

Frequently-Asked Questions

A Pacific Energy Center Factsheet



Here are answers to questions frequently asked of the Energy Center staff. They relate both to PEC specialized topics, e.g. commercial lighting, design and measurement tools, HVAC; and to topics we refer to other PG&E departments.

General

Is the PEC open to the public?

Yes, Monday through Friday from 8AM to 5PM.

Can I bring my class for a tour of the Energy Center?

Yes, by appointment. Call Anita Sanchez at 415-973-7268 to schedule a tour.

How do I get to the PEC?

The Energy Center is located at 851 Howard St. between 4th and 5th streets in San Francisco, and can be reached by public and private transportation.

When and why was the PEC built?

The Pacific Energy Center opened in December 1991 to provide a learning center and toolbox that supports the energy-efficient design, renovation, and operation of commercial buildings.

Heliodon

What is the heliodon?

The heliodon is a design tool available at the Pacific Energy Center for analyzing the relationship between buildings and the sun. It can be adjusted for latitude, change of seasons, and time of day. Architectural models are mounted on the heliodon's table-like ground plane while a fixed theater lamp simulates the sun's rays.

Who can use the heliodon?

The heliodon is available for studying existing buildings, buildings planned to be built in PG&E's service territory, or for design professionals who are PG&E customers.

How much does it cost?

The service is free.

What can I learn from my model while studying it at the heliodon?

The heliodon is used primarily to study the heat and light impact of direct solar radiation striking a building's window systems. The heliodon allows a designer to see how much sun will strike and penetrate a building's windows, and to view shading patterns over a day during different seasons. The designer can address this solar impact by making adjustments to the design and/or orientation of the model.

How big can the model be?

The model should not exceed 4'-0" x 4'-0" in plan or 25 lbs. in weight.

What is the best way to document my heliodon session?

We have a small camera at the heliodon station that sends an image signal to a VCR and a Macintosh® graphics station. You can use this equipment to videotape or photograph your project.

Besides my model what else should I bring to the Energy Center?

Bring extra model materials, a VHS formatted tape if you want a video of your study, and diskettes or a zip disk if you want computer-generated still images.

What is the format of the graphic images downloaded at the Energy Center's heliodon?

They are Photoshop® images (.pct or .pic)

How do I set up an appointment?

For an appointment call Ryan Stroupe at 415-973-7257.

HVAC**What building simulation software program do you recommend?**

The answer depends on the application. There are two classes of tools, load calculation programs that size HVAC (or other building) equipment, and energy simulation programs that analyze energy costs of alternative systems over a one year period. Load calculation programs are poor at simulation and simulation programs do an inadequate job of predicting loads. A number of load calculation and simulation programs have wide spread acceptance. These include the DOE2 programs and their derivatives (2.1D, 2.1E, 2.2, PowerDOE, VisualDOE, Comply24), BLAST, Trace, HAP and APEC.

Can I try the software programs before I make a purchase?

Yes. Two excellent resources exist to help you become familiar with the features and feel of these programs. The Resource Center at the PEC has a computer set up with some of these programs (HAP, Trace, PowerDOE). To reserve the computer for a trial, contact Marlene Vogelsang (mxv6@pge.com, 415-973-7206). The Department of Energy's [Building Energy Software Tools Directory](#) web site also has detailed information on numerous energy-related software tools. <http://webdevvh.nrel.gov/buildings/tools_directory/>

How can I get a copy of the PowerDOE® program?

PowerDOE is now available to the public. For a 90 day evaluation copy and/or information about the PowerDOE licenses, visit the [DOE-2/PowerDOE web site](#) or contact Jeff Hirsch:

Jeff Hirsch
JJH & Associates
12185 Presilla Road
Camarillo, CA 93012-9245
Phone: 805-532-1045
FAX: 805-532-2401
E-Mail: Jeff.Hirsch@doe2.com

Lighting

Are fluorescent lamps dimmable?

Yes, but they require a dimming ballast and a control strategy that is compatible with the dimming ballast you select. However, new screw-in dimming compact fluorescents that are compatible with existing incandescent dimmers have recently become available.

Are compact fluorescent lamps available in different color temperatures, and what is the color rendering index (CRI) for a compact fluorescent lamp?

Compact fluorescent lamps are available in 2700, 3000, 3500, and 4100 degrees Kelvin, and the CRI for most compact fluorescent lamps is 85.

How are low voltage halogen sources more energy efficient than line voltage sources?

Low voltage halogen lamps have narrower beam spreads available, allowing for better control of the placement of the light, and permitting the use of lower wattage lamps to accomplish the desired result.

With primary tasks in today's office environment involving the use of a computer, what are the trends in new fixture design?

For 2' × 2' and 2' × 4' troffers used in direct lighting applications, the objective is to provide optical systems that reduce glare and provide a low brightness ceiling at normal viewing angles. The goal in newer fixture designs is to accomplish this performance while maintaining high fixture efficiency, low profile housings, and smaller modular sizes like 1' × 4' or 8" × 4' designs. For indirect lighting systems, the objective is to use the ceiling as a light source, providing a large area, low luminance light source in the space, resulting in soft, almost shadow-free lighting.

Trends in new fixture design include: more sophisticated optical systems where fixtures can be spaced farther apart; lower profile housings for use in lower ceiling heights; and luminous side or bottom elements to "lighten" the appearance of the fixture. Direct/indirect systems combine features of both approaches, and when properly designed, are often the system of choice. Integrating dimming ballasts and/or other means of lighting control either

within the fixture or as part of the overall design offer greater flexibility and more efficient use of light.

What new light sources are entering the marketplace and what is their availability?

The newest sources readily available are:

1. T5 straight tube fluorescent lamps, electronic ballasts, and a family of low profile, precision performance lighting fixtures.
2. Low wattage metal halide for medium base ED-17 and PAR envelopes, double-ended, and single-ended applications. These lamps provide better color stability, warmer light, and higher CRI than is characteristic of standard metal halide. The introduction of electronic ballasts for some of the lower wattages complements this new family of lamps.
3. High wattage (32W and 42W) compact fluorescent lamps in triple tube design allow for better performing compact fluorescent downlights.
4. 95 CRI T8 fluorescent lamps provide an energy-efficient alternative to incandescent lighting.

Tool Lending Library

What is the Tool Lending Library, and what is the intention of the program?

The Tool Lending Library is a program that provides building monitoring equipment to PG&E customers. The program is intended to identify, encourage, and quantify energy-efficient building retrofits.

How much does it cost?

The tools are loaned at no charge.

What are the requirements for borrowing equipment?

Tool borrowers need to define the building performance issue that they hope to address with the tools, provide a current business card and sign our sign-out sheet.

What types of equipment are available in the toolkit?

Over 250 different tool types and over a thousand tools are in the lending library. Some of the instrumentation is geared specifically for mechanical engineers, lighting designers and architects. Tools that can be used to measure a building's energy use patterns include hand-held meters, dataloggers, sensors, analyzers, and probes. For a complete list of tools visit our website at: www.pge.com/pec or call Ryan Stroupe at 415-973-7257.

Are there any restrictions on the use of the tools?

In addition to the timely return of tools, we require that all equipment installed in electrical cabinets be done by a licensed electrician.

What is a typical loan period?

In order to keep the tools in constant circulation and keep pace with customer demand we use a short-term loan period. Data-collection equipment is usually loaned for two to three weeks while tools that provide instantaneous readings are loaned for shorter periods.

In addition to the tools, does the Pacific Energy Center provide support on tool lending projects?

Yes, the energy center staff will provide assistance in the use of the equipment. In addition, we have developed a series of automated applications to help tool borrowers with specific projects.

Can I borrow tools for a brief period in order to familiarize myself with the equipment before I'm committed to a project?

Yes, tools can be loaned for familiarization purposes.