UC Santa Cruz Coastal Biology Building

Santa Cruz, CA

Project Type

Laboratory

Size (ft²) | **Stories**

50,000 | 2

Services Provided

Taylor Engineering is responsible for the design of the HVAC, plumbing, and firespinkler systems for the UC Santa Cruz Coastal Biology building.

Completion Date

2017

Owner

UC Santa Cruz

Architect

EHDD

Contractors

Swinerton Builders
OCMI Construction
Automated Systems Group

References

EHDD: Scott Shell
Swinerton: Jeff Stephenson
UCSC: Matt Demonner

Image Credit: EHDD

The UC Santa Cruz Coastal Biology Building is a marine biology laboratory space located on the coast as part of UCSC's Long Marine Campus. The new building contains a mix of wet and dry laboratory spaces, private offices, classrooms, greehouses, and support spaces. The building also houses a seawater laboratory complete with a seawater storage tank and seawater tank farm for lab work.

Given the cool coastal climate, an early goal for the project was to cool the building without compressive cooling. All offices, laboratories, and support spaces are served by a central VAV air handler with no cooling coil or evaporative cooling. Specialized analytical lab spaces and freezer farms are cooled using an efficient VRF system. The project also consists of a large multi-function seminar space that is cooled with an efficient single zone air handler without a cooling coil, assisted by Big Ass Fans and electrochromic glazing on the east façade. The laboratory exhaust system is comprised of efficient VAV exhaust fans, complete with intelligent control sequences to maintain appropriate room pressures while maximizing energy savings. The team worked with wind consultants to determine that low air change rates of 6 ACH while occupied and 4 ACH while unoccupied met all safety standards for surrounding areas. This study also confirmed that the stack exit velocities associated with the low exhaust airflows were safe and the system could operate without a bypass damper and its associated wasted energy.