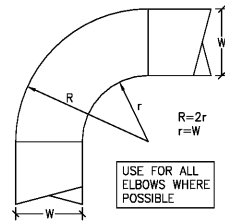


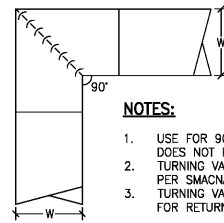
HVAC GENERAL NOTES

- WORK SHALL BE INSTALLED BY A LICENSED CONTRACTOR IN ACCORDANCE WITH THE APPLICABLE BUILDING CODES AND STANDARDS ADOPTED BY THE AUTHORITY HAVING JURISDICTION AND ALL APPLICABLE LOCAL ORDINANCES.
- CONTRACTOR SHALL OBTAIN ALL PERMITS, LICENSES, INSPECTIONS, ETC., AND PAY ALL INCIDENTAL FEES, AS REQUIRED TO OBTAIN A PERMIT AND A PERMANENT CERTIFICATE OF OCCUPANCY.
- WORK SHALL BE COORDINATED WITH ALL OTHER TRADES PRIOR TO INSTALLATION TO AVOID CONFLICTS. CONFLICTS WHICH ARISE DUE TO LACK OF PROPER COORDINATION SHALL BE CORRECTED AT THE CONTRACTOR'S COST.
- DESIGN INDICATED IS SCHEMATIC AND MAY NOT REFLECT ALL CONSTRAINTS IMPOSED BY ACTUAL PROJECT CONDITIONS. CONTRACTOR SHALL VISIT SITE AND REVIEW CONSTRUCTION DOCUMENTS (INCLUDING ALL TRADES) TO FAMILIARIZE HIMSELF WITH THE PROJECT PRIOR TO BID. CONTRACTOR'S BID SHALL INCLUDE ANY AND ALL COSTS REQUIRED TO REWORK THE DESIGN TO FIT WITHIN THE PHYSICAL CONSTRAINTS WHILE ACHIEVING THE OVERALL DESIGN INTENT.
- THE BASIS-OF-DESIGN PRODUCTS WERE USED TO DETERMINE DIMENSIONS, INSTALLATION AND ACCESS CLEARANCES, SUPPORTS, ELECTRICAL SERVICE, CONNECTION ARRANGEMENTS, ETC. WHERE ALTERNATE PRODUCTS ARE PROVIDED, IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE ALL REQUIREMENTS AND RECTIFY ANY CONFLICTS AT THE CONTRACTOR'S COST.
- ALL WORK SHALL BE INSTALLED TO AVOID CONFLICT WITH ELECTRICAL EQUIPMENT "DEDICATED SPACE" AS REQUIRED BY NEC AND LOCAL ORDINANCES. COORDINATE LOCATIONS OF ALL ELECTRICAL GEAR (DISTRIBUTION PANELS, TRANSFORMERS, SWITCHGEAR, ETC.) WITH ELECTRICAL CONTRACTOR PRIOR TO FABRICATION AND INSTALLATION.
- CONTRACTOR SHALL COORDINATE ELECTRICAL CHARACTERISTICS AND REQUIREMENTS OF ALL EQUIPMENT AND DEVICES WITH THE ELECTRICAL CONTRACTOR PRIOR TO ORDERING.
- ALL MATERIALS AND EQUIPMENT SHALL BE SUBMITTED TO ENGINEER FOR APPROVAL PRIOR TO ORDERING. CONTRACTOR ASSUMES LIABILITY AND COSTS FOR ANY PRODUCT WHICH IS ORDERED PRIOR TO RECEIPT OF APPROVED SUBMITTALS.
- ALL MATERIALS, EQUIPMENT AND INSTALLATION SHALL BE GUARANTEED FOR A MINIMUM PERIOD OF ONE YEAR AFTER FINAL ACCEPTANCE. ADDITIONAL WARRANTY SHALL APPLY WHERE SPECIFIED.
- EQUIPMENT START-UP AND COMMISSIONING SHALL BE PERFORMED BY FACTORY-AUTHORIZED AGENTS ONLY. SUBMIT WRITTEN START-UP PROCEDURES TO OWNER FOR APPROVAL PRIOR TO PERFORMANCE OF START-UP ACTIVITIES. FINAL REPORTS SHALL BE APPROVED BY OWNER.
- ALL PENETRATIONS OF FIRE AND/OR SMOKE RATED ASSEMBLIES SHALL BE FIRE STOPPED WITH UL-LISTED SYSTEM APPROVED FOR THE APPLICATION.
- FLASH AND SEAL ALL PENETRATIONS OF BUILDING EXTERIOR, WALLS AND ROOF WITH APPROVED SEALANT.
- ALL EQUIPMENT SHALL BE NEW EXCEPT FOR EQUIPMENT SPECIFICALLY NOTED AS EXISTING TO REMAIN. CONTRACTOR SHALL TEST EXISTING EQUIPMENT FOR PROPER OPERATION AND REPORT CONDITION TO OWNER. ALL UNREPORTED EQUIPMENT IS THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE REPAIRED OR REPLACED IF NOT FUNCTIONAL AT THE DATE OF BENEFICIAL OCCUPANCY. NEW EQUIPMENT SHALL BE UL OR ETL LISTED AND LABELED. GAS-FIRED EQUIPMENT SHALL ALSO BE AGA OR CSA LISTED AND LABELED. INSTALL ALL EQUIPMENT PER THESE DOCUMENTS, MANUFACTURER'S RECOMMENDATIONS, AND CODE REQUIREMENTS FOR SPECIFIC APPLICATION.
- EXCEPT WHERE SPECIFIED OTHERWISE, MECHANICAL CONTRACTOR SHALL PROVIDE STARTERS AND ELECTRICAL DISCONNECTS FOR ALL EQUIPMENT FURNISHED UNDER THIS CONTRACT.
- PROVIDE PERMANENT LABELS FOR ALL EQUIPMENT, CONTROLS, AND PIPING.
- GENERAL DUCTWORK SHALL BE G90 GALVANIZED STEEL, LOCK-FORMING QUALITY, FABRICATED AND INSTALLED PER SMACNA "HVAC DUCT CONSTRUCTION STANDARDS" AND CODE. DUCTWORK SHALL BE RATED FOR 1" WG, AND SEALED TO CLASS A SEAL USING UL-181B TO OR 181B WATER-BASED MASTIC. **DUCT SIZES SHOWN ARE NET FREE AREA DIMENSIONS. ADJUST SHEETMETAL SIZES FOR DUCT LINER AS REQUIRED.** INSULATE ALL CONCEALED METAL GENERAL DUCTWORK WITH 2", R-8 FIBERGLASS DUCT WRAP EXCEPT WHERE OTHERWISE SPECIFIED. PROVIDE 1", 1.5 PCF ACOUSTICAL FIBERGLASS DUCT LINER AT SUPPLY AND RETURN DUCTWORK FROM EQUIPMENT CONNECTION THRU FIRST 15 FEET OF DUCTWORK. DUCT LINER SHALL HAVE NEOPRENE COATING WITH ANTIMICROBIAL TREATMENT ON AIR SIDE.
- TYPE I KITCHEN HOOD (GREASE) EXHAUST DUCTWORK SHALL BE FACTORY BUILT, LISTED GREASE DUCT SYSTEM; ETL LISTED TO UL 1978 AND UL 2221; LISTED FOR 3/4" CLEARANCE TO COMBUSTIBLES AND ZERO CLEARANCE TO NON-COMBUSTIBLES; DOUBLE WALL CONSTRUCTION WITH 0.036" THICK 403 STAINLESS STEEL INNER DUCT AND 0.024" THICK STAINLESS STEEL OUTER WALL; DUCT JOINTS SECURED WITH V CLAMPS AND SEALED WITH 3M FIRE BARRIER 2000+ SEALANT; FABRICATED AND INSTALLED PER NFPA 96 AND CODE; -1" WG PRESSURE CLASS; DUCT SHALL BE CONSTRUCTED TO PREVENT ACCUMULATION OF GREASE OR OBSTRUCTION FROM PROPER DRAINAGE. NO BOLTS, RIVETS, FLANGES, ETC., MAY PROTRUDE INTO DUCT; PROVIDE ACCESS DOORS FOR CLEANING AND INSPECTION OF DUCT SYSTEM WHERE REQUIRED; ALL JOINTS AND SEAMS LIQUID TIGHT; LISTED FOR 500°F CONTINUOUS SERVICE AND INTERMITTENT EXPOSURE TO 2,000°F; ENTIRE DUCT SYSTEM SHALL BE CONSTRUCTED FROM A SINGLE MANUFACTURER'S SYSTEM AND SHALL BE INSTALLED PER THE MANUFACTURER'S INSTRUCTIONS. SEE DETAILS ON H1.03 AND H1.04.
 - INSULATE ALL TYPE I EXHAUST DUCT FROM HOOD CONNECTION TO ROOF PENETRATION WITH UL LISTED GREASE DUCT FIRE WRAP PROVIDING 2 HOUR FIRE RATING AND ZERO CLEARANCE TO COMBUSTIBLES. SEE H1.04 FOR SPECIFICATION AND DETAIL.
- FLEXIBLE DUCT SHALL BE UL 181 CLASS 1, STEEL WIRE HELIX WITH REINFORCED INNER LAYER, R-4.2 FIBERGLASS INSULATION, AND FOIL-FACED OUTER VAPOR BARRIER.
- EXCEPT WHERE NOTED OTHERWISE, EACH SUPPLY AIR DEVICE SHALL HAVE A BALANCING DAMPER AT TAKE-OFF CONNECTION TO SUPPLY TRUNK DUCT.
- AIR DEVICES SHALL BE AS NOTED OR SCHEDULED. COORDINATE LOCATION AND MOUNTING WITH SURFACE IN WHICH INSTALLED. REFER TO ARCHITECTURAL DRAWINGS. AIR DEVICES IN FINISHED SPACES SHALL BE FREE OF OBSTACLES. FINISHES AND FINISH SHALL BE APPROVED BY THE ARCHITECT.
- PROVIDE UL 555 FIRE DAMPERS (UL 555 COMBINATION FIRE AND SMOKE DAMPERS) AT ALL AIR DISTRIBUTION SYSTEM PENETRATIONS OF FIRE RATED (FIRE AND SMOKE RATED) ASSEMBLIES.
- SUPPORT EQUIPMENT DIRECTLY FROM BUILDING STRUCTURE PER MANUFACTURER'S RECOMMENDATIONS. PROVIDE VIBRATION ISOLATION FOR ALL EQUIPMENT WITH ROTATING PARTS.
- TEST EQUIPMENT, ECONOMIZERS, AND CONTROLS FOR PROPER OPERATION, CALIBRATION AND ADJUSTMENT. PROVIDE REPORT TO OWNER.
- PROVIDE COMPLETE AS-BUILT DRAWINGS FOR ALL HVAC SYSTEMS AND O&M MANUALS FOR ALL EQUIPMENT TO OWNER WITHIN 90 DAYS OF SYSTEM ACCEPTANCE. AS-BUILT DRAWINGS SHALL NOT BEAR THE NAME OR SEAL OF THE ARCHITECT OR ENGINEER.

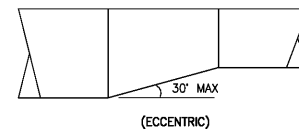


(RADIUS)

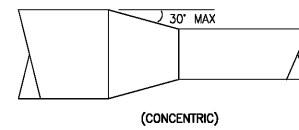
ELBOWS



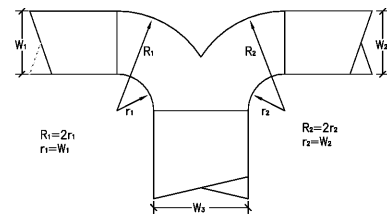
(SQUARE)



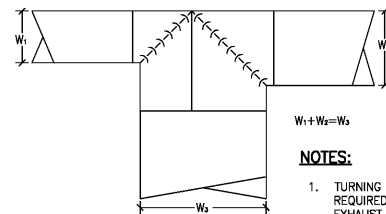
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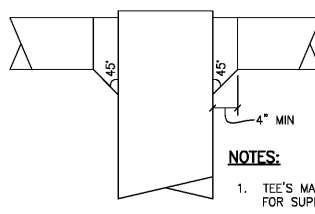
TRANSITIONS



(RADIUS WYE)



(SQUARE TEE)



(BRANCH TAKE-OFF'S)

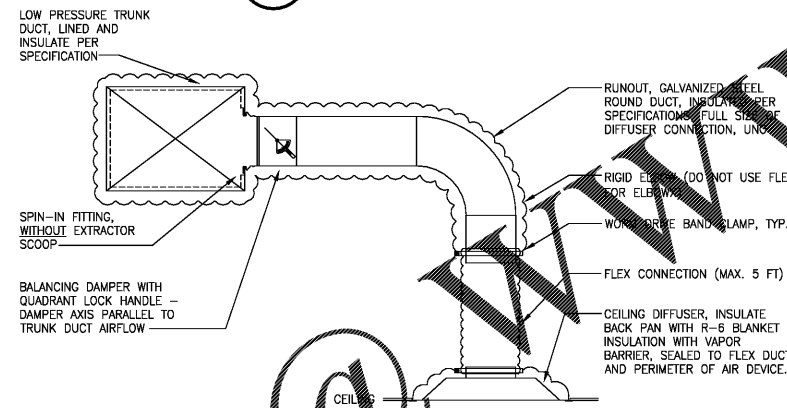
- NOTES:**
- TURNING VANES NOT REQUIRED IN RETURN OR EXHAUST DUCT SYSTEMS

NOTES:

- DETAILS ARE FOR GENERAL HVAC DUCTWORK ONLY, TYPE I KITCHEN EXHAUST DUCTWORK SHALL BE FABRICATED AND INSTALLED PER NFPA 96 AND CODE.

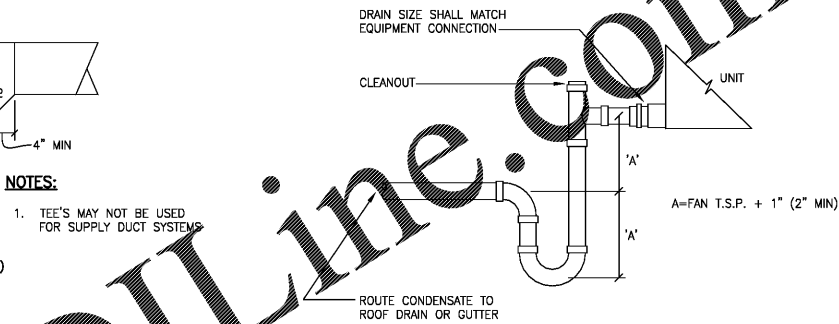
1 GENERAL DUCTWORK DETAILS

H1.05 SCALE: NONE



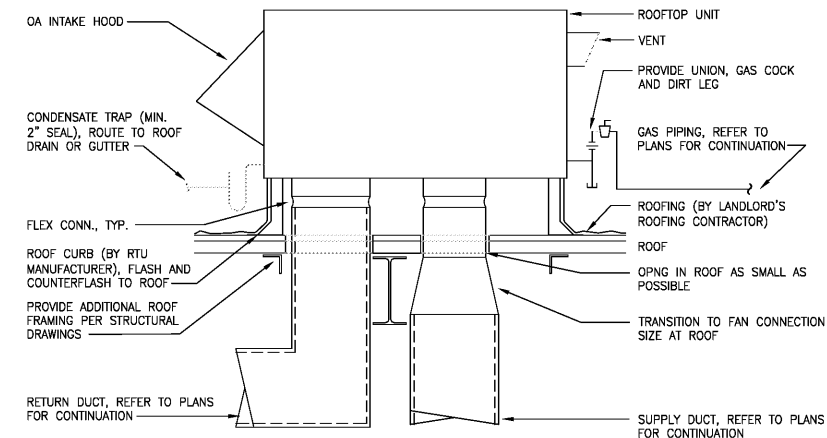
2 AIR DEVICE CONNECTION

H1.05 SCALE: NONE



3 CONDENSATE DRAIN

H1.05 SCALE: NONE



NOTES:

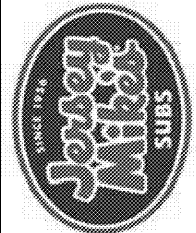
- SECURE RTU TO CURB PER MANUFACTURER'S RECOMMENDATIONS.
- RTU OA INTAKE SHALL BE MINIMUM 10'-0" FROM ANY EXHAUST FAN DISCHARGE, PLUMBING VENT, ETC.

4 ROOFTOP UNIT

H1.05 SCALE: NONE

HVAC LEGEND		HVAC ABBREVIATIONS			
SYMBOL	DESCRIPTION	ABBREV.	DEFINITION	ABBREV.	DEFINITION
---	EXISTING MECHANICAL CONSTRUCTION (CROSS HATCHES TO BE REMOVED)	A/C	ABOVE CEILING	L&S	LOUVER AND SCREEN
---	CONNECTION TO EXISTING CONSTRUCTION	AD	ACCESS DOOR	LAHJ	LOCAL AUTHORITY HAVING JURISDICTION
2- (A) 200	AIR DEVICE TAG	AFF	ABOVE FINISHED FLOOR	LF	LINEAR FEET
⊗	SUPPLY AIR DEVICE	B/F	BELOW FLOOR	MD	MANUAL DAMPER
⊠	RETURN / EXHAUST AIR DEVICE	B/G	BELOW GRADE	MECH	MECHANICAL
20x12	DUCTWORK, SIZED AS SPECIFIED (LINED WHERE NOTED/SPECIFIED)	BB	BASE BUILDING	MFR	MANUFACTURER
20x12	FLEXIBLE DUCT OR CONNECTOR	BD	BACKDRAFT DAMPER	MOD	MOTOR-OPERATED DAMPER
20x12	DUCTWORK, SIZED AS SPECIFIED (LINED WHERE NOTED/SPECIFIED)	BLDG	BUILDING	MTD	MOUNTED
20x12	DUCT OFFSET: (R)ISE, (D)ROP - ARROW SHOWS DIRECTION OF OFFSET.	CD	CONDENSATE DRAIN	N/A	NOT APPLICABLE
20x12	FD = FIRE DAMPER	CF(H/M)	CUBIC FEET PER (HOUR / MINUTE)	NC	NOISE CRITERIA
20x12	FSD = FIRE/SMOKE DAMPER	CLG	CEILING	NIC	NOT IN CONTRACT
20x12	FD = FIRE DAMPER	CONC	CONCRETE	NOM	NOMINAL
20x12	FSD = FIRE/SMOKE DAMPER	CONN	CONNECT(ION)	OA	OUTSIDE AIR
20x12	FD = FIRE DAMPER	CONT	CONTINUATION	OC	ON CENTERS
20x12	FSD = FIRE/SMOKE DAMPER	DIA	DIAMETER	OPNG	OPENING
20x12	FD = FIRE DAMPER	DIV 15/16	DIVISION 15000 (MECH) / 16000 (ELEC)	PLBG	PLUMBING
20x12	FSD = FIRE/SMOKE DAMPER	DN	DOWN	RA	RETURN AIR
20x12	FD = FIRE DAMPER	EA	EACH or EXHAUST AIR	SA	SUPPLY AIR
20x12	FSD = FIRE/SMOKE DAMPER	ELEC	ELECTRICAL	SF	SQUARE FEET
20x12	FD = FIRE DAMPER	EXH	EXHAUST	SO	SQUARE
20x12	FSD = FIRE/SMOKE DAMPER	EXIST	EXISTING	TBD	TO BE DETERMINED
20x12	FD = FIRE DAMPER	FA	FREE AREA	THRU	THROUGH
20x12	FSD = FIRE/SMOKE DAMPER	FACP	FIRE ALARM CONTROL PANEL	T'STAT	THERMOSTAT
20x12	FD = FIRE DAMPER	FD	FIRE DAMPER	TYP	TYPICAL
20x12	FSD = FIRE/SMOKE DAMPER	FLEX	FLEXIBLE	UNO	UNLESS NOTED OTHERWISE
20x12	FD = FIRE DAMPER	FLR	FLOOR	WC	WATER COLUMN
20x12	FSD = FIRE/SMOKE DAMPER	FP	FIRE PROTECTION	WG	WATER GAUGE
20x12	FD = FIRE DAMPER	FSD	COMBINATION FIRE AND SMOKE DAMPER	XFER	TRANSFER
20x12	FSD = FIRE/SMOKE DAMPER				

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REV. NO.	DATE	DESCRIPTION

PROJECT NO. HVAC-200
DRAWN BY: SW
CHECKED BY: KM
ISSUE DATE: 11/04/19

HVAC DETAILS

H1.05