

Environmentally Sustainable Design of the ICA

VCU's new Institute for Contemporary Art (ICA), opening April 21, 2018, was designed to meet LEED Gold Building standards by Steven Holl Architects, in collaboration with BCWH, using environmentally sustainable materials and features. VCU and the ICA are committed to building a greener and more sustainable campus and world. The 41,000-square-foot Markel Building at the ICA incorporates technologies that ensure a positive environmental impact. Located at the busiest intersection in the city and easily accessible via public transportation or bicycle, the ICA will serve as a significant new cultural resource for VCU and the Richmond region.

Design Highlights

- 100% recyclable titanium zinc exterior paneling, composed of 40% recycled content
- Permeable landscape design includes Pennsylvania bluestone and native plant species
- 43 geothermal wells provide energy for radiant floor system
- More than 8,000 square feet of green roofs reduce storm water runoff and insulate the building
- East- and west-facing translucent cavity walls to modulate light and reduce solar load

Energy + Atmosphere

- Vertical glass and skylights are featured in all galleries, the Forum, and the third-level administrative suite. The glass ranges in transparency from clear to opaque, and is formulated to optimize the glass transmissivity for ideal lighting of each space, while also filtering out the ultraviolet radiation that can damage works of art. Additional lighting throughout the building is LED.
- Six miles of radiant tubing is embedded in the top four inches of the concrete floors in the galleries, Forum, and third-level administrative suite. These are connected to 43 geothermal wells drilled to depths between 400 and 600 feet below ground, creating a hydronic closed-loop system. The energy sourced from the wells is converted into radiant floor heating and cooling, harvesting the same amount of heat energy from the ground during winter to heat the building as it puts back in the ground during the summer to cool the building. In the swing seasons the 55-degree ground temperature water provides 'free cooling' where needed in the building.
- 3,350 square feet of glass cavity walls exist on significant portions of the western and eastern faces of the building. These double-paned glass walls will reduce heat transfer out during winter months, and reduce heat transfer in during the summer.
- Plumbing fixtures that include low-flow faucets and spouts contribute to a 35% decrease in demand for potable water and wastewater treatment.
- Green roof assemblies cover three of the four gallery roofs. Blanketed with native species, the green roofs help insulate the building during cold months, reduce the creation of urban heat during hot months, and reduce storm water runoff. Green roof assemblies are designed to be low-maintenance and require no watering or weeding. The assembly consists of membranes and insulation layers that guard against leaks. One of the three green roofs will be accessible to the public.

- Six species of native Virginia vegetation are included in the landscaping, which honors the local biodiversity of Central Virginia. The variety of plants, which includes broom sedge, Pennsylvania sedge, little bluestem, stonecrop, northern sea oats, and blue-stem goldenrod, will offer a range of color, texture, and height. These species are drought-tolerant and thus promote water efficient landscaping.

Materials + Waste

- 100% recyclable zinc panels cover the exterior of the building. The paneling contains 40% recycled content, resists corrosion, and is a natural fungistat, which reduces the risk of mold, mildew, and fungus.
- Bluestone pavers pave the Thinking Field on the ground-level exterior space. Bluestone, or basalt rock, can withstand cold winter and freeze-thaw cycles. The paver joints are permeable crushed bluestone fill, including a stabilizer that expands with moisture and keeps the pavers in place.
- 30% of materials used during the construction phase were recyclable and more than 20% were regionally sourced, including concrete, structural steel, steel decking, drywall, studs, doors, insulation, zinc panels, and carpet.
- Forest Stewardship Council (FSC) certified cherry wood adorns the walls of the auditorium. All casework and doors also are FSC certified.
- The alley adjacent to the building is a “green alley.” This design strategy is being adopted across the city of Richmond and has been shown to reduce storm water runoff while filtering silt and pollutants, and reducing the heat island effect given off by asphalt.