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INTRODUCTION

First, respondent-appellant, The Kenny Huston Company (“Huston”), then relator-cross-appellant, Catherine Donohoe (“Ms. Donohoe”), appealed as of right the decision of the Tenth District Court of Appeals granting a limited writ of mandamus. The writ requires a rewritten order from respondent-appellee, the Industrial Commission of Ohio (“commission”), regarding alleged Violations of Specific Safety Requirements (“VSSR”). Ms. Donohoe’s expert evidence in support of an entirely circumstantial VSSR case is speculative and unreliable. No one witnessed the fall causing her husband’s fatal injury, so that any particular code section’s applicability or causal connection to the fall is speculative. Accordingly, this court should either affirm the lower court’s decision or deny entirely Ms. Donohoe’s request for a writ of mandamus.

STATEMENT OF THE CASE AND FACTS

On August 30, 2004, decedent, Patrick J. Donohoe (“Mr. Donohoe”) sustained a fatal head injury while employed by Huston. Second Supplement at 3; hereinafter, “(S. #).” His wife’s request for death benefits was granted (S. 5). Ms. Donohoe later filed a VSSR application, alleging violations of Ohio Adm.Code 4121:1-3-04(J)(1), 4121:1-3-04(H)(1)(a) and (2)(a), 4121:1-3-10(C)(4)(a)-(b), 4121:1-3-10(C)(9), 4121:1-3-10(C)(13) and (18), and 4121:1-5-03(D)(1)(c)(i) and (iii) (S.4). These code provisions deal with scaffolds, safety lines, and ladders. These code sections are cited incorrectly. In November, 2003, these code sections were renumbered, but the substance of the provisions was unchanged. See the Appendix for the current code sections, the index for the Ohio Monthly Record, and the histories indicating no changes.

Mr. Donohoe worked as a mason-tender, supplying masons with materials (S. 20, 25). The Huston masonry crew at the time of Mr. Donohoe’s injury was working on a

parapet on the interior side of a wall in an area of the building informally known as the south vestibule (S. 19). An extension ladder provided access to the parapet (S. 19, 25). A scaffold in the process of disassembly was on the exterior side of a wall beyond the masons' immediate work area (S. 25, 29).

When the masons working on the south vestibule ran low on bricks and mortar, they sought re-supply. *Id.* They began looking for Mr. Donohoe, and after hearing a sound similar to a hard hat hitting the ground, they jumped over the wall onto the exterior scaffold, descended to the ground, and found Mr. Donohoe lying on the ground unconscious (S. 20, 25). He apparently had fallen. *Id.* Emergency personnel assessed Mr. Donohoe's injuries and took him to a hospital where he died from his injuries (S. 115).

No one saw Mr. Donohoe's fall, so the actual place he fell from, what he was doing at the time, and the sequence of events proximally related to the accident are unknown (S. 3, 4). The administrative record contains conflicting testimony as to what equipment was present at the job site, and how and by whom it was used (S. 19-20, 25-26, 88, 93-94, and others). Divergent expert opinions were presented as to what might have led to the accident and what may have occurred (S. 93-94, 100-108, 114-129, and 137-191). The commission found that Ms. Donohoe did not prove a VSSR because the lack of an eyewitness rendered the expert opinions speculative and unreliable (S. 3-4). The commission denied Ms. Donohoe's motion for a rehearing (S. 1-2). Ms. Donohoe then filed a complaint in the Ohio Tenth District Court of Appeals requesting a writ of mandamus.

The appellate court assigned the matter to a magistrate who issued a decision recommending a denial of the requested writ. See *Huston's Appendix* at 17-33. The magistrate correctly recites the law that "all reasonable doubts regarding the applicability

of the requirement must be resolved in the employer's favor," and the claimant must prove the VSSR proximately caused the injury. Huston Appendix at 30, ¶¶ 66-67. The magistrate explains that the commission has no duty to choose between conflicting opinion evidence, the commission may find "none of the conflicting expert opinions are persuasive" and find the "lack of an eyewitness to the accident rendered the expert opinions unreliable." Huston Appendix at 32-33, ¶¶ 75-78.

Ms. Donohoe objected to the magistrate's decision. The lower court sustained, in part, her first objection regarding the lack of eyewitness testimony and issued a limited writ for a rewritten commission order. Huston Appendix at 5-16. First Huston then Ms. Donohoe appealed as of right to this court.

LAW AND ARGUMENT

The standard of review for a writ of mandamus is that the agency must have acted contrary to law or committed a gross abuse of discretion.

Mandamus is an extraordinary legal remedy the essential purpose of which is to command the performance of an act, which the law specially enjoins as a duty. R.C. 2731.01. "Entitlement to a writ of mandamus requires: (1) a clear legal right to the requested relief; (2) a corresponding clear legal duty on the part of the respondent; and (3) the lack of an adequate remedy for the relator in the ordinary course of the law. *State ex rel. Moore v. Malone* (2002), 96 Ohio St.3d 417, 420. A writ is not a means to conduct an appellate review of a decision with which a party disagrees, nor is a writ of mandamus a de novo review. *State ex rel. Marshall v. Keller* (1968), 15 Ohio St.2d 203. The issue in mandamus is whether the commission's decision is contrary to law or its findings of fact are not supported by "some evidence."

The commission is the exclusive evaluator of evidentiary weight and credibility. See *State ex rel. Teece v. Indus. Comm.* (1981), 68 Ohio St.2d 165. The commission's actions are presumed to be valid and performed in good faith and judgment, unless shown to be otherwise; as long as some evidence supports its findings, its orders will not be overturned. *State ex rel. Stephenson v. Indus. Comm.* (1987), 31 Ohio St.3d 167, 170.

Appellee Commission's Proposition of Law:

Where the exact circumstances of an injury are required to determine whether the employer violated a safety regulation under the workers' compensation laws, and those circumstances are unknown, the commission does not abuse its discretion in denying the award.

To prevail in a VSSR application, the claimant must establish that an applicable safety requirement exists which was in effect at the time of the injury, that the employer failed to comply with the requirement, and that the failure to comply with the requirement was the cause of the injury in question. *State ex rel. Tydel v. Indus. Comm.* (1972), 32 Ohio St.2d 257. The claimant bears the burden of proof to establish each essential element of the claim by a preponderance of the evidence. See *State ex rel. Pre Finish Metals v. Indus. Comm.* (1988), 39 Ohio St.3d 314.

Whether an employer's failure to satisfy a specific safety requirement caused the injury is a question of fact to be decided by the commission, subject to an "abuse of discretion" review. See *State ex rel. A-F Industrial v. Indus. Comm.* (1986), 26 Ohio St.3d 136. The determination of disputed facts and the interpretation of regulations under the workers' compensation law are within the sound discretion of the commission. *State ex rel. Allied Wheel Products, Inc. v. Indus. Comm.* (1956), 166 Ohio St. 47. The test applied in a mandamus action is whether the evidence, construed most strongly in favor

of supporting the findings of the commission, reasonably supports those findings. *State ex rel. Johnson v. Indus. Comm.* (1983), 11 Ohio App.3d 22.

A VSSR award is in the nature of a penalty to the employer. *State ex. rel. Kroger Company v. Indus. Comm.* (1980), 62 Ohio St.2d. 4. Strict construction applies, requiring all reasonable doubts concerning the interpretation of the VSSR to be resolved in the employer's favor. *State ex. rel. Burton v. Indus. Comm.* (1987), 46 Ohio St.3d 170.

Evidence essential to proving the VSSR must focus on where Mr. Donohoe was and what he was doing when he fell. Some of the cited code provisions apply to particular heights above the ground. Evidence of what caused Mr. Donohoe's fall and the manner in which he fell is crucial to determining the causal connection of an alleged violation and his death. There were no eyewitnesses, so these facts are unknown and probably are unknowable. However, the court below found that the commission's order insufficiently explained why the lack of an eyewitness account of Mr. Donohoe's fall rendered the expert opinions speculative, unreliable, and unpersuasive. The court below desires a more thorough explanation of why the expert opinions were unconvincing.

"In any order of the Industrial Commission granting or denying benefits to a claimant, the commission must specifically state what evidence has been relied upon, and briefly explain the reasoning for its decision." *State ex rel. Noll v. Indus. Comm.* (1991), 57 Ohio St.3d 203, syllabus. Failure to comply with *Noll* is equivalent to an abuse of discretion. *State ex rel. Gemind v. Indus. Comm.* (1998), 82 Ohio St.3d 457, 460. The *Noll* rule allows reviewing courts to discern the specific evidence relied upon and whether the record supports the administrative findings. *State ex rel. Johnston v. Ohio Bureau of Workers' Comp.* (2001), 92 Ohio St.3d 463, 474.

The commission did not appeal the lower court's limited writ and does not oppose rewriting the VSSR. However, the commission does oppose Ms. Donohoe's appeal, because to grant the writ, the Supreme Court would have to become the fact-finder. Accordingly, if this court reverses the court below, it should deny a writ altogether.

CONCLUSION

Ms. Donohoe suffered a horrible loss with her husband's death and was granted death benefits based on an inference that Mr. Donohoe's fall occurred in the course of and arising out of his employment with Huston rather than as a result of frolic or horseplay. In response to her VSSR application, where strict construction applies, the commission found her expert opinions speculative, unreliable, and unpersuasive. The commission has not appealed the appellate court's limited writ, but Huston and Ms. Donohoe have. Accordingly, if this court chooses to reverse the Tenth District Court of Appeals, the commission requests this court deny entirely Ms. Donohoe's prayer for a writ of mandamus.

Respectfully submitted,

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CERTIFICATE OF SERVICE

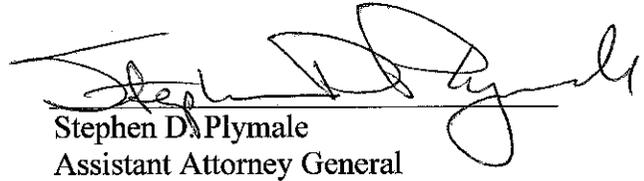
This is to certify that a copy of the foregoing Brief of Appellee, Industrial Commission of Ohio, was served by postage paid regular U.S. Mail this 13th day of October, 2010, upon:

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OHIO MONTHLY RECORD

Rules filed for the month are printed in numerical order. Rules are published exactly as filed.

Emergency rules are printed with a vertical line in the margin and are effective for 90 days.

Issue No. 5

NOVEMBER 2003

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ble, or hazardous wastes, such as caustics, acids, harmful dusts, etc., shall be equipped with covers.

HISTORY: 2008-09 OMR pam. #7 (RRD); 2003-04 OMR 1181 (A-TF 4121:1-3-02), eff. 11-1-03

RC 119.032 rule review date(s): 1-15-14; 1-16-09; 3-1-03

Historical and Statutory Notes

Ed. Note: Effective 11-1-03, 4123:1-3-02 contains provisions of former 4121:1-3-02.

Cross References

RC 4121.13, Powers and duties of industrial commission

4123:1-3-03 Personal protective equipment

(A) Scope.

The requirements of this rule relate to the personal protective equipment listed immediately below, as required for employees on operations described in this rule in which there is a known hazard, recognized as injurious to the health or safety of the employee.

(1) Eye and face protection.

(2) Foot (toe) protection.

(3) Respiratory protection—includes respirators, masks, canister type masks, supplied-air helmets, etc., for protection of the respiratory system from inhalation of particulate matter, noxious gases and vapors, and oxygen deficiency. Although this rule does not cover engineered protective measures (for example, ventilation), exposure control shall be accomplished as far as is feasible by accepted engineering methods before considering or instituting use of respirators (see rule 4121:1-3-18 of the Administrative Code).

(4) Head and hair protection—includes all operations where employees are required to be present in areas where a hazard to their head exists from falling or flying objects, or from physical contact from rigid objects, or from exposures where there is a risk of injury from electrical shock or hair entanglement.

(5) Protective clothing.

(6) Hearing protection.

(7) Safety belts, lifelines and lanyards.

(8) Seat belts.

(9) Safety nets.

(10) Working over or near water.

(B) Definitions.

(1) "Head protection devices" means:

(a) "Bump cap or hat" means a thin-shelled plastic headgear worn to provide protection to the head from bumps or lacerations but does not meet the requirements for protective helmets.

(b) "Crown straps" means that part of the suspension which passes over the head.

(c) "Hair enclosure" means a hat or cap (other than a protective helmet or bump cap) or a hair net specifically designed to protect the wearer from hair entanglement in moving parts of

machines, equipment, or where there is exposure to sparks, hot metal, or ignition.

(d) "Protective helmet" means a rigid headgear also known as a safety or hard hat, or as a safety or hard cap that is worn to provide protection for the head, or portions thereof, against impact, flying particles, or electrical shock, or any combination thereof; and which is held in place by a suitable suspension.

(e) "Suspension" means the internal cradle of a protective helmet or bump cap which holds it in place on the head and is made up of the head band and crown straps.

(2) "Lanyard" means a rope, suitable for supporting one person. One end is fastened to a safety belt or harness and the other end is secured to a substantial object or a safety line.

(3) "Lifeline" means a rope, suitable for supporting one person, to which a lanyard or safety belt (or harness) is attached.

(4) "O.D." means optical density and refers to the light refractive characteristics of a lens.

(5) "Radiant energy" means energy that travels outward in all directions from its sources.

(6) "Respiratory devices" means:

(a) "Air-purifying device" means a device which removes contaminants from the atmosphere and can be used only in atmospheres containing sufficient oxygen to sustain life (at least nineteen and one-half per cent by volume at sea level) and within specified concentration limitations of the specific device.

(i) "Mechanical-filter respirator" means a device which provides respiratory protection against particulate mater [sic], such as nonvolatile dusts, mists, or metal fumes.

(ii) "Chemical-cartridge respirator" means a device which provides respiratory protection against certain gases and vapors in concentrations not in excess of one-tenth per cent by volume.

(iii) "Gas mask" means a device which provides respiratory protection against certain specific gases and vapors in concentrations up to two per cent by volume or as specified on the canister label and against particulate matter.

(b) "Supplied-air device" means a device which delivers breathing air through a supply hose connected to the wearer's facepiece.

(c) "Self-contained breathing apparatus" means a device which provides complete breathing protection for various periods of time based on the amount of breathing air or oxygen supplied and the breathing demand of the wearer. The basic types of self-contained breathing apparatus are:

(i) Closed-circuit devices (rebreathers):

(a) Compressed oxygen type.

(b) Chemical oxygen type.

(c) Liquid oxygen type.

(ii) Open-circuit devices:

(a) Demand type.

(b) Pressure demand type.

(7) "Safety belt or harness" means a device, worn around the body, which, by reason of its attachment to a lanyard and lifeline or a structure, will prevent an employee from falling.

(C) Specific requirements of general application.

(1) Personal protective equipment furnished by the employer shall be issued to the employee in sanitary and proper condition so that it will effectively protect against the hazard involved.

(2) Where employees provide their own protective equipment, such equipment shall give equal or greater protection than that furnished by the employer.

(D) Eye and face protection.

(1) Responsibility.

The employer shall provide eye protection for all employees engaged in the operations listed in paragraph (D)(2) of this rule and exposed to an eye hazard. Eye protection shall also be provided for any other employees required to work in the immediate area and who are exposed to the hazards of the operations listed. It shall be the responsibility of the employee to use the eye protection provided by the employer (see sections 4101.12 and 4101.13 of the Revised Code). (See also appendix to paragraph (D) of this rule for "Eye and Face Protector Selection Guide.")

(2) Operations requiring eye protection.

(a) Eye protection shall be provided to employees performing the following operations:

(i) When using hand tools or mechanical equipment to cut, chip, drill, clean, buff, grind, polish, shape, or surface masonry, plaster, stone, plastics, or other hardened substances. This also covers demolition work where the materials listed are part of the operation;

(ii) Where acids, sand or shot blast are used in building cleaning operations;

(iii) Welding or cutting operations involving the use of gas flames or electric arc. For all electric welding operations the employer shall provide suitable helmets, hoods, or hand shields. (See appendix to this rule);

(iv) Where portland cement or similar dust-producing material is taken from an elevated bin, hopper, or similar structure by a chute;

(v) All spray paint operations where the employee's eyes are exposed to paint mist in the atmosphere;

(vi) All sand or shot blast operations where the employee's eyes are exposed to the blasting;

(vii) In the handling of molten metal, hot tars, hot pitch, hot asphalt, hot plastic, or similar hot substances;

(viii) Dressing grinding wheels;

(ix) Cleaning operations where wire wheels are used;

(x) In handling injurious acids, alkalis, or other chemicals;

(xi) When working in close proximity to a laser beam in excess of five milliwatts;

(xii) Cutting, drilling, turning, planing, jointing, and sanding of wood with power tools;

(xiii) Operation of portable explosive-actuated fastening tools and portable pneumatically powered fasteners;

(xiv) Operations requiring the use of compressed air for cleaning purposes.

(b) This rule does not apply where a shield or exhaust equipment provides adequate eye protec-

tion for employees otherwise exposed to the hazards covered in paragraphs (D)(2)(a)(i) to (D)(2)(a)(xiv) of this rule.

(3) Face shields.

Face shields may be used in lieu of other forms of eye protection if they provide the required protection against the particular hazards for which they are designed and they shall be provided where additional protection for the face is necessary.

(4) Material requirements for eye protection.

(a) Lens thickness—glass and plastic.

(i) No less than 3.0mm.

(ii) No more than 3.8mm.

(b) Impact test.

Must withstand one-inch diameter steel ball (weight approximately 2.4 ounces) dropped in free fall from a height of fifty inches onto the horizontal upper surface of the lens, impinging the lens within a circular area of five-eighths-inch diameter of the lens' mechanical center.

(c) Penetration resistance test—plastic only.

(i) A pointed projectile of suitable size, consisting of a new Singer number 25, size 135 x 17 needle, fastened into a holder weighing approximately 1.56 ounces shall be freely dropped, pointed downward, from a height of fifty inches onto the outer surface of the lens. The projectile may be guided but not restricted in its fall by being dropped through a tube extending to within four inches of the lens.

(ii) The lens shall not be pierced through from the impact.

(d) Frames, flammability test.

A section at least one inch long of the plastic components of the frame shall be exposed to a test for determining the flame propagation rate. For this purpose the frame components (eye wire, temples, and sideshields) shall be ignited individually by holding one end of the specimen horizontally at the top of a luminous three-quarter-inch Bunsen burner flame in a draft-free room. The rate of propagation determined by a stop watch shall be twenty-four seconds per inch or less. A faster rate of propagation shall be cause for rejection.

(e) Frames, marking.

(i) Safety spectacles require special frames. Combination of streetwear frames with safety lenses meeting the standard are not in compliance.

(ii) Frames shall bear the trademark, identifying the manufacturer, on both fronts and temples.

(f) Lens marking—glass or plastic.

Each lens shall be distinctly marked in a permanent legible manner with the manufacturer's monogram. Such marking shall be so placed as not to interfere with the vision of the wearer. Each filter lens shall be marked with the shade designation. Each glass filter lens shall be marked with the letter "H" to indicate treatment for impact resistance.

(5) Laser protection.

The employer shall provide laser safety goggles which will protect the employee from direct or reflected laser light equal to or greater than 0.005 watts (five milliwatts) per square centime-

ter. The laser safety goggles shall provide protection for the specific wavelength of the laser and be of optical density (O.D.) adequate for the energy involved. "Table 3-3" lists the maximum power or energy density for which adequate protection is afforded by glasses of optical densities from five through eight. Output levels falling between lines in this table shall require the higher density.

(a) Labeling of eye protection.

All protective goggles shall bear a label identifying the following data:

- (i) The laser wavelengths for which use is intended;
 - (ii) The optical density of those wavelengths;
 - (iii) The visible light transmission.
- (b) Labeling of laser equipment.

The employer shall furnish equipment provided with labels containing the following minimum information for continuous-wave (cw) lasers:

- (i) Wavelength or wavelength range;
- (ii) Emergent beam size;
- (iii) Beam divergence;
- (iv) Maximum average power output;
- (v) Maximum emergency ¹ beam irradiance;
- (vi) Manufacturer's name and address;
- (vii) Product identification number.

(c) Posting.

The employer shall post notices in prominent locations in which lasers are being operated. (For examples see appendix to this rule.)

(d) Beam shutters or caps shall be utilized, or the laser turned off, when laser transmission is not actually required. When the laser is left unattended for a substantial period of time, such as during lunch hour, overnight or at change of shifts, the laser shall be turned off.

(e) Atmospheric conditions.

The employer shall require the employee to keep away from the source, range and target of the laser when there is exposure to rain or snow or when there is dust or fog in the air.

(E) Foot (toe) protection.

Foot protection shall be made available by the employer and shall be worn by the employee where an employee is exposed to machinery or equipment that represents a foot hazard or where an employee is handling material which presents a foot hazard.

(F) Respiratory equipment.

(1) The employer shall furnish approved respiratory equipment where there are air contaminants as defined in paragraph (B)(1) of rule 4121:1-3-01 of the Administrative Code. It shall be the responsibility of the employee to use the respirator or respiratory equipment provided by the employer, guard it against damage and report any malfunction to the employer (see sections 4101.12 and 4101.13 of the Revised Code). Note: See appendix to this rule for basic guide for selection of respirators.

(2) This requirement does not apply where an effective exhaust system or other means of equal or greater protection has been provided.

(G) Head and hair protection.

(1) Responsibility.

(a) Employer.

(i) Whenever employees are required to be present in areas where the potential hazard mentioned in paragraph (A)(4) of this rule are present, employers shall provide them with suitable protective headgear or hair enclosures.

(ii) When required, employers shall provide accessories designed for use with protective headgear and which are suitable for their intended purpose.

(iii) Protective helmets and bump caps, or parts thereof, and hair enclosures shall be sanitized before reissue and damaged parts of protective headgear shall be replaced.

(b) Employees.

Employees shall not alter any head or hair protective equipment that lessens its effectiveness, and shall use such equipment in accordance with instructions and training received.

(2) Protective helmets.

(a) Classes of helmets.

(i) Protective helmets as defined in paragraph (B)(1)(d) of this rule shall be of the following classes:

(a) Class A—limited voltage protection.

(b) Class B—high voltage protection.

(c) Class C—no voltage.

(d) Class D—limited voltage protection. Firefighters' service helmets with full brim only.

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(b) Winter liners and chin straps.

(i) All winter liners shall be fabricated of materials that will not support combustion.

(ii) Winter liners and chin straps used in conjunction with class B helmets for protection from electricity shall not contain any metallic or other conductive material.

(c) Physical requirements for helmets.

(i) Impact resistance.

Helmets shall be capable of withstanding the impact of an eight-pound steel ball, approximately three and three-quarters inches in diameter, dropped onto the center of the top of the helmet from a height of five feet without transmitting an average force of more than eight hundred fifty pounds.

(ii) Crown strap clearance.

Crown straps shall not allow the distance between the top of the head and the underside of the helmet to be adjusted to less than one inch when a twenty-five-pound weight is placed on top of the helmet.

(iii) Penetration resistance.

Class A, B, and D helmets shall not be pierced more than three-eighths-inch and class C helmets not more than seven-sixteenths-inch, including the thickness of the shell material, when subjected to a one-pound steel plumb bob with a point having an included angle of 35+1 degrees and a maximum point radius of 0.010 inch, dropped ten feet vertically onto the top of the helmet.

(iv) Insulation resistance.

Class A and D helmets shall be capable of withstanding two thousand two hundred volts alternating-current sixty hertz (rms) for one minute, with leakage current not in excess of three milliamperes. This test is not applicable to class

C helmets. Class B helmets shall be capable of withstanding twenty thousand volts alternating-current sixty hertz for nine milliamperes.

(v) Helmet shell materials.

(a) Materials used in class A and class B helmets shall be water resistant and slow burning. Materials in class D helmets shall be fire resistant (self-extinguishing) and nonconductors of electricity.

(b) Class B headgear shall have no holes in the shell nor metal parts.

(3) Bump caps.

Bump caps or hats shall never be used as a substitute for safety helmets where there is danger from falling objects, flying particles, or electrical shock.

(4) Hair enclosures.

(a) A hat, cap, or net shall be worn where there is danger of hair entanglement in moving parts of machinery or equipment, or where there is exposure to means of ignition. It shall be designed to enclose all loose hair and be adjustable to accommodate all head sizes. Material used for a hair enclosure shall be durable, fast-dyed, nonirritating to the skin and capable of withstanding frequent cleaning. It shall not be reissued from one employee to another unless it has been thoroughly sanitized.

(b) Hair enclosures used in areas where there is exposure to sparks, hot or molten metals, or ignition from heat, flames, or chemical reaction shall be made of materials that are nonburning or flame retardant and do not melt.

(H) Protective clothing.

(1) When handling chemicals injurious to the skin.

The employer shall provide rubber or plastic gloves, sleeves and aprons for all operations involving the handling of injurious concentrations of acids, alkalis, epoxy or similar substances.

(2) Welding, cutting, brazing, and molten metal exposures.

(a) All employees exposed to the hazards created by welding, cutting, brazing, or molten metal operations shall be protected by personal protective equipment.

(b) Specified protective clothing.

(i) The employer shall provide durable flame-resistant gloves for all welders and oxygen cutters. Insulated linings shall be provided when the employee is exposed to high radiant energy.

(ii) The employer shall provide cape sleeves or shoulder covers with bibs made of leather or other flame-resistant materials for employees required to perform overhead welding or cutting operations.

(iii) Clothing treated with nondurable flame-retardant materials shall be treated after each wetting or cleaning.

(3) When working by hand on circuits in excess of two hundred fifty volts.

Unless deenergized and grounded, the employer shall provide electricians' rubber gloves with protectors, or other means of insulating employees from ground or current of opposite polarity when working on circuits in excess of two hundred fifty volts.

(4) When handling hot asphaltic materials.

The employer shall provide suitable foot protection to prevent burns when employees are required to handle hot asphaltic materials.

(I) Hearing protection.

Employees exposed to continuous noise levels of ninety or more decibels (dBA) slow response shall be provided with approved ear protection. (Variations in noise level involving maxima at intervals of one second or less, are to be considered continuous.) If ear plugs that require fitting are provided, they shall be fitted to the individual employee by a competent person.

(J) Safety belts, lifelines and lanyards.

(1) Lifelines, safety belts or harnesses and lanyards shall be provided by the employer and it shall be the responsibility of the employee to wear such equipment when engaged in securing or shifting thrustouts, inspecting or working on overhead machines that support scaffolds or on other high rigging, when working on steeply pitched roofs, when working on poles or steel frame construction, when working on all swinging scaffolds, when exposed to hazards of falling where the operation being performed is more than six feet above ground or above a floor or platform, except as otherwise specified in this chapter, and when required to work on stored material in silos, hoppers, tanks, and similar storage areas. Lifelines and safety belts or harnesses shall be securely fastened to the structure and shall sustain a static load of no less than five thousand pounds.

(2) Lifelines, safety belts or harnesses and lanyards shall be used only for employee safeguarding. Any lifeline, safety belt, safety harness, or lanyard actually subjected to in-service loading, as distinguished from static load testing, shall be removed from service and shall not be used again for employee safeguarding until inspected and determined by an authorized person to be undamaged and suitable for reuse.

(3) Lifelines used on rock-scaling operations, or in areas where the lifeline may be subjected to cutting or abrasion, shall be a minimum seven-eighths-inch wire core manila rope or equivalent. For all other lifeline applications, a minimum of three-fourths-inch manila rope or equivalent shall be provided.

(4) Safety belt or harness lanyard shall be a minimum of one-half-inch nylon, or equivalent, with a maximum length to provide for a fall of no more than six feet. The lanyard shall have a breaking strength of no less than five thousand pounds.

(5) All safety belt or harness and lanyard hardware shall be drop forged or pressed steel, cadmium plated. Surface shall be smooth and free from sharp edges.

(6) All safety belt or harness and lanyard hardware shall be capable of withstanding a tensile loading of four thousand pounds without cracking, breaking, or becoming permanently deformed.

(7) Safety nets may be used in lieu of lifelines and safety belts or harnesses.

(K) Seat belts.

Seat belts shall be provided for crawler-type tractors, bulldozers, rubber-tired earth-moving equipment, off-highway trucks and graders ex-

cept on equipment that is designed for standup operations only or that has no rollover protective structure.

(L) Safety nets.

(1) Safety nets shall be provided when workplaces are more than twenty-five feet above the ground, water, or other surface where the use of ladders, scaffolds, catch platforms, temporary floors, safety lines or safety belts or harnesses is impractical.

(2) Where safety net protection is required by this rule operations shall not be undertaken until the net is in place and has been tested.

(3) Safety nets shall extend outward from the outermost projection of the work surface in accordance with the following table to this rule and shall be installed as close under the work surface as practical but in no case more than thirty feet below such work surface with the exception of bridge construction where only one level of nets is required. Nets shall be hung with sufficient clearance to prevent employee's contact with the surfaces or structures below. Such clearance shall be determined by impact load testing.

Table

Vertical distance from working level to horizontal plane of net	Minimum required horizontal distance of outer edge of net from the edge of the working surface
Up to five feet	Eight feet
More than five feet Up to ten feet	Ten feet
More than ten feet	Thirteen feet

(4) The mesh size of nets shall not exceed six inches. All new nets shall meet accepted performance standards of seventeen thousand five hundred foot-pounds minimum impact resistance as determined and certified by the manufacturer, and shall bear a label of proof test. Edge ropes shall provide a minimum breaking strength of five thousand pounds.

(5) Forged steel safety hooks or shackles shall be used to fasten the net to its supports. Attachment of safety nets to the working platform is prohibited.

(6) Connections between net panels shall maintain the full strength of the net.

(M) Working over or near water.

(1) Where employees are working over or near water, and where the depth or current of the water creates a danger of drowning, the employer shall provide U.S. coast guard-approved life jackets or buoyant work vests for each employee.

(2) Ring buoys with no less than ninety feet of line attached shall be provided and readily available for emergency rescue operations. Distance between ring buoys shall not exceed two hundred feet.

(3) At least one lifesaving skiff shall be immediately available at locations where employees are working over or adjacent to water.

(4) In cribs and cofferdams where employees are exposed to danger of falling inside of the enclosure containing water, a life raft shall be provided.

(N) Employee's responsibility.

It shall be the responsibility of the employee to properly use the equipment provided by the employer provided by the employer³ as required in this rule (See also sections 4101.12 and 4101.13 of the Revised Code).

HISTORY: 2009-10 OMR pam. #1 (A), eff. 8-1-09; (W), eff. 7-22-09; 2003-04 OMR 1181 (A-TF 4121:1-3-03), eff. 11-1-03

RC 119.032 rule review date(s): 3-1-03; 3-1-98

¹ Prior and current versions differ; although no amendment to this language was indicated in the 4-1-99 version, "emergency" appeared as "emergent" in the 1979-80 OMR 4-25 version.

² Prior and current versions differ; although no amendment was indicated in the 4-1-99 version, "(ii) Class C or any metallic helmet shall not be furnished by employer or used by employees except where the other classes would be deteriorated by exposure to chemical action and provided there is no danger of contact with electric current." appeared here in the 1979-80 OMR 4-25 version.

³ Language duplicated as in original.

Historical and Statutory Notes

Ed. Note: Effective 11-1-03, 4123:1-3-03 contains provisions of former 4121:1-3-03.

Ed. Note: The appendix to this rule, eff. 11-1-03, is referenced only. Appendices are generally available on Westlaw and/or CD-ROM. Subscribers who wish to obtain a copy may request one from the publisher, the Legislative Service Commission, or the issuing agency.

Cross References

O Const Art II, § 35, Workers' compensation
RC 4121.12, Workers' compensation oversight commission
RC 4121.121, Appointment and duties of administrator
RC 4121.13, Powers and duties of administrator
RC 4121.47, Violation of specific safety rule

4123:1-3-04 Floors, stairways, railings, overhead protection and guarding of open-sided floors, platforms and runways

(A) Scope.

This rule shall apply to temporary conditions where there is danger of employees or material falling through floor, roof or wall openings or from stairways or runways.

(B) Definitions.

(1) "Floor hole" means an opening measuring less than twelve inches but more than two inches in its least dimension in any walking or working surface six feet or more above the lower level.

(2) "Floor opening" means an opening measuring twelve inches or more in its least dimension in any walking or working surface six feet or more above the lower level.

(3) "Handrail" means a single bar or pipe supported on brackets from a wall or partition, as on a stairway or ramp.

(4) "Nose (nosing)" means that portion of a tread projecting beyond the face of the riser immediately below.

(5) "Platform" means a working space for employees elevated above the surrounding floor or ground.

CROSS REFERENCES

RC 4121.12, Workers' compensation oversight commission
 RC 4121.121, Appointment and duties of administrator
 RC 4121.13, Powers and duties of administrator
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(3) "Handrail" means a single bar or pipe supported on brackets from a wall or partition, as on a stairway or ramp.

(4) "Nose (nosing)" means that portion of a tread projecting beyond the face of the riser immediately below.

(5) "Platform" means a working space for employees elevated above the surrounding floor or ground.

(6) "Rise (riser)" means the vertical distance from the top of a tread to the top of the next higher tread.

(7) "Runway" means a passageway for employees, elevated above surrounding floor or ground level.

(8) "Stair platform" means an extended step or landing breaking a continuous run of stairs.

(9) "Stair railing" means a vertical barrier erected along exposed sides of a stairway.

(10) "Stairs (stairway)" means a series of steps and landings having four or more risers leading from one level or floor to another, or leading to platforms.

(11) "Standard guard railing" means a substantial barrier, constructed in accordance with paragraph (E) of this rule.

(a) "Intermediate rail" means the intermediate lateral member or members of a standard guard railing, installed at intervals of no more than twenty-one inches.

(b) "Top rail" means the top lateral member of a standard guard railing.

(12) "Toeboard" means a vertical barrier at floor level, erected along exposed edges of a floor opening, platform, runway, or ramp to prevent falls of material.

(13) "Tread width" means the horizontal distance from the front to back of tread, including nosing when used.

(14) "Wall opening" means an opening no less than thirty inches in its vertical dimension and no less than eighteen inches in its horizontal dimension in any wall.

(C) Temporary floors.

(1) Strength and construction.

(a) Strength.

Temporary floors shall be provided in all structures for employees working on various floor levels and shall be substantially constructed to support employees and equipment safely.

(b) Construction.

The planks shall be placed as close together as possible, and shall not extend more than one foot beyond supports unless securely fastened to prevent slipping or tipping.

(2) Guarding of partial area.

(a) When employees are not required to work over the entire area of a floor, only such partial area on which employees are required to work shall be provided with the temporary working floors as required in paragraph (C)(1) of this rule.

(b) Standard guard railing and toeboards shall be provided around the unused portion of exposed sides of all openings in floors, roofs, platforms or shafts.

(3) Joists.

(a) Joists shall be securely fastened to prevent tipping before placing temporary floors.

(b) Over joists upon which concrete floors are to be placed, expanded metal lath or wire mesh (no greater than one-half inch mesh) may be used where the joist spacing does not exceed twenty-four inches, provided that all laps and joints are securely fastened and that plank runways are provided for safe passage or working thereon by employees.

(4) Temporary floors below finished floor.

In buildings or structures where the upper floors are constructed before the lower floors, temporary floors of the strength required in paragraph (C)(1) of this rule shall be maintained no more than two floors below the floor being constructed.

(5) In structural steel frame buildings.

(a) Structural steel frame buildings shall have temporary floors as provided in paragraph (C)(1) of this rule placed within two typical floors of the erectors and the riveters. Such floors shall cover the entire floor area beneath riveters or erectors, except that no floors are required over hoistway or stairway openings.

(b) Exception.

The provisions of paragraph (C)(5)(a) of this rule shall not apply to what is generally known as mill buildings where no floors are contemplated, and where the operation of overhead cranes, etc., will not permit compliance.

(6) In reinforced concrete frame constructed buildings.

Reinforced concrete frame constructed buildings shall have floor or concrete forms constructed before the forms of the story above are started.

(7) Sectionally constructed buildings.

In sectionally constructed buildings each section constitutes a separate building operation in the application of the temporary floor requirements of this rule.

(D) Openings.

(1) Floor openings.

Floor openings shall be guarded by a standard guard railing and toeboard or a cover with a safety factor of no less than two and so constructed that the cover cannot be accidentally displaced. A safety belt or harness may be provided in lieu of a standard guard railing and toeboard or cover.

(a) Ladderway floor openings or platforms.

Ladder floor openings or platforms shall be guarded by a standard guard railing and toeboard on all exposed sides except at the entrance to the opening, with the passage through the standard guard railing either provided with a swinging gate or so offset that an employee cannot walk directly into the opening.

(b) Floor holes.

Floor holes into which employees can accidentally walk shall be provided with either a standard guard railing and toeboard on all exposed sides or a floor hole cover which provides a factor of safety of no less than two and so constructed that the cover cannot be accidentally displaced. While the cover is not in place, the floor hole shall be guarded by a standard guard railing.

(c) Hatchways.

A removable standard guard railing and toeboard shall be provided on no more than two sides of the hatchway opening and fixed standard guard railing and toeboard shall be provided on all other exposed sides. The removable portion of the stan-

standard guard railing shall be kept in place when the opening is not in use and where practicable should be hinged or otherwise mounted so as to be conveniently replaceable.

(2) Wall openings.

(a) Guarding.

Where there is a danger of an employee falling six feet or more to a lower level through a wall opening, the opening shall be guarded by a standard guard railing and toeboard or a barricade. When the height and placement of the opening in relation to the working surface is such that either a standard guardrail or intermediate rail will effectively reduce the danger of falling, one or both shall be provided. Three-eighths-inch wire rope, securely fastened in place, may be used in lieu of the top rail and intermediate rail. A safety belt or harness or a safety net system may be provided in lieu of the standard guard railing and toeboard or barricade.

(b) Spreaders.

If spreaders are used in window or door frames, such spreaders shall be substantially secured in place.

(c) Where doors or gates open directly onto a stairway, a platform shall be provided and the swing of the door shall not reduce the effective width of the platform to less than twenty inches.

(3) Roof openings.

Wherever there is a danger of an employee falling six feet or more to a lower level through a roof opening, including skylights, a standard guard railing and toeboard shall be provided on all exposed sides, or a cover which provides a factor of safety of no less than two shall be provided. A safety belt or harness or a safety net system may be provided in lieu of the standard guard railing and toeboard or cover.

(E) Standard guard railing.

(1) Standard guard railing shall be constructed as a substantial barrier, securely fastened in place and free from protruding objects such as nails, screws, and bolts, to protect openings or prevent accidental contact with some object, which⁴ barrier shall consist of a top rail no less than thirty-nine inches or more than forty-five inches above the working level, and unless the space between the top rail and the working level is covered with substantial material, an intermediate rail. Minimum material requirements shall be:

(a) Metal.

(i) For pipe railings, the top rail, intermediate rail and uprights shall be no less than one and one half inches nominal diameter with uprights spaced no more than eight feet on centers.

(ii) For structural steel railings, the top rail, intermediate rail and uprights shall be of two-inch by two-inch by three-eighths-inch angles or other metal shape of equivalent bending strength, with uprights spaced no more than eight feet on centers.

(b) Wood.

For wood railings, the uprights shall be of no less than two-inch by four-inch (nominal) stock spaced not to exceed eight feet; the top rail shall be of no less than two-inch by four-inch (nominal) stock; the intermediate rail shall be of no less than one-inch by six-inch stock (nominal).

(2) A standard toeboard shall be constructed of substantial material. It shall be three and one-half inches minimum in vertical height from its top edge to the level of the floor, platform, runway or ramp. It shall be securely fastened in place, with a clearance of no more than one-fourth-inch above the floor, platform, runway or ramp.

(F) Stairways.

(1) Uniform dimensions.

(a) The rise height and tread width shall be uniform throughout any flight of stairs, including any foundation structure used as one or more treads of the stairs.

(b) Temporary stairs shall have a landing no less than thirty inches in the direction of travel at every twelve feet of vertical rise.

(c) Temporary spiral (winding) stairways are prohibited.

(2) Angle of stairways.

(a) Buildings or other structures in which permanent stairways are not installed for construction use, shall be provided with no less than one temporary stairway of substantial construction between floors, fitted with no less than two-inch by eight-inch treads, securely fastened in place. The flights of stairs shall be installed at angles to the horizontal of between thirty and fifty degrees to the floors or other horizontal parts to which they connect or land.

(b) Where it is not possible to provide temporary stairways due to the absence of floors in the structure, fixed ladders shall be provided with rest platforms every twenty feet.

(3) Stairways with pan-type treads.

Permanent steel or other metal stairways with hollow pan-type treads that are to be filled with concrete or other materials, when used during construction, shall be filled to the level of the nosing with solid material. This requirement shall apply as each flight of stairs is completed.

(4) Treads, landings, gratings.

Stairways used for construction purposes shall be fitted with substantial treads, securely fastened and shall have tightly floored landings or gratings.

(5) Illumination.

Stairways, ramps, runways and platforms shall be lighted to no less than the minimum illumination intensity of five foot-candles.

(6) Stair railings and handrails.

(a) Every flight of stairs having four or more risers or rising thirty inches, whichever is less, shall be equipped with stair railings or handrails as specified in paragraphs (F)(6)(a)(i) to (F)(6)(a)(v)⁵ of this rule, the width of the stair to be measured clear of all obstructions except handrails:

(i) On stairways less than forty-four inches wide having both sides enclosed, at least one handrail, preferably on the right side descending;

(ii) On stairways less than forty-four inches wide having one side open, at least one stair railing on the open side;

(iii) On stairways less than forty-four inches wide having both sides open, one stair railing on each side;

(iv) On stairways more than forty-four inches wide, but less than eighty-eight inches wide, one handrail on each enclosed side and one stair railing on each open side;

(v) On stairways eighty-eight or more inches wide, one handrail on each enclosed side, one stair railing on each open side and one intermediate stair railing located approximately midway of the width;

(vi) On the open sides of stairways and stair landings, except where such stairways and landings are protected by studding and other permanent construction, a stair railing shall be provided.

(b) Construction.

(i) Stair railing.

A stair railing shall be of construction similar to a standard guard railing, except that the vertical height shall be no less than thirty-six inches from the upper surface of the top rail to the surface of the tread in line with the face of the riser at the forward edge of the tread.

(ii) Handrail.

⁴So in original. Should this punctuation read "object, which"?

⁵So in original. Should this read "(F)(6)(a)(v)"?

(a) A handrail shall be of construction similar to a standard guard railing except that it is mounted to a wall or partition, and does not include an intermediate rail. It shall have a smooth surface along the top and both sides of the handrail. Ends of the handrail shall be constructed so as not to constitute a projection hazard.

(b) The height of handrails shall be no more than thirty-seven inches and no less than thirty inches from the upper surface of the handrail to the surface of the tread, in line with the face of the riser or to the surface of the ramp.

(c) Handrails and railings shall be provided with a clearance of approximately three inches between the handrail or railing and any other object.

(G) Overhead protection.

Overhead protective covering of two-inch plank, three-fourths-inch plywood or other solid material of equivalent strength shall be provided where employees are working below other employees on floor levels with open floor above.

(H) Guarding of open-sided floors, platforms and runways.

(1) Open-sided floors or platforms.

(a) Standard guard railing and toeboards shall be provided on every open-sided floor or platform six feet or more above adjacent floor or ground level, except where there is entrance to a ramp, stairway or fixed ladder.

(b) Three-eighths-inch wire rope and toeboard, substantially secured in place, may be used in lieu of standard guard railing.

(2) Runways.

(a) Standard guard railings and toeboards shall be provided on all open sides of runways four feet or more above floor or ground level.

(b) Runways used exclusively for special purposes may have the railing on one side omitted where operating conditions necessitate such omission, providing the falling hazard is minimized by using a runway no less than eighteen inches wide.

(3) Working above dangerous equipment.

(a) Each employee working less than six feet above dangerous equipment, such as machinery in operation, open vats, hoppers, or tanks, railroad tracks with moving equipment below the work, live electrical conductors unless deenergized and effectively grounded, or similar sources of danger, shall be protected from falling into or onto the dangerous equipment by a standard guard railing and toeboard, or the equipment shall be guarded.

(b) Each employee working six feet or more above dangerous equipment, such as machinery in operation, open vats, hoppers, or tanks, railroad tracks with moving equipment below the work, live electrical conductors unless deenergized and effectively grounded, or similar sources of danger, shall be protected from falling into or onto the dangerous equipment by a standard guard railing and toeboard, a safety belt or harness, or a safety net system.

(4) Bridge decks.

The height of the standard guard railing on bridge decks may be adjusted to provide clearance for the operation of paving machinery.

HISTORY: Eff. 11-1-03.

RC 119.032 rule review date(s): 3-1-03; 3-1-98

Ed. Note: Effective 11-1-03, 4123:1-3-04 contains provisions of former 4123:1-3-04.

CROSS REFERENCES

RC 4121.12, Workers' compensation oversight commission
RC 4121.121, Appointment and duties of administrator
RC 4121.13, Powers and duties of administrator
RC 4121.47, Violation of specific safety rule

O Const Art II, § 35, Workers' compensation

4123:1-3-05 Mechanical power transmission apparatus

(A) Scope.

(1) This rule provides for the protection of employees from motion hazards associated with equipment used in the mechanical transmission of power on construction sites. Installations to be guarded include sources of mechanical power, the associated and intermediate equipment and the driven machines up to, but excluding, the point of operation. This pertains to revolving, oscillating, reciprocating, or other moving parts such as, but not limited to, belts, brakes, cams, chains, clutches, collars, compressors, counterweights, couplings, cranks, eccentrics, engines, gears, lead screws, motors, power cylinders, pumps, pulleys, shafting, sheaves, spindles, sprockets, turbines and winches.

(2) This rule shall not be construed as being applicable to power transmission facilities located within the frame of the equipment and where exposure is necessary to its operation or adjustment.

(B) Reserved.

(C) Belts, rope and chain drives.

(1) Vee belts.

Vee belts and pulleys, where exposed to contact, shall be guarded.

(2) Rope and chain drives.

Rope and chain drives and their pulleys, where exposed to contact, shall be guarded.

(D) Power driven conveyors—chain, bucket, belt and screw.

(1) Horizontal overhead, vertical and inclined conveyors.

(a) Overhead protection.

Where overhead conveyors carry material with a clearance of seven feet or more above the floor or ground level, and cross designated walkways or roads, or pass over areas where employees are normally at work, a substantial barrier shall be installed to catch falling material.

(b) Screw conveyors.

In addition to the requirements of paragraph (D)(1)(a) of this rule, the auger of screw conveyors shall be guarded. Guards shall be solid or of wire mesh, in accordance with Appendix I. Where an electric power source is used guards designed for removal shall be interlocked so that removal will disconnect the power source.

(2) Conveyors exposed to contact.

A stopping device shall be immediately available to disengage conveyors from their source of power, where conveyors are exposed to contact.

(3) Safe means of passage.

Where employees are required to cross over conveyors, a fixed platform equipped with standard guard railing and toeboards shall be provided.

(4) Pinch (shear) points.

Pinch points created by travel of conveyor belts over or around end, drive and snubber, or take-up pulleys shall be guarded or a means shall be provided at the pinch point to disengage the belt from the source of power.

(5) Lockout for repairs and maintenance.

Conveyors shall be locked out or otherwise rendered inoperable, and tagged out with a "Do Not Operate" tag during repairs and when operation is hazardous to employees performing maintenance work.

(E) Shafts.

(1) Revolving shafting.

(a) All revolving shafting and couplings thereof, located seven feet or less above the floor, platform or ground level and exposed to contact shall be guarded.

4123:1-3-10 Scaffolding

(A) Reserved.

(B) Definitions.

(1) "Bearer" means a horizontal member of a scaffold upon which the platform rests and which may be supported by ledgers.

(2) "Boatswain's chair" means a seat supported by slings attached to a suspended rope, designed to accommodate one employee in a sitting position.

(3) "Brace" means a tie that holds one scaffold member in a fixed position with respect to another member.

(4) "Bricklayer's square scaffold" means a scaffold the platform of which is supported on built-up squares secured to each other by full and continuous diagonal bracing.

(5) "Carpenter's bracket scaffold" means a scaffold the platform of which is supported on triangular braced brackets fastened to the side of the structure.

(6) "Chimney, stack, or tank bracket scaffold" means a scaffold composed of a platform supported by wood or steel brackets, hooked over a steel wire rope which surrounds the circumference of the chimney, stack, or tank.

(7) "Coupler" means a device for locking together the component parts of a tubular metal scaffold.

(8) "Double pole or independent pole scaffold" means a scaffold supported from the base by a double row of uprights, independent of support from the walls and constructed of uprights, ledgers, horizontal platform bearers, and diagonal bracing.

(9) "Elevating assembly" means a mechanical, hydraulic, or other type of mechanism used to elevate and lower a work platform.

(10) "Float or ship scaffold" means a scaffold hung from overhead supports by means of ropes and consisting of a platform having diagonal bracing underneath, resting upon and fastened to two parallel plank bearers at right angles to the span.

(11) "Foot scaffold" means a scaffold used to give additional height, the platform of which does not exceed eighteen inches above the supporting surface.

(12) "Heavy duty scaffold" means a scaffold designed and constructed to carry a working load in excess of fifty pounds but no more than seventy-five pounds per square foot.

(13) "Horizontal wire rope supported scaffold" means a scaffold the platform of which is supported at two or more points by horizontal wire ropes.

(14) "Horse scaffold" means a scaffold or [sic] light or medium duty, composed of horses supporting a work platform.

(15) "Interior hung scaffold" means a scaffold suspended from the ceiling or roof structure.

(16) "Ladder jack scaffold" means a light duty scaffold supported by brackets attached to ladders.

(17) "Lean-to, or shore, scaffold", use prohibited (see paragraph (C)(16) of this rule), means a scaffold the platform of which is supported on members consisting of a putlog or bearer, knee braced to two diverging inclined legs that are in a plane substantially transverse to the putlog and that support the outer end of the putlog or bearer, while the inner end of the bearer or putlog rests on or against the structure or on a bearing block attached to the structure.

(18) "Ledgers" or "stringers" means a horizontal scaffold member which extends from post to post at right angles to the putlogs or bearers, supports the putlogs or bearers, and forms a tie between the posts and becomes a part of the scaffold bracing.

(19) "Light duty scaffold" means a scaffold designed and constructed to carry a working load of no more than twenty-five pounds per square foot.

(20) "Manually propelled mobile scaffold" means a portable rolling scaffold equipped with casters.

(21) "Mason's adjustable multiple-point suspension scaffold" means a scaffold having a continuous platform supported by bearers suspended by wire rope from overhead supports, so arranged and operated as to permit the raising or lowering of the platform to desired working positions.

(22) "Maximum rated load" means the total of all loads including the working load, the weight of the scaffold, and such other loads as may be reasonably anticipated.

(23) "Medium duty scaffold" means a scaffold designed and constructed to carry a working load in excess of twenty-five pounds but no more than fifty pounds per square foot.

(24) "Needle beam scaffold" means a cantilevered light duty scaffold consisting of two parallel horizontal beams called needle beams supporting a platform.

(25) "Outrigger scaffold" means a scaffold supported by outriggers or thrustouts projecting beyond the wall or face of the building or structure, the inboard ends of which are secured inside the wall or face of such building or structure.

(26) "Pick, or kick, plank" means a platform, similar in construction to a narrow ladder with light decking strung upon and attached to the rungs, which rests upon horizontal and parallel stringers, or other bearers, and is movable along the [sic] course of the stringer.

(27) "Platform" means the temporary flat working surface used to support employees, material, and equipment.

(28) "Putlog" means a scaffold member upon which the platform rests (also see "bearer").

(29) "Runner" means the lengthwise horizontal bracing or bearing members, or both.

(30) "Scaffold" means any temporary elevated platform and its supporting structure used for supporting employees, materials, or equipment.

(31) "Single-point adjustable suspension scaffold" means a manually or power operated unit designed for light duty use, supported by a single wire rope from an overhead support so arranged and operated as to permit the raising or lowering of platform to desired working positions.

(32) "Single-pole scaffold" means platforms resting on putlogs or cross beams, the outside ends of which are supported on ledgers secured to a single row of posts or uprights, and the inner ends of which are supported on or in a wall.

(33) "Stack bracket scaffold"—see "chimney bracket scaffold".

(34) "Suspended scaffold" means a scaffold supported from above, the platform of which is supported at more than two points from overhead outriggers which are fastened to the framework of the structure.

(35) "Tank bracket scaffold"—see "chimney bracket scaffold".

(36) "Tube and coupler scaffold" means a [sic] assembly consisting of tubing which serves as posts, bearers, braces, ties, and runner, a base supporting the posts, and special couplers which serve to connect the uprights and to join the various members.

(37) "Tubular welded frame scaffold" means a sectional panel or frame metal scaffold built up of prefabricated welded sections which consists of posts and horizontal bearers with intermediate members.

(38) "Two-point suspension scaffold" or "swinging scaffold" means a scaffold the platform of which is supported by stirrups or hangers at two points to permit raising or lowering, suspended from overhead supports.

(39) "Window jack scaffold" means a scaffold the platform of which is supported by a jack or thrustout which projects through a window opening.

(40) "Working load" means the load on the scaffold imposed by employees, material, and equipment.

VERTICAL LINE in margin denotes emergency rule, in effect for 90 days unless readopted.

(C) General requirements for all scaffolds.

See appendix to this rule for examples of various scaffolds mentioned throughout this rule.

(1) The footing or anchorage for scaffolds shall be sound, rigid, and capable of carrying four times the maximum rated load without settling or displacement. Unstable or loose objects shall not be used to support scaffolds.

(2) Scaffolds and their components shall be capable of supporting without failure no less than four times the maximum rated load.

(3) Any scaffold including accessories, such as braces, brackets, trusses, screw legs, ladders, etc., damaged or weakened from any cause shall be immediately repaired or replaced.

(4) Guardrails and toeboards.

(a) Scaffolds having one horizontal dimension of less than forty-five inches, shall have standard guardrails installed on all open sides and ends of the platform when more than four feet above the ground or floor.

(b) Standard guardrails and toeboards shall be installed on all open sides and ends of platforms more than ten feet above the ground or floor, except on needle beam scaffolds and floats.

(5) Where employees are required to work or pass under the scaffold, the scaffold shall be provided with a screen between the toeboard and the guardrail, extending along the entire opening, consisting of "No. 18 Gauge, U.S. Standard" wire one-half-inch mesh, or the equivalent.

(6) Nails provided for the construction of scaffolds shall be no less than eight-penny common.

(7) All planking shall be "Scaffold Grade," or equivalent, as recognized by approved grading rules for the species of wood used.

(8) All planking of platforms shall be overlapped a minimum of twelve inches or secured from movement.

(9) An access ladder or equivalent safe access shall be provided for all scaffolds.

(10) Scaffold planks shall extend over end supports no less than six inches and no more than twelve inches.

(11) The poles, legs, or uprights of scaffolds shall be plumb and securely and rigidly braced to prevent swaying and displacement.

(12) Overhead protection shall be provided for employees on a scaffold exposed to hazards from overhead.

(13) Reasonable care shall be taken to maintain all scaffold surfaces free of debris and slippery substances.

(14) No welding, burning, riveting, or open flame work shall be performed on any scaffolding suspended by means of fiber or synthetic rope. Only fiber or synthetic ropes, properly treated or protected, shall be used for or near any work involving the use of corrosive substances or chemicals.

(15) Wire, synthetic, or fiber rope used for scaffold suspension shall be capable of supporting no less than six times the maximum rated load.

(16) The use of shore or lean-to scaffolds is prohibited.

(17) When there is danger of material being hoisted striking against the scaffold, a tag line shall be provided.

(18) The free ends of fall lines from scaffolds shall be guarded.

(D) Wood pole scaffolds.

See appendix to this rule for examples of wood pole scaffolds.

(1) Scaffold poles shall bear on a foundation of sufficient size and strength to spread the load from the pole over a sufficient area to prevent settlement. All poles shall be set plumb.

(2) Where wood poles are spliced, the ends shall be squared and the upper section shall rest squarely on the lower section. Wood splice plates shall be provided on no less than two adjacent sides and shall be no less than four feet in length, overlapping the abutted ends equally, and have the same width and no less than the cross-sectional area of the pole. Splice plates or other materials of equivalent strength may be used.

(3) Independent pole scaffolds shall be set as near to the wall of the building as practicable.

(4) All pole scaffolds shall be securely guyed or tied to the building or structure. Where the height or length exceeds twenty-five feet, the scaffold shall be secured at intervals no greater than twenty-five feet vertically and horizontally.

(5) Putlogs or bearers shall be set with the greater dimension vertical, long enough to project over the ledgers of the inner and outer rows of poles no less than three inches for proper support.

(6) Every wooden putlog on single pole scaffolds shall be reinforced with a three-sixteenths-by-two-inch steel strip, or equivalent, secured to its lower edge throughout its entire length.

(7) Ledgers shall be long enough to extend over two pole spaces. Ledgers shall not be spliced between the poles. Ledgers shall be reinforced by bearing blocks securely fastened to the side of the pole to form a support for the ledger.

(8) Diagonal bracing shall be provided to prevent the poles from moving in a direction parallel with the wall of the building, and from buckling.

(9) Cross bracing shall be provided between the inner and outer sets of poles in independent pole scaffolds. The free ends of pole scaffolds shall be cross braced.

(10) Full diagonal face bracing shall be erected across the entire face of pole scaffolds in both directions. The braces shall be spliced only at the poles. The inner row of poles on medium and heavy duty scaffolds shall be braced in a similar manner.

(11) Platform planks shall be laid with their edges butted together so the platform shall be tight with no spaces through which tools or fragments of material can fall.

(12) Where planking is lapped, each plank shall lap its end supports no less than twelve inches. Where the ends of planks abut each other to form a flush floor, the butt joint shall be at the centerline of a pole. The abutted ends shall rest on separate bearers. Intermediate beams shall be provided where necessary to prevent dislodgment of planks due to deflection, and the ends shall be secured to prevent their dislodgment.

(13) When a scaffold materially changes its direction, the platform planks shall be laid to prevent tipping. The planks that meet the corner putlog at an angle shall be laid first, extending over the diagonally placed putlog far enough to have a good safe bearing, but not far enough to involve any danger from tipping. The planking running in the opposite direction at an angle shall be laid so as to extend over and rest on the first layer of planking.

(14) When moving platforms to the next level, the old platform shall be left undisturbed until the new putlogs or bearers have been set in place, ready to receive the platform planks.

(15) All wood pole scaffolds ⁸feet or less in height shall be constructed and erected in accordance with "Tables 10-1 to 10-6." If they are over sixty feet in height, they shall be designed by a professional engineer competent in this field, and shall be constructed and erected in accordance with such design.

⁸Prior and current versions differ; although no amendment to this language was indicated in the 4-1-99 version, "scaffolds

feet" appeared as "scaffolds sixty feet" in the 1979-80 OMR 4-61 version.

Table 10-1. Minimum nominal size and maximum spacing of members of single-pole scaffolds—light duty.

	Maximum height of scaffold	
	20 ft.	60 ft.
Uniformly distributed load	Not to exceed 25 p.s.f.	
Poles or uprights	2 × 4 in.	4 × 4 in.
Pole spacing (longitudinal)	6 ft. 0 in.	10 ft. 0 in.
Maximum width of scaffold	5 ft. 0 in.	5 ft. 0 in.
Bearers or putlogs to 3 ft. 0 in. width	2 × 4 in.	2 × 4 in.
Bearers or putlogs to 5 ft. 0 in. width	2 × 6 in. or 3 × 4 in.	2 × 6 in. or 3 × 4 in. (rough).
Ledgers	1 × 4 in.	1½ × 9 in.
Planking	1½ × 9 in. (rough)	2 × 10 in.
Vertical spacing of horizontal members	7 ft. 0 in.	9 ft. 0 in.
Bracing, horizontal and diagonal	1 × 4 in.	1 × 4 in.
Tie-ins	1 × 4 in.	1 × 4 in.
Toeboards	4 in. high (minimum)	4 in. high (minimum).
Guardrail	2 × 4 in.	2 × 4 in.

All members except planking shall be used on edge.

Table 10-2. Minimum nominal size and maximum spacing of members of single-pole scaffolds—medium duty.

Uniformly distributed load.	Not to exceed 50 p.s.f.
Maximum height of scaffolds.	60 ft.
Poles or uprights	4 × 4 in.
Pole spacing (longitudinal).	8 ft. 0 in.
Maximum width of scaffold.	5 ft. 0 in.
Bearers or putlogs	2 × 10 in. or 3 × 4 in.
Spacing of bearers or putlogs.	8 ft. 0 in.
Ledgers	2 × 10 in.
Vertical spacing of horizontal members.	7 ft. 0 in.
Bracing, horizontal	1 × 6 in. or 1½ × 4 in.
Bracing, diagonal	1 × 4 in.
Tie-ins	1 × 4 in.
Planking	2 × 10 in.
Toeboards	4 in. high (minimum).
Guardrail	2 × 4 in.

All members except planking shall be used on edge.

Table 10-3. Minimum nominal size and maximum spacing of members of single-pole scaffolds—heavy duty.

Uniformly distributed load.	Not to exceed 75 p.s.f.
Maximum height of scaffold.	60 ft.
Poles or uprights	4 × 6 in.
Pole spacing (longitudinal).	6 ft. 0 in.
Maximum width of scaffold.	5 ft. 0 in.
Bearers or putlogs	2 × 10 in. or 3 × 5 in.
Spacing of bearers or putlogs.	6 ft. 0 in.
Ledgers	2 × 10 in.
Vertical spacing of horizontal members.	6 ft. 6 in.
Bracing, horizontal and diagonal.	2 × 4 in.
Tie-ins	1 × 4 in.
Planking	2 × 10 in.
Toeboards	4 in. high (minimum).
Guardrail	2 × 4 in.

All members except planking shall be used on edge.

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Table 10-4. Minimum nominal size and maximum spacing of members of independent pole scaffold—light duty.

	Maximum height of scaffold	
	20 ft.	60 ft.
Uniformly distributed load	Not to exceed 25 p.s.f.	
Poles or uprights	2 × 4 in.	4 × 4 in.
Pole spacing (longitudinal)	6 ft. 0 in.	10 ft. 0 in.
Pole spacing (transverse)	6 ft. 0 in.	10 ft. 0 in.
Ledgers	1¼ × 4 in.	1¼ × 9 in.
Bearers to 3 ft. 0 in. span	2 × 4 in.	2 × 4 in.
Bearers to 10 ft. 0 in. span	2 × 6 in. or 3 × 4 in.	2 × 10 (rough) or 3 × 8 in.
Planking	1¼ × 9 in.	2 × 10 in.
Vertical spacing of horizontal members	7 ft. 0 in.	7 ft. 0 in.
Bracing, horizontal and diagonal	1 × 4 in.	1 × 4 in.
Tie-ins	1 × 4 in.	1 × 4 in.
Toeboards	4 in. high	4 in. high (minimum)
Guardrail	2 × 4 in.	2 × 4 in.

All members except planking shall be used on edge.

Table 10-5. Minimum nominal size and maximum spacing of members of independent pole scaffolds—medium duty.

Uniformly distributed load.	Not to exceed 50 p.s.f.
Maximum height of scaffold.	60 ft.
Poles or uprights	4 × 4 in.
Pole spacing (longitudinal)	8 ft. 0 in.
Pole spacing (transverse)	8 ft. 0 in.
Ledgers	2 × 10 in.
Vertical spacing of horizontal members	6 ft. 0 in.
Spacing of bearers	8 ft. 0 in.
Bearers	2 × 10 in.
Bracing, horizontal	1 × 6 in. or 1¼ × 4 in.
Bracing, diagonal	1 × 4 in.
Tie-ins	1 × 4 in.
Planking	2 × 10 in.
Toeboards	4 in. high (minimum).
Guardrail	2 × 4 in.

All members except planking shall be used on edge.

Table 10-6. Minimum nominal size and maximum spacing of members of independent pole scaffold—heavy duty.

Uniformly distributed load.	Not to exceed 75 p.s.f.
Maximum height of scaffold.	60 ft.
Poles or uprights	4 × 4 in.
Pole spacing (longitudinal)	6 ft. 0 in.
Pole spacing (transverse)	8 ft. 0 in.
Ledgers	2 × 10 in.
Vertical spacing of horizontal members	6 ft. 0 in.
Bearers	2 × 10 in. (rough).
Bracing, horizontal and diagonal	2 × 4 in.
Tie-ins	1 × 4 in.
Planking	2 × 10 in.
Toeboards	4 in. high (minimum).
Guardrail	2 × 4 in.

All members except planking shall be used on edge.

(E) Tube and coupler scaffolds.

VERTICAL LINE in margin denotes emergency rule, in effect for 90 days unless readopted.

Adopted November 2003

(1) The material used for couplers shall be of a structural type, such as drop-forged steel, malleable iron, or structural grade aluminum.

(2) A light duty tube and coupler scaffold shall have all posts, bearers, runners, and bracing of nominal two-inch outside-diameter (O.D.) steel tubing. The posts shall be spaced no more than six feet apart in width and ten feet apart in length. Other structural metals when used must be designed to carry an equivalent load. No dissimilar metals shall be used together.

(3) A medium duty tube and coupler scaffold shall consist of no less than nominal two-inch O.D. steel tubing in all posts, runners, and bracing. Where the posts are spaced no farther apart than five feet by eight feet, the bearers shall also be no less than nominal two-inch O.D. steel tubing. Where the posts are spaced at greater distances apart than five feet by eight feet, the bearers shall be of no than⁹ nominal two and one-half-inch O.D. steel tubing but, in no event, may the posts of a medium duty tube and coupler scaffold be spaced farther apart than six feet by eight feet. Other structural metals, when used, must be capable of carrying a load equivalent to the load supportable by the prescribed tube and coupler scaffold. No dissimilar metals shall be used together.

(4) A heavy duty tube and coupler scaffold shall have all posts, runners, and bracing of nominal two-inch O.D. steel tubing, with the posts spaced no more than six feet by six feet six inches. Other structural metals, when used, must be designed to carry an equivalent load. No dissimilar metals shall be used together.

(5) Tube and coupler scaffolds shall be limited in heights and working levels to those permitted in Tables 10-7 to 10-9. Drawings and specifications of all tube and coupler scaffolds above the limitations in Tables 10-7 to 10-9 shall be designed by a qualified engineer competent in this field.

Table 10-7. Tube and coupler scaffolds—light duty.

Uniformly distributed load . . .	Not to exceed 25 p.s.f.
Post spacing (longitudinal) . . .	10 ft. 0 in.
Post spacing (transverse)	6 ft. 0 in.

Working levels	Additional planked levels	Maximum height
1	8	125 ft.
2	4	125 ft.
3	0	91 ft. 0 in.

Table 10-8. Tube and coupler scaffolds—medium duty.

Uniformly distributed load . . .	Not to exceed 50 p.s.f.
Post spacing (longitudinal) . . .	8 ft. 0 in.
Post spacing (transverse)	6 ft. 0 in.

Working levels	Additional planked levels	Maximum height
1	6	125 ft.
2	0	78 ft. 0 in.

⁹So in original. Should this read "no less than"?

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Table 10-9. Tube and coupler scaffolds—heavy duty.

Uniformly distributed load . . .	Not to exceed 75 p.s.f.
Post spacing (longitudinal) . . .	6 ft. 6 in.
Post spacing (transverse)	6 ft. 0 in.

Working levels	Additional planked levels	Maximum height
1	6	125 ft.

(6) Posts shall be accurately spaced, erected on suitable bases, and maintained plumb.

(7) Runners shall be erected along the length of the scaffold, located on both the inside and the outside posts at even heights. Runners shall be interlocked to the inside and the outside posts at even heights. Runners shall be interlocked to form continuous lengths and coupled to each post. The bottom runners shall be located as close to the base as possible. Runners shall be placed no more than six feet six inches on centers.

(8) Bearers shall be installed transversely between posts and shall be securely coupled to the posts bearing on the runner coupler. When coupled directly to the runners, the coupler must be kept as close to the posts as possible.

(9) Bearers shall be no less than four inches and no more than twelve inches longer than the post spacing or runner spacing.

(10) Cross bracing shall be installed across the width of the scaffold no less than every third set of posts horizontally and every fourth runner vertically. Such bracing shall extend diagonally from the inner and outer runners upward to the next outer and inner runners.

(11) Longitudinal diagonal bracing on the inner and outer rows of poles shall be installed at approximately a forty-five degree angle from near the base of the first outer post upward to the extreme top of the scaffold. Where the longitudinal length of the scaffold permits, such bracing shall be duplicated beginning at every fifth post. In a similar manner, longitudinal diagonal bracing shall also be installed from the last post extending back and upward toward the first post. Where conditions preclude the attachment of this bracing to the posts, it may be attached to the runners.

(12) The entire scaffold shall be tied to and securely braced against the building at intervals not to exceed thirty feet horizontally and twenty-six feet vertically.

(F) Tubular welded frame scaffolds.

(1) Scaffolds shall be properly braced by diagonal braces for securing vertical members together laterally, and the cross braces shall be of such length as will automatically square and align vertical members so that the erected scaffold is always plumb, square, and rigid. All brace connections shall be made secure.

(2) Scaffold legs shall be set on adjustable bases or plain bases placed on mud sills or other foundations adequate to support four times the maximum rated load.

(3) The frames shall be placed one on top of the other with coupling or stacking pins to provide proper vertical alignment of the legs.

(4) Where uplift may occur, panels shall be locked together vertically by pins or other equivalent suitable means.

(5) To prevent movement, the scaffold shall be secured to the building or structure at intervals not to exceed thirty feet horizontally and twenty-six feet vertically.

(6) Maximum permissible spans or planking shall be in conformity with paragraph (C)(7) of this rule.

(G) Manually propelled mobile scaffolds.

(1) When free-standing mobile scaffold towers are used, the height of the work platform shall not exceed four times the minimum base dimension.

(2) Casters shall be properly designed for strength and dimensions to support four times the maximum rated load. All casters shall be provided with a locking device to hold the scaffold in position.

(3) Scaffolds shall be properly braced by cross bracing and horizontal bracing conforming with paragraph (F)(1) of this rule.

(4) Platforms shall be tightly planked for the full width of the scaffold except for necessary entrance opening. Platforms shall be secured in place.

(5) A ladder or stairway shall be provided for proper access and exit and shall be affixed or built into the scaffold and so located that when in use it will not have a tendency to tip the scaffold. A landing platform must be provided at intervals not to exceed thirty-five feet.

(6) Provision shall be made to stabilize the tower during movement from one location to another.

(7) The employer shall not require employees to ride on manually propelled scaffolds unless the following conditions exist:

(a) The floor or surface is within three degrees of level and free from pits, holes, or obstructions;

(b) When ready for rolling the height of the work platform shall not exceed two times the narrowest dimension of the base; when outriggers are used they shall be included in the base dimension and shall be installed on both sides of the staging;

(c) The wheels are equipped with rubber or similar resilient tires;

(d) All tools and materials are secured or removed from the platform before the mobile scaffold is moved.

(H) Elevated work platforms and self-propelled elevated work platforms.

(1) The minimum rated work load of a platform shall be no less than two hundred fifty pounds. The work platform and all structural components shall have a factor of safety of no less than four.

(2) Any work platform when raised to its maximum working height shall be capable of sustaining without reaching instability, a horizontal force of fifty pounds applied to any point on the platform while the platform is carrying the working load.

(3) The base shall not be used or placed on an inclined surface unless leveled by a device that is part of the unit.

(4) Work platform elevating assemblies.

(a) Factors of safety of elevating assembly.

(i) Where the platform is supporting its working load by a system of wire ropes or lift chains, or both, the factor of safety of the wire or chain shall be no less than six.

(ii) All critical components of a hydraulic or pneumatic system used in a work platform shall have a bursting strength that exceeds the pressure attained when the system is subjected to the equivalent of four times the maximum rated load. Critical components are those in which a failure would result in a free fall. All noncritical hydraulic components shall have a bursting factor of safety of no less than two.

(b) Systems protection.

(i) Where the elevation of the platform is accomplished by an electromechanical assembly, or a hydraulic or pneumatic cylinder assembly, the system shall be so equipped as to prevent free fall in the event of a power failure.

(ii) Where the elevation of the platform is accomplished by a hydraulic or pneumatic cylinder assembly, the system shall be so equipped as to prevent free fall in the event of a hydraulic or pneumatic line failure.

(iii) Where the elevation of the platform is accomplished by a single hoist cable, the system shall be protected by a broken-cable safety device.

(iv) Where the elevation of the platform is accomplished by manual-mechanical or manual-hydraulic assembly, the assembly shall be equipped to prevent free fall in case of failure.

(c) Controls.

(i) Any powered work platform shall have both upper and lower control devices. Controls shall be plainly marked as to their function and guarded to prevent accidental operation. The upper control device shall be in or beside the platform, within easy reach of the operator. The lower control device shall have the capability to lower the platform where the operator's safety is in jeopardy.

(ii) Each elevated work platform shall be equipped with a clear visible instruction plate stating:

(a) Rated capacity;

(b) Maximum platform height;

(c) Special warning or restrictions necessary for safe operation.

(iii) Protection to personnel.

(a) Pinch points and shear points shall be guarded with a barrier to prevent accidental or inadvertent entrapment of personnel while the work platform is being operated.

(b) All rotating shafts, gearing, and other moving parts shall be guarded.

(f) Outrigger scaffolds.

See appendix to this rule for examples of outrigger scaffolds.

(1) Outrigger beams shall extend no more than six feet beyond the face of the building. The inboard end of the outrigger beams, measured from the fulcrum point to anchorage point, shall be no less than one and one-half times the outboard end in length. The beams shall rest on edge, the sides shall be plumb, and the edges shall be horizontal. The fulcrum point of the beam shall rest on a secure bearing no less than six inches in each horizontal dimension. The beam shall be secured in place against movement and shall be securely braced at the fulcrum point against movement and shall be securely braced at the fulcrum point against tipping.

(2) The inboard ends of outrigger beams shall be securely anchored either by means of struts bearing against sills in contact with the overhead beams or ceiling, or by means of tension members secured to the floor joists underfoot, or by both if necessary. The inboard ends of outrigger beams shall be secured against tipping and the entire supporting structure shall be securely braced in both directions to prevent any horizontal movement.

(3) Unless outrigger scaffolds are designed by a professional engineer competent in this field, they shall be constructed and erected in accordance with "Table 10-10." Outrigger scaffolds, designed by a professional engineer, shall provide equivalent or greater safeguards than those required herein.

(4) Planking shall be laid tight and shall extend to within three inches of the building wall. Planking shall be secured to the beams.

Table 10-10. Minimum nominal size and maximum spacing of members of outrigger scaffolds.

	Light duty	Medium duty
Maximum scaffold load.	25 p.s.f.	50 p.s.f.
Outrigger size	2 x 10 in.	3 x 10 in.
Maximum outrigger spacing . . .	10 ft. 0 in.	6 ft. 0 in.
Planking	2 x 10 in.	2 x 10 in.
Guardrail	2 x 4 in.	2 x 4 in.

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Adopted November 2003

Table 10-10. Minimum nominal size and maximum spacing of members of outrigger scaffolds.

	Light duty	Medium duty
	25 p.s.f.	50 p.s.f.
Maximum scaffold load.		
Guardrail uprights	2 × 4 in.	2 × 4 in.
Toeboards	4 in.	4 in.
	(minimum)	(minimum).

(J) Masons' adjustable multiple-point suspension scaffolds. See appendix to this rule for examples of masons' adjustable multiple-point suspension scaffolds.

(1) The scaffold shall be capable of sustaining a working load of fifty pounds per square foot and shall not be loaded in excess of that figure.

(2) The scaffold shall be provided with hoisting machines that meet the requirements of "Underwriters' Laboratories or Factory Mutual Engineering Corporation."

(3) The platform shall be supported by wire ropes, capable of supporting no less than six times the intended load, suspended from overhead outrigger beams.

(4) The scaffold outrigger beams shall consist of structural metal securely fastened or anchored to the frame or floor system of the building or structure.

(5) Where an outrigger beam does not project more than six feet six inches beyond the bearing point, it shall be equivalent in strength to no less than a standard seven-inch, fifteen and three-tenths-pound steel I-beam no less than fifteen feet long.

(6) Where the overhang exceeds six feet six inches, outrigger beams shall be composed of stronger beams or multiple beams, providing proportionally greater strength than that required in paragraph (J)(5) of this rule.

(7) All outrigger beams shall be set and maintained with their webs in a vertical position.

(8) A stop bolt shall be placed at each end of every outrigger beam.

(9) The outrigger beam shall rest on suitable wood bearing blocks.

(10) The free end of the suspension wire ropes shall be equipped with proper size thimbles and secured by splicing or other equivalent means. The running ends shall be securely attached to the hoisting drum and no less than four turns of wire-rope shall at all times remain on the drum. The use of fiber rope is prohibited.

(11) Where a single outrigger beam is used, the steel shackles or clevises with which the wire ropes are attached to the outrigger beams shall be placed directly over the hoisting drum.

(12) The scaffold platform shall be equivalent in strength to no less than two-inch planking.

(13) When employees are at work on the scaffold and a hazard exists from overhead, overhead protection shall be provided on the scaffold, no more than nine feet above the platform, consisting of two-inch planking, or material of equivalent strength, laid tight, and extending no less than the width of the scaffold.

(K) Two-point suspension scaffolds (swinging scaffolds).

See appendix to this rule for examples of swinging scaffolds.

(1) Two-point suspension scaffold platforms shall be no less than twenty inches and no more than thirty-six inches wide overall. The platform shall be securely fastened to the hangers by U-bolts or by other equivalent means.

(2) The hangers of two-point suspension scaffolds shall be made of mild steel, or other equivalent materials, having a

cross-sectional area capable of sustaining four times the maximum rated load, and shall be constructed to accommodate a guardrail, intermediate rail, and toeboard.

(3) When hoisting machines are used on two-point suspension scaffolds, such machines shall be of a design tested and approved by "Underwriters' Laboratories or Factory Mutual Engineering Corporation."

(4) Employees shall not be required to use a bridge between, or to move directly from [sic], one swinging scaffold and another.

(5) The roof irons or hooks shall be of mild steel, or other equivalent material, of proper size and design, securely installed and anchored. Tiebacks of three-quarter-inch manila rope, or the equivalent, shall serve as an additional means of anchorage, installed at right angles to the face of the building, whenever possible, and secured to a structurally sound portion of the building.

(6) Two-point suspension scaffolds shall be suspended by wire, synthetic, or fiber ropes capable of supporting no less than six times the maximum rated load. All other components shall be capable of supporting no less than four times the maximum rated load.

(7) The sheaves of all blocks shall fit the size and type of rope used.

(8) No more than two employees shall be required to be on a two-point suspension scaffold designed for a working load of five hundred pounds at any time. No more than three employees shall be required to be on a two-point suspension scaffold designed for a working load of seven hundred pounds, at any time. Each employee shall be protected by an approved safety belt or harness attached to a lifeline. The lifeline shall be securely attached to substantial members of the structure (not scaffold) or to securely rigged lines, which will safely suspend the employee in case of a fall.

(9) Two-point suspension scaffolds shall be securely lashed to the building or structure to prevent them from swaying. Window cleaners' anchors shall not be used for this purpose.

(10) The platform of every two-point suspension scaffold shall be one of the following types:

(a) Ladder-type platforms.

Ladder-type platforms shall be capable of sustaining four times the maximum rated load and shall be constructed in accordance with "Table 10-11."

(b) Plank-type platforms.

Plank-type platforms shall be composed of no less than "Scaffold Grade" two-inch by ten-inch unspliced planks, properly cleated together on the underside, starting six inches from [sic] each end; intervals in between shall not exceed four feet. The plank-type platform shall not extend beyond the hangers more than twelve inches. A bar or other effective means shall be securely fastened to the platform at each end to prevent its slipping off the hanger. The span between hangers for plank-type platforms shall not exceed eight feet.

(c) Beam-type platforms.

Beam-type platforms shall have side stringers of lumber no less than two inches by six inches set on edge. The span between hangers shall not exceed twelve feet when beam platforms are used. The flooring shall be supported on two-inch by six-inch cross beams, laid flat and set into the upper edge of the stringers with a snug fit, at intervals of no more than four feet, securely nailed in place. The flooring shall be of one-inch by six-inch material, or equivalent, properly nailed. Floor boards shall be spaced no more than one-half-inch apart.

(d) Light metal-type platforms.

Approved light metal-type platforms shall meet the requirements of paragraph (C)(2) of this rule.

VERTICAL LINE in margin denotes emergency rule, in effect for 90 days unless readopted.

Table 10-11. Schedule for ladder-type platforms.

	Length of Platform (feet)				
	12	14 and 16	18 and 20	22 and 24	28 and 30
Side Stringers, minimum cross section (finished sizes):					
At ends (inches)	1-3/4 x 2-3/4	1-3/4 x 2-3/4	1-3/4 x 3	1-3/4 x 3	1-3/4 x 3-1/2
At middle (inches)	1-3/4 x 3-3/4	1-3/4 x 3-3/4	1-3/4 x 4	1-3/4 x 4-1/4	1-3/4 x 5
Reinforcing strip (minimum)	A 1/8 x 7/8-inch steel reinforcing strip or its equivalent shall be attached to the side or underside, full length.				
Rungs	Rungs shall be 1-1/8 inches minimum diameter with at least 7/8-inch diameter tenons, and the maximum spacing shall be 12 inches center to center.				
Tie Rods:					
Number (minimum)	3	4	4	5	6
Diameter (minimum)	1/4 inch	1/4 inch	1/4 inch	1/4 inch	1/4 inch
Flooring, minimum finished size (inches)	1/2 x 2-3/4	1/2 x 2-3/4	1/2 x 2-3/4	1/2 x 2-3/4	1/2 x 2-3/4

(L) Single-point adjustable suspension scaffolds.

(1) The scaffolding, including power units or manually operated winches, shall be of an approved type and shall meet the requirements of paragraph (C)(2) of this rule.

(2) All power-operated gears and brakes shall be enclosed.

(3) In addition to the normal operating brake, all power-driven units shall have an emergency brake which engages automatically when the normal speed of descent is exceeded.

(4) The units may be combined to form a two-point suspension scaffold. Such scaffold shall then comply with paragraph (K) of this rule.

(5) The supporting cable shall be vertical for its entire length.

(6) Suspension methods shall conform to applicable provisions of paragraphs (J) and (K) of this rule.

(7) The employee shall be protected by a safety belt or harness and lifeline in accordance with paragraph (J) of rule 4121:1-3-03 of the Administrative Code. The attachment point of the lifeline to the structure shall be appropriately changed as the work progresses.

(M) Boatswains' chairs.

(1) When constructed of wood the chair seat shall be no less than twelve inches by twenty-four inches by one-inch thickness, reinforced by cleats on the underside to prevent splitting. A chair of the same size may be constructed of material of equal strength.

(2) Seat slings shall be of no less than five-eighths-inch diameter, "First Grade" manila rope, or its equivalent, which shall be reeved through the four seat holes so as to cross each other on the underside of the seat.

(3) Seat slings shall be of no less than three-eighths-inch wire rope when an employee is conducting a heat-producing process, such as gas or arc welding.

(4) The employee shall be protected by a safety belt or harness and lifeline in accordance with paragraph (J) of rule 4121:1-3-03 of the Administrative Code. The attachment point of the lifeline to the structure shall be appropriately changed as the work progresses.

(5) The tackle shall consist of correct size ball bearing or bushed blocks and properly spliced five-eighths-inch diameter, "First Grade" manila rope, or equivalent.

(6) The roof irons, hooks, or the object to which the tackle is anchored, shall be securely installed. Tiebacks shall be

installed at right angles to the face of the building and securely fastened when using wall hooks.

(N) Carpenters' bracket scaffolds.

(1) The brackets shall consist of a triangular wood frame no less than two inches by three inches in cross section, or of metal of equivalent strength. Each member shall be properly fitted and securely joined.

(2) Each bracket shall be secured to the structure by a means which shall provide a factor of safety of no less than four.

(3) The brackets shall be spaced no more than eight feet apart.

(4) The platform shall consist of no less than two two-inch by ten-inch "Scaffold Grade" planks extending no more than twelve inches or less than six inches beyond each end support.

(O) Bricklayers' square scaffolds.

(1) Bricklayers' square scaffolds shall conform to "Table 10-12" and the square shall not exceed five feet in width and five feet in height.

(2) The squares shall be reinforced on both sides of each corner with one-inch by six-inch gusset pieces. They shall also have diagonal braces one inch by eight inches on both sides running from center to center of each member, or other means to secure equivalent strength and rigidity.

(3) The squares shall be set no more than five feet apart for medium duty scaffolds, and no more than eight feet apart for light duty scaffolds. Bracing, one inch by eight inches, extending from the bottom of each square to the top of the next square, shall be provided on both front and rear sides of the scaffold.

(4) Platform planks shall be no less than two-inch by ten-inch "Scaffold Grade." The ends of the planks shall overlap the bearers of the squares and each plank shall be supported by no less than three squares.

(5) Bricklayers' square scaffolds shall not exceed three tiers in height and shall be so constructed and arranged that one square shall rest directly above the other. The upper tiers shall stand on a continuous row of planks laid across the next lower tier and be nailed down or otherwise secured to prevent displacement.

(6) Scaffolds shall be level and plumb and set upon a firm foundation.

Table 10-12. Minimum dimensions for bricklayers' square scaffold members.

Members	Dimensions
Bearers or horizontal members	2 × 6 in.
Legs	2 × 6 in.
Braces at corners	1 × 6 in.
Braces diagonally from center frame	1 × 8 in.

(P) Foot scaffolds.

(1) Foot scaffolds shall not exceed eighteen inches in height, measured from the level upon which the supports are placed.

(2) Foot scaffolds imposed on other scaffolds when supported on brick or tile, shall be limited to eighteen inches in height and have a bearing surface of no less than ninety-six square inches. Supports shall be no more than seven feet cent [sic] to center.

(Q) Horse scaffolds.

(1) Horse scaffolds shall not be constructed or arranged more than two tiers in height.

(2) The members of the horses shall be no less than those specified in "Table 10-13."

(3) Horses shall be spaced no more than five feet for medium duty and no more than eight feet for light duty.

(4) When arranged in tiers, each horse shall be placed directly over the horse in the tier below.

(5) On all scaffolds arranged in tiers, the legs shall be nailed down or otherwise secured to the planks to prevent displacement or thrust and each tier shall be substantially cross braced.

(6) Defective or damaged horses or parts shall not be used.

Table 10-13. Minimum dimensions for horse scaffold members.

Members	Dimensions
Horizontal members or bearers	3 × 4 in.
Legs	1-1/4 × 4-1/2 in.
Longitudinal brace between legs	1 × 6 in.
Cusset brace at top of legs	1 × 8 in.
Half diagonal braces	1-1/4 × 4-1/2 in.

(R) Chimney, stack, or tank bracket scaffolds.**(1) Minimum width.**

The minimum width of platform shall be no less than eighteen inches.

(2) Spacer blocks.

Spacer blocks, large enough to hold the suspending cable away from the structure, shall be provided.

(3) Ascending and descending.

For ascending to and descending from a chimney, stack, or tank bracket scaffold, a scaling ladder or boatswain's chair shall be provided.

(4) Platforms on masonry chimneys or stacks.

Platforms supported on the rim of masonry chimneys or stacks are prohibited.

(5) Inside scaffolds.

In construction of chimneys or stacks where an inside scaffold is being used, the working platform shall be no less than eighteen inches below the top of the wall.

(6) Guardrails.

Chimney, stack, or tank bracket scaffolds shall be provided with standard guardrails, but no guardrail is required when safety belts with lifelines are provided.

(S) Needle beam scaffolds.

(1) Wood needle beams shall be no less than four inches by six inches in size, with the greater dimensions placed in a vertical direction. Metal beams or the equivalent, conforming to paragraph (C)(2) of this rule may be used and shall not be altered or moved horizontally while they are in use.

(2) Ropes or hangers shall be provided for supports. The span between supports on the needle beam shall not exceed ten feet for four-inch by six-inch timbers. Rope supports shall be equivalent in strength to one-inch diameter "First Grade" manila rope.

(3) The scaffold shall be rigged so as to prevent the needle beam from rolling or becoming otherwise displaced.

(4) The platform span between the needle beams shall not exceed eight feet when using two-inch "Scaffold Grade" planks. For spans greater than eight feet, platforms shall be constructed based on design requirements for the special span. The overhang of each end of the platform planks shall be no less than six inches and no more than twelve inches. Planks shall be secured against displacement.

(5) All unattached tools, bolts, and nuts used on needle beam scaffolds shall be kept in suitable containers, properly secured.

(6) One end of a needle beam scaffold may be supported by a permanent structural member conforming to paragraph (C)(2) of this rule.

(7) Each employee working on a needle beam scaffold shall be protected by a safety belt or harness and lifeline in accordance with paragraph (J) of rule 4121:1-3-03 of the Administrative Code.

(T) Interior hung scaffolds.

(1) An interior hung scaffold shall be hung or suspended from a structure capable of providing a factor of safety of no less than four.

(2) The suspending wire or fiber rope shall be capable of supporting no less than six times the maximum rated load.

(3) The scaffold shall be designed to sustain a working load with a factor of safety of no less than four.

(4) For wood scaffolds, the following minimum scaffold grade material shall be used:

(a) Supporting bearers, two inches by ten inches on edge;

(b) Planking, two inches by ten inches, with maximum span of seven feet for heavy duty and ten feet for light duty or medium duty.

(5) Steel tube and coupler members may be used for such type scaffolds.

(U) Ladder jack scaffolds.

(1) All ladder jack scaffolds shall be limited to light duty and shall not exceed a height of twenty feet above the floor or ground.

(2) All ladders used in connection with ladder jack scaffolds shall be heavy duty ladders. Cleated ladders shall not be used for this purpose.

(3) The ladder jack shall be so designed and constructed that it will bear on the side rails in addition to the ladder rungs, or if bearing on rungs only, the bearing area shall be no less than ten inches on each rung.

(4) Ladders used in conjunction with ladder jacks shall be so placed, fastened, held, or equipped with devices so as to prevent slipping.

(5) The platform shall be "Scaffold Grade," two-inch by ten-inch plank, or material of equal strength. Planks shall overlap the bearing surface no less than twelve inches. The span between supports shall not exceed eight feet. Platform width shall be no less than eighteen inches and provide a factor of safety of no less than four.

(V) Window jack scaffolds.

(1) Window jack scaffolds shall be used only for the purpose of working at the window opening through which the jack is placed.

VERTICAL LINE in margin denotes emergency rule, in effect for 90 days unless readopted.

(2) Window jacks shall not be used to support planks spaced between one window jack and another or for other elements of scaffolding.

(3) Window jack scaffolds shall be provided with standard guardrails unless safety belts or harnesses with lifelines are attached and provided for the employee.

(4) No more than one employee shall be required to occupy a window jack scaffold.

(W) Float or ship scaffolds.

See appendix to this rule for examples of float or ship scaffolds.

(1) No more than three employees shall be required to occupy a float or ship scaffold.

(2) The platform shall be no less than three feet wide and six feet long, made of three-quarter-inch plywood, equal to "American Plywood Association Grade B-B, Group I, Exterior," or other equivalent material.

(3) Under the platform, there shall be two supporting bearers made from two-inch by four-inch, or one-inch by ten-inch, rough, select lumber or better. Bearers shall be free of knots or other flaws and project six inches beyond the platform on both sides. The ends of the platform shall extend six inches beyond the outer edges of the bearers. Each bearer shall be securely fastened to the platform.

(4) An edging of wood no less than three-fourths by one and one-half inches shall be placed around all sides of the platform to prevent tools from rolling off.

(5) Supporting ropes shall be one-inch diameter manila rope, or equivalent, providing a factor of safety of no less than six. Rope connections shall be such that the platform cannot shift or slip. Two ropes shall be used with each float, arranged so as to provide four ends which are to be securely fastened to an overhead support. Each of the two supporting ropes shall be securely fastened around one end of the bearer and pass under the platform to the other end of the bearer where it shall be securely fastened again, leaving sufficient rope at each end for the supporting ties.

(X) Form scaffolds.

See appendix to this rule for examples of various types of form scaffolds covered under this rule.

(1) General requirements for all form scaffolds.

(a) All form scaffolds and their components shall be capable of supporting without failure no less than four times the maximum rated load.

(b) Maximum permissible spans shall not exceed eight feet on centers for two-inch by ten-inch "Scaffold Grade" planking. Scaffold planks shall be securely fastened to the ledgers or of such length that they overlap the ledgers no less than six inches. Unsupported projecting ends of scaffolding planks of all form scaffolds shall be limited to a maximum overhang of twelve inches.

(2) Figure-four form scaffolds.

Figure-four form scaffolds are intended for light duty and shall not be used to support loads exceeding twenty-five pounds per square foot unless specifically designed for heavier loading. Frames shall be spaced no more than eight feet on centers. (For minimum design criteria, see "Table 10-14").

Table 10-14. Minimum design criteria for figure-four form scaffolds.

Members	Dimensions
Uprights	2 × 4 in. or 2 × 6 in.
Outrigger ledgers (two)	1 × 6 in.
Braces	1 × 6 in.
Guardrails	2 × 4 in.

Table 10-14. Minimum design criteria for figure-four form scaffolds.

Members	Dimensions
Guardrail height	Approximately 42 in.
Intermediate guardrails	1 × 6 in.
Toeboards	4 in. (minimum)
Maximum length of ledgers	3 ft. 6 in. (unsupported)
Planking	2 × 10 in.
Upright spacing	8 ft. 0 in. (on centers)

(3) Metal bracket form scaffolds.

(a) Metal brackets or scaffold jacks which are an integral part of the form shall be securely bolted or welded to the form. Folding type brackets shall be either bolted or secured with a locking type pin when extended for use.

(b) "Clip-on" or "hook-over" brackets may be used, provided the form walers are bolted to the form or secured by snapties or shea-bolt extending through the form and securely anchored.

(c) Metal brackets shall be spaced no more than eight feet on centers.

(d) Scaffold planks shall be either bolted to the metal brackets or of such length that they overlap the brackets at each end by no less than six inches. Unsupported projecting ends of scaffold planks shall be limited to a maximum overhang of twelve inches.

(e) Metal bracket form scaffolds shall be equipped with standard guardrails and toeboards, meeting the minimum dimensions shown in "Table 10-15."

Table 10-15. Minimum design criteria for metal bracket form scaffolds.

Members	Dimensions
Uprights	2 × 4 in.
Guardrails	2 × 4 in.
Guardrail height	Approximately 42 in.
Intermediate guardrails	1 × 6 in.
Toeboards	4 in. (minimum)
Planking	2 × 9 in.

(4) Wooden bracket form scaffolds.

Wooden bracket form scaffolds shall be an integral part of the form panel. The minimum design criteria set forth herein and in "Table 10-16" cover scaffolding intended for light duty and shall not be used to support loads exceeding twenty-five pounds per square foot, unless specifically designed for heavier loading.

Table 10-16. Minimum design criteria for wooden bracket form scaffolds.

Members	Dimensions
Uprights	2 × 4 in. or 2 × 6 in.
Support ledgers	2 × 6 in.
Maximum scaffold width	3 ft. 6 in.
Braces	1 × 6 in.
Guardrails	2 × 4 in.
Guardrail height	Approximately 42 in.
Intermediate guardrails	1 × 6 in.

Table 10-16. Minimum design criteria for wooden bracket form scaffolds.

Members	Dimensions
Toeboards	4 in. (minimum)
Upright spacing	8 ft. 0 in. (on centers)

(Y) Pump jack scaffolds.

(1) Pump jack scaffolds shall:

(a) Not carry a working load exceeding five hundred pounds; and

(b) Be capable of supporting no less than four times the maximum rated load.

(c) The manufactured components shall not be loaded in excess of the manufacturer's recommended limits.

(2) Each pump jack bracket shall have two gripping mechanisms to prevent any failure or slippage.

(3) The platform bracket shall be fully decked and the planking secured. Planking, or equivalent, shall conform with paragraph (C)(7) of this rule.

(4) Poles and bracing.

(a) When wood scaffold planks are used as platforms, poles for pump jacks shall be spaced no more than ten feet center to center. When fabricated platforms are used that fully comply with all other provisions of this section, pole spacing may exceed ten feet center to center.

(b) Poles shall not exceed thirty feet in height.

(c) Poles shall be secured to the work surface by rigid triangular bracing, or equivalent, at the bottom, top and other points as necessary, to provide a maximum vertical spacing of no more than ten feet between braces. Each brace shall be capable of supporting a minimum of two hundred twenty-five pounds tension and compression.

(d) For the pump jack bracket to pass bracing already installed, an extra brace shall be used approximately four feet above the one to be passed until the original brace is reinstalled.

(e) All poles shall bear on mud sills or other firm foundations.

(f) Pole lumber shall be two-by-fours, of Douglas fir, or equivalent, straight-grained, clear, free of cross-grain, shakes, large knots, and other defects which might impair strength.

(g) When poles are constructed of two continuous lengths, they shall be two-by-fours, spiked together with the seam parallel to the bracket, and with ten-penny common nails, no more than twelve inches center to center, staggered uniformly from opposite outside edges.

(h) If two-by-fours are spliced to make up the pole, the splices shall be so constructed as to develop the full strength of the member.

(5) A ladder shall be provided for access to the platform during use.

(6) No more than two employees shall be required at any time to be on a pump jack scaffold between any two supports.

(7) Pump jack scaffolds shall be provided with standard guardrails, but no guardrail is required when safety belts or harnesses with lifelines are provided for employees.

(8) When a work bench is used at an approximate height of forty-two inches, the top guardrail may be omitted in the space occupied by the work bench, if the work bench is fully decked, the decking is secure, and is capable of withstanding two hundred pounds pressure in any direction.

(9) Employees shall not be required to use a work bench as a scaffold platform.

(Z) Stilts.

The maximum height of stilts shall be thirty-six inches. Stilts shall be equipped with "feet" of skid resistant material. Means

shall be provided to securely fasten the stilts to the employee's feet and legs. The floor in the work area shall be maintained free of debris and other possible hazards.

File: 61-11-1-03

RC 119,032 rule review date(s): 3-1-03; 3-1-98

Ed. Note: Effective 11-1-03, 4123:1-3-10 contains provisions of former 4121:1-3-10.

Ed. Note: The appendix to this rule, eff. 4-1-99, is referenced only. Appendices are generally available on Westlaw and/or CD-ROM. Subscribers who wish to obtain a copy may request one from the publisher, the Legislative Service Commission, or the issuing agency.

CROSS REFERENCES

- RC 4121.12, Workers' compensation oversight commission
- RC 4121.121, Appointment and duties of administrator
- RC 4121.13, Powers and duties of administrator
- RC 4121.47, Violation of specific safety rule
- O Const Art II, § 35, Workers' compensation

4123:1-3-11 Ladders

(A) Reserved.

(B) Definitions.

(1) "Cleat ladder" means a ladder consisting of one section having two side rails and steps formed of cleats attached to the side rails with fillers between the cleats.

(2) "Extension ladder" means a portable ladder, adjustable in length. It consists of two or more sections traveling in guides or brackets so arranged as to permit length adjustment. Its size is designated by the sum of the lengths of the sections measured along the side rails.

(3) "Extension trestle ladder" means a portable ladder consisting of an "A" or trestle ladder with an additional vertical single ladder, having parallel sides, which adjustable perpendicularly and is provided with a device to lock it into place. Its size is designated by the length of the trestle ladder base.

(4) "Fixed ladder", as used in this rule, means a ladder securely fastened in a fixed position, whether to remain as part of the structure or for use during a part or all of the construction period.

(5) "Ladder" means a piece of equipment usually consisting of two side rails joined at regular intervals by cross-pieces called steps, treads, rungs, or cleats, on which an employee may step in ascending or descending.

(6) "Sectional ladder" means a portable ladder, nonadjustable in length, consisting of two or more sections so constructed that the sections may be combined to function as a single ladder. Its size is designated by the over-all length of the assembled sections.

(7) "Single ladder" means a portable, nonadjustable ladder consisting of but one section.

(8) "Step ladder" means a self-supporting portable ladder, nonadjustable in length, having flat steps or treads and a hinged back. Its size is designated by the over-all length of the ladder measured along the front edge of the side.

(9) "Trestle, or "A", ladder" means a self-supporting portable ladder, nonadjustable in length, consisting of two sections hinged at the top of [sic] form equal angles with the base. The size is designated by the length of the side rail measured along the front edge.

(C) General requirements for all ladders.

(1) Construction.

VERTICAL LINE in margin denotes emergency rule, in effect for 90 days unless readopted.

ance with paragraph (I)(6) of rule 4121:1-5-17 of the Administrative Code.

(10) Employees shall not be required to use a bridge, or to move directly, between one swinging scaffold and another.

(11) Each swinging scaffold shall be securely fastened to the building or structure at each work location to prevent it from swaying. Window cleaners' anchors shall not be used for this purpose. Tie-in anchors designed for the rated load of the scaffold may be used.

(12) The platform of every swinging scaffold shall be capable of sustaining four times the rated load.

(13) All swinging scaffolds shall have standard guardrails and toeboards on all unprotected sides of platforms.

(14) The free ends of fall lines from scaffolds shall be guarded to prevent tangling or snagging.

HISTORY: 2003-04 OMR 1250 (A-1F 4121:1-5-03) eff. 11-1-03

RC 119.032 rule review date(s): 3-1-03; 3-1-98

¹ Prior and current versions differ; although no amendment to this language was indicated in the 4-1-99 version, "minimum" appeared as "maximum" in the 1985-86 OMR 42 version.

² So in original. Should this read "designated agent"?

³ Prior and current versions differ; although no amendment to this language was indicated in the 4-1-99 version, "building permits" appeared as "building. When no structurally sound portion of the building permits" in the 1985-86 OMR 42 version.

⁴ Prior and current versions differ; although no amendment to this language was indicated in the 4-1-99 version, "building permits" appeared as "building. When no structurally sound portion of the building permits" in the 1985-86 OMR 42 version.

Historical and Statutory Notes

Ed. Note: Effective 11-1-03, 4123:1-5-03 contains provisions of former 4121:1-5-03.

Cross References

O Const Art II, § 35, Workers' compensation
RC 4121.12, Workers' compensation oversight commission

RC 4121.121, Appointment and duties of administrator
RC 4121.13, Powers and duties of administrator
RC 4121.47, Violation of specific safety rule

4123:1-5-04 Mechanical power transmission apparatus

(A) Scope.

This rule applies to mechanical power transmission apparatus and facilities to transmit power to operating equipment or machine tools. This rule shall not be construed as being applicable to power transmission facilities located within the frame of the equipment and exposure is necessary to its operation or adjustment.

(B) Reserved.

(C) Belts and pulleys.

(1) Horizontal belts (not including conveyors or conveyor belts).

Horizontal belts and pulleys seven feet or less above floor or platform shall be guarded as follows:

(a) If upper part of belt is seven feet or less from floor level, the belt or pulley shall be enclosed on top, bottom, sides and ends. **Note:** In power or power development plants a standard guard railing may be used in lieu of this requirement.

(b) If lower part of belt is seven feet or less above platform or floor level and upper part of belt more than seven feet above platform or floor level, the lower part of belt and pulley shall be guarded on bottom, sides and ends, to a height of seven feet above floor or platform level. Guarding shall be in accordance with rule 4121:1-5-99 of the Administrative Code.

(c) Horizontal overhead belts more than seven feet above floor or platform shall be guarded for their entire length under the following conditions:

(i) If located over passageways or work places and traveling eighteen hundred feet or more per minute;

(ii) If center to center distance between pulleys is ten feet or more;

(iii) If belt is eight inches or more in width.

(d) Where passageway is provided between upper and lower parts of belts, the passageway shall be guarded on sides, top and bottom.

(2) Vertical and inclined belts (not including conveyors or conveyor belts).

Vertical and inclined belts and their pulleys seven feet or less above floor or platform level shall be guarded in accordance with rule 4121:1-5-99 of the Administrative Code.

(3) Vee belts.

Vee belts and their pulleys, where exposed to contact, shall be guarded.

(4) Rope drives.

Rope drives and their pulleys, where exposed to contact, shall be guarded.

(D) Gears, sprockets, link belts and friction drives.

(1) Set or train of gears.

(a) A set or train of gears is two or more power-driven gears that move and intermesh. This does not apply to adjusting gears which do not normally revolve and are not power-operated, or to adjusting gears which require access to the gears for manual manipulation.

(b) Guarding.

All or any part of a set or train of gears seven feet or less above floor or platform level shall be completely guarded or have a band guard around the face of the gear with the side flanges extending inward beyond the root of the teeth. Where there are openings of more than two and one-half inches between arm or through web, the entire gear shall be guarded. Guarding shall be in accordance with rule 4121:1-5-99 of the Administrative Code and shall be securely fastened in place.

(2) Frictional disc, link belt and sprocket drives.

Frictional disc, link belt and sprocket drives shall be guarded.

(E) Shafts, collars couplings and flywheels.

(1) Guarding of horizontal shafting.