RVCC Bateman Student Center

Excellence in a College or University Sustainability Contest Application

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On February 6, 2014, RVCC held a ribbon cutting ceremony celebrating the opening of the new Ray Bateman Center for Student Life and Leadership. The $5.8 million structure was funded by a public-private partnership. The three-story Bateman Center offers 24,000 square feet of flexible learning space including conference rooms, small study areas, student work stations and office space for student groups. It provides a central meeting location for all student clubs and organizations that previously have been scattered throughout the RVCC campus. The College is in the process of applying for LEED Gold certification for the building.

The centerpiece of the building is a 9' by 15' "living wall" of vegetation designed to improve the indoor environment. The living wall is a vertical, hydroponic planting system that contains close to 600 individual tropical plants from about a dozen different species. The wall absorbs noise, filters air, and provides a natural, relaxing setting for the students. The wall was designed and installed by Kelly Mac Interiorscapes, a small local business based in nearby Pittstown. (See Figures 1 and 2.) The installation cost of approximately $21,000 was funded by a grant from the Merck Foundation.

Figure 1 View of living wall from 1st floor atrium

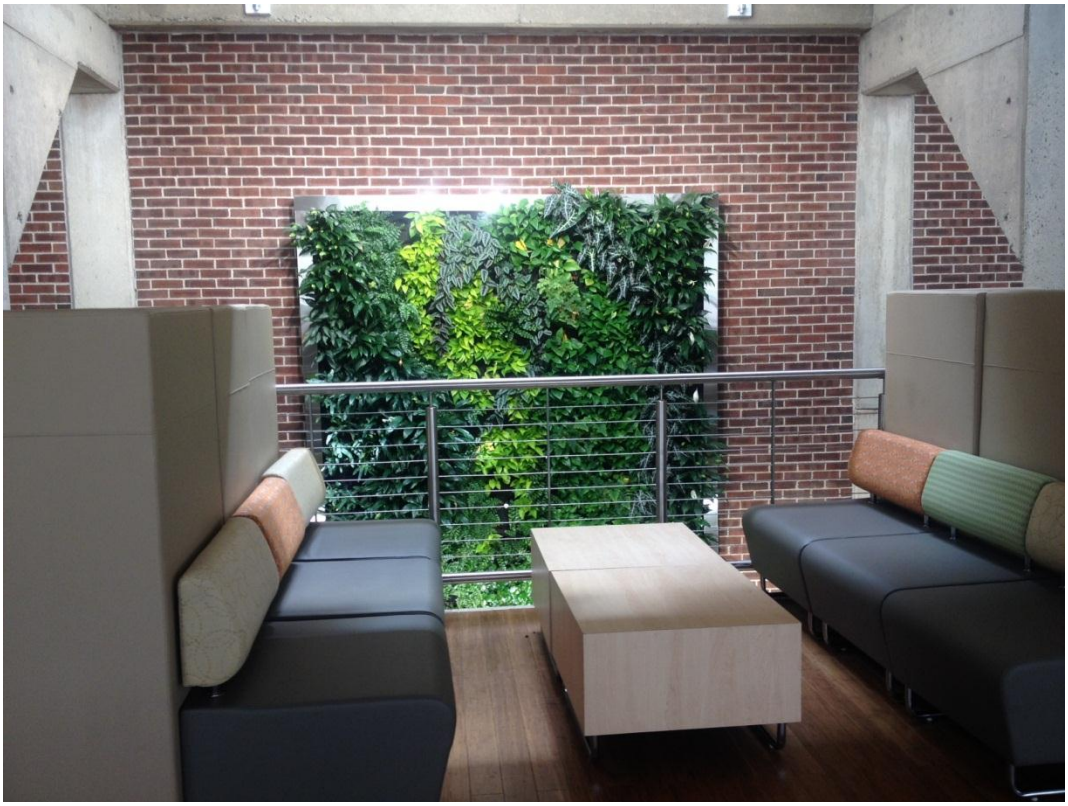

Figure 2 View of living wall from 2nd floor student lounge

The living wall has an efficient drip irrigation system that is fed with the second key feature of the building: a rainwater harvesting system. The system provides water for the toilets in all six bathrooms (18 toilets), in addition to the living wall irrigation system. All stormwater is collected from the roof and upper patio and fed into a 4,000 gallon tank in the basement. Water from the main tank is fed through two water filters and two UV lights, and then into a small water tank that is pressurized with a pump. The water is then fed up to the bathrooms and irrigation control box. The main tank has an overflow pipe that feeds into the stormwater system when the tank is full. When the main tank is empty or the system is being serviced, water is supplied from city water. (See Figure 3.) The rainwater harvesting system cost approximately $106,000.

The rainwater harvesting system was originally designed to have two 4,000 gallon tanks. However, Facilities Director Brian O'Rourke argued that, given the efficient water fixtures in the building and the reduced traffic over the summer, we would only need one tank. The bathrooms are fitted with waterless urinals and 1.28 gpf toilets. To date the one tank has proven to be more than sufficient. The bathroom faucets (which use city water) have motion sensors.

Figure 3 Rainwater harvesting system

The building has many other sustainable features. You may have noticed that the living wall is installed on a brick wall – this was the exterior of the Physical Education building, which was reused as one wall of the new building. (See Figure 4.) The building also leverages the existing chilled and hot water campus loops (which are heated and cooled via the campus combined heat and power plant) and so did not need any additional heating or air conditioning units.

The building is a model of energy efficiency. The roof has a high reflective index, to help keep the building cool in the summer. The lighting is energy efficient: LED, metal halide, and fluorescent T5s. The prevalence of windows and skylights allow for second and third floor lighting to stay off during the day. Occupancy sensors and programmable timers are used throughout the building, including bathrooms and stairwells. The air handlers and variable air volume units are controlled through an Automated Logic system that is programmed with occupied/unoccupied schedules and temperatures. They also have variable frequency drives for high efficiency. The energy model for the building showed that by using insulating glass and higher "r value" insulation, we improved the building's energy efficiency by 15 % over the current ASHRAE standards

The atrium floor is concrete stained with low-VOC stain. All paint, sealants, and adhesives in the building are low-VOC.

Floor and ceiling tiles and bathroom stalls are made from recycled materials, both pre- and post-consumer. The flooring on the 2nd floor is solid bamboo, a rapidly renewable resource.

Figure 4 Reused exterior wall now interior; skylights above

The construction site had a very small footprint that was kept tight to the building foundation, which enabled the College to preserve most of the trees in the adjacent woods. 90% of construction debris was recycled. (See Figure 5.)

No additional parking was created for this building, avoiding additional stormwater runoff. A bike rack was installed by the upper entrance.

Retention tanks were installed under the lower patio that collect stormwater from this area and slowly release it. The stormwater system drains into an Aquaswirl device (that helps remove sediment and debris) and then to a stormwater basin.

The bathrooms have modern air hand dryers, to avoid paper waste. The three water fountains are also filtered bottle-filling stations.

With the Bateman Student Center, the College has proven that sustainable buildings are economical as well. The College has committed to building LEED Silver or higher buildings moving forward. The Science Building addition and the new Workforce Development building are already in the planning stages, and the College looks forward to replicating the sustainability successes of the Bateman Student Center.

Figure 5 Showing tight construction site footprint

Figure 6 View from unfinished third floor window wall