

CERTIFICATE OF COMPLIANCE - RESIDENTIAL PERFORMANCE COMPLIANCE METHOD
CF1R-PRF-01
Project Name: 2019 Prototype EAA 1665ft2 R38 Verified Wall R11

Calculation Date/Time: 09:59, Fri, Apr 12, 2019

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Calculation Description: TDSv30 V13R01 EAA 1665ft2 R38 Verified Wall R11

Input File Name: EAA Test File.ribd19

GENERAL INFORMATION					
01	Project Name	2019 Prototype EAA 1665ft2 R38 Verified Wall R11			
02	Calculation Description	Post WWII Era			
03	Project Location	1516 Ninth Street			
04	City	Sacramento	05	Standards Version	Compliance 2020
06	Zip Code	95814	07	Compliance Manager Version	BEMCmpMgr 2019.0.11 Alpha (1301)
08	Climate Zone	CZ12	09	Software Version	CBCECC-Res 2019.0.11 Alpha (1068)
10	Building Type	Single Family	11	Front Orientation (deg/Cardinal)	0
12	Project Scope	Addition and/or Alteration	13	Number of Dwelling Units	1
14	Total Cond. Floor Area (ft ²)	1665	15	Number of Zones	2
16	Slab Area (ft ²)	1665	17	Number of Stories	1
18	Addition Cond. Floor Area (ft ²)	225	19	Natural Gas Available	Yes
20	Addition Slab Area (ft ²)	225	21	Glazing Percentage (%)	13.1%

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	48.15	44.20	3.95	8.2%
Space Cooling	131.01	115.55	15.46	11.8%
IAQ Ventilation	0.00	0.00	0.00	0.0%
Water Heating	19.49	19.49	0.00	0.0%
Photovoltaic Offset	----	0.00	0.00	----
Compliance Energy Total	198.65	179.24	19.41	9.8%

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

- Verified Existing Conditions

Cooling System Verifications:

- Minimum Airflow
- Verified Refrigerant Charge
- Refrigerant Charge verification required if a refrigerant containing component is altered
- Fan Efficacy Watts/CFM

HVAC Distribution System Verifications:

- Duct Sealing
- Duct Sealing required if a duct system component, plenum, or air handling unit is altered

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
2019 Prototype EAA 1665ft2 R38 Verified Wall R11	1665	1	3	2	0	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
Existing	Conditioned	Existing HVAC System	1440	8	Existing DHW System	n/a
Addition	Conditioned	New HVAC System	225	8	Existing DHW System	n/a

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OPAQUE SURFACES										
01	02	03	04	05	06	07	08	09	10	11
Name	Zone	Construction	Azimuth	Orientation	Gross Area (ft ²)	Window & Door Area (ft ²)	Tilt (deg)	Wall Exception	Status	Verified Existing Condition
Existing Wall Front	Existing	Wall R11	0	Front	320	76	90	n/a	Altered	n/a
Existing Wall Left	Existing	Wall R11	90	Left	288	48	90	n/a	Altered	n/a
Existing Wall Back	Existing	Wall R11	180	Back	200	56	90	n/a	Altered	n/a
Existing Wall Right	Existing	Wall R11	270	Right	288	30	90	n/a	Altered	n/a
Wall Between Existing and Addition	Existing>>Addition	Interior Wall R0			120	0		n/a	New	n/a
Existing Ceiling	Existing	Ceiling R38			1440			n/a	Altered	Yes
Addition Wall Left	Addition	Wall R13	90	Left	120	16	90	n/a	New	n/a
Addition Wall Back	Addition	Wall R13	180	Back	120	16	90	n/a	New	n/a
Addition Wall Right	Addition	Wall R13	270	Right	120	16	90	n/a	New	n/a
Addition Ceiling	Addition	Ceiling R38			225			n/a	New	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
Existing Attic	Existing Shingle Roof	Ventilated	5	0.1	0.85	No	No	Existing	No
Addition Attic	Addition Shingle Roof	Ventilated	5	0.1	0.85	No	No	New	No

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FENESTRATION / GLAZING										
01	02	03	04	05	06	07	08	09	10	11
Name	Surface (Orientation-Azimuth)	Width (ft)	Height (ft)	Multiplier	Area (ft ²)	U-factor	SHGC	Exterior Shading	Status	Verified Existing Condition
Existing Window Front 1	Existing Wall Front (Front-0)	----	----	1	24.0	1.28	0.80	Insect Screen (default)	Existing	No
Existing Window Front 2	Existing Wall Front (Front-0)	----	----	1	32.0	1.28	0.80	Insect Screen (default)	Existing	No
Existing Window Left 1	Existing Wall Left (Left-90)	----	----	1	24.0	1.28	0.80	Insect Screen (default)	Existing	No
Existing Window Left 2	Existing Wall Left (Left-90)	----	----	1	24.0	1.28	0.80	Insect Screen (default)	Existing	No
Existing Window Back 1	Existing Wall Back (Back-180)	----	----	1	30.0	1.28	0.80	Insect Screen (default)	Existing	No
Existing Window Back 2	Existing Wall Back (Back-180)	----	----	1	6.0	1.28	0.80	Insect Screen (default)	Existing	No
Existing Window Right 1	Existing Wall Right (Right-270)	----	----	1	6.0	1.28	0.80	Insect Screen (default)	Existing	No
Existing Window Right 2	Existing Wall Right (Right-270)	----	----	1	24.0	1.28	0.80	Insect Screen (default)	Existing	No
Addition Window Left 1	Addition Wall Left (Left-90)	----	----	1	16.0	0.32	0.25	Insect Screen (default)	New	n/a
Addition Window Back 1	Addition Wall Back (Back-180)	----	----	1	16.0	0.32	0.25	Insect Screen (default)	New	n/a
Addition Window Right 1	Addition Wall Right (Right-270)	----	----	1	16.0	0.32	0.25	Insect Screen (default)	New	n/a

OPAQUE DOORS					
01	02	03	04	05	06
Name	Side of Building	Area (ft ²)	U-factor	Status	Verified Existing Condition
Existing Door Front	Existing Wall Front	20.0	0.50	Existing	No
Existing Door Back	Existing Wall Back	20.0	0.50	Existing	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-factor	Assembly Layers
Existing Shingle Roof	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)
Addition Shingle Roof	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)
Wall R0	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
Ceiling R11	Ceilings (below attic)	Wood Framed Ceiling	2x4 Bottom Chord of Truss @ 24 in. O.C.	R 11	0.081	<ul style="list-style-type: none"> Inside Finish: Gypsum Board Cavity / Frame: R-9.1 / 2x4 Btm Chrd Over Ceiling Joists: R-1.9 insul.
Wall R13	Exterior Walls	Wood Framed Wall	2x4 @ 16 in. O.C.	R 13	0.095	<ul style="list-style-type: none"> Inside Finish: Gypsum Board Cavity / Frame: R-13 / 2x4 Exterior Finish: Wood Siding/sheathing/decking
Wall R11	Exterior Walls	Wood Framed Wall	2x4 @ 16 in. O.C.	R 11	0.103	<ul style="list-style-type: none"> Inside Finish: Gypsum Board Cavity / Frame: R-11 / 2x4 Exterior Finish: Wood Siding/sheathing/decking
Ceiling R38	Ceilings (below attic)	Wood Framed Ceiling	2x4 Bottom Chord of Truss @ 24 in. O.C.	R 38	0.025	<ul style="list-style-type: none"> Inside Finish: Gypsum Board Cavity / Frame: R-9.1 / 2x4 Btm Chrd Over Ceiling Joists: R-28.9 insul.
Interior Wall R0	Interior Walls	Wood Framed Wall	2x4 @ 16 in. O.C.	none	0.277	<ul style="list-style-type: none"> Inside Finish: Gypsum Board Cavity / Frame: no insul. / 2x4 Other Side Finish: Gypsum Board

SLAB FLOORS								
01	02	03	04	05	06	07	08	09
Name	Zone	Area (ft ²)	Perimeter (ft)	Edge Insul. R-value	Carpeted Fraction	Heated	Status	Verified Existing Condition
Existing Slab	Existing	1440	137	None	0.8	No	Existing	No
Addition Slab	Addition	225	45	None	0.8	No	New	No

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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	07	08
Name	System Type	Distribution Type	Water Heater	Number of Heaters	Solar Fraction (%)	Status	Verified Existing Condition
Existing DHW System	DHW	Standard	Existing Water Heater	1	n/a	Existing	No

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	Tank Location or Ambient Condition
Existing Water Heater	Gas	Small Storage	1	50	0.6 EF	<= 75 kBtu/hr	0	n/a	n/a	n/a	n/a

SPACE CONDITIONING SYSTEMS							
01	02	03	04	05	06	07	08
SC Sys Name	System Type	Heating Unit Name	Cooling Unit Name	Fan Name	Distribution Name	Status	Verified Existing Condition
Existing HVAC System	Other Heating and Cooling System	Existing Furnace	Existing AC	Existing HVAC Fan	Existing Ducts	Existing	No
New HVAC System	Other Heating and Cooling System	New Furnace	New AC	New HVAC Fan	New Ducts	New	No

HVAC - HEATING UNIT TYPES			
01	02	03	04
Name	System Type	Number of Units	Efficiency
New Furnace	CntrlFurnace	1	80 AFUE

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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
New AC	SplitAirCond	1	11.3	14	Not Zonal	Single Speed	New AC-hers-cool

HVAC COOLING - HERS VERIFICATION					
01	02	03	04	05	06
Name	Verified Airflow	Airflow Target	Verified EER	Verified SEER	Verified Refrigerant Charge
New AC-hers-cool	Required	350	Not Required	Not Required	Required

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
Existing Ducts	Ducts located in attic (Ventilated and Unventilated)	Existing (not specified)	2.1	Attic	Attic	None	Existing	No	n/a
New Ducts	Ducts located in attic (Ventilated and Unventilated)	Sealed and tested	8.0	Attic	Attic	None	New	No	New Ducts-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
New Ducts-hers-dist	Required	5.0	Not Required	Not Required	Not Required	Not Required	n/a

HVAC - FAN SYSTEMS & HERS VERIFICATION			
01	02	03	04
Name	Type	Fan Power (Watts/CFM)	HERS Verification
New HVAC Fan	Single Speed PSC Furnace Fan	0.45	Required

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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	0	0.25	Default	0	Not Required

HERS RATER VERIFICATION OF EXISTING CONDITIONS

OPAQUE SURFACES - VERIFIED & ALTERED				
01	02	03	04	05
Name	Zone	Existing Construction	Surface Type	Total Cavity R-value
Existing Ceiling	Existing	Ceiling R11	Wood Framed Ceiling	R 11

Not useable for compliance

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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:

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:

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