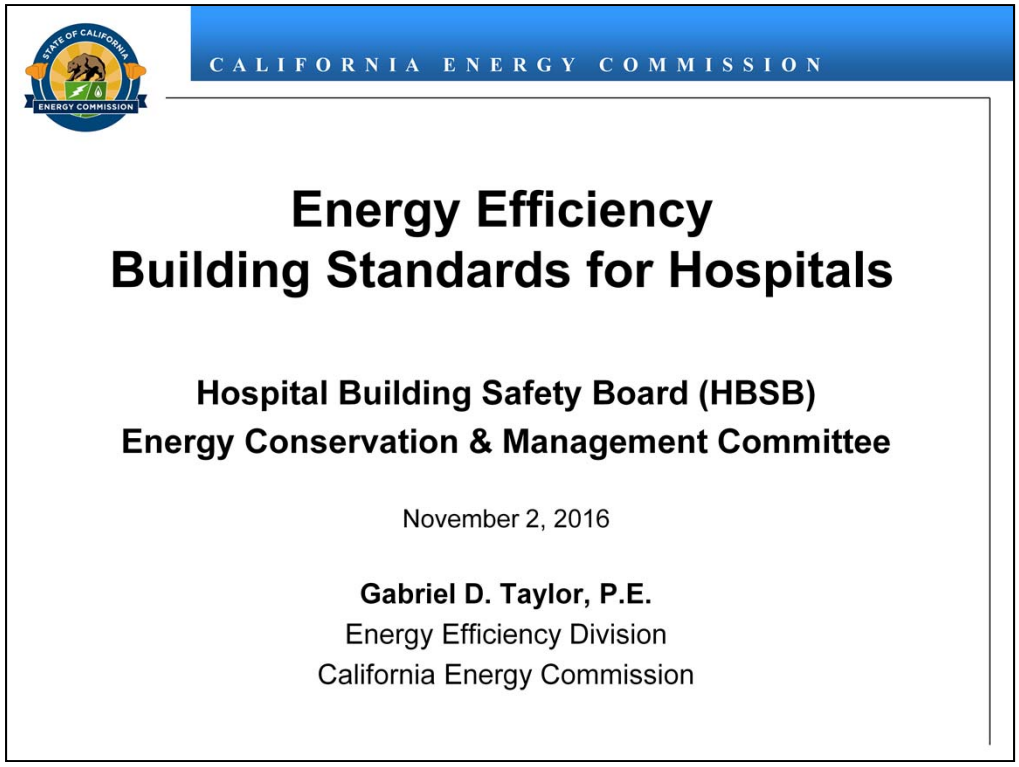



## California Energy Commission

## Energy Efficiency Division

**Dave Ashuckian**
Deputy Director

**Bill Pennington**
Senior Energy Policy Advisor

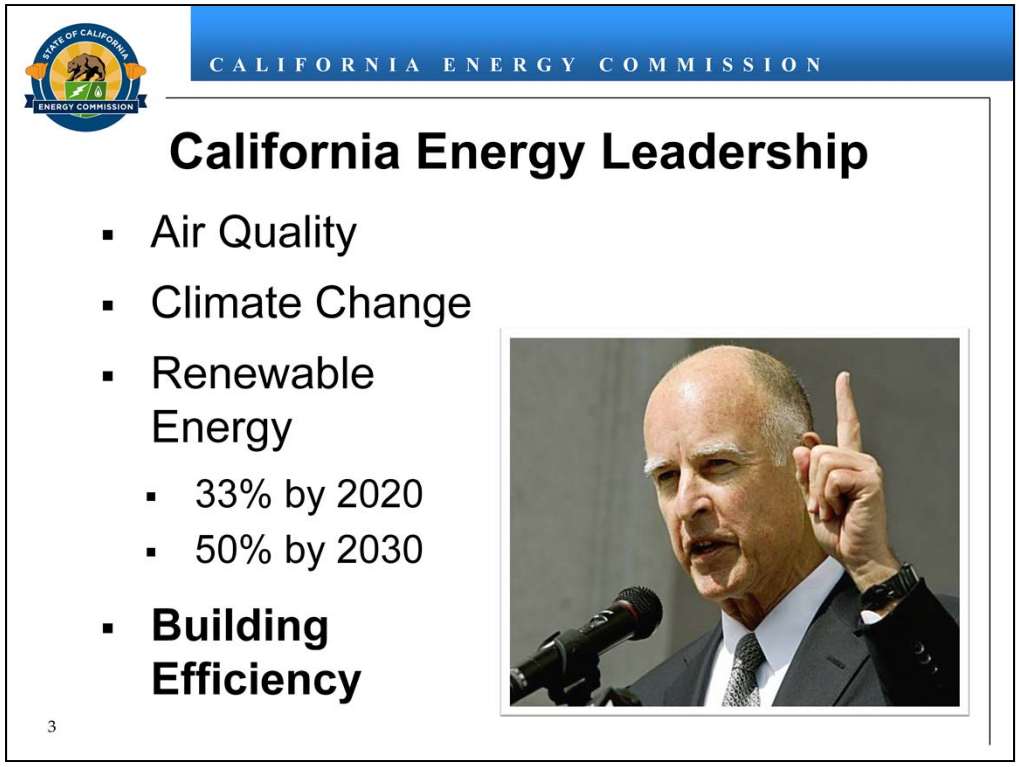
**Christopher Meyer**
Manager of Building Standards Office

**Peter Strait**
Supervisor of Standards Development Unit, Building Standards Office

**Danny Tam**
Mechanical Engineer, Building Standards Office

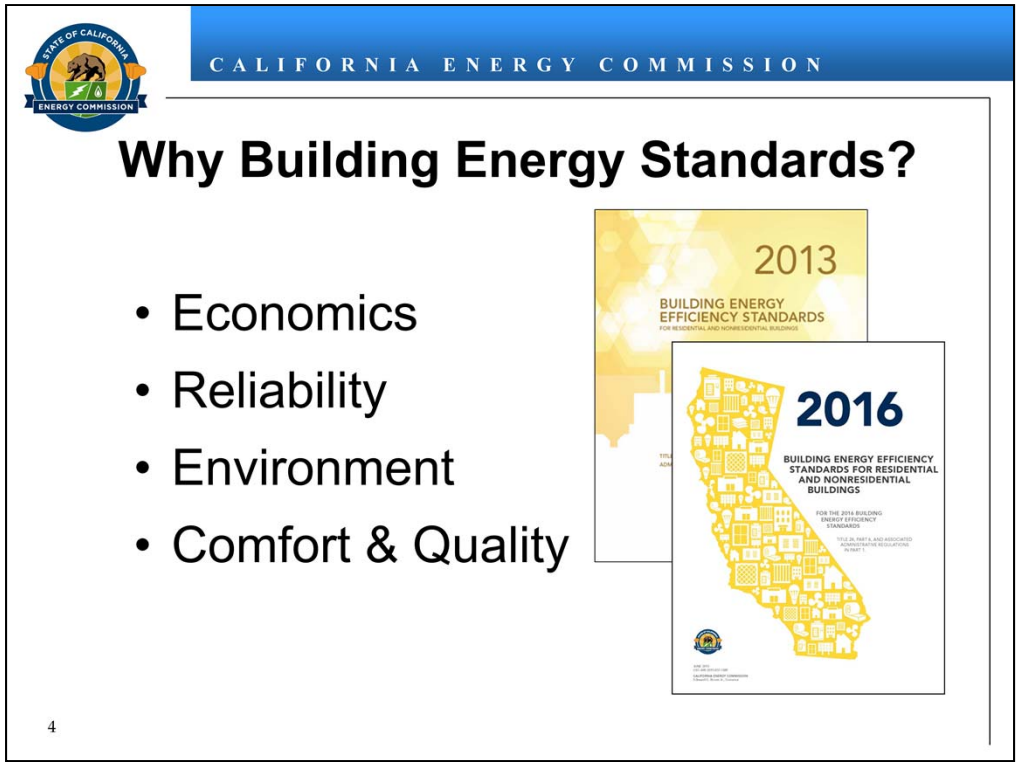

Energy Commission staff seek support from the Hospital Building Safety Board Energy Conservation and Management Committee to work with OSHPD staff to develop a code change proposal to address energy efficiency in hospitals.

The history of energy and electricity demand in California has resulted in strong energy policy.




California is a national and global leader on environmental and energy policy.

Building energy efficiency is a key component of many other policies, some of which may not be achievable without successfully achieving optimally efficient buildings.



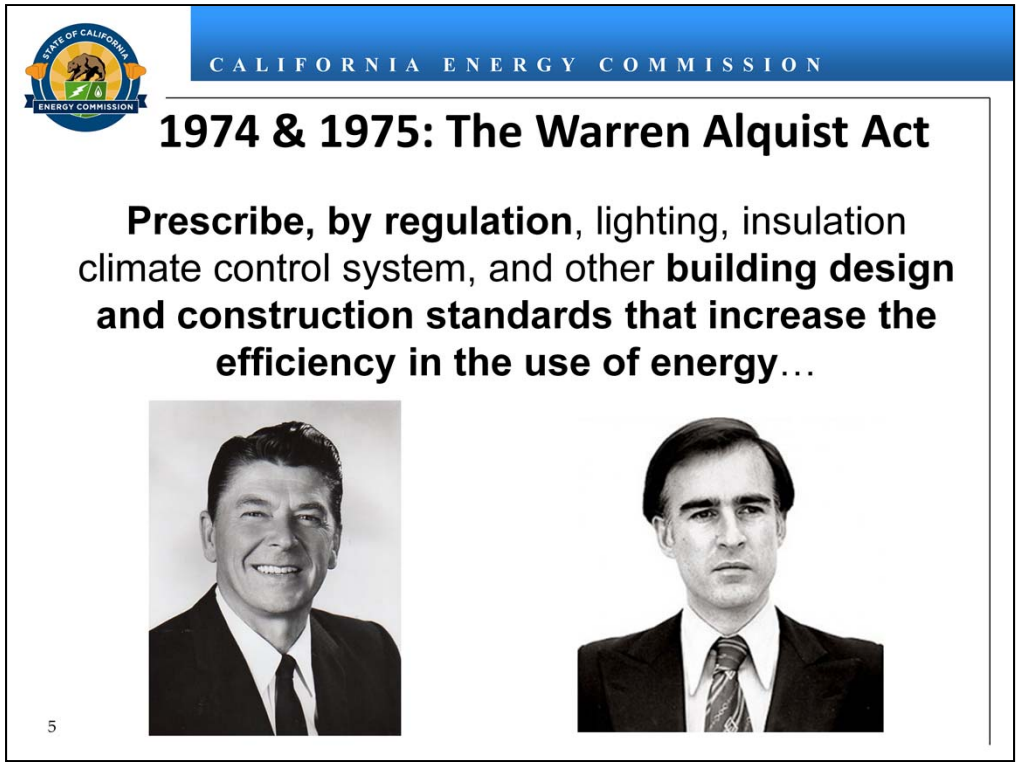

Building Energy Standards are not only about saving money.

Optimizing building energy efficiency improves the reliability of the grid as a whole.

Minimizing energy consumption in all forms minimizes the environmental impacts of energy generation.

Properly designed energy efficiency may actually improve the quality of service provided. Conservation measures are generally impractical or impossible in these facilities due to the obvious priorities of patient welfare and comfort. Energy efficient construction practices for hospital buildings are thus especially important and can have long-term beneficial impacts on the costs of operation as well as the wellbeing of staff and patients.

Properly implemented energy efficiency can improve comfort and quality of service.




The **Warren Alquist Act** of 1974 created the State Energy Resources Conservation and Development Commission, know generally as the California Energy Commission.

The act was signed in 1974 by a Republican (Regan) and implemented starting in 1975 by a Democrat (Brown).

…the Energy Commission was directed to "…reduce the wasteful, uneconomic, inefficient, or unnecessary consumption of energy…"

…and empowered to "**Prescribe, by regulation**, lighting, insulation climate control system, and other **building design and construction standards that increase the efficiency in the use of energy**…"


The Energy Commission has a diverse portfolio of energy policy responsibilities, not only building energy efficiency.

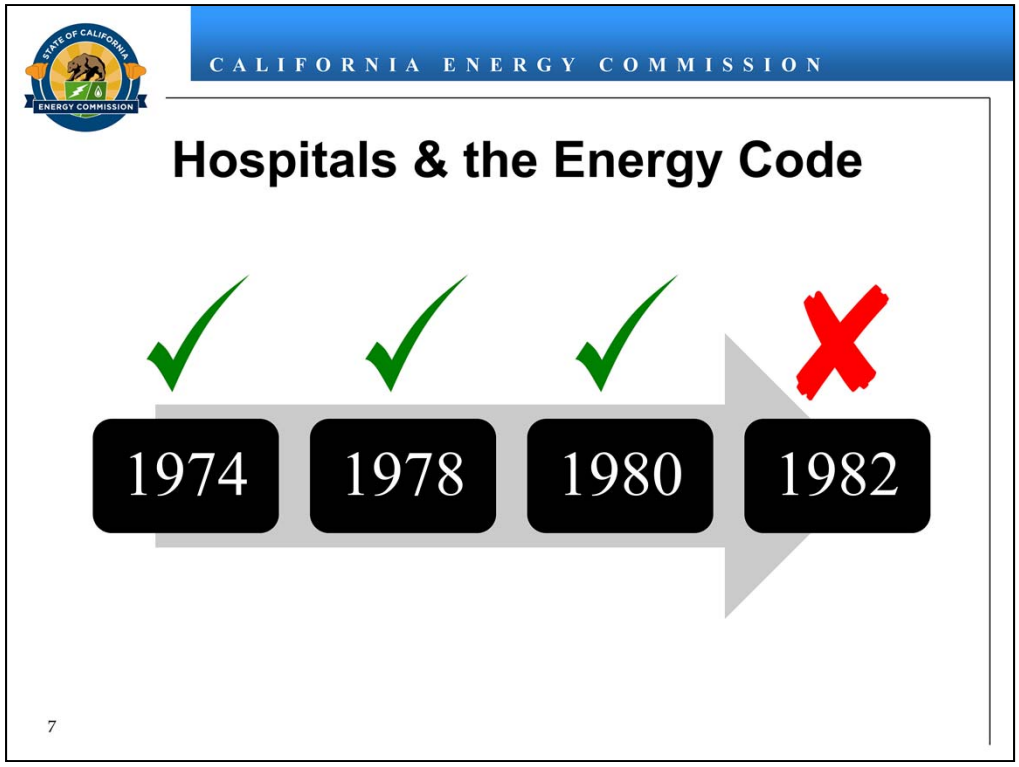
Lead permitting agency for all thermal power plants over 50 MW.

Manage over $130 million per year of energy research and development funding.

Manage numerous programs to improve the efficiency of transportation modes and reduce the environmental and economic impact of the consumption of transportation fuels.

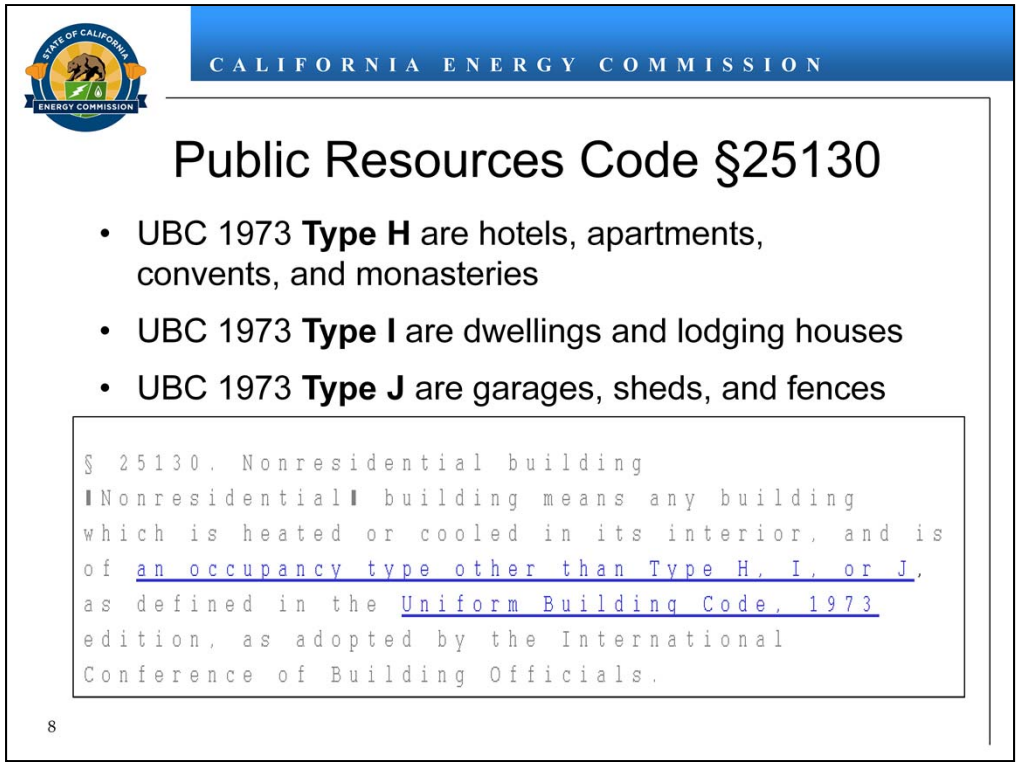
Direct programs to develop and integrate renewable energy resources

Develop both appliance and building energy efficiency standards.



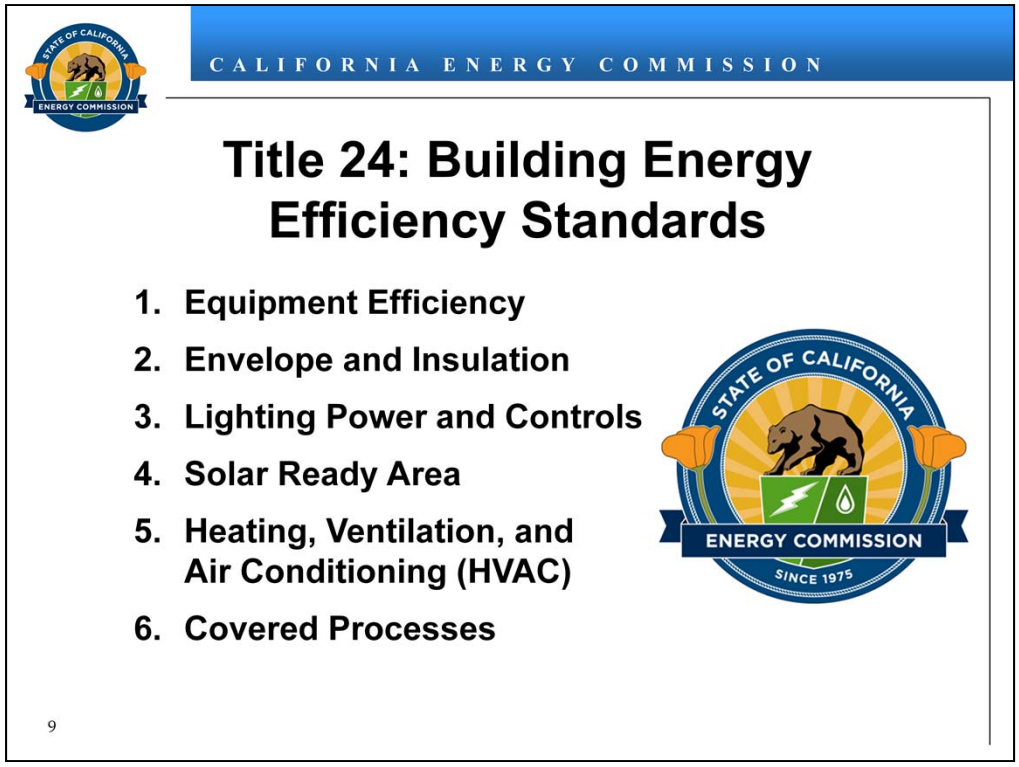

Hospitals were included in the scope of nonresidential buildings, according to the Public Resources Code and the original definitions in the building standards.

In 1982 the definition of nonresidential building was changed in response to the 1979 update to the Uniform Building Code. At that time the scope was mistakenly changed to exclude hospitals.




**Public Resources Code § 25130. Nonresidential building**
"Nonresidential" building means any building which is heated or cooled in its interior, and is of an occupancy type other than Type H, I, or J, as defined in the Uniform Building Code, 1973 edition, as adopted by the International Conference of Building Officials**.**

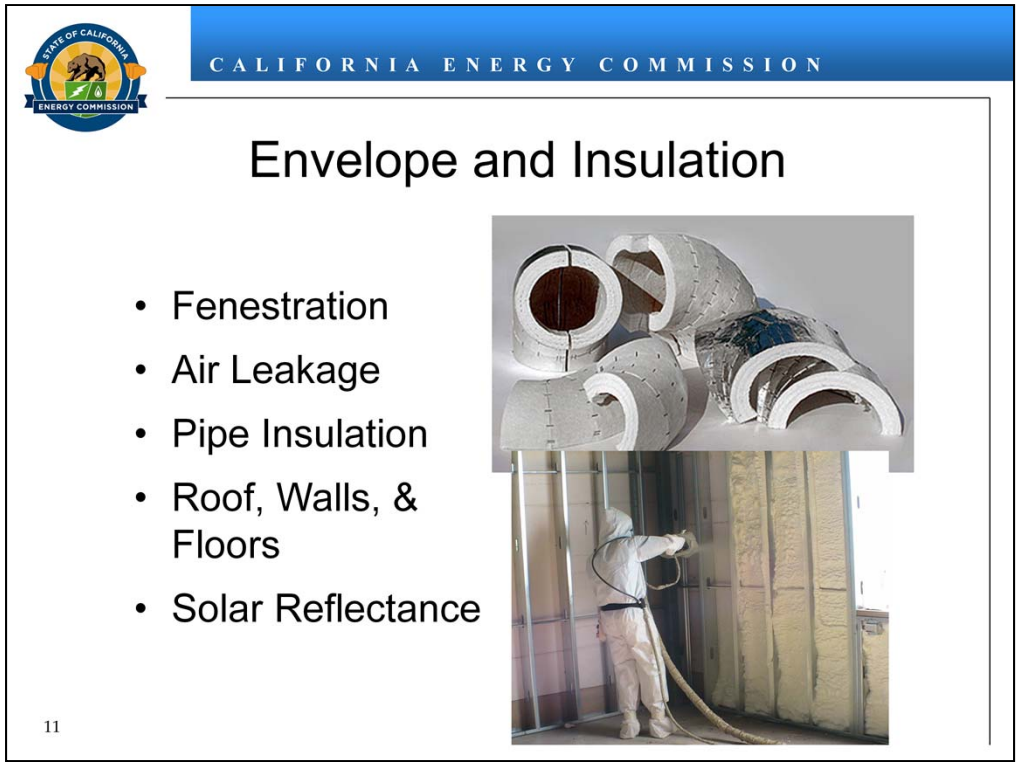
- UBC 1973 **Type H** are hotels, apartments, convents, and monasteries
- UBC 1973 **Type I** are dwellings and lodging houses
- UBC 1973 **Type J** are garages, sheds, and fences




The Title 24 Building Energy Efficiency Standards can be informally divided into six categories.


Federal and state appliance efficiency standards are applied upstream of construction, so facilities likely already comply with these requirements.

Standards require a final check at inspection to confirm that the specified equipment is installed. Unintentionally installing less efficient equipment can result in significant long term costs.




New envelope and fenestration (window and door) technologies are developed almost every year.

Ensuring proper insulation on process piping not only saves energy, but improves service.

Roof and fenestration solar reflectance technologies evolve rapidly.


Occupants should be able to turn off lights when they are not needed.

Lights should *be capable* of shutting off automatically when not needed. The code makes exceptions to automatic controls for 24/7 facilities.

Dimming is a widely available and useful technology, and much less expensive to install at initial construction than at retrofit.

Daylight is the best (and healthiest) form of light for most applications, and modern lights should automatically adjust to daylight.

CALIFORNIA ENERGY COMMISSION

## Solar Ready Area

- Design
- Primary Building
- Parking Structure

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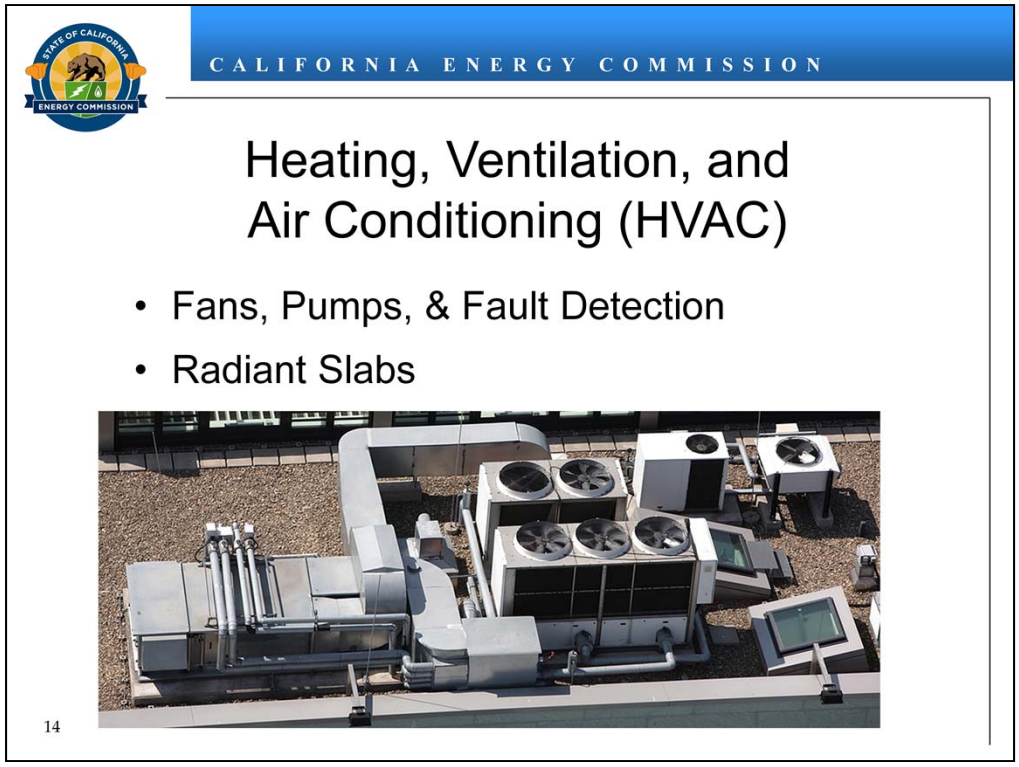
Integrating solar at the designing stage is most cost effective, while adding solar to a facility that is not designed for it can be prohibitively expensive.

The code allows for the solar ready area to be on either the primary building or on an adjacent structure.

*The picture is of a parking facility attached to a hospital.*

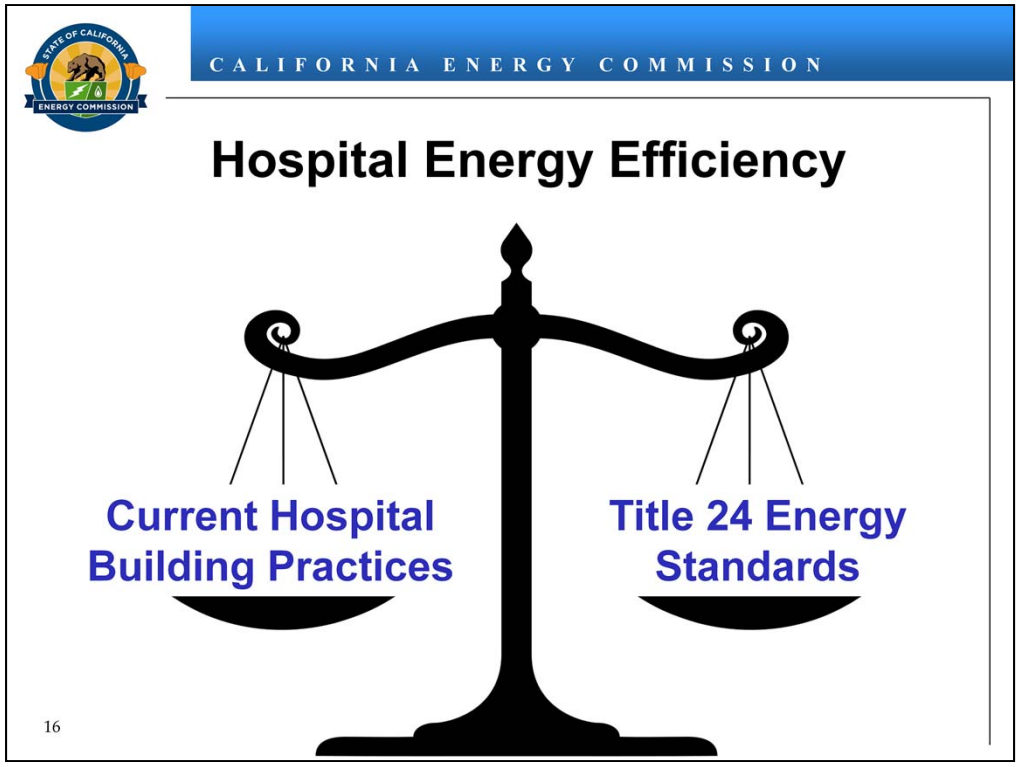



While HVAC in hospitals will clearly need to prioritize health and safety requirements, some requirements in code for fan and pump efficiency may benefit hospitals.

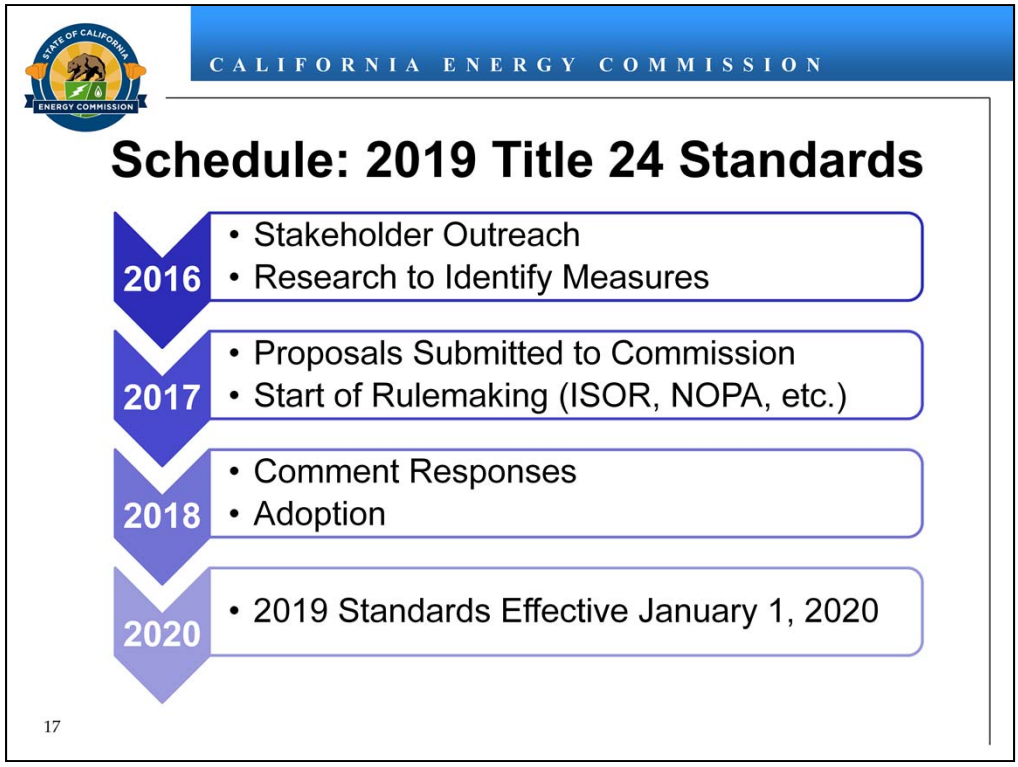
The code contains extensive consideration about the proper design for radiant slabs.

# Covered Processes

- Parking Garage Ventilation
- Compressed Air Systems
- Boilers
- Escalators & Elevators




The first step will be for Energy Commission staff to work with OSHPD staff to compare the current hospital building practices to the existing Title 24 requirements.



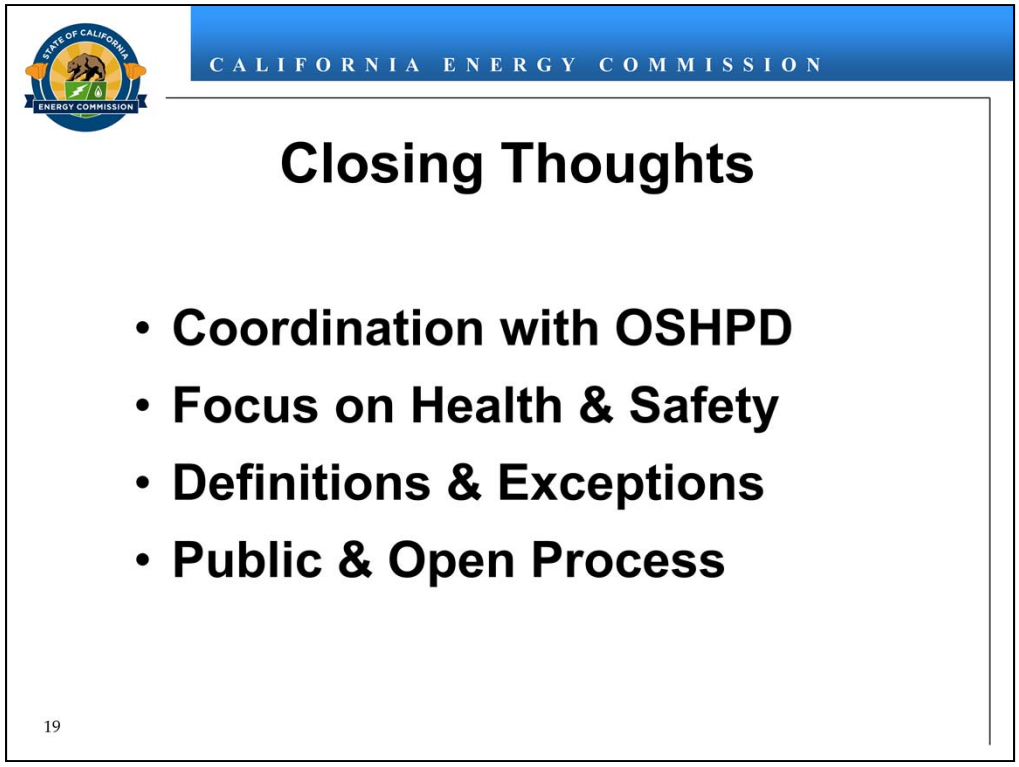

Updates to the Title 24 Energy Standards proceed on a three year cycle.

The current update (2019) is underway and will go into effect on January 1, 2020.

Proposals will be published in 2017 for review and comment by all stakeholders. This process will include extensive public workshops and opportunities for comment.


A joint proposal from Energy Commission and OSHPD highlighting building efficiency measures for hospitals can be prepared and approved by both agencies prior to public release. This proposal would identify measures that both agencies agree should apply to hospitals.

**To meet the current code change cycle, a proposal should be ready for public review by March 2017.**

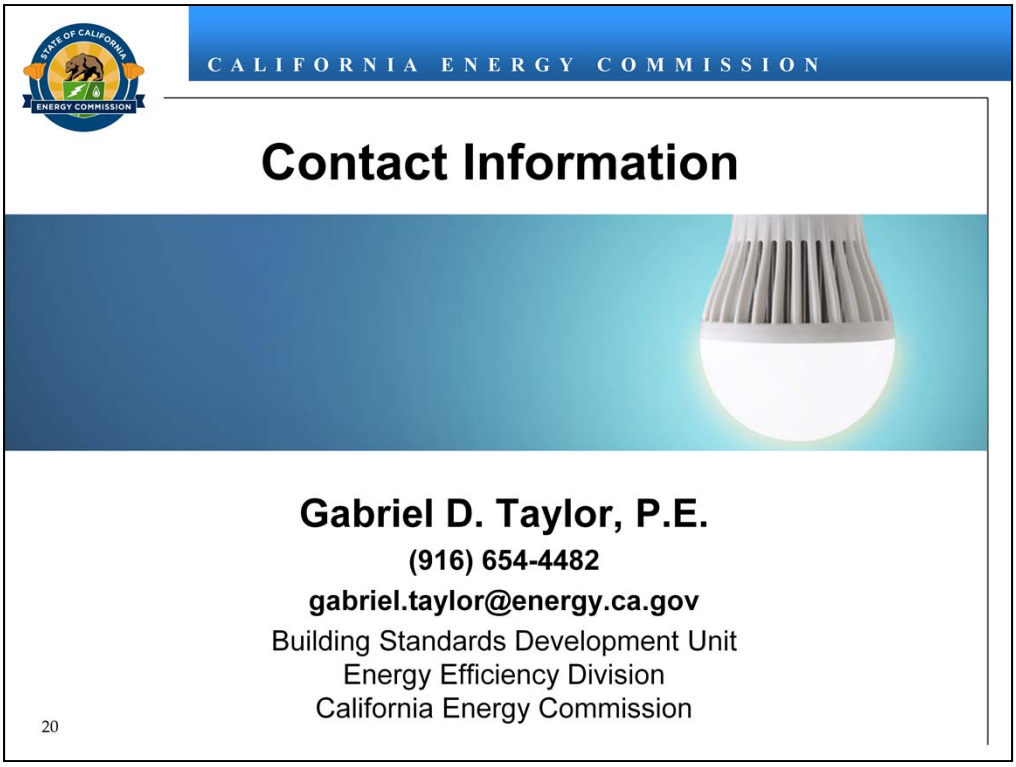



Close coordination between the Energy Commission and OSHPD during the development of a proposal will be critical.

Hospitals have a clear focus on health and safety, so any proposal will have to take that into account.

New definitions and exceptions may be necessary

The Energy Commission is proud of the public and open energy code development process, ensuring that all stakeholders have an opportunity to participate.




Introduce: Professor Michael Siminovitch

Rosenfeld Chair in Energy Efficiency

Professor Michael Siminovitch is the director of the California Lighting Technology Center (CLTC) and associate director of the Energy Efficiency Center at UC Davis. He established CLTC to support collaborative efforts among representatives from private industry, public agencies and utilities. CLTC projects accelerate the development and commercialization of energy-efficient lighting technologies for both residential and commercial applications.