

Sustainability Features of the New St. Olaf President's House 2023

Strategies and narrative provided by lead architect from Rehkamp Larson Architects firm.

Construction by Dovetail Construction.

Sustainability Strategies

- Energy efficient building envelope
 - T-mass foundation walls (continuous integral rigid insulation from footings to framing sandwiched between concrete) provides excellent thermal performance and allows interior portion of the concrete to help hold ambient interior temp
 - Structural Insulated Panels (SIP's) at exterior walls and vaulted roof contain continuous insulation without the thermal bridging at studs of conventional construction
 - Anderson E-Series windows with low-e double glazed insulating glass
 - Reclaimed timber trusses in main public space
- Energy efficient systems
 - LED lighting throughout
 - Energy efficient HVAC systems and appliances
 - Extensive natural daylighting with generous windows and Solatubes in the upper hall
- Durable long lasting materials
 - Exterior - stucco, composite trim, limestone at chimneys, clad windows, stone terrace
 - Interior – hardwood and tile floors, limestone fireplaces, natural stone countertops, durable custom cabinetry, low VOC paint
 - Fast growing Poplar wood paneling for trim and ceilings and Walnut harvested from the site where possible – bar tops and dining tables made on campus
- Site planning
 - Use of native plantings for landscaping
 - Replacement of trees removed during construction
 - Water collection/management system
 - Accessible design throughout

Sustainability Narrative

The St Olaf President's House, with its balance of gracious public spaces and its comfortable domestic areas, was designed to accommodate generations of College Presidents and their families. Located in Norway Valley, just south of Old Main, the house provides a balance of visibility and privacy, close enough to campus buildings for the President to walk to work yet far enough away to provide a quiet retreat for family life. The driveway connects the house to campus on the west for vehicular and bicycle access and a wood chip walking path to the east connects to the residential streets of Northfield. The larger daylight public spaces in the house accommodate gatherings, celebrations and events with a dining / living room anchored by a cozy fireplace clad in signature campus limestone conveniently supported by dedicated kitchen and service areas. Easy access to covered and open outdoor patio spaces allow for even larger groups when the weather allows with views through the woodlands up toward campus.

Many sustainable principles were used in the design and construction of the house. The foundation has integral insulation between two layers of concrete providing excellent moisture and thermal protection and allowing the interior to serve as a thermal mass efficiently retaining the interior ambient temperature of the house. Exterior walls and the roof of the vaulted living room are made of prefabricated structurally insulated panels, a thick continuous layer of rigid insulation with plywood sheathing inside and out, that avoids the issue of thermal bridging inherent in standard stud wall construction. On the private side of the house, roofs were framed with scissors trusses that allow for extra insulation in the their vaulted form.

Materials and systems for the project were selected for their durability, longevity, and beauty inside and out. On the exterior, limestone and stucco were used for the chimneys and facades, both extremely low maintenance and robust materials. Stable composites were used for trim and soffits for their ability to hold paint and stained cedar for front columns and beams at the entry will age gracefully over the years. Inside, sustainable materials were selected that would develop a patina and look better with use and age – hardwood and slate floors, bleached Poplar trim and ceilings, White Oak cabinets and reclaimed Douglas Fir timbers for the roof trusses in the living room. Low VOC paints and finishes were used for better indoor air quality, LED dimmable lighting, high efficiency heating and cooling systems and low flow plumbing fixtures were used throughout.

The house has generous carefully placed windows providing excellent natural daylighting throughout the plan giving a sense of wellness, connecting the indoor spaces to the natural wooded landscape of the site and reducing the use of electric lighting energy. The public spaces were located on the north of the floorplan so that larger areas of glazing in those spaces would not result in excessive heat gain in the summer. Additional natural daylighting from above was added in the upper hall using solar tubes through the roof since the hallway is located in the middle of the floorplan without sidewall access. The windows selected for the project are thermally broken low-e insulated double pane clad windows with operable sashes strategically placed for convenient access to fresh air and cross breeze. In addition, a screen porch on the east side of the house, just off the family room and kitchen, provides healthy access to mosquito free alfresco dining for the family.

Water management on the site was carefully considered and integrated into the existing series of ponds and drainage systems that serve this side of the campus both during construction and in the final design. Gutters and downspouts collect and direct water away from primary access points to the house and into this system. Care was also taken in the design to cover public, private and service doors to the house, especially in the winter with the life safety risk of icy conditions for older residents and guests. Landscaping on the site makes use of native planting and was designed to capture and direct the drainage into the pond system, reestablish the natural planting and replace trees removed for driveway, proper grading and house construction. Outdoor lighting fixtures provide ambient light for pathways and patios while observing the principles of dark sky anti light pollution design.

The end result is a house that is welcoming and accessible to all, connects its residents and guests to adjacent natural outdoor spaces, expresses the values of the college community and makes economical use of resources.