**HPBS Workshop Agenda**

5.0.1 Intent

The intent of the High Performance Building Standard is to improve building performance, and reduce the total cost of ownership for the State of Utah. The State of Utah and State Agencies own and operate buildings for the total life of the building, which is forty years, minimum, and optimally 100 years and beyond.

The cost of acquisition or construction of a new building is typically only 2% of the overall cost of ownership, over the life of a building. Beyond this initial cost of ownership, approximately 6% of the lifetime cost of ownership goes to fuel costs, operations, maintenance, repair costs, finance charges, and non-monetary costs. The remaining 92% of the cost of ownership is personnel costs. [[1]](#footnote-2)

The key elements of building and site design that impact the ongoing cost of ownership include:

* Building energy utilization (utility bills)
* System performance and durability (operations and maintenance)
* Occupant health and comfort which impacts employee productivity

Recognizing that there are limitations on each project in the form of a fixed project construction budget and schedule, the State of Utah requires each project owner and design team to design and construct new facilities in accordance with the High Performance Design Standard.

**5.1** **Integrated Design Process**

Integrated design is the process of engaging a more comprehensive team early in the programming and design processes.

* OPR Review
* BOD Review

**5.2 Community-Oriented Design**

Identify / Discuss Applicable Planning Documents

* Building and Massing
* Transportation Planning
* Connectivity
* Systems Planning
* Environmental Regulations

**5.3 Transportation Management**

The project site and building design shall reduce the impacts of single occupant vehicles by promoting alternative transportation and people powered, low-emitting and fuel-efficient vehicles.

* Parking Needs and Approach
* Bicycle Parking Needs and Approach
* Alternative Transportation Approach
* Alternative Transportation Plan / Infrastructure

**5.4 Site Design**

Enhance access within the site, improve flow and overall project functionality, and reduce the environmental impacts of the project site design.

* Building Location and Orientation
* Access and Site Circulation
* Open Space Design
* Storm Water Management
* Urban Heat-Island Effect
* Light Pollution Reduction

**5.5 Building Performance**

l state agencies and institutions shall design, construct, and operate new construction and major renovation, commercial and multi-family high-rise buildings to achieve a measured source EUI less than or equal to a DFCM provided ‘outcome based’ performance target. The term ‘outcome based’ refers to a policy that is based on the actual measured performance of a building after all energy consuming systems are installed, commissioned, and the building has been occupied for a minimum 12 month period. The building shall demonstrate a measured source EUI less than or equal to the DFCM provided performance target provided in Appendix D for the building type, climate zone, and construction permit date.

**5.5A Energy Modeling**

The design team shall develop a whole building energy model consistent with the requirements of this section using software or alternate methodologies that are approved by the DFCM Building Performance Program Director.

* EUI Performance Target Approach
* Alternative Path of Compliance

**5.5B Water Use Reduction**

Reduce ongoing water utilization through thoughtful and efficient system design.

* Landscape Water Use
* Landscape Water Budget
* Plumbing Fixture Water Use
* Process Water Use

**5.5C Building Enclosure Performance / Commissioning**

High performance building enclosures shall be commissioned in general compliance with the most recent version of ASTM E2813, *Standard Practice for Building Enclosure Commissioning*.

* Levels of BECx
* BECx Approach

**5.5D Building System Performance / Commissioning**

This section establishes the minimum requirements for all State of Utah, DFCM projects. Each project’s mechanical, electrical, and plumbing systems are to be commissioned to ensure a fully functional building and that the owner’s requirements are met. Additional building systems, e.g. smoke control, renewables, acoustic, security, etc., are to be commissioned as needed on a case-by-case basis. Projects will be commissioned in compliance with the intent of the “Building Commissioning Association’s New Construction Building Commissioning Best Practices”[[2]](#footnote-3) and in accordance with applicable components of “ASHRAE Guideline 0 – The Commissioning Process”[[3]](#footnote-4) and “ASHRAE Standard 202 The Commissioning Process for Building Systems.”[[4]](#footnote-5) The current IECC code shall be followed if applicable.

**5.5E Metering**

Provide a complete building utility metering system that consolidates metering information for all building systems including power, domestic water, irrigation water, chilled water, heating water, steam or condensate, natural gas, propane or any other similar building utility system and makes the metering information readily and easily available for Users and Owner to review, report and trend from the metering head-end system.

* General Metering Requirements
* Electric Power Metering Requirements
* Domestic Water Metering Requirements
* Chilled & Heating Water Metering Requirements
* Steam & Condensate Metering Requirements
* Natural Gas & Propane Metering Requirements

5.**5F Fault Detection and Diagnostics Software**

Fault Detection and Diagnostic (FDD) Software will be required on all new facilities.

**5.5H Efficient Equipment Purchasing**

Purchase appliances and equipment that enhance ongoing energy reduction efforts through efficient energy utilization.

**5.6 Material Impact Reduction**

To reduce the amount of waste taken to the landfill over the life of the building.

To reduce the negative environmental impacts associated with building material extraction, manufacturing, transportation, and landfilling.

* Ongoing Building Recycling
* Water Bottle Filling Stations
* Construction Waste Management
* Construction Material Air Quality Impact Reduction
* Sustainable Material Requirements
* Material Durability

**5.7 Occupant Wellness**

Work environments that prioritize occupant health and wellbeing enhance productivity, reduce absenteeism and turnover, and improve overall employee satisfaction.

* Indoor Air Quality – Building Design
* Indoor Air Quality – Construction Materials
* Hazardous Waste Management
* Green Cleaning Program
* Daylight and Views
* Environmental Controls (Lighting Control, Thermal Comfort)
* Health and Productivity

**5.8 Education and Outreach**

To educate building users and visitors on the sustainable design and construction strategies incorporated into the project, and to enhance awareness of the impact occupant behaviors have on building performance over time.

* User Education and Outreach
* Facilities Management Education
1. <https://www.wbdg.org/resources/life-cycle-cost-analysis-lcca> [↑](#footnote-ref-2)
2. <https://www.bcxa.org/wp-content/uploads/2016/03/BCxA.NCCx-BestPractices_031616.pdf> [↑](#footnote-ref-3)
3. <https://webstore.ansi.org/Standards/ASHRAE/ASHRAEGuideline2019SPANISH?gclid=EAIaIQobChMI0OeF_JvU5gIVmB6tBh2WygJMEAAYASAAEgLtu_D_BwE> [↑](#footnote-ref-4)
4. <https://www.techstreet.com/ashrae/standards/ashrae-202-2018?product_id=2025517> [↑](#footnote-ref-5)