PROJECT DESCRIPTION & INTRODUCTION

PROJECT NAME: Leeward Community College: Ka ‘Imi ‘Ike (The Education Building)

PROJECT LOCATION: Pearl City, HI, USA

PROJECT SIZE: 19,431 sf

PROJECT COST: $14 million

PROJECT NARRATIVE

Ka ‘Imi ‘Ike, a new education and innovation instructional facility accommodates the growth of the teacher education component of the social science division for the Leeward Community College, University of Hawaii system. The facility meets the need for expanded instructional offices, meeting spaces and classrooms within a single facility to address Hawaii’s teacher shortage and other educational related workforce development needs of the region.

Leeward Community College opened in the fall of 1968 at its current location in Pearl City, O‘ahu in the vicinity of Pearl Harbor’s Middle Loch. Ka ‘Imi ‘Ike is located to the east of the existing theater and overlaps a portion of the existing theater plaza. A main pedestrian promenade runs on an East-West axis on the southern side of the building, where shade trees and outdoor learning spaces are provided.

Ka ‘Imi ‘Ike provides a strong example of a building informed by its environment and surrounding conditions. Elongated on an East-West axis, Ka ‘Imi ‘Ike’s long linear plan provides optimal daylight and natural ventilation to the building’s occupants while minimizing solar exposure to its facades. To its north, Ka ‘Imi ‘Ike has peaceful mauka views of the Waianae and Ko‘olau Mountain Ranges; to its south are expansive makai views of Pearl Harbor and Diamond Head.

During the planning of the project, an emphasis was put on sustainable design. Circulation spaces were moved to the exterior of the building to minimize cooling loads. A brise soleil on the southern facade provides shading for exterior circulation while still allowing daylight and views through the southern facade. The project also reduces the impact of stormwater run-off through a system of green roofs and bio-retention swales. A photo-voltaic system generates energy for the building while providing shade to the third floor roof deck.


PROGRAM

Ground Floor

<table>
<thead>
<tr>
<th>QTY</th>
<th>Space</th>
<th>Area</th>
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<tbody>
<tr>
<td>1</td>
<td>Multi-Media Room</td>
<td>1141 sf</td>
</tr>
<tr>
<td>1</td>
<td>Seminar Room</td>
<td>1147 sf</td>
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<tr>
<td>7</td>
<td>Educational Classroom</td>
<td>4777 sf</td>
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<tr>
<td>1</td>
<td>Lobby</td>
<td>538 sf</td>
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<tr>
<td></td>
<td>Circulation</td>
<td>111 sf</td>
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<tr>
<td></td>
<td>Restrooms</td>
<td>280 sf</td>
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<tr>
<td></td>
<td>Mech/Elec/AV/ Telecom</td>
<td>358 sf</td>
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<td><strong>Total</strong></td>
<td><strong>8280 sf</strong></td>
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Second Floor

<table>
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<tr>
<th>QTY</th>
<th>Space</th>
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<tbody>
<tr>
<td>1</td>
<td>Student Center</td>
<td>1179 sf</td>
</tr>
<tr>
<td>1</td>
<td>Large Assembly Room</td>
<td>3118 sf</td>
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<tr>
<td>1</td>
<td>Break out Room</td>
<td>347 sf</td>
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<tr>
<td>12</td>
<td>Faculty Offices</td>
<td>1496 sf</td>
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<tr>
<td>1</td>
<td>Open Office</td>
<td>380 sf</td>
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<tr>
<td>1</td>
<td>Break Room</td>
<td>347 sf</td>
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<tr>
<td>1</td>
<td>Lobby</td>
<td>607 sf</td>
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<tr>
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<td>Circulation</td>
<td>846 sf</td>
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<td></td>
<td>Restrooms</td>
<td>357 sf</td>
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<tr>
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<td>Mech/Elec/AV/ Telecom</td>
<td>215 sf</td>
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<td><strong>Total</strong></td>
<td><strong>8892 sf</strong></td>
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Third Floor

<table>
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<tr>
<th>QTY</th>
<th>Space</th>
<th>Area</th>
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<tbody>
<tr>
<td>1</td>
<td>Student Center</td>
<td>1179 sf</td>
</tr>
<tr>
<td>1</td>
<td>Lobby</td>
<td>266 sf</td>
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<tr>
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<td>Circulation</td>
<td>221 sf</td>
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<td>Mech/Elec/AV/ Telecom</td>
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<td><strong>Total</strong></td>
<td><strong>2259 sf</strong></td>
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**Grand Total** 19,431 sf
**existing site conditions**

Leeward Community College: Ka ‘Imi ‘Ike
existing site analysis

building response

building & site diagrams
Leeward Community College: Ka 'Imi 'Ike
site plan
Leeward Community College: Ka ‘Imi ‘Ike

SITE PLAN

01 existing theater
02 theater plaza
03 existing parking lot
04 pedestrian bridge
05 pv panels
06 solar water panels
07 mechanical penthouse
08 green roof
09 bioswale
10 detention basin
11 lower plaza
12 bio-retention tree wells
13 existing portable classroom
14 stair/bleacher/sun shade
15 existing language arts bldg
circulation core
connection to theater courtyard
internal corridor [office spaces]
circulation pushed to exterior
ground floor entry lobby
circulation pushed to exterior
ground floor plan
Leeward Community College: Ka ‘Imi ‘Ike

GROUND FLOOR PLAN

01 general classroom
02 multi-media classroom
03 lobby
04 seminar room
05 restroom
06 elec/telecom room
07 storage room
08 bio-retention tree wells
09 bioswale
10 retention basin
SECOND FLOOR PLAN

01 lecture/meeting hall
02 storage
03 servery
04 breezeway
05 lobby
06 elec/telecom
07 conference room
08 office
09 reception
10 work room
11 open office
12 student center

second floor plan
Leeward Community College: Ka ‘Imi ‘Ike
third floor plan
Leeward Community College: Ka ‘Imi ‘Ike

THIRD FLOOR PLAN

01 lanai & covered staircase
02 student center
03 pv inverter room
04 mech cooling plant
05 green roof w/ solartubes
**ROOF DESIGN STRATEGY**
- photovoltaic panels and solar thermal panels to utilize the abundant renewable energy
- metal siding penthouse w/ light weight structural system
- stair sun screen to shade west openings
- roof terrace and vegetated roof to maximize open space and reduce stormwater runoff and heat island effect

**BUILDING ENVELOPE**
- storefront windows to maximize daylighting
- precast panel system to provide thermal mass property
- minimized openings on the east facade and shade the west openings

**SOLAR CONTROL SYSTEM**
- horizontal sun shade system on the south and vertical fins on the north
- recessed windows and light shelves overhangs to minimize the heat gain through openings

**STRUCTURAL SYSTEM**
- site-cast concrete framing

**STORMWATER MANAGEMENT**
- roof runoff to down spouts to bioretention tree wells on the south and bio-swale on the north

**AXONOMETRIC DIAGRAM**
Leeward Community College: Ka'Imi'Ike
passive design strategies
Leeward Community College: Ka ‘Imi ‘Ike
section perspective
Leeward Community College: Ka ‘Imi ’Ike
Ground floor: 0' - 0"
Second floor: 15' - 4"
Third floor: 31' - 8"
T.O. roof structure: 42' - 8"

Aluminum shading system (brise soleil)
Aluminum storefront system
Jalousie windows mixed mode system
Pre-cast concrete parapet panel
Sheet metal built-in gutter
Concrete paver or pedestal system
Guardrail
Bio-retention tree well

Wall section
Leeward Community College: Ka ‘Imi ‘Ike
study models
Leeward Community College: Ka ‘Imi ‘Ike
outdoor learning areas

Leeward Community College: Ka 'Imi 'Ike
exterior circulation: brise soleil
Leeward Community College: Ka 'Imi 'Ike
western staircase entry
Leeward Community College: Ka 'Imi 'Ike
student center & administrative offices
Leeward Community College: Ka ‘Imi ‘Ike
southern entry & student center lanai
Leeward Community College: Ka ‘Imi ‘Ike