General Plan Symbols

- Plan Revision Number
- TYP. / SEE -/--- — Detail Number on Sheet / Sheet Number Where Detail is Placed
- 1 — Keynote Symbol
- Continuation Symbol
- Point Where New Connects To Existing
- Room / 1 — Room Name / Number
- Area Being Demolished
- Area Not In Contract

Abbreviations

Ø	ROUND	LVR	LOUVER
ABV	ABOVE	LWT	LEAVING WATER TEMPERATURE
AC	AIR CONDITIONING	M/A	MIXED AIR
AD	AREA DRAIN	MAX	MAXIMUM
ADD	ADDENDUM	MBH	ONE THOUSAND BTU PER HOUR
AFF	ABOVE FINISHED FLOOR	MCF	ONE THOUSAND CUBIC FEET
AFUE	ANNUAL FUEL UTILIZATION EFFICIENCY	MD	MOTORIZED DAMPER
ALT	ALTERNATE	MECH	MECHANICAL
AP	ACCESS PANEL	MFR	MANUFACTURER
ARCH	ARCHITECT/ARCHITECTURAL	MIN	MINIMUM
BFF	BELOW FINISHED FLOOR	MISC	MISCELLANEOUS
BLW	BELOW	MTR	MOTOR
BTU	BRITISH THERMAL UNITS	MU/A	MAKE-UP/AIR
BTUH	BRITISH THERMAL UNITS PER HOUR	NC	NOISE CRITERIA
CAP	CAPACITY	NC	NORMALLY CLOSED
CB	CATCH BASIN	NIC	NOT IN CONTRACT
CFM	CUBIC FEET PER MINUTE	NO	NUMBER
CLG	CEILING	NO	NORMALLY OPEN
CO	CLEAN OUT	NTS	NOT TO SCALE
CW	COLD WATER	O	OXYGEN
D	DEGREE	O/A	OUTSIDE AIR
DB	DRY BULB	ORD	OVERFLOW ROOF DRAIN
DIA	DIAMETER	PD	PRESSURE DROP
DN	DOWN	PIV	POST INDICATOR VALVE
DW	DISTILLED WATER	PLBG	PLUMBING
EA	EACH	PRESS	PRESSURE
EAT	ENTERING AIR TEMPERATURE	PRV	PRESSURE REDUCING VALVE
ELEC	ELECTRICAL	PSI	POUNDS PER SQUARE INCH
EQUIP	EQUIPMENT	PSIG	POUNDS PER SQUARE INCH GAUGE
EWC	ELECTRIC WATER COOLER	PWR	POWER
EWT	ENTERING WATER TEMPERATURE	R	DUCT RISER
E/A	EXHAUST AIR	R/A	RETURN AIR
EXIST	EXISTING	RCP	RADIANT CEILING PANEL
F	DEGREES FAHRENHEIT	RD	ROOF DRAIN
FCO	FLOOR CLEAN OUT	REC	RECESSED
FD	FLOOR DRAIN	RED	REDUCER
FDC	FIRE DEPARTMENT CONNECTION	RH	RELATIVE HUMIDITY
FL	FLOOR	RL/A	RELIEF AIR
FO	FUEL OIL	RM	ROOM
FOV	FUEL OIL VENT	RPM	REVOLUTIONS PER MINUTE
FOR	FUEL OIL RETURN	RW	RAIN WATER
FOS	FUEL OIL SUPPLY	SF	SQUARE FOOT
FPM	FEET PER MINUTE	S/A	SUPPLY AIR
FS	FLOOR SINK	SAN	SANITARY
FT	FOOT/FEET	SF	SQUARE FOOT
FTR	FIN TUBE RADIATION	SD	SMOKE DAMPER
GAL	GALLON	SM	SURFACE MOUNT
GF	GAS-FIRED	SP	STANDPIPE
GC	GENERAL CONTRACTOR	SP	STATIC PRESSURE
GPM	GALLONS PER MINUTE	STM	STEAM
GW	GREASE WASTE	T	THERMOSTAT
HB	HOSE BIB	TD	TEMPERATURE DROP
HP	HORSE POWER	TDR	TRENCH DRAIN
HTG	HEATING	TEMP	TEMPERATURE
HTR	HEATER	TYP	TYPICAL
HW	HOT WATER	UG	UNDERGROUND
HYD	HYDRANT	VAC	VACUUM
ID	INDIRECT	V	VENT
IN	INCH	VAV	VARIABLE AIR VOLUME
INV	INVERT	VENT	VENTILATION
LB	POUND	VTR	VENT THROUGH ROOF
LB/HR	POUNDS PER HOUR	W	WASTE
LAT	LEAVING AIR TEMPERATURE	WB	WET BULB
LP	LOW PRESSURE	WCO	WALL CLEAN OUT
LPG	LIQUEFIED PETROLEUM GAS	WH	WALL HYDRANT

Equipment Abbreviations

AC	AIR CONDITIONING UNIT	ET	EXPANSION TANK
ACCU	AIR COOLING CONDENSING UNIT	EWH	ELECTRIC WATER HEATER
AHU	AIR HANDLING UNIT	FCU	FAN COIL UNIT
AS	AIR SEPARATOR	FP	FIRE PUMP
B	BOILER	GI	GREASE INTERCEPTOR
CH	CHILLER	GRV	GRAVITY ROOF VENTILATOR
CT	COOLING TOWER	HWP	HEATING WATER PUMP
CUH	CABINET UNIT HEATER	HRU	HEAT RECOVERY UNIT
CHWP	CHILLED WATER PUMP	PRV	POWER ROOF VENTILATOR
DBP	DOMESTIC WATER BOOSTER PUMP	RE	RETURN/EXHAUST FAN
DC	DUCT MOUNTED COIL	RTU	ROOFTOP UNIT
DCP	DOMESTIC WATER CIRCULATING PUMP	SP	SUMP PUMP
EF	EXHAUST FAN	UH	UNIT HEATER
EDC	ELECTRIC DUCT COIL	WH	WATER HEATER

* NOTE *

ALL OF GENERAL NOTES ON THIS SHEET ARE TO BE APPLIED TO ALL OTHER DRAWINGS IN THIS SET.THE SYMBOLS AND ABBREVIATIONS SHOWN ON THIS SHEET MAY OR MAY NOT BE USED IN THIS SET OF DRAWINGS.

HVAC Symbols

- 24"x12" — Sq. Duct Size (Width x Height)
- 24"/12" — Oval Duct Size (Width / Height)
- 18"Ø — Round Duct Size (Diameter)
- (E) — Existing Duct To Remain
- Duct To Be Demolished
- S/A — Supply Air
- V/A — Ventilation Air
- O/A — Outdoor Air
- R/A — Return Air
- T/A — Transfer Air
- L/A — Building Relief Air
- E/A — General Exhaust Air
- KED — Kitchen Exhaust Duct
- LH — Laboratory Hood
- ETS — Env. Tobacco Smoke
- FLUE — Flue Gas Vent
- C/A — Combustion Air
- Rect. Supply Duct Rise / Drop
- Round Supply Duct Rise / Drop
- Rect. Return Duct Rise / Drop
- Round Return Duct Rise / Drop
- Rect. Exhaust Duct Rise / Drop
- Round Exhaust Duct Rise / Drop

Grille, Register, Diffusers

Ceiling Diffuser: SD-4 | 500 — Type (See Schedule); Airflow; 10"Ø/24x24 — Neck Size / Module Size; 29 H6/9/17 — Catalog Throw Performance; Throw Pattern; Max NC Rating

Round Diffuser: SD9 | 100 — Airflow; 6"Ø — Neck Size; TYP. X 4 — Type Count for Space

SG5 | 500 — Airflow; 18"x10" — Nominal Duct Size; AFF:9'-0" — Mounting Elevation (Centerline)

Airflow; Neck Size/ Slot(s)/ Active Length

RG11 | 800 — Airflow; 16"x16" — Nominal Duct Size; AFF:9'-0" — Mounting Elevation (Centerline)

SD3 | 2000 — Airflow; 22"x22"/24x24 — Neck Size / Module Size; 25 — Max NC Rating

Mechanical Equipment

RTU-XX — Unit Identity; 3.0 ton — Nominal Cooling Capacity

RTU-XX — Heating Capacity; 60,000 Btu/h — Gas Supply Input Rate; 60 CFH — Gas Supply Input Rate

ET-1 — Operating Weight; 379 lb

TF-1 — Design Airflow Rate; 500 CFM

VAV 1-2 — Design Water Flow; 3.68 GPM

AC-1 — Bottom of Equipment Height; AFF:7'-0"

(E)AHU-2 — Existing to Remain Equipment

(R)AHU-3 — Existing Relocated Equipment

Equipment By Others (Refer To Other Disciplines)

Damper Types

- (B) — Manual Damper
- (M) — Motorized Damper
- (BD) — Backdraft Damper
- (SD) — Smoke Damper
- (FD) — Fire Damper
- (C/S) — Comb. Fire/ Smoke Damper

Mechanical Piping Symbols

- 2" — Nominal Pipe Size
- Above Ground Piping
- Below Ground Piping
- 1/8" / 12" SLOPE — Pipe Slope (When Applicable)
- (E) — Existing Pipe To Remain
- Pipe To Be Demolished
- CHWR — Chilled-Water Return
- CHWS — Chilled-Water Supply
- CD — Condensate Drain
- CWR — Condenser-Water Return
- CWS — Condenser-Water Supply
- GWR — Geothermal-Water Return
- GWS — Geothermal-Water Supply
- HWR — Hot-Water Return
- HWS — Hot-Water Supply
- G — Natural Gas
- LP — Liquid Propane
- RL — Refrigerant Liquid
- RS — Refrigerant Gas
- RD — Refrigerant Discharge
- STM — Steam Supply
- CDR — Steam Condensate Return
- Pipe Rise / Drop

Valve Types

- 2" SHUTOFF — Ball Valve
- 2" BAL — Balancing Valve
- 2" BFV — Butterfly Valve
- 2" CHECK — Check Valve
- 2" CHECK — Alternate Check Valve
- 3" CIRC — Circuit Setter
- 2" GATE — Gate Valve
- 2" GLOBE — Globe Valve
- 2" LOCK — Locked Shield Valve
- 2" PRV — Pressure Reducing Valve
- 2" QUICK — Quick Opening Valve
- 2" STRAIN — Fluid Strainer
- M — 2" M-CNTRL — Elec. Control Valve
- M — 4" 3-WAY CNTRL — 3-Way Elec. Valve
- S — 1" GAS-CNTRL — Emergency Gas Shutoff
- 1" PLUG — Plug Valve
- 1" GAS COCK — Gas Shutoff Cock
- 1" REG — Gas Regulator

Mechanical Devices

AHU-1 — Unit Identity

- TS — Temperature Sensor
- TH — Temp/ Humidity Sensor
- TC — Temp/ CO2 Sensor
- T — Thermostat
- H — Humidistat
- HS — Humidity Sensor
- CO2 — Carbon Dioxide Detector
- CO — Carbon Monoxide Detector
- H2 — Hydrogen Gas Detector
- HZG — Hazardous Gas Detector
- NO2 — Nitrogen Dioxide Detector
- O2 — Oxygen Gas Detector

HVAC GENERAL NOTES

1. DRAWINGS ARE DIAGRAMMATIC. CONTRACTOR SHALL COORDINATE EXACT LOCATIONS AND ELEVATIONS OF ALL DUCTWORK, PIPING, LIGHTS, CONDUIT, CABLE TRAYS, ETC., PRIOR TO INSTALLATION. OFFSET DUCT WHERE REQUIRED TO AVOID INTERFERENCE. THE CONTRACTOR SHALL PROVIDE ALL SIZES, MATERIALS, AND RATINGS BEFORE ORDERING OR FABRICATION OF ANY PRODUCT OPERATING REQUIREMENTS.
2. REFER TO HVAC DRAWINGS FOR THERMOSTAT AND TEMPERATURE SENSOR LOCATIONS.
3. DO NOT LOCATE VALVES, DAMPERS, ACTUATORS, CONTROL COMPONENTS, ANY EQUIPMENT WITH MOVING PARTS OR ANY EQUIPMENT NEEDING ACCESS OR REGULAR MAINTENANCE ABOVE INACCESSIBLE CEILINGS. PROVIDE AN ACCESS PANEL THAT WILL ALLOW SAFE AND PRACTICAL ACCESS.
4. COORDINATE MECHANICAL AND ELECTRICAL SUCH THAT PIPING, DUCTWORK AND MECHANICAL EQUIPMENT ARE NOT LOCATED OVER ANY ELECTRICAL EQUIPMENT.
5. CONDENSATE DRAINS SHALL BE SUPPLIED FOR ALL COOLING EQUIPMENT. CONTRACTOR SHALL ENSURE PROPER INSTALLATION AND DRAINAGE AS REQUIRED BY FEDERAL, STATE, AND LOCAL CODES. CONDENSATE PIPING SHALL BE TYPE "L" COPPER.
6. COORDINATE THE EXACT LOCATION OF ALL CEILING DIFFUSERS, REGISTERS, AND GRILLES WITH NEW AND EXISTING LIGHTING.
7. PROVIDE DIFFUSERS AND REGISTERS WITH 4-WAY BLOW PATTERN UNLESS OTHERWISE NOTED.
8. THIS CONTRACTOR SHALL BE REQUIRED TO REPLACE FILTERS ON HVAC EQUIPMENT AFTER ALL DUST PRODUCING CONSTRUCTION HAS BEEN COMPLETED AND PRIOR TO THE FINAL PUNCH.
9. LOCATE ALL PIPING AND DUCTWORK ABOVE ACCESSIBLE CEILINGS UNLESS OTHERWISE NOTED. TO ALLOW ACCESS AND MAINTENANCE, DO NOT LOCATE DUCT, PIPING AND EQUIPMENT SUCH THAT ACCESS IS UNACCEPTABLE FOR FACILITIES MAINTENANCE AND REPAIR.
10. INSTALL, SUPPORT AND BRACE ALL HVAC DUCTWORK AND ACCESSORIES PER "HVAC DUCT CONSTRUCTION STANDARDS" BY SMACNA, ANSI/SMACNA 006-2006 AND "SEISMIC RESTRAINT MANUAL GUIDELINES FOR MECHANICAL SYSTEMS" BY SMACNA, ANSI/SMACNA 001-2008.
11. PIPING, DUCTWORK, AND ELECTRICAL DISTRIBUTION SYSTEMS SHALL BE BRACED TO COMPLY WITH THE FORCES AND DISPLACEMENTS PRESCRIBED IN ASCE 7-10 SECTION 133..3 AS DEFINED IN ASCE 7-10 SECTION 13.6.8, 13.6.7, AND 2016 CBC SECTION 1616A.1.23, 1616A.1.24, 1616A.1.25 AND 1616A.1.26.
12. MOUNT THERMOSTATS AND SENSORS AS INDICATED ON PLANS 48" A.F.F. FOR ADA "FRONT ACCESS" UNLESS OTHERWISE REQUIRED BY OWNER OR ARCHITECT. COORDINATE LOCATIONS WITH CABINETRY, ELECTRICAL SWITCHES, ETC. DO NOT MOUNT THEM ABOVE ELECTRICAL DEVICES. PROVIDE AN INSULATED SUB-BASE FOR ANY OF THEM MOUNTED ON A WALL ADJACENT TO AN UNCONDITIONED SPACE.
13. PIPING AND DUCTWORK PENETRATIONS THROUGH RATED FLOORS, WALLS AND PARTITIONS SHALL BE MADE BY AN APPROVED COMPATIBLE AND ACCEPTABLE ASSEMBLY THAT COMPLIES WITH THE PREVAILING EDITION OF THE INTERNATIONAL BUILDING CODE, AND INTERNATIONAL MECHANICAL CODE, INCLUDING ERRATA, AMENDMENTS, AND LOCAL RULES AND ORDINANCES.
14. PROVIDE PREFABRICATED INSULATED EQUIPMENT SUPPORT CURBS. FLASH WITH SHEET METAL AND TRIM WITH ROOFING AND SEALANT TO MATCH EXISTING ROOFING. FOR ALL PIPING PENETRATIONS PROVIDE FLASHING COLLARS AND TRIM WITH ROOFING AND SEALANT TO MATCH EXISTING ROOFING.
15. THE CONTRACTOR SHALL VERIFY ELECTRICAL POWER AND CONTROL VOLTAGE AND PHASE FOR EACH PIECE OF EQUIPMENT PRIOR TO BID AND BEFORE ORDERING ANY ELECTRICALLY OPERATED EQUIPMENT.
16. ALL ELECTRICAL WIRING IN CEILING PLENUMS SHALL BE PLENUM RATED CABLE OR RUN IN CONDUIT.
17. REFER TO EACH DRAWING SHEET FOR NOTES SPECIFIC TO THAT SHEET.
18. PIPING, CONDUITS, CABLES, ETC. SHALL BE RUN NEATLY, AND GENERALLY PARALLEL TO BUILDING STRUCTURE.
19. SOLVENTS, PAINTS, ADHESIVES, SEALANTS AND OTHER BUILDING MATERIALS THAT EMIT POLLUTANTS THAT COULD CAUSE IRRITATION OR HEALTH PROBLEMS FOR OCCUPANTS SHALL NOT BE USED UNLESS THE WORK IS DONE AFTER-HOURS. PROVIDE ADEQUATE VENTILATION DURING CONSTRUCTION AND AS LONG AFTERWARDS AS REQUIRED TO KEEP THE CONCENTRATIONS OF POLLUTANTS WITHIN EPA/OSHA APPROVED LIMITS. THE CONTRACTOR SHALL ALLOW FOR THE "BAKE-OUT" OF THE BUILDING BEFORE OCCUPANCY IN SUCH A WAY AS NOT TO DAMAGE COMPLETED WORK DUE TO TEMPERATURE AND HUMIDITY EXTREMES.
20. ALL FLOOR, OR SLAB ON GRADE MOUNTED EQUIPMENT SHALL BE MOUNTED ON APPROXIMATE 4" HIGH CONCRETE HOUSEKEEPING PAD(S).
21. IF A DISCREPANCY OR CONFLICTING REQUIREMENT IS FOUND IN DIVISION 23 CONSTRUCTION DOCUMENTS, CONTACT THE ENGINEER-OF-RECORD IMMEDIATELY.
    THE ORDER OF PRECEDENCE FOR DIVISION 23 IS AS FOLLOWS:
    1. CURRENT DESIGN CODES
    2. SPECIFICATIONS
    3. SCHEDULES
    4. GENERAL NOTES
    5. DETAILS
    6. FLOOR PLANS
22. SYSTEM COMMISSIONING IS IMPORTANT TO THIS PROJECT. ALLOW SUFFICIENT TIME AND RESOURCES TO PARTICIPATE WITH THE COMMISSIONING AGENT THROUGHOUT THE CONSTRUCTION, START-UP, TESTING AND COMMISSIONING.
23. ALL ROOFING WORK REQUIRED SHALL BE DONE BY DESIGNATED ROOFING CONTRACTOR IN ORDER TO MAINTAIN BOND ON CURRENT ROOF.

GENERAL PROJECT NOTES

1. COORDINATE INSTALLATION OF PIPING, DUCTWORK, CONDUIT, LIGHTS, CABLE TRAY, STRUCTURE, AND EQUIPMENT TO PREVENT CONFLICTS.
2. FINAL PRODUCT SHALL BE A COMPLETE AND FUNCTIONING SYSTEM, AND SHALL CONFORM TO ALL REQUIREMENTS OF APPLICABLE FEDERAL, STATE, AND LOCAL CODES, INCLUDING BUT NOT LIMITED TO THE INTERNATIONAL BUILDING CODE AND INTERNATIONAL MECHANICAL CODE.
3. LOCATE EQUIPMENT REQUIRING ACCESS 2'-0" MAXIMUM ABOVE CEILING.
4. ALL ROOF MOUNTED EQUIPMENT SHALL BE A MINIMUM 10'-0" FROM EDGE OF ROOF,UNLESS NOTED OTHERWISE.
5. LOCATE DUCTWORK, PIPING AND MECHANICAL EQUIPMENT AWAY FROM THE SPACE ABOVE ELECTRICAL PANELS. TRANSFORMERS AND OTHER ELECTRICAL EQUIPMENT.
6. PENETRATIONS OF RATED ASSEMBLIES SHALL BE FIRE STOPPED. FIRE STOPPING SHALL BE AN APPROVED MATERIAL AS PRESCRIBED IN CSFM STANDARD 43-1 AND SHALL BE U.L. LISTED.
7. PROVIDE SLEEVES AND/OR OPENINGS TO RUN PIPES AND DUCTS THROUGH FOUNDATIONS, FLOORS, WALLS, AND ROOF.
8. MAINTAIN CLEAR ACCESS TO SERVICE EQUIPMENT AND OTHER ACCESSORIES REQUIRING SERVICE, VISUAL INSPECTION OR HAND OPERATION. WHERE INDICATED OR REQUIRED, PROVIDE ACCESS PANELS OF THE TYPE SELECTED TO SUIT MATERIALS IN WHICH INSTALLED.
9. ADJUST PIPING AND DUCTWORK SIZES TO PROPERLY CONNECT TO MECHANICAL EQUIPMENT.
10. REFER TO HVAC SERIES DRAWINGS FOR GAS AND A.C. CONDENSATE DRAIN PIPING.
11. PIPE SIZES SHOWN SHALL BE CONTINUED IN THE DIRECTION OF FLOW UNTIL ANOTHER SIZE IS SHOWN.
12. FOR DETAILS, EQUIPMENT CONNECTIONS, AND PIPE SIZES NOT SHOWN ON THE SEGMENTS, REFER TO DETAILS, SCHEDULES, AND SPECIFICATIONS.
13. INSTALL ALL EQUIPMENT IN ACCORDANCE WITH THE RESPECTIVE MANUFACTURER'S WRITTEN INSTALLATION INSTRUCTIONS, AT A LEVEL OF QUALITY AND WORKMANSHIP CONSISTENT WITH THE SPECIFICATIONS.
14. LOCATIONS OF PIPING, DUCTWORK AND EQUIPMENT AS INDICATED ON THE DRAWING, ARE APPROXIMATE AND SUBJECT TO MINOR ADJUSTMENTS IN THE FIELD. WORK SHALL BE COORDINATED WITH ALL OTHER TRADES TO AVOID INTERFERENCE IN THE FIELD.
15. INSTALL EXPOSED PIPING AND DUCTWORK AS HIGH AS PRACTICAL IN ROOMS WITHOUT CEILINGS.
16. THE CONTRACTOR'S WORK SCHEDULE SHALL BE SUBMITTED TO AND APPROVED BY THE OWNER.
17. PRIOR TO STARTING WORK, SUBMIT SHOP DRAWINGS FOR ALL MECHANICAL EQUIPMENT, PLUMBING FIXTURES, AND DIFFUSERS.
18. CONTRACTOR SHALL OBTAIN AND PAY FOR ALL NECESSARY PERMITS AND SHALL ARRANGE FOR ALL INSPECTIONS AS REQUIRED.
19. PROVIDE ONE YEAR WARRANTY FOR ALL WORKMANSHIP AND MATERIALS AFTER THE DATE OF FINAL ACCEPTANCE.

MECHANICAL SHEET INDEX

DUCTWORK GENERAL NOTES

1. FIBERGLASS DUCT IS NOT PERMISSIBLE.
2. ALL DUCT DIMENSIONS ARE INSIDE CLEAR DIMENSIONS AND DO NOT INCLUDE ALLOWANCES FOR DUCT LINER THICKNESS.
3. ALL SUPPLY, RETURN AND EXHAUST DUCTWORK SHALL BE RATED FOR PRESSURE CLASS OF 1 in. W.G. UNLESS NOTED OTHERWISE.
4. ROUTE DUCTWORK BETWEEN BEAMS TIGHT TO BOTTOM OF STRUCTURE. PROVIDE DUCT OFFSETS OVER OR UNDER PIPING OR OBSTRUCTIONS AS REQUIRED. WHERE DUCT OFFSETS ARE REQUIRED, USE 45° SMOOTH RADIUS ELBOWS OR MITERED ELBOW WITH TURNING VANES WHERE SPACE IS RESTRICTED.
5. ALL SUPPLY DUCTS LARGER THAN 10" ON EITHER SIDE WITH RECTANGULAR ELBOWS SHALL HAVE TURNING VANES.
6. TRANSITION RECTANGULAR DUCTWORK ON THE BOTTOM AND THE SIDES. MAINTAIN DUCTWORK LEVEL AS HIGH AS POSSIBLE UNLESS NOTED OTHERWISE.
7. ALL DUCT TRANSITIONS FROM SQUARE TO ROUND SHALL BE SMOOTH AND GRADUAL SQUARE TO ROUND TRANSITIONS. SPIN-IN FITTINGS AT THE END OF CAPPED DUCTS ARE NOT ACCEPTABLE.
8. PROVIDE FLEX DUCT CONNECTORS AT DUCT CONNECTIONS TO UNITS HOUSING ROTATING EQUIPMENT.
9. ALL OPEN END DUCTS SHALL BE REINFORCED WITH 1-1/2" x 1-1/2" x 1/8" GALVANIZED STEEL ANGLES BOLTED OR RIVETED 6" ON CENTER ALL AROUND THE EXTERIOR OF THE DUCT.
10. PROVIDE LINED DUCT WITH SHEET METAL NOSING DOWNSTREAM OF EACH UNIT. RUN LINING FOR 10'-0" FOR STRAIGHT RUNS OR 3'-0" PAST FIRST ELBOW. INSIDE CLEAR LINED DUCT TO EQUAL RTU OUTLET.
11. RUNOUTS TO TERMINAL UNITS SHALL BE SAME SIZE AS UNIT CONNECTION UNLESS RUNOUT LENGTH EXCEEDS 5'-0", THEN RUNOUT SHALL BE 2" LARGER DIAMETER THAN INLET CONNECTION. PROVIDE 30" LONG FLEXIBLE DUCT FOR FINAL INLET CONNECTION.
12. PROVIDE IDENTIFICATION FOR ALL ABOVE CEILING MECHANICAL EQUIPMENT BY APPROVED UNOBTRUSIVE TAGS ATTACHED TO THE CEILING GRID.
13. FOR RECTANGULAR DUCT, ALL TAKEOFFS FROM MAIN SHALL BE 45 TAP COLLARS (OR BOOT).
14. PROVIDE MANUAL VOLUME DAMPERS AT ALL BRANCH TAKE-OFFS TO GROUPS OF AIR OUTLETS AND DUCT RUNOUTS TO INDIVIDUAL DIFFUSERS AND GRILLES ON SUPPLY DUCTING DOWNSTREAM OF VAV TERMINALS, RETURN AND EXHAUST DUCTING. LOCATE END-OF-DUCT RUNOUTS DAMPERS APPROX. 12" DOWNSTREAM OF LAST BRANCH TAKE-OFF. WHERE DIFFUSER IS AT END OF MAIN, PROVIDE MANUAL BALANCING DAMPER IN ROUND DUCT AFTER RECTANGULAR TO ROUND TRANSITION. DO NOT PROVIDE BALANCING DAMPER IN DIFFUSER OR GRILLE NECK UNLESS NOTED ON DRAWINGS.
15. MANUAL VOLUME DAMPERS ARE NOT BE LOCATED ABOVE INACCESSIBLE CEILINGS. IF INACCESSIBLE DAMPERS UNAVOIDABLE, THEN BALANCE AIR FLOW AND LOCK TIGHT DAMPER POSITION BEFORE CEILING IS INSTALLED. PROVIDE CEILING ACCESS PANEL.
16. DUCT RUNOUTS TO DIFFUSERS OR GRILLES ARE SAME SIZE AS NECK, UNLESS NOTED OTHERWISE (UON).
17. SEE REFLECTED CEILING PLAN FOR EXACT LOCATION OF DIFFUSERS AND GRILLES WITH RESPECT TO LIGHTING LAYOUT.
18. FLEXIBLE DUCT RUNOUTS TO ALL DIFFUSERS SHALL BE INSTALLED FREE OF KINKS AND SAGS. LENGTH OF FLEXIBLE RUNOUTS TO AIR REGISTERS SHALL NOT EXCEED 7 FEET. SUPPORT FLEXIBLE DUCTS IN ACCORDANCE WITH THE SMACNA STANDARD. (FIG 3-10 AND 3-11).
19. PROVIDE RETURN AIR GRILLES FOR ALL SPACES THAT ARE PROVIDED WITH SUPPLY AIR.
    PROVIDE AIR TRANSFER OPENINGS ABOVE CEILINGS FOR RETURN AIR FROM ALL AREAS BOUNDED BY FULL HEIGHT PARTITIONS; PROVIDE WITH FIRE DAMPER WHERE RATED WALLS REQUIRE THEM. ENSURE CONTINUOUS ADEQUATELY SIZED PATH FOR RETURN AIR TO GET BACK, ABOVE THE CEILING TO THE ASSOCIATED RETURN AIR DUCTS, OR SYSTEM.
20. PORTIONS OF DUCTWORK, INCLUDING INNER FACES OF DIFFUSERS AND GRILLES, OR PIPING VISIBLE THROUGH GRILLES AND REGISTERS IN FINISHED AREAS SHALL BE PAINTED FLAT BLACK.
21. DUCT-MOUNTED SMOKE DETECTORS SHALL BE WIRED UNDER SPECIFICATION 26 AND COMMISSIONED UNDER SPECIFICATION SECTION 23 . DETECTORS ARE TO AUTOMATICALLY SHUT DOWN THE AIR HANDLING UNITS UPON DETECTION OF SMOKE AND ANNUNCIATE CONDITION AT FIRE ALARM PANEL.
22. PROVIDE ACCESS DOORS IN ALL PLENUMS AND DUCTS AT EACH AIR HANDLING UNIT.
23. PROVIDE ACCESS PANELS TO ANY EQUIPMENT REQUIRING ADJUSTMENT OR MAINTENANCE THAT IS LOCATED ABOVE NON-ACCESSIBLE CEILINGS.
24. PROVIDE AN ACCESS DOOR IN DUCTWORK AT EACH A FIRE DAMPER TO ENSURE EASY ACCESS, BY FACILITIES MAINTENANCE AND LOCAL AUTHORITY APPROVAL, FOR MAINTENANCE INSPECTION AND RESETTING. IN DUCT 10" x 10" (100 SQ. INS.) AND SMALLER PROVIDE A 12" LONG FLANGED AND GASKETTED SECTION OF DUCT ADJACENT TO THE FIRE DAMPER.
25. CONTRACTOR SHALL PROVIDE COORDINATED ACCESS PANEL IN WALL ADJACENT TO FIRE DAMPERS TO ALLOW ACCESS TO FIRE DAMPER THRU DUCT ACCESS DOOR.
26. PROVIDE A DESCRIPTION ON EVERY ACCESS PANEL TO CLEARLY INDICATE ITS FUNCTION. DESCRIPTION SHALL BE STENCILED WITH MIN. 1/2" HIGH LETTERS.
27. ACOUSTICALLY LINE ALL TRANSFER DUCTS AND PROVIDE WITH 90° ELBOWS SIZED SAME AS DUCT.
28. REFER TO ARCHITECTURAL FLOOR PLANS AND ELEVATIONS FOR EXACT LOUVER LOCATIONS. REFER TO MECHANICAL SCHEDULE FOR SIZES.
29. THE METHOD OF FIXING THE UPPER ATTACHMENTS FOR PIPE AND DUCT SUPPORTS SHALL BE TO THE APPROVAL OF THE STRUCTURAL ENGINEER OF RECORD.

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F-4948 Exp. 06/30/2025

Love's Travel Stops

A NEW TRAVEL STOP
STORE NO. 960
9530 Southton Road, Bldg 1
San Antonio, TX 78223

THIS SQUARE APPEARS 1"x1" ON FULL SIZE SHEETS

ORGINALLY SIGNED BY: THOMAS FOX 11-27-2023

STATE OF TEXAS
THOMAS E. FOX
86612
LICENSED
PROFESSIONAL ENGINEER

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12	10-11-24	CCD-12

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HVAC TITLE SHEET

DESIGNED BY: TEF
DRAWN BY: TEF
CHECKED BY: TEF
PROJ. NO: 23018
DRAWING NO: WAM000

12

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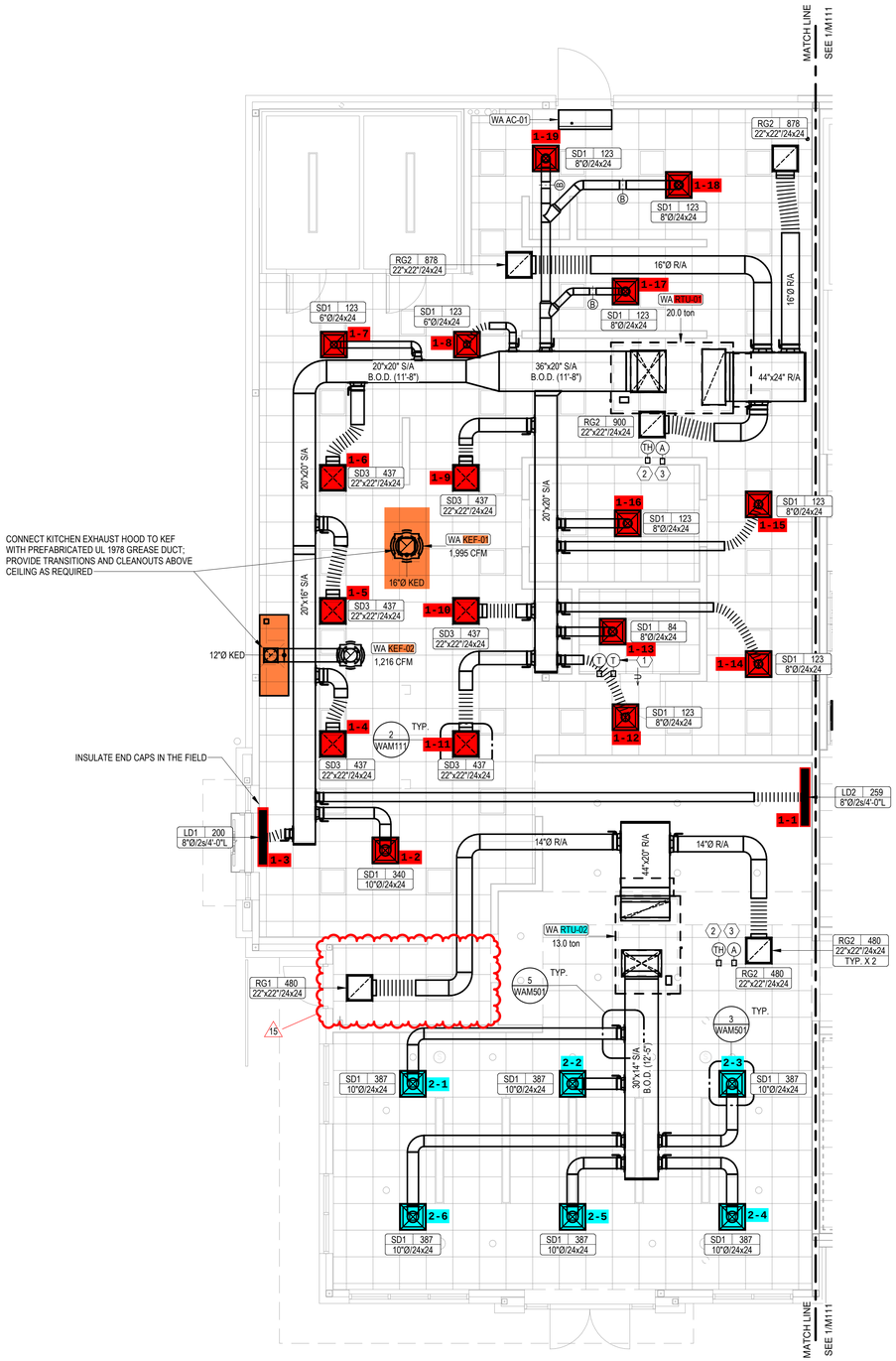
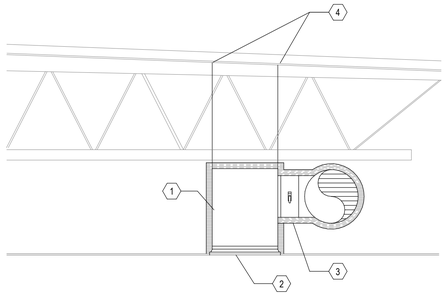




KEYED NOTES:
1. 22" x 22" x 27"H PLENUM BOX
2. 24" x 24" PERFORATED DIFFUSER
3. 2" THICK EXT. INSULATION.
4. DUCT SUPPORT WITH ATTACHMENT AT TOP OF JOIST OF UNISTRUT SUPPORT WHERE DIRECT ATTACHMENT TO JOIST IS NOT POSSIBLE. TYPICAL 4 PER PLENUM BOX.

2 WAM111 SECTION: SUPPLY PLENUM INSTALLTION
NOT TO SCALE
MTF ENGINEERING, INC.

HVAC GENERAL NOTES

1. ALL MECHANICAL HVAC AND PLUMBING WORK SHALL BE PERFORMED IN STRICT ACCORDANCE WITH THE BASE BUILDING SPECIFICATION AND WITH THE LATEST EDITION OF THE PREVAILING STATE MECHANICAL, PLUMBING, AND BUILDING CODES AS WELL AS ALL REGULATIONS THAT MAY APPLY. IN CASE OF CONFLICT BETWEEN THE CONTRACT DOCUMENTS AND A GOVERNING CODE OR ORDINANCE THE MORE STRINGENT STANDARD SHALL APPLY.
2. COORDINATE EXACT LOCATION OF AIR DISTRIBUTION DEVICES WITH CEILING AND LIGHT FIXTURE LAYOUT - VERIFY WITH ARCHITECT.
3. ALL RECTANGULAR SUPPLY DUCT ELBOWS SHALL BE RADIUS TYPE.
4. ALL AIR CONDITIONING DUCTWORK SHALL BE SMACNA 1" PRESSURE CLASSIFICATION WITH A SEAL CLASS 'A'.
5. THE PIOLOT RDM SYSTEM SHALL BE MOUNTED AND INSTALLED FLUSH IN THE MANAGER'S OFFICE AT 5 FT AFF TO THE CENTER.
6. KITCHEN HOODS, ANSUL FIRE SUPPRESSION SYSTEM AND HOOD CONTROLS SHALL BE OWNER FURNISHED AND CONTRACTOR INSTALLED.
7. TEMPERATURE AND HUMIDITY SENSORS ARE TO BE CEILING MOUNTED AND TIED INTO THE BUILDING CONTROL SYSTEM.
8. RECTANGULAR DUCT SIZES SHOWN INDICATE REQUIRED AIRFLOW SIZES. SHEETMETAL CONTRACTOR SHALL INCREASE SIZES TO ALLOW FOR 1.5-INCH THICK LINER EQUIVALENT TO KNAUF TYPE 'ATMOSPHERE' - MINIMUM R-VALUE 6.0.
9. COORDINATE ROUTING OF DUCTWORK WITHIN STRUCTURE WITH THE LOCATION OF COLUMNS, JOIST AND BEAMS.
10. ALL CONCEALED ROUND AIR CONDITIONING DUCTWORK SHALL HAVE 2-INCH THICK EXTERIOR DUCT WRAP CONSISTING OF A FIBERGLASS BLANKET WITH FACTORY APPLIED VAPOR BARRIER FACING AND HAVING A MINIMUM R-VALUE OF 8.2 (OUT-OF PACKAGE), UNLESS NOTED OTHERWISE.
11. ALL GREASE EXHAUST DUCTWORK SHALL BE PREFABRICATED UL 1978 - 0" CLEARANCE, STAINLESS STEEL INNER CASING; INSTALLATION SHALL BE IN ACCORDANCE WITH ITS UL LISTING AND THE MANUFACTURER'S WRITTEN INSTRUCTIONS.
12. ALL HORIZONTAL GREASE EXHAUST DUCTWORK SHALL BE INSTALLED WITH A MINIMUM 1/4-INCH PER FOOT SLOPE AND SHALL BE PITCHED BACK TOWARD THE HOOD.
13. IT IS THE INTENT TO HAVE ALL AIR SYSTEMS INCLUDING KITCHEN EXHAUST AND MAKE-UP AIR BALANCED BY AN INDEPENDENT TAB CERTIFIED NEEB CONTRACTOR. AIR QUANTITIES IN MAIN DUCT SHALL BE MEASURED BY PITOT TUBE TRAVERSES. OUTLET AND INLET AIR QUANTITIES SHALL BE DETERMINED IN ACCORDANCE WITH NEBB PROCEDURES. THE NEBB TAB FIRM SHALL PROVIDE A CERTIFICATE OF CONFORMANCE CERTIFICATION TO THE OWNER.
14. UNLESS DIMENSIONED, THE WORK SHOWN ON THE CONTRACT DRAWINGS IS DIAGRAMMATIC, ILLUSTRATING THE GENERAL ARRANGEMENT, CONTRACTOR SHALL ADHERE TO ARRANGEMENT SHOWN AS CLOSELY AS THE ACTUAL CONSTRUCTION WILL PERMIT.
15. CONTRACTOR SHALL VERIFY EXACT EQUIPMENT DIMENSIONS, CLEARANCES, AND FIELD DIMENSIONS RELATIVE TO LOCATIONS OF STRUCTURAL FRAMING, CHANGES REQUIRED IN ROUTING OR SIZES OF DUCTWORK TO MAKE WORK SHOWN CONFORM TO PROJECT REQUIREMENTS RESULTING FROM FIELD COORDINATION PROBLEMS SHALL BE IDENTIFIED, ILLUSTRATED AND SUBMITTED TO THE ENGINEER FOR PRIOR REVIEW AND APPROVAL BEFORE INSTALLATION.

" ⬡ " SHEET KEYNOTES

1 THE PILOT RDM SYSTEM SHALL BE MOUNTED IN OFFICE, COORDINATE WITH ELECTRICAL AND LABEL DEVICES FOR UNIT SERVED.

2 CEILING MOUNTED REMOTE ZONE TEMPERATURE & HUMIDITY SENSORS SHALL BE WIRED BACK TO THE PILOT RDM SYSTEM.

3 REMOTE ANNUNCIATORS MOUNTED ON CEILING.

PROJECT NORTH

1 WAM111 HVAC FLOOR PLAN
3/16" = 1'-0"

Pascal Aughtry & Associates
937 EAST BRITTON ROAD
OKLAHOMA CITY, OK 73114
T: 405.463.3494 - F: 405.463.3493

MTF ENGINEERING
7725 W. RENO AVE. STE. 391
OKLAHOMA CITY, OK 73127
T: 405.265.2876 - F: 405.265.2879
F-4948 Exp. 06/30/2025

Love's Travel Stops

A NEW TRAVEL STOP
STORE NO. 960
9530 Southton Road, Bldg 1
San Antonio, TX 78223

THIS SQUARE APPEARS 1"x1" ON FULL SIZE SHEETS

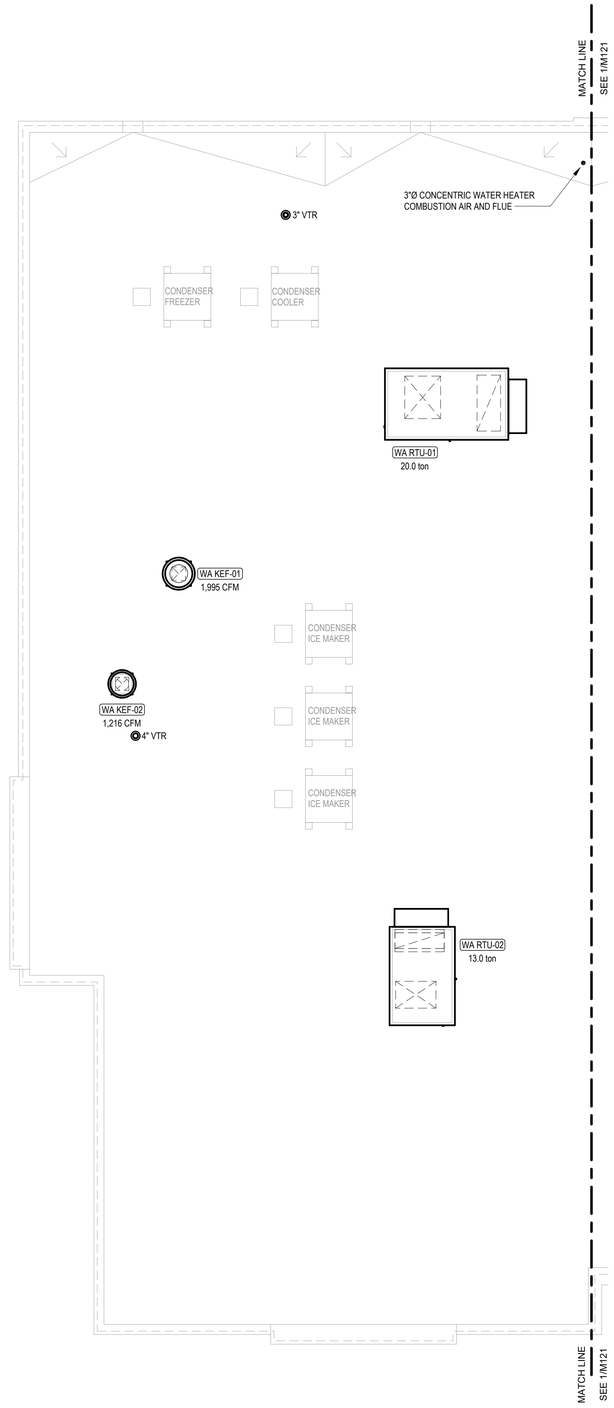
ORGINALLY SIGNED BY: THOMAS FOX 11-27-2023

STATE OF TEXAS
THOMAS E. FOX
86612
LICENSED PROFESSIONAL ENGINEER

NO	DATE	REVISION
12	10-11-24	CCD-12
15	1-15-25	ADD-15

DRAWING TITLE:
HVAC FLOOR PLAN

DESIGNED BY: TEF
DRAWN BY: TEF
CHECKED BY: TEF
PROJ. NO: 23018
DRAWING NO: **WAM111**



PROJECT NORTH

1 / WAM121 HVAC ROOF PLAN
3/16" = 1'-0"

Pascal Aughtry & Associates
937 EAST BRITTON ROAD
OKLAHOMA CITY, OK 73114
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LICENSED
PROFESSIONAL ENGINEER

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NO	DATE	REVISION
12	10-11-24	CCD-12

DRAWING TITLE:
HVAC ROOF PLAN

DESIGNED BY: TEF
DRAWN BY: TEF
CHECKED BY: TEF
PROJ. NO: 23018
DRAWING NO: WAM121

12

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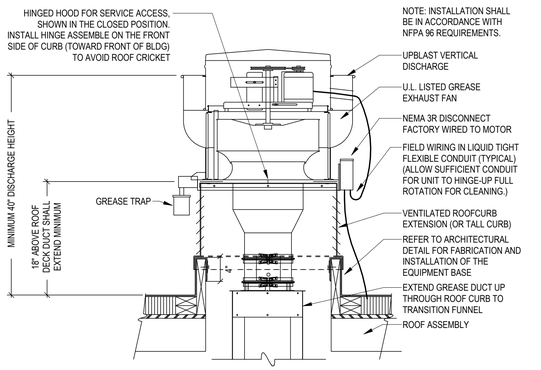
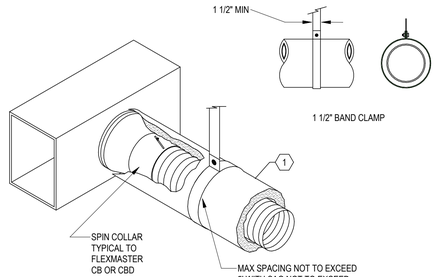


1 WAM501 GREASE EXHAUST FAN DETAIL - UPBLAST TYPE CENTRIFUGAL
NOT TO SCALE
MTF ENGINEERING, INC.

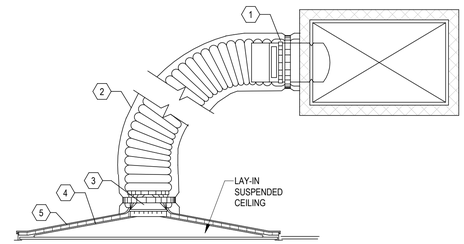


GAUGE	THK.	1" STRAP CAPABILITY	MAXIMUM LOAD
24	.028	840	168
22	.034	1070	216
20	.040	1298	259

* ELASTIC LIMIT ASSUMED 30ksi; RECOMMENDED MAX LOAD (20% OF YIELD STRENGTH).

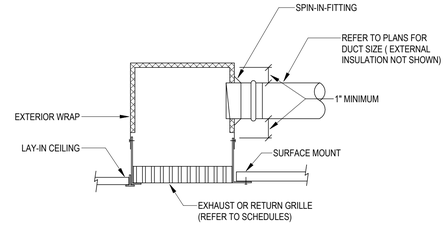
NOTES:
1. FLEX DUCT WITH EXTERNAL INSULATION AND VAPOR BARRIER JACKETING TYPICAL TO "FABRIFLEX"
2. ALL FLEX DUCT SHALL CONFORM TO UL STANDARD 181 WITH THE UL LABEL PRINTED ON THE DUCT EVERY 10 FEET.

2 WAM501 SUGGESTED SUPPORT REQUIREMENTS FOR FLEX DUCT
NOT TO SCALE
MTF ENGINEERING, INC.

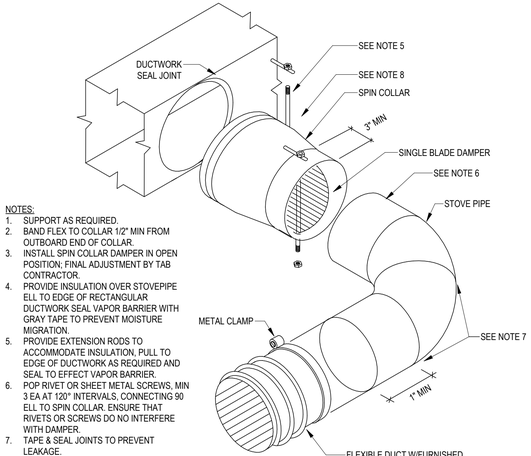


NOTES:
1. SPIN COLLAR TYPE CONNECTOR, EXTERNALLY INSULATED, WITH VOLUME DAMPER AND DAMPER LOCK.
2. PRE-INSULATED FLEX DUCT AS REQUIRED. INSTALLED, PERMANENTLY SEALED AND SUPPORTED TO PREVENT KINKING AND SHARP TURNS.
3. ROUND TO SQUARE ADAPTER AS REQUIRED.
4. LAY-IN-TYPE CEILING DIFFUSER WITHOUT VOLUME DAMPER.
5. PROVIDE 1-1/2" THICK INSULATION; FOIL BACKED MINERAL WOOL JACKET TO COMPLETELY COVER DIFFUSER CONE. SEAL FOIL TO DONE WITH FIBER REINFORCED FOIL BACKED TAPE.
6. 1-90° TURN ALLOWED.
7. MAXIMUM FLEX LENGTH NOT TO EXCEED 10'-0".

3 WAM501 TYPICAL FLEXIBLE DUCT DETAIL
NOT TO SCALE
MTF ENGINEERING, INC.

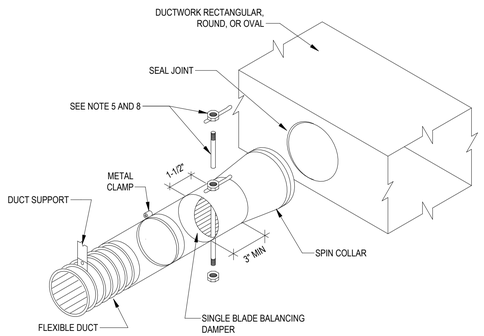


7 WAM501 TYPICAL DUCTED GRILLE
NOT TO SCALE
MTF ENGINEERING, INC.



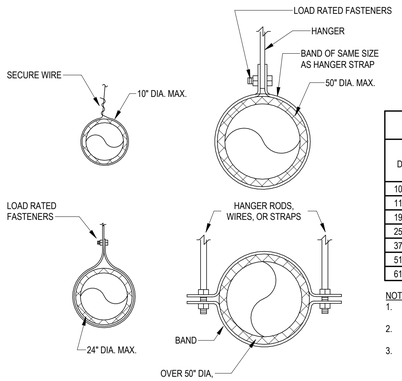
NOTES:
1. SUPPORT AS REQUIRED.
2. BAND FLEX TO COLLAR 1/2" MIN FROM OUTBOARD END OF COLLAR.
3. INSTALL SPIN COLLAR DAMPER IN OPEN POSITION; FINAL ADJUSTMENT BY TAB CONTRACTOR.
4. PROVIDE INSULATION OVER STOVEPIPE ELL TO EDGE OF RECTANGULAR DUCTWORK SEAL VAPOR BARRIER WITH GRAY TAPE TO PREVENT MOISTURE MIGRATION.
5. PROVIDE EXTENSION RODS TO ACCOMMODATE INSULATION, PULL TO EDGE OF DUCTWORK AS REQUIRED AND SEAL TO EFFECT VAPOR BARRIER.
6. POP RIVET OR SHEET METAL SCREWS, MIN 3 EA AT 120° INTERVALS, CONNECTING 90 ELL TO SPIN COLLAR. ENSURE THAT RIVETS OR SCREWS DO NO INTERFERE WITH DAMPER.
7. TAPE & SEAL JOINTS TO PREVENT LEAKAGE.
8. INSTALL LOCKING QUADRANT AND HANDLE ON BOTTOM OF DUCT FOR EASY SERVICE (SHOWN ON TOP FOR EASE OF ILLUSTRATION ONLY).

4 WAM501 SPIN COLLAR FLEXIBLE DUCT CONNECTOR WITH DAMPER AND STOVEPIPE ELBOW
NOT TO SCALE
MTF ENGINEERING, INC.



NOTES:
1. SUPPORT DUCTWORK AS REQUIRED.
2. BAND FLEX TO COLLAR 1/2" MINIMUM FROM OUTBOARD END OF COLLAR.
3. INSTALL SPIN COLLAR DAMPER IN OPEN POSITION; FINAL ADJUSTMENT BY TAB CONTRACTOR.
4. PULL FLEXIBLE DUCT INSULATION UP TO END OF SPIN COLLAR AT EDGE OF RECTANGULAR DUCTWORK; SEAL VAPOR BARRIER WITH GRAY TAPE TO PREVENT MOISTURE MIGRATION.
5. PROVIDE EXTENSION RODS TO ACCOMMODATE INSULATION, PULL TO EDGE OF DUCTWORK AS REQUIRED AND SEAL TO AFFECT VAPOR BARRIER.
6. POP RIVET OR SHEET METAL SCREWS, MINIMUM 3 EACH AT 120° INTERVALS, CONNECTING STOVEPIPE TO COLLAR. ENSURE RIVETS OR SCREWS DO NOT INTERFERE WITH DAMPER.
7. TAPE AND SEAL ALL JOINTS TO PREVENT LEAKAGE.
8. INSTALL LOCKING QUADRANT AND HANDLE ON BOTTOM OF DUCT FOR EASY SERVICE (SHOWN ON TOP FOR EASE OF ILLUSTRATION ONLY).

5 WAM501 SPIN COLLAR FLEXIBLE DUCT CONNECTOR WITH DAMPER
NOT TO SCALE
MTF ENGINEERING, INC.



MINIMUM HANGER SIZES FOR ROUND DUCT				
DIA.	MAX. SPACING	WIRE DIAMETER	ROD	STRAP
10" DN	12'	(1) 12 GA.	1/4"	1" x 22 GA.
11-18"	12'	(2) 12 GA. OR 1 (8) GA.	1/4"	1" x 22 GA.
19-24"	12'	(2) 10 GA.	1/4"	1" x 22 GA.
25-36"	12'	(2) 8 GA.	3/8"	1" x 20 GA.
37-50"	12'	-----	(2) 3/8"	(2)1" x 20 GA.
51-60"	12'	-----	(2) 3/8"	(2)1" x 18 GA.
61-84"	12'	-----	(2) 3/8"	(2)1" x 16 GA.

NOTES:
1. STRAPS ARE GALVANIZED STEEL; RODS ARE UNCOATED OR GALVANIZED STEEL; WIRE IS BLACK ANNEALED, BRIGHT BASIC OR GALVANIZED STEEL; ALL ARE ALTERNATIVES.
2. TABULATED DATA FROM 1985 SMACNA STANDARDS ALLOWS FOR DUCT REINFORCING AND INSULATION, BUT NO EXTERNAL LOAD.
3. HANGERS MUST NOT DEFORM DUCT SHAPE.

6 WAM501 ROUND DUCT HANGER SPACING
NOT TO SCALE
MTF ENGINEERING, INC.

Pascal Aughtry & Associates
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STATE OF TEXAS
THOMAS E. FOX
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LICENSED PROFESSIONAL ENGINEER

NO	DATE	REVISION
12	10-11-24	CCD-12

DRAWING TITLE:
HVAC DETAILS

DESIGNED BY: TEF
DRAWN BY: TEF
CHECKED BY: TEF
PROJ. NO: 23018
DRAWING NO: WAM501

Packaged RTU Schedule (Gas-Fired)

Identity	Installed Location	Manufacturer	Model	Product Type	Product Specification	Nominal Capacity	Outdoor Air Intake Flow	Supply Fan System		Supply Fan Motor			Cooling Coil					Heating Airflow Design			Gas Burner Ratings			Electrical				Refrigerant Type	Cooling Stages	Heating Stages	Minimum Efficiency	Product Weight	Notes
								Capacity	ESP	Qty	Size	RPM	Total	Sensible	EDB	EWB	LDB	LWB	Output	EAT	LAT	Type	Input Rating	Efficiency	Voltage	Phase	MCA	MOCP					
WA RTU-01	ROOF	AAON	RN020	Gas-Fired	1 - 12	20.0 ton	2,101 CFM	4,734 CFM	0.75 in-wg	1	3.00 hp	1991	228,200 Btu/h	173,400 Btu/h	84 °F	67 °F	55 °F	53 °F	218,700 Btu/h	52 °F	95 °F	NG	270,000 Btu/h	81%	208 V	3	85.0 A	110.0 A	R-454B	3	2	Cooling: 11.8 EER, 17.1 IEER	2695 lb	1 - 6
WA RTU-02	ROOF	AAON	RN013	Gas-Fired	1 - 12	13.0 ton	1,360 CFM	2,320 CFM	0.75 in-wg	1	3.00 hp	1991	125,800 Btu/h	91,900 Btu/h	89 °F	70 °F	57 °F	55 °F	158,000 Btu/h	45 °F	108 °F	NG	195,000 Btu/h	81%	208 V	3	77.6 A	100.0 A	R-454B	3	2	Cooling: 11.6 EER, 17.2 IEER	2103 lb	1 - 6

ASSEMBLY NOTES:
1. PROVIDE WITH MODULATING HOT GAS REHEAT; MECH CONTRACTOR TO INSTALL SUPPLY AIR TEMPERATURE SENSORS.
2. PROVIDE WITH CLOGGED FILTER SWITCH.
3. PROVIDE WITH DUCT SMOKE DETECTOR IN THE SUPPLY & RETURN AIR SIDE OF THE DUCT TO SHUT-DOWN UNIT UPON DETECTION; INTERCONNECT TO REMOTE VISUAL & AUDIBLE ALARM FIELD WIRED.
4. PROVIDE PROVIDE WITH FACTORY INSTALLED DISCONNECT AND FGCI OUTLET FACTORY INSTALLED FIELD WIRED.
5. PROVIDE WITH DIFFERENTIAL ENTHALPY ECONOMIZER WITH BAROMETRIC RELIEF.
6. PROVIDE WITH FACTORY MOUNTED AND WIRED DRAIN PAN OVERFLOW SWITCH.
7. PROVIDE WITH REMOTE TEMPERATURE & HUMIDITY SENSORS; WIRING SHALL BE INSTALLED BY THE MECHANICAL CONTRACTOR - COORDINATE TERMINATION AT THE RTU WITH MANUFACTURER.
8. PROVIDE WITH AND SECURELY ATTACH TO 18-INCH TALL ROOF CURB WITH SOLID BOTTOM; CUT OPENINGS AS REQUIRED.
9. PROVIDE WITH HAIL GUARD.
10. PROVIDE WITH TERMINAL STRIP FOR FIELD INSTALLED CONTROLS.
11. INSTALL S/A & R/A FLEXIBLE CONNECTORS BETWEEN DUCTWORK AND EQUIPMENT.
12. PROVIDE STAINLESS STEEL GAS HEAT EXCHANGER.

NOTES:
1. **AAON CONTACT: AARON HUMPHRIES (210) 954-6657 (aaron.humphries@texasairsystems.com)**
2. BALANCE TOLERANCE FOR OUTSIDE AIR IS 0% TO +10%.
3. BALANCE RTU(S) WITH KITCHEN HOODS RUNNING.
4. STARTUP SERVICES BY AAON; CONTACT AARON ABOVE FOR SCHEDULING.
5. AAON REPRESENTATIVE RESPONSABLE FOR UNIT PROGRAMMING AND INITIAL SETUP.
6. FUNCTIONALY TEST ECONOMIZER SETUP.

Exhaust Fan Schedule

Identity	Installed Location	Manufacturer	Model	Product Type	Installation Type	Application	Discharge Position	Airstream Temp.	Fan Design		Drive Type	Motor			Electrical		Interlock	Weight	Specification	Notes
									Capacity	ESP		Power	RPM	FLA	Voltage	Phase				
WA KEF-01	Roof	Greenheck	CUE-140-VG	Centrifugal Upblast	Support by Wall	General Exhaust	Upward	450 °F	1,995 CFM	1.00 in-wg	Direct	0.8 hp	1800	7.6 A	208 V	1	Grill Hood	84 lb	UL/cUL 705 Grease Application, upblast kitchen exhaust with ECM motor	1 - 3
WA KEF-02	Roof	Greenheck	CUE-120-VG	Centrifugal Upblast	Support on Curb	General Exhaust	Upward	450 °F	1,216 CFM	0.75 in-wg	Direct	0.5 hp	1800	5.4 A	208 V	1	Fryer Hood	66 lb	UL/cUL 705 Grease Application, upblast kitchen exhaust with ECM motor	1 - 3

NOTES:
1. PROVIDE WITH VENTED HINGED CURB CAP ON TOP OF 12" ROOF CURB (MINIMUM 40" DISCHARGE HEIGHT).
2. PROVIDE WITH NEMA-3R FACTORY WIRED DISCONNECT.
3. PROVIDE WITH EXTERNAL GREASE CUP.

Grilles, Registers, Diffusers

ID Type	Description	Manufacturer	Model	Qty	Type	Material	Finish	Deflection Type	Blade Direction	Installation	Border Application	Neck Size	Face or Module Size	Product Specification	Notes
RG1	Aluminum Louvered Grille	Nailor	5145H-OA	1	Louvered Return	Aluminum	Mill	Fixed Blade	Parallel to Long Dim	Ceiling	Lay-In Full Face		24x24	Aluminum heavy duty louvered grille with 45° horizontal blades and with opposed bade damper.	1 - 4
RG2	Louvered Grille	Nailor	5145H	4	Louvered Return	Steel	White Enamel	Fixed Blade	Parallel to Long Dim	Ceiling	Lay-In Full Face		24x24	Steel louvered faced grille with blades at 45° parallel to the long dimension with plaster frame	1 - 4
SD1	Plaque Face Diffuser	Nailor	UNI	4	Supply air Plaque	Steel	White Enamel	Fixed		Ceiling Installation	Lay-In Full Face	6"	24x24	Provide with external foil-back insulation R-4.2	1 - 4
SD1	Plaque Face Diffuser	Nailor	UNI	6	Supply air Plaque	Steel	White Enamel	Fixed		Ceiling Installation	Lay-In Full Face	8"	24x24	Provide with external foil-back insulation R-4.2	1 - 4
SD1	Plaque Face Diffuser	Nailor	UNI	7	Supply air Plaque	Steel	White Enamel	Fixed		Ceiling Installation	Lay-In Full Face	10"	24x24	Provide with external foil-back insulation R-4.2	1 - 4
SD3	Laminar Supply	NAILOR	51PRL-AL-W	6	Perforated Supply	Aluminum	White Enamel	Laminar	Parallel to Long Dim	Ceiling	Lay-In Full Face		24x24	Perforated diffuser without deflectors and an added plenum box.	1 - 4

NOTES:
1. **MANUFACTURER'S REPRESENTATIVE: ALAN BROWN (405) 475-2810 (alan@rlwco.com)**
2. ALL AIR DEVICES SHALL BE TESTED IN ACCORDANCE WITH ASHRAE STANDARD 70-91.
3. BORDER TYPES SHALL BE COMPATIBLE WITH ARCHITECTURAL CEILING TYPE FOR THE ROOM IN WHICH THE DEVICE IS LOCATED.
4. NC VALUES ARE BASED UPON A 10 db ROOM ATTENUATION.

Linear Slot Diffuser Schedule

ID Type	Description	Manufacturer	Model	Qty	Type	Material	Finish	Deflection Type	Slot(s)		Nominal Plenum Length	Plenum		Neck Size	Overall Track Length	Track Size		Border Application	Product Specification	Notes
									Qty	Size		Width	Height			Length	Width			
LD2	Linear Diffuser	Titus	FL-10	1	Flowbar	Aluminum	White Enamel	Pattern Controller	2	1"	4'-0"	5 1/4"	11"	8"	4'-0"	4'-0"	6"	Surface Mount		
LD1	Linear Diffuser	Titus	TBDI-80	1	Flowbar	Aluminum	White Enamel	Pattern Controller	2	1"	4'-0"	5 1/4"	11"	8"	4'-0"	4'-0"	6"	Lay-In Full Face		

Air Curtain Schedule

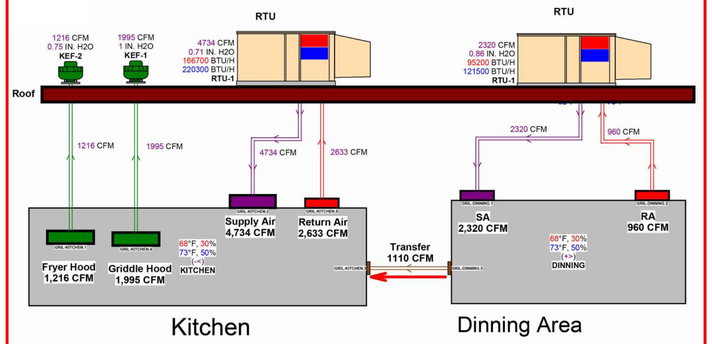
Identity	Location		Manufacturer	Model	Product Type	Bottom Elevation	Nozzle Length	Design Airflow Rate	Design Air Velocity	Electrical		Interlock	Product Weight	Product Specification	Notes
	Name	No.								Voltage	Phase				
WA AC-01	DRY STORAGE	111	Berner	SHD07-1048AAB	Unheated	8'-0"	48"	1,882 CFM	1613 FPM	120 V	1	-	177 lb	1 - 4	1 - 3

SPECIFICATION NOTES:
1. NO HEATER.
2. PROVIDE WITH DOOR SWITCH AND DELAY TIMER.
3. STANDARD FINISH.
4. PROVIDE WITH SWEEPER.

NOTES:
1. **MANUFACTURER'S REPRESENTATIVE: Alan Brown (405) 475 - 2810 (alan@rlwco.com)**
2. SET DELAY TIMER TO 30 SECONDS.
3. ELECTRICAL CONTRACTOR SHALL PROVIDE DISCONNECT SWITCH.

PROJECT SCHEDULE

NAME	LOCATION	DESIGN CONDITIONS		ALTITUDE (FT)	NOTES
		ANNUAL HEATING 99.6% DB/WB (°F)	ANNUAL COOLING 0.4% DB/MCWB (°F)		
LOVE'S TRAVEL STOP	San Antonio, TX	30 / 25	99.3 / 73.6	789	-



ASHRAE Best Practices Restaurant Air Balance Example

ASHRAE Standard 154-2016

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937 EAST BRITTON ROAD
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NO	DATE	REVISION
12	10-11-24	CCD-12

DRAWING TITLE:
HVAC SCHEDULES

DESIGNED BY: TEF
DRAWN BY: TEF
CHECKED BY: TEF
PROJ. NO: 23018
DRAWING NO: **WAM601**
12

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11/27/2024 10:18:05 AM