

**§ 57.19026**

means either the manufacturer's original design or a design approved by a registered professional engineer

(c) Load end attachment methods using splices are prohibited.

**§ 57.19026 Drum end attachment.**

(a) For drum end attachment, wire rope shall be attached—

(1) Securely by clips after making one full turn around the drum spoke;

(2) Securely by clips after making one full turn around the shaft, if the drum is fixed to the shaft; or

(3) By properly assembled anchor bolts, clamps, or wedges, provided that the attachment is a design feature of the hoist drum. Design feature means either the manufacturer's original design or a design approved by a registered professional engineer.

(b) A minimum of three full turns of wire rope shall be on the drum when the rope is extended to its maximum working length.

**§ 57.19027 End attachment retermination.**

Damaged or deteriorated wire rope shall be removed by cutoff and the rope reterminated where there is—

(a) More than one broken wire at an attachment;

(b) Improper installation of an attachment;

(c) Slippage at an attachment; or

(d) Evidence of deterioration from corrosion at an attachment.

**§ 57.19028 End attachment replacement.**

Wire rope attachments shall be replaced when cracked, deformed, or excessively worn.

**§ 57.19030 Safety device attachments.**

Safety device attachments to hoist ropes shall be selected, installed, and maintained according to manufacturers' specifications to minimize internal corrosion and weakening of the hoist rope.

HEADFRAMES AND SHEAVES

**§ 57.19035 Headframe design.**

All headframes shall be constructed with suitable design considerations to

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allow for all dead loads, live loads, and wind loads.

**§ 57.19036 Headframe height.**

Headframes shall be high enough to provide clearance for overtravel and safe stopping of the conveyance.

**§ 57.19037 Fleet angles.**

Fleet angles on hoists installed after November 15, 1979, shall not be greater than one and one-half degrees for smooth drums or two degrees for grooved drums.

**§ 57.19038 Platforms around elevated head sheaves.**

Platforms with toeboards and handrails shall be provided around elevated head sheaves.

CONVEYANCES

**§ 57.19045 Metal bonnets.**

Man cages and skips used for hoisting or lowering employees or other persons in any vertical shaft or any incline shaft with an angle of inclination of forty-five degrees from the horizontal, shall be covered with a metal bonnet.

**§ 57.19049 Hoisting persons in buckets.**

Buckets shall not be used to hoist persons except during shaft sinking operations, inspection, maintenance, and repairs.

**§ 57.19050 Bucket requirements.**

Buckets used to hoist persons during vertical shaft sinking operations shall—

(a) Be securely attached to a crosshead when traveling in either direction between the lower and upper crosshead parking locations;

(b) Have overhead protection when the shaft depth exceeds 50 feet;

(c) Have sufficient depth or a suitably designed platform to transport persons safely in a standing position; and

(d) Have devices to prevent accidental dumping where the bucket is supported by a bail attached to its lower half.

**§ 57.19054 Rope guides.**

Where rope guides are used in shafts other than in shaft sinking operations,

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the rope guides shall be a type of lock coil construction.

**HOISTING PROCEDURES**

**§ 57.19055 Availability of hoist operator for manual hoists.**

When a manually operated hoist is used, a qualified hoistman shall remain within hearing of the telephone or signal device at all times while any person is underground.

**§ 57.19056 Availability of hoist operator for automatic hoists.**

When automatic hoisting is used, a competent operator of the hoist shall be readily available at or near the hoisting device while any person is underground.

**§ 57.19057 Hoist operator's physical fitness.**

No person shall operate a hoist unless within the preceding 12 months he has had a medical examination by a qualified, licensed physician who shall certify his fitness to perform this duty. Such certification shall be available at the mine.

**§ 57.19058 Experienced hoist operators.**

Only experienced hoistmen shall operate the hoist except in cases of emergency and in the training of new hoistmen.

**§ 57.19061 Maximum hoisting speeds.**

The safe speed for hoisting persons shall be determined for each shaft, and this speed shall not be exceeded. Persons shall not be hoisted at a speed faster than 2,500 feet per minute, except in an emergency.

**§ 57.19062 Maximum acceleration and deceleration.**

Maximum normal operating acceleration and deceleration shall not exceed 6 feet per second per second. During emergency braking, the deceleration shall not exceed 16 feet per second per second.

**§ 57.19063 Persons allowed in hoist room.**

Only authorized persons shall be in hoist rooms.

**§ 57.19065 Lowering conveyances by the brakes.**

Conveyances shall not be lowered by the brakes alone except during emergencies.

**§ 57.19066 Maximum riders in a conveyance.**

In shafts inclined over 45 degrees, the operator shall determine and post in the conveyance or at each shaft station the maximum number of persons permitted to ride in a hoisting conveyance at any one time. Each person shall be provided a minimum of 1.5 square feet of floor space.

**§ 57.19067 Trips during shift changes.**

During shift changes, an authorized person shall be in charge of each trip in which persons are hoisted.

**§ 57.19068 Orderly conduct in conveyances.**

Persons shall enter, ride, and leave conveyances in an orderly manner.

**§ 57.19069 Entering and leaving conveyances.**

Persons shall not enter or leave conveyances which are in motion or after a signal to move the conveyance has been given to the hoistman.

**§ 57.19070 Closing cage doors or gates.**

Cage doors or gates shall be closed while persons are being hoisted; they shall not be opened until the cage has come to a stop.

**§ 57.19071 Riding in skips or buckets.**

Persons shall not ride in skips or buckets with muck, supplies, materials, or tools other than small hand tools.

**§ 57.19072 Skips and cages in same compartment.**

When combinations of cages and skips are used in the same compartment, the cages shall be enclosed to protect personnel from flying material and the hoist speed reduced to man-speed as defined in standard 57.19061, but not to exceed 1,000 feet per minute. Muck shall not be hoisted with personnel during shift changes.