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

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

MATERIALS LEGEND

DOOR NUMBER
KEY NOTE
PARTITION TYPE
REVISION NUMBER
WINDOW TYPE
MECHANICAL EQUIPMENT
EXISTING PARTITION
EXISTING PARTITION TO BE REMOVED
NEW PARTITION (SEE PARTITION LEGEND A-101)
NEW DOOR
EXISTING DOOR
EXISTING DOOR TO BE REMOVED
EXISTING WINDOW
NEW WINDOW
ROOM NAME
OFFICE
100 SF 101
ROOM NAME/ NUMBER IDENTIFICATION
ROOM NUMBER
ROOM AREA
1 A-100
DRAWING NUMBER
WALL SECTION/ ELEVATION REFERENCE
SHEET NUMBER
DETAIL NUMBER
DETAIL REFERENCE
SHEET NUMBER
COLUMN LINE DESIGNATION

SYMBOLS LEGEND

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

LIST OF DRAWINGS

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

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

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

UNIT PRICES

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.

GENERAL NOTES

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

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

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

ALTERNATE NO. 4: GYPSUM LINE SET ENCLOSURES. LINE SET ENCLOSURES TO BE MADE OF GYPSUM INSTEAD OF WOOD AT ALL LOCATIONS. SEE DETAIL 4/A-503. (7)

ALTERNATES

No.	Date	Revisions
7	02-17-22	ADDENDUM 7
6	01-28-21	ADDENDUM 5
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
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GREENMAN PEDERSEN, INC
400 RELLA BOULEVARD
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Mechanical & Electrical Engineer:
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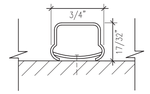
MSA
MICHAEL SHILALE ARCHITECTS, L.L.P.
140 Park Avenue New City, NY 10956 Tel 845-708-9200
www.shilale.com

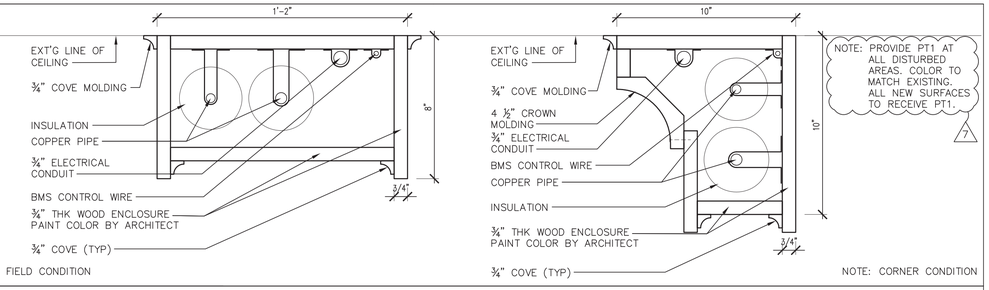
Drawing Title: COVER SHEET
Drawing No.: A-000



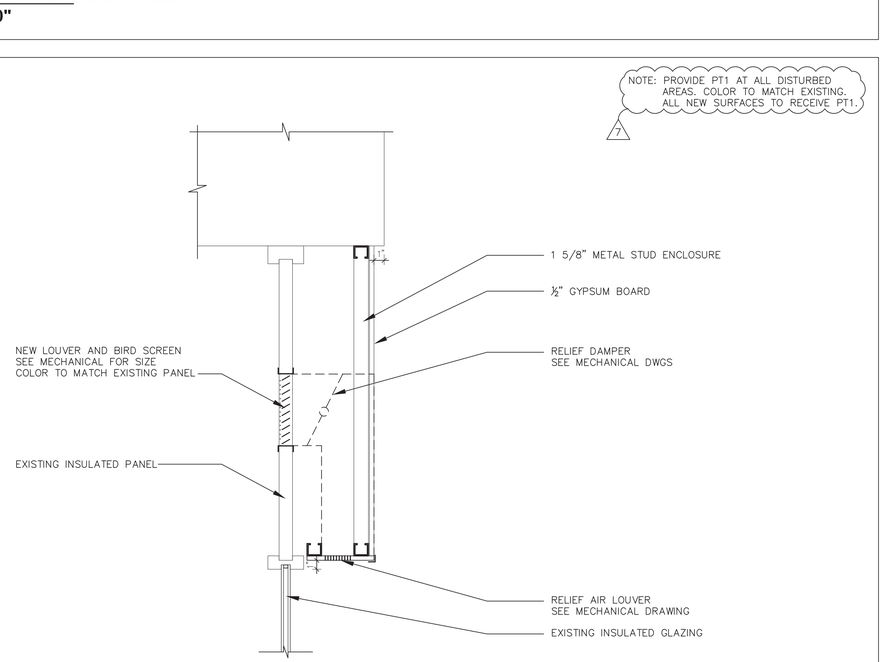
7 WIRE MOLD DETAIL
SCALE: 1:1

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

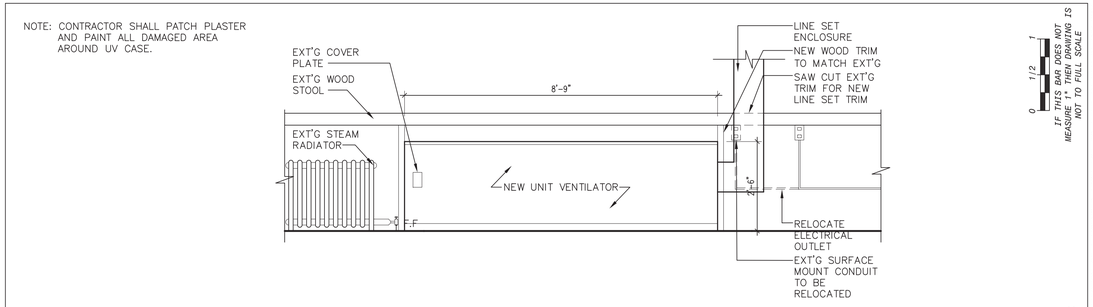
FINISH MATERIAL SCHEDULE



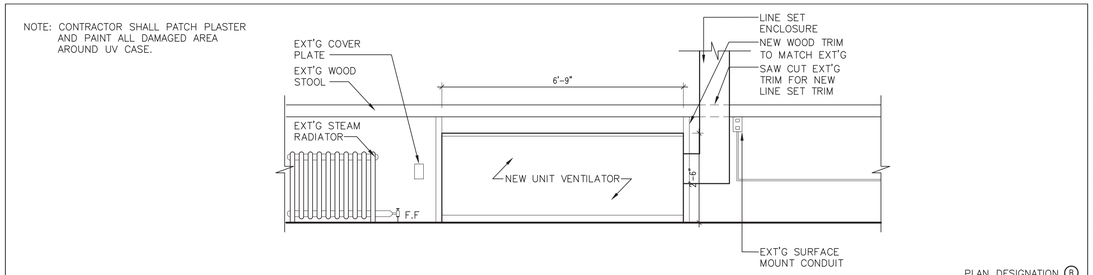
6 LINE SET ENCLOSURE
SCALE: 3" = 1'-0"



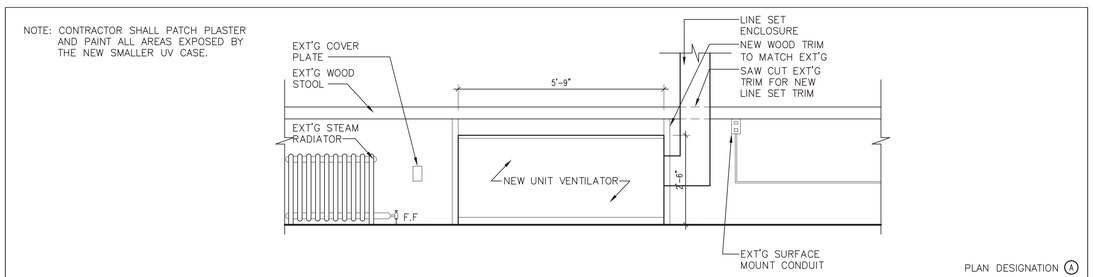
5 RELIEF AIR GYPSUM ENCLOSURE
SCALE: 1 1/2" = 1'-0"



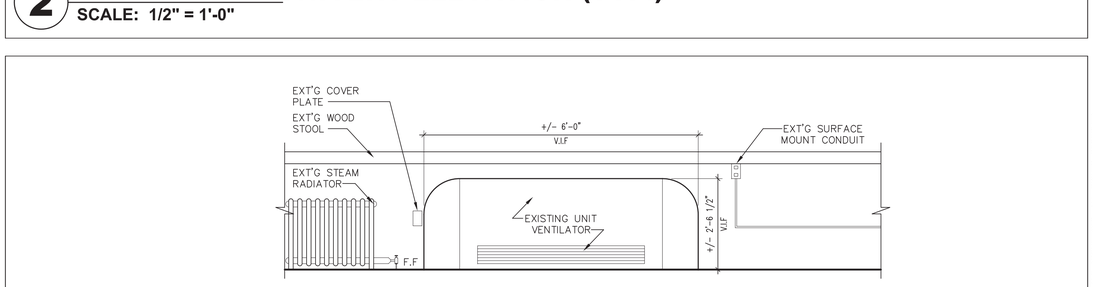
4 NEW 1500 CFM UNIVENT ELEVATION (TYP.)
SCALE: 1/2" = 1'-0"



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



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



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

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

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

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/JR
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:

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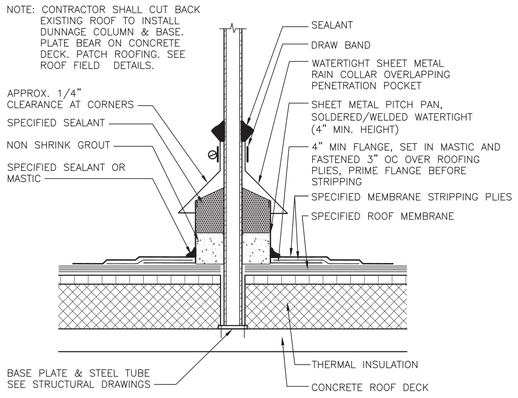
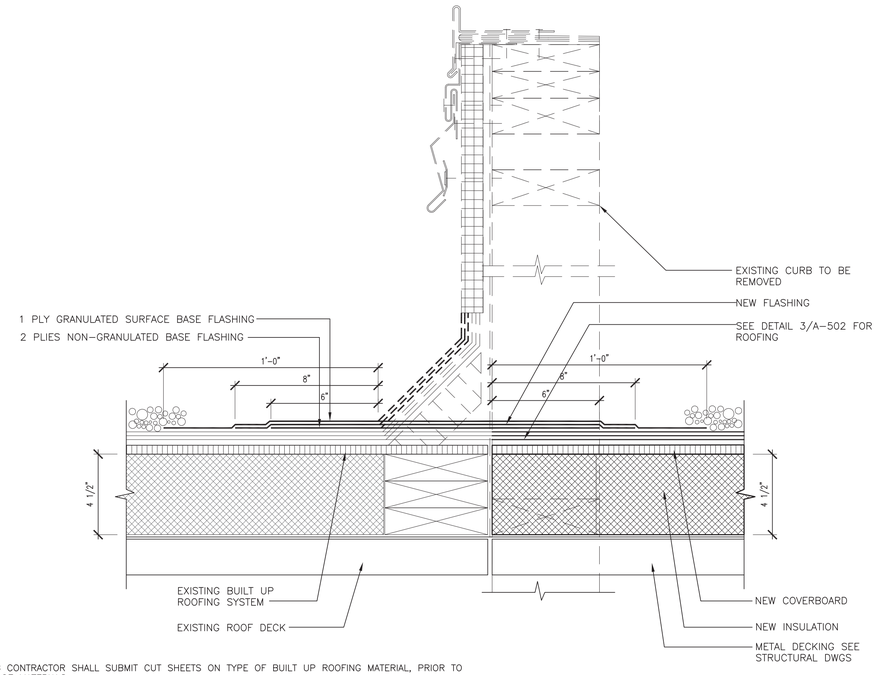
MICHAEL SHILALE ARCHITECTS, L.L.P.
140 Park Avenue New City, NY 10956 Tel 845-708-9200
www.shilale.com

Drawing Title: DETAILS

Drawing No.: A-500

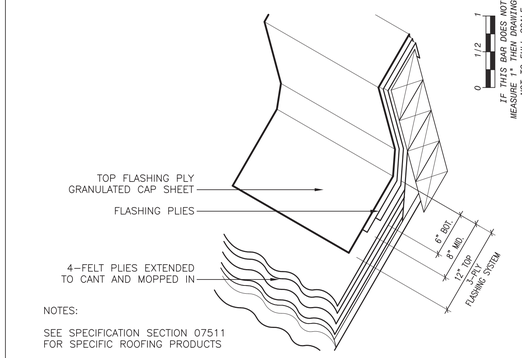


7 PITCH POCKET AT ROOF DUNNAGE
SCALE: 3" = 1'-0"



NOTES:
1. ROOFING CONTRACTOR SHALL SUBMIT CUT SHEETS ON TYPE OF BUILT UP ROOFING MATERIAL, PRIOR TO PURCHASE OF MATERIALS.
2. ANY CHANGES THAT MAY EXIST OR OCCUR DURING CONSTRUCTION, THAT DIFFERS FROM DETAILS SHOWN, MUST BE REPORTED TO THE ARCHITECT PRIOR TO PROCEEDING W/ WORK IN AREA.
3. BOTTOM OF EXISTING WALL TO BE RECONSTRUCTED TO THE EXTENT NECESSARY TO RAISE EXISTING WEEP.

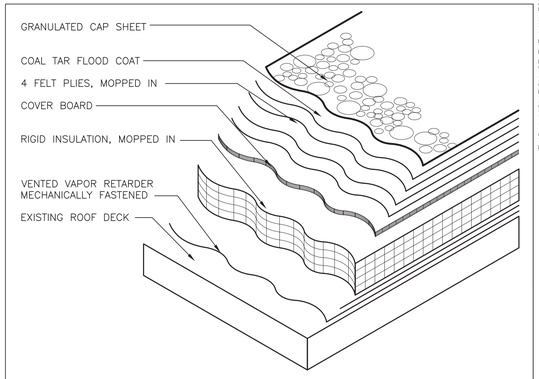
5 ROOFING DETAIL AT REMOVED GRAVITY VENT CURB
SCALE: 3" = 1'-0"



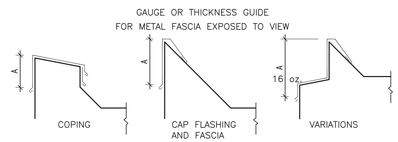
NOTES:

SEE SPECIFICATION SECTION 07511 FOR SPECIFIC ROOFING PRODUCTS

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



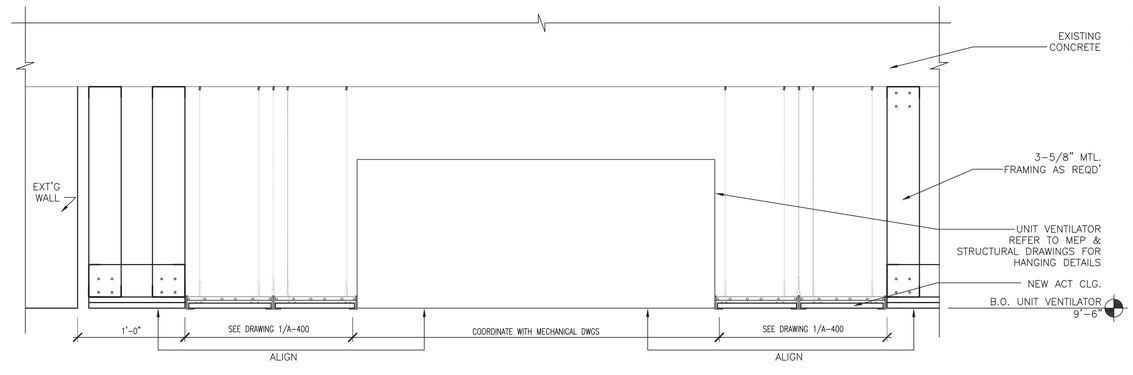
3 TYP. B.U.R. FIELD W/ GRAVEL SURFACE
SCALE: N.T.S.



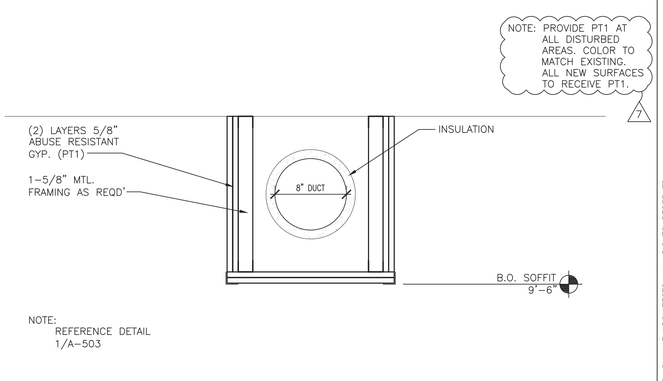
RECOMMENDED MINIMUM GAUGES FOR FASCIA SHOWN ABOVE				
EXPOSED FACE WITHOUT BREAKS "A" DIMENSION	CLEAT REQUIRED	GALVANIZED IRON	COLD ROLLED COPPER	ALUMINUM 3003-H14
UP TO 4" FACE	NO	26 GA.	16 oz.	.032" (20 GA.)
4" TO 6" FACE	YES	26 GA.	16 oz.	.040" (18 GA.)
6" TO 8" FACE	YES	24 GA.		.050" (16 GA.)
8" TO 10" FACE	YES	22 GA.	20 oz.	.064" (14 GA.)
10" TO 15" FACE	YES	20 GA.	ADD BRAKES TO STIFFEN	.080" (12 GA.)

NOTE:
1. WHEN USING THE ABOVE TABLE, OTHER ITEMS SHOULD BE CONSIDERED, SUCH AS FASTENING PATTERN. FOR INSTANCE, IF THE METAL CAN ONLY BE FASTENED AT 100' FOOT INTERVALS, A HEAVIER GAUGE METAL WOULD BE REQUIRED. ALL CLEATS SHALL BE CONTINUOUS AND OF SAME MATERIAL OF EQUAL OR GREATER THICKNESS THAN THE FASCIA METAL USED.

6 FASCIA THICKNESS
SCALE: N.T.S.



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



NOTE:
REFERENCE DETAIL 1/A-503

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

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7	02-17-22	ADDENDUM 7
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Drawing Title: DETAILS

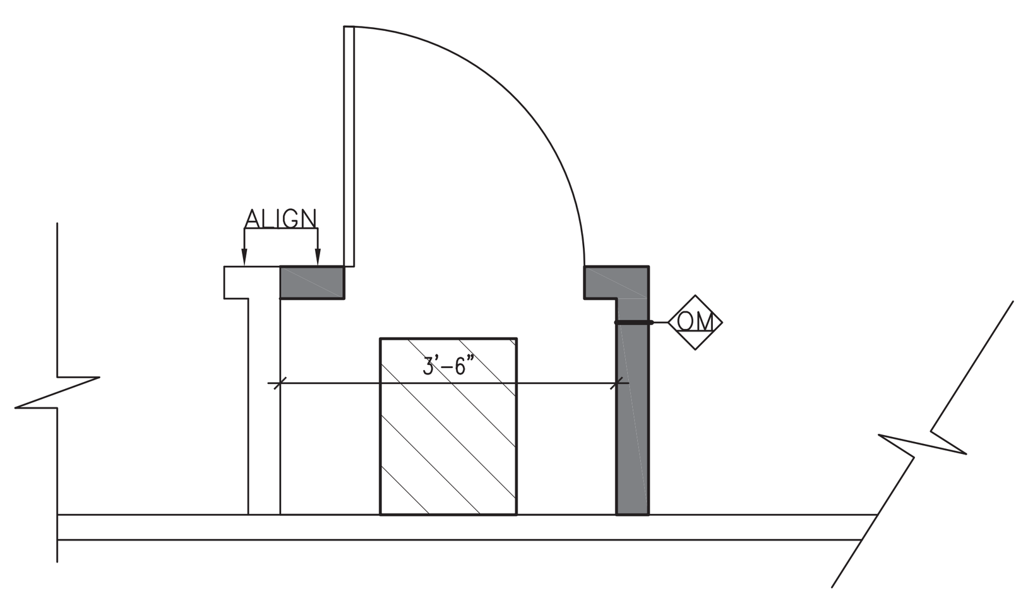
Drawing No. A-502

NOTE: PROVIDE PT1 AT ALL DISTURBED AREAS. COLOR TO MATCH EXISTING. ALL NEW SURFACES TO RECEIVE PT1.

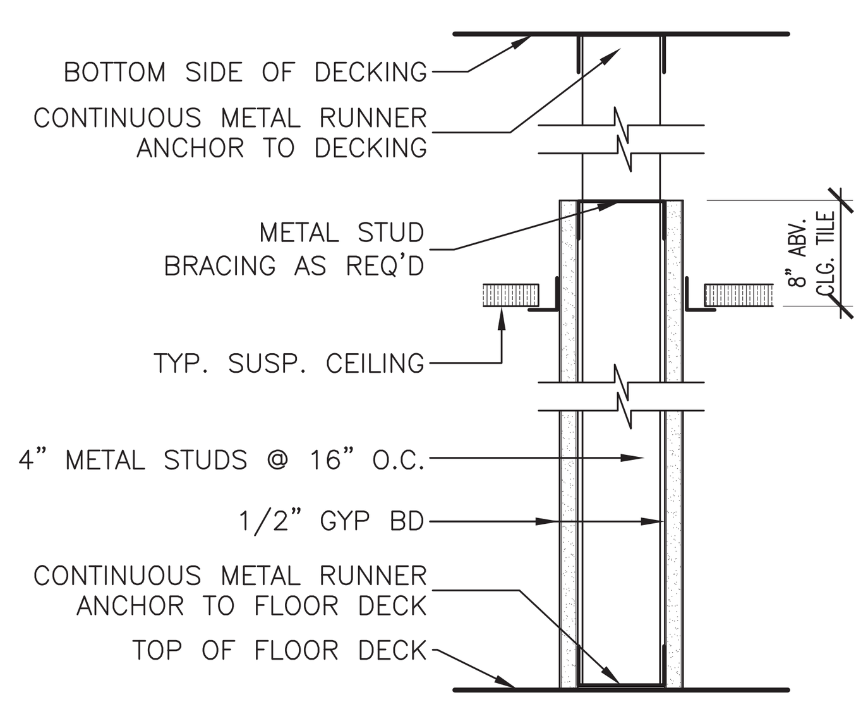
NEW DOOR
36" X 6'-8"

CONTINUOUS HINGES:
MARKAR(FM-300 EDGE MOUNT)

HEAVY DUTY LOCK SET:
CORBIN RUSWIN
CL3300(CL3355, AZD)



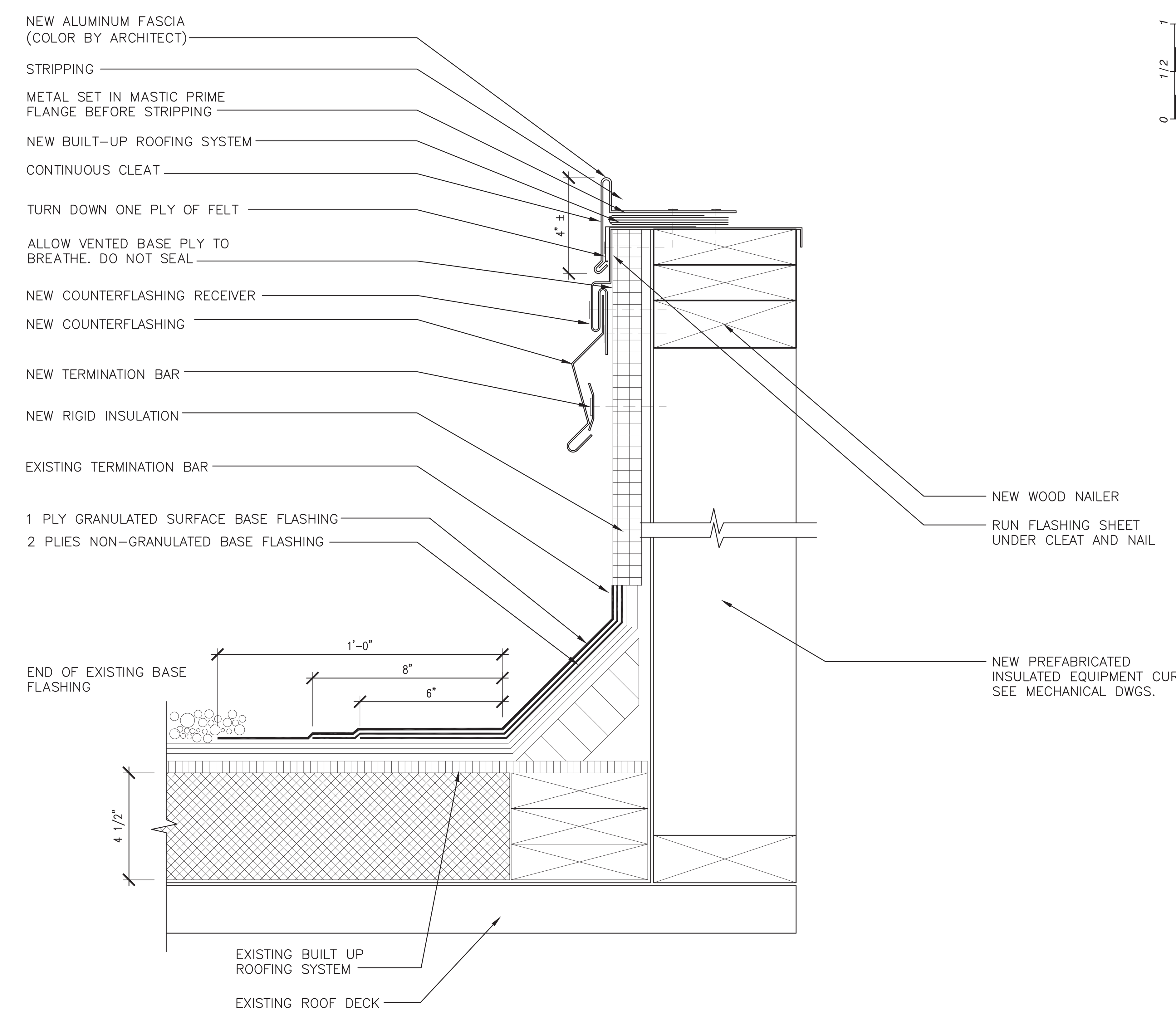
3 CLOSET AT ROOM # 185
SCALE: 1/2" = 1'-0"



0a s

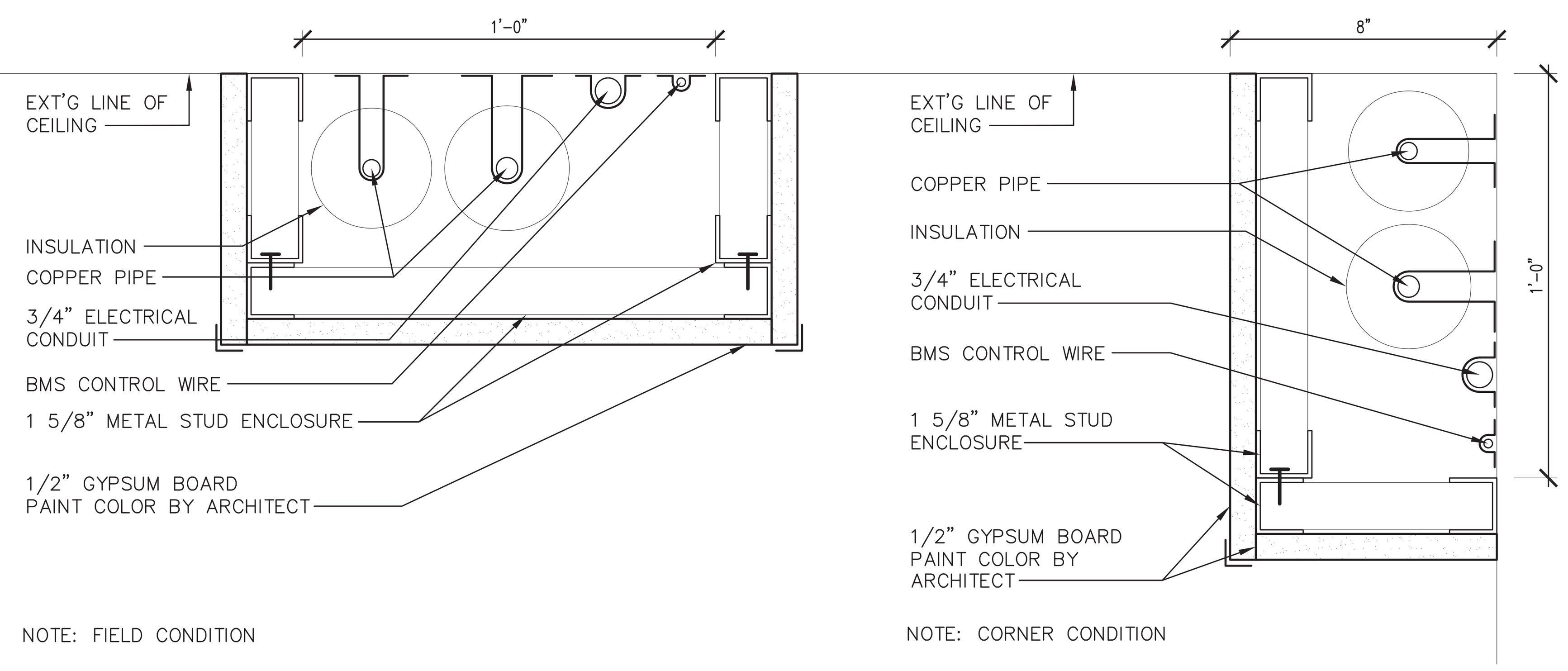
PLAN DESIGNATION

PARTITION 0a



NOTES:
1. ROOFING CONTRACTOR SHALL SUBMIT CUT SHEETS ON TYPE OF BUILT UP ROOFING MATERIAL, PRIOR TO PURCHASE OF MATERIALS.
2. ANY CHANGES THAT MAY EXIST OR OCCUR DURING CONSTRUCTION, THAT DIFFERS FROM DETAILS SHOWN, MUST BE REPORTED TO THE ARCHITECT PRIOR TO PROCEEDING W/ WORK IN AREA.
3. BOTTOM OF EXISTING WALL TO BE RECONSTRUCTED TO THE EXTENT NECESSARY TO RAISE EXISTING WEEP.

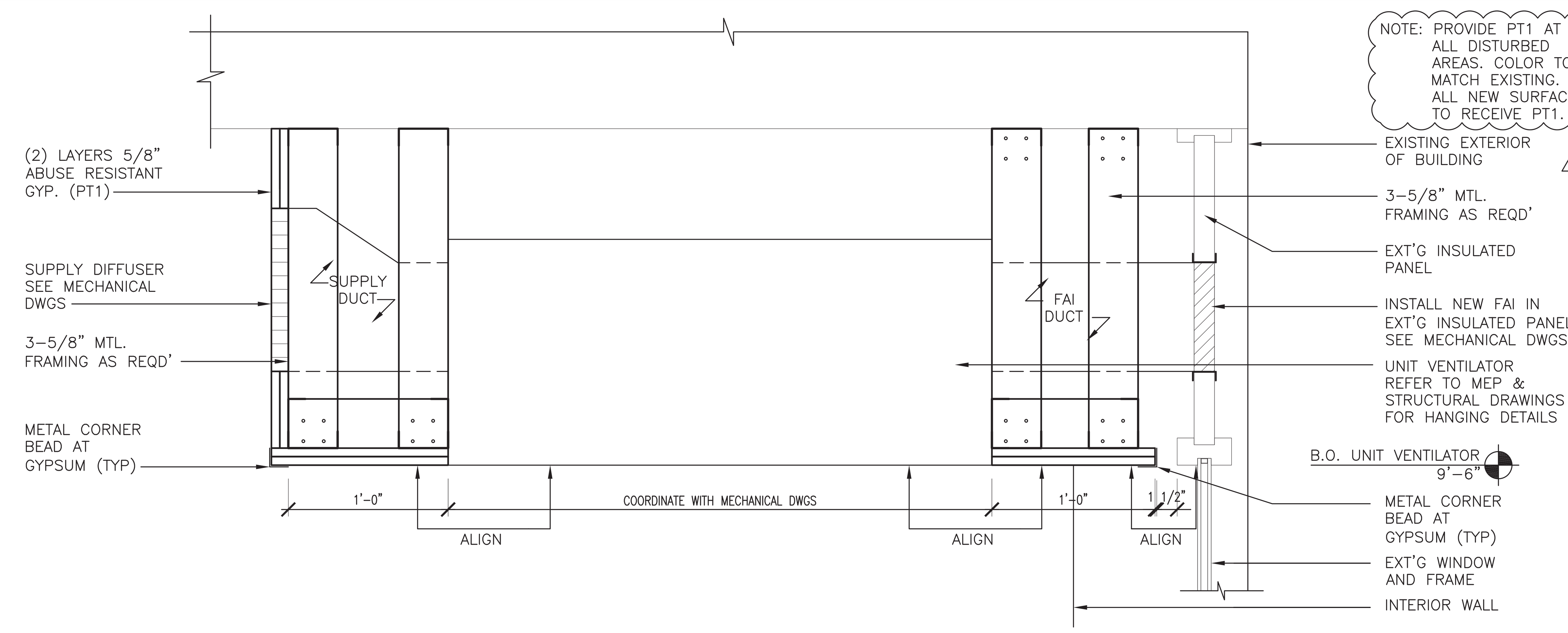
2 ROOFING DETAIL AT NEW HVAC CURB
SCALE: 3" = 1'-0"



NOTE: PROVIDE PT1 AT ALL DISTURBED AREAS. COLOR TO MATCH EXISTING. ALL NEW SURFACES TO RECEIVE PT1.

4 LINE SET ENCLOSURE - GYPSUM
SCALE: 3"=1'-0"

NOTE: PROVIDE PT1 AT ALL DISTURBED AREAS. COLOR TO MATCH EXISTING. ALL NEW SURFACES TO RECEIVE PT1.



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

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

No.	Date	Revisions
7	02-17-22	ADDENDUM 7
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Project No. 41048
Scale AS NOTED
Date 08-30-21

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Drawing Title
DETAILS

Drawing No.
A-503

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 Voltage / Phase	Electrical 208/230 MCA	Electrical 208/230 RFS	Electrical 208/230 MOCP	Notes / Options
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.
9. ACCEPTABLE MANUFACTURER'S ARE DAIKIN OR TRANE 7

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
5. ACCEPTABLE MANUFACTURER'S ARE DAIKIN OR TRANE 7

STEAM HEATING COIL

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

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

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ROOFTOP AIR HANDLING UNITS

ACCEPTABLE MANUFACTURER'S ARE DAIKIN OR TRANE 7

UNIT TAG	AREA SERVED	REFRIGERANT	TOTAL SUPPLY AIRFLOW (CFM)	MINIMUM OUTSIDE AIRFLOW (CFM) COOLING	MINIMUM OUTSIDE AIRFLOW (CFM) HEATING	MAXIMUM OUTSIDE AIRFLOW (CFM)	EXTERNAL STATIC PRESSURE (IN W.C.)	COOLING NOMINAL CAPACITY (TONS)	COOLING MIN. TOTAL CAPACITY (MBH)	COOLING MIN. SENSIBLE CAPACITY (MBH)	COOLING MINIMUM EER	COOLING MINIMUM IEER	COOLING CONDENSER EAT (°F DB)	HEATING (SEE STEAM HEATING COIL SCHEDULE)		FILTER MERV	ELECTRICAL MCA	ELECTRICAL MOP	ELECTRICAL VOLT/PH/HZ	SUPPLY FAN MOTOR INFO HP	SUPPLY FAN MOTOR INFO BHP	UNIT WEIGHT (LBS)	UNIT DIMENSIONS (LxWxH, IN)	BASIS OF DESIGN	REMARKS
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.

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

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

Drawn by WM
Checked by ERF
Project No. 41048
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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, 9
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, 9
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~~
9. PROVIDE SMALL BOOSTER INLINE FAN, 20 CFM, TO OVERCOME STATIC PRESSURE

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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.
7. ACCEPTABLE MANUFACTURER'S: DAIKIN OR TRANE.

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

No.	Date	Revisions
7	02-17-22	ADDENDUM 7
5	01-28-22	ADDENDUM 5
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

Mechanical & Electrical Engineer:
GREENMAN PEDERSEN, INC
400 BELLA BOULEVARD
MONTEBELLO, NY 10901

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 SCHEDULES -2

Drawing No.
M-003

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.
6. ACCEPTABLE MANUFACTURER: DAIKIN OR TRANE 7

GENERAL NOTES

VFD	VARIABLE FREQUENCY DRIVE	DCV	DEMAND CONTROL VENTILATION
TLL−1	TEMPERATURE LOW LIMIT	CO2	CARBON DIOXIDE
TCC	TEMPERATURE CONTROLS CONTRACTOR	DI	DIGITAL INPUT
TS−1	OUTSIDE AIR TEMP	DO	DIGITAL OUTPUT
TS−2	MIXED AIR TEMP	AI	ANALOG INPUT
TS−3	HEATING COIL DISCHARGE	AO	ANALOG OUTPUT
TS−4	DISCHARGE AIR TEMP	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		

LEGEND

POINTS LIST NOTES:

LEGEND:

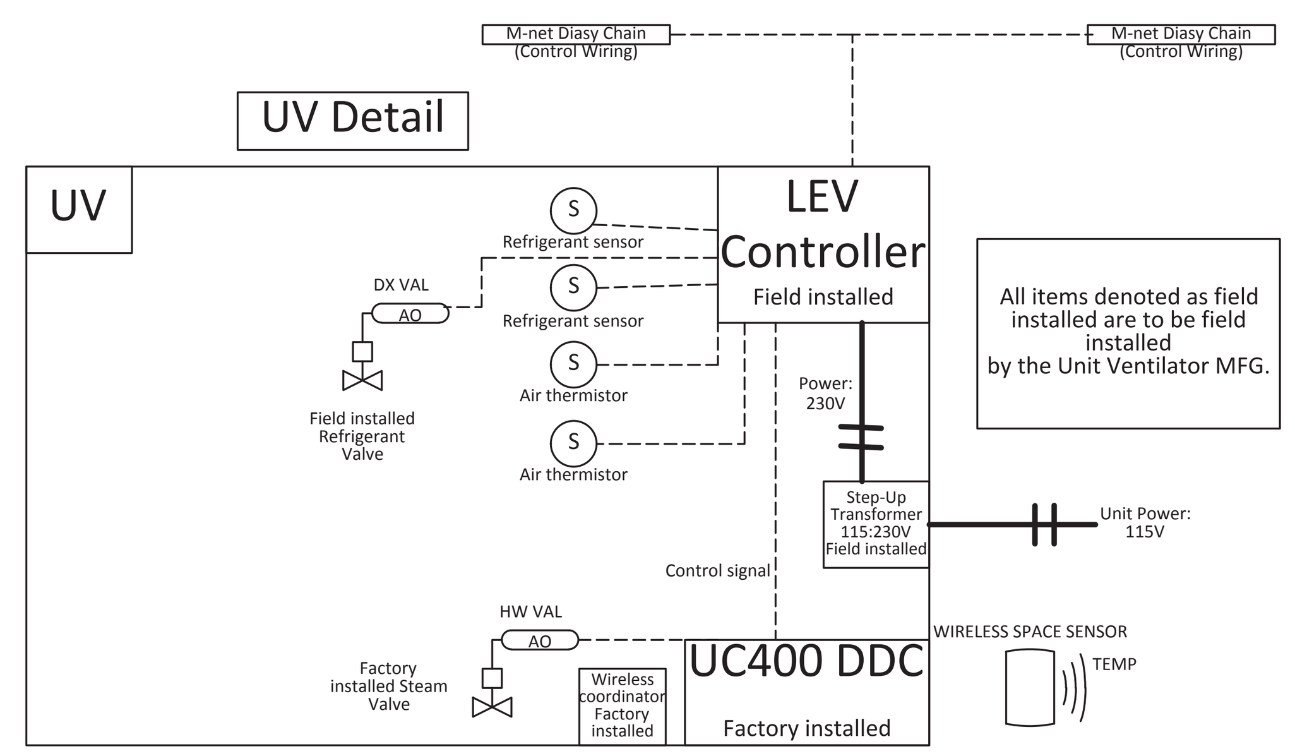
X = PROVIDE QUANTITY AS REQUIRED TO INCLUDE ALL INSTANCES OF THE INDICATED FEATURE. INCLUDE MULTIPLE POINTS WITHIN EACH MECHANICAL SYSTEM AS NECESSARY. COORDINATE WITH EQUIPMENT VENDOR.
B = INFORMATION PROVIDED TO EACH SYSTEM VIA NETWORK BROADCAST.
NVO = NETWORK VARIABLE OUTPUT, NVI = NETWORK VARIABLE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

KEY NOTES:

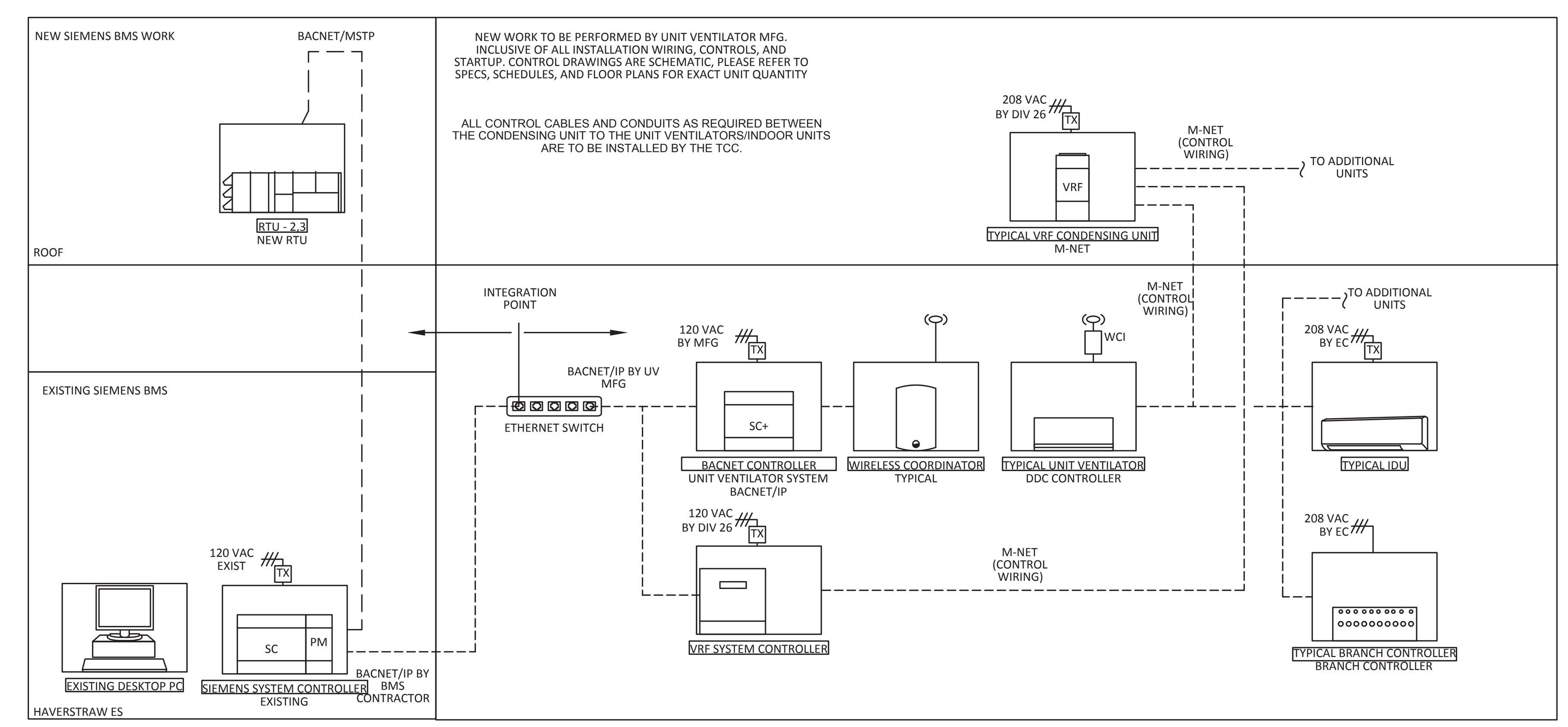
① THE POINT LISTED HEREIN ARE THE MINIMUM POINTS REQUIRED FOR THE CONTROL AND MONITORING OF THIS EQUIPMENT. THIS POINT LIST IS TYPICAL FOR EACH MECHANICAL/ELECTRICAL SYSTEM OF THIS TYPE. IF THE SEQUENCE OF OPERATION REQUIRES ADDITIONAL OR DIFFERING INFORMATION, IT MUST BE PROVIDED BY THE RESPECTIVE PROVIDER 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 ①③
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	

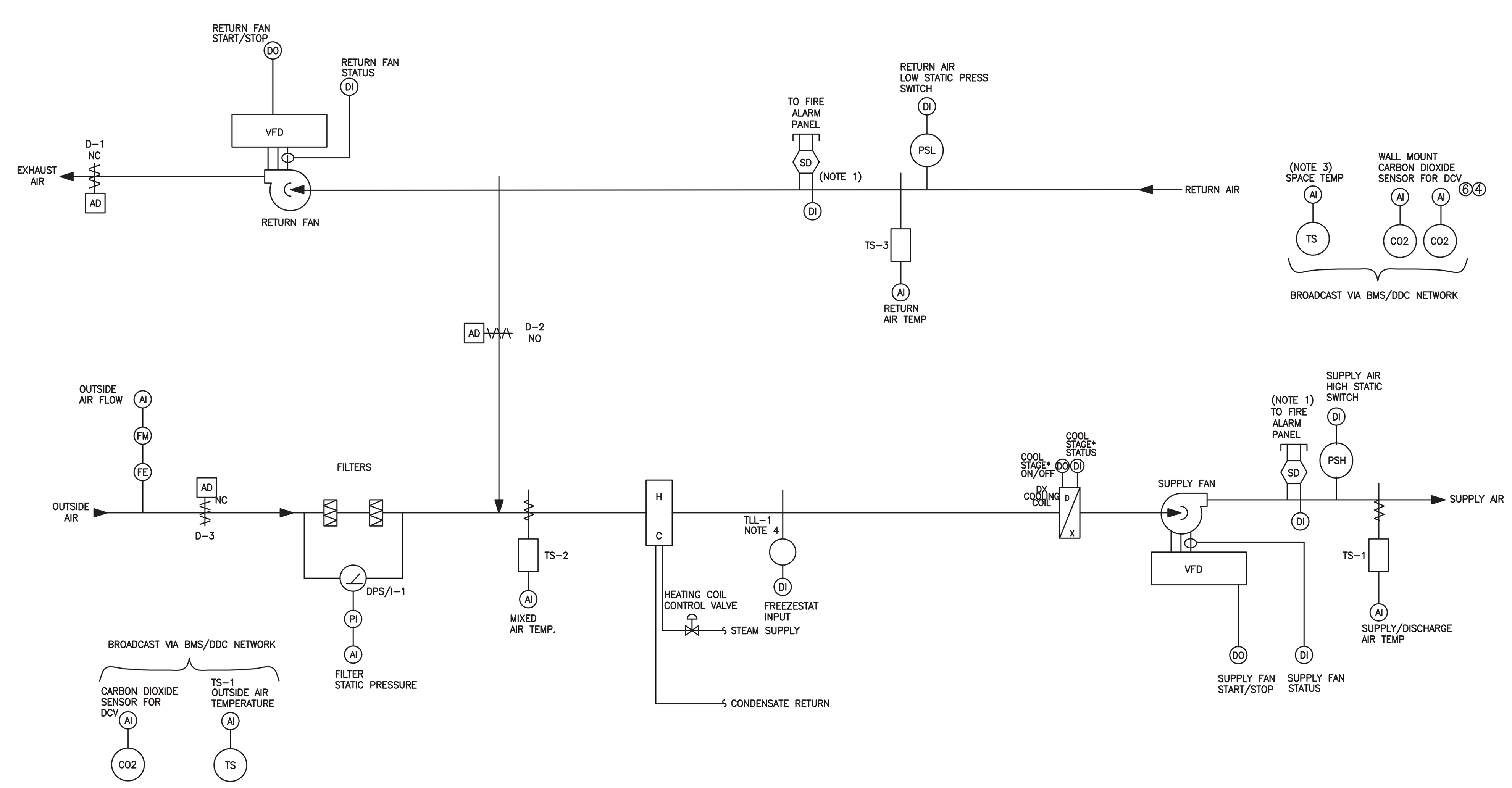
0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE



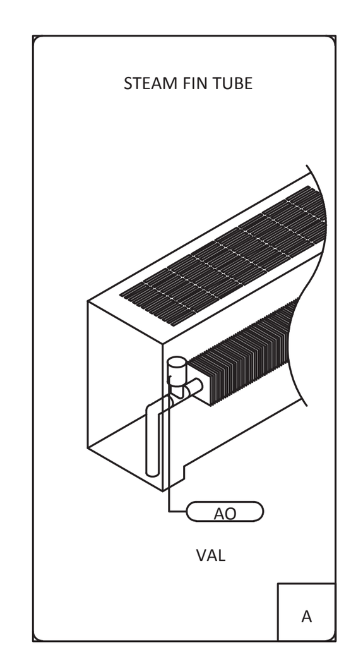
4 LEV KIT WIRING DIAGRAM
SCALE: N.T.S.

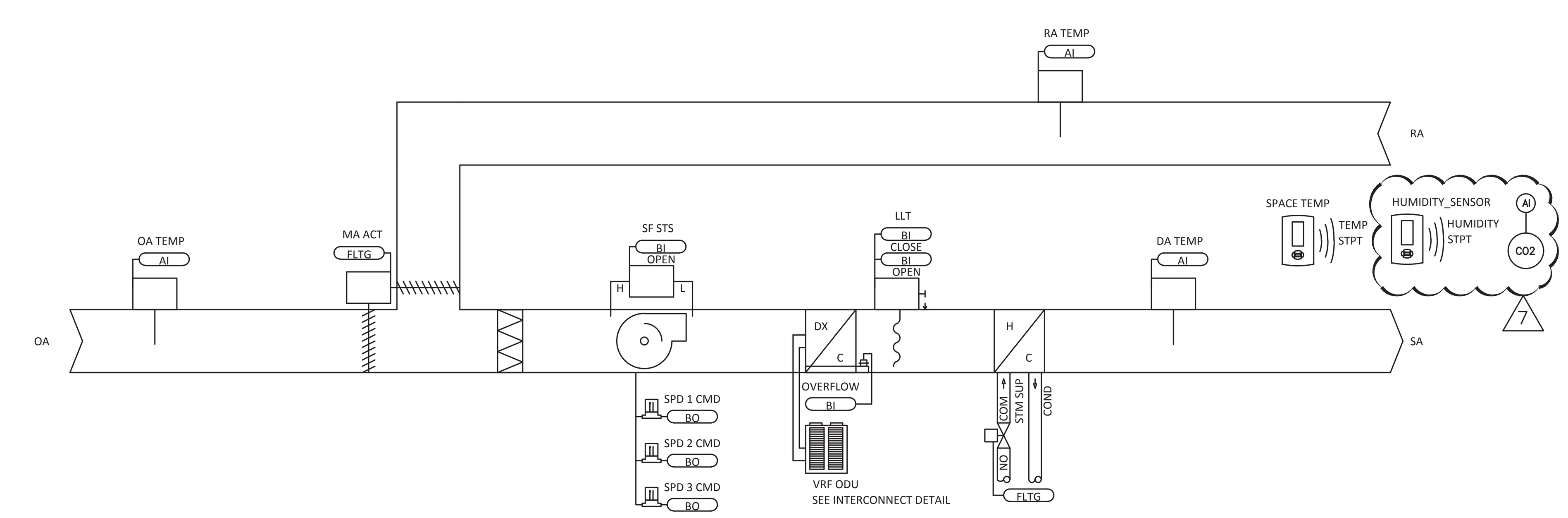


3 VRF BMS WIRING DIAGRAM
SCALE: N.T.S.



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





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

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

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

Mechanical & Electrical Engineer: GREENMAN PEDERSEN, INC
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Drawing Title
CONTROLS

Drawing No.
M-004

UNIT VENTILATOR SCHEDULE

SEE SCHEDULE NOTES 14, 15, 16 FOR ALL UNITS 7

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.
14. DUE TO THE LEAD TIME GLOBAL CHIP SHORTAGE CRISIS. CONTROLLERS ARE TO BE SHIPPED SEPARATELY FOR FIELD INSTALLATION, TYP. ALL NEW UNITS.
15. PROVIDE HUMIDITY SENSOR TO MEASURE HUMIDITY LEVELS & CO2 DEVICE TO CONTROL OUTSIDE AIR FOR EACH UV, SEE CONTROLS DRAWING M-004.
16. ACCEPTABLE MANUFACTURER'S: DAIKIN OR TRANE.

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

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

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
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Haverstraw, NY 10927

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Drawing Title: UV SCHEDULE

Drawing No. M-006

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.
17. ALTERNATE 5: INSTALL NEW STEAM HEATING COIL, SEE STEAM HEATING COIL SCHEDULE ON M-002. SEE DRAWING M-303 FOR PIPING LOCATION AND DETAIL 3/M501.

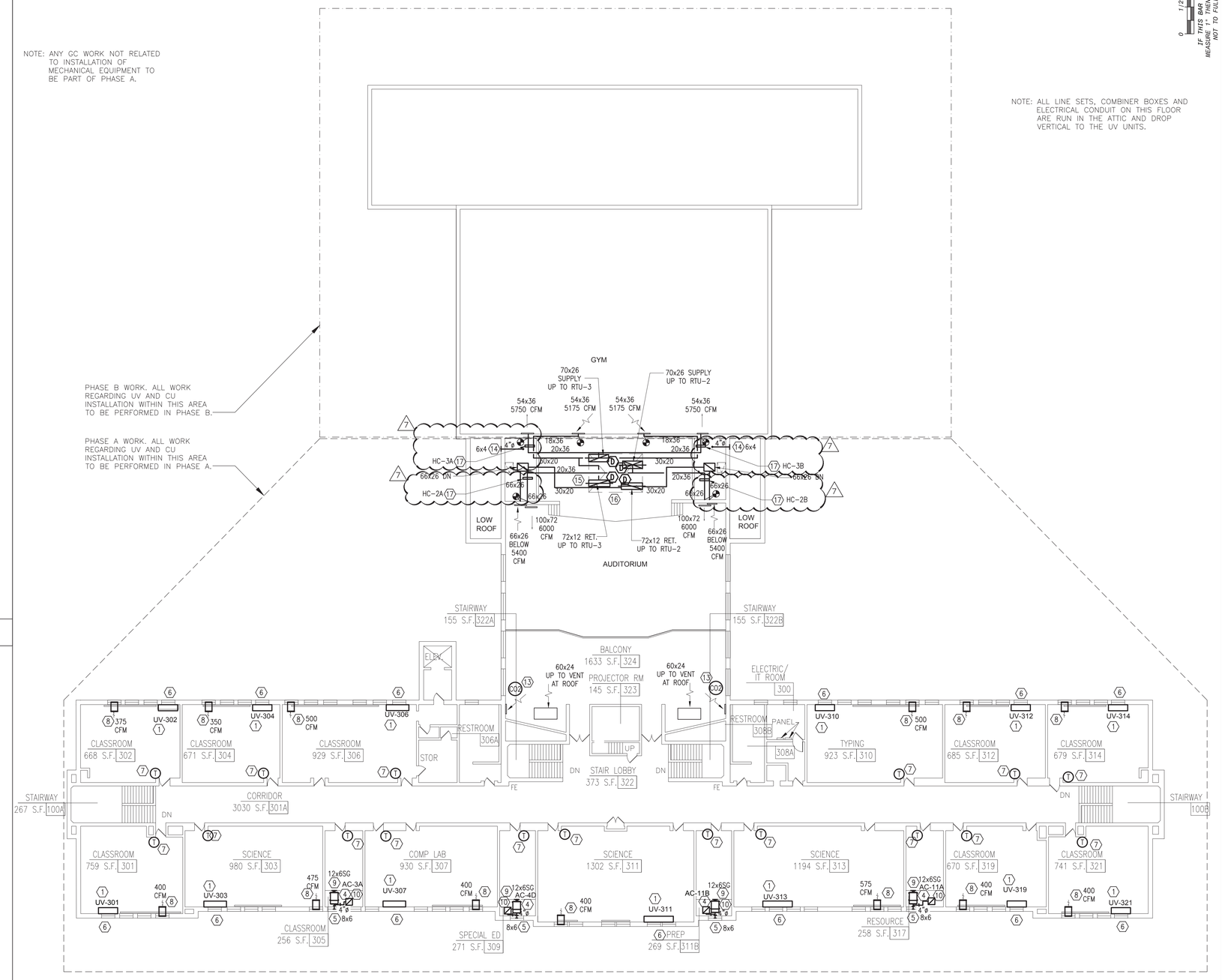
GENERAL NOTE:

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

NOTES

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

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



1 THIRD FLOOR PLAN

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

PLAN NORTH

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
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6	01-28-21	ADDENDUM 5
7	02-17-22	ADDENDUM 7

Drawn by WM
Checked by ERF
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GREENMAN PEDERSEN, INC
Mechanical & Electrical Engineer:
Structural Engineer: - - -

UNIVENT REPLACEMENT AT HAVERSTRAW ELEMENTARY
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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.

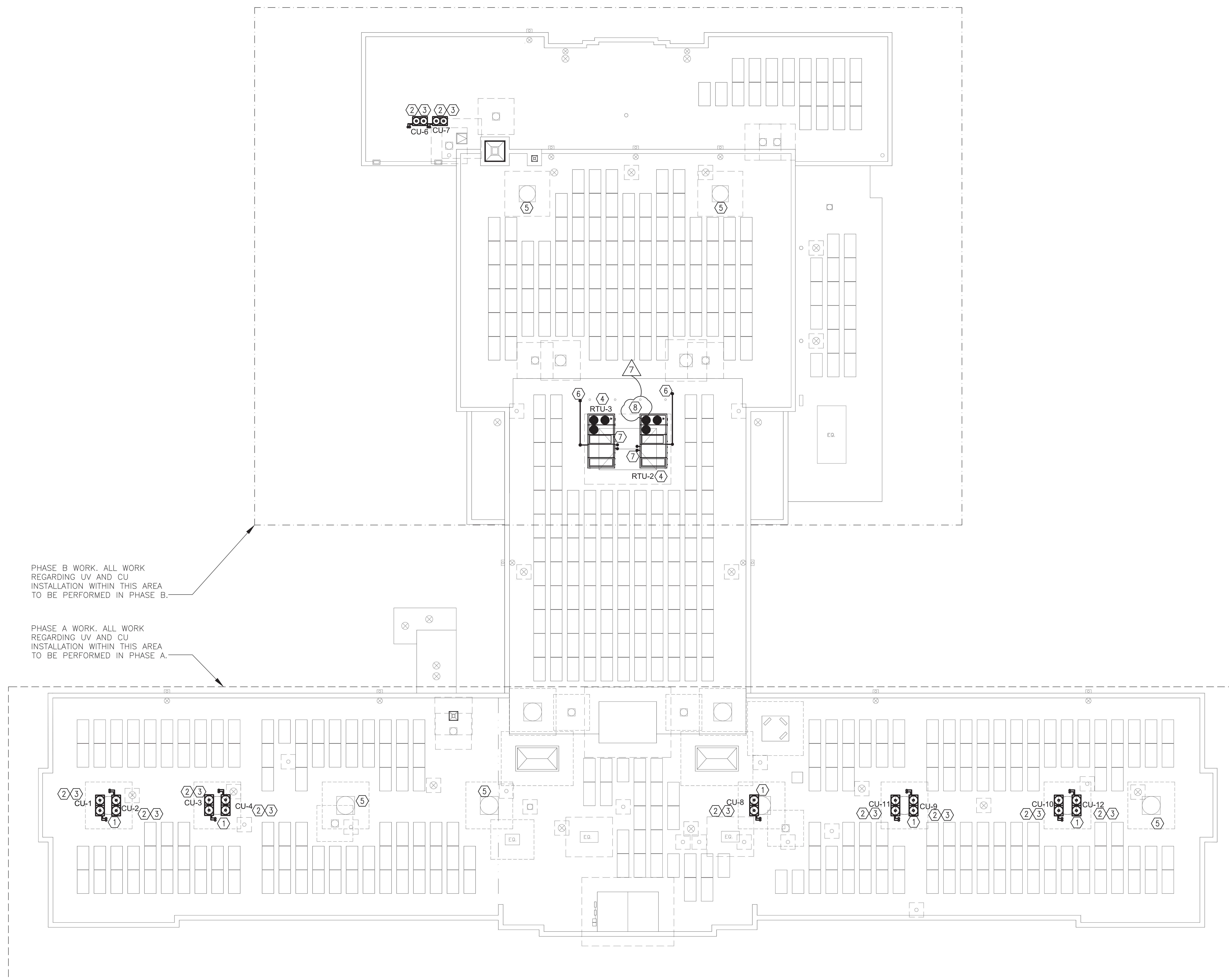
⟨7⟩ PROVIDE NEW STEAM AND CONDENSATE PIPING, CONNECT TO EXISTING MAIN. SEE DETAIL 3/M501. PROVIDE FACTORY ASSEMBLED PIPE CABINET WITH ROOFTOP AIR HANDLING UNIT. EXTEND BASE FLASHING TO CURB.

⟨8⟩ ALTERNATE 5: OMIT INSTALLATION OF NEW STEAM & CONDENSATE PIPING ON ROOF. SEE DRAWING M-303 FOR SCOPE OF WORK.

7

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

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Mechanical & Electrical Engineer: GREENMAN PEDERSEN, INC, 400 RELLA BOULEVARD, MONTEBELLO, NY 10901

Structural Engineer:

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Drawing Title: **ROOF PLAN - MECHANICAL**

Drawing No. **M-104**

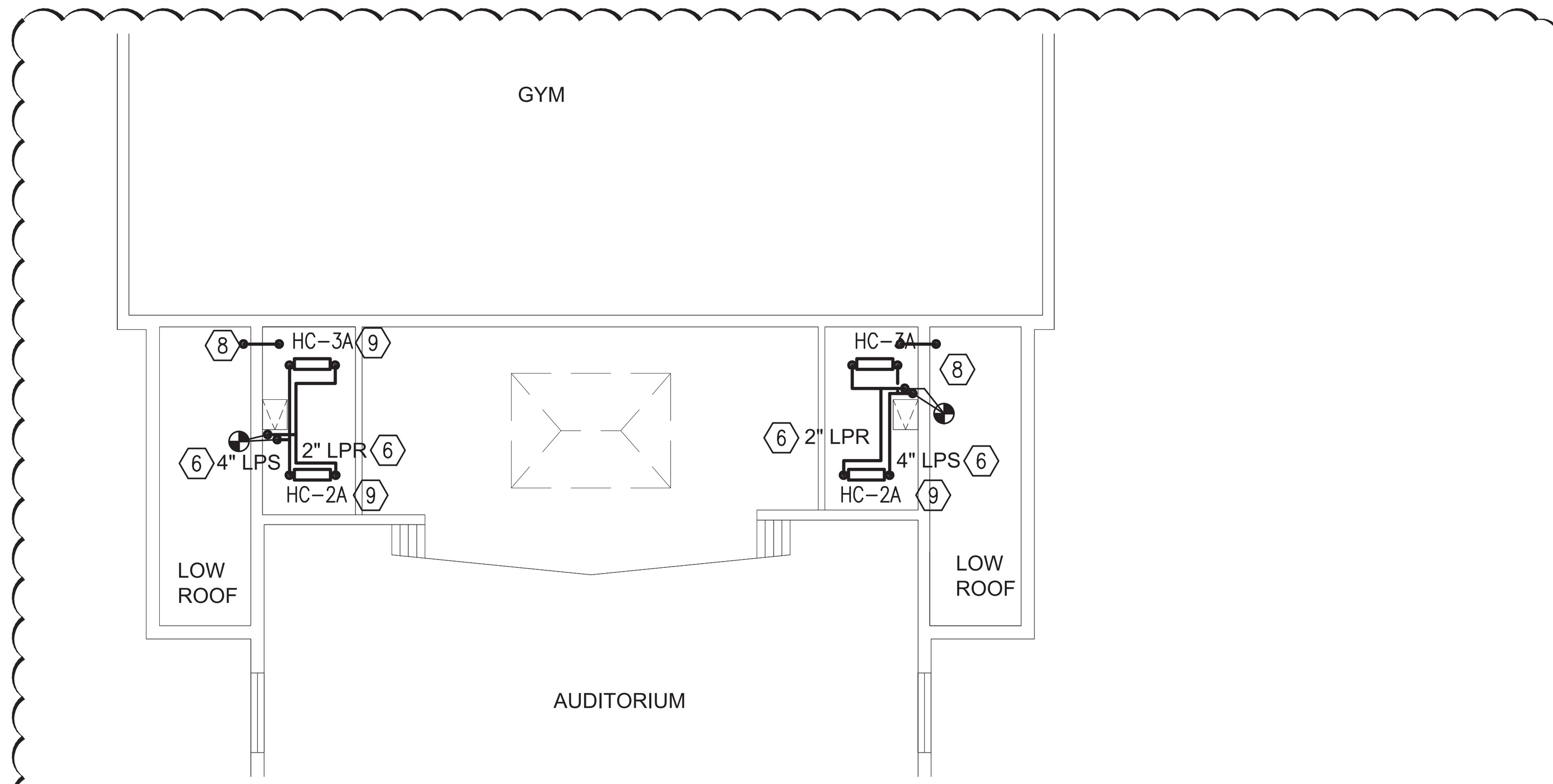
NOTES:

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

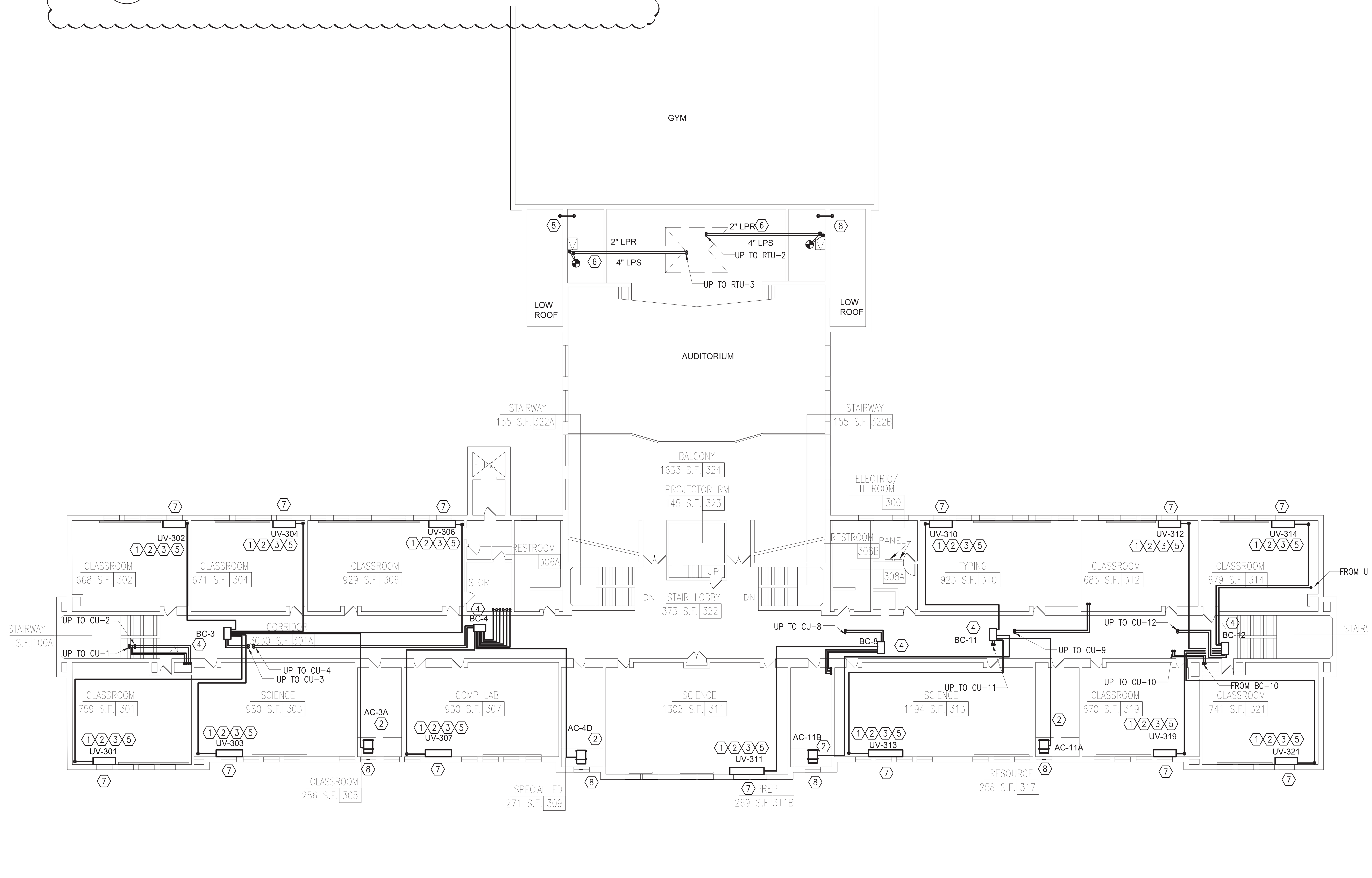
GENERAL NOTE:

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

NOTES



1 ALTERNATE 5 FAN ROOM PART PLAN
SCALE: 1/16" = 1'-0"



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

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

No.	Date	Revisions
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Mechanical & Electrical Engineer: GREENMAN PEDERSEN, INC, 400 RELLA BOULEVARD, MONTEBELLO, NY 10901

Structural Engineer: -

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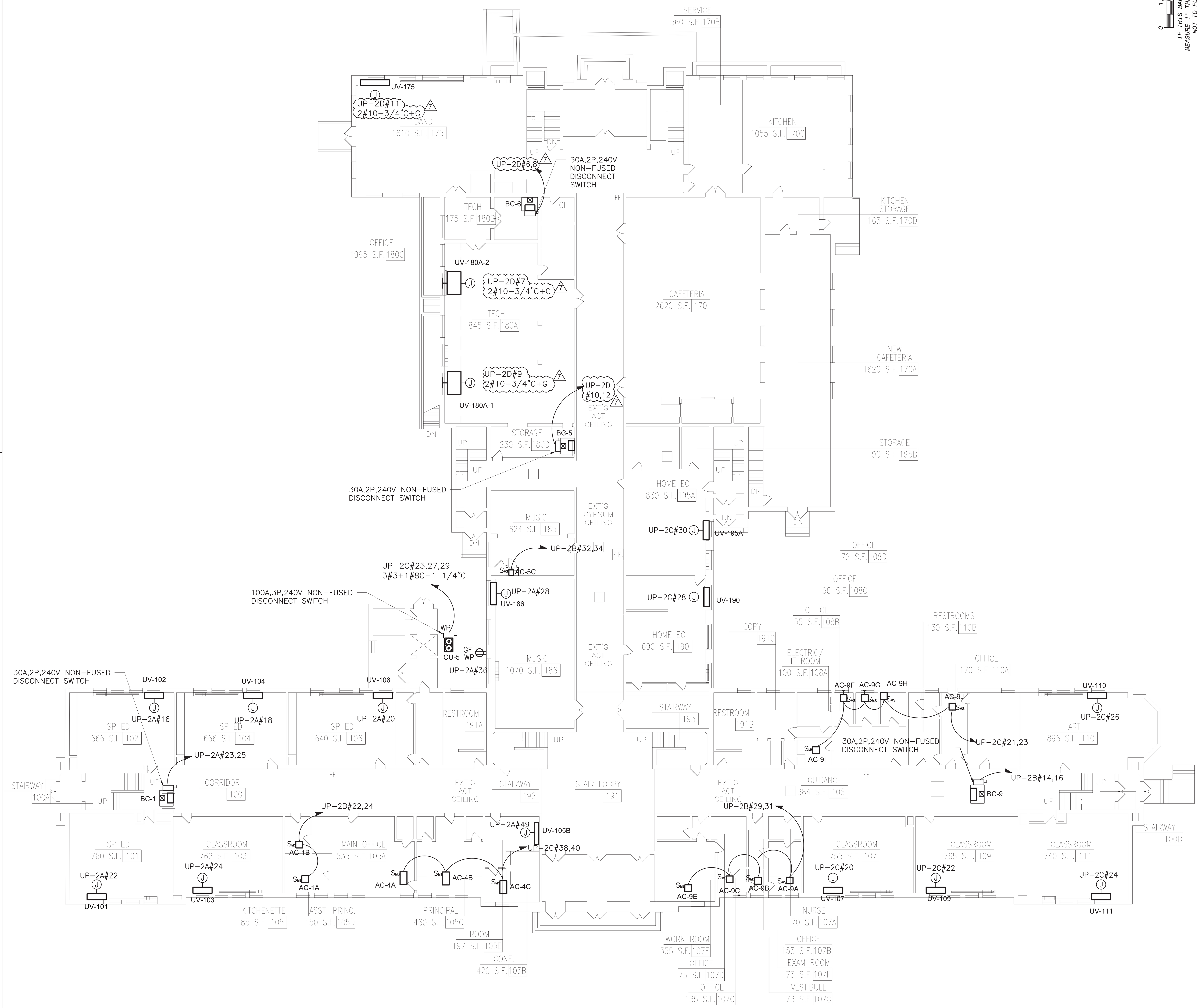
Drawing Title: HVAC PIPING - 3RD FLOOR PLAN

Drawing No. M-303

ELECTRICAL NOTES:

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



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

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

No.	Date	Revisions
7	02-17-22	ADDENDUM 7
6	01-28-21	ADDENDUM 5
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Checked by SH
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Mechanical & Electrical Engineer: GREENMAN PEDERSEN, INC 400 RELLA BOULEVARD MONTEBELLO, NY 10901

Structural Engineer:

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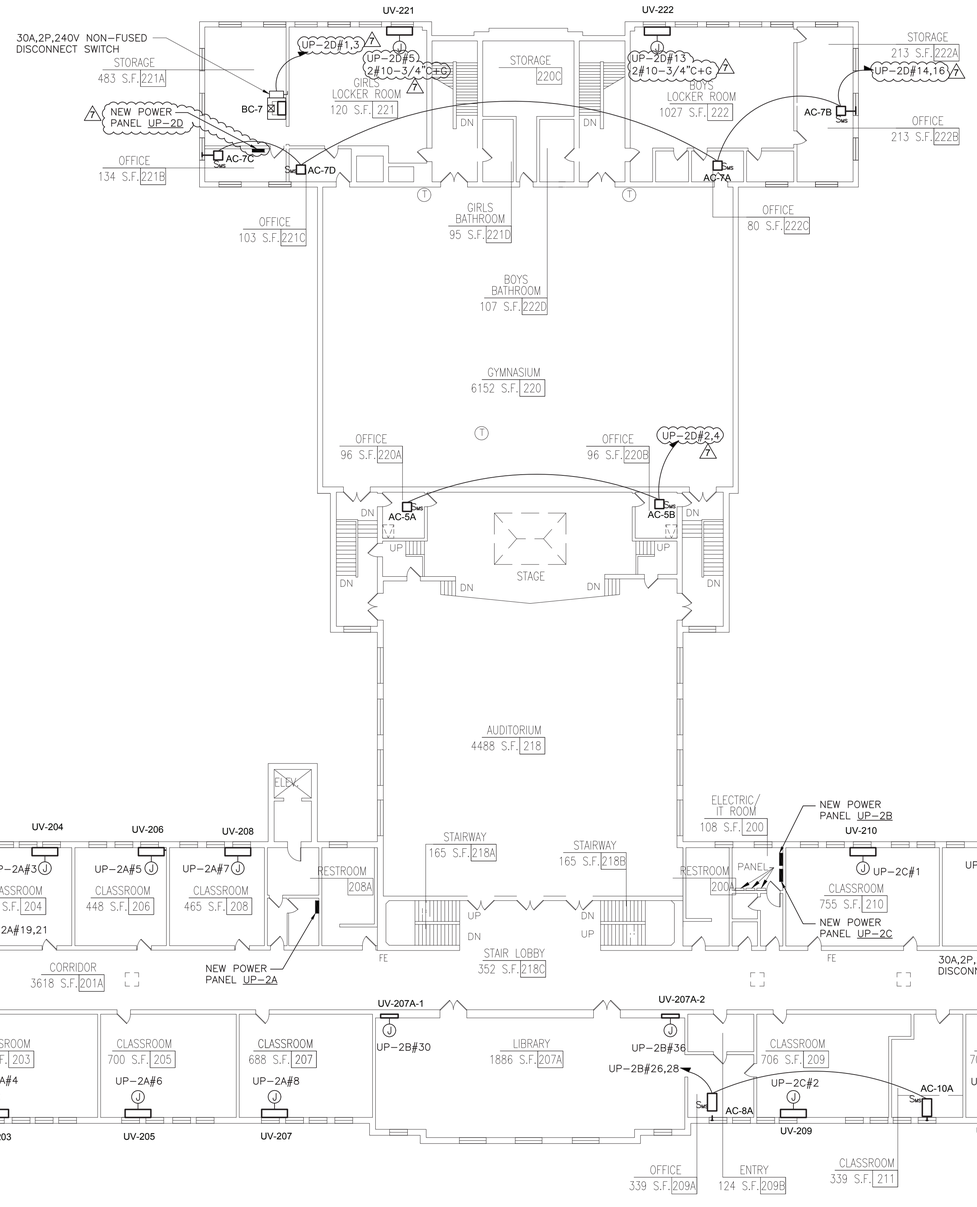
Drawing Title
FIRST FLOOR PLAN - ELECTRICAL

Drawing No.
E-101

ELECTRICAL NOTES:

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



1 SECOND FLOOR PLAN

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

PLAN NORTH

1/2 0 1

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

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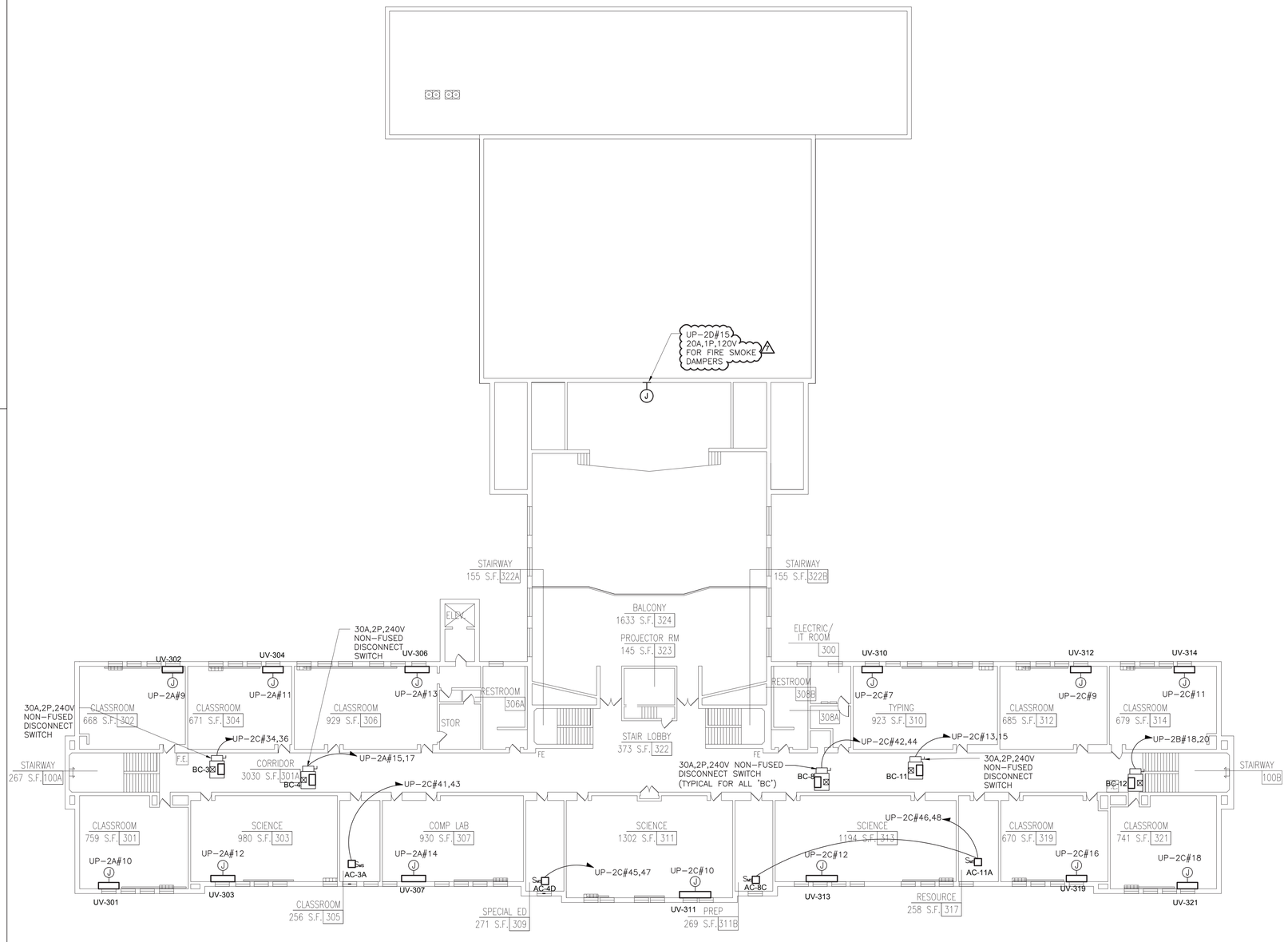
Drawing Title: 2ND FLOOR PLAN - ELECTRICAL

Drawing No.: E-102

ELECTRICAL NOTES:

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



1 THIRD 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

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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

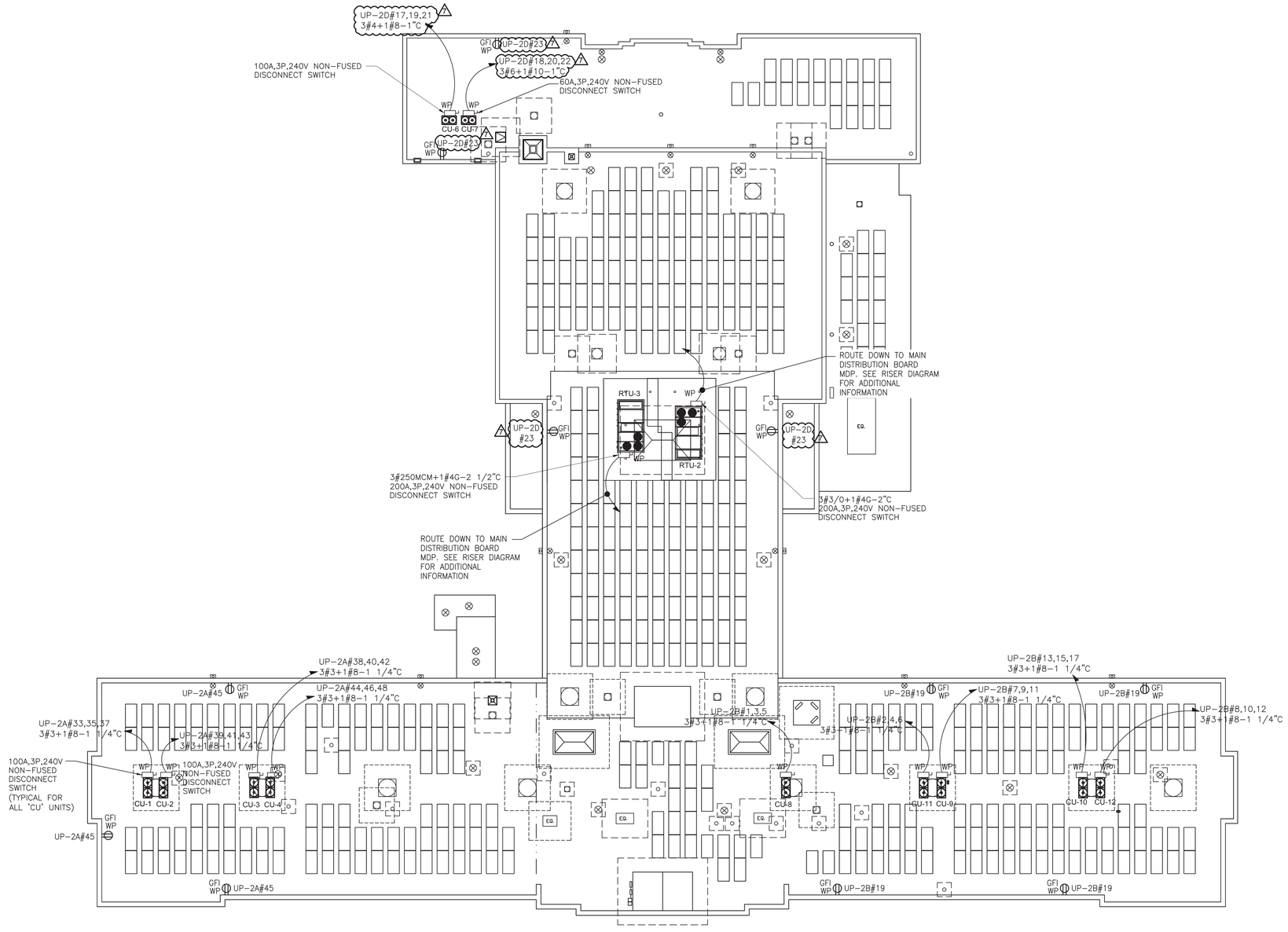
MICHAEL SHILALE ARCHITECTS, L.L.P.
140 Park Avenue New City, NY 10956 Tel 845-708-9200
www.shilale.com

Drawing Title
3RD FLOOR PLAN - ELECTRICAL

Drawing No.
E-103

ELECTRICAL NOTES:

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



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

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

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

Drawn by FC
Checked by SH
Project No. 41048
Scale AS NOTED
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Drawing Title: ROOF PLAN-ELECTRICAL
Drawing No.: E-104

PANEL SCH. **UP-2A** | FRAME/TRIP: **MLO** | M.C.B. / M.L.O.
PANEL LOC. **CLOSET**
120 / 208 VOLT, 3PH, 4W, GND | AMP BUS SIZE **400 AMP** | PANEL SHORT CIRCUIT RATING: > **22** KAIC

FDR.DATA No.	WIRE	GND	CIR. NO.	LOAD DESCRIPTION	C.B. POLE NO.	C.B. TRIP A	C.B. LOAD VA	PHASE A	PHASE B	PHASE C	C.B. LOAD VA	C.B. TRIP A	C.B. POLE NO.	LOAD DESCRIPTION	CIR. NO.	FDR.DATA No.	WIRE	GND
2	12	12	1	2ND FLOOR UNIVENT	1	15	600	1200			600	15	1	2ND FLOOR UNIVENT	2	2	12	12
2	12	12	3	2ND FLOOR UNIVENT	1	15	600		1200		600	15	1	2ND FLOOR UNIVENT	4	2	12	12
2	12	12	5	2ND FLOOR UNIVENT	1	15	600			1200	600	15	1	2ND FLOOR UNIVENT	6	2	12	12
2	12	12	7	2ND FLOOR UNIVENT	1	15	600	1200			600	15	1	2ND FLOOR UNIVENT	8	2	12	12
2	12	12	9	3RD FLOOR UNIVENT	1	15	600		1200		600	15	1	3RD FLOOR UNIVENT	10	2	12	12
2	12	12	11	3RD FLOOR UNIVENT	1	15	600			1200	600	15	1	3RD FLOOR UNIVENT	12	2	12	12
2	12	12	13	3RD FLOOR UNIVENT	1	15	600	1200			600	15	1	3RD FLOOR UNIVENT	14	2	12	12
			15				250		850		600	15	1	3RD FLOOR UNIVENT	16	2	12	12
2	12	12	17	BC-4	2	20	250			850	600	15	1	1ST FLOOR UNIVENT	18	2	12	12
			19				250				600	15	1	1ST FLOOR UNIVENT	20	2	12	12
2	12	12	21	BC-2	2	20	250	850			600	15	1	1ST FLOOR UNIVENT	22	2	12	12
			23				250		850		600	15	1	1ST FLOOR UNIVENT	24	2	12	12
2	12	12	25	BC-1	2	20	250			850	600	15	1	1ST FLOOR UNIVENT	26	2	12	12
			27	SPARE	1	20		600			600	15	1	1ST FLOOR UNIVENT	28	2	12	12
			29	SPARE	1	20			600		600	15	1	1ST FLOOR UNIVENT	30	2	12	12
			31	SPARE	1	20	0			0	20	1		SPARE	32			
			33				6840	6840			20	1		SPARE	34			
3	3	8	35	CU-1	3	90	6840			7440	600	20	1	EXTERIOR RECEPTACLE (1)	36	2	12	12
			37				6840	13680			6840				38			
			39				6840		13680		6840	90	3	CU-3	40	3	3	8
3	3	8	41	CU-2	3	90	6840			13680	6840				42			
			43				6840	13680			6840				44			
2	12	12	45	ROOF RECEPTACLES	1	20	540		7380		6840	90	3	CU-4	46	3	3	8
			47	SPARE	1	20				6840	6840				48			
2	12	12	49	1ST FLOOR UNIVENT	1	15	600	600				20	1	SPARE	50			
			51	SPARE	1	20			0			20	1	SPARE	52			
			53	SPARE	1	20		0				20	1	SPARE	54			
			55	SPARE	1	20	0					20	1	SPARE	56			
			57	SPARE	1	20		0				20	1	SPARE	58			
			59	SPARE	1	20			0			20	1	SPARE	60			

PHASE CONN.	33260	32600	32060	VA	20 % SPARE CAPACITY
TOTAL CONN. LOAD		97.92		272 AMPS	100 %DEMAND FACTOR
CON. and SPR. LOAD		117.504			
TOT. DEM LOAD		117.504		VOLTS	REMARKS:
TOT DEM LOAD		326.5451312	@	208	

PANEL TYPE : NEMA 1
MOUNTING: SURFACE
FED FROM:

PANEL SCH. **UP-2B** | FRAME/TRIP: **MLO** | M.C.B. / M.L.O.
PANEL LOC. **CLOSET**
120 / 208 VOLT, 3PH, 4W, GND | AMP BUS SIZE **400 AMP** | PANEL SHORT CIRCUIT RATING: > **22** KAIC

FDR.DATA No.	WIRE	GND	CIR. NO.	LOAD DESCRIPTION	C.B. POLE NO.	C.B. TRIP A	C.B. LOAD VA	PHASE A	PHASE B	PHASE C	C.B. LOAD VA	C.B. TRIP A	C.B. POLE NO.	LOAD DESCRIPTION	CIR. NO.	FDR.DATA No.	WIRE	GND
			1				5880	12720			6840				2			
3	3	8	3	CU-8	3	80	5880		12720		6840	80	3	CU-11	4	3	3	8
			5				5880			12720	6840				6			
			7				6840	13680			6840				8			
3	3	8	9	CU-9	3	90	6840		13680		6840	90	3	CU-12	10	3	3	8
			11				6840			13680	6840				12			
			13				6840	7090			250				14			
3	3	8	15	CU-10	3	90	6840		7090		250	20	2	BC-9	16	2	12	12
			17				6840			7090	250				18			
2	12	12	19	ROOF RECEPTACLES	1	20	720	970			250	20	2	BC-12	20	2	12	12
			21	SPARE	1	20			250		250				22			
			23	SPARE	1	20				250	250	20	2	AC-1(A,B)	24	2	12	12
			25	SPARE	1	20		250			250				26			
			27	SPARE	1	20			250		250	20	2	AC-8A & AC-10A	28	2	12	12
2	12	12	29	AC-9(A,B,C,E)	2	20	250			850	600	15	1	2ND FLOOR UNIVENT	30	2	12	12
			31	SPARE	1	20	500				250	20	2	AC-5C	32	2	12	12
			33	SPARE	1	20			250		250				34			
			35	SPARE	1	20				600	600	20	1	2ND FLOOR UNIVENT	36	2	12	12
			37	SPARE	1	20	0				20	1		SPARE	38			
			39	SPARE	1	20		0			20	1		SPARE	40			
			41	SPARE	1	20			0		20	1		SPARE	42			

PHASE CONN.	35210	34240	35190	VA	20 % SPARE CAPACITY
TOTAL CONN. LOAD		104.64		291 AMPS	100 %DEMAND FACTOR
CON. and SPR. LOAD		125.568			
TOT. DEM LOAD		125.568		VOLTS	REMARKS:
TOT. DEM LOAD		348.9550912	@	208	

PANEL TYPE : NEMA 1
MOUNTING: SURFACE
FED FROM:

PANEL SCH. **UP-2C** | FRAME/TRIP: **MLO** | M.C.B. / M.L.O.
PANEL LOC. **CLOSET**
120 / 208 VOLT, 3PH, 4W, GND | AMP BUS SIZE **200 AMP** | PANEL SHORT CIRCUIT RATING: > **22** KAIC

FDR.DATA No.	WIRE	GND	CIR. NO.	LOAD DESCRIPTION	C.B. POLE NO.	C.B. TRIP A	C.B. LOAD VA	PHASE A	PHASE B	PHASE C	C.B. LOAD VA	C.B. TRIP A	C.B. POLE NO.	LOAD DESCRIPTION	CIR. NO.	FDR.DATA No.	WIRE	GND
2	12	12	1	2ND FLOOR UNIVENT	1	15	600	1200			600	15	1	2ND FLOOR UNIVENT	2	2	12	12
2	12	12	3	2ND FLOOR UNIVENT	1	15	600		600		20	1		SPARE	4			
2	12	12	5	2ND FLOOR UNIVENT	1	15	600			1200	600	15	1	2ND FLOOR UNIVENT	6	2	12	12
2	10	10	7	3RD FLOOR UNIVENT	1	15	1200	1800			600	15	1	2ND FLOOR UNIVENT	8	2	12	12
2	12	12	9	3RD FLOOR UNIVENT	1	15	600		1200		600	15	1	3RD FLOOR UNIVENT	10	2	12	12
2	12	12	11	3RD FLOOR UNIVENT	1	15	600			1800	1200	15	1	3RD FLOOR UNIVENT	12	2	10	10
2	12	12	13	BC-11	2	20	250	250				20	1	SPARE	14			
			15				250		850		600	15	1	3RD FLOOR UNIVENT	16	2	12	12
2	12	12	17	BC-10	2	20	250			850	600	15	1	3RD FLOOR UNIVENT	18	2	12	12
			19				250	850			600	15	1	1ST FLOOR UNIVENT	20	2	12	12
2	12	12	21	AC-9(F,G,H,I,J)	2	20	250		850		600	15	1	1ST FLOOR UNIVENT	22	2	12	12
			23				250			850	600	15	1	1ST FLOOR UNIVENT	24	2	12	12
3	3	8	25	CU-5	3	90	6840	7440			600	15	1	1ST FLOOR UNIVENT	26	2	12	12
			27				6840		7440		600	15	1	1ST FLOOR UNIVENT	28	2	12	12
			29				6840			7440	600	15	1	1ST FLOOR UNIVENT	30	2	12	12
			31	SPARE	1	20		0			20	1		SPARE	32			
			33	SPARE	1	20			250		250	20	2	BC-3	34	2	12	12
			35	SPARE	1	20				250	250				36			
			37	SPARE	1	20		250			250				38			
			39	SPARE	1	20			250		250	20	2	AC-4(A,B,C)	40	2	12	12
2	12	12	41	AC-3A	2	20	360			500	250				42			
			43				250	500			250	20	2	BC-8	44	2	12	12
2	12	12	45	AC-4D	2	20	250		500		250				46			
			47				250			500	250	20	2	AC-11A & AC-8C	48	2	12	12
			49	SPARE	1	20		0			20	1		SPARE	50			
			51	SPARE	1	20				0	20	1		SPARE	52			
			53	SPARE	1	20			0		20	1		SPARE	54			
			55	SPARE	1	20		0			20	1		SPARE	56			
			57	SPARE	1	20				0	20	1		SPARE	58			
			59	SPARE	1	20			0		20	1		SPARE	60			

PHASE CONN.	12290	11940	13390	VA	20 % SPARE CAPACITY
TOTAL CONN. LOAD		37.62		105 AMPS	100 %DEMAND FACTOR
CON. and SPR. LOAD		45.144			
TOT. DEM LOAD		45.144		VOLTS	REMARKS:
TOT. DEM LOAD		125.4557581	@	208	

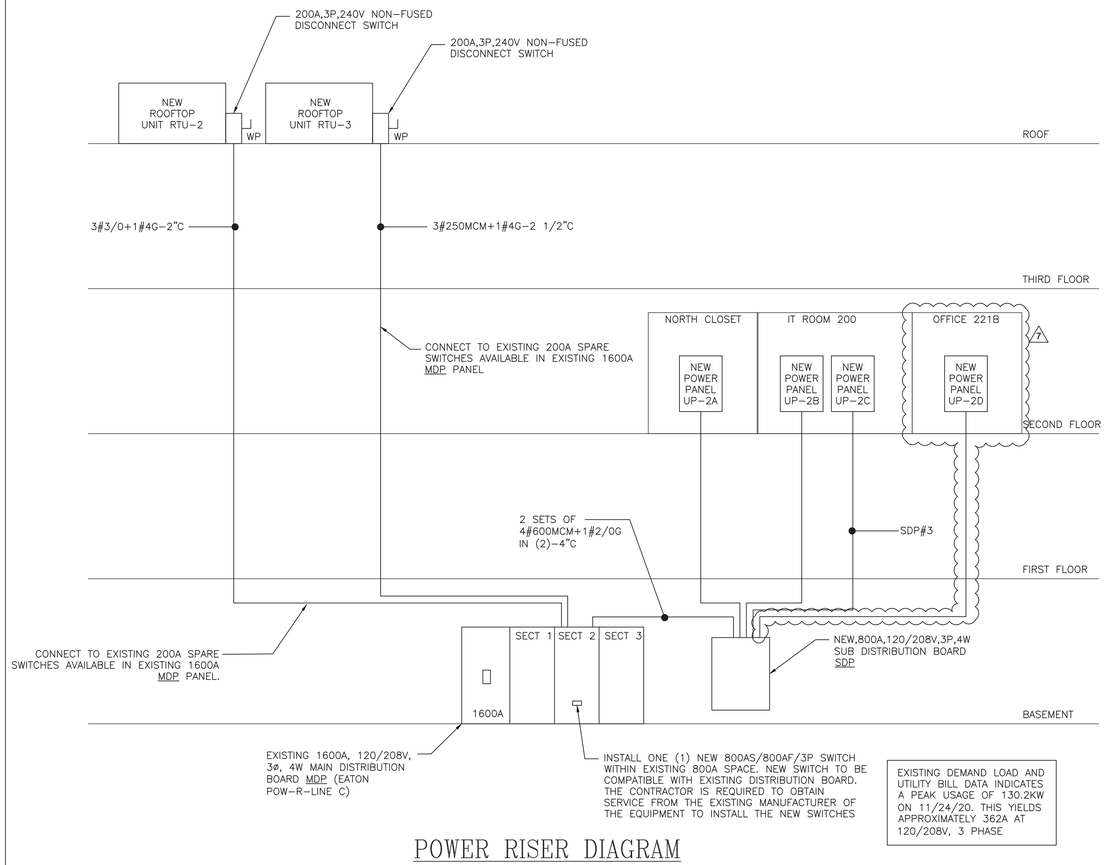
PANEL TYPE : NEMA 1
MOUNTING: SURFACE
FED FROM:

PANEL SCH. **UP-2D** | FRAME/TRIP: **MLO** | M.C.B. / M.L.O.
PANEL LOC. **CLOSET**
120 / 208 VOLT, 3PH, 4W, GND | AMP BUS SIZE **200 AMP** | PANEL SHORT CIRCUIT RATING: > **22** KAIC

FDR.DATA No.	WIRE	GND	CIR. NO.	LOAD DESCRIPTION	C.B. POLE NO.	C.B. TRIP A	C.B. LOAD VA	PHASE A	PHASE B	PHASE C	C.B. LOAD VA	C.B. TRIP A	C.B. POLE NO.	LOAD DESCRIPTION	CIR. NO.	FDR.DATA No.	WIRE	GND
2	12	12	1	BC-7	2	20	250	500			250	20	1	AC-5(A-B)	2	2	12	12
			3				250		500		250				4			
2	10	10	5	2ND FLOOR UNIVENT	1	20	600			850	250				6	2	12	12
2	10	10	7	1ST FLOOR UNIVENT	1	20	600	850			250	20	1	BC-6	8			
2	10	10	9	1ST FLOOR UNIVENT	1	20	600		850		250				10	2	12	12
2	12	12	11	1ST FLOOR UNIVENT	1	20	1200			1450	250	20	1	BC-5	12			
2	12	12	13	2ND FLOOR UNIVENT	1	20	600	850			250				14	2	12	12
2	12	12	15	FIRE SMOKE DAMPERS	1	20	500		750		250	20	1	AC-7(A,B,C,D)	16			
			17				5884			10804	4920				18			
3	4	8	19	CU-6	3	80	5884	10804			4920	60	3	CU-7	20	3	6	10
			21				5884		10804		4920				22			
2	12	12	23	ROOF RECEPTACLES	1	20	720			720	20	1		SPARE	24			
			25	SPARE	1	20		0			20	1		SPARE	26			
			27	SPARE	1	20			0		20	1		SPARE	28			
			29	SPARE	1	20				0	20	1		SPARE	30			
			31	SPARE	1	20		0			20	1		SPARE	32			

PHASE CONN.	13004	12904	13824	VA	20 % SPARE CAPACITY
TOTAL CONN. LOAD		39.732		110 AMPS	100 %DEMAND FACTOR
CON. and SPR. LOAD		47.6784			
TOT. DEM LOAD		47.6784		VOLTS	REMARKS:
TOT DEM LOAD		132.4988884	@	208	

PANEL TYPE : NEMA 1
MOUNTING: SURFACE
FED FROM:



POWER RISER DIAGRAM

POWER AND DISTRIBUTION PANEL SCHEDULE

VOLTAGE 120/208 3 PHASE 4 WIRE + G. U.O.N

PANEL	BUS (AMPS)	MAIN DEVICE MCCB (AMPS)	MAIN DEVICE TRIP (AMPS)	CKT. NO.	EQUIPMENT	BRANCH DEVICE MCCB (AMPS)	BRANCH DEVICE TRIP (AMPS)	BRANCH DEVICE POLES	FEEDER SIZE
SDP 42KAIC	800A COPPER	MLO	MLO	1	POWER PANEL UP-2A	400	400	3	4#600MCM+1#3G-4"C
				2	POWER PANEL UP-2B	400	400	3	4#600MCM+1#3G-4"C
				3	POWER PANEL UP-2C	200	200	3	4#3/0+1#6G-2"C
				4	POWER PANEL UP-2D	200	200	3	4#3/0+1#6G-2"C
				5	SPARE	100	100	3	
				6	SPARE	100	100	3	
				7	SPARE	100	100	3	

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Drawing Title: **ELECTRICAL SCHEDULES AND RISER**
Drawing No. **E-201**