Project Name: EAA Example 4 w/ Garage Calculation Date/Time: 07:54, Wed, Apr 10, 2019

Calculation Description: Ex HVAC Altered DHW

Input File Name: Verified-LEAK.ribd19

GENER	AL INFORMATION										
01	Project Name	AA Example 4 w/ Garage									
02	Calculation Description	Addition 225 ft2									
03	Project Location	1420 Ninth St.									
04	City	Burbank, CA	05	Standards Version	Compliance 2020						
06	Zip Code	91504	07	Compliance Manager Version	BEMCmpMgr 2019.0.11 Alpha (1288)						
08	Climate Zone	CZ12	09	Software Version	CBECC-Res 2019.0.11 Alpha (1067)						
10	Building Type	Single Family	11	Front Orientation (deg/Cardinal)	180						
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 (ft²)	0	17	Number of Stories	1						
18	Addition Cond. Floor Area (ft ²)	225	19	Natural Gas Available	Yes						
20	Addition Slab Area (ft ²)	0	21	Glazing Percentage (%)	13.6%						

COMPLIANCE RES	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.
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	58.76	40.41	18.35	31.2%									
Space Cooling	81.73	75.31	6.42	7.9%									
IAQ Ventilation	0.00	0.00	0.00	0.0%									
Water Heating	23.02	18.68	4.34	18.9%									
Photovoltaic Offset		0.00	0.00										
Compliance Energy Total	163.51	134.40	29.11	17.8%									

REQUIRED SPECIAL FEATURES

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

Cool roof

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Project Name: EAA Example 4 w/ Garage Calculation Date/Time: 07:54, Wed, Apr 10, 2019

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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 SEER
- Verified Refrigerant Charge
- Fan Efficacy Watts/CFM

HVAC Distribution System Verifications:

Duct Sealing

Domestic Hot Water System Verifications:

-- None --

BUILDING - FEATURES INFORMA	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							
EAA Example 4 w/ Garage	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
House	Conditioned	New HVAC	1440	8	Alter Storage	n/a
Addition	Conditioned	New HVAC	225	9	Alter Storage	n/a

Project Name: EAA Example 4 w/ Garage Calculation Date/Time: 07:54, Wed, Apr 10, 2019

Wall R0

R0 Ceiling

Calculation Description: Ex HVAC Altered DHW Input File Name: Verified-LEAK.ribd19

OPAQUE SURFACES										
01	02	03	04	05	06	07	08	09	10	11
Name	Zone	Construction	Azimuth	Orientation	Gross Area (ft²)	Window & Door Area (ft ²)	Tilt (deg)	Wall Exception	Status	Verified Existing Condition
Ex Wall Front	House	Wall R0	180	Front	320	76	90	n/a	Existing	No
Ex Wall Left	House	Wall R0	270	Left	288	40	90	n/a	Existing	No
Altered Back	House	R-19 Walls	0	Back	200	59	90	n/a	Altered	Yes
Ex Wall Right	House	Wall R0	90	Right	288	36	90	n/a	Existing	No
Wall to Addition	House>>Addition	Interior R0			120	0		n/a	New	n/a
Interior Wall 2	House>>Garage	Interior R0			50	20		n/a	Existing	No
Ceiling (below attic)	House	R-38 Ceiling	4.75		1440			n/a	Altered	Yes
Floor Over Crawlspace	House	R-19 Floor			1440			n/a	Altered	Yes
Add Wall Left	Addition	R-13 Walls	270	Left	120	16	90	n/a	New	n/a
Add Back Wall	Addition	R-13 Walls	0	Back	120	33.35	90	n/a	New	n/a
Add Wall Right	Addition	R-13 Walls	90	Right	120	6	90	n/a	New	n/a
Addition Ceiling	Addition	R-38 Ceiling			225			n/a	New	n/a
New Floor	Addition	R-19 Floor			225			n/a	New	n/a
GFront	Garage	Wall R0	180	Front	140	112	90	n/a	Existing	No
GLeft	Garage	Wall R0	270	Left	220	0	90	n/a	Existing	No
GBack	Garage	Wall R0	0	Back	140	0	90	n/a	Existing	No

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
		31							
Addtn Attic	Asphalt RB	Ventilated	5	0.2	0.93	Yes	Yes	New	No

90

Right

20

400

0

90

n/a

n/a

Existing

Existing

No

No

GRight

Ceiling (below attic) 3

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Garage

Garage

Project Name: EAA Example 4 w/ Garage Calculation Date/Time: 07:54, Wed, Apr 10, 2019

Calculation Description: Ex HVAC Altered DHW

Input File Name: Verified-LEAK.ribd19

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
F-6046 Ex	Ex Wall Front (Front-180)	6.0	4.0	1	24.0	0.99	0.74	Insect Screen (default)	Existing	No
F-8040 Ex	Ex Wall Front (Front-180)	8.0	4.0	1	32.0	1.04	0.76	Insect Screen (default)	Existing	No
L-4040 Ex	Ex Wall Left (Left-270)	4.0	4.0	1	16.0	0.99	0.74	Insect Screen (default)	Existing	No
L-6040 Ex	Ex Wall Left (Left-270)	6.0	4.0	1	24.0	0.99	0.74	Insect Screen (default)	Existing	No
B-6050 Alter	Altered Back (Back-0)	6.0	5.0	1	30.0	0.32	0.25	Insect Screen (default)	Altered	Yes
B-3030 Alter	Altered Back (Back-0)	3.0	3.0	1	9.0	0.32	0.25	Insect Screen (default)	Altered	Yes
R-3040 Ex	Ex Wall Right (Right-90)	3.0	4.0	1	12.0	0.99	0.74	Insect Screen (default)	Existing	No
R-6040 Ex	Ex Wall Right (Right-90)	6.0	4.0	1	24.0	0.99	0.74	Insect Screen (default)	Existing	No
L-4040 New	Add Wall Left (Left-270)	4.0	4.0	1	16.0	0.32	0.25	Insect Screen (default)	New	n/a
B-5068 New	Add Back Wall (Back-0)	5.0	6.7	1	33.4	0.30	0.22	Insect Screen (default)	New	n/a
R-3020 New	Add Wall Right (Right-90)	3.0	2.0	1	6.0	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
Entry	Ex Wall Front	20.0	0.50	Existing	No
Bdoor	Altered Back	20.0	0.50	Existing	No
To Gar	Interior Wall 2	20.0	0.50	Existing	No

Project Name: EAA Example 4 w/ Garage Calculation Date/Time: 07:54, Wed, Apr 10, 2019

Calculation Description: Ex HVAC Altered DHW Input File Name: Verified-LEAK.ribd19

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OPAQUE SURFACE CONSTRU	JCTIONS					
01	02	03	04	05	06	07
Construction Name	Surface Type	Construction Type	Framing	Total Cavity R-value	Winter Design U-factor	Assembly Layers
Asphalt Shingle Roof	Attic Roofs	Wood Framed Ceiling	2x4 Top Chord of Roof Truss @ 24 in. O.C.	none	0.644	 Cavity / Frame: no insul. / 2x4 Top Chrd Roof Deck: Wood Siding/sheathing/decking Roofing: Light Roof (Asphalt Shingle)
Ceiling R11	Ceilings (below attic)	Wood Framed Ceiling	2x4 @ 16 in. O.C.	R 11	0.083	 Inside Finish: Gypsum Board Cavity / Frame: R-9.1 / 2x4 Over Ceiling Joists: R-1.9 insul.
Wall R0	Exterior Walls	Wood Framed Wall	2x4 @ 16 in. O.C.	none	0.361	 Inside Finish: Gypsum Board Cavity / Frame: no insul. / 2x4 Exterior Finish: 3 Coat Stucco
Raised Crawl R0	Floors Over Crawlspace	Wood Framed Floor	2x6 @ 16 in. O.C.	none	0.220	 Floor Surface: Carpeted Floor Deck: Wood Siding/sheathing/decking Cavity / Frame: no insul. / 2x6
Interior R0	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
R-38 Ceiling	Ceilings (below attic)	Wood Framed Ceiling	2x4 @ 16 in. O.C.	R 38	0.025	 Inside Finish: Gypsum Board Cavity / Frame: R-9.1 / 2x4 Over Ceiling Joists: R-28.9 insul.
R-19 Walls	Exterior Walls	Wood Framed Wall	2x6 @ 16 in. O.C.	R 19 in 5-1/2 in. cavity (R-18)	0.074	 Inside Finish: Gypsum Board Cavity / Frame: R-19 in 5-1/2 in. (R-18) / 2x6 Exterior Finish: 3 Coat Stucco
Asphalt High performance	Attic Roofs	Wood Framed Ceiling	2x4 Top Chord of Roof Truss @ 24 in. O.C.	R 13	0.078	 Around Roof Joists: R-0.0 insul. Cavity / Frame: R-13.0 / 2x4 Top Chrd Roof Deck: Wood Siding/sheathing/decking Roofing: Light Roof (Asphalt Shingle)
Asphalt RB	Attic Roofs	Wood Framed Ceiling	2x4 Top Chord of Roof Truss @ 24 in. O.C.	none	0.644	 Cavity / Frame: no insul. / 2x4 Top Chrd Roof Deck: Wood Siding/sheathing/decking Roofing: Light Roof (Asphalt Shingle)
R0 Ceiling	Ceilings (below attic)	Wood Framed Ceiling	2x4 @ 16 in. O.C.	none	0.472	Inside Finish: Gypsum BoardCavity / Frame: no insul. / 2x4
R-13 Walls	Exterior Walls	Wood Framed Wall	2x4 @ 16 in. O.C.	R 13	0.101	 Inside Finish: Gypsum Board Cavity / Frame: R-13 / 2x4 Exterior Finish: 3 Coat Stucco
R-19 Floor	Floors Over Crawlspace	Wood Framed Floor	2x6 @ 16 in. O.C.	R 19	0.049	 Floor Surface: Carpeted Floor Deck: Wood Siding/sheathing/decking Cavity / Frame: R-19 / 2x6

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BUILDING ENVELO		VERIFICATION	_												
	01				02					03				04	
Quality Ins		tallation (QII)	Quali	ality Installation of Spray Foam Insulation				E	Building Envelope Air Leakage				CFM50		
	Not Require	ed			Not Required					Not Required	<u> </u>			n/a	l
WATER HEATING S	YSTEMS														
01	01 02				03			04			05		06	07	80
Name System Type				Distribu	tion Type		C	Water Heater			Number of Heaters		olar action (%) S	tatus	Verified Existing Condition
Alter Storag	е	DHW		Star	ndard			Storage	0.62		1		n/a A	Itered	Yes
WATER HEATERS															
01	02	03	04	05	06	N	07		08	09		10	11		12
Name	Heater Element Type	Tank Type	Number of Units	Tank Volume (gal)	Uniform En Factor / En Factor / Effic	ergy	Input Ra Pilot Therm Efficier	/ Ir	Tank nsulation R-value (Int/Ext)	tion Loss / Fil lue Recovery R		st Hour ating / ow Rate	NEEA He	•	Tank Location or Ambient Condition
Storage 0.62	Gas	Small Storage	1	50	0.62 EF	:	<= 75 kB	tu/hr	0	n/a		n/a	n/a	а	n/a
SPACE CONDITION	ING SYSTE	MS			-0										
01		02		03			04			05	0	6	07		08
SC Sys Name	9	System Type	ŀ	Heating Unit Name		Co	oling Unit	Unit Name Fan Na		Distributi Name Name			Statı	ıs	Verified Existing Condition
New HVAC	С	other Heating and Coo System	ling	Furn	90		Split 16	Split 16 HVAC Fan System Ne			New [New Ducts Altered		ed	Yes
HVAC - HEATING U	NIT TYPES		70												
	01		10			02				03	3			04	
	Name		.0		Sys	tem Ty _l	pe			Number	of Units		E	fficiency	,
Furn 90 CntrlF						rlFurnac	ce			1			90 AFUE		
HVAC - COOLING U	NIT TYPES		>												
01 02 03						04	05		06		0	7		08	
		70					Effici	ency			ĺ				
Name		System 1	уре	N	lumber of Units	s	EER	SEER	Zon	ally Control	ed (Compres	essor Type HEF		RS Verification
Split 16		SplitAirC	ond		1		13	16		Not Zonal		Single	Speed	Sp	lit 16-hers-cool

Project Name: EAA Example 4 w/ Garage

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HVAC COOLING - HERS VERIFICATION												
01	02	03	04	05	06							
					Verified Refrigerant							
Name	Verified Airflow	Airflow Target	Verified EER	Verified SEER	Charge							
Split 16-hers-cool	Required	350	Not Required	Required	Required							

HVAC - DISTRIBUTIO	N SYSTEMS								
01	02	03	04	05	06	07	08	09	10
Name	Туре	Duct Leakage	Insulation R-value	Supply Duct Location	Return Duct Location	Bypass Duct	Status	Verified Existing Condition	HERS Verification
New Ducts	Ducts located in attic (Ventilated and Unventilated)	Sealed and tested	6.0	Attic	Attic	None	Altered	Yes	New Ducts-hers- dist

HVAC DISTRIBUTION - HERS VERIF	ICATION						
01	02	03	04	05	06	07	08
	Duct Leakage	Duct Leakage	Verified Duct	Verified Duct	Buried	Deeply Buried	Low-leakage
Name	Verification	Target (%)	Location	Design	Ducts	Ducts	Air Handler
New Ducts-hers-dist	Required	5.0	Not Required	Not Required	Not Required	Not Required	n/a
			*	•			

HVAC - FAN SYSTEMS & HERS VERIFICATION	<u> </u>		
01	02	03	04
Name	Туре	Fan Power (Watts/CFM)	HERS Verification
HVAC Fan System 2	Single Speed PSC Furnace Fan	0.58	Required

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

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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
Altered Back	House	Wall R0	Wood Framed Wall	- no insulation (vertical) -
Ceiling (below attic)	House	Ceiling R11	Wood Framed Ceiling	R 11
Floor Over Crawlspace	House	Raised Crawl R0	Wood Framed Floor	- no insulation -
Attic	EAA Example 4 w/ Garage	Asphalt High performance	Wood Framed Ceiling	R 13

FENESTRATION / GLAZING - VERIFIED & ALTERED

01	02	03	04	05	06	07	08	09
Name	Side of Building	Width (ft)	Height (ft)	Multiplier	Area (ft ²)	U-factor	SHGC	Exterior Shading
B-6050 Alter	Altered Back	6.0	5.0	1	30.0	0.99	0.58	Insect Screen (default)
B-3030 Alter	Altered Back	3.0	3.0	1	9.0	0.99	0.58	Insect Screen (default)

BUILDING ENVELOPE LEAKAGE - VERIFIED & ALTERED	
01	02
Verified Existing ACH 50	Altered ACH 50 Requiring Verification
1	5
4.0	

HVAC SYSTEMS - V	ERIFIED & ALTERED								
01	02	03		()4		05	06	07
		Heating Syste	m	Cooling	System	•			
Name	System Type	Name	Efficiency	Name	EER	SEER	Duct Insulation	Fan System	Minumum Air Flow (CFM)
Ex System	Other Heating and Cooling System	Ex Furnace	78 AFUE	Ex Cooling	10.42	12	R-2.1	0.58 Watts/CFM	350

HVAC DISTRIBUTION SYSTEM	IS - VERIFIED & ALTERED					
01	02	03	04	05	06	07
Name	Туре	Duct Leakage	Insulation R-value	Supply Duct Location	Return Duct Location	Bypass Duct
New Ducts	Ducts located in attic (Ventilated and Unventilated)	n/a	2.1	n/a	n/a	n/a

Registration Number:

Registration Date/Time:

HERS Provider:

CA Building Energy Efficiency Standards - 2019 Residential Compliance Re

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WATER HEATING SYSTEMS - VERIFIED & ALTERED

01	02	03	04
Name	Distribution Type	Number of Heaters	Solar Fraction (%)
DHW System Existing	Standard	1	n/a

WATER HEATERS - VERIFIED & ALTERED

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	Gas	Small Storage	50	0.525	75,000-Btu/hr	0	0

CERTIFICATE OF COMPLIANCE - RESIDENTIAL PERFORMANCE COMPLIANCE METHOD

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DOCUMENTATION AUTHOR'S DECLARATION STATEMENT	
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	
Regulations.	of Compliance conform to the requirements of Title 24, Part 1 and Part 6 of the California Code of iance are consistent with the information provided on other applicable compliance documents,
Responsible Designer Name:	Responsible Designer Signature:
Company:	Date Signed:
Address:	License:
City/State/Zip:	Phone: