

Together With



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Pemberton Mill Collapse

The Pemberton Mill was a large factory in Lawrence, Massachusetts, which collapsed without warning on January 10, 1860, in what is likely "one of the worst industrial calamities in American history." An estimated 145 workers were killed and 166 injured.

Shortly before 5:00 p.m. on a Tuesday afternoon, workers in nearby factories watched with horror as the Pemberton Mill buckled and then collapsed with a mighty crash. According to later court testimony reported by the New York Times, the owner of the mill escaped as the structure was falling. Dozens were killed instantly and more than 600 workers, many of them women and children, were trapped in the twisted ruins. When the winter sun set, rescuers built bonfires to illuminate their efforts, revealing "faces crushed beyond recognition, open wounds in which the bones showed through a paste of dried blood, brick dust, and shredded clothing."

Around 9:30 p.m., with many people still trapped in the debris, someone accidentally knocked over an oil lantern. Flames raced across the cotton waste and splintered wood - some of it soaked with oil. One trapped man cut his own throat rather than be consumed by the approaching flames; he was rescued, but died from his other injuries. As the fire grew, rescuers, physicians, families of the trapped victims, and spectators were all driven back by the conflagration.

Estimates of the number killed by the collapse and subsequent fire vary from 90 to 145. Most were recent immigrants either Irish or Scots, many of them young women. The collapse of the Pemberton Mill was determined to have been caused by a number of preventable factors. Ignoring already questionable load limits, extra heavy machinery had been crowded into the upper floors of the factory. Investigators also discovered substandard construction. The brick walls were improperly mortared and supported. The iron pillars supporting the floors were cheap and brittle but had been installed nonetheless.



The new Pemberton Mills built after the collapse of the first

Reference: Wikipedia, List of Industrial Disasters

Safety and Health Program Excellence

By James Flanagan, TOSHA VPP Manager

The Volunteer STAR Award, Tennessee OSHA's version of the Voluntary Protection Program, is the state's highest recognition for safety and health program excellence. Volunteer STAR sites operate effective systems that meet a long list of requirements. In addition, the Volunteer STAR sites undergo periodic rigorous assessments to ensure their programs continue to meet the demanding standards required for participation.

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The 36th Annual Tennessee Safety and Health Congress

July 15-17, 2013

Opryland Hotel and Convention Center

Call (615) 741-7143 or visit

www.tnsafetycongress.org to register!

If you have not already received your official brochure, you will soon!

Important Reminder!

Safety and Health Program Excellence *(continued from page 1)*

The Tennessee OSHA Volunteer STAR Program (VPP) currently covers more than 24,000 employees at 37 sites across the state. TOSHA has maintained the standards for participation at a very high level in order to ensure that these sites are indeed among the best-of-the-best.

The effort that these employees put into their safety and health program pays off! Tennessee's 37 Volunteer STAR sites are experiencing injury and illness rates significantly below those in their respective industries as a whole. As compared to the most recently published BLS rates the Volunteer STAR sites experienced the following:

1. 2012 Total Case Incident Rates (TCIR) 68% below the national average for their industry
2. 2012 Days Away from work, Restricted Work or Job Transfer (DART) rates 70% below the national average for their industry
3. Three Year Total Case Incident Rates (TCIR) 65% below the national average for their industry
4. Three Year Days Away from work, Restricted Work or Job Transfer (DART) rates 67% below the national average for their industry
5. Five of the Volunteer STAR sites have not experienced a recordable workplace related injury or illness in more than three years.



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More than just numbers for comparison, these figures reflect a significant impact on the lives of Tennesseans. CONGRATULATIONS and appreciation goes out to all of those participating in the Volunteer STAR Program. YOUR EFFORTS DO MAKE A DIFFERENCE.

For more information on the Volunteer STAR Program and how your facility can pursue these kinds of results please contact TOSHA's VPP Manager, 800-249-8510.

TOSHA Tips

Condition: The employer has not initiated programs for detecting and correcting hazards in the workplace; the employer has not instructed employees in the recognition and avoidance of unsafe conditions.

Potential Effects: Falls, employees struck by equipment or vehicles, electrocutions, equipment turnover or failure, crushed by equipment, cave-ins, etc.

Standards: 29 CFR 1926.20(b)(1) and 1926.21(b)(2)

Recommended Action: The above requirements are listed in TOSHA's Construction Industry Regulations. They are general requirements that each employer, before a construction job begins, and whenever necessary during the project, inform their employees of the hazards present and how to protect themselves. This includes health hazards such as possible exposure to chemicals and noise on the job, as well as the above listed safety hazards. Although these actual regulations are specified only in the construction standards (1910.26), general industry employers should also apply these principles to their workplaces. This will provide that "ounce of prevention" to prevent the pound(s) of worry, injury, illness, financial loss, and TOSHA inspections down the road.

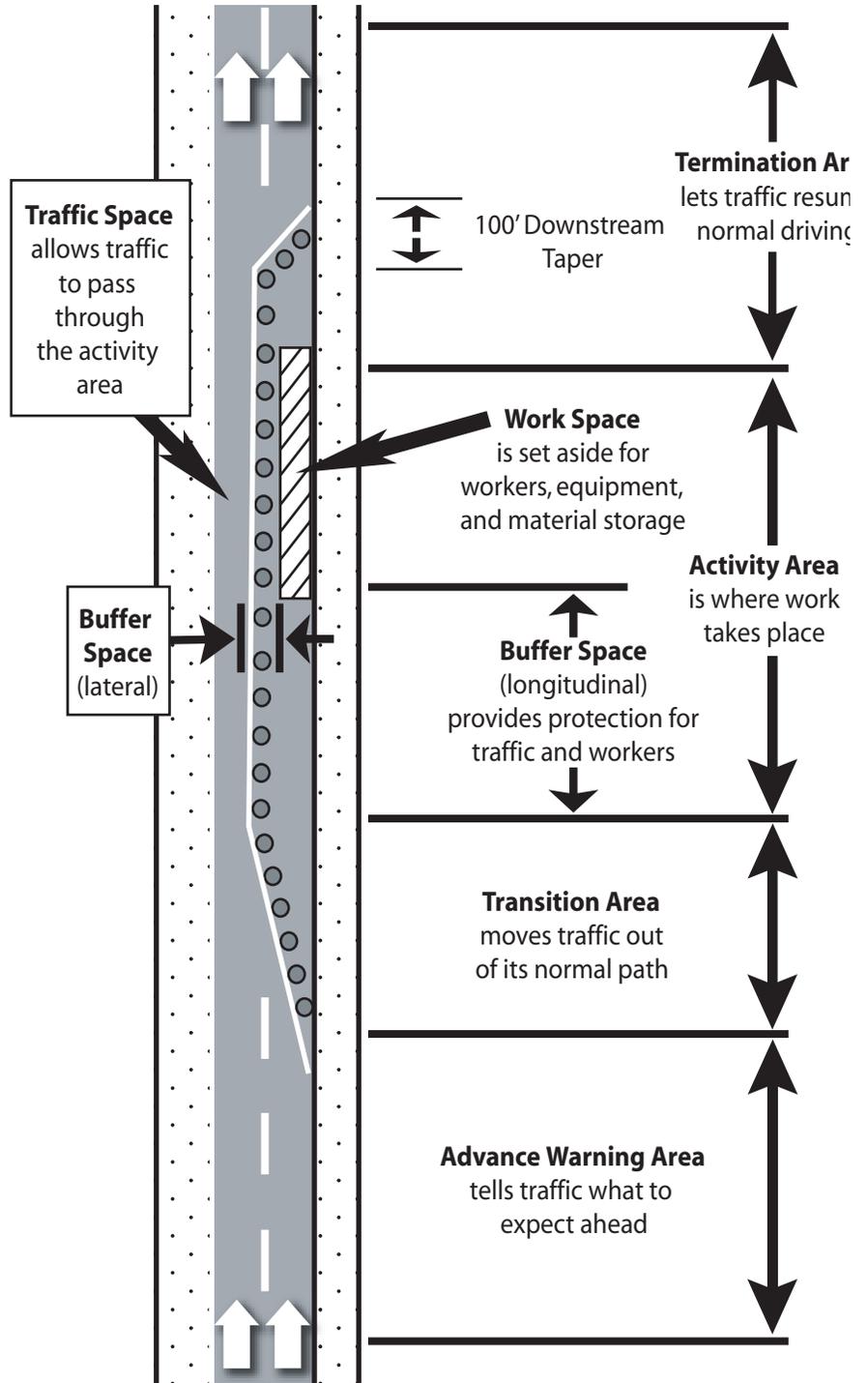
MUTCD - What is it? Construction work zone crew members are killed each year in Tennessee

Roadway work zones are hazardous both for motorists who drive through the complex array of signs, barrels, and lane changes and for workers who build, repair, and maintain our nation's streets, bridges, and highways. The Department of Transportation's "Manual on Uniform Traffic Control Devices (MUTCD)" provides guidance for the set-up of work zone signs, barricades, flagging, etc. in highway and roadway work zones. All traffic control devices used on street and highway construction, maintenance, utility, or incident management (temporary traffic control) operations must conform to the applicable specifications of this manual.

Traffic Control Plans (TCPs) play a vital role in providing continuity of safe and efficient traffic flow, to the extent interruptions in normal flow are necessary for temporary traffic control operations or other events that must temporarily disrupt normal traffic flow. A TCP describes traffic controls to be used for facilitating vehicle and pedestrian traffic through a temporary traffic control zone.

The temporary traffic control zone includes the entire section of roadway between the first advance warning sign through the last traffic control device, where traffic returns to its normal path and conditions. Most temporary traffic control zones can be divided into four areas: the advance warning area, the transition area, the activity area, and the termination area.

Each year, more than 100 construction work zone crew members are killed and more than 20,000 are injured. According to the Bureau of Labor Statistics (BLS), from 2007-2009, 253 fatal occupational injuries occurred in highway, street, and bridge construction. In 2010, 68 workers died. Moving vehicles that strike workers on foot cause the majority of work zone deaths. In Tennessee in 2011, three workers were killed when they were struck by vehicles while working near a roadway. In 2012, another three workers were killed.



TOSHA's Subpart G - Signs, Signals and Barricades (which incorporates by reference Part VI of the MUTCD, 1988 Edition, Revision 3 or Millennium Edition, December 2000) and Section 5(a)(1) of the Occupational Safety and Health Act of 1970 (OSH Act) are used to enforce requirements from the MUTCD designed to keep workers in these work zones safe.

L EARN & LIVE **A TOSHA Case File Summary**

A 34-year-old reloading-machine operator was killed when an explosion and fire occurred near his work station. All five employees of the business were working in the facility when the incident occurred. The owner of the business, which reloads small arms ammunition and sells the ammunition online and at gun shows, was reloading rifle cartridges across from the victim's work station. The owner went to the office to check on the paperwork for an order. An inspector was inspecting and boxing pistol cartridges about 35-40 feet away from the victim. Another machine operator was re-sizing rifle cartridges at his work station; a sales and marketing representative was in the office. The inspector felt a hot blast of air on her back and looked over her shoulder to see a fireball and flames around the victim's workstation. The machine operator heard a loud noise and saw flames and smoke filling the building. The owner and sales representative heard a noise, went to the production area, and saw the fire and smoke. The fire and smoke prevented them from checking on the victim. All employees except the victim evacuated the building and met in the parking lot; the victim died as a result of injuries sustained in the fire. Investigators determined that the fire was caused by an explosion that occurred at the victim's automatic reloading machine.



To Prevent Such an Incident:

1. Store commercial stocks of smokeless powders, not to exceed 750 pounds, in non-portable storage cabinets having wooden walls of at least 1-inch nominal thickness
2. Use effective chip guarding and personal protective equipment when compressed air is used for cleaning purposes
3. Use only intrinsically safe equipment or equipment approved for the hazardous (classified) location
4. Require employees to wear conductive footwear, personal grounding devices, or conductive gloves while handling potentially explosive materials
5. Use non-sparking or reduced-sparking tools while handling potentially explosive materials