Sustainable Architecture for a College of the Future: Newark Center for Health Sciences & Technology.

The Center Contributes to the Environment & the Environment Contributes to the Center

Sustainable Sites:
- Soils remediation / Transforms undeveloped Brownfield area into usable open space
- Benefits entitlement process / Provides rare learning resource

Water Efficiency:
- Drought-tolerant landscape retains storm water, discharging to a preserved wetland
- Lower utility fees and maintenance

Energy and Atmosphere:
- Passive cooling and conditioning / High-performance mechanical systems
- Reduced operating costs

Materials and Resources:
- Low embodied energy / Local sourcing
- Supports local economy

Indoor Environmental Quality:
- Building responds to local climate, through passive cooling and heating
- Faculty, staff and student retention and recruitment

Innovation in Design:
- Energy and environmental features are revealed, explained and integrated with educational programs
- Recognized leadership contributes to program growth / Enhances learning experience
Ohlone College’s Newark Center for Health Sciences and Technology will initially serve 3,500 students in the academic areas of health sciences and technology, with career programs in health care, the sciences and emerging technologies. Allied health programs include nursing, respiratory therapy, medical & physical therapy and health & wellness, with technology programs in biotechnology, computers, networks, emerging technologies and environmental studies.

Because of the College’s strong environmental commitment, the Center was required to earn U.S. Green Building Council Leadership in Energy and Environmental Design (LEED) certification from the beginning. Now that the project has finished, the Center’s environmental performance is expected to earn it Platinum certification – the highest that LEED awards.

Among the Center’s many unique features is its “Learning Estuary,” where students can experience and study a natural transition zone between land and sea, where fresh and salt water mix to create a rich environment teeming with life . . . without leaving campus. This innovative learning concept is based on the paradigm of technological advancement within an ecologically sustainable environment.

As a theme connected to many of its academic programs, the Center supports stewardship of southern San Francisco Bay, whose estuaries provide physical context and character for the campus architecture and landscape design.

**ARCHITECTURE**

The Center’s mass and aesthetics are consistent with the campus Master Plan. Building orientation and shape, as well as the design of roof overhangs, respond to operational and climatic conditions, with massing that buffers high winds and overlapping roof forms that animate the structure. The building’s form is tailored to meet the Center’s instructional and service needs, with circulation routes in and around the building arranged to promote interaction.

Exterior materials, selected for durability, maintainability and aesthetics, follow the Master Plan’s palette and support the relationship between the Center and its environment. Glass, cement, plaster, fiber-reinforced concrete and metal are the primary exterior materials, while roofs combine metal and membrane as “folded planes” that extend to provide shade on sunny days and drape over the building edge to form rain screens during inclement weather.

The building has two wings, one for Health Sciences and the other for Technology. The two wings come together around a campus green, joined by community areas including a Learning Resource Center, General Education area, Clinic and the Campus Commons with access to the bookstore, café and Scholarly Activity & Training areas.

**EDUCATIONAL PROGRAM**

Teaching methods are shifting away from what President Treadway calls “standing up and lecturing to a group of people sitting in fixed seats dutifully taking notes,” moving instead toward active, collaborative, learning. Students schedules will be more like a workplace, with classes clustered in time blocks instead of spaced apart. Instruction will be interdisciplinary and based upon themes instead of isolated subjects, with students working in thematic “learning communities” that combine multiple subjects, such as integrating psychology, writing and science to explore cultural diversity.
Environmental sustainability was key from the outset, prompting the design team to seek out green solutions from the earliest planning stages through project completion. Even the site itself, once farmland where herbicide was extensively used, required environmental remediation: the affected soil was dug up and set-aside for cleansing by contaminant-eating bacteria.

Many familiar environmental practices are used at the Center, such as solar power. 1585 photovoltaic panels covering 36,000 square feet of roof make this Silicon Valley’s largest solar panel installation, providing up to 30% of the Center’s energy needs (equivalent to taking 1,000 cars off Bay Area freeways daily).

Energy required for cooling and heating is substantially reduced by a geothermal system utilizing comparatively stable subterranean temperatures to cool interior air on hot days and warm it on cold days. After traveling through the system’s 26 mile-long underground pipeline, the geothermally treated air is recirculated into the building.

Additional energy savings are delivered by twin enthalpy wheels, or rotary air-to-air heat exchangers, located behind a glass wall in the main lobby. The device captures wind-contained heat and humidity on cold days, preheating incoming air with reclaimed energy that would otherwise be wasted.

Innovative, environmentally sound water conservation techniques were also employed. Ohlone’s drought resistant landscape design makes use of native plant species exclusively, and water not used for irrigation is first filtered then channeled back into the South Bay wetlands. The Newark Center’s landscaping, soil and water conservation plan was recognized by StopWaste.org with a $110,000 Green Building and Bay-Friendly Landscaping® grant.

Other conservation measures include recycled construction materials, flooring and carpeting with recycled content, and insulation made from recycled blue jeans. Sustainable wood is used for doors and cabinetry, while elevator lobbies feature Guatemalan hardwood harvested in accordance with Forestry Stewardship Council standards.

The use of low emission paints, carpets and furnishings, diversion of 50 to 75% of construction waste, and multiple alternative transportation modes are just a few more examples of the many techniques used to create this exemplary model of green design – a facility expected to set the sustainable design standard for educational institutions for years to come.
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**P E R K I N S  
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The San Francisco office of Perkins+Will serves clients throughout the nation on Higher Education, Science+Technology, Corporate, Commercial and Civic projects. Besides the Ohlone College Newark Center, key SF Office Northern California projects include Contra Costa Community College Master Plan, Mission College Learning Resource Center and Science & Technology Building, Stanford University’s Clark Center and Lucas Center Expansion projects, UC Davis Giedt Hall Classroom Building and Earth & Physical Sciences Building, Lawrence Berkeley National Laboratory’s Computer Research and Theory Facility and Genentech’s South Campus Phase Two Laboratories.

Established in 1935, Perkins+Will (www.perkinswill.com) is an integrated design firm with 1,300+ staff serving clients from 20 domestic and foreign offices. With more than 750 LEED® Accredited Professionals, and dozens of LEED Certified and/or Registered projects, Perkins+Will is recognized as the preeminent sustainable design firm in the Country. Building a more environmentally stable future requires two things: vision and experience. Sustainability is woven through the fabric of every project - it’s how we practice and how we live. We are committed to reducing energy consumption while enhancing local environments. We believe that showing leadership, researching new solutions and sharing knowledge creates ideas and buildings that honor the broader goals of society.

We are honored to have lead the planning and design team for the Ohlone College Newark Center for Health Sciences and Technology.

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