

UNIT NO.	MAKE	MODEL	CFM	E.S.P.	COOLING CAP. BTU/HR SENSIBLE	A.M.B. ENT. AIR "F"	DB WB	SEER	GAS HEATING BTUH INPUT	AGE	COMPRESSOR NO. LEA	MIN. AMP	MOP	NOMINAL V-FREQ-HZ	NO. & SIZE	OPER. LES.	REMARKS					
1	CARRIER	48SD04060	1400	0.5"	41500	28.050	95	90	67	1.30	60,000	47,000	78.7%	1	104.0	18.4	28.0	35	230-1-60	24X38X1	460	

PACKAGED ROOFTOP AIR CONDITIONING UNITS

MECHANICAL SPECIFICATIONS

MECHANICAL SPECIFICATIONS (CONT.)

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PART 1 - GENERAL

- THE WORK SHALL COMPLY WITH AND BE INSTALLED IN ACCORDANCE WITH 2004 CALIF. MECHANICAL CODE AND THE FOLLOWING LEGALLY CONSTITUTED AUTHORITIES AND CODES HAVING JURISDICTION.
 - ENVIRONMENTAL PROTECTION AGENCY (EPA).
 - SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT (SCQMD).
 - STATE OF CALIFORNIA OFFICE OF STATEWIDE HEALTH PLANNING AND DEVELOPMENT (OSHPD).
 - STATE OF CALIFORNIA WATER BOARD.
 - STATE OF CALIFORNIA OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (CAL-OSHA).
 - LOS ANGELES FIRE DEPARTMENT (LAFD).
 - LOS ANGELES DEPARTMENT OF PUBLIC WORKS.
 - NATIONAL FIRE PROTECTION ASSOCIATION (NFPA).
 - FACTORY MUTUAL (FM).
 - INDUSTRIAL RISK INSURERS (IRI).
 - UNDERWRITERS LABORATORY (UL).

PART 2 - MATERIALS

- AIR CONDITIONING UNITS SHALL BE AS SCHEDULED ON PLANS.
- AR CONDITIONING DUCTWORK SHALL BE PROVIDED AS FOLLOWS:
 - SHEET METAL DUCT GAUGES, CONSTRUCTION, SUPPORT, SEISMIC RESTRAINT, AND INSULATION SHALL BE IN ACCORDANCE WITH CHAPTER 6 OF THE 2002 CITY OF LOS ANGELES MECHANICAL CODE.
 - FLEXIBLE DUCTWORK SHALL BE CASCO "OL-FLEX" FULLY LINED, UL AND NFPA RATED, INSULATED FIBERGLASS DUCT. DUCTWORK SHALL BE INTERNALLY LINED WITH 1" OF ACOUSTIC LINING.
 - FLEXIBLE DUCT CONNECTIONS SHALL BE PROVIDED FOR ALL DUCTWORK ATTACHED TO AIR MOVING EQUIPMENT. FLEXIBLE CONNECTIONS SHALL BE VENTURERS "VENTURUS L.A." TYPE 30 ONCE CLOSELY WORKED GLASS FIBRIC DOUBLE COATED WITH NEOPRENE. PROVIDE SHEET METAL WEAHTERCOVER OVER FLEXIBLE CONNECTIONS EXPOSED TO WEATHER.
 - ALL TRANSVERSE JOINTS ON NEW AND EXISTING DUCTWORK SHALL BE SEALED AIRTIGHT WITH HARDOST OF FIBERGLASS TAPE SATURATED WITH HARDOST RFA-50. THE TAPE SHALL EXTEND 1-1/2 INCH ON BOTH SIDES OF THE SEAM OR JOINT.
 - PROVIDE ALL FIRE AND SMOKE DAMPERS AS REQUIRED BY FIRE MARSHALL AND BUILDING DEPARTMENT.
- DIFFUSERS, REGISTERS, AND GRILLES HAVE BEEN SIZED ON THE BASIS OF MANUFACTURER AND TYPE INDICATED ON THE PLANS. ALL DIFFUSERS, REGISTERS, AND GRILLES SHALL BE LOCKED TO OPERATE WITHOUT OBSTRUCTIBLE NOISE OR DRAFTS.
 - GARAGE (PRODUCT COMMENTS) DUCTWORK SHALL BE PROVIDED AS FOLLOWS:
 - SHEET METAL DUCT GAUGES, CONSTRUCTION, SUPPORT, SEISMIC RESTRAINT, AND INSULATION SHALL BE IN ACCORDANCE WITH SMOCK STANDARDS FOR HIGH PRESSURE DUCTS.
 - FLEXIBLE DUCTWORK SHALL BE OAR-NON, MODEL H1X, MEDIUM TEMPERATURE. DUCTWORK SHALL WITHSTAND 665° F OR EXHAUST TEMPERATURE. SHALL BE ABRASION RESISTANT.
 - PIPEING SHALL BE PROVIDED AS FOLLOWS:
 - CONDENSATE DRAIN PIPEING SHALL BE TYPE "K" COPPER WITH WROUGHT COPPER FITTINGS FOR 96-5 SOLDER. PLASTIC PIPEING IS NOT ACCEPTABLE FOR CONDENSATE DRAIN PIPEING.
 - PRE RATED PENETRATION SEALS FOR FLOORS, CEILING AND WALLS SHALL BE PROJECT SYSTEM "X" FOR COPPER AND STEEL PIPEING.
 - PROVIDE PIPE STEVES AND ESCUTCHEON PLATES FOR PIPES RUNNING THROUGH WALLS, PARTITIONS, CEILING AND FLOORS EXPOSED TO VIEW. ESCUTCHEON PLATES SHALL BE CHROME PLATED BRASS OR STAINLESS STEEL.
 - VALVES AND PIPEING SPECIALTIES SHALL BE PROVIDED AS FOLLOWS:
 - BALL VALVES 2" AND SMALLER SHALL BE 2-PIECE BRONZE WITH STAINLESS STEEL BALL, THE SEAT, AND LEVER OPERATOR FOR SWEDED, OR SOLDERED CONNECTION BY NIBCO OR STOCKHAM. PROVIDE LEVER AND EXTENSION TO CLEAR INSULATION ON ALL CHILLED WATER SERVICE VALVES.
 - BALANCING COCKS 2" AND SMALLER SHALL BE BRONZE BODY, CLASS 150 BY NIBCO OR ARMSTRONG.
 - STRAINERS 2" AND SMALLER SHALL BE "Y" PATTERN, CLASS 150, BRONZE BODY, STAINLESS STEEL PLUG, SORBED BY NIBCO OR ARMSTRONG.
 - FLOW CONTROL VALVES SHALL BE 2 PSI MAXIMUM PRESSURE DROP, THREADED OR THREADED FLANGE.
 - PRESSURE AND TEMPERATURE TAPS (PETS PLUG IN) SHALL BE BRASS BODY AND CAP, 1/4" NPT BY PETERSON EQUIPMENT.
 - DIELECTRIC UNIONS SHALL BE PROVIDED TO JOIN DISSIMILAR MATERIALS TO PREVENT GALVANIC CORROSION BY NIBCO OR WATTS.

PART 3 - EXECUTION

- THE DRAWING INDICATES IN DIAGRAMATIC FORM ARRANGEMENTS DESIGNED FOR PRINCIPAL APPARATUS, PIPING CONDUIT, ETC., AND SHALL BE FOLLOWED AS CLOSELY AS POSSIBLE. SCALED AND FIGURED DIMENSIONS ARE APPROXIMATE AND ARE GIVEN FOR ESTIMATE PURPOSES ONLY. OFFSET AND TRANSMISSION AND ARE OBTAINED IN PATH OF DUCTWORK AND PIPING INDICATED ON PLANS. BEFORE PROCEEDING WITH ANY WORK, CHECK AND VERIFY EXISTING CONDITIONS, DIMENSIONS, SIZES AND ASSURE FULL RESPONSIBILITY FOR FITTING-IN OF EQUIPMENT AND MATERIALS, (INCLUDING PROVISION FOR OFFSETS, BENDS, ELBOWS, ETC.).
 - DUCTWORK, EQUIPMENT, AND PIPING SHALL BE INSTALLED TO RUN PARALLEL OR PERPENDICULAR TO THE BUILDING STRUCTURE AND SHALL BE ARRANGED TO FORM NEAT SIMMETRICAL PATTERNS TO ASSURE THE BEST POSSIBLE APPEARANCE. HANGERS ON PARALLEL, ADJACENT PIPING SHALL BE IN LINE WITH EACH OTHER AND PARALLEL TO THE LINES OF THE BUILDING STRUCTURE. ALL PIPING SHALL BE SUPPORTED FROM THE BUILDING STRUCTURE ONLY. NO PIPING SHALL BE SUPPORTED FROM OTHER PIPING OR AIR CONDITIONING DUCTWORK.
 - HOLD DUCTWORK TIGHT TO UNDERSIDE OF STRUCTURE ABOVE TO MAXIMIZE FREE SPACE IN CEILING PLenum. COORDINATE LOCATION OF DUCTWORK AND PIPING TO AVOID CREATING INTERFERENCES WITH OTHER TRACES SUCH AS PLUMBING, ELECTRICAL, LIGHTING, ETC.
 - PROVIDE HANGERS TO SUPPORT DUCTWORK AND EQUIPMENT. DUCT AND PIPE HANGER CONSTRUCTION, MATERIALS, ATTACHMENT TO THE STRUCTURE, AND OVERALL INSTALLATION SHALL BE IN ACCORDANCE WITH THE UNIFORM MECHANICAL CODE, UNIFORM PLUMBING CODE, 1991 EDITION AND SMOCK GUIDELINES FOR THE RESTRAINT OF MECHANICAL SYSTEMS AND PLUMBING PIPING SYSTEMS.
 - PIPING AND COMPONENTS SHALL BE SPACED SO THAT A THREADED PIPE FITTING MAY BE REMOVED BETWEEN ADJACENT PIPES. NOT LESS THAN 1/2-INCH OF CLEAR SPACE SHALL EXIST BETWEEN THE FINISHED SURFACE AND OTHER WORK, AND BETWEEN FINISHED SURFACE OF PARALLEL, ADJACENT PIPING.
 - ELECTRICAL CONTRACTOR SHALL PROVIDE CONDUIT AND PULL WIRING FOR CONTRACTS. FINAL CONNECTION TO CONTRACTS SHALL BE BY MECHANICAL CONTRACTOR.
 - SHEET METAL PLUMBING TO BE FIELD FABRICATED. SIGHT SHOP DRAWINGS OF CONSTRUCTION TO ENGINEER FOR REVIEW.
 - PRE RATED SEALS SHALL BE PROVIDED AT ALL PENETRATIONS THROUGH THE FRIED AREAS.
 - BALANCE AND ADJUST ALL PANS, DIFFUSERS, REGISTERS AND GRILLES FOR OPTIMUM AIR DISTRIBUTION AND MINIMUM NOISE. SUBMIT A QUALIFIED AIR BALANCE REPORT BY INDEPENDENT A/E/C REGISTERED AIR BALANCE CONTRACTOR TO THE ENGINEER FOR REVIEW.
 - AT THE COMPLETION OF THE WORK, ALL PARTS OF THE INSTALLATION SHALL BE THOROUGHLY CLEANED. ALL FITTINGS, VALVES, PIPES, AND FITTINGS SHALL BE CLEANED OF GRASS, METAL CHIPS, SLODGE, AND OTHER DEBRIS THAT MAY HAVE ACCUMULATED DURING INSTALLATION.

FAN SCHEDULE

REFERENCE NO.	RESTROOM	GARAGE
1	INLINE	UTILITY
	90	8000
	0.125	3/4
	DIRECT	BELT
	0.5 AMPS	2 HP
	120-1-60	289/230-1-60
	22	750
	1050	1111
	20	1
	BROAN	COOK
	5.90	270 CHS

NOTES:
 1. TE-1 FANS SHALL BE SUPPLIED WITH BACKDRIFT DAMPERS.
 2. TE-1 SHALL BE TURNED ON/OFF BY THEIR RESPECTIVE RESTROOM LIGHT SWITCHES.
 3. GE-1 SHALL BE CONTROLLED BY CO SENSORS. ANY ONE SENSOR SHALL BRING ON THE FAN.
 4. GE-1 SHALL HAVE REINFORCED WHEEL.
 5. GE-1 SHALL HAVE SIDE DISCHARGE ARRANGEMENT.

MECHANICAL SPECIFICATIONS (CONT.)

SIDEWALL DIFFUSER

CFM	DEF. SIZE	CFM	DEF. SIZE
0-50	8"x4"	201-250	20"x6"
51-75	10"x6"	251-300	24"x6"
76-100	10"x6"	301-350	28"x6"
101-125	12"x6"	351-400	24"x8"
126-150	14"x6"	401-500	32"x8"
151-200	18"x6"	501-600	32"x10"

CEILING DIFFUSER

CFM	DEF. SIZE	CFM	DEF. SIZE
50-100	10"x10"	110-179	12"x12"
180-274	14"x14"	275-379	18"x18"
380-489	18"x18"	500-649	24"x24"

RETURN REGISTER

CFM	DEF. SIZE	CFM	DEF. SIZE
0-50	6"x6"	301-500	18"x10"
51-100	8"x8"	501-800	30"x12"
101-150	10"x8"	801-1200	30"x18"
151-200	12"x8"	1201-1500	36"x24"
201-300	18"x8"	1501-2500	48"x30"

LEGEND AND ABBREVIATIONS

SYMBOL	ABBREVIATION	DESCRIPTION
	SINGLE LINE	DUCT RISE IN DIRECTION OF AIR FLOW
	DOUBLE LINE	DUCT DROP IN DIRECTION OF AIR FLOW
	DASHED LINE	DUCT WITH SOUND LINING
	BRANCH TAKE OFF WITH 45° BOOT	
	TURNING VANES	
	DUCT SECTION - SUPPLY	
	DUCT SECTION - RETURN	
	DUCT SECTION - EXHAUST	
	RECTANGULAR TO ROUND TRANSITION	
	DOOR LOWER	
	UNDERDUT DOOR	
	ROOM THERMOSTAT	
	0-4 HER B-PASS SWITCH	
	OSA	OUTSIDE AIR
	S.A.	SUPPLY AIR
	R.A.	RETURN AIR
	E.A.	EXHAUST AIR
	MD	MOTORIZED DAMPER
	TD	AUTO. FIRE DAMPER
	CO	MANUAL VOLUME DAMPER
	SHR	SUPPLY WALL REGISTER
	RWR	RETURN WALL REGISTER
	ER	EXHAUST AIR REGISTER
	CR	CEILING RETURN
	C.S.F.D.	COMBINATION SMOKE/FIRE DAMPER
	B.D.	BAROMETRIC DAMPER
	F.C.	FLEXIBLE CONNECTION PIPE
	F.C.D.	DUCT SMOKE DETECTOR
	G.V.	GATE VALVE
	C.V.	CHECK VALVE
	G.V.V.	GLOBE VALVE
	B.F.V.	BUTTERFLY VALVE
	B.V.	BALL VALVE
	B.C.	BALANCING COCK
	SHR	STRAINER
	U.	UNION
	TH	TERMO-METER
	AV	AIR VENT VALVE
	P.C.	PRESSURE GAUGE
	P.C.	FEET COOK
	CD	SIGHT GLASS
	CD	CALIBRATED BALANCING VALVE
	CD	CONDENSATE DRAIN
	H.W.S.	HOT WATER SUPPLY
	H.W.R.	HOT WATER RETURN
	UTR	UP THRU ROOF
	POC	POINT OF CONNECTION
	POD	POINT OF DISCONNECT
	POD	PIPING TO BE REMOVED
	POD	EQUIP. TO BE REMOVED OR RELOCATED
	AP	ACCESS PANEL
	ER	EXISTING CEILING DIFFUSER
	CD	EXISTING RETURN REGISTER
	CD	CEILING DIFFUSER
	RR	RETURN REGISTER
	ER	EXHAUST REGISTER
	USD	LINEAR SLOT DIFFUSER (SUPPLY)
	USD	LINEAR SLOT DIFFUSER (RETURN)
	SAC	SUPPLY AIR CHAMBER
	RAC	RETURN AIR CHAMBER

No.	REVISION	DATE

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