CERTIFICATE OF COMPLIANCE

Project Name: 2019 Prototype EAA 1665ft2 R38 Verified Wall R11

Calculation Date/Time:

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**Calculation Description:** 

Input File Name:

GENERA	GENERAL INFORMATION												
01	Project Name	2019 Prototype EAA 1665ft2 R38 Verified Wa	II R11										
02	Run Title	Post WWII Era											
03	Project Location	1516 Ninth Street											
04	City	Sacramento	05	Standards Version	2019								
06	Zip code	95814	07	Software Version	CBECC-Res 2019.0.11 Alpha (1068)								
08	Climate Zone	12	09	Front Orientation (deg/ Cardinal)	0								
10	Building Type	Single family	11	Number of Dwelling Units	1								
12	Project Scope	Addition and/or Alteration	13	Number of Bedrooms	3								
14	New Cond. Floor Area (ft <sup>2</sup> )	225	15	Number of Stories	1								
16	Fenestration Average U-factor	0.32	17	Total Cond. Floor Area (ft <sup>2</sup> )	1665								
18	Glazing Percentage (%)	0.1309	19										

COMPLIANCE RE	SULTS
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.

## REQUIRED SPECIAL FEATURES

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

BUILDING - FEATURES INFORMA	ATION						
01	02		03	04	05	06	07
Project Name	Project Name Conditioned Floor A		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	0	1	3	2	0	1

Registration Number: Registration Date/Time: HERS Provider: CBECC-Res 2019

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**Calculation Description:** 

ZONE INFORMATION						
01	02	03	04	05	06	07
Zone NameZone Name	Zone TypeZone Type	HVAC System Name	Zone Floor Area (ft <sup>2</sup> )	Avg. Ceiling Height	Water Heating System 1	Water Heating System 2
Existing	Conditioned	Existing HVAC System	1440	8	Existing DHW System	This field or section is not applicable
Addition	Conditioned	New HVAC System	225	8	Existing DHW System	This field or section is not applicable

OPAQUE SURFACES									
01	02	03	04	05	06	07	08	09	10
Name	Zone	Construction	AzimuthAzim uth	OrientationOr ientation	Gross Area (ft <sup>2</sup> )	Window and Door Area (ft <sup>2</sup> )Window and Door Area (ft <sup>2</sup> )	Tilt (deg)Tilt (deg)	Status	Verified Existing Condition
Existing Wall Front	Existing	Wall R11	0	Front	320	76	90	Altered	No
Existing Wall Left	Existing	Wall R11	90	Left	288	48	90	Altered	No
Existing Wall Back	Existing	Wall R11	180	Back	200	56	90	Altered	No
Existing Wall Right	Existing	Wall R11	270	Right	288	30	90	Altered	No
Addition Wall Left	Addition	Wall R13	90	Left	120	16	90	New	N/A
Addition Wall Back	Addition	Wall R13	180	Back	120	16	90	New	N/A
Addition Wall Right	Addition	Wall R13	270	Right	120	16	90	New	N/A
Existing Ceiling	Existing	Ceiling R38	This field or section is not applicable	This field or section is not applicable	1440	This field or section is not applicable	This field or section is not applicable	Altered	Yes
Addition Ceiling	Addition	Ceiling R38	This field or section is not applicable	This field or section is not applicable	225	This field or section is not applicable	This field or section is not applicable	New	N/A

Registration Number: Registration Date/Time: HERS Provider: CBECC-Res 2019

Calculation Description: Input File Na

Project Name: 2019 Prototype EAA 1665ft2 R38 Verified Wall R11

Calculation Date/Time:
Input File Name:

ATTIC	гтіс														
01	02	03	04	05	06	07	08	09	10						
Name	Construction	Туре	Roof Rise (x in 12)	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	ExistingUnchange d	No						
Addition Attic	Addition Shingle Roof	Ventilated	5	0.1	0.85	No	No	New	N/A						

FENESTRAT	NESTRATION / GLAZING														
01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16
Name	Туре	Surface (Orientation- Azimuth)	Surface (Orienta tion- Azimuth )	Surface (Orienta tion- Azimuth )	Width (ft)	Heigth (ft)	Multiplier	Area (ft <sup>2</sup> )	U-factor	U-factor Source	SHGC	SHGC Source	Exterior Shading	Status	Verified Existing Condition
Existing Window Front 1	Window	Existing Wall Front	Front	0			1	24	1.28	NFRC	0.8	NFRC	Insect Screen (default)	ExistingUn changed	No
Existing Window Front 2	Window	Existing Wall Front	Front	0		\ 	1	32	1.28	NFRC	0.8	NFRC	Insect Screen (default)	ExistingUn changed	No
Existing Window Left 1	Window	Existing Wall Left	Left	90	4	0,	1	24	1.28	NFRC	0.8	NFRC	Insect Screen (default)	ExistingUn changed	No
Existing Window Left 2	Window	Existing Wall Left	Left	90	19		1	24	1.28	NFRC	0.8	NFRC	Insect Screen (default)	ExistingUn changed	No
Existing Window Back 1	Window	Existing Wall Back	Back	180	5		1	30	1.28	NFRC	0.8	NFRC	Insect Screen (default)	ExistingUn changed	No
Existing Window Back 2	Window	Existing Wall Back	Back	180			1	6	1.28	NFRC	0.8	NFRC	Insect Screen (default)	ExistingUn changed	No

Registration Number:

Registration Date/Time:

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**Calculation Description:** 

Input File Name:

Carcaration	input the Name.														
FENESTRAT	ION / GLAZI	NG												]	
01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16
Name	Туре	Surface (Orientation- Azimuth)	Surface (Orienta tion- Azimuth	I		Heigth (ft)	Multiplier	Area (ft <sup>2</sup> )	U-factor	U-factor Source	SHGC	SHGC Source	Exterior Shading	Status	Verified Existing Condition
Existing Window Right 1	Window	Existing Wall Right	Right	270			1	6	1.28	NFRC	0.8	NFRC	Insect Screen (default)	ExistingUn changed	No
Existing Window Right 2	Window	Existing Wall Right	Right	270			1	24	1.28	NFRC	0.8	NFRC	Insect Screen (default)	ExistingUn changed	No
Addition Window Left 1	Window	Addition Wall Left	Left	90			1	16	0.32	NFRC	0.25	NFRC	Insect Screen (default)	New	N/A
Addition Window Back 1	Window	Addition Wall Back	Back	180			1	16	0.32	NFRC	0.25	NFRC	Insect Screen (default)	New	N/A
Addition Window Right 1	Window	Addition Wall Right	Right	270		S	1	16	0.32	NFRC	0.25	NFRC	Insect Screen (default)	New	N/A

OPAQUE DOORS					
01	02	03	04	05	06
Name	Side of Building	Area (ft <sup>2</sup> )	U-factor	Status	Verified Existing Condition
Existing Door Front		20	0.5	ExistingUnchanged	No
Existing Door Back		20	0.5	ExistingUnchanged	No

Registration Number: Registration Date/Time: HERS Provider: CBECC-Res 2019

CA Building Energy Efficiency Standards - 2019 Residential Compliance Report Version: 2019.1.000 Schema Version: rev 20190401

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**Calculation Description:** 

Input File Name:

OPAQUE SURFA											
01	02	03	04	05	06	07	08	09	10	11	12
Construction Name	Surface Type	Is construction above grade?	Constructio n Type	Constructio n NameSurfa ce Typels constructio n above grade?Cons truction TypeTotal Cavity R- valueTotal Cavity R-valueTotal Cavity R-valueTotal Cavity R-value decimalInt erior/ Exterior Continuous R- valueInteri or/ Exterior Continuous R- valueU- factorAsse mbly LayersUser Defined Fields	Total Cavity R-value	Total Cavity R-value	Total Cavity R-value decimal	Interior/ Exterior Continuous R-value	Interior/ Exterior Continuous R-value	<b>U-factor</b>	Assembly Layers
Wall RO	Exterior Walls	Above Grade	Wood Framed Wall		Other	none	0			0.302	Inside Finish: Gypsum BoardCavity / Frame: no insul. / 2x4Exterior Finish: Wood

Registration Number:

Registration Date/Time:

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Project Name: 2019 Prototype EAA 1665ft2 R38 Verified Wall R11 **Calculation Date/Time:** 

**Input File Name:** 

**Calculation Description: OPAQUE SURFACE CONSTRUCTIONS** 01 02 03 04 05 06 07 08 09 10 11 12 Constructio NameSurfa ce Typels constructio n above grade?Cons truction **TypeTotal** Cavity RvalueTotal Cavity R-Interior/ Interior/ valueTotal **Total Cavity Total Cavity** Total Cavity Construction Is construction Constructio Exterior Exterior Assembly **Surface Type** Cavity R-value **U-factor** R-value Name above grade? n Type R-value Continuous Continuous Layers R-value decimal R-value R-value decimalInt erior/ Exterior **Continuous** RvalueInteri or/Exterior **Continuous** R-valueUfactorAsse mbly LayersUser Defined **Fields** Siding/sheathi

Registration Number: Registration Date/Time: HERS Provider: CBECC-Res 2019

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ng/decking

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**Calculation Date/Time:** 

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**Calculation Description:** 

Input File Name:

	CE CONSTRUCTION				0.5	T		T	1 40		
Construction Name	O2  Surface Type	Is construction above grade?	Construction Type	O5 Construction NameSurfa ce Typels construction n above grade?Cons truction TypeTotal Cavity R- valueTotal Cavity R-valueTotal Cavity Laterior Continuous R-valueU- factorAsse mbly LayersUser Defined Fields	Total Cavity R-value	Total Cavity R-value	Total Cavity R-value decimal	Interior/ Exterior Continuous R-value	Interior/ Exterior Continuous R-value	U-factor	Assembly Layers
Wall R13	Exterior Walls	Above Grade	Wood Framed Wall		R 13	R 13	13			0.095	Inside Finish Gypsum BoardCavity Frame: R-13 2x4Exterior Finish: Wood Siding/sheati ng/decking

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**Calculation Description:** 

**Calculation Date/Time:** 

Input File Name:

**OPAQUE SURFACE CONSTRUCTIONS** 01 02 03 04 05 06 07 08 09 10 11 12 Constructio NameSurfa ce Typels constructio n above grade?Cons truction **TypeTotal** Cavity RvalueTotal Cavity R-Interior/ Interior/ valueTotal **Total Cavity Total Cavity** Total Cavity Construction Is construction Constructio Exterior Exterior Assembly **Surface Type** Cavity R-value **U-factor** R-value Name above grade? R-value Continuous Continuous n Type Layers R-value decimal R-value R-value decimalInt erior/ Exterior **Continuous** RvalueInteri or/Exterior **Continuous** R-valueUfactorAsse mbly LayersUser Defined **Fields** Inside Finish: Gypsum BoardCavity / Wood Frame: R-11 / Above Grade Wall R11 **Exterior Walls** Framed R 11 R 11 11 0.103 2x4Exterior Wall Finish: Wood Siding/sheathi ng/decking

Registration Number: Registration Date/Time: HERS Provider: CBECC-Res 2019

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Calculation Date/Time:

Calculation Description: Input File Name:

OPAQUE SURFA	PAQUE SURFACE CONSTRUCTIONS  01												
01	02	03	04	05	06	07	08	09	10	11	12		
Construction Name	Surface Type	Is construction above grade?	Constructio n Type	Constructio n NameSurfa ce Typels constructio n above grade?Cons truction TypeTotal Cavity R- valueTotal Cavity R-value decimalInt erior/ Exterior Continuous R- valueInteri or/ Exterior Continuous R-valueU- factorAsse mbly LayersUser Defined Fields	Total Cavity R-value	Total Cavity R-value	Total Cavity R-value decimal	Interior/ Exterior Continuous R-value	Interior/ Exterior Continuous R-value	<b>U-factor</b>	Assembly Layers		
Interior Wall RO	Interior Walls	Above Grade	Wood Framed Wall		Other	none	0			0.277	Inside Finish: Gypsum BoardCavity / Frame: no insul. / 2x4Other Side Finish: Gypsum Board		

Registration Number: Registration Date/Time: HERS Provider: CBECC-Res 2019

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Calculation Date/Time:

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**Calculation Description:** 

Input File Name:

calculation De	scription.					input riie iva	iiic.				
OPAQUE SURFA	CE CONSTRUCTION	ONS									
01	02	03	04	05	06	07	08	09	10	11	12
Construction Name	Surface Type	Is construction above grade?	Constructio n Type	Constructio  n NameSurfa ce TypeIs constructio n above grade?Cons truction TypeTotal Cavity R- valueTotal Cavity R-valueTotal Cavity Laterior Continuous R- valueInterior/Exterior Continuous R- valueU- factorAsse mbly LayersUser Defined Fields	Total Cavity R-value	Total Cavity R-value	Total Cavity R-value decimal	Interior/ Exterior Continuous R-value	Interior/ Exterior Continuous R-value	<b>U-factor</b>	Assembly Layers
Existing Shingle Roof	Attic Roofs	Above Grade	Wood Framed Ceiling		Other	none	0			0.644	Cavity / Fram no insul. / 2x Top ChrdRoc Deck: Wood Siding/sheat ng/deckingRo fing: Light Ro

Registration Number:

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Input File Name:

OPAQUE SURFA	CE CONSTRUCTI	ONS									
01	02	03	04	05	06	07	08	09	10	11	12
Construction Name	Surface Type	Is construction above grade?	Constructio n Type	Constructio n NameSurfa ce TypeIs constructio n above grade?Cons truction TypeTotal Cavity R- valueTotal Cavity R- valueTotal Cavity R- valueTotal Cavity R- valueTotal Cavity R-value decimalInt erior/ Exterior Continuous R- valueInteri or/ Exterior Continuous R- valueU- factorAsse mbly LayersUser Defined Fields	Total Cavity R-value	Total Cavity R-value	Total Cavity R-value decimal	Interior/ Exterior Continuous R-value	Interior/ Exterior Continuous R-value	U-factor	Assembly Layers
											(Asphalt Shingle)

Registration Number: Registration Date/Time: HERS Provider: CBECC-Res 2019

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**Calculation Description:** 

Input File Name:

OPAQUE SURFA	CE CONSTRUCTION	ONS									
01	02	03	04	05	06	07	08	09	10	11	12
Construction Name	Surface Type	Is construction above grade?	Constructio n Type	Constructio n NameSurfa ce TypeIs constructio n above grade?Cons truction TypeTotal Cavity R- valueTotal Cavity Laterior Continuous R- valueU- factorAsse mbly LayersUser Defined Fields	Total Cavity R-value	Total Cavity R-value	Total Cavity R-value decimal	Interior/ Exterior Continuous R-value	Interior/ Exterior Continuous R-value	<b>U-factor</b>	Assembl <sup>s</sup> Layers
Addition Shingle Roof	Attic Roofs	Above Grade	Wood Framed Ceiling		Other	none	0			0.644	Cavity / Fra no insul. / : Top ChrdRo Deck: Woo Siding/shea ng/decking fing: Light R

Registration Number: Registration Date/Time:

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**Calculation Description:** 

Input File Name:

						pat i iie ita					
OPAQUE SURFA	CE CONSTRUCTION	ONS									
01	02	03	04	05	06	07	08	09	10	11	12
Construction Name	Surface Type	Is construction above grade?	Constructio n Type	Constructio n NameSurfa ce TypeIs constructio n above grade?Cons truction TypeTotal Cavity R- valueTotal Cavity R-valueTotal Cavity Laterior Continuous R-valueU- factorAsse mbly LayersUser Defined Fields	Total Cavity R-value	Total Cavity R-value	Total Cavity R-value decimal	Interior/ Exterior Continuous R-value	Interior/ Exterior Continuous R-value	<b>U-factor</b>	Assembly Layers
											(Asphalt Shingle)

Registration Number: Registration Date/Time: HERS Provider: CBECC-Res 2019

Project Name: 2019 Prototype EAA 1665ft2 R38 Verified Wall R11 Calculation Date/Time: (Page 14 of 19)

Calculation Description: Input File Name:

	CE CONSTRUCTION	ONS								1	
01	02	03	04	05	06	07	08	09	10	11	12
Construction Name	Surface Type	Is construction above grade?	Constructio n Type	Constructio n NameSurfa ce TypeIs constructio n above grade?Cons truction TypeTotal Cavity R- valueTotal Cavity Laterior Continuous R- valueU- factorAsse mbly LayersUser Defined Fields	Total Cavity R-value	Total Cavity R-value	Total Cavity R-value decimal	Interior/ Exterior Continuous R-value	Interior/ Exterior Continuous R-value	<b>U-factor</b>	Assembly Layers
Ceiling R11	Ceilings (below attic)	Above Grade	Wood Framed Ceiling		R 11	R 11	11			0.081	Inside Finish: Gypsum BoardCavity / Frame: R-9.1 , 2x4 Btm ChrdOver Ceiling Joists: R-1.9 insul.

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Calculation Description: Input File Name:

	CE CONSTRUCTION	ONS								1	
01	02	03	04	05	06	07	08	09	10	11	12
Construction Name	Surface Type	Is construction above grade?	Constructio n Type	Constructio n NameSurfa ce TypeIs constructio n above grade?Cons truction TypeTotal Cavity R- valueTotal Cavity Laterior Continuous R- valueInteri or/ Exterior Continuous R- valueU- factorAsse mbly LayersUser Defined Fields	Total Cavity R-value	Total Cavity R-value	Total Cavity R-value decimal	Interior/ Exterior Continuous R-value	Interior/ Exterior Continuous R-value	<b>U-factor</b>	Assembly Layers
Ceiling R38	Ceilings (below attic)	Above Grade	Wood Framed Ceiling		R 38	R 38	38			0.025	Inside Finish Gypsum BoardCavity, Frame: R-9.1 2x4 Btm ChrdOver Ceiling Joists R-28.9 insul.

Registration Number: Registration Date/Time: HERS Provider: CBECC-Res 2019

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CERTIFICATE OF COMPLIANCE

Project Name: 2019 Prototype EAA 1665ft2 R38 Verified Wall R11

Calculation Date/Time:

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**Calculation Description:** 

Input File Name:

SLAB FLOORS										
Name	Zone	Area (ft <sup>2</sup> )	Perimeter (ft)	Edge Insul. R-value & Depth	Edge Insul. R-value & Depth	Edge Insul. R-value & Depth	Carpeted Fraction	Heated	Status	Verified Existing Condition
Existing Slab	Existing	1440	137	none	0.00	0	0.8	No	ExistingUnchang ed	No
Addition Slab	Addition	225	45	none	0.00	0	0.8	No	New	N/A

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	

Existing DHW SystemStandardMulti-family: No loops or recirc pumpMulti-family: No loops or recirc pumpExisting Water Heater1NotCompactExistingNo

WATER HEATER	S										
Name	Heating Element Type	Tank Type	Number of Units	Tank Volume (gal)	Uniform Energy Factor / Energy Factor / Efficiency	Input Rating/ Pilot	Tank Insulation R-value (Int/Ext)	Standby Loss / Recovery Eff	First Hour Rating / Flow Rate	Simulated Equipment Make and Model	Tank Location or Ambient Condition
Existing Water Heater	Gas	Small Storage	1	50	0.6	75000	0				

Existing DHW System - 1/1

SPACE CONDITIONIN	IG SYSTEMS	40						
Name	System Type	Heating Unit Name	Cooling Unit Name	Fan Name	Distribution Name	Required Thermostat Type	Status	Verified Existing Condition
Existing HVAC System	Heating and cooling system other	Existing Furnace	Existing AC	Existing HVAC Fan	Existing Ducts			
New HVAC System	Heating and cooling system other	New Furnace	New AC	New HVAC Fan	New Ducts			

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**Calculation Description:** 

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

HVAC - COOLING UNIT	IVAC - COOLING UNIT TYPES											
01	02	03	04	05	06	07	08					
Name	System Type	Number of Units	Efficiency EER	Efficiency SEER	Zonally Controlled	Mulit-speed Compressor	HERS VerificationHERS Verification					
New AC	Central split AC	1	11.3	14	Not Zonal	Single Speed	New AC-hers-cool					

HVAC COOLING - HERS VERIFICA	ATION				
01	02	03	04	05	06
Name	Verified Airflow	Airflow Target	Verified EER	Verified SEER	Verified Refrigerant Charge
Existing AC-hers-cool	Not Required	0	Not Required	Not Required	Not Required
New AC-hers-cool	Required	350	Not Required	Not Required	Required

HVAC - DISTRIBUTIO	N SYSTEMS					
01	02	03	04	05	06	07
NameName	ТуреТуре	Duct LeakageDuct Leakage	Insulation R-valueInsulation R-value	Duct LocationSupply Duct Location	Bypass Duct	HERS VerificationHERS Verification
Existing Ducts	DuctsAttic		2.1			
New Ducts	DuctsAttic	46	8			

HVAC DISTRIBUTION - H	IERS 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	Yes	5	Not Required	Not Required	Not Required	Credit not taken	Required

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Project Name: 2019 Prototype EAA 1665ft2 R38 Verified Wall R11

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**Calculation Description:** 

Input File Name:

HVAC - FAN SYSTEMS			
01	02	03	04
Name	Туре	Fan Power (Watts/CFM)	HERS VerificationHERS Verification
New HVAC Fan	PSC Permanent Split Capacitor	0.45	New HVAC Fan-hers-fan

HVAC FAN SYSTEMS - HERS VERIFICATION					
01	02	03			
Name	Verified Fan Watt Draw	Required Fan Efficiency (Watts/CFM)			
Existing HVAC Fan-hers-fan	Not Required	0			
New HVAC Fan-hers-fan	Required	0.45			

IAQ (INDOOR AIR QUALITY) FAI	NS				
01	02	03	04	05	06
Dwelling Unit	IAQ CFM	IAQ Watts/CFM	IAQ Fan Type	IAQ Recovery Effectiveness (%)	HERS Verification

COOLING VENTILATION					
01	02	03	04	05	06
Name	Airflow Rate (CFM/ft <sup>2</sup> )	Cooling Vent CFM	Cooling Vent Watts/CFM	Total Watts	Number of Fans

Registration Number: Registration Date/Time: HERS Provider: CBECC-Res 2019

CERTIFICATE OF COMPLIANCE CF1R-PRF-01E

Project Name: 2019 Prototype EAA 1665ft2 R38 Verified Wall R11 Calculation Date/Time: (Page 19 of 19)

Calculation Description: Input File Name:

Documentation Author Signature:
Signature Date:
CEA/ HERS Certification Identification (If applicable):
Phone:
ne building design identified on this Certificate of Compliance.  Compliance conform to the requirements of Title 24, Part 1 and Part 6 of the California Code of Regulations.  The compliance documents, worksheets, is building permit application.
Responsible Designer Signature:
Date Signed:
License:
Phone:

Registration Number: Registration Date/Time: HERS Provider: CBECC-Res 2019

Report Version: 2019.1.000 Schema Version: rev 20190401 Report Generated: 2019-04-12 09:59:05