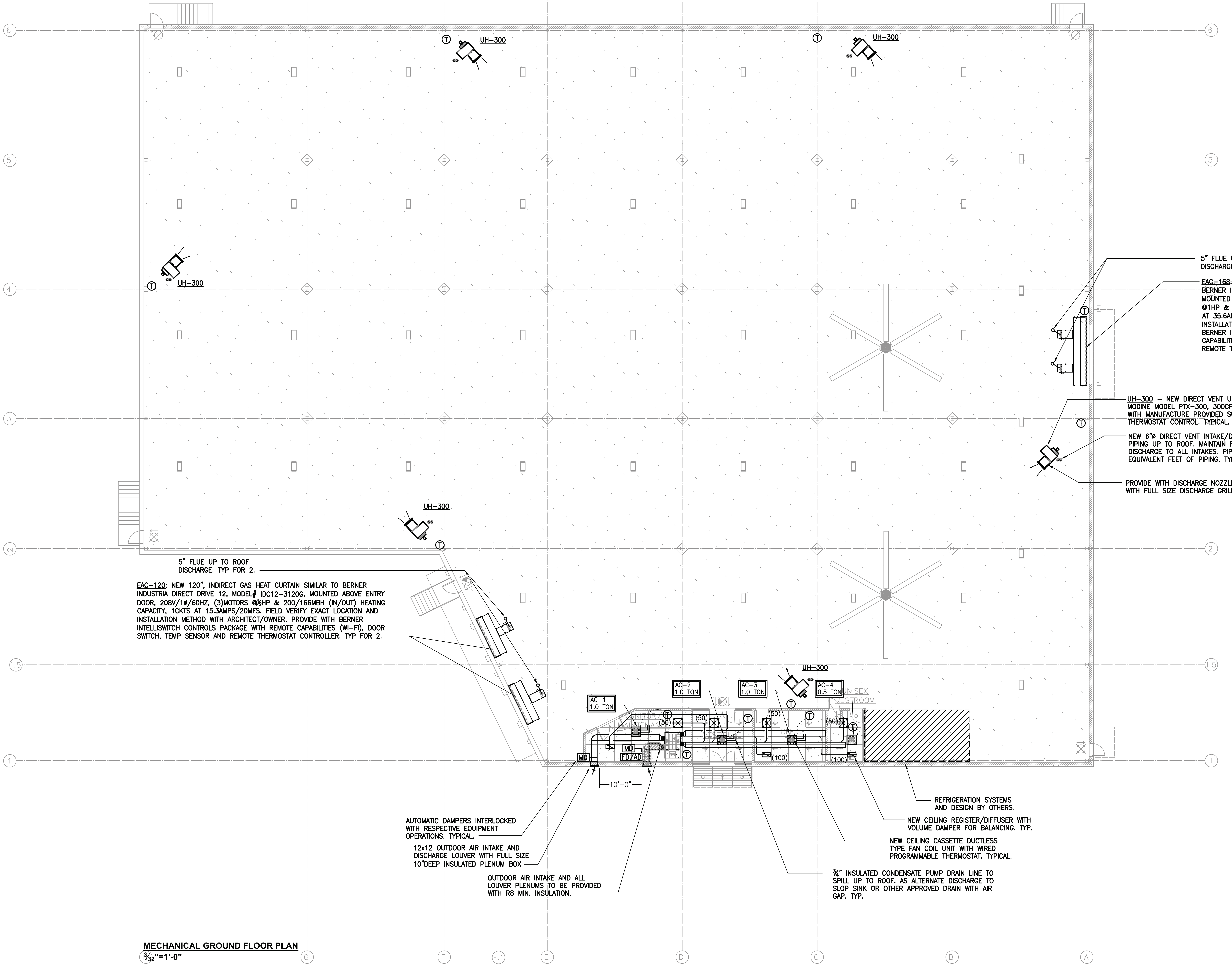

5" FLUE UP TO ROOF
DISCHARGE. TYP FOR 2.

EAC-168: NEW 168", INDIRECT GAS HEAT CURTAIN SIMILAR TO BERNER INDUSTRIAL DIRECT DRIVE 14, MODEL# IDC14-4168G, MOUNTED ABOVE ENTRY DOOR, 208V/1ø/60HZ, (4)MOTORS @1HP & (2)200/332MBH (IN/OUT) HEATING CAPACITY, 1CKTS AT 35.6AMPS/45MFS. FIELD VERIFY EXACT LOCATION AND INSTALLATION METHOD WITH ARCHITECT/OWNER. PROVIDE WITH BERNER INTELLISWITCH CONTROLS PACKAGE WITH REMOTE CAPABILITIES (WI-FI), DOOR SWITCH, TEMP SENSOR AND REMOTE THERMOSTAT CONTROLLER.

UH-300 – NEW DIRECT VENT UNIT HEATER SIMILAR TO MODINE MODEL PTX-300, 300CFH, 115V NATURAL GAS FIRED WITH MANUFACTURE PROVIDED SUPPORT BRACKET AND LOCAL THERMOSTAT CONTROL. TYPICAL.

NEW 6"ø DIRECT VENT INTAKE/DISCHARGE STAINLESS STEEL PIPING UP TO ROOF. MAINTAIN REQUIRED CLEARANCES FROM DISCHARGE TO ALL INTAKES. PIPING SHALL BE LIMITED TO 50 EQUIVALENT FEET OF PIPING. TYPICAL.

PROVIDE WITH DISCHARGE NOZZLE, 16GAUGE, WITH FULL SIZE DISCHARGE GRILLE.

5" FLUE UP TO ROOF
DISCHARGE. TYP FOR 2.

EAC-120: NEW 120", INDIRECT GAS HEAT CURTAIN SIMILAR TO BERNER INDUSTRIA DIRECT DRIVE 12, MODEL# IDC12-3120G, MOUNTED ABOVE ENTRY DOOR, 208V/1ø/60HZ, (3)MOTORS @½HP & 200/166MBH (IN/OUT) HEATING CAPACITY, 1CKTS AT 15.3AMPS/20MFS. FIELD VERIFY EXACT LOCATION AND INSTALLATION METHOD WITH ARCHITECT/OWNER. PROVIDE WITH BERNER INTELLISWITCH CONTROLS PACKAGE WITH REMOTE CAPABILITIES (WI-FI), DOOR SWITCH, TEMP SENSOR AND REMOTE THERMOSTAT CONTROLLER. TYP FOR 2.

AUTOMATIC DAMPERS INTERLOCKED WITH RESPECTIVE EQUIPMENT OPERATIONS. TYPICAL.

12x12 OUTDOOR AIR INTAKE AND DISCHARGE LOUVER WITH FULL SIZE 10"DEEP INSULATED PLENUM BOX

OUTDOOR AIR INTAKE AND ALL LOUVER PLENUMS TO BE PROVIDED WITH R8 MIN. INSULATION.

¾" INSULATED CONDENSATE PUMP DRAIN LINE TO SPILL UP TO ROOF. AS ALTERNATE DISCHARGE TO SLOP SINK OR OTHER APPROVED DRAIN WITH AIR GAP. TYP.

NEW CEILING CASSETTE DUCTLESS TYPE FAN COIL UNIT WITH WIRED PROGRAMMABLE THERMOSTAT. TYPICAL.

NEW CEILING REGISTER/DIFFUSER WITH VOLUME DAMPER FOR BALANCING. TYP.

REFRIGERATION SYSTEMS AND DESIGN BY OTHERS.

MECHANICAL GROUND FLOOR PLAN
3/32"=1'-0"

PETER F. GAITO & ASSOCIATES
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No.	Date	Revisions / Submissions
–	01-19-23	DESIGN DEVELOPMENT
–	08-16-24	ISSUED

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Project Title
THE SALVATION
ARMY WAREHOUSE
440 WEST NYACK ROAD
WEST NYACK, NY 10994

Sheet Title
MECHANICAL GROUND
FLOOR PLAN

Date
08/23/22
Project ID
23100
Drawn By
TSF
Checked By
TSF
Scale
AS NOTED

Sign and Seal
STATE OF NEW YORK
NICHOLAS P TUCCI
071681
LICENSED PROFESSIONAL ENGINEER

Sheet No.
M-101
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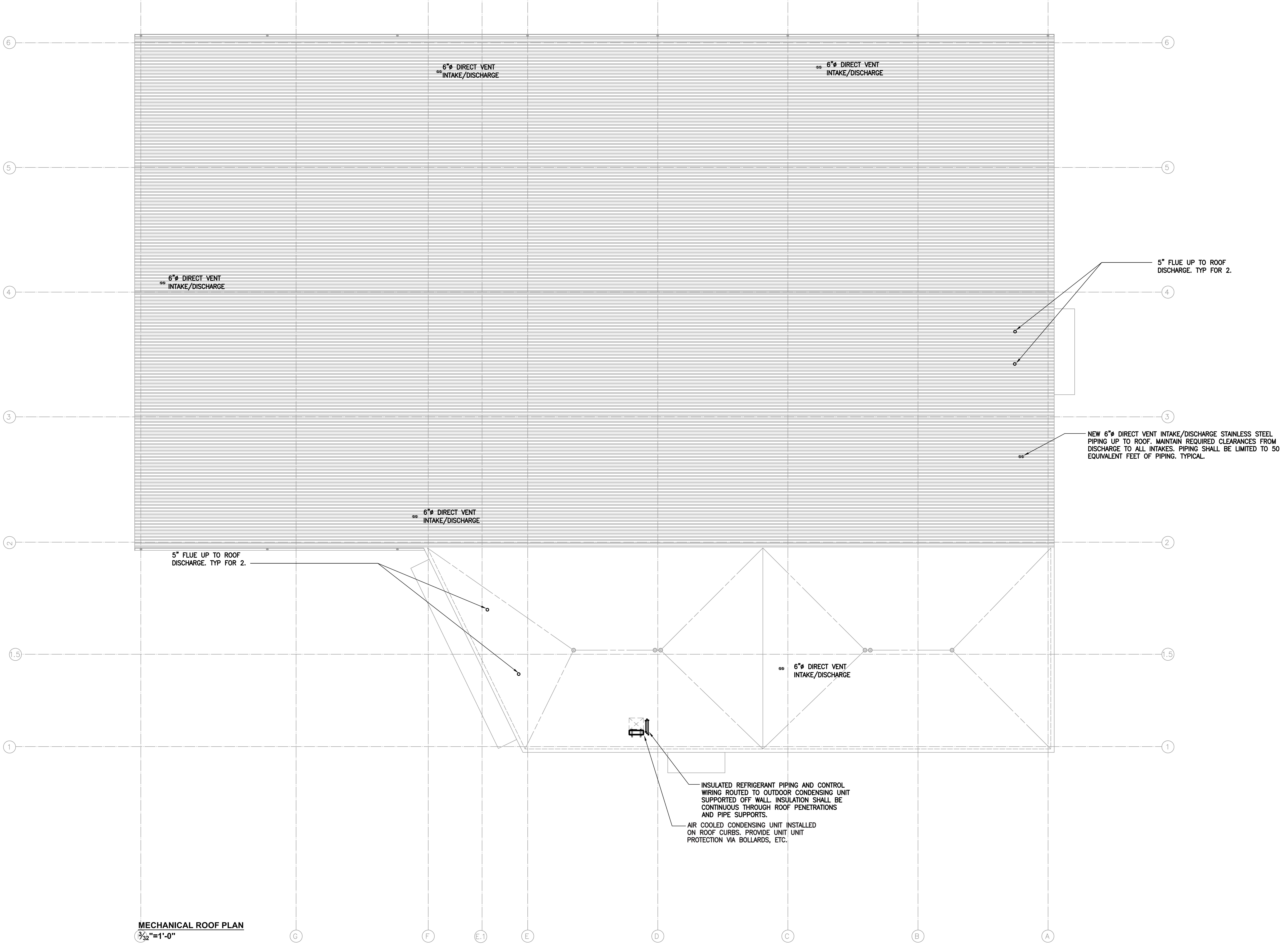

MECHANICAL ROOF PLAN
$\frac{3}{32}$"=1'-0"

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Project Title

THE SALVATION ARMY WAREHOUSE

440 WEST NYACK ROAD
WEST NYACK, NY 10994

Sheet Title

MECHANICAL ROOF PLAN

Date: 08/23/22
Project ID: 23100
Drawn By: TSF
Checked By: TSF
Scale: AS NOTED

Sign and Seal
NICHOLAS P TUCCI
071681

Sheet No.

M-102

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HVAC DRAWING NOTES:

A. GENERAL

1. CONTRACTOR WILL BE HELD RESPONSIBLE TO HAVE VISITED AND EXAMINED THE PREMISES PRIOR TO SUBMITTING HIS PROPOSAL IN ORDER TO UNDERSTAND THE CONDITIONS RELATED TO HIS WORK.
2. MATERIALS, DOCUMENTATION AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH BUILDING STANDARDS, LOCAL CODES AND AS SPECIFIED.
3. DUCTWORK SHOWN IS DIAGRAMMATIC AND DOES NOT SHOW ALL OFFSETS, DROPS AND RISERS OF RUNS. CONTRACTOR SHALL ALLOW IN HIS PRICE THE ROUTING OF DUCTWORK AND PIPING TO AVOID OBSTRUCTIONS. EXACT RELOCATIONS ARE SUBJECT TO APPROVAL.
4. REMOVAL AND RELOCATION OF CERTAIN EXISTING WORK WILL BE NECESSARY FOR THE PERFORMANCE OF THE WORK. EXISTING CONDITIONS ARE NOT COMPLETELY DETAILED ON THE DRAWINGS. CONTRACTOR SHALL SURVEY THE SITE AND INCLUDE ALLOWANCE FOR SUCH REMOVALS AND RELOCATIONS.
5. DISCONNECT, REMOVE AND/OR RELOCATE EXISTING MATERIALS, EQUIPMENT AND OTHER WORK AS NOTED OR REQUIRED FOR PROPER INSTALLATION OF NEW WORK.
6. FIREPROOFING AND INSULATION DISTURBED BY NEW CONSTRUCTION SHALL BE RESTORED TO ORIGINAL CONDITION.
7. SUPPORT ALL DUCTWORK FROM BUILDING STRUCTURE AND/OR FRAMING IN AN APPROVED MANNER. WHERE OVERHEAD CONSTRUCTION DOES NOT PERMIT FASTENING OF SUPPORTS FOR EQUIPMENT, FURNISH ADDITIONAL FRAMING.
8. SEAL OPENINGS AROUND DUCTS THROUGH PARTITIONS, WALLS AND FLOORS WITH MINERAL WOOL OR OTHER NON–COMBUSTIBLE MATERIAL.
9. EXACT LOCATIONS OF ALL WALL MOUNTED THERMOSTATS, SWITCHES, PANELS, ETC., SHALL BE SUBJECT TO ARCHITECT'S APPROVAL.
10. CONTRACTOR SHALL BALANCE ENTIRE SYSTEM TO CONFORM TO NEW AIR QUANTITIES SHOWN.
11. DUCTWORK SHALL CONFORM TO SMACNA STANDARDS EXCEPT A SNAP LOCK SEAM SHALL NOT BE PERMITTED AS A SUBSTITUTE FOR THE PITTSBURGH LOCK AT CORNERS OF DUCTS. DUCT LEAKAGE NOT TO EXCEED 5%.
12. MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR CONTROLLED INSPECTION AS PART OF THIS CONTRACT. MECHANICAL CONTRACTOR SHALL PROVIDE THE NAME OF A LICENSED PROFESSIONAL ENGINEER TO ARCHITECT WHEN AWARDED CONTRACT.

B. EQUIPMENT

1. INVESTIGATE PATH THROUGH WHICH EQUIPMENT WILL BE MOVED. EQUIPMENT SHALL BE BROKEN DOWN IN SECTIONS AS NEEDED FOR MOVING THROUGH BUILDING SPACES.
2. ALL MECHANICAL EQUIPMENT SHALL BE INSTALLED IN FULL COMPLIANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS.
3. INSTALL EQUIPMENT AS TO BE READILY ACCESSIBLE FOR OPERATION, MAINTENANCE AND REPAIR. MINOR DEVIATIONS FROM DRAWINGS MAY BE REQUIRED TO ACCOMPLISH THIS.
4. CHANGES IN ARCHITECTURAL, STRUCTURAL, ELECTRICAL, MECHANICAL AND PLUMBING REQUIREMENTS FOR SUBSTITUTED EQUIPMENT SHALL BE THE RESPONSIBILITY OF THE BIDDER WISHING TO MAKE THE SUBSTITUTION. THIS SHALL INCLUDE THE COST OF ANY REDESIGN BY THE EFFECTED DESIGNERS. ANY ADDITIONAL COST INCURRED BY THE EFFECTED SUBCONTRACTORS SHALL BE THE RESPONSIBILITY OF THIS CONTRACTOR AND NOT THE OWNER.

C. DUCTWORK

1. ALL DUCTWORK TO BE KEPT AS HIGH AS POSSIBLE SO AS TO MAINTAIN CEILING HEIGHTS SHOWN ON ARCHITECTURAL DRAWINGS.
2. FOR EXACT LOCATIONS OF FLOOR DIFFUSERS AND REGISTERS, COORDINATE WITH REFLECTED CEILING PLANS PREPARED BY ARCHITECT.
3. IF DUCTWORK CONFLICTS WITH PIPING, STEEL, LIGHT FIXTURES, ETC., DUCTWORK SHALL BE SET UP AND DOWN.
4. ALL DUCT SPLITS AND TAKE–OFFS SHALL BE PROVIDED WITH VOLUME DAMPERS. SPLITTER DAMPERS AND AIR EXTRACTORS ARE NOT ACCEPTABLE.
5. SEALANT SHALL BE APPLIED TO LONGITUDINAL SEAMS IN THE SHOP DURING FABRICATION. FIELD APPLY SEALANT TO TRANSVERSE SEAMS AND CONNECTIONS TO BRANCH WORK AND AIR OUTLETS.
6. RADIUS ELBOWS SHALL BE USED IN ALL DUCT OFFSETS (HORIZONTAL OR VERTICAL). MITERED ELBOWS WITHOUT TURNING VANES ARE NOT ACCEPTABLE.
7. ALL ACTIVE OPEN END DUCTWORK SHALL BE PROVIDED WITH WIRE MESH SCREEN.
8. VOLUME DAMPERS IN BRANCH DUCTS SHALL BE LOCATED AS FAR AS POSSIBLE FROM AIR OUTLET OR INLET IN ORDER TO REDUCE NOISE AND TURBULENCE.
9. CHECK AND SET FIRE DAMPERS OPEN AND REPLACE ANY DEFECTIVE FUSIBLE LINKS.
10. ACCESS IS REQUIRED BELOW ALL DAMPERS.
11. PROVIDE WIRE MESH SCREENS AT ALL OPEN END DUCTS AND TRANSFER SLEEVES.
12. PROVIDE SLOPED PANS AND DRAIN PLUGS AT ALL PLENUMS.
13. ALL NEW DUCTWORK TO BE INSULATED WITH 1–1/2" THICKNESS OF INSULATION.
14. IN ALL FULL HEIGHT PARTITIONS, PROVIDE A RETURN AIR OPENINGS WITH SHEETMETAL SLEEVES EQUAL TO ONE (1) SQUARE FEET PER 250 CFM OF SUPPLY AIR. ALL RETURN AIR OPENINGS SHALL BE A MNIMUM OF ONE (1) SQUARE FEET UNLESS OTHERWISE NOTED.

D. RECORD DRAWINGS AND SUBMISSIONS

1. PROVIDE TO LANDLORD/CLENT, RECORD COPIES OF THE FOLLOWING:
   a) BUILDING DEPARTMENT FILING DOCUMENTS
   b) CONTROLLED INSPECTIONS
   c) AS–BUILT DRAWINGS
   d) AIR BALANCE REPORTS
   e) OPERATING AND MAINTENANCE MANUALS
   f) EQUIPMENT USE PERMITS

MECHANICAL LEGEND

SYMBOL	DEFINITION
⊠	SUPPLY DIFFUSER
⧄	RETURN GRILLE OR REGISTER
──── ─ ────	EXISTING WORK
━━━━━━━	NEW WORK
─/─/─/─/─	EXISTING TO BE REMOVED
────┣━━━	CONNECT NEW WORK TO EXISTING WORK
┅┅┅┅┅┅	ACOUSTICALLY LINED DUCTWORK
━━━┿━━━	VOLUME DAMPER
──┴──▶	DOOR LOUVER
━━━┻━━━	BRANCH DUCT WITH VOLUME DAMPER
━━╫╫╫━━	FLEXIBLE CONNECTOR
──∪──	UNDERCUT DOOR
TR	TOP REGISTER
CR	CEILING REGISTER
Ⓢ	SWITCH
Ⓣ	THERMOSTAT
(SD)	SMOKE DETECTOR
FSD	COMBINATION FIRE/SMOKE DAMPER
FD	FIRE DAMPER
AD	ACCESS DOOR
TO	TRANSFER OPENING
TR	TOP REGISTER
TD	TRANSFER DUCT
COD	CABLE OPERABLE DAMPER
CUH	CABINET UNIT HEATER
MD	MOTORIZED DAMPER
GF	GAS FURNACE
OAI	OUTSIDE AIR INTAKE
C.D	CONDENSATE DRAIN LINE
S.L	SUCTION REFRIGERANT LINE
L.L	LIQUID REFRIGERANT LINE

MECHANICAL NOTES:

1. THE CONTRACTOR WILL BE HELD RESPONSIBLE TO HAVE VISITED AND EXAMINED THE PREMISES, PRIOR TO SUBMITTING HIS PROPOSAL, IN ORDER TO UNDERSTAND THE EXISTING CONDITIONS RELATED TO HIS WORK.

2. ALL VOLUME DAMPERS LOCATED ABOVE IN INACCESSIBLE CEILING SHALL BE CABLE OPERABLE FROM FACE OF AIR OUTLET.

3. DUCTWORK SHALL BE INSTALLED IN NEAT AND PROFESSIONAL MANNER AND CLEANED, ALL LABELS AND MARKINGS SHALL BE REMOVED FROM DUCTWORK.

4. ALL SHOP DRAWINGS AND ANY ADDITIONAL COORDINATION DRAWINGS AND SKETCHES OF ALL MECHANICAL ARE TO BE SUBMITTED FOR REVIEW AND APPROVAL.

5. THE INSTALLATION OF ALL TENANT IMPROVEMENTS SHALL PERMIT ADEQUATE ACCESSIBILITY TO ALL NEW AND EXISTING EQUIPMENT FOR PROPER MAINTENANCE.

6. ARCHITECT SHALL VERIFY ALL LOCATION OF RETURN AIR GRILLES, SUPPLY REGISTERS, SUPPLY DIFFUSERS AND THERMOSTATS.

7. CONTRACTOR SHALL PROVIDE A COMPLETE AS–BUILT SET OF DRAWINGS UPON COMPLETION OF WORK FOR RECORD.

8. DESIGN LOADS ASSOCIATED WITH HEATING, VENTILATING AND AIR CONDITIONING OF THE BUILDING SHALL BE DETERMINED IN ACCORDANCE WITH ASHRAE/ACCA Standard 183.

9. SUPPLY AND RETURN AIR DUCTS AND PLENUMS SHALL BE INSULATED WITH MINIMUM OF R6 INSULATION WHERE LOCATED IN UNCONDITIONED SPACES AND WHER LOCATED OUTSIDE THE BUILDING WITH MIN R8 INSULATION IN REF TO C403.2.9.

BUILDING MECHANICAL SYSTEMS

TEMPERATURE CONTROLS
EACH HEATING AND COOLING SYSTEM SHALL HAVE AT LEAST ONE SOLID–STATE PROGRAMMABLE THERMOSTAT.
THE THERMOSTAT SHALL HAVE THE CAPABILITY TO SET BACK OR SHUT DOWN THE SYSTEM BASED ON DAY OF WEEK AND TIME OF DAY, AND PROVIDE A READILY ACCESSIBLE MANUAL OVERRIDE THAT WILL RETURN TO THE PRESETBACK OR SHUTDOWN SCHEDULE WITHOUT REPROGRAMMING.

SHUTOFF DAMPERS
OUTDOOR AIR SUPPLY AND EXHAUST DUCTS SHALL BE PROVIDED WITH AUTOMATIC MEANS TO REDUCE AND SHUTOFF AIR FLOW.

DUCT AND PLENUM INSULATION AND SEALING
ALL SUPPLY AND RETURN AIR DUCTS AND PLENUMS SHALL BE INSULATED WITH A MINIMUM OF R–6 INSULATION WHEN LOCATED IN UNCONDITIONED SPACES AND WITH A MINIMUM OF R–8 INSULATION WHEN LOCATED OUTSIDE THE BUILDING.
WHEN LOCATED WITHIN A BUILDING ENVELOPE ASSEMBLY, THE DUCT OR PLENUM SHALL BE SEPARATED FROM THE BUILDING EXTERIOR OR UNCONDITIONED OR EXEMPT SPACES BY A MINIMUM OF R–8 INSULATION.

EXCEPTIONS:
1. WHEN LOCATED WITHIN EQUIPMENT.
2. WHEN THE DESIGN TEMPERATURE DIFFERENCE BETWEEN THE INTERIOR AND EXTERIOR OF THE DUCT OR PLENUM DOES NOT EXCEED 15 DEG. F.
ALL JOINTS, LONGITUDINAL AND TRANSVERSE SEAMS AND CONNECTIONS IN DUCTWORK, SHALL BE SECURELY FASTENED AND SEALED WITH WELDS, GASKETS, MASTICS (ADHESIVES), MASTIC–PLUS–EMBEDDED–FABRIC SYSTEMS OR TAPES.

THERMOSTATIC CONTROLS
THE SUPPLY OF HEATING AND COOLING ENERGY TO EACH ZONE SHALL BE CONTROLLED BY INDIVIDUAL THERMOSTATIC CONTROLS CAPABLE OF RESPONDING TO TEMPERATURE WITHIN THE ZONE. WHERE HUMIDIFICATION OR DEHUMIDIFICATION OR BOTH IS PROVIDED, AT LEAST ONE HUMIDITY CONTROL DEVICE SHALL BE PROVIDED FOR EACH HUMIDITY CONTROL SYSTEM.

AUTOMATIC SETBACK AND SHUTDOWN CAPABILITIES
AUTOMATIC TIME CLOCK OR PROGRAMMABLE CONTROLS SHALL BE CAPABLE OF STARTING AND STOPPING THE SYSTEM FOR SEVEN DIFFERENT DAILY SCHEDULES PER WEEK AND RETAINING THEIR PROGRAMMING AND TIME SETTING DURING A LOSS OF POWER FOR AT LEAST 10 HOURS. ADDITIONALLY, THE CONTROLS SHALL HAVE: A MANUAL OVERRIDE THAT ALLOWS TEMPORARY OPERATION OF THE SYSTEM FOR UP TO 2 HOURS; A MANUALLY OPERATED TIMER CAPABLE OF BEING ADJUSTED TO OPERATE THE SYSTEM FOR UP TO 2 HOURS; OR AN OCCUPANCY SENSOR.

SHUTOFF DAMPER CONTROLS
BOTH OUTDOOR AIR SUPPLY AND EXHAUST DUCTS SHALL BE EQUIPPED WITH GRAVITY OR MOTORIZED DAMPERS THAT WILL AUTOMATICALLY SHUT WHEN THE SYSTEMS OR SPACES SERVED ARE NOT IN USE.

REFER TO MECHANICAL PLANS PERPARED BY TSF ENGINEERING FOR PIPING AND DUCT INSULATION REQUIREMENTS.

ALL WORK AS INDICATED ON PLANS MEET THE LATEST REQUIREMENTS OF THE STATE OF NEW YORK CODES WITH WHITE PLAINS SUPPLEMENTAL BUILDING CODE AS FOLLOWS:

COMMERCIAL BUILDING CODE:
2020 BUILDING CODE OF NEW YORK STATE*
2020 EXISTING BUILDING CODE OF NEW YORK STATE*
2020 RESIDENTIAL CODE OF NEW YORK STATE*
2020 ENERGY CONSERVATION CODE OF NEW YORK STATE**
2020 PROPERTY MAINTENANCE CODE OF NEW YORK STATE*
2020 FIRE CODE OF NEW YORK STATE*
2020 PLUMBING CODE OF NEW YORK STATE*
2020 MECHANICAL CODE OF NEW YORK STATE*
2020 FUEL GAS CODE OF NEW YORK STATE*
2017 NATIONAL ELECTRICAL CODE (NEC) NFPA70

* BASED ON THE 2018 I–CODES®
** BASED ON THE 2018 IECC.

ABBREVIATIONS

F.D. & A.D.	FIRE DAMPER & ACCESS DOOR
S.D.	SMOKE DAMPER
A.D.	ACCESS DOOR
CFM	CUBIC FEET OF AIR PER MINUTE
B.T.U.	BRITISH THERMAL UNIT
O.E.D.	OPEN END DUCT
A.C.	AIR CONDITIONING UNIT
W.M.S.	WIRE MESH SCREEN
N.I.C.	NOT IN THIS CONTRACT
N.T.S.	NOT TO SCALE
M.B.H.	THOUSAND BTU'S PER HOUR
EF	EXHAUST FAN
TE	TOILET EXHAUST FAN
O.A.I.	OUTSIDE AIR INTAKE
G.P.M.	GALLONS PER MINUTE
CG	CEILING GRILLES
EA.	EACH
VD	VOLUME DAMPER
"C"	CONSTRUCTION CONTRACTOR
"E"	ELECTRICAL CONTRACTOR
"H"	HVAC CONTRACTOR
"P"	PLUMBING CONTRACTOR

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440 WEST NYACK ROAD
WEST NYACK, NY 10994

Sheet Title
MECHANICAL NOTES, LEGEND AND SCHEDULES

Date: 08/23/22
Project ID: 23100
Drawn By: TSF
Checked By: TSF
Scale: AS NOTED

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DESIGN DEVELOPMENT
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AC: AIR CONDITION UNIT
ACCU: AIR COOL CONDENSING UNIT

SPLIT SYSTEM AIR COOLED AIR CONDITIONING UNIT (HEAT PUMP)

BASIS OF DESIGN:
MITSUBISHI

EVAPORATOR DATA

UNIT	TAG	SERVICE	TYPE	NOMINAL CAPACITY (TONS)	TOTAL CLG CAPACITY (BTUH)	TOTAL HTG CAPACITY (BTUH)	SUPPLY AIR (CFM)	OUTIDE AIR (CFM)	EXTERNAL STATIC PRESSURE (IN. W.G.)	ENTERING AIR		ELECTRIC DATA			MODEL	DIMENSION (WxDxH)	WEIGHT (LBS)
										DB (°F)	WB (°F)	VOLTS/ PHASE/ HERTZ	MCA	MOCP			
AC–1.0T	AC–1	MAINT.	CEILING CASSETTE	1.0	12,000	13,500	245–335	–	N/A	80	67	208/1/60	0.30	15	PLFY–P12NFMU–E	24x24x10	30.0
AC–1.0T	AC–2	VESTIBULE	CEILING CASSETTE	1.0	12,000	13,500	245–335	–	N/A	80	67	208/1/60	0.30	15	PLFY–P12NFMU–E	24x24x10	30.0
AC–1.0T	AC–3	OFFICE	CEILING CASSETTE	1.0	12,000	13,500	245–335	–	N/A	80	67	208/1/60	0.30	15	PLFY–P12NFMU–E	24x24x10	30.0
AC–0.5T	AC–4	TOILET	CEILING CASSETTE	0.5	5,000	5,600	230–280	–	N/A	80	67	208/1/60	0.24	15	PLFY–P05NFMU–E	24x24x10	30.0

CONDENSER DATA

UNIT NO.	CAPACITY (TONS)	LOCATION	ENTERING AIR TEMP. (°F)	TOTAL CLG CAPACITY (BTUH)	TOTAL HTG CAPACITY (BTUH)	CONDENSER ELECTRIC DATA					DIMENSION (WxHxD)	WEIGHT LBS.	MODEL	ACTUAL . EFF.	– –	REMARKS
						VOLTS/ PHASE/ HERTZ	MCA	MOCP	# OF COMP.	RATED AMP.						
ACCU–1	4.0	ROOF	95	48,000	54,000	208/1/60	36.0	40	1	–	38x56x16	280	PUMY –HP48NKMU1	22.60SEER 12.00HSPF		LGRED

1. INSTALL 7–DAY PROGRAMMABLE THERMOSTATS FOR AC UNIT CONTROL WITH INDEPENDENT COOL AND HEAT SET POINTS, MANUAL COOLING/HEATING CHANGEOVER, WEEKLY PROGRAMMING SCHEDULING.
2. INDOOR AC UNIT SHALL BE FIELD PROVIDED WITH FILTER SECTION AND RETURN PLENUM. TYPICAL.
3. MC SHALL INCLUDE IN HIS BID PROVISION AND INSTALLATION OF INSULATED CONDENSATE DRAIN PIPING (COPPER) FROM EACH FAN COIL AC UNIT TO THE OPEN FLOOR DRAIN WITH AIR GAP.
5. FACTORY START UP AND COMMISSIONING.
6. CONTRACTOR SHALL FURNISH A FULLY OPERATIONAL SYSTEM INCLUDING ALL INSULATED REFRIGERANT PIPING, CONTROL WIRING, FILTER, POWER, SENSORS, REMOTE THERMOSTAT, DRY CONTACT ACCESSORIES, ETC. SUBMIT VENDOR PIPING/CONTROL REPORT PRIOR TO COMMENCEMENT.

ERV SCHEDULE

UNIT NO.	LOCATION/AREA	CFM	TOT. STATIC PRESS. (IN. W.G.)	RPM	DRIVE	MOUNTING	MOTOR DATA		MODEL	EFF	DIMENSION (WxHxD)	WEIGHT (LBS)	REMARKS
							MCA/ MFS	VOLTS/ PHASE					
ERV–1	SEE PLAN	200–300	0.5	1,203 SUP 1,424 RET	DIRECT ECM	HORIZONTAL	10.6/15	208/1/60	MITSUBISHI LOSSNAY LGH–F300RVX2–E	70%SENS 53.5%LAT–CLG 66.5%LAT–HTG	42x14x42	75LBS	

FURNISH AND INSTALL THE FOLLOWING:

–PROVIDE WITH REMOTE PRESSURE SENSORS TO CONTROL FAN SPEED. TYPICAL FOR SUPPLY AND EXHAUST
–HANGING STRUCTURAL SUPPORTS WITH SPRING ISOLATORS
–REMOTE SENSOR/CONTROLLER
–ERV HEAT EXCHANGER
–ECONOMIZER BYPASS FOR HUMIDITY CONTROL
–SHEET METAL UNDERLINER
–HORIZONTAL DISCHARGE
–FILTERS
–UNIT DISCONNECT

DIFFUSER, GRILLE & REGISTER SCHEDULE

APPLICATION	MFR	MODEL	NECK SIZE	CFM	REMARKS
SUPPLY	TITUS	OMNI	8"ø	0–175	12x12 FACE
SUPPLY	TITUS	OMNI	8"ø	0–200	24x24 FACE
SUPPLY	TITUS	OMNI	10"ø	201–300	24x24 FACE
SUPPLY	TITUS	OMNI	12"ø	301–401	24x24 FACE
SUPPLY	TITUS	OMNI	14"ø	401–500	24x24 FACE
SUPPLY	TITUS	OMNI	15"ø	501–700	24x24 FACE
RETURN/EXH.	TITUS	355RL	6x6	0–100	SEE NOTE No.2
RETURN/EXH.	TITUS	355RL	12x12	0–360	
RETURN/EXH.	TITUS	355RL	12x24	361–720	
RETURN/EXH.	TITUS	355RL	24x24	721–1400	
SUPPLY	TITUS	300RL	6x6	0–100	
SUPPLY	TITUS	300RL	10x6	101–200	
SUPPLY	TITUS	300RL	14x6	201–300	
SUPPLY	TITUS	300RL	24x6	301–450	
SUPPLY	TITUS	300RL	18x12	451–675	
SUPPLY	TITUS	300RL	24x12	676–900	
SUPPLY	TITUS	300RL	36x12	901–1100	
SUPPLY	TITUS	300RL	42x12	1101–1300	
SUPPLY	TITUS	300RL	48x12	1301–1500	

MINIMUM PIPE INSULATION THICKNESS (in inches)"

	FLUID OPERATING TEMPERATURE RANGE AND USAGE (°F)	INSULATION CONDUCTIVITY		NOMINAL PIPE OR TUBE SIZE (inches)				
		CONDUCTIVITY BTU - IN./ (H - FT °F) b	MEAN RATING TEMPERATURE, °F	< 1	1 TO < 1 ½	1 ½ TO < 4	4 TO < 8	≥ 8
HW	141-200	0.25 - 0.29	125	1.5	1.5	2.0	2.0	2.0
DX	40-60	0.21 - 0.27	75	0.5	0.5	1.0	1.0	1.0

For SI: 1 inch 25.4mm, °C = [(°F) - 32] /1.8.

a. For piping smaller than 1 1/2 inches and located in partitions within conditioned spaces, reduction of these thicknesses by 1 inch shall be permitted (before thickness adjustment required in footnote b) but not to a thickness less than 1 inch.

b. For insulation outside the stated conductivity range, the minimum thickness (T) shall be determined as follows:

where:
T = minimum insulation thickness,
r = actual outside radius of pipe,
t = insulation thickness listed in the table for applicable fluid temperature and pipe size,
K = conductivity of alternate material at mean rating temperature indicated for the applicable fluid temperature (Btu • in/h • ft^2 • °F) and
k = the upper value of the conductivity range listed in the table for the applicable fluid temperature.

c. For direct-buried heating and hot water system piping, reduction of these thicknesses by 1/2 inches (38 mm) shall be permitted (before thickness adjustment required in footnote b but not to thicknesses less than I inch (25 mm)).

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No.	Date	Revisions / Submissions
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–	08–16–24	ISSUED

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Project Title
THE SALVATION ARMY WAREHOUSE
440 WEST NYACK ROAD
WEST NYACK, NY 10994

Sheet Title
MECHANICAL SPECIFICATIONS

Date
08/23/22
Project ID
23100
Drawn By
TSF
Checked By
TSF
Scale
AS NOTED

Sign and Seal
STATE OF NEW YORK LICENSED PROFESSIONAL ENGINEER
NICHOLAS P TUCCI
071681

Sheet No.
M-202
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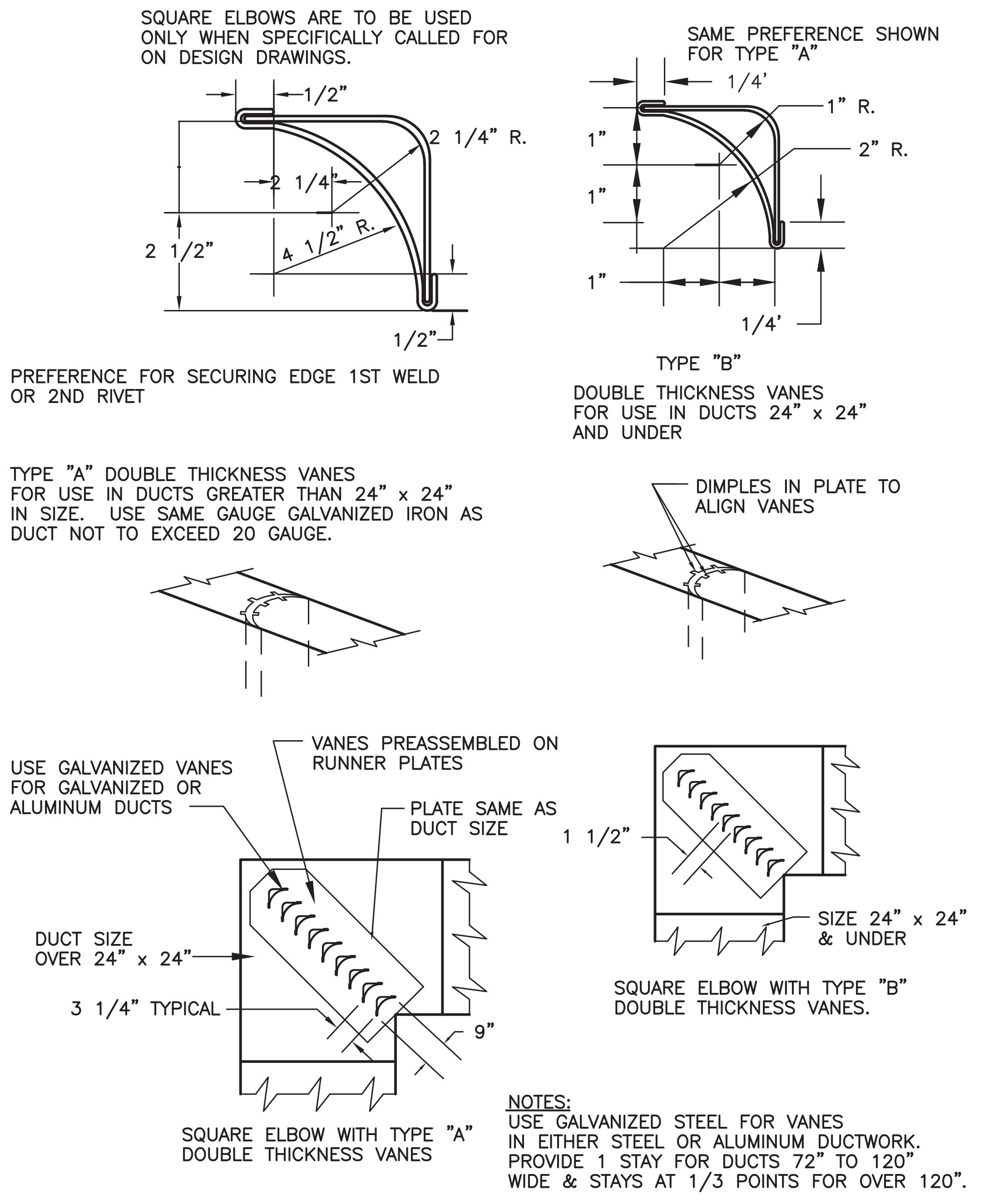
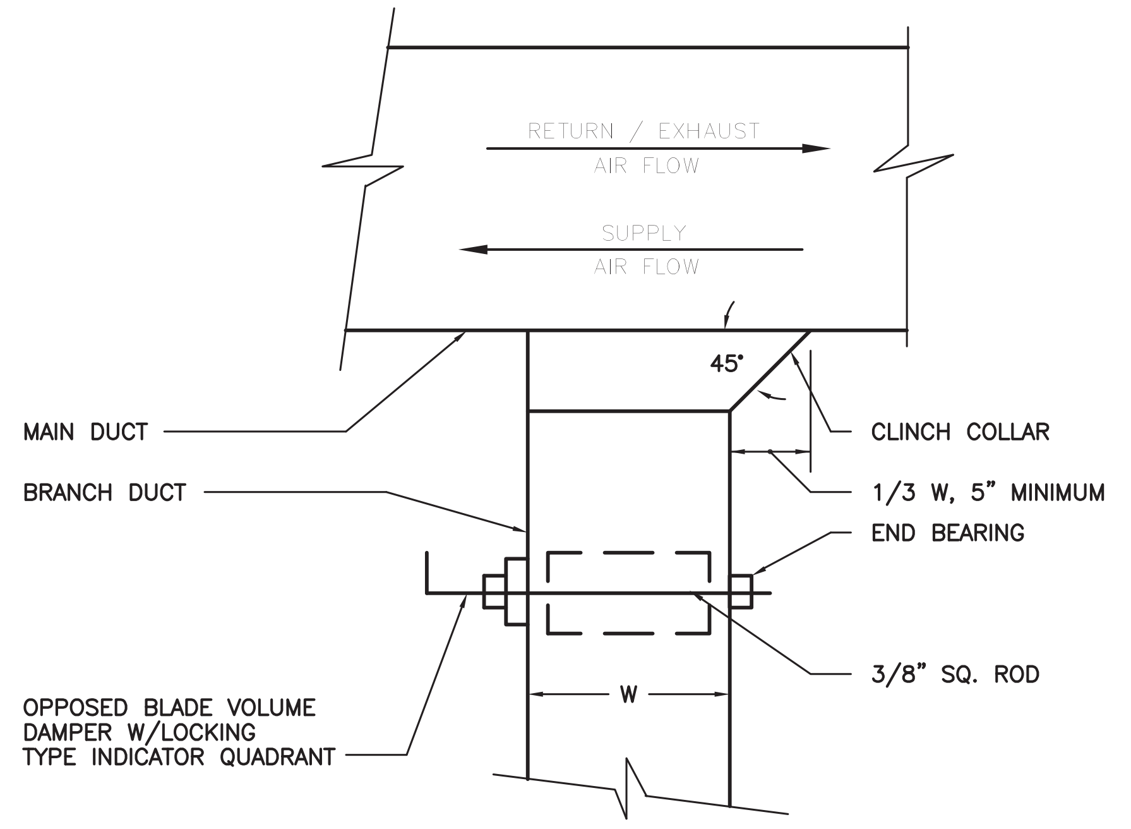


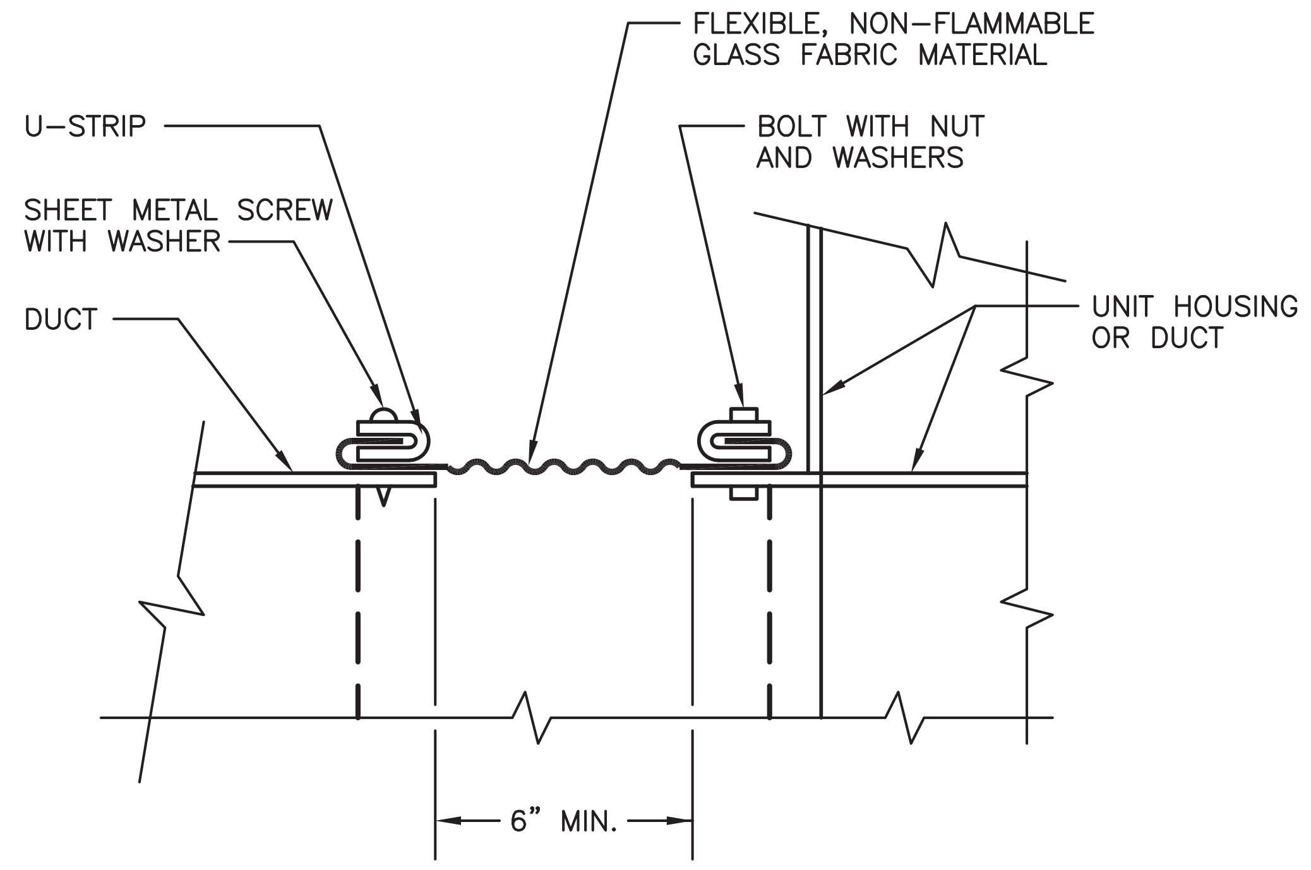
NOTES:
USE GALVANIZED STEEL FOR VANES IN EITHER STEEL OR ALUMINUM DUCTWORK. PROVIDE 1 STAY FOR DUCTS 72" TO 120" WIDE & STAYS AT 1/3 POINTS FOR OVER 120".

TURNING VANE DETAIL
NOT TO SCALE

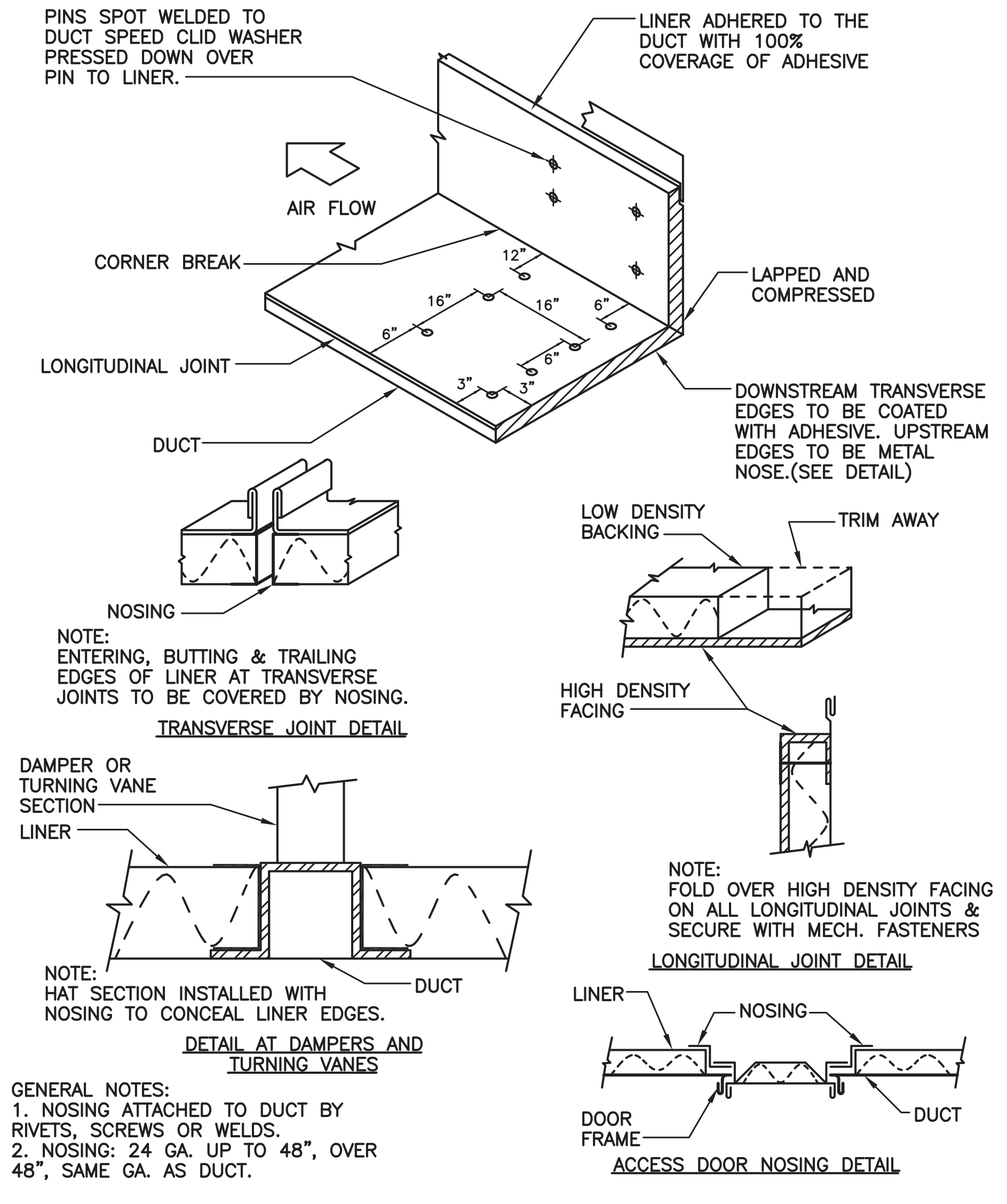


NOTES:
1. FURNISH THIS TYPE OF CONNECTION WHEN SINGLE LINE DUCTWORK IS INDICATED AS SHOWN FOR LOW PRESSURE BRANCHES WITH LESS THAN 33% CAPACITY OF MAIN DUCT.

DUCT BRANCH TAKEOFF
FOR LOW PRESSURE DUCTWORK
(NOT TO SCALE)

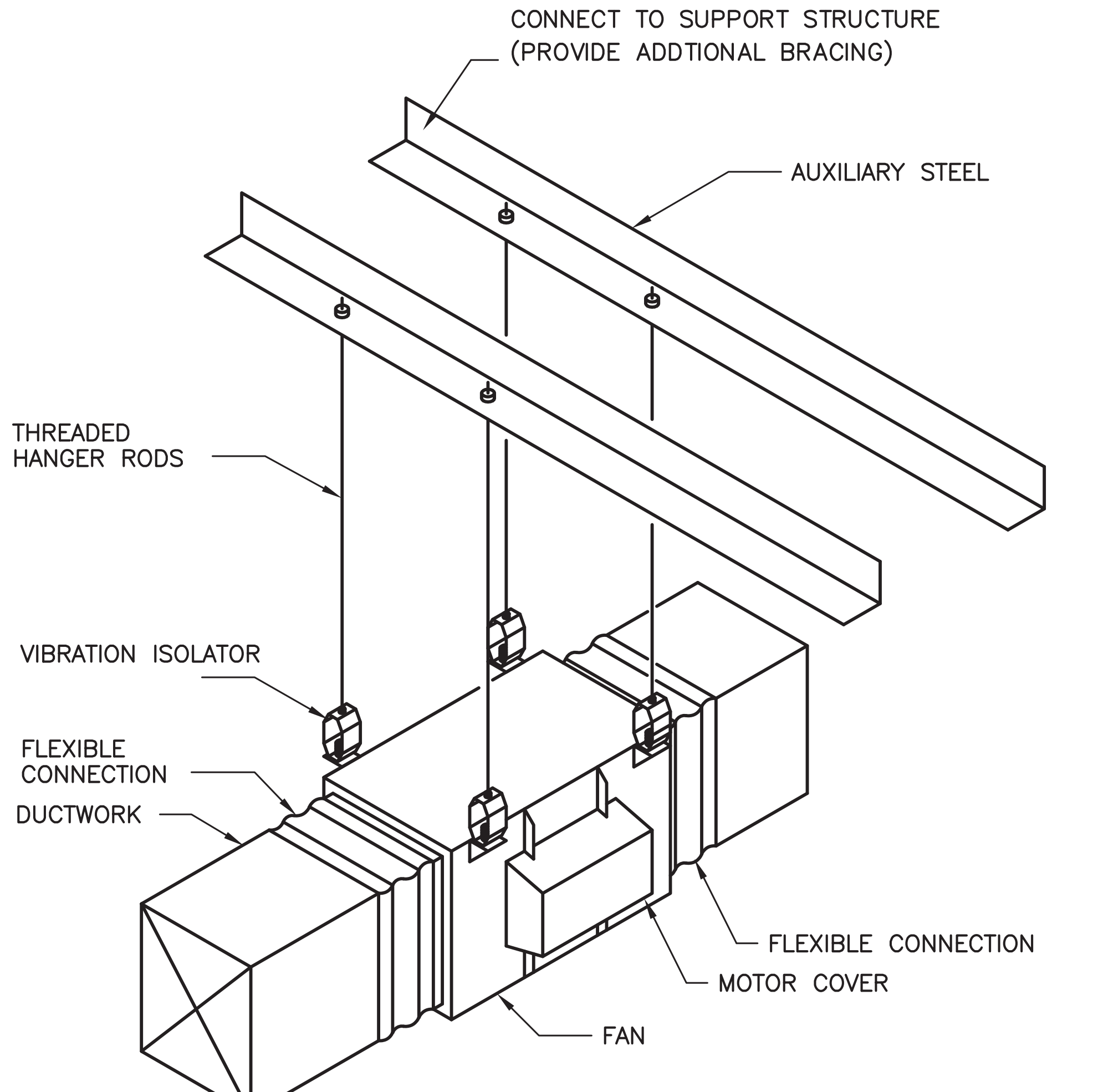


FLEXIBLE CONNECTION
NOT TO SCALE

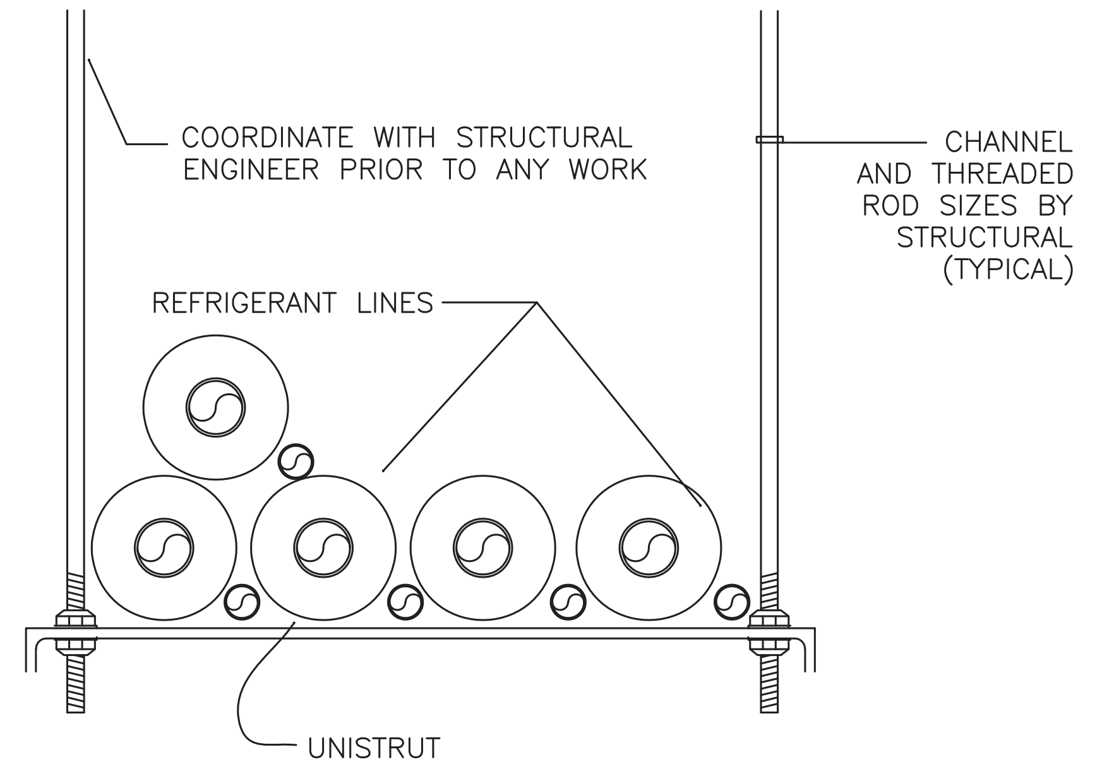


GENERAL NOTES:
1. NOSING ATTACHED TO DUCT BY RIVETS, SCREWS OR WELDS.
2. NOSING: 24 GA. UP TO 48", OVER 48", SAME GA. AS DUCT.

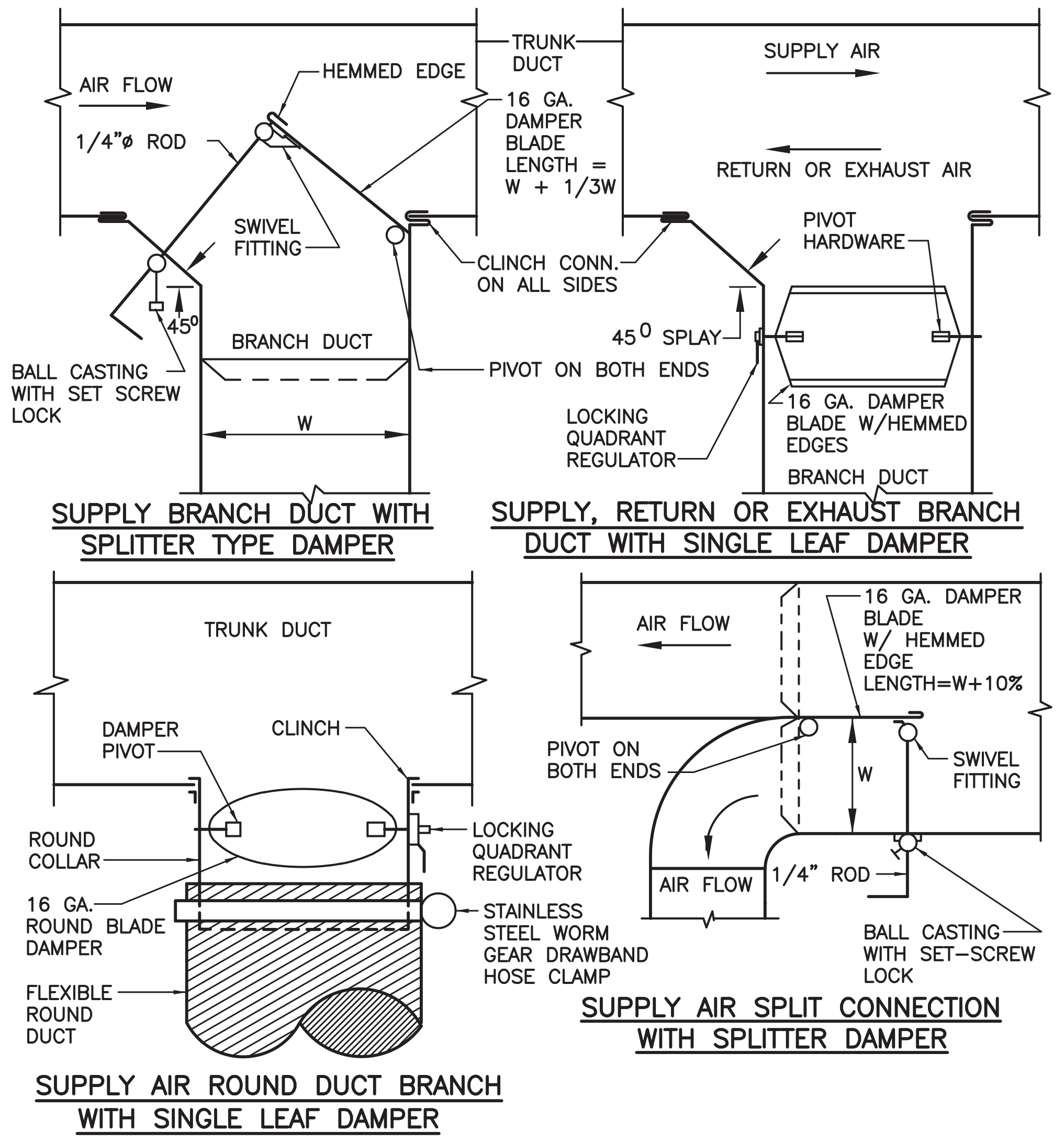
ACOUSTICAL DUCT LINER DETAIL
NOT TO SCALE



INLINE FAN HANGING SUPPORT DETAIL
NOT TO SCALE

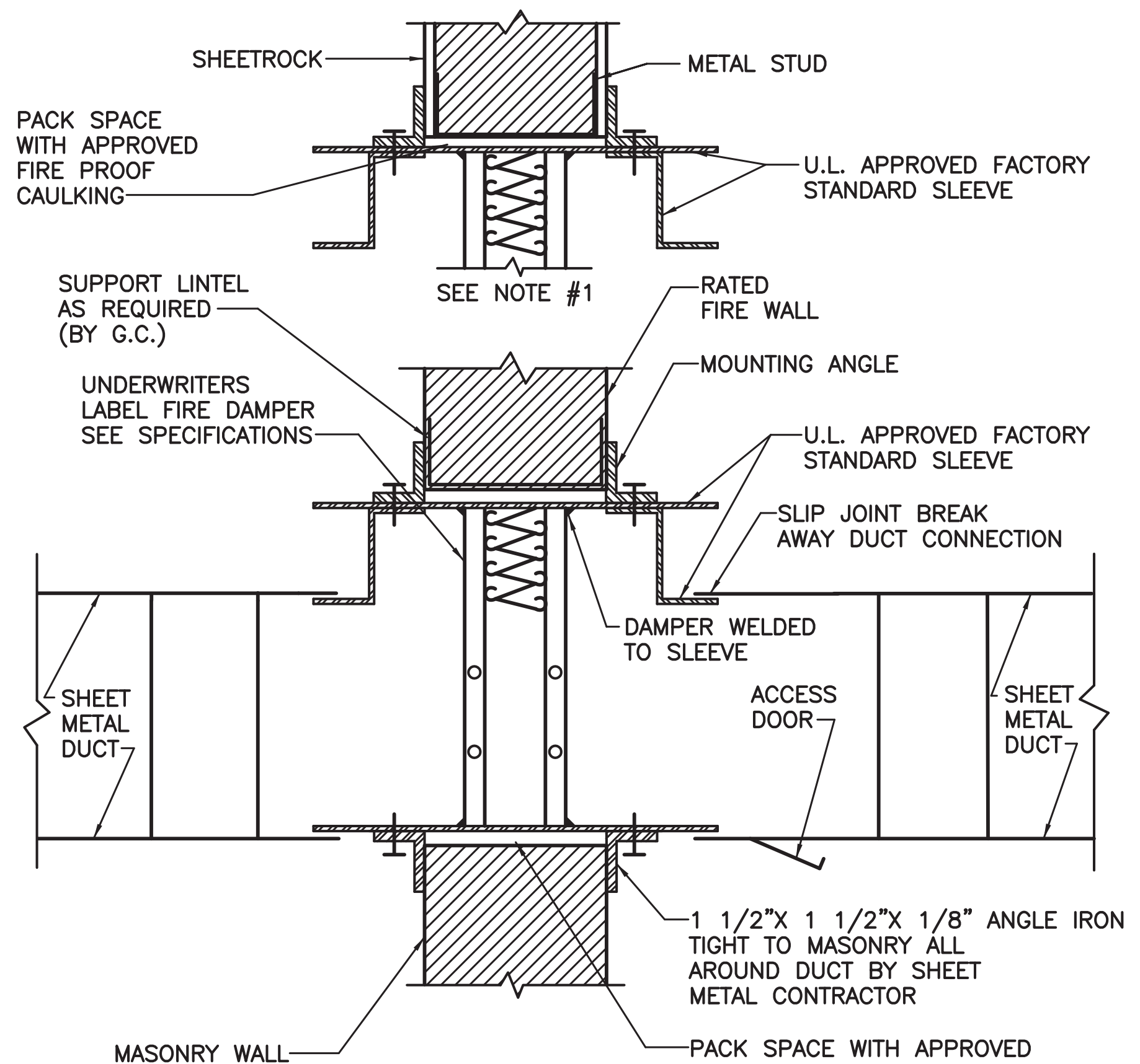


TYICAL CHANNEL PIPE SUPPORTS DETAIIL
N.T.S.



NOTES:
1.PROVIDE ALL BRANCH DUCTS WITH MANUALLY OPERATED VOLUME DAMPERS FOR BALANCING AIR SYSTEMS. THESE DAMPERS SHALL BE INDEPENDENT OF DAMPERS FURNISHED WITH DIFFUSERS AND REGISTERS, WHICH SHALL ONLY BE UTILIZED FOR TRIM BALANCING WITHOUT GENERATING NOISE.
2.FOR DUCTS WIDER THAN 48" USE MULTIPLE SINGLE LEAF DAMPERS OR OPPOSED–ACTION MULTI–BLADE DAMPERS; EACH WITH LOCKING QUADRANT REGULATOR.

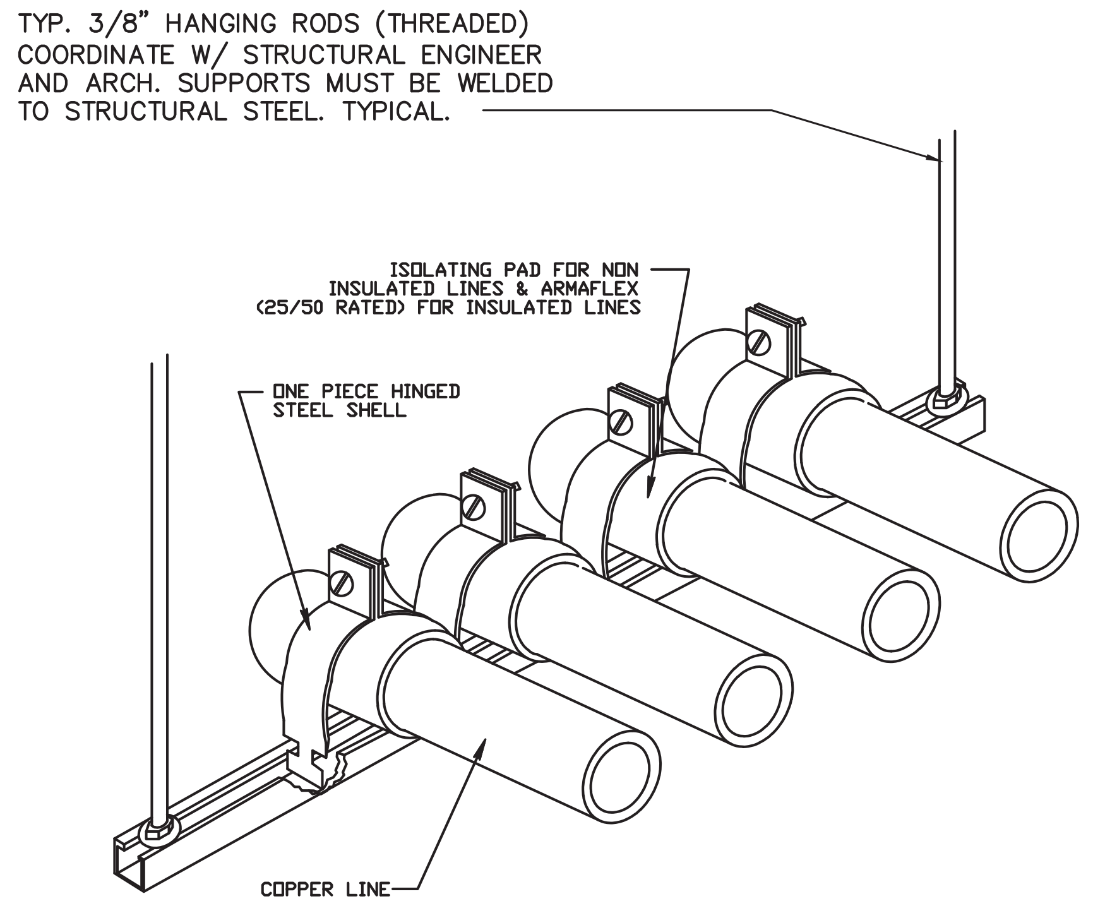
BRANCH DUCT VOLUME DAMPERS



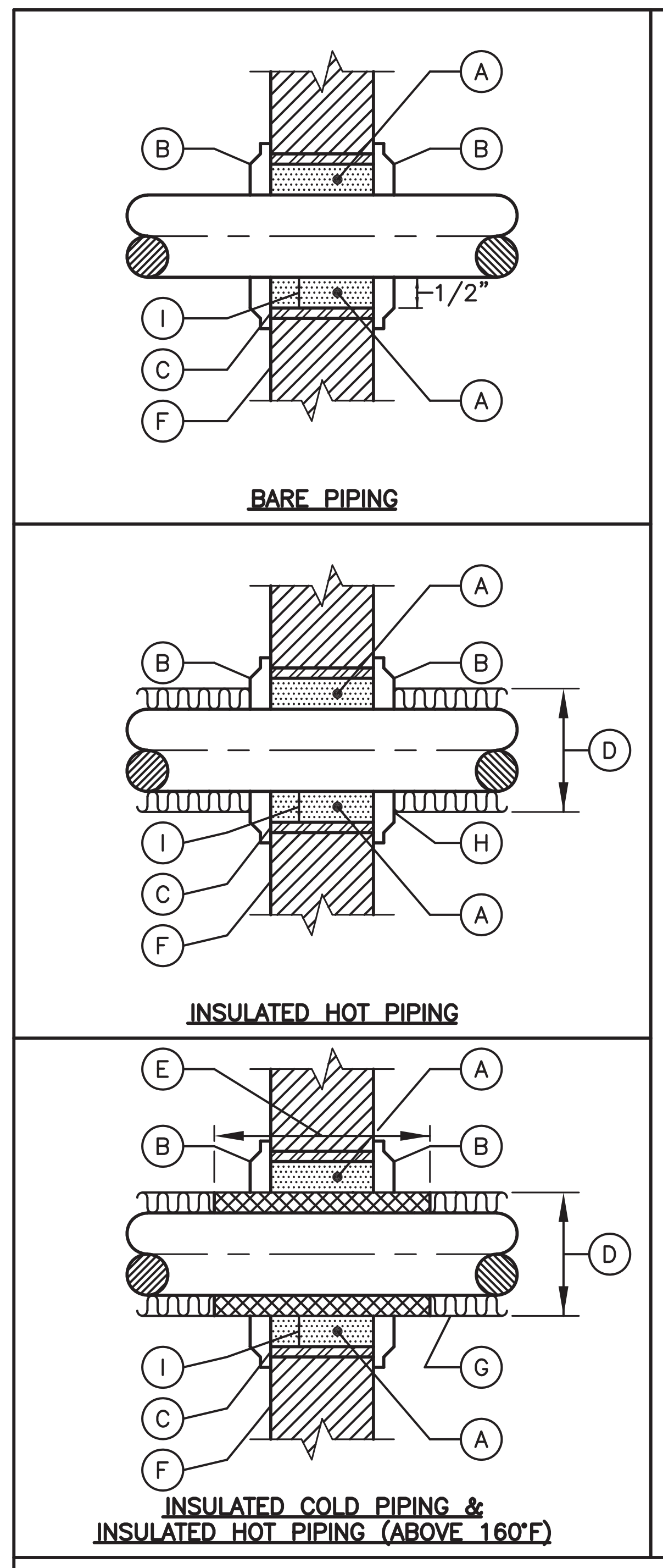
NOTES:
1. IN RATED SHEETROCK WALLS, METAL STUD FRAME PROVIDED BY GENERAL CONTRACTOR.
2. TYPICAL FOR DUCTS 12" OR LESS IN DEPTH.

DETAIL OF OUT OF AIR STREAM FIRE DAMPER
NOT TO SCALE

RUSKIN MODEL NO. IBD2
BSA# 292–71–SA

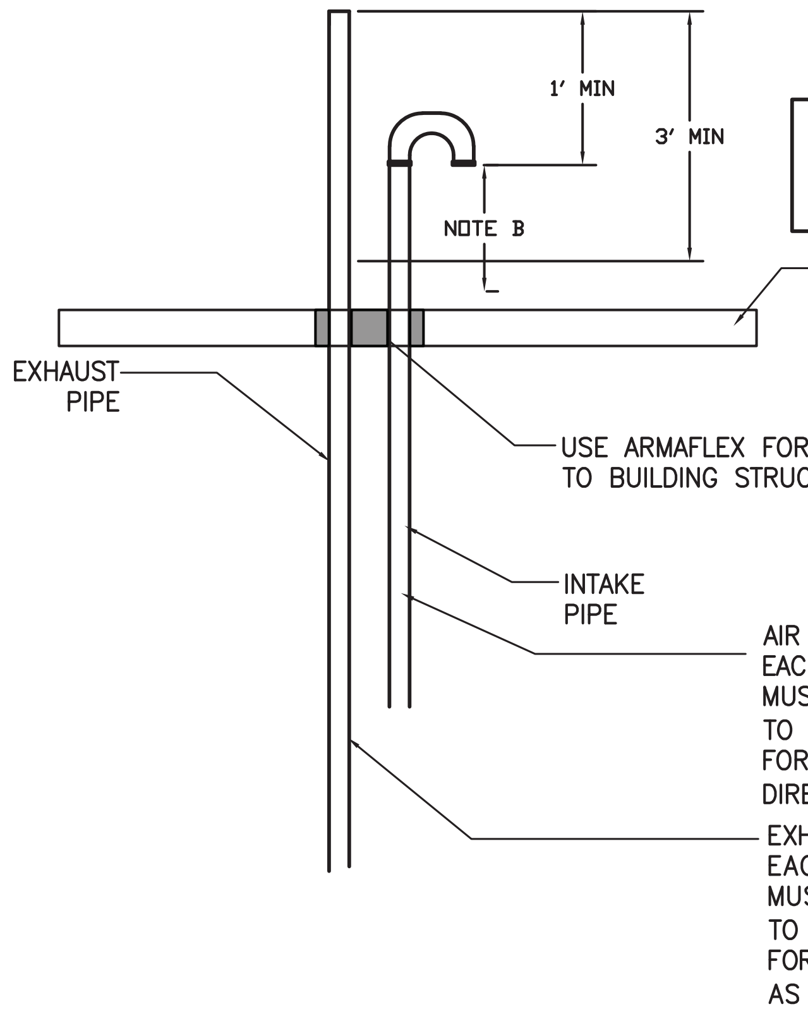


REFRIGERANT LINE HORIZONTAL SUPPORT DETAIL
N.T.S.



- Ⓐ PACK ALL SPACES FULL DEPTH W/MINERAL WOOL OR OTHER EQUALLY APPROVED FIRE RESISTIVE MATERIAL. (ASBESTOS OR FIBERGLASS SHALL NOT BE USED)
  FIRE RESISTANT FOAM SEALANT CHASE FOAM CTC P2–655(N.Y.C. MEA 58–79 M1 & 11) MAY BE USED. INSTALLATION AS PER MANUFACTURER.
- Ⓑ ESCUTCHEON BOTH SIDES.
- Ⓒ SLEEVE
- Ⓓ INSULATION (OUTSIDE DIAMETER)
- Ⓔ ANHYDROUS CALCIUM SILICATE INSULATION THRU SLEEVE.
- Ⓕ FIRE RATED PARTITION, WALL OR FLOOR.
- Ⓖ FIBERGLASS INSULATION
- Ⓗ TERMINATE INSULATION AT ESCUTCHEON
- Ⓘ MAXIMUM 1/2" CLEARANCE BETWEEN INSIDE OF SLEEVE & PIPE.

DETAIL OF PIPING PIERCING FIRE RATED PARTITIONS, WALLS & FLOORS.



NOTE B: AIR INTAKE GAP MUST BE A MINIMUM OF 12" ABOVE THE SNOWLINE; 6" SNOWLINE REQUIRES AN 18" MINIMUM GAP FROM THE ROOF LINE

AIR INTAKE PIPING (SCHEDULE 40 CPVC APPROVED FOR GAS VENT) – EACH DIRECT VENT APPLIANCE MUST HAVE INDIVIDUAL INTAKE PIPING MUST BE OF THE APPROPRIATE DIAMETER AND MUST BE LIMITED TO THE MANUFACTURER'S RECOMMENDED EQUIVALENT LENGTH FOR THE SCHEDULED MODEL. PIPING SHOULD BE ROUTED AS DIRECTED AND SLOPED 1/4" PER FOOT TOWARD THE INDOOR UNIT.

EXHAUST PIPING (SCHEDULE 40 CPVC APPROVED FOR GAS VENT) – EACH UNIT MUST HAVE INDIVIDUAL EXHAUST PIPING MUST BE OF THE APPROPRIATE DIAMETER AND MUST BE LIMITED TO THE MANUFACTURER'S RECOMMENDED EQUIVALENT LENGTH FOR THE SCHEDULED BOILER MODEL. PIPING SHOULD BE ROUTED AS DIRECTED AND SLOPED 1/4" PER FOOT TOWARD THE BOILER.

THROUGH THE ROOF – VENTING INSTALLATION
NOT TO SCALE

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Sheet Title
MECHANICAL DETAILS

Date: 08/23/22
Project ID: 23100
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Sign and Seal
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M-203
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DESIGN DEVELOPMENT
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1. GENERAL CONDITIONS

A. THE APPLICABLE PROVISIONS OF THE GENERAL CONSTRUCTION SPECIFICATIONS SHALL APPLY TO THE FOLLOWING SPECIFICATION ARTICLES.

B. CONTRACTOR TO ADHERE TO ALL BUILDING STANDARDS AND BUILDING CONSTRUCTION SPECIFICATIONS AND DETAILS.

2. NOTICE TO BIDDERS

A. THE SPECIFICATIONS AND DRAWINGS ARE INTENDED TO SERVE JOINTLY AS A BASIS UPON WHICH THE CONTRACTOR SHALL SUBMIT A CONTRACT PRICE FOR THE MATERIAL AND LABOR PROVISIONS.

B. WHEN CONFLICTS OCCUR IN THE SPECIFICATIONS OR IN THE DRAWINGS, OR BETWEEN EITHER, THE ITEMS OF GREATER QUANTITY OR HIGHER COST SHALL BE PROVIDED.

C. THE CONTRACTOR SHALL PROVIDE ALL ITEMS OF LABOR OR MATERIALS NOT SPECIFICALLY INDICATED, BUT REQUIRED TO COMPLETE THE INTENDED INSTALLATIONS.

D. THE CONTRACTOR SHALL COORDINATE HIS WORK OR ADJUST SAME TO THAT OF OTHER TRADES, IN ORDER THAT CONFLICTS IN SPACE LOCATIONS DO NOT OCCUR.

E. THE WORK UNDER THIS CONTRACT SHALL BE PERFORMED SIMULTANEOUSLY WITH THE WORK OF OTHER TRADES, SO AS NOT TO DELAY THE OVERALL PROGRESS OF WORK.

F. THIS CONTRACTOR SHALL BE RESPONSIBLE FOR HIS WORK WITH IT'S COMPLETION AND FINAL ACCEPTANCE AND SHALL REPLACE ANY OF THE SAME WHICH MAY BE DAMAGED, LOST OR STOLEN, WITHOUT ADDITIONAL COST TO THE OWNER.

G. ALL DUCTWORK AND PIPING IS SHOWN DIAGRAMMATICAL AND DOES NOT SHOW ALL OFFSETS, DROPS AND RISES OF RUNS. THE CONTRACTOR SHALL ALSO ALLOW IN HIS PRICE FOR REMOVAL AND REROUTING OF NEW AND EXISTING DUCTWORK AND PIPING TO AVOID OBSTRUCTIONS. EXACT LOCATIONS SUBJECT TO APPROVAL OF ARCHITECT. MAINTAIN MAXIMUM PIPE AND DUCT ELEVATIONS.

H. REMOVAL AND RELOCATION OF CERTAIN EXISTING WORK WILL BE NECESSARY FOR THE PERFORMANCE OF THE GENERAL WORK. ALL EXISTING CONDITIONS CANNOT BE COMPLETELY DETAILED ON THE DRAWINGS. THE CONTRACTOR SHALL SURVEY THE SITE AND INCLUDE ALL CHANGES IN MAKING UP THE WORK PROPOSAL.

I. SUBMISSION OF A PROPOSAL SHALL BE CONSTRUED AS EVIDENCE THAT A CAREFUL EXAMINATION OF THE PORTIONS OF THE EXISTING BUILDING EQUIPMENT, ETC., WHICH AFFECT THIS WORK AND THE ACCESS TO SUCH SPACES HAS BEEN MADE AND THAT THE CONTRACTOR IS FAMILIAR WITH EXISTING CONDITIONS AND DIFFICULTIES THAT WILL AFFECT THE EXECUTION OF THE WORK. LATER CLAIMS SHALL NOT BE MADE FOR LABOR, EQUIPMENT OR MATERIALS REQUIRED BECAUSE OF DIFFICULTIES ENCOUNTERED WHICH COULD HAVE BEEN FORESEEN DURING SUCH AN EXAMINATION.

3. OPERATING AND MAINTENANCE INSTRUCTIONS

A. AFTER FINAL TEST AND ADJUSTMENTS FULLY INSTRUCT OWNER'S OPERATING PERSONNEL IN ALL DETAILS OF OPERATION FOR EQUIPMENT INSTALLED. A SIGNED RECEIPT WHICH SHALL BE OBTAINED FROM THE OPERATOR SHALL BE CONSTRUED AS EVIDENCE THAT INSTRUCTIONS WERE SATISFACTORY.

B. FURNISH TWO (2) COPIES OF WRITTEN DESCRIPTIONS OF ALL SYSTEMS COVERING ALL MANUAL OPERATING PROCEDURES, AUTOMATIC CONTROL DESCRIPTIONS AND AUTOMATIC CONTROL TEMPERATURE AND PRESSURE SETTINGS. WRITTEN DESCRIPTIONS SHALL INCLUDE LUBRICATION SCHEDULES, PARTS LIST, PERFORMANCE SERVICE FOR EQUIPMENT, FILTER SIZE/QUANTITY SCHEDULE, ETC. WHEN MANUFACTURERS' STANDARD INSTRUCTIONS ARE UTILIZED, THEY SHALL BE CLEARLY MARKED IN INDICATE APPLICABILITY.

4. SHOP DRAWINGS AND EQUIPMENT SUBMISSIONS

A. PRIOR TO SHIPMENT OF EQUIPMENT OR START OF INSTALLATION OF SYSTEM COMPONENTS, SUBMIT THE FOLLOWING FOR APPROVAL:

1) A MINIMUM OF FOUR (4) SETS OF DETAILED CONSTRUCTION SHOP DRAWINGS FOR DUCTWORK LAYOUT, PIPING LAYOUT, EQUIPMENT AND SYSTEMS. DRAWINGS SHALL INDICATE ALL DIMENSIONS, MATERIALS OF CONSTRUCTION AND METHODS OF ASSEMBLY.

2) EQUIPMENT SUBMITTALS FOR ALL EQUIPMENT, ASSOCIATED DEVICES AND MATERIALS INDICATING CAPACITIES AND PERFORMANCE DATA.

3) SHEET METAL SHOP DRAWINGS SHALL BE AT A MINIMUM OF 3/8" = 1'–0" SCALE. THESE SHOP DRAWINGS SHALL BE USED AS THE COORDINATION DRAWINGS FOR ALL TRADES.

4) IN LETTER FORM, MANUFACTURER'S NAMES FOR ACCESSORIES AND INCIDENTALS NOT COVERED BY SHOP DRAWINGS.

5) ELECTRIC WIRING DIAGRAMS AND AUTOMATIC CONTROL DIAGRAMS AND SEQUENCE OF OPERATION. THE WIRING DIAGRAMS MUST BE COMPLETE AND COORDINATED WITH THE EQUIPMENT ACTUALLY INSTALLED.

5. RECORD DRAWING

A. REPRODUCIBLE RECORD DRAWINGS SHALL BE SUPPLIED UPON WHICH CORRECTIONS SHALL BE MADE TO PROVIDE AN ACCURATE AND COMPLETE RECORD OF THE WORK AS INSTALLED.

6. APPROVALS AND SUBSTITUTIONS

A. IT IS THE INTENT OF THESE SPECIFICATIONS THAT WHEREVER A MANUFACTURER IS SPECIFIED AND SUBSTITUTIONS ARE MADE, THEY SHALL CONFORM IN ALL RESPECTS TO THE SPECIFIED ITEM. CRITERIA AS DELINEATED FOR EQUIPMENT SHALL BE INTERPRETED AS MINIMUM PERFORMANCE REQUIREMENTS.

B. BASE ALL BIDS ON THE EQUIPMENT AND MANUFACTURERS LISTED. IF SUBSTITUTION IS PROPOSED, MAKE APPLICATION TO THE OWNER IN WRITING STATING THE COST DIFFERENTIAL INVOLVED.

7. PERFORMANCE TESTS

A. UPON COMPLETION OF THE INSTALLATION, TEST AND BALANCE ALL EQUIPMENT AND SYSTEMS UNDER FIELD OPERATING CONDITIONS TO DEMONSTRATE IT'S COMPLIANCE WITH SPECIFICATION REQUIREMENTS.

B. SHOULD ANY PART OF THE SYSTEM FAIL TO MEET THE CONTRACT REQUIREMENTS, ADJUST, REPAIR OR REPLACE ALL DEFECTIVE OR INOPERATIVE PARTS AND AGAIN CONDUCT THE COMPLETE PERFORMANCE TEST.

C. SUBMIT TEST RESULTS TO THE OWNER AND ENGINEER.

8. TESTING, ADJUSTMENTS AND BALANCING

A. AIR SYSTEM BALANCING SHALL BE PERFORMED BY AN INDEPENDENT CERTIFIED TESTING AND BALANCING FIRM WITH A MINIMUM OF FIVE YEARS' EXPERIENCE. SUBMIT EVIDENCE OF QUALIFICATIONS.

B. MAKE ALL REQUIRED ADJUSTMENTS OF AIR SYSTEM DEVICES UNTIL ALL SPECIFIED PERFORMANCES ARE MET. PROVIDE VOLUME DAMPERS AS REQUIRED FOR FINAL BALANCING OF AIR SYSTEMS.

C. BALANCE ALL SUPPLY, RETURN FRESH AIR INTAKE AND EXHAUST DUCTWORK TO THE QUANTITIES INDICATED ON THE DRAWINGS WITH FOLLOWING TOLERANCES:

1) FANS – DESIGN VOLUME PLUS 5%.

2) LEAKAGE – 5% MAXIMUM.

3) OUTLETS – DESIGN VOLUME PLUS 5%.

D. WHEN BALANCING AIR CONDITIONING SYSTEMS AND FANS, CONTRACTOR WILL FURNISH AND INSTALL THE REQUIRED PULLEYS, SHEAVES AND BELTS TO OBTAIN THE DESIGN AIR QUANTITIES AND OPERATING STATIC PRESSURE.

9. VERIFYING EXISTING CONDITIONS, REMOVALS AND ALTERATION

A. THE CONTRACTOR SHALL VISIT THE PREMISES TO DETERMINE EXISTING CONDITIONS AND COMPARE SAME WITH DRAWINGS AND SPECIFICATIONS AND SATISFY HIMSELF OF ALL CONDITIONS PRIOR TO THE SUBMISSION OF A BID PROPOSAL. NO ALLOWANCES WILL BE MADE FOR THE FAILURE TO COMPLY WITH THESE REQUIREMENTS AND A BID PROPOSAL SHALL BE CONSTRUED AS EVIDENCE HE HAS DONE SO.

10. CODES, PERMITS AND INSPECTIONS

A. ALL WORK SHALL MEET OR EXCEED LATEST REQUIREMENT OF NATIONAL, STATE, COUNTY, MUNICIPAL AND OTHER AUTHORITIES EXERCISING JURISDICTION OF THE WORK OF THIS PROJECT.

B. ANY PORTION OF THE WORK WHICH IS NOT SUBJECT TO APPROVAL OF AN AUTHORITY HAVING JURISDICTION SHALL BE PROVIDED IN ACCORDANCE WITH NATIONAL FIRE PROTECTION ASSOCIATION REQUIREMENTS.

C. COMPLY WITH APPLICABLE UTILITY COMPANY RULES AND REGULATIONS.

D. COMPLY WITH OCCUPATIONAL SAFETY AND HEALTH ACT (OSHA) REQUIREMENTS.

E. SECURE PERMITS AND INSPECTION CERTIFICATES AND TRANSMIT SAME TO THE OWNER AT THE COMPLETION OF THE WORK.

11. CODE APPROVAL

A. UPON COMPLETION OF THIS HVAC SYSTEM, A TEST SHALL BE CONDUCTED IN THE PRESENCE AND UNDER THE DIRECTION OF A LICENSED AND PROFESSIONAL ENGINEER OR REGISTERED ARCHITECT BEFORE THE SYSTEM IS APPROVED.

B. THE LICENSED PROFESSIONAL ENGINEER OR REGISTERED ARCHITECT WHO CONDUCTS THE TEST SHALL CERTIFY THAT THE SYSTEM COMPLIES WITH APPLICABLE LAWS. HE SHALL ALSO FILE WITH THIS CERTIFICATION A REPORT OF THE TEST. THE TEST AND REPORT SHALL BE MADE IN A MANNER SATISFACTORY TO THE SUPERINTENDENT.

C. A STATEMENT SHALL BE FILED BY THE OWNER THAT THE SYSTEM OF VENTILATION WILL BE KEPT IN CONTINUOUS OPERATION AT ALL TIMES DURING NORMAL OCCUPANCY OF THE STRUCTURE THAT'S PROVIDED IN THE APPLICABLE SECTIONS OF THE CODE.

D. ALL FIRE DAMPERS SHALL BE TYPE APPROVED BY THE BOARD OF STANDARDS AND APPEALS.

E. VENTILATION SYSTEM INSTALLED WILL COMPLY WITH RULES OF THE DEPARTMENT OF THE BUILDING IN EFFECT.

12. GUARANTEE AND SERVICE

A. THE CONTRACTOR SHALL GUARANTEE AND SERVICE THE ENTIRE INSTALLATION FOR A PERIOD OF ONE YEAR FROM THE DATE OF THE FINAL ACCEPTANCE OF THE INSTALLATION.

B. THE CONTRACTOR SHALL, DURING THE PERIOD OF THE GUARANTEE, REPLACE OR REPAIR AT HIS OWN EXPENSE ANY PIECE OF EQUIPMENT AND/OR MATERIAL WHICH IS FOUND TO BE DEFECTIVE. THE REPLACEMENT OR REPAIR SHALL BE PERFORMED THE SAME DAY OF NOTIFICATION IN AN EMERGENCY FASHION WHEN NOTIFIED BY THE OWNER OR AUTHORIZED REPRESENTATIVE. THE CONTRACTOR SHALL ALSO REPAIR ALL DAMAGE TO SURROUNDING WORK CAUSED BY THE FAILURE, REPAIR OR REPLACEMENT OF DEFECTIVE EQUIPMENT.

C. ALL REFRIGERATION COMPRESSORS SHALL HAVE A FACTORY GUARANTEE INCLUDING PARTS AND LABOR FOR FIVE YEARS TOTAL.

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

13. WORK INCLUDED UNDER OTHER SECTIONS OF WORK

A. ITEMS OF WORK WHICH SHALL BE INCLUDED UNDER OTHER SECTIONS OF WORK ARE AS FOLLOWS:

1) REPAIR OF FIREPROOFING DAMAGED DURING THE INSTALLATION OF HANGERS FOR DUCTWORK AND PIPING.

2) PROVISION OF ELECTRICAL DISCONNECT SWITCHES OR FUSES.

3) ELECTRICAL WIRING FOR POWER, AUTOMATIC, SAFETY AND INTERLOCKING CONTROLS.

4) PROVISION OF DUCT MOUNTED SMOKE DETECTORS (TO BE FURNISHED AND INSTALLED BY ELECTRICAL CONTRACTOR).

5) FINISH PAINTING OF EQUIPMENT (EXCEPT FACTORY SUPPLIED AND SPECIFIED).

6) STEEL DUNAGES, BASES OR CURBS.

14. SHEET METAL DUCTWORK

A. ALL DUCTWORK, DAMPERS AND ALL AUXILIARY DEVICES AND WORK NECESSARY TO MAKE THE VARIOUS AIR CONDITIONING AND VENTILATING SYSTEMS COMPLETE AND READY FOR SATISFACTORY OPERATION SHALL BE FURNISHED AND INSTALLED.

B. ALL LOW PRESSURE DUCTS SHALL BE GALVANIZED STEEL (24 GAUGE MINIMUM), EXCEPT WHERE OTHERWISE SPECIFIED, WITH GAUGES, BRACING AND CONSTRUCTION IN ACCORDANCE WITH THE LATEST SMACNA DUCT MANUAL STANDARDS. DRIVE SLIPS AND SNAP LOCK CONNECTIONS ARE NOT PERMITTED. TOTAL AIR VOLUME FOR LOW PRESSURE DUCT SYSTEMS SHALL BE AT LEAST 95% OF FAN SUPPLY WHEN MEASURED BY DUCT TRAVERSES TAKEN WITH A PITOT TUBE AND WATER MANOMETER.

C. ALL LOW PRESSURE SUPPLY, RETURN AND EXHAUST DUCTWORK SHALL BE FABRICATED IN ACCORDANCE WITH SMACNA STANDARDS FOR 2" WG CONSTRUCTION.

D. PROVIDE MANUAL DAMPERS IN EACH SPLIT OR TAP CONNECTION TO TRUNK DUCTS FOR BALANCING PURPOSES, EACH PROVIDED WITH OPERATOR AND LOCKING DEVICE. INSTALL DIVERTING VANES AT BRANCHES CONNECTED INTO THE MAIN WITHOUT A NECK.

E. PROVIDE FUSIBLE LINK FIRE DAMPERS AT LOCATIONS SHOWN ON DRAWINGS AND WHERE NECESSARY TO COMPLY WITH LOCAL OR OTHER AGENCIES OR JURISDICTIONS REQUIRING THEIR INSTALLATIONS AND IN COMPLIANCE WITH THEIR CONSTRUCTION REQUIREMENTS. FUSIBLE LINK FIRE DAMPERS SHALL BE AS MANUFACTURED BY RUSKIN MFG. CO., MODEL NO. 1BD2, TYPE "B" (BSA 292–72–SA) OR APPROVED EQUAL. FUSIBLE LINK DAMPERS SHALL BE UL RATED STEEL CURTAIN TYPE WITH RECESSED FRAMES.

F. PROVIDE HANGERS AND FASTENINGS ADEQUATE TO INSURE PERMANENT STABILITY AND IN COMPLIANCE WITH LOCAL CODE REQUIREMENTS. WHERE REQUIRED, PROVIDE SUPPLEMENTARY STEEL ANGLES OR CHANNELS. DO NOT HANG OR SUPPORT ONE DUCT FROM ANOTHER.

G. ALL 90 DEGREE ELBOWS ARE TO BE FULL RADIUS THROAT AND HEEL. IF SQUARE ELBOW IS USED DUE TO LIMITED SPACE, TURNING VANES, DOUBLE AIRFOIL TYPE WILL BE USED. ALL TRANSITIONS, OFFSETS, DROPS OR RAISES ARE TO HAVE RADIUS TYPE LAYOUT. NO SHARP ANGLED FITTINGS (MORE THAN 15 DEGREES) SHALL BE USED.

H. DUCTWORK LAYOUTS AND ROUTES AS SHOWN ON THE DRAWING ARE SCHEMATIC; THEREFORE, CHANGES IN DUCT SIZES AND/OR LOCATIONS SHALL BE MADE WHERE NECESSARY TO CONFORM TO SPACE CONDITIONS OR OBTAIN MAXIMUM HEADROOM CONDITIONS WITHOUT ADDITIONAL COST TO THE OWNER.

I. AIR DIFFUSERS AND GRILLES SHALL BE LOCATED IN CONFORMANCE TO ARCHITECTURAL REFLECTED CEILING PLANS, WHERE SO INDICATED.

J. WHERE DUCTS ARE REQUIRED TO BE REMOVED, ALL OPENINGS IN REMAINING DUCTS SHALL BE CAPPED AIRTIGHT.

K. WHERE DUCTS ARE SHOWN TO BE ACOUSTICALLY LINED, THE SIZES SHOWN ON THE PLANS SHALL BE THE CLEAR INSIDE DIMENSIONS WHEN LINING IS TO BE PROVIDED.

L. ALL LOW PRESSURE DUCTWORK WITH A STATIC PRESSURE OF 2 INCHES WATER GAUGE OR LESS SHALL BE SEALED WITH DUCT SEALANT TO MAINTAIN A LEAKAGE RATE OF NO GREATER THAN 5 PERCENT OF AIR VOLUME. APPLY DUCT SEALANT TO ALL TRANSVERSE SEAMS AND JOINTS.

M. WHERE THE TRADE ELECTS TO USE "DUCT–MATE" FOR JOINTS OR SIMILAR PRODUCT, PVC CLIPS ARE NOT PERMITTED (USE METAL) AND ALL CORNERS SHALL BE BOLTED (BOLTLESS CONNECTORS ARE NOT PERMITTED) EXCEPT WHERE LOCAL CODES PERMIT DUCT–MATE JOINTS AS BREAKAWAY CONNECTION AT FIRE DAMPERS. ONLY GASKETS MANUFACTURED BY DUCT–MATE ARE ACCEPTABLE.

N. WHERE SHOWN ON DRAWINGS AND UNLESS OTHERWISE SPECIFIED, OUTDOOR LOUVERS TO BE PROVIDED AS MANUFACTURED BY ARROW LOUVER AND DAMPER CO. OR CONSTRUCTION SPECIALTIES. LOUVERS SHALL BE AN EXTRUDED ALUMINUM STRUCTURE WITH AN ANODIZED ALUMINUM MILL FINISH OR FINISH AS SPECIFIED BY THE BUILDING MANAGEMENT. LOUVERS ARE ALSO TO BE PROVIDED WITH 1/2" WIRE MESH ALUMINUM BIRD SCREENS. ALL LOUVER SECTIONS NOT IN USE SHALL BE BLANKED–OFF WITH AN INSULATED SHEET METAL PANEL.

O. AUTOMATIC DAMPERS REQUIRING MODULATING CONTROL SHALL BE RUSKIN DAMPER CO., MODEL CD60 OPPOSED BLADE DAMPER. DAMPER BLADES TO BE CONSTRUCTED OF 14 GAUGE GALVANIZED STEEL. BLADES TO BE ROLLED FORMED AIR FOIL TYPE ENGINEERED FOR MINIMUM AIR LEAKAGE WITH RUSKIPRENE SEALS FITTED INTO MECHANICALLY LOCKED GROOVE INSERTS IN BLADE EDGE. JAMB SEALS SHALL BE FLEXIBLE METAL, COMPRESSION TYPE TO PREVENT LEAKAGE BETWEEN BLADE DAMPER AND FRAME. DAMPER BLADE BEARINGS SHALL BE OF STAINLESS STEEL SLEEVE. DAMPERS SHALL BE CERTIFIED THAT LEAKAGE SHALL NOT EXCEED 1% WITH THE DAMPER CLOSED AND HOLDING 5" W.G. PRESSURE ACROSS THE FACE.

15. GRILLES, REGISTERS AND DIFFUSERS – GENERAL

A. FURNISH AND INSTALL ALL METAL DIFFUSERS, GRILLES AND REGISTERS AS INDICATED ON DRAWINGS. ALL SIZES, AIR DISTRIBUTION PATTERNS AND AIR VOLUME CAPACITIES SHALL BE AS SPECIFIED ON THE DRAWINGS.

B. AIR SUPPLY REGISTERS SHALL BE PROVIDED WITH ADJUSTABLE FACE LOUVERS PARALLEL TO THE LONG DIMENSION. PROVIDE KEY OPERATED OPPOSED BLADE DAMPERS FIXEDLY ATTACHED TO THE GRILLES.

C. AIR RETURN GRILLES AND REGISTERS SHALL BE PROVIDED WITH FIXED FACE LOUVERS PARALLEL TO THE LONG DIMENSION AND SET AT 45 DEGREE ANGLE. FOR REGISTERS, PROVIDE KEY OPERATED OPPOSED BLADE DAMPERS FIXEDLY ATTACHED TO THE GRILLES.

D. ALL AIR OUTLETS SHALL BE STEEL AND SHALL BE FACTORY PAINTED WITH ACRYLIC WHITE ENAMEL PAINT FINISH OR OTHER COLOR AS DIRECTED BY ARCHITECT.

E. ALL CEILING TYPE AIR DIFFUSERS SHALL BE PROVIDED WITH EQUALIZING DEFLECTOR AND VOLUME DAMPERS.

F. WHERE INDICATED ON DRAWINGS, REGISTERS INDICATED AS UNDERWRITERS' APPROVED SHALL BE FURNISHED WITH A FUSIBLE LINK SELF–CLOSING REGISTER HAVING FUSIBLE LINK APPROVED BY UNDERWRITERS' LABORATORIES.

G. A SCHEDULE OF DIFFUSERS, GRILLES AND REGISTERS WITH MANUFACTURERS' MODELS, SIZES, ACCESSORIES, FINISHES, ETC., SHALL BE SUBMITTED FOR APPROVAL PRIOR TO RELEASE FOR FABRICATION AND DELIVERY.

16. INSULATION REQUIREMENTS

A. INSULATION SHALL BE APPLIED TO DUCTWORK OF MATERIALS AS SPECIFIED HEREIN AND FOR APPLICABLE SYSTEMS OF THIS PROJECT.

B. INSULATION SHALL BE CONTINUOUS THROUGH WALL AND SLAB OPENINGS.

C. INSULATION OF COLD SURFACES WHERE VAPOR BARRIER JACKETS ARE SPECIFIED SHALL BE APPLIED WITH AN UNBROKEN VAPOR SEAL. HANGERS AND SUPPORTS THAT ARE SECURED TO COLD SURFACES SHALL BE ADEQUATELY INSULATED TO PREVENT CONDENSATION.

D. WHERE INSULATION IS SPECIFIED FOR PIPING, INSULATE SIMILARLY ALL CONNECTIONS, VENTS, DRAINS, FLANGES, FITTINGS, VALVES, TANKS, PUMP CASINGS AND OTHER PARTS OF THE SYSTEM SUBJECT TO HEAT GAIN OR LOSS AND TO PREVENT CONDENSATION.

E. NOTE THAT EQUIPMENT CASINGS, WHICH ARE INTERNALLY AND ACOUSTICALLY INSULATED, NEED NOT BE INSULATED IN THE EXTERIOR. ACOUSTIC LINED SUPPLY DUCTWORK SHALL BE INSULATED EXTERNALLY IN ADDITION TO ACOUSTIC LINING.

F. DUCTWORK INSULATION

1) ALL NEW AND EXISTING SHEET METAL SUPPLY DUCTWORK SHALL BE INSULATED WITH 1–1/2" THICK FLEXIBLE DUCT INSULATION, 0.75 LB/CU.FT. DENSITY WITH A MAX. K FACTOR OF .30 AT 75° MEAN TEMPERATURE, WITH REINFORCED FOIL FACED, FLAME RESISTANT, ALUMINUM FOIL VAPOR BARRIER. INSULATION AND FACING WILL HAVE A COMBINED FLAME SPREAD RATING NO GREATER THAN 25 AND SMOKE DEVELOPED RATING NOT EXCEEDING 50. ALL INSULATION SHALL BE SECURED WITH DUCT ADHESIVE AND SEEMS SEALED BY TWO–INCH SEALING LIP WITH ADHESIVE AND FASTENED WITH 16 GAUGE RUST RESISTANT WIRE OR FIBERGLASS CORD ON 12" CENTERS. ON DUCTS OVER 24" WIDE, WELDED PINS AND CLIPS SHALL BE USED ON THE UNDERSIDE FOR FASTENING INSULATION.

2) FRESH AIR INTAKE, MIXED AIR DUCTWORK AND PLENUMS HANDLING OUTDOOR AIR, TEMPERED DUCTWORK IN UNCONDITIONED SPACES OR OUTDOORS AND LOUVER BLANK–OFF PANELS SHALL BE INSULATED WITH 2" RIGID DUCT INSULATION 4.2 LBS/CU.FT. DENSITY WITH A MAX. K FACTOR OF .24 AT 75 DEGREE MEAN TEMPERATURE WITH WHITE VINYL FOIL BARRIER FACING (EQUIVALENT R–8). INSULATION AND FACING WILL HAVE A COMBINED FLAME SPREAD RATING NO GREATER THAN 25 AND SMOKE DEVELOPED RATING NOT EXCEEDING 50. INSULATION SHALL BE IMPALED OVER WELDED PINS WITH CLIPS FIRMLY EMBEDDED INTO INSULATION. ALL JOINTS AND CLIPS SHALL BE SEALED WITH MATCHING STRIPS OF VINYL COATED VAPOR BARRIER LAMINATE SIMILAR TO OWENS CORNING 24 ASJ FOR DUCTS.

G. PIPING INSULATION

1) CONDENSATE DRAIN PIPING SHALL BE INSULATED WITH 1" THICK MOLDED GLASS FIBER WITH A MAXIMUM K FACTOR OF .24 AT 75 DEGREE F MEAN TEMPERATURE AND FACTORY APPLIED VAPOR BARRIER JACKET. INSULATION AND JACKET WILL HAVE A COMBINED FLAME SPREAD RATING NO GREATER THAN 25 AND SMOKE DEVELOPED RATING NOT EXCEEDING 50.

2) ALL PIPING INSULATION TO BE INSTALLED WITH LONGITUDINAL LAP AND VAPOR BARRIER JOINT SEAL STRIPS WITH ADHESIVE OR SELF–SEALING LAPS. FITTINGS AND VALVES SHALL BE INSULATED WITH MOLDED FITTINGS MITERED SEGMENTS OR COMPRESSED BLANKET INSULATION. ALL EXPOSED PIPING SHALL HAVE FACTORY ATTACHED PRE–SIZED GLASS CLOTH COVERED VAPOR BARRIER JACKET. EXPOSED PIPE FITTINGS SHALL BE FINISH WITH OPEN WEAVE FABRIC AND TWO COATS OF VAPOR BARRIER COATING.

3) FITTINGS AND VALVES SHALL BE INSULATED WITH SEGMENTS OF THE MOLDED INSULATION OR MOLDED FIBERGLASS FITTINGS WIRED SECURELY IN PLACE. FLANGES SHALL BE INSULATED WITH SECTIONAL PIPE INSULATION EXTENDING A MINIMUM OF 1" BEYOND THE END OF THE BOLTS. BOLT AREA TO BE FILLED WITH MINERAL WOOD CEMENT. THICKNESS OF FITTINGS, VALVE AND FLANGE INSULATION SHALL BE SAME AS ADJOINING PIPE INSULATION. CONCEALED FITTINGS, ETC., MAY BE INSULATED WITH 1 LB. FIBERGLASS BLANKET WRAPPED FIRMLY UNDER COMPRESSION, 2 TO 1 AND SECURED WITH COPPER–CLAD WIRE.

4) INSULATION PIPE HANGER SHIELD SHALL BE INSTALLED AT HANGERS FOR INSULATED PIPING. SHIELD LENGTH AND MINIMUM SHEET METAL GAUGE SHALL CONFORM TO THE FOLLOWING SCHEDULE:

PIPE SIZE	SHIELD LENGTH	MINIMUM GAUGE
1/2" TO 1–1/2"	4"	16
2" TO 6"	6"	20

H. ACOUSTICAL TREATMENT

1) FURNISH AND INSTALL ACOUSTICAL LINING IN DUCTWORK PLENUMS AND CASINGS AS SHOWN ON THE DRAWINGS AND AS SPECIFIED HEREIN.

2) ACOUSTICAL LINING WILL BE AS MANUFACTURED BY OWENS CORNING. FIBERGLASS DUCT LINER WILL BE A 1–1/2 LBS. PER CU.FT. DENSITY SEMI–RIGID GLASS FIBER BOARD WITH BINDER COAT ON AIR SIDE, MAXIMUM K FACTOR OF 0.24 AT 75 DEGREES F MINIMUM FOR USE AT AIR VELOCITIES UP TO 6000 FPM. ACOUSTICAL LINING WILL HAVE A FLAME SPREAD RATING NO GREATER THAN 25 AND SMOKE DEVELOPED RATING NOT EXCEEDING 50. BINDER COAT TO BE BLACK FOR DETECTION OF DAMAGE TO BINDER SURFACE.

3) INSTALL LINER IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. COMPLETELY COVER ALL PORTIONS OF DUCTWORK PLENUMS AND CASINGS WITH APPROVED ADHESIVE. INSTALL LINER WITH ALL TRAVERSE JOINTS NEATLY BUTTED WITH NO INTERRUPTIONS OR GAPS. COVER ALL EXPOSED EDGES, JOINTS, MECHANICAL FASTENERS AND ANY DAMAGED AREAS WITH ADHESIVE. ADDITIONALLY, SECURE LINER WITH APPROVED MECHANICAL FASTENERS INSTALLED IN ACCORDANCE WITH SMACNA DUCT LINER APPLICATION STANDARD.

4) ALL AIR CONDITIONING SUPPLY AIR DUCTWORK SHALL BE ACOUSTICALLY LINED FOR A MINIMUM DISTANCE OF 15 FEET DOWNSTREAM OF A FAN DISCHARGE WITH A MINIMUM OF ONE–INCH THICK ACOUSTICAL LINING.

5) ALL RETURN/EXHAUST FANS SHALL BE ACOUSTICALLY LINED FOR A MINIMUM DISTANCE OF 15 FEET OF THE FAN'S INTAKE AND DISCHARGE OPENINGS WITH A MINIMUM OF ONE INCH THICK ACOUSTICAL LINING.

17. ELECTRICAL WIRING AND WIRING DIAGRAMS

1) ELECTRICAL WIRING FOR 120 VOLT POWER AND GREATER SHALL BE BY THE ELECTRICAL CONTRACTOR. WIRING FOR AUTOMATIC TEMPERATURE, SAFETY AND INTERLOCKING CONTROLS FOR MOTORS, MOTOR STARTER AND OTHER MECHANICAL AND CONTROL DEVICES SHALL BE PROVIDED BY THE MECHANICAL CONTRACTOR UNDER THIS CONTRACT WORK. AT TIME OF BID THIS CONTRACTOR IS REQUIRED TO INDICATE THE NUMBER OF 120 VOLT (AND GREATER) POINTS OF POWER CONNECTION REQUIRED FOR PRICING AND INSTALLATION BY THE ELECTRICAL CONTRACTOR.

2) THE MECHANICAL CONTRACTOR SHALL PREPARE AND SUBMIT FOR APPROVAL TERMINAL POINT TO TERMINAL POINT, COMPLETELY COORDINATED AND INTEGRATED WIRING DIAGRAMS FOR ALL WIRING REQUIRING FIELD INSTALLATIONS IN ACCORDANCE WITH THE SEQUENCE OF OPERATION.

3) SPECIFIC WIRING DIAGRAMS OF FACTORY INSTALLED EQUIPMENT WIRING SHALL ALSO BE SUBMITTED FOR APPROVAL AND FURNISHED TO THE ELECTRICAL CONTRACTOR FOR HIS INSTALLATION REQUIREMENTS AND OTHER USES.

18. MOTOR STARTERS AND CONTROL DEVICES

A. FURNISH TO THE ELECTRICAL CONTRACTOR WHO SHALL ERECT AND WIRE SUITABLE STARTING AND CONTROL EQUIPMENT FOR ALL MOTORS.

B. MOTOR STARTERS SHALL BE CUTLER HAMMER, WESTINGHOUSE OR ALLEN BRADLEY MANUFACTURER, SUITABLE FOR WALL OR ANGLE IRON FRAME MOUNTING.

C. GENERAL NOTES:

1) ALL STARTERS FOR MOTORS LESS THAN 1/2 HP SHALL BE 120 VOLT, SINGLE PHASE, 60 CYCLE, A.C. SERVICE. MANUAL STARTERS WITH OVERLOAD PROTECTION AND LOCKOUT TYPE DISCONNECT SWITCH OR BREAKER MAY BE USED TO CONTROL SUCH MOTORS, EXCEPT WHERE INTERLOCKS OR AUTOMATIC CONTROLS ARE REQUIRED. IN SUCH CASES, MAGNETIC ACROSS– THE–LINE STARTERS SHALL BE FURNISHED.

2) ALL COILS, CORES, RESISTANCE, INSULATION CONTACTS, TRIPPERS, ETC., OF STARTERS AND RELAYS SHALL BE OF THE APPROVED TYPE. ALL PARTS SUBJECT TO WEAR, ARCING, ETC., SHALL BE RENEWABLE.

3) ALL WIRING, STARTERS, SWITCHES, ETC., SHALL BE IN FULL ACCORDANCE WITH ALL LOCAL AND INSURANCE UNDERWRITERS' CODE REQUIREMENTS.

4) FURNISH DETAILED COMPOSITE WIRING DIAGRAMS FOR THOSE INSTALLING ELECTRICAL WORK, AND FURNISH SUCH OTHER INFORMATION NECESSARY TO INSURE THE PROPER CONNECTION, OPERATION AND CONTROL OF MOTORIZED EQUIPMENT, INCLUDING INTERLOCKS, AUTOMATIC OR SAFETY CONTROLS AND AUXILIARY CIRCUITS.

19. VIBRATION ISOLATION SYSTEMS

A. ALL ROTATING, REVOLVING OR RECIPROCATING EQUIPMENT, INCLUDING PIPING CONNECTIONS TO THIS EQUIPMENT SHALL BE FURNISHED WITH SPRING–TYPE VIBRATION ISOLATORS, TO PREVENT THE TRANSMISSION OF OBJECTIONAL NOISES, SOUND OR VIBRATIONS TO THE OCCUPIED SPACES AND TO THE BUILDING STRUCTURES. STAINLESS STEEL BRAIDED FLEXIBLE HOSE CONNECTORS SHALL BE INSTALLED AT INLET AND DISCHARGE CONNECTIONS TO ALL PUMPS. SPRING–TYPE HANGERS SHALL BE PROVIDED FOR PIPING FOR A DISTANCE OF 20 FEET UP AND DOWNSTREAM OF ALL SUCH EQUIPMENT.

B. VIBRATION ISOLATORS FOR FLOOR OR CEILING SUPPORTED EQUIPMENT SHALL HAVE A MAXIMUM LATERAL MOTION UNDER EQUIPMENT START–UP OR SHUT–DOWN CONDITIONS OF 1/4". MOTIONS IN EXCESS SHALL BE RESTRAINED BY SPRING TYPE MOUNTINGS.

C. CEILING–HUNG FANS AND EQUIPMENT:

1) PROVIDE SPRING HANGER ROD ISOLATORS. STEEL COMPRESSION SPRING AND NEOPRENE SOUND PAD WITHIN A STEEL RETAINER BOX. SIMILAR TO MASON INDUSTRIES, INC., TYPE SLF, SLR, OR PCHS.

2) ONE (1) IN. MINIMUM STATIC DEFLECTION, 1/2 IN. MINIMUM RESERVE DEFLECTION, FACTORY–PRELOADED TO 75% OF A RATED LOAD.

3) PROVIDE SUPPLEMENTAL STEEL AS REQUIRED WHERE EQUIPMENT OR STRUCTURE CANNOT SUPPORT POINT LOADS.

D. FLOOR MOUNTED EQUIPMENT HAVING INTERNAL ISOLATION:

1) PROVIDE 3/4 IN. THICK NEOPRENE ACOUSTICAL BASE PADS OF WAFFLE CONSTRUCTION. SIMILAR TO MASON INDUSTRIES INC. TYPE SUPER W PADS.

2) 50 PSI MAXIMUM LOADING. PROVIDE STEEL BEARING PLATE TO DISTRIBUTE LOAD WHERE REQUIRED.

3) ALL FLOOR MOUNTED EQUIPMENT SHALL BE ERECTED ON 4" STEEL REINFORCED CONCRETE PADS OVER THE COMPLETE FLOOR AREA OF THE EQUIPMENT, UNLESS INDICATED TO THE CONTRARY ON THE DRAWINGS.

4) VIBRATION ISOLATOR SHALL BE PROVIDED BY EITHER OF THE FOLLOWING MANUFACTURERS:

A) MASON INDUSTRIES
B) VIBRATION ELIMINATOR CO.
C) CONSOLIDATED KINETICS CO.

20. PIPING INSTALLATIONS AND REQUIREMENTS

A. FURNISH AND INSTALL PIPING WHICH IS SCHEMATICALLY INDICATED AND SIZED ON DRAWINGS. PIPING TO BE INSTALLED TO MEET SPECIFIED HEADROOM OR FIELD CONDITIONS. PIPING SHALL CONFORM TO LATEST ASME CODES FOR PRESSURE PIPING.

B. PROVIDE PROPER PROVISION FOR EXPANSION AND CONTRACTION IN PIPE WORK TO PREVENT UNDUE STRAINS ON PIPING OR APPARATUS CONNECTED.

C. FURNISH AND INSTALL PIPING HANGERS, SUPPORTS, ANCHORS AND GUIDES HAVING A BUILT–IN SAFETY FACTOR OF FIVE (5); IN CONFORMANCE TO THE LATEST ANSI B31.9 CODE FOR PRESSURE PIPING AND MSS STANDARD PRACTICE SP–58 AND SP–69. ALL HANGER SPECIFICATIONS SHALL BE FURNISHED WITH ZINC CHROMATE PRIME PAINT FINISH.

D. SUPPORT HANGERS FROM BUILDING STEEL FRAMING WITH APPROVED TYPE CLAMP INSERT. PROVIDE ADDITIONAL STEEL SUPPORTS BETWEEN EXISTING FRAMING MEMBERS AS REQUIRED. ALL PIPE HANGING RODS, INSERTS AND CLAMPS SHALL BE U.L. APPROVED FOR THEIR RESPECTIVE USES. DO NOT HANG PIPING FROM OTHER PIPING.

E. PROVIDE PIPE HANGERS WITH SHIELDS ON ALL INSULATED PIPING.

F. UNLESS OTHERWISE SPECIFICALLY APPROVED, HANGER SIZE AND SPACING SHALL BE AS FOLLOWS:

COPPER TUBING

PIPE SIZES	MAXIMUM HANGER SPACING	MINIMUM ROD SIZES
1/2" TO 1–1/4"	6 FT. O.C.	3/8"

THE ABOVE HANGER SPACINGS APPLY TO STRAIGHT RUNS OF PIPE ONLY. AT POINTS WHERE VALVES, SPECIALTIES OR BRANCH CONNECTIONS ARE LOCATED, ADDITIONAL HANGERS OR SUPPORTS SHALL BE USED TO PROPERLY SUPPORT THE LOAD.

21. SLEEVES AND ESCUTCHEONS FOR PIPING

A. PIPE PENETRATIONS THROUGH MASONRY/CONCRETE WALLS, FLOORS, ROOF CONSTRUCTION AND FRAMED PARTITIONS SHALL HAVE A TRIM OPENING CUT NOT GREATER THAN NECESSARY FOR THE INSTALLATION OF A SLEEVE SECURED THEREIN. THE SPACE BETWEEN THE PIPE AND ITS SLEEVE SHALL NOT EXCEED ONE–HALF INCH.

B. SLEEVES SHALL BE FLUSH WITH THE FINISHED WALL OR PARTITION SURFACE.

C. ANNULAR SPACES BETWEEN PIPING AND SLEEVES OR CORE DRILLED FLOOR OPENINGS SHALL BE PACKED WITH MINERAL WOOL AND SEALED TO RETAIN THE FIRE INTEGRITY OF THE WALLS, PARTITIONS AND FLOORS WITH A NON–HARDENING COMPOUND SIMILAR TO DUXSEAL AS MANUFACTURED BY THE J.M. CLIPPER CORPORATION.

D. SLEEVES FOR PIPING THROUGH MASONRY WALL SHALL BE SCHEDULE 40, STANDARD GALVANIZED STEEL PIPE; IN FRAMED PARTITIONS SHALL BE 18 GAUGE SHEET METAL. THE SPACE BETWEEN THE PIPE AND ITS SLEEVE SHALL NOT EXCEED ONE–HALF (1/2) INCH.THE SLEEVE SHALL BE FLUSH WITH THE FINISHED WALL SURFACES.

E. PIPING IN EXPOSED AREAS, PASSING THROUGH WALLS, FLOORS OR CEILINGS SHALL BE FITTED WITH CHROMIUM–PLATED CAST BRASS ESCUTCHEONS WITH FASTENING SET SCREWS.

22. PIPING MATERIALS AND FITTINGS

A. PIPING MATERIALS AND FITTINGS SHALL BE PROVIDED IN ACCORDANCE WITH THE FOLLOWING SCHEDULE:

SERVICE	PIPING MATERIAL	FITTINGS
HOT WATER	HARD TEMPER COPPER TYPE "L"	WROUGHT COPPER BRAZED
REFRIGERANT	HARD TEMPER COPPER TYPE "L"	WROUGHT COPPER BRAZED
DOMESTIC COLD	85% RED BRASS	BRASS SCREWED
CONDENSATE DRAIN LINES	HARD TEMPER COPPER TYPE "L" ASTM B–88	WROUGHT COPPER SOLDER ANSI B16.18

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GENERAL NOTE

EACH CONTRACTOR IS RESPONSIBLE FOR ALL COORDINATION WITH OTHER TRADES AND THE GENERAL CONTRACTOR, FOR ALL WORK. HE IS TO EXAMINE ALL DRAWINGS AND SPECIFICATIONS OF ALL OTHER TRADES PRIOR TO INSTALLATION OF HIS WORK. IF ANY OF HIS WORK IS CALLED FOR ON ANY OTHER DRAWINGS AND SPECIFICATIONS, IT IS THEIR RESPONSIBILITY TO PROVIDE THAT WORK WHETHER CALLED FOR ON HIS DRAWINGS OR NOT. A FULL SET OF DRAWINGS AND SPECIFICATIONS ARE ON FILE AT THE ARCHITECT'S OFFICE, FOR THEIR REVIEW.

Project Title
THE SALVATION ARMY WAREHOUSE
440 WEST NYACK ROAD
WEST NYACK, NY 10994

Sheet Title
MECHANICAL SPECIFICATIONS

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