Safety

Topics
• ASCE Code of Ethics
• Workplace

Reading Assignment
• Construction Site Safety – ASCE Policy 350
Safety in the Workplace

www.youtube.com/watch?v=EReAhKH2zyU
According to Herodotus (vv.34), both bridges were destroyed by a storm and Xerxes had those responsible for building the bridges beheaded and the strait itself whipped. The Histories of Herodotus vii.33–37 and vii.54–58 give details of building and crossing of Xerxes' Pontoon Bridges. Xerxes is then said to have thrown fetters into the strait, given it three hundred lashes and branded it with red-hot irons as the soldiers shouted at the water.[4] Herodotus commented that this was a "highly presumptuous way to address the Hellespont" but in no way atypical of Xerxes. (vii.35)

Harpalus the engineer eventually helped the invading armies to cross by lashing the ships together with their bows facing the current and double anchored (from Wikipedia).
ASCE Code of Ethics

Canon 1

Engineers shall hold paramount the safety, health and welfare of the public and shall strive to comply with the principles of sustainable development in the performance of their professional duties.

a. Engineers shall approve or seal only those design documents, reviewed or prepared by them, which are determined to be safe for public health and welfare in conformity with accepted engineering standards.

b. Engineers whose professional judgment is overruled under circumstances where the safety, health and welfare of the public are endangered, or the principles of sustainable development ignored, shall inform their clients or employers of the possible consequences.

c. Engineers who have knowledge or reason to believe that another person or firm may be in violation of any of the provisions of Canon 1 shall present such information to the proper authority in writing and shall cooperate with the proper authority in furnishing such further information or assistance as may be required.

d. Engineers should seek opportunities to be of constructive service in civic affairs and work for the advancement of the safety, health and well-being of their communities, and the protection of the environment through the practice of sustainable development.
ASCE Policy 350
(Construction Site Safety)

Issue - Improved construction site safety is needed. Safety problems to overcome include: lack of clear cut contractual responsibility for safety, lack of an industry-wide agreement on shop drawing responsibility, the need for general and site-specific safety training, and the need for workers to accept responsibility for their own actions.

Rationale - Effective improvements in construction site safety can be achieved through a committed, cooperative relationship between owners, contractors, subcontractors, construction managers, safety professionals, construction workers, labor unions, designers, regulatory agencies, associations, institutes, academia, and legal and insurance professionals.
Owners’ Responsibilities

• Assigning **overall project safety** responsibility and authority

• Developing or directing the development of a coordinated **project safety plan** and **monitor safety** performance during construction

• Designating responsibility for the **final approval of drawings** and details

• Including prior **safety performance** as a criterion for **contractor selection**
Design Engineers’ Responsibilities

• Recognizing that safety and constructability are important considerations when preparing construction plans and specifications

• Providing through the specifications that the design or details of critical elements of temporary construction, erection and lifting schemes, complicated form work and scaffolding be prepared by a professional engineer.
Contractors’ Responsibilities

• Control of the worksite.

• Developing and implementing a coordinated project specific safety plan, as per American National Standards Institute (ANSI) A10.33 and ANSI A10.38.

• Maintaining the safety of their employees and of all other persons in the work area or on the worksite.

• A Construction Manager who functions as an owner’s agent should assume the same safety responsibilities as an owner.

• A Construction Manager who has an “at risk” contract with the Owner should assume the same responsibilities as a contractor.

• The safety responsibilities of design-builders are the same as those of design engineers and contractors.
Educators’ Responsibilities

• Incorporate project site safety and constructability concepts in design and construction curricula

• Emphasize engineer's role in providing a safe and healthy environment to personnel engaged in project activities through proper planning and design.

• Conduct basic and applied research to advance the knowledge and practice of safe design and construction.
Elements of a Health and Safety Plan

- Management commitment
- Policy statement
- Program goal setting
- Definition of safety responsibilities
- Experience modification rating (over 2-3 years)
- Management supervisory meetings
- Pre-planning for jobsite safety
- Effectiveness of training and orientation programs
- Accident investigation activities
- Record keeping
- Substance abuse policy
- Safety budget
- Field performance audits
Safety in the Workplace
(UTA Safety Film)

https://www.youtube.com/watch?v=JfUWzDQo5nM
SAFETY AT THE WORKPLACE
Workers’ rights under the OSH Act

Workers are entitled to working conditions that do not pose a risk of serious harm. To help assure a safe and healthful workplace, OSHA also provides workers with the right to:

• Ask OSHA to inspect their workplace;
• Use their rights under the law without retaliation and discrimination;
• Receive information and training about hazards, methods to prevent harm, and the OSHA standards that apply to their workplace. The training must be in a language you can understand;
• Get copies of test results done to find hazards in the workplace;
• Review records of work-related injuries and illnesses;
• Get copies of their medical records;
General Safety Rules

1. Keep your mind on your work at all times. No horseplay on the job. Injury or termination, or both, can be the result.
2. Personal safety equipment must be worn as prescribed for each job, such as; safety glasses for eye protection; hard hats at all times within the confines of the construction area; gloves when handling materials; and safety shoes are highly recommended for protection against foot injuries.
3. Shirts and long legged pants must be worn to prevent sunburn and to protect against acid burns, steam burns, weld splatter and cuts. Minimum clothing for the upper body is a ‘T” shirt.
4. If any part of your body should come in contact with an acid or caustic substance, rush to the nearest water available and flush over the affected part. Secure medical aid immediately.
5. Watch where you are walking. Don’t run.
6. The use of illegal drugs or alcohol or being under the influence of same on the project shall be cause for termination. If you take or are given strong prescription drugs that warn against driving or using machinery, let your supervisor know about them.
7. Do not distract the attention of fellow workers. To do so may cause injury.
General Safety Rules (cont.)

8. Sanitation facilities have been or will be provided for your use. Defacing or damaging these facilities is forbidden.
9. A good job is a clean job and a clean job is a safe one. So keep your working area free from rubbish and debris.
10. Do not use a compressor to blow dust or dirt from your clothes, hair, face or hands.
11. Never work aloft if you are afraid to do so, are subject to dizzy spells, or if you are apt to be nervous or sick.
12. Never move an injured person unless it is absolutely necessary. Further injury may result. Keep the injured as comfortable as possible and utilize job site first-aid facilities until a doctor arrives.
13. Know where firefighting equipment is located and Learn how to use it.
14. Learn to lift correctly - with the legs not the back. If the load is too heavy, GET HELP. 20% of all construction related injuries result from lifting materials.
15. Riding on loads, fenders, running boards, sideboards, and gates or with your legs hanging over the ends or sides of trucks will not be tolerated.
16. Do not use power tools and equipment until you have been properly instructed in safe work methods and become authorized to use them.
17. Be sure that all guards are in place. Do not remove, displace, damage, or destroy any safety device or safeguard furnished or provided for use on the job, nor interfere with the use thereof.

18. Do not enter an area which has been roped off or barricaded.

19. If you must work around power shovels, cranes, trucks, and dozers, make sure operators can always see you.

20. Never oil, lubricate or fuel equipment while it is running or in motion.

21. Rope off barricade danger areas.

22. Keep away from the edge of cuts, embankments, trenches, holes and/or pits.

23. Trenches must be shored or sloped to comply with the most stringent requirements. Keep out of trenches or cuts that have not been properly sloped or shored. Excavated or other material shall not be stored nearer than 3 feet from the edge of any excavation.

24. Use the “four and one” rule when using a ladder. One foot of base for every four feet of height.

25. Always secure the bottom of the ladder with cleats and/or safety feet. Lash off the top of ladder to avoid shifting.

26. Ladders must extend three feet above a landing for proper use.

27. Defective ladders must be properly tagged and removed from service.
General Safety Rules (cont.)

28. Keep ladder base free of debris, horses, wires, material, etc.
29. Build scaffolds according to manufacturers’ recommendations.
30. Scaffold planks must be cleated or secured to prevent them from sliding.
31. Use only extension cords of the three prong type. Check the electrical grounding system daily.
32. The use of safety belts with safety lines when working from unprotected high places is mandatory. Always keep your line as tight as possible.
33. Tar kettles must be kept at least 25 ft. from buildings or structures and never on roofs.
34. Open fires are prohibited.
35. Know what emergency procedures have been established for your job site. (Location of Emergency Phone, First Aid Kit, Stretcher location, Fire Extinguishers location, Evacuation Plan, etc.)
36. Notify your supervisor of unlabeled or suspect toxic substances immediately and avoid contact.