

April 20, 2007

Energy Conservation Measures Harper Center

The Harper Center has been designed with a holistic perspective of energy conservation. A key goal is to construct a building that is high-performance in terms of both energy conservation and the quality of the user's experience. A part of the design of this icon building is to understand the ambitious program requirement to fully utilize the structure rather than allow spaces to be idle or unoccupied to consume energy. The building will be "marketed" as a conferencing center while meeting the needs of students for service/education and entertainment. The collaborative design strategy lends itself to better use of the energy required to operate the building.

The building has been evaluated against the LEED criteria to consider the potential for LEED certification. Although the building will not be submitted for LEED Certification, it does very well in meeting the objective. The design team did not limit itself to just meeting LEED.

Relating to LEED certification, the following criteria were met.

- Constructed on a Brownfield site with the corrective action accomplished for construction.
- Utilizes existing parking facilities
- The site is adjacent to Public Transportation and the University shuttle route.
- The design has spaces for bike racks that will be incorporated into the project.
- The facility has showers for use by bicyclers and others taking advantage of the Fitness Center.
- The construction utilizes natural materials like wood and stone.
- Products like brick are purchased from the region to reduce freight costs and bolster the local economy.
- The building will be connected to the district heating and cooling system to negate the need for stand alone utility equipment.
- The structure has a significant portion of façade glass to include the open southern exposure for the grand stair case and the atrium which gets eastern sun; both of which promote the use of daylight.
- All carpets are manufactured with a recycle content.

Additionally, the design is in compliance with the Nebraska and the International Energy Code. The Code has directed the selection of window glass, exterior wall construction and roof insulation. These considerations will promote a comfortable building with even temperatures and natural lighting. Additionally, products incorporated into the finishes will have reduced off-gassing of noxious chemicals to provide a higher quality experience in the building.

With the collaborative design that was mindful of energy conservation from the beginning, there has been several measures incorporated into the design to foster energy conservation. These items include

- Using a dry type electrical transformer that has a NEMA TP-1 high efficiency rating
- Incorporation of lighting controls for the atrium and public spaces that shut off lights not needed and allows for harvesting of daylight.
- Occupancy Sensors are designed into offices, classrooms, meeting rooms and other spaces to shut down lights when the spaces are not being used.
- Spaces like Classrooms are provided with multi-level light switching to allow for minimal use of lights.
- Florescent lighting will be accomplished with high efficiency lamps like T-8 or better.
- Carbon Dioxide sensors are incorporated into the heating controls system so the amount of outside air entering the building is sufficient for the health and comfort of the occupant but not so much outside air that it becomes additional work to condition the space.
- Variable speed motors are utilized on all fixed equipment like air handlers to reduce the amount of electricity needed for start up and for fan or pump operation.
- Use of a variable air volume heating and cooling system that by its very design save energy.
- Installation of a heat recovery wheel in the Ballroom to capture heat that might otherwise be exhausted from the building. The wheel also optimizes air conditioning by cooling incoming air.
- Additional attic insulation has been added to exceed the minimum requirements of the applicable codes.
- Instantaneous water heaters are used to reduce the amount of storage needed for domestic hot water.
- The temperature and other climate controls will blanket the space to insure optimization of the heating and air conditioning equipment without compromising comfort.

As the design continues and the building is being constructed, additional means of saving energy and building a sustainable structure will continue to be explored. An example of that is the review being given to the glass used in the south façade because there is a potential of using glass with a fritting and a with a built-in UV screen. The clock for the irrigation system is also being studied for possible remote control during rains and better control when climate conditions suggest irrigation can be cut back. The wood flooring in the structure will be bamboo which is a rapidly renewable resource.

Respectfully submitted

Energy Awareness Committee