

4123:1-21-01 Scope and definitions.

(A) Scope.

The purpose of Chapter 4123:1-21 of the Administrative Code (hereinafter "this chapter") is to provide reasonable safety for life, limb, and health of employees.

The requirements of this chapter are minimum requirements of an employer for the protection of such employer's employees and no others, and constitute protective standards for all regular members of lawfully constituted fire departments of municipal corporations and townships, whether paid or volunteer, and employees employed in private or contractual-type fire departments that serve the public, who are engaged in the act of fire fighting. The requirements of this chapter do not apply to employees employed in industrial fire brigades, industrial fire departments, and private or contractual-type fire departments that do not serve the public. To the extent that any other codes of specific requirements adopted by the bureau of workers' compensation may conflict with the requirements of this chapter, this chapter shall prevail.

In cases of practical difficulty or unnecessary hardship, the administrator of the bureau of workers' compensation may grant exemptions from the literal provisions of these requirements or permit the use of other devices or methods when, in the opinion of the administrator, equivalent protection is thereby secured.

Unless otherwise indicated, materials or equipment bought or contracted for prior to the effective date of any requirement of this chapter shall be deemed to comply with the provisions of these requirements, if such materials or equipment complies either with the provisions of these requirements or with the provisions of any applicable specific requirement that was in effect at the time contracted for or bought.

(B) Definitions.

- (1) "Aerial device": An aerial ladder, elevating platform, aerial fire apparatus, or water tower that is designed to position personnel, handle materials, provide egress, and discharge water.
- (2) "Aerial ladder": A self-supporting, turntable-mounted, power-operated ladder of two or more sections permanently attached to a self-propelled automotive fire apparatus and designed to provide a continuous egress route from an elevated platform to the ground.
- (3) "Aerial fire apparatus": a vehicle equipped with an aerial ladder, elevating platform, or water tower that is designed and equipped to support fire fighting and rescue operations by positioning personnel, handling materials, providing continuous egress, or discharging water at positions elevated from the ground.
- (4) "Air flow control device": a manual or automatic device incorporated in the air flow system of a self-contained breathing apparatus to control the free flow of air to the facepiece during donning or doffing.
- (5) "Angle of approach": the smallest angle made between the road surface and a line drawn from the front point of ground contact of the front tire to any projection of the apparatus in front of the front axle.
- (6) "Angle of departure": the smallest angle made between the road surface and a line drawn from the rear point of ground contact of the rear tire to any projection of the apparatus behind the rear axle.
- (7) "Attack hose": hose designed to be used to combat fires beyond the incipient stage to supply handline nozzles, distributor nozzles, master stream appliances, portable hydrants, manifolds, standpipe and sprinkler systems, pumps, and fire department pumpers.

- (8) "Attic extension ladder": an extension ladder that is specifically designed to be used to gain entry through a scuttle, hatch, or other restricted opening.
- (9) "Base (bed) section": the lowest, or widest, section of non-self-supporting ground ladders.
- (10) "Basic plane": the plane through the centers of the external ear openings and the lower edges of the eye sockets of a human head.
- (11) "Beam (side rail)": the main structural side of a ground ladder.
- (12) "Bedded position": the position in which fly section(s) of extension ladders are stored in the nonextended position with the pawls resting on a rung of the supporting section.
- (13) "Booster hose": a hose having a rubber tube, a braided or spiraled reinforcement, and an outer protective cover. It is intended for use on fire apparatus.
- (14) "Braided hose": a nonwoven rubber hose manufactured by braiding one or more layers of yarn, each separated by a rubber layer over a rubber tube and encased in a rubber cover. Usually manufactured for use as booster hose in sizes up to one and one-half inches.
- (15) "Butt": the end of the beam placed on the ground or other lower support surface when ground ladders are in the raised position. It may be the lower end of beams or added devices.
- (16) "Butt spurs (foot)": that component of ground ladder support which is in contact with the lower support surface to reduce slippage. It may be the lower end of beams or added devices.
- (17) "Certification organization": an independent, third-party organization that determines product compliance with the requirements of NFPA standards with a labeling/listing/follow-up program.
- (18) "Char": the formation of a brittle residue when material is exposed to thermal energy.
- (19) "Chin strap": an adjustable strap fitting under the chin to secure the helmet to the head.
- (20) "Coat": a garment worn to protect the upper part of the body except the hands and head. Also referred to as "protective coat" in this chapter of the Administrative Code.
- (21) "Combination ladder": a ground ladder capable of being used both as a step ladder and single or extension ladder.
- (22) "Coronal plane": the plane, perpendicular to the basic and mid-sagittal planes, which passes through the centers of the external ear openings of a human head.
- (23) "Crown straps": the part of a suspension that passes over the head.
- (24) "Dangerous to life or health": conditions that pose a threat to life or health, or conditions that pose a threat of severe exposure to contaminants, such as radioactive materials, which are likely to have adverse cumulative or delayed effects on health.
- (25) "Ear covers": an interface component of the protective helmet element that provides limited protection to the helmet/coat interface area.
- (26) "Elevating platform": a self-supporting, turntable-mounted device consisting of a personnel-carrying platform attached to the uppermost boom of a series of power-operated booms that articulate, telescope,

or both.

- (27) "Energy absorbing system": a material or suspension system, or combination thereof, incorporated into the design of a helmet to attenuate impact energy.
- (28) "Escape rope": a single-purpose emergency self-escape/self-rescue rope. It has a diameter of 0.295 inch (7.5 mm) or greater and less than three-eighths inch (9.5 mm).
- (29) "Extension ladder": a non-self-supporting ground ladder adjustable in length. It consists of two or more sections traveling in guides, brackets, or equivalent, so arranged as to permit length adjustment.
- (30) "Face/neck shroud": an item of wildland protective clothing that attaches to the helmet to provide minimum thermal protection to the face and neck area.
- (31) "Faceshield": limited protection for the face, eyes, or portions thereof.
- (32) "Factor of safety": the ratio between the ultimate breaking stress and the working stress of the material, structure, or device.
- (33) "Fire apparatus": the emergency vehicle(s) of the fire department used for fire suppression.
- (34) "Fire shelter": an item of protective equipment configured as an aluminized tent to reflect radiant heat in a fire entrapment situation.
- (35) "Flame resistance": the property of a material whereby the application of a flaming or nonflaming source of ignition and the subsequent removal of the ignition source results in the termination of combustion.
- (36) "Fluorescence": a process by which radiant energy of certain wavelengths is absorbed and reradiated nonthermally in other, longer wavelengths.
- (37) "Fly section": the upper section(s) of an extension ladder. The first section above the base section is the first fly section; the second section above the base section is the second fly section; etc.
- (38) "Folding ladder": a single ladder designed so that the rungs can be folded or moved in a manner to allow the beams to be brought into a position of touching each other, or nearly touching each other, for storage or carrying purposes.
- (39) "Gauntlet": the circular, flared, or otherwise expanded part of the glove that extends beyond the opening of the glove body.
- (40) "Goggles": the helmet component intended to help protect the wearer's eyes and a portion of the face.
- (41) "Gross axle weight rating (GAWR)": the value specified as the load-carrying rating of a single axle system, as measured at the tire ground interfaces.
- (42) "Gross combination weight rating (GCWR)": the value specified as the loaded weight of a combination vehicle.
- (43) "Gross vehicle weight rating (GVWR)": the value specified by the chassis manufacturer as the loaded weight rating of a single vehicle.
- (44) "Ground ladder": ladders not mechanically or physically attached permanently to fire apparatus and not requiring mechanical power from the apparatus for ladder use and operation.

- (45) "Halyard": rope used on extension ladders for the purpose of raising the fly section(s). A wire cable may be referred to as a halyard when used on the uppermost fly section(s) of three or four section extension ladders.
- (46) "Hazardous atmosphere":
- (a) Any atmosphere containing a toxic or disease-producing gas, vapor, dust, fume, or mist dangerous to the life or health or where the concentration is unknown.
 - (b) Any atmosphere containing an oxygen partial pressure of less than 19.5 per cent by volume at sea level.
- (47) "Hazardous environment": the area where members might be exposed to a particular substance, device, event, circumstance, or condition that presents a danger to members of the fire department.
- (48) "Headband": the portion of a suspension that encircles the head.
- (49) "Headform": a test device that conforms to the configuration of the human head.
- (50) "Heat sensor label": a label that turns color at a preset temperature to indicate a specific heat exposure.
- (51) "Inside ladder width": the distance measured from the inside edge of one beam to the inside edge of the opposite beam.
- (52) "Insole": that part of protective footwear next to the bottom of the foot designed to afford support and padding.
- (53) "Ladder belt": a belt intended for use as a positioning device for a person on a ladder. It fastens around the waist only.
- (54) "Ladder/escape belt": a belt intended as both a ladder belt and an escape belt for use by the wearer only as an emergency self-rescue device. It fastens around the waist only.
- (55) "Ladder shank": reinforcement to the shank area of protective footwear designed to provide additional support to the instep when standing on a ladder rung.
- (56) "Large-diameter hose": hose of three and one-half-inch diameter or larger used to move large volumes of water.
- (57) "Life safety harness": harness used to support persons during fire service rescue.
- (a) Class I: harness that fastens around the waist and around thighs or under buttocks; designed to be used for emergency escape with a design load of three hundred lbf.
 - (b) Class II: harness that fastens around the waist and around the thighs or under the buttocks; designed for rescue with a design load of six hundred lbf.
 - (c) Class III: harness that fastens around the waist, around the thighs or under the buttocks, and over the shoulders; designed for rescue with a design load of six hundred lbf that may be encountered and where inverting may occur.
- (58) "Life safety rope": rope dedicated solely to the purpose of constructing lines for supporting persons during fire rescue, fire fighting, or during training activity.

- (a) "Technical use": rope having a diameter of three-eighths inch (9.5 mm) or greater and less than one-half inch (thirteen mm).
- (b) "General use": rope having a diameter of one-half inch (thirteen mm) or greater and not more than five-eighths inch (sixteen mm).
- (59) "Lining": a material or material assemblage attached to the inside of the outer shell for the purpose of thermal protection and padding.
- (60) "Maximum extended length": the total length of the extension ladder when all fly sections are fully extended and pawls engaged.
- (61) "Mid-sagittal plane": the plane, perpendicular to the basic and coronal planes, which symmetrically bisects the head.
- (62) "Moisture barrier": that material used to prevent or substantially inhibit the transfer of water, corrosive liquids, and steam and other hot vapors from the outside of the garment to the wearer's body.
- (63) "Optical warning device": a manufactured assembly of a single optical light emitter or a fixed array of any number of optical light emitters.
- (64) "Outer shell": the outside material of the garment, except trim.
- (65) "Outside ladder width": the distance measured from the outside edge of one beam to the outside edge of the opposite beam, or the widest point of the ladder including staypoles when provided, whichever is greater.
- (66) "P.A.S.S.": acronym for personal alert safety system. Devices that sense movement or lack of movement, and that automatically activate an audible alarm signal (which also can be manually activated) to alert and to assist others in locating a firefighter who is in danger.
- (67) "Pawls": devices attached to fly sections for the purpose of anchoring fly sections, when extension ladders are used in the extended position. Pawls engage ladder rungs near the beams for anchoring purposes.
- (68) "Permanent deformation (set)": that deformation remaining in any part of a ladder or its components after all test loads have been removed from the ladder.
- (69) "Pompier ladder (scaling ladder)": a ladder having a single center beam only and with a large hook on top, used for scaling.
- (70) "Prescribed fire": any fire ignited by management actions under certain predetermined conditions to meet specific land management objectives.
- (71) "Protective hood": a garment worn under a helmet to protect the exposed portions of the head, face, and neck.
- (72) "Protective toecap": reinforcement to the toe area of protective footwear. Toecaps are designed to protect the toes from impact and compression.
- (73) "PTO": power takeoff.
- (74) "Puncture-resistant plate": reinforcement to the bottom of protective footwear located between the sole with heel and the insole, designed to resist puncture.

- (75) "Quantitative fit test": an assessment of the adequacy of respirator fit by numerically measuring the amount of leakage into the respirator.
- (76) "Reference plane": the plane 2.36 plus or minus 0.04 inches above and parallel to the basic plane.
- (77) "Rehabilitation" : An intervention designed to mitigate against the physical, physiological, and emotional stress of fire fighting in order to sustain a member's energy, improve performance, and decrease the likelihood of on-scene injury or death.
- (78) "Retention system": the complete assembly by which a helmet is retained in position on the head.
- (79) "Retroreflective markings": material that reflects and returns a relatively high proportion of light in a direction close to the direction from which it came.
- (80) "Roof ladder": a single ladder equipped with hooks at the top end of the ladder.
- (81) "Rungs": the ladder crosspieces on which a person steps while ascending or descending.
- (82) "Seams, Major A": outermost layer seam assemblies where rupture could reduce the protection of the garment by exposing the inner layers such as moisture barrier, thermal barrier, the wearer's station/work uniform, other clothing, or skin.
- (83) "Seams, Major B": moisture barrier or thermal barrier seam assemblies where rupture could reduce the protection of the garment by exposing the next layer of the garment, the wearer's station/work uniform, other clothing, or skin.
- (84) "Seams, Minor": seams that are not classified as "Major A" or "Major B" seams.
- (85) "Self-contained breathing apparatus (SCBA)": a device providing the wearer with a supply of respirable gas carried in or generated by the apparatus. When in use, this apparatus requires no intake of air from the environment in which the wearer is operating.
- (a) "Closed circuit SCBA": an apparatus of the type in which the exhalation is rebreathed by the wearer after the carbon dioxide has been effectively removed and a suitable oxygen concentration restored.
- (b) "Open circuit SCBA": an apparatus of the following types from which exhalation is vented to the atmosphere and not rebreathed:
- (i) "Demand type": an apparatus in which the pressure inside the facepiece, in relation to the immediate environment, is positive during exhalation and negative during inhalation (prohibited by rule 4123:1-21-02 of the Administrative Code).
- (ii) "Pressure demand (positive pressure) type": an apparatus in which the pressure inside the facepiece, in relation to the immediate environment, is positive during both inhalation and exhalation.
- (86) "Service tests": tests to be performed on a regular basis after a ground ladder is in service to determine its suitability for service.
- (87) "Shall": to be construed as mandatory.
- (88) "Shell": the outermost part of a helmet.

- (89) "Single jacket": a construction of fire hose consisting of one woven jacket.
- (90) "Single ladder": a non-self-supporting ground ladder, non-adjustable in length, consisting of only one section.
- (91) "Split shaft PTO": a power takeoff (PTO) drive system that directs the chassis power either to the pump or to the chassis drive axle. This is accomplished by splitting the chassis driveline that connects the chassis transmission to the drive axle and inserting the split shaft PTO that has the shift mechanism necessary to direct the engine power as described above.
- (92) "Stabilizer": a device integral with or separately attached to the chassis of an aerial fire apparatus that is used to increase the moments tending to resist overturning the apparatus.
- (a) "Stabilizer pad": a plate inserted beneath a stabilizer shoe to give greater surface bearing area.
 - (b) "Stabilizer shoe": a permanently mounted shoe on a stabilizer to provide a ground surface area.
- (93) "Station/work uniforms": garments worn under protective clothing, consisting of trousers, shirts, jackets, or coveralls, but excluding underwear socks, dress uniforms, or outerwear.
- (94) "Staypoles (tormentors)": poles attached to each beam of the base section of extension ladders and used to assist in the raising of the ladder and to help provide stability to the raised ladder.
- (95) "Structural fire fighting": the physical activity of fire rescue, fire suppression, or both, at buildings, enclosed structures, vehicles, vessels, or like properties that are involved in a fire or a situation where there is the potential for fire.
- (96) "Suction, hard": a rubber-lined, rubber-covered hose whose reinforcement contains a semi-rigid or rigid helix to resist collapse under vacuum.
- (97) "Suction, soft": collapsible hose used to supply pumpers from hydrants.
- (98) "Supply hose": hose of three and one-half inch diameter or larger designed for the purpose of moving water between a pressurized water source and a pump that is supplying attack lines.
- (99) "Suspension": an energy attenuating system made up of headband and crown straps.
- (100) "Thermal barrier": the portion of protective ensemble element composites that is designed to provide thermal protection.
- (101) "Thermal protective performance": measurement of the amount of heat transfer through the protective ensemble from a thermal exposure equal to flashover conditions that results in second degree burn damage to the wearer's skin as related to the time of heat exposure.
- (102) "Throwline": a floating one-person rope that is intended to be thrown to a person during water rescues or as a tether for rescuers entering the water.
- (103) "Tip": the end of the beam opposite the ladder butt.
- (104) "Total heat loss": measurement of the amount of heat transfer through the protective ensemble from heat that is generated by the wearer's body.
- (105) "Trim": a tape material permanently attached to the outer shell for visibility enhancement.

- (106) "Trousers": a garment worn to protect the lower part of the body, except the feet. Also referred to as "protective trousers" in this chapter of the Administrative Code.
- (107) "Ultimate failure": collapse of a ground ladder structure or component thereof.
- (108) "Unlined hose": a hose, usually made of linen yarns, consisting of only the woven jacket and having such qualities that the yarn of the jacket swells when wetted, tending to seal the hose.
- (109) "Upper": that part of the protective footwear including but not limited to the toe, vamp, quarter, shaft, collar, and throat; and other than the sole with heel, puncture-resistant plate, and insole.
- (110) "Water hammer": the surge of pressure caused when a high velocity flow of water is abruptly shut off. The pressure exerted by the flowing water against the closed system can be seven times or more than the static pressure.
- (111) "Water tower": a device consisting of permanently mounted, power-operated booms and a waterway designed to supply a large capacity mobile elevated water stream. The booms may be of articulating design or telescoping design and may be equipped with a ladder.
- (112) "Wildland fire fighting": the activities of fire suppression and property conservation in woodlands, forests, grasslands, brush, prairies, and other such vegetation, or any combination of vegetation.
- (113) "Working structural fire": any fire that requires the use of a one and one-half inch or larger fire attack hose line and that also requires the use of self-contained breathing apparatus for members entering the hazardous area.
- (114) "Wristlet": an attachment, fitted to the top of a glove or to the sleeve of a protective coat, to completely cover the wrist area under all conditions.

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