

SECTION 23 76 00 - EVAPORATIVE AIR-COOLING EQUIPMENT

PART 1 - GENERAL

1.1 SUMMARY

- A. For additional information, also see Design Criteria (web-base standard) - Part 3.4 the university Utilities Mechanical Infrastructure Guidelines/Considerations. Both the Design Criteria and the Construction Standards are co-equal in authority.
- B. This applies to single stage or multi-stage evaporative cooling sections.

1.2 SYSTEM DESIGN REQUIREMENTS

- A. The casing shall be constructed of reinforced stainless steel panels and shall be designed for front access to the pump, strainer, and float assembly. The top cover is to be hinged for service access to the media and spray distribution header. Dielectric gasketing shall be installed between the evaporative cooling section and other non-compatible metals which come in contact at wet surfaces.
- B. The sump shall be 12 inches deep minimum, of 14-gauge stainless steel construction, with bleed, 2" overflow, and 2" drain connections for complete sump drainage. Sump shall extend 6" (min.) upstream of the media and shall be large enough to accommodate the pump(s) on the downstream side, but shall extend no less than 12" past the media.
- C. Include adequately sized brass float valve assembly for makeup water control.
- D. The sump shall be sloped to the drain outlet for complete drainage.
- E. Provide a 12-inch deep pad of Munters Glasdek media. Maximum face velocity without water carryover shall be 500 fpm. Evaporative cooling effectiveness shall be 90% at 450 fpm face velocity. Evaporative media shall be installed per installation details for industrial evaporative coolers and humidifiers equipped for Glasdek media, engineering bulletin EB-IDI-0405 or latest standard
- F. Media spray pump(s) shall be submersible type with stainless-steel inlet strainer. Pump motor(s) shall be thermally protected and capable of being operated dry for up to 12 hours without damage.
- G. Provide factory-installed float switch to lock-out spray pumps until sump fill level is sufficient to submerge the pump inlet.
- H. Pumps shall be sized to provide 2 GPM per square foot of top surface of the pad (2 GPM per linear foot for a 12-inch thick pad).
- I. Piping and distribution header shall be Type L copper, with non-clogging spray distribution nozzles and hose-end blowdown valves on both ends of the unit. Provide with brass balancing valve and a brass bleed-off valve. The drain and fill valves shall be motorized, full-port ball valves, provided by the temperature control contractor. Valves shall conform to specification Section 23 05 23.
- J. Construction shall conform to the Evaporative Cooling Module Piping and Construction Detail on the drawings and the design guidelines issued by the Munters Corporation.
- K. Evaporative cooling media to be downstream of fan(s) and cooling coil(s).
- L. Evaporative supply water shall be metered, with pulsed output to the BAS.

- M. Provide conductivity monitor, monitored by the BAS to control bleed valve.
- N. Provide common sump with equalizing tube.
- O. All components in the evaporative cooling section shall be rust-proof.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 TRAINING

- A. Schedule a minimum of four (4) hours of training with the university. The manufacturer's representative, and the Division 23 Contractor shall be present. The training shall be coordinated by the Division 23 Contractor and the university in conjunction with the other mechanical equipment on the project.
- B. Train the university's maintenance personnel on start-up and shutdown procedures, troubleshooting procedures, and servicing and preventative maintenance schedules and procedures. Review with the university's personnel, the contents of the Operating and Maintenance Data.
- C. Schedule training with the university through the Architect/Engineer with at least seven (7) days prior notice.

END OF SECTION 23 76 00