

In 2022, Oregon State University (OSU) began renovation of Cordley Hall-East, in an effort to transform its aging facility into a modern research hub while preserving its historic character. Among the standout features of this renovation are the controlled environment rooms provided by TriMark Scientific (R.W. Smith).



The plant growth rooms, in particular, presented unique challenges:

- **Programming flexibility:** Controls needed to be adjustable for intensity, spectra, and scheduling (to simulate regional and seasonal diurnal conditions).
- **Lighting Precision and Uniformity:** Room applications demanded a lighting system capable of delivering a full spectrum of light to mimic sunlight and support diverse plant species. Research depended on provision of even, potentially high intensity lighting across all shelving and fixtures for plants at variable heights.
- **Energy Efficiency:** With sustainability as a priority, the solution needed to minimize energy consumption while maintaining performance.
- **Reliability:** The system had to be durable and low maintenance to ensure uninterrupted research over extended periods.

Traditional options fell short of meeting these requirements.

The TriMark Solution

TriMark's experts worked closely with the project team to fully understand the University's specific requirements, and constraints. As a result, the growth rooms provided are engineered to maintain precise temperatures at a range of 10°C to 40°C at $\pm 0.5^\circ\text{C}$ and 10%-95%RH with 1100 μmoles adjustable plant growth lighting, enabling researchers to simulate specific environmental conditions.

A key feature of these rooms was SCYNCE Dragon LED canopies for plant growth lighting.

These advanced systems offer many benefits:

- **Customizable Light Spectra**
- **Energy Efficiency**
- **Reduced Heat Output**
- **Durability**

Benefits and Implications

These capabilities position OSU as a leader in addressing global challenges like food security and environmental sustainability. This case study highlights the potential for such solutions to transform research facilities at universities and institutions worldwide, positioning TriMark Scientific as a trusted partner in advancing scientific discovery through innovative and collaborative controlled environment room design.

Scynce lighting provided unsurpassed performance:

- Full dynamic control over the spectrum on adjustable light fixtures
 - ✓ 600 watts of on-the-fly customizable plant growing photonic power
- Equal intensity light from all angles
 - ✓ Prevented hot/ burn spots
 - ✓ Resulted in a larger growing surface with more density below the canopy.
- Design engineered to accommodate positioning 24" to 72" over the canopy at the same light intensity.