

DESERT LYCEUM
Planning for the Future of a Green Community
Energy and Green Building Standards

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Since 1978 the California Energy Commission has worked with industry and consumer groups to advance energy efficiency through the periodic promulgation of energy codes and standards for buildings (Title 24). Through this process California has developed the most stringent energy code in the nation. Homes built today use 50% less energy per square foot than homes built in 1978, the beginning of Title 24.

The California Energy Commission adopted the 2008 Residential Energy Efficiency Standards (Title 24) April 24, 2008. The incremental increase in energy efficiency (22% for single family housing; 15% for multifamily housing) is the largest in the history of Title 24. The approximate costs of the 2008 standards to production single family housing is \$2000 and multifamily housing \$1500. Minimum ventilation standards per ASHRAE 62.2 were adopted as a mandatory feature for all new housing. Other significant changes include alterations to HVAC performance credits (cooling capacity, airflow, and refrigerant charge), electronic compliance submission requirements, and cool roofs. Cool roof and energy efficient HVAC duct systems became mandatory retrofit requirements at time of rehab, renovation or repair.

Many local green policies are being considered reduce green house gas emissions (AB 32). Green house gas comes from combustion. In housing, that is the use of electricity and gas for heating, cooling, water heating, running appliances and plug load. To understand how energy efficiency impacts green house gas emissions from housing in California one needs to understand the housing market. There are over 13,000,000 dwelling units in California. New construction contributes on average an additional 1% to the housing stock each year (112,000 new dwelling units or 0.86% in 2007). Residential housing generates 14% of California green house gases on an annual basis. The residential new construction market represents 0.12% of annual green houses gas. Over two thirds green house gas emissions from residential housing are generated by homes built prior to Title 24, the California energy code. It is 5-10 times more cost effective to reduce green house gas in existing housing stock than new homes. For the most cost effective reduction in residential green house gases policy planners and incentive programs should focus on reducing energy consumption in existing housing stock.

Green programs can play a vigorous role in reducing green house gas production. The backbone of green programs is energy efficiency. The three major green programs in California currently require participants to build at least 15% over current state code. The California Department of Housing and Community Development (HCD) is developing a mandatory green building code for residential housing. This code includes provisions for resource efficiency, water conservation, planning, and air quality. The

code is in 45-Day language and is to become effective in 2010 or 2001. This will become the minimum green building code in California.

The International Code Council (ICC) and the National Association of Home Builders completed the development of the national green building code through an ANSI consensus adoption process in February 2008. This code, call the NAHB ICC ANSI 700 National Green Building Standard, will be adopted by ICC into their 2010 code process. This code has green building requirements covering: lot design, preparation and development; resource efficiency; energy efficiency; water conservation; indoor air quality; and, operation, maintenance and homeowner education. The ICC codes are the backbone of building codes in 49 states. This code will become the national green standard for housing in most jurisdictions beginning in 2011.