HOUSTON, WE HAVE A NEW ENERGY CODE...


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By: Robert A. Thomas, P.E., LEED AP, Chair, Green Committee

As you may have already heard, the City of Houston has adopted a new Energy Code that will go into effect on August 1, 2008. So what does this mean? Well it does require some discussion and comparison to understand the effect it may have.

The current Energy Code is the 2000 IECC (International Energy Conservation Code) with 2001 Supplements as adopted by the City of Houston in 2001. With the current code, the design community can use the IECC code, or they can use the ASHRAE 90.1-2001 Standard as an acceptable alternative. On August 1, 2008, the current energy code will be replaced by an edited version of the ASHRAE Standard 90.1-2004–Energy Standard for Buildings.

For those not familiar with ASHRAE (American Society of Heating, Refrigerating and Air-Conditioning Engineers), it is an organization that creates and manages standards that are used by design engineers and others as a reference for industry acceptable design practices. ASHRAE Standards are common references for the HVAC design community throughout the U.S. and abroad. Unlike the IECC, the ASHRAE Standard was not written to be a stand-alone code. Many volunteer hours were spent by members of the Houston community to review and modify the ASHRAE 90.1-2004 standard prior to adoption by the City of Houston.

The structure and content of the current code and the new ASHRAE based code are very similar; however, there are some obvious differences to be considered:

- Building Envelope and Cool Roofs: Revisions to building envelope values and window rating value requirements will be apparent. Most of the requirements are similar to the past code; however overall improved performance of the building envelope is required. Similar to building envelope requirement changes, there will also be a new requirement for "cool roofs". Roofs with a slope of 2:12 or lower must have a minimum solar reflectance of 0.7 and a minimum thermal emittance of 0.75. Generally, this means that dark-colored, shallow-sloped metal roofs or dark colored common flat roofs will not be allowed for new construction. There is not a provision for existing roofs to comply, however if re-roofing is done, compliance would be required.
- HVAC requirements: Air balancing will be required to be specified on plans for HVAC systems. This new requirement should raise the bar for project completion and will hopefully promote proper balancing of HVAC systems on every project. There are a few requirements for upgrades in control and automation of particular HVAC systems. There are also increased control requirements for specific HVAC system components such as dampers.
- Lighting Requirements: Overall acceptable lighting power levels have been reduced for all space types. This is similar to the changes made in 2001; however, the acceptable levels are even lower. For example, the current lighting power allowed in office buildings is 1.5 watts per sq. ft.; the allowable wattage will be lowered to 1.1 watts per sq. ft. (based on the space-by-space method). For buildings that still have not completed lighting retrofits, this could push the building staff to upgrade as new construction projects occur. As always, if you decide to complete a lighting fixture retrofit/replacement, be sure to explore the options of a power company rebate and possible tax benefits.

The portion of the code that seems to be receiving the most interest from the design community is the requirement for commissioning. Commissioning is defined by ASHRAE as a quality-oriented process for achieving, verifying, and documenting that the performance of facilities, systems, and assemblies meets defined objectives and criteria. The code states that commissioning is required to be specified on plans for projects with 50,000 sq. ft. or more of air-conditioned area. The problem is that commissioning can be considered a relative term and the actual degree of commissioning will vary from project to project and from design specification to design specification. The intent is that proper verification of commissioning will be provided by the design professional, however there is no common definition given in the code for commissioning. Therefore the commissioning requirement will inevitably create some confusion and misinterpretations as projects develop. As an engineer, I hope that the added cost and time required for commissioning will be outweighed by the building being handed to the owner as per the design intent. We will see what transpires.

The new energy code is available for free download from the City of Houston web site or you can type the following into your browser: http://www.publicworks.houstontx.gov/planning/enforcement/docs/houston_commercial_energy_conservation_code_4_29_08.pdf.

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As always, we will learn from this new code and apply what we learn to the next code review. It is up to our community to achieve proper planning, design and construction to help make Houston a better place to live and work. ■

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