

WVU DESIGN GUIDELINES & CONSTRUCTION STANDARDS
DIVISION 23 – HEATING, VENTILATION, AND AIR CONDITIONING

SECTION 237313 – MODULAR INDOOR CENTRAL-STATION AIR-HANDLING UNITS

PART 1 - GENERAL

- 1.1. Any deviance from the following instructions must be approved during design by WVU Facilities Management Project Manager.

PART 2 – PRODUCT

- 2.1. All units shall come equipped with mixing boxes for outside and return air. Dampers will be provided for outside, mixed, and exhaust air ducts. Damper leakage rate shall be less than 2 cfm/ft² at 1 inch wg pressure differential.
- 2.2. Where units are large enough to be entered, internal lighting will be provided. Luminaries shall be long life, rough service, incandescent lamp type in a vapor tight housing.
- 2.3. All air handlers shall have inspection ports at each component.
- 2.4. Allowable equipment brand names: Carrier, Trane, McQuay, Aaon, and York.
- 2.5. Hot water coils shall have entrances and drains on the bottom, and exits and air vents on the top. Branches to drains and air vents shall incorporate ball valves.
- 2.6. Coils shall be made of seamless copper tubes with aluminum tube sheets, and fins of aluminum. Coil headers shall be extra heavy wall seamless copper tubing.
- 2.7. All 100% outdoor air units shall consider energy recovery. Calculations shall be provided at Schematic Document phase that predicts economic payback.
- 2.8. Air handlers shall have solid double wall panels internally insulated with R-13 insulation. | Panels to be made from G90 galvanized steel.
- 2.9. Stainless steel drain pans shall be insulated and sloped in at least two planes. Drain shall be on bottom of pan. Provide pans under coil, fan, and humidifier sections. Pans shall be drained by a trapped, insulated drainpipe that remains the full size of the drain pan connection and indirectly connects to drain.
- 2.10. Air handlers shall be internally covered with an anti-microbial coating.
- 2.11. Humidifiers shall use building steam, if available.
- 2.12. Air handlers that typically use more than 35% outdoor air shall have air blenders installed to minimize stratification.
- 2.13. Equipment shall be provided with a single power point connection.
- 2.14. Fan bearings shall have a minimum life L50 = 200,000 hours.

- 2.15. UV lights shall be installed at each cooling coil and have their own external manual disconnect switch plus a door inter-lock safety switch.
- 2.16. All air handlers shall be supplied with G90 galvanized base rails.
- 2.17. Air handlers shall be supplied with hinged, insulated, double wall access doors on at least one side.
- 2.18. All units shall have the capability for an economizer/free cooling cycle.
- 2.19. All air handlers shall come with a GFI receptacle.
- 2.20. If the air handler has external grease fittings, the fitting shall be connected to the bearing with metallic tubing.
- 2.21. Fan arrays (fan walls) are not permitted.

PART 3 - EXECUTION

- 3.1. No air handler will be installed on the roof unless in a penthouse.
- 3.2. Manufacturer recommended vibration isolators will be installed on every unit.
- 3.3. Flexible membranes will be installed between the air handler and the ductwork.
- 3.4. All zones shall be clearly marked on supply ducts at multizone air handling units. A laminated chart shall also be installed in the mechanical room which indicates what rooms each zone serves.
- 3.5. Equipment shall be installed on 4" concrete housekeeping pads.
- 3.6. Equipment shall be installed in such a position to allow for removal of coils, fan shafts, filters, etc.
- 3.7. A lockable electrical disconnect shall be provided at each air handler for lock-out/tag-out.
- 3.8. A laminated chart shall be installed in all mechanical rooms that show the air handler and a list of rooms served.
- 3.9. Any air handlers using concrete as the interior floor shall have the concrete sealed.
- 3.10. A vibration analysis shall be performed at the manufacturing stage and as installed. This shall be done on any motors over 3 hp and their corresponding pumps and fans.
- 3.11. Air intakes shall be mounted at least 18" above the ground or roof.

END OF SECTION 237313