WARWICK VALLEY CENTRAL SCHOOL DISTRICT

FEDERAL GRANT/ CAPITAL BOND
HIGH SCHOOL UNIT VENTILATOR REPLACEMENT AND AIR CONDITIONING UPGRADE

225 WEST STREET EXT, WARWICK, NY 10990

ISSUED FOR BID - DATE: 11/09/2022

LOCATION PLAN

LIST OF DRAWINGS:

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MD-101	PARTIAL FIRST FLOOR PLAN - REMOVALS
MD-102	PARTIAL SECOND FLOOR PLAN - REMOVALS
M-100	PARTIAL BASEMENT AND FIRST FLOOR PLANS - NEW WORK
M-101	PARTIAL FIRST FLOOR PLAN - NEW WORK
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P-101	PARTIAL FIRST FLOOR PLAN - NEW WORK
P-102	PARTIAL SECOND FLOOR PLAN - NEW WORK
P-500	SCHEDULE AND DETAILS

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WV HIGH SCHOOL – 89 SANFORDVILLE ROAD. WARWICK, NY 10990
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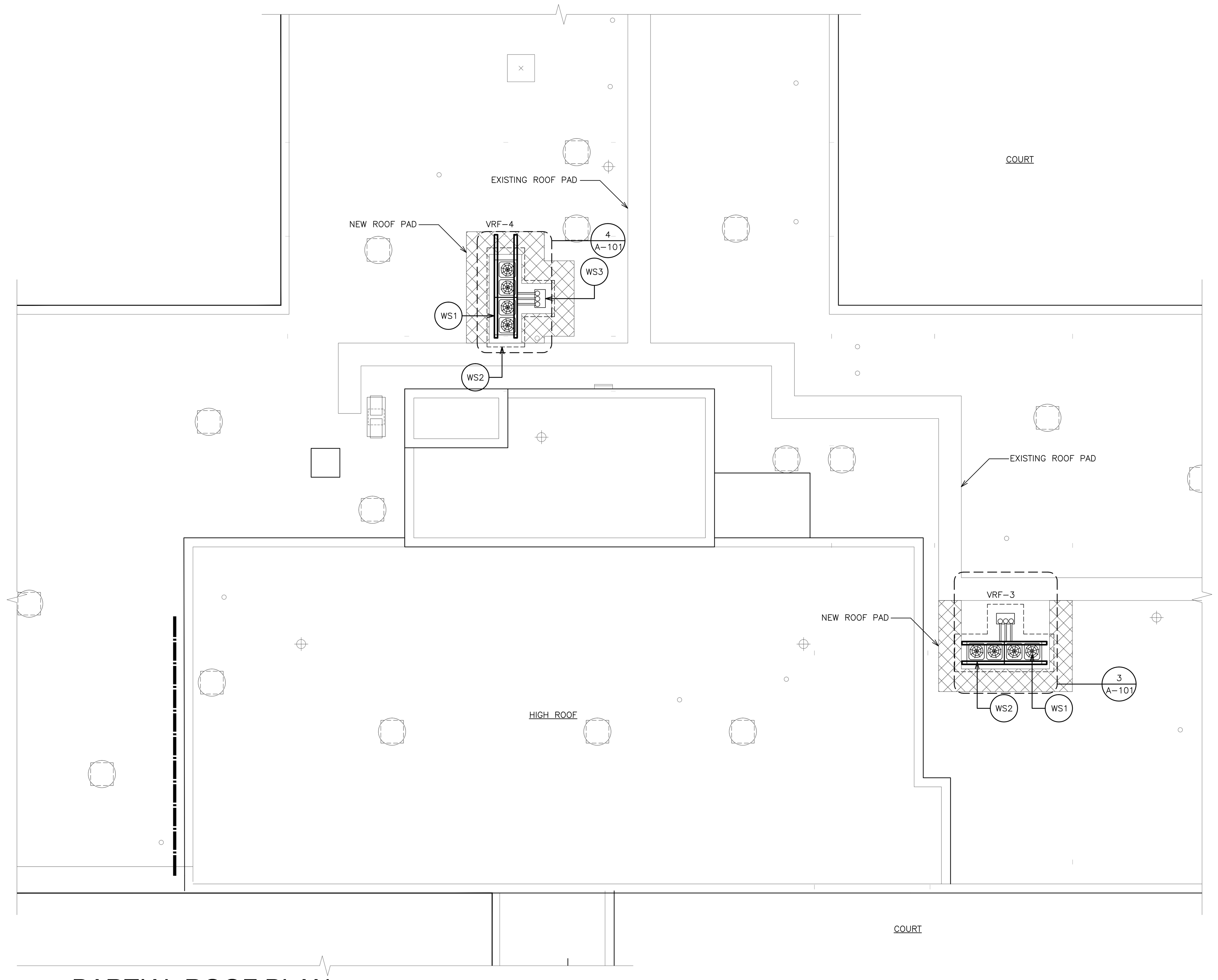
SHEET SIZE	30" X 42"
SCALE	AS NOTED

SHEET TITLE
COVER PAGE

SHEET NO.
CP

1 PARTIAL ROOF PLAN
SCALE: 1/8" = 1'-0"



2 PARTIAL ROOF PLAN
SCALE: 1/8" = 1'-0"

WORKSCOPE NOTES

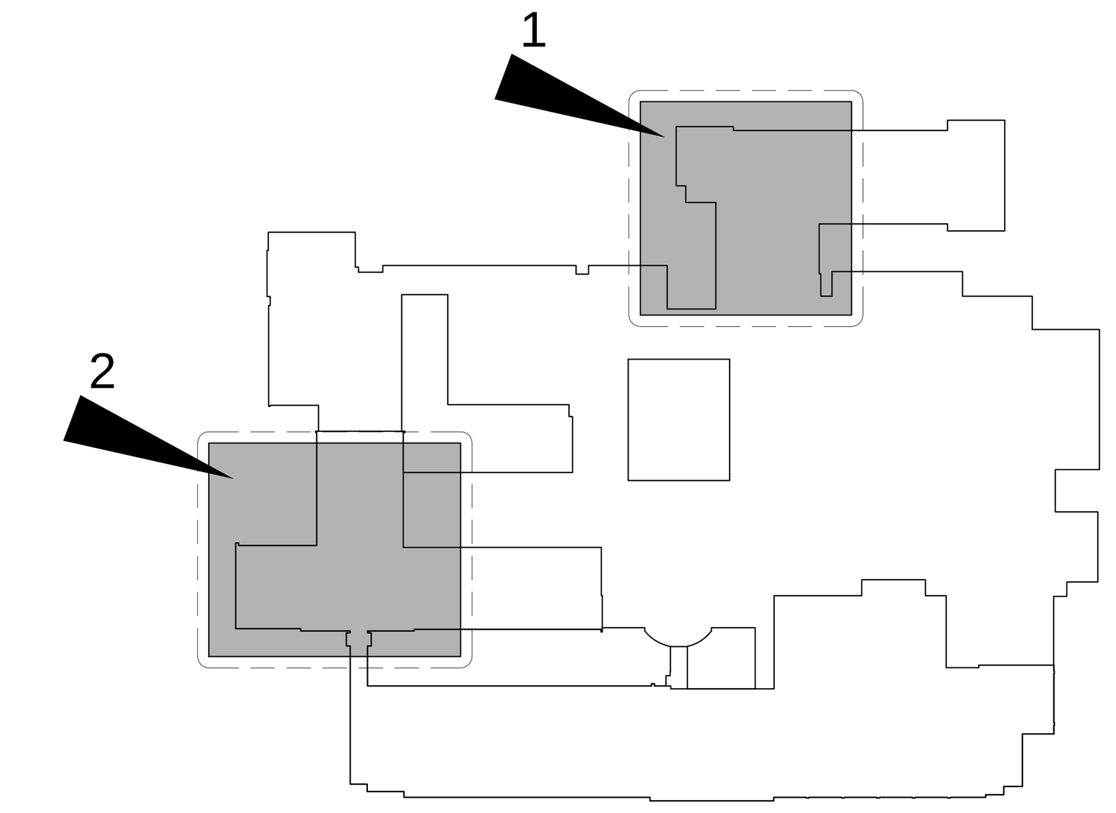
WS1	NEW HEAT PUMP BY H-CONTRACTOR. COORDINATE WITH MECHANICAL CONTRACTOR FOR LOCATION.
WS2	REMOVE EXISTING ROOFING, INSTALL NEW CURB PROVIDED BY H-CONTRACTOR. SEE DETAIL 5/A-101.
WS3	NEW PIPE PORTAL. COORDINATE WITH MECHANICAL CONTRACTOR. SEE DETAIL 6/A-101.

LEGEND:

- EXISTING ROOF DRAIN
- V EXISTING VENT PIPE
- EXISTING EXHAUST FAN.
- P PITCH POCKE
- EXISTING ROOF LADDER
- SL EXISTING SKYLIGHT
- WALKWAY PADS. SEE SPECIFICATIONS
- H EXISTING ROOF HATCH.

NOTE:
BASF SPRAY POLYURETHANE FOAM ROOF WARRANTIED THROUGH AUGUST 2026.

LOCAL MAINTENANCE BY:
A to Z COATINGS
(570) 558-0932



HIGH SCHOOL KEY PLAN
SCALE N.T.S.

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WARWICK VALLEY HIGH SCHOOL PARTIAL ROOF PLANS

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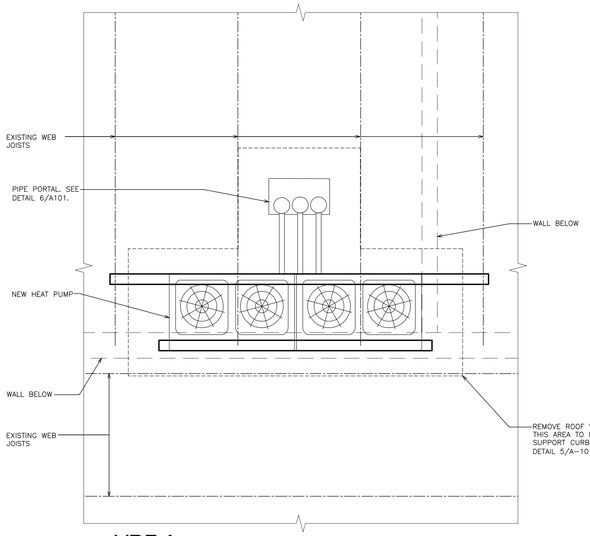
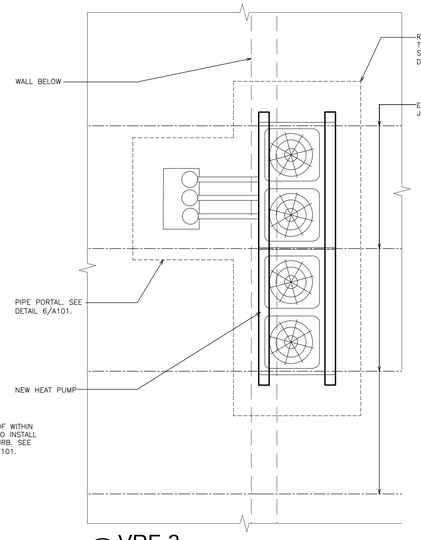
WVHS A-100

FILE PATH -N:\1 - PROJECT DIRECTORIES\1- E & R Projects\05 - Warwick Valley CSD\05-21-04 Warwick Federal Grant Project\CAD\Package3.HsUvsVrf\21437.07 A-100-101.dwg



1 VRF-1
SCALE: 1/2" = 1'-0"



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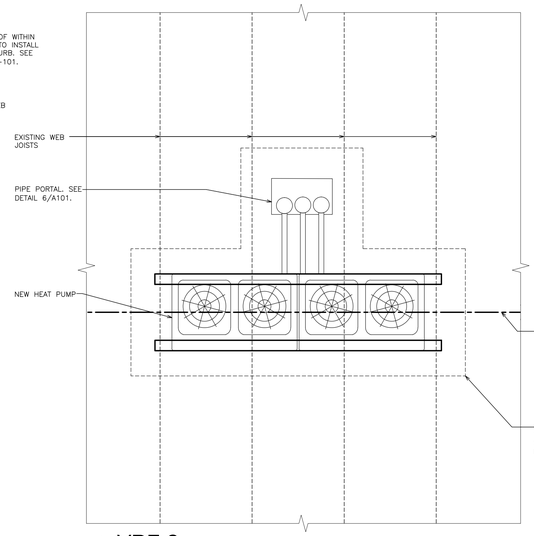

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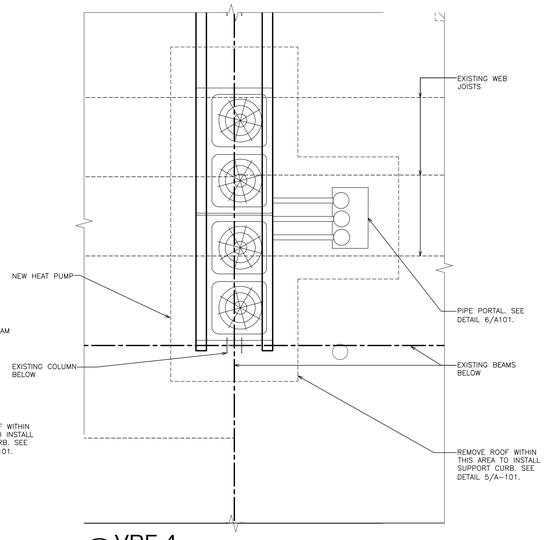

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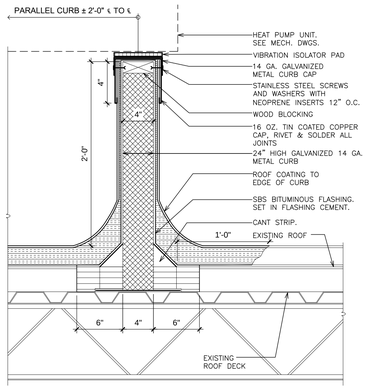
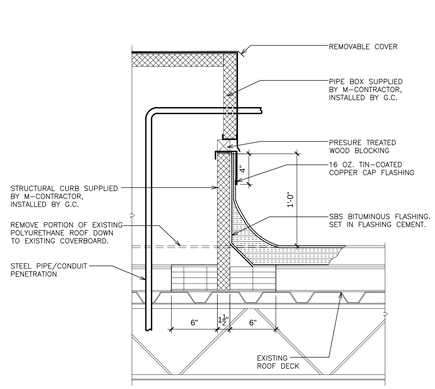


5 DETAIL - SUPPORT CURB
SCALE: 1 1/2" = 1'-0"



6 DETAIL - PIPE PORTAL CURB
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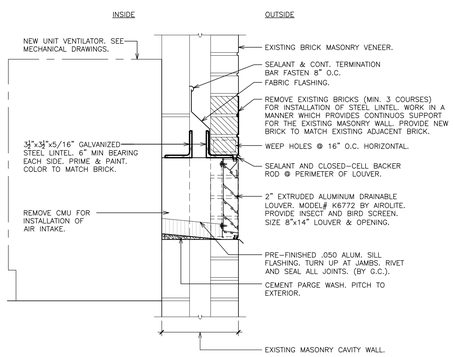
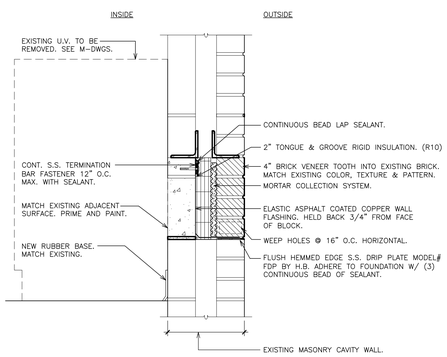
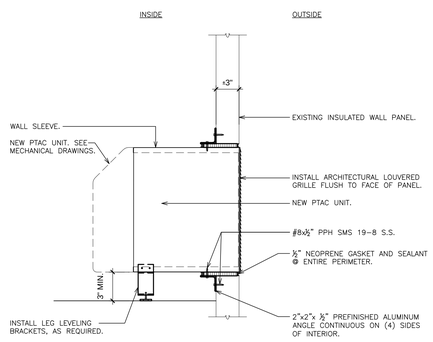


7 TYPICAL LOUVER OPENING @ U.V.
SCALE: 1 1/2" = 1'-0"



8 DETAIL - EXISTING U.V. INFILL
SCALE: 1 1/2" = 1'-0"



9 TYPICAL PTAC WALL SLEEVE
SCALE: 1 1/2" = 1'-0"

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LEGEND:

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- V — EXISTING VENT PIPE
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- SL — EXISTING SKYLIGHT
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- H — EXISTING ROOF HATCH.

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WARWICK VALLEY HIGH SCHOOL ROOF STRUCTURAL PLANS AND MISCELLANEOUS DETAILS

SHEET NO.
WVHS A-101

FILE PATH –N:\ – PROJECT DIRECTORIES\– E & R Projects\05 – Warwick Valley CSD\05-21-04 Warwick Federal Grant Project\C4D\Package3.Hsl\wvH\21437.07 A-100-101.dwg

MECHANICAL GENERAL NOTES:

1. DRAWINGS ARE DIAGRAMMATIC AND INDICATE GENERAL ARRANGEMENT OF SYSTEMS AND WORK INCLUDED IN THE CONTRACT. IT IS NOT INTENDED TO SPECIFY OR SHOW EVERY OFFSET, FITTING OR COMPONENT; HOWEVER, CONTRACT DOCUMENTS REQUIRE COMPONENTS AND MATERIALS WHETHER OR NOT INDICATED OR SPECIFICALLY SPECIFIED TO MAKE THE SYSTEMS BEING INSTALLED COMPLETE, CODE COMPLIANT, TESTED AND OPERATIONAL.
2. CONTRACTOR SHALL FIELD VERIFY ALL LOCATIONS, DIMENSIONS AND ELEVATIONS PRIOR TO CONSTRUCTION.
3. ALL MATERIALS, EQUIPMENT, METHODS OF INSTALLATION, REMOVALS AND DISPOSAL SHALL BE IN ACCORDANCE WITH THE STANDARDS, REGULATIONS, CODES, ORDINANCES, AND LAWS OF LOCAL, STATE, AND FEDERAL GOVERNMENTS, AND OTHER AUTHORITIES THAT HAVE LAWFUL JURISDICTION.
4. PERFORM WORK, PROVIDE MATERIALS AND EQUIPMENT FOR SYSTEMS SHOWN, SPECIFIED AND DESCRIBED ON DRAWINGS. COMPLETELY COORDINATE ALL TRADES OF THIS CONTRACT AND PROVIDE COMPLETE AND FULLY FUNCTIONAL INSTALLATION. ALL WORK IN THIS SET TO BE COMPLETED UNDER THIS CONTRACT, UNLESS OTHERWISE INDICATED.
5. PROTECT ALL EXISTING AND NEW BUILDING ELEMENTS (INSTALLED BY OTHER CONTRACTS) FROM DAMAGE. CONTRACTOR SHALL RESTORE ALL DAMAGED ELEMENTS TO ORIGINAL OR BETTER CONDITION.
6. WORK SHALL BE EXECUTED IN A WORKMANLIKE MANNER AND SHALL PRESENT NEAT, RECTILINEAR APPEARANCE WHEN COMPLETED. MAINTAIN MAXIMUM HEAD ROOM AT ALL TIMES. DO NOT RUN PIPES, DUCTS, AND CONDUIT EXPOSED UNLESS SHOWN AND NOTED TO BE EXPOSED ON DRAWINGS.
7. MATERIALS AND EQUIPMENT SHALL BE NEW AND INSTALLED ACCORDING TO MANUFACTURER'S INSTRUCTIONS AND RECOMMENDATIONS. MAINTAIN MANUFACTURER'S EQUIPMENT CLEARANCES.
8. CONTRACTOR IS RESPONSIBLE FOR ALL WORK RELATED TO ISOLATING, SHUTTING DOWN, DRAINING, FILLING AND TESTING SYSTEMS TO ALLOW FOR COMPLETION OF WORK. INTERRUPTIONS TO EXISTING SERVICES AND SYSTEMS SHALL BE AS SHORT AS POSSIBLE AND AT A TIME AND DURATION APPROVED BY THE OWNER AND UTILITY AS APPLICABLE. INCLUDE ALL PREMIUM TIME ASSOCIATED WITH INTERRUPTIONS. ALL SYSTEM INTERRUPTIONS SHALL BE SCHEDULED WITH OWNER, UTILITY AND COORDINATED WITH OTHER TRADE WORK.
9. ALL EQUIPMENT PIPING, WIRING, INSULATION ETC. INSTALLED IN HVAC AIR PLENUM SPACES SHALL MEET CODE REQUIREMENTS FOR SMOKE AND COMBUSTIBILITY.
10. SEAL ALL PENETRATIONS THROUGH FIRE RATED WALLS, PARTITIONS AND FLOORS WITH UL RATED MATERIALS/METHODS EQUIVALENT TO FIRE RATING OF ASSEMBLY.
11. COORDINATE ALL WALL/FOUNDATION PENETRATIONS WITH GENERAL CONTRACT AND SEAL WEATHERTIGHT. PROVIDE STAINLESS STEEL ESCUTCHEON PLATE/TRIM RING FOR EACH ABOVE GRADE PENETRATION (BOTH SIDES).
12. PROVIDE PROPER ACCESS TO EQUIPMENT THAT REQUIRES INSPECTION, REPLACEMENT OR REPAIR. ACCESS PANELS/DOORS SHALL BE A MINIMUM OF 12"x12", UNLESS OTHERWISE NOTED.
13. DO NOT SUPPORT EQUIPMENT FROM SUSPENDED CEILINGS. ALL SUPPORT SHALL BE FROM BUILDING STRUCTURE OR FROM CEILING SUSPENSION SYSTEM WHICH HAS BEEN REINFORCED. SUPPORTS SHALL BE SELECTED AND INSTALLED TO PROVIDE A VIBRATION FREE INSTALLATION.
14. CLEANING DURING MECHANICAL WORK: THE MECHANICAL ROOM AND ROOMS WHERE WORK WILL BE DONE TO MINIMIZE DISTURBANCE IN THE BUILDINGS. WORKERS ARE TO USE PATHWAYS AND FACILITIES AGREED UPON WITH THE DISTRICT DESIGNEE IN WRITING. THE AREA OUTSIDE THE BUILDING WHERE CUTTING WELDING OR STORAGE IS ALLOWED IS TO BE FENCED AT ALL TIMES. THE CONTRACTOR WILL ON A DAILY BASIS CLEAN THE GROUNDS AND THE BUILDING OF ANY DEBRIS OR GARBAGE GENERATED BY THEIR WORK.
15. PROTECT EXISTING SURFACES AND EQUIPMENT NOT MARKED FOR REMOVAL OR MODIFICATION. CONTRACTOR RESPONSIBLE FOR REPAIR OF EXISTING SURFACES AND/OR EQUIPMENT TO THE APPROVAL OF THE OWNER.
16. EACH CONTRACTOR RESPONSIBLE FOR RETURNING WALLS, CEILINGS AND SURFACES THEY DISTURB THAT ARE NOT SCHEDULED FOR REPLACEMENT BACK TO ORIGINAL CONDITIONS.

MECHANICAL SYMBOLS

- T – THERMOSTAT – ARROW INDICATES DEVICE/ZONE CONTROL
- F – FREEZESTAT
- P – STATIC PRESSURE SENSOR
- T – TEMPERATURE SENSOR W/CONTROL WIRING AND 1/2" CONDUIT WITH CLEAR PLASTIC GUARD(LOCKABLE)
- H – HUMIDITY SENSOR
- F – FLOW SENSOR
- DSD – DUCT SMOKE DETECTOR
- VFD – VARIABLE FREQUENCY DRIVE
- Ø – ROUND DUCTWORK
- 4– WAY CEILING SUPPLY DIFFUSER
- CEILING EXHAUST/RETURN REGISTER
- FLOW ARROW
- CIRCUIT SETTER
- NEW PIPING, DUCTWORK, AND EQUIPMENT
- EXISTING TO REMAIN PIPING, DUCTWORK, AND EQUIPMENT
- PIPING, DUCTWORK, AND EQUIPMENT FOR REMOVAL
- BALL VALVE
- CIRCUIT SETTER
- CHECK VALVE
- CONTROL VALVE – 2 WAY
- DRAIN VALVE WITH HOSE BIB
- UNION
- STRAINER WITH BLOWDOWN
- REDUCER OR INCREASER
- BRANCH FROM BOTTOM OF PIPE
- BRANCH FROM TOP OF PIPE
- PIPE ELBOW DN
- PIPE ELBOW UP
- GAUGE WITH BALL VALVE
- AV – AUTOMATIC AIR VENT
- MV – MANUAL AIR VENT
- PIPE CAP
- PIPE BREAK
- PIPE FLOW ARROW
- 1 – REVISION NOTE
- 1 – KEYED NOTE
- POINT OF NEW CONNECTION
- LIMIT OF REMOVAL
- CD–1 200 CFM – DIFFUSER/GRILLE LABEL
- BDD – BACK DRAFT DAMPER

SINGLE LINE	DOUBLE LINE	
		– MANUAL VOLUME DAMPER
AAD	AAD	– AUTOMATIC AIR DAMPER INTERLOCKED WITH EQUIPMENT
DSD	DSD	– DUCT SMOKE DETECTOR
		– FLEXIBLE CONNECTION
		– SUPPLY/OUTSIDE AIR RECTANGULAR ELBOW UP
		– SUPPLY/OUTSIDE AIR RECTANGULAR ELBOW DN
		– RETURN/EXHAUST AIR RECTANGULAR ELBOW UP
		– 45° DEGREE LEADING EDGE "BRANCH TAKEOFF

SINGLE LINE	DOUBLE LINE	
		– RETURN/EXHAUST AIR RECTANGULAR ELBOW DN
		– ROUND ELBOW UP
		– ROUND ELBOW DN
		– CENTERED TRANSITION
		– OFFSET TRANSITION
		– SQUARE TO ROUND TRANSITION
		– RADIUS ELBOW
		– MITERED ELBOW WITH TURNING VANES

HVAC ABBREVIATIONS

AAD	AUTOMATIC AIR DAMPER
ACCU	AIR COOLED CONDENSING UNIT
AD	ACCESS DOOR
AHU	AIR HANDLING UNIT
AMP	AMPERAGE
BDD	BACKDRAFT DAMPER
BHP	BRAKE HORSEPOWER
BMS	BUILDING MANAGEMENT SYSTEM
BTU	BRITISH THERMAL UNIT
CFM	CUBIC FEET PER MINUTE
CH	CABINET HEATER
CLG	CEILING
C	CONDENSATE
DB	DRYBULB TEMPERATURE
DDC	DIRECT DIGITAL CONTROL (SYSTEM)
DEG	DEGREE
DIA	DIAMETER
DN	DOWN
DP	DEWPOINT TEMPERATURE
DX	DIRECT EXPANSION
EA	EXHAUST AIR
EAT	ENTERING AIR TEMPERATURE
EF	EXHAUST FAN
EFF	EFFICIENCY
EG	EXHAUST GRILLE
ESP	EXTERNAL STATIC PRESSURE
EXH	EXHAUST
F	FAHRENHEIT
FD	FIRE DAMPER
FF	FINAL FILTER
FLR	FLOOR
FPM	FEET PER MINUTE
FSTAT	FREEZESTAT
FT	FEET
FT HD	FEET OF HEAD
FT WG	FEET OF WATER GAUGE
FV	FACE VELOCITY
G	GAS
GAL	GALLON
GPM	GALLONS PER MINUTE
HD	HEAD
HP	HORSEPOWER
L	LOUVER
MAT	MIXED AIR TEMPERATURE
MAU	MAKE–UP AIR UNIT
MBH	1,000 BTU/HR
MCA	MINIMUM BRANCH CIRCUIT AMPACITY
MD	MOTORIZED DAMPER
OA	OUTSIDE AIR
OAI	OUTSIDE AIR INTAKE
PD	PRESSURE DROP
R	REMOVE
RA	RETURN AIR
RL	REFRIGERANT LIQUID
RPM	REVOLUTIONS PER MINUTE
RS	REFRIGERANT SUCTION
S	SATISFACTORY
SAT	SUPPLY AIR TEMPERATURE
SEN	SENSIBLE HEAT
SG	SPECIFIC GRAVITY
SP	STATIC PRESSURE
TAB	TESTING, ADJUSTING, BALANCE
TSTAT	THERMOSTAT
TYP	TYPICAL
UC	UNDER CUT
VD	VOLUME DAMPER
WB	WETBULB
WG	WATER GAUGE
ΔT	TEMPERATURE DIFFERENCE
IC	IRRIGATION CONTRACTOR

HVAC REMOVAL NOTES:

1. THE SCOPE OF REMOVAL SHOWN ON "REMOVALS" DRAWING IS DIAGRAMMATIC ONLY AND INDICATES THE INTENT OF THE WORK TO BE PERFORMED AND NOT THE COMPLETE SCOPE OF DEMOLITION AND/OR REMOVAL WORK. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO REMOVE OR RELOCATE ANY RELATED MECHANICAL DEVICES/ITEMS EVEN IF NOT SPECIFICALLY INDICATED TO BE REMOVED ON THESE DRAWINGS IN ORDER TO ACCOMODATE NEW WORK.
2. EQUIPMENT/ITEMS SHOWN CROSS HATCHED ON DRAWINGS ARE ITEMS TO BE REMOVED. ANY DEVICES/ITEMS REMOVED SHALL INCLUDE (BUT SHALL NOT BE LIMITED TO) THE REMOVAL OF ALL ASSOCIATED PIPING, CONTROLS, ETC. THAT ARE NOT INCORPORATED IN THE NEW LAYOUT. THE CONTRACTOR SHALL PERFORM ALL WORK REQUIRED TO INSURE CONTINUITY OF SERVICE TO EXISTING REMAINING EQUIPMENT. NO EXTRAS RELATING TO THE SCOPE OF WORK DESCRIBED WILL BE ALLOWED.
3. EQUIPMENT, PIPING, ETC. REQUIRED TO RECONNECT SHALL BE INSTALLED CONCEALED WITHIN THE SUSPENDED CEILINGS, PARTITIONS AND/OR WALLS, FLOORS. NO SURFACE MOUNTED OR EXPOSED EQUIPMENT, PIPING, ETC., SHALL BE PERMITTED, UNLESS SPECIFICALLY INDICATED.
4. ALL ITEMS TO BE REMOVED SHALL BE REVIEWED WITH THE OWNER PRIOR TO REMOVAL. OWNER SHALL HAVE FIRST SALVAGE RIGHTS. ITEMS THE OWNER WISHES TO KEEP SHALL BE REMOVED WITH CARE AND STORED AS DIRECTED BY OWNER. ITEMS THE OWNER DOES NOT WISH TO KEEP SHALL BE REMOVED FROM THE SITE AND DISPOSED OF PROPERLY.

HVAC NEW WORK NOTES

1. CONTROL WORK COORDINATED THROUGH ITC NORTH USING NEW BMS SYSTEM: JCI FACILITATOR.
2. CONTRACTOR RESPONSIBLE TO MAINTAIN A SEALED INSULATED BARRIER FOR DUCTWORK AND ASSOCIATED TO PREVENT FORMATION OF CONDENSATION. PROVIDE NEW INSULATION ON NEW DUCTWORK INSTALLATIONS. DAMAGED AREAS OF EXISTING DUCTWORK INSULATION SHALL BE RECORDED BY THE CONTRACTOR AND BE SUBMITTED TO THE ENGINEER. CONTRACTOR TO REPAIR/REPLACE AND SEAL WITH ADHESIVE ALUMINUM TAPE. REPAIR OR REPLACEMENT OF EXISTING DUCTWORK INSULATION THAT IS NOT ALREADY NOTED ON THE DRAWINGS SHALL BE PROVIDED ON T&M BASIS AGAINST THE CONTRACT ALLOWANCE – REFER TO SPECIFICATIONS.

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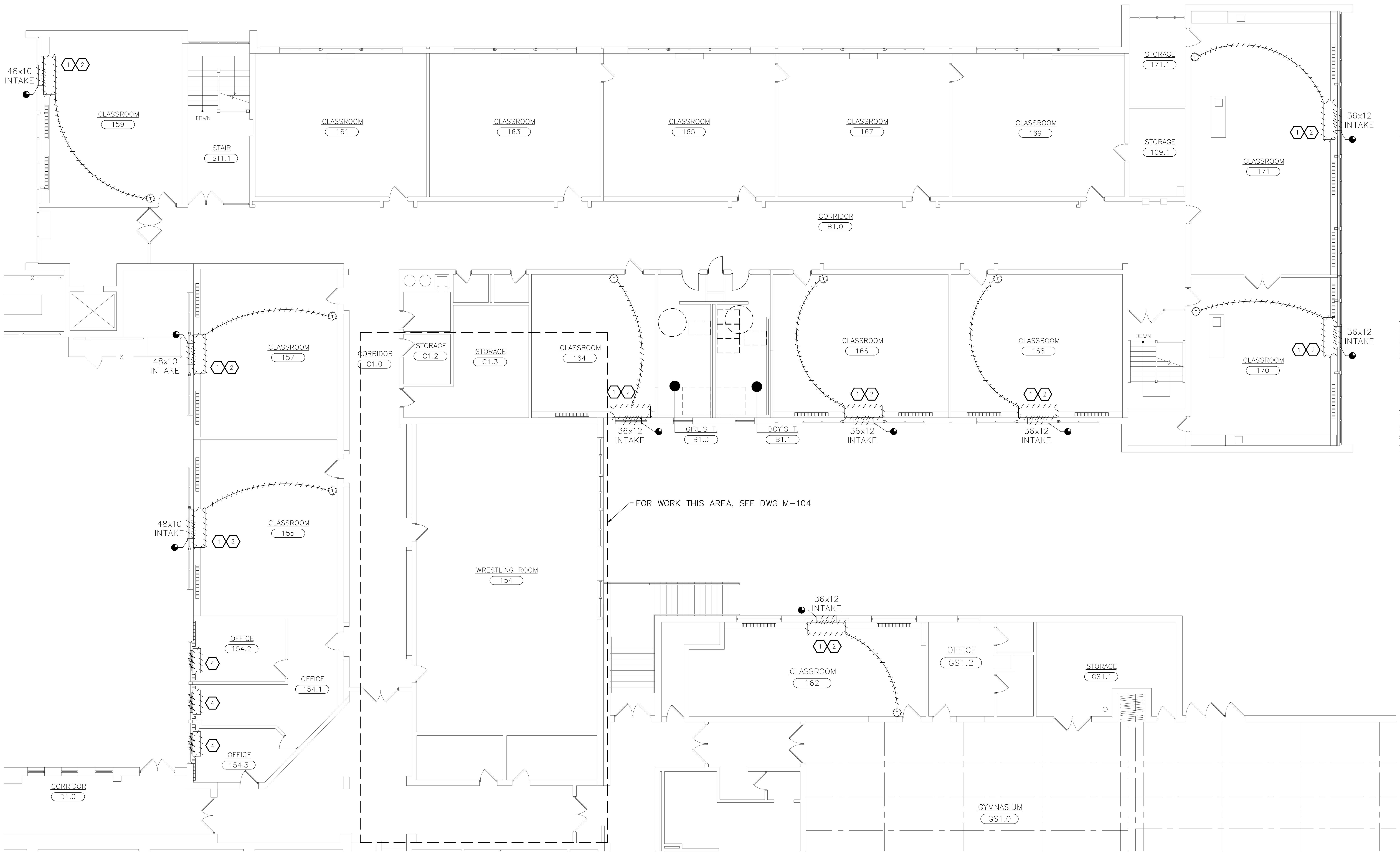
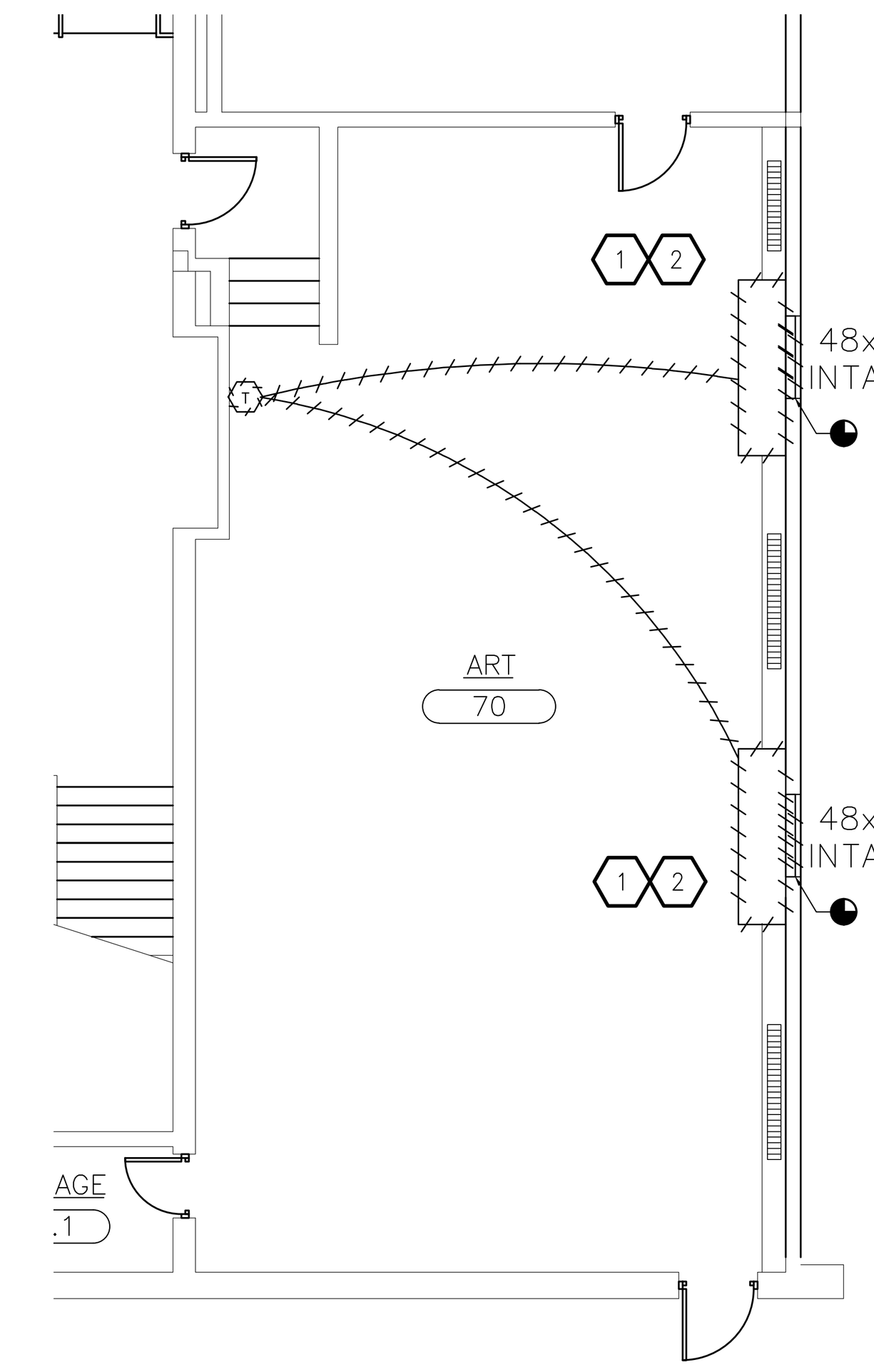
FILE PATH –N:\1 – PROJECT DIRECTORIES\1– E & R Projects\05 – Warwick Valley CSD\05–21–04 Warwick Federal Grant Project\CAD\Package3 HalvarVT\05–21–04.m001.dwg





1 PARTIAL BASEMENT FLOOR PLAN - REMOVALS

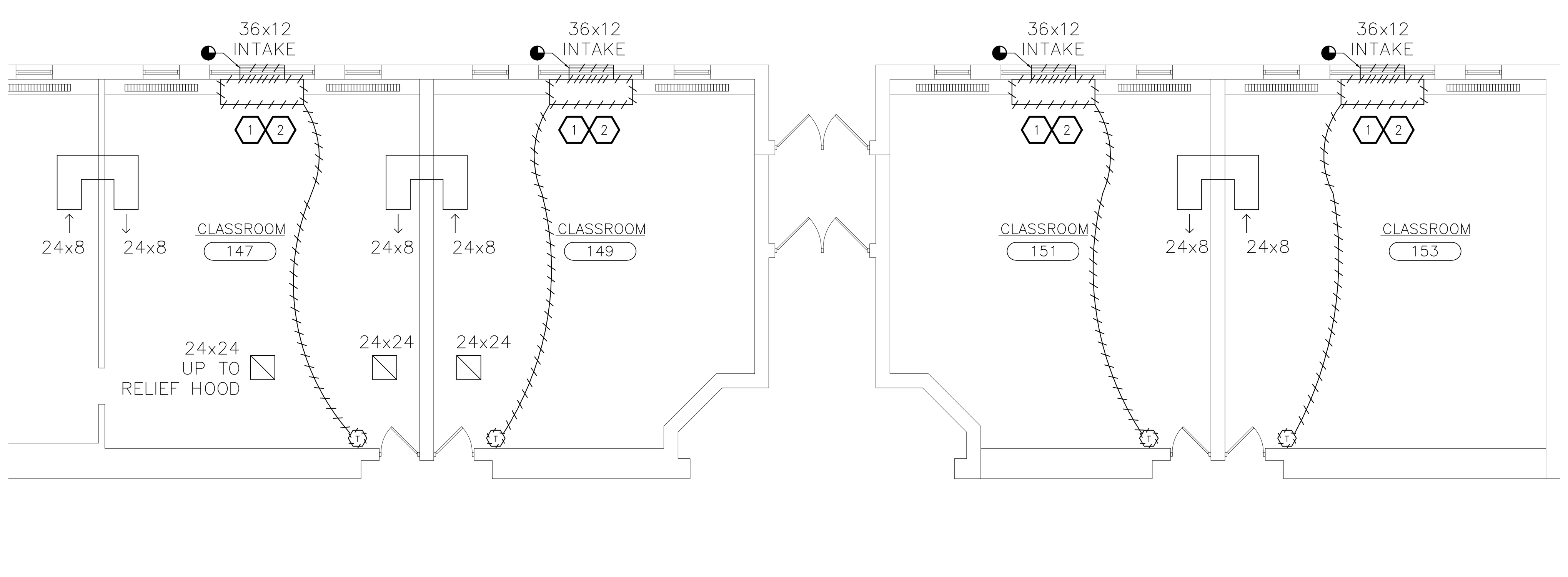
SCALE: 1/8=1'-0

ALL WORK THIS AREA PART OF ALTERNATE (ALT. H-1)

2 PARTIAL FIRST FLOOR PLAN - REMOVALS

SCALE: 1/8=1'-0

ALL WORK THIS AREA PART OF ALTERNATE (ALT. H-1)



3 PARTIAL FIRST FLOOR PLAN - REMOVALS

SCALE: 1/8=1'-0

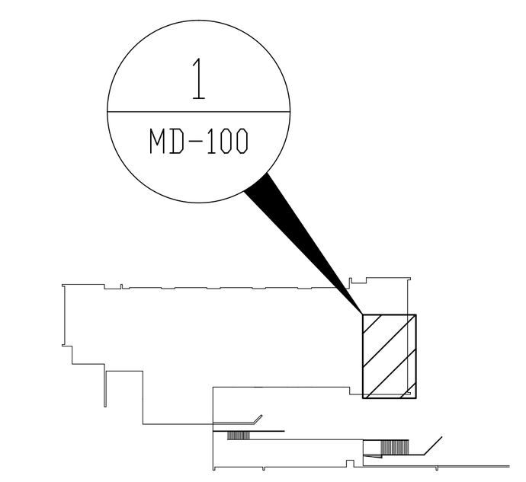
ALL WORK THIS AREA PART OF ALTERNATE (ALT. H-1)

KEYED NOTES – REMOVALS:

1. REMOVE INTAKE DUCTWORK/ DUCT SLEEVES, EXISTING INTAKE LOUVER TO REMAIN.
2. REMOVE EXISTING FLOOR MOUNTED UNIT VENTILATOR. CUT BACK EXISTING PIPING SERVICING UNIT. REMOVE VALVES AND ASSOCIATED. CUT BACK PORTION OF EXISTING FIN TUBE RADIATION AND COVER AS NECESSARY. DISCONNECT EXISTING CONTROLS.
3. REMOVE EXISTING THERMOSTATS/TEMPERATURE SENSORS, INCLUDING CONTROL WIRING, WIRE MOLDING, CONDUIT, AND ASSOCIATED. BMS CONTROL WIRING TO BE REUSED.
4. REMOVE FAN COIL UNIT, INTAKE DUCT SLEEVE, AND LOUVER. CUT BACK EXISTING PIPING SERVICING UNIT. REMOVE VALVES AND ASSOCIATED. CUT BACK PORTION OF EXISTING FIN TUBE RADIATION AND COVER AS NECESSARY. DISCONNECT EXISTING CONTROLS.

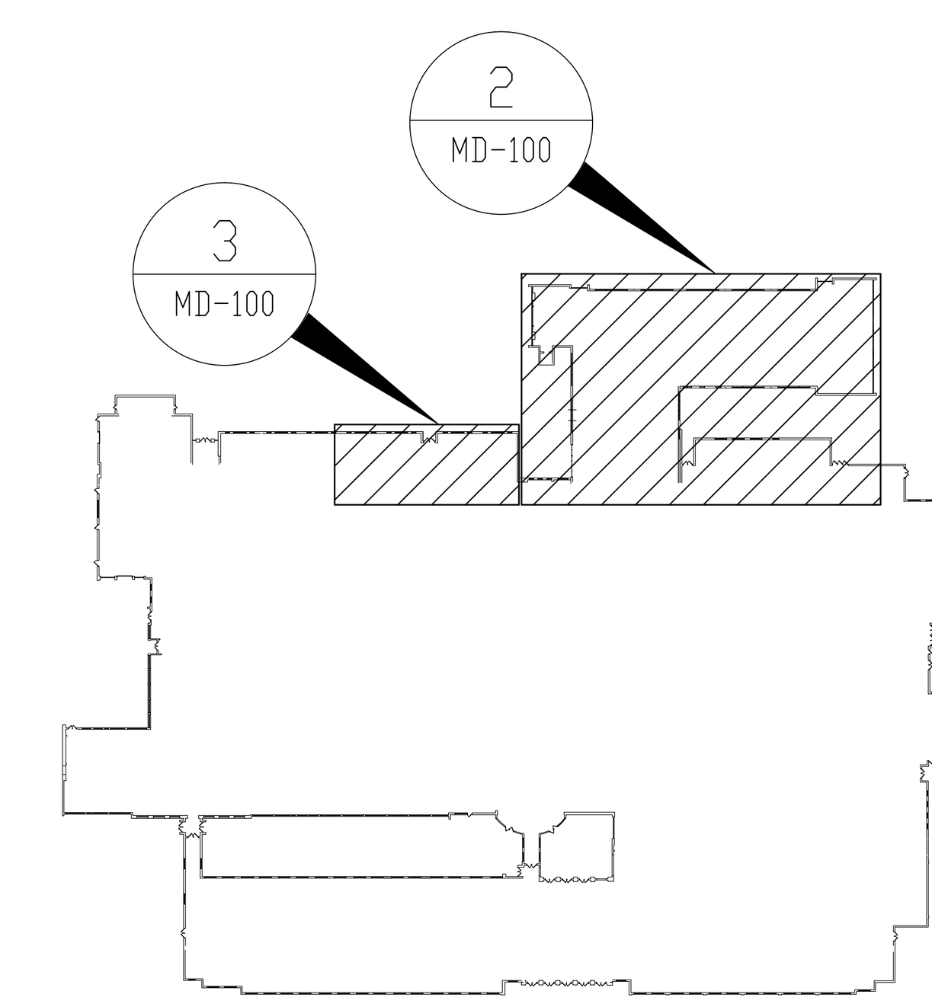
GENERAL NOTES:

1. PROVIDE ALL ALTERATIONS, RESTORATIONS, AND REPLACEMENTS NECESSARY TO ACCOMMODATE NEW WORK, INCLUDING FIN TUBE COVERS.
2. NEATLY FIRESTOP ALL INTERIOR WALL AND FLOOR PENETRATIONS.
3. SEE UV-C LIGHTING SCHEDULES FOR NEW AND EXISTING EQUIPMENT.



BASEMENT KEY PLAN

SCALE: NONE



FIRST FLOOR KEY PLAN

SCALE: NONE

ENGINEER:
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291 Genesee Street – Utica, NY 13501
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WWW.FULLERDANGELO.COM

STAMP

WARWICK VALLEY CENTRAL SCHOOL DISTRICT
HIGH SCHOOL UNIT VENTILATOR REPLACEMENT AND AIR CONDITIONING UPGRADE

225 WEST STREET EXT, WARWICK, NY 10990

WV HIGH SCHOOL – 89 SANFORDVILLE ROAD. WARWICK, NY 10990

SED NO. 44-21-01-06-0-001-042

PROJECT NO.	05-21-04 05-20-06
ISSUED FOR BID	11.09.2022
SED SET	10.19.2022
REVISION	DATE
DRAWN BY	
CHECKED BY	
SHEET SIZE	30" X 42"
SCALE	AS NOTED

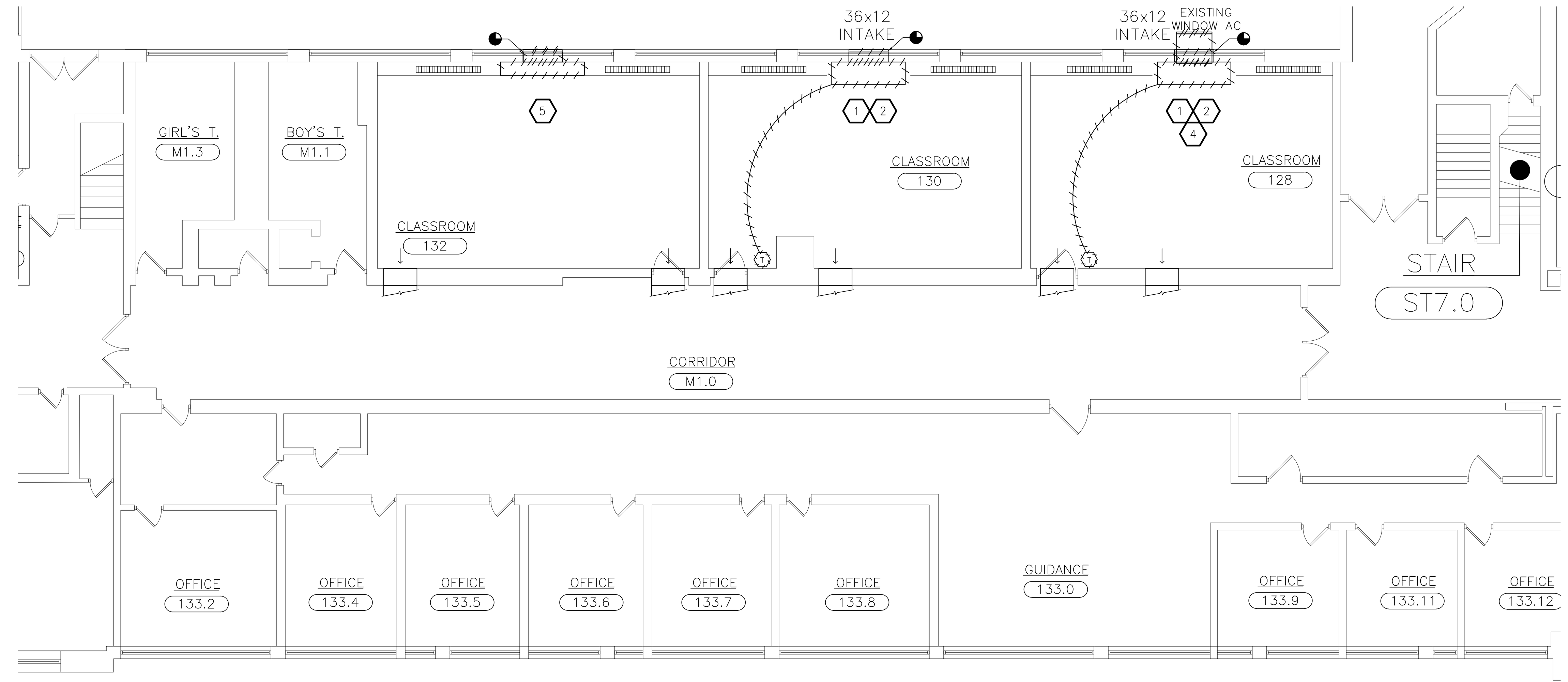
SHEET TITLE

PARTIAL BASEMENT AND FIRST FLOOR PLANS - REMOVALS

SHEET NO.

MD-100

FILE PATH -N:\1 – PROJECT DIRECTORIES\1– E & R Projects\05 – Warwick Valley CSD\05–21–04 Warwick Federal Grant Project\CAD\Package3.HsUvsVrf\05–21–04.M100–M104, M110.dwg



2 PARTIAL FIRST FLOOR PLAN - REMOVALS

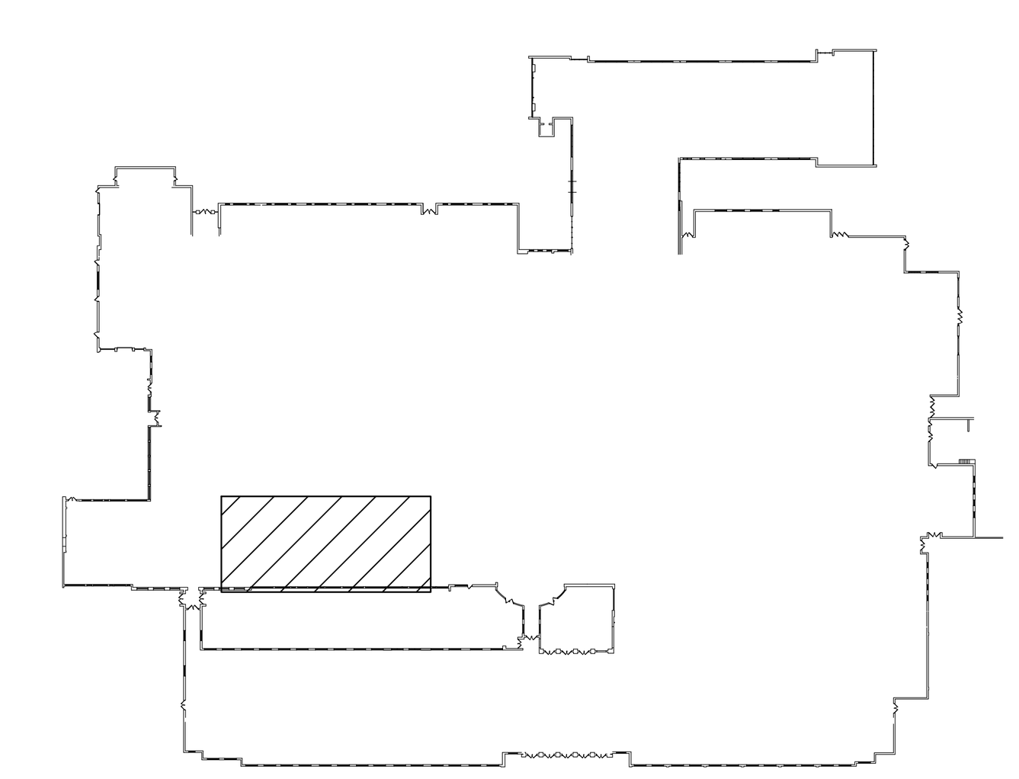
SCALE: 1/8=1'-0

KEYED NOTES – REMOVALS:

1. REMOVE INTAKE DUCTWORK/ DUCT SLEEVES, EXISTING INTAKE LOUVER TO REMAIN.
2. REMOVE EXISTING FLOOR MOUNTED UNIT VENTILATOR. CUT BACK EXISTING PIPING SERVICING UNIT. REMOVE VALVES AND ASSOCIATED. CUT BACK PORTION OF EXISTING FIN TUBE RADIATION AND COVER AS NECESSARY. DISCONNECT EXISTING CONTROLS.
3. REMOVE EXISTING THERMOSTATS/TEMPERATURE SENSORS, INCLUDING CONTROL WIRING, WIRE MOLDING, CONDUIT, AND ASSOCIATED. BMS CONTROL WIRING TO BE REUSED.
4. CAREFULLY REMOVE EXISTING WINDOW AIR CONDITIONER AND INSULATED PANEL AND TURN OVER TO DISTRICT.
5. CUT AND MODIFY RADIANT PIPING AND COVER TO PREPARE FOR NEW WORK. CUT HOLE IN MASONRY FOR NEW SLEEVE AND LINTEL.

GENERAL NOTES:

1. PROVIDE ALL ALTERATIONS, RESTORATIONS, AND REPLACEMENTS NECESSARY TO ACCOMMODATE NEW WORK, INCLUDING FIN TUBE COVERS.
2. PROVIDE FIRESTOP AT ALL INTERIOR WALL AND FLOOR PENETRATIONS.
3. SEE UV-C LIGHTING SCHEDULES FOR NEW AND EXISTING EQUIPMENT.



FIRST FLOOR KEY PLAN

SCALE: NONE

N

ENGINEER:
Eisenbach & Ruhnke Engineering, P.C.
291 Genesee Street - Utica, NY 13501
Ph: 315-735-1916 Fax: 315-735-6365
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JACK EISENBACH
No. 059445
LICENSED PROFESSIONAL ENGINEER

WARWICK VALLEY CENTRAL SCHOOL DISTRICT
HIGH SCHOOL UNIT VENTILATOR REPLACEMENT AND AIR CONDITIONING UPGRADE

225 WEST STREET EXT, WARWICK, NY 10990
WV HIGH SCHOOL – 89 SANFORDVILLE ROAD. WARWICK, NY 10990

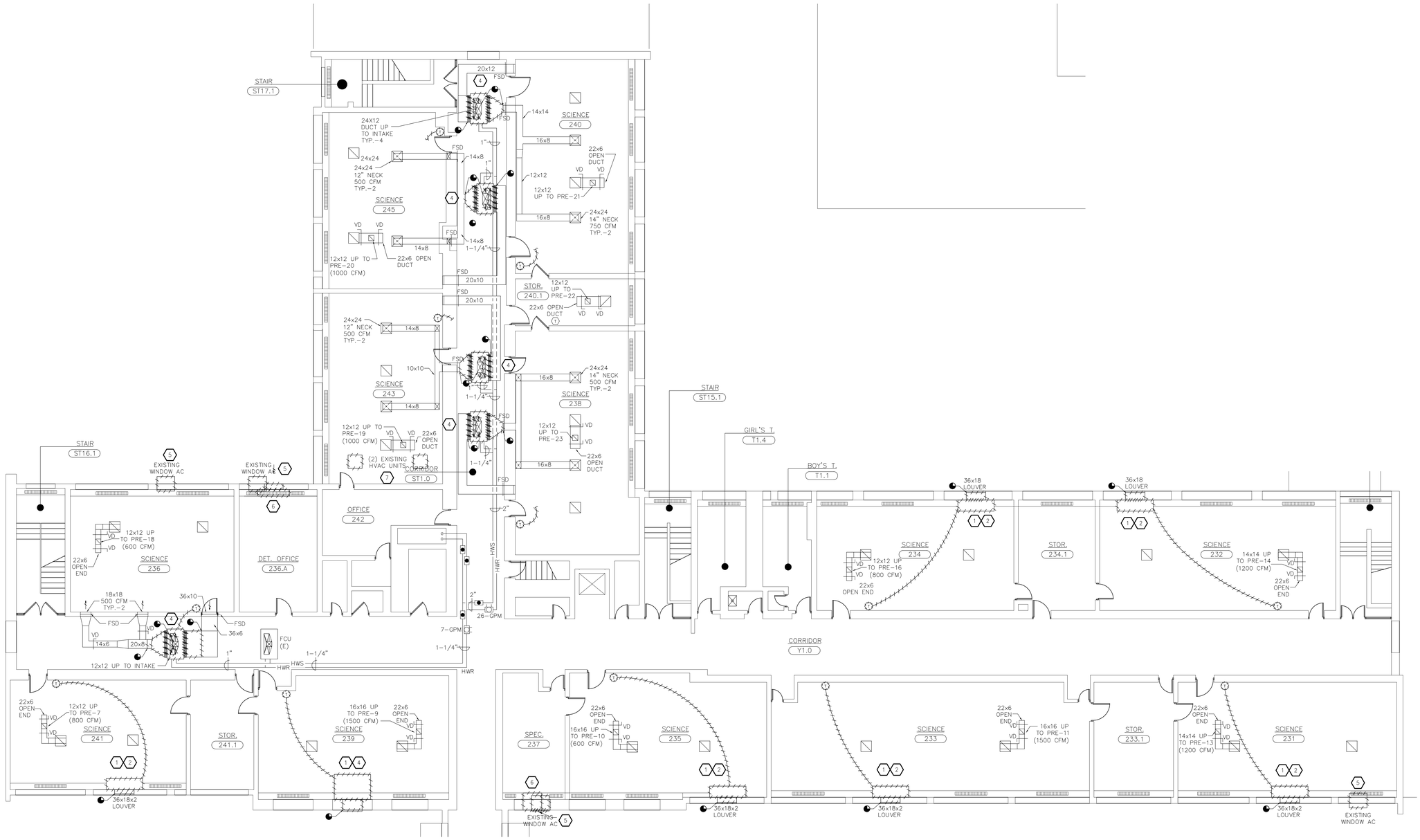
SED NO. 44-21-01-06-0-001-042

PROJECT NO.	05-21-04 05-20-06
ISSUED FOR BID	11.09.2022
SED SET	10.19.2022
REVISION	DATE
DRAWN BY	
CHECKED BY	
SHEET SIZE	30" X 42"
SCALE	AS NOTED

SHEET TITLE
PARTIAL FIRST FLOOR PLAN - REMOVALS

SHEET NO.
MD-101

FILE PATH -N:\1 - PROJECT DIRECTORIES\1- E & R Projects\05 - Warwick Valley CSD\05-21-04 Warwick Federal Grant Project\CAD\Package3.HsUvsVrf\05-21-04.M100-M104, M110.dwg



1 PARTIAL SECOND FLOOR PLAN - REMOVALS

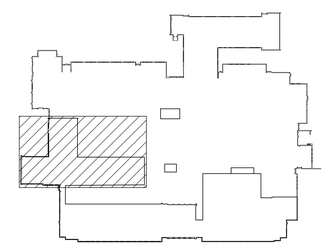
SCALE: 1/8=1'-0

KEYED NOTES – REMOVALS:

1. REMOVE INTAKE DUCTWORK/ DUCT SLEEVES, EXISTING INTAKE LOUVER TO REMAIN.
2. REMOVE EXISTING FLOOR MOUNTED UNIT VENTILATOR. CUT BACK EXISTING PIPING SERVICING UNIT. REMOVE VALVES AND ASSOCIATED. CUT BACK PORTION OF EXISTING FIN TUBE RADIATION AND COVER AS NECESSARY. DISCONNECT EXISTING CONTROLS.
3. REMOVE EXISTING THERMOSTATS/TEMPERATURE SENSORS, INCLUDING CONTROL WIRING, WIRE MOLDING, CONDUIT, AND ASSOCIATED. BMS CONTROL WIRING TO BE REUSED.
4. REMOVE EXISTING CEILING HUNG UNIT VENTILATOR. CUT BACK EXISTING PIPING SERVICING UNIT. REMOVE VALVES AND ASSOCIATED. CUT BACK PORTION OF EXISTING DUCTWORK. REMOVE VIBRATION ISOLATORS AND UNIT SUPPORTS. DISCONNECT EXISTING CONTROLS.
5. CAREFULLY REMOVE EXISTING WINDOW AIR CONDITIONER AND INSULATED PANEL AND TURN OVER TO DISTRICT.
6. CUT AND MODIFY RADIANT PIPING AND COVER TO PREPARE FOR NEW WORK. CUT HOLE IN MASONRY FOR NEW SLEEVE AND LINTEL.
7. REMOVE INDICATED EXISTING HVAC EQUIPMENT IN CLASSROOM AND ANY CORRESPONDING ROOF EQUIPMENT IN ITS ENTIRETY. CUT AND CAP PIPING SERVING UNIT. PATCH AND SEAL ROOF AT PENETRATIONS.

GENERAL NOTES:

1. PROVIDE ALL ALTERATIONS, RESTORATIONS, AND REPLACEMENTS NECESSARY TO ACCOMMODATE NEW WORK, INCLUDING FIN TUBE COVERS.
2. PROVIDE FIRESTOP AT ALL INTERIOR WALL AND FLOOR PENETRATIONS.
3. SEE UV-C LIGHTING SCHEDULES FOR NEW AND EXISTING EQUIPMENT.



SECOND FLOOR KEY PLAN

SCALE: NONE

ENGINEER:
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STATE OF NEW YORK · NICK EISENBACH · No. 050442 · LICENSED PROFESSIONAL ENGINEER

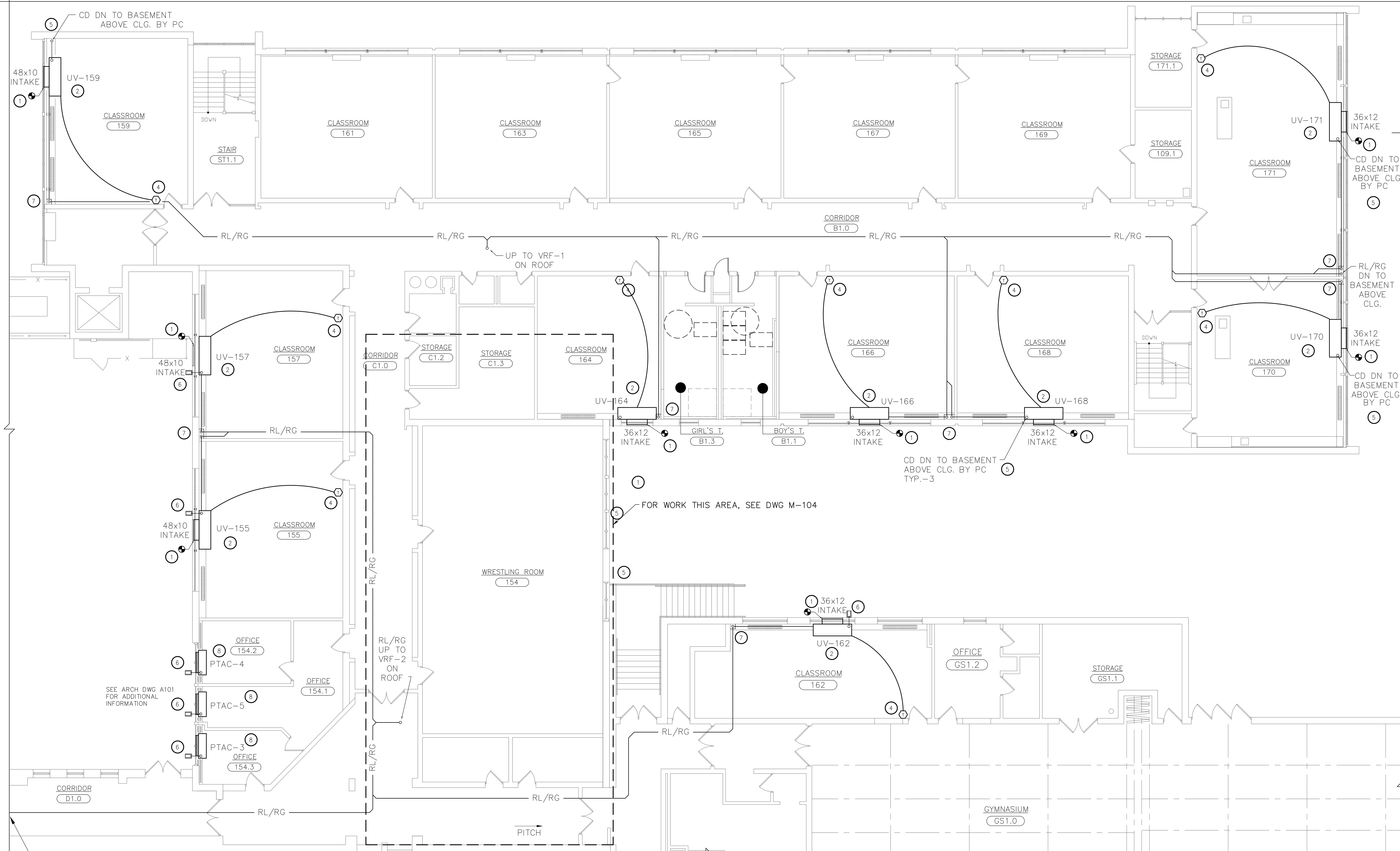
WARWICK VALLEY CENTRAL SCHOOL DISTRICT
HIGH SCHOOL UNIT VENTILATOR REPLACEMENT AND AIR CONDITIONING UPGRADE
225 WEST STREET EXT, WARWICK, NY 10990
WV HIGH SCHOOL – 89 SANFORDVILLE ROAD, WARWICK, NY 10990
SED NO. 44-21-01-06-0-001-042

PROJECT NO.	05-21-04 05-20-06
ISSUED FOR BID	11.09.2022
SED SET	10.19.2022
REVISION	DATE
DRAWN BY	
CHECKED BY	
SHEET SIZE	30" X 42"
SCALE	AS NOTED

SHEET TITLE
PARTIAL SECOND FLOOR PLAN - REMOVALS

SHEET NO.
MD-102

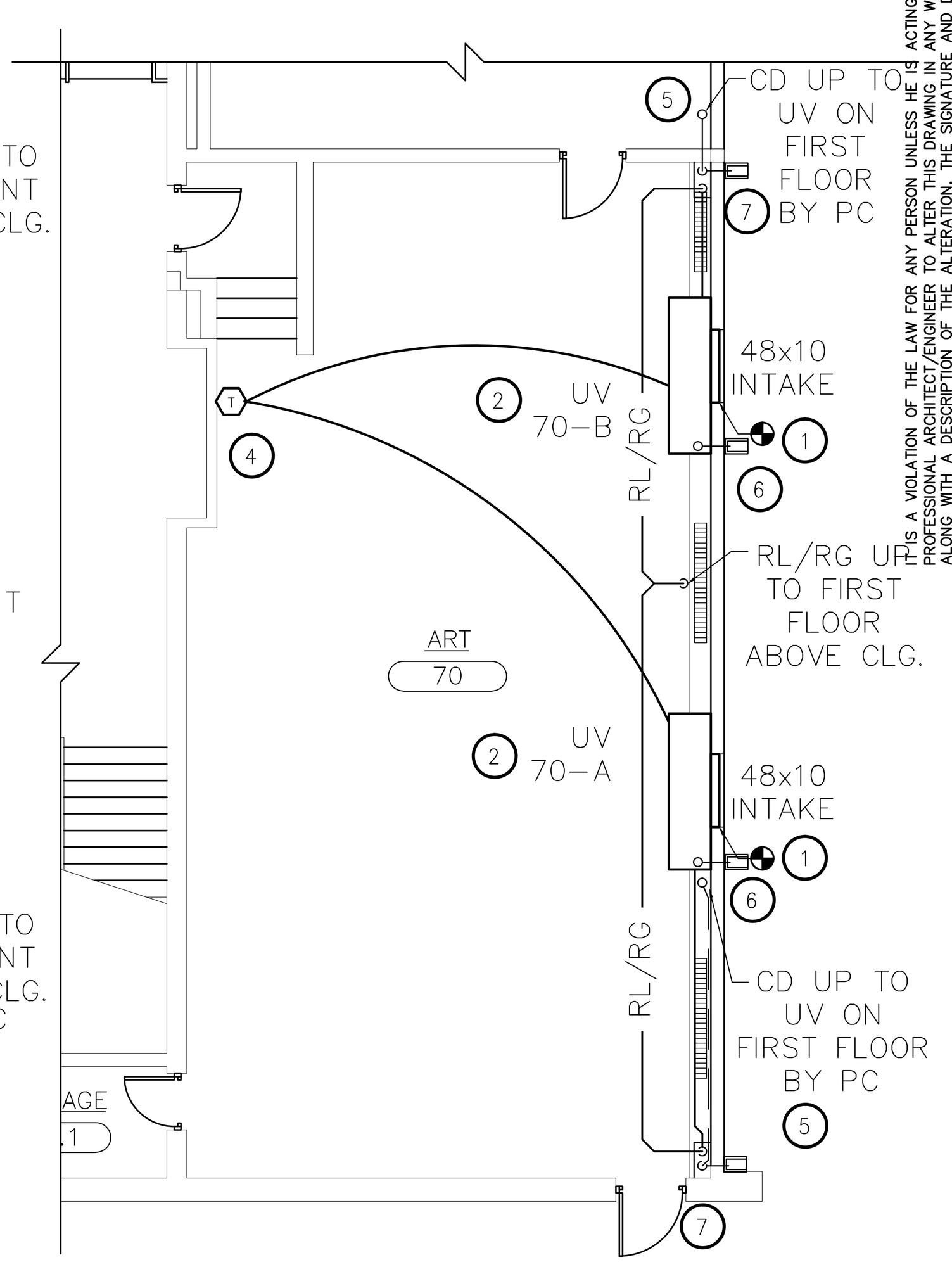
FILE PATH –N:\1 – PROJECT DIRECTORIES\1– E & R Projects\05 – Warwick Valley CSD\05-21-04 Warwick Federal Grant Project\CAD\Packages\HsUvsvr\05-21-04_M100-M104, M110.dwg



2 PARTIAL FIRST FLOOR PLAN - NEW WORK

SCALE: 1/8=1'-0

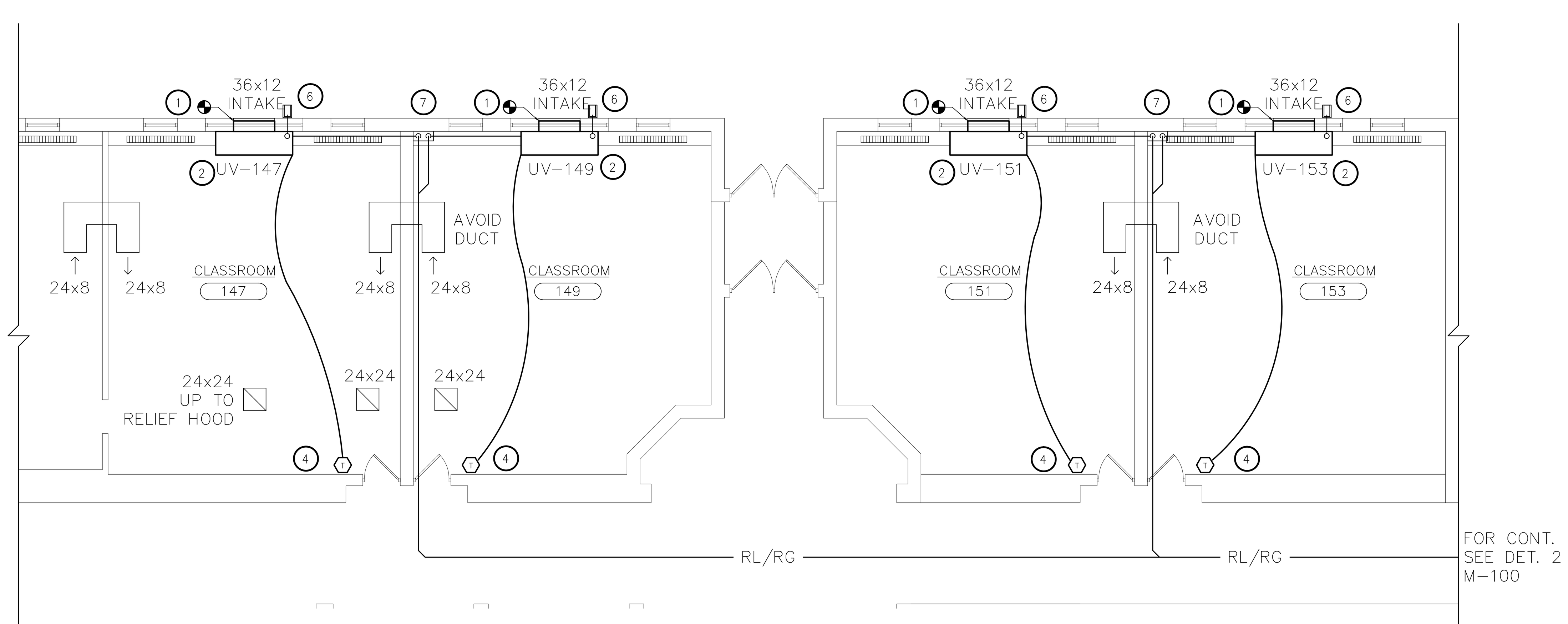
ALL WORK THIS AREA PART OF ALTERNATE ALT. H-1



1 PARTIAL BASEMENT FLOOR PLAN - NEW WORK

SCALE: 1/8=1'-0

ALL WORK THIS AREA PART OF ALTERNATE ALT. H-1



3 PARTIAL FIRST FLOOR PLAN - NEW WORK

SCALE: 1/8=1'-0

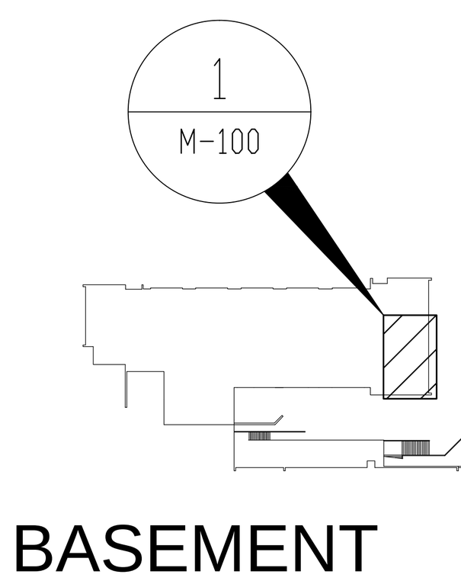
ALL WORK THIS AREA PART OF ALTERNATE ALT. H-1

KEYED NOTES – NEW WORK:

1. PROVIDE INTAKE SLEEVE THROUGH WALL AND CONNECT TO EXISTING INTAKE LOUVER. PROPERLY SUPPORT SLEEVE, CAULK GAPS, AND SEAL AROUND SLEEVE AND INTAKE LOUVER TO MAKE WEATHERTIGHT. VERIFY INTAKE LOUVER IN FIELD.
2. PROVIDE NEW FLOOR MOUNTED UNIT VENTILATORS. SEE SCHEDULE ON M–502. PROVIDE AND CONNECT NEW INSULATED REFRIGERATION PIPING. EXTEND AND PROVIDE PIPING WITH NEW VALVES AND ASSOCIATED TO CONNECT EXISTING HOT WATER PIPING TO NEW UNIT. RECONNECT EXISTING FIN TUBE RADIATION TO RUN BEHIND NEW UNITS. PROVIDE UNIT WITH DRAIN PAN BELOW UNIT COILS AND CONNECT TO CONDENSATE PIPING. RECONNECT AND REUSE CONTROLS WHEN APPLICABLE. PROVIDE ALTERATIONS TO CONTROLS TO MAKE COMPATIBLE WITH NEW UNITS. FIELD VERIFY COIL CONNECTION SIDES BEFORE ORDERING MATERIALS AND EQUIPMENT. REUSE ELECTRICAL CIRCUITS. PROVIDE POWER TO UV'S VRF CONTROLS AND ASSOCIATED.
3. ALL NEW EQUIPMENT TO BE CONNECTED TO AND MONITORED BY THE BMS. COORDINATE WITH DISTRICT CONTROLS VENDER.
4. PROVIDE NEW WIRED TEMPERATURE SENSOR, CONNECT TO SPECIFIED NEW UNIT AND TO BMS. PROVIDE CONTROL WIRING, WIRE MOLDING, CONDUIT, AND ASSOCIATED TO MATCH EXISTING. MOUNT LOCATION AND WIRE PATH TO MATCH EXISTING. BMS CONTROL WIRING TO BE REUSED WHEN APPLICABLE. VERIFY IN FIELD.
5. INDICATED CONDENSATE PIPING AND CONNECTION TO BE PROVIDED BY PLUMBING CONTRACTOR. MECHANICAL CONTRACTOR TO FURNISH PC WITH SPLASHBLOCKS WHERE APPLICABLE. PC WORK SHOWN FOR REFERENCE ONLY.
6. PROVIDE 3/4" COPPER CONDENSATE PIPING TO THE EXTERIOR. SEE DETAILS FOR MORE INFORMATION. MAKE PENETRATIONS TO EXTERIOR WEATHERTIGHT. PROVIDE SPLASHBLOCKS SLOPED AWAY FROM FOUNDATION.
7. PROVIDE AND SUPPORT SHEET METAL PIPE CHASES FOR REFRIGERANT AND/OR CONDENSATE LINES. MATCH ADJACENT FIN TUBE COVER MATERIALS AND COLORS. FIELD VERIFY DIMENSIONS. COORDINATE WITH PLUMBING CONTRACTOR WORK.
8. PROVIDE NEW PTAC UNIT WITH WALL SLEEVE AND LOUVER. SEE SCHEDULE ON M–502. PROVIDE CONTROLLER TO CONNECT TO BMS. EXTEND AND PROVIDE PIPING WITH NEW VALVES AND ASSOCIATED TO CONNECT EXISTING HOT WATER PIPING TO NEW UNIT. RECONNECT EXISTING FIN TUBE RADIATION TO RUN BEHIND NEW UNITS. PROVIDE CONTROLS COMPATIBLE WITH NEW UNIT. FIELD VERIFY COIL CONNECTION SIDES IN FIELD. REUSE ELECTRICAL CIRCUITS.

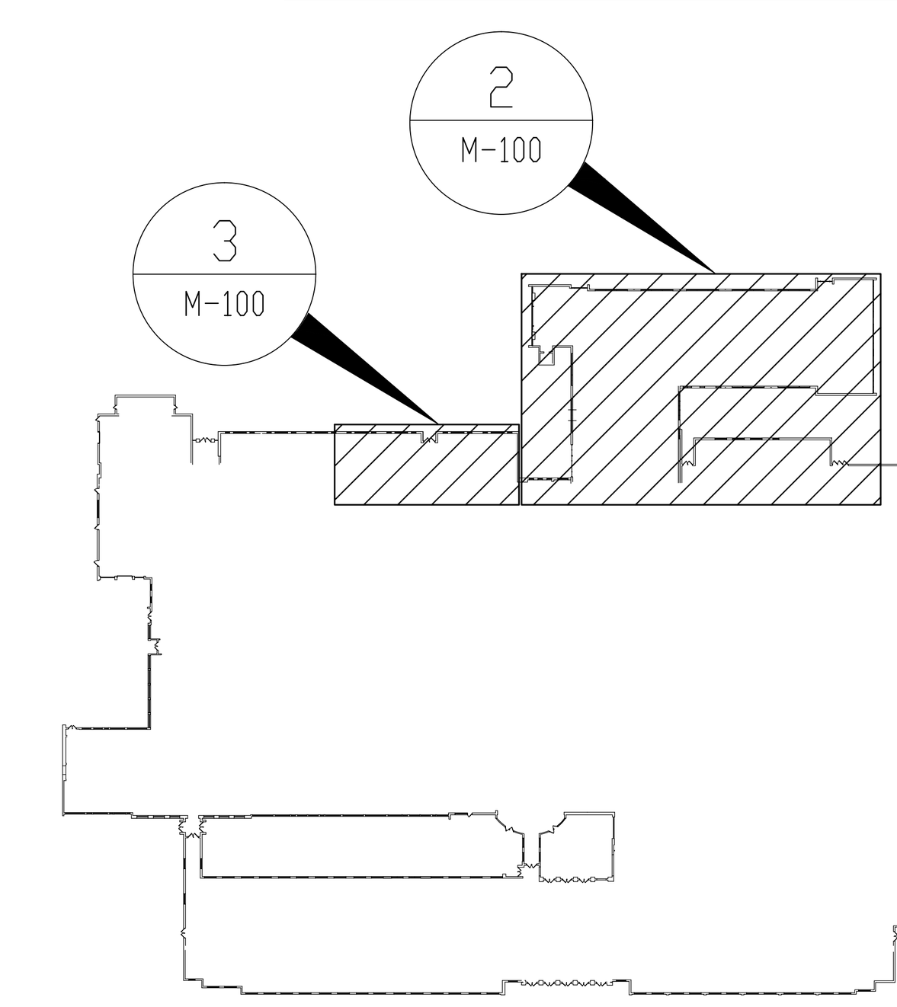
GENERAL NOTES:

1. PROVIDE ALL ALTERATIONS, RESTORATIONS, AND REPLACEMENTS NECESSARY TO ACCOMMODATE NEW WORK, INCLUDING FIN TUBE AND COVERS.
2. PROVIDE FIRESTOP AT ALL INTERIOR WALL AND FLOOR PENETRATIONS.
3. SEE UV–C LIGHTING SCHEDULES FOR NEW AND EXISTING EQUIPMENT.
4. DRAWINGS INDICATE GENERAL DESIGN INTENT ONLY. VERIFY FIELD CONDITIONS BEFORE ORDERING MATERIALS AND EQUIPMENT. IDENTIFY CONFLICTS AND SUBMIT IN WRITING TO ENGINEER.
5. TO ENSURE COMPLIANCE WITH ASHRAE–15, DO NOT RUN REFRIGERANT PIPING IN ROOMS OTHER THAN THOSE SHOWN UNLESS APPROVED BY ENGINEER.
6. FIN TUBE COVERS THAT MUST BE ALTERED TO ACCOMPLISH WORK SHALL REQUIRE THE ADDITION OF FIN TUBE COVER CAPS/ TRIM TO MATCH EXISTING TO COVER NEWLY FORMED GAPS AND SHARP EDGES. COVERS SHALL REMAIN PROPERLY SUPPORTED. ANY WALL NEWLY EXPOSED AFTER ALTERATION TO BE PAINTED TO MATCH SURROUNDING CONDITIONS.



BASEMENT KEY PLAN

SCALE: NONE



FIRST FLOOR KEY PLAN

SCALE: NONE

ENGINEER:
Eisenbach & Ruhnke Engineering, P.C.
291 Genesee Street – Utica, NY 13501
Ph: 315–735–1916 Fax: 315–735–6365
www.erengpc.com

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WARWICK VALLEY CENTRAL SCHOOL DISTRICT
HIGH SCHOOL UNIT VENTILATOR REPLACEMENT AND AIR CONDITIONING UPGRADE

225 WEST STREET EXT, WARWICK, NY 10990

WV HIGH SCHOOL – 89 SANFORDVILLE ROAD. WARWICK, NY 10990

SED NO. 44–21–01–06–0–001–042

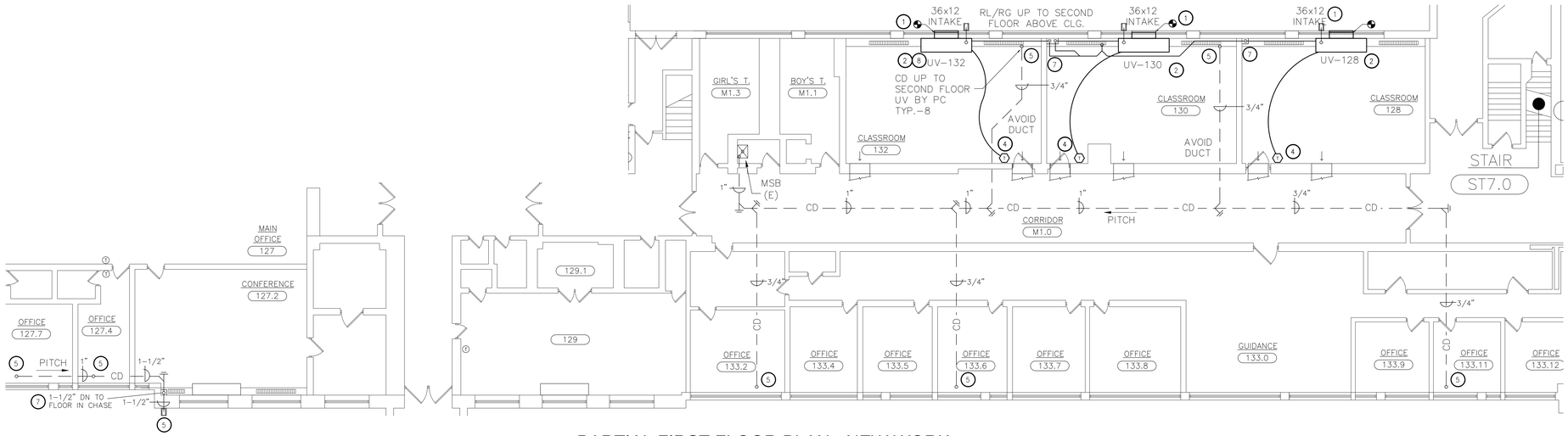
PROJECT NO.	05–21–04 05–20–06
ISSUED FOR BID	11.09.2022
SED SET	10.19.2022
REVISION	DATE
DRAWN BY	
CHECKED BY	
SHEET SIZE	30" X 42"
SCALE	AS NOTED

SHEET TITLE

PARTIAL BASEMENT AND FIRST FLOOR PLANS - NEW WORK

SHEET NO.

M-100



2 PARTIAL FIRST FLOOR PLAN - NEW WORK

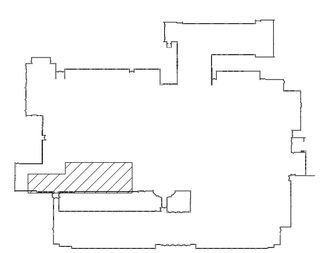
SCALE: 1/8=1'-0

KEYED NOTES – NEW WORK:

1. PROVIDE INTAKE SLEEVE THROUGH WALL AND CONNECT TO NEW INTAKE LOUVER. PROPERLY SUPPORT SLEEVE, CAULK GAPS, AND SEAL AROUND SLEEVE AND INTAKE LOUVER TO MAKE WEATHERTIGHT. PROVIDE LINTEL.
2. PROVIDE NEW FLOOR MOUNTED UNIT VENTILATORS. SEE SCHEDULE ON M-502. PROVIDE AND CONNECT NEW INSULATED REFRIGERATION PIPING. EXTEND AND PROVIDE PIPING WITH NEW VALVES AND ASSOCIATED TO CONNECT EXISTING HOT WATER PIPING TO NEW UNIT. RECONNECT EXISTING FIN TUBE RADIATION TO RUN BEHIND NEW UNITS. PROVIDE UNIT WITH DRAIN PAN BELOW UNIT COILS AND CONNECT TO CONDENSATE PIPING. RECONNECT AND REUSE CONTROLS WHEN APPLICABLE. PROVIDE ALTERATIONS TO CONTROLS TO MAKE COMPATIBLE WITH NEW UNITS. FIELD VERIFY COIL CONNECTION SIDES BEFORE ORDERING MATERIALS AND EQUIPMENT. REUSE ELECTRICAL CIRCUITS. PROVIDE POWER TO UV'S VRF CONTROLS AND ASSOCIATED.
3. ALL NEW EQUIPMENT TO BE CONNECTED TO AND MONITORED BY THE BMS. COORDINATE WITH DISTRICT CONTROLS VENDER.
4. PROVIDE NEW WIRED TEMPERATURE SENSOR, CONNECT TO SPECIFIED NEW UNIT AND TO BMS. PROVIDE CONTROL WIRING, WIRE MOLDING, CONDUIT, AND ASSOCIATED TO MATCH EXISTING. PROVIDE BMS CONTROL WIRING. VERIFY IN FIELD.
5. INDICATED CONDENSATE PIPING AND CONNECTION TO BE PROVIDED BY PLUMBING CONTRACTOR. MECHANICAL CONTRACTOR TO FURNISH PC WITH SPLASHBLOCKS WHERE APPLICABLE. PC WORK SHOWN FOR REFERENCE ONLY.
6. PROVIDE 3/4" COPPER CONDENSATE PIPING TO THE EXTERIOR. SEE DETAILS FOR MORE INFORMATION. MAKE PENETRATIONS TO EXTERIOR WEATHERTIGHT. PROVIDE SPLASHBLOCKS SLOPED AWAY FROM FOUNDATION.
7. PROVIDE AND SUPPORT SHEET METAL PIPE CHASES FOR REFRIGERANT AND/OR CONDENSATE LINES. MATCH ADJACENT FIN TUBE COVER MATERIALS AND COLORS. FIELD VERIFY DIMENSIONS. COORDINATE WITH PLUMBING CONTRACTOR WORK.
8. EXTEND UNIT VENTILATOR HYDRONIC HEATING CIRCUIT TO NEW UNIT VENTILATOR FROM NEAREST MAIN. VERIFY IN FIELD PRIOR TO BID.

GENERAL NOTES:

1. PROVIDE ALL ALTERATIONS, RESTORATIONS, AND REPLACEMENTS NECESSARY TO ACCOMMODATE NEW WORK, INCLUDING FIN TUBE AND COVERS.
2. PROVIDE FIRESTOP AT ALL INTERIOR WALL AND FLOOR PENETRATIONS.
3. SEE UV-C LIGHTING SCHEDULES FOR NEW AND EXISTING EQUIPMENT.
4. DRAWINGS INDICATE GENERAL DESIGN INTENT ONLY. VERIFY FIELD CONDITIONS BEFORE ORDERING MATERIALS AND EQUIPMENT. IDENTIFY CONFLICTS AND SUBMIT IN WRITING TO ENGINEER.
5. TO ENSURE COMPLIANCE WITH ASHRAE-15, DO NOT RUN REFRIGERANT PIPING IN ROOMS OTHER THAN THOSE SHOWN UNLESS APPROVED BY ENGINEER.
6. FIN TUBE COVERS THAT MUST BE ALTERED TO ACCOMPLISH WORK SHALL REQUIRE THE ADDITION OF FIN TUBE COVER CAPS/ TRIM TO MATCH EXISTING TO COVER NEWLY FORMED GAPS AND SHARP EDGES. COVERS SHALL REMAIN PROPERLY SUPPORTED. ANY WALL NEWLY EXPOSED AFTER ALTERATION TO BE PAINTED TO MATCH SURROUNDING CONDITIONS.



FIRST FLOOR KEY PLAN

SCALE: NONE

ENGINEER:
Eisenbach & Ruhnke Engineering, P.C.
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STAMP

STATE OF NEW YORK
JACK EISENBACH
No. 059445
LICENSED PROFESSIONAL ENGINEER

WARWICK VALLEY CENTRAL SCHOOL DISTRICT
HIGH SCHOOL UNIT VENTILATOR REPLACEMENT AND
AIR CONDITIONING UPGRADE
225 WEST STREET EXT, WARWICK, NY 10990
WV HIGH SCHOOL – 89 SANFORDVILLE ROAD. WARWICK, NY 10990
SED NO. 44-21-01-06-0-001-042

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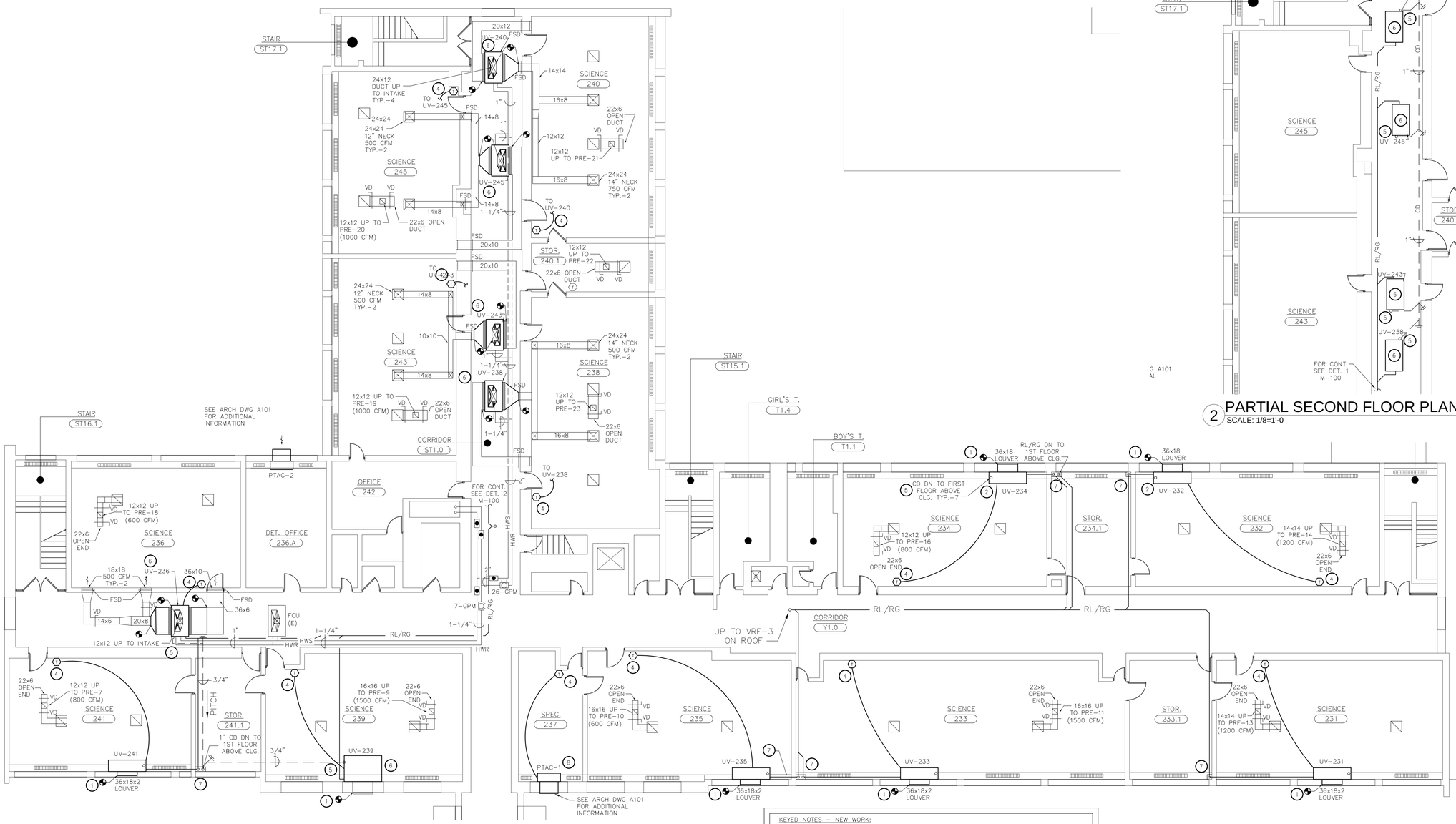
REVISION	DATE
DRAWN BY	
CHECKED BY	
SHEET SIZE	30" X 42"
SCALE	AS NOTED

SHEET TITLE
PARTIAL FIRST FLOOR PLAN - NEW WORK

SHEET NO.
M-101

FILE PATH - N:\1 – PROJECT DIRECTORIES\1- E & R Projects\05 – Warwick Valley CSD\05-21-04 Warwick Federal Grant Project\CAD\Package3\Halo\arVT\05-21-04M100-M104, M110.dwg



1 PARTIAL SECOND FLOOR PLAN - NEW WORK
SCALE: 1/8=1'-0

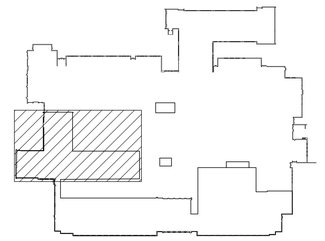
2 PARTIAL SECOND FLOOR PLAN - NEW WORK
SCALE: 1/8=1'-0

KEYED NOTES – NEW WORK:

1. PROVIDE INTAKE SLEEVE THROUGH WALL AND CONNECT TO EXISTING INTAKE LOUVER. PROPERLY SUPPORT SLEEVE, CAULK GAPS, AND SEAL AROUND SLEEVE AND INTAKE LOUVER TO MAKE WEATHERTIGHT.
2. PROVIDE NEW FLOOR MOUNTED UNIT VENTILATOR. SEE SCHEDULE ON M-502. PROVIDE AND CONNECT NEW INSULATED REFRIGERATION PIPING. EXTEND AND PROVIDE PIPING WITH NEW VALVES AND ASSOCIATED TO CONNECT EXISTING HOT WATER PIPING TO NEW UNIT. RECONNECT EXISTING FIN TUBE RADIATION TO RUN BEHIND NEW UNITS. PROVIDE UNIT WITH DRAIN PAN BELOW UNIT COILS AND CONNECT TO CONDENSATE PIPING. RECONNECT AND REUSE CONTROLS WHEN APPLICABLE. PROVIDE ALTERATIONS TO CONTROLS TO MAKE COMPATIBLE WITH NEW UNITS. FIELD VERIFY COIL CONNECTION SIDES BEFORE ORDERING MATERIALS AND EQUIPMENT. REUSE ELECTRICAL CIRCUITS. PROVIDE POWER TO UV'S VRF CONTROLS AND ASSOCIATED.
3. ALL NEW EQUIPMENT TO BE CONNECTED TO AND MONITORED BY THE BMS. COORDINATE WITH DISTRICT CONTROLS VENDER.
4. PROVIDE NEW WIRED TEMPERATURE SENSOR, CONNECT TO SPECIFIED NEW UNIT AND TO BMS. PROVIDE CONTROL WIRING, WIRE MOLDING, CONDUIT, AND ASSOCIATED TO MATCH EXISTING. MOUNT LOCATION AND WIRE PATH TO MATCH EXISTING. BMS CONTROL WIRING TO BE REUSED WHEN APPLICABLE. VERIFY IN FIELD.
5. INDICATED CONDENSATE PIPING AND CONNECTION TO BE PROVIDED BY PLUMBING CONTRACTOR. MECHANICAL CONTRACTOR TO FURNISH PC WITH SPLASHBLOCKS WHERE APPLICABLE. PC WORK SHOWN FOR REFERENCE ONLY.
6. PROVIDE NEW HORIZONTAL UNIT VENTILATOR. SEE SCHEDULE ON M-502. PROVIDE AND CONNECT NEW INSULATED REFRIGERATION PIPING. EXTEND AND PROVIDE PIPING WITH NEW VALVES AND ASSOCIATED TO CONNECT EXISTING HOT WATER PIPING TO NEW UNIT. PROVIDE DUCTWORK TO CONNECT AND TRANSITION SUPPLY, RETURN, AND OUTSIDE AIR DUCTWORK TO NEW UNIT. PROVIDE VIBRATION ISOLATORS AND FLEXIBLE CONNECTIONS. SUPPORT UNIT AND DUCTWORK FROM STRUCTURE. PROVIDE INSULATION TO DUCTWORK. RECONNECT AND REUSE CONTROLS WHEN APPLICABLE. PROVIDE ALTERATIONS TO CONTROLS TO MAKE COMPATIBLE WITH NEW UNITS. FIELD VERIFY COIL CONNECTION SIDES IN FIELD. SEE SPECIFICATIONS REGARDING AN ALLOWANCE FOR REPAIR AND REPLACEMENT OF DUCTWORK INSULATION AS NEEDED.
7. PROVIDE AND SUPPORT SHEET METAL PIPE CHASES FOR REFRIGERANT PIPING AND/OR CONDENSATE PIPING. MATCH ADJACENT FIN TUBE COVER MATERIALS AND COLORS. FIELD VERIFY DIMENSIONS. COORDINATE WITH PLUMBING CONTRACTOR WORK.
8. PROVIDE NEW PTAC UNIT WITH WALL SLEEVE AND LOUVER. SEE SCHEDULE ON M-502. PROVIDE CONTROLLER TO CONNECT TO BMS. EXTEND AND PROVIDE PIPING WITH NEW VALVES AND ASSOCIATED TO CONNECT EXISTING HOT WATER PIPING TO NEW UNIT. RECONNECT EXISTING FIN TUBE RADIATION TO RUN BEHIND NEW UNITS. PROVIDE CONTROLS COMPATIBLE WITH NEW UNIT. FIELD VERIFY COIL CONNECTION SIDES IN FIELD. REUSE ELECTRICAL CIRCUITS.

GENERAL NOTES:

1. PROVIDE ALL ALTERATIONS, RESTORATIONS, AND REPLACEMENTS NECESSARY TO ACCOMMODATE NEW WORK, INCLUDING FIN TUBE AND COVERS.
2. PROVIDE FIRESTOP AT ALL INTERIOR WALL AND FLOOR PENETRATIONS.
3. SEE UV-C LIGHTING SCHEDULES FOR NEW AND EXISTING EQUIPMENT.
4. DRAWINGS INDICATE GENERAL DESIGN INTENT ONLY. VERIFY FIELD CONDITIONS BEFORE ORDERING MATERIALS AND EQUIPMENT. IDENTIFY CONFLICTS AND SUBMIT IN WRITING TO ENGINEER.
5. TO ENSURE COMPLIANCE WITH ASHRAE-15, DO NOT RUN REFRIGERANT PIPING IN ROOMS OTHER THAN THOSE SHOWN UNLESS APPROVED BY ENGINEER.
6. FIN TUBE COVERS THAT MUST BE ALTERED TO ACCOMPLISH WORK SHALL REQUIRE THE ADDITION OF FIN TUBE COVER CAPS/ TRIM TO MATCH EXISTING TO COVER NEWLY FORMED GAPS AND SHARP EDGES. COVERS SHALL REMAIN PROPERLY SUPPORTED. ANY WALL NEWLY EXPOSED AFTER ALTERATION TO BE PAINTED TO MATCH SURROUNDING CONDITIONS.



SECOND FLOOR KEY PLAN
SCALE: NONE

ENGINEER:
Eisenbach & Ruhnke Engineering, P.C.
291 Genesee Street – Utica, NY 13501
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STAMP
STATE OF NEW YORK JACK EISENBACH No. 059445 LICENSED PROFESSIONAL ENGINEER

WARWICK VALLEY CENTRAL SCHOOL DISTRICT
HIGH SCHOOL UNIT VENTILATOR REPLACEMENT AND
AIR CONDITIONING UPGRADE
225 WEST STREET EXT. WARWICK, NY 10990
WV HIGH SCHOOL – 89 SANFORDVILLE ROAD. WARWICK, NY 10990

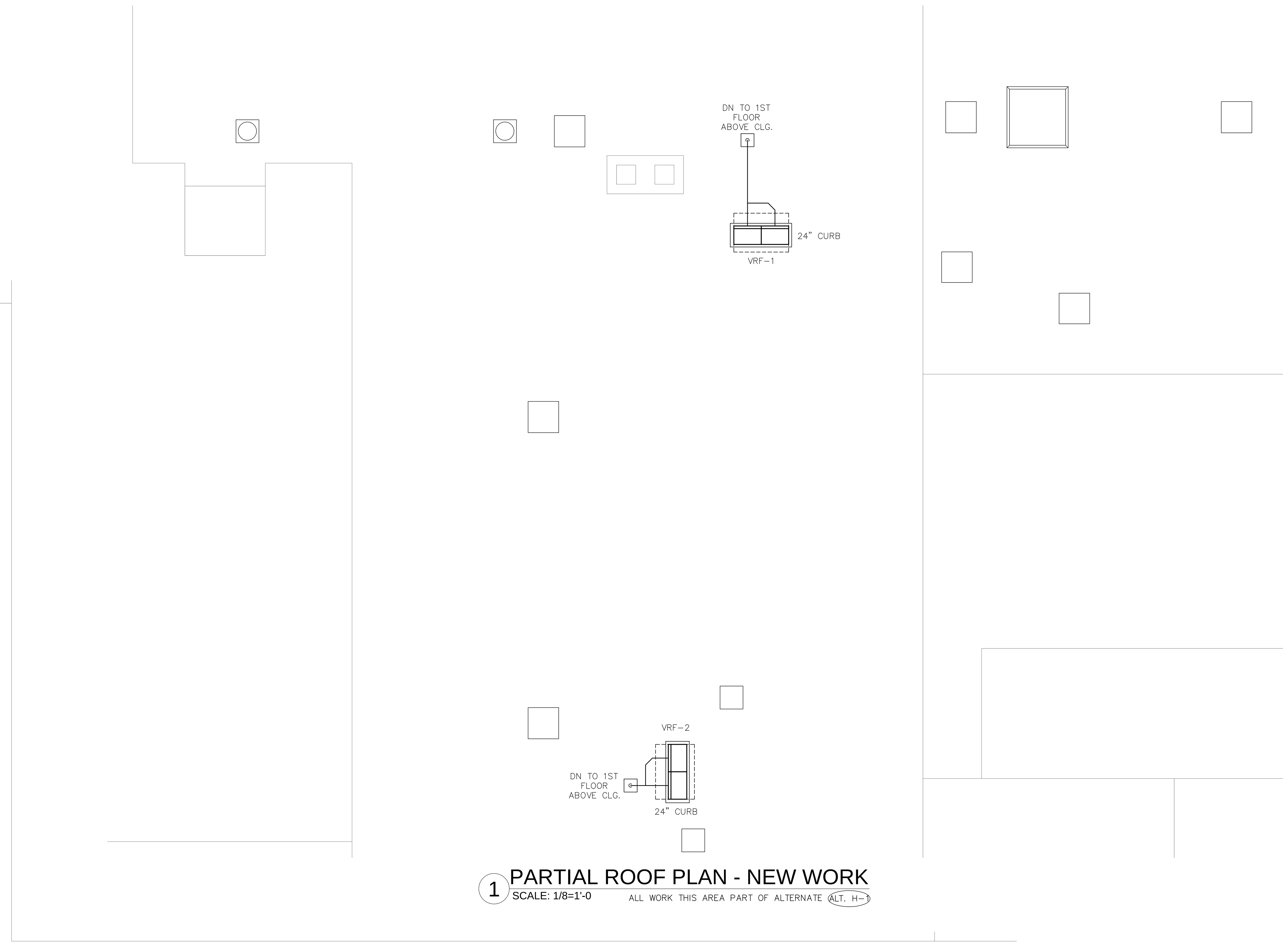
SED NO. 44-21-01-06-0-001-042

PROJECT NO.	05-21-04 05-20-06
ISSUED FOR BID	11.09.2022
SED SET	10.19.2022
REVISION	DATE
DRAWN BY	
CHECKED BY	
SHEET SIZE	30" X 42"
SCALE	AS NOTED

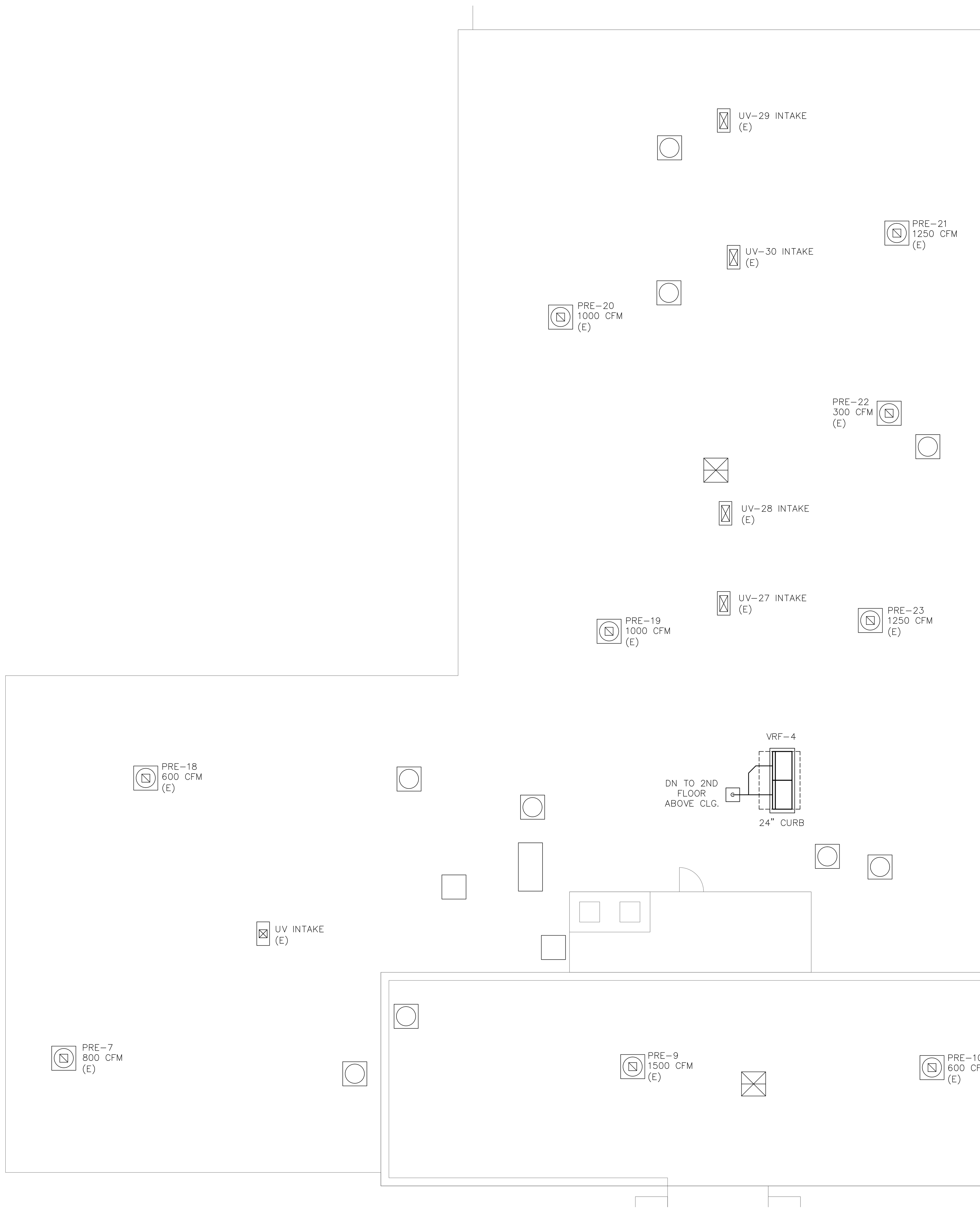
SHEET TITLE
PARTIAL SECOND FLOOR PLAN - NEW WORK

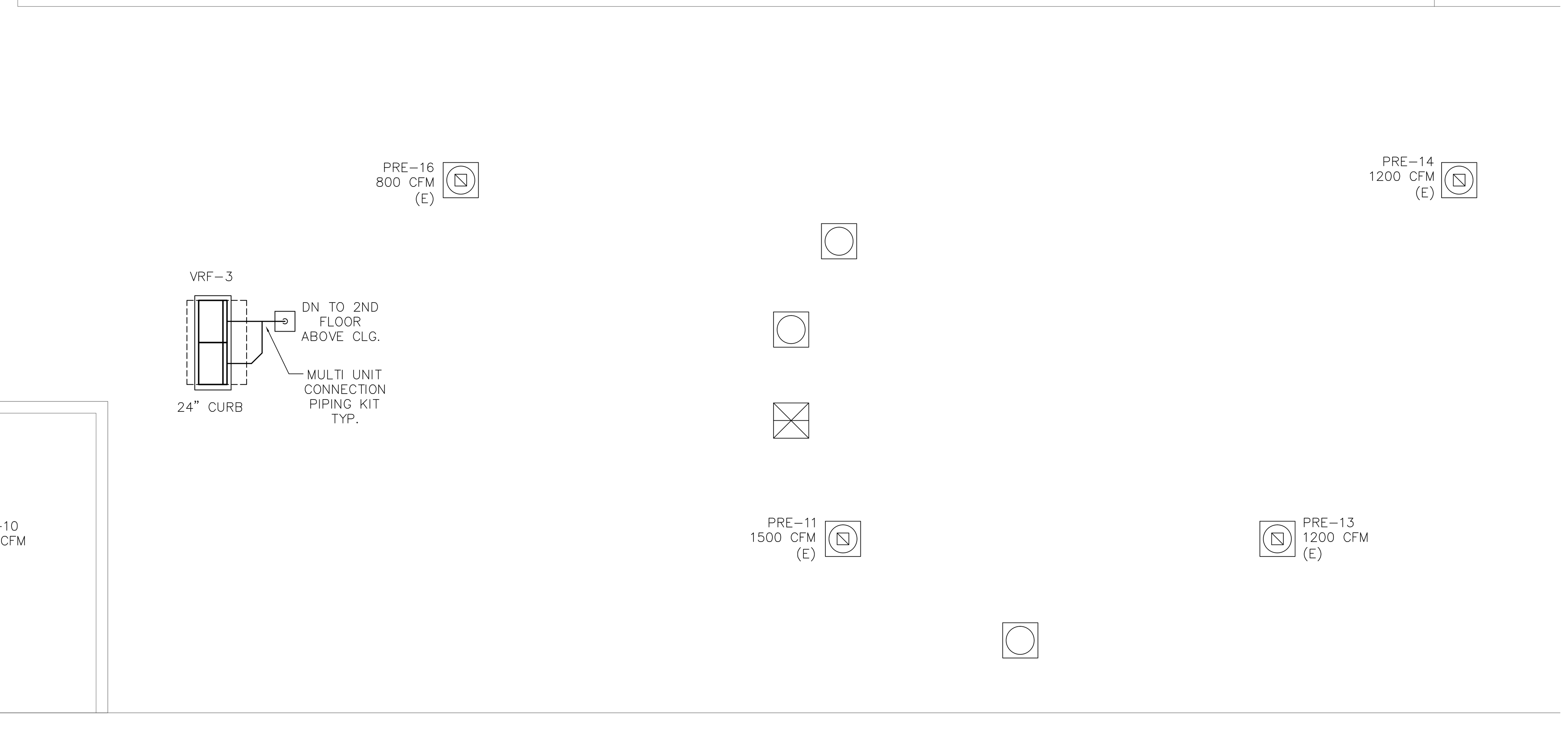
SHEET NO.
M-102

FILE PATH -N:\1 – PROJECT DIRECTORIES\05 – Warwick Valley CSD\05-21-04 Warwick Federal Grant Project\CAD\Package3.Hs\vavrf\05-21-04-M100-M104, M110.dwg



1 PARTIAL ROOF PLAN - NEW WORK
SCALE: 1/8=1'-0
ALL WORK THIS AREA PART OF ALTERNATE ALT. H-1





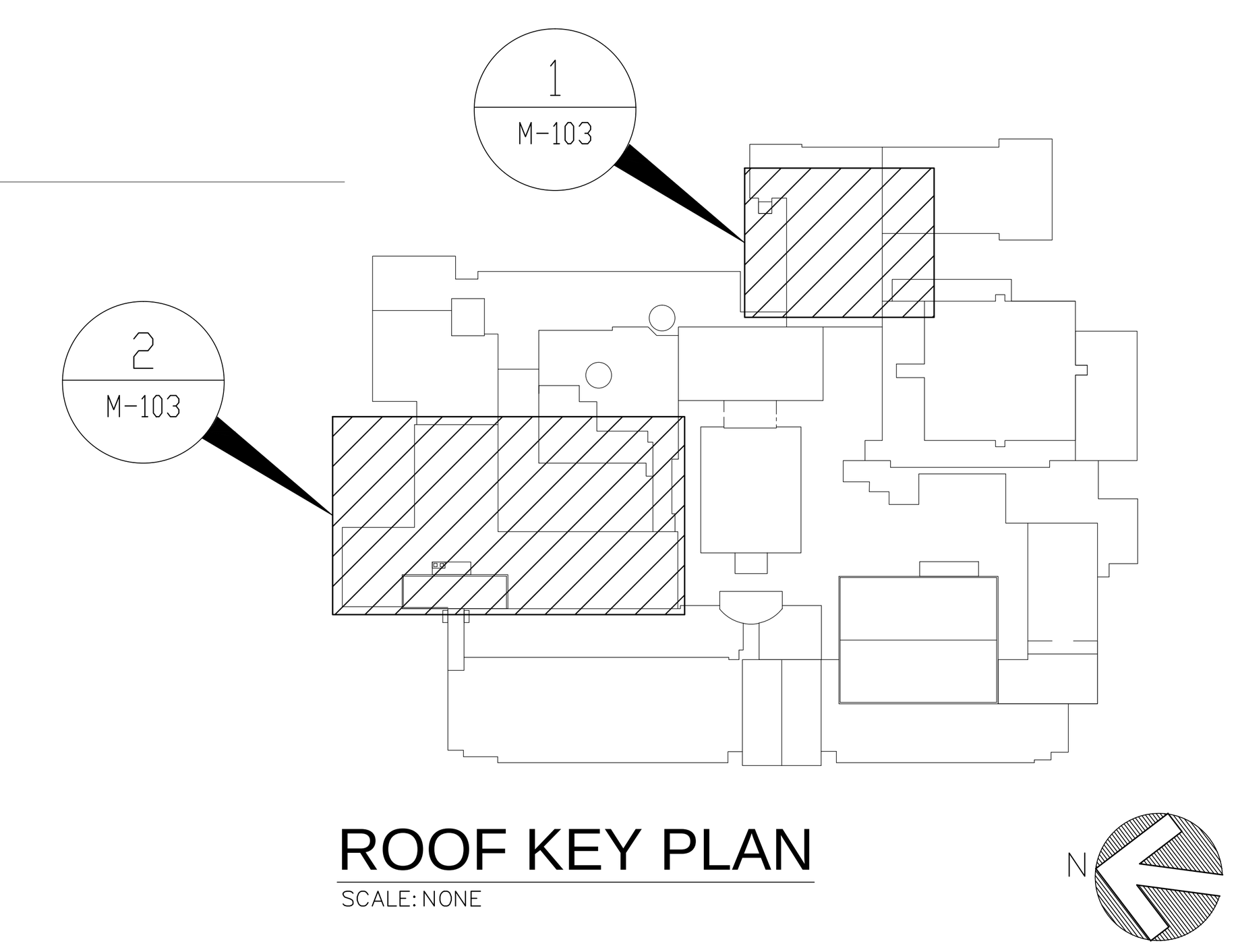
2 PARTIAL ROOF PLAN - NEW WORK
SCALE: 1/8=1'-0

GENERAL NOTES:

1. PROVIDE ALL ALTERATIONS, RESTORATIONS, AND REPLACEMENTS NECESSARY TO ACCOMMODATE NEW WORK.
2. ALL WORK ON ROOF MUST BE COORDINATED TO MAINTAIN ROOF WARRANTY.
3. DRAWINGS INDICATE GENERAL DESIGN INTENT ONLY. VERIFY FIELD CONDITIONS BEFORE ORDERING MATERIALS AND EQUIPMENT. IDENTIFY CONFLICTS AND SUBMIT IN WRITING TO ENGINEER.

KEYED NOTES - NEW WORK:

1. PROVIDE NEW VRF ON NEW 24" CURB. PROVIDE MULTI-UNIT CONNECTION PIPING KIT, REFRIGERANT PIPING, INSULATION, ROOF PIPING SUPPORTS, AND ROOF PIPE PORTAL. SEAL ROOF PENETRATION TO BE WEATHER TIGHT AND TO MAINTAIN ROOF WARRANTY. CONNECT VRF TO BMS.
2. PLACEMENT OF VRFS AND PENETRATIONS ARE APPROXIMATE. VERIFY FIELD CONDITIONS. COORDINATE WITH ALL TRADES.



ROOF KEY PLAN
SCALE: NONE

FILE PATH - N:\1 - PROJECT DIRECTORIES\1- E & R Projects\05 - Warwick Valley CSD\05-21-04 Warwick Federal Grant Project\CAD\Package3.HeUvsrVf\05-21-04.M100-M104, M110.dwg

ENGINEER:
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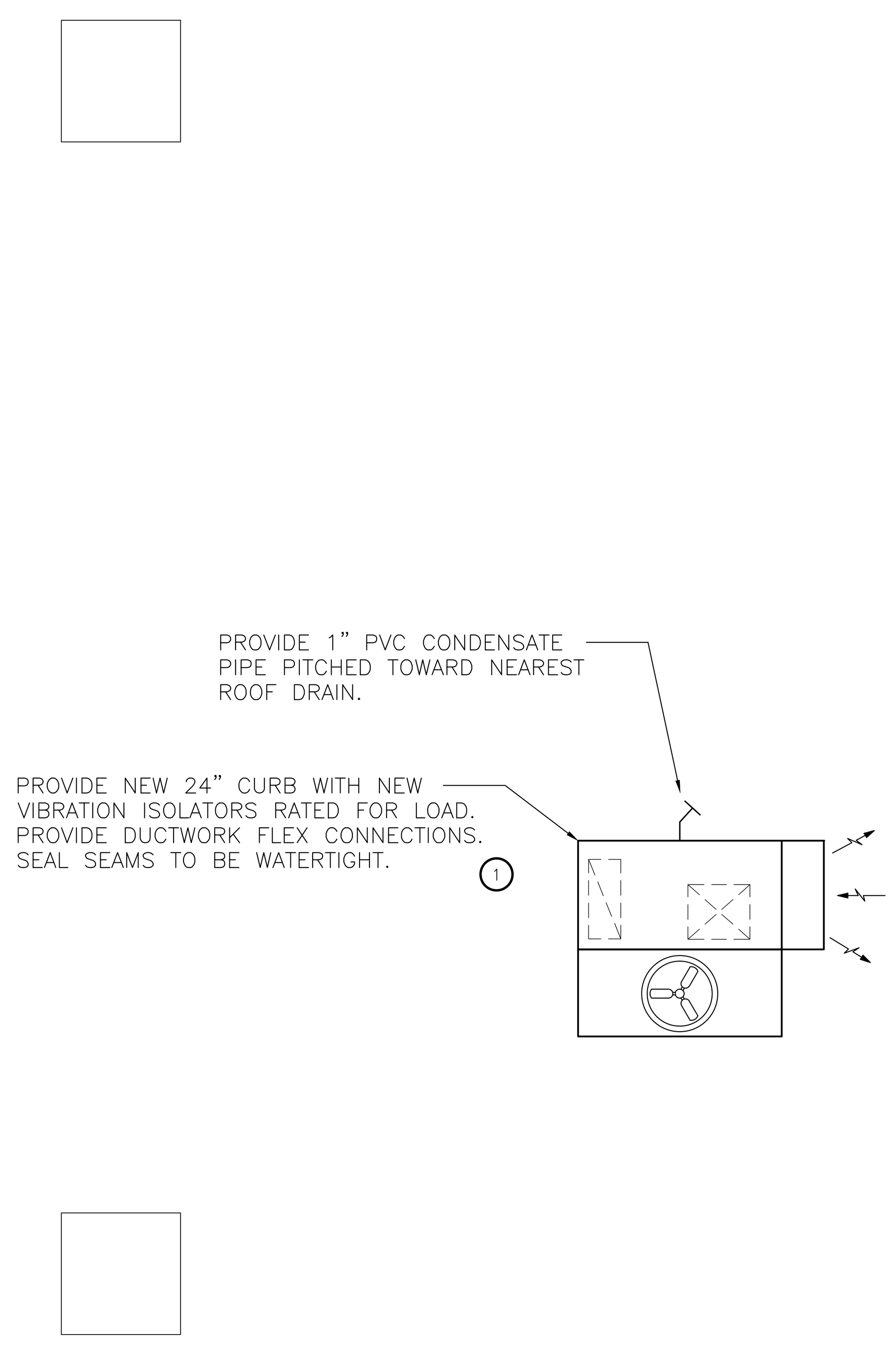
STATE OF NEW YORK
JACK EISENBACH
No. 059445
LICENSED PROFESSIONAL ENGINEER

WARWICK VALLEY CENTRAL SCHOOL DISTRICT
HIGH SCHOOL UNIT VENTILATOR REPLACEMENT AND AIR CONDITIONING UPGRADE
225 WEST STREET EXT, WARWICK, NY 10990
WV HIGH SCHOOL - 89 SANFORDVILLE ROAD, WARWICK, NY 10990
SED NO. 44-21-01-06-0-001-042

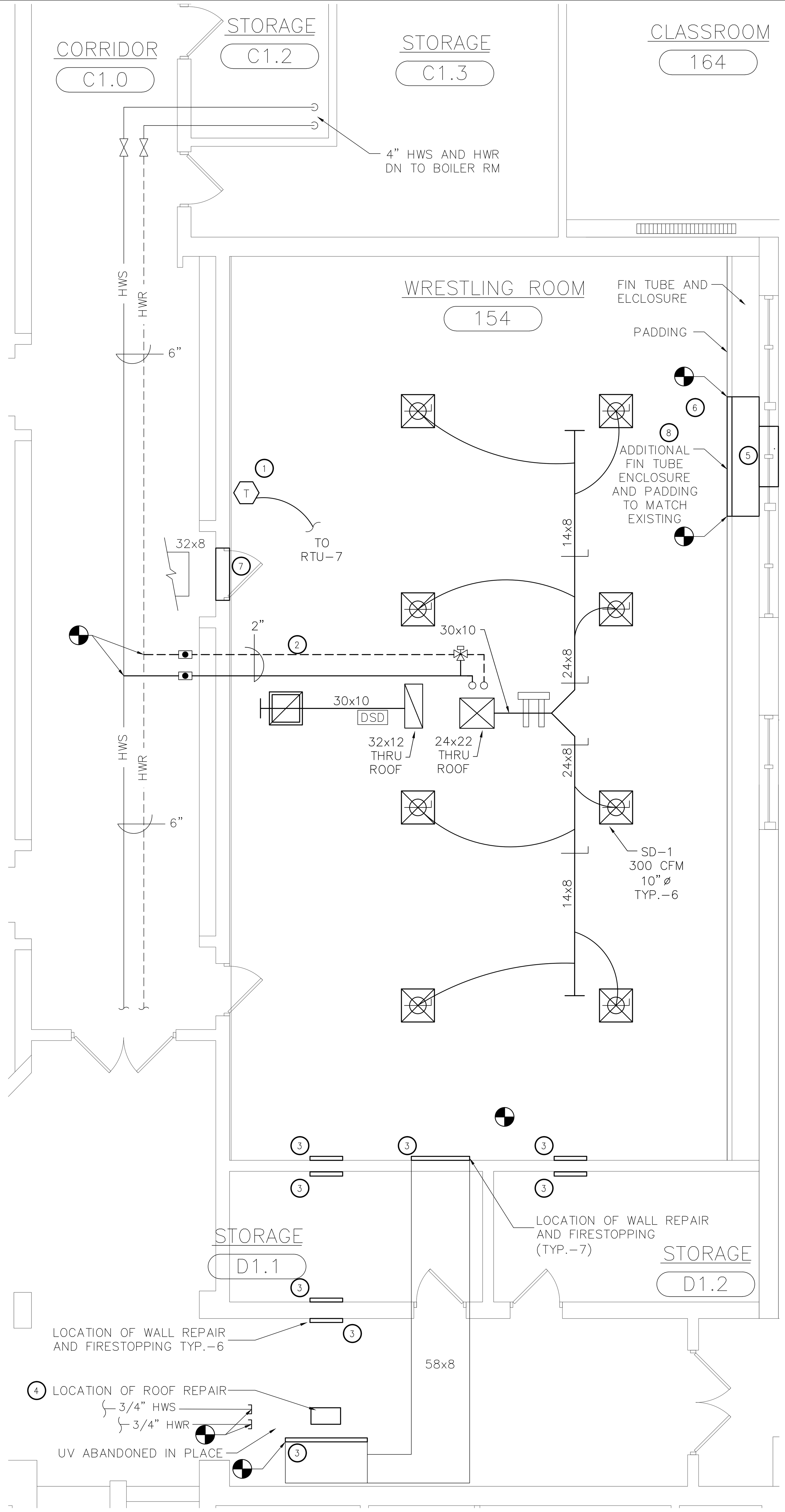
PROJECT NO.	05-21-04 05-20-06
ISSUED FOR BID	11.09.2022
SED SET	10.19.2022
REVISION	DATE
DRAWN BY	
CHECKED BY	
SHEET SIZE	30" X 42"
SCALE	AS NOTED

SHEET TITLE
PARTIAL ROOF PLAN - NEW WORK

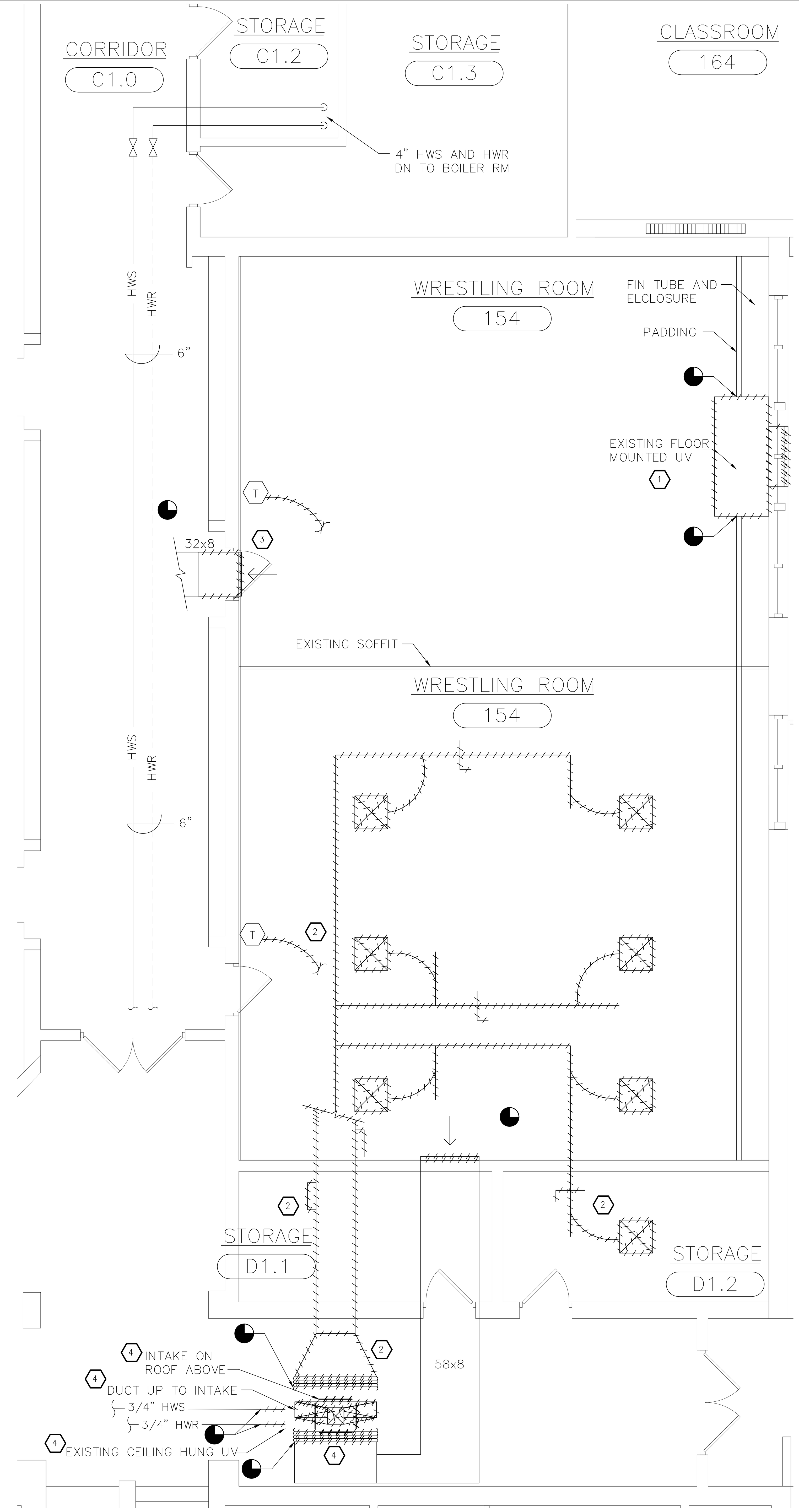
SHEET NO.
M-103



3 PARTIAL ROOF PLAN - WRESTLING ROOM - NEW WORK
SCALE: 1/4=1'-0



2 PARTIAL FIRST FLOOR PLAN - WRESTLING ROOM - NEW WORK
SCALE: 1/4=1'-0



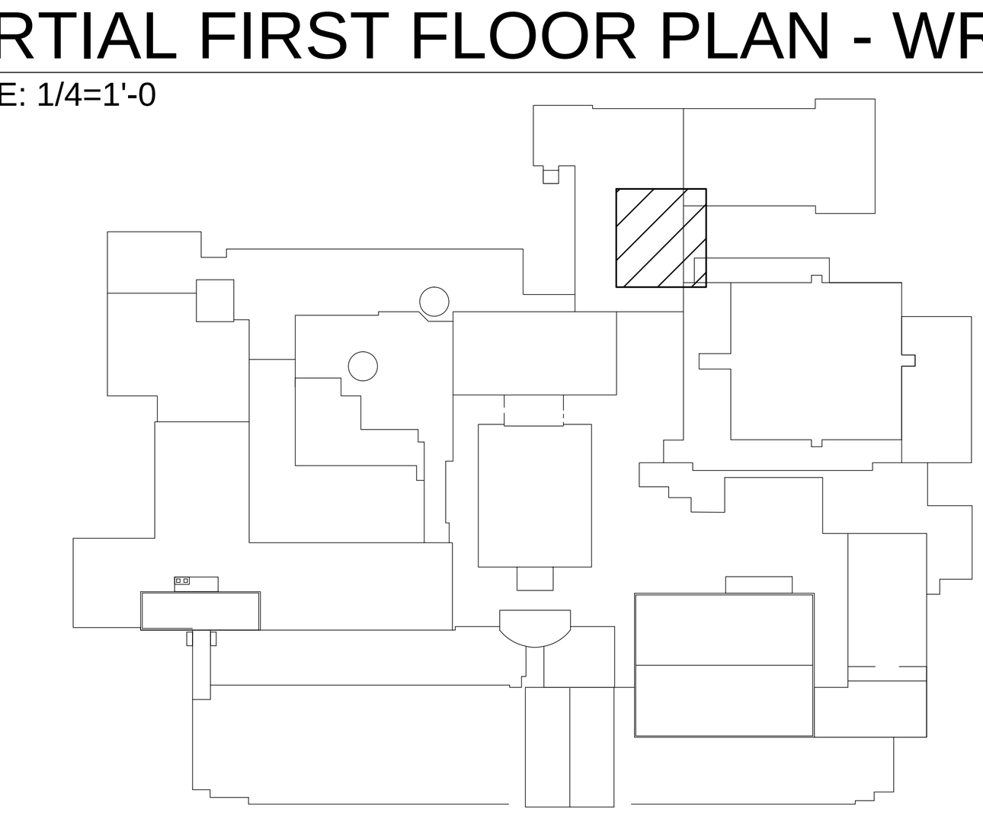
1 PARTIAL FIRST FLOOR PLAN - WRESTLING ROOM - DEMOLITION
SCALE: 1/4=1'-0

KEYED NOTES – NEW WORK:

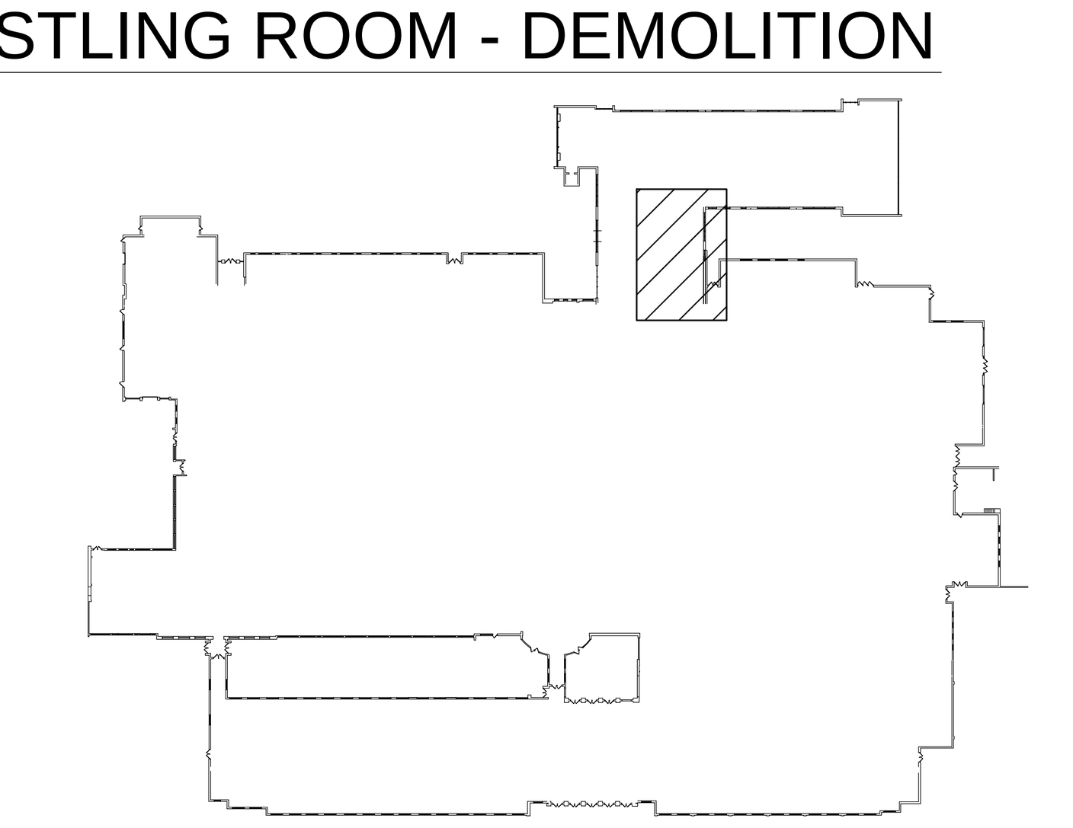
1. PROVIDE RTU AND NEW ROOF CURB. SEE M–502 FOR SCHEDULE. PROVIDE INSULATED DUCTWORK AND SUPPORT FROM STRUCTURE. PROVIDE DAMPERS, DETECTORS, AND ALL APPURTENANCES. SEE NEW WORK PLAN FOR SIZES AND ADDITIONAL NOTES. SEE M–500 AND M–501 FOR DETAILS. PROVIDE NECESSARY ROOF PENETRATIONS AND SEAL TO MAKE WEATHERTIGHT. PROVIDE NEW WIRED TEMPERATURE SENSOR AND CONNECT TO BMS AND NEW RTU.
2. TAP INTO EXISTING HWS & HWR PIPING IN CORRIDOR AND EXTEND 2" HWS & HWR PIPING TO NEW RTU. SEE DETAILS FOR ALL VALVES AND ARRANGEMENT. INSULATE NEW PIPING AND APPLICABLE VALVES.
3. PROVIDE 18 GA STEEL BLANK OFF PANEL ABOVE CEILING LEVEL AND SEAL WITH A UNIFORM BEAD OF FIRE STOPPING. PANELS TO HAVE SMOOTH AND SQUARE CUTS. PAINT TO MATCH SURROUNDING CONDITIONS.
4. REPAIR AND PATCH ROOF PENETRATION. SEAL TO MAKE WEATHERTIGHT AND MAINTAIN WARRANTY.
5. SEE ARCH DRAWINGS REGARDING BLOCKING UP EXISTING INTAKE OPENING.
6. PROVIDE CUSTOM FINTUBE ENCLOSURE TO CLOSELY MATCH ADJACENT ENCLOSURES. PROVIDE ATHLETIC SURFACE PADDING TO MATCH SURROUNDING PADDING. COORDINATE WITH DISTRICT.
7. FILL AND REPAIR WALL PENETRATION ABOVE DOORWAY TO MATCH SURROUNDING MATERIALS AND PAINT TO MATCH ADJACENT WALL SPACE.

KEYED NOTES – REMOVALS:

1. REMOVE EXISTING FLOOR MOUNTED UNIT VENTILATOR, SLEEVE, AND INTAKE LOUVER. CUT AND CAP SUPPLY AND RETURN PIPING. REMOVE EXISTING UNIT'S THERMOSTAT, INCLUDING WIREMOLD, CONTROL WIRING, AND CONDUIT. THERMOSTAT AND CONTROL WIRING FOR FIN TUBE TO REMAIN. DISCONNECT EXISTING UV CONTROLS AND REMOVE FROM BMS UI.
2. REMOVE EXISTING DUCTWORK AND ASSOCIATED ABOVE CEILING. DISCONNECT AT POINT SHOWN.
3. REMOVE TRANSFER GRILL AND PORTION OF TRANSFER DUCTWORK. DISCONNECT AT POINT SHOWN.
4. DISCONNECT AND REMOVE PORTION OF DUCTWORK FROM CEILING HUNG UV AS SHOWN. OUTDOOR AIR DUCTWORK AND INTAKE ON ROOF TO BE REMOVED IN THEIR ENTIRETY. CUT AND CAP EXISTING SUPPLY AND RETURN HW PIPING. REMOVE EXISTING UNIT'S THERMOSTAT, INCLUDING WIREMOLD, CONTROL WIRING, AND CONDUIT. THERMOSTAT AND ASSOCIATED FOR FIN TUBE TO REMAIN. DISCONNECT EXISTING UV CONTROLS AND REMOVE FROM BMS UI. DISCONNECT FROM SERVICE AND ABANDON UV IN PLACE.



ROOF KEY PLAN
SCALE: NONE



FIRST FLOOR KEY PLAN
SCALE: NONE

ENGINEER:
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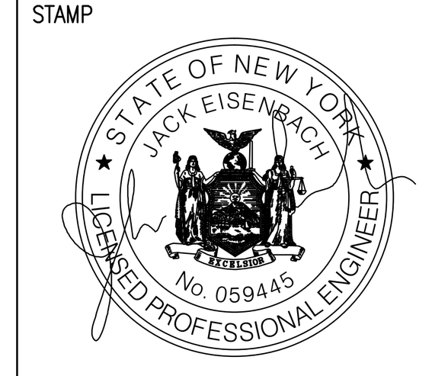


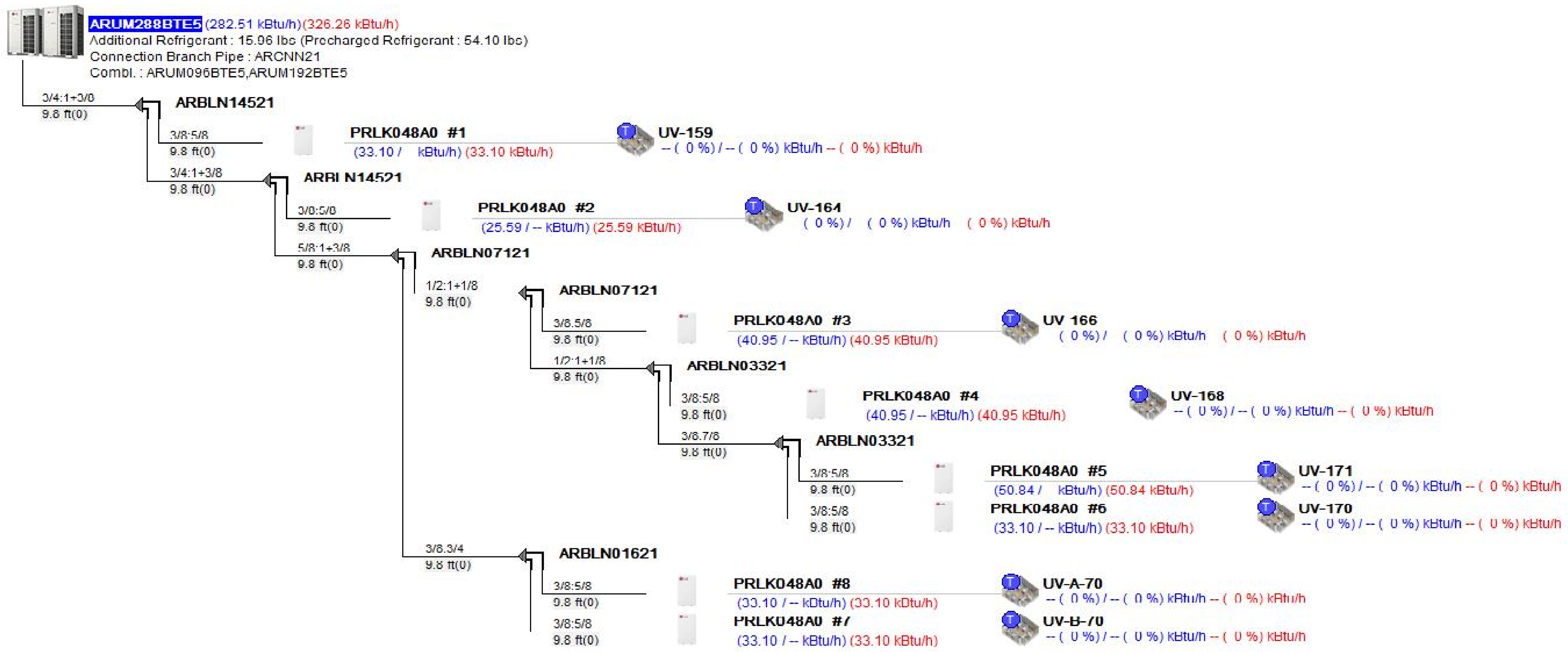
WARWICK VALLEY CENTRAL SCHOOL DISTRICT
HIGH SCHOOL UNIT VENTILATOR REPLACEMENT AND AIR CONDITIONING UPGRADE
225 WEST STREET EXT, WARWICK, NY 10990
WV HIGH SCHOOL – 89 SANFORDVILLE ROAD, WARWICK, NY 10990
SED NO. 44-21-01-06-0-001-042

PROJECT NO.	05–21–04 05–20–06
ISSUED FOR BID	11.09.2022
SED SET	10.19.2022
REVISION	DATE
DRAWN BY	
CHECKED BY	
SHEET SIZE	30" X 42"
SCALE	AS NOTED

SHEET TITLE
WRESTLING ROOM - DEMOLITION AND NEW WORK

SHEET NO.
HS
M-104

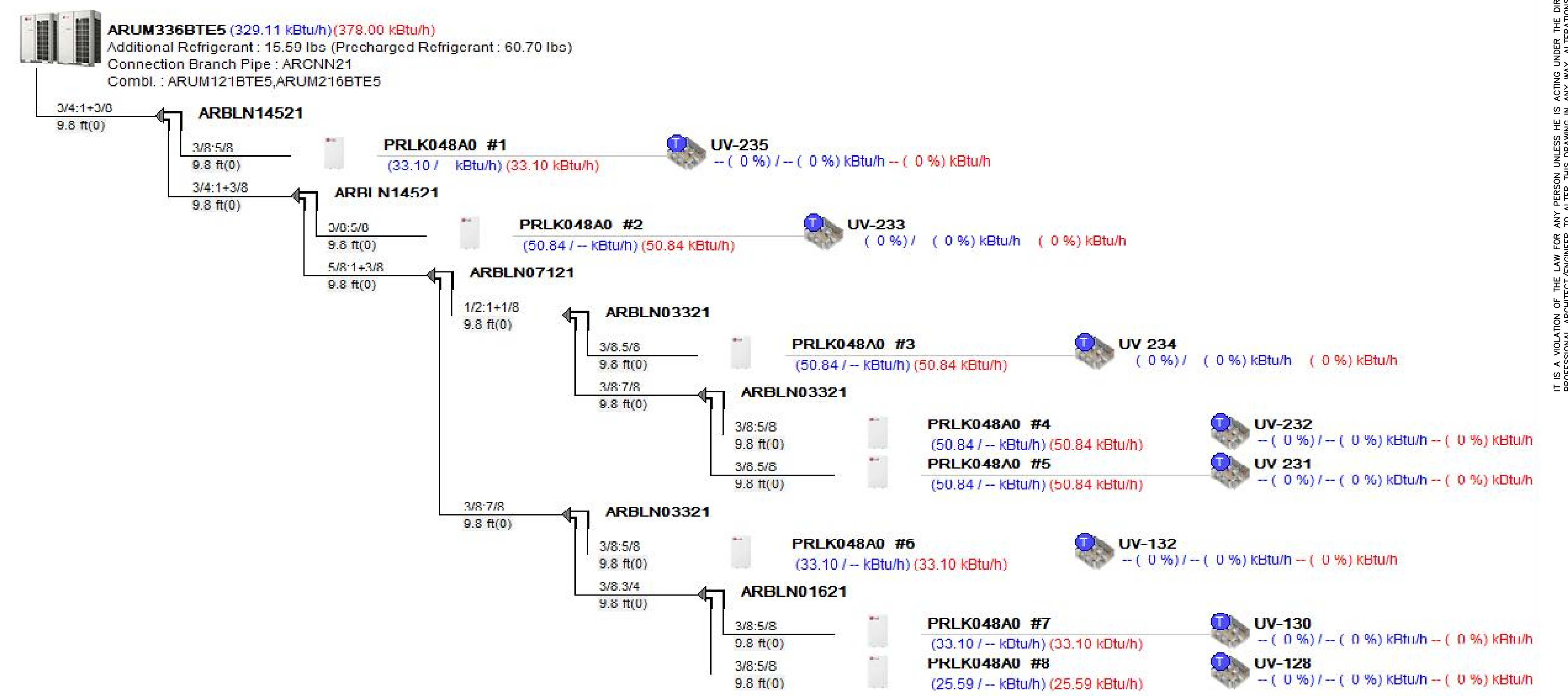
FILE PATH –N:\1 – PROJECT DIRECTORIES\1– E & R Projects\05 – Warwick Valley CSD\05–21–04 Warwick Federal Grant Project\CAD\Package3.HsUvsVrf\05–21–04.M100–M104, M110.dwg



Thermostat, Group Control, Dry Contact
S AHU Comm. Kit [Discharge (supply) air], R AHU Comm. Kit [Return air]
M AHU Comm. Kit [Main module], C AHU Comm. Kit [Communications module]

Indoor Units	: 8 of 45
Combination Ratio	: 290.7 of 288.0 (101%)
Total Pipe	: 147.0 of 3280.8 ft
ODU factory charge	: 54.10 lbs
Additional Refrigerant	: 15.96 lbs
Total refrigerant	: 70.06 lbs
Minimum room volume	: 2094.70 ft³
(Based on 26.0 lbs / 1000.0 ft³)	

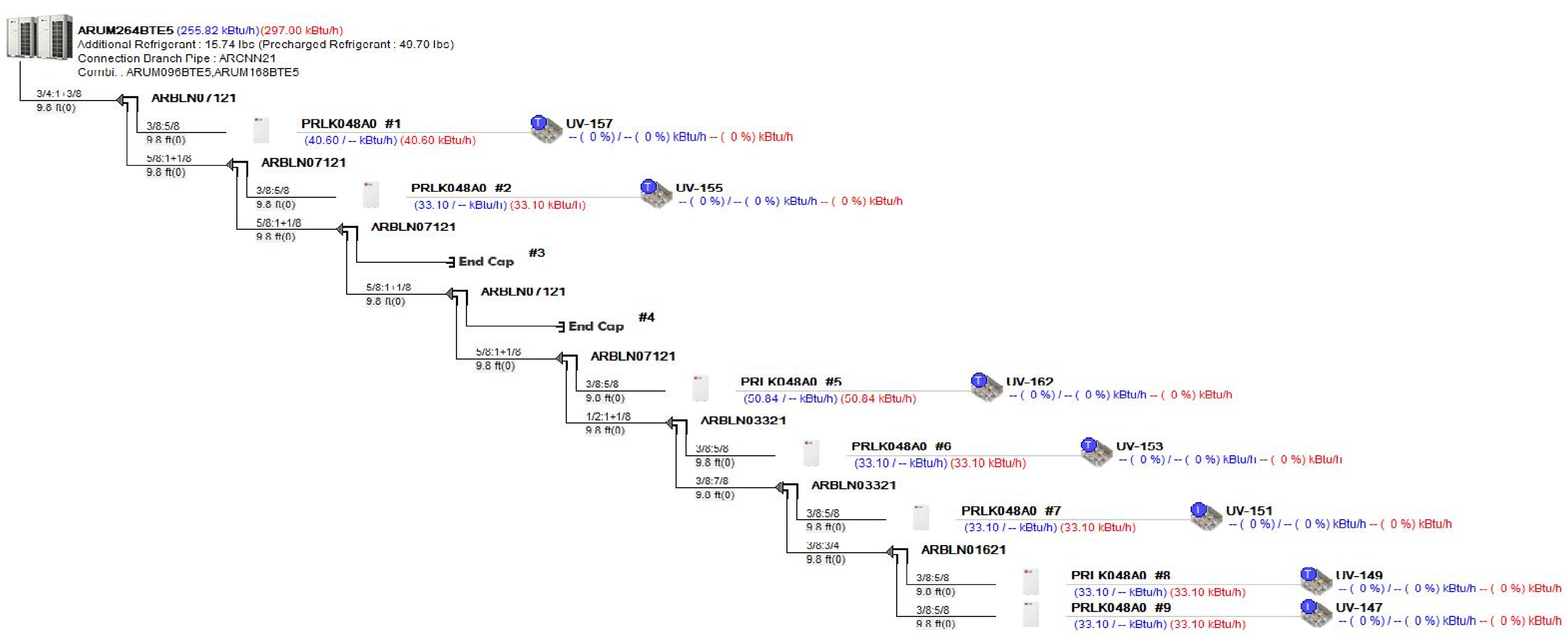
1 ONE LINE DIAGRAM - VRF-1
SCALE: NONE — ALL WORK THIS AREA PART OF ALTERNATE ALT. H-1



Thermostat, Group Control, Dry Contact
S AHU Comm. Kit [Discharge (supply) air], R AHU Comm. Kit [Return air]
M AHU Comm. Kit [Main module], C AHU Comm. Kit [Communications module]

Indoor Units	: 8 of 55
Combination Ratio	: 328.2 of 336.0 (98%)
Total Pipe	: 147.0 of 3280.8 ft
ODU factory charge	: 60.70 lbs
Additional Refrigerant	: 15.59 lbs
Total refrigerant	: 76.29 lbs
Minimum room volume	: 2934.11 ft³
(Based on 26.0 lbs / 1000.0 ft³)	

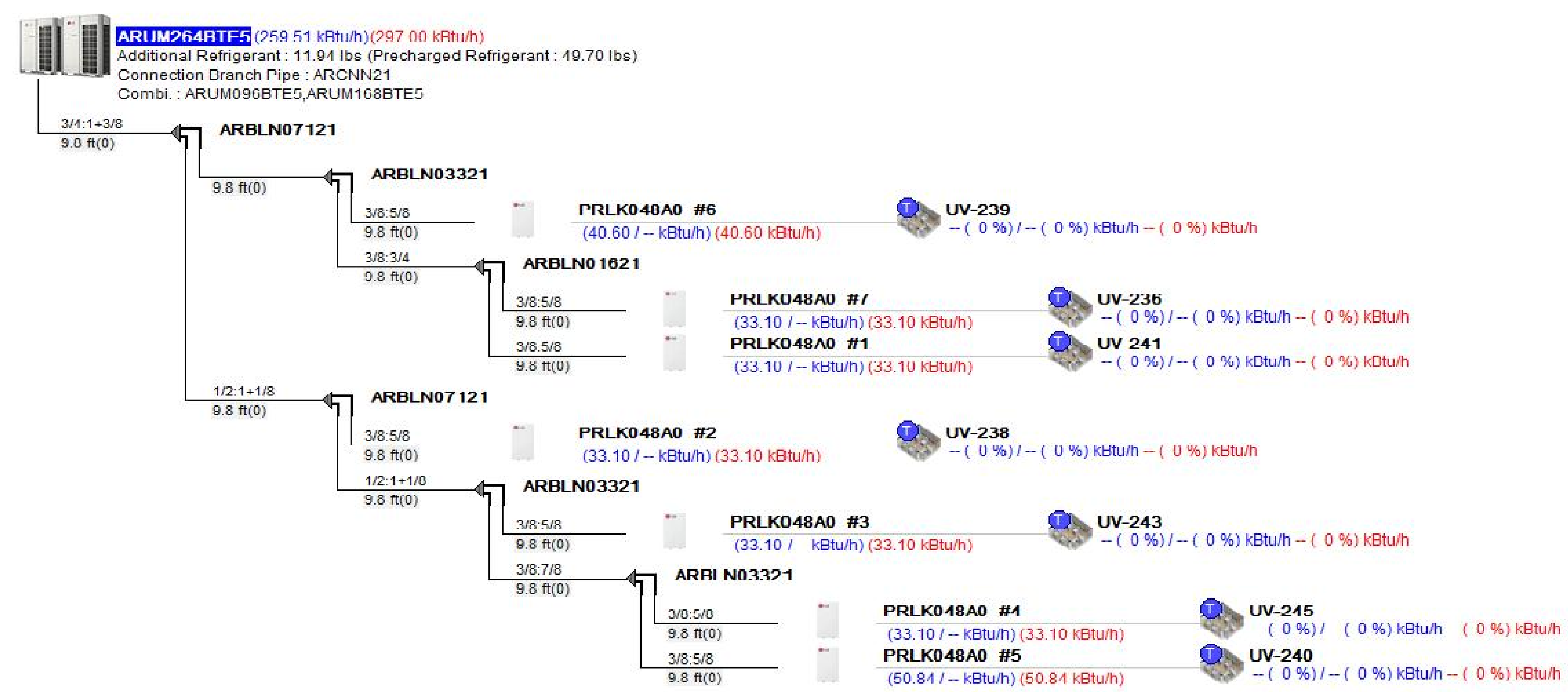
3 ONE LINE DIAGRAM - VRF-3
SCALE: NONE



Thermostat, Group Control, Dry Contact
S AHU Comm. Kit [Discharge (supply) air], R AHU Comm. Kit [Return air]
M AHU Comm. Kit [Main module], C AHU Comm. Kit [Communications module]

Indoor Units	: 7 of 42
Combination Ratio	: 256.9 of 264.0 (97%)
Total Pipe	: 147.6 of 3280.8 ft
ODU factory charge	: 49.70 lbs
Additional Refrigerant	: 15.74 lbs
Total refrigerant	: 65.44 lbs
Minimum room volume	: 2516.93 ft³
(Based on 26.0 lbs / 1000.0 ft³)	

2 ONE LINE DIAGRAM - VRF-2
SCALE: NONE — ALL WORK THIS AREA PART OF ALTERNATE ALT. H-1



Thermostat, Group Control, Dry Contact
S AHU Comm. Kit [Discharge (supply) air], R AHU Comm. Kit [Return air]
M AHU Comm. Kit [Main module], C AHU Comm. Kit [Communications module]

Indoor Units	: 7 of 42
Combination Ratio	: 256.9 of 264.0 (97%)
Total Pipe	: 128.0 of 3280.8 ft
ODU factory charge	: 49.70 lbs
Additional Refrigerant	: 11.94 lbs
Total refrigerant	: 61.64 lbs
Minimum room volume	: 2370.91 ft³
(Based on 26.0 lbs / 1000.0 ft³)	

4 ONE LINE DIAGRAM - VRF-4
SCALE: NONE

BASIS OF DESIGN:
LG ELECTRONICS USA, INC.

GENERAL NOTES:
1. GENERAL INTENT FOR SYSTEM ROUTING AND SIZING FOR BIDDING PURPOSES ONLY. PIPE SIZING AND ROUTING SHALL BE VERIFIED WITH MANUFACTURER AND BE BASED ON FINAL LOCATIONS OF EQUIPMENT. INSTALL AND CHARGE SYSTEM PER MANUFACTURER RECOMMENDATIONS.

ENGINEER:
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STAMP

WARWICK VALLEY CENTRAL SCHOOL DISTRICT
HIGH SCHOOL UNIT VENTILATOR REPLACEMENT AND AIR CONDITIONING UPGRADE
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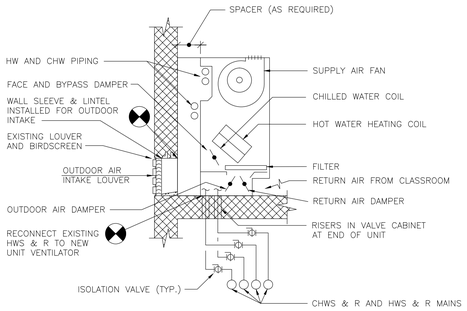
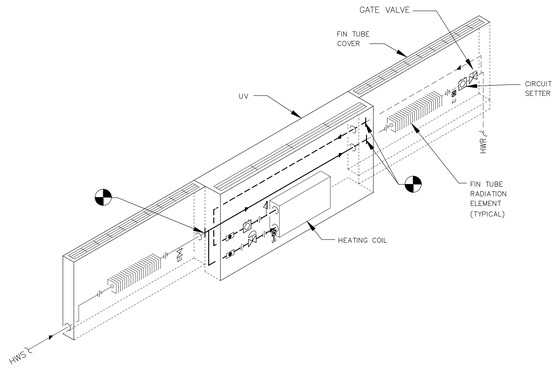
SED SET	10.19.2022
REVISION	DATE
DRAWN BY	
CHECKED BY	
SHEET SIZE	30" X 42"
SCALE	AS NOTED
SHEET TITLE	VRF SYSTEM TREES
SHEET NO.	M-111



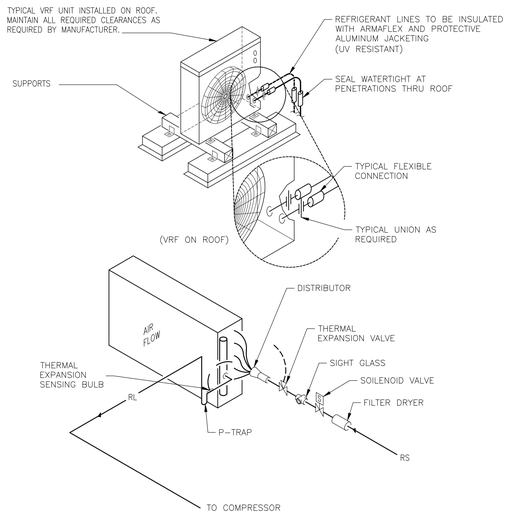
8 VERTICAL UNIT VENTILATOR DETAIL
SCALE: NONE



NOTES:

1. LOCATE CONTROL VALVES, SHUTOFF VALVES, AND CIRCUIT SETTERS SO THAT THEY ARE EASILY ACCESSIBLE FOR INSPECTION AND MAINTENANCE. PROVIDE ACCESS DOORS IN APPROPRIATE LOCATIONS WHERE INSTALLATION REQUIRES VALVES AND/OR CIRCUIT SETTERS TO BE CONCEALED.
2. WHEN FIN RADIATION IS INSTALLED IN CLASSROOMS WITH UNIT VENTILATORS, VALVES ARE LOCATED BEHIND OPEN SHELVING OR FIN TUBE ENCLOSURE AS APPLICABLE.
3. PROVIDE ENCLOSURES AS REQUIRED TO CONCEAL REFRIGERANT LINES.
4. MODIFY FIN–TUBE ENCLOSERS AS REQUIRED TO PERMIT NEW UV INSTALLATIONS. REUSE/MODIFY END CAPS AS APPLICABLE.
5. PNEUMATIC LINES FEEDING EXISTING WALL HUNG THERMOSTAT MUST BE PLUGGED AND THERMOSTAT REMOVED

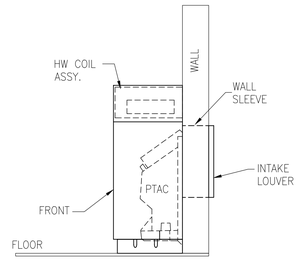
9 TYPICAL CLASSROOM UNIT VENT W/FTR PIPING DETAIL
SCALE: NONE



NOTES:

1. INSTALL PER MANUFACTURERS RECOMMENDATIONS.
2. PROVIDE ENCLOSURES AS REQUIRED TO CONCEAL REFRIGERANT LINES

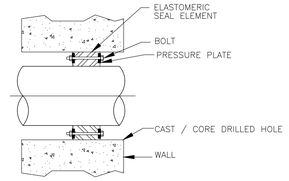
10 PIPING CONNECTIONS AT DIRECT EXPANSION COOLING COIL
SCALE: NONE



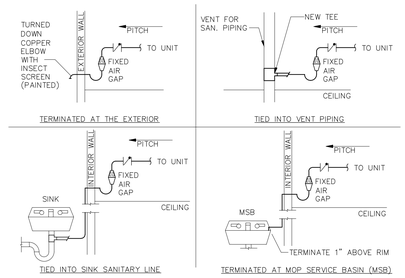
NOTES:

1. LOCATE CONTROL VALVES, SHUTOFF VALVES, AND CIRCUIT SETTERS SO THAT THEY ARE EASILY ACCESSIBLE FOR INSPECTION AND MAINTENANCE. PROVIDE ACCESS DOORS IN APPROPRIATE LOCATIONS WHERE INSTALLATION REQUIRES VALVES AND/OR CIRCUIT SETTERS TO BE CONCEALED. CONSULT MANUFACTURER DATA FOR BRANDS AND TYPES.
2. WHEN FIN RADIATION IS INSTALLED IN CLASSROOMS WITH UNIT VENTILATORS, VALVES ARE LOCATED BEHIND OPEN SHELVING OR FIN TUBE ENCLOSURE AS APPLICABLE.
3. PROVIDE ENCLOSURES AS REQUIRED TO CONCEAL REFRIGERANT LINES.
4. MODIFY FIN–TUBE ENCLOSERS AS REQUIRED TO PERMIT NEW INSTALLATIONS. REUSE/MODIFY END CAPS AS APPLICABLE.

4 PTAC HYDRONIC CABINET
SCALE: NONE



5 PIPE SLEEVE AT WALL PENETRATION
SCALE: NONE

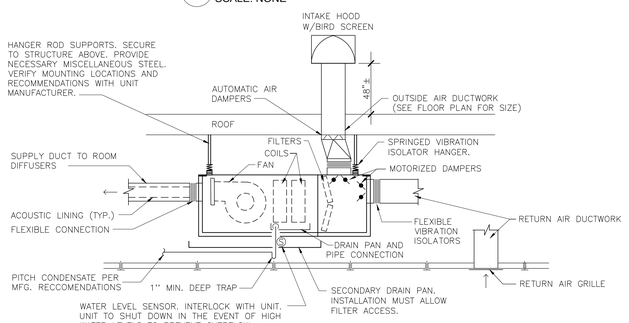


NOTE:
RUN CONDENSATE PIPING WITH TRAP AND VENT FROM ALL EVAPORATOR COILS TO LOCATION SPECIFIED. PROVIDE INSULATION AND SUPPORT. SIZE TO BE 3/4" UNLESS OTHERWISE SPECIFIED.

PIPING AT WALL PENETRATIONS TO BE SLEEVED. CHANGEOVER FROM PVC TO COPPER FOR EXTERIOR TERMINATION TO BEGIN BEFORE EXTERIOR WALL PENETRATION.

(TYPICAL FROM ALL EVAPOARTOR/ DX COILS)
SEE M DWGS FOR LOCATIONS

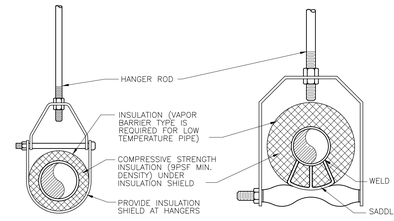
6 CONDENSATE LINE CONNECTION DETAIL
SCALE: NONE



NOTES:

1. COORDINATE EXACT LOCATION OF UNITS WITH EXISTING AND NEW BUILDING COMPONENTS TO ALLOW PROPER UNIT CONNECTIONS AND MAINTENANCE.

7 CEILING HUNG (HORIZONTAL) UNIT VENTILATOR DETAIL
SCALE: NONE

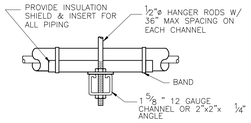


ADJUSTABLE CLEVIS HANGER

ADJUSTABLE CLEVIS HANGER W/ ROLLER

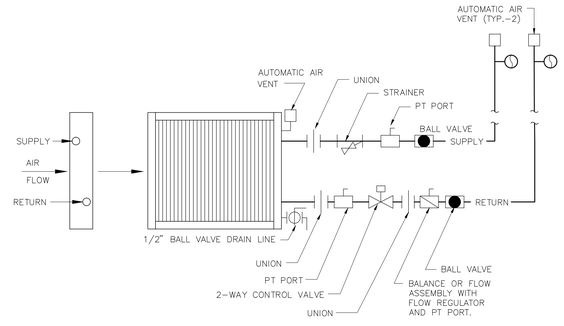
MAXIMUM PIPE/TUBING SUPPORT SPACING								
SIZE IN.	THRU 3/4	1	1 1/4	1 1/2	2	2 1/2	3	4
PIPE FT.	6	6	6	6	6	6	6	6
TUBING FT.	6	6	6	6	6	6	6	6

NOTE:
1. FOR TRAPEZE HANGER TAKE SPACING OF SMALLEST SIZE ON TRAPEZE.



SIDE VIEW TRAPEZE HANGER FOR UP TO 1000 LB. UNIFORM LOAD

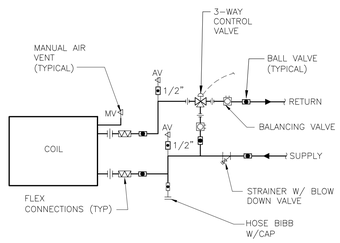
1 PIPE SUPPORT DETAIL
SCALE: NONE



NOTES:

1. LOCATE CONTROL VALVES, SHUTOFF VALVES, AND CIRCUIT SETTERS SO THAT THEY ARE EASILY ACCESSIBLE FOR INSPECTION AND MAINTENANCE. PROVIDE ACCESS DOORS IN APPROPRIATE LOCATIONS WHERE INSTALLATION REQUIRES VALVES AND/OR CIRCUIT SETTERS TO BE CONCEALED.
2. WHEN FIN RADIATION IS INSTALLED IN CLASSROOMS WITH UNIT VENTILATORS, VALVES ARE LOCATED BEHIND OPEN SHELVING, UV CABINET, OR FIN TUBE ENCLOSURE AS APPLICABLE.
3. PROVIDE ENCLOSURES AS REQUIRED TO CONCEAL REFRIGERANT LINES.
4. PROVIDE AIR VENTS AT ALL HIGH POINTS IN PIPING SYSTEM.
5. PROVIDE ALL VALVES AND ASSOCIATED SHOWN.
6. INSULATE SUPPLY AND RETURN.

UNIT VENTILATOR, FAN COIL UNIT, HYDRONIC PTAC HOT WATER COIL DETAIL
2
SCALE: NONE



NOTES:

1. SUPPORT PIPES FROM STRUCTURE OR FLOOR STANCHEON AS APPLICABLE.
2. COILS MOUNTED IN DUCTS TO BE PROVIDE WITH ACCESS PANELS UPSTREAM OF THE COIL.
3. PIPE COIL TO ALLOW REMOVAL OF COIL WITHOUT REMOVING PIPING BEYOND UNIONS OR FLANGES.
4. FOR UNITS PROVIDED WITH OTHER THAN ONE COIL, PROVIDE FLOW BALANCER, FLANGES, FLEXIBLE CONNECTOR, DRAINS, AND AIR VENTS FOR EACH COIL.
5. COOLING COIL SIMILAR

COIL PIPING DETAIL 3 WAY VALVE
3
SCALE: NONE

ENGINEER:
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291 Genesee Street – Utica, NY 13501
Ph.315–720–1916 Fax.315–720–6365
www.erengpc.com

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STAMP

STATE OF NEW YORK
JACK EISENBACH
LICENSED PROFESSIONAL ENGINEER
NO. 050445

WARWICK VALLEY CENTRAL SCHOOL DISTRICT
HIGH SCHOOL UNIT VENTILATOR REPLACEMENT AND AIR CONDITIONING UPGRADE
225 WEST STREET EXT. WARWICK, NY 10990
WV HIGH SCHOOL – 89 SANFORDVILLE ROAD. WARWICK, NY 10990
SED NO. 44–21–01–06–0–001–042

PROJECT NO.	05–21–04 05–20–06
ISSUED FOR BID	11.09.2022
SED SET	10.19.2022
REVISION	DATE
DRAWN BY	
CHECKED BY	
SHEET SIZE	30" X 42"
SCALE	AS NOTED

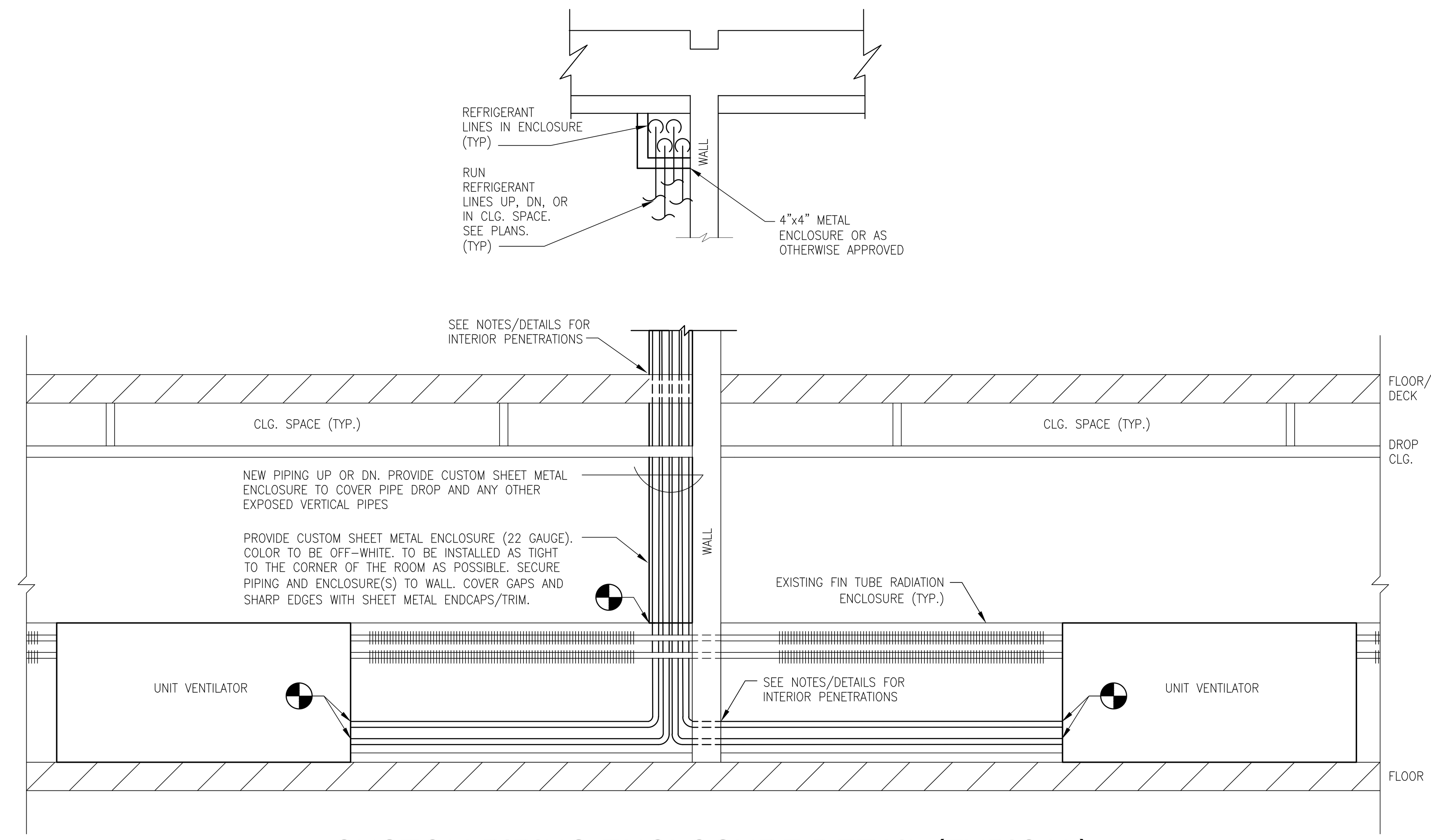
SHEET TITLE
DETAILS

SHEET NO.
M-500

FILE PATH –N:\1 – PROJECT DIRECTORIES\1– E & R Projects\05 – Warwick Valley CSD\05–21–04 Warwick Federal Grant Project\CAD\Package3.Hs\vwr\05–21–04.m500–M501.dwg

COORDINATION NOTE:

1. COORDINATION– IT SHALL BE THE RESPONSIBILITY OF THE ELECTRICAL AND MECHANICAL CONTRACTORS TO COORIDNATE THEIR WORK.
THE HVAC CONTRACTOR SHALL TAKE THE LEAD IN THE COORDINATION EFFORT AND PRODUCE THE COORDINATION DRAWINGS. COORDINATION DRAWINGS SHALL BE SUBMITTED FOR APPROVAL TO THE ENGINEER PRIOR TO STARTING ANY WORK. CEILING SPACE IS VERY LIMITED AND DUCTWORK/PIPING INSTALLATION AND LOCATION IS CRITIAL. THE PURPOSE OF THESE DRAWINGS IS TO COORDINATE THE LOCATIONS OF ALL PIPING, DUCTWORK, AND ASSOCIATED ELECTRICAL EQUIPMENT. ALL ELECTRICAL EQUIPMENT SHALL BE INSTALLED AND LOCATED IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE (NEC). MECHANICAL EQUIPMENT CANNOT INFILTRATE THE ELECTRICAL EQUIPMENTS WORKING CLEARANCE AND WORKING SPACE, NOR CAN IT BE INSTALLED DIRECTLY ABOVE OR BELOW TO THE STRUCTURE, AS IDENTIFIED WITHIN THE NEC, ARTICLE 110 – "REQUIREMENTS FOR ELECTRICAL INSTALLATION".
THIS COORDINATION IS REQUIRED FOR ALL PHASES OF THIS PROJECT. FAILURE TO FOLLOW THIS PROCEDURE DOES NOT RELIEVE THE CONTRACTOR FROM THE DUTIES AND WILL NOT CONSTITUTE A REASON FOR A CHANGE ORDER.

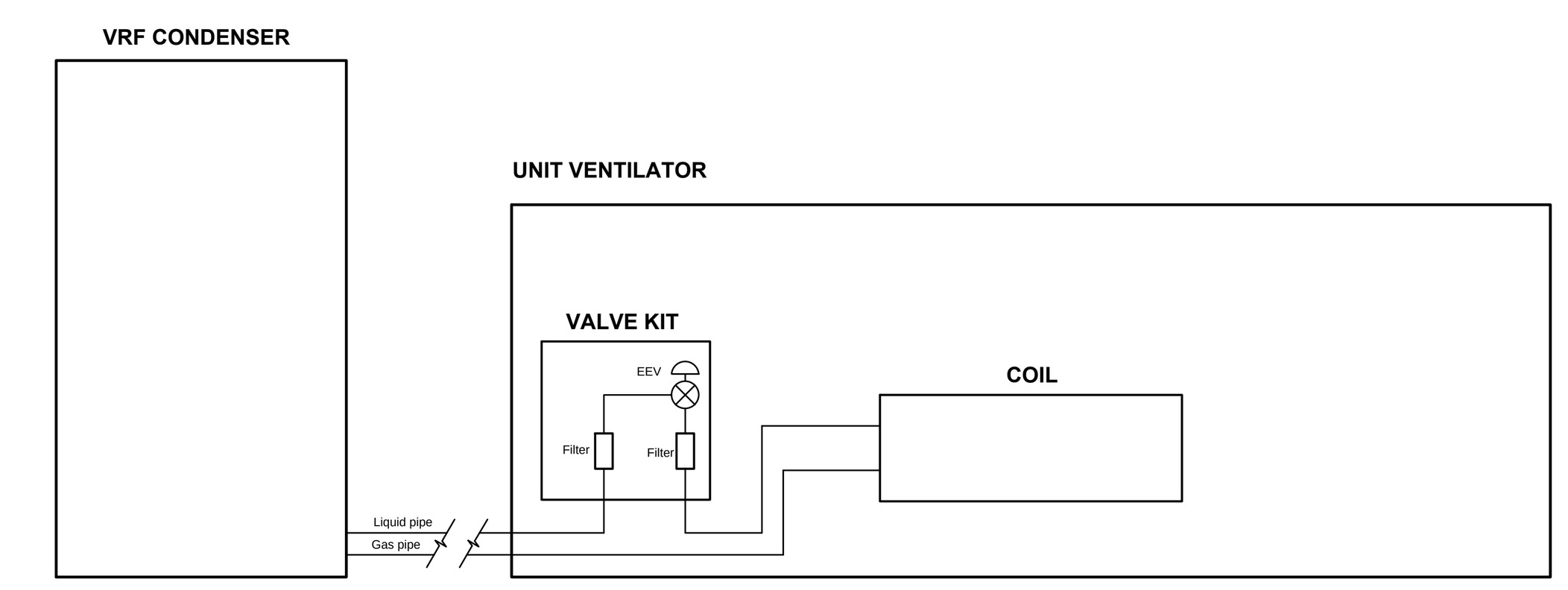


1 CUSTOM PIPING ENCLOSURE DETAIL (TYPICAL)

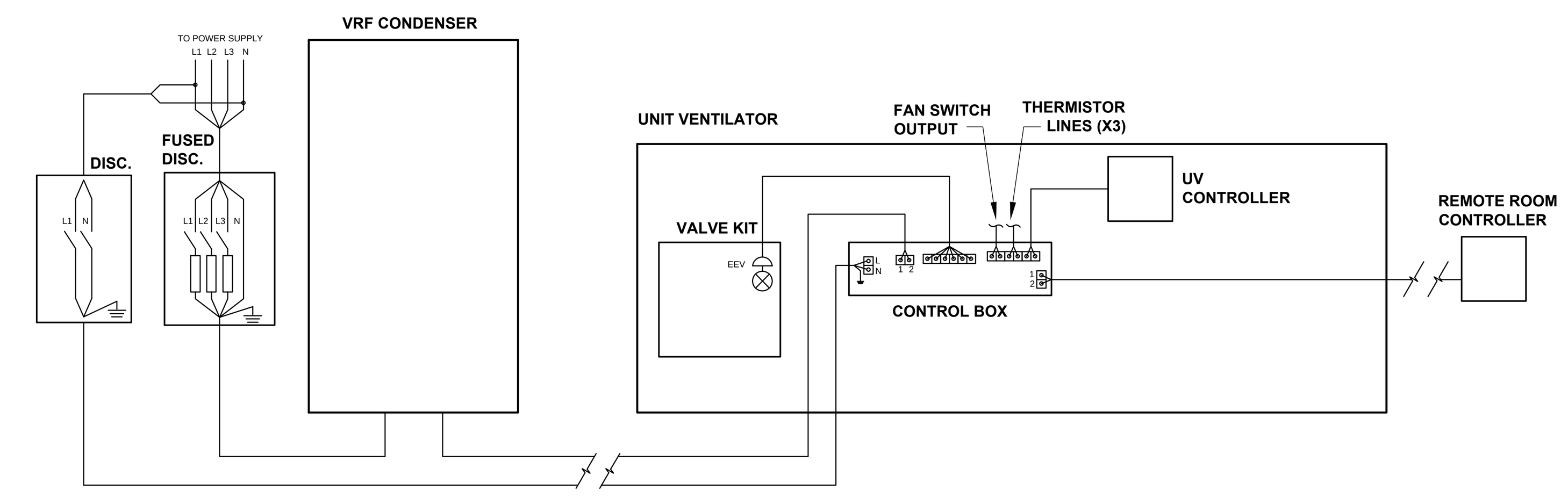
SCALE: NONE

NEW WORK NOTES:

SEE MANUFACTURER INSTALLATION RECOMMENDATIONS. ACTUAL PIPING PATHS WILL VARY. SEE DRAWINGS FOR INTENT. VERIFY COIL CONNECTION SIDES BEFORE ORDERING EQUIPMENT.



PIPING AND ELECTRONIC EXPANSION VALVE



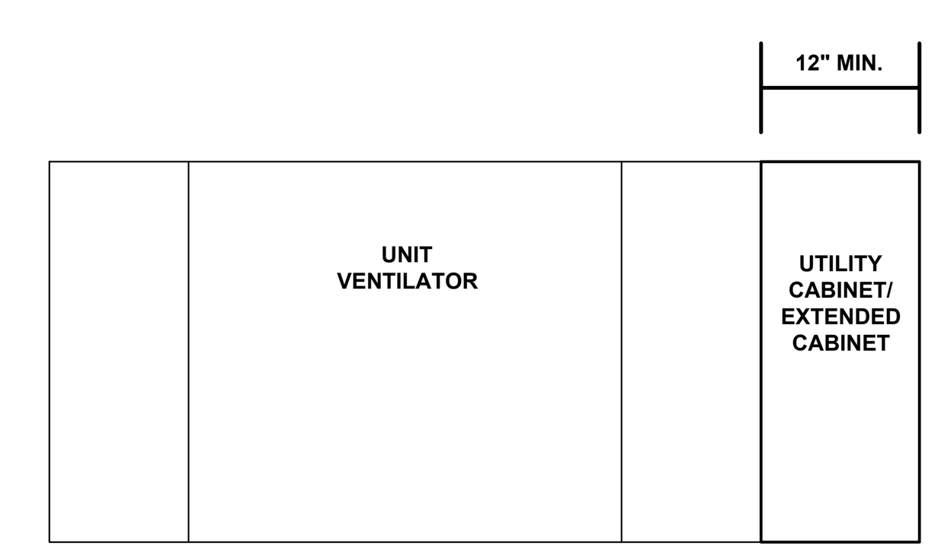
POWER AND CONTROLS

2 VRF-UNIT VENTILATOR PIPING AND ELECTRICAL DETAILS

SCALE: NONE

NEW WORK NOTES:

SEE MANUFACTURER RECOMMENDATIONS REGARDING THERMISTOR PLACEMENT. MULTI UNIT POWER OPTION NOT SHOWN BUT IS TO BE INCLUDED. EEV TO BE POWERED PER MANUFACTURER RECOMMENDATIONS.

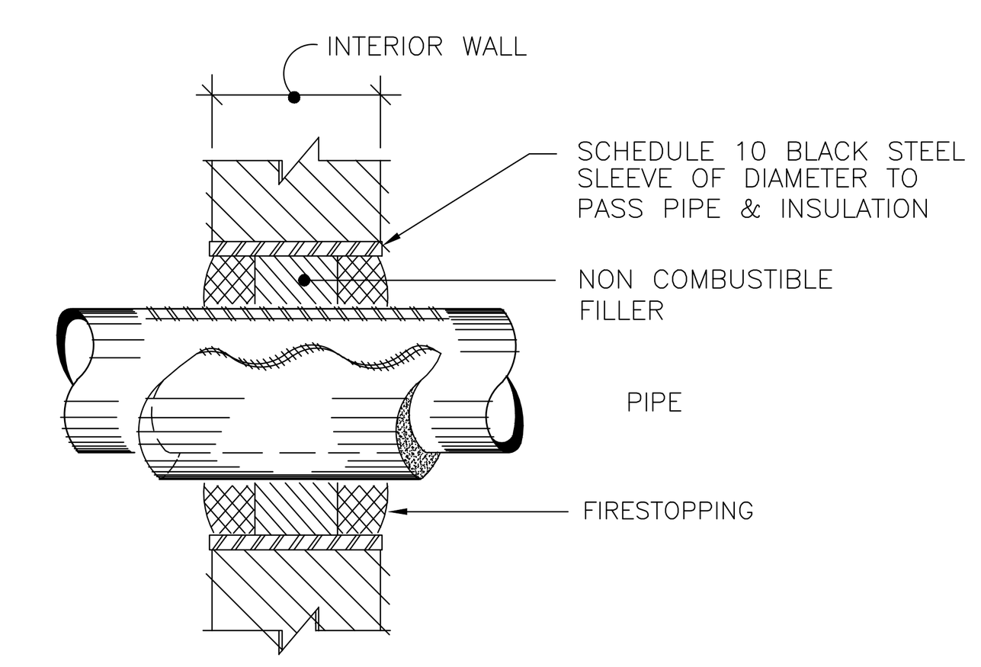


3 UNIT VENTILATOR EXTENDED CABINET

SCALE: NONE

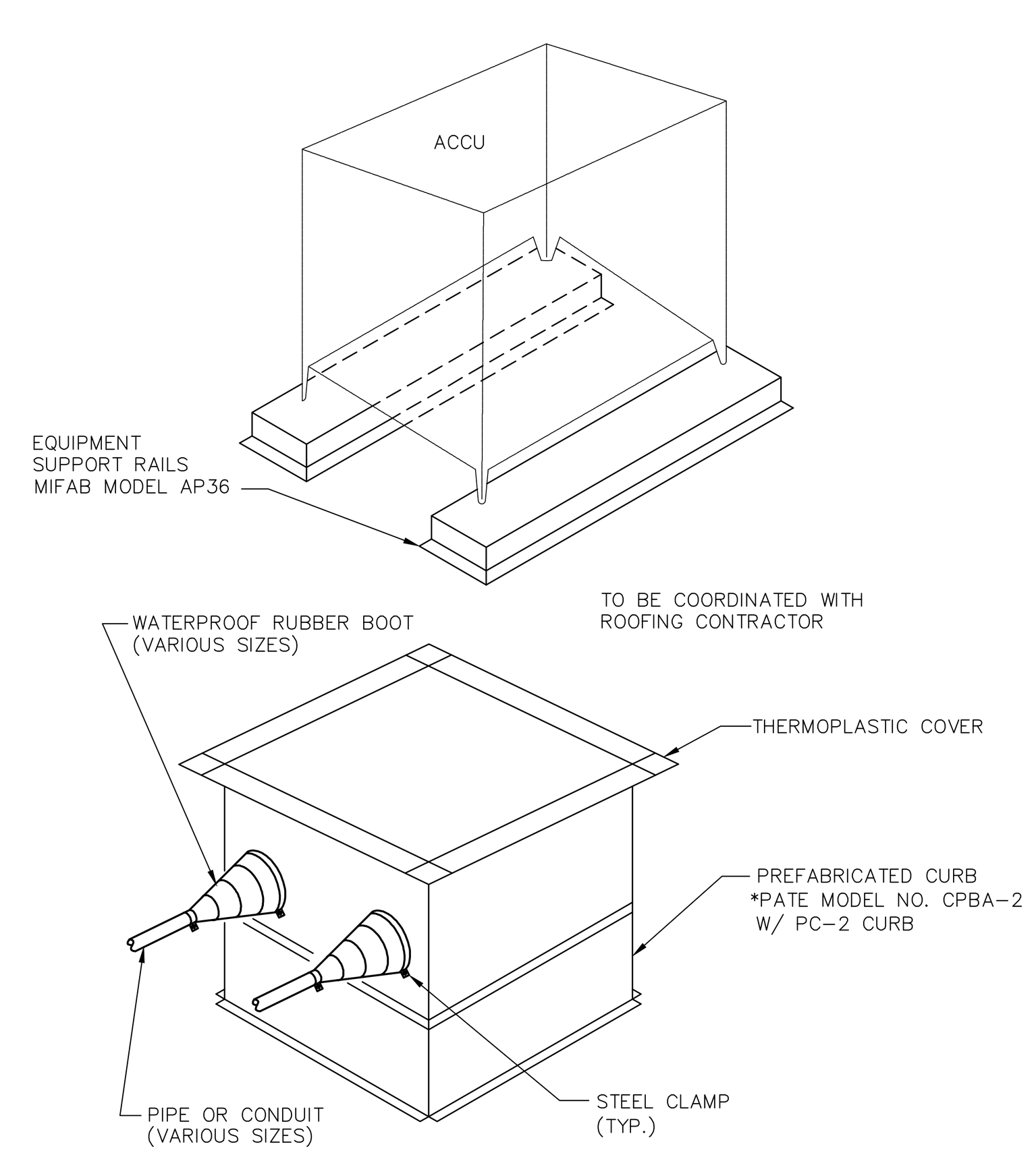
NEW WORK NOTES:

UTILITY/ EXTENDED CABINET TO MATCH UNIT VENTILATOR CABINET HEIGHT, DEPTH, COLOR, APPEARANCE AND MANUFACTURER. COIL CONNECTION SIDE TO BE VERIFIED IN FIELD BEFORE ORDERING EQUIPMENT. MAKE ALL ALTERATIONS TO FIN TUBE AND COVERS AS NECESSARY. UTILITY CABINET TO HOUSE VRF CONTROL BOX AND VRF ELECTRONIC EXPANSION VALVE.



4 PIPE SLEEVE AT WALL PENETRATION

SCALE: NONE



5 PIPE/CONDUIT CURB ASSEMBLY DETAILS

SCALE: NONE

ENGINEER:
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291 Genesee Street – Utica, NY 13501
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ISSUED FOR BID	11.09.2022
SED SET	10.19.2022
REVISION	DATE
DRAWN BY	
CHECKED BY	
SHEET SIZE	30" X 42"
SCALE	AS NOTED

SHEET TITLE
DETAILS

SHEET NO.
M-501

FILE PATH -N:\1 – PROJECT DIRECTORIES\1- E & R Projects\05 – Warwick Valley CSD\05-21-04 Warwick Federal Grant Project\CAD\Package3.HsUvsVrf\05-21-04.m500-M501.dwg

ROOFTOP UNIT SCHEDULE

	MARK	SERVICE	MODEL NO.	CFM	O/A MIN	FAN MOTOR (HP) (SUPPLY)/(EXHAUST)	COOLING TYPE	COOLING TEMPERATURE (°F) ENT. AIR DB	ENT. AIR WB	LVG. AIR DB	LVG. AIR WB	OD AMB DB/WB	CAPACITY TONS NOM.	CAPACITY MBH TOTAL	CAPACITY MBH SENS.	GPM	ENT. WATER (°F)	LVG. WATER (°F)	EER	HEATING TYPE	HEATING TEMPERATURE (°F) ENT. AIR DB	LVG. AIR DB	CAPACITY MBH TOTAL	GPM	ENT. FLUID (°F)	LVG. FLUID (°F)	ELECTRICAL V/PH/HZ	MCA (A)	MOP (A)	FACTORY DISC.	VFD	GFCI OUTLET	ECONOMIZER	UNIT WEIGHT (LB)	REMARKS
(HS)	RTU-7	WRESTLING ROOM	AAON-RN-008	2400	517	(1.7)/(1.2)	PKG. DX - R410A REFRIG.	80	66	56	53	95/75	8	90	68	–	–	–	12.5	HOT WATER	56	94	102	20	180	170	208/3/60	50	70	YES	YES	YES	YES	1279	SEE NOTES 1-7

NOTE 1: PROVIDE DAMPERS SHOWN ON THE DRAWINGS AND ADDITIONAL DAMPERS AS NECESSARY FOR AIR BALANCING OR AS NEEDED TO COMPLY WITH ECCCNYS C403.7.7 REQUIREMENTS FOR INTAKES AND EXHAUST OPENINGS.
NOTE 2: OBSERVE REQUIRED AND RECOMMENDED CLEARANCES FOR UNIT DURING PLACEMENT. INSTALL UNIT ACCORDING TO MANUFACTURER RECOMMENDATIONS.
NOTE 3: MAINTAIN MINIMUM OF 10' FROM ROOF EDGE WHEN PLACING UNIT.

UNIT VENTILATOR SCHEDULE (30)

MARK	SERVICE	MFR / MODEL	TYPE	TOTAL CFM	O/A MIN	DX COOLING COIL TOT. MBH	SENS. MBH	ROWS	HEATING COIL MBH	ROWS	FLUID	EWT	LWT	MOTOR (ECM) QTY	HP	ELECTRICAL VOLTAGE	FLA	MCA	MOP	LOUVER SIZE	REMARKS
BASEMENT																					
UV-70-A	ART CLASS. 70	MAUVF3-P1FFB223	VERTICAL	1000	282	32.9	21.5	4	54.6	2	WATER	180	150	1	1/3	115/60/1		6.30	20	NOTE 3	SEE NOTES 1,2,3,6,8,9 ALT. H-1
UV-70-B		MAUVF3-P1FFB223	VERTICAL	1000	282	32.9	21.5	4	54.6	2	WATER	180	150	1	1/3	115/60/1		6.30	20	NOTE 3	SEE NOTES 1,2,3,6,8,9 ALT. H-1
FIRST FLOOR																					
UV-128	CLASSROOM 128	MAUVF2-P1FFB223	VERTICAL	750	283	23.4	15.6	4	47.2	2	WATER	180	150	1	1/3	115/60/1		6.30	20	NOTE 3	SEE NOTES 1,2,3,6,8,9
UV-130	CLASSROOM 130	MAUVF3-P1FFB223	VERTICAL	1000	297	32.9	21.5	4	54.6	2	WATER	180	150	1	1/3	115/60/1		6.30	20	NOTE 3	SEE NOTES 1,2,3,6,8,9
UV-132	CLASSROOM 132	MAUVF3-P1FFB223	VERTICAL	1000	310	32.9	21.5	4	54.6	2	WATER	180	150	1	1/3	115/60/1		6.30	20		SEE NOTES 1,2,3,6,8,9
UV-147	CLASSROOM 147	MAUVF3-P1FFB223	VERTICAL	1000	417	32.9	21.5	4	54.6	2	WATER	180	150	1	1/3	115/60/1		6.30	20	NOTE 3	SEE NOTES 1,2,3,6,8,9 ALT. H-1
UV-149	CLASSROOM 149	MAUVF3-P1FFB223	VERTICAL	1000	414	32.9	21.5	4	54.6	2	WATER	180	150	1	1/3	115/60/1		6.30	20	NOTE 3	SEE NOTES 1,2,3,6,8,9 ALT. H-1
UV-151	CLASSROOM 151	MAUVF3-P1FFB223	VERTICAL	1000	415	32.9	21.5	4	54.6	2	WATER	180	150	1	1/3	115/60/1		6.30	20	NOTE 3	SEE NOTES 1,2,3,6,8,9 ALT. H-1
UV-153	CLASSROOM 153	MAUVF3-P1FFB223	VERTICAL	1000	430	32.9	21.5	4	54.6	2	WATER	180	150	1	1/3	115/60/1		6.30	20	NOTE 3	SEE NOTES 1,2,3,6,8,9 ALT. H-1
UV-155	CLASSROOM 155	MAUVF3-P1FFB223	VERTICAL	1000	429	32.9	21.5	4	54.6	2	WATER	180	150	1	1/3	115/60/1		6.30	20	NOTE 3	SEE NOTES 1,2,3,6,8,9 ALT. H-1
UV-157	CLASSROOM 157	MAUVF3-P1FFB223	VERTICAL	1000	402	32.9	21.5	4	54.6	2	WATER	180	150	1	1/3	115/60/1		6.30	20	NOTE 3	SEE NOTES 1,2,3,6,8,9 ALT. H-1
UV-159	CLASSROOM 159	MAUVF3-P1FFB223	VERTICAL	1000	401	32.9	21.5	4	54.6	2	WATER	180	150	1	1/3	115/60/1		6.30	20	NOTE 3	SEE NOTES 1,2,3,6,8,9 ALT. H-1
UV-162	CLASSROOM 162	MAUVF5-P1FFB223	VERTICAL	1500	356	49.3	31.7	4	62.9	2	WATER	180	150	1	1/3	115/60/1		6.30	20	NOTE 3	SEE NOTES 1,2,3,6,8,9 ALT. H-1
UV-164	CLASSROOM 164	MAUVF2-P1FFB223	VERTICAL	750	297	23.4	15.6	4	47.2	2	WATER	180	150	1	1/3	115/60/1		6.30	20	NOTE 3	SEE NOTES 1,2,3,6,8,9 ALT. H-1
UV-166	CLASSROOM 166	MAUVF4-P1FFB223	VERTICAL	1250	417	37.3	24.3	4	58.9	2	WATER	180	150	1	1/3	115/60/1		6.30	20	NOTE 3	SEE NOTES 1,2,3,6,8,9 ALT. H-1
UV-168	CLASSROOM 168	MAUVF4-P1FFB223	VERTICAL	1250	415	37.3	24.3	4	58.9	2	WATER	180	150	1	1/3	115/60/1		6.30	20	NOTE 3	SEE NOTES 1,2,3,6,8,9 ALT. H-1
UV-170	CLASSROOM 170	MAUVF4-P1FFB223	VERTICAL	1250	415	37.3	24.3	4	54.6	2	WATER	180	150	1	1/3	115/60/1		6.30	20	NOTE 3	SEE NOTES 1,2,3,6,8,9 ALT. H-1
UV-171	CLASSROOM 171	MAUVF5-P1FFB223	VERTICAL	1500	653	49.3	31.7	4	62.9	2	WATER	180	150	1	1/3	115/60/1		6.30	20	NOTE 3	SEE NOTES 1,2,3,6,8,9 ALT. H-1
SECOND FLOOR																					
UV-231	SCI. LAB 231	MAUVF5-P1FFB223	VERTICAL	1500	434	49.3	31.7	4	62.9	2	WATER	180	150	1	1/3	115/60/1		6.30	20	NOTE 3	SEE NOTES 1,2,3,6,8,9
UV-232	SCI. LAB 232	MAUVF5-P1FFB223	VERTICAL	1500	520	49.3	31.7	4	62.9	2	WATER	180	150	1	1/3	115/60/1		6.30	20	NOTE 3	SEE NOTES 1,2,3,6,8,9
UV-233	SCI. LAB 233	MAUVF5-P1FFB223	VERTICAL	1500	609	49.3	31.7	4	62.9	2	WATER	180	150	1	1/3	115/60/1		6.30	20	NOTE 3	SEE NOTES 1,2,3,6,8,9
UV-234	SCI. LAB 234	MAUVF5-P1FFB223	VERTICAL	1500	377	49.3	31.7	4	62.9	2	WATER	180	150	1	1/3	115/60/1		6.30	20	NOTE 3	SEE NOTES 1,2,3,6,8,9
UV-235	SCI. LAB 235	MAUVF3-P1FFB223	VERTICAL	1000	499	32.9	21.5	4	54.6	2	WATER	180	150	1	1/3	115/60/1		6.30	20	NOTE 3	SEE NOTES 1,2,3,6,8,9
UV-236	SCI. LAB 236	MAUHF3-PAADD223	HORIZONTAL	1000	342	32.9	21.5	4	46.7	2	WATER	180	150	1	1/3	115/60/1		6.30	20	NOTE 3	SEE NOTES 1,2,3,4,6,8,9
UV-238	SCI. LAB 238	MAUHF3-PAADD223	HORIZONTAL	1000	459	32.9	21.5	4	46.7	2	WATER	180	150	1	1/3	115/60/1		6.30	20	NOTE 3	SEE NOTES 1,2,3,4,6,8,9
UV-239	SCI. LAB 239	MAUHF4-PAA-D223	HORIZONTAL	1250	397	37.3	24.3	4	58.9	2	WATER	180	150	1	1/3	115/60/1		6.30	20	NOTE 3	SEE NOTES 1,2,3,6,8,9,10
UV-240	SCI. LAB 240	MAUHF5-PAADD223	HORIZONTAL	1500	438	49.3	31.7	4	64.3	2	WATER	180	150	1	3/4	115/60/1		12.00	20	NOTE 3	SEE NOTES 1,2,3,4,6,8,9
UV-241	SCI. LAB 241	MAUVF3-P1FFB223	VERTICAL	1000	337	32.9	21.5	4	54.6	2	WATER	180	150	1	1/3	115/60/1		6.30	20	NOTE 3	SEE NOTES 1,2,3,6,8,9
UV-243	SCI. LAB 243	MAUHF3-PAADD223	HORIZONTAL	1000	396	32.9	21.5	4	46.7	2	WATER	180	150	1	1/3	115/60/1		6.30	20	NOTE 3	SEE NOTES 1,2,3,4,6,8,9
UV-245	SCI. LAB 245	MAUHF3-PAADD223	HORIZONTAL	1000	375	32.9	21.5	4	46.7	2	WATER	180	150	1	1/3	115/60/1		6.30	20	NOTE 3	SEE NOTES 1,2,3,4,6,8,9

NOTE 1: PROVIDE ADDITIONAL DAMPERS AS NECESSARY TO AID IN AIR BALANCING.
NOTE 2: DAMPERS CONTROLLING OUTDOOR AIR INTAKE VOLUME TO BE MOTORIZED.
NOTE 3: CONNECT NEW UNIT VENTILATOR TO EXISTING LOUVER/INTAKE. PROVIDE NEW SLEEVE AND SEAL CONNECTIONS TO BE WEATHER TIGHT. PROVIDE NECESSARY MODIFICATIONS NEEDED FOR NEW CONNECTION.
NOTE 4: SECURELY HANG FROM STRUCTURE USING STEEL THREADED RODS AND FRAMING. MUST INSTALL UNIT TO ALLOW FOR MAINTENANCE CLEARANCES AND FILTER CHANGES. REFER TO MANUFACTURER'S RECCOMENDATIONS.
NOTE 5: NOT USED
NOTE 6: PROVIDE CONDENSATE PAN. PITCH DRAIN LINE WITH MINIMUM 1/8" PER 12" SLOPE. PROVIDE CONDENSATE PUMP WHEN MINIMUM PITCH CANNOT BE MET. DISCHARGE TO A NEARBY VENT LINE OR TO EXTERIOR WHEN POSSIBLE. SEE DETAIL.
NOTE 7: NOT USED
NOTE 8: PROVIDE VRF COMPATIBLE UNITS, WHICH INCLUDE VRF ELECTRONIC EXPANSION VALVE KITS, VRF COMMUNICATION BOXES, ETC. PROVIDE 12" MINIMUM EXTENDED UTILITY CABINET FROM SAME MANUFACTURER TO MATCH NEW UV CABINET. HOUSE EEV AND CONTROLS IN UTILITY CABINET.
NOTE 9: SEE PLANS FOR CONDENSATE PIPING AND ASSOCIATED. COORDINATE WITH PLUMBING CONTRACTOR.
NOTE 10: BOTTOM RETURN, BOTTOM SUPPLY, REAR OA CONFIGURATION.

PTAC SCHEDULE

	MARK	SERVICE	BRAND/MODEL NO.	TYPE	MAX CFM	MIN OA CFM	MAX OA CFM	COOLING COIL EAT DB	EAT WB	OUTPUT (MBH)	EER	HEATING COIL EAT DB (°F)	OUTPUT (MBH)	GPM	EWT	ELECTRICAL V/PH/HZ	MCA (A)	MOP (A)	FACTORY DISC.	UNIT WEIGHT (LB)	LOUVER SIZE	REMARKS
	PTAC-1	CLASSROOM 237	AMANA/PTC092G00H	THRU WALL PACKAGE TERMINAL AC W/HYDRONIC HEAT	310	60	65	78.0	85.0	9.0	11.3	42.0	16.9	1	180	115/1/60	8.3	15	YES	102	16"x42"	SEE NOTES 1-7
	PTAC-2	DET. OFFICE 236.A	AMANA/PTC092G00H	THRU WALL PACKAGE TERMINAL AC W/HYDRONIC HEAT	310	55	65	78.0	85.0	9.0	11.3	42.0	16.9	1	180	115/1/60	8.3	15	YES	102	16"x42"	SEE NOTES 1-7
	PTAC-5	OFFICE 154.1	AMANA/PTC092G00H	THRU WALL PACKAGE TERMINAL AC W/HYDRONIC HEAT	310	35	65	78.0	85.0	9.0	11.3	42.0	16.9	1	180	115/1/60	8.3	15	YES	102	16"x42"	SEE NOTES 1-7 ALT. H-1
	PTAC-4	OFFICE 154.2	AMANA/PTC072G00H	THRU WALL PACKAGE TERMINAL AC W/HYDRONIC HEAT	310	25	65	78.0	85.0	7.0	11.9	42.0	14.9	1	180	115/1/60	6.9	15	YES	98	16"x42"	SEE NOTES 1-7 ALT. H-1
	PTAC-3	OFFICE 154.3	AMANA/PTC072G00H	THRU WALL PACKAGE TERMINAL AC W/HYDRONIC HEAT	310	25	65	78.0	85.0	7.0	11.9	42.0	14.9	1	180	115/1/60	6.9	15	YES	98	16"x42"	SEE NOTES 1-7 ALT. H-1

NOTE 1: PROVIDE NEW WALL SLEEVE (WS900E). REPAIR OR ALTER EXISTING WALL PENETRATION AS NEEDED. MAINTAIN STRUCTURAL INTEGRITY. SEAL CONNECTIONS TO BE WEATHER TIGHT.
NOTE 2: PROVIDE REQUIRED AND RECOMMENDED CLEARANCES FOR UNIT BEFORE CUTTING OR INSTALLING. INSTALL UNIT ACCORDING TO MANUFACTURER RECOMMENDATIONS.
NOTE 3: PROVIDE DRAIN KIT (DK900D). DRAIN ALL CONDENSATE TO EXTERIOR.
NOTE 4: PROVIDE HYDRONIC WATER KIT (HWK03E) WITH 1/2" I.D. (5/8" O.D.) CONNECTIONS.
NOTE 5: PROVIDE HARD WIRE KIT AND TIE INTO EXISTING CIRCUIT.
NOTE 6: PROVIDE EXTRUDED ALUMINUM AMANA PTAC LOUVER (AGK01). COLOR TO MATCH NEAREST ADJACENT LOUVER COLORS OR AS SELECTED BY DISTRICT.
NOTE 7: DAMPER THAT MODULATES OA MUST BE MOTORIZED AND CONTROLLED TO AUTOMATICALLY CLOSE WHEN THE UNIT FAN IS DE-ENERGIZED.

VRF SCHEDULE

MARK	SERVICE	BRAND/MODEL NO.	TYPE	CAPACITY (TONS)	AMBIENT TEMP. (°F)	TOTAL UNIT POWER (KW) COOLING/HEATING	EER AHRI	REFRIG.	CONNECTIONS L	CONNECTIONS G	UNIT ELECTRICAL DATA VOLTAGE	MOPD	MCA	WEIGHT LBS.	REMARKS
VRF-1	SEE DWG M-111	LG ARUM288BTE5	AIR SOURCE HEAT PUMP	24	95	18.94 / 22.20	12.2	R410A	3/4"	1-3/8"	208/3PH	40+80	29+58	534+694	SEE NOTES 1,2,3,4,5,6 ALT. H-1
VRF-2	SEE DWG M-111	LG ARUM264BTE5	AIR SOURCE HEAT PUMP	22	95	17.56 / 20.72	12.5	R410A	3/4"	1-3/8"	208/3PH	40+70	29+54	534+666	SEE NOTES 1,2,3,4,5,6 ALT. H-1
VRF-3	SEE DWG M-111	LG ARUM336BTE5	AIR SOURCE HEAT PUMP	28	95	23.09 / 26.95	10.8	R410A	3/4"	1-3/8"	208/3PH	40+80	31+61	534+688	SEE NOTES 1,2,3,4,5,6
VRF-4	SEE DWG M-111	LG ARUM264BTE5	AIR SOURCE HEAT PUMP	22	95	17.56 / 20.72	11.5	R410A	3/4"	1-3/8"	208/3PH	40+70	29+54	534+666	SEE NOTES 1,2,3,4,5,6

NOTE 1: MAINTAIN REQUIRED AND RECOMMENDED CLEARANCES FOR UNIT DURING PLACEMENT. INSTALL AND CHARGE UNIT ACCORDING TO MANUFACTURER RECOMMENDATIONS.
NOTE 2: PROVIDE WEATHERPROOF PAD FOR UNIT AND 24" CURB.
NOTE 3: PROVIDE APPLICABLE SUCTION AND LIQUID LINES. PROVIDE INSULATION, SUPPORT, AND ENCLOSURES AS NOTED. PROVIDE ALL PIPING ENCLOSURES, WIRING ENCLOSURES, AND PENETRATIONS.
NOTE 4: MAINTAIN MINIMUM OF 10'-0" FROM ROOF EDGE AND AIR INTAKES WHEN PLACING UNIT. COORDINATE ALL TRADES BEFORE PLACEMENT.
NOTE 5: COORDINATE TRADES TO MINIMIZE NUMBER OF ROOF PENETRATIONS. PROVIDE ONE PIPING PORTAL TO HOUSE ALL PENETRATIONS ASSOCIATED WITH UNIT.
NOTE 6: UNIT TO BE EITHER IN ALL COOLING OR ALL HEATING MODE. COOLING SEASON: UNIT IN USE. HEATING SEASON: UNIT IN USE UNTIL CHANGEOVER TO CENTRAL BOILER HYDRONIC HEAT. REFER TO MANUFACTURER FOR SEASONAL DEACTIVATION AND PROTECTION.

GRILLES AND SUPPLY DIFFUSER SCHEDULE

MARK	TYPE	MODEL	GRILLE/ DIFFUSER FACE SIZE	MODULE SIZE	NECK SIZE	FRAME TYPE	MATERIAL	FINISH	REMARKS
SD-1	SUPPLY	TITUS TMS	24"x24"	24"x24"	10"ø	FULL FACE, 1" LAY-IN	STEEL	WHITE	SEE NOTES 1,2
RG-1	RETURN	TITUS 50R	24"x24"	24"x24"	20"x20"	FULL FACE, 1" LAY-IN	STEEL/ALUMINUM	WHITE/ALUM.	SEE NOTE 1

NOTE 1: PROVIDE VOLUME DAMPERS SHOWN ON THE DRAWINGS AND ADDITIONAL DAMPERS AS NECESSARY FOR AIR BALANCING.
NOTE 2: PROVIDE WITH MODEL-SPECIFIC BUILT-IN STEEL MANUAL DAMPER AND TOP INSULATION.

ALTERNATE NOTE
ALT. H-1: EQUIPMENT AND ASSOCIATED WORK WITH THIS MARK TO BE PROVIDED AS PART OF ALTERNATE H-1 ONLY. ALL OTHER UNMARKED WORK TO BE PROVIDED AS PART OF BASE BID.

INSULATION SCHEDULE

TYPE	EQUIPMENT OR SYSTEM SERVED	INSULATION CLASS (a) INTERIOR CONCEALED	INTERIOR EXPOSED	EXTERIOR	JACKETING CLASS (b) INTERIOR GENERAL	EQUIPMENT ROOMS	EXTERIOR	THICKNESS (IN) NOMINAL PIPE SIZE (IN) <1"	1"-<1½"	1½"- <4"	4 "- <8"	≥8" & UP	DUCTWORK (c)
A	RS, RL	FE	FE	FE	0	0	4	0.5	1.5	1.5	1.5	1.5	
B	DCW, COOLING COIL CONDENSATE	FE	– –	– –	0	– –	– –	0.5	0.5	1.0	1.0	1.0	
		– –	FE	– –	– –	4	– –	0.5	0.5	1.0	1.0	1.0	
C	HWS, HWR	FG	– –	– –	1	– –	– –	1.5	1.5	2	2	2	
		– –	FG	– –	1	1	– –	1.5	1.5	2	2	2	
		– –	– –	UR	– –	– –	6	1.5	1.5	2	2	2	
D	DUCTWORK	FG (d)	– –	– –	2	– –	– –	– –		– –	– –	– –	1.5(g)
		– –	FG (e)	– –	2	2	– –	– –		– –	– –	– –	2 (f)(g)
		– –	– –	UR(e) R-12	– –	– –	3	– –		– –	– –	– –	2 (i)

(a) FG – – FIBROUS GLASS; FE – – FLEXIBLE ELASTOMERIC; UR – – URETHANE; CS – – CALCIUM SILICATE; FR – – FIRE RATED
(b) 0 – – NONE; 2 – – ALUMINUM FOIL; 4 – – POLYVINYL CHLORIDE; 6 – – ALUMINUM; 1 – – ALL SERVICE; 3 – – CANVAS; 5 – – STAINLESS STEEL; 7 – – EPDM
(c) SUPPLY AIR, OUTSIDE AIR, MIXED AIR, RETURN AIR
(e) RIGID BOARD
(d) BLANKET
(f) EXCEPT SUPPLY AIR WITHIN CONDITIONED SPACE
(g) INSULATE EXHAUST AIR 15'-0" FROM EXTERIOR PENETRATION
(i) TWO LAYERS, 3 IN TOTAL

ALL INSULATION TO COMPLY WITH 2020 NYS ENERGY CONSERVATION CONSTRUCTION CODE

ASHRAE-15 CONFORMANCE CALCULATIONS

HIGH SCHOOL

EQUIPMENT MARK(S)	HOLDING REFRIGERANT CHARGE (LBS)	EST. ADDITIONAL REFRIG. CHARGE (LBS)	EST. TOTAL REFRIG. (LBS)	[A] CALCULATED MIN. FLOOR AREA (FT2)	SMALLEST OCCUPIED ROOM IN SYSTEM	[B] APPROX. FLOOR AREA (FT2)	NOTES
VRF-1	54.10	15.96	70.06	317	CLASSROOM 164	561	8'-6" C.H., R-410A, NON-INST.
VRF-2	49.70	15.74	65.44	296	CLASSROOM 162	673	8'-6" C.H., R-410A, NON-INST.
VRF-3	60.70	15.59	76.29	345	CLASSROOM 130	550	8'-6" C.H., R-410A, NON-INST.
VRF-4	49.70	11.94	61.64	224	SCIENCE LAB 241	678	8'-6" C.H., R-410A, NON-INST.

$$\text{MINIMUM ALLOWED FLOOR AREA (FT2)} = \frac{\text{TOTAL STYSTEM REFRIGERANT CHARGE (LBS)}}{\text{MINIMUM ALLOWED RCL (LBS/1000 FT3)} \times \text{CEILING HEIGHT}} \times 1000$$

R-410A REFRIGERANT CONCENTRATION LIMIT (RCL) FOR OCCUPIED SPACES: ASHRAE 34-2010 ADDENDUM L.
RCL FOR NON-INSTITUTIONAL OCCUPANCY APPLICATIONS = 26 LBS/1000 FT3
RCL FOR INSTITUTIONAL OCCUPANCY APPLICATIONS = 13 LBS/1000 FT3

VERIFY: SMALLEST RM. [B] ACTUAL SQFT. > CALCULATED MIN. [A] ALLOWABLE RM. SQFT.

NOTE: REFER TO MFR. SPECIFICATIONS AND PROCEDURES FOR PROPER CHARGING OF EQUIPMENT AND SYSTEM. DO NOT INSTALL REFRIGERATION PIPING IN LOCATIONS THAT VIOLATE ASHRAE-15 REQUIREMENTS.

OUTDOOR AIR DESIGN REQUIREMENTS

HIGH SCHOOL

EQUIPMENT MARK(S)	ROOM	ROOM TYPE	OCCUPANTS /1000 FT2	RP	APPROX. PZ	RA	APPROX. AZ	VBZ	EZ	MIN. O.A. (CFM) VOZ	NOTES
UV-70A UV-70B	70	ART	20	10	27	0.18	1317	507.1	0.9	563	
UV-128	128	CLASSROOM	35	10	19	0.12	542	255.0	0.9	283	
UV-130	130	CLASSROOM	35	10	20	0.12	561	267.3	0.9	297	
UV-132	132	CLASSROOM	35	10	21	0.12	577	279.2	0.9	310	
UV-147	147	CLASSROOM	35	10	28	0.12	793	375.2	0.9	417	
UV-149	149	CLASSROOM	35	10	28	0.12	772	372.6	0.9	414	
UV-151	151	CLASSROOM	35	10	28	0.12	778	373.4	0.9	415	
UV-153	153	CLASSROOM	35	10	29	0.12	809	387.1	0.9	430	
RTU-7	154	WEIGHT ROOM	10	20	18	0.06	1752	465.1	0.9	517	
PTAC-5	154.1	OFFICE	5	5	2	0.06	304	28.2	0.9	31	
PTAC-4	154.2	OFFICE	5	5	1	0.06	186	16.2	0.9	18	
PTAC-3	154.3	OFFICE	5	5	1	0.06	160	14.6	0.9	16	
UV-155	155	CLASSROOM	35	10	29	0.12	801	386.1	0.9	429	
UV-157	157	CLASSROOM	35	10	27	0.12	764	361.7	0.9	402	
UV-159	159	CLASSROOM	35	10	27	0.12	754	360.5	0.9	401	
UV-162	162	CLASSROOM	35	10	24	0.12	673	320.8	0.9	356	
UV-164	164	CLASSROOM	35	10	20	0.12	561	267.3	0.9	297	
UV-166	166	CLASSROOM	35	10	28	0.12	795	375.4	0.9	417	
UV-168	168	CLASSROOM	35	10	28	0.12	778	373.4	0.9	415	
UV-170	170	CLASSROOM	35	10	28	0.12	780	373.6	0.9	415	
UV-171	171	CLASSROOM	35	10	44	0.12	1234	588.1	0.9	653	
UV-231	231	SCI. LAB	25	10	23	0.18	894	390.9	0.9	434	
UV-232	232	SCI. LAB	25	10	24	0.18	928	467.9	0.9	520	
UV-233	233	SCI. LAB	25	10	32	0.18	1266	547.9	0.9	609	
UV-234	234	SCI. LAB	25	10	20	0.18	775	339.5	0.9	377	
UV-235	235	SCI. LAB	25	10	29	0.18	1159	498.6	0.9	554	
UV-236	236	SCI. LAB	25	10	18	0.18	712	308.2	0.9	342	
PTAC-1	237	SCI. LAB	25	10	7	0.18	249	114.8	0.9	60	
UV-238	238	SCI. LAB	25	10	24	0.18	960	412.8	0.9	459	
UV-239	239	SCI. LAB	25	10	21	0.18	818	357.2	0.9	397	
UV-240	240	SCI. LAB	25	10	23	0.18	911	394.0	0.9	438	
UV-241	241	SCI. LAB	25	10	18	0.18	686	303.5	0.9	337	
UV-243	243	SCI. LAB	25	10	21	0.18	814	356.5	0.9	396	
UV-245	245	SCI. LAB	25	10	20	0.18	766	337.9	0.9	375	
PTAC-2	236.A	DET. OFFICE	5	5	6	0.06	320	49.2	0.9	55	PZ UPPED FROM 2 TO 6 TO HANDLE EXPECTED SHORT TERM LOADS

NYSMC TABLE 403.3.1.1.2
ZONE AIR DISTRIBUTION EFFECTIVENESS a,b,c,d

AIR DISTRIBUTION CONFIGURATION	EZ
CEILING OR FLOOR SUPPLY OF COOL AIR	1.0(e)
CEILING OR FLOOR SUPPLY OF WARM AIR AND FLOOR RETURN	1.0
CEILING SUPPLY OF WARM AIR AND CEILING RETURN	0.8(f)
FLOOR SUPPLY OF WARM AIR AND CEILING RETURN	0.7
MAKEUP AIR DRAWN IN ON THE OPPOSITE SIDE OF THE ROOM FROM THE EXHAUST OR RETURN	0.8
MAKEUP AIR DRAWN IN NEAR TO THE EXHAUST OR RETURN LOCATION	0.5

a. "COOL AIR" IS AIR COOLER THAN SPACE TEMPERATURE.
b. "WARM AIR" IS AIR WARMER THAN SPACE TEMPERATURE.
c. "CEILING" INCLUDES ANY POINT ABOVE THE BREATHING ZONE.
d. "FLOOR" INCLUDES ANY POINT BELOW THE BREATHING ZONE.
e. ZONE AIR DISTRIBUTION EFFECTIVENESS OF 1.2 SHALL BE PERMITTED FOR SYSTEMS WITH A FLOOR SUPPLY OF COOL AIR AND CEILING RETURN, PROVIDED THAT LOW-VELOCITY DISPLACEMENT VENTILATION ACHIEVES UNIDIRECTIONAL FLOW AND THERMAL STRATIFICATION.
f. ZONE AIR DISTRIBUTION EFFECTIVENESS OF 1.0 SHALL BE PERMITTED FOR SYSTEMS WITH A CEILING SUPPLY OF WARM AIR, PROVIDED THAT SUPPLY AIR TEMPERATURE IS LESS THAN 15°F ABOVE SPACE TEMPERATURE AND PROVIDED THAT THE 150-FOOT-PER-MINUTE SUPPLY AIR JET REACHES TO WITHIN 4-1/2 FEET OF FLOOR LEVEL.

NYSED EZ CLASSIFICATION NOTE: "FLOOR" REFERS TO THE AREA LOCATED 0-3 INCHES AFF. "CEILING" REFERS TO THE AREA LOCATED 72 INCHES AFF AND ABOVE. THOSE LOCATED BETWEEN 3 INCHES AND 72 INCHES AFF ARE NOTED ABOVE.

OCCUPANCY CLASSIFICATION DERIVED FROM NYSMC TABLE 403.3.1.1

RP=OUTDOOR AIRFLOW RATE PER PERSON (NYSMC TABLE 403.3.1.1)
PZ=QTY. OF OCCUPANTS IN SPACE
RA=OUTDOOR AIRFLOW RATE PER UNIT AREA (NYSMC TABLE 403.3.1.1)
AZ=OCCUPIABLE FLOOR AREA
VBZ=REQUIRED OUTDOOR AIRFLOW RATE IN BREATHING ZONE
EZ=ZONE AIR DISTRIBUTION EFFECTIVENESS (NYSMC TABLE 403.3.1.1.2)
VOZ=ZONE OUTDOOR AIRFLOW RATE

VBZ=(RPxPZ)+(RAxAZ)   VOZ=VBZ/EZ

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HIGH SCHOOL UNIT VENTILATOR REPLACEMENT AND AIR CONDITIONING UPGRADE
225 WEST STREET EXT, WARWICK, NY 10990
WV HIGH SCHOOL – 89 SANFORDVILLE ROAD. WARWICK, NY 10990

SED NO. 44-21-01-06-0-001-042

PROJECT NO.	05-21-04 05-20-06
ISSUED FOR BID	11.09.2022
SED SET	10.19.2022
REVISION	DATE
DRAWN BY	
CHECKED BY	
SHEET SIZE	30" X 42"
SCALE	AS NOTED

SHEET TITLE
SCHEDULES

SHEET NO.
M-502

FILE PATH -N:\1 – PROJECT DIRECTORIES\1- E & R Projects\05 – Warwick Valley CSD\05-21-04 Warwick Federal Grant Project\CAD\Package3.HsUvsVrf\05-21-04.m502.dwg

HIGH SCHOOL UV-C LIGHTING SCHEDULE (ALTERNATE)

NEW UVC CIRCUIT MARK	LOCATION/SERVICE	HVAC UNIT TYPE	HVAC UNIT NOMINAL AIR FLOW (CFM)	UV-C INSTALL LOCATION	UV-C FIXTURE MODEL NO.	UV-C FIXTURE VOLTAGE/PH	QTY.	HVAC UNIT VOLTAGE/PH
FIRST FLOOR								
UVC-HS-79	128	UV *	750	115/1	IN CABINET	UV-FCU-CL 90H-P-B-VENT	1	110-240/1
UVC-HS-80	130	UV *	1000	115/1	IN CABINET	UV-FCU-CL 90H-P-B-VENT	1	110-240/1
UVC-HS-81	132	UV *	1000	115/1	IN CABINET	UV-FCU-CL 90H-P-B-VENT	1	110-240/1
UVC-HS-82	154 Wrestling Rm	RTU *	2400	208/3		UV-FCU-CL 90H-P-B-VENT	1	110-240/1
SECOND FLOOR								
UVC-HS-83	231	UV *	1500	115/1	IN CABINET	UV-FCU-CL 90H-P-B-VENT	1	110-240/1
UVC-HS-84	232	UV *	1500			UV-FCU-CL 90H-P-B-VENT	1	
UVC-HS-85	233	UV *	1500			UV-FCU-CL 90H-P-B-VENT	1	
UVC-HS-86	234	UV *	1500			UV-FCU-CL 90H-P-B-VENT	1	
UVC-HS-87	235	UV *	1000			UV-FCU-CL 90H-P-B-VENT	1	
UVC-HS-88	236	HORIZ. UV *	1000			UV-FCU-CL 90H-P-B-VENT	1	
UVC-HS-89	238	HORIZ. UV *	1000			UV-FCU-CL 90H-P-B-VENT	1	
UVC-HS-90	239	UV *	1250			UV-FCU-CL 90H-P-B-VENT	1	
UVC-HS-91	240	HORIZ. UV *	1500			UV-FCU-CL 90H-P-B-VENT	1	
UVC-HS-92	241	UV *	1000			UV-FCU-CL 90H-P-B-VENT	1	
UVC-HS-93	243	HORIZ. UV *	1000			UV-FCU-CL 90H-P-B-VENT	1	
UVC-HS-94	245	HORIZ. UV *	1000			UV-FCU-CL 90H-P-B-VENT	1	

(*) INDICATES UNIT IS PROVIDED NEW AS PART OF CURRENT PROJECT. REFER TO M DRAWINGS FOR MORE INFORMATION. DO NOT PROVIDE UV-C FIXTURES TO EXISTING TO BE REMOVED EQUIPMENT.

HIGH SCHOOL UV-C LIGHTING SCHEDULE

ALL WORK THIS AREA PART OF ALTERNATE (ALT. H-1)

NEW UVC CIRCUIT MARK	LOCATION/SERVICE	HVAC UNIT TYPE	HVAC UNIT NOMINAL AIR FLOW (CFM)	UV-C INSTALL LOCATION	UV-C FIXTURE MODEL NO.	UV-C FIXTURE VOLTAGE/PH	QTY.	HVAC UNIT VOLTAGE/PH
BASEMENT								
UVC-HS-95	70	UV *	1500	115/1	IN CABINET	UV-FCU-CL 90H-P-B-VENT	1	110-240/1
UVC-HS-96		UV *	1500	115/1	IN CABINET	UV-FCU-CL 90H-P-B-VENT	1	110-240/1
FIRST FLOOR								
UVC-HS-97	Main Office Conference Rm.	UV	1000	115/1	IN CABINET	UV-FCU-CL 90H-P-B-VENT	1	110-240/1
UVC-HS-98	Main Office	HORIZ. UV	1000		IN CABINET	UV-FCU-CL 90H-P-B-VENT	1	
UVC-HS-99	147	UV *	1000		IN CABINET	UV-FCU-CL 90H-P-B-VENT	1	
UVC-HS-100	149	UV *	1000		IN CABINET	UV-FCU-CL 90H-P-B-VENT	1	
UVC-HS-101	151	UV *	1000		IN CABINET	UV-FCU-CL 90H-P-B-VENT	1	
UVC-HS-102	153	UV *	1000		IN CABINET	UV-FCU-CL 90H-P-B-VENT	1	
UVC-HS-103	155	UV *	1000		IN CABINET	UV-FCU-CL 90H-P-B-VENT	1	
UVC-HS-104	157	UV *	1000		IN CABINET	UV-FCU-CL 90H-P-B-VENT	1	
UVC-HS-105	159	UV *	1000		IN CABINET	UV-FCU-CL 90H-P-B-VENT	1	
UVC-HS-106	162	UV *	1500		IN CABINET	UV-FCU-CL 90H-P-B-VENT	1	
UVC-HS-107	164	UV *	750		IN CABINET	UV-FCU-CL 90H-P-B-VENT	1	
UVC-HS-108	166	UV *	1250		IN CABINET	UV-FCU-CL 90H-P-B-VENT	1	
UVC-HS-109	168	UV *	1250		IN CABINET	UV-FCU-CL 90H-P-B-VENT	1	
UVC-HS-110	170	UV *	1250		IN CABINET	UV-FCU-CL 90H-P-B-VENT	1	
UVC-HS-111	171	UV *	1500		IN CABINET	UV-FCU-CL 90H-P-B-VENT	1	

(*) INDICATES UNIT IS PROVIDED NEW AS PART OF CURRENT PROJECT. REFER TO M DRAWINGS FOR MORE INFORMATION. DO NOT PROVIDE UV-C FIXTURES TO EXISTING TO BE REMOVED EQUIPMENT.

ALTERNATE NOTE

ALT. H-1: EQUIPMENT AND ASSOCIATED WORK WITH THIS MARK TO BE PROVIDED AS PART OF ALTERNATE H-1 ONLY. ALL OTHER UNMARKED WORK TO BE PROVIDED AS PART OF BASE BID.

UV-C LIGHT FIXTURE SPECIFICATION AND INSTALLATION NOTES

NOTE 1: PROVIDE UV-C LIGHT FIXTURES AND BULBS FROM COGNITUV BRAND, NO SUBSTITUTION, AND ANY HARDWARE, SHIELDING, WIRING, DRIVERS, RELAYS, TRANSFORMERS, AND ALL APPURTENANCES NECESSARY FOR INSTALLATION.

NOTE 2: PROVIDE POWER TO LIGHT FIXTURES USING 2#12 -W1#12 GRD WIRING. PROVIDE 3/4" CONDUIT OR METAL CLADDING TO POWER AND CONTROL WIRING. POWER AND CONTROL WIRING TO BE IN SEPARATE CONDUIT/MC TO AVOID INTERFEREANCE.

NOTE 3: UV-C CONTRACTOR TO PROVIDE AND COORDINATE CUTTING, PATCHING, SEALING, AND REINSULATING OF DISTURBED DUCTWORK. REINFORCE DUCTWORK TO MAINTAIN RIGIDITY AND PROVIDE SUPPORT TO PREVENT DUCTWORK SAGGING, DEFORMATION, OR VIBRATION. TEST AND SEAL ALL PENETRATIONS TO BE AIRTIGHT.

NOTE 4: EACH UV-C LIGHTING CIRCUIT MUST INCLUDE AN INDIVIDUAL SERVICE SWITCH. ONE SERVICE SWITCH MUST DISCONNECT POWER FROM ALL UV-C FIXTURES ON THE CIRCUIT. THIS SERVICE SWITCH SHALL NOT DISCONNECT POWER TO THE HVAC UNIT, CONTROLLER, OR FAN. THE SERVICE SWITCH FACE PLATES MUST INDICATE ON AND OFF DIRECTIONS.

NOTE 5: THE SERVICE SWITCH SHALL HAVE A STATUS INDICATING LED, EITHER INCORPORATED INTO THE SWITCH OR OTHERWISE ADDED. THE SERVICE SWITCH LED SHALL ILLUMINATE ONLY IF THE UV-C FIXTURE(S) ARE ON AND ILLUMINATED. IF THERE ARE FACTORY-MOUNTED STATUS LEDS ON THE UV-C FIXTURES AND THEY ARE VISIBLE FROM THE OUTSIDE OF THE FIXTURE, THE SWITCH STATUS LED MAY BE OMITTED.

NOTE 6: UV-C LIGHTING AND ALL APPURTENANCES MUST BE POSITIONED TO BE ACCESSIBLE WITHIN REASON TO ALLOW FOR CLEANING, MAINTENANCE, AND REPLACEMENT OF BULB(S). VERIFY PLACEMENT BASED ON FIELD CONDITIONS. PROVIDE PAINTED ACCESS PANELS AS NEEDED.

NOTE 7: TIE INTO SPECIFIED HVAC EQUIPMENT CONTROLS. REFER TO THE UV-C ACTIVATION CONDITIONS DETAIL REGARDING WHEN THE UV-C FIXTURE(S) SHALL BE ACTIVATED.

NOTE 8: CONNECT TO BMS CONTROLS AND INTEGRATE TO TRIP TROUBLE CODES FOR MALFUNCTIONS, SUCH AS A NON-FUNCTIONAL BALLAST OR BULB. PROVIDE UV-C FIXTURE WITH OPTIONS AND EQUIPMENT TO COMMUNICATE WITH EXISTING BMS. VERIFY IN FIELD.

NOTE 9: AFFIX 1" PLASTIC OR VINYL LABELS TO EACH UV-C LIGHT FIXTURE AND SERVICE SWITCH WITH THE CORRESPONDING UV-C CIRCUIT MARK NOTED ABOVE. EACH UV-C FIXTURE TO BE MARKED WITH AN APPROPRIATE WARNING LABEL. PROVIDE PLASTIC OR VINYL PURPLE MARKERS TO APPROXIMATELY MARK LOCATIONS OF UV-C FIXTURES ABOVE CEILINGS. AFFIX TO T-BAR FOR DROP CEILINGS. AFFIX A LABEL READING "UV-C ON" NEAR ALL STATUS INDICATING LEDS, WHETHER FACTORY-MOUNTED OR OTHERWISE. FOR CIRCUITS THAT REQUIRE POWER TO COME FROM A NEARBY AVAILABLE POWER PANEL, AFFIX LABEL TO CIRCUIT SWITCH INDICATING PANEL'S ROOM NUMBER, PANEL NAME, AND BREAKER NUMBER.

NOTE 10: CONTROLS TO BE COORDINATED WITH DISTRICT CONTROLS VENDER.

NOTE 11: ALL LOCATIONS, ORIENTATIONS, AND TYPES OF UV-C LIGHT FIXTURES ARE APPROXIMATE. DETERMINE FINAL LOCATION/ORIENTATION BASED ON MANUFACTURER'S RECOMMENDATIONS AND FIELD CONDITIONS.

NOTE 12: FOR UNITS WITH FIXTURES INDICATED TO BE MOUNTED "IN CABINET", PROVIDE AT LEAST ONE (1) SNAP-ACTION TYPE SWITCH TO EACH OF THE SCHEDULED HVAC UNITS' (UV, AHU, RTU, ETC.) ACCESS DOORS/PANELS AND/OR ADJACENT DUCTWORK ACCESS DOORS/PANELS. HARDWIRE POWER TO SWITCHES TO AUTOMATICALLY TURN OFF ALL UV-C LIGHTS ON THE APPLICABLE UV-C CIRCUIT IF ANY PANELS ARE OPENED. PROVIDE ALL WIRING AND APPURTENANCES. SEE SCHEDULE FOR UNIT TYPES. VERIFY ACCESS DOORS/PANELS IN FIELD.

NOTE 13: "IN CABINET" INSTALLATIONS SHALL MAKE USE OF LIGHT SHIELDING AND REQUIRE PROPER AIMING DURING INSTALLATION. REFER TO MANUFACTURER'S RECOMMENDATIONS.

HVAC UNIT LEGEND

RTU – ROOF TOP UNIT
AHU – AIR HANDLING UNIT
UV – VERTICAL UNIT VENTILATOR – FLOOR MOUNTED
HORIZ. UV – HORIZONTAL UNIT VENTILATOR – CEILING HUNG
FCU – VERTICAL FAN COIL UNIT – FLOOR MOUNTED
HORIZ. FCU – HORIZONTAL FAN COIL UNIT – CEILING HUNG
VRF – VARIABLE REFRIGERANT FLOW SYSTEM
HRU – HEAT RECOVERY UNIT
MAU – MAKE-UP AIR UNIT

CIRCUIT NAMING CONVENTION

UVC-MS-19-4

UV-C LIGHT FIXTURE
SCHOOL ABBREVIATION
CIRCUIT NO.
NO. OF UV-C FIXTURES ON CIRCUIT (OMIT IF ONLY ONE)

SEE NOTES AND SCHEDULES REGARDING LABELING EQUIPMENT WITH INDICATED CIRCUIT MARK

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STAMP

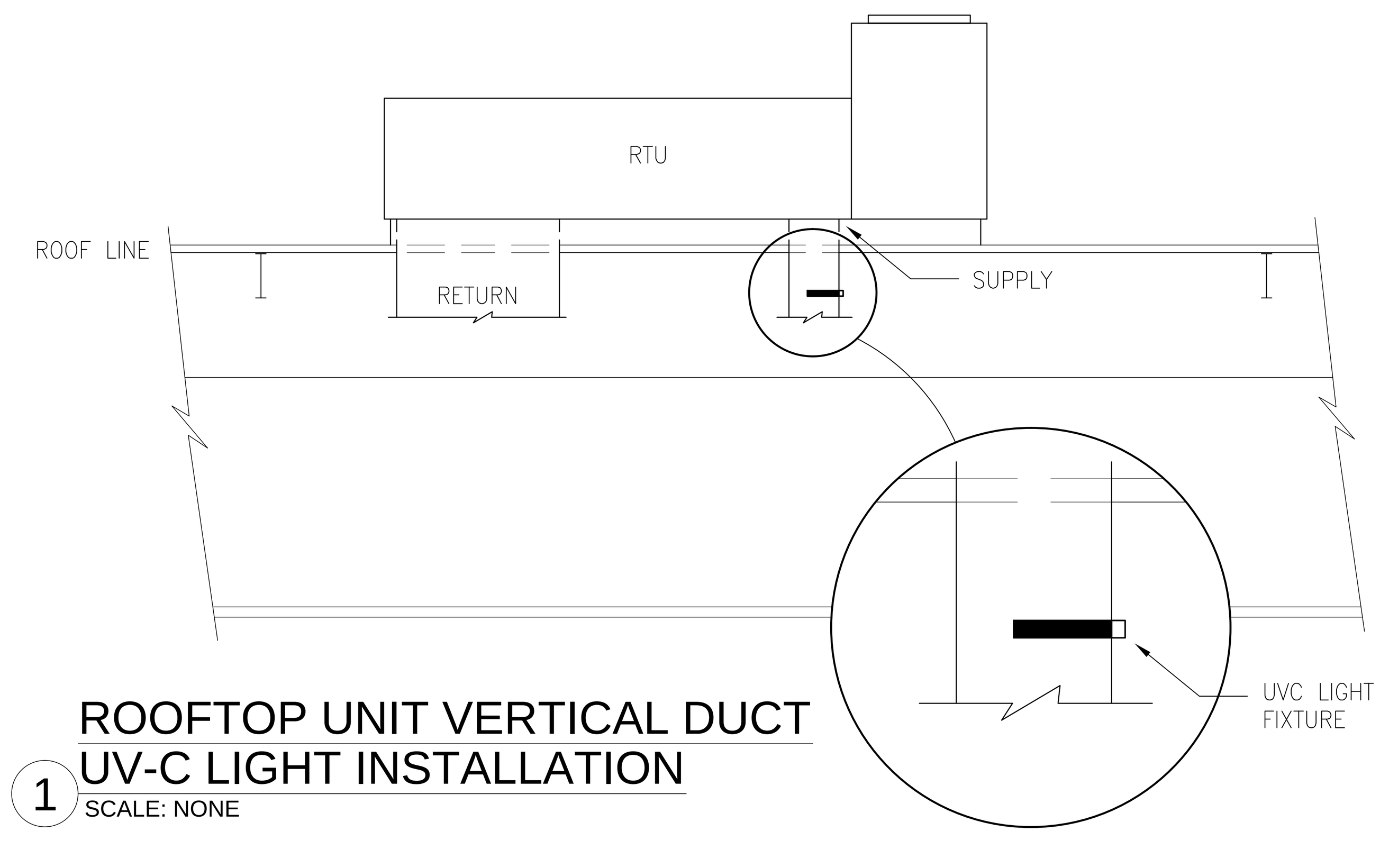
WARWICK VALLEY CENTRAL SCHOOL DISTRICT
HIGH SCHOOL UNIT VENTILATOR REPLACEMENT AND AIR CONDITIONING UPGRADE
225 WEST STREET EXT. WARWICK, NY 10990
WV HIGH SCHOOL – 89 SANFORDVILLE ROAD, WARWICK, NY 10990
SED NO. 44-21-01-06-0-001-042

PROJECT NO.	05-21-04 05-20-06
ISSUED FOR BID	11.09.2022
SED SET	10.19.2022
REVISION	DATE
DRAWN BY	
CHECKED BY	
SHEET SIZE	30" X 42"
SCALE	AS NOTED

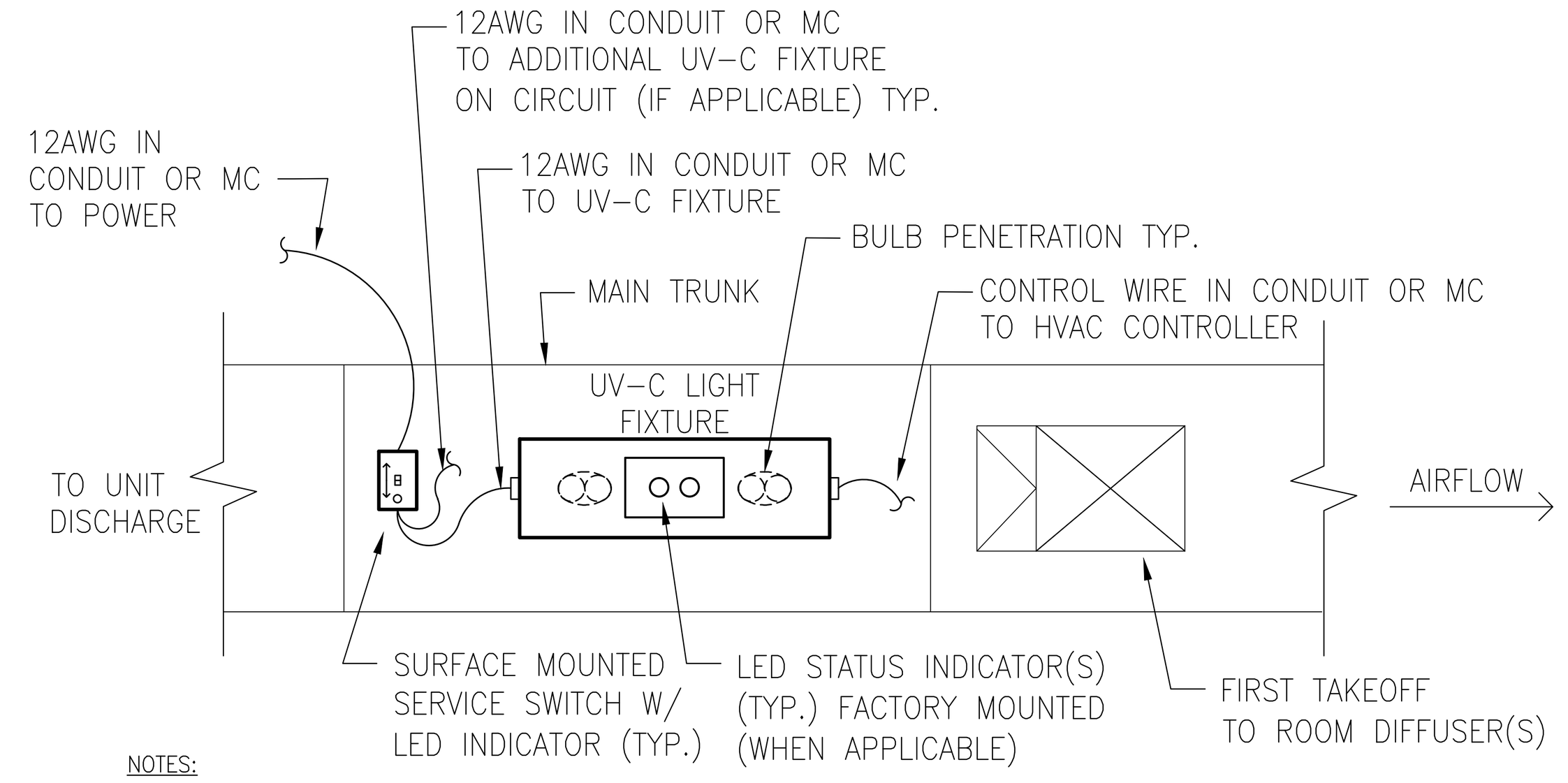
SHEET TITLE
HIGH SCHOOL UV-C LIGHT FIXTURE SCHEDULE

SHEET NO.
M-503

FILE PATH -N:\1 - PROJECT DIRECTORIES\1- E & R Projects\05 - Warwick Valley CSD\05-21-04 Warwick Federal Grant Project\CAD\Package3.HsUv\05-21-04.m503-m505.dwg



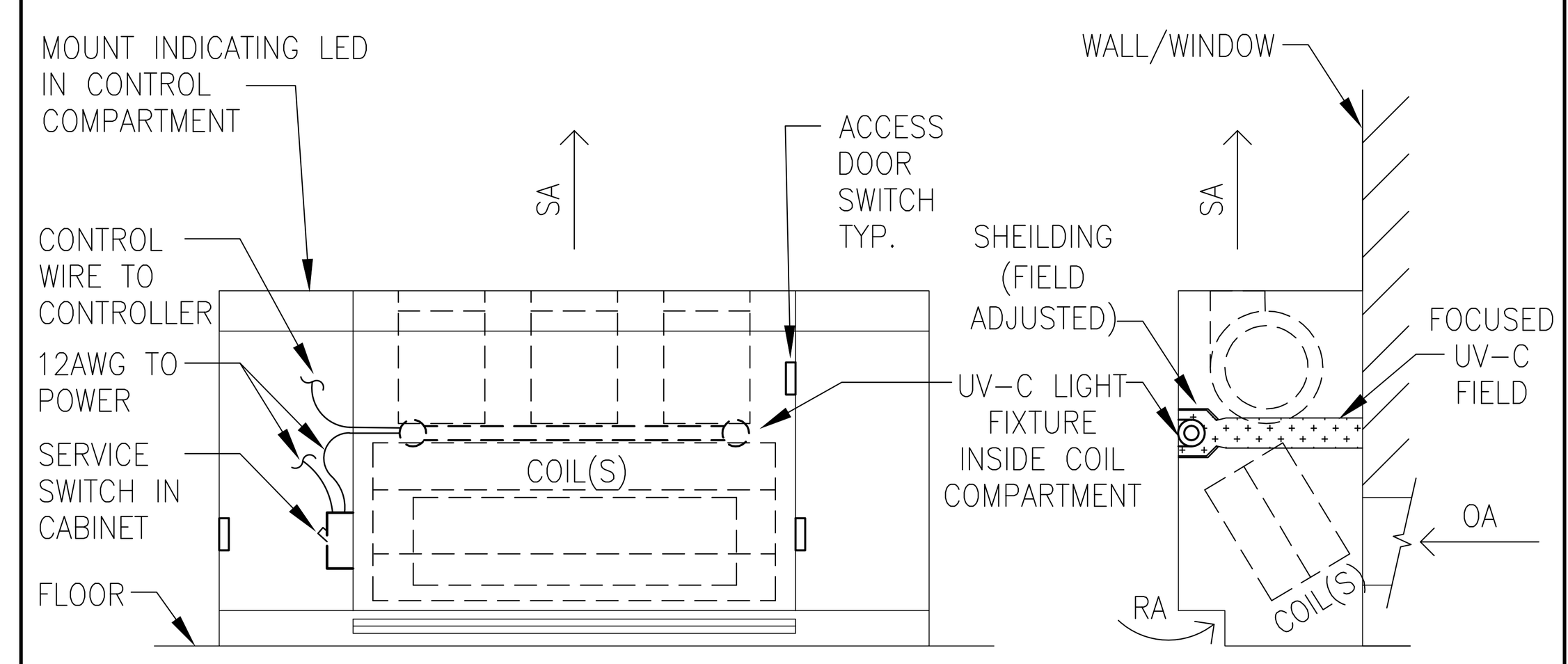
1 ROOFTOP UNIT VERTICAL DUCT UV-C LIGHT INSTALLATION
SCALE: NONE



NOTES:

1. IN–DUCT UV–C LIGHT FIXTURES TO BE POSITIONED BETWEEN HVAC UNIT DISCHARGE AND FIRST TAKEOFF FROM TRUNK.
2. REFER TO AND INSTALL PER MANUFACTURER'S RECOMMENDATIONS.
3. POWER AND CONTROL WIRING TO BE IN SEPARATE CONDUIT/MC TO AVOID INTERFERENCE.

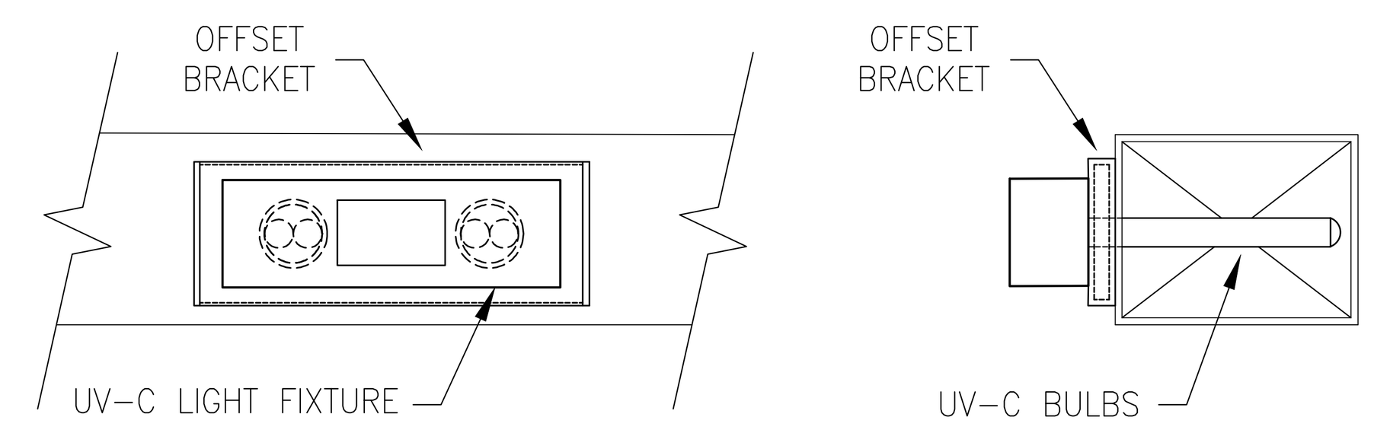
2 DUCTWORK UV-C LIGHT TYPICAL INSTALLATION DETAIL
SCALE: NONE



NOTES:

1. "IN CABINET" INSTALLATIONS TO HAVE AT LEAST ONE (1) SNAP–ACTION TYPE SWITCH TO EACH OF THE SCHEDULED HVAC UNITS' (UV, AHU, RTU, ETC.) ACCESS DOORS/PANELS AND/OR ADJACENT DUCTWORK ACCESS DOORS/PANELS. HARDWIRE POWER TO SWITCHES TO AUTOMATICALLY TURN OFF ALL UV–C LIGHTS ON THE APPLICABLE UV–C CIRCUIT IF ANY PANELS ARE OPENED. PROVIDE ALL WIRING AND APPURTENANCES. SEE SCHEDULE FOR UNIT TYPES. VERIFY ACCESS DOORS/PANELS IN FIELD.
2. REFER TO AND INSTALL PER MANUFACTURER'S RECOMMENDATIONS.
3. LED INDICATING LIGHT TO BE MOUNTED IN CONTROL PANEL OR AS OTHERWISE APPROVED. LED LIGHT SHALL BE VISIBLE EVEN WITH ALL OTHER ACCESS PANELS CLOSED. LED LIGHT SHALL ILLUMINATE ONLY WHEN UV–C LIGHTS ARE ILLUMINATED.

3 VERTICAL UV/FCU UV-C LIGHT TYPICAL INSTALLATION DETAIL
SCALE: NONE



NOTES:

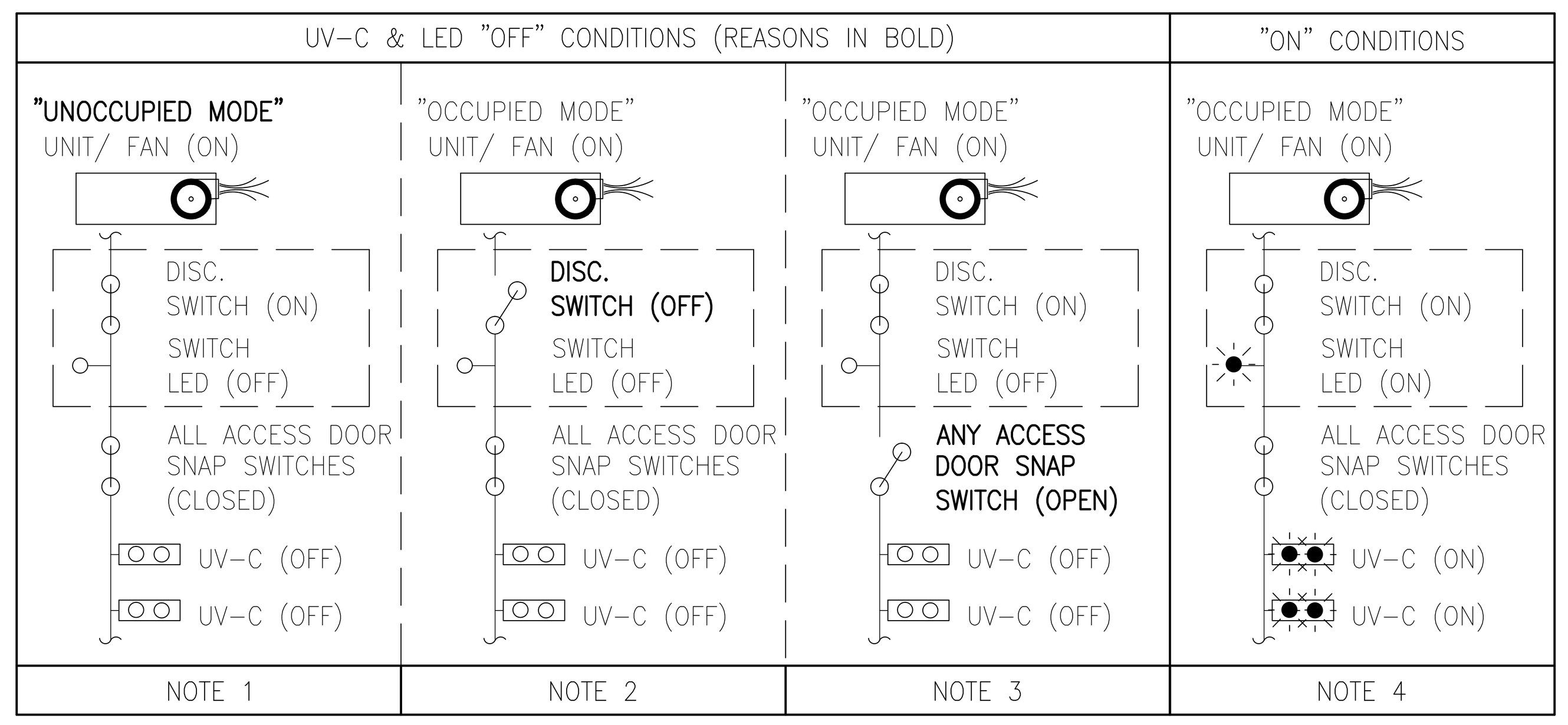
1. OFFSETS TO BE INSTALLED AS APPLICABLE.

4 OFFSET BRACKET PLACEMENT FOR HIGH WATTAGE BULB IN SMALL DUCT
SCALE: NONE

EQUIPMENT:	LABELS REQUIRED:
UV–C LIGHT FIXTURES	• UV–C CIRCUIT MARK • "UV–C ON" AT INDICATING LEDS • WARNING LABEL (BY MANUFACTURER) • BLANK LABEL ON CEILINGS FOR QUICK LOCATION (WHEN APPLICABLE)
SERVICE SWITCH	• UV–C CIRCUIT MARK • "UV–C ON" AT INDICATING LEDS (WHEN APPLICABLE) • PANEL LOCATION, NAME, BREAKER # (WHEN APPLICABLE)

NOTE: LABEL COLOR TO BE PURPLE, OR AS SELECTED BY DISTRICT

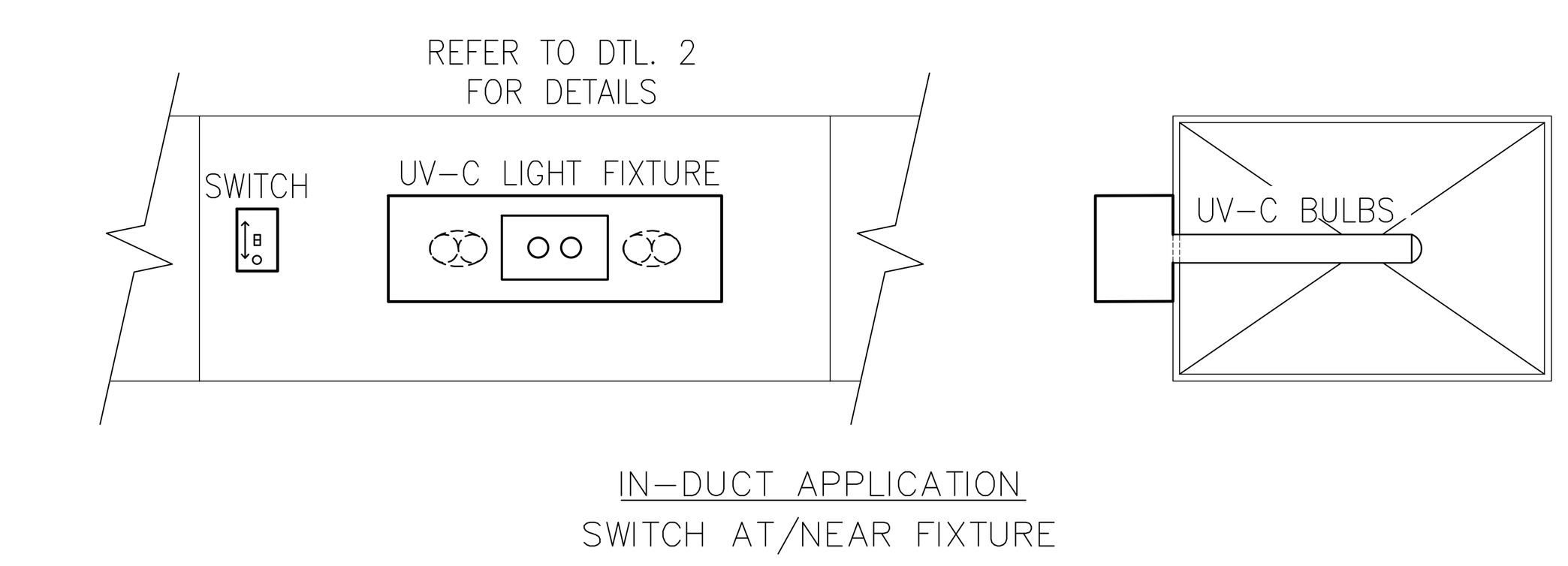
5 LABELING REQUIREMENTS AND LOCATIONS
SCALE: NONE

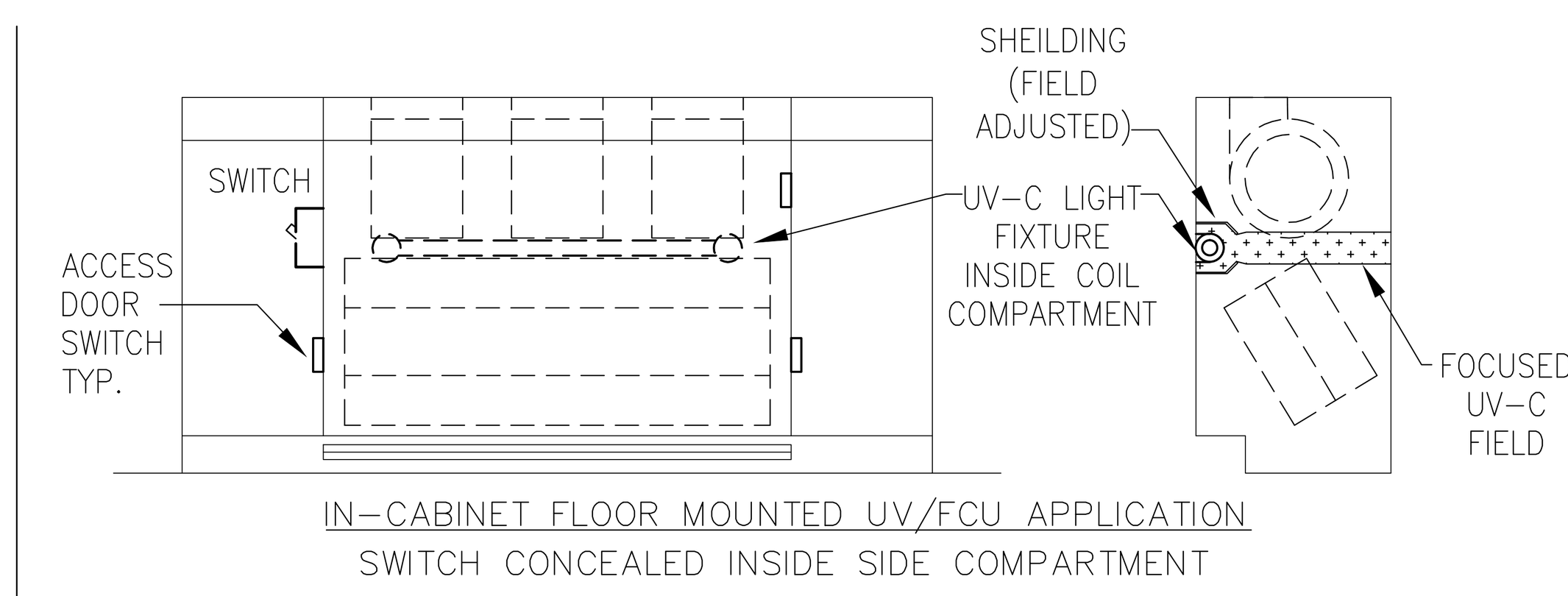


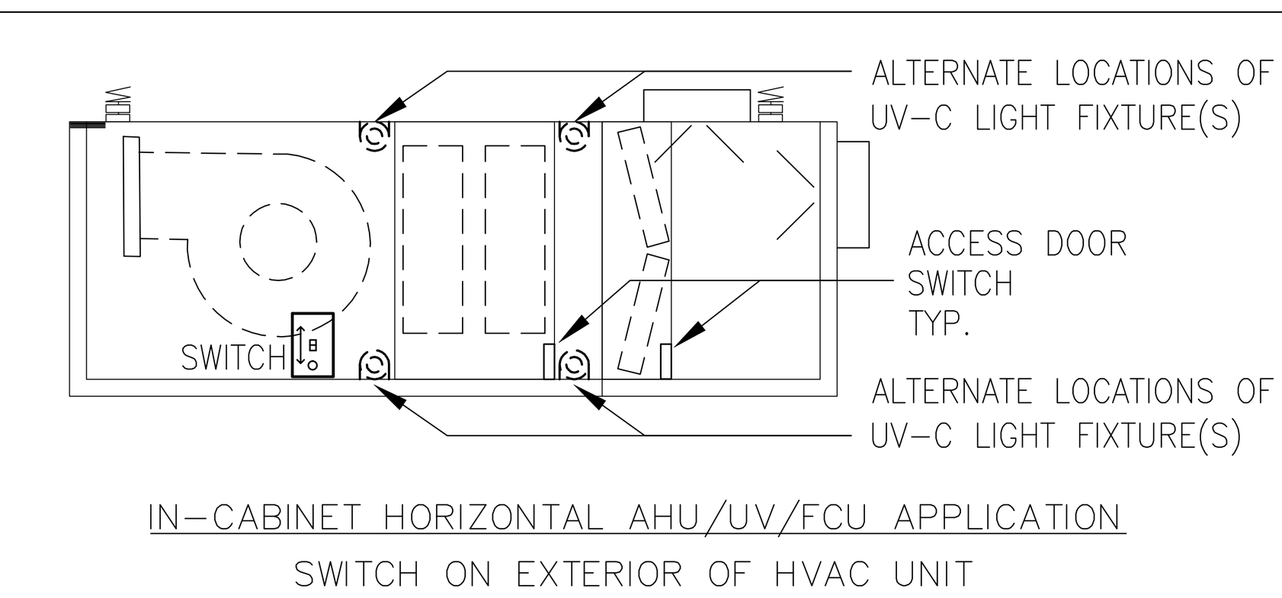
NOTES:

1. UV–C FIXTURES SHALL NOT ENGAGE DURING "UNOCCUPIED" MODE. "OCCUPIED MODE" TO BE ACTIVE WITHIN THE TIME FRAME FROM ONE HOUR BEFORE SCHOOL UNTIL ONE HOUR AFTER SCHOOL "UNOCCUPIED MODE" TO BE ACTIVE OUTSIDE OF THAT TIME FRAME (COORDINATE TIME–FRAME SETTING WITH DISTRICT REPRESENTATIVE), OR AS DEFINED BY THE HVAC EQUIPMENT.
2. THE DISCONNECTING SWITCH IN THE "OFF" POSITION SHALL NOT ILLUMINATE THE LED AND SHALL DISCONNECT ALL UV–C LIGHTS ON THE CIRCUIT. UV–C FIXTURES SHALL NOT ENGAGE IF THE DISCONNECTING SWITCH IS "OFF".
3. HVAC UNITS WITH UV–C LIGHT FIXTURES INSTALLED INSIDE OF THE UNIT'S CABINET (WHEN APPLICABLE) SHALL HAVE SNAP SWITCH SENSORS INSTALLED TO ALL ACCESS DOORS. IF ANY ACCESS DOOR SNAP SWITCH SENSORS ARE OPEN THE UV–C FIXTURES SHALL NOT ENGAGE.
4. THE UV–C LIGHT FIXTURES AND DISCONNECTING SWITCH LED SHALL ENGAGE AND ILLUMINATE ONLY WHEN: DURING "OCCUPIED MODE", WHEN THE HVAC UNIT IS "ON", ALL SNAP SWITCH SENSORS ARE CLOSED, AND DISCONNECTING SWITCH IS "ON".

6 UV-C LIGHT FIXTURE ACTIVATION CONDITIONS
SCALE: NONE



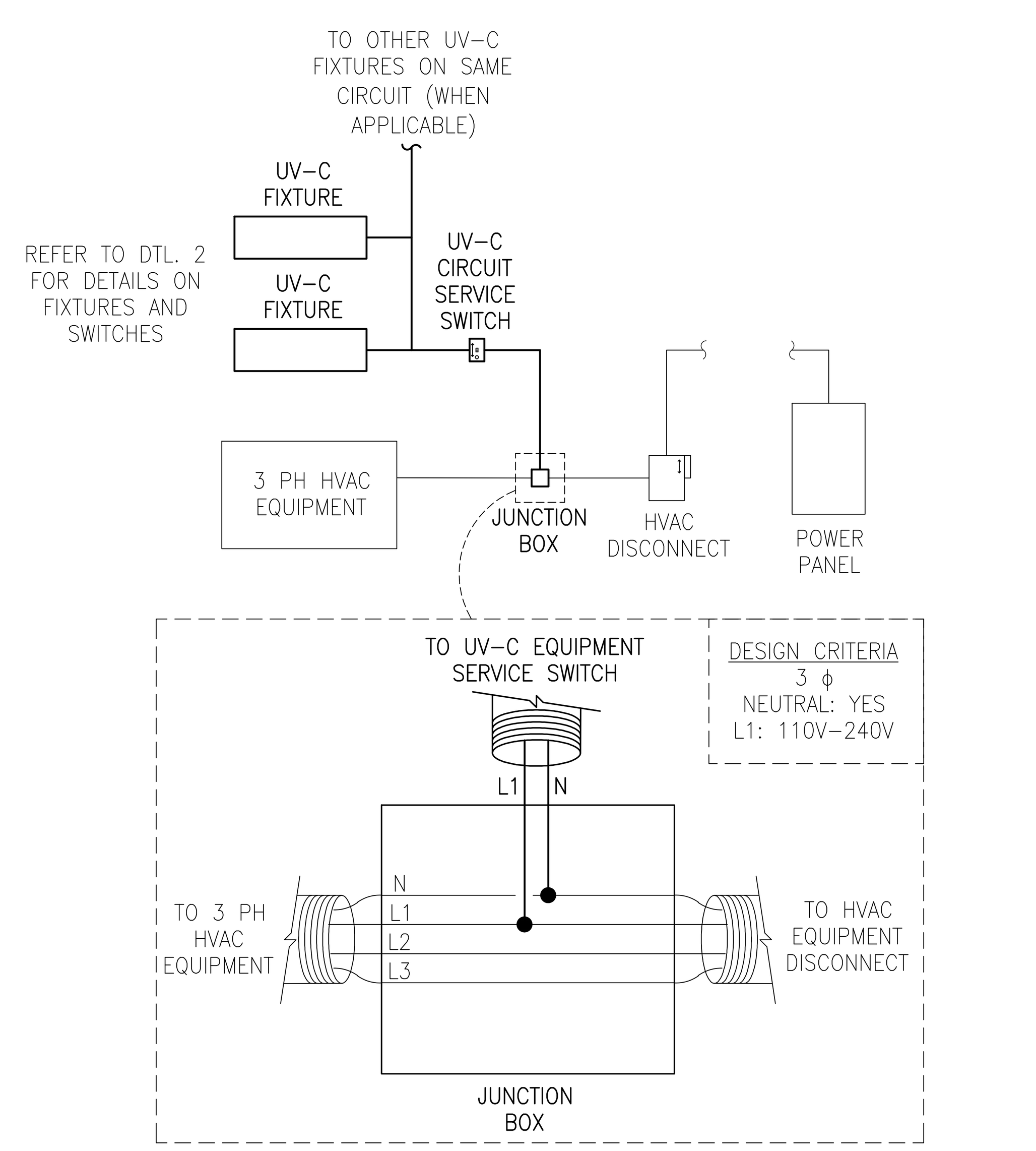




NOTES:

1. ARRANGEMENTS OF HVAC COMPONENTS AND UV–C LIGHT FIXTURE INSTALLATION LOCATIONS AND QUANTITIES MAY VARY. INSTALL PER SCHEDULE AND MANUFACTURER RECOMMENDATIONS.
2. ALL ACCESS DOORS TO BE OUTFITTED WITH SENSOR SWITCHES TO AUTOMATICALLY DISCONNECT POWER TO UV–C FIXTURES WHEN ACCESS DOORS ARE REMOVED FROM UNITS WITH UV–C INSTALLATIONS INSIDE THE CABINET.
3. ALL SWITCHES AND FIXTURES TO BE INSTALLED AWAY FROM SOURCES OF CONDENSATION OR OTHER MOISTURE.
4. FOR IN–DUCTWORK APPLICATIONS, MOUNT DISCONNECT SWITCH AT OR NEAR THE UV–C LIGHT INSTALLATION. FOR IN–CABINET APPLICATIONS FOR EXPOSED UVS OR FCUS, MOUNT DISCONNECT SWITCH INSIDE THE SIDE CABINET OR CONTROL AREA OF THE CABINET. FOR IN–CABINET APPLICATIONS FOR UNITS THAT ARE LOCATED ABOVE CEILINGS OR ARE OTHERWISE CONCEALED, DISCONNECT SWITCH TO BE MOUNTED DIRECTLY TO THE OUTSIDE OF THE UNIT.

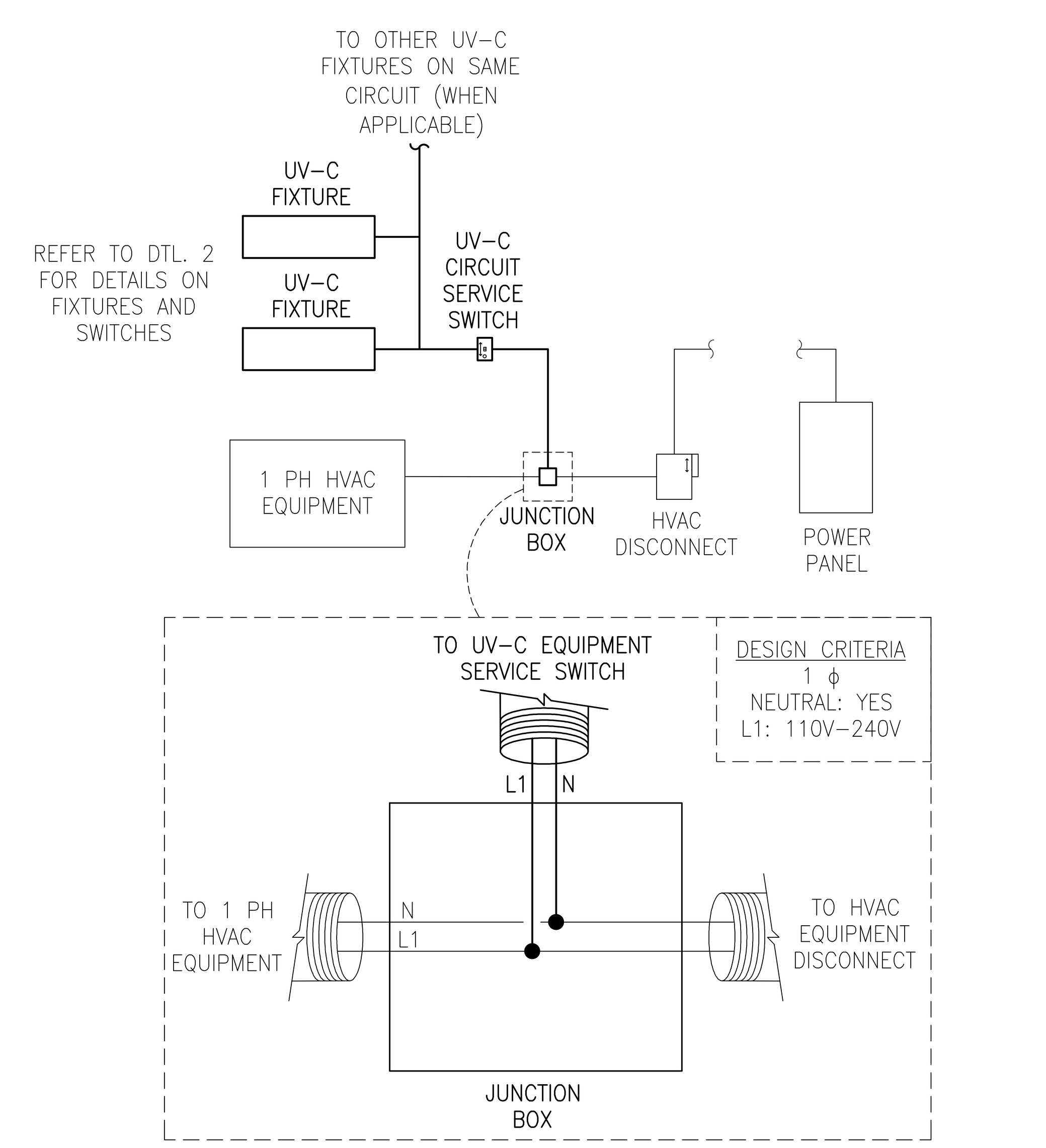
7 UV-C LIGHT FIXTURE & DISCONNECT SWITCH INSTALLATION LOCATIONS
SCALE: NONE



8 UV-C POWER DIAGRAM THREE PHASE W/ NEUTRAL & L1=110V-240V
SCALE: NONE

NOTES:

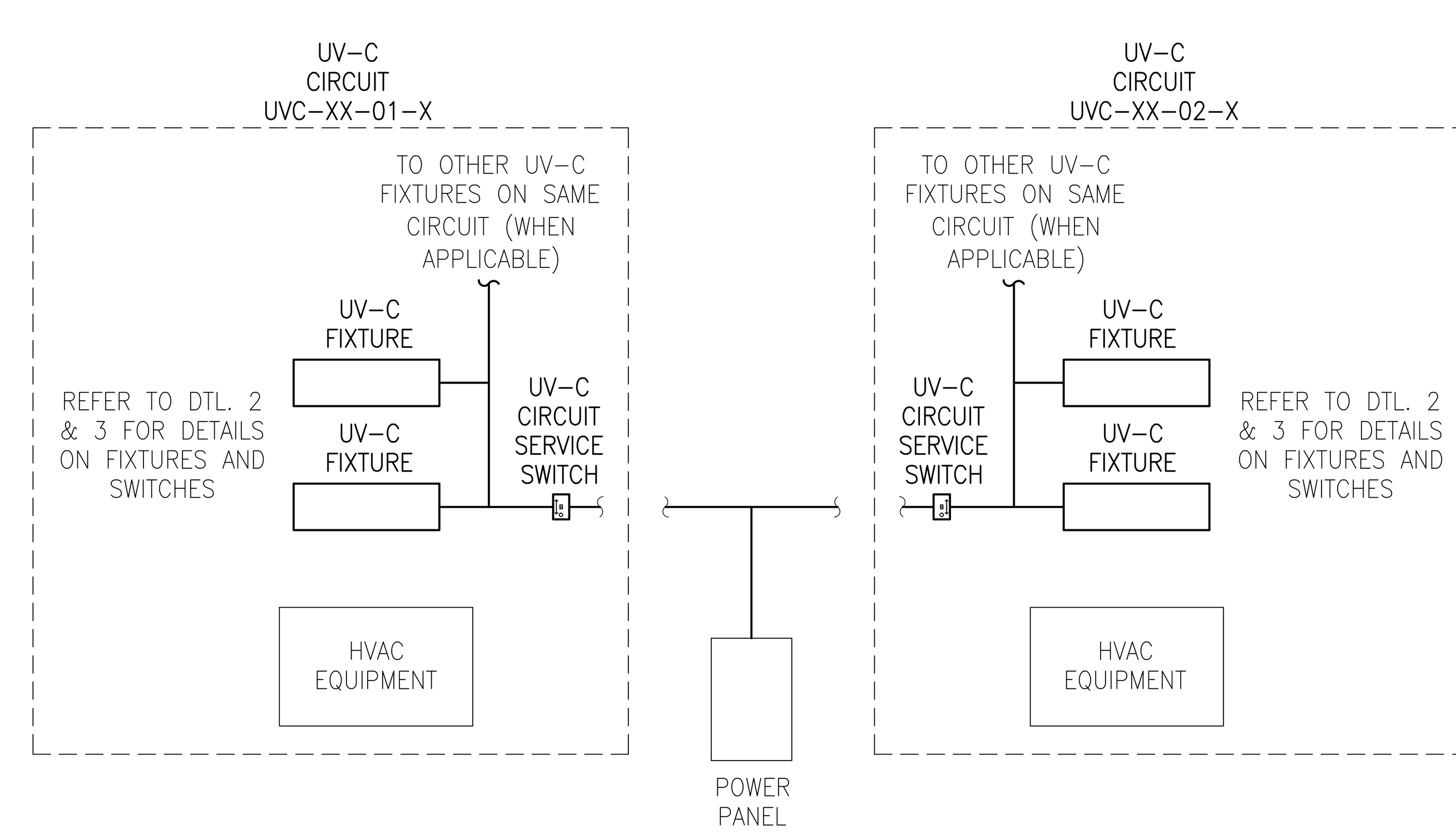
1. CIRCUIT MAY BE POWERED FROM HVAC EQUIPMENT'S POWER CIRCUIT WHEN A NEUTRAL WIRE IS PRESENT. BEFORE TAPPING, ONE LEG'S CIRCUIT VOLTAGE MUST TEST TO THE SPECIFIED VOLTAGE RANGE ABOVE. INSTALL 4"x4"x2" JUNCTION BOX BETWEEN HVAC DISCONNECT AND HVAC EQUIPMENT AS SHOWN.



9 UV-C POWER DIAGRAM SINGLE PHASE W/ NEUTRAL & L1=110V-240V
SCALE: NONE

NOTES:

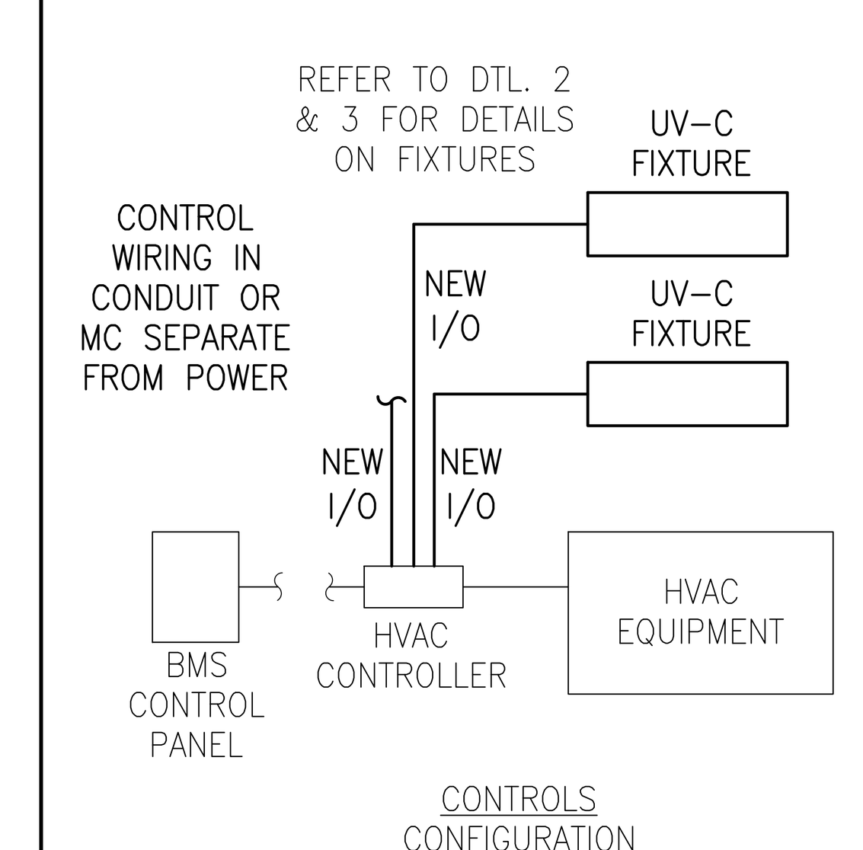
1. CIRCUIT MAY BE POWERED FROM HVAC EQUIPMENT'S POWER CIRCUIT WHEN A NEUTRAL WIRE IS PRESENT. BEFORE TAPPING, CIRCUIT VOLTAGE MUST TEST TO THE SPECIFIED VOLTAGE RANGE ABOVE. INSTALL 4"x4"x2" JUNCTION BOX BETWEEN HVAC DISCONNECT AND HVAC EQUIPMENT AS SHOWN.



10 UV-C POWER DIAGRAM THREE PHASE W/O NEUTRAL AND/OR 240V-480V
SCALE: NONE

NOTES:

1. UV–C CIRCUIT MUST BE POWERED FROM AN AVAILABLE NEARBY PANEL IF NEUTRAL IS NOT PRESENT IN HVAC EQUIPMENT POWER CIRCUIT, OR EXCEEDS THE VOLTAGE RANGE NOTED ABOVE. SEE UV–C SCHEDULES FOR PROPOSED POWER SOURCES. DO NOT TAP INTO OTHER UNSPECIFIED EXISTING CIRCUITS. UV–C CIRCUITS TO BE GROUPED TOGETHER WHENEVER FEASIBLE. PROVIDE NEW BREAKER. CLEARLY IDENTIFY ROOM NUMBER, PANEL NAME, AND BREAKER NUMBER AT UV–C FIXTURE SERVICE SWITCH. IDENTIFY NEW CIRCUIT AT PANEL.



BMS USER INTERFACE:
EACH UV–C FIXTURE TO INCORPORATE THE FOLLOWING:

1. ITEM: "UV–C–C"
   VALUE: ON/OFF
   DESCRIPTION: "UV–C LIGHT COMMAND"

   DEFINITION:
   PROMPT FOR UV–C LIGHT ACTIVATION BASED ON HVAC OCCUPANCY STATUS PROTOCOL.

   ON=OCCUPIED MODE AS DEFINED BY HVAC EQUIPMENT CONTROLLER.
   OFF=UNOCCUPIED MODE AS DEFINED BY HVAC EQUIPMENT CONTROLLER.

2. ITEM: "UV–C–S"
   VALUE: ON/OFF
   DESCRIPTION: "UV–C LIGHT STATUS"

   DEFINITION:
   ACTUAL STATUS OF UV–C LIGHT

   ON=UV–C IS ON
   OFF=UV–C IS OFF

SIGNAL ALARMS FOR:
UV–C COMMAND "ON" BUT UV–C STATUS "OFF"
UV–C COMMAND "OFF" BUT UV–C STATUS "ON"

MONITOR AND ALARM FOR EQUIPMENT FAILURE AND/OR BULB FAILURE.

11 UV-C CONTROLS DIAGRAM
SCALE: NONE

NOTES:

1. UV–C EQUIPMENT SHALL BE INTEGRATED INTO THE EXISTING BMS AS SHOWN. ACTIVATION PROTOCAL SHALL BE BASED UPON THE "UV–C FIXTURE ACTIVATION CONDITIONS" DETAIL.

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STATE OF NEW YORK
JACK EISENBACH
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LICENSED PROFESSIONAL ENGINEER

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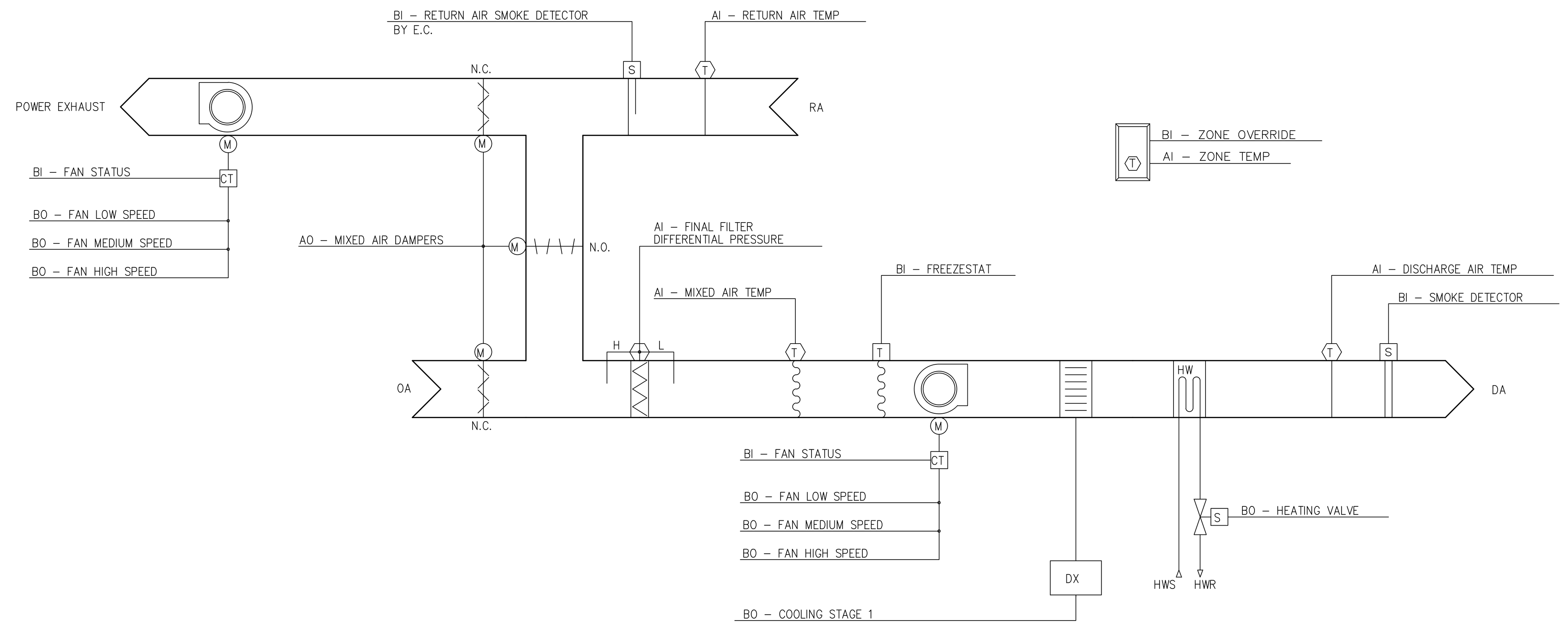
225 WEST STREET EXT, WARWICK, NY 10990
WV HIGH SCHOOL – 89 SANFORDVILLE ROAD. WARWICK, NY 10990
SED NO. 44–21–01–06–0–001–042

PROJECT NO.	05–21–04 05–20–06
ISSUED FOR BID	11.09.2022
SED SET	10.19.2022
REVISION	DATE
DRAWN BY	
CHECKED BY	
SHEET SIZE	30" X 42"
SCALE	AS NOTED

SHEET TITLE
UV-C LIGHT FIXTURE DETAILS

SHEET NO.
M-504

FILE PATH –N: \1 – PROJECT DIRECTORIES\1– E & R Projects\05 – Warwick Valley CSD\05–21–04 Warwick Federal Grant Project\CAD\Package3.HsUvsVrf\05–21–04.m503–m505.dwg



ROOF TOP UNIT W/ DX COOLING – RTU
RUN CONDITIONS – SCHEDULED:
THE UNIT SHALL RUN ACCORDING TO A USER DEFINABLE TIME SCHEDULE IN THE FOLLOWING MODES:
- OCCUPIED MODE: THE UNIT SHALL MAINTAIN
  - o A 74°F (ADJ.) COOLING SETPOINT
  - o A 70°F (ADJ.) HEATING SETPOINT.
- UNOCCUPIED MODE (NIGHT SETBACK): THE UNIT SHALL MAINTAIN
  - o A 85°F (ADJ.) COOLING SETPOINT.
  - o A 55°F (ADJ.) HEATING SETPOINT.

ALARMS SHALL BE PROVIDED AS FOLLOWS:
- HIGH ZONE TEMP: IF THE ZONE TEMPERATURE IS GREATER THAN THE COOLING SETPOINT BY A USER DEFINABLE AMOUNT (ADJ.).
- LOW ZONE TEMP: IF THE ZONE TEMPERATURE IS LESS THAN THE HEATING SETPOINT BY A USER DEFINABLE AMOUNT (ADJ.).

ZONE OPTIMAL START:
THE UNIT SHALL USE AN OPTIMAL START ALGORITHM FOR MORNING START–UP. THIS ALGORITHM SHALL MINIMIZE THE UNOCCUPIED WARM–UP OR COOL–DOWN PERIOD WHILE STILL ACHIEVING COMFORT CONDITIONS BY THE START OF SCHEDULED OCCUPIED PERIOD.
SMOKE DETECTION:
THE UNIT SHALL SHUT DOWN AND GENERATE AN ALARM UPON RECEIVING A SMOKE DETECTOR STATUS.
FAN:
THE FAN SHALL RUN ANYTIME THE UNIT IS COMMANDED TO RUN, UNLESS SHUTDOWN ON SAFETIES.
COOLING STAGE:
THE CONTROLLER SHALL MEASURE THE ZONE TEMPERATURE AND STAGE THE COOLING TO MAINTAIN ITS COOLING SETPOINT. TO PREVENT SHORT CYCLING, THE STAGE SHALL HAVE A USER DEFINABLE (ADJ.) MINIMUM RUNTIME.
THE COOLING SHALL BE ENABLED WHENEVER:
- OUTSIDE AIR TEMPERATURE IS GREATER THAN 60°F (ADJ.).
- AND THE ZONE TEMPERATURE IS ABOVE COOLING SETPOINT.
- AND THE FAN IS ON.

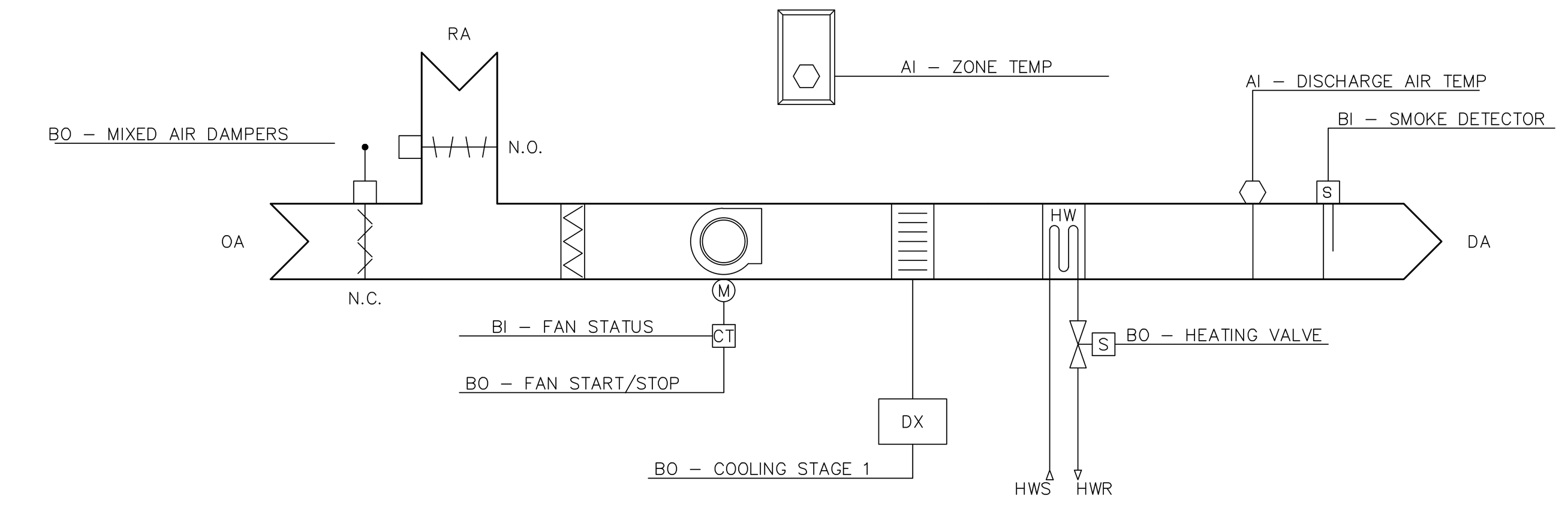
HEATING COIL VALVE:
THE CONTROLLER SHALL MEASURE THE ZONE TEMPERATURE AND OPEN THE HEATING COIL VALVE TO MAINTAIN ITS HEATING SETPOINT.
THE HEATING SHALL BE ENABLED WHENEVER:
- OUTSIDE AIR TEMPERATURE IS LESS THAN 65°F (ADJ.).
- AND THE ZONE TEMPERATURE IS BELOW HEATING SETPOINT.
- AND THE FAN IS ON.

THE HEATING COIL VALVE SHALL OPEN WHENEVER THE FREEZESTAT (IF PRESENT) IS ON.
HEATING – HIGH DISCHARGE AIR TEMPERATURE LIMIT:
THE CONTROLLER SHALL MEASURE THE DISCHARGE AIR TEMPERATURE AND, ON RISING TEMPERATURE, LIMIT THE HEATING AS FOLLOWS:
- AS THE DISCHARGE AIR TEMPERATURE RISES FROM 90°F TO 120°F (ADJ.),
- THE CONTROLLER SHALL LIMIT THE HEATING OUTPUT FROM 100% TO 0% (ADJ.).

MIXED AIR DAMPERS:
THE OUTSIDE AIR DAMPER SHALL OPEN TO PROVIDE A FIXED PERCENTAGE OUTSIDE AIR VENTILATION ANYTIME THE UNIT IS OCCUPIED AND SHALL CLOSE ANYTIME THE UNIT STOPS. THE DAMPER OPEN POSITION SHALL BE SET DURING TESTING AND BALANCING. THE MIXED AIR DAMPERS SHALL CLOSE 1 SEC (ADJ.) AFTER THE FAN STOPS.
IF OPTIMAL START UP IS AVAILABLE THE OUTSIDE AIR DAMPER SHALL CLOSE AND THE RETURN AIR DAMPER SHALL OPEN.
MINIMUM OUTSIDE AIR VENTILATION – FIXED PERCENTAGE:
THE OUTSIDE AIR DAMPERS SHALL MAINTAIN A MINIMUM POSITION (ADJ.) DURING BUILDING OCCUPIED HOURS AND BE CLOSED DURING UNOCCUPIED HOURS.
FILTER HOURS:
THE CONTROLLER SHALL MONITOR THE FAN RUNTIME.

ALARMS SHALL BE PROVIDED AS FOLLOWS:
CHANGE REQUIRED: FILTER HAS BEEN IN USE FOR MORE THAN 2200
DISCHARGE AIR TEMPERATURE:
THE CONTROLLER SHALL MONITOR THE DISCHARGE AIR
ALARMS SHALL BE PROVIDED AS FOLLOWS:
HIGH DISCHARGE AIR TEMP: IF THE DISCHARGE AIR TEMPERATURE IS GREATER THAN 120°F (ADJ.).
LOW DISCHARGE AIR TEMP: IF THE DISCHARGE AIR TEMPERATURE IS LESS THAN 40°F (ADJ.).
FAN STATUS:
THE CONTROLLER SHALL MONITOR THE FAN STATUS.
ALARMS SHALL BE PROVIDED AS FOLLOWS:
FAN FAILURE: COMMANDED ON, BUT THE STATUS IS OFF.
FAN IN HAND: COMMANDED OFF, BUT THE STATUS IS ON.
FAN RUNTIME EXCEEDED: FAN STATUS RUNTIME EXCEEDS A USER DEFINABLE LIMIT (ADJ.).
ENVIRONMENTAL INDEX:
WHEN THE ZONE IS OCCUPIED, THE CONTROLLER WILL MONITOR THE DEVIATION OF THE ZONE TEMPERATURE FROM THE HEATING OR COOLING SETPOINT AND CALCULATE A 0 – 100% ENVIRONMENTAL INDEX WHICH GIVES AN INDICATION OF HOW WELL THE ZONE IS MAINTAINING COMFORT.
PERCENTAGE OF TIME SINCE OCCUPANCY BEGAN THAT THE ENVIRONMENTAL INDEX WAS 70% OR HIGHER.

4 ROOFTOP UNIT (HW HEATING AND DX COOLING) CONTROL SCHEMATIC
SCALE: NONE



UNIT VENTILATOR

RUN CONDITIONS – SCHEDULED:
THE UNIT SHALL RUN ACCORDING TO A USER DEFINABLE TIME SCHEDULE IN THE FOLLOWING MODES:

OCCUPIED MODE: THE UNIT SHALL MAINTAIN
74 DEG F (ADJ.) COOLING SETPOINT
70 DEG F (ADJ.) HEATING SETPOINT.
UNOCCUPIED MODE (NIGHT SETBACK): THE UNIT SHALL MAINTAIN
85 DEG F (ADJ.) COOLING SETPOINT.
55 DEG F (ADJ.) HEATING SETPOINT.

ALARMS SHALL BE PROVIDED AS FOLLOWS:

HIGH ZONE TEMP: IF THE ZONE TEMPERATURE IS GREATER THAN THE COOLING SETPOINT BY A USER DEFINABLE AMOUNT (ADJ.).
LOW ZONE TEMP: IF THE ZONE TEMPERATURE IS LESS THAN THE HEATING SETPOINT BY A USER DEFINABLE AMOUNT (ADJ.).

ZONE OPTIMAL START:
THE UNIT SHALL USE AN OPTIMAL START ALGORITHM FOR MORNING START–UP. THIS ALGORITHM SHALL MINIMIZE THE UNOCCUPIED WARM–UP OR COOL–DOWN PERIOD WHILE STILL ACHIEVING COMFORT CONDITIONS BY THE START OF SCHEDULED OCCUPIED PERIOD.

SMOKE DETECTION:
THE UNIT SHALL SHUT DOWN AND GENERATE AN ALARM UPON RECEIVING A SMOKE DETECTOR STATUS.

FAN:
THE FAN SHALL RUN ANYTIME THE UNIT IS COMMANDED TO RUN, UNLESS SHUTDOWN ON SAFETIES.

COOLING STAGE:
THE CONTROLLER SHALL MEASURE THE ZONE TEMPERATURE AND STAGE THE COOLING TO MAINTAIN ITS COOLING SETPOINT. TO PREVENT SHORT CYCLING, THE STAGE SHALL HAVE A USER DEFINABLE (ADJ.) MINIMUM RUNTIME.
THE COOLING SHALL BE ENABLED WHENEVER:

OUTSIDE AIR TEMPERATURE IS GREATER THAN 60 DEG F (ADJ.).
AND THE ZONE TEMPERATURE IS ABOVE COOLING SETPOINT.
AND THE FAN IS ON.

HEATING COIL VALVE:
THE CONTROLLER SHALL MEASURE THE ZONE TEMPERATURE AND OPEN THE HEATING COIL VALVE TO MAINTAIN ITS HEATING SETPOINT.
THE HEATING SHALL BE ENABLED WHENEVER:

OUTSIDE AIR TEMPERATURE IS LESS THAN 65 DEG F (ADJ.).
AND THE ZONE TEMPERATURE IS BELOW HEATING SETPOINT.
AND THE FAN IS ON.

THE HEATING COIL VALVE SHALL OPEN WHENEVER THE FREEZESTAT (IF PRESENT) IS ON.

HEATING – HIGH DISCHARGE AIR TEMPERATURE LIMIT:
THE CONTROLLER SHALL MEASURE THE DISCHARGE AIR TEMPERATURE AND, ON RISING TEMPERATURE, LIMIT THE HEATING AS FOLLOWS:

AS THE DISCHARGE AIR TEMPERATURE RISES FROM 90 DEG F TO 120 F (ADJ.),
THE CONTROLLER SHALL LIMIT THE HEATING OUTPUT FROM 100% TO 0% (ADJ.).

MIXED AIR DAMPERS:
THE OUTSIDE AIR DAMPER SHALL OPEN TO PROVIDE A FIXED PERCENTAGE OUTSIDE AIR VENTILATION ANYTIME THE UNIT IS OCCUPIED AND SHALL CLOSE ANYTIME THE UNIT STOPS. THE DAMPER OPEN POSITION SHALL BE SET DURING TESTING AND BALANCING. THE MIXED AIR DAMPERS SHALL CLOSE 1 SEC (ADJ.) AFTER THE FAN STOPS.
IF OPTIMAL START UP IS AVAILABLE THE OUTSIDE AIR DAMPER SHALL CLOSE AND THE RETURN AIR DAMPER SHALL OPEN.

MINIMUM OUTSIDE AIR VENTILATION – FIXED PERCENTAGE:
THE OUTSIDE AIR DAMPERS SHALL MAINTAIN A MINIMUM POSITION (ADJ.) DURING BUILDING OCCUPIED HOURS AND BE CLOSED DURING UNOCCUPIED HOURS.

FILTER HOURS:
THE CONTROLLER SHALL MONITOR THE FAN RUNTIME.
ALARMS SHALL BE PROVIDED AS FOLLOWS:

FILTER CHANGE REQUIRED: FILTER HAS BEEN IN USE FOR MORE THAN 2200 HRS (ADJ.).

DISCHARGE AIR TEMPERATURE:
THE CONTROLLER SHALL MONITOR THE DISCHARGE AIR TEMPERATURE.
ALARMS SHALL BE PROVIDED AS FOLLOWS:

HIGH DISCHARGE AIR TEMP: IF THE DISCHARGE AIR TEMPERATURE IS GREATER THAN 120 DEG F (ADJ.).
LOW DISCHARGE AIR TEMP: IF THE DISCHARGE AIR TEMPERATURE IS LESS THAN 40 DEG F (ADJ.).

FAN STATUS:
THE CONTROLLER SHALL MONITOR THE FAN STATUS.
ALARMS SHALL BE PROVIDED AS FOLLOWS:

FAN FAILURE: COMMANDED ON, BUT THE STATUS IS OFF.
FAN IN HAND: COMMANDED OFF, BUT THE STATUS IS ON.
FAN RUNTIME EXCEEDED: FAN STATUS RUNTIME EXCEEDS A USER DEFINABLE LIMIT (ADJ.).

FLOAT SWITCH:
A FLOAT SWITCH TO DEACTIVATE THE UNIT WHEN READING HIGH LEVELS OF CONDENSATE IN THE DRAIN PAN.

1 TYPICAL UNIT VENTILATOR CONTROL SCHEMATIC
SCALE: NONE

ELECTRONIC EXPANSION VALVE (EEV)

VALVE SHALL PULSE TO MODULATE FLOW OF REFRIGERANT INTO THE CONDENSER/EVAPORATOR BY RECEIVING DIRECTION FROM THE CONTROL BOX, WHICH CONTROLS THE EEV BY MONITORING SENSOR VALUES AND INITIATING RESPONSES TO ACQUIRE DESIRED ROOM TEMPERATURE VALUES.

INDOOR SENSORS
- GAS THERMISTOR – MOUNTED ON SUCTION SIDE OF INDOOR EVAPORATOR COIL.
- SATURATED LIQUID THERMISTER – MOUNTED ON LIQUID SIDE OF INDOOR EVAPORATOR COIL, AFTER THE EEV.
- RETURN AIR THERMISTOR – LOCATED IN RETURN AIR STREAM
- REMOTE CONTROLLER W/ TEMPERATURE SENSOR – LOCATED AS SHOWN ON DRAWINGS.

CONTROL OF OUTDOOR ELECTRONIC EXPANSION VALVE

1. IN COOLING OPERATION, THE OUTDOOR UNIT'S ELECTRONIC EXPANSION VALVE IS IN THE FULLY OPEN POSITION.

2. IN HEATING OPERATION – SUPERHEATED DEGREE CONTROL
SUPERHEATED DEGREE [SH] IS CALCULATED FROM THE LOW–PRESSURE EQUIVALENT SATURATION TEMPERATURE (TE) CONVERTED FROM THE PRESSURE DETECTED BY THE LOW PRESSURE SENSOR OF THE OUTDOOR UNIT (PE) AND TEMPERATURE DETECTED BY THE SUCTION PIPE THERMISTOR (TS). THE ELECTRONIC EXPANSION VALVE OPENING DEGREE IS REGULATED SO THAT THE SUPERHEATED DEGREE [SH] BECOMES CLOSE TO TARGET SUPERHEATED DEGREE [SHS].

WHEN SH > SHS, ADJUST TO MAKE OPENING DEGREE OF THE ELECTRONIC EXPANSION VALVE LARGER THAN THE PRESENT ONE.

WHEN SH< SHS, ADJUST TO MAKE OPENING DEGREE OF THE ELECTRONIC EXPANSION VALVE SMALLER THAN THE PRESENT ONE.

- SH : SUPERHEATED DEGREE (TS – TE)
- SHS : TARGET SUPERHEATED DEGREE

R410A EEV PULSE RANGE: 0–2000

CONTROL OF INDOOR ELECTRONIC EXPANSION VALVE

1. IN COOLING OPERATION – SUPERHEATED DEGREE CONTROL
SUPERHEATED DEGREE [SH] IS CALCULATED FROM TEMPERATURE DETECTED BY THE GAS PIPE THERMISTOR OF INDOOR UNIT (TG) AND THE TEMPERATURE DETECTED BY THE INDOOR LIQUID PIPE THERMISTOR (TL). THE ELECTRONIC EXPANSION VALVE OPENING DEGREE IS CONTROLLED SO THAT THE SUPERHEATED DEGREE [SH] IS CLOSE TO THE TARGETED SUPERHEATED DEGREE [SHS].

THE COMPENSATION IS MADE BASED ON THE TEMPERATURE DIFFERENCE BETWEEN SET–POINT TEMPERATURE AND THE RETURN–AIR THERMISTOR TEMPERATURE (ΔT).

WHEN SH > SHS, ADJUST TO MAKE OPENING DEGREE OF THE ELECTRONIC EXPANSION VALVE LARGER THAN THE PRESENT ONE.
WHEN SH< SHS, ADJUST TO MAKE OPENING DEGREE OF THE ELECTRONIC EXPANSION VALVE SMALLER THAN THE PRESENT ONE.

- SH : SUPERHEATED DEGREE (TG–TL)
- SHS : TARGET SUPERHEATED DEGREE
- (ΔT): [(REMOTE CONTROLLER SET–POINT TEMPERATURE) – (RETURN–AIR THERMISTOR DETECTION VALUE)]

2. SUBCOOLED DEGREE CONTROL IN HEATING OPERATION
SUBCOOLED DEGREE [SC] IS CALCULATED FROM THE HIGH PRESSURE EQUIVALENT SATURATION TEMPERATURE (TC) CONVERTED FROM THE PRESSURE DETECTED BY HIGH PRESSURE SENSOR OF THE OUTDOOR UNIT AND THE TEMPERATURE DETECTED BY THE LIQUID PIPE THERMISTOR OF THE INDOOR UNIT (TL).

ELECTRONIC EXPANSION VALVE OPENING DEGREE IS REGULATED SO THAT THE SUBCOOLED DEGREE [SC] IS CLOSE TO TARGET SUBCOOLED DEGREE [SCS].

THE COMPENSATION IS MADE BASED ON THE TEMPERATURE DIFFERENCE BETWEEN SET–POINT TEMPERATURE AND THE RETURN–AIR THERMISTOR TEMPERATURE (ΔT).

WHEN SC > SCS, ADJUST TO MAKE OPENING DEGREE OF THE ELECTRONIC EXPANSION VALVE LARGER THAN THE PRESENT ONE.
WHEN SC< SCS, ADJUST TO MAKE OPENING DEGREE OF THE ELECTRONIC EXPANSION VALVE SMALLER THAN THE PRESENT ONE.
- SC : SUBCOOLED DEGREE (TC–TL)
- SCS : TARGET SUBCOOLED DEGREE
- (ΔT): [(REMOTE CONTROLLER SET–POINT TEMPERATURE)] – [(RETURN–AIR THERMISTOR DETECTION.)]

2 INDOOR/OUTDOOR ELECTRONIC EXPANSION VALVES
SCALE: NONE

COMPRESSOR CAPACITY CONTROL

OUTDOOR UNIT TO MONITOR SENSORS ON SYSTEM TO MAINTAIN STABLE CAPACITY REGARDLESS OF VARYING LOADS AS FOLLOWS:

COOLING:
THE LOW PRESSURE EQUIVALENT SATURATION TEMPERATURES (EVAPORATION TEMPERATURE = TE) CLOSE TO TARGET VALUE BASED ON THE PRESSURE DETECTED BY LOW PRESSURE SENSOR OF THE OUTDOOR UNIT (PE).

TARGET INDOOR EVAPORATING/ LO PRESSURE ABOUT 43°F @ 139 PSI

HEATING:
PRESSURE DETECTED BY HIGH–PRESSURE SENSOR CONTROL (PC), COMPRESSOR CAPACITY IS CONTROLLED TO PUT THE HIGH PRESSURE EQUIVALENT SATURATION TEMPERATURE (CONDENSING TEMPERATURE = TC) CLOSE TO TARGET VALUE.

TARGET INDOOR CONDENSING/ HI PRESSURE ABOUT 115°F @ 406 PSI

OUTDOOR FAN CONTROL (DAIKIN BASED)

COOLING:
- OUTDOOR FAN CONTROL ADJUST AIR FLOW RATE TO KEEP CONDENSING TEMPERATURE AT OR ABOVE 34°C.
- COMPRESSOR OFF: FAN OFF = STEP 0
- COMPRESSOR ON:
  PRESSURE–EQUALIZATION = 60 SECONDS. PRIOR TO COMPRESSOR OPERATION, OUTDOOR CONTROL SET FAN SPEED AT STEP 4 SO THAT REFRIGERANT SATURATION TEMPERATURE IN OUTDOOR UNIT BECOMES AROUND ACTUAL AMBIENT.
  NORMAL OPERATION: CONDENSING TEMPERATURE CONTROL CAN ADJUST FAN SPEED EVERY 20 SECONDS BETWEEN STEP 0 (OFF) AND STEP 8.

HEATING:
- DURING COMPRESSOR OPERATION, OUTDOOR FAN CONTROL SET DEFAULT NOMINAL AIR FLOW RATE = STEP 7.
- COMPRESSOR OFF:
  OUTDOOR AIR TEMPERATURE BELOW 25°C: FAN OFF = STEP 0.
  OUTDOOR AIR TEMPERATURE ABOVE 27°C: FAN STEP 1 = HEATING MODE IS DISABLED, LOW AIR FLOW RATE TO ENABLE TO MEASURE CORRECT OUTDOOR AIR TEMPERATURE (EFFECT SUNSHINE).
- COMPRESSOR ON:
  PRESSURE–EQUALIZATION. PRIOR TO COMPRESSOR OPERATION, OUTDOOR CONTROL SET FAN SPEED AT STEP 4.
  NORMAL OPERATION:
  WHEN SUCTION AND DISCHARGE PRESSURE ARE IN NORMAL RANGE, NOMINAL AIR FLOW RATE IS STEP 7.
  WHEN SUCTION PRESSURE AND DISCHARGE DROP WHILE MAIN EXPANSION VALVE OPENS GRADUALLY, HIGH AIR FLOW RATE IS SET = STEP 8.
  DEFROST: OUTDOOR FAN STOPS DURING DEFROST CYCLE OF OUTDOOR HEAT–EXCHANGER.

MULTI VRF UNIT OPERATION SEQUENCE

MASTER–SLAVE:
SET 1: "MASTER UNIT". THIS SYSTEM WILL SWITCH SEVERAL SYSTEMS BETWEEN COOLING/HEATING/FAN–ONLY.

SET 2: "SLAVE UNIT". THE SYSTEM WILL RECEIVE THE OPERATION FROM A SYSTEM SET AS "MASTER COOL/HEAT" WITH SAME "COOL/HEAT ADDRESS" (SET 2–1)

LEAD LAG AND LEAD ROTATION:
OUTDOOR UNIT ROTATION CHANGES THE OPERATING PRIORITY OF OUTDOOR UNITS. THE ROTATION FUNCTION TO KEEP COMPRESSOR(S) FROM BEING STOPPED FOR AN EXTENDED PERIOD OR AT CONSTANT LOADING, AND PREVENTING UNBALANCED OIL LEVEL.

TIMING OF OUTDOOR UNIT ROTATION:
- AFTER OIL RETURN OPERATION.
- AFTER DEFROSTING OPERATION (HEATING ONLY).
- AT STARTING CONTROL.
- WHEN ANY OF OUTDOOR UNIT STOPS FOR A PERIOD OF 20 MINUTES OR MORE.

3 OUTOOR VRF UNIT CONTROLS
SCALE: NONE

CONTROL DIAGRAMS LEGEND

AI = ANALOG INPUT. A PHYSICAL INPUT TO THE CONTROL MODULE.

AO = ANALOG OUTPUT. A PHYSICAL OUTPUT FROM THE CONTROL MODULE.

AV = ANALOG VALUE. AN INTERMEDIATE (SOFTWARE) POINT THAT MAY BE EDITABLE OR READ–ONLY. EDITABLE AVS ARE TYPICALLY USED TO ALLOW THE USER TO SET A FIXED CONTROL PARAMETER, SUCH AS A SETPOINT. READ ONLY AVS ARE TYPICALLY USED TO DISPLAY THE STATUS OF A CONTROL OPERATION.

BI = BINARY INPUT. A PHYSICAL INPUT TO THE CONTROL MODULE.

BO = BINARY OUTPUT. A PHYSICAL OUTPUT FROM THE CONTROL MODULE.

BV = BINARY VALUE. AN INTERMEDIATE (SOFTWARE) POINT THAT MAY BE EDITABLE OR READ–ONLY. EDITABLE BVS ARE TYPICALLY USED TO ALLOW THE USER TO SET A FIXED CONTROL PARAMETER, SUCH AS A SETPOINT. READ ONLY BVS ARE TYPICALLY USED TO DISPLAY THE STATUS OF A CONTROL OPERATION.

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PROJECT NO.	05–21–04 05–20–06
ISSUED FOR BID	11.09.2022
SED SET	10.19.2022
REVISION	DATE
DRAWN BY	
CHECKED BY	
SHEET SIZE	30" X 42"
SCALE	AS NOTED

SHEET TITLE
CONTROL SCHEMATICS

SHEET NO.
M-505

FILE PATH –N: \1 – PROJECT DIRECTORIES\1– E & R Projects\05 – Warwick Valley CSD\05–21–04 Warwick Federal Grant Project\CAD\Package3.HsUvsVrf\05–21–04.m503–m505.dwg

SYMBOLS LIST

GENERAL SYMBOLS:

- (#) KEYED NOTE
- HEAVY LINE–WEIGHT INDICATES TO PROVIDE DEVICES/EQUIPMENT AS NEW
- HEAVY LINE–WEIGHT WITH HASH MARKS INDICATES DEVICES/EQUIPMENT TO BE REMOVED
- INDICATES CONNECTION TO EXISTING
- INDICATES POINT OF DISCONNECT
- #(E) '(E)' NEXT TO LIGHT LINE–WEIGHT INDICATES EXISTING DEVICES/EQUIPMENT TO REMAIN
- #(ER) '(ER)' NEXT TO LIGHT LINE–WEIGHT INDICATES EXISTING DEVICES/EQUIPMENT TO BE REMOVED AND RELOCATED. REFER TO DEFINITIONS FOR INFORMATION
- #(RE) '(RE)' NEXT TO LIGHT LINE–WEIGHT INDICATES EXISTING DEVICES/EQUIPMENT TO BE REINSTALLED. REFER TO DEFINITIONS FOR INFORMATION
- REMOVALS (EQUIPMENT,CONDUIT,WIRING ETC.)
- EXISTING TO REMAIN
- NEW WORK

POWER SYMBOLS:

- # DUPLEX RECEPTACLE
- # QUAD RECEPTACLE
- # SPECIAL RECEPTACLE (NEMA CONFIGURATION AS INDICATED)
- (M) MOTOR CONNECTION (REFER TO EQUIPMENT CONTROL SCHEDULE)
- ELECTRICAL CONNECTION
- CONTACTOR
- JB JUNCTION BOX
- DISCONNECT SWITCH (NON–FUSED)
- DISCONNECT SWITCH (FUSED)
- PUSH BUTTON
  EM – INDICATES EMERGENCY SHUT–OFF
- MANUAL MOTOR STARTER
- COMBINATION MAGNETIC MOTOR STARTER
- VFD VARIABLE FREQUENCY DRIVE
- 208V PANELBOARD (RECESSED)
- 208V PANELBOARD (SURFACE)

TELEPHONE/DATA SYMBOLS:

- DR DATA RACK
- #D COMMUNICATIONS OUTLET
  #D – INDICATES NUMBER OF DATA JACKS
  #T – INDICATES NUMBER OF TELEPHONE JACKS
  WAP – WIRELESS ACCESS POINT
  PRES – INDICATES PRESENTATION STATION OUTLET
  PROJ – INDICATES PROJECTOR STATION OUTLET

ONE–LINE SYMBOLS:

- ##A–#P CIRCUIT BREAKER
- ##A FUSE
- ##A FUSED DISCONNECT SWITCH
- GROUND
- 100A;MLO PANELBOARD

FIRE ALARM SYMBOLS:

- F 30 AUDIO/VISUAL SIGNALING DEVICE. NUMBER DENOTES CANDELA RATING.
- F 30 VISUAL SIGNALING DEVICE. NUMBER DENOTES CANDELA RATING.
- F PULL STATION
- SD R SMOKE DETECTOR. R SUBSCRIPT: PROVIDE ACCESSORY EQUIPMENT/WIRING/PROGRAMMING FOR ELEVATOR RECALL AND SHUNT TRIP.
- HEAT DETECTOR
- CM CONTROL MODULE
- MM MONITOR MODULE
- DSD DUCT SMOKE DETECTOR
- RTS REMOTE TEST STATION
- DH MAGNETIC DOOR HOLDER
- TS TAMPER SWITCH
- FDR FIRE DOOR RELEASE
- FS FLOW SWITCH
- FSD FAN SHUT–DOWN
- FACP FIRE ALARM CONTROL PANEL
- FAAP FIRE ALARM ANNUNCIATOR PANEL
- CO CARBON MONOXIDE DETECTOR (ELECTROCHEMICAL STYLE) (SYSTEM SENSOR C0122ATR OR EQUAL) (INSTALL PER MANUFACTURERS RECOMMEND. AND PER NFPA 720)
- CO2 CARBON DIOXIDE DETECTOR
- GD GAS DETECTOR

SPECIAL SYSTEMS SYMBOLS:

- ACCP AC SYSTEM CONTROL PANEL
- ACMS AC SYSTEM MASTER CONTROL STATION
- CR CARD READER
- DC DOOR CONTACT
  ELECTRIC DOOR STRIKE
- REX REQUEST TO EXIT
- IC INTERCOM STATION
- C1 CLOCK (NO DESIGNATION DENOTES CLASSROOM CLOCK).
  C1 – DENOTES SINGLE FACE HALLWAY CLOCK.
  C2 – DENOTES DUAL FACE HALLWAY CLOCK.
- PUBLIC ADDRESS SPEAKER (CEILING)
- PUBLIC ADDRESS SPEAKER (WALL)
- PUBLIC ADDRESS HORN SPEAKER (WALL)
- C# CEILING MOUNTED CCTV CAMERA
- C# WALL MOUNTED CCTV CAMERA

LIGHTING SYMBOLS:
(REFER TO LIGHT FIXTURE SCHEDULE)

- $ LIGHT SWITCH
  a,b,c – INDICATES SWITCH LEG
  D – DIMMER SWITCH
  K –KEYED
  3 – 3–WAY
  4 – 4–WAY
- C1 OS OCCUPANCY SENSOR
  C# – INDICATES CEILING SENSOR TYPE (REFER TO OCCUPANCY SENSOR SCHEDULE)
  W# – INDICATES WALL SENSOR TYPE (REFER TO OCCUPANCY SENSOR SCHEDULE).
- X# CEILING–MOUNTED EXIT LIGHT. HATCH MARKS INDICATES ILLUMINATED FACE, ARROW INDICATES DIRECTION OF TRAVEL.
- X# WALL–MOUNTED EXIT LIGHT. HATCH MARKS INDICATES ILLUMINATED FACE, ARROW INDICATES DIRECTION OF TRAVEL.
- E# DUAL HEAD WALL–MOUNTED EMERGENCY BATTERY PACK LUMINAIRE.
- SINGLE HEAD WALL–MOUNTED EMERGENCY BATTERY PACK LUMINAIRE.
- F# 2'x4' CEILING MOUNTED LIGHT FIXTURE, F# INDICATES TYPE.
- F# 2'x2' CEILING MOUNTED LIGHT FIXTURE, F# INDICATES TYPE.
- F# 1'x4' CEILING MOUNTED LIGHT FIXTURE, F# INDICATES TYPE.
- F# CEILING MOUNTED DOWNLIGHT FIXTURE, F# INDICATES TYPE.
- F# 4' WALL MOUNTED LIGHT FIXTURE, F# INDICATES TYPE.
- F# WALL MOUNTED FIXTURE, F# INDICATES TYPE.

GENERAL DEMOLITION NOTES:

1. DEMOLITION DRAWINGS ARE BASED ON FIELD OBSERVATION. REPORT ANY CONFLICTS TO THE ENGINEER BEFORE DISTURBING EXISTING EQUIPMENT.
2. BEGINNING OF DEMOLITION MEANS THE CONTRACTOR ACCEPTS ALL EXISTING CONDITIONS.
3. VERIFY SCOPE OF WORK: CONTRACTOR SHALL VISIT THE JOB SITE PRIOR TO SUBMITTING A BID TO DETERMINE THE SCOPE OF THE WORK, AND TO BECOME FAMILIAR WITH THE EXISTING CONDITIONS THAT WILL AFFECT THEIR WORK AND, THEREFORE, THEIR BID.
4. UNLESS NOTED OTHERWISE, EXISTING ELECTRICAL EQUIPMENT SHOWN ON THESE PLANS ARE A PART OF CONTRACT. TO MAINTAIN DRAWING CLARITY NOT ALL EXISTING ELECTRICAL EQUIPMENT HAS BEEN SHOWN. FIELD VERIFY EXISTING CONDITIONS AND NOTIFY ARCHITECT/ ENGINEER OF ANY CONFLICTS.
5. UNLESS NOTED OTHERWISE, REMOVE ALL ELECTRICAL ITEMS SHOWN ON THESE PLANS AS INDICATED BY CROSS HATCHED LINES AND/OR KEYED NOTES.
6. UNLESS NOTED OTHERWISE, DEMOLITION OF ELECTRICAL EQUIPMENT/DEVICES INCLUDES REMOVAL OF CIRCUITRY BACK TO ASSOCIATED SOURCE/PANEL. THIS INCLUDES REMOVAL OF THE DEVICE, WIRING, CONDUIT, BOXES, CONTROL DEVICES, ETC.
7. WHERE POSSIBLE, EXISTING CONDUITS/RACEWAYS (ASSOCIATED WITH REMOVED EQUIPMENT AND WIRING) MAY BE RE–USED FOR NEW CIRCUITING. EXISTING CONDUITS/RACEWAYS MUST BE IN GOOD CONDITION, AND IN COMPLIANCE WITH NEC/SPECIFICATION REQUIREMENTS. NOTIFY ENGINEER PRIOR TO REUSING.
8. EXISTING CIRCUIT BREAKERS ASSOCIATED WITH ELECTRICAL EQUIPMENT SCHEDULED FOR DEMOLITION SHALL REMAIN FOR SPARES UNLESS REMOVAL IS REQUIRED TO MAKE ADDITIONAL SPACE (IN EXISTING PANELBOARDS) FOR NEW CIRCUIT BREAKERS.
9. MAINTAIN THE ELECTRICAL INTEGRITY OF ALL EXISTING BRANCH CIRCUITS INTERRUPTED BY REMOVAL WORK. PROVIDE ALL WIRING, CONDUIT, AND HARDWARE REQUIRED TO MAINTAIN CONTINUITY OF ELECTRICAL EQUIPMENT REMAINING ON EXISTING BRANCH CIRCUITS NOT BEING COMPLETELY REMOVED OR OUTSIDE WORK THE WORK AREA.
10. UNLESS NOTED OTHERWISE, REMOVE EXISTING ELECTRICAL DEVICES, AND ASSOCIATED CIRCUITRY, LOCATED ON OR IN WALLS SCHEDULED FOR REMOVAL. REFER TO ARCHITECTURAL DRAWINGS FOR DEMOLITION COORDINATION.
11. UNLESS NOTED OTHERWISE, REMOVE EXISTING ELECTRICAL DEVICES, AND ASSOCIATED CIRCUITRY, LOCATED ON OR IN CEILINGS SCHEDULED FOR REMOVAL. TO MAINTAIN DRAWING CLARITY, EXISTING CEILINGS SCHEDULED FOR DEMOLITION HAVE NOT BEEN IDENTIFIED ON THIS DRAWING. REFER TO ARCHITECTURAL DRAWINGS FOR DEMOLITION COORDINATION.
12. WHERE REMOVALS OCCUR ON SERVICES THAT ARE TO REMAIN IN OPERATION, CAP OR OTHERWISE TERMINATE THE REMAINING SERVICES BENEATH FINISHED SURFACES.
13. ALL CONDUITS STUBBED THRU FLOOR SERVING ITEMS TO BE REMOVED, AND NOT SHOWN OR REQUIRED TO BE REUSED, SHALL BE CUT OFF FLUSH, SLAB LEVEL WITH CONCRETE.
14. PORTIONS OF FEEDERS RISERS WHICH REQUIRE REMOVAL DUE TO DEMOLITION WORK, BUT WHICH ARE REQUIRED TO REMAIN ENERGIZED, SHALL BE CUT AT ACCESSIBLE LOCATIONS, REROUTED AND RECONNECTED. EXTEND EXISTING FEEDERS AS REQUIRED. MATCH EXISTING FEEDERS IN CONDUCTOR SIZE (AMPACITY RATING), RACEWAY SIZE, ETC.
15. CAREFULLY REMOVE, PROTECT AND STORE ALL EQUIPMENT TO BE REUSED IN A SAFE PLACE UNTIL READY FOR REINSTALLATION. CLEAN MATERIALS BEFORE REINSTALLATION AND ENSURE EQUIPMENT IS STILL FULLY OPERATIONAL.
16. THE CONTRACTOR IS RESPONSIBLE FOR REMOVAL OR RELOCATION OF ITEMS, NOT SHOWN ON THESE DRAWINGS TO ACCOMMODATE THE RENOVATIONS. CONTRACTOR SHALL INCLUDE, IN BASE BID, AN ALLOWANCE FOR UNFORESEEN CONDITIONS WHEN CONCEALED WORK IS EXPOSED. CLAIMS FOR ADDITIONAL DEMOLITION WORK WILL NOT BE ACCEPTED EXCEPT FOR CERTAIN CASES CONSIDERED JUSTIFIABLE BY THE ARCHITECT/ENGINEER.

FIRE ALARM NOTES:

1 CONTRACTOR SHALL VERIFY AND COORDIANTE WITH THE BUILDING FIRE ALARM MAINTENANCE VENDOR FOR TYPE OF FIRE ALARM DEVICES TO BE USED.

2. CONTRACTOR SHALL BE RESPONSIBLE TO RETAIN AND COORDINATE THE BUILDING FIRE ALARM MAINTENANCE VENDOR FOR PROGRAMMING AND FINAL CONNECTIONS. CONTRACTOR SHALL INCLUDE PROGRAMMING AND FINAL CONNECTION COSTS IN THEIR BID.
3. FIRE ALARM WIRING DIAGRAMS SHOWN ARE GENERAL ARRANGEMENTS ONLY. OBTAINED PRIOR TO THE COMMENCEMENT OF THE WORK. ALL PERMIT COSTS AND INSPECTION FEES SHALL BE INCLUDED AS PART OF THIS CONTRACT.
4. PERMITS AND APPROVALS NECESSARY FOR INSTALLATION OF WORK SHALL BE OBTAINED PRIOR TO THE COMMENCEMENT OF THE WORK. ALL PERMIT COSTS AND INSPECTION FEES SHALL BE INCLUDED AS PART OF THIS CONTRACT.
5. CONTRACTOR SHALL BE RESPONSIBLE TO MAINTAIN AND PROTECT FIRE ALARM NOTIFICATION DEVICES, SMOKE DETECTORS AND OTHER FIRE ALARM SAFETY DEVICES IN OPERATION AT ALL TIMES. IF ANY PORTION OF FIRE ALARM SYSTEM IS DISABLED, NOTIFY BUILDING CUSTODIAN IMMEDIATELY.
6. IN AREAS WHERE DUST AND DIRT WILL BE AIRBOURNE DURING DEMOLITION AND CONSTRUCTION THE CONTRACTOR SHALL PROVIDE PLASTIC WRAPOVER SMOKE DETECTORS AND THEN REMOVE ONCE SPACE IS CLEAN.IF A FIRE ALARM DEVICE IS LOCATED ON A WALL OR CEILING TO BE REMOVED, UNLESS OTHERWISE INDICATED THE DEVICE SHALL BE REMOVED AND STORED. ONCE CONSTRUCTION IS COMPLETE THE DEVICE SHALL BE REINSTALLED IN IT'S ORIGINAL LOCATION OR AS CLOSE TO ' ITS ORIGINAL LOCATION AS FEASIBLE. REUSE EXISTING WIRING IF POSSIBLE, PROVIDE NEW WIRING IF NECESSARY.
7. UNLESS DIRECTED OTHERWISE BY FIRE ALARM SYSTEM MANUFACTURER FIRE ALARM DEVICE WIRING SHALL BE AS FOLLOWS (FOR BIDDING PURPOSES ONLY)
   SIGNAL WIRING – #14 AWG TWISTED/SHIELDED
   BELL WIRING – #14 AWG TWISTED CABLE
   STROBE WIRING – #14 TWISTED CABLE
   THE WIRING SHALL HAVE THE FOLLOWING CHARACTERISTICS:
   A. A MINIMUM TEMPERATURE RATING 150' C
   B. A MINIMUM AVERAGE INSULATION THICKNESS OF 15 MILS
   C. A MINIMUM AVERAGE JACKET THICKNESS OF 25 MILS
   D. THE COLOR OF THE CABLE SHALL BE RED
   E. THE CABLE SHALL BE A TYPE FPLP (PLENUM TYPE) WHEN CONDUIT IS USED. TO PURCHASING
   F. THE CABLE SHALL BE VISIBLY MARKED EXTERNALLY THAT IT MEETS THE ABOVE REQUIREMENTS AND IS LISTED BY U.L.CONFIRM WIRING TYPE AND QUANTITY WITH FIRE ALARM SYSTEM MANUFACTURER PRIOR.
8. PROVIDE MC FIRE ALARM CABLE WITH RED STRIPE AS MANUFACTURED BY AFC SERIES 1800 WHEN CABLE IS CONCEALED OR ABOVE HUNG CEILING. WHEN FIRE ALARM CABLE IS RUN EXPOSED IN FINISHED AREAS, CABLE SHALL RUN IN WIREMOLD V–700. WHEN FIRE ALARM CABLE IS RUN EXPOSED IN UNFINISHED AREAS, PROVIDE PLENUM RATED CABLE IN MIN. 3/4" CONDUIT.
9. STROBES SHALL HAVE A MINIMUM LIGHT OUTPUT OF 75 CANDELA AND A FLASH9.RATE OF 1–3 HZ.
10. SHUTDOWN OF HVAC SYSTEM EQUIPMENT (NOT LIMITED TO, ROOF TOP, 10. EXHAUST FANS, ETC.) OF 1000 CFM OR GREATER, SHALL BE PERFORMED VIA A RELAY INTERFACE SYSTEM. SEND SIGNAL TO BUILDING AUTOMATED TEMPERATURE CONTROL (ATC) SYSTEM INDICATING SHUTDOWN HAS OCCURRED. EQUIPMENT RESTART SHALL BE BY BUILDING 'ATC' SYSTEM UPON FIRE ALARM RESET TO NORMAL MODE. RESTART OF EQUIPMENT SHALL BE SEQUENTIAL.
11. AFTER THE SYSTEM MODIFICATIONS ARE COMPLETE TEST ALL COMPONETS IN ACCORDANCE WITH SEQUENCE OF OPERATION PRIOR TO FIRE DEPARTMENT INSPECTION.
12. A CARBON MONOXIDE DETECTORS SHALL BE PROVIDED IN ALL BOILER ROOMS. ACTIVATION INITIATE A SUPERVISORY SIGNAL AT THE FIRE ALARM CONTROL PANEL AND ANNUNCIATOR PANEL WHEN 70 PPM ARE REACHED WITHIN 60–240 MINUTES OR 150 PPM ARE REACHED WITHIN 10–50 PER UL 2034.

GENERAL NEW WORK NOTES:

1. UNLESS NOTED AS EXISTING OR PROVIDED BY OTHERS, CONTRACTOR SHALL PROVIDE ALL MATERIALS SHOWN ON DRAWINGS. ALL MATERIALS PROVIDED SHALL BE NEW, UNUSED CONDITION.
2. ALL WORK PERFORMED UNDER THIS CONTRACT SHALL BE PROVIDED WITH MINIMUM DISRUPTION TO THE BUILDING SYSTEMS AND STAFF. CONTINUOUS OPERATION OF THE BUILDING SYSTEMS, OUTSIDE OF WORK AREA, SHALL BE MAINTAINED THROUGHOUT THE ENTIRE PROJECT. TEMPORARY SHUTDOWN OF SYSTEMS SHALL ONLY BE ALLOWED WITH WRITTEN CONSENT OF THE OWNER. EXISTING ALARM AND EMERGENCY SYSTEMS SHALL NOT BE DISRUPTED AT ANY TIME DURING THE PROJECT.
3. REMOVE & REINSTALL EXISTING CONSTRUCTION (CEILINGS, LIGHTING, ELECTRICAL EQUIPMENT, FIRE ALARM DEVICES, FURNISHINGS, ETC.) AS NECESSARY TO COMPLETE THE REMOVALS & RENOVATION WORK REQUIRED BY THE DRAWINGS & SPECIFICATIONS. REPLACE ANY ITEMS DAMAGED BY OR DUE TO THIS REMOVAL & REINSTALLATION WITH NEW ITEMS TO MATCH EXISTING. (APPLIES TO AREAS WITHIN & OUTSIDE OF THE PROJECT AREA).
4. IN AREAS WHERE CEILING IS BEING REMOVED, EXISTING CONDUITS AND CABLING WHICH ARE NOT INDEPENDENTLY SUPPORTED ABOVE THE CEILING SHALL BE INDEPENDENTLY SUPPORTED FROM THE STRUCTURE ABOVE USING SPECIFIC METHODS.
5. SURFACE MOUNT ALL WIRING DEVICES, LIGHTING CONTROLS, TELECOMMUNICATION DEVICES, FIRE ALARM DEVICES, ETC. LOCATED ON EXISTING MASONRY WALLS. PROVIDE SURFACE MOUNTED BOXES, RACEWAYS, WIREMOLD, ETC. PER SPECIFICATIONS.
6. COVERS ASSOCIATED WITH JUNCTION AND PULL BOXES SHALL BE READILY ACCESSIBLE.
7. PROVIDE PULL BOXES WHERE REQUIRED BY CODE AND WHERE NECESSARY FOR CONDUCTOR INSTALLATION. PROVIDE PULL BOXES EVERY 100' FOR ALL EMPTY RACEWAY RUNS. PRIOR TO INSTALLATION OF PULL BOXES, COORDINATE WITH OTHER TRADES.
8. PROVIDE SEPARATE RACEWAYS AND BOXES FOR CONDUCTORS OF NORMAL AND EMERGENCY CIRCUITS.
9. DO NOT COMBINE MORE THAN THREE PHASE CONDUCTORS, THREE NEUTRAL CONDUCTORS PLUS THREE GROUND CONDUCTORS, IN ANY ONE BRANCH CIRCUIT CONDUIT, UNLESS OTHERWISE INDICATED ON DRAWINGS.
10. THE USE OF NON–METTALLIC SURFACE RACEWAY OR EXPOSED NON–METTALLIC RACEWAY IN ASSEMBLY SPACES AND MEANS OF EGRESS AREAS IS PROHIBITED.
11. THE USE OF SHARED NEUTRALS IN LIGHTING AND RECEPTACLE BRANCH CIRCUITS IS PROHIBITED. PROVIDE SEPARATE NEUTRAL AND GROUND FOR EVERY CIRCUIT.
12. PROTECT EXISTING SURFACES.
13. WALK–THRU WITH OWNER REPRESENTATIVE AND VERIFY ALL ELECTRICAL DEVICE LOCATIONS PRIOR TO INSTALLATION.
14. INSTALL ALL CIRCUITRY PARALLEL OR PERPENDICULAR TO WALLS, FLOOR, AND CEILING.
15. REFER TO ELECTRICAL EQUIPMENT AND CONTROL SCHEDULE FOR HVAC/PLUMBING EQUIPMENT CIRCUITRY, CONTROLS & ADDITIONAL INFORMATION.
16. TO MAINTAIN DRAWING CLARITY, MOTOR CONTROL DEVICES, FOR HVAC/PLUMBING EQUIPMENT, HAVE NOT BEEN SHOWN. REFER TO ELECTRICAL EQUIPMENT & CONTROL SCHEDULE FOR TYPES OF MOTOR CONTROL DEVICES REQUIRED, LOCATIONS WHERE CONTROL DEVICES ARE SCHEDULED FOR INSTALLATION, AND ADDITIONAL INFORMATION.
17. COORDINATE LOCATIONS AND MOUNTING HEIGHTS OF ELECTRICAL EQUIPMENT/DEVICES WITH ARCHITECTURAL PLANS, ELEVATIONS, FURNITURE LAYOUTS, AND WITH OTHER DIVISIONS PRIOR TO INSTALLATION. CORRECT ANY INACCURACY RESULTING FROM FAILURE TO DO SO WITHOUT COST TO OWNER.
18. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING ALL SUPPORT HARDWARE FOR SECURELY FASTENING THE ELECTRICAL CONTROL DEVICES AND ENCLOSURES TO THE BUILDING STRUCTURE. THE REQUIRED HARDWARE INCLUDES, BUT IS NOT LIMITED TO, INTERMEDIATE STEEL ANGLE, UNISTRUCT, FASTENERS, JOISTS CLAMPS, ETC. MOUNT STARTERS, VFD'S, DISCONNECTS, RELAYS, AND OTHER ELECTRICAL CONTROL DEVICES AND ENCLOSURES AT LOCATION(S) INDICATED IN ELECTRIC EQUIPMENT & CONTROL SCHEDULE(S). ALLOW MAINTENANCE ACCESS AND SERVICE SPACE AT EACH LOCATION.
19. WHERE NEW CIRCUIT BREAKERS ARE REQUIRED FOR INSTALLATION IN EXISTING ELECTRICAL PANELS, CONTRACTOR SHALL PROVIDE CIRCUIT BREAKERS WHICH ARE COMPATIBLE WITH EXISTING ELECTRICAL PANELS. MATCH FRAME SIZES, KIAC RATINGS, ETC.
20. UPON COMPLETION OF THIS PROJECT, THE CONTRACTOR SHALL PROVIDE COMPLETE, TYPE–WRITTEN, AND UP–TO–DATE PANELBOARD DIRECTORIES FOR ALL PANELBOARDS (NEW AND EXISTING) AFFECTED BY THIS PROJECT. PROVIDE OWNER WITH TWO COPIES OF UPDATED PANELBOARD CIRCUIT BREAKER DIRECTORIES.
21. EACH RECEPTACLE, SWITCH AND JUNCTION BOX, PROVIDED, OR ALTERED, UNDER THIS CONTRACT, SHALL BE LABELED WITH THE CORRESPONDING POWER PANEL NAME AND CIRCUIT BREAKER NUMBER. ALL LABELING SHALL BE TYPEWRITTEN USING A LABEL MAKER AND SHALL BE PERMANENTLY AFFIXED TO EACH FACEPLATE. HANDWRITTEN LABELS WILL NOT BE ACCEPTED. PRIOR TO START OF LABELING, MEET WITH OWNER TO DETERMINE LABELING SCHEME TO BE UTILIZED. PROVIDE LABELING TO MEET OWNER REQUIREMENTS.
22. ALL ITEMS THAT REQUIRE ACCESS, SUCH AS FOR OPERATING, CLEANING, SERVICING, MAINTENANCE, AND CALIBRATION, SHALL BE EASILY AND SAFELY ACCESSIBLE BY PERSONS STANDING AT FLOOR LEVEL, OR STANDING ON PERMANENT PLATFORMS, WITHOUT THE USE OF PORTABLE LADDERS. EXAMPLES OF THESE ITEMS INCLUDE, BUT ARE NOT LIMITED TO: ALL TYPES OF SWITCHES, PANELBOARDS, OCCUPANCY SENSORS, CONTROL DEVICES, ETC.. PRIOR TO COMMENCING INSTALLATION WORK, REFER CONFLICTS BETWEEN THIS REQUIREMENT AND CONTRACT DRAWINGS TO OWNER FOR RESOLUTION.
23. CLEANING DURING ELECTRICAL WORK: THE MECHANICAL ROOM AND ROOMS WHERE WORK WILL BE DONE TO MINIMIZE DISTURBANCE IN THE BUILDINGS. WORKERS ARE TO USE PATHWAYS AND FACILITIES AGREED UPON WITH THE DISTRICT DESIGNEE IN WRITING. THE AREA OUTSIDE THE BUILDING WHERE CUTTING WELDING OR STORAGE IS ALLOWED IS TO BE FENCED AT ALL TIMES. THE CONTRACTOR WILL ON A DAILY BASIS CLEAN THE GROUNDS AND THE BUILDING OF ANY DEBRIS OR GARBAGE GENERATED BY THEIR WORK.
24. EACH CONTRACTOR RESPONSIBLE FOR RETURNING WALLS, CEILINGS AND SURFACES THEY DISTURB THAT ARE NOT SCHEDULED FOR REPLACEMENT BACK TO ORIGINAL CONDITIONS.

GENERAL WORK NOTES:

ALL WORK IN ELECTRICAL DRAWINGS, UNLESS OTHERWISE NOTED, IS ENTIRELY PROVIDED BY THE DISTRICT.

ABBREVIATIONS

EX–	EXISTING
A–	AMPERE
NF–	NON–FUSED
EXT–	EXTERIOR
AC–	ABOVE COUNTER
NIC–	NOT IN CONTRACT
FA–	FIRE ALARM
AFF–	ABOVE FINISHED FLOOR
NL–	NIGHT LIGHT
NTS–	NOT TO SCALE
FL–	FLOOR
AHU–	AIR HANDLING UNIT
OC–	ON CENTER
FLA–	FULL LOAD AMPS
A/V–	AUDIO/VISUAL
P–	POLE
FLUOR–	FLUORESCENT
AWG–	AMERICAN WIRE GUAGE
PNL–	PANEL
GC–	GENERAL CONTRACTOR
AU–	AT UNIT
PRI–	PRIMARY
GFI–	GROUND FAULT CIRCUIT
BKR–	BREAKER
SEC–	SECONDARY
C–	CONDUIT
GND–	GROUND
SW–	SWITCH
CB–	CIRCUIT BREAKER
HP–	HORSEPOWER
TEL–	TELEPHONE
CKT–	CIRCUIT
HVAC–	HEATING VENTILATION & AIR CONDITIONING
TV–	TELEVISION
CLG–	CEILING
TYP–	TYPICAL
DEMO–	DEMOLISH/DEMOLITION
KVA–	KILOVOLT AMPS
UGE–	UNDERGROUND ELECTRIC
DTL–	DETAIL
KW–	KILOWATTS
UNO–	UNLESS NOTED OTHERWISE
DWG–	DRAWING
LTG–	LIGHTING
EA–	EACH
MC–	MECHANICAL CONTRACTOR
EC–	ELECTRICAL CONTRACTOR
MCA–	MINIMUM CIRCUIT AMPS
WG–	WIRE GUARD
EF–	EXHAUST FAN
MCB–	MAIN CIRCUIT BREAKER
WP–	WEATHERPROOF
EM–	EMERGENCY
MDP–	MAIN DISTRIBUTION PANEL
XFMR–	TRANSFORMER
EC–	ELECTRICAL CONTRACTOR
MC–	MECHANICAL CONTRACTOR
PC–	PLUMBING CONTRACTOR

NOTE: ABBREVATIONS MAY OR MAY NOT USE PERIODS, EXAMPLE A.F.F. OR AFF

ENGINEER:
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STATE OF NEW YORK JACK EISENBACH No. 050445 LICENSED PROFESSIONAL ENGINEER

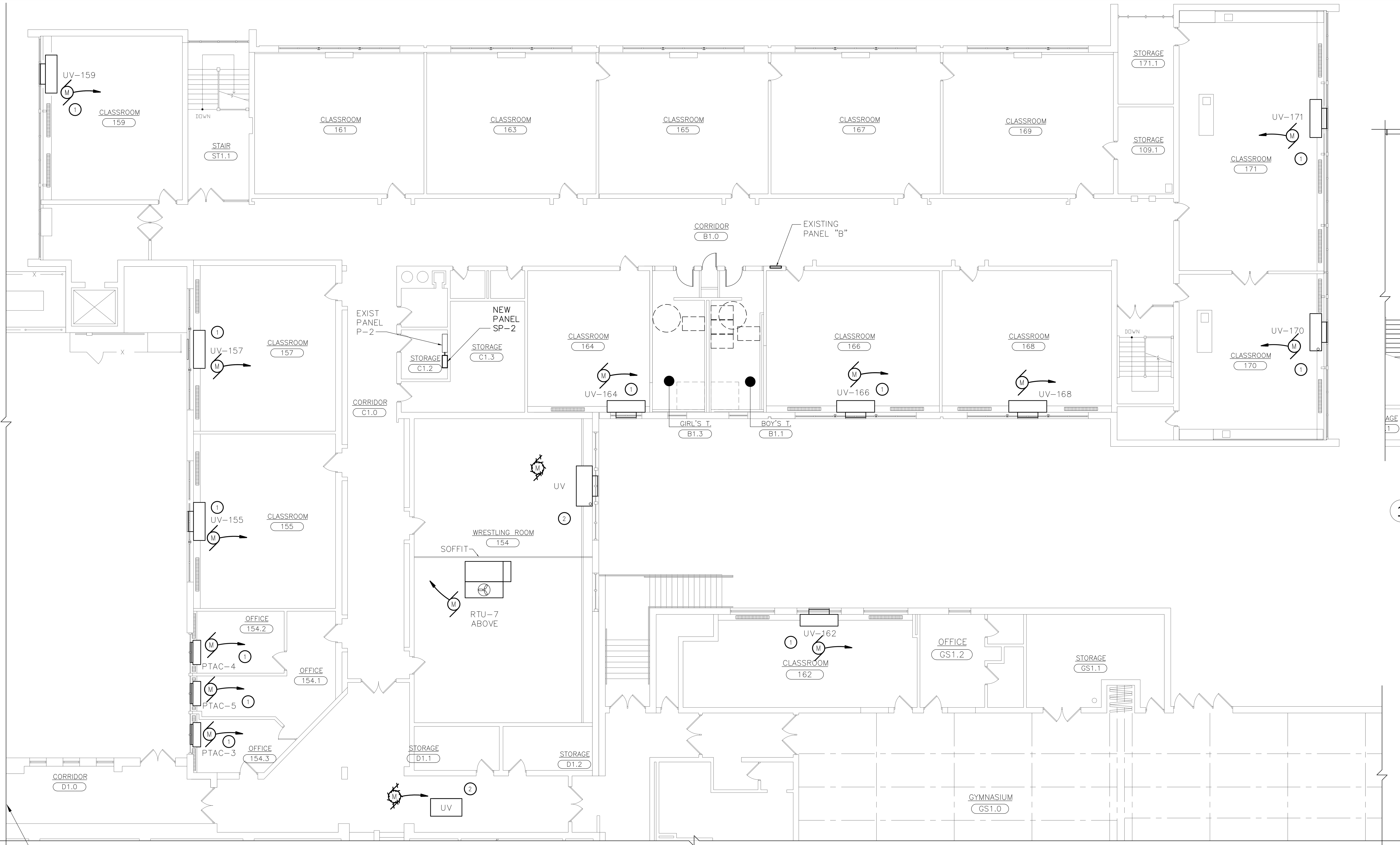
WARWICK VALLEY CENTRAL SCHOOL DISTRICT
HIGH SCHOOL UNIT VENTILATOR REPLACEMENT AND AIR CONDITIONING UPGRADE
225 WEST STREET EXT, WARWICK, NY 10990
WV HIGH SCHOOL – 89 SAMFORDVILLE ROAD. WARWICK, NY 10990
SED NO. 44–21–01–06–0–001–042

PROJECT NO.	05–21–04 05–20–06
ISSUED FOR BID	11.09.2022
SED SET	10.19.2022
REVISION	DATE
DRAWN BY	
CHECKED BY	
SHEET SIZE	30" X 42"
SCALE	AS NOTED

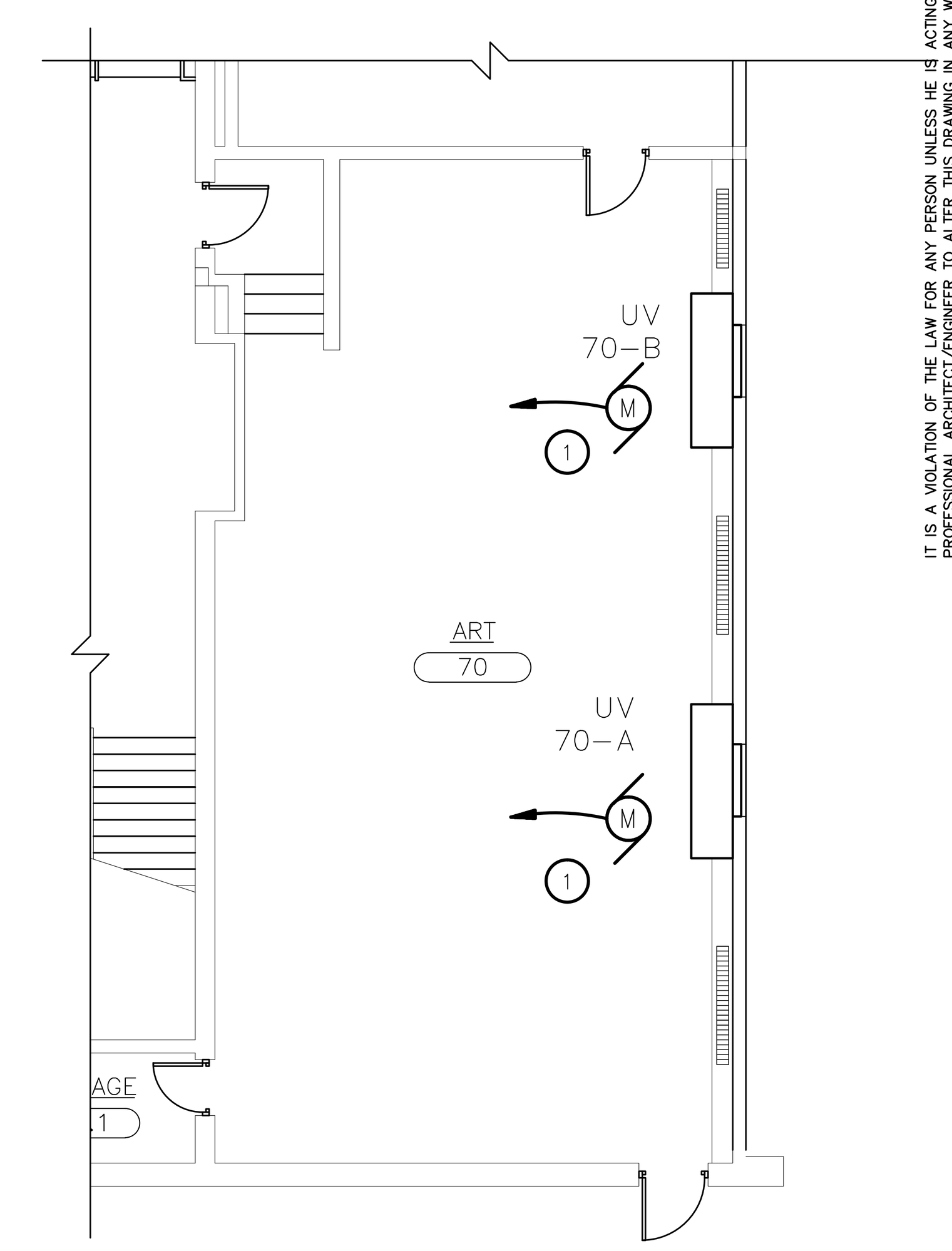
SHEET TITLE
ABBREVIATIONS AND SYMBOLS

SHEET NO.
E-001

FILE PATH –N:\1 – PROJECT DIRECTORIES\1– E & R Projects\05 – Warwick Valley CSD\05–21–04 Warwick Federal Grant Project\CAD\Package3.Hist\wvH\05–21–04.e001.dwg



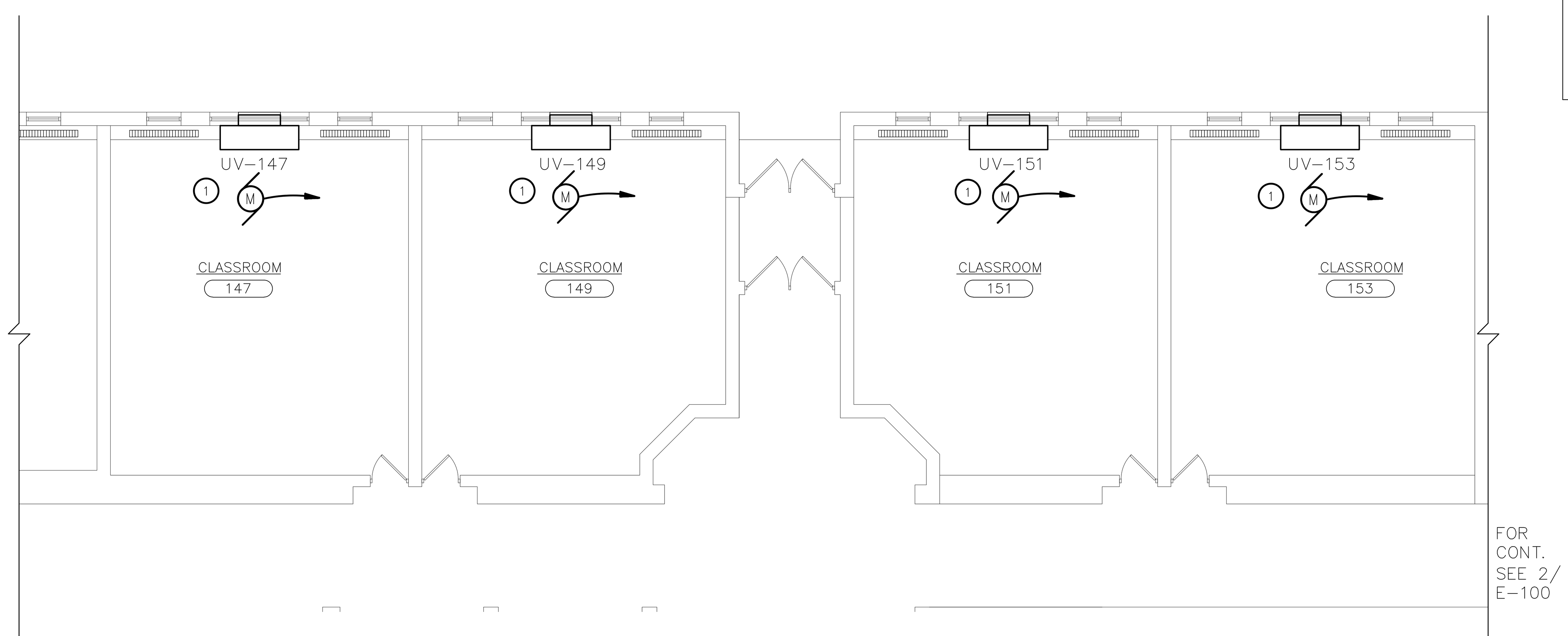
2 PARTIAL FIRST FLOOR PLAN - DEMO & NEW WORK
SCALE: 1/8=1'-0



1 PARTIAL BASEMENT FLOOR PLAN - DEMO & NEW WORK
SCALE: 1/8=1'-0

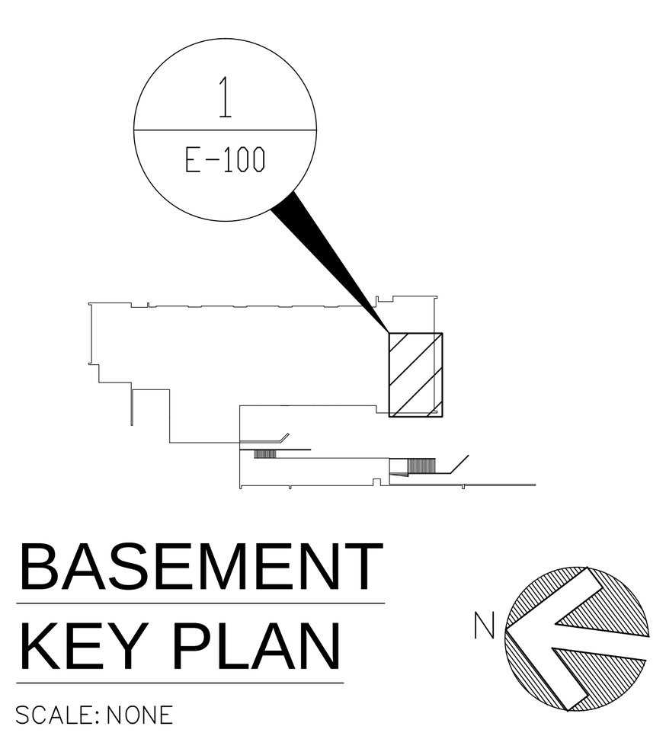
KEYED NOTES – NEW WORK:

1. PROVIDE DISCONNECTION OF POWER TO EXISTING EQUIPMENT AND REUSE EXISTING CIRCUITS/ RECONNECT TO NEW EQUIPMENT FOR NEW WORK. PROVIDE ALL APPURTENANCES. SEE ELECTRIC EQUIPMENT AND CONTROL SCHEDULE ON E500.
2. DISCONNECT POWER AND REMOVE BACK TO NEAREST JUNCTION BOX

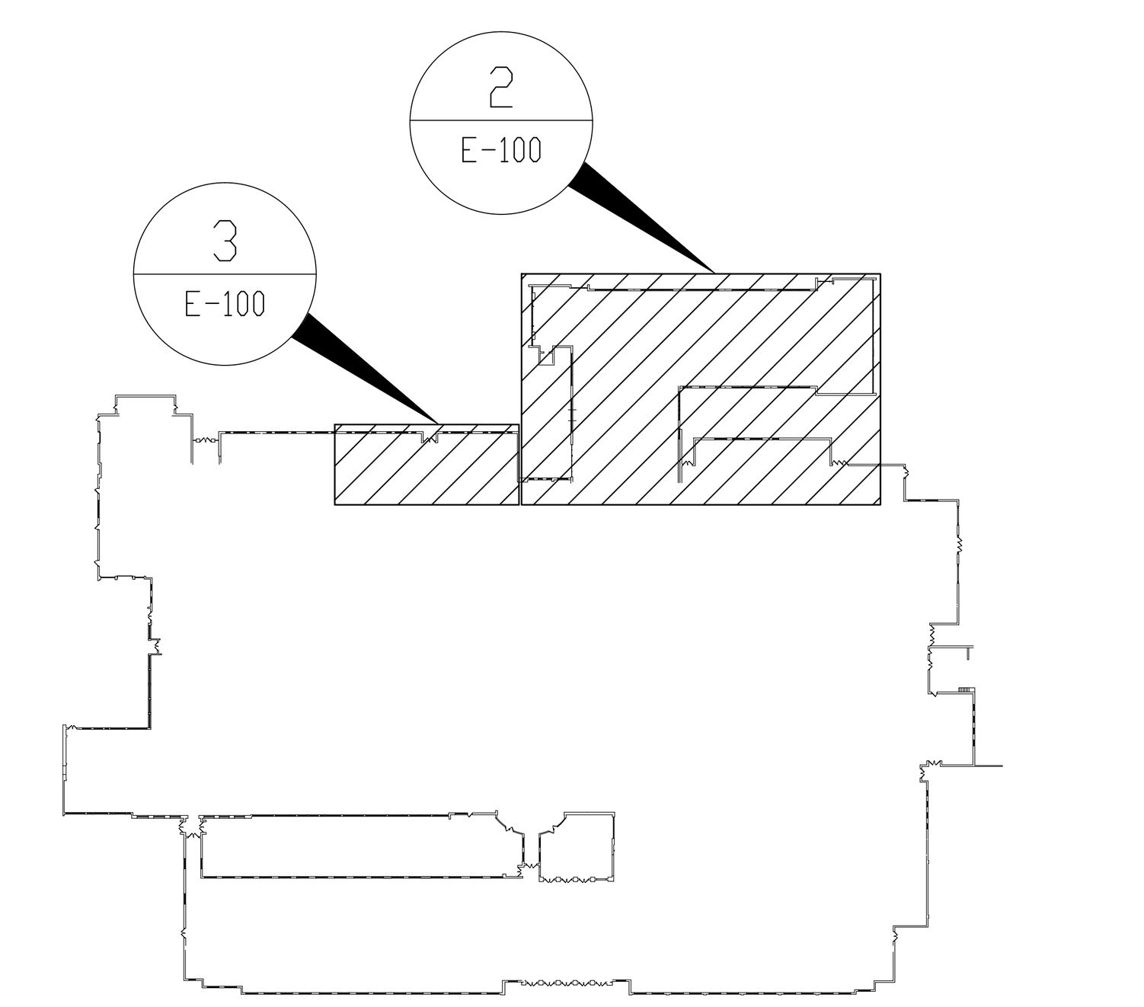


3 PARTIAL FIRST FLOOR PLAN - DEMO & NEW WORK
SCALE: 1/8=1'-0

BIDDING NOTE
ALL WORK ON THIS SHEET TO BE PROVIDED IN ITS ENTIRETY BY THE DISTRICT AND IS PROVIDED FOR REFERENCE ONLY.



BASEMENT KEY PLAN
SCALE: NONE



FIRST FLOOR KEY PLAN
SCALE: NONE

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WARWICK VALLEY CENTRAL SCHOOL DISTRICT
HIGH SCHOOL UNIT VENTILATOR REPLACEMENT AND AIR CONDITIONING UPGRADE

225 WEST STREET EXT, WARWICK, NY 10990
WV HIGH SCHOOL – 89 SANFORDVILLE ROAD. WARWICK, NY 10990

SED NO. 44-21-01-06-0-001-042

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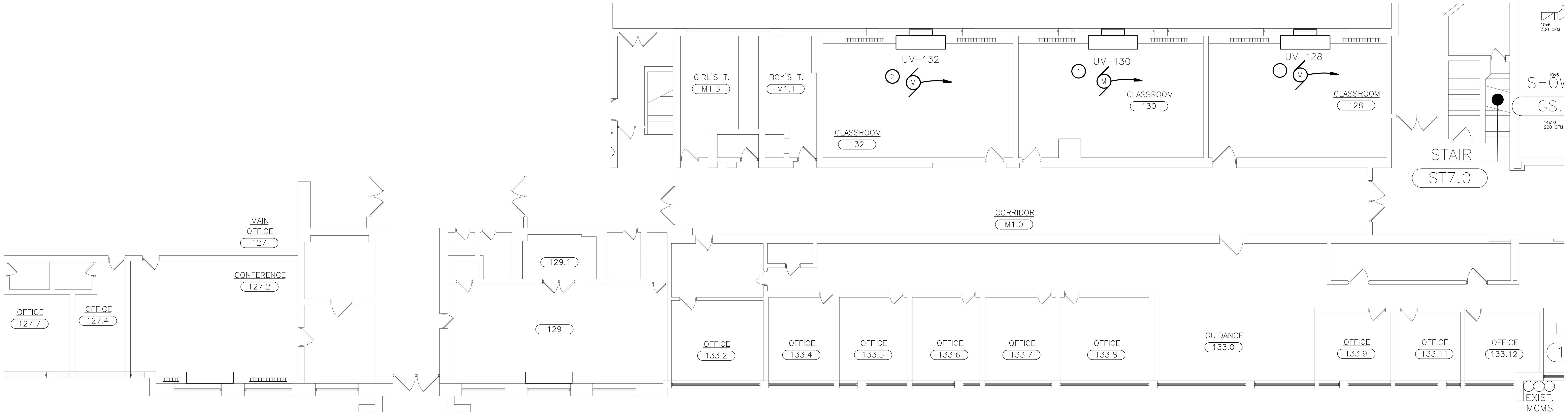
CHECKED BY	
SHEET SIZE	30" X 42"
SCALE	AS NOTED

SHEET TITLE
PARTIAL BASEMENT AND FIRST FLOOR PLANS - DEMO & NEW WORK

SHEET NO.
E-100

FILE PATH - N:\1 - PROJECT DIRECTORIES\1- E & R Projects\05 – Warwick Valley CSD\05-21-04 Warwick Federal Grant Project\CAD\Package3.HsUvsVrf\05-21-04.e100-e103.dwg



1 PARTIAL FIRST FLOOR PLAN - DEMO & NEW WORK

SCALE: 1/8=1'-0

KEYED NOTES – NEW WORK:

1. PROVIDE DISCONNECTION OF POWER TO EXISTING EQUIPMENT AND REUSE EXISTING CIRCUITS/ RECONNECT TO NEW EQUIPMENT FOR NEW WORK. PROVIDE ALL APPURTENANCES. SEE ELECTRIC EQUIPMENT AND CONTROL SCHEDULE ON E500.
2. PROVIDE POWER TO NEW UNIT VENTILATOR. PROVIDE ALL APPURTENANCES. SEE ELECTRIC EQUIPMENT AND CONTROL SCHEDULE ON E500.

BIDDING NOTE

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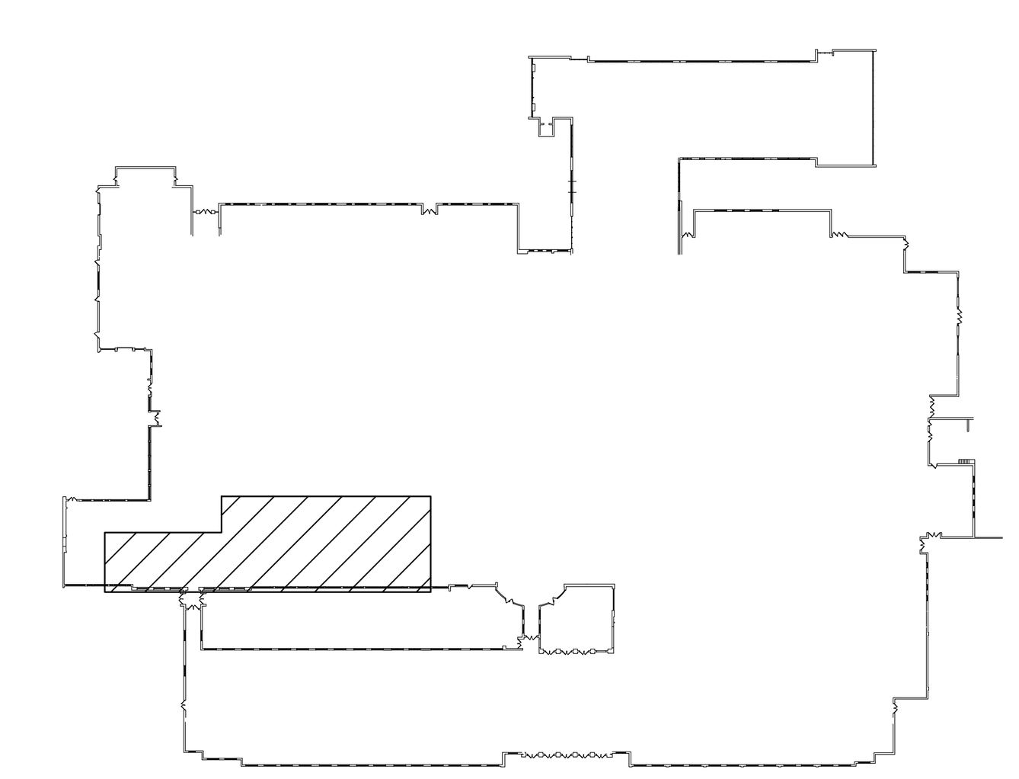

FIRST FLOOR KEY PLAN

SCALE: NONE

ENGINEER:
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STAMP

WARWICK VALLEY CENTRAL SCHOOL DISTRICT
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225 WEST STREET EXT, WARWICK, NY 10990
WV HIGH SCHOOL – 89 SANFORDVILLE ROAD, WARWICK, NY 10990
SED NO. 44-21-01-06-0-001-042

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ISSUED FOR BID	11.09.2022
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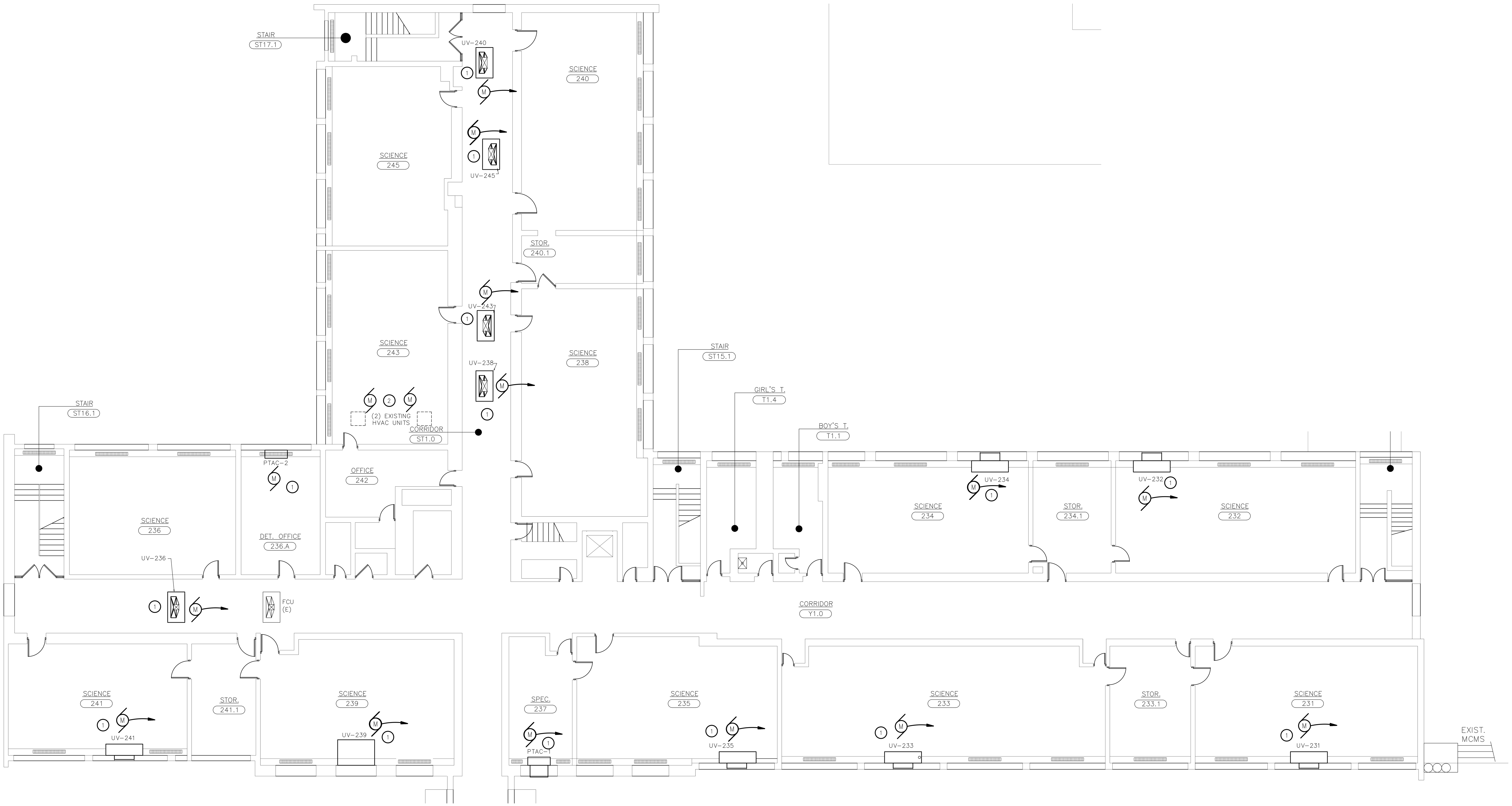
SCALE	AS NOTED

SHEET TITLE

PARTIAL FIRST FLOOR PLAN - DEMO & NEW WORK

SHEET NO.

E-101



1 PARTIAL SECOND FLOOR PLAN - DEMO & NEW WORK

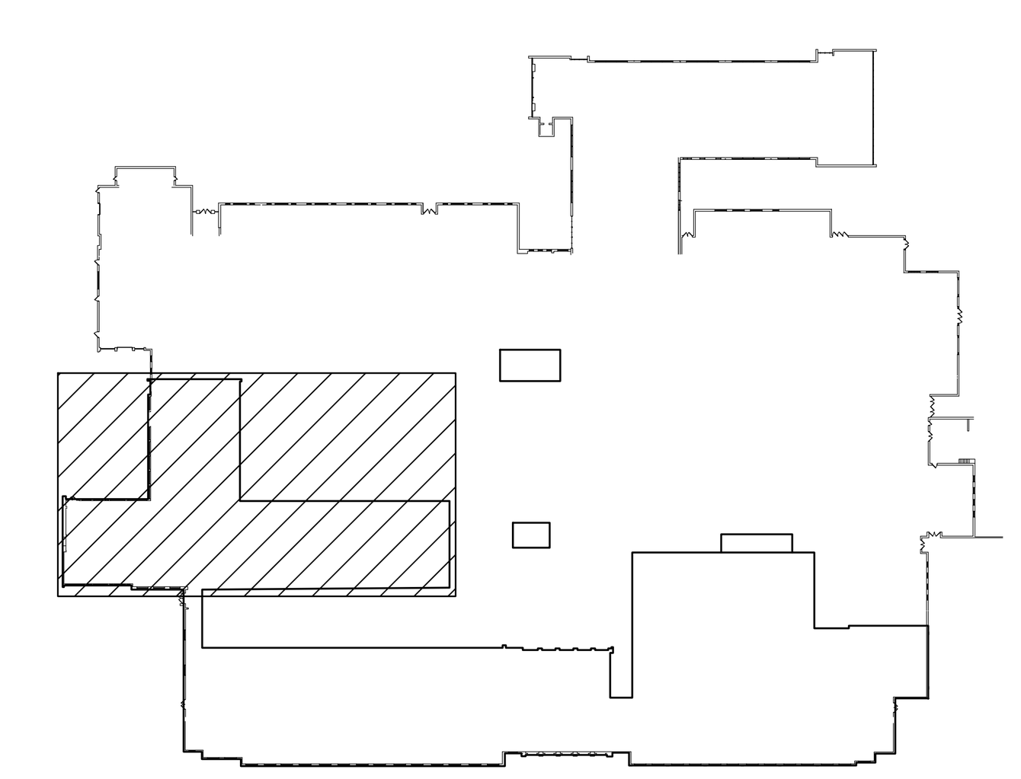
SCALE: 1/8=1'-0

KEYED NOTES – NEW WORK:

1. PROVIDE DISCONNECTION OF POWER TO EXISTING EQUIPMENT AND REUSE EXISTING CIRCUITS/ RECONNECT TO NEW EQUIPMENT FOR NEW WORK. PROVIDE ALL APPURTENANCES. SEE ELECTRIC EQUIPMENT AND CONTROL SCHEDULE ON E500.
2. DISCONNECT POWER TO (2) HVAC UNITS AND REMOVE BACK TO NEAREST JUNCTION BOX.

BIDDING NOTE

ALL WORK ON THIS SHEET TO BE PROVIDED IN ITS ENTIRETY BY THE DISTRICT AND IS PROVIDED FOR REFERENCE ONLY.



SECOND FLOOR KEY PLAN

SCALE: NONE

ENGINEER:
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STAMP

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WV HIGH SCHOOL – 89 SANFORDVILLE ROAD. WARWICK, NY 10990

SED NO. 44-21-01-06-0-001-042

FILE PATH -N: \1 – PROJECT DIRECTORIES\1- E & R Projects\05 – Warwick Valley CSD\05-21-04 Warwick Federal Grant Project\CAD\Package3.HsUvsVrf\05-21-04.e100-e103.dwg

PROJECT NO.	05-21-04 05-20-06
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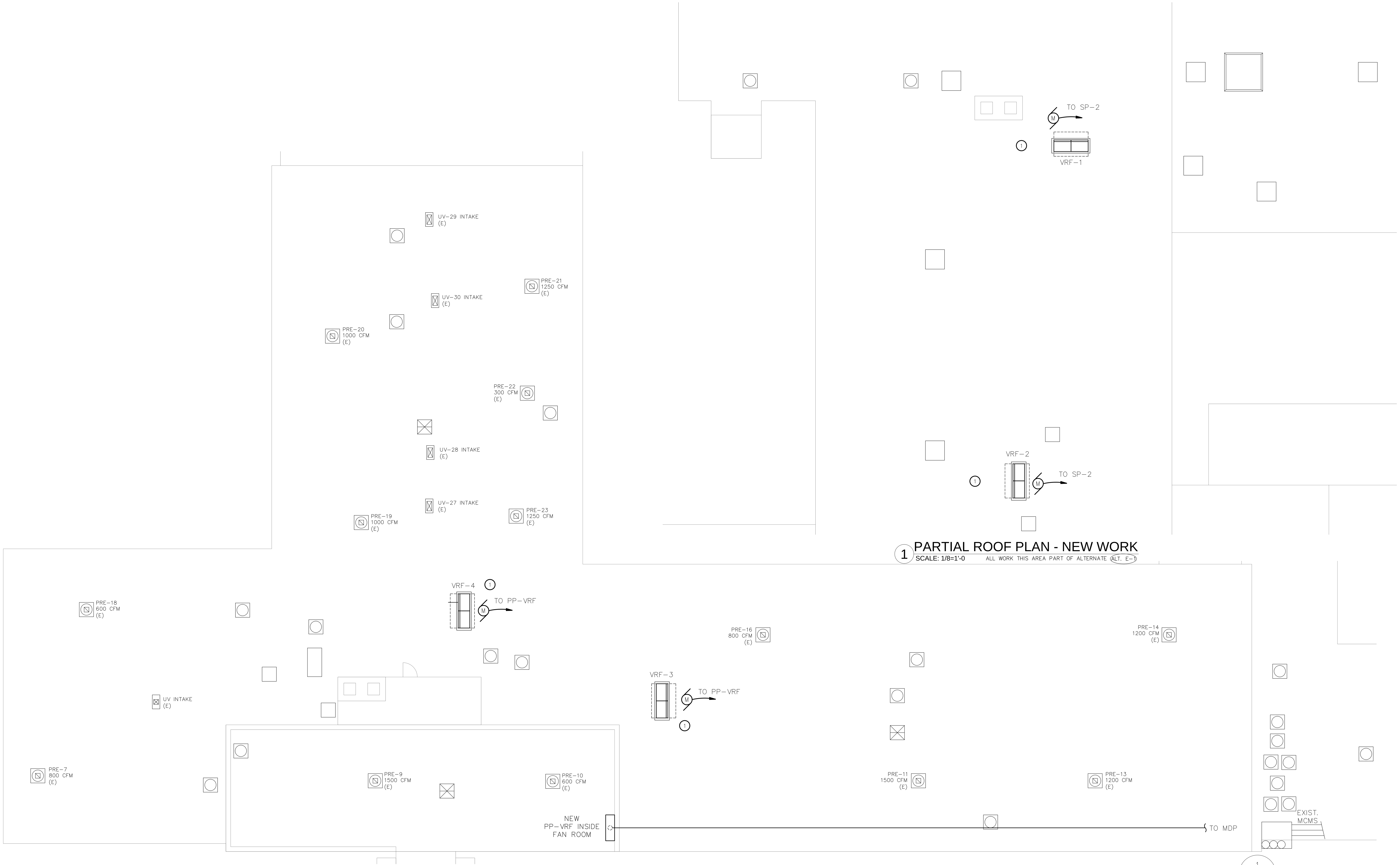
SCALE	AS NOTED

SHEET TITLE

PARTIAL SECOND FLOOR PLAN - DEMO & NEW WORK

SHEET NO.

E-102



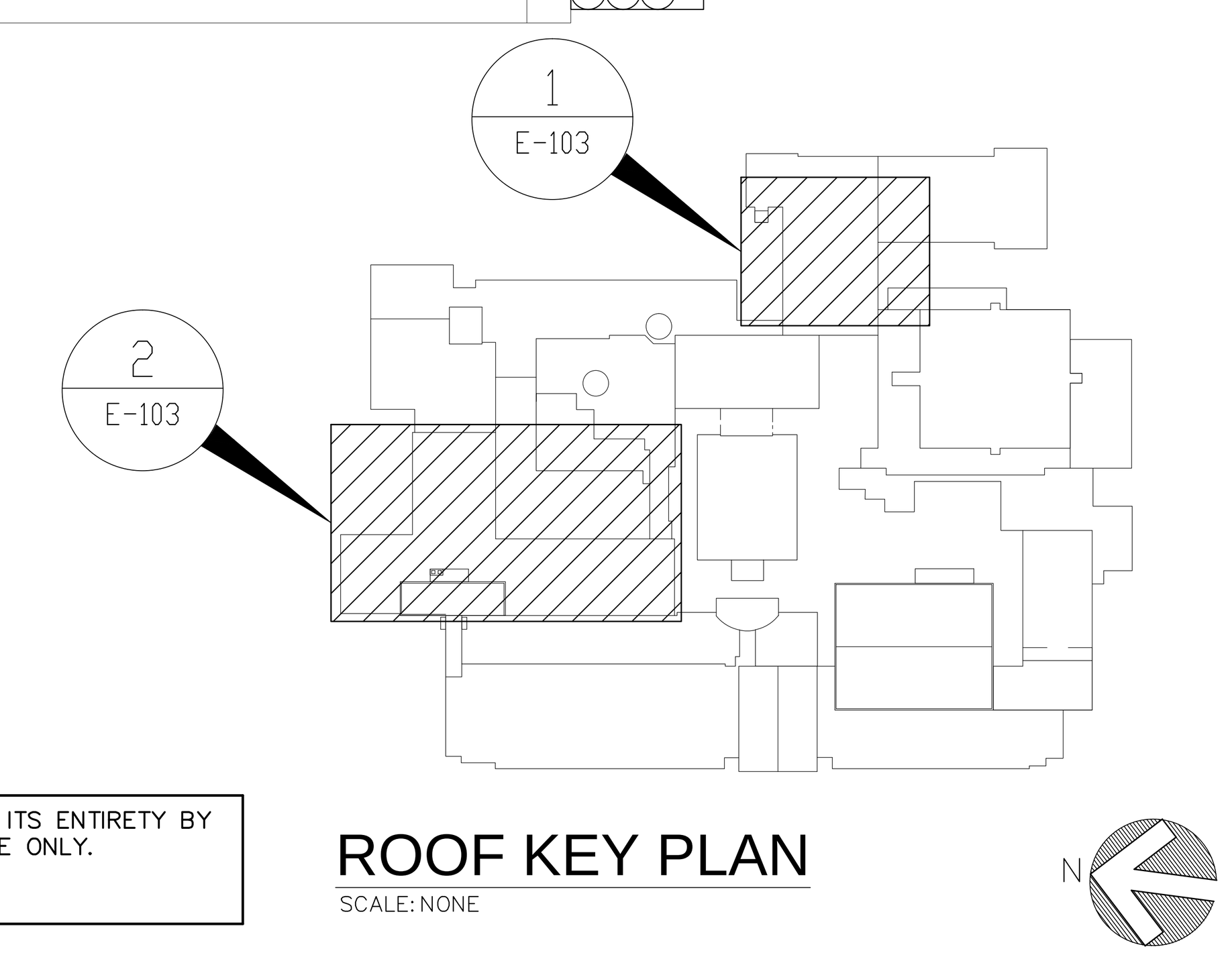
1 PARTIAL ROOF PLAN - NEW WORK
SCALE: 1/8=1'-0
ALL WORK THIS AREA PART OF ALTERNATE ALT. E-1

2 PARTIAL ROOF PLAN - NEW WORK
SCALE: 1/8=1'-0

KEYED NOTES – NEW WORK:

1. PROVIDE POWER TO NEW VRF(S). PROVIDE ALL APPURTENANCES. SEE ELECTRIC EQUIPMENT AND CONTROL SCHEDULE ON E500.

BIDDING NOTE
ALL WORK ON THIS SHEET TO BE PROVIDED IN ITS ENTIRETY BY THE DISTRICT AND IS PROVIDED FOR REFERENCE ONLY.



ROOF KEY PLAN
SCALE: NONE

ENGINEER:
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SHEET TITLE
PARTIAL ROOF PLAN - NEW WORK

SHEET NO.
E-103

ELECTRIC EQUIPMENT AND CONTROL SCHEDULE

EQUIPMENT							SUPPLY								CONTROLLER DEVICE TYPE & ACCESSORIES (UNO, PROVIDED BY ELECTRICAL CONTRACTOR)												
DESIGNATION	DESCRIPTION	LOCATION	SIZE			VOLTAGE/ PHASE/HZ	PANEL/ CONTROL CENTER	CIRCUIT NUMBER	BREAKER SIZE (A)	POWER WIRING FROM PANEL TO CONTROL UNIT		POWER WIRING FROM CONTROL UNIT TO EQUIPMENT *		GROUND WIRE (SIZED PER NEC)	PACKAGED CONTROL UNIT (BY OTHERS)	VARIABLE FREQUENCY DRIVE (VFD)	CONTROL STARTER	NON-FUSED DISCONNECT SWITCH	CONTROL DEVICE INSTALL LOCATION	DUCT SMOKE DETECTOR (SUPPLY)	DUCT SMOKE DETECTOR (RETURN)	FIRE ALARM FAN SHUTDOWN	DISCONNECT SWITCH			REF. NOTES	REMARKS
			HP	MOP	MCA					WIRE	COND.	WIRE	COND.										FRAME	FUSE	LOCATION		
VRF-1	VRF OUTDOOR UNIT	ROOF	3.6 (x2)	60	55.1	208V/3ϕ/60HZ	PANEL 'SP-2'	CB #2,4,6	80	2 AWG		FACTORY WIRED	---		---	FACTORY WIRED	BY BMS	FACTORY WIRED	OU			YES	---	---	---		ALT. E-1
	VRF OUTDOOR UNIT	ROOF	3.6 (x2)	60	55.1	208V/3ϕ/60HZ	PANEL 'SP-2'	CB #1,3,5	40	8 AWG		FACTORY WIRED	---		---	FACTORY WIRED	BY BMS	FACTORY WIRED	OU			YES	---	---	---		ALT. E-1
VRF-2	VRF OUTDOOR UNIT	ROOF	3.6 (x2)	60	55.1	208V/3ϕ/60HZ	PANEL 'SP-2'	CB #7,9,11	70	4 AWG		FACTORY WIRED	---		---	FACTORY WIRED	BY BMS	FACTORY WIRED	OU			YES	---	---	---		ALT. E-1
	VRF OUTDOOR UNIT	ROOF	3.6 (x2)	60	55.1	208V/3ϕ/60HZ	PANEL 'SP-2'	CB #8,10,12	40	8 AWG		FACTORY WIRED	---		---	FACTORY WIRED	BY BMS	FACTORY WIRED	OU			YES	---	---	---		ALT. E-1
VRF-3	VRF OUTDOOR UNIT	ROOF	3.6 (x2)	60	55.1	208V/3ϕ/60HZ	PANEL 'P-4'	CB #2,4,6	80	2 AWG		FACTORY WIRED	---		---	FACTORY WIRED	BY BMS	FACTORY WIRED	OU			YES	---	---	---		
	VRF OUTDOOR UNIT	ROOF	3.6 (x2)	60	55.1	208V/3ϕ/60HZ	PANEL 'P-4'	CB #1,3,5	40	8 AWG		FACTORY WIRED	---		---	FACTORY WIRED	BY BMS	FACTORY WIRED	OU			YES	---	---	---		
VRF-4	VRF OUTDOOR UNIT	ROOF	3.6 (x2)	60	55.1	208V/3ϕ/60HZ	PANEL 'P-4'	CB #7,9,11	70	4 AWG		FACTORY WIRED	---		---	FACTORY WIRED	BY BMS	FACTORY WIRED	OU			YES	---	---	---		
	VRF OUTDOOR UNIT	ROOF	3.6 (x2)	60	55.1	208V/3ϕ/60HZ	PANEL 'P-4'	CB #8,10,12	40	8 AWG		FACTORY WIRED	---		---	FACTORY WIRED	BY BMS	FACTORY WIRED	OU			YES	---	---	---		
PTAC-5	PACKAGE AC W/ HEAT	OFFICE 154.1	FRAC	15	6.3	115V/1ϕ/60HZ	REUSE EXIST.	REUSE EXIST.	20	12 AWG	3/4"	FACTORY WIRED	---	12 AWG	---	FACTORY WIRED	BY BMS	FACTORY WIRED	OU			YES	---	---	---		ALT. E-1
PTAC-4	PACKAGE AC W/ HEAT	OFFICE 154.2	FRAC	15	6.3	115V/1ϕ/60HZ	REUSE EXIST.	REUSE EXIST.	20	12 AWG	3/4"	FACTORY WIRED	---	12 AWG	---	FACTORY WIRED	BY BMS	FACTORY WIRED	OU			YES	---	---	---		ALT. E-1
PTAC-3	PACKAGE AC W/ HEAT	OFFICE 154.3	FRAC	15	6.3	115V/1ϕ/60HZ	REUSE EXIST.	REUSE EXIST.	20	12 AWG	3/4"	FACTORY WIRED	---	12 AWG	---	FACTORY WIRED	BY BMS	FACTORY WIRED	OU			YES	---	---	---		ALT. E-1
PTAC-1	PACKAGE AC W/ HEAT	CLASS 237	FRAC	15	6.3	115V/1ϕ/60HZ	REUSE EXIST.	REUSE EXIST.	20	12 AWG	3/4"	FACTORY WIRED	---	12 AWG	---	FACTORY WIRED	BY BMS	FACTORY WIRED	OU			YES	---	---	---		
PTAC-2	PACKAGE AC W/ HEAT	CLASS 236.A	FRAC	15	6.3	115V/1ϕ/60HZ	LOCAL PANEL		20	12 AWG	3/4"	FACTORY WIRED	---	12 AWG	---	FACTORY WIRED	BY BMS	FACTORY WIRED	OU			YES	---	---	---		
UV-70-A	UNIT VENTILATOR	CLASS. 70	FRAC	15	6.3	115V/1ϕ/60HZ	REUSE EXIST.	REUSE EXIST.	20	12 AWG	3/4"	FACTORY WIRED	---	12 AWG	---	FACTORY WIRED	BY BMS	FACTORY WIRED	OU			YES	---	---	---		ALT. E-1
UV-70-B	UNIT VENTILATOR		FRAC	15	6.3	115V/1ϕ/60HZ	REUSE EXIST.	REUSE EXIST.	20	12 AWG	3/4"	FACTORY WIRED	---	12 AWG	---	FACTORY WIRED	BY BMS	FACTORY WIRED	OU			YES	---	---	---		ALT. E-1
UV-128	UNIT VENTILATOR	CLASS. 128	FRAC	15	6.3	115V/1ϕ/60HZ	LOCAL PANEL		20	12 AWG	3/4"	FACTORY WIRED	---	12 AWG	---	FACTORY WIRED	BY BMS	FACTORY WIRED	OU			YES	---	---	---		
UV-130	UNIT VENTILATOR	CLASS. 130	FRAC	15	6.3	115V/1ϕ/60HZ	REUSE EXIST.	REUSE EXIST.	20	12 AWG	3/4"	FACTORY WIRED	---	12 AWG	---	FACTORY WIRED	BY BMS	FACTORY WIRED	OU			YES	---	---	---		
UV-132	UNIT VENTILATOR	CLASS. 132	FRAC	15	6.3	115V/1ϕ/60HZ	LOCAL PANEL		20	12 AWG	3/4"	FACTORY WIRED	---	12 AWG	---	FACTORY WIRED	BY BMS	FACTORY WIRED	OU			YES	---	---	---		
UV-147	UNIT VENTILATOR	CLASS. 147	FRAC	15	6.3	115V/1ϕ/60HZ	REUSE EXIST.	REUSE EXIST.	20	12 AWG	3/4"	FACTORY WIRED	---	12 AWG	---	FACTORY WIRED	BY BMS	FACTORY WIRED	OU			YES	---	---	---		ALT. E-1
UV-149	UNIT VENTILATOR	CLASS. 149	FRAC	15	6.3	115V/1ϕ/60HZ	REUSE EXIST.	REUSE EXIST.	20	12 AWG	3/4"	FACTORY WIRED	---	12 AWG	---	FACTORY WIRED	BY BMS	FACTORY WIRED	OU			YES	---	---	---		ALT. E-1
UV-151	UNIT VENTILATOR	CLASS. 151	FRAC	15	6.3	115V/1ϕ/60HZ	REUSE EXIST.	REUSE EXIST.	20	12 AWG	3/4"	FACTORY WIRED	---	12 AWG	---	FACTORY WIRED	BY BMS	FACTORY WIRED	OU			YES	---	---	---		ALT. E-1
UV-153	UNIT VENTILATOR	CLASS. 153	FRAC	15	6.3	115V/1ϕ/60HZ	REUSE EXIST.	REUSE EXIST.	20	12 AWG	3/4"	FACTORY WIRED	---	12 AWG	---	FACTORY WIRED	BY BMS	FACTORY WIRED	OU			YES	---	---	---		ALT. E-1
RTU-7	ROOFTOP AIR HANDLER	WRES RM 154	1.7	70	50	208V/3ϕ/60HZ	PANEL 'P-2'	CB #38,40,42	70	4 AWG		FACTORY WIRED	---		---	FACTORY WIRED	BY BMS	FACTORY WIRED	OU		YES	YES	---	---	---		
UV-155	UNIT VENTILATOR	CLASS. 155	FRAC	15	6.3	115V/1ϕ/60HZ	REUSE EXIST.	REUSE EXIST.	20	12 AWG	3/4"	FACTORY WIRED	---	12 AWG	---	FACTORY WIRED	BY BMS	FACTORY WIRED	OU			YES	---	---	---		ALT. E-1
UV-157	UNIT VENTILATOR	CLASS. 157	FRAC	15	6.3	115V/1ϕ/60HZ	REUSE EXIST.	REUSE EXIST.	20	12 AWG	3/4"	FACTORY WIRED	---	12 AWG	---	FACTORY WIRED	BY BMS	FACTORY WIRED	OU			YES	---	---	---		ALT. E-1
UV-159	UNIT VENTILATOR	CLASS. 159	FRAC	15	6.3	115V/1ϕ/60HZ	REUSE EXIST.	REUSE EXIST.	20	12 AWG	3/4"	FACTORY WIRED	---	12 AWG	---	FACTORY WIRED	BY BMS	FACTORY WIRED	OU			YES	---	---	---		ALT. E-1
UV-162	UNIT VENTILATOR	CLASS. 162	FRAC	15	6.3	115V/1ϕ/60HZ	REUSE EXIST.	REUSE EXIST.	20	12 AWG	3/4"	FACTORY WIRED	---	12 AWG	---	FACTORY WIRED	BY BMS	FACTORY WIRED	OU			YES	---	---	---		ALT. E-1
UV-164	UNIT VENTILATOR	CLASS. 164	FRAC	15	6.3	115V/1ϕ/60HZ	REUSE EXIST.	REUSE EXIST.	20	12 AWG	3/4"	FACTORY WIRED	---	12 AWG	---	FACTORY WIRED	BY BMS	FACTORY WIRED	OU			YES	---	---	---		ALT. E-1
UV-166	UNIT VENTILATOR	CLASS. 166	FRAC	15	6.3	115V/1ϕ/60HZ	REUSE EXIST.	REUSE EXIST.	20	12 AWG	3/4"	FACTORY WIRED	---	12 AWG	---	FACTORY WIRED	BY BMS	FACTORY WIRED	OU			YES	---	---	---		ALT. E-1
UV-168	UNIT VENTILATOR	CLASS. 168	FRAC	15	6.3	115V/1ϕ/60HZ	REUSE EXIST.	REUSE EXIST.	20	12 AWG	3/4"	FACTORY WIRED	---	12 AWG	---	FACTORY WIRED	BY BMS	FACTORY WIRED	OU			YES	---	---	---		ALT. E-1
UV-170	UNIT VENTILATOR	CLASS. 170	FRAC	15	6.3	115V/1ϕ/60HZ	REUSE EXIST.	REUSE EXIST.	20	12 AWG	3/4"	FACTORY WIRED	---	12 AWG	---	FACTORY WIRED	BY BMS	FACTORY WIRED	OU			YES	---	---	---		ALT. E-1
UV-171	UNIT VENTILATOR	CLASS. 171	FRAC	15	6.3	115V/1ϕ/60HZ	REUSE EXIST.	REUSE EXIST.	20	12 AWG	3/4"	FACTORY WIRED	---	12 AWG	---	FACTORY WIRED	BY BMS	FACTORY WIRED	OU			YES	---	---	---		ALT. E-1
UV-231	UNIT VENTILATOR	CLASS. 231	FRAC	15	6.3	115V/1ϕ/60HZ	REUSE EXIST.	REUSE EXIST.	20	12 AWG	3/4"	FACTORY WIRED	---	12 AWG	---	FACTORY WIRED	BY BMS	FACTORY WIRED	OU			YES	---	---	---		
UV-232	UNIT VENTILATOR	CLASS. 232	FRAC	15	6.3	115V/1ϕ/60HZ	REUSE EXIST.	REUSE EXIST.	20	12 AWG	3/4"	FACTORY WIRED	---	12 AWG	---	FACTORY WIRED	BY BMS	FACTORY WIRED	OU			YES	---	---	---		
UV-233	UNIT VENTILATOR	CLASS. 233	FRAC	15	6.3	115V/1ϕ/60HZ	REUSE EXIST.	REUSE EXIST.	20	12 AWG	3/4"	FACTORY WIRED	---	12 AWG	---	FACTORY WIRED	BY BMS	FACTORY WIRED	OU			YES	---	---	---		
UV-234	UNIT VENTILATOR	CLASS. 234	FRAC	15	6.3	115V/1ϕ/60HZ	REUSE EXIST.	REUSE EXIST.	20	12 AWG	3/4"	FACTORY WIRED	---	12 AWG	---	FACTORY WIRED	BY BMS	FACTORY WIRED	OU			YES	---	---	---		
UV-235	UNIT VENTILATOR	CLASS. 235	FRAC	15	6.3	115V/1ϕ/60HZ	REUSE EXIST.	REUSE EXIST.	20	12 AWG	3/4"	FACTORY WIRED	---	12 AWG	---	FACTORY WIRED	BY BMS	FACTORY WIRED	OU			YES	---	---	---		
UV-236	UNIT VENTILATOR	CLASS. 236	FRAC	15	6.3	115V/1ϕ/60HZ	REUSE EXIST.	REUSE EXIST.	20	12 AWG	3/4"	FACTORY WIRED	---	12 AWG	---	FACTORY WIRED	BY BMS	FACTORY WIRED	OU			YES	---	---	---		
UV-238	UNIT VENTILATOR	CLASS. 238	FRAC	15	6.3	115V/1ϕ/60HZ	REUSE EXIST.	REUSE EXIST.	20	12 AWG	3/4"	FACTORY WIRED	---	12 AWG	---	FACTORY WIRED	BY BMS	FACTORY WIRED	OU			YES	---	---	---		
UV-239	UNIT VENTILATOR	CLASS. 239	FRAC	15	6.3	115V/1ϕ/60HZ	REUSE EXIST.	REUSE EXIST.	20	12 AWG	3/4"	FACTORY WIRED	---	12 AWG	---	FACTORY WIRED	BY BMS	FACTORY WIRED	OU			YES	---	---	---		
UV-240	UNIT VENTILATOR	CLASS. 240	FRAC	15	12	115V/1ϕ/60HZ	REUSE EXIST.	REUSE EXIST.	20	12 AWG	3/4"	FACTORY WIRED	---	12 AWG	---	FACTORY WIRED	BY BMS	FACTORY WIRED	OU			YES	---	---	---		
UV-241	UNIT VENTILATOR	CLASS. 241	FRAC	15	6.3	115V/1ϕ/60HZ	REUSE EXIST.	REUSE EXIST.	20	12 AWG	3/4"	FACTORY WIRED	---	12 AWG	---	FACTORY WIRED	BY BMS	FACTORY WIRED	OU			YES	---	---	---		
UV-243	UNIT VENTILATOR	CLASS. 243	FRAC	15	6.3	115V/1ϕ/60HZ	REUSE EXIST.	REUSE EXIST.	20	12 AWG	3/4"	FACTORY WIRED	---	12 AWG	---	FACTORY WIRED	BY BMS	FACTORY WIRED	OU			YES	---	---	---		
UV-245	UNIT VENTILATOR	CLASS. 245	FRAC	15	6.3	115V/1ϕ/60HZ	REUSE EXIST.	REUSE EXIST.	20	12 AWG	3/4"	FACTORY WIRED	---	12 AWG	---	FACTORY WIRED	BY BMS	FACTORY WIRED	OU			YES	---	---	---		

UV-245 UV-UNIT VENTILATOR – LOCATION IN RM 245 – TYP.
AU – AT UNIT
OU – ON UNIT
N/A – NOT APPLICABLE
FRAC. – FRACTIONAL

1. FOLLOW NEC 2020 (NFPA 70) REQUIREMENTS.
2. PROVIDE GFCI OUTLETS AT VRF-3&4 WIRED WITH 2-#12 AND 1-#12 GND IN $\frac{3}{4}$" CONDUIT FROM EXISTING NEARBY PANEL. PROVIDE NEW 20A CIRCUIT BREAKER AND ALL APPURTENANCES.
3. PROVIDE GFCI OUTLET AT RTU-7 WIRED WITH 2-#12 AND 1-#12 GND IN $\frac{3}{4}$" CONDUIT FROM EXISTING PANEL P-2. PROVIDE NEW 20A CIRCUIT BREAKER AND ALL APPURTENANCES.
4. (ALT. E-1) AS PART OF ALTERNATE WORK, PROVIDE GFCI OUTLETS AT VRF-1&2 WIRED WITH 2-#12 AND 1-#12 GND IN $\frac{3}{4}$" CONDUIT FROM EXISTING PANEL P-2 AND SHARE CIRCUIT WITH RTU-7'S GFCI. PROVIDE NEW 20A CIRCUIT BREAKER AND ALL APPURTENANCES.
5. PROVIDE NEW TYPED PANEL BOARD LEGENDS IN NEW AND EXISTING PANELS. FOR EXISTING PANELS, REPLACE EXISTING PANEL BOARD LEGEND TO REFLECT ALL CHANGES MADE.

NEW PANEL SCHEDULE

PANEL ID: PANEL "P-4" — NEW PANEL — LOCATION: FAN ROOM
120-208Y/3 PHASE/4 WIRE

NOTES	CIR. No.	CIRCUIT DESCRIPTION	BKR.	ø	BKR.	CIRCUIT DESCRIPTION	CIR. No.	NOTES
	1			A			2	
2	3	(NEW) VRF-3	40A	B	80A	(NEW) VRF-3	4	2
	5			C			6	
	7			A			8	
2	9	(NEW) VRF-4	70A	B	40A	(NEW) VRF-4	10	2
	11			C			12	

NOTES:
1. REMOVE EXISTING BREAKER AND TURN OVER TO DISTRICT
2. PROVIDE GROUND FAULT TYPE BREAKER. TYPE AND STYLE TO MATCH EXISTING PANEL.
3. USE PREVIOUSLY INSTALLED BREAKER, VERIFY GROUND FAULT TYPE.

GENERAL NOTES:
- PANELBOARD BUS RATING 250 AMPS
- THREE PHASE /208V
- SURFACE MOUNTED
- 12-POLE

EXISTING PANEL SCHEDULE

PANEL ID: PANEL "P-2" — EXISTING PANEL — LOCATION: UPPER LEVEL
120-208Y/3 PHASE/4 WIRE

NOTES	CIR. No.	CIRCUIT DESCRIPTION	BKR.	ø	BKR.	CIRCUIT DESCRIPTION	CIR. No.	NOTES
	1			A			2	
	3	ACCU-2	35A	B	30A	ACCU-1	4	
	5			C			6	
	7			A			8	
	9	SPARE	30A	B	250A	(NEW) SUB PANEL (SP-2) (ALT. E-1)	10	1,2
	11			C			12	
	13			A			14	
	15	ACCU-9	30A	B	30A	ACCU-7	16	
	17			C			18	
	19			A			20	
	21	SPARE	30A	B	30A	ACCU-5	22	
	23			C			24	
	25			A			26	
	27	ACCU-6	30A	B	30A	ACCU-3	28	
	29			C			30	
	31			A			32	
	33	ACCU-4	30A	B	30A	ACCU-8	34	
	35			C			36	
	37	EXISTING LOAD	20A	A			38	
2	39	ROOF EQUIP GFCI's	20A	B	70A	(NEW) RTU-7	40	2
	41	SPACE		C			42	

NOTES:
1. REMOVE EXISTING BREAKER AND TURN OVER TO DISTRICT
2. PROVIDE GROUND FAULT TYPE BREAKER. TYPE AND STYLE TO MATCH EXISTING PANEL.
3. USE PREVIOUSLY INSTALLED BREAKER, VERIFY GROUND FAULT TYPE.

GENERAL NOTES:
- PANELBOARD BUS RATING 600 AMPS
- THREE PHASE /208V
- SURFACE MOUNTED
- 42-POLE

NEW PANEL SCHEDULE (ALT. E-1)

PANEL ID: PANEL "SP-2" — NEW SUB PANEL — LOCATION: UPPER LEVEL
120-208Y/3 PHASE/4 WIRE

NOTES	CIR. No.	CIRCUIT DESCRIPTION	BKR.	ø	BKR.	CIRCUIT DESCRIPTION	CIR. No.	NOTES
	1			A			2	
2	3	(NEW) VRF-1 (ALT. E-1)	40A	B	80A	(NEW) VRF-1 (ALT. E-1)	4	2
	5			C			6	
	7			A			8	
2	9	(NEW) VRF-2 (ALT. E-1)	70A	B	40A	(NEW) VRF-2 (ALT. E-1)	10	2
	11			C			12	

NOTES:
1. REMOVE EXISTING BREAKER AND TURN OVER TO DISTRICT
2. PROVIDE GROUND FAULT TYPE BREAKER. TYPE AND STYLE TO MATCH EXISTING PANEL.
3. USE PREVIOUSLY INSTALLED BREAKER, VERIFY GROUND FAULT TYPE.

GENERAL NOTES:
- PANELBOARD BUS RATING 250 AMPS
- THREE PHASE /208V
- SURFACE MOUNTED
- 12-POLE

BIDDING NOTE
ALL WORK ON THIS SHEET TO BE PROVIDED IN ITS ENTIRETY BY THE DISTRICT AND IS PROVIDED FOR REFERENCE ONLY.

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STAMP
STATE OF NEW YORK — JACK EISENBACH — No. 059445 — LICENSED PROFESSIONAL ENGINEER

WARWICK VALLEY CENTRAL SCHOOL DISTRICT
HIGH SCHOOL UNIT VENTILATOR REPLACEMENT AND AIR CONDITIONING UPGRADE

225 WEST STREET EXT, WARWICK, NY 10990
WV HIGH SCHOOL – 89 SANFORDVILLE ROAD. WARWICK, NY 10990
SED NO. 44-21-01-06-0-001-042

PROJECT NO.	05-21-04 05-20-06
ISSUED FOR BID	11.09.2022
SED SET	10.19.2022
REVISION	DATE
DRAWN BY	
CHECKED BY	
SHEET SIZE	30" X 42"
SCALE	AS NOTED

SHEET TITLE
SCHEDULES

SHEET NO.
E-500

FILE PATH -N:\1 - PROJECT DIRECTORIES\1- E & R Projects\05 - Warwick Valley CSD\05-21-04 Warwick Federal Grant Project\CAD\Package3.HsUvsVrf\05-21-04.E500.dwg

PLUMBING ABBREVIATIONS

A/E	ARCHITECT / ENGINEER
AD	AREA DRAIN
AD	ACCESS DOOR
ADA	AMERICANS WITH DISABILITIES ACT
AFF	ABOVE FINISH FLOOR
AFG	ABOVE FINISHED GRADE
AHJ	AUTHORITY HAVING JURISDICTION
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE
AP	ACCESS PANEL
ASHRAE	AMERICAN SOCIETY OF HEATING, REFRIGERATION & AIR CONDITIONING ENGINEERS
ASME	AMERICAN SOCIETY OF MECHANICAL ENGINEERS
ASPE	AMERICAN SOCIETY OF PLUMBING ENGINEERS
AWWA	AMERICAN WATERWORKS ASSOCIATION
BFG	BELOW FINISHED GRADE
BHP	BREAK HORSEPOWER
BOR	BASE OF RISER
BTU	BRITISH THERMAL UNIT
BTUH	BRITISH THERMAL UNIT PER HOUR
C	CELSIUS
CA	COMBUSTION AIR
CA	COMPRESSED AIR
CGA	COMPRESSED GAS ASSOCIATION
CI	CAST IRON
CO	CLEANOUT
CO2	CARBON DIOXIDE
COND	CONDENSATE
CP	CIRCULATING PUMP
CPVC	CHLORINATED POLYVINYL CHLORIDE
CU	COPPER
CW	COLD WATER (DOMESTIC)
D	DRAIN
DIA	DIAMETER
DFU	DRAINAGE FIXTURE UNIT
DN	DOWN
DPCO	DECK PLATE CLEANOUT
DWG	DRAWING
DWH	DOMESTIC WATER HEATER
DWV	DRAIN WASTE VENT
EC	ELECTRICAL CONTRACTOR
EL	ELEVATION
ET	EXPANSION TANK
EWC	ELECTRIC WATER COOLER
EXIST	EXISTING
F	FAHRENHEIT
FD	FLOOR DRAIN
FU	FIXTURE UNITS
FV	FLUSH VALVE
G	NATURAL GAS
GAL	GALLON
GALV	GALVANIZED
GC	GENERAL CONTRACTOR
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
H&CW	HOT AND COLD WATER
HB	HOSE BIBB
HC	HEATING & HVAC CONTRACTOR
HD	HUB DRAIN
HP	HORSEPOWER
HS	HAND SINK
HW	HOT WATER (DOMESTIC)
INV	INVERT
IC	IRRIGATION CONTRACTOR

IIW	INDIRECT WASTE
IWH	INSTANTANEOUS WATER HEATER
KW	KILOWATT
LAV	LAVATORY
M	METER
MC	MECHANICAL CONTRACTOR
MBH	1000 BTUH
MH	MANHOLE
NC	NORMALLY CLOSED
NG	NATURAL GAS
NIC	NOT IN CONTRACT
NOM	NOMINAL
NPW	NON POTABLE WATER
NTS	NOT TO SCALE
O2	OXYGEN
OD	OUTSIDE DIAMETER
OSHA	OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION
P	PUMP
PC	PLUMBING CONTRACTOR
PD	PUMP DISCHARGE
PDI	PLUMBING AND DRAINAGE INSTITUTE
PF	PLUMBING FIXTURE
PG	PRESSURE GAGE
PPM	PARTS PER MILLION
PRS	PRESSURE REDUCING STATION
PRV	PRESSURE REDUCING VALVE
PSI	POUNDS PER SQUARE INCH
PSIA	POUNDS PER SQUARE INCH ATMOSPHERE
PSIG	POUNDS PER SQUARE INCH GAUGE
PVC	POLYVINYL CHLORIDE
RD	ROOF DRAIN
RL	RAIN LEADER
RO	REVERSE OSMOSIS WATER
RPZ	REDUCED PRESSURE ZONE BACKFLOW PREVENTER
SAN	SANITARY SEWER
SMACNA	SHEET METAL AND AIR CONDITIONING CONTRACTORS NATIONAL ASSOCIATION
SCFM	STANDARD CUBIC FOOT/MINUTE
SCW	SOFTENED COLD WATER
SP	SUMP PUMP
SQFT	SQUARE FEET
SS	STAINLESS STEEL
ST	STORM SEWER
T&P	TEMPERATURE & PRESSURE (RELIEF VALVE)
TD	TRENCH DRAIN
TDH	TOTAL DYNAMIC HEAD
TEMP	TEMPERATURE/TEMPORARY
TMV	THERMOSTATIC MIXING VALVE
TP	TRAP PRIMER
TSTAT	THERMOSTAT
TW	TEMPERED WATER
TYP	TYPICAL
UC	UNDERCUT
UH	UNIT HEATER
UL	UNDERWRITERS LABORATORY
UPC	UNIFORM PLUMBING CODE
UR	URINAL
V	VENT
VB	VACUUM BREAKER
VTR	VENT THROUGH ROOF
WC	WATER CLOSET
WCO	WALL CLEANOUT
WH	WALL HYDRANT
WHA	WATER HAMMER ARRESTER
WSFU	WATER SUPPLY FIXTURE UNIT
XA	EXHAUST AIR

PLUMBING SYMBOLS

- NEW PIPING AND EQUIPMENT
- EXISTING TO REMAIN PIPING AND EQUIPMENT
- PIPING AND EQUIPMENT FOR REMOVAL
- BALL VALVE
- BALL VALVE (HOSE END & CAP)
- BALANCING VALVE
- CHECK VALVE
- CONTROL VALVE – 2 WAY
- DRAIN VALVE WITH HOSE BIBB
- FL – FLANGED CONNECTION
- FUSIBLE LINK OIL SHUTOFF VALVE
- FCV – FLOW CONTROL VALVE
- GATE VALVE
- GLOBE VALVE
- GAS COCK
- LUBRICATED PLUG VALVE
- PRV – PRESSURE REDUCING VALVE
- RELIEF VALVE
- STRAINER WITH BLOWDOWN
- STRAINER WITH BLOWDOWN
- SOLENOID VALVE
- THREE–WAY CONTROL VALVE
- TRIPLE DUTY GLOBE VALVE
- UNION
- REDUCER OR INCREASER
- BRANCH FROM BOTTOM OF PIPE
- BRANCH FROM TOP OF PIPE
- PIPE ELBOW DN
- PIPE ELBOW UP

	PIPE FLOW ARROW
---------------	BELOW SLAB PIPING
—— CW ——	COLD WATER PIPING
—— HW ——	HOT WATER PIPING
----- HWC-----	HOT WATER RECIRC PIPING
—— IW ——	INDIRECT WASTE PIPING
—— SAN ——	SANITARY PIPING
—— D ——	DRAIN PIPING
------V-------	VENT PIPING
—— G ——	NATURAL GAS PIPING
----- SAN-----	SANITARY PIPING (BELOW GRADE)
	SLEEVE

- GAUGE WITH BALL VALVE
- AV – AUTOMATIC AIR VENT
- MV – MANUAL AIR VENT
- THERMOMETER
- BUTTERFLY VALVE
- PIPE CAP
- END OF LINE CLEAN OUT
- HOSE BIBB
- FLOOR DRAIN
- C – FLOOR DRAIN WITH P–TRAP
- DECK PLATE CLEAN OUT
- GAS OUTLET
- WATER HAMMER ARRESTOR
- WH – WALL HYDRANT
- VB – VACUUM BREAKER
- INLINE PUMP
- WATER METER
- SUCTION DIFFUSER
- FLEXIBLE CONNECTOR
- PIPE BREAK
- PIPE FLOW ARROW
- # – REVISION/KEYED NOTE
- # – KEYED NOTE
- # – KEYED NOTE
- # – KEYED NOTE
- POINT OF NEW CONNECTION
- LIMIT OF REMOVAL
- SAW CUT FLOOR

GENERAL PLUMBING NOTES:

1. DRAWINGS ARE DIAGRAMMATIC AND INDICATE GENERAL ARRANGEMENT OF SYSTEMS AND WORK INCLUDED IN THE CONTRACT. IT IS NOT INTENDED TO SPECIFY OR SHOW EVERY OFFSET, FITTING OR COMPONENT; HOWEVER, CONTRACT DOCUMENTS REQUIRE COMPONENTS AND MATERIALS WHETHER OR NOT INDICATED OR SPECIFICALLY SPECIFIED TO MAKE THE SYSTEMS BEING INSTALLED COMPLETE, CODE COMPLIANT, TESTED AND OPERATIONAL.
2. CONTRACTOR SHALL FIELD VERIFY ALL LOCATIONS, DIMENSIONS AND ELEVATIONS PRIOR TO CONSTRUCTION.
3. ALL MATERIALS, EQUIPMENT, METHODS OF INSTALLATION, REMOVALS AND DISPOSAL SHALL BE IN ACCORDANCE WITH THE STANDARDS, REGULATIONS, CODES, ORDINANCES, AND LAWS OF LOCAL, STATE, AND FEDERAL GOVERNMENTS, AND OTHER AUTHORITIES THAT HAVE LAWFUL JURISDICTION.
4. PERFORM WORK, PROVIDE MATERIALS AND EQUIPMENT FOR SYSTEMS SHOWN, SPECIFIED AND DESCRIBED ON DRAWINGS. COMPLETELY COORDINATE ALL TRADES OF THIS CONTRACT AND PROVIDE COMPLETE AND FULLY FUNCTIONAL INSTALLATION. ALL WORK IN THIS SET TO BE COMPLETED UNDER THIS CONTRACT, UNLESS OTHERWISE INDICATED.
5. PROTECT ALL EXISTING AND NEW BUILDING ELEMENTS FROM DAMAGE. CONTRACTOR SHALL RESTORE ALL DAMAGED ELEMENTS TO ORIGINAL OR BETTER CONDITION.
6. WORK SHALL BE EXECUTED IN A WORKMANLIKE MANNER AND SHALL PRESENT NEAT, RECTILINEAR APPEARANCE WHEN COMPLETED. MAINTAIN MAXIMUM HEAD ROOM AT ALL TIMES. DO NOT RUN PIPES, DUCTS, AND CONDUIT EXPOSED UNLESS SHOWN AND NOTED TO BE EXPOSED ON DRAWINGS.
7. MATERIALS AND EQUIPMENT SHALL BE NEW AND INSTALLED ACCORDING TO MANUFACTURER'S INSTRUCTIONS AND RECOMMENDATIONS. MAINTAIN MANUFACTURER'S EQUIPMENT CLEARANCES.
8. CONTRACTOR IS RESPONSIBLE FOR ALL WORK RELATED TO ISOLATING, SHUTTING DOWN, DRAINING, FILLING AND TESTING SYSTEMS TO ALLOW FOR COMPLETION OF WORK. INTERRUPTIONS TO EXISTING SERVICES AND SYSTEMS SHALL BE AS SHORT AS POSSIBLE AND AT A TIME AND DURATION APPROVED BY THE OWNER AND UTILITY AS APPLICABLE. INCLUDE ALL PREMIUM TIME ASSOCIATED WITH INTERRUPTIONS. ALL SYSTEM INTERRUPTIONS SHALL BE SCHEDULED WITH OWNER, UTILITY AND COORDINATED WITH OTHER TRADE WORK.
9. ALL EQUIPMENT PIPING, WIRING, INSULATION ETC. INSTALLED IN HVAC AIR PLENUM SPACES SHALL MEET CODE REQUIREMENTS FOR SMOKE AND COMBUSTIBILITY.
10. SEAL ALL PENETRATIONS THROUGH FIRE RATED WALLS, PARTITIONS AND FLOORS WITH UL RATED MATERIALS/METHODS EQUIVALENT TO FIRE RATING OF ASSEMBLY.
11. PROVIDE PROPER ACCESS TO EQUIPMENT THAT REQUIRES INSPECTION, REPLACEMENT OR REPAIR. ACCESS PANELS/DOORS SHALL BE A MINIMUM OF 12"X12", UNLESS OTHERWISE NOTED.
12. DO NOT SUPPORT EQUIPMENT FROM SUSPENDED CEILINGS. ALL SUPPORT SHALL BE FROM BUILDING STRUCTURE OR FROM CEILING SUSPENSION SYSTEM WHICH HAS BEEN REINFORCED. SUPPORTS SHALL BE SELECTED AND INSTALLED TO PROVIDE A VIBRATION FREE INSTALLATION.
13. PLUMBING CONTRACTOR IS RESPONSIBLE FOR JETTING/SNAKING ALL SANITARY WASTE LINES (ALL FLOOR DRAINS) SHOWN ON THE DRAWINGS TO BE FULLY OPERATIONAL. (AS APPLICABLE)
14. CLEANING DURING PLUMBING WORK: THE MECHANICAL ROOM AND ROOMS WHERE WORK WILL BE DONE TO MINIMIZE DISTURBANCE IN THE BUILDINGS. WORKERS ARE TO USE PATHWAYS AND FACILITIES AGREED UPON WITH THE DISTRICT DESIGNEE IN WRITING. THE AREA OUTSIDE THE BUILDING WHERE CUTTING, WELDING OR STORAGE IS ALLOWED IS TO BE FENCED AT ALL TIMES. THE CONTRACTOR WILL ON A DAILY BASIS CLEAN THE GROUNDS AND THE BUILDING OF ANY DEBRIS OR GARBAGE GENERATED BY THEIR WORK.
24. EACH CONTRACTOR RESPONSIBLE FOR RETURNING WALLS, CEILINGS AND SURFACES THEY DISTURB THAT ARE NOT SCHEDULED FOR REPLACEMENT BACK TO ORIGINAL CONDITIONS.

ENGINEER:
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JACK EISENBACH
No. 059445
LICENSED PROFESSIONAL ENGINEER

WARWICK VALLEY CENTRAL SCHOOL DISTRICT
HIGH SCHOOL UNIT VENTILATOR REPLACEMENT AND AIR CONDITIONING UPGRADE

225 WEST STREET EXT, WARWICK, NY 10990
WV HIGH SCHOOL – 89 SANFORDVILLE ROAD. WARWICK, NY 10990

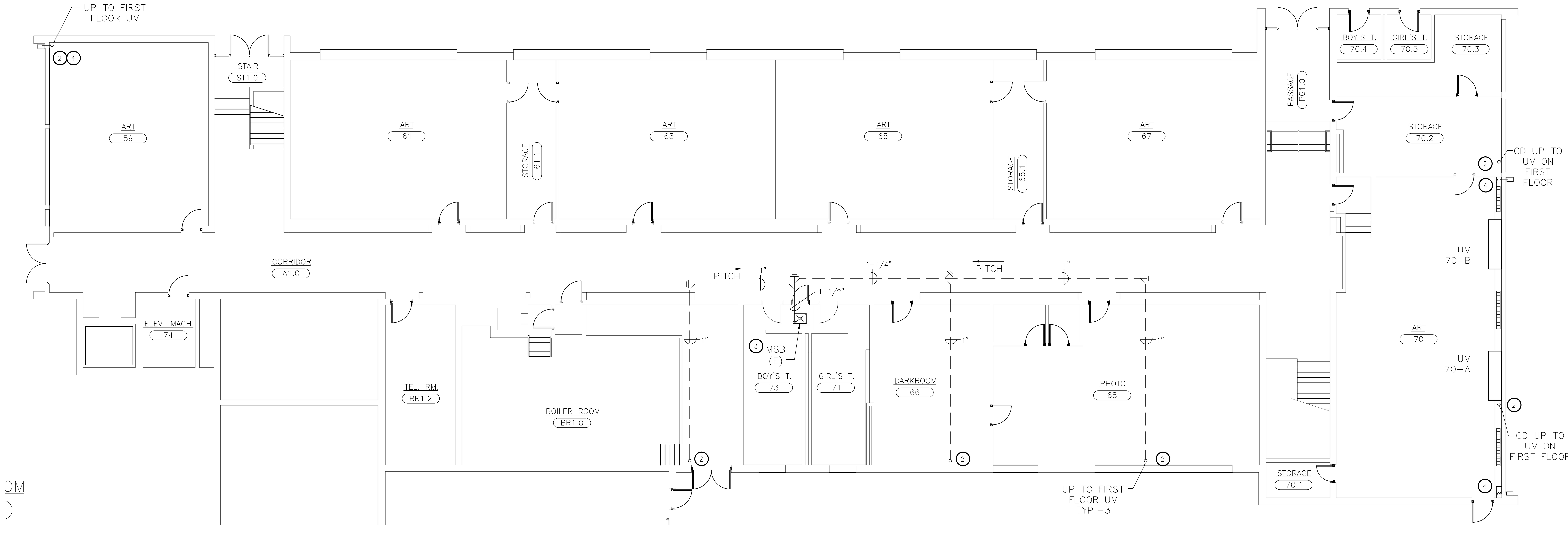
SED NO. 44–21–01–06–0–001–042

PROJECT NO.	05–21–04 05–20–06
ISSUED FOR BID	11.09.2022
SED SET	10.19.2022
REVISION	DATE
DRAWN BY	
CHECKED BY	
SHEET SIZE	30" X 42"
SCALE	AS NOTED

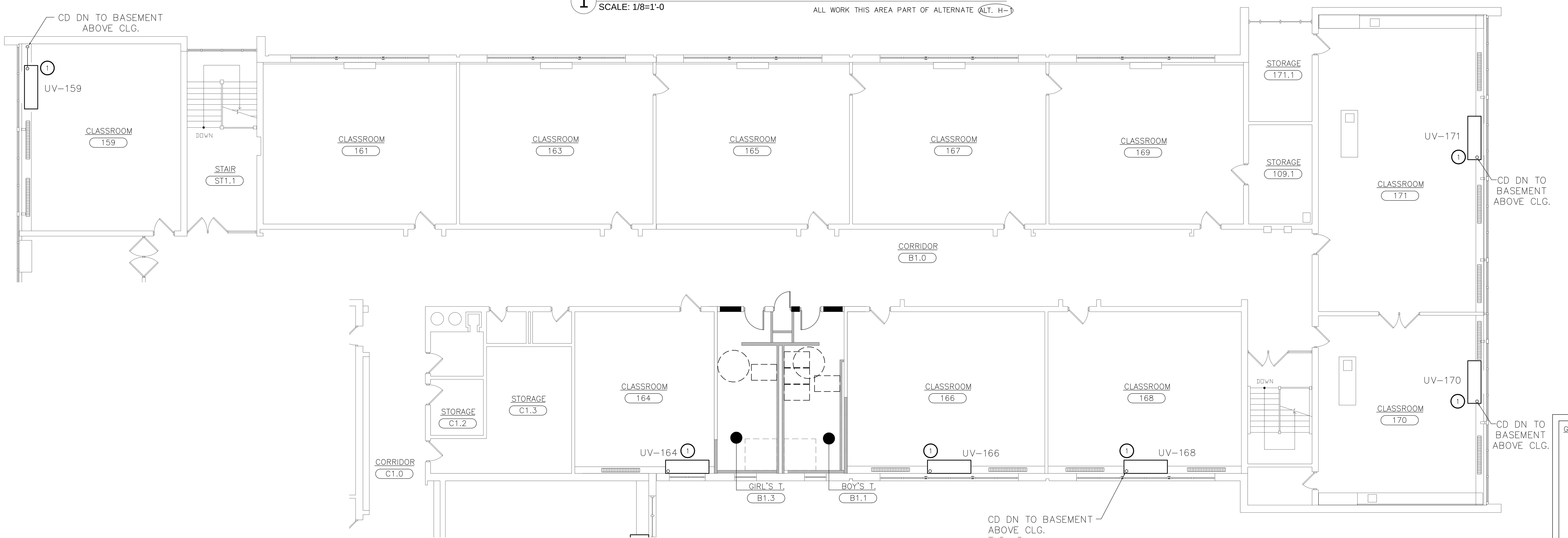
SHEET TITLE
ABBREVIATIONS AND NOTES

SHEET NO.
P-001

FILE PATH –N:\1 – PROJECT DIRECTORIES\1– E & R Projects\05 – Warwick Valley CSD\05–21–04 Warwick Federal Grant Project\CAD\Package3.HsUvsVrf\05–21–04.p001.dwg



1 PARTIAL BASEMENT FLOOR PLAN - NEW WORK
SCALE: 1/8=1'-0
ALL WORK THIS AREA PART OF ALTERNATE ALT. H-1



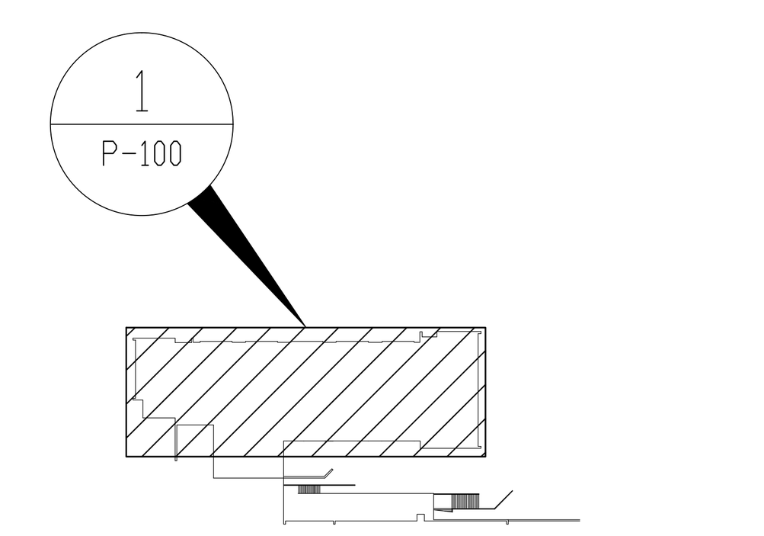
2 PARTIAL FIRST FLOOR PLAN - NEW WORK
SCALE: 1/8=1'-0
ALL WORK THIS AREA PART OF ALTERNATE ALT. H-1

KEYED NOTES – NEW WORK:

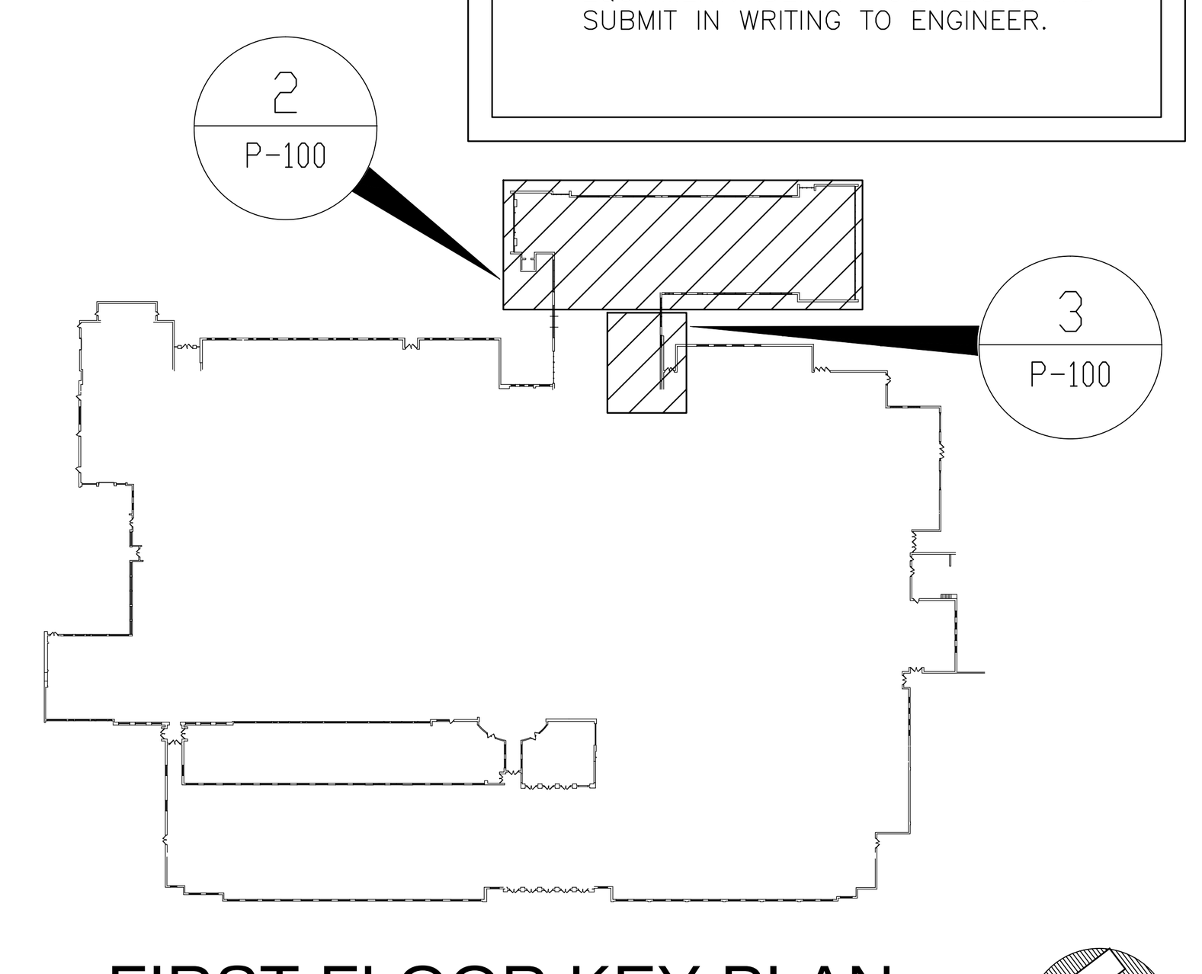
1. PROVIDE AND CONNECT CONDENSATE PIPING TO INDICATED NEW UVS.
2. PROVIDE PVC CONDENSATE PIPING AND CLEANOUTS TO TIE INTO UVS ON THE FLOOR ABOVE. RUN PIPING ABOVE DROP CEILINGS WITH 1/8" PER FOOT PITCH.
3. TERMINATE CONDENSATE PIPING AT MSB INDICATED. SEE DETAILS FOR MORE INFORMATION.
4. DROP CONDENSATE PIPING INSIDE NEW PIPE CHASE AND TERMINATE OUTSIDE WITH COPPER ELBOW AS SHOWN. MAKE PENETRATIONS TO EXTERIOR WEATHERTIGHT. INSTALL SPLASHBLOCKS ON GRADE SLOPED AWAY FROM FOUNDATION. SEE DETAILS FOR MORE INFORMATION. MECHANICAL CONTRACTOR TO PROVIDE SHEET METAL PIPE CHASE AND FURNISH P.C. WITH SPLASHBLOCKS.

GENERAL NOTES:

1. PROVIDE ALL ALTERATIONS, RESTORATIONS, AND REPLACEMENTS NECESSARY TO ACCOMMODATE NEW WORK.
2. PROVIDE FIRESTOP AT ALL INTERIOR WALL AND FLOOR PENETRATIONS.
3. DRAWINGS INDICATE GENERAL DESIGN INTENT ONLY. VERIFY FIELD CONDITIONS BEFORE ORDERING MATERIALS AND EQUIPMENT. IDENTIFY CONFLICTS AND SUBMIT IN WRITING TO ENGINEER.



GROUND FLOOR KEY PLAN
SCALE: NONE



FIRST FLOOR KEY PLAN
SCALE: NONE

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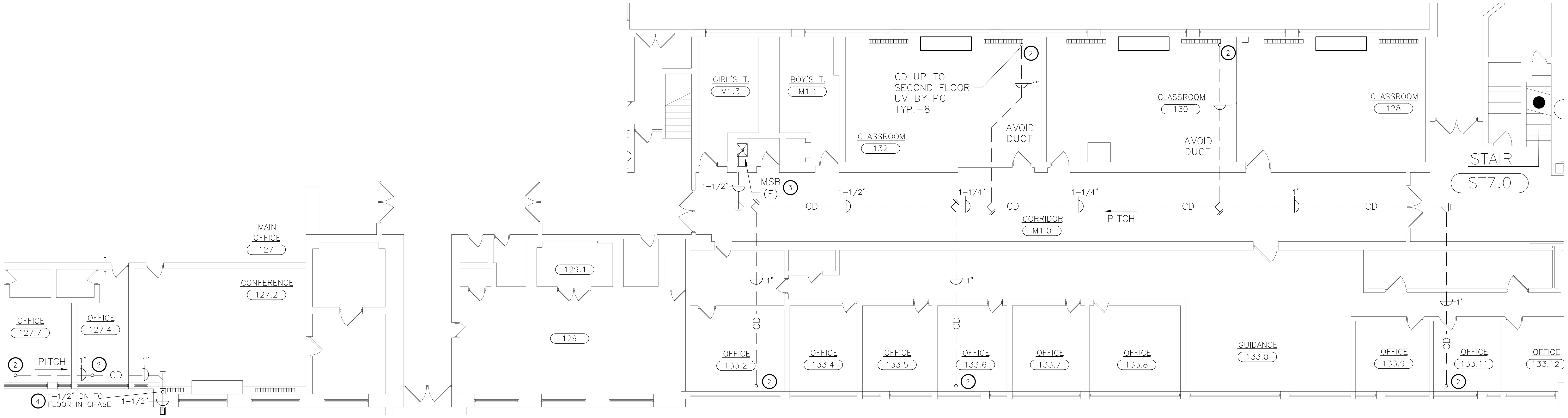
WV HIGH SCHOOL – 89 SANFORDVILLE ROAD. WARWICK, NY 10990
SED NO. 44-21-01-06-0-001-042

PROJECT NO.	05-21-04 05-20-06
ISSUED FOR BID	11.09.2022
SED SET	10.19.2022
REVISION	DATE
DRAWN BY	
CHECKED BY	
SHEET SIZE	30" X 42"
SCALE	AS NOTED

SHEET TITLE
PARTIAL BASEMENT AND FIRST FLOOR PLANS - NEW WORK

SHEET NO.
P-100

FILE PATH –N:\1 – PROJECT DIRECTORIES\1– E & R Projects\05 – Warwick Valley CSD\05–21–04 Warwick Federal Grant Project\CAD\Package3.HsUvsVrf\05–21–04.P–100–P–102.dwg



1 PARTIAL FIRST FLOOR PLAN - NEW WORK

SCALE: 1/8=1'-0

KEYED NOTES – NEW WORK:

1. PROVIDE AND CONNECT CONDENSATE PIPING TO INDICATED NEW UVS.
2. PROVIDE PVC CONDENSATE PIPING AND CLEANOUTS TO TIE INTO UVS ON THE FLOOR ABOVE. RUN PIPING ABOVE DROP CEILINGS WITH 1/8" PER FOOT PITCH.
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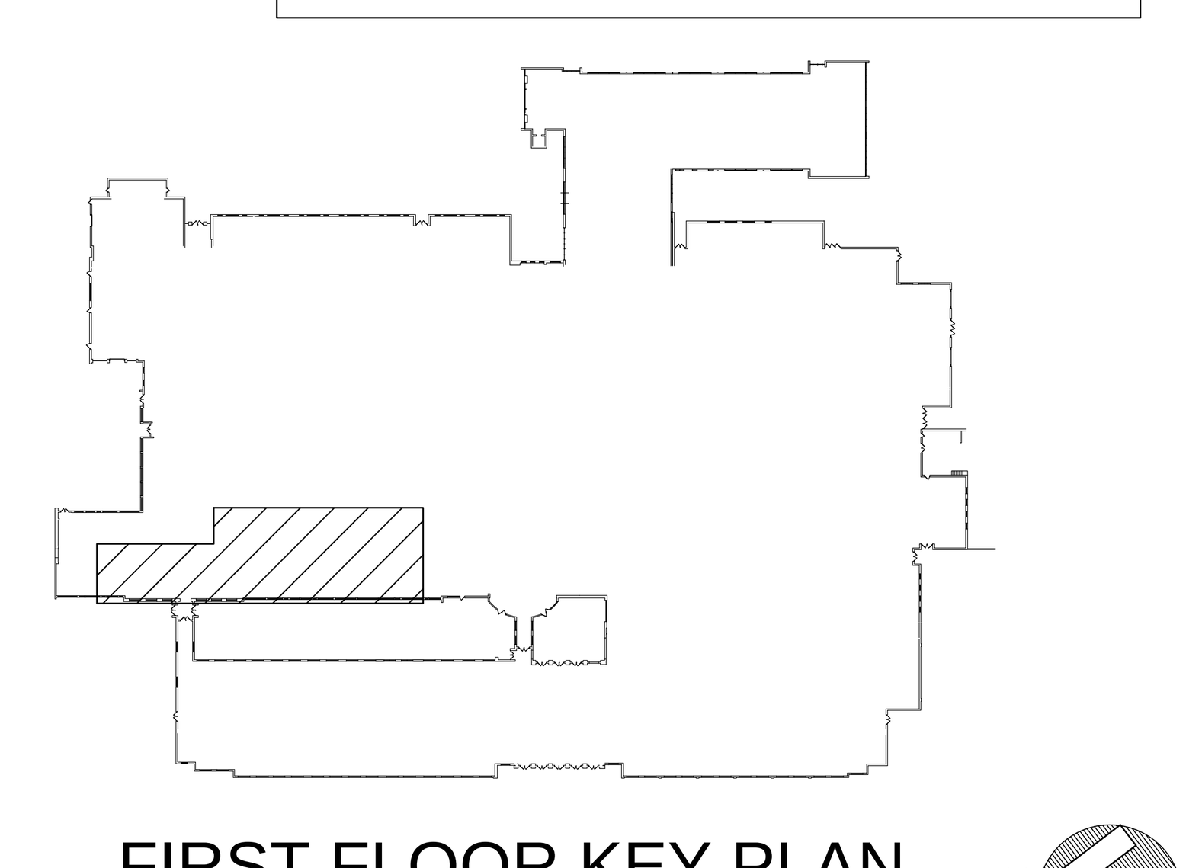

FIRST FLOOR KEY PLAN

SCALE: NONE

ENGINEER:
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STATE OF NEW YORK – JACK EISENBACH – No. 059445 – LICENSED PROFESSIONAL ENGINEER

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WV HIGH SCHOOL – 89 SANFORDVILLE ROAD, WARWICK, NY 10990
SED NO. 44-21-01-06-0-001-042

PROJECT NO.	05-21-04 05-20-06
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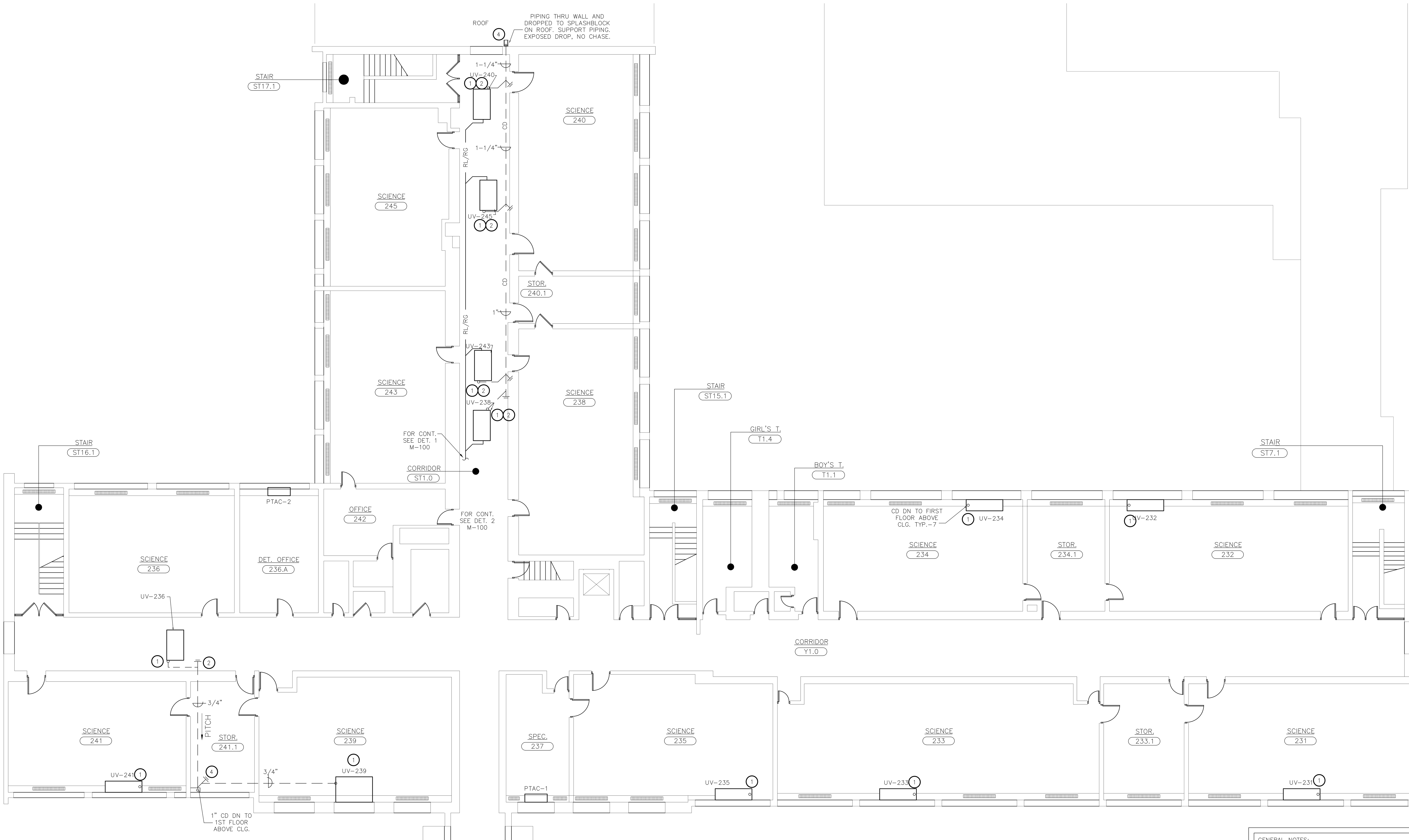
REVISION	DATE
DRAWN BY	
CHECKED BY	
SHEET SIZE	30" X 42"
SCALE	AS NOTED

SHEET TITLE
PARTIAL FIRST FLOOR PLAN - NEW WORK

SHEET NO.
P-101



1 PARTIAL SECOND FLOOR PLAN - NEW WORK
SCALE: 1/8=1'-0

KEYED NOTES – NEW WORK:

1. PROVIDE AND CONNECT CONDENSATE PIPING TO INDICATED NEW UVS.
2. PROVIDE PVC CONDENSATE PIPING AND CLEANOUTS TO TIE INTO UVS ON THE FLOOR ABOVE. RUN PIPING ABOVE DROP CEILINGS WITH 1/8" PER FOOT PITCH.
3. TERMINATE CONDENSATE PIPING AT MSB INDICATED. SEE DETAILS FOR MORE INFORMATION.
4. DROP CONDENSATE PIPING INSIDE NEW PIPE CHASE AND TERMINATE OUTSIDE WITH COPPER ELBOW AS SHOWN. MAKE PENETRATIONS TO EXTERIOR WEATHERTIGHT. INSTALL SPLASHBLOCKS ON GRADE SLOPED AWAY FROM FOUNDATION. SEE DETAILS FOR MORE INFORMATION. MECHANICAL CONTRACTOR TO PROVIDE SHEET METAL PIPE CHASE AND FURNISH P.C. WITH SPLASHBLOCKS.

GENERAL NOTES:

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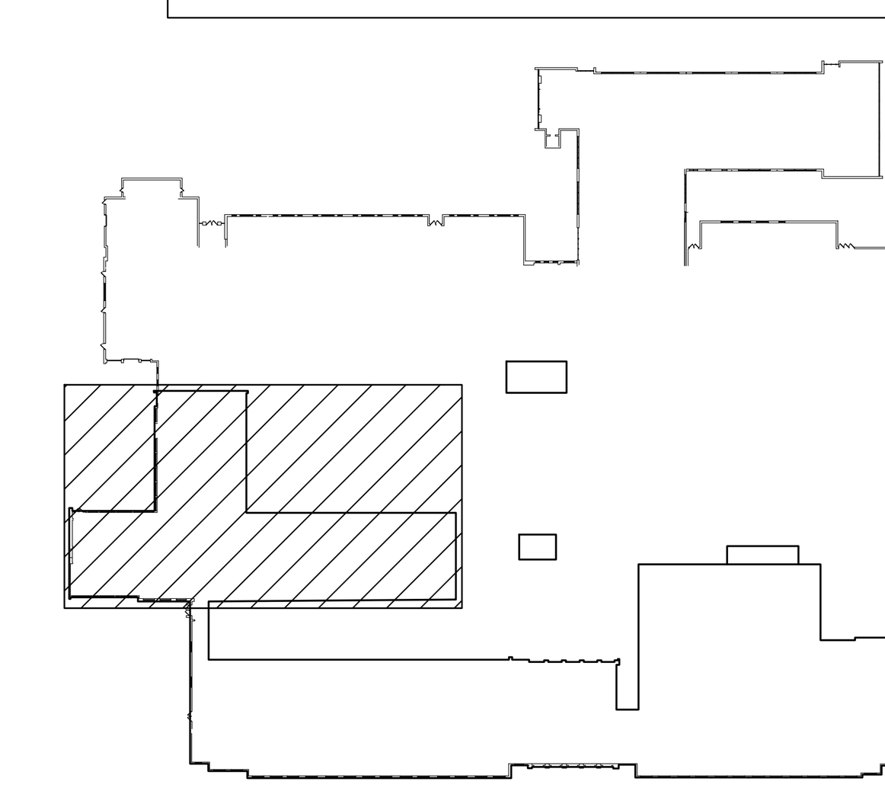
2. PROVIDE FIRESTOP AT ALL INTERIOR WALL AND FLOOR PENETRATIONS.
3. DRAWINGS INDICATE GENERAL DESIGN INTENT ONLY. VERIFY FIELD CONDITIONS BEFORE ORDERING MATERIALS AND EQUIPMENT. IDENTIFY CONFLICTS AND SUBMIT IN WRITING TO ENGINEER.



SECOND FLOOR KEY PLAN
SCALE: NONE

ENGINEER:
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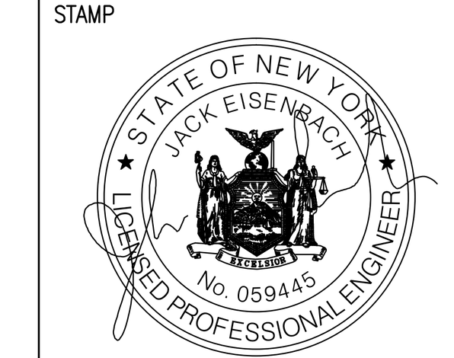

WARWICK VALLEY CENTRAL SCHOOL DISTRICT
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PROJECT NO.	05-21-04 05-20-06
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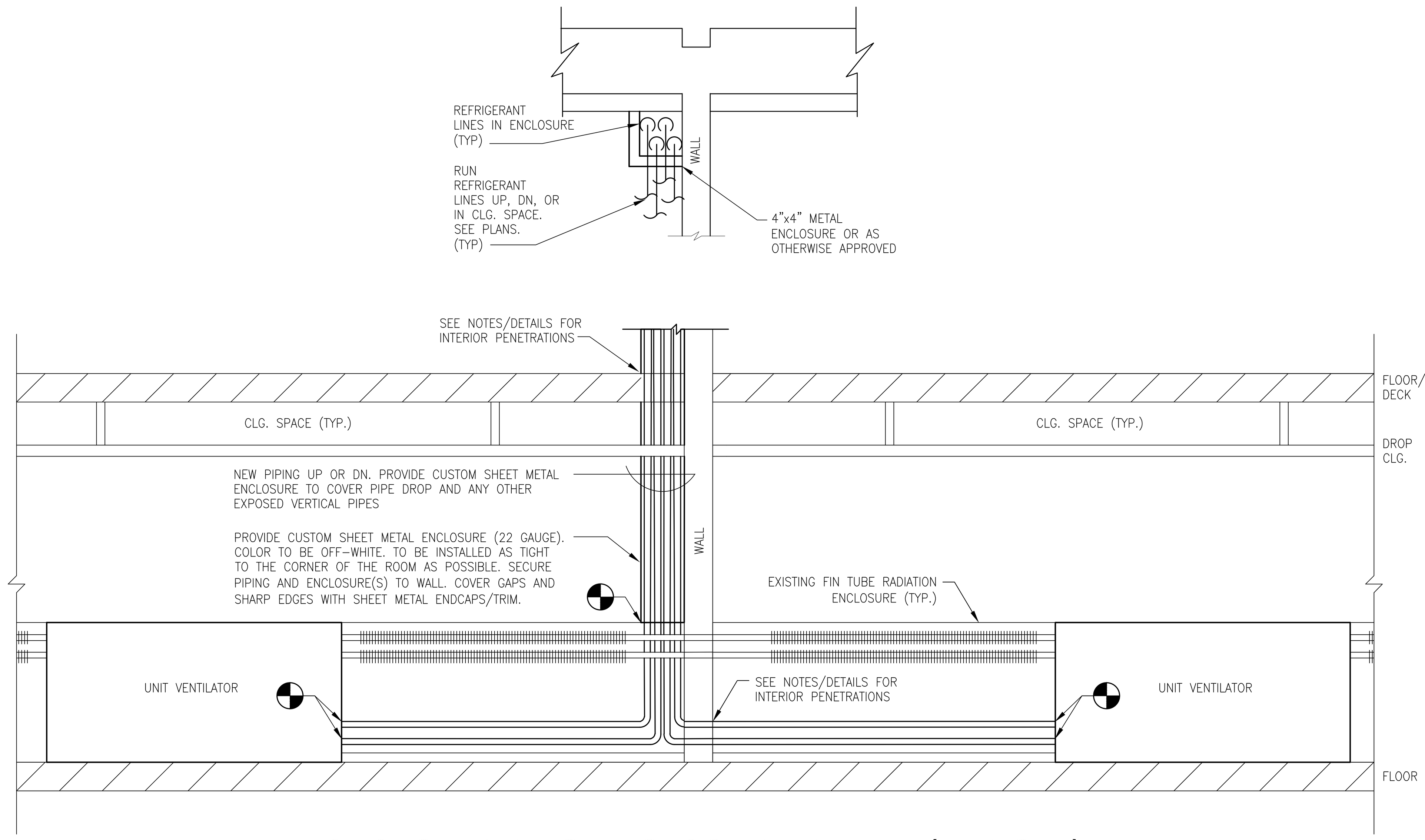
SED SET	10.19.2022
REVISION	DATE
DRAWN BY	
CHECKED BY	
SHEET SIZE	30" X 42"
SCALE	AS NOTED

SHEET TITLE
PARTIAL SECOND FLOOR PLAN - NEW WORK

SHEET NO.
P-102

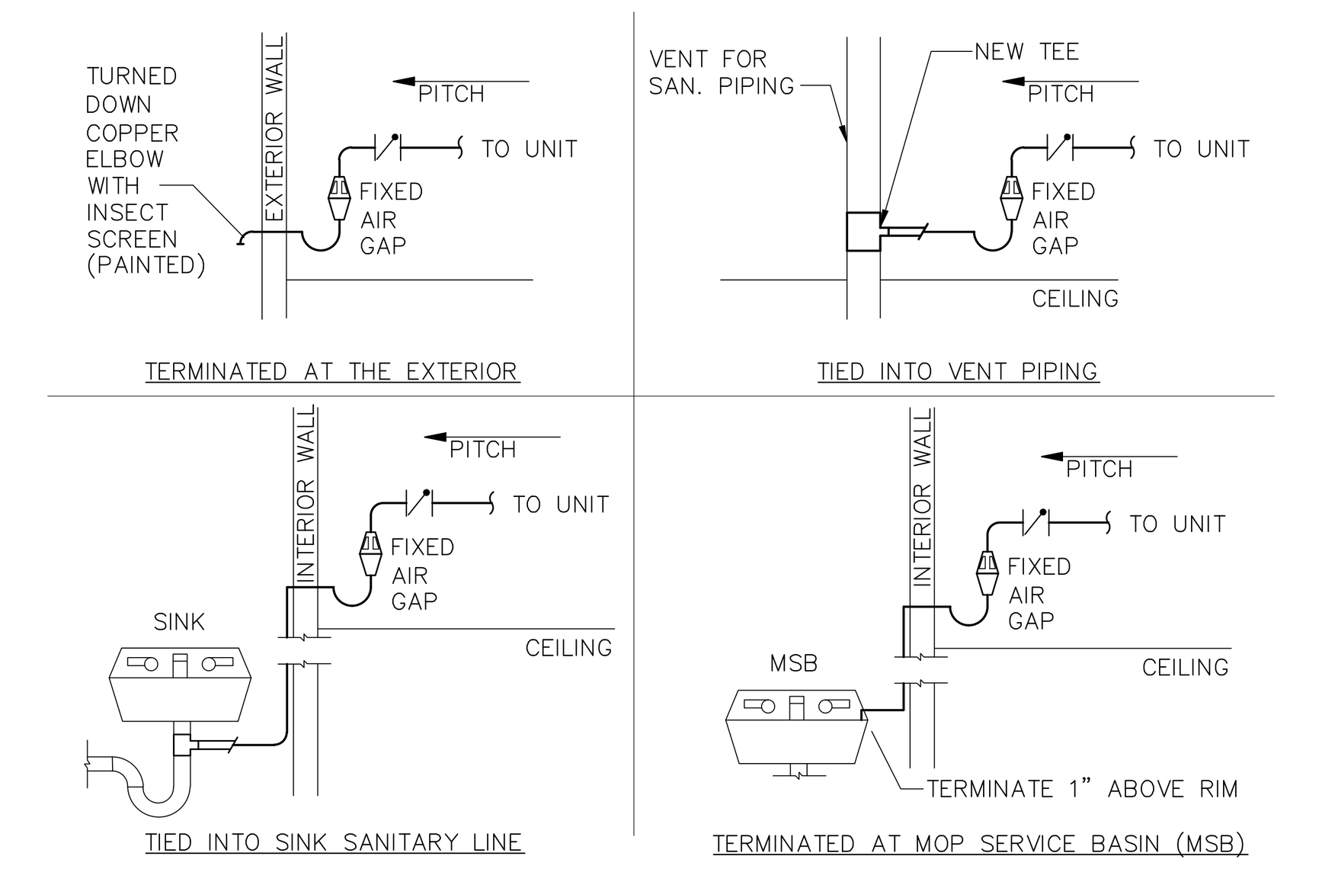
FILE PATH – N:\1 – PROJECT DIRECTORIES\1– E & R Projects\05 – Warwick Valley CSD\05-21-04 Warwick Federal Grant Project\CAD\Package3.HsUvsVrf\05-21-04.P-100-P-102.dwg



4 CUSTOM PIPING ENCLOSURE DETAIL (TYPICAL)
SCALE: NONE

NEW WORK NOTES:

SEE MANUFACTURER INSTALLATION RECOMMENDATIONS. ACTUAL PIPING PATHS WILL VARY. SEE DRAWINGS FOR INTENT. VERIFY COIL CONNECTION SIDES BEFORE ORDERING EQUIPMENT.

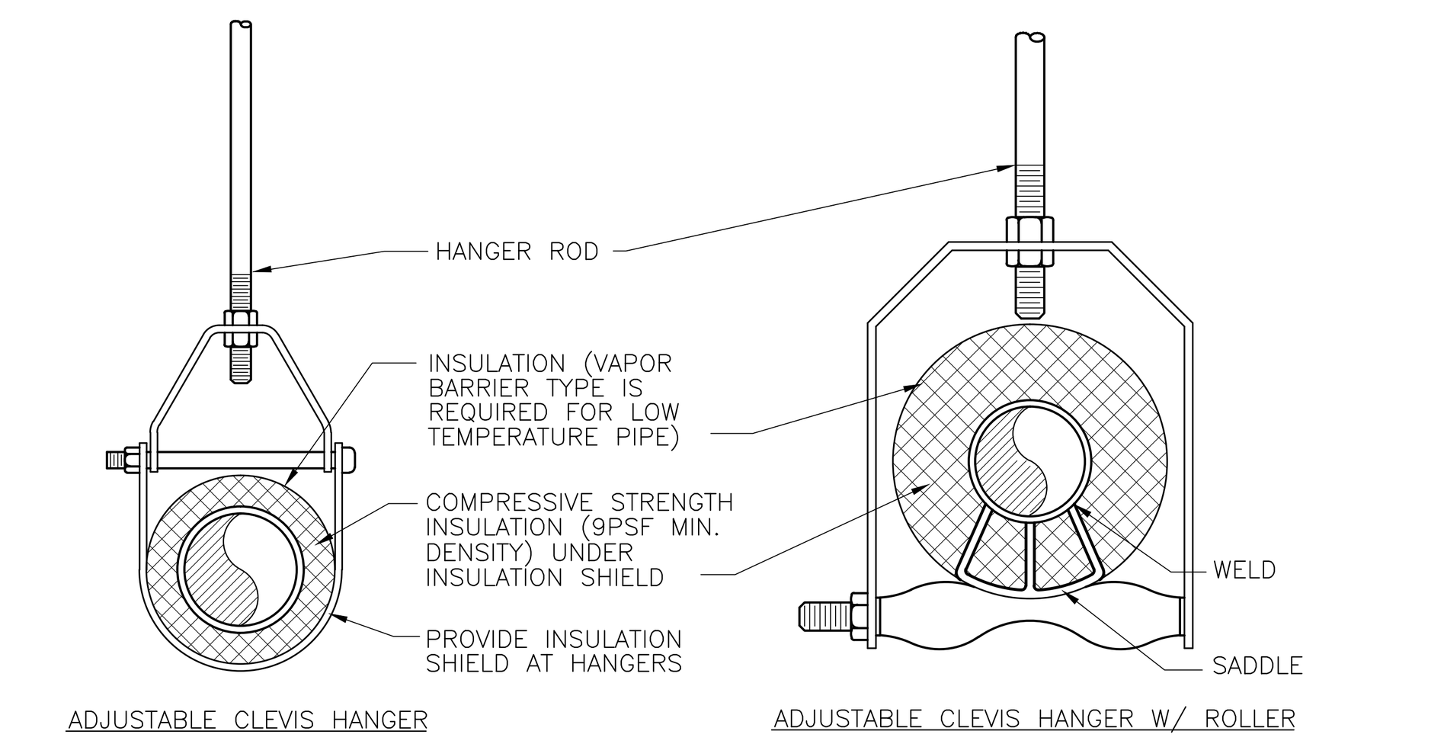


NOTE:
RUN CONDENSATE PIPING WITH TRAP AND VENT FROM ALL EVAPORATOR COILS TO LOCATION SPECIFIED. PROVIDE INSULATION AND SUPPORT. SIZE TO BE 3/4" UNLESS OTHERWISE SPECIFIED.

PIPING AT WALL PENETRATIONS TO BE SLEEVED. CHANGEOVER FROM PVC TO COPPER FOR EXTERIOR TERMINATION TO BEGIN BEFORE EXTERIOR WALL PENETRATION.

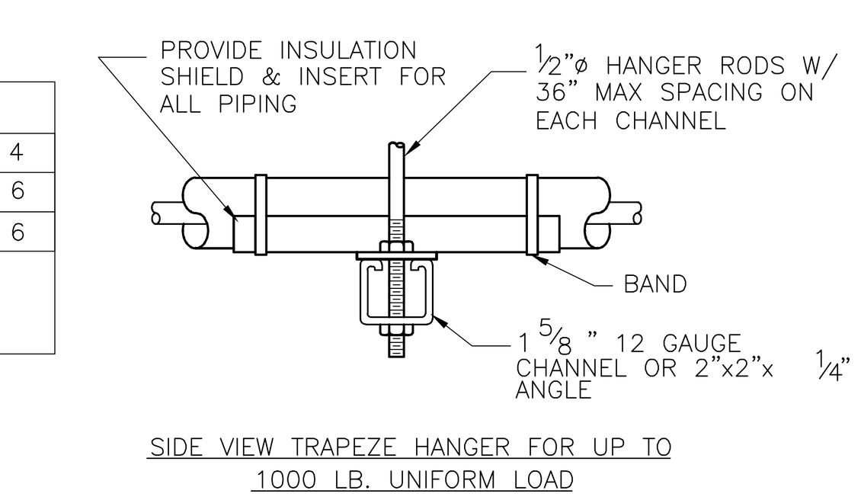
(TYPICAL FROM ALL EVAPOARTOR/ DX COILS)
SEE M DWGS FOR LOCATIONS

1 CONDENSATE PIPING CONNECTION DETAIL
SCALE: NONE



MAXIMUM PIPE/TUBING SUPPORT SPACING								
SIZE IN.	THRU 3/4	1	1 1/4	1 1/2	2	2 1/2	3	4
PIPE FT.	6	6	6	6	6	6	6	6
TUBING FT.	6	6	6	6	6	6	6	6

NOTE:
1. FOR TRAPEZE HANGER TAKE SPACING OF SMALLEST SIZE ON TRAPEZE.



SIDE VIEW TRAPEZE HANGER FOR UP TO 1000 LB. UNIFORM LOAD

2 PIPE SUPPORT DETAIL
SCALE: NONE

INSULATION SCHEDULE

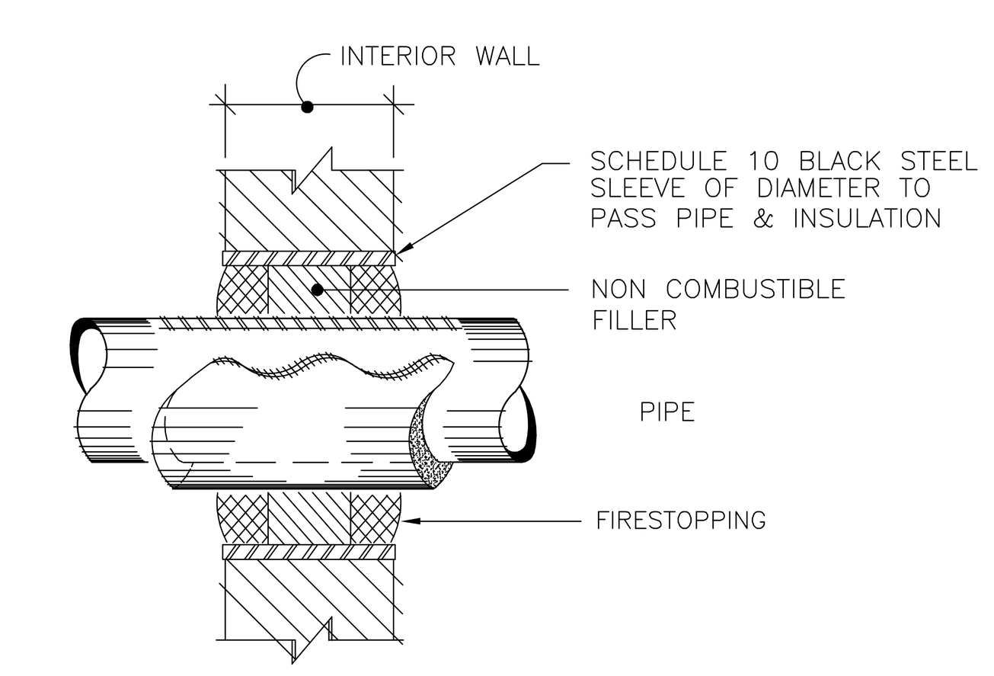
TYPE	EQUIPMENT OR SYSTEM SERVED	INSULATION CLASS (a)			JACKETING CLASS (b)			THICKNESS (IN) NOMINAL PIPE SIZE (IN)				
		INTERIOR CONCEALED	INTERIOR EXPOSED	EXTERIOR	INTERIOR GENERAL	EQUIPMENT ROOMS	EXTERIOR	<1"	1"-<1½"	1½"- <4"	4 "- <8"	≥8 & UP
A	DCW, COOLING COIL CONDENSATE	FE	– –	– –	0	– –	– –	0.5	0.5	1.0	1.0	1.0
		– –	FE	– –	– –	0	– –	0.5	0.5	1.0	1.0	1.0
B	DHW/ DHWR	FG	– –	– –	1	– –	– –	1.5	1.5	2	2	2
		– –	FG	– –	– –	1	– –	1.5	1.5	2	2	2
C	IW, SAN, CW EXTERIOR	– –	– –	– –		– –	– –					
		– –	– –	FG	– –	– –	2	1.5	1.5	1.5	1.5	1.5

(a) FG – – FIBROUS GLASS
FE – – FLEXIBLE ELASTOMERIC
UR – – URETHANE
CS – – CALCIUM SILICATE
FR – – FIRE RATED

(b) 0 – – NONE
1 – – ALL SERVICE
2 – – POLYVINYL CHLORIDE
3 – – CANVAS
4 – – POLYVINYL CHLORIDE

(d) BLANKET
(e) RIGID BOARD

ALL INSULATION TO COMPLY WITH 2020 NYS ENERGY CONSERVATION CONSTRUCTION CODE



3 PIPE SLEEVE AT WALL PENETRATION
SCALE: NONE

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SHEET TITLE
SCHEDULE AND DETAILS

FILE PATH -N:\1 - PROJECT DIRECTORIES\1- E & R Projects\05 - Warwick Valley CSD\05-21-04 Warwick Federal Grant Project\CAD\Package3.HsUvsVrf\05-21-04.p500.dwg

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