

Resilience-Related Building-Code Changes Don't Affect Affordability

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Housing has gotten more expensive, but don't blame building-code changes that have made us all safer and our buildings more resilient (Photo by BCND, licensed under CC-BY-2.0).

A colleague just asked me whether the National Institute of Building Sciences' (NIBS) study *Natural Hazard Mitigation Saves* looked into the average cost increase of complying with the 2018 I-codes (the International Building Code and the International Residential Code) and what percentage of the building's construction costs that would constitute.

We (the NIBS authors) estimated the cost effect of code changes from 1988 to 2018. In earthquake country, the changes from 1988 to 2018 added about 1% to the construction cost, or about 0.5% to the purchase price. That is a trivial change compared with market forces, which added 16% to the average home purchase price after accounting for inflation. For riverine flood, the figure is similar: about 1.3% increase in construction cost, or about 0.6% increase in purchase price, between 1988 and 2018, again trivial compared with market forces. These cost increases are about the same as what Moore, Oklahoma's, local ordinance imposed when that city increased design windspeeds and added a dozen or so detailing requirements to deal with its third fatal tornado in 15 years.

We can look at smaller increments in the model building code, which issues new editions every 3 years. For earthquake, the changes are too trivial to affect cost on average overall. Some design forces (and therefore costs) went slightly up, others went slight down, making risk more consistent. There were no

big changes in 2015, implying no cost change from 2012 to 2015 associated with changed earthquake requirements. Since the big change on the flood side was an increase in first floor elevation that predated 2012, we can conclude that there was no change in affordability associated with changes in flood requirements either from 2012-2015 or from 2015-2018, while the average home price increased by 20% after accounting for inflation.

Do the small changes in cost from code improvements matter to the market? Economists Simmons and Kovacs investigated the effects of the Moore ordinance on its real estate market and found "no effect on price per square foot, home sales or new building permits" because of the ordinance. When I asked San Francisco developers and owners whether a local 1% increase in construction cost would affect their decisions about whether to buy or build in San Francisco, they said no, that size change would be too small to affect their decisions about where or whether to build.

So the costs from code resilience improvements changes are very small compared with market forces. At the same time, the code changes made everyone safer, their homes more rugged, and their businesses more resilient. Nobody who cares to complain about housing affordability has any business blaming wind, earthquake, or flood code changes.