



Energy Efficiency Division

Blueprint

FALL 1999, NO 61

California Energy Commission

Questions and

Answers

NONRESIDENTIAL

Q *I can't find information about Solar Heat Gain Coefficients (SHGC) for the windows in my nonresidential building. Where do I find the SHGC information?*

Call the California Energy Commission's Energy Hotline at 1-800-772-3300. All the information you need should be found in the Notice on the Alternative Calculation Method for Nonresidential Buildings-Solar Heat Gain Coefficient Compliance.

Q *On the ENV-1, part 2 of 2 in the azimuth columns, do I need to enter N, S, E, W, or exact degrees from North? The instructions are unclear.*

You can use either method. For compliance with the prescriptive standards, N, S, E, and W (for North facing, South facing, East facing, and West facing) are acceptable as those terms are defined in the *Energy Efficiency Standards for Residential and Nonresidential Buildings* (Standards), Section 101(b) Definitions. Entering the exact degrees from North is also acceptable.

Q *I am trying to comply using the Prescriptive approach. I will be using a computer room air conditioner with electric resistance reheat for dehumidification. Section 144(g) states that electric resistance heating cannot be used for space heating. Am I exempt because I am not using the electric heating for "Space Heating"?*

It depends. Electric resistance heating for reheat purposes must comply with exceptions in Sections 144(d) and 144(g). A gas-fired boiler may be used for all of the reheat. A water coil from a gas-fired boiler can be used as the primary heating with supplementary electric resistance if the design complies with the exceptions in Sections 144(d) and 144(g).

Q *In Table 5-3 of the Nonresidential Manual (Complete Building Method Lighting Power Density Values), what do the designations "high" and "low" mean when referring to the Lighting Power Density (LPD) for "General Commercial and Industrial Work Buildings"?*

The term "high" refers to "high bay" (where the luminaire is 25 feet or higher from the floor), and the term "low" refers to "low bay" (where the luminaire is less than 25 feet from the floor).

Q *I have a project where a space previously defined as unconditioned would now become semiconditioned. What are the lighting requirements?*

If changes in an existing unconditioned building result in a space becoming semiconditioned, the Efficiency Standards have no requirements for lighting (Nonresidential Manual, Sec. 2. 2.2). However, if an alteration results in a change to the lighting, as described in Section 149 (Standards), you must comply with the Standards.

Q *If I am going to convert a building from semiconditioned space to directly conditioned space, what are the requirements?*

The building would be treated as if it was a whole new building. The entire building would have to comply.

RESIDENTIAL

Q *I am building a home in which the only space conditioning will be wood heating. Do I have to comply with the Standards? Is wood considered a depletable energy source?*

Wood heating is not considered a depletable energy source. If a home has no depletable energy sources connected to it, it would not need to comply with the Standards. However, all of the energy used in the home must be from non-depletable sources to avoid having to comply with the Standards. This standard requirement includes lighting, water heating, and space cooling. The use of propane, oil, natural gas, or electricity purchased from a public utility for any purpose in the home invokes the Standards. The local building department may also require a back-up heating system.

Q *I want to replace my central gas heating system with a central electric heat pump. Section 152 (b) of the standards includes some limitations on electric systems. Am I allowed to install a heat pump? If so, what must I do to show that I comply with the Standards?*

Yes, you can replace your gas furnace with a central electric heat pump that has a minimum HSPF of 6.6 (single package) or 6.8 (split system). An electric resistance central heating system would also be compared to a central heat pump with an HSPF of 6.6 (single package) or 6.8 (split system). Minor repairs such as replacement of the electric resistance controls, elements, or fan motor need not meet the requirements of Section 152(b).

Q *When I try to run CALRES2 Version 1.34.XX (where XX refers to all versions of 1.34), some outputs seem wrong and sometimes I get errors. What can I do?*

First, as with every other computer program, you should save files often, especially before each CALRES2 run. Second, the Commission has issued a bug fix which repairs many of the reported problems with CALRES2 Version 1.34.XX. This fix may be downloaded at <ftp://energy.ca.gov/pub/efftech>.

Q *I want to use the Point System. Why can't I find that chapter in the 1999 Manual?*

Since July 1999, the Point System is no longer an approved method of compliance. A new compliance method called Flexible Approach, Simple Trade-offs (FAST) will be introduced as soon as possible. Until FAST is available, you must use either the Prescriptive or currently approved computerized Performance approaches to show how compliance is achieved. Certified computer software programs that may be used for the Performance approach are CALRES2, EnergyPro and MICROPAS. Call the California Energy Commission's Energy Hotline at 1-800-772-3300 for information on how to obtain the current certified software versions.

Q *I am using the Prescriptive approach to show compliance on an addition but I am unfamiliar with the changes concerning interior shading. Can I take credit for interior shading devices?*

No. Effective July 1, 1999, credits for interior shading devices are not allowed in Prescriptive compliance. Credit for roller shades may be taken using the Performance compliance method until December 31, 2001. Beginning January 1, 2002, roller shades cannot be used at all for compliance. However, specific exterior shading devices are allowed, if the Form S is completed. For Form S, look in Appendix A of the Residential Manual – or call the Energy Hotline.

Q *What in the world is “Solar Heat Gain Coefficient (SHGC)”? How is it defined and where can I find information about it?*

Solar Heat Gain Coefficient, referred to as SHGC, replaces the Shading Coefficient (SC) used in the 1995 Standards, but the terms are not interchangeable. This new term, SHGC, better defines the performance of windows. A definition is: the SHGC is the ratio of the solar heat gain entering the space through a fenestration product to the incident solar radiation. Shading Coefficient, on the other hand, is the ratio of the solar heat gain through a fenestration product to the solar heat gain through a nonshaded 1/8-inch-thick clear double strength glass under the same set of conditions. Exterior shading devices can influence the SHGC value for the fenestration assembly, and the SHGC values can be adjusted to take such devices into account. A Form S (see above Q/A) must be completed to find the total effective SHGC for a specific combination of window and exterior shade. Still confused? For more information on SHGC, see pages 2-15 through 2-20 and 3-9, 3-10 in the Residential Manual; visit the Commission’s Web Site and search the “Other Links”; or call the Commission’s Energy Hotline.

Q *What are the regulations associated with continuous burning pilot lights?*

These regulations are contained in the Appliance Efficiency Regulations (Section 1605) and the Building Standards (Section 150(e)2).

Constant burning pilot lights are prohibited in the following:

- (A) Fan type central furnaces.
- (B) Fan type wall furnaces.
- (C) Fan type central furnaces designed solely for installation in mobile homes.
- (D) Household cooking appliances.
- (E) Pool heaters.
- (F) Fireplaces.
- (G) Decorative Gas Appliances.
- (H) Gas Logs.

This restriction shall not apply to:

- (1) Appliances designed to burn only liquefied petroleum gases (not

- applicable to fireplaces).
- (2) Appliances designed expressly for use in mobile homes and recreational vehicles.
- (3) Cooking appliances which do not have an electrical line voltage supply connection.

Q *I have multiple bathrooms and I don’t want to use fluorescent fixtures in any of them. Can I do anything else instead?*

As an alternative, both of the following are required:

1. A luminaire with 40 lumens/watt lamps must be installed in a laundry room, utility room or garage for each bathroom that does not have a high efficacy luminaire; and
2. All permanently mounted outside lighting must either be at least 40 lumens/watt or equipped with a motion sensor.
Example: In a two-bathroom home in which the owners do not want to put fluorescents in the bathrooms, they would have to follow the above requirements. They could put a fluorescent fixture in their laundry room, a fluorescent fixture in their garage, as well as motion sensors on their exterior lights.

DID YOU KNOW?

The fax server is no longer in service because it is not Y2K compliant. You may access most of the same information from our Web Site:

<www.energy.ca.gov/title24>

Energy Efficiency Division Homepage:

<www.energy.ca.gov/efficiency>

Building Standards Information:

<www.energy.ca.gov/title24>

- Full text of Standards, effective 7/1/99
- Compliance Forms, effective 7/1/99
- Manuals, effective 7/1/99
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EZ Frame

<<ftp://energy.ca.gov/pub/efftech>>

Certified Appliance Directory

<ftp://energy.ca.gov/pub/efftech>

Standards and Manual Typographical Corrections

effective 7/1/99:

Building Standards:

- Building Standards: Section 141(a)1B. Table “1-I or 1-J” should be “1-H or 1-I”.

Nonresidential Manual:

- On page 4-61, there is an ENV form. Please ignore it.
- Table 5-10 for Daylighting Controls was not printed correctly. Table 1-L in the Standards is correct.
- Form LTG-4, in the TAILORED LPD-Public Area Displays section, the formula for calculating ALLOTTED WATTS should be (D x E), not (E x F).
- Figure 2-1, the “NO” arrow coming into the bottom left block of the flowchart should be reversed to point away from that box.

Residential Manual:

- The words “measured or” should be deleted from the HVAC Fan air flow line under the “Duct Sealing” portion of page 3 of the CF-6R.

PUBLICATION ORDERS

For additional copies of the Blueprint contact the Energy Efficiency Hotline. Copies can also be downloaded from our Web Site @ <www.energy.ca.gov/efficiency/blueprint>

CHANGE OF ADDRESS

Send old and new addresses, with the five-digit ID number (appears above name on mailing label) to address below, Attn: MS 5.

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