# Energy efficient university building, Lawrence, KS, United States

## Project data

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## Main author

| Name            | Dan Rockhill                      |
| Organization    | Studio 804, Inc                   |
| City, country   | Lawrence, KS, United States       |

## Further author(s)

Not applicable

## Comment of the Holcim Awards jury North America

The jury acknowledges the project for its particular educational concept and the engagement with issues of sustainable construction illustrated in the program. The in-depth participation of students in the construction process is demonstrated as a successful component in the curriculum, substantially amplifying the learning outcomes beyond the pure experience of being a construction worker. Through the openness of the building function, this experience is shared not only with the few students who participate in the project—⇒ it is also transferred to the community and future students. The adoption of the building’s approach within the community is grounded by its integrative financial concept.

## Project description by author

Studio 804, Inc is a not-for-profit 501(c)(3) corporation affiliated with the University of Kansas. Participants include graduate students in the School of Architecture, Design and Planning under the instruction of A. Constant Distinguished Professor Dan Rockhill. The students execute a process of collaborative work, both as architects and builders, to create structures that inspire growth in a culture of modern design and sustainable practices. Every year, graduate students in the Studio undertake a complete building from start to finish.

This year’s project presents a new direction for Studio 804, while maintaining the same standard of excellence and a sustainably-conscious design that has been the studio’s agenda over the past 15 years. The new KU Center for Design Research (CDR) building, located on the site of the former historic Chamney Dairy Farm in Lawrence, Kansas, is a response to the emerging culture and support of sustainability at the University of Kansas. In congruence with CDR’s mission, which is to provide a location for interdisciplinary work between multiple schools, the new building will provide a facility that aids in the education of the university and community on eco-friendly strategies, material innovation and the importance of location adjacent to Bob Billings Parkway on the perimeter of campus, providing a setting of high visibility and exposure that will stand as a symbol of the pursuit of a sustainable campus environment.

Studio 804’s goal is to produce the first LEED Platinum building in Lawrence, and the first Passivhaus commercial building in the region, as well as the first of both certifications on the University of Kansas campus. This will be the Studio’s fourth Platinum and second Passivhaus certified building. The utilization of the old Chamney House will take advantage of existing resources, preserving a snapshot of history while restoring activity and energy to the Chamney Farm site. The design for the new building implements environmentally-conscious strategies to maximize the potential of existing resources, minimize environmental degradation, create an environment that is safe, comfortable and efficient and provide an iconic representation of sustainability for the University of Kansas.

Fascinating projects are often tucked away in various faculty laboratories around campus. The new CDR will provide a means by which the broader University community as well as the public can share in these research efforts and enjoy a setting that demonstrates the most advanced technologies.

## Relevance to target issues by author

### Innovation and transferability – Progress

Built as a demonstration building for the Midwest region and the University of Kansas, it is pursuing not only LEED Platinum but also Passivhaus certification. Its highly visible location became a guiding force in the design of the building. The concept of showcasing how energy efficient strategies help the building perform better will help to educate on a regional basis. Each strategy that the CDR implements can be utilized individually for improvements in sustainable construction or in conjunction with one another for a larger impact. The CDR takes proven strategies from the past two projects 804 has done, as well as technologies that are on the cusp of development and pushes them further to try and achieve and monitor better results.

### Ethical standards and social equity – People

CDR brought stakeholders together opening lines of communication between the university, state, city, and community. Through our efforts to work with industry (over 50% of the building is built through donations), we have also set a precedent for future relations and developments of this kind. The process of designing, permitting, and building this building with members from all stakeholder parties will hopefully put an emphasis on and facilitate ease of future sustainable construction.

### Environmental quality and resource efficiency – Planet

CDR exhibits great respect for the environment and its finite resources, from the concept phase of a Trombe wall through construction; the long term ecological concerns have been held at the forefront of all planning. The stone skin of the building is built from the discarded tailings of the limestone fabrication industry. CDR begins with a green roof that filters water into a cistern and a photovoltaic array that is projected to capture the energy needs of the building and a car charging station. Coupled along with this is a turbine to help with the building’s projected energy needs. The water from the cistern is then used to irrigate the landscape and the interior green wall, which helps maintain good indoor air quality making a healthier building and easing maintenance requirements. The building orientation was chosen for the optimal passive solar gain, reinforced with electro-chromic glass to shade from unwanted summer heat gain, and a solid north wall to resist unwanted winter winds.

### Economic performance and compatibility – Prosperity

The construction of the Center for Design Research is enriching the site by bringing life and business back to an area of Lawrence that has not been utilized to its fullest extent for some time. The flexibility that the design offers within itself to change with the needs of the community but also to change in purpose in relation to the rest of the complex makes the design and construction a very economical choice over the buildings’ projected life span.

### Contextual and aesthetic impact – Proficiency

The glass darkens as the shadow of the turbine drifts across the site—the impact of light highlights not only the beautiful aesthetics but also the environmental response of the site. The CDR rises out of the ground as a platform between the barn and house carefully altering the farmland for future use. Complementing the history by bringing innovation back to farm the CDR efficiently provides a flexible space that can change with time as the utilization of the complex changes and grows.