

Basis of Design (BOD)

After completion, delete all text in red:

Project Name:

Address:

Client:

Team Developing the Document:

MEP Engineer:

[Name and firm name]

Architect:

[Name and firm name]

Lighting Designer:

[Name and firm name]

This document captures the project factors that contribute to decisions about mechanical, electrical, plumbing and lighting design recommendations.

I. Envelope Design:

- A. Window-to-wall ratio.
- B. Opaque wall assembly with all R-values
- C. Window performance – U-value, glazing, solar heat gain coefficient (SHGC)

II. HVAC System: This section completed by *[insert name, role and firm]*.

A. Narrative Description of System:

[Insert system type(s), location, control type, efficiency features, outdoor air ventilation strategy, indoor air quality features, noise reduction features, environmental benefits, other special features.]

- 1. The system design meets the ASHRAE 90.1 2007 requirements. The system design efficiency in conjunction with lighting design and envelope performance should reduce energy cost by *[X%]* compared to ASHRAE 90.1-2007.
- 2. Heating System: *[Insert heating system description.]*
- 3. Cooling System: *[Insert cooling system description.]*
- 4. Ventilation: *[Insert ventilation system description.]*

System Selection by Space:

Space	Heating System	Cooling System	Air Handling	Additional Ventilation (if any)	Other

	Office 1	Office 2	Office 3	Office 4	Plotters	Reception
Space Name or Type (From Owner's Project Requirements)						
Square footage						
Typical occupancy						
Maximum occupancy						
Load Assumptions						
Density (ft ² per person)						
Sensible (Btu/h per person)						
Latent (Btu/h per person)						
Lighting density W/ft ²						
Equipment density W/ft ²						
Envelope components winter loss (BTU/hr.)						
Envelope components summer gain (BTU/hr.)						
Indoor Environmental Design Conditions						
Heating Dry-bulb temperature						
Cooling Dry-bulb temperature						
Relative humidity						
Maximum air velocity FPM (drafts)						
Lighting Illumination (footcandles)						
Noise criteria						
Air Quality:						
Ventilation cfm/ft ²						
Outdoor Air (cfm per person)						
Air changes per hour						
Filtration efficiency per ASHRAE 52						
Space Pressurization - Differential Pressure And Tolerance (IN W.C.)						
In respect to adjacent space						
In respect to outside						
Barrier issues between adjacent spaces						

B. Load Calculations:

1. Occupancy in each Space:

- a. Space 1- *[Enter occupancy.]*
- b. Space 2- *[Enter occupancy.]*

2. Load Calculation Method/Software: *[Enter software tool used.]*

3. Weather File: *[Enter local weather location details.]*

4. Summer Outdoor Design Conditions: °F drybulb, °F wetbulb.

5. Winter Outdoor Design Conditions: °F drybulb.

6. Indoor Design Conditions: °F, % RH cooling; °F heating.

7. Minimum Temperature during Unoccupied Mode: °F db.

8. Internal Heat Gain Assumptions:

[Enter description.]

9. Cooling Load Assumption:

[Enter description.]

10. Other Load Calculation Assumptions:

[Add other assumptions critical in designing the system.]

11. Part Load Performance Strategies:

[Enter description.]

C. Reasons for System Selection:

[Provide reasons why the selected system is a better choice than alternatives. E.g. comfort performance, efficiency, costs, reliability, flexibility, simplicity, cost, owner preferences, site constraints, climate, availability of maintenance, acoustics.]

D. Sequence of Operations:

[Provide operating schedules, set points, etc. May refer to plans and/or specifications if sequence of operations is included there.]

E. Outside Air Supply:

[Provide narrative of how all spaces and zone meet the outside air ventilation requirement as per ASHRAE 62.1 2007 for naturally and mechanically ventilated spaces.]

III. Sound Control:

The section is completed by [insert name, role and firm].

- A. The air conditioning, heating and ventilation systems will be designed to maintain a noise criteria (NC) level of NC .
- B. Sound attenuation in all systems will be accomplished by the use of *[provide strategies]*.
- C. All units will be provided with minimum static deflection spring
- D. Isolators to prevent vibration from being transmitted to structure

IV. Indoor Lighting System:

The section is completed by [insert name, role, and firm].

A. Narrative Description of System

1. Fixture Type(s): [Insert fixture description.]
2. Lamp and Ballast Type: [Insert description.]
3. Control Type: [Insert description of controls.]

[Describe how system meets any special requirements listed in the Owner's Project Requirements document.]

B. Lighting Design [This will be used for commissioning, analysis, and energy review.]

Space ID	Space Type	Illumination Design (Lighting Power Density)	ASHRAE 90.1 2007 space LPD limit (watts/ft ²)	Other Lighting Design Criteria and considerations

C. Reasons for System Selection:

[Reasons that the selected lighting system is a better choice than alternatives, e.g. visual comfort performance, efficiency, reliability, flexibility, simplicity, cost, owner preferences, color rendering, integration with daylighting, ease of maintenance, etc.]

V. Water-Heating System:

This section is completed by [insert name, role, and firm].

A. Narrative Description of System:

[Describe system type(s), location, control type, efficiency features, environmental benefits, other special features]

1. The system meets any special requirements listed in the Owner's Project Requirements document by [location, size, fuel and other criteria].

B. Water-Heating Load Calculations:

[Describe sizing calculation method, assumptions, and results.]