3 CONSTRUCTION OF FACILITIES

ANSWERS—QUIZ 1

1. b
2. a
3. a
4. b
5. a
6. a
7. b
8. c
9. c
10. a
11. c
12. d
13. Other equally important and often overlooked aspects are communication and training.
14. An EMR is an insurance industry measure based on the client's loss history for three years, not including the previous year, which is used as a modifier for rating purposes.
15. Accident prevention data has its greatest value when it influences construction plans in the following ways: produces a statement of the contractor's accident record in terms of cost, as one item of the bid; defines the risk of accidents in specific and measurable terms; and sets up practical and effective safeguards to control these risks.
16. The written copy of a contractor's safety and health program should cover the following responsibilities for safety and health (student should name at least four of the eleven elements described in the text), including:
    - reporting hazards and accidents
    - obtaining and using protective equipment
    - conducting safety inspections
    - maintaining a safe and healthful work environment
    - enforcing safety and health requirements
    - procedures for conducting safety and health orientation and periodic training sessions
    - procedures for reporting accidents
    - procedures for obtaining first aid and emergency treatment
    - procedures for reporting work hazards
    - requirements for subcontractors and suppliers
    - procedures for testing and certifying equipment, if required
    - physical requirements for employers
    - jobsite sanitation
    - the use and purpose of equipment lockout and confined space entry
    - the technical requirements of all aspects and tools
17. If there is no signaler, install reverse alarms on all heavy mobile equipment and trucks. Also be sure barricades, guardrails, and warning signs are in place to assure maximum safety.
18. Items that must be checked when inspecting stepladders: wobbly from side strain, loose or bent hinge spreaders, stop on hinge spreaders broken, broken or worn steps, loose hinges. Items that must be checked when inspecting extension ladders: loose, broken, or missing locks; defective locks that do not seat properly when the ladder is extended; deterioration of rope.
19. Store ladders where they will not be exposed to the weather and where there is good ventilation. Do not sure them near radiators, stoves, or steam pipes or in other places with excessive heat or dampness. Fiberglass ladders should be protected from direct sunlight or ultraviolet light sources. They can be hung horizontally on brackets. They can also be placed on edge on racks or on rollers, rather than stored flat. Keep storage space free of obstructions and accessible at all time. They shall be stored where they will not fall or cause a tripping hazard.
20. Student should write a brief letter (or questionnaire) requesting the following materials and information: the OSHA 300 form for the previous three years, the EMR for the previous three years on an insurance agent's letterhead, a copy of a company's safety manual, a copy of the written hazard communication program, and a brief outline of safety and health training provided to supervisors.

ANSWERS—QUIZ 2

1. a
2. b
3. a
4. a
5. b
6. a

7. d
8. b
9. d
10. b
11. d
12. a
13. Student may mention any five of the following:
    - Store ladders neatly and securely where they will not fall or cause a tripping hazard.
    - Horizontal distance from base to vertical plane of the support should be ¼ the ladder's length between supports.
    - Do not use ladders as runways or scaffolds.
    - Do not place ladder in front of door that opens toward ladder unless locked or otherwise blocked.
    - Do not place ladder against a window pane or sash.
    - Place the ladder so that both side rails have secure footing.
    - Provide solid footing on soft ground to prevent sinking.
    - Place the ladder's feet on a level base, not moveable objects.
    - Never lean a ladder against unsecured backing.
    - Secure ladder both top and bottom to prevent it from slipping when accessing high places.
    - Secure ladder both top and bottom to prevent displacement when accessing a scaffold.
    - Extend ladder at least 3 ft above the top landing.
    - Do not place ladder close to electrical wiring or operational piping.
    - Do not use metal ladders near electrical hazards, opt for a nonconductive plastic ladder.
    - Only one person at a time should be on the ladder.
    - Do not overload a ladder or misuse it.
    - Use ladders of sufficient length for the task.
    - Use both hands when ascending or descending.
    - Raise or lower material with a rope.
    - Carry tools in a tool belt, not your hand.
    - Face ladder when ascending or descending.
    - Do not slide down a ladder.
    - Check shoes for grease or mud before climbing.
14. During the construction of exterior masonry walls, the weight (vertical force) and the wind load (horizontal force) must be considered. Because the vertical load is supported by spandrels and relieving angles, the critical consideration is the horizontal load.
15. A scaffold is an elevated working platform for supporting both personnel and materials. It is a temporary structure, used mainly in construction and/or maintenance work. Scaffolding is the structure-made of wood or metal-that supports the working platform. A fall protection checklist should consider the following points: Complete planking of scaffold grade for a smooth surface without gaps, walkways guard-railed, no single plank access or work permitted. Railings and toeboards. Crossbraces supplemented to railing height. Ladders or access climbing protection. Fall protection for scaffold builders using adjacent structure anchorages where possible.
16. Examine the planks for large knots, excessive grain slopes, shakes, decay, and other defects that may render it unfit. Discard the plank upon visible or audible evidence of failure, or if it had an obvious deflection. Determine the safe load for a plank based on its size and species.
17. A salamander is a small furnace usually cylindrical in shape, without grates, used for heating. Also a term used to refer to open barrels on a construction site used to provide a heat source.
18. Safety nets should be chosen when large open-web steel structure, external building protection, large span structures such as gymnasiums, mills, bridges, etc., require continuous protection for extended periods of time.
19. Hoists you might find on a construction site include an inside material hoist, an outside material hoist, and personnel hoists.
20. A crane-hoisted basket is a specially designed piece of equipment used when no other means are available to reach or access high work. Simply put, it is a rectangular steel cage suspended from a crane to provide workers a stable enclosure. Minimum requirements include: designed by qualified person; capable of holding five times intended load; guardrails with solid enclosure or expanded metal from toeboard to midrail; overhead protection; all welds by certified welder; posted with weight of platform and maximum intended load; an unoccupied trial lift with the anticipated load prior to the first lift of

each day; all personnel in the basket will be tied off to either the block/ball or to a structural member of the basket.

ANSWERS—CASE STUDY

1. A ladder inspection checklist may be concerned with the following general items to be checked: loose steps or rungs; loose nails, screws, bolts, or other metal parts; cracked, split, or broken uprights, braces, steps, or rungs; slivers on uprights, rungs, or steps; damaged or worn non-slip bases; rusted or corroded spots. For stepladders, care should be taken to see if they are wobbly, have loose or bent hinge spreaders; if the stop on hinge spreaders is broken; if the steps are broken, split, or worn; or if the hinges are loose. Extension ladders need to be checked for loose, broken or missing extension locks; defective locks that do not seat properly when the ladder is extended; deterioration of rope from exposure to acid or other destructive agents.
2. Store ladders neatly and securely where they will not fall or cause a tripping hazard; Horizontal distance from base to vertical plane of the support should be (the ladder's length between supports; Do not use ladders as runways or scaffolds; Do not place ladder in front of door that opens toward ladder unless locked or otherwise blocked; Do not place ladder against a window pane or sash; Place the ladder so that both side rails have secure footing; Provide solid footing on soft ground to prevent sinking; Place the ladder's feet on a level base, not moveable objects; Never lean a ladder against unsecured backing; Secure ladder both top and bottom to prevent it from slipping when accessing high places; Secure ladder both top and bottom to prevent displacement when accessing a scaffold; Extend ladder at least 3 ft above the top landing; Do not place ladder close to electrical wiring or operational piping; Do not use metal ladders near electrical hazards, opt for a nonconductive plastic ladder; Only one person at a time should be on the ladder; Do not overload a ladder or misuse it; Use ladders of sufficient length for the task
3. Workers should comply with the following safe practices when ascending and descending ladders: use both hands when ascending or descending; raise or lower material with a rope; carry tools in a tool belt, not your hand; face ladder when ascending or descending; do not slide down a ladder; and check shoes for grease or mud before climbing.