

Coal Combustion Product Type

Class F Fly Ash

Project Name

Populus

Project Location

Denver, Colorado

Project Participants

Holcim US, Urban Villages, Studio Gang, The Beck Group, Aparium Hotel Group, Eco Material Technologies

Project Completion Date

Spring 2024

Project Summary

Populus is the first carbon-positive hotel in the United States. Developed by Urban Villages, the 265-room hotel will feature a distinctive aspen tree-inspired design by Studio Gang and a rooftop restaurant and bar with mountain and city views. Populus’s carbon footprint will be offset through forest and agricultural collaborations that will sequester more carbon than the building emits, serving as both an architectural landmark and milestone for sustainable travel.

Project Description

Urban Villages broke ground on Populus on Earth Day 2022 with a public commitment to make the development “carbon positive,” which they define as a commitment to sequester more carbon in biomass and soil than the combined embodied and operational footprints of the building across its life cycle. They will offset the embodied carbon of Populus with ecological sequestration efforts offsite, including the planting, already completed, of over 70,000 trees in Gunnison County, Colorado.

In addition to Populus’ carbon sequestration strategy, Urban Villages is using innovative solutions to significantly reduce carbon throughout the development and ongoing operations of the hotel. Urban Villages worked closely with Studio Gang and the general contractor, The Beck Group, to limit the carbon footprint of the building during design and construction, including utilizing ECOPact™ low-carbon concrete mixes by Holcim that substituted 33-34 percent fly ash in place of cement. Approximately 590 tons of Class F fly ash, sourced from Eco Material Technologies’ Prairie State Generating Station, were used in the mixes, which is expected to reduce the embodied carbon of the concrete by 765 tons compared with traditional mixes.

According to Holcim’s Global Warming Potential (GWP) savings calculator (verified by Climate Earth, an independent, third-party organization), the use of ECOPact™ for the project represents a 24 percent reduction in CO2 emissions for the total concrete volume as compared to regional averages—the equivalent of eliminating more than 1.5 million miles driven by an average passenger vehicle. With approximately 5,100 cubic yards of concrete used for the project’s superstructure beams, slabs, and other components, ECOPact™ mixes will account for 65 percent of the total volume. The project

will also utilize Holcim’s DYNAMax high-strength, self-compacting mixes.

Additional design elements that will improve the building’s environmental performance include a continuously insulated façade system featuring a GFRC rainscreen, “aspen-eye” window lids that shade the building, mechanical systems that employ heat recovery, and guest rooms designed with minimal furniture and finishes.

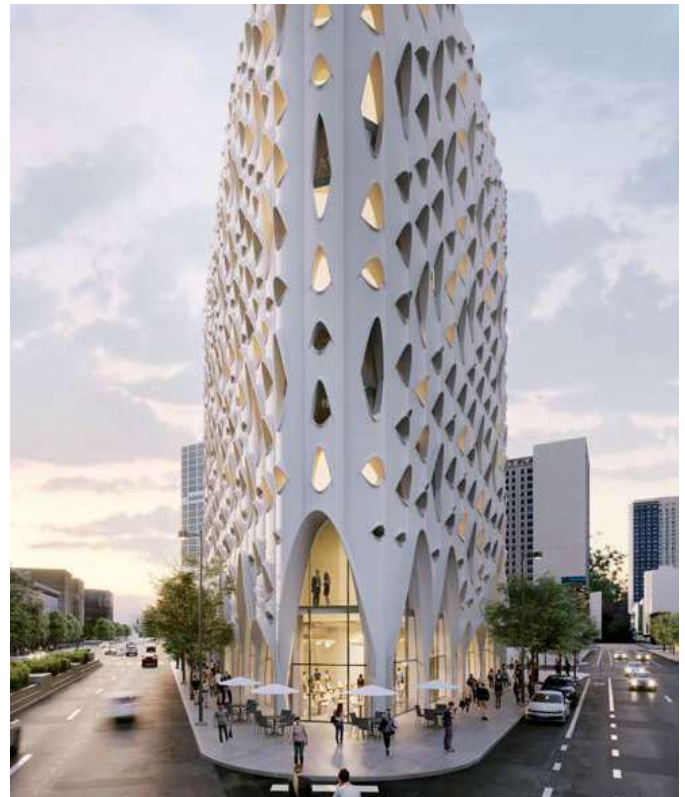


Photo courtesy of Studio Gang