

BASIS OF DESIGN

GENERAL INFORMATION

- 1.1 During the Schematic Design phase, the Consultant shall develop a Basis of Design (BOD) Document. This document shall provide a comprehensive description of the project's design intent.
- 1.2 Provide a detailed description of the concepts, assumptions, calculations, product selections and operating conditions that will meet CUF Design Requirements and satisfy all codes and industry best practices.
- 1.3 Consultant shall update the BOD at each phase of the project.
- 1.4 Certain work types that do not impact infrastructure or compliance issues are excluded from this requirement:
 - Residential living spaces (not including building common areas)
 - Façade work
 - One for one infrastructure, finish and equipment replacements
 - One for one sidewalk replacements
 - In-kind replacement of windows
 - Data, security and telecommunications work that does not require penetrating a corridor wall or change in cooling requirement
 - Emergency repairs
 - Asbestos and other environmental abatement
 - Retail / commercial work for non-Columbia occupants

For individual projects from the above list that impact infrastructure or compliance, the requirement for BOD submission may be customized or required by a CUF Vice President.

DESIGN REQUIREMENTS

Background – provide a narrative that demonstrates an understanding of the project goals and CUF requirements.

- 2.1 Project program and major relationships.
- 2.2 Proposed deviations from CUF Design Requirements and justification.
- 2.3 Schedule and budget.
- 2.4 List of required permits and applications.

- 2.5 Code summary describing methods proposed to comply with governing codes and regulations, including zoning, area and volume calculations, occupancy, fire life safety, fire protection, ventilation, structural, ADA (narrative outlining approach and identification of non-compliant conditions in the path of travel as well as within the project limit lines), etc.
- 2.6 Mechanical / Electrical / Plumbing and Utilities information
 - a. Mechanical – description of systems considered and rationale for system selection, life cycle analysis, interface with building automation systems.
 - Comfort cooling and heating including design loads
 - Ventilation including design loads
 - HVAC equipment and building automation
 - Connection / impacts to existing mechanical system
 - b. Electrical – describe special power and reliability requirements, anticipated participation in rebate programs.
 - Electrical system loads and distribution methods
 - Lighting – proposed fixtures and energy calculations
 - Standby power
 - Emergency power
 - UPS systems
 - Sub-metering
 - Connection / impacts to existing electrical system
 - c. Plumbing
 - Lab services
 - Pantries
 - Location of water, gas, sanitary, lab waste, storm and sprinkler standpipe, compressed air, etc.
 - Connection / impacts to existing plumbing system
- 2.7 Sustainability / LEED narrative of approach, checklist, lifecycle analysis, including the current ASHRAE guidelines for BOD.
- 2.8 Architectural and structural systems descriptions
 - a. Partition systems, UL ratings
 - b. Interior finishes
 - c. Casework / Millwork
 - d. FFE
 - e. Windows, building envelope, provision for cleaning, thermal characteristics
 - f. Vertical transportation
- 2.9 Fire Life Safety
 - a. Fire alarm – impact to existing system, connection points.

- b. Fire protection – sprinkler layout, sizes of risers, runs, and connection points.
- c. Fire separations

2.10 Audio Visual

2.11 Telecommunications - description of systems, capabilities and service line locations, layout of devices, connection points, pathways and wireless locations.

2.12 Security and access control

2.13 Facility Condition Assessment Requirement List marked to indicate tasks included in the project.

2.14 Outline of Commissioning scope of work

2.15 Appendices

- a. Indoor Environment Design Criteria
- b. Forms
- c. LEED checklist
- d. Sample documents

END OF SECTION

Indoor Environment Criteria are intended to be targets. CUF is willing to entertain design / performance improvements on these targets and expects the Consultant to propose any project-related ideas to improve CU's energy performance. Any conflicts between this document and applicable code should be brought to the attention of the Project Manager. This worksheet does not relieve the Consultant of any obligation to perform the required code reviews.

Indoor Environment Design Criteria											
Outdoor Design Criteria											
Summer outdoor temperature: .4% dry bulb, 92.1F DB Diversity Factor: _____											
Summer outdoor temperature: .4% mean coincident wet bulb, 74.4F WB											
Winter outdoor temperature: 0F											
Space Type	Libraries	Lecture Halls	Conference Rooms	Faculty Offices	Laboratories, Lab Support	Space Type	Summer Temp	Summer RH	Winter Temp	Winter RH	Min. Vent. Rate
Summer Temp	75F +/- 2F	75F +/- 2F	75F +/- 2F	75F +/- 2F	72F	Summer Temp	72F	50%	68F	35% min.	20 cfm/occ
Summer RH	50%	50%	50%	50%	50%	Summer RH	50%	50%	68F	35% min.	20 cfm/occ
Winter Temp	68F +/- 2F	68F +/- 2F	68F +/- 2F	68F +/- 2F	68F	Winter Temp	68F	50%	68F	35% min.	20 cfm/occ
Winter RH	Uncontrolled	Uncontrolled	Uncontrolled	Uncontrolled	35% min.	Winter RH	35% min.	50%	68F	35% min.	20 cfm/occ
Min. Vent. Rate	20 cfm/occ	15 cfm/occ	15 cfm/occ	20 cfm/occ	20 cfm/occ	Min. Vent. Rate	20 cfm/occ	50%	68F	35% min.	20 cfm/occ
Min. ACH	----	----	----	----	6-8	Min. ACH	6-8	50%	68F	35% min.	20 cfm/occ
Pressurization	Neutral	Neutral	Neutral	Neutral	Lab overall Negative	Pressurization	Lab overall Negative	50%	68F	35% min.	20 cfm/occ
Equip Load (W/SF)	2.5	1.5	2	2	Actual	Equip Load (W/SF)	Actual	50%	68F	35% min.	20 cfm/occ
Ltg Load (W/SF)	1	1.5	1.5	1.25	1.5	Ltg Load (W/SF)	1.5	50%	68F	35% min.	20 cfm/occ
Air filtration	MERV-13	MERV-13	MERV-13	MERV-13	HEPA	Air filtration	HEPA	50%	68F	35% min.	20 cfm/occ
Noise Criteria	35	30	35	35	45	Noise Criteria	45	50%	68F	35% min.	20 cfm/occ

Tech. Rooms	Elec. Closets	Mech. Rooms	Exit Stairwells	Restrooms, custodial	Corridors	Dining Areas	Lobbies
78F +/- 2F	80F +/- 2F	10F Above ambient	Uncontrolled	76F +/- 2F	76F +/- 2F	75F +/- 2F	75F max.
50%	50%	Uncontrolled	Uncontrolled	55%	55%	55%	755%
68F +/- 2F	68F +/- 2F	60F +/- 2F	65F min.	68F +/- 2F	68F +/- 2F	68F +/- 2F	68F min.
Uncontrolled	Uncontrolled	Uncontrolled	Uncontrolled	Uncontrolled	Uncontrolled	Uncontrolled	Uncontrolled
N/A	N/A	N/A	.06 cfm / SF	75 cfm / fixture	.1 cfm / SF	15 cfm/occ	15 cfm/occ
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Neutral	Neutral	Neutral	Neutral or per code	Negative	Neutral or per code	Negative	Positive
Actual	Actual	Actual	0.5	0.5	0.5	Actual	0.5
1.0	1.0	1.0	1.0	1.0	1.0	1.25	1.0
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