







FF CEA Compe Basic understanding of heat flow, energy units, and building energy design	tency One
Comprehend Key Residential En Efficiency Design Concepts and I	ergy ssues
Demonstrate knowledge of basic heat t residential energy design measures, ar they relate to building energy perforn metrics and code compliance	ransfer, nd how nance
Pop-Up Resource!	
CABEC CEA #2	9/3/2014 4





















∕F	F Co	ntinı		1.2	2 Redu	cing energy use
CERTIFICATE OF COME Project Name: SROVAN Calculation Description RI RI	LANCE - RESIDENCE Existing Floor Plan. Testing Flo	THAL PERFORMANN New Construction) VersionConstruction VersionConstructionConstructio VersionConstructio VersionConstructionConstructio VersionConstructionConstructio	KCE COMPLIANCE Calcutation input File Na 65 67 77 78 77 73 73 73 73 73 73 73 73 74 75 75 75 75 75 75 75 75 75 75	EF METHOD EFFORT 21-24 ADDREFTINGE 21-24 ADDREFTINGE 21-24 ADDREFTINGE 21-24 ADDREFTINGE 21-24 ADDREFTINGE 21-44 ADDREFT	Britisher Bergenergenergenergenergenergenergenerge	 Energy Use Components Energy end use components regulated by the 2013 Residential Standards listed on the ENERGY USE SUMMARY of the Certificate of Compliance (CF1R): Space Heating Space Cooling
Appetration Number: Chalding Group Officiancy Standa http://www 2013 Resi	va- 2013 Residential Com w.build dential	ingeco Manua	restration Dite/Time: pert Winton - C11644	HERS Pr 142014-574	nove: Nyon Generated at: 4/20/2014/033539 PM	 IAQ Ventilation Water Heating Photovoltaic Offset



















F	F	Sam	ple C	EA Ex	kam (Questi	ion
			COMPL	IANCE RESULTS			
	01	Building Complies with C	omputer Performance				
	02	This building incorporate a CEC-approved HERS	s features that require field provider.	testing and/or verification	by a certified HERS rate	r under the supervision of	
	03	This building incorporate	s one or more Special Feat	ures shown below			
			ENERG	Y USE SUMMARY			
		04	05	06	07	08	
		Energy Use	Standard	Proposed	Compliance	Percent	
		(kTDV/ft ² -yr)	Design	Design	Margin	Improvement	
	S	Space Heating	6.49	11.48	-4.99	-76.9%	
	S	Space Cooling	2.30	1.15	1.15	50.0%	
	V	AQ Ventilation	1.16	1.16	0.00	0.0%	
	V	Water Heating	14.98	10.08	4.90	32.7%	
	Phe	otovoltaic Offset		0.00	0.00		
		TOTAL	24.93	23.87	1.06	4.3%	
F F C C F	A home in percent o neating, v design sta efficient. (for fenest	n climate zone 5 of the conditione while the compli age, and the ow Other than redu tration to addres	has a large nun d floor area). It ance margin is p ners have asked cing the amoun ss the negative s	nber of window has a large neg- positive on cool for recommend t of glass, what pace heating co	s (area is appro ative complian ing. The buildin dations to mak would be your ompliance mar	oximately 35 ce margin on ng is still in the e the home more recommendation gin?	e n
4	A. Lowe	er solar heat gair	n coefficient				
E	B. Lowe	er U-factor					
(C. High	er solar heat gai	n coefficient				
[D. High	er U-factor					
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1.4 Mechanical Systems



Heating Systems

- Heating equipment types and efficiency ratings must meet minimum federal appliance Standards
 - Central gas furnaces, AFUE (ducted)
 - Gas wall heaters and fireplaces, AFUE (ductless)
 - Air-to-air heat pumps, HSPF: central split or packaged (ducted), or mini-split (ductless or ducted)
 - Hydronic heat pumps, COP (ductless)
 - Hydronic heating w/ radiant floor, baseboard or fan coil units: efficiency of boiler or water heater
 - □ Electric resistance, HSPF = 3.413
- System sizing based on acceptable heating design loads calculation

2013 Energy Standards and 2013 Residential Manual

1.4 Mechanical Systems Cooling systems

- Cooling equipment types and efficiency ratings must meet minimum federal appliance Standards
 - Central split or packaged air conditioner/heat pump, SEER and EER (ducted); or mini-split, SEER and EER (ductless or ducted)
 - Room air conditioner/heat pump, SEER and EER (ductless)
 - With direct or indirect evaporative cooling
- System sizing based on acceptable cooling design loads calculation
- Efficiency impacts of air flow, refrigerant charge and fan watt draw

2013 Energy Standards and 2013 Residential Manual















	Resources
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ENERGY.GOV Office of Energy Efficiency & Renewable Energy Services efficiency renewables transportation about us offici	Search Energy gov	
Services a Energy Batic ENERGY BASICS Energy Basics Home Recent to Energy Hones & Buildings Unices & Fuels Gossary The basics about renewable energy and energy efficiency technologies: learn how they work, what they're used for, and how they can improve our lives, homes, businesses, and industries	RELATED ARTICLES	
 <u>http://energy.gov/eere/energybasics/energy-basics</u> <u>http://energy.gov/sites/prod/files/2014/02/f7/understandin</u> <u>http://www.gsa.gov/portal/content/101197</u> <u>https://www.ashrae.org/resourcespublications/free-resourcespublicationspub</u>	ng 2014 energy footpri	<u>nts.pdf</u> <u>y</u>
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	Study resources
Category Tak Category: Units of energy Category: Units of energy This category identifies units of energy or work The List of energy topics indexes these with a brief description Pages in category "Units of energy"	 http://en.wikipedia.org/wiki/Category:Units of energy http://sustainabilityworkshop.autodesk.com http://energydesignresources.com/media/1 744/EDR_DesignBriefs_hiperformancenew homes.pdf
AUTODESK' SUSTAINABILITY WORKSHOP HOME BULLENKI DESON ** Now available! Free online courses designed for working professionals. Image: Comparison of the superior	
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Photo	ovoltaic Offset		0.00	0.00	
A home in	TOTAL	24.93	0.00 23.87	0.00 1.06	4.3%
A home in percent of theating, which design stage efficient. Or for fenestrational and the second stage of	climate zone 5 the conditione hile the compli- ge, and the ow ther than redu ation to addres	24.93 has a large nur ed floor area). It ance margin is p ners have asked cing the amoun so the negative s	0.00 23.87 nber of window has a large neg positive on cool for recommen t of glass, what pace heating c	o.oo 1.06 rs (area is appro- ative complian ing. The buildi dations to mak would be your ompliance mar	4.3% eximately 35 ce margin on ng is still in the e the home mor recommendation gin?
A home in percent of theating, which design stage efficient. Of for fenestra A. Lower	climate zone 5 the conditione hile the compli ge, and the ow ther than redu ation to addres solar heat gain	24.93 has a large nur ed floor area). It ance margin is p ners have asked cing the amoun so the negative so n coefficient	0.00 23.87 nber of window has a large neg positive on cool for recommen t of glass, what pace heating c	0.00 1.06 rs (area is appro- ative complian ing. The buildi dations to mak would be your ompliance mar	4.3% eximately 35 ce margin on ng is still in the e the home mor recommendation gin?
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