

Rochester Institute of Technology

University Services Center Building

Sustainable Building Highlights

- ❖ Energy use: 45.5% energy cost reduction from ASHRAE Standard 90.1, 2004
- ❖ Water use: 42.3% reduction from Energy Policy Act of 1992 Fixture Performance Requirements
- ❖ On Site Renewable Energy: 2.71% of the building's annual energy cost is offset with Photovoltaic Panels
- ❖ Green Power: 35% of the buildings electricity is supplied from renewable sources with engagement of a two-year renewable energy contract with Hess Energy
- ❖ 89% or 613 Tons of construction waste was diverted away from landfills employing recycling strategies
- ❖ 32.9% recycled content of all materials in the building
- ❖ 25.1% of all materials used were harvested or extracted and manufactured within 500 miles of the project
- ❖ 8% of the total value of materials come from rapidly renewable materials (plants that are harvested within a ten-year cycle)
- ❖ Indoor Air Quality during Construction and before Occupancy
- ❖ Dedicated open space on the campus equal to the building footprint to remain "forever wild"

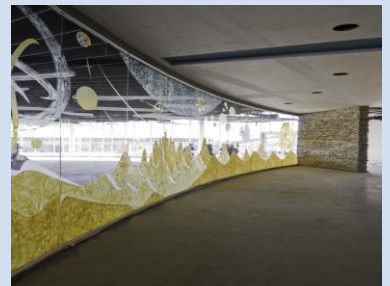
The ASB building on the RIT campus is located in the southwest wedge of the 1300 acre campus, situated on a 91,277 Square Foot parcel. The building is situated in the academic quadrant of buildings, between the Golisano College of Computing and Information Sciences and the Crossroads Buildings, and on the centerline axis with Arthur Stern Lane, a main pedestrian passageway within the campus. The Administrative Services Building is a 3 story office building with a 1 story circular glass drum housing the Innovation Center designed to intentionally contrast with the typical RIT brick building.

The first floor will house a number of co-located student services for a one-stop concierge-type service. Included will be:

- ❖ Student Financial Services
- ❖ Parking & Transportation
- ❖ Dining Services
- ❖ Student Employment
- ❖ Financial Aid
- ❖ Housing

The upper floors will house a number of departments including:

- ❖ The non-EMCS departments
- ❖ Government & Community Affairs, Secretary of the Institute
- ❖ Development Offices



- ❖ Office of the VP for Research
- ❖ Sponsored Research Accounting
- ❖ Legal Services
- ❖ Technology Transfer

The Innovation Center will be a flexible work and display center. Windows will provide passersby with the opportunity to see first-hand the projects that RIT faculty and students are working on. It has been designed as a place of multidisciplinary cooperation and this is what sets the center apart from the rest of campus.

The center will be divided into several areas. The first will be a lounge area that will “recognize and celebrate successful entrepreneurs coming out of RIT,” There will also be rooms for formal faculty meetings. Some rooms will contain conference tables and have access to programs like Power Point for students who need to present projects so they can have a place to practice. The main body will serve as a workspace for students. These areas will have movable workstations and furnishings. This design will allow groups of students to set up their work area in any way they need to for their project. There will also be areas for light manufacturing and assembly. These places will be specifically for students to build prototypes and other similar projects. This space is meant to complement what’s on campus, not replicate what’s already there.” The Innovation Center will be a place for like-minded students to meet and work together. Once there, they can either work on class assignments, or take their own ideas and run with them.

Building

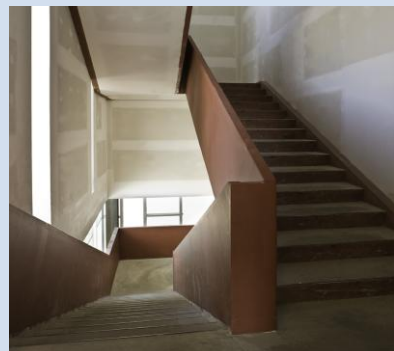
The building contains 53,032 square feet (SF), and has a foot print of 26,202 SF. The site area is 91,277 SF. The building is open approximately 350 days per year. The ASB occupancy is comprised of 158 full time staff and 38 part time staff. The total full time equivalent occupancy for the building is 177. RIT approximates 200 visitors to the Innovation Center with an average length of stay of 2 hours, and approximately 490 student visitors to the building with an average length of stay of 1 hour, totaling a peak building user count of 200.

The building is constructed of structural steel and concrete slabs on metal decking. A flat roof of white TPO (thermoplastic polyolefin) single ply roofing membrane is incorporated over metal deck on bar joists. The majority of the building façade is comprised of red brick masonry, composite metal panels and glass. The windows and entrance systems are composed of anodized aluminum with low E insulated glass with a Solarban 60 coating. The interior systems are comprised of Gypsum wall board on steel studs, hollow metal door and window frames and hollow metal doors. The ceilings are a combination of gypsum wall board and acoustical ceiling tile.

Budget

Design Fees & Construction Management Cost: \$1,588,699

Furniture, Fixtures & Equipment Cost: \$1,550,000



Construction Budget: \$10,172,877

General Construction & Site Contracts (Div 2 – 10): \$4,989,65

Mechanical, Electrical Contracts: \$2,932,654

Other Div 11 – 33 Contracts: \$2,250,659

Sustainable Design Strategies

A number of strategies contribute to the project's environmental responsibility and its potential LEED rating.

The project reduced pollution resulting from the construction activities by controlling soil erosion, and airborne dust generation by creating and implementing an Erosion and Sedimentation Control Plan for all construction activities associated with the project. The project also restored 50% of the site area with native and adapted vegetation that are indigenous to this locality to promote biodiversity. RIT has also designated open space on the campus that is equal to the building footprint that will be preserved for the life of the building.

The project is located on a previously developed site, within one half mile of two existing residential developments and was able to utilize existing parking to support the building occupants, thereby adding no new parking to the campus. RIT has designated preferential parking spaces in the existing lot to encourage Low Emission Vehicles (LEV) and Fuel-Efficient Vehicles (FEV). In addition, the project is located within multiple public and campus bus lines that are within ¼ mile of the building. In an effort to encourage alternative transportation, the project provided secure bicycle racks and showers with changing rooms.

Materials with high-albedo, low emissivity ratings were used for the building site's impervious surfaces, keeping the urban site more comfortable and reducing its contribution to the heat island effect. These include an Energy Star compliant white roof for 100% of the roof areas, and paving materials with a SRI of 0.35 for 73% of the non-roof impervious surfaces.

The project team minimized light trespass from the building and site in an effort to reduce sky-glow to increase night sky access and improve nighttime visibility and reducing the development impact on nocturnal environments. Minimizing light pollution will allow for night sky access by the surrounding community.

Water conservation is practiced at the ASB building with the implementation of fixtures that reduce potable water consumption by 42% over EPA standards for fixtures for toilet flushing, hand washing and kitchen operations.

The building envelope, HVAC and lighting systems were designed to maximize energy performance. The design achieved a predicted energy performance 45.5% above the baseline standard to reduce environmental and economic impacts associated with excessive energy use. Fundamental and Enhanced commissioning was implemented to verify that the building's energy related



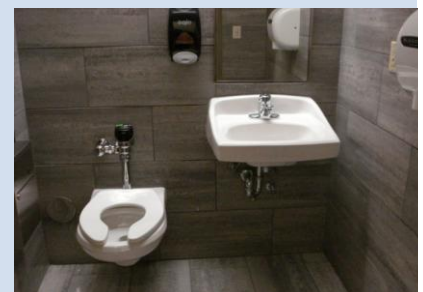
Silt fences around the project site controlling erosion



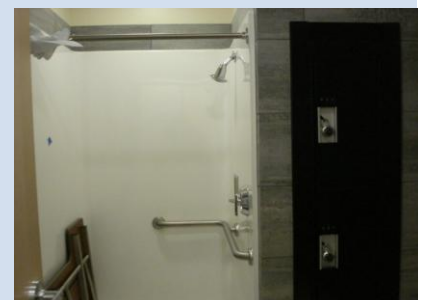
Dedicated open space to remain "forever wild"



Native Species



Water Efficient Fixtures



Showers & Lockers



systems were installed, calibrated and will perform according to the owner's project requirements, basis of design and construction documents. RIT has also installed an on-site renewable energy system consisting of solar photovoltaic panels, to offset 2.5% of the building's energy cost.

RIT facilitates the reduction of waste generated by building occupants that is hauled to and disposed of in landfills by instituting a recycling program at the building by incorporating recycling areas dispersed around the building for generated waste. Designated recycling areas with bins are located in key areas. Products to be recycled include paper, glass, aluminum, and plastic. All recyclable materials are placed in appropriate canisters in the recycling room or taken directly to larger receptacles adjacent to the service entry. All building occupants are expected to participate in this program.

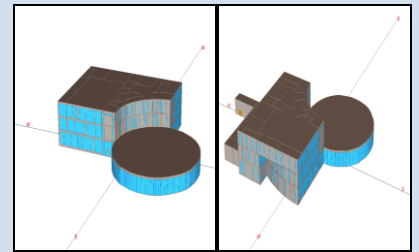
Recycled materials were used wherever possible in the building construction, approximately 30% of the total value of materials. Acoustical ceiling tiles, gypsum drywall, metal stud construction, and steel framing were just some of the items targeted to meet the project's goal.

Materials with low or no VOCs were specified to contribute to the building's Indoor Air Quality during construction and occupancy. Paint, carpet, adhesives, and sealants to name a few contributed to this. In addition, an Indoor Air Quality Management Plan was put into place during construction to reduce indoor quality problems resulting from the construction process and to help sustain the comfort and well-being of construction workers and eventually the building occupants. The principals outlined in the SMACNA IAQ guidelines for Occupied Buildings under construction were employed for control measures. Air handling equipment was not used during the construction phase. A building area flush-out was initiated for the building prior to occupancy to ensure that adequate indoor air quality was achieved.

Materials used in the building which were manufactured regionally were also preferred, in order to minimize the transportation costs associated with the construction. Just over 20% of the total value of the materials and products used were harvested or extracted and manufactured within a 500-mile radius of the building site.

Innovation to sustainability was incorporated in the project by RIT electing to initiate a green housekeeping program in the building. An educational display of the facility's "sustainable" features is planned, and will be a focus for all visitors, as well as, the employees of the college. The college website will also include a webpage dedicated to the "greening" of the Administrative Services Building and Innovation Center in an effort to share knowledge within the industry, as well as, the local community.

To support and encourage the design integration required by a LEED New Construction green building project and to streamline the application and



Energy Modeling



Typical Recycling Stations throughout the building



Steel – High Recycled Content



Concrete – Regional Material



Low VOC paints & coatings



FSC Certified Wood & Rapidly Renewable Wheatboard



certification process, principal participants of the project team were LEED Accredited Professionals (AP). The project team was comprised of:
Rochester Institute of Technology - Facilities Department
Chaintreuil Jensen Stark Architects, LLC – Architect of Record
IBC Engineering PC – Mechanical, Electrical and Plumbing design
Erdman Anthony – Site / Civil design
Jensen Engineering – Structural design
SAIC – Energy Consultants
Sustainable Performance Consulting, Inc. – LEED Consultants
Welliver McGuire – Construction Manager



LEED Accredited Professional
Designation



United States Green Building
Council's Certification Program -
LEED™

