



ISSUE
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OUTSIDE AIR CALCULATIONS

1. OUTSIDE AIRMAKEUP AIR:	RTU-1 = 726 CFM
	RTU-2 = 400 CFM
	RTU-3 = 2220 CFM
	SF-FU2 = 2883 CFM
	SF-FU6 = 800 CFM
2. HOOD EXHAUST/TOILET EXHAUST:	EF-FU1 = 2775 CFM
	EF-FU3 = 3354 CFM
	EF-FU5 = 600 CFM
	EF-1 = 190 CFM
	EF-2 = 190 CFM
3. TOTAL OUTSIDE AIR = 7029 CFM	
TOTAL EXHAUST AIR = 7029 CFM	

SYMBOL LEGEND

SYMBOL	DESCRIPTION (REGARD ITEMS NOT SHOWN ON PLANS)
①	KEY NOTE TAG
②	NOTE SPECIFIC TO DETAIL TAG
③	REVISION TAG
NEW EQUIPMENT	NEW EQUIPMENT
DUCTWORK	SUPPLY AIR DUCTWORK
RETURN AIR AND OUTSIDE AIR DUCTWORK	RETURN AIR AND OUTSIDE AIR DUCTWORK
EXHAUST AIR DUCTWORK	EXHAUST AIR DUCTWORK
FLEXIBLE DUCTWORK	SUPPLY AIR DUCTWORK THROUGH HORIZONTAL PARTITION
RETURN AIR AND OUTSIDE AIR DUCTWORK THROUGH HORIZONTAL PARTITION	RETURN AIR AND OUTSIDE AIR DUCTWORK THROUGH HORIZONTAL PARTITION
EXHAUST AIR DUCTWORK THROUGH HORIZONTAL PARTITION	EXHAUST AIR DUCTWORK THROUGH HORIZONTAL PARTITION
FIRE DAMPER (VERTICAL)	FIRE DAMPER (VERTICAL)
MANUAL BALANCING DAMPER (SEE DAMPER SCHEDULE)	MANUAL BALANCING DAMPER (SEE DAMPER SCHEDULE)
MOTORIZED DAMPER (SEE DAMPER SCHEDULE)	MOTORIZED DAMPER (SEE DAMPER SCHEDULE)
SENSORS	SENSORS
④	THERMOSTAT AND TEMPERATURE SENSOR
⑤	HUMIDISTAT
⑥	SMOKE DETECTOR
AR DEVICES	AR DEVICES
⑦	AIR DEVICE TAG (REFER TO AIR DEVICE SCHEDULE)
⑧	SUPPLY AIR GRILLE WITH FOUR-WAY THROW
⑨	RETURN AIR GRILLE WITH SOUND BOOT
⑩	EXHAUST AIR GRILLE
⑪	CONDENSATE DRAIN LINE

MECHANICAL SPECIFICATIONS

- THE CONTRACTOR SHALL PROVIDE A COMPLETE AND FUNCTIONAL AIR CONDITIONING SYSTEM. ALL APPEARANCES REQUIRED BUT NOT SHOWN SHALL BE PROVIDED.
- THE CONTRACTOR SHALL COORDINATE WITH OTHER DISCIPLINES. ALL VOLTAGES AND POWER REQUIREMENTS SHALL BE COORDINATED WITH THE ELECTRICAL CONTRACTOR.
- THE EXHAUST FANS SHALL BE MANUFACTURED BY COOK, GREENHECK, PENN OR AOME.
- DUCTWORK SHALL BE GALVANIZED SHEETMETAL CONSTRUCTED TO SMACNA STANDARDS AT 2" PER PRESSURE. INSULATED DUCTS SHALL BE CONSTRUCTED TO 2" NEG. PRESSURE. SEAL ALL SEAMS IN THE DUCT WITH HARDCAST IRON GRIP UNLESS OTHERWISE INDICATED.
- SUPPLY, RETURN AND EXHAUST DUCTWORK ABOVE CEILING SHALL BE EXTERNALLY WRAPPED WITH 1-1/2" MINIMUM DUCT INSULATION. THE INSULATION SHALL BE MANUFACTURED BY TITUS, KRUEGER OR METALARE. THE INSULATION SHALL BE 0.01" BETTER WITH WROTH BARBER. THE INSULATION SHALL BE STAPLED ON 6" CENTERS AND SEALED WITH PRESSURE SENSITIVE TAPE. THE R-VALUE MUST BE INDICATED ON THE EXTERIOR SIDE OF THE INSULATION FOR THE CITY INSPECTOR TO VERIFY.
- THE AIR DEVICES SHALL BE MANUFACTURED BY TITUS, KRUEGER OR METALARE.
- FLEXIBLE DUCTWORK TO BE INSULATED WITH R-6 INSULATION. INSULATION SHALL BE UL-181 LABELED. PROVIDE WITH 1" OVERLAP. INSTALL AND SUPPORT PER MANUFACTURERS INSTRUCTIONS. INSULATED FLEXIBLE DUCTWORK TO BE 20/50 RATED FOR SMOKE AND FLAME.
- KITCHEN HOOD EXHAUST DUCTWORK FABRICATION: FABRICATE IN ACCORDANCE WITH SMACNA HOOD DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE AND MEPA 96. KITCHEN HOOD EXHAUST DUCTS SHALL BE CONSTRUCTED OF 16 GAUGE BLACK CARBON STEEL WITH WELDED JOINTS AND GREASE TIGHT. PROVIDE DUCTWORK IN 2 HOUR RATED ENCLOSURE. INSULATION SHALL BE 1-1/2" THICK RETARATORY CERAMIC BLANKET OR CALCA, MAGNESIA AND SILICA WITH ALUMINUM FOIL, FIBERGLASS-REINFORCE SCRIM ENCLOSURE. MANUFACTURER SHALL BE 3M FIRE BARRIER DUCT WRA- PROVIDE CLEAN OUT PANELS IN DUCT AS REQUIRED BY CODE.
- THE ROOFTOP AIR CONDITIONING UNITS SHALL BE MANUFACTURED BY TRANE, RUUD, LENOX OR YORK. PARK AND WINDING THROUGH THE EXHAUSTED ROOF CURB. UNIT LEAKAGE SHALL BE LIMITED TO 1/1000 CFM MAX. PROVIDE DUCTWORK WITH CONVENIENCE OUTLET AND TRANSFORMER. HEAD PRESSURE CONTROL TO OPERATE DOWN TO 0' OF AMBIENT. CORROSION RESISTANT HEAT EXCHANGER AND SHORT CYCLE CIRCUIT. PROVIDE 2" THROW-AWAY FILTERS. PROVIDE COMPRESSOR WITH FIVE YEAR WARRANTY. VIBRATION ISOLATION, SERVICE VALVES, CRANK CASE HEATER, SIGHT GLASS AND FILTER DREPS. FURNISH UNIT WITH OUTSIDE AIR HOOD AND VOLUME DAMPER. PROVIDE 2" THICK ELASTOMERIC INSULATION TO BE 20/50 FLAME AND SMOKE RETARDING. CONDENSATE PIPING ON ROOF TO BE SUPPORTED BY 4"x4" PRETREATED REMWOOD BLOCKS AND SPACED 4'-0" ON CENTER AND AT EACH CHANGE OF DIRECTION. SECURE PIPE TO BLOCKS WITH NON CORROSIVE PIPE STRAPS/INS. PROVIDE CONDENSATE DRAIN TO BE PVC WITH DRAINAGE PATTERN FITTINGS. CONDENSATE DRAINAGE PATTERN FITTINGS. PROVIDE CLEANOUTS EVERY 50 FEET AND AT EACH CHANGE OF DIRECTION. MAINTAIN POSITIVE SLOPE AND SUPPORT TO PREVENT SAGGING. INSULATE PIPING WITH 3/4" ELASTOMERIC INSULATION FOR ALL PIPE BELOW ROOF. SUPPORT PIPING IN THE VERTICAL. INSULATION TO BE 20/50 FLAME AND SMOKE RETARDING. CONDENSATE PIPING ON ROOF TO BE SUPPORTED BY 4"x4" PRETREATED REMWOOD BLOCKS AND SPACED 4'-0" ON CENTER AND AT EACH CHANGE OF DIRECTION. SECURE PIPE TO BLOCKS WITH NON CORROSIVE PIPE STRAPS/INS.

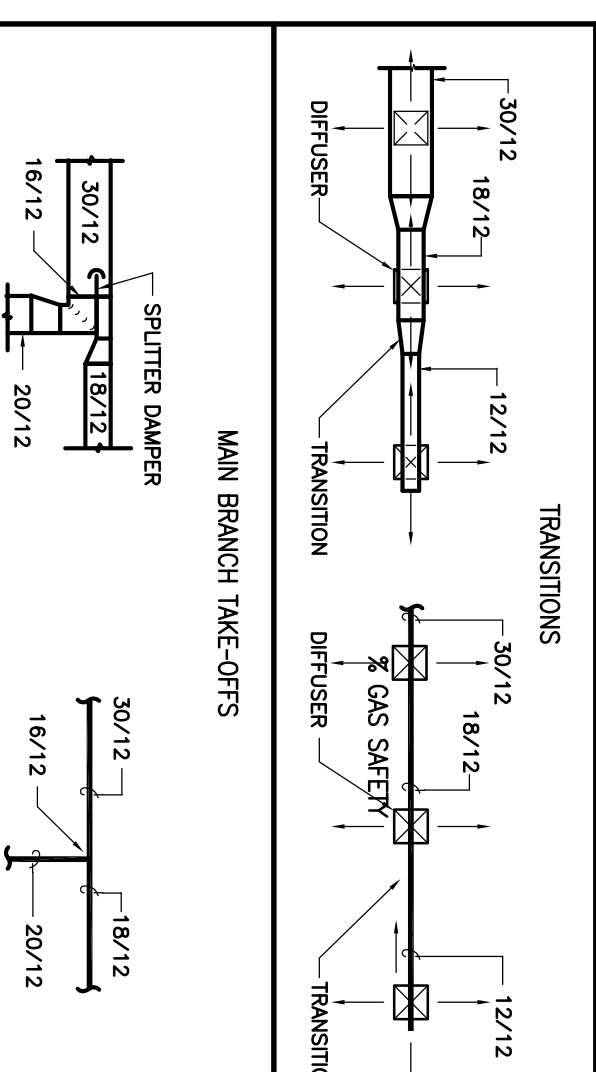
PACKAGE DX ROOFTOP A/C UNIT SCHEDULE

UNIT TAG	SERVICE	MANUFACT.	MODEL #	CONFIGURATION	NOMINAL TONS	UNIT SER	INDOOR BLOWER DATA	COOLING COIL SECTION	NATURAL GAS MBTU (MAX)	UNIT ELECTRICAL	UNIT WEIGHT LBS.	REMARKS								
							OA CFM	INT. SP. HP	CFM OVER COIL	SENS. CAP. (MBTU/H)	TOT. CAP. (MBTU/H)	EAT. (°F) DBWB	OUTDOOR AMBIENT (°DB)							
RTU-1	DINING	GOODMAN	GP-0990	DOWN-FLOW	7.5	13	3,100	-	-	-	-	-	-							
RTU-2	DINING	CARRIER	48TK06	DOWN-FLOW	5.0	12	2,000	1.0"	1.5	2,100	43,200	240,000	80.0/67.0	100"	115.0	26.2	40	230.3/80	700	NEW UNIT ON EXISTING ROOF
RTU-3	KITCHEN	CARRIER	48TK06	DOWN-FLOW	5.0	12	2,500	1.0"	1.5	2,100	43,000	293,000	80.0/67.0	100"	115.0	26.2	40	230.3/80	700	NEW UNIT ON EXISTING ROOF

NOTES:

- PROVIDE SINGLE POINT OF POWER CONNECTION.
- ESTIMATED EXTERNAL STATIC PRESSURE INCLUDES LOSSES THRU DUCTWORK, AIR DEVICES, SOUND ATTENUATORS, ETC.
- AIR HANDLING UNIT INTERNAL STATIC PRESSURE SHALL INCLUDE LOSSES THROUGH COILS, CASING INTERNAL DAMPERS, AND 0.65" W.G. FOR DIRTY FILTERS.
- CASING - DOUBLE WALL 3/4" INSULATION OR FOL Faced INSULATION.
- PROVIDE R410a REFRIGERANT.
- PROVIDE FACTORY PREFABRICATED 14" ROOF CURB.
- COORDINATE ELECTRICAL REQUIREMENTS FROM MANUFACTURER WITH ELECTRICIAN.
- PROVIDE LOW AMBIENT CONTROL DOWN TO 0'.
- REFER TO MECHANICAL SPECIFICATIONS FOR FURTHER RTU REQUIREMENTS.
- PROVIDE "HUMIDIFIER" DEHUMIDIFICATION CONTROL.
- COORDINATE UNIT LOCATION WITH EXISTING STRUCTURAL MEMBERS.
- PROVIDE A 2-POSITION MOTORIZED OUTSIDE AIR DAMPER AND VOLUME DAMPER.
- INSTALL AN AUTOMATIC FLOOD SWITCH IN THE CONDENSATE DRAIN PAN OF EACH UNIT TO DEENERGIZE UNIT IN THE EVENT OF CONDENSATE OVER FLOW.

DUCTWORK SYMBOLS LEGEND



FAN

MARK	LOCATION	CFM	MAXIMUM RPM	EXT. STATIC PRESS. (IN. W.C.)	HORSE POWER	CURRENT (AMPS)	LOCALLY SWITCHED BY	INTERLOCKED WITH	FAN TYPE	MANUFACTURER	MODEL NUMBER	REMARKS
EF-FU1	KITCHEN HOOD	2,775	1,750	0.75"	1.0	230.3/80	HOOD CONTROL	-	ROOF MOUNTED	CAPTIVE AIRE	5424	1,3,4,6
SF-FU2	KITCHEN HOOD	2,220	1,750	0.5"	1.0	230.3/80	HOOD CONTROL	EF-FU1	ROOF MOUNTED	CAPTIVE AIRE	NSAU1	1,3,4,6
EF-FU3	KITCHEN HOOD	3,354	1,750	0.75"	1.5	230.3/80	HOOD CONTROL	-	ROOF MOUNTED	CAPTIVE AIRE	5424	1,3,4,6
SF-FU4	KITCHEN HOOD	2,683	1,750	0.50"	1.0	230.3/80	HOOD CONTROL	EF-FU3	ROOF MOUNTED	CAPTIVE AIRE	NSAU2	1,3,4,6
EF-FU5	KITCHEN HOOD	600	1,750	0.75"	.33	120/1/60	HOOD CONTROL	-	ROOF MOUNTED	CAPTIVE AIRE	4824	1,3,4,6
SF-FU6	KITCHEN HOOD	800	1,750	0.5"	.33	120/1/60	HOOD CONTROL	EF-FU6	ROOF MOUNTED	ACME	ASN-106E	1,3,5,6
EF-1,2	KITCHEN TOILET EXHAUST	150	1,200	0.2"	125W	120/1/60	CEILING	RTU-3	ROOF MOUNTED	ACME	W0190	2,7

GENERAL NOTES:

- EXTERNAL STATIC PRESSURE INCLUDES LOSSES DUE TO DUCTWORK, AIR DEVICES.
- ALL CAPTIVE AIRE FANS SHALL BE FINISHED BY HOOD SUPPLIER.
- ALL CAPTIVE AIRE FANS SHALL BE FINISHED BY HOOD SUPPLIER AND INSTALLED BY MECHANICAL CONTRACTOR. SEE SHEETS K-4.1, K4.2 & K4.3.
- REMARKS:
1. CENTRIFUGAL ROOF MOUNTED EXHAUST FAN.
2. FAN NOT FINISHED BY HOOD SUPPLIER.
3. FAN AND CURB PROVIDED BY MECHANICAL CONTRACTOR.
4. FAN AND CURB PROVIDED BY MECHANICAL CONTRACTOR.
5. FAN AND CURB PROVIDED BY MECHANICAL CONTRACTOR.
6. PROVIDE WITH MOTORIZED DAMPER.
7. CEILING MOUNTED FAN WITH GRILLE.

GRILLE

MARK	SERVICE	TYPE	DAMPER	CONSTRUCTION MATERIAL	FINISH COLOR	MANUFACTURER	MODEL NUMBER	REMARKS
A	SUPPLY AIR	DIFFUSER	-	STEEL	OFF WHITE	METALARE	5600S-6	EXPOSED T-BAR CEILING FRAME STYLE WITH A 24"X24" FACE.
B	SUPPLY AIR	DIFFUSER	-	STEEL	OFF WHITE	METALARE	5600S-1	SURFACE MOUNTED CEILING FRAME STYLE WITH A 24"X24" FACE.
C	SUPPLY AIR	REGISTER	-	STEEL	OFF WHITE	METALARE	VHD	SURFACE MOUNTED SIDE WALL REGISTER WITH A 24"X24" FACE.
D	SUPPLY AIR	DIFFUSER	-	STEEL	OFF WHITE	METALARE	LD	RETURN AIR FILTER GRILLE WITH CLEANED BLADES.
E	RETURN AIR	GRILLE	-	STEEL	OFF WHITE	METALARE	CCS	RETURN AIR FILTER GRILLE 48"X24" EGGRABLE.

NOTES:

- ALL AIR DEVICES SHALL BE COMPATIBLE WITH SCHEDULED CEILING TYPE.
- ALL AIR DEVICES SHALL BE AS APPROVED BY ARCHITECT.
- INSTALL VOLUME DAMPERS AT ALL DUCT TAKEOFFS TO SUPPLY AIR DEVICES FOR BALANCING.

DAMPER

MARK	ACTION	DUTY	BLADE ACTION	MANUFACTURER	MODEL NUMBER	REMARKS
D-1	MANUAL BALANCING	UNDER 9" WIDE	N/A	RUSKIN	N/A	SEE SMACNA CONSTRUCTION DETAILS REFERENCED TYPICAL CONSTRUCTION DETAILS FOR LOW VELOCITY DUCTS.
D-2	MANUAL BALANCING	OVER 9" WIDE	OPPOSED	RUSKIN	MD-35	MANUAL DAMPER WITH STANDARD CONSTRUCTION FEATURES AND VENLOCK #57 LOCKING REGULATOR.
D-3	MOTORIZED	OVER 9" WIDE	OPPOSED	RUSKIN	CD-60	LOW LEAKAGE DAMPER WITH BLADE SEALS.
D-4	MANUAL BALANCING	OVER 9" WIDE	OPPOSED	RUSKIN	VB2025	MANUAL DAMPER WITH STANDARD CONSTRUCTION FEATURES AND INSTRUMENTAL LOCKING HAND QUADRANT.

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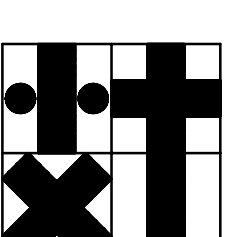
PROJECT NUMBER
11078

SHEET NAME
MECHANICAL SCHEDULES

SHEET NUMBER

M3.1

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