

Connecting Utilities with Higher Performing Buildings

Potential Benefits From Advanced Building Design Guidelines



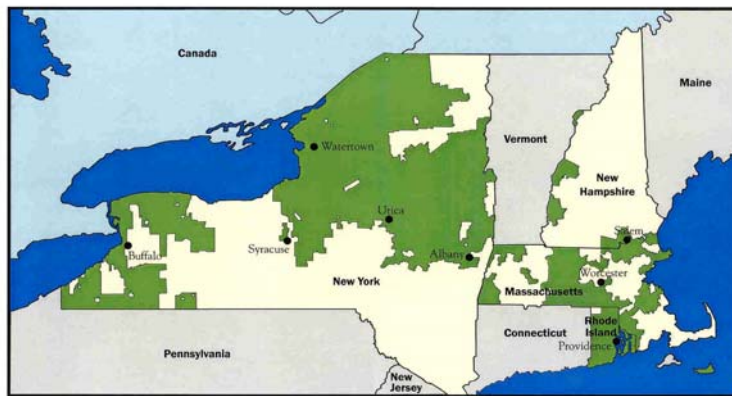
Michael McAteer
April 14, 2003



ACEEE 2003 Market Transformation Symposium

National Grid USA

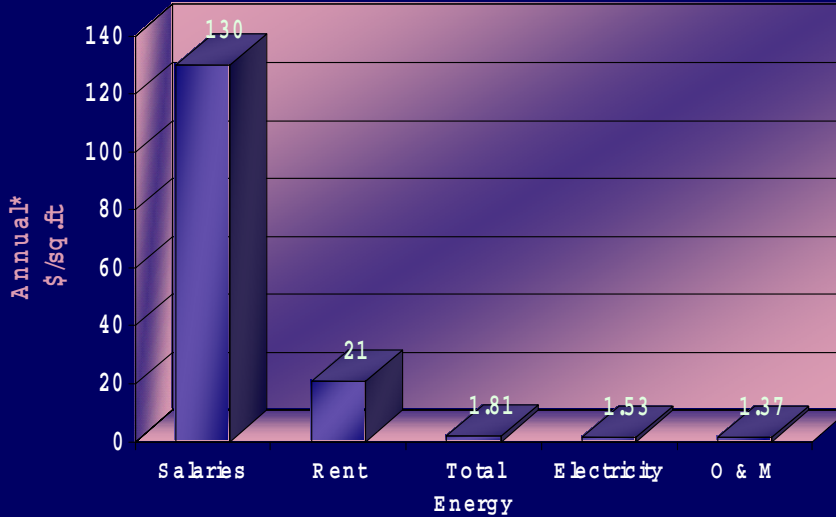
National Grid USA, based in Westborough, Massachusetts, is a wholly owned subsidiary of National Grid Group plc. National Grid is the eighth largest electric utility in the US. Its electricity delivery network includes 12,000 miles of transmission lines and 72,000 miles of distribution lines and serves 3.2 million customers in Upstate New York, Massachusetts, Rhode Island, New Hampshire and Nantucket.



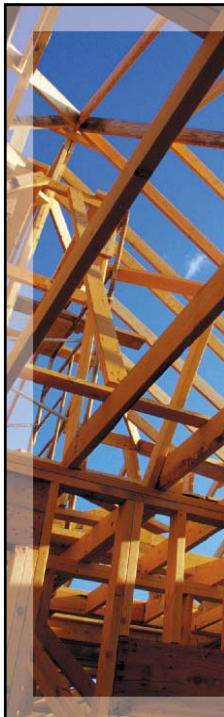
■ National Grid USA Service Territories

Niagara Mohawk Power Corporation
Massachusetts Electric Company
Narragansett Electric Company
Granite State Electric
Nantucket Electric

Consider Impacts of Buildings



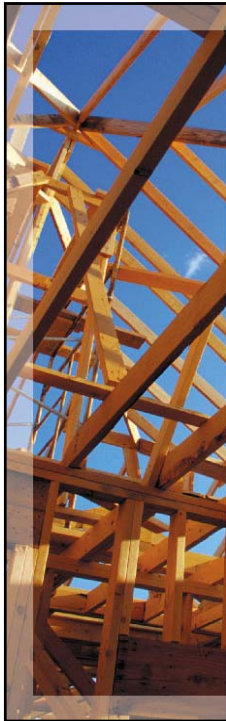
* 1991 Source: BOMA, EPRI, Statistical Abstract in RMI "Greening the Building and the Bottom Line, 1994



Benefits of Advanced Building Guidelines to Design 2000_{plus}

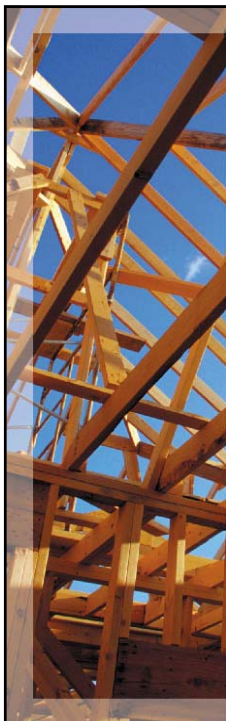
- CDA, premium product enhanced with customers
- CDA transformed to "user friendly" program for design community
- Foundation for Sustainable Design
- Educational tool for NGRID staff
 - ◆ "Best Practices"
 - ◆ Sustainable Design
 - ◆ Even higher building performance





Current Program Overview

- ◆ Design 2000*plus*
 - New Construction focus
 - Whole building Design Approach (CDA)
 - Based on building simulation
 - Cooperative effort; architect, engineers and owner

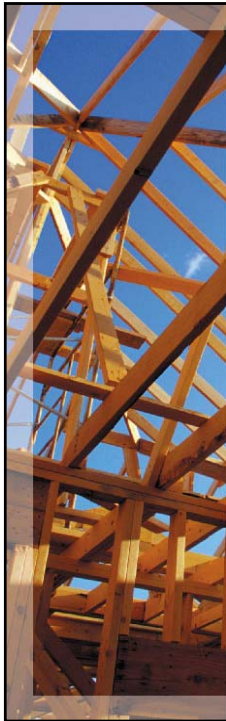


Current Program Overview

CDA Track Record of Success

- ◆ 11,092,296 sq. ft. affected
- ◆ 30,714,316 annual KWH savings
 - ◆ 558,387 MWH over expected lifetime
- ◆ \$25,530,433 customer value
- ◆ \$8,822,802 incentives paid
- ◆ Added design cost \$.25/SF
- ◆ Operating cost savings \$.24/SF to \$.50/SF

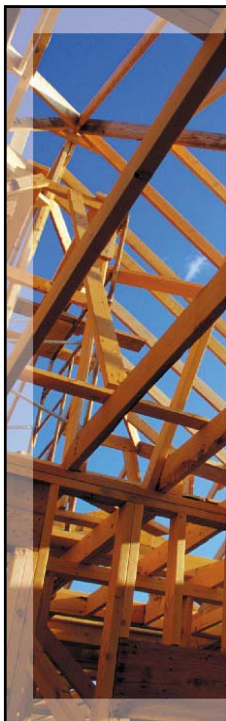




Current Program Overview

Opportunities for Improvement with Advance Building Design Guidelines

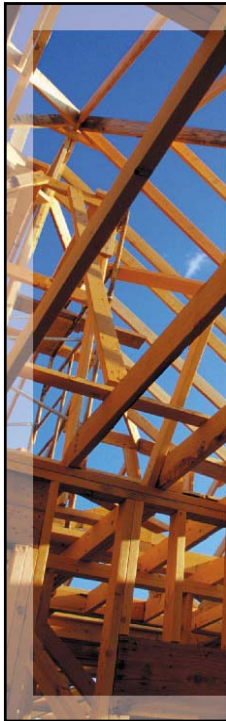
- ◆ Reliant on specialized energy engineers
- ◆ Process learned experientially
- ◆ Limited pool of qualified firms to lead process
- ◆ Under-developed for driving Sustainable Buildings
- ◆ Linkage to architects and design engineers could be enhanced
- ◆ Limited follow through after start up.



Transformation through Advanced Building Guidelines

Advance Building Guidelines'
solid documentation of
CDA process -
Benefits all parties involved!

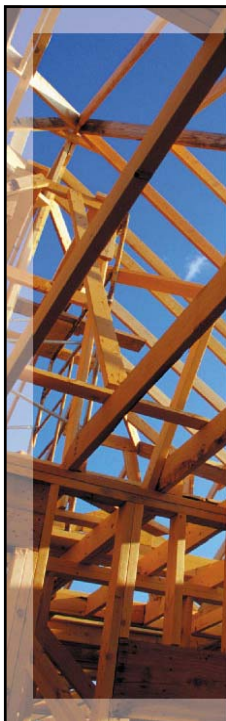




Transformation through Advanced Building Guidelines

I. Engineering Community Benefits

- ◆ Consistent standards for existing vendors
- ◆ Instructional guide for new Technical Assistance providers
- ◆ Clear outline of design engineers' role



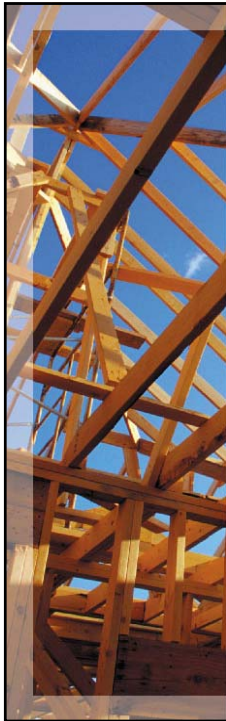
Transformation through Advanced Building Guidelines

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II. Architectural Community Benefits

- ◆ Now “ Architect Friendly”
 - LEED Style format
 - National promotion to Architects
- ◆ Credibility enhanced as a national standard
- ◆ Architects and owners common dialogue
- ◆ Generate more leads
- ◆ Ensures process early in the design
 - better results



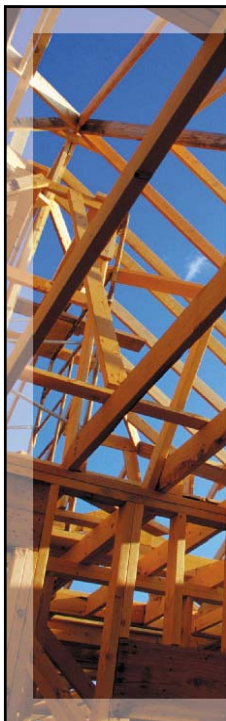


Transformation through Advanced Building Guidelines

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III. Building Owners Benefits

- ◆ Easier buy in, with well documented national standards
- ◆ Improved documentation for contract terms
 - Currently use Memorandum of Understanding
 - Light on detail
- ◆ Reinforces importance of commissioning.



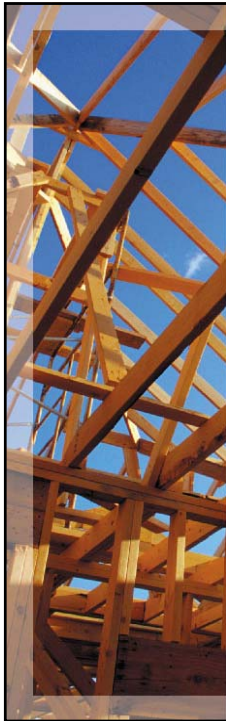
Transformation through Advanced Building Guidelines

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IV. National Grid Benefits

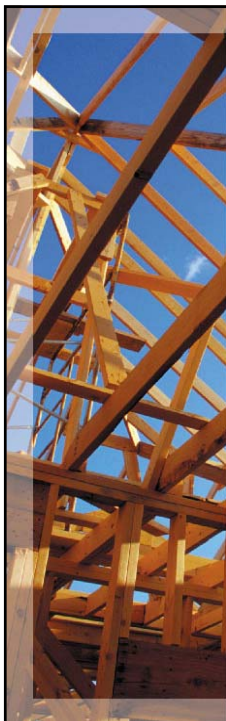
- ◆ National promotion of ABDG increases program penetration
- ◆ Reduced sales effort
- ◆ Increased Program Participation
- ◆ More Practitioners
- ◆ Lower cost
 - More competition
 - Greater experience





Sustainable Design Link

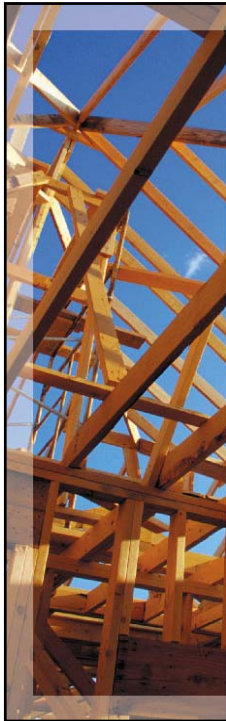
**Advance Building Guidelines
become the
Foundation
for
Sustainable
efforts**



Sustainable Design Link

- ◆ Document National Grid's role in LEED
- ◆ Instructional tool for staff
- ◆ Sales tool for Account Manager
- ◆ Outline for Engineering providers
- ◆ Prescription Guide for customers

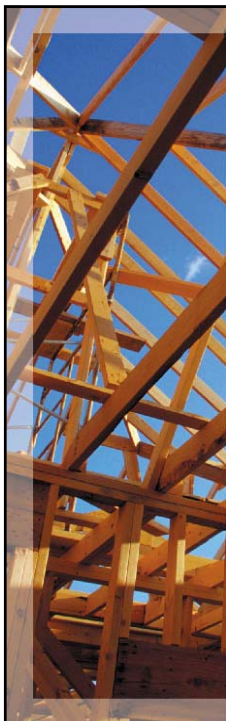




Future Direction

Non- Electric Benefits

- ◆ Important New Goal for New England Utilities
- ◆ Vital for sustaining Program funding
- ◆ Promotes Building Simulation needed to quantify Non-electric benefits
- ◆ Encourages heating fuel conservation
 - ◆ Fenestration standards
 - ◆ Insulation standards
 - ◆ Mechanical systems design
 - ◆ Air barrier standards

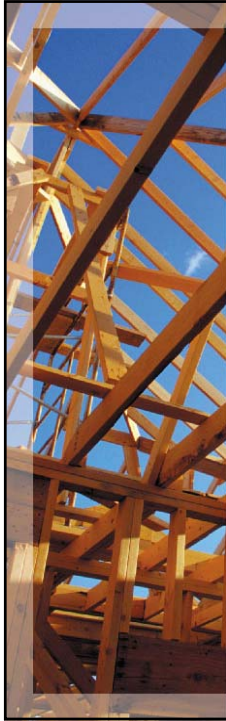


Future Direction

Second wave of Non-Electric Benefits

- ◆ Potential to expand to productivity and health
 - Best Practices for IEQ
 - Day lighting productivity improvement





Take Away Message

- ◆ **Advanced Building Guidelines provides vital link to LEED and Sustainable Design**
- ◆ **Takes utilities to the next level of building performance**
- ◆ **Expands high performance buildings promotion with key customer groups**

