

MISC EQUIPMENT SCHEDULE REQUIREMENTS

The following is a listing of minimum schedule information to include for select equipment.

All Equipment:

- Mark/Tag
- System Served Name/Description
- Equipment Location (room number, area, etc.)

Expansion tanks:

- Mark/Tag
- System Name/Description
- Tank Location (room number) and elevation within building
- Fluid Type (water or % propylene glycol)
- Calculated System Volume
- As-Built System Volume (leave blank so can be filled in during as-builts)
- Design System Volume (calculated + 40% margin)
- System Design Cold Temperature & System Design Hot Temperature
 - Chilled water system: 40 deg F, 90 deg F
 - Heating water systems: 55 deg F, 190 deg F (even if designed for 140 deg F operating temperature)
- Initial Fill Pressure (need 15 psig at building highest elevation air bleed point plus static elevation difference, with pumps off and system at room temperature (or cold in case for chilled water system))
- Final Fill Pressure (i.e. expected worst-case pressure that is acceptable when system is at hot temperature)
- Required Acceptance Volume
- Tank Total Volume
- Tank Type and Liner Material
- Tank Manufacture & Model No.
- System Relief Valve Setting (**all** closed systems get a relief valve, piped back to glycol feed tank when one is part of the system)
- Weight

Pumps:

- Mark/tag
- System Name/Description
- Pump Location (room number) and elevation within building
- Fluid Type (water or % propylene glycol)

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- Fluid Operating Temperature
- Pump Type (end suction, inline, vertical, etc.)
- Pump Design GPM & Head
- Pump Sizing (2x100%, 2x60%, 3x50%, etc.)
- Operating Point as % of Runout (if pump will often will run at a backed-down condition (VFD turned down), is typically good to select operating point to the right of the efficiency sweet spot)
- Shutoff Head
- Impeller Cut Diameter
- Min & Max Impeller Diameters (good to select pump to no more than 90% of max diameter incase need to put in larger diameter down the road)
- Pump RPM
- Pump Efficiency
- Pump Manufacturer & Model No.
- Motor Information (HP, voltage/phase)
- Suction Diffuser (if part of system) model no. & size, and max pressure drop
- Weight
- Remarks:
 - 3-Phase motors VFD-driven to be NEMA MG1 Part 31.4.4.2 (1,600 V), and to have Helwig (no equals) shaft-grounding

Split Systems:

- Mark/tag
- System name/description
- Indoor & Outdoor locations (room number, north roof, south exposure, etc.)
- Type (wall mounted, ceiling mounted, discharge direction, etc.)
- Airflow CFM
- External Static Pressure (ESP)
- Capacities (Sensible-Only, Total Cooling, Heating)
- Manufacturer & Model No. (Mitsubishi per DG's)
- Electrical Information (voltage/phase, FLA, etc)
- Remarks:
 - Provide low ambient (negative 20 deg f) temperature kit, plus advanced wind baffle (WB-PA1, 2 per condenser) kit (for AC units), and base pan heater MAC-640BH-U (for HP units).
 - Units to have enable relay, but no controls communications cards.
 - Provide with simple wired t-stat (PAC). UNL will provide a separate UNL t-stat for room temperature monitoring.
 - Provide with condensate high level alarm.
 - Refrigerant R-410A.
 - Pipe routing, sizing, and needed accessories per Manufacturer's recommendations.

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Fan Coils:

- Mark/Tag
- System Served Name/Description
- Equipment Location (room number, area, etc.)
- Type (wall mounted, ceiling mounted, discharge direction, etc.)
- Airflow CFM
- External Static Pressure (ESP)
- Capacities (Sensible-Only, Total Cooling, Heating)
- Heating EWT/LWT
- Heating GPM
- Heating Coil Rows (how many rows)
- Cooling EWT/LWT
- Cooling GPM
- Cooling Coil Rows (how many rows, specify with ideally 6 rows)
- Chilled Water Delta T
- Casing (type, finish, inlet/outlet requirements)
- Motor Type (provide with ECM variable speed)
- Manufacturer & Model No.
- Electrical Information (HP, voltage/phase, FLA, etc.)
- Remarks:
 - Provide with extended and/or secondary SS drain pan & condensate overflow/high switch.
 - Provide with 1" pleated filter, MERV 8
 - Provide with ¼" closed cell insulation
 - Coordinate right-hand/left-hand configuration with Contractor.
 - 3-Phase motors VFD-driven to be NEMA MG1 Part 31.4.4.2 (1,600 V), and to have Helwig (no equals) shaft-grounding
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Fans (not packaged with an AHU):

- Mark/Tag
- System Name/Description
- Fan Location (room number, north roof, etc.)
- Fan Type (end suction, inline, vertical, etc.)
- Drive (direct, belt), we prefer direct when possible
- Air Operating Temperature (if not obvious)
- Fan Design CFM
- External Static Pressure (ESP)
- Fan Class (I, II, III, N/A)

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- Fan Sizing (2x100%, 2x60%, 3x50%, etc.)
- Operating Point as % of Runout (if fan will often will run at a backed-down condition (VFD turned down), is typically good to select operating point to the right of the efficiency sweet spot)
- Fan RPM
- Fan Efficiency
- Impeller/propeller diameter
- Wheel type (backwards inclined, mixed, axial, etc)
- Sound data (if needed)
- Variable Control (VFD, ECM, etc) & control location (BMS, local dial, etc.)
- Fan Manufacturer & Model No.
- Electrical Information (HP, voltage/phase, FLA, NEMA MG1 Part 31 rated (if has VFD))
- Weight
- Add to remarks:
 - 3-Phase motors VFD-driven to be NEMA MG1 Part 31.4.4.2 (1,600 V), and to have Helwig (no equals) shaft-grounding
 - Provide with extended lube lines, motor cover, drive guard, quick opening access door, bird screen, L-10 XX,000 hours bearings (use each when applicable)