRICAL CONDUIT IN CORRIDOR SHALL BE ABOVE THE EXISTING ACT CEILING. 5

NOTE: FLASH PATCH EXISTING CONCRETE AT NEW UV LOCATIONS AND INSTALL NEW VCT/WOOD TO MATCH EXISTING MATERIAL. COLOR TO BE SELECTED BY OWNER.

NOTE: ANY GC WORK NOT RELATED TO INSTALLATION OF MECHANICAL EQUIPMENT TO BE PART OF PHASE A. 5



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

PLAN NORTH

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

No.	Date	Revisions
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 05-14-21

GREENMAN PEDERSEN, INC
400 REBEL BOULEVARD
MONTEBELLO, NY 10901

Mechanical & Electrical Engineers:

Structural Engineers:

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

MICHAEL SHILALE ARCHITECTS, L.L.P.
140 Park Avenue New City, NY 10956 Tel 845-708-9200
www.shilale.com

Drawing Title
PROPOSED FIRST FLOOR PLAN

Drawing No.
A-101

- EXISTING THROUGH WALL LOUVER
- SUPPLY REGISTER
- NEW UNIT VENT — UV-00
- NEW FAN COIL UNIT — FC-00
- NEW CASSETTE — CS-00
- EXISTING UNIT VENT (TO REMAIN)
- EXISTING UNIT VENT (TO BE REMOVED)
- NEW RELIEF VENT ENCLOSURE — RA
- AREA OF NEW ROOF
- *LF LE — LINE SET ENCLOSURE. NUMBER INDICATES AMOUNT OF LINEAR FEET FOR EACH ROOM. SEE DETAIL 6/A-500
- *LF WM — WIRE MOLD. NUMBER INDICATES AMOUNT OF LINEAR FEET FOR EACH ROOM. SEE DETAIL 7/A-500

LEGEND

- A1 INSTALL NEW UNIT VENTILATORS.
- A2 INSTALL NEW CEILING AS REQUIRED: 095113. INSTALL DUCTS AND REGISTERS AS REQUIRED.
- A3 REMOVE EXISTING CEILING TO ACCESS DUCT WORK. REPLACE WITH NEW CLG TILE: 095113
- A4 PROVIDE NEW FIN TUBE ENCLOSURES IN ENTIRE ROOM.
- A5 VOID
- A6 REROUTE EXISTING ELECTRICAL SUPPLY TO NEW CEILING MOUNTED UNIT.
- A7 PROVIDE METAL STUD AND GYPSUM ENCLOSURE AROUND NEW INTAKE AIR DUCT AT FLOOR LEVEL AND DUCT TO CEILING. MODIFY GYPSUM CEILING FOR NEW DUCT.
- A8 CONSTRUCT GYPSUM ENCLOSURE TO COVER RELIEF AIR DUCT. COORDINATE WITH MECHANICAL DRAWINGS AND DRAWING 5/A-500.
- A9 INSTALL NEW GYPSUM SOFFIT FOR NEW CEILING MOUNTED UNIT VENTILATORS. SEE DRAWINGS 1/A-502 AND 2/A-502.
- A10 INSTALL NEW ACCESS PANEL IN PLASTER CEILING.
- A11 PATCH EXISTING MASONRY AT DUCTWORK PENETRATIONS IN FAN ROOM.
- A12 PATCH AND PAINT EXISTING PLASTER CEILING WHERE NEW UNIT IS MOUNTED IN CEILING.
- A13 INSTALL LINESET AND POWER ABOVE CEILING AND IN TO CHASE FOR HVAC UNITS. ALL WIRE AND MECHANICAL EQUIPMENT SHALL BE CONCEALED.
- A14 REINSTALL EXISTING DOORS TO SWING IN DIRECTION OF EGRESS.
- A15 INSTALL NEW HOLLOW METAL DOOR AT BOILER ROOM. PROVIDE 1 ½" HR LABEL DOOR WITH CLOSER. REUSE EXISTING LOCKSET. PAINT DOOR AND FRAME (COLOR BY ARCHITECT)(BOILER ROOM DOOR IN BASEMENT)
- A16 PROVIDE AND INSTALL (1) 10 LB FIRE EXTINGUISHER AT SELECTED LOCATION.
- A17 SAW CUT PLASTER CEILING FOR INSTALLATION OF HVAC COMBINER BOX. REINSTALL EXISTING CEILING TILE.
- A18 PATCH WALL WHERE EXISTING UNIVENT IS REMOVED. PAINT TO MATCH EXISTING.
- A19 REMOVE EXISTING DOOR TO UNDERCUT EXISTING DOOR TO ALLOW FOR 2" AIR SPACE. REINSTALL DOOR.
- A20 GLAZING PANEL IN AREA TO BE REMOVED AND TESTED TO DETERMINE THAT IT IS SAFETY GLAZING. GLAZING TO BE REPLACED WITH LAMINATED GLAZING. OWNER AND ARCHITECT TO DETERMINE WHICH PANELS TO BE REMOVED.
- A21 CONSTRUCT NEW CLOSET TO HOUSE NEW AC UNIT. COORDINATE CLOSET SIZING WITH UNIT. PROVIDE NEW DOOR AND FINISHES. CONFIRM SIZE AND COLOR WITH OWNER AND ARCHITECT.

KEY NOTES

1. CONTRACTOR SHALL BE REQUIRED TO CORE DRILL ALL HOLES IN WALLS, FLOORS AND CEILINGS TO FACILITATE NEW LINESETS, ELECTRICAL CONDUITS AND CONDENSATE LINES.
2. PATCH EXISTING VCT FLOORING AT BASE UNDER UNI-VENT.
3. WIRE MOLD RUNS ALONG THE EXISTING TRIM UNDER WINDOW SILL INTO RELIEF VENT FOR FIRST AND SECOND FLOORS UNLESS OTHERWISE NOTED. CONTRACTOR WILL REVIEW LAYOUT WITH ARCHITECT/OWNER PRIOR TO INSTALLATION.
4. WIRE MOLD RUNS UP WALL 9FT ABOVE DROPPED CEILING, THEN DOWN 5FT INTO RELIEF VENT FOR 3RD FLOOR ONLY. CONTRACTOR WILL REVIEW LAYOUT WITH ARCHITECT/OWNER PRIOR TO INSTALLATION.

GENERAL NOTES

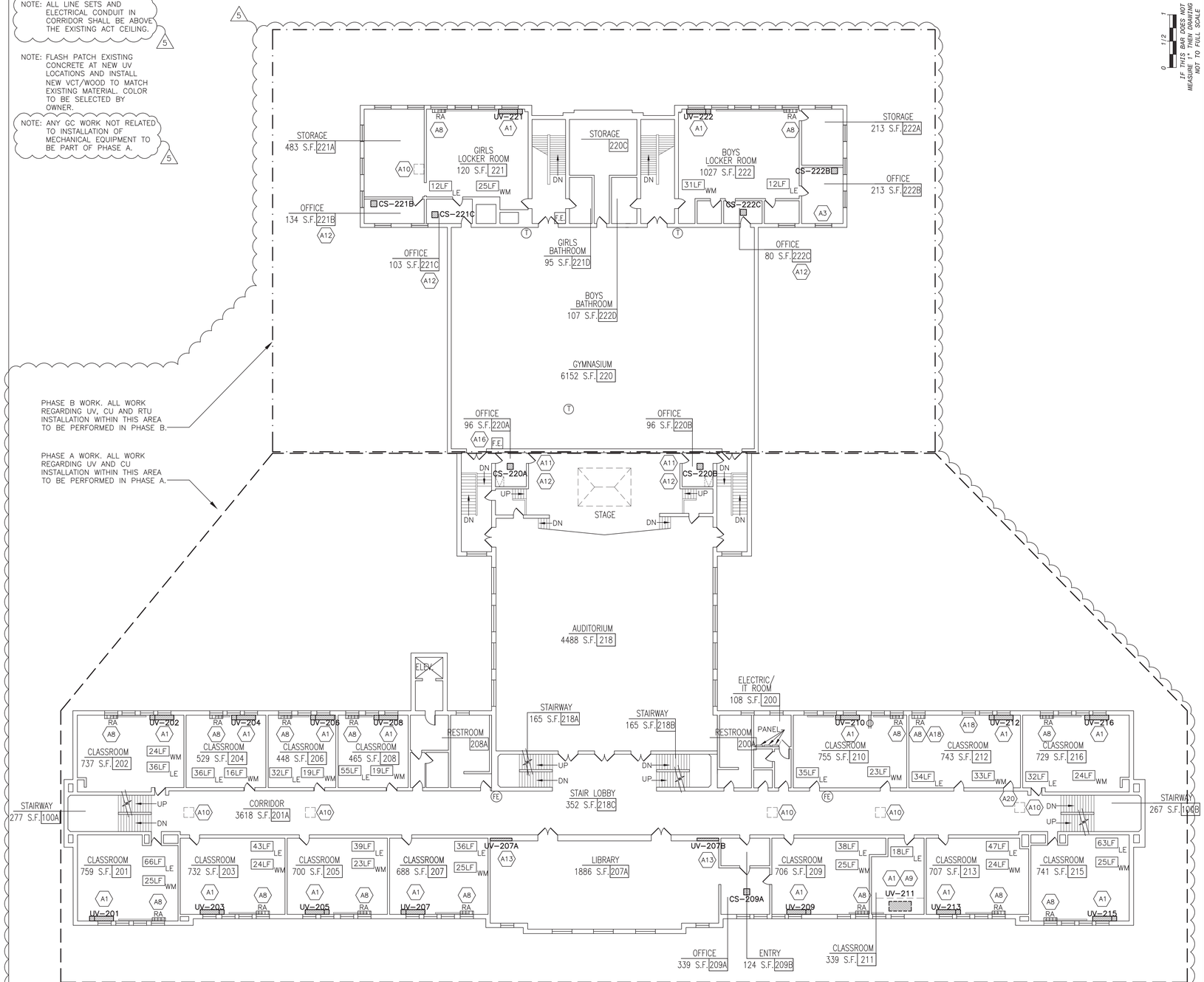
NOTE: ALL LINE SETS AND ELECTRICAL CONDUIT IN CORRIDOR SHALL BE ABOVE THE EXISTING ACT CEILING. (5)

NOTE: FLASH PATCH EXISTING CONCRETE AT NEW UV LOCATIONS AND INSTALL NEW VCT/WOOD TO MATCH EXISTING MATERIAL. COLOR TO BE SELECTED BY OWNER.

NOTE: ANY GC WORK NOT RELATED TO INSTALLATION OF MECHANICAL EQUIPMENT TO BE PART OF PHASE A. (5)

PHASE B WORK. ALL WORK REGARDING UV, CU AND RTU 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.



1 PROPOSED SECOND FLOOR PLAN

SCALE: 1/16"=1'-0"

PLAN NORTH

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

No.	Date	Revisions
5	01-24-21	ADDENDUM 3
4	01-14-21	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 05-14-21

GREENMAN PEDERSEN, INC
400 REILLA BOULEVARD
MONTERELLO, NY 10901

Mechanical & Electrical Engineers

Structural Engineers

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

MICHAEL SHILALE ARCHITECTS, L.L.P.
140 Park Avenue New City, NY 10956 Tel 845-708-9200
www.shilale.com

Drawing Title: PROPOSED SECOND FLOOR PLAN

Drawing No. A-102

EXISTING THROUGH WALL LOUVER

SUPPLY REGISTER

NEW UNIT VENT
UV-00

NEW FAN COIL UNIT
FC-00

NEW CASSETTE
CS-00

EXISTING UNIT VENT
(TO REMAIN)

EXISTING UNIT VENT
(TO BE REMOVED)

NEW RELIEF VENT
ENCLOSURE

AREA OF NEW ROOF

*LF LE — LINE SET ENCLOSURE
NUMBER INDICATES AMOUNT OF LINEAR FEET
FOR EACH ROOM. SEE DETAIL 6/A-500

*LF WM — WIRE MOLD
NUMBER INDICATES AMOUNT OF LINEAR FEET
FOR EACH ROOM. SEE DETAIL 7/A-500

LEGEND

A1 INSTALL NEW UNIT VENTILATORS.

A2 INSTALL NEW CEILING AS REQUIRED: 095113. INSTALL DUCTS AND REGISTERS AS REQUIRED.

A3 REMOVE EXISTING CEILING TO ACCESS DUCT WORK. REPLACE WITH NEW CLG TILE: 095113

A4 PROVIDE NEW FIN TUBE ENCLOSURES IN ENTIRE ROOM.

A5 VOID

A6 REROUTE EXISTING ELECTRICAL SUPPLY TO NEW CEILING MOUNTED UNIT.

A7 PROVIDE METAL STUD AND GYPSUM ENCLOSURE AROUND NEW INTAKE AIR DUCT AT FLOOR LEVEL AND DUCT TO CEILING. MODIFY GYPSUM CEILING FOR NEW DUCT.

A8 CONSTRUCT GYPSUM ENCLOSURE TO COVER RELIEF AIR DUCT. COORDINATE WITH MECHANICAL DRAWINGS AND DRAWING 5/A-500.

A9 INSTALL NEW GYPSUM SOFFIT FOR NEW CEILING MOUNTED UNIT VENTILATORS. SEE DRAWINGS 1/A-502 AND 2/A-502.

A10 INSTALL NEW ACCESS PANEL IN PLASTER CEILING.

A11 PATCH EXISTING MASONRY AT DUCTWORK PENETRATIONS IN FAN ROOM.

A12 PATCH AND PAINT EXISTING PLASTER CEILING WHERE NEW UNIT IS MOUNTED IN CEILING.

A13 INSTALL LINESET AND POWER ABOVE CEILING AND IN TO CHASE FOR HVAC UNITS. ALL WIRE AND MECHANICAL EQUIPMENT SHALL BE CONCEALED.

A14 REINSTALL EXISTING DOORS TO SWING IN DIRECTION OF EGRESS.

A15 INSTALL NEW HOLLOW METAL DOOR AT BOILER ROOM. PROVIDE 1 ½" HR LABEL DOOR WITH CLOSER. REUSE EXISTING LOCKSET. PAINT DOOR AND FRAME (COLOR BY ARCHITECT)(BOILER ROOM DOOR IN BASEMENT)

A16 PROVIDE AND INSTALL (1) 10 LB FIRE EXTINGUISHER AT SELECTED LOCATION.

A17 SAW CUT PLASTER CEILING FOR INSTALLATION OF HVAC COMBINER BOX. REINSTALL EXISTING CEILING TILE.

A18 PATCH WALL WHERE EXISTING UNIVENT IS REMOVED. PAINT TO MATCH EXISTING.

A19 REMOVE EXISTING DOOR TO UNDERCUT EXISTING DOOR TO ALLOW FOR 2" AIR SPACE. REINSTALL DOOR.

A20 GLAZING PANEL IN AREA TO BE REMOVED AND TESTED TO DETERMINE THAT IT IS SAFETY GLAZING. GLAZING TO BE REPLACED WITH LAMINATED GLAZING. OWNER AND ARCHITECT TO DETERMINE WHICH PANELS TO BE REMOVED.

A21 CONSTRUCT NEW CLOSET TO HOUSE NEW AC UNIT. COORDINATE CLOSET SIZING WITH UNIT. PROVIDE NEW DOOR AND FINISHES. CONFIRM SIZE AND COLOR WITH OWNER AND ARCHITECT.

KEY NOTES

1. CONTRACTOR SHALL BE REQUIRED TO CORE DRILL ALL HOLES IN WALLS, FLOORS AND CEILINGS TO FACILITATE NEW LINESETS, ELECTRICAL CONDUITS AND CONDENSATE LINES.
2. PATCH EXISTING VCT FLOORING AT BASE UNDER UNI-VENT.
3. WIRE MOLD RUNS ALONG THE EXISTING TRIM UNDER WINDOW SILL INTO RELIEF VENT FOR FIRST AND SECOND FLOORS UNLESS OTHERWISE NOTED. CONTRACTOR WILL REVIEW LAYOUT WITH ARCHITECT/OWNER PRIOR TO INSTALLATION.
4. WIRE MOLD RUNS UP WALL 9FT ABOVE DROPPED CEILING, THEN DOWN 5FT INTO RELIEF VENT FOR 3RD FLOOR ONLY. CONTRACTOR WILL REVIEW LAYOUT WITH ARCHITECT/OWNER PRIOR TO INSTALLATION.

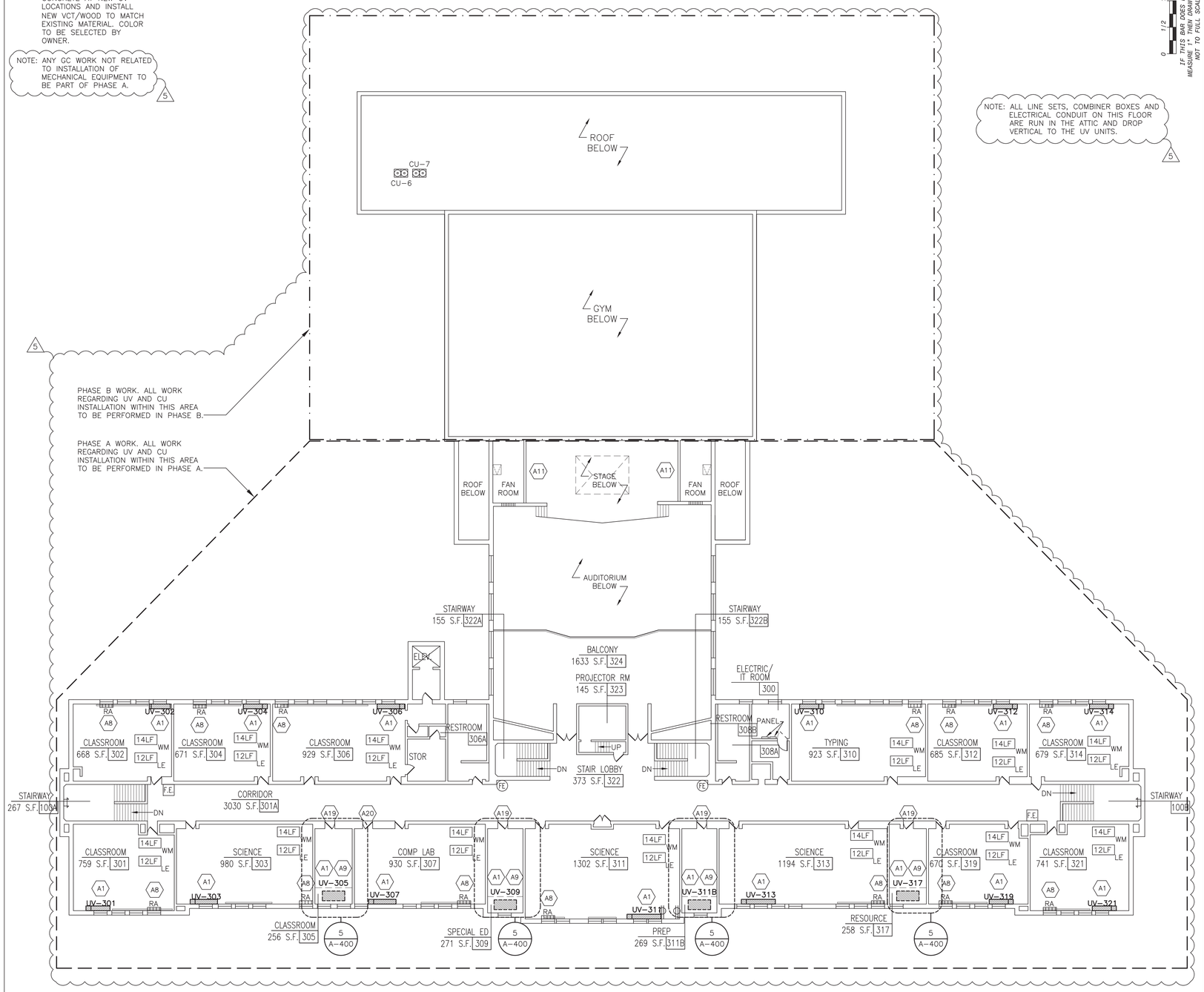
GENERAL NOTES

NOTE: FLASH PATCH EXISTING CONCRETE AT NEW UV LOCATIONS AND INSTALL NEW VCT/WOOD TO MATCH EXISTING MATERIAL. COLOR TO BE SELECTED BY OWNER.

NOTE: ANY GC WORK NOT RELATED TO INSTALLATION OF MECHANICAL EQUIPMENT TO BE PART OF PHASE A. 5

NOTE: ALL LINE SETS, COMBINER BOXES AND ELECTRICAL CONDUIT ON THIS FLOOR ARE RUN IN THE ATTIC AND DROP VERTICAL TO THE UV UNITS. 5

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



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

PLAN NORTH

No.	Date	Revisions
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

IT IS A VIOLATION OF THE LAW FOR ANY PERSON, UNLESS ACTING UNDER THE DIRECTION OF A LICENSED ARCHITECT, TO ALTER AN ITEM IN ANY WAY.

Drawn by MAL
Checked by MS/JC
Project No. 41048
Scale AS NOTED
Date 05-14-21

GREENMAN PEDERSEN, INC
400 REILLY BOULEVARD
WAPPINGERS, NY 12601

Mechanical & Electrical Engineer:

Structural Engineer:

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

MICHAEL SHILALE ARCHITECTS, L.L.P.
140 Park Avenue New City, NY 10956 Tel 845-708-9200
www.shilale.com

Drawing Title: PROPOSED THIRD FLOOR PLAN

Drawing No. A-103

HVAC NOTES:

1. PROVIDE LABOR, MATERIALS, TOOLS, MACHINERY, EQUIPMENT, AND SERVICES NECESSARY TO COMPLETE THE HVAC WORK UNDER THIS CONTRACT. ALL SYSTEMS AND EQUIPMENT SHALL BE COMPLETE IN EVERY ASPECT AND ALL ITEMS OF MATERIAL, EQUIPMENT AND LABOR SHALL BE PROVIDED FOR A FULLY OPERATIONAL SYSTEM AND READY FOR USE. COORDINATE THE WORK WITH THE WORK OF THE OTHER SUBCONTRACTORS IN ORDER TO RESOLVE ALL CONFLICTS WITHOUT IMPEDING THE JOB PROGRESS.

2. EXAMINE THE ARCHITECTURAL, STRUCTURAL, AND ELECTRICAL DRAWINGS AND OTHER DIVISIONS, AND SECTIONS OF THE SPECIFICATIONS IN ORDER TO DETERMINE THE EXTENT OF THE WORK REQUIRED TO BE COMPLETED UNDER THIS DIVISION. FAILURE TO EXAMINE ALL THE CONTRACT DOCUMENTS FOR THIS PROJECT WILL NOT RELIEVE THIS CONTRACTOR OF HIS RESPONSIBILITIES TO PERFORM THE WORK REQUIRED FOR A COMPLETE FULLY OPERATIONAL AND SATISFACTORY INSTALLATION.

3. THE WORK INCLUDES BUT IS NOT LIMITED TO THE DEPICTED SYSTEMS, EQUIPMENT AND SERVICES, AS SPECIFIED HEREIN.

4. START-UP SERVICES SHALL BE INCLUDED.

5. ALL SYSTEMS, EQUIPMENT AND SERVICES SPECIFIED HEREIN SHALL BE PROVIDED COMPLETE AND READY FOR USE. ALL EQUIPMENT, DUCTWORK, PIPING, DAMPERS, OUTLETS ARE NEW, FURNISHED AND INSTALLED BY THIS CONTRACTOR, UNLESS OTHERWISE NOTED.

6. DUCTWORK AND PIPING ARE SHOWN DIAGRAMMATICALLY AND DO NOT SHOW ALL OFFSETS, DROPS AND RISES OF RUNS. THE CONTRACTOR SHALL ALLOW IN HIS PRICE FOR ROUTING OF DUCTWORK AND PIPING TO AVOID OBSTRUCTIONS. EXACT LOCATIONS ARE SUBJECT TO APPROVAL OF ENGINEER. COORDINATION WITH THE EXISTING SERVICES, INCLUDING THOSE OF OTHER SUBCONTRACTORS IS REQUIRED. PROVIDE COORDINATION DRAWINGS SHOWING ALL TRADES WORK AND EXISTING CONDITION.

7. INSTALL WORK SO AS TO BE READILY ACCESSIBLE FOR OPERATION, MAINTENANCE AND REPAIR. MINOR DEVIATIONS FROM DRAWINGS MAY BE MADE TO ACCOMPLISH THIS, BUT CHANGES INVOLVING EXTRA COST SHALL NOT BE MADE WITHOUT APPROVAL.

8. VERIFY FINAL LOCATIONS FOR ROUGH WORK WITH FIELD MEASUREMENTS AND WITH THE REQUIREMENTS OF THE ACTUAL EQUIPMENT BEING CONNECTED.

9. PROVIDE A COMPLETE SYSTEM OF VIBRATION ISOLATION FOR EACH ITEM OF HVAC EQUIPMENT AND APPARATUS AS SPECIFIED HEREIN, AS SHOWN ON THE DRAWINGS AND AS NEEDED FOR A COMPLETE AND PROPER INSTALLATION.

10. THE CONTRACTOR SHALL KEEP ALL EQUIPMENT AND MATERIALS, AND ALL PARTS OF THE BUILDING, EXTERIOR SPACE AND ADJACENT STREETS, SIDEWALKS AND PAVEMENTS, FREE FROM MATERIAL AND DEBRIS RESULTING FROM THE EXECUTION OF THIS WORK. EXCESS MATERIALS WILL NOT BE PERMITTED TO ACCUMULATE EITHER IN THE INTERIOR OR THE EXTERIOR.

11. ALL PRESENT MATERIAL, EQUIPMENT AND CONSTRUCTION DEBRIS TO BE REMOVED UNDER THIS CONTRACT SHALL BECOME THE PROPERTY OF THE CONTRACTOR WITH THE EXCEPTION OF SPECIFIC EQUIPMENT AND APPARATUS REQUESTED BY THE DISTRICT FACILITIES, OR AS NOTED TO BE RELOCATED ON THE DRAWINGS, AND SHALL BE PROPERLY DISPOSED OF BY THE CONTRACTOR.

12. THE FINAL ACCEPTANCE WILL BE MADE AFTER THE CONTRACTOR HAS ADJUSTED HIS EQUIPMENT, BALANCED THE VARIOUS SYSTEMS, DEMONSTRATED THAT IT FULFILLS THE REQUIREMENTS OF THE DRAWINGS AND SPECIFICATIONS AND HAS FURNISHED ALL THE REQUIRED CERTIFICATES OF INSPECTION AND APPROVAL.

13. ALL CONTROL WIRING SHALL BE DONE BY MECHANICAL CONTRACTOR, IN ACCORDANCE WITH SEQUENCE OF OPERATION, AS SPECIFIED, AND IN ACCORDANCE WITH MANUFACTURER'S CONTROL DATA.

14. CONTRACTOR IS RESPONSIBLE TO ATTEND COORDINATION MEETING WITH ALL TRADES TO DETERMINE LOCATIONS OF DEVICES AND DISCOVER IF ANY CONFLICTS MAY EXIST.

15. ALL PIPING EXPOSED OR INSULATED, DUCTWORK, CONDUIT AND CONTROL WIRING SHALL BE CONCEALED IN CEILINGS, WALLS AND FLOORS OR CONCEALED IN NEW SOFFITS OR FRAMED ENCLOSURES.

16. OUTSIDE AIR INTAKE AND EXHAUST AIR OPENINGS SHALL HAVE CLASS 1 MOTORIZED DAMPERS WITH AN AIR LEAKAGE RATE NOT GREATER THAN 4CFM/FT^2 AT 1 INCH OF WATER GAUGE AND SHALL BE LABELED BY AN APPROVED AGENCY IN ACCORDANCE WITH AMCA 500D AS PER 2020 NYSECCC C403.7.7

GENERAL SYMBOLS

- DEMOLISH
- POINT OF CONNECTION
- POINT OF DISCONNECT
- SECTION A–A

PIPING SYMBOLS

- —CO— CONDENSATE DRAIN PIPING

HVAC SYMBOLS

- T## TEMPERATURE SENSOR/THERMOSTAT (UH REFERS TO UNIT HEATER) (AC REFERS TO SPLIT A/C UNIT) (RTU REFERS TO ROOFTOP UNIT)
- M MOTORIZED DAMPER/LOUVER

GENERAL NOTES

1. THE CONTRACTOR SHALL VERIFY THE EXISTING CONDITIONS AND COORDINATE THE WORK WITH OTHER TRADES.

2. THE FULL DEMOLITION SCOPE IS NOT SPECIFICALLY SHOWN ON THE DRAWINGS. PROVIDE DEMOLITION WORK CONSIDERED NECESSARY FOR THE COMPLETION OF THE WORK. SURVEY THE PREMISES TO ACCURATELY DETERMINE THE FULL SCOPE OF THE REMOVAL AND DISPOSAL WORK. NO ADDITIONAL PAYMENTS WILL BE MADE DUE TO CONTRACTOR'S FAILURE TO ADEQUATELY SURVEY THE PREMISES.

3. CONTRACTOR TO REMOVE AND PROPERLY DISPOSE OF EQUIPMENT FROM SITE INDICATED FOR DEMOLITION, UNLESS OTHERWISE DIRECTED BY THE AUTHORITY.

4. THE MECHANICAL CONTRACTOR SHALL PROVIDE POWER SUPPLIES, ELECTRICAL WIRING AND CONDUIT FOR POWER AND CONTROL TO PNEUMATIC OR MOTORIZED DAMPER AND VALVE OPERATORS, THERMOSTATS, AUTOMATIC CONTROL INSTRUMENTATION. COORDINATE WITH THE ELECTRICAL CONTRACTOR TO PROVIDE A COMPLETE AND FUNCTIONAL SYSTEM.

5. FOR POWERED EQUIPMENT INTENDED FOR DEMOLITION, THE CONTRACTOR SHALL COORDINATE SHUT-OFF POWER SUPPLIES AND DISCONNECT SWITCHES ASSOCIATED WITH THE EQUIPMENT TO BE DISCONNECTED. RECONNECT ELECTRICAL POWER TO NEW EQUIPMENT AFTER INSTALLATION. PROVIDE ELECTRICAL MATERIAL AND LABOR AS REQUIRED FOR A COMPLETE AND FUNCTIONAL INSTALLATION.

6. TEMPORARY SHUTDOWNS OF SERVICE OF EXISTING ELECTRICAL, STEAM, HEATING, AIR CONDITIONING AND VENTILATION SYSTEMS SHALL BE PERFORMED WITH A MINIMUM OF DISRUPTION OF SERVICE, HELD TO AN ABSOLUTE MINIMUM DURATION OF TIME, AND ONLY AFTER HAVING NOTIFIED THE BUILDING OPERATIONS MANAGEMENT AT LEAST TWO WEEKS IN ADVANCE AND HAVING RECEIVED THEIR PERMISSION IN WRITING, AT LEAST TWO WEEKS PRIOR TO THE SCHEDULED SHUTDOWN. COMMUNICATIONS SHALL BE RELAYED THROUGH THE OWNER'S REPRESENTATIVE.

7. PROVIDE MOTOR STARTERS AS REQUIRED FOR MECHANICAL EQUIPMENT.

8. LOAD CALCULATIONS HAVE BEEN PERFORMED IN ACCORDANCE WITH GENERALLY ACCEPTED ENGINEERING STANDARDS, SPECIFICALLY ASHRAE HANDBOOK – FUNDAMENTALS.

9. ALL SYSTEMS, EQUIPMENT AND SERVICES SPECIFIED HEREIN SHALL BE PROVIDED COMPLETE AND READY FOR USE. ALL EQUIPMENT, DUCTWORK, PIPING, DAMPERS ARE NEW, FURNISHED AND INSTALLED BY THIS CONTRACTOR, UNLESS OTHERWISE NOTED.

10. CONTRACTOR SHALL PERFORM ALL TESTS AND STARTUP PROCEDURES FOR EACH VENTILATION SYSTEM IN ACCORDANCE WITH THE MANUFACTURER AND SPECIFICATIONS.

11. ALL THERMOSTATIC CONTROLS SHALL BE TESTED FOR FUNCTIONALITY AND PROPER OPERATION AS REQUIRED BY NYS ECC.

12. ELECTRIC MOTORS SHALL COMPLY WITH THE REQUIREMENTS OF THE ENERGY POLICY ACT OF 1992 AS SHOWN IN ASHRAE 90.1–2013 TABLE #10.8.

13. PROVIDE EQUIPMENT MAINTENANCE MANUALS AND REQUIRED EQUIPMENT LABELS FOR ALL NEW MECHANICAL, ELECTRICAL AND SERVICE HOT WATER HEATING EQUIPMENT.

14. IT IS THE RESPONSIBILITY OF THE MECHANICAL CONTRACTOR TO PROVIDE CONTROL WIRING TO THE EXISTING BMS SYSTEM BY SIEMENS. MECHANICAL CONTRACTOR TO FURNISH THE SERVICES OF CONTROL CONTRACTOR TO PREPARE CONTROL WIRING DIAGRAMS. THE MECHANICAL CONTRACTOR SHALL ALSO PROVIDE ALL POWER SUPPLIES, ELECTRICAL WIRING AND CONDUIT FOR POWER AND CONTROL TO ALL VALVE OPERATORS, THERMOSTATS AND AUTOMATIC CONTROL INSTRUMENTATION. ELECTRICAL CONTRACTOR TO INSTALL AND ROUTE POWER WIRING FOR EACH MECHANICAL SYSTEM.

15. MOUNTING HEIGHTS FOR ASSOCIATED MECHANICAL THERMOSTAT CONTROLS, ETC. SHALL MEET THE AMERICANS WITH DISABILITIES ACT ACCESSIBILITY GUIDELINES FOR BUILDING AND FACILITIES. MOUNTING HEIGHTS FOR ALL THERMOSTATS, ETC SHALL BE 48" AFF.

16. PATCH AND REPAIR EXISTING VCT FLOORING AT UNIT VENTILATORS TO REPAIR ANY DAMAGE CAUSED BY THE WORK OR AS NECESSARY COMPENSATE FOR ANY DIFFERENCE IN THE SIZE OF THE CASING BETWEEN THE NEW AND EXISTING UNIT VENTILATORS.

17. EXTEND ALL GREASE FITTINGS TO AN ACCESSIBLE LOCATION.

18. FOR ACCESS DOORS TO VALVES, DAMPERS AND ALL OTHER HVAC TYPE OF ITEMS, ACCESSORIES AND EQUIPMENT, CONCEALED IN WALLS, FURRINGS AND CEILINGS. DOOR SHALL PERMIT FULL ACCESS TO THE EQUIPMENT.

19. VERIFY FINAL LOCATIONS FOR ROUGH WORK WITH FIELD MEASUREMENTS AND WITH THE REQUIREMENTS OF THE ACTUAL EQUIPMENT BEING CONNECTED.

20. ARRANGE FOR CHASES, SLOTS, AND OPENINGS IN OTHER BUILDING COMPONENTS TO ALLOW FOR HVAC INSTALLATIONS.

21. COORDINATE THE INSTALLATION OF REQUIRED SUPPORTING DEVICES AND SIZE OF SLEEVES TO BE SET IN POURED CONCRETE AND OTHER STRUCTURAL COMPONENTS AS THEY ARE CONSTRUCTED.

22. COORDINATE THE INSTALLATION OF HVAC MATERIALS AND EQUIPMENT ABOVE CEILINGS WITH SUSPENSION SYSTEM, LIGHT FIXTURES, AND ALL OTHER INSTALLATIONS AND ACCESSORIES.

23. PROVIDE EQUIPMENT AND SYSTEMS THAT, AS DEFINED HEREIN, SHALL BE QUIET AND FREE OF APPARENT VIBRATION IN OPERATIONS.

24. OBTAIN EQUIPMENT THAT IS QUIET IN OPERATION AS COMPARED TO OTHER AVAILABLE EQUIPMENT OF ITS SIZE, CAPACITY, AND TYPE; INSTALL EQUIPMENT SO THAT A MINIMUM AMOUNT OF NOISE AND/OR VIBRATION IS TRANSMITTED TO THE BUILDING; AND FABRICATE THE DUCT SYSTEM SO THAT AIR NOISES GENERATED IN THE SYSTEM ARE HELD TO AN ABSOLUTE MINIMUM.

25. PROVIDE A COMPLETE SYSTEM OF VIBRATION ISOLATION FOR EACH ITEM OF HVAC EQUIPMENT AND APPARATUS AS SPECIFIED HEREIN, AS SHOWN ON THE DRAWINGS AND AS NEEDED FOR A COMPLETE AND PROPER INSTALLATION.

26. PROVIDE SEISMIC RESTRAINTS FOR ALL EQUIPMENT FURNISHED AS PART OF THIS CONTRACT. ANCHOR ALL EQUIPMENT FURNISHED BY OTHERS WHEN INSTALLATION IS CLAIMED BY THIS CONTRACT. DUCTWORK SHALL HAVE SUPPORTS, HANGERS, VIBRATION ISOLATORS, AND SHALL BE SEISMICALLY RESTRAINED IN ACCORDANCE WITH CODE AND SMACNA STANDARDS.

27. THE WORD "PROVIDE" USED ON DRAWINGS AND SPECIFICATIONS ASSOCIATED WITH THIS PROJECT MEANS "FURNISH AND INSTALL". WHEN ONLY ONE PART OF ACTION IS REQUIRED, EITHER "FURNISH" OR "INSTALL" WILL BE USED ACCORDINGLY (TYP., U.O.W.N.).

28. INSTALL WORK SO AS TO BE READILY ACCESSIBLE FOR OPERATION, MAINTENANCE AND REPAIR. MINOR DEVIATIONS FROM DRAWINGS MAY BE MADE TO ACCOMPLISH THIS, BUT CHANGES INVOLVING EXTRA COST SHALL NOT BE MADE WITHOUT APPROVAL.

29. CONTRACTOR SHALL PROVIDE AN ADAPTER CURB AND FACTORY ASSEMBLED PIPE CABINET FOR EACH AHU BEING REPLACED. DURING INSTALLATION OF AHU, REMOVE EXISTING GRAVEL FOR NEW BASE FLASHING. NEW BASE FLASHING TO BE INSTALLED OVER EXISTING ROOFING AND EXISTING TERMINATION BARS AS PER 2/A-500.

30. PERFORM COMMISSIONING OF THE INSTALLED AIR HANDLING EQUIPMENT AS PER 2020 NYS IECC C408. SEE SPEC 019113. SERVICES ARE TO BE PERFORMED BY A THIRD PARTY APPROVED AGENCY, SEE ALLOWANCE #3.

ABBREVIATIONS

AFF	ABOVE FINISHED FLOOR	LWT	LEAVING WATER TEMPERATURE
BHP	BRAKE HORSEPOWER	M	METER
BTUH	BRITISH THERMAL UNIT PER HOUR	MAX	MAXIMUM
CFM,	CUBIC FEET PER MINUTE	MBH	1000 BTU/H
DB	DECIBELS	MD	MOTORIZED DAMPER
Db	DRY-BULB TEMPERATURE	MHP	MOTOR HORSEPOWER
DDC	DIRECT DIGITAL CONTROLS	MIN	MINIMUM
DEG	DEGREE	NA	NOT APPLICABLE
DIA, ø	DIAMETER	NC	NORMALLY CLOSED
EWT	ENTERING WATER TEMPERATURE	NO	NORMALLY OPEN
EX.	EXISTING	N.T.S.	NOT TO SCALE
(E)	EXISTING	OA	OUTSIDE AIR
F	FAHRENHEIT	OD	OUTSIDE DIAMETER
FAI	FRESH AIR INTAKE	PD	PRESSURE DROP
FD	FLOOR DRAIN	PG	PRESSURE GAGE
FT	FEET	PSI	POUNDS PER SQUARE INCH
GA	GAUGE	PSIA	POUNDS PER SQUARE INCH – ABSOLUTE
GPM	GALLONS PER MINUTE	PSIG	POUNDS PER SQUARE INCH – GAGE
HD	HEAD	RPM	REVOLUTIONS PER MINUTE
HOA	HAND/OFF/AUTOMATIC	SP	STATIC PRESSURE
HP	HORSEPOWER	SS	STAINLESS STEEL
HW	HOT WATER	TAB	TESTING, ADJUSTING, BALANCE
HWR	HEATING HOT WATER RETURN	TDH	TOTAL DYNAMIC HEAD
HWS	HEATING HOT WATER SUPPLY	UON	UNLESS OTHERWISE NOTED
HZ	HERTZ	UTR	UP THROUGH ROOF
ID	INSIDE DIAMETER	VFD	VARIABLE FREQUENCY DRIVE
IN WC	INCH WATER COLUMN	W/	WITH
IN WG	INCH WATER GAUGE	WG	WATER GAGE
KW	KILOWATT	WPD	WATER PRESSURE DROP
KWH	KILOWATT HOUR		
LF	LINEAR FOOT (FEET)		

HVAC DESIGN CRITERIA

A. SITE (BASED ON NEAREST AVAILABLE DATA: ASHRAE 2013 HANDBOOK CLIMATIC DESIGN INFORMATION, WESTCHESTER CO, NY):
1. 41.07'N, 73.71'W
2. ELEVATION: 397 FT
3. CLIMATE ZONE 5A.

B. OUTSIDE DESIGN CONDITIONS (BASED ON NEAREST AVAILABLE DATA: ASHRAE 2013 CLIMATIC DESIGN INFORMATION, WESTCHESTER CO, NY):
1. HEATING DB (99.6%): 9.0°F DB
2. COOLING DB/MCWB (1%): 86.5°F DB, 72.1°F WB

C. INSIDE DESIGN CONDITIONS (PER NYSED MANUAL OF PLANNING STANDARDS S602-6 B. AND 2015 ASHRAE HANDBOOK CH 7 TABLE 6):
1. OCCUPIED HEATING INDOOR SETPOINT: 72'F
2. OCCUPIED COOLING INDOOR SETPOINT: 78'F, 60% RH
3. NON-OCCUPIED HEATING INDOOR SETPOINT: 55'F
4. NON-OCCUPIED COOLING INDOOR SETPOINT: 85'F
5. ZONE THERMOSTATIC CONTROLS SHALL PROVIDE DEADBAND OF MIN. 5'F. (NYSECCC C403.4.1.2)

D. ACOUSTICS (PER NYSED MANUAL OF PLANNING STANDARDS, TABLE S304–1):
1. DESIGN REQUIREMENTS FOR HVAC SYSTEM NOISE FOR CLASSROOMS, 7–12: RC 25–30.

E. FILTRATION: MERV 13 (PER NYSED MANUAL OF PLANNING STANDARDS).

F. DEMAND CONTROLLED VENTILATION (PER NYSED MANUAL OF PLANNING STANDARDS AND ASHRAE 62.1 APPENDIX C):
1. OUTDOOR CO2 CONCENTRATION: 350 PPM
2. SPACE ACTIVITY LEVEL:
   a. AUDITORIUM 1.0 MET, GYMNASIUM 3.5 MET
3. MAX. INDOOR CO2 CONCENTRATION: BASED ON CODE REQUIRED VOLUMETRIC FLOW RATE FOR EACH ROOM (PER SED MANUAL J007–g). REFER TO THE VENTILATION SCHEDULE.

5

NOTE:
DUE TO THE LEAD TIME GLOBAL CHIP SHORTAGE CRISIS. CONTROLLERS ARE TO BE SHIPPED SEPARATELY FOR FIELD INSTALLATION, TYP. ALL NEW UNITS.

SEQUENCE OF OPERATIONS

A. UNIT VENTILATORS
1. BUILDING AUTOMATION SYSTEM INTERFACE:
   THE BUILDING AUTOMATION SYSTEM (BAS) SHALL SEND THE UNIT VENTILATOR CONTROL SYSTEM CONTROLLER OCCUPIED AND UNOCCUPIED REQUESTS, SETPOINTS, AND OVERRIDES (IF REQUIRED). THE BAS SHALL ALSO READ AND DISPLAY ALL POINTS AVAILABLE FROM THE UNIT VENTILATOR CONTROL SYSTEM (ASSUME 50 PER UNIT). IF COMMUNICATION IS LOST WITH THE BAS THE CONTROLLER SHALL OPERATE USING DEFAULT MODES AND SETPOINTS.
2. OCCUPIED MODE:
   DURING OCCUPIED PERIODS THE SUPPLY FAN SHALL RUN CONTINUOUSLY AND THE OUTSIDE AIR DAMPER SHALL OPEN TO MAINTAIN MINIMUM VENTILATION REQUIREMENTS. THE DX COOLING AND STEAM VALVE SHALL OPERATE TO MAINTAIN THE ACTIVE SPACE TEMPERATURE SETPOINT.
3. UNOCCUPIED MODE:
   WHEN THE SPACE TEMPERATURE IS BELOW THE UNOCCUPIED HEATING SETPOINT OF 60.0 DEG. F (ADJ.), THE SUPPLY FAN SHALL START, THE OUTSIDE AIR DAMPER SHALL REMAIN CLOSED AND THE STEAM VALVE SHALL OPEN. WHEN THE SPACE TEMPERATURE RISES ABOVE THE UNOCCUPIED HEATING SETPOINT OF 60.0 DEG. F (ADJ.) PLUS THE UNOCCUPIED DIFFERENTIAL OF 2.0 DEG. F (ADJ.) THE SUPPLY FAN SHALL STOP AND THE STEAM VALVE SHALL CLOSE.WHEN THE SPACE TEMPERATURE IS ABOVE THE UNOCCUPIED COOLING SETPOINT OF 85.0 DEG. F (ADJ.), THE SUPPLY FAN SHALL START, THE OUTSIDE AIR DAMPER SHALL OPEN IF ECONOMIZING IS ENABLED AND REMAIN CLOSED IF ECONOMIZING IS DISABLED AND THE DX COOLING SHALL BE ENABLED. WHEN THE SPACE TEMPERATURE FALLS BELOW THE UNOCCUPIED COOLING SETPOINT OF 85.0 DEG. F (ADJ.) MINUS THE UNOCCUPIED DIFFERENTIAL OF 4.0 DEG. F (ADJ.) THE SUPPLY FAN SHALL STOP, THE DX COOLING SHALL BE DISABLED AND THE OUTSIDE AIR DAMPER SHALL CLOSE.
4. OPTIMAL START:
   THE BAS SHALL MONITOR THE SCHEDULED OCCUPIED TIME, OCCUPIED SPACE SETPOINTS AND SPACE TEMPERATURE TO CALCULATE WHEN THE OPTIMAL START OCCURS.
5. MORNING WARM-UP MODE:
   DURING OPTIMAL START, IF THE SPACE TEMPERATURE IS BELOW THE OCCUPIED HEATING SETPOINT A MORNING WARM–UP MODE SHALL BE ACTIVATED. WHEN MORNING WARM–UP IS INITIATED THE UNIT SHALL ENABLE THE HEATING AND SUPPLY FAN. THE OUTSIDE AIR DAMPER SHALL REMAIN CLOSED. WHEN THE SPACE TEMPERATURE REACHES THE OCCUPIED HEATING SETPOINT (ADJ.), THE UNIT SHALL TRANSITION TO THE OCCUPIED MODE.
6. PRE–COOL MODE:
   DURING OPTIMAL START, IF THE SPACE TEMPERATURE IS ABOVE THE OCCUPIED COOLING SETPOINT, PRE–COOL MODE SHALL BE ACTIVATED. WHEN PRE–COOL IS INITIATED THE UNIT SHALL ENABLE THE FAN AND COOLING OR ECONOMIZER. THE OUTSIDE AIR DAMPER SHALL REMAIN CLOSED, UNLESS ECONOMIZING. WHEN THE SPACE TEMPERATURE REACHES OCCUPIED COOLING SETPOINT (ADJ.), THE UNIT SHALL TRANSITION TO THE OCCUPIED MODE.
7. ECONOMIZER CONTROL:
   ECONOMIZING SHALL BE ENABLED WHEN THE OUTDOOR AIR TEMPERATURE IS BELOW THE ECONOMIZING ENABLE SETPOINT OF 65.0 DEG. F (ADJ.). ECONOMIZING SHALL BE DISABLED WHEN THE OUTDOOR AIR TEMPERATURE IS GREATER THAN 5.0 DEG. F ABOVE THE ECONOMIZER ENABLE SETPOINT. WHEN ECONOMIZING IS ENABLED THE OUTSIDE AIR DAMPER SHALL MODULATE BETWEEN THE MINIMUM DAMPER POSITION AND 100% OPEN TO MAINTAIN THE OCCUPIED COOLING SETPOINT. IF THE OUTDOOR AIR TEMPERATURE SENSOR FAILS, ECONOMIZING SHALL BE DISABLED AND AN ALARM SHALL BE ANNUNCIATED AT THE BAS.
8. SUPPLY FAN OPERATION:
   THE SUPPLY FAN SHALL CYCLE ON DEMAND DURING THE UNOCCUPIED MODE. WHEN THE CONTROLLER TRANSITIONS TO THE OCCUPIED MODE, THE SUPPLY FAN SHALL START AT HIGH SPEED BEFORE TRANSITIONING TO CONTINUOUS OPERATION AT THE SELECTED SPEED. THE SUPPLY FAN STATUS SHALL BE MONITORED BY A DIFFERENTIAL PRESSURE SWITCH. IF THE SUPPLY FAN FAILS THE FAN SHALL BE COMMANDED OFF AND AN ALARM SHALL BE ANNUNCIATED AT THE BAS. A MANUAL RESET SHALL BE REQUIRED TO RESTART THE FAN.
9. CONDENSATE OVERFLOW MONITORING:
   IF THE CONDENSATE LEVEL REACHES THE TRIP POINT, A CONDENSATE OVERFLOW DIAGNOSTIC SHALL BE ANNUNCIATED AT THE BAS. TO PREVENT THE CONDENSATE DRAIN PAN FROM OVERFLOWING AND CAUSING WATER DAMAGE TO THE BUILDING THE FAN SHALL BE DISABLED AND THE DX COOLING SHALL BE DISABLED.
10. FREEZE PROTECTION:
    A HARDWIRED, LOW LIMIT TEMPERATURE SWITCH SHALL BE ELECTRICALLY INTERLOCKED WITH THE SAFETY CIRCUIT. IF THE LOW LIMIT TEMPERATURE SWITCH IS TRIPPED 38.0 DEG. F (ADJ.), THE SUPPLY FAN SHALL BE COMMANDED OFF, STEAM VALVES SHALL OPEN TO 100%, OUTSIDE AIR DAMPER SHALL CLOSE, AND AN ALARM SHALL BE ANNUNCIATED AT THE BAS.
    THE CONTROLLER SHALL AUTOMATICALLY ATTEMPT TO RESTART THE UNIT AFTER 30 MINUTES. IF THE UNIT RESTARTS SUCCESSFULLY WITH NO LOW TEMPERATURE CONDITION, THE DIAGNOSTIC IS CLEARED. IF A SECOND LOW TEMPERATURE CONDITION OCCURS WITHIN A 24 HOUR PERIOD THE UNIT SHALL BE LOCKED OUT UNTIL MANUALLY RESET.
11. OCCUPIED BYPASS:
    THE BAS SHALL MONITOR THE STATUS OF THE "ON" AND "CANCEL" BUTTONS OF THE SPACE TEMPERATURE SENSOR. WHEN AN OCCUPIED BYPASS REQUEST IS RECEIVED FROM A SPACE SENSOR, THE UNIT SHALL TRANSITION FROM ITS CURRENT OCCUPANCY MODE TO OCCUPIED BYPASS MODE AND THE UNIT SHALL MAINTAIN THE SPACE TEMPERATURE TO THE OCCUPIED SETPOINTS (ADJ.).
12. SPACE TEMPERATURE CONTROL:
    CASCADE ZONE CONTROL SHALL BE USED IN THE OCCUPIED, OCCUPIED BYPASS, AND OCCUPIED STANDBY MODES. IT MAINTAINS ZONE TEMPERATURE BY CONTROLLING THE DISCHARGE AIR TEMPERATURE TO CONTROL THE ZONE TEMPERATURE WHILE MINIMIZING THE FAN SPEED. THE SPACE TEMPERATURE SHALL BE MAINTAINED BETWEEN THE OCCUPIED COOLING SETPOINT OF 74.0 DEG. F (ADJ.) AND THE OCCUPIED HEATING SETPOINT OF 71.0 DEG. F (ADJ.). THE UNIT SHALL TRANSITION TO THE COOLING MODE WHEN THE SPACE TEMPERATURE RISES ONE DEGREE ABOVE THE OCCUPIED COOLING SETPOINT OF 74.0 DEG. F (ADJ.). THE UNIT SHALL TRANSITION TO THE HEATING MODE WHEN THE SPACE TEMPERATURE DROPS ONE DEGREE BELOW THE OCCUPIED HEATING SETPOINT OF 74.0 DEG. F (ADJ.).
13. FILTER TIMER:
    THE FAN–RUN TIME (HRS) SHALL BE COMPARED TO THE FILTER MAINTENANCE TIMER SETPOINT. ONCE THE SETPOINT IS REACHED A FILTER TIMER ALARM DIAGNOSTIC SHALL BE ANNUNCIATED AT THE BAS. WHEN THE DIAGNOSTIC IS CLEARED, THE FILTER–MAINTENANCE TIMER IS RESET TO ZERO AND THE TIMER BEGINS ACCUMULATING FAN RUN TIME AGAIN.
14. BUILDING MANAGEMENT SYSTEM (BMS): EACH UNIT VENTILATOR INCLUDING DAMPER, CONTROL VALVES, THERMOSTATS, AND APPURTENANCES SHALL BE INTEGRATED WITH THE EXISTING SIEMENS BMS.

B. FAN COIL UNITS:
1. COOLING OCCUPIED MODE: SUPPLY FANS SHALL BE ON, OA DAMPER SHALL BE AT MINIMUM POSITION, AND THE CONTROL VALVE SHALL MODULATE TO MAINTAIN SPACE TEMPERATURE.
2. COOLING UNOCCUPIED MODE: THE UNIT SHALL BE OFF AND THE OA DAMPER SHALL BE CLOSED.
3. HEATING OCCUPIED MODE: SUPPLY FANS SHALL BE ON, OA DAMPER SHALL BE AT MINIMUM POSITION, THE CONTROL VALVE SHALL MODULATE TO MAINTAIN SPACE TEMPERATURE.
4. HEATING UNOCCUPIED MODE: THE OA DAMPER SHALL BE CLOSED AND THE CONTROL VALVE SHALL BE WIDE OPEN. THE SUPPLY FANS SHALL CYCLE AND THE CONTROL VALVE SHALL MODULATE TO MAINTAIN SPACE TEMPERATURE AT THE NIGHT SETBACK VALUE.
5. MORNING WARM–UP/COOL–DOWN: THE UNIT SHALL AUTOMATICALLY WARM–UP/COOL–DOWN THE SPACE PRIOR TO OCCUPANCY BASED ON THE PROGRAMMABLE SCHEDULE.
6. BUILDING MANAGEMENT SYSTEM (BMS): EACH UNIT VENTILATOR INCLUDING DAMPER, CONTROL VALVES, THERMOSTATS, AND APPURTENANCES SHALL BE INTEGRATED WITH THE EXISTING SIEMENS BMS.

C. ROOFTOP AIR HANDLING UNITS:
1. SEE SPECIFICATION SECTION 230993.

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

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

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

GREENMAN PEDERSEN, INC
90 BROAD STREET, 2ND FLOOR
MONTGOMERY, NY 10941

Mechanical & Electrical Engineer:

Structural Engineer:

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

MICHAEL SHILALE ARCHITECTS, L.L.P.
140 Park Avenue New City, NY 10956 Tel 845-708-9200
www.shilale.com

Drawing Title
MECHANICAL NOTES

Drawing No.
M-001

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

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

STEAM HEATING COIL

UNIT SERVED	RTU-2	RTU-3
LOCATION	RTU-2	RTU-3
BTU/HR	125,000	137,500
STEAM FLOW RATE (LB/H)	318	318
AIRFLOW (CFM)	8,085	8,328
ENTERING AIR TEMP (F)	45.4	45.4
LEAVING AIR TEMP (F)	80.5	80.5
ENTERING STEAM PRESSURE (PSIG)	2	2
STEAM PRESSURE DROP (PSIG)	1	1
AIRSIDE PRESSURE DROP (IN WC)	0.25	0.25
NOMINAL TUBE DIAMETER (IN)	1	1
TUBE THICKNESS (IN)	0.035	0.035

REMARKS:
1. PROVIDE STEAM DISTRIBUTING TYPE COIL.
2. THIS COIL SHALL BE A STANDARD PRODUCT OF THE RTU MANUFACTURER AND SHALL BE INTEGRAL TO THE RTU HEATING SECTION. REFER TO THE ROOFTOP UNIT SCHEDULE FOR RTU DETAILS.

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

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

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

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

GREENMAN PEDERSEN, INC
400 RELLA BOULEVARD
MONTEBELLO, NY 10901

Mechanical & Electrical Engineer:

Structural Engineer:

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

MICHAEL SHILALE ARCHITECTS, L.L.P.
140 Park Avenue New City, NY 10956 Tel 845-708-9200
www.shilale.com

Drawing Title
MECHANICAL SCHEDULES

Drawing No.
M-002

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	TPLFYP005FM140A	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	TPLFYP005FM140A	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	TPEFYP008MA143A	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	TPEFYP008MA143A	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	TPEFYP006MA143A	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	TPEFYP008MA143A	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	TPEFYP008MA143A	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	TPVFYP018AM141A	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	TPLFYP005FM140A	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	TPLFYP005FM140A	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	TPLFYP005FM140A	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	TPLFYP005FM140A	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	TPLFYP005FM140A	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	TPLFYP005FM140A	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	TPEFYP008MA143A	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	TPEFYP006MA143A	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	TPEFYP006MA143A	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	TPEFYP006MA143A	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	TPEFYP006MA143A	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	TPLFYP005FM140A	Ceiling-Cassette (Four-Way)	5,000.0	5,600.0	78.0/67.9	72.0	4,665.1	3,626.6	3,402.8	65.8	83.3	1/4 / 1/2	208/230V/1-phase	0.02 / 0.02	0.24/15	1, 2, 3, 4, 5, 6
AC-9F	CU-9	Office 108B	TPLFYP005FM140A	Ceiling-Cassette (Four-Way)	5,000.0	5,600.0	78.0/67.9	72.0	4,665.1	3,626.6	3,402.8	65.8	83.3	1/4 / 1/2	208/230V/1-phase	0.02 / 0.02	0.24/15	1, 2, 3, 4, 5, 6
AC-9G	CU-9	Office 108C	TPLFYP005FM140A	Ceiling-Cassette (Four-Way)	5,000.0	5,600.0	78.0/67.9	72.0	4,665.1	3,626.6	3,402.8	65.8	83.3	1/4 / 1/2	208/230V/1-phase	0.02 / 0.02	0.24/15	1, 2, 3, 4, 5, 6
AC-9H	CU-9	Office 108D	TPLFYP005FM140A	Ceiling-Cassette (Four-Way)	5,000.0	5,600.0	78.0/67.9	72.0	4,665.1	3,626.6	3,402.8	65.8	83.3	1/4 / 1/2	208/230V/1-phase	0.02 / 0.02	0.24/15	1, 2, 3, 4, 5, 6
UV-107	CU-9	CR 107	30000 Btu/h LEV Kit	LEV KIT	30,000.0	34,000.0	78.0/67.9	72.0	27,990.5	Dependent on 3rd Party Coil	20,659.7	78.0	72.0	3/8 / 5/8	208/230V/1-phase	0.012 / 0.012	/16	1, 2, 3, 4, 5, 6
UV-109	CU-9	CR 109	30000 Btu/h LEV Kit	LEV KIT	30,000.0	34,000.0	78.0/67.9	72.0	27,990.5	Dependent on 3rd Party Coil	20,659.7	78.0	72.0	3/8 / 5/8	208/230V/1-phase	0.012 / 0.012	/16	1, 2, 3, 4, 5, 6
UV-111	CU-9	CR 111	30000 Btu/h LEV Kit	LEV KIT	30,000.0	34,000.0	78.0/67.9	72.0	27,990.5	Dependent on 3rd Party Coil	20,659.7	78.0	72.0	3/8 / 5/8	208/230V/1-phase	0.012 / 0.012	/16	1, 2, 3, 4, 5, 6
AC-9J	CU-9	Office 110A	TPLFYP005FM140A	Ceiling-Cassette (Four-Way)	5,000.0	5,600.0	78.0/67.9	72.0	4,665.1	3,626.6	3,402.8	65.8	83.3	1/4 / 1/2	208/230V/1-phase	0.02 / 0.02	0.24/15	1, 2, 3, 4, 5, 6
UV-110	CU-9	CR 110-Art	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	22,120.5	78.0	72.0	3/8 / 5/8	208/230V/1-phase	0.012 / 0.012	/16	1, 2, 3, 4, 5, 6
UV-209	CU-10	CR 209	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	22,120.5	78.0	72.0	3/8 / 5/8	208/230V/1-phase	0.012 / 0.012	/16	1, 2, 3, 4, 5, 6
UV-210	CU-10	CR 210	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	22,120.5	78.0	72.0	3/8 / 5/8	208/230V/1-phase	0.012 / 0.012	/16	1, 2, 3, 4, 5, 6
AC-10A	CU-10	CR 211	TPEFYP008MA143A	Ceiling-Concealed (Ducted)	8,000.0	9,000.0	78.0/67.9	72.0	8,041.9	5,558.7	5,855.4	60.6	90.2	1/4 / 1/2	208/230V/1-phase	0.06 / 0.04	1.05/15	1, 2, 3, 4, 5, 6, 8
UV-213	CU-10	CR 213	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	22,120.5	78.0	72.0	3/8 / 5/8	208/230V/1-phase	0.012 / 0.012	/16	1, 2, 3, 4, 5, 6
UV-215	CU-10	CR 215	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	22,120.5	78.0	72.0	3/8 / 5/8	208/230V/1-phase	0.012 / 0.012	/16	1, 2, 3, 4, 5, 6
UV-212	CU-10	CR 212	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	22,120.5	78.0	72.0	3/8 / 5/8	208/230V/1-phase	0.012 / 0.012	/16	1, 2, 3, 4, 5, 6
AC-11A	CU-11	Resource 317	TPEFYP006MA143A	Ceiling-Concealed (Ducted)	6,000.0	6,700.0	78.0/67.9	72.0	6,031.4	4,892.2	5,936.4	62.7	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-313	CU-11	CR 313 - Science	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	58,477.7	78.0	72.0	3/8 / 3/4	208/230V/1-phase	0.012 / 0.012	/16	1, 2, 3, 4, 5, 6
UV-310	CU-11	CR 310	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	30,124.9	78.0	72.0	3/8 / 5/8	208/230V/1-phase	0.012 / 0.012	/16	1, 2, 3, 4, 5, 6
AC-11B	CU-11	Prep 311B	TPEFYP006MA143A	Ceiling-Concealed (Ducted)	6,000.0	6,700.0	78.0/67.9	72.0	6,031.4	4,892.2	5,936.4	62.7	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-314	CU-12	CR 314	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	23,492.8	78.0	72.0	3/8 / 5/8	208/230V/1-phase	0.012 / 0.012	/16	1, 2, 3, 4, 5, 6
UV-321	CU-12	CR 321	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	23,492.8	78.0	72.0	3/8 / 5/8	208/230V/1-phase	0.012 / 0.012	/16	1, 2, 3, 4, 5, 6
UV-319	CU-12	CR 319	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	23,492.8	78.0	72.0	3/8 / 5/8	208/230V/1-phase	0.012 / 0.012	/16	1, 2, 3, 4, 5, 6
UV-312	CU-12	CR 312	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	23,492.8	78.0	72.0	3/8 / 5/8	208/230V/1-phase	0.012 / 0.012	/16	1, 2, 3, 4, 5, 6
UV-216	CU-12	CR 216	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	23,492.8	78.0	72.0	3/8 / 5/8	208/230V/1-phase	0.012 / 0.012	/16	1, 2, 3, 4, 5, 6

INDOOR UNIT SCHEDULE NOTES:

1. NOMINAL COOLING CAPACITIES ARE BASED ON INDOOR COIL EAT OF 80/67°F (DB/WB), OUTDOOR OF 95°F (DB)
2. NOMINAL HEATING CAPACITIES ARE BASED ON INDOOR COIL EAT OF 70°F (DB), OUTDOOR OF 43°F (WB)
3. SEE OUTDOOR UNIT SCHEDULE FOR OUTDOOR AMBIENT CONDITIONS, CONNECTED CAPACITY, AND OTHER FACTORS ASSOCIATED WITH CORRECTED CAPACITIES
4. SEE SCHEMATIC PIPING/CONTROL DIAGRAM FOR INDICATION OF REQUIRED INDOOR UNIT REMOTE CONTROLLERS, SYSTEM CONTROLLERS, AND INTEGRATION DEVICES.
5. FULL DEMAND CORRECTED CAPACITY INCLUDES DE-RATE ASSOCIATED WITH INDOOR VS. OUTDOOR CONNECTED CAPACITY INDICATED ON OUTDOOR UNIT SCHEDULE FOR ASSOCIATED SYSTEM. PARTIAL CORRECTED CAPACITY ASSUMES SUFFICIENT DIVERSITY EXISTS SUCH THAT THE CONNECTED CAPACITY DE-RATE DOES NOT APPLY, IT IS THE DESIGNER'S RESPONSIBILITY TO ENSURE "DIAMOND SYSTEM BUILDER" IS SET IN THE APPROPRIATE OUTPUT CAPACITY SETTING (FULL DEMAND/PARTIAL DEMAND) PRIOR TO GENERATING THIS SCHEDULE.
6. IT IS RECOMMENDED TO ALWAYS BASE HEATING CORRECTED CAPACITY ON FULL DEMAND.
7. NOT USED
8. PROVIDE FILTER BOX WITH MERV 13 FILTERS

GENERAL NOTE

1. LEV KITS AT EACH UNIT VENTILATOR REQUIRE 208V POWER FOR CONTROL BOX.
2. CONTRACTOR TO PROVIDE SINGLE PHASE 120/208V STEP UP TRANSFORMER ALONG WITH LEV KIT AND INSTALL INSIDE THE UNIT VENTILATOR.
3. CONTRACTOR TO CONFIRM WITH MANUFACTURER REPRESENTATIVE FOR ITEMS THAT ARE FACTORY AND FIELD INSTALLED.
4. AT ALL UNIT VENTILATORS, CONTRACTOR IS RESPONSIBLE TO REMOVE FACTORY INSTALLED STANDARD DX CONTROL VALVE FOR FIELD INSTALLATION OF LEV DX VALVE, REFER TO MANUFACTURER REPRESENTATIVE FOR PROPER INSTALLATION.
5. SEE CONTROL DIAGRAMS ON M004 FOR ADDITIONAL INFORMATION.
6. DUE TO THE LEAD TIME GLOBAL CHIP SHORTAGE CRISIS. CONTROLLERS ARE TO BE SHIPPED SEPARATELY FOR FIELD INSTALLATION, TYP. ALL NEW UNITS.

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

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

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

GREENMAN PEDERSEN, INC
400 POST AVENUE, SUITE 650
MONTGOMERY, NY 10941

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

MICHAEL SHILALE ARCHITECTS, L.L.P.
140 Park Avenue New City, NY 10956 Tel 845-708-9200
www.shilale.com

Drawing Title
MECHANICAL SCHEDULES -2

Drawing No.
M-003

GENERAL NOTES

1. 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.
2. 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.
3. PROVIDE NEW THERMOSTATS WITH LOCK BOXES IN ROOMS BEING SERVED BY AHU. CONTRACTOR SHALL PROVIDE ALL ASSOCIATED CONTROL WIRING.
4. 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.
5. 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.

LEGEND

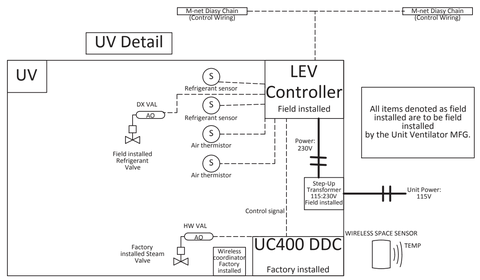
VFD	VARIABLE FREQUENCY DRIVE	DCV	DEMAND CONTROL VENTILATION
TLL-1	TEMPERATURE LOW LIMIT	CO2	CARBON DIOXIDE
TCC	TEMPERATURE CONTROLS CONTRACTOR	DI	DIGITAL INPUT
TS-1	OUTSIDE AIR TEMP	DO	DIGITAL OUTPUT
TS-2	MIXED AIR TEMP	AI	ANALOG INPUT
TS-3	HEATING COIL DISCHARGE	AO	ANALOG OUTPUT
TS-4	DISCHARGE AIR TEMP	LON	LONWORKS 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
FLTG	FLOATING	SF STS	SUPPLY FAN STATUS
TEMP	TEMPERATURE	SPD	SPEED
STPT	SETPOINT	CMD	COMMAND
VAL	VALVE	---	FIELD INSTALLED WIRING
EC	ELECTRICAL CONTRACTOR		

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

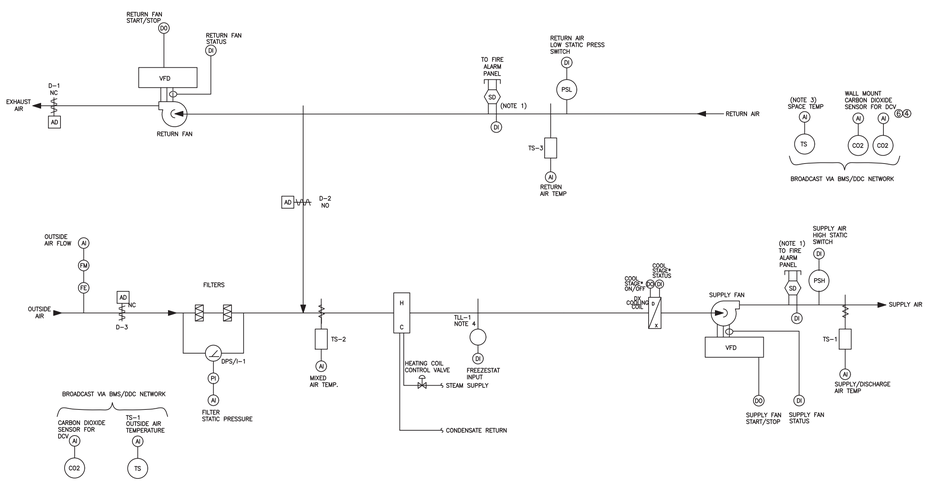
KEY NOTES:

① 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.
② THE TCC SHALL PROVIDE ALL DIGITAL ALARM LOGIC. ALL DIGITAL ALARMS SHALL BE COMPATIBLE WITH THE EXISTING SIEMENS BMS SYSTEM.
③ THE TCC SHALL PROVIDE ALL TRENDING AND ANALOG ALARMING VIA THE SOFTWARE USED AT THE EXISTING SIEMENS BMS SYSTEM.
④ PROVIDE ACCUMULATED AIR FLOW FOR VALIDATION OF PURGE–MODE AND FOR PERMANENT VALIDATION OF OCCUPANT VENTILATION.
⑤ 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.
⑥ PROVIDE THE ALARM WHEN AT THE CALCULATED DIFFERENTIAL BETWEEN OUTSIDE AIR AND SPACE AIR CO2 VALUE IS 1000 ppm.
⑦ PROVIDE LON COMMUNICATION CONNECTION TO THIS DEVICE MAPPING ALL REQUIRED POINTS INTO THE LNS DATABASE.

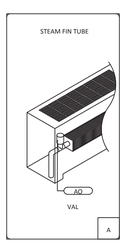
		Input/Output (Note 1)								Software/Firmware Features (Note 2,3)								Notes
"SZVAV AIR HANDLING UNIT"		Sensed			Calculated			Alarms and Advisories (with Instructions)				Misc. Features						
Reference No.	Point Name	Analog Input	Analog Output	Digital Input	Digital Output	String Value	Rate-of Variable	Totalized Variable	Digital Alarm	Change-Of-State Alarm	High Limit Alarm	Low Limit Alarm	Runtime Limit (Hrs)	Broadcast Point	"Direct Lon Communication"	Trended Value	Misc. Other	Network Variable Type	Notes	① ③
1	Outside Air Temp	X												X		X		nvo		
2	Outside Air CO2	X												X		X		nvo		
3	Supply Airflow	X									20% over SP	20% under SP				X		nvo		
4	Exhaust/Return Airflow	X									20% over SP	20% under SP						nvo		
5	Supply Air Enthalpy Wheel Discharge Temp	X														X		nvo		
6	Supply Air Temp Heating Setpoint (Leaving The Wheel)		X															nvi/nvo		
7	Heating Coil Discharge Air Temp	X														X		nvo		
8	Cooling Coil Discharge Air Temp	X														X		nvo		
9	Supply Air Temp	X														X		nvo		
10	Exhaust/Return Air Temp	X														X		nvo		
11	Room Temp	X									Note 8					X		nvo		
12	Room CO2	X																nvo		
13	Differential CO2 (Calculated)					X					1000 ppm							nvo	⑥	
14	SF High Static Pressure			X						X	[TBD]							nvo	⑤	
15	EF/RF Low Suction Pressure			X						X		[TBD]						nvo	⑤	
16	Supply Fan Status			X									1,000					nvo		
17	Supply Fan VFD															X		nvo	⑦	
18	Supply Fan VFD Fault			X						X								nvo		
19	Supply Fan VFD Speed		X															nvo		
20	Supply Fan Failure				X				X									nvo	②	
21	Exhaust Fan Status			X									1,000					nvo		
22	Exhaust Fan VFD															X		nvo	⑦	
23	Exhaust Fan VFD Fault			X						X								nvo		
24	Exhaust Fan VFD Speed		X															nvo		
25	Exhaust Fan Failure				X				X									nvo	②	
26	Outside Air Flow	X					cfm	CCF			SP-20%	SP+20%				X		nvo	④	
27	Common Fire Alarm			X						X				X				nvo		
28	Freezestat Alarm			X						X			39°F					nvo		
29	HVAC Mode					X								X				nvo		
30	Occupancy Mode (Bypass Mode)			X														nvo		
31	Occupancy Mode					X												nvo		
32	DX Cooling Command				X													nvo		
33	DX Compressor Status			X									1,000					nvo		

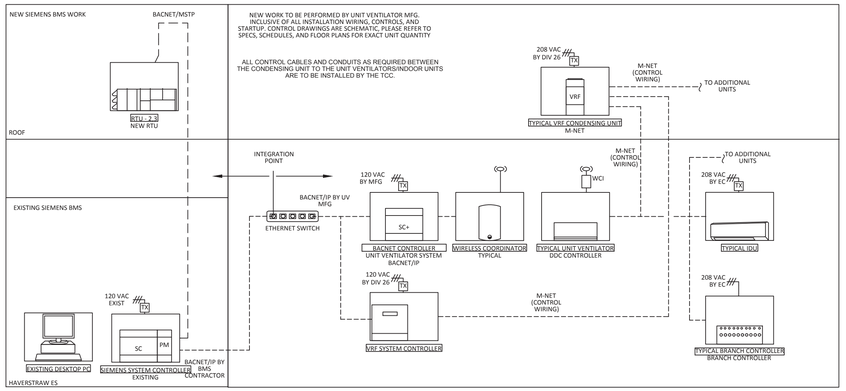


4 LEV KIT WIRING DIAGRAM
SCALE: N.T.S.

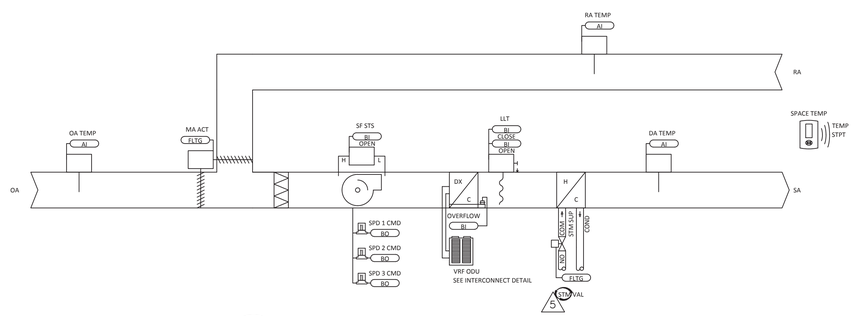


1 RTU CONTROL DIAGRAM
SCALE: N.T.S.





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



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

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

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

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

GREENMAN PEDERSEN, INC
400 RELLA BOULEVARD
MONTEBELLO, NY 10901

Mechanical & Electrical Engineer:

Structural Engineer:

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

MICHAEL SHILALE ARCHITECTS, L.L.P.
140 Park Avenue New City, NY 10956 Tel 845-708-9200
www.shilale.com

Drawing Title: CONTROLS

Drawing No. M-004

UNIT VENTILATOR SCHEDULE

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 HUVC1001	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 HUVC1001	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

UNIT VENTILATOR SCHEDULE NOTES:

1. PROVIDE VARIABLE VOLUME SPEED CONTROL ECM MOTORS. MOTOR CONTROL TO BE FIELD INSTALLED.
2. PROVIDE LOW LEAKAGE OUTSIDE AIR DAMPER, CLASS 1 MOTORIZED DAMPERS, LOW LEAKAGE TYPE FOR OUTSIDE AIR AND EXHAUST OPENINGS. AIR LEAKAGE SHALL NOT BE GREATER THAN 4CFM/FT^2 AND BE IN ACCORDANCE WITH AMCA 500D.
3. PROVIDE FIXED DRY-BULB ECONOMIZER WITH FAULT DETECTION DIAGNOSIS.
4. PROVIDE DISCONNECT SWITCH.
5. CONTRACTOR TO VERIFY STEAM HEAT COIL PIPING CONNECTIONS AND NEW DX COIL PIPING CONNECTIONS PRIOR TO ORDERING. STEAM HEAT COILS SHALL MATCH EXISTING LOCATIONS. TYPICAL LOCATIONS ARE AS FOLLOWS: ELECTRICAL – LH SIDE, STEAM – RH SIDE, DX – RH SIDE.
6. AT COMPLETION OF UV INSTALLATION, CONTRACTOR SHALL INSTALL MERV-13 FILTERS FURNISHED BY THE UNIT MANUFACTURER.
7. PROVIDE MODULATING TWO-WAY STEAM CONTROL VALVE.
8. CABINET COLOR TO BE OF DELUXE BEIGE FINISH U.O.N. BY ARCHITECT AND/OR FACILITIES.
9. PROVIDE HEAVY GAUGE FRONT PANEL AND CUT-TO-FIT FILLER PANELS ON BOTH SIDES OF THE UNIT VENTILATOR TO MATCH THE INSTALLED WIDTH OF THE EXISTING UNITS AND ENCLOSE EXISTING PIPING.
10. PROVIDE FIELD INSTALLED DDC CONTROLS TO SATISFY SEQUENCE OF OPERATIONS, COORDINATE/INTEGRATE WITH EXISTING SIEMENS BMS. SEE DRAWING M004 FOR MORE INFO. PROVIDE LEV KIT AS PER INDOOR UNIT SCHEDULE, SEE DRAWING M003.
11. PROVIDE WITH NO ENCLOSURE/END COVERS FOR INSTALLATION BEHIND EXISTING CABINETRY ENCLOSURE.
12. PROVIDE ALL REQUIRED SUPPORTS FOR CEILING MOUNT HORIZONTAL UNIT.
13. AT ALL UNIT VENTILATORS, CONTRACTOR IS RESPONSIBLE TO REMOVE FACTORY INSTALLED STANDARD DX CONTROL VALVE FOR FIELD INSTALLATION OF LEV DX VALVE, REFER TO MANUFACTURER REPRESENTATIVE FOR PROPER INSTALLATION. 5
14. DUE TO THE LEAD TIME GLOBAL CHIP SHORTAGE CRISIS. CONTROLLERS ARE TO BE SHIPPED SEPARATELY FOR FIELD INSTALLATION, TYP. ALL NEW UNITS.

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

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

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

GREENMAN PEDERSEN, INC
400 RELLA BOULEVARD
MONTEBELLO, NY 10901

Mechanical & Electrical Engineer:
Structural Engineer:

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

MICHAEL SHILALE ARCHITECTS, L.L.P.
140 Park Avenue New City, NY 10956 Tel 845-708-9200
www.shilale.com

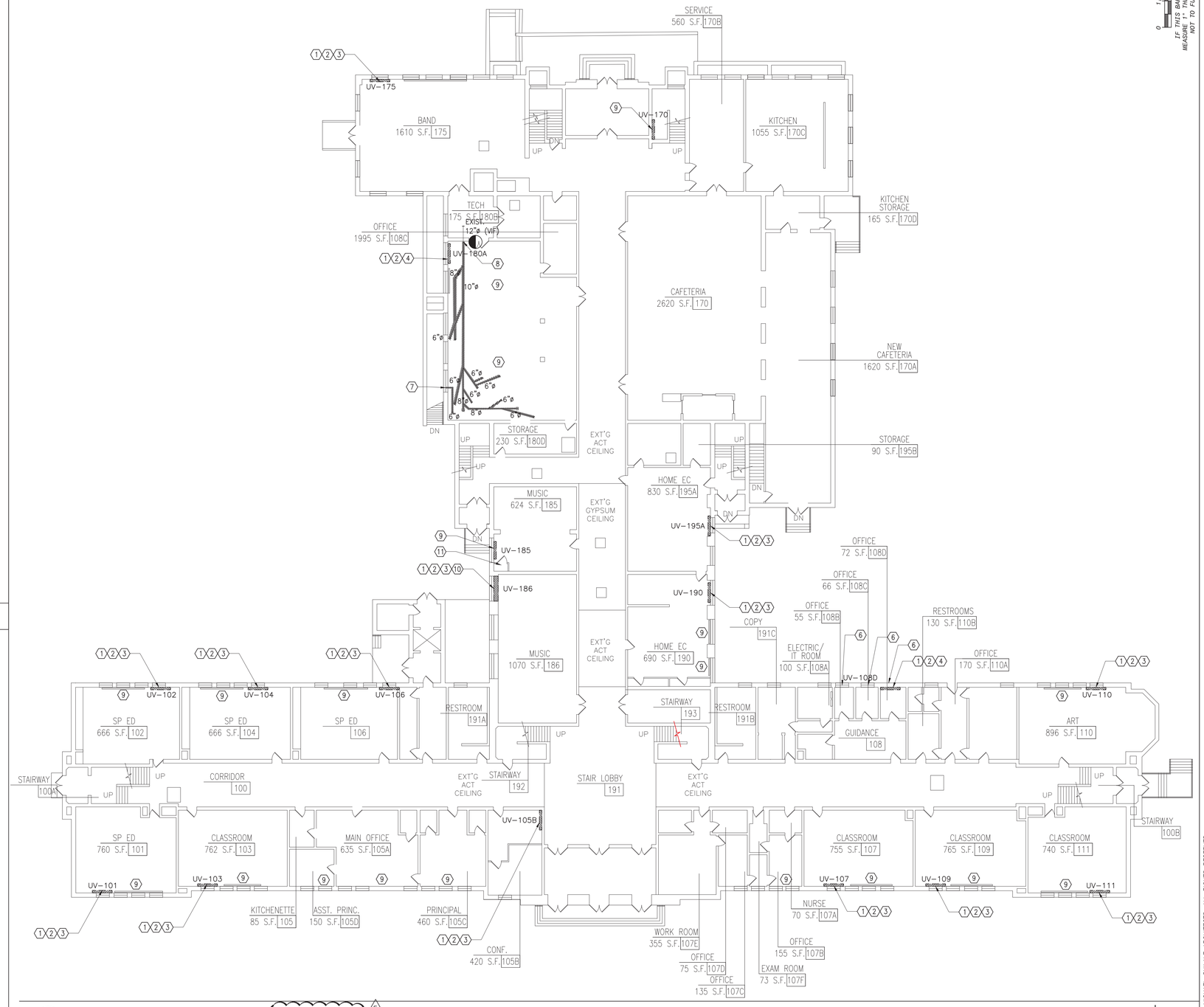
Drawing Title
UV SCHEDULE

Drawing No.
M-006

NOTES:

1. DEMOLISH EXISTING UNIT VENTILATOR OR FCU.
2. REMOVE STEAM CONTROL VALVE, TRAPS, AND ASSOCIATED APPURTENANCES. CAP AND REMOVE STEAM PIPING BACK TO NEAREST RISER, APPROX. 5 LF OF PIPING.
3. REMOVE AND DISCONNECT FRESH AIR CONNECTION. EXISTING LOUVER TO REMAIN. PROVIDE TEMPORARY CLOSURE FOR OA LOUVER TO PREVENT INFILTRATION FROM OUTDOORS.
4. REMOVE AND DISCONNECT FRESH AIR CONNECTION. PERMANENTLY CAP EXISTING 36"x12" (V.I.F.) LOUVER OPENING FROM THE INSIDE WITH 22 GA MIN GALVANIZED PANEL. FILL VOID WITH INSULATION, R-12 MIN. RESTORE INTERIOR FINISHES, COORDINATE WITH GC AND ARCHITECT.
5. DEMO EXISTING A/C UNIT IN SPACE AND ASSOCIATED CONDENSING UNIT AND RETURN EQUIPMENT TO FACILITIES.
6. DEMO EXISTING WINDOW A/C UNIT. RETURN WINDOW A/C UNIT TO THE SCHOOL. CAP INSULATED WINDOW PANEL AT LOCATION OF EXISTING WINDOW AC UNIT, REFER TO ARCHITECTURAL PLANS.
7. DEMO EXISTING VACUUM EXHAUST DUCT, FITTINGS AND SUPPORTS IN CEILING. TEMPORARILY CAP AND SEAL ANY PENETRATIONS TO THE OUTSIDE. ALL DUCT DIMENSIONS AND ROUTING AS SHOWN ARE APPROXIMATE. CONTRACTOR TO VERIFY IN THE FIELD.
8. PERMANENTLY CAP EXISTING DUCT AT BUILDING WALL.
9. EXISTING RADIATOR TO REMAIN.
10. EXISTING CABINETRY ENCLOSURE TO REMAIN.
11. EXISTING ENERGY RECOVERY VENTILATOR IN SPACE TO REMAIN.

NOTES



1 **FIRST FLOOR PLAN - DEMO** (5)
SCALE: 1/16" = 1'-0"

PLAN NORTH

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

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

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

GREENMAN PEDERSEN, INC
400 BEAR HILL ROAD
MONTEBELLO, NY 10901

Mechanical & Electrical Engineer:

Structural Engineer:

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

MICHAEL SHILALE ARCHITECTS, L.L.P.
140 Park Avenue New City, NY 10956 Tel 845-708-9200
www.shilale.com

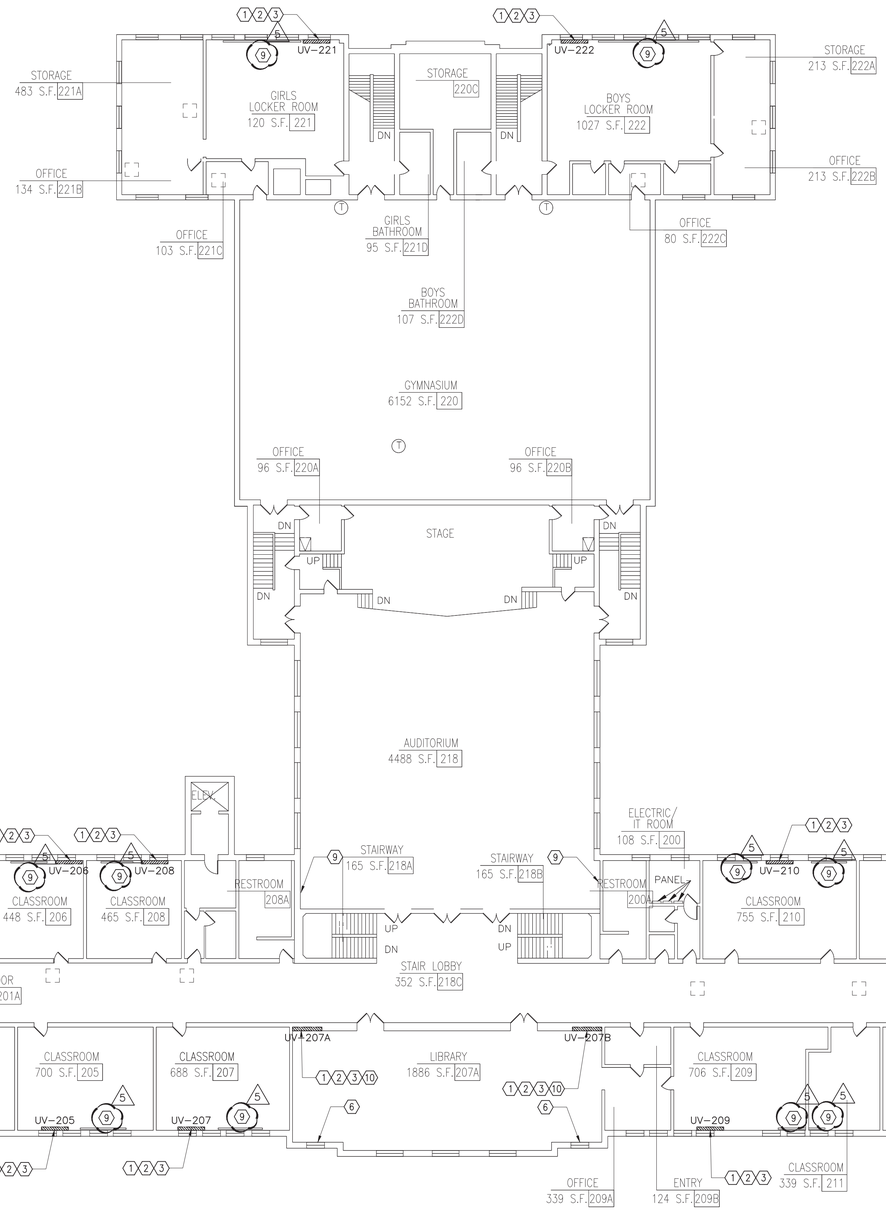
Drawing Title
HVAC DEMO - 1ST FLOOR PLAN

Drawing No.
M-061

NOTES:

1. DEMOLISH EXISTING UNIT VENTILATOR OR FCU.
2. REMOVE STEAM CONTROL VALVE, TRAPS, AND ASSOCIATED APPURTENANCES. CAP AND REMOVE STEAM PIPING BACK TO NEAREST RISER, APPROX. 5 LF OF PIPING.
3. REMOVE AND DISCONNECT FRESH AIR CONNECTION. EXISTING LOUVER TO REMAIN. PROVIDE TEMPORARY CLOSURE FOR OA LOUVER TO PREVENT INFILTRATION FROM OUTDOORS.
4. REMOVE AND DISCONNECT FRESH AIR CONNECTION. PERMANENTLY CAP EXISTING 36"x12" (V.I.F.) LOUVER OPENING FROM THE INSIDE WITH 22 GA MIN GALVANIZED PANEL. FILL VOID WITH INSULATION, R-12 MIN. RESTORE INTERIOR FINISHES, COORDINATE WITH GC AND ARCHITECT.
5. DEMO EXISTING A/C UNIT IN SPACE AND ASSOCIATED CONDENSING UNIT AND RETURN EQUIPMENT TO FACILITIES.
6. DEMO EXISTING WINDOW A/C UNIT. RETURN WINDOW A/C UNIT TO THE SCHOOL. CAP INSULATED WINDOW PANEL AT LOCATION OF EXISTING WINDOW AC UNIT, REFER TO ARCHITECTURAL PLANS.
7. DEMO EXISTING VACUUM EXHAUST DUCT, FITTINGS AND SUPPORTS IN CEILING. TEMPORARILY CAP AND SEAL ANY PENETRATIONS TO THE OUTSIDE. ALL DUCT DIMENSIONS AND ROUTING AS SHOWN ARE APPROXIMATE. CONTRACTOR TO VERIFY IN THE FIELD.
8. PERMANENTLY CAP EXISTING DUCT AT BUILDING WALL.
9. EXISTING RADIATOR TO REMAIN.
10. EXISTING CABINETRY ENCLOSURE TO REMAIN.

NOTES



1 SECOND FLOOR PLAN - DEMO

SCALE: 1/16" = 1'-0"

PLAN NORTH

1/2 0 1

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

No.	Date	Revisions
1	08-30-21	BIDDING DOCUMENTS
2	11-19-21	ISSED ADDENDUM 1
3	12-17-21	ISSUED FOR BID
4	01-24-22	ADDENDUM 3

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

GREENMAN PEDERSEN, INC
400 Rella Boulevard
Montebello, NY 10901

Mechanical & Electrical Engineer:

Structural Engineer:

UNIVENT REPLACEMENT
AT
HAVERSTRAW
ELEMENTARY
SED# 50-02-01-06-0-009-018

COUNTY OF ROCKLAND
16 Great Road
Haverstraw, NY 10927

MICHAEL SHILALE ARCHITECTS, L.L.P.
140 Park Avenue New City, NY 10956 Tel 845-708-9200
www.shilale.com

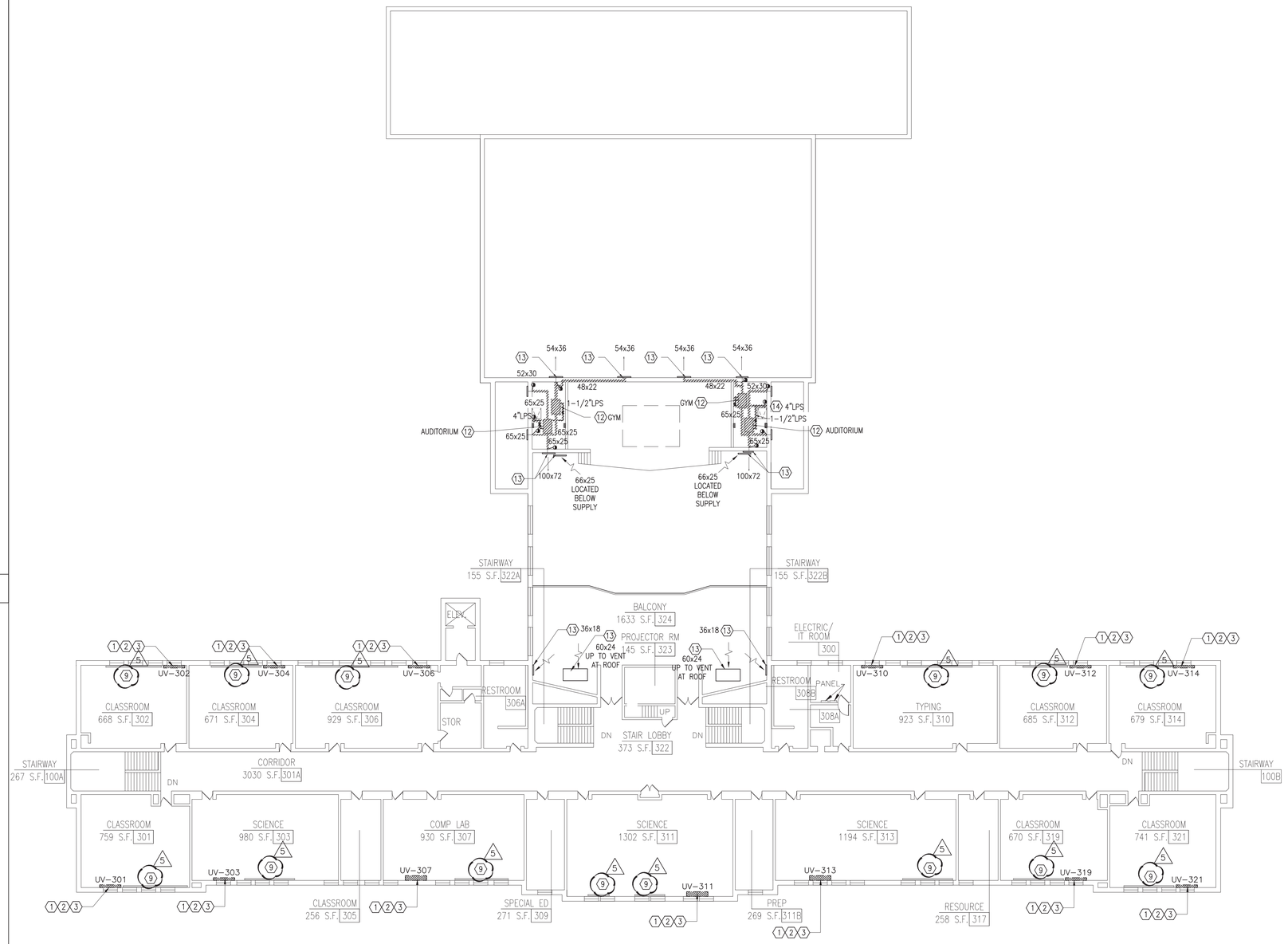
Drawing Title
HVAC DEMO - 2ND FLOOR PLAN

Drawing No.
M-062

NOTES:

1. DEMOLISH EXISTING UNIT VENTILATOR OR FCU.
2. REMOVE STEAM CONTROL VALVE, TRAPS, AND ASSOCIATED APPURTENANCES. CAP AND REMOVE STEAM PIPING BACK TO NEAREST RISER, APPROX. 5 LF OF PIPING.
3. REMOVE AND DISCONNECT FRESH AIR CONNECTION. EXISTING LOUVER TO REMAIN. PROVIDE TEMPORARY CLOSURE FOR OA LOUVER TO PREVENT INFILTRATION FROM OUTDOORS.
4. REMOVE AND DISCONNECT FRESH AIR CONNECTION. PERMANENTLY CAP EXISTING 36"x12" (V.I.F.) LOUVER OPENING FROM THE INSIDE WITH 22 GA MIN GALVANIZED PANEL. FILL VOID WITH INSULATION, R-12 MIN. RESTORE INTERIOR FINISHES, COORDINATE WITH GC AND ARCHITECT.
5. DEMO EXISTING A/C UNIT IN SPACE AND ASSOCIATED CONDENSING UNIT AND RETURN EQUIPMENT TO FACILITIES.
6. DEMO EXISTING WINDOW A/C UNIT. RETURN WINDOW A/C UNIT TO THE SCHOOL. CAP INSULATED WINDOW PANEL AT LOCATION OF EXISTING WINDOW AC UNIT, REFER TO ARCHITECTURAL PLANS.
7. DEMO EXISTING VACUUM EXHAUST DUCT, FITTINGS AND SUPPORTS IN CEILING. TEMPORARILY CAP AND SEAL ANY PENETRATIONS TO THE OUTSIDE. ALL DUCT DIMENSIONS AND ROUTING AS SHOWN ARE APPROXIMATE. CONTRACTOR TO VERIFY IN THE FIELD.
8. PERMANENTLY CAP EXISTING DUCT AT BUILDING WALL.
9. EXISTING RADIATOR TO REMAIN.
10. EXISTING CABINETRY ENCLOSURE TO REMAIN.
11. DEMOLISH EXISTING AIR HANDLING UNIT, SUPPORTS AND ASSOCIATED DISCONNECT SWITCH/CONTROLS.
12. DEMOLISH EXISTING DUCTWORK AND SUPPORTS.
13. EXISTING GRILLE/REGISTER TO REMAIN.
14. DEMOLISH EXISTING STEAM AND CONDENSATE RETURNS AND F&T TRAPS. CAP PIPING BACK AT MAIN IN EACH SPACE.

NOTES



1 THIRD FLOOR PLAN - DEMO 5

SCALE: 1/16" = 1'-0"

PLAN NORTH

0 1/2 1

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

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

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

GREENMAN PEDERSEN, INC
400 RELLA BOULEVARD
MONTEBELLO, NY 10901

Mechanical & Electrical Engineer: --

Structural Engineer: --

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

MICHAEL SHILALE ARCHITECTS, L.L.P.
140 Park Avenue New City, NY 10956 Tel 845-708-9200
www.shilale.com

Drawing Title: HVAC DEMO - 3RD FLOOR PLAN

Drawing No. M-063

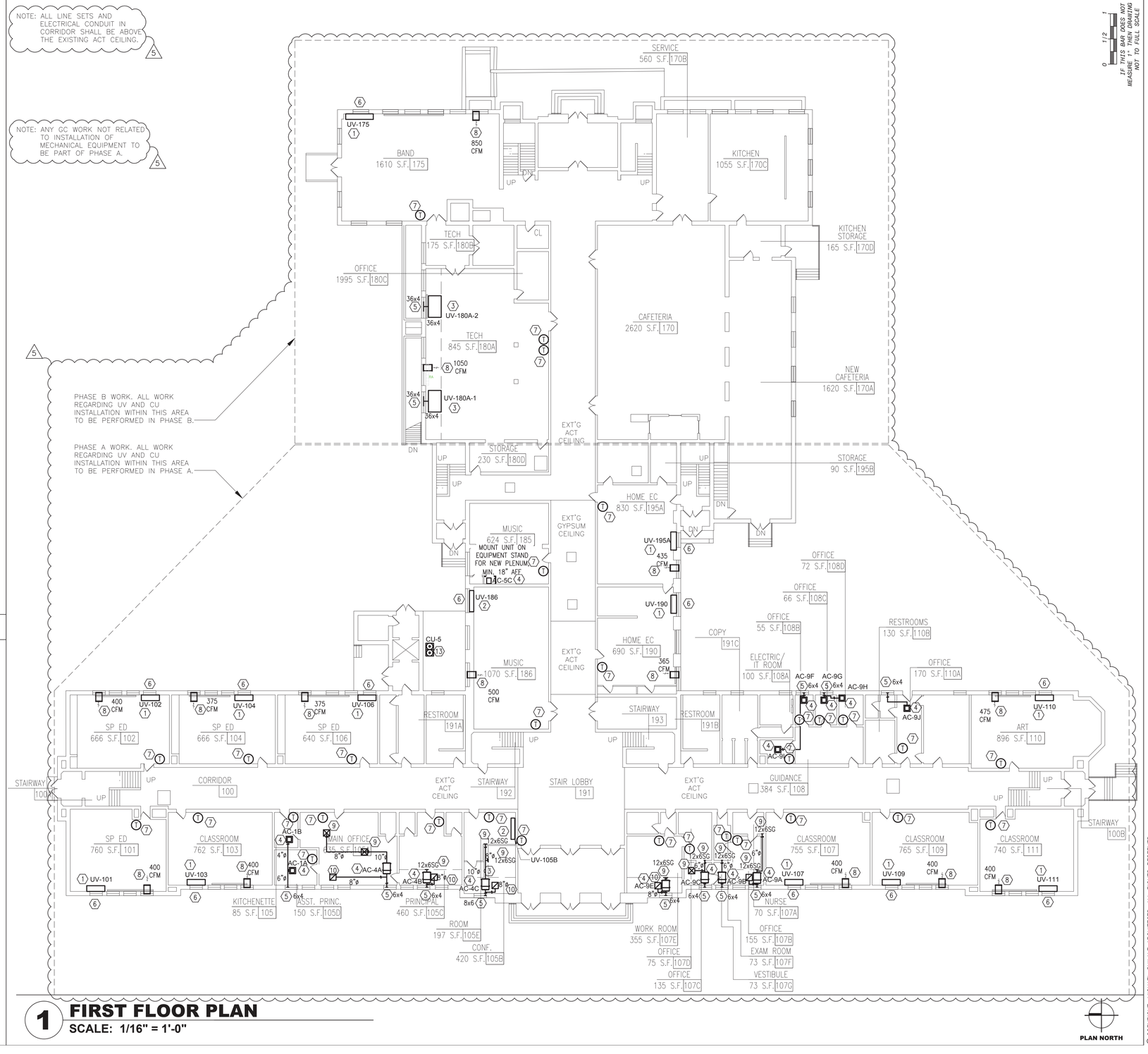
NOTES:

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 CABINETRY ENCLOSURE. 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 WITH MOTORIZED DAMPER, 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. EXTEND DUCTWORK AS INDICATED.
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 OUTDOOR CONDENSING UNIT, SEE SCHEDULE ON DRAWING M-002. MOUNT AND SECURE UNIT TO WALL. UNIT SHALL BE MOUNTED MIN. 3'-0" ABOVE GRADE.

GENERAL NOTE:

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

NOTES



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

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

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

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

GREENMAN PEDERSEN, INC
400 RELLA BOULEVARD
MONTEBELLO, NY 10901

Mechanical & Electrical Engineer:

Structural Engineer:

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

MICHAEL SHILALE ARCHITECTS, L.L.P.
140 Park Avenue New City, NY 10956 Tel 845-708-9200
www.shilale.com

Drawing Title
1ST FLOOR PLAN - MECHANICAL

Drawing No.
M-101

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 CABINETRY ENCLOSURE. 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 WITH MOTORIZED DAMPER, 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.

GENERAL NOTE:

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

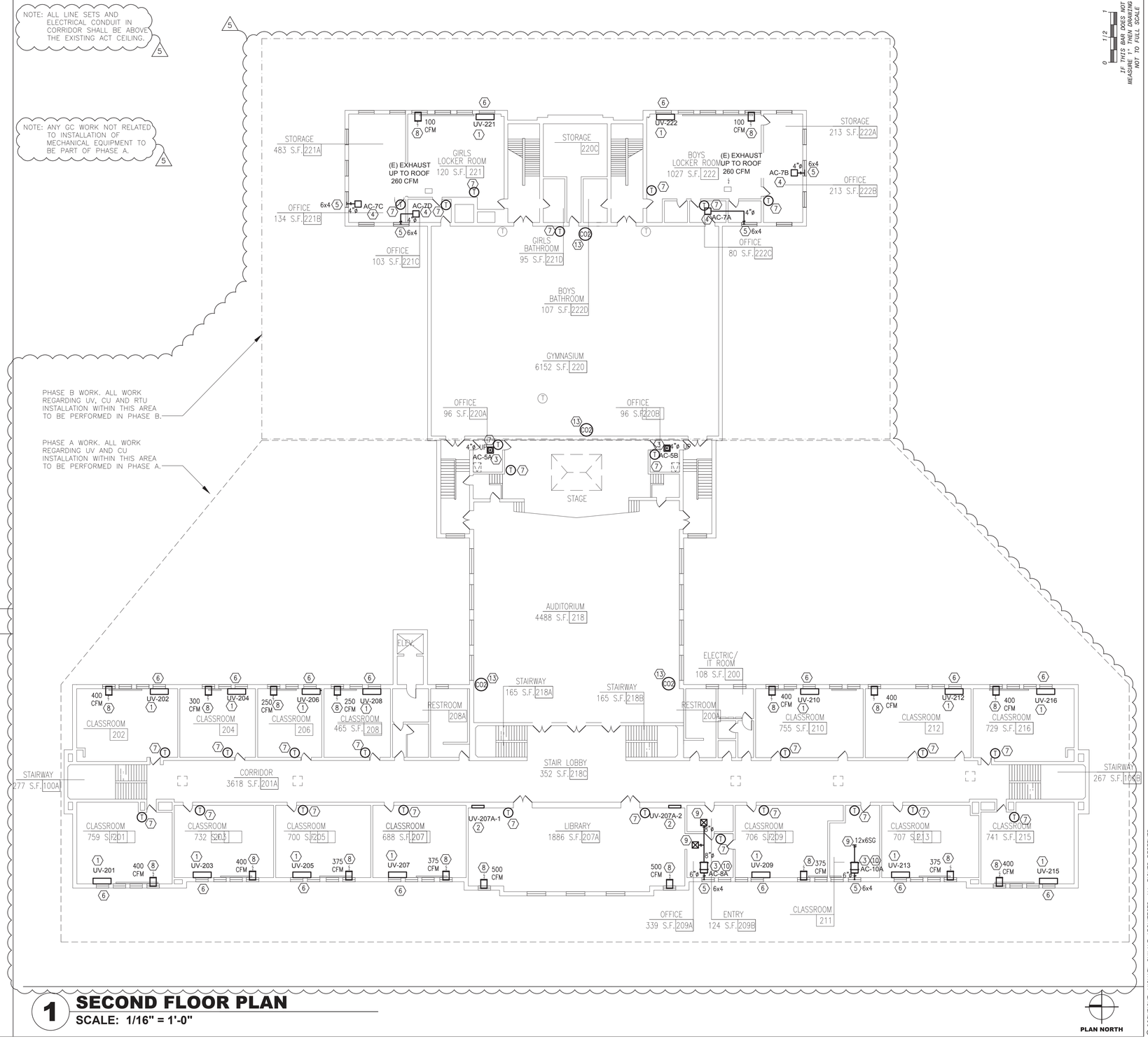
NOTES

NOTE: ALL LINE SETS AND ELECTRICAL CONDUIT IN CORRIDOR SHALL BE ABOVE THE EXISTING ACT CEILING.

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

PHASE B WORK. ALL WORK REGARDING UV, CU AND RTU 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.



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

PLAN NORTH

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

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

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

GREENMAN PEDERSEN, INC
MOUNTAINVILLE, NY 10941
Mechanical & Electrical Engineer:
Structural Engineer:

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

MICHAEL SHILALE ARCHITECTS, L.L.P.
140 Park Avenue New City, NY 10956 Tel 845-708-9200
www.shilale.com

Drawing Title: 2ND FLOOR PLAN - MECHANICAL
Drawing No.: M-102

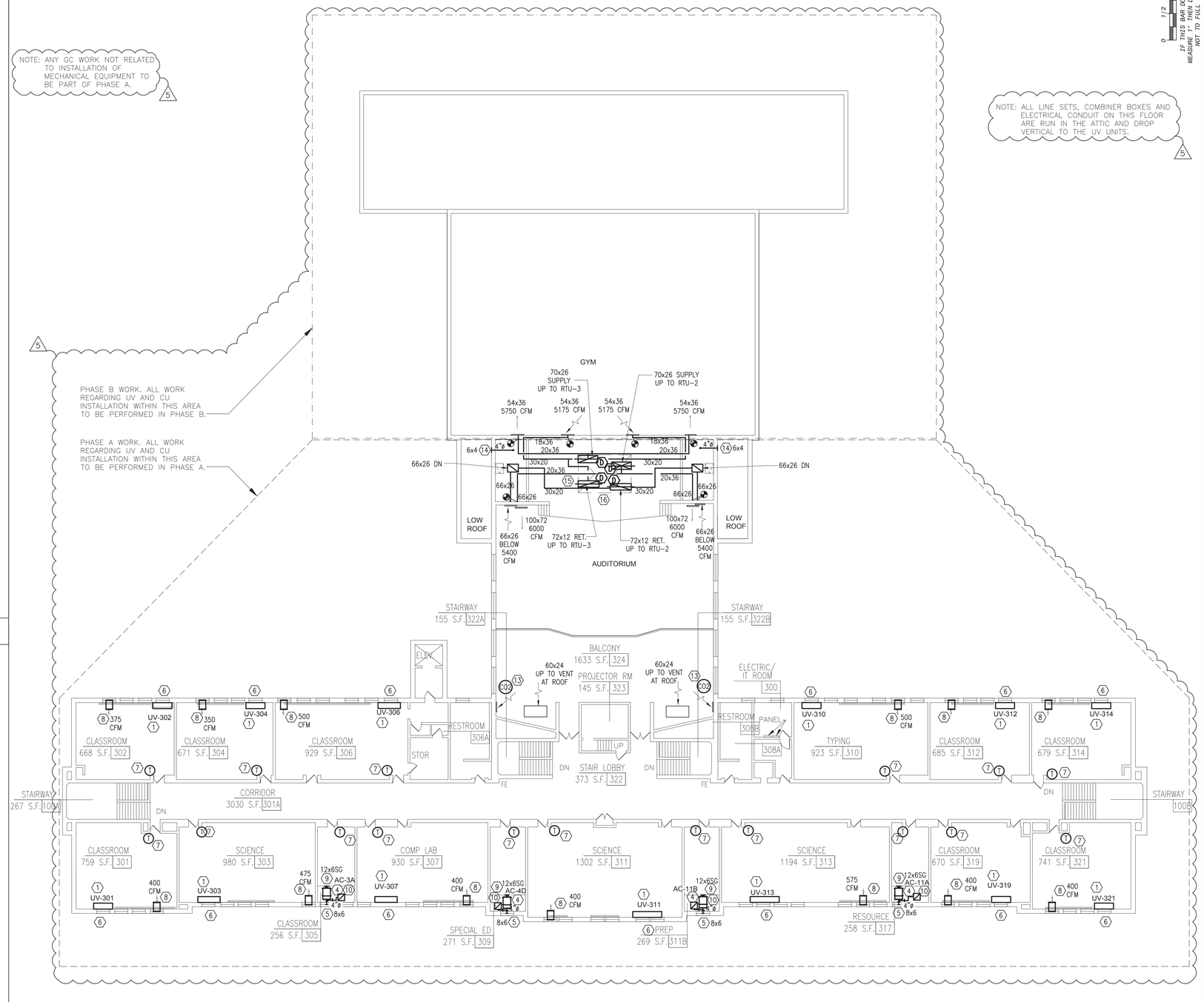
NOTES:

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 CABINETRY ENCLOSURE. 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.

GENERAL NOTE:

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

NOTES



1 THIRD FLOOR PLAN

SCALE: 1/16" = 1'-0"

1/2 0 1

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

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

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

GREENMAN PEDERSEN, INC
400 RELLA BOULEVARD
MONTEBELLO, NY 10901

Mechanical & Electrical Engineer:

Structural Engineer:

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

MICHAEL SHILALE ARCHITECTS, L.L.P.
140 Park Avenue New City, NY 10956 Tel 845-708-9200 www.shilale.com

Drawing Title: 3RD FLOOR PLAN - MECHANICAL

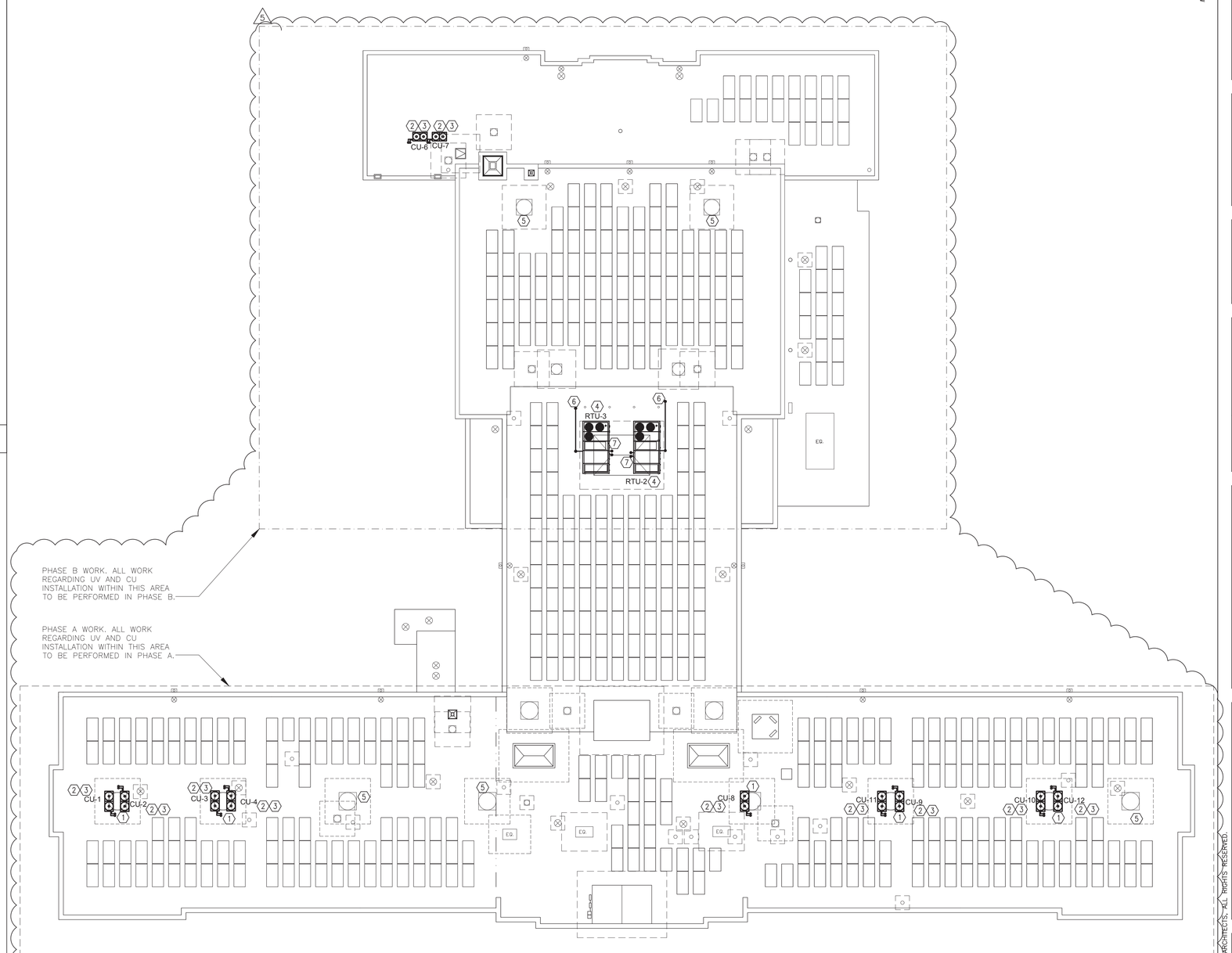
Drawing No. M-103

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.

NOTES

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



1 ROOF PLAN

SCALE: 1/16" = 1'-0"

PLAN NORTH

0 1/2 1

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

No.	Revisions	Date
1	BIDDING DOCUMENTS	08-30-21
2	1ST ADDENDUM. 1	11-19-21
3	ISSUED FOR BID	12-17-21
4	ADDENDUM 3	01-24-22

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

GREENMAN PEDERSEN, INC
400 RELLA BOULEVARD
MONTEBELLO, NY 10901

Mechanical & Electrical Engineer: --

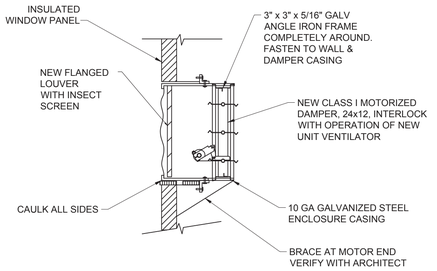
Structural Engineer: --

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

MICHAEL SHILALE ARCHITECTS, L.L.P.
140 Park Avenue New City, NY 10956 Tel 845-708-9200
www.shilale.com

Drawing Title
ROOF PLAN - MECHANICAL

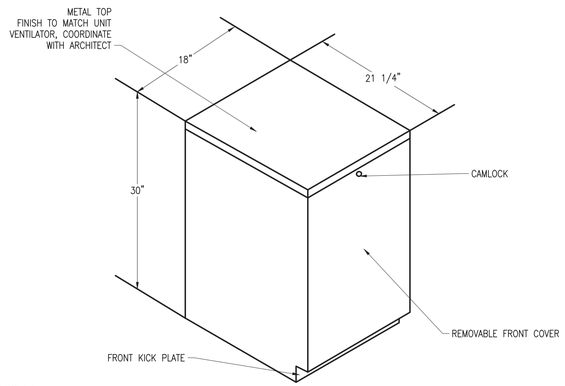
Drawing No.
M-104



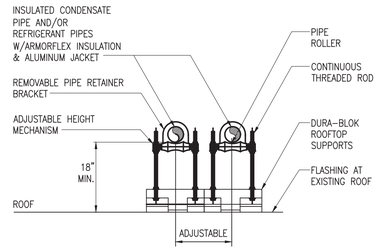
9 RELIEF DAMPER FOR UV
SCALE: N.T.S.

NOTE:
1. PROVIDE REQUIRED MOTORPACK AND END SWITCHES FOR SEQUENCING PURPOSES. DAMPER SHALL HAVE BACKDRAFT CAPABILITES AND BE PRESSURE SENSITIVE AND CLOSE. (GREENHECK WD-300 SERIES OR APPROVED EQUAL)

5

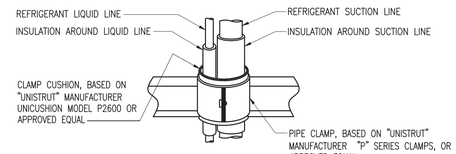


8 LEV HOUSING KIT (TYP)
SCALE: N.T.S.



NOTE:
FURNISH AND INSTALL PIPE MOUNTED PEDESTALS FOR MULTIPLE PIPE SUPPORTS MANUFACTURED BY COOPER B-LINE, (DURA-BLOK ROOFTOP SUPPORTS) DB SERIES OR APPROVED EQUAL.

7 ROOF PIPE SUPPORT
SCALE: N.T.S.



NOTE:
1. LIQUID AND SUCTION LINES MAY BE ROUTED TOGETHER FOR CONVENIENCE, BUT MUST BE COMPLETELY INSULATED FROM EACH OTHER. DO NOT SOLDER LIQUID AND SUCTION LINES TOGETHER. DO NOT ALLOW METAL TO METAL CONTACT.
2. LINES SHOULD BE INSTALLED WITH AS FEW BENDS AS POSSIBLE, ALLOWING SERVICE ACCESS TO THE INDOOR COIL.
3. SLOPE HORIZONTAL SUCTION LINES 1 INCH EVERY 20 FEET TOWARD THE OUTDOOR UNIT.
4. USE LONG RADIUS ELBOWS WHEREVER POSSIBLE, EXCEPT IN OIL RETURN TRAPS, WHERE SHORT RADIUS ELBOWS SHOULD BE USED.

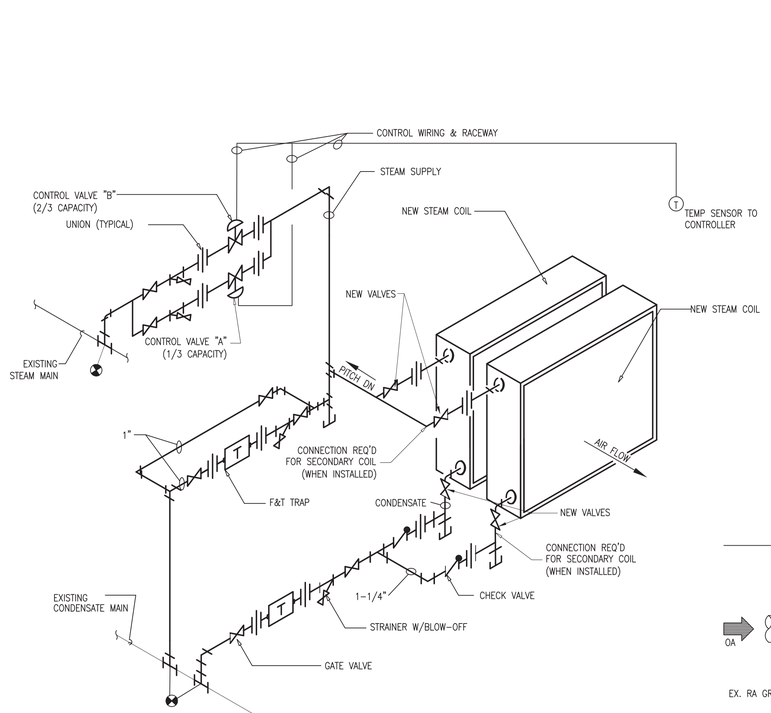
6 REFRIGERANT PIPE SUPPORT DETAIL
SCALE: N.T.S.

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

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

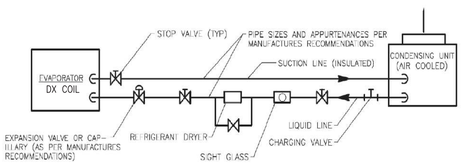
5

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



3 STEAM HEAT COIL DETAIL
SCALE: N.T.S.

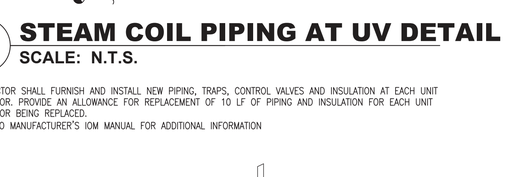
NOTE:
1. CONTRACTOR SHALL FURNISH AND INSTALL NEW PIPING, TRAPS, CONTROL VALVES AND INSULATION AT EACH COIL, WHERE INDICATED. PIPE SIZES TO MATCH EXISTING, SEE PIPE SCHEDULE.
2. PROVIDE AN ALLOWANCE FOR REPLACEMENT OF 20 LF OF PIPING AND INSULATION FOR EACH UNIT BEING REPLACED.



NOTE: THE HORIZONTAL DIMENSION OF OIL TRAPS TO BE AS SHORT AS POSSIBLE.

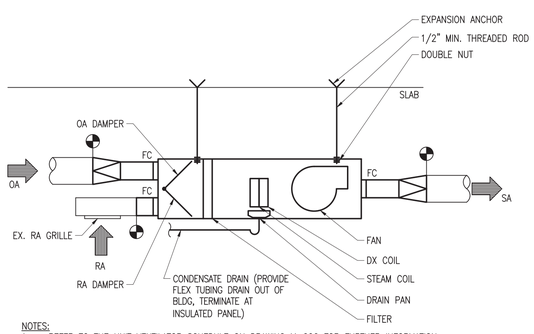
5 DX COIL PIPING DIAGRAM
SCALE: N.T.S.

NOTE:
1. CONTRACTOR SHALL PROVIDE NEW PIPING AND INSULATION AT EACH COIL, WHERE INDICATED. PIPE SIZES TO BE PROVIDED AS PER MANUFACTURER'S REQUIREMENTS.



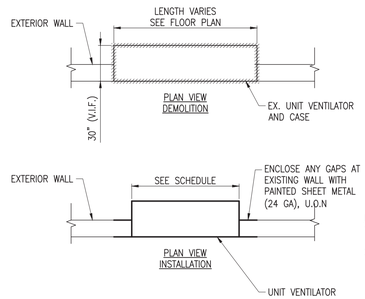
4 STEAM COIL PIPING AT UV DETAIL
SCALE: N.T.S.

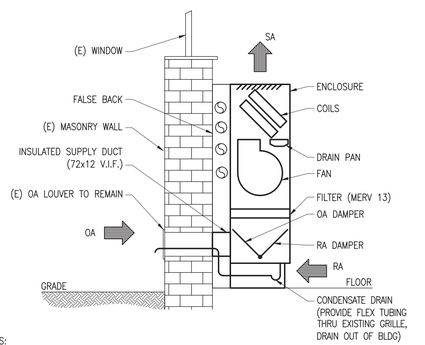
NOTE:
1. CONTRACTOR SHALL FURNISH AND INSTALL NEW PIPING, TRAPS, CONTROL VALVES AND INSULATION AT EACH UNIT VENTILATOR. PROVIDE AN ALLOWANCE FOR REPLACEMENT OF 10 LF OF PIPING AND INSULATION FOR EACH UNIT VENTILATOR BEING REPLACED.
2. REFER TO MANUFACTURER'S IOM MANUAL FOR ADDITIONAL INFORMATION



NOTES:
1. REFER TO THE UNIT VENTILATOR SCHEDULE ON DRAWING M-006 FOR FURTHER INFORMATION.

2 HORIZONTAL UNIT VENTILATOR
SCALE: N.T.S.





NOTES:
1. DEMOLITION: REMOVE THE EXISTING UNIT VENTILATOR WHERE SHOWN ON THE PLANS. THE EXISTING OUTSIDE AIR LOUVER AND WALL SLEEVE SHALL REMAIN.
2. CONSTRUCTION: PROVIDE THE UNIT VENTILATOR IN THE SAME LOCATION AS EXISTING WHERE SHOWN ON THE PLANS. CONNECT THE OUTSIDE AIR DUCT TO THE EXISTING OUTSIDE AIR LOUVER AND WALL SLEEVE. PROVIDE A LOW-LEAKAGE DAMPER, END PANELS, AND SUB-BASE AS NECESSARY FOR A COMPLETE INSTALLATION. VERIFY MEASUREMENTS IN FIELD PRIOR TO FABRICATION.

1 UNIT VENTILATOR DETAILS
SCALE: N.T.S.

GREENMAN PEDERSEN, INC
400 Rella Boulevard, Suite 165
Montebello, NY 10901

Mechanical & Electrical Engineer:

Structural Engineer:

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

MICHAEL SHILALE ARCHITECTS, L.L.P.
140 Park Avenue New City, NY 10956 Tel 845-708-9200
www.shilale.com

Drawing Title: **MECHANICAL DETAILS**

Drawing No.: **M-501**