



U.S. DEPARTMENT OF **ENERGY** | Energy Efficiency & Renewable Energy

Building Energy Codes Program

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Building Makeover? Keep the Codes in Mind

In a recent report, U.S. Secretary of Energy Steven Chu confirmed that retrofits focusing on "air-tight ducts, windows and doors, insulation and caulking" allow building owners to pick up the "twenty-dollar bills lying on the ground all around us,"¹—in short, energy savings are significant and simply waiting to be realized. As programs emerge that incentivize retrofits far beyond these "twenty-dollar bills," it is important for all involved to remember that—efficiency-related or not—**building energy codes apply to renovations of existing buildings just as they do to new construction projects. The key is knowing how the codes apply, and the Building Energy Codes Program (BECP) is here to help with this challenge.** Below, you'll find up-to-date tools and insights to help make today's retrofit compliance easier.

BECP Retrofit Resources:

- *No-Cost Compliance Software:* The latest versions of [REScheck™](#) and [COMcheck™](#) were designed with retrofits in mind.
- *Q & A:* For a quick tutorial on how to use REScheck and COMcheck to calculate compliance for additions and alterations, see page 5 of *Setting the Standard, Volume 14, Issue 1* (February 2010).
- Alterations in COMcheck webcast – [training video](#) and [presentation slides](#)

BECP's Quick Tips: Insights on how the codes address retrofits

As a quick reference guide, BECP has paraphrased² retrofit-related content within 2009 IECC and ANSI/ASHRAE/IESNA Standard 90.1.

2009 IECC

To paraphrase, the 2009 International Energy Conservation Code³ stipulates that owners must be in compliance for the building parts or systems impacted by a retrofit project. Similarly, if a project brings about changes in occupancy or space conditioning, the project also must comply. *In basic terms: if you touch it and your project requires a building permit, bring it up to code.* However, there are reasonable exceptions—specific instances where energy codes do not apply—even when a project touches certain features:

1. *Storm windows installed over existing windows.* For this routine activity, a compliant upgrade is not required.
2. *Glass-only window replacements.* Simply put, if a child hits a baseball through your window, you may repair it without code compliance.
3. *Existing ceiling, wall, or floor cavities are exposed.* If you expose an existing cavity, simply fill it with insulation; the cavity does not require expansion.
4. *Existing roof, wall, or floor cavities are not exposed.* If the project does not expose cavities, additional insulation is not required.
5. *Reroofing where neither the sheathing nor the insulation is exposed.* A basic re-shingling project that does not expose these features does not require additional insulation.
6. *Door replacement and vestibules.* A replacement of exterior doors does not require installation of a vestibule or revolving door. However, these efficient features may not be removed unless they will be replaced.
7. *Lighting alterations that replace less than 50% of the luminaires in a space—provided installed lighting power is not increased.* In projects replacing less than half of the previous fixtures, simply replace with more efficient fixtures.
8. *Lighting alterations that replace only the bulb and ballast within existing luminaires.* In this case, the code only requires that previous bulbs and ballasts be replaced with more energy efficient bulbs and ballasts.



Standard 90.1-2007

ANSI/ASHRAE/IESNA Standard 90.1⁴ can be paraphrased in the same way as the 2009 IECC: *if you touch it and your project requires a building permit, bring it up to code.*

Standard 90.1 contains the exceptions listed above for the 2009 IECC (in slightly different language), as well as the following:

1. *Window Replacement.* A project can replace up to 25 percent of a building's windows without adhering to Standard 90.1's fenestration requirements, as long as the new windows are at least as efficient as previous windows.
2. *Heating, Ventilation, and Air Conditioning (HVAC) and Service Water Heating (SWH).* In these building systems, Standard 90.1 adds exceptions for the following scenarios:

- o Equipment is modified or repaired, but not replaced
- o Replacement or alteration requires substantial renovation to other systems
- o Refrigerant is changed out in existing equipment
- o Existing equipment is relocated
- o Space is insufficient to meet duct and pipe insulation requirements (applies to both HVAC and SWH).

Retrofit Incentives: News and Resources

- Residential Retrofit Incentives: The U.S. House of Representatives passed H.R. 5019: [Home Star Energy Retrofit Act of 2010](#)¹ on 7 May 2010, when the bill moved to the senate.
- Commercial Retrofit Incentives: The U.S. Senate introduced S. 3079: [Building Star Energy Efficiency Act of 2010](#)² on 4 March 2010.
- Existing Incentive Programs: A great way to search efficiency incentives is through [DSIRE - the Database of State Incentives for Renewables & Efficiency](#)³: "...a comprehensive source of information on state, local, utility and federal incentives and policies that promote renewable energy and energy efficiency. Established in 1995 and funded by the U.S. Department of Energy, DSIRE is an ongoing project of the N.C. Solar Center and the Interstate Renewable Energy Council."



In Conclusion

Whether or not the original goal of your alteration project was increased energy efficiency, your retrofit does present an opportunity to bring your building "up to code"—and scoop up some of those twenty-dollar bills in the process.

¹Dr. Chu's op-ed appears in a new report by the World Economic Forum and IHS Cambridge Energy Research Associates entitled "*Energy Vision 2010: Towards a More Energy Efficient World*."

²These paraphrases are meant to be helpful, but they are general and unofficial—always check the energy codes in effect for your local jurisdiction.

³©International Code Council, www.iccsafe.org.

⁴©American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc., www.ashrae.org.