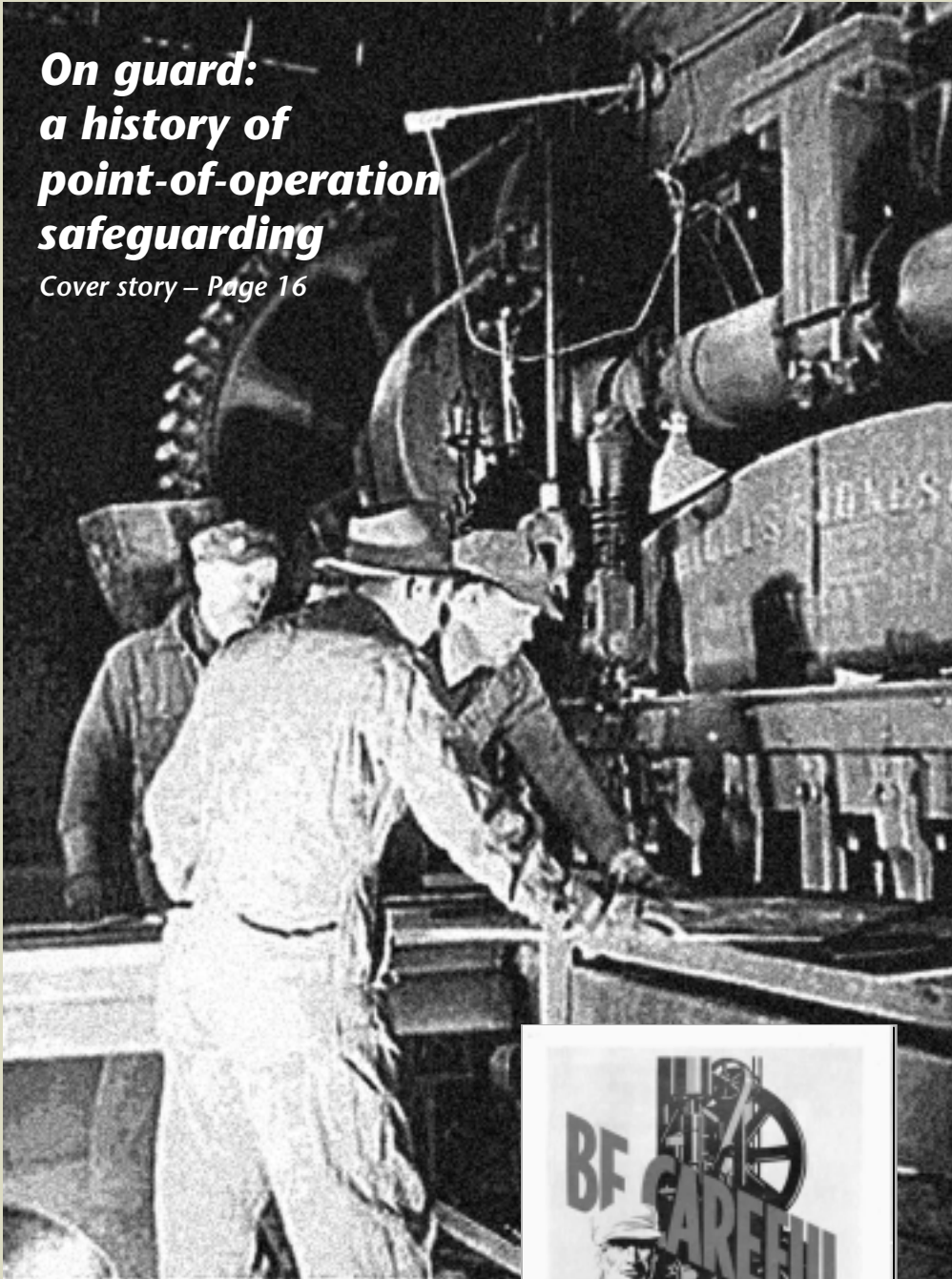


**On guard:  
a history of  
point-of-operation  
safeguarding**

Cover story – Page 16



**OSEA**  
*celebrates*  
**30 YEARS**

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[www.orosha.org](http://www.orosha.org)

# Administrator's Message

## Education – at the heart of everything we do

**M**ost of us can't know *everything*. As teenagers, of course, we know everything, but somehow we lose that gift at the moment we hit adulthood. So there is even more reason to continue to learn and develop skills throughout our lives.

Education about workplace safety and health is at the heart of every service provided by Oregon OSHA. I have often said that any encounter someone has with us should be a learning experience. Our Consultative Services staff helps employers reach their safety and health goals through industry-tested recommendations. Public Education trainers cross our state (and the Web) to bring training to those who need it. Technical Services staff provides answers to complicated questions. Even in our role as a regulator, we view the enforcement and post-citation appeals processes as further opportunities to help educate employers about making their work environment safer.

David Kearns, the former chair of Xerox, said, "Education is the transmission of civilization. Civilization is not inherited; it has to be learned again by each new generation." The ball is in our court to share what we know for the benefit of all. Each new employee who joins your company needs to become part of the solution, and the future. Make sure he or she has the training necessary to do the job right and safely.



Peter De Luca

2003 marks milestones significant to Oregon OSHA and Oregonians. The Oregon Safe Employment Act is 30 years old this summer; its lasting legacy is reduced injury and illness rates and a long-term trend toward reduced workplace fatalities in Oregon. It has also been 60 years since the Accident Prevention Division was given the mission to prevent accidents from claiming the lives and livelihood of Oregonians fighting on the home front during World War II.

The insight into safety *is* being passed on. Last year, 52 people died in workplace accidents covered by workers' compensation insurance. In 1973, accidents claimed 144 lives and in 1943 the death toll was 162 lives. Injury and illness rates for private-sector employers in Oregon have dropped 44 percent since 1988.

Pass on your knowledge to those who will benefit from it. Please take the time to do the job safely; slow down, and let's be careful out there. ■

## RESOURCE

*Oregon Health and Safety Resource* is published quarterly by the Oregon Occupational Safety and Health Division of the Department of Consumer and Business Services.

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*If you have questions about the information in **Resource**, please call (503) 947-7428.*

*For general information, technical answers or information about Oregon OSHA services, please call (503) 378-3272 or toll-free within Oregon, (800) 922-2689.*

**On the Cover:** Workers at an Eastern shipyard operate a giant shear to shape steel parts for the U.S. Liberty Fleet in 1941. Alfred T. Palmer, photographer. Safety poster created by Robert Lachenmann (1936) for the Federal Art Project. Source: Library of Congress: Prints and Photographs Online Catalogue.

# 2003 GOSH Conference – A big success

The 2003 Oregon Governor's Occupational Safety and Health Conference (also known as GOSH) was a big success. The conference, a biennial partnership between the American Society of Safety Engineers (ASSE) Columbia-Willamette Chapter and Oregon OSHA, attracted a total of 1,600 attendees during its four days at the Oregon Convention Center in Portland.

**What was the best part of the 2003 GOSH?** That depends on whom you ask. More than 800 people attended the keynote speeches March 4, delivered by U.S. Assistant Secretary of Labor John Henshaw and the dynamic Skipper Kendrick of Bell Helicopter. More than 160 exhibitors offered conference attendees the latest technology in safety products and services. The awards ceremony on March 5 honored 11 employers, individuals and associations who have made significant contributions to workplace safety and health in Oregon during the past two years. The 2003 GOSH safety award winners are featured on pages 4-7 in this edition of *Resource*.



U.S. Assistant Secretary of Labor John Henshaw provided OSHA's agenda for the future during the Tuesday keynote speech.

More than 160 exhibitors offered conference attendees the latest technology in safety products and services. The awards ceremony on March 5 honored 11 employers, individuals and associations who have made significant contributions to workplace safety and health in Oregon during the past two years. The 2003 GOSH safety award winners are featured on pages 4-7 in this edition of *Resource*.

Almost 30 percent of those attending the GOSH Conference in 2003 took advantage of registering through the conference Web site, which was introduced for this year's event. Conference organizers noted increased attendance from safety professionals in the neighboring states of Washington and California, as well as continued support from Alaska, Hawaii, British Columbia, and Idaho. ■

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Over 160 commercial exhibitors offered innovative products, information, and services to conference attendees.



ASSE's Dan Sabatino is interviewed by Janice Bangs for KATU's "AM Northwest" about the 2003 GOSH Conference.

*Thank you  
for attending  
the 2003 GOSH  
Conference!*

**GOSH  
CONFERENCE**

**2003**

## Large Employer Award

### City of Portland, Bureau of Environmental Services (BES) Wastewater Group

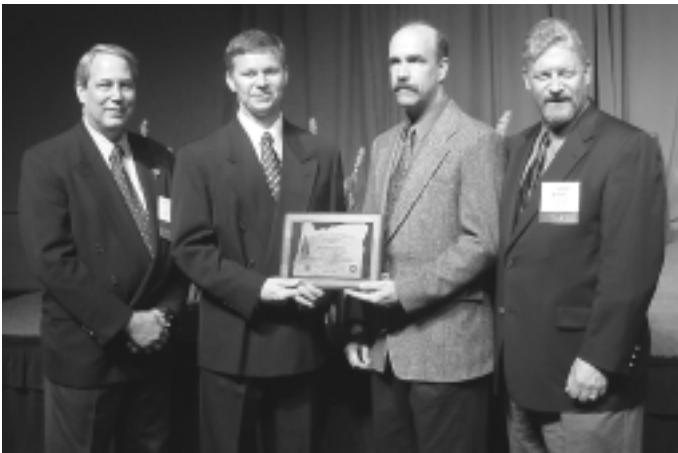
*Over the past 52 years of operation, the BES Wastewater Group has not had an on-the-job fatality. In 2001, the Wastewater Group did not incur a lost-time injury or illness, a remarkable feat in an industry with potential electrical, confined space, power transmission and hazardous gas exposures. In 2002, the agency achieved Oregon OSHA's Safety and Health Recognition Program (SHARP) status.*



BES Director Dean Marriott (left) with the Wastewater Group safety team.

## Medium Employer Award (shared)

### Boise Building Solutions Engineered Wood Products – White City, Oregon



*Boise White City Engineered Wood Products sends a message to employees that exceptional safety performance is an expectation. The message translates into a proactive team of employees working to create a “zero-accident” facility, and as of September 2002 the plant achieved a recordable incident rate of zero. About 20 percent of employees at the facility are actively involved in safety committee operations.*

Dan Sabatino (ASSE), Kevin Moore, Larry James, Peter De Luca

### Pence/Kelly Construction LLC – Salem Oregon

*Pence/Kelly Construction instituted an inventive “three strikes and you’re out” safety policy for employees and requires safety contracts for their subcontractors. When employees violate safe work practices, they are first given a verbal warning; on a second violation (and beyond) the employee receives a formal Employee Safety Violation Notice. Upon receiving a third formal violation, an employee is dismissed. Pence/Kelly has an “experience modification rate” for workers’ compensation coverage that is 38 percent below the industry average.*



Dan Sabatino (ASSE), Barry Smiley, Roland Mack, Paul Schulz, Bob Hill, Peter De Luca

## Small Employer Award

### Emerick Construction Company – Portland, Oregon



*Emerick's safety record is demonstrated by its policy that if "imminent, serious and willful" unsafe acts or conditions are observed on a work site, all work at that site stops until the worker or subcontractor is removed and safe conditions are restored. The company has received numerous safety awards, including the 2001 National Construction Safety Excellence award for first place in construction safety performance in the United States. Emerick is marking its second year in the Oregon OSHA Safety and Health Achievement Recognition Program (SHARP).*

Dan Sabatino (ASSE), Jim McKune, Peter De Luca

## Safety Committee Award – Large Employer Category

### Walsh Construction Company – Portland, Oregon

*The safety committee of Walsh Construction has made a significant contribution to health and safety within the company, including drafting new safety policies that have been accepted throughout the entire company. Employees throughout the company are encouraged to attend monthly safety committee meetings to raise concerns and identify potential hazard areas. During 2002, Walsh Construction's excavation crew worked over 25,000 worker-hours without an accident.*

Dan Sabatino (ASSE), Francisco Flores, Anna Yates,  
Paul Kolehmainen, Gabe Matteer, Michelle Potter,  
John Rogers, Peter De Luca



## Safety Committee Award – Medium Employer Category

### Boise Building Solutions, Manufacturing (White City Lumber) – White City, Oregon



*The philosophy of Boise White City Lumber is "nothing we do is worth getting hurt." The company promotes this philosophy by aggressive employee involvement in safety committees, including activities such as walk-through inspections, monthly training programs and periodic review of company policies and procedures. Safety committee projects have included performing job hazard analyses and ergonomic evaluations for each job.*

Dan Sabatino (ASSE), Wayne Beale, Peter De Luca

## Association Award

### Associated General Contractors, Oregon-Columbia Chapter – Wilsonville, Oregon



*The Oregon-Columbia Chapter of Associated General Contractors (AGC) is the largest AGC program of its kind in the nation and is the only AGC chapter to have a full-time industrial hygienist on staff. In 2002, more than 200 on-site training programs and over 220 safety audits were conducted by AGC consultants to assist chapter members with hazard identification awareness and employee protection.*

Dan Sabatino (ASSE), AGC Safety & Loss Control Manager Joe Miller, AGC President Jeanne Staton, Peter De Luca

## Individual Award

### Gerald Gerlach – Prineville, Oregon

*Following his own serious industrial accident in 1994, Gerry Gerlach became dedicated to making sure accident prevention was a priority at Pioneer Cut Stock in Prineville, where Gerlach serves as human resource manager. Gerlach initiated an Oregon OSHA Safety and Health Achievement Recognition Program (SHARP) at Pioneer Cut Stock that has contributed to a large reduction in work-related accidents, reduced absenteeism and turnover, created higher morale, and increased productivity.*



Dan Sabatino (ASSE), Gerald Gerlach, Peter De Luca

## Safety Professional Award

### Kenneth Greenhill, CSP – La Pine, Oregon



*During his 20-year career in construction safety, Greenhill has served in field production, supervision, and management. During a four-year period, Greenhill revised safety programs for Teufel Nursery that resulted in a 24-fold reduction in workdays lost. Greenhill teaches courses at regional conferences, Portland Community College, and the federal OSHA Region X Outreach Training Advisory Committee. Greenhill has also served on committees for the American Society of Safety Engineers, Columbia-Willamette Chapter.*

Dan Sabatino (ASSE), Kenneth Greenhill, Peter De Luca

## Labor Representative Award

### Claudia Pitzler – Portland, Oregon

*Claudia Pitzler serves as a field representative for the American Federation of Teachers-Oregon (AFT-Oregon) and is a core member of the American Federation of Labor-Congress of Industrial Organizations (AFL-CIO) safety committee. Pitzler was recognized for her work in addressing air-quality issues for teachers and her advocacy work on improving ergonomic working conditions. Pitzler was instrumental in designing a labor-oriented safety curriculum that was presented at the 2003 GOSH Conference.*



Dan Sabatino (ASSE), Claudia Pitzler, Peter De Luca.

## Lifesaving Award

### Don Blaske, Byron Wood, Peter Marth – Portland, Oregon



Dan Sabatino (ASSE); Don Blaske; Peter Marth; Troy Wood, son of Byron Wood; Peter De Luca

*On November 15, 2001, a 61-year-old customer at Heron Lakes Golf Course in Portland was concluding 18 holes of golf when the man collapsed on the green. Course Marshal Don Blaske saw the man fall down, rushed to his aid, and began CPR after not finding a pulse. Blaske advised general manager and head professional Byron Wood to grab an automated external defibrillator (AED) from the pro shop of the golf course. Wood also advised clubhouse manager Peter Marth to call 911 and request paramedics. Thanks to the quick actions of the team, the customer who was resuscitated is alive today. The award is presented posthumously to Byron Wood, who died of a heart attack in September 2002 at age 58.*

# Safety Break for Oregon



Employers from across Oregon took part in the first "Safety Break for Oregon" on May 14. The event was organized to help remind Oregon residents of the need to focus on improving workplace safety each day in order to reduce the number of injuries and illnesses that occur each year in Oregon's workplaces.

Several thousand employees in work sites across the state took advantage of the opportunity to talk about the value of safety, celebrate accomplishments, and post the proclamation that Governor Ted Kulongoski issued recognizing the Safety Break for Oregon. Safety events and recognition lunches or picnics were a popular choice for observances.

Additional information, including a list of the employers that participated in the 2003 Safety Break for Oregon, is available on the Oregon OSHA Web site, [www.orosha.org](http://www.orosha.org).

*"It was by far one of the best safety events R&H Construction has participated in. I have had nothing but positive feedback from our field employees and management. Because of the success we had, management staff will be visiting job sites to talk about safety and other company-related items on a regular schedule."*

**Gary Stonewall, R&H Construction**



Darrin Greenlee of American Red Cross tries to walk a straight line while wearing "Fatal Vision" goggles used to demonstrate how intoxication affects vision.



Oregon Department of Consumer and Business Services Quick Response Team members Sandy Dittrich (left) and Reggie Robb demonstrate an automated external defibrillator on a CPR dummy.



Ray Stalnaker, Safety Manager of DePaul Industries in Portland (center with plaque) presents a safety award to employees during the Safety Break for Oregon.

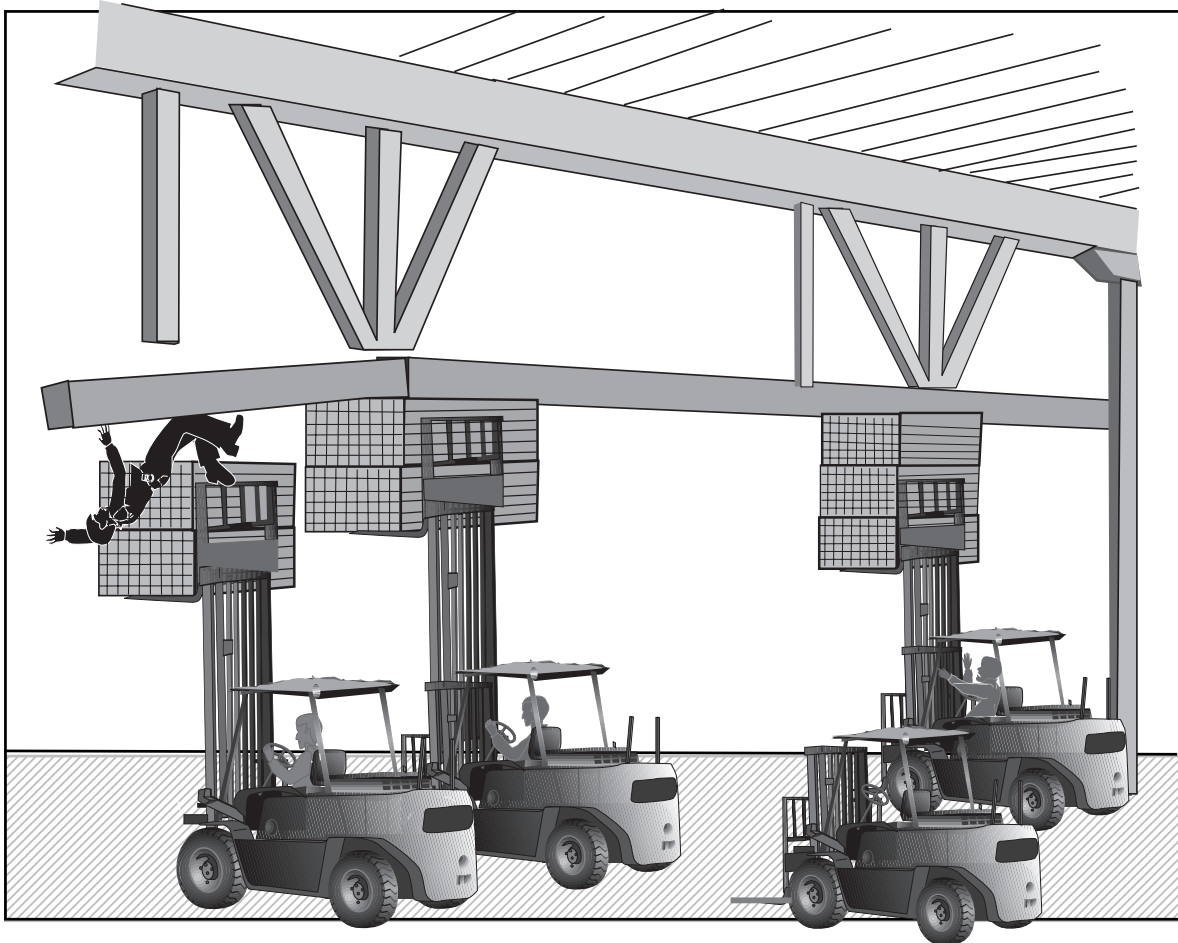


# SAFETY NOTES

Department of Consumer & Business Services  
Oregon Occupational Safety & Health Division  
Salem, OR 97310

## Fatality Report

Accident type ..... Fall  
Industry ..... Construction



### **Description of accident**

The fatally injured worker was one of a crew of four removing steel I-beams from the ceiling of a warehouse owned by the employer. The workers engaged in this process were permitted to use forklifts at the warehouse to access the ceiling without appropriate fall-protection equipment. A system of three forklifts, each with 2-3 pallets of lumber, were used to support the three connecting points on the 75-foot beam as bolts were cut away by a worker standing on the pallet of lumber. The injured worker was standing 20 to 30 feet above the concrete floor, removing connecting bolts with an oxyacetylene torch. As the worker cut through the final set of bolts, the beam shifted, knocking the worker to the concrete floor. Co-workers contacted 911 immediately, but the worker died at the scene from head injuries.

### **Investigation findings**

The workers engaged in this project were working 'after hours' for a subcontractor hired by the employer. The employer was aware of the project and the use of company personnel and equipment. The lack of fall-arrest or fall-protection equipment resulted in the death of the worker who fell.

# SAFETY NOTES

Department of Consumer & Business Services  
Oregon Occupational Safety & Health Division  
Salem, OR 97310

## Fatality Report

Accident type ..... Fall  
Industry ..... Roofing  
Employee job title ..... Power-washer operator

### **Description of accident**

The employee was on the steep roof of a residence, without fall-arrest or fall-protection equipment, operating a hose connected to a power washer. The employee slipped, fell 20-25 feet onto a concrete patio, and suffered fatal head injuries.



### **Investigation findings**

The employer did not provide approved fall-protection equipment for the employee.

### **Applicable standards**

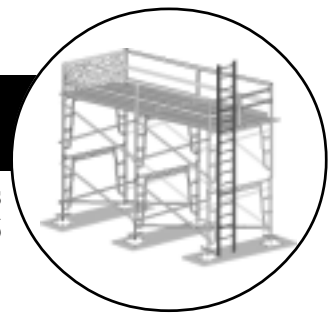
OAR 437-003-1501

*Except for specific exemptions, when employees are exposed to a hazard of falling 10 feet or more to a lower level, the employer shall ensure that fall protection systems are provided, installed and implemented.*

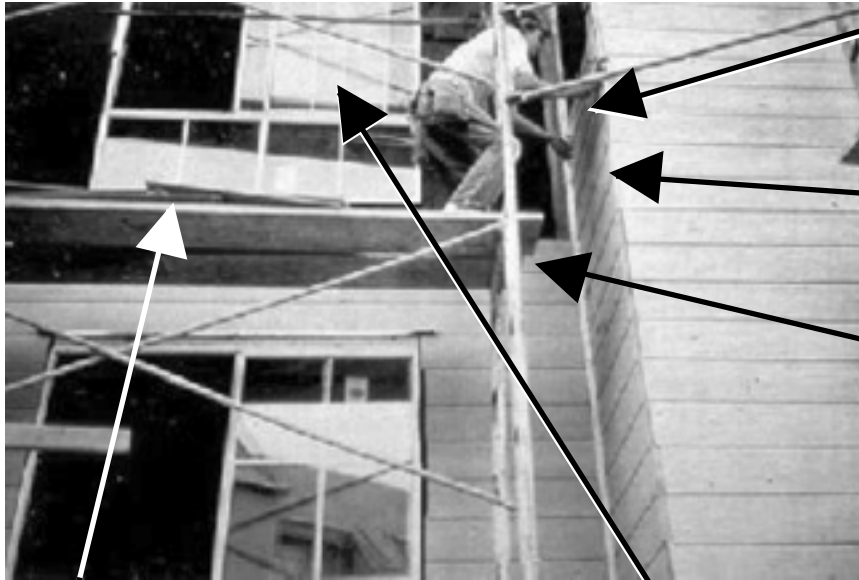
# ANDAMIOS

Departamento de Servicios para Consumidores y Negocios  
División de Seguridad e Higiene en el Trabajo  
Salem, OR 97310

Para mayores informes  
llame al (800) 843-8086  
(español).



¡Veamos cinco cosas que ponen en peligro a los trabajadores en esta obra!  
¡La plataforma es el área de trabajo del andamio —asegúrese de que este segura!



Hay una abertura de más de 14 pulgadas (35 cm.) entre el edificio y la plataforma del andamio. Aquí se puede caer un trabajador.

La plataforma no está completamente entablada. Aquí se puede caer un trabajador.

Los tabloncillos no están enlistonados, restringidos por ganchos, o empalmados por lo menos 6 pulgadas (15 cm.) para prevenir desplazamiento.

No tiene rodapie para prevenir la caída de herramienta y material.

No tiene guardarraíles para prevenir la caída de un trabajador.

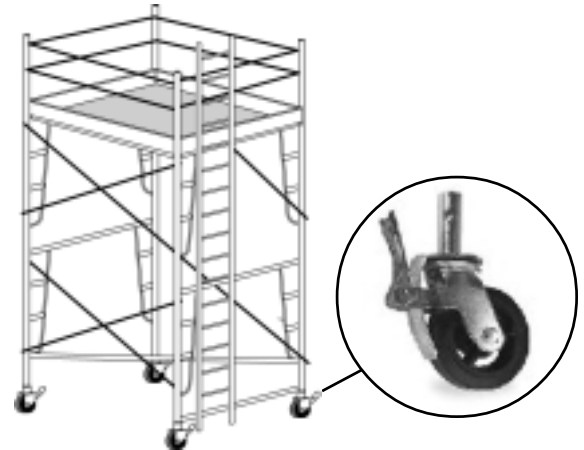
¡Un andamio, como un buen hogar, debe estar construido sobre una base sólida!



**Mala base** – andamio soportado por bloques sobre tierra y lodo.



**Buena base** – andamio soportado sobre durmientes de madera.

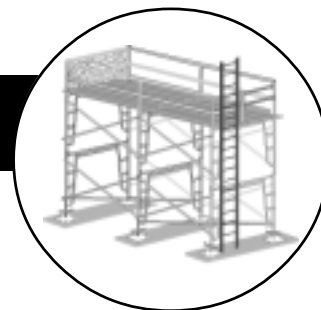


**Siempre trabe bien las ruedas de andamios rodantes, y no mueva el andamio mientras este parado sobre él.**

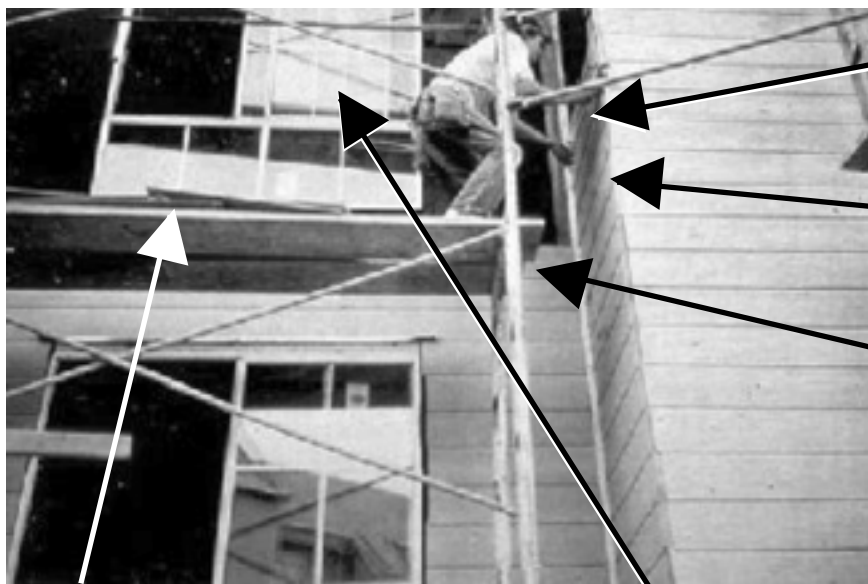
# SCAFFOLDS

Department of Consumer & Business Services  
Oregon Occupational Safety & Health Division  
Salem, OR 97310

For more information,  
call (800) 922-2689  
(English).



Let's look at five things that are endangering the workers on this job site!  
The platform is the scaffold's work area —make sure it's safe!



There is more than a 14-inch gap between the building and the scaffold platform. A worker can fall here.

The platform is not fully planked. A worker can fall here.

The planks are not cleated, secured, or overlapped at least 6 inches to prevent displacement.

No toeboard to prevent tools and materials from falling.

No guardrails to prevent a worker from falling.

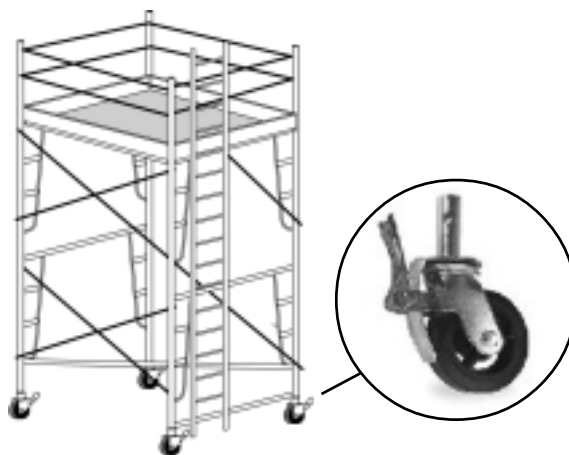
A scaffold, like a good home, must be built on a solid base!



**Bad base** – scaffold supported on blocks resting on dirt and mud.



**Good base** – scaffold supported on wooden mud sills.



Always tightly lock the wheels of rolling scaffolds, and do not move the scaffold while standing on it.

# 30th anniversary of Oregon Safe Employment Act – 1973-2003

July 2003 marks 30 years since the implementation of the Oregon Safe Employment Act, the Oregon statute that regulates workplace safety and health for 84,000 Oregon employers and more than 1.6 million workers. Governor Tom McCall signed Senate Bill 44 into law on July 22, 1973.

Senate Bill 44's journey started with the passage of the Williams-Steiger Occupational Safety and Health Act by Congress. It was signed into law by President Nixon on December 29, 1970. Section 18 of that federal law provided that states

could administer their own occupational-safety-and-health programs so long as they were at least as effective as the program administered by the U.S. Occupational Safety and Health Administration.

Oregon's response was that workplace safety and health could best be regulated at the state level.

"It was a general attitude at the time that we could make a change, that Oregon could do better when it came to industrial safety," said retired Chemical Workers Union leader Dick Edgington, looking back on the work that went into crafting the Oregon Safe Employment Act. The state's Accident Prevention Division, which became the Oregon Occupational Safety and Health Division (Oregon OSHA) in 1989, had been working to reduce injuries and illness since 1943, but lacked the regulatory authority contained in the Oregon Safe Employment Act.

"The passage of the act gave Oregon control over its occupational safety and health destiny," said Lisa Trussell, legislative representative for Associated Oregon Industries. "We have more compliance officers and consultants than most states do; we put our money where our mouth is – and it's working."

There were 52 workplace fatalities eligible for workers' compensation during calendar year 2002, a 63-percent reduction from the 144 fatalities in 1973. So far, fatality data for 2003 indicate there were fewer deaths this year than last year.

The effects of the Oregon Safe Employment Act continue, reflected in statistics and in the attitudes of employers and workers.

"We're seeing industrial protections coming home with workers," said Trussell. "There's a definite culture shift occurring – workers are practicing safety around the house because it is so ingrained in Oregon's workplaces."

Oregon OSHA staff continue the division's commitment to ensuring that as many Oregon workers as possible come home from work safely each day. ■

1973 – 144 deaths

2002 – 52 deaths

# If it's silica, it's not just dust

by Jeff Jackson, Senior Occupational Health Consultant, OR-OSHA Portland Field Office

**S**ilicosis is a lung disease caused by inhalation of silica dust, a mineral present in just about all soil, rock, or rock-originated material, especially concrete. Silica particles build up in the lungs to form scar tissue, which causes the lungs to stiffen and work harder to get oxygen from the air. Silicosis can worsen even after a worker is removed from dust exposure and may not even show up for more than 10 years. Silica exposure is also associated with other diseases, including lung cancer. Nationally, about 300 deaths a year are attributed to silica exposure. Because there is no cure for silicosis, prevention is the key.

---

***Silicosis first received widespread public attention in 1936 when as many as 1,500 men died near the town of Gauley Bridge, West Virginia, as a result of breathing silica dust while building a tunnel. An estimated two million American workers remain at risk for developing silicosis.***

---

OR-OSHA has joined the campaign to eliminate the health effects caused by silica exposure. In 1997, OR-OSHA launched a "special emphasis program" to reduce silica exposure. The program has included multiple avenues to raise awareness: public training grants, training related to health hazards in the construction industry, silica publications, focused compliance inspections, and consultations to assist employers with hazard-control procedures.

One employer, Georgies Ceramics and Clay Company, in Portland, has accomplished much. As a regional manufacturer and distributor of pottery clay (about 25 percent silica), Georgies handles almost 8 million pounds of silica-containing material a year. Since Georgies' first OR-OSHA inspection in 1997 as part of the Silica Special Emphasis Program, Georgies has reduced respirable silica exposures by more than 95 percent by using work practices, housekeeping changes, ventilation controls, and wet methods. Georgies exemplifies the success of Oregon's small-business employers who partner with OR-OSHA to find solutions to occupational-health-and-safety hazards.

Much remains to be done to eliminate the potential for silicosis in Oregon. Following is a list of industries and activities where high exposure to silica dust has been found or is anticipated:

- Demolition and installation of concrete and masonry structure
- Sawing, hammering, grinding, drilling, and chipping of concrete and masonry
- Fiber-cementitious board (siding) installation
- Cut stone and stone product manufacturing
- Asphalt paving
- Pottery and ceramics manufacturing
- Metal casting foundries
- Abrasive blasting using silica sand
- Agricultural operations involving dusty soil preparation and harvesting
- Forestry operations involving log dragging



– For information about respiratory protection visit: [www.orosha.org/standards/factsheets.html](http://www.orosha.org/standards/factsheets.html) and see OR-OSHA's on-line Fact Sheets.

Elements of an effective silicosis-prevention program should include initial personal air monitoring, training and information to workers on crystalline silica (hazard communication training), availability of air monitoring data to workers and OR-OSHA, use of wet methods or ventilation controls (such as shrouded tools) to reduce airborne levels, and an effective respiratory-protection program. For assistance in developing a silicosis-prevention program, employers should contact their local OR-OSHA office to request no-cost consultative services, or assistance from their workers' compensation insurance carrier. ■

---

***OR-OSHA has developed "Occupational Health & Safety Guidelines for Preventing Silicosis and Deaths to Employees Exposed to Crystalline Silica." For a free copy of the booklet or to check out a video on crystalline silica and silicosis, contact the OR-OSHA Resource Center at (800) 922-2689 or visit our Web site, [www.orosha.org](http://www.orosha.org).***

# Focus on agriculture

## ***Agriculture employers: Are you aware that you must register your agricultural-labor housing with OR-OSHA?***

All agricultural-labor-housing operators in Oregon are required to register dwelling units with Oregon OSHA. Upon the initial registration of a dwelling, the housing operator must receive a pre-occupancy consultation report from Oregon OSHA. Active labor-housing units are also subject to inspection by Oregon OSHA compliance officers to enforce minimum living standards for occupants.

As of July 1, 346 dwelling units had registered with Oregon OSHA for the 2003 growing season, with a majority of registered agricultural labor units in Hood River and Wasco counties. Registered labor housing units in Oregon provide shelter to almost 13,000 workers and their families.

Providing a safe, healthy place for agricultural labor families to live has been a challenge and a cause for public concern for several decades. Oregon OSHA continues to dedicate two compliance officers to locate unregistered agricultural labor housing facilities this summer. The compliance officers use public records, agricultural-production data, interviews, and field investigations to help them find unregistered housing.

During the 2002 season, the two officers targeted Marion, Polk, Yamhill, Washington, and Clackamas counties for investigation.

Oregon OSHA will investigate reports of unregistered labor housing throughout Oregon.

The Interim Task Force on Farmworker Housing, established by the 1999 legislature, recommended that Oregon OSHA make it an enforcement priority to seek unregistered housing operators.

## ***Agricultural employers: Are you aware that you may be exempt from Oregon OSHA inspection requirements?***

Oregon OSHA's mission is to advance and improve workplace safety and health for all workers in Oregon. For smaller agricultural employers, there is a program that exempts certain employers from regularly scheduled Oregon OSHA inspection lists, provided the employer has met several safety-related requirements.

House Bill 3019, enacted by the 1995 legislature, granted scheduled inspection exemptions to agricultural employers with 10 or fewer employees. There are some important points to remember if you are seeking an agriculture inspection exemption.

## ***An employer with 10 or fewer agricultural employees:***

- must not have a complaint made to Oregon OSHA regarding them or have had a fatal accident or an accident resulting in a serious disabling injury during the past two years.
- must attend (includes principal supervisors) a four-hour safety-training class conducted or approved by Oregon OSHA.\*
- must arrange for an inspection of the agricultural facility once every four years by a safety consultant or loss-prevention consultant. \*\*

\* *Classes are listed in Oregon OSHA's Public Education Workshop Catalog, available on-line from the Oregon OSHA Web site, [www.orosha.org](http://www.orosha.org). If you have questions about Oregon OSHA training, call (503) 947-7443.*

\*\* *Any safety violations noted by a consultant must be corrected within 90 days. Consultations provided by Oregon OSHA may be arranged by calling (800) 922-2689.*

If you meet all the requirements for an inspection exemption, please keep your documentation accessible. If an Oregon OSHA compliance officer visits your work site for a scheduled inspection, please let the compliance officer know that you have met the requirements for a small-employer exemption, and permit him or her to review your documentation. If the exemption documentation is valid, the compliance officer will stop the inspection and move on to the next scheduled work site. ■

***For more information about the agricultural small employer (or a "House Bill 3019") exemption, please contact Oregon OSHA's Salem Field Office, (503) 378-3274.***



# On guard: a history of point-of-operation safeguarding

by Ellis Brasch, Technical/Research Section, Oregon OSHA

**M**achines that have moving parts and workers who operate them have an uneasy relationship. Machines make workers more productive and enable them to form and shape material in ways that would be impossible with hand tools. But that's where the machines' benefits end. Moving machine parts – rotating shafts, gears, cogs, flywheels, and the mechanisms for cutting, shearing, punching, bending, and drilling material – often keep moving regardless of who or what gets in their way.

Technology can make machines safer but as long as workers need machines to help them process material – to cut, shear, punch, bend, or drill it – they'll be exposed to moving parts that could harm them. The danger occurs at the point-of-operation, where the worker “interacts” with

the machine. Effective point-of-operation safeguarding protects the worker without disrupting the work task.

The idea of protecting the operator at the point of operation is not a new one. However, you may be surprised to learn that the designs for many of the machine guards and safeguarding devices used in today's workplaces had their origin more than 100 years ago. Mechanical hazards at the point of operation injure workers today the same way they did at the turn of the last century. Injuries can be severe, often life threatening. Many of the safeguards described in the following brief history are still effective if they're correctly installed, they're appropriate for the machines on which they're used, and if workers know how to use them.

## First machine guard – 1868

The first patented machine guard (# 84795) in the U.S. was an interlocking mechanism designed for a machine that bottled carbonated beverages. A protective shield, which descended around a bottle to be filled, was mechanically interlocked to the motion of the cork seating ram. The interlock prevented the ram from moving until the shield dropped into position.

## First emergency stopping control – 1883

The first documented emergency stopping control was patented in 1883 (# 289949) for a leather-splitting machine. The designer wrote that the device could also safeguard roll-forming machines and textile machines.

## First two-hand controls – 1887-1918

The first device that required a worker to use both hands to start a machine was patented in 1887 (# 347349). The designer developed the device for a machine that could cut out shoe soles but wrote that it could be used on “... machinery of any kind where there is danger of the operator cutting or otherwise injuring his hands while manipulating the work to be cut or shaped.”

The first electrical two-hand starting control was patented in 1912 (# 1046373); an early model was featured in a magazine article entitled, “The Maiming Stamping Press Made Safe.” Electrical two-hand controls for more than one operator received a patent in 1918 (# 1276962).

## First automatic-feeding device – 1891

Automatic feeding and ejection methods can protect machine operators by eliminating or reducing exposure to the point of operation. A mechanical feeding device that kept an operator's hands away from the point of operation was first patented in 1891 (# 459715).

## First interlocking punch-press guard – 1899

The first interlocking guard designed to protect punch press operators was patented in 1899 (# 618065). The guard was interlocked with the ram. When the guard was open the ram would not descend; after the guard closed it would not open until the ram completed a cycle and the machine stopped.

## Fail safe engineering – 1907

Good safety engineering requires that machinery be fail-safe: if a component fails while a machine is operating, the operator is still protected. A 1907 guard with a fail-safe mechanism received a patent for use on a printing press (# 865800). If the guard was removed the press would not operate until it was replaced.

## Sweep guard – 1910

The sweep guard, patented in 1910 (# 976181), sweeps the operator's hands away from the hazard at the point of operation. Though OR-OSHA no longer allows the device to be used as a safeguard, the first safety standards published in the United States, recommended the sweep guard as an “approved guard” for safeguarding a power press.



## Protection against in-running nip points – 1912

In-running nip points are hazards caused by rotating machine parts that touch at a point or along a line. By the early 1900s, many types of fixed barrier guards were available to protect workers from exposed gears, belts and pulleys, and similar nip-points.

## Protection from rotating shafts – 1912

An unguarded rotating shaft is dangerous because it can appear motionless. But it can instantly wrap up loose clothing, gloves, or long hair. In 1912, Hugo Kotten patented (# 1175065) the first telescoping guard that protected against entrapment by a rotating shaft.

## Guards that can't be easily removed – 1912

One characteristic of an effective machine guard is that it can't be easily removed. In 1912, a patent (# 1047349) for a two-hand control featured a design that made it impossible for the operator to disable or lock out the control.

## Pullback device – 1914

The first pullback device for a power press received a patent in 1914 (# 1093192). A pullback device uses cables attached to the operator's hands, wrists, or arms and to the ram. When the ram is up the operator can reach into the point of operation; when the ram descends, the mechanism pulls the operator's hands back from the point of operation.

## Electrical shock device – 1918

Not all machine safeguards appropriately eliminated or controlled hazards at the point of operation. One designer apparently thought that point-of-operation safeguarding should be a shocking experience. In 1918, he patented a device that delivered a mild electrical shock to a worker whose hands strayed into the point of operation.



1936 – This fine machine safety poster was created by artist Robert Lachenmann for the Federal Art Project.

## Maximum permissible guard openings for power presses – 1949

As early as 1908, designers attempted to limit the guard opening at the point of operation to the thickness of the material processed. In 1949, research performed by the National Association of Mutual Causality Companies

used a size 6½ woman's hand as the basis for developing a diagram that showed the maximum guard opening as a function of the guard's distance from the point of operation. That diagram, and a related Table O-10, now set OR-OSHA's requirements for maximum guard openings

and guard distances from the point of operation. [See Subdivision O, 1910.217(c) and Table O-10.]



1941 – Workers at an Eastern shipyard operate a giant shear to shape steel parts for the US Liberty Fleet in 1941.

## Light curtains – 1951

A light curtain is safeguarding device that uses a light beam to stop a machine if the operator interrupts the beam. The first light curtains designed to protect workers at the point of operation became available in 1951.

2003 – Workers at H.W. Metal Products, Inc., in Tualatin, Oregon, operate two massive 1,250-ton, 30-foot press brakes in tandem to shape steel parts for dump-truck beds.



2003 – The "be careful near machinery" message is echoed in this OR-OSHA poster.

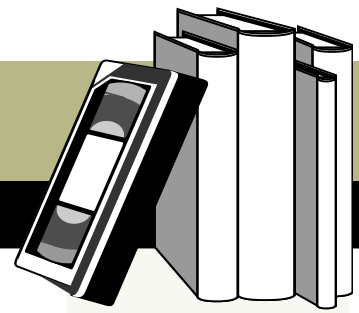


**Credits:** The source for much of the historical information in this article is Verne L. Roberts' excellent book, *Machine Guarding: A Historical*

*Perspective*. The Institute for Product Safety (1980), 1401 Duke University Road; Durham, NC 27710. The "Liberty Ship" photograph and the "BE CAREFUL NEAR MACHINERY" poster are from the Library of Congress. You can view them and many others on the Prints and Photographs Online Catalog: [www.loc.gov/rr/print/catalog](http://www.loc.gov/rr/print/catalog). Press brake photo courtesy of H.W. Metal Products, Inc., Tualatin, Oregon.

# The OR-OSHA Resource Center and Audiovisual Library

A RESOURCE FOR PROMOTING HEALTH & SAFETY IN THE WORKPLACE



## Don't sell yourself short!

by Don Harris, AV Librarian for Oregon OSHA

**I** hope you never get a letter like the letter my friend got.

This letter looked so harmless on the outside. On the inside, however, were several paragraphs of scrupulously courteous "legalese," complete with fine print, and copious "cc's." Roughly translated, it said, "You're an incompetent dummy, and I'm suing you for a million dollars."

Well, my friend felt pretty much as you or I might feel on receiving such a letter. There was an initial shock of disbelief. He couldn't believe his eyes. He read it again. The room began to sway. He felt faint. How could this be happening?

As he sat at his desk, several imaginary events crowded his mind in rapid succession. His office disappeared. His house faded away, replaced by a weather-beaten shack. His wife and children left. The last scene was he, alone, a grizzled old man wearing a barrel and begging for quarters. The pit of despair was just inches away.

Just as he was teetering on the edge, something happened. A ray of light emerged. "Wait a minute," he thought, "Does this letter mean I'll never see another sunset as long as I live? Does it mean that I'll never eat another bowl of cornflakes, or read the Sunday paper? Does this mean that my wife and children don't love me? Of course not!"

He was still worried of course. But being worried didn't stop him from simply filing the letter and going home to a cheerful dinner with his loving family.

As can sometimes happen, the legal case fell through. At some point, in some mysterious way, it was decided that he was not an incompetent dummy, after all, and his life continued pretty much the same as ever. But he never forgot the perspective gained in those critical moments of clarity.

Don't get me wrong. Money is important, especially when you don't have enough of it. Oregon's struggling economy presents significant challenges for all of us.

But do economic challenges affect our other values? Oregon OSHA hopes you'll agree that – money or no money – our lives have a worth beyond what can be calculated in dollars. For this reason, staying safe and healthy in the workplace remains as vitally important as ever. The lives and limbs of working Oregonians represent one of those values to which no price tag can ever be attached.

Speaking of price tags, I wonder if many people realize just how many resources are available from Oregon OSHA at little or no charge. Can you scrounge up about \$7? That's the average cost to you, including return shipping, for borrowing a video from the AV library. If you're able to return videos to the Resource Center in Salem in person, you end up with no charge at all. Given that the average cost of a safety video for purchase is around \$500, Oregon OSHA's video library is a very cost-effective alternative.

How about our publications? The first copy is always free of charge. And certainly, Oregon OSHA's Web

site, [www.orosha.org](http://www.orosha.org), presents the single most comprehensive collection of free or low-cost occupational safety-and-health resources specifically geared to working Oregonians. If you've never been to our Web site, take a look! You'll be pleasantly surprised – perhaps even amazed at the resources and services available to you with a mere click of a mouse.

Oregon's economy will change. It always does. But, whether the economy rises or falls, workplace injuries, illnesses and fatalities come at a price no working Oregonian should ever have to pay. Whichever way you look at it, staying safe and healthy on the job is just good economics, both in terms of dollars and in terms of those things that money can't buy. So, in these troubled times, don't sell yourself short. Take advantage of the resources and services offered to you through Oregon OSHA! Many of these resources and services are available at virtually no cost to you – a bargain in any economy. ■

*For a free copy of the 2003 AV Catalog, call (503) 378-3272 or visit our Web site, [www.orosha.org](http://www.orosha.org). Find it under "Publications."*

# Peter De Luca named chair of NACOSH

Oregon OSHA administrator Peter De Luca has been named chair of the National Advisory Council on Occupational Safety and Health (NACOSH) for 2003. NACOSH is the 12-member committee that advises the U.S. Secretary of Labor and U.S. Secretary of Health and Human Services on occupational-safety-and-health programs. U.S. Assistant Secretary of Labor John Henshaw named De Luca to the post.

“This is a significant recognition for Oregon’s program,” says De Luca. “It is a widely held opinion in the national safety community that Oregon has one of the best occupational-safety-and-health programs in the nation.”

In his role as chair, De Luca looks forward to advancing partnerships among government, labor, and management.

“The relationship among the federal government, labor, and management should not be adversarial,” says De Luca. “In order to succeed, we must be viewed as a positive force for adding value to safety. We need to find strategies we can all agree on. Being able to articulate safety and health is the right thing ethically and also the right thing from a business standpoint.”

De Luca’s first NACOSH meeting as chair was July 9-10 in Washington, D.C. ■

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