Facade Integrated Technologies (FIT) Testing Facility

High Performance Environments (HiPE) Lab

A Signature Research Facility of the
Oregon Built Environment & Sustainable Technologies Center (Oregon BEST*)

THE ONLY FACILITY OF ITS KIND IN THE U.S., THE FAÇADE INTEGRATED TECHNOLOGIES (FIT) TESTING FACILITY, part of the high performance environments (HiPE) laboratory, occupies a three-storey building on the University of Oregon Campus. Eighteen modules on the north and south façades tests a wide range of façade technologies and tracks how building occupants interact with them.

Research Focus & Expertise

The proposed Façade Integrated Technologies (FIT) facility transforms the Onyx Bridge at the University of Oregon to a LLB lab. The lab measures energy performance, synergy with other systems, occupant impact, and occupant acceptance of high performance façade technology. The FIT lab is a full-service, high performance façade analysis center open to outside use and collaboration across the OUS university systems researchers and labs, as well as with industries and manufacturing companies with priority given to Oregon-based industries.

The FIT facility and lab provides a world class testing facility, and a unique laboratory for future investigations to test user perceptions with findings from empirical studies of real-world occupants and energy performance, that will transform the process of building design for all design and construction professionals. It also attracts future research and collaboration potential between various academic institutions, disciplines, and industry-funded research for actual verification and testing of building facades products.

Facility & Equipment

The Fit lab will have the capabilities to test various products covering most areas of high-performance façades that includes, but not limited to:

- Solar Control and Daylighting: Light-Guiding Glazing, Holographic Optical Elements, Laser-Cut Panels, Aerogel Diffuse Glazing, and Optoelectronic Glazing;
- Natural Ventilation: Breathable Walls, Active Insulation, Automated and Manually Operable Double Envelope Vents;

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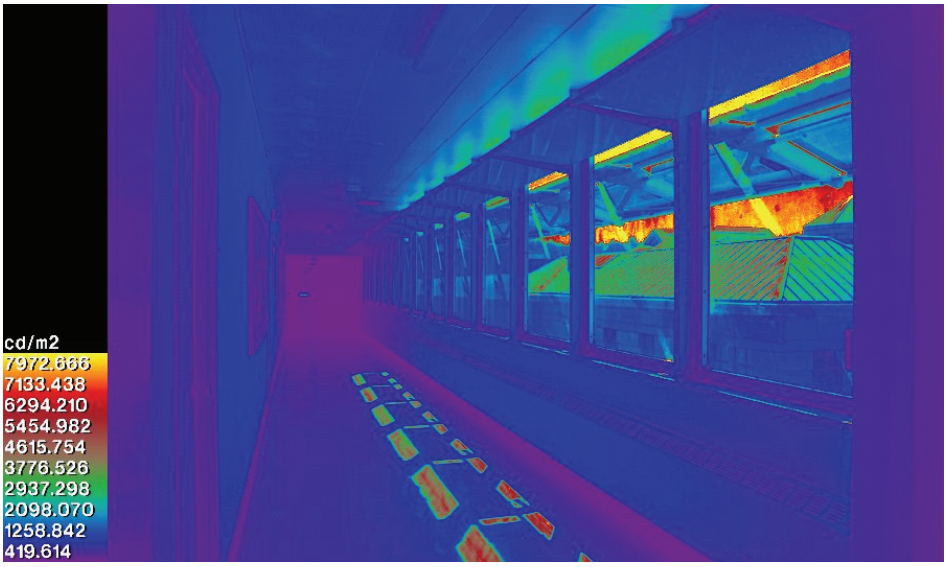
- Energy Micro generation: Façade-Integrated Photovoltaics, Solar Capillary Tubes, Vacuum Pipes, Photovoltaic Shades, and Solar Awning Tunnels.

Façade technologies tested in the FIT lab come from a variety of sources:

- Innovative Products generated from OR BEST researchers and university lab partners.
- Existing cutting-edge products that face market barriers or have limited market penetration yet high energy generation/savings potential, such as electrochromic windows or holographic glazing.
- Innovative products generated from Industry professionals such as Benson Industries, Façade Group, Oregon Architectural/Engineering Firms, and Building Developers
- Innovative Products generated from other researchers and national labs
- Industry third-party and verification for façade products



Donors, Partners, and Collaborators.

The facility acts as a catalyst to generate new and innovative products that strengthens Oregon's Green Building industries by working in collaboration with world leader and Oregon based façade manufacturers and consultants such as Benson Industries and the Façade Group. In addition it provides a RD&D facility to incubate and launch new ideas and start-up companies that translate these ideas to products ready for commercialization and university spin-offs companies in clean technologies and green buildings products. At the same time, the facility is used to attract the brightest personnel and students, as well as trains the future generation of green building researchers and technicians who will invent, design, and manufacture the high performance facades and building envelopes installed in the field.

The Oregon BEST FIT Facility/ Laboratory will work in close collaboration with:

Portland State UNIVERSITY

PSU Green Buildings Research Lab,

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Solar Radiation Monitoring Laboratory (SRML)

SuNRISE

Combining efforts to create complimentary basic and applied research facilities to keep Oregon in the leadership of solar energy and green buildings (SuNRISE = Support Network for Research and Innovation in Solar Energy). The SuNRISE indoor PV laboratory is being developed to test new and innovative ideas in a controlled laboratory environment on small scale samples, while the FIT lab is moving towards a full scale prototype testing facility in a Living/Learning Building Lab (LLBL). Combined, these labs create the rare opportunity to test and characterize advanced high performance facade systems from initial experimental development to market application and verification.

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An initial investment of $273,000 and fundraising support came from Oregon BEST, an organization that connects Oregon's businesses with a shared network of university laboratories to transform green building and renewable energy research into products, services, and jobs that power the state's green economy. Additional financial support came from Oregon University System, office of capital projects, and the University of Oregon.

FOR MORE INFORMATION

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