

# Construction Safety Awareness

by Angela Tremblay

Construction work can be a challenging occupation with the potential for many jobsite hazards. In any job, we all want to get home safely at the end of the workday. In a construction project, everyone—owners, design engineers, worksite supervisors, and workers—can help ensure that workers stay safe by being aware of safety hazards and taking appropriate steps to mitigate risk on the construction site. To promote safety and enhance workforce development, the American Association of State Highway and Transportation Officials' (AASHTO) Transportation Curriculum Coordination Council (TC3) offers low-cost or no-cost web-based training courses on construction safety awareness.<sup>1</sup>

### TC3 Courses

AASHTO TC3 offers training on a broad variety of transportation topics such as concrete materials, bridge

maintenance, and structural inspection. The courses, along with other training resources, are available through the TC3 website (<https://tc3.transportation.org>) via the Training Resources tab. TC3 courses are organized into six main categories: construction, materials, maintenance, traffic and safety, pavement preservation, and employee development. Within each category, additional filters are available to narrow the choices based on subcategory, discipline, career level, cost, and whether professional development hours are offered.

The TC3 website describes the training initiative and directs the user to the AASHTO Learning Management System platform where construction safety courses can be found under the Traffic and Safety listings. There are more construction safety courses listed under the general Traffic and Safety category than are found when using the

*Personal protective equipment provides another level of safety after engineering controls have been established to remove or reduce jobsite safety hazards. Photo: Angela Tremblay.*



### AASHTO TC3 Construction Safety Series

- Barges
- Concrete and Masonry Construction
- Confined Spaces
- Crane Safety
- Demolition of Structures
- Earthmoving Equipment and Motor Vehicles
- Electrical Safety
- Excavation and Trenching
- Fall Protection
- Hazardous Materials
- Material and Personnel Hoists
- Personal Protective Equipment
- Recognition and Avoidance of Unsafe Conditions
- Scaffolding Safety
- Working Safely in Work Zones

*Construction safety awareness courses available from the American Association of State Highway and Transportation Officials' Technical Curriculum Coordination Council (TC3). TC3 offers these and other web-based courses at no or minimal cost. The courses listed here can be found under the Traffic and Safety category without applying the Construction Safety filter. Figure: Angela Tremblay.*

Construction Safety filter. As courses are updated and added, there may be differences in the naming conventions depending on the path by which the courses are accessed.

This article focuses on the offerings in the construction safety series, a subset of the traffic and safety category. This series provides an opportunity for everyone in the concrete bridge industry to easily enhance their knowledge of safety issues. This awareness can allow engineers to improve designs and construction methods to avoid potential hazards where possible. The courses typically range from 30 to 60 minutes and offer a basic overview of topics such as recognition and avoidance of unsafe conditions, confined spaces, and demolition of structures. To make it even easier for agency workers to upgrade their safety knowledge, the Federal Highway Administration (FHWA) has purchased access to the TC3 courses to



Heavy equipment and working at heights are some of the safety hazards that may be present on a bridge construction site. Photos: LJB Inc.

provide free training for local and tribal agencies.<sup>2</sup> Many state departments of transportation also provide free access to the courses through Local Technical Assistance Programs.

### Safety Basics

The TC3 courses present best practices from various agencies, FHWA training rules, and relevant laws and regulations. State, local, and company-specific requirements must be followed as well, but the construction awareness series training gives a good starting point for basic safety knowledge. Planning ahead is a key part of any safety program. The goal is to identify potential hazards and have a procedure in place for how to handle problems before they develop.

Bridge construction often involves potentially hazardous equipment and materials that could lead to serious injuries, in addition to the obvious dangers of working near traffic. The first step in safety protocols should be to eliminate or control as many hazards as possible through engineering measures such as standard operating procedures that minimize exposure to specific hazards, machine guards, and effective traffic control. Once proper procedures and engineering controls are established, personal protective equipment (PPE)—safety glasses, hard hats, work gloves, and ear protection—provides the next level of protection from jobsite hazards.

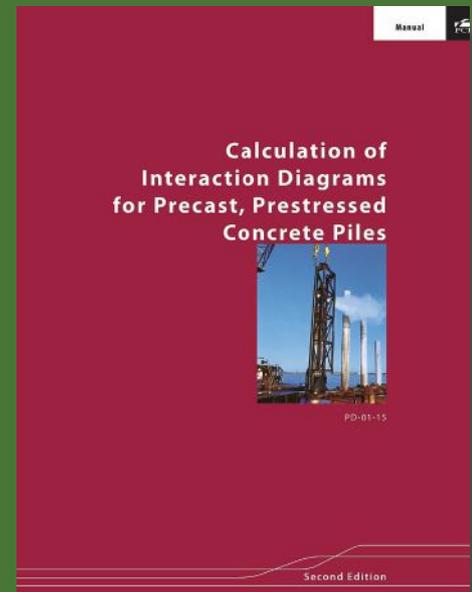
### Safety Is Everyone’s Responsibility

Awareness of safety protocols and the proper use of PPE is just as important for engineers and project managers visiting a construction site as it is for workers. When everyone involved in the planning and construction of a bridge is aware of safety hazards, these hazards can be more effectively avoided and controlled. The AASHTO TC3 courses make it easy for consultants and contractors to join owner agencies in taking advantage of low-cost safety resources that can offer their staff valuable and even life-saving training. We don’t need to know how to solve every safety problem, but by recognizing the potential dangers, we can know when to ask for specialized help. Ultimately, safety awareness improves the likelihood that all workers make it home safely at the end of the day.

### References

1. American Association of State Highway and Transportation Officials (AASHTO). n.d. “Transportation Curriculum Coordination Council (TC3).” Accessed January 13, 2022. <https://tc3.transportation.org>.
2. Federal Highway Administration Center for Local Aid Support. n.d. “No-Cost Training for Local and Tribal Agencies.” Accessed January 12, 2022. [https://www.fhwa.dot.gov/clas/global/newsworthy/tc3\\_training\\_platform.aspx](https://www.fhwa.dot.gov/clas/global/newsworthy/tc3_training_platform.aspx). 

## The Second Edition of



This free eBook, *Calculation of Interaction Diagrams for Precast, Prestressed Concrete Piles*, provides context and instructions for the use of the 2015 revised version of the Microsoft Excel workbook to compute pile stresses, plot interaction diagrams, and compute lifting points of precast concrete piles.

There is no cost for downloading *Calculation of Interaction Diagrams for Precast, Prestressed Concrete Piles* or the 2015 workbook. However, registration is required so that users can be contacted when updates or revisions to the workbook are necessary.

The Appendix of *Calculation of Interaction Diagrams for Precast, Prestressed Concrete Piles* contains detailed instructions and solved example problems using the 2015 workbook. Examples are also solved using Mathcad to validate the workbook solution, and a table of results compares the two methods.

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