



## Sustainability Design Standard

### Purpose

The College of Marin applies environmentally sustainable and green principles in our college community to ensure the future of our planet. In 2004, with the passage of Measure C, the Board of Trustees of the Marin Community College District (MCCD) enacted a Resolution to “design, deconstruct, renovate, operate, and maintain District Facilities and infrastructure that are models of energy, water, and material efficiency while providing healthy, productive, and comfortable indoor environments and long-term benefits to students, faculty, and staff.” With this Resolution, all new or renovated facilities are required to incorporate sustainable design criteria consistent with the USGBC LEED™ Rating System, achieving what was then a LEED™ minimum of 26 points. All projects undertaken by the District with Measure C funds have achieved LEED™ accreditation or contributed towards campus-wide energy efficiency. This Sustainability Design Standard helps provide guidance towards campus building projects.

### Part 1 – Design Standard

#### 1.1 Use an Integrated Approach to Building Design & Construction

The approach must be designed around a specific organizational structure that is intended to ensure shared governance and stakeholder engagement as well as College and District ownership.

- A. Take an Ecological Site Design Approach. In the formative design phase, identify sustainability priorities and key milestones in the project timeline.
- B. Pursue LEED Silver certification.
- C. Perform Life Cycle Cost Analysis on Major Equipment systems and value engineering proposals.
- D. Apply for all available utility incentives, assist in grant applications, and ensure follow through with all applicable programs including PG&E’s Savings by Design.

#### 1.2 Total Cost of Ownership (TCO) as it relates to facilities and equipment

- A. To assure the feasibility and effectiveness of physical resources in supporting institutional programs and services, the institution plans and evaluates its facilities and equipment on a regular basis, taking utilization and other relevant data into account. (ACCJC Standard III.B.3)
- B. Long-range capital plans support institutional improvement goals and reflect projections of the total cost of ownership of new facilities and equipment. (ACCJC Standard III.B.4)
- C. The equation is an industry standard set by the National Institute of Building Sciences and the College adopted this equation to calculate the TCO. However, the College added a few variables to the equation as follows:  $TCO = REPL - RES + E = W + OM\&R + O + P$

TCO = Total cost of ownership

REPL = Present value of capital replacement costs

RES = Present value (resale value, salvage value)

E = Present value of energy costs

W = Present value of water costs

OM&R = Present value of operating, maintenance, and repair costs

O = Present value of other known costs (contracts for services)

P = Payroll costs of maintenance and custodial personnel

- D. Using this equation, the College determines the cost effectiveness of a facility and equipment in making recommendations on the planning and life cycle of the services/programs within any given building. With this information, COM is making data-driven decisions that make campus planning more efficient. The college will conduct the analysis on an annual basis so that each building, and its contents, can be assessed using the above formula on its present values. While this number will change with the cost of many of the services the College procures, it will allow trend analyses that can be used in planning for future resources and replacement of obsolete equipment.

### **1.3 Take an Ecological Design Approach**

There are many constraints and attributes that must be considered when designing capital projects for MCCD. This includes topography, pedestrian and vehicular circulation, solar and weather orientation, important views, neighborhood relationships, environmental, and the relationship between educational programs and other functional characteristics of a campus. Each College of Marin campus has unique characteristics; characteristics that should drive building orientation and placement, access pathways, views to and from campus, historic markers and buildings, and the relationship to existing facilities, aesthetically.

- A. Maintain and restore regional landscaping.
- B. Protect and preserve soil, water, access to daylight, and regional biodiversity.
- C. Limit long-term site operating impacts and costs.
- D. Help reduce the reliance of students, staff and visitors on single occupancy vehicle commutes.

#### **1.3.5 Establish Performance Specification for Furniture, Fixture, and Equipment Standards**

- A. Establish durability standards.
- B. Consider off gassing, exposure to chemicals, and other harmful attributes when making purchases.
- C. Seek out products that demonstrate sustainability from manufacturing through end of life process.

### **1.4 Reduce Fossil Fuel Reliance and Related Energy Costs**

Through past and on-going Projects, the District continues to demonstrate a commitment to reducing energy demand, thereby reducing the Districts energy costs and providing evidence of positive stewardship of the environment.

- A. Prioritize passive strategies.
- B. Title 24 Standards contain energy and water efficiency requirements (and indoor air quality requirements) for newly constructed buildings, additions to existing buildings, and alterations to existing buildings.
- C. Provide infrastructure for future renewable energy installations, and when possible, on-site renewable energy systems.

### **1.5 Responsibly Manage Water**

Water conservation is critical in California. MCCD plans to manage water on its campuses responsibly and conserve wherever possible.

- A. Meet or exceed MCCD's Storm Water Management Plan for reduction of discharge to net zero increase from existing conditions.
- B. Provide for "slow, sink, spread" with storm water management.
- C. Take necessary measures to reduce and eliminate pollutants of concern from entering sensitive waterways.

- D. Prioritize irrigation reduction through appropriate site strategies.
- E. Reduce potable water consumption by 30% below Cal Green baseline.
- F. Use reclaimed water for non-potable purposes when possible and infrastructure for future installations.

### **1.6 Responsibly Source Materials**

MCCD aims to procure construction materials in ways that reduce carbon emissions and promotes responsible supply chain management and product stewardship.

- A. Select materials with sustainable content (recycled, certified wood, low-emitting)
- B. Responsibly source materials whenever possible (transparent information on extraction and manufacturing)

### **1.7 Maximize Occupant Comfort and Well-Being**

A comprehensive framework is necessary to address the facilities needs of the College for the benefit of the students who learn here, for the dedicated faculty who teach here, and for the staff who provide important support services.

- A. Improve occupant comfort and well-being wherever possible.
- B. Include measures for monitoring comfort.

### **1.8 Reduce Waste**

MCCD aspires to reduce waste in all of its construction projects and ensure adequate recycling and composting facilities are designed in their new facilities.

- A. Exceed statewide landfill diversion goal of 75% by 2020.

### **1.9 Use the Built Environment as a Teaching Tool**

MCCD desires the campus to be a teaching tool in order to raise awareness of sustainability issues and efforts to positively influence the behaviors of all campus community members.

- A. Create opportunities for learning in the built environment by giving design consideration to how building spaces and systems can be used as a real time teaching tool.
- B. Provide education signage and real time dashboards to highlight green building strategies.
- C. Provide a detailed list and user's guide to the building's green attributes.

### **1.10 Facilitate Sustainable Management of Campus Operations**

Regardless of how sustainable a building may have been in its design and construction, it can only remain so if it is operated responsibly and maintained properly. MCCD is committed to ongoing monitoring of their facilities and operation for continuous improvement opportunities.

- A. Continue to implement the use of live-data linkage to the State FUSION database, through the software entitled, Onuma.
- B. Install meters at appropriate locations to monitor ongoing operations.
- C. Provide on-going commissioning and operational training.
- D. Create policies and plans in a digital format to sustainably manage operations.

While all elements should be considered, every project will need to prioritize its own specific sustainability goals.

When it makes sense, the District shall direct its consultants and contractors to pursue external recognition and/or design to external criteria such as:

1. Leadership in Energy and Environmental Design (LEED)
2. Gold Savings By Design (PG&E)
3. Net Zero Energy Building Certification
4. Living Building Certification
5. USGBC – Zero Waste Program

There are several documents that inform, guide and direct capital projects, including but not limited to:

- Proposition 39
- Measure B Bond Language
- Educational Master Plan(s)
- Facilities Master Plan(s)
- Furniture, Fixture, and Equipment Standards Program
- Technology Master Plan
- Board Policy
- Business Outreach Program
- Environmental Impact Report(s)
- Hazardous Materials Business Plan
- Written Contract Agreements
- Divisions 0 and 1 (Front End Docs)

Anyone charged with the responsibility to manage capital projects for MCCD is advised to develop a complete understanding of the above documents and any other requirements pertaining to the work they are performing.

## **Part 2 – Process**

MCCD is committed to working with a Program Management firm(s) that will bring in projects from concept to occupancy on time and on budget. The Program Management firm(s) will help manage the design process throughout the life of the program in a consistent manner in which the end products produce facilities that are in compliance with the District’s design standards, scope of work, and budget.

Below is a list of recommendations to facilitate the sustainable design process:

### **2.1 Develop a Sustainability Action Plan to include:**

- A. Designate a dedicated sustainability consultant for each project, and a champion from each team. List the primary points of contact and their backups in the Sustainability Action Plan.
- B. Define Roles and Responsibilities within the team.
- C. Discuss and Define Communication strategies, protocols, and technologies.
- D. Conduct a Sustainable Design Charrete before or during schematic design that includes all major stakeholders: District (Users and Managers), Architect, Engineers, and Contractor. From this meeting, create the following documents itemized in Section 2.2.

**2.2 Create a detailed Owner’s Project Requirements (OPR). At the minimum, include:**

- A. A list of sustainability goals against which design decisions can be evaluated. Reference any previous data gathered and/or lessons learned.
- B. Commissioning procedures, steps, and schedules
- C. A prioritized list including required, desired, and lofty goals
- D. What evaluation tools will be used for analysis
- E. A schedule of deliverables and milestones to be integrated into the overall Project Timeline, which may include such items as OPR, energy model, and LEED documentation
  - i. Schedule regular project meetings with an interdisciplinary team and include sustainability goals on the agenda.
  - ii. Iterative energy and cost analysis/ROI process for major design decisions using tools such as energy modeling, water calculators, and life cycle analyses. This should begin in schematic design and be used to actively inform the design, going beyond verification of anticipated performance.
  - iii. Iterative specification development process. Each section/material should be evaluated against the OPR and the front-end sustainable design requirements specification section. Start filling in any material calculators early in the process.

**Associated Design Standards and Construction Specifications**

MCCD Design Standards

**Other References**

MCCD Sustainability / LEED / Solar Plan

**Appendices**

Appendix A

Sample completed LEED 2004 scorecard for a typical MCCD campus project

End of Document

(Appendices follow)