

CASESTUDY

UC Irvine Anteater Learning Pavilion

An ABB Cylon® Smart Energy Solution to Reduce Carbon Imprint



Founded in 1965, University of California Irvine (UCI) is the youngest member of the prestigious Association of American Universities. The campus has produced three Nobel laureates and is known for its academic achievement, premier research, innovation and anteater mascot.

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Project Overview

Led by Chancellor Howard Gillman, UCI has more than 30,000 students and offers 192 baccalaureate degree programs. It's located in one of the world's safest and most economically vibrant communities and is Orange County's second-largest employer, contributing \$5 billion annually to the local economy.

As a signatory of the American College and University Presidents' Climate Commitment, UCI is dedicated to saving energy and reducing their carbon foot print.

The Anteater Learning Pavilion is a 65,000 square foot facility completed in September 2018. This is the first "active learning" building in California and the only the second campus building wholly devoted to active learning in United States. The Anteater Learning Pavilion features 15 smart classrooms, auditoriums and two lecture halls which seat 400 and 250 persons.

The Challenge

The Anteater Learning Pavilion build is part of a construction boom addressing the growth of student and faculty populations and research endeavours projected in UCI's 10-year strategic

Project at a Glance

Firm	Zaretsky Engineering Solutions, Inc.
Location	Irvine, California
Date of completion	September 2018
Owner	University of California, Irvine
Certification	LEED Platinum
Delivery method	Design & Build
Project size	65, 000 SQ. FT.
Project type	Test & Balance and Building Systems Commissioning
ABB Cylon® Solution	INTEGRATM IT-8000 Controllers, CBT12iVAV controllers, CBT14 controllers
Points	3,200

plan. The building includes an elliptical, two-story facility containing two active-learning lecture halls, one with 250 seats stacked above another with 400 seats.

The University committed to build all new buildings to a minimum of a LEED® Silver rating and established the goal of beating California's Energy Code, Title 24, by 50%. UCI was also among the first to commit to the government's Better Building Challenge. By committing to the challenge, the University pledged to become 20% more efficient by the year 2020.

The Solution

The HVAC system design consists of four new custom air handling units, and fan coils serving lecture halls, classrooms, offices and circulation spaces. The custom air handling units are equipped with variable speed supply and return fans, and the fan coils are hot water and hydronic chilled.

In two of the lecture halls, two air handling units serve variable flow and temperature displacement ventilation systems. Heating hot water is produced in the heat exchanger utilizing high temperature water supplied by the campus central plant. The hot water is then distributed to reheat coils via two variable speed hot water pumps. The project also included test, adjust, and balance scope sound level measurements in the lecture halls and classrooms.

Project Highlights

- Variable pumping / variable flow chilled water system with two centrifugal pumps.
- System dP control, dP setpoint optimization and reset.
- High temperature (360F) hot water flow control.
- Variable pumping / variable flow heating hot water system with two centrifugal pumps. System dP control, dP setpoint optimization and reset. Supply temperature setpoint optimization and reset.
- Variable pumping / variable flow chilled water system with two centrifugal pumps. System dP control, dP setpoint optimization and reset.
- Four air handling units. Supply and return fan

arrays with variable speed drives. Cooling and heating coils control. Minimum outside air flow control. Air side economizer. Coil face-and bypass damper control. Space relative humidity control. Supply temperature setpoint optimization and reset. Duct static pressure setpoint optimization and reset.

- Variable air volume air terminals with hot water reheat. CO2 and relative humidity control. Occupancy based temperature setpoint reset.
- Cooling/heating and cooling only fan coil units.
- Miscellaneous exhaust fans control, miscellaneous equipment monitoring and alarms.
- BACnet® interface with lighting control system.

Future Energy Savings

UCI plans to continue utilizing their smart lab design and educating their peers about its parameters and the associated energy savings. The University is currently on track to show a 20% decrease in energy and 40% savings on the main campus by 2020.

In keeping with University of California Irvine leadership in sustainable construction, this facility earned LEED Platinum certification upon completion.

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experiences to increase productivity, optimize processes, and ultimately provide higher tenant satisfaction. For more information visit new.abb.com/buildings

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