ON-CAMPUS STUDENT HOUSING
AT THE
UNIVERSITY OF HAWAI'I AT MANOA

SUSTAINABILITY AND ENERGY PERFORMANCE GUIDELINES

Background:
The University of Hawaii is committed to incorporating principles of sustainable design and energy efficiency into all of its building projects. Sustainable design seeks to design, construct and operate buildings with reduced levels of natural resource consumption and improved interaction and impacts from the built environment on natural and human environments. Sustainable design improves building performance while improving the quality of life for the building’s occupants as well as for the community surrounding the project site. It is an integrated, synergistic approach that brings all of the development team, including design professionals and other stakeholders, into the process at the earliest possible stage and in which all phases of the facility lifecycle are considered. The result is an optimal balance of cost, environmental, societal and human benefits while meeting the mission and function of the intended facility.

Design Principles:
The design of the student housing facilities will be executed in the context of sustainability so that, community design, life-cycle costs, energy/resource consumption, and overall quality of the facilities will be identified and analyzed throughout the design, construction and post occupancy phases of the project.

The facilities will be designed to exemplify, through demonstration, new standards of high-performance energy and water use and improved interior and
exterior environments all of which will support the scholastic mission of its residents and enhance safety and the social, cultural and economic interaction with the surrounding communities.

The following areas of focus are meant to guide the design of the project. Respondents to the RFP are to include but are not limited to these considerations when submitting their application and describing the strength of their proposal.

1. **Urban and Community Design** - Improve Conditions For The University And Larger Surrounding Community

2. **Site** - Optimize Site Potential

3. **Building Design** - Optimize Building Design Reduce Energy/ Resource Consumption And Enhance Quality Of Life

4. **Energy** - Minimize Overall Energy Consumption

5. **Water** - Protect And Conserve Water Resources

6. **Materials** - Use Environmentally Supportive Building Materials And Products

7. **Interior Environmental Quality**
8. Operation and Maintenance of Buildings and Grounds
Optimize Operational And Maintenance Practices

These principles shall serve as the basis for planning, programming, budgeting, construction, commissioning, operation, maintenance, as well as for the qualitative aspects of building form, spatial development, program adjacencies and overall aesthetics. Applicants must describe ways in which their proposal will successfully address each of points listed above.

The following further describes the principles listed above.

1. Urban and Community Design-
Improve Conditions For The University And Larger Surrounding Community

It is a primary interest of the University of Hawaii to be a good neighbor while providing the best educational and residential facilities to its student and faculty. It is a fundamental commitment of this university that, when developing its properties, it is creating solutions, not problems, for the community.

The University of Hawaii is committed to maximizing the returns on its real estate investments and to leveraging its investments in ways that support local communities, wherever possible. Collaboration with local officials, neighboring property owners, residents, and appropriate interest groups is essential to shape the project in ways that provide positive benefits to the surrounding neighborhood and community.
Project teams should seek out potential issues and collaborate with local partners to solve them. Aggressive identification of issues and opportunities is necessary to minimize project risk and delay, strategize the long-term use and maintenance of the facility, maximize the project's positive impact on the community, and bring local resources to bear on delivering the best final product to the university.

Issues of common interest, such as facility size and location, architectural and urban design, parking, transportation, resource use, enhanced pedestrian environments and security provide significant opportunities to work to address issues that affect both on-site and larger community functions. Partners should include not only city officials but other entities, including student groups, with relevant knowledge, concerns, or resources. Formal planning and consultation processes are important but less formal planning, information sharing, and problem solving activities can be equally valuable to the project team and the project outcome.

2. Site-
   Optimize Site Potential

Successful site planning and design depends on a thorough review and understanding of existing conditions on and around the site. An on-site investigation must be carried out prior to the design effort.

Opportunities on the site to enhance safety, educational experiences, social interaction, water recharge, energy savings and renewable energy opportunities should be evaluated and incorporated into the design whenever possible.
The quality of the site design will be a direct extension and integration of the building design intent. It should make a positive contribution to the surrounding urban landscape in terms of conservation, community design and improvement efforts, local economic development and planning, and environmentally responsible practices must be incorporated into the site planning.

3. Building Design -

**Optimize Building Design Reduce Energy/ Resource Consumption And Enhance Quality Of Life**

The building designs are to maximize opportunities of site and environmental integration. The building siting and the building's form should be developed to support the program and maximize opportunities for thermal control, daylighting, ventilation, renewable energy generation including solar hot water, and interact beneficially with the landscape. The building should be designed to maximize energy and water efficiency and, along with the site design, provide safe, pleasing spaces and provide an overall model to the students and community on sustainable design and operation.

The architects and engineers should make every effort to reduce material waste, embodied energy of the chosen materials and develop a construction and waste management plan for the project. Material choices that are not harmful to the building occupants or the environment and support the local economy are strongly encouraged.

University buildings undergo many changes during their lifetime. As a consequence, requirements for space and services change frequently, and space must be reconfigured often. The flexibility to accommodate continual change needs to be “built in” to the building design from the outset and respected in subsequent alterations. Systems flexibility is necessary in this student housing
project and all university building projects.

4. Energy-
   Minimize Overall Energy Consumption
On June 3, 2002, the Hawaii State Legislature passed Act 77. This legislation identifies levels of energy and water conservation and Life Cycle Cost Analysis with which all state facilities are obligated to comply. It is the intent of this Request for Proposals that all respondents to this RFP be capable of delivering student housing facilities that, in both their design and actual operation, meet and preferably exceed the goals of Act 77.

A comprehensive, whole building design approach to energy use in the dormitories should be taken. Energy Star products and materials, building orientation and envelope design to control thermal gains, and encourage natural ventilation and daylighting is strongly encouraged. Energy efficient lighting and mechanical design are fundamental design strategies that should be utilized. Combined heat and power, renewable energy, ground source heat pumps and other energy conserving systems that are appropriate to this building type, should be evaluated as long-term, cost effective applications.

This project shall employ Total Building Commissioning (TBC) practices to assure delivery of program goals and related performance requirements.

5. Water-
   Protect And Conserve Water Resources
Elongating the sustainable yields of Hawaii’s aquifers and maintaining and improving the quality of water available for human consumption are growing concerns in Hawaii. The design and operation of the facilities should use every
opportunity to conserve water through measures such as: low flow and reduced water demand fixtures and water efficient landscape design and irrigation. Every opportunity to recharge ground water supplies through measures such as use of pervious surfaces, storm water management and water catchment from building surfaces should be optimized. Reducing water consumption by at least 20% from 1990 levels is the design goal.

6. Materials-

**Use Environmentally Supportive Building Materials And Products**

Material choices should support healthy interior and natural environments, be resource and energy conserving, be reusable and/or recyclable and support the local economy.

7. Interior Environmental Quality

**Enhance Indoor Environmental Quality**

A healthy indoor environmental quality improves occupant productivity, reduces sick days and increases occupant satisfaction with surroundings. Proper ventilation, temperature, humidity and acoustic control must be supplied to the student housing spaces regardless of whether they are mechanically or naturally cooled. Materials that emit noxious or offensive gases should not be utilized. Strategically flushing the building during construction and before occupancy is encouraged.

8. Operation and Maintenance of Buildings and Grounds

**Optimize Operational And Maintenance Practices**

No matter how sustainable a building may have been in its design and construction, it can only remain so if it is operated responsibly and maintained
properly. Consider establishing a training program for building operators, housekeeping and occupants in the use of non-toxic cleaning products, testing environmental systems and control systems to maintain energy efficient and healthful building systems operation.