

Building a Process Map to LEED Platinum

USGBC – Colorado Chapter
Rocky Mountain Green 2010
April 22, 2010

Mortenson LEED Platinum Buildings

Rocky Mountain Green - April 22, 2010

- National Renewable Energy Lab – Science and Technology Facility, Golden, CO
- 1800 Larimer Office Building, Denver, CO
- Xcel Energy - 1800 Larimer Tenant Improvements, Denver, CO

Agenda

Rocky Mountain Green - April 22, 2010

Walk Through Proven, Proactive Steps That Create A Successful Process to ANY Level of LEED Certification

- Concept
 - Design
- Construction
 - VDC/BIM
- Documentation
- Zero Energy Buildings
 - Questions

Concept

Rocky Mountain Green - April 22, 2010

Integrated Project Delivery

- Integrated project team from the beginning.
- Everyone (Owners, User, Designers, GCs, and MEP) needs to be at the table.
- All stakeholders involved early in the process will ensure successful completion of the project.
- Kick off meeting to align expectations.
- Discuss and agree upon project needs and constraints.
- All parties must understand the end game and agree on how to get there.

Concept

Rocky Mountain Green - April 22, 2010

Current Data on Costs to LEED Certify

| | <u>Above Baseline</u> | <u>Payback</u> |
|-----------------|-----------------------|----------------|
| Certified | 0 - 1% | 0 - 2 years |
| Silver | 3 - 5% | 4 - 5 years |
| Gold | 4 - 6% | 4 - 6 years |
| Platinum | 10 - 12% | 7 - 8 years |
| Living Building | 15 - 20% | 15 - 20 years |

Concept

Rocky Mountain Green - April 22, 2010

LEED Scorecard Will Provide Your Outline

- Program flexibility into scorecard.
- As the design evolves points become more or less expensive to achieve.
- Implement alternative design solutions and/or LEED strategies in order to meet your goal without extra cost.
- Each project has a unique set of possible design solutions.
- Okay if you don't have all the answers at Concept, just narrow the field of possibilities.
- Clear communication between Team Members ensure ALL project goals are met.

Concept

Rocky Mountain Green - April 22, 2010

Holistic Approach to Every Project

- Understand every component's effect on the others.
- Many solutions, but what is the most cost effective?
- Window system may be 10% more energy efficient, but cost 50% more.
- There is a natural push and pull of design options integrating building performance, budget, safety, quality and schedule.
- At some point there are diminishing returns.
- Team needs to decide what is best for the project.

Concept

Rocky Mountain Green - April 22, 2010

Other Things to Consider at Concept

- Early identification of site, building orientation, MEP, building enclosure and structural systems.
- Energy and water are critical issues in Colorado.
- Energy model as soon as possible.
- Verify Owner is on board with the major project concepts before moving forward.

Design After Award

Rocky Mountain Green - April 22, 2010

Pulling The Team Together

- Building an Integrated Project Team takes work.
- Team kick off meeting where project goals are established and budgets are reviewed.
- Understand the budget and “Design to Budget”.
- Design decisions need to be “proofed” against performance criteria, budget, safety, quality and schedule.
- Entire team needs to have a “component” mentality.
- The best value design solutions evolve from input from all team members.

Design After Award

Rocky Mountain Green - April 22, 2010

Establish a LEED Champion

- Place one person in charge of the process.
- Manage the process.
- Meet specifically on a regular basis to check your progress and review the LEED scorecard.
- Anyone with passion and leadership can lead the process.

Design After Award

Rocky Mountain Green - April 22, 2010

Other Things to Consider During Design

- Energy model as you go.
- It is critical that the Contract Documents clearly reflect all of the LEED points that are to be obtained.
- When Specifications are written, make sure the materials, installation and documentation requirements for LEED certification are clearly defined.
- Don't forget the Enhanced Commissioning requirements.

Construction

Rocky Mountain Green - April 22, 2010

Things Contractors Need to Pay Attention To

- Create bid packages which clearly define the LEED material, installation and documentation requirements.
- Erosion Control Plan must closely monitored.
- A site drawing should be created showing all BMP's, create an inspection sheet and assign someone to complete weekly inspections and after every event.
- Indoor Air Quality, sometimes existing Mold Policies help.
- Waste Management Program, how will you handle?
- Regional material and recycled content management.

Virtual Design and Construction

Rocky Mountain Green - April 22, 2010

How is VDC/BIM help Mortenson move toward more sustainable construction?

- We model all projects in Colorado.
- Inherently sustainable.
- Reduces conflict and clashes which reduces wasted time and materials.
- Encourages prefabrication.
- Early energy model.

Documentation

Rocky Mountain Green - April 22, 2010

- Begin with the end in mind.
- Don't recreate the wheel, use best practices from other projects within your organization.
- Clearly define the documentation expectations early and often.
- Manage the process.
- Partner performance is better now, especially in Colorado and Washington State.
- Midwestern states do not deal with this as much as we do.

Zero Energy Buildings

Rocky Mountain Green - April 22, 2010

Moving Towards Zero Energy Buildings

- Design from the inside out.
- Building footprints will look different.
- Site selection is critical.
- Site orientation is critical.
- On site renewables will be required.
- Plan on beating ASHRAE by 40% plus.
- Superinsulate.
- Manage your water.

Questions?

Rocky Mountain Green - April 22, 2010

Clay Benson

Director of Design-Build

Mortenson Construction

1621 18th Street, Suite 400

Denver, Colorado 80202

720.920.4396

clay.benson@mortenson.com