

REESE HARTRIDGE MEP

10/21

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Arch E alumni.

Appropriate HVAC systems:

Design considerations:

- code req's
- owner's req's
- size + use of Bldg
- climate
- Access to resources.
- Costs:
 - First Cost
 - Energy cost
 - Maint'e + Replacement cost
 - lifecycle cost
- Maintainability
- Acoustics.

HVAC for this Project:

- Forced Air systems w/ overhead mixing air dist'n.
- supp'l radiant heat at perimeter as needed

AHU (s) — VAV

FCU (fan coil units)

DOAU (dedicated outside air units)

Supply Air-flow Sizing

① Determine Peak Design forced airflow rate

- Heat coming in through S
very little through N

Internal load:

people + lights + appliances

↓
250 BTU/h/person

↘ $1 \text{ W/sf} = 3.41 \text{ BTU/}$

lobby + retail space

↓

$\sim 33.3 \text{ sf/person}$

Air Handling Unit (AHU) Room

② Sizing AHUs

③ Sizing supply Air (SA) + return air
(RA) ducts

- place AHUs in or near areas they service.

Ventilation AirFlow Sizing

① outside air

$$OA \text{ CFM} = 5 \text{ CFM/person} \cdot \# \text{ occupants} \dots$$

② Exhaust + Relief

avoids over-pressurization

$$EA + REA = OA \times 0.9$$

③ Dedicated outside Air Unit (DOAU) Room Sizing

