

CERTIFICATE OF COMPLIANCE - RESIDENTIAL PERFORMANCE COMPLIANCE METHOD
 Project Name: Mark and Candice Leonard Residence
 Calculation Description: Title 24 Analysis
 Calculation Date/Time: 11:36, Tue, Nov 03, 2015
 Input File Name: 663_Berry_addition.rbd
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GENERAL INFORMATION

01	Project Name	Title 24 Analysis			
02	Calculation Description	Title 24 Analysis			
03	Project Location	1225 Loma St.			
04	City	05	Standards Version	Compliance 2015	
06	Zip Code	07	Compliance Manager Version	BEMCMgr 2013.4 (744)	
08	Climate Zone	09	Software Version	CBECC-Res 2013-4 (744)	
10	Building Type	11	Front Orientation (deg/Cardinal)	220	
12	Project Scope	13	Number of Dwelling Units	1	
14	Total Cond. Floor Area (ft²)	15	Number of Zones	2	
16	Slab Area (ft²)	17	Number of Stories	1	
18	Addition Cond. Floor Area (ft²)	19	Natural Gas Available	Yes	
20	Addition Slab Area (ft²)	21	Glazing Percentage (%)	10.0%	

COMPLIANCE RESULTS

01	Building Complies with Computer Performance
02	This building DOES NOT require HERS Verification
03	This building incorporates one or more Special Features shown below

ENERGY USE SUMMARY

04	05	06	07	08
Energy Use (kWh/yr)	Standard Design	Proposed Design	Compliance Margin	Percent Improvement
Space Heating	40.95	40.41	0.54	1.3%
Space Cooling	46.94	46.36	0.58	1.2%
IAQ Ventilation	0.00	0.00	0.00	0.0%
Water Heating	9.20	9.20	0.00	0.0%
Photovoltaic Offset	---	0.00	0.00	---
Compliance Energy Total	97.09	95.97	1.12	1.2%

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REQUIRED SPECIAL FEATURES

The following are features that must be installed as condition for meeting the modeled energy performance for this computer analysis.

- Cathedral Ceiling
- New ductwork added is less than 40 ft. in length

HERS FEATURE SUMMARY

The following is a summary of the features that must be field-verified by a certified HERS Rater as a condition for meeting the modeled energy performance for this computer analysis. Additional details are provided in the building components tables below.

Building-Level Verifications:
 * -- None --
Cooling System Verifications:
 * -- None --
HVAC Distribution System Verifications:
 * -- None --
Domestic Hot Water System Verifications:
 * -- None --

ENERGY DESIGN RATING

This is the sum of the annual TDU energy consumption for energy use components included in the performance compliance approach for the Standard Design Building (Energy Budget) and the annual TDU energy consumption for lighting and components not regulated by Title 24, Part 6 (such as domestic appliances and consumer electronics) and accounting for the annual TDU energy offset by an on-site renewable energy system.

Reference Energy Use	Energy Design Rating	Margin	Percent Improvement
135.14	138.02	1.12	0.8%

*Includes calculated Appliances and Miscellaneous Energy Use (AMEU)

BUILDING - FEATURES INFORMATION

01	02	03	04	05	06	07
Project Name	Conditioned Floor Area (ft²)	Number of Dwelling Units	Number of Bedrooms	Number of Zones	Number of Ventilation Cooling Systems	Number of Water Heating Systems
Mark and Candice Leonard Residence	3300	1	4	2	0	1

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ZONE INFORMATION

01	02	03	04	05	06	07
Zone Name	Zone Type	HVAC System Name	Zone Floor Area (ft²)	Avg. Ceiling Height	Water Heating System 1	Water Heating System 2
House	Conditioned	HVAC ex	3128	8		
Addition	Conditioned	HVAC ex	172	8		

OPAQUE SURFACES

01	02	03	04	05	06	07	08	09	10
Name	Zone	Construction	Azimuth	Orientation	Gross Area (ft²)	Window & Door Area (ft²)	Tilt (deg)	Status	Verified Existing Condition
Ex Wall F	House	Wall ex	220	Front	342	64	90	Existing	No
Ex Wall L	House	Wall ex	310	Left	184	16	90	Existing	No
Ex Wall B	House	Wall ex	40	Back	492	123.2	90	Existing	No
Ex Wall R	House	Wall ex	130	Right	425	80	90	Existing	No
Interior Wall/Gar-ex	House>>Garage	Wall Int ex			328	20		Existing	No
Ceiling ex	House	Ceiling attic ex			1549			Existing	No
Ceiling all	House	Ceiling attic new			1564			Altered	N/A
Floor Over Crawlspace ex	House	Floor crawl new			2832			Altered	N/A
Add Wall F	Addition	Wall new	220	Front	257	51.1	90	New	N/A
Add Wall L	Addition	Wall new	310	Left	24		90	New	N/A
Add Wall R	Addition	Wall new	130	Right	16		90	New	N/A
Ceiling n	Addition	Ceiling attic new			172			New	N/A
Floor Over Crawlspace n	Addition	Floor crawl new			172			New	N/A
Exterior GWall F	Garage	Wall Gar	220	Front	166	112	90	Existing	No
Exterior GWall L	Garage	Wall Gar	310	Left	63		90	Existing	No
Exterior GWall B	Garage	Wall Gar	40	Back	160		90	Existing	No
Exterior GWall R	Garage	Wall Gar	130	Right	42		90	Existing	No
Exterior GWall-135	Garage	Wall Gar	355	135	164		90	Existing	No
Ceiling gar	Garage	Ceiling attic ex			650			Existing	No

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OPAQUE SURFACES - Cathedral Ceilings

01	02	03	04	05	06	07	08	09	10	11	12	13	
Name	Zone	Type	Orientation	Area (ft²)	Skylight Area (ft²)	Roof Rise (in./12)	Roof Pitch	Roof Tilt(deg)	Roof Reflectance	Roof Emittance	Framing Factor	Status	Verified Existing Condition
Cathedral-ex	House	Ceiling cath ex	Back	6	6	4	0.33	18.43	0.1	0.85	0.07	Existing	No
Cathedral-at	House	Ceiling cath new	Back	9	8.7	4	0.33	18.43	0.1	0.85	0.07	Altered	N/A

ATTIC

01	02	03	04	05	06	07	08	09	10
Name	Construction	Type	Roof Rise	Roof Reflectance	Roof Emittance	Radiant Barrier	Cool Roof	Status	Verified Existing Condition
Attic	Tile roof	Ventilated	4	0.1	0.85	No	No	Exist ng	No
Attic at	Tile roof RB	Ventilated	4	0.1	0.85	Yes	No	Above /	No

WINDOWS

01	02	03	04	05	06	07	08	09	10	11
Name	Surface (Orientation-Azimuth)	Width(ft)	Height (ft)	Multiplier	Area (ft²)	U-factor	SHGC	Exterior Shading	Status	Verified Existing Condition
Wind-at	Ex Wall F (Front-220)	---	---	1	64.0	0.32	0.25	Insect Screen (default)	Altered	N/A
Wind-ex	Ex Wall L (Left-310)	---	---	1	69.0	1.28	0.89	Insect Screen (default)	Existing	No
GDoor-all	Ex Wall B (Back-40)	---	---	1	71.0	0.32	0.25	Insect Screen (default)	Altered	N/A
Wind-all-2	Ex Wall B (Back-40)	---	---	1	38.2	0.32	0.25	Insect Screen (default)	Altered	N/A
Wind-ex-2	Ex Wall B (Back-40)	---	---	1	16.0	1.28	0.80	Insect Screen (default)	Existing	No
GDoor-ex	Ex Wall R (Right-130)	---	---	1	80.0	1.25	0.80	Insect Screen (default)	Existing	No
Skylights-ex	Cathedral-ex (Back-40)	---	---	1	6.0	1.88	0.68	None	Existing	No
Skylights-n	Cathedral-at (Back-40)	---	---	1	6.7	0.32	0.25	None	New	N/A
Wind-n	Add Wall F (Front-220)	---	---	1	31.1	0.32	0.25	Insect Screen (default)	New	N/A

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DOORS

01	02	03	04	05	06
Name	Side of Building	Area (ft²)	U-factor	Status	Verified Existing Condition
Entry-2	Interior Wall/Gar-ex	20.0	0.50	Existing	No
Entry-n	Add Wall F	20.0	0.50	New	No

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OPAQUE SURFACE CONSTRUCTIONS

01	02	03	04	05	06	07
Construction Name	Surface Type	Construction Type	Framing	Total Cavity R-value	Winter Design U-value	Assembly Layers
Tile roof	Attic Roofs	Wood Framed Ceiling	2x4 Top Chord of Roof Truss @ 24 in. O.C.	none	0.400	• Cavity / Frame: no insul. / 2x4 Top Chord • Roof Deck: Wood Siding/sheathing/decleking • Tile Gap: present • Roofing: 19 PSF (RoofTie)
Tile roof RB	Attic Roofs	Wood Framed Ceiling	2x4 Top Chord of Roof Truss @ 24 in. O.C.	none	0.400	• Cavity / Frame: no insul. / 2x4 Top Chord • Roof Deck: Wood Siding/sheathing/decleking • Tile Gap: present • Roofing: 19 PSF (RoofTie)
Wall ex	Exterior Walls	Wood Framed Wall	2x4 @ 16 in. O.C.	none	0.387	• Inside Finish: Gypsum Board • Cavity / Frame: no insul. / 2x4
Wall new	Exterior Walls	Wood Framed Wall	2x4 @ 16 in. O.C.	R 13	0.104	• Inside Finish: Gypsum Board • Cavity / Frame: R-13 / 2x4
Wall Gar	Exterior Walls	Wood Framed Wall	2x4 @ 16 in. O.C.	none	0.387	• Inside Finish: Gypsum Board • Cavity / Frame: no insul. / 2x4
Wall Int ex	Interior Walls	Wood Framed Wall	2x4 @ 16 in. O.C.	none	0.277	• Inside Finish: Gypsum Board • Cavity / Frame: no insul. / 2x4 • Other Side Finish: Gypsum Board
Floor crawl new	Floors Over Crawlspace	Wood Framed Floor	2x6 @ 16 in. O.C.	R 19	0.049	• Floor Surface: Carpeted • Floor Deck: Wood Siding/sheathing/decleking • Cavity / Frame: R-19 / 2x6
Ceiling attic ex	Ceilings (below attic)	Wood Framed Ceiling	2x4 @ 16 in. O.C.	none	0.472	• Inside Finish: Gypsum Board • Cavity / Frame: no insul. / 2x4
Ceiling attic new	Ceilings (below attic)	Wood Framed Ceiling	2x4 @ 16 in. O.C.	R 30	0.032	• Inside Finish: Gypsum Board • Cavity / Frame: R-30 / 2x4 • Other Floor Joists: R20 @ insul.
Ceiling cath ex	Cathedral Ceilings	Wood Framed Ceiling	2x4 Top Chord of Roof Truss @ 24 in. O.C.	none	0.494	• Inside Finish: Gypsum Board • Cavity / Frame: no insul. / 2x4 Top Chrd • Roof Deck: Wood Siding/sheathing/decleking • Roofing: Light Roof (Asphalt Shingle)
Ceiling cath new	Cathedral Ceilings	Wood Framed Ceiling	2x10 @ 24 in. O.C.	R 30	0.035	• Inside Finish: Gypsum Board • Cavity / Frame: R-30 / 2x10 • Roof Deck: Wood Siding/sheathing/decleking • Roofing: Light Roof (Asphalt Shingle)

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SLAB FLOORS

01	02	03	04	05	06	07	08	09
Name	Zone	Area (ft²)	Perimeter (ft)	Edge Insul. R-value	Carpeted Fraction	Heated	Status	Verified Existing Condition
Slab On Grade ex	House	296	19	None	0.8	No	Existing	No

BUILDING ENVELOPE - HERS VERIFICATION

01	02	03	04
Quality Insulation Installation (QI)	Quality Installation of Spray Foam Insulation	Building Envelope Air Leakage	CFM50
Not Required	Not Required	Not Required	---

WATER HEATING SYSTEMS

01	02	03	04	05	06	07	08
Name	System Type	Distribution Type	Water Heater	Number of Heaters	Solar Fraction (%)	Status	Verified Existing Condition
DHW ex	DHW	Standard	Gas Storage	1	none -	Existing	No

WATER HEATERS

01	02	03	04	05	06	07	08
Name	Heater Element Type	Tank Type	Tank Volume (gal)	Energy Factor or Efficiency	Input Rating	Tank Exterior Insulation R-value	Standby Loss (Fraction)
Gas Storage	Natural Gas	Small Storage	50	0.8 EF	40000-Btu/hr	0	0

WATER HEATING - HERS VERIFICATION

01	02	03	04	05	06	07
Name	Pipe Insulation	Parallel Piping	Compact Distribution	Point-of Use	Recirculation with Manual Control	Recirculation with Sensor Control
DHW ex	n/a	n/a	n/a	n/a	n/a	n/a

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SPACE CONDITIONING SYSTEMS

01	02	03	04	05	06	07	08	09	
Name	System Type	Heating System	Cooling System	Ducted	Distribution System	Fan System	Floor Area Served	Verified Existing Condition	
HVAC ex	Other Heating and Cooling System	Ex Furnace	Yes	Ex Cooling	Yes	Ducts ex	Fan ex 3300	Existing	No

HVAC - HEATING SYSTEMS

01	02	03
Name	Type	Efficiency
Ex Furnace	Centr/Furnace - Fuel-fired central furnace	75 AFUE

HVAC - COOLING SYSTEMS

01	02	03	04	05	06	07
Name	System Type	EER	SEER	Zonally Controlled	Multi-speed Compressor	HERS Verification
Ex Cooling	Split/AirCond - Split air conditioning system	7.08	8	No	No	N/A

HVAC - DISTRIBUTION SYSTEMS

01	02	03	04	05	06	07	08	09	10
Name	Type	Duct Leakage	Insulation R-value	Supply Duct Location	Return Duct Location	Bypass Duct	Status	Verified Existing Condition	HERS Verification
Ducts ex	Ducts located in attic	Existing (not specified)	8.0	Attic	Attic	None	Existing + New	No	N/A

IAQ (Indoor Air Quality) FANS

01	02	03	04	05
Name	IAQ CFM	IAQ Fan Type	IAQ Recovery Effectiveness(%)	HERS Verification
5Fan-IAQVentRpt		Default	0	Not Required

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DOCUMENTATION AUTHOR'S DECLARATION STATEMENT

I certify that this Certificate of Compliance documentation is accurate and complete.

Documentation Author Name: John Smith
 Signature Date: 11/03/2015

Company: PLAR / www.title24ez.com /
 Address: 1252 W 22nd St
 City/State/Zip: San Pedro, CA, 90731
 Phone: (424) 247-7658 / e-mail: energy@title24ez.com

RESPONSIBLE PERSON'S DECLARATION STATEMENT

I certify the following under penalty of perjury under the laws of the State of California:

- I am eligible under Division 5 of the Business and Professions Code to accept responsibility for the building design identified on this Certificate of Compliance.
- I certify that the energy features and performance specifications identified on this Certificate of Compliance conform to the requirements of Title 24, Part 1 and Part 6 of the California Code of Regulations.
- The building design features or system design features identified on this Certificate of Compliance are consistent with the information provided on other applicable compliance documents, worksheets, calculations, plans and specifications submitted to the enforcement agency for approval with this building permit application.

Responsible Designer Name:
 Responsible Designer Signature:
 Date Signed:
 License:
 Phone:

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