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HVAC LEGEND	
	SHEET METAL DUCT AND TRANSITION. 1ST DIMENSION NOTED IS SIDE SHOWN.
	EXISTING DUCTWORK.
	HIDDEN DUCTWORK.
	BRANCH TAKEOFF FROM DUCT W/ VOLUME DAMPER AT EA TAKEOFF, EVEN IF VOLUME DAMPER IS NOT SHOWN.
	DUCTWORK: CEILING S/A DIFFUSERS. THROW IS FOUR-WAY UON.
	DUCTWORK ELBOW UP.
	DUCTWORK ELBOW DOWN.
	HVAC EQUIPMENT.
	WALL SUPPLY AIR REGISTER
	WALL RETURN AIR GRILLE
	CEILING SUPPLY AIR DIFFUSER.
	CEILING RETURN OR EXHAUST AIR DEVICE.
	SUPPLY OR OUTSIDE AIR DUCTWORK SECTION.
	RETURN AIR DUCTWORK SECTION.
	EXHAUST AIR DUCTWORK SECTION.
	FIRE DAMPER
	SMOKE DAMPER
	COMB. FIRE/SMOKE DAMPER
	MOTORIZED DAMPER.
	FLEXIBLE DUCTWORK
	CO2 SENSOR
	THERMOSTAT
	HUMIDITY SENSOR
	DUCT MOUNTED SMOKE DETECTOR. FURNISHED BY DW. 15, INSTALLED BY MECHANICAL CONTRACTOR.
	AIR DEVICE TYPE, CFM, SEE SCHEDULE.
	POINT OF CONNECTION, NEW TO EXIST DUCT/PIPE.
ABBREVIATIONS	
AFF	ABOVE FINISHED FLOOR
AFS	ABOVE FINISHED GRADE
AMB	AMBIENT
AMP	AMPERES
ARCH	ARCHITECT, ARCHITECTURAL
BDD	BOTTOM OF DUCT
BOP	BOTTOM OF PIPE
BFF	BELOW FINISHED FLOOR
BFP	BACK FLOW PREVENTER
BFV	BUTTERFLY VALVE
BTUH	BRITISH THERMAL UNITS / HR.
BY	BY PASS
CD	CONDENSATE DRAIN LINE, EQUIP. DRAIN
CFM	CUBIC FEET PER MINUTE
CHWR/CHWS	CHILLED WATER RETURN / SUPPLY
CO	CLEANOUT
CONT	CONTINUATION
COORD	COORDINATE
CWR/CWS	CONDENSER WATER RETURN / SUPPLY
dB	DECIBELS
DB	DRY BULB TEMPERATURE
DDC	DIRECT DIGITAL CONTROL
DEG F	DEGREES FAHRENHEIT
DIA	DIAMETER
DN	DOWN
EA	EACH
EA	ENTERING AIR TEMPERATURE
EDB	ENTERING DRY BULB TEMPERATURE
EER	ENERGY EFFICIENCY RATIO
EFF	EFFICIENCY
EL	ELEVATION
ELEC	ELECTRICAL
EWB	ENTERING WET BULB TEMPERATURE
EW	ENTERING WATER TEMPERATURE
EXIST	EXISTING
EXH	EXHAUST
F&I	FURNISH AND INSTALL
FLEX	FLEXIBLE DUCT
FM	FEET PER MINUTE
FPS	FEET PER SECOND
FT	FEET
GC	GENERAL CONTRACTOR
GPM	GALLON PER MINUTE
HP	HORSE POWER
HR	HOUR
HSTAT	HUMIDISTAT
HVAC	HEATING, VENTILATION AND AIR CONDITIONING
HW	HEATING WATER
HWR	HEATING WATER RETURN
IAQ	INDOOR AIR QUALITY
IN	INCHES
KEC	KITCHEN EQUIPMENT CONTRACTOR
KW	KILOWATT
KWH	KILOWATT HOUR
LBS	POUNDS
LDBT	LEAVING DRY BULB TEMPERATURE
LWB	LEAVING WET BULB TEMPERATURE
LVR	LOUVER
LWT	LEAVING WATER TEMPERATURE
MAT	MIXED AIR TEMPERATURE
MAX	MAXIMUM
MBH	BTU/HR X 1,000
MCH	MECHANICAL
MCD	MOTORIZED VOLUME DAMPER
NA	NOT APPLICABLE
NIC	NOT IN CONTRACT
NTS	NOT TO SCALE
OA	OUTSIDE AIR
PH	PHASE (ELECTRIC)
POC	POINT OF CONNECTION
PSI	POUNDS PER SQUARE INCH
PVC	POLYVINYL CHLORIDE
RA	RETURN AIR
RH	RELATIVE HUMIDITY
RM	ROOM
REV	REVISION
RPZ	REDUCED PRESSURE ZONE BACKFLOW PREVENTER
SA	SUPPLY AIR
TYP	TYPICAL
UG	UNDERGROUND
UF	UNDER FLOOR
UON	UNLESS OTHERWISE NOTED
V	VENT
VAC	VACUUM
VAV	VARIABLE AIR VOLUME
VD	VOLUME DAMPER (MANUAL)
W	WATT
W/O	WITHOUT
WCO	WALL CLEANOUT
X	EXISTING TO REMAIN

(NOTE: ALL SYMBOLS SHOWN ARE NOT NECESSARILY USED ON DRAWINGS)

ROOFTOP UNIT SCHEDULE		
GENERAL	DESIGNATION	RTU 1-4
	RECOMMENDED MANUFACTURER	TRANE
	MODIFI. NO.	YCD181
	NOMINAL TONS	15
COOLING COIL	TOTAL DESIGN CFM	6000
	MIN. O.A. CFM	1000
	EER	12
	WEIGHT (LBS)	2002
	EAT-DB/WB, DEG. F.	80/67
	MAX. AMBIENT TEMP., DEG. F.	105
	TOTAL COOLING, BTUH	188,000
	SENSIBLE COOLING, BTUH	147,000
	MIN. COIL FACE AREA SQ. FT.	35.2
	MIN. ROWS/MAX. FPI	3/16
HEATING	EAT/LAT, DEG. F.	60/90
	MIN. AMBIENT TEMP., DEG. F.	9
	GAS INPUT (BTU/HR)	250,000
	HEAT OUTPUT (BTU/HR)	202,500
EVAP. FAN	AFUE %	81
	MIN. NO. STAGES	2
	EXT. SP. IN W.G.	0.7
	DRIVE TYPE	BELT
ELECTRICAL	FAN MOTOR, HP	3
	RPM	597
	VOLT/PHASE	230/3
	N.O. OF COMPRESSORS	2
	COMPRESSOR RLA	29.5/17.6
	N.O. OF COND. FANS	2
	COND. FAN FLA	3.2 EA.
	EVAP. FAN FLA	10.6
	MCA	65
	MOCP	80
REMARKS	NOTES 1-8	

- NOTES:**
- FURNISH W/ 5 YEAR COMPRESSOR WARRANTY.
 - FURNISH W/ 10 YEAR HEAT EXCHANGER WARRANTY.
 - FURNISH W/ DOWNFLOW ROOF CURBS, MIN. 14 IN. HIGH, MEETING NRCA REQUIREMENTS.
 - FURNISH W/ MOTORIZED OUTSIDE AIR DAMPERS.
 - FURNISH W/ HAIL GUARDS ON CONDENSER COIL.

- MECHANICAL - GENERAL NOTES:**
- ALL MECHANICAL INSTALLATIONS SHALL BE IN STRICT COMPLIANCE WITH ALL LOCAL GOVERNING AUTHORITIES HAVING JURISDICTION.
 - ALL INSTALLATIONS SHALL COMPLY WITH THE INTERNATIONAL ENERGY CONSERVATION CODE 2003. EQUIPMENT EFFICIENCIES SHALL MEET MINIMUM REQUIREMENTS. DUCT INSULATION IN UNCONDITIONED SPACES SHALL HAVE A MINIMUM R5 VALUE. DUCT INSULATION OUTSIDE THE BUILDING INSULATION ENVELOPE SHALL HAVE MINIMUM R8 VALUE.
 - MECHANICAL CONTRACTOR SHALL FIELD VERIFY EXACT SIZE AND LOCATION OF EXISTING MECHANICAL EQUIPMENT, DUCTWORK, AND ALL OTHER MECHANICAL SYSTEMS.
 - REFER TO ARCHITECTS REFLECTED CEILING PLAN FOR EXACT CEILING DIFFUSER LOCATIONS AND ELEVATIONS.
 - ALL THERMOSTATS, SENSORS, CONTROLS, AND CONTROL WIRING (50 VOLTS OR LESS) SHALL BE FURNISHED AND INSTALLED BY THE MECHANICAL CONTRACTOR.
 - MOTOR DISCONNECTS AND STARTERS SHALL BE FURNISHED AND INSTALLED BY THE ELECTRICAL CONTRACTOR.
 - CONDENSATE DRAIN PIPING SHALL BE COPPER AND SHALL BE SLOPED 1/8 INCH PER FOOT MINIMUM AND BE INSTALLED BY MECHANICAL CONTRACTOR. INTERIOR CONDENSATE PIPING SHALL BE INSULATED.
 - VENTILATION FLUES FOR ALL COMBUSTION EQUIPMENT BY MECHANICAL CONTRACTOR.
 - FLEXIBLE DUCT SHALL NOT EXCEED 6'-0".
 - MAINTAIN ALL DUCTWORK CLEARANCES REQUIRED BY THE NATIONAL ELECTRIC CODE ABOVE ALL ELECTRICAL PANELS. COORDINATE WITH ELECTRICAL CONTRACTOR.
 - DUCTWORK LAYOUT ON DRAWINGS IS SCHEMATIC IN NATURE. FIELD VERIFY ALL STRUCTURAL SUPPORTS AND BEAMS AND AVOID DUCTWORK CONFLICTS.
 - OUTSIDE AIR INTAKES SHALL BE A MINIMUM OF 10'-0" FROM ALL EXHAUST SOURCES.
 - SMOKE DETECTORS SHALL BE INSTALLED IN THE SUPPLY AND RETURN DUCTS OF ALL UNITS GREATER THAN 2,000 CFM. SMOKE DETECTORS SHALL BE FURNISHED AND WIRED BY THE FIRE ALARM CONTRACTOR. SMOKE DETECTORS SHALL BE INSTALLED BY THE MECHANICAL CONTRACTOR.
 - MECHANICAL CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND SYSTEMS PER MANUFACTURER'S INSTRUCTIONS. MAINTAIN REQUIRED ACCESS PER MECHANICAL CODE AND MANUFACTURER'S SERVICE RECOMMENDATIONS.

DIFFUSER & GRILLE SCHEDULE								
MARK	CFM RANGE	S	R	E	TYPE	DUCT CONN. SIZE	PATTERN	REMARKS
A	0 - 150	X			SURFACE	6	NOTE 2	TITUS TMS, 12X12 MODULE
B	151 - 250	X			SURFACE	8	NOTE 2	TITUS TMS, 12X12 MODULE
C	251 - 400	X			SURFACE	10	NOTE 2	TITUS TMS, 12X12 MODULE
D	401 - 600	X			SURFACE	12	NOTE 2	TITUS TMS, 12X12 MODULE
S	1 - 750		X		CEILING	22X10	N.A.	TITUS 350FL
T	752 - 1800		X		CEILING	22X22	N.A.	TITUS 350FL, NOTE 7
X	0 - 450			X	SURFACE	10X10	N.A.	TITUS 350FL W/ OBD
Y	451 - 1000			X	SURFACE	16X16	N.A.	TITUS 350FL W/ OBD
Z	0 - 400		X		DOOR	24X12	N.A.	TITUS T700

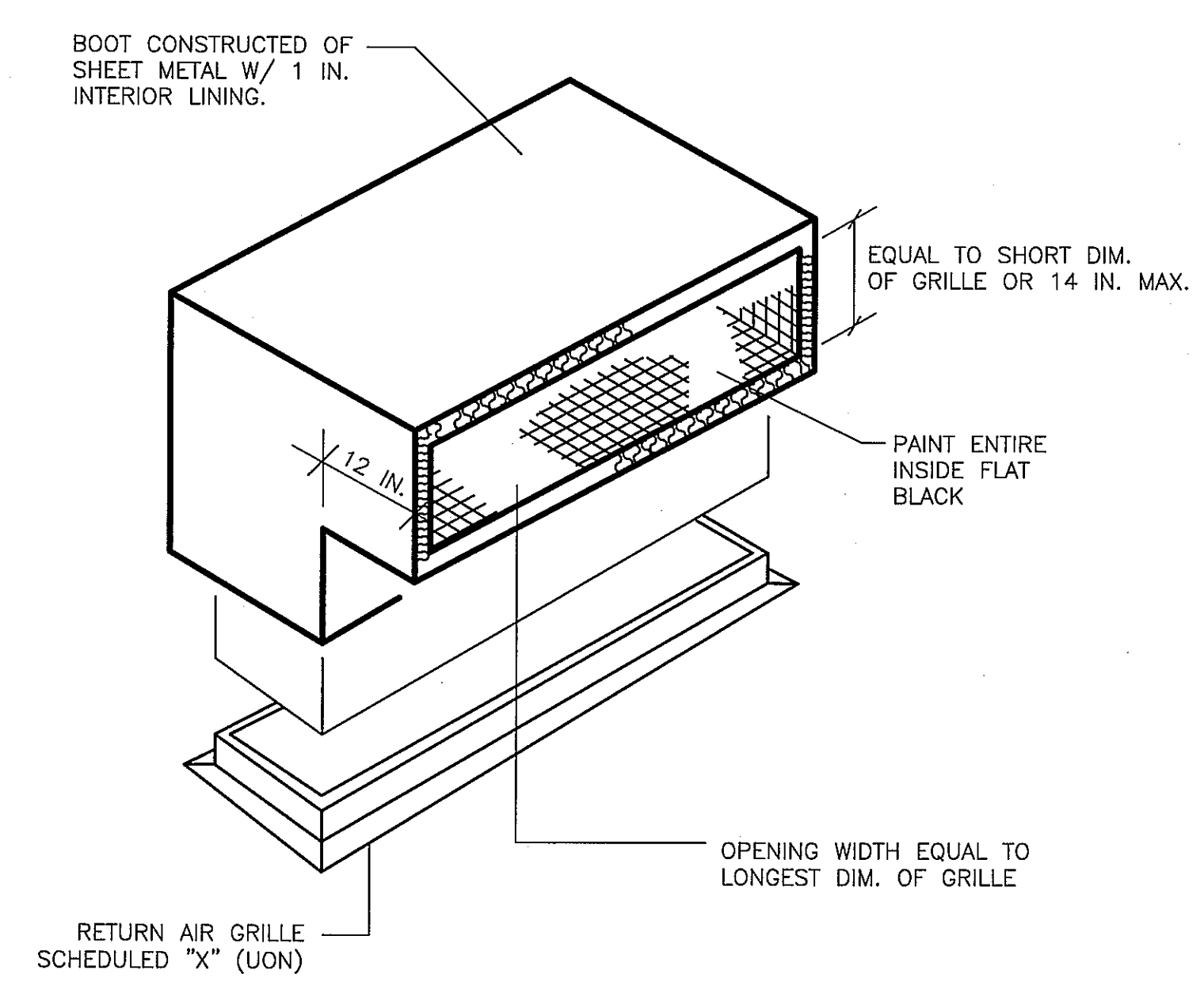
- NOTES:**
- ALL AIR FLOWS ARE LISTED IN CFM; ALL SIZES IN INCHES.
 - PATTERN IS FOUR-WAY UON ON PLANS.
 - FURNISH WITH A FRAME COMPATIBLE WITH THE CEILING OR WALL IN WHICH THE DEVICE IS MOUNTED. (APPLIES TO ALL MAKE RUNOUT AND FLEX OR HARD DUCT CONNECTION TO AIR DEVICE SAME SIZE AS SCHEDULED DUCT CONNECTION SIZE UON.)
 - FURNISH ROUND-TO-SQUARE TRANSITION AS REQUIRED BY DUCT CONNECTION SIZE. (TYPES A-K)
 - EQUIVALENT MODELS BY KRUEGER, METALAIR, OR PRICE MAY BE ACCEPTABLE PENDING SUBMITTAL REVIEW.

FAN SCHEDULE											
MARK	SERVING	TYPE	CFM	STATIC PRESS IN. H2O	DRIVE TYPE	MOTOR HP	VOLTS/ PH	MAX. RPM	MAX. SONES	INTERLOCK WITH	REMARKS
EP-1	SALON/HAIR WASH	ROOF CENTRIFUGAL	630	0.50	BELT	1/4	120/1	1277	8	NOTE 3	GREENHECK GB-091-4, NOTES 4 & 6
EP-2	COLOR BAR	ROOF CENTRIFUGAL	350	0.50	BELT	1/6	120/1	1208	6.1	NOTE 3	GREENHECK GB-081-6, NOTES 4 & 6
EP-3	MOP SINK	ROOF CENTRIFUGAL	150	0.50	DIRECT	1/20	120/1	1447	7.1	NOTE 2	GREENHECK G-080-D, NOTES 5 & 6
EP-4	RESTROOMS	ROOF CENTRIFUGAL	150	0.50	DIRECT	1/20	120/1	1447	7.1	NOTE 1	GREENHECK G-080-D, NOTES 5 & 6

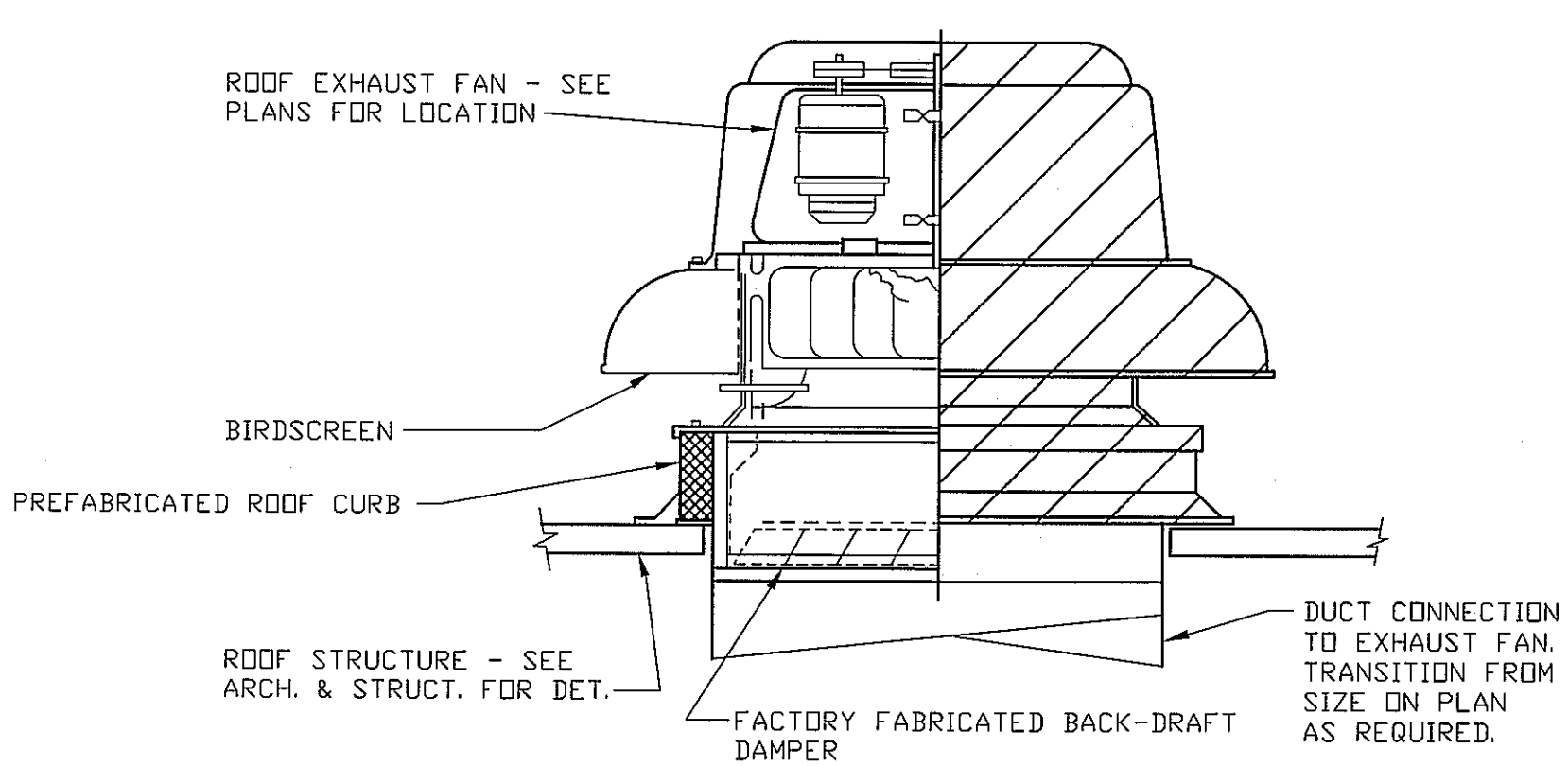
- NOTES:**
- FAN TO BE INTERLOCKED WITH RESTROOM LIGHT SWITCHES. THE FAN ENGAGES WITH EITHER OR BOTH RESTROOM LIGHTS. REFER TO ELECTRICAL FOR WIRING.
 - FAN TO BE ENGAGED BY A WALL SWITCH. REFER TO ELECTRICAL.
 - FAN TO RUN CONTINUOUSLY DURING HOURS OF OPERATION.
 - FURNISH FAN WITH MANUFACTURER'S BACKDRAFT DAMPER, ROOF CURB AND BIRDSCREEN.
 - FURNISH FAN WITH MANUFACTURER'S BACKDRAFT DAMPER, ROOF CURB, BIRDSCREEN, AND SOLID STATE SPEED CONTROLLER.
 - GREENHECK IS BASIS OF DESIGN; EQUIV. MODEL BY COOK, PENN OR JENNFAN MAY BE ACCEPTABLE PENDING SUBMITTAL REVIEW.

HVAC SPECIFICATIONS

- THE MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR THE LABOR, EQUIPMENT, AND MATERIALS TO PROVIDE A COMPLETE AND FULLY OPERATIONAL HVAC SYSTEM AS SHOWN OR INDICATED ON THE DRAWINGS.
- DUCTWORK SHALL BE GRAY DUCT SOX VERONA. VERIFY COLOR WITH ARCHITECT PRIOR TO ORDERING. WHERE HARD DUCTWORK IS SPECIFIED, DIMENSIONS ARE CLEAR, INSIDE DIMENSIONS. HARD DUCTWORK SHALL BE GALVANIZED STEEL AND SHALL MEET MINIMUM S.M.A.C.S.A. CONSTRUCTION STANDARDS. THIS INCLUDES, BUT IS NOT LIMITED TO SEALING ALL DUCTS, PROVIDING SPLITTERS AT MAJOR DUCTWORK BRANCHES AND TEES, EXTRACTORS AT MINOR DUCTWORK BRANCHES, AND TURNING VANES AT RECTANGULAR ELBOWS AND TEES. VOLUME DAMPERS SHALL BE LOCATED PRIOR TO ALL SUPPLY DIFFUSERS AND RETURN AIR GRILLS FOR SYSTEM BALANCING.
- MECHANICAL EQUIPMENT IS SPECIFIED IN SCHEDULES ON DRAWINGS. SELECTED EQUIPMENT MANUFACTURERS OTHER THAN LISTED RECOMMENDED MANUFACTURER MUST BE APPROVED BY ENGINEER PRIOR TO ORDERING.
- PROVIDE FLEXIBLE CONNECTION AT DUCT CONNECTIONS TO ALL AIR HANDLING EQUIPMENT.
- ALL DUCT DIMENSIONS SHOWN ARE CLEAR INSIDE DIMENSIONS.
- ALL AIR DIFFUSERS AND GRILLES SHALL BE SHOWN IN SCHEDULES OR ON DRAWINGS. CFM AND NECK SIZE ARE SHOWN ON DRAWINGS. INSTALL PER MANUFACTURER'S RECOMMENDATIONS.
- CONDENSATE DRAIN PIPING SHALL BE TYPE 'L' COPPER AND SLOPED AT A MINIMUM OF 1/8" PER FOOT TOWARD DRAIN. INSULATE WITH 3/4" FLEXIBLE ELASTOMETRIC, SELF-SEAL PRE-FORMED PIPE INSULATION, 'K' VALUE OF 0.27 AT 75F. SIMILAR TO ARMSTRONG ARMAFLEX. PLENUM RATED IF IN RETURN AIR PLENUM.
- MECHANICAL CONTRACTOR SHALL LABEL ALL MECHANICAL EQUIPMENT, CONTROL PANELS, AND OTHER DEVICES WITH METAL TAGS NUMBERED AS SHOWN ON DRAWINGS OR PER OWNER'S NUMBERING SYSTEM.
- THERMOSTATS SHALL BE 24 HOUR/7 DAY PROGRAMMABLE.
- THE MECHANICAL SYSTEMS SHALL BE TESTED, ADJUSTED, AND BALANCED BY A BALANCING FIRM SPECIALIZING IN THIS TYPE OF WORK (MAY BE MECHANICAL CONTRACTOR). TESTS SHALL DETERMINE QUANTITATIVE PERFORMANCE OF EQUIPMENT. BALANCING SHALL PROPORTION FLOWS WITHIN THE DISTRIBUTION SYSTEM(S) ACCORDING TO SPECIFIED DESIGN QUANTITIES. ALL WORK MUST BE DONE UNDER THE DIRECT SUPERVISION OF AN ENGINEER REGISTERED IN THIS STATE OR CERTIFIED BY THE NATIONAL ENVIRONMENTAL BALANCING BUREAU (NEBB). ALL WORK SHALL MEET LOCAL CODES AND STANDARDS, NEBB AND ASHRAE TESTING, ADJUSTING, AND BALANCING PROCEDURES. SUBMIT TO THE OWNER FOR REVIEW AND APPROVAL. THREE (3) COPIES OF THE BALANCING REPORTS ON THE STANDARD REPORT FORMS PREPARED BY NEBB. REPORTS SHALL BE SUBMITTED TO THE ENGINEER NO LATER THAN TWO (2) WEEKS AFTER TESTING.

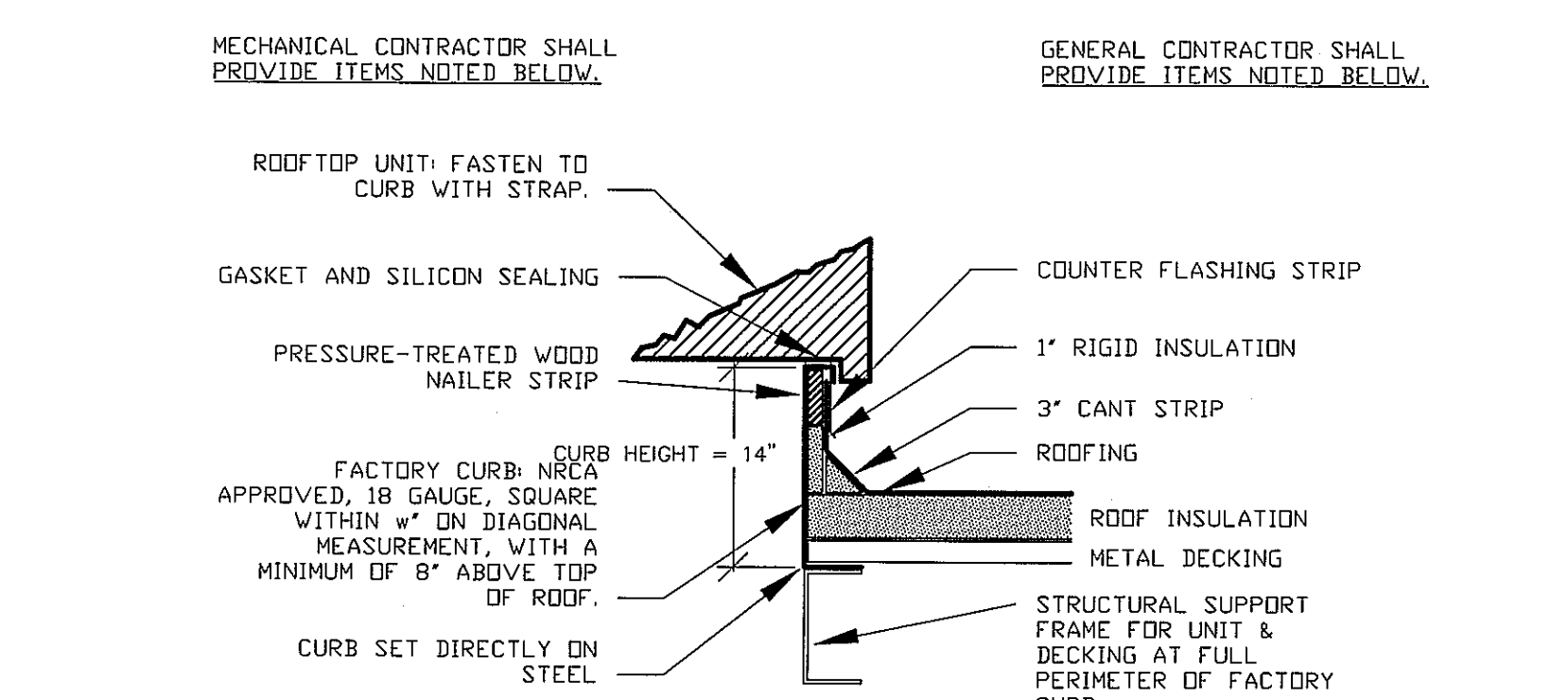


1 RETURN AIR BOOT DETAIL
NOT TO SCALE



2 ROOF MOUNTED EXHAUST FAN DETAIL
NOT TO SCALE

- NOTES:**
- POWER SUPPLY TO EXHAUST FANS SHALL NOT PENETRATE EXHAUST DUCT.



3 CURB DETAIL: ROOFTOP UNIT
NOT TO SCALE

- MECHANICAL SUBCONTRACTOR SHALL FURNISH ROOF OPENING SIZES & LOCATIONS, FOR STRUCTURAL SUPPORT FRAMING BY GENERAL CONTRACTOR.
- THIS CURB DETAIL WILL ALLOW THE UNIT TO SLOPE WITH THE SLOPE OF THE ROOF PITCH. THIS DETAIL CAN ONLY BE USED (A) IF THE CONDENSATE DRAIN PAN OUTLET IS ON THE LOW SIDE OF THE UNIT, OR (B) IF THE CONDENSATE DRAIN PAN IS NOT AFFECTED BY SLOPE. THIS DETAIL CANNOT BE USED IF THE CONDENSATE DRAIN CONNECTION IS ON THE HIGH SIDE OF THE UNIT.



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