

## DELTA ENERGY DESIGN RATING: THE NEW ENERGY PERFORMANCE METRIC

The 2017 California Advanced Homes Program (CAHP) adopts the CEC’s new energy performance metric for determining project eligibility: the Delta Energy Design Rating, or Delta EDR. The Delta EDR is the difference between the ‘Standard Efficiency EDR’ and the ‘Proposed Efficiency EDR’. The Delta EDR compares a home’s energy use to what that same home’s energy use would be if built to the prescriptive path and uses Title 24 modeling rules for its calculation. Refer to the 2016 T24 Residential Alternative Calculation Manual, Section 3 for information about Energy Design Rating.

2016 Title 24 energy modeling software programs CBECC-RES 2016 (2.0 and 2.1) and EnergyPro 7 (7.1) generate multiple versions of the EDR. Below is a list of the five EDRs currently available.

STANDARD EFFICIENCY	PROPOSED EFFICIENCY	PROPOSED PV	FINAL PROPOSED	DELTA EDR*
EDR if the home were designed using the prescriptive path	EDR as designed with performance tradeoffs, not taking solar PV into account	EDR for the Solar PV system by itself	Final EDR for home as designed, taking Solar PV (if installed) into account	Proposed Design EDR – Standard Design EDR (+ Point Kickers if any)

\*Currently not included in the software

Please note that while homes can use solar photovoltaics (PV) offsets for code compliance, CAHP will not allow homes to use these offsets for entry into the program. The ‘Proposed EDR’ in the Res T24 Performance Table shows the Final Proposed EDR with PV credit. If the model includes PV, do not refer to the Res T24 performance table, but look for EDR of Standard Efficiency and EDR of Proposed Efficiency on the second or third page of the CF-1R.

**CERTIFICATE OF COMPLIANCE - RESIDENTIAL PERFORMANCE COMPLIANCE METHOD**  
 Project Name: 1 Story Example Energy Design Rating  
 Calculation Date/Time: 12:36, Thu, Oct 27, 2016  
 Calculation Description: 1 Story Example Rev 3  
 Input File Name: 1StoryExample3EDR.rbd16  
 CF1R-PRF-01  
 Page 2 of 8

**ENERGY DESIGN RATING**  
 Energy Design Rating (EDR) is an alternate way to express the energy performance of a building using a scoring system where 100 represents the energy performance of the Residential Energy Services (RESNET) reference home characterization of the 2006 International Energy Conservation Code (IECC). A score of zero represents the energy performance of a building that combines high levels of energy efficiency with renewable generation to "zero out" its TDV energy. Because EDR includes consideration of components not regulated by Title 24, Part 6 (such as domestic appliances and consumer electronics), it is not used to show compliance with Part 6 but may instead be used by local jurisdictions pursuing local ordinances under Title 24, Part 11 (CALGreen).  
 As a Standard Design building under the 2016 Building Energy Efficiency Standards is significantly more efficient than the baseline EDR building, the EDR of the Standard Design building is provided for Information. Similarly, the EDR score of the Proposed Design is provided separately from the EDR value of installed PV so that the effects of efficiency and renewable energy can both be seen

EDR of Standard Design	EDR of Proposed Design	EDR Value of Proposed PV	Final EDR of Proposed Design
45.6	41.6	0.0	41.6

Design meets Tier 1 requirement of 15% energy savings (per Section A4.203.1.2.1) and QI verification prerequisite.

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	EDR of Standard Design	EDR of Proposed Design	EDR Value of Proposed PV	Final EDR of Proposed Design
North	45.6	41.6	0.0	41.6
East	45.6	43.7	0.0	43.7
South	45.6	42.5	0.0	42.5
West	45.6	43.7	0.0	43.7

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Figure 1: Form CF-1R-PRF-01-E and EDR of Proposed Efficiency (formerly design): one orientation (upper) and multiple orientation (lower)

# CBECC-RES 2016

To generate an EDR in CBECC-RES 2016, versions 2016.2.0 (857) and 2016.2.1 (868), first open the project in CBECC-Res 2016 and double-click the Project tab at the top of the building tree. Click on the EDR tab and check Detailed Energy Design Rating Inputs. To calculate the EDR, run the simulation by clicking the Performance Analysis icon on the menu. Once calculated, you have two options to view the EDR.

**OPTION 1:** Following a simulation the Review Analysis Results box will pop up. This box has an EDR tab. You can also access this box by clicking on the Tools menu and selecting Review Analysis Completion (Figure 2).

**OPTION 2:** You can view the EDR of Proposed Efficiency on the second or third page of the CF-1R (Figure 1).

End Use	Reference Design Site (kWh)	Reference Design Site (therms)	Reference Design (KTDV/R <sup>2</sup> -yr)	Proposed Design Site (kWh)	Proposed Design Site (therms)	Proposed Design (KTDV/R <sup>2</sup> -yr)	Design Rating Margin (KTDV/R <sup>2</sup> -yr)
Space Heating	421	350.0	34.93	207	209.2	20.42	14.51
Space Cooling	1,095		41.15	156		3.90	37.25
IAQ Ventilation	112		1.17	112		1.17	0.00
Other HVAC			0.00			0.00	0.00
Water Heating		162.9	13.03		108.3	8.66	4.37
Photovoltaics				0		0.00	0.00
Inside Lighting	2,135		23.83	506		5.55	18.28
Appl. & Cooking	930	65.4	14.92	941	43.7	13.92	1.00
Plug Loads	2,638		28.35	2,026		21.58	6.77
Exterior	298		2.86	120		1.22	1.64
<b>TOTAL</b>	<b>7,628</b>	<b>578.3</b>	<b>160.24</b>	<b>4,067</b>	<b>361.1</b>	<b>76.42</b>	<b>83.82</b>

Figure 2: View EDR from the CBECC-Res view pane. One orientation (left) or multiple orientations (right)

# ENERGYPRO 7

To generate an EDR in EnergyPro7.1, first open the project in EnergyPro7 and click the calculation icon from the top menu to perform the simulation. After the simulation completes, you can view the EDR in several ways, depending on whether or not you include solar PV in your energy models.

**OPTION 1:** If your model does not include PV, you can view the EDR on the Res T24 Performance table at the bottom of the view pane (Figure 3).

Calculation	*Heating	*Cooling	Int Lighting	Ext Lighting	Appliances	Receptacle	*IAQ	*Renewables	*DHW	Total	Savings	EDR
Standard	7.25	21.33	5.25	1.14	14.32	21.57	1.15	0.00	8.47	80.48	0.0 %	45.4
Facing North	4.55	25.09	5.25	1.14	14.27	21.57	1.15	0.00	10.16	83.18	-7.2 %	50.3
Facing East	4.90	30.98	5.25	1.14	14.35	21.57	1.15	0.00	9.79	89.13	-22.6 %	50.3
Facing South	4.68	24.78	5.25	1.14	14.37	21.57	1.15	0.00	9.68	82.62	-5.5 %	50.3
Facing West	4.98	30.15	5.25	1.14	14.32	21.57	1.15	0.00	10.00	88.56	-21.2 %	50.3

Figure 3: View EDR from the EnergyPro7 view pane. One orientation (upper) or multiple orientations (lower)

Note the following information in regards to the EnergyPro Res T24 Performance table in the view pane: The table shows the EDR with PV credit, not the EDR of Proposed Efficiency. If your model includes PV, please do not refer to the EDR in the table to confirm CAHP Program eligibility, instead use Option 2 below

**OPTION 2:** Regardless of whether the model includes PV, you can view the EDR of Proposed Efficiency on the second or third page of the CF-1R (Figure 1).

Visit [www.cahp-pge.com](http://www.cahp-pge.com) to learn more about CAHP or contact a program representative: via phone at (866) 352-7457 or via email at [cahp@trcsolutions.com](mailto:cahp@trcsolutions.com).

