

MECHANICAL SPECIFICATIONS

PART I - GENERAL

- A. Scope  
Provide labor, material, equipment and incidentals necessary or required for the competition, testing, inspection and adjusting, to provide the mechanical systems operable and complete in all respects.
- B. Drawings and Specifications  
Examine and become familiar with all project drawings and specifications, and coordinate the mechanical work accordingly. Make reasonable modifications in the layout and installation as needed to prevent conflict with work of other trades and for proper execution of the work, without additional cost.
- C. Installation  
The entire mechanical installation shall be made in a neat, workmanship-like, finished and sedge manner. Conceal all piping in finished areas, unless otherwise noted. The entire installation shall be object to the Architect's approval.
- D. Codes, Permits, and Fees  
The drawings and specifications take precedence when they are more stringent than codes, ordinances, standards and statutes. Codes, ordinances, standards and statutes take precedence when they are mor stringent than the drawings and specifications. Secure and pay for permits, tests, Certificates of Inspection, and all other costs incidental to the work. (IMC 2006)
- E. Guarantees  
All work shall be guaranteed to be free from defects in material and workmanship for a period of one year from date of final acceptance of the work. Replace at no additional cost any such defects or the correction of defects.

PART II - PRODUCTS

- A. Air Distribution Materials and Equipment
1. Low pressure ductwork:
- A. Low pressure ductwork: Shall be G60 coated galvanized steel. Ductwork construction and installation including sheet metal gauges, reinforcement, joint sealing, air air leaking, and details not specifically shown on the drawings shall be in accordance with SMACNA Low Velocity Construction standards. Take off fittings shall be spin in type with quadrant damper. Wrap ductwork in R-5 Insulation.
- B. All longitudinal and transverse joints, seams and connections of supply and return ducts operating at a static pressure less than or equal to 2 inches w.g. (500 Pa) shall be securely fastened and sealed with welds, gaskets,mastics (adhesives) mastic-plus-embedded-fabric systems or tapes installed in accordance with the manufacturer's installations instructions. Tapes and mastics used to seal duct work shall be listed and labeled in accordance with UL 181A and shall be marked 181A-P for pressure-sensitive tapes. Tapes mastic used to seal flexible air duct and flexible connectors shall comply with UL 181B and shall be marked 181B-FX for pressure-sentive tapes or 181M for mastic. Duct connections to flanges of air distribution system equipment shall be sealed and mechanically fastened. Unlisted duct tape is not permitted as sealant on any metal ducts.
2. Flexible Duct: Shall be Thermaflex II Type MK-E or equivalent, for low pressure, factory fabricated material, with spiral wire support, mylar sheath, blanket insulation and vinyl jacket. Connectors to be UL listed and in compliance with NFPA 90-A. Install w/ minimum no. of bends w/ a min. radius of 1-1/2 times the duct dia. measured from the centerline, extend straight where possible and limit length to max. of 8'.
3. Spiral Ductwork: Shall be galvanized sheet metal. All ductwork to be constructed and installed in accordance with ASHRAE guidelines, the latest SMACNA standards and the 2006 IMC
4. Duct insulation: All supply and return ductwork shall be insulated per IECC. Ductwork installed within the Bldg. shall be R-5, ductwork installed outside of Bldg. shall be R-8. Provide fiberglass insulation blanket with foil scrimcraft vapor barrier. Installed per mfrs. instructions.
5. Exhaust Fans (Ceiling type): Fans shall be Penn Zephyr for operation on 120V, 1 phase power. Direct drive centrifugal type fan with grille, back draft damper, insulated steel housing, resiliently mounted motor and fan assembly. U.L. label. Acceptable Mfrs. are Penn, Greenheck and Cook.
9. Gas Furnace with Cooling Coil Unit:
- A. Furnace Unit: Horizontal/Vertical type complete with "Diamond Tough" hot surface ignitor, two pipe installation with concentric vent termination kit, Hi-tech tubular aluminized steel primary heat exchanger, 100% shut off main gas valve and other standard features.
- B. cooling coil: Single circuit coil for installation on fan coil unit with insulated and painted steel cabinet, condensate pan and drain outlet, copper coil tubing with aluminum fins, wiring, and piping.
- C. Condensing Unit: Air cooled type unit complete with painted, reversing valve galvanized steel cabinet, control box, condenser fans and motors, rubber mounted hermetic compressor (with 5 year warranty), copper tube/aluminum fin condenser coils, low ambient controls, high and low pressure controls, service valves and refrigerant connections, transformer, contractor, grounding lug. All units shall be constructed and tested in the factory. The units shall be furnished with a wall mounted, heating and cooling thermostat with heat-off-cool and fan on-automatic selectors. The unit capacities shall be as scheduled on the drawings. York company equipment is indicated but comparred units by Trane, Carrier will be acceptable.

B. Piping materials, Hangers and insulation:

1. Condensate drain piping: to be type "M" copper with wrought copper fittings and 35/5 (tin/lead) solder joints. All outdoor condensate piping, shall be metallic.
2. Valves: Stockham or approved equal gate valves with screw or solder ends, bronze rising stem, 125 psi SWP, No. B-100. Ball valves may be used in place of gate valves. 5216 BR-R-T two piece series w/ Teflon seats/seals. Class 600.
3. Unions: Nibco #633 or comparable Grinnell brass to iron seat for ferrous pipe. Use dielectric type for copper to ferrous metal connections.
4. Hangers: Grinnell or Unistrut adjustable swivel ring hangers for copper tubing, Fig. 69 for insulated pipes and Fig. 69-ct for uninsulated piping. Hangers shall have 3/8" rods and shall be spaced 6'-0" O.C. max. or within 12" of a change in direction. Insulation shall be used for suspending hangers from Expansion bolts shall be used for suspending hangers concrete slabs and beam clamps for steel structure connections.

PART III - EXECUTION

- A. Provide all labor, materials, equipment and services to install a complete, operating and approved mechanical system including but not limited to the following:
1. Coordination of mechanical systems installation with all other contract trades on site for openings, clearances, space, access to equipment, etc.
2. Shop drawing submittal approval required prior to purchase or work activity.
3. Balance and Adjusting: Balancing of the mechanical system shall be performed by an approved AABC or NEBB balancing contractor, versus the Mechanical contractor. A copy of the Air Balanced Report shall be provided to the Mechanical Inspector for final inspection approval. Air balancing shall verify that the ventilation system is capable of supplying airflow rates required by IMC (2006) section 403. Outside Air Calculations on sheet M-1.




SPLIT SYSTEM (GAS) SCHEDULE (FURNACE W/ ADD-ON COILS)

INDOOR UNIT										HEAT CAPACITY		OUTDOOR UNIT					COOLING CAPACITY							
MARK	MODEL	WEIGHT	CFM	EXT SP "WP	MCA	BLOWER SPEED	V/ø	A/C CASED COIL	WEIGHT	(MBH)		MARK	MODEL	WEIGHT	SEER	V/ø	SEN MBH	TOT MBH	ENT AIR		OUTSIDE AMBIENT TEMP (°F)	MCA	FUSE SIZE	REMARKS
										INPUT	OUTPUT								°F	DB°				
FUA - 6	YORK FV9B12N080UP	160	1200	0.4"	9.0	MED.	115/1	FC42B	70	80	75	CU- 6	YORK CZEO36	220	15.0	208/230/1	25.1	30.4	80	67	115 °	22.3	35 amps	FIELD INSTALLED 2" CONCENTRIC VENT
FUA - 2	YORK FV9C2ON100UP	178	1600	0.4"	14.0	HI	115/1	FC60C	75	100	93	CU- 2	YORK CZEO48	270	15.0	208/230/1	36.8	37.6	80	67	115 °	27.1	45 amps	FIELD INSTALLED 2" CONCENTRIC VENT
FUA - 1, 3, 4, 5	YORK FV9D2ON120UP	190	2000	0.4"	14.0	HI	115/1	MC61D	98	120	112	CU- 1, 3, 4, 5	YORK CZEO60	270	15.0	208/230/1	42.8	47.2	80	67	115 °	33.5	50 amps	FIELD INSTALLED 2" CONCENTRIC VENT

- NOTES:
1. ALL EQUIPMENT SHALL BE AS MANUFACTURED BY YORK OR APPROVED EQUAL.
2. FILTER RACK WITH FILTERS HAVING A 500 MAXIMUM FACE VELOCITY.
3. NO EQUIPMENT WITH LESS THAN 92% OF THE LISTED CAPACITY WILL BE APPROVED.
4. PROVIDE W/ 7-DAY PROGRAMMABLE THERMOSTAT W/NON-SWITCHING SUBBASE.
5. FAN SHALL BE ON "ON" POSITION ALL THE TIME, NOT "AUTO."
6. ELECTRICAL SERVICE TO AC UNITS IS DESIGNED TO ACCOMMODATE SPECIFIED YORK AC UNITS. IF EQUIPMENT IS SUBSTITUTED WHICH REQUIRES MODIFICATION TO THE SERVICE, THE MECHANICAL CONTRACTOR SHALL SHALL PAY ALL COST FOR SUCH CHANGES

NOTE:  
ALL DX SPLIT SYSTEM FAN COIL WITH REMOTE CONDENSING UNIT WITH REFRIG. LINES EXTENDING OVER "50" FT. IN LENGTH TO HAVE HARD START KIT, CRANK CASE HEATER, TIME GAURD, AND LIQUID SOLENOID VALVE AT CONDENSER. INSTALL AND ADJUST REFRIG AND OIL CHARGER PER MFR'S RECOMMENDATIONS.

EXHAUST FAN SCHEDULE (CEILING MOUNTED)


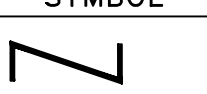

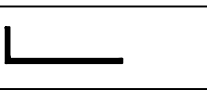
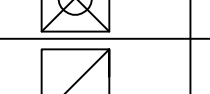
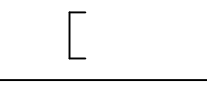
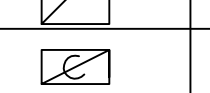

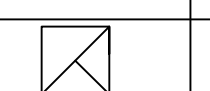

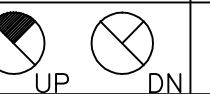
LOCATION	ITEM	MANUFACTURER/ MODEL	CFM	ELECTRICAL				OPTIONS BACKDRAFT DAMPER	WEIGHT	CONTROLS	REMARKS
				VOLTS	Ø	HZ	AMPS				
CEILING SPACE	 EF 1	BROAN L150	125	120	1	60	1.1	YES	10	ON/OFF SWITCH PARALLEL TO LIGHT SWITCH	(1 (2
CEILING SPACE	 EF 2	BROAN L200	150	120	1	60	1.8	YES	20	ON/OFF SWITCH PARALLEL TO LIGHT SWITCH	(1 (2
CEILING SPACE	 EF 3	BROAN L200	200	120	1	60	1.8	YES	20	ON/OFF SWITCH PARALLEL TO LIGHT SWITCH	(1 (2

- NOTE:
1. KEEP EXHAUST VENTS OUTLETS AT LEAST 10 FEET FROM ANY OUTSIDE AIR INTAKES FROM HVAC UNITS
2. MECHANICAL CONTRACTOR TO CO-ORDINATE WITH ELECTRICAL CONTRACTOR

GRILLE, REGISTER, & DIFFUSER SCHEDULE

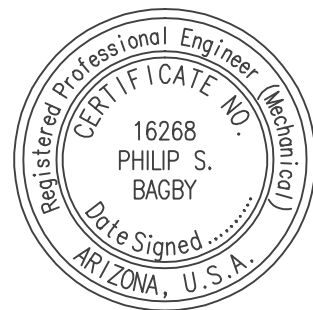
MARK	DESCRIPTION	MNFC.	MATERIAL	MODEL	BORDER	FRONT BLADES	DAMPER	FINISH
CD	CEILING DIFFUSER	PRICE	ALUMINUM	AMD	SURFACE	LOUVERED	YES	WHITE
SR	SUPPLY REGISTER	PRICE	ALUMINUM	620FS	SURFACE	VERTICAL	YES	WHITE
RG	RETURN GRILLE	PRICE	ALUMINUM	630FF	LAY-IN	LOUVERED	NO	WHITE

MECHANICAL SYMBOLS & ABBREVIATION LIST

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	NEW DUCTWORK		FIRE/SMOKE DAMPER
	UNDERGROUND DUCTWORK		BALANCING DAMPER
	FLEX DUCTWORK		SHEET METAL CAP
	SUPPLY DIFFUSER		THERMOSTAT
	RETURN GRILLE		
	TRANSFER GRILLE		
	EXHAUST GRILLE		
	O.S.A. DUCT		
	EXHAUST DUCT		

NOTE: ONLY THOSE SYMBOLS AND ABBREVIATIONS SHOWN ON THE DRAWING APPLY (SHEET M1)

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MECHANICAL  
SPEC & SCHEDULES