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Affirming the Hippocratic Oath’s fundamental mission of “…first, do no harm”, the University of Hawai‘i John A. Burns School of Medicine recognizes the profound impact of the built environment on the health its occupants, the surrounding communities, and global ecology. Included as part of the construction requirements by the University of Hawai‘i, JABSOM adopted U.S. Green Building Council’s (USGBC) Leadership in Energy and Environmental Design (LEED) Rating System to design, build, and operate a high performance green building. By adhering to LEED standards, the school enhances the learning environment for students, creates healthy and productive work environments for staff, and exemplifies responsible ecological stewardship. LEED promotes a whole-building approach to sustainability by recognizing performance in five key areas of human and environmental health:

- SUSTAINABLE SITE DEVELOPMENT
- WATER SAVINGS
- ENERGY EFFICIENCY
- MATERIAL CONSERVATION
- INDOOR ENVIRONMENTAL QUALITY
The University of Hawai‘i John A. Burns School of Medicine (JABSOM) is a world-class education and research complex located at the center of the Kaka‘ako Waterfront. The $150 million JABSOM complex functions as an economic engine for the state that will create quality employment opportunities, increase biomedical research activity, and be a stimulus for the biotechnical industry in Hawai‘i.

• 9.9 acre site
• 4 story Education/Administration Building
• 4 story bio-medical research facility
• Child Care Center, fitness center for staff, central mechanical/electrical plant

The architectural and interior design of the University of Hawai‘i John A. Burns School of Medicine includes many historical elements of old Hawai‘i that were developed into a story line. Healing plants, elements of nature, ancient gods of healing, and symbols and images of patterns were “re-created” and developed into contemporary patterns and themes that are seen throughout the campus grounds.

These represent the strength, respect, and acknowledgement of traditional beliefs and the foundation they lay for today’s students. They are expressed in motifs on exterior windows, etched elevator panels, and signage by direct patterning.

The buildings are designed with heavy multi-colored pre-cast concrete panels which double as the structural system and the architectural wall finish. A Hawaiian motif band is incorporated into the pre-cast concrete panels. Kapa patterns representing natural elements such as rain, wind, water, as well as a DNA strand, are included in the motif band. Hawaiian healing plants are etched in the glass at the main lobby of the Education/Administration building.

The interior lobby soars to an open atrium four-stories high. The classrooms, cafe, auditorium, library, and lab areas are provided with ergonomically engineered furniture adding to the state-of-the-art research and educational focus. The interior color scheme incorporates rich colors and patterns, while alternating blue and green colors of nature vary throughout the floors and aid in wayfinding concepts.
JABSOM is located on a former city refuge, which deems it as a brownfield site, a contaminated site that can be remediated and redeveloped for reuse. Remediation efforts on the JABSOM site removed hazardous materials from the soil and groundwater which reduced human exposure to environmental pollution. Redevelopment on the existing brownfield site reduced the need for the urban expansion, construction of a new infrastructure and consumption of natural land areas.

JABSOM reduces air pollution and land development impacts from excessive automobile use by promoting the use of:

- Bicycles by providing proper storage & changing / shower facilities.
- Public transportation which is in walking distance from the facility.
- Low-emission and fuel efficient vehicles by providing preferred parking stalls for its users.
- Car/vanpool by providing preferred parking stalls for its users.

JABSOM mitigates urban heat island effect and the volume of storm water runoff by:

- Maximizing green open space, and minimizing the building footprint on site. The former asphalt lot was transformed into a vegetated, open courtyard with native Hawaiian healing plants.
- Providing pedestrian pathways that absorb water and are of high solar reflectance to mitigate heat absorption.
- Minimizing the size of the on-grade parking lot and introducing more trees on the lot for shade.
By utilizing a Cold Seawater Cooling System, the University saves approximately 25 million gallons of drinking water and $750,000 in air conditioning costs every year. The cooling system operates through two extraction wells that supply cold sea water from a depth of 750 feet. The seawater is pumped through a series of heat exchangers, cooling the ambient temperature before being returned to the 1,850 foot deep gravity injection well. This system saves drinking water typically used for mechanical systems because it eliminates the cooling towers and the evaporation process found in typical commercial air conditioning systems.

In addition to the cooling system, the installation of low flow fixtures and occupant sensors at JABSOM reduce the demand on municipal water supply by more than 20%.

Many people are surprised to learn that buildings are the single largest contributor to global warming. According to the US Energy Information Administration, buildings consume approximately 48% of energy produced in the US annually.

JABSOM optimizes energy performance by reducing the energy cost budget for the building by 20%, which amounts to over $160,000 savings per year. The energy efficiency of the proposed design is contributed to the following features:

- High performance windows and light shelves*
- Energy efficient lighting
- Occupancy sensors and day light sensors to moderate and conserve building electricity.
- High Efficiency Chillers
- Seawater cooling in lieu of cooling towers

* A light shelf is a simple application that provides shade on the building facade, but it also bounces natural sunlight deep into interior spaces.
The process of extracting, manufacturing, and transporting building materials to Hawaii can generate air and water pollution, destroy natural habitats and deplete natural resources.

Oahu landfills are reaching capacity - construction and demolition waste is the largest contributor to the landfill.

JABSOM implemented a construction waste management plan that recycles materials back to the manufacturing process, and supplies reusable materials to appropriate sites. The contractor for JABSOM diverted waste from Hawaii’s landfills by recycling and salvaging 85% of all construction and demolition waste.

20% of the materials used on the project were manufactured locally. Over half of the locally manufactured materials were extracted rock and sand used for concrete. By selecting and utilizing locally manufactured materials, transportation costs and environmental impacts are reduced. Money used for the project materials are retained in the region, thereby supporting the local economy.

Indoor Environmental Quality ensures the comfort and well-being of JABSOM students, faculty, and staff by considering:

- Views to the exterior
- Exposure to daylight
- Optimal indoor air quality
- Controllable temperature and lighting

Building materials used in the interior construction have been critically reviewed to ensure all adhesives, sealants, paints, carpets, woods, and furniture do not contain chemical contaminants such as volatile organic compound (VOC) emissions, formaldehyde, particulate matter, and carbon monoxide, which adversely affect the indoor air quality.

Sustainable building maintenance cleaning products and materials are used to improve indoor environmental quality and reduce the amount of raw material extraction. Custodial Paper products are chlorine-free and contain recycled content.

Cleaning products are “Green-seal certified”, meaning they have been thoroughly tested for toxicity to aquatic life, biodegradability, and air quality degration.
SUSTAINABLE DEVELOPMENT
WATER SAVINGS
ENERGY EFFICIENCY
MATERIAL CONSERVATION
INDOOR ENVIRONMENTAL QUALITY

SITE PLAN

ENERGY EFFICIENT LIGHTING
LIGHT SHELVES
LOCALLY MANUFACTURED MATERIALS
VANPOOL PARKING
STORM WATER MANAGEMENT PERVIOUS SURFACES
ALTERNATIVE FUEL VEHICLES
DEEP OCEAN WELL WATER
VIEW OUTDOORS
USING DAYLIGHT
VIRTUAL TOUR

MEDICAL EDUCATION BUILDING

1 LOBBY
Ancient Hawaiian healing plants decorate the glass windows. Actual plants are in the campus Hawaiian Healing Garden.

2 KULIA GRILL
Open to public (Monday-Friday) for breakfast and lunch; operated by Kapiolani Community College Culinary Institute. Tel. 692-0803

3 HEALTH SCIENCES LIBRARY
Collections include a wide variety of print and electronic resources, primarily in the clinical sciences. Computer lab of 30 workstations.

UPPER FLOORS  Restricted - escort required

1 CLINICAL SKILLS CENTER
Includes 12 examination rooms outfitted to simulate physician offices.

2 TELEHEALTH
Virtual reality technology for medical and surgical simulations.

3 AUDITORIUM
150-seat lecture/meeting center.

TUTORIAL ROOMS
Classrooms used for problem-based learning sessions.

ACCESS GRID ROOM
High-tech videoconference facility and distance learning center.

RESEARCH BUILDING  No public access

1 RESEARCH LABS
Efficient design employs movable modular walls and lab benches; floor plans encourage collaboration among scientists.

ANATOMY LAB
State-of-the-art facility for teaching human anatomy features 29 workstations for dissections; plastination lab for preserving specimens.
TOUR Information

JABSOM tours are available to the public, please contact Tina Shelton, UH JABSOM Communications Director.

P: 808.692.0897
e-mail: sheltonl@hawaii.edu
website: jabsom.hawaii.edu/jabsom/

GREEN Information

For more information about sustainable building design and construction please visit www.usgbc.org or call 202.828.7422.

DESIGN Construction Team

ARCHITECTS HAWAI‘I LTD, architect and interiors
SSFM INTERNATIONAL, structural engineer
THERMAL ENGINEERING CORPORATION, mechanical engineer
RONALD HO & ASSOCIATES, electrical engineer
MITSUNAGA ASSOCIATES, civil engineer
ENSAR GROUP, sustainability consultants
MARC SIAH & ASSOCIATES, deep well cooling systems consultant
HONOLULU COOLING NETWORK BWS, district cooling consultant
HAWAIIAN DREDGING KAJIMA, general contractor
THOMPSON MATHENY CORPORATION, owner’s project manager