

South Carolina Department of Labor, Licensing and Regulation
Division of Labor
Office of Occupational Safety and Health
Columbia, South Carolina 29211

OSH Program Directive Number 77-1926.451-5

Subject: Article VII, Section 1926.451 (a) (5), Scaffolding, General Requirements, Guardrails.

Standard: Article VII, Section 1926.451 (a) (5), Rules and Regulations, Commissioner of Labor, State of South Carolina.

Cross Reference to Federal Standards: 29 CFR 1926.451 (a) (5).

Background: Several States and Federal inquiries have been made regarding the meaning of the term “or the equivalent” when used in Article VII, Section 1926.45 (a) (5), which states:

Guardrails shall be 2x4 inches, or the equivalent, approximately 42 inches high with a midrail, when required. Supports shall be at intervals not to exceed 8 feet. Toeboards shall be a minimum of 4 inches in height.

In addition, inquiries have been made regarding the use of chains and ropes for scaffold guardrails, in lieu of guardrails made of not less than 2x4 inches lumber. When chains or ropes are used for guardrails, questions are asked regarding the maximum allowable slack in the chain or rope and types of ropes that can be used.

Interpretation: The use of chain and synthetic, fiber, or wire ropes as top rails and immediate rails of guardrails used on scaffolding meets the equivalent requirements of Section 1926.451 (a) (5) when in compliance with the following guidelines:

- (1) Rope or chain shall be secured to each support and taut at all times. It may be necessary to use a positive tensioning device to reduce the sag or catenary to a minimum.
- (2) The rope or chain shall be free of sharp edges, burrs, or projections which may be a hazard.
- (3) The maximum deflection of the top rail when a load of 200 pounds is applied in any direction at any point on the top rail shall not exceed 3 inches in one direction which includes the free hanging sag in the rope or chain.

(4) Where synthetic or fiber rope is used, adequate fire precautions shall be taken during welding operations. Any burned or damaged ropes shall be readily replaced.

Effective Date: This instruction is effective upon receipt and will remain in effect until cancelled or superseded by amendment to the Rules and Regulations.

William M. Lybrand, Director
March 25, 1977