

RULES OF THUMB

(Hey! They are just guidelines for a beginner. Exceptions ARE the rule!)

COOLING APPLICATIONS (Chilled Water and DX)

AIR SIDE

- ◇ *Face Velocity:*
 - Mostly Return Air: 500 to 550 ft/min
 - Mostly Outside Air: 450 to 500 ft/min

- ◇ *Aspect Ratio: 2 to 1 (wider than taller)*

- ◇ *Airflow (CFM/ton) for Comfort Cooling:*
 - Return Air: 350 to 400
 - Outside Air: 200 to 250

- ◇ *Entering Air Temperature (Dry Bulb/Wet Bulb)*
 - Return Air: 80/67
 - Outside Air: 95/75

- ◇ *Air Pressure Drop: 0.5" to 1.0"*

FLUID SIDE

- ◇ 42° to 45° entering fluid temp with 10° to 12° fluid temperature rise (or 2.4 GPM/ ton)
- ◇ Fluid Pressure Drop:
 - Fresh Water: 10' to 15'
 - Glycol Mix: 20' to 25'

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HEATING APPLICATIONS (Hot Water or Steam)

AIR SIDE

- ◇ *Face Velocity*: 600 to 800 ft/min
- ◇ *Aspect Ratio*: 2 to 1 (wider than taller)
- ◇ *Airflow (CFM/ton) for Comfort Cooling*:
 - Return Air: 350 to 400
 - Outside Air: 200 to 250
- ◇ *Entering Air Temperature*)
 - Return Air: 55° to 60°
 - Outside Air: 0°
- ◇ *Air Pressure Drop*: 0.2" to 0.3"

FLUID SIDE

- ◇ 180° entering fluid temp with 20° to 30° fluid temperature drop
- ◇ Fluid Pressure Drop:
 - Fresh Water: 2' to 5'
 - Glycol Mix: 5' to 10'

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MISCELLANEOUS

- ◇ *Condenser Coils*: Total Heat of Rejection = Total Capacity x 1.28
- ◇ *Condenser Water*: 3 GPM/ton
- ◇ *As coil circuiting increases, fluid pressure drop decreases*
(Example: Full circuit has lower fluid pressure drop than half circuit.)
- ◇ *Glycol Affect* (This one is really for “plug numbers”!)
 - *Capacity decrease* $\approx 0.50 \times \text{Glycol } \%$
 - *Fluid Pressure Drop Increase* $\approx 1.2 \times \text{Glycol } \%$
(Yes, it all varies based on glycol type & %, too.)