

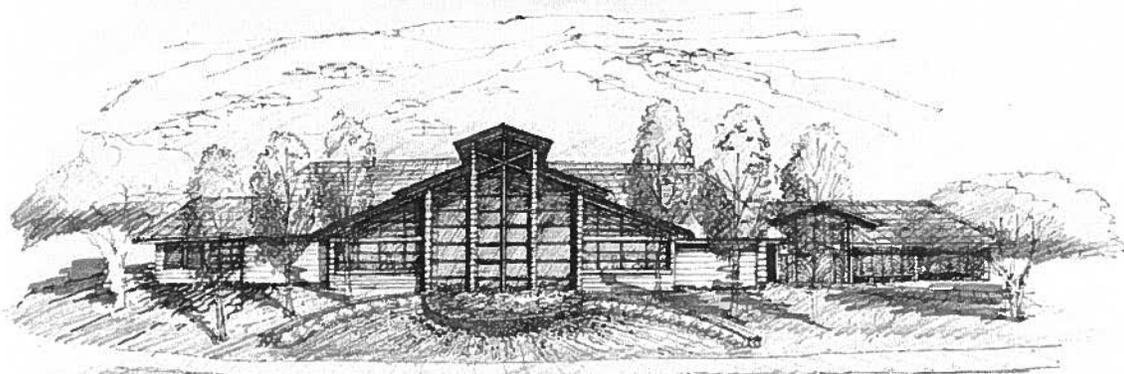
BASIS OF DESIGN

FOR THE NEW

'AIEA PUBLIC LIBRARY

REPLACEMENT FACILITY

DAGS JOB NO. 12-36-6512



PRELIMINARY DESIGN SUBMITTAL
JULY 2011



CDS INTERNATIONAL
Architecture • Planning • Sustainable Design • Interior Design



BASIS OF DESIGN
'AIEA PUBLIC LIBRARY
REPLACEMENT FACILITY
DAGS JOB NO. 12-36-6512

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A. INTRODUCTION

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- A. RAL - Shelving Count 2011.08.02



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A. INTRODUCTION

1. PROJECT DESCRIPTION

The scope of this project is to design a new public library to replace the existing 'Aiea Public Library for the Department of Accounting and General Services [DAGS] (owner - State of Hawai'i) and the Hawai'i State Public Library Systems [HSPLS] (end user - State of Hawai'i). The new library will be located on a portion of the former 'Aiea Sugar Mill site, a total of 5 parcels, which totals roughly 2.254 acres. HSPLS requested that the new library be approximately 20,000 square feet and evaluate and compare the program spaces of the new Manoa Public Library for our use. The new library is required to achieve a USGBC LEED Silver Certification and have general compliance to the 'Aiea Town Master Plan done by Group 70 in 2002.

The construction budget is \$8,146,000 and has approximately \$475,000 set aside for FF&E. The project will need to be awarded by June 2012 due to the concerns of funds lapsing.

2. SITE DESIGN

The new library will be placed on TMK: 9-9-078: Parcels 001, 002, 003, 004 and 005 which is 5 parcels of 15 total. The library's location on the site was pre-selected as part of the 'Aiea Town Master Plan which envisioned the new library as a key element in the holistic development of the 'Aiea Town Center.

2.1 PARKING LOCATION

The site rests at the T-stop intersection of Halewiliko Drive and 'Aiea Heights Drive. The 'Aiea Town Master Plan had shown the building's location further into the lot and having the parking lot adjacent to this prominent T-stop intersection, set right on the corner abutting Halewiliko Drive. The Design Team felt that reversing the two and placing the building at this corner would make for a better overall plan providing the following advantages:

1. (because of budget concerns, a 2-story building is not feasible) The building will visually become a focal point for the community atop 'Aiea Heights Drive.
2. Traffic concerns (queuing of vehicles off of Halewiliko Drive) were expressed by the City and County of Honolulu's Traffic Review Branch and suggested that the parking lot and building be switched.
3. More accessible pedestrian access coming off of Halewiliko Drive.
4. Eliminates the use of retaining walls and excessive site work (grading and leveling).



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2.2 BUILDING ORIENTATION

The building has also been strategically orientated along sun path to take advantage of alternative, renewable energy (photovoltaic panels) as well as for natural daylighting strategies. Building was also situated so that views of Pearl Harbor could be enjoyed as well as being a focal point coming up 'Aiea Heights Drive.

3. DESIGN CONCEPTS

There were three 'signature elements' mentioned in the 'Aiea Town Master Plan that the Design Team will incorporate into the design.

1. Be a landmark
2. Take advantage of the views of Pearl Harbor
3. 'Our Backyard, Front Porch' philosophy

3.1 LANDMARK

The original concept of the 'Aiea Town Master Plan was to have a new 2-story library, overlooking the parking lot, onto the views of Pearl Harbor. As mentioned, a 2-story building with the allotted construction budget is not feasible. To overcome this, one of the design decisions was to locate the building adjacent to Halewiliko Drive (see 2.1 PARKING LOT) so the new singled story library would not be 'hidden.'

A major design concept is to capture the spirit of the old 'Aiea Sugar Mill; the use of building forms and materials (to replicate the old 'Aiea Sugar Mill) as well as culture and community history will also be used to achieve this landmarking goal.

The project being located at a very prominent T-stop intersection of two major streets, the site itself is a landmark location. This will give the Design Team every opportunity to design something for the community to take pride in.

3.2 VIEWS OF PEARL HARBOR

The new library will have a monumental glass facade facing Halewiliko Drive, looking down 'Aiea Heights Drive so library patrons can enjoy the views of Pearl Harbor. The voluminous interior spaces and clerestories for natural daylighting will also compliment the views of Pearl Harbor. These elements (transparency of glass and voluminous interiors) will provide the look and feel of being a lantern at night while driving up 'Aiea Heights Drive.

3.3 OUR BACKYARD/FRONT PORCH

This will be achieved with the use of building materials and program spaces. The use of glass and its transparent properties will help to promote an openness and welcoming feeling.



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As part of the scope, the 'Aiea community wanted the new library to include a community room; this will be available for the community's use when the library is not open. The community room and the main entry will open up to the street corner. The design will also propose to open up a place of safety for the children to read, play and socialize outside of the new library while their parents are still patronizing the library.

The old 'Aiea Sugar Mill was once the center of life in 'Aiea; the community developed around it. Likewise, we see the library become the focal point of the community. It has the potential to socially be the center of the community by opening itself to community activities and miscellaneous events. We see program space being used daily by various community groups connecting back with the community.

4. PROGRAM AREA

The overall building design is currently at approximately 17,135 GROSS square area. Individual program spaces were compared to the new Manoa Public Library; the comparison is as follows:

NEW MANOA PUBLIC LIBRARY PROGRAM AREAS		NEW 'AIEA PUBLIC LIBRARY PROGRAM AREAS		
Program Space	Area (rounded)	Program Space	Area (rounded)	Difference
Program Area	4,800	Program Area	10,889	+6,089
Children				
Young Adults				
Adults				
AV/Newspaper				
Periodicals				
Reference				
Catalog				
Circulation	670		467	-203
Desk				
Reference Desk				
Self Checkout				
Children Reading Room	N/A	Children Reading Room	347	---
Work Room	2,215	Work Room	1,827	-388
Receiving Area		Receiving Area		
Office	200	Office	180	-20



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NEW MANOA PUBLIC LIBRARY PROGRAM AREAS		NEW 'AIEA PUBLIC LIBRARY PROGRAM AREAS		
Program Space	Area (rounded)	Program Space	Area (rounded)	Difference
Staff Breakroom	500	Staff Lounge	266	-234
Staff Restroom	50	Staff Restroom	67	+17
Family Restroom	N/A	Family Restroom	67	---
Program Room	1,200	Program Room	981	-219

Based on the program area the goal is to meet at minimum, the existing book collection of the existing library. The shelving layout shown in the preliminary designs represents this breakdown as follows:

- Juvenile Collection: 33,000 Books
- Young Adults/Adult Collection: 44,000 Books
- Total 80,000 books plus Audio Visual Collection: 8,000 CD's/DVD's

The above book count goal was provided by 'Aiea Public Library Branch manager, Gayle Hirohata-Goto and Branch Director, Stacie Kanno. The current book count is at approximately 78,200 books (34,370 JC, 21,025 YA and 22,805 AC); please see attached 'RAL - Shelving Count 2011.08.02'

Shelving and Book Count

Project Name: RAL - 'Aiea Public Library
Location: 'Aiea, Oahu, Hawai'i
DAGS Job No: 12-36-6512
Date Prepared: 6/14/2011 [see 'rev date' for latest update]
Prepared/Updated By: Davin Kimoto
File Name: RAL - Shelving_Count.xls

GENERAL NOTES:

- Juvenile Collection Area - JC
- Young Adult Collection - YA
- Adult Collection - AC
- Archive Room - AR
- Receiving Area - REC
- 3'-0" High Shelving Unit - 3 Tier (3 shelves)
 also 3'-6" High, pending on vendor - verify with details
 and coordinate pending height of window sill
- 4'-0" High Shelving Unit - 4 Tier (4 shelves)
- 6'-0" High Shelving Unit - 5 Tier (5 Shelves)
 also 5'-6" High, pending on vendor - verify with vendor
 and HSPLS to see if shelf to shelf height is acceptable
 and HSPLS to see if shelf to shelf height is acceptable
- 3 typical Shelving Units - 24", 30" and 36" (wide)
 The following information was provided by HSPLS
 on 05.04.11:
 20 books per linear foot (JC)
 10 books per linear foot (AC and YA)

SHELVING TYPE

SHELVING TYPE	SHELVING SIZE	Width x Depth x Height
S01a - 3 Tier Single Sided	24 x 12 x 36	- Juvenile's area
S01b - 3 Tier Double Sided	24 x 24 x 36	- Juvenile's area
S02a - 3 Tier Single Sided	30 x 12 x 36	- Juvenile's area
S02b - 3 Tier Double Sided	30 x 24 x 36	- Juvenile's area
S03a - 3 Tier Single Sided	36 x 12 x 36	- Juvenile's area
S03b - 3 Tier Double Sided	36 x 24 x 36	- Juvenile's area
S04a - 4 Tier Single Sided	24 x 12 x 48	- Juvenile's area/at perimeter windows at other
S04b - 4 Tier Double Sided	24 x 24 x 48	- Juvenile's area/at perimeter windows at other
S05a - 4 Tier Single Sided	30 x 12 x 48	- Juvenile's area/at perimeter windows at other
S05b - 4 Tier Double Sided	30 x 24 x 48	- Juvenile's area/at perimeter windows at other
S06a - 4 Tier Single Sided	36 x 12 x 48	- Juvenile's area/at perimeter windows at other
S06b - 4 Tier Double Sided	36 x 24 x 48	- Juvenile's area/at perimeter windows at other
S07a - 5 Tier Single Sided	24 x 12 x 72	- Adult and Young Adult areas
S07b - 5 Tier Double Sided	24 x 24 x 72	- Adult and Young Adult areas
S08a - 5 Tier Single Sided	30 x 12 x 72	- Adult and Young Adult areas
S08b - 5 Tier Double Sided	30 x 24 x 72	- Adult and Young Adult areas
S09a - 5 Tier Single Sided	36 x 12 x 72	- Adult and Young Adult areas
S09b - 5 Tier Double Sided	36 x 24 x 72	- Adult and Young Adult areas

rev date	TYPE	DESCRIPTION (Tier, Side)	DIM (W x H)	QTY	LF (PER SHELF)	DOUBLE SIDE (X2)	SHELVES PER UNIT	BOOKS PER LF (FACTOR)	TOTAL BOOKS PER	TOTAL
06.14.11	JC	stack area along perimeter window wall								
06.15.11	S01a	3 Tier, Single below window	24 x 36	2	4	****	3	20	240.00	
06.16.11	S02a	3 Tier, Single below window	30 x 36	14	35	****	3	20	2,100.00	
07.04.11	S03a	3 Tier, Single below window	36 x 36	2	6	****	3	20	360.00	
07.12.11									2,700.00	
08.02.11	JC	stack area along perimeter wall								
	S07a	5 Tier, Single at perimeter	24 x 72	0	0	****	5	20	0.00	
	S08a	5 Tier, Single at perimeter	30 x 72	5	12.5	****	5	20	1,250.00	
	S09a	5 Tier, Single at perimeter	36 x 72	18	54	****	5	20	5,400.00	
									6,650.00	
	JC	double stack area								
	S01a	3 Tier, Single at endcap	24 x 36	9	18	****	3	20	1,080.00	
	S01b	3 Tier, Double	24 x 36	8	16	2	3	20	1,920.00	
	S02b	3 Tier, Double	30 x 36	11	27.5	2	3	20	3,300.00	
	S03b	3 Tier, Double	36 x 36	52	156	2	3	20	18,720.00	
				121	329				25,020.00	34,370.00

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- 4'-0" High Shelving Unit - 4 Tier (4 shelves)
- 6'-0" High Shelving Unit - 5 Tier (5 shelves)
 also 5'-6" High, pending on vendor - verify with vendor and HSPLS to see if shelf to shelf height is acceptable and HSPLS was provided by HSPLS
- 3 typical Shelving Units - 24", 30" and 36" (wide)
 The following information was provided by HSPLS on 05.04.11:
 20 books per linear foot (JC)
 10 books per linear foot (AC and YA)

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S02a - 3 Tier Single Sided	30 x 12 x 36 - Juvenile's area
S02b - 3 Tier Double Sided	30 x 24 x 36 - Juvenile's area
S03a - 3 Tier Single Sided	36 x 12 x 36 - Juvenile's area
S03b - 3 Tier Double Sided	36 x 24 x 36 - Juvenile's area
S04a - 4 Tier Single Sided	24 x 12 x 48 - Juvenile's area/at perimeter windows at other
S04b - 4 Tier Double Sided	24 x 24 x 48 - Juvenile's area/at perimeter windows at other
S05a - 4 Tier Single Sided	30 x 12 x 48 - Juvenile's area/at perimeter windows at other
S05b - 4 Tier Double Sided	30 x 24 x 48 - Juvenile's area/at perimeter windows at other
S06a - 4 Tier Single Sided	36 x 12 x 48 - Juvenile's area/at perimeter windows at other
S06b - 4 Tier Double Sided	36 x 24 x 48 - Juvenile's area/at perimeter windows at other
S07a - 5 Tier Single Sided	24 x 12 x 72 - Adult and Young Adult areas
S07b - 5 Tier Double Sided	24 x 24 x 72 - Adult and Young Adult areas
S08a - 5 Tier Single Sided	30 x 12 x 72 - Adult and Young Adult areas
S08b - 5 Tier Double Sided	30 x 24 x 72 - Adult and Young Adult areas
S09a - 5 Tier Single Sided	36 x 12 x 72 - Adult and Young Adult areas
S09b - 5 Tier Double Sided	36 x 24 x 72 - Adult and Young Adult areas

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YA stack area along perimeter wall										
	S04a	4 Tier, Single at perimeter	24 x 48	0	0	****	4	10	0.00	
	S05a	4 Tier, Single at perimeter	30 x 48	8	20	****	4	10	800.00	
	S06a	4 Tier, Single at perimeter	36 x 48	2	6	****	4	10	240.00	
	S06a	5 Tier, Single at perimeter	24 x 72	0	0	****	5	10	0.00	
	S08a	5 Tier, Single at perimeter	30 x 72	7	17.5	****	5	10	875.00	
	S09a	5 Tier, Single at perimeter	36 x 72	17	51	****	5	10	2,550.00	
									4,465.00	
YA double stack area										
	S04a	4 Tier, Single at endcap	24 x 48	6	12	****	4	10	480.00	
	S04b	4 Tier, Double	24 x 48	1	2	2	4	10	160.00	
	S05b	4 Tier, Double	30 x 48	5	12.5	2	4	10	1,000.00	
	S06b	4 Tier, Double	36 x 48	8	24	2	4	10	1,920.00	
	S07a	5 Tier, Single at endcap	24 x 72	12	24	****	5	10	1,200.00	
	S07b	5 Tier, Double	24 x 72	5	10	2	5	10	1,000.00	
	S08b	5 Tier, Double	30 x 72	****	0	2	5	10	0.00	
	S09b	5 Tier, Double	36 x 72	36	108	2	5	10	10,800.00	
				107					16,560.00	21,025.00

Shelving and Book Count

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- 4'-0" High Shelving Unit - 4 Tier (4 shelves)
- 6'-0" High Shelving Unit - 5 Tier (5 Shelves)
 also 5'-6" High, pending on vendor - verify with vendor
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- S03b - 3 Tier Double Sided
- S04a - 4 Tier Single Sided
- S04b - 4 Tier Double Sided
- S05a - 4 Tier Single Sided
- S05b - 4 Tier Double Sided
- S06a - 4 Tier Single Sided
- S06b - 4 Tier Double Sided
- S07a - 5 Tier Single Sided
- S07b - 5 Tier Double Sided
- S08a - 5 Tier Single Sided
- S08b - 5 Tier Double Sided
- S09a - 5 Tier Single Sided
- S09b - 5 Tier Double Sided

SHELVING SIZE Width x Depth x Height

- 24 x 12 x 36 - Juvenile's area
- 24 x 24 x 36 - Juvenile's area
- 30 x 12 x 36 - Juvenile's area
- 30 x 24 x 36 - Juvenile's area
- 36 x 12 x 36 - Juvenile's area
- 36 x 24 x 36 - Juvenile's area
- 24 x 12 x 48 - Juvenile's area/at perimeter windows at other
- 24 x 24 x 48 - Juvenile's area/at perimeter windows at other
- 30 x 12 x 48 - Juvenile's area/at perimeter windows at other
- 30 x 24 x 48 - Juvenile's area/at perimeter windows at other
- 36 x 12 x 48 - Juvenile's area/at perimeter windows at other
- 36 x 24 x 48 - Juvenile's area/at perimeter windows at other
- 24 x 12 x 72 - Adult and Young Adult areas
- 24 x 24 x 72 - Adult and Young Adult areas
- 30 x 12 x 72 - Adult and Young Adult areas
- 30 x 24 x 72 - Adult and Young Adult areas
- 36 x 12 x 72 - Adult and Young Adult areas
- 36 x 24 x 72 - Adult and Young Adult areas

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	AC stack area along perimeter wall										
	S04a	4 Tier, Single at perimeter	24 x 48	0	0	****	4	10	0.00		
	S05a	4 Tier, Single at perimeter	30 x 48	8	20	****	4	10	800.00		
	S06a	4 Tier, Single at perimeter	36 x 48	2	6	****	4	10	240.00		
	S06a	5 Tier, Single at perimeter	24 x 72	0	0	****	5	10	0.00		
	S08a	5 Tier, Single at perimeter	30 x 72	9	22.5	****	5	10	1,125.00		
	S09a	5 Tier, Single at perimeter	36 x 72	16	48	****	5	10	2,400.00		
									4,565.00		
	AC double stack area										
	S04a	4 Tier, Single at endcap	24 x 48	8	16	****	4	10	640.00		
	S04b	4 Tier, Double	24 x 48	2	4	2	4	10	320.00		
	S05b	4 Tier, Double	30 x 48	7	17.5	2	4	10	1,400.00		
	S06b	4 Tier, Double	36 x 48	12	36	2	4	10	2,880.00		
	S07a	5 Tier, Single at endcap	24 x 72	12	24	****	5	10	1,200.00		
	S07b	5 Tier, Double	24 x 72	5	10	2	5	10	1,000.00		
	S08b	5 Tier, Double	30 x 72	****	0	2	5	10	0.00		
	S09b	5 Tier, Double	36 x 72	36	108	2	5	10	10,800.00		
				117					18,240.00	22,805.00	

78,200.00



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B. ARCHITECTURAL

- 1. DESIGN REFERENCESB-2
- 2. EXTERIOR MATERIALSB-2
- 3. INTERIOR MATERIALSB-2

ATTACHMENTS

- A. NONE AT THIS TIME



B. ARCHITECTURAL

1. DESIGN REFERENCES

IBC	International Building Code, International Conference of Building Officials, 2006 Edition, with local amendments
LUO	City and County of Honolulu's Land Use Ordinance - October 2010
ADAAG	American with Disabilities Act, and Architectural Barriers Act Accessibility Guidelines : Dated July, 23 2004
LEED	LEED Version 3.3, 2009 Edition

2. EXTERIOR MATERIALS

- Exterior walls and columns: unpainted, but sealed textured concrete masonry unit (CMU)
- Windows up to 8 feet: double glazed, tinted, 'Low-E 'glass with aluminum frame
- Windows above 8 feet: Double layered polycarbonate (CPI)
- Clerestory: Double layered polycarbonate (CPI)
- Roof: standing seam metal roof with 'cool roof' color
- Soffit: architectural soffit panels
- Columns on the exterior: CMU painted
- Grilled gates at entries: the two pedestrian gates, one from the intersection and the other from the parking will be of painted galvanized steel bars in the form of a design that is to be determined.
- Walkways including exterior covered entry: rock salt concrete washed down

3. INTERIOR MATERIALS

- Entry lobby floors between restrooms and Program Room: stained concrete
- Program Room: stained concrete
- Main reading room and book stack area: combination of carpet tile and rubber flooring



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- Work/Receiving Room: vinyl composition tile
- Free-standing columns: poured in place unpainted, Sonotube columns
- Interior perimeter walls up to 10 feet: painted gypsum board
- Interior perimeter walls above 10 feet: exposed CMU unpainted
- Interior partitions: painted gypsum board
- Ceiling in main program space: acoustical panels with exposed steel roof purlins
- Ceiling in Work/Receiving Room and Program Room: suspended 2x4 acoustical ceiling tile
- Beams and zero force members in main program space: exposed steel members
- Sliding glass doors in program room: double glazed, 'Low-E' sliding glass doors, OXXO opening configuration for each.
- Sliding glass door to the children's reading room to be single glaze sliding glass door in OXXO configuration.
- Wainscot in restrooms: FRP panels
- Floors in restrooms: 2x2 mosaic, ceramic tile with 4 inch tile base
- Cabinets and built in counters: all plywood boxes formaldehyde-free construction
- Counter top at circulation desk: stained polished concrete
- Front face of circulation desk facing public: corrugated metal roofing panels



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C. CIVIL

1.	GENERAL DESCRIPTION	C-2
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4.	WATER SYSTEM.....	C-3
5.	DRAINAGE SYSTEM	C-3
6.	SEWER SYSTEM.....	C-4

ATTACHMENTS

- A. NONE AT THIS TIME



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C. CIVIL

1. GENERAL DESCRIPTION

The project site consists of 5 separate lots; TMK: 9-5-078: 001, 002, 003, 004, and 005 with a total land area of 2.25 acres. Site elevations range from approximately 102-feet MSL on the Southern corner to 140-feet MSL on the Northern corner. The majority of the lot is fairly level with an average slope of 2%, this area will represent the developable portion of the lot.

The proposed Library will be situated on the West section which is the lower portion of the lot. The parking for the facility will be on the upper East side. Due to the extreme grade differential, sloped embankments will be required on the perimeter, in addition retaining walls may be required in isolated areas.

2. DESIGN REFERENCES

This project will follow all State and County regulations in regards to site development, utility infrastructure, grading, erosion control, and water quality. The following standards will be employed:

- Standard Specifications for Public Works Construction, September 1986, Department of Public Works C&C of Honolulu.
- Standard Details for Public Works Construction, September 1984, Department of Public Works C&C of Honolulu.
- Water System Standards, 2002, Board of Water Supply C&C of Honolulu.
- Design Standards of the Department of Wastewater Management, Volume 1, July 1993, C&C of Honolulu
- Best Management Practices Manual for Construction Sites in Honolulu, May 1999, C&C of Honolulu
- Rules Relating to Storm Drainage Standards, January 2000, C&C of Honolulu.
- Rules Relating to Soil Erosion Standards and Guidelines, April 1999, C&C of Honolulu.
- Hawaii Administrative Rules, Chapter 11-55, Water Pollution Control, State of Hawaii
- Uniform Fire Code, 1998 Edition
- Americans with Disabilities Act and Architectural Barriers Act Accessibility Guidelines, July 23, 2004, United States Access Board.



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3. **EROSION CONTROL**

Temporary erosion control from construction activities will be designed as per State and County standards. Monitoring during construction shall be required from the Contractor to ensure that the minimum standards are employed at all times and that the erosion, sediment, pollutants and runoff is controlled so that it does not impact the adjacent properties, streets and waterways.

Permanent erosion controls which will be utilized in the site development will include impervious surfaces, landscaping ground cover and drainage facilities which are deemed necessary to ensure that the potential loss due to erosion is minimized to the maximum extent practical.

4. **WATER SYSTEM**

The water system shall be designed per Board of Water Supply and the Honolulu Fire Department standards. All water service will come off of the domestic municipal water system located in Pohai Place.

Domestic water service will provided off a single water meter. A reduced pressure backflow preventer will be utilized to ensure that cross connection protection is provided to the municipal water system.

Irrigation water service will be provided off of the same water meter used for the domestic service. An additional backflow prevention device will be utilized to ensure that the domestic service is protected from the irrigation service.

Fire protection water will be provided off a separate water meter. The building will be protected by a sprinkler system. A new onsite fire hydrant will be provided in the parking lot to provide additional fire protection coverage to the back corner of the building. The existing off site fire hydrants located on the adjacent streets will provide adequate coverage for the street sides of this project.

5. **DRAINAGE SYSTEM**

As per county standards the increase in storm water runoff generated from the project will be contained within the site. The use of water retention tactics such as drywells, French drains, and open areas will be utilized to allow percolation of the collected runoff into the ground. Where possible, open drainage will be used to minimize the maintenance requirements.



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6. SEWER SYSTEM

The sewer system will be designed per the Wastewater Branch, DPP design standards. The sewer will be conveyed into the municipal sewage system in Pohai Place. As there is no kitchen or industrial activity at this facility a grease trap / oil interceptor is not required nor being installed.



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D. LANDSCAPE

1. LANDSCAPE D-2
2. IRRIGATION..... D-3

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D. LANDSCAPE

1. LANDSCAPE

The landscaping will maintain views from the building, lanai and parking areas while providing needed shade and cooling of the site. The overall goal of the landscape design is to create an attractive and safe learning and educational environment for children, parents and library staff. The main landscape emphasis is sustainability through use of drought tolerant and low maintenance trees, shrubs and groundcovers. The landscaping will define and visually integrate the library, outdoor seating areas, walkways and roadways. The landscaping also serves to accentuate and unify the interface with the surrounding streetscape and community. The landscaping provides an exciting environment for the library while providing an attractive and cohesive streetscape.

The developing landscaping accentuates the entry and views to the outdoors. Medium-sized canopy trees will be placed along the south side of the building to provide screening from the roadways, while leaving the cool trade winds and Kona winds reasonably unobstructed. Shrub and hedge planting also provides to enhance the sense of entry while providing a sense of privacy and noise buffering from the adjacent street. The landscape design visually enhances and complements the existing landscaping within the community. Planting adjacent to the building will consist primarily of medium and small canopy trees with accent groundcover areas at entry points to the buildings, parking areas and seating areas. The tree planting will provide much needed shade and cooling from the mid-day and afternoon sun.

The proposed landscaping will provide an attractive, functional and low maintenance environment of lawn, flowering groundcovers and shrub plantings along with medium canopy shade trees. Drought tolerant canopy shade trees in the parking area provide definition and shade to pavement, vehicles and pedestrians. The proposed parking area tree planting meets the Land Use Ordinance requirements of one tree for every six parking stalls. Hedge planting and canopy trees will be provided between the parking area and the roadway to provide screening and shading.

Plant selection criteria for the site is based on drought, salt, and wind tolerances and non-toxic, thorn-less and non-invasive species. Simple and minimal maintenance requirements and the ability to succeed under the natural climatic, soil and growing conditions at the site are important selection characteristics to minimize water and pesticide requirements. Native Hawaiian plants are given priority consideration.



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2. IRRIGATION

A permanent, potable spray head irrigation system is provided for the project.



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F. STRUCTURAL

1.	STRUCTURAL SYSTEM.....	F-2
2.	DESIGN REFERENCES	F-2
3.	STRUCTURAL MATERIALS.....	F-2
4.	STRUCTURAL ANALYSIS AND DESIGN.....	F-3
5.	PERFORMANCE CRITERIA	F-4



F. STRUCTURAL

1. STRUCTURAL SYSTEM

The roof framing system consists of metal deck on structural steel purlins supported by structural steel beams and girders, supported by interior circular and square concrete columns and exterior CMU walls and pilasters. The foundation system consists of a concrete slab-on-grade, wall footings, and spread footings. The lateral system consists of CMU shear walls.

2. DESIGN REFERENCES

IBC	2006 International Building Code with local amendments
ASCE	American Society of Civil Engineers Standard 7-05, Minimum Design Loads for Buildings and Other Structures
ACI 318	American Concrete Institute Building Code Requirements for Structural Concrete and Commentary
ACI 530	American Concrete Institute Building Code Requirements for Masonry Structures and Commentary
AISC	American Institute of Steel Construction Manual, Thirteenth Edition
AISI	American Iron and Steel Institute, North American Specification for the Design of Cold-formed Steel Structural Members

3. STRUCTURAL MATERIALS

a. Concrete

- Foundation: 3000 psi
- Slabs-on-Grade: 4000 psi
- Columns: 4000 psi

b. Reinforcing Steel: ASTM A615, Grade 60

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c. Structural Steel

- Wide Flange Sections: ASTM A992
- Steel Tubes: ASTM A500, Grade B
- Miscellaneous Steel: ASTM A36
- High-Strength Bolts: ASTM A325, Type N
- Threaded Rods: ASTM A36
- Anchor Bolts: ASTM F1554 Grade 36

d. Concrete Masonry

- Units: ASTM C90 Type II Normal Weight, 1500 psi
- Mortar: Type M, 2500 psi
- Grout: 2500 psi

e. Metal Deck

- Steel Sheets: ASTM 653 Sq Grade 33

f. Cold-formed Steel

- 16, 14, & 12 Gauge Members: ASTM A1003 Sq Grade 50
- 20 & 18 Gauge Members: ASTM A1003 Sq Grade 33

4. STRUCTURAL ANALYSIS AND DESIGN

a. Gravity Loads

- Roof Live Load: 20 psf

b. Lateral Loads

- Wind

- a. Exposure: B
- b. Basic Wind Speed: 105 mph
- c. Importance Factor: 1.15
- d. Internal Pressure Coefficient: 0.18

- Seismic

- a. Importance Factor: 1.25
- b. Mapped spectral response accelerations
 - i. S_s 0.609



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- ii. S1 0.175
- c. Spectral response coefficients
 - i. Sds 0.533
 - ii. Sd1 0.245
- d. Seismic Design Category: D
- e. Basic Seismic force resisting system:
Special Reinforced Masonry Shearwalls
- f. Design Base Shear: 104 kips
- g. Seismic Response Coefficient: 0.134
- h. Response Modification Factor: 5.0
- i. Analysis Procedure:
Equivalent Lateral Force Procedure

c. Foundation Design: Per Soils Investigation by Field Services

- Allowable Bearing Capacity

- a. Dead and Live Load: 2500 psf
- b. Dead, Live, & Seismic/Wind Load: 3333 psf

5. PERFORMANCE CRITERIA

a. Deflection Limitations

- Roof Members

- a. Dead Load
- b. Live Load: L/360
- c. Dead & Live Load: L/240

- Wall Members

- a. Wind Load: L/180



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G. MECHANICAL - PLUMBING

1. GENERAL DESCRIPTION G-2
2. DESIGN REFERENCES G-2
3. PLUMBING DESIGN G-3

ATTACHMENTS

- A. NONE AT THIS TIME



G. MECHANICAL - PLUMBING

1. GENERAL DESCRIPTION

This section is reserved for the description of the plumbing system.

2. DESIGN REFERENCES

IBC	International Building Code, International Conference of Building Officials, 2006 Edition, with local amendments
UPC	Uniform Plumbing Code, International Conference of Building Officials, 1991 Edition, with local amendments
DOH	Hawaii State Department of Health, Chapter 39 Air Conditioning and Ventilation 1983, ASHRAE Standard 62
ASHRAE	American Society of Heating, Refrigeration and Air-Conditioning Engineers, HandBooks
ADAAG	American with Disabilities Act, and Architectural Barriers Act Accessibility Guidelines : Dated July, 23 2004
LEED	LEED Version 3.3, 2009 Edition



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3. PLUMBING DESIGN

Under LEED Guidelines, ultra low flow fixtures are provided. The water closets use 1.28 gallons per flush and the urinals use 1.0 gallons per flush.

- a. **Men's Restroom:**
Water Closets: 1 accessible, 1 standard
Urinal: 1 accessible, 1 standard
Lavatory: 1 accessible, 2 standard
- b. **Women's Restroom:**
Water Closets: 1 accessible, 3 standard
Lavatory: 1 accessible, 2 standard
- c. **Janitor's:**
Mop Sink: 1 floor mounted
- d. **Janitor's Closet:**
Mop Sink: 1 floor mounted
- e. **Lounge:**
Single Compartment Sink: 1 accessible
- f. **Staff Restroom:**
Water Closets: 1 accessible
Lavatory: 1 accessible
- g. **Family Restroom:**
Water Closets: 1 accessible
Lavatory: 1 accessible
- h. **Miscellaneous:**
Electric Water Cooler: 2 accessible (Dual height fixture)

Hose bibbs will be provided in each gang toilet to assist with cleaning.



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H. MECHANICAL – HVAC

1. GENERAL DESCRIPTION H-2
2. DESIGN REFERENCES H-2
3. AIR CONDITIONING SYSTEMS H-3
4. VENTILATION H-4
5. CONTROLS H-4

ATTACHMENTS

- A. NONE AT THIS TIME



H. MECHANICAL - HVAC

1. GENERAL DESCRIPTION

This section describes the basis for design of the Air conditioning and ventilation systems. The mechanical systems are designed with the intent to provide simple operation and keep maintenance requirements low. The LEED guidelines are used in the design of the mechanical systems to achieve sustainability.

2. DESIGN REFERENCES

IBC	International Building Code, International Conference of Building Officials, 2006 Edition, with local amendments
DOH	Hawaii State Department of Health, Chapter 39 Air Conditioning and Ventilation 1983, ASHRAE Standard 62
ASHRAE	American Society of Heating, Refrigeration and Air-Conditioning Engineers, HandBooks
SMACNA	Sheet Metal & Air Conditioning Contractor's National Association, Standards
ADAAG	American with Disabilities Act, and Architectural Barriers Act Accessibility Guidelines : Dated July, 23 2004
LEED	LEED Version 3.3, 2009 Edition
NFPA	NATIONAL FIRE PROTECTION ASSOCIATION NFPA 90A Installation of A/C and Ventilation Systems



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3. AIR CONDITIONING SYSTEMS

The mechanical design is based on a fully air conditioned building for occupant comfort. The air conditioning system is not designed to instantly cool the building, but to maintain temperature. The air conditioning system is designed to maintain 75°Fdb and 50% relative humidity. Depending on the outside air conditions and usage of the library the temperature and humidity will fluctuate.

The LEED Guidelines recommend that zone controls be employed to provide flexibility between occupied and unoccupied spaces / zones; for example, using variable air volume boxes. This however would increase the amount of equipment required for the system; a constant volume system will be employed for this facility.

The library will be divided into three (3) zones to ensure that the air conditioning systems is designed to properly serve the function and occupancies of the spaces. To improve the efficiency of the air conditioning systems, an air cooled chiller will produce chilled water and circulate to the air handling equipment.

A thirty (30) ton air handler will be provided to serve the main program or book stack space, circulation space and reading room.

A five (five) ton air handler will be provided to serve the Receiving /Work room, Lounge, and Office areas.

The separate Program (Meeting) Room will be provided with a separate 5 ton split system. This is to allow the space to be used during times when the main Library is not open or in operation.

Design Parameters

- 1) Summer Outdoor Design Temperature - 87°FDB, 75.6°FWB, 60% RH
- 2) Indoor Design Temperature - 75°FDB, 62.5°FWB, 50% RH
- 3) Building Orientation - All exposure directions
- 5) Outdoor Air Requirements – Used cfm per person for space activity per ASHRAE Standard 62.1 2007 and DOH Administrative Rules chapter 39.
- 7) Lighting Load – Average 2.00 watts per square foot, including ballast factor, LEED Guidelines
- 8) Equipment Heat Loads, Estimated from furniture layout
- 9) Safety Factor – 10%

A modulating damper is provided on the outside air ducts to regulate the amount of fresh air that is brought into the air conditioning system and the library. This



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will prevent the unnecessary introduction of heat and moisture into the library if fresh air is not needed. A carbon dioxide (CO₂) sensor is located on the main return air duct as well as various locations in the library to monitor the CO₂ levels. If any of the sensors are triggered, the damper will open to allow fresh air into the library. Each CO₂ sensor is also equipped with a led to alert the library occupants if CO₂ levels are high.

4. VENTILATION

In compliance with the State of Hawaii, Department of Health, the toilets are provided with exhaust fans. The toilets and storage rooms in non air conditioned areas are provided with 4.0 cubic feet per minute per square foot of floor area, exhaust ventilation. The toilets in air conditioned areas are provided with 2.0 cubic feet per minute per square foot of floor area, exhaust ventilation. The electrical rooms will be properly ventilated to maintain proper room temperature for the operation of electrical equipment

All exhaust fans are interlocked with the respective lights switches and will operate only when the areas served are occupied

1. Women's Restroom: Cabinet fan – 1000 cfm
2. Men's Restroom: Cabinet fan – 880 cfm
3. Janitor's: Cabinet Ceiling Mounted fan – 120 cfm
4. Electrical Room: Cabinet Ceiling Mounted fan - 240 cfm
5. Janitor's Closet: Cabinet Ceiling Mounted fan – 100 cfm
6. Electrical Room: Cabinet Ceiling Mounted fan - 120 cfm
7. Staff Restroom: Cabinet Ceiling Mounted fan - 140 cfm
8. Family Restroom: Cabinet Ceiling Mounted fan - 140 cfm

5. CONTROLS

All controls for the air conditioning system will be electronic. A time clock is provided so that the library can schedule when the air conditioning system turns on and off. During scheduled off hours (nights, weekends, holidays), the air conditioning system can be turned on via the bypass switch.

A direct digital control (DDC) panel is provided to interpret information from the CO₂ sensors and control the outside air modulating damper.



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J. MECHANICAL – FIRE PROTECTION

1.	GENERAL DESCRIPTION	J-2
2.	DESIGN REFERENCES	J-2
3.	FIRE PROTECTION SYSTEMS	J-2



J. MECHANICAL – FIRE PROTECTION

1. GENERAL DESCRIPTION

This section describes the basis for design of the fire protection systems.

2. DESIGN REFERENCES

IBC	International Building Code, International Conference of Building Officials, 2003 Edition, with local amendments
UPC	Uniform Plumbing Code, International Conference of Building Officials, 1991 Edition, with local amendments
DOH	Hawaii State Department of Health, Chapter 39 Air Conditioning and Ventilation 1983, Ashrae Standard 62
ASHRAE	American Society of Heating, Refrigeration and Air-Conditioning Engineers, HandBooks
SMACNA	Sheet Metal & Air Conditioning Contractor's National Association, Standards
ADAAG	American with Disabilities Act, Accessibility Guidelines, Dated July, 26 1991
LEED	U.S. Green Building Council, LEED for New Construction, Version 2.2, Reference Guide, October 2005
NFPA	National Fire Protection Association NFPA 13 Installation of Sprinkler Systems

3. FIRE PROTECTION SYSTEMS

Fire sprinkler will be located throughout the building to comply with NFPA 13 regulations and standards, based on the occupancy classification.

Hydraulic calculation will be preformed to correctly determine pipe sizing according to the available water pressure at the site. An alarm riser will be provided and connected to the fire alarm system.

Duct smoke detectors will be provided on all air handling units as required by NFPA and connected to the fire alarm system.



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K. ELECTRICAL

1.	GENERAL DESCRIPTION	K-2
2.	DESIGN REFERENCES	K-3
3.	LIGHTING.....	K-3
4.	ELECTRICAL POWER.....	K-5

ATTACHMENTS

A. NONE AT THIS TIME



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K. ELECTRICAL

1. GENERAL DESCRIPTION

1.1 WORK PLAN CRITERIA

All work shall comply with the 2008 National Electrical Code, the latest sections of the National Fire Protection Association and other codes and regulations listed in this document. The electrical installation shall comply with the Americans with Disabilities Act (ADA). The electrical installation shall be designed for seismic conditions, zone 2B.

1.2 WORK PLAN ANALYSIS

Load calculations will be provided for transformers, conductors, circuit breakers and panelboards. Systems losses are assumed to be 6 percent of the maximum load demand. A comprehensive fault study shall be submitted along with the protective device equipment submittals. The comprehensive fault study shall be performed with Easy Power or equivalent. Voltage drop for feeders shall not exceed 2% and shall not exceed 3% for branch circuits. Combined voltage drop for feeders and branch circuits shall not exceed 5 percent. Voltage drop calculations will be provided for feeders and all branch circuits over 31m (100 ft) in length. A comprehensive lighting study shall be submitted along with the lighting submittals. The comprehensive lighting study shall be performed with Visual.

1.3 AREA CLASSIFICATIONS

All areas of the Aiea Public Library are classified as non-hazardous for the purpose of the electrical equipment installation. All interior installations will utilize NEMA 1 enclosures and all exterior installations will utilize NEMA 4X stainless steel enclosures or NEMA 3R enclosures constructed of stainless steel (where NEMA 4X enclosures are not available).

1.4 GENERAL

The general electrical work plan is to provide all new electrical equipment and wiring as described in the specifications and related drawings. The building electrical systems shall be constructed complete such that all systems operate to the satisfaction of the Owner. Coordinate with outside plant primary power, telephone and LAN systems. Work shall be phased to minimize the duration and number of utility outages.



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2. DESIGN REFERENCES

NFPA 70	National Electrical Code (NEC) NFPA 70-2008
UL	Underwriters Laboratories Standards
ANSI	American National Standards Institute Standards
NEMA	National Electrical Manufacturers Association Standard
UL	Underwriters Laboratories Standards
OSHA	Occupational Safety and Health Standards Regulations
IES	Illuminating Engineering Society 10th edition
ASTM	American Society for Testing and Materials
IEEE	Institute of Electrical and Electronics Engineers

3. LIGHTING

The lighting is designed to complement the architectural design and to enhance the aesthetics of the facility.

3.1 EXTERIOR LIGHTING

All exterior lights will be photocell-controlled. Lights will be located at all entry doors within 2 m (6 feet) of the door and designed to maintain 0.5 footcandles at a distance of 4.6 m (15 feet) from the building. Exterior fixtures shall be the cut-off type and shall not create a glare hazard. Exterior fixtures will be vandal resistant, UV stabilized and have features and finishes to minimize corrosion and impact damage. Finish color shall be compatible with the color scheme of the building. Hardware shall be stainless steel.

3.2 INTERIOR LIGHTING

Interior lighting will conform to the requirements of IES standards. The maintained lighting level for each room is shown in the following table:

Area Classification (Space)	Minimum Average Lux	Minimum Average FC	Light Source
Offices spaces with task lighting	400	40	Fluorescent
Offices spaces without task lighting	509	50	Fluorescent
Library – AV	300	30	Fluorescent
Library – Reading Area	300	30	Fluorescent
Library – Stacks	300	30	Fluorescent



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Area Classification (Space)	Minimum Average Lux	Minimum Average FC	Light Source
Library - Card File and Cataloguing	300	30	Fluorescent
Corridors and lobbies	100	10	Fluorescent
Restrooms, Lockers	400	40	Fluorescent
Break Rooms	153	15	Fluorescent
Conference Rooms	300	30	Fluorescent
Storage Rooms	102	10	Fluorescent
Utility Rooms	153	15	Fluorescent
Telecommunications Rooms	509	50	Fluorescent
Exterior perimeter lighting and walkways	10	1	LED or HPS or Fluorescent
Exterior Lobbies and entryways	153	15	Fluorescent
Emergency Light Levels	31	3	Fluorescent

Finished areas such as offices will be provided with UL-listed, specification grade, 310mm x 1220mm x 100 mm (2 foot x 4 foot x 4 inch) fluorescent troffers with prismatic acrylic diffusers and electronic ballasts. Strip lights shall have zinc-coated wire guards. Lamps shall be 4100 degrees Kelvin (°K), F32T8, toxic characteristic leaching procedure (TCLP)-compliant, low-mercury with minimum color rendering index (CRI) of 82.

3.3 EMERGENCY LIGHTING

Emergency lighting will be provided for safe egress during normal power outages in accordance with the Life Safety Code, NFPA 101. Emergency lighting will be provided using self-contained, integral battery packs and a central EM inverter. Exit signs will be internally illuminated, light emitting diode (LED) type with green letters on a white background, with integral battery packs. Emergency luminaires with battery packs and exit lights will be circuited to unswitched branch lighting circuits and have integral test switches.

3.4 LIGHTING CONTROL

The lighting controls for Aiea Public Library will employ four primary strategies, intended to reduce energy consumption while providing flexibility to the occupants. These strategies include:

1. Daylight harvesting: dimming in offices and open library area.
2. Photosensor input for dimming and both interior and exterior switching
3. Manual-“on” activation in almost every space, coupled with either a(n) vacancy / occupancy sensor off or timeclock off
4. Automated astrological timeclock in lighting control relay panel



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4. ELECTRICAL POWER

4.1 EXTERIOR POWER DISTRIBUTION

The HECO primary power for the project will be tapped within existing manhole which is located on the east side of the Aiea Public Library on Pohai Place.

A HECO transformer and concrete pad will be installed on the east side of the library building.

Underground ducts will be concrete-encased, Schedule 40 conduits.

4.2 NORMAL ELECTRICAL SERVICE

A new 800A, 208Y/120V, 3-phase, service switchboard will be located in the alcove of the entry to the library

Secondary HECO service duct banks will consist of concrete-encased, Schedule 40 conduits. Secondary conductors will consist of 600V copper cables.

4.3 INTERIOR POWER DISTRIBUTION

Distribution panelboards will be dead-front design with NEMA 1 enclosures and rated for 208Y/120V, 3-phase, 4-wire, 60Hz. Distribution panelboards will be provided with bolt-on circuit breakers and equipment ground buses. Each panelboard will have 20% spare branch breakers, 25% growth capacity and a short circuit withstand rating exceeding the available fault current.

Lighting panelboards for lighting, receptacle and miscellaneous power distribution will be dead-front type for 208Y/120V, 3-phase, 4-wire applications. Each panelboard will have 20% spare branch breakers, 30% growth capacity and a short circuit withstand rating exceeding the available fault current.

Low-voltage feeders shall be 98 percent conductivity stranded copper conductors with 600V, 90°C, THWN-2 or XHHW-2 insulation. Branch circuits shall be 98 percent conductivity solid or stranded copper conductors up to and including #10 AWG and stranded copper conductors in all sizes larger than #10 AWG. Insulation shall be 600V, 90°C, THWN-2. No branch conductor shall be smaller than #12 AWG. Receptacles shall be located in offices so that there is a receptacle within 1.83 m (6 feet) of any point along the way or spaced at 6 m (20 feet) on center in corridors and common areas.



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Rigid metallic conduit will be provided in equipment rooms below 6 ft above floor and for exposed installation where subject to damage, including where vehicle traffic or similar operations. In general, above-grade concealed raceways shall be rigid galvanized steel or electrical metal tubing. Below-grade conduits shall be nonmetallic PVC or rigid galvanized steel where required by the NEC or where above-grade extensions occur. Flexible steel conduit will be used for connections to vibrating, rotating equipment or in office spaces for branch circuit wiring as permitted by code. In wet locations, flexible conduit shall be liquid-tight. Minimum conduit size shall be 16 mm (½-inch).

4.4 CENTRAL INVERTER

A central inverter will be installed for emergency power circuits.

4.5 IDENTIFICATION

Laminated phenolic plastic identification nameplates shall be provided for each panelboard, equipment enclosure, relay, switch and wiring device. Nameplates shall include apparatus ID, voltage, phase, and source panel. Nameplates shall be permanently secured to enclosures. Cable tags will be installed over fireproofing (if any) and will be located so that they are clearly visible without disturbing any cabling or wiring in the manholes, handholes, and vaults.

4.6 GROUNDING

Grounding shall be in accordance with NEC Sections 250, 500, 513 and 516. Grounding equipment shall be UL or other Nationally Recognized Testing Laboratory (NRTL) listed. Ground rods shall be copper-clad steel with a hard, clear and smooth continuous surface 3 m (10 feet) by 19 mm (¾") in diameter, minimum. System ground shall be tested to achieve a minimum grounding impedance of no more than 5 ohms. Building structural steel members, and columns will be grounded.

Electrical motor frames and the ground terminal of receptacles and lighting switches will be grounded by a separate grounding conductor installed in the raceway enclosing the branch circuit conductors. Metal frames of switchboards and transformers will be grounded by a separate grounding conductor and connected to the electrical system ground. Equipment grounding conductors shall be sized in accordance with NEC.



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L. TELECOMMUNICATIONS

- 1. GENERAL DESCRIPTIONL-2
- 2. DESIGN REFERENCESL-3

ATTACHMENTS

- A. NONE AT THIS TIME



L. TELECOMMUNICATIONS

1. GENERAL DESCRIPTION

All telecommunications components shall be UL-listed or Nationally Recognized Testing Laboratory (NRTL) certified. A complete system of telecommunications cabling and pathway components including conduits, terminal boxes, outlets, cables, junction boxes and backboards will be provided. All equipment and pathways shall be grounded and bonded as required by EIA/TIA-607 and the NEC. A cable labeling system as required by EIA/TIA-606 and UL 969 will be provided. A complete and detailed test plan will be provided including a complete list of test equipment.

The Telephone Room (TR) walls will be continuously lined with 3/4-inch thick by 48-inch wide by 96-inch tall fire-resistant plywood backboards painted with nonconductive gray paint. The fire stamp shall not be concealed. OSP cables shall be terminated on 110-type termination blocks mounted on the backboards. Twenty-five percent spare termination blocks will be provided. An isolated copper ground bus bar will be provided with a #6 AWG minimum ground wire from the electric service to the bus bar. Duplex power receptacles will be provided.

Inside plant telecommunications systems shall be installed per EIA standards and the NEC. Pathways shall be 1-inch minimum electrical metallic tubing (EMT). Telephone and LAN cables will be home run from each outlet to the TR with Category 6, 4-pair/24 AWG, 100-ohm, solid unshielded twisted pair (UTP) cables. Up to three cables maximum in one 27 mm (1-inch) conduit. Conduits will be concealed in the walls or ceiling unless architectural or structural conditions prohibit it. Conduits will be run to a basket cable tray as shown on the plans. No more than two 1.57 rad (90 degree) bends in any conduit will be made without the specific approval of the Owner. Conduit outlet bodies such as LBS will not be used. All bends must be long radius.

Telephone outlets shall be two 8-pin modular (RJ-45) connectors in a single or double gang outlet box with a 6-port white faceplate multi-user telecommunications outlet assembly (MUTOA). Three ports in the MUTOA shall be reserved for telephone (one port future) and three ports shall be reserved for LAN (see below). MUTOA shall be provided at all of the following locations:

- Workstations
- Office walls
- Fax machine locations
- Printer locations
- Computer locations
- Utility rooms



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2. DESIGN REFERENCES

NFPA 70	National Electrical Code (NEC) NFPA 70-2009
UL	Underwriters Laboratories Standards
TIA/EIA 569B	Standard for Telecommunication Pathways and Spaces
TIA/EIA 599A	Optic Fiber Cable Color Coding
TIA/EIA 606	Administration Standard for Commercial Telecom Infrastructure
TIA/EIA 607	Commercial Building Grounding (Earthing) and Bonding Requirements for Telecommunications
TIA/EIA 568-B	Commercial Building Telecommunications Wiring Standard and Amendments
BICSI	Telecommunications Distribution Methods Manual



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O. SUSTAINABLE DESIGN

1.	GENERAL DESCRIPTION	O-2
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ATTACHMENTS

- A. RAL - PRELIMINARY LEED SCORECARD**



O. SUSTAINABLE DESIGN

1. GENERAL DESCRIPTION

Per ACT 96, the 'Aiea Public Library Replacement project is required to achieve LEED Silver Certification. The project will be certified under the LEED 2009 for New Construction protocol of the United States Green Building Council. Furthermore, the owner has expressed a desire to pursue LEED Gold certification if the cost to do so is not prohibitive. Details regarding sustainable design approach for the project are available in the Eco-Charrette report, attached.

2. SUSTAINABILITY GOALS

During the Eco-Charrette held on April 14th, 2011, the design team and the owner established environmental goals for the overall project as well as goals for each LEED category.

Sustainability goals for the overall project are:

- a. **Be a beacon** for the 'Aiea community by creating a neighborhood center that demonstrates environmental responsibility
- b. **Bridge past and future** by creating a technologically sophisticated library that acknowledges the site's history and incorporates relevant artwork
- c. **Apply hierarchy** to optimize the budget and performance, prioritize strategies as follows: Energy 1st, Air quality 2nd, Materials and Site 3rd, Water 4th
- d. **Design for longevity** by building a 100-year facility that is flexible enough to accommodate change over time
- e. **Design for low maintenance** by carefully considering limited maintenance resources when selecting strategies and systems
- f. **Favor lower-tech solutions** over higher-tech solutions; keep it simple
- g. **Prepare for the future** by acknowledging changing technology in the design of infrastructure
- h. **Move forward on green spectrum** by making better environmental choices for all design choices (not pursuing perfection)

Sustainability goals for individual LEED categories are:

SITE

- a. Landscape design: emphasize low-maintenance, drought-tolerant species. Well-adapted species are preferred over native species. (Community has expressed desire for native species)
- b. Prioritize low maintenance in site design
- c. Explore low-impact development options to remediate site to pre sugar mill condition



BASIS OF DESIGN
'AIEA PUBLIC LIBRARY
REPLACEMENT FACILITY
DAGS JOB NO. 12-36-6512

- d. Design for the site's unique micro-climate, not just the region

WATER

- a. Because water will not be harvested on this project, it is especially important to reduce interior water use through the most efficient plumbing fixtures available
- b. Strive for the most efficient irrigation system possible through drought-tolerant planting and use of controls using moisture sensors

ENERGY

- a. Pursue Net Zero energy (building that produces as much power as it uses over a year's time)
- b. Right design for people, the books, and the equipment; in that order
- c. Prioritize daylighting
- d. Minimize A/C demand

MATERIALS AND INDOOR ENVIRONMENTAL QUALITY

- a. Use the following order of priority in selection of materials:
 - Regionally sourced, culturally relevant materials
 - Recycled and recyclable materials first (consider salvaged options last)
- b. Low Maintenance materials preferred
- c. 100 Year Life – Durable in Hawaii environment
- d. Promote good air quality and non-toxic environment
- e. Optimize natural daylighting design
- f. Equity: Back-of-house area should not be like a basement
- g. Zoning for different comfort needs

3. LEED SCORECARD

During the Eco-Charrette held on April 14th, 2011, the design team and the owner established a preliminary LEED scorecard as a starting point for LEED credits to pursue further. Attached is an updated scorecard reflecting revisions in the design.

LEED 2009 for New Construction and Major Renovations

Project Checklist



Aiea Public Library Replacement
27-Jul

20 3 3 Sustainable Sites Possible Points: 26

Y	?	N	Description	Points
Y			Prereq 1 Construction Activity Pollution Prevention	
1			Credit 1 Site Selection	1
5			Credit 2 Development Density and Community Connectivity	5
	1		Credit 3 Brownfield Redevelopment	1
6			Credit 4.1 Alternative Transportation—Public Transportation Access	6
1			Credit 4.2 Alternative Transportation—Bicycle Storage and Changing Rooms	1
3			Credit 4.3 Alternative Transportation—Low-Emitting and Fuel-Efficient Vehicles	3
2			Credit 4.4 Alternative Transportation—Parking Capacity	2
	1		Credit 5.1 Site Development—Protect or Restore Habitat	1
1			Credit 5.2 Site Development—Maximize Open Space	1
	1		Credit 6.1 Stormwater Design—Quantity Control	1
	1		Credit 6.2 Stormwater Design—Quality Control	1
	1		Credit 7.1 Heat Island Effect—Non-roof	1
	1		Credit 7.2 Heat Island Effect—Roof	1
	1		Credit 8 Light Pollution Reduction	1

6 4 Water Efficiency Possible Points: 10

Y	?	N	Description	Points
Y			Prereq 1 Water Use Reduction—20% Reduction	
2			Credit 1 Water Efficient Landscaping	2 to 4
	2		Credit 2 Innovative Wastewater Technologies	2
4			Credit 3 Water Use Reduction	2 to 4

5 30 Energy and Atmosphere Possible Points: 35

Y	?	N	Description	Points
Y			Prereq 1 Fundamental Commissioning of Building Energy Systems	
Y			Prereq 2 Minimum Energy Performance	
Y			Prereq 3 Fundamental Refrigerant Management	
5	14		Credit 1 Optimize Energy Performance	1 to 19
	7		Credit 2 On-Site Renewable Energy	1 to 7
	2		Credit 3 Enhanced Commissioning	2
	2		Credit 4 Enhanced Refrigerant Management	2
	3		Credit 5 Measurement and Verification	3
	2		Credit 6 Green Power	2

5 4 5 Materials and Resources Possible Points: 14

Y	?	N	Description	Points
Y			Prereq 1 Storage and Collection of Recyclables	
	3		Credit 1.1 Building Reuse—Maintain Existing Walls, Floors, and Roof	1 to 3
	1		Credit 1.2 Building Reuse—Maintain 50% of Interior Non-Structural Elements	1
1	1		Credit 2 Construction Waste Management	1 to 2
	1		Credit 3 Materials Reuse	1 to 2

Materials and Resources, Continued

Y	?	N	Description	Points
2			Credit 4 Recycled Content	1 to 2
1	1		Credit 5 Regional Materials	1 to 2
	1		Credit 6 Rapidly Renewable Materials	1
1			Credit 7 Certified Wood	1

12 2 1 Indoor Environmental Quality Possible Points: 15

Y	?	N	Description	Points
Y			Prereq 1 Minimum Indoor Air Quality Performance	
Y			Prereq 2 Environmental Tobacco Smoke (ETS) Control	
	1		Credit 1 Outdoor Air Delivery Monitoring	1
	1		Credit 2 Increased Ventilation	1
	1		Credit 3.1 Construction IAQ Management Plan—During Construction	1
	1		Credit 3.2 Construction IAQ Management Plan—Before Occupancy	1
	1		Credit 4.1 Low-Emitting Materials—Adhesives and Sealants	1
	1		Credit 4.2 Low-Emitting Materials—Paints and Coatings	1
	1		Credit 4.3 Low-Emitting Materials—Flooring Systems	1
	1		Credit 4.4 Low-Emitting Materials—Composite Wood and Agrifiber Products	1
	1		Credit 5 Indoor Chemical and Pollutant Source Control	1
	1		Credit 6.1 Controllability of Systems—Lighting	1
	1		Credit 6.2 Controllability of Systems—Thermal Comfort	1
	1		Credit 7.1 Thermal Comfort—Design	1
	1		Credit 7.2 Thermal Comfort—Verification	1
	1		Credit 8.1 Daylight and Views—Daylight	1
	1		Credit 8.2 Daylight and Views—Views	1

3 2 1 Innovation and Design Process Possible Points: 6

Y	?	N	Description	Points
1			Credit 1.1 Innovation in Design: EA C1	1
1			Credit 1.2 Innovation in Design: Green Building Education Plan	1
1			Credit 1.3 Innovation in Design: Green O&M Manual	1
	1		Credit 1.4 Innovation in Design: Specific Title	1
	1		Credit 1.5 Innovation in Design: Specific Title	1
1			Credit 2 LEED Accredited Professional	1

1 3 Regional Priority Credits Possible Points: 4

Y	?	N	Description	Points
1			Credit 1.1 Regional Priority: EA C1	1
	1		Credit 1.2 Regional Priority: EA C2	1
	1		Credit 1.3 Regional Priority: SS C6.1	1
	1		Credit 1.4 Regional Priority: Specific Credit	1

52 44 14 Total Possible Points: 110

Certified 40 to 49 points Silver 50 to 59 points Gold 60 to 79 points Platinum 80 to 110

