

Builders given breather on energy law

7-21-82

By BOB SMITH

Eleventh-hour action by Governor Brown blocking implementation of new residential building standards is being hailed by local builders.

Brown signed a bill Tuesday of last week, authored by Assemblyman Leroy Greene of Sacramento, that effectively delays for 12-18 months new regulations by the state Energy Commission that would have added upwards of \$4,000 to the price of a new home in California.

"The decision was fair," said Santa Cruz Builder's Exchange spokeswoman Patti Bonar says of Brown signing the delay bill.

"The fact that this is a depressed economy makes it fair to hold off on the energy regulations."

"This will be the last time that it will be postponed, but it is best that it is held up now."

"At least, this gives people time to put their things together and it gives them more time.

Hopefully, the time will give people time to be better prepared," she added.

Contractors, thanks to the legislation signed by Brown, can now chose between building to the 1978 residential standards or voluntarily implementing the 1982 standards until next year.

A California Energy Commission spokesman Thursday outlined the choices:

"He can either build to the 1978 standards or he can choose to build a home that uses 50 percent less energy and follow the 1982 regulations," a commission spokesman said.

Capitola Building Official Mark Knittle said the delay should be beneficial in several ways.

"I think it will help the industry a lot," he said Thursday. It will save them a lot of money.

"It will also give the Energy Commission time to look at their design manuals again and do some redesign. There has been some severe criticism from professional organizations that there are some major flaws in them."

The new legislation postpones implementation of those requirements for 12 months in the case of most single-family detached homes, and 18 months for other residential construction, such as apartments and condominiums, as long as they are being built on existing lots.

Knittle, as well as county building inspectors, have been attending training courses sponsored by various professional and industry groups to learn the new requirements. Brown's action in signing the Greene legislation last week removes any power the inspectors had to enforce the higher standards.

Building officials had estimated that the new regulations, which will be applied to any homes built in subdivisions approved from now on, will raise the cost of a new home in Santa Cruz County by \$2,000 to \$3,000.

Building industry groups have complained over the past year since the Energy Commission first announced the new regulations, that they would further depress an already hard hit building industry in California by driving up the price of new homes and making it more difficult for home buyers to qualify for loans.

They also argued that it could take as long as 20 years in some cases for the increased conservation measures, including thicker wall, ceiling and floor insulation, door and window weatherstripping, thermopaned (double-glazed) windows, and solar hot water heating equipment, to pay for themselves.

But on the other hand, depending on the attitude of banks, savings and loans and mortgage companies, argues the California Energy Commission, new home buyers could have an easier time qualifying for a loan on a new home

built to the now-delayed standards.

The pending regulations nearly double the amount of insulation that will have to be installed in new homes built in Santa Cruz County, and in other cases, drastically alter the design and liveability of homes built under the new energy standards.

The new standards, applicable when they go into effect only to residential buildings, are designed to limit the amount of irreplaceable energy used in the buildings by either cutting the amount of heat leakage in a home or reducing the energy requirements by designing the home to use passive solar heating or active solar hot water heating for part of its energy requirements.

The California Energy Commission projects electricity prices will increase eight fold by the year 2000 and natural gas prices will increase 16-fold in the same period.

The commission figures in a staff report that

the new requirements, coupled with current energy-saving practices, can cut a home's energy usage by 75 percent. That's enough, says the commission, to net a San Francisco Bay homeowner — who is in the same climate zone as Santa Cruz County and pays similar amounts for PG&E energy — \$17,944 over a 30-year period.

Taken statewide and over a 30-year period, the Energy Commission figures that the new standards will save 200 billion kilowatt-hours (kwh) — enough to meet the state's electricity needs for one year. Over 13 billion therms (one therm is equal to 100,000 BTUs of heat) of natural gas would be conserved, stretching the available supplies of natural gas and reducing the flow of money out of California.

The commission report shows that compliance with the new standards in Santa Cruz County would increase the cost of an average 1,387-square-foot

(Continued on page 6)

Energy efficient homes to cost more

(Continued from page 1) home anywhere from \$1,296 to \$3,773 — depending on which of three option "packages" a builder might select.

It would be four years, according to the CEC, before a new homeowner would start to show an annual "profit" when figuring the increase in annual mortgage costs vs. the annual savings in home operating costs. And it would take 14 years in Santa Cruz County to recover the initial energy conservation investment in the new home.

But the commission is suggesting that lenders revise their formulas for evaluating the credit worthiness of borrowers, "recognizing the dollar savings accruing to a borrower who purchases an energy efficient home by raising the standard debt-to-income ratio.

"In this way, a borrower would qualify for a more expensive, energy efficient home under the presumption that his or her disposable income has been raised as a result of energy savings."

An architect or building designer has five choices facing him when deciding how to meet the new requirements.

He can use a computer analysis to determine the effectiveness of his energy saving design features, but according to Capitola Building Official Mark Knittle, himself a building designer, the only computer program now available requires a "main frame" computer of a size not found in Santa Cruz County.

The second method is a laboriously-computed "point system" with

designers adding and subtracting points for each energy-saving and energy-consuming feature included in a home.

The remaining three solutions are "packages" of equipment and material that a designer can employ to assure certification of his design.

The first, called Package "A" and touted by the Energy Commission as the least costly, utilizes a passive solar design to capture and retain the sun's energy in the wintertime and to shield the living spaces from its heat in the summer.

Package "B" is called the "thermos bottle" approach. Here, a home is super-insulated and tightly-sealed by the builder.

The third, Package "C", is a modification of "B" that uses less insulation but compensates for the energy losses there by employing solar energy to heat the domestic hot water.

Knittle outlined the requirements under the 1982 standards.

All homes have to have certain features, including automatic setback thermostats, weatherstripping around all doors and windows, water heaters wrapped with insulating blankets twice as thick as the ones (R-6) commonly sold today, all joints and wall, floor and ceiling penetrations for wires, pipes and heating ducts, caulked and sealed, fire places with tight fitting glass doors and outside air intakes, hot air furnaces with electronic spark ignitions.

Each package then has a series of options for the building designer or architect.

In Package A (passive solar):

Ceiling insulation will be R-30, instead of the present R-19 requirement. (Insulation is measured in 'R' values with the higher number indi-

cating progressively greater insulating ability. R-38, for example, is twice the value of R-19.) Wall insulation will remain at the present R-11 value.

Insulation on a raised floor (with a basement or crawl space underneath) also remains the same as the present, R-11.

Slab floors in this package option, would not require any additional insulation.

The big change will come in the allowable window areas. The total amount of windows can equal 16 percent of the home's floor area. But windows on the north, east- and west-facing walls can total no more than 9.6 percent of the total floor area.

On the south-facing walls, however, the windows must equal at least 6.4 percent of the floor area.

Gas space heating is required except in areas where it isn't available and then room-by-room controlled electric resistance or radiant heat is permitted.

Gas or solar water heating is also required with the additional option of an electric heat pump allowed in areas where natural gas isn't provided.

The big requirement for the passive solar design is thermal mass — dense, heavy building material like exposed concrete, tile and similar material that can absorb heat during the warm part of the day and then release it into the home's atmosphere at night.

Knittle notes that architects and others flaw that requirement because it doesn't make the distinction between solar-heated mass such as concrete, tile or brick heated directly by the sun's rays through a window, and, for example, the tile found in a windowless bathroom. Both count the same in

the commission's computations. There is also a tight line between the new energy requirements on windows and the building code's demands for light and ventilation in each room. While the new regulations set maximums and minimums for windows, depending on which direction the walls face, the building code requires windows equal to one-tenth of the floor area of each room, and one-twentieth of the area must be represented by openable windows for ventilation.

The Package "B" or thermos bottle scheme sets different requirements:

Ceilings must be insulated to R-30.

Walls require R-19 insulation, which means that a builder would have to use 2 X 6 inch wall studs instead of the conventional 2 X 4 studs to accommodate the thicker insulation.

Insulation for a raised floor would be R-19, and the perimeter of a concrete slab requires R-7 insulation.

All windows would be double glazed in Package B.

Space heating would be natural gas in areas where it is available and propane or other substitute fossil fuel outside the natural gas service areas. Electric heat would not be allowed, Knittle said.

For hot water, you have your choice of gas or solar heating.

Package "C" is a solar hot water system. A solar hot water system must be installed. Additionally, a new home will require:

R-30 insulation in the roof.

R-11 in the walls. R-11 for raised floors, and R-7 around the perimeter of the slab.

Windows can remain single-glazed, but instead of the present 16 percent of floor space maximum, it is cut to 14 percent.