

6**DESIGN CONDITIONS**

The following table shows design conditions for McKinstry Oregon HQ. See Technical Report II^a for full assumptions about indoor conditions and Appendix D of this report for full outdoor design conditions for Portland, OR.

Table 6.1. Indoor and Outdoor Design Conditions

Design Condition	Indoor (occupied)	Indoor (unoccupied)	Outdoor
Heating	70°F	65°F	21.9°F (DB, 99.6%)
Cooling	74°F, 50%RH	78°F	90.8° F (DB, .4%)

7**VENTILATION REQUIREMENTS**

ASHRAE Standard 62.1 – 2007^b sets forth guidelines “to provide indoor air quality that is acceptable to human occupants and that minimizes adverse health effects.” Section 6 of the ASHRAE Standard provides the Ventilation Rate Calculation Procedure. Analysis of McKinstry Oregon Headquarters found a minimum outdoor air of **5,109 CFM**, or 14% outdoor air. This is less than the air handling unit’s minimum outdoor air supply of 5,500 CFM. In summary, McKinstry Oregon Headquarters complies fully with ASHRAE Section 62.1 – 2007. Complete analysis and calculation can be found in Technical Report I^a.

8**DEDICATED OUTDOOR AIR SYSTEM OVERVIEW**

The mechanical redesign for the headquarters is based around a dedicated outdoor air system (DOAS). DOAS reduces airflow throughout the building by providing only ventilation air. This will provide yearly energy savings from reduced fan usage. Because of lowered CFM, the AHU and ductwork can also be downsized. For calculations, all loads, square footages, and other values include the area of future expansion.

Previously there were series VAV units throughout the building to control airflow and provide reheat. While there will still need to be a damper for balance, the units are much less complex with no need for fans or piping. This will save significantly on first cost. Details are shown in Section 14.