

GENERAL NOTES

3. ALL WORK PERFORMED SHALL BE DONE IN STRICT ACCORDANCE TO ALL APPLICABLE MECHANICAL, BUILDING, ENERGY, FUEL GAS, AND LOCAL CODES, WITH AMENDMENTS.
4. WHERE USED, THE TERM "PROVIDE" SHALL MEAN "FURNISH AND INSTALL".
5. COORDINATE MECHANICAL WORK WITH ELECTRICAL, ARCHITECTURAL, STRUCTURAL, CIVIL AND LANDSCAPE WORK SHOWN ON OTHER CONTRACT DOCUMENTS. PROVIDE ADDITIONAL OFFSETS FOR COORDINATED INSTALLATION WHERE REQUIRED.
6. 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.
7. COORDINATE EQUIPMENT CONNECTIONS WITH MANUFACTURER'S 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.
8. CLEAN THE JOB SITE DAILY AND REMOVE FROM THE PREMISES ANY DIRT AND DEBRIS CAUSE BY THE PERFORMANCE OF THE WORK INCURRED IN THIS CONTRACT. BEFORE SUBSTANTIAL COMPLETION, CLEAN EQUIPMENT, FIXTURES, EXPOSED DUCTS, PIPING AND SIMILAR ITEMS.
9. 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.
10. CONTRACTOR SHALL OBTAIN & PAY FOR ALL PERMITS AND CONSTRUCTION FEES. FURNISH FINAL CERTIFICATE TO OWNER SHOWING COMPLIANCE WITH CODE REQUIREMENTS.
11. REFER TO TYPICAL DETAILS PROVIDED IN THIS DRAWING SET FOR DUCTWORK, PIPING, AND EQUIPMENT INSTALLATION. CONTRACTOR IS RESPONSIBLE FOR CONFORMANCE WITH DETAILS.
12. A SHORT DASH IN A SCHEDULE TABLE CELL INDICATES THAT THE COLUMN HEADING IS NOT USED OR NOT APPLICABLE TO THAT SCHEDULED ITEM.
13. ALL PIPING & DUCTWORK IN FINISHED ROOMS OR SPACES SHALL BE CONCEALED IN A FURRED CHASE OR ABOVE THE HARD LID CEILING.
14. ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH NFPA 70 STANDARDS AND LOCAL REQUIREMENTS.
15. ALL FIELD WIRING SHALL REQUIRE AN ELECTRICAL PERMIT AND SHALL BE PERFORMED BY A LICENSED ELECTRICIAN.
16. LOCATE 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.
17. 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, ELMODOR, MILCOR, OR APPROVED.
18. INSTALL TAG ON CEILING GRID FRAME TO INDICATE LOCATION AND TYPE OF EQUIPMENT THAT REQUIRES MAINTENANCE.

HVAC/SHEET METAL:

1. THE FIRST FIGURE OF DUCT SIZE CALLOUTS INDICATES DIMENSION OF FACE SHOWN OR INDICATED. DUCT SIZES ARE NOT INSIDE DIMENSIONS. PROVIDE APPLICABLE DUCT LINING AND INSULATION PER THESE PLANS.
2. DUCT SIZE NOT SHOWN SHALL BE APPLIED 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. AIR TERMINALS IN UNFINISHED SPACES OR OPEN CEILING AREAS SHALL BE INSTALLED AT 8' AFF UNLESS OTHERWISE NOTED ON THESE DRAWINGS.
7. DUCTWORK SHALL BE 2.0" PRESSURE CLASS UNLESS OTHERWISE NOTED ON THESE DRAWINGS.
8. 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.
9. PROVIDE TURNING VANES IN ALL MITERED RECTANGULAR DUCT ELBOWS & TEES.
10. PROVIDE MOTORIZED DAMPERS ON OUTDOOR AIR SUPPLY, AND EXHAUST OPENINGS. DAMPERS SHALL HAVE A MAXIMUM LEAKAGE RATE OF 4 CFM PER SQUARE FOOT AT 1" W.C.
11. RELIEF GRAVITY DAMPERS SHALL HAVE A MAXIMUM LEAKAGE RATE OF 20 CFM PER SQUARE FOOT AT 1" W.C. DAMPERS SMALLER THAN 24" IN EITHER DIRECTION SHALL HAVE A MAXIMUM LEAKAGE RATE OF 40 CFM PER SQUARE FOOT AT 1" W.C.
12. ALL SUPPLY AND RETURN DUCTWORK SHALL BE INSULATED AND SEALED PER WASHINGTON STATE ENERGY CODE SECTION C403.10.1.
13. OUTSIDE AIR DUCTS SERVING INDIVIDUAL SUPPLY AIR UNITS LESS THAN 2800 CFM SUPPLY CAPACITY SHALL BE INSULATED TO R-7.
14. VENTILATION AND EXHAUST AIR IS CALLOUTED IN ACCORDANCE WITH C403.2.2.
15. 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.
16. PROVIDE TEMPORARY COVERS OVER OPEN ENDS OF EQUIPMENT AND DUCTWORK DURING CONSTRUCTION.
17. 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.
18. PROVIDE DUCT ACCESS DOORS AT DUCT SMOKE DETECTORS, BACKDRIFT DAMPERS, MOTORIZED CONTROL DAMPERS, FIRE DAMPERS, SMOKE DAMPERS, COMBINATION FIRE/SMOKE DAMPERS, DUCT MOUNTED COILS, DUCT AIRFLOW STATIONS AND LOUVER PLENUMS.

APPLICABLE CODES

AS ADOPTED BY THE CITY OF PUYALLUP, WA

INTERNATIONAL MECHANICAL CODE, IMC 2018
INTERNATIONAL BUILDING CODE, IBC 2018
WASHINGTON STATE ENERGY CODE, WSEC 2018
UNIFORM PLUMBING CODE, UPC 2018

AND ASSOCIATED WASHINGTON ADMINISTRATIVE CODE AMENDMENTS

DESIGN CONDITIONS

OUTDOOR CONDITIONS (PUYALLUP)
COOLING: 86°F DB, 64°F WB (WSEC APPENDIX C)
HEATING: 19°F DB (WSEC APPENDIX C)

INDOOR CONDITIONS
COOLING: 75°F DB, 50% RH
HEATING: 70°F DB
HEATING IN WASH BAY: LOW ENERGY SPACE

SCOPE OF WORK

1. REUTILIZE AND ADAPT EXISTING HVAC SYSTEMS TO NEW TENANT IMPROVEMENT.
2. PROVIDE MINIMUM VENTILATION AND EXHAUST TO ALL SPACES VIA DEDICATED OUTDOOR AIR UNIT.
3. PROVIDE ELECTRIC INFRARED HEATERS (1 W/SF MAX) IN WASH BAY FOR MINIMUM OCCUPANT COMFORT DURING WINTER SEASONS.

ABBREVIATIONS

	EXISTING
AABC	AMERICAN AIR BALANCE COUNCIL
AFB	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	ENTERIAL 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
FMA	FACTORY MANUAL
PFM	FEET PER MINUTE
FT	FEET
GA	GAUGE
HP	HORSEPOWER
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
MOCPI MOP	MAXIMUM OVER CURRENT PROTECTION
MSB	MANUFACTURER'S STANDARDIZATION SOCIETY
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
THRD	THREADED
TYL	TYPICAL
UL	UNDERWRITERS LABORATORY
UPC	UNIFORM PLUMBING CODE
V	VENT/ VOLT
VOLT	VOLTAGE
VRF	VARIABLE REFRIGERANT FLOW
VTR	VENT TO ROOF
VAV	VARIABLE AIR VOLUME
VERT	VERTICAL
W/	WITH
WIN	WINTER
WSEC	WASHINGTON STATE ENERGY CODE

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	SUPPLY DUCT, OSA DUCT UP	X/X	SQUARE DUCT
	SUPPLY DUCT, OSA DUCT DOWN		POINT OF CONNECTION
	RETURN, RELIEF, TRANSFER UP		LIMIT OF DEMOLITION
	RETURN, RELIEF, TRANSFER DOWN		ROUND 4-WAY CEILING DIFFUSERS
	EXHAUST AIR UP		SQUARE 4-WAY CEILING DIFFUSERS
	EXHAUST AIR DOWN		RETURN GRILLE
	RECTANGULAR ELBOW WITH TURNING VANES		EXHAUST GRILLE
	ROUND/ RECTANGULAR ELBOW		SQUARE 3-WAY CEILING DIFFUSERS
	RECTANGULAR DUCT SQUARE ELBOW UP		SQUARE 2-WAY CEILING DIFFUSERS
	RECTANGULAR DUCT, RADIUS ELBOW UP		SQUARE 1-WAY CEILING DIFFUSERS
	RECTANGULAR DUCT, SQUARE ELBOW DOWN		NATURAL GAS PIPING
	RECTANGULAR DUCT, RADIUS ELBOW DOWN		REFRIGERANT PIPING
	ROUND DUCT ELBOW UP		EXISTING PIPING
	ROUND DUCT ELBOW DOWN		CROSSING LINES, NON CONNECTING
	EQUIPMENT ABBREVIATION AND NUMBER (TAG)		PIPE CONTINUATION
	AIR TERMINAL TYPE, SIZE, AND CFM		PUMP
	DETAIL NUMBER		CAP
	DRAWING NUMBER WHERE DRAWN		PIPE ANCHOR
	CONDENSATE		PIPE GUIDE
	GATE VALVE (GV)		FLEXIBLE CONNECTION (PIPE)
	GLOBE VALVE		REDUCER
	BUTTERFLY VALVE		SUCTION DIFFUSER
	PRESSURE REDUCING VALVE (PRV)		CURRENT SENSOR
	CHECK VALVE (CV)		CURRENT RELAY
	TEMP./PRESS. RELIEF VALVE (T&PRV)		SMOKE DETECTOR
	BALL VALVE		SPACE PRESSURE SENSOR
	BALANCING COCK (BC)		SWITCH
	2-WAY CONTROL VALVE		PRESSURE ELEMENT
	GAS COCK		DIFFERENTIAL PRESSURE ELEMENT
	STRAINER WITH BLOWDOWN VALVE		HUMIDISTAT (HSTAT)
	UNION		HUMIDITY ELEMENT
	VACUUM BREAKER		FIRE ALARM
	DRAIN VALVE		MOTOR/ ACTUATOR
	WALL HYDRANT		OCCUPANCY SENSOR
	FLEXIBLE DUCT		THERMOSTAT (TSTAT)
	VOLUME DAMPER (VD)		TEMPERATURE INDICATOR
	MOTORIZED DAMPER		TEMPERATURE ELEMENT
	BACKDRAFT DAMPER		FLOW INDICATOR
	ROUND DUCT		FLOW ELEMENT
			CONDUCTIVITY SENSOR
			ELECTRONICALLY COMMUTATED MOTOR
			VARIABLE FREQUENCY DRIVE
			CARBON DIOXIDE SENSOR
			EMERGENCY POWER OFF SWITCH
			NITROGEN OXIDE SENSOR


FULL SIZED LEDGIBLE COLOR
PLANS ARE REQUIRED TO BE
PROVIDED BY THE PERMITTEE ON
SITE FOR ALL INSPECTIONS
(MIN. PLAN SIZE 24" X 36")

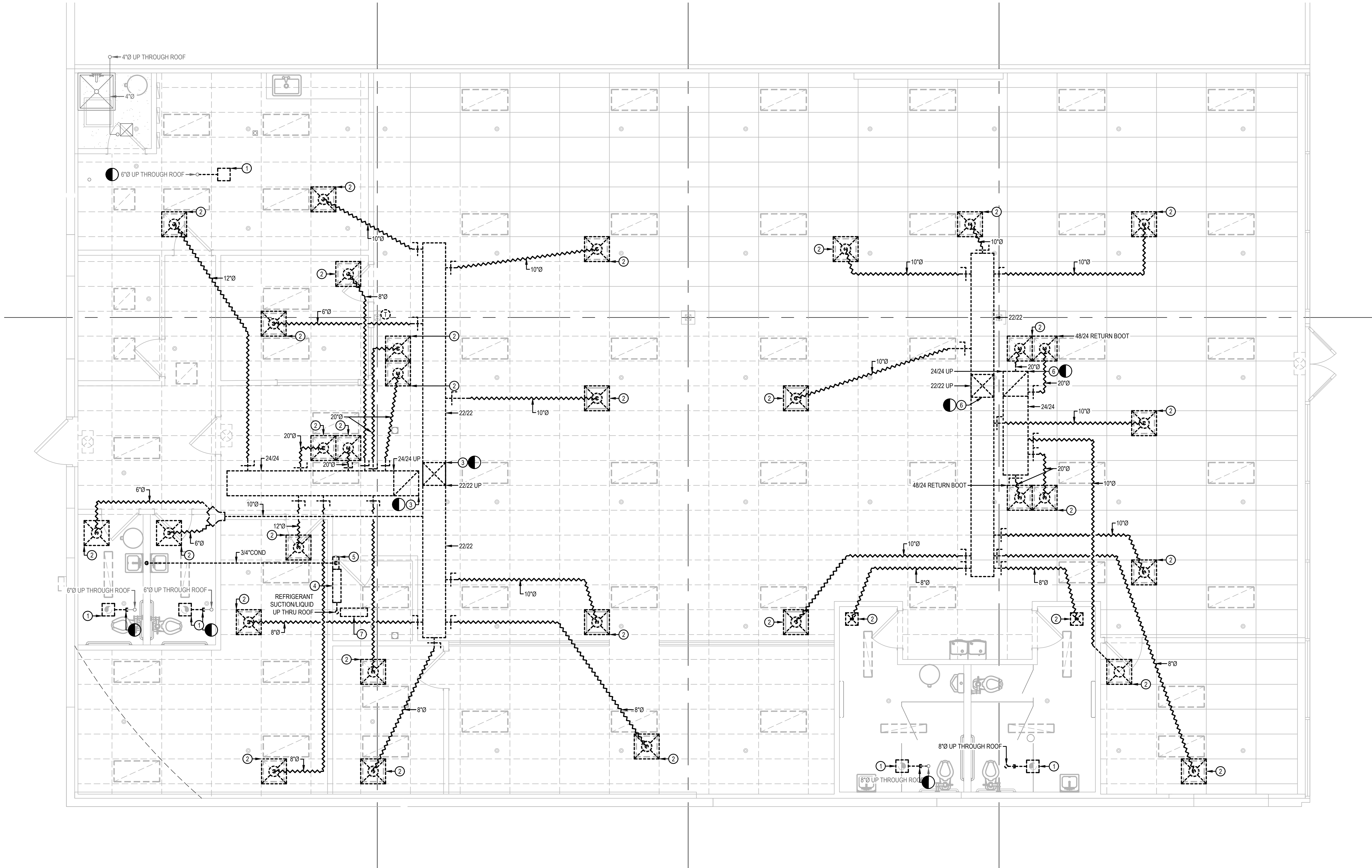
Approval of submitted plans is not an approval of omissions or oversights by this office or noncompliance with any applicable regulations of local government. The contractor is responsible for making sure that the building complies with all applicable codes and regulations of the local government.



MECHANICAL LEGEND

SYMBOL	DESCRIPTION
XX	SQUARE DUCT
	POINT OF CONNECTION
	LIMIT OF DEMOLITION
	ROUND 4-WAY CEILING DIFFUSERS
	SQUARE 4-WAY CEILING DIFFUSERS
	RETURN GRILLE
	EXHAUST GRILLE
	SQUARE 3-WAY CEILING DIFFUSERS
	SQUARE 2-WAY CEILING DIFFUSERS
	SQUARE 1-WAY CEILING DIFFUSERS
	NATURAL GAS PIPING
	REFRIGERANT PIPING
	EXISTING PIPING
	CROSSING LINES, NON CONNECTING
	PIPE CONTINUATION
	PUMP
	CAP
	PIPE ANCHOR
	PIPE GUIDE
	FLEXIBLE CONNECTION (PIPE)
	REDUCER
	SUCTION DIFFUSER
	CURRENT SENSOR
	CURRENT RELAY
	SMOKE DETECTOR
	SPACE PRESSURE SENSOR
	SWITCH
	PRESSURE ELEMENT
	DIFFERENTIAL PRESSURE ELEMENT
	HUMIDISTAT (HSTAT)
	HUMIDITY ELEMENT
	FIRE ALARM
	MOTOR/ ACTUATOR
	OCCUPANCY SENSOR
	THERMOSTAT (TSTAT)
	TEMPERATURE INDICATOR
	TEMPERATURE ELEMENT
	FLOW INDICATOR
	FLOW ELEMENT
	CONDUCTIVITY SENSOR
	ELECTRONICALLY COMMUTATED MOTOR
	VARIABLE FREQUENCY DRIVE
	CARBON DIOXIDE SENSOR
	EMERGENCY POWER OFF SWITCH
	NITROGEN OXIDE SENSOR

<div>MIDDLEBROOK ENGINEERING, LLC</div>		<div>8216 174TH AVE SW LONGBRANCH, WA 98351 253.765.8292</div> <div></div>	
<div>BRIAN SCOTT MIDDLEBROOK STATE OF WASHINGTON REGISTERED PROFESSIONAL ENGINEER 52770 6/8/2023</div>			
SHEET TITLE LEGEND, ABBREVIATIONS, AND GENERAL NOTES			
PROJECT NUMBER PRCTI202221460			
PROJECT NAME City of Puyallup Development & Permitting Services SUEUED PERMIT			
Planning		Planning	
Engineering		Public Works	
Traffic		Traffic	
PROJECT LOCATION ENTERPRISE RENT-A-CAR T.I. RIVER ROAD PLAZA SHOPPING CENTER 733 RIVER ROAD, PUYYALLUP, WA 98371			
REVISIONS			
NO.	DESCRIPTION	DATE	
DRAWN BY:	NMM		
CHECKED BY:	BSM		
PROJECT MANAGER:	MCB		
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SHEET			
MH001			



GENERAL NOTES

- 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.
- LINES AND EQUIPMENT SHOWN DARK AND DASHED IS TO BE DEMOLISHED. LINES AND EQUIPMENT SHOWN LIGHT AND SOLID IS TO REMAIN.

PLAN NOTES

- REMOVE EXISTING CEILING MOUNTED EXHAUST FAN, BACKDRAFT DAMPER, AND ALL RELATED APPURTENANCES.
- REMOVE EXISTING GRILLE, REGISTER, DIFFUSER, VOLUME DAMPER AND ALL DOWNSTREAM DUCTWORK AND APPURTENANCES.
- REMOVE ALL EXISTING HORIZONTAL AND VERTICAL SUPPLY / RETURN DUCTWORK. CAP DUCTS AT ROOFTOP UNIT ABOVE.
- REMOVE EXISTING INDOOR UNIT AND DOWNSTREAM SUPPLY AND RETURN REFRIGERANT PIPING. REMOVE ALL ASSOCIATED T'S/TAT, CONTROLS AND RELATED APPURTENANCES.
- REMOVE EXISTING CONDENSATE PUMP, DRAIN PAN AND ALL RELATED APPURTENANCES AND DOWNSTREAM CONDENSATE PIPING.
- REMOVE ALL EXISTING HORIZONTAL AND VERTICAL SUPPLY / RETURN DUCTWORK. CAP DUCTS AT ROOFTOP UNIT IN PREPARATION FOR FUTURE RECONNECTION.
- REMOVE EXISTING OUTDOOR SPLIT SYSTEM ON ROOF ABOVE. WEATHER SEAL ROOF PENETRATIONS PER ROOF MANUFACTURING TYPE. REFER TO ARCHITECTURAL FOR SPECIFICATIONS.

MIDDLEBROOK
ENGINEERING, LLC

6216 174TH AVE SW
LONGBRANCH, WA 98031
253.765.8292



SHEET TITLE

DEMOLITION MECHANICAL
PLAN

PRCT120221460

City of Puyallup
Development & Permitting Services
ISSUED PERMIT

Building

Planning

Engineering

Public Works

Fire

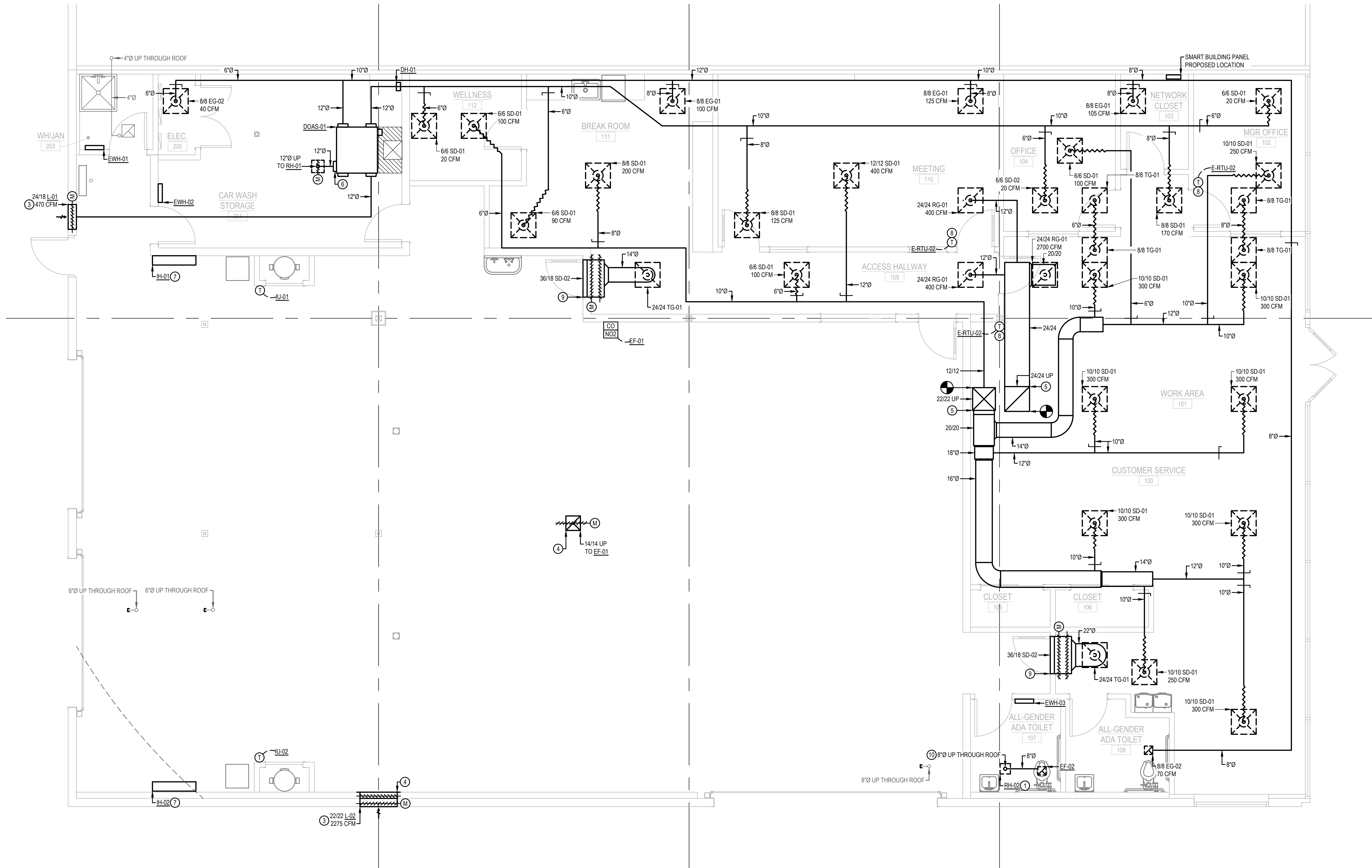
Traffic

PROJECT
ENTERPRISE RENT-A-CAR T.I.
RIVER ROAD PLAZA SHOPPING CENTER
733 RIVER ROAD, PUYALLUP, WA 98371

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SHEET

MD101



GENERAL NOTES

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- 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 NOT USED.
- 2 INSTALL RADIANT HEATER 14'-0" AFF.
- 3 INSTALL LOUVER APPROXIMATELY 14'-0" AFF. (TOP OF LOUVER).
- 4 TERMINATE DUCT WITH SCREENED OPENING.
- 5 PROVIDE NEW DUCT TRANSITION TO EXISTING ROOFTOP SUPPLY/RETURN AS REQUIRED.
- 6 UTILIZE ALTERNATE EXHAUST AIR OPENING. REMOVE/REPLACE FLANGE COVER PER MANUFACTURER'S RECOMMENDATIONS.
- 7 MOUNT INFRARED HEATER WALL. 14'-00" AFF AND AIM TOWARDS OCCUPANT WORK AREA. MAINTAIN ALL CLEARANCES AND ANCHOR TO WALL PER MANUFACTURER'S RECOMMENDATIONS AND GUIDELINES.
- 8 PROVIDE 7-DAY PROGRAMMABLE THERMOSTAT WITH NIGHT-TIME SETBACK AND AVERAGING CAPABILITY.
- 9 ECONOMIZER RELIEF. MOTORIZED DAMPERS SHALL OPEN WHEN (ERTU-02 ENABLES ECONOMIZER.
- 10 ROUTE THROUGH EXISTING EXHAUST DUCT OPENING.

PRCT10221460

City of Puyallup
Development & Permitting Services
ISSUED PERMIT

Building	Planning
Engineering	Public Works
Fire	Traffic

PROJECT
ENTERPRISE RENT-A-CAR T.I.
RIVER ROAD PLAZA SHOPPING CENTER
733 RIVER ROAD, PUYALLUP, WA 98371

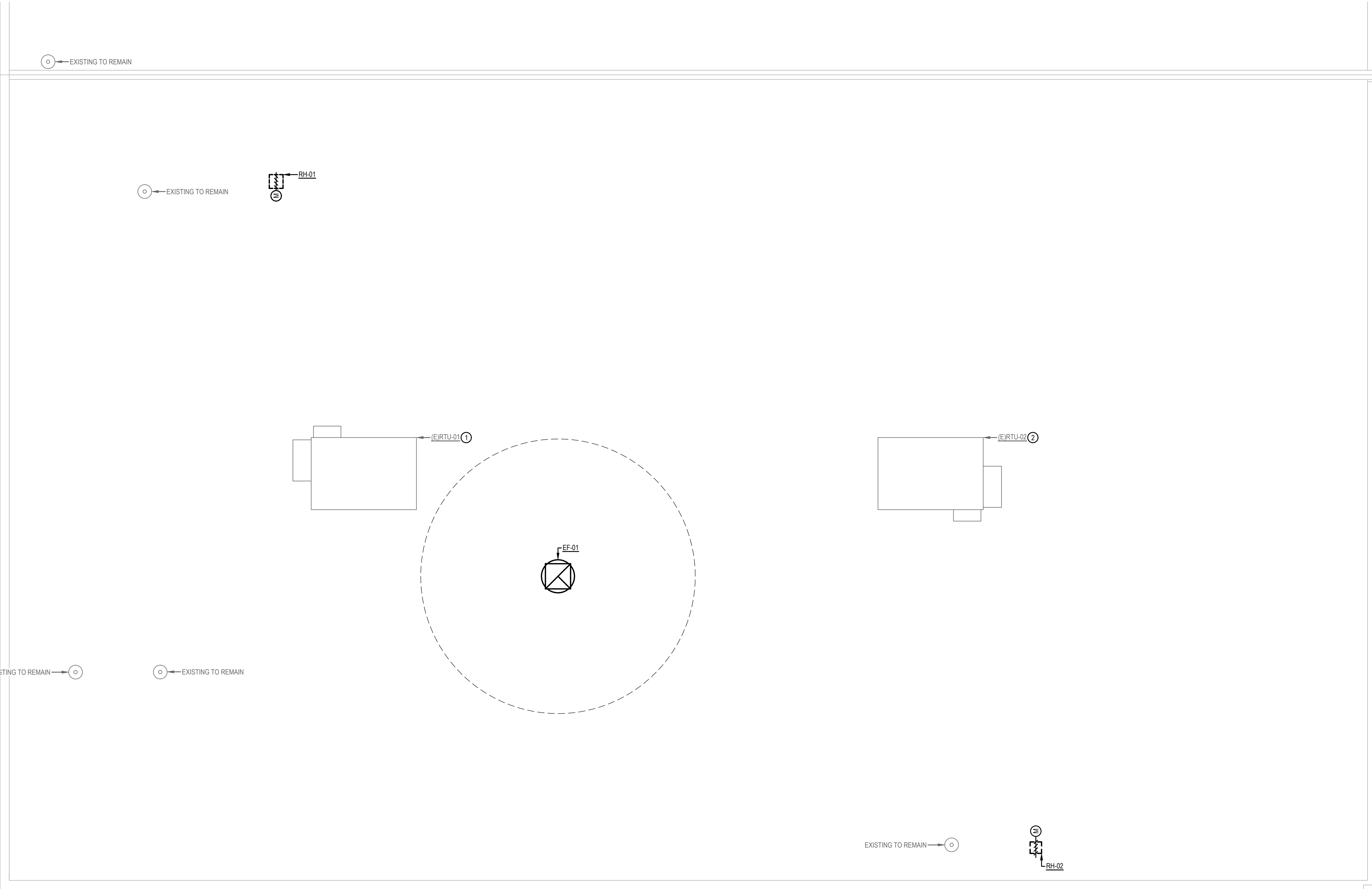
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- 3. LINES AND EQUIPMENT SHOWN DARK IS NEW WORK. LINES AND EQUIPMENT SHOWN LIGHT IS EXISTING TO REMAIN.

PLAN NOTES

- ① EXISTING ROOFTOP HEATPUMP SHALL REMAIN IN PLACE ABANDONED.
- ② EXISTING ROOFTOP HEATPUMP SHALL BE REUTILIZED FOR THIS WORK.

MIDDLEBROOK
ENGINEERING, LLC

6216 174TH AVE SW
LONGBRANCH, WA 98351
253.765.6292

BRIAN SCOTT MIDDLEBROOK
STATE OF WASHINGTON
REGISTERED
PROFESSIONAL ENGINEER
52710
6/9/2023

SHEET TITLE

MECHANICAL ROOF PLAN

PRCT120221460

City of Puyallup
Development & Permitting Services
ISSUED PERMIT

Building

Planning

Engineering

Public Works

Fire

Traffic

PROJECT

ENTERPRISE RENT-A-CAR T.I.
RIVER ROAD PLAZA SHOPPING CENTER
733 RIVER ROAD, PUYALLUP, WA 98371

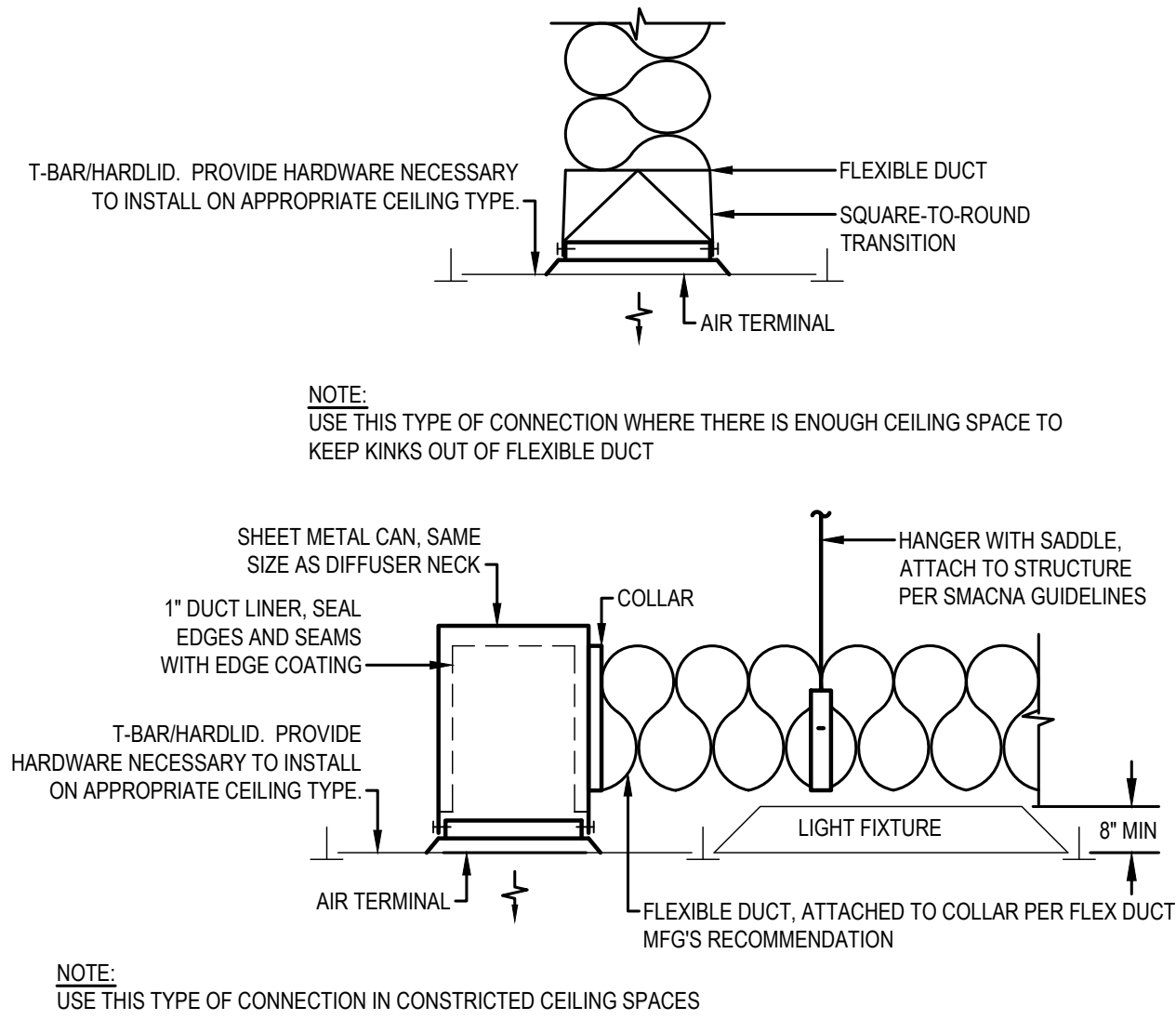
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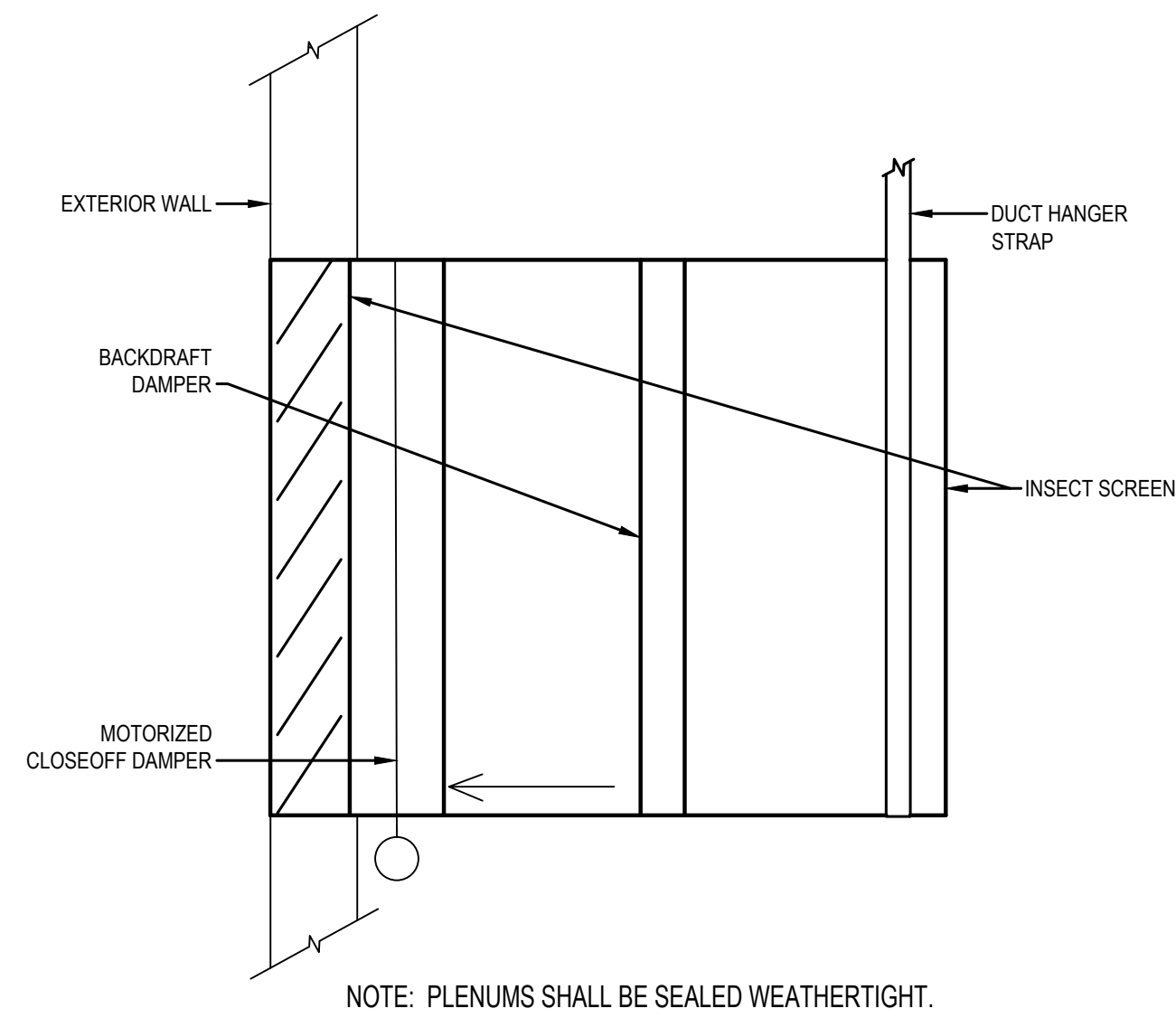
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MH102



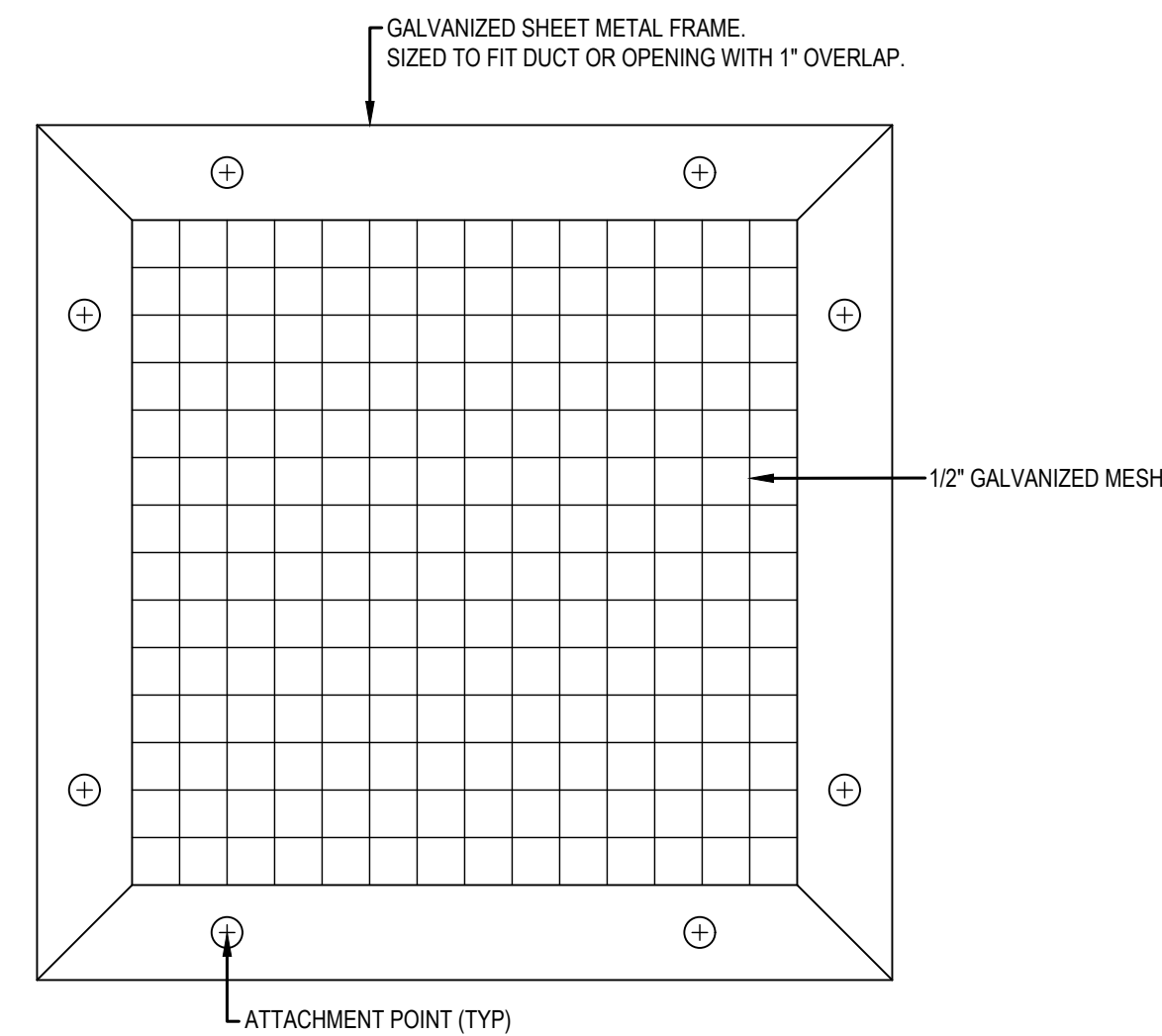
TYPICAL SUPPLY AIR TERMINAL INSTALLATION

1 SCALE: NTS



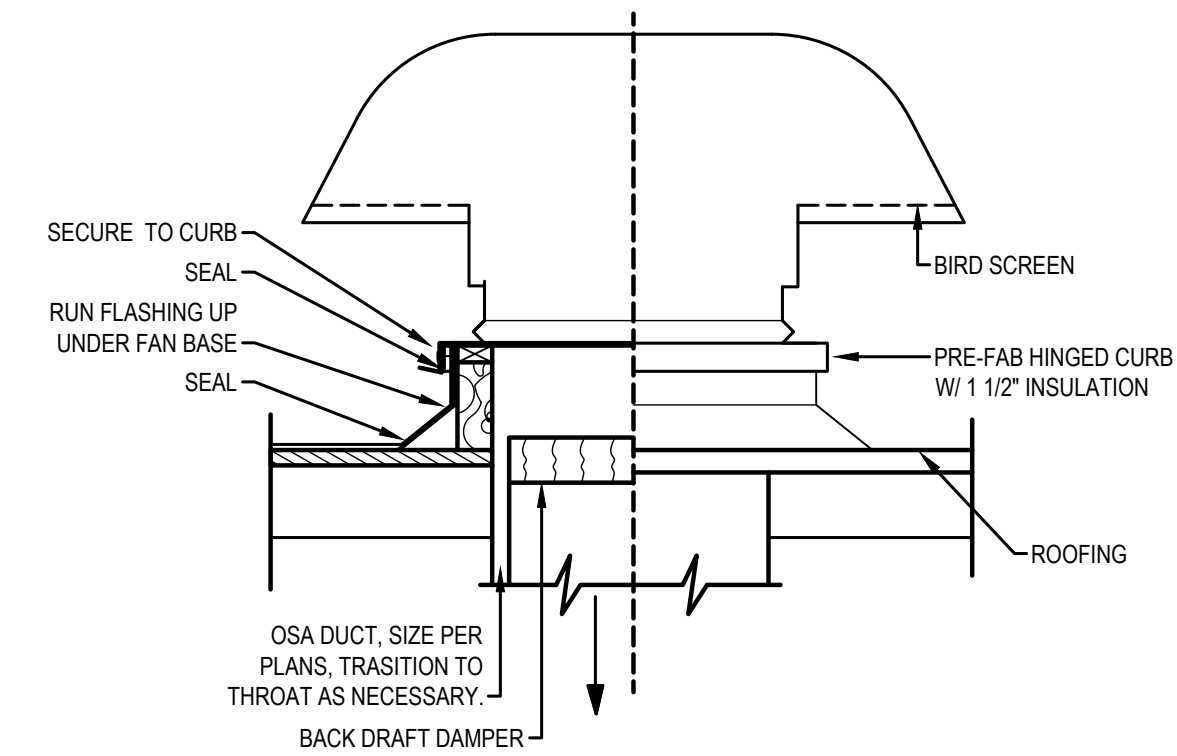
DUCT AT LOUVER INSTALLATION DETAIL

2 SCALE: NTS



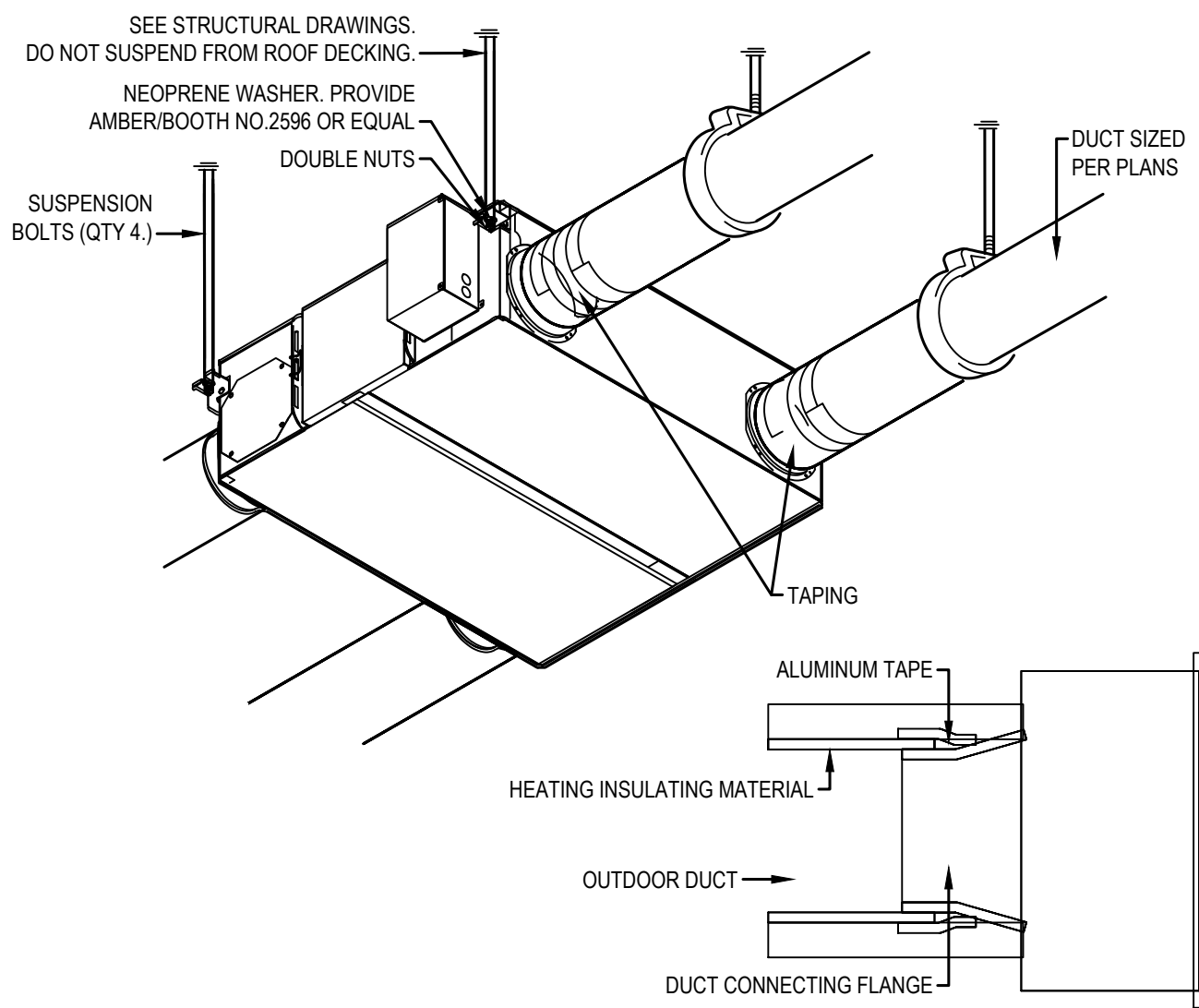
SCREENED OPENING INSTALLATION

3 SCALE: NTS



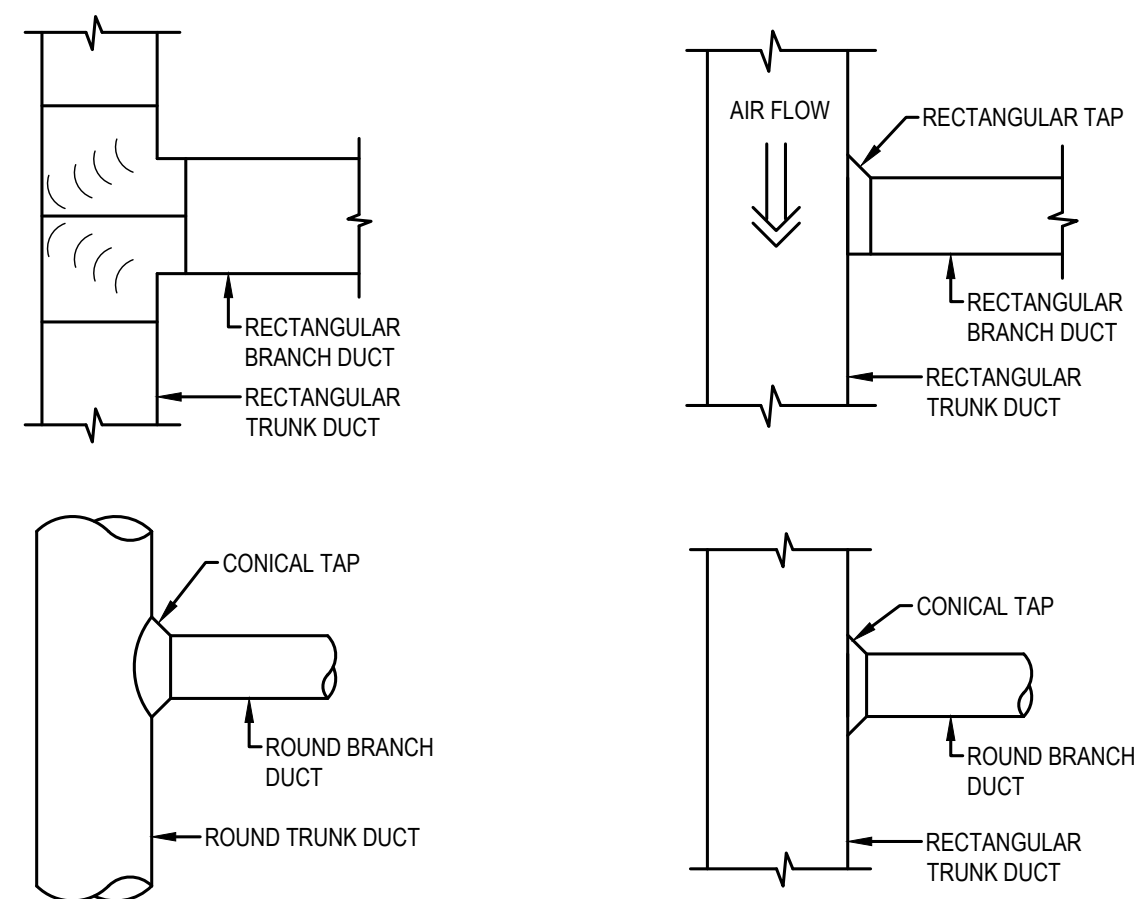
TYPICAL ROOF HOODINSTALLATION

4 SCALE: NTS



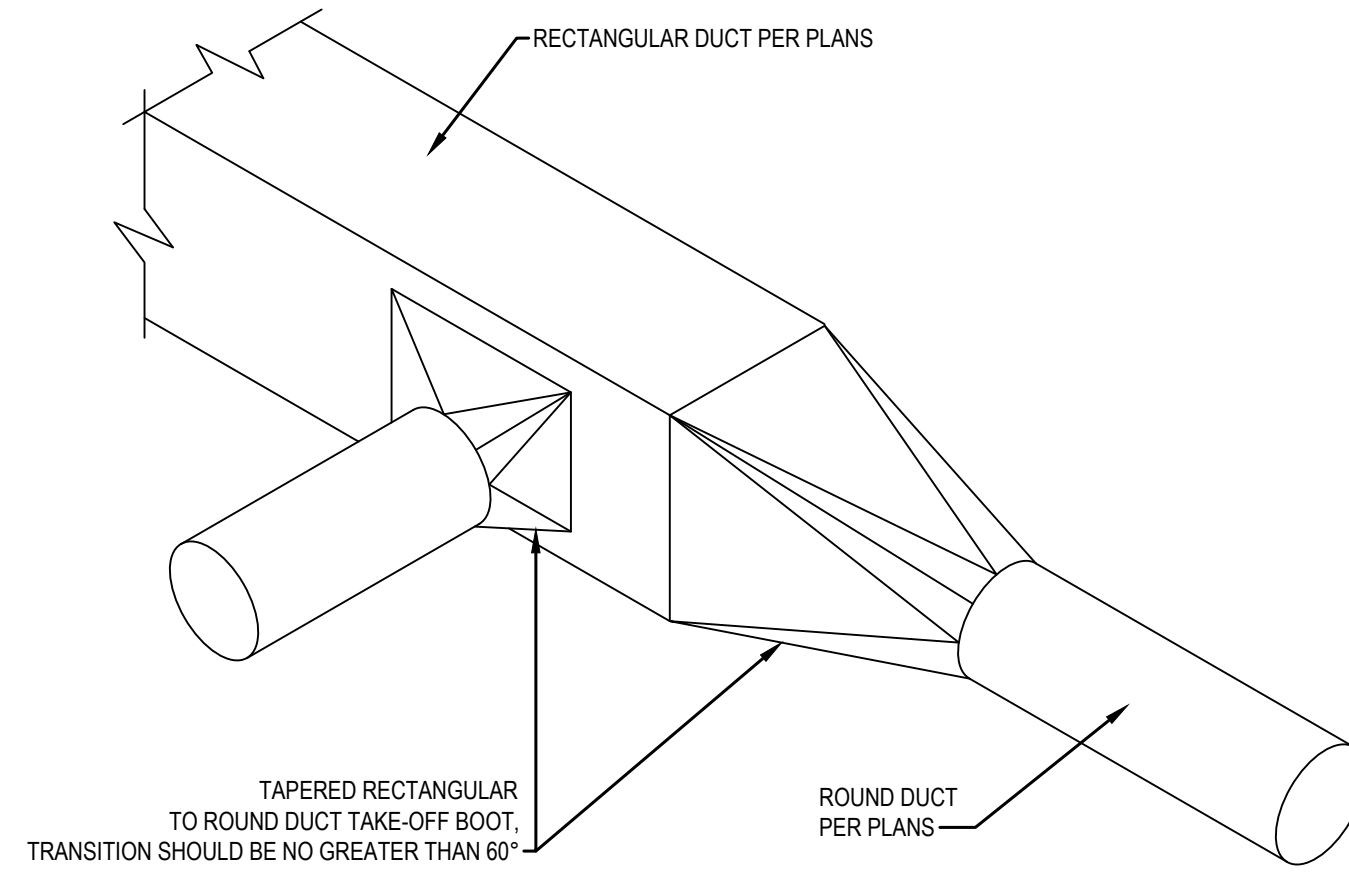
DOAS MOUNTING DETAIL

5 SCALE: NTS



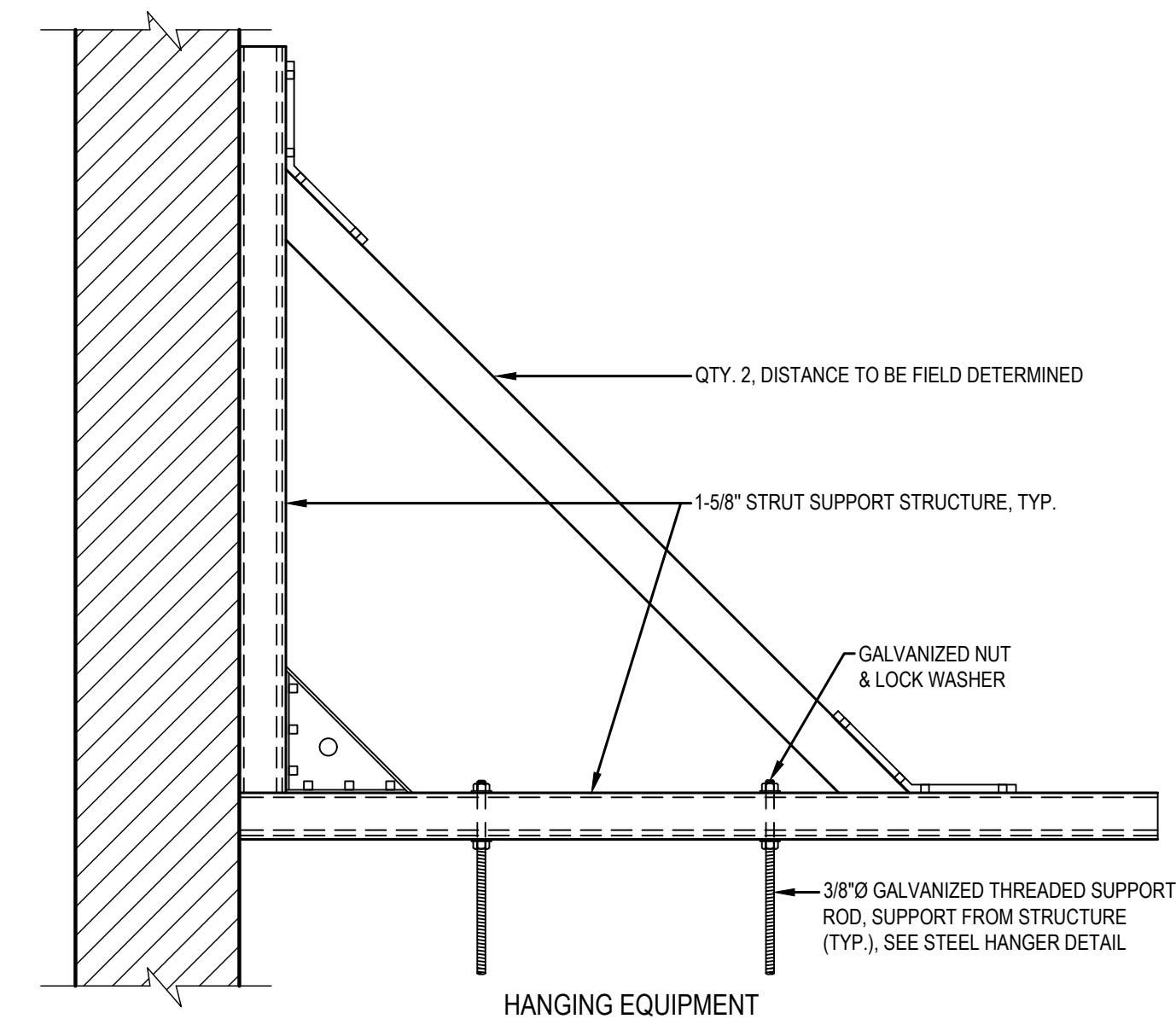
TYPICAL DUCT ELBOW AND DUCT TEE DETAILS

6 SCALE: NTS



RECTANGULAR TO ROUND DUCT TRANSITION INSTALLATION DETAIL

7 SCALE: NTS

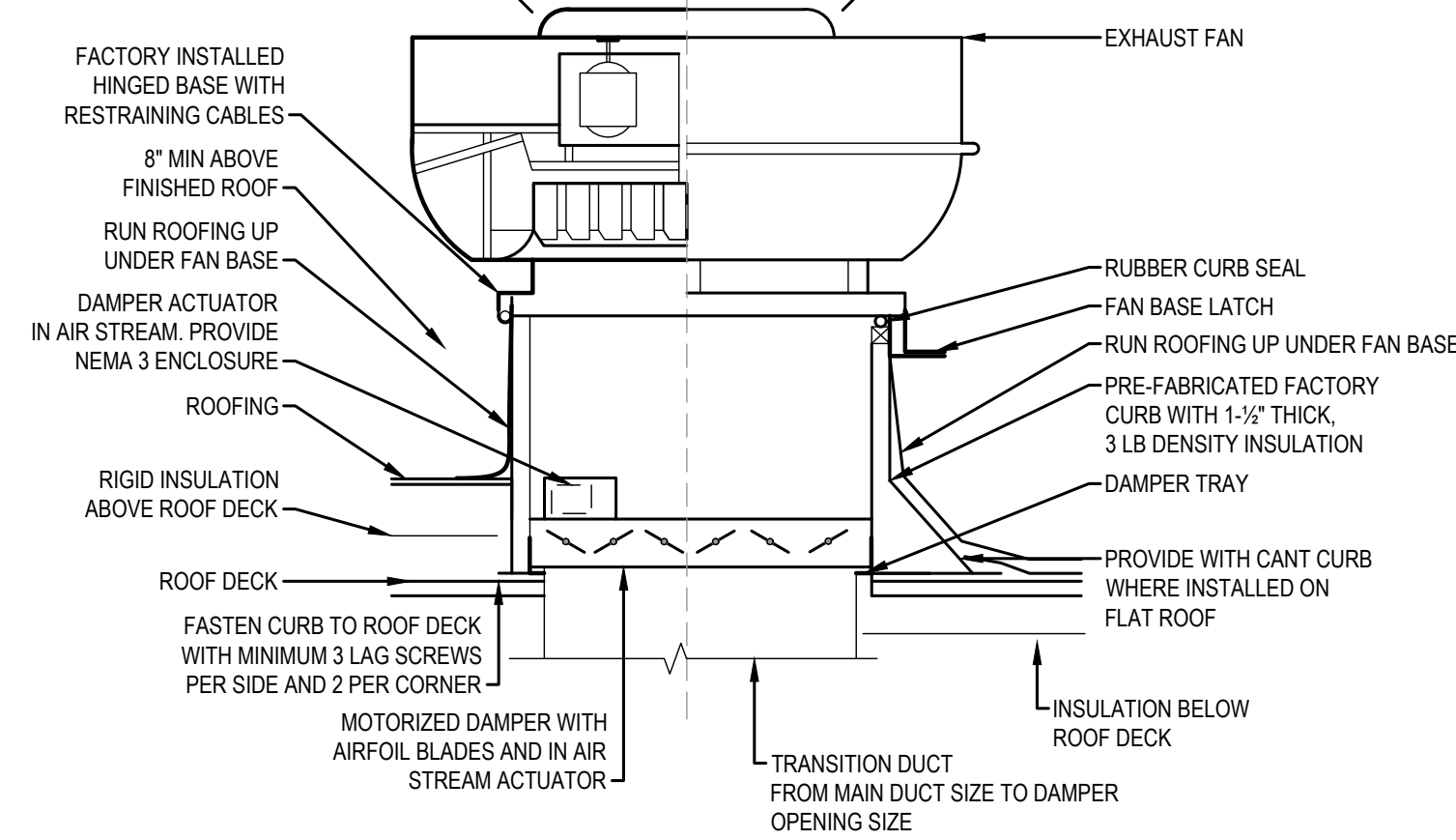


UNIT HEATER SUPPORT DETAIL

8 SCALE: NTS

INSTALLATION WHERE INSULATION IS ABOVE ROOF DECK

INSTALLATION WHERE INSULATION IS BELOW ROOF DECK

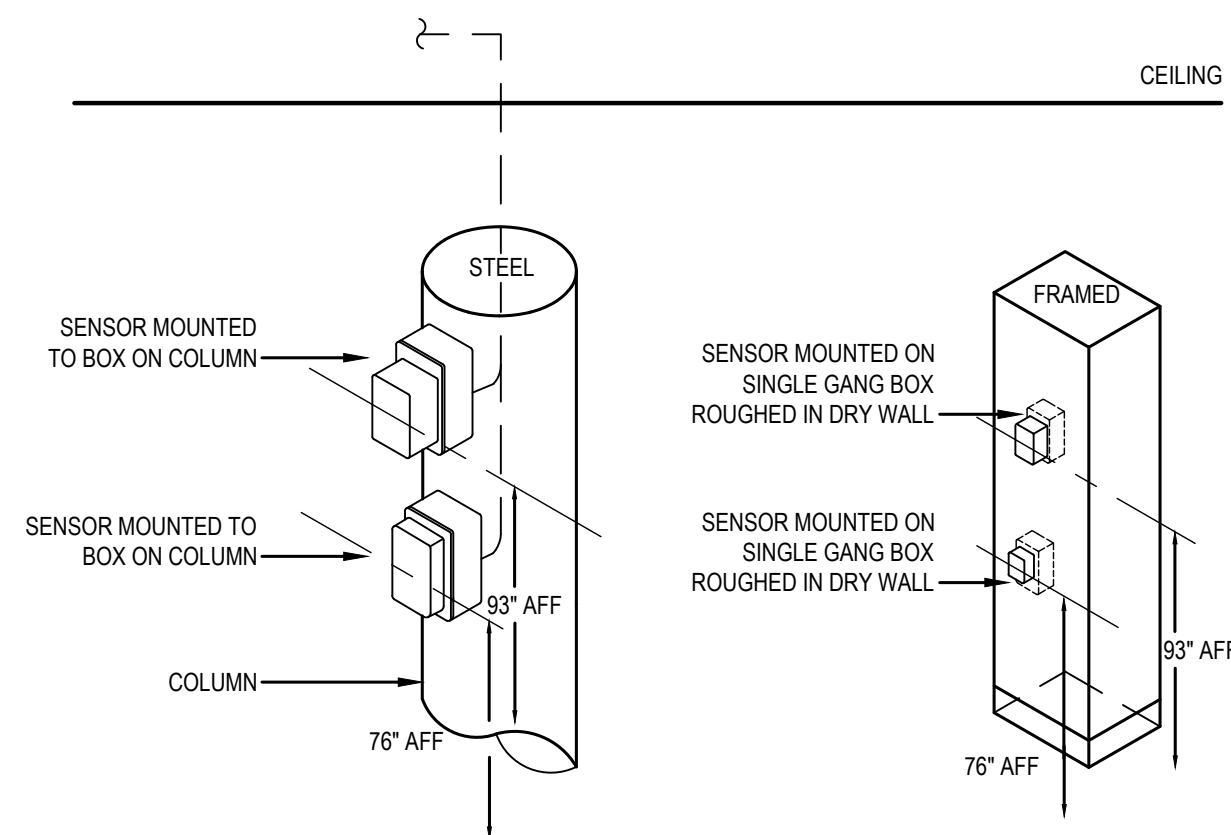


UPBLAST EXHAUST FAN INSTALLATION DETAIL

9 SCALE: NTS

NOTES

- REFER TO ARCHITECTURAL PLANS FOR LOCATION OF INSULATION AT ROOF.
- IN THE CASE WHERE THE FLASHING PORTION OF THIS DETAIL CONFLICTS WITH ARCHITECTURAL THE ARCHITECTURAL FLASHING DETAIL SHALL PREVAIL.
- PROVIDE WITH 14" TALL (MINIMUM) CURB.
- PROVIDE CURB ADAPTER WHEN INSTALLING A NEW EXHAUST FAN ON AN EXISTING CURB.
- COORDINATE WITH ELECTRICAL CONTRACTOR AND GENERAL CONTRACTOR FOR INSTALLATION OF FLEXIBLE CONDUIT TO ALLOW FOR FAN TO BE HINGED OPEN.



SENSOR MOUNTING DETAIL

10 SCALE: NTS

NO	DESCRIPTION	DATE

DRAWN BY: NMM
CHECKED BY: BSM
PROJECT MANAGER: MCB

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DEDICATED OUTSIDE AIR UNIT SCHEDULE																							
UNIT NO	MFR	MODEL	LOCATION	CONFIG	AREA SERVED	SUPPLY FAN DATA			EXHAUST FAN DATA			HEAT EXCHANGER DATA				FILTER	WEIGHT LBS	ELECTRICAL				DISCON FURN BY	NOTES
						CFM	HP	ESP	CFM	HP	ESP	SUM EAT	SUM EFF	WIN EAT	WIN EFF			MCA	MOP	V	PH		
DOAS-01	MITSUBISHI	LGH-470RVX2-E	CAR WASH STORAGE 204	CROSS FLOW	OFFICE/WORK SPACE	445	-	1.0	440	-	1.0	86	56.5	19	66.5	MERV 8	75	5.1	15	208	1	EC	1
NOTES																							
1. UNIT OPERATES AT LESS THAN 1 WATT/CFM.																							

ELECTRIC HEATER SCHEDULE									
UNIT NO	MFR	MODEL	AREA SERVED	WEIGHT	ELECTRICAL			DISCON FURN BY	NOTES
					WATTS	V	PH		
EH-01	INDEECO	WRI	WH/JAN. 203	10	250	208	1	EC	1,2,3
EH-02	INDEECO	WRI	CAR WASH STORAGE 204	10	700	208	1	EC	1,2,3
EH-03	INDEECO	WRI	ALL-GENDER ADA TOILET 107	10	250	208	1	EC	1,2,3
NOTES 1. PROVIDE WITH INTEGRAL SINGLE POLE THERMOSTAT. 2. MOUNT HEATER AT 12" ABOVE FINISHED FLOOR. 3. PROVIDE WITH RECESS WALL CAN.									

LOUVER SCHEDULE										
UNIT NO	MFR	MODEL	SERVICE	SIZE (IN)			CFM	FREE AREA (SF)	MAXIMUM VELOCITY (FPM)	NOTES
				WIDTH	HEIGHT	DEPTH				
L-01	GREENHECK	ESD-635	INTAKE	24	18	6	445	1.1	405	1, 2, 3
L-02	GREENHECK	ESD-635	INTAKE	36	36	6	2275	5	455	1, 2, 3
NOTES: 1. PROVIDE WITH BIRD AND INSECT SCREEN. 2. INSTALL PER MANUFACTURER'S RECOMMENDATION 3. COORDINATE COLOR WITH ARCHITECT.										

AIR TERMINAL SCHEDULE					
UNIT NO	MFR	MODEL	MOUNTING TYPE	STYLE	NOTES
SD-01	TITUS	MCD	TBAR	MODULAR CORE	1, 2
SD-02	TITUS	300RS	SURFACE MOUNT	LOUVERED FACE	1, 2
EG-01	TITUS	50F	TBAR	EGGCRATE	1, 2
EG-02	TITUS	50F	HARDLID/SRUFACE	EGGCRATE	1, 2
TG-01	TITUS	50F	TBAR	EGGCRATE	1, 2
RG-01	TITUS	50F	TBAR	EGGCRATE	1, 2
NOTES: 1. PROVIDE AIR BALANCING DEVICE AT EACH AIR TERMINAL. 2. COORDINATE FINISH WITH ARCHITECT.					

EXISTING EQUIPMENT SCHEDULE																	
UNIT NO	MFR.	MODEL	CONFIGURATION	AREA SERVED	EFFICIENCY	PERFORMANCE			SPEED CONTROL	CONTROLLED BY OR INTERLOCKED WITH	WEIGHT LBS	ELECTRICAL					NOTES
						CFM	EX. S.P.	RPM				HP	BHP	FLA	VOLTS	PH	
(E)RTU-01	TRANE	WSC120E4R0A	10-TON ROOFTOP HEATPUMP W/ ECONOMIZER	EXISTING RETAIL SPACE	11.2 EER	3500	1.0	-	NA	T'STAT	1390	3.75	-	-	208	3	2, 3
(E)RTU-02	TRANE	WSC120E4R0A	10-TON ROOFTOP HEATPUMP W/ ECONOMIZER	EXISTING RETAIL SPACE	11.2 EER	3500	1.0	-	NA	T'STAT	1390	3.75	-	-	208	3	1, 3
NOTES:																	
1. SCOPE: EXISTING TO REMAIN.																	
2. SCOPE: EXISTING TO BE DECOMMISSIONED.																	
3. PROVIDED WITH FULLY INTEGRATED, 100% CAPABLE ECONOMIZER.																	


FAN SCHEDULE																			
UNIT NO	MFR	MODEL	CONFIGURATION	AREA SERVED	PERFORMANCE				NOISE DBA	SPEED CONTROL	CONTROLLED BY OR INTERLOCKED WITH	WEIGHT LBS	ELECTRICAL					DISCONNECT FURN. BY	NOTES
					MAX CFM	MIN CFM	EX. S.P.	RPM					HP	BHP	WATT	VOLTS	PH		
EF-01	GREENHECK	CUE-140-VG	UPBLAST	CAR WASH BAY 202	2275	155	0.5	1050	65	VAV	TIMER & NO2/CO	70	0.75	0.54	-	208	1	EC	1, 2, 4,
EF-02	GREENHECK	SP-B110	CEILING	ADA TOILET 107	-	70	0.45	574	35	CV	SWITCH	25	-	0.02	80	120	1	EC	1
GENERAL NOTES: 1. PROVIDE ALL FANS WITH 70% OR GREATER EFFICIENCY MOTORS OR ELECTRONICALLY COMMUTATED MOTORS AS REQUIRED BY 2018 WSEC SECTION C405.8 FOR FRACTIONAL HORSEPOWER FAN MOTORS THAT ARE 1/2 HP AND LARGER 2. EQUIPMENT MAY BE SUBSTITUTED UPON ENGINEER'S APPROVAL FOR EQUAL OR OTHER MFG/MODEL. REFER TO EQUIPMENT SCHEDULES FOR FINAL SELECTIONS. NOTES: 1. FAN TO BE PRE-WIRED FROM MOTOR TO BOX ON EXTERIOR OF FAN ENCLOSURE. 2. SPEED CONTROL TO BE FACTORY WIRED TO THE INSIDE HOUSING OF ROOFTOP FANS AND TO THE OUTSIDE HOUSING OF INLINE FANS. 3. EC TO PROVIDE MAGNETIC STARTER (INCLUDING DISCONNECT). MC TO PROVIDE A MOTOR RATED RELAY FOR CONTROLS INTERLOCK. 4. PROVIDE WITH MANUFACTURER'S RECOMMENDED ROOF CURB SLOPED TO MATCH ROOF PITCH. INSTALL PER MANUFACTURER'S RECOMMENDATIONS. 5. FAN SHALL BE CONSTRUCTED OF ALUMINUM.																			

ROOF HOOD SCHEDULE													
UNIT NO	MFR.	MODEL	SERVICE	CFM	THROAT SIZE			HEIGHT (IN)	WEIGHT (LBS)	FREE AREA (SF)	MAX PD (IN)	MAX VEL (FPM)	NOTES
					L (IN)	W (IN)	DIA (IN)						
RH-01	GREENHECK	FGI	DOAS-01 EXHAUST	440	14	14	-	16	42	1.36	0.024	420	1, 2
RH-02	GREENHECK	FGI	EF-02 EXHAUST	70	8	8	-	14	37	0.44	0.024	420	1, 2
NOTES													
1. PROVIDE WITH MANUFACTURER'S RECOMMENDED ROOF CURB SLOPED TO MATCH ROOF PITCH. INSTALL PER MANUFACTURER'S RECOMMENDATIONS													
2. PROVIDE WITH INSECT SCREEN.													


ELECTRIC INFRARED HEATER HEATER SCHEDULE											
UNIT NO	MFR	MODEL	LOCATION	HEATING CAPACITY (BTU)	LENGTH (FT)	WEIGHT (LBS)	ELECTRICAL			DISCONNECT FURN. BY	NOTES
							WATTS	VOLTS	PH		
IH-01	INDEECO	STT-U36-2180V	CAR WASH BAY 202	7438	36	25	2180	208	1	EC	1
IH-02	INDEECO	STT-U36-2180V	CAR WASH BAY 202	7438	36	25	2180	208	1	EC	1
NOTES: 1. PROVIDE WITH REMOTE THERMOSTAT AND WALL MOUNT KIT.											

DUCT HEATER SCHEDULE										
UNIT NO	MFR	MODEL	AREA SERVED	WEIGHT (LBS)	EFFICIENCY	ELECTRICAL			DISCONN. FURN BY	NOTES
						KW	V	PH		
DH-01	INDEECO	QUZ	DOAS-01	100	99%	7	208	3	EC	1, 2, 3
NOTES 1. PROVIDE WITH DUCT THERMOSTAT AND SAIL SWITCH. 2. PROVIDE WITH FLANGED CONNECTIONS. 3. PROVIDE WITH MODULATING SCR CONTROLLER.										

MIDDLEBROOK
ENGINEERING, LLC



6216 174TH AVE SW
LONGBRANCH, WA 98351
253.765.6292



BRIAN SCOTT MIDDLEBROOK
STATE OF WASHINGTON
REGISTERED
PROFESSIONAL ENGINEER
6/9/2023

SCHEDULES

PRCT120221460

City of Puyallup
Development & Permitting Services
ISSUED PERMIT

Building

Planning

Engineering

Public Works

Fire

Traffic

PROJECT

ENTERPRISE RENT-A-CAR T.I.
RIVER ROAD PLAZA SHOPPING CENTER
733 RIVER ROAD, PUYALLUP, WA 98371

REVISIONS

NO	DESCRIPTION	DATE

DRAWN BY: NMM

CHECKED BY: BSM

PROJECT MANAGER: MCB

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SHEET

MH601

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. 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.

DEMOLITION

1. COMPLETE ALL DEMOLITION AND REMOVAL OF WORK NECESSARY FOR THE COMPLETION OF THE WORK SHOWN ON THE DRAWINGS. ALL MECHANICAL MATERIALS DESIGNATED FOR REMOVAL SHALL BE REMOVED FROM SITE AND DISPOSED OF LEGALLY. THE CONTRACTOR SHALL COORDINATE FOR ALL RECYCLABLE CONSTRUCTION WASTE GENERATED UNDER THIS CONTRACT TO BE RECYCLED. LOADING AND DISPOSAL AS DESCRIBED HERE SHALL BE AT NO ADDITIONAL EXPENSE TO THE OWNER.
2. COMPLY WITH APPLICABLE CODES AND REGULATIONS FOR DEMOLITION OPERATIONS AND SAFETY OF ADJACENT STRUCTURES AND PUBLIC.

A. OBTAIN REQUIRED PERMITS.

B. PROVIDE, ERECT, AND MAINTAIN TEMPORARY BARRIERS AND SECURITY DEVICES.

C. CONDUCT OPERATIONS TO MINIMIZE EFFECTS ON AND INTERFERENCE WITH ADJACENT STRUCTURES AND OCCUPANTS.

D. CONDUCT OPERATIONS TO MINIMIZE OBSTRUCTION OF PUBLIC AND PRIVATE ENTRANCES AND EXITS; DO NOT OBSTRUCT REQUIRED EXITS AT ANY TIME; PROTECT PERSONS USING ENTRANCES AND EXITS FROM REMOVAL OPERATIONS.
3. DO NOT BEGIN REMOVAL UNTIL RECEIPT OF NOTIFICATION TO PROCEED FROM OWNER. OWNER HAS FIRST RIGHTS OF REFUSAL FOR DEMOLISHED MATERIALS AND EQUIPMENT.
4. EXISTING MATERIALS THAT ARE REMOVED SHALL NOT BE REUSED IN NEW SYSTEMS, EXCEPT WHERE INDICATED ON DRAWINGS.
5. CONTRACTOR SHALL REMOVE ALL PIPING, DUCTWORK, AND EQUIPMENT INCLUDING ALL ASSOCIATED INSULATION, HANGERS, VALVES, PLENUM WALLS, DAMPERS, WIREMOLD, WIRING, CONTROLS, AND APPURTENANCES ASSOCIATE WITH EACH PIECE OF EQUIPMENT.
6. PROTECT EXISTING STRUCTURES AND OTHER ELEMENTS THAT ARE NOT TO BE REMOVED. WHERE EXISTING ITEMS PENETRATE A WALL, CEILING, FLOOR, OR ROOF, CONTRACTOR SHALL PROVIDE INFILL AT (E) PENETRATIONS WITH LIKE MATERIALS. PATCH AND REPAIRS TO MATCH SURROUNDING SURFACES, INCLUDING PAINT.
7. CONTRACTOR SHALL PROVIDE TEMPORARY SUPPORT OF EXISTING MECHANICAL EQUIPMENT WHERE REQUIRED BY DEMOLITION OR ALTERATION OF EXISTING STRUCTURE DURING CONSTRUCTION. COORDINATE WITH GC AND PROVIDE NECESSARY SUPPORTS AND HANGERS TO MAINTAIN INTEGRITY, SAFETY AND PROPER OPERATION OF EXISTING MECHANICAL SYSTEMS.
8. MAINTAIN AND RESTORE (IF INTERRUPTED) ALL CONDUITS & CONDUCTORS, PIPING, & DUCTWORK PASSING THROUGH RENOVATED AREAS AND SERVICING UNDISTURBED AREAS.
9. REMOVE ALL ABANDONED DUCTWORK, PIPING, CONTROLS, WIRING, ETC., WHERE ACCESSIBLE IN RENOVATED AREAS.
10. WHERE CONTROLS ARE DEMOLISHED, REMOVE WIRING BACK TO NEAREST CONTROL PANEL OR JUNCTION BOX. REMOVE ACCESSIBLE CONDUIT, JUNCTION BOXES, ETC.
11. CONTRACTOR SHALL PERFORM DEMOLITION IN NEAT AND SKILLFUL MANNER SO AS NOT TO DAMAGE OR DEFACE ANY CONSTRUCTION THAT IS TO REMAIN.
12. IT IS THE CONTRACTOR'S RESPONSIBILITY TO INCLUDE ALL COSTS ASSOCIATED WITH NECESSARY DEMOLITION TO ALLOW NEW CONSTRUCTION SHOWN IN CONTRACT DOCUMENTS.

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, AGA, 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 OWNERS 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 TECHNICIANS' QUALIFICATIONS IF REQUESTED BY THE OWNER'S REPRESENTATIVE OR ELSEWHERE SPECIFIED.

B. BALANCE ALL AIR 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

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. FIRE DAMPERS: UL LISTED FOR SERVICE INTENDED, INSTALL IN ACCORDANCE WITH THE LISTING. BASIS OF DESIGN SHALL REPRESENT THE QUALITY OF THE PRODUCT.
4. FLEXIBLE CONNECTIONS: PROVIDE AT EACH FAN AND AIR HANDLING UNIT CONNECTION TO DUCT.
5. ACCESS PANELS: PROVIDE FOR MAINTENANCE OF ALL DUCT-MOUNTED EQUIPMENT (FIRE DAMPERS, CONTROL DAMPERS, COILS, ETC.).
6. 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.
6. 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.

LOUVERS

1. MANUFACTURED LOUVERS SHALL BE AMCA TESTED FOR WATER PENETRATION. WATER INTRUSION SHALL NOT OCCUR BELOW 689 FPM.
2. PROVIDE WITH AAMA 2605 COATING.

FANS

1. SCHEDULED FANS SHALL BE THE BASIS OF DESIGN. UNITS OF SIMILAR CONSTRUCTION AND CAPABILITIES MAY BE SUBMITTED FOR REVIEW.
2. PROVIDE CURBS SLOPED TO MATCH ROOF PITCH FOR ROOF TOP FANS.
3. INSTALL PER MANUFACTURER'S RECOMMENDATIONS AND AS NOTED ON PLANS.

ROOF HOODS

1. BASIS OF DESIGN SHALL REPRESENT QUALITY OF UNIT.
2. PROVIDE CURBS SLOPED TO MATCH ROOF PITCH. CURBS SHALL BE AT LEAST 12" TALL.
3. APPROVED MANUFACTURERS: GREENHECK

FILTERS

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

LOW PRESSURE STEEL DUCTWORK

1. GALVANIZED CARBON STEEL PER SMACNA STANDARDS.
2. FLEXIBLE DUCTWORK SHALL BE VINYL COATED SPRING STEEL HELIX BONDED TO A VINYL COATED FIBERGLASS MECH LINER WRAPPED WITH FIBERGLASS WOOL INSULATION. JACKET WITH A REINFORCED METALIZED MYLER/ NEOPRENE LAMINATE OUTER CASING.

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 INDICABLE 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.

DEDICATED OUTDOOR AIR UNITS

1. BASIS OF DESIGN SHALL REPRESENT THE QUALITY OF UNIT.
2. CABINET SHALL INCLUDE FACTORY WIRING, CONTROLS, BLOWERS, FILTERS, INSTALLED INLET AIR THERMISTERS, AND ENTHALPIC HEAT EXCHANGER.
3. APPROVED MANUFACTURER: LOSSNAY.
4. PROVIDE ACOUSTIC LINING IN CONNECTING DUCTWORK 10' UPSTREAM AND DOWNSTREAM OF FAN, UNLESS OTHERWISE NOTED ON PLANS.

CO2/NO2 DETECTION SYSTEM SPECIFICATION

1. SYSTEM COMPONENTS:

A. SYSTEM CONSISTS OF A CONTROLLER WITH LCD DISPLAY, NO2/CO SENSORS, QUANTIFIED ON PLANS, AND INTERCONNECTED WIRING BETWEEN COMPONENTS AND EXHAUST FAN VFD.

B. SYSTEM SHALL BE BACNET COMPATIBLE, BUT ALSO COMPATIBLE, BUT ALSO CAPABLE OF STANDALONE OPERATION. CONNECT TO BAS IF NOTED IN THE SEQUENCE OF OPERATIONS. THIS SHALL BE COORDINATED BEFORE UNIT ORDERING.

C. PROVIDE CONTROLLER 24VOLT POWER. 5VAC REQUIRED AT CONTROLLER FOR EACH SENSOR.
2. ORDER UNITS WITH THE CORRECT GAS TYPES FOR THE APPLICATION.
3. SYSTEM SHALL BE OPERA 6000 SERIES, HONEYWELL, OR PREAPPROVED EQUAL.

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. ACTUATION EQUIPMENT:

a. SPRING RETURN IS REQUIRED IN ALL EQUIPMENT EXPOSED TO OUTDOOR AIR AND/OR FALLSAFE CONDITIONS.

b. ALL AIR HANDLER AND DOAS DAMPER AND VALVE ACTUATION SHALL BE SPRING RETURN AND PROPORTIONALLY CONTROLLED.

c. ALL 120V ACTUATORS SHALL HAVE DISCONNECTS IN ACCORDANCE WITH ELECTRICAL STANDARDS.

d. ALL CONTROLS ACTUATORS SHALL BE SIZED CAPABLE OF CLOSING AGAINST THE MAXIMUM SYSTEM SHUTOFF PRESSURE.
4. 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.
5. PROVIDE FULL COMMISSIONING OF THE CONTROL SYSTEM IN ACCORDANCE WITH THE WSEC.
6. PROVIDE 2 HOURS OF SCHEDULED INSTRUCTION PERIOD TO THE OWNER. COST FOR TIME INVOLVED SHALL BE INCLUDED IN THE BID.
7. INSTALL IN ACCORDANCE WITH THE MANUFACTURER'S PUBLISHED INSTALLATION INSTRUCTIONS, THE NEC AND THE REQUIREMENTS OF THE AUTHORITY HAVING JURISDICTION.

ELECTRIC INFRARED RADIANT HEATER

1. THE CONSTRUCTION AND DESIGN SHALL PERMIT IT TO BE CEILING OR WALL MOUNTED WITH THE USE OF THE MOUNTING BRACKETS SUPPLIED.
2. HEATING ASSEMBLY SHALL BE UL LISTED UNDER 2021 AND RATED FOR INDOOR AND OUTDOOR RATING.
3. HEATERS SHALL BE PREWIRED WITH LEADS HOUSED IN FLEXIBLE METAL CONDUIT AND CONNECTOR FOR J-BOX MOUNTING.
4. HEATERS SHALL BE FORMED AND WELDED OUT OF 16 GA.COLD-ROLLED STEEL WITH HIGH TEMP POWDER COAT FINISH.
5. APPROVED MANUFACTURER.

A. INDEECO

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 ONCHED EXPANED STAPLES.
3. INSULATION SHALL MEET THE REQUIREMENTS OF THE INSULATION SCHEDULE, SHOWN ON PLANS.
4. APPROVED MANUFACTURERS: MANVILLE, OWENS CORNING, OR APPROVED EQUAL.

SUPPLY, RETURN, EXHAUST, AND RELIEF AIR DUCTWORK INSULATION SCHEDULE				
DUCT SYSTEM	DUCT LOCATION AND USE	CLIMATE ZONE	MINIMUM 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	OUTSIDE THE BUILDING (OUTDOORS AND EXPOSED TO WEATHER)*	5B	R-12	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	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	
RETURN OR EXHAUST AIR	WITHIN CONDITIONED SPACE, DOWNSTREAM OF AN ENERGY RECOVERY MEDIA, UPSTREAM OF AN AUTOMATIC SHUT OFF DAMPER.	5B	R-12	
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/ftU, 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.				

OSA DUCT INSULATION SCHEDULE

DUCT SYSTEM	DUCT LOCATION AND USE	CLIMATE ZONE	AIRFLOW	MINIMUM INSTALLED DUCT INSULATION R-VALUE	NOTES
OUTDOOR AIR	INSIDE CONDITIONED SPACE AND UPSTREAM OF AUTOMATIC SHUT OFF DAMPER.	4C AND 5B	≥2800 CFM	4.5	SEE SECTION C403.10.1.1 FOR ADDITIONAL REQUIREMENTS
OUTDOOR AIR	INSIDE CONDITIONED SPACE AND DOWNSTREAM OF AUTOMATIC SHUT OFF DAMPER TO HVAC UNIT OR ROOM.	4C	≥2800 CFM	3.0	
OUTDOOR AIR	INSIDE CONDITIONED SPACE	4C AND 5B	<2800	1.5	SEE EXCEPTION 1 TO SECTION C403.10.1.1 FOR ADDITIONAL DETAILS
GENERAL NOTES: <div>1. INSULATION R-VALUES, MEASURED IN h · ft² x °F/ftU, 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.</div> <div>2. SEE INTERNATIONAL MECHANICAL CODE SECTIONS 603.12 AND 604 FOR FURTHER DETAILS ON DUCT INSTALLATION REQUIREMENTS.</div>					


MIDDLEBROOK

ENGINEERING, LLC

6216 174TH AVE SW

LONGBRANCH, WA 98031

253.765.6292



BRIAN SCOTT MIDDLEBROOK

STATE OF WASHINGTON

REGISTERED ENGINEER

62710

6/9/2023

SPECIFICATIONS

SHEET TITLE

PROJECT

ENTERPRISE RENT-A-CAR T.I.
RIVER ROAD PLAZA SHOPPING CENTER
733 RIVER ROAD, PUYALLUP, WA 98371

REVISIONS

NO	DESCRIPTION	DATE

DRAWN BY:

NMM

CHECKED BY:

BSM

PROJECT MANAGER:

MCB

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