

## Enforcement Strategies for Commercial Above Code Programs

Eric Makela - Britt/Makela Group

## To LEED or not to LEED? What it means for enforcement

- LEED Enforcement
- National Above Code Program Enforcement
- Home Grown Enforcement

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111 Commercial Boulevard  
Aurora, Colorado 80014

## LEED Enforcement?

- Enforced and Monitored by USGBC
- Building Department Involvement
  - Perform plan review on typical structural and non-structural features
    - IBC
    - IMC
    - IPC
    - Etc
  - Verify that unique green features are in compliance with code
  - LEED documentation required for final Inspection and Certificate of Occupancy
  - LEED +
    - Some verification of credits required

## Portland – Supports LEED Projects

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**The City of Portland's Green Building Program**  
*Promoting green building as the standard of development*

The Green Building Program offers free **technical assistance** for development projects in Portland, educational **courses** and **classes**, project **guidebooks** and **grants** that support innovative green building practices.

**Have questions about green building products, strategies and resources?**  
Contact the new **regional green building hotline!**  
503-823-7431

**!!! SAVE THE DATE !!!**  
**Seventh Annual Build It Green! Tour of Homes and Information Fair**  
Saturday, September 20th, 2008  
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I want to ...

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Upcoming Events

<a href="#">What's Green Building?</a>	06/24/2008
<a href="#">ATA COTE Green Advisor Program</a>	06/25/2008
<a href="#">Green Building Workshops at University of Oregon in Portland</a>	06/27/2008
<a href="#">Green Book Signing and Lecture</a>	06/27/2008
<a href="#">OAS House Fair</a>	06/28/2008

[full calendar](#)

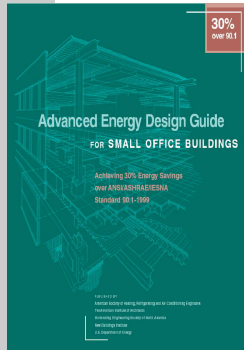
Questions & Comments

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**What's new...**

- ① [OSD Green Building News: City of Portland and Energy Trust of Oregon award \\$425,000 in green building grants to innovative development projects](#)
- ① [Register now for SeTHINK 2008!](#)
- ① [Green Investment Fund offers \\$425,000 for high performance buildings](#)
- ① [RiverEast Center aims LEED Gold Certification](#)
- ① [Mayor, City of Portland, announces launch Green Building Hotline](#)
- ① [New Report Shows Economic Opportunities in Portland's Green Building Industry](#)
- ① [Green Commercial Real Estate Guide available from Sustainable Industries](#)
- ① [OSD's Green Building Specialist featured in The Oregonian's Homes and Gardens](#)

# National Above Code Programs



- Developed for Use on a National Level
  - Examples
    - ASHRAE Advanced Guidelines for
      - Office
      - Retail
      - Schools (K-12)
      - Warehouses and Storage
  - New Buildings Institute
    - Core Performance Advanced Building Guidelines

# ASHRAE Advanced Guidelines

Climate Zone 5 Recommendation Table

Item	Component	Recommendation	How-To's in Chapter 4
Roof	Insulation entirely above deck	R-20 c.i.	EN2, 17, 20-21
	Metal building	R-13 + R-19	EN3, 17, 20-21
	Attic and other	R-38	EN4, 17-18, 20-21
	Single rafter	R-38 + R-5 c.i.	EN5, 17, 20-21
	Surface reflectance/emittance	No recommendation	
Walls	Mass (HG > 7 Btu/ft <sup>2</sup> )	R-11.4 c.i.	EN6, 17, 20-21
	Metal building	R-13 + R-13	EN7, 17, 20-21
	Steel framed	R-13 + R-7.5 c.i.	EN8, 17, 20-21
	Wood framed and other	R-13 + R-3.8 c.i.	EN9, 17, 20-21
	Below-grade walls	R-7.5 c.i.	EN10, 17, 20-21
Floors	Mass	R-10.4 c.i.	EN11, 17, 20-21
	Steel framed	R-30	EN12, 17, 20-21
	Wood framed and other	R-30	EN12, 17, 20-21
Slabs	Unheated	No recommendation	EN17, 19-21
	Heated	R-10 for 36 in.	EN14, 17, 19-21
Doors	Swinging	U-0.70	EN15, 20-21
	Non-swinging	U-0.50	EN16, 20-21
Vertical Glazing	Window to wall ratio (WWR)	20% to 40% maximum	EN23, 36-37
	Thermal transmittance	U-0.42	EN25, 31
	Solar heat gain coefficient (SHGC)	N, S, E, W - 0.46 N only - 0.46	EN27-28
	Window orientation	$(A_N * SHGC_N + A_S * SHGC_S) > (A_E * SHGC_E + A_W * SHGC_W)$	A <sub>w</sub> - Window area for orientation x EN26-32
Skylights	Exterior sun control (S, E, W only)	Projection factor 0.5	EN24, 28, 30, 36, 40, 42 DL5-6
	Maximum percent of roof area	3%	DL5-7, DL8, DL13
	Thermal transmittance	U-0.69	DL7, DL8, DL13
	Solar heat gain coefficient (SHGC)	0.39	DL8, DL13

## NBI's Advanced Building

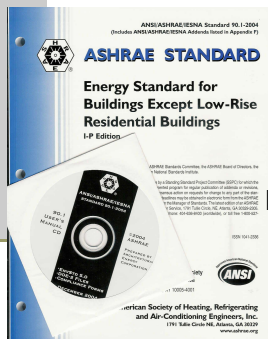
LPD values are given for both whole building and space-by-space analysis

USE CATEGORY	WHOLE BUILDING WATTS/SF	SPACE BY SPACE WATTS/SF
<b>MANUFACTURING</b>	1.3	
Equipment Room		1.2
Corridor/Transition		0.5
General Low Bay		1.2
General High Bay		1.7
Detailed		2.1
<b>MOTEL</b>	1.0	
Dining Area		1.2
Living quarters		1.1
Reception/Waiting		2.1
<b>MOTION PICTURE THEATER</b>	1.2	
Audience/Seating Area		1.2
Lobby		1.0
<b>MUSEUM</b>	1.1	
Active Storage		0.8
General exhibition		1.0
Restoration		1.7
<b>OFFICE</b>	0.9	
Enclosed		1.0
Open Plan		1.0

### Prescriptive LPD Values

## To LEED or not to LEED? What it means for enforcement

- Home Grown
  - Similar to amending a building code
  - Allows flexibility and tailoring to the community but...
    - Increase level of involvement with plan review and inspection
    - Requires cross-training of building and planning staff to ensure new standards are understood, supported and enforced
    - Can include some third party verification (e.g. Commissioning Report)



Plus

## Scottsdale, AZ – Home Grown



- **Green Building Permit and Inspections** – Once plans are approved under the green building rating checklist, a green building permit is issued and green building inspections are provided in conjunction with the regular city inspections to ensure the project complies with the green building provisions as approved on the plans. Upon completion of the building, a Green Certificate of Occupancy is issued that becomes a permanent record of the city.