Case 297. 27-year-old construction worker died when the cantenary suspended scaffold platform sheet he was working on collapsed and he fell 140 feet to the water.

A 27-year-old male construction worker died when the cantenary suspended scaffold platform sheet he was working on collapsed and he fell 140 feet to the water. The engineered cantenary suspended scaffold consisted of a system of 17 steel wire rope cables installed parallel to the suspension bridge roadway and suspended 3.5 feet beneath the bridge deck beams. On top of the cables were 20-gauge steel decking sheets measuring 2 feet 7- 1/2 inches in width and either 5-feet or 11-feet in length (depending on their intended use). The decedent and two coworkers in the process of relocating the cantenary scaffold decking, were removing scaffold platform sheets from under the middle portion of the bridge and then reinstalling them on the cables on the north side of the bridge. The decedent was removing the last row of sheets for that section. The crew had already removed the beam flange clamp hangers used to maintain the 3.5-foot distance between the bridge deck beams' lower flange and the deck sheets which caused the cables to sag lower in this area. Once the decedent had removed the last deck clip from the cable under the area where he was working, the cable moved uncontrollably northward towards the center of the sheet where it contacted the middle cable. This caused the end of the sheet, with the decedent on it to sag lower than the end that was still clipped. Then both cables shifted uncontrollably northward towards the third cable. This resulted in the sheet becoming near vertical and the decedent falling approximately 140 feet to the surface of the river. The length of scaffold deck sheet that collapsed appeared to be 5 feet longer than what should have been installed in that area. Along the span of the scaffold platform, deck sheets, deck clips, coupler nuts, toe guards, guard rail posts, and diagonal bracing were not installed according to the engineered design requirements. The decedent was not wearing any fall protection and there were no lifesaving boats or ring buoys available at the location. Witnesses reported the decedent surfaced and appeared to be trying to swim to shore. The decedent then went under the water surface and was found deceased several weeks later.

The MIOSHA Construction Safety and Health Division issued the following Serious citations to the decedent's employer at the conclusion of its investigation.

SERIOUS: GENERAL RULES, PART 1, RULE 114(1):

> An accident prevention program was not developed, maintained, and coordinated with employees.
>
> Employees are erecting/moving/dismantling a suspended scaffold, and doing media blasting/painting on the structure of the bridge, 140 plus feet above the 40-foot deep (approximate in this area) River.
>
> From the Corporate Safety Program:
> A. Section A- Sub-Section 2.0 – identification/classification of hazards.
> B. Section D- Sub-Section 1.1.2 – Miller requirements for personal fall protection harness.

C. Section D- Sub-Section 1.1.2.-- FallTech lanyard inspection/recording requirements.
D. Section D- Sub-Section 3.2 – Safety Program administrator designated responsibilities.
E. Section D- Sub-Section 1.7 – Rescue/Self-rescue.
F. Section E- Sub-Section 1.0 – Pre-Emergency Planning.
G. Corporate "Safety Violation Warning Notices" issued for the site are properly filled out.
H. Completion of/parameters for filling out forms.

SERIOUS: PERSONAL PROTECTIVE EQUIPMENT, PART 6

- RULE 636(3):
  A ring buoy with not less than 90 feet of safety line was not provided and was not readily available for rescue operations. The distance between the buoys shall not be more than 200 feet.

  Ring buoys are not present where employees are doing media blasting paint/scaffold work related to rehabilitation of the bridge 140 plus feet above the river, where the depth is 40-feet (approximate at this location) and where an employee fell into the river.

- RULE 631(1):
  An employer shall ensure that an employee whose protection from falling is not covered by another part of the construction safety standards and who works more than 10 feet above the ground or floor from an unguarded work surface or who, regardless of height, works from an unguarded work surface above or adjacent to, or above and adjacent to, a specific hazard, such as, but not limited to, dangerous equipment or an open tank or vat of hazardous substances, is either secured by a rope grab to a lifeline or to a structure or is protected by a safety net prescribed in R408.40635.

  It was not ensured at this location, that an employee, working 140 plus feet above the 40-foot deep (approximate in this area) river was secured as prescribed. The unprotected employee fell while removing/relocating previously installed scaffold components.

- RULE 636(4):
  Not less than one lifesaving boat equipped with a method of propulsion that is effective for water conditions was not available at the location where an employee works over or adjacent to water and the possibility of drowning exists.

  Employees were/are erecting/moving/dismantling a suspended scaffold, and doing media blasting/painting on the structure of the bridge, where one employee fell 140 plus feet above the 40-foot deep (approximate in this area) river and where no lifesaving boat was available.

SERIOUS: SCAFFOLDS AND SCAFFOLD PLATFORMS, PART 12

- RULE 1209(2):
  An employer shall have each employee who is involved in erecting, disassembling, moving, operating, repairing, maintaining, or inspecting a scaffold trained by a competent person to recognize any hazards associated with the work in question. The training shall include the following topics, as applicable:

  (a) The nature of scaffold hazards.
  (b) The correct procedures for erecting, disassembling, moving, operating, repairing, inspecting, and maintaining the type of scaffold being used.
  (c) The design criteria, maximum intended load-carrying capacity, and intended use of the scaffold.
  (d) Any other pertinent requirements.

  On the bridge, employees erecting, moving, operating, repairing, maintaining, and inspecting, are not trained:

  A. In the pertinent Scaffold "Design Parameters", Section B, DWG. No.:001 (Sheet 1 of 3).
  B. In the Scaffold "Installation Procedures", Section C, DWG. No.:001 (Sheet 1 of 3).
  C. In the Scaffold "Instructions and Safety Rules, Section D, DWG. No.:001 (Sheet 2 of 3).
  D. In the Scaffold "Safety Precautions", Section E, DWG. No.:001 (Sheet 2 of 3).
  E. In the requirements contained within the Scaffold Installation Manual.
  F. In the requirements contained in the Company's Corporate Safety Program, Section 1.0 – Introduction, Sub-Section 1.1 – Site Specific Safety Plan, Section D, Sub-Section 2.0 & 5.0.
  G. In the requirements contained in the Company's Site Specific Safety Program.

  A designed scaffold is being used for rehabilitation work 140 plus feet above the 40-feet deep river where an employee fell into the water at Panel #24.

- RULE 1209(3):
  If an employer has reason to believe that an employee lacks the skill or understanding needed to safely perform work that involves the erection, use, or dismantling of scaffolds, then the employer shall retrain the employee so that the requisite proficiency is regained. Retraining is required in all of the following situations:

  (a) Where changes at the worksite present a hazard about which an employee has not been previously trained.
  (b) Where changes in the types of scaffolds, fall protection, falling object protection, or other equipment present a hazard about which an employee has not been previously trained.

(c) Where inadequacies in an affected employee's work involving scaffolds indicate that the employee has not retained the requisite proficiency for the work involved.

Two employees, walking/working on a scaffold, were not retrained after being observed unprotected from a 140-foot fall potential to the surface of the river (40-foot deep at this point). An employee fell to the river below.

- RULE 1210(2):
  A scaffold shall not be erected, moved, dismantled, or altered, except under the supervision of a competent person.

  A designed scaffold, for rehabilitation of the bridge is not erected, moved, altered, or dismantled under the supervision of a competent person, and not in accordance with the Scaffold engineered design drawings.

- RULE 1213(6):
  An employer shall have a competent person determine the feasibility and safety of providing fall protection for employees erecting or dismantling supported scaffolds. An employer is required to provide fall protection for employees erecting or dismantling supported scaffolds where the installation and use of the protection is feasible and does not create a greater hazard.

  An employee is working, without fall protection, 140-feet above the river (approximately 40 feet deep in this area). The employee is dismantling, moving, assembling a scaffold beneath the bridge for rehabilitation of the structure. The employee fell 140 feet to the 40-foot deep river during the work process.