PRMH20250492

GENERAL NOTES

1. ALL WORK PERFORMED SHALL BE DONE IN STRICT ACCORDANCE TO ALL APPLICABLE MECHANICAL, BUILDING, ENERGY, FUEL GAS, AND LOCAL CODES, WITH AMENDMENTS.
2. WHERE USED, THE TERM "PROVIDE" SHALL MEAN "FURNISH AND INSTALL".
3. COORDINATE MECHANICAL WORK WITH ELECTRICAL, ARCHITECTURAL, STRUCTURAL, CIVIL AND LANDSCAPE WORK SHOWN ON OTHER CONTRACT DOCUMENTS. PROVIDE ADDITIONAL OFFSETS FOR COORDINATED INSTALLATION WHERE REQUIRED.
4. COORDINATE HVAC, PLUMBING, AND FIRE PROTECTION WORK PRIOR TO INSTALLATION. DUCTWORK AND EQUIPMENT ACCESS TAKES PRECEDENCE OVER ALL PIPING EXCEPT GRAVITY SYSTEMS FOR AVAILABLE SPACE.
5. CONTRACTOR IS RESPONSIBLE FOR CONFORMANCE WITH ALL PLANS AND SPECIFICATIONS. IF A DISCREPANCY EXISTS BETWEEN ANY PLAN AND/OR SPECIFICATION, THE MORE STRINGENT REQUIREMENT SHALL BE FOLLOWED. CONTRACTOR IS ENCOURAGED TO SUBMIT RFI'S BEFORE BID TO CLARIFY PLAN AND SPECIFICATION INTENT.
6. COORDINATE EQUIPMENT CONNECTIONS WITH MANUFACTURERS' CERTIFIED DRAWINGS. COORDINATE AND PROVIDE DUCT AND PIPING TRANSITIONS REQUIRED FOR FINAL EQUIPMENT CONNECTIONS TO FURNISHED EQUIPMENT. FIELD VERIFY AND COORDINATE DUCT AND PIPING DIMENSIONS BEFORE FABRICATION.
7. CLEAN THE JOB SITE DAILY AND REMOVE FROM THE PREMISES ANY DIRT AND DEBRIS CAUSE BY THE PERFORMANCE OF THE WORK INCLUDED IN THIS CONTRACT. BEFORE SUBSTANTIAL COMPLETION, CLEAN EQUIPMENT, FIXTURES, EXPOSED DUCTS, PIPING AND SIMILAR ITEMS.
8. PROVIDE EQUIPMENT THAT FITS INTO THE SPACE ALLOTTED AND ALLOWS ADEQUATE ACCEPTABLE CLEARANCE FOR INSTALLATION, REPLACEMENT, SERVICING, AND MAINTENANCE. COORDINATE WITH OTHER TRADES TO ENSURE NO CONFLICT WITH REQUIRED CLEARANCES.
9. CONTRACTOR SHALL OBTAIN & PAY FOR ALL PERMITS AND CONSTRUCTION FEES. FURNISH FINAL CERTIFICATE TO OWNER SHOWING COMPLIANCE WITH CODE REQUIREMENTS.
10. REFER TO TYPICAL DETAILS PROVIDED IN THIS DRAWING SET FOR DUCTWORK, PIPING, AND EQUIPMENT INSTALLATION. CONTRACTOR IS RESPONSIBLE FOR CONFORMANCE WITH DETAILS.
11. A SHORT DASH IN A SCHEDULE TABLE CELL INDICATES THAT THE COLUMN HEADING IS NOT USED OR NOT APPLICABLE TO THAT SCHEDULED ITEM.
12. ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH NFPA 70 STANDARDS AND LOCAL REQUIREMENTS.
13. ALL FIELD WIRING SHALL REQUIRE AN ELECTRICAL PERMIT AND SHALL BE PERFORMED BY A LICENSED ELECTRICIAN.
14. COORDINATE ELECTRICAL REQUIREMENTS SHOWN ON PLANS AND SPECS WITH AVAILABLE VOLTAGES AND PANEL SPACE ONSITE AS WELL AS WITH ELECTRICAL ENGINEER AND ELECTRICAL CONTRACTOR. IF DISCREPANCIES EXIST BETWEEN THESE PLANS AND AVAILABLE ONSITE ELECTRICAL UTILITIES, DO NOT PURCHASE OR INSTALL EQUIPMENT BEFORE FIRST CONTACTING MEL AND RECEIVING INSTRUCTION.
15. LOCATE VALVES, WATER HAMMER ARRESTERS, CLEANOUTS, DAMPERS, CONTROLS AND SIMILAR COMPONENTS SO THAT THEY ARE ACCESSIBLE. PROVIDE ACCESS DOORS FOR MECHANICAL EQUIPMENT INSTALLED BEHIND WALLS, ABOVE INACCESSIBLE CEILINGS AND BELOW FLOORS. COORDINATE ACCESS DOOR LOCATIONS WITH ARCHITECT/ENGINEER.
16. ACCESS PANELS SHALL BE 16 GA, STEEL, FLUSH TYPE ACCESS DOOR WITH CONCEALED HINGE AND SLOT SCREWDRIVER TYPE CAM LATCH. PROVIDE FACTORY PRIMED IN PAINTED SURFACE AREAS FOR FIELD PAINTING. PROVIDE STAINLESS STEEL FOR ALL OTHER AREAS. PROVIDE UL LISTED AND LABELED DOOR WHERE FIRE-RESISTANCE RATING IS INDICATED ON DRAWINGS. ACCESS DOOR SHALL BE SIZED SO THAT ADJACENT EQUIPMENT IS ACCESSIBLE. PROVIDE ACUDOR, ELMDOR, MILCOR, OR APPROVED.
17. INSTALL TAG ON CEILING GRID FRAME TO INDICATE LOCATION AND TYPE OF EQUIPMENT THAT REQUIRES MAINTENANCE.

PIPING:

1. INSULATE PIPING PER WASHINGTON STATE ENERGY CODE SECTION C403.10.3.
2. ALL PRESSURES LISTED ARE GAGE PRESSURES UNLESS OTHERWISE NOTED.
3. PROVIDE COMPLETE CONDENSATE DRAINAGE SYSTEM FOR ALL INDOOR DUCTED AND DUCTLESS SPLITS. FIELD ROUTE DRAINAGE PIPING FROM EQUIPMENT TO NEAREST DRAIN LOCATION (SUCH AS SERVICE SINK, FUNNEL DRAIN, ETC.). SLOPE NON-PRESSURIZED DRAIN PIPING TO DRAIN LOCATION. PIPING & FITTINGS SHALL BE PVC. MINIMUM PIPE SIZE SHALL BE 3/4". INCREASE PIPE SIZE WHERE APPLICABLE PER IMC 307.2.2
4. VALVES SHALL BE INSTALLED SO THAT SYSTEM REMAINS IN SERVICE WHEN EQUIPMENT OR PIPING ON EQUIPMENT SIDE OF VALVE IS REMOVED.
5. VALVES (EXCEPT CONTROL VALVES) AND STRAINERS SHALL BE FULL SIZE OF PIPE BEFORE REDUCING SIZE TO MAKE CONNECTIONS TO EQUIPMENT AND CONTROLS UNLESS OTHERWISE NOTED.
6. THE PROPOSED ROUTING FOR THE REFRIGERATION PIPING BETWEEN THE INDOOR AND OUTDOOR UNITS IS INDICATED AS A SINGLE LINE ON THE PLANS. THAT SINGLE LINE REPRESENTS ALL THE PIPING RUNS REQUIRED FOR THE SYSTEM DESIGNED. SIZE REFRIGERANT LINES PER MANUFACTURER'S RECOMMENDATION. INSULATE REFRIGERANT PIPING PER SPECIFICATION AND INSULATION SCHEDULES PER WSEC 2021 C403.10.3 AND C403.10.4.

HVAC/SHEET METAL:

1. THE FIRST FIGURE OF DUCT SIZE CALLOUTS INDICATES DIMENSION OF FACE SHOWN OR INDICATED. DUCT SIZES ARE NET INSIDE DIMENSIONS. PROVIDE ANY APPLICABLE DUCT LINING AND INSULATION PER THESE PLANS.
2. DUCT SIZE NOT SHOWN SHALL BE SIZED TO VELOCITIES NO GREATER THAN UP STREAM SECTIONS USING SIMILAR ASPECT RATIOS.
3. TOTAL STATIC PRESSURE NOTED IN SCHEDULES SHALL BE ASSUMED TO INCLUDE DUCT SYSTEM, TERMINAL UNITS, FILTERS, COILS, ETC.
4. ALL SUPPLY AIR FILTERS SHALL BE MERV-8 RATED. ALL RETURN/EXHAUST/OUTSIDE AIR FILTERS SHALL BE MERV-8 RATED.
5. AIR TERMINAL SIZES SHOWN ON PLANS ARE NECK SIZES. PROVIDE ADDITIONAL PANS, HARDWARE, ETC., REQUIRED TO INSTALL AIR TERMINAL IN CEILING SYSTEM.
6. DUCTWORK SHALL BE 2.0" PRESSURE CLASS UNLESS OTHERWISE NOTED ON THESE DRAWINGS.
7. CONSTRUCT DUCTWORK ACCORDING TO WASHINGTON STATE ENERGY CODE SECTION C403.10.2. ALL DUCT WORK SHALL BE PRIMED GALVANIZED SHEET STEEL, LOCK FORMING QUALITY, FABRICATED IN ACCORDANCE TO SMACNA STANDARDS.
8. ALL SUPPLY AND RETURN DUCTWORK SHALL BE INSULATED AND SEALED PER WASHINGTON STATE ENERGY CODE SECTION C403.10.1.
9. PROVIDE EACH ZONE WITH THERMOSTATIC CONTROLS THAT PROVIDE A DEADBAND OF AT LEAST 5 DEGREES FAHRENHEIT IN WHICH HEATING OR COOLING ENERGY IS CAPABLE OF BEING SHUT OFF OR REDUCED TO A MINIMUM. THERMOSTAT SHALL BE CAPABLE OF THERMOSTATIC SETBACK, AUTOMATIC SETBACK AND SHUTDOWN, AND AUTOMATIC START CAPABILITIES PER WASHINGTON STATE ENERGY CODE SECTION C403.4.
10. PROVIDE TEMPORARY COVERS OVER OPEN ENDS OF EQUIPMENT AND DUCTWORK DURING CONSTRUCTION.
11. PROVIDE MANUAL VOLUME DAMPER FOR EACH DIFFUSER, REGISTER, AND GRILLE. OPPOSED BLADE DAMPERS LOCATED AT THE DIFFUSER, REGISTER, AND GRILLE SHALL NOT BE USED FOR SYSTEM BALANCE.
12. PROVIDE DUCT ACCESS DOORS AT DUCT SMOKE DETECTORS, BACKDRAFT DAMPERS, MOTORIZED CONTROL DAMPERS, FIRE DAMPERS, SMOKE DAMPERS, COMBINATION FIRE/SMOKE DAMPERS, DUCT MOUNTED COILS, DUCT AIRFLOW STATIONS AND LOUVER PLENUMS.
13. COORDINATE FINAL LOCATION OF EQUIPMENT WITH OWNER OR REPRESENTATIVE.

APPLICABLE CODES

AS ADOPTED BY THE CITY OF PUYALLUP, WA

INTERNATIONAL MECHANICAL CODE, IMC 2021
INTERNATIONAL BUILDING CODE, IBC 2021
WASHINGTON STATE ENERGY CODE, WSEC 2021
INTERNATIONAL FUEL GAS CODE, IFGC 2021
UNIFORM PLUMBING CODE, UPC 2021

AND ASSOCIATED WASHINGTON ADMINISTRATIVE CODE AMENDMENTS

DESIGN CONDITIONS

OUTDOOR CONDITIONS
COOLING: 86°F DB, 64°F WB (ASHRAE 1%)
HEATING: 19°F DB (ASHRAE 99.6%)

INDOOR CONDITIONS
COOLING: 75°F DB, 50% RH
HEATING: 70°F DB

SCOPE OF WORK

1. SYSTEM BASED ON SPLITS. DOAS REQUIREMENT WILL BE EVALUATED TO BE EXEMPTED FROM THE PROJECT, IN LIEU OF NATURAL VENTILATION
2. PROVIDE SEPARATE SPLIT SYSTEM IN AV ROOM.

ABBREVIATIONS

(E)	EXISTING
AABC	AMERICAN AIR BALANCE COUNCIL
AFF	ABOVE FINISHED FLOOR
AFUE	ANNUAL FUEL UTILIZATION EFFICIENCY
AG	AIR GAP
AGA	AMERICAN GAS ASSOCIATION
AHRI	AIR CONDITIONING, HEATING, & REFRIGERATION INSTITUTE
AMP	AMPERAGE
ASHRAE	AMERICAN SOCIETY OF HEATING, REFRIGERATION, AND AIR CONDITIONING ENGINEERS
ASME	AMERICAN SOCIETY OF MECHANICAL ENGINEERS
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS
BAS	BUILDING AUTOMATION SYSTEM
BHP	BRAKE HORSEPOWER
CB	CATCH BASIN
CFH	CUBIC FEET PER HOUR
CFM	CUBIC FEET PER MINUTE
COND	CONDENSATE
CONFIG	CONFIGURATION
CSA	CANADIAN STANDARDS ASSOCIATION
DB	DRY BULB
DC	DOUBLE CHECK
DDC	DIRECT DIGITAL CONTROLS
DIA	DIAMETER
DN	DOWN
DOAS	DEDICATED OUTSIDE AIR SYSTEM
DX	DIRECT EXPANSION
EA	EXHAUST AIR
EAT	ENTERING AIR TEMPERATURE
EC	ELECTRICAL CONTRACTOR
ECM	ELECTRICALLY COMMUTATED MOTOR
EFF	EFFICIENCY
ESP	EXTERNAL STATIC PRESSURE
ETC	ET CETERA
EX. SP.	EXTERNAL STATIC PRESSURE
FLA	FULL LOAD AMPS
FM	FACTORY MANUAL
FPM	FEET PER MINUTE
FT	FEET
GA	GAUGE
HP	HORSEPOWER
HR	HOUR
IBC	INTERNATIONAL BUILDING CODE
IFGC	INTERNATIONAL FUEL GAS CODE
IMC	INTERNATIONAL MECHANICAL CODE
IN	INCH
IU	INDOOR UNIT
LAT	LATERAL
LB/LBS/#	POUND/ POUNDS
MAX	MAXIMUM
MC	MECHANICAL CONTRACTOR
MCA	MAXIMUM CIRCUIT AMPACITY
MERV	MINIMUM EFFICIENCY REPORTING VALUE
MFG/MFR	MANUFACTURER
MIN	MINIMUM
MOCP/ MOP	MAXIMUM OVER CURRENT PROTECTION
MSS	MANUFACTURER'S STANDARDIZATION SOCIETY
NEBB	NATIONAL ENVIRONMENTAL BALANCING BUREAU
NEMA	NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION
OC	ON CENTER
NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
NO	NUMBER
NOM	NOMINAL
NTS	NOT TO SCALE
OSA	OUTSIDE AIR
PH	PHASE
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PSIG	POUNDS PER SQUARE INCH, GAUGE
RA	RETURN AIR
RH	RELATIVE HUMIDITY
RP	REDUCED PRESSURE
RPM	REVOLUTIONS PER MINUTE
SA	SUPPLY AIR
SF	SQUARE FEET
SMACNA	SHEET METAL AND AIR CONDITIONING CONTRACTORS NATIONAL ASSOCIATION
SPEC	SPECIFICATION
STM	STEAM
THRD	THREADED
TYP	TYPICAL
UL	UNDERWRITERS LABORATORY
UPC	UNIFORM PLUMBING CODE
V	VENT/ VOLT
VOLT	VOLTAGE
VRF	VARIABLE REFRIGERANT FLOW
VAV	VARIABLE AIR VOLUME
VERT	VERTICAL
W/	WITH
WIN	WINTER
WSEC	WASHINGTON STATE ENERGY CODE

MECHANICAL LEGEND

SYMBOL	DESCRIPTION
	SUPPLY DUCT, OSA DUCT UP
	SUPPLY DUCT, OSA DUCT DOWN
	RETURN, RELIEF, TRANSFER UP
	RETURN, RELIEF, TRANSFER DOWN
	RECTANGULAR ELBOW WITH TURNING VANES
	ROUND/ RECTANGULAR ELBOW
	RECTANGULAR DUCT SQUARE ELBOW UP
	RECTANGULAR DUCT, RADIUS ELBOW UP
	RECTANGULAR DUCT, SQUARE ELBOW DOWN
	RECTANGULAR DUCT, RADIUS ELBOW DOWN
	ROUND DUCT ELBOW UP
	ROUND DUCT ELBOW DOWN
P-01	EQUIPMENT ABBREVIATION AND NUMBER (TAG)
SD-X, XX/XX XXX CFM	AIR TERMINAL TYPE, SIZE, AND CFM
X / XX	DETAIL NUMBER / DRAWING NUMBER WHERE DRAWN
C	CONDENSATE
	FLEXIBLE DUCT
	VOLUME DAMPER (VD)
X"Ø	ROUND DUCT

SYMBOL	DESCRIPTION
X/X	SQUARE DUCT
X/X"Ø	OVAL DUCT
	SQUARE 4-WAY CEILING DIFFUSERS
	RETURN GRILLE
	SQUARE 3-WAY CEILING DIFFUSERS
	SQUARE 2-WAY CEILING DIFFUSERS
	SQUARE 1-WAY CEILING DIFFUSERS
R	REFRIGERANT PIPING
	CROSSING LINES, NON CONNECTING
	PIPE CONTINUATION
	SUCTION DIFFUSER
T	THERMOSTAT (T'STAT)

City of Puyallup
Development & Permitting Services
ISSUED PERMIT
Building | Planning
Engineering | Public Works
Fire | Traffic

City of Puyallup
Building
REVIEWED FOR COMPLIANCE
BSnowden
05/05/2025
2:33:51 PM

The approved construction plans, documents, and all engineering must be posted on the job at all inspections in a visible and readily accessible location.

Full sized legible color plans are required to be provided by the permitee on site for inspection.

Approval of submitted plans is not an approval of omissions or oversights by this office or non compliance with any applicable regulations of local government. The contractor is responsible for making sure that the building complies with all applicable codes and regulations of the local government.

BRIAN SCOTT MIDDLEBROOK
STATE OF WASHINGTON
52770
REGISTERED
PROFESSIONAL ENGINEER
05/01/2025

DATE	DESCRIPTION
04/10/2025	PERMIT
05/01/2025	PERMIT COMMENTS

LEGEND, ABBREVIATIONS, AND GENERAL NOTES

WSF
110 9TH AVE SW
PUYALLUP, WA 98371

NARROWS
HEATING - AIR CONDITIONING, INC.
5121 SOUTH BURLINGTON WAY
TACOMA, WASHINGTON 98409
253.627.7543 NARROI*216J3

M1

PRMH20250492

[2021 Washington State Mechanical Code, section 304.11]
Guards.
Guards shall be provided where various components that require service and roof hatch openings are located within 10 feet (3048 mm) of a roof edge or open side of a walking surface and such edge or open side is located more than 30 inches (762 mm) above the floor, roof, or grade below. The guard shall extend not less than 30 inches (762 mm) beyond each end of components that require service and each end of the roof hatch parallel to the roof edge. The top of the guard shall be located not less than 42 inches (1067 mm) above the elevated surface adjacent to the guard. The guard shall be constructed so as to prevent the passage of a 21-inch-diameter (533 mm) sphere and shall comply with the loading requirements for guards specified in the International Building Code.

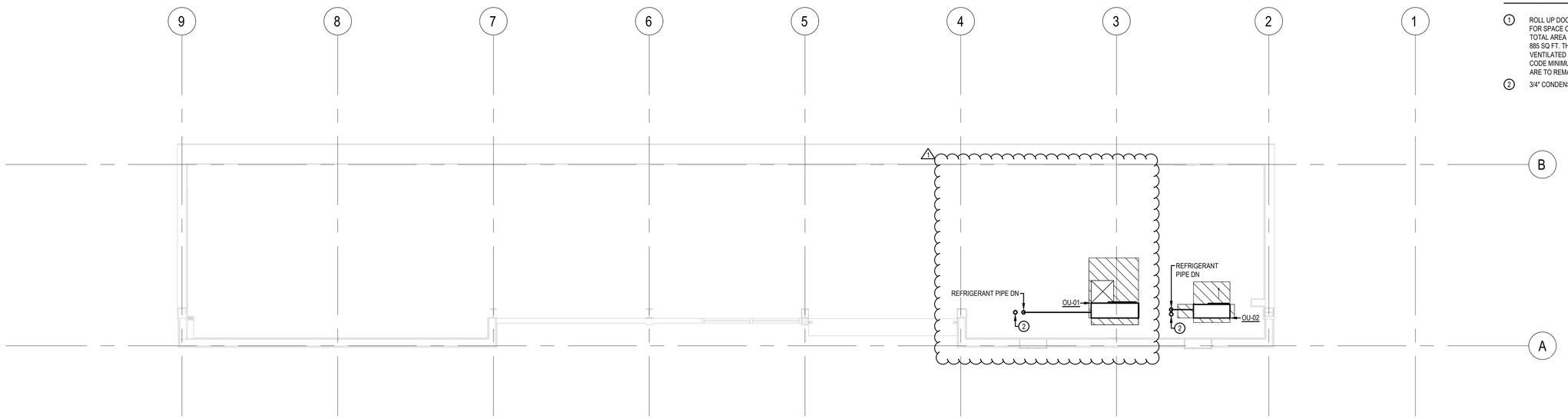
Exception: Guards are not required where fall arrest/restraint anchorage connector devices that comply with ANSI/ASSP Z359.1 are installed.

GENERAL NOTES

1. DUCTWORK IS SCHEMATIC IN NATURE. CONTRACTOR TO PROVIDE ADDITIONAL FITTINGS AND OFFSETS AS REQUIRED TO INSTALL A COMPLETE AND FUNCTIONING SYSTEM.
2. THIS DRAWING WAS CREATED FROM AS BUILT DOCUMENTATION AND FIELD NOTES AND MAY NOT REPRESENT ACTUAL AS BUILT CONDITIONS. CONTRACTOR TO VERIFY SCOPE PRIOR TO COMMENCING WORK. COORDINATE ANY DISCREPANCIES WITH MECHANICAL ENGINEER.
3. LINES AND EQUIPMENT SHOWN DARK IS NEW WORK. LINES AND EQUIPMENT SHOWN LIGHT IS EXISTING TO REMAIN.

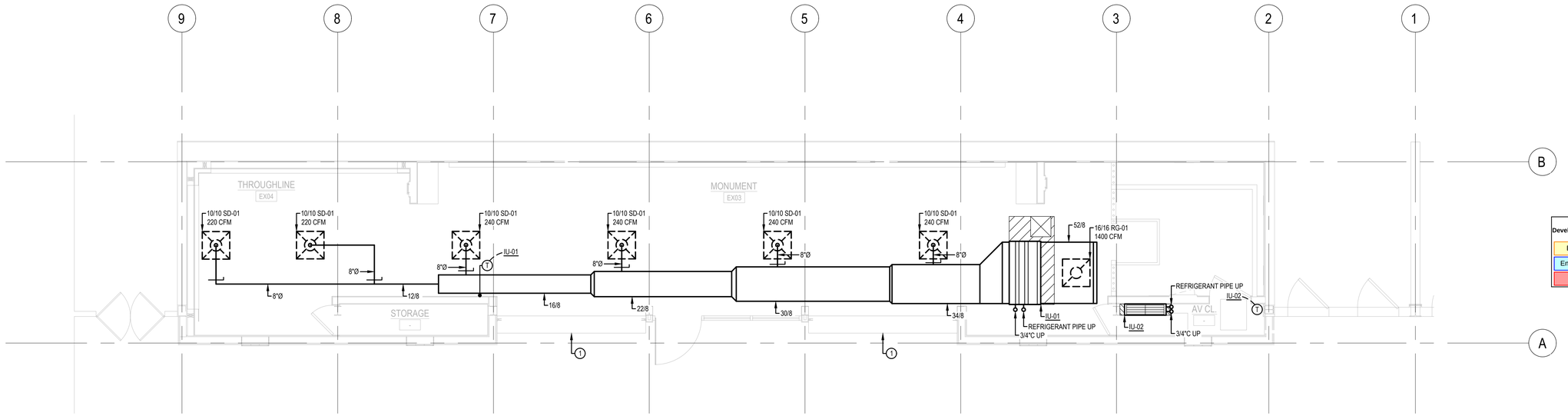
PLAN NOTES

1. ROLL UP DOORS ARE PART OF NATURAL VENTILATION STRATEGY FOR SPACE COMPLYING WITH IMC SECTION 402.3. ROLL UP DOORS TOTAL AREA EQUALS 175 SQ FT. TOTAL VENTILATED AREA EQUALS 885 SQ FT. THE PERCENTAGE OF VENTILATED AREA PER TOTAL VENTILATED AREA EQUALS 19.77%. THIS IS GREATER THAN THE CODE MINIMUM OF 8% UNDER THE 2021 IMC 402.3. ROLL UP DOORS ARE TO REMAIN OPEN DURING OCCUPIED HOURS.
2. 3/4" CONDENSATE TO TERMINATE ON ROOF. SEE DETAIL 12 ON SHEET M3.



2 MECHANICAL ROOF PLAN

SCALE: 1/4" = 1'-0"



1 MECHANICAL FLOOR PLAN

SCALE: 1/4" = 1'-0"

DESCRIPTION	DATE
PERMIT	04/10/2025
PERMIT COMMENTS	05/01/2025

MECHANICAL FLOOR AND ROOF PLAN

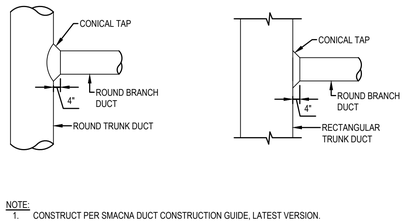
WSF
110 9TH AVE SW
PUYALLUP, WA 98371

NARROWS
HEATING - AIR CONDITIONING, INC.
5121 SOUTH BURLINGTON WAY
TACOMA, WASHINGTON 98409
253.627.7543 NARROI*216J3

BRIAN SCOTT MIDDLEBROOK
STATE OF WASHINGTON
52770
REGISTERED
PROFESSIONAL ENGINEER
05/01/2025

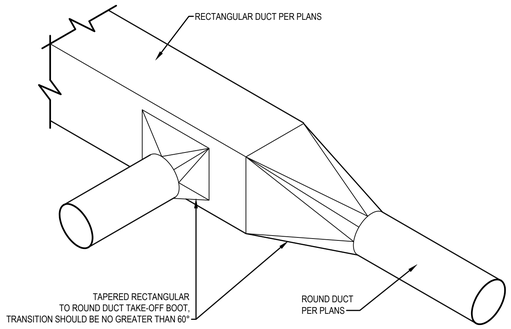
M2

PRMH20250492

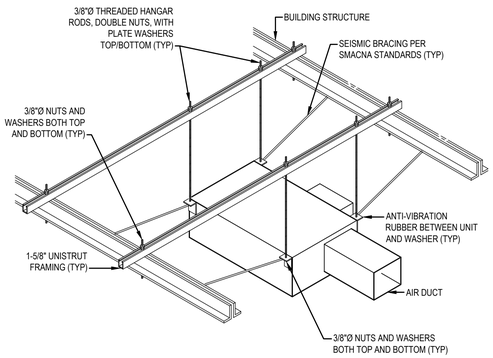


NOTE:
1. CONSTRUCT PER SMACNA DUCT CONSTRUCTION GUIDE, LATEST VERSION.

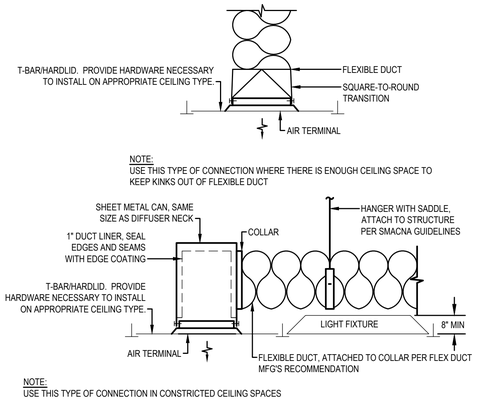
1 TYPICAL DUCT ELBOW AND DUCT TEE DETAILS
SCALE: NTS



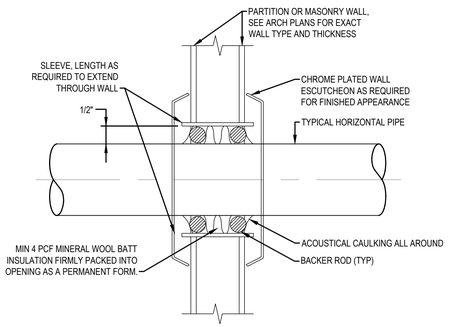
2 RECTANGULAR TO ROUND DUCT TRANSITION INSTALLATION DETAIL
SCALE: NTS



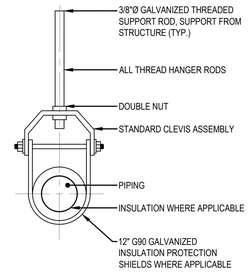
3 TYPICAL SUSPENDED EQUIPMENT
SCALE: NTS



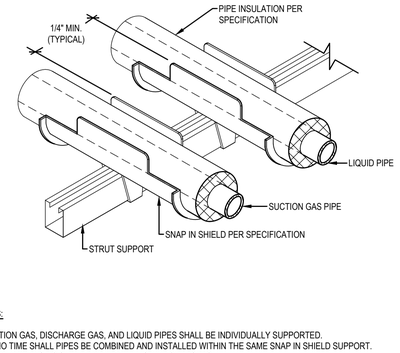
4 TYPICAL SUPPLY AIR TERMINAL INSTALLATION
SCALE: NTS



5 PIPE PENETRATION DETAIL
SCALE: NTS

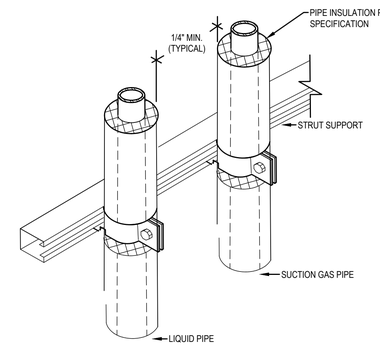


6 PIPE HANGER DETAIL
SCALE: NTS

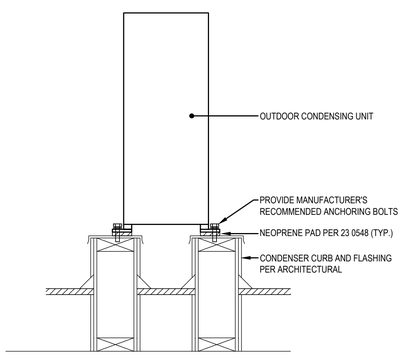


NOTES:
1. SUCTION GAS, DISCHARGE GAS, AND LIQUID PIPES SHALL BE INDIVIDUALLY SUPPORTED. AT NO TIME SHALL PIPES BE COMBINED AND INSTALLED WITHIN THE SAME SNAP IN SHIELD SUPPORT.
2. DETAIL APPLIES TO STRUT AND TRAPEZE STYLE SUPPORTS.

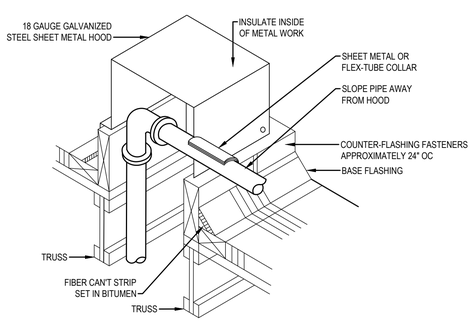
7 REFRIGERANT PIPE SUPPORT DETAIL
SCALE: NTS



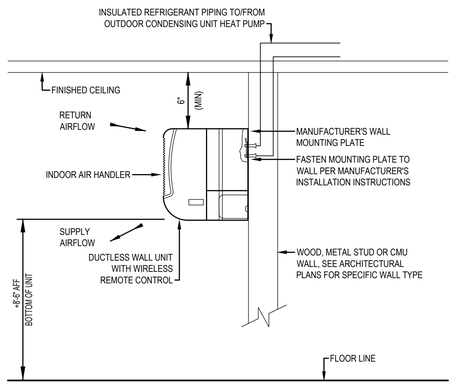
VERTICAL REFRIGERANT PIPE SUPPORT DETAIL
8
SCALE: NTS



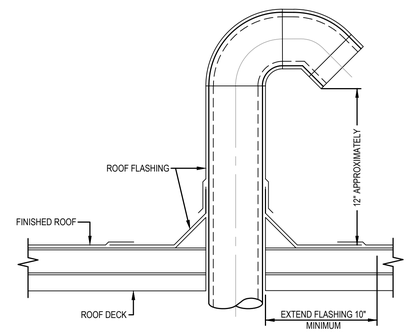
9 ROOFTOP CONDENSING UNIT SUPPORT DETAIL
SCALE: NTS



10 ROOFTOP PIPE PENETRATION DETAIL
SCALE: NTS



11 DUCTLESS AIR HANDLING UNIT
SCALE: NTS



NOTE:
TOTAL LIFT AVAILABLE AT CONDENSATE PUMP IS 27". CONTACT ENGINEER IF VERTICAL HEIGHT OF OUTLET EXCEEDS 21".

12 CONDENSATE ROOF TERMINATION
SCALE: NTS

City of Puyallup
Development & Permitting Services
ISSUED PERMIT
Building | Planning
Engineering | Public Works
Fire | Traffic

BRIAN SCOTT MIDDLEBROOK, STATE OF WASHINGTON, 52770, REGISTERED PROFESSIONAL ENGINEER
05/01/2025

DATE	DESCRIPTION
04/10/2025	PERMIT
05/01/2025	PERMIT COMMENTS

DETAILS

WSF
110 9TH AVE SW
PUYALLUP, WA 98371

NARROWS
HEATING - AIR CONDITIONING, INC.
5121 SOUTH BURLINGTON WAY
TACOMA, WASHINGTON 98409
253.627.7543 NARROI*216J3

M3

PRMH20250492

INDOOR UNIT SCHEDULE

UNIT NO	MFR	MODEL	TYPE	AREA SERVED	AIRFLOW CFM	ESP IN. W.C.	OSA CFM	COOLING (MBH) TOTAL	HEATING (MBH) TOTAL	WEIGHT	ELECTRICAL MCA	ELECTRICAL MOP	ELECTRICAL V	ELECTRICAL PH	DISCON FURN BY	NOTES
IU-01	MITSUBISHI	PEAD-A42AA7	DUCTED	MONUMENT	1400	0.6	-	42	48	91	3.5	-	208	1	EC	1,2,3,4
IU-02	MITSUBISHI	MSY-GS18NA	DUCTLESS	AV CLOSET	-	-	-	22	-	32	1	-	208	1	EC	1,2,3,4,5

NOTES

1. PROVIDE WITH CONDENSATE DRAIN PAN AND CONDENSATE PUMP OPTION.
2. PROVIDE WITH ALL APPURTUNANCES NECESSARY FOR A COMPLETE INSTALLATION.
3. SYSTEM INCLUDES A SINGLE POINT POWER CONNECTION; INDOOR UNIT WIRED FROM OUTDOOR UNIT.
4. SEE CORRESPONDING OUTDOOR UNIT SCHEDULE FOR EFFICIENCY DATA.
5. INSTALL UNIT WITH GOBI II CONDENSATE PUMP WITH 27" OF LIFT.

OUTDOOR UNIT SCHEDULE

UNIT NO	MFR	MODEL	LOCATION	COOLING (MBH) TOTAL	COOLING (MBH) SENSIBLE	COOLING (MBH) IEER (SEER)	HEATING (MBH) TOTAL	HEATING (MBH) COP (HPSF)	WEIGHT (LBS)	NOISE (DBA)	ELECTRICAL MCA	ELECTRICAL MOP	ELECTRICAL V	ELECTRICAL PH	DISCON FURN BY	NOTES
OU-01	MITSUBISHI	PUZ-A42NKA7	ROOFTOP	42	-	(16.1)	48	4.0 (10)	214	53	25	31	208	1	EC	1, 2, 3, 4, 5, 6
OU-02	MITSUBISHI	MUY-GS18NA	ROOFTOP	22	-	(20.5)	-	-	119	54	12	15	208	1	EC	1, 2, 3, 4, 5, 6

NOTES

1. COOLING CAPACITY MBH AT 95 D.B. OUTDOOR AND 77 D.B./67 W.B. INDOOR.
2. HEATING CAPACITY AND EFFICIENCY AT 47 D.B. OUTDOOR AND 70 D.B. INDOOR.
3. PROVIDE ADDITIONAL REFRIGERANT CHARGE AS REQUIRED TO FULLY CHARGE SYSTEM.
4. PROVIDE WITH ALL APPUTUNANCES NECESSARY FOR A COMPLETE INSTALLATION.
5. PROVIDE WITH R410-A REFRIGERANT.
6. PROVIDE ALL UNITS LOCATED OUTDOORS WITH LOCKING REFRIGERANT ACCESS PORT PER IMC 1101.9

Structural analysis is not required for new RTUs if the unit is less than 400lbs and the unit's center of mass is 4ft or less above the roof surface (ASCE7-16, 13.1.4.6)

AIR TERMINAL SCHEDULE

UNIT NO	MFR	MODEL	MOUNTING TYPE	STYLE	NOTES
SD-01	TITUS	MCD	T-BAR	MODULAR CORE	1,2
RG-01	TITUS	50F	T-BAR	EGGCRATE	1,2

NOTES:

1. PROVIDE AIR BALANCING DEVICE AT EACH AIR TERMINAL.
2. DIFFUSER COLOR TO BE BLACK. COORDINATE EXACT COLOR/FINISH WITH ARCHITECT.

PIPE INSULATION SCHEDULE

FLUID OPERATING AND USAGE (°F)	INSULATION CONDUCTIVITY BTU - in./(h - ft² - °F)	INSULATION CONDUCTIVITY TEMPERATURE, °F	NOMINAL OR TUBE SIZE (inches) < 1	1 to 1-1/2	1-1/2 to < 4	4 to < 8	≥8
> 350	0.32 - 0.34	250	4.5	5.0	5.0	5.0	5.0
251 - 350	0.29 - 0.32	200	3.0	4.0	4.5	4.5	4.5
201 - 250	0.27 - 0.30	150	2.5	2.5	2.5	3.0	3.0
141 - 200	0.25 - 0.29	125	1.5	1.5	2.0	2.0	2.0
105 - 140	0.21 - 0.28	100	1	1.0	1.5	1.5	1.5
40 - 60	0.21 - 0.27	75	0.5	0.5	1.0	1.0	1.0
< 40	0.20 - 0.26	75	0.5	1.0	1.0	1.0	1.5

GENERAL NOTES:

1. FOR PIPING SMALLER THAN 1-1/2 INCH (38mm) AND LOCATED IN PARTITIONS WITHIN CONDITIONED SPACES, REDUCTION OF THESE THICKNESESS BY 1 INCH (25mm) SHALL BE PERMITTED (BEFORE THICKNESSES REQUIRED IN FOOTNOTE b) NOT TO A THICKNESS LESS THAN 1 INCH (25mm).

2. FOR INSULATION OUTSIDE THE STATED CONDUCTIVITY RANGE, THE MINUMUM THICKNESS (T) SHALL BE DETERMINED AS FOLLOWS:

$T = r\{(1 + t/r)^{K/k} - 1\}$

WHERE:

T = MINIMUM INSULATION THICKNESS,

r = ACTUAL OUTSIDE RADIUS OF PIPE,

t = INSULATION THICKNESS LISTED IN THE TABLE FOR APPLICABLE FLUID TEMPERATUREAND PIPE SIZE.

K = CONDUCTIVITY OF ALTERNATE MATERIAL AT MEAN RATING TEMPERATURE INDICATED FOR THE APPLICABLE FLUID TEMPERATURE (Btu · in/h · ft² x °F)

k = THE UPPER VALUE OF THE CONDUCTIVITY RANGE LISTED IN THE TABLE FOR THE APPLICABLE FLUID TEMPERATURE.

3. FOR DIRECT-BURIED HEATING AND HOT WATER SYSTEM PIPING, REDUCTION OF THESE THICKNESSES BY 1-1/2 INCHES (38mm) SHALL BE PERMITTED (BEFORE THCKNESS ADJUSTMENT REQUIRED IN FOOTNOTE b BY BUT NOT TO THICKNESS LESS THAN 1 INCH (25mm)

SUPPLY, RETURN, EXHAUST, AND RELIEF AIR DUCTWORK INSULATION SCHEDULE

DUCT SYSTEM	DUCT LOCATION AND USE	CLIMATE ZONE	MINUMUM INSTALLED DUCT INSULATION R-VALUE	NOTES
SUPPLY AIR OR RETURN AIR	OUTSIDE THE BUILDING (OUTDOORS AND EXPOSED TO WEATHER)*	4C	R-8	SEE SECTION C403.10.1.2 FOR DETAILS
SUPPLY AIR OR RETURN AIR	UNCONDITIONED SPACE (ENCLOSED BUT NOT IN THE BUILDING CONDITIONED ENVELOPE)	4C AND 5B	~~R-5~~ R-6	SEE SECTION C403.10.1.2 FOR DETAILS
SUPPLY AIR OR RETURN AIR	UNCONDITIONED SPACE WHERE THE DUCT CONVEYS AIR THAT IS WITHIN 15°F OF THE AIR TEMPERATURE OF THE SURROUNDING UNCONDITIONAL SPACE.	4C AND 5B	R-3.3	SEE IMC SECTION 603.12 FOR ADDITIONAL REQUIREMENTS FOR CONDENSATION CONTROL AT DUCTWORK
SUPPLY AIR OR RETURN AIR	WHERE LOCATED IN A BUILDING ENVELOPE ASSEMBLY	4C AND 5B	R-16	DUCT OR PLENUM IS SEPARATED FROM BUILDING ENVELOPE ASSEMBLY WITH THE MINIMUM INSULATION VALUE
SUPPLY AIR	WITHIN CONDITIONED SPACE WHERE THE SUPPLY DUCT CONVEYS AIR THAT IS LESS THAN 55°F OR GREATER THAN 105°F	4C AND 5B	R-3.3	SEE SECTION C403.10.1.2 FOR DETAILS
SUPPLY AIR	WITHIN CONDITIONED SPACE THAT DUCT DIRECTLY SERVES WHERE THE SUPPLY DUCT CONVEYS AIR THAT IS KLESS THAN 55°F OR GREATER THAN 105°F	4C AND 5B	NONE	SEE SECTION C403.10.1.2 FOR DETAILS
SUPPLY AIR	WITHIN CONDITIONED SPACE WHERE THE SUPPLY DUCT CONVEYS AIR THAT IS LESS THAN 55°F OR GREATER THAN 105°F OR LESS	4C AND 5B	NONE	
RETURN OR EXHAUST AIR	WITHIN CONDITIONED SPACE, DOWNSTREAM OF AN ENERGY RECOVERY MEDIA, UPSTREAM OF AN AUTOMATIC SHUT OFF DAMPER.	4C	R-8	
RELIEF OR EXHAUST AIR	CONDITIONED SPACE DOWNSTREAM OF AN AUTOMATIC SHUT OFF DAMPER.	4C AND 5B	R-16	

GENERAL NOTES:

1. INSULATION R-VALUES, MEASURED IN h · ft² x °F/BTU, ARE FOR THE INSULATION AS INSTALLED AND DO NOT INCLUDE FILM RESISTANCE. THE REQUIRED MINIMUM THICKNESSES DO NOT CONSIDER WATER VAPOR TRANSMISSION AND POSSIBLE SURFACE CONDENSATION. INSULATION RESISTANCE MEASURED ON A HORIZONTAL PLANE IN ACCORDANCE WITH ASTM C518 AT A MEAN TEMPERATURE OF 75°F AT THE INSTALLED THICKNESS.

2. SEE INTERNATIONAL MECHANICAL CODE SECTIONS 603.12 AND 604 FOR FURTHER DETAILS ON DUCT INSTALLATION REQUIREMENTS.

3. INCLUDES ATTIC ABOVE INSULATED CEILINGS, PARKING GARAGES AND CRAWL SPACES.

Note: red-line approved by engineer of record.

City of Puyallup
Development & Permitting Services
ISSUED PERMIT
Building | Planning
Engineering | Public Works
Fire | Traffic

DATE	DESCRIPTION
04/10/2025	PERMIT
05/01/2025	PERMIT COMMENTS

SCHEDULES

WSF
110 9TH AVE SW
PUYALLUP, WA 98371

NARROWS
HEATING - AIR CONDITIONING, INC.
5121 SOUTH BURLINGTON WAY
TACOMA, WASHINGTON 98409
253.627.7543 NARROI*216J3

BRIAN SCOTT MIDDLEBROOK
STATE OF WASHINGTON
52770
REGISTERED
PROFESSIONAL ENGINEER
05/01/2025

M4

PRMH20250492

GENERAL CONTRACT REQUIREMENTS

1. MECHANICAL, PLUMBING, AND CONTROLS SCOPE SHALL FALL UNDER THE ULTIMATE RESPONSIBILITY OF ONE CONTRACTOR, WHO IS RESPONSIBLE FOR UNDERSTANDING ALL MECHANICAL AND PLUMBING DOCUMENTS, DISTRIBUTING CONTRACT DOCUMENTS TO ALL SUBCONTRACTORS, AND SHALL BE RESPONSIBLE FOR CONTRACT COMPLETION.
2. THE DRAWINGS ARE DIAGRAMMATIC. COORDINATE INSTALLATION WITH THE BUILDING, PROVIDE ALL NECESSARY OFFSETS, CHANGES IN DIRECTION, EXTENSIONS AND ASSOCIATED MATERIALS FOR A COMPLETE AND FUNCTIONAL INSTALLATION.
3. COORDINATE MECHANICAL WORK WITH ELECTRICAL, ARCHITECTURAL, STRUCTURAL, CIVIL, AND LANDSCAPE WORK SHOWN ON OTHER CONTRACT DOCUMENTS. PROVIDE ADDITIONAL PIPE OR DUCT OFFSETS WHERE REQUIRED TO COORDINATE INSTALLATION.
4. LOCATIONS AND SIZES OF (FLOOR, WALL, AND ROOF OPENINGS) SHALL BE COORDINATED WITH OTHER TRADES INVOLVED. INCLUDE THE FOLLOWING IN THE COST OF MECHANICAL WORK: CUTTING, CORING, PATCHING AND PAINTING OF EXISTING WALLS, CEILINGS, FLOORS, AND ROOFS AS REQUIRED TO ACCOMMODATE WORK AS INDICATED IN THE MECHANICAL CONTRACT DOCUMENTS UNLESS SPECIFICALLY SHOWN ON ARCHITECTURAL DOCUMENTS.
5. MAINTAIN A SET OF PLANS ON SITE. RECORD ALL CHANGES TO ACTUAL ARRANGEMENTS ON THESE PLANS. PROVIDE THIS SET OF PLANS TO THE OWNER'S REPRESENTATIVE WHEN WORK IS COMPLETE.
6. ALL WORK PERFORMED SHALL BE DONE IN STRICT ACCORDANCE TO ALL APPLICABLE MECHANICAL, BUILDING, ENERGY, FUEL GAS, AND LOCAL CODES, WITH AMENDMENTS.
7. CONTRACTOR SHALL OBTAIN AND PAY FOR ALL PERMITS AND CONSTRUCTION FEES. FURNISH FINAL CERTIFICATE TO OWNER SHOWING COMPLIANCE WITH CODE REQUIREMENTS.
8. PROJECT SCHEDULING: COMPLY WITH OWNER'S REQUIREMENTS
9. OPERATION AND MAINTENANCE MANUAL: PROVIDE COMPLETE OPERATIONS AND MAINTENANCE MANUAL IN HARD COVER. PROVIDE OPERATIONS, MAINTENANCE AND PARTS DATA ON ANY ITEM OF EQUIPMENT THAT HAS MOVING PARTS.
10. PROVIDE THE FOLLOWING DOCUMENTS PRIOR TO FINAL ACCEPTANCE OF THE PROJECT. FINAL PAYMENT OF THE CONTRACT WILL BE CONTINGENT UPON RECEIVING THESE DOCUMENTS:
    A. RECORD (AS-BUILT) DRAWINGS.
    B. MAINTENANCE AND OPERATING INSTRUCTIONS (3 SETS).
    C. EXTENDED WARRANTIES (OTHER THAN THE ONE-YEAR).
    D. BALANCING LOGS (AIR AND HYDRONIC SYSTEMS) (3 SETS).
    E. FINAL CERTIFICATES OF INSPECTION AND CODE COMPLIANCE.
    F. COMMISSIONING DOCUMENTATION PER WSEC
11. WARRANTY PROVISIONS: THE CONTRACTOR SHALL GUARANTEE ALL EQUIPMENT AND SYSTEMS FOR A PERIOD OF ONE YEAR AFTER FINAL ACCEPTANCE. REPAIR OR REPLACE DEFECTIVE MATERIAL, EQUIPMENT, OR POOR WORKMANSHIP, WHICH MAY SHOW ITSELF DURING THIS WARRANTY PERIOD.

SEISMIC AND VIBRATION REQUIREMENTS

1. HANGERS AND SEISMIC BRACING FOR THE MECHANICAL SYSTEMS SHALL BE DESIGNED AND PROVIDED BY THE MECHANICAL CONTRACTOR. REFER TO CONTRACTOR SHOP DRAWINGS FOR LOCATIONS OF EQUIPMENT AND HUNG MECHANICAL SYSTEMS. THE MECHANICAL CONTRACTOR SHALL COORDINATE THE SUPPORT SYSTEMS AND DESIGN LOADS FOR HUNG MECHANICAL SYSTEMS WITH THE GENERAL CONTRACTOR AND OTHER TRADES THAT MAY BE IMPACTED.
    A. PROVIDE ALL SEISMIC RESTRAINT REQUIRED BY THE AUTHORITY HAVING JURISDICTION AND THE APPLICABLE CODES.
    B. EMPLOY A LICENSED STRUCTURAL ENGINEER, IF NECESSARY, TO ACHIEVE COMPLIANCE.
    C. THE SHEET METAL AND AIR CONDITIONING CONTRACTORS NATIONAL ASSOCIATION, INC. (SMACNA) SEISMIC RESTRAINT MANUAL GUIDELINES MAY BE USED FOR PIPING AND DUCTWORK. INSURE THE PROPER HAZARD LEVEL IS EMPLOYED FOR THE AREA OF INSTALLATION.
2. VIBRATION CRITERIA: PROVIDE VIBRATION ISOLATION IN ACCORDANCE WITH THE AMERICAN SOCIETY OF HEATING, REFRIGERATION AND AIR CONDITIONING ENGINEERS (ASHRAE): APPLICATIONS HANDBOOK.

BASIC MATERIALS AND METHODS

1. ALL MATERIALS AND EQUIPMENT SHALL BE LISTED OR LABELED BY A RECOGNIZED AGENCY: UL, ACA, FM, CSA, ARI, ETC.
2. EQUIPMENT SHALL BE AS INDICATED ON THE DRAWING SCHEDULES. THE DRAWING SCHEDULES ESTABLISH THE LEVEL OF QUALITY. SUBSTITUTIONS WILL BE CONSIDERED, SUBMIT TECHNICAL DATA (PERFORMANCE AND CONSTRUCTION) TO THE OWNER'S REPRESENTATIVE FOR APPROVAL. ALLOW TWO WEEKS FOR TURN-AROUND.
3. MECHANICAL SYSTEM PENETRATIONS OF FIRE RATED ASSEMBLIES SHALL BE PROTECTED IN ACCORDANCE WITH THE BUILDING CODE IN FORCE IN THE AUTHORITY HAVING JURISDICTION FOR THIS PROJECT. THIS INCLUDES PIPING, DUCTWORK, SUPPORTS, CONDUIT, AND ANY OTHER SYSTEM AND APPURTENANCE PROVIDED AS PART OF THE MECHANICAL WORK OF THIS CONTRACT. IN ADDITION, ALL THROUGH-PENETRATION SEALING METHODOLOGIES SHALL BE LISTED IN THE UNDERWRITER'S LABORATORIES (UL) FIRE RESISTANCE DIRECTORY, ISSUE CURRENT AT TIME OF BID.
4. MOTORS SHALL COMPLY WITH THE WSEC.
5. ALL MOTORS SHALL BE ELECTRONICALLY COMMUTATED UNLESS NOTED ON SCHEDULE.
6. ELECTRICAL INSTALLATION SHALL COMPLY WITH THE NEC.
7. PROTECT STORED MATERIALS. REPLACE DAMAGED MATERIALS PRIOR TO INSTALLATION.
8. PROVIDE WATER-TIGHT SEAL FOR OPENINGS TO THE BUILDING THROUGH WHICH PIPE PASSES.
9. PROVIDE AND INSTALL PIPE SUPPORTS IN ACCORDANCE WITH MANUFACTURER'S STANDARDIZATION SOCIETY OF THE VALVE AND FITTING INDUSTRY (MSS) STANDARDS, SPECIFICALLY STANDARD SP-69, "PIPE HANGERS AND SUPPORTS - SELECTION AND APPLICATION" AND STANDARD SP-58, "PIPE HANGERS AND SUPPORTS - MATERIALS, DESIGN AND MANUFACTURE". PROVIDE PIPE SUPPORT SPACING IN ACCORDANCE WITH THE UPC OR IMC.
10. TESTING: ALL WORK UNDER THIS CONTRACT SHALL BE THOROUGHLY AND SYSTEMATICALLY TESTED, BOTH DURING CONSTRUCTION AND AFTER COMPLETION. PIPE TESTING SHALL BE EITHER AS SPECIFIED IN THE APPROPRIATE SPECIFICATION SECTION, OR AS SPECIFIED IN THE APPLICABLE PLUMBING OR MECHANICAL CODE. DUCTWORK SHALL BE TESTED AS PART OF THE AIR BALANCING PROCESS. NOTIFY THE OWNER'S REPRESENTATIVE 48-HOURS IN ADVANCE OF ALL TESTS. TESTS SHALL BE MAINTAINED UNTIL APPROVED.
11. START-UP, BALANCING AND COMMISSIONING.
    A. EQUIPMENT STARTUP SHALL BE PERFORMED BY QUALIFIED PERSONNEL. THE TECHNICAL SPECIFICATION SECTIONS WILL DETAIL OTHER SPECIAL REQUIREMENTS, IF ANY. PROVIDE A STATEMENT OF THE STARTUP TECHNICIAN'S QUALIFICATIONS IF REQUESTED BY THE OWNER'S REPRESENTATIVE OR ELSEWHERE SPECIFIED.
    B. BALANCE ALL AIR AND WATER SYSTEMS. BALANCE IN ACCORDANCE WITH EITHER NATIONAL ENVIRONMENTAL BALANCING BUREAU (NEBB) OR AMERICAN AIR BALANCE COUNCIL (AABC) CRITERIA.
    C. PROVIDE COMMISSIONING IN ACCORDANCE WITH THE WSEC, UNLESS ENHANCED COMMISSIONING IS REQUIRED. PROVIDE DOCUMENTATION OF COMMISSIONING.
        a. A CERTIFIED COMMISSIONING AGENT SHALL PROVIDE A COMMISSIONING PLAN OUTLINING THE RESPONSIBILITY MATRIX, SCHEDULE, AND EQUIPMENT FUNCTIONAL PERFORMANCE TESTING PER WSEC 408.1.2.
        b. THE COMMISSIONING REPORT SHALL BE COMPLETED PRIOR TO FINAL MECHANICAL INSPECTION PER C408.1.3.
        c. FINAL REPORT SHALL BE MADE AVAILABLE TO CODE OFFICIAL PER COMPLETION REQUIREMENTS OF WSEC C408.1.4

DUCT INSULATION

1. FLEXIBLE FIBERGLASS DUCTWORK SHALL MEET ASTM C553, TYPE 1, CLASS B2 FLEXIBLE BLANKET. K VALUE SHALL BE 0.27 @ 75 DF.
2. VAPOR BARRIER JACKET: PROVIDE FSK, ALUMINUM FOIL REINFORCED WITH FIBER GLASS YARN AND LAMINATED FIRE RESISTANT KRAFT. SECURE WITH UL LISTED PRESSURE SENSITIVE TAPE AND/OR OUTWARD CINCHED EXPANED STABLES.
3. INSULATION SHALL MEET THE REQUIREMENTS OF THE INSULATION SCHEDULE, SHOWN ON PLANS.
4. APPROVED MANUFACTURERS: MANVILLE, OWENS CORNING, OR APPROVED EQUAL.

DUCTWORK SOUNDLINER

1. MAXIMUM VELOCITY ON MAT OR COATED SIDE SHALL BE 5000 FT/MIN.
2. NOISE REDUCTION COEFFICIENT: 0.65 OR HIGHER, TYPE A MOUNTING, ASTM C423.
3. K = 0.25 AT 75 DF, ASTM C518.
4. PROVIDE ACOUSTIC LINING IN CONNECTING DUCTWORK 10' UPSTREAM AND DOWNSTREAM OF FAN POWERED MECHANICAL UNIT, UNLESS OTHERWISE NOTED ON PLANS.
5. APPROVED MANUFACTURERS
    A. MANVILLE PERMACOTE LINACOUSTIC
    B. MANVILLE PERMACOTE SPIRACOUSTIC LINER

AIR DISTRIBUTION SYSTEM - GENERAL

1. PROVIDE PER THE IMC, THE SHEET METAL AND AIR CONDITIONING CONTRACTORS NATIONAL ASSOCIATION (SMACNA) "DUCT CONSTRUCTION MANUAL, METAL AND FLEXIBLE", AND THE REQUIREMENTS OF THE AUTHORITY HAVING JURISDICTION.
2. IN ADDITION TO THE REQUIREMENTS ABOVE, INSTALL EQUIPMENT AND COMPONENTS IN ACCORDANCE WITH THE PUBLISHED MANUFACTURER'S INSTALLATION REQUIREMENTS.
3. FLEXIBLE CONNECTIONS: PROVIDE AT EACH FAN AND AIR HANDLING UNIT CONNECTION TO DUCT.
4. ACCESS PANELS: PROVIDE FOR MAINTENANCE OF ALL DUCT-MOUNTED EQUIPMENT (FIRE DAMPERS, CONTROL DAMPERS, COILS, ETC.).
5. LOCATE VALVES, CLEANOUTS, DAMPERS, CONTROLS AND SIMILAR COMPONENTS SO THAT THEY ARE ACCESSIBLE.
    A. INSTALL TAG ON CEILING GRID FRAME TO INDICATE LOCATION AND TYPE OF EQUIPMENT THAT REQUIRES MAINTENANCE.
7. PROVIDE ACCESS DOORS FOR MECHANICAL EQUIPMENT INSTALLED BEHIND WALLS, ABOVE INACCESSIBLE CEILINGS AND BELOW FLOORS. COORDINATE ACCESS DOOR LOCATIONS WITH ARCHITECT/ENGINEER. ACCESS DOOR SHALL BE SIZED SO THAT ADJACENT EQUIPMENT IS ACCESSIBLE.
    A. PROVIDE 16 GA. STEEL, FLUSH TYPE ACCESS DOOR WITH CONCEALED HINGE AND SLOT SCREWDRIVER TYPE CAM LATCH. PROVIDE FACTORY PRIMED IN PAINTED SURFACE AREAS FOR FIELD PAINTING.
    B. PROVIDE STAINLESS STEEL FOR ALL OTHER AREAS. PROVIDE UL LISTED AND LABELED DOOR WHERE FIRE-RESISTANCE RATING IS INDICATED ON DRAWINGS.
    C. PROVIDE DUCT ACCESS PANELS FOR FIRE DAMPER ACTUATOR ACCESS.

FILTERS

1. PROVIDE 2" MERV 8, PLEATED, DISPOSABLE FILTERS. SIZE OF FILTER SHALL BE COMPATIBLE WITH FILTER BOX OR AIR HANDLER.

SPLIT SYSTEM UNITS

1. BASIS OF DESIGN SHALL REPRESENT THE QUALITY OF UNITS.
2. MAJOR COMPONENTS INCLUDE:
    A. EVAPORATOR AND CONDENSER UNITS.
    B. CONTROLS - UNITS SHALL BE CONTROLLED BY MANUFACTURER'S PROPRIETARY TEMPERATURE CONTROL SYSTEM.
3. INSTALL PER MANUFACTURER'S RECOMMENDATIONS.
4. PROVIDE ACOUSTIC LINING IN CONNECTING DUCTWORK 10' UPSTREAM AND DOWNSTREAM OF FAN, UNLESS OTHERWISE NOTED ON PLANS.

AIR TERMINALS

1. SCHEDULED GRILLES, REGISTERS, AND DIFFUSERS SHALL BE THE BASIS OF DESIGN. UNITS OF SIMILAR CONSTRUCTION AND CAPABILITIES MAY BE SUBMITTED FOR REVIEW. DEVICES SHALL DISTRIBUTE THE QUANTITY OF AIRFLOW UNIFORMLY THROUGHOUT THE INDICATED SPACE WITHOUT CAUSING NOTICEABLE NOISE OR DRAFTS.
2. PROVIDE ALL DEVICES FOR COMPLETE INSTALLATION DEPENDING ON LOCATION OF INSTALLATION (IE: A.C.T OR HARD LID CEILINGS).
3. INSTALL PER MANUFACTURER'S RECOMMENDATIONS AND AS NOTED ON PLANS.

AIR BALANCING

1. SCOPE OF WORK INCLUDES SETTING VOLUME (FLOW) AND SPEED ADJUSTMENTS TO HVAC. INSTRUMENTATION USED TO BALANCE THIS SYSTEM SHALL BE IN GOOD CONDITION AND MAINTAINED. IF REQUIRED BY THE OWNER, THE TESTS SHALL BE DONE IN THE PRESENCE OF THE OWNER'S REPRESENTATIVE.
2. THE BALANCER SHALL BE AN INDEPENDENT FIRM THAT SPECIALIZES IN BALANCING AND TESTING OF PUMPING SYSTEMS AND AIR MOVING EQUIPMENT/ AIR DISTRIBUTION AND EXHAUST SYSTEMS. THE BALANCER SHALL PROVIDE PROOF OF HAVING SUCCESSFULLY COMPLETED FIVE PROJECTS OF SIMILAR SCOPE. TESTING AND ADJUSTING SHALL BE PERFORMED IN ACCORDANCE WITH NEBB OR AABC STANDARDS AND PROCEDURES.
3. DAMAGE DONE TO THE SYSTEM BY THE BALANCER SHALL BY HIS/HER RESPONSIBILITY TO RECTIFY. NEATLY TYPED RECORDS SHALL BE MAINTAINED AT ALL STEPS, ADJUSTMENTS, AND BEGINNING AND FINAL READINGS. THE RECORDS SHALL ALSO INCLUDE MEASUREMENT LOCATIONS, DESIGN CAPACITIES, AND DATES AND NAMES OF PERSONNEL INVOLVED. FINAL SETTINGS SHALL BE CLEARLY MARKED ON EACH BALANCING DEVICE.
4. CHECK OUT TEMPERATURE CONTROLS TO ASSURE PROPER CONTROL SEQUENCE, PROPER CONTROL SETTINGS, AND PROPER CONTROL CALIBRATION. REPORT MALFUNCTIONS IN LOGS UNDER "ADDITIONAL REMARKS."
5. AIR BALANCE LOG:
    A. TEST AND ADJUST ENTIRE SYSTEM WITHIN SCOPE OF WORK. VOLUMES SHALL BE WITHIN 10% OF DESIGN REQUIREMENTS.
    B. MEASURE TOTAL STATIC PRESSURE INCLUDING DUCT SYSTEM, TERMINAL UNITS, FILTERS, ETC.
    C. ADJUST AND RECORD SYSTEM TO DESIGN RECIRCULATED AIR CFM.
    D. DIFFUSERS, GRILLES AND REGISTERS SHALL BE ADJUSTED TO MINIMIZE DRAFTS IN ALL AREAS.
    E. ALL FILTERS SHALL BE CLEAN AND IN PLACE BEFORE STARTING FANS.
    F. DATA: RECORD AND CHECK THE FOLLOWING SYSTEMS AND EQUIPMENT.
        a. AIR TERMINALS: SUPPLY, RETURN, OR EXHAUST IDENTIFICATIONS, CATALOGUE IDENTIFICATION, APPLICATIONS FACTORS, DESIGN AND RECORDED VELOCITIES AND AIR QUANTITIES, AND STATIC PRESSURES.

CONTROLS

1. STAND ALONE CONTROL SYSTEMS
    A. SCOPE: PROVIDE UNIT CONTROLS, ZONE TEMPERATURE CONTROLS AND ANY OTHER CONTROL ITEMS REQUIREMENT FOR A COMPLETE AND FUNCTIONAL SYSTEM. PROVIDE ALL REQUIRED WIRING, CONDUIT, COMPONENTS (RELAYS, TRANSFORMERS, ETC) AND EQUIPMENT. OBTAIN AND UNDERSTAND ALL MECHANICAL AND PLUMBING DOCUMENTS BEFORE BIDDING WORK.
    B. APPROVED MANUFACTURERS ARE TRANE, MITSUBISHI, AND HONEYWELL. NO OTHER MANUFACTURER IS ACCEPTABLE UNLESS APPROVED BY THE OWNER'S REPRESENTATIVE.
    C. SPECIFIC REQUIREMENTS: EACH UNIT SHALL HAVE INDIVIDUAL STANDALONE CONTROLS THAT PERFORM THE FUNCTIONS LISTED IN THE DRAWINGS. PNEUMATIC CONTROLS ARE NOT ACCEPTABLE.
2. ROOM TEMPERATURE SENSORS - ROOM TEMPERATURE SENSORS SHALL BE MOUNTED 54" AFF UNLESS OTHERWISE NOTED ON PLANS. VERIFY ALL LOCATIONS WITH OWNER'S REPRESENTATIVE.
3. WIRING:
    A. ALL CLASS 2 (24VAC OR LESS) CONTROLS WIRING SHALL BE CONCEALED IN CONDUIT, UNLESS CONCEALED IN ACCESSIBLE LOCATIONS.
    B. WIRE SUPPORTS SHALL BE INSTALLED PER LOCAL WIRING CODE REQUIREMENTS. DEFAULT SUPPORT SPACING SHALL BE 5'. SUPPORTS SHALL HANG FROM THE BUILDING STRUCTURE AND BE DESIGNED FOR THIS APPLICATION.
    C. PROVIDE FIRE STOPPING FOR ALL PENETRATIONS USED BY CONTROLS CONDUIT AND RACEWAYS.
    D. WIRING SHALL NOT PENETRATE STRUCTURAL ELEMENTS.
4. PROVIDE 2 HOURS OF SCHEDULED INSTRUCTION PERIOD TO THE OWNER. COST FOR TIME INVOLVED SHALL BE INCLUDED IN THE BID.
5. INSTALL IN ACCORDANCE WITH THE MANUFACTURER'S PUBLISHED INSTALLATION INSTRUCTIONS, THE NEC AND THE REQUIREMENTS OF THE AUTHORITY HAVING JURISDICTION.

REFRIGERANT PIPE INSULATION

1. RUBBER OR FLEXIBLE FOAM STYLE INSULATION FOR REFRIGERANT PIPING SYSTEMS SHALL BE PROVIDED WITH LINESET.
2. PROVIDE PER THE WSEC AND THE MANUFACTURER'S PUBLISHED INSTRUCTIONS. INSULATION THICKNESSES SHALL COMPLY WITH WSEC.
3. LINESET PIPING EXPOSED TO WEATHER SHALL BE PROTECTED FROM DAMAGE. PROVIDE ARMAFLEX SHIELD OR EQUAL IN AREAS THAT ARE EXTERIOR TO THE BUILDING ENVELOPE OR AREAS THAT ARE SUBJECT TO DAMAGE.

COPPER LINESET

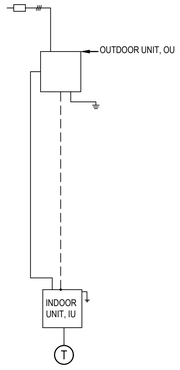
1. COPPER LINESET SHALL BE USED FOR REFRIGERANT PIPING.
2. SIZE OF PIPING SHALL BE PER THE MANUFACTURER'S RECOMMENDATION AND REQUIREMENTS.
3. MATERIALS FOR COPPER LINESET SHALL BE SOFT ANNEALED COPPER. CONTRACTOR TO SELECT END FINISHING TO SUIT INSTALLATION AND MANUFACTURER'S RECOMMENDATION.
4. LINE SET SHALL BE CONTINUOUS FROM OUTDOOR UNIT TO INDOOR UNIT. SUCH THAT THERE ARE NO JOINTS IN FIRE RATED CORRIDOR OR EXIT PASSAGE WAYS.
5. NO REFRIGERANT PIPE SHALL BE INSTALLED IN STAIR WELLS.
6. INSTALL PER IMC CHAPTER 11.

PLASTIC PIPE, DWV & SEWER

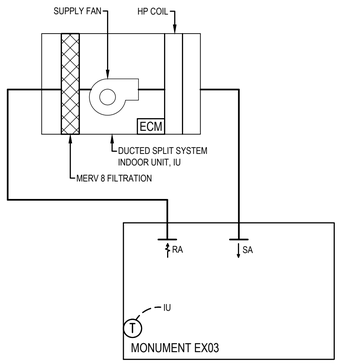
1. PVC PLASTIC DRAIN, WASTE, AND VENT PIPE AND FITTINGS SHALL BE PER IAPMO INSTALLATION STANDARD (IS) 09-03, "PVC BUILDING DRAIN, WASTE, AND VENT PIPE AND FITTINGS."

PIPE TESTING

1. REFRIGERANT PIPING SHALL BE TESTED FOR A PERIOD OF NOT LESS THAN 60 MINUTES AT A PRESSURE NOT LOWER THAN THE DESIGN PRESSURES OR THE SETTING OF THE PRESSURE RELIEF DEVICES. TEST PER IMC SECTION 1110.
2. PIPING IS CONSIDERED "PASSED" IF THE PRESSURE REMAINS UNCHANGED FOR THE DURATIONS LISTED ABOVE.



1 TYPICAL REFRIGERANT FLOW DIAGRAM
SCALE: NTS



SPLIT SYSTEM FLOW DIAGRAM
NOT TO SCALE

GENERAL NOTES

1. PIPING IS SCHEMATIC IN NATURE CONTRACTOR TO PROVIDE ADDITIONAL FITTINGS AND OFFSETS AS REQUIRED TO INSTALL A COMPLETE AND FUNCTIONING SYSTEM.

DIAGRAM SYMBOL LEGEND

- POWER WIRE BY EC
- CONTROL WIRE BY EC
- REFER. PIPING, SIZED PER MFR BY MC
- GROUND BY E.C.
- FUSE BY E.C.
- Y FITTING BY MC

SEQUENCE OF OPERATIONS

GENERAL
1. PROVIDE AND INSTALL ALL NECESSARY DEVICES INCLUDING BUT NOT LIMITED TO: ACTUATORS, RELAYS, SWITCHES, SENSORS, DAMPERS, CONDUIT, AND WIRING NECESSARY TO PROVIDE A COMPLETE AND OPERATIONAL SYSTEM.

TIMING OF CONTROL WORK
1. THE CONTROL SYSTEM SHALL BE COMPLETE PRIOR TO BALANCING OF THE PROJECT, CONTROL PERSONNEL ARE TO ASSIST IN SYSTEM OPERATION FOR THE BALANCER, THE CONTROL SYSTEM SHALL BE COMPLETE PRIOR TO HVAC SYSTEM COMMISSIONING AND CONTROL PERSONNEL ARE TO ASSIST IN SYSTEM OPERATION AND TESTING DURING COMMISSIONING. THE CONTROL SYSTEM SHALL BE COMMISSIONED PRIOR TO OWNER OCCUPANCY.

TYPICAL SYSTEM SCHEDULE:
1. OFF HOURS ARE 6:00 PM TO 6:00 AM AND WEEKENDS, ADJUSTABLE. CONFIRM FINAL SCHEDULE WITH OWNER.
2. MORNING WARM-UP IS TO BE STARTED AT AN "OPTIMAL START" TIME.

TYPICAL SETPOINTS (ADJUSTABLE):
HEATING SPACE TEMPERATURE - 70 DEGREES FAHRENHEIT
COOLING SPACE TEMPERATURE - 75 DEGREES FAHRENHEIT

FIRE ALARM SYSTEM SHUTDOWN
1. PROVIDE ALL NECESSARY CONDUIT, WIRING, AND ACCESSORIES TO SHUTDOWN EACH UNIT UPON ACTIVATION OF THAT UNITS SMOKE DETECTORS (SMOKE DETECTORS WITH DPDT ARE PROVIDED AND INSTALLED BY OTHERS). CONNECTIONS SHALL BE HARDWIRED, INDEPENDENT OF ANY CONTROL SYSTEM LOGIC, SO THE FAILURE OF THE CONTROL SYSTEM OR LOSS OF CONTROL SYSTEM POWER WILL IN NO WAY PREVENT THE ALARMED SMOKE DETECTOR SHUTDOWN OF THE EQUIPMENT. UPON RESET OF ALARMED DEVICE, SYSTEM SHALL AUTOMATICALLY RETURN TO NORMAL OPERATION. PROVIDE A TIME DELAY FOR EQUIPMENT START-UP TO PREVENT EXCESS LOAD STARTING AT THE SAME TIME.

SPLIT SYSTEM CONTROL SEQUENCE (DUCTED)

GENERAL
1. SPLIT SYSTEMS INDOOR/OUTDOOR UNITS SHALL BE CONTROLLED BY LOCAL THERMOSTAT. UNITS SHALL OPERATE ON INTERNAL CONTROLS TO MAINTAIN ROOM SETPOINT.
2. SPACE STATS SHALL BE EQUIPPED WITH PUSHBUTTONS TO PROVIDE UNOCCUPIED OVERRIDE REQUEST AND SPACE TEMPERATURE SETPOINT ADJUSTMENT AS REQUIRED. OVERRIDE RUNTIME SHALL BE 2 HOURS (ADJUSTABLE). NIGHT SETBACK TEMPERATURE SETPOINT SHALL BE 55°F HEATING AND 85°F COOLING (ADJUSTABLE).
3. UNIT SHALL BE PROGRAMMED FOR START/STOP THROUGH THE LOCAL STAT BASED ON DESIGNED OCCUPIED MODES WITH WEEKDAY, WEEKEND AND HOLIDAY SCHEDULES.
4. REDUCE FANS TO LOW SPEED (<0.12 W/CFM) WGEN SPACE IS WITHIN DEADBAND SETPOINT.

SUPPLY FAN
1. SUPPLY FAN SHALL START VIA A SCHEDULE (ADJUSTABLE), WARM-UP MODE COMMAND (ADJUSTABLE) OR OVERRIDE COMMAND (ADJUSTABLE). WARM-UP MODE COMMAND IS GENERATED BY LOCAL STAT. OVERRIDE COMMAND IS TRIGGERED BY SPACE STAT UNOCCUPIED OVERRIDE REQUEST OR SPACE STAT CALLING FOR NIGHT SETBACK CONDITIONING.
2. FAN SHALL OPERATE AT CONSTANT SPEED AS DETERMINED BY THE AIR BALANCE CONTRACTOR. FAN SHALL OPERATE AT LOW SPEED BETWEEN DEADBAND.

HEAT PUMP HEATING
1. HEAT PUMP HEATING ENABLE IS OFF WHEN FAN STATUS IS OFF.
2. HEAT PUMP STAGES TO MAINTAIN SPACE TEMPERATURE SETPOINT.
3. AUXILIARY HEAT ACTIVATES ONLY IF HEAT PUMP IS UNABLE TO MAINTAIN ROOM SETPOINT.

COOLING
1. DX COOLING ENABLE IS OFF WHEN FAN IS OFF.
2. DX COOLING ACTIVATES TO MAINTAIN SPACE TEMPERATURE SETPOINT AS THE SECOND STAGE OF COOLING. (STAGE COMPRESSOR WHERE AVAILABLE)

TEMPERATURE SETPOINT
1. SPACE AIR TEMPERATURE SETPOINT IS 70°F (ADJUSTABLE) FOR HEATING CONTROL AND 75°F (ADJUSTABLE) FOR COOLING CONTROL.

FIRE ALARM SHUTDOWN
1. UPON A GENERAL FIRE ALARM ALL AIR HANDLING EQUIPMENT SHALL SHUTDOWN. THE FIRE ALARM CONTROL PANEL SYSTEM SHALL COMMAND A SOFTWARE SHUTDOWN OF ALL HANDLING EQUIPMENT. THIS CONTRACTOR TO RUN WIRES FROM RELAYS PROVIDED BY THE FIRE ALARM CONTRACTOR TO THE AIR HANDLING UNITS. COORDINATE WITH FIRE ALARM CONTRACTOR AND DOCUMENTS FOR LOCATION OF RELAYS.

SPLIT SYSTEM CONTROL SEQUENCE (DUCTLESS)

GENERAL
1. SPLIT SYSTEMS INDOOR/OUTDOOR UNITS SHALL BE CONTROLLED BY LOCAL THERMOSTAT. UNITS SHALL OPERATE ON INTERNAL CONTROLS TO MAINTAIN ROOM SETPOINT.

TEMPERATURE SETPOINT
1. EQUIPMENT ROOMS: SPACE AIR TEMPERATURE SETPOINT IS 70°F (ADJUSTABLE) FOR HEATING CONTROL AND 75°F (ADJUSTABLE) FOR COOLING CONTROL.

City of Puyallup
Development & Permitting Services
ISSUED PERMIT
Building | Planning | Engineering | Public Works | Fire | Traffic

BRIAN SCOTT MIDDLEBROOK — STATE OF WASHINGTON — 52770 — REGISTERED PROFESSIONAL ENGINEER
05/01/2025

DATE	DESCRIPTION
04/10/2025	PERMIT
05/01/2025	PERMIT COMMENTS

SEQUENCE OF OPERATIONS AND SPEFICIATIONS

WSF
110 9TH AVE SW
PUYALLUP, WA 98371

NARROWS
HEATING - AIR CONDITIONING, INC.
5121 SOUTH BURLINGTON WAY
TACOMA, WASHINGTON 98409
253.627.7543 NARROI*216J3

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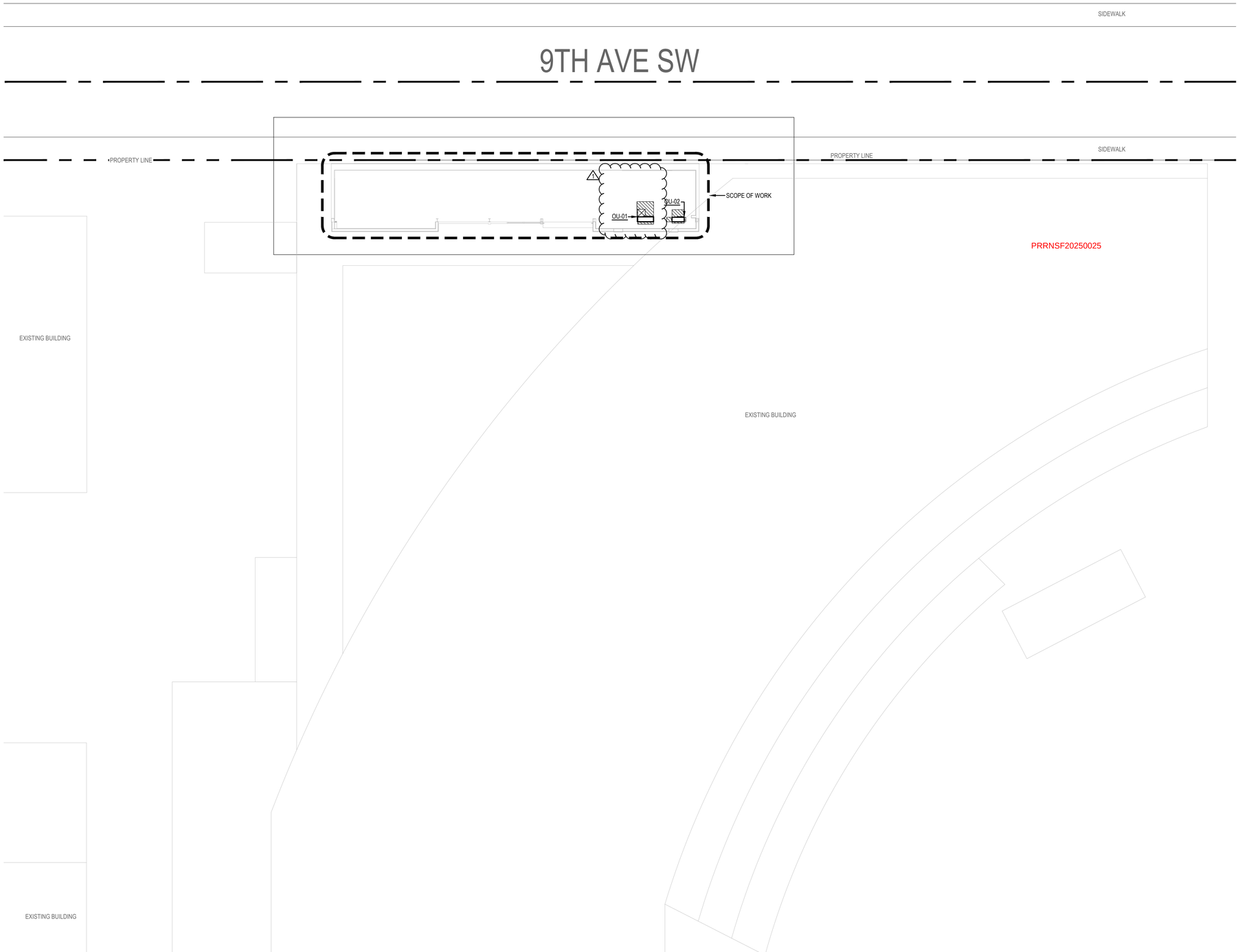

1 NORTH

SITE PLAN

SCALE: 3/32" = 1'-0"

GENERAL NOTES

1. DRAWINGS FOR MECHANICAL WORK WITHIN THE SCOPE OF WORK SPACE ARE DIAGRAMMATIC AND INTENDED TO CONVEY SCOPE AND GENERAL ARRANGEMENT ONLY. THE ACCURACY AND COMPLETENESS OF THE DESIGN CONTENT REQUIRES FIELD VERIFICATION FOR ALL LOCATIONS AND DIMENSIONS PRIOR TO START OF MECHANICAL WORK.
2. MECHANICAL SCOPE OF WORK BOUNDED BY BUILDING EXTERIOR WALLS AND ROOF, UNLESS NOTED OTHERWISE.

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