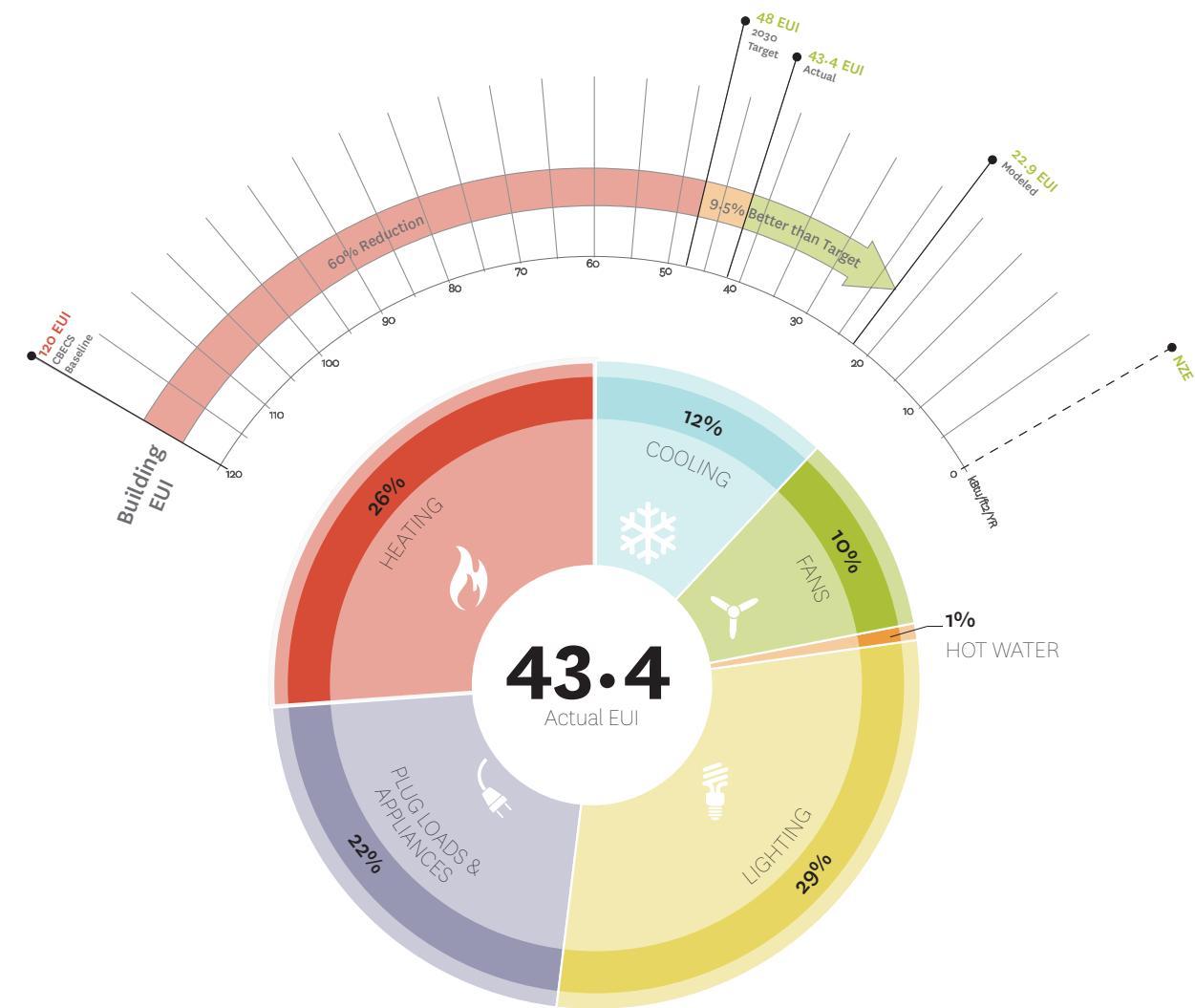


Cascade Hall Academic Building
Portland Community College, Cascade Campus
 Sustainability Summary

Project Type: Higher Education
Location: Portland, Oregon
Built Area: 45,000 SF
Scope: New Building, completed 2014
Certification: LEED Gold, 2030 Compliant

Architect: Hacker
Energy Consultant: Glumac
Sustainability Consultant: Green Building Services



Design Summary

Cascade Hall, a new general purpose academic building, continues the PCC Cascade campus expansion to the west and creates an outdoor plaza that serves as an anchor point to the existing campus “mall.” PCC wanted their new building to emphasize technology, collaboration, and diverse learning environments, and they sought a deeply inclusive design process that incorporated feedback from the college’s board members, teachers and students, and the neighborhood community surrounding the campus. This project surpassed the client’s original sustainability goals and achieved LEED Gold.

Key Sustainability Concepts

The design team explored a number of sustainable design strategies that were ultimately not used, but did help the team and the client to make informed decisions and arrive at a comprehensive yet manageable final design. Initially, natural ventilation throughout the building was pursued. This strategy was opted against when a comparison was

made between the nominal increase in occupant comfort and energy savings compared to initial costs. Geothermal and solar strategies were also considered but not officially explored due to financial limitations. Having explored these strategies, the team felt confident focusing their efforts on the building envelope and efficient HVAC System.

The high-performance building envelope is the most significant sustainable design strategy used on this building. The envelope includes two layers of 1-1/2” thick high R-Value rigid insulation and a high-performance weather barrier made with polyisobutylene. Reduced thermal bridging is accomplished by staggering and taping joints and protecting Z-clip connections with sheathing and weatherproofing.

The high-performing HVAC system uses Variable Refrigerant Flow (VRF) for cooling and heating through Variable Air Volume (VAV) units. This dual-system runs more efficiently because it allows one system to work without turning on the other, thus saving a considerable amount of energy.

Frequent communication and coordination between the entire team from the very beginning helped facilitate a successful project. Meetings were conducted regularly between Hacker and the construction team, often including full scale mock ups to ensure strategies would work the way they were intended. These meetings and mock ups proved to be very beneficial, as the entire team learned more about high performing wall assemblies and different alternatives for insulating.

Post occupancy energy bills prove that the high-performance building envelope operates as designed. The building’s performance meets and exceeds the 2030 Challenge target of EUI of 48 kBTU/sf/yr by almost 10% with an actual EUI of 43.3 kBTU/sf/yr.