Construction Site Accidents

Excavations and Collapse Prevention

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I. LAWYER BIOGRAPHY

Jules Zacher has practiced law since 1974 in state court in Pennsylvania and federal court in Pennsylvania, Florida, and Maryland.

Mr. Zacher received his law degree at Temple University in 1974, as well as a masters degree in economics from Temple in 1970. Mr. Zacher has taken non-degree course work at Princeton University, Woodrow Wilson School of Public and International Affairs. He received his undergraduate degree from the University of Pittsburgh in 1964.

Mr. Zacher's legal career has included working as a trial lawyer in one of the premier personal injury law firms in the nation prior to starting his own firm in 1982. He has litigated construction site cases including a welder performing work on a bridge who was electrocuted, a concrete worker who was seriously injured at an oil storage tank, and a carpenter who received serious injuries while working at a home construction site. He has been active in community affairs in the Grays Ferry area of Philadelphia. Many of the cases he has tried have involved numerous defendants and complex issues of facts and law.

Mr. Zacher is a member of the Philadelphia Bar Association, and the Philadelphia Trial Lawyers Association. He is admitted to practice law in Pennsylvania and the United States District Court of the Eastern District of Pennsylvania.

II. HOW TO CONTACT THE FIRM

Jules Zacher, P.C. is a law firm incorporated as a professional corporation with offices located at 1601 Walnut Street, Suite 707, Philadelphia, PA 19102. Its phone number is 215-988-0160; its fax number is 215-988-0169; and its e-mail address is zacherlaw@aol.com. The law firm has two Websites: www.juleszacher.com and www.legionnairelawyer.com.

III. CONSTRUCTION SITE ACCIDENTS

1. Industry Background

Even though the construction industry has 5% of the workforce, it has 21% of the workplace fatalities in the United States.[1] Ranking the number of fatalities on construction sites shows that falls result in the highest number of deaths, with transportation accidents second, and contact with objects and equipment third. Roughly 30% of these fatalities are caused by falls from elevated positions.

According to US government statistics, approximately 1 in 10 injuries on the job occur on construction sites.[2] In 2005 this accounted for approximately 408,000 injuries, a number which has doubled in less than ten years (In 1997 there were 189,839 on-the-job injuries). In 2005, 1186 construction workers were killed at work—representing nearly half of the 2,452 total deaths in the entire private goods producing sector. As the head of the trauma unit of Philadelphian hospital, which treats one construction worker a month for serious injury, said, "Construction sites are extremely lethal areas" (Bartholomew Tortella as cited in the *Philadelphia Inquirer*, 2/11/00, pg. 1).

Most construction sites involve numerous companies at various levels, with the owner of the building or the developer using an architect and engineer to draw up the construction site plans. The owner or developer will also contract with a prime or general contractor to do the actual construction. If the prime does not do construction work, it is considered a construction manager. The prime usually contracts with subcontractors to do such work as demolition, excavation, foundations, steel erection, electrical and concrete work.

2. Statutory Duty

Any analysis used to establish whether an injured person can collect damages from any potential defendant in a workplace accident must start with the legal duty the defendant had to the worker. The source of legal duty can be a law and any regulations stemming from the law, such as the Occupational Safety and Health Act (OSHA), passed by the U.S. Congress in 1970.

The standards set up in OSHA dealing with construction, as an example, hold the prime contractor responsible for enforcement of OSHA standards regardless of any contractual agreement between the prime and sub-contractors. The non-delegable duty of the prime contractor extends to all employees on construction sites regardless of who employs them. It can occur even if the general contractor has no employees himself on

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[1] *Fatal occupational injuries by event or exposure and major private industry sector, All United States, 2005*. U.S. Department of Labor, Bureau of Labor Statistics, in cooperation with State and Federal agencies, Census of Fatal Occupational Injuries.

[2] *Workplace Injuries and Illnesses in 2006*, U.S. Department of Labor, Bureau of Labor Statistics.

the jobsite[3]. Further, the OSHRC (Occupational Safety and Health Review Commission) has ruled that any employer, regardless of what level that may be on a multi-tier level construction site, who can get rid of a hazardous condition violative of OSHA regulations must do so even though only employees of other companies are at the worksite.

The employer, however, will be let off the hook from violating OSHA standards if the employee is unforeseeably disobeying the instructions of the employer. In order to show that the employee disobeyed instructions it is necessary for the employer to prove that it has work rules established to prevent a violation which has been connected to the employee, it has made efforts to uncover any violations, and it has enforced its rules when any violations which were discovered.[4]

Prior OSHA violations by the same company are available from the regional OSHA office. Any prior citations for the same type of safety violation would go a long way towards establishing notice to the company.

Owners typically have progress photos taken of the jobsite to refute any claims which may be brought against a job for delay. These same photos can be used to establish OSHA violations on the jobsite prior to the accident happening.

3. OSHA Regulations | Excavations

A. Excavation Term Definitions[5]

These OSHA definitions detail important terms in excavation construction. A list of the terms and their definitions follow:

- *Cave-In*. Cave-in means the separation of a mass of soil or rock material from the side of an excavation, or the loss of soil from under a trench shield or support system, and its sudden movement into the excavation, either by falling or sliding, in sufficient quantity so that it could entrap, bury, or other wise injure and immobilize a person.
- *Excavation*. Excavation means any man-made cut, cavity, trench, or depression in an earth surface, formed by earth removal.
- *Protective System*. Protective system means a method of protecting employees from cave-ins, from material that could fall or roll from an excavation face or

[3] Anning v. Johnson Co. , 4 OSHRC (BNA) 1195, 1994 (1976)
[4] A.P. O'Horo Co., Inc. v. Secretary of Labor, OSHRC Docket No. 85-369, 20 (1989)
[5] U.S. Department of Labor. Occupational Safety & Health Administration. Regulations; 29 CFR 1926.650

into an excavation, or from the collapse of adjacent structures. Protective systems include support systems, sloping and benching systems, shield systems, and other systems that provide the necessary protection.

- *Shield (Shield System)*. Shield (shield system) means a structure that is able to withstand the forces imposed on it by a cave-in and thereby protect employees within the structure. Shields can be permanent structures or can be designed to be portable and moved along as work progresses. Additionally, shields can be either premanufactured or job-built.

- *Shoring (Shoring System)*. Shoring (shoring system) means a structure such as a metal hydraulic, mechanical or timber shoring system that supports the sides of an excavation and which is designed to prevent cave-ins.

- *Trench (Trench Excavation)*. Trench (trench excavation) means a narrow excavation (in relation to its length) made below the surface of the ground. In general, the depth is greater than the width, but the width of a trench (measured at the bottom) is not greater than 15 feet. If forms or other structures are installed or constructed in an excavation so as to reduce the dimension measured from the forms or structure to the side of the excavation to 15 feet or less (measured at the bottom of the excavation), the excavation is also considered to be a trench.

B. Specific Excavation Requirements[6]

These OSHA regulations indicate how excavations are to be maintained at construction sites. A summary of the regulations follow:

- *Structural Ramps*. Structural ramps that are used solely by employees as a means of access or egress from excavations shall be designed by a competent person. Structural ramps used for access or removal of equipment shall be designed by a competent person qualified in structural design, and shall be constructed in accordance with the design.

- *Means of Egress from Trench Excavations*. A stairway, ladder, ramp or other safe means of egress shall be located in trench excavations that are 4 feet or more in depth so as to require no more than 25 feet of lateral travel for employees.

- *Exposure to Falling Loads*. No employee shall be permitted underneath loads handled by lifting or digging equipment. Employees shall be required to stand away from any vehicle being loaded or unloaded to avoid being struck by any spillage or falling materials. Operators may remain in the cabs of vehicles being loaded or unloaded when the vehicles are equipped to provide adequate protection for the operator during loading and unloading operations.

[6] U.S. Department of Labor. Occupational Safety & Health Administration. Regulations; 29 CFR 1926.651

- *Warning System for Mobile Equipment*. When mobile equipment is operated adjacent to an excavation, or when such equipment is required to approach the edge of an excavation, and the operator does not have a clear and direct view of the edge of the excavation, a warning system shall be utilized such as barricades, hand or mechanical signals, or stop logs.

- *Emergency Rescue Equipment*. Emergency rescue equipment, such as breathing apparatus, a safety harness and line, or a basket stretcher, shall be readily available where hazardous atmospheric conditions exist or may reasonably be expected to develop during work in an excavation. This equipment shall be attended when in use.

- *Stability of Adjacent Structures.*

  Where the stability of adjoining buildings, walls, or other structures is endangered by excavation operations, support systems such as shoring, bracing, or underpinning shall be provided to ensure the stability of such structures for the protection of employees.

  Sidewalks, pavements and appurtenant structure shall not be undermined unless a support system or another method of protection is provided to protect employees from the possible collapse of such structures.

  Excavation below the level of the base or footing of any foundation or retaining wall that could be reasonably expected to pose a hazard to employees shall not be permitted except when:

  - A support system, such as underpinning, is provided to ensure the safety of employees and the stability of the structure; or
  - The excavation is in stable rock; or
  - A registered professional engineer has approved the determination that the structure is sufficiently removed from the excavation so as to be unaffected by the excavation activity; or
  - A registered professional engineer has approved the determination that such excavation work will not pose a hazard to employees.

- *Protection of Employees from Loose Rock or Soil*.

  Adequate protection shall be provided to protect employees from loose rock or soil that could create a hazard by falling or rolling from an excavation face. Such protection shall consist of scaling to remove loose material; installation of protective barricades at intervals as necessary on the face to stop and contain falling material; or other means that provide equivalent protection

Employees shall also be protected from excavated or other materials or equipment that could create a hazard by falling or rolling into excavations. Such materials or equipment shall be kept at least 2 feet from the edge of excavations, or by the use of retaining devices that are sufficient to prevent materials or equipment from falling or rolling into excavations, or by a combination of both.

- *Inspections*.

Daily inspections of excavations, the adjacent areas, and protective systems shall be made for evidence of a situation that could result in possible cave-ins, indications of failure of protective systems, hazardous atmospheres, or other hazardous conditions. An inspection shall be conducted prior to the start of work and as needed throughout the shift. Inspections shall also be made after every rainstorm or other hazard increasing occurrence. These inspections are only required when employee exposure can be reasonably anticipated.

Where there is evidence of a situation that could result in a possible cave-in, indications of failure of protective systems, hazardous atmospheres, or other hazardous conditions, exposed employees shall be removed from the hazardous area until the necessary precautions have been taken to ensure their safety.

4. OSHA Regulations | Concrete and Masonry Construction

A. Requirements for Concrete Construction[7]

These OSHA regulations show how construction employees are to be protected from the hazards associated with cast-in-place and precast concrete construction operations performed in the workplace. A summary of the regulations follow:

- *Construction Loads*. No construction loads shall be placed on a concrete structure or portion of a concrete structure unless the employer determines, based on information received from a person who is qualified in structural design, that the structure or portion of the structure is capable of supporting the loads.
- *General Requirements for Formwork.* Formwork shall be designed, fabricated, erected, supported, braced and maintained so that it will be capable of supporting without failure all vertical and lateral loads that may reasonably be anticipated to be applied to the formwork.

[7] U.S. Department of Labor. Occupational Safety & Health Administration. Regulations; 29 CFR 1926.701, 1926.703, and 1926.704.

- *Shoring and Reshoring.*
    - All Shoring and reshoring equipment shall be inspected prior to use to determine that the equipment meets the requirements specified in the formwork drawings.
    - Shoring equipment found to be damaged such that its strength is reduced to less than that which is required shall not be used for shoring.
    - Erected shoring equipment shall be inspected immediately prior to, during, and immediately after concrete placement.
    - Shoring equipment that is found to be damaged or weakened after erection, such that its strength is reduced to less than that which is required shall be immediately reinforced.
    - All base plates, shore heads, extension devices, and adjustment screws shall be in firm contact, and secured when necessary, with the foundation and the form.
- *Reinforcing Steel*. Reinforcing steel for walls, piers, columns, and similar vertical structures shall be adequately supported to prevent overturning and to prevent collapse.
- *Removal of Formwork.* Forms and shores (except those used for slabs on grade and slip forms) shall not be removed until the employer determines that the concrete has gained sufficient strength to support its weight and superimposed loads. Such determination shall be based on compliance with one of the following:
    - The plans and specifications stipulate conditions for removal of forms and shores, and such conditions have been followed, or
    - The concrete has been properly tested to indicate the concrete compressive strength, and the test results indicate that the concrete has gained sufficient strength to support its weight and superimposed loads.
- Reshoring shall not be removed until the concrete being supported has attained adequate strength to support its weight and all loads in place upon it.
- Precast concrete wall units, structural framing, and tilt-up wall panels shall be adequately supported to prevent overturning and to prevent collapse until permanent connections are completed.
- Lifting inserts which are embedded or otherwise attached to tilt-up precast concrete members shall be capable of supporting at least two times the maximum intended load applied or transmitted to them.

- Lifting inserts which are embedded or otherwise attached to precast concrete members, other than the tilt-up members, shall be capable of supporting at least four times the maximum intended load applied or transmitted to them.
- Lifting hardware shall be capable of supporting at least five times the maximum intended load applied transmitted to the lifting hardware.
- No employee shall be permitted under precast concrete members being lifted or tilted into position except those employees required for the erection of those members.

B. Requirements for Masonry Construction[8]

These OSHA regulations provide for how masonry construction is to be safely performed at the jobsite. A summary of the regulations follow:

- *Limited Access Zones*. A limited access zone shall be established whenever a masonry wall is being constructed. The limited access zone shall conform to the following:
  - The limited access zone shall be established prior to the start of construction of the wall.
  - The limited access zone shall be equal to the height of the wall to be reconstructed plus four feet, and shall run the entire length of the wall.
  - The limited access zone shall be established on the side of the wall which will be unscaffolded.
  - The limited access zone shall be restricted to entry by employees actively engaged in constructing the wall. No other employees shall be permitted to enter the zone.
  - The limited access zone shall remain in place until the wall is adequately supported to prevent overturning and to prevent collapse unless the height of wall is over eight feet, in which case, the limited access zone shall remain in place until the proper requirements have been met.
- *Masonry Walls*. All masonry walls over eight feet in height shall be adequately braced to prevent overturning and to prevent collapse unless the wall is adequately supported so that it will not overturn or collapse. The bracing shall remain in place until permanent supporting elements of the structure are in place

[8] U.S. Department of Labor. Occupational Safety & Health Administration. Regulations; 29 CFR 1926.706

C. Demolition and Removal of Walls[9]

These OSHA regulations show how walls are to be safely removed or destroyed at the jobsite. A summary of the regulations follow:

- Prior to permitting employees to start demolition operations, a survey shall be made of the structure to determine the condition of the framing, floors, and walls, and possibility of unplanned collapse of any portion of the structure. Any adjacent structure where employees may be exposed shall also be checked. The employer shall have in writing evidence that such a survey has been performed.
- When employees are required to work within a structure to be demolished which has been damaged by fire, flood, explosion, or other cause, the walls or floor shall be shored or braced.
- With some exceptions, demolition of exterior walls and floor construction shall begin at the top of the structure and proceed downward. Each story of exterior wall and floor construction shall be removed and dropped into the storage space before commencing the removal of exterior walls and floors in the story below.
- Employee entrances to multistory structures being demolished shall be completely protected by sidewalk sheds or canopies, providing protection from the face of the building for a minimum of 8 feet. All such canopies shall be at least 2 feet wider than the building entrances or openings, and shall be capable of sustaining a load of 150 pounds per square foot.
- Masonry walls, or other sections of masonry, shall not be permitted to fall upon the floors of the building in such masses as to exceed the safe carrying capacities of the floors.
- No wall section, which is more than one story in height, shall be permitted to stand alone without lateral bracing, unless such wall was originally designed and constructed to stand without such lateral support, and is in a condition safe enough to be self-supporting. All walls shall be left in a stable condition at the end of each shift.
- Walls, which serve as retaining walls to support earth or adjoining structures, shall not be demolished until such earth has been properly braced or adjoining structures have been properly underpinned.
- Walls, which are to serve as retaining walls against which debris will be piled, shall not be so used unless capable of safely supporting the imposed load.

[9] U.S. Department of Labor. Occupational Safety & Health Administration. Regulations; 29 CFR 1926.850, 1926.854.

V. CASE QUESTIONNAIRE

Do I Have A Case?

Provide the details and we will make a free, preliminary determination.

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I understand that my request and my response thereto does not form an attorney-client relationship.