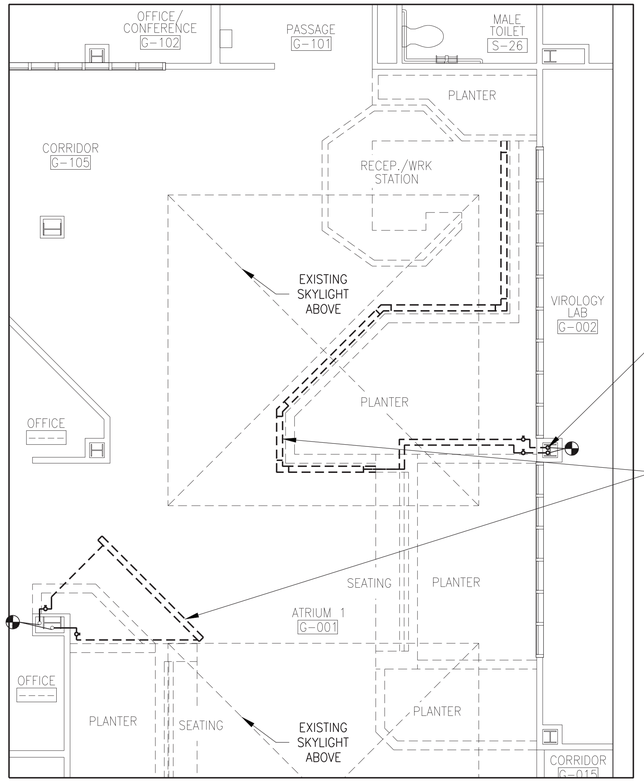
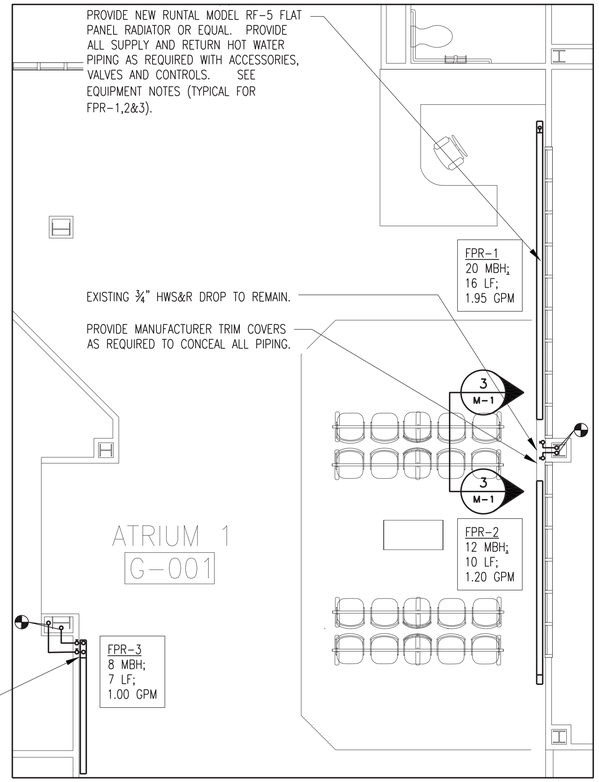
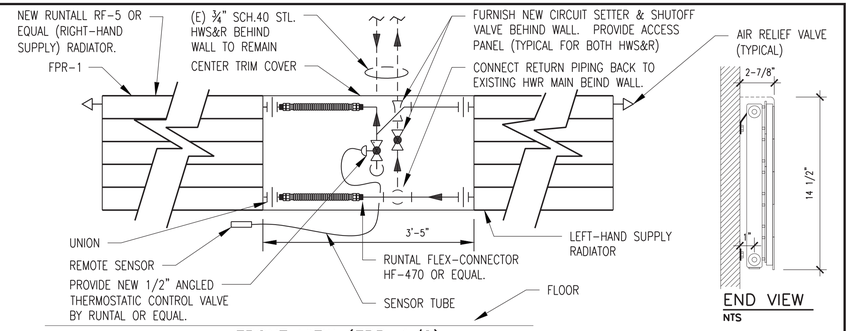


1 M-1 DEMOLITION PLAN @ ATRIUM # 1
1/4"=1'-0"

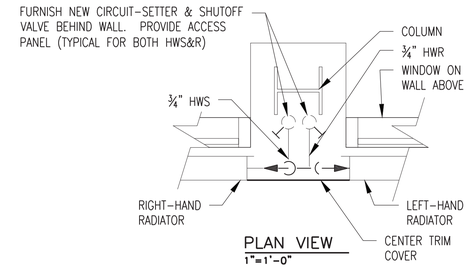


2 M-1 CONSTRUCTION PLAN @ ATRIUM # 1
1/4"=1'-0"



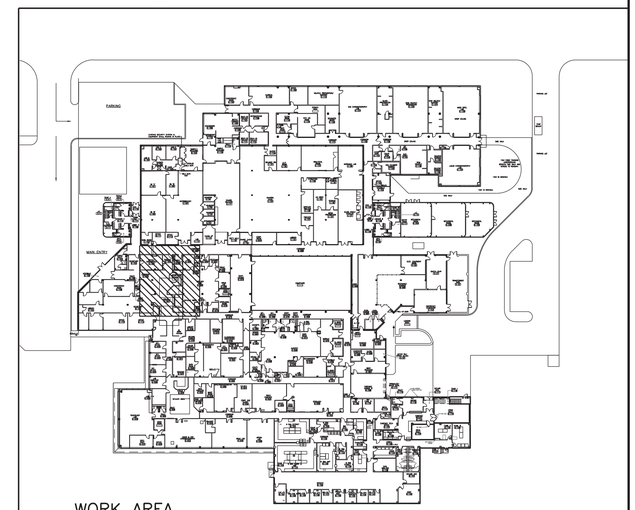
FRONT VIEW (FPR-1/2)
NTS

END VIEW
NTS



PLAN VIEW
1"=1'-0"

3 M-1 RADIATOR DETAILS
1"=1'-0"



WORK AREA
1/64"=1'-0"

MECHANICAL NOTES

1. SAFETY: CONTRACTOR IS RESPONSIBLE TO PROVIDE FOR THE SAFETY OF ITS WORKERS, AND THE PUBLIC AS PER ALL LOCAL, STATE, AND NATIONAL CODES AND REGULATIONS.
2. GENERAL PROVISIONS: THE CONTRACTOR SHALL PROVIDE ALL MECHANICAL EQUIPMENT, PIPING, VALVES, AND ACCESSORY ITEMS AS SPECIFIED AND AS REQUIRED FOR A COMPLETE INSTALLATION, INCLUDING HOT WATER ISOLATION VALVES FOR EACH PIECE OF EQUIPMENT. CONTRACTOR SHALL PROVIDE ALL ITEMS SHOWN IN MANUFACTURER'S DOCUMENTATION THAT ARE CALLED OUT TO BE FIELD SUPPLIED IN ORDER TO PROVIDE A COMPLETE INSTALLATION.
3. DEMOLITION: REMOVE ABANDONED PIPING BACK TO MAIN OR RISER AND CAP. CAPPING AND PLUGGING OF PIPING SHALL BE DONE USING THE SAME MATERIAL AS THE PIPING. ALL DEMOLITION AND CONSTRUCTION MATERIAL DISPOSAL MUST BE IN ACCORDANCE WITH LOCAL, STATE AND FEDERAL REGULATIONS. CARE SHALL BE TAKEN TO PRESERVE THE INTEGRITY AND CONDITION OF EXISTING PIPING AND EQUIPMENT.
4. FIELD COORDINATING EXACT LOCATIONS: DO NOT SCALE DRAWINGS. USE WRITTEN DIMENSIONS ONLY. EXACT LOCATIONS OF PIPING IN FLOORS, WALLS, CEILINGS, AND CHASES SHALL BE COORDINATED WITH THE EXISTING CONDITIONS IN THE FIELD. CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING SIZE AND LOCATION OF ALL EXISTING PIPING IN FIELD BEFORE SUBMITTING SHOP DRAWINGS OR COMMENCING WORK.
5. CODE COMPLIANCE: ALL REGULATIONS, RULES, ETC., OF ALL STATE, COUNTY AND LOCAL GOVERNMENTS, AND ALL UTILITY AGENCIES SHALL BE FOLLOWED BY THE CONTRACTOR. ALL MECHANICAL WORK SHALL BE DONE IN COMPLIANCE WITH NFPA, THE N.Y. STATE AND THE LOCAL MECHANICAL CODES.
6. COORDINATION WITH OTHER TRADES: THIS WORK WILL BE BID CONCURRENTLY WITH ANOTHER CONTRACT. COORDINATE WITH WORK OF OTHER TRADES. VERIFY ELEVATIONS OF NEW PIPING PRIOR TO INSTALLATION. NOTIFY ENGINEER IMMEDIATELY IF ANY POSSIBLE CONFLICTS COULD OCCUR.
7. HANGERS AND SUPPORTS: PROVIDE SUFFICIENT CLEVIS TYPE HANGERS, SUPPORTS, RODS, BRACES, ETC. BY OATEY OR EQUAL TO PROPERLY SUPPORT PIPING. INSTALL HANGERS OVER INSULATION.
8. PIPE PENETRATIONS - PROVIDE ALL PIPE OPENINGS THROUGH PARTITIONS WITH PIPE SLEEVES. FOR PIPES PENETRATING FIRE RATED PARTITIONS, THE SPACE BETWEEN THE PIPE AND THE SLEEVE SHALL BE SEALED WITH FIRE STOPPING MATERIAL.

EQUIPMENT NOTES

1. RADIATORS
   - 1.A. HORIZONTAL PANEL RADIATORS - (FPR-1, 2 &3): RADIATORS SHALL BE RUNTALL RF-5 LOW TEMPERATURE PANEL RADIATOR OR APPROVED EQUAL. PANEL HEATER SHALL HAVE 1,209 BTUH/FT @ 180°F; 14.4" HIGH SECTIONS TO LENGTHS SHOWN ON THE PLANS.
   - 1.B. RADIATOR SUPPORT: RADIATORS SHALL BE SUPPORTED FROM WALL VIA RUNTAL KR30 CANTILEVER BRACKET OR EQUAL.

PIPING NOTES

1. WATER PIPING: TYPE "L" COPPER AND WROUGHT COPPER FITTINGS, 95-5 LEADLESS SOLDER OR PRESS FITTINGS. PRESS FITTINGS SHALL BE NIBCO OR EQUAL SUITABLE FOR USE IN PLUMBING OR MECHANICAL APPLICATIONS. CONTRACTOR SHALL INSURE TOOLS AND JAWS USED ARE COMPATIBLE FOR MATERIAL.
2. INSULATION: INSULATE ALL NEW HOT WATER PIPING WITH MIN. 6 LB DENSITY MOLDED FIBERGLASS INSULATION, MAXIMUM 0.23 K-FACTOR AT 75°F WITH FACTORY-APPLIED ALL PURPOSE (AP) FACING OR ALUMINUM JACKET.
3. PIPING VALVES AND FITTINGS ON ALL INSULATED PIPES SHALL BE PROVIDED WITH COMPRESSED FIBERGLASS AND WIRED IN PLACE WITH 18 GA GALVANIZED STEEL WIRE. PRE-MOLDED PVC INSULATION COVERS FOR FITTINGS ARE NOT ALLOWED.
4. ALL INSULATION SHALL BE APPLIED AS PER MANUFACTURER'S RECOMMENDATIONS WITH USE OF 2" STRIPS AT ALL SEAMS SECURED WITH ADHESIVE. ALL SEAMS AND JOINTS SHALL BE VAPOR SEALED USING VAPOR BARRIER TAPE AND VAPOR SEAL ADHESIVE. STAPLES ARE NOT PERMITTED. ALL INSULATION AND VAPOR BARRIERS SHALL BE CONTINUOUS THROUGH SLEEVES, HANGERS, ETC. INSULATION FOR STRAINERS AND OTHER FITTINGS OR ACCESSORIES REQUIRING SERVICING OR INSPECTION SHALL HAVE INSULATION REMOVABLE AND REPLACEABLE WITHOUT DAMAGE.
5. ALTERNATE MANUFACTURERS:
   - 5.1. ARMSTRONG
   - 5.2. MANVILLE
   - 5.3. OWENS-CORNING

INSULATION MINIMUM THICKNESS (IN)

PIPING SYSTEM	FLUID TEMP.	RUN-OUT TO 2"	UP TO 2"	2-1/2" TO 4"	OVER 4"
HEATING HOT WATER	UP TO 250°F	1.0"	1.5"	2.0"	1.0"

VALVE NOTES

1. THERMOSTATIC CONTROL VALVE: RUNTAL SELF-CONTAINED THERMOSTATIC CONTROL VALVE CONTROL- REV ½" OR EQUAL WITH SENSOR CONTROL HEADS (REMOTE-SEN) OR EQUAL.
2. BALL VALVE: CONTRACTOR SHALL FURNISH TWO-PIECE, FULL-PORT, BRONZE BALL VALVES WITH BRONZE TRIM; MSS SP-110; 150 PSIG SWP RATING; 600 PSIG CWP RATING; BRONZE BODY MATERIAL; THREADED ENDS; PTFE OR TFE SEATS; BRONZE STEM; CHROME-PLATED BRASS BALL
3. ISOLATION VALVE: CLASS 125, NRS BRONZE GATE VALVE; MSS SP-80, TYPE 1; 200 PSIG CWP RATING; ASTM B 62, BRONZE WITH INTEGRAL SEAT AND SCREW-IN BONNET; THREADED OR SOLDER JOINTS; BRONZE STEM; SOLID WEDGE BRONZE DISC; ASBESTOS FREE PACKING; MALLEABLE IRON HAND-WHEEL.

ADDITIONAL INSULATION NOTE:

1. IN ADDITION TO THE INSULATION ON NEW AND EXISTING PIPING AT NEW WORK AREAS, 200LF OF ANY COMBINATION OF DOMESTIC & HYDRONIC WATER PIPING, 4"Ø AND BELOW, SHALL ALSO BE PROVIDED, AS PART OF BASE BID. WHERE INSULATION IS MISSING OR OTHERWISE NOT FUNCTIONING AS REVEALED DURING THE COURSE OF CONSTRUCTION OR AS DIRECTED BY COUNTY REPRESENTATIVE, INSULATION THAT IS RENDERED MISSING OR OTHERWISE NOT FUNCTIONING AS A RESULT OF CONTRACTOR MALPRACTICE SHALL BE REPLACED BY THE CONTRACTOR AT NO COST TO THE COUNTY.

PIPING LEGEND

SYMBOL	ABBREV	DESCRIPTION
		LIMIT OF WORK
	GA	GATE VALVE
	GL	GLOBE VALVE
	BF	BUTTERFLY VALVE
	BA	BALL VALVE
	CV	2-WAY PNEUMATIC CONTROL VALVE
	PV	PLUG VALVE
	PV	90° PLUG VALVE
	CH	CHECK VALVE
		PETCOCK
	PRV	PRESSURE REDUCING VALVE
	STR	STRAINER WITH BLOW-OFF VALVE AND CAP
	FPC	FLEXIBLE PIPE CONNECTION
	UN	UNION
	RED	ECCENTRIC REDUCER
	RED	CONCENTRIC REDUCER
		FLOW ARROW
		BREAK
		DROP
		45° DROP
		BOTTOM TAKE-OFF
		VALVE DROP
	OS&Y	OUTSIDE SCREW AND YOKE VALVE
		SOLENOID OUTSIDE SCREW AND YOKE VALVE
		AIR VENT VALVE
	FE	FLOW ELEMENT
	FPR-X	FLAT PANEL RADIATOR

IN CHARGE OF JAI PUNNOOSE, P.E.
CHECKED BY JAI PUNNOOSE, P.E.
MADE BY VINCENT LEONE, P.E.

REVISION NUMBER	DATE	MADE BY	APP'D BY	REVISION

RECORD DRAWING CERTIFICATION

☐ AS BUILT - CHANGES AS NOTED
☐ AS BUILT - NO CHANGES

CONTRACTOR
NAME
SIGNATURE
TITLE DATE

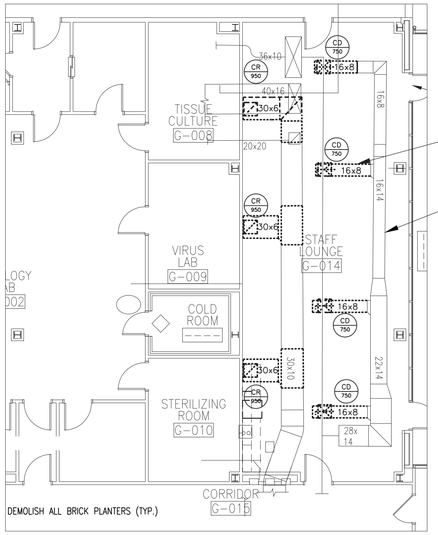
PROJECT COORDINATOR
NAME
SIGNATURE
TITLE DATE

WESTCHESTER COUNTY, NEW YORK
DEPARTMENT OF PUBLIC WORKS AND TRANSPORTATION
DIVISION OF ENGINEERING

CONTRACT NUMBER 19-531
SHEET NUMBER M-1
SHEET NO. 20 OF 27

INFRASTRUCTURE UPGRADES
LABS AND RESEARCH
VALHALLA CAMPUS, VALHALLA, NEW YORK
ATRIUM #1 DEMO AND NEW WORK PLANS

SCALE: AS SHOWN
DATE: 10/28/2021
DPW FILE NO. 38-54-M-777
REV. NO. 0



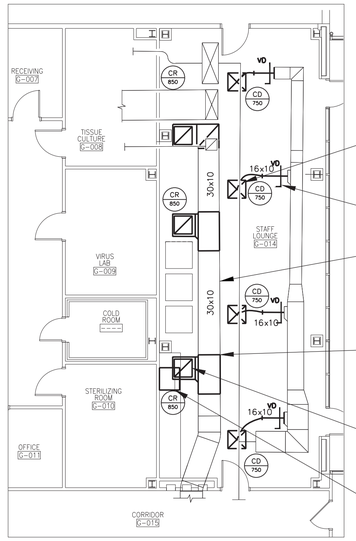
NOTE: CEILING GRID CHANGES UNDER THIS CONTRACT. CONTRACTOR SHALL PROVIDE MODIFICATIONS TO EXISTING DUCTWORK TO SHIFT DIFFUSERS AND REGISTERS AS REQUIRED TO ACCOMODATE NEW LOCATIONS (TYPICAL)

SHIFT DIFFUSERS AND REGISTERS AS REQUIRED TO ACCOMODATE NEW LOCATIONS (TYPICAL).

EXISTING DUCTWORK TO REMAIN.

1 M-2 DEMOLITION: STAFF LOUNGE MECHANICAL

SCALE: 1/8"=1'-0"



NOTE: CEILING GRID CHANGES UNDER THIS CONTRACT. CONTRACTOR SHALL PROVIDE MODIFICATIONS TO EXISTING DUCTWORK TO SHIFT DIFFUSERS AND REGISTERS AS REQUIRED TO ACCOMODATE NEW LOCATIONS (TYPICAL)

PROVIDE NEW 24x24 SUPPLY CEILING DIFFUSERS 15"ø NECK; SEE EQUIPMENT NOTES ON THIS SHEET (TYPICAL FOR 4).

PROVIDE NEW VOLUME DAMPERS (TYPICAL FOR 4).

PROVIDE NEW SUPPLY DUCTWORK TO MATCH EXISTING SIZE, MATERIAL AND GAUGE AS REQUIRED TO ACCOMODATE NEW DIFFUSER LOCATIONS. LENGTH OF FLEXIBLE DUCT SHALL NOT EXCEED 6 LINEAR FEET (TYPICAL)

PROVIDE NEW RETURN DUCTWORK TO MATCH EXISTING SIZE, MATERIAL AND GAUGE AS REQUIRED TO ACCOMODATE NEW LOCATIONS (TYPICAL).

PROVIDE NEW 24x24 RETURN CEILING DIFFUSERS WITH 18x18 DUCT CONNECTOR; SEE EQUIPMENT NOTES ON THIS SHEET (TYPICAL FOR 3).

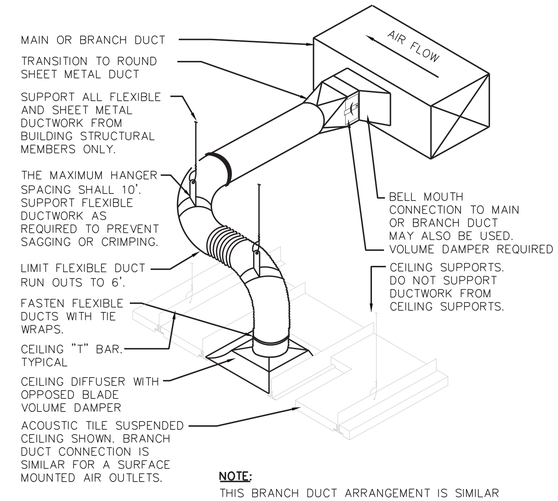
PROVIDE NEW RECIRCULATING RANGE HOOD.

2 M-2 NEW STAFF LOUNGE MECHANICAL

SCALE: 1/8"=1'-0"

MECHANICAL SYMBOLS AND ABBREVIATIONS

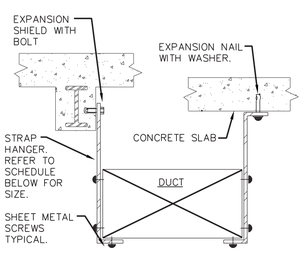
(E) EXISTING TO REMAIN	RETURN AIR INTO GRILLE
(N) NEW WORK	DISCHARGE DIRECTION
(R) EXISTING TO BE REMOVED	ESP
(CD) CEILING DIFFUSER (4-WAY)	BHP BRAKE HORSEPOWER
(CD) CEILING DIFFUSER (3-WAY)	HP HORSE POWER
(CD) CEILING DIFFUSER (2-WAY)	TD TRANSFER DUCT
(CG) CEILING RETURN GRILLE (CR) CEILING RETURN REGISTER	AD ACCESS DOOR
FD FIRE DAMPER	SP STATIC PRESSURE
VD VOLUME DAMPER	ø DIAMETER
AL 1" ACOUSTIC LINING	AFF ABOVE FINISHED FLOOR
6x8 DUCT SIZE – 1ST FIGURE IS SIDE SHOWN	FC FLEX CONNECTION
DUCT RISE IN DIRECTION OF AIR FLOW	N.T.S. NOT TO SCALE
CONSTANT VOLUME BOX	CFM CUBIC FEET PER MINUTE
T THERMOSTAT	VAV VARIABLE AIR VOLUME
EF EXHAUST FAN	CV CONSTANT VOLUME BOX
WMS 1/2" WIRE MESH SCREEN	DOOR LOUVER
HWS&R PIPING	1" DOOR UNDER CUT
VD VOLUME DAMPER	



NOTE:
THIS BRANCH DUCT ARRANGEMENT IS SIMILAR FOR PLENUM SLOT DIFFUSERS, IF USED.

3 M-2 FLEXIBLE CONNECTION DETAIL

SCALE: NONE



NOTES:
1. FOR DUCTS OVER 49" WIDE, THE STRAP HANGER SHALL BE TURNED UNDER THE BOTTOM OF THE DUCT.

2. ALL ANCHORS AND INSERTS SHALL HAVE NEW YORK CITY BOARD OF STANDARD AND APPEALS, (BSA) APPROVAL.

HANGER STRAP SCHEDULE

DUCT SIZE	HANGER SIZE	MAXIMUM SPACING
UP TO 2 SQ.FT.	1" X 1/16"	8'-0"
2 SQ.FT. TO 4 SQ.FT.	1" X 1/8"	8'-0"
4 SQ.FT. TO 10 SQ.FT.	1" X 1/8"	6'-0"
OVER 10 SQ.FT.	1" X 1/8"	4'-0"

DUCT HANGER DETAIL

N.T.S

GENERAL NOTES

1. THE CONTRACTOR SHALL NOTE THAT ALL NEW DUCTWORK SHALL BE INSULATED AS PART OF THIS PROJECT.
2. DO NOT SCALE DRAWINGS
3. DUCT DIMENSIONS SHOWN ON MECHANICAL DRAWINGS REFER TO INSIDE CLEAR DUCT DIMENSIONS.
4. USE WRITTEN DIMENSIONS ONLY. THE DRAWINGS ARE TO BE CONSIDERED SCHEMATIC ONLY AND DO NOT NECESSARILY SHOW THE EXACT LOCATIONS AND DETAILS OF THE WORK TO BE INSTALLED.
5. ALL WORK SHOWN IS EXISTING UNLESS OTHERWISE NOTED (U.O.N.).
6. THE CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFYING ALL DIMENSIONS PRIOR TO COMMENCING ANY WORK. FOR FINAL LOCATIONS OF CEILING DIFFUSERS & REGISTERS, REFERE TO ARCH. DWGS.
7. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING CLEAR PUBLIC ACCESS.
8. CONTRACTOR TO VERIFY THAT ALL EXISTING LIGHT FIXTURES AFFECTED BY DEMOLITION AND CONSTRUCTION SHALL BE SECURELY SUPPORTED. RECESSED FLUORESCENT LIGHT FIXTURES SHALL BE SECURED AT A MINIMUM OF TWO POINTS TO THE BUILDING STRUCTURE TO MEET THE LOCAL BUILDING CODE SEISMIC REQUIREMENTS.
9. THE CONTRACTOR SHALL INSTALL FIRE DAMPER WITH ACCESS DOOR IN ALL DUCTS PENETRATING FIRE RATED WALLS WHETHER SPECIFICALLY SHOWN ON THE DRAWING OR NOT.
10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING WITH OR REMOVING, RELOCATING AND RECONNECTING ANY EXISTING PIPING, DUCTWORK, CONDUITS, ETC. AS REQUIRED FOR THE INSTALLATION OF NEW WORK.
11. THE FOLLOWING ARE INSPECTIONS AND SUBMITTALS REQUIRED AS PART OF THE PROJECT AND ARE TO BE INCLUDED IN THE MECHANICAL CONTRACTOR'S PROJECT SCOPE. THE CONTRACTOR SHALL NOTIFY THE ENGINEER MANAGER AT LEAST 72 HOURS IN ADVANCE OF THE READINESS FOR THEIR REQUIRED INSPECTIONS AND TEST WITNESS POINTS IDENTIFIED BELOW.
    - 11.A. THE FOLLOWING ARE REQUIRED INSPECTIONS:
        - 11.A.A. SEALING OF PENETRATIONS THROUGH FIRE RATED BARRIERS, PRIOR TO CONCEALMENT,
        - 11.A.B. HVAC DUCTING, FIRE DAMPERS, INSTALLATION INCLUDING "BREAK AWAY" CONNECTIONS AND ACCESS PANELS, PRIOR TO CONCEALMENT.
        - 11.A.C. FINAL INSPECTIONS OF ALL STRUCTURAL COMPONENTS, SYSTEMS, SUPPORTS, AND EQUIPMENT.
    - 11.B. THE FOLLOWING ARE REQUIRED SUBMITTALS:
        - 11.B.A. AIR HANDLER, EXHAUST FANS, CONTROLS, DUCTWORK, CV BOXES, HEPA FILTER UNIT, ETC..
        - 11.B.B. HVAC BALANCE/TEST REPORT BY CERTIFIED TESTER.
        - 11.B.C. AS-BUILT DRAWINGS OF THE PROJECT..
12. THE CONTRACTOR SHALL INSULATE ALL NEW AND EXISTING DUCTWORK AND PIPING IN THE AREA OF WORK.
13. THE CONTRACTOR SHALL FURNISH AND INSTALL NEW VOLUME DAMPERS AT ALL NEW AND RELOCATED DIFFUSERS. REFER TO PLAN.

DEMOLITION

1. CONTRACTOR TO REMOVE AND DISPOSE OF ALL ABANDONED PIPING AND DUCTWORK NOT BEING REUSED WITHIN THE PROJECT AREA AS SHOWN ON THE DRAWINGS OR AS ENCOUNTERED IN THE FIELD.
2. CONTRACTOR SHALL INCLUDE IN HIS PRICE ALL MATERIALS AND LABOR REQUIRED FOR THE EXTENSIONS, RE-ROUTING, AND RELOCATION OF EXISTING SYSTEM COMPONENTS, EQUIPMENT AND PIPING SO AS TO MAINTAIN OPERATION OF ALL SYSTEMS THROUGHOUT THE BUILDING, AND AS REQUIRED TO MAINTAIN THE CONTINUITY OF ALL SERVICES TO ALL AREAS THROUGHOUT THE BUILDING.

EQUIPMENT NOTES

1. RANGE HOOD: PROVIDE NEW GE MODEL JVX3300EJ 30" UNDER GHT CABINET RECIRCULATING HOOD OR APPROVED EQUAL. INSTALL PER MANUFACTURER'S INSTRUCTIONS. PROVIDE NEW CHARCOAL FILTER AND 10 ADDITIONAL REPLACEMENT FILTERS.
2. SUPPLY DIFFUSERS: SHALL BE TITUS MODEL TMS (STEEL) OF THE SIZES AND MOUNTING TYPES SHOWN ON THE PLANS AND OUTLET SCHEDULE. DIFFUSERS SHALL BE CONSTRUCTED OF 24-GAUGE STEEL; THE FINISH SHALL BE #26 WHITE ANODIC ACRYLIC PAINT; OPTIONAL ROUND DAMPER SHALL BE CONSTRUCTED OF HEAVY GAUGE STEEL DAMPER MUST BE OPERABLE FROM THE FACE OF THE DIFFUSER. DISCHARGE AIR IN DIRECTIONS SHOWN ON DWGS; OPTIONAL MOLDED INSULATION BLANKET SHALL BE PROVIDED. THE INSULATION WILL SHALL BE R-6, FOIL-BACKED AND PROVIDED AN ADDITIONAL 1-INCH GAP AROUND THE NECK TO INSTALL INSULATED FLEX DUCT; THE MANUFACTURER SHALL PROVIDE PUBLISHED PERFORMANCE DATA FOR THE SQUARE DIFFUSER. THE DIFFUSER SHALL BE TESTED IN ACCORDANCE WITH ANSI/ASHRAE STANDARD 70-1991.
3. RETURN DIFFUSER: SHALL BE TITUS MODELS PAR-AA (ALUMINUM, FLUSH FACE) FOR RETURN. DIFFUSERS SHALL HAVE A PERFORATED FACE WITH 3/16-INCH DIAMETER HOLES ON ¼-INCH STAGGERED CENTERS AND NO LESS THAN 51 PERCENT FREE AREA. PERFORATED FACE SHALL BE ALUMINUM. THE BACKPAN SHALL BE ONE PIECE STAMPED HEAVY GAUGE STEEL OF THE SIZES AND MOUNTING TYPES SHOWN ON THE PLANS AND OUTLET SCHEDULE. THE DIFFUSER NECK SHALL HAVE 1-1/8-INCH DEPTH FOR EASY DUCT CONNECTION. THE FINISH SHALL BE #26 WHITE. ANODIC ACRYLIC PAINT. THE DIFFUSER SHALL BE TESTED IN ACCORDANCE WITH ANSI/ASHRAE STANDARD 70-1991.1.
4. VOLUME DAMPERS: PROVIDE VOLUME DAMPERS FOR NEW DUCT SYSTEMS IN EACH BRANCH DUCT, WHERE INDICATED, AND WHERE REQUIRED TO ACCOMPLISH AIR BALANCE. VOLUME DAMPERS TO BE FABRICATED WITH 16 GAUGE GALVANIZED STEEL WITH INTERLOCKING BLADES AND HEMMED EDGES SET IN A GALVANIZED STEEL FRAME. PROVIDE OPPOSED BLADE TYPE DAMPERS. BALANCE ALL AIR FLOWS TO THOSE SHOWN ON THE PLANS IN AN APPROVED MANNER.

DUCTWORK NOTES

1. ALL LABOR, MATERIALS, EQUIPMENT AND SERVICES SHALL BE PROVIDED AND ALL OPERATIONS REQUIRED FOR COMPLETE INSTALLATION OF THE DUCTWORK, DAMPERS AND ALL AUXILIARY WORK OF ANY KIND, NECESSARY TO MAKE THE SYSTEM COMPLETE AND READY FOR SATISFACTORY OPERATION SHALL BE PERFORMED.
2. EXCEPT AS OTHERWISE SHOWN OR NOTED, ALL DUCTS AND OTHER SHEET METAL WORK SHALL BE PRIME SHEETS OF GALVANIZED STEEL COMPLIES WITH NFPA 90A AND ASTM STANDARDS A525 AND A527.
3. ALL INSTALLATIONS SHALL BE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS AND REQUIREMENTS OF APPLICABLE CODES.
4. INSTALL DUCTS AND HANGERS PLUMB AND LEVEL WITH JOINTS SQUARE AND DEVOID OF SHARP EDGES. ROUTE DUCTWORK TO MINIMIZE DIRECTIONAL CHANGES AND ABRUPT TRANSITIONS. PROVIDE ADEQUATE SPACE AROUND DUCTS TO ASSURE PROPER SUPPORT AND TO ALLOW THE INSTALLATION OF THE INSULATION SPECIFIED. INSTALL VOLUME DAMPERS AT BRANCHES CONNECTED TO THE MAIN DUCT.

DUCT CONSTRUCTION REQUIREMENTS

1. QUALITY ASSURANCE: CONSTRUCT AND REINFORCE ALL DUCTWORK IN ACCORDANCE WITH THE LATEST STANDARDS OF ASHRAE AND THE SHEET METAL AND AIR CONDITIONING CONTRACTORS NATIONAL ASSOCIATION. ALL WORK, MATERIALS AND EQUIPMENT SHALL COMPLY WITH THE LATEST REQUIREMENTS OF NFPA 90A AND THE LOCAL AUTHORITIES HAVING JURISDICTION.
2. LOW PRESSURE DUCTWORK: ALL LOW PRESSURE DUCTWORK SHALL BE MADE OF GALVANIZED STEEL OF THE FOLLOWING U.S. STANDARD GAUGES:

MAXIMUM DUCT DIMENSION	GAUGE
UP TO 30 INCHES	NO. 24
30 - 54 INCHES	NO. 22
55 - 84 INCHES	NO. 20
85 INCHES AND OVER	NO. 18
NO DUCT SHALL BE LESS THAN 24 GAUGE	

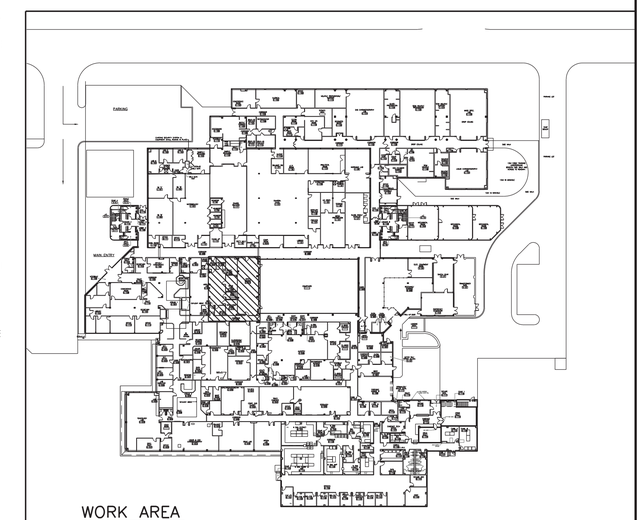
3. BRACING, GAUGES AND SUPPORTS: BRACING, GAUGES AND SUPPORTS INDICATED IN SMACNA MANUALS ARE THE MINIMUM ACCEPTABLE. ADDITIONAL BRACING OR SUPPORTS SHALL BE INSTALLED TO ELIMINATE ANY DISTORTION OR VIBRATION WHEN THE SYSTEMS ARE OPERATING OR UNDER TESTS.
4. LONGITUDINAL SEAMS: ALL LONGITUDINAL SEAMS SHALL BE PITTSBURGH TYPE SEAMS LOCATED AT THE CORNERS.
5. DUCT SEALANT: SHALL BE 3M CO. TYPE EC-800 SEALING COMPOUND OR EQUIVALENT.

HANGERS AND SUPPORTS

1. GENERAL:
    - A. PROVIDE HANGERS AND SUPPORTS TO SUPPORT THE WEIGHT OF DUCTS AND ASSOCIATED EQUIPMENT WITHIN THE DUCT RUN. FASTEN HANGERS AND SUPPORTS TO CONCRETE STRUCTURE BY INSERTS OR EXPANSION ANCHORS.
2. HORIZONTAL DUCTWORK:
    - A. FOR DUCTS WITH A CROSS-SECTIONAL AREA OF 2 SQ. FT. OR LESS, HANGERS SHALL BE CONSTRUCTED OF AT LEAST 1" BY 1/16" STEEL STRAP. FOR DUCTS WITH A CROSS-SECTIONAL AREA OF OVER 2 SQ. HANGERS SHALL BE CONSTRUCTED OF AT LEAST 1" BY 1/8" STEEL STRAP.
    - B. FOR DUCTS WITH A CROSS-SECTIONAL AREA OF 4 SQ. FT. OR LESS. HANGERS SHALL BE NO MORE THAN 8 FT. APART; FOR DUCTS WITH A CROSS-SECTIONAL AREA OF MORE THAN 4 SQ. FT. BUT NOT OVER 10 FT. HANGERS SHALL BE NO MORE THAN 6 FT. APART, AND FOR DUCTS WITH A CROSS-SECTIONAL AREA OF MORE THAN 10 SQ. FT. HANGERS SHALL BE NO MORE THAN 4 FT. APART. THE DISTANCES BETWEEN HANGERS SHALL BE MEASURED LINEARLY ALONG THE DUCT.
    - C. STRAP HANGERS SHALL BE FASTENED TO DUCT WITH SHEET METAL SCREWS ON 2" CENTERS WITH NOT LESS THAN 2 PER VERTICAL SIDE. FOR DUCTS OVER 48" WIDE, STRAP HANGERS SHALL BE EXTENDED AROUND BOTTOM DUCT NOT LESS THAN 2" FROM EACH SIDE WITH AT LEAST ONE SHEET METAL SCREW PER LEG.

DUCT INSULATION

1. THE CONTRACTOR SHALL NOTE THAT ALL NEW DUCTWORK SHALL BE INSULATED AS PART OF THIS PROJECT.
2. ALL EXPOSED DUCTWORK SHALL BE COVERED WITH 1-1/2" THICK RIGID BOARD TYPE MINERAL FIBER OR GLASS WITH A RESIN BINDER. MINIMUM DENSITY: 3 POUNDS PER CUBIC FOOT, MAXIMUM K-FACTOR: 0.27 AT 75° F MEAN TEMPERATURE. TEMPERATURE RANGE: 35° TO 350°. FACTORY APPLIED VAPOR BARRIER JACKET OF ALUMINUM FOIL LAMINATED TO FIRE RESISTANT KRAFT PAPER AND REINFORCED WITH GLASS FIBERS; 0.02 PERMEABILITY
3. ALL CONCEALED AIR CONDITIONING SUPPLY AND RETURN DUCTWORK SHALL BE COVERED WITH 1-1/2" THICK FLEXIBLE FIBROUS GLASS BLANKET, MINIMUM DENSITY 1-1/2 POUNDS PER CUBIC FOOT, MAXIMUM K-FACTOR; 0.27 AT 75° F MEAN TEMPERATURE, TEMPERATURE RANGE: 40°F TO 250°F FACTORY APPLIED VAPOR BARRIER FACING OF MINIMUM 0.7 MIL ALUMINUM FOIL LAMINATED TO FIRE RESISTANT KRAFT PAPER AND REINFORCED WITH GLASS FIBERS; 0.02 PERMEABILITY.
4. ALL INSULATION SHALL BE APPLIED AS PER MANUFACTURERS RECOMMENDATIONS WITH ADHESIVE AND COPPER CLAD WIRE FOR FLEXIBLE TYPE AND MECHANICAL FASTENERS FOR RIGID TYPE. SEAL ALL SEAMS AND JOINTS VAPORTIGHT WITH FIRE RETARDANT, VAPOR BARRIER SEALANT.
5. KITCHEN EXHAUST FAN AND DUCT SHALL BE INSULATED WITH A MINIMUM INSULATION COVER OF 2" OF MAGNESIUM OR CALCIUM SILICATE BLOCK. INSULATION SHALL BE SECURELY BANDED IN PLACE WITH TIGHTLY BUTTED JOINTS, STAGGERED AND SECURED WITH 12 GAUGE ANNEALED STAINLESS STEEL WIRE, 12 IN. ON CENTERS. CALCIUM SILICATE BLOCK INSULATION SHALL CONFORM WITH ASTM C 533, TYPE 1, AND SHALL BE MANVILLE "THERMO-12", OR AN APPROVED EQUAL.
6. ALTERNATE MANUFACTURERS -
    - 6.A. CERTAIN TEED
    - 6.B. SCHULLER
    - 6.C. OWENS-CORNING



WORK AREA
1/64"=1'-0"

REVISION NUMBER	DATE	MADE BY	APP'D BY	REVISION

RECORD DRAWING CERTIFICATION

☐ AS BUILT – CHANGES AS NOTED
☐ AS BUILT – NO CHANGES

CONTRACTOR	PROJECT COORDINATOR
NAME	NAME
SIGNATURE	SIGNATURE
TITLE DATE	TITLE DATE

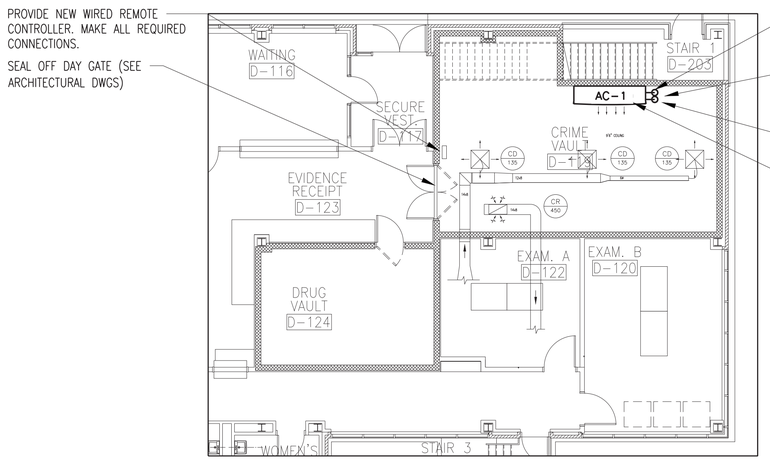
IN CHARGE OF JAI PUNNOOSE, P.E.
CHECKED BY JAI PUNNOOSE, P.E.
MADE BY VINCENT LEONE, P.E.

WESTCHESTER COUNTY, NEW YORK
DEPARTMENT OF PUBLIC WORKS AND TRANSPORTATION
DIVISION OF ENGINEERING

CONTRACT NUMBER 19-531 | SHEET NUMBER M-2
SHEET NO. 21 OF 27

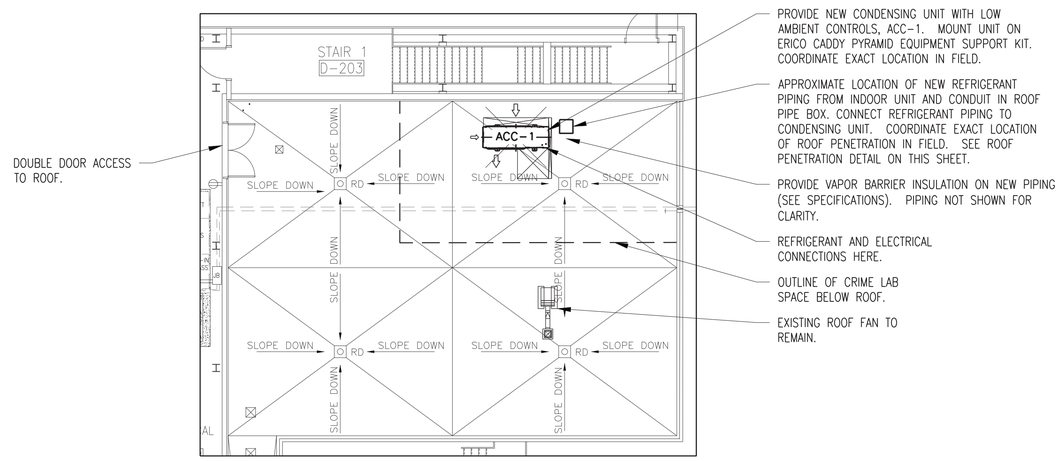
INFRASTRUCTURE UPGRADES
LABS AND RESEARCH
VALHALLA CAMPUS, VALHALLA, NEW YORK
STAFF LOUNGE MECHANICAL PART PLAN

SCALE: AS SHOWN
DATE: 10/28/2021
DPW FILE NO. 38-54-M-778 | REV. NO. 0

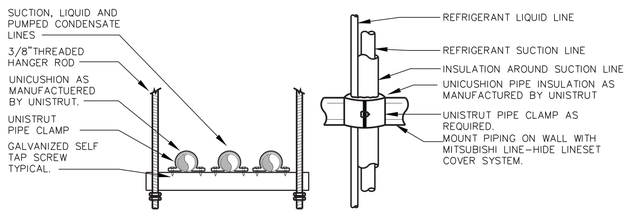


1 CRIME VAULT MECHANICAL PLAN
M-3 1/8"=1'-0"

NOTE:
PROVIDE REFRIGERANT CONNECTION BETWEEN INDOOR AND OUTDOOR UNITS. PROVIDE CONDENSATE DRAINAGE TUBING. PROVIDE POWER AND CONTROL WIRING TO INDOOR/OUTDOOR UNITS. (SEE ELECTRICAL DRAWINGS).



2 ROOF PLAN
M-3 1/8"=1'-0"



NOTES:

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

4 REFRIGERANT PIPE SUPPORT DETAILS
M-3 SCALE: NONE

MECHANICAL NOTES

1. FIELD VERIFICATION: THE INFORMATION GIVEN ON THIS PLAN IS FOR BID PURPOSES ONLY. THE SUCCESSFUL CONTRACTOR SHALL MAKE HIS OWN FIELD MEASUREMENTS AND VERIFY ALL GIVEN INFORMATION BEFORE ORDERING MATERIALS INCLUDING BUT NOT LIMITED TO: ELEVATIONS, CLEARANCES, AND OFFSETS REQUIRED FOR NEW INSTALLATION.
2. COORDINATE LOCATIONS: COORDINATE LOCATIONS OF EVAPORATOR UNITS, CONDENSING UNIT, REMOTE CONTROLLER, REFRIGERANT PIPING, CONDENSATE DRAIN PIPING ETC. WITH OTHER TRADES AND WITH EXISITING CONDITIONS.
3. PROTECTION OF ADJACENT ACTIVITIES: THIS PROJECT SHALL BE EXECUTED IN AN ORDERLY AND CAREFUL MANNER WITH DUE CONSIDERATION FOR THE PROTECTION OF ADJACENT ACTIVITIES AND THE GENERAL PUBLIC. DUST PRODUCING DEMOLITION SHALL BE ISOLATED WITH PROPER PRECAUTIONS.
4. RELOCATION OF EXISTING: CONTRACTOR SHALL VERIFY ALL WORK WITHIN THE AREA AND SHALL REMOVE OR RELOCATE ANY EXISTING PIPING AND EQUIPMENT AS REQUIRED FOR THE INSTALLATION OF NEW UNITS.
5. PIPE ROUTING: NEW PIPING (REFRIGERANT & CONDENSATE) SHALL BE ROUTED IN A MANNER TO REDUCE OBSTRUCTIONS, WHERE POSSIBLE. ALL CONDENSATE TUBING SHALL BE ROUTED IN A MANNER THAT AVOIDS ALL ELECTRONIC EQUIPMENT WITHIN THE ROOM.
6. MANUFACTURER'S DATA: PRIOR TO THE INSTALLATION OF ANY WORK AND PROCUREMENT OF EQUIPMENT THE CONTRACTOR SHALL PROVIDE COUNTY REPRESENTATIVE (3) THREE COMPLETE SETS OF MANUFACTURER'S DATA OR SHOP DRAWINGS OF THE FOLLOWING APPARATUS GIVING FULL INFORMATION AS TO DIMENSIONS, MATERIALS, PERFORMANCE, AND SEQUENCE OF OPERATION FOR REVIEW:
   A. SPLIT AIR CONDITIONING SYSTEM PACKAGE.
   B. CONDENSATE PUMP (IF REQUIRED)
7. CODE COMPLIANCE: ALL WORK, MATERIALS, REGULATIONS, RULES, PERMITS, ETC., OF ALL STATE, COUNTY AND LOCAL GOVERNMENTS, AND ALL UTILITY AGENCIES SHALL BE FOLLOWED BY THE CONTRACTOR.
11. PENETRATIONS: ALL WALL PENETRATIONS SHALL BE SEALED, AND FIRESTOPPING MATERIAL INSTALLED. COORDINATE ALL ROOF PENETRATIONS WITH ROOFING MANUFACTURER. CONTRACTOR SHALL BE SURE NOT TO VOID ROOF WARRANTY.
12. WORKING HOURS: SEE ARCHITECTURAL SHEETS.
13. ALARM: PROVIDE REMOTE OUTPUT ALARM CONTACT WITH AC UNITS OR PUMPS FOR FUTURE CONNECTION ALARM MONITORING. ALARM MONITORING BY OTHERS.

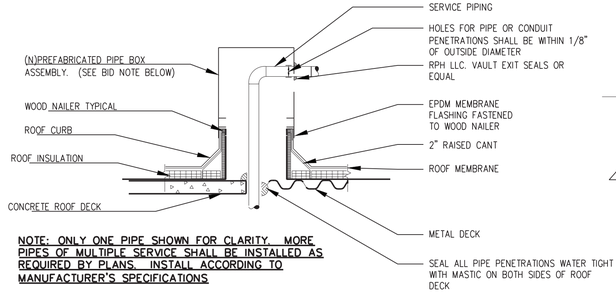
EQUIPMENT NOTES:

1. AC-1 : BASED ON MITSUBISHI ELECTRIC, COOLING ONLY MODEL PKA-A36KA7 EVAPORATOR UNIT, PROVIDE WIRED REMOTE CONTROLLER MODEL PAR-40MAAU.
2. ACC-1 : BASED ON MITSUBISHI ELECTRIC, AIR COOLED MODEL# PUY-A36NKA7 CONDENSING UNIT.

SPLIT SYSTEM INSTALL. NOTES:

1. PRESSURE TEST AND EVACUATE: REFRIGERATION PIPE WORK SHALL BE PRESSURE TESTED AND EVACUATED AS PER THE PRESSURE TEST AND EVACUATION METHOD STATEMENTS IN THE INSTALLATION MANUAL.
2. CHARGE REFRIGERANT PIPING: CONTRACTOR SHALL CORRECT REFRIGERATION TRIM CHARGE HAS BEEN ADDED AND SERVICE VALVES OPENED.
3. CONDENSATE DRAIN: ALL CONDENSATE DRAIN PIPE WORK SHALL BE COMPLETE.
4. CONNECT POWER: POWER SUPPLY (SOURCE VOLTAGE) TO ALL UNITS SHALL BE CHECKED PRIOR TO SWITCHING ON. ENSURE THAT THE INDOOR UNIT POWER SUPPLY (SOURCE VOLTAGE) ISOLATOR IS SWITCHED ON BEFORE THE OUTDOOR UNIT.
5. CHECK ADDRESS SETTINGS: ALL UNITS, REMOTE CONTROLLERS AND CENTRALIZED CONTROLLERS IN THE SYSTEM SHALL HAVE CORRECT ADDRESS SETTINGS PRIOR TO TURNING ON POWER TO THE OUTDOOR UNIT.
6. SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

IN CHARGE OF JAI PUNNOOSE, P.E.
CHECKED BY JAI PUNNOOSE, P.E.
MADE BY VINCENT LEONE, P.E.

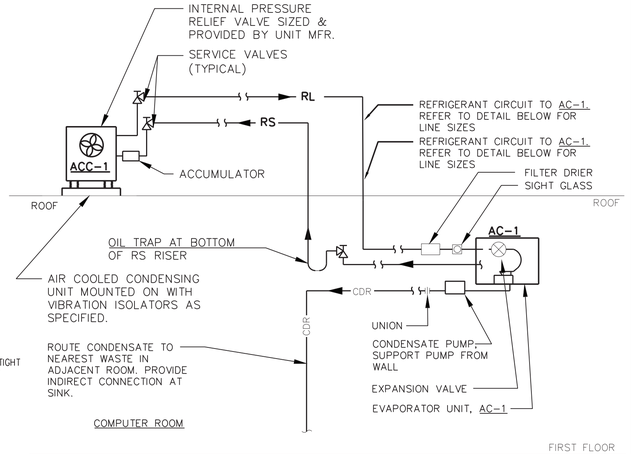


NOTE: ONLY ONE PIPE SHOWN FOR CLARITY. MORE PIPES OF MULTIPLE SERVICE SHALL BE INSTALLED AS REQUIRED BY PLANS. INSTALL ACCORDING TO MANUFACTURER'S SPECIFICATIONS

NOTES

1. PREFABRICATED ROOF CURB AND PIPE BOX ASSEMBLY FOR NEW PENETRATION BASED ON ROOF PENETRATIONS HOUSINGS, LLC AWI SMALL VAULT MODEL AWI161010 OR EQUAL. ROOF CURB BOX ASSEMBLY WITH 18 INCH HIGH ROOF CURB.
2. CONTRACTOR SHALL PROVIDE ALL FLASHING, COUNTERFLASHING, AND ANY OTHER MATERIALS AND LABOR NECESSARY TO ENSURE A WATERTIGHT ROOF PENETRATION ENCLOSURE.
3. FOR PENETRATION THROUGH CONCRETE DECKS, CORE DRILL HOLE AND FURNISH PIPE SLEEVE AND RISER CLAMP AS REQUIRED BY THE SPECIFICATIONS
4. CONTRACTOR SIZE NEW PIPE BOX ACCORDINGLY. PROVIDE COORDINATED SUBMITTAL

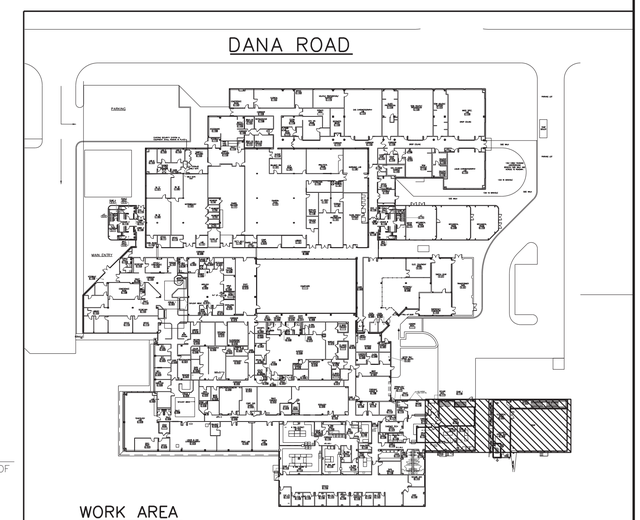
3 ROOF PIPE PENETRATION DETAIL
M-3 1/8"=1'-0"



NOTE:

1. PROVIDE TRAPS AS FOLLOWS:
   1.A. FOR RISES UP TO 50', USE 1 TRAP AT THE BOTTOM OF THE SUCTION RISER.
   1.B. FOR RISES BETWEEN 50' AND 100', INSTALL A SECOND TRAP HALF WAY UP THE RISER.
   1.C. FOR RISES OVER 100', INSTALL TRAPS AT 1/3 INTERVALS.
2. REFRIGERANT PIPING SHALL BE INSTALLED SO THAT THEY WILL NOT OBSTRUCT SERVICE ACCESS TO EITHER THE INDOOR COIL OR CONDENSING UNIT, THE AIR HANDLER IN GENERAL OR THE FILTER.
3. SLOPE HORIZONTAL SUCTION LINES APPROX. 1" EVERY 20 FEET TOWARD THE CONDENSING UNIT TO FACILITATE OIL RETURN.
4. ALL FASTENERS AND SUPPORTS LOCATED OUTDOORS SHALL BE GALVANIZED

6 REFRIGERANT PIPING SCHEMATIC
M-3 SCALE: NONE



REVISION NUMBER	DATE	MADE BY	APP'D BY	REVISION

RECORD DRAWING CERTIFICATION

☐ AS BUILT – CHANGES AS NOTED
☐ AS BUILT – NO CHANGES

CONTRACTOR	PROJECT COORDINATOR
NAME	NAME
SIGNATURE	SIGNATURE
TITLE DATE	TITLE DATE

WESTCHESTER COUNTY, NEW YORK
DEPARTMENT OF PUBLIC WORKS AND TRANSPORTATION
DIVISION OF ENGINEERING

CONTRACT NUMBER 19-531 | SHEET NUMBER M-3
SHEET NO. 22 OF 27

INFRASTRUCTURE UPGRADES
LABS AND RESEARCH
VALHALLA CAMPUS, VALHALLA, NEW YORK
CRIME VAULT SPLIT SYSTEM

SCALE: AS SHOWN
DATE: 10/28/2021

DPW FILE NO. 38-54-M-779 | REV. NO. 0