

THE FUTURE OF EXISTING BUILDINGS: OPERATIONS & MAINTENANCE

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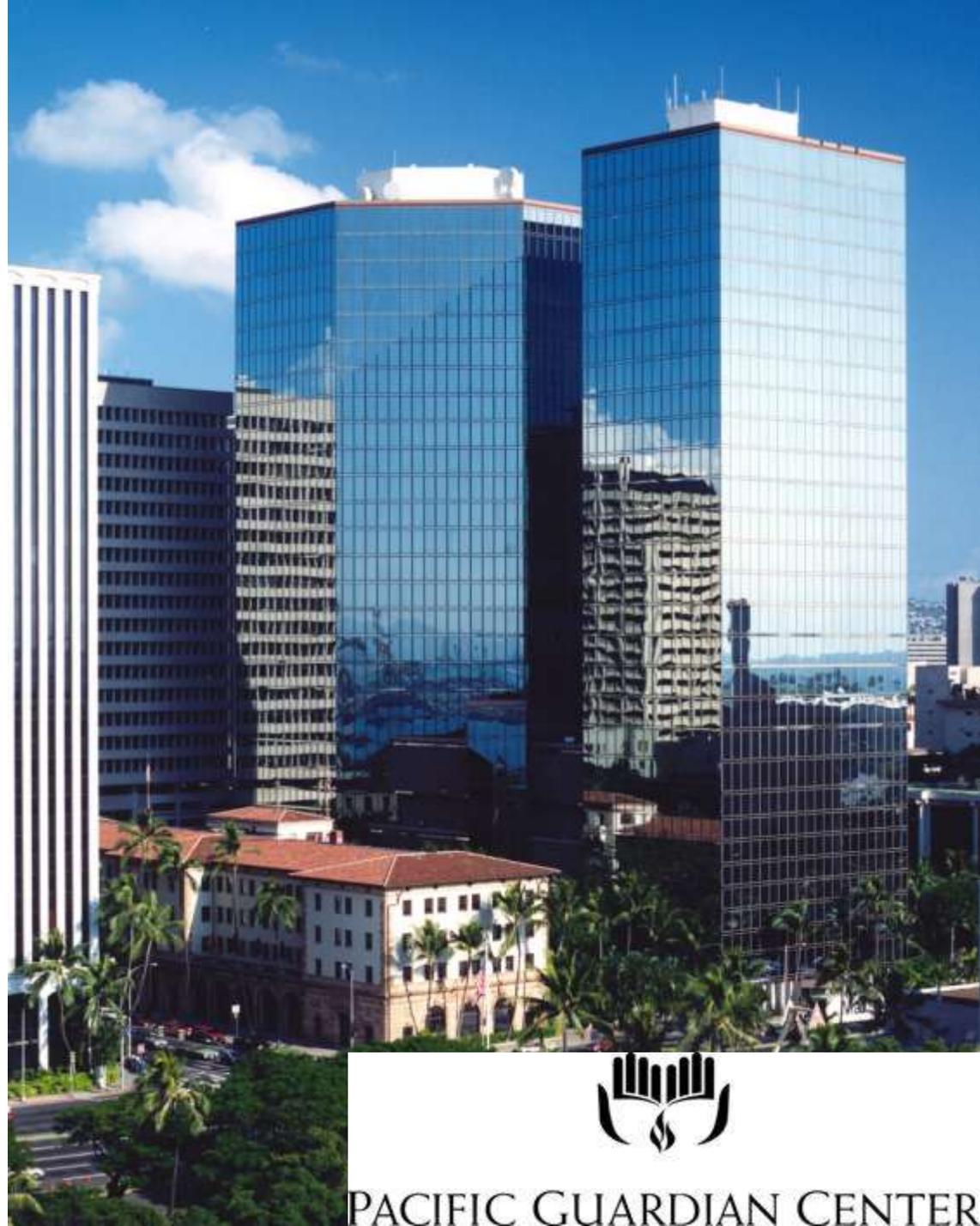
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Welcome to Pacific Guardian Center

*A High
Performance,
Energy Efficient
Landmark*



PACIFIC GUARDIAN CENTER

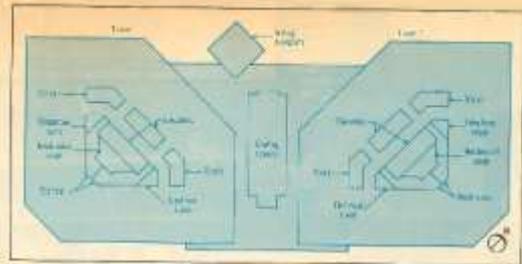
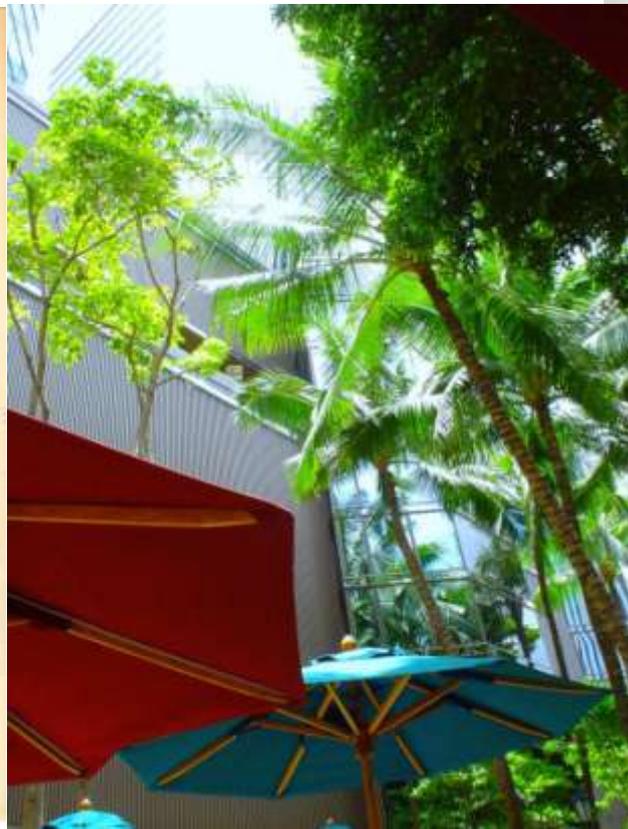
Makai and Mauka Towers – 733 and 737 Bishop Street

Construction: 1977-1982 formerly *Grosvenor Center*

Mixed-use space: 644,542 ft²

Parking: 336,444 ft²

Average occupancy: 2,200



Energy efficient and competitive commercial design

Air conditioning design for a modern office building in a semi-tropical climate

BY FREDERICK S. WILLIAMS, P.E.
Principal, Frederick S. Williams, Inc.
Honolulu, Hawaii

The Grosvenor Center is a major new downtown Honolulu office complex with parking facilities, ground floor shops, and retail units. It is fully air conditioned except for the nine-story parking garage, which is unconditioned but fully ventilated. The project, designed in 1977 with the remainder of the design completed in 1981. The tower was constructed in two construction phases. The first phase, construction was completed in 1978, and the other in 1982. The result is a good example of

an energy efficient yet competitive commercial design in a semi-tropical climate. There have been many new energy conserving developments since the center's initial conceptual air conditioning design was created, but the center's initial design was innovative in many ways. In addition to the new construction, the project includes a renovated five-story office building which retrofits existing air conditioning space in the same facility to about 200,000 sq ft.

Design considerations
Architectural design considerations included a 150 ft height

limit imposed by the location relative to support traffic, the need for open space, distribution of maximum office potential in the building perimeter for views and the open feeling as desirable in Honolulu, an economic link to basement level, and a strategic, ecological drainage requirement for all street parking. The owner desired the building to be a credit to the city in appearance and to surround prime areas.

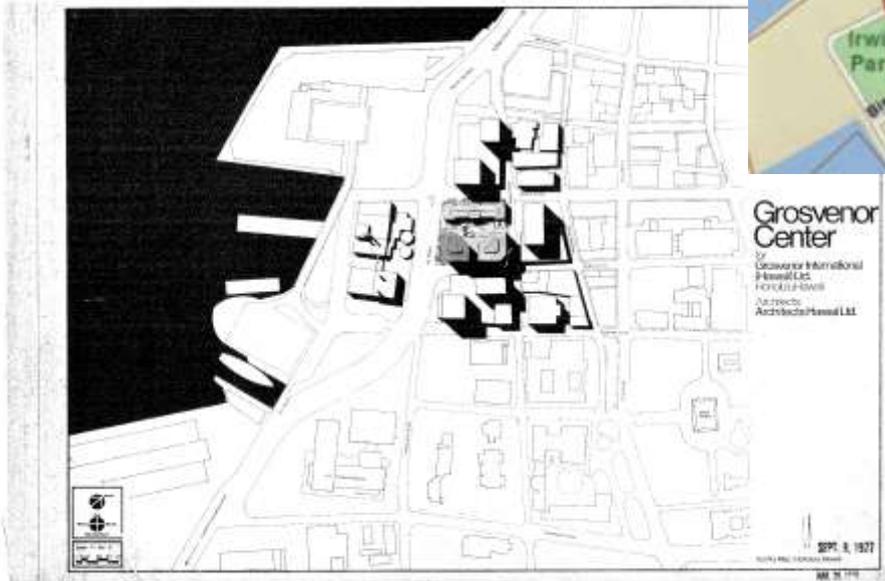
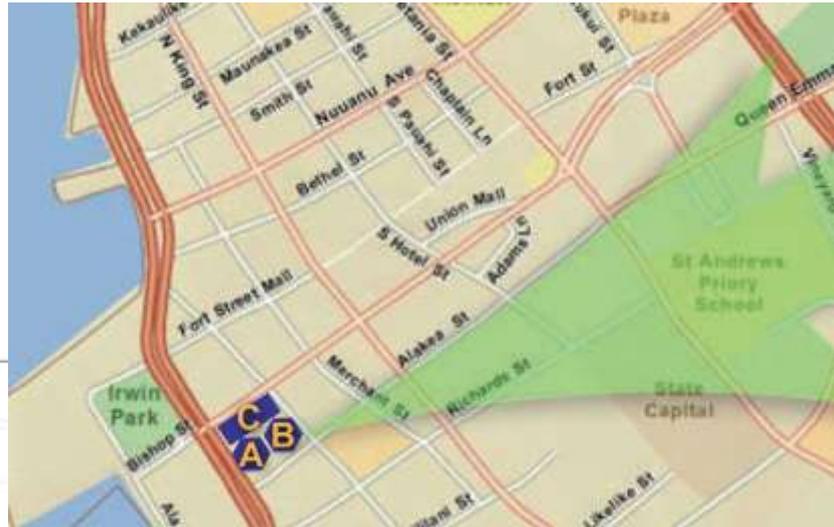
The architect and owner wanted to achieve a day, light effect associated with a tropical climate by showing the Hawaiian sky.

The building was shown to have two office towers above the new garage and commercial space, but

Sustainable Sites



- 100% covered parking reduces heat-island effect



- Pacific Guardian Center is centrally located and is part of a “connected community”

Water Efficiency



- Pacific Guardian Center's 42+ public restrooms are equipped with low flow faucets, toilets, and urinals



- Water efficient landscaping

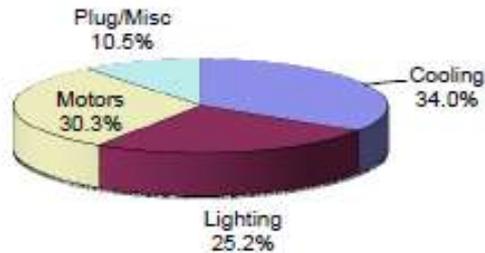


DIATOMIC SYSTEMS

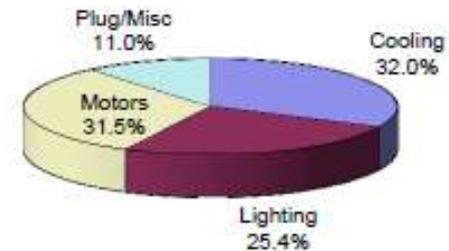
- Cooling Tower condenser water is saved using high-tech controls and innovative chemical management

Energy and Atmosphere

Baseline End Use Breakdown - Consumption
Pacific Guardian Center

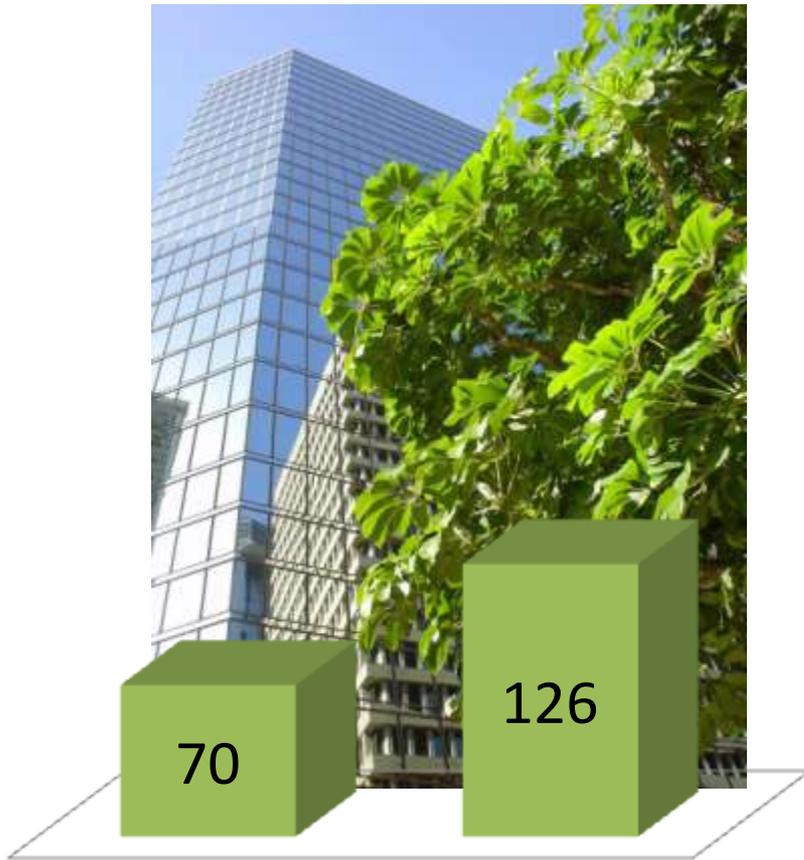


Target End Use Breakdown - Consumption
Pacific Guardian Center

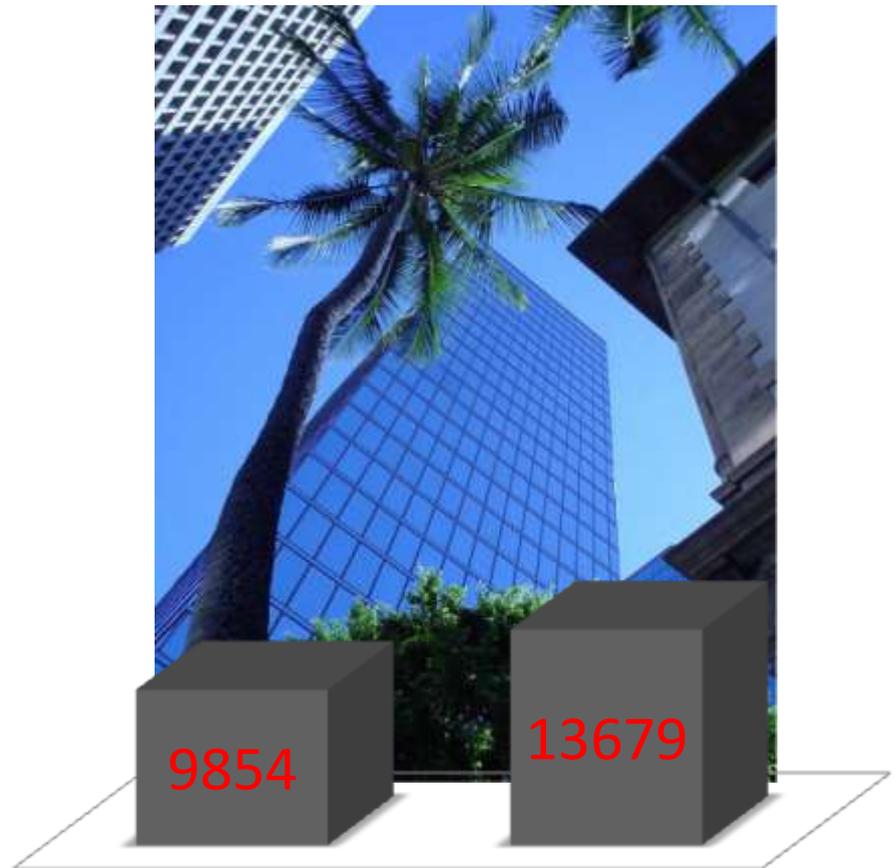


- Energy use breakdown

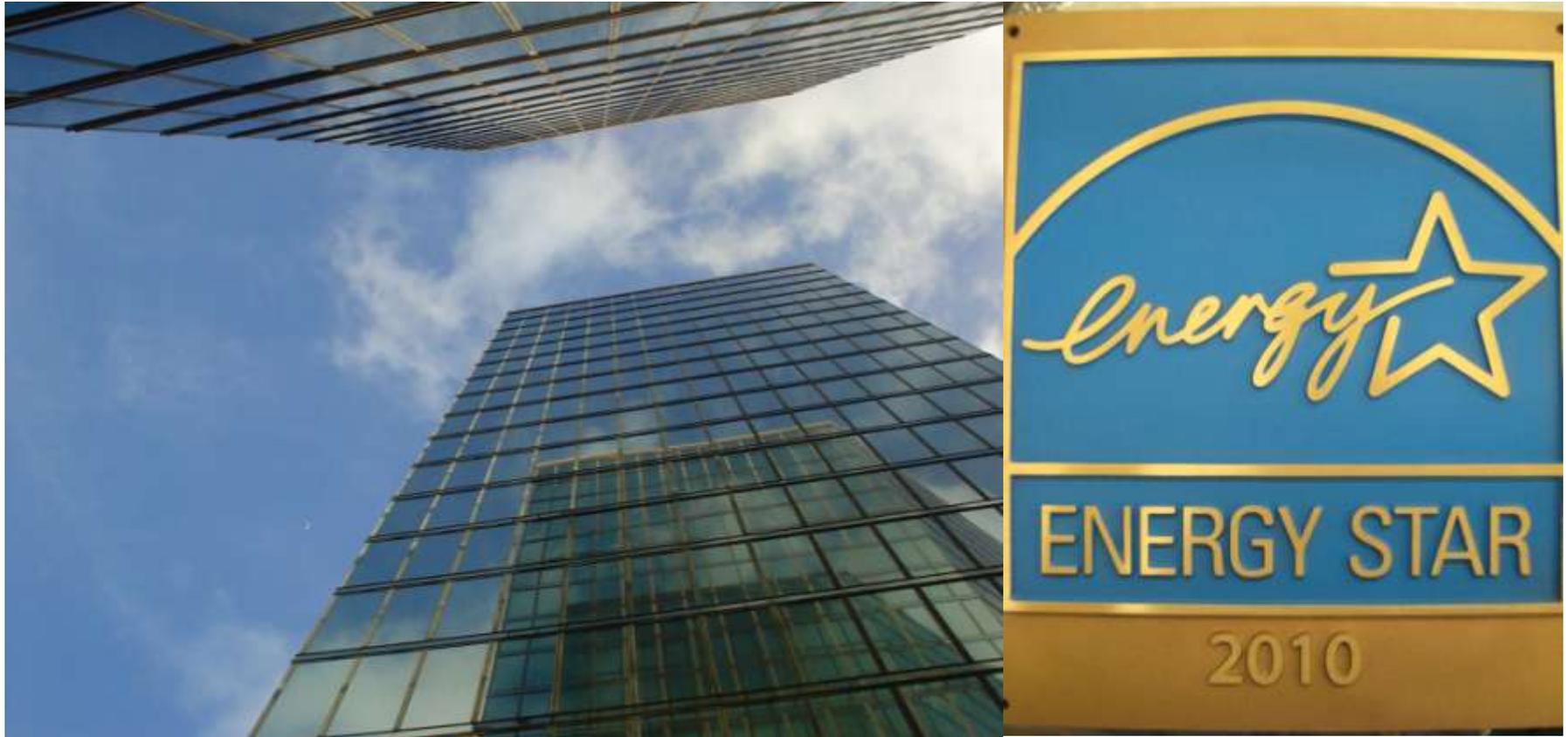
Pacific Guardian Center's Energy and CO2 Emissions Performance



■ KBTU/ft²



■ MtCO2e (Metric tons Carbon Dioxide equivalent)



- A perfect Energy Star score of 100 earns maximum LEED certification points

Energy Efficient Lighting



- Restroom occupancy sensors



- Stairwell occupancy sensors

Energy Efficient Lighting



- Daylight harvesting at perimeter of parking garage



- High performance LED lighting

Building Automation



- Machinery communicates via the Energy Management System where engineering staff monitors, measures, and adjusts parameters to maximize efficiency and comfort

Materials and Resources



- Purchasing policy stating minimum level of recycled content in paper products



- Paper, Cardboard, HI-5, E-Waste and Green waste Recycling



- Purchase of florescent lighting with minimum mercury content (< 90 picograms/lumen hour)

Indoor Environmental Quality



- Smart ventilation system controls enhance energy efficiency while providing ample fresh air



- High-efficiency particulate filters (MERV 13) installed in all air handling units



STERIL-AIRE

- UVC lighting arrays in central air handling units sterilize cooling coils and enhance sanitation



- Pacific Guardian Center was designed to take advantage of day lighting and views for a more productive work environment



Green Cleaning



- HBM's Green Cleaning practices ensure a pleasant and healthy building

- Sustainable cleaning products are used



- Tenant awareness program enlightens our community and empowers everyone to do their part to save energy

- Reduce
- Reuse
- Recycle



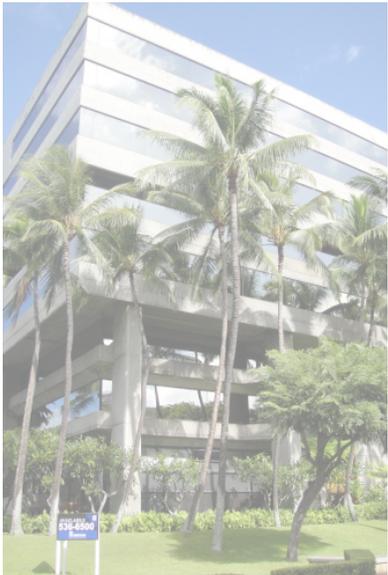
Ali'i Place



900 NIMITZ



Advertiser Bldg



Haseko Building



Pacific Guardian Center



1100 Alakea Street



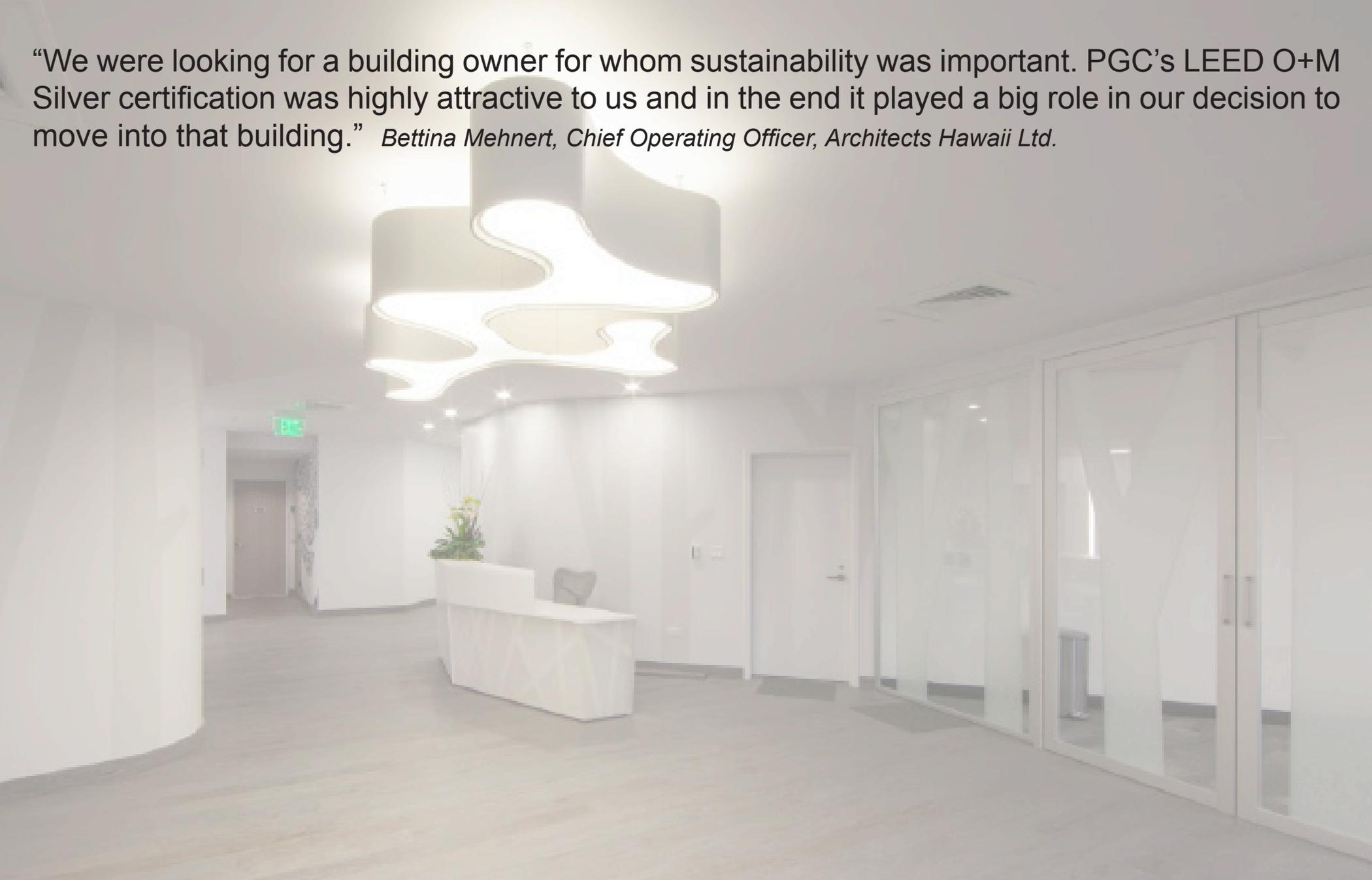
660 Ala Moana



Alulike Building

Why Pacific Guardian Center?

“We were looking for a building owner for whom sustainability was important. PGC’s LEED O+M Silver certification was highly attractive to us and in the end it played a big role in our decision to move into that building.” *Bettina Mehnert, Chief Operating Officer, Architects Hawaii Ltd.*



ARCHITECTS HAWAII NEW OFFICE



PGC



LEED O+M Silver

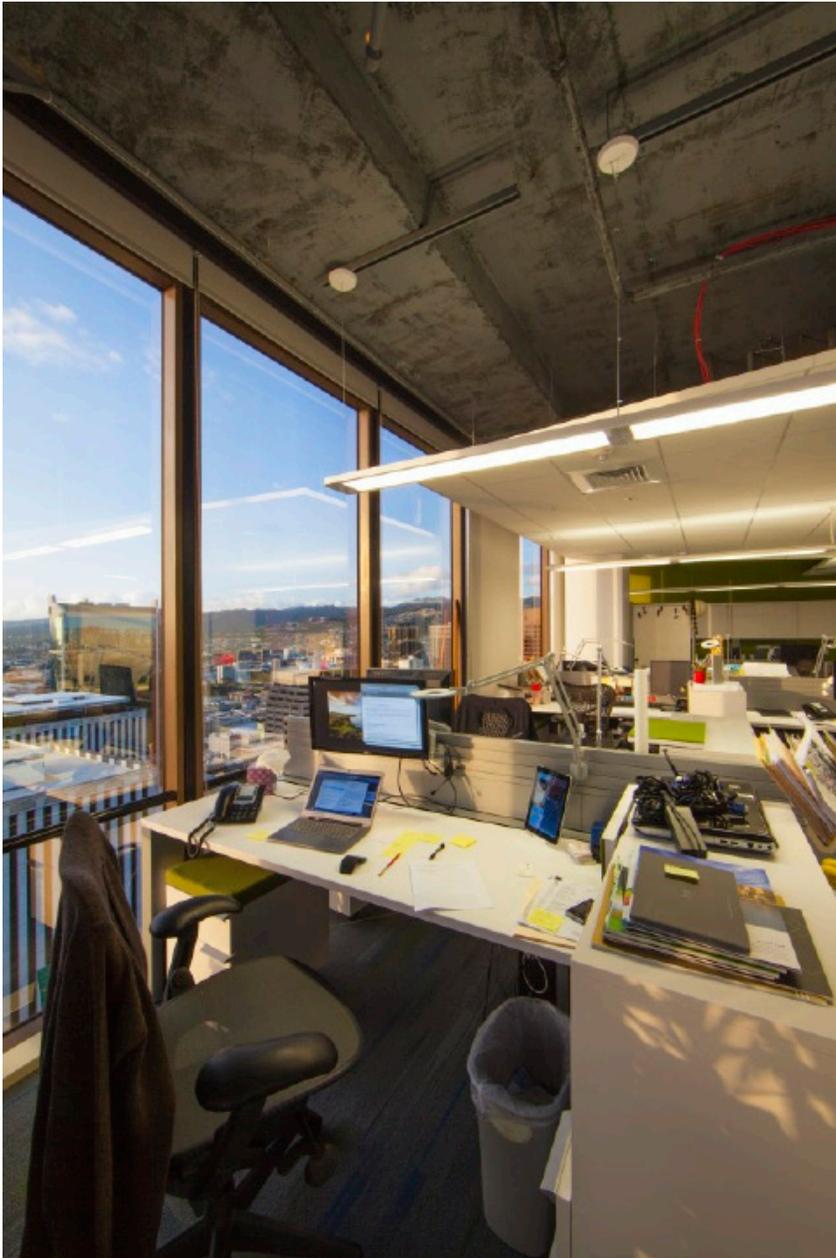
- Energy Star Score 100 out of 100
- Green Cleaning Policy - 80% Products / 76% Equip
- Expected to reduce 1 mil Gallons - H2O
- Waste Diversion - 100% E-waste/ 26% Recycle Rate
- Alt. Transportation - Reduce 30% of commuting trips
- Indoor Environmental Quality
- Controllability of Systems - Lighting



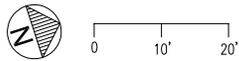
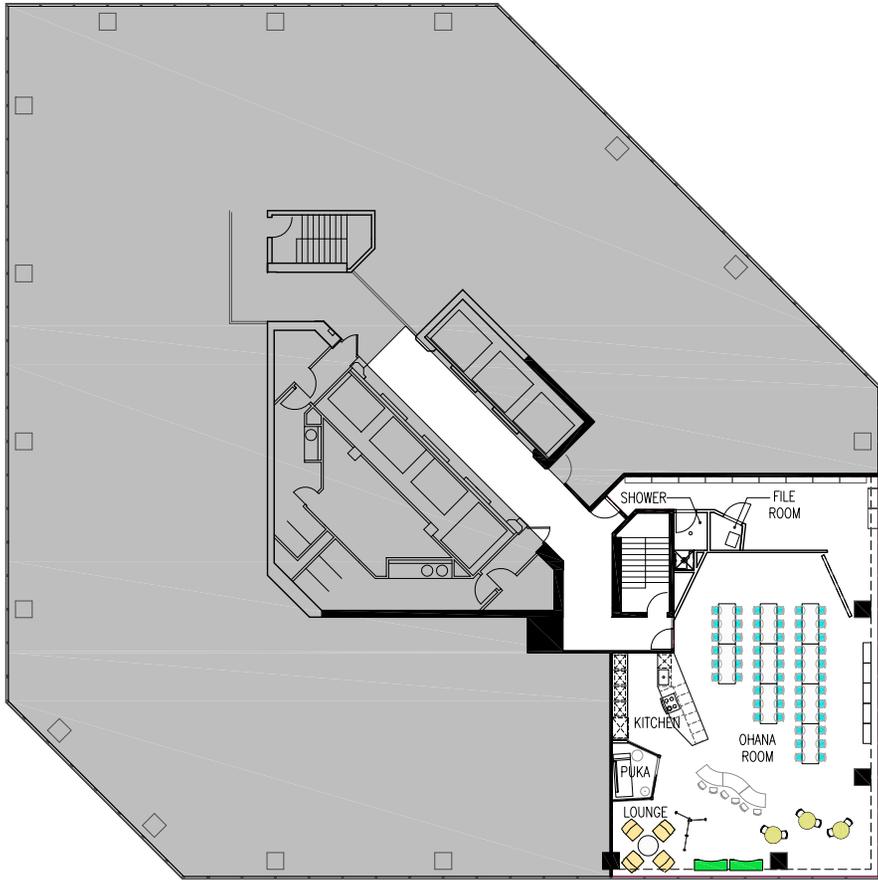
Architects Hawaii Office

In process - LEED CI - Silver

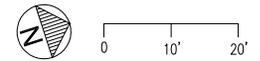
- PGC's EBOM Certification helped by:
 - SS 1 - Site Selection - 5 pts instantly w/ certification or earn thru 12 paths
 - If Recycling Area is sufficient in building, tenant space only need to provide collection bins
 - Bike Racks most likely present w/ existing building



Daylighting and Views/Sensors



29th FLOOR



31th FLOOR

FLOOR PLAN

THE FUTURE OF EXISTING BUILDINGS: OPERATIONS & MAINTENANCE PANEL DISCUSSION

What do you feel is the biggest opportunity for existing buildings to make an impact for the future?

THE FUTURE OF EXISTING BUILDINGS: OPERATIONS & MAINTENANCE PANEL DISCUSSION

Are there any opportunities to overcome roadblocks that prevent Existing Building Owners from embracing Sustainability?

Q & A

THANK
YOU