

INFORMATION ABOUT THE CITY OF BERKELEY'S  
COMMERCIAL ENERGY CONSERVATION ORDINANCE  
(CECO)

Ordinance 6176-N.S.



2nd Edition September 1997

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## WELCOME

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Energy conservation is vital to all of us. It conserves natural resources for future generations, reduces atmospheric pollution, reduces building operating expenses and can improve the performance of buildings. After extensive discussions with business and energy leaders, Berkeley has taken the lead to preserve our future. This brochure discusses Berkeley's Commercial Energy Conservation Ordinance 6176 N.S. (CECO). Effective April 23, 1994, Earth Day, CECO requires commercial property owners to complete certain energy conservation measures in their buildings.



The City of Berkeley's Energy Office would like to thank the following people for their help and support in putting this brochure together: Berkeley Chamber of Commerce, Dennis Cohen, Elaine Eisenstadt, Mark Gorrell, Kristin Heinemeier, Dick Kraber, Deanna Soe and Sandra Sprague.

This brochure is for information only. Ordinance No. 6176-N.S. is the controlling document and should be considered for further clarification.

## WHEN DOES CECO AFFECT ME?

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CECO applies to all nonresidential buildings or portions of buildings that are not currently affected by the City's Residential Energy Conservation Ordinance (RECO). In mixed residential/commercial use buildings, the residential portion would be subject to RECO and the commercial portion would be subject to CECO. You are affected by CECO if one of the following events is about to happen:

- You are selling commercial property. Before you can transfer title you must install conservation measures OR you may transfer compliance responsibility to the buyer.
- You are going to add to or renovate your commercial property. The building permit applicant is required to install conservation measures to the entire building if the renovation or addition increases the conditioned area of the building by more than 10%, or if the value of the renovation exceeds \$50,000.

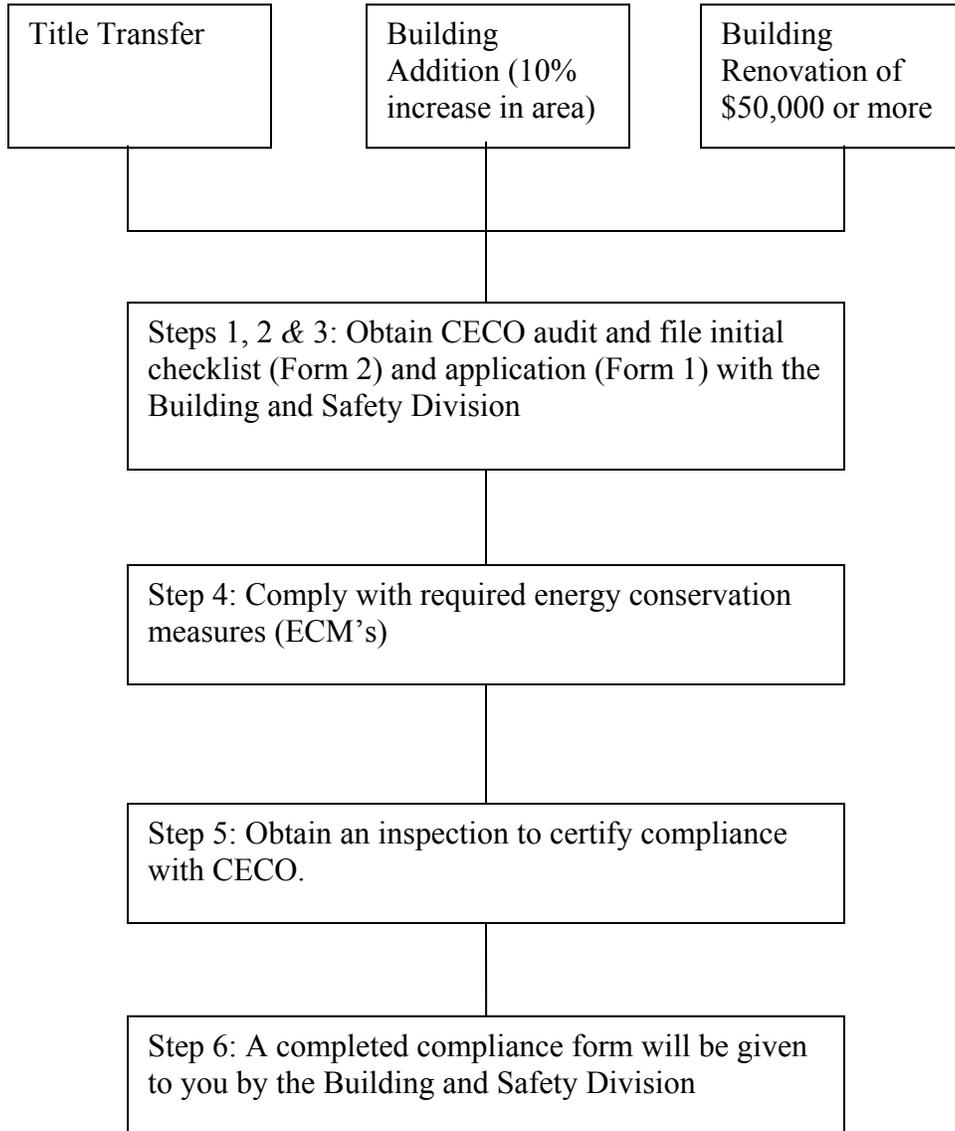
## HOW DO I COMPLY WITH CECO?

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To comply with CECO, you should do the following:

- 1) Obtain the correct form(s) from your realtor/title company or the Building and Safety Division, 2120 Milvia Street. File completed application, entitled *CECO – Form 1, General Application and Compliance Transfer Form*, with the Building and Safety Division.
- 2) Obtain an audit from a private CECO auditor who may audit for a fee. A list of private auditors is available at the Building and Safety Division, 2120 Milvia Street, or call (510) 981-7500.
- 3) File the copy of the initial audit checklist, entitled *CECO – Form 2, Energy Audit/Inspection Compliance Form*, with the Building and Safety Division, 2120 Milvia Street, Berkeley CA, 94704.

## HOW TO COMPLY WITH CECO



- 4) Comply with the required energy conservation measures (ECM's) as specified by the auditor on the audit checklist. The building complies when either:
  - a. All of the energy conservation measures required by the auditor from the checklist are completed; or
  - b. The maximum limit of expenditures is reached.
- 5) Obtain an inspection. If you are getting other work inspected by a City inspector, the CECO inspection may be done at the same time. If you are selling your building and need an inspection, call the Building and Safety Division at (510) 981-7500 to arrange for an appointment. The checklist must be completed and signed by the inspector and the inspector will file the completed copy with the City.
- 6) A signed compliance form will be returned to the owner/applicant once the form has been processed by the Building and Safety Division.

## **DO I QUALIFY FOR A "WHOLE BUILDING EXEMPTION?"**

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You may qualify for a "Whole Building" exemption:

- 1) if proof of compliance with CECO has been recorded within the past 10 years; or
- 2) if you sell your building and the purchase price is less than 25% of the building's assessed value; or
- 3) if you have spent or will spend less than \$2,000 on energy costs in the building during the past or next 12 months,  
-OR-  
if your building used or will use less than 50 kBtu's per sq. ft. during the past or next 12 months (see calculations needed on Form 4); or
- 4) if the building will be demolished within three (3) years; or
- 5) if compliance will cause financial hardship (this must be demonstrated to and approved by the City Manager).

You may apply for this exemption by completing CECO Form 4 "General Exemption Form", include supporting documentation, and deliver to the Building and Safety Division, 2120 Milvia Street, Berkeley CA, 94704, Attn: CECO Clerk.

## **CAN I TRANSFER COMPLIANCE?**

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The seller may transfer responsibility for compliance to the buyer at the time of transfer of title. The procedure for doing so is as follows:

### Buyer Transfer

Once the seller has determined which ECM's must be installed in his/her building, the seller and buyer may negotiate a transfer of responsibility for compliance with the Ordinance from the seller to the buyer by completing Part C of Form 1. The seller and buyer may transfer compliance without an energy audit IF the buyer agrees to take responsibility for scheduling and completing an energy audit. A Compliance Transfer Agreement commits the buyer to take responsibility for compliance with CECO by installing all ECM's required, or meeting the maximum expenditure limit for that building within fifteen (15) months of the date of sale.

## **HOW MUCH TIME DO I HAVE TO COMPLY?**

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If you are selling a commercial building, you are required to comply with the energy conservation measures and obtain and pass an energy inspection prior to transfer of title. If the buyer has taken on responsibility for compliance from the seller, then the buyer will have 15 months from the date of transfer of title to comply with the energy conservation measures and obtain and pass an energy inspection.

The building permit applicant for a commercial building must comply with the energy conservation measures before the building permit or Certificate of Occupancy is finalized by the Building and Safety Division.

## WHAT ARE THE FEES FOR CECO?

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The following fees must be paid when complying with CECO:

• Filing Fee	\$15.00
• Audit Fees (if not self-audited)	*
• Inspection Fee on Title Transfers **	\$90.00
Re-inspection	\$70.00
• Appeals Fee	
for 1st measure appealed	\$50.00
for each additional measure appealed	\$15.00

Inspection and Plan Check Fee on renovation/additions will be included in the valuation of the project and thereby included in the building permit fee.

### NOTES:

\* For current audit fees, see separate flyer entitled *CECO – Steps to Compliance*.

\*\* Since inspection fees may change after this brochure has been produced, please check with the Building and Safety Division for the latest fee schedule.

## **WHAT IS THE MOST I WILL HAVE TO SPEND TO COMPLY WITH CEKO?**

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You are not required to spend more than the following amounts to comply with CEKO:

- A) **Transfer of Title** - the lesser of
- 1% of the property's sale price; or
  - 1% of the assessed value prior to the sale; or
  - \$150,000.
- B) **Building Addition/Renovation** - the lesser of
- 5% of the total construction cost of addition/renovation as reflected in the building permits; or
  - 1% of the assessed value of the entire building prior to addition/renovation; or
  - \$150,000.

Note 1 - The above spending limits apply to each event triggering CEKO. If CEKO is triggered repeatedly (i.e., taking out several building permits valued at more than \$50,000) then the expenditure limit applies every time.

Note 2 - The fees incurred for audits, inspections, filing fees, or permits are not a part of the required amount specified above.

## **WHAT IS AN "ENERGY AUDIT" AND HOW DO I GET ONE?**

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An energy audit is a physical survey of your building. The audit identifies required energy conservation measures that are applicable to your building.

You can obtain an energy audit from an auditor who has been designated by the City. You may schedule the audit with the auditor and pay the auditor directly for the audit if there is a charge. A list of designated auditors is available in the Building and Safety Division, 2120 Milvia Street, Berkeley, 94704, (510) 981-7500.

## **WHAT IS AN “ENERGY INSPECTION” AND HOW DO I GET ONE?**

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An energy inspection verifies that either all the applicable conservation measures indicated on your audit checklist have been installed correctly or that the required expenditure amount has been met.

If you have triggered CECO through addition or renovation, a CECO energy inspection by a City of Berkeley building inspector must be done before or as part of the final inspection.

If you have triggered CECO due to a sale and have installed the required measures, you must arrange for a CECO inspection by calling the City of Berkeley Building and Safety Division at (510) 981-7500.

## **IS THERE ANYTHING I CAN DO TO PREPARE FOR THE AUDIT OR INSPECTION?**

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To simplify the CECO audit inspection process, you are advised to prepare for the audit or inspection as follows:

- A) Have someone familiar with the building and its mechanical systems available to unlock doors, locate equipment, and operate building system controls for the auditor/inspector.
- B) Have documentation available for portions of the building that have previously complied with California Code of Regulations, Title 24, as well as proof that conditions haven't changed in the building since that compliance.
- C) Have any receipts for work done on CECO measures available.

## CAN I AUDIT MY BUILDING MYSELF?

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If the energy requirements for your building are fairly simple and/or your staff or contractors understand CECO and the building's energy requirements well, you may want to consider a Self Audit. An audit not performed by an authorized CECO auditor is considered a Self Audit even if a contractor is hired to perform the audit. If you utilize the Self Audit option, it may be less expensive than an Authorized Audit or even free. With a Self Audit, the same forms are filed as with an Authorized Audit. However, there is one important distinction.

If the audit is performed by an authorized CECO Auditor, the inspector will usually consider the Auditor's designation to be final and will only inspect measures that were designated as "Required". All other measures included in the Ordinance will be ignored.

If the audit **is not** performed by an authorized CECO Auditor, and therefore is a Self Audit, the inspector may inspect for all measures required by CECO, including those designated as "In Compliance", "Not Applicable", "Not Cost Effective", as well as "Required" (see Form 2). The Inspector is free to change the audit designation and require that the measure be completed.

Accordingly, there is an element of risk in performing a Self Audit which may result in additional time and expense for the CECO applicant. You should not use this approach unless your building is quite simple or you are confident in the Self Auditor's ability to audit your building.

For further information on the Self Audit option, the document entitled "Performing a Self Audit for CECO" describes how to perform the Self Audit and is available at the Building and Safety Division counter.

## **DO I QUALIFY FOR AN “ENERGY CONSERVATION MEASURE” EXEMPTION?**

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When a commercial property triggers CECO by renovation, addition, or title transfer, there are 32 Energy Conservation Measures that may be required. A measure is considered to be required if it is out-of-compliance with the requirements listed in the next section. However, in particular cases, a measure may not be required if the auditor determines that:

- 1) the equipment or building use falls into a category such that the measure is explicitly exempted in the language of the Ordinance 61 76-N.S. (Section 9); or
- 2) the specific Energy Conservation measure is not technically feasible; or
- 3) the payback time for the Energy Conservation Measure is likely to be longer than 5 years or the expected lifetime of the measure (whichever is less); or
- 4) the measure complied with Title 24 within the past 10 years and the conditions that allowed it to comply still exist.

In all cases, the burden is on you to demonstrate the exemption to the auditor and document it. All decisions of the energy auditor or inspector are considered final. If you contest the decision, you can file Form 3 "Application for Appeal", within ten (10) days of the determination (include supporting documentation) with the Building and Safety Division, 2120 Milvia Street, Berkeley, 94704. (See CECO No. 6,176-N.S., Section 14.)

## **IF I COMPLY WITH CECO EARLY, DO I STILL GET CREDIT?**

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Yes! You can comply with CECO at any time. You are encouraged to obtain an audit, complete Form 1 and 2 and voluntarily file them with the Building and Safety Division before your building is sold or there are additions/renovations.

You are given 10% credit towards the maximum expenditure limit on any verifiable measures that you have installed in the three (3) years prior to your audit.

It is advantageous to obtain an audit as soon as possible since you will be given 100% credit towards the maximum expenditure limit for all energy conservation measures you have installed after the audit and before the energy inspection.

If you have installed all required energy conservation measures for your building, that building will be exempt from the provisions of CECO for ten (10) years from the date the Certificate of Compliance is issued.

## **DOES CECO GIVE ME CREDIT FOR OTHER REQUIREMENTS I'VE FULFILLED?**

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Your maximum expenditure will be reduced by 10% of the cost of any renovations undertaken to comply with the provision of the Unreinforced Masonry Ordinance (BMC, Chapter 19.64) or the Americans with Disabilities Act (ADA).

## **WHAT IF MY COMMERCIAL BUILDING IS VACANT?**

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If the commercial property has been vacant six or more months when it becomes subject to CECO, the seller, buyer or permit applicant may postpone the requirements of CECO until such time that the building is reoccupied, or the applicant applies for a Use Permit or Occupancy Permit (See Section S.B of Ordinance No. 6176-N.S. (CECO)).

## **WHAT ENERGY CONSERVATION MEASURES ARE REQUIRED IN MY BUILDING?**

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The CECO Form 2 "Energy Audit Inspection and Compliance Form" checklist, which is to be completed by the auditor, indicates which of the 32 Energy Conservation Measures (ECM's) are required. If all of the required measures cannot be completed within the spending limits, the owner may decide which measures to install. The ECM's are as follows:

### **A. Heating, Ventilating and Air Conditioning (HVAC)**

#### **1. Thermostatic Control**

All thermostats shall be functioning. All non-functioning thermostats shall be repaired or replaced.

#### **2. Timeclock Controls**

Timeclock controls that can turn systems off and on according to building occupancy requirements shall be present and connected to the following HVAC devices: chillers and other space cooling devices, chilled water pumps, boilers and other space heating devices, hot water pumps, heat exchanger circulation pumps, supply fans, return fans, and exhaust fans. Occupant override may be provided. However, override must be designed with a timer to automatically revert to timeclock control in no longer than 12 hours.

#### **3. Outside Air Economizer Cycle**

Functional outside air economizers shall be required on all cooling systems of more than 6.25 tons total cooling capacity (roughly 75,000 Btu/hr.) or more than 2,500 cubic feet per minute air flow, provided that there is a manufacturer-approved retrofit method for adding the economizer to the existing system.

#### **4. Repair of Air Duct Leaks**

All air leaks on accessible air supply and return ducts shall be sealed with appropriate sealants. Duct tape is not acceptable for repair for such a leak, although presence of duct tape does not indicate non-compliance if the duct is not leaking.

#### **5. Repair and Adjustment of Dampers**

Outside air dampers, damper controls and linkages which are controlled by HVAC units shall be in good repair and adjustment.

#### **6. Insulation of Air Ducts and Plenums**

All accessible heating and cooling air ducts and plenums, in mechanical rooms, around air handling units, and in other non-conditioned space shall be insulated to current R-value specified in Title 24, Section 124.

#### **7. Insulation of Pipes**

All accessible hot water, steam, steam condensate return, and chilled water piping, including that above suspended ceilings, shall be insulated to R-values in accordance with Title 24, Section 123.

#### **8. Cleaning and Tuning of Furnaces**

Furnace combustion units shall have been cleaned and tuned within 1 year prior to the inspection. Filters shall be inspected and replaced in accordance with the furnace manufacturer's recommendations.

##### **Electric Heat**

In existing buildings when central heat is intended to be replaced with individual electric space heaters, the application for electrical permit shall include documentation which demonstrates, using an approved method, that the new electric heaters will not consume more energy than the existing non-electric heater(s).

An economic analysis for the energy consumption shall be provided. The total calculated annual electricity consumption shall be converted to British Thermal Units (Btu) at the rate of 10,239 Btu per kWh. The design shall be such that no

more energy shall be consumed than allowed for a new building in Climatic Zone 3 in accordance with the Title 24.

### **9. Cleaning and Tuning of Boilers**

Boiler systems shall have been cleaned and tuned within 1 year prior to the inspection.

### **10. Reset Control for Boilers**

Boilers shall be equipped with at least one of the two devices listed below:

- a) outdoor air lock-out thermostat; or
- b) temperature reset control.

### **11. Repair of Hot Water and Steam Leaks**

There shall be no hot water or steam leaks, or defective steam traps or radiator control, relief, or vent valves in any accessible piping.

### **12. Cleaning and Tuning of Chiller Systems**

Chiller systems have been cleaned and tuned within 1 year prior to the inspection.

### **13. Repair of Chilled Water Leaks**

There shall be no leaks in any accessible chilled water lines and equipment.

### **14. Reset Control for Chillers**

Chillers shall be equipped with an outdoor air lockout thermostat and a chilled water reset control.

## **B. Service Water Systems**

### **15. Hot Water Temperature**

Service hot water shall be set and maintained to provide water at a temp no higher than 110 degrees F. at point of use.

### **16. Insulation of Water Heater and Storage Tanks and Piping**

- a) Water heaters and hot water storage tanks shall have a combined total of external and internal insulation of R-6. Internal insulation must have manufacturers certification.
- b) Accessible hot water pipes shall be insulated to R-values as

specified in Title 24, Section 123.

### **17. Pressure-Temperature Safety Release Valve for Water Heaters**

All water heaters with a capacity 30 gallons or greater shall have a pressure-temperature (PT) safety-release valve.

### **18. Water Heater Secured for Earthquake Safety**

- a) Each water heater and water storage tank with a capacity of 30 gallons or greater shall be strapped or otherwise secured to a wall, floor, ceiling, in order to protect the tank from falling over in an earthquake.

(Note: Water, gas and overflow pipes connected to water tanks are not considered adequate securing by themselves for the purposes of this requirement, since they can easily break in earthquakes.)

- b) Each gas water heater shall have a flexible gas line entering the appliance.

### **19. Timeclock Control of Hot Water Recirculation Pumps**

Service hot water system circulating pumps shall be under timeclock control. 20. Low Volume Showerheads

### **20. Low Volume Showerheads**

Showerheads shall have a maximum flow of not more than 2.5 gallons per minute (gpm).

### **21. Leaks in Hot and Cold Water Pipes**

There shall be no leaks in any accessible hot or cold water pipes.

### **22. Toilets**

Tank or flushometer type toilets shall not use more than one and six tenths (1.6) gallons per flush, or shall be modified to reduce the amount of water used while ensuring correct operation. Any toilet that cannot be modified to reduce water consumption is exempt from this measure. Whenever a toilet is replaced in a renovation, it shall be replaced by an ultra-low-flow model.

## **C. Lighting**

### **23. Reduce Interior Lighting Load**

One of the two following methods of compliance must be chosen:

- a) All lighting in the complying area must comply with Title 24 requirements (as specified in Section 119 "Mandatory Features" and Section 146

"Prescriptive Requirements - Whole Building Tailored Lighting") of the California Energy Code. This includes both an allowable watts/square foot, and allowed exemptions.

-OR-

- b) All standard incandescent and halogen lighting shall be replaced with fluorescent lighting or bulbs with an efficacy of 40 lumens/watt or more. (Fluorescent lighting has a typical lighting efficacy of 40 lumens/watt, whereas standard incandescent lighting is typically 15 lumens/watt.) Standard incandescent and halogen lighting are allowed only in the following cases:
- permanently disabled fixtures
  - lighting under the control of occupancy sensor or dimmer switches
  - emergency lighting (excluding exit signs)
  - portable or task lighting
  - lighting in hotel or motel guest rooms
  - ornamental lighting (such as chandeliers) where the presence of compact fluorescents would significantly degrade the appearance of the fixture
  - stage, entertainment, or audio-visual system lighting
  - lighting inside appliances or display cases
  - spotlights and floodlights
  - lighting used an average of two hours per day or less
  - lighting used an average of six hours per day or less in fixtures that would have to be replaced to accept compact fluorescents.

#### **24. Reduce Exterior Lighting Load**

Outside lights, exit signs and lights in parking garages that are in use an average of 2 or more hours per day shall not use incandescent bulbs.

Fixtures with lamps removed or burned out are to be considered as though all the lamps were operational, unless the fixture is permanently disabled. This requirement does not apply to emergency lighting. Halogen bulbs may be used only on spot lights. Tungsten-halogen bulbs are not considered "incandescent" for the purposes of this requirement.

#### **25. Exterior Lighting Controls**

Exterior lighting shall have automatic controls to turn off lighting during daylight hours.

### **D. Commercial Refrigeration Equipment**

#### **26. Cleaning and Tuning of Refrigeration Equipment**

Commercial refrigeration equipment shall be cleaned and tuned for efficiency, including, but not limited to, cleaning of condenser coils and evaporators and replacement of defective or worn door gaskets and seals.

### **27. Thermal Doors and Curtains**

- a) Low and medium temperature commercial refrigeration cases shall be equipped with doors, strip curtains, or similar devices.
- b) Subsequent to an above modification, the compressor system shall be modified, as appropriate, to compensate for the reduced cooling load.

## **E. Motor-Driven Equipment**

### **28. Repair of Air and Water Line Leaks**

- a) There shall be no leaks in compressed air and in pumped water systems.
- b) Filters shall be cleaned or replaced as needed.
- c) Belts or other coupling systems shall be repaired or replaced as needed.

## **F. Swimming Pools and Spas**

### **29. Swimming Pool and Spa Covers**

Heated swimming pools and spas shall be equipped with a cover for unoccupied hours.

### **30. Timeclock Control of Circulation Pumps**

Pool and spa recirculation pumps shall be under timeclock control.

### **31. Cleaning and Tuning of Heaters**

Pool heaters shall have been cleaned and tuned for efficiency within one (1) year prior to inspection.

## **G. Building Envelope**

### **32. Ceiling Insulation**

Buildings with 3 or fewer above-ground stories shall have ceiling insulation which is rated R-19 or greater covering any accessible attic space which is directly above an area served by heating or cooling equipment. If the R-19 insulation cannot fit in the attic space, then the maximum amount of insulation compatible with available space and existing uses shall be installed.

## **SPECIAL NOTE ON ASBESTOS AND HAZARDOUS MATERIALS**

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Compliance with CECO does not require removal or abatement of asbestos or other hazardous materials. However, compliance with CECO does not relieve you of compliance with any other applicable state, federal or local law.

If you suspect your commercial structure has asbestos, contact the Bay Area Air Quality Management District, San Francisco District, at (415) 771-6000 ext. 4762, for information.

For any other suspected environmental hazard, contact the City of Berkeley Division of Environmental Health at (510) 644-6510 or a Toxics Management Hazardous Material Specialist at (510) 705-8150.

## **WHERE DO I CALL WITH UNANSWERED QUESTIONS?**

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City of Berkeley  
Building and Safety Division - (510) 981-7500  
Mon.- Fri. 8:00 am - 5:00 pm

City of Berkeley  
Energy Office - (510) 981-5435  
Mon.– Fri. 8:00 am - 5:00 pm