



Newer buildings in California put more of a strain on the electric grid than do older buildings. That is the apparent conclusion of a new [paper](#) written by Howard Chong through UC Berkeley's Energy Institute at Haas. The strain comes in the form of a greater "temperature response" – an increase in temperature on a hot day will have a more dramatic effect on electric consumption in a home constructed after 1970 than in an older one. A higher temperature response means greater peak demand, which calls for use of the dirtiest, most expensive power plants. That also suggests that as the housing stock becomes younger and global temperatures rise, the peak power problem will become more and more acute.

At first, this result seems counter-intuitive. After all, we build homes now that are supposed to be much more energy-efficient than the ones built 40 years ago. Part of the answer is that many more of the newer buildings come with air conditioning. But there are other factors at play, as well. Chong cites the rebound effect (as people become accustomed to cooled dwellings, they may respond by seeking even more cooling), taller ceilings, larger footprints, and maybe even "sorting" (maybe people who favor more cooling are more likely to live in new buildings). Or, perhaps our building efficiency improvements aren't working as well as advertised.

There are at least three messages one can take from these findings. First, it may not be enough to require air conditioned buildings to have less leaky structures – we need to emphasize buildings that need less artificial chilling because they stay naturally cooler. We know how to do this with better construction materials, building orientation, and the use of shade trees. Second, we can't just assume we are reducing energy consumption because the engineering specs say so – we need to measure actual performance. This becomes important, for instance, when regulators decide to reward utilities based on the energy savings that they achieve. And finally, we need to remember that behavior counts. Some want to argue that, in order to save a lot of energy, all we need to do is design things

better. That's not going to be enough as long as people are involved in the equation. Scientists and other scholars are trying to wrap their arms around that challenge more and more as time goes by.