



California Energy Commission

RESIDENTIAL STANDARDS

Questions and Answers

Q *I'd like to know if it is possible to use non-IC rated incandescent fixtures recessed in an insulated ceiling. Although I've never been able to find a bulb heater (heat lamp) that is IC-rated [approved for insulation cover], they are very popular with my customers. Can I use this product?*

It is possible to build a box of gypsum board or wire mesh over the fixture in the attic, which can then be insulated. By separating the insulation from the fixture, the fixture is not recessed into the insulated ceiling. As long as there is sufficient clearance between the fixture and the insulation to prevent a fire hazard, this assembly is acceptable for meeting Section 150(k)4 of the *Energy Efficiency Standards* (**note**: recessed fluorescent fixtures do not need to be IC-rated).

Q *Do I need check boxes on the MF-1R form (Mandatory Measures Checklist)?*

Any version of the mandatory measures checklist form, whether or not it contains boxes or lines, still indicates the responsibility the applicant is taking for complying with the mandatory features listed on the form. If the building department's policy is to take this form into the field and check off the "enforcement" column as each measure is inspected, the applicant should adhere to their request to use a form with spaces for "designer" and "enforcement" to indicate compliance with the mandatory requirement.

Q *Can R-16 internal insulation be used as a substitute for R-12 external insulation on a storage water heater?*

No.

Q *Is R-12 external insulation a mandatory requirement for storage water heaters?*

No. If compliance can be shown without insulation, none is required.

Q *When modeling an existing residence using the default assumptions from Table 7-2 of the Residential Manual, is the water heater modeled with or without an R-12 blanket?*

The existing water heating system is assumed to meet the current water heating budget. Regardless of the actual conditions, it is modeled with an R-12 insulation blanket and a 0.53 energy factor. It is not necessary to install the R-12 blanket on an existing uninsulated water heater.

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NONRESIDENTIAL STANDARDS

Questions and Answers

Q *Is there such a thing as “official” Energy Commission compliance forms? What are the documentation requirements?*

There are no “official” forms. The forms contained in the *Nonresidential Manual* are recommended and provided as guidance for consistency. The *Administrative Regulations*, Section 10-103(a), specify the forms be “readily legible and of substantially similar format and informational order and content” as the forms found in the compliance manuals. This allows the necessary flexibility for program vendors, consultants and building departments to produce their own forms.

Q *In documenting track lighting, I find the instructions on page 5-30 of the Nonresidential Manual conflict with the directions for completing the LTG-4. How do I document track lighting, particularly if my design is less than the allowed watts?*

Working back from the LTG-4 form, part 2 of 3, enter the proposed length of track in column E, 45 watts in column F, multiply the two values and enter the result in column G. Enter the wattage of your proposed design in columns I through K. Enter the smaller of the two values in column L, as directed. On the LTG-2 form, you will enter the LARGER of the proposed design or the default 45 watts per lineal foot of track in the total watts column (*Nonresidential Manual*, p. 5-30). If the default value is the larger of the two values, check the yes box for “CEC Default.”

Q *Can you explain the oversizing allowances for sizing HVAC equipment when showing compliance with the prescriptive approach?*

First, calculate the building’s heating and cooling loads in accordance with *Energy Efficiency Standards*, Section 144(b)1. – 10. Second, Section 144(b)11. allows the designer to increase the loads by 10 percent as a safety

factor. Third, loads may be increased additionally for pick-up loads (Section 144(b)12.). The designer can either calculate the pick-up loads or optionally choose to increase heating loads by 30 percent and cooling loads by 10 percent.

Other loads and system losses not considered in the first step (Section 144(b)1. – 10.) are heat gain across fans, heat loss in ducts, environmental conditions of the condenser location, and such. These loads may also be included in the load calculations.

In summary, the building loads for HVAC equipment sizing can be calculated using one of the following options:

1. [(Loads from 144(b)1-10) + (other loads and system losses)] x (1.10 for cooling and 1.30 for heating) x (1.10 safety factor) or
2. [(Loads from 144(b)1-10) + (other loads and system losses) + (pick-up loads)] x (1.10 safety factor)

Q *Is it necessary to insulate a wall if the sheet rock or gypsum board is being removed?*

If the extent of work requires a building permit, then wood framed walls would require R-13 insulation (for the altered component or portion of wall only) (*Energy Efficiency Standards*, Section 150(c)).

DID YOU KNOW . . . ?

Publications

••• Addenda to the 1995 *Residential Manual* and *Nonresidential Manual* are now available, at no cost, through the Energy Commission (see PUBLICATION ORDERS on back page).

••• National Fenestration Rating Council (NFRC) has released the sixth edition of the *NFRC Certified Products Directory*. This publication is an invaluable source of information for showing compliance with the *Energy Efficiency Standards*. To order,

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Did You Know...? (continued)

send your request for the *NFRC Certified Products Directory* along with a check for \$25 to NFRC, 1300 Spring Street, Suite 120, Silver Spring, MD 20901. NFRC can be reached at (301) 589-6372.

FactsLine Information

••• When you call the Energy Hotline's fax back system at (916) 653-6830, you can request a list of available documents by pressing 2 at the first voice prompt. This list includes the document number you will need in order to request a specific item and the number of pages for all available documents (see page 4 for an excerpt).

You can request up to four documents per call. If you need to call back to make additional requests, wait until the first transmission is complete. If you change your mind after a transmission has begun, you can turn your machine off for 15 minutes (the FactsLine computer makes three attempts at five minute intervals).

Training/Conference

••• Affordable Comfort Conference is coming to Northern and Southern California. These conferences will take place:

November 17-18, 1997

SMUD Energy and Technology Center
Sacramento, CA

November 20-21, 1997

Southern California Edison CTAC
Irwindale, CA

There will be both in-field and classroom training sessions. Topics include:

1. Housing Performance—Good Business
2. HVAC Systems
3. Building Shell
4. The House as a System
5. Tools for Building Diagnostics
6. Troubleshooting/Fixing Comfort Problems
7. Selecting and Installing Windows
8. Getting Ducts Right in New Construction
9. Minimizing Lawsuits and Insurance Costs

For registration or more information, contact **Affordable Comfort '97** at (800) 344-4866, FAX (412) 299-1137

Affordable Comfort, Inc., is a not-for-profit educational service organization that promotes energy and resource efficiency, comfort, health, safety, affordability and durability in buildings.

••• The CABEC Annual Conference – Building New Horizons – will follow the Southern California Affordable Comfort Conference, on November 21-22, at the Southern California Edison CTAC in Irwindale, California. Friday's trade show theme is "New Business Opportunities in the Emerging Energy Performance Industry." Tentatively scheduled for the Saturday program are Sam Rashkin of the Environmental Protection Agency presenting "EPA Energy Star Programs for Nonresidential and Residential Buildings," and Mike Gabel and Martyn Dodd of Gabel/Dodd/EnergySoft presenting "Advanced Nonresidential Performance Method with DOE-2."

The cost to attend the California Association of Building Energy Consultants Annual Conference is \$80 (\$100 for non-members) before October 21, 1997, and \$95 (\$115 for non-members) after October 21, 1997. For more information call the CABEC office at (909) 763-2807.

Computer Information

••• Compliance forms (residential and nonresidential) are on the Internet in PDF format (requires Adobe Acrobat Reader) at www.energy.ca.gov/energy/efficiency/.

••• A new version of *Micropas* (version 4.51) that models gas-fired heat pumps was approved by the Energy Commission on May 28, 1997. Both versions 4.50 and 4.51 can be used for compliance with the residential *Energy Efficiency Standards*. *Micropas'* vendor can be reached at (916) 885-9890.

••• If you wish to use **COMPLY 24** with Windows 95, the Energy Commission has

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EXCERPT - Listing of Available Documents in the Facts Line System

“Blueprints” (a quarterly newsletter)

Document #	Description	# of Pages
2005001	Index of Blueprints 41 - 52	2
20050??	ie: For Blueprint #58, type 2005058 For Blueprint #41, type 2005041 Issues 41 - 58 are available	varies

“Energy Specs” (fact sheets)

Document #	Description	# of Pages
2050001	Building for Energy Efficiency, An Overview	6
3050001	Mandatory Measures for Residential Buildings	8

Miscellaneous

Document #	Description	# of Pages
3070001	Prescriptive Compliance Paket for Additions	23
6004001	List of Approved Computer Programs	4
6004002	Publications List	4
6001001	Mailing List Application	1
3060001	Home Energy Manual - (also available on disk or on the Internet!)	42
6006001	1996 CABEC Certified Energy Analyst Roster	7

1996/1997 Roster of Certified Energy Plans Examiners

For a complete list, please contact CTI at (916) 456-3824

Document #	Description	# of Pages
6003001	California Region Map	1
6003002	Outside CA	1
6003002	Los Angeles City, Inglewood /Torrance, & Long Beach	1
6003003	Van Nuys	2

Nonresidential Manual (To send one page only)

Document #	Description	# of Pages
40CC0PP	CC= Chapter, PP = Page	1
40010PP	Chapter 1 (Enter Page numbers from 1 to 10)	1
40020PP	Chapter 2 (Enter Page numbers from 1 to 11)	1

“Notices”

Document #	Description	# of Pages
3080001	Decertification of Micropas4, Versions 4.0,4.01, and 4.02	2
3080002	Notice of Availability Calres2, Version 1.31a	2
2080001	EZFrame, Version 2.0	4

“1995 Energy Efficiency Standards” (To send one page only)

Document #	Description	# of Pages
2060???	ie: For page 3, type 2060003 For page 77, type 2060077	1

“1995 Energy Efficiency Standards” All Occupancies

Document #	Description	# of Pages
2040001	Index	10
2030100	Section 100, SCOPE	6
2030101	Section 101, Definitions and Rules of Construction	21

Residential Forms

Document #	Description	# of Pages
3011001	CF-1R , Certificate of Compliance	2
3011005	MF-1R , Mandatory Measures Checklist	1
3011006	P-2R , Point System Summary	1

Nonresidential Forms

Document #	Description	# of Pages
4090100	All ENV forms	10
4090001	ENV-1, Envelope Certificate of Compliance	2
4090002	ENV-2, Envelope Component Method	1

Appliance Efficiency Regulations

Document #	Description	# of Pages
5001001	Scope	4
5002001	Definitions	8
5003001	Test Methods	9
	Efficiency Standards:	
5004001	Refrigerator/Freezers	3

Did You Know...? (continued)

approved version 5.1. Until September 30, 1997, both versions 5.0 and 5.1 can be used for compliance with the *Energy Efficiency Standards* Permit applications made on or after October 1, 1997 must use version 5.1. COMPLY 24's vendor can be reached at (415) 883-5900.

••• If you need technical assistance on **PERFORM 95**, the public domain software for compliance with the nonresidential *Energy Efficiency Standards*, you must contact Gabel Dodd/EnergySoft, LLC at (415) 883-5900.

1998 Energy Standards

••• On June 25, 1997, the Energy Commission unanimously adopted proposed amendments to the *Energy Efficiency Standards*. In addition to staff, support for the amendments came from all of the major participants—California Association of Building Energy Consultants, California Building Industry Association, California Building Officials, Natural Resources Defense Council, and the window industry. This support is particularly important in fostering cooperation to achieve greater compliance and to improve the quality of construction.

A future issue of *Blueprint* will include a summary of changes. Also, a downloadable file with new text and ~~deleted text~~ is available at www.energy.ca.gov/98standards. The amendments become effective for permit applications made after January 1, 1999.

Awards

••• With the following commendation, Energy Commissioner Michal Moore announced the 1996 ACES awards to 14 city and county building departments: "Thanks to innovative, dedicated building departments like these 14, California consumers have enjoyed tremendous reductions in their energy bills." He explained that a three-bedroom California home built before 1977 and never improved can cost a homeowner as much as \$2,700 a year to heat and cool. "Heating and cooling bills for the same 1,700 ft² house, built to today's energy standards,

should be about \$700 a year—a cost savings of nearly 75 percent."

Winners were announced by Commissioner Moore at the Annual Business Meeting of the California Building Officials (CALBO), and were selected for their outstanding efforts to enforce the state's energy standards. Official presentation of the ACES Awards are made to building departments at their local city council and county board of supervisors meetings.

The ACES award, which stands for "Assuring Compliance with the Energy Standards," was developed by the Commission a year ago to honor conscientious building departments whose staff creatively encourage the efficient use of energy in their communities.

Chosen for this year's awards were the Building Divisions of the cities of Madera, Morgan Hill, and Pittsburg; Building Departments for Nevada County and City of Livermore; Building and Housing Department of the City of Chula Vista; Community Development Departments in the cities of Dinuba and Irvine; Building and Safety Divisions in the cities of Merced and Simi Valley; Building and Safety Department in the city of La Quinta; the County of Tuolumne's Department of Building and Safety; Division of Building and Safety for Ventura County; and Building Inspection Department in Yuba City.

Mailing List

••• If you notice that your mailing list information is incorrect, it may be because of a computer problem at the Energy Commission. Even if you previously notified the Commission of a change, please let us know again. Use your ID number, which appears above your name, when calling or writing (see CHANGE OF ADDRESS on back page for written requests).

Training/Conference

Date	Location	Sponsor	Topic
11/17-18	Sacramento	Aff Comf	See p. 3
11/20-21	Irwindale	Aff Comf	See p. 3
11/21-22	Irwindale	CABEC	See p. 3

Aff Comf: Affordable Comfort '97. See page 3 for information about conference training sessions and registration information.

CABEC: California Association of Building Energy Consultants Annual Conference. See page 3 for information about conference training sessions and registration information.

PUBLICATION ORDERS

Include a self-addressed mailing label and a check or money order (prices include tax and postage) with your publication request addressed to:

California Energy Commission
Attn: Publications MS-13
P.O. Box 944295
Sacramento, CA 94244-2950

CHANGE OF ADDRESS

Send old and new addresses, with the five-digit ID number (appears above name on mailing label) to above address, Attn: MIS, MS 7.

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