Petition for Waiver or Suspension of Hawaii Administrative Rules §15-217-55(k)(2) of the Mauka Area Rules for 801 South Street Project, Development Permit No. KAK 12-109

Staff Report
October 7, 2015

Petition Request: On August 5, 2015 Downtown Capital LLC ("Downtown") filed a Petition for waiver or suspension of Hawaii Administrative Rules ("HAR") §15-217-55(k)(2) ("Glass Rule") and to amend Development Permit No. KAK 12-109 ("Petition"). In the Petition, Downtown requested the Hawaii Community Development Authority ("HCDA" or the "Authority") to waive or permanently suspend the Glass Rule as it applies to the residential workforce housing project at 801 South Street ("Project") associated with Development Permit No. KAK 12-109 ("Development Permit") and that such waiver or permanent suspension be deemed effective from December 5, 2012.

On August 19, 2015, HCDA staff issued a notice of violation to Downtown notifying that the Project was in violation of the provisions of §15-217-55(k)(2) of the Mauka Area Rules.

On August 23, 2015, a Notice of Public Hearing for considering the Petition was published in the Honolulu Star-Advertiser.

The President of the Senate and Speaker of the House of Representatives were notified upon the posting of the hearing notice. Associations of apartment owners of residential buildings in the Kakaako Community Development District ("KCDD") adjacent to the Project, surrounding landowners and businesses, the Ala Moana/Kakaako Neighborhood Board, and the Kakaako Improvement Association were notified of the public hearings. Various elected officials and State and County agencies were also notified of the public hearings. Hearing notice was also provided to approximately 408 individuals and organizations that have shown interest in development activities in the KCDD.

As set forth in the Notice of Public Hearings, the deadline to intervene was September 14, 2015. No motion for intervention was filed.

On September 21, 2015, a pre-hearing conference was held at HCDA's office at 547 Queen Street, Honolulu, Hawaii 96813, and a Pre-Hearing Order was issued, requiring the submission of witness lists, exhibit lists, and exhibits by no later than September 30, 2015.

Discussion: On December 5, 2012, the Authority approved the Development Permit for the Project. A copy of the Development Permit application is provided as Exhibit A. A copy of the Development Permit and accompanying Hearings Officer's Report is provided as Exhibit B. The property subject to the Development Permit is located within the Mauka

Area of the KCDD. The Development Permit was obtained under HAR Chapter 15-217, Mauka Area Rules of the KCDD ("Mauka Area Rules"). The Glass Rule is a provision under Subchapter 4 (Area-Wide Standards) of the Mauka Area Rules and reads as follows:

> "Window glazing shall be transparent with clear or limited UV tint so as to provide views out of and into the building. Visible light transmission level of windows on the ground floor shall be seventy per cent or greater and on all other floors the visible light transmission level shall be fifty per cent or greater;"

Visual light transmittance ("VLT") was the characteristic intended to be measured in the Glass Rule. The Development Permit was approved with the condition that Downtown would "comply with all applicable requirements of Subchapter 4 (Area-Wide Standards) of the Mauka Area Rules." Exterior glass for the Project was not specified as a part of the Development Permit submittal. The level of design completeness for the Project at the time of the Development Permit approval was consistent with the typical submittal standards for a development permit submitted in compliance with the Mauka Area Rules. The Authority approved the Development Permit with the condition that Downtown shall comply with the Glass Rule and all applicable Subchapter 4 provisions.

The Development Permit for the Project was reviewed and approved by the Authority under the provisions of the Mauka Area Rules and Subchapter 4 of the Kakaako Reserved Housing Rules. Subchapter 4 of the Kakaako Reserved Housing Rules includes provisions for workforce housing and provides for certain exemptions from provisions of the Kakaako Reserved Housing Rules as well as modifications from the provisions of the Mauka Area Rules. A copy of Subchapter 4 of the Kakaako Reserved Housing Rules is provided as Exhibit C. **The Development Permit application requested several modifications from the provisions of the Mauka Area Rules.** The following modifications were requested and approved by the Authority in approving the Development Permit application:

- **Modification of Building Location:** Modification of §15-217-53 and Figure NZ.2 of the Mauka Area Rules allowing the Project to be 43'-0" from the property line on South Street and 23'-4" from Kawaiahao Street.

- **Modification of Podium Height:** Figure NZ.2(D) of the Mauka Area Rules requires that podium heights shall be between 30 - 65 feet. The podium element of the Project is eleven floors with a height of 102'-0". Figure BT.10 of the Mauka Area Rules permits a parking podium that is detached from the podium high-rise building.

- **Modification of View Corridor Setback:** Figure 1.6A of the Mauka Area Rules identifies South Street as a view corridor street. Pursuant to

§15-217-54(d) of the Mauka Area Rules, which states *"Any part of a building which is taller than sixty-five feet and fronting a view corridor street…shall be setback from the lot line abutting the view corridor by fifty feet."* The portion of the tower element of the Project closest to the property line will be setback 42'-0" from the South Street property line. The portion of the tower furthest away from the property line is setback 45'-11".

- **Modification of Tower Floor Plate Area:** The allowable floor plate size is based on a linear scale of 8,000 to 10,000 square feet based on the size of the lot area, where the allowable floor plate area for a lot size of 40,000 square feet is 8,000 square feet and the allowable floor plate area for a lot size of 80,000 square feet is 10,000 square feet. Based on the lot size of 76,194 square feet for the Project and use of the linear scale from Table BT.10-1 of the Mauka Area Rules, the allowable floor plate area is 9,981 square feet. The Project proposes a tower floor plate size of 11,315 square feet.

- **Modification of Maximum Length Between Two Farthest Points of the Tower Floor Plate:** Section 15-217-55(l)(3) of the Mauka Area Rules provide that the maximum length between two farthest points of the tower floor plate be no more than 210 feet. The maximum distance between two farthest points of the tower floor plate of the project is 215 feet.

- **Modification of Green Building Standards:** Modification from all of the Green Building provisions in §15-217-59.

- **Modification of Parking Access:** Figure BT.10(c)(2) states that per §15-217-63(c)(3) parking access shall be located a minimum of twenty-two (22) feet from an adjacent property. Parking access from Kawaiahao Street is located immediately adjacent to the neighboring property.

- **Modification of Parking Location:** Figure BT.10(c)(1) states that parking shall be located in the Allowed Parking Zones (Figure 1.10-B) located forty (40) feet from the property line for the first two stories. The second story of the Project along Kawaiahao Street is located only 23'-4" from the property line and therefore is not within the allowed parking zone.

Despite requesting these numerous waivers and/or modifications to the rules no request for, or modification or waiver, of the Glass Rule was made by Downtown Capital.

Around January 2015, staff became aware that development projects that were permitted under the new Mauka Area Rules (HAR, Chapter 217) and under construction may not be meeting the requirement of the Glass Rule.

On or about January 30, 2015, HCDA staff at a meeting with representatives of Downtown and its Project Contractor, Hawaiian Dredging Construction Company ("HDCC") inquired about the VLT for the glazing of the Project and the HDCC representative responded that the Project complied with the VLT requirements.

On or about March 6, 2015, HCDA staff verbally requested Downtown to provide it a copy of specification of glazing used in the Project that included information on VLT of the glazing product.

On March 17, 2015, the HCDA received a letter from HDCC explaining how it arrived at the VLT for the Project. At this point in time the construction of the Project was near completion and all windows and glass sliding doors in the Project were already installed.

On or about March 20, 2015 at the request of Downtown representative, HCDA staff again met with Downtown and HDCC at which meeting representatives of HDCC attempted to explain the contents of March 17, 2015 letter. The VLT calculation presented in the March 17, 2015 letter was in the form of a weighted average VLT of the window assembly and appeared to include an assumption that when a window is open, the open portion of the window has a VLT of 100%. Similarly in case of a sliding glass door the VLT calculation appeared to include the assumption that when the door is open, the open portion of the door has a VLT of 100% and the glass portion of the door has half the VLT specified for the glazing. HCDA staff took exception to the VLT calculation methodology and indicated that the intent of the Mauka Area Rules was that the VLT of the glazing should be 50% or greater. HDCC representative disagreed with HCDA staff position and pointed out that the wording in the Mauka Area Rules is VLT of 'windows' and not 'glazing'.

On March 23, 2015, Downtown responded in writing indicating that the VLT for the windows in the Project was 50.50%. Downtown's written response is provided as Exhibit D and includes March 17, 2015 letter from HDCC. In its response, Downtown appears to follow the approach taken by HDCC in calculating the VLT and provides a weighted average VLT of the window system with the claim that when the windows or the sliding doors are open, the VLT of the open portion is 100%. As explained to HDCC and Downtown representatives at the March 20, 2015 meeting, HCDA staff is of the opinion that the intent of the Glass Rule is to regulate the VLT of the glazing and not that of the window assembly.

Assuming that the VLT of a glass window or sliding door assembly could be calculated, HCDA staff had some questions regarding the VLT calculation presented by Downtown. Reviewing the calculations, HCDA staff is unable to determine if the window and door areas used in the calculation are inclusive of the window or door frame or exclusive of the frames. This will have impact on the weighted average VLT because the area of the glazing portion is smaller than the area of the window assembly including the frame. Since the VLT of the frame is 0%, inclusion of the frame in the area of the window would have an effect on the weighted average VLT. Similarly, the assumption in calculating the weighted average VLT of the sliding door appears to half the VLT of the glazing. *To HCDA staff's knowledge, there is no industry standard that shows that the VLT of two panels of glazing separated by approximately the width of the frame is half the VLT of the glazing itself.* Given this lack of information in the calculation provided by Downtown, HCDA staff cannot find the methodology credible. Additionally, given the lack of information provided by Downtown, HCDA staff cannot ascertain that the weighted average VLT of the system is above 50%. Since the calculated average VLT for the sliding doors and windows in 50.5%, which is marginally above the required 50%, even a small change in any of the parameters discussed above could lower the average VLT. In addition, the calculation provided by Downtown does not meet the VLT for ground floor windows and glass sliding doors in the Project, which is required by the Mauka Area Rules to be 70% or higher. There is no provision in the Mauka Area Rules for an average VLT for all the windows and glass doors in a project.

In the March 23, 2015 letter, Downtown also attempted to circumvent appearing before the HCDA Board by requesting that the Executive Director approve the windows with lower VLT than required by the Mauka Area Rules as a minor change citing that §15-217-90 of the Mauka Area Rules provides for minor changes to a development permit approved by the Authority. HCDA staff does not believe that the VLT issue is a minor issue and the fact that compliance to the provisions of Subchapter 4 of the Mauka Area Rules is a condition on the Development Permit for the Project imposed by the Authority. The Executive Director does not have the authority to amend the Development Permit under the guise of minor change.

In a separate letter dated April 9, 2015, Downtown requested that the Executive Director provide an interpretation and clarification of the provisions of the Glass Rule. A copy of the letter is provided as Exhibit E. The letter indicates that the clarification Downtown is seeking is that the intent of the rule is to regulate the VLT of the window system and not the glazing. Consistent with the provisions of §15-217-5(j) of the Mauka Area Rules, the Executive Director can provide an interpretation and clarification of the provisions of Glass Rule. However, HCDA staff believes that interpretation of a provision of the Mauka Area Rules after the fact is inappropriate. *After the fact rule interpretations cannot be utilized to remedy a rule violation.*

On or about September 22, 2015, HCDA staff verbally requested a copy of the glazing specification from Downtown.

On September 23, 2015 via an email to HCDA staff, Downtown provided a written response including the glazing specification. Downtown's response is provided as Exhibit F.

The City and County of Honolulu ("City") required that the Project obtain a Building Permit. The City requests that the HCDA review and accept of the drawings associated with the Building Permit prior to its approval. Although the Building Permit is not an HCDA permit, HCDA staff reviews Building Permit drawings for consistency with the Mauka Area Rules and the HCDA approved the Development Permit. The City provides the option to divide up the Building Permit approval process into several different stages to offer timely approvals and to help avoid project delays. Prior to the final Building Permit, developers can apply for a Foundation Permit and a Superstructure Permit for a development project. The developer applies for these additional permits and can build portion of the Project under those permits at its own risk, since the entire Project is not approved under a Building Permit. Downtown opted to divide up the Project Building Permit and applied for and received both Foundation and Superstructure Permits. HCDA staff reviewed both the Foundation and Superstructure permits. Neither the Foundation nor Superstructure permits contained information on VLT of the Project glazing or windows. HCDA staff also completed the review of the Building Permit drawings provided by the City for consistency with Mauka Area Rules and the approved Development Permit on August 8, 2013. HCDA staff's review is limited to information provided in the Building Permit drawings. The Building Permit drawings did not contain information on visual light transmission of the glazing or windows in the Project.

The City's Department of Planning and Permitting ("DPP") routes its Certificate of Occupancy ("CO") form for approval by the HCDA for all development project. On or about March 10, 2015, DPP submitted the CO to the HCDA for approval. HCDA staff has not approved the CO. A copy of the CO submitted by DPP is provided as Exhibit G.

Based on the report prepared by HCDA consultant, Douglas Engineering Pacific, Inc., titled, Glazing and Energy Analysis Report Relating to Visual Light Transmittance and Leadership in Energy and Environmental Design requirements of the Mauka Area Rules ("Report") and dated July 20, 2015, HCDA staff believes that there are several glazing products that could have been used in the Project that would have met the requirements of the Glass Rule. A copy of the Report is provided as Exhibit H. Since the Project received exemption from Green Building Provisions of the Mauka Area Rules, the Project was not limited by this provision of the rules in selecting glazing for the Project.

Attachments:
- Exhibit A - Development Permit Application
- Exhibit B - Development Permit and Accompanying Hearings Officer's Report
- Exhibit C - Subchapter 4 - Kakaako Reserved Housing Rules
- Exhibit D - Letter from Downtown Capital LLC, Dated March 23, 2015
- Exhibit E - Letter from Downtown Capital LLC, Dated April 9, 2015

Exhibit F - Letter from Downtown Capital LLC, Dated September 23, 2015
Exhibit G - Certificate of Occupancy Form Routed by DPP for HCDA Approval
Exhibit H - Douglas Engineering Pacific, Inc. Report, Dated July 20, 2015

801 South Street

Development Permit Application

Developer: Downtown Capital LLC

Contact: Ryan Harada

Phone No.: 808-526-2027

September 12, 2012

Exhibit A

Downtown Capital LLC
215 N. King Street, Suite 1000
Honolulu, Hawaii 96817
Phone (808) 526-2027 Fax (808) 526-2066

September 12, 2012

Mr. Anthony Ching
Executive Director
Hawaii Community Development Authority
461 Cooke Street
Honolulu, Hawaii 96813

Dear Mr. Ching:

We are submitting the development permit application for 801 South St., a workforce housing project to be developed pursuant to the workforce housing provisions of HCDA's 2011 Mauka Area Plan and Rules. This new project will not require financial assistance for construction from Federal, State or County governmental bodies.

In addition to 100% private equity and financing, Subchapter 4 has two requirements to be met in order for the project to be designated as workforce housing. They are:

1) A maximum size for the residential units, and

2) At least 75% of the residential units in the project are priced for purchase by families earning 100% to 140% of median income.

By the proposed project complying with these requirements, it qualifies under Subchapter 4 for a 100% floor area bonus and permits HCDA to grant modifications to the project.

Included with the development permit application under Subchapter 4 are the following items for your review and approval:

1) Fact Sheet and rendering of 801 South St.;

2) Project plans (Sheets 1 to 16), building massing, landscape plan, topography survey and ALTA survey;

3) List of Requirements with Exhibits 1 to 9 for the development permit, which includes alternative timetables based on the current tenant's (Eye Productions Inc.) possible early relocation and lease expiration;

4) Matrix showing conformity with the Mauka Area Rules;

5) List of modifications requested and reasons for the requests;

6) HCDA Price Formula for 100% to 140% of Median Income agreed to by Downtown Capital LLC. Preliminary price list for the 635 residential units at 801 South St. without the additional cost for a second parking stall. Downtown Capital LLC agrees that the prices of 75% of the units are restricted to being below HCDA's Price Formula for 140% of median income (which is to include any additional parking stall purchase) as of the date the development permit is approved for 801 South St.

7) Conceptual site plan for a joint use by parcel 04 with parcel 03;

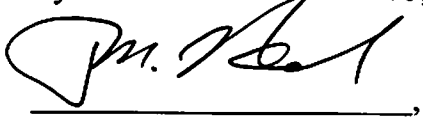
8) 3D video on CD of the view corridor looking toward the mountains from the perspective in a car driving from Ala Moana Boulevard, up South Street to Kapiolani Boulevard;

9) CD containing the project plans in REVIT, CAD and PDF formats as well as the building massing in PDF format.

10) CD containing the development permit application as well as the landscape plan, ALTA and topography surveys.

We trust that HCDA is as excited as we are about providing workforce housing in Kaka'ako. Please find enclosed Downtown Capital LLC's payment in the amount of $6,400 to cover the application fee for the Development Permit.

Sincerely yours,
Downtown Capital LLC
By: Workforce Kakaako LLC, Managing Member



RMH Real Estate LLC, Member

Attachments

cc: William Yuen, Esq.
South Street Towers LLC

Application No._____

Hawaii Community Development Authority
Planning Office
461 Cooke Street
Honolulu, Hawaii 96813
(808) 594-0340 FAX (808) 594-0299

PERMIT APPLICATION

APPLICANT INFORMATION

Applicant DOWNTOWN CAPITAL LLC

Mailing Address 215 N. King Street, Suite 1000
Honolulu, Hawaii 96817

Telephone No. 808-526-2027

Project Site Address 610 Kawaiahao St., Honolulu

Land Owner Downtown Capital LLC

Address 215 N. King St., #1000, Honolulu, HI

Description of Work to be Done
635-unit workforce housing project

TYPE OF REQUEST

- ☐ Rules Clearance
- ☐ Improvement Permit
- ☒ Development Permit
- ☐ Conditional Use Permit
- ☐ Conditional Use of Vacant Land
- ☐ Temporary Use
- ☐ Development (Makai)
- ☐ Other _____

PARCEL INFORMATION

Tax Map Key: (1) 2-1-47-3

Neighborhood Zone: Kapiolani

PROJECT INFORMATION

Existing Use and Floor Area (s.f.)

- ☐ Commercial _____
- ☐ Industrial 79,618
- ☐ Residential _____
- ☐ Other _____
- TOTAL _____

Proposed Use and Floor Area (s.f.)

- ☐ Commercial _____
- ☐ Industrial _____
- ☐ Residential 530,764
- ☐ Other _____
- TOTAL _____

Nature of Work

- ☐ New Building * ☐ Repair
- ☐ Addition * ☐ Electrical
- ☐ Demolition ☐ Plumbing
- ☐ Alteration
- ☐ Other _____

Notes: _____

NOTE TO APPLICANT

1. Please refer to Subchapter 5 of the Mauka Area Rules, Chapter 217, Hawaii Administrative Rules for detailed information on procedures, permit requirements and fee schedule.
2. Final approval by HCDA is required prior to issuance of a building permit for any development within the Kakaako District.

   For approval of building permits, submit the building permit application form and the following sets of plans:
   - **Building Department copy**
   - **Job site copy**
   - **HCDA copy (if applicable)**
3. For any project where construction drawings are not available, submit two (2) sets of project information as listed in "Filing Procedures".

I hereby acknowledge that I have read this application and attached information for the above-referenced project site and state that the information is correct. I hereby agree to comply with all City and County of Honolulu ordinances and state laws regulating development and building construction and authorize HCDA to inspect the property or construction upon notification of the undersigned for compliance with the respective Permit.

Signature (applicant or agent): _____ Date: 9/12/12

Print name: Ryan M. Harada Telephone No.: 526-2027 x2

FOR HCDA USE ONLY:

Permit Fee: _____ Paid by: _____

Landowner's Consent (if applicable): _____

Section 206E-5.6 (if applicable): _____

Reviewed By HCDA: _____ Date: _____

_____ Date: _____
HCDA Approved

Exhibit 1

FACT SHEET
801 South Street
Affordable Urban Housing for Hawai'i Residents

Project Description

801 South Street is a workforce housing condominium project planned for the corner of South and Kawaiaha'o Streets on the site adjoining the old News Building on Kapiolani Boulevard. The 46-story tower will include a mix of studios, one-bedroom and two-bedroom units. All 635 fee simple condominium units will be priced between $250,000 to $550,000.

Project Purpose

This urban high rise will be the first exclusively affordable residential housing project built in Kaka'ako without government grants, restrictions or financing.

The project complies with workforce housing rules recently adopted by the Hawai'i Community Development Authority (HCDA) and is aligned with the mission of revitalizing Kaka'ako and creating an affordable, livable, and sustainable urban residential community for Hawaii's working families.

Landowner & Developer

Downtown Capital LLC is made up of Workforce Kakaako LLC and South Street Towers LLC, an affiliate of Tradewind Capital Group Inc. The development entity will be led by Marshall Hung.

Land Description

The 76,194 square foot site is located in the Mauka area of Kaka'ako subject to the HCDA rules. The site address is 801 South Street and includes warehouses currently used by Hawaii 5-0 for filming and formerly used by the Honolulu Advertiser.

Streetscape

801 South Street will be setback along South Street and provide more than 40 feet of landscaping between the street and the tower. At street level, more than half the site will be open space to encourage pedestrian activity.

Sustainable Design

801 South Street is designed with sustainable and energy efficient systems to reduce the cost of operations and maintenance. Monthly fees are expected to be significantly lower than neighboring condominiums, ranging from $225 for studios to $300 for two-bedroom units. Features include:

- Operable windows and lanai doors for natural ventilation.
- Split air-conditioners in each apartment to minimize power consumption.
- Double pane glass exterior windows and doors to diffuse radiant heat and reduce noise.
- Custom fixtures and fittings, and water-conscious landscaping to reduce water use.
- Energy-efficient appliances and lighting throughout the building.
- Innovative photovoltaic system for the common areas.
- Electric vehicle charging stations in the parking garage.

Parking

An 11-story parking garage will provide 915 parking stalls for residents. Monthly parking rental is also available for neighborhood residents and workers.

Construction

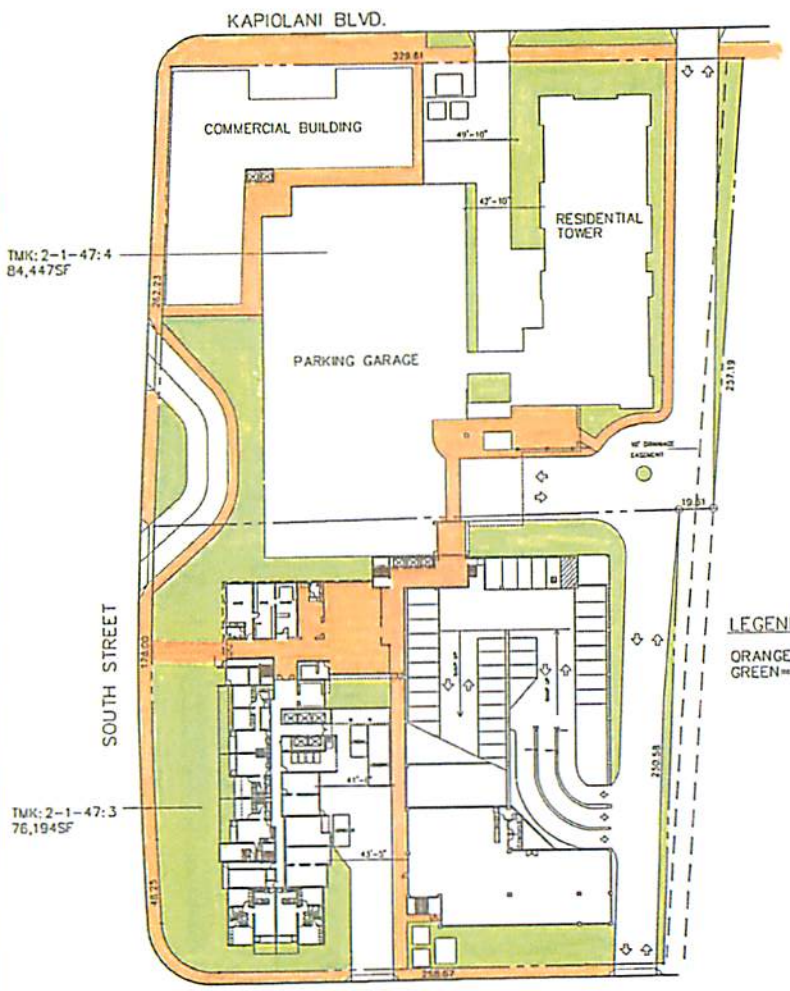
Construction will commence in 2013 and be completed in 2015.

Project Team

This project will be supervised by the design and construction team that built Country Club Village 6 in 2009 and 215 N. King Street in 2005.

- Construction – Hawaiian Dredging Construction Company
- Design – Kazu Yato, AIA, & Associates Inc. (Kazu Yato, Principal)
- Sales & Marketing – Marcus & Associates, Inc. (Jason Nishikawa, Project Broker)


Data SIO, NOAA, U.S. Navy, NGA, GEBCO
Image © 2012 CyberCity 3D, Inc., 3D Travel Inc.
Google earth

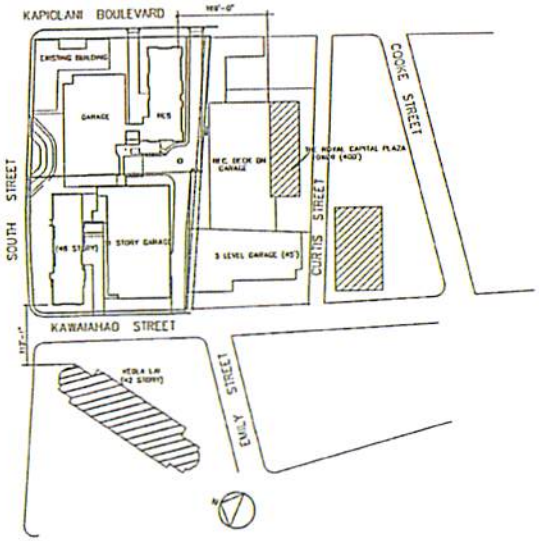


LEGEND

ORANGE=PEDESTRIAN PATHWAY
GREEN=GREEN SPACE

TRUE NORTH

SITE PLAN



NEIGHBORING BUILDINGS DISCLOSURE

TMK: 2-1-47:3
801 SOUTH STREET
635 WORKFORCE RESIDENTIAL UNITS

TMK: 2-1-47:4
PHASE 2 BUILDING PLAN:
46-STORY RESIDENTIAL TOWER,
11-STORY PARKING GARAGE,
EXISTING 3-STORY COMMERCIAL BUILDING

THIS PHASE 2 BUILDING PLAN IS SUBJECT TO CHANGE. AS PLANNED, THE DISTANCE BETWEEN THE CORNERS OF THE RESIDENTIAL TOWERS WILL MEASURE APPROXIMATELY 163 FEET.

KAKAAKO WORKFORCE HOUSING
801 SOUTH STREET
HONOLULU, HAWAII

MASTER PLAN

SHEET

801 SOUTH STREET

801 South Street Requirements for Development Permit Submission:

#	Requirements	Exhibits	Comments
	Development Permit Application Form		
A	Cover Letter – indicating the project name and description. Project description should describe the manner in which the development conforms to the Mauka Area Plan.	Exhibit 1	See Cover Letter and Fact sheet (Ex. 1)
B	Authorization from the landowner.	Exhibit 2	Signed Letter of Authorization from the landowner and appointment of agent. (Ex. 2)
C	Project Plans drawn to scale.		
C-1	Location Map, including the Project site in relation to the surrounding land uses.	Project Plans Sheet 1	
C.2	Site Plan with the following information:		
•	Topographic information identifying existing utilities and adjacent development parcels.	Topographic Survey	Topographic Survey
•	Property lines and easements with dimensions and area.	ALTA Survey	ALTA Survey
•	Identify all adjacent streets.	Project Plans Sheet 1	
•	Location, size, and dimensions of all proposed and existing buildings, improvements and utilities.	Project Plans Sheet(s) 1, 2, 5	
•	Site Plan: All setbacks, including build to line, side, rear, and view corridor setbacks.	Project Plans Sheet 1, Exhibit(s) 3, 4 3D South Street Drive Through Video	South Street View Corridor Sheet (Ex. 3), Street View Renderings (Ex. 4), 3D South Street Drive Through Video
•	Parking and loading stall layout. Provide information on total number of stalls required and provided.	Project Plans Sheet(s) 1, 5 thru 7	
•	An analysis of the pedestrian, bicycle and vehicular circulation, access and accommodations.	Project Plans Sheet 1	
C.3	Information on building type, frontage type and building massing.	Project Plans Sheet 1; Building Massing	Building Massing; See 801 South St. Conformance Matrix for building type and frontage type
C.4	Floor plans and floor area calculations, including any proposed floor area transfers.	Project Plans Sheet(s) 2 thru 4	No floor area transfers
C.5	Exterior elevations and sections, including:		
•	All building heights and envelopes measured from ground elevation.	Project Plans Sheet(s) 8 thru 16	

•	All building dimensions and finish grades.	Project Plans Sheet(s) 1, 2, 5	
•	Specifications of texture, materials and color for all exterior finishes.	Project Plans Sheet 11; Exhibit 6	Tower Color Scheme (Ex. 5)
C.6	Plot plan which identifies tower location and compliance with tower footprint and spacing between towers.	Project Plans Sheet 1	
C.7	Street furniture and pedestrian zone plan, if applicable.	Landscape Plan, Drawing	Landscape Plan, Drawing –Pole Lighting for Sidewalks
C.8	Information on landscape, recreation and street trees, including the following:		
•	The location of required on-site recreational space.	Project Plans Sheet 1	Recreation Room
•	A street tree and landscaping plan which identifies the species, size and location of landscaping elements (landscape, hardscape, pedestrian pathway and irrigation) and a summary of the proposed maintenance procedures.	Landscape Plan, Exhibit 6	Landscape Plan, Drawing , Landscape Plan, Write-up (Ex. 6)
C.9	Location and size of required open space.	Project Plans Sheet 1	
C.10	Documentation of the Project's compliance with Green Building Standards.	Exhibit 7	Energy Efficiency (Ex. 7)
C.11	Information on the fulfillment of the public facilities dedication requirements.	N/A	Subchapter 4.F
C.12	Information on the fulfillment of the reserved housing requirements.	N/A	Subchapter 4
C.13	Relocation analysis, including number of people and businesses to be displaced, and the relocation assistance to be provided.	N/A	
C.14	Information on development schedule and phasing.	Exhibit 8	Project Timeline (Ex. 8)
C.15	Three-dimensional digital model of the Project in Revit or CAD format.	CAD file on CD REVIT file on CD	CD submitted under separate cover.
C.16	Digital site plan for all new buildings in CAD format.	CAD file on CD	CD submitted under separate cover.
C.17	Electronic copy of the Development Permit application and drawings in PDF format.	PDF file on CD	CD submitted under separate cover.
C-18	Any other pertinent information that shows compliance with the Mauka Area Rules.	N/A	

Exhibit 2

PROJECT AUTHORIZATION

Mauka & Makai Areas

Application No. _____

PROPERTY INFORMATION:

Site Address: 610 Kawaiahao Street
Honolulu, Hawaii 96813

Tax Map Key: Oahu 2-1-47:03

Lot Size: 76,194 square feet

Neighborhood Zone: Mauka Area - Kapiolani (KA)

Present Use of Property and/or Buildings: Warehouses formerly used by Honolulu Advertiser, presently used by Hawaii 5-0 for film studio and storage

LANDOWNER:

Name: Downtown Capital LLC Attn: Ryan M. Harada

Mailing Address: 215 N. King Street, Suite 1000
Honolulu, Hawaii 96817

Telephone: 808-526-2027 Email: ryan.harada@hawaii.rr.com

APPLICANT:

Name: Downtown Capital LLC

Mailing Address: Same as above

Telephone: _____ Email: _____

AGENT:

Name: Alston Hunt Floyd & Ing Attn: William Yuen

Mailing Address: 1001 Bishop Street, 18th Floor
Honolulu, Hawaii 96813

Telephone: 808-524-1800 Email: WYuen@ahfi.com

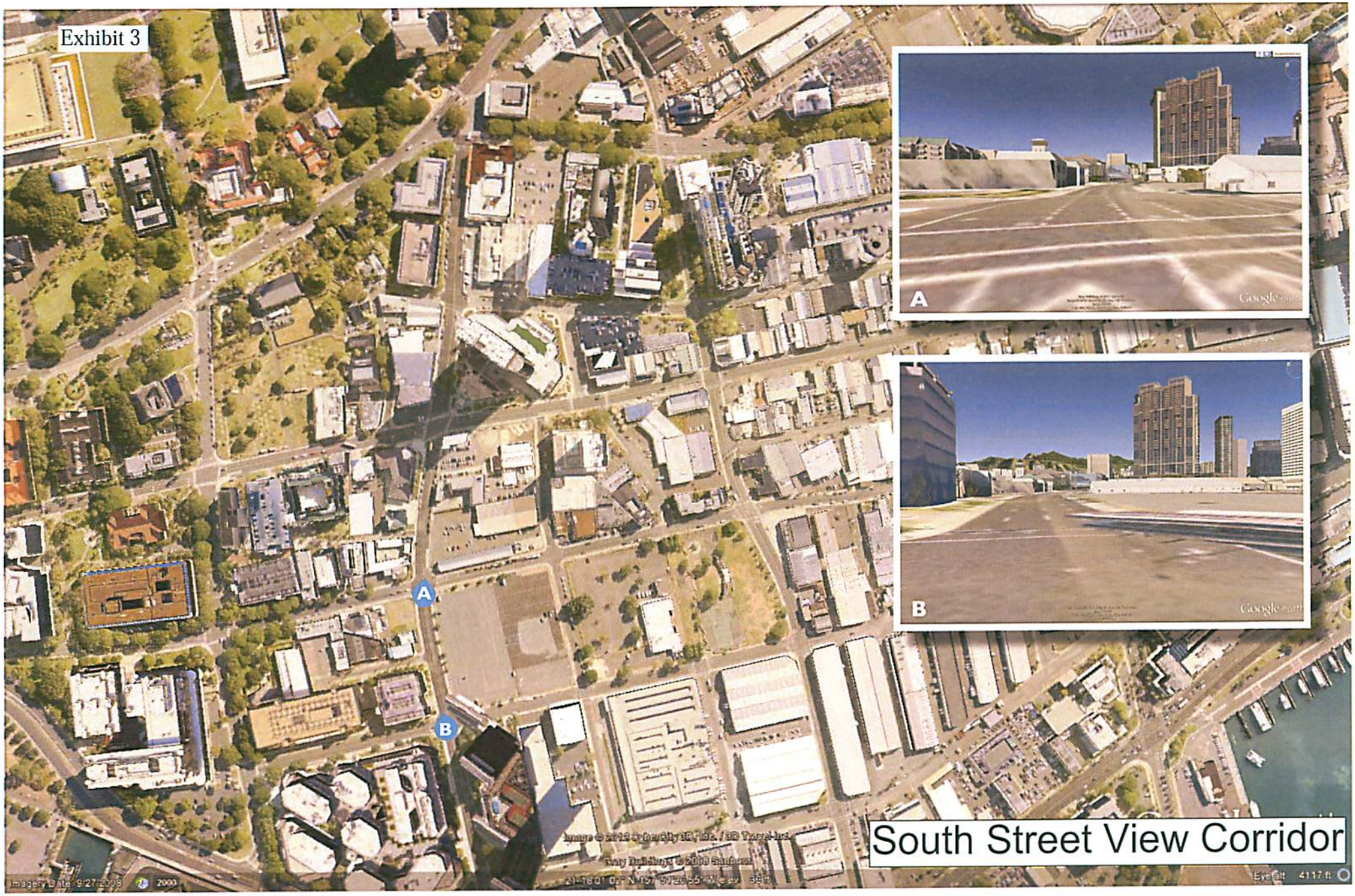
SIGNATURE:

_____ 9/12/12
Landowner Date

_____ 9/12/12
Applicant Date

November 2011

Exhibit 3




Exit ground-level view
A
South Street View Corridor:
From Halekauwila Street
Google earth
Imagery Date: 8/7/2009


B
South Street View Corridor:
From Pohukaina Street
Google earth

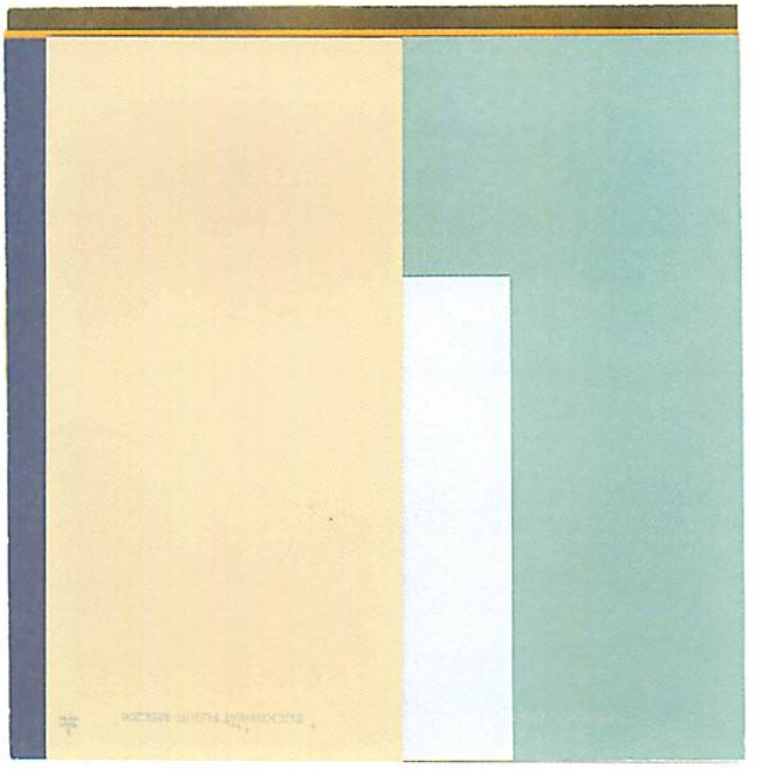
Exhibit 4

Street View Rendering from South Street

Street View Rendering from South Street & Kawaiahao Street

Exhibit 5

Tower Color Scheme



BODY OF BUILDING
Light Green / Light Tan

BODY TRIM AND LANAI SOFFIT
Dark Blue

WINDOWS
Light Blue Glass

RAILINGS
Opaque Blue Glass

PARAPET TRIM
Yellow-Orange

PARAPET
Dark Brown

Exhibit 6

Randal Fujimoto, Landscape Architect

LANDSCAPE PLAN

The species, size and location of the landscape elements shall be determined by the appropriateness of the landscape material for the site conditions and the intended use of the spaces. The street tree species shall comply with the Mauka Area Street Tree Plan.

All landscaped areas shall have an automatic irrigation system with a rain sensor control.

The intent of the landscape maintenance procedures shall be to provide the best growing conditions for the plant material. This will be achieved through proper watering, fertilizing, pest and disease management, trimming, and mowing.

Landscape Architecture • 1820 Algaroba Street, #204 • Honolulu, Hawaii 96826 • (808) 942-5553 • FAX (808) 942-2228

Exhibit 7

ENERGY EFFICIENCY

1. Old vs. New Building Comparison

a. Air tightness of walls for easier cooling.
b. Double pane windows not only for sound reduction but also to repel the sun's heat.
c. Plumbing fixtures with federal mandated water reduction.
d. Appliances with federal mandated energy efficiencies.
e. Electrical fixtures with energy efficiencies.

CONCLUSION

- Because of new technologies new buildings use much less energy than old buildings. Laws for lower or alternative energy use have not been passed for buildings over 20 years in age. It is estimated that on Oahu at least 80% of all buildings are 20 years in age and older.

2. New Building Comparison

- **1BR Maintenance Fee Comparison**

Luxury Projects

Building	Maint Fee
Moana Pacific	$460
Keola Lai	$460
Pacifica Honolulu*	$416-$670

Workforce Projects

Building	Maint Fee
1133 Waimanu	$275-$300
215 North King St.	$265
Country Club Village 6	$226
Proposed Project	$250

- **2BR Maintenance Fee Comparison**

Luxury Projects

Building	Maint Fee
Hokua	$1,200-$1,500
Koolani	$840-$1,315
Keola Lai	$600-$900
Moana Pacific	$600-$790
Pacifica Honolulu*	$570 - $670

Workforce Projects

Building	Maint Fee
1133 Waimanu	$375
215 North King St.	$308
Country Club Village 6	$291
Proposed Project	$300

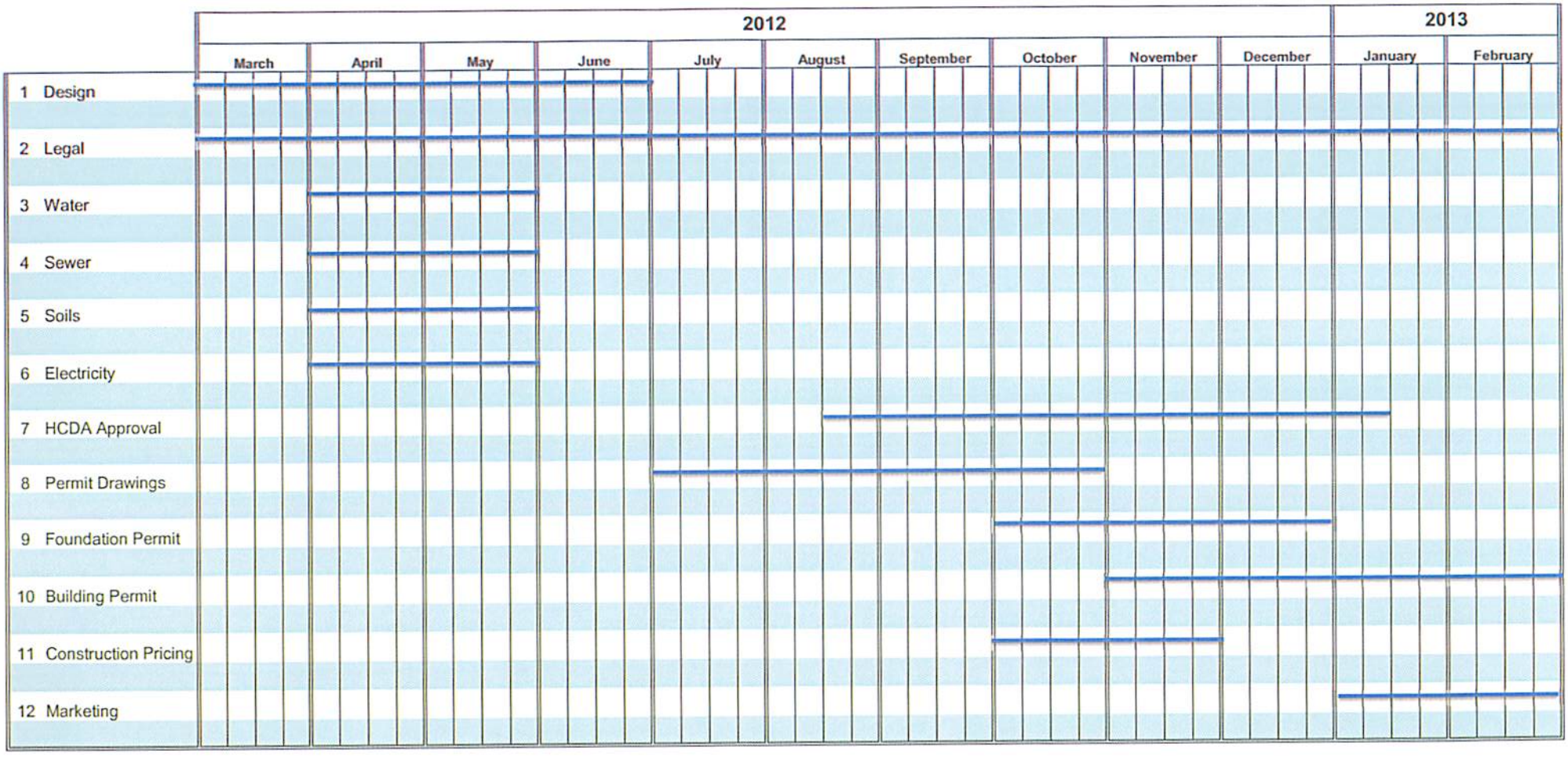
*First year Maintenance Fees are generally understated.

CONCLUSION

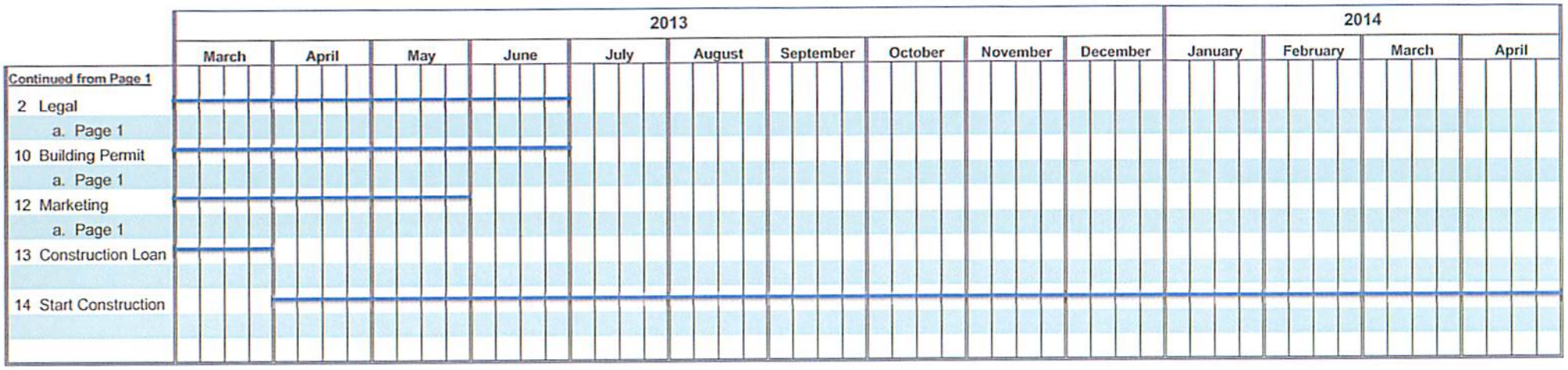
- Buildings for wealthy people use much more energy because the owners can afford paying for the higher costs. Central air-conditioning for luxury buildings is a high energy use.

- The proposed workforce housing project will have split air-conditioners for each apartment. It will be the fourth high-rise building in Honolulu with this technology. The split system allows for the option to use natural ventilation on cooler days and the electric cooling system on hot days. Further, the energy use for cooling is isolated by a single room as opposed a central air conditioned building where the energy use for cooling is subject to the entire apartment unit and/or even to the entire building.

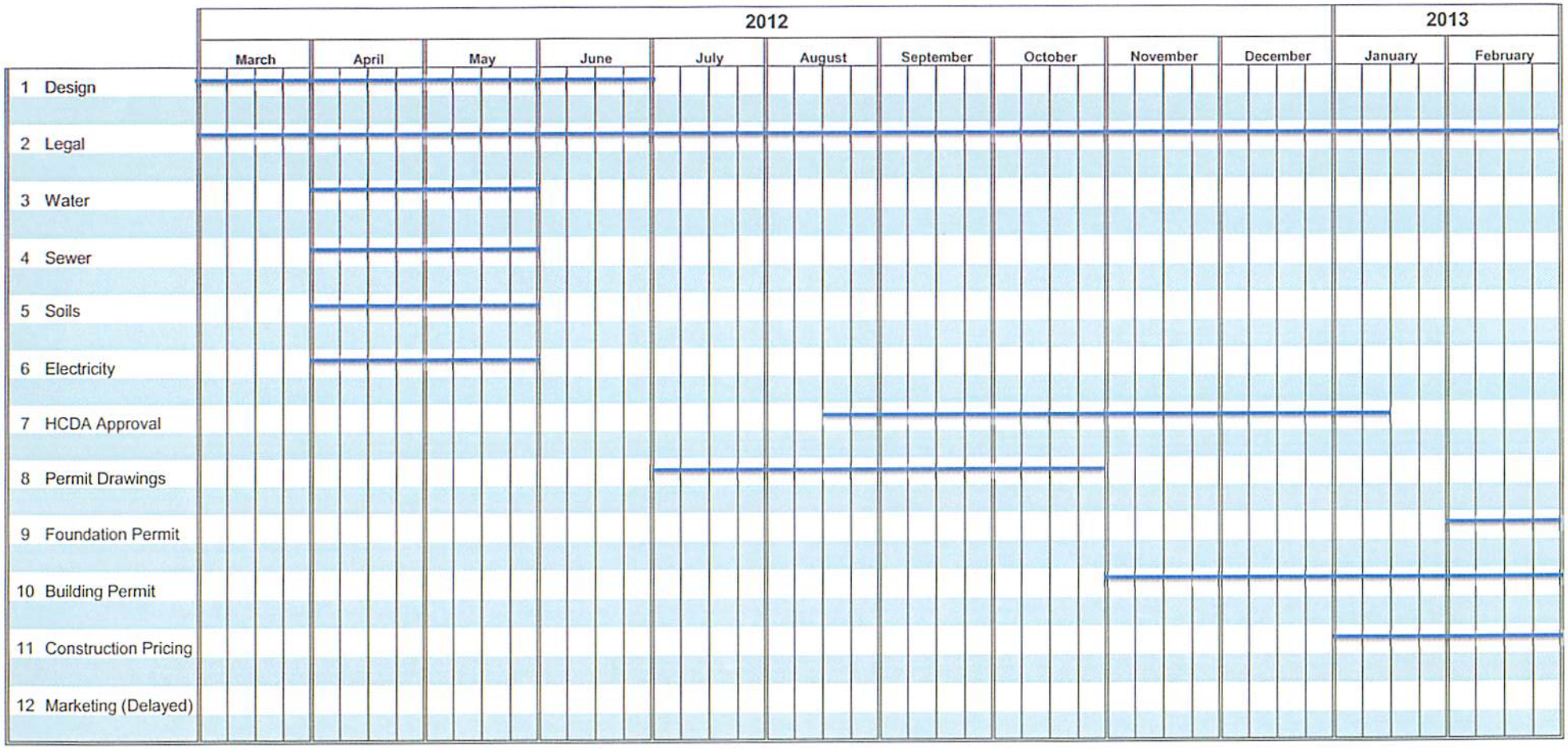
PREDEVELOPMENT WEEKLY SCHEDULE / CONSTRUCTION READY BY JANUARY 2013



PREDEVELOPMENT WEEKLY SCHEDULE / CONSTRUCTION READY BY JANUARY 2013



PREDEVELOPMENT WEEKLY SCHEDULE / CONSTRUCTION READY BY JUNE 2013



PREDEVELOPMENT WEEKLY SCHEDULE / CONSTRUCTION READY BY JUNE 2013

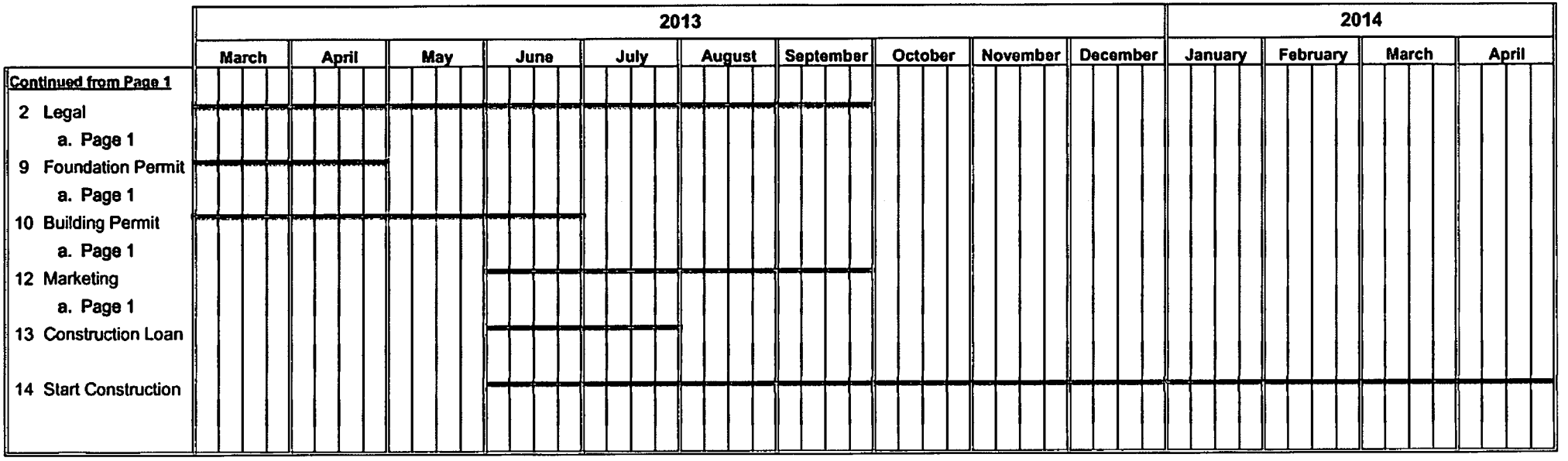


Exhibit 9

Project Summary

	Land Area	3.5 FAR	Reserve Housing (Excluded from FA)	Subchapter 4 Workforce Housing 7FAR	Total Available FA
Total Floor Area Allowed (Per new HCDA Mauka Area Rules)					
Downtown Capital LLC Parcel(s)					
Parcel TMK No					
2-1-047: 003	76,194.000	266,679		533,358	533,358
Total Floor Area Used					
FA used by Downtown Capital LLC Development					
Condominium Floor Area					**530,764**
Market Rate Floor Area		N/A			
Reserved Housing Floor Area			N/A		
Workforce Housing Floor Area				530,764	
Commercial Floor Area					
N/A					
TOTAL FA USED				530,764	530,764

801 SOUTH STREET
Development Permit Requirements

801 South Street Conformance Matrix to Mauka Area Plan & Rules:

CATEGORY	MAUKA AREA RULES CRITERIA	REQUIREMENTS (ALLOWABLE)	PROPOSED	COMMENTS
NEIGHBORHOOD ZONE AND LAND USE	HAR §15-217-23(a)(2) Neighborhood Zones, Figure 1.2 Regulating Plan, Figure 1.9 Land Use	Kapiolani Zone (KA) Mixed-use, ground floor commercial, retail and service, office and residential.	Kapiolani Zone (KA) Workforce housing Project	Residential use is permitted in all zones.
SITE AREA			Oahu TMK No. 2-1-47:03, 76,194 SF	See Project Plans Sheet 1, Project Summary (Exhibit 9)
DENSITY	Figures1.3 & NZ.2 D. Building Form, Maximum Density	3.5 FAR	3.5 FAR + 3.5 FAR Bonus	100% FAR bonus for Workforce housing per HAR §15-218-55(d)
ALLOWABLE FLOOR AREA	Figures 1.3 & NZ.2	Site Area x 3.5 FAR + 100% FAR bonus = Total Allowed Floor Area	76,194 SF x 7.0 FAR = 533,358 SF Project's total floor area = 530,764 SF	See Project Plans Sheet 2; Project Summary (Exhibit 9)
MAXIUMUM HEIGHT Residential Tower	Figures 1.3 & NZ.2 D. Building Form	400 FT (Tower) Necessary utilitarian features not to exceed 18 FT above height limit	395 FT (Tower) with 15.5 FT (Roof-top)	Conforms to Maximum Height
Parking Structure		65 FT Maximum Height	102 FT (Parking Structure)	Per HAR §15-218-55(e), Workforce Housing Modification Permitted
BUILDING TYPE	Figures 1.3 & NZ.2 A. Building Types, and BT-10 Podium High Rise	Podium High Rise Urban Block "Lei" Building Courtyard	High Rise with detached parking structure	N/A
FRONTAGE TYPES	Figures 1.3 & NZ.2 B. Frontage Types	Stoop Dooryard Forecourt Shop Front Terrace Front	Residential Units & Recreation Room	N/A
FRONTAGE OCCUPANCY	Figure 1.3 C. Building Placement Frontage Occupancy at Build to Line	75% Minimum Occupancy	South Street = 0% Occupied Kawaiahao Street = 0% Occupied	N/A
BUILDING PLACEMENT South Street	Figure NZ.2 Kapiolani Zone Front Yard & View	Figure NZ.2 Kapiolani Zone 50 FT Tower view	The Tower will be	Per HAR §15-218-

	Corridor §15-217-55(1)(6)	corridor above 65 FT with 15 FT building setback (Podium) 15 FT (Tower and Podium)	set back 43 to 51 feet along South Street from the straightened road projection at ground level and above 65 feet in height.	55(e) Workforce Housing Modification Permitted; See Exhibit(s) 3, 4; Project Plans Sheet 1
Kawaiahao Street	Front Yard	10 FT (Tower and Podium)	15 FT (Tower) 23.5 FT (Parking Garage)	Per HAR §15-218-55(e), Workforce Housing Modification Permitted
Diamond Head Property Line	Side/Rear Yard	0 FT	30 FT	Project Plans Sheet 1
Mauka Property Line	Side/Rear Yard	0 FT	21 FT	Project Plans Sheet 1
TOWER FLOOR PLATE	Figure BT.10 Table BT.10-1	Site Area of 76,194 SF = Floor Plate of 8,000 SF – 10,000 SF	Site Area of 76,194 SF = Floor Plate of 11,315 SF	Per HAR §15-218-55(e) Workforce Housing Modification Permitted
	§15-217-55(l)(4)	Maximum horizontal dimension of 150 FT and maximum length of 210 FT between farthest two points.	Maximum horizontal dimension of 207 FT, and maximum length of 215 FT between farthest two points.	Per HAR §15-218-55(e) Workforce Housing Modification Permitted
OPEN SPACE	Figure BT.10 Podium High Rise D. Open Space	1. Site Area of 76,194 SF x 15% = 11,429 SF of Open Space required. 2. Located at grade, on podium, roof garden, or combination. 3. Minimum 40 FT on any one side.	35,811 SF or 47% of land of Open Space provided at grade level.	Conforms to Open Space Requirement
RECREATION SPACE	§15-217-56 Landscape and Recreation Space	55 SF of recreation space per dwelling unit. 55 SF x 635 units = 34,925 SF. If outdoors may be used to satisfy open space requirements	6,632 SF of interior recreation space + 35,811 SF of open Space = 42,443 SF of total recreation space.	
OFF-STREET PARKING	Calculation based on unit size and number of units.			
Workforce Housing Units	§15-217-63(e)(1) 600 SQ FT or less = 1.00 Stall per Unit	362 Units x 0.9 Stall = 326 Stalls	362 Stalls provided	
	§15-217-63(e)(1) more than 600 SQ FT = 1.25 Stalls per Unit	273 Units x 1.25 Stalls = 341 Stalls = 667 Stalls required	523 Stalls provided 30 Guest Stalls Total 915 Stalls provided	

LOADING **Residential**	§15-217-63(1)(1) Loading Spaces 2 Stalls for 150,000 - 300,000 SF. 1 Stall for every 200,000 SF over 300,000 SF.	527,552 SF = 3 Loading Stalls.	3 Stalls 2 @ 12 x 35FT 1 @ 8.5 x 19 FT	12 x 35 FT stalls to have 14 FT min. height clearance. 8.5 x 19 FT stalls to have 10 FT min. height clearance.
BICYCLE PARKING	§15-217-63(m) Bicycle Parking	Short and long term Bicycle Parking to be provided within 400 FT of building entrance.	Yes. Approximately 6,156 SF of garage floor space is designated for bicycle parking	See Project Plans Sheets 1, 6
TOWER ORIENTATION	Figure 1.6B View Preservation	Mauka Makai Axis. Deviation by a maximum of 20 degrees.	No deviation from Mauka-Makai Orientation of South Street	
BUILDING MASSING	§15-217-55(l), Figure BT.10 G.2	Min. 65% of tower must be flush with building facade	100% of tower will be flush with South Street facade	
TOWER SPACING	§15-217-55(l)(4), Figure 1.6B View Preservation (Includes tower separation)	The Mauka Makai (separation) Zones for tower buildings extend 300 FT out from a tower along the tower's Mauka-Makai Axis	Project is outside of the Mauka-Makai Axis Zone of adjacent Keola Lai tower.	
MID –BLOCK PEDESTRIAN PASSAGEWAY	§15-217-58(d)(4) Large lot projects greater than 140,000 SF	Buildings that occupy a large lot must have mid-block pedestrian passage way	Oahu TMK No. 2-1-47:03 is 76,194 SF.	N/A
LANDSCAPING	§15-217-56 Landscape and Recreation Space Figure 1.7 Street Tree Plan	Provide Automatic irrigation system with rain or moisture sensor. Street trees: South Street – Queen's White Shower Tree Kawaiahao – Tulipwood	Automatic irrigation system with rain sensor control. Street trees: South Street– Queen's White Shower Tree Kawaiahao – Tulipwood	See Landscape Plan, Description (Exhibit 6) See Landscape Plan, Drawing
DEDICATION OF PUBLIC FACILITIES	§ 15-217-65 Public Facility Dedication	3% Commercial FA 4% Residential FA	None Required	Workforce housing is exempt per §15-218-55(f)
REQUIREMENT OF PROVIDING RESERVED HOUSING UNITS	§15-218-17 Requirement for Reserved Housing	20% of the Total Residential Floor Area as Reserved Housing	None Required	Workforce housing is exempt per §15-218-55(f).
GREEN BUILDING STANDARDS	§15-217-59 Requirement for Green Building standards	Qualify for base LEED rating, document achievement of LEED points	Use of energy saving measures	Per HAR §15-218-55(e), Workforce Housing Modification Permitted
PARKING PLACEMENT	Figure 1.10B Parking Placement	Parking garage setback to be 40'	At the ground floor, parking garage will	Per HAR §15-218-55(e), Workforce

		from the parcel line for the first 21' of building height	have a recreation room 11'6" in height and will be 23'4" from the Kawaiahao Street parcel line	Housing Modification Permitted
PARKING ACCESS	§15-217-63(c)(3)	Curb cuts shall be set back a minimum of 22' from adjacent properties	Location of vehicular access to the parking structure and the necessary curb cut will be adjacent to the adjoining property line on Kawaiahao Street	Per HAR §15-218-55(e), Workforce Housing Modification Permitted
STREET FURNITURE		Provide a hardscaped plaza with street furniture in the setback area along South Street	The setback area along South Street will be a fully landscaped area	Per HAR §15-218-55(e), Workforce Housing Modification Permitted

MODIFICATIONS TO MAUKA AREA RULES FOR WORKFORCE HOUSING.

HAR §15-218-55 authorizes HCDA to modify application of the Mauka Area Rules where necessary to facilitate the development of a Workforce Housing Project. Downtown Capital LLC seeks modifications for the following rules and standards:

1. **BUILDING PLACEMENT – VIEW CORRIDOR**

Rule - HAR §15-217-54(d) and §15-217-55(l)(6) provide that the area of buildings above 65 feet fronting view corridor streets shall be set back by at least 50 feet from the lot line. Figure 1.6B designates South Street as a View Corridor used to establish a Mauka-Makai Axis.

Modification Request - As shown on Sheet 1 of the Project Plans, the residential high rise building will be set back between a minimum of 43 feet and a maximum of 51 feet from a line that extends along the South Street View Corridor. The variation in the set back is due to design features that result in an irregular building façade.

Justification - The building placement is dictated by optimizing the functional relationship of the separate parking structure with the residential high rise building in terms of accessibility for residents to both buildings, traffic flow for ingress and egress to the parking structure, the service corridor for vendors, movers and solid waste disposal, and the overall security of the Project.

As illustrated in Exhibits 3 and 4, the intrusion to the South Street View Corridor is minimized due to both the Keola La`i condominium on the Diamond Head side of South Street and the 65 feet height limitation imposed on the Ewa side of South Street by the Hawaii Capital Special District design controls. This building location will result in minimal impacts on the South Street View Corridor.

2. **BUILDING PLACEMENT/FRONTAGE OCCUPANCY**

Rule - Figure 1.3 Development Standards Summary and Figure NZ.2 impose a build to line of 15 feet along South Street and 10 feet along Kawaiahao Street. Figure NZ.2 also imposes a 75% minimum occupancy requirement to both build to lines.

Modification Request - Downtown Capital LLC proposes to set the entire building back between 43 and 51 feet from the South Street View Corridor.

Justification - The Project parking structure that is along Kawaiahao Street will be setback 15 feet rather than 10 feet to provide additional open space and landscaped area between the Project and the property line. The additional setback will also provide more visibility by pedestrians of vehicle entrance to the site. The Building Placement /Build To Line modification is permitted pursuant to HAR §15-218-55(e).

This set back will result in a landscaped area fronting South Street. The residential high rise building will also be set back 15 feet from the Kawaiahao Street property line, rather than constructed to the ten feet build to line, providing

additional landscaped open space.

The parking structure is proposed to be set back 23 feet from Kawaiahao Street, rather than at the 10 feet build to line. The increased set back affords improved visibility for pedestrians and drivers exiting the parking structure.

3. BUILDING FORM/HEIGHT OF PARKING STRUCTURE

Rule - Figure NZ.2 in the Mauka Area Rules imposes a 65 feet Street Front Element Height limitation on the height of the parking podium structure.

Modification Request - Downtown Capital LLC intends to construct a free standing 915 stall parking structure. The height of the parking structure will be 102 feet. The modification is to permit the parking structure to exceed the Street Front Element Height.

Justification - The parking structure for the Project will be provided in a 102 feet separate free standing structure. Constructing a separate parking structure is much more cost effective than constructing an integrated parking podium beneath the high rise residential tower. An integrated parking structure beneath the apartment tower would have higher construction costs due to more complex and extensive structural design requirements.

Since the Project parking structure is considered a building, the portion of the structure fronting Kawaiahao Street is subject to the Street Front Element Height restriction of 65 feet. Visual impact of the height of the parking structure will be mitigated by setting the parking structure back an additional 13 feet from Kawaiahao Street versus the required 10 feet (see Building Placement/Build to Line below) and providing screening on the building.

4. BUILDING FLOOR PLATE AREA

Rule - Figure BT.10 Table BT.10-1 provides that lots having an area between 40,000 square feet and 80,000 square feet shall have a building floor plate of between 8,000 square feet and 10,000 square feet.

Modification Request - Downtown Capital LLC's request that the residential high rise tower be permitted to have a floor plate of 11,315 square feet on a lot area of 76,194 square feet.

Justification - Downtown Capital LLC requests a modification of this requirement in order to utilize the 100% density bonus afforded by §15-218-55(d). The larger floor plate area relative to the size of the lot is required to accommodate a larger number of units plus a varying mix of unit types on each floor

Table BT.10-1 also provides that lots having an area between 80,000 square feet

and 120,000 square feet may have a building floor plate of between 10,000 square feet and 12,000 square feet. Since the lot area is nearly 80,000 square feet the requested floor plate area modification will not result in a significant increase over the maximum floor plate that is presently permitted.

5. BUILDING FLOOR PLATE DIMENSION

Rule - HAR §15-217-55(l)(3) provides that a tower floor plate shall not exceed a horizontal plan projection dimension of 150 feet on one direction and a maximum length of 210 feet between the two farthest points of the tower floor plate. The plan projection dimension measured perpendicular to the horizontal projection may exceed 150 feet provided that the maximum dimension between two farthest points on the tower foot print do not exceed 210 feet in length.

Modification Request - The horizontal plan projection dimension is 207 feet and the maximum length between the two farthest points on the residential high rise tower is 215 feet.

Justification - The Project's construction system results in a long, narrow tower foot print as the most efficient design for the residential high rise tower. The Project marginally exceeds the maximum length of the tower and the additional length of the tower has a negligible potential impact since the tower is aligned with South Street without restricting the View Corridor.

6. PARKING PLACEMENT

Rule - Figure 1.10B provides that a parking garage setback be 40 feet from the parcel line for the first 21' of building height.

Modification Request - Downtown Capital LLC proposes to locate the parking garage and a recreation room of 11' 6" in height, 23 feet from the Kawaiahao Street parcel line.

Justification - Since the parking garage includes a recreation room on the ground floor of the parking garage facing the Kawaiahao Street parcel line there is active use at street level. The objective of the rule is to provide street level setback or uses other than parking as a buffer between the parking use and pedestrians which is accomplished by the placement of the recreation room at street level.

7. PARKING ACCESS

Rule - HAR §15-217-63(c)(3) provides that curb cuts shall be set back a minimum of 22 feet from adjacent properties.

Modification Downtown Capital LLC proposes to locate vehicular access to the parking

Request - structure and the necessary curb cut adjacent to the adjoining property line on Kawaiahao Street.

Justification - The placement of the vehicular access point along Kawaiahao Street is dictated by optimizing the functional relationship of the separate parking structure with the residential high rise building in terms of accessibility for residents to both buildings, traffic flow for ingress and egress to the parking structure, the service corridor for vendors, movers and solid waste disposal, and the overall security of the Project.

8. BUILDING GREEN STANDARDS

Rule - HAR §15-217-59(c) (1) to (7) provide that a new project shall qualify for certain listed items and the base LEED rating system for new construction.

Modification Request - Downtown Capital LLC proposes to comply with the purpose of HAR §15-217-59 without satisfying the Leadership in Energy and Environmental Design (LEED) rating standards promulgated by the U.S. Green Building Council. The requested modification is pursuant to HAR §15-218-55.

Justification - In support of this request, Downtown Capital LLC intends to include the following energy efficient design features in 801 South Street:

- Operable windows and lanai doors for natural ventilation.
- Split air-conditioners in each apartment unit to minimize power consumption.
- Double pane glass exterior windows and doors to diffuse radiant heat and reduce noise.
- Custom fixtures and fittings, and water-conscious landscaping to reduce water use.
- Energy-efficient appliances and lighting throughout the building.
- Innovative photovoltaic system to generate power for common areas.
- Electric-vehicle charging stations in the parking structure.

801 South Street is designed with sustainable and energy efficient features that will reduce the cost of operations and maintenance. Monthly maintenance fees are expected to be significantly lower than neighboring condominiums, ranging from $225 for studios to $300 for two bedroom units.

9. STREET FURNITURE

MODIFICATIONS TO MAUKA AREA RULES FOR WORKFORCE HOUSING.

Rule -	Provide a hardscaped plaza with street furniture in the setback area along South Street.
Modification Request -	Downtown Capital LLC proposes to provide a fully landscaped area in the setback area along South Street.
Justification -	The grassy lawn and street trees will comply with the Mauka Area Street Tree Plan and will provide a green open area to the community.

Calculation of Reserved Housing Maximum Affordable Price Points

Current Median Income (2012)	$82,700
Inflation Factor	1
Future Median Income	$82,700
Annual Mortgage Rate***	3.31%
Mortgage Term (years)	30
Downpayment (% of MAP)	10.0%
Housing Expense (% of Income)	33.0%

Standard Household Size	Adjustment for Family Size
1	0.8
2	0.9
4	1
5	1.08
6	1.16

Monthly Reserves**** Unit Type	Total	Assn Dues /RPT/MIP	MIP Pricing Assumptions
Studio	$180	($120/$30/$30)	$120,000
One Bedroom	**$498**	($278/$85/$135)	$160,000
Two Bedroom	**$637**	($370/$112/$155)	$200,000
Three Bedroom	$680	($560/$60/$60)	$240,000
Four Bedroom	$820	($680/$70/$70)	$280,000

*** Last 6-month average less 1/2 %

**** Monthly Reserves: RPT: Real property Taxes (UPDATE), MIP: Mortgage Insurance Premium (UPDATE)

***** Source: Average of interest on 30 year fixed mortgage rate for major Honolulu banks in the 1st week of each preceeding 6 months.

Percent of Median Income	100%	105%	110%	115%	120%	130%	140%
Maximum Affordable Price (MAP)							
Studio	$415,270	$438,313	$461,356	$484,399	$507,443	$553,529	$599,616
One Bedroom	$392,327	$418,250	$444,174	$470,098	$496,021	$547,868	$599,716
Two Bedroom	$414,725	$443,529	$472,333	$501,137	$529,941	$587,549	$645,158
Three Bedroom	$449,919	$481,028	$512,136	$543,245	$574,353	$636,570	$698,786
Four Bedroom	$460,543	$493,956	$527,369	$560,781	$594,194	$661,019	$727,845

WORKSHEET ASSUMPTIONS

Input Inflation Factors:	
%/Year	2.00%
# of Years	0

Input Mortgage Rates*****: mm/yy-mm/yy	
Month 1	4.00%
Month 2	4.13%
Month 3	3.88%
Month 4	3.75%
Month 5	3.63%
Month 6	3.50%
Average	3.81%

To: Hawaii Community Development Authority

Downtown Capital LLC confirms that 75% of the 635 residential units in 801 South St. will be sold for the 140% of median income prices and lower, as reflected in the HCDA pricing formula summay. HCDA confirms that there are no further Buyer or Tenant restrictions.

9/12/12

Date

801 South Street Price List - USES HCDA MEASUREMENTS

TOTAL UNITS	635		MAUKA		DIAMOND HEAD						EWA					MAKAI	
2 BR/ 2 BA	183		2/2 Unit		1/1 Unit	Studio		2/1.5 Unit	Studio	1/1 Unit	1/1 Unit	2/1 Unit	1/1 Unit	1/1 Unit	1/1 Unit	2/2 Unit	
2 BR / 1.5 BA	45		01	02	03	05		07	09	11	04	06	08	10	12	13	14
2 BR / 1 BA	46	Floor	867	867	558	411		844	423	567	579	776	542	564	577	867	867
1 BR / 1 BA	271	46	$508,500	$508,500	$385,700	$316,700		$494,600	$319,900	$388,300	$392,000	$464,700	$382,900	$388,300	$392,000	$506,400	$506,400
Studios	90	45	$507,200	$507,200	$384,900	$316,100		$493,300	$319,300	$387,500	$391,100	$463,400	$382,000	$387,500	$391,100	$505,100	$505,100
		44	$505,900	$505,900	$384,000	$315,500		$492,100	$318,600	$386,600	$390,300	$462,300	$381,200	$386,600	$390,300	$503,700	$503,700
		43	$504,600	$504,600	$383,200	$314,900		$490,800	$318,000	$385,800	$389,400	$461,100	$380,400	$385,800	$389,400	$502,400	$502,400
		42	$503,200	$503,200	$382,400	$314,100		$489,500	$317,400	$384,900	$388,400	$459,900	$379,500	$384,900	$388,400	$501,100	$501,100
		41	$501,900	$501,900	$381,400	$313,500		$488,300	$316,700	$384,100	$387,600	$458,800	$378,700	$384,100	$387,600	$499,800	$499,800
		40	$500,600	$500,600	$380,600	$312,900		$487,000	$316,100	$383,200	$386,700	$457,600	$377,900	$383,200	$386,700	$498,500	$498,500
		39	$499,300	$499,300	$379,700	$312,300		$485,700	$315,500	$382,400	$385,800	$456,400	$377,100	$382,400	$385,800	$497,100	$497,100
		38	$498,000	$498,000	$378,900	$311,700		$484,500	$314,800	$381,400	$385,000	$455,200	$376,300	$381,400	$385,000	$495,800	$495,800
		37	$496,600	$496,600	$378,100	$311,100		$483,200	$314,100	$380,600	$384,100	$454,000	$375,400	$380,600	$384,100	$494,500	$494,500
		36	$495,300	$495,300	$377,200	$310,400		$481,900	$313,500	$379,700	$383,200	$452,900	$374,600	$379,700	$383,200	$493,200	$493,200
		35	$494,000	$494,000	$376,400	$309,800		$480,700	$312,800	$378,900	$382,200	$451,700	$373,800	$378,900	$382,200	$491,900	$491,900
		34	$492,700	$492,700	$375,500	$309,200		$479,400	$312,200	$378,000	$381,400	$450,500	$372,900	$378,000	$381,400	$490,500	$490,500
		33	$491,400	$491,400	$374,600	$308,600		$478,100	$311,600	$377,200	$380,500	$449,300	$372,100	$377,200	$380,500	$489,200	$489,200
		32	$490,000	$490,000	$373,800	$308,000		$476,900	$310,900	$376,400	$379,600	$448,100	$371,300	$376,400	$379,600	$487,900	$487,900
		31	$488,700	$488,700	$372,900	$307,300		$475,600	$310,300	$375,400	$378,800	$446,900	$370,500	$375,400	$378,800	$486,600	$486,600
		30	$487,400	$487,400	$372,100	$306,600		$474,300	$309,600	$374,600	$377,900	$445,800	$369,700	$374,600	$377,900	$485,300	$485,300
		29	$486,100	$486,100	$371,300	$306,000		$473,100	$309,000	$373,700	$377,000	$444,600	$368,900	$373,700	$377,000	$484,000	$484,000
		28	$484,800	$484,800	$370,400	$305,400		$471,800	$308,400	$372,900	$376,200	$443,400	$368,000	$372,900	$376,200	$482,600	$482,600
		27	$483,400	$483,400	$369,600	$304,800		$470,500	$307,600	$372,000	$375,200	$442,200	$367,200	$372,000	$375,200	$481,300	$481,300
		26	$482,100	$482,100	$368,700	$304,200		$469,300	$307,000	$371,200	$374,300	$441,000	$366,300	$371,200	$374,300	$480,000	$480,000
		25	$480,800	$480,800	$367,800	$303,600		$468,000	$306,400	$370,300	$373,500	$439,900	$365,500	$370,300	$373,500	$478,700	$478,700
		24	$479,500	$479,500	$367,000	$302,900		$466,700	$305,700	$369,500	$372,600	$438,700	$364,700	$369,500	$372,600	$477,400	$477,400
		23	$478,200	$478,200	$366,100	$302,300		$465,500	$305,100	$368,500	$371,700	$437,500	$363,900	$368,500	$371,700	$476,000	$476,000
		22	$476,800	$476,800	$365,300	$301,700		$464,200	$304,500	$367,700	$370,900	$436,300	$363,100	$367,700	$370,900	$474,700	$474,700
		21	$475,500	$475,500	$364,500	$301,000		$462,900	$303,800	$366,900	$370,000	$435,100	$362,300	$366,900	$370,000	$473,400	$473,400
		20	$474,200	$474,200	$363,600	$300,400		$461,700	$303,200	$366,000	$369,100	$433,900	$361,400	$366,000	$369,100	$472,100	$472,100
		19	$472,900	$472,900	$362,800	$299,800		$460,400	$302,600	$365,200	$368,200	$432,800	$360,500	$365,200	$368,200	$470,800	$470,800
		18	$471,600	$471,600	$361,900	$299,100		$459,100	$301,900	$364,300	$367,300	$431,600	$359,700	$364,300	$367,300	$469,400	$469,400
		17	$470,200	$470,200	$361,000	$298,500		$457,900	$301,300	$363,500	$366,400	$430,400	$358,900	$363,500	$366,400	$468,100	$468,100
		16	$468,900	$468,900	$360,200	$297,900		$456,600	$300,600	$362,600	$365,500	$429,200	$358,100	$362,600	$365,500	$466,800	$466,800
		15	$467,600	$467,600	$359,400	$297,300		$455,300	$299,900	$361,700	$364,700	$428,000	$357,300	$361,700	$364,700	$465,500	$465,500
		14	$466,300	$466,300	$358,500	$296,700		$454,100	$299,300	$360,800	$363,800	$426,900	$356,500	$360,800	$363,800	$464,200	$464,200
		13	$465,000	$465,000	$357,700	$296,100		$452,800	$298,700	$360,000	$362,900	$425,700	$355,700	$360,000	$362,900	$462,800	$462,800
		12	$463,700	$463,700	$356,800	$295,400		$451,500	$298,000	$359,100	$362,100	$424,500	$354,800	$359,100	$362,100	$461,500	$461,500
		11	$462,300	$462,300	$356,000	$294,800		$450,300	$297,400	$358,300	$361,100	$423,400	$353,900	$358,300	$361,100	$460,200	$460,200
		10	$455,700	$455,700	$350,000	$289,800		$443,900	$292,200	$352,500	$360,200	$422,100	$353,100	$357,400	$360,200	$458,900	$458,900
LEGEND:		9	$454,400	$454,400	$349,200	$289,200		$442,700	$291,500	$351,900	$359,400	$420,900	$352,300	$356,600	$359,400	$457,600	$457,600
		8	$453,100	$453,100	$348,200	$288,600		$441,400	$290,900	$351,100	$358,500	$419,800	$351,500	$355,800	$358,500	$456,200	$456,200
LBY = Lobby		7	$451,800	$451,800	$347,400	$288,000		$440,100	$290,300	$350,400	$357,600	$418,600	$350,700	$354,800	$357,600	$454,900	$454,900
OFC = Office		6	$450,500	$450,500	$346,600	$287,300		$438,900	$289,600	$349,600	$356,800	$417,400	$349,900	$354,000	$356,800	$453,600	$453,600
ELEC = Electrical Room		5	$449,100	$449,100	$345,700	$286,600		$437,600	$289,000	$348,700	$355,900	$416,300	$349,100	$353,100	$355,900	$452,300	$452,300
MECH = Mechanical Room		4	$444,800	$444,800	$342,600	$283,800		$433,400	$285,900	$345,600	$354,900	$415,000	$348,200	$352,300	$354,900	$451,000	$451,000
SEC = Security Office		3	$443,500	$443,500	$341,800	$283,200		$432,100	$285,300	$344,700	$354,100	$413,800	$347,300	$351,400	$354,100	$449,600	$449,600
JAN = Janitor Room		2	$442,100	$442,100	$340,900	$282,500		$430,900	$284,700	$343,800	$353,200	$412,700	$346,500	$350,600	$353,200	$448,300	$448,300
TRA = Trash Room		1	OFC	LBY	SEC	MAIL		TRA/ELEC	ELEC	MECH	LBY	$412,700	$346,500	$350,600	LBY	$448,300	$448,300

Note: Second parking stall purchased will be added to apartment prices which include one parking stall.

DEVELOPMENT PERMIT

for

801 South Street

Approved by the

HAWAII COMMUNITY DEVELOPMENT AUTHORITY
461 Cooke Street
Honolulu, Hawaii 96813

on

December 5, 2012

Pursuant to Chapter 206E, Hawaii Revised Statutes

DEVELOPMENT PERMIT NO.: KAK 12-109

Exhibit B

I. PROJECT SUMMARY AND ENTITLEMENTS

CATEGORY	MAUKA AREA RULES CRITERIA	REQUIREMENTS (ALLOWABLE)	PROPOSED	COMMENTS
NEIGHBORHOOD ZONE AND LAND USE	HAR §15-217-23(a)(2) Neighborhood Zones, Figure 1.2 Regulating Plan, Figure 1.9 Land Use	Kapiolani Zone (KA) Mixed-use, ground floor commercial, retail and service, office and residential.	Kapiolani Zone (KA) Workforce housing Project	Residential use is permitted in all zones.
SITE AREA			Oahu TMK No. 2-1-47:03, 76,194 SF	See Project Plans Sheet 1, Project Summary (Exhibit 9)
DENSITY	Figures 1.3 & NZ.2 D. Building Form, Maximum Density	3.5 FAR	3.5 FAR + 3.5 FAR Bonus	100% FAR bonus for Workforce housing per HAR §15-218-55(d)
ALLOWABLE FLOOR AREA	Figures 1.3 & NZ.2	Site Area x 3.5 FAR + 100% FAR bonus = Total Allowed Floor Area	76,194 SF x 7.0 FAR = 533,358 SF Project's total floor area = 530,764 SF	See Project Plans Sheet 2; Project Summary (Exhibit 9)
MAXIUMUM HEIGHT Residential Tower	Figures 1.3 & NZ.2 D. Building Form	400 FT (Tower) Necessary utilitarian features not to exceed 18 FT above height limit	395 FT (Tower) with 15.5 FT (Roof-top)	Conforms to Maximum Height

Left intentionally blank.

Parking Structure		65 FT Maximum Height	102 FT (Parking Structure)	Per HAR §15-218-55(e), modifications to the provisions of Mauka Area Rules approved by the Authority on December 5, 2012.
BUILDING TYPE	Figures 1.3 & NZ.2 A. Building Types, and BT-10 Podium High Rise	Podium High Rise Urban Block "Lei" Building Courtyard	High Rise with detached parking structure	N/A
FRONTAGE TYPES	Figures 1.3 & NZ.2 B. Frontage Types	Stoop Dooryard Forecourt Shop Front Terrace Front	Residential Units & Recreation Room	N/A
FRONTAGE OCCUPANCY	Figure 1.3 C. Building Placement Frontage Occupancy at Build to Line	75% Minimum Occupancy	South Street = 0% Occupied Kawaiahao Street = 0% Occupied	N/A

Left intentionally blank.

BUILDING PLACEMENT	Figure NZ.2 Kapiolani Zone	Figure NZ.2 Kapiolani Zone		
South Street	Front Yard & View Corridor §15-217-55(l)(6)	Built to line 15 Feet from property line. (Podium)	Proposed built to line is 43 feet from the property line.	Per HAR §15-218-55(e) modifications to the provisions of Mauka Area Rules approved by the Authority on December 5, 2012.
Kawaiahao Street	Front Yard	Built to line is 10 FT (Tower and Podium)	Proposed built to line is 15 feet for the Tower and 23.5 feet for the Parking Garage Podium	
Diamond Head Property Line	Side/Rear Yard	0 FT	30 FT	
Mauka Property Line	Side/Rear Yard	0 FT	21 FT	
VIEW CORRIDOR	HAR §15-217-55(l)(6)	Areas of buildings above 65 feet on view corridor streets shall be setback by 50 feet behind the lot line.	Propose setback for the tower from South street is less than 50 feet. Proposed setback varies from 42 feet to 45 feet 11 inches.	Per HAR §15-218-55(e), modifications to the provisions of Mauka Area Rules approved by the Authority on December 5, 2012.
TOWER FLOOR PLATE	Figure BT.10 Table BT.10-1	Site Area of 76,194 SF = Floor Plate of 8,000 SF – 10,000 SF	Site Area of 76,194 SF = Floor Plate of 11,315 SF	Per HAR §15-218-55(e), modifications to the provisions of Mauka Area Rules approved by the Authority on December 5, 2012.

	§15-217-55(l)(4)	Maximum horizontal dimension of 150 FT and maximum length of 210 FT between farthest two points.	Maximum horizontal dimension of 207 FT, and maximum length of 215 FT between farthest two points.	Per HAR §15-218-55(e), modifications to the provisions of Mauka Area Rules approved by the Authority on December 5, 2012.
OPEN SPACE	Figure BT.10 Podium High Rise D. Open Space	1. Site Area of 76,194 SF x 15% = 11,429 SF of Open Space required. 2. Located at grade, on podium, roof garden, or combination. 3. Minimum 40 FT on any one side.	35,811 SF or 47% of land of Open Space provided at grade level.	Conforms to Open Space Requirement
RECREATION SPACE	§15-217-56 Landscape and Recreation Space	55 SF of recreation space per dwelling unit. 55 SF x 635 units = 34,925 SF. If outdoors may be used to satisfy open space requirements	6,632 SF of interior recreation space + 35,811 SF of open Space = 42,443 SF of total recreation space.	
OFF-STREET PARKING	Calculation based on unit size and number of units.			
Workforce Housing Units	§15-217-63(e)(1) 600 SQ FT or less = 1.00 Stall per Unit	362 Units x 0.9 Stall = 326 Stalls	362 Stalls provided	
	§15-217-63(e)(1) more than 600 SQ FT = 1.25 Stalls per Unit	273 Units x 1.25 Stalls = 341 Stalls = 667 Stalls required	523 Stalls provided 30 Guest Stalls Total 915 Stalls provided	

LOADING **Residential**	§15-217-63(l)(1) Loading Spaces 2 Stalls for 150,000 - 300,000 SF. 1 Stall for every 200,000 SF over 300,000 SF.	527,552 SF = 3 Loading Stalls.	3 Stalls 2 @ 12 x 35FT 1 @ 8.5 x 19 FT	12 x 35 FT stalls to have 14 FT min. height clearance. 8.5 x 19 FT stalls to have 10 FT min. height clearance.
BICYCLE PARKING	§15-217-63(m) Bicycle Parking	Short and long term Bicycle Parking to be provided within 400 FT of building entrance.	Yes. Approximately 6,156 SF of garage floor space is designated for bicycle parking	See Project Plans Sheets 1, 6
TOWER ORIENTATION	Figure 1.6B View Preservation	Mauka Makai Axis. Deviation by a maximum of 20 degrees.	No deviation from Mauka-Makai Orientation of South Street	
BUILDING MASSING	§15-217-55(l), Figure BT.10 G.2	Min. 65% of tower must be flush with building facade	100% of tower will be flush with South Street façade	
TOWER SPACING	§15-217-55(l)(4), Figure 1.6B View Preservation (Includes tower separation)	The Mauka Makai (separation) Zones for tower buildings extend 300 FT out from a tower along the tower's Mauka-Makai Axis	Project is outside of the Mauka-Makai Axis Zone of adjacent Keola La'i tower.	
MID–BLOCK PEDESTRIAN PASSAGEWAY	§15-217-58(d)(4) Large lot projects greater than 140,000 SF	Buildings that occupy a large lot must have mid-block pedestrian passage way	Oahu TMK No. 2-1-47:03 is 76,194 SF.	N/A

LANDSCAPING	§15-217-56 Landscape and Recreation Space Figure 1.7 Street Tree Plan	Provide Automatic irrigation system with rain or moisture sensor. Street trees: South Street – Queen's White Shower Tree Kawaiahao – Tulipwood	Automatic irrigation system with rain sensor control. Street trees: South Street– Queen's White Shower Tree Kawaiahao – Tulipwood	See Landscape Plan, Description (Exhibit 6) See Landscape Plan, Drawing
DEDICATION OF PUBLIC FACILITIES	§15-217-65 Public Facility Dedication	3% Commercial FA 4% Residential FA	None Required	Workforce housing is exempt from public facilities dedication requirement per §15-218-55(f)
REQUIREMENT OF PROVIDING RESERVED HOUSING UNITS	§15-218-17 Requirement for Reserved Housing	20% of the Total Residential Floor Area as Reserved Housing	None Required	
GREEN BUILDING STANDARDS	§15-217-59 Requirement for Green Building standards	Qualify for base LEED rating, document achievement of LEED points	Use of energy saving measures	Per HAR §15-218-55(e), modifications to the provisions of Mauka Area Rules approved by the Authority on December 5, 2012.
PARKING PLACEMENT	Figure 1.10B Parking Placement	Parking garage setback to be 40' from the parcel line for the first 21' of building height	At the ground floor, parking garage will have a recreation room 11'6" in height and will be 23'4" from the Kawaiahao Street parcel line	Per HAR §15-218-55(e), modifications to the provisions of Mauka Area Rules approved by the Authority on December 5, 2012.

PARKING ACCESS	§15-217-63(c)(3)	Curb cuts shall be set back a minimum of 22' from adjacent properties	Location of vehicular access to the parking structure and the necessary curb cut will be adjacent to the adjoining property line on Kawaiahao Street	Per HAR §15-218-55(e), modifications to the provisions of Mauka Area Rules approved by the Authority on December 5, 2012.

II. **WORKFORCE HOUSING:** The Applicant shall comply with the provisions of Hawaii Administrative Rules, Title 15, Subtitle 4, Chapter 218, Subchapter 4, Workforce Housing Project(s). Applicant shall designate no less than 75% of the residential units in the Project as workforce housing units for purchase by families earning one hundred forty percent (140%) or less of the area median income (AMI). During its initial sixty (60) day sales period, the Applicant shall only enter into sales contract for purchase of workforce housing units with owner-occupant buyers whose family incomes are one hundred forty percent (140%) or less of the AMI. Following the expiration of the initial sixty (60) day sales period, while the Applicant shall still give preference to owner-occupant buyers whose family incomes are one hundred forty percent (140%) or less of the AMI, the Applicant may sell any of the designated workforce housing units to any buyer regardless on household income. In all cases, the pricing of all workforce housing units for sale in the Project shall be determined based on a family income of one hundred forty percent or less of the AMI.

The Applicant shall execute an agreement with the Hawaii Community Development Authority ("HCDA") as to how the Project conforms to the provision of Subchapter 4-Workforce Housing Project(s) of the Kakaako Reserved Housing Rules and such agreement shall be binding upon the Applicant and any successors in interest. No construction of the Project shall commence unless the Applicant has provided satisfactory documentation to the HCDA that the Project conforms to the provision of Subchapter 4-Workforce Housing Projects(s) of the Kakaako Reserved Housing Rules.

III. **INFRASTRUCTURE IMPROVEMENTS:** Infrastructure improvements can be divided into two categories: (1) infrastructure improvements or requirements which are immediately necessary to proceed with the Project; and (2) improvements which are necessary to improve and upgrade the vicinity in total through the HCDA District-Wide Improvement Program.

1. **Improvements Necessary to Proceed with the Project:** With regard to infrastructure improvements or requirements which are

necessary to proceed with the Project, the Applicant shall be responsible for providing necessary developer improvements.

2. **Improvements Proposed for the HCDA District-Wide Infrastructure Improvement Program:** As part of the HCDA District-Wide Improvement Program, road and utility improvements are being undertaken in increments throughout the Kakaako District, financed in part through an Improvement District Program.

   In this regard, the Project shall be subject to assessments for its pro rata share of the cost of improvements which may, in the future, be necessarily undertaken in the vicinity of the respective projects under the HCDA or other government agencies' improvement programs. The projects will be assessed under the same methods and in the same manner as other properties in the area.

   In order to ensure the participation of the Project, the Applicant, and its successors and assigns, shall agree to participate in the HCDA District-Wide Improvement Program at the time said program is implemented. The terms specified in the agreement shall be made a part of all condominium and conveyance documents for the project and said documents shall be reviewed and approved by the HCDA prior to submission to the Real Estate Commission and to execution.

IV. **DECISION:** Hearings Officer's report for the Development Permit application dated December 5, 2012 is hereby incorporated into this Development Permit and made part of this Permit. The Development Permit for the Project is hereby approved subject to the following provisions:

A. Provide a Development Agreement with the HCDA that binds the Applicant, and its successors and assigns, individually and collectively, to develop and to maintain the Project site in conformity with the provisions of this Development Permit and with the Mauka Area Rules. This Agreement shall be filed as a covenant running with the land with the Bureau of Conveyances or the Assistant Registrar of the Land Court. Proof of such filing in the form of copies of the covenants certified by the appropriate agency shall be submitted to the HCDA.

B. Comply with all applicable requirements of Subchapter 2 (Regulating Plan and Neighborhood Zone) of the Mauka Area Rules.

C. Comply with all applicable requirements of Subchapter 3 (Thoroughfare Plan and Standards) of the Mauka Area Rules.

D. Comply with all applicable requirements of Subchapter 4 (Area-Wide Standards) of the Mauka Area Rules.

E. Comply with all applicable requirements of the Kakaako Reserved Housing Rules, Hawaii Administrative Rules, Title 15, Subtitle 4, Chapter 218.

F. Comply with all requirements as specified under Parts I., II., and III. of this Permit.

G. Comply with all Conditions imposed by the Authority with respect to any Historic Properties, Aviation Artifacts or a burial site that may be discovered at the Project site.

H. Comply with any other terms and conditions as required by the HCDA Executive Director to implement the purpose and intent of the Rules.

All conditions shall be met prior to the issuance of the initial Building Permit for the Project.

Dated at Honolulu, Hawaii, this 5th day of December, 2012.

HAWAII COMMUNITY DEVELOPMENT AUTHORITY, State of Hawaii

By _____
Brian Lee, Chairperson

HAWAII COMMUNITY DEVELOPMENT AUTHORITY

KAKAAKO KALAELOA

Neil Abercrombie
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DEVELOPMENT PERMIT APPLICATION

KAK 12-109
801 South Street

Hearings Officer's Report and Recommendation

December 5, 2012

I. REQUEST

Downtown Capital LLC ("Applicant") is requesting a Development Permit to construct a new workforce housing high-rise residential project ("Project"). The Project site is located at 610 Kawaiahao Street in the Mauka Area of the Kakaako Community Development District ("KCDD") (Tax Map Key No.: 2-1-047: 003). The Applicant's Development Permit application is attached hereto as Exhibit A.

II. ANALYSIS

Workforce Housing Project: Subchapter 4 - Kakaako Reserved Housing Rules

The Applicant intends to utilize the provisions of Subchapter 4 of the Kakaako Reserved Housing Rules for the Project. Subchapter 4 of the Kakaako Reserved Housing Rules provides that, *"New residential project(s) where at least seventy-five per cent of the residential units are set aside for purchase by families earning between one hundred to one hundred forty per cent of the AMI, which does not require financial assistance for construction from Federal, State, or County governmental bodies, and which meets the following unit size requirements shall qualify as a workforce housing project."* The Applicant is proposing that the Project will comply with Subchapter 4 and will deliver at least seventy-five percent (75%) of the residential units as workforce housing. Section15-218-55(e) of the Kakaako Reserved Housing Rules also provides that in considering a development application for a "workforce housing project", the Authority may consider modifications to the provisions of the Hawaii Administrative Rules, Chapter 217, Title 15, Mauka Area Rules.

Completeness Review

The purpose of the completeness review is to determine whether all required information is provided in a permit application. A completeness

review does not constitute a decision as to whether an application complies with the provisions of the Rules. The Development Permit application for the Project was received on September 12, 2012.

The Hawaii Community Development Authority ("HCDA") staff reviewed the application and the application was deemed complete. The Project was issued a Certificate of Completeness on September 27, 2012 by the Executive Director and records indicate that all filing fees have been paid. The Certificate of Completeness is attached hereto as Exhibit B.

Development Permit Procedures

Pursuant to §15-217-80(c) and Figure 1.1 of the Mauka Area Rules, developments within the KCDD require a Development Permit that is subject to Authority review and approval. The Hawaii Revised Statutes §206E-5.6 requires that when rendering a decision regarding the acceptance of a developer's proposal to develop lands under the Authority's control, the Authority shall render its decision at a public hearing separate from the hearing at which the proposal was presented. This essentially requires that the Authority conduct two separate public hearings in rendering a decision regarding a Development Permit.

Section 15-217-80(d) of the Mauka Area Rules requires the following findings of fact in approval of a Development Permit:

(1) **Consistency with the Mauka Area Plan.** That the Project complies with and advances the goals, policies and objectives of the Mauka Area Plan;

(2) **Consistency with the Mauka Area Rules.** That the Project proposal will protect, preserve, or enhance desirable neighborhood characteristics through compliance with the standards and guidelines of the Mauka Area Rules; and

(3) **Compatibility of the Mauka District.** That the Project proposal will not have a substantial adverse effect on the surrounding land uses and will be compatible with the existing and planned land use character of the surrounding area.

Section 15-217-80(f) provides that in reviewing a Development Permit application, the Authority may convene a Design Review Board (DAB).

Land Use, Neighborhood Zone and Building Type

The Project is located within the KA Zone and proposes multi-family residential use, which is a permissible use pursuant to Figure 1.9 of the Mauka Area Rules. The Project conforms to the requirements of Figure BT.10 of the Mauka Area Rules *Podium High Rise,* which specifies lot size and facade width, access, open space, landscaping and frontage.

Building Placement

Pursuant to Figure NZ.2, KA Zone, the build-to-line along South Street is fifteen (15) feet from the lot line. The build-to-line along Kawaiahao Street is ten (10) feet from the lot line. The Applicant is requesting that the Authority consider a modification of §15-217-53 and Figure NZ.2 of the Mauka Area Rules allowing the Project to be 43'-0" from the property line on South Street and 23'-4" from Kawaiahao Street.

Building Form

The Project will comply with the building form and allowable tower height provisions pursuant to Figure NZ.2, Podium High Rise which permits a height of 400 feet for the tower. The tower element will measure 395 feet in height with a fifteen and a half (15½) feet mechanical enclosure located on the rooftop level. Section 15-217-54 provides for additional height beyond 400 feet that is reasonably necessary for enclosure of mechanical systems on roof level. The Applicant is requesting that the Authority consider a modification from the following provisions of the Mauka Area Rules:

- **Podium Height:** Figure NZ.2(D) of the Mauka Area Rules requires that podium heights shall be between 30 - 65 feet. The podium element of the Project is eleven floors with a height of 102'-0". Figure BT.10 of the Mauka Area Rules permits a parking podium that is detached from the podium high-rise building.

- **View Corridor Setback:** Figure 1.6A of the Mauka Area Rules identifies South Street as a view corridor street. Pursuant to §15-217-54(d) of the Mauka Area Rules, which states *"Any part of a building which is taller than sixty-five feet and fronting a view corridor street…shall be setback from the lot line abutting the view corridor by fifty feet."* The portion of the tower

element of the Project closest to the property line will be setback 42'-0" from the South Street property line. The portion of the tower furthest away from the property line is setback 45'-11".

- **Tower Floor Plate Area:** The allowable floor plate size is based on a linear scale of 8,000 to10,000 square feet based on the size of the lot area, where the allowable floor plate area for a lot size of 40,000 square feet is 8,000 square feet and the allowable floor plate area for a lot size of 80,000 square feet is 10,000 square feet. Based on the lot size of 76,194 square feet for the Project and use of the linear scale from Table BT.10-1 of the Mauka Area Rules, the allowable floor plate area is 9,981 square feet. The Project proposes a tower floor plate size of 11,315 square feet.

- **Maximum Length Between Two Farthest Points of the Tower Floor Plate:** Section 15-217-55(l)(3) of the Mauka Area Rules provides that the maximum length between the two farthest points of the tower floor plate be no more than 210 feet. The maximum distance between two farthest point of the tower floor plate of the Project is 215 feet.

Frontage Type

Pursuant to §15-217-53(b) of the Mauka Area Rules, which states that *"Wherever a build to line is equal to or greater than fifteen feet, a terrace front frontage type…shall be used."* The Project will conform with Figure FT.8 "Terrace Front", along South Street, which specifies dimension and element standards. The Project proposes to utilize a "Terrace Front" along South and Kawaiahao Streets. "Terrace Front" is required to be used when the build to lines are equal to or greater than fifteen (15) feet. A minimum of one approved twenty-five (25) gallon minimum container size, 2 inch caliper minimum tree will be provided within the setback for every thirty (30) feet of frontage. Any fence defining the terrace space will not exceed three (3) feet in height.

Thoroughfare Plan

The Thoroughfare Plan of §15-217-39 of the Mauka Area Rules provides requirements for a project's pedestrian zone, street trees and landscaping, street lighting and planting strips. Every thoroughfare shall have street trees planted within the public frontage area, with the exception of service streets, alleys and street right-of-way measuring forty (40) feet or less. The Project has frontage on two (2) thoroughfares; South Street categorized as an "*avenue*", Kawaiahao Street categorized as a "*street*" and the Project proposes to conform to the Thoroughfare Plan provisions.

The pedestrian zone is distinguished and organized according to three functional categories: pedestrian throughway area, furnishing area and private frontage area pursuant to §15-217-39(d), *Pedestrian zone.* If the Project will have special paving in the pedestrian zone, it is subject to HCDA's Executive Director's review and approval prior to installation. Furnishings located in the pedestrian zone, but still within the public right-of-way will require confirmation by the City and County of Honolulu ("City"). The City has requested that furnishings not be located near the right-of-way to reduce vehicles stopping, loading and unloading along the right-of-way.

Street trees and landscaping shall be planted in a regularly-spaced pattern of a single species with shade canopies of a height that at maturity clears at least one story. The Project will plant trees in accordance to the parameters defined in Figure 1.7B *Street Tree Charts* of the Mauka Area Rules.

Street lighting shall illuminate both the sidewalk and the vehicular lanes. The sidewalk lighting shall be confirmed with the City prior to installation.

Architectural Design

Section 15-217-55, *Architectural design* of the Mauka Area Rules provides provisions for the following architectural features: awnings, trellises and canopies, balconies, buildings with auto retail or sales uses, storm water drainage, fences, walls and hedges, lighting, building facades and elevation materials, roofs, service functions, signage, windows, view preservation, storefront and windows for retail. The Project is compliant with the provisions of the *Architectural Design* section of the Mauka Area Rules where applicable, except where the Applicant is requesting that the Authority consider a modification.

View Preservation

Section 15-217-55(l), *View preservation* of the Mauka Area Rules provides provisions on preserving the views to the mountains and the waterfront through the orientation, placement and floor plate of the tower. Section15-217-55(l)(2) of the Mauka Area Rules provides that, "*The orientation of the tower may deviate from its designated mauka-makai axis by a maximum of twenty degrees. The authority may consider, pursuant to section 15-217-82 of this rule, a deviation of the tower orientation of more than twenty degrees from the designated mauka-makai axis provided that the applicant demonstrates to the satisfaction of the authority that based on building massing, tower floor plate size, tower configuration, tower orientation, energy efficiencies, and other pertinent factors that the proposed tower orientation will not have a greater impact on mauka-makai view than would result from a twenty degree mauka-makai orientation*". The Project's Mauka-Makai axis is parallel to South Street and the proposed tower orientation is parallel to South Street and therefore, will not exceed the allowable twenty degree orientation deviation.

Open Space

Pursuant to Figure BT.10 Podium High Rise, the open space requirement for the Project is fifteen percent (15%) of the lot area and shall be a minimum dimension of forty (40) feet on any one side. The lot area of the proposed Project is 76,194 square feet; therefore, the required open space is 11,429 square feet. The Project is providing approximately 35,811 square feet of open space at ground level, exceeding the open space requirement.

Landscape and Recreation Space

The Project proposes to plant native and/or adapted species and will provide a landscape maintenance plan for both the irrigation system and planting pursuant to §15-217-56 of the Mauka Area Rules. Section 15-217-56(d) provides that, "*Residential projects requiring a development permit shall provide fifty-five square feet of recreation space per dwelling unit. The required on-site recreation space, if provided outdoors, may be used to satisfy the open space requirement.*" The Project proposes a total of 635 residential units therefore requiring 34,925 square feet of on-site recreation space. The Project will provide a 6,632 square feet recreation room on the ground floor of the parking podium structure and 35,811 square feet of outdoor open space that will provide a total of 42,443 square feet of qualifying recreation space - exceeding the recreation space requirement.

Green Building

Section 15-217-59, *Green building* of the Mauka Area Rules provides standards intended to result in a responsible development pattern that conserves natural resources and provides a healthy environment for inhabitants of the Mauka Area. Projects shall qualify for the applicable LEED rating system in which the Project is categorized, but are not required to certify or submit the Project to the U.S. Green Building Council ("USGBC") for Project recognition or approval. The USGBC is the regulating agency for LEED projects. Projects shall achieve and document at least one (1) point in Sustainable Sites - Stormwater Design (Quality Control or Quantity Control), at least one (1) point in Sustainable Sites - Heat Island Effect (Non-roof or Roof) and at least one (1) point in Water Efficiency - Water Efficient Landscaping. The Applicant is requesting that the Authority consider a modification from all of the Green Building provisions in Section 15-217-59.

Flood Zone

Section 15-217-61, *Flood zone* of the Mauka Area Rules provides standards that apply to all new buildings within an indentified Honolulu or FEMA flood zone and that are required by code to have raised ground floors. The Project is within the Zone X of FEMA's National Flood Insurance Program Flood Insurance Rate Map ("FIRM") which is an area determined to be outside the 0.2 percent annual chance of a 500-year flood. Based on this information, the provisions of §15-217-61 are not applicable.

Parking and Loading

Section 15-217-63, *Parking and loading* of the Mauka Area Rules shall apply to all new principal buildings in the Mauka Area or additions to buildings on properties that exceed twenty-five percent (25%) of the existing floor area on a said property.

Access to parking shall be from an alley, where there is no alley present; parking shall be accessed from a parking access street. In the event parking access is not possible from a parking access street, parking shall be accessed from an alternative parking access street. The Project conforms to this section and will provide parking access from a parking access street, Kawaiahao Street. All driveways shall be a minimum of fifty-five (55) feet from an intersection measured from the right-of-way. All driveways and parking access from Kawaiahao Street are well beyond the fifty-five (55) feet requirement.

Curb cuts shall be minimized especially along alternative parking access streets. The maximum width for new curb cuts shall be twenty-five (25) feet for two-way traffic and twelve (12) feet for one-way traffic. The Project will provide two (2) new curb cuts along Kawaiahao Street. Providing two (2) curb cuts for the Project is not deemed excessive and is permitted for the Project. Pursuant to §15-218-55(e) of the Kakaako Reserved Housing Rules, the Applicant is requesting that the Authority consider modifications to the following provisions:

- **Parking Access:** Figure BT.10(c)(2) states that per §15-217-63(c)(3) parking access shall be located a minimum of twenty-two (22) feet from an adjacent property. Parking access from Kawaiahao Street is located immediately adjacent to the neighboring property.

- **Parking Location:** Figure BT.10(c)(1) states that parking shall be located in the Allowed Parking Zones (Figure 1.10-B) located forty (40) feet from the property line for the first two stories. The second story of the Project along Kawaiahao Street is located only 23'-4" from the property line and therefore is not within the allowed parking zone.

The Project is required to provide a total of 704 parking stalls. The Project proposes to provide a total of 915 parking stalls creating an excess of 211 stalls. The Mauka Area Rules provide that at least fifty percent (50%) of the required parking stalls shall be standard sized being no less than 8'-6" in width and 18'-0" in length, compact stalls shall be no less than 7'-6" wide and 16'-0" in length and shall be marked as a "compact" stall. The Project proposes to provide all 915 parking stalls as standard size stalls without any compact stalls, tandem stalls, or hydraulic stalls. Within the parking structure an area equal to 6,156 square feet is designated for bicycle parking and located on the ground floor entry level. Short- and long-term bicycle parking is provided within four hundred (400) feet of the building entrance. The Mauka Area Rules require that loading spaces shall be provided for residential uses. Loading requirements are associated with uses and floor area. The Project proposes approximately 527,552 square feet of residential space. Pursuant to §15-217-63(1), *Loading* of the Mauka Area Rules three (3) loading stalls shall be provided for 150,000 to 300,000 square feet and one (1) loading stall for each additional 200,000 over 300,000 square feet of multiple-family dwellings. When one or more loading spaces are required, the minimum horizontal dimensions of at least half of the required spaces

shall be 12 x 35 feet and have a vertical clearance of at least fourteen (14) feet. The balance of the required spaces shall have a horizontal dimension of at least 19 x 8½ feet and vertical clearance of at least ten (10) feet. The Project will provide two (2) loading spaces with a horizontal dimension of 12 x 35 feet with a vertical clearance of 14'-0" and one (1) with horizontal dimensions of 19 x 8½ feet with a vertical clearance of 10'-0". Loading stalls shall be provided within a building, lot, or alley. Loading spaces are prohibited in thoroughfares. Access to loading spaces shall not be from a promenade street. The Project provides all loading spaces immediately adjacent to the building and accessed from Kawaiahao Street, which is allowed as a designated parking access street.

Public Facilities Dedication

Pursuant to §15-218-55(f) of the Kakaako Reserved Housing Rules, the Project is exempt from §15-217-65 of the Mauka Area Rules, which requires the developer to dedicate land for public facilities.

Infrastructure Improvements

With regard to infrastructure improvements or requirements which are necessary to proceed with the Project, the Applicant shall be responsible for providing necessary developer improvements and complying with applicable requirements.

Modifications to the Provisions of the Mauka Area Rules

Subchapter 4, §15-218-55(e) of the Kakaako Reserved Housing Rules provides that, *"In approving development permit for a qualified workforce housing project the authority may consider modification(s) to the provisions of Hawaii administrative rules, chapter 217, title 15, mauka area rules."* The Project as presented by the Applicant qualifies as a workforce housing project pursuant to §15-218-55(a) of the Kakaako Reserved Housing Rules. The Applicant is requesting the following modifications from the provisions of the Mauka Area Rules:

- Modification of §15-217-53 and Figure NZ.2 of the Mauka Area Rules allowing the Project to be 43'-0" from the property line on South Street and 23'-4" from Kawaiahao Street.

- **Modification of Podium Height:** Figure NZ.2(D) of the Mauka Area Rules requires that podium heights

shall be between 30 - 65 feet. The podium element of the Project is eleven floors with a height of 102'-0". Figure BT.10 of the Mauka Area Rules permits a parking podium that is detached from the podium high-rise building.

- **Modification of View Corridor Setback:** Figure 1.6A of the Mauka Area Rules identifies South Street as a view corridor street. Pursuant to §15-217-54(d) of the Mauka Area Rules, which states *"Any part of a building which is taller than sixty-five feet and fronting a view corridor street…shall be setback from the lot line abutting the view corridor by fifty feet."* The portion of the tower element of the Project closest to the property line will be setback 42'-0" from the South Street property line. The portion of the tower furthest away from the property line is setback 45'-11".

- **Modification of Tower Floor Plate Area:** The allowable floor plate size is based on a linear scale of 8,000 to10,000 square feet based on the size of the lot area, where the allowable floor plate area for a lot size of 40,000 square feet is 8,000 square feet and the allowable floor plate area for a lot size of 80,000 square feet is 10,000 square feet. Based on the lot size of 76,194 square feet for the Project and use of the linear scale from Table BT.10-1 of the Mauka Area Rules, the allowable floor plate area is 9,981 square feet. The Project proposes a tower floor plate size of 11,315 square feet.

- **Modification of Maximum Length Between Two Farthest Points of the Tower Floor Plate:** Section 15-217-55(l)(3) of the Mauka Area Rules provide that the maximum length between two farthest points of the tower floor plate be no more than 210 feet. The maximum distance between two farthest point of the tower floor plate of the project is 215 feet.

- Modification from all of the Green Building provisions in Section 15-217-59.

- **Modification of Parking Access:** Figure BT.10(c)(2) states that per §15-217-63(c)(3) parking access shall be located a minimum of twenty-two (22) feet from an adjacent property. Parking access from Kawaiahao Street is located immediately adjacent to the neighboring property.

- **Modification of Parking Location:** Figure BT.10(c)(1) states that parking shall be located in the Allowed Parking Zones (Figure 1.10-B) located forty (40) feet from the property line for the first two stories. The second story of the Project along Kawaiahao Street is located only 23'-4" from the property line and therefore is not within the allowed parking zone.

III. PUBLIC TESTIMONY

At the time of submitting this report, HCDA staff has received fifty-eight (58) public testimonies in support of the Project and one (1) testimony from the State Historic Preservation Division requesting that an archaeological inventory survey be conducted, attached hereto as Exhibit C.

IV. FINDINGS

Development Permit

Section15-217-80(d) of the Mauka Area Rules requires the following findings of fact in approval of a Development Permit:

1. **Consistency with the Mauka Area Plan.** That the Project complies with and advances the goals, policies and objectives of the Mauka Area Plan;

2. **Consistency with the Mauka Area Rules.** That the Project proposal will protect, preserve, or enhance desirable neighborhood characteristics through compliance with the standards and guidelines of the Mauka Area Rules; and

3. **Compatibility of the Mauka District.** That the Project proposal will not have substantial adverse effect on the surrounding land uses and will be

> compatible with the existing and planned land use character of the surrounding area.

Based on the analysis above on matters relating to land use, neighborhood zone and building type, Project density, building placement, building form, frontage type, thoroughfare plan, architectural design, landscape and recreation space, green building, flood zone, parking and loading, public facilities dedication fee, and reserved housing, the Hearings Officer finds that the Project as proposed is consistent with the objectives of the Mauka Area Plan and Rules.

With the approval of the requested modifications, the Project complies with and advances the goals, policies and objectives of the Mauka Area Plan. The Project protects, preserves, and enhances desirable neighborhood characteristics through compliance with standards and guidelines of the Mauka Area Rules. The Project does not have adverse effect on the surrounding land uses and is compatible with the existing and planned land use character of the surrounding area.

Section 6E-42, Hawaii Revised Statutes, requires that:

> * * *
>
> "(a) Before any agency or officer of the State or its political subdivisions approves any project involving a permit, license, certificate, land use change, subdivision, or other entitlement for use, which may affect historic property, aviation artifacts, or a burial site, the agency or office shall advise the department and prior to any approval allow the department an opportunity for review and comment on the effect of the proposed project on historic properties, aviation artifacts, or burial sites, consistent with section 6E-43, including those listed in the Hawaii register of historic places."
>
> * * *

Based upon correspondence received from the Department of Land and Natural Resources dated December 4, 2012, the Hearings Officer finds that the State Historic Preservation Division has conducted its §6E-42 review and offers the following findings and recommendations:

1. The subject property has three existing buildings comprising upwards of 90% of the parcel and that the remainder is entirely covered by pavement.

2. The construction drawings for the existing buildings reveal that the building footprints were excavated well below ground surface and that more than 60 footings up to 10 feet square on a 25-foot by 30-foot grid occur within the footprint.

3. These footings are connected by subsurface tie and grade beams reaching depths of 5.67 feet below surface. The concrete slab floor of the existing printing press building ranges from 4.5 to 8.0 inches in thickness.

4. The geotechnical data reveals a layer of clayey silt (fill) to depths of 6 feet below surface.

5. The coverage of existing buildings precludes the necessity and feasibility of conducting an Archeological Inventory Survey prior to demolition.

6. An archaeological literature review and field inspection should be conducted prior to demolition, to document property land-use history and potential areas of in-situ deposits.

7. On-site archaeological monitoring should be conducted during demolition and following demolition.

8. Consultation with all parties concerning mitigation recommendations during construction should be carried out.

9. The Applicant should submit the literature and field inspection report to the State Historic Preservation Division, along with a monitoring plan that includes all information as specified in Hawaii Administrative Rule (HAR) §13-279-4.

10. That the State Historic Preservation Division will provide notification when the monitoring plan has been

approved and demolition and construction may proceed.

V. RECOMMENDATION

The Hearings Officer recommends that:

1. The Authority approves all requested Mauka Area Rules modifications based upon the presentation, exhibits, representations and rationale provided by the Project.

2. The Authority adopts the following findings of fact relating to the Development Permit application:

   (a) The Project as proposed is consistent with the objectives of the Mauka Area Plan and Rules.

   (b) The Project complies with and advances the goals, policies and objectives of the Mauka Area Plan.

   (c) The Project protects, preserves, and enhances desirable neighborhood characteristics through compliance with standards and guidelines of the Mauka Area Rules.

   (d) The Project does not have adverse effect on the surrounding land uses and is compatible with the existing and planned land use character of the surrounding area.

3. The Authority requires that the Applicant shall conduct and submit to the State Historic Preservation Division an archaeological literature review and field inspection prior to demolition, to document property land-use history and potential areas of in-situ deposits.

4. The Authority requires that on-site archaeological monitoring shall be conducted by the Applicant during and following demolition.

5. The Authority requires that the Applicant shall consult with all parties concerning mitigation recommendations to be carried out during construction.

6. The Authority requires that the Applicant shall submit the literature and field inspection report to the State Historic Preservation Division, along with a monitoring plan that includes all information as specified in Hawaii Administrative Rule (HAR) §13-279-4.

7. The Authority requires that Project demolition and construction shall only proceed when the State Historic Preservation Division provides notification that the monitoring plan has been approved and demolition and construction may proceed.

8. The Authority requires that in the event that any historic properties, aviation artifacts, or burial sites be discovered during demolition or construction, that consistent with provisions of §6E-43, §6E-43.6, Hawaii Revised Statutes, and any other appropriate protocols in place at that time that the historic properties, remains and their associated burial goods shall not be moved without the approval of the State Historic Preservation Division and until compliance with these sections are met.

9. The Authority approves the 801 South Street Development Permit No. KAK 12-109 as presented by its Hearings Officer and HCDA staff.

Attachments: Exhibit A – Development Permit Application (see November 8, 2012 public hearing materials)
Exhibit B – Certificate of Completeness (see November 8, 2012 public hearing materials)
Exhibit C – Public Testimonies (see November 8, 2012 public hearing materials)
Exhibit D – Draft Development Permit for 801 South Street

(2) Be governed by the amended rules.

(b) The authority, or any other entity that the authority transfers the reserved housing to shall notify all reserved housing owners of any change made by law, ordinance, rule or regulation within one hundred eighty days of such changes. Such notice shall clearly state the enacted or proposed new provisions, the date upon which they are to be effective and offer to each owner of reserved housing units constructed and sold prior to the effective date, an opportunity to be governed by such new provision.

(c) No reserved housing unit owner shall be entitled to modify the restrictions or conditions on use, transfer, or sale of the reserved housing unit, without the written permission of the holder of a duly-recorded first mortgage on the unit and the owner of the fee simple or leasehold interest in the land underlying the unit.

(d) This section shall apply to all reserved housing units developed, constructed and sold pursuant to this chapter. [Eff NOV 11 2011] (Auth: HRS §§206E-4, 206E-5, 206E-7) (Imp: HRS §§206E-4, 206E-5, 206E-7)

§§15-218-44 to 15-218-54 (Reserved).

SUBCHAPTER 4

WORKFORCE HOUSING PROJECT(S)

§15-218-55 Workforce housing project(s). (a) New residential project(s) where at least seventy-five per cent of the residential units are set aside for purchase by families earning between one hundred to one hundred forty per cent of the AMI, which does not require financial assistance for construction from Federal, State, or County governmental bodies, and which meets the following unit size requirements shall qualify as a workforce housing project.

Unit Type	Maximum Unit Size (Square Feet)
Studio with one bathroom	500
One bedroom with one bathroom	650
Two bedroom with one bathroom	800
Two bedroom with one and a half bathroom	900
Two bedroom with two bathroom	1,000
Three bedroom with one and a half bathroom	1,100
Three bedroom with two bathroom	1,200
Four bedroom with two bathroom	1,300

(b) Workforce housing project(s) shall be exempt from the requirements of sections 15-218-35, 15-218-36, and 15-218-41 of subchapter 3 of this chapter.

(c) Workforce housing projects shall not be used to satisfy the reserved housing requirement(s) for any residential project(s) that are required to provide reserved housing in accordance with subchapter 2.

(d) Workforce housing project(s) shall receive a floor area bonus of one hundred per cent, provided that such bonus floor area shall be used towards the construction of workforce housing project(s) only.

(e) In approving development permit for a qualified workforce housing project the authority may consider modification(s) to the provisions of Hawaii administrative rules, chapter 217, title 15, mauka area rules.

(f) Workforce housing projects shall be exempt from the provisions of Hawaii administrative rules, section 15-217-65. [Eff NOV 11 2011] (Auth: HRS §§206E-4, 206E-5, 206E-7) (Imp: HRS §§206E-4, 206E-5, 206E-7)

§§15-218-56 to 15-218-66 (Reserved).

16875
KAK 12-10

Downtown Capital LLC
215 N. King Street, Suite 1000
Honolulu, Hawaii 96817
Phone (808) 526-2027 Fax (808) 526-2066

March 23, 2015

Mr. Anthony Ching
Executive Director
Hawaii Community Development Authority
547 Queen Street
Honolulu, Hawaii 96813

Dear Mr. Ching:

Re: **Development Permit No. KAK 12-109**

Enclosed are the following:

1) Letter to Mr. Anthony Ching from Downtown Capital LLC, dated March 23, 2015,

2) Letter from Hawaiian Dredging Construction Company, Inc. to Mr. Marshall Hung dated March 17, 2015 and

3) Visible Light Transmittance of Windows prepared by Hawaiian Dredging Construction Company, Inc.

Sincerely,

Downtown Capital LLC

RMH Real Estate LLC, its Member
Workforce Kakaako LLC, Managing Member

Exhibit D

Downtown Capital LLC
215 N. King Street, Suite 1000
Honolulu, Hawaii 96817
Phone (808) 526-2027 Fax (808) 526-2066

March 23, 2015

Anthony J.H. Ching
Executive Director
Hawaii Community Development Authority
547 Queen Street
Honolulu, Hawai'i 96813

Re: Minor Change to Permit Application for
Development Permit No. KAK 12-109

Dear Director Ching,

On behalf of Downtown Capital LLC, this letter requests a minor change to our Application for Development Permit No. KAK-109 (Permit) to conform the Application to the approved and installed windows for the project.

The Permit was approved on December 5, 2012. Following the approval of the Permit, various ministerial approvals were granted in favor the project, including a final building permit. Construction of the project has been completed, and all of the windows for the project have been installed.

As described in the Application, 801 South St is not an entirely glass building. 67% of the building exterior is a solid hard surface. 20% of the building exterior is glass panels and doors setback four feet from the building face on lanais with a roof overhang. The remaining 13% of the building exterior is glass windows. None of the exterior surfaces are highly reflective and the windows and doors provide natural ventilation and light to every room in each apartment unit.

As stated in the Mauka Area Rules, the "visible light transmission level for windows" located above the ground floor is to be 50% or greater. Although our Application did not note the visible light transmission level for the windows, the windows installed on the project were described in our Application and approved by HCDA. Attached is the additional information for the Application that includes the methodology and calculation of the visible light transmission level for windows at 50.50%

Since the Permit was approved with the windows and has been relied upon, we request a conforming minor change to the Application to reflect, and thereby approve, the "visible light transmission level of the windows" for the installed windows as set forth herein. The Executive Director may approve the minor change under HAR § 15-217-90. The change does not seek to

increase the number dwelling units, introduce different land uses, request a larger land area, request a greater variance or change materials used in construction. Nor does the change reduce or eliminate any conditions in the Development Permit. On the contrary, the change conforms the Application to Permit and the approved construction materials.

For these reasons, we ask you to approve the minor change to the Application. Please let us know if you need any additional information from us.

Sincerely,

Downtown Capital LLC

MH59 LLC, its Member
Workforce Kakaako LLC, Managing Member

Attachment to the March 23, 2015 Letter for
Minor Change to Permit Application for
Development Permit No. KAK 12-109

The requirement regarding windows in Hawaii Administrative Rules, Section 15-217-55(k)(2) includes two sentences which are copied below in bold italics and followed by the additional Project information for the Application.

Window glazing shall be transparent with clear or limited UV tint so as to provide views outside of and into the building.

The Project window glazing composition is:
6mm clear heat strengthened glass substrate + limited light blue low-e coating on surface #2 + 12mm air space + 6mm clear substrate.

The window glazing is transparent with a limited UV light blue tint that provides views outside of and into the building.

Visible light transmission level of windows on the ground floor shall be seventy per cent or greater and on all other floors the visible light transmission level shall be fifty per cent or greater;

A window is defined by the Glass Association of North America as "An opening constructed in a wall or roof and functioning to admit light or air to an enclosure, usually framed and spanned with glass mounted to permit opening and closing."

The primary difference between a "window" and "window glazing" is the operability of the assembly. The optimal way to allow light into a space is by providing windows that have the ability to be opened. This operable function gives variability to the amount of daylight and allows the user to adjust the light to their individual preferences.

Since all opening that are constructed in the exterior wall of a project are windows the Project has included in its window calculations what is commonly referred to in Hawaii as "lanai doors".

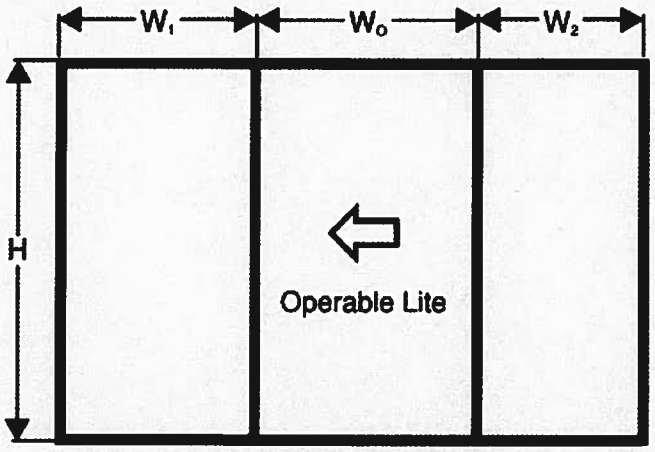
Visible Light Transmission Level of Windows

There are two types of windows in the Project; a sliding lanai door and an awning window. The visible light transmission level of the windows in the calculation includes:
1) The Visible Light Transmittance of the window glazing;
2) The Visible Light Transmission of the opening created by sliding the operable lite; and
3) The dimensions of the window in the open position.

Calculation of the Visible Light Transmission Level of Sliding Lanai Doors

The sliding lanai doors consist of three lites; two fixed and one operable. When the operable lite is in the open position it decreases the visible light transmittance of the lite that is covered. The calculation to determine the visible light transmission of the sliding window is as follows:

Term Definitions:
W_1= Width of first fixed lite
W_O= Width of operable lite
W_2= Width of second fixed lite
H=Height of window
T_{vis}= Visible light transmittance of window glazing
T_O= Visible light transmittance of opening with no glazing
$T_{Sliding}$=Visible light transmission of effective sliding window
$A_{Sliding}$=Total effective area of sliding window



Sliding Window

Computation:

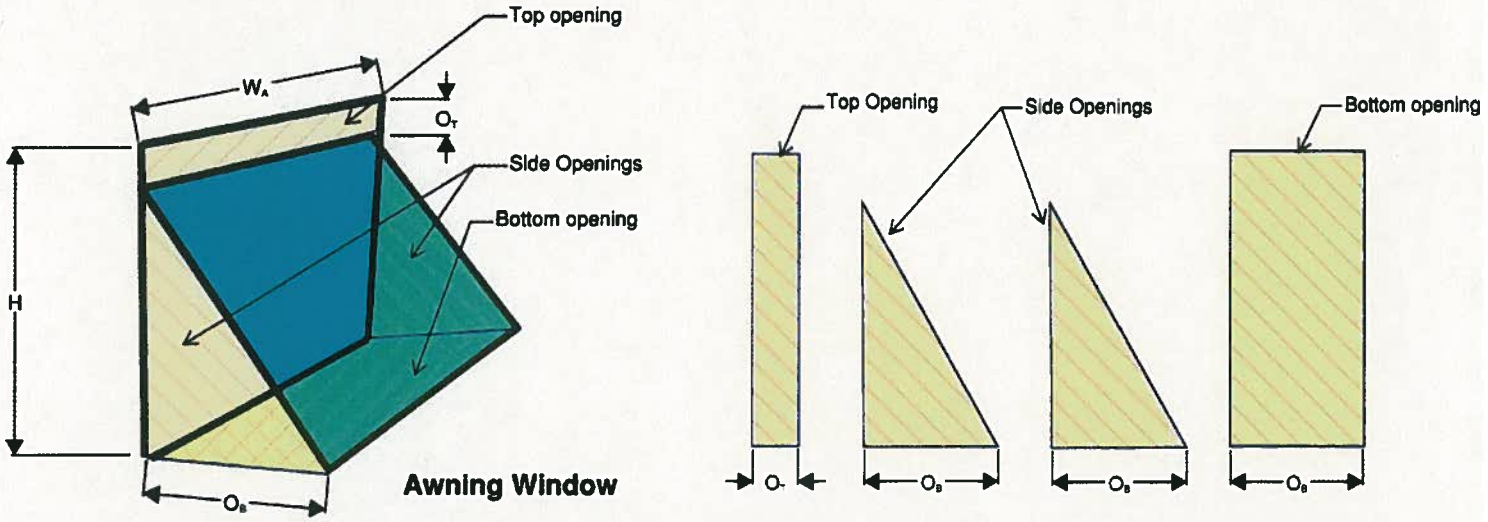
$$((W_1{*}+ W_O+ W_2){*}H) = A_{Sliding}$$

$$\frac{((W_1{*}H){*}(T_{vis}{*} T_{vis})) + ((W_O{*}H){*} T_O) + ((W_2{*}H){*} T_{vis})}{A_{Sliding}} = T_{Sliding}$$

Calculation of the Visible Light Transmission Level of Awning Windows

The awning windows consist of two types of window lites, fixed and operable. The components that are factored into the calculation are the Visible Light Transmittance of the window glazing and the visible light transmittance of the opening created by opening the awning style operable lite. The calculation to determine the visible light transmission level of the sliding window is as follows:

Term Definition:
W_A= Width of awning window
H=Height of window
O_T=Opening size at top of lite when window is open
O_B=Opening size at bottom of lite when window is open
T_{vis}= Visible light transmittance of window glazing
T_o= Visible light transmittance of opening with no glazing
T_{Awning}=Visible light transmission of effective awning window surface
A_{Awning}=Total effective area of awning window
$T_{Windows}$=Visible light transmission of windows



Computations:

$$(W_A*H)+(W_A*O_T)+(W_A*O_B)+((H*O_B)/2)+((H*O_B)/2) = A_{Awning}$$

$$\frac{((W_A*H)*T_{vis})+((W_A*O_T)*T_O)+((W_A*O_B)*T_O)+(((H*O_B)/2)*T_O)+(((H*O_B)/2)*T_O)}{A_{Awning}} = T_{Awning}$$

Calculation of the Total Visible Light Transmission Level of Windows

The total visible light transmittance of windows for the Project is calculated by taking the combined visible light transmission of both sliding and awning windows together.

Term Definition:
$A_{Sliding}$=Total effective area of sliding window
A_{Awning}=Total effective area of awning window
$T_{Sliding}$=Visible light transmission of effective sliding window
T_{Awning}=Visible light transmission of effective awning window surface
$T_{Windows}$=Visible light transmission of windows

Computation:

$$\frac{(T_{Sliding} * A_{Sliding}) + (T_{Awning} * A_{Awning})}{(A_{Sliding} + A_{Awning})} = T_{Windows}$$

PO Box 4088
Honolulu, HI 96812-4088
Phone: (808) 735-3211
www.hdcc.com

HAWAIIAN DREDGING
CONSTRUCTION COMPANY, INC.

March 17, 2015

Mr. Marshall W. Hung
Downtown Capital LLC
215 N. King Street, Suite 1000
Honolulu, Hawaii 96817

Re: 801 South Street Condominium Project (Project)

Dear Mr. Hung:

Hawaii Community Development Authority (HCDA) has recently inquired about the compliance of the Project with certain architectural design provisions from the Mauka Area Rules, Chapter 217, Title 15 of the Hawaii Administrative Rules, specifically, whether the windows in the residential tower meet the requirement of Subpart (k) of Section 15-217-55 of the Mauka Rules.

The six requirements relating to windows contained in Subpart (k) have been reviewed by Hawaiian Dredging and its glass subcontractor, Kalu Glass, and we have determined that the residential tower fully complies therewith:

(1) Highly-reflective, mirrored, and opaque window glazing are prohibited.

HDCC Response: The residential tower does not contain any windows with highly-reflective, mirrored, or opaque glass.

(2) Window glazing shall be transparent with clear or limited UV tint so as to provide views outside of and into the building. Visible light transmission level of windows on the ground floor shall be seventy percent or greater and on all other floors the visible transmission level shall be fifty percent or greater.

HDCC Response: All window glazing installed at the residential tower is transparent with limited UV tint and provide views outside of and into the building. The average visible light transmission level of windows throughout the Project meet the 50% requirement set forth in this subsection, taking into consideration that many of the windows are operable.

(3) For floors one through ten, all principal building windows shall be operable.

HDCC Response: All principal windows for floors 1 through 10 of the residential tower are operable.

(4) Vinyl window frames are prohibited, except for Figures BT.1 to BT.3, dated September 2011, made a part of this chapter, and attached to the end of this chapter.

HDCC Response: There are no vinyl window frames installed in this Project.

(5) Pop-in muntins are prohibited below the third floor.

HDCC Response: There are no pop-in muntins installed in this Project.

(6) Window grilles are prohibited except at window openings to podium parking or on building elevations facing alley.

HDCC Response: There are no window grills installed in this Project.

Based on the foregoing, the residential tower is in full compliance with all of the window design requirements in the Mauka Area Rules. Should you have any questions regarding this letter, please do not hesitate to contact me.

Very truly yours,

Eric H. Hashizume
Vice President- Building Division

801A

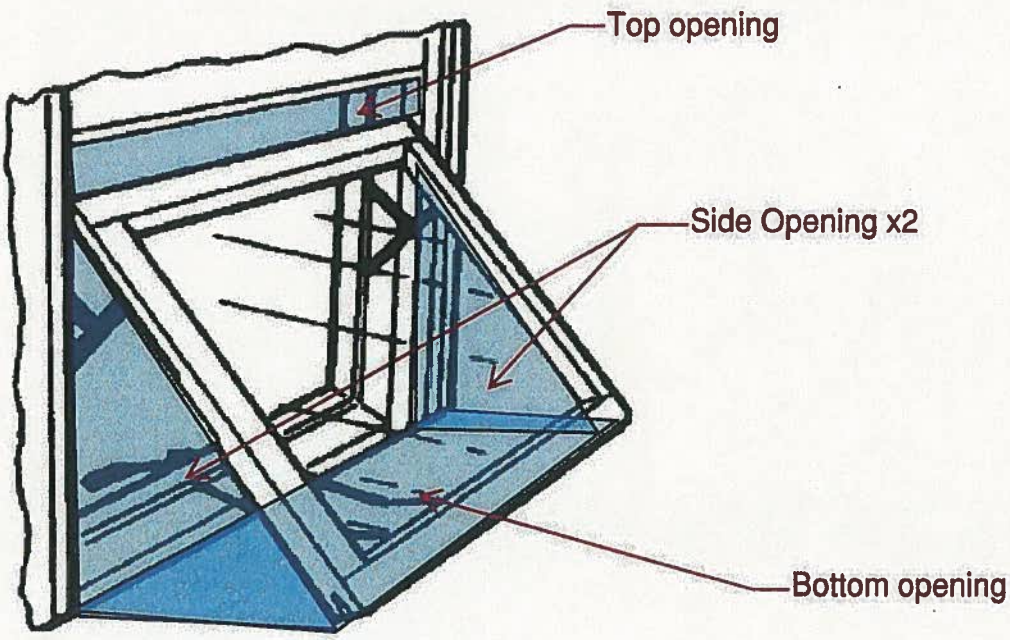
Visible Light Transmittance of Windows: 50.50%

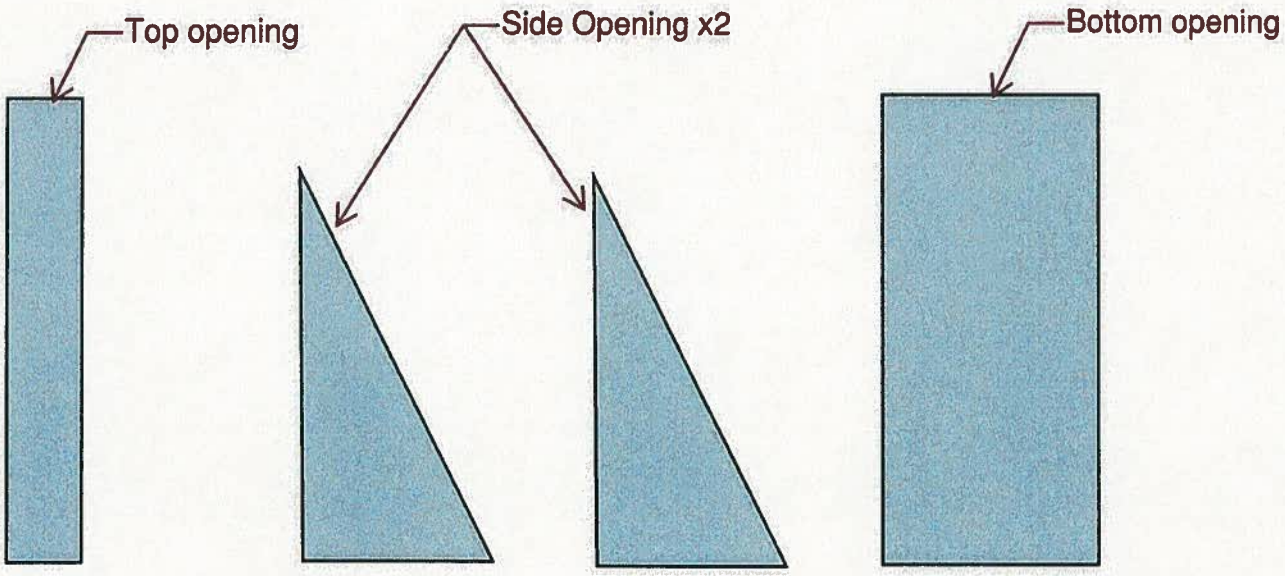
Window Type	Location	Quantity	Type	% of Light	Height	Width	Awning Open Bottom	Awning Open Top	Glazed Area	Open Area	Window Area	VLT of Awning	VLT of Opening	Total Area	Equivalent 100% VLT Area
W1	Bath	364 ea	Awning	35.00%	14 in	35 in	5 in	2 in	3.38 sf	2.18 sf	5.55 sf	60.46%	-	2,022 sf	1,222 sf
W2aa	Bedroom	637 ea	Awning	35.00%	13 in	35 in	6 in	3 in	3.29 sf	2.03 sf	5.32 sf	59.83%	-	3,387 sf	2,026 sf
W2ab	Bedroom	637 ea	Fixed	35.00%	13 in	35 in			3.29 sf	0.00 sf	3.29 sf	-	35.00%	2,093 sf	733 sf
W2b	Bedroom	637 ea	Fixed	35.00%	20 in	71 in			9.83 sf	0.00 sf	9.83 sf	-	35.00%	6,259 sf	2,191 sf
W2ca	Bedroom	637 ea	Awning	35.00%	13 in	35 in	6 in	3 in	3.29 sf	2.03 sf	5.32 sf	59.83%	-	3,387 sf	2,026 sf
W2cb	Bedroom	637 ea	Fixed	35.00%	13 in	35 in			3.29 sf	0.00 sf	3.29 sf	-	35.00%	2,093 sf	733 sf
W3aa	Bedroom	90 ea	Awning	35.00%	13 in	29 in	6 in	3 in	2.73 sf	1.78 sf	4.51 sf	60.67%	-	406 sf	246 sf
W3ab	Bedroom	90 ea	Fixed	35.00%	13 in	29 in			2.73 sf	0.00 sf	2.73 sf	-	35.00%	246 sf	86 sf
W3b	Bedroom	90 ea	Fixed	35.00%	20 in	59 in			8.16 sf	0.00 sf	8.16 sf	-	35.00%	734 sf	257 sf
W3ca	Bedroom	90 ea	Awning	35.00%	13 in	29 in	6 in	3 in	2.73 sf	1.78 sf	4.51 sf	60.67%	-	406 sf	246 sf
W3cb	Bedroom	90 ea	Fixed	35.00%	13 in	29 in			2.73 sf	0.00 sf	2.73 sf	-	35.00%	246 sf	86 sf
W4a	Bedroom	182 ea	Awning	35.00%	23 in	41 in	11 in	4 in	6.51 sf	4.87 sf	11.38 sf	62.82%	-	2,071 sf	1,301 sf
W4b	Bedroom	182 ea	Fixed	35.00%	45 in	41 in			12.73 sf	0.00 sf	12.73 sf	-	35.00%	2,318 sf	811 sf
W4c	Bedroom	182 ea	Awning	35.00%	23 in	41 in	4 in	0 in	6.51 sf	1.77 sf	8.28 sf	48.90%	-	1,507 sf	737 sf
W5aa	Elevator Lobby	45 ea	Awning	35.00%	20 in	56 in	8 in	4 in	7.73 sf	4.20 sf	11.93 sf	57.90%	-	537 sf	311 sf
W5ab	Elevator Lobby	45 ea	Awning	35.00%	20 in	56 in	8 in	4 in	7.73 sf	4.20 sf	11.93 sf	57.90%	-	537 sf	311 sf
W5b	Elevator Lobby	45 ea	Fixed	35.00%	72 in	111 in			55.63 sf	0.00 sf	55.63 sf	-	35.00%	2,503 sf	876 sf
W6	Elevator Lobby	45 ea	Fixed	35.00%	96 in	17 in			11.08 sf	0.00 sf	11.08 sf	-	35.00%	499 sf	175 sf
W6R	Elevator Lobby	45 ea	Fixed	35.00%	96 in	17 in			11.08 sf	0.00 sf	11.08 sf	-	35.00%	499 sf	175 sf
W7aa	Lounge 2	2 ea	Awning	35.00%	14 in	48 in	8 in	3 in	4.67 sf	3.44 sf	8.11 sf	62.60%	-	16 sf	10 sf
W7ab	Lounge 2	2 ea	Awning	35.00%	14 in	48 in	8 in	3 in	4.67 sf	3.44 sf	8.11 sf	62.60%	-	16 sf	10 sf
W7b	Lounge 2	2 ea	Fixed	35.00%	88 in	96 in			58.67 sf	0.00 sf	58.67 sf	-	35.00%	117 sf	41 sf
W7Raa	Lobby/Garden	1 ea	Awning	35.00%	14 in	43 in	8 in	3 in	4.13 sf	3.14 sf	7.27 sf	63.06%	-	7 sf	5 sf
W7Rab	Lobby/Garden	1 ea	Awning	35.00%	14 in	43 in	8 in	3 in	4.13 sf	3.14 sf	7.27 sf	63.06%	-	7 sf	5 sf
W7Rb	Lobby/Garden	1 ea	Fixed	35.00%	88 in	85 in			51.94 sf	0.00 sf	51.94 sf	-	35.00%	52 sf	18 sf
W8aa	Lounge 2	1 ea	Awning	35.00%	14 in	42 in	8 in	3 in	4.08 sf	3.11 sf	7.19 sf	63.11%	-	7 sf	5 sf
W8ab	Lounge 2	1 ea	Awning	35.00%	14 in	42 in	8 in	3 in	4.08 sf	3.11 sf	7.19 sf	63.11%	-	7 sf	5 sf
W8ac	Lounge 2	1 ea	Awning	35.00%	14 in	42 in	8 in	3 in	4.08 sf	3.11 sf	7.19 sf	63.11%	-	7 sf	5 sf
W8ad	Lounge 2	1 ea	Awning	35.00%	14 in	42 in	8 in	3 in	4.08 sf	3.11 sf	7.19 sf	63.11%	-	7 sf	5 sf
W8b	Lounge 2	1 ea	Fixed	35.00%	88 in	14 in			8.56 sf	0.00 sf	8.56 sf	-	35.00%	9 sf	3 sf
W8Raa	Lobby/Garden	1 ea	Awning	35.00%	14 in	45 in	8 in	3 in	4.35 sf	3.26 sf	7.61 sf	62.86%	-	8 sf	5 sf
W8Rab	Lobby/Garden	1 ea	Awning	35.00%	14 in	45 in	8 in	3 in	4.35 sf	3.26 sf	7.61 sf	62.86%	-	8 sf	5 sf
W8Rac	Lobby/Garden	1 ea	Awning	35.00%	14 in	45 in	8 in	3 in	4.35 sf	3.26 sf	7.61 sf	62.86%	-	8 sf	5 sf
W8Rad	Lobby/Garden	1 ea	Awning	35.00%	14 in	45 in	8 in	3 in	4.35 sf	3.26 sf	7.61 sf	62.86%	-	8 sf	5 sf
W8Rb	Lobby/Garden	1 ea	Fixed	35.00%	88 in	179 in			109.39 sf	0.00 sf	109.39 sf	-	35.00%	109 sf	38 sf
W9aa	Manager's Office	2 ea	Awning	35.00%	14 in	49 in	8 in	3 in	4.76 sf	3.50 sf	8.26 sf	62.53%	-	17 sf	10 sf
W9ab	Manager's Office	2 ea	Awning	35.00%	14 in	49 in	8 in	3 in	4.76 sf	3.50 sf	8.26 sf	62.53%	-	17 sf	10 sf
W9ac	Manager's Office	2 ea	Awning	35.00%	14 in	49 in	8 in	3 in	4.76 sf	3.50 sf	8.26 sf	62.53%	-	17 sf	10 sf
W9b	Manager's Office	2 ea	Fixed	35.00%	88 in	147 in			89.83 sf	0.00 sf	89.83 sf	-	35.00%	180 sf	63 sf
W9Aaa	Main Lobby	1 ea	Awning	35.00%	14 in	49 in	8 in	3 in	4.76 sf	3.50 sf	8.26 sf	62.53%	-	8 sf	5 sf
W9Aab	Main Lobby	1 ea	Awning	35.00%	14 in	49 in	8 in	3 in	4.76 sf	3.50 sf	8.26 sf	62.53%	-	8 sf	5 sf
W9Aac	Main Lobby	1 ea	Awning	35.00%	14 in	49 in	8 in	3 in	4.76 sf	3.50 sf	8.26 sf	62.53%	-	8 sf	5 sf
W9Ab	Main Lobby	1 ea	Fixed	35.00%	88 in	148 in			90.44 sf	0.00 sf	90.44 sf	-	35.00%	90 sf	32 sf
W10a	Main Lobby	1 ea	Awning	35.00%	14 in	70 in	8 in	3 in	6.81 sf	4.67 sf	11.47 sf	61.44%	-	11 sf	7 sf
W10b	Main Lobby	1 ea	Fixed	35.00%	88 in	70 in			42.78 sf	0.00 sf	42.78 sf	-	35.00%	43 sf	15 sf
W11	Main Lobby	1 ea	Fixed	80.00%	88 in	79 in			48.28 sf	0.00 sf	48.28 sf	-	80.00%	48 sf	39 sf

801A

Visible Light Transmittance of Windows: 50.50%

Window Type	Location	Quantity	Type	% of Light	Height	Width	Awning Open Bottom	Awning Open Top	Glazed Area	Open Area	Window Area	VLT of Awning	VLT of Opening	Total Area	Equivalent 100% VLT Area
W12	Main Lobby	1 ea	Fixed	80.00%	88 in	146 in			89.22 sf	0.00 sf	89.22 sf	-	80.00%	89 sf	71 sf
W12R	Main Lobby	1 ea	Fixed	80.00%	88 in	168 in			102.67 sf	0.00 sf	102.67 sf	-	80.00%	103 sf	82 sf
W13aa	Main Lobby	1 ea	Awning	35.00%	14 in	46 in	8 in	3 in	4.42 sf	3.31 sf	7.73 sf	62.80%	-	8 sf	5 sf
W13ab	Main Lobby	1 ea	Awning	35.00%	14 in	46 in	8 in	3 in	4.42 sf	3.31 sf	7.73 sf	62.80%	-	8 sf	5 sf
W13ac	Main Lobby	1 ea	Fixed	35.00%	14 in	46 in			4.42 sf	0.00 sf	4.42 sf	-	35.00%	4 sf	2 sf
W13b	Main Lobby	1 ea	Fixed	35.00%	88 in	102 in			62.33 sf	0.00 sf	62.33 sf	-	35.00%	62 sf	22 sf
W13c	Main Lobby Side Door	1 ea	Open	100.00%	88 in	36 in			22.00 sf	0.00 sf	22.00 sf	-	100.00%	22 sf	22 sf
W46a	Side Entry	1 ea	Fixed	35.00%	14 in	131 in			12.74 sf	0.00 sf	12.74 sf	-	35.00%	13 sf	4 sf
W46ba	Side Entry	1 ea	Fixed	35.00%	88 in	95 in			58.06 sf	0.00 sf	58.06 sf	-	35.00%	58 sf	20 sf
W46bb	Side Entry Door	1 ea	Open	100.00%	88 in	36 in			22.00 sf	0.00 sf	22.00 sf	-	100.00%	22 sf	22 sf
D19	Studio	45 ea	Open	100.00%	84 in	41 in			24.06 sf	0.00 sf	24.06 sf	-	100.00%	1,083 sf	1,083 sf
D19R	Studio	45 ea	Open	100.00%	84 in	41 in			24.06 sf	0.00 sf	24.06 sf	-	100.00%	1,083 sf	1,083 sf
D20a	Living Room	318 ea	Fixed	35.00%	96 in	29 in			19.33 sf	0.00 sf	19.33 sf	-	35.00%	6,148 sf	2,152 sf
D20b	Living Room	318 ea	Open	100.00%	96 in	39 in			26.00 sf	0.00 sf	26.00 sf	-	100.00%	8,268 sf	8,268 sf
D20c	Living Room	318 ea	Fixed	12.25%	96 in	36 in			24.00 sf	0.00 sf	24.00 sf	-	12.25%	7,632 sf	935 sf
D21a	Living Room	227 ea	Fixed	35.00%	96 in	29 in			19.33 sf	0.00 sf	19.33 sf	-	35.00%	4,389 sf	1,536 sf
D21b	Living Room	227 ea	Open	100.00%	96 in	39 in			26.00 sf	0.00 sf	26.00 sf	-	100.00%	5,902 sf	5,902 sf
D21c	Living Room	227 ea	Fixed	12.25%	96 in	36 in			24.00 sf	0.00 sf	24.00 sf	-	12.25%	5,448 sf	667 sf
D24a	Main Lobby	1 ea	Fixed	80.00%	18 in	146 in			18.25 sf	0.00 sf	18.25 sf	-	80.00%	18 sf	15 sf
D24ba	Main Lobby	1 ea	Fixed	64.00%	84 in	37 in			21.29 sf	0.00 sf	21.29 sf	-	64.00%	21 sf	14 sf
D24bb	Main Lobby	1 ea	Open	100.00%	84 in	73 in			42.58 sf	0.00 sf	42.58 sf	-	100.00%	43 sf	43 sf
D24bc	Main Lobby	1 ea	Fixed	64.00%	84 in	37 in			21.29 sf	0.00 sf	21.29 sf	-	64.00%	21 sf	14 sf
														73,033 sf	36,883 sf


Top opening
Side Opening x2
Bottom opening


Top opening
Side Opening x2
Bottom opening

16911

Downtown Capital LLC
215 N. King Street, Suite 1000
Honolulu, Hawaii 96817
Phone (808) 526-2027 Fax (808) 526-2066

April 9, 2015

Anthony J.H. Ching
Executive Director
Hawaii Community Development Authority
547 Queen Street
Honolulu, Hawai'i 96813

Re: HCDA Development Permit No. KAK 12-109

Dear Director Ching:

Development Permit No. KAK 12-109 (Permit) regarding 801 South St (Project) was approved by HCDA on December 5, 2014. Following the approval of the Permit, various ministerial approvals were granted by HCDA in favor of the Project, including a final building permit. We are pleased to inform you that construction of the Project was completed on March 20, 2015. Over 600 buyers will begin pre-closing on April 11, 2015. Each buyer has made the cash and financing arrangements for the closing. Buyers are scheduled to begin move in on June 1, 2015. Most buyers have made arrangements to vacate their existing rentals and are excited about becoming new homeowners.

HAR § 15-217-55(k)(2) provides in part that "[v]isible light transmission level of windows on the ground floor shall be seventy per cent or greater and on all other floors the visible light transmission level shall be fifty per cent or greater." It has been suggested that this language might have applicability to buildings like the Project. We do not believe that such an application of the rule would be consistent with its intent and objective.

As described in the Permit Application, the Project is not a glass-enveloped building. Nearly 67% of the building exterior is a solid hard surface. Almost 20% of the building exterior is comprised of glass panels and doors that are set back four feet from the face of the building on lanais with a roof overhang. The remaining 13% of the building exterior is glass windows. None of the exterior surfaces are highly reflective and the windows and doors open and provide natural ventilation and light to every room in each apartment unit.

To dispel any doubts regarding the proper interpretation of HAR § 15-217-55(k)(2), we urge HCDA to undertake a review of the rule to clarify its application. In the hope of assisting HCDA in its review, this letter offers our observations and suggestions in that regard.

Exhibit E

As an initial matter, HCDA should consider formally stating the purpose of the "visible light transmission" standard. We believe that the standard is intended to ensure that a residential apartment unit is exposed to sufficient natural daylight so that, at the resident's election, the consumption of energy for electrical lighting may be reduced. The application of this purpose may vary depending on the building type and design. For example, to achieve HCDA's goal of natural daylight, different standards may be needed for buildings within solid glass exterior surfaces and for buildings comprised of multiple exterior features, such as operable windows, covered lanai glass panels and doors and nonreflective hard surfaces.

In accord with the purpose of the standard, we suggest that HCDA clarify that the standard applies to the entire window opening, rather than solely to the window glazing. The standard refers to the "[v]isible light transmission level of windows." The immediately preceding standards (HAR § 15-217-55(k)(1) and the first part of HAR § 15-217-55(k)(2)) refer to the "window glazing." The distinction between "glazing" and "windows" appears to have been intended to account for situations in which visible light passes through glassed (glazed) and uncovered portions of the window opening. The distinction between glassed and uncovered portions of a window opening will be immaterial in a building with inoperable windows. But in a building with operable windows and sliding glass doors, for example, unit residents have the ability to vary the amount of light that can be transmitted through their window openings. Accordingly, measuring the visible light transmittance of the total window opening would need to consider the glassed areas and the areas through which light may pass unfiltered. Confirming this meaning in a formal statement of policy would assist HCDA in uniformly applying the standard to different situations.

Finally, we suggest that HCDA consider the relationship between any visible light transmittance standard and the solar heat gain coefficient (SHGC) of the glass. The energy performance of the glass is determined by its SHGC, which indicates the amount of heat conducted through the glass. A lower SHGC indicates that less heat is conducted into an apartment unit. The recently enacted Hawai'i Energy Code includes a SHGC standard for windows. The Hawai'i Energy Code integrates various energy building code requirements based on the type of building. With the application of the Hawai'i Energy Code it may not be necessary for the Rules to have a separate standard for visible light transmittance.

Thank you for the opportunity to provide these comments.

Sincerely,

Downtown Capital LLC

RMH Real Estate LLC, its Member
Workforce Kakaako LLC, Managing Member

Downtown Capital LLC
215 N. King Street, Suite 1000
Honolulu, Hawaii 96817
Phone (808) 526-2027 Fax (808) 526-2066

September 23, 2015

Mr. Deepak Neupane, P.E., AIA
Director of Planning and Development
Hawaii Community Development Authority
547 Queen Street
Honolulu, Hawaii 96813

Re: 801 South St Building A - Glass Specifications

Dear Mr. Neupane,

Thank you for your call today. I understand that Chair Whalen has asked for the specifications for Building A. The window specifications were provided on March 23, 2015 and showed a VLT for the windows of 50.5%. If HCDA needs another copy of the specifications, I'm happy to provide one.

The glass specifications are below:

上海耀皮玻璃集团股
份有限公司
SHANGHAI SYP GROUP CO., LTD.

Glass Performance Data

Project: 801 South Street Phase 1

No.	Product	Visible light			Solar energy		SHGC	SC	NFRC U-Value W/(m²·K)		European U-Value (EN 673) W/(m2·K)
		T%	Rout%	Rin%	T%	Rout%			Sum.	Win.	
	6mm Clear YBE0140(2#)+12Air+6 mm Clear	35	33	10	22	35	0.28	0.32	1.72	1.75	1.7

Exhibit F

Glass Type used in Tower Windows and Sliding Doors 1st - 46th Floor

1. All data are estimated by WINDOW 6.3 developed at Lawrence Berkeley National Laboratory! For your design reference only!
2. The tolerance of published data with respect to photometric properties is +/- 3 points. The U-value tolerance is +/- 0.1W/m².K

As you know, this is the first time anyone at HCDA has asked us for the glass specifications.

After the NOV was issued, we asked to meet with you, staff, counsel and Chair Whalen. Our request for a meeting was declined. If the Chair or staff would like to discuss any of the matters regarding the glass or the NOV, we remain available.

Please contact me if you have any questions or require any further information.

Very Truly Yours,

Downtown Capital LLC

Ryan M. Harada

Certificate of Occupancy No. 15-038

DEPARTMENT OF PLANNING AND PERMITTING
CERTIFICATE OF OCCUPANCY
REQUEST FOR APPROVAL

Name and/or Description of Structure: 801 South apartment and garage

Building Permit No.: 726702 / 731711 Date Issued: 07/01/2013 / 09/05/2013

Address: 801 SOUTH STREET Tax Map Key: 2-1-47-003

Owner: DOWNTOWN CAPITAL, LLC

Requested by: D OSHIRO Date: 3-5-2013

Building Estimated Completion Date: _____

Remarks: _____

_____

	Inspected by:		Approved for issuance:	
[ ] Electrical:	Signature	Date	Signature	Date
[ ] Plumbing:	Signature	Date	Signature	Date
[ ] CEB: (Ord. 2412)	Signature	Date	Signature	Date
[ ] ZPRB: (Zoning)	Signature	Date	Signature	Date
[✓] HCDA:	Signature	Date	Signature	Date
[ ] Fire:	Signature	Date		

Comments: _____

_____

g:bldg_forms_c.o. request for approval_ 8/12/2008

Exhibit G

DRAFT

No. 15-038

CERTIFICATE OF OCCUPANCY

CITY AND COUNTY OF HONOLULU
DEPARTMENT OF PLANNING AND PERMITTING
BUILDING DIVISION

801 SOUTH APARTMENT AND GARAGE
NAME AND/OR DESCRIPTION OF STRUCTURE

OWNER DOWNTOWN CAPITAL, LLC ADDRESS 215 N. King Street

BUILDING ADDRESS 801 S STREET

TAX MAP KEY 2-1-047-003 MAJOR OCCUPANCY GROUP R-2 / S-2

USE ZONE Hawaii Community Development Authority TYPE OF CONSTRUCTION 1A

SPECIAL DESIGNATION

726702 07/01/2013
PERMIT NO. 731711 DATE 09/05/2013 ROOF CONST.

APPLICABLE CODE: 2006 IBC

REMARKS: automatic sprinkler system throughout residential tower only (Section 403.2)

ALLOWANCE FOR:
[ ] Automatic Sprinkler System
[ ] Separation on _____ Sides
[ ] Area Separation Wall
[ ] Frontage Increase _____%

The above-described structure has been inspected and the following occupancy thereof is hereby authorized:

OCCUPANCY	Floor Area (Sq. Ft.)	Maximum Allowable Occupant Load (Persons)
Residential Tower: 1st floor: B; Office, Lobby R-2; Apartments (5 units)	13,891	
2nd-8th floor: R-2 apartments (14 units per floor)	11,326 (per floor)	
9th-46th floor R-2 apartments	11,315 (per floor)	
Roof - B; Elevator Machine Rooms	659	
Garage:		
1st floor: A-3 Recreation Room S-2 Parking (31 stalls)	25,430	294
2nd-8th floors S-2 Parking (90 stalls per floor)	25,150 (per floor)	
9th floor S-2 Parking (89 stalls)	25,150	
10th floor S-2 Parking (90 stalls)	25,150	
11th floor S-2 Parking (75 stalls)	20,931	

APPROVAL OF:

~~DLU/HCDA~~	CHIEF ENGINEER	SPECIAL INSPECTOR(S)	FEMA ELEVATION CERT.
~~☒~~ Needed	☐ Needed	☒ Needed	☐ Needed
☐ Not Needed	~~☒~~ Not Needed	☐ Not Needed	~~☒~~ Not Needed

By: D Ochiro 3-10-15
BUILDING INSPECTOR DATE

Verified: _____ _____
SUPERVISOR DATE

APPROVED FOR ISSUANCE:

Electrical: E Hachiya

~~DLU/HCDA~~: _____

Plumbing: _____

Chief Engineer: H/R

Glazing and Energy Analysis Report

Relating to Visual Light Transmittance (VLT) and Leadership in Energy and Environmental Design (LEED) requirements of the Mauka Area Rules

Prepared By:

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Table of Contents

Appendices

Abbreviations and Definitions

For the purposes of this report, abbreviations and definitions are as follows:

ASHRAE - American Society of Heating, Refrigerating, and Air-Conditioning Engineers
ANSI/ASHRAE/IES Standard 90.1-2007 | Energy Standard for Buildings Except Low-Rise Residential Buildings

Baseline - The building design with the minimum acceptable energy efficiency. Guidelines are provided in ASHRAE 90.1.

Glazing - An assembly of glass that serves as the exterior window.

IECC - International Energy Conservation Code
IECC 2006 | Chapter 5 – Commercial Energy Efficiency

LEED - Leadership in Energy and Environmental Design
LEED 2009 for New Construction | Energy and Atmosphere | Prerequisite 2 – Minimum Energy Performance

MAR - Mauka Area Rules
HAR §15-217
Located under: Hawaii Administrative Rules | Department of Business, Economic Development and Tourism | Hawaii Community Development Authority

ROH - Revised Ordinances of Honolulu | Chapter 32 – Building Energy Conservation Code

SHGC - Solar Heat Gain Coefficient
Number between 0 and 1 describing how much heat the glazing assembly absorbs from the sun. Lower values indicate less heat absorption from the sun, which is generally favorable in Hawaii.

U-value - An insulative property of an assembly, such as a glass window. Lower values indicate less heat absorption between the exterior and the building envelope, which is favorable.

VLT - Visible Light Transmittance
Percentage of visible light allowed through a glazing assembly.

I. Executive Summary

Concerns have been expressed that the requirements in the Mauka Area Rules (MAR) contained in the Hawaii Administrative Rules (HAR) are so stringent that it inadvertently prohibits certain types of building designs. The requirements in question are visible light transmittance (VLT) minimums and LEED energy efficiency minimums. The concern being that the combination of requirements restricts the types of allowable glazing products to the extent that there may be no readily available glazing product meeting both requirements for an all glass building.

An updated building energy model simulation for the Symphony Honolulu project conducted using the actual glazing selection for the project shows a 13.0% improvement in building energy performance, which is 3.0% higher than the LEED minimum. The glazing in the Symphony Honolulu project meets the LEED requirements, but does not meet the VLT requirement of the MAR; however, energy modeling of other glazing options has shown it possible to meet both the 50% VLT required by the MAR and the 10% improvement over baseline energy performance required by LEED. Several glazing options were explored that meet the VLT requirements of the MAR and exceed the baseline energy performance by 10.3% to 10.7%. Based on these results, we believe that the VLT requirement of the MAR does not excessively limit building design. Creative building designs like a high-rise tower with all-glass exteriors are still possible.

There are some potential disadvantages caused by requiring high VLT values. Glazing with high VLT does not always provide low external reflectance, which is the presumed intent of the VLT requirement. One concern is that high VLT glazing may reduce the privacy of the residential units. Another concern is that higher VLT glazing typically results in lower energy efficiency in a building. If sustainability and environmental consideration are priorities, lower energy consumption by a building may be more desirable than its transparency. This means that lower VLT values may be more desirable.

Through a study of applicable codes, glazing options, and calculations, this report addressed the apparent conflict between the MAR VLT requirement and the LEED energy efficiency requirements. The study shows that the Symphony Honolulu building could have been designed to comply with both requirements, but at the cost of lower energy efficiency. A lower VLT value generally relates

to higher efficiency, more privacy for residents, and does not restrict low external reflectance. A high VLT does not necessarily relate to a low external reflectance.

If sustainability is a priority, lowering energy consumption to gain transparency of the glazing may not be desirable. Current glazing technology is very advanced, offering dynamic glazing that adjusts depending the level of sunlight present in the environment. Given these considerations, we recommend that the HCDA consider revising the VLT requirement in the MAR and addressing the reflectance issue directly.

II. Introduction

The primary concern addressed in this report is whether the Visible Light Transmittance (VLT) requirement of the Mauka Area Rules (MAR) in combination with the energy efficiency requirements of Leadership in Energy and Environmental Design (LEED) criteria, creates an unnecessarily difficult set of design constraints that have no real purpose. This report summarizes and presents a study of the MAR and other rules and codes governing the Mauka Area of the Kakaako Community Development District (KCDD) and analyzes the effects VLT on the energy efficiency of a building.

The Symphony Honolulu project ("Project") has been analyzed to determine if there is a conflict between the VLT and LEED requirements of the MAR. The Project is a residential high-rise project located on the corner of Kapiolani Boulevard and Ward Avenue. The Project is under the jurisdiction of the Hawaii Community Development Authority (HCDA) and the design of the Project must comply with all applicable provisions of the MAR, except where variances are approved.

The Project incorporates a window-wall design, which creates the look of an all glass building exterior. With this design, glass performance becomes a key factor in the overall building energy performance. Although the proposed glass selection for this building design does allow the building to meet the LEED energy efficiency goals, it does not comply with the VLT requirements of the MAR. The lower VLT glazing product increases efficiency by allowing less light to be transmitted through the glass. In other words, lower VLT means less light is transmitted through the glass, potentially increasing energy efficiency. Likewise, higher VLT means more light is transmitted through the glass, potentially decreasing energy efficiency.

The MAR, contained in the Hawaii Administrative Rules (HAR) §15-217, has specific glazing requirements. Section 15-217-55 (k)(2) states that "[w]indow glazing shall be transparent with clear or limited UV tint so as to provide views out of and into the building." Discussion with HCDA planning staff indicates that an additional intent of the VLT requirement was to minimize external reflection on outdoor public spaces, streets, and neighboring buildings in the district and also to minimize heat island effects.

III. Applicable Code Requirements

This section provides a description of the applicable codes and ordinances and the minimum requirements the Project must meet. The MAR provide planning, zoning, and design criteria for the Mauka area of the KCDD. MAR section 3(e) states that "[e]xcept as otherwise specifically stated in this chapter, all other rules, laws, and ordinances shall continue to remain applicable to the developments and properties within the Mauka area." The intent was that relevant provisions of the Revised Ordinances of Honolulu (ROH) also apply to projects within the KCDD, except where specifically exempted or superseded by the MAR.

The MAR has glazing requirements, including Visible Light Transmittance (VLT) minimums and LEED minimums for new construction. The three applicable requirements of the MAR are listed in three sections. MAR section 55(k)(2) states, "[VLT] level of windows on the ground floor shall be seventy per cent or greater and on all other floors the [VLT] level shall be fifty per cent or greater." MAR section 59(c)(1) states, "[A] project shall qualify for the applicable base LEED rating system at the appropriate certification level (e.g., new construction shall qualify for LEED for new construction." MAR section 55(m)(4) states, "At least seventy per cent of a retail thoroughfare front element shall be transparent glazing, with at least seventy per cent of the glazing to allow views into the store rather than being shallow window box displays."

Chapter 32 of the ROH states that all residential and commercial buildings must comply with the International Energy Conservation Code (IECC) as amended. The ROH and IECC classify this building as commercial (IECC Ch.2 and ROH Section 16.1.1(21)); therefore, the Project must comply with the IECC commercial requirements.

Chapter 5 of the IECC provides two compliance paths for energy consumption of commercial buildings. Based on IECC section 501.1, the designer can choose between the requirements of American Society of Heating, Refrigeration, and Air-Conditioning Engineers (ASHRAE) 90.1 or IECC Chapter 5. LEED baseline requirements are not fulfilled by the use of IECC chapter 5; therefore, the designer must comply with ASHRAE 90.1.

ASHRAE 90.1 describes the minimum requirement for energy efficiency in a new building. The methodology for determining baseline building energy usage is described in sections 5 through 9. Because this building has an all glass exterior, the following are the applicable fenestration requirements for determining baseline energy use:

1. Maximum U-value of 1.2
2. Maximum Solar Heat Gain Coefficient (SHGC) of 0.25
3. Maximum Glass Area of 40%

These requirements are not mandatory design criteria for the building; they are prescriptive provisions to determine baseline energy use. The designer is free to use any materials to design the building as long as the design exceeds the baseline building model energy efficiency determined by the prescriptive provisions. ASHRAE 90.1 Section 11 describes an alternate method to the prescriptive provisions that "may be employed for evaluating the compliance of all proposed designs except designs with no mechanical system" (ASHRAE 90.1 11.1.1). A building simulation program must be used to perform an energy usage calculation to show that the proposed building performs better than or equal to the baseline building design.

The LEED requirement pertaining to the energy efficiency of this building is Energy & Atmosphere (EA) Prerequisite 2, Option 1, which states, "Demonstrate a 10% improvement in the proposed building performance rating . . . compared with the baseline building performance rating." The designer must "[c]alculate the baseline building performance rating according to the building performance rating method in Appendix G of [ASHRAE] Standard 90.1-2007 . . . using a computer simulation model for the whole building project." Simply put, the proposed building design needs energy performance that is 10% better than the baseline building performance.

Table1: Code and Ordinance Requirements				
Requirement	VLT	U-factor	SHGC	Minimum Energy Savings
ROH	n/a	1.2 max OR Comply with ASHRAE	0.40 max OR Comply with ASHRAE	n/a
MAR	**50% min[1] / 70% min[2]**	n/a	n/a	Comply with LEED
LEED	n/a	Comply with ASHRAE	Comply with ASHRAE	**10% over baseline[3]**
ASHRAE	n/a	1.2 max OR **Perform Calculation**	0.25 max OR **Perform Calculation**	**Provides baseline details**
IECC	n/a	Superseded by ROH	Superseded by ROH	n/a

Bold is the limiting factor. Where options are presented, underlined is the chosen option.

[1] Upper floors

[2] Ground floor

[3] Energy savings is calculated per the following formula:

$$Percentage\ improvement = 100\ x \frac{(Baseline\ building\ performance - Proposed\ building\ performance)}{Baseline\ building\ performance}$$

IV. Energy Modeling

To meet the LEED Energy and Atmosphere Prerequisite 2, Option 1, computer simulation models must be generated for the baseline building and for the proposed building. The simulation of the proposed building model needs to demonstrate a 10% increase in energy performance over the baseline building model. The energy modeling analysis for this study was performed using Carrier Hourly Analysis Program 4.9 (HAP v4.9).

A baseline building energy model for the Project was established using the parameters required by ASHRAE 90.1. We reviewed the LEED building simulation performed by Notkin Hawaii, Inc., ("Notkin") mechanical engineering consultants for the Project. The energy modeling performed by Notkin is based on glazing that does not meet the MAR VLT requirements. Notkin's results show that there is a 10.3% increase in energy performance over the baseline and appears to be the basis of the claim that the VLT requirements and the energy requirements of the MAR cannot be met simultaneously. We found, however, that Notkin's energy modeling for the Project is inconsistent with the actual building design. For example, Notkin's model includes extra rooms, incorrect areas, and incorrect SHGCs, among other things. Some of the parameters Notkin used in their energy modeling were either incomplete or erroneous. We discussed these inconsistencies with Notkin and corrected these parameters before conducting our building energy simulation model for the Project.

We generated and analyzed a corrected building energy simulation model for the Project that uses the same building design used in the Notkin model. This design, due to the VLT of the glazing product, does not meet the MAR requirements. However, with the errors corrected, our results show that the glazing used in the Project contribute to an increase in energy efficiency of 13.0% over the baseline, which is more than sufficient to meet the LEED specification.

We conducted several additional building energy model simulations for the Project using glazing products that meet the VLT requirements of the MAR. The VLT for the glazing ranged from 51% to 58% and the energy efficiency over the baseline ranged from 10.3% to 10.7%. The results these building energy models are presented in the table below.

Table 2: Comparison of Alternative Glazing Selections							
	VLT	U-factor	SHGC	Baseline Energy Use [kWh/yr]	Proposed Energy Use [kWh/yr]	Energy Savings over Baseline	Yearly Energy Savings [$]
Code Requirement	50% min	-	-	-	-	-	-
ASHRAE 90.1 Baseline Calculation (Glazing on only 40% of wall area)	-	1.2	0.25	10,283,732	10,283,732	NA	NA
Viracon VRE1-30 (Glazing used in the Project)	28%	0.27	0.19	10,283,732	8,946,235	13.0%	$427,999
Viracon VRE1-63 (Double Coating)	53%	0.16	0.25	10,283,732	9,216,249	10.4%	$341,594
Guardian Industries Green SunGuard SNX 62/27 Coating / Clear	52%	0.27	0.25	10,283,732	9,225,118	10.3%	$338,756
Guardian Clear (SNX 62/27)/Clear (IS 20)/Clear	54%	0.21	0.24	10,283,732	9,186,876	10.7%	$350,994
JE Berkowitz Solarban 70XL	58%	0.21	0.25	10,283,732	9,220,357	10.3%	$340,280
PPG Solarban Atlantica 70XL	51%	0.27	0.24	10,283,732	9,192,177	10.6%	$349,297

Detailed results and calculations are attached in Appendix A.

V. Glazing Product Availability

According to a general review, several glazing products that meet applicable requirements are readily available. These products meet the VLT minimum required by the MAR and the energy performance minimum required by LEED. The products used in our building energy model simulations were Viracon VNE1-63, PPG Idealscapes Solarban 70 XL, Guardian Industries Ultrawhite (SunGuard SNX 62/27 Coating)/Clear, and JE Berkowitz Solarban 70XL. A list of glazing products that also meet the VLT and LEED requirement of the MAR is provided below.

Double Pane Glass Performance

Manufacturer	Model	VLT%	U-Factor	SHGC
Viracon	VNE1-63 (1-3/4" Triple Insulating (Double Coating))	53	0.16	0.25
Guardian Industries	Clear (SunGuard SNX 51/23 Coating)/Clear	51	0.27	0.23
Guardian Industries	Green (SunGuard SNX 62/27 Coating)/Clear	52	0.27	0.25
Guardian Industries	Green (SunGuard SNX 62/27 Coating)/Clear (SunGuard IS 20 Interior Surface LE)	51	0.26	0.24
Guardian Industries	Green (SunGuard SNX 62/27 Coating)/Clear (SunGuard Neutral 78/65 Coating)	51	0.26	0.25
Guardian Industries	Green SNX 62/27 #2 (Green Outboard and Clear Inboard)	52	0.27	0.25
Guardian Industries	Green SNX 62/27 #2/SunGuard IS 20 #4 (Green Outboard and Clear Inboard)	51	0.21	0.23
Guardian Industries	Light Blue SNX 51/23 #2 (Clear Outboard and Inboard)	51	0.27	0.23
Guardian Industries	Light Blue SNX 51/23 #2 (Ultra White Outboard and Inboard)	52	0.27	0.23
Guardian Industries	TwilightGreen (SunGuard SN 68 Coating)/Clear (SunGuard IS 20 Interior Surface LE)	50	0.22	0.25
Guardian Industries	UltraWhite (SunGuard SNX 51/23 Coating)/Clear	51	0.27	0.23
Guardian Industries	UltraWhite (SunGuard SNX 51/23 Coating)/Clear (SunGuard IS 20 Interior Surface LE)	50	0.21	0.22
Guardian Industries	UltraWhite (SunGuard SNX 51/23 Coating)/Clear (SunGuard IS 20 Interior Surface LE)	50	0.26	0.23
Guardian Industries	UltraWhite (SunGuard SNX 51/23 Coating)/Clear (SunGuard Neutral 78/65 Coating)	50	0.26	0.23
PPG IdeaScapes	Solarban 70XL on Atlantica	51	0.27	0.24

Triple Pane Glass Performance

Manufacturer	Model	VLT%	U-Factor	SHGC
Viracon	VNE1-63 (Double Coating)	53	0.16	0.25
Guardian SunGuard Indu	Clear (SunGuard SNX 62/27 Coating)/Clear (SunGuard IS 20 Interior Surface LE Coating)/Clear	54	0.21	0.24
Guardian SunGuard Indu	Clear (SunGuard SNX 62/27 Coating)/Clear (SunGuard IS 20 Interior Surface LE Coating)/Clear	54	0.18	0.23
Guardian SunGuard Indu	Clear (SunGuard SNX 62/27 Coating)/Clear (SunGuard Neutral 78/65 Coating)/Clear	54	0.21	0.24
Guardian SunGuard Indu	Clear (SunGuard SNX 62/27 Coating)/Clear (SunGuard Neutral 78/65 Coating)/Clear	54	0.17	0.24
Guardian SunGuard Indu	Clear (SunGuard SNX 62/27 Coating)/Clear/Clear	55	0.21	0.24
Guardian SunGuard Indu	Clear (SunGuard SNX 62/27 Coating)/Clear/Clear (SunGuard IS 20 Interior Surface LE Coating)	54	0.18	0.24
Guardian SunGuard Indu	Clear (SunGuard SNX 62/27 Coating)/Clear/Clear (SunGuard Neutral 78/65 Coating)	54	0.17	0.24
Guardian SunGuard Indu	UltraWhite (SunGuard SNX 62/27 Coating)/Clear/Clear	56	0.21	0.24
J.E. Berkowitz, LP	Solarban 70XL (#2)/Clear/Clear	58	0.21	0.25
PPG IdeaScapes	Solarban 72 on Starphire (2)/Sungate 400 on Clear (4)/Sungate 500 on Clear (5)	56	0.14	0.25
PPG IdeaScapes	Solarban 72 on Starphire (2)/Sungate 500 on Clear (4)/Sungate 500 on Clear (5)	54	0.15	0.25
PPG IdeaScapes	Solarban 72 on Starphire (2)/Sungate 500 on Clear (4)/Sungate 500 on Clear (6)	54	0.13	0.25
PPG IdeaScapes	Solarban 72 on Starphire (2)/Sungate 600 on Clear (4)/Solarban 60 on Clear (5)	50	0.13	0.25
PPG IdeaScapes	Solarban 72 on Starphire (2)/Sungate 600 on Clear (4)/Solarban 60 on Clear (5)	50	0.13	0.25
PPG IdeaScapes	Solarban 72 on Starphire (2)/Sungate 600 on Clear (4)/Sungate 400 on Clear (5)	54	0.14	0.25
PPG IdeaScapes	Solarban 72 on Starphire (2)/Sungate 600 on Clear (4)/Sungate 500 on Clear (5)	52	0.14	0.25
PPG IdeaScapes	Solarban 72 on Starphire (2)/Sungate 600 on Clear (4)/Sungate 600 on Clear (5)	50	0.14	0.25
PPG IdeaScapes	Solarban 72 on Starphire (2)/Sungate 600 on Clear (4)/Sungate 600 on Clear (6)	50	0.13	0.24
PPG IdeaScapes	Solarban 72 on Starphire/Sungate 600 on Clear (3)/Sungate 500 on Clear (5)	52	0.16	0.25

These glazing products meet applicable code minimums for the upper floors.

The calculations show that multiple options are available to meet the MAR; however, this was at a cost to the overall energy efficiency of the building. These energy efficiency reductions are typical of the products fitting the design criteria. If energy efficiency is a priority, a reduction of the VLT requirement should be considered.

VI. Energy Efficiency

As can be seen from the data, the high VLT requirement negatively affects energy efficiency, and increases electricity usage. Increasing VLT typically increases SHGC, which increases the amount of solar heat that enters the building envelope. This in turn increases the air conditioning load, which then uses more energy to maintain the same level of occupant comfort. By contrast, lower values for VLT and SHGC reduce air-conditioning load and reduce energy usage. Reducing the VLT requirement would therefore facilitate reduced energy usage. At the current cost of electricity, for every 1% increase in energy efficiency there is an approximate annual savings of $33,000. Additionally, a high VLT requirement may not be optimal for achieving low external reflectivity. Higher values of VLT do not necessarily provide low external reflectance. There are products that have low VLT and low external reflectance. There are also products that have high VLT and high external reflectance.

VII. Conclusion

There have been concerns that the VLT requirements of the MAR are overly stringent to the point where there may be no glazing products readily available that can meet both the VLT requirement and the energy performance required by LEED. It has been a concern that the MAR's restriction on the VLT of the glass may preclude the design of an all glass building exterior and limit future building design in KCDD to older looking concrete and steel buildings. The building energy model simulations show that it is possible to meet both the MAR VLT requirement and the LEED energy efficiency requirement, even with a design including an all-glass building exterior. The design can be constructed while still adhering to the requirements of Section 15-217-55(k)(2), 15-217-55(m)(4), and 15-217-59.

In general, higher VLT values result in poorer energy performance. The increased light transmittance introduces additional solar heat into the building, resulting in higher air-conditioning load. Higher air-conditioning load increases the energy required to maintain occupant comfort. Based on current energy rates, every 1% increase in energy efficiency saves approximately $33,000

annually on electrical energy costs. Lower values of VLT can result in higher energy efficiency, which ultimately leads to lower electrical energy costs.

It would be worthwhile for the HCDA to reconsider the current VLT requirement in a manner that better balances VLT requirements with higher energy efficiency. It is our understanding that the high VLT requirement was made to address reflectivity of the building and the heat island effect. High VLT does not, however, guarantee that these effects would be minimized and is not the ideal regulating parameter. Another unintentional affect of the high VLT glass requirement is the reduced privacy in residential buildings due to increased visibility from the exterior. From sustainability and environmental perspectives, energy efficiency should be a higher priority than the transparency of the exterior glass. There has been tremendous improvement in glazing technology in recent years. Today, dynamic glazing that adjusts parameters such as VLT and exterior reflectance depending on the level of sunlight in the environment is now readily available. Given these considerations, it is our recommendation that the HCDA consider revising the VLT requirement in the MAR.

Appendix A. Detailed Calculations

Calculations were performed to determine energy savings over the baseline design. Several glazing products were analyzed. The detailed calculations are in the following pages. An energy analysis program, Carrier Hourly Analysis Program 4.9 (HAP version 4.9), was used.

Annual Cost Summary

Symphony - Viracon VRE 1-30 28% VLT
Douglas Engineering Pacific, Inc.

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Table 1. Annual Costs

Component	[B090] Baseline Buildings ($)	[B180] Baseline Buildings ($)	[B270] Baseline Buildings ($)	Baseline Buildings ($)	Proposed Building ($)
Air System Fans	489,125	493,278	477,201	492,955	136,800
Cooling	832,957	844,223	837,158	851,319	675,639
Heating	279,829	281,926	282,270	279,578	261,906
Pumps	0	0	0	0	108,098
Heat Rejection Fans	0	0	0	0	0
HVAC Sub-Total	**1,601,911**	**1,619,427**	**1,596,628**	**1,623,853**	**1,182,444**
Lights	452,820	452,820	452,820	452,820	452,820
Electric Equipment	104,080	104,080	104,080	104,080	104,080
Misc. Electric	1,123,444	1,123,444	1,123,444	1,123,444	1,123,444
Misc. Fuel Use	0	0	0	0	0
Non-HVAC Sub-Total	**1,680,344**	**1,680,344**	**1,680,344**	**1,680,344**	**1,680,344**
Grand Total	**3,282,255**	**3,299,771**	**3,276,972**	**3,304,196**	**2,862,788**

Table 2. Annual Cost per Unit Floor Area

Component	[B090] Baseline Buildings ($/ft²)	[B180] Baseline Buildings ($/ft²)	[B270] Baseline Buildings ($/ft²)	Baseline Buildings ($/ft²)	Proposed Building ($/ft²)
Air System Fans	1.134	1.143	1.106	1.143	0.317
Cooling	1.931	1.957	1.940	1.973	1.566
Heating	0.649	0.654	0.654	0.648	0.607
Pumps	0.000	0.000	0.000	0.000	0.251
Heat Rejection Fans	0.000	0.000	0.000	0.000	0.000
HVAC Sub-Total	**3.713**	**3.754**	**3.701**	**3.764**	**2.741**
Lights	1.050	1.050	1.050	1.050	1.050
Electric Equipment	0.241	0.241	0.241	0.241	0.241
Misc. Electric	2.604	2.604	2.604	2.604	2.604
Misc. Fuel Use	0.000	0.000	0.000	0.000	0.000
Non-HVAC Sub-Total	**3.895**	**3.895**	**3.895**	**3.895**	**3.895**
Grand Total	**7.608**	**7.648**	**7.596**	**7.659**	**6.636**
Gross Floor Area (ft²)	431434.0	431434.0	431434.0	431434.0	431434.0
Conditioned Floor Area (ft²)	431434.0	431434.0	431434.0	431434.0	431434.0

Note: Values in this table are calculated using the Gross Floor Area.

Table 3. Component Cost as a Percentage of Total Cost

Component	[B090] Baseline Buildings (%)	[B180] Baseline Buildings (%)	[B270] Baseline Buildings (%)	Baseline Buildings (%)	Proposed Building (%)
Air System Fans	14.9	14.9	14.6	14.9	4.8
Cooling	25.4	25.6	25.5	25.8	23.6
Heating	8.5	8.5	8.6	8.5	9.1
Pumps	0.0	0.0	0.0	0.0	3.8
Heat Rejection Fans	0.0	0.0	0.0	0.0	0.0
HVAC Sub-Total	**48.8**	**49.1**	**48.7**	**49.1**	**41.3**
Lights	13.8	13.7	13.8	13.7	15.8
Electric Equipment	3.2	3.2	3.2	3.1	3.6
Misc. Electric	34.2	34.0	34.3	34.0	39.2
Misc. Fuel Use	0.0	0.0	0.0	0.0	0.0
Non-HVAC Sub-Total	**51.2**	**50.9**	**51.3**	**50.9**	**58.7**
Grand Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

LEED 2009 EA Credit 1 Summary Report

Symphony - Viracon VRE 1-30 28% VLT
Douglas Engineering Pacific, Inc.

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General Information

Simulation Program Name and Version ..... **Hourly Analysis Program v4.90**
Simulation Weather File Name ..... **Honolulu, Hawaii (TM2)**

Building Designations

Proposed Building ..... **Proposed Building**
Baseline - 0 degrees ..... **Baseline Buildings**
Baseline - 90 degrees ..... **[B090] Baseline Buildings**
Baseline - 180 degrees ..... **[B180] Baseline Buildings**
Baseline - 270 degrees ..... **[B270] Baseline Buildings**

Floor Areas and Window-to-Wall Ratios

	Proposed Design	Baseline
Total Conditioned Floor Area (ft²)	431,434	431,434
Total Floor Area (ft²)	431,434	431,434
Window to Wall Ratio	95 %	43 %
Gross Wall Area (ft²)	171,273	171,273
Vertical Window Area (ft²)	162,786	73,194

Advisory Messages

	Proposed Building	Baseline Building (0 deg. rotation)	Difference
Number of hours heating loads not met	0	0	0
Number of hours cooling loads not met	3,832	364	+3468

Energy Type Summary

Energy Type	Utility Rate Description	Units of Energy	Units of Demand
Electric	HECO	kWh	kW

Energy Units:
1 kBTU = 1,000 BTU
1 kWh = 3.412 kBTU

Demand Units:
1 MBH = 1,000 BTU/h
1 kW = 3.412 MBH

Baseline Performance - Performance Rating Method Compliance

End Use	Process	Baseline Design Energy Type	Units of Annual Energy & Peak Demand	Baseline (0 deg rotation)	Baseline (90 deg rotation)	Baseline (180 deg rotation)	Baseline (270 deg rotation)	Baseline Design
Interior Lighting	No	Electric	Energy kWh	1,415,052	1,415,052	1,415,052	1,415,052	1,415,052
			Demand kW	345.6	345.6	345.6	345.6	345.6
Space Heating	No	Electric	Energy kWh	873,682	874,467	881,018	882,095	877,815
			Demand kW	131.3	130.7	132.0	133.1	131.8
Space Cooling	No	Electric	Energy kWh	2,660,373	2,602,988	2,638,196	2,616,117	2,629,419
			Demand kW	646.8	628.2	635.6	631.8	635.6
Pumps	No	Electric	Energy kWh	0	0	0	0	0
			Demand kW	0.0	0.0	0.0	0.0	0.0
Heat Rejection	No	Electric	Energy kWh	0	0	0	0	0
			Demand kW	0.0	0.0	0.0	0.0	0.0
Fans - Interior	No	Electric	Energy kWh	1,540,485	1,528,578	1,541,374	1,491,227	1,525,416
			Demand kW	199.1	196.2	197.3	192.0	196.1
Receptacle Equipment	Yes	Electric	Energy kWh	325,252	325,252	325,252	325,252	325,252
			Demand kW	42.1	42.1	42.1	42.1	42.1
Exterior Lighting	No	Electric	Energy kWh	224,694	224,694	224,694	224,694	224,694

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07/14/2015
05:42PM

			Demand kW	51.3	51.3	51.3	51.3	51.3
General EF	No	Electric	Energy kWh	6,745	6,745	6,745	6,745	6,745
			Demand kW	0.8	0.8	0.8	0.8	0.8
Elevators	Yes	Electric	Energy kWh	340,764	340,764	340,764	340,764	340,764
			Demand kW	38.9	38.9	38.9	38.9	38.9
Parking Lighting and Pool	No	Electric	Energy kWh	982,872	982,872	982,872	982,872	982,872
			Demand kW	112.2	112.2	112.2	112.2	112.2
Water Heating	No	Electric	Energy kWh	1,296,188	1,296,188	1,296,188	1,296,188	1,296,188
			Demand kW	3,551.2	3,551.2	3,551.2	3,551.2	3,551.2
Booster Pumps	No	Electric	Energy kWh	144,500	144,500	144,500	144,500	144,500
			Demand kW	33.6	33.6	33.6	33.6	33.6
Garage Fans	No	Electric	Energy kWh	43,800	43,800	43,800	43,800	43,800
			Demand kW	5.0	5.0	5.0	5.0	5.0
Laundry	Yes	Electric	Energy kWh	238,199	238,199	238,199	238,199	238,199
			Demand kW	652.6	652.6	652.6	652.6	652.6
Resident Toilet Light and Exh	No	Electric	Energy kWh	233,016	233,016	233,016	233,016	233,016
			Demand kW	26.6	26.6	26.6	26.6	26.6
Baseline Energy Totals	Total Annual Energy Use kBTU			35,231,021	34,997,277	35,183,415	34,940,658	35,088,094
	Annual Process Energy kBTU							3,085,181
	Process Energy Modeling Compliance							N

(1) This form determines compliance using cost calculations from Section 1.9. Process Energy Costs should be modeled to accurately reflect the proposed building. Process Energy must be the same in the baseline and proposed cases, unless an exceptional calculation is used. Process energy costs must be at least 25% of the total baseline energy costs. Any exceptions must be supported by a narrative and/or other supporting doucmentation.
(2) In this project Process Energy is 9% of total baseline energy cost.

Baseline Energy Costs

Energy Type	Baseline Cost (0 deg rotation) ($)	Baseline Cost (90 deg rotation) ($)	Baseline Cost (180 deg rotation) ($)	Baseline Cost (270 deg rotation) ($)	Baseline Building Performance ($)
Electric	3,304,199	3,282,277	3,299,734	3,276,967	3,290,794
Total Baseline Costs	**3,304,199**	**3,282,277**	**3,299,734**	**3,276,967**	**3,290,794**

Performance Rating Table - Performance Rating Method Compliance

End Use	Process ?	Baseline Building Units	Baseline Building Results	Proposed Design Energy Type	Proposed Design Units	Proposed Building Results	Percent Savings
Interior Lighting	No	Energy kWh	1,415,052	Electric	Energy kWh	1,415,052	0 %
		Demand kW	345.6		Demand kW	345.6	0 %
Space Heating	No	Energy kWh	877,815	Electric	Energy kWh	818,458	7 %
		Demand kW	131.8		Demand kW	122.6	7 %
Space Cooling	No	Energy kWh	2,629,419	Electric	Energy kWh	2,111,372	20 %
		Demand kW	635.6		Demand kW	500.6	21 %
Pumps	No	Energy kWh	0	Electric	Energy kWh	337,814	n/a
		Demand kW	0.0		Demand kW	38.6	n/a
Heat Rejection	No	Energy kWh	0	Electric	Energy kWh	0	n/a
		Demand kW	0.0		Demand kW	0.0	n/a
Fans - Interior	No	Energy kWh	1,525,416	Electric	Energy kWh	427,508	72 %
		Demand kW	196.1		Demand kW	49.2	75 %
Receptacle Equipment	Yes	Energy kWh	325,252	Electric	Energy kWh	325,252	0 %
		Demand kW	42.1		Demand kW	42.1	0 %
Exterior Lighting	No	Energy kWh	224,694	Electric	Energy kWh	224,694	0 %

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07/14/2015
05:42PM

		Demand kW	51.3		Demand kW	51.3	0 %
General EF	No	Energy kWh	6,745	Electric	Energy kWh	6,745	0 %
		Demand kW	0.8		Demand kW	0.8	0 %
Elevators	Yes	Energy kWh	340,764	Electric	Energy kWh	340,764	0 %
		Demand kW	38.9		Demand kW	38.9	0 %
Parking Lighting and Pool	No	Energy kWh	982,872	Electric	Energy kWh	982,872	0 %
		Demand kW	112.2		Demand kW	112.2	0 %
Water Heating	No	Energy kWh	1,296,188	Electric	Energy kWh	1,296,188	0 %
		Demand kW	3,551.2		Demand kW	3,551.2	0 %
Booster Pumps	No	Energy kWh	144,500	Electric	Energy kWh	144,500	0 %
		Demand kW	33.6		Demand kW	33.6	0 %
Garage Fans	No	Energy kWh	43,800	Electric	Energy kWh	43,800	0 %
		Demand kW	5.0		Demand kW	5.0	0 %
Laundry	Yes	Energy kWh	238,199	Electric	Energy kWh	238,199	0 %
		Demand kW	652.6		Demand kW	652.6	0 %
Resident Toilet Light and Exh	No	Energy kWh	233,016	Electric	Energy kWh	233,016	0 %
		Demand kW	26.6		Demand kW	26.6	0 %
Energy Totals	Baseline Total Energy Use (kBTU)		35,088,094	Proposed Total Energy Use (kBTU)		30,524,548	13 %
	Baseline Annual Process Energy (kBTU)		3,085,181	Proposed Annual Process Energy (kBTU)		3,085,181	0 %

Energy Cost and Consumption by Energy Type - Performance Rating Method Compliance

	Proposed Design		Baseline Design	
Energy Type	**Energy Use**	**Cost ($)**	**Energy Use**	**Cost ($)**
Electric	8,946,235 kWh	2,862,795	10,283,732 kWh	3,290,794
Subtotal (Model Outputs)	**30,524,548 kBTU**	**2,862,795**	**35,088,094 kBTU**	**3,290,794**
	Energy Generated	**Renewable Energy Cost Savings ($)**		
Total On Site Renewable Energy				
	Energy Savings	**Cost Savings ($)**		
Exceptional Calculation Totals				
	Energy Use	**Cost ($)**		
Net Proposed Design Total	**30,524,548 kBTU**	**2,862,795**		
	Percent Savings		**Energy Use Intensity**	
	Energy	**Cost**	**Proposed Design (kBTU/ft²)**	**Baseline Design (kBTU/ft²)**
Summary Data	**13.0 %**	**13.0 %**	**70.75**	**81.33**

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Symphony - Viracon VRE 1-30 28% VLT
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07/14/2015
05:42PM

LEED 2009 EA Credit 1 Points Reference Table

New Construction % Cost Savings	Existing Building Renovations % Cost Savings	LEED 2009 Points Awarded
12%	8%	1 pt
14%	10%	2 pt
16%	12%	3 pts
18%	14%	4 pts
20%	16%	5 pts
22%	18%	6 pts
24%	20%	7 pts
26%	22%	8 pts
28%	24%	9 pts
30%	26%	10 pts
32%	28%	11 pts
34%	30%	12 pts
36%	32%	13 pts
38%	34%	14 pts
40%	36%	15 pts
42%	38%	16 pts
44%	40%	17 pts
46%	42%	18 pts
48%	44%	19 pts

Annual Cost Summary

Symphony - Viracon VRE1-63 53% VLT
Douglas Engineering Pacific, Inc.

07/15/2015
06:51PM

Table 1. Annual Costs

Component	[B090] Baseline Buildings ($)	[B180] Baseline Buildings ($)	[B270] Baseline Buildings ($)	Baseline Buildings ($)	Proposed Building ($)
Air System Fans	489,125	493,278	477,201	492,955	157,443
Cooling	832,957	844,223	837,158	851,319	739,759
Heating	279,829	281,926	282,270	279,578	262,393
Pumps	0	0	0	0	109,249
Heat Rejection Fans	0	0	0	0	0
HVAC Sub-Total	**1,601,911**	**1,619,427**	**1,596,628**	**1,623,853**	**1,268,843**
Lights	452,820	452,820	452,820	452,820	452,820
Electric Equipment	104,080	104,080	104,080	104,080	104,080
Misc. Electric	1,123,444	1,123,444	1,123,444	1,123,444	1,123,444
Misc. Fuel Use	0	0	0	0	0
Non-HVAC Sub-Total	**1,680,344**	**1,680,344**	**1,680,344**	**1,680,344**	**1,680,344**
Grand Total	**3,282,255**	**3,299,771**	**3,276,972**	**3,304,196**	**2,949,187**

Table 2. Annual Cost per Unit Floor Area

Component	[B090] Baseline Buildings ($/ft²)	[B180] Baseline Buildings ($/ft²)	[B270] Baseline Buildings ($/ft²)	Baseline Buildings ($/ft²)	Proposed Building ($/ft²)
Air System Fans	1.134	1.143	1.106	1.143	0.365
Cooling	1.931	1.957	1.940	1.973	1.715
Heating	0.649	0.654	0.654	0.648	0.608
Pumps	0.000	0.000	0.000	0.000	0.253
Heat Rejection Fans	0.000	0.000	0.000	0.000	0.000
HVAC Sub-Total	**3.713**	**3.754**	**3.701**	**3.764**	**2.941**
Lights	1.050	1.050	1.050	1.050	1.050
Electric Equipment	0.241	0.241	0.241	0.241	0.241
Misc. Electric	2.604	2.604	2.604	2.604	2.604
Misc. Fuel Use	0.000	0.000	0.000	0.000	0.000
Non-HVAC Sub-Total	**3.895**	**3.895**	**3.895**	**3.895**	**3.895**
Grand Total	**7.608**	**7.648**	**7.596**	**7.659**	**6.836**
Gross Floor Area (ft²)	431434.0	431434.0	431434.0	431434.0	431434.0
Conditioned Floor Area (ft²)	431434.0	431434.0	431434.0	431434.0	431434.0

Note: Values in this table are calculated using the Gross Floor Area.

Table 3. Component Cost as a Percentage of Total Cost

Component	[B090] Baseline Buildings (%)	[B180] Baseline Buildings (%)	[B270] Baseline Buildings (%)	Baseline Buildings (%)	Proposed Building (%)
Air System Fans	14.9	14.9	14.6	14.9	5.3
Cooling	25.4	25.6	25.5	25.8	25.1
Heating	8.5	8.5	8.6	8.5	8.9
Pumps	0.0	0.0	0.0	0.0	3.7
Heat Rejection Fans	0.0	0.0	0.0	0.0	0.0
HVAC Sub-Total	**48.8**	**49.1**	**48.7**	**49.1**	**43.0**
Lights	13.8	13.7	13.8	13.7	15.4
Electric Equipment	3.2	3.2	3.2	3.1	3.5
Misc. Electric	34.2	34.0	34.3	34.0	38.1
Misc. Fuel Use	0.0	0.0	0.0	0.0	0.0
Non-HVAC Sub-Total	**51.2**	**50.9**	**51.3**	**50.9**	**57.0**
Grand Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

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Symphony - Viracon VRE1-63 53% VLT 07/15/2015
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General Information

Simulation Program Name and Version ..... **Hourly Analysis Program v4.90**
Simulation Weather File Name ..... **Honolulu, Hawaii (TM2)**

Building Designations

Proposed Building ..... **Proposed Building**
Baseline - 0 degrees ..... **Baseline Buildings**
Baseline - 90 degrees ..... **[B090] Baseline Buildings**
Baseline - 180 degrees ..... **[B180] Baseline Buildings**
Baseline - 270 degrees ..... **[B270] Baseline Buildings**

Floor Areas and Window-to-Wall Ratios

	Proposed Design	Baseline
Total Conditioned Floor Area (ft²)	431,434	431,434
Total Floor Area (ft²)	431,434	431,434
Window to Wall Ratio	95 %	43 %
Gross Wall Area (ft²)	171,273	171,273
Vertical Window Area (ft²)	162,786	73,194

Advisory Messages

	Proposed Building	Baseline Building (0 deg. rotation)	Difference
Number of hours heating loads not met	0	0	0
Number of hours cooling loads not met	3,900	364	+3536

Energy Type Summary

Energy Type	Utility Rate Description	Units of Energy	Units of Demand
Electric	HECO	kWh	kW

Energy Units:
1 kBTU = 1,000 BTU
1 kWh = 3.412 kBTU

Demand Units:
1 MBH = 1,000 BTU/h
1 kW = 3.412 MBH

Baseline Performance - Performance Rating Method Compliance

End Use	Process	Baseline Design Energy Type	Units of Annual Energy & Peak Demand	Baseline (0 deg rotation)	Baseline (90 deg rotation)	Baseline (180 deg rotation)	Baseline (270 deg rotation)	Baseline Design
Interior Lighting	No	Electric	Energy kWh	1,415,052	1,415,052	1,415,052	1,415,052	1,415,052
			Demand kW	345.6	345.6	345.6	345.6	345.6
Space Heating	No	Electric	Energy kWh	873,682	874,467	881,018	882,095	877,815
			Demand kW	131.3	130.7	132.0	133.1	131.8
Space Cooling	No	Electric	Energy kWh	2,660,373	2,602,988	2,638,196	2,616,117	2,629,419
			Demand kW	646.8	628.2	635.6	631.8	635.6
Pumps	No	Electric	Energy kWh	0	0	0	0	0
			Demand kW	0.0	0.0	0.0	0.0	0.0
Heat Rejection	No	Electric	Energy kWh	0	0	0	0	0
			Demand kW	0.0	0.0	0.0	0.0	0.0
Fans - Interior	No	Electric	Energy kWh	1,540,485	1,528,578	1,541,374	1,491,227	1,525,416
			Demand kW	199.1	196.2	197.3	192.0	196.1
Receptacle Equipment	Yes	Electric	Energy kWh	325,252	325,252	325,252	325,252	325,252
			Demand kW	42.1	42.1	42.1	42.1	42.1
Exterior Lighting	No	Electric	Energy kWh	224,694	224,694	224,694	224,694	224,694

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Symphony - Viracon VRE1-63 53% VLT
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07/15/2015
06:51PM

			Demand kW	51.3	51.3	51.3	51.3	51.3
General EF	No	Electric	Energy kWh	6,745	6,745	6,745	6,745	6,745
			Demand kW	0.8	0.8	0.8	0.8	0.8
Elevators	Yes	Electric	Energy kWh	340,764	340,764	340,764	340,764	340,764
			Demand kW	38.9	38.9	38.9	38.9	38.9
Parking Lighting and Pool	No	Electric	Energy kWh	982,872	982,872	982,872	982,872	982,872
			Demand kW	112.2	112.2	112.2	112.2	112.2
Water Heating	No	Electric	Energy kWh	1,296,188	1,296,188	1,296,188	1,296,188	1,296,188
			Demand kW	3,551.2	3,551.2	3,551.2	3,551.2	3,551.2
Booster Pumps	No	Electric	Energy kWh	144,500	144,500	144,500	144,500	144,500
			Demand kW	33.6	33.6	33.6	33.6	33.6
Garage Fans	No	Electric	Energy kWh	43,800	43,800	43,800	43,800	43,800
			Demand kW	5.0	5.0	5.0	5.0	5.0
Laundry	Yes	Electric	Energy kWh	238,199	238,199	238,199	238,199	238,199
			Demand kW	652.6	652.6	652.6	652.6	652.6
Resident Toilet Light and Exh	No	Electric	Energy kWh	233,016	233,016	233,016	233,016	233,016
			Demand kW	26.6	26.6	26.6	26.6	26.6
Baseline Energy Totals	Total Annual Energy Use kBTU			35,231,021	34,997,277	35,183,415	34,940,658	35,088,094
	Annual Process Energy kBTU							3,085,181
	Process Energy Modeling Compliance							N

(1) This form determines compliance using cost calculations from Section 1.9. Process Energy Costs should be modeled to accurately reflect the proposed building. Process Energy must be the same in the baseline and proposed cases, unless an exceptional calculation is used. Process energy costs must be at least 25% of the total baseline energy costs. Any exceptions must be supported by a narrative and/or other supporting doucmentation.
(2) In this project Process Energy is 9% of total baseline energy cost.

Baseline Energy Costs

Energy Type	Baseline Cost (0 deg rotation) ($)	Baseline Cost (90 deg rotation) ($)	Baseline Cost (180 deg rotation) ($)	Baseline Cost (270 deg rotation) ($)	Baseline Building Performance ($)
Electric	3,304,199	3,282,277	3,299,734	3,276,967	3,290,794
Total Baseline Costs	**3,304,199**	**3,282,277**	**3,299,734**	**3,276,967**	**3,290,794**

Performance Rating Table - Performance Rating Method Compliance

End Use	Process ?	Baseline Building Units	Baseline Building Results	Proposed Design Energy Type	Proposed Design Units	Proposed Building Results	Percent Savings
Interior Lighting	No	Energy kWh	1,415,052	Electric	Energy kWh	1,415,052	0 %
		Demand kW	345.6		Demand kW	345.6	0 %
Space Heating	No	Energy kWh	877,815	Electric	Energy kWh	819,977	7 %
		Demand kW	131.8		Demand kW	123.6	6 %
Space Cooling	No	Energy kWh	2,629,419	Electric	Energy kWh	2,311,747	12 %
		Demand kW	635.6		Demand kW	531.8	16 %
Pumps	No	Energy kWh	0	Electric	Energy kWh	341,409	n/a
		Demand kW	0.0		Demand kW	39.0	n/a
Heat Rejection	No	Energy kWh	0	Electric	Energy kWh	0	n/a
		Demand kW	0.0		Demand kW	0.0	n/a
Fans - Interior	No	Energy kWh	1,525,416	Electric	Energy kWh	492,034	68 %
		Demand kW	196.1		Demand kW	56.6	71 %
Receptacle Equipment	Yes	Energy kWh	325,252	Electric	Energy kWh	325,252	0 %
		Demand kW	42.1		Demand kW	42.1	0 %
Exterior Lighting	No	Energy kWh	224,694	Electric	Energy kWh	224,694	0 %

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Symphony - Viracon VRE1-63 53% VLT
Douglas Engineering Pacific, Inc.

07/15/2015
06:51PM

		Demand kW	51.3		Demand kW	51.3	0 %
General EF	No	Energy kWh	6,745	Electric	Energy kWh	6,745	0 %
		Demand kW	0.8		Demand kW	0.8	0 %
Elevators	Yes	Energy kWh	340,764	Electric	Energy kWh	340,764	0 %
		Demand kW	38.9		Demand kW	38.9	0 %
Parking Lighting and Pool	No	Energy kWh	982,872	Electric	Energy kWh	982,872	0 %
		Demand kW	112.2		Demand kW	112.2	0 %
Water Heating	No	Energy kWh	1,296,188	Electric	Energy kWh	1,296,188	0 %
		Demand kW	3,551.2		Demand kW	3,551.2	0 %
Booster Pumps	No	Energy kWh	144,500	Electric	Energy kWh	144,500	0 %
		Demand kW	33.6		Demand kW	33.6	0 %
Garage Fans	No	Energy kWh	43,800	Electric	Energy kWh	43,800	0 %
		Demand kW	5.0		Demand kW	5.0	0 %
Laundry	Yes	Energy kWh	238,199	Electric	Energy kWh	238,199	0 %
		Demand kW	652.6		Demand kW	652.6	0 %
Resident Toilet Light and Exh	No	Energy kWh	233,016	Electric	Energy kWh	233,016	0 %
		Demand kW	26.6		Demand kW	26.6	0 %
Energy Totals	Baseline Total Energy Use (kBTU)		35,088,094	Proposed Total Energy Use (kBTU)		31,445,840	10 %
	Baseline Annual Process Energy (kBTU)		3,085,181	Proposed Annual Process Energy (kBTU)		3,085,181	0 %

Energy Cost and Consumption by Energy Type - Performance Rating Method Compliance

	Proposed Design		Baseline Design	
Energy Type	**Energy Use**	**Cost ($)**	**Energy Use**	**Cost ($)**
Electric	9,216,249 kWh	2,949,200	10,283,732 kWh	3,290,794
Subtotal (Model Outputs)	**31,445,840 kBTU**	**2,949,200**	**35,088,094 kBTU**	**3,290,794**
	Energy Generated	**Renewable Energy Cost Savings ($)**		
Total On Site Renewable Energy				
	Energy Savings	**Cost Savings ($)**		
Exceptional Calculation Totals				
	Energy Use	**Cost ($)**		
Net Proposed Design Total	**31,445,840 kBTU**	**2,949,200**		
	Percent Savings		**Energy Use Intensity**	
	Energy	**Cost**	**Proposed Design (kBTU/ft²)**	**Baseline Design (kBTU/ft²)**
Summary Data	**10.4 %**	**10.4 %**	**72.89**	**81.33**

LEED 2009 EA Credit 1 Summary Report

Symphony - Viracon VRE1-63 53% VLT
Douglas Engineering Pacific, Inc.

07/15/2015
06:51PM

LEED 2009 EA Credit 1 Points Reference Table

New Construction % Cost Savings	Existing Building Renovations % Cost Savings	LEED 2009 Points Awarded
12%	8%	1 pt
14%	**10%**	**2 pt**
16%	12%	3 pts
18%	14%	4 pts
20%	16%	5 pts
22%	18%	6 pts
24%	20%	7 pts
26%	22%	8 pts
28%	24%	9 pts
30%	26%	10 pts
32%	28%	11 pts
34%	30%	12 pts
36%	32%	13 pts
38%	34%	14 pts
40%	36%	15 pts
42%	38%	16 pts
44%	40%	17 pts
46%	42%	18 pts
48%	44%	19 pts

Annual Cost Summary

Symphony - Guardian Green SNX 62-27 52% VLT
Douglas Engineering Pacific, Inc.

07/14/2015
06:01PM

Table 1. Annual Costs

Component	[B090] Baseline Buildings ($)	[B180] Baseline Buildings ($)	[B270] Baseline Buildings ($)	Baseline Buildings ($)	Proposed Building ($)
Air System Fans	489,125	493,278	477,201	492,955	158,886
Cooling	832,957	844,223	837,158	851,319	741,135
Heating	279,829	281,926	282,270	279,578	262,340
Pumps	0	0	0	0	109,326
Heat Rejection Fans	0	0	0	0	0
HVAC Sub-Total	**1,601,911**	**1,619,427**	**1,596,628**	**1,623,853**	**1,271,687**
Lights	452,820	452,820	452,820	452,820	452,820
Electric Equipment	104,080	104,080	104,080	104,080	104,080
Misc. Electric	1,123,444	1,123,444	1,123,444	1,123,444	1,123,444
Misc. Fuel Use	0	0	0	0	0
Non-HVAC Sub-Total	**1,680,344**	**1,680,344**	**1,680,344**	**1,680,344**	**1,680,344**
Grand Total	**3,282,255**	**3,299,771**	**3,276,972**	**3,304,196**	**2,952,031**

Table 2. Annual Cost per Unit Floor Area

Component	[B090] Baseline Buildings ($/ft²)	[B180] Baseline Buildings ($/ft²)	[B270] Baseline Buildings ($/ft²)	Baseline Buildings ($/ft²)	Proposed Building ($/ft²)
Air System Fans	1.134	1.143	1.106	1.143	0.368
Cooling	1.931	1.957	1.940	1.973	1.718
Heating	0.649	0.654	0.654	0.648	0.608
Pumps	0.000	0.000	0.000	0.000	0.253
Heat Rejection Fans	0.000	0.000	0.000	0.000	0.000
HVAC Sub-Total	**3.713**	**3.754**	**3.701**	**3.764**	**2.948**
Lights	1.050	1.050	1.050	1.050	1.050
Electric Equipment	0.241	0.241	0.241	0.241	0.241
Misc. Electric	2.604	2.604	2.604	2.604	2.604
Misc. Fuel Use	0.000	0.000	0.000	0.000	0.000
Non-HVAC Sub-Total	**3.895**	**3.895**	**3.895**	**3.895**	**3.895**
Grand Total	**7.608**	**7.648**	**7.596**	**7.659**	**6.842**
Gross Floor Area (ft²)	431434.0	431434.0	431434.0	431434.0	431434.0
Conditioned Floor Area (ft²)	431434.0	431434.0	431434.0	431434.0	431434.0

Note: Values in this table are calculated using the Gross Floor Area.

Table 3. Component Cost as a Percentage of Total Cost

Component	[B090] Baseline Buildings (%)	[B180] Baseline Buildings (%)	[B270] Baseline Buildings (%)	Baseline Buildings (%)	Proposed Building (%)
Air System Fans	14.9	14.9	14.6	14.9	5.4
Cooling	25.4	25.6	25.5	25.8	25.1
Heating	8.5	8.5	8.6	8.5	8.9
Pumps	0.0	0.0	0.0	0.0	3.7
Heat Rejection Fans	0.0	0.0	0.0	0.0	0.0
HVAC Sub-Total	**48.8**	**49.1**	**48.7**	**49.1**	**43.1**
Lights	13.8	13.7	13.8	13.7	15.3
Electric Equipment	3.2	3.2	3.2	3.1	3.5
Misc. Electric	34.2	34.0	34.3	34.0	38.1
Misc. Fuel Use	0.0	0.0	0.0	0.0	0.0
Non-HVAC Sub-Total	**51.2**	**50.9**	**51.3**	**50.9**	**56.9**
Grand Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

LEED 2009 EA Credit 1 Summary Report

Symphony - Guardian Green SNX 62-27 52% VLT 07/14/2015
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General Information

Simulation Program Name and Version ..... **Hourly Analysis Program v4.90**
Simulation Weather File Name ..... **Honolulu, Hawaii (TM2)**

Building Designations

Proposed Building ..... **Proposed Building**
Baseline - 0 degrees ..... **Baseline Buildings**
Baseline - 90 degrees ..... **[B090] Baseline Buildings**
Baseline - 180 degrees ..... **[B180] Baseline Buildings**
Baseline - 270 degrees ..... **[B270] Baseline Buildings**

Floor Areas and Window-to-Wall Ratios

	Proposed Design	Baseline
Total Conditioned Floor Area (ft²)	431,434	431,434
Total Floor Area (ft²)	431,434	431,434
Window to Wall Ratio	95 %	43 %
Gross Wall Area (ft²)	171,273	171,273
Vertical Window Area (ft²)	162,786	73,194

Advisory Messages

	Proposed Building	Baseline Building (0 deg. rotation)	Difference
Number of hours heating loads not met	0	0	0
Number of hours cooling loads not met	3,904	364	+3540

Energy Type Summary

Energy Type	Utility Rate Description	Units of Energy	Units of Demand
Electric	HECO	kWh	kW

Energy Units:
1 kBTU = 1,000 BTU
1 kWh = 3.412 kBTU

Demand Units:
1 MBH = 1,000 BTU/h
1 kW = 3.412 MBH

Baseline Performance - Performance Rating Method Compliance

End Use	Process	Baseline Design Energy Type	Units of Annual Energy & Peak Demand	Baseline (0 deg rotation)	Baseline (90 deg rotation)	Baseline (180 deg rotation)	Baseline (270 deg rotation)	Baseline Design
Interior Lighting	No	Electric	Energy kWh	1,415,052	1,415,052	1,415,052	1,415,052	1,415,052
			Demand kW	345.6	345.6	345.6	345.6	345.6
Space Heating	No	Electric	Energy kWh	873,682	874,467	881,018	882,095	877,815
			Demand kW	131.3	130.7	132.0	133.1	131.8
Space Cooling	No	Electric	Energy kWh	2,660,373	2,602,988	2,638,196	2,616,117	2,629,419
			Demand kW	646.8	628.2	635.6	631.8	635.6
Pumps	No	Electric	Energy kWh	0	0	0	0	0
			Demand kW	0.0	0.0	0.0	0.0	0.0
Heat Rejection	No	Electric	Energy kWh	0	0	0	0	0
			Demand kW	0.0	0.0	0.0	0.0	0.0
Fans - Interior	No	Electric	Energy kWh	1,540,485	1,528,578	1,541,374	1,491,227	1,525,416
			Demand kW	199.1	196.2	197.3	192.0	196.1
Receptacle Equipment	Yes	Electric	Energy kWh	325,252	325,252	325,252	325,252	325,252
			Demand kW	42.1	42.1	42.1	42.1	42.1
Exterior Lighting	No	Electric	Energy kWh	224,694	224,694	224,694	224,694	224,694

LEED 2009 EA Credit 1 Summary Report

Symphony - Guardian Green SNX 62-27 52% VLT 07/14/2015
Douglas Engineering Pacific, Inc. 06:01PM

			Demand kW	51.3	51.3	51.3	51.3	51.3
General EF	No	Electric	Energy kWh	6,745	6,745	6,745	6,745	6,745
			Demand kW	0.8	0.8	0.8	0.8	0.8
Elevators	Yes	Electric	Energy kWh	340,764	340,764	340,764	340,764	340,764
			Demand kW	38.9	38.9	38.9	38.9	38.9
Parking Lighting and Pool	No	Electric	Energy kWh	982,872	982,872	982,872	982,872	982,872
			Demand kW	112.2	112.2	112.2	112.2	112.2
Water Heating	No	Electric	Energy kWh	1,296,188	1,296,188	1,296,188	1,296,188	1,296,188
			Demand kW	3,551.2	3,551.2	3,551.2	3,551.2	3,551.2
Booster Pumps	No	Electric	Energy kWh	144,500	144,500	144,500	144,500	144,500
			Demand kW	33.6	33.6	33.6	33.6	33.6
Garage Fans	No	Electric	Energy kWh	43,800	43,800	43,800	43,800	43,800
			Demand kW	5.0	5.0	5.0	5.0	5.0
Laundry	Yes	Electric	Energy kWh	238,199	238,199	238,199	238,199	238,199
			Demand kW	652.6	652.6	652.6	652.6	652.6
Resident Toilet Light and Exh	No	Electric	Energy kWh	233,016	233,016	233,016	233,016	233,016
			Demand kW	26.6	26.6	26.6	26.6	26.6
Baseline Energy Totals	Total Annual Energy Use kBTU			35,231,021	34,997,277	35,183,415	34,940,658	35,088,094
	Annual Process Energy kBTU							3,085,181
	Process Energy Modeling Compliance							N

(1) This form determines compliance using cost calculations from Section 1.9. Process Energy Costs should be modeled to accurately reflect the proposed building. Process Energy must be the same in the baseline and proposed cases, unless an exceptional calculation is used. Process energy costs must be at least 25% of the total baseline energy costs. Any exceptions must be supported by a narrative and/or other supporting doucmentation.
(2) In this project Process Energy is 9% of total baseline energy cost.

Baseline Energy Costs

Energy Type	Baseline Cost (0 deg rotation) ($)	Baseline Cost (90 deg rotation) ($)	Baseline Cost (180 deg rotation) ($)	Baseline Cost (270 deg rotation) ($)	Baseline Building Performance ($)
Electric	3,304,199	3,282,277	3,299,734	3,276,967	3,290,794
Total Baseline Costs	**3,304,199**	**3,282,277**	**3,299,734**	**3,276,967**	**3,290,794**

Performance Rating Table - Performance Rating Method Compliance

End Use	Process ?	Baseline Building Units	Baseline Building Results	Proposed Design Energy Type	Proposed Design Units	Proposed Building Results	Percent Savings
Interior Lighting	No	Energy kWh	1,415,052	Electric	Energy kWh	1,415,052	0 %
		Demand kW	345.6		Demand kW	345.6	0 %
Space Heating	No	Energy kWh	877,815	Electric	Energy kWh	819,812	7 %
		Demand kW	131.8		Demand kW	125.3	5 %
Space Cooling	No	Energy kWh	2,629,419	Electric	Energy kWh	2,316,047	12 %
		Demand kW	635.6		Demand kW	542.3	15 %
Pumps	No	Energy kWh	0	Electric	Energy kWh	341,654	n/a
		Demand kW	0.0		Demand kW	39.0	n/a
Heat Rejection	No	Energy kWh	0	Electric	Energy kWh	0	n/a
		Demand kW	0.0		Demand kW	0.0	n/a
Fans - Interior	No	Energy kWh	1,525,416	Electric	Energy kWh	496,521	67 %
		Demand kW	196.1		Demand kW	57.1	71 %
Receptacle Equipment	Yes	Energy kWh	325,252	Electric	Energy kWh	325,252	0 %
		Demand kW	42.1		Demand kW	42.1	0 %
Exterior Lighting	No	Energy kWh	224,694	Electric	Energy kWh	224,694	0 %

LEED 2009 EA Credit 1 Summary Report

Symphony - Guardian Green SNX 62-27 52% VLT 07/14/2015
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		Demand kW	51.3		Demand kW	51.3	0 %
General EF	No	Energy kWh	6,745	Electric	Energy kWh	6,745	0 %
		Demand kW	0.8		Demand kW	0.8	0 %
Elevators	Yes	Energy kWh	340,764	Electric	Energy kWh	340,764	0 %
		Demand kW	38.9		Demand kW	38.9	0 %
Parking Lighting and Pool	No	Energy kWh	982,872	Electric	Energy kWh	982,872	0 %
		Demand kW	112.2		Demand kW	112.2	0 %
Water Heating	No	Energy kWh	1,296,188	Electric	Energy kWh	1,296,188	0 %
		Demand kW	3,551.2		Demand kW	3,551.2	0 %
Booster Pumps	No	Energy kWh	144,500	Electric	Energy kWh	144,500	0 %
		Demand kW	33.6		Demand kW	33.6	0 %
Garage Fans	No	Energy kWh	43,800	Electric	Energy kWh	43,800	0 %
		Demand kW	5.0		Demand kW	5.0	0 %
Laundry	Yes	Energy kWh	238,199	Electric	Energy kWh	238,199	0 %
		Demand kW	652.6		Demand kW	652.6	0 %
Resident Toilet Light and Exh	No	Energy kWh	233,016	Electric	Energy kWh	233,016	0 %
		Demand kW	26.6		Demand kW	26.6	0 %
Energy Totals	Baseline Total Energy Use (kBTU)		35,088,094	Proposed Total Energy Use (kBTU)		31,476,099	10 %
	Baseline Annual Process Energy (kBTU)		3,085,181	Proposed Annual Process Energy (kBTU)		3,085,181	0 %

Energy Cost and Consumption by Energy Type - Performance Rating Method Compliance

	Proposed Design		Baseline Design	
Energy Type	**Energy Use**	**Cost ($)**	**Energy Use**	**Cost ($)**
Electric	9,225,118 kWh	2,952,038	10,283,732 kWh	3,290,794
Subtotal (Model Outputs)	**31,476,099 kBTU**	**2,952,038**	**35,088,094 kBTU**	**3,290,794**
	Energy Generated	**Renewable Energy Cost Savings ($)**		
Total On Site Renewable Energy				
	Energy Savings	**Cost Savings ($)**		
Exceptional Calculation Totals				
	Energy Use	**Cost ($)**		
Net Proposed Design Total	**31,476,099 kBTU**	**2,952,038**		
	Percent Savings		**Energy Use Intensity**	
	Energy	**Cost**	**Proposed Design (kBTU/ft²)**	**Baseline Design (kBTU/ft²)**
Summary Data	**10.3 %**	**10.3 %**	**72.96**	**81.33**

LEED 2009 EA Credit 1 Summary Report

Symphony - Guardian Green SNX 62-27 52% VLT 07/14/2015
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LEED 2009 EA Credit 1 Points Reference Table

New Construction % Cost Savings	Existing Building Renovations % Cost Savings	LEED 2009 Points Awarded
12%	8%	1 pt
14%	**10%**	**2 pt**
16%	12%	3 pts
18%	14%	4 pts
20%	16%	5 pts
22%	18%	6 pts
24%	20%	7 pts
26%	22%	8 pts
28%	24%	9 pts
30%	26%	10 pts
32%	28%	11 pts
34%	30%	12 pts
36%	32%	13 pts
38%	34%	14 pts
40%	36%	15 pts
42%	38%	16 pts
44%	40%	17 pts
46%	42%	18 pts
48%	44%	19 pts

Annual Cost Summary

Symphony - Guardian Clear (SNX 62 27) 54% VLT 07/15/2015
Douglas Engineering Pacific, Inc. 07:01PM

Table 1. Annual Costs

Component	[B090] Baseline Buildings ($)	[B180] Baseline Buildings ($)	[B270] Baseline Buildings ($)	Baseline Buildings ($)	Proposed Building ($)
Air System Fans	489,125	493,278	477,201	492,955	155,335
Cooling	832,957	844,223	837,158	851,319	732,635
Heating	279,829	281,926	282,270	279,578	262,366
Pumps	0	0	0	0	109,124
Heat Rejection Fans	0	0	0	0	0
HVAC Sub-Total	**1,601,911**	**1,619,427**	**1,596,628**	**1,623,853**	**1,259,459**
Lights	452,820	452,820	452,820	452,820	452,820
Electric Equipment	104,080	104,080	104,080	104,080	104,080
Misc. Electric	1,123,444	1,123,444	1,123,444	1,123,444	1,123,444
Misc. Fuel Use	0	0	0	0	0
Non-HVAC Sub-Total	**1,680,344**	**1,680,344**	**1,680,344**	**1,680,344**	**1,680,344**
Grand Total	**3,282,255**	**3,299,771**	**3,276,972**	**3,304,196**	**2,939,803**

Table 2. Annual Cost per Unit Floor Area

Component	[B090] Baseline Buildings ($/ft²)	[B180] Baseline Buildings ($/ft²)	[B270] Baseline Buildings ($/ft²)	Baseline Buildings ($/ft²)	Proposed Building ($/ft²)
Air System Fans	1.134	1.143	1.106	1.143	0.360
Cooling	1.931	1.957	1.940	1.973	1.698
Heating	0.649	0.654	0.654	0.648	0.608
Pumps	0.000	0.000	0.000	0.000	0.253
Heat Rejection Fans	0.000	0.000	0.000	0.000	0.000
HVAC Sub-Total	**3.713**	**3.754**	**3.701**	**3.764**	**2.919**
Lights	1.050	1.050	1.050	1.050	1.050
Electric Equipment	0.241	0.241	0.241	0.241	0.241
Misc. Electric	2.604	2.604	2.604	2.604	2.604
Misc. Fuel Use	0.000	0.000	0.000	0.000	0.000
Non-HVAC Sub-Total	**3.895**	**3.895**	**3.895**	**3.895**	**3.895**
Grand Total	**7.608**	**7.648**	**7.596**	**7.659**	**6.814**
Gross Floor Area (ft²)	431434.0	431434.0	431434.0	431434.0	431434.0
Conditioned Floor Area (ft²)	431434.0	431434.0	431434.0	431434.0	431434.0

Note: Values in this table are calculated using the Gross Floor Area.

Table 3. Component Cost as a Percentage of Total Cost

Component	[B090] Baseline Buildings (%)	[B180] Baseline Buildings (%)	[B270] Baseline Buildings (%)	Baseline Buildings (%)	Proposed Building (%)
Air System Fans	14.9	14.9	14.6	14.9	5.3
Cooling	25.4	25.6	25.5	25.8	24.9
Heating	8.5	8.5	8.6	8.5	8.9
Pumps	0.0	0.0	0.0	0.0	3.7
Heat Rejection Fans	0.0	0.0	0.0	0.0	0.0
HVAC Sub-Total	**48.8**	**49.1**	**48.7**	**49.1**	**42.8**
Lights	13.8	13.7	13.8	13.7	15.4
Electric Equipment	3.2	3.2	3.2	3.1	3.5
Misc. Electric	34.2	34.0	34.3	34.0	38.2
Misc. Fuel Use	0.0	0.0	0.0	0.0	0.0
Non-HVAC Sub-Total	**51.2**	**50.9**	**51.3**	**50.9**	**57.2**
Grand Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

LEED 2009 EA Credit 1 Summary Report

Symphony - Guardian Clear (SNX 62 27) 54% VLT 07/15/2015
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General Information

Simulation Program Name and Version ..... **Hourly Analysis Program v4.90**
Simulation Weather File Name ..... **Honolulu, Hawaii (TM2)**

Building Designations

Proposed Building ..... **Proposed Building**
Baseline - 0 degrees ..... **Baseline Buildings**
Baseline - 90 degrees ..... **[B090] Baseline Buildings**
Baseline - 180 degrees ..... **[B180] Baseline Buildings**
Baseline - 270 degrees ..... **[B270] Baseline Buildings**

Floor Areas and Window-to-Wall Ratios

	Proposed Design	Baseline
Total Conditioned Floor Area (ft²)	431,434	431,434
Total Floor Area (ft²)	431,434	431,434
Window to Wall Ratio	95 %	43 %
Gross Wall Area (ft²)	171,273	171,273
Vertical Window Area (ft²)	162,786	73,194

Advisory Messages

	Proposed Building	Baseline Building (0 deg. rotation)	Difference
Number of hours heating loads not met	0	0	0
Number of hours cooling loads not met	3,890	364	+3526

Energy Type Summary

Energy Type	Utility Rate Description	Units of Energy	Units of Demand
Electric	HECO	kWh	kW

Energy Units:
1 kBTU = 1,000 BTU
1 kWh = 3.412 kBTU

Demand Units:
1 MBH = 1,000 BTU/h
1 kW = 3.412 MBH

Baseline Performance - Performance Rating Method Compliance

End Use	Process	Baseline Design Energy Type	Units of Annual Energy & Peak Demand	Baseline (0 deg rotation)	Baseline (90 deg rotation)	Baseline (180 deg rotation)	Baseline (270 deg rotation)	Baseline Design
Interior Lighting	No	Electric	Energy kWh	1,415,052	1,415,052	1,415,052	1,415,052	1,415,052
			Demand kW	345.6	345.6	345.6	345.6	345.6
Space Heating	No	Electric	Energy kWh	873,682	874,467	881,018	882,095	877,815
			Demand kW	131.3	130.7	132.0	133.1	131.8
Space Cooling	No	Electric	Energy kWh	2,660,373	2,602,988	2,638,196	2,616,117	2,629,419
			Demand kW	646.8	628.2	635.6	631.8	635.6
Pumps	No	Electric	Energy kWh	0	0	0	0	0
			Demand kW	0.0	0.0	0.0	0.0	0.0
Heat Rejection	No	Electric	Energy kWh	0	0	0	0	0
			Demand kW	0.0	0.0	0.0	0.0	0.0
Fans - Interior	No	Electric	Energy kWh	1,540,485	1,528,578	1,541,374	1,491,227	1,525,416
			Demand kW	199.1	196.2	197.3	192.0	196.1
Receptacle Equipment	Yes	Electric	Energy kWh	325,252	325,252	325,252	325,252	325,252
			Demand kW	42.1	42.1	42.1	42.1	42.1
Exterior Lighting	No	Electric	Energy kWh	224,694	224,694	224,694	224,694	224,694

LEED 2009 EA Credit 1 Summary Report

Symphony - Guardian Clear (SNX 62 27) 54% VLT 07/15/2015
Douglas Engineering Pacific, Inc. 07:01PM

			Demand kW	51.3	51.3	51.3	51.3	51.3
General EF	No	Electric	Energy kWh	6,745	6,745	6,745	6,745	6,745
			Demand kW	0.8	0.8	0.8	0.8	0.8
Elevators	Yes	Electric	Energy kWh	340,764	340,764	340,764	340,764	340,764
			Demand kW	38.9	38.9	38.9	38.9	38.9
Parking Lighting and Pool	No	Electric	Energy kWh	982,872	982,872	982,872	982,872	982,872
			Demand kW	112.2	112.2	112.2	112.2	112.2
Water Heating	No	Electric	Energy kWh	1,296,188	1,296,188	1,296,188	1,296,188	1,296,188
			Demand kW	3,551.2	3,551.2	3,551.2	3,551.2	3,551.2
Booster Pumps	No	Electric	Energy kWh	144,500	144,500	144,500	144,500	144,500
			Demand kW	33.6	33.6	33.6	33.6	33.6
Garage Fans	No	Electric	Energy kWh	43,800	43,800	43,800	43,800	43,800
			Demand kW	5.0	5.0	5.0	5.0	5.0
Laundry	Yes	Electric	Energy kWh	238,199	238,199	238,199	238,199	238,199
			Demand kW	652.6	652.6	652.6	652.6	652.6
Resident Toilet Light and Exh	No	Electric	Energy kWh	233,016	233,016	233,016	233,016	233,016
			Demand kW	26.6	26.6	26.6	26.6	26.6
Baseline Energy Totals	Total Annual Energy Use kBTU			35,231,021	34,997,277	35,183,415	34,940,658	35,088,094
	Annual Process Energy kBTU							3,085,181
	Process Energy Modeling Compliance							N

(1) This form determines compliance using cost calculations from Section 1.9. Process Energy Costs should be modeled to accurately reflect the proposed building. Process Energy must be the same in the baseline and proposed cases, unless an exceptional calculation is used. Process energy costs must be at least 25% of the total baseline energy costs. Any exceptions must be supported by a narrative and/or other supporting doucmentation.
(2) In this project Process Energy is 9% of total baseline energy cost.

Baseline Energy Costs

Energy Type	Baseline Cost (0 deg rotation) ($)	Baseline Cost (90 deg rotation) ($)	Baseline Cost (180 deg rotation) ($)	Baseline Cost (270 deg rotation) ($)	Baseline Building Performance ($)
Electric	3,304,199	3,282,277	3,299,734	3,276,967	3,290,794
Total Baseline Costs	**3,304,199**	**3,282,277**	**3,299,734**	**3,276,967**	**3,290,794**

Performance Rating Table - Performance Rating Method Compliance

End Use	Process ?	Baseline Building Units	Baseline Building Results	Proposed Design Energy Type	Proposed Design Units	Proposed Building Results	Percent Savings
Interior Lighting	No	Energy kWh	1,415,052	Electric	Energy kWh	1,415,052	0 %
		Demand kW	345.6		Demand kW	345.6	0 %
Space Heating	No	Energy kWh	877,815	Electric	Energy kWh	819,892	7 %
		Demand kW	131.8		Demand kW	125.1	5 %
Space Cooling	No	Energy kWh	2,629,419	Electric	Energy kWh	2,289,483	13 %
		Demand kW	635.6		Demand kW	529.6	17 %
Pumps	No	Energy kWh	0	Electric	Energy kWh	341,023	n/a
		Demand kW	0.0		Demand kW	38.9	n/a
Heat Rejection	No	Energy kWh	0	Electric	Energy kWh	0	n/a
		Demand kW	0.0		Demand kW	0.0	n/a
Fans - Interior	No	Energy kWh	1,525,416	Electric	Energy kWh	485,396	68 %
		Demand kW	196.1		Demand kW	55.9	72 %
Receptacle Equipment	Yes	Energy kWh	325,252	Electric	Energy kWh	325,252	0 %
		Demand kW	42.1		Demand kW	42.1	0 %
Exterior Lighting	No	Energy kWh	224,694	Electric	Energy kWh	224,694	0 %

LEED 2009 EA Credit 1 Summary Report

Symphony - Guardian Clear (SNX 62 27) 54% VLT 07/15/2015
Douglas Engineering Pacific, Inc. 07:01PM

		Demand kW	51.3		Demand kW	51.3	0 %
General EF	No	Energy kWh	6,745	Electric	Energy kWh	6,745	0 %
		Demand kW	0.8		Demand kW	0.8	0 %
Elevators	Yes	Energy kWh	340,764	Electric	Energy kWh	340,764	0 %
		Demand kW	38.9		Demand kW	38.9	0 %
Parking Lighting and Pool	No	Energy kWh	982,872	Electric	Energy kWh	982,872	0 %
		Demand kW	112.2		Demand kW	112.2	0 %
Water Heating	No	Energy kWh	1,296,188	Electric	Energy kWh	1,296,188	0 %
		Demand kW	3,551.2		Demand kW	3,551.2	0 %
Booster Pumps	No	Energy kWh	144,500	Electric	Energy kWh	144,500	0 %
		Demand kW	33.6		Demand kW	33.6	0 %
Garage Fans	No	Energy kWh	43,800	Electric	Energy kWh	43,800	0 %
		Demand kW	5.0		Demand kW	5.0	0 %
Laundry	Yes	Energy kWh	238,199	Electric	Energy kWh	238,199	0 %
		Demand kW	652.6		Demand kW	652.6	0 %
Resident Toilet Light and Exh	No	Energy kWh	233,016	Electric	Energy kWh	233,016	0 %
		Demand kW	26.6		Demand kW	26.6	0 %
Energy Totals	Baseline Total Energy Use (kBTU)		35,088,094	Proposed Total Energy Use (kBTU)		31,345,621	11 %
	Baseline Annual Process Energy (kBTU)		3,085,181	Proposed Annual Process Energy (kBTU)		3,085,181	0 %

Energy Cost and Consumption by Energy Type - Performance Rating Method Compliance

	Proposed Design		Baseline Design	
Energy Type	**Energy Use**	**Cost ($)**	**Energy Use**	**Cost ($)**
Electric	9,186,876 kWh	2,939,800	10,283,732 kWh	3,290,794
Subtotal (Model Outputs)	**31,345,621 kBTU**	**2,939,800**	**35,088,094 kBTU**	**3,290,794**
	Energy Generated	**Renewable Energy Cost Savings ($)**		
Total On Site Renewable Energy				
	Energy Savings	**Cost Savings ($)**		
Exceptional Calculation Totals				
	Energy Use	**Cost ($)**		
Net Proposed Design Total	**31,345,621 kBTU**	**2,939,800**		
	Percent Savings		**Energy Use Intensity**	
	Energy	**Cost**	**Proposed Design (kBTU/ft²)**	**Baseline Design (kBTU/ft²)**
Summary Data	**10.7 %**	**10.7 %**	**72.65**	**81.33**

LEED 2009 EA Credit 1 Summary Report

Symphony - Guardian Clear (SNX 62 27) 54% VLT 07/15/2015
Douglas Engineering Pacific, Inc. 07:01PM

LEED 2009 EA Credit 1 Points Reference Table

New Construction % Cost Savings	Existing Building Renovations % Cost Savings	LEED 2009 Points Awarded
12%	8%	1 pt
14%	**10%**	**2 pt**
16%	12%	3 pts
18%	14%	4 pts
20%	16%	5 pts
22%	18%	6 pts
24%	20%	7 pts
26%	22%	8 pts
28%	24%	9 pts
30%	26%	10 pts
32%	28%	11 pts
34%	30%	12 pts
36%	32%	13 pts
38%	34%	14 pts
40%	36%	15 pts
42%	38%	16 pts
44%	40%	17 pts
46%	42%	18 pts
48%	44%	19 pts

Annual Cost Summary

Symphony - JE Berkowitz Solarban 70XL 58% VLT
Douglas Engineering Pacific, Inc.

07/15/2015
07:10PM

Table 1. Annual Costs

Component	[B090] Baseline Buildings ($)	[B180] Baseline Buildings ($)	[B270] Baseline Buildings ($)	Baseline Buildings ($)	Proposed Building ($)
Air System Fans	489,125	493,278	477,201	492,955	158,091
Cooling	832,957	844,223	837,158	851,319	740,401
Heating	279,829	281,926	282,270	279,578	262,321
Pumps	0	0	0	0	109,349
Heat Rejection Fans	0	0	0	0	0
HVAC Sub-Total	**1,601,911**	**1,619,427**	**1,596,628**	**1,623,853**	**1,270,163**
Lights	452,820	452,820	452,820	452,820	452,820
Electric Equipment	104,080	104,080	104,080	104,080	104,080
Misc. Electric	1,123,444	1,123,444	1,123,444	1,123,444	1,123,444
Misc. Fuel Use	0	0	0	0	0
Non-HVAC Sub-Total	**1,680,344**	**1,680,344**	**1,680,344**	**1,680,344**	**1,680,344**
Grand Total	**3,282,255**	**3,299,771**	**3,276,972**	**3,304,196**	**2,950,506**

Table 2. Annual Cost per Unit Floor Area

Component	[B090] Baseline Buildings ($/ft²)	[B180] Baseline Buildings ($/ft²)	[B270] Baseline Buildings ($/ft²)	Baseline Buildings ($/ft²)	Proposed Building ($/ft²)
Air System Fans	1.134	1.143	1.106	1.143	0.366
Cooling	1.931	1.957	1.940	1.973	1.716
Heating	0.649	0.654	0.654	0.648	0.608
Pumps	0.000	0.000	0.000	0.000	0.254
Heat Rejection Fans	0.000	0.000	0.000	0.000	0.000
HVAC Sub-Total	**3.713**	**3.754**	**3.701**	**3.764**	**2.944**
Lights	1.050	1.050	1.050	1.050	1.050
Electric Equipment	0.241	0.241	0.241	0.241	0.241
Misc. Electric	2.604	2.604	2.604	2.604	2.604
Misc. Fuel Use	0.000	0.000	0.000	0.000	0.000
Non-HVAC Sub-Total	**3.895**	**3.895**	**3.895**	**3.895**	**3.895**
Grand Total	**7.608**	**7.648**	**7.596**	**7.659**	**6.839**
Gross Floor Area (ft²)	431434.0	431434.0	431434.0	431434.0	431434.0
Conditioned Floor Area (ft²)	431434.0	431434.0	431434.0	431434.0	431434.0

Note: Values in this table are calculated using the Gross Floor Area.

Table 3. Component Cost as a Percentage of Total Cost

Component	[B090] Baseline Buildings (%)	[B180] Baseline Buildings (%)	[B270] Baseline Buildings (%)	Baseline Buildings (%)	Proposed Building (%)
Air System Fans	14.9	14.9	14.6	14.9	5.4
Cooling	25.4	25.6	25.5	25.8	25.1
Heating	8.5	8.5	8.6	8.5	8.9
Pumps	0.0	0.0	0.0	0.0	3.7
Heat Rejection Fans	0.0	0.0	0.0	0.0	0.0
HVAC Sub-Total	**48.8**	**49.1**	**48.7**	**49.1**	**43.0**
Lights	13.8	13.7	13.8	13.7	15.3
Electric Equipment	3.2	3.2	3.2	3.1	3.5
Misc. Electric	34.2	34.0	34.3	34.0	38.1
Misc. Fuel Use	0.0	0.0	0.0	0.0	0.0
Non-HVAC Sub-Total	**51.2**	**50.9**	**51.3**	**50.9**	**57.0**
Grand Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

LEED 2009 EA Credit 1 Summary Report

Symphony - JE Berkowitz Solarban 70XL 58% VLT 07/15/2015
Douglas Engineering Pacific, Inc. 07:10PM

General Information

Simulation Program Name and Version ..... **Hourly Analysis Program v4.90**
Simulation Weather File Name ..... **Honolulu, Hawaii (TM2)**

Building Designations

Proposed Building ..... **Proposed Building**
Baseline - 0 degrees ..... **Baseline Buildings**
Baseline - 90 degrees ..... **[B090] Baseline Buildings**
Baseline - 180 degrees ..... **[B180] Baseline Buildings**
Baseline - 270 degrees ..... **[B270] Baseline Buildings**

Floor Areas and Window-to-Wall Ratios

	Proposed Design	Baseline
Total Conditioned Floor Area (ft²)	431,434	431,434
Total Floor Area (ft²)	431,434	431,434
Window to Wall Ratio	95 %	43 %
Gross Wall Area (ft²)	171,273	171,273
Vertical Window Area (ft²)	162,786	73,194

Advisory Messages

	Proposed Building	Baseline Building (0 deg. rotation)	Difference
Number of hours heating loads not met	0	0	0
Number of hours cooling loads not met	3,904	364	+3540

Energy Type Summary

Energy Type	Utility Rate Description	Units of Energy	Units of Demand
Electric	HECO	kWh	kW

Energy Units:
1 kBTU = 1,000 BTU
1 kWh = 3.412 kBTU

Demand Units:
1 MBH = 1,000 BTU/h
1 kW = 3.412 MBH

Baseline Performance - Performance Rating Method Compliance

End Use	Process	Baseline Design Energy Type	Units of Annual Energy & Peak Demand	Baseline (0 deg rotation)	Baseline (90 deg rotation)	Baseline (180 deg rotation)	Baseline (270 deg rotation)	Baseline Design
Interior Lighting	No	Electric	Energy kWh	1,415,052	1,415,052	1,415,052	1,415,052	1,415,052
			Demand kW	345.6	345.6	345.6	345.6	345.6
Space Heating	No	Electric	Energy kWh	873,682	874,467	881,018	882,095	877,815
			Demand kW	131.3	130.7	132.0	133.1	131.8
Space Cooling	No	Electric	Energy kWh	2,660,373	2,602,988	2,638,196	2,616,117	2,629,419
			Demand kW	646.8	628.2	635.6	631.8	635.6
Pumps	No	Electric	Energy kWh	0	0	0	0	0
			Demand kW	0.0	0.0	0.0	0.0	0.0
Heat Rejection	No	Electric	Energy kWh	0	0	0	0	0
			Demand kW	0.0	0.0	0.0	0.0	0.0
Fans - Interior	No	Electric	Energy kWh	1,540,485	1,528,578	1,541,374	1,491,227	1,525,416
			Demand kW	199.1	196.2	197.3	192.0	196.1
Receptacle Equipment	Yes	Electric	Energy kWh	325,252	325,252	325,252	325,252	325,252
			Demand kW	42.1	42.1	42.1	42.1	42.1
Exterior Lighting	No	Electric	Energy kWh	224,694	224,694	224,694	224,694	224,694

LEED 2009 EA Credit 1 Summary Report

Symphony - JE Berkowitz Solarban 70XL 58% VLT 07/15/2015
Douglas Engineering Pacific, Inc. 07:10PM

			Demand kW	51.3	51.3	51.3	51.3	51.3
General EF	No	Electric	Energy kWh	6,745	6,745	6,745	6,745	6,745
			Demand kW	0.8	0.8	0.8	0.8	0.8
Elevators	Yes	Electric	Energy kWh	340,764	340,764	340,764	340,764	340,764
			Demand kW	38.9	38.9	38.9	38.9	38.9
Parking Lighting and Pool	No	Electric	Energy kWh	982,872	982,872	982,872	982,872	982,872
			Demand kW	112.2	112.2	112.2	112.2	112.2
Water Heating	No	Electric	Energy kWh	1,296,188	1,296,188	1,296,188	1,296,188	1,296,188
			Demand kW	3,551.2	3,551.2	3,551.2	3,551.2	3,551.2
Booster Pumps	No	Electric	Energy kWh	144,500	144,500	144,500	144,500	144,500
			Demand kW	33.6	33.6	33.6	33.6	33.6
Garage Fans	No	Electric	Energy kWh	43,800	43,800	43,800	43,800	43,800
			Demand kW	5.0	5.0	5.0	5.0	5.0
Laundry	Yes	Electric	Energy kWh	238,199	238,199	238,199	238,199	238,199
			Demand kW	652.6	652.6	652.6	652.6	652.6
Resident Toilet Light and Exh	No	Electric	Energy kWh	233,016	233,016	233,016	233,016	233,016
			Demand kW	26.6	26.6	26.6	26.6	26.6
Baseline Energy Totals	Total Annual Energy Use kBTU			35,231,021	34,997,277	35,183,415	34,940,658	35,088,094
	Annual Process Energy kBTU							3,085,181
	Process Energy Modeling Compliance							N

(1) This form determines compliance using cost calculations from Section 1.9. Process Energy Costs should be modeled to accurately reflect the proposed building. Process Energy must be the same in the baseline and proposed cases, unless an exceptional calculation is used. Process energy costs must be at least 25% of the total baseline energy costs. Any exceptions must be supported by a narrative and/or other supporting doucmentation.
(2) In this project Process Energy is 9% of total baseline energy cost.

Baseline Energy Costs

Energy Type	Baseline Cost (0 deg rotation) ($)	Baseline Cost (90 deg rotation) ($)	Baseline Cost (180 deg rotation) ($)	Baseline Cost (270 deg rotation) ($)	Baseline Building Performance ($)
Electric	3,304,199	3,282,277	3,299,734	3,276,967	3,290,794
Total Baseline Costs	**3,304,199**	**3,282,277**	**3,299,734**	**3,276,967**	**3,290,794**

Performance Rating Table - Performance Rating Method Compliance

End Use	Process ?	Baseline Building Units	Baseline Building Results	Proposed Design Energy Type	Proposed Design Units	Proposed Building Results	Percent Savings
Interior Lighting	No	Energy kWh	1,415,052	Electric	Energy kWh	1,415,052	0 %
		Demand kW	345.6		Demand kW	345.6	0 %
Space Heating	No	Energy kWh	877,815	Electric	Energy kWh	819,754	7 %
		Demand kW	131.8		Demand kW	123.3	6 %
Space Cooling	No	Energy kWh	2,629,419	Electric	Energy kWh	2,313,753	12 %
		Demand kW	635.6		Demand kW	531.0	16 %
Pumps	No	Energy kWh	0	Electric	Energy kWh	341,728	n/a
		Demand kW	0.0		Demand kW	39.0	n/a
Heat Rejection	No	Energy kWh	0	Electric	Energy kWh	0	n/a
		Demand kW	0.0		Demand kW	0.0	n/a
Fans - Interior	No	Energy kWh	1,525,416	Electric	Energy kWh	494,039	68 %
		Demand kW	196.1		Demand kW	56.9	71 %
Receptacle Equipment	Yes	Energy kWh	325,252	Electric	Energy kWh	325,252	0 %
		Demand kW	42.1		Demand kW	42.1	0 %
Exterior Lighting	No	Energy kWh	224,694	Electric	Energy kWh	224,694	0 %

LEED 2009 EA Credit 1 Summary Report

Symphony - JE Berkowitz Solarban 70XL 58% VLT 07/15/2015
Douglas Engineering Pacific, Inc. 07:10PM

		Demand kW	51.3		Demand kW	51.3	0 %
General EF	No	Energy kWh	6,745	Electric	Energy kWh	6,745	0 %
		Demand kW	0.8		Demand kW	0.8	0 %
Elevators	Yes	Energy kWh	340,764	Electric	Energy kWh	340,764	0 %
		Demand kW	38.9		Demand kW	38.9	0 %
Parking Lighting and Pool	No	Energy kWh	982,872	Electric	Energy kWh	982,872	0 %
		Demand kW	112.2		Demand kW	112.2	0 %
Water Heating	No	Energy kWh	1,296,188	Electric	Energy kWh	1,296,188	0 %
		Demand kW	3,551.2		Demand kW	3,551.2	0 %
Booster Pumps	No	Energy kWh	144,500	Electric	Energy kWh	144,500	0 %
		Demand kW	33.6		Demand kW	33.6	0 %
Garage Fans	No	Energy kWh	43,800	Electric	Energy kWh	43,800	0 %
		Demand kW	5.0		Demand kW	5.0	0 %
Laundry	Yes	Energy kWh	238,199	Electric	Energy kWh	238,199	0 %
		Demand kW	652.6		Demand kW	652.6	0 %
Resident Toilet Light and Exh	No	Energy kWh	233,016	Electric	Energy kWh	233,016	0 %
		Demand kW	26.6		Demand kW	26.6	0 %
Energy Totals	Baseline Total Energy Use (kBTU)		35,088,094	Proposed Total Energy Use (kBTU)		31,459,855	10 %
	Baseline Annual Process Energy (kBTU)		3,085,181	Proposed Annual Process Energy (kBTU)		3,085,181	0 %

Energy Cost and Consumption by Energy Type - Performance Rating Method Compliance

	Proposed Design		Baseline Design	
Energy Type	**Energy Use**	**Cost ($)**	**Energy Use**	**Cost ($)**
Electric	9,220,357 kWh	2,950,514	10,283,732 kWh	3,290,794
Subtotal (Model Outputs)	**31,459,855 kBTU**	**2,950,514**	**35,088,094 kBTU**	**3,290,794**
	Energy Generated	**Renewable Energy Cost Savings ($)**		
Total On Site Renewable Energy				
	Energy Savings	**Cost Savings ($)**		
Exceptional Calculation Totals				
	Energy Use	**Cost ($)**		
Net Proposed Design Total	**31,459,855 kBTU**	**2,950,514**		
	Percent Savings		**Energy Use Intensity**	
	Energy	**Cost**	**Proposed Design (kBTU/ft²)**	**Baseline Design (kBTU/ft²)**
Summary Data	**10.3 %**	**10.3 %**	**72.92**	**81.33**

LEED 2009 EA Credit 1 Summary Report

Symphony - JE Berkowitz Solarban 70XL 58% VLT 07/15/2015
Douglas Engineering Pacific, Inc. 07:10PM

LEED 2009 EA Credit 1 Points Reference Table

New Construction % Cost Savings	Existing Building Renovations % Cost Savings	LEED 2009 Points Awarded
12%	8%	1 pt
14%	**10%**	**2 pt**
16%	12%	3 pts
18%	14%	4 pts
20%	16%	5 pts
22%	18%	6 pts
24%	20%	7 pts
26%	22%	8 pts
28%	24%	9 pts
30%	26%	10 pts
32%	28%	11 pts
34%	30%	12 pts
36%	32%	13 pts
38%	34%	14 pts
40%	36%	15 pts
42%	38%	16 pts
44%	40%	17 pts
46%	42%	18 pts
48%	44%	19 pts

Annual Cost Summary

Symphony - PPG Solarban 70XL Atlantica 51% VLT 07/15/2015
Douglas Engineering Pacific, Inc. 07:18PM

Table 1. Annual Costs

Component	[B090] Baseline Buildings ($)	[B180] Baseline Buildings ($)	[B270] Baseline Buildings ($)	Baseline Buildings ($)	Proposed Building ($)
Air System Fans	489,125	493,278	477,201	492,955	156,134
Cooling	832,957	844,223	837,158	851,319	733,443
Heating	279,829	281,926	282,270	279,578	262,307
Pumps	0	0	0	0	109,270
Heat Rejection Fans	0	0	0	0	0
HVAC Sub-Total	**1,601,911**	**1,619,427**	**1,596,628**	**1,623,853**	**1,261,153**
Lights	452,820	452,820	452,820	452,820	452,820
Electric Equipment	104,080	104,080	104,080	104,080	104,080
Misc. Electric	1,123,444	1,123,444	1,123,444	1,123,444	1,123,444
Misc. Fuel Use	0	0	0	0	0
Non-HVAC Sub-Total	**1,680,344**	**1,680,344**	**1,680,344**	**1,680,344**	**1,680,344**
Grand Total	**3,282,255**	**3,299,771**	**3,276,972**	**3,304,196**	**2,941,497**

Table 2. Annual Cost per Unit Floor Area

Component	[B090] Baseline Buildings ($/ft²)	[B180] Baseline Buildings ($/ft²)	[B270] Baseline Buildings ($/ft²)	Baseline Buildings ($/ft²)	Proposed Building ($/ft²)
Air System Fans	1.134	1.143	1.106	1.143	0.362
Cooling	1.931	1.957	1.940	1.973	1.700
Heating	0.649	0.654	0.654	0.648	0.608
Pumps	0.000	0.000	0.000	0.000	0.253
Heat Rejection Fans	0.000	0.000	0.000	0.000	0.000
HVAC Sub-Total	**3.713**	**3.754**	**3.701**	**3.764**	**2.923**
Lights	1.050	1.050	1.050	1.050	1.050
Electric Equipment	0.241	0.241	0.241	0.241	0.241
Misc. Electric	2.604	2.604	2.604	2.604	2.604
Misc. Fuel Use	0.000	0.000	0.000	0.000	0.000
Non-HVAC Sub-Total	**3.895**	**3.895**	**3.895**	**3.895**	**3.895**
Grand Total	**7.608**	**7.648**	**7.596**	**7.659**	**6.818**
Gross Floor Area (ft²)	431434.0	431434.0	431434.0	431434.0	431434.0
Conditioned Floor Area (ft²)	431434.0	431434.0	431434.0	431434.0	431434.0

Note: Values in this table are calculated using the Gross Floor Area.

Table 3. Component Cost as a Percentage of Total Cost

Component	[B090] Baseline Buildings (%)	[B180] Baseline Buildings (%)	[B270] Baseline Buildings (%)	Baseline Buildings (%)	Proposed Building (%)
Air System Fans	14.9	14.9	14.6	14.9	5.3
Cooling	25.4	25.6	25.5	25.8	24.9
Heating	8.5	8.5	8.6	8.5	8.9
Pumps	0.0	0.0	0.0	0.0	3.7
Heat Rejection Fans	0.0	0.0	0.0	0.0	0.0
HVAC Sub-Total	**48.8**	**49.1**	**48.7**	**49.1**	**42.9**
Lights	13.8	13.7	13.8	13.7	15.4
Electric Equipment	3.2	3.2	3.2	3.1	3.5
Misc. Electric	34.2	34.0	34.3	34.0	38.2
Misc. Fuel Use	0.0	0.0	0.0	0.0	0.0
Non-HVAC Sub-Total	**51.2**	**50.9**	**51.3**	**50.9**	**57.1**
Grand Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

LEED 2009 EA Credit 1 Summary Report

Symphony - PPG Solarban 70XL Atlantica 51% VLT 07/15/2015
Douglas Engineering Pacific, Inc. 07:18PM

General Information

Simulation Program Name and Version ..... **Hourly Analysis Program v4.90**
Simulation Weather File Name ..... **Honolulu, Hawaii (TM2)**

Building Designations

Proposed Building ..... **Proposed Building**
Baseline - 0 degrees ..... **Baseline Buildings**
Baseline - 90 degrees ..... **[B090] Baseline Buildings**
Baseline - 180 degrees ..... **[B180] Baseline Buildings**
Baseline - 270 degrees ..... **[B270] Baseline Buildings**

Floor Areas and Window-to-Wall Ratios

	Proposed Design	Baseline
Total Conditioned Floor Area (ft²)	431,434	431,434
Total Floor Area (ft²)	431,434	431,434
Window to Wall Ratio	95 %	43 %
Gross Wall Area (ft²)	171,273	171,273
Vertical Window Area (ft²)	162,786	73,194

Advisory Messages

	Proposed Building	Baseline Building (0 deg. rotation)	Difference
Number of hours heating loads not met	0	0	0
Number of hours cooling loads not met	3,889	364	+3525

Energy Type Summary

Energy Type	Utility Rate Description	Units of Energy	Units of Demand
Electric	HECO	kWh	kW

Energy Units:
1 kBTU = 1,000 BTU
1 kWh = 3.412 kBTU

Demand Units:
1 MBH = 1,000 BTU/h
1 kW = 3.412 MBH

Baseline Performance - Performance Rating Method Compliance

End Use	Process	Baseline Design Energy Type	Units of Annual Energy & Peak Demand	Baseline (0 deg rotation)	Baseline (90 deg rotation)	Baseline (180 deg rotation)	Baseline (270 deg rotation)	Baseline Design
Interior Lighting	No	Electric	Energy kWh	1,415,052	1,415,052	1,415,052	1,415,052	1,415,052
			Demand kW	345.6	345.6	345.6	345.6	345.6
Space Heating	No	Electric	Energy kWh	873,682	874,467	881,018	882,095	877,815
			Demand kW	131.3	130.7	132.0	133.1	131.8
Space Cooling	No	Electric	Energy kWh	2,660,373	2,602,988	2,638,196	2,616,117	2,629,419
			Demand kW	646.8	628.2	635.6	631.8	635.6
Pumps	No	Electric	Energy kWh	0	0	0	0	0
			Demand kW	0.0	0.0	0.0	0.0	0.0
Heat Rejection	No	Electric	Energy kWh	0	0	0	0	0
			Demand kW	0.0	0.0	0.0	0.0	0.0
Fans - Interior	No	Electric	Energy kWh	1,540,485	1,528,578	1,541,374	1,491,227	1,525,416
			Demand kW	199.1	196.2	197.3	192.0	196.1
Receptacle Equipment	Yes	Electric	Energy kWh	325,252	325,252	325,252	325,252	325,252
			Demand kW	42.1	42.1	42.1	42.1	42.1
Exterior Lighting	No	Electric	Energy kWh	224,694	224,694	224,694	224,694	224,694

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			Demand kW	51.3	51.3	51.3	51.3	51.3
General EF	No	Electric	Energy kWh	6,745	6,745	6,745	6,745	6,745
			Demand kW	0.8	0.8	0.8	0.8	0.8
Elevators	Yes	Electric	Energy kWh	340,764	340,764	340,764	340,764	340,764
			Demand kW	38.9	38.9	38.9	38.9	38.9
Parking Lighting and Pool	No	Electric	Energy kWh	982,872	982,872	982,872	982,872	982,872
			Demand kW	112.2	112.2	112.2	112.2	112.2
Water Heating	No	Electric	Energy kWh	1,296,188	1,296,188	1,296,188	1,296,188	1,296,188
			Demand kW	3,551.2	3,551.2	3,551.2	3,551.2	3,551.2
Booster Pumps	No	Electric	Energy kWh	144,500	144,500	144,500	144,500	144,500
			Demand kW	33.6	33.6	33.6	33.6	33.6
Garage Fans	No	Electric	Energy kWh	43,800	43,800	43,800	43,800	43,800
			Demand kW	5.0	5.0	5.0	5.0	5.0
Laundry	Yes	Electric	Energy kWh	238,199	238,199	238,199	238,199	238,199
			Demand kW	652.6	652.6	652.6	652.6	652.6
Resident Toilet Light and Exh	No	Electric	Energy kWh	233,016	233,016	233,016	233,016	233,016
			Demand kW	26.6	26.6	26.6	26.6	26.6
Baseline Energy Totals	Total Annual Energy Use kBTU			35,231,021	34,997,277	35,183,415	34,940,658	35,088,094
	Annual Process Energy kBTU							3,085,181
	Process Energy Modeling Compliance							N

(1) This form determines compliance using cost calculations from Section 1.9. Process Energy Costs should be modeled to accurately reflect the proposed building. Process Energy must be the same in the baseline and proposed cases, unless an exceptional calculation is used. Process energy costs must be at least 25% of the total baseline energy costs. Any exceptions must be supported by a narrative and/or other supporting doucmentation.
(2) In this project Process Energy is 9% of total baseline energy cost.

Baseline Energy Costs

Energy Type	Baseline Cost (0 deg rotation) ($)	Baseline Cost (90 deg rotation) ($)	Baseline Cost (180 deg rotation) ($)	Baseline Cost (270 deg rotation) ($)	Baseline Building Performance ($)
Electric	3,304,199	3,282,277	3,299,734	3,276,967	3,290,794
Total Baseline Costs	**3,304,199**	**3,282,277**	**3,299,734**	**3,276,967**	**3,290,794**

Performance Rating Table - Performance Rating Method Compliance

End Use	Process ?	Baseline Building Units	Baseline Building Results	Proposed Design Energy Type	Proposed Design Units	Proposed Building Results	Percent Savings
Interior Lighting	No	Energy kWh	1,415,052	Electric	Energy kWh	1,415,052	0 %
		Demand kW	345.6		Demand kW	345.6	0 %
Space Heating	No	Energy kWh	877,815	Electric	Energy kWh	819,710	7 %
		Demand kW	131.8		Demand kW	124.7	5 %
Space Cooling	No	Energy kWh	2,629,419	Electric	Energy kWh	2,292,007	13 %
		Demand kW	635.6		Demand kW	534.5	16 %
Pumps	No	Energy kWh	0	Electric	Energy kWh	341,477	n/a
		Demand kW	0.0		Demand kW	39.0	n/a
Heat Rejection	No	Energy kWh	0	Electric	Energy kWh	0	n/a
		Demand kW	0.0		Demand kW	0.0	n/a
Fans - Interior	No	Energy kWh	1,525,416	Electric	Energy kWh	487,900	68 %
		Demand kW	196.1		Demand kW	56.1	71 %
Receptacle Equipment	Yes	Energy kWh	325,252	Electric	Energy kWh	325,252	0 %
		Demand kW	42.1		Demand kW	42.1	0 %
Exterior Lighting	No	Energy kWh	224,694	Electric	Energy kWh	224,694	0 %

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		Demand kW	51.3		Demand kW	51.3	0 %
General EF	No	Energy kWh	6,745	Electric	Energy kWh	6,745	0 %
		Demand kW	0.8		Demand kW	0.8	0 %
Elevators	Yes	Energy kWh	340,764	Electric	Energy kWh	340,764	0 %
		Demand kW	38.9		Demand kW	38.9	0 %
Parking Lighting and Pool	No	Energy kWh	982,872	Electric	Energy kWh	982,872	0 %
		Demand kW	112.2		Demand kW	112.2	0 %
Water Heating	No	Energy kWh	1,296,188	Electric	Energy kWh	1,296,188	0 %
		Demand kW	3,551.2		Demand kW	3,551.2	0 %
Booster Pumps	No	Energy kWh	144,500	Electric	Energy kWh	144,500	0 %
		Demand kW	33.6		Demand kW	33.6	0 %
Garage Fans	No	Energy kWh	43,800	Electric	Energy kWh	43,800	0 %
		Demand kW	5.0		Demand kW	5.0	0 %
Laundry	Yes	Energy kWh	238,199	Electric	Energy kWh	238,199	0 %
		Demand kW	652.6		Demand kW	652.6	0 %
Resident Toilet Light and Exh	No	Energy kWh	233,016	Electric	Energy kWh	233,016	0 %
		Demand kW	26.6		Demand kW	26.6	0 %
Energy Totals	Baseline Total Energy Use (kBTU)		35,088,094	Proposed Total Energy Use (kBTU)		31,363,706	11 %
	Baseline Annual Process Energy (kBTU)		3,085,181	Proposed Annual Process Energy (kBTU)		3,085,181	0 %

Energy Cost and Consumption by Energy Type - Performance Rating Method Compliance

	Proposed Design		Baseline Design	
Energy Type	**Energy Use**	**Cost ($)**	**Energy Use**	**Cost ($)**
Electric	9,192,177 kWh	2,941,497	10,283,732 kWh	3,290,794
Subtotal (Model Outputs)	**31,363,706 kBTU**	**2,941,497**	**35,088,094 kBTU**	**3,290,794**
	Energy Generated	**Renewable Energy Cost Savings ($)**		
Total On Site Renewable Energy				
	Energy Savings	**Cost Savings ($)**		
Exceptional Calculation Totals				
	Energy Use	**Cost ($)**		
Net Proposed Design Total	**31,363,706 kBTU**	**2,941,497**		
	Percent Savings		**Energy Use Intensity**	
	Energy	**Cost**	**Proposed Design (kBTU/ft²)**	**Baseline Design (kBTU/ft²)**
Summary Data	**10.6 %**	**10.6 %**	**72.70**	**81.33**

LEED 2009 EA Credit 1 Summary Report

Symphony - PPG Solarban 70XL Atlantica 51% VLT 07/15/2015
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LEED 2009 EA Credit 1 Points Reference Table

New Construction % Cost Savings	Existing Building Renovations % Cost Savings	LEED 2009 Points Awarded
12%	8%	1 pt
14%	**10%**	**2 pt**
16%	12%	3 pts
18%	14%	4 pts
20%	16%	5 pts
22%	18%	6 pts
24%	20%	7 pts
26%	22%	8 pts
28%	24%	9 pts
30%	26%	10 pts
32%	28%	11 pts
34%	30%	12 pts
36%	32%	13 pts
38%	34%	14 pts
40%	36%	15 pts
42%	38%	16 pts
44%	40%	17 pts
46%	42%	18 pts
48%	44%	19 pts

Appendix B. Detailed Code Descriptions

"ROH"

Revised Ordinances of Honolulu | Chapter 32 – Building Energy Conservation Code

ROH Chapter 32 adopts IECC as amended. The requirements amend the IECC requirements and take precedence over the default IECC values. This chapter sets forth requirements for glazed fenestration. "Glazed fenestration" refers to glass windows and walls. The requirements are a maximum U-factor and a maximum solar heat gain coefficient (SHGC). The maximum U-factor is 1.2. The maximum SHGC is 0.40. (Table 402.1.1)

"MAR"

Hawaii Administrative Rules | Department of Business and Economic Development | Hawaii Community Development Authority | Mauka Area Rules

The Mauka Area Rules set forth requirements for glazed fenestration. The requirement is a minimum Visible Light Transmission (VLT) value for glazed fenestrations. The minimum VLT is 70% at ground floor and 50% on all other floors. (§15-217-55-k-2)

The Mauka Area Rules set forth requirements for energy conservation. A new building shall qualify for LEED for new construction. See LEED 2009 for details. (§15-217-59-c-1)

"LEED"

LEED 2009 for New Construction | Energy and Atmosphere | Prerequisite 2 Minimum Energy Performance

LEED 2009 sets forth requirements for performance with regards to electrical efficiency. The requirement is a 10% improvement in performance over a baseline model. The method of comparison and the baseline model is described in ASHRAE 90.1, Appendix G.

"IECC"

International Energy Conservation Code 2006 | Chapter 5 – Commercial Energy Efficiency

ASHRAE 90.1 sets forth requirements for energy efficiency. The code provides a default method and an alternative method.

Under the default method, there are strict requirements for glazing. The modified requirements in ROH take precedence. The requirements are a maximum U-factor and a maximum solar heat gain coefficient (SHGC). The maximum U-factor is 1.2. The maximum SHGC is 0.40. (ROH Table 402.1.1)

This project does not comply under the prescriptive method, so the alternative method must be used.

The alternative method is compliance with ASHRAE 90.1. (Section 501.1)

“ASHRAE”

ANSI/ASHRAE/IES Standard 90.1-2010 | Energy Standard for Buildings Except Low-Rise Residential Buildings

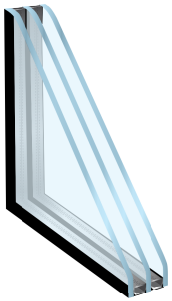
ASHRAE 90.1 sets forth requirements for energy efficiency. The code provides a prescriptive method and an Energy Cost Budget Method.

Under the prescriptive method, there are strict requirements for glazing. The requirements are a maximum U-factor and a maximum SHGC. The maximum U-factor is 1.2. The maximum SHGC is 0.25. (Table 5.5-1) This value is more stringent than the ROH. When a project is required to be compliant with multiple codes and the codes do not explicitly nullify portions of each other, as is the case for this project, the more stringent code takes precedence. This project does not comply under the prescriptive method, so the alternative method must be used.

Under the Energy Cost Budget Method, the project must be simulated for energy usage. ASHRAE 90.1 Appendix G provides a method to analyze performance of a building. Under this method, the calculation for the proposed building is compared with the calculation for the baseline model. The baseline model specifications are described in ASHRAE 90.1 Appendix G. The percentage improvement of the proposed building must be at least 10%. This is the method used in this report.

Appendix C. Datasheets

TRIPLE INSULATING SINGLE COATED LOW-E



The performance data applies to triple insulating glass units with three plies (clear lites) of 1/4" (6mm) glass and two 1/2" (13.2mm) airspaces or argon spaces. The coating is applied to the second (#2) surface.

The solar and optical data presented in this guide is center-of-glass data based on the National Fenestration Rating Council measurement standards. They were calculated using Lawrence Berkeley National Laboratory's (LBNL) WINDOW 5.2/6.3 software. In some cases performance data changed in comparison to previous versions of LBNL's WINDOW program.

▸ Contact Viracon at 800.533.2080 to obtain performance data on products not listed here.

Product	Transmittance			Reflectance			AIR U-Value						ARGON U-Value					
	Visible	Solar	U-V	Exterior	Interior	Solar	Winter	Summer	Shading Coefficient	Relative Heat Gain	SHGC	LSG	Winter	Summer	Shading Coefficient	Relative Heat Gain	SHGC	LSG
VE 1-85	68%	38%	21%	17%	18%	23%	.22	.23	.57	117	.49	1.39	.20	.19	.57	116	.49	1.39
VE 1-2M	63%	28%	8%	15%	17%	32%	.21	.21	.40	82	.34	1.85	.19	.17	.39	81	.34	1.85
VE 1-52	44%	26%	17%	18%	17%	21%	.23	.23	.41	85	.36	1.22	.20	.20	.41	84	.35	1.26
VE 1-48	42%	25%	15%	19%	17%	23%	.22	.23	.39	81	.34	1.24	.20	.19	.39	80	.33	1.27
VE 1-42	33%	20%	13%	20%	19%	21%	.22	.23	.32	68	.28	1.18	.20	.19	.32	67	.28	1.18
VE 1-55	42%	23%	11%	13%	21%	22%	.22	.23	.36	75	.31	1.35	.20	.19	.36	74	.31	1.35
VE 1-40	33%	17%	8%	16%	23%	25%	.22	.23	.28	60	.25	1.32	.20	.19	.28	59	.24	1.38
VRE 1-59	47%	24%	14%	33%	23%	39%	.22	.22	.35	73	.30	1.57	.19	.18	.35	73	.30	1.57
VRE 1-54	42%	21%	13%	34%	21%	38%	.22	.22	.32	67	.28	1.50	.19	.18	.32	66	.27	1.56
VRE 1-46	38%	20%	12%	36%	20%	40%	.22	.21	.30	62	.26	1.46	.19	.18	.30	62	.26	1.46
VRE 1-38	32%	16%	10%	45%	25%	47%	.22	.21	.24	51	.21	1.52	.19	.17	.24	50	.21	1.52
VRE 1-30	25%	12%	8%	48%	20%	47%	.22	.21	.20	43	.17	1.47	.19	.18	.20	42	.17	1.47
VNE 1-63	55%	21%	4%	13%	16%	38%	.21	.21	.30	63	.26	2.12	.18	.17	.30	62	.26	2.12
VUE 1-50	43%	17%	4%	13%	17%	27%	.21	.21	.26	55	.23	1.87	.18	.17	.26	54	.22	1.95

TRIPLE INSULATING DOUBLE COATED LOW-E (AIR FILLED)

The performance data applies to triple insulating glass units with three plies (clear lites unless otherwise specified) of 1/4" (6mm) glass and two 1/2" (13.2mm) airspaces or argon spaces. The coating is applied to the second (#2) surface. If double coated, a VE-85 coating is applied to the fourth (#4) surface.

The solar and optical data presented in this guide is center-of-glass data based on the National Fenestration Rating Council measurement standards. They were calculated using Lawrence Berkeley National Laboratory's (LBNL) WINDOW 5.2/6.3 software. In some cases performance data changed in comparison to previous versions of LBNL's WINDOW program.

Product	Transmittance			Reflectance			U-Value						
	Visible	Solar	U-V	Exterior	Interior	Solar	Winter	Summer	Shading Coefficient	Relative Heat Gain	SHGC	LSG	European U-Value
VE 1-85	65%	33%	12%	16%	16%	23%	.17	.17	.51	104	.44	1.48	0.9
VE 1-2M	60%	26%	5%	14%	16%	32%	.16	.16	.37	77	.32	1.88	0.8
VE 1-52	43%	23%	10%	17%	15%	21%	.17	.17	.36	75	.31	1.39	0.9
VE 1-48	40%	21%	9%	18%	15%	23%	.17	.17	.34	71	.30	1.33	0.9
VE 1-42	32%	17%	8%	20%	17%	22%	.17	.17	.28	59	.25	1.28	0.9
VRE 1-59	45%	21%	8%	32%	21%	39%	.16	.16	.32	67	.28	1.61	0.8
VRE 1-54	41%	19%	8%	33%	19%	38%	.16	.17	.29	61	.25	1.64	0.8
VRE 1-46	37%	18%	7%	35%	18%	40%	.16	.16	.27	57	.24	1.54	0.8
VRE 1-38	31%	14%	6%	45%	23%	47%	.16	.16	.22	47	.19	1.63	0.8
VRE 1-30	24%	11%	5%	48%	18%	47%	.16	.16	.18	39	.16	1.50	0.8
VNE 1-63	53%	20%	2%	12%	15%	38%	.16	.16	.28	59	.25	2.12	0.8
VUE 1-50	42%	16%	3%	12%	15%	27%	.16	.16	.25	51	.21	2.00	0.8

TRIPLE INSULATING DOUBLE COATED LOW-E (ARGON FILLED)

Product	Transmittance			Reflectance			U-Value						
	Visible	Solar	U-V	Exterior	Interior	Solar	Winter	Summer	Shading Coefficient	Relative Heat Gain	SHGC	LSG	European U-Value
VE 1-85	65%	33%	12%	16%	16%	23%	.14	.14	.51	104	.44	1.48	0.7
VE 1-2M	60%	26%	5%	14%	16%	32%	.13	.13	.37	76	.32	1.88	0.7
VE 1-52	43%	23%	10%	17%	15%	21%	.14	.14	.36	74	.31	1.39	0.7
VE 1-48	40%	21%	9%	18%	15%	23%	.14	.14	.34	70	.29	1.38	0.7
VE 1-42	32%	17%	8%	20%	17%	22%	.14	.14	.28	58	.24	1.33	0.7
VRE 1-59	45%	21%	8%	32%	21%	39%	.13	.13	.32	66	.28	1.61	0.7
VRE 1-54	41%	19%	8%	33%	19%	38%	.13	.13	.29	60	.25	1.64	0.7
VRE 1-46	37%	18%	7%	35%	18%	40%	.13	.13	.27	56	.23	1.61	0.7
VRE 1-38	31%	14%	6%	45%	23%	47%	.13	.13	.22	46	.19	1.63	0.7
VRE 1-30	24%	11%	5%	48%	18%	47%	.13	.13	.18	38	.15	1.60	0.7
VNE 1-63	53%	20%	2%	12%	15%	38%	.13	.13	.28	58	.24	2.21	0.7
VUE 1-50	42%	16%	3%	12%	15%	27%	.13	.13	.24	50	.21	2.00	0.7

- My Settings
- Order a Sample
- SunGuard Website

- Performance Calculator
- My Project Center
- Building Energy Calculator
- Glass Visualizer

Performance Calculator

The Guardian Performance Calculator simplifies the calculation of glass make-ups through a simple point-and-click, Web-based interface. In addition, you can use the calculator to archive project data and generate client-ready reports. It is, quite simply, the most useful yet easy-to-use glass performance calculator in the business. Custom BIM content now available for download.

It is possible to create many different glazing types and glass make-ups using the Guardian Performance Calculator. Guardian makes no guarantee that any glazing modeled by this tool is available from Guardian or any other manufacturer. The user has the responsibility to check with the manufacturer regarding availability of any glass type or make-up.

1. Start from Scratch or Load an Existing Glass Type | Help?

Create a new Make-up

Monolithic	Double
Triple	Single Laminate
IG with laminated outboard	IG with laminated inboard

Open a Glass Type from My Project Center

2. Define and Analyze | Help?

Project Name: Unassigned (Create Project) (Assign To Project)

Glass Type: Untitled glass type 03 (edit)

- Copy This Make-up
- Import a Make-up from My Project Center

Make-up Name: Default Make-up 01 (edit) | Help?

outdoor side

Help?

Green (North America) 1/4" = 1 -

LITE 6mm — 2 - SunGuard® SNX 62/27

GAP 100% Air, 1/2" = 12.7 mm

LITE Clear (North America) 1/4" = 6mm — 3 - _____ 4 - _____

indoor side

TOTAL THICKNESS: 0.942 in / 23.927 mm

GLAZING SLOPE: 90° View Project Database

1. Summary Data
2. Thermal Stress Guide
3. Contact Us

Help? Customize Summary Data

Make-up Name	Outboard Substrate & Coating	Inboard Substrate & Coating	Transmittance Visible (τv %)	Transmittance Solar (τe %)	Reflectance Visible ρv % out	Reflectance Visible ρv % in	U-Value Winter Night	U-Value Summer Day	Solar Heat Gain Coefficient (SHGC)
Default Make-up 01	SunGuard® SNX 62/27 on Green (North America)	Clear (North America)	52	18	9	11	0.29	0.27	0.25

Calculation Standard: NFRC 2010

Request BIM | Generate Report

Loading...

- My Settings
- Order a Sample
- SunGuard Website

- Performance Calculator
- My Project Center
- Building Energy Calculator
- Glass Visualizer

Performance Calculator

The Guardian Performance Calculator simplifies the calculation of glass make-ups through a simple point-and-click, Web-based interface. In addition, you can use the calculator to archive project data and generate client-ready reports. It is, quite simply, the most useful yet easy-to-use glass performance calculator in the business. Custom BIM content now available for download.

It is possible to create many different glazing types and glass make-ups using the Guardian Performance Calculator. Guardian makes no guarantee that any glazing modeled by this tool is available from Guardian or any other manufacturer. The user has the responsibility to check with the manufacturer regarding availability of any glass type or make-up.

1. Start from Scratch or Load an Existing Glass Type | Help?

Create a new Make-up

Monolithic	Double
Triple	Single Laminate
IG with laminated outboard	IG with laminated inboard

Open a Glass Type from My Project Center

2. Define and Analyze | Help?

Project Name: Unassigned (Create Project) (Assign To Project)

Glass Type: Untitled glass type 02 (edit)

- Copy This Make-up
- Import a Make-up from My Project Center

Make-up Name: Default Make-up 01 (edit) | Help?

outdoor side

Help?

LITE Clear (North America) 1/4" = 6mm — 1 - ; 2 - SunGuard® SNX 62/27

GAP 100% Air, 1/2" = 12.7 mm

LITE Clear (North America) 1/4" = 6mm

GAP 100% Air, 1/2" = 12.7 mm

LITE Clear (North America) 1/4" = 6mm

3 - SunGuard® Neutral 78/65

4 - _____

5 - _____

6 - _____

indoor side

TOTAL THICKNESS: 1.663 in / 42.24 mm

GLAZING SLOPE: 90°

View Project Database

1. Summary Data
2. Thermal Stress Guide
3. Contact Us

Help?

Customize Summary Data

Make-up Name	Outboard Substrate & Coating	Inboard Substrate & Coating	Transmittance Visible (τv %)	Transmittance Solar (τe %)	Reflectance Visible ρv % out	Reflectance Visible ρv % in	U-Value Winter Night	U-Value Summer Day	Solar Heat Gain Coefficient (SHGC)
Default Make-up 01	SunGuard® SNX 62/27 on Clear (North America)	Clear (North America)	54	20	13	16	0.21	0.21	0.24

Calculation Standard: NFRC 2010

Request BIM | Generate Report

Loading...

Individual columns can be filtered; hover over the column header to access the drop down menu.
To print your view of the list, use your browser's print capability (File - Print). Recommended page orientation is landscape. Elect "shrink to fit" the printed page.

Actions 1 - 30 View: **Main Display**

Thickness (inches)↓	Glass Type	Product	Pattern	Color	Visible (VLT)	Solar Transmittance	UV	Vis. Exterior	Vis Interior	Solar Reflectance	Winter	Summer	Shading Coefficient	SHGC	LSG
1.7500	Triple-Glazed Insulating Glass	Clear / Clear / Clear			71 %	49 %	40 %	21 %	21 %	15 %	0.31	0.34	0.71	0.61	1.16
1.7500	Triple-Glazed Insulating Glass	Clear / Clear / Clear w/ Argon			71 %	49 %	40 %	21 %	21 %	15 %	0.28	0.32	0.71	0.61	1.16
1.7500	Triple-Glazed Insulating Glass	Starphire / Starphire / Starphire			78 %	72 %	39 %	21 %	21 %	19 %	0.31	0.34	0.86	0.75	1.04
1.7500	Triple-Glazed Insulating Glass	Starphire / Starphire / Starphire w/ Argon			78 %	72 %	39 %	21 %	21 %	19 %	0.28	0.32	0.86	0.75	1.04
1.7500	Triple-Glazed Insulating Glass	Solarban 60 (#2) / Clear / Clear			63 %	28 %	15 %	16 %	18 %	31 %	0.22	0.22	0.40	0.34	1.85
1.7500	Triple-Glazed Insulating Glass	Solarban 60 (#2) / Clear / Clear w/ Argon			63 %	28 %	15 %	16 %	18 %	31 %	0.18	0.18	0.40	0.34	1.85
1.7500	Triple-Glazed Insulating Glass	Solarban 60 (#2) / Starphire / Starphire			67 %	33 %	16 %	16 %	19 %	31 %	0.22	0.22	0.41	0.36	1.86
1.7500	Triple-Glazed Insulating Glass	Solarban 60 (#2) / Starphire / Starphire w/ Argon			67 %	33 %	16 %	16 %	19 %	31 %	0.18	0.18	0.40	0.35	1.91
1.7500	Triple-Glazed Insulating Glass	Solarban 70XL (#2) / Clear / Clear			58 %	22 %	4 %	16 %	19 %	54 %	0.21	0.21	0.29	0.25	2.32

Blue and Green Tinted Glasses

PPG IdeaScapes®
Glass • Coatings • Paint

Omni Dallas Convention Center Hotel
Location: *Dallas, TX*
Products: Pacifica®, Solarban® z50, Solarban® 70XL Glasses
Architect: *BOKA Powell Architects; 5GStudio*
Glazing Contractor: *Goldfinch Brothers, Inc.*
Glass Fabricator: *JE Berkowitz, LP*
Owner/Developer: *City of Dallas/Matthews Southwest*

Aesthetic Description

Architects have relied on blue and green tinted glasses for decades to give buildings a distinctive look and to reduce heat gain and glare. PPG offers a collection of blue and green tints that can be paired with its exceptional range of advanced low-e and reflective coatings to offer architects more performance and aesthetic options than ever.

In addition to light-green ***Solexia®*** glass, which has been an industry mainstay since the 1930s, PPG's nature-inspired color palette includes aqua-blue ***Azuria®*** glass, emerald-green ***Atlantica®*** glass, sky-blue ***Solarblue®*** glass and rich-blue ***Pacifica®*** glass. Using these tints with reflective ***Solarcool®*** and subtly-reflective ***Vistacool®*** glass coatings further multiplies the color selection.

Performance Characteristics

Blue and green tinted glasses are available with ***Solarban®*** solar control, low-e glasses or combined in an insulating glass unit (IGU) with ***Sungate®*** passive low-e glasses to fulfill a wide range of performance demands, whether the goal is to maximize light transmittance, increase privacy or improve solar control performance.

Fabrication and Availability

PPG Certified Fabricator® Network

Blue and green tinted glasses, as well as ***Sungate®*** and ***Solarban®*** low-e glasses, provide maximum processing flexibility and can be laminated, tempered or heat-strengthened to satisfy increased strength or safety glazing requirements. PPG tinted glass and ***Sungate®*** glasses are available from hundreds of PPG-qualified glass fabricators in the U.S., Canada and throughout the world. Tinted glasses with ***Solarban®*** glasses are available through the ***PPG Certified Fabricator® Network***.

Additional Resources

ecological Solutions from PPG™

Ecological Solutions from PPG™ encompass a number of environmentally sustainable architectural glass products, including uncoated blue and green tinted glasses, as well as those with ***Solarcool®, Vistacool®, Solarban®*** and ***Sungate®*** glass coatings. For more information, or to obtain samples of any PPG glass product, call 888-PPG-IDEA (774-4332) or visit www.ppgideascapes.com.

PPG is the first U.S. float glass manufacturer to have its products recognized by the ***Cradle to Cradle Certified™*** program, and offers more C2C-certified architectural glasses than any other float glass manufacturer.

Glass Type (Coating if Any (Surface) Glass) Outdoor Lite: + Indoor Lite:	Transmittance[2]			Reflectance[2]		U-Value[3] NFRC (BTU/hr•ft²°F)		European U-Value[4] EN 673 (W/m²°C)	Shading Coefficient[5]	Solar Heat Gain Coefficient[6]	Light to Solar Gain (LSG)[7]
	Ultra-violet %	Visible %	Total Solar Energy %	Exterior Light %	Interior Light %	Winter Night-time	Summer Day-time				
Monolithic (6mm)											
PACIFICA	15	42	27	5	5	1.02	0.93	5.8	0.56	0.49	0.86
SOLARBLUE	31	56	47	6	6	1.02	0.93	5.8	0.71	0.61	0.92
AZURIA	42	68	32	7	7	1.02	0.93	5.8	0.59	0.52	1.31
SOLEXIA	31	77	47	8	8	1.02	0.93	5.8	0.71	0.62	1.24
ATLANTICA	16	67	34	7	7	1.02	0.93	5.8	0.61	0.53	1.26
Insulating Vision Unit Performance Comparisons 1-inch (25mm) units with 1/2-inch (13mm) airspace and two 1/4-inch (6mm) lites											
PACIFICA GLASS											
SOLARBAN 70XL (2) *PACIFICA* + Clear	2	32	12	6	12	0.28	0.26	1.5	0.22	0.19	1.68
SOLARBAN 67 (2) *PACIFICA* + Clear	3	26	11	8	15	0.29	0.27	1.6	0.21	0.19	1.37
SOLARBAN 60 (2) *PACIFICA* + Clear	5	34	15	6	10	0.29	0.27	1.6	0.26	0.22	1.55
SOLARBAN R100 (2) *PACIFICA* + Clear	3	20	9	11	13	0.29	0.27	1.6	0.19	0.16	1.25
PACIFICA + *SOLARBAN* 70XL (3)	2	31	12	6	10	0.28	0.26	1.5	0.26	0.22	1.41
PACIFICA + *SOLARBAN* 67 (3) Clear	3	26	11	7	18	0.29	0.27	1.6	0.27	0.23	1.13
PACIFICA + *SOLARBAN* 60 (3) Clear	5	34	15	6	9	0.29	0.27	1.6	0.29	0.25	1.36
SOLARBLUE GLASS											
SOLARBAN 70XL (2) *SOLARBLUE* + Clear	4	42	17	8	12	0.28	0.26	1.5	0.26	0.23	1.83
SOLARBAN 67 (2) *SOLARBLUE* + Clear	6	34	16	10	15	0.29	0.27	1.6	0.26	0.22	1.55
SOLARBAN 60 (2) *SOLARBLUE* + Clear	10	45	21	7	11	0.29	0.27	1.6	0.33	0.28	1.61
SOLARBAN R100 (2) *SOLARBLUE* + Clear	6	26	12	15	13	0.29	0.27	1.6	0.22	0.19	1.37
SOLARBLUE + *SOLARBAN* 70XL (3)	3	40	16	8	11	0.28	0.26	1.5	0.32	0.27	1.48
SOLARBLUE + *SOLARBAN* 67 (3) Clear	6	34	16	9	18	0.29	0.27	1.6	0.34	0.30	1.13
SOLARBLUE + *SOLARBAN* 60 (3) Clear	10	45	21	7	9	0.29	0.27	1.6	0.38	0.33	1.36
AZURIA GLASS											
SOLARBAN 70XL (2) *AZURIA* + Clear	5	52	18	9	12	0.28	0.26	1.5	0.29	0.25	2.08
SOLARBAN 67 (2) *AZURIA* + Clear	8	42	16	13	16	0.29	0.27	1.6	0.26	0.23	1.83
SOLARBAN 60 (2) *AZURIA* + Clear	13	54	21	8	11	0.29	0.27	1.6	0.32	0.28	1.93
SOLARBAN R100 (2) *AZURIA* + Clear	8	32	12	21	13	0.29	0.27	1.6	0.22	0.19	1.68
AZURIA + *SOLARBAN* 70XL (3)	4	49	17	9	11	0.28	0.26	1.5	0.33	0.29	1.69
AZURIA + *SOLARBAN* 67 (3) Clear	8	42	16	11	18	0.29	0.27	1.6	0.33	0.29	1.45
AZURIA + *SOLARBAN* 60 (3) Clear	13	54	21	9	10	0.29	0.27	1.6	0.36	0.31	1.74
SOLEXIA GLASS											
SOLARBAN 70XL (2) *SOLEXIA* + Clear	4	58	21	10	13	0.28	0.26	1.5	0.31	0.27	2.15
SOLARBAN 67 (2) *SOLEXIA* + Clear	6	47	19	16	16	0.29	0.27	1.6	0.29	0.25	1.88
SOLARBAN 60 (2) *SOLEXIA* + Clear	10	61	25	9	12	0.29	0.27	1.6	0.37	0.32	1.91
SOLARBAN R100 (2) *SOLEXIA* + Clear	6	36	15	25	13	0.29	0.27	1.6	0.24	0.21	1.71
SOLEXIA + *SOLARBAN* 70XL (3)	3	56	20	11	12	0.28	0.26	1.5	0.37	0.32	1.75
SOLEXIA + *SOLARBAN* 60 (3) Clear	10	61	25	10	10	0.29	0.27	1.6	0.42	0.37	1.65
ATLANTICA GLASS											
SOLARBAN 70XL (2) ATLANTICA + Clear	2	51	17	9	12	0.28	0.26	1.5	0.28	0.24	2.13
SOLARBAN 67 (2) *ATLANTICA* + Clear	3	41	15	13	16	0.29	0.27	1.6	0.26	0.22	1.86
SOLARBAN 60 (2) *ATLANTICA* + Clear	5	53	20	8	11	0.29	0.27	1.6	0.32	0.27	1.96
SOLARBAN R100 (2) *ATLANTICA* + Clear	3	32	12	20	13	0.29	0.27	1.6	0.22	0.19	1.68
ATLANTICA + *SOLARBAN* 70XL (3)	2	49	17	10	11	0.28	0.26	1.5	0.32	0.28	1.75
ATLANTICA + *SOLARBAN* 67 (3) Clear	3	41	15	11	18	0.29	0.27	1.6	0.33	0.29	1.41
ATLANTICA + *SOLARBAN* 60 (3) Clear	5	53	20	9	10	0.29	0.27	1.6	0.36	0.31	1.71

All performance data calculated using LBNL Window 6.3 software and represents center of glass performance data. European U-values are calculated using WinDat version 3.0.1 software. For detailed information on the methodologies used to calculate the aesthetic and performance values in this table, please visit www.ppgideascapes.com or request our Architectural Glass Catalog.

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