less than 3 feet in height and the length and width of pens shall not exceed 15 x 8 feet. An increase of 50 percent square footage shall be required for animals in the third trimester of pregnancy, notwithstanding other provisions in paragraph (d).

[42 FR 28990, June 7, 1977. Redesignated and amended at 45 FR 86413, Dec. 31, 1980; 53 FR 40407, Oct. 17, 1988; 57 FR 23047, June 1, 1992]

### § 91.26 Concrete flooring.

(a) Pens aboard an ocean vessel shall have a 3 inch concrete pavement, proportioned and mixed to give 2000 psi. compressive strength in 28 days. The pavement shall have a broom or rough finish. Steel angle bars may be used for footlocks if they are mounted into the flooring in such a way that, at the same time, the bars serve as gutterways. The angle bars shall not be less than 2 inches by 2 inches and 5/16 inches in thickness, and spaced on 12 inch centers running for and aft on the vessel.

(b)(1) *Horses and cattle.* Flooring shall be laid athwartship and secured by placing ends beneath the under side of foot and rump boards or under a 2″ x 4″ strip nailed along these boards. Floors may be either of two types, flush or raised. The flush type shall be constructed of not less than 1″ thick lumber laid flat on the deck. The raised type shall be constructed of not less than 2″ thick lumber nailed to scantlings of at least 2″ x 3″ dimensions laid 2 feet 6 inches apart. If desired, flooring may be laid in portable sections. Flooring will not be required on ships with wooden decks provided footlocks are secured to the decks. Cement or composite material diagonally scored one-half inch deep may be used on iron decks instead of wooden flooring if the footlocks are molded in the same and bolted to the deck.

(2) *Sheep, goats, and swine.* Flooring for sheep, goats, and swine shall be the same as prescribed in this section for horses and cattle, except that the raised flooring need not be greater than 12 inch in thickness.

(3) *Drainage.* Provisions shall be made for drainage of urine and surface water from all parts of the vessel used for carriage of animals including sufficient scuppers. A walkway shall provide easy access to the scuppers.

(c)(1) *Horses and cattle.* In pens for horses or cattle, there shall be four footlocks of 1″ x 4″ lumber laid fore and aft with flat side down, and so placed as to provide in-between spaces of 12, 14, 26, and 14 inches, beginning at inside of the footboard. Additional footlocks shall be added at 14 inch intervals in pens having a depth of 9 feet or more. They shall be well secured with nails of a length that will permit 1 inch clinch in 1 inch flooring and 2 inch penetration in 2 inch flooring.

(2) *Sheep, goats, and swine.* Footlocks in pens for sheep, goats, and swine shall be of not less than 1″ x 2″ lumber, four to each pen, equally distributed and laid in the manner prescribed in paragraph (c)(1) of this section for horses and cattle.

[42 FR 28990, June 7, 1977. Redesignated at 45 FR 86413, Dec. 31, 1980, and amended at 57 FR 23047, June 1, 1992]

### § 91.27 Troughs and hayracks.

All stalls and pens aboard an ocean vessel shall be equipped with proper troughs for feeding and watering animals as provided in this section. Racks or nets furnished for feeding hay shall be of a type acceptable to the inspector. The feeding of hay to the animals on ocean vessels may be by means of dispensing the hay from racks or nets or by placing the hay on the floor of the pens in which the animals are confined.

(a) *Horses and cattle.* Troughs may be constructed of metal or wood and may be either removable or fixed. The space between the first footlock and footboard may be utilized for feeding cattle, provided a 2″ x 4″ piece of lumber is affixed along the top surface of said footlock so that it, together with the footboard and the battens, will form an enclosure. If wooden troughs are used for feeding, an adequate supply of buckets or other metal containers shall be provided for the proper watering of the animals.

(b) *Sheep, goats, and swine.* Pens for these animals shall have feed troughs not less than 8 inches wide and shall be equipped with proper receptacles for watering. Pens for sheep and goats

shall also have ample hayracks suitable for these animals.

[42 FR 28990, June 7, 1977. Redesignated at 45 FR 86413, Dec. 31, 1980]

**§91.28 Stanchions and rails.**

(a)(1) Pipes used for stanchions and rails for pens aboard an ocean vessel shall be made of zinc coated, galvanized, extra strong, medium carbon steel. Steel pipes or other steel profiles shall consist of not less than 4 pipes or profiles, the upper one to have 3 inch diameter and the others a diameter of not less than 2½ inches. Stanchions shall not be of less than 3½ inches diameter; shall not be of less than 5/16 inch thickness and shall not be placed more than 8 feet apart center to center.

(2) Threaded pipe connections shall not be used. All parts shall be cut from factory fabricated, seamless pipe.

(3) Bolt and pin holes shall not be drilled to more than 1/32 inch oversize. Holes shall be properly located and centered on pipe.

(4) Pipe shall not be deformed or weakened by welding such items as reinforcing rods or hinges thereto. Welding shall be used for such attachment to be exposed in the finished work. Pins, plates, and parts other than pipe shall be made of galvanized steel. All areas where galvanizing of the steel has eroded or has been damaged shall be finished with a rust preventative.

(5) Pipe rails shall be placed in proper alignment with tops of all gates at the same height.

(b) All gates of animal pens aboard an ocean vessel shall have smooth finished surfaces and the pivot-pins shall have a minimum diameter of ¾ inch.

(c) Animals may be carried on upper decks of an ocean vessel in space abutting the outside rails or bulwarks only if such rails or bulwarks are 3 feet or more in height from the deck and are of sufficient strength to hold the necessary fittings securely or if the space available is sufficient to permit securing the required fittings to provide the necessary strength. When animals are carried on upper decks, bulkheads shall be erected at all unprotected ends of stalls.

(d)(1) *Cattle and horses.* Rail stanchions for pens aboard an ocean vessel for cattle or horses shall be constructed of not less that 4″ or 6″ lumber set 5 feet apart on centers secured to the ship's rail or bulwark with ⅝ inch or larger bolts or collars and with heels raced to the sheer streak or waterway. Inboard stanchions of 4″ x 6″ lumber shall be set in line with the rail stanchions and properly braced: *Provided, however,* That the method of securing and bracing of stanchions may be modified as approved by the underwriter of the cargo bureau, and the inspector. Information concerning the modifications shall be made available to APHIS, at its request. On open rail ships, spaces between the rails shall be blocked out to permit the affixing of outside planking. If supplementary stanchions are required for rump boards, these shall not be less than 3″ x 4″ in size and shall be secured to beams and decks as outlined above. On upper deck fittings at ends of unprotected stalls, a stanchion not less than 3″ x 4″ in size shall be similarly spaced and secured to beams and decks and properly braced. Stanchions on underdecks shall be constructed, spaced, and secured in the same manner as upper deck fittings.

(2) *Sheep, goats, and swine.* Stanchions for single or double tier pens for sheep, goats, and swine shall be constructed of not less 3″ x 4″ lumber set at not greater distance than 5 feet on centers and secured as outlined in paragraph (d)(1).

(e) For all animals, two beams of 2″ x 6″ lumber shall be bolted on each side of the stanchions using ⅝ inch bolts, nuts, and washers. Beams shall extend from outside planking to at least 2 feet beyond the line of the breast boards unless the beams butt on the ship's deck fittings. Two beams of 2″ x 6″ lumber shall be used to support the roof of single tier pens on exposed decks and the floor of double tier pens on all decks.

(f) All pens for carrying animals on exposed decks aboard an ocean vessel shall be roofed with not less than 1 inch thick, watertight lumber extending from outside planking to at least 2 feet beyond the line of breast boards: *Provided,* That, if tongue and grooved lumber is used, it must be caulked or covered so that it is watertight or if square edged lumber is used it shall be