

# Sample Design Criteria

## Heating, Ventilating and Air Conditioning

### *PART 1 - DESIGN CRITERIA*

#### 1.1 General

- A. This document reflects Massport's needs and requirements for the facility to be built in project location. The Consultant must use this document as the basis of the HVAC design in the design of the systems.
- B. Construction documents and all construction must strictly comply with rules, regulations, standards, codes, ordinances and laws of local, state, and federal governments and other authorities with lawful jurisdiction. The documents and construction must also comply with Massachusetts State Energy Code.

#### 1.2 Site

- A. Location
- B. Latitude: 42/N
- C. Elevation: 225 ft. (MLW)

#### 1.3 Outside Design Conditions (Based On Lawrence, Ma Ashrae Conditions)

- A. Winter: ODB (97-1/2%)
- B. Summer: 90DB/73WB
- C. Summer Condensing: 95DB ambient (air cooled equipment)
- D. Summer Evaporating: 78WB ambient (water cooled equipment)

#### 1.4 Inside Design Conditions

##### A. Winter

- 1. Office occupancy areas: 72DB $\pm$ 2DB
- 2. Mechanical/Electrical (unoccupied) areas: 65DB
- 3. Computer Room: 72/F $\pm$ 2DB; 50%RH $\pm$ 5%

##### B. Summer

- 1. Office occupancy areas: 72DB $\pm$ 2DB; 50%RH $\pm$ 5%
- 2. Mechanical/Electrical (unoccupied) areas: ventilation only
- 3. Computer Room: 72/F $\pm$ 2DB; 50%RH $\pm$ 5%

C. Outside Air Ventilation

1. Based on ASHRAE values: 10 cfm/person or 15% total supply air, minimum

D. Electric Power (for load calculations)

See "Power Requirement Summary" Electrical Section, Fig. E-1

E. Population

1. Office areas: 200 sq. ft./person

1.5 Building Envelope

A. Roof

1. U-factor: 0.07 btu/hr/sq. ft/F

B. Walls/Fenestration

1. OTTV  $\leq$  34.2 btu/hr/sq. ft. of exterior wall

C. Floor

1. Perimeter insulation: R = 5.5, min.

D. All valves are as directed in Massachusetts State Building Code, Article 20.

1.6 Supply Air Temperature

A. Cooling

1. Diffuser outlet = 55/F; +0m -2 DB

B. Heating

1. Diffuser outlet = 85/F; +2, -0 DB