

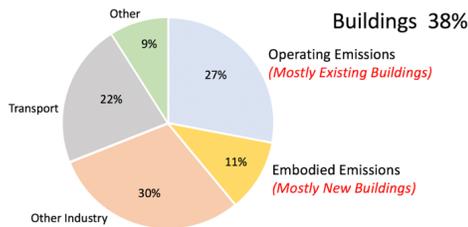


# Siegel & Strain Architects and Partners Project Abstract

## WHY IT IS IMPORTANT TO REUSE AND UPGRADE EXISTING BUILDINGS

The built environment is responsible for 38% of annual GHG emissions<sup>1</sup> - 27% from operating buildings and 11% from building them. To meet global climate action targets we need to reduce both sources of emissions. New energy codes are moving us towards zero emissions, and there is a growing focus on reducing embodied emissions, but these encouraging trends are primarily aimed at new construction not existing buildings. And we have a lot of existing buildings - globally about 235 billion m<sup>2</sup>. They are not very efficient and operating them is a huge source of GHG emissions. The 28% of global emissions is from operating existing buildings. We also build a lot of new buildings - globally about 5.5 billion m<sup>2</sup>/year. Building them consumes a lot of materials and resources which are a significant source of GHG emissions. The 11% of embodied emissions from materials and construction is mostly from new construction.

### Annual Global GHG Emissions by End Use



## THE EXISTING BUILDING SOLUTION

It has become increasingly clear that reusing and upgrading what we have is going to be a key component to solving the climate emergency we are in. It accomplishes two things: the upgrade part reduces current operating emissions from buildings we already have, and the reuse part makes it possible to build fewer new buildings, thereby reducing future embodied emissions as well. Renovating an existing structure typically has a much lower carbon footprint than building a new one because it reuses most of the carbon intensive parts of the building - the foundation, structure and building envelope. We haven't had a simple way to compare all the variables of embodied and operating carbon over different timeframes for different reuse and new construction scenarios. Retrofitting an existing building to zero operating emissions will always be the lowest carbon option. But what if you can only improve its efficiency by 50% but you can replace it with a new zero operating building? Does it still makes sense to retrofit it or should you build a new, zero emission building? And how does climate and grid efficiency affect those calculations? The 2Build or no 2Build - Carbon Calculator, is easy to use tool for comparing the embodied, operating and avoided carbon impacts from reusing and upgrading an existing buildings compared to a typical replacement building.

### About the ONEder Grant Program

One Workplace, the largest workplace solutions company on the West Coast, launched the ONEder grant program in 2019 to support and celebrate thought leadership in the architecture and design community. As forward-thinking thought leaders in their own right, One Workplace strives to elevate the roles of architects & designers in the constantly-changing landscape of the modern workplace.

A new round of grants is currently open for applications. In 2021, One Workplace will award grants of \$20,000 each to firms in the Bay Area and Sacramento. For more information, please visit: <https://go.oneworkplace.com/oneder-grant-application>.