

provided at least one approved fire extinguisher of the proper type for the hazard involved. At least two approved fire extinguishers shall be provided in the working chamber as follows: One at the working face and one immediately inside the bulkhead (pressure side). Extinguishers in the working chamber shall use water as the primary extinguishing agent and shall not use any extinguishing agent which could be harmful to the employees in the working chamber. The fire extinguisher shall be protected from damage.

(8) Highly combustible materials shall not be used or stored in the working chamber. Wood, paper, and similar combustible material shall not be used in the working chamber in quantities which could cause a fire hazard. The compressor building shall be constructed of non-combustible material.

(9) Man locks shall be equipped with a manual type fire extinguisher system that can be activated inside the man lock and also by the outside lock attendant. In addition, a fire hose and portable fire extinguisher shall be provided inside and outside the man lock. The portable fire extinguisher shall be the dry chemical type.

(10) Equipment, fixtures, and furniture in man locks and special decompression chambers shall be constructed of noncombustible materials. Bedding, etc., shall be chemically treated so as to be fire resistant.

(11) Head frames shall be constructed of structural steel or open frame-work fireproofed timber. Head houses and other temporary surface buildings or structures within 100 feet of the shaft, caisson, or tunnel opening shall be built of fire-resistant materials.

(12) No oil, gasoline, or other combustible material shall be stored within 100 feet of any shaft, caisson, or tunnel opening, except that oils may be stored in suitable tanks in isolated fireproof buildings, provided such buildings are not less than 50 feet from any shaft, caisson, or tunnel opening, or any building directly connected thereto.

(13) Positive means shall be taken to prevent leaking flammable liquids from flowing into the areas specifically mentioned in the preceding paragraph.

(14) All explosives used in connection with compressed air work shall be se-

lected, stored, transported, and used as specified in subpart U of this part.

(m) *Bulkheads and safety screens.* (1) Intermediate bulkheads with locks, or intermediate safety screens or both, are required where there is the danger of rapid flooding.

(2) In tunnels 16 feet or more in diameter, hanging walkways shall be provided from the face to the man lock as high in the tunnel as practicable, with at least 6 feet of head room. Walkways shall be constructed of non-combustible material. Standard railings shall be securely installed throughout the length of all walkways on open sides in accordance with subpart M of this part. Where walkways are ramped under safety screens, the walkway surface shall be skidproofed by cleats or by equivalent means.

(3) Bulkheads used to contain compressed air shall be tested, where practicable, to prove their ability to resist the highest air pressure which may be expected to be used.

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§ 1926.804 Definitions applicable to this subpart.

(a) *Bulkhead*—An airtight structure separating the working chamber from free air or from another chamber under a lesser pressure than the working pressure.

(b) *Caisson*—A wood, steel, concrete or reinforced concrete, air- and watertight chamber in which it is possible for men to work under air pressure greater than atmospheric pressure to excavate material below water level.

(c) *Decanting*—A method used for decompressing under emergency circumstances. In this procedure, the employees are brought to atmospheric pressure with a very high gas tension in the tissues and then immediately recompressed in a second and separate chamber or lock.

(d) *Emergency locks*—A lock designed to hold and permit the quick passage of an entire shift of employees.

(e) *High air*—Air pressure used to supply power to pneumatic tools and devices.

(f) *Low air*—Air supplied to pressurize working chambers and locks.

(g) *Man lock*—A chamber through which men pass from one air pressure environment into another.

(h) *Materials lock*—A chamber through which materials and equipment pass from one air pressure environment into another.

(i) *Medical lock*—A special chamber in which employees are treated for decompression illness. It may also be used in preemployment physical examinations to determine the adaptability of the prospective employee to changes in pressure.

(j) *Normal condition*—One during which exposure to compressed air is limited to a single continuous working period followed by a single decompression in any given 24-hour period; the total time of exposure to compressed air during the single continuous working period is not interrupted by exposure to normal atmospheric pressure, and a second exposure to compressed air does not occur until at least 12 consecutive hours of exposure to normal atmospheric pressure has elapsed since the employee has been under pressure.

(k) *Pressure*—A force acting on a unit area. Usually shown as pounds per square inch. (p.s.i.)

(l) *Absolute pressure* (p.s.i.a.)—The sum of the atmospheric pressure and gauge pressure (p.s.i.g.).

(m) *Atmospheric pressure*—The pressure of air at sea level, usually 14.7 p.s.i.a. (1 atmosphere), or 0 p.s.i.g.

(n) *Gauge pressure* (p.s.i.g.)—Pressure measured by a gauge and indicating the pressure exceeding atmospheric.

(o) *Safety screen*—An air- and water-tight diaphragm placed across the upper part of a compressed air tunnel between the face and bulkhead, in order to prevent flooding the crown of the tunnel between the safety screen and the bulkhead, thus providing a safe means of refuge and exit from a flooding or flooded tunnel.

(p) *Special decompression chamber*—A chamber to provide greater comfort of employees when the total decompression time exceeds 75 minutes.

(q) *Working chamber*—The space or compartment under air pressure in which the work is being done.

APPENDIX A TO SUBPART S OF PART
1926—DECOMPRESSION TABLES

1. *Explanation.* The decompression tables are computed for working chamber pressures from 0 to 14 pounds, and from 14 to 50 pounds per square inch gauge inclusive by 2-pound increments and for exposure times for each pressure extending from one-half to over 8 hours inclusive. Decompressions will be conducted by two or more stages with a maximum of four stages, the latter for a working chamber pressure of 40 pounds per square inch gauge or over.

Stage 1 consists of a reduction in ambient pressure ranging from 10 to a maximum of 16 pounds per square inch, but in no instance will the pressure be reduced below 4 pounds at the end of stage 1. This reduction in pressure in stage 1 will always take place at a rate not greater than 5 pounds per minute.

Further reduction in pressure will take place during stage 2 and subsequent stages as required at a slower rate, but in no event at a rate greater than 1 pound per minute.

Decompression Table No. 1 indicates in the body of the table the total decompression time in minutes for various combinations of working chamber pressure and exposure time.

Decompression Table No. 2 indicates for the same various combinations of working chamber pressure and exposure time the following:

- The number of stages required;
- The reduction in pressure and the terminal pressure for each required stage;
- The time in minutes through which the reduction in pressure is accomplished for each required stage;
- The pressure reduction rate in minutes per pound for each required stage;

IMPORTANT NOTE: The Pressure Reduction in Each Stage is Accomplished at a Uniform Rate. Do Not Interpolate Between Values Shown on the Tables. Use the Next Higher Value of Working Chamber Pressure or Exposure Time Should the Actual Working Chamber Pressure or the Actual Exposure Time, Respectively, Fall Between Those for Which Calculated Values Are Shown in the Body of the Tables.

Examples	Minutes
Example No. 1: 4 hours working period at 20 pounds gauge.	
Decompression Table No. 1: 20 pounds for 4 hours, total decompression time	43
Decompression Table No. 2:	
Stage 1: Reduce pressure from 20 pounds to 4 pounds at the uniform rate of 5 pounds per minute.	
Elapsed time stage 1: 16/5	3