



OFFICE 52 Architecture, Design Architect, Tykeson Hall, University of Oregon, Facade Detail Photo Montage, original photos by S. Velicescu.

## **Addressing Climate Change through Design: UO Tykeson Hall Awarded LEED Gold and Meets Architecture 2030 Challenge Energy Goals**

*March 2, 2020  
by Michelle LaFoe*

A commitment to environmental conservation is integral to the UO Tykeson Hall design with both high-tech and practical solutions. Built upon a previously developed site – a former surface parking lot - Tykeson Hall at the University of Oregon achieved LEED Gold certification and met the stringent energy requirements of the Architecture 2030 Challenge.

The urban built environment is responsible for 75% of annual global greenhouse gas emissions, and buildings alone account for 39%. Eliminating these emissions is the key to addressing climate change and meeting Paris Climate Agreement targets. The Architecture 2030 Challenge promotes design strategies that integrate energy efficient technologies and systems to achieve maximum energy efficiency for all new buildings. LEED, or Leadership in Energy & Environmental Design, is a globally recognized symbol of excellence in green building in an effort to assess the bioclimactic response of a building to its environment.

OFFICE 52 Architecture and the project team designed UO Tykeson Hall to optimize these sustainable strategies in order to improve the buildings' social and environmental impact as well as the overall quality and performance of the building and to demonstrate that beautiful form and sustainable functionality can be achieved simultaneously.

### **Accessible Education and Mentoring**

Tykeson Hall is the new 64,000 sf academic center for the College of Arts and Sciences at the University of Oregon. The project embodies a progressive educational philosophy and evokes beautiful aspects of the region that reinforce a sense of community with an environmentally conscious mission. The architecture is an inspirational expression of these values, with a building program that spatially unites undergraduate academic curriculum with student services for a first-of-its-kind interdisciplinary center that provides integrated and collaborative support for accessible education and mentoring. The goal is to improve educational outcomes with student success in Oregon for positive impact.



OFFICE 52 Architecture, Design Architect, Tykeson Hall at the University of Oregon, Central open stairway, Photo by Christian Columbres.

### **Building Program**

The building houses the College of Arts and Sciences, the Office for Equity and Inclusion, Academic Advising, Career Counseling, and the Career Center. Primary design elements empower the college's collaborative culture such as a café and coffee bar, meeting zones and group work spaces of varying sizes for such things as mathematics and writing tutoring, small student shared-use meetings rooms, flexible state-of-the-art learning environments and classrooms, and a roof garden terrace. A central open stair connects all five levels and promotes pedestrian circulation and active dialogue. On the ground level, a community event and gathering space opens directly onto a new outdoor courtyard and green space.

### **Daylight**

Ample daylight in all occupied spaces is a result of the openness of the design, led by OFFICE 52 Architecture. Floor-to-ceiling windows at the end of all circulation corridors as well as strategically placed operable windows and a large light-well provide an even and soft quality of natural interior lighting throughout the building while emphasizing views of the landscape. All window and curtain wall openings feature locally made and assembled high-performance glazing.

### **Energy Design Strategies and Conservation**

A compact design with efficient building systems and fixtures resulted in an energy performance modeled at 77% better than a standard building of similar size, an EUI of 25, and estimated use of 34% less energy than if built to the standard Oregon Energy Code. Reduced energy production and energy-use impacts on the environment and human health achieved an energy cost 47% lower than ASHRAE 90.1 standards. Highly efficient fixtures reduce potable water demand on local supplies by 38%.

Energy conservation measures include high-efficiency wall, roof and window assemblies for one of the first buildings in the Pacific Northwest to integrate post-tensioned concrete slab construction with a high efficiency hydronic heating and cooling system, exposed thermal mass, and active chilled beams with heat recovery on HVAC systems. Practical design strategies include operable windows, ceiling fans, abundant daylighting, LED, daylight sensors, use of local materials to enhance comfort and the regional connection, and low VOC (volatile organic compounds) materials and finishes. A geographic color palette accentuates each of the five floors with each evoking an Oregon region: coast (garden level), Willamette valley (first floor), Douglas-fir forest (second floor), warm high desert (third floor), and mountain alpine peak (fourth floor).

### **Innovation in Design - Materials**

The overall material palette for the building deploys two unique applications of sustainably sourced clay: locally produced bricks and modern pre-fabricated terra cotta rainscreen panels. Optimizing OFFICE 52 Architecture's creative expertise with material innovation, both are customized for aesthetics, facility of installation, and economy of budget while reinforcing the regional connection with an aesthetic nuance embodied in the





OFFICE 52 Architecture, Design Architect, Tykeson Hall, at the University of Oregon, Terra Cotta Facade Detail. Photo by Sinziana Velicescu.

color and texture of the finished material. Brick and terra cotta – or baked clay - as materials are better from an energy and CO2 cost. No CO2 is generated from the raw material itself, and terra cotta requires the least amount of energy and generates the least CO2 in production compared to other materials like aluminum, stainless steel, glass, plastics and cement.

Before the building began, the trees from the site were carefully removed and taken to an off-site storage area to begin the drying process for reclamation. The salvaged Pin Oak trees were fabricated into slats for wall panels and ceilings designed for select public spaces. An exposed concrete interior complements the warm character of the Pin Oak wood. The result is an ecologically elegant application of the reclaimed wood. To further reinforce sustainable stewardship, the team diverted 89% of the onsite construction waste (360 tons) to recycling plants instead of landfill placement.

### **A Green Future – Sustainable Sites**

The last step in the construction process was re-landscaping the site to make it greener than before. New drought tolerant, adaptive landscaping and roof terrace vegetation promote biodiversity and habitat creation and decrease potable water use for irrigation by 58% in conjunction with drip irrigation systems. Storm water from the roof collects in rain gardens to return it to the aquifer.

Intended to serve as a campus destination, the new building transforms the area with a cohesiveness that strengthens internal and external connectivity with existing pedestrian walk-ways and circulation, and a new outdoor plaza shared with adjacent Chapman Hall alters the landscape with a new public gathering space for interaction. The architecture of the new building connects creative interdisciplinary work, mentoring and community.

### **WOHESC 2020 Conference**

As part of the Washington Oregon Higher Education Sustainability Conference (WOHESC) today, Tykeson Hall was a featured building during the Pre-Conference Sustainability Building Tour on the University of Oregon campus in Eugene, Oregon. For this project, OFFICE 52 Architecture joined forces with a project team collective of strong industry expertise that reinforced the project's success and embraced our progressive design concept and the incorporation of sustainable strategies.

WOHESC 2020 brings sustainability leaders, top thinkers and doers from around the Pacific Northwest region to share innovative, solution-oriented best practices in sustainability. OFFICE 52 Architecture believes that sustainable design should be beautiful as well as practical. The firm's founders Isaac Campbell and Michelle LaFoe have long been leaders in beautifully designed sustainable buildings and research and development in innovative and traditional materials and creative application methods.