

**§ 77.1911 Ventilation of slopes and shafts.**

(a) All slopes and shafts shall be ventilated by mechanical ventilation equipment during development. Such equipment shall be examined before each shift and the quantity of air in the slope or shaft measured daily by a certified person and the results of such examinations and tests recorded in a book approved by the Secretary.

(b) Ventilation fans shall be:

(1) Installed on the surface;

(2) Installed in fireproof housing and connected to the slope or shaft opening with fireproof air ducts;

(3) Designed to permit the reversal of the air current, and located in an area which will prevent a recirculation of air from the slope or shaft or air contamination from any other source;

(4) Equipped with an automatic signal device designed to give an alarm in the event the fan slows or stops which can be seen or heard by any person on duty in the vicinity of the fan, except where fans are constantly attended.

(5) Offset not less than 15 feet from the shaft; and

(6) Equipped with air ducts which are fire resistant and maintained so as to prevent excessive leakage of air;

(i) Flexible ducts shall be constructed to permit ventilation by either exhausting or blowing methods and when metal air ducts are used, they shall be grounded effectively to remove static and other electrical charges;

(ii) Ducts shall extend as close to the bottom as necessary to ventilate properly.

(c) A qualified person, designated by the operator, shall be assigned to maintain each ventilating system.

(d) The fan shall be operated continuously when men are below the surface. Any accidental stoppage or reduction in airflow shall be corrected promptly; however, where repairs cannot be made immediately, development work below the surface shall be stopped and all the men not needed to make necessary repairs shall be removed to the surface.

**§ 77.1912 Ladders and stairways.**

(a) Substantial stairways or ladders shall be used during the construction

of all shafts where no mechanical means are provided for men to travel.

(b) Landings at intervals of not more than 30 feet shall be installed.

(c) Shaft ladders shall project 3 feet above the collar of the shaft, and shall be placed at least 3 inches from the side of the shaft.

**§ 77.1913 Fire-resistant wood.**

Except for crossties, timbers, and other wood products which are permanently installed in slopes and shafts, shall be fire resistant.

**§ 77.1914 Electrical equipment.**

(a) Electric equipment employed below the collar of a slope or shaft during excavation shall be permissible and shall be maintained in a permissible condition.

(b) The insulation of all electric conductors employed below the collar of any slope or shaft during excavation shall be of the flame resistant type.

(c) Only lamps and portable flood lights approved by the Bureau of Mines or the Mine Safety and Health Administration under Part 19 and Part 20 of this chapter (Bureau of Mines Schedules 6D and 10C) shall be employed below the collar of any slope or shaft.

**§ 77.1915 Storage and handling of combustible materials.**

(a) Compressed and liquefied gas, oil, gasoline, and other petroleum products shall not be stored within 100 feet of any slope or shaft opening.

(b) Other combustible material and supplies shall not be stored within 25 feet of any slope or shaft opening.

(c) Pyritic slates, bony coal, culm or other material capable of spontaneous combustion shall not be used for fill or as surfacing material within 100 feet of any slope or shaft opening.

(d) Areas surrounding the opening of each slope or shaft shall be constructed to insure the drainage of flammable liquids away from the slope or shaft in the event of spillage.

(e) Oily rags, waste, waste paper, and other combustible waste material disposed of in the vicinity of any slope or shaft opening shall be stored in closed containers until removed from the area.