

Architecture 2030: How to Build a Better World

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Emily Pollock posted on August 10, 2018 | Comment



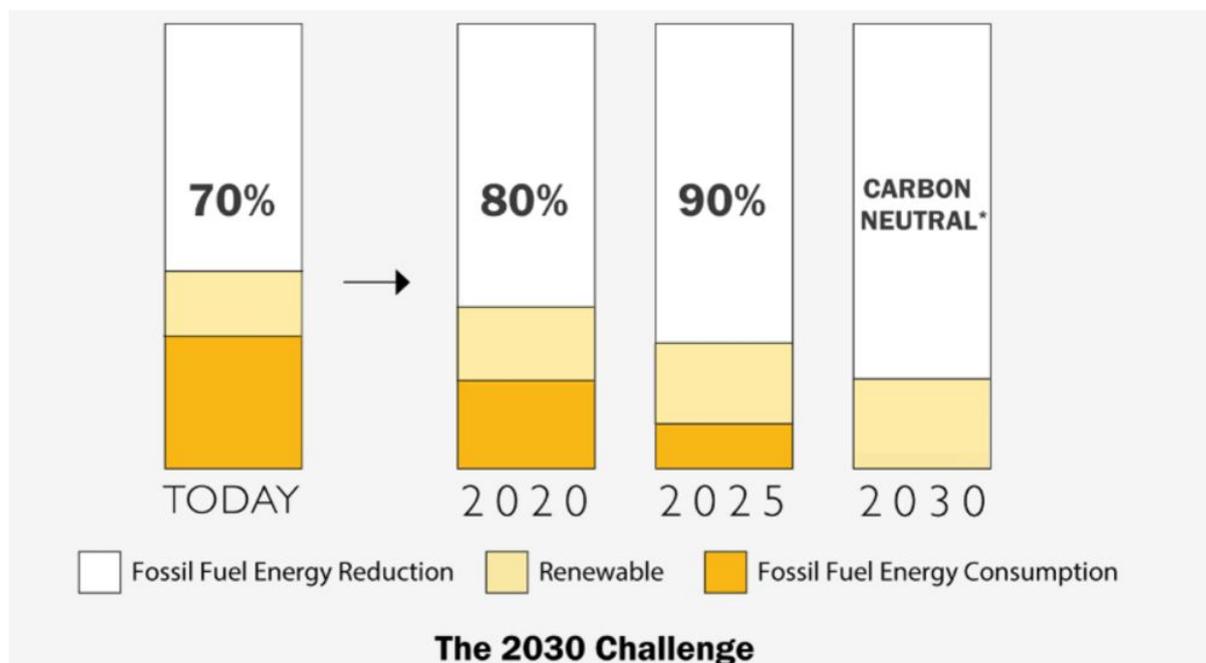
This June, Architecture 2030 released its new Zero Code, a building energy standard for new building construction.

Buildings are responsible for almost half of all greenhouse gas emissions, a sobering fact for those in the construction and architecture industry. Over 15 years ago, one architect broke with the profession to do something about it. Edward Mazria closed his architecture practice in 2002 to establish Architecture 2030, a not-for-profit aimed at reducing carbon emissions from buildings. Since then, the organization has grown into a force for good on the national and international stages.

Architecture 2030 has been busy this year, and we sat down with representatives from the organization to talk about its tools, initiatives, and goals for the future.

The Zero Code

Architecture 2030's most recent achievement is releasing the ZERO Code, a building energy standard for new building construction that includes both energy efficiency standards and renewable energy sources to create buildings that release net-zero carbon. Released in June 2018, the ZERO Code includes potential paths for efficiency compliance, as well as an energy calculator that makes it easier to crunch the numbers.



According to Architecture 2030, part of the ZERO Code’s strength is that it builds on existing standards to make it easier for architects to measure: “The ZERO Code uses the current national building energy code standard, ASHRAE 90.1 2016, for building energy efficiency and then adds on-site and/or off-site renewable energy procurement to achieve net-zero carbon. All the compliance tools developed for meeting current code standards are applicable to the ZERO Code.”

As a result, Architecture 2030 says that its code is “not difficult at all” to implement.

The 2030 Challenge

But the organization is still probably most famous for its 2030 Challenge, which asks architects and everyone else involved in the global building community to make all new buildings and renovations carbon neutral (using no fossil fuel-emitting greenhouse gases) by 2030.

Started in 2006, the challenge currently asks that all building projects be designed to meet a greenhouse gas standard 70 percent below the regional median. The standard increases to 80 percent in 2020 and 90 percent in 2025, allowing architects to adjust to the change before becoming fully carbon neutral. Architects can meet these targets by using sustainable design, producing on-site renewable energy, and buying renewable energy from off-site sources (for a maximum of 20 percent of the total energy).

According to Architecture 2030, the challenge is currently being implemented by eight of the top 10 American architecture/engineering/planning firms, and 13 of the top 20 firms. The American Institute of Architects (AIA) was one of the first organizations to adopt the challenge, creating the AIA 2030 Commitment for members in 2010. According to the AIA, the potential energy savings from its members’ commitment in 2016 was “approximately 16.7 million metric tons of greenhouse gas emission.” And, in

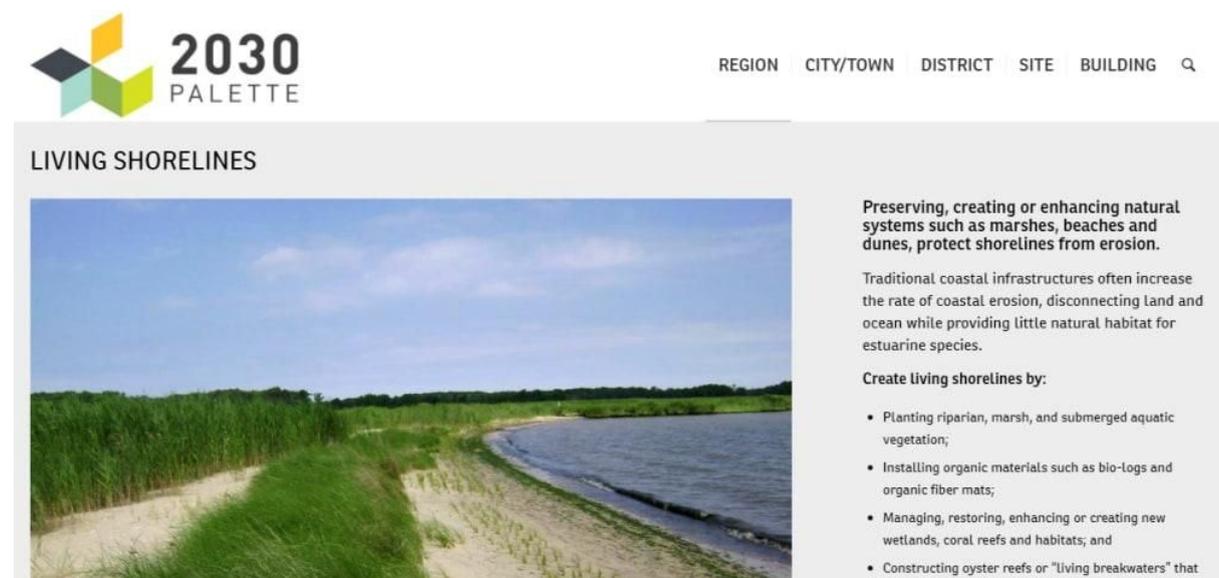
June 2018, the AIA invited engineers to join the commitment.

Architecture 2030 has also started to think outside of the box (or, more precisely, the building) on reducing carbon, creating the 2030 Challenge for Products to reduce the carbon associated with creating building materials. “It is equally important that we focus on the embodied carbon of our building materials, which are responsible for 11 percent of all global CO₂ emissions,” said Architecture 2030. “Therefore, all new construction materials must begin reducing their carbon footprint immediately, especially concrete, steel, glass and aluminum.” After all, the greenest buildings aren’t very helpful if they’re made of decidedly un-green materials.

The 2030 Challenge is a step in the right direction. But what if builders and architects aren’t sure what to do in order to meet it?

The 2030 Palette

The 2030 Palette is an online platform that lets architects and planners browse different ways to become carbon neutral. The strategies are organized at multiple different levels, from the regional level (what kind of environment are you in?) down to the neighborhood and building level (is your building residential or commercial?).



Palette strategies at the “Regional” level, showing architects how to design for the environment in coastal zones. (Image courtesy of Architecture 2030.)

Architecture 2030 calls the palette a “visual encyclopedia” of different ways to reduce carbon emissions and energy use, not all of which are technological. “Designing walkable communities, building daylighting, shading, green roofs, earth sheltering, solar glazing, and climate-specific building form and orientation are all examples of applicable strategies and technologies,” according to the organization.

In addition to solution suggestions, the website also has links to other websites and publications that

provide additional information on each topic.

2030 Districts

For those who want to make a difference on a level beyond just individual buildings, Architecture 2030 developed its 2030 Districts. The program, which began as the 2030 Challenge for Planning, creates a patchwork of “districts” across North America where private and public interests are paired to reduce energy use, water use, and emissions.

Currently, there are 20 “districts,” representing more than 436 million square feet of commercial building space. The size of each district is measured in the square footage of buildings owned by those who have signed onto the district, with Pittsburgh the largest at 81 million square feet.



A map of 2030 District buildings in downtown Pittsburgh. (Image courtesy of 350 Pittsburgh.)

“Each 2030 District has a unique approach to implementing the 2030 Challenge for Planning,” according to Architecture 2030. This year, Seattle’s District has worked with the city to develop environmental incentives, Cleveland’s District has run a green building competition, and Ithaca’s District has moved toward adopting greener building regulation policies.

Above and beyond the 2030 districts, Architecture 2030 also urges cities and jurisdictions to take on the Zero Code, saying that it will “create a stable and predictable market for renewable energy resources.”

The China Accord

All the above initiatives are heavily focused on (North) America. But what about the rest of the world?

Three years ago, Architecture 2030 cohosted a meeting with the China Exploration and Design Association – Architecture Branch (CEDAAB) that brought together 52 planning and architectural firms. The objective? Signing the China Accord, an agreement that Architecture 2030 calls “a commitment to plan and design cities, towns, developments, and buildings in China to low carbon/carbon neutral standards.”

Since then, 62 other Chinese and international firms have signed the accord, and Architecture 2030 and CEDAAB recently hosted the first net-zero carbon training workshop in Shanghai in support of it. It’s an important move in a market that’s projected to be responsible for more than one-third of the new building projects over the next 20 years.

What Next?

The organization doesn’t sugarcoat the difficulty of its task. “Between now and 2060, it is projected that we will add 230 billion square feet of building stock, essentially doubling the area of buildings that exist in the world today,” the organization said. “In just four decades, we will build and add an area equal to all the buildings on the planet today. Consequently, all new buildings must be designed to be carbon-neutral as soon as possible, so we do not add to the emissions problem.”

Architecture 2030 sees a lot of promise in what’s already occurring on the individual level, with architecture firms and planners designing more environmentally friendly buildings. But, to reduce the impact of climate change, it believes that change has to happen on a larger scale: “action must be taken at a local, state, and/or governmental policy level.”

That might prove to be a difficult task, especially now that global warming is a controversial topic on the national stage. But it’s also an essential one for architects who don’t want their buildings to end up underwater.