Accelerate Performance

December 10, 2015
Performance-based procurement
Focus for today

• Why should we define performance requirements for our buildings?

• How can we adapt our process to leverage this approach?

• What resources would be most beneficial for our organization?
Group Discussion

How do you define high performance?

What are key challenges to achieving high performance?
### Define the energy requirement

<table>
<thead>
<tr>
<th></th>
<th>Project energy goals</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Good</strong></td>
<td><strong>Sustainable building</strong></td>
</tr>
<tr>
<td></td>
<td>Lack of clarity with unbounded interpretation. Rating schemes help resolve this but do not drive a certain metric.</td>
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<tr>
<td><strong>Better</strong></td>
<td><strong>30% savings over energy code</strong></td>
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<tr>
<td></td>
<td>Often this is a comparison between simulated results. There is very little opportunity to verify actual savings.</td>
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<tr>
<td><strong>Best</strong></td>
<td><strong>An annual energy use intensity (EUI) of 45 kBtu/sq ft/year</strong></td>
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<td>This is a measurable target; requires upfront research to establish a realistic benchmark.</td>
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Great potential in commercial buildings

What we’ve proven we can do
Low Energy Buildings

Where we are today
90 (1020) Existing commercial buildings
(2003 CBECIS)

Where we would be if all buildings were built to current code
70.7 (803) New buildings base scenario
(Standard 90.1-2004)

Where we could be with current technologies
40.3 (458) Max Tech energy efficient scenario
(Giffith et al. 2007)

Add renewables and we’re almost to net-zero
12.2 (139) Max Tech energy efficient scenario w/PV

Clockwise from top: NREL/09202, 10884, 10140, 09249, 12637, 11097
Bring more context to target EUI

- Conceptual model (baseline)
- Res Hall Ex.1
- ES residential
- 2030 residential
- Res Hall Ex.2
- 2030 cafeteria
- Conceptual model (moderate)
- ES cafeteria
- 2030 retail
- Conceptual model (aggressive)
- Bookstore Ex.1
- ES retail

Legend:
- Existing Bldg examples
- Energy Star 25% reduction
- 2030 Challenge (60%)
- Seventhwave/ComEd conceptual model
What is the performance-based procurement approach

10:00–10:30
Many Pieces

• So many ways to assemble the pieces

• Design is about making decisions – need motivation to make the right decisions

• Who are the decision makers?

Used by permission: Paul Torcellini/NREL
Real Value Added

I

II

III

IV

Costs

Energy Savings

Value Added

0%

100%
Owner Defines Desires

- Creating a list of what the building could accomplish.

- Critical: Project cannot succeed without this element
- Desirable: What the owner wants
- If Possible: The wish list
Problem Definition: RFP Objectives

MISSION CRITICAL
Attain safe work performance/Safe Design Practices
LEED Platinum
ENERGY STAR “Plus”

HIGHLY DESIRABLE
800 staff Capacity
25kBtu/sf/year
Architectural integrity
Honor future staff needs
Measurable ASHRAE 90.1
Support culture and amenities
Expandable building
Ergonomics
Flexible workspace
Support future technologies
Documentation to produce a “How to” manual
“PR” campaign implemented in real-time
Allow secure collaboration with outsiders
Building information modeling
Substantial Completion by 2010

IF POSSIBLE
Net Zero/design approach
Most energy efficient building in the world
LEED Platinum Plus
ASHRAE 90.1 + 50%
Visual displays of current energy efficiency
Support public tours
Achieve national and global recognition and awards
Support personnel turnover
Substantiation of the Objectives

• Each objective needs success criteria
• Owner defined some of the criteria
• Owner let respondents help identify some of the criteria.
### Performance-based approach

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**Owner resources**

- Define an aggressive, measureable energy performance target
- Develop RFQ/RFP language that prioritizes the energy performance target with other building performance goals
- Engage an owner’s integrated project team to support the process
- Select a design and construction team based on their commitment to achieve the energy performance target
- Evaluate substantiation documents for each performance element of the contract
- Ensure energy performance is through M&V
- Establish an owner approved ongoing performance tracking plan
EUI goals and contract language

10:40–11:10
Owner Role

- **Spend the time to get RFP right**
  - Design/build team will study to pass the test
- **Set up acquisition process to “force” integrated design**
  - Energy modeling guides conceptual design decisions
  - Architecture and envelope are also efficiency measures
Owner Role

• Unwavering commitment to problem statement
  • Unleash power of design/build team of experts to meet your needs
    • true value engineering
  • Commit to your objectives and the prioritization and don’t adjust

Clockwise from top:
NREL/18784, 24690, 17823
Process

• Owner made tough decisions up-front
  • Set budget
  • Sought maximum value for that budget
  • Prioritized goals

• Design-Build procurement process
  • Managed the team to the RFP and its substantiation criteria
  • Rewards

• Allowed design-build team to use creativity to maximize value—innovation

• Owner did not solve the problem (but knew the solution existed)
Incentive options and technical assistance

11:10–11:50
**Current offering**

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- **Current practice**

$200,000$ incentive

Example project – 300,000 sf new construction
Enhanced technical assistance

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*Performance based acquisition*

Credit: NREL Commercial Buildings
Scenario #1

Example project – 300,000 sf new construction
Scenario #2

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$15,000 incentive

Example project – 300,000 sf new construction

$210,000 incentive
Scenario #3

Example project – 300,000 sf new construction

$15,000 incentive

$160,000 incentive

$50,000 incentive

Performance based acquisition
Critical next steps

Markup existing RFP/contract language

Benchmark performance from previous projects

Establish energy goals for future projects

Take advantage of these resources