



NOAA FISHERIES SERVICE

Southwest Fisheries Science Center



La Jolla Laboratory Replacement Project



Sustainable Strategies

<http://swfsc.noaa.gov>

The La Jolla Laboratory is Designed and Constructed in Order to Maximize Energy Savings and Green Building Opportunities

Low Impact Exterior Materials – The primary exterior walls of the La Jolla lab are made of stucco and concrete; they were produced locally, require less energy to produce, have a long life span, are heat resistant, and durable to the coastal weather.

Energy efficiency - Energy savings were accomplished through several key strategies: offices with fan-assisted natural ventilation, high efficiency equipment, and high efficiency lighting. The LEED energy model shows that the building is projected to have a 25% reduction in overall energy use. Cooling energy use is 69% less than the ASHRAE (American Society of Heating, Refrigerating & Air Conditioning Engineers) 90.1-2004 standard. This means the project meets the federal requirement for new buildings under the Energy Policy Act.

Solar energy – Roof-top photovoltaic power provides a 7% reduction annually in the amount of electricity needed from the public power grid, enough energy to power 40 houses and to assist the region in diminishing peak electrical load demand.

Natural lighting – Narrow floor plates, terraces, atrium corridors, and openings to the outdoors within the building perimeter will allow natural light to penetrate, while terra cotta louvers will reduce heat build up inside the building and shade against sun.

Natural ventilation – Opening windows will allow access to fresh air while high ceilings, ceiling fans and warm air intake above the windows provide low-tech, energy-efficient means of controlling workplace temperatures. Occupancy sensors and thermostats will control the exhaust dampers.

Storm water control – A series of vegetated swales (depressions) will collect runoff, a significant concern in La Jolla. The vegetation will reduce the velocity of storm water flow and naturally filter particulate matter. During large rain events, storm water flows will pass through the vegetated swales and into a series of vegetated desiltation basins, allowing sediment to settle out before the runoff is discharged. Excess water will overflow to an underground storage tank to be slowly released to the city's storm water system.

Green roofs and terraces – Vegetated roofs and terraces, planted with California coastal vegetation, will cover about 30% of the total roof surface. The green roofs will keep the building temperatures moderated and retain rainwater. Viewed from the street above, the green roof will blend with the native vegetation around the building. Bat and raptor boxes will provide habitat for native fauna.

Native vegetation: During construction, non-native plants, such as eucalyptus, were removed from the building site and replaced with native California coastal chaparral and Torrey pines. In addition, an area of the nearby UC San Diego campus, equal in size to the project site, was restored with native plants including such species as toyon, lemonade berry, laurel sumac and coastal scrub oak.



NOAA FISHERIES SERVICE SOUTHWEST FISHERIES SCIENCE CENTER LA JOLLA LABORATORY REPLACEMENT PROJECT SUSTAINABLE STRATEGIES

How does the La Jolla Laboratory minimize its carbon footprint?



SOLAR ENERGY

Photovoltaics power offsets electricity generated by ceiling fans and lights

TERRA COTTA LOUVERS

Reduce thermal gain on building, shades against low sun angles

GREEN TERRACES

Cover 30% of total upper surfaces to moderate temperatures and control rainwater

HIGH CEILINGS

A low-tech, passive means of allowing hot air to rise above occupants

CEILING FANS

Provide additional low-tech, low-energy occupant comfort

NON-CONDITIONED VENTILATION AIR

Intakes air 10 feet above ground level and distributes throughout office area

OPERABLE WINDOWS

Allow occupants to control access to fresh air

OCCUPANCY SENSOR & THERMOSTAT

Control lights and ventilation

VEGETATED DESILTATION BASINS

Runoff from severe rains inundates basins, collects subsequently in on-site underground storage tank, and then releases slowly into city's storm water system

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