Russell Fote & Associates, Inc.

FOTE·REPORT

SAFETY ENGINEERING UPDATE

FOTE NOTES

At Russell Fote & Associates, our purpose is to provide our clients with the very best safety engineering and expert consulting services.

Since starting Russell Fote & Associates, Mr. Fote has given over **150 depositions** and has testified at over **25 trials**. He has been recognized as an expert in the state courts of: Illinois, Wisconsin, Iowa, Kentucky, Tennessee, Nebraska, Oklahoma, and West Virginia, plus U.S. District Courts in Atlanta, GA and Central Islip, NY.

We have two offices to serve you. Our Chicago office is located at 8770 W. Bryn Mawr Ave., Suite 1300, Chicago, IL 60631, which is about three miles east of O'Hare International Airport. Our other office is located in Wisconsin at 3635 Stonebrook Ct., Brookfield, WI 53005. You may reach us using the contact information listed at the bottom of this newsletter.

At Russell Fote & Associates, we continue to remain current on all safety engineering-related issues.

We invite you to visit our "home page" on the Internet. You may access our web site at: **www.fote-engineering.com** or E-mail information to our office at: **rfote@wi.rr.com**.

Construction Falls and Ladder Safety

The National Safety Council (NSC) estimates over 18,000 fatalities occur annually, which are attributed to falls. NSC's classification of fatalities, which separates falls involving elevations from other types of falls, classifies many as undermined.

However, using NSC's existing statistics, one may conservatively estimate there are over 8,000 fatalities that occur annually, which involve falls from elevations.

OSHA Standards and Fall Protection

The Occupational Safety and Health Administration (OSHA) propagated the standard for the construction industry, 29 CFR 1926.502, which addresses fall protection.

Let's focus on those sections of the standard that address falls from elevations and the associated hazards for both construction workers and frequenters at a construction site. Specifically, we will concentrate on the guarding of unprotected sides, edges and holes.

OSHA requires each employee who walks or works on a horizontal or vertical surface, which is 6 feet or more above a lower level including holes, to be protected from falls. The most common means of providing such protection is via a cover or guardrail system.

A guardrail system requires a top rail having a height of 42 inches, plus or minus 3 inches, plus a mid-rail and a toe-board with a minimum height of 3.5 inches. The top rail and posts of a guardrail system need to withstand a force of 200 lbs. and the mid-rail's strength requirement is to withstand a force of 150 lbs.

Both of these forces are to be applied in any direction and at any point along the guardrail's respective components. For example, the 200 lbs. of force stated by OSHA is approximately equivalent to the force exerted by two men pushing or pulling together, at or near each man's maximum force, at any point along the guardrail system.

If construction grade lumber is used, OSHA recommends, at minimum, 2-inch by 4-inch lumber be installed for the top rail and posts. These posts need to be installed with maximum spacing of every 8 feet. At minimum, 1 inch by 6-inch lumber is required for the mid-rail.

Covers for holes need to withstand twice the weight of employees, equipment and materials that may be imposed on the cover at any one time.

All covers are to be secured upon installation so as to prevent accidental displacement by wind, equipment or employees. These covers are to be color-coded or marked with the word "HOLE" or "COVER" to warn of the hazard.

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Based on the above standards, one may encounter a fall hazard at a construction site involving a unguarded floor opening, such as an uncompleted stairway to a lower level. An employee from a subcontractor or a frequenter to the site may not be aware of the open stairway. The opening could be camouflaged by other building materials or covered by a non-structural cover, such as a sheet of foam insulation.

Under OHSA standards, that opening needs to be guarded by a guardrail system or by a cover that can withstand twice the weight imposed on it. The cover should be marked and secured to prevent inadvertent movement.

Ladder Safety

For the purpose of this article, we will concentrate on portable ladders that are used extensively today; the stepladder and the extension ladder.

A stepladder, as defined by ANSI (American National Standards Institute), is a self-supporting portable ladder, non-adjustable in length, with flat steps and a hinged base.

An extension ladder, as defined by ANSI, is a non-self-supporting portable ladder adjustable in length. It consists of two or more sections traveling in guides or brackets or the equivalent, and so arranged as to permit length adjustment.

The processes involved in the design, construction, testing, care and use of portable ladders are administered by the national consensus standards issued by ANSI, which are:

- A14.1, American National Standards for Ladders, Wood Safety Requirements.
- A14.2, American National Standards for Ladders, Portable Metal Safety Requirements.
- A14.5, American National Standards for Ladders, Portable Reinforced Plastic Safety Requirements.

ANSI has established the following rating system, which is used by all ladders sold in the U.S.:

Duty Rating, Type	*Working Load*
Light Duty, Type III	200 lbs.
Medium Duty, Type II	225 lbs.
Heavy Duty, Type I	250 lbs.
Extra Heavy Duty, Type 1A	300 lbs.

The working load, as noted above in pounds, is defined as the maximum applied load, including the weight of the user plus the materials and tools, which the ladder is to support for its intended use.

Using NSC's existing statistics, one may conservatively estimate there are over 8,000 fatalities that occur annually, which involve falls from elevations.

ANSI's ladder standards are very comprehensive, with each standard comprising more than 75 pages.

The testing procedures stated in each standard are both conservative and thorough. For example, a 20-foot extension ladder having a rated working load of 200 lbs. would need to withstand a test load on each of its rungs of 800 lbs.

This is accomplished by randomly selecting a rung to be tested. For example, if the tested rung has a length of 13 inches (between siderails), its maximum allowable permanent deformation is 0.13 (1/8) inch.

Ladder Safety Recommendations

- Visually inspect the ladder to check for defects.
- Do not place a ladder in front of a door unless the door is locked, blocked or guarded.
- Use a wood or fiberglass ladder, not a metal ladder, if work is near electrical equipment.
- When climbing up and down the ladder, always face the ladder and use both hands on the rails. If tools or materials need to be handled, raise or lower them with a rope.
- If using a stepladder, set the ladder on a level, firm surface and secure its spreaders.
- If using a stepladder, never climb higher than the second step from the top.
- If using an extension ladder, it should be equipped with slip-resistant feet.
- If using an extension ladder, use the 4 to 1 ratio, which places the ladder at one foot away from what it leans against for every 4 feet in height to the point where the ladder rests.
- If using an extension ladder, verify the upper and lower sections are locked.
- If using an extension ladder, the top of the ladder must extend at least 3 feet above an elevated work area, such as a roof, if access to this area is required. If not, do not climb higher than the third rung from the top.

Beil vs. Telesis Construction, Inc.

On January 19, 2011, the Pennsylvania Supreme Court upheld a lower court's ruling in favor of Lafayette College (College), a defendant in this matter.

This case dates back to June 13, 2003, when a worker from a roofing company, Mr. David Beal, fell from scaffolding at a construction site.

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That work involved the remodeling of a multi-story building on the College's campus in Easton, Penn.

Prior to June 2003, the College hired Telesis Construction, Inc. (Telesis) as general contractor for this project.

The College entered into a written construction agreement with Telesis. Telesis provided its own on-site project manager and the College provided one of its employees as an on-site project manager.

Telesis subcontracted roofing work to Kunsman Roofing and Siding (Kunsman). The College separately contracted with Masonry Preservation Services, Inc. (MPS) for stonework repairs to the outside of the building and MPS erected the scaffolding.

On June 13, 2003, a rainy day, Mr. Beil was carrying pieces of sheet metal flashings about 3 inches wide by 8 feet long. The load he was carrying weighed about 10 to 15 lbs.

While ascending a vertical ladder attached to the scaffolding, he fell about 30 feet, resulting in serious injuries to his head, neck, shoulder and heel.

OSHA requires fall protection be provided to workers on scaffolding higher than 10 feet. Such fall protection can be a stairway, which is integral to the scaffolding and includes guardrails and handrails.

Subject scaffolding had a vertical ladder that was more than 10 feet in length; therefore, to comply with OSHA's scaffolding standard, personal fall protection is required.

For the most part, this would consist of the worker wearing a full-body safety harness. Attached to this harness would be a retractable cable, which in turn, would be securely anchored to the roof of the building.

The information presented in this case's written review indicated the College's project manager knew the scaffolding required fall protection. Telesis, the general contactor, testified it had complete control of the project and was responsible for safety of its subcontractors, including Kunsman and its employees, which included Mr. Beil.

On June 6, 2005, Mr. Beil filed a personal injury suit against the College, the building's owner, Telesis, the general contractor, and MPS, the scaffolding's owner. Before trial, the College asserted it was not liable for injuries to employees of an independent contractor or its subcontractors since the College did not retain control.

ANSI's ladder standards are very comprehensive with each standard comprising more than 75 pages.

The trial court's judge denied this legal motion and the case went to trial. On October 27, 2006, the jury found in favor of David Beil and his wife and awarded damages in the amount of $6.8 million. The jury determined liability as follows: 50% to Telesis, 35% to the College, 10% to MPS and 5% to Beil.

The College appealed to the Superior Court and on August 12, 2008, the Superior Court reversed the lower court's trial verdict in favor of the College. The Court determined the College was not liable as a matter of law under the legal theory of "owner control."

As a general rule of law, the entity that hires an independent contractor is, for the most part, exempt from liability for injuries sustained by employees of the general contractor or its subcontractors.

For the plaintiff to prevail, he needed to successfully argue to the Court that the College "retained control" not Telesis or MPS, which was hired directly by the College and responsible for erecting the scaffolding. In order for the College to have "retained control," MPS and Telesis would have not been "entirely free to do the work in its own way." For example, the College may have had a right to stop work, or to inspect work, or to prescribe alternations or deviations in the work. However, these actions do not legally establish "retaining control" and therefore, the Court found in favor of the College.

The plaintiffs appealed to the Supreme Court, which on January 19, 2011 upheld the Superior Court's ruling, finding in favor of the College.

Summarizing

Both the Superior and Supreme Courts took very firm legal stands on what constitutes owner's control over an independent contractor, as it relates to the owner's liability when a contractor's employee is injured at the job site.

The College may have won legally, but this victory appears long, difficult and costly. This case's written review is rather lengthy; it involves reading 12 pages, which are single-spaced with smaller font size and narrow margins.

Nowhere in this review was any information provided on the length of time this unsafe scaffolding had been erected on the construction site.

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Construction Falls and Ladder Safety *(continued from page three)*

Generally, most contracts between the owner and general contractor require the general contractor to comply with applicable laws, ordinances, regulations, etc., which would include OSHA.

It appears some of this language was present in the contract between the College and Telesis. Also, Telesis testified it was responsible for the safety of its subcontractors' employees such as Mr. Biel.

As noted above, this review did state the College's project manager knew the scaffolding did not have fall protection. It would be difficult to believe the project manager for the general contractor, Telesis, did not know about this scaffolding being unsafe.

Although Mr. Beil's employer, Kunsman Roofing, was not involved in this matter's litigation, why did all of these entities allow this unsafe scaffolding on the job site without personal fall protection?

Over the years we have had numerous cases involving falls from elevations. Those cases included construction site falls from open, unguarded stairways and holes. Other cases related to defective ladders.

At Russell Fote and Associates we were able to assist our clients in determining causes and subsequent non-controlled hazards for these types of falls. Most of these matters were favorably settled prior to trial. ❑

Russell Fote, P.E.,
C.S.P., C.F.E.I.
Expert Safety Engineer

For Expert Testimony, Talk to an Expert

Russell Fote & Associates has over 30 years of safety engineering experience. The firm's field of expertise includes: **fires, explosions, carbon monoxide, scalds, flammable liquids/gases, water heaters, appliances, furnaces, slips/falls** and **motor vehicle collisions**.

- Investigations & Reconstructions
- Hazard Analysis & Evaluations
- Depositions & Trial Testimony

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We have two offices to serve you, one in the Milwaukee area and the other in Chicago, near O'Hare International. Our contact information is listed at the bottom of this newsletter.

Russell Fote & Associates, Inc.
3635 Stonebrook Ct.
Brookfield, WI 53005

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8770 W. Bryn Mawr Ave., Suite 1300
Chicago, IL 60631

**For Expert Testimony,
Talk to an Expert**

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Construction Falls and Ladder Safety

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