

## APPENDIX Q

# DEFINITIONS

***This appendix defines the following terms for the purposes of this manual.***

**Abrasive blasting:** the forcible application of an abrasive to a surface by pneumatic pressure, hydraulic pressure, or centrifugal force.

**Abrasive wheel:** a cutting tool made of abrasive grains held together by organic (such as resin, rubber, or shellac) or inorganic (such as clay, glass, porcelain, sodium silicate, magnesium oxychloride, or metal) bonds.

**Absorbed dose:** energy imparted to matter by ionizing radiation per unit mass of irradiated material at the place of interest in that material. The units of absorbed dose are the rad or the Gray (1 Gray equals 1 Joule/Kilogram equals 100 rad).

**Accepted/Acceptable:** a term denoting when a written procedure, practice, method, program, engineering design, or employee qualification criteria submittal, which, after a cursory review by a GDA, is determined to generally conform to safety and health or contractual requirements. Acceptance or acceptability of such submittals in no way relieves the submitting entity from ensuring employees a safe and healthful work environment or complying with all contractual requirements and good engineering practices.

**Accident:** an unplanned event that results in injury, illness, death, property damage, mission interruption, or other loss that has a negative effect on the mission.

**Accident prevention plan (APP):** a document that outlines occupational safety and health policy, responsibilities, and program requirements.

EM 385-1-1  
3 Nov 03

**Accident, recordable:** any accident meeting the definition of an Army accident that involves a Government employee, Contractor, or member of the public that rises to the severity level that they are used to calculate accident experience rates.

**Accident, reportable:** all USACE and Contractor accidents including occupational illnesses, injuries, and property damage.

**Accredited testing laboratory:** a laboratory that an accrediting organization has determined has demonstrated the ability to conduct air quality testing according to their standard.

**Activity hazard analysis (AHA):** a documented process by which the steps (procedures) required to accomplish a work activity are outlined, the actual or potential hazards of each step are identified, and measures for the elimination or control of those hazards are developed.

**Aerial lift:** include the following vehicle-mounted aerial devices used to elevate personnel to job sites above the ground: aerial ladder, extensible boom platform, articulating boom platform, vertical tower, and a combination of these devices.

**Affected employee:** a person whose position requires him/her to operate or use a system that is under lockout or tagout or whose position requires him/her to work in an area where a system that is under lockout or tagout is being serviced or maintained.

**Air-purifying respirator:** a respirator with an air-purifying filter, cartridge, or canister that removes specific air contaminants by passing ambient air through the air-purifying element.

**Air receiver:** a tank used for the storage of air discharged from the compressor; used to help eliminate pressure pulsations in the discharge line.

**All-terrain vehicle (ATV), Class I:** a motorized off-highway vehicle, 50 in (127 cm) or less in width, having dry weight of 800 lbs (362.9 kg) or less, and traveling on three or more low pressure tires

(10 lbs (4.5 kg) psi or less), with a seat designed to be straddled by the operator.

**All-terrain vehicle (ATV), Class I, Category G:** an ATV intended for general recreational and utility use.

**All-terrain vehicle (ATV), Class I, Category U:** an ATV intended primarily for utility use.

**All-terrain vehicle (ATV), Class II:** a motorized off-highway vehicle with a width which exceeds 50 in (127 cm) or having a dry weight that exceeds 800 lbs (362.9 kg), traveling on four or more low-profile, low-pressure tires (10 lbs (4.5 kg) psi or less) and having a bench seat.

**Aloft:** at a height of 6 ft (1.8 m) or more above the ground.

**Altered:** any change to the original manufacturer's design configuration. These are:

- a. Replacement of weight-handling equipment parts and components with parts or components not identical with the original (i.e., change in material, dimensions, or design configuration);
- b. The addition of parts or components not previously a part of the equipment;
- c. The removal of components that were previously a part of the load handling equipment; and
- d. Rearrangement of original parts or components.

**Anchor handling barge:** a floating work platform consisting of a pontoon or barge, hoisting equipment, and a fixed A-frame that cannot slew or change radius. An anchor barge is used to extract anchors or buoy weights imbedded in the earth. The load is often unknown and is often not under the tip of the A-frame.

EM 385-1-1  
3 Nov 03

**Anchorage**: a secure point of attachment for lifelines, lanyards, deceleration devices, or tiebacks.

**Anchored bridging**: the steel joist bridging is connected to a bridging terminus point.

**Anti-runaway**: a safety device to stop a declining conveyor in case of mechanical or electrical failure.

**Anti-two blocking (A2B) (upper limit) device**: a device that is activated by two-blocking and disengages the particular function whose movement is caused by the two-blocking.

**Approach-departure clearance surface**: an extension of the primary surface and the clear zone at each end of the runway, first along an inclined plane (glide angle) and then along a horizontal plane, both flaring symmetrically about the runway centerline extended.

**Approach-departure clearance zone**: the ground area under the approach-departure clearance surface.

**Apron conveyor**: a conveyor in which a series of apron pans forms a moving bed.

**Apron pans**: one of a series of overlapping or interlocking plates or shapes that, together with others, form the conveyor bed.

**Approved**: a method, equipment, procedure, practice, tool, etc., that is sanctioned, confirmed, as acceptable for a particular use or purpose by a person or organization authorized to render such approval or judgment.

**Arc**: a controlled electrical discharge between the electrode and the work piece that is formed and sustained by a gas that has been heated to such a temperature that it can conduct electric current.

**Arc cutting:** a thermal cutting process that severs or removes metal by melting with the heat of an arc between an electrode and the work piece.

**Arc welding:** a welding process that joins work pieces by heating them with an arc.

**Articulating boom crane:** a crane with a boom that has sections that are articulated by hydraulic cylinders. The boom may have a telescoping section. The crane can be stationary or mounted on a vehicle, track, locomotive, etc., and is used to lift, swing, and lower loads.

**Assigned protection factor (APF):** the minimum anticipated protection provided by a properly functioning respirator or class of respirators to a given percentage of properly fitted and trained users.

**Associate Safety Professional (ASP):** an individual who is currently certified by the Board of Certified Safety Professionals (BCSP).

**Atmosphere-supplying respirator:** a respirator that supplies the respirator user with breathing air from a source independent of the ambient atmosphere, and includes SARs and SCBA units.

**Attendant (confined space):** an individual stationed outside one or more permit spaces who monitors the authorized entrants and who performs all attendant's duties assigned in the employer's permit space program.

**Authorized employee:** a qualified person who is designated, in writing by the designated authority, to request, receive, implement, and remove energy control procedures.

**Authorized entrant (confined space):** an employee who is authorized by the employer to enter a permit space.

EM 385-1-1  
3 Nov 03

**Automatic circuit re-closer:** a self-controlled device for automatically interrupting and re-closing an alternate current circuit with a predetermined sequence of opening and re-closing followed by resetting, hold closed, or lockout operation.

**Automatic fire detection device:** a device designed to automatically detect the presence of fire by heat, flame, light, smoke, or other products of combustion.

**Automatic trap:** a device for removing moisture from compressed gas systems.

**Back cut:** the final cut in a felling operation, made horizontally on the opposite side from the undercut. > **See definition of notch.**

**Backstop:** a device to prevent reversal of a loaded conveyor under action of gravity when forward travel is interrupted.

**Barricade:** a physical obstruction, such as tape, screens, or cones, intended to warn of and limit access to a hazardous area.

**Barrier:** a physical obstruction that is intended to prevent contact with energized lines or equipment.

**Beam platform:** a work platform made up of wood beams (oriented vertically).

**Bearer:** a horizontal member of a scaffold upon which the platform rests and that may be supported by runners.

**Bell:** an enclosed compartment, pressurized (closed bell) or unpressurized (open bell), which allows the diver to be transported to and from the underwater work area and which may be used as a temporary refuge during diving operations.

**Benching:** a method of protecting employees from cave-ins by cutting the sides of the excavation in the arrangement of one or

more horizontal levels, usually with vertical or near-vertical walls between steps.

**Bending moment:** the overturning effect at a point which is the product of a force and the distance from the point from which the force is applied.

**Blast area:** the area in which explosive loading and blasting activities are being conducted and the area immediately adjacent that is within the influence of fly-rock and concussion.

**Blast site:** the area in which explosive materials are being loaded, or have been loaded, including all holes to be loaded for the same blast for a distance of 50 ft (15.2 m) on all sides.

**Blaster:** the person(s) authorized to use explosives for blasting purposes.

**Blasting agent:** any material or mixture, consisting of a fuel and oxidizer, intended for blasting, not otherwise classified as an explosive, and in which none of the ingredients is classified as an explosive, provided that the finished product, as mixed and packaged for use or shipment, cannot be detonated by means of a No. 8 blasting cap when unconfined.

**Blasting machine:** a device used to supply initiation current to blasting circuits.

**Boatswain's chair:** a suspended seat designed to accommodate one worker.

**Boatswain's stand:** a suspended stand designed to accommodate one worker in a standing position.

**Body belt:** a strap with means for securing about the waist and is used for positioning, restraint, or ladder climbing only. Body belts may not be used for fall arrest.

EM 385-1-1

3 Nov 03

**Body harness, full:** straps that are secured about a body in a manner that distributes the arresting forces over at least the thighs, waist, chest, shoulders, and pelvis, with provision for attaching a lanyard, lifeline, or deceleration device.

**Bolted diagonal bridging:** diagonal bridging that is bolted to a steel joist or joists.

**Bond:** an electrical connection from one conductive element to another to minimize potential differences or providing suitable conductivity for fault current or for mitigation of leakage current and electrolytic action.

**Bonding:** the permanent joining of metallic parts to form an electrically conductive path that will ensure electrical continuity and capacity to conduct safely any current likely to be imposed.

**Bonding jumper:** a reliable conductor to ensure the required electrical conductivity between metal parts required to be electrically connected.

**Boom:** a member hinged to the superstructure or a crane/derrick and used for supporting hoisting tackle.

**Boom-angle:** the angle above or below the horizontal of the longitudinal axis of the base of the boom section.

**Boom-angle indicator:** a device that measures the angle of the boom to the horizontal.

**Boom hoist mechanism:** means for supporting the boom and controlling boom angle.

**Boom, live:** a boom in which lowering (free-fall) is controlled by a brake without aid from other lowering retarding devices.

**Boom stop (crane):** a device used to limit the angle of the boom at the highest position.



**Bottom time:** the total elapsed time, measured in minutes, from the time when the diver leaves the surface in descent to the time that the diver begins ascent.

**Braided sling:** a sling made from braided rope.

**Branch circuit:** the circuit conductors between the final over current device protecting the circuit and the outlet(s).

**Brazing:** a welding process that joins materials by heating them to a temperature that will not melt them but will melt a filler material which adheres to them and forms a joint.

**Bricklayers' square scaffold:** a scaffold made up of a work platform (planking) supported on bricklayers' squares.

**Bridge:** that part of a gantry or overhead crane that carries the trolley(s).

**Bridging clip:** a device that is attached to the steel joist to allow the bolting of the bridging to the steel joist.

**Bridging terminus point:** a wall, a beam, tandem joists (with all bridging installed and a horizontal truss in the plane of the top chord) or other element at an end or intermediate point(s) of a line of bridging that provides an anchor point for the steel joist bridging.

**Bridle sling:** multiple-leg-sling; the legs of the sling are spread to distribute the load.

**Bucket conveyor:** any type of conveyor in which the material is carried in a series of buckets.

**Bucking:** the act of sawing a felled tree or limbs into smaller sections.

EM 385-1-1

3 Nov 03

**Bus wire:** an expendable wire used in parallel or series-in-parallel circuits to which are connected the leg wires of electric blasting caps.

**Bushing:** an insulating device or lining used to protect a conductor where it passes through an aperture.

**Cable:** a conductor with insulation, or a stranded conductor with or without insulation and other coverings (single-conductor cable), or a combination of conductors insulated from one another (multiple-conductor cable).

**Cable laid endless sling:** mechanical joint: a wire rope sling made from one continuous length of cable laid rope with the ends joined by one or more metallic fittings.

**Cable laid grommet, hand tucked:** an endless wire rope sling made from one continuous length of rope formed to make a body composed of six ropes around a rope core. The rope ends are tucked into the body, forming the core. No sleeves are used.

**Cable laid rope:** a rope composed of several wire ropes laid as strands around a wire rope core.

**Cable laid rope sling, mechanical joint:** a wire rope sling made from a cable laid wire rope with eyes fabricated by pressing or swaging metal sleeves over the rope junction.

**Cable sheath:** a protective covering applied to cables.

**Caisson:** a watertight chamber (of wood or steel sheeting or a concrete or steel cylinder) used in construction work underwater or as a foundation. When the bottom of the structure extends below the surface of free water, excavation is performed by workers in a working chamber at an air pressure greater than atmospheric pressure.

**Calyx hole:** a hole, typically 30 in (76.2 cm) in diameter or larger, drilled into the earth primarily for subsurface exploration.

**Canister or cartridge:** a container with a filter, sorbent, or catalyst, or combination of these items, which removes specific contaminants from the air passed through the container.

**Capstan:** a spool-shaped revolving drum, manually or power-operated, used for heaving in of heavy mooring lines.

**Car-arresting device:** a device that will stop and hold the car with its rated load in the event of the failure of the wire rope, rack, pinion or other car suspension means.

**Carbon dioxide (CO<sub>2</sub>):** a colorless, odorless, electrically nonconductive inert gas which acts as an extinguishing medium by reducing the concentration of oxygen or fuel vapor in the air to the point where combustion is impossible.

**Carpenter's bracket scaffold:** a scaffold made up of a work platform supported on wood or metal brackets.

**Catch platform:** a temporary structure erected around, attached to and abutting the building being demolished for the purpose of safeguarding and protecting the employees and the public by catching and retaining falling objects or debris.

**Cathead:** a spool shaped attachment on a winch around which rope is wound for hoisting and pulling.

**Certified Construction Health and Safety Technician (CHST):** an individual who is currently certified by the BSCP.

**Certified Health Physicist (CHP):** an individual who is currently certified by the American Board of Health Physics.

**Certified Industrial Hygienist (CIH):** an individual who is currently certified by the American Board of Industrial Hygiene.

**Certified Safety Professional (CSP):** an individual who is currently certified by the BCSP.

EM 385-1-1

3 Nov 03

**Certified Safety Trained Supervisor (CSTS):** an individual who is currently certified by the BCSP.

**Chain conveyor:** any type of conveyor in which one or more chains act as the conveying medium.

**Choker:** a sling used to form a slip noose around an object.

**Christmas tree lifting:** the tandem lifting of steel (multiple steel members rigged together) by one crane.

**Chute:** a trough or tube used to guide and transport sliding objects, materials or debris from a higher to a lower level.

**Circuit:** a conductor or system of conductors through which an electric current is intended to flow.

**Circuit breaker:** a device designed to open and close a circuit by non-automatic means and to open and close a circuit automatically on a predetermined overcurrent without damage to itself when properly applied within its rating.

**Class A fire:** a fire involving ordinary combustible materials such as wood, paper, clothing, and some rubber and plastic materials.

**Class B fire:** a fire involving flammable or combustible liquids, flammable gases, greases and similar materials, and some rubber and plastic materials.

**Class C fire:** a fire involving energized electrical equipment where safety to the employee requires the use of electrically nonconductive extinguishing media.

**Class D fire:** a fire involving combustible metals such as magnesium, zirconium, sodium, and potassium.

**Cleanout:** a hole that is put in the concrete masonry unit block to verify that grout goes all the way to the bottom of the cell of blocks in a wall (filling the void cells). The cleanout being in this position keeps employees from under the scaffolding where they are pumping the grout in overhead.

**Cleat:** a mooring fitting having two horizontal arms to which mooring lines are secured.

**Coarse laid rope:** 6 x 7 wire rope (6 strands, 7 wires per strand).

**Cofferdam:** a temporary structure used to keep water (and earth) out of an excavation during construction of the permanent structure.

**Cold forming:** the process of using press brakes, rolls, or other methods to shape steel into desired cross sections at room temperature.

**Column:** a load-carrying vertical member that is part of the primary skeletal framing system. Columns do not include posts.

**Combustible liquid:** a liquid having a flash point at or above 100 °F (38 °C). Combustible liquids are subdivided as follows:

- a. Class II liquids have flash points at or above 100 °F (38 °C) and below 140 °F (60 °C).
- b. Class IIIA liquids have flash points at or above 140 °F (60 °C) and below 200 °F (93 °C).
- c. Class IIIB liquids have flash points at or above 200 °F (93 °C).

**Command:** the USACE Major Subordinate Command, District, Laboratory, or Field Operating Activity with responsibility for a particular activity.

EM 385-1-1  
3 Nov 03

**Committed dose equivalent:** The dose equivalent to organs or tissues of reference that will be received from an intake of radioactive material by a person during the 50-year period following the intake.

**Committed effective dose equivalent:** the sum of the products of the weighting factors applicable to each of the body organs or tissues irradiated and the committed dose equivalent to these organs or tissues.

**Competent person:** one who can identify existing and predictable hazards in the working environment or working conditions that are dangerous to personnel and who has authorization to take prompt corrective measures to eliminate them.

**Competent person for confined space:** A person meeting the competent person requirements defined in Section 1 who is assigned in writing by the GDA to assess confined spaces, to include ship and vessel repair and maintenance at USACE facilities, and who possesses demonstrated knowledge, skill, and ability to:

- a. Identify the structure, location, and designation of confined and PRCS where work is done;
- b. Calibrate and use testing equipment including, but not limited to, oxygen indicators, combustible gas indicators, CO indicators, and CO<sub>2</sub> indicators, and to interpret accurately the test results of that equipment;
- c. Perform all required tests and inspections specified in 29 CFR 1910.146 and 29 CFR 1915, Subpart B;
- d. Assess hazardous conditions including atmospheric hazards in confined space and adjacent spaces and specify the necessary protection and precautions to be taken;
- e. Determine ventilation requirements for confined space entries and operations.

f. Assess hazards associated with hot work in confined and adjacent space and determine fire watch requirements; and

g. Maintain records required.

**Conductor:** a material, usually in the form of a wire, cable, or bus bar, suitable for carrying an electric current.

**Conductor shielding:** an envelope that encloses the conductor of a cable and provides an equipotential surface in contact with the cable insulation.

**Confined space:** a space that:

- a. Is large enough and so configured that a person can bodily enter and perform assigned work; and
- b. Has limited or restricted means for entry or exit such that the entrant's ability to escape in an emergency would be hindered (e.g., tanks, vessels, silos, storage bins, hoppers, vaults, and pits are spaces that may have limited means of entry; doorways are not considered a limited means of entry or egress); and
- c. Is not designed for continuous worker occupancy.

**Connector:** an employee who, working with hoisting equipment, is placing and connecting structural members and/or components.

**Constructibility:** the ability to erect structural steel members in accordance with 29 CFR 1926, Subpart R, without having to alter the over-all structural design.

**Construction load:** (for joist erection) means any load other than the weight of the employee(s), the joists and the bridging bundle

**Container:** any vessel of 60 gal (0.23 m<sup>3</sup>) or less capacity used for transporting or storing liquids.

EM 385-1-1

3 Nov 03

**Contaminant:** any material, that, by nature of its composition or reaction with other materials, is potentially capable of causing injury, death, illness, damage, loss, or pain.

**Contractor:** any individual or firm under contractual agreement with the government or its subunits for the performance of services and products, such as construction, maintenance, and hazardous waste activities, including subcontractors of a prime contractor.

**Controlled decking zone (CDZ):** an area in which certain work (e.g., initial installation and placement of metal decking) may take place without the use of guardrail systems, personal fall arrest systems, fall restraint systems, or safety net systems and where access to the zone is controlled.

**Controlled load-lowering:** lowering a load by means of a mechanical hoist drum device that allows a hoisted load to be lowered with maximum control using the gear train or hydraulic components of the hoist mechanism. Controlled load lowering requires the use of the hoist drive motor, rather than the load hoist brake, to lower the load.

**Conveyor:** a horizontal, inclined, or vertical device for transporting material in a path predetermined by the design of the device and having points of loading and discharge.

**Conveyor, flight:** a type of conveyor consisting of one or more endless propelling media, such as chain, to which flights are attached, and a trough through which material is pushed by the flights.

**Conveyor, portable:** a transportable conveyor that is not self-propelled, usually having supports that provide mobility.

**Conveyor, screw:** a conveyor screw revolving in a suitably shaped stationary trough or casing fitted with hangers, trough ends, and other auxiliary accessories.



**Corrosive:** is a substance that can cause destruction of living tissue or damage by chemical action, including acids with a pH of 2.5 or below or caustics with a pH of 11.0 or above.

**Crane:** a machine for lifting or lowering a load and moving it horizontally, with the hoisting mechanism being an integral part of the machine.

**Crane, commercial truck mounted:** a crane consisting of a rotating superstructure (center post or turn table), boom, operating machinery, and one or more operator's stations mounted on a frame attached to a commercial truck chassis, usually retaining a payload hauling capability whose power source usually powers the crane.

**Crane, crawler:** a crane consisting of rotating superstructure with a power plant, operating machinery, and a boom, mounted on a base and equipped with crawler treads for travel.

**Crane, floating:** a rotating superstructure, power plant, operating machinery, and boom, mounted on a barge or pontoon. The power plant may be installed below decks. The crane's function is to handle loads at various radii.

**Crane, floor operated:** a crane that is pendant or nonconductive rope controlled by an operator on the floor or an independent platform

**Crane, gantry:** a crane similar to an overhead crane except that the bridge is rigidly supported on two or more legs running on fixed rails or other runway.

**Crane, hammerhead:** a lifting machine arranged with a tower (mast), an upper structure that rotates, a horizontally-extended load jib (boom) with trolley, and a counterweight jib extending in the direction opposite of the load jib: neither jib are arranged for luffing.

EM 385-1-1  
3 Nov 03

The trolley on the load jib traverses the length of the jib and contains the sheaves and accessory parts which make up the upper load block; the lower load block is suspended from the trolley.

**Crane, locomotive:** a crane mounted on a base or car equipped for travel on a railroad track.

**Crane, luffing jib:** a type of jib on a tower crane that is pivoted at the jib foot and supported by luffing cables. The hoist rope usually passes over a sheave at the jib point and the hook radius is changed by luffing, or changing the angle of inclination, of the jib. Rear pivoted luffing jibs are similar but the pivot is towards the rear of the top of the tower rather than at the jib foot.

**Crane, mobile:** a crane mounted on a truck or crawler.

**Crane, overhead:** a crane with a single- or multiple-girder movable bridge or fixed hoisting mechanism and traveling on an overhead fixed runway structure.

**Crane, pillar:** a fixed crane consisting of a vertical member, held in position at its base to resist overturning moment, and normally with a constant-radius revolving boom supported at the outer end by a tension member.

**Crane, portal:** a crane consisting of a rotating superstructure with operating machinery and boom, all of which is mounted on gantry structure, usually with a portal opening between the gantry columns or legs for traffic to pass through; may be fixed or traveling.

**Crane, standby:** a crane that is not in regular service but which is used occasionally or intermittently as required.

**Crane, tower:** similar to a portal crane but with a tower intervening between the upper structure and the gantry or other base structure; typically without a portal. To resist overturning moments, the assembly may be ballasted, fixed to a foundation, or a combination of both. The crane may be either fixed or on a traveling base.

**Crane (hoist), under-hung:** a crane that is suspended from the bottom flange of a runway track or a single-track monorail system.

**Crane, wall:** a crane having a jib with or without trolley and supported from a side wall or line of columns of a building. It is a traveling type and operates on a runway attached to the sidewall or columns.

**Crane, wheel-mounted (multi-control stations):** a crane consisting of a rotating superstructure, operating machinery, and operator's station and boom, mounted on a crane carrier equipped with axles and rubber-tired wheels for travel, a power source(s), and having separate stations for driving and operating.

**Crane, wheel-mounted (single control station):** a crane consisting of a rotating superstructure, operating machinery, and boom, mounted on a crane carrier equipped with axles and rubber-tired wheels for travel, a power source, and having a single control station.

**Crane operator aids:** devices that are used to assist a crane operator in the safe operation of the crane, including: two-block warning devices, two-block prevention devices, load and load moment indicator devices, boom angle and radius indicators, boom and jib stops, boom hoist disengaging devices, limit switches, drum rotation indicators, etc.

**Cribbing:** a system of timbers, arranged in a rectangular pattern, used to support and distribute the weight of equipment.

**Critical lift:** a non-routine crane lift requiring detail planning and additional or unusual safety precautions. Critical lifts include lifts made when the load weight is 75% of the rated capacity of the crane; lifts that require the load will be lifted, swung, or placed out of the operator's view of lifts made with more than one crane; lifts using more than one hoist; lifts involving non-routine or technically difficult rigging arrangement; hoisting personnel with a crane or derrick; lifts involving hazardous materials (e.g., explosives, highly volatile substances); lifts involving submerged loads; lifts without

EM 385-1-1  
3 Nov 03

the use of outriggers using on-rubber tire load charts; lifts where the center of gravity could change; or any lift that the lift or crane operator believes should be considered critical.

**Crossbraces:** two diagonal scaffold members joined at their center to form an "X", used between frames or uprights or both.

**Crotch:** to pass a rope through the crotch of a limb, or false crotch, in such a way that the load will be supported by the main leader.

**Cumulative trauma disorders:** disorders of muscles, tendons, peripheral nerves, or vascular system. These can be caused, precipitated, or aggravated by intense, repeated, or sustained exertions, motions of the body, insufficient recovery, vibration, or cold.

**Current-carrying part:** a conducting part intended to be connected in an electric circuit to a source of voltage; non-current-carrying parts are those not intended to be so connected.

**Cylinder manifold:** a multiple header for interconnection of gas sources with distribution points.

**Damp location:** partially protected locations under canopies, marquees, roofed open porches, and like locations, and interior locations subject to moderate degrees of moisture such as some basements and some cold-storage warehouses.

**Deadman control:** a constant-pressure, hand- or foot-operated control designed so that when released, it automatically returns to a neutral or deactivated position.

**Debris net:** a net designed to catch only debris. It must be used in conjunction with a personnel net if there is any possibility for personnel to fall.

**Decelerating device:** any mechanism that serves to dissipate energy during a fall.

**Decibel (dB):** a measure of sound pressure.

**dB(A):** A-weighted measure of sound pressure used with sound level meters; the weighting causes the sensitivity of the sound level meter to vary with the frequency and intensity of sound and in doing so duplicates the response of the human ear.

**Decking hole:** a gap or void more than 2 in (5.1 cm) in its least dimension and less than 12 in (30.5 cm) in its greatest dimension in a floor, roof, or other walking/working surface. Pre-engineered holes in cellular decking (for wires, cables, etc.) are not included in this definition.

**Decompression sickness:** a condition with a variety of symptoms which may result from gas or bubbles in the tissues of divers after pressure reduction.

**Decompression table:** a profile or set of profiles of depth-time relationships for ascent rate and breathing mixtures to be followed after a specific depth-time exposure or exposures.

**Demand respirator:** an atmosphere-supplying respirator that admits breathing air to the facepiece only when a negative pressure is created inside the facepiece by inhalation.

**Derrick:** an apparatus consisting of a mast or equivalent member held at the end by guys or braces, with or without a boom, for use with a hoisting mechanism and operating ropes.

**Derrick, A-frame:** a derrick in which the boom is hinged from a cross member or pedestal between the bottom ends of two upright members spread apart at the lower ends and joined at the top, the boom point secured to the junction of the side members, and the side members are braced or guyed from this junction point.

**Derrick, floating:** a mast or equivalent member held at the head by guys or braces, with or without a boom, for use with a hoisting mechanism and operating ropes, mounted on a barge or a pontoon. The power plant may be installed below decks.

EM 385-1-1  
3 Nov 03

**Derrick, floor:** an elevated floor of a building or structure that has been designated to receive hoisted pieces of steel prior to final placement.

**Derrick, guy:** a fixed derrick consisting of a vertical mast capable of being rotated 360° (but not continuous rotation) supported by guys, and a boom that is pivoted at the bottom and capable of moving in a vertical plane; a reeved rope between the head (top) of the mast and the boom harness (at the boom point) allows lifting and lowering of the boom and a reeved rope from the boom point allows lifting and lowering of the load.

**Derrick, stiff leg:** a derrick similar to a guy derrick except that the mast is supported or held in place by 2 or more stiff members (stiff legs) which are capable of resisting either tensile or compressive forces. Sills are generally provided to connect the lower ends of the stiff legs to the foot of the mast.

**Design load:** the maximum intended load: that is, the total of all loads including the worker(s), material, and the equipment placed on the unit.

**Designated person:** An employee who has been trained or is qualified and assigned the responsibility to perform a specific task.

**Detonating cord:** a flexible cord containing a center core of high explosives that when detonated will have sufficient strength to detonate other cap-sensitive explosives with which it is in contact.

**Detonator:** blasting caps, electric blasting caps, delay electric blasting caps, and non-electric delay blasting caps.

**District/Lab Diving Coordinator (DDC):** a USACE employee assigned the responsibility for organizing, integrating, and monitoring the total dive program within a USACE Command. This individual and an alternate (to perform in the absence of the primary DDC) will be appointed, in writing, by the USACE Commander/Director and will assure adherence to all applicable rules and regulations. At the Major Subordinate Command (MSC)

(Division), the Diving Coordinator will provide program guidance and monitor and annually review the MSC dive program at all subordinate levels; at the District, Laboratory, and field operating activities (FOA) level, the DDC will review and accept all safe practices manuals, dive plans, medical certificates, and dive team qualifications and experience to assure compliance with this manual. The DDC and the alternate shall, as a minimum, successfully complete the HQUSACE approved Diving Safety or Diving Supervisor Training Course and shall maintain certification by attending the diving refresher course every 4 years. DDCs attending the Diving Safety Course are not required to perform 12 working/training dives unless they are in a dual position as a USACE diver or USACE Diving Supervisor.

**Dive location:** a surface or vessel from which a diving operation is conducted.

**Dive operation:** the complete scope of work addressed in a single diving plan.

**Dive team:** divers and support employees involved in a diving operation, including the diving supervisor.

**Dive tender:** that individual on the dive team assigned to assist the diver with dressing in and out, entering and exiting the water, and continuously tend the tether or umbilical of the diver while in the water. The dive tender shall have experience and training that encompasses all aspects of tending in order to provide safe and efficient support to the diver.

**Diving inspector:** a USACE employee who inspects a Contractor's diving operations while work is in progress. Diving inspectors shall be designated in writing by the USACE Commander upon nomination by the employee's staff level supervisor and with concurrence of the UDC. Diving inspectors must have successfully completed a USACE diving safety, diving supervisor, or diving inspector course and shall maintain certification by attending a HQUSACE-sponsored diving inspectors course every 4 years.

EM 385-1-1  
3 Nov 03

**Diving supervisor:** the employer, or an employee designated by the employer, at the dive location in charge of all aspects of the diving operation that affect the safety and health of dive team members. The diving supervisor shall have experience and training in the conduct of the assigned diving operation.

**Dose equivalent:** the product of the absorbed dose in tissue, quality factor, and all other necessary modifying factors at the location of interest. The units of dose equivalent are the rem or Sievert (Sv) (1 Sievert equals 100 rem).

**Dosimetry:** the measure of radiological exposure.

**Double-cleated ladder:** a ladder, similar to a single cleat ladder but with a center rail, which allows simultaneous two-way traffic for employees ascending or descending.

**Double connection:** an attachment method where the connection point is intended for two pieces of steel that share common bolts on either side of a central piece.

**Double connection seat:** a structural attachment that, during the installation of a double connection, supports the first member while the second member is connected.

**Dragline:** a bucket attachment for a crane that excavates by the crane drawing, with a cable, the bucket towards itself.

**Dredge:** any vessel fitted with machinery for the purpose of removing or relocating material from or in a body of water.

**Drift pin:** a pin that is tapered at both ends and used to align holes.

**Drilling fluid (mud):** fluid that is pumped into a drilled hole and used to wash cuttings from the hole: drilling mud is a type of drilling fluid made of a slurry of clay and water and that is used to coat and support the sides of the drill hole and seal off permeable strata.



**Dry chemical:** an extinguishing agent composed of very small particles of chemicals such as sodium bicarbonate, potassium bicarbonate, or potassium chloride supplemented by special treatment to provide resistance to packing and moisture absorption and to provide proper flow capabilities. Does not include dry powders.

**Dry location:** a location not normally subject to dampness or wetness; a location classified as dry may be temporarily subject to dampness or wetness, as in the case of a building under construction

**Dry powder:** a compound used to extinguish or control Class D fires.

**Dust:** solid particles generated by handling, crushing, grinding, or detonation of organic or inorganic materials.

**Duty cycle:** operations involving repetitive pick and swing, such as with a dragline, grapple, or clamshell: such operations are conducted primarily for production as opposed to placement.

**Duty time:** time during which an individual is being compensated for his/her services.

**Effective dose equivalent:** the sum of the products of the dose equivalent to the organ or tissue and the weighting factors applicable to each of the body organs or tissues irradiated.

**Effectively grounded:** intentionally connected to earth through a ground connection or connections of sufficiently low impedance and having sufficient current-carrying capacity to prevent the buildup of voltages which may result in undue hazard to connected equipment or to persons.

**Electric supply lines:** those conductors used to transmit electrical energy and the necessary supporting or containing structures.

EM 385-1-1  
3 Nov 03

**Electrical equipment:** any device that produces, consumes, stores, transmits, or converts electrical energy.

**Electrical line:** any conductor used in the transmission of electrical energy from one point to another.

**Electrode:** a flux coated wire rod.

**Elevating work platform:** a vertically-adjustable, integral chassis, power operated work platforms, which may be horizontally extended or rotated relative to the elevating mechanism; an integral frame boom supported power operated elevating work platforms which either telescope, articulate, rotate, or extend beyond their base dimensions.

**Emergency (marine):** an unforeseen development that imposes an immediate hazard to the safety of the vessel, the passengers, the crew, the cargo, property, or the marine environment, requiring urgent action to remove or mitigate the hazard.

**Emergency situation (respiratory hazard):** any occurrence such as, but not limited to, equipment failure, rupture of containers, or failure of control equipment that may or does result in an uncontrolled significant release of an airborne contaminant.

**Employee:** a Government or Contractor person engaged in work on a USACE project.

**Employer:** a Government or Contractor organization that has control over employees engaged in work on a USACE project.

**Enclosed space:** any space, other than a confined space, that is enclosed by bulkheads and overhead. This includes cargo holds, tanks, and quarters, as well as machinery and boiler spaces.

**Endless rope:** a rope with the ends spliced together.

**End-of-service-life indicator (ESLI):** a system that warns the respirator user of the approach of the end of adequate respiratory protection (e.g., that the sorbent is approaching saturation or is no longer effective).

**Energy control procedure:** a written procedure (including responsibilities, procedural steps for lockout and tagout, and requirements for testing the effectiveness of energy control measures) to be used for the control of hazardous energy.

**Energy isolation device:** a physical device that prevents the transmission or release of energy. Includes, but is not limited to, manually operated circuit breakers, disconnect switches, slide gates, slip blinds, line valves, blocks, or similar devices, capable of blocking or isolating energy, with a position indicator. The term does not include push buttons, selector switches, and other control circuit type devices.

**Energy ratio:** a measure of the seismic energy impact of an explosive blast.

**Energy source:** includes electrical, mechanical, hydraulic, pneumatic, chemical, thermal, nuclear, stored, or other energy.

**Engulfment:** the surrounding and effective capture by a liquid or finely divided (flow able) solid substance that can be aspirated to cause death by filling or plugging the respiratory system or that can exert enough force on the body to cause death by strangulation, constriction, or crushing.

**Entry permit (permit):** the written or printed document provided to allow and control entry into a permit space and that contains the information specified in ENG Form 5044-R.

**Entry supervisor (confined space):** the person (such as the employer, foreman, or crew chief) responsible for determining if acceptable entry conditions are present at a permit space where entry is planned, for authorizing entry and overseeing entry operations, and for terminating entry as required by this manual.

EM 385-1-1  
3 Nov 03

**Erection bridging:** the bolted diagonal bridging that is required to be installed prior to releasing the hoisting cables from the steel joists.

**Escape-only respirator:** a respirator intended to be used only for emergency exit.

**Exceptional-exposure dive:** dives in which the risk of decompression sickness, oxygen toxicity, and or exposure to the elements is substantially greater than normal working dives.

**Explosives:**

- a. Any chemical compound, mixture, or device, the primary or common purpose of which is to function by explosion (with substantially instantaneous release of gas and heat), unless such compound, mixture, or device is otherwise specifically classified by DOT; and
- b. All material classified as Class A, Class B, or Class C explosive by DOT.

**Explosive-actuated tool:** a tool that uses the expanding gases from a power load to drive a fastener.

**Exposure:** a measure of the ionizing radiation produced in air by X or gamma radiation, equal to the sum of the electrical charges on all ions of one sign produced per unit mass of air. The special unit of exposure is the Roentgen equal to  $2.58 \times 10^{-4}$  Coulombs per Kilogram of air at standard temperature and pressure.

**Exposure hours:** the number of paid duty hours. Unpaid hours count as exposure when employees are quartered on-site. Exposures hours are used to calculate accident experience rates.

**Exposure (respiratory hazard):** exposure to a concentration of an airborne contaminant that would occur if the employee were not using respiratory protection.

**Extension trestle ladder:** a ladder consisting of a trestle ladder with an additional vertical single ladder, having parallel sides, that is adjustable perpendicularly and is provided with a device to lock it into place.

**Extinguisher classification:** the letter classification given an extinguisher to designate the classes of fire on which it will be effective.

**Extinguisher rating:** the numerical rating given to an extinguisher that indicates the extinguishing potential of the unit.

**Face:** that part of the tunnel or shaft where excavation is in progress or was last done; the vertical surface at the head of a tunnel excavation.

**Fall arrest system:** a fall arrest system must be used any time working at an elevated level and exposed to a fall hazard 6 ft (1.8 m) or greater. It consists of an anchorage capable of supporting 5,000 lbs (2268 kg) per attached employee, an anchorage connector, a connecting means such as a shock absorbing lanyard, self-retracting lanyard, and lifeline, and a full body harness.

**Fall restraint system:** prevents the worker from reaching an area where free fall could occur and consists of an anchor point, anchor connector, full body harness or body belt with back mounted D-ring, and a connecting means (i.e., lanyard).

**Fall work positioning system:** is designed to hold a worker in place leaving both hands and feet free to work and limits the maximum potential fall to no more than 2 ft (0.6 m). A fall arrest system should be used in conjunction with a work positioning system when the user is at elevated heights. It consists of an anchorage, full body harness or body belt with D-rings for attaching work positioning equipment and connecting means such as carabineer or rebar assembly.

EM 385-1-1

3 Nov 03

**False crotch:** a pulley, block, sling, lashing, or metal ring, affixed to a tree's leader or limb, through which a load line is passed, to raise or lower limbs or equipment.

**Feeder:** all circuit conductors between the service equipment, the source of a separately derived system, or other power supply source and the final branch-circuit over-current device.

**Festoon lighting:** a string of outdoor lights that is suspended between two points.

**Figure-four form scaffold:** a scaffold consisting of a work platform supported by brackets designed in the shape of a "4."

**Filter or air purifying element:** a component used in respirators to remove solid or liquid aerosols from the inspired air.

**Filtering facepiece (dust mask):** a negative-pressure particulate respirator with a filter as an integral part of the facepiece or with the entire facepiece composed of the filtering medium.

**Final interior perimeter:** the perimeter of a large permanent open space within a building such as an atrium or courtyard. This does not include openings for stairways, elevator shafts, etc.

**Fit factor:** a quantitative estimate of the fit of a particular respirator to a specific individual, and typically estimates the ratio of the concentration of a substance in ambient air to its concentration inside the respirator when worn.

**Fit test:** the use of a protocol to qualitatively or quantitatively evaluate the fit of a respirator on an individual. > **See Qualitative fit test (QLFT) and Quantitative fit test (QNFT).**

**Fixed extinguishing system:** a permanently installed system that either extinguishes or controls a fire.

**Fixed ladder:** a ladder that cannot be readily moved or carried because it is an integral part of a building or structure.

**Fixed lead:** pile driving leads which are rigidly attached to a boom by horizontal struts extending from the leads to extended boom foot pins, thus providing a fixed triangular frame of boom, struts, and leads.

**Flammable liquid:** a liquid having a flashpoint below 100° F (38° C) and having a vapor pressure not exceeding 40 lbs per square inch absolute (psia) (280 kPa) at 100° F (38° C). Flammable liquids are also categorized as Class I liquids and further defined as follows:

- a. Class 1A liquids have flash points below 73° F (23° C) and have boiling points below 100° F (38° C).
- b. Class 1B liquids have flash points below 73° F (23° C) and have boiling points at or above 100° F (38° C).
- c. Class 1C liquids have flash points at or above 73° F (23° C) and below 100° F (38° C).

**Flashback:** a recession of the flame into or back of the mixing chamber of the oxy-fuel gas torch.

**Fleet angle:** the angle between the rope as it leaves the drum (at the extreme end wrap on a drum) for the sheave and an imaginary centerline passing through the center of the sheave groove and a point halfway between the ends of the drum.

**Floating plant:** includes floating vessels use to transport personnel, work boats, floating cranes and derricks, barges, patrol boats, etc.

**Float/ship scaffold:** a scaffold hung from overhead supports by means of ropes and consisting of a unit having diagonal bracing underneath: the scaffold rests upon and is securely fastened to two parallel planks bearers at right angles to the span.

EM 385-1-1  
3 Nov 03

**Floor arch:** the masonry arch shaped filling between steel floor beams or girders, whatever the type of flooring system.

**Floor (roof) hole:** a ground, floor, or roof opening measuring less than 12 in (30.5 cm) but more than 1 in (2.5 cm) in its least dimension.

**Floor (roof) opening:** a ground, floor, or roof opening (includes skylights) measuring 12 in (30.5 cm) or more in its least dimension.

**Foam:** a stable aggregation of small bubbles that flow freely over a burning liquid surface and form a coherent blanket that seals combustible vapors, thereby extinguishing the fire.

**Forklift:** a mobile power propelled truck used to carry, push, pull, lift, stack, or tier materials. **>See *Powered industrial truck.***

**Form scaffold:** a scaffolding system integrated to formwork.

**Freestanding scaffold:** a scaffold that is independent of and not rigidly attached to a structure.

**Fuel gas:** a gas (e.g., acetylene, hydrogen, natural gas, propane) used with oxygen in the oxy-fuel process and for heating.

**Full personnel protection:** when a tagout device is used in place of a lockout device, full personnel protection is provided when:

- a. The tagout device is attached at the same location as the lockout device would have been attached;
- b. All tagout-related requirements of this manual have been complied with; and
- c. Additional means have been taken to provide a level of safety commensurate with that of a lockout device. Such additional means include the removal of an isolating circuit element, blocking of a control switch, opening and tagging an



extra (separated by distance) disconnecting device, or the removal of a valve handle to reduce the likelihood of being energized.

**Fume:** very small suspended solid particles created by condensation from the gaseous state.

**Fusible plug:** a device designed to relieve pressure and to indicate certain conditions that contribute to low water.

**Gangway:** any ramp, stairway, or ladder provided for personnel to board/leave a vessel.

**Gaseous agent:** a fire-extinguishing agent that is in the gaseous state at normal room temperature and pressure and diffuses readily to diffuse itself uniformly throughout an enclosure.

**Gas metal arc welding:** an arc welding process that uses an arc between a continuous filler metal electrode and the weld pool. Shielding (from the atmosphere) is provided by an externally supplied gas.

**Gate:** a device or structure by means of which the flow of material may be stopped or regulated.

**Generator, mobile:** mobile describes equipment, such as vehicle-mounted generators, that is capable of being moved on wheels or rollers.

**Generator, portable:** portable describes equipment that is easily carried by personnel from one location to another.

**Girt (in systems engineered metal buildings):** a “Z” or “C” shaped member formed from sheet steel spanning between primary framing and supporting wall material.

EM 385-1-1  
3 Nov 03

**Government Designated Authority (GDA):** the senior person in charge or his/her appointed representative for the operation being considered.

**Grommet:** an endless 7-strand wire rope.

**Ground:** (reference) - that conductive body, usually earth, to which an electric potential is referenced; (as a noun) - a conductive connection whether incidental or accidental, by which an electric circuit or equipment is connected to reference ground; (as a verb) - the connecting or establishing of a connection, whether by intention or accident, of an electric circuit or equipment to reference ground.

**Grounded:** connected to earth or to some conducting body that serves in place of the earth.

**Grounded conductor:** a system or circuit conductor that is intentionally grounded.

**Grounded system:** a system of conductors in which at least one conductor or point (usually the middle wire or neutral point of a transformer or generator windings) is intentionally grounded, either solidly or through a current limiting device (not a current-interrupting device).

**Ground fault circuit interrupter:** a device used to interrupt the electric circuit to the load when a fault current to ground exceeds some predetermined value that is less than that required to operate the over current protection device of the supply circuit.

**Grounding conductor:** a conductor used to connect equipment or the grounded circuit of a wiring system to a grounding electrode or electrodes.

**Grounding electrode (ground electrode):** a conductor embedded in the earth, used for maintaining ground potential on conductors connected to it, and for dissipating into the earth current connected to it.

**Grounding electrode conductor (grounding conductor):** a conductor used to connect equipment or the grounded circuit of a wiring system to a grounding electrode.

**Guarded by location:** describes moving parts so protected by their remoteness from the floor, platform, walkway, or other working level, or by their location with reference to frame, foundation, or structure as to reduce the foreseeable risk of accidental contact by persons or objects. Remoteness from foreseeable, regular, or frequent presence of public or employed personnel may in reasonable circumstances constitute guarding by location.

**Guardrail system:** A rail system erected along the open sides and ends of platforms. The rail system consists of a toprail and midrail and their supports.

**Halon:** a colorless, electrically nonconductive gas that extinguishes fire by inhibiting the chemical chain reaction of fuel and oxygen. Halon 1211 is a liquefied gas, also known as bromochlorodifluoromethane. Halon 1301 is also known as bromotrifluoromethane.

**Hardware:** buckles, D-rings, snap-hooks, and associated devices used to attach the components of a personal fall protection system.

**Hazard:** a dangerous condition, potential or inherent, that can bring about an interruption or interfere with the expected orderly progress of an activity. A source of potential injury to person or to property.

**Hazardous (physical) agent:** noise, non-ionizing and ionizing radiation, and temperature exposure of durations and quantities capable of causing adverse health effects.

**Hazardous atmosphere:** an atmosphere that may expose persons to the risk of death, incapacitation, impairment of ability to self rescue (i.e., escape unaided from a permit space), injury, or acute illness from one or more of the following causes:

EM 385-1-1  
3 Nov 03

- a. Flammable gas, vapor, or mist in excess of 10% of its lower flammable limit (LFL);
- b. Airborne combustible dust at a concentration that meets or exceeds its LFL;
- c. Atmospheric oxygen concentration below 19.5% or above 23.5%;
- d. Atmospheric concentration of any substance for which a dose or PEL is published and which could result in team member exposure in excess of its dose or PEL;
- e. Any other atmospheric condition that is IDLH.

**Hazardous energy control plan:** the written plan that clearly and specifically identifies the hazardous energy sources and outlines the scope, purpose, responsibilities, and procedural steps for lockout and tagout and the requirements for testing the effectiveness of energy control measures to be used for the control of hazardous energy from stated sources.

**Hazardous environment:** an environment with an atmosphere that poses a risk of death, incapacitation, injury, or illness due to flammable or explosive hazards; hazardous substances or agents; oxygen concentrations below 19.5% or above 22%; or any other atmospheric condition recognized as IDLH.

**Hazardous substance:** any substance defined as a hazardous substance under 29 CFR 1910.120, 29 CFR 1926.65, or 40 CFR 302; any chemical determined to be a hazard as specified in 29 CFR 1910.1200 or 29 CFR 1926.59 to include a chemical (as a gas, liquid, vapor, mist, dust, or fume) which has been identified as causing adverse health effects in exposed employees.

**Hazardous, toxic, radioactive waste (HTRW) activity:** refers to the overall project or worksite involving the investigation, assessment, or clean-up of HTRW or the emergency response to releases of hazardous substances, hazardous waste, or

hazardous material as defined by 29 CFR 1910.120(a)(3) or 29 CFR 1926.65, at an HTRW site. Includes those activities undertaken for the EPA's Superfund Program, the Defense Environmental Restoration Program (which also includes FUDS and Installation Restoration Program activities), HTRW actions associated with Civil Works projects, and HTRW projects of other Government agencies. Such activities include, but are not limited to, preliminary assessments/site inspections; remedial investigations; feasibility studies; engineering evaluations/cost analyses; RCRA facility investigations/corrective measures studies/corrective measures implementations/closure plans/Part B permits; or any other pre-design investigations, remedial design, or remedial construction, operation or maintenance at known, suspected, or potential HTRW sites. Also includes activities conducted at containerized HTRW sites (leaking PCB transformers and leaking or suspected leaking USTs that contain hazardous substances).

**Hazardous, toxic, radioactive waste (HTRW) operation:** refers to a specific function on an HTRW site, such as sampling, monitoring, excavation, drum removal, etc.

**Hazardous, toxic, radioactive waste (HTRW) site:** any facility or location that:

- a. Requires the planned or emergency clean-up of hazardous, toxic, radioactive waste; and
- b. Is designated as an uncontrolled hazardous waste site or covered by the RCRA.

**Heating torch:** a device for directing the heating flame produced by the controlled combustion of fuel gases.

**Heavy gear:** diver-worn deep-sea dress, including helmet, in-water stage: a suspended underwater platform that supports a diver in the water. Breastplate, dry suit, and weighted shoes, (e.g., U.S. Navy Mark V gear).

EM 385-1-1  
3 Nov 03

**Helmet (respiratory protection):** a rigid respiratory inlet covering that also provides head protection against impact and penetration.

**High efficiency particulate air (HEPA) filter:** a filter that is at least 99.97% efficient in removing mono-disperse particles of 0.3 µm in diameter. The equivalent NIOSH 42 CFR 84 particulate filters are the N100, R100, and P100 filters.

**High radiation area:** any area, accessible to personnel, in which there exists radiation at such levels that a major portion of the body could receive in any 1 hour a dose in excess of 100 mrem.

**High voltage:** is a voltage of 600 volts or greater.

**Hoist:** a machinery unit that is used for lifting or lowering a freely suspended (unguided) load.

**Hoisting equipment:** commercially manufactured lifting equipment designed to lift and position a load of known weight to a location at some known elevation and horizontal distance from the equipment's center of rotation. "Hoisting equipment" includes, but is not limited to, cranes, derricks, tower cranes, barge-mounted derricks or cranes, gin poles and gantry hoist systems. A "come-a-long" (a mechanical device, usually consisting of a chain or cable attached at each end, that is used to facilitate movement of materials through leverage) is not considered "hoisting equipment."

**Hood (respiratory protection):** a respiratory inlet covering that completely covers the head and neck and may also cover portions of the shoulders and torso.

**Hopper:** a box having a funnel-shaped bottom, or a bottom reduced in size, narrowed, or necked to receive material and direct it to a conveyor, feeder, or chute.

**Horizontal lifeline:** a component of a horizontal lifeline system, which the component consists of a flexible line with connectors or other coupling means at both ends for securing it horizontally between 2 anchorage connectors.

**Horse scaffold:** a scaffold composed of work platforms supported by construction horses.

**Hotline tools and ropes:** those tools and ropes that are especially designed for work on energized high voltage lines and equipment. Insulated aerial equipment especially designed for work on energized high voltage lines and equipment shall be considered hot line.

**Hot tapping:** a procedure of attaching connections to equipment in service by welding and drilling.

**Hot work:** hot riveting, welding, burning, abrasive blasting, or other fire- or spark-producing operations.

**Hot work, confined space:** hot work in confined space: any activity involving riveting, welding, burning, powder-actuated tools, or similar fire-producing operations. Grinding, drilling, abrasive blasting, or similar spark-producing operations are also considered hot work except when such operations are isolated physically from any atmosphere containing more than 10% of the lower explosive limit of a flammable or combustible substance.

**Hot work permit:** written authorization to perform operations (for example, riveting, welding, cutting, burning, and heating) capable of providing a source of ignition.

**Humping:** the use of an elevated or “humped” rail in switching cars. On one side of the hump, cars are pushed up the rail by an engine; on the other side of the hump, cars are switched, by gravity, to their proper tracks.

**Immediately dangerous to life or health (IDLH–respiratory hazard):** an atmosphere that poses an immediate threat to life, would cause irreversible adverse health effects, or would impair an individual’s ability to escape from a dangerous atmosphere.

EM 385-1-1  
3 Nov 03

**Immediately dangerous to life or health (IDLH-confined space):** any condition that poses an immediate or delayed threat to life or that would cause irreversible adverse health effects or that would interfere with an individual's ability to escape unaided from a permit space.

**Impulse noise:** noise is considered impulse when the variations in sound-pressure level involve peaks at intervals greater than 1 second.

**Incidental employee:** an employee who, under normal circumstances, would not be in an area where a system is under lockout and tagout but is required to enter or pass through such an area.

**Incipient stage fire:** a fire that is in the initial or beginning stage and that can be controlled or extinguished by portable fire extinguisher, Class II standpipe, or small hose systems without the need for protective clothing or breathing apparatus.

**Independent wire rope core:** a small 6 x 7 wire rope with a wire strand core; used to provide greater resistance to crushing and distortion of the wire rope.

**Induced current:** the generation of a current in a conductor caused by its proximity to a second alternating current source, a moving direct current source (such as a motor), or an extraneous voltage source (such as lightning).

**Inside post:** the post nearest to the structure against which the scaffold is erected.

**Interior structural firefighting:** the physical activity of fire suppression, rescue, or both, inside of buildings or enclosed structures that are involved in a fire situation beyond the incipient stage. (See 29 CFR 1910.155)



**Intrinsically safe equipment and associated wiring:** equipment and associated wiring in which any spark or thermal effect, produced either normally or in a specified fault condition, is incapable, under certain prescribed test conditions, of causing ignition of a mixture of flammable or combustible material in air in its most easily ignitable concentration.

**In-water stage:** a suspended underwater platform that supports a diver in the water.

**Ionizing radiation:** electromagnetic and particulate radiation that causes molecular ionization; includes alpha particles, beta particles, gamma rays, x-rays, neutrons, high speed electrons and protons, and other atomic matter.

**Isolation:** an activity that physically prevents the transmission or release of energy.

**Jib:** on hammerhead cranes, the horizontal structural member attached to the rotating superstructure of a crane and upon which the load trolley travels; on mobile cranes, an extension attached to the boom to provide added boom length for lifting specified loads.

**Job-made ladder:** a ladder fabricated by employees, typically at the construction site, and is not commercially manufactured.

**Labeled:** equipment or materials that has an attached label, symbol, or other identifying mark of an organization that is acceptable to the authority having jurisdiction and concerned with the product evaluation that maintains periodic inspection of production of labeled equipment or materials and by whose labeling the manufacturer indicates compliance with appropriate standards or performance in a specified manner.

**Laboratory waste pack:** a drum containing individual containers of laboratory materials normally surrounded by cushioning absorbent material.

EM 385-1-1  
3 Nov 03

**Ladder:** a device incorporating or employing steps, rungs, or cleats on which a person may step to ascend or descend.

**Ladder climbing safety device:** device that is connected to a harness or belt to prevent falls from ladders.

**Ladder, combination:** a portable ladder capable of being used either as a stepladder or as a single or extension ladder. It may also be capable of being used as a trestle ladder or a stairwell ladder. Its components may be used as single ladders.

**Ladder, extension:** a non-self-supporting portable ladder adjustable in length. It consists of two or more sections, traveling guides, or brackets or the equivalent and so arranged as to permit length adjustment.

**Ladder, individual-rung/step:** a ladder without a side rail or center rail support, made by mounting individual steps or rungs directly to the side or wall of the structure.

**Ladder, portable:** a ladder that can readily be moved or carried, usually consisting of side rails joined at intervals by steps, rungs, cleats, or rear braces.

**Ladder, sectional:** a non-self-supporting portable ladder, nonadjustable in length, consisting of two or more sections, and so constructed that the sections may be combined to function as a single ladder.

**Ladder, side step fixed:** a fixed ladder that requires a person getting off at the top to step to the side of the ladder side rails to reach the landing.

**Ladder, single cleat:** a ladder consisting of a pair of side rails connected together by cleats, rungs, or steps.

**Ladder, single rail:** a portable ladder with rungs, cleats, or steps mounted on a single rail instead of the typical two rails.

**Ladder, through step fixed:** a fixed ladder that requires a person getting off at the top to step between the side rails of the ladder to reach the landing.

**Ladder, trestle:** a self-supporting ladder consisting of two single ladders hinged or joined at the top to form equal angles with the base.

**Ladder type:** the designation that identifies the working load.

**Ladder-type platform:** a platform that resembles a ladder covered by planking.

**Lagging:** timber planks, steel plates, or other structural members used for transferring loads and supporting soil or rock.

**Landing area:**

- a. The primary surfaces, comprising the surface of the runway, runway shoulders, and lateral safety zones;
- b. The “clear zone” beyond the ends of each runway (i.e., the extension of the primary surface);
- c. All taxiways, and the lateral clearance zones along each side for the length of the taxiways; and
- d. All aircraft parking aprons plus the area extending beyond each edge all around the aprons.

**Lanyard:** a flexible line that is used to secure a safety belt or harness to a lifeline or directly to a point of anchorage.

**Laser:** a device that produces an intense, coherent, directional beam of light.

EM 385-1-1

3 Nov 03

**Lead:** the device on a pile driver that maintains the hammer in position during the driving. A lead typically is made up of two vertical rails or guides, held together by a frame, in which the hammer moves vertically.

**Lead (leading) wire:** an insulated expendable wire used between the electric power source and the electric blasting cap circuit.

**Leader:** the upper portion of the primary axis of a tree.

**Leading edge:** the unprotected side and edge of a floor, roof, or formwork for a floor or other walking/working surface (such as deck) that changes location as additional floor, roof, decking, or formwork sections are placed, formed, or constructed.

**Ledger:** is a horizontal scaffold member upon which bearers rest. The longitudinal member that joins scaffold uprights, posts, poles, and similar members.

**Lifeline:** a line provided for direct or indirect attachment to a worker's body belt, body harness, lanyard, or deceleration device: may be horizontal or vertical in application.

**Lifeline:** a line (horizontal or vertical) for direct attachment between a worker's personal fall protection device and a point of anchorage.

**Lift supervisor:** the person designated to be in charge of crane lifting; this may be the crane operator or an individual whose function it is to supervise lifting operations.

**Limbing:** to cut limbs from a tree.

**Line-breaking:** the intentional opening of a pipe, line, or duct that is or has been carrying flammable, toxic, or corrosive material, an inert gas, or any fluid at a pressure or temperature capable of causing injury.

**Liquefied petroleum gas (LP-Gas):** any material that is composed predominantly of any of the following hydrocarbons (or mixtures of them): propane, propylene, butanes, and butylenes.

**List:** the angle of inclination about the longitudinal axis of a vessel.

**Listed:** equipment, materials, or services included in a list published by an organization acceptable to the authority having jurisdiction (AHJ) and concerned with the evaluation of products or services that maintains periodic inspection of production of listed equipment or materials or periodic evaluation of services and whose listing states either that the equipment, material, or service meets identified standards or has been tested and found suitable for a specified purpose.

**Live-boating:** The practice of supporting a SSA or mixed gas diver from a vessel that is underway.

**Live-line bare-hand technique:** a highly specialized technique (usually used on medium- and high-voltage transmission lines) where a qualified employee working from an insulated aerial platform is electrically bonded to an energized line, effectively canceling any electrical potential difference across the worker's body and protecting the employee from electric shock.

**Live-line bare-hand work:** work that is performed barehanded from an insulated aerial platform, with the linemen in the basket at the same potential as the live conductor on which they are working.

**Live-line tools:** tools used by qualified employees to handle energized conductors. The tool insulates the employee from the energized line, allowing the employee to perform the task safely. Also known as "hot sticks."

**Load block:** an assembly of hook or shackle, swivel, pins, and frame.

**Load indicator:** a device that measures the weight of the load.

EM 385-1-1

3 Nov 03

**Load moment indicator (rated capacity indicator):** a device that indicates the bending moment on a crane by measuring both the load on a boom and the horizontal distance from the load (boom point) to the crane's axis of rotation. Load moment indicators are often equipped with warning devices or disengaging devices that are actuated before a crane is overloaded.

**Load performance test:** a test of a crane's performance, structural competence, and stability while lifting at a percentage of its rated load capacity.

**Load-rated:** the maximum allowable working load.

**Load-working:** the external load applied to the crane or derrick, including the weight of load-attaching equipment such as load blocks, shackles, and slings.

**Local application system:** a fixed fire suppression system that has a supply of extinguishing agent with nozzles arranged to automatically discharge extinguishing agent directly on the burning material to extinguish or control the fire.

**Lockout:** a form of hazardous energy control using the placement of a lockout device, in accordance with established procedures, on an energy-isolating device to ensure that the energy-isolating device and the system being controlled cannot be operated until the lockout device is removed.

**Lockout device:** a device that uses a positive means, such as a key or combination lock, to hold an energy-isolating device in the safe position and prevent the energizing of a system.

**Long-bed end-dump trailer:** a trailer with a length of 30 ft (9.1 m) or more, a length-to-width ratio of or exceeding 4:1, and which is used to transport and dump material.

**Loose-fitting facepiece:** a respiratory inlet covering that is designed to form a partial seal with the face.

**Low-slope roof:** a roof having a slope less than or equal to 4 in 12 (vertical to horizontal).

**Low voltage:** voltage less than 600 volts.

**Maintenance hole:** a surface enclosure that personnel may enter that is used for installing, operating, and maintaining equipment and cable.

**Mandrel:** a steel shaft and bearings assembly on which a tool, such as an abrasive wheel, is mounted and by which power is transmitted from the machine to the tool.

**Marine activities:** operations and work involving proximity to or on water.

**Mast (derrick):** the upright member of the derrick used for support of the boom.

**Mast climbing work platform:** a hoist having a working platform used for temporary purposes to raise personnel and materials to the working position by means of a drive system mounted on an extendable mast which may be tied to a building.

**Material Safety Data Sheet (MSDS):** a sheet that provides information on substance identification; ingredients and hazards; physical data; fire and explosion data; reactivity data; health hazard information; spill, leak, and disposal procedures; and special precautions and comments.

**Metal-clad cable (MC):** a factory assembly of one or more conductors, each individually insulated and enclosed in a metallic sheath of interlocking tape or a smooth or corrugated tube.

**Metal decking:** a commercially manufactured, structural grade, cold-rolled metal panel formed into a series of parallel ribs; this includes metal floor and roof decks, standing seam metal roofs, other metal roof systems, and other products such as bar gratings, checker plate, expanded metal panels, and similar products. After

EM 385-1-1  
3 Nov 03

installation and proper fastening, these decking materials serve a combination of functions including, but not limited to: a structural element designed in combination with the structure to resist, distribute, and transfer loads, stiffen the structure and provide a diaphragm action; a walking/working surface; a form for concrete slabs; a support for roofing systems; and a finished floor or roof.

**Misfire:** an explosive charge that failed to detonate.

**Mixed-gas diving:** a diving mode in which the diver breathes mixture other than air, e.g., helium-oxygen, (OEA).

**Mobile conveyor:** a conveyor supported on a structure that is movable under its own power.

**Monorail:** a single run of overhead track.

**Motor vehicle:** any vehicle propelled by a self-contained power unit, except a vehicle designed solely for use on railways or other trackage, or equipment designed exclusively for use off the highway.

**Mud capping (bulldozing, adobe blasting, or dobying):** blasting by placing a quantity of explosives against a rock or other object without confining the explosives in a drill hole.

**Mudsill:** a 2-in x 10-in x 8-in (5.1-cm x 25.4-cm x 20.3-cm) (minimum) wood plate that is used to distribute the scaffolding load over a suitable ground area. The size of the mudsill is determined by the load carried over a particular ground area and by the nature of the soil supporting the sills.

**Multi-employer work site:** a work site where more than one employer occupies the same work site. The Government considers the Prime Contractor to be the “controlling authority” for all subcontractors.



**Multiple-lift rigging** (Christmas tree lifting): a rigging assembly manufactured by wire rope rigging suppliers that facilitates the attachment of up to three independent loads to the hoist rigging of a crane.

**Multipurpose dry chemical:** a dry chemical that is approved for use on Class A, Class B, and Class C fires.

**Negative pressure respirator (tight fitting):** a respirator in which the air pressure inside the facepiece is negative during inhalation with respect to the ambient air pressure outside the respirator.

**Nitrox Gas (EANx):** Any oxygen/nitrogen mixture exceeding the ratio of 21% oxygen/79% nitrogen found naturally occurring in air.

**No-decompression limits:** the depth-time limits of the “no-decompression limits and repetitive dive group designation table for no-decompression air dives” as specified in the U.S. Navy Diving Manual or equivalent.

**Nominal dimension:** the dimension of material before it is surfaced and finished.

**Non-guided personnel hoist system:** a hoist system used to transport personnel in a device that is not attached to fixed tracks or guide ropes (a boatswain’s chair is an example of a non-guided personnel hoist).

**Non-ionizing radiation:** those electromagnetic radiations that do not cause ionization (but may be absorbed) in biological systems; includes low frequency ultraviolet light, infrared light, heat, laser, microwaves, and radio waves.

**Nonmetallic-sheathed cable:** a factory assembly of two or more insulated conductors having an outer sheath of moisture-resistant, flame-retardant, nonmetallic material.

EM 385-1-1  
3 Nov 03

**Non-permit confined space:** a confined space that does not contain, or with respect to atmospheric hazards does not have the potential to contain, any hazard capable of causing death or serious physical harm.

**Normally unoccupied remote facility:** a facility operated, maintained, or serviced by employees who visit the facility only periodically to check its operation and to perform necessary operating or maintenance tasks. No employees are permanently stationed at the facility. Facilities meeting this definition are not contiguous with, and must be geographically remote from, all other buildings, processes, or persons.

**Nosing:** that portion of a tread projecting beyond the top of the tread immediately below.

**Notch:** when cutting a tree to be felled, a notch is cut into the tree on the same side to which the tree is to fall; the notch consists of a horizontal cut (of depth approximately one-third the tree's diameter); the top of the notch is cut at a 45° angle from a height of 2.5 in (6.4 cm) per 1 ft (0.3 m) of diameter above the base of the notch.

**OEA:** > See Nitrox Gas

**Open conductors:** wires that are run as separate conductors, in contrast to wires run through conduit, cables, or raceways.

**Opening:** a gap or void 12 in (30.5 cm) or more in its least dimension in a floor, roof, or other walking/working surface. Skylights and smoke domes that do not meet the strength requirements of 29 CFR 1926.754(e)(3) shall be regarded as openings.

**Operational performance test:** a test, conducted without a test load, to determine the proper operation of a crane.

**Outrigger:** extendable or fixed structural members with one end attached to the base of a piece of equipment and the other end resting on floats on the ground: used to distribute loads in supporting equipment.

**Outrigger float:** the pedestal (or bearing pad) on which an outrigger beam is supported.

**Outside post:** the post away from the structure against which the scaffold is erected.

**Overexposure:** an exposure to a safety or health hazard above the PEL or, if there is no PEL, above the published exposure levels for the hazard.

**Overland conveyor:** a single or series of belt conveyors designed to carry material across a distance, usually following the general contour of the load.

**Overriding operational necessity:** circumstances in which essential work cannot be delayed for safety or environmental reasons, or could not reasonably have been anticipated.

**Oxyfuel gas cutting:** an oxygen cutting process that uses heat from an oxyfuel gas flame.

**Oxyfuel gas welding:** a welding process that joins work pieces by heating them with an oxyfuel gas flame

**Oxygen deficient atmosphere:** an atmosphere with an oxygen content below 19.5% by volume.

**Oxygen enriched atmosphere:** an atmosphere containing more than 23.5% oxygen by volume.

**Peak particle velocity:** a measure of how fast the ground moves during an explosive blast.

EM 385-1-1  
3 Nov 03

**Pendant:** a rope or strand of specified length with fixed end connections.

**Performance test:** a test to determine the proper operation of a crane and the ability of the crane to safely lift loads within its performance rating. A performance test includes operational performance tests and load performance tests.

**Perimeter protection:** measures taken to prevent personnel, vehicles, and materials from falling into an excavation:

a. **Class I perimeter protection:** meets the following requirements:

(1) When Class I perimeter protection guards against personnel falling into an excavation it shall meet the following: > **See Section 21.B**

(a) Have the strength, height, and maximum deflection requirements for guardrails;

(b) Provide fall protection equivalent to that provided by a toprail, midrail, and toeboard; and

(c) Have post spacing equivalent to a standard guardrail.

(2) When Class I perimeter protection guards against traffic (vehicles and/or equipment) falling into an excavation it shall be designed, by a qualified person, to withstand the potential forces and bending moments due to impact by traffic; if the area adjacent to the barricade will be used by both personnel and vehicles or equipment, provisions shall be made for physically dividing the excavation, personnel, and traffic areas from one another.

b. **Class II perimeter protection:** consists of warning barricades or flagging placed at a distance not closer than 6 ft (1.8 m) from the edge of the excavation: warning barricades or flagging do not have to meet the requirements for Class I

perimeter protection but do need to display an adequate warning at an elevation of 3 ft (0.9 m) to 4 ft (1.2 m) above ground level.

c. **Class III perimeter protection:** warning barricades or flagging placed a distance not closer than 6 in (15.2 cm) nor more than 6 ft (1.8 m) from the edge of the excavation: warning barricades or flagging do not have to meet the requirements for Class I perimeter protection but do need to display an adequate warning at an elevation of 3 ft (0.9 m) to 4 ft (1.2 m) above ground level.

**Permanent floor:** a structurally completed floor at any level or elevation (including slab on grade).

**Permit-required confined space (permit space):** a confined space that has one or more of the following characteristics:

- a. Contains or has the potential to contain a hazardous atmosphere,
- b. Contains a material that has the potential for engulfing an entrant,
- c. Has an internal configuration such that an entrant could be trapped or asphyxiated by inwardly converging walls or by a floor that slopes downward and tapers to a smaller cross-section, or
- d. Contains any other recognized serious safety or health hazard.

**Personal fall arrest system:** an engineered system used to arrest an employee in a fall; consists of an anchorage, connectors, body harness, and may include a lanyard, deceleration device, lifeline, or suitable combination of these.

**Personal fall protection system:** an engineered system that protects employees from falls.

EM 385-1-1  
3 Nov 03

**Physician/ Licensed healthcare professional (PLHCP):** an individual whose legally permitted scope of practice (i.e., license, registration, or certification) allows him/her to independently provide, or be delegated the responsibility to provide, some or all of the health care services required by 05.E.08.

**Plank platform:** a work platform made up of wood boards (oriented horizontally).

**Planking:** a wood board or fabricated component that is used as a flooring member.

**Point of anchorage:** a secure point of attachment for lifelines, lanyards, or deceleration devices.

**Portable electric tools:** electric equipment intended to be moved from one place to another.

**Portable ladder:** a ladder that can be readily moved or carried.

**Portable tank:** any closed vessel having a liquid capacity over 60 gal (0.23 m<sup>3</sup>) and not intended for fixed installation.

**Portal:** the entrance to a tunnel.

**Position hazard analysis (PHA):** a documented process by which the duties (or tasks) of an employee's job position are outlined, the actual or potential hazards of each duty are identified, and measures for the elimination or control of those hazards are developed.

**Positioning device:** a body belt or body harness system rigged to allow an employee to be supported on an elevated vertical surface, such as a wall, and work with both hands free while leaning.

**Positive-pressure respirator:** a respirator in which the pressure inside the respiratory inlet covering exceeds the ambient air pressure outside the respirator.

**Powered air-purifying respirator (PAPR):** an air-purifying respirator that uses a blower to force the ambient air through air-purifying elements to the inlet covering.

**Powered industrial truck:** a mobile power propelled truck used to carry, push, pull, lift, stack, or tier materials. > **See Forklift.**

**Pre-discharge employee alarm:** an alarm that will sound at a set time before actual discharge of an extinguishing system so that employees may evacuate the discharge area before system discharge.

**Pre-entry briefings:** an information briefing given by the site safety and health supervisor to employees before their entry to an HTRW site and instructing employees in the contents of the site-SSHP.

**Premises wiring:** the interior and exterior wiring, including power, lighting, control, and signal circuit wiring with all of the associated hardware, fittings, and wiring devices, both permanently and temporarily installed, which extend from the load-end of the service lateral conductors to the outlets.

**Prescribed fire:** any fire ignited to meet specific management objectives.

**Pressure demand respirator:** a positive-pressure, atmosphere-supplying respirator that admits breathing air to the facepiece when the positive pressure is reduced inside the facepiece by inhalation.

**Pressure systems:** all pipe, tubing, valves, controls, and other devices that operate or are maintained above atmospheric pressure. > **See definition of Vacuum systems.**

**Primer:** a cartridge or container of explosives into which a detonator or detonating cord is inserted or attached.

**Prohibited condition:** any condition in a permit space that is not allowed by the permit during the period when entry is authorized.

EM 385-1-1

3 Nov 03

**Protective system:** a method of protecting employees from cave-ins, from material falling into an excavation, or from the collapse of adjacent structures; includes benching, sloping, shoring, trench shields, underpinning, rock bolting, etc.

**Purlin (in systems-engineered metal buildings):** a “Z” or “C” shaped member formed from sheet steel spanning between primary framing and supporting roof material.

**Qualified line-clearance tree trimmer:** a tree worker who, through related training and on-the-job experience, is familiar with the hazards in line clearance and has demonstrated his/her ability in the performance of the special techniques involved.

**Qualified line-clearance tree trimmer trainee:** any worker undergoing line-clearance tree trimming training who, in the course of such training, is familiar with the hazards in line clearance and has demonstrated his/her ability in the performance of the special techniques involved.

**Qualified person:** one who, by possession of a recognized degree, certificate, or professional standing, or extensive knowledge, training, and experience, has successfully demonstrated his/her ability to solve or resolve problems related to the subject matter, the work, or the project.

**Qualified person (electrical):** one who has the skills and knowledge related to the construction and operation of the electrical equipment and installations and has received safety and health training on the hazards involved.

**Qualified tree worker:** an individual who, through related training and on-the-job experience, is familiar with equipment, techniques, and hazards of tree maintenance and removal and with the equipment used in such operations and has demonstrated his/her ability in the performance of the special techniques involved.



**Qualitative fit test (QLFT):** a pass/fail fit test to assess the adequacy of respirator fit that relies on the individual's response to the test agent.

**Quantitative fit test (QNFT):** an assessment of the adequacy of respirator fit by numerically measuring the amount of leakage into the respirator.

**Rad:** a measure of the dose of ionizing radiation to the body tissue in terms of the energy absorbed per unit of mass of the tissue.

**Radiant energy:** the energy of electromagnetic waves produced by movement of molecules excited by the heat of an electric arc, gas flame, or the passage of electric current. Includes ultraviolet, visible light, and infrared energy.

**Radiation area:** any area, accessible to personnel, in which there exists radiation at such levels that a major portion of the body could receive in any 1 hour a dose in excess of 5 mrem, or in any 5 consecutive 8-hour days a dose in excess of 100 mrem.

**Radioactive material:** any material that emits, by spontaneous nuclear disintegration, electromagnetic or particulate emanations.

**Radiological device:** machinery or equipment that produces or contains ionizing radiation, such as nuclear density meters and radiographic testing machines.

**Rails:** the side structural members of a ladder to which rungs, cleats, or steps are attached.

**Recompression chamber:** a pressure vessel for human occupancy such as a surface decompression chamber, closed bell, or deep diving system used to decompress divers to treat decompression sickness.

**Reconfiguration:** the addition or subtraction of boom, jib, counterweight or, for a fixed crane, a change in foundation.

EM 385-1-1  
3 Nov 03

**Reeving:** a rope system in which the rope travels around drums and sheaves.

**Rem (roentgen equivalent in man):** a measure of the dose of ionizing radiation to body tissue in terms of its biological effect; the dose required to produce the same biological effect as one roentgen of high-penetration of x-rays.

**Respiratory inlet covering:** that portion of a respirator that forms the protective barrier between the user's respiratory tract and an air-purifying device or breathing air source, or both. It may be a facepiece, helmet, hood, suit, or a mouthpiece respirator with nose clamp.

**Rest:** a period of time during which the person concerned is off duty; is not performing work, including administrative tasks; and is afforded the opportunity for uninterrupted sleep. This does not include time for breaks, meals, or travel.

**Restricted area:** when used in conjunction with ionizing radiation, any area to which access is controlled by the employer for purposes of protecting individuals from exposure to ionizing radiation.

**Roll out:** the unintentional disengagement of a snaphook caused when the gate is depressed under torque or while twisting or turning.

**Rope grab:** a device that attaches to a lifeline as an anchoring point that provides a means of arresting a fall.

**Rope-guided personnel hoist system:** a hoist system, used to transport personnel in a cage, which is guided by wire ropes as differentiated from a hoist system using anchored rail arrangements.

**Rotation resistant rope:** a wire rope consisting of an inner layer of strand laid in one direction covered by a layer of strand laid in the opposite direction: this has the effect of counteracting torque by reducing the tendency of the finished rope to rotate.

**Runner:** a horizontal scaffold member that forms a tie between posts and may also support a bearer.

**Runway:** a personnel passageway elevated above the surrounding floor or ground level, such as a foot walk along shafting or a walkway between scaffolds.

**Saddle-jib:** a type of jib on a tower crane that is supported by pendants. The jib is horizontal or nearly horizontal, non-luffing, and the load hook is suspended by a trolley that moves along the jib.

**Safety and Occupational Health Office Dive Safety**

**Representative:** the Safety and Occupational Health Office representative assigned the responsibility of dive safety. This individual provides dive safety advice to operational elements and actively participates in the review and comment process for all diving plans and hazard analyses, as well as on-site monitoring of diving operations; must successfully complete the USACE diving safety, diving supervisor, or diving inspector course and maintain certification by attending a HQUSACE-sponsored dive inspector course every 4 years. Unless required by position, this individual is not required to perform 12 working/training dives to maintain certification.

**Safety belt:** a strap, with means for securing about the waist and attaching to a lanyard, lifeline, or decelerating device, which is used to limit the fall of a worker.

**Safety can:** an approved container, of not more than 5 gal (18.9 L) capacity, having a spring-closing lid and spout cover and designed to safely relieve internal pressures under fire exposure.

EM 385-1-1  
3 Nov 03

**Safety deck attachment:** an initial attachment that is used to secure an initially placed sheet of decking to keep proper alignment and bearing with structural support members.

**Safety factor:** the ratio of the ultimate braking strength of a member or piece of material or equipment to the actual working stress or safe working load when in use.

**Safety harness:** a design of straps that is secured about the employee in a manner to distribute the arresting forces over at least the thighs, shoulders, and pelvis, with provisions for attachment to a lanyard, lifeline, or decelerating device.

**Safety precaution area:** those portions of approach-departure clearance zones and transitional zones where placement of objects incident to contract performance might result in vertical projections at or above the approach-departure clearance or the transitional surface.

**Safety relief valves:** valves that relieve excess pressure or vacuum (depending on their design) that would otherwise damage equipment or cause injury to personnel.

**Safety sign:** a visual alerting device in the form of a sign, label, decal, placard, or other marking that advises the observer of the nature and degree of the potential hazard(s) that can cause an accident. It may also provide other directions to eliminate or reduce the hazard and may advise of the probable consequences of not avoiding the hazard.

**Safety sign alert symbol:** a symbol that indicates a potential personal injury hazard. It is composed of an equilateral triangle surrounding an exclamation mark.

**Safety sign message panel:** area of the safety sign that contains those words related to: identification of the hazard, how to avoid the hazard, and probable consequences of not avoiding the hazard.

**Safety sign panel:** area of a safety sign having a distinctive background color different from adjacent areas of the sign or which is clearly delineated by a line or margin.

**Safety sign signal word panel:** area of the safety panel that contains the signal word.

**Safety tag:** a device usually made of card stock, paper, paperboard, plastic, or other material on which letters, markings, symbols, or combinations thereof, appear for the purpose of alerting persons to the presence of a temporary hazard or hazardous condition created by situations such as shipment, setup, service, or repair. The tag is removed when the hazard or hazardous condition no longer exists.

**Scaffold:** temporary elevated platform and its supporting structure used for supporting worker(s), materials, or both.

**Scaffold, double pole:** a scaffold supported from the base by a double row of posts. This scaffold is independent of support from walls and is constructed of posts, runners, horizontal platform bearers, and diagonal bracing (also known as independent pole scaffold).

**Scaffold, float:** a scaffold hung from overhead supports by means of ropes and consisting of a unit having diagonal bracing underneath. The scaffold rests upon and is securely fastened to two parallel plank bearers at right angles to the span (also known as ship scaffold).

**Scaffold, horse:** a scaffold for light or medium duty that is composed of horses supporting a platform.

**Scaffold, interior-hung:** a suspended scaffold consisting of a work platform suspended from the ceiling or roof structure by fixed length supports.

**Scaffold, ladder jack:** a light-duty scaffold consisting of a platform supported by brackets attached to single or extension ladders.

EM 385-1-1  
3 Nov 03

**Scaffold, load ratings:** maximum loadings for the following categories:

a. **Heavy duty:** a scaffold designed and constructed to carry a working load of 75 lbs per square foot (366.2 kg/m<sup>2</sup>), that is intended for stone masonry work, with storage material on the platform.

b. **Medium duty:** a scaffold designed and constructed to carry a working load of 50 lbs per square foot (244.1 kg/m<sup>2</sup>), that is intended for bricklayers or plasterers, with weight of material in addition to workers.

c. **Light duty:** a scaffold designed and constructed to carry specific working load of 25 lbs per square foot (122.1 kg/m<sup>2</sup>), that is intended for workers only, with no material storage other than weight for tools.

d. **Special duty:** a scaffold designed and constructed to carry specific types of objects, such as palletized materials. The design of planks and other types of scaffold units, the scaffold, and accessories shall be based on categories of load ratings.

**Scaffold, manually propelled:** a scaffold assembly supported by casters and moved only manually.

**Scaffold, mason's multiple-point adjustable suspension:** a scaffold having a continuous platform supported by bearers suspended by wire rope hoists from overhead supports.

**Scaffold, metal frame:** a scaffold consisting of a work platform supported by prefabricated metal frames.

**Scaffold, needle-beam:** a platform resting on two bearers that is suspended by a line.

**Scaffold, outrigger:** a scaffold consisting of a work unit supported by outriggers projecting beyond the wall or face of the building or structure, the inboard ends of which are secured inside of such building or structure.

**Scaffold, pump jack:** a scaffold consisting of a work platform supported by movable support brackets mounted on vertical poles.

**Scaffold, single-point suspension:** a scaffold supported by a single wire rope from an overhead support so arranged and operated as to permit the raising or lowering of the platform to desired working position.

**Scaffold, single pole:** a unit resting on bearers or cross beams. The outside ends of this unit are supported on runners secured to a single row of posts or uprights, and the inner ends of this unit are supported on or in the wall.

**Scaffold, stonemasons' multiple-point adjustable suspension:** a swinging type scaffold having a unit supported by members that is suspended at four points.

**Scaffold, system:** a scaffold consisting of posts with fixed connection points that accept runners, bearers, and diagonals that can be interconnected at predetermined levels.

**Scaffold, tube and coupler:** a scaffold consisting of a work platform supported by individual pieces of tubing (uprights, bearers, runners, bracing) connected with couplers.

**Scaffold, two-point suspension (swinging scaffold/swinging stage):** a suspension scaffold consisting of a platform supported by hangers (stirrups) suspended by two ropes from overhead supports and equipped with means to raise and lower the platform.

**Scaffold, window jack:** a supported scaffold consisting of a platform supported by a bracket or jack that projects through a window opening.

EM 385-1-1

3 Nov 03

**Scaled distance:** a scaled factor (ft/lb units) of the potential damage to a structure, based on the distance from the nearest structure to the blast site and the weight of explosives per delay.

**Scaling:** the removal of loose, overhanging, protruding, or otherwise precariously positioned material from above or along the sides of an excavation.

**Scheduled work:** Work that is regular and recurring, in that it forms a similar pattern for more than 50% of a working tour.

**Scissors lift:** a raising/lowering device that is supported or stabilized by one or more pantograph leg sections.

**SCUBA:** an acronym for self-contained underwater breathing apparatus, in which the supply of breathing mixture carried by the diver is independent of any other source.

**Sea-keeping:** the aspects of a vessel's design and construction that determine its ability to operate efficiently in the body of water where it will operate (e.g., stability, strength, and speed).

**Sea-worthy:** a vessel that is fit in all aspects for the anticipated perils of the voyage and will carry the crew and cargo in a safe condition.

**Self-contained breathing apparatus (SCBA):** an atmosphere-supplying respirator for which the breathing air source is designed to be carried by the user.

**Self-retracting lanyard:** a deceleration device used in conjunction with a full-body harness that contains a drum-wound line that may be slowly extracted from, or retracted onto, the drum under slight tension during normal employee movement and that, after onset of a fall, automatically locks the drum and arrests the fall.



**Separately derived system:** a premises wiring system whose power is derived from generator, transformer, or converter winding and has no direct electrical connection, including a solidly connected grounded circuit conductor, to supply conductors originating in another system.

**Service:** the conductors and equipment for delivering electric energy from the serving utility to the wiring system of the premises served.

**Service conductors:** the conductors from the service point to the service disconnecting means.

**Service drop:** the overhead service conductors from the last pole or other aerial support to and including the splices, if any, connecting to the service-entrance conductors at the building or other structure.

**Service life:** the period of time that a respirator, filter or sorbent, or other respiratory equipment provides adequate protection to the wearer.

**Service station (automotive):** that portion of property where liquids used as motor fuels are stored and dispensed from fixed equipment into the fuel tanks of motor vehicles or approved containers and shall include any facilities for the sale and service of tires, batteries, and accessories.

**Service station (marine):** that portion of a property where liquids used as fuels are stored and dispensed from equipment on shore, piers, wharves, or floating docks into the fuel tanks of self-propelled craft.

**Shackle:** a U-shaped metal fitting with a pin through the ends.

**Shaft:** a passage made from the surface of the ground to a point underground; shafts cut through the ground at an angle greater than 20° to the horizontal. > ***See definition of Tunnel.***

EM 385-1-1  
3 Nov 03

**Shallow dose equivalent:** applies to the external exposure of the skin or an extremity. It is taken as the dose equivalent at a tissue depth of 0.007 cm averaged over an area of 1.6 in<sup>2</sup> (10 cm<sup>2</sup>).

**Shear connector:** headed steel studs, steel bars, steel lugs, and similar devices that are attached to a structural member for the purpose of achieving composite action with concrete.

**Sheave:** the grooved wheel of a pulley or block over which rope or cable is passed.

**Sheeting:** > *See Upright.*

**Shield:** a structure that is designed to withstand the forces imposed on it by the walls of an excavation and prevents cave-ins.

**Ship repair:** includes any repair of a vessel including, but not restricted to, alterations, conversion, installation, cleaning, painting, and maintenance work. This includes work in confined and enclosed spaces and other dangerous atmospheres in vessels, vessel sections, and on land-side operations regardless of geographic location.

**Shoring:** a support member that resists compressive forces imposed by a load.

**Site control procedures:** procedures delineated in the site control program that will be used to minimize any potential contamination of workers, protect members of the public from the site's hazards, and prevent vandalism.

**Site Safety and Health Officer (SSHO):** the superintendent or other qualified or competent person who is responsible for on-site safety and health.

**Site Safety and Health Officer (HTRW):** the person on-site with the responsibility for implementation of the APP and SSHP appendix at HTRW activities.

**Site Safety and Health Manager (SHM):** the CIH, CSP, or CHP responsible for development and enforcement of the APP and SSHP appendix for HTRW activities.

**Site safety and health plan (SSHP):** an appendix to the APP that describes the site-specific practices.

**Site work zones:** zones of differing work activities and hazards established to reduce the accidental spread of hazardous substances from a contaminated to an uncontaminated area and to control exposure of personnel to HTRW hazards. There are generally three categories of site work zones:

- a. **Exclusion zones**, where contamination does or could occur,
- b. **Contamination-reduction zones**, which are transition areas between contaminated areas and clean areas and where decontamination takes place, and
- c. **Support zones**, which are uncontaminated areas where administrative and support functions are located.

**Sloping:** a method of protecting employees from cave-ins by cutting the sides of the excavation in the arrangement of slopes; The angle of the slope needed to prevent cave-in is a function of the soil type, environmental factors such as moisture and freezing weather, and the magnitude and location of any loads and vibration surcharged upon the slopes.

**Sling:** an assembly used for lifting when connected to a lifting mechanism at the sling's upper end and when supporting a load at the sling's lower end. > **See Figure 15-4.**

**Sling - basket:** loading with the sling passed under the load with both ends, end attachments, eyes, or handles on the hook or a single master link.

**Sling - choker:** loading with the sling passed through one end attachment, eye, or handle and suspended by the other.

EM 385-1-1

3 Nov 03

**Sling - vertical:** a load suspended on a single, vertical, part or leg.

**Small hose system:** a system of hose, ranging in diameter from 5/8 in (1.6 cm), that is for use by employees and provides a means for the control and extinguishment of incipient stage fire.

**Snap hook:** a connector consisting of a hook-shaped member with a normally closed keeper, or similar arrangement, that may be opened to permit the hook to receive an object and, when released, automatically closes to retain the object. The locking type has a self-closing, self-locking keeper that remains locked until unlocked and pressed open for connection or disconnection. The non-locking type has a self-closing keeper that remains closed until pressed open for connection or disconnection.

**Snap-ties:** a concrete wall-form tie, the end of which can be twisted or snapped off after the forms have been removed.

**Soldering:** a welding process that joins materials by heating them to a temperature that will not melt them but will melt a filler material which adheres to them and forms a joint.

**Sound pressure:** steady state: sound that does not significantly change in intensity or frequency with time.

**Specular reflections:** reflections from a smooth surface, such as a mirror, glass, metal, etc.

**Spindle:** a long tapered pin or rod serving as an axis in spinning.

**Splice - eye:** a splice formed by bending a rope's end back onto itself and splicing it into the rope so that a loop is formed.

**Splice - hand tucked:** a loop formed in the end of a rope by tucking the end of the strands back into the main body of the rope.

**Splice - long:** a splice without an appreciable increase of circumference that is used when the rope must run over a sheave or through a hole.

**Splice - mechanical:** a loop formed in the end of a rope and connected by pressing (swaging) one or more metal sleeves over the junction of the rope.

**Splice - short:** a splice using less material than a long splice but increasing the circumference.

**Springing:** the creation of a chamber or pocket in the bottom of a drill hole so that larger quantities of explosives may be inserted; made by the use of a moderate quantity of explosives.

**Spring line:** an imaginary line connecting the points at which the ceiling (roof) arches begin.

**Sprinkler alarm:** an approved device installed so that any discharge from a sprinkler system equal to or greater than that from a single automatic sprinkler will result in an audible signal on the premises.

**Sprinkler system:** a system of piping designed in accordance with fire protection engineering standards and installed to control or extinguish fires. The system includes an adequate and reliable water supply, a network of specialty sized piping and sprinklers that are interconnected, and a control valve and device for actuating an alarm when the system is in operation.

**Stable rock:** natural solid mineral material that can be excavated with vertical sides and remain intact while exposed.

**Standby diver:** a diver at the dive location available to assist a diver in the water; standby divers will be dressed for immediate entry into the water.

EM 385-1-1

3 Nov 03

**Standpipe system:**

- a. **Class I standpipe system:** a 2-1/2 in (6.4 cm) hose connection for use by fire departments and those trained in handling heavy fire streams.
- b. **Class II standpipe system:** a 1-1/2 in (3.8 cm) hose system that provides a means for the control or extinguishment of incipient stage fires.
- c. **Class III standpipe system:** a combined system of hose that is for use by employees trained in the use of hose operations and that is capable of furnishing effective water discharge during the more advanced stages of fire (beyond the incipient stage) in the interior of workplaces.

**Station bill:** a placard that designates vessel personnel duties and procedures to be followed in the event of an emergency or emergency drill. Placards are permanently placed in personnel quarters and work areas, and are strategically located throughout the vessel.

**Steel erection:** the construction, alteration, or repair of steel buildings, bridges, and other structures, including the installation of metal decking and all planking used during the process of erection.

**Steel joist:** an open web, secondary load-carrying member of 144 ft (43.9 m) or less, designed by the manufacturer, used for the support of floors and roofs. This does not include structural steel trusses or cold-formed joists.

**Steel joist girder:** an open web, primary load-carrying member, designed by the manufacturer, used for the support of floors and roofs. This does not include structural steel trusses.

**Steep-sloped roof:** a roof having a slope greater than 4 in 12 (vertical to horizontal).

**Steel truss:** an open web member designed of structural steel components by the project structural engineer of record. A steel truss is considered equivalent to a solid web structural member.

**Stemming:** a suitable inert incombustible material or device used to confine or separate explosives in a drill hole or to cover explosives in mud capping.

**Step stool:** a self-supporting, foldable, portable ladder, non-adjustable in length, 32 in (81.3 cm) or less in height, with flat steps and without a pail shelf, designed to be climbed on the ladder top cap as well as all steps.

**Storage tank:** any vessel having a liquid capacity that exceeds 60 gal (227.1 L) is intended for fixed installation and is not used for processing.

**Stored energy:** energy (electrical, mechanical, or chemical) that might be found in a charge capacitor, a loaded spring, chemical solutions, or other similar hazardous form.

**Strand laid rope:** a wire rope made with strands formed around a fiber core, wire core, or independent wire rope core.

**Strong irritant:** a chemical that is not corrosive, but causes a strong temporary inflammatory effect on living tissue by chemical action at the site of contact.

**Structural steel:** a steel member, or a member made of a substitute material (such as, but not limited to, fiberglass, aluminum or composite members). These members include, but are not limited to, steel joists, joist girders, purlins, columns, beams, trusses, splices, seats, metal decking, girts, and all bridging, and cold-formed metal framing which is integrated with the structural steel framing of a building.

**Supplied-air respirator (SAR) or airline respirator:** an atmosphere-supplying respirator for which the source of breathing air is not designed to be carried by the user.

EM 385-1-1

3 Nov 03

**Support system:** a structural means of supporting the walls of an excavation to prevent cave-ins; includes shields, shoring, underpinning, rock bolts, etc.

**Surface-supplied air (SSA):** a diving mode in which the diver in the water is supplied from the dive location with compressed air for breathing.

**Swaged fittings:** fittings in which wire rope is inserted and attached by cold flowing method.

**Swinger mechanism:** the device that rotates a derrick mast.

**Swinging (hanging) lead:** pile-driving leads that are suspended from an extended boom point sheave pin at the top of the boom. The bottom points of the leads are positioned astride the pile location, the hammer is vertically above the top of the pile. Often the bottoms of the leads are pointed and the weight of the pile leads and hammer force the bottom points into the ground, holding them in position.

**Switch:** a device for connecting two or more continuous package conveyor lines; an electrical control device; or a mechanism that transfers a trolley, carrier, or truck from one track to another at a converging or diverging section.

**System:** includes machinery, equipment, and electrical, hydraulic, and pneumatic lines and their subsystems.

**Systems-engineered metal building:** a metal, field-assembled building system consisting of framing, roof, and wall coverings. Typically, many of these components are cold-formed shapes. These individual parts are fabricated in one or more manufacturing facilities and shipped to the job site for assembly into the final structure. The engineering design of the system is normally the responsibility of the systems-engineered metal building manufacturer.



**Tackle**: an assembly of ropes and sheaves arranged for lifting, lowering and pulling.

**Tagout**: a form of hazardous energy control procedure using the placement of a tagout device, in accordance with established procedures, on an energy-isolating device to indicate that the energy-isolating device and the system being controlled may not be operated until the tagout device is removed.

**Tagout device**: a prominent warning device, such as a tag with a means of attachment, that can be securely attached to an energy-isolating device in accordance with established procedures to indicate that the energy-isolating device and system being controlled may not be operated until the tagout device is removed.

**Tailing crane lift**: a procedure sometimes used in erecting large pressure vessels or structural elements in which one crane (lead crane) lifts the top of the load and a second crane (tail crane), rigged to the bottom of the load, either secures the bottom of the load from movement or assists in the horizontal positioning of the load.

**Take-up**: the assembly of the necessary structural and mechanical parts that provides the means to adjust the length of belts, cables, chains, and similar transmission mechanisms to compensate for stretch, shrinkage, or wear, and to maintain proper tension.

**Tandem crane lift**: the use of two or more cranes to lift a load.

**Taut-line hitch**: a knot used for securing all workers aloft to their climbing rope, and consisting of either one or two wraps over two wraps.

**Threshold limit values (TLV)**: airborne concentrations of substances and represent conditions under which it is believed that nearly all workers may be repeatedly exposed day after day without adverse health effects. Because of wide variation in individual susceptibility, however, a small percentage of workers may experience discomfort from some substances at concentrations at

EM 385-1-1  
3 Nov 03

or below the threshold limit; a smaller percentage may be affected more seriously by aggravation of a pre-existing condition or by development of an occupational illness.

**Tied in:** the term that describes a tree climber whose climbing line has been properly crotched and attached to the saddle and whose taut-line hitch is tied.

**Tight-fitting facepiece:** a respiratory inlet covering that forms a complete seal with the face.

**Toeboard:** a vertical barrier at floor level erected along exposed edges of a floor opening, wall opening, platform, runway, or ramp to prevent materials from falling.

**Tool rest (work rest):** a device that prevents the tool or work piece from jamming between the abrasive wheel and the wheel guard.

**Top running bridge:** a bridge that travels over top of a runway track.

**Toprail:** the uppermost horizontal rail of a guardrail system.

**Total effective dose equivalent:** the sum of the deep-dose equivalent (for external exposures) and the committed effective dose equivalent (for internal exposures).

**Total flooding systems:** a fixed suppression system that is arranged to automatically discharge a predetermined concentration of agent into an enclosed space for fire extinguishment or control.

**Toxic:** pertaining to, or caused by, poison; poisonous; harmful.

**Toxic chemical:** is a chemical that produces serious injury or illness by absorption through any body surface

**Track-guided personnel hoist system:** a hoist system used to transport personnel in a car that is attached to fixed tracks or guide members.

**Transitional surface:** a sideways extension of all primary surfaces, clear zones, and approach-departure clearance surfaces along inclined planes.

**Transitional zone:** the ground area under the transitional surface (and adjoining the primary surface, clear zone, and approach-departure clearance zone).

**Travel time (marine):** time spent transiting to and from the rest location when not immediately adjacent to or aboard the work site.

**Trench:** an excavation that is narrow in relation to its length; in general, the depth is greater than the width, and the width is not greater than 15 ft (4.6 m).

**Trim (floating crane barge):** the angle of inclination about the transverse axis of the barge or pontoon.

**Trolley:** the unit that travels on bridge rails and supports the load block.

**Trolley conveyor:** a series of trolleys supported from or within an overhead truck and connected by endless propelling means, such as chain, cable, or other linkage, with loads usually suspended from the trolleys.

**Trolley line:** a horizontal line for direct attachment to a worker's body belt, lanyard, or deceleration device.

**Truck (crane):** the unit consisting of a frame, wheels, bearings, and axles that supports the bridge girders or trolleys.

EM 385-1-1

3 Nov 03

**Tunnel:** an excavation beneath the surface of the ground, the longer axis of which makes an angle not greater than 20° to the horizontal. > **See *definition of Shaft*.**

**Two-block damage prevention device:** a system that will stall when two-blocking occurs without causing damage to the hoist rope or crane machinery components.

**Two-block warning device:** a warning device to alert the operator of an impending two-blocking condition.

**Two-blocking:** the condition when the lower load block or hook assembly comes in contact with the upper load block, or when the load block comes in contact with the boom tip.

**Underpinning:** the process of placing a new foundation beneath an existing foundation to replace or strengthen the existing foundation; shoring or other temporary support systems are used to support the underpinned structure until its loads can be effectively transferred to the new foundation.

**Unfired pressure vessels:** vessels that can withstand internal pressure or vacuum but do not have the direct fire of burning fuel or electric heaters (heat may be generated in the vessel due to chemical reactions or the application of heat to vessel contents).

**Unprotected sides and edges:** any side or edge (except at entrances to points of access) of a walking/working surface (e.g., floor, roof, ramp or runway) where there is no wall or guardrail system at least 39 in (99.1 cm) high.

**Unsafe Condition:** any physical state that is not acceptable or that presents risks to personal safety, or that has the potential to cause personal injury, illness, and/or damage to property. Also, any physical state that contributes to a reduction in the degree of safety normally present.

**Upright:** a vertical structural support member. In excavation support systems, uprights are placed in contact with the earth and are usually spaced so that individual uprights do not contact one another. Uprights that are spaced such that they are in contact with or interconnected to one another are referred to as sheeting.

**USACE Diving Coordinator (UDC):** a USACE employee assigned the responsibility for organizing, integrating, and monitoring the total dive program within a USACE Command. This individual and an alternate (to perform in the absence of the primary UDC) shall be appointed, in writing, by the USACE Commander/Director and shall assure adherence to all applicable rules and regulations: at the Major Subordinate Command (MSC) (Division), the Diving Coordinator shall provide program guidance and monitor and annually review the MSC dive program at all subordinate levels; at the District, Laboratory, and FOA level, the Diving Coordinator shall review all safe practices manuals, dive plans, medical certificates, and dive team qualifications and experience to assure compliance with this manual. The UDC and the alternate shall, as a minimum, successfully complete the HQUSACE-approved Diving Safety or Diving Supervisor Training Course and shall maintain certification by attending the diving refresher course every 4 years. UDCs attending the Diving Safety course are not required to perform 12 working/training dives unless they are in a dual position as a USACE diver or USACE Diving Supervisor.

**User seal check:** an action conducted by the respirator user to determine if the respirator is properly seated to the face.

**Vacuum systems:** all pipe, tanks, tubing, valves, controls, and other devices that operate or are maintained below atmospheric pressure.

**Vehicle-mounted elevating and rotating work platforms:** an elevating and rotating work platform mounted on the chassis of a commercial vehicle.

EM 385-1-1  
3 Nov 03

**Vessel:** every type of watercraft or artificial contrivance used, or capable of being used, as a means of transportation on water, including special-purpose floating structures not primarily designed for or used as a means of transportation on water.

**Voltage:** the effective (root mean squared (RMS)) potential difference between any two conductors or between a conductor and ground. Voltages are expressed in nominal values. The nominal voltage of a system or circuit is the value assigned to a system or circuit of a given voltage class for convenient designation.

**Voltage-to-ground:** for grounded circuits, the voltage between the given conductors and that point or conductor of the circuit that is grounded; for ungrounded circuits, the greatest voltage between the given conductor and any other conductor of the circuit.

**Wall hole:** a wall opening less than 30 in (76.2 cm) but more than 1 in (2.5 cm) in height and of unrestricted width.

**Wall opening:** a wall opening at least 30 in (76.2 cm) high and 18 in (45.7 cm) wide.

**Weighting factor:** factor that represents the proportion of the total stochastic (cancer plus genetic) risk resulting from irradiation to tissue to the total risk when the whole body is irradiated uniformly.

**Wet bulb globe temperature (WBGT) index:** a measurement of environmental factors that correlate with human deep body temperature and other physiological responses to heat.

**Wet location:** installations underground or in concrete slabs or masonry in direct contact with the earth and locations subject to saturation with water or other liquids, such as vehicle washing basins, and locations exposed to weather and unprotected.

**Whaler:** a horizontal structural member; in excavation support systems, walers are placed parallel to the face of the excavation and bear against uprights or the excavation wall.

**Whipline (runner or auxiliary line):** a separate hoist rope system usually of a lighter load capacity than the main hoist.

**Wildland fire:** a planned or an unplanned fire in wild land fuels.

**Windlass:** a deck machine, usually power operated, used for heaving in or paying out anchor chain.

**Wire rope:** a number of strands laid helically about a metallic or non-metallic core. Each strand consists of a number of wires also laid helically about a metallic or non-metallic center. Wire rope is specified by the kind of core, the number of strands, the number, sizes, and arrangement of the wires in each strand, and the way in which the wires and strands are wound or laid about each other. Wire rope is commonly designated by two numbers: the first indicating the number of strands and the second the number of wires per strand (for ropes with a wire strand core, a second group of two numbers may be used to indicate the construction of the wire core).

**Wire strand core:** consists of a multiple-wire strand that may be the same as one of the strands of the rope: It is smoother and more solid than the independent wire rope core and provides a better support for the rope strands.

**Work (marine):** any activity that is performed on behalf of a vessel, its crew, or the vessel's owner or operator. This includes standing watches, performing maintenance on the vessel or its appliances, transferring cargo, or performing administrative tasks, whether underway or at the dock.

**Working load:** load imposed by persons, materials, and equipment.

EM 385-1-1  
3 Nov 03

**Workload classification:**

- a. **Sedentary:** sitting
- b. **Light:** sitting or standing to control machines; performing light hand or arm work.
- c. **Moderate:** walking about with moderate lifting or pushing.
- d. **Heavy:** physical labor such as pick and shovel work.