



Town of Concord

Concord Middle School Project

Middle School Sustainability Sub-Committee

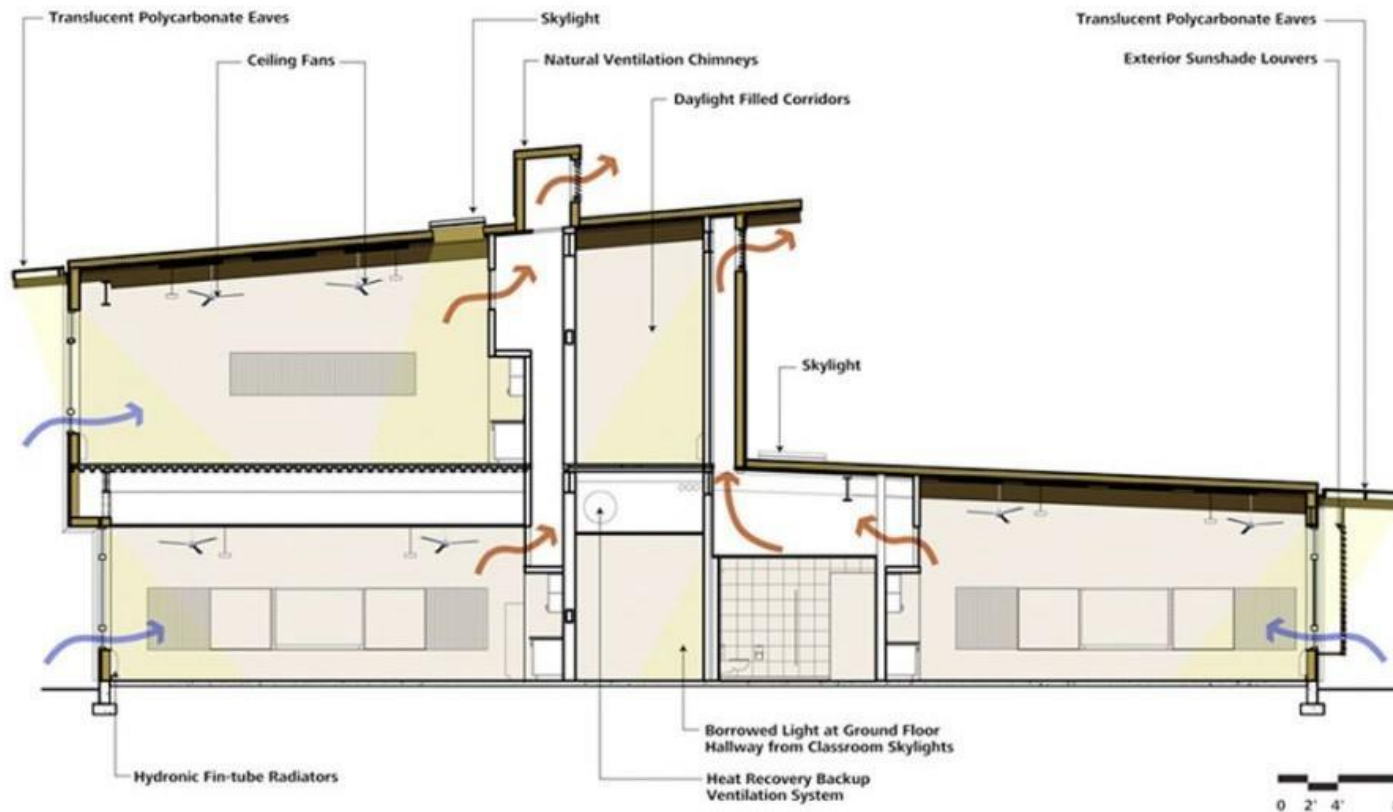
08.12.2021

**EWING
COLE** | **SMMA**

Agenda

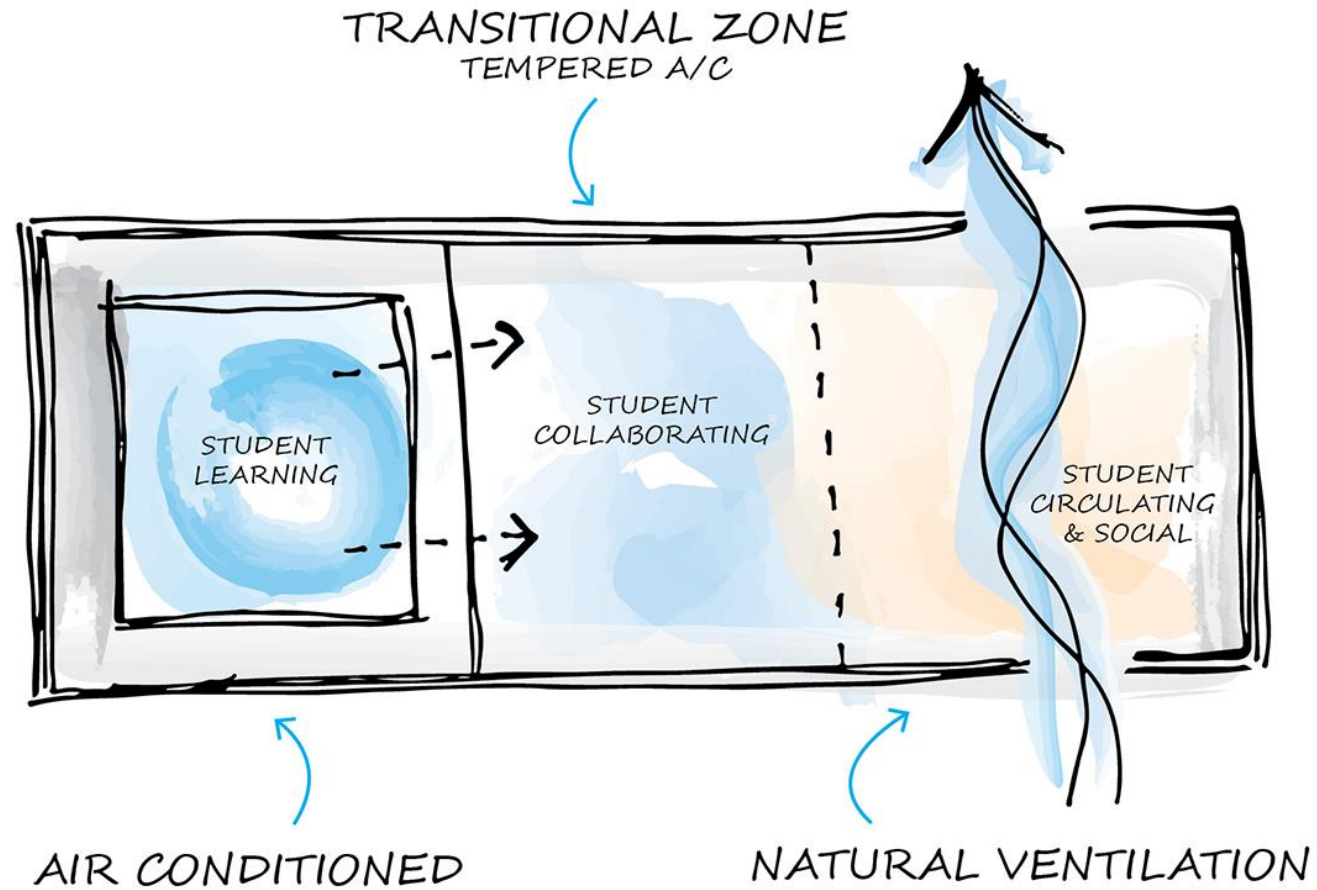
- Natural and displacement ventilation
- Air conditioning versus dehumidification
- EV charging
- EUI target
- Daylighting standards
- PV system
- Dishwasher
- Field irrigation
- Sustainability certification
- Eco charrette

Natural Ventilation

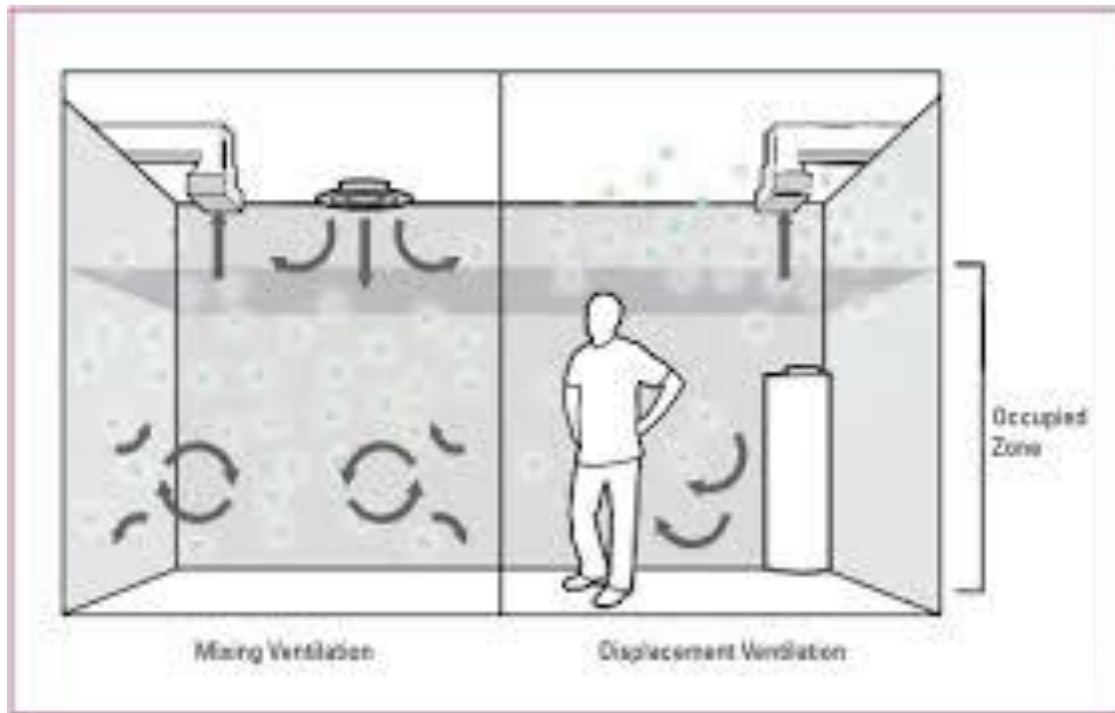


- Air inlets at windows or dampered openings
- Air outlets at roof to enhance airflow
- Fan assist for hybrid ventilation
- Warm and humid days require air conditioning

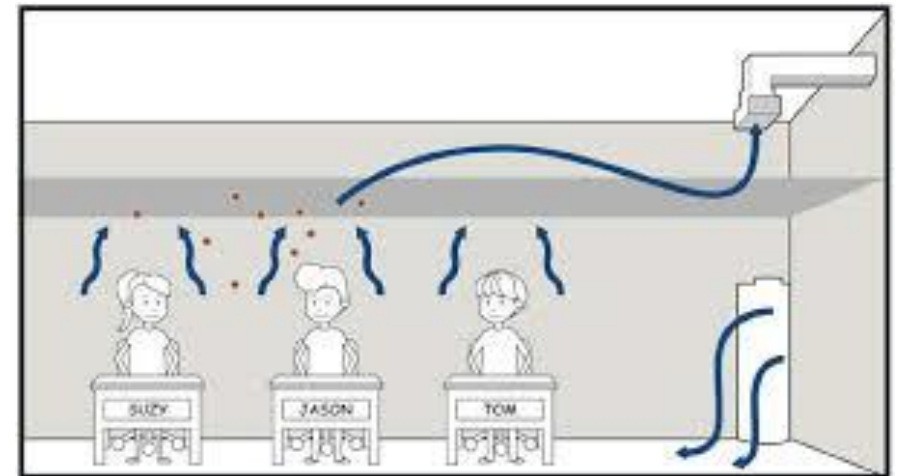
Natural Ventilation



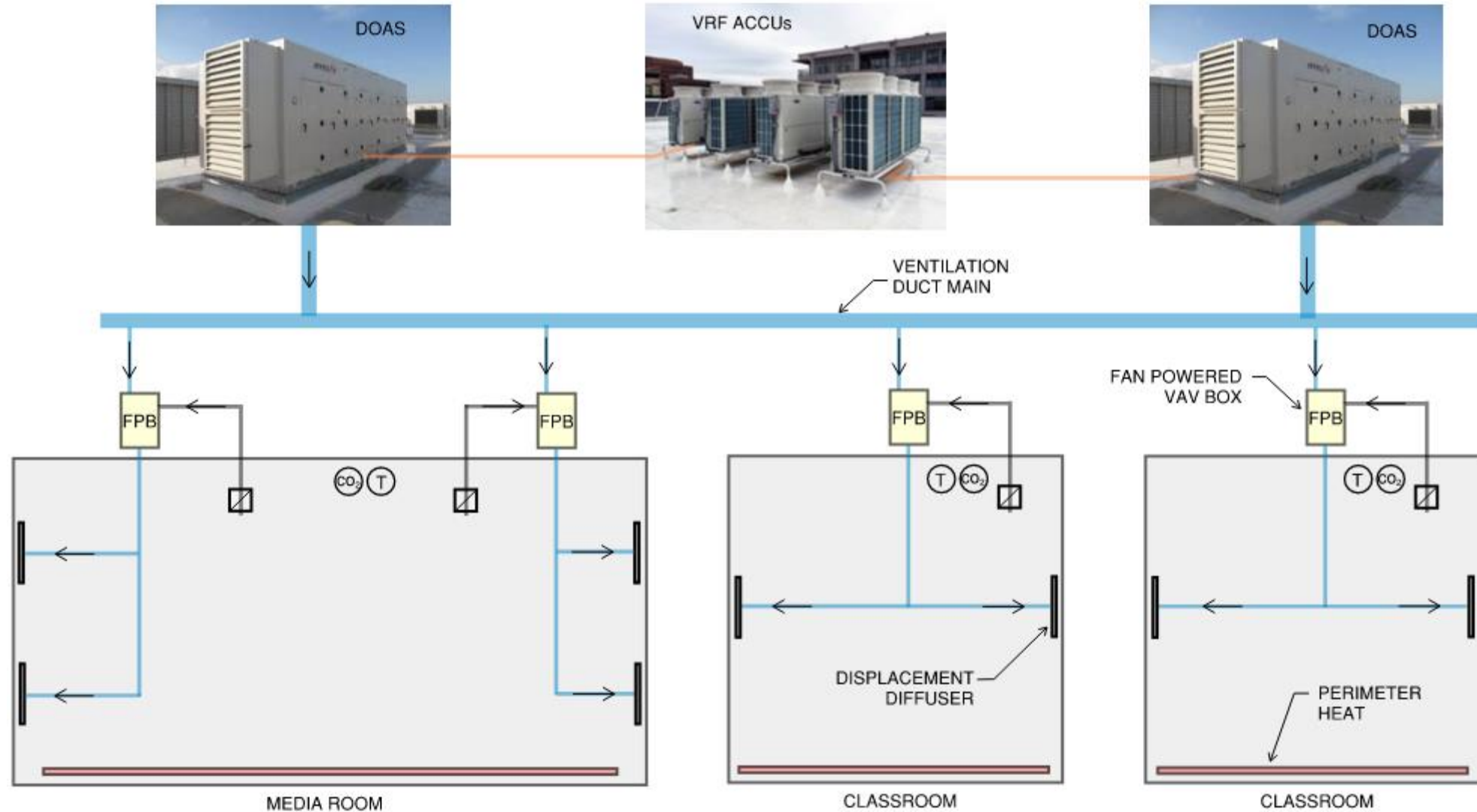
Displacement Ventilation



- 63-68°F Supply Air
- Supply air is cooled then reheated
- Excellent ventilation effectiveness
- Perimeter heat source required



Displacement Ventilation



Air Conditioning vs. Dehumidification

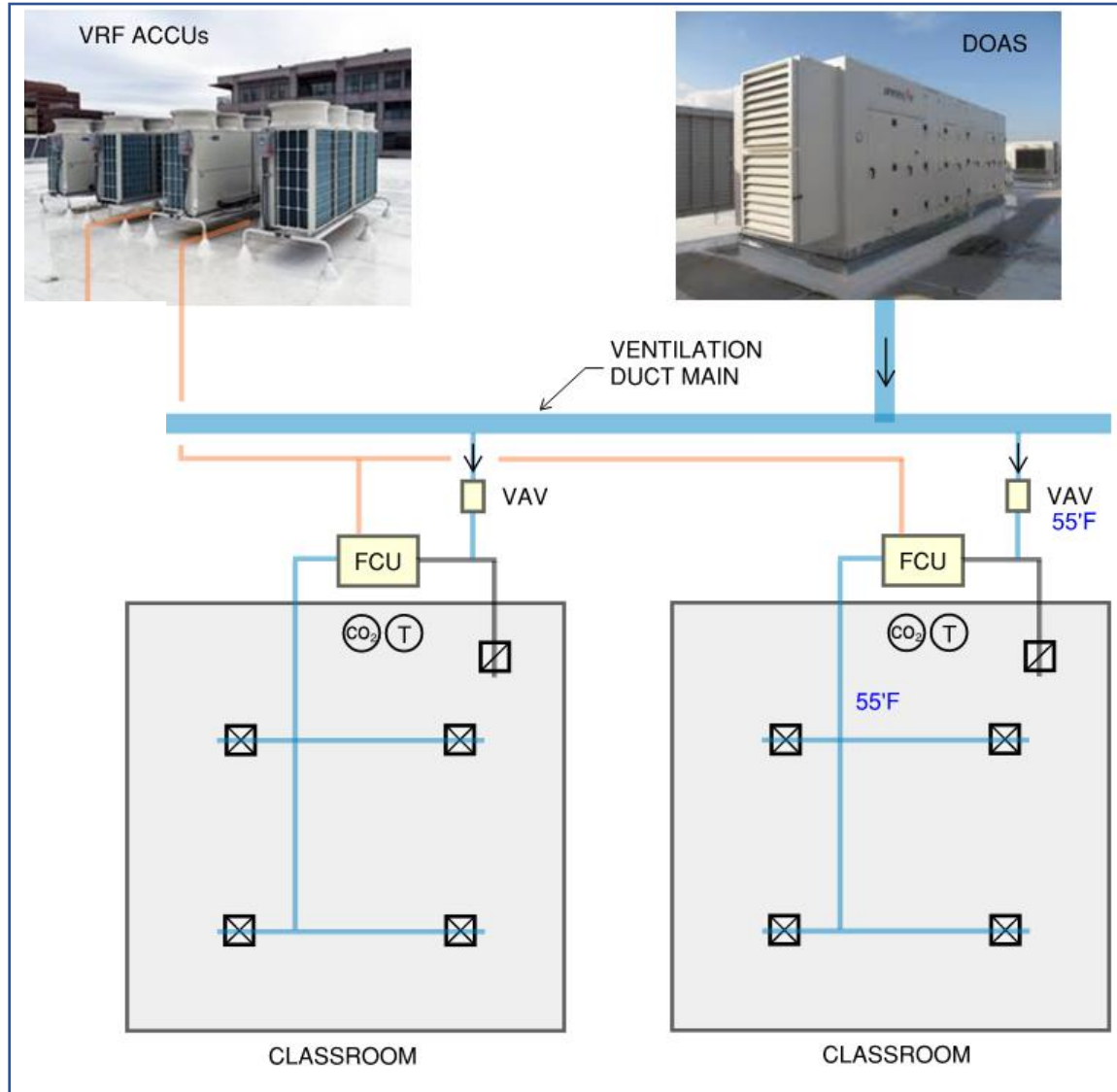
Air Conditioning

- Temperature control at peak cooling load
- Can cool space to 70°F +/-
- Dehumidification of space moisture loads
- Airflow is approximately 1 cfm/sf

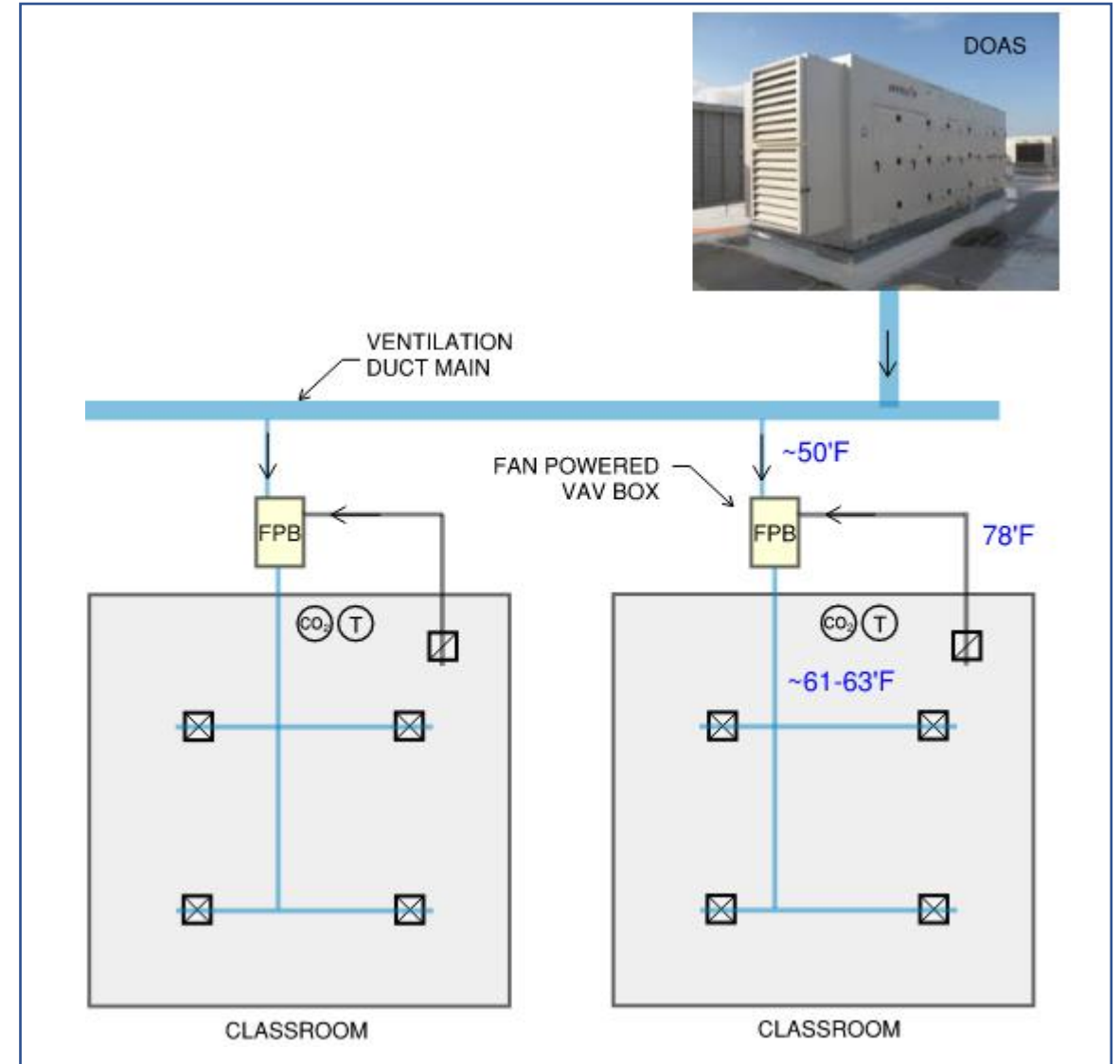
Dehumidification

- Temperature control limited at peak cooling load
- Space temperatures of 75-78°F at peak
- Dehumidification of space moisture loads
- Airflow is ~50% of full cooling

Air Conditioning vs. Dehumidification



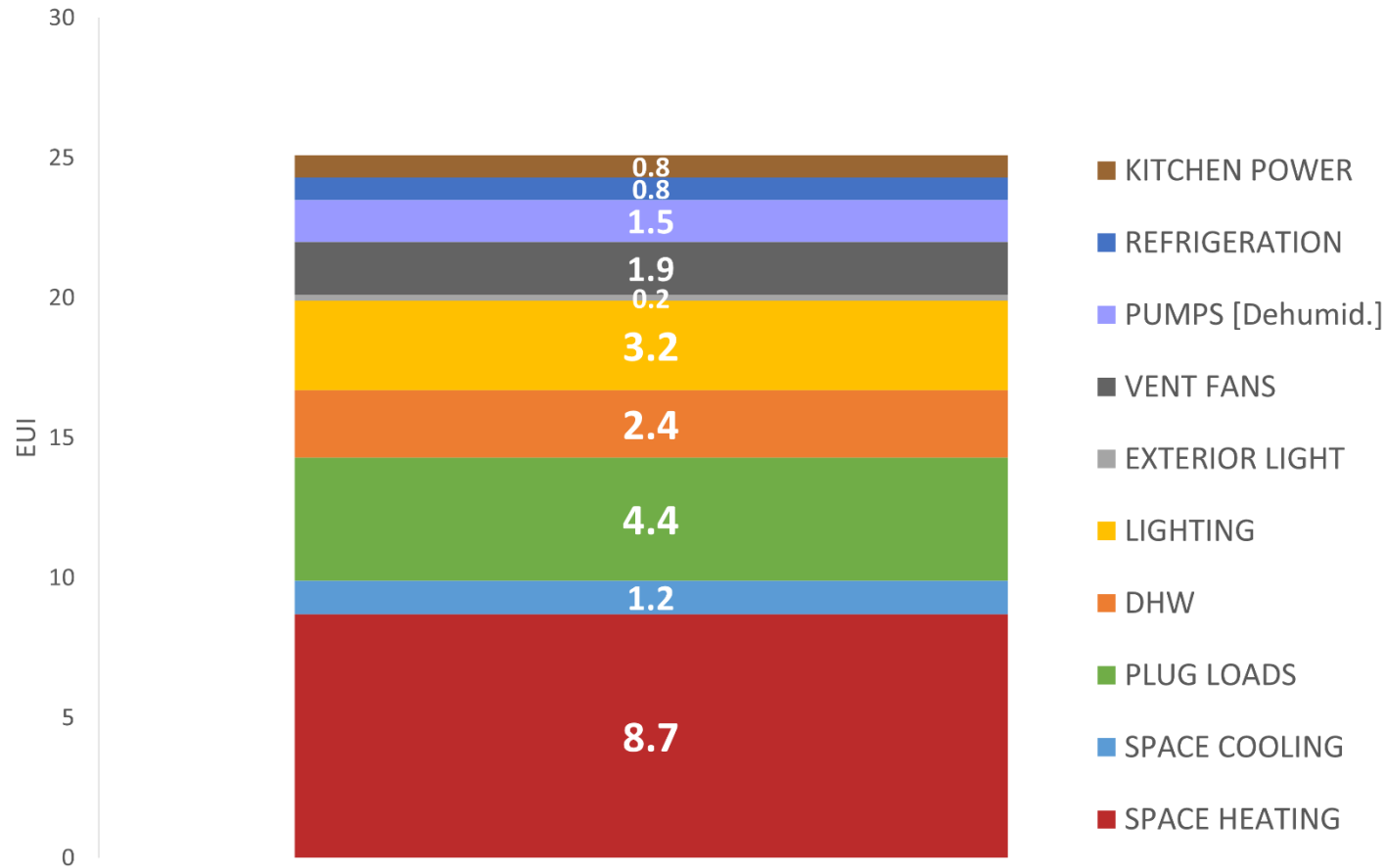
Full Cooling



Dehumidify without Full Cooling

CMS EUI Update

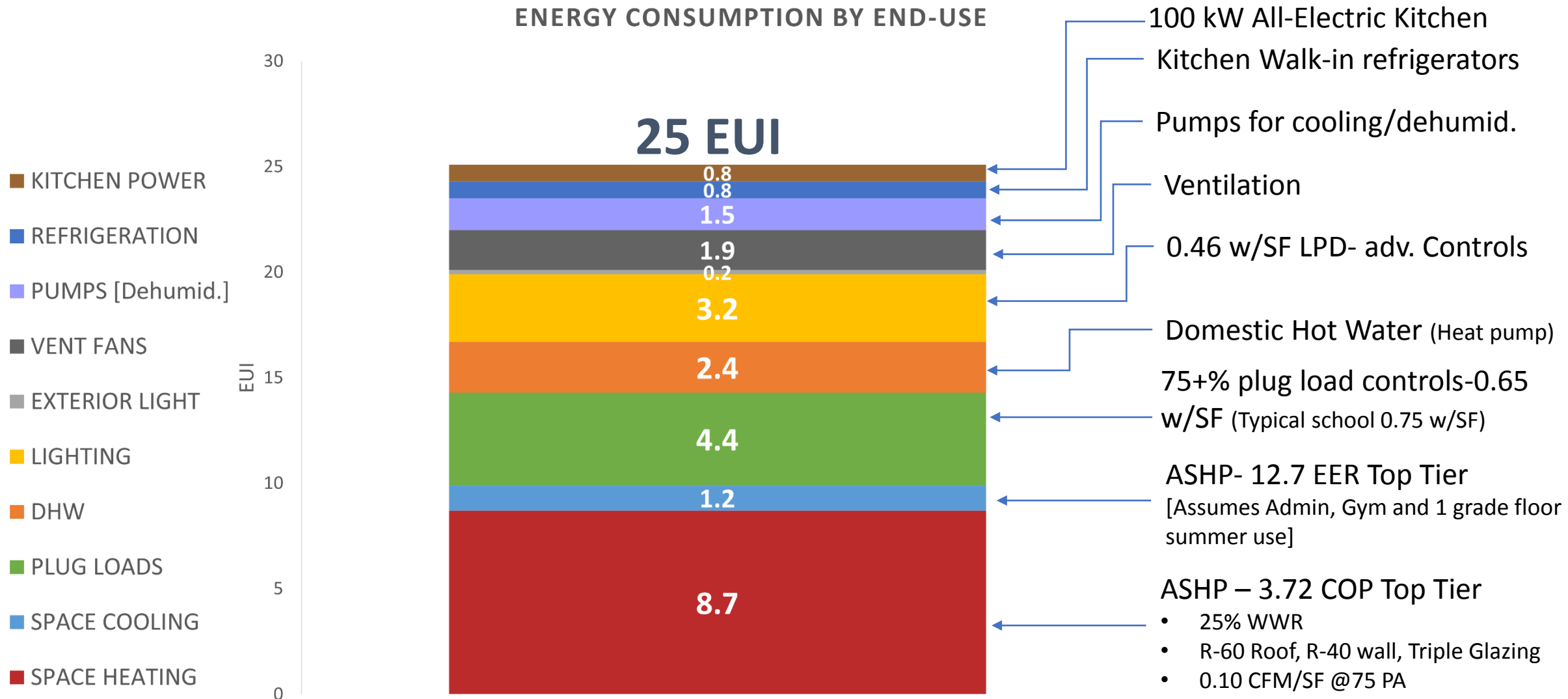
ENERGY CONSUMPTION BY END-USE



25
EUI

CMS EUI Goal Assumptions

ENERGY CONSUMPTION BY END-USE



Discussion

