

DIVISION 15 - MECHANICAL

Section 15540 - Heat Transfer Equipment

Introduction

Equipment associated with:

HVAC HEAT TRANSFER SYSTEMS INCLUDING: WATER COILS, PLATE AND FRAME HEAT EXCHANGERS, COOLING TOWERS, AND AIR WASHERS.

Pumping equipment including the following types: vertical in-line circulating pumps, base mounted pumps.

Part 1 - General

- Building Chilled Water System Design

Building chilled water loops connected to the campus chilled water system shall be designed as follows:

- No booster or secondary pumps are to be installed.
 - Design chilled water supply is 44 F with 16 F temperature rise
 - The building chilled water piping loop pressure drop shall not exceed 12 psig
 - System minimum static is 70 psig
 - Calculations demonstrating compliance shall be included as part of the construction document submittal
- Discuss heat exchanger type selection with UA Planning Design & Construction. Plate frame heat exchangers are **not** to be used for steam / water applications.
 - Design to account for water fouling factor in equipment selection.

- Coil Section

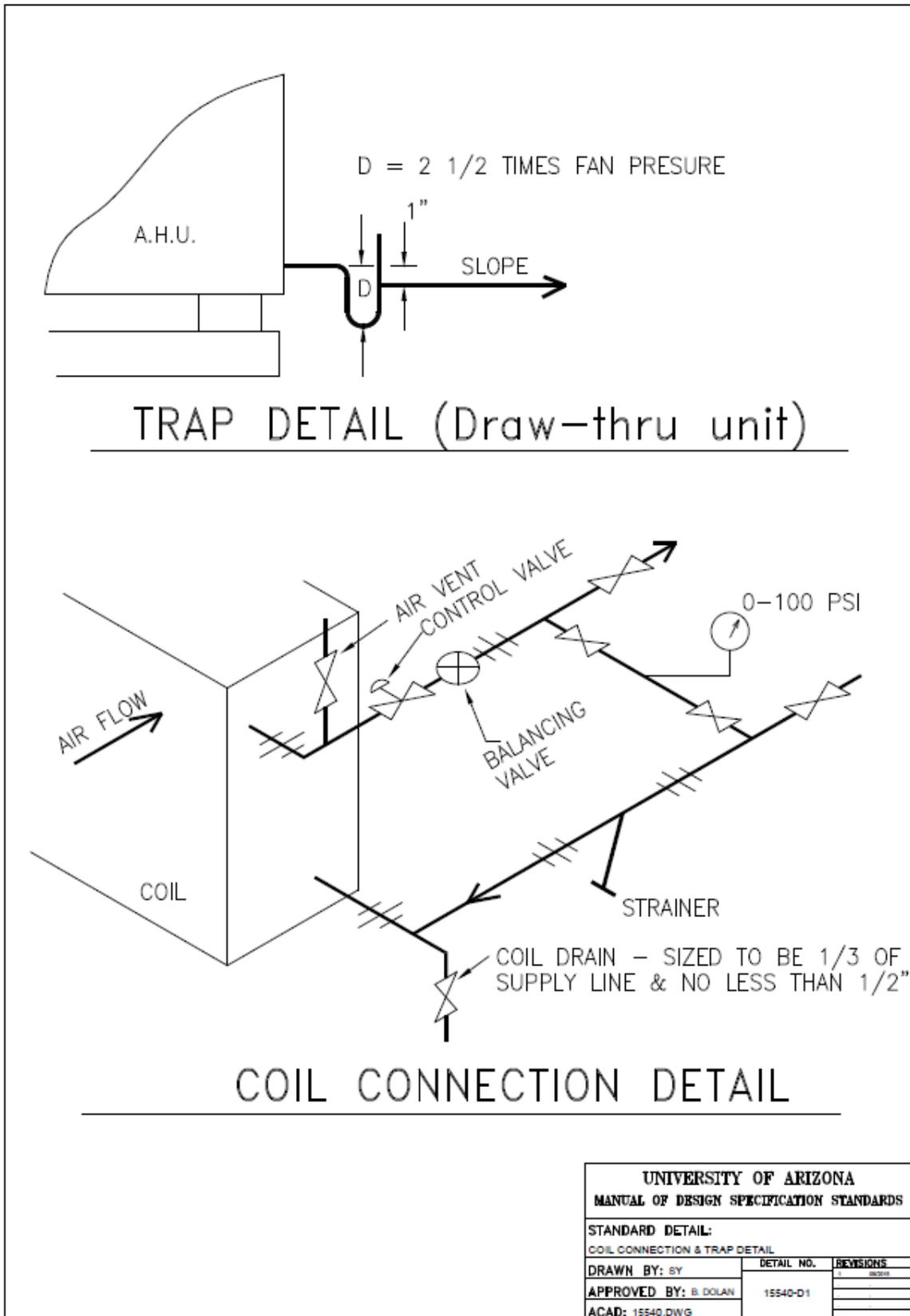
- Select cooling towers at 76°F wb ambient.
 - Consider high dewpoint outside conditions when sizing cooling coils.
 - Select cooling coils with water temperatures of 44°F EWT/60°F LWT (summer) and 50°F EWT/62°F LWT (winter). Differential pressure: as required to stay within building maximum pressure drop.
 - Select heating coils with a 42°F water temperature differential.
 - Maximum coil face velocity 400 fpm.
 - Maximum coil air pressure drop 0.5" SP.
- Vertical in-line pumps are preferred with one pump as standby for building systems. Avoid base mounted pumps when possible.
 - Use premium efficiency motors. See Section 15050.
 - Evaporative cooling in AHUs shall be accomplished by fixed cell Munters Fill Glasdek. Do not use water wheels.
 - Adequate space and provisions shall be left for removal of coils and servicing of equipment, with minimum inconvenience to the operation of systems.

Part 2 - Products

- Hydronic coils
 - To have bottom water supply and top return.
 - Use 5/8" minimum coil tube size.
- Vertical In-Line Pumps:
 - Preferred manufacturers; Grundfos, Bell & Gossett, Armstrong, Taco, Paco, Scott

Part 3 - Execution

- Provide full port ball type isolation valves close to equipment.
- Provide single pressure gauge indication with pressure snubber for each system component.
- Provide thermometer temperature indication for each line of each component.
- Provide Weld-o-lets installed for future monitoring on each line.
- Provide system strainers on inlet water side(s) of all coils and plate and frame heat exchangers.
- Coils shall be piped with water counterflow to coils. See coil detail.
- Comply with manufacturer's recommended free air space for cooling towers.
- Provide manufacturer recommended clearances for maintainability.
- Provide coil and heat exchanger blowdown sized at 1/3 of pipe size but not less than 1/2" on all sides of heat exchangers with full port ball valve. (See attached diagram)
- Provide air vent on return pipe near high point with manual air vent (1/2" ball valve minimum) for all coils and heat exchangers.



End of Section 15540