

(ii) Hitched into solid ribs to a depth of at least 4 inches and hitched at least 4 inches into the floor;

(iii) At least 16 inches thick. When the thickness of the seal is less than 24 inches and the width is greater than 16 feet or the height is greater than 10 feet, a pilaster shall be interlocked near the center of the seal. The pilaster shall be at least 16 inches by 32 inches; and

(iv) Coated on all accessible surfaces with flame-retardant material that will minimize leakage and that has a flame-spread index of 25 or less, as tested under ASTM E162-87, "Standard Test Method for Surface Flammability of Materials Using A Radiant Heat Energy Source." This publication is incorporated by reference and may be inspected at any MSHA Coal Mine Safety and Health district office, or at MSHA's Office of Standards, Regulations, and Variances, 1100 Wilson Blvd., Room 2352, Arlington, Virginia 22209-3939, and at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, call 202-741-6030, or go to: http://www.archives.gov/federal_register/code_of_federal_regulations/ibr_locations.html. In addition, copies of the document can be purchased from the American Society for Testing (ASTM), 100 Barr Harbor Drive, PO Box C700, West Conshohocken, PA 19428-2959; <http://www.astm.org>. This incorporation by reference was approved by the Director of the Federal Register in accordance with 5 U.S.C. 552(a) and 1 CFR part 51.

(2) Alternative methods or materials may be used to create a seal if they can withstand a static horizontal pressure of 20 pounds per square inch provided the method of installation and the material used are approved in the ventilation plan. If the alternative methods or materials include the use of timbers, the timbers also shall be coated on all accessible surfaces with flame-retardant material having a flame-spread index of 25 or less, as tested under ASTM E162-87, "Standard Test Method for Surface Flammability of Materials Using A Radiant Heat Energy Source." This publication is incorporated by reference and may be inspected at any

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(b) A sampling pipe or pipes shall be installed in each set of seals for a worked-out area. Each pipe shall—

(1) Extend into the sealed area a sufficient distance (at least 15 feet) to obtain a representative sample from behind the seal;

(2) Be equipped with a cap or shut-off valve; and

(3) Be installed with the sampling end of the pipe about 12 inches from the roof.

(c)(1) A corrosion-resistant water pipe or pipes shall be installed in seals at the low points of the area being sealed and at all other locations necessary when water accumulation within the sealed area is possible; and

(2) Each water pipe shall have a water trap installed on the outby side of the seal.

[61 FR 9828, Mar. 11, 1996; 61 FR 29289, June 10, 1996, as amended at 67 FR 38386, June 4, 2002; 71 FR 16668, Apr. 3, 2006]

§ 75.340 Underground electrical installations.

(a) Underground transformer stations, battery charging stations, substations, rectifiers, and water pumps shall be housed in noncombustible structures or areas or be equipped with a fire suppression system meeting the requirements of § 75.1107-3 through § 75.1107-16.

(1) When a noncombustible structure or area is used, these installations shall be—

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(i) Ventilated with intake air that is coursed into a return air course or to the surface and that is not used to ventilate working places; or

(ii) Ventilated with intake air that is monitored for carbon monoxide or smoke by an AMS installed and operated according to § 75.351. Monitoring of intake air ventilating battery charging stations shall be done with sensors not affected by hydrogen; or

(iii) Ventilated with intake air and equipped with sensors to monitor for heat and for carbon monoxide or smoke. Monitoring of intake air ventilating battery charging stations shall be done with sensors not affected by hydrogen. The sensors shall deenergize power to the installation, activate a visual and audible alarm located outside of and on the intake side of the enclosure, and activate doors that will automatically close when either of the following occurs:

(A) The temperature in the non-combustible structure reaches 165 °F; or

(B) The carbon monoxide concentration reaches 10 parts per million above the ambient level for the area, or the optical density of smoke reaches 0.022 per meter. At least every 31 days, sensors installed to monitor for carbon monoxide shall be calibrated with a known concentration of carbon monoxide and air sufficient to activate the closing door, or each smoke sensor shall be tested to determine that it functions correctly.

(2) When a fire suppression system is used, these installations shall be—

(i) Ventilated with intake air that is coursed into a return air course or to the surface and that is not used to ventilate working places; or

(ii) Ventilated with intake air that is monitored for carbon monoxide or smoke by an AMS installed and operated according to § 75.351. Monitoring of intake air ventilating battery charging stations shall be done with sensors not affected by hydrogen.

(b) This section does not apply to—

(1) Rectifiers and power centers with transformers that are either dry-type or contain nonflammable liquid, if they are located at or near the section and are moved as the working section advances or retreats;

(2) Submersible pumps;

(3) Permissible pumps and associated permissible switchgear;

(4) Pumps located on or near the section and that are moved as the working section advances or retreats;

(5) Pumps installed in anthracite mines; and

(6) Small portable pumps.

§ 75.341 Direct-fired intake air heaters.

(a) If any system used to heat intake air malfunctions, the heaters affected shall switch off automatically.

(b) Thermal overload devices shall protect the blower motor from overheating.

(c) The fuel supply shall turn off automatically if a flame-out occurs.

(d) Each heater shall be located or guarded to prevent contact by persons and shall be equipped with a screen at the inlet to prevent combustible materials from passing over the burner units.

(e) If intake air heaters use liquefied fuel systems—

(1) Hydrostatic relief valves installed on vaporizers and on storage tanks shall be vented; and

(2) Fuel storage tanks shall be located or protected to prevent fuel from leaking into the mine.

(f) Following any period of 8 hours or more during which a heater does not operate, the heater and its associated components shall be examined within its first hour of operation. Additionally, each heater and its components shall be examined at least once each shift that the heater operates. The examination shall include measurement of the carbon monoxide concentration at the bottom of each shaft, slope, or in the drift opening where air is being heated. The measurements shall be taken by a person designated by the operator or by a carbon monoxide sensor that is calibrated with a known concentration of carbon monoxide and air at least once every 31 days. When the carbon monoxide concentration at this location reaches 50 parts per million, the heater causing the elevated carbon monoxide level shall be shut down.