

Overcoming Sustainable Building Barriers

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by Thomas Beck, AIA, NCARB

It may take a generation to transition the building industry and its biases toward traditional fossil fuel based construction technologies and systems. Lobbyists for large companies whose profits have been based exclusively on fossil fuels have been deployed for decades, recently targeting legislatures to implement bans on localities rights to choose, localities which want to choose to go sustainable by requiring new construction to be electric rather than gas.

For example, take this disturbing article by Benjamin Franta exploring the history of what fossil fuel industries knew as far back as 1959. (<https://www.greenbiz.com/article/what-big-oil-knew-about-climate-change-1959>) "I found a transcript of a petroleum conference from 1959 called the "Energy and Man" symposium, held at Columbia University in New York. As I flipped through, I saw a speech from a famous scientist, Edward Teller (who helped invent the hydrogen bomb), warning the industry executives and others assembled of global warming.

"Whenever you burn conventional fuel," Teller explained, "you create carbon dioxide. ... Its presence in the atmosphere causes a greenhouse effect." If the world kept using fossil fuels, the ice caps would begin to melt, raising sea levels. Eventually, "all the coastal cities would be covered," he warned."

Within Franta's text is a reference to a report within Exxon from 1982, which was uncovered by Inside Climate News. (<https://insideclimatenews.org/news/22092015/exxon-confirmed-global-warming-consensus-in-1982-with-in-house-climate-models/>) While initially Exxon worked with scientists and developed excellent models which accurately projected exactly the kind of climate events playing out now, in the 1990s the company chose to hire lobbyists to lie, and deny the science their very own models predicted.

Building requires many moving parts to come together in coordination with each other. Codes ensure that standards for safety are followed. HOAs can and do prescribe color, height, and other aesthetic requirements. Municipalities can and do require adherence to water use restrictions. Others require bluegrass turf despite its thirsty nature.

In December 2021, Inside Climate News followed up, after an earlier article in February 2021, about the Geos Neighborhood in Arvada, Colorado. The neighborhood's ownership had changed hands, and despite the original design of geothermal heat pumps, passive solar orientation, extensive insulation and all electric operations, the new owners would be installing gas lines for the remaining 254 homes yet to be built. According to the article, Mike Henchen at RMI says "perhaps the biggest force preventing a more rapid shift away from fossil fuels in the building sector is behavioral."

"There really is this inertia around gas," he said, "where gas is the default, and all the parts of the system, all the key players just sort of think that way." To reduce greenhouse gas emissions "buildings need to stop burning natural gas in furnaces, boilers and stoves. And the easiest place to start that phase-out is in new construction."

The architect of the Geos Neighborhood, Michael Tavel, says "the structure of the housing industry makes it extremely difficult to try something new.

"When you change one thing, such as changing the mechanical system from a gas furnace to electric, in theory it shouldn't be any more expensive," he said. But when you actually try to do it, he added, "there's adversity coming from a thousand different places."

Banks, suppliers, installers, laborers, all of them have built their businesses around a certain way of constructing homes, Tavel said, and that way generally burns fossil fuels, at least in much of the country. "In an industry that relies on massive amounts of repetition and a massive amount of familiarity of everybody associated with the industry of how things are done," he said, if someone changes one thing, "it could create enough chaos that you can't make it work economically."

(<https://insideclimatenews.org/news/28122021/fossil-fuel-free-neighborhood-buildings-colorado/>)

An example of this mentality is seen in the insanely high cost-estimate for Insulated Concrete Forms (ICFs) for all of the exterior walls for a home in Indiana my sister is building. Doing it this way would have made complete sense because it would be well insulated, and all concrete walls are good for tornado protection. But the outrageous cost dictates falling back on traditional techniques because local concrete subcontractors were not familiar with ICFs.

So, as with many things in life, it is easier to keep with bad habits than it is to change. How do we in the building industries and professions feel the pain that our practices create for the planet? What steps can be taken to make sustainable building easier?

- 1) We need more financial incentives to get off of burning fossil fuels, specifically natural gas and propane, to heat buildings and water.
 - a) Reductions on the cost of building permits to go all electric.
 - b) Tax credits to go all electric.
 - c) Lower interest loans to go all electric.
- 2) Provide more education and public awareness on the benefits of geothermal, heat pumps, solar PV electric and solar hot water to help heat spaces as well as heating hot water.
- 3) Promote the value of building smaller and insulating more so there is less heating and cooling required in the first place.
- 4) Use natural ventilation and natural passive heating and cooling techniques to reduce the amount of energy to heat and cool buildings.

The more homes and commercial buildings that require the construction industry to embrace sustainable materials, techniques, and practices the more familiar the industry will become with the advantages of those changes. It won't be easy, but it is the right thing to do.

Beck, Thomas W., Together We Build, *"Overcoming Sustainable Barriers"*, *Estes Park Trail Gazette*, Friday, January 13, 2022, <https://www.eptail.com/2022/01/13/together-we-build-overcoming-sustainable-building-barriers/>