

the environmental technology center

sonoma state university

The Building Management System is the electronic brain behind this smart building. Using multiple micro-processors and integrated with a roof-mounted weather station, temperature, light, and occupancy sensors it provides the ability to operate windows, skylights, lighting, and various shading devices.

Some features include:

1. Windows are dual-glazed, low emmissivity, argon filled, to reduce heat loss and gain. Many windows are motorized to provide natural ventilation and cooling.
2. Sunshades are adjusted by the building management system to let light in directly, indirectly or to completely shade windows on the south side of building.
3. Slab floor uses a new concrete mix that replaces 50% of the CO₂-intensive Portland cement with rice-hull ash and fly ash, agricultural and industrial waste products. The floor is also part of the active heating system which utilizes hot water circulated through inlaid tubing in the flooring to provide supplementary heating.
4. Roof is made of galvanized recycled steel with "peel and stick" roof-integrated photovoltaic modules of thin-film silicon that will provide up to 3000 watts of solar electricity.
5. A clerestory with windows that are dual glazed with a special film that allows in daylight, controls solar gain, and can be shaded with a motorized venetian blind. The clerestory roof is made of recycled copper and will last the lifetime of the building.
6. Natural shading will be accomplished by the extensive use of deciduous vines (which lose their leaves in the fall) grown over the wire trellises located in the entry area, and on the east and west sides of the building.
7. Exterior siding is made of a fibrous cement shingle that will be long-lasting, guaranteed for 50 years, and require very low maintenance.
8. Trellis support beams are a plastic lumber made from recycled plastic bottles.

