



The Connecticut Occupational Health e-News is published quarterly by the Connecticut Department of Public Health to provide occupational health surveillance and educational information to workers, employers, clinicians, and other community partners interested in the protection and promotion of healthy work environments.

CONNECTICUT DEPARTMENT OF  
PUBLIC HEALTH

Keeping Connecticut Healthy

J. Robert Galvin, M.D., M.P.H.,  
Commissioner

Connecticut Occupational  
Health e-News (COHEN)  
is produced by the  
Occupational Health Program

State of Connecticut  
Department of Public Health,  
Division of  
Environmental Health

Environmental &  
Occupational Health  
Assessment Program  
410 Capitol Avenue  
MS#11EOH  
PO Box 340308  
Hartford, CT 06134-0308

Phone: (860)509-7744  
Fax: (860)509-7785

Occupational Health  
Program Staff

Thomas St. Louis, MSPH  
Program Supervisor

Deborah Pease, MPH, CHES  
Epidemiologist

Ratan Singh, PhD, MPH  
Epidemiologist

Albert DeLoreto, BS  
Epidemiologist

## A CONNECTICUT WORKER TIME CAPSULE



### Housing Construction

Prefabricated defense housing under construction near airport.  
Hartford, Connecticut 1941 June.

From the Library of Congress, Prints & Photographs Division,  
FSA-OWI Collection, [reproduction number, e.g., LC-USF33-13266-M4]

# TOP 5 OSHA VIOLATIONS IN SINGLE FAMILY HOME CONSTRUCTION

When we think of construction worker injuries, we often think of large construction operations where workers are hundreds of feet off the ground and a lot of heavy equipment is involved. However, many occupational hazards exist for workers on small residential construction sites as well.



According to 2004 data from the Bureau of Labor Statistics (BLS), the number of workers injured on residential construction sites each year is essentially the same as the number injured during non-residential construction (approximately 40,000 per year). Framing contractors are at a particular risk for injuries, with a rate more than double the injury rate for residential construction workers overall (11% vs. 5%). The vast majority of injuries occurring in residential construction are easily preventable because many of them happen when OSHA regulations that have been put in place for the construction industry are not followed.

Below you will find a list of the top five specific topics cited by OSHA during inspections of small construction companies (less than 20 employees) involved in single-family residential construction. Information is also provided about the specific standards to which the violations refer. Details about these and all other OSHA standards for the construction industry can be found on the OSHA website at <http://www.osha.gov>

## **Scaffolding – 29 CFR 1926.451**

This OSHA standard provides detail on the proper construction, use, and maintenance of construction scaffolds. According to OSHA, 65% of construction workers spend a significant amount of time working on scaffolds. In addition, a recent BLS study showed that 72% of scaffolding accidents happened when either planking or supports gave way, or workers slipped or were struck by falling objects.



## **Fall Protection Application and Training – 29 CFR 1926.501 and 1926.503**

These OSHA standards provide information on when fall protection is required to be used on construction sites and what types of training are required for workers using fall protection. According to BLS data for 2004, 36% of all workplace fatalities are due to falls. The two main requirements of these standards are that any employee working at a height of 6 feet or more above a lower level is required to be protected from falling through the use of guardrails, safety nets, or personal fall arrest systems (1926.501(b)(1)) and employers must provide training to each employee who might be exposed to fall hazards (1926.503(a)(1)).

## **Ladders – 29 CFR 1926.1053**

Portable ladders can be found on any small residential construction site and are one of the most important, and most often used, pieces of equipment for this type of work. If not used properly, however, they can be one of the most dangerous hazards that a construction worker encounters. This OSHA standard was put in place to ensure that ladders are set-up and used properly in order to minimize injuries. Some highlights of the standard include the requirement that portable ladders extend at least 3 feet above the upper landing level for which they are being used to gain access or be secured at the top and used with a grab rail to assist users in mounting and dismounting the ladder (1926.1053(b)(1)). In addition, the bottom of non-self supporting ladders (such as extension ladders) needs to be 1 foot away from the wall for every 4 feet of length in the ladder (1926.1053(b)(5)(i)).



## **Head Protection – 29 CFR 1926.100**

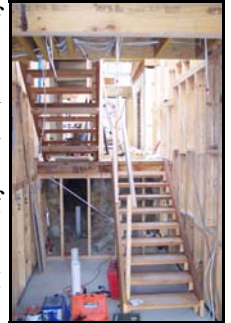
Injuries to the head can be extremely debilitating and there are many hazards present on construction sites that can lead to these types of injuries. In more serious cases, workers being struck on the head by falling objects can suffer from concussions, traumatic brain injuries, and even death. However, even superficial head injuries, such as cuts and abrasions, can lead to lost work time for employees. This OSHA standard is



intended to protect construction workers from head injuries by requiring that employees working in areas where there is a possible danger of head injury from impact, from falling or flying objects, or from electrical shock and burns, need to wear protective helmets that meet American National Standards Institute (ANSI) requirements for industrial head protection.

## **Stairways – 29 CFR 1926.1052**

The purpose of this OSHA standard is to provide guidelines for the proper construction of non-permanent stairways that are used during building construction. As mentioned earlier, falls are a major component of the overall burden of occupational injuries on construction sites. Improperly constructed temporary stairways can be a significant contributor to fall injuries affecting construction workers. Some highlights of this OSHA standard include: appropriate landings (at least 22" x 30") must be constructed at every 12 feet or less of vertical rise (1926.1052(a)(1)), all parts of stairways must be free of hazardous projections, such as protruding nails (1926.1052(a)(6)), and stairways having 4 or more risers or rising more than 30 inches shall be equipped with a handrail (1926.1052(c)(1)).



Information abstracted in part from the US Department of Labor's Bureau of Labor Statistics and OSHA websites.

## **BEWARE OF LEAD EXPOSURES: A WARNING FOR HOME RENOVATORS**

Lead poisoning is a common cause of workplace illness, and anyone renovating or repainting older homes should be aware of the hazards of exposure to lead. Lead-based paint was used in many homes built before 1978, and extensively in homes built prior to 1960. If your work on a home includes disturbing old paint by sanding, scraping, using heat guns, or replacing windows there is a chance you will be creating lead dust, fumes, or chips which can be hazardous to your health and the health of other workers and building occupants.



Lead dust is the most common source of lead exposure during construction activities. From 1995-2004, the Connecticut Department of Public Health has received an average of 300 reports per year of lead poisoned workers, many of whom are construction workers engaged in renovation activities on older homes. When lead dust is inhaled or ingested, it can cause lead poisoning which can damage the brain and nervous system, red blood cells, kidneys and the reproductive systems of men and women. Symptoms of lead poisoning include headaches, dizziness, sleep disturbances, memory loss, depression, fatigue, irritability, joint and/or muscle pain, miscarriage, and other serious health problems. However, a blood lead test is necessary to determine whether a person is lead poisoned or not, because many lead poisoned individuals never experience any of these symptoms.

**To avoid lead poisoning when performing renovation work on older homes, remember these simple rules:**

- 1. ASSUME – Paint in Homes Built Before 1978 Contains Lead** (unless testing of the paint in the home shows it doesn't contain lead).

## 2. **CHECK** – Federal, State, and Local Regulations



- OSHA has specific rules for construction work that includes lead exposures
- EPA and your local community have rules for lead waste disposal

## 3. **AVOID** – Creating or Spreading Dust



- Use low-dust work practices (for example, mist surfaces with water before sanding or scraping)
- Cover the work area with durable protective plastic sheeting
- Keep dust contained to the immediate work area

## 4. **PROTECT** – Occupants (Workers, Tenants, and Children)



- Workers must wear proper respiratory protection for lead dust
- Clean up the work site before occupants return
- Don't take dust home on your clothes or shoes

## 5. **CLEAN UP** – After Work is Completed



- Clean up is particularly important if painted surfaces were broken or wall cavities were opened
- Take lead dust wipe samples to make sure that it is safe for children to return

## 6. **MAINTAIN** – A Dry Building



- Moisture problems can cause paint failure, building deterioration, and encourage pests
- Well-maintained paint generally does not pose a health risk
- Keep floors and painted surfaces smooth and damp mop them often

**For more information contact Deborah Pease at (860) 509-7744 or refer to the websites listed below:**

Lead-Safe Work Practices

<http://www.nsc.org/issues/lead/leadsafework.htm>

Safety and Health Topics: Lead

<http://www.osha.gov/SLTC/lead/index.html>

CPSC Warns About Hazards of "Do It Yourself" Removal of Lead Based Paint: Safety Alert

<http://www.cpsc.gov/cpsc/pub/pubs/5055.html>

Impact of Lead-Safe Training Program on Workers Conducting Renovation, Painting, and Maintenance Activities [http://www.publichealthreports.org/userfiles/120\\_1/120025.pdf](http://www.publichealthreports.org/userfiles/120_1/120025.pdf)

*DPH's Lead Poisoning Prevention Program*

[http://www.dph.state.ct.us/BRS/Lead/lead\\_program.htm](http://www.dph.state.ct.us/BRS/Lead/lead_program.htm)

Get on DPH's list of Lead-Safe Contractors

<http://www.dph.state.ct.us/BRS/Lead/Lead-Safe/contractors.htm>

Lead-Safe Training Providers

<http://www.dph.state.ct.us/BRS/Lead/Lead-Safe/trainers.htm>

Information abstracted in part from the U.S. Department of Housing and Urban Development and the resources listed above.



# CONNECTICUT OCCUPATIONAL ILLNESS AND INJURY SURVEILLANCE SYSTEM: ANALYSIS OF CONSTRUCTION INDUSTRY DATA

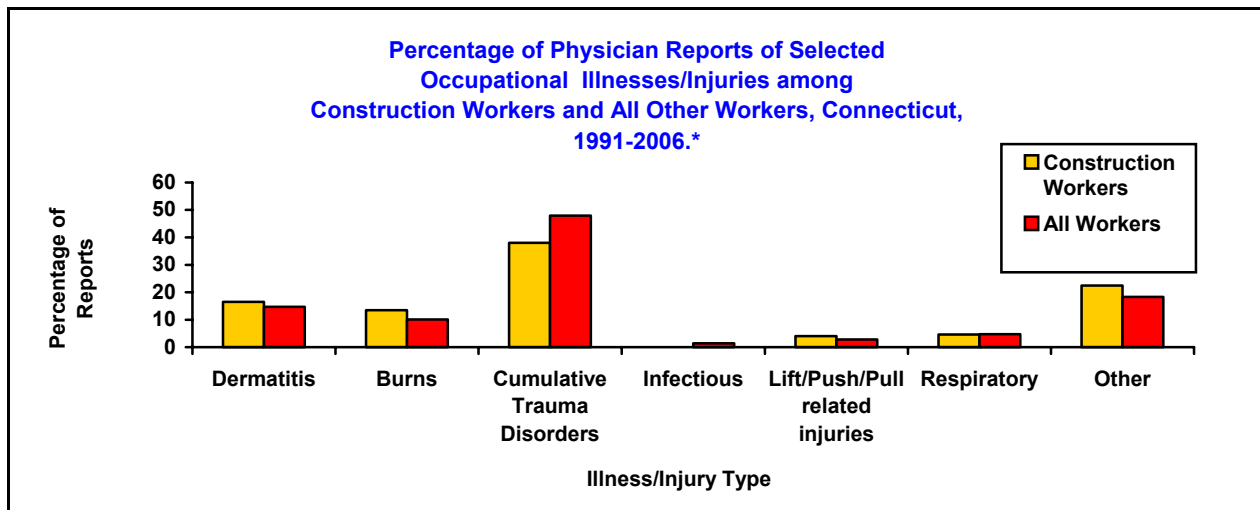
Connecticut State Law requires any physician diagnosing a case of work-related illness or injury to report that case to the Connecticut Departments of Labor and Public Health within 48 hours of diagnosis. The primary source of data utilized by the Connecticut Department of Public Health for tracking occupational illnesses and injuries (excluding elevated blood lead levels) is the Occupational Illness and Injury Surveillance System (OISS). The OISS serves as a computerized database for physician reports of occupational illness and injury received by DPH.

**TABLE- 1: Occupational Illness/Injuries among Construction Workers, Connecticut, 1991-2006\***

Illness/Injury Type	Construction Workers		All Workers	
	N	%	N	%
Allergic/Irritant Dermatitis	122	16.5	4179	14.7
Burns	100	13.5	2853	10.1
Cancer	-	-	36	<1
Cumulative Trauma Disorders (CTD)	281	38.0	13,585	47.9
Infectious Diseases	2	<1	394	1.4
Lift/Push/Pull related injuries (LPP)	30	4.0	784	2.8
Respiratory diseases	34	4.6	1333	4.7
All other diseases	166	22.5	5180	18.3
<b>Total</b>	<b>739</b>	<b>100.0</b>	<b>28,344</b>	<b>100.0</b>

\*OISS Data as of February 28, 2006, excludes workers with elevated blood levels

A total of 739 Construction workers were reported to the OISS between January 1991 and February 2006. Cumulative trauma disorders (CTDs) have been the most frequently reported conditions (38.0%), followed by allergic/irritant dermatitis (16.5%), and burns (13.5%). The percentage of construction worker illnesses attributable to allergic/irritant dermatitis, burns, and lift/push/pull related injuries was higher than the percentage for all workers combined. Examples of other diseases affecting construction workers reported to the OISS included bruises and contusions (7.4%), cuts and lacerations (5.2%), and electric shocks/electrocutions (3.5%), as well as various other conditions.



\*ODSS Data as of February 28, 2006, excludes elevated blood lead levels

For more information about the Connecticut Occupational Illness and Injury Surveillance System, please contact the Connecticut Department of Public Health's Occupational Health Program at (860) 509-7744.



# SAFETY TIPS

## Fall Protection for Residential Construction Operators



An estimated 2.3 million construction workers in the US, or 65% of the construction workforce, work on scaffolds frequently. Fall protection equipment such as guardrails, safety nets, and personal fall arrest systems (such as safety harnesses) can significantly reduce the chances of experiencing a fall-related injury. In 2004, the Bureau of Labor Statistics (BLS) reported that 1,224 construction workers died on the job, with 36% of those fatalities resulting from falls. The Occupational Safety and Health Administration (OSHA) requires fall protect equipment to be used whenever work is being done at heights greater than six feet. The three acceptable methods of fall protection include safety nets, placing guardrails around the work area, and the use of fall arrest systems for each employee on the job-site. The following information describes a few different acceptable methods for preventing falls on construction sites.

### Personal Fall Arrest Systems

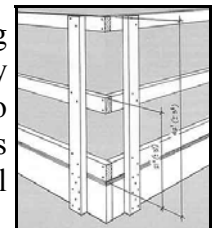


Personal fall arrest systems are generally comprised of combinations of the following equipment; lifelines, harness systems, suspension ropes, and other components that complete the systems. Body harness systems are gear designed to reduce traumatic impact to the worker in the event of a fall, while still allowing the worker freedom of movement. The point of attachment of the body harness must always be located in the center of the back, near the shoulder level, or above the head. Droplines attach to the worker and are responsible for suspending the worker in the event of a fall. Remember to shield lifelines from hot or corrosive processes, and protect them from sharp edges or abrasion, in order to maintain their integrity.

Proper anchorage for fall arrest systems is perhaps the most important component of these systems. The point of anchorage needs to be able to hold a minimum load of 5,000 pounds (2½ tons). In addition, anchor points must be installed by a qualified person and be part of a full fall arrest system. The complete system must be capable of withstanding the load of two workers falling simultaneously from a height of six feet.

### Guardrails:

Guardrails should be used in applications where workers are close to the edge while working at heights. There are many types of guardrail systems available, most of which are very easy to use. There are even some newer guardrail systems that do not require the contractor to impact the membrane of the roof, which can make for a quicker takedown after the job is complete. The following guidelines should be followed when installing and using guardrail systems:



- Maintain the proper height of the top of the guardrail. The top height should always be between 39 and 45 inches higher than the work surface.
- Guardrails need to be able to withstand at least 200 pounds of pressure applied in any direction.

Midrails, mesh, screens etc., must be in place between the top edge of the guardrail and the working surface, when there is not a wall or other structure 21 inches high. In addition, the midrail must be strong enough to withstand 150 pounds of applied force in any direction.

### **Safety Nets:**

Although this form of fall protection is not often used on residential construction sites, if safety nets are to be used as the means for fall protection on a job site, please adhere to the following guidelines:

- Place safety nets as close below the workers as possible. They should never be more than 30 feet below the fall height.
- Keep areas below safety nets clear of obstructions to protect workers from any impact.
- Inspect safety nets for wear, damage, or corrosion at least once per week.
- The maximum mesh size of the safety net should never exceed 6 in. by 6 in., as large sized openings could allow for the worker to become entangled in the net.
- Each section of safety net should have a border rope with webbing anchored and a 5,000 pound (2½ ton) breaking strength.
- Safety nets must extend out from the furthest projection of the work area as illustrated in the chart below:

Vertical distance from working level to horizontal plane of net	Minimum required horizontal distance of outer edge of net from the edge of the working surface
Up to 5 feet	8 feet
5 to 10 feet	10 feet
More than 10 feet	13 feet



For more information on safety nets, and specifics on installation, please visit the OSHA safety net eTool website at: <http://www.osha.gov/SLTC/etools/construction/falls/safetynet.html>

### **REMEMBER!!!**

In addition to providing fall protection for workers, employers are also required to provide proper training for all workers who use any type of fall protection equipment. For more information on fall protection and its appropriate use, the following resources may be helpful.

#### **The Occupational Safety and Health Administration**

<http://www.stats.bls.gov>

#### **The Bureau of Labor Statistics**

<http://www.osha.gov>

Information extracted in part from the Occupational Safety and Health Administration (OSHA), and the Bureau of Labor Statistics (BLS).



# Use Caution When Using Nail Guns

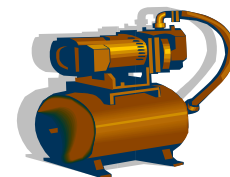
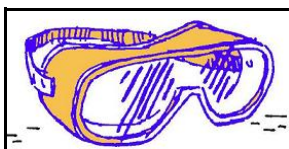


Nail guns are tools used in place of hand-held hammers to drive nails into various types of construction materials (such as wood or masonry). There are generally two types of nail guns that are frequently used on construction sites. High velocity nail guns typically utilize an explosive cartridge to “fire” nails whereas low velocity guns utilize a piston-style mechanism activated by either an explosive cartridge or compressed air. Nail guns have been used for many years on wood-frame residential construction sites and have increased worker productivity dramatically. Now, it is rare to hear a hammer pounding a nail at a residential construction site, as it has been replaced by the rapid-fire sound of the pneumatic nail gun.

Nail guns have the capacity to fire several nails per second at a velocity over 1,000 feet per second. Although these physics will allow a nail gun to fire a projectile almost 4 inches into fully stressed concrete, when accidentally applied to the human body, the resulting damage can be severe. Although extremity injuries (such as those to the hands and feet) are most common, severe injuries to more critical areas of the body, such as the head, neck, and chest may occur. A recent study of construction workers in three states showed that 97% of all puncture wounds in residential construction were caused by nail guns and that two-thirds of all nail gun injuries occurred as a result of a safety device (i.e. a bumper or trigger safety) being by-passed or disabled.

The following guidelines can help you reduce your risk of a nail gun injuries when working on construction sites:

1. Always wear safety glasses when operating pneumatic tools including nail guns. Ensure that others in the area are wearing safety glasses as well.
2. NEVER dismantle or bypass safety devices such as triggers, guards, or bumpers.
3. Be aware of the location of air hoses, especially when working at heights, as they may pose a tripping hazard.
4. Do not press the trigger unless the nose is firmly pressed against the working material.
5. Never point the tool at a person and always assume it is loaded and ready to fire.
6. Always point the gun away from you when nailing materials. NEVER BACK-NAIL MATERIALS with the tip of the gun pointing toward your body.
7. Always disconnect the air hose or power supply before clearing jams or adjusting the tool.
8. Always nail top to bottom for vertical walls, in a forward direction for horizontal areas, and from the eaves to the ridge for roof sheathing.
9. Never use bottled gas in place of compressed air to operate pneumatic tools and never operate them around flammables.
10. Review the operator’s manual with all employees to ensure that the tool will be used appropriately and within manufacturers specifications.



Information extracted in part from Oregon OSHA and reports from the Washington State SHARP program (Baggs, Cohen, Kalat, and Silverstein, 2001) and the Duke University Medical Center Division of Occupational and Environmental Medicine (Dement, Lipscomb, Epling, Desai, Li, and DeLarco, 2001)