



ASHRAE Standard 90.1-2007 Setting A New Bar

Ronald E. Jarnagin
Pacific Northwest National Lab



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Overview

- Energy Policy Act of 2005
- ASHRAE and its activities
- Standard 90.1 development process
- First look at Standard 90.1-2007
- Where are things going? (90.1-2010 and beyond)
- Questions



Energy Policy Act of 2005

- Omnibus energy bill
- Contains something for everybody
- Follows in the footsteps of the Energy Policy Act of 1992
- Sets new bar for government buildings being 30% more efficient than the ASHRAE standard (Section 109)





What Does This Mean?

- The 30% savings is always relative to some baseline
- The baseline is the latest version of Standard 90.1 (2004 at this instant)
- ASHRAE keeps updating Standard 90.1
- Therefore, the 30% target keeps changing as the bar is raised for Standard 90.1



ASHRAE And Its Activities

- Active in the commercial building energy standards business for over 30 years (Standard 90-1975)
- ANSI accredited standards developer
- Standards are based on a consensus process which is open to all parties
- Works closely with model code agencies to move standards into codes



ASHRAE (Some History)

- EPA Act 1992 made Standard 90.1-1989 the “law of the land”
- ASHRAE Board decreed in 1992 that standards intended for adoption into codes be written in mandatory language
- ASHRAE agreed in 1998 to publish Standard 90.1 on a 3-year cycle consistent with code cycles (IECC)



ASHRAE And Its Activities

- ASHRAE has made Sustainability a part of its Strategic Plan and its culture
- A Sustainability Standard is being developed (Standard 189)
- Aggressive energy savings goals are being set
- ASHRAE has embraced Net Zero Energy Buildings



Standard 90.1 Development Process

- Standard 90.1 is developed under a “continuous maintenance process”
- This means that the standard is changed on an ongoing basis through addenda
- These addenda must achieve consensus in a public review process
- All addenda approved as of a certain date are rolled into the next standard version



Standard 90.1 Development Process

- As a federal agency you can track the progress of 90.1 towards the next version
- You can comment on any proposed addenda
- Based on the addenda that are approved you can plan your future construction requirements





First Look at Standard 90.1-2007

- Well, you'd like to look at it, but it isn't out yet!
- Why? – Two key addenda received approval at the ASRHAE Annual Meeting in June and are being considered for inclusion
- These addenda would contribute to increased stringency

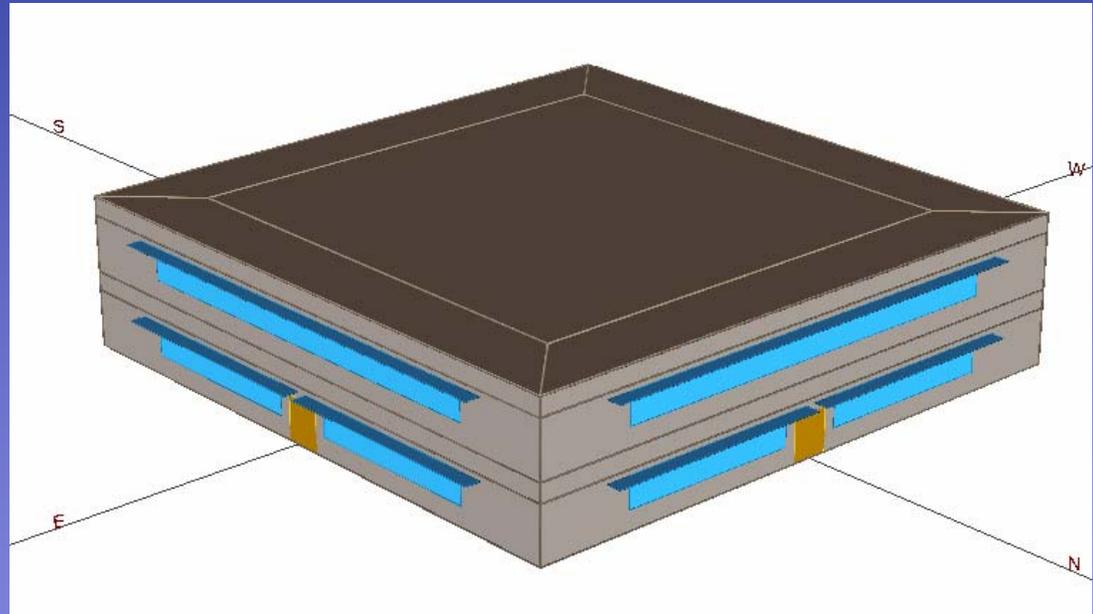


Scorecard on Standard 90.1-2007

- 47 Addenda with 5 major efficiency changes and 6 minor efficiency changes
- Major changes include:
 - Demand controlled ventilation requirements
 - Boiler efficiency improvements
 - Increased fan power limitations
 - More stringent opaque elements
 - More stringent fenestration elements

Example Office Building

- 2:1 Aspect ratio
- 2-story, 20000 sf
- Steel stud walls
- Built up roof
- 30% window-to-wall ratio
- Packaged equipment
- Pittsburgh (Zone 5)





Example Building Comparison

Component	Standard 90.1-2004	Standard 90.1-2007
Roof	R-15 c.i.	R-15 c.i.
Wall	R-13 + R-3.8 c.i.	R-13 + R-7.5 c.i
Glazing Thermal Transmittance	U-0.57	U-0.55
Interior Lighting	1.0 w/sf	1.0 w/sf
Cooling Efficiency	10.3 EER	11.2 EER
Economizer	No	Yes
Heating Efficiency	80% Et	80% Et



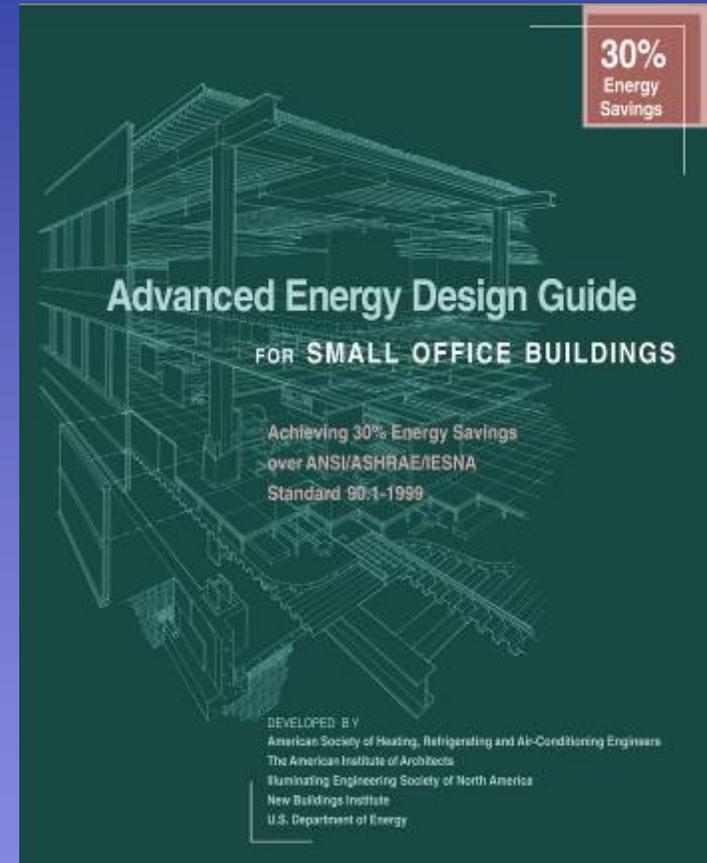
Where Are Things Going?

- Standard 90.1-2007 to be published soon
- Standard 189P has completed public review and any requirements could change
- 30% Advanced Energy Design Guides for Schools and Warehouses are nearing completion



Advanced Energy Design Guides

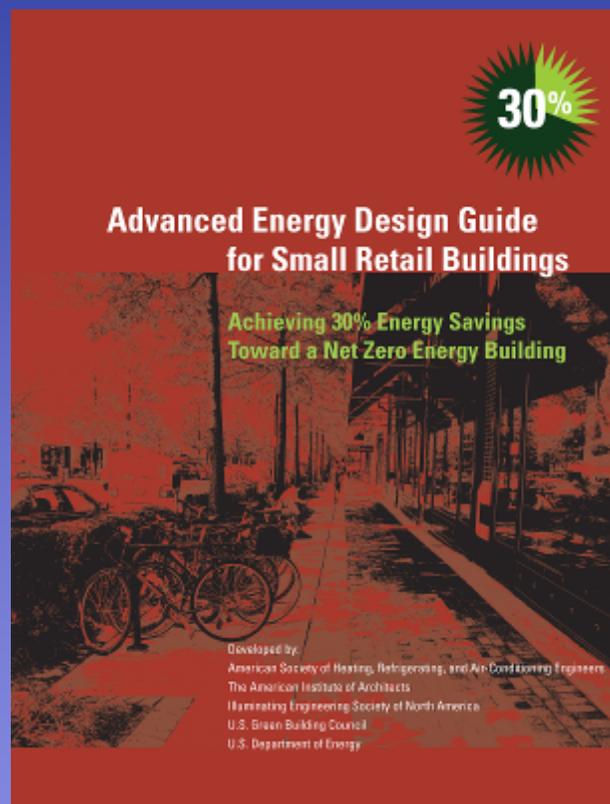
- AEDG Small Office qualifies for 4 energy credit points in LEED-NC Version 2.2
- Received Alliance to Save Energy's Energy Star award
- Received Sustainable Building Industry Council's Best Practices Award
- Received United States Green Building Council's award





Advanced Energy Design Guides

- Most recent AEDG document
- Similar to office guide
- More focus on lighting





Where Are Things Going?

- 50% Advanced Energy Design Guides are on the horizon for ASHRAE
- Standard 90.1-2010 is being worked on with a goal of 30% over the 2004 version
- ASHRAE is targeting NZEB by the year 2030



Estimated Stringency vs. 2004

- Less than 10%
 - 2006 IECC
 - ASHRAE Standard 90.1-2007
- About 20%
 - NBI Advanced Buildings Benchmark



Estimated Stringency vs. 2004

- About 30%
 - DOD Prescriptive Requirements that meet new Federal Standards
 - ASHRAE Advanced Energy Design Guides for Small Offices and Small Retail
 - ASHRAE Standard 189P



Timeline for Standard 90.1-2010

- ASHRAE Standard 90.1-2010 out no later than December 2010
- DOE Determination no later than December 2011
- 2012 IECC in January 2012
- EPA Act Deadline for State Adoption no later than December 2013



Takeaway Messages

- Energy efficiency is more important today than ever before
- EPA Act 2005 sets a moving target relative to ASHRAE Standard 90.1
- You can engage in the ASHRAE development process
- ASHRAE and others are going towards NZEB – Are you?

Questions?



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New Orleans

August 5-8



For More Information

- Would you like to know more about this session?
- Ron Jarnagin
- Pacific Northwest National Laboratory
- P. O. Box 999, MS# K5-16, Richland, WA 99352
- ron.jarnagin@pnl.gov

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