

A new Boston high-rise will be the largest office building to meet this exacting sustainability standard

The 812,000-square-foot building will be the largest ever to get Passive House certification, meaning it meets strict requirements for how much energy it uses.

BY ADELE PETERS

When it's 90 degrees and humid outside, or on a subzero day in January, this new office building in Boston will stay comfortable inside, but it will do so using notably less energy than its neighbors. The high-rise, with more than 812,000 square feet of office space, will be the largest Passive House-certified office building when construction is complete in 2022.

"Nobody had done this before, at this size, at this scale, for this use, that we were aware of," says Blake Middleton, partner at Handel Architects, the firm that designed the building for the developer, Millennium Partners Boston. [The Passive House certification](#) means that the building meets a set of strict requirements for how airtight it is, the thermal performance, and heating, cooling, and total energy use per square foot each year.



A triple-glazed curtain wall, prefabricated in a factory, stretches from floor to floor in panels that create a tight envelope around the interior. The ventilation system will pull in fresh air to each floor while saving the energy in the heated or cooled air that's flowing outside. The system means that the offices will use 65% less energy than the average building in Boston. The space will also get 30%-50% more fresh air than comparable buildings, [making it a healthier place to work](#). (The building also will have residential space that doesn't meet the Passive House standard, but is certified as LEED Gold, another sustainability ranking.)

The space is so airtight that body heat can play an important role in warming offices in the winter. "Literally, when you come to work, you are contributing to the environmental conditioning of the interior space by way of your body, and the building being calibrated in that way," says John Fernández, director of MIT's Environmental Solutions Initiative, who partnered on the design. "You are actually by your presence in the building contributing to a lowering of energy consumption."



The building also uses half the water of a typical building of its size, which will save more than 2 million gallons per year. Rainwater will be collected, treated, and reused in toilets. Ten-foot-high windows will fill the space with natural light, and private terraces on each floor give workers outdoor space. The garage will have charging stations for electric cars. The design also has some unusual features, including a room designed to block cell phone signals so workers can take a break from technology.

The energy-saving design is a useful model for other new office buildings, Fernández says, noting, "There's certainly a market push here." Being the "best in the market is just going to push other developers to really see that it can be done, and it can be done economically, and it can attract tenants. But there's also a broader societal push

here for people who really are going to become quite accustomed to . . . highly energy efficient buildings,” he says.



Governments could also set standards requiring the same type of energy performance, according to Fernández, going far beyond the already aggressive energy code that states like Massachusetts have now. “I think this is exactly the kind of building that cities need to consider facilitating, because cities now have very aggressive carbon emissions reduction goals,” he says. “They are looking at 50% reduction per decade. Cities are consuming the majority of energy in the world and in our country. So the smart dollar is towards the performance-based energy reductions in new buildings, and retrofits as well. This should be the model for many, many cities around the country.”





