

(15) Electricity or compressed air shall not be turned on or machinery set in motion without first seeing that persons are not in a position to be injured.

(16) All underground workers and others exposed to the hazard of falling materials shall wear protective hats or caps of approved design and manufacture.

(17) Approved hard-toed boots or shoes shall be used by all underground and surface employees who are exposed to toe injury hazards.

(18) Approved tested and regularly inspected safety belts, harnesses or ropes with approved knots or quick detachable snaps and ample lengths of rope, shall be provided and used by men working in places where there is serious danger of falling.

(19) Eye protection shall be provided and worn by all persons who are exposed to any hazard which may reasonably be expected to cause injury to the eyes.

(20) No persons, while under the influence of intoxicating liquor, shall knowingly be permitted to enter any mine or any of the buildings connected with the operation of the same where men are employed and no one shall carry or use intoxicating liquors in a mine.

**Ind 3.08 Shafts.** (1) The tops of shafts and all shaft stations shall be protected by gates, standard guard rails, and toeboards. The gates shall be kept closed at all times, except when loading or unloading.

*Note:* Standard guard rails are 42 inches in height and consist of top rail, intermediate rail and toeboard.

(2) In shafts where hoisting is being done by means of a bucket, doors shall be provided and used that will prevent any material from falling into a shaft while the bucket is being dumped.

(3) All stations or levels shall have a passageway around the working shaft so that crossing through the hoisting compartment may be avoided.

(4) No person shall enter or cross the hoisting compartment of the shaft except to ascend or descend, or for the purpose of inspecting, or effecting repairs.

(5) Before repairs in a shaft are commenced, the person in charge of or directing repairs shall inform the hoistman of the nature thereof. He shall cause a warning sign to be placed in view of the hoistman.

(6) Staging constructed of sound 3 inch lumber or equivalent protection shall be provided above and below points in shafts at which repairs are being made.

(7) The collars of all regular hoisting shafts and shafts through which men travel shall be lined with reinforced concrete at least 8 inches thick, or equivalent metal support, and secured to bedrock.

(8) The hoisting compartment of shafts in which buckets are used for regular hoisting shall be not less than 6 feet in dimension perpendicular to the long axis of the shaft.

(9) No obstructions shall be permitted in the hoisting compartment of shafts which may interfere with the movements of the hoisting conveyances.

(10) Every shaft shall be wide enough to accommodate a ladder at a safe distance from the ascending or descending skip, bucket, cage, or electric cable.

(11) Manways shall be kept clear of loose rock and obstructions.

(12) No stoping shall be done within 50 feet of a shaft that is used for hoisting men or material.

(13) All abandoned mining shafts, pits, or other abandoned excavations, including abandoned underground workings, shall be covered over, fenced, filled, or otherwise guarded.

(14) Whenever any mine shaft, exploration shaft, or test well is abandoned or its use discontinued, the operator or contractor shall promptly fill same to grade or enclose the same with a fence of strong, woven wire not less than 46 inches high with one barbwire above, or cap same with a reinforced concrete slab at least 6 inches thick or with a native boulder at least three times the diameter of the test well hole, or with a tapered concrete plug. When a fence is used the strands of woven wire shall not be smaller than No. 12 wire and the cross wires and meshes shall not be smaller than No. 16 wire; the strands shall not be more than 12 inches apart, and the meshes shall not exceed 8 inches. All wires shall be tightly stretched and fastened to posts firmly set not more than 8 feet apart.

*Note:* The provisions of section Ind 3.08 (14) are adopted from section 167.27 (5), Wis. Stats., 1969.

**Ind 3.09 Ladders and ladderways.** (1) Every mine shall have at least one means of outlet for underground workers by means of ladders, stairway, or slope, from the lowest workings of the mine to the surface.

(2) All wooden ladders and ladderways shall be built of sound lumber. The stringers shall not be less than nominal 2x4 inches.

(3) The rungs of a ladder shall not be less than 4 inches from the wall upon which the ladder is fastened or any obstruction between the ladder and the wall.

(4) The rungs and treads of every ladder shall be of uniform size and spacing. The spacing shall in no case exceed 12 inches except that for existing ladders a greater spacing will be accepted.

(5) In the case of wooden ladders, rungs shall either extend through the side rails or be bored so as to give at least a 13/16 inch length of bearing to the rung tenon. Cleats shall be inset into the side rails not less than 1/2 inch or shall be attached directly to the edge of the side rails, in which case filler blocks of the thickness of the cleats shall be attached to the edge of the rail for the full length between cleats. Treads shall be inset into the side rails 1/8 inch. Metal rungs shall be bolted, riveted, or welded to the stringers.

(6) Cleat ladders may be spliced with the splice designed to develop the full strength of the stringers. No such ladder shall be longer than 30 feet. Where necessary, extension ladders may be used but in no case shall they be longer than 60 feet.

(7) Ladders constructed of material other than wood may be used if of equivalent strength, but shall not be used where there is a danger of coming in contact with conductors carrying electrical current.

(8) All portable ladders shall be equipped with non-slip bases.

(9) Ladderways in shafts, winzes and raises regularly used as manways, shall have substantial rest platforms at intervals of not more than 25 feet in vertical, and 50 feet in inclined shafts or manways. If possible, the sections of the ladders shall be staggered at each platform so that no section shall be directly in line with the section above or below it. When drill holes not larger than 30 inches are used as