

4123:1-17-01

**Scope and definitions.**

(A) Scope.

The purpose of these requirements is to provide reasonable safety for life, limb and health of employees. In cases of practical difficulty or unnecessary hardship, the Ohio bureau of workers' compensation may grant exceptions from the literal provisions of these requirements or permit the use of other devices or methods when, in the opinion of the industrial commission, equivalent protection is thereby secured.

These specific safety requirements supplement Chapter 4123:1-5 of the Administrative Code, "Specific Safety Requirements of the Ohio Bureau of Workers' Compensation Relating to all Workshops and Factories," but, to the extent of inconsistency between these and any provision of Chapter 4123:1-5 of the Administrative Code, these shall apply. These requirements are minimum requirements of an employer for the protection of such employer's employees and no others and constitute protective standards for all employees while they are engaged in washing or cleaning windows on the outside and, where working from a level ten feet or more above the floor, on the inside of buildings except employees so engaged in or on a building containing no more than two full stories above ground level in which all of the units are residential and except employees so engaged in or on a single residential unit when employed to do so by the occupant of that unit. These requirements do not apply to a window opening onto a railed fire escape balcony or other railed balconies no less than two feet wide, nor more than twelve inches below the window sill, provided that the railing is no less than forty-two inches high.

Installations or constructions built or contracted for prior to the effective date of any requirement shall be deemed to comply with the provisions of these requirements if such installations or constructions comply either with the provisions of these requirements or with the provisions of any applicable specific requirement which was in effect at the time contracted for or built.

(B) Definitions.

- (1) "Anchor" means an installation near a window to which a window cleaner's safety belt is attached.
- (2) "Approved" means accepted or certified by a nationally recognized testing agency, such as "Underwriters' Laboratories," "Factory Mutual Engineering Corporation" or a responsible governmental agency.

- (3) "Boatswain's chair" means a seat supported by slings attached to a suspended rope, designed to accommodate one employee in a sitting position.
- (4) "Factor of safety" means the ratio between the ultimate breaking strength and the working stress of the material, structure or device. For example, the term "factor of safety of four" means the materials, structure or device shall be constructed of such strength that the maximum load will be one-fourth the designed ultimate breaking load. Where other factors of safety appear, they shall apply in the same manner. The standards of the "American Society for Testing Materials" shall be used in determining the strength of material except as otherwise provided herein.
- (5) "Rated load" means the combined weight of employees, tools, equipment, and other material which the working platform is designed and installed to lift.
- (6) "Roof car" means a structure for the suspension of the working platform, providing for its horizontal movement to working positions.
- (7) "Roof car suspended platform" means equipment to provide access to the exterior of a building consisting of a suspended power-operated working platform, a roof car, and the required operating and control devices.
- (8) "Roof-powered platform" means the working platform, of a roof car suspended platform, having the raising and lowering mechanism located on a roof car.
- (9) "Safety belt" or "safety 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.
- (10) "Safety harness" - see "safety belt."
- (11) "Self-powered platform" means a working platform, of a roof car suspended platform, having the raising and lowering mechanism located on the working platform.
- (12) "Shall" is to be construed as mandatory.
- (13) "Standard guard railing" means a substantial barrier constructed in accordance with paragraph (E) of rule 4123:1-5-02 of the Administrative Code.

- (14) "Substantial" means construction of such strength, of such materials, and of such workmanship that the object will withstand the wear, usage, or shock for which it is designed.
- (15) "Swinging scaffold" means a power- or manually-operated platform suspended by two or more lines and independent of the building except for attachment at the roof or parapet.
- (16) "Traveling cable" means a cable made up of electrical or communication conductors or both, and providing electrical connection between the working platform and the roof car or other fixed point.
- (17) "Two-point suspension scaffold" means a scaffold suspended from overhead supports the platform of which is supported by stirrups or hangers at two points to permit raising or lowering.
- (18) "Working platform" means the suspended structure arranged for vertical travel which provides access to the exterior of the building.

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4123:1-17-02            **Ladders.**

All ladders used in window cleaning operations shall comply with the requirements of paragraph (C) of rule 4123:1-5-03 of the Administrative Code in addition to the following:

- (A) Metal ladders shall not be provided for use where exposed electrical contacts are present.
- (B) Metal ladders shall not be provided when damaging chemicals are to be used, unless the ladder used has been appropriately treated to protect it from such chemicals.
- (C) The use of ladders with hooks attached, to be hung on or over a parapet wall or other projection is prohibited in window cleaning operations unless tied back in the manner prescribed for scaffolds in paragraph (D) of rule 4123:1-17-03 of the Administrative Code, and safety belts or harness and lifelines are provided in compliance with rule 4123:1-17-06 of the Administrative Code.

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4123:1-17-03

**Swinging scaffolds.**

- (A) Swinging scaffold platforms shall be no less than twenty inches wide overall. The platform shall be securely fastened to the hangers by U-bolts or by other equivalent means.
- (B) The hangers of swinging scaffolds shall be capable of sustaining four times the rated load.
- (C) When hoisting machines are used on swinging scaffolds, such machines shall be of an approved design.
- (D) The roof irons or hooks shall be of proper size and design, securely installed and anchored. Tiebacks of three-quarter-inch manilla rope, or the equivalent, shall serve as an additional means of anchorage, which shall be installed as nearly as possible at right angles to the face of the building and shall be secured to a structurally sound portion of the building. When no structurally sound portion of the building permits installation substantially at right angles to the face of the building, two tiebacks shall be used and secured at substantially equal and opposing acute angles to the right angle. Where outrigger beams, which shall consist of structural metal, or davits are used, they shall be securely fastened or anchored to the frame or floor system of the building or structure.
- (E) Swinging scaffolds shall be suspended by wire, synthetic fiber, or natural fiber ropes capable of supporting no less than six times the rated load. All other components shall be capable of supporting no less than four times the rated load.
- (F) Only treated or protected fiber rope or its equivalent shall be used for or near any work involving the use of corrosive chemicals.
- (G) The sheaves of all blocks shall fit the size and type of rope used.
- (H) 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. 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.
- (I) The employer shall provide an approved safety belt or harness and lifeline for each employee working on a swinging scaffold in compliance with rule 4123:1-17-06 of the Administrative Code.

- (J) Employees shall not be required to use a bridge, or to move directly, between one swinging scaffold and another.
- (K) 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.
- (L) The platform of every swinging scaffold shall be capable of sustaining four times the rated load.
- (M) All swinging scaffolds shall have standard guardrails and toeboards on all unprotected sides of platforms.
- (N) The free ends of fall lines from scaffolds shall be guarded to prevent tangling or snagging.

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4123:1-17-04

**Roof car suspended platforms - window cleaning.**

(A) Roof car.

- (1) The horizontal speed of a roof car shall be no more than fifty feet per minute.
- (2) A roof car may not be moved horizontally unless means are in place to prevent the car from moving outside the areas provided for roof car travel.
- (3) The roof car shall be designed and installed in such a manner as to remain stable and upright under every loading condition.
- (4) A roof car shall be so positioned and anchored to the structure as to insure that the working platform is placed and retained in proper position for vertical travel.
- (5) The operating device controlling movement of a roof car shall be of the continuous pressure weather-proof electric type and shall be located on the roof car, the working platform, or both. If located on both, such operating devices shall be interlocked so that control is possible only from one at a time.
- (6) The operating device controlling movement of a roof car shall not be operable until the working platform is at its uppermost position for travel and is not in contact with the building face or fixed vertical guides in the face of the building, and until all protective devices and interlocks are in a position for movement.
- (7) If the access to the roof car at any point of its travel is not over the roof area, standard guardrails with self-closing, self-locking gates shall be provided on the roof car.

(B) Working platforms.

- (1) The working platform shall be of girder or truss construction and shall be capable of supporting its rated load under any position of loading.
- (2) Each working platform shall bear the manufacturer's load rating plate, conspicuously posted and legible, stating the maximum permissible load.

- (3) The vertical speed of a working platform suspended by four or more hoisting ropes shall be no more than seventy-five feet per minute.
- (4) The vertical speed of a working platform suspended by less than four hoisting ropes shall be no more than thirty-five feet per minute.
- (5) The working platform shall be no less than twenty-four inches wide.
- (6) The working platform shall be provided with toeboards and with permanent guardrails no less than thirty-six inches high, and no more than forty-two inches high at the front (building side). At the rear, and on the sides, a standard guardrail and toeboard shall be provided. An intermediate guardrail shall be provided around the entire platform between the top guardrail and the toeboard.
- (7) The platform flooring shall be of the nonskid type.
- (8) Where access gates are provided, they shall be self-closing and self-locking. Such gates are required where access to the working platform is not over the roof area.
- (9) A means shall be provided to prevent inadvertent horizontal movement of the working platform.
- (10) The operating device controlling vertical movement of the working platform shall be located on the working platform and shall be of the continuous pressure weatherproof electric type.
- (11) The operating device controlling vertical movement shall be operable only when all electrical protective devices and interlocks on the working platform are in normal operating position, and the roof car is at an established operating point.
- (12) On roof-powered platforms, an emergency electric operating device shall be provided near the hoisting machine for use in the event of failure of the normal operating device for the working platform or failure of the traveling cable system. This emergency device shall be mounted in a locked compartment and shall have a legend mounted thereon reading: "For Emergency Operation Only. Establish Communication With Personnel On Working Platform Before Use." A key for unlocking the compartment housing the emergency operating device shall be mounted in a break-glass

receptacle located near the device.

(C) Hoisting equipment.

- (1) Hoisting equipment shall consist of a power-driven drum or drums contained in the roof car (i.e., roof-powered platform) or contained on the working platform (i.e., self-powered platform).
- (2) Hoisting equipment shall be power-operated in both up and down directions.
- (3) Where exposed to contact, rotating shafts, drums, couplings, other mechanisms and gears shall be guarded.
- (4) Friction devices or clutches shall not be used for connecting the main driving mechanism to the drum or drums. Belt or chain-driven machines are prohibited.
- (5) Hoisting motors shall be electric and of weather-proof construction.
- (6) Hoisting motors shall be directly connected to the hoisting machinery. Motor couplings, if used, shall be of steel construction.
- (7) Hoisting machines shall have two independent braking means, each designed to stop and hold the working platform with one hundred twenty-five per cent of rated load.

(D) Hoisting ropes and winding drums.

- (1) Each hoisting rope shall be made of wire and shall be no less than five-sixteenths-inch diameter.
- (2) Working platforms shall be suspended by no less than two ropes with a safety factor of ten as calculated under the following formula:

$$F = S \times N \div W$$

Where

S = manufacturer's rated breaking strength of one rope

N = number of ropes under load

W = maximum static load on all ropes with the platform and its rated load at any point of its travel

- (3) Where winding drums are used, the rope shall be wound in level layers.
- (4) Winding drums shall have no less than three turns of rope remaining when the working platform is at its lowest possible point of travel.
- (5) Where the working platform is suspended by more than two ropes, the nondrum ends of the ropes shall be provided with individual shackle rods which will permit individual adjustment of rope lengths.
- (6) The lengthening or repairing of wire ropes by splicing is prohibited.
- (7) More than two reverse bends in each rope are prohibited.
- (8) Wire rope shall not be used if, in any length of eight diameters, the total number of visible broken wires exceeds ten per cent of the total number of wires, or if the rope shows other signs of excessive wear, corrosion, or defect.

(E) Electrical protective devices.

- (1) Electrical protective devices and interlocks shall be of the weather-proof type.
- (2) When a traveling cable storage reel is used, an electric contact shall be provided and so connected that it will cause the relay for vertical travel to open if the tension on the traveling cable exceeds safe limits.
- (3) An automatic overload device shall be provided to cut off electrical power to the circuit in all hoisting motors for travel in the up direction, should the load applied to the hoisting ropes at either end of the working platform exceed one hundred twenty-five per cent of its normal tension with rated load as shown on the manufacturer's data plate on the working platform.
- (4) An automatic device shall be provided for each hoisting rope which will cut off electrical power to the hoisting motor or motors in the down direction and will apply the brakes if any hoisting rope becomes slack.
- (5) Upper and lower directional limit devices shall be provided to prevent the travel of the working platform beyond the normal upper and lower limits of travel.

- (6) Directional limit devices, if driven from the hoisting machine by chains, tapes, or cables, shall incorporate a device to disconnect the electric power from the hoisting machine and apply both the primary and secondary brakes in the event of failure of the driving means.
- (7) On platforms with four or more ropes, final terminal stopping devices for the working platform shall be provided as a secondary means of preventing the working platform from over-traveling at the terminals.
- (8) Emergency stop switches shall be provided in or adjacent to each operating device.
- (9) Electrical cord strain relief anchors and grip or equivalent means shall be provided to prevent the electrical cord from pulling on the receptacle.

(F) Emergency communications.

A means of two-way communication shall be provided for each roof car suspended platform for use in an emergency.

(G) Safety belts or harness and lifelines.

A safety belt or harness with means for attachment to a lifeline on the roof or to the working platform shall be provided for each employee on a working platform suspended by less than four wire ropes.

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4123:1-17-05            **Boatswain's chairs.**

Boatswain's chairs shall be used for window cleaning operations only where the windows cannot be cleaned by other prescribed methods set forth in rules 4123:1-17-02 to 4123:1-17-04 and 4123:1-17-06 and 4123:1-17-07 of the Administrative Code.

- (A) 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.
- (B) 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.
- (C) The employee shall be protected by a safety belt or harness and lifeline in accordance with rule 4123:1-17-06 of the Administrative Code. The attachment point of the lifeline to the structure shall be appropriately changed as the work progresses laterally.
- (D) 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.
- (E) The roof irons or hooks shall be of proper size and design, securely installed and anchored. Tiebacks of three-quarter-inch manilla rope, or its equivalent, shall serve as an additional means of anchorage, which shall be installed as nearly as possible at right angles to the face of the building and shall be secured to a structurally sound portion of the building. When no structurally sound portion of the building permits installation substantially at right angles to the face of the building, two tiebacks shall be used and secured at substantially equal and opposing acute angles to the right angle. Where outrigger beams, which shall consist of structural metal, or davits are used, they shall be securely fastened or anchored to the frame or floor system of the building or structure.
- (F) Tie-ins or suction cups shall be provided and used for boatswain's chairs to prevent them from swaying during the window cleaning operation.

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4123:1-17-06

**Safety belts, safety harnesses, lifelines and lanyards.**

- (A) When required, lifelines shall be securely fastened to the structure. Lifelines, safety belts, safety harnesses, and lanyards shall be used only for employee safeguarding and shall sustain a static load of no less than five thousand pounds. 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.
- (B) Where the lifeline may be subjected to cutting or abrasion, a minimum seven-eighths-inch wire core manilla rope, or equivalent, shall be provided. For all other lifeline applications, a minimum of three-fourths-inch manilla rope, or equivalent, shall be provided.
- (C) Safety belt or harness lanyards 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.
- (D) All safety belt or harness and lanyard hardware shall be drop forged or pressed steel, cadmium plated. Surfaces shall be smooth and free from sharp edges.
- (E) 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.

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4123:1-17-07

**Miscellaneous requirements.**

(A) Portable extension sills.

- (1) Portable extension sills shall be no less than ten inches wide nor less than thirty inches long and shall be substantially constructed. The portable extension sill shall be securely fastened in place during window cleaning operations.
- (2) Portable extension sills shall not be used when window sills extend six inches or more beyond the window frame.
- (3) Portable extension sills shall be used only when the window cleaner is provided with a safety belt or harness and lifeline in compliance with rule 4123:1-17-06 of the Administrative Code, and when anchors are available.

(B) Window jacks and other platform devices.

Window jacks and all other platform devices fastened to window sills shall be used only when the window cleaner is provided with a safety belt or harness and lifeline in compliance with rule 4123:1-17-06 of the Administrative Code, and when anchors are available.

(C) Back supports for extra width windows.

Where the distance between anchors is more than six feet, a wire rope or corrosive resistant chain shall be provided on such windows to be used as a back support for the window cleaner.

(D) Stepping from window to window.

Window cleaners shall not be required to step from window to window on the outside of the building.

(E) Anchors.

When a safety belt or harness is required in window cleaning, no window cleaner shall be required to work on a window if any anchor is found to be loose, insecure or missing.

(F) Extension tools.

Each extension tool shall be equipped with a locking device which shall prevent accidental detachment of the window cleaning tool. The overall length of a tool with extensions shall not exceed six feet when used from any working position above the ground or alternatively above an unobstructed set back level having an outer balustrade or wall extending no less than forty-two inches above the set back level.

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