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Green Buildings, St Olaf College “Regents Hall” is one of the first major science facilities in the nation designed with an emphasis on green chemistry, a growing movement that seeks to minimize the hazardous chemical waste produced from laboratory experiments. Experiments use water-based and nontoxic chemicals, and more efficient processes generate less waste. As a result, fume hoods have been reduced almost in half as compared to traditional chemistry programs and the amount of exhausted conditioned air has similarly been cut in half.

Collateral Healing© Seminar table, Regents Hall, St. Olaf College, Northfield, Minnesota
Material: Cardboard byproduct, designed and build by Stanley J. Shetka

Within the heart of the Collateral Healing Epoch System is a patented sculpture system that sequesters carbon, creates energy, filters air, purifies water, and continuously enriches the soil with good carbons. The Collateral Healing Epoch, is ready for production and will require continued R&D as installations expand into world communities.

Regents Hall is a sustainable or “green” building that serves as a teaching tool and speaks to the integrity of a St. Olaf education. A green building has measurably lower operating costs, minimizes the impact on the environment and promotes whole health for its users. With features such as a green roof, reliance on passive solar lighting, and the minimization of chemical and biological waste, Regents Hall is not simply a model for responsible environmental stewardship but a daily working example of sustainability in practice.

Regents Hall was designed and constructed with a goal of obtaining the U.S. Green Building Council’s LEED (Leadership in Energy and Environmental Design) Platinum certification. LEED emphasizes state-of-the-art strategies for sustainable site development, water savings, energy efficiency, materials selection and indoor environmental quality.

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Building materials were carefully chosen based on recycled content and lifecycle costs. The materials used for the exterior of the building — limestone, copper and buff-colored stone — are highly maintainable and sustainable. Linoleum, a durable and recyclable product made from linseed oil and paper, is used in flooring throughout the building. Its lifespan is more than a half-century and it doesn't require an entire family of custodial supplies for good maintenance. Carpet made from recycled materials is used in faculty offices. All wood and related forest products used inside the building are free of formaldehyde and other volatile organic compounds, reducing total off-gassing and promoting cleaner indoor air. In addition, all wood used in the building was certified by the Forest Stewardship Council. Furnishings were chosen for their recycled content or recycling potential and durability. All of the concrete used in construction contains a minimum of 15 percent boiler fly ash, producing an estimated overall environmental savings of nearly 9 million pounds of ash that would otherwise end up in landfills.

Regents Hall's energy need is 60 percent less than the standard energy code model. A green roof, planted with low-maintenance sedums, cacti, grasses and columbine, helps reduce the building's heating and cooling load and minimizes its heat signature. The green roof also reduces stormwater runoff, filters carbon dioxide out of the air and filters pollutants out of rainwater. Water that does not infiltrate is captured and released in a waterfall that cascades 15 feet into a stream bed next to the building, ending in the stormwater ponds below the parking lot. The rooftop rainwater collection system additionally provides water for use in the greenhouse.

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Energy consumption is significantly reduced by design elements that harvest daylight. Abundant natural light penetrates deep into interior spaces, due to extensive use of interior windows and light transoms. Southern exposure windows work to reduce summer solar heating. The HVAC systems in the building are designed to reclaim the heat energy from the air that is to be exhausted, and that energy is then sent to warm the incoming air to the greatest extent possible.