REFER TO THE PRELIMINARY DESIGN DRAWINGS FOR COLOR ACCENT SHINGLES

Beach Cities Health District allcove

Basis of Design

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February 28, 2024

BCHD Beach Cities Health District
A Public Agency

TABLE OF CONTENTS

allcove Beach Cities Aerial View

INTRODUCTION

ALLCOVE BEACH CITIES

Beach Cities Health District

Beach Cities Health District (BCHD) is one of the leading preventative health agencies in the nation, having successfully provided preventative health services for over 25 years. Their Mission is to enhance community health through partnerships, programs and services for people who live and work in Hermosa Beach, Manhattan Beach and Redondo Beach. Their Vision is for "A healthy beach community."

allcove

allcove is a space for youth to find community, support, advice or even just a moment of pause. allcove programs support young people ages 12 to 25 with mild to moderate needs through mental, physical and sexual health counseling, substance abuse treatment, education support, career coaching, peer and family support, life skills and wellness, community and social support.

Pursuing a vision where every youth belongs, chooses the support they need and thrives, allcove is developing an innovative network of integrated youth mental health centers designed with, by and for youth that reduce stigma, embrace mental wellness, increase community connection and provide access to culturally responsive services. allcove centers serve as a safe place, anchored in a model of care that considers the holistic needs of young people.

The name - allcove

all: Communicates inclusivity and togetherness – spaces are for all young people, no matter what emotions you are feeling.

cove: A space surrounded by protection – a metaphor for the safe but open space that allcove provides to all.

allcove Beach Cities

The center is the result of a collaboration between the Stanford Center for Youth Mental Health and Wellbeing, the State of California's Mental Health Services Oversight and Accountability Commission (MHSOAC) and Beach Cities Health District (BCHD). allcove Beach Cities is the first allcove center in southern California.

Mission Statement for allcove Beach Cities

Create a healthy and sustainable center of excellence that encourages innovation and emerging technologies, demonstrates the "space as therapy," and prioritizes inclusivity and accessibility for young people utilizing allcove Beach Cities. The allcove model is a network of integrated youth mental health centers designed with, by, and for youth that reduces stigma, embraces mental wellness, increases community connection, and provides access to culturally-responsive services.

Building Program

The project includes a new youth wellness center 'allcove Beach Cities" building that will provide local young people with direct access to a wide range of emotional, mental, physical and social support services—on their own terms. This new roughly 9,400 square foot modular building will be two stories and include offices, conference facilities, open lounge space, and group chat rooms.

Site

The project site is located at 1272 Beryl Street in Redondo Beach, at the southwest corner of Beryl Street and Flagler Lane, and is part BCHD's Healthy Living Campus master plan. Project site scope of work includes utilities, grading, paving, retaining walls, landscaping, vehicle and eBike charging stations, site lighting and other site development items, as per the preliminary design documents.

PLANNING PROCESS

PLANNING PROCESS

allcove Beach Cities Health District

allcove Beach Cities opened November 1, 2022, in a temporary location on the Beach Cities Health District Campus in Redondo Beach, offering mental and physical health services, education and employment assistance, peer and family support, and substance use prevention programs for young people in the greater South Bay. The centerpiece of the allcove center is "the cove," a common area where young people can hang out with friends, participate in wellness activities, arts and crafts, games, movie nights, open mic nights, meditation and more.

The new, permanent location for allcove Beach Cities will be at 1272 Beryl Street in Redondo Beach, at the southwest corner of Beryl Street and Flagler Lane and is part BCHD's Healthy Living Campus master plan.

The roughly 9,400 square foot, two-story allcove center will be the first building constructed as part of the Healthy Living Campus revitalization,

Turner & Townsend Heery

Turner & Townsend Heery has provided project management services for BCHD and is managing the progressive design build solicitation and construction adinistration process.

Blue Mountain Development

Blue Mountain Development has provided planning process consulting services for BCHD and has served as the lead point of contact with the City of Redondo Beach. Due to the State grant requirements for the allcove facility, the City Planning Department has no discretionary authority. The City of Redondo Beach Planning Department has conducted their review of the preliminary design and signed off on general compliance with the city's planning requirements, a prerequisite for city building department review.

Submission for City, County, State and all relevant approvals is the responsibility of the design build team.

For Strategy

For Strategy has developed the Owner's Project Requirements (OPR) in coordination with the design team and BCHD. The OPR outlines two levels of sustainable design performance. This Basis of Design assumes the base design. More aspirational measures are pending additional funding.

Progressive Design Build Delivery

BCHD is seeking Statements of Qualifications (SOQ) and price proposals from Progressive Design Build Entities to provide technical design, preconstruction, and construction services for the allcove Beach Cities project The District intends to select a qualified Design Build Entity that will be responsible for assembling a team consisting of a general contractor, modular building firm, architect, engineers and other subconsultants and key team members.

This **Basis of Design** (BoD) presents a general narrative of design criteria expected for the project. It is one of three documents that form the Preliminary Design, dated February 28, 2024:

- Basis of Design
- Project Specifications
- Preliminary Design Drawings

Each of these bridging documents should be understood in relationship to each other as part of a whole design. Refer to additional BCHD-documents with the RFP for further project requirements.

BUILDING PROGRAM

BUILDING PROGRAM

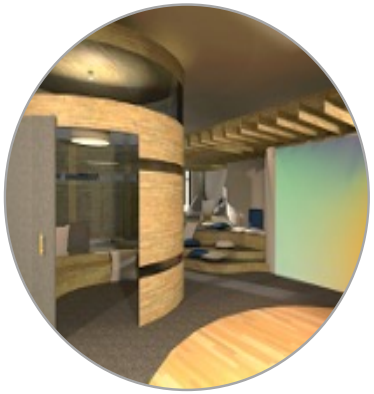
The space program for the building has been developed with allcove Beach Cities staff and the Youth Advisory Group. Their experience operating the allcove facility on the 4th floor of 514 N. Prospect Avenue and the allcove Facilities Guide have informed priorities, space sizes and relationships. The diagram below outlines key experiences for the facility.

The space program on the following page illustrates key relationships and distribution of spaces by floor. The space program table on the following page includes the mix of spaces that form the basis of the preliminary building design. The total area has been slightly reduced to fall within the allowable Floor Area Ratio for the site development.

Key experiences

Entrance and check-in

Transition from the chaos of the outside world into a space of welcoming and supportive comfort.



The cove

Take a breath, collect your thoughts, and simply exist.

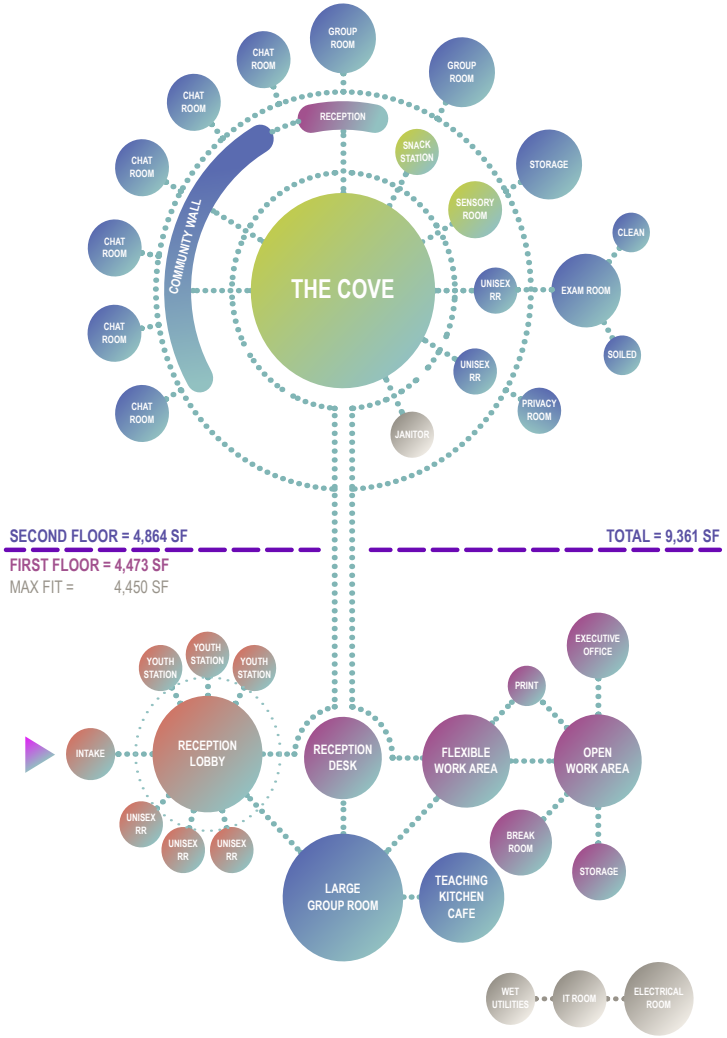
Private conversation

Visit with relatable professionals in an environment that makes you feel comfortable being your true self.

Flex services

Connect with trusted resources to develop yourself and your situation.

BUILDING SPACE PROGRAM



#	FUNCTIONAL AREA / ROOM NAME	AREA SQ. FT.	QUANTITY	PROGRAM SQ. FT.	COMMENTS
ENTRANCE - introduction and check-in				**860**	
A-01	Intake - Secure Check-in	100	1	100	Security Guard + Literature
A-02	Lobby - Reception	400	1	400	Flexible use
A-03	Youth Workstations	80	3	240	For Youth or Parents use
A-04	Gender Neutral Restrooms	60	2	120	Patrons + Staff
GROUP AND PRIVATE CONVERSATION ROOMS				**840**	
A-21	Large Group Meeting Room (25 seats)	600	1	600	Usable by Staff for Meetings
A-25	Teaching Kitchen / Café - Coffee Station	240	1	240	Usable by Staff
STAFF				**1,390**	
A-30	Staff Welcome - Reception Desk	250	1	250	View of Lobby
A-31	Flexible Staff Work Area	80	4	320	View of Reception Desk
A-32	Open work Area	80	4	320	
A-33	Printer/Copier	60	1	60	
A-34	Executive Offices	160	1	160	1-2 requested
A-35	Kitchenette + Breakroom	160	1	160	
A-36	Storage	120	1	120	
UTILITY				**420**	
A-40	Electrical Room	200	1	200	
A-41	Wet Utility Room	100	1	100	
A-42	IT Server Room	120	1	120	
	SUBTOTAL			3,510	
	EFFICIENCY FACTOR (26%)			913	
	FIRST FLOOR TOTAL			**4,423**	4,450sf max

#	FUNCTIONAL AREA / ROOM NAME	AREA SQ. FT.	QUANTITY	PROGRAM SQ. FT.	COMMENTS
THE COVE - rest, reset, explore				**1,600**	
A-10	The Cove (50 people)	1,400	1	1,400	Controlled Access - Lobby
A-11	Snack Station	80	1	80	Alcove off the Cove
A-13	Sensory Room	120	1	120	Alone but Connected
GROUP AND PRIVATE CONVERSATION ROOMS				**2,060**	
A-20	Community Wall - Circulation	400	1	400	
A-23	Group Rooms (5-7 people)	160	2	320	
A-22	Chatting Rooms (2-4 people)	120	6	720	
A-24	Physical Care Room - Exam Room	180	1	180	
A-24a	Medical Prep. + Clean Linens	60	1	60	
A-24b	Specimen Courier + Soiled Linens	60	1	60	
A-26	Phone booth/privacy room	80	1	80	
A-27	Storage	120	1	120	
A-28	Gender Neutral Restrooms	60	2	120	Patrons + Staff
STAFF				**160**	
A-30	Reception Desk 2nd Floor	80	2	160	View of Cove
UTILITY				**80**	
A-43	Janitor room	80	1	80	
	SUBTOTAL			3,900	
	EFFICIENCY FACTOR (26%)			1,014	
	SECOND FLOOR TOTAL			**4,914**	

PAUL MURDOCH ARCHITECTS

PROGRAM BUBBLE DIAGRAM - A.6

allcove

BEACH CITIES HEALTH DISTRICT HEALTHY LIVING CAMPUS

ARCHITECTURE

BASIS OF DESIGN - ARCHITECTURE

Building Summary

allcove Beach Cities is envisioned as an inspiring and safe space for 12–25-year-old youth to find community, support, advice or just a place to be.

The heart of the building is the "cove" on the second floor where many social activities can take place in a flexible space.

The overall aesthetic approach is a light, white palette with color accents on the exterior and at interior casework for vitality and interest.

The design uses natural light and ventilation to promote and express a healthy environment and "space as therapy" while reducing energy use. Located within a mile of the ocean, the building's operable windows, sliding doors and clerestory openings allow natural ventilation through the building. Generous sliding door openings allow connection to the outdoors at the ground floor meeting room and cafe, where a parking area can double as an event space, and at the second floor where the cove can open to a terrace.

Control of the mechanical HVAC system is integrated with the use of the building envelope openings. Natural lighting is provided for all occupied spaces and controlled through passive building measures. The cove space on the second floor is the social center of the facility, so it is designed for flexible usage within an open volume that is daylit and ventilated.

Prefabricated Modular Building Units

The building design assumes custom prefabricated steel factory-built modules for its construction. Steel modules are available in a variety of sizes. No assumptions have been made for the layout and sizes of modules except for stacking to create the two-story structure. The project assumes 13 feet finished floor to finished floor height plus a roof parapet. The modules will be finished at the factory to the extent practical and cost-effective. The design build team will be responsible for delineation of responsibilities between factory-built and site-built work, as well as submission and obtaining permit approvals by relevant agencies with jurisdiction. The design build team should produce a matrix of responsibilities for respective agency reviews.

Building Materials - Exterior

The building exterior enclosure will be a rectangular volume with a second floor overhang facing the parking lot and over the main entrance.

Exterior Walls: Painted fiber cement shingles provide a visual texture that is meant to be residential in character, to reduce the institutional feeling of a health facility. White is the primary color with accent shingles in multiple colors. Refer to the Preliminary Design drawings for color accent pattern and colors. Painted cement plaster and curtainwall is in an accent color for a portion of the ground floor elevation. White building identification signage announces the building from the street entry and the accent color wraps the building to express the main entry and public areas on the ground floor. Dual glazed windows (fixed and operable) and storefronts, sliding and swing doors, painted metal louvers.

Exterior Doors: Factory-painted aluminum glazed medium stile doors, painted hollow metal doors at utility rooms.

Roofing: Wood pavers on pedestals at 2nd floor terrace deck. PVC single-ply roof membrane at main roof with skylight units, a roof hatch with ladder and safety post for access, equipment curbs for MEP equipment, and photovoltaic solar panel arrays as required by code and Title 24.

Building Materials - Interior

Floors: Resilient flooring (LVT) in a light-colored wood pattern is used in high traffic areas. Carpet tiles in staff areas, chat rooms and group meeting rooms at the second floor uses a gradient graphic similar to graphic treatments that allcove promotes. Slip-resistive quarry tile flooring in restrooms. Sealed concrete occurs in service and utility areas. Static =resistive coating in the Telecom room.

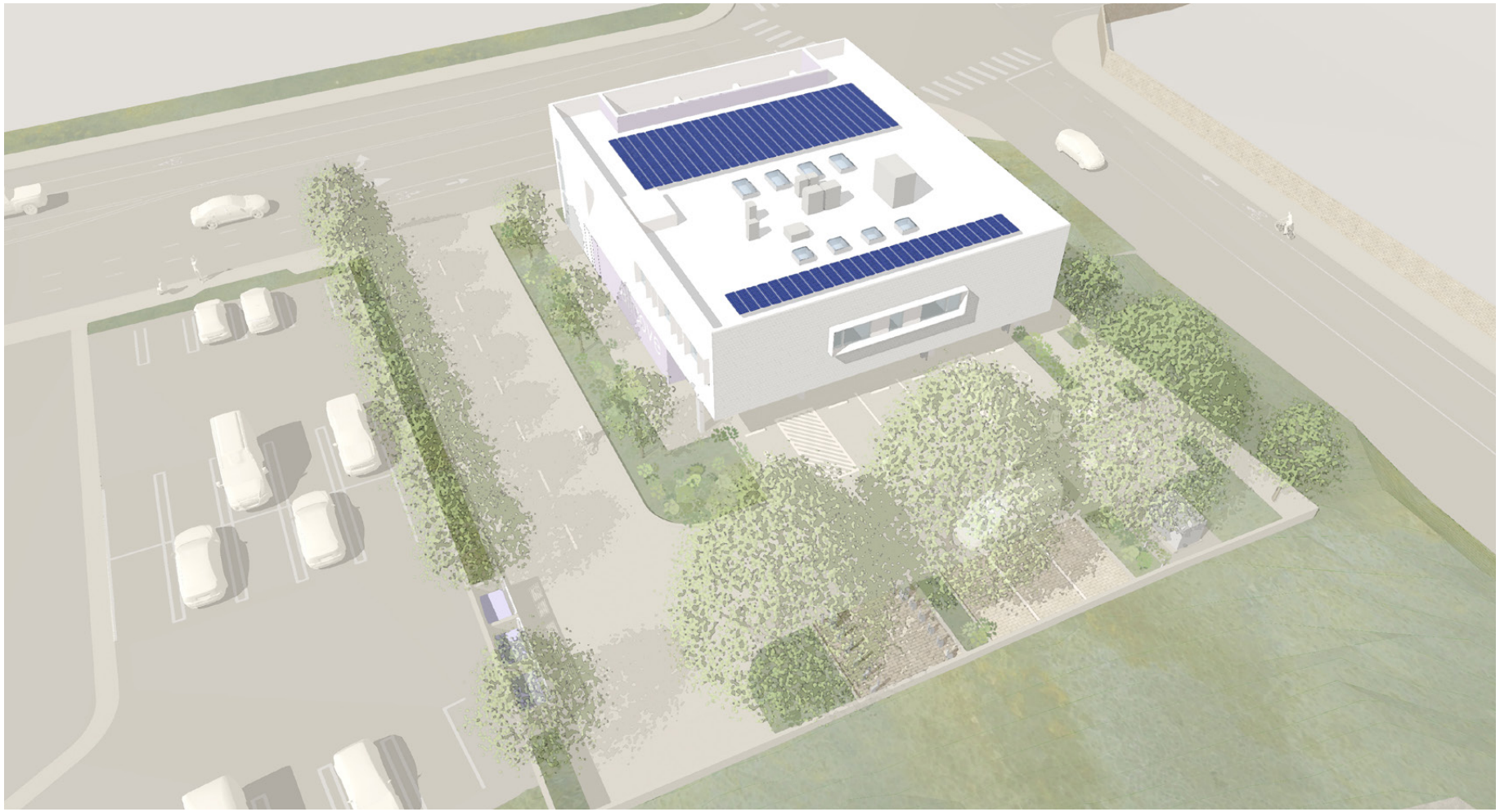
Interior Walls: Painted Type X gypsum board with Level 4 surface typical. Solid surface panels in restrooms. Acoustic wall coverings where noted in the drawings.

Ceilings: Painted gypsum board typically in public areas with applied acoustic panels. Suspended acoustical tile in staff areas. Exposed painted structure in service and utility areas as noted in the drawings.

Vertical Circulation: Interior steel stairs with concrete pan and rubber finish at the main stair in the lobby with white-painted steel pickets and structure. Electric traction elevator and hoistway serves the lobby and second floor cove.

SITE PHOTOS

AERIAL VIEW LOOKING NORTHWEST

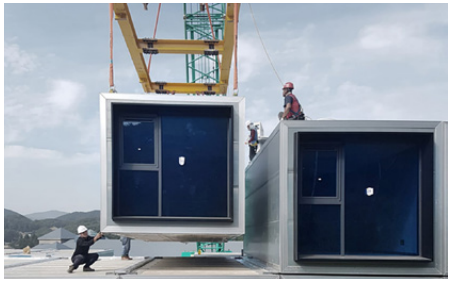


REFER TO THE PRELIMINARY DESIGN DRAWINGS FOR COLOR ACCENT SHINGLES

PREFABRICATED MODULAR BUILDING UNIT CONSTRUCTION

REFER TO THE PRELIMINARY DESIGN DRAWINGS FOR COLOR ACCENT SHINGLES

PREFABRICATED BUILDING MODULES

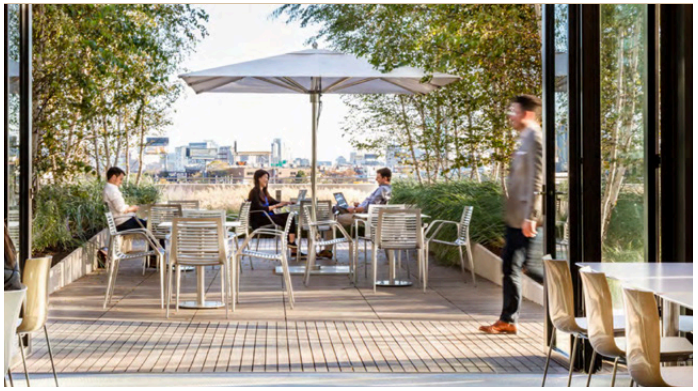


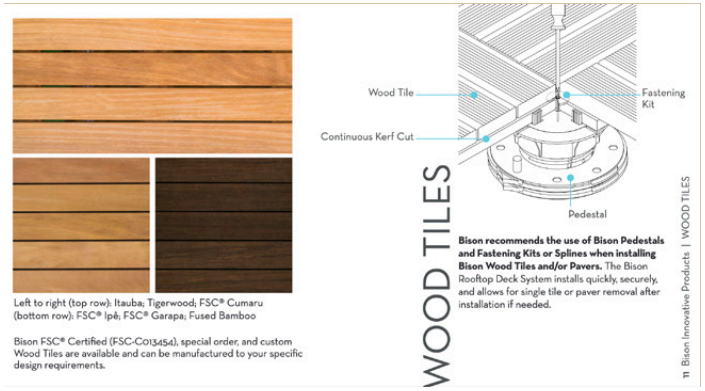
PREFABRICATED BUILDING MODULES

AERIAL VIEW SHOWING 2ND FLOOR TERRACE FACING BERYL STREET

REFER TO THE PRELIMINARY DESIGN DRAWINGS FOR COLOR ACCENT SHINGLES

PREFABRICATED BUILDING SKYLIGHTS



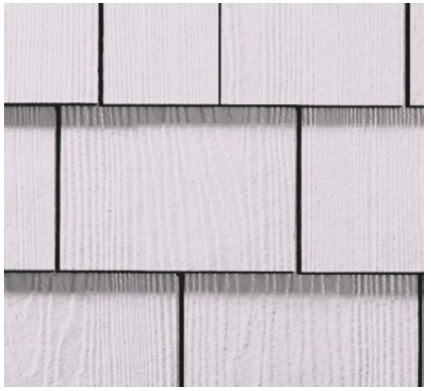


WOOD PEDESTAL PAVING SYSTEM

BERYL STREET ENTRY VIEW - EXTERIOR CLADDING

REFER TO THE PRELIMINARY DESIGN DRAWINGS FOR COLOR ACCENT SHINGLES

EXTERIOR CLADDING
PAINTED FIBER CEMENT SHINGLE PANELS



The allcove Materials Palette

The materials palette leans on modern features to accent wood and soft textures. It focuses on creating an environment that is inviting and trustworthy while retaining flexibility to incorporate the local identity of the community.

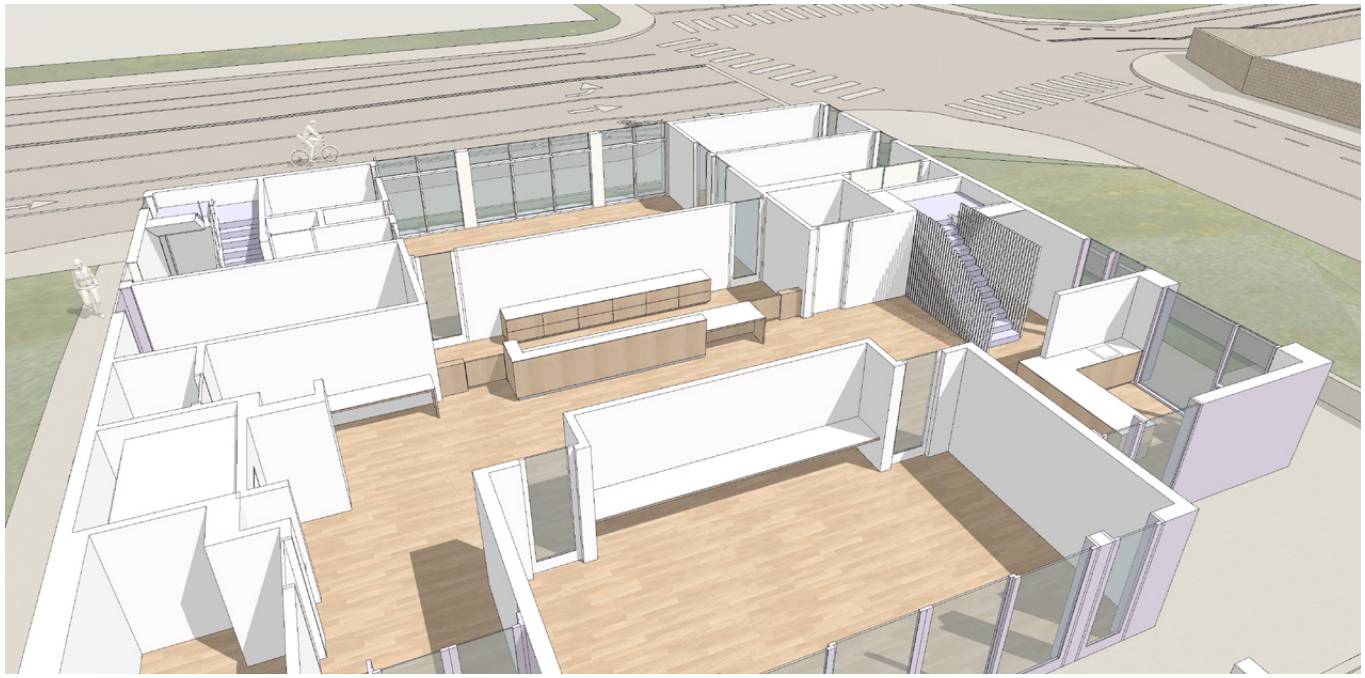
light wood in common areas and hallways

1/2" acrylic panel with UV print

medium to dark gray carpet in enclosed private meeting rooms

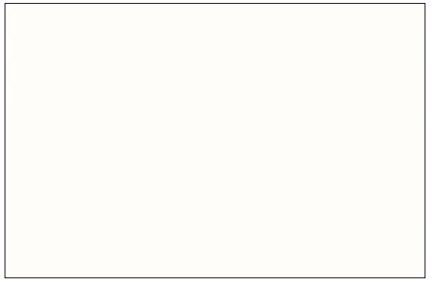
dry rub vinyl

INTERIOR VIEW - INTERIOR CASEWORK



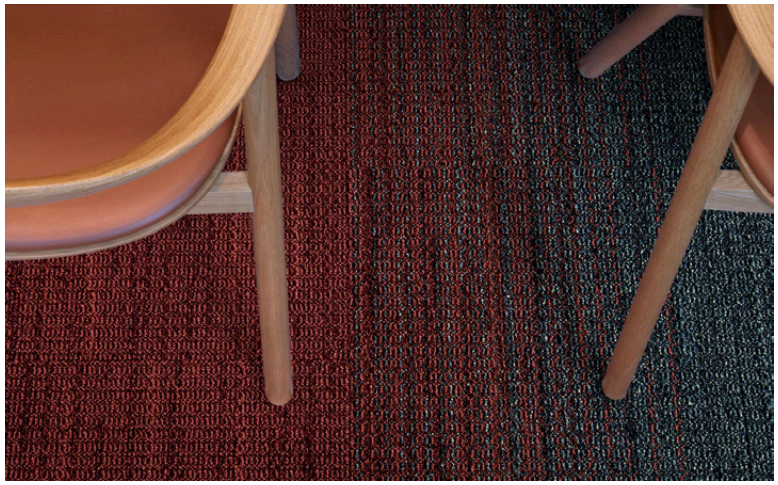
INTERIOR VIEW OF THE GROUND FLOOR: COLORED WOOD STAINS NOT SHOWN

BIRCH PLYWOOD WITH COLORED WOOD STAINS

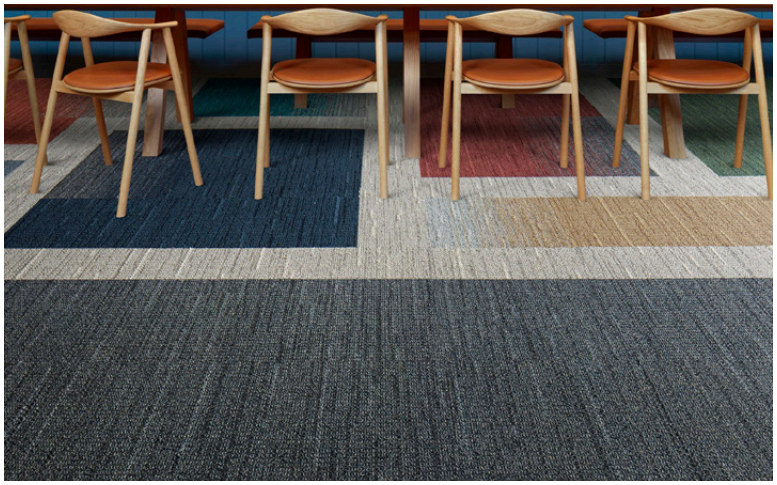


SOLID SURFACE COUNTERTOP

ARCHITECTURAL INTERIOR: FLOOR MATERIALS

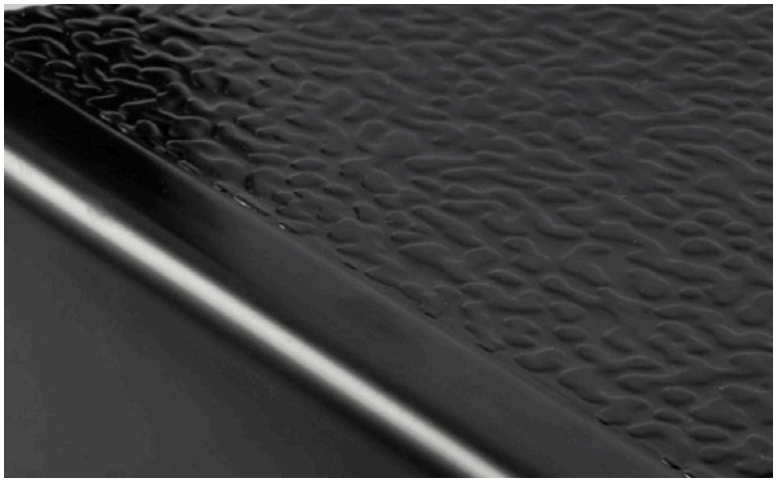


CARPET TILES



CARPET TILES

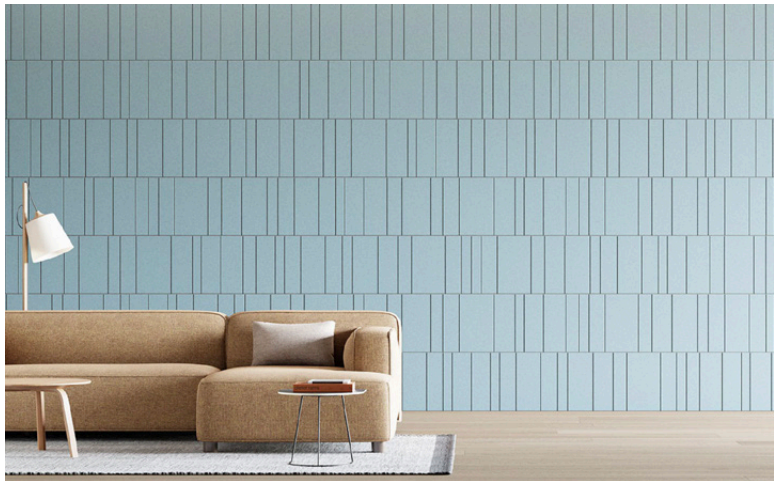
QUARRY TILE



RUBBER STAIR TREAD/ RISER/ LANDING

ARCHITECTURAL INTERIOR MATERIALS

FELT ACOUSTICAL WALL COVERING

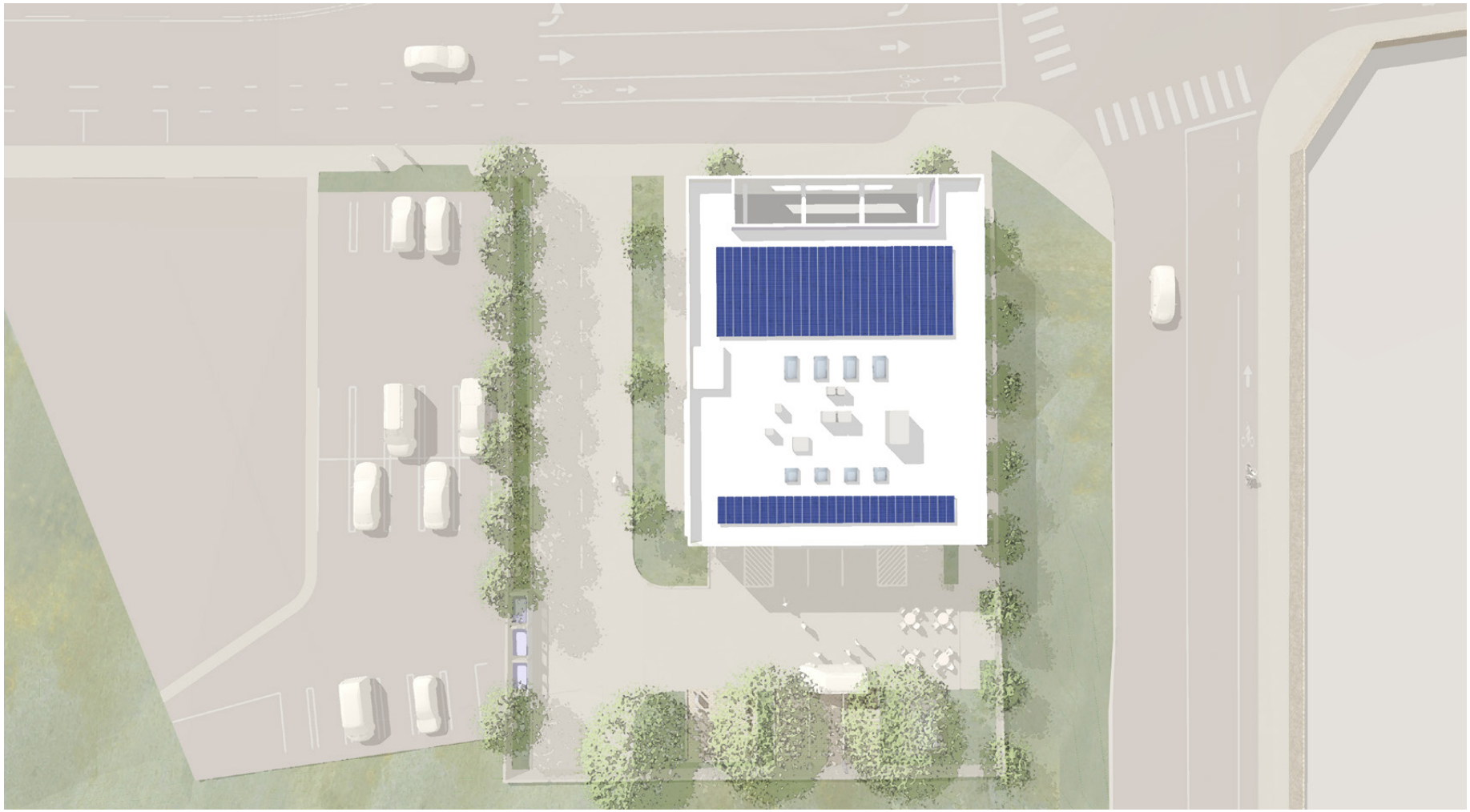


FELT ACOUSTICAL WALL COVERING

LUXURY VINYL TILE FLOORING

LUXURY VINYL TILE FLOORING

AERIAL VIEW



CIVIL ENGINEERING

BASIS OF DESIGN - CIVIL ENGINEERING

Project Description

New development consisting of a 2-story building and on grade parking lot. The project is located at the southwest corner of the intersection of Beryl Street and Flager Lane in the City of Redondo Beach, CA. The site is approximately 148' long and 128' wide. The area of the lot is 18,864 sq-ft, and the building footprint is 5,740 sq-ft including the 2nd floor overhang.

Earthwork and Excavation

All grading and earthwork shall be designed and performed in accordance with the Geotechnical Report "Supplemental Geotechnical Study Report, Healthy Living Campus Project" prepared by Converse Consultants, dated May 27, 2022. Based on this report, undocumented fill exists approximately 3 to 13 feet below the existing grade, and it is recommended to over-excavate to a depth of approximately 5 feet below the existing grade, 3 feet below bottom of footings, or depth of undocumented fill, whichever is deeper. Over-excavation should extend at least 5 feet laterally beyond the limits of the footings where feasible. Footings should not encroach the public right of way nor adjacent properties.

Over-excavation for retaining walls should be 2 feet below bottom of footings and should extend 3 feet laterally beyond the retaining wall area. Footings should not encroach the public right of way nor adjacent properties. Adequate drainage should be provided by means of permeable drainage materials per the soils report requirements.

The upper 24 inches of site soils should be removed in areas of sidewalks, drive-thru and surface parking. If loose, disturbed, or otherwise unsuitable materials are encountered at the bottom of excavation, deeper removal will be required until firm native soils are encountered. The over-excavation should extend two (2) feet laterally beyond the sidewalk and surface parking areas. If loose, disturbed, or otherwise unsuitable materials are encountered at the bottom of excavation, deeper removal will be required until firm native soils are encountered.

Temporary excavations during possible improvements should not extend below a 1:1 horizontal: vertical (H: V) plane extending beyond and down from the bottom of the existing foundations, utility lines or structures. The remedial grading excavations should not cause loss of bearing and/or lateral support for adjacent foundations, utilities or structures. If remedial grading excavations extend below a 1:1 (H: V) plane extending beyond and down from the bottom of adjacent off-site utility lines or structure foundations, shoring or slot cutting shall be employed. The ABC slot cutting method for over-excavation could be a possible option as an alternative to shoring for excavation less than 8 feet in width and depth or with cohesive soils. Temporary shoring may be required for the excavation due to space limitations and/or adjacent surcharge loading.

The on-site soil is considered suitable for re-use as regular compacted fill once cleaned of deleterious materials. All fill, if not specified otherwise elsewhere in the soils report, should be compacted to at least 90 percent of the laboratory maximum dry density in accordance with the ASTM Std. D2922 test method. All exposed subgrade soil surface should be observed by a geotechnical engineer or their representative prior to placement of fill, base materials or slabs. The exposed subgrade should be scarified at least 6 inches, moisture conditioned as needed to near-optimum moisture content and compacted to 90 percent relative compaction. The upper 12 inches of subgrade below new pavement should be compacted to 95 percent relative compaction.

Grading

Hardscape areas and landscape areas will be required to slope to drain and to meet the existing back of walk elevations at the northern property line of the project boundary. The Americans with Disabilities Act (ADA) will require a maximum cross slope of 2% and directional slope of 5% for all paths of travel. It is recommended that all hardscape areas, not just areas designated as a path of travel, be graded to meet these ADA slope limitations.

BASIS OF DESIGN - CIVIL ENGINEERING

Off-site Improvements

Improvements in the public right-of-way are required to be constructed in accordance with the Standard Specifications for Public Works Construction (the "Greenbook"). Improvements include widening the existing driveway apron and removal and replacement of existing sidewalk and existing catch basin as required. Potable water and gray water connections will be installed by the utility purveyor. Sanitary sewer and storm drain offsite improvements per city approved general contractor.

Storm Water

The City's Low Impact Development (LID) standards require that the proposed project mitigate the runoff volume of the first 0.75 inches of runoff or 85th percentile storm event, whichever is greater, and to treat and retain the runoff on site prior to being conveyed to the public storm drain system. LEED requirements require to treat and retain the runoff of a 95th percentile storm event.

The proposed project is 18,864-sf and the current proposed plans show it as approximately 79% impervious. This equates to a required storm water retention volume of 1,621 cubic feet for a 95th percentile storm event. Per the soils report, the soils of the site are suitable for infiltration therefore a 4-feet diameter, 35-feet deep vertical infiltration drywell is the proposed best management practice.

Water

There is an existing 8-in potable water main on Beryl Street and an existing 12-in recycled water main on Flagler Lane. Proposed domestic and fire water will be fed from potable water main on Beryl Street and will require backflow prevention devices. Sizes of these connections and BFPs will be determined by the building plumbing engineer and the fire sprinkler engineer. Irrigation will be fed from the 12-in recycled water main on Flagler Lane and will require a backflow prevention device. The size of this connection and BFP will be determined by the Design-Build Contractor. There is an existing fire hydrant on the northwest corner of the intersection of Beryl Street and Flager Lane, therefore a new water connection for a new fire hydrant is not anticipated.

Sanitary Sewer

There is an existing 8-in sanitary sewer main on Beryl Street adjacent to the proposed project site. Sanitary waste from the proposed building will exit the building and connect to the sewer main with a new house connection sewer.

LANDSCAPE ARCHITECTURE

BASIS OF DESIGN - LANDSCAPE ARCHITECTURE

Landscape Concept

The design of the landscape for the Beach Cities Health District Allcove project strives to accomplish the following goals: provide a welcoming landscape setting for the new building; incorporate a plant palette that is sustainable and low maintenance; provide flexible exterior spaces that can be used to complement the programming needs of the building.

The design and programming for the building entry includes a gathering space under the canopy that allows for the interior event space to spill out into the parking lot during larger events. Enhanced integral color concrete paving with topcast finish in these areas creates a welcoming, flexible space for these events. Across the parking aisle, the parking spaces and bike parking areas are designed using permeable concrete pavers that add texture and permeability to the large expanse of hardscape.

The northern edge of the project along Beryl Street is planted with trees and shrubs designed to complement and integrate with the existing streetscape improvements west of the site. The vehicular driveway entrance is lined with evergreen Brisbane Box trees to help screen the project from the adjacent shopping plaza. The entry walk next to the building includes a welcoming grove of flowering Forest Pansy Redbud trees. A promenade of fastigiate Ginkgo trees along the east walkway provide seasonal fall color, along with opportunities for seating areas between the trees. This promenade aligns with a future stairway connection to the Heathly Living Campus above.

Plant Palette

The plant palette consists of materials that are considered low-maintenance, hardy, and drought resistant with special consideration given to the use of California native plants. Plant materials shall be selected based on their ability to withstand the marine layer and wind, create shade, and shall be adapted to thrive in Sunset Zone 24. The plant list noted in the plans provides a guide for selection of plant materials.

Irrigation System

The irrigation system shall be designed to utilize a smart irrigation controller system that is compatible with the other irrigation systems installed by the Beach Cities Health District. All irrigation controllers and equipment shall meet the requirements of the California Model Water Efficiency Landscape Ordinance (MWELO). The locally available municipal reclaimed water irrigation system is to be utilized for this project. The contractor shall design the system to meet the requirements of LA County Public Health and the West Basin Municipal Water District for reclaimed water irrigation systems. The plans will need to be submitted and approved by these Agencies prior to installation.

LANDSCAPE CHARACTER WITH ENHANCED PAVING

BASIS OF DESIGN - LANDSCAPE ARCHITECTURE

REFER TO THE PRELIMINARY DESIGN DRAWINGS FOR COLOR ACCENT SHINGLES

GINKGO ROW

GROVE OF REDBUDS AT ENTRY DRIVE

CONCRETE PAVING FINISH

PERMEABLE CONCRETE PAVERS

STRUCTURAL ENGINEERING

BASIS OF DESIGN - STRUCTURAL ENGINEERING

PROJECT DESCRIPTION

The project consists of a new 2-story prefabricated modular building on grade totaling approximately 9,342 SF located at 1200 Beryl Street in Redondo Beach, CA. The new building will be designed in accordance with 2022 California Building Code and assembled on site.

SCOPE OF WORK

The new prefabricated modular building will be a design-build process and designed by the chosen fabricator's structural engineer. The fabricator will be responsible for developing construction plans and details of the structural elements including gravity load resisting, lateral force resisting system and associated foundations for wind and earthquake forces, participate in the selection of the structural system to be implemented and assist in coordination with other related consultants, develop structural calculations necessary for proper structural design and submittal to the Department of Building and Safety in accordance with the Governing Code and Standards below.

GOVERNING CODES AND STANDARDS

Governing Codes

- California Building Code (CBC 2022)
- American Society of Civil Engineers (ASCE) Minimum Design Loads for Buildings and Other Structures (ASCE 7-16) with Supplements 1, 2, & 3
- Building Code Requirements for Structural Concrete (ACI 318-19) and Commentary (ACI 318R-19)
- American Institute of Steel Construction (AISC 360), Manual of Steel Construction 15th Edition.
- American Institute of Steel Construction (AISC 341), Seismic Design Manual 3rd Edition
- AISI S100-16 (2020) w/S2-20, North American Specification for the Design of Cold-Formed Steel Structural Members, 2016 Edition (Reaffirmed 2020) With Supplement 2, 2020 Edition

Referenced Documents

- Geotechnical investigation report titled "Supplemental Geotechnical Study Report" by Converse Consultants dated May 27, 2022

STRUCTURAL MATERIAL PROPERTIES

Concrete

Location	f'c	
All Locations U.N.O.	4,000	psi Minimum – Normal Weight

Concrete Reinforcement

- All new reinforcement shall conform to ASTM A-615, Grade 60 unless noted otherwise.
- All new welded reinforcement and shear wall flexural reinforcement shall conform to ASTM 706, Grade 60.

Cold Formed Steel

- Cold-Formed Steel (CFS) stud, joists, tracks, end closures, bridging and straps (12, 14 & 16 Gauge) shall conform to ASTM A653 Grade 50.
- Cold-Formed Steel (CFS) stud, joists, tracks, end closures, bridging and straps (18 & 20 Gauge) shall conform to ASTM A653 Grade 33.

BASIS OF DESIGN - STRUCTURAL ENGINEERING

Structural Steel

- All wide flange shapes-ASTM A992, Grade 50
- Steel angles-ASTM A36
- All plates-ASTM A36 unless specified as A572, Grade 50 in specific locations
- HSS (rectangular and square)-ASTM A500, Grade B
- HSS (round)-ASTM A500, Grade B
- Pipe-ASTM A53, Grade B
- Channels (C and MC sections)-ASTM A36
- Other structural sections-ASTM A572, Grade 50

Live Loads

The 2022 CBC was used for live load determination which follows 2019 CBC, Table 1607.1, live loads are:

Occupancy Use	Uniform
Office	50 psf (Reducible)
Exits/Corridors at the podium level	100 psf (Non-Reducible)
Storage	125 psf (Non-Reducible)
Corridors to Public Areas	100 psf (Non-Reducible)
Accessible Roof	100 psf (Non-Reducible)
Roof	20 psf (Reducible)

Wind Loads

- Exposure B
- 95 MPH - 3 second gust
- Importance Factor I=1.0

Seismic Loads

The subject building is located in a region of high seismicity based on mapped acceleration values provided by the United State Geological Survey (USGS) and site amplification factors defined in ASCE7-16.

- Site Class D
- Importance Factor I = 1.0
- Seismic Occupancy Category II
- Ss = 1.877 MCE ground motion. (for 0.2 second period)
- S1 = 0.674 MCE ground motion. (for 1.0s period)
- FA = 1.0
- F1= 1.7
- SDS = 1.251 Numeric seismic design value at 0.2 second SA
- SD1 = 0.764 Numeric seismic design value at 1.0 second SA
- 00% of Seismic Base Shear per ASCE 7-16

Analysis Procedure	Equivalent Lateral Force Procedure	ASCE 7-16 Section 12.9
System Response Factor	To be determined by DB Engineer	ASCE 7-16 Table 12.2-1
Drift Limit	2%	ASCE 7-16 Table 12.12-1

BASIS OF DESIGN - STRUCTURAL ENGINEERING

Load Combinations for New Structure

Per ASCE 7-16, the following load combinations will be used.

Strength Design Load Combinations

a. 1.4(D + F)
b. 1.2(D + F + T) + 1.6(L +H) + 0.5(Lr or S or R)
c. 1.2D + 1.6(Lr or S or R) + (L or 0.8W)
d. 1.2D +1.6W + L + 0.5(Lr or S or R)
e. 1.2D + 1.0E + L + 0.2S
f. 0.9D + 1.6W + 1.6H
g. 0.9D + 1.0E + 1.6H

Allowable Stress Design Load Combinations

a. D + F
b. D + H + F + L + T
c. D + H + F + (Lr or S or R)
d. D + H + F + 0.75(L + T) + 0.75(Lr or S or R)
e. D + H + F + (W or 0.7E)
f. D + H + F + 0.75(W or 0.7E) + 0.75L+ 0.75 (Lr or S or R)
g. 0.6D + W + H

Alternate Allowable Stress Design Load Combinations

a. D + L + (Lr or S or R)
b. D + L + (ωW)
c. D + L + ωW + S/2
d. D + L + S + ωW/2
e. D + L + S + E/1.4
f. 0.9D + E/1.4

MECHANICAL, PLUMBING AND FIRE PROTECTION

BASIS OF DESIGN - MECHANICAL, PLUMBING AND FIRE

HVAC Systems and Controls

1. Narrative description of system.
   A. System Type
      - AC for all spaces: Variable Refrigerant Flow (VRF) with heat recovery.
      - Ventilation for enclosed and common areas: Roof mounted makeup air fans
      - Exhaust for enclosed and common areas: Roof-mounted exhaust fans

   B. Location
      - AC for enclosed and common areas: Condensers located at roof, fan coils and heat recovery units located above ceilings of enclosed rooms and common areas.
      - Ventilation for enclosed and common areas: Roof-mounted
      - Exhaust for enclosed and common areas: Roof-mounted

2. Description of how the system meets requirements in OPR.

   Equipment was selected to meet owner requirement for efficiency and cost.

   The VRF system provides flexibility in zoning and packaged control sequences. The system requires less maintenance than a built-up chiller plant w/ reheat. The system also has a smaller roof footprint than multiple single zone systems.

3. Reasons for system selection, as opposed to alternatives.
   - Comfort Performance – Industry standards.
   - Reliability – Industry standards.
   - Cost – Industry standards.
   - Acoustics – Refer to plans.
   - Flexible Zoning
   - Reduced Footprint
   - Packaged Control Sequence
   - Energy savings over equivalently sized single-zone split systems

4. Load calculations.

Load calculation method/software: ASHRAE guidelines	EnergyPro and hand calculations per
Summer outdoor design conditions (0.5%): 69°F wetbulb	84°F drybulb, (mean coincident wb = 67°F)
Winter outdoor design conditions (0.6%):	42°F drybulb
Indoor design conditions:	75°F, 50%RH cooling; 68°F heating

System size based upon office and light activity occupancy and various high density areas: -20 tons

BASIS OF DESIGN - MECHANICAL, PLUMBING AND FIRE

5. Sequence of Operations. (i.e. operating schedules, setpoints, other).
   A. VRF system possesses factory provided control sequence. Local thermostat control at the zone level. Local thermostats are individually programmable for occupancy schedules with unoccupied setback and can program different rpm values for High/Med/Low fan speed operation. Also have local timed override.
   B. Central control capable of resetting zone thermostat and override for nighttime setback.
   C. Environmental exhaust is time clock controlled to operate during occupied hours.
   D. Makeup air fans are constant volume for occupancy densities. Where occupancy density values are lower (i.e. more people), increased ventilation is provided via demand controlled ventilation CO2 sensors.

Water Heating Systems

1. Narrative description of system (i.e. system type, location, control type, efficiency features, environmental benefits, other).

   All-electric, commercial grade electric heat pump water heater with demand recirculation.

2. Description of how the system meets requirements in OPR.

   No owner's requirements for these areas. Minimum facilities assumed for serving restrooms, showers, laundry, and café hot water needs.

3. Reasons for system selection, as opposed to alternatives (e.g. performance, efficiency, reliability, simplicity, cost, ease of maintenance, other).

   Gas would be cost prohibitive and not in line with current State directives to reduce dependency on fossil fuels, so electric units were decided upon. This is industry standard for installations of this size. Local instant water heaters are prone to failure. The storage tank with heat pump arrangement provides a single point of maintenance, is more reliable, and more energy efficient.

4. Water heating load calculations: sizing calculation method, assumptions, and results.

   Water heater sized based on expected usage of bathroom groups. Medium traffic, public restrooms.

BASIS OF DESIGN - MECHANICAL, PLUMBING AND FIRE

Fire Sprinkler System

1. Narrative description of the system
   A. The building shall be provided with an automatic fire sprinkler system and shall be fully sprinklered. The fire sprinkler system shall be designed to the following standards:
   B. NFPA 13: Standard for the Installation of Sprinkler Systems
   C. NFPA 25: Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems
   D. Local and state codes and regulations

   The design shall include the following aspects, as required by the AHJ:

   A. Size and pressure of pipes: The system shall have a minimum pipe size of 4 inches for the main riser and 2.5 inches for the branch lines, unless otherwise approved by the AHJ. The system shall have a minimum working pressure of 100 psi at the most remote hose connection, and a maximum working pressure of 175 psi, unless otherwise approved by the AHJ.
   B. Water supply and pumps: The system shall have a reliable and adequate water supply that meets the demand of the system, based on hydraulic calculations. No fire pump is anticipated based on available information about the existing street pressure and flow.
   C. Valves and devices: The system shall have isolation valves, check valves, pressure gauges, pressure relief valves, drain valves, and alarm devices, as required by NFPA 13. The system shall have a fire department connection (FDC) that allows the fire department to supplement the water supply to the system.
   D. Sprinklers: Sprinklers shall be standard pendent in back of house areas and shall be concealed-type with color-matched cover where visible to the public and staff.
   E. Testing and maintenance: The system shall be tested and maintained in accordance with NFPA 25 and the manufacturer's instructions. The system shall be inspected, tested, and serviced at least annually by a qualified contractor. The system shall be tagged and documented with the date and results of the testing and maintenance.

2. Description of how the system meets requirements in OPR.

   No owner's requirements for these areas. System shall be designed according to minimum code and AHJ requirements.

ELECTRICAL ENGINEERING

BASIS OF DESIGN - ELECTRICAL SYSTEMS

The purpose of this document is to provide a description of the electrical baseline for this Beach Cities Health District (BCHD) Allcove Facility project. This narrative will describe an electrical design based on current standards for this type of facility with emphasis on site SCE power service, interior power distribution in the building including the SCE main switchgear, interior and exterior lighting, convenience receptacles, HVAC/mechanical system power, and infrastructure electrical systems.

Electrical Power Service

The new power service from SCE will be via underground primary voltage (16kV) from the adjacent street to the site installed new SCE pad mount transformer. Secondary power at 120/208vac @ 1200-amperes will be provided via underground conduit from this SCE transformer to the electrical meter/ main switchgear in the building's main electrical room. Switchgear sub feed breakers will provide power to the building electrical panels, lighting control panel, Emergency lighting system, mechanical equipment, PV disconnect, and other major loads. Circuit breakers capable of reverse current feed will be provided for the PhotoVoltaic system connection per SCE requirements and Rule 21 considerations. Other sub feed breakers rated 200 or 400-amperes are recommended for all branch circuit panels to be used in the facility to power the necessary number of panelboards. Separate power feeds via dedicated breakers are recommended for the EM lighting system, major mechanical equipment, and the lighting control panel.

The Design Build contractor will coordinate with and submit to SCE the required forms for a new service at this facility, in addition to providing a SCE approved site design which meets all SCE CPIS and field requirements for power to this facility. A completed CPIS form, site electrical plans, AutoCAD plans for site work (civil) to SCE standards, building floor plans/ elevations, all site easements listed, load summary for the building electrical equipment are all required to be provided. SCE will use this necessary information to design their portion of the electrical service connection (medium voltage) to the SCE transformer. It is responsibility of the Design Build Contractor (DBC) to provide and install at DBC expense (to SCE standards and approved SCE design) the following items:

- Conduit from the Point-of-Connection (POC) at the medium voltage vault, as determined by SCE (final vault connection by SCE approved contractor at DBC expense), to the SCE transformer slab box.
- Transformer slab box (per SCE standards) and grounding (per SCE standards).
- Conduit (per SCE standards) from transformer slab box to the building electrical room Switchboard pull section with meter/main breaker + distribution.
- SCE will install and terminate all medium voltage cabling from the street to the SCE transformer in the conduit provided by the DBC. SCE will install and terminate the 120/208 vac conductors from the SCE transformer secondary to the building pull section of the new metering equipment.
- DBC shall provide and install all SCE work to SCE standards. DBC shall submit to SCE and obtain SCE approval for all SCE related work efforts. The DBC shall submit the intended main switchboard to SCE for final approval.

Communications System

New communications connections will also be provided via underground conduit from the adjacent street. This conduit will enter the building in the new IT room at the MDF backboard. Thie BOD for this scope of work is being provided by the Low Voltage consultant under separate cover.

BASIS OF DESIGN - ELECTRICAL SYSTEMS

Electrical Room

The electrical room will contain the following equipment and meet the required constraints:

- Main service switchboard at 1200A, 120/208vac, 3-phase, 4-wire
- Multiple 200A, power panels at 120/208vac, 3-phase, 4-wire with a minimum of 42 bolt on branch breakers to power all the interior and exterior power equipment, including all mechanical equipment.
- A 400A, power panel at 120/208vac, 3-phase, 4-wire with a minimum of 30 bolt on branch breakers to feed EVCS (Electric Vehicle Charging Stations) and bike charging stations.
- A Myers Emergency Power Inverter system for EM lighting interior and exterior of the facility. This 10kW system (208vac input and 120/240vac output) will have an internal power panel with multiple 20A, 1-pole breakers for EM lighting power.
- Dedicated space for a PV Inverter and a SCE required disconnect external to the switchboard.
- Location for a Fire Alarm Panel, the fire alarm system will be "design build" by the DBC for the facility.
- An exhaust fan will be provided with thermostatic control of the electrical room.
- Proper NEC 110-34 working clearances will be required for all electrical equipment.
- Floor mounted equipment will be required to be installed on housekeeping pads.
- A lighting controller, compliant with CA Title 24 requirement and with the ability to control a minimum of two levels of exterior lighting in addition to providing the interior lighting demand response control shall be included with the facility electrical lighting control design.
- Proper labeling will be required on all electrical equipment throughout the building.

Interior Power – First Floor, Second Floor, & Roof

Power to the electrical equipment in the building will be provided from the electrical room to all electrical devices, interior and exterior to the building.

Exterior conduit systems will be schedule 40 PVC, with a 1" conduit minimum size, installed a minimum of 24" below finished grade with warning/tracer tape above the conduit. Exposed PVC risers will be schedule 80 PVC and UV protected material. No metal conduit shall be buried underground. One sack mix sand slurry shall be used to backfill all trenches.

Interior to the building, EMT conduit (3/4" minimum), steel flexible conduit, and metal clad (MC) steel sheathed conductors, are acceptable means to provide electrical distribution of power to the electrical equipment/devices. Compression connectors are required for all EMT conduit systems versus screw connectors. Pull boxes shall be sized per NEC Article 314 and labeled as to their type of use. All conductors shall be 90 degree C stranded copper with a #12 being the minimum size allowed. Conductors shall be identified in all pull boxes, panelboards, and at devices.

GFCI receptacles shall not be used for feed through to other receptacles. All receptacles shall be labeled as to panel & circuit number. All receptacles within 6 foot of any sink or water source shall be GFCI type, including all devices in washer/dryer room and nurse station.

All receptacles and switches shall be specification grade devices, NOVA series, with the finish color per the architect. All exterior receptacles shall have lockable covers.

Roof electrical equipment shall be fed with roof jacks. No conduit routing on the roof with dura-bloks will be permitted. Disconnects and receptacles shall be solidly/seismically supported with unistrut and not directly connected to any fixed equipment. All electrical devices shall be labeled as to type, voltage/ampere, and circuit number. Spare fuses (one for each phase) shall be provided for future use.

BASIS OF DESIGN - ELECTRICAL SYSTEMS

Lighting and Demand Response/Title 24

All facility areas will have lighting levels based on IES recommendations (10th Edition or most current) for the task area and lighting criteria. Lighting density and wattage calculations shall be compliant with 2022 California Title 24 requirements and with Demand Response capability included in the lighting design. Selection of the lighting control system and lighting fixtures shall be based on performance, operational flexibility, and reliability. All lighting systems shall allow for multiple zones in each area, with a minimum of three zones in addition to daylighting requirements per CA Title 24.

Interior and exterior lighting will be LED and will be a combination of pole and building mounted lighting. Area lighting will be provided with 1 foot-candles of lighting minimum at the parking lot grade level.

Signage lighting will be coordinated with the client and architect.

Photometrics shall be provided for all areas for both the normal power and emergency power fixtures (each separately calculated). Emergency lighting shall be per current CBC and Life Safety Code at 1-foot candle minimum across and along the egress path for the building interior and the exterior of the building to a “safe haven” public road. The local Fire Marshal shall approve Final EM lighting. Exit signs with two sources shall be provided where required by CBC and the Fire Marshal.

Low Voltage/IT/Com Systems

Refer to other sections of this document for Low voltage/IT/Com systems addressed by another Consultant.

Miscellaneous Electrical Systems

Per the 2022 California Green Energy Code, new parking lots are required to be Electric Vehicle (EVCS) ready with infrastructure provided in the facility design. Each EVCS ready installation needs to be designed to support a 10kVA load (7.2kVA @ 125% and 208 or 240vac single phase) with breakers installed in the panels dedicated to the EV charging station. Available power/circuit breakers and conduits shall be provided for all EVCS locations noted on the design build document plans.

The building rooftops should be capable of supporting a Photo-Voltaic (PV) System of panels structurally and have conduits installed which are routed to the building switchgear/electrical room. This infrastructure should be designed to accommodate this PV System interface. Coordination with SCE should also be provided to ensure an easy future transition to PV Connection.

Fire Alarm Systems will be design build to performance specifications.

Emergency Lighting at the facility is intended to be designed around a dedicated Interruptible Power System (IPS). An IPS is a battery backed up Inverter System which converts AC power to DC power and back to AC power while storing enough energy for the minimum 120-minute emergency power for egress lighting. This unit will be installed in the electrical room.

LIST OF APPLICABLE CODES/STANDARDS

2022 CALIFORNIA ADMINISTRATIVE CODE (CAC), PART 1, TITLE 24 CCR

2022 CALIFORNIA BUILDING CODE (CBC), PART 2, TITLE 24 CCR

2022 CALIFORNIA ELECTRICAL CODE (CEC), PART 3, TITLE 24 CCR

2022 CALIFORNIA MECHANICAL CODE (CMC), PART 4, TITLE 24 CCR

2022 CALIFORNIA PLUMBING CODE (CPC), PART 5, TITLE 24 CCR

2022 CALIFORNIA ENERGY CODE, PART 6, TITLE 24 CCR

2022 CALIFORNIA FIRE CODE (CFC), PART 9, TITLE 24 CCR

2022 CALIFORNIA EXISTING BUILDING CODE (CEBC), PART 10, TITLE 24 CCR

2022 CALIFORNIA GREEN BUILDING STANDARDS CODE (CALGREEN), PART 11, TITLE 24 CCR

2022 CALIFORNIA REFERENCED STANDARDS CODE, PART 12, TITLE 24 CCR

TITLE 19 CCR, PUBLIC SAFETY, STATE FIRE MARSHAL REGULATIONS

APPLICABLE STANDARDS

FOR A LIST OF APPLICABLE STANDARDS, INCLUDING CALIFORNIA AMENDMENTS TO THE NFPA STANDARDS, REFER TO CBC CHAPTER 35 AND CFC CHAPTER 80.

TELECOMMUNICATIONS AND DATA

BASIS OF DESIGN - TELECOMMUNICATIONS AND DATA

OBJECTIVES

The Low Voltage Infrastructure for the allcove Beach Cities project shall provide an effective and comprehensive information technology environment capable of supporting all business applications, guest technologies, and support services systems, in an extremely dynamic environment. It shall be robust, with bandwidth capable of carrying data, voice, video, and all other IP based data traffic as prescribed in the project area. It shall provide for capacity to provide PoE (Power Over Ethernet) throughout the "Project" LAN topology. It will be scalable to allow new applications and uses to be implemented with no major infrastructure upgrade required. To ensure the network meets the design directives which include high security, robust speed, and systems based on open, vendor-neutral protocols, we will utilize the latest technologies which have proven to be the most cost-effective and reliable platforms. The project will implement a TIA based "Hierarchical Star" Information Technology Cabling topology. All IP technology needs for the allcove Beach Cities project will be served from a converged MDF/Telecom Room and supporting TRs and TC's. The Network design shall take maximum advantage of fault tolerance, converged technology opportunities as well as Net Zero Energy efficiency and economic advantages associated with "Converged", active and passive network sub-systems wherever possible.

This document is intended to provide a framework for the design, as well as give the client a means to provide their input.

CODES AND STANDARDS

Complete, functional, installed and tested Network Infrastructure in conformance with:

- National Electrical Code (NEC) of NFPA 70
- Energy Conservation Building Code (ECBC 2017)
- TIA (Telecommunication Industry Association) Methods and Means
- BICSI (Building Industry Consulting Services International) Methods and Means

Meet the following performance standards:

- NFPA 110 Standard for Emergency and Standby Power Systems
- NFPA 101 Life Safety Code
- NFPA 72 National Fire Alarm Code
- NFPA 70 National Electric Code
- Institute of Electrical and Electronic Engineers (IEEE) Design and Policy Guidelines
- National Electrical Manufacturing Association (NEMA) Design and Policy Guidelines
- The National Electrical Code 'Grounding and Bonding Requirements' –
- NEC Article 250
- IEEE 802.3 Wired Ethernet – for Physical, Data Link and Media Access Control
- 802.11ax (WiFi6) - Standard for Wireless Local Area Networks
- ANSI/TIA 526 – OFSTP-19 Optical Signal-to-Noise Ratio Measurement Procedures for Dense Wavelength-Division Multiplexed Systems.
- ANSI/TIA-568-0-D – Generic Communications Cabling for Customer Premises.
- ANSI/TIA-568-1-D – Commercial Building Communications Cabling Standard Part 1: General Requirements.
- ANSI/TIA 568-C.2 – Balanced Twisted-Pair Telecommunications Cabling and Components Standards
- ANSI/TIA 568-C.3 – Optical Fiber Cabling Components Standard
- ANSI/TIA-569-D – Commercial Building Standard for Telecommunications Pathways and Spaces.
- ANSI/TIA-606-B – Administration Standard for the Commercial Telecommunications Infrastructure.
- ANSI/JSTD-607-C – Commercial Building Bonding and Grounding (Earthing) Requirements for Telecommunications.
- ANSI/TIA-758-A – Customer-Owned Outside Plant Telecommunications Infrastructure standard.

BASIS OF DESIGN - TELECOMMUNICATIONS AND DATA

GENERAL SYSTEM NOTES

1. Systems within the areas of improvement and within the Main Distribution Frame (MDF) will share information technology infrastructure and shall be combined logically and physically.
    a. Technology Infrastructure Spaces and Distribution methods shall utilize conventional “Hierarchical Star” TIA compliant cabling infrastructure standards.
    b. “Core/Optical Fiber backbone” services shall be of Single Mode Optical Fiber with LC termination method and shall be capable of seamless upgrade to 100/400Gbps bandwidth for future applications. The system will also be backward compatible with legacy type TIA based Cabling Infrastructure Distribution in order to support the current Network Architecture.
    c. “Voice/Data User outlets” and ancillary nodes (e.g. WiFi, IPTV, etc.) shall be provisioned with Category 6A cables capable of providing 10Gbps throughput to all Network Nodes. The system will also be backward compatible with legacy type TIA based cabling Infrastructure Distribution in order to support the current Network Architecture.

DATA / TELECOM BASIC MATERIALS AND METHODS

Communications Spaces:

1. Entrance Facility/Minimum Point of Entry (EF/MPOE): The communications facility entrance will be located on the Ground floor of the building. The (EF/MPOE) will be housed in the MDF room. There will be at least one wall covered with fire-rated ¾” plywood to 8’A.F.F. It will contain a bank of multiple 4” PVC conduit pathways from the outside carrier service. A minimum of (2) 4” conduits shall be provided for each carrier/service provider. The EF/MPOE shall be provisioned with a minimum of (1) TIA compliant and seismic rated, 4 post relay rack. A termination field shall be provided interfacing any outside cable to intra-building backbone cabling. The local telephone/data carrier shall terminate copper and fiber optic cabling at this point and provide primary voltage protection connected to a Main Telecommunications Ground Busbar (TMGB). The EF/MPOE will contain a minimum of (2) 4” EMT conduit sleeves to the main MDF/TR rack field to carry voice, data, video, security, or other low voltage services. The EF/MPOE room will need to be mechanically and electronically secured and access limited. The EF/MPOE shall be a minimum of 6’ x 6’ and contain at least (1) 3’-0” wide door. The EF/MPOE area shall be utilized exclusively for Carrier Based incoming services and Core Network attachment only. Primary circuit protection shall be required for all Outside plant or otherwise exposed metallic conductors per NEC article 800.90.
2. Main Distribution Frame (MDF): (Programmed to be converged with a TR and the MPOE). There shall be (1) MDF/TR located along with the EF/MPOE room on the Ground floor. The room will share a common construction envelope with the EF/MPOE. The MDF shall provide Core Network connectivity to the LAN Access Layer within the Star/Mesh cabling architecture. The MDF shall provide for housing and connectivity of converged Core Network IT systems. Electronic hardware supporting building management (BAS/BMS), electronic security and alarm systems (ACAMS), intercom and video surveillance (VSS), IPTV and other shared IT systems shall converge within the MDF/TR, providing for maximum cost saving of shared utilities and system infrastructure. The MDF/TR shall be a minimum of 9.5’ x 9.5’ and contain at least (1) 36” door. The MDF/TR shall be provisioned with a minimum of (1) TIA compliant and seismic rated, 19”x 84” x 24” open frame, 4 post relay rack. The MDF shall be secured by both a keyed mechanical lock and card activated control. The walls shall be one-hour rated, sealed deck-to-deck, and contain a vapor barrier (as required) to allow maintaining proper humidity. The floor shall be concrete on metal deck, covered with Static Dissipative Tile or coating properly grounded to the Telecommunications Ground Buss system. The MDF Room is cooled by 24-hour air conditioning and shall contain “Dry Pipe” pre-action fire sprinkler systems. Primary circuit protection shall be required for all Outside plant or otherwise exposed metallic conductors per NEC article 800.90.
3. Telecommunications Room (TR): (Programmed to be converged

BASIS OF DESIGN - TELECOMMUNICATIONS AND DATA

with the MDF) There is (1) TR that is located on the Ground floor. It is converged with the MDF space (see Single Line / Riser). The 2nd level of the facility shall be served from the 1st floor TR facilitiy. The TR represents the space where the MDF copper and fiber backbone connectivity terminates and connects into the Horizontal Cabling Infrastructure (e.g. User Outlets). The TR shall provide a minimum of 3' working clearance for cabinets and/or racks. The TR shall be provisioned with a minimum of (1) TIA compliant and seismic rated, 19"x 84" x 24" open frame, 4 post relay rack. Primary circuit protection shall be required for all Outside plant or otherwise exposed metallic conductors per NEC article 800.90. All equipment racks and cabinets shall be properly grounded to a common earthing solution per NEC Section 250.

Racks and Cabinets

1. The (MDF) shall be provisioned with a minimum of (1) 19" wide x 84" tall x 24" deep, TIA Compliant, floor standing, 4-post rack equipped with 6" wide, double-sided, full height vertical wire managers. 12" wide cable runway/ladder tray shall be routed above the rack and connect all walls within the room. The rack will be equipped with an appropriate number and type or horizontal and vertical wire management modules, both front and rear, with strain relief brackets to insure proper bend radius and strain relief is maintained for all data and power cables.
2. The (TR) shall be provisioned with a minimum of (1) 19" wide x 84" tall x 24" deep, TIA Compliant, floor standing, 4-post rack equipped with 6" wide, double-sided, full height vertical wire managers. 12" wide cable runway/ladder tray shall be routed above the rack and connect all walls within the room. The rack will be equipped with an appropriate number and type or horizontal and vertical wire management modules, both front and rear, with strain relief brackets to insure proper bend radius and strain relief is maintained for all data and power cables. The TR rack field shall provide for a Minimum of (30%) scalability for Cat. 6A user cabling infrastructure in addition to accommodations for A/V, security and misc. electronics that are not yet identified (per Rack Elevation drawing).
3. Each Rack and each Cabinet shall be provisioned with (1) 120VAC/20A Dedicated outlet and (1) 120VAC/30A Dedicated outlet.. The Electrical Circuits shall be a part of the building's back up power infrastructure if possible. Also, 120VAC/20A outlets and 120VAC/15A outlets shall be provided within the MDF/TR for misc. services. (See T-Sheets for power coordination).
4. Each Rack and each Cabinet shall be provisioned with (1) 3000VA AC/DC Uninterruptable Power Supply "UPS". The Electrical Circuits shall be a part of the building's back up power infrastructure if possible. The UPS' shall be TIA 19" rack mountable and be placed in the lower portion of each rack or cabinet. Each UPS will include a LAN Network Interface Card allowing UPS network connectivity.
5. The installation of each equipment cabinet and rack will include the planning and provisioning of ancillary items commonly associated with telecom space development. (e.g. Electrical outlets, Conduit sleeves, D-rings, wire management.)
6. Provide and install (1) 1RMS, rack mountable horizontal cable manager for each installed Horizontal Cabling patch panel.
7. Provide and install (1) 6" wide, double-sided, full height vertical wire manager on each end of each 4 post relay rack.

Pathways

1. (3) x Trade size 4" PVC conduit path shall be established between the Civil Utility and the EF/MPOE facility in support of ISP/Carrier circuit extension into the customer premises. (3) size 6" building penetrations shall be provided at the door wall of the MPOE/MDF Room in support of Carrier/ISP access. Such penetrations shall be professionally sealed per CBC and local code requirements.

BASIS OF DESIGN - TELECOMMUNICATIONS AND DATA

2. Horizontal Cabling Access: The (MDF/TR) will also contain a minimum of (1) 4" EMT conduit, or conduit sleeve, connecting the MDF/TR to each commonly accessible floor within the massing program in support of Horizontal Cabling distribution and aggregation. Conduits and Conduits Sleeves in support of Telecom systems shall be per TIA 569 compliance in all cases.
3. Conduits for Horizontal Cabling Distribution: Conduit is used where the cable is permanent or is run in an area that will not be accessible. This project will require the design and installation of a conduit distribution system to reach all telecom outlet positions within the project requirement. It should be presumed that the entire project has hard-lid ceilings and requires a concealed conduit system. Additionally, conduit is used from inside the wall, from the work area outlet to the cable tray or J-hook bundle, or nearest accessible ceiling. No conduit is less than 1" diameter.
4. Back boxes at each work area shall be 5" x 5" x 2.8" deep to allow use of Category 6A and / or Fiber optics to each station as needed.
5. Conduits for Fiber Optics: Conduits carrying the fiber optic cable shall include encasement in environmentally rated and corrugated innerduct. Armored Optical Fiber cabling may be recommended as a substitute for Innerduct requirements.
6. (2) x Trade size 3" conduit path shall be established between the MPOE/MDF facility and the roof (including weather penetration and weather hood) in support of Satellite/Microwave and donor signal requirements. This pathway requires a 2HR Fire Rating for EERCS/ NFPA72 compliance.

Cabling

1. Within the project area, cabling shall be Plenum (CMP) rated, Low Smoke Zero Halogen (LSZH) rated, or Riser (CMR) rated cable as approved by the AHJ. Any outside plant cables or cables running in conduits below grade shall be rated as suitable for installation in wet locations. A variety of Horizontal and Backbone Cabling environmental types will be required for this project.
2. Civil Backbone/Data: For the Optical Fiber backbone linking the Civil Utility to the EF/MPOE, (1) new 24 strand, Single Mode (OS2) optical fiber cable shall be installed in support of ISP/Carrier service delivery. This will support the initial bandwidth deployment of 10Gbps Ethernet, and allow futureproofing support of next generation 100/400 Gbps Ethernet and beyond. Single Mode Optical Fiber will allow support for the network channel extension of A/V, Security, video production and carrier services if requested.
3. Civil Backbone/Voice: For the Copper backbone linking the Civil Utility to the EF/MPOE, new (1) 25 Pair, Category 3 Rated / OSP cable shall be installed. This cable will support the connectivity of Analog voice circuits as well as general signal for Utilities, Security, Alarm and production services.
4. MPOE extension/Data: For the Optical Fiber backbone linking the EF/ MPOE to the MDF, (1) new 24 strand, Single Mode (OS2) optical fiber cable shall be installed in support of ISP/Carrier service delivery to the building network. This will support the initial bandwidth deployment of 10Gbps Ethernet, and allow futureproofing support of next generation 100/400 Gbps Ethernet and beyond. Single Mode Optical Fiber will allow support for the network channel extension of A/V, Security, video production and carrier services if requested.
5. MPOE extension Voice: For the Copper backbone linking the EF/MPOE to the MDF (within the same room), new (1) 25 Pair, Category 3 Rated / OSP cable. This cable will support the connectivity of Analog voice circuits as well as general signal for Utilities, Security, Alarm and production services.

BASIS OF DESIGN - TELECOMMUNICATIONS AND DATA

6. Horizontal Cabling: Each wall plate will receive between one and three (1-3) Category 6A cables, except for areas which require a higher density of equipment connectivity. Our design will use Category 6A, (augmented) cable that will provide initial network connectivity to users at 1Gbps Ethernet. Category 6A cable will also provide futureproofing support up to 10Gbps Ethernet to the desktop as well as streaming video, VoIP telephony, or Security & AV services. In addition to the quantity required by the baseline building occupancy design, there shall be an additional 20% expansion capacity provided for all horizontal cabling distribution frames.
7. Coaxial Cabling: (Only if required in lieu of IPTV distribution) Vertical distribution of broadband television systems and connections between the service provider headend and satellite receivers are made with Quad shield RG-11 cable which meets or exceed SCTE guidelines for construction and attenuation. Ideally, the headend will convert the signals to IPTV which could be distributed over the LAN system and data outlets. If required, horizontal coax runs to the television outlets in public and private spaces are made with Quad-shield RG-6. CMP rated cable shall be used in plenum rated areas per code requirements.

Hierarchical Star LAN Topology

1. A Hierarchical Star LAN shall form the main topology for voice, data, and High Speed Internet distribution throughout the building. The network consists of the following elements:
2. Backbone Cabling – Network connectivity shall utilize Single Mode Fiber Optic Backbone Cabling to directly connect the Core Network services within the MDF and the EF/MPOE facility. Optical Fiber performance shall take advantage of OS2 technology, allowing for future scalability of core network connectivity. The Optical Fiber design shall deploy a Duplex “LC” termination method to support current and future scalability to “100/400Gbps Transmission technologies”. All Fiber Optic cabling shall be, organized, terminated and adapted using the “LC” duplex method and shall be backward compatible with all existing user Network interfaces.
3. Horizontal Cabling – Network connectivity shall utilize Category 6A Plenum, Riser or OSP (Outside Plant) Rated Cabling to connect all Network Access services within the MDF/TR facilitiy to all Voice, Data, WiFi, IPTV, IP Cameras and other network services within the project area. All Category 6A cabling shall be terminated using the TIA- RJ45 connectors utilizing the 568B wiring scheme. Category 6A cabling shall be terminated to new (48) port, Cat.6A, IDC patch panels within the MDF/TR and TC facilities.
4. Connectivity – Both Copper (Horizontal/Backbone) and Optical Fiber (Backbone) cabling systems shall utilize the most advanced termination and interconnection methods offering the greatest available density for the application. Telecommunications interconnection methods and required connectivity shall be identified as part of the Design Development process.
5. Telecom Spaces – Telecom Spaces (EF,MPOE,MDF,TR’s,etc.) shall house and interconnect all communications services within the project site. Telecom spaces shall be dedicated to the Telecommunications function and shall not be utilized for functions otherwise.

Wireless Networks

1. The wireless design will result in a high-performance, wall-to-wall coverage in a secure, protected Wi-Fi network, supportive of all the security parameters.
2. The wireless network type for this project shall be 802.11ax “WiFi6”. Wireless network (WLAN) coverage is established with the 802.11ax AP’s (Wireless Access Points) installed throughout the primary structure and levels. Multiple APs shall be deployed for additional bandwidth in amenity areas to anticipate maximum occupancy utilizing multiple wireless devices. All prescribed project areas shall receive coverage for 802.11ax WiFi6 support. Using VLANs, encryption, and secure authentication methods, the WLAN shall provide wireless BoH/Admin. building services, as well as “guest” wireless for guest visitors in the common areas. The wireless access points shall be fed with (2) Cat 6A cables utilizing POE (Power over Ethernet).

BASIS OF DESIGN - TELECOMMUNICATIONS AND DATA

3. Outdoor access points (Outdoor Commons, Building Exterior, Parking Lot, Park, etc.) and access points located in weather rated environments shall be mounted inside a RF Transparent Polycarbonate NEMA4 WiFi AP Box-14x12x6 with a solid lockable door or NEMA 4 AP Enclosure with screw-on cover, right-angle orientation. Recommended manufacturer Oberon Inc 1020 or 1026 series. All access points shall be mounted so that it conforms with manufacturer standards and recommendations.
4. Wi-Fi coverage requirements shall be predicted, documented and incorporated as part of the Design/Build process utilizing Ekahau Pro 802.11ax Predictive Survey suite. The final Wireless Access Point design will be a product of a Field Analysis and validation of predictive survey findings. This service shall be provided by the installation contractor, and as part of the construction process.
5. Wi-Fi "areas of coverage" for the Allcove shall be evaluated for compliance and complexity of installation prior to proceeding with detailed design drawings.
6. ERRCS-DAS (Emergency Responder Radio Coverage System), 2-Way Radio, and/or Cellular Enhancement -DAS systems are not a part of this project at this time.

Data / Telecom Labeling

All Information Technology infrastructure components, including (but not limited to) copper and fiber backbone, copper and fiber horizontal cable, coaxial cable assemblies, ground systems components, fire stop locations, conduits, cable trays, jacks, cabinets, patch panels, 110 blocks, work station outlets, and patch cords shall be fully labeled as described in TIA/EIE-606-A (Administration Standard for Commercial Telecommunications Infrastructure).

Data / Telecom Grounding and Bonding

Telecommunications Ground System: Solid copper grounding bus bars shall be installed with insulated standoffs in MPOE, MDF, TR and TC facilities that do not possess a compliant ground conductors. Telecommunications equipment, frames, cabinets and voltage protectors are typically grounded to these bus bars. Bus bars are connected by a backbone of insulated, solid copper cable between all closets and rooms. This backbone is connected to a main grounding bus bar in the telecommunications entrance facility, to an earth ground in the electrical entrance facility and to structural steel on each floor, per J-STD-607-A.

Supplement #1 – Carrier/ISP Recommendation

1. The Allcove Project will require the location and validation of available "OSP" Outside Plant, Carrier/ISP services, and to establish a Carrier/ISP of contract to provide Data Access services as well as Application and Content Services delivery to the Building MPOE, Voice over IP, IPTV and Internet access are examples of such services.
2. It is recommended that a min. 1Gbps throughput "Hi-Cap" service connection (scalable to 10Gbps) be provided from a Tier 1 Carrier/ISP to the project MPOE Structure.
3. Such a connection should include a conventional "voice" capable offering. This could be direct analog telco service via copper cable or analog emulation via SIP trunks. This will be valuable for simple services such as Fax, and POTS lines if applicable.
4. Copper and Fiber host services in support of Carrier connections are being included in the design and cost of this project until such an agreement is reached. This includes MPOE Construction, Carrier Service cabling and hardware. Carrier Service grounding and bonding.

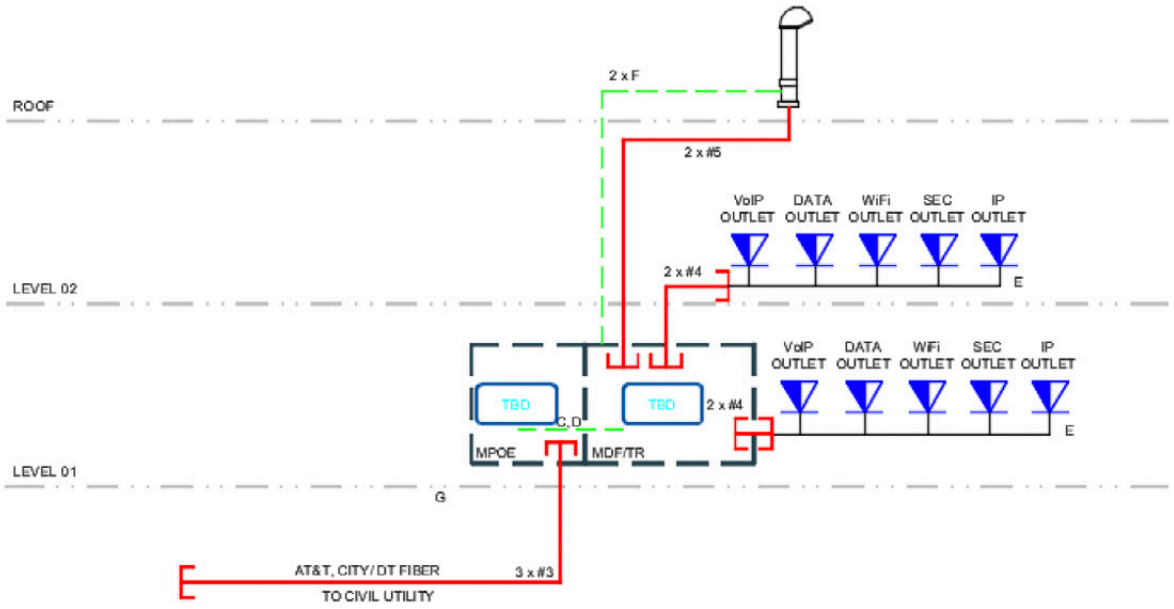
BASIS OF DESIGN - TELECOMMUNICATIONS AND DATA

IT/TELECOM CABLING LEGEND

"A" = (1) 06STR/SM-OSP
"B" = (1) 25PR/CAT.3/ARMM
"C" = (1) 24STR/SM/OFNR
"D" = (1)25PR/CAT.3/T&Rx24
"E" = (#) CAT. 6A/CMX/UTP
"F" = (#) RG11/CMR

CONDUIT PATHWAYS LEGEND

"#1 = 1" PVC CONDUIT
"#2 = 2" PVC CONDUIT
"#3 = 4" PVC CONDUIT
"#4 = 4" EMT CONDUIT
"#5 = 2" EMT CONDUIT



SECURITY

BASIS OF DESIGN - SECURITY

INTRODUCTION

The purpose of this document is to provide guidelines for the installation of security system elements within the allcove Beach Cities project.

The security system provides the capability to control access at designated portals, send video surveillance information, transmit alarm and event signals to the Primary and Secondary locations that provide security assessment capabilities to security operators. From the SOC, security information can be gathered/ interpreted/ verified, and decisions made based on the information. From here information can be shared with all responding parties. This document covers the following elements of the Project's Security System:

- Electronic Access Control System (EACS)
- Intrusion Detection System (IDS)
- Video Surveillance System (VSS)

OVERVIEW

This program narrative describes the conceptual recommendations, systems, and components that enable the security operations as per Allcove - Beach Cities Health District requirement and make up a proposed security system Basis of Design (BOD).

The purpose of this report is to establish the schematic design criteria that will be used in the design process to ensure a complete and comprehensive security system design is provided.

The following list of security measures will be implemented through the design process of the Allcove - Beach Cities Health District project facility. The Security System will be designed in keeping with Allcove - Beach Cities Health District requirements using following three methods:

1. Crime Prevention Through Environmental Design (CPTED),
2. The Concentric Circles of Protection, and
3. Integrated Design.

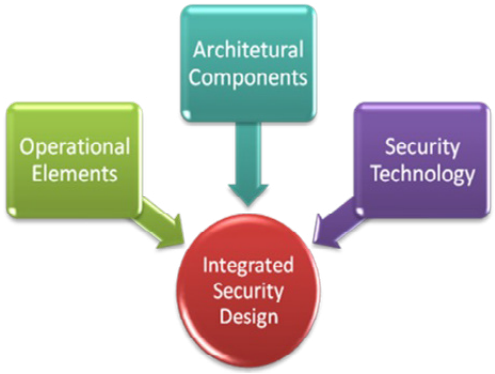
In as much as Electronic Security Product technology is in a constant state of progressive change, it is expected that at the time of implementation, the latest generation of the product that meets the Basis of Design (BOD) will be used. The following pages of this report describe recommendations for the security system at allcove - Beach Cities.

RECOMMENDED SECURITY STRATEGIES

Any successful security program begins with an analysis of risks and threats. Risks are the harm caused by an action and threats are events that cause the action. Once risks and threats are examined and understood, mitigation techniques can be used to limit the exposure of the facility. The following elements describe the security measures that are viewed as best practices for securing a facility. The security measures are a combination of architectural, operational, and electronic elements that contribute to a safe and secure environment.

INTEGRATED DESIGN

In protecting an asset, the concept of Integrated Design establishes effective security programs through the integration of security technology with architectural components and operational elements. The premise for using this concept is that architecture, operations, and electronics must complement one another to create a strong security program. No one element of this group can stand alone or operate independently to provide adequate protection. Figure 1 provides an abstract visual representation of this concept.



BASIS OF DESIGN - SECURITY

CODES AND STANDARDS

Complete, functional, installed and tested security system in conformance with:

1. UL - Underwriters Laboratories, Inc., UL 294, UL 1076, ULC
2. EIA - Electrical Industries Association
3. NTSC - National Television Standards Committee
4. NEMA - National Electrical Manufacturers Association
5. DPH – Dept. of Public Health Standards and Guidelines
6. NEIS- National Electrical Installation Standards
7. NFPA - National Fire Protection Association, 101Life Safety Code, 72
8. NEC - National Electrical Code
9. CCR Title 24 - California Uniform Building Code
10. CEC - California Electrical Code
11. ADA - Americans with Disabilities Act
12. FCC - Part 15, Part 68
13. ASIS – American Society for Industrial Security

ELECTRONIC ACCESS CONTROL SYSTEM (EACS)

The Electronic Access Control System is designed to monitor and restrict access to specified areas, and to report on the activity and violations of restricted access in those areas.

Included Areas:

1. All exterior Doors
2. Stairwell Doors (on each floor)
3. Utility Rooms (IT Server/telecom/MDF, Elevator Rm, electrical, mech.)
4. Work Room
5. Large Group Rooms/Group Room/
6. Chat Room
7. Clean room
8. Privacy room
9. Solid room
10. Exam Room
11. Janitor room
12. Exterior Terrace
13. Storage
14. Staff Office

ACCESS CONTROL SYSTEM

Electronic Lock Systems: Featuring multiple authentication methods including RFID, biometrics, and numerical codes as follows:

1. Smart Card Readers
2. Biometric Readers
3. Keypad Readers
4. RFID Readers
5. Mobile Credential Readers

Visitor Management Systems: Software solutions for tracking and managing visitors, including ID verification and access logging. The contractor shall provide a badging station equipped with a camera, tripod, and backdrop.

Centralized Access Control Software: To manage access permissions, monitor entry points, and integrate with other security systems.

Emergency Egress Integration: Systems designed to unlock automatically in case of fire or other emergencies, compliant with fire safety codes.

Space Requirements: Equipment room for on-site servers and network equipment, though mobile and cloud solutions can reduce this need.

ADA Compliance: Ensuring all access control hardware is accessible to individuals with disabilities.

AHJ Compliance: Integration with fire alarm systems to ensure free egress during emergencies and compliance with ADA requirements.

The EACS shall include a card reader, door position switch (DPS), request to exit sensor (REX), electrified door hardware, and all associated devices required for installation. The card reader technology shall be the proximity type. All doors shall have a DPS as part of the EACS to monitor door status. Network communications for the EACS shall be on an independent security network utilizing encrypted ethernet (128-bit AES), RS232, and RS485.

BASIS OF DESIGN - SECURITY

The electronic access control system's Intelligent Field Panels (IFP) will be microprocessor-controlled units. The IFPs will serve as the data collection and communications interface between the EACS server and the IDS panel and will be compatible and interface with the Video Management System.

The EACS server will be a part of the SMS and will utilize network client / server-based architecture with fully distributed processing. The system will have a graphical user interface (GUI) and real time monitoring with user configurable maps and dynamic icons

Doors within the facility will need to be controlled with an active reporting type of door lock. Examples of these types of door control are selected perimeter doors and several interior BoH doors. These online-reporting doors will be shown on the security plans.

The Access Control System shall be from the following:

1. Headend – Lenel
2. Card Readers – HID
3. REX – Bosch
4. Contacts - UTC
5. Or Approved Equal

All security cabling shall be installed in conduit. All enclosures shall be key accessed and equipped with tamper switches to alert security personnel. All accessible "boxes" shall be equipped with tamper resistant screws and fasteners.

INTRUSION DETECTION SYSTEM (IDS)

The Intrusion Detection System is designed to provide alarm monitoring of designated areas within Allcove - Beach Cities Health District and to report on the activity and violations of restricted access in those areas.
Included Areas:

1. Large Group room
2. Intake check-in Lobby
3. Café Lobby
4. Reception Desk
5. Work Room

The IDS is equipped with a keypad to allow arming/disarming of the system.
Contact Sensors: Installed on strategically and specific doors and windows which are critical and important, alerting the central system upon unauthorized access.

Glass Break Detectors: Acoustic sensors to detect the sound of breaking glass, particularly in ground-level and accessible windows.

Motion Detectors: Both interior and exterior, employing passive infrared technology.

Panic/Duress Buttons:

1. Handheld or Wall/Furniture mounted Buttons: Allow users to manually trigger an alarm in emergency situations.
2. Wireless Panic Buttons: Portable buttons that can be carried by individuals for personal safety.

Centralized Alarm System: Capable of notifying local authorities and designated personnel during a breach.

Alarm Notification Systems: Both on-premises alarms and remote notifications to designated security personnel.

Space Requirements: A secure closet or part of the main equipment room for storing and maintaining system components.

BASIS OF DESIGN - SECURITY

AHJ Compliance: Adherence to local noise ordinances and requirements for alarm system operation and monitoring.

Intrusion devices: Shall include motion detectors, duress buttons, and alarm contacts. All Allcove - Beach Cities Health District building perimeter doors shall be equipped with an alarm door contact. Duress alarm shall be placed at the front desk as well as the other critical areas/rooms. All designate doors shall be equipped with an alarm door contact. All designated rooms, offices, glass doors shall be equipped with glass break detectors. Motion detectors shall be provided in common corridors and near entry portals on the Allcove - Beach Cities Health District.

System Integration: The Intrusion detection software shall communicate alarm messages to the VSS. This provides the capability of IDS alarms to automatically call-up cameras at the SOC (Security Operation System) workstation to allow visual assessments of alarms where cameras are positioned to view the alarm location.

The Intrusion Detection System shall be from the following:

1. Intrusion Panel – Bosch
2. Intrusion Keypad – Bosch
3. Intrusion Sensor – Bosch
4. OR Approved Equal

All security cabling shall be installed in conduit. All enclosures shall be key accessed and equipped with tamper switches to alert security personnel. All accessible "boxes" shall be equipped with tamper resistant screws and fasteners.

VIDEO SURVEILLANCE SYSTEM (VSS)

The Video Surveillance System is designed to provide authorized personnel, with the means to monitor, record, and review activity at strategic areas of the Allcove - Beach Cities Health District. The System shall provide the ability to record images received from cameras located throughout the Center in a digital format and retrieve the recorded video information in random access mode based on parameters requested by the user.

All systems are to be monitored and controlled directly from the Facility's Security Operation Center (SOC) & other areas such as lobby reception station.

High-Definition IP Cameras: Selection of cameras suitable for indoor and outdoor surveillance, considering factors like resolution, field of view, night vision capabilities, and weather resistance. Multiple models covering wide angles, equipped with night vision and capable of recording in high resolution as follows:

1. 90° Fixed dome camera
2. 90° Bullet camera
3. 180° dome camera
4. 360° dome camera
5. PTZ Cameras: Strategically placed for maximum area coverage, controllable remotely for focused surveillance.

Cloud-Based Storage Solutions(Option): Integration with cloud-based storage solutions for remote access and additional storage capacity. Secure, encrypted storage for footage with easy accessibility and ample storage capacity.

Video Analytics Software: Advanced analytics for motion detection, facial recognition (where legal), and behavioural analysis.

Space Requirements: Minimal, utilizing existing infrastructure for mounting cameras and leveraging cloud-based storage to reduce physical space for servers. A Security monitoring and control room of approximately 10' x 10' is required for at least two security system operators.

Compliance with Local Codes and Standards: Ensuring all surveillance activities are within legal boundaries respecting privacy rights.

Building Codes: Adherence to local building codes for the installation of cameras and wiring.

Data Privacy Laws: Compliance with state and federal data privacy regulations, including the handling of video footage.

BASIS OF DESIGN - SECURITY

AHJ Requirements: Fulfilment of specific requirements set by the local Authority Having Jurisdiction.

ADA Compliance: Ensuring the installation does not impede accessibility as per the Americans with Disabilities Act.

Design Considerations:

1. Coverage Area: Strategic placement of cameras to cover all critical areas while respecting privacy concerns.
2. Network Infrastructure: Ensure the network meets the design directives which include high security, robust speed, and systems based on open, vendor-neutral protocols, we will utilize the latest technologies which have proven to be the most cost-effective and reliable platforms and support the security system.
3. Power and Connectivity: Ensuring reliable power supply and internet connectivity for all components.
4. Scalability and Flexibility: Designing a system that can be scaled or modified as per future needs.
5. Vulnerability Analysis: Identifying potential security risks and proposing mitigation strategies.
6. Data Security: Implementing measures for securing stored data against unauthorized access.

System Integration:

1. Integration with other Systems: Ensuring compatibility and seamless integration with other security or building management systems.
2. User Interface: Implementation of a user-friendly interface for system management and monitoring.

Cameras shall be located as per following locations:

1. All Ingress and Egress
2. Telecom and Other utility critical rooms
3. Allcove building perimeter wall

Camera Selection: The following guidance is provided in selecting cameras being added to the Video Surveillance System.

Camera Resolution: The camera resolution determines the detail of the image as well as the data bandwidth and storage requirements for the camera. As a minimum two camera resolutions are defined to meet the majority of applications on the campus. Special applications may require variations in these requirements.

1. 90°/180°, 1080P HD minimum resolution, 25/30 fps with WDR – Forensic
2. Capture – Color: 0.25 lux, B/W: 0.05 lux
3. 90°/180°, 1080P HD minimum resolution, 50/60 fps – Color: 0.5 lux, B/W: 0.05 lux

Surveillance Mode: This is the most common mode used for video surveillance. This provides good detail within the field of view and allows the ability to easily differentiate between objects within a scene. Surveillance mode requires a camera selection that provides 20 pixels per foot at the target location.

Forensics Mode: Forensic mode provides more detail in the image to assist in identifying detailed information in the scene. A typical application is the ability to clearly read the license number on a vehicle. Forensic mode requires a camera selection that provides 40 - 60 pixels per foot at the target location.

Facial Recognition Mode: Facial recognition mode provides extremely high detailed information on objects, primarily the human face, to allow special software applications to compare the image captured by the camera with a database of known images. This mode is reserved for very high security applications. Facial recognition mode requires a camera selection that provides 100 pixels per foot (minimum) at the target location. Currently there are no applications for this mode in the County.

BASIS OF DESIGN - SECURITY

Camera Selection Guide: The following table provides some guidelines for camera selection. It is recommended a detail camera analysis be undertaken to ensure proper camera selection and placement to meet the security needs of each project.

1. HD Surveillance Mode – 96' scene width
2. HD Forensic Mode – 48' scene width
3. HD Facial Recognition Mode – 19' scene width

Cameras are to meet the following minimum functional standards:

1. Mini-dome form factor, fixed view (non-PTZ) cameras which fit tight to trade standard backboxes or flush in ceiling mounts at the interior and provides no protrusion to grasp or hang from. Exceptions:
    a. Box cameras where required to accommodate long lensing.
2. Select camera resolution to suit application. Using computer-aided design, select cameras capable of providing not less than 20 pixels effective resolution between a surveilled person's eyes in the area of interest to aid in identification of persons of interest by investigating police staff.
3. In many cases, multi-imager (180 degree to 360 degree) cameras will provide the best coverage using the fewest number of devices.
4. All cameras to incorporate basic video analytics, including the detection of motion in a selected field or fields of view.
5. Site and interior lighting to provide not less than that required to produce a usable picture suitable to achieve the design goals through the VMS system through the specified cameras, which shall provide functional imagery at light levels not greater than 0.09 lux with no more than a 1/30s shutter and without requiring multiframe aggregation to do so.
6. At cameras facing glass doors to the exterior, with a view to exterior windows or other sources of varying light, provide with Wide Dynamic Range (WDR) compensation, 100 dB min.
7. Fixed cameras to be provided with varifocal lens or field selectable lensing to suit proposed field of view. Contractor to be directed to provide and implement manual focus at time of installation.
8. Cameras to support remote autofocus or auto back focus to permit accommodation of changes over time.
9. All cameras to be of vandal resistant construction meeting IK10 minimum and having an Integral Tamper alarm. Exterior cameras to additionally meet IP66 or NEMA 4X.
10. Cameras to support at least two simultaneous streams at different resolutions for use in monitoring and recording. Cameras to provides internal means to trigger motion detection and alarm based on change in field of view defined by software of a minimum number of pixels associated with the arrival or departure of a person in the field being monitored. On detection of motion, relays alarm to VMS and transmits at a frame rate of at least 15 frames per second.
11. ONVIF. Cameras shall be compliant with the Open Network Video Interface Forum Profile S (ONVIF Profile S) conformance or latest edition at time of project Construction Documents preparation. Camera shall also support ONVIF event commands such as tampering alarm, motion alarm and fan error.
12. POE Ethernet switches supporting camera operation to be provided by the Allcove - Beach Cities Health District IT Department as well as any intermediate switching and media conversion required to support remote camera where distance from the communication rooms exceeds 295 feet. Coordinate the required port and media types required with the IT Department.
13. All Ethernet switches and media conversion hardware used to provide video surveillance shall be supported from the facility's Emergency Power system. In no event shall POE midspan extenders be used. Where distances to site cameras exceed 295 feet, employ low strand count OSP fiber and media converters.

Low Light Areas: When cameras are to be placed in areas that may experience low or no light for periods of times the selected camera shall be equipped with an integrated IR illuminator or LED IR panel in support. This will provide the camera the ability to see and record images when adequate white light is not provided. This is a critical element of the camera selection process as it has a significant impact on the amount of data stored on the system archiver when inadequate lighting is provided.

BASIS OF DESIGN - SECURITY

Recording Protocols: Recording protocols determine the amount of computer hard drive storage space required to save the video images for future playback. The following are guidelines to be used to implement for future projects and may be modified as project needs are determined after the system has been in operation over a period of time.

Recording Modes: The information listed below is a guideline for cameras not assigned a specific recording protocol. Cameras assigned specific recording protocols shall supersede the modes listed below.

1. Time Lapse mode: 2 Ips (Images per second) at normal compression.
    - Normal Mode: 5-7 Ips at 1080P. Quality setting medium-high
    - Near Real-Time Mode: 8-15 Ips at high quality compression at camera native resolution (1920x1080 for HDTV – typical)
    - Real Time Mode: 15-30 fps at high quality compression. At native resolution
2. Recording Periods:
    - Normal Business Hours: To be determined for each building.
    - Off Normal Hours: Hours: To be determined for each building.
    - 24-hour Mode
3. The VSS Server and Primary Recording Storage are located in the MDF. The VSS system shall have retention for 30 days, 15fps, Raid 5, distributed or centralized.
4. Typical Scenarios:
    - Common Areas (Hallways, Entrance(s), Perimeters)
    - Programmed for Normal Mode during Normal Business Hours
    - Programmed for Time Lapse Mode during off normal hours
    - During off normal hours the cameras shall switch from Time Lapse Mode to Real Time Mode when there is motion within view of the camera
    - If the EACS/IDS goes into alarm mode after normal hours record the cameras in Real Time Mode
    - Enclosed Low Use Rooms
    - Program the cameras for Time Lapse Mode and assign to 24-Hour Time Period
    - Switch to Real Time Mode when there is activity in the rooms.
    - If the EACS/IDS goes into alarm mode after normal hours record the cameras in Real Time Mode depending on the value of the room
5. Other protocols will be determined as cameras are assigned to specific type areas.
6. Acceptable Cameras: The camera requires compliance with the VAPIX open API.
7. ll security cabling shall be installed in conduit. All enclosures shall be key accessed and equipped with tamper switches to alert security personnel. All accessible “boxes” shall be equipped with tamper resistant screws and fasteners.

INFRASTRUCTURE

The security system devices shall be connected by Category 6A and multi-strand fiber optic back bone (where required) cabling for all security systems connections. Security, access control and video monitoring system which shall be Ethernet based shall reside on a dedicated Ethernet network and not share hardware, IP addressing or VLAN schemes with any other network and shall be dedicated to security infrastructure.

All cables shall be terminated in patch panels in the MDF Room

BASIS OF DESIGN - SECURITY

INFRASTRUCTURE REQUIREMENTS

Mechanical

1. The MDF rooms containing the EACS hardware must be maintained at normal room temperature (i.e. 70 degrees Fahrenheit) to prevent damage to the equipment from overheating.

Estimates for the heat loads are as follows:

1. Access Control Panel/ Power Supply: 300 to 400 BTUs/hr.
2. A 4' x 8' fire rated plywood panel shall be provided in each IDF room for security.

Electrical

1. Provide a 120VAC 20Amp dedicated circuit for each IDF room for the access control equipment.
2. Provide (2) 120VAC 20Amp dedicated circuits for the VSS server/storage locations.
3. Provide (1) 120VAC 20Amp dedicated circuits for the VSS workstation.

Requirements:

- Derive primary 120VAC power from a designated emergency power source in a secure location.
- Power cable shall be protected by conduit.
- Transformers shall be installed in locked cabinets, protected by tamper switches.
- Plug-in transformers that are not protected by locked cabinets are not acceptable.
- Serve all low voltage powered devices within the access control panel from the Electronics Power Supply.
- Provide barriers as may be necessary to separate Class I from Class II power.
- Capacity: The power supply shall be capable of powering a minimum of 150 percent of the load required at the time of acceptance.
- Power Monitoring: The system shall monitor the loss and restoration of power at the STC. Loss and restoration of power shall be displayed at the Primary and Secondary monitoring locations but shall not require resetting of the system.
- Battery Back-up: Provide battery back-up to retain functions of all electronics for a period of four (4) hours "under a load" upon loss of 120VAC power.

AUDIO VISUAL

BASIS OF DESIGN - AUDIO VISUAL

INTRODUCTION

The design goal of the audio-visual system for the allcove Beach Cities Health District project is to support the client's technology initiatives. The emphasis for all audio and video systems is quality, flexibility, ease of use, low maintenance and sustainability. The program for the Lobby + Reception, Café, Large Group Room, Work Room, The Cove, Sensory Room, Group Rooms, Chat Rooms, and related spaces is described below.

LOBBY + RECEPTION

A video display will be provided for digital signage. A networked-based visual messaging system will be provided to display owner created content. The signage software will allow for remote content creation, scheduling and management via an owner supplied desktop computer.

Recessed ceiling mounted speakers will be provided for background music and public address announcements. The ceiling speakers will be distributed to provide uniform sound throughout the space. This space is part of a multi-zone distributed background music system that will be provided.

CAFE

Recessed ceiling mounted speakers will be provided for background music and public address announcements. The ceiling speakers will be distributed to provide uniform sound throughout the space. This space is part of a multi-zone distributed background music system that will be provided.

WORK ROOM

Recessed ceiling mounted speakers will be provided for background music and public address announcements. The ceiling speakers will be distributed to provide uniform sound throughout the space. This space is part of a multi-zone distributed background music system that will be provided.

A local wall mounted control station will be used to interface with the main system controller. This station will be used for source select and volume control.

An audio input panel with line level inputs and Bluetooth audio connectivity will be provided.

LARGE GROUP ROOM

The room will be equipped with a short-throw video projector to display multimedia presentations onto appropriately sized projection screen. The video projector will be wall mounted and supported from the wall structure. The projector will be capable of at least 400 lux per square meter measured at the screen with at least 4K resolution.

An HDMI switcher will be used to switch between the AV connectivity panels to the video projector.

Ceiling mounted speakers will be provided for background music, public address announcements and sound reinforcement of program material.

A local wall mounted control station will be used to interface with the main system controller. This station will be used for source select and volume control.

An audio input panel with line level inputs and Bluetooth audio connectivity will be provided.

Connectivity for a portable Assistive Listening (ALS) System will be provided per ADA requirements.

BREAKROOM

A recessed ceiling mounted speaker will be provided for background music and public address announcements. This space is part of a multi-zone distributed background music system that will be provided.

A local wall mounted control station will be used to interface with the main system controller. This station will be used for source select and volume control.

BASIS OF DESIGN - AUDIO VISUAL

THE COVE

The room will be equipped with a short-throw video projector to display multimedia presentations onto appropriately sized projection screen. The video projector will be wall mounted and supported from the wall structure. The projector will be capable of at least 400 lux per square meter measured at the screen with at least 4K resolution.

A digital video presentation system will be used to route audio and video signals from the various sources to the video projector.

Ceiling mounted speakers will be provided for background music, public address announcements and sound reinforcement of program material.

Wall mounted speakers will be provided at the Exterior Terrace for background music, public address announcements and overflow of program material from The Cove.

AV panels with AV connectors will be provided for connectivity of portable AV equipment.

A wireless microphone system with head worn and handheld microphones will be included for speech reinforcement.

An integrated AV network enabled central control system will be used to control all aspects of the AV system.

A Wall mounted touch panel interface will be provided to control the system. Presets will be programmed to allow automatic recall of predetermine signal routing.

An assistive listening system will be provided for the listening enrichment of the hearing impaired and to comply with ADA requirements.

An equipment rack will be provided to house power amplifiers, source equipment, video presentation system, digital signal processing and control system equipment.

SNACK BAR

A video display will be provided for digital signage. A networked-based visual messaging system will be provided to display owner created content. The signage software will allow for remote content creation, scheduling and management via an owner supplied desktop computer.

SENSORY ROOM

Recessed ceiling mounted speakers will be provided for background music and public address announcements. The ceiling speakers will be distributed to provide uniform sound throughout the room. This space is part of a multi-zone distributed background music system that will be provided.

A local wall mounted control station will be used to interface with the main system controller. This station will be used for source select and volume control.

An audio input panel with line level inputs and Bluetooth audio connectivity will be provided.

GROUP ROOM

An appropriately sized 4K flat panel video display will be provided.

A floor box or wall panel will be provided for connectivity of portable equipment to the video display.

A recessed ceiling mounted speaker will be provided for background music and public address announcements. This space is part of a multi-zone distributed background music system that will be provided.

A local wall mounted control station will be used to interface with the main system controller and will be used for source select and volume control.

An audio input panel with line level inputs and Bluetooth audio connectivity will be provided.

BASIS OF DESIGN - AUDIO VISUAL

CHAT ROOM

A recessed ceiling mounted speaker will be provided for background music and public address announcements. This space is part of a multi-zone distributed background music system that will be provided.

A local wall mounted control station will be used to interface with the main system controller, and will be used for source select and volume control.

An audio input panel with line level inputs and Bluetooth audio connectivity will be provided.

PUBLIC ADDRESS

A public address system shall be provided and be able to page in all rooms with ceiling mounted speakers and in all public common areas, and corridors. Distributed ceiling speakers will be utilized to provide speech paging reinforcement.

The public address system shall be controlled via an owner provided computer(s).

Paging shall be initiated from the telephone system. Operators will pick up the handset, dial a four-digit number code to allow them access to the system. An “ALL PAGE” four-digit code will be programmed into the system to allow building wide paging.

ACOUSTICAL

BASIS OF DESIGN - ACOUSTICAL

INTRODUCTION

There are four general areas requiring acoustical design. These are:

1. Sound isolation from exterior noise sources through the building shell

   Generally described in terms of maximum interior dBA achieved, due to exterior construction. The application of the "A-weighted filter" de-emphasizes low-frequency and very high-frequency sound in a manner similar to human hearing. The exterior construction is designed to satisfy the interior sound levels.

2. Sound isolation between spaces, both horizontally and vertically

   Generally described in terms of minimum Sound Transmission Class (STC) and Impact Isolation Class (IIC).

3. Acoustical ambience within the spaces

   Generally described in terms of maximum Reverberation Time (RT), materials are described in terms of Noise Reduction Coefficient (NRC).

4. Mitigation of HVAC systems sound and vibration levels

   Generally described in terms of maximum dBA or Noise Criterion (NC)

CRITERIA

The only strict acoustical requirements that apply to this project are laid out in California Green Building Code (CALGreen). CALGreen states that in non-residential buildings exposed to an exterior hourly sound level of 65 dBA Leq, interior sound levels due to exterior noise must be no higher than 50 dBA in occupiable spaces (offices, classrooms, etc.).

The Redondo Beach Noise Ordinance lists maximum allowable noise levels on adjacent property lines based on land use. HVAC design shall comply with these criteria.

ACOUSTICAL DESIGN GUIDELINES

Sound Isolation

Note that wherever gypsum board is referenced, assume 5/8-inch type 'x', unless otherwise specified.

Note that 20 gauge studs spaced at 24" on center have been assumed. Material/design may be reduced if lighter gauge studs are used. Material/design must be increased or revised if heavier gauge studs or smaller spacing is used.

A. Group, Chat, Privacy, Exam, Executive Office, Large Group Room, Restroom Partitions

   - For walls between adjacent uses where privacy is a concern, use an insulated stud wall with 2 layers of gypsum board on each side.
   - At corridor walls with doors, use an insulated stud wall with 1 layer of gypsum board on one side and 2 layers of gypsum board on the other side (3 layers total). Maintain lightest gauge studs and maximize spacing wherever possible.
   - For Restroom partitions with plumbing adjacent to occupied space, use an insulated, double-stud wall with 1 layer of gypsum board on each side. Maintain a 1" airspace between the stud rows. Rigid bracing or connections across the stud rows shall not be allowed. Run plumbing on stud side served.
   - Walls should extend full height to the structure above.

BASIS OF DESIGN - ACOUSTICAL

B. Group, Chat, Privacy, Exam, Executive Office, Large Group Room Ceilings
   - The combination of the structural floor and a suspended gypsum board ceiling system will be sufficient in providing adequate airborne sound isolation. Provide minimum 3-1/2" batt insulation in the ceiling cavity.
   - To mitigate impact sound from footfalls, chair movement, etc., consider use of a resilient underlayment below the finished floor. Acceptable products include Ecore Ecosilence, Pliteq GenieMat RST, or similar, minimum 2 millimeters thick. This is only required at second-floor rooms.

C. Electrical, Elevator Room Partitions
   - For walls between Main Electrical Room, Elevator Room and occupied space, use an insulated, double-stud wall with 2 layers of gypsum board on each side. Maintain a 1" airspace between the stud rows. Rigid bracing or connections across the stud rows shall not be allowed.

D. Electrical Room, Elevator Room Ceilings
   - Provide a wire-hung gypsum board ceiling in the Electrical Room below the 2nd floor Cove. 1 layer of gypsum board and minimum 3-1/2" batt insulation in the ceiling cavity.
   - below the 2nd floor Cove. 1 layer of gypsum board and minimum 3-1/2" batt insulation in the ceiling cavity.

E. Small Utility Room Partitions
   - For walls between small utility and occupied spaces, provide an insulated, single-stud wall with 1 layer of gypsum board on one side and 2 layers of gypsum board on the other side (3 layers total).

F. Utility Room Ceilings
   - The combination of the structural floor and a suspended ACT or gypsum board ceiling system will be sufficient in providing adequate airborne sound isolation. Provide minimum 3-1/2" batt insulation in the ceiling cavity.

G. Remaining Areas (Break, Work, Print, Reception, Storage, Janitor) Partitions
   - provide an insulated, single-stud wall with 1 layer of gypsum board on each side.

H. Remaining Work Areas (Break, Work, Print, Reception, Storage, Janitor) Ceilings
   - The combination of the structural floor and a suspended ACT or gypsum board ceiling system will be sufficient in providing adequate airborne sound isolation. Provide minimum 3-1/2" batt insulation in the ceiling cavity.

I. Doors
   - At spaces where privacy or noise isolation from small equipment (i.e., telecom) is a concern, use a latch system, full perimeter seals and astragal around doors including an automatic door bottom with matching threshold. Door assemblies including door, frame, seals and bottom (including lites or glass doors) should be selected to achieve a minimum rating of STC 30.
   - Doors to 1st Floor Elevator, Mechanical spaces shall be selected to achieve a minimum rating of STC 35
   - At spaces where privacy is not a concern, seals and door bottoms are not required on doors.

J. Exterior-to-Interior Sound Isolation
   - Exterior façade assemblies (walls, windows, and roof) will need to be selected such that compliance with CALGreen requirements is achieved. These assemblies will be determined following sound measurements at the site. At this stage, at a minimum, assume STC 33 glazing will be required to satisfy CALGreen. Note that this may be increased depending on the frequency of nearby activity such as vehicle traffic and Metro train pass-byes. For walls, use a single-stud assembly with one layer of gypsum board on each side and fiberglass batt insulation in the cavity.

BASIS OF DESIGN - ACOUSTICAL

K. All Acoustical Partitions
- Utilize methods as indicated in ASTM E497, "Installing Sound Isolating Lightweight Partitions."
- Special detailing shall be developed to avoid sound leakage and flanking at the connections of partitions and operable partitions or mullions.
- Avoid back-to-back electrical outlets in all partitions. Install outlet box pads on the back of the outlet boxes. Close off all open knock-outs.
- Where occupied space occurs adjacent to, above, or below mechanical or electrical rooms, HVAC shafts, etc., the partitions or an enclosure will be designed and constructed to meet the design background sound levels.

Room Acoustical Treatment and Ambience

A. Group, Chat, Privacy, Exam, Executive Office, Large Group, Sensory Room
- Provide ceiling absorption. 100% coverage, with a minimum NRC of 0.7.
- Provide wall absorption on 2 adjacent walls. 60% coverage (3' AFF) with a minimum NRC of 0.75

B. Cove
- Provide ceiling absorption. 100% coverage, minimum NRC 0.7.
- Provide wall absorption on back wall opposite platform. 100% coverage (3' AFF) with a minimum NRC of 0.75

C. Lobby/Reception
- Provide ceiling absorption. 75% coverage, minimum NRC 0.7.
- Provide wall absorption on walls adjacent to workstations, desks, etc. 60% coverage (3' AFF) with a minimum NRC of 0.8.

D. Work/Print Room
- Provide ceiling absorption. 100% coverage, minimum NRC 0.7. Standard ACT system will typically achieve this.

E. Main Electrical/Mechanical/Elevator
- If area is available, provide wall and ceiling absorption. Maximize coverage, 2" thick black, unfaced duct liner board with a minimum NRC of 0.9

Building Systems Noise and Vibration Control

A. Noise Criteria
- Observe the following NC ratings for each room type on the project:

Room Type	NC Rating
Group Room*	30/25
Large Group Room	30
Chat Room*	30/25
Privacy Room*	30/25
Exam Room	30
Sensory Room	30
Executive Office	30
Work/Print Room	35
Lobby/Reception/Café/Intake	40
Break Room	40
Circulation	40
Restroom	45

*If teleconferencing is a primary use, consider NC-25 instead.

BASIS OF DESIGN - ACOUSTICAL

- The following are guidelines for maximum air velocities in rectangular ducts (FPM) for achieving the specified NC ratings. Note that these are not strict requirements; some deviations may be acceptable since NC rating is also dependent on sound levels of the equipment, presence of elbows/take-offs, and room conditions.

Location	Noise Criteria (NC)						
	45	40	35	30	25	20	15
Main Branch Supply*	1950	1700	1500	1000	800	700	600
Main Branch Return*	1450	1200	1000	750	600	500	400
Duct to Grille Supply	700	600	500	400	300	250	200
Duct to Grille Return	700	600	500	400	300	250	200
Size diffuser/grille so manufacturer's NC rating does not exceed	40	35	30	25	20	15	10

- Noise emissions to the environment including, but not limited to, exterior equipment and air intake or exhaust air shafts shall be mitigated so that noise transmitted through the building perimeter or roof meets the building design criteria.

B. General Approach to Mitigate HVAC Noise and Vibration

- Meet design NC levels through selection based on manufacturer's sound power level data and use of sound attenuating devices including: sound attenuators (sound traps); acoustical duct; plenum lining; and flexible ductwork.
- Select and utilize quiet equipment in order to meet specified NC guidelines above and avoid increased noise mitigation procedures and cost. For example, packaged emergency generator units can provide sound attenuation that is guaranteed by the manufacturer so as to meet property line noise ordinances. Quiet cooling towers (e.g. Evapco) can lessen environmental noise impact to neighboring buildings. The use of quiet chillers, such as Turbocor or similar, will help reduce the airborne noise transmission to adjacent spaces within the building itself and nearby property lines.
- Minimize low-frequency noise generation by minimizing air turbulence. Utilize circular ductwork where possible to avoid duct "oil-canning."
- The manufacturer's NC rating shall be determined using the sound power levels measured in accordance with ASHRAE Standard 70 and calculated in accordance with AHRI 885.
- Utilize variable frequency drive for major air supply and return air fan systems. The use of inlet vanes or other devices to produce variable air volume will not be permitted.
- Supply and return air distribution ducts and shafts will be sized to meet the appropriate air velocities and minimize turbulence in order to satisfy the design Noise Criteria.
- Vibration isolate equipment and piping in order to help mitigate noise and vibration transmission to adjacent spaces and other floors.
- Utilize guidelines in A Practical Guide to Noise and Vibration Control for HVAC Systems published by the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) and Chapter 48 of the ASHRAE Applications Handbook.
- Terminal air units shall be tested in accordance with AHRI 880.
- VAV boxes and TAU's shall not be located above or inside sound-sensitive rooms such as group rooms, privacy rooms, executive offices, etc.
- Main duct rings for supply and return should not run directly above enclosed spaces. If this occurs, ductwork shall be fully lagged with 1 layer of 5/8" gypsum board, or Sound Seal BBC-13 (OAE).
- The sound power levels of all terminal units both on the

supply and return side of the system shall not exceed the values indicated in the tables below. If there are any rooms that are not clearly identified in this document, or the project's NC requirement for a specific room is not clear, it is the responsibility of the contractor to request the category of terminal unit that is permissible to serve the area in question.

Located Above:	Maximum Allowable Sound Power Level (dB re 10^{-12}W)					
	125	250	500	1000	2000	4000
NC-25 Areas	56	53	52	52	50	45
NC-30 Areas	61	58	57	57	55	50
NC-35 Areas	65	62	62	62	60	55
NC-40 Areas	70	67	67	67	65	60
NC-45 Areas	73	71	71	72	70	65

Located Above:	Maximum Allowable Sound Power Level (dB re 10^{-12}W)					
	125	250	500	1000	2000	4000
NC-25 Areas	49	45	42	41	39	38
NC-30 Areas	54	50	47	46	44	43
NC-35 Areas	59	55	52	51	49	48
NC-40 Areas	64	60	57	56	54	53
NC-45 Areas	67	64	61	61	59	58

C. General Approach to Mitigate Plumbing Noise and Vibration

- Avoid rigid contact between plumbing domestic water lines, waste, and vent lines and the building structure including, but not limited to, floor slabs, partitions, studs, floor plates, ceilings, and ceiling suspension members.
- Isolate plumbing piping utilizing manufactured isolators specifically designed for the isolation of plumbing piping systems.
    - HoldRite, Inc. – HoldRite Silencer System;
    - LSP Specialty Products – Acousto-Plumb;
    - Mason Industries – Type HD vibration hangers and Mini Super W Pads.
- For any space with an NC rating of 25 or less (see "HVAC Design Criteria"), plumbing in a shared wall or floor/ceiling assembly shall be isolated with the products listed above.
- Limit pipe velocities, as required.
- Select plumbing fixtures and valves and trim with consideration of low noise transmission back into the piping system. Plumbing fixtures and valves shall be free of unusual noise including but not limited to screeching and excessive flow noise.
- Utilize siphon jet toilets and urinals. Flush valves shall be adjusted for minimum flow noise.
- Limit velocities in domestic water systems to 4 feet per second.
- Select pumps so that they operate at 1750 rpm or less utilizing an impeller which has a diameter of no more than 85% of the volute cutwater diameter.
- Flexible connections should be provided at the attachment to all pumps, water heaters, and other similar equipment to reduce vibration transfer through pipes and cables.
- Seismic restraints should not degrade vibration isolation. Vibration-isolated suspended equipment or piping must be provided with slack aircraft cables as seismic restraint.

BASIS OF DESIGN - ACOUSTICAL

D. General Approach to Mitigate Electrical System Noise and Vibration

- Transformers shall be either floor-supported or suspended. Wall-mounted transformers will not be permitted when they may interfere with acoustically sensitive areas.
- Isolate transformers on elastomeric isolators as required to meet the Noise and Vibration Criteria. Provide seismic restraints to meet all applicable building codes.
- Emergency generators shall be vibration isolated with spring mounts. Piping shall be suspended from spring hangers. Exhaust shall be fitted with at least a hospital-grade muffler.
- Testing of emergency generators shall be performed during daytime hours only, at a time when the ambient noise levels are near their maximum values. Weekdays are recommended.
- Utilize flexible connections to all motors and transformers or other vibration-producing equipment. The flexible conduit should be installed with sufficient slack to create either a loose loop or a shallow “U” form.
- Outlet boxes shall not be installed back-to-back, but in alternating stud bays. Utilize outlet box pads in all partitions.

SUSTAINABILITY

BASIS OF DESIGN - SUSTAINABILITY

BCHD has generated Owner's Project Requirements (OPR) that describes their goals and assumptions for the project's sustainable design. A base sustainability version is described with features assumed in this Basis of Design. BCHD is actively seeking additional funding support for enhanced sustainable design features and performance. Refer to the OPR for examples of improvements beyond the base design that are under consideration.

To ensure the allcove Beach Cities facility will be built and operate at high standards, the following certifications are part of the Design-Build Team's scope of services:

- US Green Building Council (USGBC) LEED Gold Certification
- WELL Certification
- Blue Zones Project Certification

LEED

As part of the Preliminary Design services, the Design Team conducted a LEED Charette with BCHD and determined assumptions for the credits deemed reliable for Gold Certification. The PV system assumed in the LEED checklist ans assessment is larger than that assumed in the Title 24 Energy Model base design included in Appendix B of this report.

The LEED checklist and Assessment are included in this Basis of Design in Appendix A. The project is registered with the USGBC for LEED v4 BD+C: NC Certification review. The WELL and Blue Zones Project certification processes have not yet been initiated.

Notable features of the base sustainable design include the following:

- An all-electric, zero-net carbon facility that eliminates the burning of fossil fuels in the building's operation.
- Factory-built prefabricated modular construction to speed construction time, lower cost and reduce disruption for the community through less construction traffic noise and localized pollution.
- A mechanical system and rooftop solar PV and batteries, that will significantly reduce the operations and maintenance costs of the building.
- Electric vehicle (EV) and electric bike chargers to demonstrate and support the future of mobility through cleaner air and less congestion.
- A RainStick water and energy recycling shower.
- A HydroBoost water heater with heat exchange.
- Dry well stormwater collection.
- Natural light and ventilation to promote and express a healthy environment and "space as therapy" while reducing energy use. The building's operable windows, sliding doors and skylights allow natural ventilation through the building and connection to the outdoors. Control of the mechanical HVAC system is integrated with the use of the building envelope openings.
- These features also support the allcove BCHD's commitment to wellness by proactively addressing shared anxieties among youth over environmental degradation and global warming.

For additional Sustainable Design and LEED requirements, refer to:

- The Owner's Project Requirements.
- The LEED Project Checklist on the following page that was generated in the Preliminary Design.
- The LEED Assessment included as Exhibit A in this Basis of Design.
- The Project Specifications.
- Other technical information in this Basis of Design and on the Preliminary Design drawings.
- The certification requirements for LEED, WELL, and Blue Zones Project.

BASIS OF DESIGN - SUSTAINABILITY

LEED v4 for BD+C: New Construction and Major Renovation

Project Checklist - Gold Certification

Project Name: allcove-Beach Cities
Date: FEBRUARY 28, 2024

Y	?	N				
1			Credit	Integrative Process	1	D-B LEED C

8	1	7	**Location and Transportation**		**16**	**Assign**
			Credit	LEED for Neighborhood Development Location	16	
1			Credit	Sensitive Land Protection	1	D-B LEED C
2			Credit	High Priority Site	2	D-B LEED C
3		2	Credit	Surrounding Density and Diverse Uses	5	D-B LEED C
	1	4	Credit	Access to Quality Transit (Shuttle: 30 daily trips, Everyone, Co	5	BCHD
1			Credit	Bicycle Facilities	1	D-B ARCH
		1	Credit	Reduced Parking Footprint	1	D-B ARCH
1			Credit	Green Vehicles	1	D-B ARCH

6	3	1	**Sustainable Sites**		**10**	
Y			Prereq	Construction Activity Pollution Prevention	Required	D-B CIVIL
1			Credit	Site Assessment	1	D-B ARCH
	1	1	Credit	Site Development - Protect or Restore Habitat (Cost $$)	2	BCHD
	1		Credit	Open Space	1	D-B LNDSCP
2	1		Credit	Rainwater Management (90th Percentile) Cost$	3	D-B CIVIL
2			Credit	Heat Island Reduction	2	D-B ARCH
1			Credit	Light Pollution Reduction	1	D-B ARCH

5	2	4	**Water Efficiency**		**11**	
Y			Prereq	Outdoor Water Use Reduction	Required	D-B MEP
Y			Prereq	Indoor Water Use Reduction	Required	D-B MEP
Y			Prereq	Building-Level Water Metering	Required	D-B MEP
1	1		Credit	Outdoor Water Use Reduction + approx $25K before incentive	2	D-B LNDSCP
3	1	2	Credit	Indoor Water Use Reduction (Urinals/Need Reuse-Cost)	6	D-B MEP
		2	Credit	Cooling Tower Water Use	2	D-B MEP
1			Credit	Water Metering	1	D-B MEP

24	9	0	**Energy and Atmosphere**		**33**	
Y			Prereq	Fundamental Commissioning and Verification	Required	CxA
Y			Prereq	Minimum Energy Performance	Required	D-B MEP
Y			Prereq	Building-Level Energy Metering	Required	D-B MEP
Y			Prereq	Fundamental Refrigerant Management	Required	D-B MEP
3	3		Credit	Enhanced Commissioning+ approx $9.5K MBCx or $27K BEC	6	CxA
15	3		Credit	Optimize Energy Performance (Roof space limited)	18	D-B MEP
1			Credit	Advanced Energy Metering	1	D-B MEP
2			Credit	Demand Response	2	D-B MEP
3			Credit	Renewable Energy Production	3	D-B MEP
	1		Credit	Enhanced Refrigerant Management ($ Roof)	1	D-B MEP
	2		Credit	Green Power and Carbon Offsets (COST $550)	2	BCHD

8	3	2	**Materials and Resources**		**13**	**Assign**
Y			Prereq	Storage and Collection of Recyclables	Required	D-B ARCH
Y			Prereq	Construction and Demolition Waste Management Planning	Required	GC
	3	2	Credit	Building Life-Cycle Impact Reduction (COST $$) Req'd Consultant to perfor	5	D-B LEED C
2			Credit	Building Product Disclosure and Optimization - Environmental Product Declarations	2	GC
2			Credit	Building Product Disclosure and Optimization - Sourcing of Raw Materials	2	GC
2			Credit	Building Product Disclosure and Optimization - Material Ingredients	2	GC
2			Credit	Construction and Demolition Waste Management	2	GC

12	3	1	**Indoor Environmental Quality**		**16**	
Y			Prereq	Minimum Indoor Air Quality Performance	Required	D-B MEP
Y			Prereq	Environmental Tobacco Smoke Control	Required	D-B ARCH
2			Credit	Enhanced Indoor Air Quality Strategies	2	D-B MEP
3			Credit	Low-Emitting Materials	3	GC
1			Credit	Construction Indoor Air Quality Management Plan	1	GC
2			Credit	Indoor Air Quality Assessment + approx $20K for testing	2	GC
1			Credit	Thermal Comfort	1	D-B MEP
2			Credit	Interior Lighting	2	D-B MEP
	2	1	Credit	Daylight + approx $15-$20K (Consultant Req'd)	3	D-B ARCH
	1		Credit	Quality Views (D-B to analyze potential)	1	D-B ARCH
1			Credit	Acoustic Performance (COST$$)-Consultant Reqd	1	D-B ARCH

6	0	0	**Innovation**		**6**	
5			Credit	Innovation	5	BCHD / GC
1			Credit	LEED Accredited Professional	1	D-B LEED C

2	1	1	**Regional Priority**		**4**	
		1	Credit	Regional Priority: LT Reduced Pkg Ft (TH:1 pt)	1	D-B ARCH
1			Credit	Regional Priority: SS Rainwater (TH:2pts)	1	D-B CIVIL
	1		Credit	Regional Priority: WE Ind Water Use (TH:4 pts) ($$Required reuse options)	1	D-B MEP
1			Credit	Regional Priority: EA Optimize Energy Perf (TH:10 pts)	1	D-B MEP

72	22	16	**TOTALS**	Possible Points:	**110**

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

	CxA	D-B MEP	D-B ARCH	
OWNER	D-B CIVIL	D-B LEED C	GC	D-B LNDSCP

SIGNAGE AND GRAPHICS

BASIS OF DESIGN - SIGNAGE AND GRAPHICS

A well-planned, comprehensive sign program integrated with the project's design goals and aesthetic will provide the new allcove Beach Cities a brand image that connects with its community. An integrated sign program will enhance the user experience, providing useful information for all users. The aesthetic design will provide a uniform look to the family of signs creating a positive community image and consistent with allcove's brand identity and graphic palette.

The list below represents the family of sign types for areas of the project.

Exterior Site Signs

- Project Identity/Monument
- Pedestrian Direction
- Accessible Route Information
- Interpretive signage for site and sustainable features

Exterior Building Signs

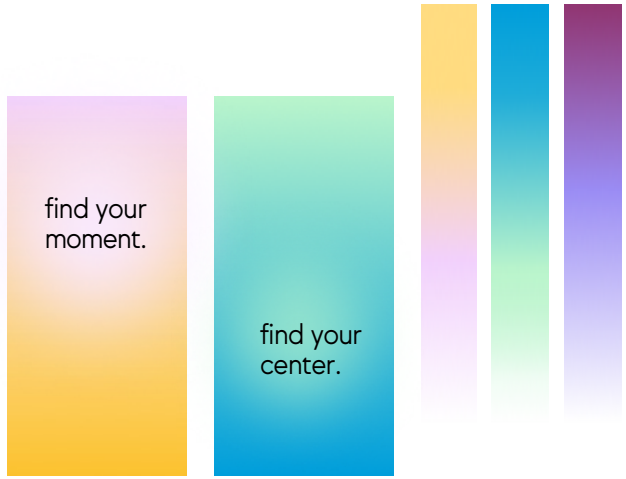
- Building Identity
- Building Entrance Identity
- Building Address
- FDC/Life Safety Information
- Rules & Regulations Information
- Code Information

Building Interior Signs/Graphics

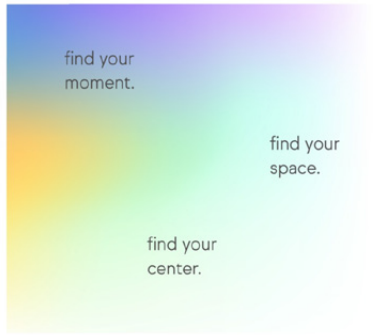
- Lobby/Reception
- Typical Room Identity
- Wayfinding Direction
- Emergency Evacuation
- FDC/Life Safely Signs
- Max. Occupancy
- Back-of-House
- Restroom Identity
- Interpretive signage

The graphics palette uses the colors of the allcove brand to bring a range of moods through the different moments of the environment from introspective to active.

color glass treatments



bold youth photography



welcoming wayfinding

inclusive iconography

PRELIMINARY DESIGN TEAM

OWNER

Beach Cities Health District
allcove

- Tom Bakaly
  CEO
- Monica Suaa
  Chief Financial Officer
- Ali Steward
  Chief Partnership Development Officer
- Kerianne Lawson
  Chief Programs Officer
- Aja Jordan
  Facility Manager
- Youth Advisory Group

DESIGN TEAM

Architect
Paul Murdoch Architects

- Paul Murdoch
- Milena Murdoch
- Eric Cunningham
- Albert Orozco

Civil Engineer
Labib Funk + Associates

- Frank LaRocca
- Ivan Simental
- Ronald Peralbo
- Kyle Prouty

Landscape
Pamela Burton & Company

- Stephanie Psomas
- Mary Sager McFadden
- Dan Colbeck
- Bessy Barahona

Structural Engineer
Labib Funk + Associates

- Kevin Towers

Electrical Engineer
Lucci & Associates

- Ken Lucci

Mechanical, Plumbing and Fire Protection Engineer
Lewis Ross Associates

- Gene Vanderford
- Travis Premo
- Uday Kalavanchi

Low Voltage Consultant
Veneklasen

- Tony Hammers

Security Consultant
Veneklasen

- Tony Hammers

Audio Visual Consultant
Veneklasen

- Pablo Amezquita

Acoustical Consultant
Veneklasen Associates

- Devin Wong
- Alex Marino

Signage and Graphics
Linespace

- Nick Groh

Sustainability and LEED
ZC Sustainability

- Susan Di Giulio
- Beth Brownlie

Specifications
Stansen Specifications

- Linda Stansen

LEED ASSESSMENT

LEED CERTIFICATION GOAL: GOLD

LEED-BD+C NC v4 Assessment: allcove - Beach Cities

2/28/2024

Prerequisite/ Credit	Credit Intent	LEED Version & Option	Credit Requirements	Points: Available Points/Credit	Points: Available Points/Option	Points: Reliable	Points: Possible - Likely	Points: Possible - Unlikely	Points: Not Possible	Points: Ready to Review	Deliverables	Notes	References	Assign
				110	NA	72	18	5	15	0				
Integrative Process				**1**	**NA**	**1**	**0**	**0**	**0**	**0**				
IPc1 Integrative Process	To support high-performance, cost-effective project outcomes through early analysis of system interrelationships	v4	Perform a preliminary water budget and "simple box" energy modeling analysis before the completion of schematic design	1	1	1					Integrative Process Worksheet "Shoebox" model Water budget		Integrative Process Worksheet	D-B ARCH
Location and Transportation				**16**	**NA**	**8**	**0**	**1**	**7**	**0**				
LTc2 Sensitive Land Protection	To avoid the development of environmentally	v4 Option 2	Do not build on the following sensitive lands: Prime farmland, Floodplains, Habitat, Water bodies (except for minor improvements), Wetlands (except for minor improvements)	1	1	1								D-B LEED CONSULT.
LTc3 High Priority Site	To encourage project location in areas with development constraints	v4 Option 2	Locate the project on one of the following: - site listed by the EPA National Priorities List - Federal Empowerment Zone site - Federal Enterprise Community site - Federal Renewal Community site - Department of the Treasury Community Development Financial Institutions Fund Qualified Low-Income Community - site in a U.S. Department of Housing and Urban Development's Qualified Census Tract (QCT) or Difficult Development Area (DDA)	2	1	1						-8/17/23: Project with a HUD-DDA Zone (1 pt). L13 -8/29/23: 2nd point can be accessed for Brownfield with using the membrane. 2nd point Reliable.		BCHD/ D-B ARCH
		v4 Option 3	Locate on a brownfield where soil or groundwater contamination has been identified, and where the government authority requires its remediation. Perform remediation.		2	1								
LTc4 Surrounding Density & Diverse Uses	To encourage development in areas with existing infrastructure and promote walkability, and transportation efficiency	v4.1	Locate on a site with a Walk Score® or equivalent third-party walkability assessment. Points are awarded depending on Walk Score.	5	5	3			2		Walkscore Certificate	*WELL (E): V05.1 Site Planning and Selection: Pedestrian-friendly streets* -8/17/23: Walkscore is 79, so 3 points are earned.		D-B LEED CONSULT.
LTc5 Access to Quality Transit	To encourage development in locations with multimodal transportation	v4/v4.1 Option 1	Locate any functional entry of the project within a ¼-mile walking distance of bus, streetcar, or informal transit stops, or within a ½-mile walking distance of bus rapid transit stops, light or heavy rail stations, commuter rail stations or ferry terminals. See LT Tab for minimum daily transit service breakdown for both v4 and v4.1	5	5				3		Map w/transit stop locations & distance from entry. Published transit schedules.	*WELL (E): V05.2 Site Planning and Selection: Select Sites with Access to Mass Transit, Option B or C* -8/17/23: Beach Cities Metro 102 Line close however very low amount of trips. Metro 232 is .6 miles away.		D-B LEED CONSULT.

	choices or otherwise reduced motor vehicle use	v4.1 Option 2	Commit to providing year-round transit service (vans, shuttles, buses) for regular occupants and visitors that meets 30 daily trips (1 point) or 45 daily trips (2 points)		2			1	1			-8/17/23: Per BCHD, they are have a shuttle programs that may qualify. Metro Micro Buses, PV Shuttle which allow all people to use. Team to verify if GBCI will accept. Amount of trips needs to be determined. 1 pt possible.		
LTc6 Bicycle Facilities	To promote bicycling, reduce vehicle distance traveled and encourage physical activity.	v4	Building entry or bike storage is within 200 yards of 10 diverse uses, a school or employment center, or a transit stop. Commercial Projects: Provide short-term storage for 2.5% of all peak visitors (no fewer than 4 spaces per building) Provide long-term storage for 5% of all building occupants (no fewer than four spaces per building). Provide one on-site shower for the first 100 building occupants and one additional shower for every 150 additional occupants Residential Projects: Provide short-term storage 2.5% of all peak visitors (no fewer than 4 storage spaces per building). Provide long-term storage for 30% of all building occupants (no less than one storage space per residential unit)	1	1	1					Map w/ Bike Route Plan w/ long & short-term storage facilities Plan w/showers	*WELL (E): V04.1 Facilities for Active Occupants: Provide Cycling Infrastructure, V04.2 Facilities for Active Occupants: Provide Showers, Lockers and Changing Facilities* -8/17/23: BCHD planning Bike Route along Flagler Ln and the protected bike lane on Beryl St qualifies. Shower added. Reliable.		D-B ARCH
LTc8 Green/Electric Vehicles	To reduce pollution by promoting alternatives to conventionally	v4.1 Option 1	Install electrical vehicle supply equipment (EVSE) in 5% of all parking spaces used by the project or at least two spaces, whichever is greater.	1	1	1					Site plan or parking structure plan Electrical Plan Signage drawing(s) Charger model(s) cutsheet.	-8/17/23: Moved to Reliable.		D-B ARCH
			Sustainable Sites	**10**	**NA**	**6**	**2**	**1**	**1**	**0**				
SSp1 Construction Activity Pollution	Reduce pollution from construction activities	v4	Create and implement an erosion and sedimentation control plan, that confirms to the erosion and sedimentation requirements of the 2012 U.S. EPA Construction General Permit (CGP) or local	P	P	X					Erosion and sedimentation control plan	CA ACP		D-B CIVIL
SSc1 Site Assessment	To assess site conditions before design to inform related decisions about site design	v4	Complete and document a site survey or assessment that includes information on: topography, hydrology, climate, vegetation, soils, human use and human health effects.	1	1	1					Site Assessment Worksheet	-9/12/23: Confirmed 1 pt reliable.	Site Assessment Worksheet	D-B LANDSCP
SSc2 Site Development - protect or restore habitat	To conserve existing natural areas and restore damaged areas	v4.1 Option 2 (Pilot Credit)	Provide financial support of $0.20 per square foot for the total site area to a recognized land trust or conservation organization	2	1			1	1			-8/17/23: Moved to Possible-Not likely. Save for the end if needed. Based on site area of 17,436 SF, cost would be $3,487.		BCHD
SSc3 Open Space	To create exterior open space to encourage interaction with the environment, social interaction and physical activities.	v4	Provide outdoor space greater than or equal to 30% of the total site area. A minimum of 25% of that outdoor space must be vegetated (turf grass does not count) or have overhead vegetated canopy	1	1		1					*WELL (E): M09.2 Enhanced Access to Nature: Provide Nature Access Outdoors* -8/17/23: Possible if become LEED Campus. There is a garden coordinator for the BCHD site. -9/12/23: Moved this point to possible-likely per the calculations as per Landscape Consultant. Est. Building: 4,470 sf, Planting:3,316 sf,		D-B LANDSCP
SSc4 Rainwater Management	To reduce runoff volume and improve water quality by replicating the natural hydrology and water balance of the site	v4.1 Option 1	Retain on site the runoff from the associated percentile of regional or local rainfall events. The percentile event volume must be retained (i.e. infiltrated, evapotranspirated, or collected and reused) using low-impact development (LID) and green infrastructure (GI) practices 80th Percentile - 1 Point 85th Percentile - 2 Points (CODE)	3	3	2	1				- Rainfall Events Calculator - Runoff volume calculations	-8/17/23: Clay soils can hinder achieving the last point. RPC bonus point avail with 2 pts. - 9/12/23: Per Team, we would need to double the size of our system in order to achieve 90% and the 3rd point/cost impact. 2 points available with code. Drywell would be used/located in the parking lot behind the bldg (manhole size).	Rainfall Events Calculator	D-B CIVIL
		v4.1 Option 2	Calculate the difference between projected runoff volume under proposed design conditions and the runoff volume under natural conditions that existed prior to any disturbance. Retain (i.e. infiltrate, evapotranspirate, or collect and reuse) on site the increase in runoff volume using LID and GI practices.		3									
			Meet the following requirement using any combination of high reflectance roof, non-roof measuges and vegetated roof:								Roof and site plans Documentation of paving SR and roof SRI values	High Reflectance Roof requirements: *Low-sloped roof (≤ 2:12)* Initial SRI ≥ 82 / 3-year aged SRI ≥ 64		

SSc5 Heat Island Reduction	To minimize effects on microclimates and human and wildlife by reducing heat islands	v4 Option 1	$\frac{\text{Area of Nonroof Measures}}{0.5} + \frac{\text{Area of High-Reflectance Roof}}{0.75} + \frac{\text{Area of Vegetated Roof}}{0.75} \geq \text{Total Site Paving Area} + \text{Total Roof Area}$		2	2						*Steep-sloped roof (> 2:12)* Initial SRI ≥ 39 / 3-year aged SRI ≥ 32 *Paving materials* Initial SR ≥ .33 / 3-year aged SR ≥ .28 -8/17/23: Team decision to use concrete for driveway. Solar placement TBD. Permeable pavers for part of the parking area.		D-B ARCH
SSc6 Light Pollution Reduction	To reduce the consequences of development for wildlife and people	v4	Meet both uplight and light trespass requirements, using either Option 1 or 2. Projects can use different options for uplight and trespass requirements. See SS tab for more details	1	1	1						CA ACP		D-B LEED CONSULT.
Water Efficiency				**11**	**NA**	**5**	**2**	**1**	**3**	**0**				
WEp1 Outdoor Water Use	To reduce outdoor water use	v4 - Option 1 v4 - Option 2	No irrigation is required after two-year establishment period Reduce landscape water requirement by at least 30% from the calculated baseline for the site's peak watering month through plant species selection and irrigation techniques.	**P**	**P**	X					WaterSense Water Budget Tool or MAWA calcs Planting Plan	CA ACP		D-B LANDSCP
WEp2 Indoor Water Use	To reduce indoor water use	v4	Reduce water consumption by 20% from the baseline. Appliances and equipment must meet efficiency requirements (e.g. Energy Star) and bathroom plumbing fixtures must be WaterSense. See WE tab for exact requirements.	**P**	**P**	X						CA ACP *WELL (E) X01.3 Material Restriction: Restrict Lead*		D-B MEP
WEp3 Building Level Water Metering	To identify water savings opportunities by tracking water	v4	Install permanent water meters that measure total potable water use for the building and grounds. Compile into monthly or annual summaries. Commit to sharing with USGBC for a five-year period.	**P**	**P**	X					Affidavit/letter committing to share water and energy data	CA ACP		BCHD
WEc1 Outdoor Water Use	To reduce outdoor water consumption.	v4 - Option 1 v4 - Option 2	No irrigation is required after two-year establishment period Reduce landscape water requirement by at least 50% from the calculated baseline for the site's peak watering month through plant species selection and irrigation techniques. *50% Reduction - 1 Point* *100% Reduction - 2 Points*	2	2 2	1	1					CA ACP for 1 point -8/17/23: Team to explore options of using natives not requiring watering after 2 years establishment period. Team to explore options of capture and reuse of rain water or gray water. Purple pipe runs on Flagler. Nick or Robert will verify whether it is connected to a non-potable source, or when that might happen. -9/12/23: Move the one point back to possible- likely due to reclaimed water use be required and connected. Team to investigate (GBCI/others) if we connect to City system would the credit be achieved.		D-B LANDSCP
WEc2 Indoor Water Use	To reduce indoor potable water consumption and preserve potable water resources.	v4	Reduce fixture and fitting water use to earn the following points: 25% Reduction - 1 Point 30% Reduction - 2 Points 35% Reduction - 3 Points 40% Reduction - 4 Points 45% Reduction - 5 Points. Meet the requirements for 1 or 2 of the following for 1-2 points, respectively: commercial washing machines, commercial kitchen equipment, lab and medical equipment and municipal steam systems. See WE tab for exact requirements")	6	6	3	1	1	1			-8/17/23: RPC bonus point available with earning 4 pts. We must put a urinal in one restroom on each floor to earn the 4 points. Hybrid urinal may earn the 5th point.		D-B MEP
WEc4 Water Metering	To identify opportunities for additional water savings by tracking water consumption.	v4	Install permanent water meters for two or more of the following water subsystems: Irrigation, Indoor plumbing fixtures and fittings, Domestic hot water, Boiler, Reclaimed water, Other Process Water.	1	1	1					Riser diagram Meter cutsheet	-8/17/23: Team agrees that the irrigation and the electric heat pump hot water heater can be metered. Moved to Reliable.		D-B MEP
Energy and Atmosphere				**33**	**NA**	**24**	**8**	**1**	**0**	**0**				

EAp1 Fundamental commissioning and verification	To meet the owner's project requirements for energy, water, indoor environmental	v4	Verify that project's energy-related systems are installed, calibrated, & perform per OPR, BOD & CDs, building envelope included, Engage CxA before DDs complete. Prepare and maintain a current facilities requirements and operations and maintenance plan	P	P	X								CA ACP
EAp2 Minimum Energy Performance	To reduce the environmental and economic harms of excessive energy use	v4 Option 1	Demonstrate an improvement of 5% for new construction, with the baseline building performance calculated according to ANSI/ASHRAE/IESNA Standard 90.1–2010, Appendix G, with	P	P	X						CA ACP but energy model required for good score on credit		CA ACP
		v4 Option 2	Comply with the mandatory and prescriptive provisions of ANSI/ASHRAE/IESNA Standard 90.1–2010, with errata. Comply with the HVAC and service water heating requirements in Chapter 4, Design Strategies and Recommendations by Climate Zone.											
		v4 Option 3	Comply with the mandatory and prescriptive provisions of ANSI/ASHRAE/IESNA Standard 90.1-2010, with errata. Comply with Section 1: Design Process Strategies, Section 2: Core Performance Requirements, and the Supply Air Temperature Reset (VAV), Premium Economizer Performance, and Variable Speed Control strategies from Section 3: Enhanced Performance											
		v4.1	Comply with ANSI/ASHRAE/IESNA Standard 90.1–2016, with errata or a USGBC-approved equivalent standard.											
EAp3 Building-Level Energy Metering	To identify opportunities for additional energy savings by tracking building-level energy use	v4	Install building-level energy meters or submeters that provide building-level energy consumption data. Utility-owned meters capable of aggregating building-level resource use are acceptable. Commit to sharing data with USGBC for 5 years.	P	P	X					Affidavit/letter committing to share water and energy data	CA ACP		CA ACP
EAp4 Fundamental Refrigerant Management	To reduce ozone depletion and global warming potential	v4	Do not install HVAC&R equipment with CFCs.	P	P	X						CA ACP		CA ACP
EAc1 Enhanced Commissioning	To support the design, construction, and eventual operation of a project that meets the owner's project requirements for energy, water, indoor environmental quality, and	v4 Option 1 Path 1	Complete the commissioning process activities for mechanical, electrical, plumbing, and renewable energy systems in accordance with ASHRAE Guideline 0–2005 and ASHRAE Guideline 1.1–2007 for HVAC&R systems (3 points).	6	3	3						-8/17/23: LEED Consult Team to provide a summary of owner personnel requirements to enact plan provided by CxA for the 4th point.		CxA
		v4 Option 1 Path 2	Complete Option 1 above and develop monitoring-based procedures and identify points to be measured and evaluated to assess performance of energy- and water-consuming systems (4 points)		1		1							CxA
		v4 Option 2	Envelope Commissioning- Complete the commissioning process (CxP) activities for the building's thermal envelope for an additional 2 points.		2		2					*WELL (E): A09.2 Perform Envelope Commissioning*		CxA
EAc2 Optimize Energy Performance	energy performance beyond the prerequisite standard	v4 Option 1	Demonstrate a percentage improvement in the proposed building performance rating compared with the baseline. See EA tab for point allocation.	18	18	15	3					-9/12/23: We can achieve 15 pts with 40kW system. Roof area is tight to get the full 18 pts.		D-B LEED C
EAc3 Advanced Energy Metering	To identify opportunities for additional energy savings by tracking building-level and system-level energy use	v4	Install advanced energy metering for all whole-building energy sources and any individual energy end uses that represent 10% or more of total annual consumption of the building. - Meters must be permanently installed, record at intervals of one hour or less, and transmit data to a remote location. - The system must store data for at least 36 months. - Electricity meters must record consumption and demand.	1	1	1						-8/17/23: Moved to Reliable.	Span Panel	D-B MEP

EAc4 Demand Response	To increase participation in demand response technologies and programs to increase grid reliability and reduce greenhouse gas emissions	v4/4.1 Option 1	Participate in an existing demand response (DR) program: - Design a system with the capability for real-time, fully-automated DR - Enroll in a minimum one-year DR participation amount contractual commitment with a qualified DR program provider, with the intention of multiyear renewal, for at least 10% of the estimated peak electricity demand. - Develop a comprehensive plan for meeting the contractual commitment during a Demand Response event. - Include the DR processes in the scope of work for the	2	2	2						-8/17/23: Moved to Reliable. So Cal Edison has a demand response program. BCHD willing to participate. Heat pump water heater and VRF system can be equipped for SCE signal response. Span panel idea broached.		BCHD
EAc5 Renewable Energy Production	To reduce the environmental and economic harms associated with fossil fuel energy by increasing self-supply of renewable energy	v4	Use renewable energy systems to offset building energy costs. Points awarded based on percentage of renewable energy generation (using equation below): % renewable energy **equals** Equivalent cost of usable energy produced by the renewable energy system **divided by** Total building annual energy cost 1% - 1 point 5% - 2 points 10% - 3 points	5*	3	3						-8/17/23: Provide battery for energy storage and backup if additional funding can be sought.		BCHD
		v4.1	Use on-site renewable energy systems or procure renewable energy from offsite sources for all or a portion of the building's annual energy use. See EA tab for energy procurement strategies and breakdown of points.		5							* In v4.1, on-site and off-site renewable energy are combined into a single credit, with a total of 5 points available. Onsite 15% = 4pts, 20% = 5 pts. -10/10/23: Estimate is $550 for these extra		
EAc6 Enhanced Refrigerant Management	To reduce ozone depletion	v4 Option 1	Do not use refrigerants or use only refrigerants with ozone depletion potential of zero and a global warming potential of less than 50.	1	1			1						D-B MEP
		v4 Option 2	Select refrigerants used in HVAC&R equipment to minimize or eliminate the emission of compounds that contribute to ozone depletion and climate change. Comply with the formula in the EA tab.									-9/12/23: Moved to possible-unlikley as this is difficult with heat pump systems.		
EAc7 Green power and carbon offsets	To encourage the use of grid-source, renewable energy technologies and carbon mitigation projects	v4	Engage in a contract for qualified resources that have come online since January 1, 2005, for a minimum of five years, to be delivered at least annually. The contract must specify the provision of at least 50% (1 point) or 100% (2 points) of the project's energy from green power, carbon offsets, or renewable energy certificates (RECs)	*	2		2					*See above. For U.S. projects, the offsets must be from greenhouse gas emissions reduction projects within the U.S Save for use if additional points are needed. -8/17/23: BCHD has access to the clean power alliance. LEED Consultant to advise if this qualifies		BCHD
Materials and Resources				**13**	**NA**	**8**	**3**	**0**	**2**	**0**				
MRp1 Storage and collection of recyclables	To reduce the landfill waste generated by building occupants	v4	Provide dedicated areas to collect and store recyclable materials (mixed paper, corrugated cardboard, glass, plastics and metals) for the entire building. Safely collect, store, and disoose of two of the following: batteries, mercury-containing lamps, and electronic waste.	P	P	X						CA ACP		D-B ARCH
MRp2 Construction and demolition waste management planning	To reduce construction and demolition waste by recovering, reusing, and recycling materials	v4	Develop and implement a construction and demolition waste management plan: - Identify at least five materials targeted for diversion - Describe the diversion strategies Provide a final report detailing all major waste streams generated, including disposal and diversion rates.	P	P	X					Construction and demolition waste management plan Final Waste Report (with diversion rates)	CA ACP ADC does not qualify as material diverted from disposal. Incineration may be considered waste-to-energy only when reuse & recycling not possible		GC

MRc1 Building Life-cycle Impact Reduction	To encourage adaptive reuse	v4.1 Option 2	For new construction (buildings or portions of buildings), conduct a cradle-to-grave life-cycle assessment of the project's structure and enclosure and select one or more of the following paths below to earn up to 4 points. Impact categories are those listed in v4 Option 4 above. 1. Conduct a life cycle assessment of the project's structure and enclosure (1 point) 2. Conduct a life cycle assessment of the project's structure and enclosure that demonstrates a minimum of 5% (2 points) or 10% (3 points) reduction in at least 3 of the impact categories, one of which must be global warming potential (2 points) 4: Meet requirements of Path 2 (10% reduction) and incorporate reuse and/or salvage materials into the project's structure and enclosure for the proposed design. Demonstrate reductions compared with a baseline building of at least 20% reduction for global warming potential and demonstrate at least 10% reduction in two additional impact categories (4 points).	5	4		3		2			-8/17/23: Existing furniture does not contribute to this credit, but it does contribute to MRc3 Sourcing of Raw Materials. -9/12/23: Points are available here at a cost to hire LEED consultant to perform the LCA on this building.		D-B ARCH+ GC
MRc2 Environmental Product Declarations	To reward project teams for selecting products from manufacturers who have verified improved environmental life-cycle impacts.	v4 Option 1	Use at least 20 different permanently installed products sourced from at least five different manufacturers that have publicly available EPDs AND/OR Use third party certified products that have a reduced impact in at least three of the following categories. These products should add up to 50%, by cost, of the total value of permanently installed products in the project. - Global warming potential - Depletion of the stratospheric ozone layer - Acidification of land and water sources - Eutrophication - Formation of tropospheric ozone,	2	2									D-B ARCH+ GC
		v4.1 Option 1	Use at least 20 different permanently installed products sourced from at least five different manufacturers that have publicly available EPDs		1	1								
		v4.1 Option 2	Use at least 5 permanently installed products sourced from at least three different manufacturers that have a compliant embodied carbon optimization report or action plan separate from the LCA or EPD. See MR tab for point allocation and report types.		1	1								
MRc3 Sourcing of Raw Materials	To reward project teams for selecting products verified to have been extracted or sourced in a responsible manner.	v4	Use 20 different permanently installed products from at least five different manufacturers that have publicly released a report from their raw material suppliers. Acceptable CSR frameworks include: Global Reporting Initiative (GRI) Sustainability Report, Organisation for Economic Co-operation and Development (OECD) Guidelines for Multinational Enterprises, U.N. Global Compact: Communication of Progress and ISO 26000: 2010 Guidance on Social Responsibility AND/OR Use products that meet at least one of the responsible extraction criteria below for at least 25%, by cost, of the total value of permanently installed building products in the project. - Extended producer responsibility - Bio-based materials - FSC-certified wood products - Materials reuse - Recycled content	2	2						-8/17/23: Furniture to be moved and reused which will contribute to this credit.		D-B ARCH+GC
		v4.1	Use products from three different manufacturers that meet the criteria in the second section of v4 above for at least 15% (1 point) or 30% (2 points), by cost, of the total value of permanently installed building products in the project.		2	2								

MRc4 Material Ingredients* *Options can be combined for a total of 2 points	To use materials that have environmentally, economically, and socially preferable life-cycle impacts.	v4/4.1 Option 1	Use at least 20 different permanently installed products from at least five different manufacturers that use any of the following programs to demonstrate the chemical inventory of the product to at least 0.1% (1000 ppm): ANSI/BIFMA e3 Furniture Sustainability Standard, Manufacturer Inventory, Health Product Declaration, Cradle to Cradle, Declare, ANSI/BIFMA e3 Furniture Sustainability Standard, Cradle to Cradle Material Health Certificate, Product Lens Certification, Facts - NSF/ANSI 336.	2	1	1					- *WELL (E) X07.1 Material Transparency*		D-B ARCH+ GC
		v4.1 Option 2	Use products that have a compliant material ingredient optimization report or action plan. Use at least 5 permanently installed products sourced from at least three different manufacturers. See MR tab for compliant reports and point calculation.		1	1							
MRc5 Construction and Demolition Waste Management	To reduce construction and demolition waste by recovering, reusing,	v4 Option 1	For 1 point, divert at least 50% of the total construction and demolition material and at least three material streams. For 2 points, divert at least 75% of the total construction and demolition material and at least four material streams	2	2	2						CA ACP 1 pt. only. -8/17/23: Easily reliable 2 pts with a thoughtful and engaged General Contractor.	Construction and Demolition Waste Calculator	GC
Indoor Environmental Quality				**16**	**NA**	**12**	**3**	**0**	**1**	**0**				
EQp1 Minimum Indoor Air Quality Performance	To improve the comfort and well-being of building occupants by establishing minimum IAQ standards	v4	For mechanically and naturally vented spaces, meet the minimum outdoor air rates required per ASHRAE 62.1-2010. Exact requirements specified in the EQ tab	**P**	**P**	X						CA ACP *WELL (E) X01.2 Material Restriction: Restrict Mercury, A03.1 Ensure Adequate Ventilation*		D-B MEP
EQp2 Environmental Tobacco Smoke Control	To prevent or minimize exposure of building occupants to environmental tobacco smoke.	v4	Prohibit smoking inside the building. Prohibit smoking outside the building except in designated smoking areas located at least 25 feet from all entries, outdoor air intakes, and operable windows. Signage must be posted within 10 feet of all building entrances. **Residential Only:** Prohibit smoking inside all common areas of the building and outside except in designated smoking areas located at least 25 feet from building. Each unit must be compartmentalized to prevent excessive leakage between units.	**P**	**P**	X						CA ACP *WELL (E) A02.1 Smoke Free Environment: Prohibit Indoor Smoking, A02.2 Smoke Free Environment: Prohibit Outdoor Smoking*		D-B MEP
EQc1 Enhanced Indoor Air Quality		v4.1	Comply with 3 strategies for 1 point and 6 strategies for 2 points. See EQ tab for strategy details.	2	2	2						*WELL (E) A09.1 Pollution Infiltration Management - Design Healthy Entryways, A12.1 Air Filtration: Implement Particle Filtration, A06.1 Enhanced Ventilation Design: Increase Outdoor Air Supply-Option 1: Increase Air Supply, A08.1 Air Quality Monitoring and Awareness - Part 1: Install Indoor Air Monitors, A08.2 Air Quality Monitoring and Awareness - Promote Air Quality Awareness* -8/17/23: Various systems discussed. Must determine if BCHD will allow. Natural Ventilation.		D-B MEP
EQc2 Low-emitting Materials	To reduce concentrations of chemical contaminants that damage air quality, human health, productivity, and the environment.	v4.1	Meet the low-emitting criteria for 2 or more product categories. Low-emitting criteria includes: Inherently nonemitting sources, Salvaged and reused materials, VOC emissions evaluation, VOC content evaluation, Formaldehyde emissions evaluation, and Furniture emissions evaluation. Product categories include Paints and Coatings, Adhesives and Sealants, Flooring, Wall panels, Ceilings, Insulation, Furniture and Composite Wood. See LEED Credit Library for exact requirements by product category type.	3	3	3						*WELL (E) X05.1 Enhanced Material Restrictions: Select Compliant Interior Furnishings, X05.2 Enhanced Material Restrictions: Select Compliant Architectural and Interior Products, X06.1 Limit VOCs from Wet-Applied Products, X06.2 Restrict VOC Emissions from Furniture, Architectural and Interior Products*		D-B ARCH+ GC

EQc3 Construction Indoor Air Quality Management Plan	To promote the well-being of construction workers and building occupants by minimizing indoor air quality problems	v4	Develop and implement an indoor air quality (IAQ) management plan for the construction and preoccupancy phases of the building. - Meet all applicable recommended control measures of SMACNA IAQ Guidelines for Occupied Buildings under Construction - Protect absorptive materials stored on-site. Do not operate air-handling equipment during construction unless installed with filtration media with a minimum MERV 8 - Replace filtration media before occupancy - Prohibit tobacco use inside the building and within 25 feet during construction	1	1	1						CA ACP *WELL (E) A04.1 Construction Pollution Management: Mitigate Construction Pollution*		GC
EQc4 Indoor Air Quality Assessment	To establish better quality indoor air in the building after construction and during occupancy.	v4.1 Option 2 Path 1 *Can Pursue both Path 1 and 2 for 2 points*	Test for the particulate matter (PM) and inorganic gases and demonstrate the contaminants do not exceed the concentration limits listed in the EQ tab (1 point)	2	1	1						-8/17/23: Team agreed that an informal flush out and air testing afterwards is preferred. Moved 2 points to Reliable. Discussed Air Quality testing-start now to analyze the passive bldg. possibilities. Per MEP Clarity (https://www.clarity.io/products/clarity-node-s) is an example of an outdoor air monitoring system that could be installed before/during/after. (self-contained, networkable, expandable, and integrates with other systems) This system could track historical air quality, provide feedback to occupants, and could be extended to notify maintenance of poor air quality conditions to consider closing building openings and activating indoor air treatment systems. -Flushout needed (pragmatically) to assure WELL or LEED testing compliance. Conversation about air quality metering starting during design to understand when bldg can be		GC
		v4.1 Option 2 Path 2	Perform a screening test for Total Volatile Organic Compounds (TVOC) and ensure levels do not exceed 500 µg/m3. Also, test for the individual volatile organic compounds listed in the EQ tab using an allowed test method and demonstrate the contaminants do not exceed the concentration limits.		1	1								GC
EQc5 Thermal Comfort	To promote occupants' productivity, comfort, and well-being by providing quality thermal comfort.	v4	- Meet the requirements of ASHRAE Standard 55–2010, Thermal Comfort Conditions for Human Occupancy. - Provide individual thermal comfort controls for at least 50% of individual occupant spaces. - Provide group thermal comfort controls for all shared multioccupant spaces, and for any individual occupant spaces without individual controls.	1	1	1						*WELL (E) T01.1 Thermal Performance: Provide Acceptable Thermal Environment Option 1, T03.1 Thermal Zoning: Provide Thermostat Control OR T04.1 Individual Thermal Control: Provide Personal Cooling Options OR T04.2 Individual Thermal Control: Provide Personal Heating Options* -8/17/23: Moved to Reliable.		D-B MEP
		v4 Option 1* *Option 1 & 2 can both be pursued	**Lighting control** For at least 90% of individual occupant spaces, provide lighting controls that enable occupants to adjust the lighting, with at least three lighting levels or scenes (on, off, midlevel). For all shared multioccupant spaces, have multizone control systems that enable occupants to adjust the lighting, with at least three lighting levels or scenes (on, off, midlevel). Switches or manual controls must be located in the same space as the controlled luminaires and a person operating the controls must have a direct line of sight to the controlled luminaires.		1								D-B MEP

EQc6 Interior Lighting	To promote occupants' productivity, comfort, and well-being by providing high-quality lighting.	v4 Option 2	Lighting quality Choose four of the following strategies: 1. Use light fixtures with a luminance of less than 2,500 cd/m2 between 45 and 90 degrees from nadir. 2. Use light sources with a CRI of 80 or higher. 3. For 75% of the total connected lighting load, use light sources that have a rated life (or L70 for LED sources) of at least 24,000 hours. 4. Use direct-only overhead lighting for 25% or less of the total connected lighting load for all regularly occupied spaces. 5. For 90% of the regularly occupied floor area, meet the following thresholds for area-weighted average surface reflectance: 85% for ceilings, 60% for walls, and 25% for floors. If furniture is included in the scope of work, select furniture finishes to meet the following thresholds for area-weighted average surface reflectance: 45% for work surfaces, and 50% for movable partitions. 6. For 75% of the regularly occupied floor area, meet ratio of average wall surface illuminance (excluding fenestration) to average work plane illuminance that does not exceed 1:10. Must also meet strategy E, strategy F, or demonstrate area-weighted surface reflectance of 60% for walls. 7. For 75% of the regularly occupied floor area, meet ratio of average ceiling illuminance (excluding fenestration) to work surface illuminance that does not exceed 1:10. Must also meet strategy E,	2	1								D-B MEP
EQc7 Daylight	To connect occupants with the outdoors, reinforce circadian rhythms, and reduce the use of electrical lighting by introducing daylight into the space.	v4.1 Option 1	Demonstrate through annual computer simulations that spatial daylight autonomy 300/50% (sDA300/50%) of at least 40% (1 point), 55% (2 points) or 75% (3 points). Demonstrate through annual computer simulations that annual sunlight exposure1000,250 (ASE1000,250) of no more than 10% is achieved.	3	3		2		1			*WELL (E) L01.1 Light Exposure: Provide Indoor Light, L05.2 Daylight Design Strategies: Integrate Solar Shading, L06.1 Daylight Simulation: Conduct Daylight Simulation* -8/17/23: Moved 2 pts to Possible and 1 to Possible-not likely. Team to pursue potential of success of analysis and cost for analysis.		D-B ARCH
		v4.1 Option 2	Demonstrate through computer modeling that illuminance levels will be between 300 lux and 3,000 lux for 9 a.m. and 3 p.m., both on a clear-sky day at the equinox for 55% (1 point) 75% (2 point) or 90% (3 points) of regularly occupied floor area.											
		v4.1 Option 3	Achieve illuminance levels between 300 lux and 3,000 lux for the for 55% (1 point), 75% (2 points) or 90% (3 points) of regularly occupied floor area through measurement.											
EQc8 Quality Views	To provide occupants with a connection to the natural outdoor environment	v4	Achieve a direct line of sight to the outdoors via vision glazing for 75% of all regularly occupied floor area and meet two of the following kind of views: 1. Multiple lines of sight to vision glazing in different directions at least 90 degrees apart 2. Views that include at least two of the following: (1) flora, fauna, or sky; (2) movement; and (3) objects at least 25 feet from the exterior of the glazing; 3. Unobstructed views located within the distance of three times the head height of the vision glazing 4. Views with a view factor of 3 or greater, as defined in "Windows and Offices; A Study of Office Worker Performance and the Indoor Environment."	1	1									D-B ARCH
		v4.1	Views to the outdoors via vision glazing for 75% of all regularly occupied floor area must include at least one of the following: -nature, urban landmarks, or art; or -objects at least 25 feet (7.5 meters) from the exterior of the glazing. Occupants must have direct access to the view and be w/in 3X the head height of the glazing.		1	1					-8/17/23: Moved 1 pts to Possible. M128 -9/13/23: Initial analysis to verify that over 75% of occupied spaces are within proximity of views. Further study of obstructions and view optimization required to get one point.		

EQc9 Acoustic Performance	To promote occupants' well-being, productivity, and communications	v4/v4.1	For all occupied spaces, meet two of the following: HVAC background noise, Sound Transmission, and/or Reverberation time. See EQ tab for exact requirements for both v4 and v4.1	1	1		1				Calculations or measurements	*WELL (E) S02.1 Maximum Noise Levels: Limit Background Noise Levels, S03.1 Sound Barriers: Design for Sound Isolation at Walls and Doors, S04.1 Reverberation Time* -8/15/23: Recommend pursuing this point from a wellness perspective. - 8/17/23: Team to send credit requirements to forward to acoustic engineer candidates. (Done)		Acoustic Engineer
Innovation				**6**	**NA**	**6**	**0**	**0**	**0**	**0**				
INc1 Innovation		v4	May be Exemplary Performance - Credit-dependent	1	1	1						May be Exemplary Performance: EAc		TBD
INc2 Innovation		v4	May be Exemplary Performance - Credit-dependent	1	1	1						May be Exemplary Performance		TBD
INc3 Innovation		v4	TBD	1	1	1						Low Mercury Lighting		D-B ARCH
INc4 Innovation		v4	TBD	1	1	1						Options include: Green Building Education, Occupant Comfort Survey, Green Cleaning and Int. Pest Mgmt-Package.		BCHD
INc5 Innovation		v4	TBD	1	1	1						Must be a Valid Pilot Credit. Options include Social Equity within the Community, *Community Contaminant Prevention-Airborne Releases- WELL (E) A10.1 Combustion*		BCHD
INc6 LEED Accredited Professional	To encourage team integration and streamline the certification process	v4	One principal participant of the project team must be a LEED AP	1	1	1						LEED Consultant required		D-B LEED CONSULT.
Regional Priority Credits (6 options; 4 points maximum)				**4**	**4**	**2**	**0**	**1**	**1**	**0**				
	Credit-dependent	v4	LT Reduced Pkg Ft (TH:1 pt)	1	1				1		LTc Reduced Parking	RPCs for this location (90277) are: LT Surge Density&Diverse Uses		D-B ARCH
	Credit-dependent	v4	SS Rainwater (TH:2pts)	1	1	1					SSc Rainwater			D-B CIVIL
	Credit-dependent	v4	WE Ind Water Use (TH:4 pts)	1	1			1			WEc Indoor Water Use			D-B MEP
	Credit-dependent	v4	EA Optimize Energy Perf (TH:10 pts)	1	1	1					EAc Optimize Energy Perf			D-B MEP

OWNER D-B CIVIL CxA D-B ARC GC D-B MEP D-B LEED C D-B LNDSCP

PRELIMINARY ENERGY MODEL REPORT

LEED COMPLIANCE SUMMARY (Part 1 of 4) EAP-2

Project Name: *BCHD allcove* | Date: *2/27/2024*

GENERAL INFORMATION

Simulation Program:	*EnergyPro*	Weather File:	*CA_TORRANCE_722955.binm*
Principal Heating Source:	*Natural Gas*	Climate Zone:	*DOE Climate Zone 3B*
Energy Code Used:	*ASHRAE 90.1-2019*	Latitude:	*34*
New Construction Percent:	*100*	Longitude:	*-118*

List the ASHRAE addenda used in the modeling assumptions for EAc1:

SPACE SUMMARY

Space Name / Description	Space Usage Type	Space Size	Regularly Occupied GSF	Unconditioned GSF	Operating Hours (per week)
Zone 1	*Building Area Office*	*4430*	*4430*		*92*
Zone 2	*Building Area Office*	*5075*	*5075*		*92*
TOTAL:		*9,505*	*9,505*	*0*	

LEED COMPLIANCE SUMMARY (Part 2 of 4) EAP-2

Project Name: *BCHD allcove* | Date: *2/27/2024*

ENERGY TYPE SUMMARY

Energy Type	Utility Rate Description	Baseline Virtual Rate ($ per unit energy)	Proposed Virtual Rate ($ per unit energy)	Units of Energy	Units of Demand
Electricity	*Southern California Edison Co Time-of-*	*0.25*	*0.25*	kWh	kW
Natural Gas				therms	MBH

RENEWABLE ENERGY SOURCE SUMMARY

Renewable Source	Backup Energy Type	Annual Energy Generated	Rated Capacity	Renewable Energy Cost
Renewables	*Electricity*	*-9.85*	*16*	*0*

EXCEPTIONAL CALCULATION MEASURE SHORT DESCRIPTION

Energy Type(s)	Annual Energy Savings by Energy Type	Annual Cost Savings	Exceptional Calculation Measure Narrative:

LEED COMPLIANCE SUMMARY (Part 3 of 4) EAP-2

Project Name: *BCHD allcove* | Date: *2/27/2024*

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)
Interior Lighting	☐	*Electricity*	*kWh*	*26753*	*26753*	*26753*	*26753*
			kW	*7.6*	*7.6*	*7.6*	*7.6*
Space Heating	☐	*NaturalGas*	*therms*	*727*	*744*	*720*	*692*
			kBtu/hr	*280.5*	*281.3*	*280.4*	*278.5*
Space Heating	☐	*Electricity*	*kWh*	*0*	*0*	*0*	*0*
			kW	*0.0*	*0.0*	*0.0*	*0.0*
Space Cooling	☐	*Electricity*	*kWh*	*14185*	*14260*	*14284*	*14545*
			kW	*28.0*	*27.9*	*27.9*	*28.3*
Pumps	☐	*Electricity*	*kWh*	*0*	*0*	*0*	*0*
			kW	*0.0*	*0.0*	*0.0*	*0.0*
Fans-Interior	☐	*Electricity*	*kWh*	*49995*	*50422*	*49717*	*50908*
			kW	*9.9*	*9.9*	*9.8*	*10.0*
Service Hot Water	☐	*Electricity*	*kWh*	*91383*	*91383*	*91383*	*91383*
			kW	*35.4*	*35.4*	*35.4*	*35.4*
Receptacle Equipment	☒	*Electricity*	*kWh*	*29036*	*29036*	*29036*	*29036*
			kW	*8.6*	*8.6*	*8.6*	*8.6*
Process Energy	☒	*Electricity*	*kWh*	*14518*	*14518*	*14518*	*14518*
			kW	*4.3*	*4.3*	*4.3*	*4.3*
Renewables	☐	*Electricity*	*kWh*	*0*	*0*	*0*	*0*
			kW	*0.0*	*0.0*	*0.0*	*0.0*
	☐						
	☐						
	☐						

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
Electricity	*56377*	*56468*	*56411*	*56691*	*56487*
NaturalGas	*0*	*0*	*0*	*0*	*0*
Total Baseline Costs:	*56377*	*56468*	*56411*	*56691*	*56487*

EnergyPro 9.2 by EnergySoft *User Number: 6563* *ID: 23-115* *Page 3 of 74*

LEED COMPLIANCE SUMMARY (Part 4 of 4) EAP-2

Project Name: *BCHD allcove* | Date: *2/27/2024*

PERFORMANCE RATING TABLE – PERFORMANCE RATING METHOD COMPLIANCE

End Use	Process?	Proposed Design Energy Type	Baseline Building Results	Proposed Design Units	Proposed Building Results	Percentage Savings
Interior Lighting	☐	*Electricity*	*26753*	*kWh*	*26753*	*0.0%*
			7.6	*kW*	*7.6*	*0.0%*
Space Heating	☐	*NaturalGas*	*721*	*therms*	*0*	*100.0%*
			280.2	*kBtu/hr*	*0.0*	*100.0%*
Space Heating	☐	*Electricity*	*0*	*kWh*	*105*	*0.0%*
			0.0	*kW*	*5.6*	*0.0%*
Space Cooling	☐	*Electricity*	*14319*	*kWh*	*4436*	*69.0%*
			28.0	*kW*	*2.9*	*89.5%*
Pumps	☐	*Electricity*	*0*	*kWh*	*15*	*0.0%*
			0.0	*kW*	*0.0*	*0.0%*
Fans-Interior	☐	*Electricity*	*50261*	*kWh*	*19096*	*62.0%*
			9.9	*kW*	*3.7*	*62.6%*
Service Hot Water	☐	*Electricity*	*91383*	*kWh*	*62031*	*32.1%*
			35.4	*kW*	*21.9*	*38.0%*
Receptacle Equipment	☒	*Electricity*	*29036*	*kWh*	*29036*	*0.0%*
			8.6	*kW*	*8.6*	*0.0%*
Process Energy	☒	*Electricity*	*14518*	*kWh*	*14518*	*0.0%*
			4.3	*kW*	*4.3*	*0.0%*
Renewables	☐	*Electricity*	*0*	*kWh*	*-27429*	*0.0%*
			0.0	*kW*	*0.0*	*0.0%*
	☐					
	☐					
	☐					

ENERGY COST AND CONSUMPTION BY ENERGY TYPE

	Baseline Design			Proposed Design			Percent Savings	
Energy Type	Energy Use		Cost	Energy Use		Cost	Energy Use	Cost
Electricity	*226,269*	kWh	*56,487*	*128,560*	kWh	*31,635*	*43.2%*	*44.0%*
NaturalGas	*721*	therms	*0*	*0*	therms	*0*	*100.0%*	*0.0%*
Subtotal (Model Outputs):	*844,321*	(kBtu/year)	*$56,487*	*438,774*	(kBtu/year)	*$31,635*	*48.0%*	*44.0%*

EnergyPro 9.2 by EnergySoft *User Number: 6563* *ID: 23-115* *Page 4 of 74*

Table 1.4.1 - Opaque Building Envelope

Instructions: *Complete the Opaque Building Envelope Requirements section, then de scribe each unique opaque building envelope construction on a separate row in the Opaque Building Envelope Constructions table (required inputs are green). Note that extra rows can be added using the button to the lower left of each construction type as necessary. An example of the expected level of detail has been provided for each type of construction. Please refer to the Helpful Notes for information about Appendix G modeling protocol. For any information not applicable to the project, simply enter "N/A". Baseline Case Information will autogenerate for New Construction Opaque Assemblies when the space conditioning category is selected.*

Opaque Building Envelope Requirements

For projects modeled using ASHRAE 90.1-2007 Appendix G, select the climate zone: DOE Climate Zone 3B

Select the appropriate description for the project:	[1] The project is 100% new Construction [ ] The project is 100% existing renovation [ ] The project is a Cobination of new construction and existing renovation
For existing spaces, have there been any changes to the space conditioning category (for example, previously unconditioned spaces becoming fully conditioned)?	[1] No Changes to space conditioning categories [ ] Yes, and the associated constructions in the Baseline case have been modeled using the Appendix G requirements for new
Check the applicable space conditioning categories included in the project:	[1] Nonresidential [ ] Residential [ ] Semiheated [ ] Unconditioned
All spaces qualifying as semiheated are not defined as heated per Table 3.1 or indirectly conditioned (see Section 3.2 definition of ***space***)	[ ] Yes [1] N/A (no semiheated spaces)
Opaque envelope assemblies separating conditioned space from unconditioned or semiheated space are modeled using semiheated envelope assemblies per the *ASHRAE 90.1-2007 User's Manual* , Section 5.1.1, *Envelope Component Assemblies* (Page 5-2).	[1] Yes [ ] N/A (no opaque assemblies separating conditioned and semiheated / unconditioned space)

All ***Baseline new construction opaque envelope assemblies*** were modeled as required by Table 5.5 for the project's climate zone and Table G3.1#5(b) as delayed assemblies. See the Helpful Notes for each opaque assembly for more information.	Yes
All ***Proposed*** roofs, above-grade exterior walls, below-grade exterior walls, exposed floors, slab-on-grade floors, and opaque doors were modeled as-designed and with assembly U-factors / C-factors / F-factors consistent with Appendix A values	Yes
Infiltration rates and schedules have been modeled identically in the Baseline and Proposed case	Yes

For each item entered as "No" above, describe the applicable ASHRAE 90.1 Appendix G exception(s) that apply, or the circumstances preventing the opaque envelope parameters from being modeled as required. If the energy simulation software is not capable of modeling the required parameters, describe the adjustments that were made to provide a thermodynamically similar representation or provide a narrative justifying why the predicted energy performance results will not be influenced:

Opaque Building Envelope Constructions

Model Input Parameter	New / Existing	Space-Conditioning Category	Baseline Case: Description	Baseline Case: Assembly U-factor/ C-factor/ F factor	Proposed Case: Description	Proposed Case: Assembly U-factor/ C-factor/ F factor	Baseline Roof Reflectivity Modeled as 0.3?	Proposed Roof Reflectivity Modeled
Roof Constructions	Helpful Notes:		•New roofs: insulation entirely above deck with U-factor from appropriate Table 5.5 per Table G3.1#5(b). •Existing roofs: existing conditions per Table G3.1#5(f).		Proposed construction assembly U-factor should be as-designed and consistent with Appendix A of ASHRAE 90.1 (list Appendix A Table referenced)		0.3 per Table G3.1#5(e)	0.3 or 0.45 per Table G3.1#5(c)
	New	Cond	New	0.063	R-38 Roof No Attic	0.025	0.30	0.10
Above-Grade Exterior Wall Constructions	Helpful Notes:		•New above-grade walls: steel-framed with U-factor from appropriate Table 5.5 per Table G3.1#5(b). •Existing above-grade walls: existing conditions per Table G3.1#5(f).		Proposed construction assembly U-factor should be as-designed and consistent with Appendix A of ASHRAE 90.1 (list Appendix A Table referenced)			
	New	Cond	New	0.124	:21 Wall Metal Stud + 1" insulatic	0.087		
Below-Grade Exterior Wall Constructions	Helpful Notes:		•New below-grade walls: 8" medium weight concrete block with solid grouted cores as defined in A4.1 with C-factor from appropriate Table 5.5 per Table G3.1#5(b). •Existing below-grade walls: existing conditions per Table G3.1#5(f).		Proposed construction assembly C-factor should be as-designed and consistent with Appendix A of ASHRAE 90.1 (list Appendix A Table referenced)			
Exposed Floor Constructions	Helpful Notes:		•New floors: steel-joist with U-factor from appropriate Table 5.5 per Table G3.1#5(b). •Existing floors: existing conditions per Table G3.1#5(f). •For floor assemblies above unconditioned or semiheated space, select the space conditioning category as semiheated per 90.1-2007 User's Manual, Section 5.1.1-Envelope Component Types (Figure 5-C)		Proposed construction assembly U-factor should be as-designed and consistent with Appendix A of ASHRAE 90.1 (list Appendix A Table referenced)			
	New	Cond	New	0.052	Raised Slab Floor - Top Insulated	0.052		
Slab-On-Grade Floors	Helpful Notes:		•New slab-on-grade floors: unheated 6" concrete slab with F-factor from appropriate Table 5.5 per Table G3.1#5(b). •Existing slab-on-grade floors: existing conditions per Table G3.1#5(f).		Proposed construction assembly F-factor should be as-designed and consistent with Appendix A of ASHRAE 90.1 (list Appendix A Table referenced)			
Opaque Doors	Helpful Notes:		•New opaque doors: U-factor from appropriate Table 5.5 per Table G3.1#5(b). •Existing opaque doors: existing conditions per Table G3.1#5(f).		Proposed construction assembly U-factor should be as-designed and consistent with A7.1 of ASHRAE 90.1 for unlabeled doors			

Additional notes:

Table 1.4.2A - Shading & Orientation

Instructions: *Provide the following shading and orientation information (required inputs are green). An example of the expected level of detail has been provided for each input. Please refer to the Helpful Notes for information about Appendix G modeling protocol. For any information not applicable to the project, simply enter "N/A".*

Model Input Parameter		Baseline Case			Proposed Case		
Helpful Notes:		•All vertical glazing flush with exterior wall and no shading projections per Table G3.1#5(c) •No manual shading devices such as blinds or shades per Table G3.1#5(c) •No self-shading per Table G3.1#5 •Total vertical fenestration areas for new construction equal to Proposed up to 40% maximum, and distributed on each face of the building in the same proportions as the Proposed design per Table G3.1#5(c) •Total skylight area for new construction equal to Proposed up to 5% maximum per Table G3.1#5(d)			•No manual shading devices such as blinds or shades per Table G3.1#5(d) •Permanent shading devices (such as fins, overhangs, and light shelves) and automatically controlled shades or blinds may be modeled per Table G3.1#5(d) •Shading by adjacent structures and terrain may be modeled, but must be modeled identically in the Baseline case		
Shading Devices		☑ No shading projections, manual shading devices, or self-shading have been modeled for the Baseline building ☐ Any shading by adjacent structures and terrain has been modeled identically to the Proposed case (if applicable)					
Building Shape & Orientation		☑ The Baseline building is modeled with the same shape and orientation as the Proposed building, and for new construction rotated 90°, 180°, and 270°					
Above-Grade Wall & Vertical Glazing Area by Orientation	Orientation	Above Grade Wall Area (ft^2)	Vertical Glazing Area (ft^2)	Vertical Glazing Area (%)	Above Grade Wall Area (ft^2)	Vertical Glazing Area (ft^2)	Vertical Glazing Area (%)
	North	1,995	516	26%	1,995	516	26%
	East	2,185	234	11%	2,185	234	11%
	South	1,995	502	25%	1,995	502	25%
	West	2,185	460	21%	2,185	460	21%
	Total	8,360	1,712	20%	8,360	1,712	20%
Roof & Skylight Area		Roof Area (ft^2)	Skylight Area (ft^2)	Skylight Area (%)	Roof Area (ft^2)	Skylight Area (ft^2)	Skylight Area (%)
		5,740	0	0%	5,740	0	0%

Table 1.4.2B - Fenestration

Instructions: *Describe each unique fenestration assembly on a separate row in the following table (required inputs are green). Note that additional rows can be expanded using the Add a Line button to the lower left of each fenestration type as necessary. An example of the expected level of detail has been provided for each type of fenestration. Please refer to the Helpful Notes for information about Appendix G modeling protocol. For any information not applicable to the project, simply enter "N/A". Baseline Case Information will autogenerate for New Construction Nonresidential or Residential Vertical Glazing and for New Construction Nonresidential skylights when the Baseline Description is selected from one of the items listed.*

Model Input Parameter	New / Existing	Space Conditioning Category	Baseline Case			Proposed Case			
			Description	Assembly U-factor	SHGC	Description	Assembly U-factor	SHGC	VLT
Vertical Glazing	Helpful Notes:		•New vertical glazing: assembly U-factor and SHGC from appropriate Table 5.5 per Table G3.1#5(c). •Existing vertical glazing: existing conditions per Table G3.1#5(f).			Proposed vertical glazing assembly U-factor should be as-designed and account for the impact of the frames on the whole assembly. Reference Table A8.2 of ASHRAE 90.1 as necessary.			
	New	Cond	Standard	0.57	0.25	PPG SOLARBAN 70 XL Clear	0.57	0.40	0.63
Skylights	Helpful Notes:		•New skylights: assembly U-factor and SHGC from appropriate Table 5.5 per Table G3.1#5(d). •Existing skylights: existing conditions per Table G3.1#5(f).			Proposed skylight assembly U-factor should be as-designed and account for the impact of the frames on the whole assembly. Reference Tables A8.1A and A8.1B of ASHRAE 90.1 as necessary.			

How were the Proposed case framed assembly fenestration U-factors determined? NFRC Rated

Additional notes:

Table 1.4.3A - Interior Lighting

Instructions: *Confirm that the energy model complies with the Interior lighting requirements listed, and provide a narrative explaining any discrepancies. Select the interior lighting categorization procedure, and then complete the corresponding lighting table (required inputs are green). An example of the expected level of detail has been provided for each input. Please refer to the Helpful Notes for information about Appendix G modeling protocol. For any information not applicable to the project, simply enter "N/A". For projects using California Title-24, the following Title-24 lighting compliance forms may be uploaded in lieu of this sheet (2008 - LTG-1C, LTG-2C, LTG-3C, LTG-5-C, OLTG-1C, OLTG-2C, SLTG-1C; 2005 - LTG-1C, LTG-2-C, LTG-3-C, LTG-4-C, LTG-5-C, LTG-9-C, OLTG-1-C, OLTG-2-C, OLTG-3-C, OLTG-4-C).*

Interior Lighting Requirements

All lighting schedules have been modeled identically in the Baseline and Proposed case and reflect the anticipated operating schedules of each space	☑ Yes ☐ No
The Proposed lighting power includes all lighting system components shown or provided for on the plans (including lamps and ballasts and task and furniture-mounted fixtures except where specifically exempted)	☑ Yes ☐ No
Per ASHRAE 90.1-2007, Section 9.1.4 (c), and (d): For all **line-voltage lighting track and plug-in busway**, designed to allow the addition and/or relocation of luminaires without altering the wiring of the system, the proposed case wattage is modeled as: (a) the specified wattage of the luminaires included in the sytem with a minimum of 30 W/lin ft, OR (b) the wattage limit of the system's circuit breaker, OR (c) the wattage limit of other permanent current-limiting device(s) For all **low-voltage lighting track, cable conductor, rail conductor,** and other flexible lighting systems that allow the addition and/or relocation of luminaires without altering the wiring of the system, the proposed case wattage is modeled as the wattage of the transformer supplying the	☐ Yes ☐ No ☑ N/A

For each item entered as "No" above, describe the applicable ASHRAE 90.1 Appendix G exception(s) that apply, or the circumstances preventing the lighting parameters from being modeled as required. If the energy simulation software is not capable of modeling the required parameters, describe the adjustments that were made to provide a similar representation or provide a narrative justifying why the predicted energy performance results will not be influenced:

Categorization Procedure

Select the categorization procedure (Building Area or Space by Space Method) used to determine the lighting power density (LPD) in the Proposed and Baseline case	☐ Building Area Method ☑ Space by Space Method

Space by Space Method

Table 9.6.1 Space Type	Total Area of Space Type (ft^2)	Baseline Case: Modeled LPD (Excluding Section 9.6.2 Additional Lighting) (W/ft^2)	Proposed Case: Design LPD (Excluding Section 9.6.2 Additional Lighting) (W/ft^2)	Automatic Lighting Controls and Space Types	Table G3.2 Power Adjust-ment	Modeled LPD (W/ft^2)	Daylighting Controls
Helpful Notes: Refer to 90.1 User's Manual for definitions of Active vs. Inactive Storage, General Low Bay vs. General High Bay Manufacturing, and Fine vs. Medium/Bulky Material Storage Warehouse		Modeled using the maximum allowance from Table 9.6.1 ***(values provided for reference - overwrite if modeled differently)***	•Lighting power should be modeled as designed (or installed) including all lighting system components (lamps and ballasts) •Credit for automatic lighting controls should be modeled using the appropriate power adjustment from Table G3.2, applied only to the controlled lighting power and not where required by 9.4.1.2 per Table G3.1#6(g) [conference rooms; meeting rooms; employee lunch and break rooms; classrooms excepting Pre-K through 12th grade, laboratory, or shop] •Automatic daylighting controls must either be modeled directly in the simulation, or modeled using schedule adjustments determined by a separate daylighting analysis per Table G3.1#6(f)				
Building Area Office	9,505	1.000	1.000		0.000	1.000	
Total	9,505	1.000	1.000			1.000	

Interior Process Lighting (if applicable)

Description	Section 9.2.2.3 Exemption	Total Process Lighting Power (Watts)	Modeled Identically In Baseline?
Helpful Notes:	Any lighting not regulated by ASHRAE 90.1 is considered process and must be modeled identically in the Proposed and Baseline case unless an Exceptional Calculation is submitted		
Process Lighting		0	☑ Yes ☐ No

Table 1.4.4 - Process Equipment

Instructions: *Select the method used to model receptacle equipment, and then complete the corresponding receptacle equipment table (required inputs are green). Other process equipment should be reported in the bottom table. An example of the expected level of detail has been provided for each input. Please refer to the Helpful Notes for information about Appendix G modeling protocol. For any information not applicable to the project, simply enter "N/A".*

Process Equipment Requirements

All receptacle equipment and other process equipment designed or anticipated for the building have been accounted for in the energy models.	☑ Yes ☐ No
If process energy accounts for less than 25% of the total Baseline energy cost, an additional narrative justification for the low process cost has been provided in the supporting documentation. ***Note: process energy should not be arbitrarily set to 25% of the total Baseline cost, but should reflect the actual process loads anticipated for the building.***	☑ Yes ☐ No ☐ N/A(>25%)

If any of the process equipment requirements are indicated as "No" above, the project does not likely comply with LEED modeling requirements. It is recommended that the project team pursue a "Credit Interpretation Ruling" to justify the modeling approach. Please also provide any further information below to justify the modeling approach used.

Receptacle Equipment Modeling Method

Indicate whether the receptacle equipment was modeled using an average equipment power density for the building, equipment power densities by space type, or by entering the power associated with specific devices in each space (may select more than one)

- ☐ Building Average Equipment Power Density (W/sq.ft.)
- ☑ Space by Space Equipment Power Density (W/sq.ft.)
- ☐ Equipment Power by Device (Watts)

Space by Space Equipment Power Densities

Space Type	Total Area of Space Type	Equipment Power Density (W/ft²)	Equipment Included in Power Density	Baseline Modeled Identically?
Helpful Notes:	•All receptacle loads must be modeled identically between the Proposed and Baseline case and included in the simulations per Table G3.1#12 •Any credit for improved receptacle equipment must be submitted using the Exceptional Calculation Method			
Building Area Office	4,430	1.000		Yes
Building Area Office	5,075	1.000		Yes
Total	9,505	1.000	***Total Power Modeled Using Space-by-Space Method (kW):***	9.5

Other Process Equipment

Equipment Type (Change/Add Labels as Necessary)	Energy Source	Energy Demand (kW)	Modeling Parameters	Baseline Modeled Identically?
Helpful Notes:	•All process loads must be modeled identically between the Proposed and Baseline case and included in the simulations per Table G3.1#12 •Any credit for improved process equipment must be submitted using the Exceptional Calculation Method •Exception: When the process or receptacle equipment includes components regulated by minimum efficiency requirements in ASHRAE 90.1, these components may be modeled in the Baseline Case using the minimum ASHRAE 90.1 efficiencies, and in the proposed case using actual proposed case efficiencies (e.g. Baseline may be modeled using furnace efficiencies from Table 6.8.1E, boiler efficiencies from Table 6.8.1G, chiller efficiencies from Table 6.8.1C or Section 6.4.1.2, or motor efficiency from Section 10.4).			
Elevators/Escalators				
Refrigeration Equipment				
Kitchen Equipment				
Data Center Equipment				
Process Loads	elec	4.8		Yes
Total			***Total Power for Other Process Equipment (kW):***	
			Total Power for Building Process/Receptacle Equipment(kW):	

Table 1.4.5 - Service Water Heating

Instructions: *Complete the Service Water Heaters table for each unique type of system in the project (required inputs are green). Use the Add a System Type button for more than one type of system. Complete the Service Hot Water Fixtures table if credit is modeled for low-flow fixtures in the Proposed case. If the project includes service hot water circulation pumps, complete the Service Hot Water Pumps table. An example of the expected level of detail has been provided for each input. Please refer to the Helpful Notes for information about Appendix G modeling protocol. For any information not applicable to the project, simply enter "N/A".*

Service Water Heaters

Model Input Parameter	Baseline Case	Proposed Case
Helpful Notes:	•New systems: minimum performance requirements from Table 7.8 per Table G3.1#11(b) •Existing systems: actual system inputs per Table G3.1#11(a) •Model separate service water heating system when design uses combined system with space heating per Table G3.1#11(e) •Condenser heat recovery as required by 6.5.6.2 per Table G3.1#11(f)	•Service water heaters modeled as designed (or installed) per Table G3.1#11(a&b) •Where no service hot water system exists or has been specified but the building will have service hot water loads, a service hot water system should be modeled identical to the Baseline per Table G3.1#11(c) •For buildings with no service hot water loads, no service hot water system should be modeled per Table G3.1#11(d)
System Type & Fuel	Electric Res	Heat Pump
Input Rating (kW, MBH, etc.)	33.678 Btu/hr	33.678 Btu/hr
Efficiency (EF, SL, %, etc.)	2.110 Energy Factor	3.300 Energy Factor
Storage Volume (gal)	120.0 gallons	120.0 gallons
Storage Temperature (°F)	140 F	140 F
Peak Hot Water Demand (gpm)	3.549	3.549
Condenser heat recovery	None	None

Service Hot Water Fixtures

Note: *This table is only required to be completed if credit is modeled in the Proposed case for low-flow fixtures*

Fixture Type	Fixture Outlet Temp (°F)	% Hot Water	Baseline Case: Flow Rate (gpm or gpc)	Baseline Case: WEp1 Annual Total Water Consumption (kgal)	Baseline Case: Annual Hot Water Consumption (kgal)	Proposed Case: Flow Rate (gpm or gpc)	Proposed Case: WEp1 Annual Total Water Consumption (kgal)	Proposed Case: Annual Hot Water Consumption (kgal)
Helpful Notes:	•Refer to Table 3 in Chapter 50 of 2011 ASHRAE Handbook-HVAC Applications for fixture outlet temps used to determine % hot water •% Hot water should account for the DHW supply-to-fixture delta T, and for the percentage hot water versus cold water usage (e.g. residential lavatories would be expected to have cold water usage associated with brushing teeth)		•Fixtures included in the WEp1 calculations: values must be consistent with the WEp1 form •Additional fixtures not included in WEp1: use Proposed values or provide supporting documentation for Baseline assumption (example: Energy Star documentation of average hot water usage for residential dishwasher or clothes washer)			Values should be consistent with the design (or installed) fixtures and WEp1 (if applicable)		
Total								
			Annual Equivalent Full Load Hours of DHW Operation			Annual Equivalent Full Load Hours of DHW Operation		
			Calculated Peak Hourly Flow (gal/hour)			Calculated Peak Hourly Flow (gal/hour)		

Service Hot Water Pumps

Model Input Parameter	Baseline Case	Proposed Case
Helpful Notes:	•Service hot water pumps should be modeled identically between the Proposed and Baseline case •Any credit for improved service hot water pumps must be submitted using the Exceptional Calculation Method	Service hot water pumps modeled as designed (or installed)
Number of Pumps		
Total Pump Power (kW)		
Type of Pump (Constant/Variable)		
Pump Control		

Additional notes:

PRELIMINARY ENERGY MODEL REPORT

Table 1.4.6 - General HVAC

Instructions: *Complete the Special Circumstances section, the Proposed and Baseline HVAC System Type(s) tables, and the HVAC Modeling Requirements checklist below. An example of the expected level of detail has been provided for each input. Please refer to the Helpful Notes for information about Appendix G modeling protocol. For any information not applicable to the project, simply enter "N/A".*

Special Circumstances

		Yes	No
Is the project building connected to a district or campus thermal energy system where thermal energy is produced for or distributed to multiple buildings?		☐	☐
The district energy system includes (check all that apply):	☐ District Cooling ☐ District Heating ☐ CHP		
Select how the district energy system has been modeled: *Note: "DES v2" refers to the document "Treatment of District or Campus Thermal Energy in LEED V2 and LEED 2009 – Design & Construction" dated August 10, 2010, which can be accessed at http://www.usgbc.org/ShowFile.aspx?DocumentID=7671*	☐ ASHRAE 90.1-2007 Appendix G without Addenda ☐ ASHRAE 90.1-2007 Appendix G Addenda ai ☐ California Title-24 Baseline default efficiencies ☐ DES v2 Option 1 (Building Stand-Aone) ☐ DES v2 Option 2 (Aggregate Building/DES)		
For DES v2 Option 2, identify the method for evaluating the district plant average efficiency.	☐ Modeling Method ☐ Monitoring Method		

Please indicate all relevant equipment located on the project site:	☐ Chillers ☐ Cooling Towers / Fluid Coolers ☐ Boilers for Space Heating / Backup Heat ☐ Ground Source / Geothermal Heat Pump ☐ Combined Heat & Power (CHP)

		Yes	No
Does the project building include tenant or other unfinished spaces whose systems (HVAC, lighting, etc.) are not included in the project's scope of work?		☐	☐
Select how the unfinished spaces have been modeled:	☐ All equipment in the unfinished spaces not included in the project scope of work has been modeled identically in the Baseline and Proposed case using the Baseline modeling requirements. ☐ Credit has been modeled in the Proposed case for energy efficiency measures that are specifically identified in signed tenant sales and lease agreements (LEED Core & Shell only. New Construction must be modeled		

Proposed HVAC System Type(s)

	System Description	Spaces Modeled
	Helpful Notes: •The HVAC system type and all related parameters, such as equipment capacities and efficiencies, must be modeled as designed (or installed) per Table G3.1#10(a&b) •Where no heating system exists or has been designed, the classification is assumed to be electric and the heating system is modeled identically to the Baseline case per Table G3.1#10(c) •Where no cooling system exists or has been designed, the cooling system is modeled identically to the Baseline case per Table G3.1#10(d)	
	System 1	Zone 1
		Zone 2
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-		
-		
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Baseline HVAC System Type(s)

Model Input Parameter	Table G3.1.1A System Type (or Semiconditioned System Description)	G3.1.1 Exception (or Semiconditioned Capacity and Area)	Spaces Modeled
Helpful Notes:	•Refer to Section G3.1.1 and Table G3.1.1A (including footnotes) for Primary HVAC System selection		
Primary HVAC System	- Packaged (DX) Constant Volume Sin(		Zone 1
Primary HVAC System	- Packaged (DX) Constant Volume Sin(		Zone 2
Primary HVAC System	-		
Primary HVAC System	-		
Primary HVAC System	-		
Primary HVAC System	-		
Primary HVAC System	-		
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Primary HVAC System	-		
Primary HVAC System	-		
Primary HVAC System	-		
Other HVAC System(s)	-		
	-		

HVAC Modeling Requirements

Instructions: *After completing the information above, click "Refresh Modeling Requirements" to the left. All Proposed and Baseline HVAC system types must be entered above to to generate the correct modeling requirements below. After clicking "Refresh Modeling Requirements", identify each item as "Yes" or "No", and provide a further description for any items marked as "No".*

Proposed HVAC Requirements	All ***Proposed*** HVAC systems and related parameters, such as equipment capacities, efficiencies, airflows, fans, etc. have been modeled as designed and are consistent with supporting documentation uploaded in LEED Online	Yes
	Each ***Proposed*** HVAC thermal zone has been modeled as a separate thermal block except as allowed by Table G3.1#7	Yes
	All ***Proposed*** HVAC systems serving conditioned spaces have been modeled with heating and cooling as required by Table G3.1#1(b), with heating and/or cooling added as necessary identically to the Baseline case per Table G3.1#10(c&d) except where System types (9) or (10) have been modeled in accordance with Addendum dn	Yes
	All ***Proposed*** HVAC systems and related parameters can be modeled directly in the energy simulation program used	Yes
	All ***Proposed*** fan part-load efficiency curves for variable volume fans have been modeled identically to the Baseline curves for variable volume fans (if not, provide a description of the fan curves used in the space at the bottom of this table, and confirm that the proposed case curves are representative of the actual building design)	Yes

For each item entered as "No" above, describe the applicable ASHRAE 90.1 Appendix G exception(s)

Table 1.4.7A - Baseline Air-Side HVAC System Schedule

Instructions: *Enter all applicable input parameters for the Baseline air-side HVAC systems below. All systems included in the model should be entered. Each individual system may be entered separately, or multiple systems may be grouped together if all input parameters identified with an (*) are similar. The table is set up for two unique HVAC systems (or two groups of similar systems), and additional systems (or groups of similar systems) should be added as necessary using the Add a System button. An example of the expected level of detail has been provided for each input. Please refer to the Helpful Notes for information about Appendix G modeling protocol. For any information not applicable to the project,*

Note: All Baseline systems must be identified in the General HVAC Tab in order to display the relevant Baseline

Table 1.4.7A - Baseline Air-Side HVAC System Schedule

Model Input Parameter	Helpful Notes	HVAC System / Group		HVAC System / Group		HVAC System / Group		Totals
		Description	Units	Description	Units	Description	Units	
*System Type		DX) Constant Volume S		DX) Constant Volume S				
System Designation(s)	Consistent with designations used in model	Standard System-0		Standard System-1				
Number of Similar Systems		1		1				
Total Cooling Capacity	Auto-sized with 15% oversizing per G3.1.2.2	181	kBtu/h	230	kBtu/h		kBtu/h	412
*Table 6.8.1 Unitary Cooling Capacity Range	•Systems 1 & 2: Table 6.8.1D •Systems 3, 5, & 6: Table 6.8.1A •System 4: Table 6.8.1B •Systems 7-10: N/A		kBtu/h		kBtu/h		kBtu/h	
*Unitary Cooling Efficiency (EER or SEER)	Units should be consistent with the ASHRAE 90.1 minimum efficiency rating requirements for this system type	9.5 EER		9.5 EER				
*Unitary Cooling Part-load Efficiency (if applicable)	Enter N/A if not applicable	n/a		n/a				
Total Heating Capacity	Auto-sized with 25% oversizing per G3.1.2.2	123	kBtu/h	143	kBtu/h		kBtu/h	265
*Table 6.8.1 Unitary Heating Capacity Range	•System 2: Table 6.8.1D •Systems 3 & 9: Table 6.8.1E •System 4: Table 6.8.1B •Systems 1, 5-8, 10: N/A		kBtu/h		kBtu/h		kBtu/h	
*Unitary Heating Efficiency	List all relevant efficiencies (e.g. 3.2 COP at 47°F db/43°F wb, 2.0 COP at 17°F db/15°F wb outdoor air)	78% AFUE		78% AFUE				
*Fan Control	•Systems 1-4, 9 & 10: Constant Volume •Systems 5-8: Variable Volume	Constant Volume		Constant Volume				
Supply Airflow	•Systems 1-8: Auto-sized based on 20°F ΔT •Systems 9-10: Auto-sized based on 105°F SAT	4,106	cfm	5,550	cfm		cfm	9,656
Outdoor Airflow	•If DCV modeled in Proposed only: ASHRAE 62.1 minimum ventilation rates reported in IEQp1 •All other cases: identical to Proposed	2,000	cfm	2,000	cfm		cfm	4,000
Demand Control Ventilation	If required by Section 6.4.3.9 (spaces >500 sf with >40 people/1,000 sf)	Yes		Yes				
*Economizer High-Limit Shutoff (°F)	•Systems 1, 2, 9 & 10: N, A •Systems 3-8: as required by G3.1.2.6 & G3.1.2.7 by Climate Zone: • Not Required - 1a, 1b, 2a, 3a, 4a •75°F - 1b, 2b, 3b, 3c, 4b, 4c, 5b, 5c, 6b, 7b, 8 •70°F - 5a, 6a, 7a	Fixed Temp (Integrated) 75	°F	Fixed Temp (Integrated) 75	°F		°F	

Table 1.4 - Air-Side HVAC System Schedule

Model Input Parameter	Helpful Notes	HVAC System / Group		HVAC System / Group		HVAC System / Group		Totals
		Description	Units	Description	Units	Description	Units	
*Supply Air Temperature Reset	Systems 5-8: Supply air temperature reset of 5°F under minimum cooling load conditions per G3.1.3.12 (e.g. from 55 °F to 60 °F)	Warmest Zone		Warmest Zone				
*Any individual systems with ≥5,000 cfm supply air and ≥70% outdoor air?	•Exhaust air energy recovery required for individual systems with ≥5,000 cfm supply air and ≥70% outdoor air per G3.1.2.10 unless any exceptions apply •50% energy recovery effectiveness •Bypass or control to permit economizer	None		None				
*Exhaust Air Energy Recovery Effectiveness or G3.1.2.10 Exception Claimed								
Supply Fan Power	•Sum of fan power for all supply, return, relief, and exhaust fans cannot exceed G3.1.2.9 system fan power allowance calculated using supply cfm •Report exhaust fans not interlocked with HVAC operation (such as parking garage ventilation fans, or unconditioned electrical room exhaust fans), and exhaust fans not required in the calculations (such as fume hoods applying Exception 6.5.3.1.1, or kitchen hoods operating independently of the building HVAC system) in Table 1.4.4	2.57	kW	3.40	kW		kW	
Return/Relief Fan Power		0.64	kW	0.85	kW		kW	
Exhaust Fan Power		1.20	kW	1.20	kW		kW	
System Fan Power		4.42	kW	5.44	kW		kW	9.9
Allowed Fan Power:	These values are calculated based on, system type, any pressure adjustments listed below, the total supply volume, and the ASHRAE 90.1 fan motor efficiency associated with the fan bhp.	4.42	kW	5.44	kW		kW	9.9
* Total Table 6.5.3.1.1B Pressure Drop Adjustments (A).		0.00	bhp	0.00	bhp		bhp	
Pressure Drop Adjustments: *(Systems 3 through 8)*	•For each pressure adjustment allowed, enter the Baseline cfm through each device (CFM_D)	cfm	in. w.c.	cfm	in. w.c.	cfm	in. w.c.	
* Fully ducted return and/or exhaust air systems	Adjustment = 0.5 in. w.c.							
* Return and/or exhaust airflow control devices	only where modulated to maintain relative negative or positive space pressure (e.g. lab, operating room)							
* Exhaust filters, scrubbers, or other exhaust treatment	Adjustment = Pressure drop of device calculated at fan system design condition							
* Particulate Filtration Credit: MERV 9 through 12	Adjustment = 0.5 in. w.c.							
* Particulate Filtration Credit: MERV 13 through 15	Adjustment = 0.9 in. w.c.							
* Particulate Filtration Credit: MERV 16 and greater and electronically enhanced filters	Adjustment = Pressure drop calculated at 2× clean filter pressure drop at fan system design condition							
* Carbon and other gas-phase air cleaners	Adjustment = Clean filter pressure drop at fan system design condition							
* Heat recovery device	•only if modeled in Baseline per G3.1.2.10 •Adjustment = Pressure drop of device at fan system design condition							
* Evaporative humidifier/cooler in series with another cooling coil	•only if modeled in Baseline • Adjustment = Clean filter pressure drop at fan system design condition							
* Sound Attenuation Section	Adjustment = 0.15 in. w.c.							
* Fume Hood Exhaust Exception	required if 6.5.3.1.1 Exception [c] is taken							
* Non-mechanical cooling fan volume	For system types #9 and #10, if present in the proposed design, increases the baseline fan power allowance by 0.054 Watts/cfm.		cfm		cfm		cfm	

See Instructions above

Table 1.4 - Air-Side HVAC System Schedule

Table 1.4.7B - Proposed Air-Side HVAC System Schedule

Instructions: *Instructions: Enter all applicable input parameters for the Proposed air-side HVAC systems below. All systems included in the model should be entered. Each individual system may be entered separately, or multiple systems may be grouped together if all input parameters identified with an (*) are similar. The table is set up for two unique HVAC systems (or two groups of similar systems), and additional systems (or groups of similar systems) should be added as necessary using the Add a System button. An example of the expected level of detail has been provided for each input. Please refer to the Helpful Notes for information about Appendix G modeling protocol. For any information not applicable to the project, simply enter "N/A".*

Table 1.4.7B - Proposed Air-Side HVAC System Schedule

Model Input Parameter	Helpful Notes	HVAC System / Group		HVAC System / Group		HVAC System / Group		Totals
		Description	Units	Description	Units	Description	Units	
*System Type	All inputs should be consistent with the Proposed energy model and the mechanical drawings and equipment schedules submitted in LEED Online	'ariable Refrigerant Flo						
System Designation(s)		System 1						
Number of Similar Systems		2						
Total Cooling Capacity		96	kBtu/h		kBtu/h		kBtu/h	192
*Unitary Cooling Efficiency	Units should be consistent with the ASHRAE 90.1 minimum efficiency rating requirements for this system type	14.5 EER						
*Unitary Cooling Part-load Efficiency	Indicate the part-load efficiency. Also describe the method for modeling part-load curves if the energy simulation does not have default curves for this equipment type. Enter N/A if not applicable.	n/a						
Total Heating Capacity	All inputs should be consistent with the Proposed energy model and the mechanical drawings and equipment schedules submitted in LEED Online	108	kBtu/h		kBtu/h		kBtu/h	216
*Unitary Heating Efficiency	List all relevant efficiencies (e.g. 3.2 COP at 47°F db/43°F wb, 2.0 COP at 17°F db/15°F wb outdoor air)	4.14 COP						
*Fan Control	e.g. Variable Speed Fans, 3-speed ECM fans with automated controls, constant speed, etc.	Constant Volume						
Supply Airflow	Inputs should be consistent with the mechanical drawings and equipment schedules submitted in LEED Online	0	cfm		cfm		cfm	0
Outdoor Airflow	Actual minimum outdoor airflow rates consistent with Mechanical Schedule	2,000	cfm		cfm		cfm	4,000
Demand Control Ventilation	Briefly describe how demand control ventilation was modeled	Yes						
*Economizer Control	Describe the type of economizer control and the high limit shutoff. Also indicate if the economizer controls are for less than 100% of the design supply air.	n/a	°F		°F		°F	

Table 1.4 - Air-Side HVAC System Schedule

Model Input Parameter	Helpful Notes	HVAC System / Group		HVAC System / Group		HVAC System / Group		Totals
		Description	Units	Description	Units	Description	Units	
*Supply Air Temperature Reset	e.g. - Supply air temperature reset from 55°F to 62°F based on worst case zone	Constant Temp						
*Exhaust Air Energy Recovery	If the system includes energy recovery, describe the type of energy recovery and recovery effectiveness (example: enthalpy wheel - 75% effective). Otherwise, enter "N/A".	None						
Supply Fan Power	•Report exhaust fans not interlocked with HVAC operation (such as parking garage ventilation fans, or unconditioned electrical room exhaust fans), and exhaust fans not required in the calculations (such as fume hoods applying Exception 6.5.3.1.1, or kitchen hoods operating independently of the building HVAC system) in Table 1.4.4	0.00	kW		kW		kW	
Return/Relief Fan Power		0.00	kW		kW		kW	
Exhaust Fan Power		1.20	kW		kW		kW	
System Fan Power		1.20	kW		kW		kW	2.4
Other (Describe)								
Other (Describe)								
Other (Describe)								
Other (Describe)								
Other (Describe)								
Other (Describe)								
Other (Describe)								
Other (Describe)								
Other (Describe)								
Other (Describe)								
Other (Describe)								
Other (Describe)								
Other (Describe)								

***See Instructions above**

Table 1.4 - Air-Side HVAC System Schedule

Table 1.4.8 - Water-Side HVAC System Schedule

Instructions: *Enter all applicable input parameters for the Baseline and Proposed water-side HVAC systems below. All systems included in the model should be entered. An example of the expected level of detail has been provided for each input. Please refer to the Helpful Notes for information about Appendix G modeling protocol. For any information not applicable to the project, simply enter "N/A". If taking credit for a campus or district plant efficiency using the DES v2 Option 2 Guidance, please include all relevant information regarding the District Plant equipment in the Proposed Case. For projects using the DES v2 Option 2 Guidance Option 1, or ASHRAE 90.1 Addendum ai for district energy systems, it is recommended that the Proposed Case inputs be completed first, and the description for many Baseline Case inputs will be auto-generated based on the proposed case inputs. Baseline Helpful notes relevant to DES v2 Option 1 and ASHRAE 90.1 Addendum ai are abbreviated as "DESv2#1" and "ai" respectively.*

	Model Input Parameter	Baseline Helpful Notes	Baseline Case	Units	Proposed Case	Units
Chilled Water	Number and Type of Chillers *(and capacity per chiller if more than one type or size of chiller)*	***≤300 tons building peak:*** 1 water-cooled screw chiller ***300-600 tons building peak:*** 2 equally-sized water-cooled screw chillers ***≥600 tons building peak:*** At least 2 water-cooled centrifugal chillers (800 tons max per chiller)				
	Total Chiller Capacity	Auto-sized with 15% oversizing (unless oversized at the system coil) per G3.1.2.2	0	tons	0	tons
	Chiller Efficiency - Full Load	Per Table 6.8.1C efficiencies		kW/Ton		kW/Ton
	Chiller Efficiency - Part Load					
	Chilled Water (CHW) Supply Temp	44°F per G3.1.3.8	44	°F	44	°F
	CHW ΔT	12°F per G3.1.3.8		°F		°F
	CHW Supply Temp Reset Parameters	44°F at outdoor temps 80°F and above, 54°F at outdoor temps 60°F and below, and ramped linearly between 44°F and 54°F at outdoor temps between 80°F and 60°F per G3.1.3.9	not a DOE-2 capability		not a DOE-2 capability	
	CHW Loop Configuration	Primary/secondary per G3.1.3.10	Primary Only		Primary Only	
	Number of Primary CHW Pumps	1 per chiller per G3.1.3.11	0	#	0	#
	Primary CHW Pump Power	22 W/gpm per G3.1.3.10		W/gpm		W/gpm
	Primary CHW Pump Flow	Auto-sized with a capacity ratio of 1.0 based on CHW temperatures		gpm		gpm
	Primary CHW Pump Control	Constant Flow - each primary pump interlocked to operate with associated chiller - G3.1.3.10, G3.1.3.11	Constant Flow		Constant Flow	
	Number of Secondary CHW Pumps	1 per G3.1.3.10		#	1	#
	Secondary CHW Pump Power	22 W/gpm per G3.1.3.10		W/gpm	0.00	W/gpm
	Secondary CHW Pump Flow	Auto-sized with a capacity ratio of 1.0 based on CHW temperatures		gpm	0	gpm
	Secondary CHW Pump Control	***<300 tons:*** riding the pump curve ***≥300 tons:*** variable speed			One-Speed / 3 Way Valves	
	Water-Side Economizer	Not required	No		No	
	Water-Side Energy Recovery	Not required				
Cooling Tower & Condenser Water	Number of Cooling Towers / Fluid Coolers	1 per G3.1.3.11	0	#	0	#
	Cooling Tower Fan Power	Minimum 38.2 gpm/hp (maximum 0.0262 hp/gpm or 19.5 W/gpm) per Table 6.8.1G		gpm/Hp		gpm/Hp
	Cooling Tower Fan Control	Two-speed axial fans per G3.1.3.11				
	Condenser Water (CW) Leaving Temp	85°F or 10°F approaching design wet-bulb temperature, whichever is lower per G3.1.3.11		°F		°F
	CW ΔT	10°F per G3.1.3.11		°F		°F
	CW Loop Temp Reset Parameters	Maintain a 70°F leaving water temperature where weather permits, floating up to leaving water temperature at design conditions per G3.1.3.11				
	Number of CW Pumps	1 per chiller per G3.1.3.11	0	#	0	#
	CW Pump Power	19 W/gpm per G3.1.3.11		W/gpm		W/gpm
	CW Pump Flow	Auto-sized with a capacity ratio of 1.0 based on CW temperatures		gpm		gpm
	CW Pump Control	Riding the pump curve per G3.1.3.11				
Hot Water / Steam	Number and Type of Boilers	***≤15,000 sf:*** 1 natural draft hot water boiler ***>15,000 sf:*** 2 equally-sized natural draft hot water boilers staged as required by the load				
	Total Boiler Capacity	Auto-sized with 25% oversizing (unless oversized at the system coil) per G3.1.2.2				
	Boiler Efficiency	Per Table 6.8.1F minimum efficiencies				
	Hot Water or Steam (HHW) Supply Temp	180°F per G3.1.3.3		°F		°F
	HHW ΔT	50°F per G3.1.3.3		°F		°F
	HHW Temp Reset Parameters	180°F at outdoor temps 20°F and below, 150°F at outdoor temps 50°F and above, and ramped linearly between 180°F and 150°F at outdoor temps between 20°F and 50°F per G3.1.3.4			Primary Only	
	HHW Loop Configuration	Primary-only per G3.1.3.5			1	
	Number of Primary HHW Pumps	One pump per Boiler		#	0	#
	Primary HHW Pump Power	19 W/gpm per G3.1.3.5		W/gpm	0	W/gpm
	Primary HHW Pump Flow	Auto-sized with a capacity ratio of 1.0 based on HHW temperatures		gpm	One-Speed / 3 Way Valves	gpm
	Primary HHW Pump Control	***<120,000 sf:*** riding the pump curve ***≥120,000 sf:*** variable speed				

ENERGY USE AND COST SUMMARY — ECON-1

Project Name: *BCHD allcove* | Date: *2/27/2024*

Rate: *Southern California Edison Co Time-* **Fuel Type:** *Electricity*

	STANDARD			PROPOSED			MARGIN		
	Energy Use (kWh)	Peak Demand (kW)	Cost ($)	Energy Use (kWh)	Peak Demand (kW)	Cost ($)	Energy Use (kWh)	Peak Demand (kW)	Cost ($)
Jan	18,467	73.7	3,324	11,565	44.9	2,224	6,902	28.8	1,099
Feb	16,012	75.3	3,129	9,888	44.1	2,056	6,124	31.2	1,073
Mar	18,627	72.8	3,628	11,239	44.1	2,307	7,388	28.8	1,321
Apr	17,614	83.9	3,682	10,295	42.6	2,285	7,319	41.2	1,397
May	18,902	79.9	3,823	10,901	42.1	2,325	8,002	37.8	1,499
Jun	19,919	79.9	6,616	10,650	42.2	3,401	9,269	37.8	3,216
Jul	21,212	86.0	7,182	10,408	40.8	3,309	10,805	45.2	3,873
Aug	21,675	80.6	7,101	11,178	39.0	3,382	10,496	41.6	3,718
Sep	19,496	83.7	6,662	9,951	40.7	3,333	9,545	43.0	3,329
Oct	19,550	88.0	4,049	11,135	44.0	2,367	8,414	44.0	1,683
Nov	17,038	75.7	3,587	10,394	42.2	2,255	6,644	33.5	1,333
Dec	17,756	78.3	3,704	10,956	45.8	2,393	6,800	32.5	1,311
Year	226,269	88.0	56,487	128,560	45.8	31,635	97,709	42.2	24,851
CO_2	70.82	tons/yr		40.24	tons/yr		30.58	tons/yr	

Rate: **Fuel Type:** *Natural Gas*

	STANDARD			PROPOSED			MARGIN		
	Energy Use (therms)	Peak Demand (kBtu/hr)	Cost ($)	Energy Use (therms)	Peak Demand (kBtu/hr)	Cost ($)	Energy Use (therms)	Peak Demand (kBtu/hr)	Cost ($)
Jan	174	233.0		0	0.0		174	233.0	
Feb	66	183.5		0	0.0		66	183.5	
Mar	80	192.8		0	0.0		80	192.8	
Apr	61	185.6		0	0.0		61	185.6	
May	3	50.3		0	0.0		3	50.3	
Jun	1	9.3		0	0.0		1	9.3	
Jul	1	9.6		0	0.0		1	9.6	
Aug	1	9.3		0	0.0		1	9.3	
Sep	1	9.6		0	0.0		1	9.6	
Oct	3	73.3		0	0.0		3	73.3	
Nov	106	280.2		0	0.0		106	280.2	
Dec	225	251.0		0	0.0		225	251.0	
Year	721	280.2		0	0.0		721	280.2	
CO_2		tons/yr			tons/yr			tons/yr	

Annual Totals	Energy	Demand	Cost	Cost/sqft	Virtual Rate
Electricity	*128,560* **kWh**	*46* **kW**	$ *31,635*	$ *3.33* **/sqft**	$ *0.25* **/kWh**
Natural Gas	*0* **therms**	*0* **kBtu/hr**	$ *0*	$ *0.00* **/sqft**	$ *0.00* **/therm**
		Total	$ *31,635*	$ *3.33* **/sqft**	

Performance Cost Index: 0.560 **Site Energy Use Index:** ***46.16*** **kBtuh/yr**

Energy Upgrade Recommendations — ECON-2

Project Name: *BCHD allcove* | Documentation Author: *Lewis Ross Associates Inc*

Project Address: *Beryl & Flagler, Redondo Beach, CA 90277* | Author Address: *25061 Ave Stanford Suite 120, Valencia, CA 91355*

Recommended Improvements	Description	Annual Savings	Est. Cost to Install	Service Life	SIR
All Improvements		*$0*	*$0*	*25*	*0.00*

Annual Results	Energy Cost			Electricity (kWh)			Fossil Fuel (therms)		
End Use	Existing	Improved	Savings	Existing	Improved	Savings	Existing	Improved	Savings
Space Heating	$24	$24	$0	105	105	0	0	0	0
Space Cooling	$1,039	$1,039	$0	4,436	4,436	0	0	0	0
Fans	$4,472	$4,472	$0	19,096	19,096	0	0	0	0
Pumps	$4	$4	$0	15	15	0	0	0	0
Domestic Hot Water	$14,528	$14,528	$0	62,031	62,031	0	0	0	0
Indoor Lighting	$6,266	$6,266	$0	26,753	26,753	0	0	0	0
Outdoor Lighting	$0	$0	$0	0	0	0	0	0	0
Plug Loads	$6,800	$6,800	$0	29,036	29,036	0	0	0	0
Appliances/Process	$3,400	$3,400	$0	14,518	14,518	0	0	0	0
Ancillary	$0	$0	$0	0	0	0	0	0	0
Photovoltaic	($4,898)	($4,898)	$0	-27,429	-27,429	0	0	0	0
TOTAL	**$31,635**	**$31,635**	**$0**	**128,560**	**128,560**	**0**	**0**	**0**	**0**

CO_2 (metric tons/year)	Existing	Improved	Savings
Electricity	40.24	40.24	0.00
Fossil Fuel	0.00	0.00	0.00
TOTAL	**40.24**	**40.24**	**0.00**
Average Demand (kW)	45.80	45.80	0.00

Climate Zone:	6
Electric Rate:	*Southern California Edison Co*
Gas Rate:	
Floor Area:	9,505
Type:	*Nonresidential*

Improvements above shown with singular savings benefit for individual measures

The estimated operating costs shown in this report are dependent upon many factors. The construction and conservation features of the project clearly are important. Equally important is the thermostat setting. How the thermostat is used, appliance use, and occupant interaction all influence the annual operating cost. The estimates provided in this report are based on typical conditions; your actual usage will vary. SIR is based upon measure costs divided by cost savings over the service life.

HVAC SYSTEM HEATING AND COOLING LOADS SUMMARY

Project Name	BCHD allcove
Date	2/27/2024
System Name	System 1
Floor Area	9,505

ENGINEERING CHECKS	
Number of Systems	2
Heating System	
Output per System	108,000
Total Output (Btuh)	216,000
Output (Btuh/sqft)	22.7
Cooling System	
Output per System	96,000
Total Output (Btuh)	192,000
Total Output (Tons)	16.0
Total Output (Btuh/sqft)	20.2
Total Output (sqft/Ton)	594.1
Air System	
CFM per System	0
Airflow (cfm)	0
Airflow (cfm/sqft)	0.00
Airflow (cfm/Ton)	0.0
Outside Air (%)	0.0%
Outside Air (cfm/sqft)	0.00
Note: values above given at ARI conditions	

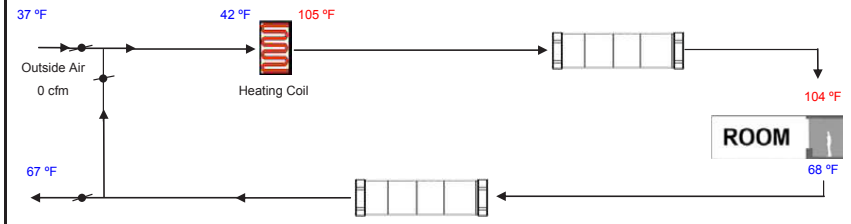
SYSTEM LOAD

	COIL COOLING PEAK			COIL HTG. PEAK	
	CFM	Sensible	Latent	CFM	Sensible
Total Room Loads		207,155			193,549
Return Vented Lighting					
Return Air Ducts					
Return Fan					
Ventilation					
Supply Fan					
Supply Air Ducts					
TOTAL SYSTEM LOAD		207,155			193,549

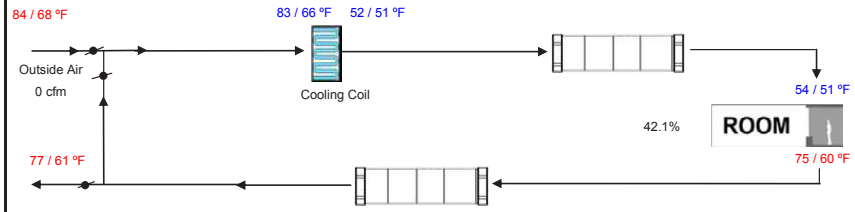
HVAC EQUIPMENT SELECTION

Mitsubishi PURY-P96YNU	200,461	0		226,514
Total Adjusted System Output (Adjusted for Peak Design conditions)	200,461	0		226,514
TIME OF SYSTEM PEAK		Aug 3 PM		Jan 1 AM

HEATING SYSTEM PSYCHROMETRICS (Airstream Temperatures at Time of Heating Peak)



COOLING SYSTEM PSYCHROMETRICS (Airstream Temperatures at Time of Cooling Peak)



ZONE LOAD SUMMARY

Project Name	BCHD allcove
Date	2/27/2024
System Name	System 1
Floor Area	9,505

ZONE LOAD SUMMARY

		ZONAL SYSTEM						COOLING PEAK				HEATING PEAK	
ZONE NAME	SYSTEM NAME	Mult.	CFM	Sensible	Latent	Heating	OA CFM	Peak Hr	CFM	Sensible	Latent	CFM	Sensible
Zone 1	Mitsubishi PEFY-P36NMAU-E	4.0	4,660	110,000	34,000	160,000	2,000	Aug 3 PM	3,315	95,753	18,682	699	94,288
Zone 2	Mitsubishi PEFY-P36NMAU-E	4.0	4,660	110,000	34,000	160,000	2,000	Aug 3 PM	3,995	111,402	19,182	825	99,261
TOTALS		55,000	17,000	80,000	4,000			Aug 3 PM	207,155	37,864		193,549	
(BLOCK LOAD)													

ROOM LOAD SUMMARY

Project Name	Date
BCHD allcove	2/27/2024
System Name	**Floor Area**
System 1	9,505

ROOM LOAD SUMMARY

			ROOM COOLING PEAK			COIL COOLING PEAK			COIL HTG. PEAK	
Zone Name	Room Name	Mult.	CFM	Sensible	Latent	CFM	Sensible	Latent	CFM	Sensible
Zone 1	Floor 1	1	3,360	77,374	3,433	3,315	76,345	3,433	699	27,439
Zone 2	Floor 2	1	3,995	91,995	3,933	3,995	91,995	3,933	825	32,412
		PAGE TOTAL				7,310	168,340	7,366	1,524	59,851
		TOTAL *				7,310	168,340	7,366	1,524	59,851

* Total includes ventilation load for zonal systems.

ROOM HEATING PEAK LOADS

Project Name	Date
BCHD allcove	2/27/2024

ROOM INFORMATION		DESIGN CONDITIONS	
Room Name	Floor 1	**Time of Peak**	Jan 1 AM
Floor Area	4,430.00 ft²	**Outdoor Dry Bulb Temperature**	37 °F
Indoor Dry Bulb Temperature	68 °F		

Conduction	Area		U-Value		ΔT °F		Btu/hr
R-21 Wall Metal Stud + 1" insulation	1,904.0	X	0.0870	X	31	=	5,134
PPG SOLARBAN 70 XL Clear	856.0	X	0.5700	X	31	=	15,126
Raised Slab Floor - Top Insulated	4,430.0	X	0.0523	X	31	=	7,179
*R-0 Roof No Attic	4,430.0	X	0.3041	X	0	=	0

Items shown with an asterisk (*) denote conduction through an interior surface to another room

Page Total 27,439

Infiltration:[1.00 (Schedule Fraction) X 1.078 (Air Sensible) X 4,430 (Area) X 12.00 (Ceiling Height) X 0.000 (ACH) / 60] X 31 (ΔT) = 0

TOTAL HOURLY HEAT LOSS FOR ROOM 27,439

ROOM HEATING PEAK LOADS

Project Name	Date
BCHD allcove	*2/27/2024*

ROOM INFORMATION		DESIGN CONDITIONS	
Room Name	*Floor 2*	**Time of Peak**	*Jan 1 AM*
Floor Area	*5,075.00 ft²*	**Outdoor Dry Bulb Temperature**	*37 °F*
Indoor Dry Bulb Temperature	*68 °F*		

Conduction	Area		U-Value		ΔT °F		Btu/hr
R-21 Wall Metal Stud + 1" insulation	4,744.0	X	0.0870	X	31	=	12,793
PPG SOLARBAN 70 XL Clear	856.0	X	0.5700	X	31	=	15,126
R-38 Roof No Attic	5,740.0	X	0.0253	X	31	=	4,494
*R-0 Floor No Crawlspace	5,075.0	X	0.1995	X	0	=	0

Items shown with an asterisk (*) denote conduction through an interior surface to another room — **Page Total** 32,412

Infiltration: [1.00 (Schedule Fraction) X 1.078 (Air Sensible) X 5,075 (Area) X 8.00 (Ceiling Height) X 0.000 (ACH) / 60] X 31 (ΔT) = 0

TOTAL HOURLY HEAT LOSS FOR ROOM 32,412

ROOM COOLING PEAK LOADS

Project Name	Date
BCHD allcove	*2/27/2024*

ROOM INFORMATION		DESIGN CONDITIONS	
Room Name	*Floor 1*	**Time of Peak**	*Sep 3 PM*
Floor Area	*4,430.00 ft²*	**Outdoor Dry Bulb Temperature**	*82 °F*
Indoor Dry Bulb Temperature	*75 °F*	**Outdoor Wet Bulb Temperature**	*66 °F*

Conduction	Area		U-Value		DETD[1]		Btu/hr
R-21 Wall Metal Stud + 1" insulation	447.0	X	0.0870	X	8.9	=	346
PPG SOLARBAN 70 XL Clear	258.0	X	0.5700	X	4.4	=	649
R-21 Wall Metal Stud + 1" insulation	558.0	X	0.0870	X	11.1	=	537
PPG SOLARBAN 70 XL Clear	117.0	X	0.5700	X	4.4	=	294
R-21 Wall Metal Stud + 1" insulation	454.0	X	0.0870	X	22.8	=	900
PPG SOLARBAN 70 XL Clear	251.0	X	0.5700	X	4.4	=	632
R-21 Wall Metal Stud + 1" insulation	445.0	X	0.0870	X	29.8	=	1,154
PPG SOLARBAN 70 XL Clear	230.0	X	0.5700	X	4.4	=	579
Raised Slab Floor - Top Insulated	4,430.0	X	0.0523	X	9.9	=	2,289
					Page Total		7,381

1. Design Equivalent Temperature Difference (DETD)

Items shown with an asterisk (*) denote conduction through an interior surface to another room.

Solar Gain	Orientation	Area		SGF		SC		Weighting Factor		Btu/hr
Window	(N)	258.0	X	29	X	0.457	X	0.883	=	2,986
Window	(E)	117.0	X	29	X	0.457	X	2.240	=	3,437
Window	(S)	251.0	X	121	X	0.457	X	0.998	=	13,804
Window	(W)	230.0	X	243	X	0.457	X	0.399	=	10,211
								Page Total		30,438

Internal Gain	Sched. Frac.		Area		Heat Gain						Weighting Factor		Btu/hr
Lights	1.00	X	4,430	X	0.750	Watts/Sqft	X	3.413	Btu/Watt	X	1.000	=	11,338
Occupants	1.00	X	4,430	X	250	Btu/occ.	/	200.000	Sqft/occ.	X	1.000	=	5,538
Receptacle	1.00	X	4,430	X	1.000	Watts/Sqft	X	3.413	Btu/Watt	X	1.000	=	15,120
Process	1.00	X	4,430	X	0.500	Watts/Sqft	X	3.413	Btu/Watt	X	1.000	=	7,560
Process Lighting	1.00	X	4,430	X	0.000	Watts/Sqft	X	3.413	Btu/Watt	X	0.000	=	0

Infiltration: [1.00 (Schedule Fraction) X 1.078 (Air Sensible) X 4,430 (Area) X 12.00 (Ceiling Height) X 0.00 (ACH) / 60] X 7 (ΔT) = 0

TOTAL HOURLY SENSIBLE HEAT GAIN FOR ROOM 77,374

Latent Gain	Sched. Frac.		Area		Heat Gain						Btu/hr
Occupants	1.00	X	4,430	X	155	Btuh/occ.	/	200.000	Sqft/occ.	=	3,433
Receptacle	1.00	X	4,430	X	0.000	Watts/Sqft	X	3.413	Btu/Watt	=	0
Process	1.00	X	4,430	X	0.000	Watts/Sqft	X	3.413	Btu/Watt	=	0

Infiltration: [1.00 (Schedule Fraction) X 4,834 (Air Latent) X 4,430 (Area) X 12.00 (Ceiling Height) X 0.00 (ACH) /60] X 0.00000 (ΔW) = 0

TOTAL HOURLY LATENT HEAT GAIN FOR ROOM 3,433

ROOM COOLING PEAK LOADS

Project Name	Date
BCHD allcove	*2/27/2024*

ROOM INFORMATION		DESIGN CONDITIONS	
Room Name	*Floor 1*	**Time of Peak**	*Sep 3 PM*
Floor Area	*4,430.00 ft²*	**Outdoor Dry Bulb Temperature**	*82 °F*
Indoor Dry Bulb Temperature	*75 °F*	**Outdoor Wet Bulb Temperature**	*66 °F*

Conduction	Area		U-Value		DETD[1]		Btu/hr
**R-0 Roof No Attic*	*4,430.0*	X	*0.3041*	X	*0.0*	=	*0*
		X		X		=	
		X		X		=	
		X		X		=	
		X		X		=	
		X		X		=	
		X		X		=	
		X		X		=	
		X		X		=	
		X		X		=	
					Page Total		*0*

1. Design Equivalent Temperature Difference (DETD)
Items shown with an asterisk (*) denote conduction through an interior surface to another room.

Solar Gain	Orientation	Area		SGF		SC		Weighting Factor		Btu/hr
			X		X		X		=	
			X		X		X		=	
			X		X		X		=	
			X		X		X		=	
			X		X		X		=	
			X		X		X		=	
			X		X		X		=	
			X		X		X		=	
			X		X		X		=	
							Page Total			*0*

Internal Gain	Sched. Frac.		Area		Heat Gain						Weighting Factor		Btu/hr
Lights	*1.00*	X	*4,430*	X	*0.750*	**Watts/Sqft**	X	*3.413*	**Btu/Watt**	X	*1.000*	=	*11,338*
Occupants	*1.00*	X	*4,430*	X	*250*	**Btu/occ.**	/	*200.000*	**Sqft/occ.**	X	*1.000*	=	*5,538*
Receptacle	*1.00*	X	*4,430*	X	*1.000*	**Watts/Sqft**	X	*3.413*	**Btu/Watt**	X	*1.000*	=	*15,120*
Process	*1.00*	X	*4,430*	X	*0.500*	**Watts/Sqft**	X	*3.413*	**Btu/Watt**	X	*1.000*	=	*7,560*
Process Lighting	*1.00*	X	*4,430*	X	*0.000*	**Watts/Sqft**	X	*3.413*	**Btu/Watt**	X	*0.000*	=	*0*

Infiltration: [*1.00* (Schedule Fraction) X *1.078* (Air Sensible) X *4,430* (Area) X *12.00* (Ceiling Height) X *0.00* (ACH) / **60**] X *7* (ΔT) = *0*

TOTAL HOURLY SENSIBLE HEAT GAIN FOR ROOM *77,374*

Latent Gain	Sched. Frac.		Area		Heat Gain							Btu/hr
Occupants	*1.00*	X	*4,430*	X	*155*	**Btuh/occ.**	/	*200.000*	**Sqft/occ.**	=		*3,433*
Receptacle	*1.00*	X	*4,430*	X	*0.000*	**Watts/Sqft**	X	*3.413*	**Btu/Watt**	=		*0*
Process	*1.00*	X	*4,430*	X	*0.000*	**Watts/Sqft**	X	*3.413*	**Btu/Watt**	=		*0*

Infiltration: [*1.00* (Schedule Fraction) X *4,834* (Air Latent) X *4,430* (Area) X *12.00* (Ceiling Height) X *0.00* (ACH) /**60**] X *0.00000* (ΔW) = *0*

TOTAL HOURLY LATENT HEAT GAIN FOR ROOM *3,433*

ROOM COOLING PEAK LOADS

Project Name	Date
BCHD allcove	*2/27/2024*

ROOM INFORMATION		DESIGN CONDITIONS	
Room Name	*Floor 2*	**Time of Peak**	*Aug 3 PM*
Floor Area	*5,075.00 ft²*	**Outdoor Dry Bulb Temperature**	*84 °F*
Indoor Dry Bulb Temperature	*75 °F*	**Outdoor Wet Bulb Temperature**	*68 °F*

Conduction	Area		U-Value		DETD[1]		Btu/hr
R-21 Wall Metal Stud + 1" insulation	*1,032.0*	X	*0.0870*	X	*11.9*	=	*1,069*
PPG SOLARBAN 70 XL Clear	*258.0*	X	*0.5700*	X	*6.3*	=	*925*
R-21 Wall Metal Stud + 1" insulation	*1,393.0*	X	*0.0870*	X	*14.3*	=	*1,730*
PPG SOLARBAN 70 XL Clear	*117.0*	X	*0.5700*	X	*6.3*	=	*419*
R-21 Wall Metal Stud + 1" insulation	*1,039.0*	X	*0.0870*	X	*20.0*	=	*1,807*
PPG SOLARBAN 70 XL Clear	*251.0*	X	*0.5700*	X	*6.3*	=	*900*
R-21 Wall Metal Stud + 1" insulation	*1,280.0*	X	*0.0870*	X	*32.6*	=	*3,630*
PPG SOLARBAN 70 XL Clear	*230.0*	X	*0.5700*	X	*6.3*	=	*824*
R-38 Roof No Attic	*5,740.0*	X	*0.0253*	X	*55.3*	=	*8,024*
					Page Total		*19,328*

1. Design Equivalent Temperature Difference (DETD)
Items shown with an asterisk (*) denote conduction through an interior surface to another room.

Solar Gain	Orientation	Area		SGF		SC		Weighting Factor		Btu/hr
Window	*(N)*	*258.0*	X	*38*	X	*0.457*	X	*0.848*	=	*3,757*
Window	*(E)*	*117.0*	X	*38*	X	*0.457*	X	*2.026*	=	*4,068*
Window	*(S)*	*251.0*	X	*76*	X	*0.457*	X	*1.040*	=	*9,130*
Window	*(W)*	*230.0*	X	*244*	X	*0.457*	X	*0.405*	=	*10,398*
			X		X		X		=	
			X		X		X		=	
			X		X		X		=	
			X		X		X		=	
			X		X		X		=	
							Page Total			*27,352*

Internal Gain	Sched. Frac.		Area		Heat Gain						Weighting Factor		Btu/hr
Lights	*1.00*	X	*5,075*	X	*0.750*	**Watts/Sqft**	X	*3.413*	**Btu/Watt**	X	*1.000*	=	*12,989*
Occupants	*1.00*	X	*5,075*	X	*250*	**Btu/occ.**	/	*200.000*	**Sqft/occ.**	X	*1.000*	=	*6,344*
Receptacle	*1.00*	X	*5,075*	X	*1.000*	**Watts/Sqft**	X	*3.413*	**Btu/Watt**	X	*1.000*	=	*17,321*
Process	*1.00*	X	*5,075*	X	*0.500*	**Watts/Sqft**	X	*3.413*	**Btu/Watt**	X	*1.000*	=	*8,660*
Process Lighting	*1.00*	X	*5,075*	X	*0.000*	**Watts/Sqft**	X	*3.413*	**Btu/Watt**	X	*0.000*	=	*0*

Infiltration: [*1.00* (Schedule Fraction) X *1.078* (Air Sensible) X *5,075* (Area) X *8.00* (Ceiling Height) X *0.00* (ACH) / **60**] X *9* (ΔT) = *0*

TOTAL HOURLY SENSIBLE HEAT GAIN FOR ROOM *91,995*

Latent Gain	Sched. Frac.		Area		Heat Gain							Btu/hr
Occupants	*1.00*	X	*5,075*	X	*155*	**Btuh/occ.**	/	*200.000*	**Sqft/occ.**	=		*3,933*
Receptacle	*1.00*	X	*5,075*	X	*0.000*	**Watts/Sqft**	X	*3.413*	**Btu/Watt**	=		*0*
Process	*1.00*	X	*5,075*	X	*0.000*	**Watts/Sqft**	X	*3.413*	**Btu/Watt**	=		*0*

Infiltration: [*1.00* (Schedule Fraction) X *4,834* (Air Latent) X *5,075* (Area) X *8.00* (Ceiling Height) X *0.00* (ACH) /**60**] X *0.00000* (ΔW) = *0*

TOTAL HOURLY LATENT HEAT GAIN FOR ROOM *3,933*

ROOM COOLING PEAK LOADS

Project Name	Date
BCHD allcove	2/27/2024

ROOM INFORMATION		DESIGN CONDITIONS	
Room Name	Floor 2	**Time of Peak**	Aug 3 PM
Floor Area	5,075.00 ft²	**Outdoor Dry Bulb Temperature**	84 °F
Indoor Dry Bulb Temperature	75 °F	**Outdoor Wet Bulb Temperature**	68 °F

Conduction	Area		U-Value		DETD[1]		Btu/hr
*R-0 Floor No Crawlspace	5,075.0	X	0.1995	X	0.0	=	0
		X		X		=	
		X		X		=	
		X		X		=	
		X		X		=	
		X		X		=	
		X		X		=	
		X		X		=	
		X		X		=	
		X		X		=	
					Page Total		0

1. Design Equivalent Temperature Difference (DETD)
Items shown with an asterisk (*) denote conduction through an interior surface to another room.

Solar Gain	Orientation	Area		SGF		SC		Weighting Factor		Btu/hr
			X		X		X		=	
			X		X		X		=	
			X		X		X		=	
			X		X		X		=	
			X		X		X		=	
			X		X		X		=	
			X		X		X		=	
			X		X		X		=	
			X		X		X		=	
								Page Total		0

Internal Gain	Sched. Frac.		Area		Heat Gain						Weighting Factor		Btu/hr
Lights	1.00	X	5,075	X	0.750	Watts/Sqft	X	3.413	Btu/Watt	X	1.000	=	12,989
Occupants	1.00	X	5,075	X	250	Btu/occ.	/	200.000	Sqft/occ.	X	1.000	=	6,344
Receptacle	1.00	X	5,075	X	1.000	Watts/Sqft	X	3.413	Btu/Watt	X	1.000	=	17,321
Process	1.00	X	5,075	X	0.500	Watts/Sqft	X	3.413	Btu/Watt	X	1.000	=	8,660
Process Lighting	1.00	X	5,075	X	0.000	Watts/Sqft	X	3.413	Btu/Watt	X	0.000	=	0

Infiltration: [	Schedule Fraction		Air Sensible		Area		Ceiling Height		ACH	/ 60]		ΔT		
	1.00	X	1.078	X	5,075	X	8.00	X	0.00		X	9	=	0

TOTAL HOURLY SENSIBLE HEAT GAIN FOR ROOM 91,995

Latent Gain	Sched. Frac.		Area		Heat Gain					Btu/hr
Occupants	1.00	X	5,075	X	155	Btuh/occ.	/	200.000	Sqft/occ. =	3,933
Receptacle	1.00	X	5,075	X	0.000	Watts/Sqft	X	3.413	Btu/Watt =	0
Process	1.00	X	5,075	X	0.000	Watts/Sqft	X	3.413	Btu/Watt =	0

Infiltration: [	Schedule Fraction		Air Latent		Area		Ceiling Height		ACH	/60]		ΔW		
	1.00	X	4,834	X	5,075	X	8.00	X	0.00		X	0.00000	=	0

TOTAL HOURLY LATENT HEAT GAIN FOR ROOM 3,933

ROOM COOLING COIL LOADS

Project Name	Date
BCHD allcove	2/27/2024

ROOM INFORMATION		DESIGN CONDITIONS	
Room Name	Floor 1	**Time of Peak**	Aug 3 PM
Floor Area	4,430.00 ft²	**Outdoor Dry Bulb Temperature**	84 °F
Indoor Dry Bulb Temperature	75 °F	**Outdoor Wet Bulb Temperature**	68 °F

Conduction	Area		U-Value		DETD[1]		Btu/hr
R-21 Wall Metal Stud + 1" insulation	447.0	X	0.0870	X	11.9	=	463
PPG SOLARBAN 70 XL Clear	856.0	X	0.5700	X	6.3	=	3,068
R-21 Wall Metal Stud + 1" insulation	558.0	X	0.0870	X	14.3	=	693
R-21 Wall Metal Stud + 1" insulation	454.0	X	0.0870	X	20.0	=	790
R-21 Wall Metal Stud + 1" insulation	445.0	X	0.0870	X	32.6	=	1,262
Raised Slab Floor - Top Insulated	4,430.0	X	0.0523	X	13.7	=	3,162
*R-0 Roof No Attic	4,430.0	X	0.3041	X	0.0	=	0
		X		X		=	
		X		X		=	
					Page Total		9,438

1. Design Equivalent Temperature Difference (DETD)
Items shown with an asterisk (*) denote conduction through an interior surface to another room.

Solar Gain	Orientation	Area		SGF		SC		Weighting Factor		Btu/hr
Window	(N)	258.0	X	38	X	0.457	X	0.848	=	3,757
Window	(E)	117.0	X	38	X	0.457	X	2.026	=	4,068
Window	(S)	251.0	X	76	X	0.457	X	1.040	=	9,129
Window	(W)	230.0	X	244	X	0.457	X	0.405	=	10,398
			X		X		X		=	
			X		X		X		=	
			X		X		X		=	
			X		X		X		=	
			X		X		X		=	
								Page Total		27,352

Internal Gain	Sched. Frac.		Area		Heat Gain						Weighting Factor		Btu/hr
Lights	1.00	X	4,430	X	0.750	Watts/Sqft	X	3.413	Btu/Watt	X	1.000	=	11,338
Occupants	1.00	X	4,430	X	250	Btu/occ.	/	200.000	Sqft/occ.	X	1.000	=	5,538
Receptacle	1.00	X	4,430	X	1.000	Watts/Sqft	X	3.413	Btu/Watt	X	1.000	=	15,120
Process	1.00	X	4,430	X	0.500	Watts/Sqft	X	3.413	Btu/Watt	X	1.000	=	7,560
Process Lighting	1.00	X	4,430	X	0.000	Watts/Sqft	X	3.413	Btu/Watt	X	0.000	=	0

Infiltration: [	Schedule Fraction		Air Sensible		Area		Ceiling Height		ACH	/ 60]		ΔT		
	1.00	X	1.078	X	4,430	X	12.00	X	0.00		X	9	=	0

TOTAL HOURLY SENSIBLE HEAT GAIN FOR ROOM 76,345

Latent Gain	Sched. Frac.		Area		Heat Gain					Btu/hr
Occupants	1.00	X	4,430	X	155	Btuh/occ.	/	200.000	Sqft/occ. =	3,433
Receptacle	1.00	X	4,430	X	0.000	Watts/Sqft	X	3.413	Btu/Watt =	0
Process	1.00	X	4,430	X	0.000	Watts/Sqft	X	3.413	Btu/Watt =	0

Infiltration: [	Schedule Fraction		Air Latent		Area		Ceiling Height		ACH	/60]		ΔW		
	1.00	X	4,834	X	4,430	X	12.00	X	0.00		X	0.00000	=	0

TOTAL HOURLY LATENT HEAT GAIN FOR ROOM 3,433

ROOM COOLING COIL LOADS

Project Name	Date
BCHD allcove	*2/27/2024*

ROOM INFORMATION		DESIGN CONDITIONS	
Room Name	*Floor 2*	**Time of Peak**	*Aug 3 PM*
Floor Area	*5,075.00 ft²*	**Outdoor Dry Bulb Temperature**	*84 °F*
Indoor Dry Bulb Temperature	*75 °F*	**Outdoor Wet Bulb Temperature**	*68 °F*

Conduction	Area		U-Value		DETD[1]		Btu/hr
R-21 Wall Metal Stud + 1" insulation	*1,032.0*	X	*0.0870*	X	*11.9*	=	*1,069*
PPG SOLARBAN 70 XL Clear	*258.0*	X	*0.5700*	X	*6.3*	=	*925*
R-21 Wall Metal Stud + 1" insulation	*1,393.0*	X	*0.0870*	X	*14.3*	=	*1,730*
PPG SOLARBAN 70 XL Clear	*117.0*	X	*0.5700*	X	*6.3*	=	*419*
R-21 Wall Metal Stud + 1" insulation	*1,039.0*	X	*0.0870*	X	*20.0*	=	*1,807*
PPG SOLARBAN 70 XL Clear	*251.0*	X	*0.5700*	X	*6.3*	=	*900*
R-21 Wall Metal Stud + 1" insulation	*1,280.0*	X	*0.0870*	X	*32.6*	=	*3,630*
PPG SOLARBAN 70 XL Clear	*230.0*	X	*0.5700*	X	*6.3*	=	*824*
R-38 Roof No Attic	*5,740.0*	X	*0.0253*	X	*55.3*	=	*8,024*
					Page Total		*19,328*

1. Design Equivalent Temperature Difference (DETD)
Items shown with an asterisk (*) denote conduction through an interior surface to another room.

Solar Gain	Orientation	Area		SGF		SC		Weighting Factor		Btu/hr
Window	*(N)*	*258.0*	X	*38*	X	*0.457*	X	*0.848*	=	*3,757*
Window	*(E)*	*117.0*	X	*38*	X	*0.457*	X	*2.026*	=	*4,068*
Window	*(S)*	*251.0*	X	*76*	X	*0.457*	X	*1.040*	=	*9,130*
Window	*(W)*	*230.0*	X	*244*	X	*0.457*	X	*0.405*	=	*10,398*
			X		X		X		=	
			X		X		X		=	
			X		X		X		=	
			X		X		X		=	
			X		X		X		=	
								Page Total		*27,352*

Internal Gain	Sched. Frac.		Area		Heat Gain						Weighting Factor		Btu/hr
Lights	*1.00*	X	*5,075*	X	*0.750*	**Watts/Sqft**	X	*3.413*	**Btu/Watt**	X	*1.000*	=	*12,989*
Occupants	*1.00*	X	*5,075*	X	*250*	**Btu/occ.**	/	*200.000*	**Sqft/occ.**	X	*1.000*	=	*6,344*
Receptacle	*1.00*	X	*5,075*	X	*1.000*	**Watts/Sqft**	X	*3.413*	**Btu/Watt**	X	*1.000*	=	*17,321*
Process	*1.00*	X	*5,075*	X	*0.500*	**Watts/Sqft**	X	*3.413*	**Btu/Watt**	X	*1.000*	=	*8,660*
Process Lighting	*1.00*	X	*5,075*	X	*0.000*	**Watts/Sqft**	X	*3.413*	**Btu/Watt**	X	*0.000*	=	*0*

Infiltration: [*1.00* (Schedule Fraction) X *1.078* (Air Sensible) X *5,075* (Area) X *8.00* (Ceiling Height) X *0.00* (ACH) / **60**] X *9* (ΔT) = *0*

TOTAL HOURLY SENSIBLE HEAT GAIN FOR ROOM *91,995*

Latent Gain	Sched. Frac.		Area		Heat Gain							Btu/hr
Occupants	*1.00*	X	*5,075*	X	*155*	**Btuh/occ.**	/	*200.000*	**Sqft/occ.**	=		*3,933*
Receptacle	*1.00*	X	*5,075*	X	*0.000*	**Watts/Sqft**	X	*3.413*	**Btu/Watt**	=		*0*
Process	*1.00*	X	*5,075*	X	*0.000*	**Watts/Sqft**	X	*3.413*	**Btu/Watt**	=		*0*

Infiltration: [*1.00* (Schedule Fraction) X *4,834* (Air Latent) X *5,075* (Area) X *8.00* (Ceiling Height) X *0.00* (ACH) /**60**] X *0.00000* (ΔW) = *0*

TOTAL HOURLY LATENT HEAT GAIN FOR ROOM *3,933*

ROOM COOLING COIL LOADS

Project Name	Date
BCHD allcove	*2/27/2024*

ROOM INFORMATION		DESIGN CONDITIONS	
Room Name	*Floor 2*	**Time of Peak**	*Aug 3 PM*
Floor Area	*5,075.00 ft²*	**Outdoor Dry Bulb Temperature**	*84 °F*
Indoor Dry Bulb Temperature	*75 °F*	**Outdoor Wet Bulb Temperature**	*68 °F*

Conduction	Area		U-Value		DETD[1]		Btu/hr
**R-0 Floor No Crawlspace*	*5,075.0*	X	*0.1995*	X	*0.0*	=	*0*
		X		X		=	
		X		X		=	
		X		X		=	
		X		X		=	
		X		X		=	
		X		X		=	
		X		X		=	
		X		X		=	
		X		X		=	
					Page Total		*0*

1. Design Equivalent Temperature Difference (DETD)
Items shown with an asterisk (*) denote conduction through an interior surface to another room.

Solar Gain	Orientation	Area		SGF		SC		Weighting Factor		Btu/hr
			X		X		X		=	
			X		X		X		=	
			X		X		X		=	
			X		X		X		=	
			X		X		X		=	
			X		X		X		=	
			X		X		X		=	
			X		X		X		=	
			X		X		X		=	
			X		X		X		=	
								Page Total		*0*

Internal Gain	Sched. Frac.		Area		Heat Gain						Weighting Factor		Btu/hr
Lights	*1.00*	X	*5,075*	X	*0.750*	**Watts/Sqft**	X	*3.413*	**Btu/Watt**	X	*1.000*	=	*12,989*
Occupants	*1.00*	X	*5,075*	X	*250*	**Btu/occ.**	/	*200.000*	**Sqft/occ.**	X	*1.000*	=	*6,344*
Receptacle	*1.00*	X	*5,075*	X	*1.000*	**Watts/Sqft**	X	*3.413*	**Btu/Watt**	X	*1.000*	=	*17,321*
Process	*1.00*	X	*5,075*	X	*0.500*	**Watts/Sqft**	X	*3.413*	**Btu/Watt**	X	*1.000*	=	*8,660*
Process Lighting	*1.00*	X	*5,075*	X	*0.000*	**Watts/Sqft**	X	*3.413*	**Btu/Watt**	X	*0.000*	=	*0*

Infiltration: [*1.00* (Schedule Fraction) X *1.078* (Air Sensible) X *5,075* (Area) X *8.00* (Ceiling Height) X *0.00* (ACH) / **60**] X *9* (ΔT) = *0*

TOTAL HOURLY SENSIBLE HEAT GAIN FOR ROOM *91,995*

Latent Gain	Sched. Frac.		Area		Heat Gain							Btu/hr
Occupants	*1.00*	X	*5,075*	X	*155*	**Btuh/occ.**	/	*200.000*	**Sqft/occ.**	=		*3,933*
Receptacle	*1.00*	X	*5,075*	X	*0.000*	**Watts/Sqft**	X	*3.413*	**Btu/Watt**	=		*0*
Process	*1.00*	X	*5,075*	X	*0.000*	**Watts/Sqft**	X	*3.413*	**Btu/Watt**	=		*0*

Infiltration: [*1.00* (Schedule Fraction) X *4,834* (Air Latent) X *5,075* (Area) X *8.00* (Ceiling Height) X *0.00* (ACH) /**60**] X *0.00000* (ΔW) = *0*

TOTAL HOURLY LATENT HEAT GAIN FOR ROOM *3,933*

DOE-2 OUTPUT REPORT — Proposed

Proposed Building (ASHRAE 90.1 Appendix BCHD allcove — DOE-2.1E-124 Tue Feb 27 12:48:02 2024LDL RUN 1
Travis Premo — Beryl & Flagler — Lewis Ross Associates Inc
REPORT- LS-D BUILDING MONTHLY LOADS SUMMARY — WEATHER FILE- CZ06TORRANCE-MUNICIP

	- - - - - - - - C O O L I N G - - - - - - - -					- - - - - - - - H E A T I N G - - - - - - - -					- - - E L E C - - -	
MONTH	COOLING ENERGY (MBTU)	TIME OF MAX DY	TIME OF MAX HR	DRY- BULB TEMP	WET- BULB TEMP	MAXIMUM COOLING LOAD (KBTU/HR)	HEATING ENERGY (MBTU)	TIME OF MAX DY	TIME OF MAX HR	DRY- BULB TEMP	WET- BULB TEMP	MAXIMUM HEATING LOAD (KBTU/HR)	ELEC- TRICAL ENERGY (KWH)	MAXIMUM ELEC LOAD (KW)
JAN	21.99387	22	16	73.F	49.F	118.660	-5.245	8	7	40.F	39.F	-42.151	6058.	20.436
FEB	21.67988	2	16	71.F	51.F	128.656	-3.559	4	7	45.F	38.F	-34.433	5326.	20.436
MAR	27.51321	20	16	72.F	47.F	128.510	-3.047	7	6	41.F	41.F	-32.665	6145.	20.436
APR	26.95223	24	15	81.F	58.F	143.033	-2.696	8	6	45.F	43.F	-36.833	5814.	20.436
MAY	32.75462	29	15	71.F	65.F	126.568	-0.749	19	5	47.F	47.F	-16.633	6058.	20.436
JUN	36.97406	15	15	77.F	67.F	130.928	-0.077	3	5	59.F	56.F	-7.206	5902.	20.436
JUL	40.81706	25	15	80.F	70.F	139.618	-0.026	5	6	61.F	59.F	-3.305	5852.	20.436
AUG	40.12492	31	15	79.F	68.F	134.754	-0.041	5	5	60.F	59.F	-5.473	6263.	20.436
SEP	37.04773	10	15	81.F	64.F	140.514	-0.183	30	6	57.F	55.F	-13.574	5490.	20.436
OCT	30.86186	5	15	92.F	58.F	154.548	-1.053	29	6	54.F	52.F	-19.630	6058.	20.436
NOV	23.29471	1	16	75.F	53.F	130.027	-4.481	30	7	31.F	30.F	-52.441	5608.	20.436
DEC	19.34385	11	15	77.F	61.F	131.257	-6.140	2	7	37.F	33.F	-50.005	5734.	20.436
TOTAL	359.358						-27.296						70306.	
MAX						154.548						-52.441		20.436

DOE-2 OUTPUT REPORT — Proposed

MESSAGE LIST FROM SYSTEMS PROGRAM

```
0 **WARNING************************************************************
          ZONE 1-Zone 1          IN SYSTEM SYSTEM-1          HAS UNUSED EXHAUST SPECIFIED
          THIS HAS BEEN CONVERTED TO OUTSIDE AIR
0 **WARNING************************************************************
          ZONE 2-Zone 2          IN SYSTEM SYSTEM-1          HAS UNUSED EXHAUST SPECIFIED
          THIS HAS BEEN CONVERTED TO OUTSIDE AIR
```

DOE-2 OUTPUT REPORT — Proposed

```
 REPORT- SS-Z VRF System Performance
------------------------------------------------------------


 SYSTEM Name: SYSTEM-1
 System Type: Heat Recovery VRF Air-cooled
 Auxiliary Heating System Type: Electric Heater
 Outdoor Unit Heating Change-Over Temperature: -15.0F
 Auxiliary Heating System Efficiency: 100.0%
 HEX AUs to meet DHW only, total heating capacity        1. Btu/h
 BUs to meet DHW only, total heating capacity        1. Btu/h

  Total Zones Design Cooling Capacity Btu/h =    288000.
  Total Zones Design Heating Capacity Btu/h =    320002.
  Combination Ratio =  1.50
  Outdoor Unit Cooling Capacity Btu/h =    192000. Cooling COP = 14.50
  Outdoor Unit Heating Capacity Btu/h =    216000. Heating COP =  4.14
  Piping Equivalent Length =    25. Level Difference =     0.
  Total Zones Peak Cooling Load Btu/h = 146853.
  Total Zones Peak Heating Load Btu/h =  56570.
  Annual cooling kWh =        4436.  Annual heating kWh =         105.
  Annual zone fans kWh =     19095.  Annual branch controllers kWh =   129.
  Annual Auxiliary cooling kWh =           0.
  Annual Auxiliary heating kWh =           0.
  Annual Auxiliary heating Therm =         0.0
  Annual HEX AUs recovered heat Btu =        3872.
  Annual HEX AUs kWh =           5.
  Annual BUs generated heat Btu =        3888.
  Annual BUs kWh =           2.
  Annual hours outdoor unit in cooling mode = 4789.
  Annual hours outdoor unit in heating mode =  365.
  Annual hours simultaneous zones cooling and heating = 4794.

 Warning: Hours outside heating operation range =  308.
```


DOE-2 OUTPUT REPORT — Proposed

```
 Proposed Building (ASHRAE 90.1 Appendix BCHD allcove                    DOE-2.1E-124  Tue Feb 27 12:48:02 2024SDL RUN  1
 Travis Premo                          Beryl & Flagler                   Lewis Ross Associates Inc
 REPORT- SV-A  SYSTEM DESIGN PARAMETERS                  SYSTEM-1                  WEATHER FILE- CZ06TORRANCE-MUNICIP
-------------------------------------------------------------------------------------------------------------------------------

 SYSTEM          SYSTEM        ALTITUDE     FLOOR AREA      MAX
   NAME            TYPE       MULTIPLIER      (SQFT )     PEOPLE

 SYSTEM-1        HP                1.000        9505.0       48.

     SUPPLY                      RETURN                      OUTSIDE   COOLING             HEATING   COOLING   HEATING
       FAN      ELEC   DELTA-T     FAN      ELEC   DELTA-T     AIR    CAPACITY  SENSIBLE  CAPACITY      EIR       EIR
    (CFM )      (KW)       (F)   (CFM )     (KW)       (F)   RATIO  (KBTU/HR)     (SHR) (KBTU/HR) (BTU/BTU) (BTU/BTU)

      9320.    0.000        0.0      0.    0.000        0.0   0.429      0.000     0.000     0.000     0.38      0.36


                SUPPLY   EXHAUST             MINIMUM   OUTSIDE   COOLING          EXTRACTION   HEATING  ADDITION
      ZONE        FLOW      FLOW      FAN      FLOW  AIR FLOW  CAPACITY  SENSIBLE      RATE  CAPACITY      RATE
      NAME       (CFM )    (CFM )    (KW)     RATIO    (CFM )  (KBTU/HR)     (SHR) (KBTU/HR) (KBTU/HR) (KBTU/HR) MULTIPLIER

1-Zone 1           4660.     2000.   1.200     1.000     2000.    144.00      0.76     83.66   -160.00    -77.38        1.0

2-Zone 2           4660.     2000.   1.200     1.000     2000.    144.00      0.76     83.66   -160.00    -77.38        1.0
```

DOE-2 OUTPUT REPORT — Proposed

Proposed Building (ASHRAE 90.1 Appendix BCHD allcove — DOE-2.1E-124 Tue Feb 27 12:48:02 2024SDL RUN 1
Travis Premo — Beryl & Flagler — Lewis Ross Associates Inc
REPORT- SS-P LOAD, ENERGY AND PART LOAD PUMP OPERATION IN PLANT-1 — WEATHER FILE- CZ06TORRANCE-MUNICIP

CIRC PUMP SIZE is 72.0 (GAL/MIN) POWER = 0.00 (KW) HEAT GAIN = 0. (BTU/HR) 0.000 (DEG F) MIN PLR = 1.00

MONTH	PEAK	HEAT GAIN SUM (MBTU) (KBTU/HR)	ENERGY USE (KWH) (KW)	HEAT MODE (KWH) (KW)	COOL MODE (KWH) (KW)	Number of hours within each PART LOAD range 00	10	20	30	40	50	60	70	80	90	100 +	TOTAL RUN HOURS
JAN	SUM	0.000	0.000	0.000	0.000	0	0	0	0	0	0	0	0	0	0	744	744
	PEAK	0.000	0.000	0.000	0.000												
	DAY/HR	31/24	31/24	31/24	31/24												
FEB	SUM	0.000	0.000	0.000	0.000	0	0	0	0	0	0	0	0	0	0	672	672
	PEAK	0.000	0.000	0.000	0.000												
	DAY/HR	28/24	28/24	28/24	28/24												
MAR	SUM	0.000	0.000	0.000	0.000	0	0	0	0	0	0	0	0	0	0	744	744
	PEAK	0.000	0.000	0.000	0.000												
	DAY/HR	31/24	31/24	31/24	31/24												
APR	SUM	0.000	0.000	0.000	0.000	0	0	0	0	0	0	0	0	0	0	720	720
	PEAK	0.000	0.000	0.000	0.000												
	DAY/HR	30/ 1	30/ 1	30/ 1	30/ 1												
MAY	SUM	0.000	0.000	0.000	0.000	0	0	0	0	0	0	0	0	0	0	744	744
	PEAK	0.000	0.000	0.000	0.000												
	DAY/HR	31/ 1	31/ 1	31/ 1	31/ 1												
JUN	SUM	0.000	0.000	0.000	0.000	0	0	0	0	0	0	0	0	0	0	720	720
	PEAK	0.000	0.000	0.000	0.000												
	DAY/HR	30/ 1	30/ 1	30/ 1	30/ 1												
JUL	SUM	0.000	0.000	0.000	0.000	0	0	0	0	0	0	0	0	0	0	744	744
	PEAK	0.000	0.000	0.000	0.000												
	DAY/HR	31/ 1	31/ 1	31/ 1	31/ 1												
AUG	SUM	0.000	0.000	0.000	0.000	0	0	0	0	0	0	0	0	0	0	744	744
	PEAK	0.000	0.000	0.000	0.000												
	DAY/HR	31/ 1	31/ 1	31/ 1	31/ 1												
SEP	SUM	0.000	0.000	0.000	0.000	0	0	0	0	0	0	0	0	0	0	720	720
	PEAK	0.000	0.000	0.000	0.000												
	DAY/HR	30/ 1	30/ 1	30/ 1	30/ 1												
OCT	SUM	0.000	0.000	0.000	0.000	0	0	0	0	0	0	0	0	0	0	744	744
	PEAK	0.000	0.000	0.000	0.000												
	DAY/HR	31/24	31/24	31/24	31/24												
NOV	SUM	0.000	0.000	0.000	0.000	0	0	0	0	0	0	0	0	0	0	720	720
	PEAK	0.000	0.000	0.000	0.000												
	DAY/HR	30/24	30/24	30/24	30/24												
DEC	SUM	0.000	0.000	0.000	0.000	0	0	0	0	0	0	0	0	0	0	744	744
	PEAK	0.000	0.000	0.000	0.000												
	DAY/HR	31/24	31/24	31/24	31/24												
YR	SUM	0.000	0.000	0.000	0.000	0	0	0	0	0	0	0	0	0	0	8760	8760
	PEAK	0.000	0.000	0.000	0.000												
	MON/DAY	12/31	12/31	12/31	12/31												

EnergyPro 9.2 by EnergySoft User Number: 6563 ID: 23-115 Page 34 of 74

DOE-2 OUTPUT REPORT — Proposed

Proposed Building (ASHRAE 90.1 Appendix BCHD allcove — DOE-2.1E-124 Tue Feb 27 12:48:02 2024SDL RUN 1
Travis Premo — Beryl & Flagler — Lewis Ross Associates Inc
REPORT- SS-P LOAD, ENERGY AND PART LOAD BOILER OPERATION FOR PLANT-1 — WEATHER FILE- CZ06TORRANCE-MUNICIP

BOILER SIZE is -0.2058 (MBTU/HR) EIR = 0.0000 HIR = 0.000

MONTH	PEAK	UNIT LOAD SUM (MBTU) (KBTU/HR)	ENERGY USE (KWH) (KW)	FUEL USE (MBTU) (KBTU/HR)	AUX ENERGY (KWH) (KW)	Number of hours within each PART LOAD range 10	20	30	40	50	60	70	80	90	100 +	TOTAL RUN HOURS
JAN	SUM	-0.261	0.000	0.000	0.000	0	0	9	0	0	0	0	0	0	0	9
	PEAK	-56.585	0.000	0.007	0.000											
	DAY/HR	1/ 8	31/24	1/ 8	31/24											
FEB	SUM	0.000	0.000	0.000	0.000	0	0	0	0	0	0	0	0	0	0	0
	PEAK	0.000	0.000	0.000	0.000											
	DAY/HR	28/24	28/24	28/24	28/24											
MAR	SUM	-0.005	0.000	0.000	0.000	0	0	1	0	0	0	0	0	0	0	1
	PEAK	-5.121	0.000	0.001	0.000											
	DAY/HR	5/ 7	31/24	5/ 7	31/24											
APR	SUM	0.000	0.000	0.000	0.000	0	0	0	0	0	0	0	0	0	0	0
	PEAK	0.000	0.000	0.000	0.000											
	DAY/HR	30/ 1	30/ 1	30/ 1	30/ 1											
MAY	SUM	0.000	0.000	0.000	0.000	0	0	0	0	0	0	0	0	0	0	0
	PEAK	0.000	0.000	0.000	0.000											
	DAY/HR	31/ 1	31/ 1	31/ 1	31/ 1											
JUN	SUM	0.000	0.000	0.000	0.000	0	0	0	0	0	0	0	0	0	0	0
	PEAK	0.000	0.000	0.000	0.000											
	DAY/HR	30/ 1	30/ 1	30/ 1	30/ 1											
JUL	SUM	0.000	0.000	0.000	0.000	0	0	0	0	0	0	0	0	0	0	0
	PEAK	0.000	0.000	0.000	0.000											
	DAY/HR	31/ 1	31/ 1	31/ 1	31/ 1											
AUG	SUM	0.000	0.000	0.000	0.000	0	0	0	0	0	0	0	0	0	0	0
	PEAK	0.000	0.000	0.000	0.000											
	DAY/HR	31/ 1	31/ 1	31/ 1	31/ 1											
SEP	SUM	0.000	0.000	0.000	0.000	0	0	0	0	0	0	0	0	0	0	0
	PEAK	0.000	0.000	0.000	0.000											
	DAY/HR	30/ 1	30/ 1	30/ 1	30/ 1											
OCT	SUM	0.000	0.000	0.000	0.000	0	0	0	0	0	0	0	0	0	0	0
	PEAK	0.000	0.000	0.000	0.000											
	DAY/HR	31/24	31/24	31/24	31/24											
NOV	SUM	-0.047	0.000	0.000	0.000	0	0	5	0	0	0	0	0	0	0	5
	PEAK	-23.405	0.000	0.003	0.000											
	DAY/HR	30/ 7	30/24	30/ 7	30/24											
DEC	SUM	-0.266	0.000	0.000	0.000	0	0	16	0	0	0	0	0	0	0	16
	PEAK	-53.039	0.000	0.007	0.000											
	DAY/HR	3/ 7	31/24	3/ 7	31/24											
YR	SUM	-0.579	0.000	0.000	0.000	0	0	31	0	0	0	0	0	0	0	31
	PEAK	-56.585	0.000	0.007	0.000											
	MON/DAY	1/ 1	12/31	1/ 1	12/31											

EnergyPro 9.2 by EnergySoft User Number: 6563 ID: 23-115 Page 35 of 74

DOE-2 OUTPUT REPORT — Proposed

Proposed Building (ASHRAE 90.1 Appendix BCHD allcove — DOE-2.1E-124 Tue Feb 27 12:48:02 2024SDL RUN 1
Travis Premo — Beryl & Flagler — Lewis Ross Associates Inc
REPORT- SS-P LOAD, ENERGY AND PART LOAD COOLING TOWER FOR PLANT-1 — WEATHER FILE- CZ06TORRANCE-MUNICIP

TOWER SIZE is 0.398 (MBTU/HR) FAN = 0.00 (KW) PUMP = 0.00 (KW) PUMP = 72.00 (GAL/MIN)

MONTH		UNIT LOAD SUM (MBTU) PEAK (KBTU/HR)	ENERGY USE (KWH) (KW)	FAN ENERGY (KWH) (KW)	PUMP ENERGY (KWH) (KW)	Number of hours within each PART LOAD range 00	10	20	30	40	50	60	70	80	90	100	+	TOTAL RUN HOURS
JAN	SUM	15.681	1.107	0.009	1.098	260	59	170	75	0	0	0	0	0	0	0	0	564
	PEAK	101.979	0.002	0.000	0.002													
	DAY/HR	10/16	11/16	11/16	31/24													
FEB	SUM	16.977	1.060	0.009	1.051	245	26	154	113	0	0	0	0	0	0	0	0	538
	PEAK	120.968	0.002	0.000	0.002													
	DAY/HR	2/16	1/16	1/16	28/24													
MAR	SUM	22.973	1.296	0.012	1.284	291	30	173	164	0	0	0	0	0	0	0	0	658
	PEAK	122.179	0.002	0.000	0.002													
	DAY/HR	12/16	12/15	12/15	31/24													
APR	SUM	22.611	1.234	0.011	1.223	278	20	175	152	0	0	0	0	0	0	0	0	625
	PEAK	137.604	0.002	0.000	0.002													
	DAY/HR	24/16	24/14	24/14	30/ 1													
MAY	SUM	29.790	1.433	0.016	1.417	301	22	70	326	5	0	0	0	0	0	0	0	724
	PEAK	125.391	0.002	0.000	0.002													
	DAY/HR	29/16	29/15	29/15	31/ 1													
JUN	SUM	34.495	1.410	0.018	1.392	247	29	39	361	35	0	0	0	0	0	0	0	711
	PEAK	127.830	0.002	0.000	0.002													
	DAY/HR	15/16	15/16	15/16	30/ 1													
JUL	SUM	38.217	1.460	0.021	1.439	242	16	38	304	134	1	0	0	0	0	0	0	735
	PEAK	136.907	0.002	0.000	0.002													
	DAY/HR	25/16	25/15	25/15	31/ 1													
AUG	SUM	37.627	1.473	0.020	1.452	247	28	38	337	92	0	0	0	0	0	0	0	742
	PEAK	130.942	0.002	0.000	0.002													
	DAY/HR	30/16	31/16	31/16	31/ 1													
SEP	SUM	34.294	1.413	0.019	1.394	250	32	38	294	98	0	0	0	0	0	0	0	712
	PEAK	138.310	0.002	0.000	0.002													
	DAY/HR	10/16	3/13	3/13	30/ 1													
OCT	SUM	27.892	1.417	0.016	1.401	309	22	65	305	15	0	0	0	0	0	0	0	716
	PEAK	146.734	0.002	0.000	0.002													
	DAY/HR	5/16	10/16	10/16	31/24													
NOV	SUM	17.756	1.113	0.010	1.103	265	27	139	135	0	0	0	0	0	0	0	0	566
	PEAK	121.905	0.002	0.000	0.002													
	DAY/HR	1/16	13/15	13/15	30/24													
DEC	SUM	12.819	0.985	0.008	0.977	251	54	126	72	0	0	0	0	0	0	0	0	503
	PEAK	121.852	0.002	0.000	0.002													
	DAY/HR	11/15	11/15	11/15	31/24													
YR	SUM	311.129	15.401	0.169	15.230	3186	365	1225	2638	379	1	0	0	0	0	0	0	7794
	PEAK	146.734	0.002	0.000	0.002													
	MON/DAY	10/ 5	9/ 3	9/ 3	12/31													

EnergyPro 9.2 by EnergySoft User Number: 6563 ID: 23-115 Page 36 of 74

DOE-2 OUTPUT REPORT — Proposed

Proposed Building (ASHRAE 90.1 Appendix BCHD allcove — DOE-2.1E-124 Tue Feb 27 12:48:02 2024SDL RUN 1
Travis Premo — Beryl & Flagler — Lewis Ross Associates Inc
REPORT- SS-P LOAD, ENERGY AND PART LOAD DHW TANK OPERATION FOR PLANT-1 — WEATHER FILE- CZ06TORRANCE-MUNICIP

TANK SIZE is 436.5 (GAL) HEATER CAP = 254.832 (KBTU/HR) FLOW RATE = 8.871 (GAL/MIN) PUMP = 0.000 (KW)

MONTH		UNIT LOAD SUM (MBTU) PEAK (KBTU/HR)	ENERGY USE (KWH) (KW)	RCV EN USE (KWH) (KW)	PUMP ENERGY (KWH) (KW)	Number of hours within each PART LOAD range 10	20	30	40	50	60	70	80	90	100	+	TOTAL RUN HOURS
JAN	SUM	57.001	5534.066	0.181	0.000	375	94	50	13	14	11	74	96	17	0	0	744
	PEAK	254.830	20.940	0.000	0.000												
	DAY/HR	29/14	4/12	30/ 9	31/24												
FEB	SUM	49.701	4813.658	0.159	0.000	354	94	34	15	4	21	74	70	6	0	0	672
	PEAK	254.830	20.940	0.000	0.000												
	DAY/HR	22/14	12/12	21/ 7	28/24												
MAR	SUM	57.700	5574.734	0.190	0.000	368	108	46	9	15	15	79	82	22	0	0	744
	PEAK	254.830	21.127	0.000	0.000												
	DAY/HR	30/14	8/12	7/ 8	31/24												
APR	SUM	54.568	5262.119	0.178	0.000	369	98	36	22	9	20	76	70	19	1	0	720
	PEAK	254.830	21.931	0.000	0.000												
	DAY/HR	24/14	9/14	11/ 7	30/ 1												
MAY	SUM	57.001	5377.871	0.199	0.000	395	103	25	22	1	50	96	52	0	0	0	744
	PEAK	254.830	19.880	0.000	0.000												
	DAY/HR	30/12	14/12	19/ 7	31/ 1												
JUN	SUM	55.267	5054.317	0.204	0.000	381	110	19	21	3	77	97	12	0	0	0	720
	PEAK	254.830	19.359	0.000	0.000												
	DAY/HR	29/14	7/12	2/ 9	30/ 1												
JUL	SUM	54.642	4938.889	0.215	0.000	414	108	12	21	20	93	72	4	0	0	0	744
	PEAK	254.830	18.634	0.000	0.000												
	DAY/HR	31/14	5/12	5/ 9	31/ 1												
AUG	SUM	59.360	5321.430	0.217	0.000	386	114	14	23	10	88	103	6	0	0	0	744
	PEAK	254.830	18.820	0.000	0.000												
	DAY/HR	31/14	3/12	14/ 8	31/ 1												
SEP	SUM	50.549	4673.069	0.200	0.000	409	104	18	18	11	73	79	8	0	0	0	720
	PEAK	254.830	18.820	0.000	0.000												
	DAY/HR	25/14	28/12	8/24	30/ 1												
OCT	SUM	57.001	5220.513	0.195	0.000	399	104	22	22	6	63	97	31	0	0	0	744
	PEAK	254.830	19.707	0.000	0.000												
	DAY/HR	10/14	24/12	6/ 8	31/24												
NOV	SUM	52.209	5054.251	0.166	0.000	386	92	42	13	8	32	76	59	12	0	0	720
	PEAK	254.830	20.401	0.000	0.000												
	DAY/HR	27/14	29/12	23/ 8	30/24												
DEC	SUM	52.983	5205.970	0.171	0.000	398	81	57	15	13	28	63	57	28	4	0	744
	PEAK	254.830	21.931	0.000	0.000												
	DAY/HR	28/12	5/14	31/21	31/24												
YR	SUM	657.993	62030.305	2.274	0.000	4634	1210	375	214	114	571	986	547	104	5	0	8760
	PEAK	254.830	21.931	0.000	0.000												
	MON/DAY	10/10	12/ 5	12/31	12/31												

EnergyPro 9.2 by EnergySoft User Number: 6563 ID: 23-115 Page 37 of 74

DOE-2 OUTPUT REPORT — Proposed

Proposed Building (ASHRAE 90.1 Appendix BCHD allcove — DOE-2.1E-124 Tue Feb 27 12:48:02 2024SDL RUN 1
Travis Premo — Beryl & Flagler — Lewis Ross Associates Inc
REPORT- SS-A SYSTEM MONTHLY LOADS SUMMARY FOR SYSTEM-1 — WEATHER FILE- CZ06TORRANCE-MUNICIP

	- - - - - - - - C O O L I N G - - - - - - - -					- - - - - - - - H E A T I N G - - - - - - - -					- - - E L E C - - -	
MONTH	COOLING ENERGY (MBTU)	TIME OF MAX DY	TIME OF MAX HR	DRY- BULB TEMP	WET- BULB TEMP	MAXIMUM COOLING LOAD (KBTU/HR)	HEATING ENERGY (MBTU)	TIME OF MAX DY	TIME OF MAX HR	DRY- BULB TEMP	WET- BULB TEMP	MAXIMUM HEATING LOAD (KBTU/HR)	ELEC- TRICAL ENERGY (KWH)	MAXIMUM ELEC LOAD (KW)
JAN	15.75677	10	16	71.F	55.F	102.136	-0.321	1	8	42.F	40.F	-56.570	6058.	20.436
FEB	16.98590	2	16	71.F	51.F	121.028	-0.009	12	7	57.F	56.F	-6.717	5326.	20.436
MAR	22.99427	12	16	66.F	59.F	121.854	-0.025	5	7	50.F	50.F	-20.140	6146.	20.436
APR	22.61076	24	16	81.F	58.F	137.081	-0.001	28	7	54.F	53.F	-0.360	5814.	20.436
MAY	29.79135	29	16	71.F	65.F	124.792	0.000	12	7	55.F	54.F	-0.141	6058.	20.436
JUN	34.49522	15	16	77.F	67.F	128.005	0.000					0.000	5902.	20.436
JUL	38.21703	25	16	80.F	70.F	136.482	0.000					0.000	5852.	20.436
AUG	37.62665	30	16	76.F	66.F	131.434	0.000					0.000	6263.	20.436
SEP	34.29201	10	16	81.F	64.F	137.866	0.000	13	7	57.F	57.F	-0.272	5490.	20.436
OCT	27.90064	5	16	92.F	58.F	146.853	-0.002	13	7	56.F	56.F	-0.472	6058.	20.436
NOV	17.80942	1	16	75.F	53.F	122.067	-0.107	30	7	31.F	30.F	-38.430	5608.	20.436
DEC	12.94863	11	15	77.F	61.F	121.966	-0.395	3	7	39.F	34.F	-53.026	5734.	20.436
TOTAL	311.428						-0.861						70307.	
MAX						146.853						-56.570		20.436

EnergyPro 9.2 by EnergySoft User Number: 6563 ID: 23-115 Page 38 of 74

DOE-2 OUTPUT REPORT — Proposed

Proposed Building (ASHRAE 90.1 Appendix BCHD allcove — DOE-2.1E-124 Tue Feb 27 12:48:02 2024PDL RUN 1
Travis Premo — Beryl & Flagler — Lewis Ross Associates Inc
REPORT- PV-A EQUIPMENT SIZES — WEATHER FILE- CZ06TORRANCE-MUNICIP

EQUIPMENT	SIZE (MBTU/H)	NUMBER INSTD	AVAIL	SIZE (MBTU/H)	NUMBER INSTD	AVAIL	SIZE (MBTU/H)	NUMBER INSTD	AVAIL	SIZE (MBTU/H)	NUMBER INSTD	AVAIL	SIZE (MBTU/H)	NUMBER INSTD	AVAIL	SIZE (MBTU/H)	NUMBER INSTD	AVAIL

EnergyPro 9.2 by EnergySoft User Number: 6563 ID: 23-115 Page 39 of 74

DOE-2 OUTPUT REPORT **Proposed**

Proposed Building (ASHRAE 90.1 Appendix BCHD allcove DOE-2.1E-124 Tue Feb 27 12:48:02 2024PDL RUN 1
Travis Premo Beryl & Flagler Lewis Ross Associates Inc
REPORT- PS-D PLANT LOADS SATISFIED WEATHER FILE- CZ06TORRANCE-MUNICIP

ELECTRICAL LOADS	KWH SUPPLIED	PCT OF TOTAL LOAD
ELECTRICITY	155988.6	100.0
LOAD SATISFIED	155988.6	100.0
TOTAL LOAD ON PLANT	155988.6	

EnergyPro 9.2 by EnergySoft User Number: 6563 ID: 23-115 Page 40 of 74

DOE-2 OUTPUT REPORT **Proposed**

Proposed Building (ASHRAE 90.1 Appendix BCHD allcove DOE-2.1E-124 Tue Feb 27 12:48:02 2024PDL RUN 1
Travis Premo Beryl & Flagler Lewis Ross Associates Inc
REPORT- PS-D PLANT LOADS SATISFIED WEATHER FILE- CZ06TORRANCE-MUNICIP
(CONTINUED)

SUMMARY OF LOADS MET

TYPE OF LOAD	TOTAL LOAD (MBTU)	LOAD SATISFIED (MBTU)	TOTAL OVERLOAD (MBTU)	PEAK OVERLOAD (MBTU)	HOURS OVERLOADED
ELECTRICAL LOADS	532.4	532.4	0.000	0.000	0

EnergyPro 9.2 by EnergySoft User Number: 6563 ID: 23-115 Page 41 of 74

DOE-2 OUTPUT REPORT **Proposed**

Proposed Building (ASHRAE 90.1 Appendix BCHD allcove DOE-2.1E-124 Tue Feb 27 12:48:02 2024PDL RUN 1
Travis Premo Beryl & Flagler Lewis Ross Associates Inc
REPORT- BEPS BUILDING ENERGY PERFORMANCE SUMMARY WEATHER FILE- CZ06TORRANCE-MUNICIP

ENERGY TYPE: UNITS: MBTU / CATEGORY OF USE	ELECTRICITY	NATURAL-GAS
AREA LIGHTS	91.3	0.0
MISC EQUIPMT	99.1	0.0
SOURCE USES	49.6	0.0
SPACE HEAT	0.4	0.0
SPACE COOL	15.1	0.0
PUMPS & MISC	0.1	0.0
VENT FANS	65.2	0.0
DOMHOT WATER	211.7	0.0
TOTAL	532.4	0.0

TOTAL SITE ENERGY 532.39 MBTU 56.0 KBTU/SQFT-YR GROSS-AREA 56.0 KBTU/SQFT-YR NET-AREA
TOTAL SOURCE ENERGY 1597.32 MBTU 168.1 KBTU/SQFT-YR GROSS-AREA 168.1 KBTU/SQFT-YR NET-AREA

PERCENT OF HOURS ANY SYSTEM ZONE OUTSIDE OF THROTTLING RANGE = 0.0
PERCENT OF HOURS ANY PLANT LOAD NOT SATISFIED = 0.0

NOTE: ENERGY IS APPORTIONED HOURLY TO ALL END-USE CATEGORIES.

EnergyPro 9.2 by EnergySoft User Number: 6563 ID: 23-115 Page 42 of 74

DOE-2 OUTPUT REPORT **Proposed**

Proposed Building (ASHRAE 90.1 Appendix BCHD allcove DOE-2.1E-124 Tue Feb 27 12:48:02 2024PDL RUN 1
Travis Premo Beryl & Flagler Lewis Ross Associates Inc
REPORT- BEPU BUILDING ENERGY PERFORMANCE SUMMARY (UTILITY UNITS) WEATHER FILE- CZ06TORRANCE-MUNICIP

ENERGY TYPE: SITE UNITS: / CATEGORY OF USE	ELECTRICITY KWH	NATURAL-GAS THERM
AREA LIGHTS	26753.	0.
MISC EQUIPMT	29037.	0.
SOURCE USES	14518.	0.
SPACE HEAT	105.	0.
SPACE COOL	4436.	0.
PUMPS & MISC	15.	0.
VENT FANS	19096.	0.
DOMHOT WATER	62030.	0.
TOTAL	155990.	0.

TOTAL ELECTRICITY 155990. KWH 16.411 KWH /SQFT-YR GROSS-AREA 16.411 KWH /SQFT-YR NET-AREA
TOTAL NATURAL-GAS 0. THERM 0.000 THERM /SQFT-YR GROSS-AREA 0.000 THERM /SQFT-YR NET-AREA

PERCENT OF HOURS ANY SYSTEM ZONE OUTSIDE OF THROTTLING RANGE = 0.0
PERCENT OF HOURS ANY PLANT LOAD NOT SATISFIED = 0.0

NOTE: ENERGY IS APPORTIONED HOURLY TO ALL END-USE CATEGORIES.

EnergyPro 9.2 by EnergySoft User Number: 6563 ID: 23-115 Page 43 of 74

DOE-2 OUTPUT REPORT — Proposed

Proposed Building (ASHRAE 90.1 Appendix BCHD allcove — DOE-2.1E-124 Tue Feb 27 12:48:02 2024PDL RUN 1
Travis Premo — Beryl & Flagler — Lewis Ross Associates Inc
TO-ENERGYPRO = HOURLY-REPORT — PAGE 1 - 1

MMDDHH	END-USE	END-USE	END-USE	END-USE	END-USE	END-USE	END-USE	END-USE
	AREA LITE KW	TASK LITE KW	EQUIP ELEC KW	SOURCE ELEC KW	HEATING ELEC KW	SUPPLEMT ELEC KW	COOLING ELEC KW	HEAT REJ ELEC KW
	----(1)	----(2)	----(3)	----(4)	----(5)	----(11)	----(6)	----(7)
0 MONTHLY SUMMARY (JAN)								
MN	0.475	0.000	0.475	0.238	0.000	0.000	0.000	0.000
MX	7.604	0.000	8.555	4.277	5.246	0.000	1.389	0.000
SM	2304.963	0.000	2501.717	1250.848	34.960	0.000	224.210	0.000
AV	3.098	0.000	3.363	1.681	0.047	0.000	0.301	0.000
0 MONTHLY SUMMARY (FEB)								
MN	0.475	0.000	0.475	0.238	0.000	0.000	0.000	0.000
MX	7.604	0.000	8.555	4.277	0.465	0.000	1.682	0.000
SM	2026.942	0.000	2199.458	1099.720	3.904	0.000	239.314	0.000
AV	3.016	0.000	3.273	1.636	0.006	0.000	0.356	0.000
0 MONTHLY SUMMARY (MAR)								
MN	0.475	0.000	0.475	0.238	0.000	0.000	0.000	0.000
MX	7.604	0.000	8.555	4.277	1.365	0.000	1.687	0.000
SM	2337.280	0.000	2538.786	1269.382	4.503	0.000	308.141	0.000
AV	3.142	0.000	3.412	1.706	0.006	0.000	0.414	0.000
0 MONTHLY SUMMARY (APR)								
MN	0.475	0.000	0.475	0.238	0.000	0.000	0.000	0.000
MX	7.604	0.000	8.555	4.277	0.092	0.000	2.320	0.000
SM	2212.290	0.000	2400.964	1200.472	2.775	0.000	302.433	0.000
AV	3.073	0.000	3.335	1.667	0.004	0.000	0.420	0.000
0 MONTHLY SUMMARY (MAY)								
MN	0.475	0.000	0.475	0.238	0.000	0.000	0.000	0.000
MX	7.604	0.000	8.555	4.277	0.070	0.000	1.805	0.000
SM	2304.963	0.000	2501.717	1250.848	0.421	0.000	403.229	0.000
AV	3.098	0.000	3.363	1.681	0.001	0.000	0.542	0.000
0 MONTHLY SUMMARY (JUN)								
MN	0.475	0.000	0.475	0.238	0.000	0.000	0.000	0.000
MX	7.604	0.000	8.555	4.277	0.000	0.000	2.079	0.000
SM	2244.606	0.000	2438.033	1219.006	0.000	0.000	487.479	0.000
AV	3.118	0.000	3.386	1.693	0.000	0.000	0.677	0.000
0 MONTHLY SUMMARY (JUL)								
MN	0.475	0.000	0.475	0.238	0.000	0.000	0.000	0.000
MX	7.604	0.000	8.555	4.277	0.000	0.000	2.286	0.000
SM	2227.498	0.000	2416.172	1208.076	0.000	0.000	562.544	0.000
AV	2.994	0.000	3.248	1.624	0.000	0.000	0.756	0.000
0 MONTHLY SUMMARY (AUG)								
MN	0.475	0.000	0.475	0.238	0.000	0.000	0.000	0.000
MX	7.604	0.000	8.555	4.277	0.000	0.000	2.097	0.000
SM	2382.429	0.000	2587.261	1293.620	0.000	0.000	537.969	0.000
AV	3.202	0.000	3.478	1.739	0.000	0.000	0.723	0.000
0 MONTHLY SUMMARY (SEP)								
MN	0.475	0.000	0.475	0.238	0.000	0.000	0.000	0.000
MX	7.604	0.000	8.555	4.277	0.000	0.000	2.633	0.000
SM	2089.675	0.000	2266.943	1133.462	0.000	0.000	506.074	0.000
AV	2.902	0.000	3.149	1.574	0.000	0.000	0.703	0.000
0 MONTHLY SUMMARY (OCT)								
MN	0.475	0.000	0.475	0.238	0.000	0.000	0.000	0.000
MX	7.604	0.000	8.555	4.277	0.097	0.000	2.947	0.000
SM	2304.963	0.000	2501.717	1250.848	1.043	0.000	412.319	0.000
AV	3.098	0.000	3.363	1.681	0.001	0.000	0.554	0.000
0 MONTHLY SUMMARY (NOV)								
MN	0.475	0.000	0.475	0.238	0.000	0.000	0.000	0.000
MX	7.604	0.000	8.555	4.277	4.635	0.000	1.805	0.000
SM	2134.824	0.000	2315.418	1157.700	13.281	0.000	254.205	0.000
AV	2.965	0.000	3.216	1.608	0.018	0.000	0.353	0.000
0 MONTHLY SUMMARY (DEC)								
MN	0.475	0.000	0.475	0.238	0.000	0.000	0.000	0.000
MX	7.604	0.000	8.555	4.277	5.565	0.000	1.910	0.000
SM	2182.349	0.000	2367.696	1183.838	43.642	0.000	197.647	0.000
AV	2.933	0.000	3.182	1.591	0.059	0.000	0.266	0.000
0 YEARLY SUMMARY								
MN	0.475	0.000	0.475	0.238	0.000	0.000	0.000	0.000
MX	7.604	0.000	8.555	4.277	5.565	0.000	2.947	0.000
SM	26752.781	0.000	29035.881	14517.818	104.529	0.000	4435.564	0.000
AV	3.054	0.000	3.315	1.657	0.012	0.000	0.506	0.000

EnergyPro 9.2 by EnergySoft — User Number: 6563 — ID: 23-115 — Page 44 of 74

DOE-2 OUTPUT REPORT — Proposed

Proposed Building (ASHRAE 90.1 Appendix BCHD allcove — DOE-2.1E-124 Tue Feb 27 12:48:02 2024PDL RUN 1
Travis Premo — Beryl & Flagler — Lewis Ross Associates Inc
TO-ENERGYPRO = HOURLY-REPORT — PAGE 1 - 2

MMDDHH	END-USE	END-USE	END-USE	END-USE	END-USE	END-USE	END-USE	END-USE
	AUXIL ELEC KW	VENTILAT ELEC KW	DHW HEAT ELEC KW	SOURCE FUEL BTU/HR	HEATING FUEL BTU/HR	COOLING FUEL BTU/HR	DHW HEAT FUEL BTU/HR	EXTERIOR LITE KW
	----(8)	----(9)	----(12)	----(14)	----(15)	----(16)	----(18)	----(20)
0 MONTHLY SUMMARY (JAN)								
MN	0.000	0.000	2.089	0.000	0.000	0.000	0.000	0.000
MX	0.002	3.705	20.940	0.000	7.216	0.000	0.000	0.000
SM	1.107	1511.657	5534.067	0.000	33.895	0.000	0.000	0.000
AV	0.001	2.032	7.438	0.000	0.046	0.000	0.000	0.000
0 MONTHLY SUMMARY (FEB)								
MN	0.000	0.000	2.114	0.000	0.000	0.000	0.000	0.000
MX	0.002	3.705	20.940	0.000	0.000	0.000	0.000	0.000
SM	1.060	1326.405	4813.653	0.000	0.000	0.000	0.000	0.000
AV	0.002	1.974	7.163	0.000	0.000	0.000	0.000	0.000
0 MONTHLY SUMMARY (MAR)								
MN	0.000	0.000	2.123	0.000	0.000	0.000	0.000	0.000
MX	0.002	3.705	21.127	0.000	0.670	0.000	0.000	0.000
SM	1.296	1585.758	5574.724	0.000	0.670	0.000	0.000	0.000
AV	0.002	2.131	7.493	0.000	0.001	0.000	0.000	0.000
0 MONTHLY SUMMARY (APR)								
MN	0.000	0.000	2.142	0.000	0.000	0.000	0.000	0.000
MX	0.002	3.705	21.931	0.000	0.000	0.000	0.000	0.000
SM	1.234	1489.427	5262.118	0.000	0.000	0.000	0.000	0.000
AV	0.002	2.069	7.308	0.000	0.000	0.000	0.000	0.000
0 MONTHLY SUMMARY (MAY)								
MN	0.000	0.000	2.163	0.000	0.000	0.000	0.000	0.000
MX	0.002	3.705	19.880	0.000	0.000	0.000	0.000	0.000
SM	1.433	1667.269	5377.878	0.000	0.000	0.000	0.000	0.000
AV	0.002	2.241	7.228	0.000	0.000	0.000	0.000	0.000
0 MONTHLY SUMMARY (JUN)								
MN	0.000	0.000	2.328	0.000	0.000	0.000	0.000	0.000
MX	0.002	3.705	19.359	0.000	0.000	0.000	0.000	0.000
SM	1.410	1722.845	5054.321	0.000	0.000	0.000	0.000	0.000
AV	0.002	2.393	7.020	0.000	0.000	0.000	0.000	0.000
0 MONTHLY SUMMARY (JUL)								
MN	0.000	0.000	2.250	0.000	0.000	0.000	0.000	0.000
MX	0.002	3.705	18.634	0.000	0.000	0.000	0.000	0.000
SM	1.460	1815.471	4938.891	0.000	0.000	0.000	0.000	0.000
AV	0.002	2.440	6.638	0.000	0.000	0.000	0.000	0.000
0 MONTHLY SUMMARY (AUG)								
MN	0.000	0.000	2.308	0.000	0.000	0.000	0.000	0.000
MX	0.002	3.705	18.820	0.000	0.000	0.000	0.000	0.000
SM	1.473	1830.292	5321.431	0.000	0.000	0.000	0.000	0.000
AV	0.002	2.460	7.152	0.000	0.000	0.000	0.000	0.000
0 MONTHLY SUMMARY (SEP)								
MN	0.000	0.000	1.099	0.000	0.000	0.000	0.000	0.000
MX	0.002	3.705	18.820	0.000	0.000	0.000	0.000	0.000
SM	1.413	1689.500	4673.069	0.000	0.000	0.000	0.000	0.000
AV	0.002	2.347	6.490	0.000	0.000	0.000	0.000	0.000
0 MONTHLY SUMMARY (OCT)								
MN	0.000	0.000	1.981	0.000	0.000	0.000	0.000	0.000
MX	0.002	3.705	19.707	0.000	0.000	0.000	0.000	0.000
SM	1.417	1637.629	5220.512	0.000	0.000	0.000	0.000	0.000
AV	0.002	2.201	7.017	0.000	0.000	0.000	0.000	0.000
0 MONTHLY SUMMARY (NOV)								
MN	0.000	0.000	2.021	0.000	0.000	0.000	0.000	0.000
MX	0.002	3.705	20.401	0.000	3.060	0.000	0.000	0.000
SM	1.113	1389.391	5054.250	0.000	6.194	0.000	0.000	0.000
AV	0.002	1.930	7.020	0.000	0.009	0.000	0.000	0.000
0 MONTHLY SUMMARY (DEC)								
MN	0.000	0.000	2.073	0.000	0.000	0.000	0.000	0.000
MX	0.002	3.705	21.931	0.000	6.878	0.000	0.000	0.000
SM	0.985	1430.147	5205.966	0.000	34.672	0.000	0.000	0.000
AV	0.001	1.922	6.997	0.000	0.047	0.000	0.000	0.000
0 YEARLY SUMMARY								
MN	0.000	0.000	1.099	0.000	0.000	0.000	0.000	0.000
MX	0.002	3.705	21.931	0.000	7.216	0.000	0.000	0.000
SM	15.401	19095.791	62030.879	0.000	75.431	0.000	0.000	0.000
AV	0.002	2.180	7.081	0.000	0.009	0.000	0.000	0.000

EnergyPro 9.2 by EnergySoft — User Number: 6563 — ID: 23-115 — Page 45 of 74

DOE-2 OUTPUT REPORT

Proposed

Proposed Building (ASHRAE 90.1 Appendix BCHD allcove DOE-2.1E-124 Tue Feb 27 12:48:02 2024PDL RUN 1
Travis Premo Beryl & Flagler Lewis Ross Associates Inc
TO-ENERGYPRO = HOURLY-REPORT PAGE 1 - 3

MMDDHH	END-USE EXT MISC ELEC KW ----(21)	END-USE EXT MISC FUEL BTU/HR ----(22)	END-USE METER STEAM UNITS ----(33)	END-USE METER CHIL WTR UNITS ----(34)	PLANT SYS HEAT LOAD BTU/HR ----(1)	PLANT SYS COOL LOAD BTU/HR ----(2)	CTANK-STORAGE ENERGY RELEASED BTU/HR ----(1)	CTANK-STORAGE TOTAL IN STORAGE BTU/HR ----(14)
0 MONTHLY SUMMARY (JAN)								
MN	0.000	0.000	0.000	0.000	0.	0.	0.	0.
MX	0.000	0.000	0.000	0.000	0.	0.	0.	0.
SM	0.000	0.000	0.000	0.000	0.	0.	0.	0.
AV	0.000	0.000	0.000	0.000	0.	0.	0.	0.
0 MONTHLY SUMMARY (FEB)								
MN	0.000	0.000	0.000	0.000	0.	0.	0.	0.
MX	0.000	0.000	0.000	0.000	0.	0.	0.	0.
SM	0.000	0.000	0.000	0.000	0.	0.	0.	0.
AV	0.000	0.000	0.000	0.000	0.	0.	0.	0.
0 MONTHLY SUMMARY (MAR)								
MN	0.000	0.000	0.000	0.000	0.	0.	0.	0.
MX	0.000	0.000	0.000	0.000	0.	0.	0.	0.
SM	0.000	0.000	0.000	0.000	0.	0.	0.	0.
AV	0.000	0.000	0.000	0.000	0.	0.	0.	0.
0 MONTHLY SUMMARY (APR)								
MN	0.000	0.000	0.000	0.000	0.	0.	0.	0.
MX	0.000	0.000	0.000	0.000	0.	0.	0.	0.
SM	0.000	0.000	0.000	0.000	0.	0.	0.	0.
AV	0.000	0.000	0.000	0.000	0.	0.	0.	0.
0 MONTHLY SUMMARY (MAY)								
MN	0.000	0.000	0.000	0.000	0.	0.	0.	0.
MX	0.000	0.000	0.000	0.000	0.	0.	0.	0.
SM	0.000	0.000	0.000	0.000	0.	0.	0.	0.
AV	0.000	0.000	0.000	0.000	0.	0.	0.	0.
0 MONTHLY SUMMARY (JUN)								
MN	0.000	0.000	0.000	0.000	0.	0.	0.	0.
MX	0.000	0.000	0.000	0.000	0.	0.	0.	0.
SM	0.000	0.000	0.000	0.000	0.	0.	0.	0.
AV	0.000	0.000	0.000	0.000	0.	0.	0.	0.
0 MONTHLY SUMMARY (JUL)								
MN	0.000	0.000	0.000	0.000	0.	0.	0.	0.
MX	0.000	0.000	0.000	0.000	0.	0.	0.	0.
SM	0.000	0.000	0.000	0.000	0.	0.	0.	0.
AV	0.000	0.000	0.000	0.000	0.	0.	0.	0.
0 MONTHLY SUMMARY (AUG)								
MN	0.000	0.000	0.000	0.000	0.	0.	0.	0.
MX	0.000	0.000	0.000	0.000	0.	0.	0.	0.
SM	0.000	0.000	0.000	0.000	0.	0.	0.	0.
AV	0.000	0.000	0.000	0.000	0.	0.	0.	0.
0 MONTHLY SUMMARY (SEP)								
MN	0.000	0.000	0.000	0.000	0.	0.	0.	0.
MX	0.000	0.000	0.000	0.000	0.	0.	0.	0.
SM	0.000	0.000	0.000	0.000	0.	0.	0.	0.
AV	0.000	0.000	0.000	0.000	0.	0.	0.	0.
0 MONTHLY SUMMARY (OCT)								
MN	0.000	0.000	0.000	0.000	0.	0.	0.	0.
MX	0.000	0.000	0.000	0.000	0.	0.	0.	0.
SM	0.000	0.000	0.000	0.000	0.	0.	0.	0.
AV	0.000	0.000	0.000	0.000	0.	0.	0.	0.
0 MONTHLY SUMMARY (NOV)								
MN	0.000	0.000	0.000	0.000	0.	0.	0.	0.
MX	0.000	0.000	0.000	0.000	0.	0.	0.	0.
SM	0.000	0.000	0.000	0.000	0.	0.	0.	0.
AV	0.000	0.000	0.000	0.000	0.	0.	0.	0.
0 MONTHLY SUMMARY (DEC)								
MN	0.000	0.000	0.000	0.000	0.	0.	0.	0.
MX	0.000	0.000	0.000	0.000	0.	0.	0.	0.
SM	0.000	0.000	0.000	0.000	0.	0.	0.	0.
AV	0.000	0.000	0.000	0.000	0.	0.	0.	0.
0 YEARLY SUMMARY								
MN	0.000	0.000	0.000	0.000	0.	0.	0.	0.
MX	0.000	0.000	0.000	0.000	0.	0.	0.	0.
SM	0.000	0.000	0.000	0.000	0.	0.	0.	0.
AV	0.000	0.000	0.000	0.000	0.	0.	0.	0.

DOE-2 OUTPUT REPORT

Proposed

MESSAGE LIST FROM ECONOMICS PROGRAM

0 **CAUTION**
BLOCK-CHARGE RATE-01-ELECTRIC IS USED IN A TIME-OF-USE
FORMAT, BUT IS NOT TOU-SEASON-LINKED TO ANY OTHER
BLOCK-CHARGES FOR SEASONAL CHANGES. THEREFORE, ANY
SEASONAL CHANGE MUST OCCUR ON THE BILLING DAY OR
ERRORS WILL RESULT. REFER TO REPORT ES-F.

0 **CAUTION**
BLOCK-CHARGE RATE-11-ELECTRIC IS USED IN A TIME-OF-USE
FORMAT, BUT IS NOT TOU-SEASON-LINKED TO ANY OTHER
BLOCK-CHARGES FOR SEASONAL CHANGES. THEREFORE, ANY
SEASONAL CHANGE MUST OCCUR ON THE BILLING DAY OR
ERRORS WILL RESULT. REFER TO REPORT ES-F.

0 **CAUTION**
BLOCK-CHARGE RATE-21-ELECTRIC IS USED IN A TIME-OF-USE
FORMAT, BUT IS NOT TOU-SEASON-LINKED TO ANY OTHER
BLOCK-CHARGES FOR SEASONAL CHANGES. THEREFORE, ANY
SEASONAL CHANGE MUST OCCUR ON THE BILLING DAY OR
ERRORS WILL RESULT. REFER TO REPORT ES-F.

0 **CAUTION**
BLOCK-CHARGE RATE-31-ELECTRIC IS USED IN A TIME-OF-USE
FORMAT, BUT IS NOT TOU-SEASON-LINKED TO ANY OTHER
BLOCK-CHARGES FOR SEASONAL CHANGES. THEREFORE, ANY
SEASONAL CHANGE MUST OCCUR ON THE BILLING DAY OR
ERRORS WILL RESULT. REFER TO REPORT ES-F.

0 **CAUTION**
BLOCK-CHARGE RATE-41-ELECTRIC IS USED IN A TIME-OF-USE
FORMAT, BUT IS NOT TOU-SEASON-LINKED TO ANY OTHER
BLOCK-CHARGES FOR SEASONAL CHANGES. THEREFORE, ANY
SEASONAL CHANGE MUST OCCUR ON THE BILLING DAY OR
ERRORS WILL RESULT. REFER TO REPORT ES-F.

DOE-2 OUTPUT REPORT — Proposed

Proposed Building (ASHRAE 90.1 Appendix BCHD allcove — DOE-2.1E-124 Tue Feb 27 12:48:02 2024EDL RUN 1
Travis Premo — Beryl & Flagler — Lewis Ross Associates Inc
REPORT- ES-A ANNUAL ENERGY AND OPERATIONS COSTS AND SAVINGS

	ENERGY ($)			OPERATIONS ($)					TOTAL
	ENERGY COST	ENERGY COST	ENERGY COST	OPRNS COST	OPRNS COST -- THIS RUN			OPRNS COST	SAVINGS-ENERGY PLUS
YEAR	BASELINE	THIS RUN	SAVINGS	BASELINE	PLANT	BUILDING	TOTAL	SAVINGS	OPRNS
1	0.	35279.	-35279.	0.	0.	0.	0.	0.	-35279.
2	0.	33675.	-33675.	0.	0.	0.	0.	0.	-33675.
3	0.	32145.	-32145.	0.	0.	0.	0.	0.	-32145.
4	0.	30684.	-30684.	0.	0.	0.	0.	0.	-30684.
5	0.	29289.	-29289.	0.	0.	0.	0.	0.	-29289.
6	0.	27958.	-27958.	0.	0.	0.	0.	0.	-27958.
7	0.	26687.	-26687.	0.	0.	0.	0.	0.	-26687.
8	0.	25474.	-25474.	0.	0.	0.	0.	0.	-25474.
9	0.	24316.	-24316.	0.	0.	0.	0.	0.	-24316.
10	0.	23211.	-23211.	0.	0.	0.	0.	0.	-23211.
11	0.	22156.	-22156.	0.	0.	0.	0.	0.	-22156.
12	0.	21148.	-21148.	0.	0.	0.	0.	0.	-21148.
13	0.	20187.	-20187.	0.	0.	0.	0.	0.	-20187.
14	0.	19270.	-19270.	0.	0.	0.	0.	0.	-19270.
15	0.	18394.	-18394.	0.	0.	0.	0.	0.	-18394.
16	0.	17558.	-17558.	0.	0.	0.	0.	0.	-17558.
17	0.	16760.	-16760.	0.	0.	0.	0.	0.	-16760.
18	0.	15998.	-15998.	0.	0.	0.	0.	0.	-15998.
19	0.	15271.	-15271.	0.	0.	0.	0.	0.	-15271.
20	0.	14576.	-14576.	0.	0.	0.	0.	0.	-14576.
21	0.	13914.	-13914.	0.	0.	0.	0.	0.	-13914.
22	0.	13281.	-13281.	0.	0.	0.	0.	0.	-13281.
23	0.	12678.	-12678.	0.	0.	0.	0.	0.	-12678.
24	0.	12101.	-12101.	0.	0.	0.	0.	0.	-12101.
25	0.	11551.	-11551.	0.	0.	0.	0.	0.	-11551.
TOTALS($)	0.	533558.	-533558.	0.	0.	0.	0.	0.	-533558.

EnergyPro 9.2 by EnergySoft User Number: 6563 ID: 23-115 Page 48 of 74

DOE-2 OUTPUT REPORT — Proposed

Proposed Building (ASHRAE 90.1 Appendix BCHD allcove — DOE-2.1E-124 Tue Feb 27 12:48:02 2024EDL RUN 1
Travis Premo — Beryl & Flagler — Lewis Ross Associates Inc
REPORT- ES-D ENERGY COST SUMMARY

UTILITY-RATE	RESOURCE	METERS	METERED ENERGY UNITS/YR	TOTAL CHARGE ($)	VIRTUAL RATE ($/UNIT)	RATE USED ALL YEAR?
0ELEC-Southern Ca	ELECTRICITY	1 2 3 4 5	155989. KWH	35279.	0.2262	YES
0				==========		
0				35279.		

ENERGY COST/GROSS BLDG AREA: 3.71
ENERGY COST/NET BLDG AREA: 3.71

EnergyPro 9.2 by EnergySoft User Number: 6563 ID: 23-115 Page 49 of 74

DOE-2 OUTPUT REPORT — Proposed

Proposed Building (ASHRAE 90.1 Appendix BCHD allcove — DOE-2.1E-124 Tue Feb 27 12:48:02 2024EDL RUN 1
Travis Premo — Beryl & Flagler — Lewis Ross Associates Inc
REPORT- ES-E SUMMARY OF UTILITY-RATE: ELEC-Southern Ca

UTILITY-RATE: ELEC-Southern Ca — RESOURCE: ELECTRICITY — DEMAND-WINDOW: HOUR — 3413. BTU/KWH
METERS: 1 2 3 4 5 — BILLING-DAY: 31 — RATE-LIMITATION: 0.0000
POWER-FACTOR: 0.80 — EXCESS-KVAR-FRAC: 0.30 — EXCESS-KVAR-CHG: 0.0000

RATE-QUALIFICATIONS
MIN-ENERGY: 0.0
MAX-ENERGY: 0.0
MIN-DEMAND: 0.0
MAX-DEMAND: 0.0
QUALIFY-RATE: ALL-MONTHS
USE-MIN-QUAL: NO

BLOCK-CHARGES
RATE-01-ELECTRIC
RATE-11-ELECTRIC
RATE-21-ELECTRIC
RATE-31-ELECTRIC
RATE-41-ELECTRIC

DEMAND-RATCHETS

MIN-MON-RATCHETS

0

MONTH	METERED ENERGY KWH	BILLING ENERGY KWH	METERED DEMAND KW	BILLING DEMAND KW	ENERGY CHARGE ($)	DEMAND CHARGE ($)	ENERGY CST ADJ ($)	TAXES ($)	SURCHRG ($)	FIXED CHARGE ($)	MINIMUM CHARGE ($)	VIRTUAL RATE ($/UNIT)	TOTAL CHARGE ($)
0 JAN	13364	13364	45.7	45.7	1182	763	0	0	0	445	0	0.1789	2390
0 FEB	11710	11710	45.7	45.7	1033	760	0	0	0	445	0	0.1911	2238
0 MAR	13620	13620	45.9	45.9	1202	764	0	0	0	445	0	0.1770	2411
0 APR	12872	12872	46.8	46.8	1137	776	0	0	0	445	0	0.1832	2358
0 MAY	13508	13508	44.8	44.8	1192	752	0	0	0	445	0	0.1768	2388
0 JUN	13168	13168	44.4	44.4	2469	1224	0	0	0	445	0	0.3143	4138
0 JUL	13170	13170	43.8	43.8	2453	1209	0	0	0	445	0	0.3118	4107
0 AUG	13954	13954	44.0	44.0	2668	1213	0	0	0	445	0	0.3100	4326
0 SEP	12360	12360	44.1	44.1	2256	1219	0	0	0	445	0	0.3172	3920
0 OCT	13330	13330	44.6	44.6	1176	748	0	0	0	445	0	0.1777	2369
0 NOV	12320	12320	45.3	45.3	1087	762	0	0	0	445	0	0.1862	2294
0 DEC	12612	12612	46.4	46.4	1108	786	0	0	0	445	0	0.1854	2339
TOTAL	155989	155989	46.8		18964	10977	0	0	0	5337		0.2262	35279

DOE-2 OUTPUT REPORT — Proposed

Proposed Building (ASHRAE 90.1 Appendix BCHD allcove — DOE-2.1E-124 Tue Feb 27 12:48:02 2024EDL RUN 1
Travis Premo — Beryl & Flagler — Lewis Ross Associates Inc
REPORT- ES-F BLOCK-CHARGE AND RATCHET SUMMARY FOR: ELEC-Southern Ca

UTILITY-RATE: ELEC-Southern Ca
RESOURCE: ELECTRICITY
ENERGY-UNITS: KWH
DEMAND-UNITS: KW
DEMAND-WINDOW: HOUR
0

BLOCK-CHARGES	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YEAR
0RATE-01-ELECTRIC USE: TIME-OF-USE													
METERED ENERGY:	3554	3269	3773	3509	3774	0	0	0	0	3726	3461	3749	
BILLING ENERGY:	3554	3269	3773	3509	3774	0	0	0	0	3726	3461	3749	28815
METERED DEMAND:	22.2	22.0	22.1	22.3	22.0	0.0	0.0	0.0	0.0	21.9	22.5	23.5	
BILLING DEMAND:	22.2	22.0	22.1	22.3	22.0	0.0	0.0	0.0	0.0	21.9	22.5	23.5	
ENERGY CHGS($):	265	244	281	262	281	0	0	0	0	278	258	279	2148
DEMAND CHGS($):	250	247	249	250	248	0	0	0	0	247	253	264	2008
TOTAL CHGS($):	514	491	530	512	529	0	0	0	0	524	511	544	4155
0RATE-11-ELECTRIC USE: TIME-OF-USE													
METERED ENERGY:	9810	8442	9847	9362	9734	0	0	0	0	9604	8859	8863	
BILLING ENERGY:	9810	8442	9847	9362	9734	0	0	0	0	9604	8859	8863	74521
METERED DEMAND:	45.7	45.7	45.9	46.8	44.8	0.0	0.0	0.0	0.0	44.6	45.3	46.4	
BILLING DEMAND:	45.7	45.7	45.9	46.8	44.8	0.0	0.0	0.0	0.0	44.6	45.3	46.4	
ENERGY CHGS($):	918	790	921	876	910	0	0	0	0	898	829	829	6970
DEMAND CHGS($):	514	513	515	526	504	0	0	0	0	501	509	521	4104
TOTAL CHGS($):	1431	1303	1436	1401	1414	0	0	0	0	1400	1338	1350	11074
0RATE-21-ELECTRIC USE: TIME-OF-USE													
METERED ENERGY:	0	0	0	0	0	3984	4078	3925	4103	0	0	0	
BILLING ENERGY:	0	0	0	0	0	3984	4078	3925	4103	0	0	0	16089
METERED DEMAND:	0.0	0.0	0.0	0.0	0.0	22.0	21.8	21.8	21.9	0.0	0.0	0.0	
BILLING DEMAND:	0.0	0.0	0.0	0.0	0.0	22.0	21.8	21.8	21.9	0.0	0.0	0.0	
ENERGY CHGS($):	0	0	0	0	0	279	285	275	287	0	0	0	1126
DEMAND CHGS($):	0	0	0	0	0	247	245	245	247	0	0	0	983
TOTAL CHGS($):	0	0	0	0	0	526	530	519	534	0	0	0	2109
0RATE-31-ELECTRIC USE: TIME-OF-USE													
METERED ENERGY:	0	0	0	0	0	4612	4572	5029	4148	0	0	0	
BILLING ENERGY:	0	0	0	0	0	4612	4572	5029	4148	0	0	0	18361
METERED DEMAND:	0.0	0.0	0.0	0.0	0.0	44.4	43.8	44.0	44.1	0.0	0.0	0.0	
BILLING DEMAND:	0.0	0.0	0.0	0.0	0.0	44.4	43.8	44.0	44.1	0.0	0.0	0.0	
ENERGY CHGS($):	0	0	0	0	0	642	637	701	578	0	0	0	2558
DEMAND CHGS($):	0	0	0	0	0	223	220	221	221	0	0	0	885
TOTAL CHGS($):	0	0	0	0	0	865	857	922	799	0	0	0	3443
0RATE-41-ELECTRIC USE: TIME-OF-USE													
METERED ENERGY:	0	0	0	0	0	4572	4520	5001	4109	0	0	0	
BILLING ENERGY:	0	0	0	0	0	4572	4520	5001	4109	0	0	0	18202
METERED DEMAND:	0.0	0.0	0.0	0.0	0.0	44.0	43.5	43.6	43.9	0.0	0.0	0.0	
BILLING DEMAND:	0.0	0.0	0.0	0.0	0.0	44.0	43.5	43.6	43.9	0.0	0.0	0.0	
ENERGY CHGS($):	0	0	0	0	0	1548	1530	1693	1391	0	0	0	6163
DEMAND CHGS($):	0	0	0	0	0	754	744	747	752	0	0	0	2998
TOTAL CHGS($):	0	0	0	0	0	2302	2275	2440	2143	0	0	0	9161
TOTAL ENERGY:	13364	11710	13620	12872	13508	13168	13170	13954	12360	13330	12320	12612	155989
TOTAL CHARGES ($):	1946	1793	1966	1913	1943	3693	3662	3881	3476	1924	1849	1894	29941

DOE-2 OUTPUT REPORT — Baseline

Baseline Building (90.1 Appendix G) BCHD allcove DOE-2.1E-124 Tue Feb 27 12:48:02 2024LDL RUN 1
Travis Premo Beryl & Flagler Lewis Ross Associates Inc
REPORT- LS-D BUILDING MONTHLY LOADS SUMMARY WEATHER FILE- CZ06TORRANCE-MUNICIP

	- - - - - - - - C O O L I N G - - - - - - - -					- - - - - - - - H E A T I N G - - - - - - - -					- - - E L E C - - -	
MONTH	COOLING ENERGY (MBTU)	TIME OF MAX DY	HR	DRY- BULB TEMP	WET- BULB TEMP	MAXIMUM COOLING LOAD (KBTU/HR)	HEATING ENERGY (MBTU)	TIME OF MAX DY	HR	DRY- BULB TEMP	WET- BULB TEMP	MAXIMUM HEATING LOAD (KBTU/HR)	ELEC- TRICAL ENERGY (KWH)	MAXIMUM ELEC LOAD (KW)
JAN	18.66511	8	14	72.F	54.F	114.063	-10.576	8	5	37.F	36.F	-64.477	6058.	20.436
FEB	18.85893	2	14	72.F	52.F	127.658	-7.610	7	6	41.F	37.F	-55.173	5326.	20.436
MAR	24.15818	12	14	70.F	61.F	127.700	-7.136	7	6	41.F	41.F	-52.839	6145.	20.436
APR	24.05527	24	13	87.F	62.F	151.083	-6.580	8	6	45.F	43.F	-54.128	5814.	20.436
MAY	29.63340	30	15	71.F	64.F	130.854	-2.878	19	5	47.F	47.F	-36.910	6058.	20.436
JUN	34.44889	4	15	81.F	66.F	135.140	-0.813	3	5	59.F	56.F	-18.870	5902.	20.436
JUL	38.73063	25	14	81.F	71.F	141.698	-0.400	23	5	62.F	60.F	-15.332	5852.	20.436
AUG	36.56576	31	14	78.F	68.F	138.581	-0.598	5	5	60.F	59.F	-16.097	6263.	20.436
SEP	35.00103	11	15	77.F	67.F	142.508	-1.061	30	6	57.F	55.F	-26.204	5490.	20.436
OCT	28.30275	5	15	92.F	58.F	159.740	-3.414	30	6	51.F	51.F	-33.871	6058.	20.436
NOV	20.10800	15	15	77.F	56.F	127.426	-9.267	30	5	26.F	26.F	-78.916	5608.	20.436
DEC	16.20316	11	14	81.F	61.F	131.149	-11.778	2	7	37.F	33.F	-73.132	5734.	20.436
TOTAL	324.731						-62.110						70306.	
MAX						159.740						-78.916		20.436

DOE-2 OUTPUT REPORT — Baseline

Baseline Building (90.1 Appendix G) BCHD allcove DOE-2.1E-124 Tue Feb 27 12:48:02 2024SDL RUN 1
Travis Premo Beryl & Flagler Lewis Ross Associates Inc
REPORT- SV-A SYSTEM DESIGN PARAMETERS SYSTEM-1 WEATHER FILE- CZ06TORRANCE-MUNICIP

SYSTEM NAME	SYSTEM TYPE	ALTITUDE MULTIPLIER	FLOOR AREA (SQFT)	MAX PEOPLE
SYSTEM-1	PSZ	1.000	4430.0	22.

SUPPLY FAN (CFM)	ELEC (KW)	DELTA-T (F)	RETURN FAN (CFM)	ELEC (KW)	DELTA-T (F)	OUTSIDE AIR RATIO	COOLING CAPACITY (KBTU/HR)	SENSIBLE (SHR)	HEATING CAPACITY (KBTU/HR)	COOLING EIR (BTU/BTU)	HEATING EIR (BTU/BTU)
4106.	2.574	1.9	3696.	0.643	0.5	0.487	188.787	0.616	-122.572	0.31	0.37

ZONE NAME	SUPPLY FLOW (CFM)	EXHAUST FLOW (CFM)	FAN (KW)	MINIMUM FLOW RATIO	OUTSIDE AIR FLOW (CFM)	COOLING CAPACITY (KBTU/HR)	SENSIBLE (SHR)	EXTRACTION RATE (KBTU/HR)	HEATING CAPACITY (KBTU/HR)	ADDITION RATE (KBTU/HR)	MULTIPLIER
1-Zone 1	4106.	2000.	1.200	1.000	2000.	0.00	0.00	86.16	0.00	-42.20	1.0

DOE-2 OUTPUT REPORT — Baseline

Baseline Building (90.1 Appendix G) BCHD allcove DOE-2.1E-124 Tue Feb 27 12:48:02 2024SDL RUN 1
Travis Premo Beryl & Flagler Lewis Ross Associates Inc
REPORT- SV-A SYSTEM DESIGN PARAMETERS SYSTEM-2 WEATHER FILE- CZ06TORRANCE-MUNICIP

SYSTEM NAME	SYSTEM TYPE	ALTITUDE MULTIPLIER	FLOOR AREA (SQFT)	MAX PEOPLE
SYSTEM-2	PSZ	1.000	5075.0	25.

SUPPLY FAN (CFM)	ELEC (KW)	DELTA-T (F)	RETURN FAN (CFM)	ELEC (KW)	DELTA-T (F)	OUTSIDE AIR RATIO	COOLING CAPACITY (KBTU/HR)	SENSIBLE (SHR)	HEATING CAPACITY (KBTU/HR)	COOLING EIR (BTU/BTU)	HEATING EIR (BTU/BTU)
5550.	3.397	1.9	4995.	0.849	0.5	0.360	239.954	0.616	-142.652	0.31	0.37

ZONE NAME	SUPPLY FLOW (CFM)	EXHAUST FLOW (CFM)	FAN (KW)	MINIMUM FLOW RATIO	OUTSIDE AIR FLOW (CFM)	COOLING CAPACITY (KBTU/HR)	EXTRACTION SENSIBLE (SHR)	EXTRACTION RATE (KBTU/HR)	HEATING CAPACITY (KBTU/HR)	ADDITION RATE (KBTU/HR)	MULTIPLIER
2-Zone 2	5550.	2000.	1.200	1.000	2000.	0.00	0.00	116.94	0.00	-65.36	1.0

DOE-2 OUTPUT REPORT — Baseline

Baseline Building (90.1 Appendix G) BCHD allcove DOE-2.1E-124 Tue Feb 27 12:48:02 2024SDL RUN 1
Travis Premo Beryl & Flagler Lewis Ross Associates Inc
REPORT- SS-P LOAD, ENERGY AND PART LOAD DHW TANK OPERATION FOR PLANT-1 WEATHER FILE- CZ06TORRANCE-MUNICIP

TANK SIZE is 436.5 (GAL) HEATER CAP = 254.832 (KBTU/HR) FLOW RATE = 8.871 (GAL/MIN) PUMP = 0.000 (KW)

MONTH		UNIT LOAD SUM (MBTU) PEAK (KBTU/HR)	ENERGY USE (KWH) (KW)	RCV EN USE (KWH) (KW)	PUMP ENERGY (KWH) (KW)	Number of hours within each PART LOAD range 00-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100	100+	TOTAL RUN HOURS
JAN	SUM	57.002	7916.504	0.000	0.000	374	26	112	12	0	22	0	44	44	66	44	744
	PEAK	254.832	35.392	0.000	0.000												
	DAY/HR	31/14	31/14	31/24	31/24												
FEB	SUM	49.702	6902.661	0.000	0.000	347	23	100	12	0	19	0	38	38	57	38	672
	PEAK	254.832	35.392	0.000	0.000												
	DAY/HR	28/14	28/14	28/24	28/24												
MAR	SUM	57.701	8013.613	0.000	0.000	364	27	118	15	0	22	0	44	44	66	44	744
	PEAK	254.832	35.392	0.000	0.000												
	DAY/HR	30/14	30/14	31/24	31/24												
APR	SUM	54.568	7578.557	0.000	0.000	365	25	108	12	0	21	0	42	42	63	42	720
	PEAK	254.832	35.392	0.000	0.000												
	DAY/HR	30/14	30/14	30/ 1	30/ 1												
MAY	SUM	57.002	7916.505	0.000	0.000	374	26	112	12	0	22	0	44	44	66	44	744
	PEAK	254.832	35.392	0.000	0.000												
	DAY/HR	31/14	31/14	31/ 1	31/ 1												
JUN	SUM	55.268	7675.668	0.000	0.000	355	26	114	15	0	21	0	42	42	63	42	720
	PEAK	254.832	35.392	0.000	0.000												
	DAY/HR	29/14	29/14	30/ 1	30/ 1												
JUL	SUM	54.643	7588.915	0.000	0.000	389	25	108	12	0	21	0	42	42	63	42	744
	PEAK	254.832	35.392	0.000	0.000												
	DAY/HR	31/14	31/14	31/ 1	31/ 1												
AUG	SUM	59.360	8244.092	0.000	0.000	359	27	116	12	0	23	0	46	46	69	46	744
	PEAK	254.832	35.392	0.000	0.000												
	DAY/HR	31/14	31/14	31/ 1	31/ 1												
SEP	SUM	50.550	7020.491	0.000	0.000	385	24	106	15	0	19	0	38	38	57	38	720
	PEAK	254.832	35.392	0.000	0.000												
	DAY/HR	28/14	28/14	30/ 1	30/ 1												
OCT	SUM	57.002	7916.505	0.000	0.000	374	26	112	12	0	22	0	44	44	66	44	744
	PEAK	254.832	35.392	0.000	0.000												
	DAY/HR	31/14	31/14	31/24	31/24												
NOV	SUM	52.210	7250.969	0.000	0.000	380	24	104	12	0	20	0	40	40	60	40	720
	PEAK	254.832	35.392	0.000	0.000												
	DAY/HR	30/14	30/14	30/24	30/24												
DEC	SUM	52.983	7358.438	0.000	0.000	394	25	110	15	0	20	0	40	40	60	40	744
	PEAK	254.832	35.392	0.000	0.000												
	DAY/HR	31/14	31/14	31/24	31/24												
YR	SUM	658.001	91374.680	0.000	0.000	4460	304	1320	156	0	252	0	504	504	756	504	8760
	PEAK	254.832	35.392	0.000	0.000												
	MON/DAY	12/31	12/31	12/31	12/31												

DOE-2 OUTPUT REPORT **Baseline**

Baseline Building (90.1 Appendix G) BCHD allcove DOE-2.1E-124 Tue Feb 27 12:48:02 2024SDL RUN 1
Travis Premo Beryl & Flagler Lewis Ross Associates Inc
REPORT- SS-A SYSTEM MONTHLY LOADS SUMMARY FOR SYSTEM-1 WEATHER FILE- CZ06TORRANCE-MUNICIP

	- - - - - - - - C O O L I N G - - - - - - - -						- - - - - - - - H E A T I N G - - - - - - - -					- - - E L E C - - -	
MONTH	COOLING ENERGY (MBTU)	TIME OF MAX DY	TIME OF MAX HR	DRY- BULB TEMP	WET- BULB TEMP	MAXIMUM COOLING LOAD (KBTU/HR)	HEATING ENERGY (MBTU)	TIME OF MAX DY	TIME OF MAX HR	DRY- BULB TEMP	WET- BULB TEMP	MAXIMUM HEATING LOAD (KBTU/HR)	ELEC- TRICAL ENERGY (KWH)	MAXIMUM ELEC LOAD (KW)
JAN	0.34434	10	14	75.F	56.F	35.484	-5.325	8	7	40.F	39.F	-84.063	4753.	17.194
FEB	0.56478	1	14	75.F	61.F	45.521	-1.583	7	7	43.F	37.F	-59.899	4095.	17.855
MAR	0.75064	31	14	82.F	53.F	44.972	-2.515	7	6	41.F	41.F	-72.051	4804.	17.010
APR	1.23444	24	14	87.F	62.F	82.497	-1.987	10	7	43.F	42.F	-66.233	4549.	21.393
MAY	3.34794	29	15	75.F	67.F	79.895	-0.047	19	8	50.F	47.F	-17.913	4940.	19.765
JUN	10.72986	4	16	81.F	66.F	86.862	-0.008	7	7	63.F	61.F	-1.268	5477.	20.830
JUL	18.16647	25	15	81.F	71.F	113.795	-0.010	2	7	63.F	61.F	-1.269	6086.	22.584
AUG	14.51365	31	16	79.F	68.F	95.783	-0.010	6	7	63.F	62.F	-1.196	6036.	21.184
SEP	15.00729	2	13	87.F	71.F	110.804	-0.008	11	7	63.F	59.F	-1.332	5608.	21.716
OCT	7.01464	5	16	92.F	58.F	100.599	-0.080	30	7	52.F	52.F	-23.073	5273.	23.910
NOV	1.36945	15	15	77.F	56.F	54.186	-3.122	30	4	25.F	25.F	-105.665	4421.	18.487
DEC	1.36600	11	14	81.F	61.F	63.167	-7.204	2	5	35.F	31.F	-93.485	4688.	19.297
TOTAL	74.410						-21.899						60733.	
MAX						113.795						-105.665		23.910

DOE-2 OUTPUT REPORT **Baseline**

Baseline Building (90.1 Appendix G) BCHD allcove DOE-2.1E-124 Tue Feb 27 12:48:02 2024SDL RUN 1
Travis Premo Beryl & Flagler Lewis Ross Associates Inc
REPORT- SS-Q HEAT PUMP COOLING SUMMARY FOR SYSTEM-1 WEATHER FILE- CZ06TORRANCE-MUNICIP

	UNIT RUN TIME (HOURS)	TOTAL LOAD ON UNIT (MBTU)	ENERGY IN TO UNIT (MBTU)	AUXILIARY ENERGY (MBTU)	SUP UNIT LOAD (MBTU)	SUP UNIT ENERGY (MBTU)	WASTE HEAT GENERATED (MBTU)	WASTE HEAT USE (MBTU)		INDOOR FAN ENERGY (MBTU)
JAN	6.	0.344	0.105	0.000	0.000	0.000	0.000	0.000	0.000	1.504
FEB	10.	0.565	0.168	0.000	0.000	0.000	0.000	0.000	0.000	1.752
MAR	10.	0.751	0.228	0.000	0.000	0.000	0.000	0.000	0.000	1.905
APR	13.	1.234	0.366	0.000	0.000	0.000	0.000	0.000	0.000	1.900
MAY	31.	3.348	0.938	0.000	0.000	0.000	0.000	0.000	0.000	2.872
JUN	77.	10.730	2.898	0.000	0.000	0.000	0.000	0.000	0.000	3.849
JUL	110.	18.166	4.725	0.000	0.000	0.000	0.000	0.000	0.000	4.354
AUG	95.	14.514	3.793	0.000	0.000	0.000	0.000	0.000	0.000	4.266
SEP	93.	15.007	4.029	0.000	0.000	0.000	0.000	0.000	0.000	3.931
OCT	53.	7.015	2.028	0.000	0.000	0.000	0.000	0.000	0.000	3.207
NOV	14.	1.369	0.407	0.000	0.000	0.000	0.000	0.000	0.000	1.828
DEC	11.	1.366	0.412	0.000	0.000	0.000	0.000	0.000	0.000	1.362
0ANNUAL	523.	74.410	20.096	0.000	0.000	0.000	0.000	0.000	0.000	32.730

0CSPF (WITH PARASITICS) = 1.41 (KBTU/HR)
0CSPF (WITHOUT PARASITICS) = 3.70 (BTU/BTU)

DOE-2 OUTPUT REPORT — Baseline

Baseline Building (90.1 Appendix G) BCHD allcove DOE-2.1E-124 Tue Feb 27 12:48:02 2024SDL RUN 1
Travis Premo Beryl & Flagler Lewis Ross Associates Inc
REPORT- SS-Q HEAT PUMP HEATING SUMMARY FOR SYSTEM-1 WEATHER FILE- CZ06TORRANCE-MUNICIP

	UNIT RUN TIME (HOURS)	TOTAL LOAD ON UNIT (MBTU)	ENERGY IN TO UNIT (MBTU)	AUXILIARY ENERGY (MBTU)	SUP UNIT LOAD (MBTU)	SUP UNIT ENERGY (MBTU)	WASTE HEAT GENERATED (MBTU)	WASTE HEAT USE (MBTU)	DEFROST LOAD (MBTU)	INDOOR FAN ENERGY (MBTU)
JAN	43.	-5.325	7.466	0.000	0.000	0.000	0.000	0.000	0.000	3.218
FEB	13.	-1.583	2.300	0.000	0.000	0.000	0.000	0.000	0.000	2.136
MAR	21.	-2.515	3.644	0.000	0.000	0.000	0.000	0.000	0.000	2.751
APR	16.	-1.987	2.888	0.000	0.000	0.000	0.000	0.000	0.000	2.405
MAY	0.	-0.047	0.103	0.000	0.000	0.000	0.000	0.000	0.000	1.708
JUN	0.	-0.008	0.034	0.000	0.000	0.000	0.000	0.000	0.000	0.818
JUL	0.	-0.010	0.039	0.000	0.000	0.000	0.000	0.000	0.000	0.555
AUG	0.	-0.010	0.039	0.000	0.000	0.000	0.000	0.000	0.000	0.719
SEP	0.	-0.008	0.031	0.000	0.000	0.000	0.000	0.000	0.000	0.714
OCT	1.	-0.080	0.155	0.000	0.000	0.000	0.000	0.000	0.000	1.406
NOV	25.	-3.122	4.345	0.000	0.000	0.000	0.000	0.000	0.000	2.367
DEC	59.	-7.204	9.998	0.000	0.000	0.000	0.000	0.000	0.000	3.349
0ANNUAL	179.	-21.899	31.043	0.000	0.000	0.000	0.000	0.000	0.000	22.144

0HSPF (WITH PARASITICS) = 0.83 (KBTU/HR)
0HSPF (WITHOUT PARASITICS) = 0.71 (BTU/BTU)

DOE-2 OUTPUT REPORT — Baseline

Baseline Building (90.1 Appendix G) BCHD allcove DOE-2.1E-124 Tue Feb 27 12:48:02 2024SDL RUN 1
Travis Premo Beryl & Flagler Lewis Ross Associates Inc
REPORT- SS-A SYSTEM MONTHLY LOADS SUMMARY FOR SYSTEM-2 WEATHER FILE- CZ06TORRANCE-MUNICIP

	- - - - - - - - C O O L I N G - - - - - - - -					- - - - - - - - H E A T I N G - - - - - - - -					- - - E L E C - - -	
MONTH	COOLING ENERGY (MBTU)	TIME OF MAX DY	TIME OF MAX HR	DRY-BULB TEMP	WET-BULB TEMP	MAXIMUM COOLING LOAD (KBTU/HR)	HEATING ENERGY (MBTU)	TIME OF MAX DY	TIME OF MAX HR	DRY-BULB TEMP	WET-BULB TEMP	MAXIMUM HEATING LOAD (KBTU/HR)	ELEC-TRICAL ENERGY (KWH)	MAXIMUM ELEC LOAD (KW)
JAN	0.49523	10	14	75.F	56.F	51.282	-7.309	8	5	37.F	36.F	-95.932	5778.	20.949
FEB	0.87085	1	14	75.F	61.F	67.770	-3.039	7	7	43.F	37.F	-78.882	4988.	21.905
MAR	1.15395	31	14	82.F	53.F	63.126	-3.113	7	6	41.F	41.F	-79.793	5785.	20.778
APR	1.96037	24	14	87.F	62.F	115.475	-2.338	10	7	43.F	42.F	-73.365	5462.	26.824
MAY	5.56053	29	14	74.F	66.F	122.440	-0.105	19	7	48.F	47.F	-26.574	6011.	24.925
JUN	16.09924	6	15	74.F	66.F	125.888	-0.004	30	7	64.F	61.F	-1.058	6730.	25.678
JUL	25.65952	25	15	81.F	71.F	148.906	-0.006	2	7	63.F	61.F	-1.277	7502.	27.938
AUG	20.72037	31	16	79.F	68.F	127.040	-0.007	28	7	64.F	62.F	-1.193	7347.	26.108
SEP	20.53236	2	13	87.F	71.F	145.943	-0.005	24	7	63.F	62.F	-1.282	6812.	26.615
OCT	9.48665	5	15	93.F	58.F	128.808	-0.127	30	7	52.F	52.F	-27.661	6322.	29.137
NOV	1.88258	15	15	77.F	56.F	72.976	-4.573	30	5	26.F	26.F	-123.386	5340.	22.392
DEC	1.84443	11	14	81.F	61.F	83.791	-9.074	2	5	35.F	31.F	-106.959	5679.	23.422
TOTAL	106.266						-29.699						73755.	
MAX						148.906						-123.386		29.137

DOE-2 OUTPUT REPORT — Baseline

Baseline Building (90.1 Appendix G) BCHD allcove DOE-2.1E-124 Tue Feb 27 12:48:02 2024SDL RUN 1
Travis Premo Beryl & Flagler Lewis Ross Associates Inc
REPORT- SS-Q HEAT PUMP COOLING SUMMARY FOR SYSTEM-2 WEATHER FILE- CZ06TORRANCE-MUNICIP

	UNIT RUN TIME (HOURS)	TOTAL LOAD ON UNIT (MBTU)	ENERGY IN TO UNIT (MBTU)	AUXILIARY ENERGY (MBTU)	SUP UNIT LOAD (MBTU)	SUP UNIT ENERGY (MBTU)	WASTE HEAT GENERATED (MBTU)	WASTE HEAT USE (MBTU)		INDOOR FAN ENERGY (MBTU)
JAN	6.	0.495	0.150	0.000	0.000	0.000	0.000	0.000	0.000	2.137
FEB	10.	0.871	0.256	0.000	0.000	0.000	0.000	0.000	0.000	2.355
MAR	11.	1.154	0.348	0.000	0.000	0.000	0.000	0.000	0.000	2.717
APR	16.	1.960	0.577	0.000	0.000	0.000	0.000	0.000	0.000	2.681
MAY	36.	5.561	1.523	0.000	0.000	0.000	0.000	0.000	0.000	3.992
JUN	82.	16.099	4.243	0.000	0.000	0.000	0.000	0.000	0.000	5.108
JUL	118.	25.660	6.613	0.000	0.000	0.000	0.000	0.000	0.000	5.724
AUG	100.	20.720	5.316	0.000	0.000	0.000	0.000	0.000	0.000	5.543
SEP	96.	20.532	5.474	0.000	0.000	0.000	0.000	0.000	0.000	5.115
OCT	54.	9.487	2.714	0.000	0.000	0.000	0.000	0.000	0.000	4.275
NOV	14.	1.883	0.552	0.000	0.000	0.000	0.000	0.000	0.000	2.449
DEC	11.	1.844	0.550	0.000	0.000	0.000	0.000	0.000	0.000	1.906
0ANNUAL	554.	106.266	28.317	0.000	0.000	0.000	0.000	0.000	0.000	44.001

0CSPF (WITH PARASITICS) = 1.47 (KBTU/HR)
0CSPF (WITHOUT PARASITICS) = 3.75 (BTU/BTU)

DOE-2 OUTPUT REPORT — Baseline

Baseline Building (90.1 Appendix G) BCHD allcove DOE-2.1E-124 Tue Feb 27 12:48:02 2024SDL RUN 1
Travis Premo Beryl & Flagler Lewis Ross Associates Inc
REPORT- SS-Q HEAT PUMP HEATING SUMMARY FOR SYSTEM-2 WEATHER FILE- CZ06TORRANCE-MUNICIP

	UNIT RUN TIME (HOURS)	TOTAL LOAD ON UNIT (MBTU)	ENERGY IN TO UNIT (MBTU)	AUXILIARY ENERGY (MBTU)	SUP UNIT LOAD (MBTU)	SUP UNIT ENERGY (MBTU)	WASTE HEAT GENERATED (MBTU)	WASTE HEAT USE (MBTU)	DEFROST LOAD (MBTU)	INDOOR FAN ENERGY (MBTU)
JAN	51.	-7.309	10.168	0.000	0.000	0.000	0.000	0.000	0.000	4.514
FEB	21.	-3.039	4.291	0.000	0.000	0.000	0.000	0.000	0.000	3.152
MAR	22.	-3.113	4.452	0.000	0.000	0.000	0.000	0.000	0.000	3.673
APR	16.	-2.338	3.366	0.000	0.000	0.000	0.000	0.000	0.000	3.144
MAY	1.	-0.105	0.180	0.000	0.000	0.000	0.000	0.000	0.000	2.210
JUN	0.	-0.004	0.019	0.000	0.000	0.000	0.000	0.000	0.000	1.109
JUL	0.	-0.006	0.028	0.000	0.000	0.000	0.000	0.000	0.000	0.768
AUG	0.	-0.007	0.033	0.000	0.000	0.000	0.000	0.000	0.000	0.964
SEP	0.	-0.005	0.023	0.000	0.000	0.000	0.000	0.000	0.000	0.942
OCT	1.	-0.127	0.209	0.000	0.000	0.000	0.000	0.000	0.000	1.826
NOV	32.	-4.573	6.323	0.000	0.000	0.000	0.000	0.000	0.000	3.362
DEC	64.	-9.074	12.556	0.000	0.000	0.000	0.000	0.000	0.000	4.630
0ANNUAL	208.	-29.699	41.648	0.000	0.000	0.000	0.000	0.000	0.000	30.293

0HSPF (WITH PARASITICS) = 0.83 (KBTU/HR)
0HSPF (WITHOUT PARASITICS) = 0.71 (BTU/BTU)

DOE-2 OUTPUT REPORT **Baseline**

Baseline Building (90.1 Appendix G) BCHD allcove DOE-2.1E-124 Tue Feb 27 12:48:02 2024PDL RUN 1
Travis Premo Beryl & Flagler Lewis Ross Associates Inc
REPORT- PV-A EQUIPMENT SIZES WEATHER FILE- CZ06TORRANCE-MUNICIP

EQUIPMENT	SIZE (MBTU/H)	NUMBER INSTD AVAIL	SIZE (MBTU/H)	NUMBER INSTD AVAIL	SIZE (MBTU/H)	NUMBER INSTD AVAIL	SIZE (MBTU/H)	NUMBER INSTD AVAIL	SIZE (MBTU/H)	NUMBER INSTD AVAIL	SIZE (MBTU/H)	NUMBER INSTD AVAIL

DOE-2 OUTPUT REPORT **Baseline**

Baseline Building (90.1 Appendix G) BCHD allcove DOE-2.1E-124 Tue Feb 27 12:48:02 2024PDL RUN 1
Travis Premo Beryl & Flagler Lewis Ross Associates Inc
REPORT- PS-D PLANT LOADS SATISFIED WEATHER FILE- CZ06TORRANCE-MUNICIP

ELECTRICAL LOADS	KWH SUPPLIED	PCT OF TOTAL LOAD
ELECTRICITY	225869.4	100.0
LOAD SATISFIED	225869.4	100.0
TOTAL LOAD ON PLANT	225867.6	

DOE-2 OUTPUT REPORT **Baseline**

Baseline Building (90.1 Appendix G) BCHD allcove DOE-2.1E-124 Tue Feb 27 12:48:02 2024PDL RUN 1
Travis Premo Beryl & Flagler Lewis Ross Associates Inc
REPORT- PS-D PLANT LOADS SATISFIED WEATHER FILE- CZ06TORRANCE-MUNICIP
(CONTINUED)

SUMMARY OF LOADS MET

TYPE OF LOAD	TOTAL LOAD (MBTU)	LOAD SATISFIED (MBTU)	TOTAL OVERLOAD (MBTU)	PEAK OVERLOAD (MBTU)	HOURS OVERLOADED
ELECTRICAL LOADS	770.9	770.9	0.000	0.000	0

DOE-2 OUTPUT REPORT **Baseline**

Baseline Building (90.1 Appendix G) BCHD allcove DOE-2.1E-124 Tue Feb 27 12:48:02 2024PDL RUN 1
Travis Premo Beryl & Flagler Lewis Ross Associates Inc
REPORT- BEPS BUILDING ENERGY PERFORMANCE SUMMARY WEATHER FILE- CZ06TORRANCE-MUNICIP

ENERGY TYPE: UNITS: MBTU	ELECTRICITY	NATURAL-GAS
CATEGORY OF USE		
AREA LIGHTS	91.3	0.0
MISC EQUIPMT	99.1	0.0
SOURCE USES	49.6	0.0
SPACE HEAT	0.0	72.7
SPACE COOL	48.4	0.0
VENT FANS	170.6	0.0
DOMHOT WATER	311.9	0.0
TOTAL	770.9	72.7

TOTAL SITE ENERGY 843.55 MBTU 88.7 KBTU/SQFT-YR GROSS-AREA 88.7 KBTU/SQFT-YR NET-AREA
TOTAL SOURCE ENERGY 2385.51 MBTU 251.0 KBTU/SQFT-YR GROSS-AREA 251.0 KBTU/SQFT-YR NET-AREA

PERCENT OF HOURS ANY SYSTEM ZONE OUTSIDE OF THROTTLING RANGE = 0.0
PERCENT OF HOURS ANY PLANT LOAD NOT SATISFIED = 0.0

NOTE: ENERGY IS APPORTIONED HOURLY TO ALL END-USE CATEGORIES.

DOE-2 OUTPUT REPORT — Baseline

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Baseline Building (90.1 Appendix G)     BCHD allcove                        DOE-2.1E-124  Tue Feb 27 12:48:02 2024PDL RUN  1
Travis Premo                            Beryl & Flagler                     Lewis Ross Associates Inc
REPORT- BEPU  BUILDING ENERGY PERFORMANCE SUMMARY (UTILITY UNITS)                          WEATHER FILE- CZ06TORRANCE-MUNICIP
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                                ENERGY TYPE:   ELECTRICITY   NATURAL-GAS
                                 SITE UNITS:       KWH          THERM

                               CATEGORY OF USE
                               ---------------

                                  AREA LIGHTS       26753.           0.

                                 MISC EQUIPMT       29037.           0.

                                  SOURCE USES       14518.           0.

                                    SPACE HEAT          0.         727.

                                    SPACE COOL       14185.           0.

                                     VENT FANS       49995.           0.

                                   DOMHOT WATER       91375.           0.
                                                  ----------   ----------

                                         TOTAL       225862.         727.



      TOTAL ELECTRICITY    225862. KWH       23.762 KWH     /SQFT-YR GROSS-AREA   23.762 KWH     /SQFT-YR NET-AREA
      TOTAL NATURAL-GAS       727. THERM      0.076 THERM   /SQFT-YR GROSS-AREA    0.076 THERM   /SQFT-YR NET-AREA


            PERCENT OF HOURS ANY SYSTEM ZONE OUTSIDE OF THROTTLING RANGE =  0.0
            PERCENT OF HOURS ANY PLANT LOAD NOT SATISFIED                =  0.0

            NOTE:  ENERGY IS APPORTIONED HOURLY TO ALL END-USE CATEGORIES.
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DOE-2 OUTPUT REPORT — Baseline

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Baseline Building (90.1 Appendix G)     BCHD allcove                        DOE-2.1E-124  Tue Feb 27 12:48:02 2024PDL RUN  1
Travis Premo                            Beryl & Flagler                     Lewis Ross Associates Inc
TO-ENERGYPRO     = HOURLY-REPORT                                                                          PAGE  1 -  1
-------------------------------------------------------------------------------------------------------------------------------
MMDDHH    END-USE       END-USE       END-USE       END-USE       END-USE       END-USE       END-USE       END-USE

          AREA          TASK          EQUIP         SOURCE        HEATING       SUPPLEMT      COOLING       HEAT REJ
          LITE          LITE          ELEC          ELEC          ELEC          ELEC          ELEC          ELEC
          KW            KW            KW            KW            KW            KW            KW            KW

          ----( 1)      ----( 2)      ----( 3)      ----( 4)      ----( 5)      ----(11)      ----( 6)      ----( 7)
0 MONTHLY SUMMARY (JAN)
    MN         0.475         0.000         0.475         0.238         0.000         0.000         0.000         0.000
    MX         7.604         0.000         8.555         4.277         0.000         0.000         7.844         0.000
    SM      2304.963         0.000      2501.717      1250.848         0.000         0.000        74.616         0.000
    AV         3.098         0.000         3.363         1.681         0.000         0.000         0.100         0.000
0 MONTHLY SUMMARY (FEB)
    MN         0.475         0.000         0.475         0.238         0.000         0.000         0.000         0.000
    MX         7.604         0.000         8.555         4.277         0.000         0.000         9.461         0.000
    SM      2026.942         0.000      2199.458      1099.720         0.000         0.000       124.345         0.000
    AV         3.016         0.000         3.273         1.636         0.000         0.000         0.185         0.000
0 MONTHLY SUMMARY (MAR)
    MN         0.475         0.000         0.475         0.238         0.000         0.000         0.000         0.000
    MX         7.604         0.000         8.555         4.277         0.000         0.000         9.998         0.000
    SM      2337.280         0.000      2538.786      1269.382         0.000         0.000       168.797         0.000
    AV         3.142         0.000         3.412         1.706         0.000         0.000         0.227         0.000
0 MONTHLY SUMMARY (APR)
    MN         0.475         0.000         0.475         0.238         0.000         0.000         0.000         0.000
    MX         7.604         0.000         8.555         4.277         0.000         0.000        17.918         0.000
    SM      2212.290         0.000      2400.964      1200.472         0.000         0.000       276.476         0.000
    AV         3.073         0.000         3.335         1.667         0.000         0.000         0.384         0.000
0 MONTHLY SUMMARY (MAY)
    MN         0.475         0.000         0.475         0.238         0.000         0.000         0.000         0.000
    MX         7.604         0.000         8.555         4.277         0.000         0.000        15.492         0.000
    SM      2304.963         0.000      2501.717      1250.848         0.000         0.000       720.983         0.000
    AV         3.098         0.000         3.363         1.681         0.000         0.000         0.969         0.000
0 MONTHLY SUMMARY (JUN)
    MN         0.475         0.000         0.475         0.238         0.000         0.000         0.000         0.000
    MX         7.604         0.000         8.555         4.277         0.000         0.000        16.209         0.000
    SM      2244.606         0.000      2438.033      1219.006         0.000         0.000      2092.153         0.000
    AV         3.118         0.000         3.386         1.693         0.000         0.000         2.906         0.000
0 MONTHLY SUMMARY (JUL)
    MN         0.475         0.000         0.475         0.238         0.000         0.000         0.000         0.000
    MX         7.604         0.000         8.555         4.277         0.000         0.000        20.223         0.000
    SM      2227.498         0.000      2416.172      1208.076         0.000         0.000      3322.048         0.000
    AV         2.994         0.000         3.248         1.624         0.000         0.000         4.465         0.000
0 MONTHLY SUMMARY (AUG)
    MN         0.475         0.000         0.475         0.238         0.000         0.000         0.000         0.000
    MX         7.604         0.000         8.555         4.277         0.000         0.000        16.993         0.000
    SM      2382.429         0.000      2587.261      1293.620         0.000         0.000      2668.706         0.000
    AV         3.202         0.000         3.478         1.739         0.000         0.000         3.587         0.000
0 MONTHLY SUMMARY (SEP)
    MN         0.475         0.000         0.475         0.238         0.000         0.000         0.000         0.000
    MX         7.604         0.000         8.555         4.277         0.000         0.000        28.011         0.000
    SM      2089.675         0.000      2266.943      1133.462         0.000         0.000      2784.519         0.000
    AV         2.902         0.000         3.149         1.574         0.000         0.000         3.867         0.000
0 MONTHLY SUMMARY (OCT)
    MN         0.475         0.000         0.475         0.238         0.000         0.000         0.000         0.000
    MX         7.604         0.000         8.555         4.277         0.000         0.000        22.748         0.000
    SM      2304.963         0.000      2501.717      1250.848         0.000         0.000      1389.586         0.000
    AV         3.098         0.000         3.363         1.681         0.000         0.000         1.868         0.000
0 MONTHLY SUMMARY (NOV)
    MN         0.475         0.000         0.475         0.238         0.000         0.000         0.000         0.000
    MX         7.604         0.000         8.555         4.277         0.000         0.000        10.580         0.000
    SM      2134.824         0.000      2315.418      1157.700         0.000         0.000       281.161         0.000
    AV         2.965         0.000         3.216         1.608         0.000         0.000         0.391         0.000
0 MONTHLY SUMMARY (DEC)
    MN         0.475         0.000         0.475         0.238         0.000         0.000         0.000         0.000
    MX         7.604         0.000         8.555         4.277         0.000         0.000        12.420         0.000
    SM      2182.349         0.000      2367.696      1183.838         0.000         0.000       281.840         0.000
    AV         2.933         0.000         3.182         1.591         0.000         0.000         0.379         0.000
0 YEARLY SUMMARY
    MN         0.475         0.000         0.475         0.238         0.000         0.000         0.000         0.000
    MX         7.604         0.000         8.555         4.277         0.000         0.000        28.011         0.000
    SM     26752.781         0.000     29035.881     14517.818         0.000         0.000     14185.229         0.000
    AV         3.054         0.000         3.315         1.657         0.000         0.000         1.619         0.000
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DOE-2 OUTPUT REPORT — Baseline

Baseline Building (90.1 Appendix G) BCHD allcove DOE-2.1E-124 Tue Feb 27 12:48:02 2024PDL RUN 1
Travis Premo Beryl & Flagler Lewis Ross Associates Inc
TO-ENERGYPRO = HOURLY-REPORT PAGE 1 - 2

MMDDHH	END-USE AUXIL ELEC KW	END-USE VENTILAT ELEC KW	END-USE DHW HEAT FUEL BTU/HR	END-USE SOURCE FUEL BTU/HR	END-USE HEATING FUEL BTU/HR	END-USE COOLING FUEL BTU/HR	END-USE DHW HEAT FUEL BTU/HR	END-USE EXTERIOR LITE KW
	----(8)	----(9)	----(12)	----(14)	----(15)	----(16)	----(18)	----(20)
0 MONTHLY SUMMARY (JAN)								
MN	0.000	0.000	0.432	0.000	0.000	0.000	0.000	0.000
MX	0.000	9.863	35.392	0.000	228013.031	0.000	0.000	0.000
SM	0.000	4399.152	7916.489	0.000	17633408.000	0.000	0.000	0.000
AV	0.000	5.913	10.640	0.000	23700.816	0.000	0.000	0.000
0 MONTHLY SUMMARY (FEB)								
MN	0.000	0.000	0.432	0.000	0.000	0.000	0.000	0.000
MX	0.000	9.863	35.392	0.000	184373.250	0.000	0.000	0.000
SM	0.000	3633.204	6902.650	0.000	6591547.000	0.000	0.000	0.000
AV	0.000	5.407	10.272	0.000	9808.850	0.000	0.000	0.000
0 MONTHLY SUMMARY (MAR)								
MN	0.000	0.000	0.432	0.000	0.000	0.000	0.000	0.000
MX	0.000	9.863	35.392	0.000	200137.969	0.000	0.000	0.000
SM	0.000	4274.624	8013.601	0.000	8095927.000	0.000	0.000	0.000
AV	0.000	5.745	10.771	0.000	10881.622	0.000	0.000	0.000
0 MONTHLY SUMMARY (APR)								
MN	0.000	0.000	0.432	0.000	0.000	0.000	0.000	0.000
MX	0.000	9.863	35.392	0.000	185394.078	0.000	0.000	0.000
SM	0.000	3920.877	7578.543	0.000	6254199.500	0.000	0.000	0.000
AV	0.000	5.446	10.526	0.000	8686.389	0.000	0.000	0.000
0 MONTHLY SUMMARY (MAY)								
MN	0.000	0.000	0.432	0.000	0.000	0.000	0.000	0.000
MX	0.000	9.863	35.392	0.000	50403.625	0.000	0.000	0.000
SM	0.000	4172.906	7916.489	0.000	282992.750	0.000	0.000	0.000
AV	0.000	5.609	10.640	0.000	380.367	0.000	0.000	0.000
0 MONTHLY SUMMARY (JUN)								
MN	0.000	0.000	0.432	0.000	0.000	0.000	0.000	0.000
MX	0.000	9.863	35.392	0.000	9111.410	0.000	0.000	0.000
SM	0.000	4213.692	7675.654	0.000	52736.910	0.000	0.000	0.000
AV	0.000	5.852	10.661	0.000	73.246	0.000	0.000	0.000
0 MONTHLY SUMMARY (JUL)								
MN	0.000	0.000	0.432	0.000	0.000	0.000	0.000	0.000
MX	0.000	9.863	35.392	0.000	9578.340	0.000	0.000	0.000
SM	0.000	4414.348	7588.901	0.000	66279.172	0.000	0.000	0.000
AV	0.000	5.933	10.200	0.000	89.085	0.000	0.000	0.000
0 MONTHLY SUMMARY (AUG)								
MN	0.000	0.000	0.432	0.000	0.000	0.000	0.000	0.000
MX	0.000	9.863	35.392	0.000	9311.721	0.000	0.000	0.000
SM	0.000	4450.716	8244.077	0.000	71857.289	0.000	0.000	0.000
AV	0.000	5.982	11.081	0.000	96.582	0.000	0.000	0.000
0 MONTHLY SUMMARY (SEP)								
MN	0.000	0.000	0.432	0.000	0.000	0.000	0.000	0.000
MX	0.000	9.863	35.392	0.000	9641.297	0.000	0.000	0.000
SM	0.000	4144.954	7020.479	0.000	54793.746	0.000	0.000	0.000
AV	0.000	5.757	9.751	0.000	76.102	0.000	0.000	0.000
0 MONTHLY SUMMARY (OCT)								
MN	0.000	0.000	0.432	0.000	0.000	0.000	0.000	0.000
MX	0.000	9.863	35.392	0.000	73658.148	0.000	0.000	0.000
SM	0.000	4148.039	7916.489	0.000	364608.938	0.000	0.000	0.000
AV	0.000	5.575	10.640	0.000	490.066	0.000	0.000	0.000
0 MONTHLY SUMMARY (NOV)								
MN	0.000	0.000	0.432	0.000	0.000	0.000	0.000	0.000
MX	0.000	9.863	35.392	0.000	280534.844	0.000	0.000	0.000
SM	0.000	3871.256	7250.955	0.000	10668941.000	0.000	0.000	0.000
AV	0.000	5.377	10.071	0.000	14817.974	0.000	0.000	0.000
0 MONTHLY SUMMARY (DEC)								
MN	0.000	0.000	0.432	0.000	0.000	0.000	0.000	0.000
MX	0.000	9.863	35.392	0.000	257100.156	0.000	0.000	0.000
SM	0.000	4351.169	7358.425	0.000	22554470.000	0.000	0.000	0.000
AV	0.000	5.848	9.890	0.000	30315.148	0.000	0.000	0.000
0 YEARLY SUMMARY								
MN	0.000	0.000	0.432	0.000	0.000	0.000	0.000	0.000
MX	0.000	9.863	35.392	0.000	280534.844	0.000	0.000	0.000
SM	0.000	49994.934	91382.750	0.000	72691760.000	0.000	0.000	0.000
AV	0.000	5.707	10.432	0.000	8298.146	0.000	0.000	0.000

EnergyPro 9.2 by EnergySoft User Number: 6563 ID: 23-115 Page 68 of 74

DOE-2 OUTPUT REPORT — Baseline

Baseline Building (90.1 Appendix G) BCHD allcove DOE-2.1E-124 Tue Feb 27 12:48:02 2024PDL RUN 1
Travis Premo Beryl & Flagler Lewis Ross Associates Inc
TO-ENERGYPRO = HOURLY-REPORT PAGE 1 - 3

MMDDHH	END-USE EXT MISC ELEC KW	END-USE EXT MISC FUEL BTU/HR	END-USE METER STEAM UNITS	END-USE METER CHIL WTR UNITS	PLANT SYS HEAT LOAD BTU/HR	PLANT SYS COOL LOAD BTU/HR	CTANK-ST ORAGE ENERGY RELEASED BTU/HR	CTANK-ST ORAGE TOTAL IN STORAGE BTU/HR
	----(21)	----(22)	----(33)	----(34)	----(1)	----(2)	----(1)	----(14)
0 MONTHLY SUMMARY (JAN)								
MN	0.000	0.000	0.000	0.000	0.	0.	0.	0.
MX	0.000	0.000	0.000	0.000	0.	0.	0.	0.
SM	0.000	0.000	0.000	0.000	0.	0.	0.	0.
AV	0.000	0.000	0.000	0.000	0.	0.	0.	0.
0 MONTHLY SUMMARY (FEB)								
MN	0.000	0.000	0.000	0.000	0.	0.	0.	0.
MX	0.000	0.000	0.000	0.000	0.	0.	0.	0.
SM	0.000	0.000	0.000	0.000	0.	0.	0.	0.
AV	0.000	0.000	0.000	0.000	0.	0.	0.	0.
0 MONTHLY SUMMARY (MAR)								
MN	0.000	0.000	0.000	0.000	0.	0.	0.	0.
MX	0.000	0.000	0.000	0.000	0.	0.	0.	0.
SM	0.000	0.000	0.000	0.000	0.	0.	0.	0.
AV	0.000	0.000	0.000	0.000	0.	0.	0.	0.
0 MONTHLY SUMMARY (APR)								
MN	0.000	0.000	0.000	0.000	0.	0.	0.	0.
MX	0.000	0.000	0.000	0.000	0.	0.	0.	0.
SM	0.000	0.000	0.000	0.000	0.	0.	0.	0.
AV	0.000	0.000	0.000	0.000	0.	0.	0.	0.
0 MONTHLY SUMMARY (MAY)								
MN	0.000	0.000	0.000	0.000	0.	0.	0.	0.
MX	0.000	0.000	0.000	0.000	0.	0.	0.	0.
SM	0.000	0.000	0.000	0.000	0.	0.	0.	0.
AV	0.000	0.000	0.000	0.000	0.	0.	0.	0.
0 MONTHLY SUMMARY (JUN)								
MN	0.000	0.000	0.000	0.000	0.	0.	0.	0.
MX	0.000	0.000	0.000	0.000	0.	0.	0.	0.
SM	0.000	0.000	0.000	0.000	0.	0.	0.	0.
AV	0.000	0.000	0.000	0.000	0.	0.	0.	0.
0 MONTHLY SUMMARY (JUL)								
MN	0.000	0.000	0.000	0.000	0.	0.	0.	0.
MX	0.000	0.000	0.000	0.000	0.	0.	0.	0.
SM	0.000	0.000	0.000	0.000	0.	0.	0.	0.
AV	0.000	0.000	0.000	0.000	0.	0.	0.	0.
0 MONTHLY SUMMARY (AUG)								
MN	0.000	0.000	0.000	0.000	0.	0.	0.	0.
MX	0.000	0.000	0.000	0.000	0.	0.	0.	0.
SM	0.000	0.000	0.000	0.000	0.	0.	0.	0.
AV	0.000	0.000	0.000	0.000	0.	0.	0.	0.
0 MONTHLY SUMMARY (SEP)								
MN	0.000	0.000	0.000	0.000	0.	0.	0.	0.
MX	0.000	0.000	0.000	0.000	0.	0.	0.	0.
SM	0.000	0.000	0.000	0.000	0.	0.	0.	0.
AV	0.000	0.000	0.000	0.000	0.	0.	0.	0.
0 MONTHLY SUMMARY (OCT)								
MN	0.000	0.000	0.000	0.000	0.	0.	0.	0.
MX	0.000	0.000	0.000	0.000	0.	0.	0.	0.
SM	0.000	0.000	0.000	0.000	0.	0.	0.	0.
AV	0.000	0.000	0.000	0.000	0.	0.	0.	0.
0 MONTHLY SUMMARY (NOV)								
MN	0.000	0.000	0.000	0.000	0.	0.	0.	0.
MX	0.000	0.000	0.000	0.000	0.	0.	0.	0.
SM	0.000	0.000	0.000	0.000	0.	0.	0.	0.
AV	0.000	0.000	0.000	0.000	0.	0.	0.	0.
0 MONTHLY SUMMARY (DEC)								
MN	0.000	0.000	0.000	0.000	0.	0.	0.	0.
MX	0.000	0.000	0.000	0.000	0.	0.	0.	0.
SM	0.000	0.000	0.000	0.000	0.	0.	0.	0.
AV	0.000	0.000	0.000	0.000	0.	0.	0.	0.
0 YEARLY SUMMARY								
MN	0.000	0.000	0.000	0.000	0.	0.	0.	0.
MX	0.000	0.000	0.000	0.000	0.	0.	0.	0.
SM	0.000	0.000	0.000	0.000	0.	0.	0.	0.
AV	0.000	0.000	0.000	0.000	0.	0.	0.	0.

EnergyPro 9.2 by EnergySoft User Number: 6563 ID: 23-115 Page 69 of 74

DOE-2 OUTPUT REPORT **Baseline**

MESSAGE LIST FROM ECONOMICS PROGRAM

```
0 **CAUTION*************************************************************************
            BLOCK-CHARGE RATE-01-ELECTRIC IS USED IN A TIME-OF-USE
            FORMAT, BUT IS NOT TOU-SEASON-LINKED TO ANY OTHER
            BLOCK-CHARGES FOR SEASONAL CHANGES.  THEREFORE, ANY
            SEASONAL CHANGE MUST OCCUR ON THE BILLING DAY OR
            ERRORS WILL RESULT.  REFER TO REPORT ES-F.
0 **CAUTION*************************************************************************
            BLOCK-CHARGE RATE-11-ELECTRIC IS USED IN A TIME-OF-USE
            FORMAT, BUT IS NOT TOU-SEASON-LINKED TO ANY OTHER
            BLOCK-CHARGES FOR SEASONAL CHANGES.  THEREFORE, ANY
            SEASONAL CHANGE MUST OCCUR ON THE BILLING DAY OR
            ERRORS WILL RESULT.  REFER TO REPORT ES-F.
0 **CAUTION*************************************************************************
            BLOCK-CHARGE RATE-21-ELECTRIC IS USED IN A TIME-OF-USE
            FORMAT, BUT IS NOT TOU-SEASON-LINKED TO ANY OTHER
            BLOCK-CHARGES FOR SEASONAL CHANGES.  THEREFORE, ANY
            SEASONAL CHANGE MUST OCCUR ON THE BILLING DAY OR
            ERRORS WILL RESULT.  REFER TO REPORT ES-F.
0 **CAUTION*************************************************************************
            BLOCK-CHARGE RATE-31-ELECTRIC IS USED IN A TIME-OF-USE
            FORMAT, BUT IS NOT TOU-SEASON-LINKED TO ANY OTHER
            BLOCK-CHARGES FOR SEASONAL CHANGES.  THEREFORE, ANY
            SEASONAL CHANGE MUST OCCUR ON THE BILLING DAY OR
            ERRORS WILL RESULT.  REFER TO REPORT ES-F.
0 **CAUTION*************************************************************************
            BLOCK-CHARGE RATE-41-ELECTRIC IS USED IN A TIME-OF-USE
            FORMAT, BUT IS NOT TOU-SEASON-LINKED TO ANY OTHER
            BLOCK-CHARGES FOR SEASONAL CHANGES.  THEREFORE, ANY
            SEASONAL CHANGE MUST OCCUR ON THE BILLING DAY OR
            ERRORS WILL RESULT.  REFER TO REPORT ES-F.
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EnergyPro 9.2 by EnergySoft User Number: 6563 ID: 23-115 Page 70 of 74

DOE-2 OUTPUT REPORT **Baseline**

Baseline Building (90.1 Appendix G) BCHD allcove DOE-2.1E-124 Tue Feb 27 12:48:02 2024EDL RUN 1
Travis Premo Beryl & Flagler Lewis Ross Associates Inc
REPORT- ES-A ANNUAL ENERGY AND OPERATIONS COSTS AND SAVINGS

	ENERGY ($)			OPERATIONS ($)					TOTAL
					OPRNS COST -- THIS RUN				SAVINGS-
	ENERGY COST	ENERGY COST	ENERGY COST	OPRNS COST				OPRNS COST	ENERGY PLUS
YEAR	BASELINE	THIS RUN	SAVINGS	BASELINE	PLANT	BUILDING	TOTAL	SAVINGS	OPRNS
1	0.	54700.	-54700.	0.	0.	0.	0.	0.	-54700.
2	0.	52213.	-52213.	0.	0.	0.	0.	0.	-52213.
3	0.	49840.	-49840.	0.	0.	0.	0.	0.	-49840.
4	0.	47574.	-47574.	0.	0.	0.	0.	0.	-47574.
5	0.	45412.	-45412.	0.	0.	0.	0.	0.	-45412.
6	0.	43348.	-43348.	0.	0.	0.	0.	0.	-43348.
7	0.	41377.	-41377.	0.	0.	0.	0.	0.	-41377.
8	0.	39497.	-39497.	0.	0.	0.	0.	0.	-39497.
9	0.	37701.	-37701.	0.	0.	0.	0.	0.	-37701.
10	0.	35988.	-35988.	0.	0.	0.	0.	0.	-35988.
11	0.	34352.	-34352.	0.	0.	0.	0.	0.	-34352.
12	0.	32790.	-32790.	0.	0.	0.	0.	0.	-32790.
13	0.	31300.	-31300.	0.	0.	0.	0.	0.	-31300.
14	0.	29877.	-29877.	0.	0.	0.	0.	0.	-29877.
15	0.	28519.	-28519.	0.	0.	0.	0.	0.	-28519.
16	0.	27223.	-27223.	0.	0.	0.	0.	0.	-27223.
17	0.	25985.	-25985.	0.	0.	0.	0.	0.	-25985.
18	0.	24804.	-24804.	0.	0.	0.	0.	0.	-24804.
19	0.	23677.	-23677.	0.	0.	0.	0.	0.	-23677.
20	0.	22601.	-22601.	0.	0.	0.	0.	0.	-22601.
21	0.	21573.	-21573.	0.	0.	0.	0.	0.	-21573.
22	0.	20593.	-20593.	0.	0.	0.	0.	0.	-20593.
23	0.	19657.	-19657.	0.	0.	0.	0.	0.	-19657.
24	0.	18763.	-18763.	0.	0.	0.	0.	0.	-18763.
25	0.	17910.	-17910.	0.	0.	0.	0.	0.	-17910.
TOTALS($)	0.	827274.	-827274.	0.	0.	0.	0.	0.	-827274.

EnergyPro 9.2 by EnergySoft User Number: 6563 ID: 23-115 Page 71 of 74

DOE-2 OUTPUT REPORT — Baseline

Baseline Building (90.1 Appendix G) BCHD allcove DOE-2.1E-124 Tue Feb 27 12:48:02 2024EDL RUN 1
Travis Premo Beryl & Flagler Lewis Ross Associates Inc
REPORT- ES-D ENERGY COST SUMMARY

UTILITY-RATE	RESOURCE	METERS	METERED ENERGY UNITS/YR	TOTAL CHARGE ($)	VIRTUAL RATE ($/UNIT)	RATE USED ALL YEAR?
0ELEC-Southern Ca	ELECTRICITY	1 2 3 4 5	225869. KWH	54700.	0.2422	YES
0				==========		
0				54700.		

ENERGY COST/GROSS BLDG AREA: 5.75
ENERGY COST/NET BLDG AREA: 5.75

**** WARNING **** UTILITY-RATES DO NOT ACCOUNT FOR ALL THE ENERGY REPORTED IN PLANT ****

DOE-2 OUTPUT REPORT — Baseline

Baseline Building (90.1 Appendix G) BCHD allcove DOE-2.1E-124 Tue Feb 27 12:48:02 2024EDL RUN 1
Travis Premo Beryl & Flagler Lewis Ross Associates Inc
REPORT- ES-E SUMMARY OF UTILITY-RATE: ELEC-Southern Ca

UTILITY-RATE: ELEC-Southern Ca RESOURCE: ELECTRICITY DEMAND-WINDOW: HOUR 3413. BTU/KWH
METERS: 1 2 3 4 5 BILLING-DAY: 31 RATE-LIMITATION: 0.0000
POWER-FACTOR: 0.80 EXCESS-KVAR-FRAC: 0.30 EXCESS-KVAR-CHG: 0.0000

RATE-QUALIFICATIONS
MIN-ENERGY: 0.0
MAX-ENERGY: 0.0
MIN-DEMAND: 0.0
MAX-DEMAND: 0.0
QUALIFY-RATE: ALL-MONTHS
USE-MIN-QUAL: NO

BLOCK-CHARGES
RATE-01-ELECTRIC
RATE-11-ELECTRIC
RATE-21-ELECTRIC
RATE-31-ELECTRIC
RATE-41-ELECTRIC

DEMAND-RATCHETS

MIN-MON-RATCHETS

0

MONTH	METERED ENERGY KWH	BILLING ENERGY KWH	METERED DEMAND KW	BILLING DEMAND KW	ENERGY CHARGE ($)	DEMAND CHARGE ($)	ENERGY CST ADJ ($)	TAXES ($)	SURCHRG ($)	FIXED CHARGE ($)	MINIMUM CHARGE ($)	VIRTUAL RATE ($/UNIT)	TOTAL CHARGE ($)
0 JAN	18448	18448	73.5	73.5	1648	1225	0	0	0	445	0	0.1799	3318
0 FEB	15986	15986	75.2	75.2	1428	1251	0	0	0	445	0	0.1954	3123
0 MAR	18602	18602	72.7	72.7	1660	1258	0	0	0	445	0	0.1808	3363
0 APR	17590	17590	83.6	83.6	1575	1298	0	0	0	445	0	0.1886	3318
0 MAY	18868	18868	79.7	79.7	1689	1316	0	0	0	445	0	0.1828	3450
0 JUN	19883	19883	79.8	79.8	4076	2253	0	0	0	445	0	0.3407	6774
0 JUL	21177	21177	85.8	85.8	4336	2378	0	0	0	445	0	0.3380	7158
0 AUG	21627	21627	80.4	80.4	4518	2264	0	0	0	445	0	0.3341	7226
0 SEP	19440	19440	83.5	83.5	3845	2439	0	0	0	445	0	0.3462	6730
0 OCT	19512	19512	87.7	87.7	1745	1536	0	0	0	445	0	0.1910	3727
0 NOV	17011	17011	75.6	75.6	1520	1243	0	0	0	445	0	0.1886	3208
0 DEC	17725	17725	78.1	78.1	1573	1287	0	0	0	445	0	0.1865	3305
TOTAL	225869	225869	87.7		29613	19749	0	0	0	5337		0.2422	54700

DOE-2 OUTPUT REPORT — Baseline

Baseline Building (90.1 Appendix G) BCHD allcove DOE-2.1E-124 Tue Feb 27 12:48:02 2024EDL RUN 1
Travis Premo Beryl & Flagler Lewis Ross Associates Inc
REPORT- ES-F BLOCK-CHARGE AND RATCHET SUMMARY FOR: ELEC-Southern Ca

UTILITY-RATE: ELEC-Southern Ca
RESOURCE: ELECTRICITY
ENERGY-UNITS: KWH
DEMAND-UNITS: KW
DEMAND-WINDOW: HOUR
0

BLOCK-CHARGES	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YEAR
0RATE-01-ELECTRIC USE: TIME-OF-USE													
METERED ENERGY:	4091	3537	4201	3673	3973	0	0	0	0	4183	3757	4468	
BILLING ENERGY:	4091	3537	4201	3673	3973	0	0	0	0	4183	3757	4468	31882
METERED DEMAND:	35.5	36.1	39.3	31.8	37.4	0.0	0.0	0.0	0.0	48.9	35.0	36.4	
BILLING DEMAND:	35.5	36.1	39.3	31.8	37.4	0.0	0.0	0.0	0.0	48.9	35.0	36.4	
ENERGY CHGS($):	305	264	313	274	296	0	0	0	0	312	280	333	2376
DEMAND CHGS($):	399	406	441	358	420	0	0	0	0	550	394	409	3377
TOTAL CHGS($):	704	670	754	632	716	0	0	0	0	862	674	742	5754
0RATE-11-ELECTRIC USE: TIME-OF-USE													
METERED ENERGY:	14357	12449	14402	13916	14895	0	0	0	0	15329	13255	13257	
BILLING ENERGY:	14357	12449	14402	13916	14895	0	0	0	0	15329	13255	13257	111860
METERED DEMAND:	73.5	75.2	72.7	83.6	79.7	0.0	0.0	0.0	0.0	87.7	75.6	78.1	
BILLING DEMAND:	73.5	75.2	72.7	83.6	79.7	0.0	0.0	0.0	0.0	87.7	75.6	78.1	
ENERGY CHGS($):	1343	1164	1347	1302	1393	0	0	0	0	1434	1240	1240	10462
DEMAND CHGS($):	827	845	817	940	896	0	0	0	0	986	850	878	7038
TOTAL CHGS($):	2169	2009	2164	2241	2289	0	0	0	0	2420	2089	2118	17500
0RATE-21-ELECTRIC USE: TIME-OF-USE													
METERED ENERGY:	0	0	0	0	0	4569	4829	4481	5247	0	0	0	
BILLING ENERGY:	0	0	0	0	0	4569	4829	4481	5247	0	0	0	19127
METERED DEMAND:	0.0	0.0	0.0	0.0	0.0	43.8	43.3	43.0	52.7	0.0	0.0	0.0	
BILLING DEMAND:	0.0	0.0	0.0	0.0	0.0	43.8	43.3	43.0	52.7	0.0	0.0	0.0	
ENERGY CHGS($):	0	0	0	0	0	320	338	314	367	0	0	0	1339
DEMAND CHGS($):	0	0	0	0	0	492	486	483	592	0	0	0	2053
TOTAL CHGS($):	0	0	0	0	0	812	824	797	959	0	0	0	3392
0RATE-31-ELECTRIC USE: TIME-OF-USE													
METERED ENERGY:	0	0	0	0	0	7172	7713	8035	6662	0	0	0	
BILLING ENERGY:	0	0	0	0	0	7172	7713	8035	6662	0	0	0	29581
METERED DEMAND:	0.0	0.0	0.0	0.0	0.0	78.7	84.1	80.2	83.2	0.0	0.0	0.0	
BILLING DEMAND:	0.0	0.0	0.0	0.0	0.0	78.7	84.1	80.2	83.2	0.0	0.0	0.0	
ENERGY CHGS($):	0	0	0	0	0	999	1074	1119	928	0	0	0	4121
DEMAND CHGS($):	0	0	0	0	0	395	422	403	418	0	0	0	1637
TOTAL CHGS($):	0	0	0	0	0	1394	1497	1522	1345	0	0	0	5758
0RATE-41-ELECTRIC USE: TIME-OF-USE													
METERED ENERGY:	0	0	0	0	0	8142	8634	9111	7532	0	0	0	
BILLING ENERGY:	0	0	0	0	0	8142	8634	9111	7532	0	0	0	33419
METERED DEMAND:	0.0	0.0	0.0	0.0	0.0	79.8	85.8	80.4	83.5	0.0	0.0	0.0	
BILLING DEMAND:	0.0	0.0	0.0	0.0	0.0	79.8	85.8	80.4	83.5	0.0	0.0	0.0	
ENERGY CHGS($):	0	0	0	0	0	2757	2923	3085	2550	0	0	0	11315
DEMAND CHGS($):	0	0	0	0	0	1366	1469	1378	1430	0	0	0	5643
TOTAL CHGS($):	0	0	0	0	0	4123	4393	4463	3980	0	0	0	16959
TOTAL ENERGY:	18448	15986	18602	17590	18868	19883	21177	21627	19440	19512	17011	17725	225869
TOTAL CHARGES ($):	2873	2679	2918	2873	3005	6329	6714	6782	6285	3282	2763	2860	49362

EnergyPro 9.2 by EnergySoft User Number: 6563 ID: 23-115 Page 74 of 74