Draft - SECTION 3114 WINDOW CLEANING SAFETY

3114.1 Window cleaning methods and limitations. All buildings shall be provided with a safe window cleaning method in accordance with ANSI/IWCA I-14.1-2001 and be provided with building and site development features applicable to that safe cleaning method as required by sections 3114.2 through 3114.9.

Exceptions:

1. Windows with tilt or pivot functions designed so that they can be completely cleaned from the building interior. Windows shall be operated to the cleaning position and cleaned from a compliant working surface within the range of extension devices in accordance with Section 3114.2.

2. Buildings without windows.

3. Buildings where the top of the window is less than 48 inches above grade.

3114.1.2. Existing Buildings. Existing buildings undergoing alterations shall be required to comply with this section where both of the following conditions are met:

(1) the existing building does not currently have safe window cleaning features; and

(2) the proposed work area being altered can include provisions for safe window cleaning.

3114.2 Extension Devices. Where the top of the highest window is not more than 30 feet vertically above a work surface the use of extension devices as a window cleaning method is permitted and an extension device work surface shall be provided at each window cleaning location. The work surface shall be not less than 30 inches deep and 30 inches wide, free and clear of obstructions, and having a slope not greater than 3:12 or 25 percent.

3114.3 Portable Ladders. Where ladders are used for window cleaning a ladder landing working surface shall be provided. Each ladder landing working surface shall be not less than 30 inches deep and 30 inches wide, free and clear of obstructions, and having a slope not greater than 3:12 or 25 percent. (from MN 1346, 306.5.1) The leading edge of the ladder landing working surface shall be located not closer than 25% the sill height of the lowest window to work surface plane, nor farther than 25% of the head height of the highest window to the work surface plane.

3114.3.1 Horizontal distance. The window shall be no more than 6 feet (1800 mm) horizontally as measured from the center of the ladder landing working surface.

3114.3.2 Building support. The building support for the top ladder position shall be rigid and shall have strength to support not less than 65 lbs of lateral force. The surface shall be even to support the ladder rails perpendicular to the wall.

3114.4 Window Cleaner's Belts. The use of window cleaner's belts is permitted at interior locations where there is a fall hazard or exterior locations where the standing surface size is less than 30 inches deep by 30 inches wide and the fall hazard is greater than 48 inches. Building and site elements where

Commented [MG(1]: Per IWCA I14.1, Section 5.2.10 and OSHA 1926.1053(b)(4).

Commented [MG(2]: Derived as a safe horizontal reach range from IWCA I14.1, Section 5.7.10. And section 5.2.24

Commented [MG(3]: Derived from IWCA I14.1, Section 5.2.6. 65 lbs of lateral force is the horizontal force equivalent of a 250 lb person standing on a 35 foot tall ladder.

safe window cleaning methods include the use of window cleaner's belts shall comply with sections 3114.4.1 through 3113.4.5.

3114.4.1 Windowsills or work surfaces. A continuous sill, ledge, or work surface shall be provided with at least 6 inches of standing surface in front of the mullions unless each window is not provided with a minimum sash opening size in compliance with section 3114.4.2. The sill, ledge or work surfaces shall have a slope not greater than X%.

3114.4.2 Exterior access sash. Not less than one window in each grouping of windows shall be provided with a minimum sash opening size for gaining access to the building exterior. The minimum clear opening for the sash shall be not less than 5.7 square feet with a minimum width of not less than 20 inches and a minimum height of not less than 24 inches.

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3113.4.3 Window Cleaner's Belt Anchors Wall anchors shall be provided for line attachment in accordance with section 3114.8.

3113.4.4 Sill access anchors. Not fewer than two wall anchors shall be provided for sill access. The sill access anchors shall be located within 24 inches beyond the open window sash where there is access to the standing surface.

3113.4.5 Other wall anchors. Wall anchors, other than sill access anchors, at the window location shall be spaced not greater than 4 feet on center horizontally and between 36 inches and 48 inches above the standing surface or sill.

Exception: Anchor spacing may be increased to 6 feet on center where the standing surface or sill is at least 12 inches wide and the slope is less than 5 degrees.

3114.5 Manually propelled mobile scaffolds. Where the top of the highest window is no more than 125 feet from the ground surface the use of manually propelled mobile scaffolds is permitted as a window cleaning method. Building and site elements where safe window cleaning methods employ the use of scaffolds shall comply with sections 3114.5.1 through 3114.5.2.

Exception: The top of the highest window is permitted to exceed 125 feet from the ground surface where the design of the manually propelled scaffold is certified by a licensed design professional and the building and site elements comply with this section

3114.5.1 Mobile scaffolding deployment location. The mobile scaffolding deployment location within 10 feet of the exterior wall containing windows intended to be cleaned with scaffolding shall comply with sections 3114.5.1.1 through 3114.5.1.3.

3114.5.1.1 Stability and clearance. Ground supporting mobile scaffolding deployment locations within 3 feet of the exterior walls and between 6 feet and 8 feet of exterior walls shall provide a stable base for the scaffolding to be plumb and square during use and moved over level surfaces free from obstructions. No landscaping shall be planted within 3 feet of the exterior walls or between 6 feet and 8 feet of exterior walls.

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3114.5.1.2 Slope. The mobile scaffolding deployment location shall not have a slope or cross slope greater than 1:8.

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3114.5.1.3 Base Grading. Ground surface materials shall have a coarseness not greater than Class 5 gravel, or materials with greater than 1 inch in diameter.

3114.5.2 Access. An unobstructed accessway shall be provided from the location where the mobile scaffolding is erected to the mobile scaffolding deployment location. The accessway shall be not less than 48 inches in width, with a slope not steeper than 3:12, and a surface not coarser than Class 5 gravel.

3114.6 Mobile Elevating Work Platforms (MEWP). Where the top of the highest window is not more than 150 feet above the ground working surface the use of mobile elevating work platforms is permitted as a safe window cleaning method. Building and site elements where safe window cleaning methods use vehicle mounted aerial work platforms or manually propelled aerial work platforms shall comply with this section.

3114.6.1 Platform staging locations. Platform staging locations shall be provided at each window cleaning location with a deployment pad not less than 8 feet in width and 18 feet in length with a maximum slope of 1:12 or 5 degrees.

3114.6.1.1 Horizontal distance: Windows shall be within 30 feet horizontally from the platform staging location where safe window cleaning methods include the use of vehicle mounted aerial work platforms or manually propelled aerial work platforms.

3114.6.1.2 Access to platform staging locations. An access drive lane with a minimum width of 12 feet shall be provided to all aerial work platform staging locations. The access drive lane shall be continuous and free from landscape plantings, ditches, swales, pits, or other obstructions to vehicular travel. The access drive lane shall have a slope not greater than 3:12 and a cross slope not greater than 1:12. Platform staging locations shall be not have a slope that is less than the slope and cross slope permitted for the access drive lane.

3114.7 Roof anchorage for use of manual swinging scaffolds, boatswain's chairs, and rope descent systems. Buildings where safe window cleaning methods use swinging scaffolds, boatswain's chairs, and rope descent systems shall be equipped with roof anchors that comply with this section.

3114.7.1 Roof Anchorage Points. Buildings shall be equipped with roof anchors at each location where windows will be cleaned using swinging scaffolds, boatswain's chairs, and rope descent systems. Roof anchors shall conform to ANSI/IWCA I14.1-2001 Standard for Window Cleaning Safety, section 9 and section 17. Anchor designs shall be certified by a licensed structural engineer.

3114.7.2 Working surface. Each roof anchor location shall be provided with a working surface not less than 30 inches deep and 30 inches wide, with a slope not greater than 4 units vertical in 12 units horizontal and a vertical clearance of not less than 80 inches.

3114.7.3 Access to roof anchor point working surface. (from MN 1346, 306.5.1) An accessway that is continuous from the public way to the roof anchor point working surface shall be provided that consists of one or both of the following components:

1. An accessway with solid flooring and having a slope not greater than 4 units vertical in 12 units horizontal. The passageway shall not be less than 6 feet in height and 24 inches in width for its entire length.

Exception to item 1: A portion of an accessway may be reduced to 30 inches high and 22 inches wide with a slope not greater than 1 unit vertical in 12 units horizontal for a total distance not exceeding 20 feet in length.

2. Vertical access along the accessway shall comply with the requirements for mechanical equipment and appliances on roofs or elevated structures in Minnesota Rules, chapter 1346.

3114.7.4 Fall Arrest. Fall arrest/restraint anchorage connector devices compliant with ANSI/ASSE Z 359.1 shall be installed along the accessway to each roof anchor working surface where the accessway is 10 feet or less from the roof edge or where the slope of the accessway exceeds 4 units vertical in 12 units horizontal.

3114.8 Wall Anchorage. Wall anchors shall comply with Sections 3114.8.1 through 3114.8.4

3114.8.1 Capacity. Anchorages shall be capable of sustaining a 5000 pound (2268 kg) minimum load or a minimum 4-to-1 safety factor, whichever is greater, in any direction that a load may be applied.

3114.8.2 Adhered fasteners. Anchorages using adhesive fasteners (epoxy anchors) to a structure shall have a minimum of two fasteners per anchorage.

3114.8.3 Materials or finishes. Anchorages which have a surface permanently concealed from view shall be made of austenitic steel or shall be constructed of other noncorrosive, non-metallic material that has the necessary durability to withstand equipment impact loads and physical abrasion.

3114.8.4 Positioning. Anchorages shall be unobstructed and located behind and in line with the equipment or portion of the building they are intended to service and shall be free of sharp edges that may cause damage to the appurtenances attached to them.

3114.9 Permanently installed powered platforms. Buildings where safe window cleaning methods employ the use of permanently installed powered platforms shall comply with this section. Installations shall be certified by a licensed structural engineer.

3114.9.1 Working surface. At each powered platform location, a working surface not less than 30 inches wide and not less than the service length of the powered platform, with a slope not greater than 1 unit vertical in 12 units horizontal and a vertical clearance of not less than 80 inches.

3114.9.2 Access. (from MN 1346, 306.5.1) An access passageway that is continuous from the public way to each powered platform working surface shall be provided that consists of one or both of the following components:

1. An accessway with solid flooring and having a slope not greater than 4 units vertical in 12 units horizontal. The passageway shall be not less than 6 feet high and 24 inches wide for its entire length.

Exception to item 1: A portion of an accessway may be reduced to less than 30 inches high and 22 inches wide with a slope not greater than 1 unit vertical in 12 units horizontal for a total distance not exceeding 20 feet in length.

2 Vertical access along the accessway shall comply with the requirements for mechanical equipment and appliances on roofs or elevated structures in Minnesota Rules, chapter 1346.

3114.9.3 Fall Arrest. Fall arrest/restraint anchorage connector devices compliant with ANSI/ASSE Z 359.1 shall be installed along the accessway to each powered platform working surface where the accessway is 10 feet or less from the roof edge or where the slope of the accessway exceeds 4 units vertical in 12 units horizontal.