Colby College Green Building Standards

Supplementary Conditions – Sustainability

As part of the design process, Colby College seeks to ensure that the design of projects is in keeping with our sustainability goals. This addendum serves to clarify those expectations. The services identified are anticipated to be included as part of the design services fee. If they are not, a cost for the services must be provided to the owner in writing, prior to execution of the design services contract. As project needs vary, adjustments will be made to the standards outlined below based on discussions with the Colby Project Manager and Sustainability Coordinator.

LEED Certification

1. Major Renovation / New Construction
   a. Projects typically have a goal to achieve LEED Silver certification at a minimum.

2. Commercial Interior / Fit Out
   a. Projects typically have a goal to achieve LEED Silver certification at a minimum.

3. Small Renovations / Limited Scope Projects
   a. If a project is deemed limited in scope or size by the College then the design team will incorporate as many sustainability goals as possible, but LEED certification application will not be submitted.

Integrated Design

1. New Construction / Major Renovation
   a. As part of Colby’s design review process, team will plan at least one integrated design charrette, in order to identify, and track project goals and life-cycle costs of design alternatives throughout the design process. The first meeting should be scheduled during schematic design. The design team should plan for representation from major project stakeholders including occupants and operations staff and bring sustainable design alternatives to be considered during the design process.
      i. During the charrette, initial benchmarking data (ENERGY STAR, CBECS) for the building type should be shared and discussed. Projects should use this benchmarking data in order to identify energy reduction goals for the facility

2. Major Commercial Interior Projects (significant HVAC/utility upgrades)
   a. During project meetings, the first of which should occur at the project kick-off meeting, address goal setting and sustainability design alternatives to evaluate the project success. Based on the scope of the project, life-cycle costing could be considered. Design alternatives, as brainstormed by the design team and stakeholders, and any necessary life-cycle costing analyses, should be discussed as part of the project kick-off meeting with the project team.

3. Project Energy Performance
   a. From past experience, Colby projects on average realize a 24% energy reduction below energy code, ASHRAE 90.1-2007. Achieving maximum energy reductions is a goal of the project, provided that the project budget allows. Through the life-cycle costing and energy modeling exercises (detailed below), the Project Team will understand the energy and financial implications of the various design alternatives identified as part of the integrated design charrette exercise and use that information to construct as efficient a facility as possible, while ensuring it meets all programmatic needs and financial constraints.

Drawing Review Process

1. New Construction / Major Renovation
   a. Coordinate drawing reviews with Colby College stakeholders throughout concept and drawing development. As applicable, this includes Schematic Development, Design Development, and Construction Drawings. Plan time in the schedule to review, respond, and close each drawing and specification comment.

2. Commercial Interior / Fit Out Projects
   a. Coordinate drawing reviews with Colby College stakeholders throughout concept and drawing development. As applicable, this includes Schematic Development, Design Development, and Construction Drawings. Plan time in the schedule to review, respond, and close each drawing and specification comment.
Life-Cycle Costing

1. New Construction / Major Renovation
   a. When making design recommendations to the College, the design team will use life-cycle costing (LCC) in order to evaluate the full cost of ownership of the design alternatives. The LCC analysis will quantify the 20 year impacts of greenhouse gases, energy costs, and maintenance implications of design options. The scope of LCC will vary from project to project, but will typically focus on envelope, HVAC, water, electrical or other building systems.
      i. Project Teams will identify those options to undergo evaluation as part of the integrated design charette.
      ii. The College will provide an updated version of utility rates and assumptions to be used in the life-cycle costing exercise.

2. Commercial Interior / Fit Out Projects
   a. When making design recommendations to the College, the design team will use life-cycle costing (LCC) in order to evaluate the full cost of ownership of the design alternatives. The LCC analysis will quantify the 20 year impacts of greenhouse gases, energy costs, and maintenance implications of design options. The scope of LCC will vary from project to project, but will typically focus on envelope, HVAC, water, electrical or other building systems.
      i. Project Teams will identify those options to undergo evaluation as part of the integrated design charette.
      ii. The College will provide an updated version of utility rates and assumptions to be used in the life-cycle costing exercise.

Energy Modeling

1. New Construction / Major Renovation
   a. Use hour by hour simulation software to model proposed building designs. The energy modeling software should be able to create parametric runs that compare the energy savings and greenhouse gas savings among design alternatives and generate output data for load, system or plant variables on a daily, weekly, or monthly timescale. These simulations will allow Colby to analyze different design strategies in order to reduce their operating costs, minimize greenhouse gas emissions, assist in measurement and verification exercises and inform future projects.
      i. By phase, the College would like to review the following deliverables:
         1. Schematic Design – Initial modeling results based on programming space needs and large assumptions in order to understand the energy implication of the new construction project in kBtu/SF in order to compare to benchmarking data.
         2. Design Development – Prepare parametric runs of design alternatives identified as part of the sustainability charette. These results of energy savings will be used to complete the LCC analyses identified in the previous section. During design share the energy model inputs with the College for approval. The inputs should include a summary of the occupancy schedule, occupancy count, receptacle load assumptions, air-change rate assumptions, and weather file.
         3. Construction Documents – Complete baseline and design energy models. Provide an updated energy model inputs document and summary document as needed.
         4. Building Turn-Over – Provide the as-built energy model results and its electronic file. Update this model appropriately with any changes to the design that were made during the construction process. This will allow the project to use the energy model as a tool during operation and will help inform future auditing or commissioning activities.

2. Commercial Interior / Fit Out Projects
   a. As appropriate to the project, or as identified through the sustainability charette, prepare energy and GHG estimates for design alternatives in order to evaluate their performance.
Building Metering

1. Major Renovation / New Construction
   a. At a minimum, each building should be metered for its major utilities including but not limited to: electricity, steam, and water. Exceptions will be approved by the College.
   b. If one of the following spaces is part of a project, discuss the appropriateness of sub-metering with the project team: data center, commercial kitchen, or other specialized facility. As the energy consumption profile of these spaces is unique and relatively intensive, sub-metering these spaces will allow the College to better understand and manage utility consumption.
   c. During the charette process, discuss the applicability or possibility of wiring and plumbing the building in a manner so the College could consider metering utilities by their end use. Comparing end use energy outputs from the energy model to the building’s actual performance will help evaluate energy conservation measures moving forward.
   d. Integrate the building meters and sub-meters into the College’s building management system.

2. Commercial Interior / Fit Out
   a. As appropriate to the scope of the project, consider sub-metering as described in the Major Renovation. New Construction section. Incorporate this discussion into the sustainability charette.