

# CODE LINK

STATE OF OREGON • BUILDING CODES DIVISION

NOVEMBER/DECEMBER 1999



## Quakes unavoidable; much damage preventable

Oregon has experienced two damaging earthquakes this decade: the 1993 magnitude 5.6 Scotts Mills and the magnitude 6.0 Klamath Falls. They were the largest earthquakes in the United States that year. In the historical record, only five earthquakes greater than magnitude 5 have occurred in Oregon since the 1870s and prior to 1993. They include a 5.2 earthquake near Portland in 1962, a 6.1 earthquake near Milton-Freewater in 1936, and the largest, an estimated 6.8 near the northern California/southwest Oregon border in 1873. The Pacific Northwest has also experienced several large subduction zone earthquakes over the last 3,500 years. The last one was in 1700. It was believed to have been a magnitude 9 or greater, and probably shook the entire northwest from British Columbia to northern California. This earthquake also produced a tsunami that not only affected the Pacific Northwest, but areas as far away as Japan.

Although we are not as seismically active as our neighbors to the south and north, we are still considered a high-risk state. We are

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## QUAKE, *continued*

high risk not only because we are located within a seismically active area, but because we have an antiquated building stock. Buildings in Oregon, especially prior to 1988, were built to a lesser standard and have not been upgraded following repeated earthquakes as have the buildings in California. Nevertheless, Oregon has taken measures to reduce the risk. The building codes were upgraded to Seismic Zone 3 for western Oregon and, more recently, the southern two-thirds of the Oregon coast was upgraded to Seismic Zone 4 as a result of the 1993 earthquakes and the strong evidence of and potential for magnitude 8 or greater subduction zone earthquakes along the coast.

Besides building code compliance and upgrades, there are other strategies — some already in place — that can help reduce the damage, injury, and loss of life that often accompany earthquake and tsunamis.

### Education

- Be aware and understand the hazard.
- Know what can be done to minimize the hazard.

### Preparedness

- Practice duck, cover, and hold drills at workplace and at home (see diagram).
- Identify hazardous contents and situations in the workplace and home.
- Plan evacuation routes and practice evacuation.
- Store and maintain emergency supplies in the home, office, and car.
- Buy earthquake insurance.

### Prevention

- Structurally retrofit buildings: considered a life safety hazard to the

community, critical and essential facilities needed during emergency response (fire stations, emergency operation centers, hospitals) and those that house vulnerable populations (schools, retirement centers). Some Oregon buildings have already been retrofitted. The building that is home to the State Office of Emergency Management is undergoing a seismic retrofit that will be completed later this year.

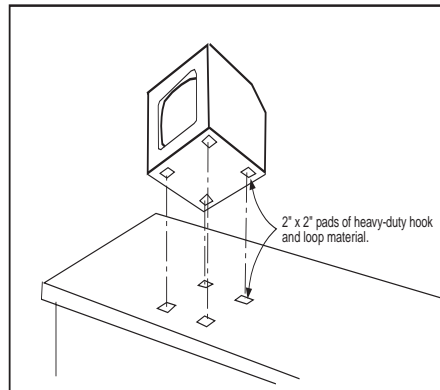
- Promote structural retrofit by using incentives, such as tax rebates and credits, or by passing ordinances.
- Bolt houses to their foundations to reduce homeowner risk.
- Secure the contents of a building or house.
- Site structures (especially essential and critical ones) in lower hazard areas.

Although the last two prevention measures are often overlooked by groups that design and build structures, they can be the simplest and least expensive — and they can provide the greatest benefit. Much of the damage, loss of life, and injury from earthquakes are the result of the falling, sliding, and rolling of the nonstructural contents of a building. These contents include bookcases, file cabinets, computers, televisions, stereos, light fixtures, ceiling tiles, framed and wall-mounted artwork, sculptures, interior walls, etc. The obvious remedy is to secure these items with hardware, Velcro, cords, etc., or rearrange and relocate them (see diagrams). For example, heavy items can be moved to lower shelves or bookcases can be moved to other areas in the office or cubicle. All items must be placed so that they will not be barriers to evacuation. New buildings should be designed with these risk-reducing measures in mind.

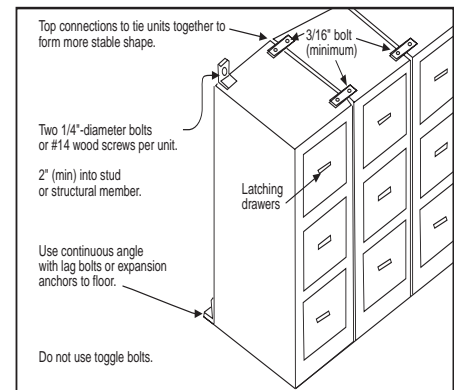
Siting new buildings in safer areas is another way to reduce risk. Some sites will shake, liquefy, or slide more than other areas during an earthquake. Along the coast, some areas will be subject to tsunami impact and flooding. Relative earthquake hazard maps and tsunami inundation maps can be used as guides for siting buildings. With the aid of these maps and site-specific geologic studies, if warranted, buildings and other structures can be built in relatively earthquake- and tsunami-safe areas. Carefully choosing safer sites could help you avoid the high costs to rebuild or retrofit structures should increased shaking, liquefaction, and sliding occur, or to rebuild or repair structures damaged by an earthquake or tsunami.

With foresight and ingenuity, the risks from earthquakes and tsunamis can be reduced at little or no cost. The Federal Emergency Management Agency provides many structural and nonstructural guidance documents available in hard copy or on the Web ([www.fema.gov](http://www.fema.gov)).

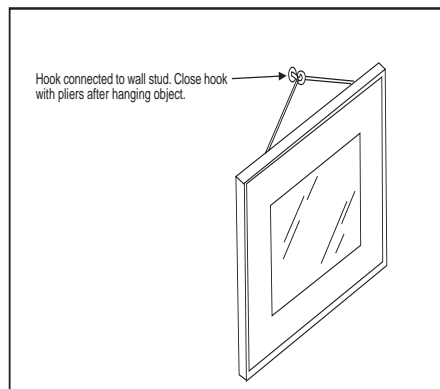
*Guest article provided by Mark Darienzo, earthquake and tsunami program coordinator, Oregon Emergency Management (503) 378-2911, ext. 237, or [mdarien!oem.state.or.us](mailto:mdarien!oem.state.or.us).* ■



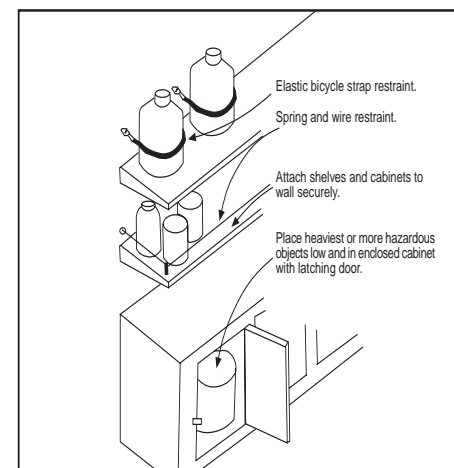
ATTACH REMOVABLE EQUIPMENT TO COUNTERTOP



ATTACH CABINETS AT TOP, BOTTOM AND SIDES TO STRUCTURE



ATTACH SHELVES AND PICTURE FRAMES TO WALLS



USE SAFETY RESTRAINTS FOR CHEMICAL STORAGE

**WHEN AN EARTHQUAKE STRIKES, DUCK, COVER & HOLD. . .** Whether you are in your home, a school classroom, a high-rise or other type of building, it is important to know how to protect yourself during an earthquake. Practice what to do during an earthquake and teach yourself and your family members to react automatically when the shaking starts.

If you are outdoors when the shaking starts, get into an open area away from trees, buildings, walls, and power lines. If you are indoors, follow the steps below:

# DUCK! COVER & HOLD



**1 DUCK**  
*DUCK or drop down to the floor.*



**2 COVER**  
*Take COVER under a sturdy desk, table or other furniture. If that is not possible, seek COVER against an interior wall and protect your head and neck with your arms. Avoid danger spots near windows, hanging objects, mirrors or tall furniture.*



**3 HOLD**  
*If you take cover under a sturdy piece of furniture, HOLD on to it to be prepared to move with it. HOLD the position until the ground stops shaking and it is safe to move*



**AFTER AN EARTHQUAKE, BE PREPARED FOR AFTERSHOCKS AND PLAN WHERE YOU WILL TAKE COVER WHEN THEY OCCUR.**

# Oregon Floodplain Development and Elevation Certificate Program



The State of Oregon Building Codes Division and the Department of Land Conservation and Development are hosting classes on floodplain management. The goals of these **FREE** classes are to make local planners, inspectors, and building code officials familiar with floodplain management requirements and to introduce the **new** FEMA elevation certificates that will be required for residential development after January 1, 2000. Four hours of continuing education credits will be available for attendees.

Instructors include Mark Eberlein, FEMA, Region 10 Mitigation Office; Ann Beier, state floodplain program coordinator, Department of Land Conservation and Development; and Bill Freeman, senior engineer with the City of Portland's Office of Planning and Development.

Classes will be held from 8:30 a.m.-12:30 p.m. on Wednesday, December 1, in Eugene and on Thursday, December 2, in Medford.

The class will also be broadcast on December 16 using the state's Video and Online Services network. Satellite connections will allow class participants to interact with instructors.

Additional information about Video and Online Services receiving sites and class registration is available on line at <http://www.cbs.state.or.us/external/bcd/>. Seating is limited at receiving sites. No telephone registrations will be accepted. Register on line or by mailing a registration form to Debi Barnes-Woods, Building Codes Division, PO Box 14470, Salem, OR 97309. Registrations must be received at least two weeks before the class.

Further information about classes is available from Ann Beier at the Department of Land Conservation and Development, (503) 373-0050 ext. 255 or [ann.beier@state.or.us](mailto:ann.beier@state.or.us). You may also call Peggy Collins, Building Codes Division, (503) 373-1258, or send e-mail to [peggy.a.collins@state.or.us](mailto:peggy.a.collins@state.or.us). ■

## Oregon Floodplain Development & Elevation Certificate Program *Class Registration Form*

*Please Print Clearly*

Name: \_\_\_\_\_

Address: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_

Telephone number: \_\_\_\_\_

Oregon Certification/Registration/License Number: \_\_\_\_\_

Class date: \_\_\_\_\_ Location: \_\_\_\_\_

12/1 Eugene      12/2 Medford      12/16 Video & Online Broadcast in the following

Seating is limited. No telephone registrations accepted. Submit registration form at least 2 weeks prior to class date to: Debi Barnes-Woods, Building Codes Division, PO Box 14470, Salem, OR 97309. [debra.j.woods@state.or.us](mailto:debra.j.woods@state.or.us)

locations:    \_\_\_ Bend                      \_\_\_ Coos Bay  
                  \_\_\_ Eugene                    \_\_\_ Medford  
                  \_\_\_ Oregon City               \_\_\_ Pendleton  
                                                 \_\_\_ Salem

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# With “Substantial improvements,” you must elevate



National Flood Insurance Program (NFIP) regulations require new construction and substantial improvements of residential structures in flood hazard areas to be elevated.

The NFIP regulations define substantial improvements as any repair, reconstruction, or improvement of a structure whose cost equals or exceeds 50 percent of the market value of the structure either before the improvement or repair is started; or if the structure has been damaged and is being restored, before the damage occurred. According to this definition, “substantial improvement” occurs with the first alteration of any wall, ceiling, floor, or other structural part of the building, whether or not that alteration affects the external dimensions of the structure.

The substantial improvement definition applies to three general types of alterations: additions, reconstruction (repair due to damage), and rehabilitation. If an addition, reconstruction, or rehabilitation meets the substantial improvement definition, it needs to be elevated.

An *addition* is an alteration to an existing structure that results in any increase in its ground floor area. *If the cost of the proposed addition is greater than 50 percent of the market value of the existing structure, then the addition must be elevated one foot above the base flood elevation.* Generally, the original part of the structure does not need to be elevated, just the addition. But if the cost of the common boundary between the existing structure and the addition is greater than 50 percent of the market value of the existing structure, *both* the addition and the existing structure must be elevated.

*Reconstruction* is the repair of a structure damaged by any cause (not just flooding) without increasing the floor area of the structure. If a building was damaged and the amount of damage exceeded 50 percent of the structure’s market value, then, upon repair, the structure must be elevated one foot above the base flood elevation. The determination of the 50 percent value is based upon all the damage sustained. *Thus, a building that sustains damages exceeding 50 percent of its market value will be subject to the substantial improvement rule and will be required to elevate even if the actual cost of repair is reduced below the 50 percent threshold.*

*Rehabilitation* means any improvements and repairs made to the interior and exterior of an existing structure that do not result in an increase in the ground floor area of the structure. This is perhaps the most common category and includes remodeling a kitchen, gutting the building and redoing the interior, and adding a second story. *If the cost of rehabilitation exceeds 50 percent of the structure’s market value, the entire structure must be elevated.*

In many cases, a combination of alterations will be used. In these cases, the more restrictive category should be used. For example: A property owner remodels a room that includes adding more floor space. In this case, the rehabilitation criteria would apply and all improvements and repairs to the structure would be included in calculating whether or not the activity is a substantial improvement. Another example occurs when reconstruction of a damaged structure is necessary, but the property owner decides to also construct an addition to the

# OMDS Q & A

By Patrick Lewis



The following questions regarding the Oregon Manufactured Dwelling Standard (OMDS) were submitted to the division:

## Question

How should the local jurisdiction handle grading on a manufactured dwelling lot outside the 6-foot horizontal dimension mentioned in the OMDS?

## Answer

Section 302(c)(3) of the OMDS requires a minimum grade of a half-inch per foot for six horizontal feet to slope downward away from manufactured dwelling stands, skirting and foundations; Section 302(d) of the OMDS requires adequate grading where erosion due to high runoff velocity threatens the manufactured dwelling stand; and Section 302(b) of the OMDS states: *Ascending and descending slopes at or adjacent to a manufactured dwelling site shall comply with the requirements of Chapter 4 of the Oregon One and Two Family Dwelling Specialty Code.*

The OMDS specifically addresses the grading requirements within the first six feet of the manufactured dwelling, but all other site conditions should be determined by the local jurisdiction. If there are site conditions such as ascending or descending slopes that may be detrimental to the manufactured dwelling, the local jurisdiction should address those conditions as they would similar conditions for a site-built house.

## Question

Why does the OMDS permit only flexible water connectors for the fresh-water supply to a manufactured dwelling?

## Answer

Section 503, Note 2 of the OMDS states: *The water inlet shall be connected to the site water supply outlet by an approved flexible connector or other approved materials not less than 3/4-inch nominal diameter (see Table 503 of this standard).*

Table 503 of the OMDS lists seven materials approved for the water connection, in addition to the flexible connector. The flexible connector is an example used in the code and illustrations, but it is not the only method permitted.

## Question

How should skirting be built when it is supporting more than eight inches of backfill?

## Answer

Section 304(m) of the OMDS requires skirting supporting more than eight inches of unbalanced fill to be built as a retaining wall. The retaining wall can be built out of concrete block, poured-in-place concrete, foundation-grade lumber, or other approved materials, but the actual designs for skirting or retaining walls is up to the permittee with the approval of the jurisdiction.

## Question

Are manufactured dwellings required to use a concrete-encased electrode for the equipment grounding method when supported on steel reinforced concrete runners?

## Answer

The Oregon Electrical Specialty Code (OESC), OAR 918-305-160(4), requires all new construction with concrete reinforcing bars or rods installed in concrete footings to have a concrete-encased grounding electrode system installed according to Article 250-81 of the National Electrical Code (NEC). Though new manufactured dwelling installations often have a concrete footing with reinforcing bars, this particular section of the OESC is not applicable to manufactured dwellings for the following reasons:

- OMDS Section 403(4) refers to Article 250 of the NEC for equipment grounding, not the OESC.
- Article 250 of the NEC establishes the concrete-encased grounding electrode

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as one choice among several, not as a mandatory requirement as stated in the OESC.

- The OESC and NEC are addressing the below-grade type of foundation footing used on site-built buildings. The OMDS allows the concrete runners to be poured on top of the ground and allows a vapor barrier between the ground and the footing. Because this is not an ideal grounding path, it is not the intent of the OESC, NEC, or OMDS to require concrete-encased grounding electrodes for manufactured dwellings — regardless of the type foundation used — to support the manufactured dwelling.

### Question

Why can only clear visqueen (plastic sheeting) vapor barrier be placed under poured-in-place concrete footings? Why can't we use the black visqueen?

### Answer

Black plastic is made of recycled materials and is known to break down within the first year under poured-in-place concrete. It is thought that acids in the soil and concrete cause the rapid deterioration of the material. White or clear plastics are made from virgin materials and have been proven to not be affected by the acids in the soil or concrete.

If you have questions you would like to see addressed in this publication, fax them to Patrick Lewis, (503) 378-4101. ■

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## Checking out a contractor is easier



Finding out a construction contractor's business history became easier on September 1. There are now three ways to check if a contractor is properly registered with the Oregon Construction Contractors Board (CCB) and if the business has any open claims filed against it:

1. A toll-free, 24-hour automated inquiry line: (888) 366-5635
2. The Internet: [www.ccb.state.or.us](http://www.ccb.state.or.us)
3. CCB staff Monday through Friday, 8 a.m. to 5 p.m.: 503-378-4621, ext. 4900.

Information is available on 96,000 currently or previously registered contracting businesses. It includes the registration number, business name, address and phone number, registration status, date of original registration, current expiration date, category, number of open claims, and number of closed claims within the past three years where the contractor was issued a final order.

If you call the toll-free number, please provide the contractor's registration number, phone number, or name. ■

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# Bundling PEX hot and cold water tubing

By Terry Swisher



The following question was recently asked: “Does the Oregon State Plumbing Specialty Code allow bundling of crosslinked polyethylene (PEX) hot and cold water tubing?”

There is nothing in the Plumbing Specialty Code that specifically prohibits bundling of PEX hot and cold water distribution tubing.

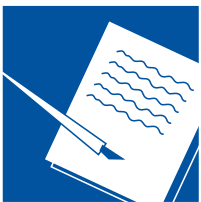
The bundling of PEX hot and cold water tubing is not a health- or safety-related issue. The practice of bundling hot and cold PEX tubing simply raises a question about the potential effects of increasing the cold water temperature or lowering the hot water temperature of the tubing in contact. Even this potential effect is only applicable to the static water in the hot and cold tubing that is in contact. The purpose of the plumbing code is to provide minimum standards to safeguard life or limb, property, and public welfare by regulating and controlling the design, construction, and quality of materials of all plumbing systems within the state. The temperature of hot or cold water or the distance of hot-water piping to cold-water piping, is not defined within the plumbing code for PEX or any other piping material and does not conflict with the purpose of the code.

When the code does not provide specific product installation standards, the manufacturer’s standards should be used. There are no installation standards in the code specific to PEX tubing. Several PEX tubing manufacturers were contacted about bundling hot and cold PEX tubing. They agreed that bundling is an acceptable practice. They believe that the heat transfer in PEX tubing is substantially less than in other piping material and that the volume of water is not significant enough to be of concern. The manufacturers contacted prohibit their products from bundling only when a continual hot water circulation system is used.

The 1994 International Association of Plumbing and Mechanical Officials Code Interpretation Committee has issued an interpretation on the bundling of hot and cold water distribution piping. This interpretation does not address PEX specifically. The interpretation does address concerns about the heat transfer and provisions for expansion or contraction in hot water piping. PEX tubing is not an approved hot and cold water distribution material in the model 1994 Uniform Plumbing Code. ■

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## Interpretive ruling signed



Following is the complete text of an interpretive ruling recently approved. It has also been posted to our Web site.

### *Interpretive Ruling 99-4*

Plumbing Product Approval Request -  
Metana Steelworx

*Initiated by:* G. W. Markel PIPE, Inc./  
Metana Steelworx

*Request for ruling:* Approval of the  
Metana Steelworx Type 24 Steel Catch  
Basin.

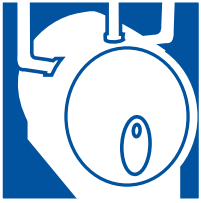
Applicable code section: 1996 Oregon  
State Plumbing Specialty Code Section  
1108.0.

*Findings:* Effective April 1, 1996, the  
division adopted plumbing code provisions  
listing the standards for catch basins in  
Section 1108.0. The Metana Steelworx Type  
24 Steel Catch Basin as submitted meets  
the provisions of Section 1108.0 of the 1996  
Oregon State Plumbing Specialty Code.

*Conclusion:* The State Plumbing Board  
recommends the Building Codes administra-  
tor approve this interpretive ruling. ■

# Boiler law requirements revised for contractors

By Curt Lundine



We who regulate the Oregon Boiler Safety Program have noted a significant increase in the number of plumbing and HVAC contractors running afoul of the Boiler Law and being subjected to compliance action by the Board of Boiler Rules. Most of these contractors have performed work that falls under the scope of the Boiler Law when they or their employees were not licensed to work on regulated equipment.

Many factors contribute to the problem — the greatest is lack of knowledge about Boiler Law requirements.

None of us who manage statewide safety programs want to charge contractors with violations of the law. We would rather help them understand the requirements of the law and keep them and their employees working at their trades.

Following are requirements for a contractor to work on mechanical systems regulated by the Boiler Law:

- It is illegal for any government agency to sell a construction permit to any contractor not registered with the Oregon Construction Contractors Board: consequently, CCB registration is required.
- The contractor must hold a valid boiler business license purchased from the Building Codes Division. A one-year license costs \$150 and is renewable. There are no prior requirements to purchase the license, and there is no grace period for renewal.
- A contractor's employees working under the Boiler Law are required to be **individually** licensed in the boiler trades. There are three license classifications for installing or repairing boilers. Each requires a certain level of experience and passing a written examination. The fee

for an individual license is \$25 per year, and there is no grace period for renewal.

- There are at least two agencies the contractor must satisfy when doing boiler work. Some code requirements are in the Uniform Mechanical Code and require a permit issued by the local jurisdiction. Other requirements are in the Oregon Boiler Law. Permits to perform work subject to the Boiler Law are sold *only* by the State Building Codes Division in Salem, and *only* to contractors holding a valid boiler business license.

## *You can't go wrong if you remember this:*

The owner of the work site **cannot** buy a boiler permit; the owner of the boiler **cannot** buy a boiler permit; the general contractor **cannot** buy a boiler permit; regardless of contract language or other agreements.

**Only a boiler business license holder can buy a permit to install or repair a boiler or pressure vessels!**

A basic boiler business license authorizes a company to install, repair, or alter boilers and pressure vessels by *non-welded* means only. If welded repairs or installation are intended, a much greater level of qualification is required of both the business and of the tradespeople. Soft-soldered or silver-soldered attachment processes are not considered welding.

The Boiler Law defines an *installer* of pressure equipment as the person making the water, steam, air, refrigerant, or other product piping connection to the boiler or pressure vessel. A person who transports or positions the boiler or pressure vessel is not an installer. An electrician making electrical connections is not an installer.

Please see "Boiler law," Page 21

# Elevator hoistway and machine room fire rating

By Jim Runyan



The Elevator Safety Program has always deferred the rating of the machine room to the building code. However, it came to our attention that the building code does not directly regulate the rating of the elevator machine room in all cases, although it does directly regulate the rating of the elevator hoistway. (The term “shaft” is used to describe an elevator hoistway in the building code.) This issue was discussed with the Technical Advisory Group and its members have concurred with the following assessment of the code.

The Oregon Elevator Specialty Code (OESC) will normally defer the construction of the elevator hoistway, machine room, and pit to the building code requirements when the building code specifically regulates these spaces. The Oregon Structural Specialty Code (OSSC) clearly regulates the fire rating of elevator hoistways. Table 6-A in the OSSC sets the hoistway enclosure fire rating for the various types of construction. Typically, a one- or two-hour rating is required. (See exceptions in OSSC section 711.3.) The proper rating for the type of construction is normally verified by the local jurisdiction at the time of plan review.

No such fire rating is required by the OSSC for elevator machine rooms. Herein lies the crux of the issue. How does the rating of the hoistway remain intact when elevator equipment must penetrate the common wall between the hoistway and the machine room? To resolve the issue, we must review the OESC. ASME A17.1, 1996, Rule 101.1 establishes the fire rating of the machine room:

## 101.1a Fire-Resistive Construction

- (1) *Machine rooms and machinery spaces shall be enclosed throughout their height with fire-resistive enclosures as required by the building code. (See Section 3, Definition.)*

*NOTE: Section 3 Definition refers only to the OESC.*

- (2) *Enclosures and access doors thereto shall have a fire endurance at least equal to that required for the hoistway enclosure and the hoistway doors, respectively, unless the building code specifies otherwise.*
- (3) *Machines, control equipment, sheaves, and other machinery shall not be exposed to the weather.*
- (4) *Partitions between machine rooms and fire-resistive hoistways shall comply with the requirements of Rule 100.1a(2).*

*NOTES: Rule 101.1a(1) See Rule 100.3 for floors of machine rooms and machinery spaces over the hoistways. See Rule 101.2 for separating elevator machinery from building machinery.*

## 101.1b Non-Fire-Resistive Construction

- (1) *Where fire-resistive construction is not required by Rule 101.1a(1), machine rooms and machinery spaces shall conform to the requirements of Rules 101.1b(2) and (3).*
- (2) *The machine room or machinery space shall be enclosed with non-combustible material extending to a height of not less than 6 feet (1829 mm).*
- (3) *Machines, control equipment, sheaves, and other machinery shall not be exposed to the weather.*

The trigger for complying with Rule 101.1a(1) is the rating of the hoistway and the fact that the hoistway and machine room share a common wall, floor, or ceiling. (Note: The elevator code does not regulate what type of materials are used for construction of the machine room as long as the proper rating is maintained.) There are often penetrations through this common barrier (for conduits, hoist ropes, pipes, etc.) to accommodate the elevator installation. Thus, the fire rating of the hoistway is compromised in such cases. Where this occurs, the

machine room must have an identical fire rating to that of the hoistway to contain the rated integrity of the hoistway enclosure. The following summary is intended to clarify the requirements:

- I. There are three instances in which the rating of the machine room needs to comply with Rule 101.1b or be rated comparable to the construction of other rooms in the building.

(Refer to Figures 1 and 2.):

- (A) Where any penetration in the common wall, with the hoistway, floor or ceiling caused by pipes and conduits can be properly fire-stopped
- (B) The machine room is remote from the hoistway (typically this is only possible for hydraulic elevators)
- (C) The machine room extends above the roof line

- II. There are four conditions in which the machine room door does not need to carry the same rating as the elevator hoistway:

- (A) The door is located on an exterior wall of the building even if the room shares a common wall with the hoistway
- (B) The machine room does not share a common wall, floor, or ceiling with the hoistway
- (C) The machine room and access door are located above the roof line
- (D) The common wall, floor, or ceiling between the machine room and the hoistway is properly fire-stopped

- III. In all other cases the machine room and access door must have the same rating as the machine room/hoistway enclosure. When doors need to be rated, a 1½-hour door is sufficient for a 2-hour rated room.

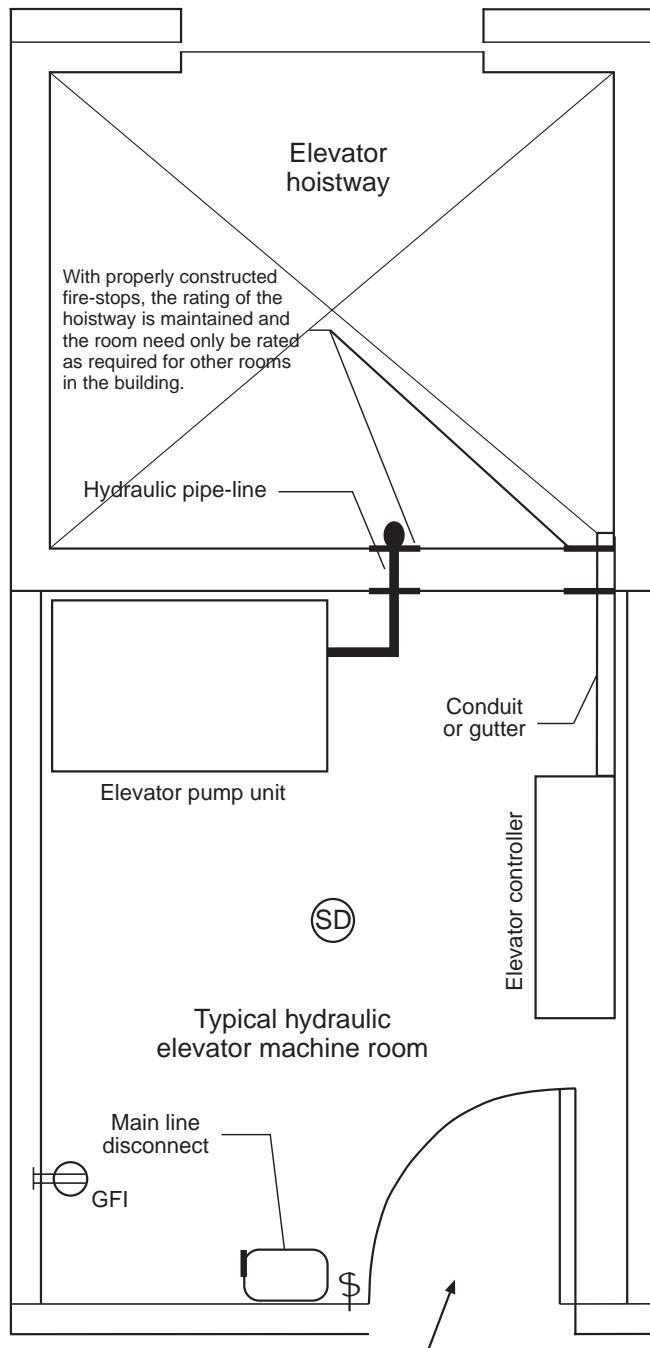
Condition	Description	Door rating	Machine room
I	Machine room shares a common wall, floor or ceiling with hoistway; penetrations are not fire stopped; and door opens to exterior of building.	N/A	1- or 2-hour
II	Machine room is located above the roof line.	N/A	N/A
III	Machine room shares a common wall, floor or ceiling with hoistway; and penetrations are properly fire-stopped.	N/A	N/A
IV	Machine room does not share a common wall, floor or ceiling with hoistway.	N/A	N/A.
V	Machine room shares a common wall, floor, or ceiling, with hoistway; penetrations are not stopped; and door opens to interior of building.	1- or 2-hour	1- or 2-hour

N/A — Construction of the machine room and/or the door rating may be of the same type as other construction permitted in the structure.

*Please see hoistway and machine room diagrams on Pages 13 and 14.*

Questions about a particular situation should be directed to (503) 373-1298. ■

## Typical hydraulic elevator – Figure 1



Normally, when the door opens to the interior of the building, it will need to have the same rating as the machine room.

### Exceptions:

- 1). The door is located on the exterior wall
- 2). The hoistway is not adjacent to the machine room
- 3). The door is located above the roof line
- 4). The adjoining hoistway/machine room wall is properly fire-stopped

The building code OSSC Table 6-A determines the required elevator hoistway fire rating. The building code does not address the rating of the elevator machine room. The Oregon Elevator Specialty Code, ASME A17.1, Rule 101.1a requires that the machine room be rated the same as the hoistway.

Where the machine room and the hoistway share a common wall or floor/ceiling, this wall usually loses its rating due to penetration of conduits, pipes, hoist ropes and other related elevator equipment. In such cases the machine room must be capable of maintaining the fire rating of the hoistway enclosure. Therefore, the machine room walls and entry door must be either 1- or 2-hour rated. In most cases a 1.5-hour rated door would be acceptable in a 2-hour enclosure.

### There are some exceptions:

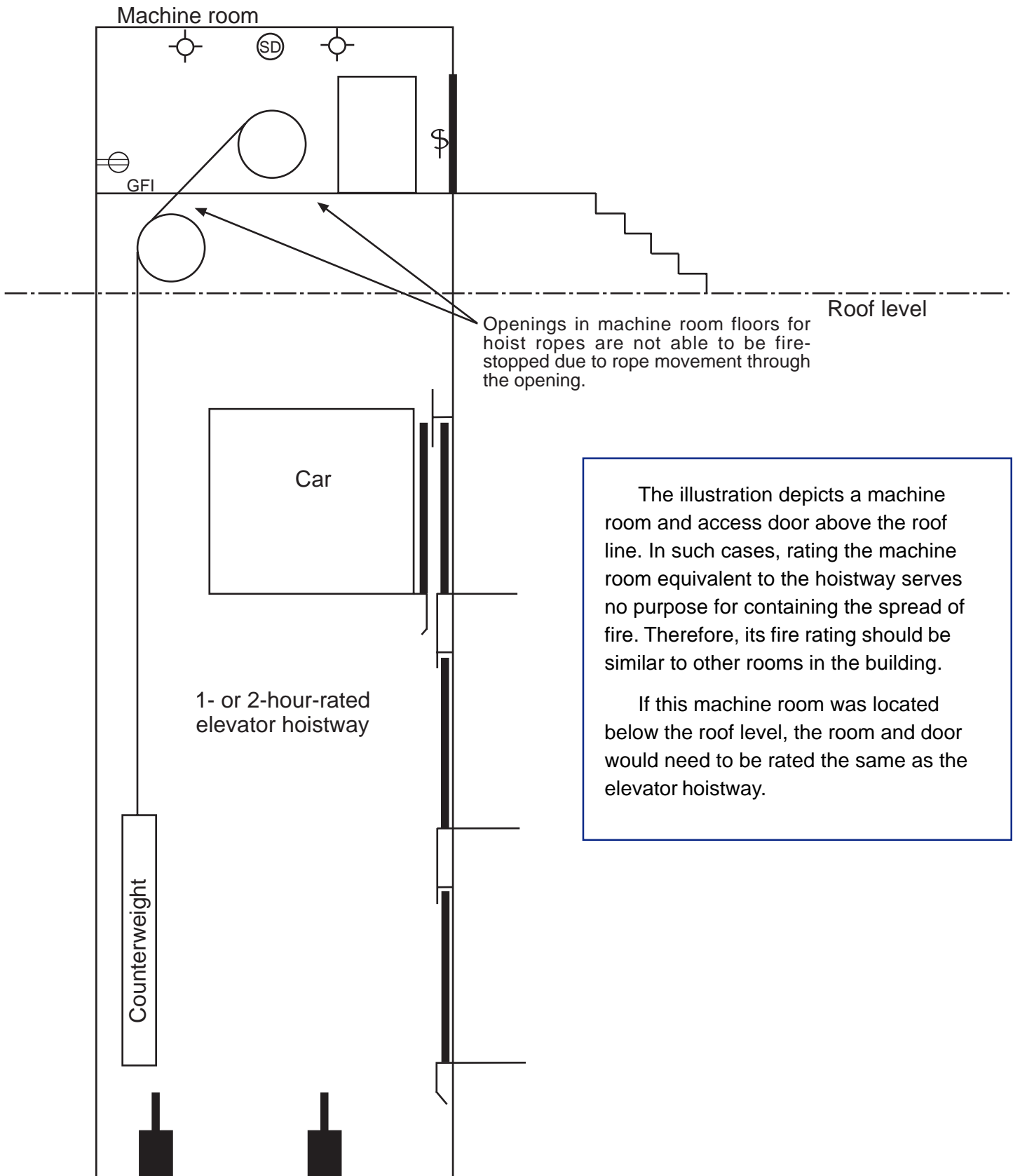
When fire stops are provided around the penetration of pipes and conduits, the rating of the hoistway is maintained. In such cases, the machine room and access door are to be rated as are other rooms in the building.

If the machine room is not located on an adjoining wall or floor/ceiling of the hoistway, the room can be rated as with other rooms in the building. The machine room door needs only a rating equal to that of other rooms in the building.

If the machine room is located over the hoistway, and the room extends above the roof line — without adjoining rooms or other equipment spaces — the room and door need only be rated equal to other rooms in the building.

If the machine room door opens to the outside of the building, the door need only be rated as required by the building code.

## Overhead machine room – Figure 2



The illustration depicts a machine room and access door above the roof line. In such cases, rating the machine room equivalent to the hoistway serves no purpose for containing the spread of fire. Therefore, its fire rating should be similar to other rooms in the building.

If this machine room was located below the roof level, the room and door would need to be rated the same as the elevator hoistway.

# Compliance report

The Building Codes Division is responsible for the enforcement of Manufactured Dwellings and Structures, Plumbing, Structural/Mechanical, Electrical and Boiler/Pressure Vessel Specialty Codes to protect the health and safety of the people of Oregon.

## The Director of the Department of Consumer and Business Services found the following violations of the Oregon Specialty Codes in September 1999:

CITY .....	NAME .....	VIOLATION .....	CIVIL PENALTY ASSESSED
Aloha .....	Alan E. Marsh Jr. Marsh & Tubandt Construction & Development	No electrical permit/ no plumbing permit .....	\$500
Ashland .....	A.R.M.A. Inc .....	No mechanical permit .....	\$250
Bend .....	Airborne Heat & Cooling Inc. ....	No electrical permit .....	\$250
Bend .....	Reception Connection Inc. ....	No electrical permit .....	\$250
Coos Bay .....	Clinton McGuire .....	No electrical permit .....	\$250
Eugene .....	Beymer Heating and Sheet Metal Co.	No electrical permit .....	\$250
Eugene .....	Crawford Windor Inc. ....	No electrical permit .....	\$250
Eugene .....	McGraw Industries Inc. .... dba Overhead Door Co. of Eugene-Springfield	No electrical permit (three violations) .....	\$750
Eugene .....	Rose Corporation .....	No electrical permit .....	\$250
Gervais .....	Joe Dabacon .....	No plumbing permit .....	\$250
	Joe Dabacon Maintenance & Contracting		
Grants Pass .....	Eric Kincaid .....	No electrical permit .....	\$250
Jefferson .....	David L. Spurlock .....	No electrical permit .....	\$250
	JanDavid Construction		
Milwaukie .....	J.P.C. Electric Inc. ....	No electrical permit .....	\$500
		(two violations)	
Roseburg .....	Addcox Electric Inc. ....	No electrical permit (four violations) .....	\$2,000
Salem .....	Henry W. Cole .....	No electrical permit/ no plumbing permit .....	\$500
	Dura-Built Construction		
Salem .....	John Gourley .....	No electrical permit .....	\$250
Salem .....	Sparky Electric Inc. ....	No electrical permit .....	\$250
Springfield .....	Brian B. Hatefi .....	No electrical permit .....	\$250
Springfield .....	Christopher Lee Patton .....	No plumbing permit .....	\$250
	Christopher Lee Patton Construction Inc.		
The Dalles .....	Jack Wallace .....	No mechanical permit .....	\$250
	Jack Wallace Plumbing		
Veneta .....	Watermasters Inc. ....	No electrical permit .....	\$250
Auburn, WA .....	Heartland Industries Inc. ....	No building permit .....	\$250

The Director of the Department of Consumer and Business Services found the following violations of the Manufactured Structures & Parks statutes and administrative rules in September 1999:

CITY .....	NAME .....	VIOLATION .....	CIVIL PENALTY ASSESSED
Albany .....	Carl Schaumburg .....	No installation permit for manufactured dwelling.....	\$500
	Well Done Mobile Home		
Baker City .....	Theresa M. Uriarte .....	Failed to make corrections to installation of manufactured dwelling .....	\$250
	Uriarte Realty		
Baker City .....	Verdell W. Saunders .....	No installation permit for manufactured dwelling.....	\$250
LaGrande .....	Charles Dee Lester .....	Failed to affix certification tags on manufactured dwellings (three violations) .....	\$750
Portland.....	John Schaffer .....	Allowed unlicensed individual to install manufactured dwelling .....	\$1,000
Meridian, ID.....	Bruce H. Castoe .....	No certification tag for manufactured dwelling.....	\$250

The Electrical and Elevator Board found the following violations of the Electrical and Elevator Safety Laws in August 1999:

CITY .....	NAME .....	VIOLATION .....	CIVIL PENALTY ASSESSED
Aloha .....	Alan E. Marsh Jr. ....	No electrical contractor's license .....	\$500
	Marsh & Tubandt Construction & Development		
Estacada .....	Stewart W. Allen .....	No electrical contractor's license .....	\$500
	Allens Lighting		
Grants Pass .....	William F. Heinzle .....	No elevator contractor's license/installed elevator without prior plan approval .....	\$750
	Bill Heinzle's RV Service		
Milwaukie .....	J.P.C. Electrical Inc. ....	Made unsafe electrical installation .....	\$250
Portland.....	James L. Penkert .....	Revocation of limited maintenance electrician's license .....	N/A
Salem .....	Henry W. Cole .....	No electrical supervising or journeyman's license .....	\$500
	Dura-Built Construction		
Sutherlin .....	City of Sutherlin .....	Permitted unlicensed individual to make electrical installation .....	\$500
Wilmington, DE .....	Homebase Inc. ....	Sold unlisted electrical product.....	\$500
Everett, WA .....	Jim R. Underwood .....	Revocation of general journeyman electrician's license .....	N/A
Tacoma, WA .....	Melvin W. Mesick .....	Revocation of general journeyman electrician's license .....	N/A

Tacoma, WA ..... Stephen Dale Wade ..... Revocation of general  
journeyman electrician's license ..... N/A

## The Board of Boiler Rules found the following violations of the Boiler/Pressure Vessel Laws in September 1999.

CITY .....	NAME .....	VIOLATION .....	CIVIL PENALTY ASSESSED
Canyonville .....	Northwest Plumbing Inc. ....	No boiler/pressure vessel business license (three violations)/ no installation permits (eight violations)/ made unsafe installation .....	\$6,000
Idleyld Park .....	North Umpqua Plumbing Inc. ....	No installation permits .....	\$1,000
Portland.....	Interstate Mechanical Inc. ....	No installation permits (nine violations) .....	\$9,000
Portland.....	Young O. Kim Superior Cleaners .....	No operating permit .....	No penalty
Portland.....	Peninsula Plumbing Co. ....	No installation permit .....	\$500
Portland.....	Clarence E. Shock Jr. ....	No individual certification .....	\$500
Portland.....	Spicer Enterprises Inc. dba Stan The Hot-Water man .....	No boiler/pressure vessel business license/ no installation permit .....	\$1,000
Portland.....	Spirit Enterprises of Oregon Inc. ....	No installation permit .....	\$500
Portland.....	Total Mechanical Inc. ....	No installation permits (two violations) .....	\$2,000
Siletz .....	Marvin Willey .....	No boiler/pressure vessel business license/ no installation permit .....	\$1,000
Coeur D'Alene, ID .....	C & R Plumbing & Heating, Inc. ....	Employed uncertified individual to install pressure vessel/no installations permits (two violations) .....	\$1,500
Garden City, ID .....	Joe Chance Warrior Refrigeration Contractors .....	No boiler/pressure vessel business license/ no repair permit/made unsafe installation .....	\$1,500
Salt Lake City, UT .....	Architectural Building Supply, Co. ....	No boiler/pressure vessel business license/ no installation permits (two violations) .....	\$1,500
Seattle, WA .....	MacDonald-Miller Co. ....	No installation permit .....	\$500
Spokane, WA .....	Oxarc Inc. ....	No boiler/pressure vessel business license/ no installation permit .....	\$1,000
Spokane, WA .....	Tim Ryan .....	No individual certification .....	\$500
Walla Walla, WA .....	Burgin Mechanical Inc. ....	No installation permits (two violations) .....	\$2,000

## The Plumbing Board found the following violations of the Oregon Plumbing Specialty Code in August 1999:

CITY .....	NAME .....	VIOLATION .....	CIVIL PENALTY ASSESSED
Aloha .....	Alan E. Marsh, Jr. dba Marsh & Turbandt Construction & Development	No plumbing business certification of registration .....	\$500
Gervais .....	Joe Dabacon .....	No plumbing journeyman's certificate of competency .....	\$500
	dba Joe Dabacon Maintenance & Contracting		
Eugene .....	Carte' Plumbing, Inc. ....	Allowing an unlicensed individual to make a plumbing installation .....	\$500
Eugene .....	Chris Brown .....	No plumbing journeyman's certificate of competency .....	\$500
Hermiston .....	Traners Plumbing & Heating, Inc. ....	Allowing an unlicensed individual to make a plumbing installation .....	\$500
Hermiston .....	Frank Cadek .....	No plumbing journeyman's certificate of competency .....	\$500
Portland .....	Hoffman Mechanical Corporation .....	No plumbing permit .....	\$500
Salem .....	Edwin O. Ost .....	No plumbing journeyman's certificate of competency .....	\$500
Salem .....	Henry W Cole .....	No plumbing journeyman's certificate of competency .....	\$500
	dba Dura-Built Construction		
Salem .....	Del Isaacson .....	No plumbing business certificate of registration (two violations) .....	\$1,000
	dba Able's Plumbing		
Salem .....	Mark Romp Plumbing & Mechanical, Inc. ....	Allowing an unlicensed individual to make a plumbing installation .....	\$500
Silverton .....	B C Plumbing, Inc., .....	Allowed unlicensed individual to make a plumbing installation .....	\$500
Springfield .....	Christopher Lee Patton .....	No plumbing business certificate of registration/ no plumbing journeyman's certificate of competency .....	\$1,000
	dba Christopher Lee Patton Construction, Inc.		
Redding, Ca .....	James M. Murray .....	No plumbing business certificate of registration .....	\$500
	dba Mike Murray Plumbing & Fire Protection		

# The Electrical and Elevator Board found the following violations of the Electrical and Elevator Safety Laws in September 1999:

CITY .....	NAME .....	VIOLATION .....	CIVIL PENALTY ASSESSED
Bend.....	Airborne Heating & Cooling Inc. ....	No electrical contractor's license/allowed unlicensed individual to make electrical installation .....	\$1,000
Bend.....	East Cascade Security Systems, Co. ....	No electrical permit (two violations) .....	\$500
Eugene.....	Beymer Heating and Sheet Metal Co. ....	No electrical contractor's license .....	\$500
Grants Pass .....	Tommy Bormuth .....	No electrical permit (two violations) .....	\$500
Grants Pass .....	Bormuth Electric .....		
Grants Pass .....	Eric Kincaid.....	No electrical contractor's license .....	\$500
Hermiston.....	Richard A. Russell .....	No electrical permit.....	\$250
Jefferson .....	David L. Spurlock .....	No electrical contractor's license/no electrical supervising or journeyman's license .....	\$1,000
Jefferson .....	JanDavid Construction .....		
LaGrande .....	James V. Jarvis.....	No electrical supervising or journeyman's license/made unsafe electrical installation/permitted unlicensed individual to make electrical installation .....	\$1,250
LaGrande .....	Ray Verbout .....	No electrical supervising or journeyman's license/made unsafe electrical installation .....	\$750
LaGrande .....	Charles L. Wallace .....	No electrical contractor's license/no electrical permit .....	\$750
LaGrande .....	Advanced Communication Equipment .....		
Mt. Angel .....	Staco Well Services Inc. ....	No electrical contractor's license/no electrical permit .....	\$750
Portland.....	Steven Randall Jordan .....	No electrical supervising or journeyman's license .....	\$500
Portland.....	Jeffrey Mark Snyder .....	No electrical supervising or journeyman's license .....	\$500
Portland.....	Sound Elevator Co. ....	Installed elevator without prior plan approval (second violation) .....	\$500
Salem.....	John Gourley .....	No electrical supervising or journeyman's license .....	\$500
Salem.....	Michael W. Riddle .....	Made electrical installation that did not meet minimum safety standards .....	\$250
Springfield .....	Brian B. Hatefi.....	No electrical supervising or journeyman's license .....	\$500

Springfield .....	Neil W. Lee .....	No electrical contractor's license .....	\$500
	Western Well Drilling		
Canyon County, CA .....	Matthew Williams .....	No electrical supervising or journeyman's license/ no electrical permit .....	\$500
Salida, CA .....	Veterinary Service Inc. ....	No electrical permit .....	\$250

**The Director of the Department of Consumer and Business Services found the following violations of the Manufactured Structures & Parks statutes and administrative rules in October 1999:**

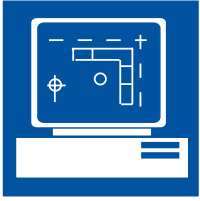
CITY .....	NAME .....	VIOLATION .....	CIVIL PENALTY ASSESSED
Coos Bay .....	Mike Olyae .....	No manufactured dwelling installer's license .....	\$500

**The Director of the Department of Consumer and Business Services found the following violations of the Oregon Specialty Codes in October 1999.**

CITY .....	NAME .....	VIOLATION .....	CIVIL PENALTY ASSESSED
Central Point .....	Michael A. Fricker .....	No plumbing permit .....	\$250
	Pro-Spection Termite & Pest Control		
Dallas .....	AMP Electrical Contractors Inc. ....	No electrical permit (two violations) .....	\$500
Hermiston .....	Roger's Appliance Sales & Service Inc. ....	No mechanical permit/ no electrical permit .....	\$500
Nyssa .....	Donald E. Sappe' .....	No plumbing permit .....	\$250
	Sappe' Construction Co.		
Pendleton .....	Robert P. McKenzie .....	No building permit .....	\$250
Portland .....	David A. Gravelle .....	No mechanical permit .....	\$250
	dba D. A. Gravelle		
Portland .....	Steven Randall Jordan .....	No electrical permit .....	\$250
West Linn .....	R & S Heating Inc. ....	No mechanical permit .....	\$250
Salida, CA .....	Veterinary Service Inc. ....	No building permit .....	\$250

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# Updated *Directory of Responsibilities* available



The *BCD Directory of Responsibilities* has been updated and is now available on the BCD Web site at:  
<http://www.cbs.state.or.us/external/bcd>.

The directory lists the current Oregon city, county, and state specialty code programs and personnel. In addition, it lists

local health agencies, emergency management, and fire marshals. Updates are posted monthly to maintain accuracy.

Individuals wishing to submit changes to the directory are encouraged to e-mail the Building Codes Division Webmaster at: [BCD.Webmaster@state.or.us](mailto:BCD.Webmaster@state.or.us). ■

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## Boiler law, *continued*

Journeyman plumbers and HVAC mechanics working at a job site are frequently asked to hook up a piece of equipment or to run some extra piping as an add-on to the plumbing work they are doing, only to find that they have violated the Boiler Law. The journeymen in these situations should carefully evaluate the scope of their activities. A journeyman plumber may install pressure equipment in certain limited circumstances only when employed by a boiler business contractor. There are no such provisions for HVAC mechanics.

We need the help of every Oregon plumbing and heating contractor to prevent compliance violations. We will make every effort to help businesses avoid expensive and time-consuming violations.

Call Curt Lundine, (503) 373-1216, with questions. Copies of the Oregon Boiler Law are available for \$3 a copy from Building Codes Division, PO Box 14470, Salem OR 97309. ■

# Important information sent to building officials



The following information was recently sent to all building officials. See your building official for copies.

- Memorandum on earthquake-resistant bracing for manufactured dwellings
- Letter on 1% surcharge fee increase for the Metro Tri-County area effective October 1
- Enrolled Senate Bill 512 creating the Metro Tri-County Board and BCD Service Center
- Memorandum on new RV administrative rules
- Memorandum on foundation requirements for manufactured dwellings
- Bulletin on amusement ride safety program
- Memorandum on adjustable outriggers for manufactured dwellings
- Memorandum on Oregon Manufactured Dwelling Standard terminology “substantially smooth”
- Memorandum on Oregon Manufactured Dwelling Standard terminology “substantially level”
- Memorandum on wood cooking stoves in manufactured dwellings
- Notice of rescission of Interpretive Ruling 93-5, Handrails on Winders
- Memorandum on dry stacking concrete skirting blocks for manufactured dwelling installations
- Interpretive Ruling 99-4, Plumbing Product Approval Request - Metana Steelworx (Note: See complete text, Page 9.)

If you did not receive this information and want copies, call Timothe Seelbach, (503) 373-7332. ■

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## Board appointments



**Wendie Kellington** and **David Walter** were appointed to the Building Codes Structures Board effective October 8.

**Kellington** will occupy the public member position through June 30, 2000. She is a lawyer with Schwabe, Williamson & Wyatt in Portland. Prior to that she was a referee at the Oregon Land Use Board of Appeals. She fills a position vacated by Patricia Quigley.

**Walter** replaces Robert Johnson whose term expired. He has been employed by the Housing Authority of Portland since 1982. His term expires June 30, 2003. ■

# Board meeting dates

Sun	Mon
1	2
8	9

## ELECTRICAL & ELEVATOR BOARD \_\_\_\_\_

Meets at 9:30 a.m. on the fourth Thursday of each month:

- November 18\*
- December 16\*

## STATE PLUMBING BOARD \_\_\_\_\_

Meets at 9:00 a.m. on the third Friday of every other month:

- December 17

## BUILDING CODES STRUCTURES BOARD \_\_\_\_\_

Meets at 9:00 a.m. on the first Wednesday of each month:

- November 3
- December 1

## BOARD OF BOILER RULES \_\_\_\_\_

Meets at 9:30 a.m. on the first Tuesday of each quarter:

- December 7

## MANUFACTURED STRUCTURES & PARKS ADVISORY BOARD \_\_\_\_\_

Meets at 9:30 a.m. on the second Thursday of each quarter:

- January 13
- \* Third Thursday

MEETINGS ARE HELD  
IN THE  
SALEM BCD  
CONFERENCE ROOM AT  
1535 EDGEWATER ST. NW



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SALEM, OR 97309-0404

- New subscription — Enclosed is my check payable to DCBS for \$25 for the calendar year 2000 (Jan.-Dec.) subscription.

Send to:

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& BUSINESS SERVICES  
FISCAL SECTION  
350 WINTER ST. NE, ROOM 21  
SALEM, OR 97310

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Title/Company: \_\_\_\_\_

Address: \_\_\_\_\_

City/State/ZIP: \_\_\_\_\_

Phone: (\_\_\_\_\_) \_\_\_\_\_

**DEPARTMENT USE ONLY 1087/70050**

## you must elevate, *continued*

structure. In this case, the more restrictive category is reconstruction and the entire structure (the rehabilitation and new addition) must be elevated.

*Accessory structures and attached or detached garages* may also be subject to the substantial improvement determination, depending on the types of alteration. If they are used only for parking, storage and access, they can be exempt from the elevation requirements of the substantial improvement rule. They must meet the wet floodproofing requirements in Technical Bulletin 7-93 from the Federal Emergency Management Agency (available on FEMA's Web site, [www.fema.gov](http://www.fema.gov)).

Further information can be found in *Answers to Questions about Substantially Damaged Buildings*, a free booklet. Call (800) 480-2520, or call Ann Beier, NFIP coordinator, (503) 373-0050, ext. 255.

From the Summer 1999 *Natural Hazards Planner* published by the Oregon Department of Land Conservation and Development. ■

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# CODE LINK

STATE OF OREGON • BUILDING CODES DIVISION

*CodeLink* is the bimonthly publication of the Oregon Department of Consumer & Business Services Building Codes Division.

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In compliance with the *Americans with Disabilities Act* (ADA), this publication is available in alternative formats. Call the editor, (503) 373-7438.

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