

CERTIFICATE OF COMPLIANCE - RESIDENTIAL PERFORMANCE COMPLIANCE METHOD
CF1R-PRF-01
Project Name: Renner Residence

Calculation Date/Time: 16:24, Tue, Jul 31, 2018

Page 1 of 9
Calculation Description: Title 24 Analysis

Input File Name: KH1170RR22.ribd16x

GENERAL INFORMATION					
01	Project Name	Renner Residence			
02	Calculation Description	Title 24 Analysis			
03	Project Location	Renner Residence			
04	City	Mountain Ranch	05	Standards Version	Compliance 2017
06	Zip Code	95246	07	Compliance Manager Version	BEMCmpMgr 2016.3.1 (1149)
08	Climate Zone	CZ12	09	Software Version	CBECC-Res 2016.3.1 (1019)
10	Building Type	Single Family	11	Front Orientation (deg/Cardinal)	270
12	Project Scope	Newly Constructed	13	Number of Dwelling Units	1
14	Total Cond. Floor Area (ft ²)	1170	15	Number of Zones	1
16	Slab Area (ft ²)	1170	17	Number of Stories	1
18	Addition Cond. Floor Area(ft ²)	n/a	19	Natural Gas Available	Yes
20	Addition Slab Area (ft ²)	n/a	21	Glazing Percentage (%)	15.2%

COMPLIANCE RESULTS	
01	Building Complies with Computer Performance
02	This building incorporates features that require field testing and/or verification by a certified HERS rater under the supervision of a CEC-approved HERS provider.
03	This building incorporates one or more Special Features shown below

ENERGY USE SUMMARY				
04	05	06	07	08
Energy Use (kTDV/ft ² -yr)	Standard Design	Proposed Design	Compliance Margin	Percent Improvement
Space Heating	17.43	15.70	1.73	9.9%
Space Cooling	11.07	7.94	3.13	28.3%
IAQ Ventilation	1.40	1.40	0.00	0.0%
Water Heating	12.86	11.36	1.50	11.7%
Photovoltaic Offset	----	-9.41	9.41	----
Compliance Energy Total	42.76	26.99	15.77	36.9%

Registration Number:

CA Building Energy Efficiency Standards - 2016 Residential Compliance

Registration Date/Time:

Report Version - CF1R-06282018-1149

HERS Provider:

Report Generated at: 2018-07-31 16:25:23

CERTIFICATE OF COMPLIANCE - RESIDENTIAL PERFORMANCE COMPLIANCE METHOD

CF1R-PRF-01

Project Name: Renner Residence

Calculation Date/Time: 16:24, Tue, Jul 31, 2018

Page 2 of 9

Calculation Description: Title 24 Analysis

Input File Name: KH1170RR22.ribd16x

REQUIRED SPECIAL FEATURES

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

- PV System: 2 kWdc
- Whole house fan
- Non-standard roof reflectance
- Insulation below roof deck
- Window overhangs and/or fins

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 detail is provided in the building components tables below.

Building-level Verifications:

- IAQ mechanical ventilation

Cooling System Verifications:

- Minimum Airflow
- Verified EER
- Verified SEER
- Verified Refrigerant Charge
- Fan Efficacy Watts/CFM

HVAC Distribution System Verifications:

- Duct Sealing
- Low-leakage Air Handling Unit

Domestic Hot Water System Verifications:

- -- None --

BUILDING - FEATURES INFORMATION

01	02	03	04	05	06	07
Project Name	Conditioned Floor Area (ft ²)	Number of Dwelling Units	Number of Bedrooms	Number of Zones	Number of Ventilation Cooling Systems	Number of Water Heating Systems
Renner Residence	1170	1	2	1	2	1

ZONE INFORMATION

01	02	03	04	05	06	07
Zone Name	Zone Type	HVAC System Name	Zone Floor Area (ft ²)	Avg. Ceiling Height	Water Heating System 1	Water Heating System 2
1st Floor	Conditioned	HVAC1	1170	8	DHW Sys 1	n/a

Registration Number:

CA Building Energy Efficiency Standards - 2016 Residential Compliance

Registration Date/Time:

Report Version - CF1R-06282018-1149

HERS Provider:

Report Generated at: 2018-07-31 16:25:23

CERTIFICATE OF COMPLIANCE - RESIDENTIAL PERFORMANCE COMPLIANCE METHOD
CF1R-PRF-01
Project Name: Renner Residence

Calculation Date/Time: 16:24, Tue, Jul 31, 2018

Page 3 of 9
Calculation Description: Title 24 Analysis

Input File Name: KH1170RR22.ribd16x

OPAQUE SURFACES							
01	02	03	04	05	06	07	08
Name	Zone	Construction	Azimuth	Orientation	Gross Area (ft ²)	Window & Door Area (ft ²)	Tilt (deg)
Front 2x6 Wall	1st Floor	R-21 w/1 Foam Wall + R-4	270	Front	360	0	90
Left 2x6 Wall	1st Floor	R-21 w/1 Foam Wall + R-4	0	Left	208	38	90
Back 2x6 Wall	1st Floor	R-21 w/1 Foam Wall + R-4	90	Back	360	89.6667	90
Right 2x6 Wall	1st Floor	R-21 w/1 Foam Wall + R-4	180	Right	16	0	90
Garage Wall	1st Floor>>Garage	R-21 Wall - Interior	n/a	n/a	208	0	n/a
Roof	1st Floor	R-38 Attic Roof	n/a	n/a	1120	n/a	n/a
FAU Platform	1st Floor	R-19 Attic Roof	n/a	n/a	50	n/a	n/a
Front Wall - Garage	Garage	R-0 Wall	270	Front	192	0	90
Back Wall - Garage	Garage	R-0 Wall	90	Back	192	0	90
Right Wall - Garage	Garage	R-0 Wall	180	Right	208	0	90
Roof - Garage	Garage	R-0 Attic Roof	n/a	n/a	624	n/a	n/a

OPAQUE SURFACES – Cathedral Ceilings									
01	02	03	04	05	06	07	08	09	10
Name	Zone	Type	Orientation	Area (ft ²)	Skylight Area (ft ²)	Roof Rise (x in 12)	Roof Reflectance	Roof Emittance	Cool Roof
Cathedral Ceiling	1st Floor	R-38 Roof Cathedral	Front	51	50.4	4	0.17	0.83	No

ATTIC							
01	02	03	04	05	06	07	08
Name	Construction	Type	Roof Rise	Roof Reflectance	Roof Emittance	Radiant Barrier	Cool Roof
Attic House	Attic Roof House	Ventilated	4	0.17	0.83	Yes	No
Attic Garage	Attic Roof Garage	Ventilated	4	0.17	0.83	No	No

Registration Number:

CA Building Energy Efficiency Standards - 2016 Residential Compliance

Registration Date/Time:

Report Version - CF1R-06282018-1149

HERS Provider:

Report Generated at: 2018-07-31 16:25:23

CERTIFICATE OF COMPLIANCE - RESIDENTIAL PERFORMANCE COMPLIANCE METHOD
CF1R-PRF-01
Project Name: Renner Residence

Calculation Date/Time: 16:24, Tue, Jul 31, 2018

Page 4 of 9
Calculation Description: Title 24 Analysis

Input File Name: KH1170RR22.ribd16x

FENESTRATION / GLAZING									
01	02	03	04	05	06	07	08	09	10
Name	Type	Surface (Orientation-Azimuth)	Width (ft)	Height (ft)	Multiplier	Area (ft ²)	U-factor	SHGC	Exterior Shading
1-3050 Oper	Window	Left 2x6 Wall (Left-0)	3.0	5.0	1	15.0	0.30	0.30	Insect Screen (default)
1-3050 Oper 2	Window	Left 2x6 Wall (Left-0)	3.0	5.0	1	15.0	0.30	0.30	Insect Screen (default)
1-2040 Oper	Window	Left 2x6 Wall (Left-0)	2.0	4.0	1	8.0	0.30	0.30	Insect Screen (default)
1-5040 Oper	Window	Back 2x6 Wall (Back-90)	5.0	4.0	1	20.0	0.30	0.30	Insect Screen (default)
1-3010 Oper	Window	Back 2x6 Wall (Back-90)	3.0	1.0	1	3.0	0.30	0.30	Insect Screen (default)
1-10068 SGD	Window	Back 2x6 Wall (Back-90)	10.0	6.7	1	66.7	0.30	0.30	Insect Screen (default)
Skylight 1	Skylight	Cathedral Ceiling (Front-270)			1	2.4	0.30	0.30	
Skylight 2	Skylight	Cathedral Ceiling (Front-270)			1	48.0	0.30	0.30	

OVERHANGS AND FINS													
01	02	03	04	05	06	07	08	09	10	11	12	13	14
Window	Overhang					Left Fin				Right Fin			
	Depth	Dist Up	Left Extent	Right Extent	Flap Ht.	Depth	Top Up	Dist L	Bot Up	Depth	Top Up	Dist R	Bot Up
1-3050 Oper	2.15	0.5	0	0	0	0	0	0	0	0	0	0	0
1-3050 Oper 2	2.15	0.5	0	0	0	0	0	0	0	0	0	0	0
1-2040 Oper	2.15	0.5	0	0	0	0	0	0	0	0	0	0	0
1-5040 Oper	6	0.5	0	0	0	0	0	0	0	0	0	0	0
1-3010 Oper	6	0.5	0	0	0	0	0	0	0	0	0	0	0
1-10068 SGD	6	0.5	0	0	0	0	0	0	0	0	0	0	0

Registration Number:

CA Building Energy Efficiency Standards - 2016 Residential Compliance

Registration Date/Time:

Report Version - CF1R-06282018-1149

HERS Provider:

Report Generated at: 2018-07-31 16:25:23

CERTIFICATE OF COMPLIANCE - RESIDENTIAL PERFORMANCE COMPLIANCE METHOD
CF1R-PRF-01
Project Name: Renner Residence

Calculation Date/Time: 16:24, Tue, Jul 31, 2018

Page 5 of 9
Calculation Description: Title 24 Analysis

Input File Name: KH1170RR22.ribd16x

OPAQUE SURFACE CONSTRUCTIONS						
01	02	03	04	05	06	07
Construction Name	Surface Type	Construction Type	Framing	Total Cavity R-value	Winter Design U-factor	Assembly Layers
Attic Roof Garage	Attic Roofs	Wood Framed Ceiling	2x4 Top Chord of Roof Truss @ 24 in. O.C.	none	0.644	<ul style="list-style-type: none"> Cavity / Frame: no insul. / 2x4 Top Chrd Roof Deck: Wood Siding/sheathing/decking Roofing: Light Roof (Asphalt Shingle)
Attic Roof House	Attic Roofs	Wood Framed Ceiling	2x4 Top Chord of Roof Truss @ 24 in. O.C.	R 18	0.055	<ul style="list-style-type: none"> Under Roof Joists: R-5.0 insul. Cavity / Frame: R-13.0 / 2x4 Top Chrd Roof Deck: Wood Siding/sheathing/decking Roofing: Light Roof (Asphalt Shingle)
R-0 Attic Roof	Ceilings (below attic)	Wood Framed Ceiling	2x4 @ 24 in. O.C.	none	0.481	<ul style="list-style-type: none"> Inside Finish: Gypsum Board Cavity / Frame: no insul. / 2x4
R-38 Attic Roof	Ceilings (below attic)	Wood Framed Ceiling	2x4 @ 24 in. O.C.	R 38	0.025	<ul style="list-style-type: none"> Inside Finish: Gypsum Board Cavity / Frame: R-9.1 / 2x4 Over Ceiling Joists: R-28.9 insul.
R-38 Roof Cathedral	Cathedral Ceilings	Wood Framed Ceiling	2x12 @ 16 in. O.C.	R 38	0.030	<ul style="list-style-type: none"> Inside Finish: Gypsum Board Cavity / Frame: R-38 / 2x12 Roof Deck: Wood Siding/sheathing/decking Roofing: Light Roof (Asphalt Shingle)
R-0 Wall	Exterior Walls	Wood Framed Wall	2x4 @ 16 in. O.C.	none	0.302	<ul style="list-style-type: none"> Inside Finish: Gypsum Board Cavity / Frame: no insul. / 2x4 Exterior Finish: Wood Siding/sheathing/decking
R-21 w/1 Foam Wall + R-4	Exterior Walls	Wood Framed Wall	2x6 @ 16 in. O.C.	R 21	0.051	<ul style="list-style-type: none"> Inside Finish: Gypsum Board Sheathing / Insulation: R4 Sheathing Cavity / Frame: R-21 / 2x6 Exterior Finish: Synthetic Stucco
R-21 Wall - Interior	Interior Walls	Wood Framed Wall	2x6 @ 16 in. O.C.	R 21	0.064	<ul style="list-style-type: none"> Inside Finish: Gypsum Board Cavity / Frame: R-21 / 2x6 Other Side Finish: Gypsum Board
R-19 Attic Roof	Ceilings (below attic)	Wood Framed Ceiling	2x4 @ 24 in. O.C.	R 19	0.049	<ul style="list-style-type: none"> Inside Finish: Gypsum Board Cavity / Frame: R-9.1 / 2x4 Over Ceiling Joists: R-9.9 insul.

SLAB FLOORS						
01	02	03	04	05	06	07
Name	Zone	Area (ft ²)	Perimeter (ft)	Edge Insul. R-value & Depth	Carpeted Fraction	Heated
Slab-on-Grade	1st Floor	1170	118	None	0.8	No
Slab-on-Grade - Garage	Garage	624	74	None	0	No

Registration Number:

CA Building Energy Efficiency Standards - 2016 Residential Compliance

Registration Date/Time:

Report Version - CF1R-06282018-1149

HERS Provider:

Report Generated at: 2018-07-31 16:25:23

CERTIFICATE OF COMPLIANCE - RESIDENTIAL PERFORMANCE COMPLIANCE METHOD
CF1R-PRF-01
Project Name: Renner Residence

Calculation Date/Time: 16:24, Tue, Jul 31, 2018

Page 6 of 9
Calculation Description: Title 24 Analysis

Input File Name: KH1170RR22.ribd16x

BUILDING ENVELOPE - HERS VERIFICATION			
01	02	03	04
Quality Insulation Installation (QII)	Quality Installation of Spray Foam Insulation	Building Envelope Air Leakage	CFM50
Not Required	Not Required	Not Required	n/a

WATER HEATING SYSTEMS					
01	02	03	04	05	06
Name	System Type	Distribution Type	Water Heater	Number of Heaters	Solar Fraction (%)
DHW Sys 1	DHW	Standard	DHW Heater 1 (1)	1	.0%

WATER HEATERS											
01	02	03	04	05	06	07	08	09	10	11	12
Name	Heater Element Type	Tank Type	Number of Units	Tank Volume (gal)	Uniform Energy Factor / Energy Factor / Efficiency	Input Rating / Pilot / Thermal Efficiency	Tank Insulation R-value (Int/Ext)	Standby Loss / Recovery Eff	First Hour Rating / Flow Rate	NEEA Heat Pump Brand / Model / Other	Tank Location or Ambient Condition
DHW Heater 1	Gas	Consumer Instantaneous (UEF)	1	0	0.9 UEF	<= 200 kBtu/hr	R-0/R-0	n/a	3.3 GPM	n/a	n/a

SPACE CONDITIONING SYSTEMS					
01	02	03	04	05	06
SC Sys Name	System Type	Heating Unit Name	Cooling Unit Name	Fan Name	Distribution Name
HVAC1	Other Heating and Cooling System	Heating Component 1	Cooling Component 1	HVAC Fan 1	Air Distribution System 1

HVAC - HEATING UNIT TYPES			
01	02	03	04
Name	System Type	Number of Units	Efficiency
Heating Component 1	CntrlFurnace	1	92 AFUE

HVAC - COOLING UNIT TYPES							
01	02	03	04	05	06	07	08
Name	System Type	Number of Units	Efficiency EER SEER		Zonally Controlled	Compressor Type	HERS Verification
Cooling Component 1	SplitAirCond	1	13.5	16	Not Zonal	Single Speed	Cooling Component 1-hers-cool

Registration Number:

CA Building Energy Efficiency Standards - 2016 Residential Compliance

Registration Date/Time:

Report Version - CF1R-06282018-1149

HERS Provider:

Report Generated at: 2018-07-31 16:25:23

CERTIFICATE OF COMPLIANCE - RESIDENTIAL PERFORMANCE COMPLIANCE METHOD
CF1R-PRF-01
Project Name: Renner Residence

Calculation Date/Time: 16:24, Tue, Jul 31, 2018

Page 7 of 9
Calculation Description: Title 24 Analysis

Input File Name: KH1170RR22.ribd16x

HVAC COOLING - HERS VERIFICATION					
01	02	03	04	05	06
Name	Verified Airflow	Airflow Target	Verified EER	Verified SEER	Verified Refrigerant Charge
Cooling Component 1-hers-cool	Required	350	Required	Required	Required

HVAC - DISTRIBUTION SYSTEMS						
01	02	03	04	05	06	07
Name	Type	Duct Leakage	Insulation R-value	Duct Location	Bypass Duct	HERS Verification
Air Distribution System 1	DuctsAttic	Specified Lower Leakage Target	8	Attic	None	Air Distribution System 1-hers-dist

HVAC DISTRIBUTION - HERS VERIFICATION							
01	02	03	04	05	06	07	08
Name	Duct Leakage Verification	Duct Leakage Target (%)	Verified Duct Location	Verified Duct Design	Buried Ducts	Deeply Buried Ducts	Low-leakage Air Handler
Air Distribution System 1-hers-dist	Required	5.0	Not Required	Not Required	Not Required	Not Required	Required

HVAC - FAN SYSTEMS			
01	02	03	04
Name	Type	Fan Power (Watts/CFM)	HERS Verification
HVAC Fan 1	Single Speed PSC Furnace Fan	0.58	HVAC Fan 1-hers-fan

HVAC FAN SYSTEMS - HERS VERIFICATION		
01	02	03
Name	Verified Fan Watt Draw	Required Fan Efficiency (Watts/CFM)
HVAC Fan 1-hers-fan	Required	0.58

IAQ (Indoor Air Quality) FANS					
01	02	03	04	05	06
Dwelling Unit	IAQ CFM	IAQ Watts/CFM	IAQ Fan Type	IAQ Recovery Effectiveness(%)	HERS Verification
SFam IAQVentRpt	34	0.25	Default	0	Required

Registration Number:

CA Building Energy Efficiency Standards - 2016 Residential Compliance

Registration Date/Time:

Report Version - CF1R-06282018-1149

HERS Provider:

Report Generated at: 2018-07-31 16:25:23

CERTIFICATE OF COMPLIANCE - RESIDENTIAL PERFORMANCE COMPLIANCE METHOD**CF1R-PRF-01****Project Name:** Renner Residence**Calculation Date/Time:** 16:24, Tue, Jul 31, 2018**Page 8 of 9****Calculation Description:** Title 24 Analysis**Input File Name:** KH1170RR22.ribd16x

COOLING VENTILATION					
01	02	03	04	05	06
Name	Airflow Rate (CFM/ft2)	Cooling Vent CFM	Cooling Vent Watts/CFM	Total Watts	Number of Fans
Cool Vent Fan 1	4.717948717948718	3260	0.17	554	1
Cool Vent Fan 3	4.717948717948718	2260	0.14	316	1

This Certificate of Compliance is not registered

Registration Number:

CA Building Energy Efficiency Standards - 2016 Residential Compliance

Registration Date/Time:

Report Version - CF1R-06282018-1149

HERS Provider:

Report Generated at: 2018-07-31 16:25:23

CERTIFICATE OF COMPLIANCE - RESIDENTIAL PERFORMANCE COMPLIANCE METHOD**CF1R-PRF-01****Project Name:** Renner Residence**Calculation Date/Time:** 16:24, Tue, Jul 31, 2018**Page 9 of 9****Calculation Description:** Title 24 Analysis**Input File Name:** KH1170RR22.ribd16x

DOCUMENTATION AUTHOR'S DECLARATION STATEMENT	
1. I certify that this Certificate of Compliance documentation is accurate and complete.	
Documentation Author Name:	Documentation Author Signature:
Company:	Signature Date:
Address:	CEA/HERS Certification Identification (If applicable):
City/State/Zip:	Phone:
RESPONSIBLE PERSON'S DECLARATION STATEMENT	
I certify the following under penalty of perjury, under the laws of the State of California: <ol style="list-style-type: none">1. I am eligible under Division 3 of the Business and Professions Code to accept responsibility for the building design identified on this Certificate of Compliance.2. 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.3. 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:
Company:	Date Signed:
Address:	License:
City/State/Zip:	Phone:

Registration Number:

CA Building Energy Efficiency Standards - 2016 Residential Compliance

Registration Date/Time:

Report Version - CF1R-06282018-1149

HERS Provider:

Report Generated at: 2018-07-31 16:25:23