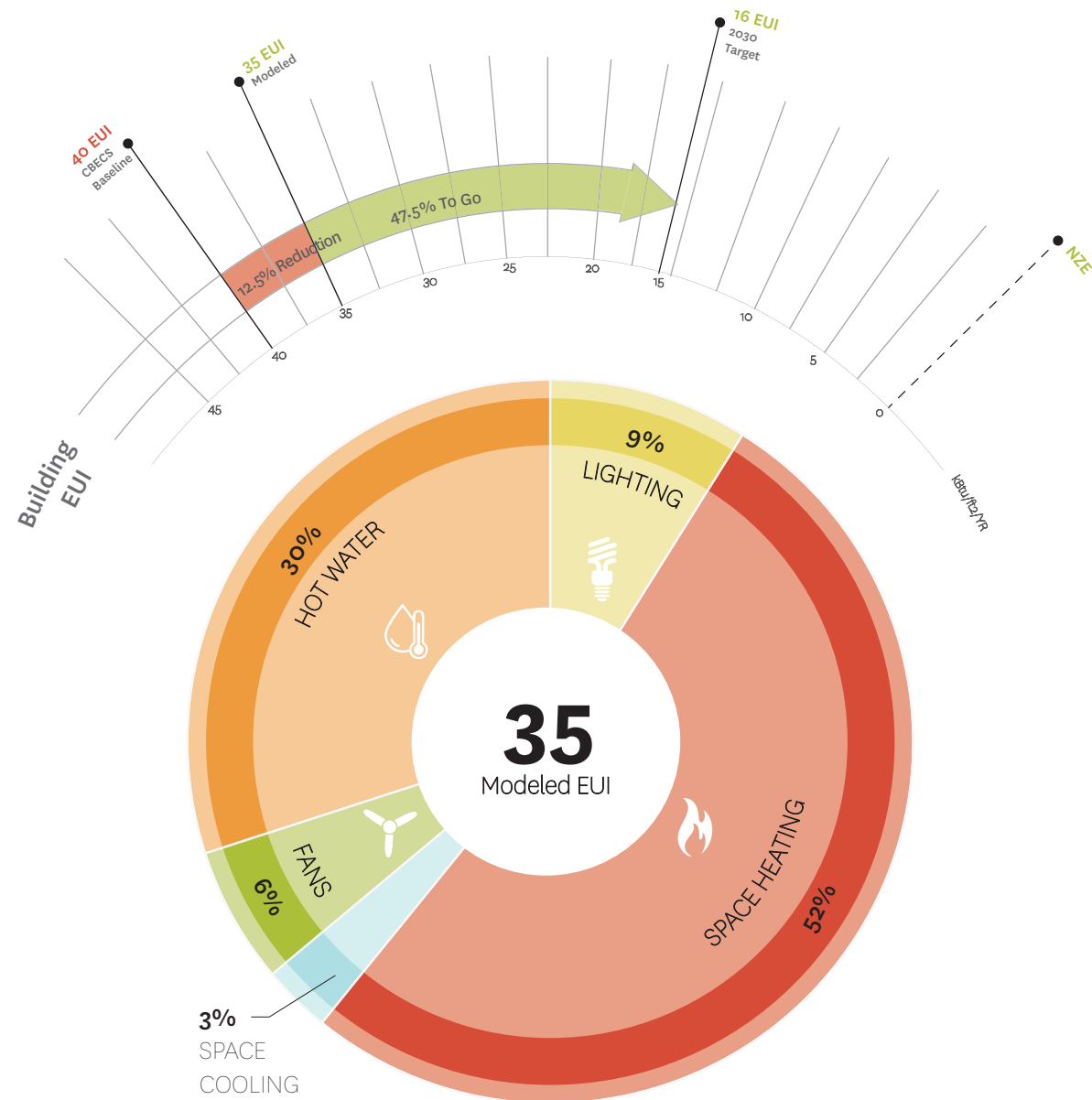


TwentyTwenty Condominiums
Sustainability Summary

Project Type: Multi-Family Residential
Location: Portland, Oregon
Built Area: 200,000 SF
Scope: New Building, expected completion 2018
Certification: LEED for Homes Platinum

Architect: Hacker
Energy Consultant: Integrated Environmental Solutions
Sustainability Consultant: O'Brien & Company



Design Summary

TwentyTwenty is a 162-unit condominium building in close-in northeast Portland. Unit types range from studios to one- and two-bedroom units, some with ground floor walk-ups. The design is inspired by the geological and natural forces that created the gulch, as well as a desire to break down the large building mass to human scale. Sullivan's Gulch is an optimal location for walking and biking with easy access to public transportation.

Key Sustainability Concepts

Energy modeling during the Design Development phase determined that a robust building envelope would have the biggest impact on the building's energy savings. The high-performance building envelope includes 3" thick high R-value rigid insulation and a high-performance weather barrier made with polyisobutylene at the walls and an average of 8" rigid insulation at the roof. This high-performing assembly, not typically used on developer-

driven housing projects due to costs, significantly reduces the building's demand on mechanical heating and cooling. The exterior glazing system is laminated glass with a 37 rating, not only contributing to the building's overall performance but also helping minimize noise pollution from the adjacent freeway.

The building has a comparatively efficient HVAC hydroponic mini split system. We investigated the possibility of using a central unit to be installed on the roof. The system would sense when one unit needed cooling and another needed heating and exchange the air between them. Unfortunately, this option proved to be too expensive and posed an extra challenge around how to bill individual units. While the mini split system is not as efficient as a heat recovery system would have been, it is still more efficient than other options currently being used in multi-family housing projects. Passive cooling is also made possible with an abundant amount of operable windows throughout each unit.

A significant element of the building is the large vegetated roof garden. Nearly forty-percent of the overall roof is covered in vegetation including large gardens made accessible to tenants. These green roofs collect and retain storm water to effectively reduce runoff and when there is excessive rain; the green roof will naturally filter it before draining into the city's system. We strategically placed the green roofs so that any roof visible by a tenant would be green. These green roofs will also help reduce the heat island effect created from the mass of the building. Any roofs without vegetation will have large planters to collect and filter storm water.