

## Knowledge Feature: Sustainable Sabin Hall Renovation – Design Opportunities Realized

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*How is a large classroom building in the center of the University of Northern Iowa (UNI) campus transformed from an uninviting outdated building to a sustainable invigorating learning environment?*

Brooks Borg Skiles' predecessor firm, Proudfoot Bird and Rawson designed the Training School in 1911. It housed the teacher training program, for which the University of Northern Iowa became widely recognized. Later renamed Sabin Hall, the building continued as it was originally designed - as a classroom building. This primary use continues after the renovation.

During the 20<sup>th</sup> century the character of the original building was compromised. Piecemeal renovations occurred to insert offices and mechanical/electrical equipment. A central light court was infilled on all but the top level. Layers of systems upgrades, lowered ceilings, and outdated finishes contributed to perceptions that the building interior was dark and outdated. And perhaps most importantly, pride was lost in this iconic building.

Prior to being selected to design the renovation, Brooks Borg Skiles Architecture Engineering (BBSAE) was asked by the University to identify design opportunities. A key opportunity identified was sustainability.

UNI was already a sustainability innovator. A well-developed environmental education program and recycling program were in place. Implementing the first Leadership in Energy and Environmental Design (LEED) project on campus was the logical next step. Subsequently, opportunities to use the LEED process and the sustainable renovation as an educational tool were sought.

To initiate the design process, Brooks Borg and Skiles and UNI identified several high-quality, character-defining elements of the original building to be retained. These elements were; a well-preserved building exterior, large windows, high ceilings, wide corridors with original terrazzo floors, marble and oak trim, oak doors and natural ventilation shafts in the walls. Saving these elements shaped the design.

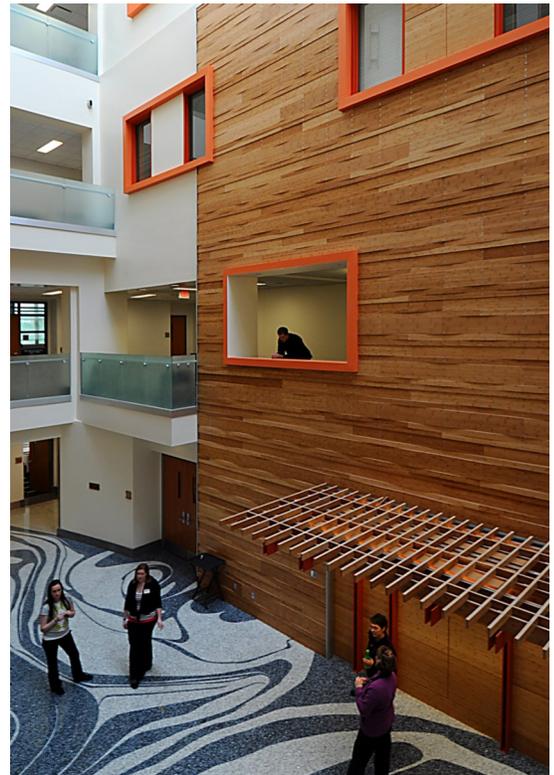
UNI determined that the renovation should meet a LEED Silver certification for Commercial Interiors. This certification category includes furniture in addition to the building construction when determining eligibility. Existing classroom and office furniture was available for reuse, metal furniture contains recycled content and UNI purchases furniture from regional manufacturers; all contributing to LEED credits being sought.

Sabin Hall's site proximity to housing, transit options, and community amenities makes it eligible for LEED site credits.

Daylighting became the defining concept of the design. As originally constructed, large windows, a former light court at the center of the building, and high ceilings admitted extensive daylight. A new skylight over the reopened light court transformed to an atrium reintroduces daylight to all four building levels.

Glazing added in corridor walls and sloped classroom ceilings admit daylight deep into the interior. Daylight sensors control electric lighting near windows. Occupancy sensors and task lighting at each office workstation reduce lighting energy consumption even further.

At the base of the atrium, a student lounge highlighted with a terrazzo artwork floor, activates the building and gives Sabin Hall a new sense of place. Overlooks into the atrium and daylight penetrating from ...continued



Renovated Atrium/Light Court

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them to the corridors provide clear wayfinding cues. Classrooms and the lecture hall occupy the lower two levels of the building to provide efficient student access and maintain quieter spaces for office occupants on the upper levels.

To reduce energy, mechanical and electrical systems are new high efficiency systems. Ventilation air is provided by a dedicated outside air unit. Systems were commissioned. The large windows and skylight reduce the demand for electric lighting. Energy efficient light fixtures and lighting controls reduce energy use. Daylight sensors control light fixtures near windows. UNI selected Energy Star rated office equipment and appliances.

Materials were conserved to meet several LEED credits. UNI made the sustainable decision to renovate the building rather than replace it. Significantly exceeding LEED thresholds, over 90% of demolition and construction waste was diverted from landfills. 30% of the furniture and furnishings are reused and refurbished. Nearly 10% of the materials used in the renovation have recycled content and over 20% are manufactured regionally. “Coursing Through Life,” a terrazzo floor artwork on Ground Level by Lynn Basa, contains recycled glass. Approximately 5% of the materials are rapidly renewable. These are wood doors, a plyboo wall finish in the atrium and bamboo faced casework.

Corridors and exit stairs existed in ideal locations and widths to meet current building codes. Easy to maintain floors and plastered masonry walls remain. Marble panels and trim, slate chalkboards, and oak trim and doors were all salvaged and reinstalled in the building. Excess materials were stored for future use or recycled elsewhere.

To provide optimum indoor air quality, an air quality plan was implemented during construction. Open ends of mechanical equipment and ductwork were covered to keep air paths clean. A pre-occupancy air ventilation system flush-out prior to occupancy and selection of paint, sealants and adhesives with low volatile organic compounds increase indoor environmental quality. Individuals in the building have manual controls over lighting, operable windows and access to views, also to enhance environmental quality.

LEED recognizes innovative solutions or exceptional performance not specifically addressed through the specific credits in other categories. At Sabin Hall, guided tours, signage and computer monitors in public areas educate users about the benefits of green buildings. A “light lounge” in the atrium initiates awareness and discussions about Seasonal Affective Disorder while providing an opportunity for research. A post occupancy evaluation conducted by students will promote learning. A green cleaning program has been implemented by the University. Exemplary water use reduction has been attained.

The successful renovation of Sabin Hall was centered on sustainability but would not have been nearly as successful without a highly engaged client and contractor team. A great deal of pride and ownership by all parties was foundational to the successful process. We define this as *Collaboration*, one of our three BBSAE core values.

Also contributing to the project success was *Integrity*, another BBSAE core value. Each person on the team utilized their abilities and strengths to complement others in a positive manner. Character defining elements of the original building were identified and maintained, resulting in building integrity while new elements introduced to the design were not copies of the originals but were true to their 21<sup>st</sup> century origin, providing design integrity.

The third BBSAE core value is *Innovation*. Sabin Hall is a new light-filled sensory experience. It has a student-centered focus. Artwork has been integrated as a building finish. Finally, innovative sustainability objectives were met.

To discover more about Brooks Borg Skiles Architecture Engineering, visit:

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