BSR/ASHRAE/IES Addendum d
to ANSI/ASHRAE/IES Standard 90.1-2025

Public Review Draft

Proposed Addendum d to Standard 90.1-2025, Energy Standard for Sites and Buildings Except Low-Rise Residential Buildings

First Public Review (June 2026)
(Draft Shows Proposed Changes to Current Standard)

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FOREWORD

This is an addendum moving the graphics and related text about daylighted areas from Section 3 (definitions) to Section 9 within the Standard without any change in technical requirements.

As an addendum only moving material with no change in requirements, no cost analysis was necessary.

[Note to Reviewers: This addendum makes proposed changes to the current standard. These changes are indicated in the text by underlining (for additions) and ~~strikethrough~~ (for deletions) and red text shows language deleted in definitions and moved into the normative requirements, except where the reviewer instructions specifically describe some other means of showing the changes. Only these changes to the current standard are open for review and comment at this time. Additional material is provided for context only and is not open for comment except as it relates to the proposed changes.]

Addendum d to 90.1-2025

Amend Section 3.0 as follows:

daylight area: *the floor area substantially illuminated by daylight.*

daylight area under roof monitors: ~~the daylight area under roof monitors is~~ the combined daylight area under each roof monitor within each space (see Section 9.1.5 to determine this area). ~~The daylight area under each roof monitor is the product of~~

~~a. the width of the vertical fenestration above the ceiling level plus, on each side, the smallest of~~
~~1. 2 ft,~~
~~2. the distance to any 5 ft or higher vertical obstruction, or~~
~~3. the distance to the edge of any primary sidelighted area~~

~~b. the smaller of the following horizontal distances inward from the bottom edge of the vertical fenestration (see Figure 3.2-1):~~
~~1. The monitor sill height (MSH) (the vertical distance from the floor to the bottom edge of the monitor glazing)~~
~~2. The distance to the nearest face of any opaque vertical obstruction, where any part of the obstruction is farther away than the difference between the height of the obstruction and the monitor sill height (MSH – OH)~~

daylight area under skylights: the *daylight area under skylights* is the combined *daylight area* under each *skylight* within a *space* (see Section 9.1.5 to determine this area). ~~The *daylight area* under each *skylight* is bounded by the opening beneath the *skylight* and horizontally in each direction (see Figure 3.2-2 Figure 9.1.5.3), the smaller of~~

~~a. 70% of the ceiling height (0.7 × CH) or~~

b. ~~the distance to the nearest face of any *opaque* vertical obstruction, where any part of the obstruction is farther away than 70% of the distance between the top of the obstruction and the ceiling (0.7 × [CH – OH], where CH = the height of the ceiling at the lowest edge of the *skylight*, and OH = the height to the top of the obstruction).~~

daylight area under skylights in multistory spaces: the *daylight area under skylights in multistory spaces* ~~shall~~ include floor areas directly beneath the *skylight* and portions of the uppermost floor adjacent to the multistory *space* that meet the criteria for a *daylight area under skylights* (see Section 9.1.5 to determine this area)~~, where CH is the ceiling height of the uppermost floor (see Figure 3.2-3)~~.

primary sidelighted area: the total *primary sidelighted area* is the combined *primary sidelighted area* within each *space*~~. Each *primary sidelighted area*~~ and is directly adjacent to *vertical fenestration* in an exterior *wall* below the ceiling ~~(see Figure 3.2-4)~~ (see Section 9.1.5 to determine this area).

~~a. The *primary sidelighted area* width is the width of the *vertical fenestration* plus, on each side, the smaller of~~
~~1. one half of the *vertical fenestration* head height (where head height is the distance from the floor to the top of the glazing) or~~
~~2. the distance to any 5 ft or higher *opaque* vertical obstruction.~~

~~b. The *primary sidelighted area* depth is the horizontal distance perpendicular to the *vertical fenestration*, which is the smaller of~~
~~1. one *vertical fenestration* head height or~~
~~2. the distance to any 5 ft or higher *opaque* vertical obstruction.~~

secondary sidelighted area: the total *secondary sidelighted area* is the combined *secondary sidelighted area* within a *space*. Each *secondary sidelighted area* is directly adjacent to a *primary sidelighted area* (see Section 9.1.5 to determine this area)~~ .see Figure 3.2-5)~~

~~a. The *secondary sidelighted area* width is the width of the *vertical fenestration* plus, on each side, the smaller of~~
~~1. one half of the *vertical fenestration* head height or~~
~~2. the distance to any 5 ft or higher *opaque* vertical obstruction.~~

~~c. The *secondary sidelighted area* depth is the horizontal distance perpendicular to the *vertical fenestration*, which begins at the edge of the *primary sidelighted area* depth and ends at the smaller of~~
~~1. one *vertical fenestration* head height or~~
~~2. the distance to any 5 ft or higher *opaque* vertical obstruction.~~

~~If the adjacent *primary sidelighted area* ends at a 5 ft or higher *opaque* vertical obstruction, there is no *secondary sidelighted area* beyond such obstruction.~~

DC-coupled: electrical connections between electrical sources, electrical storage, and electrical loads using direct current.

[…]

REVIEWER NOTE: *Diagrams shown below are shown as being deleted, but are being moved from Section 3.0 to Section 9.0.*

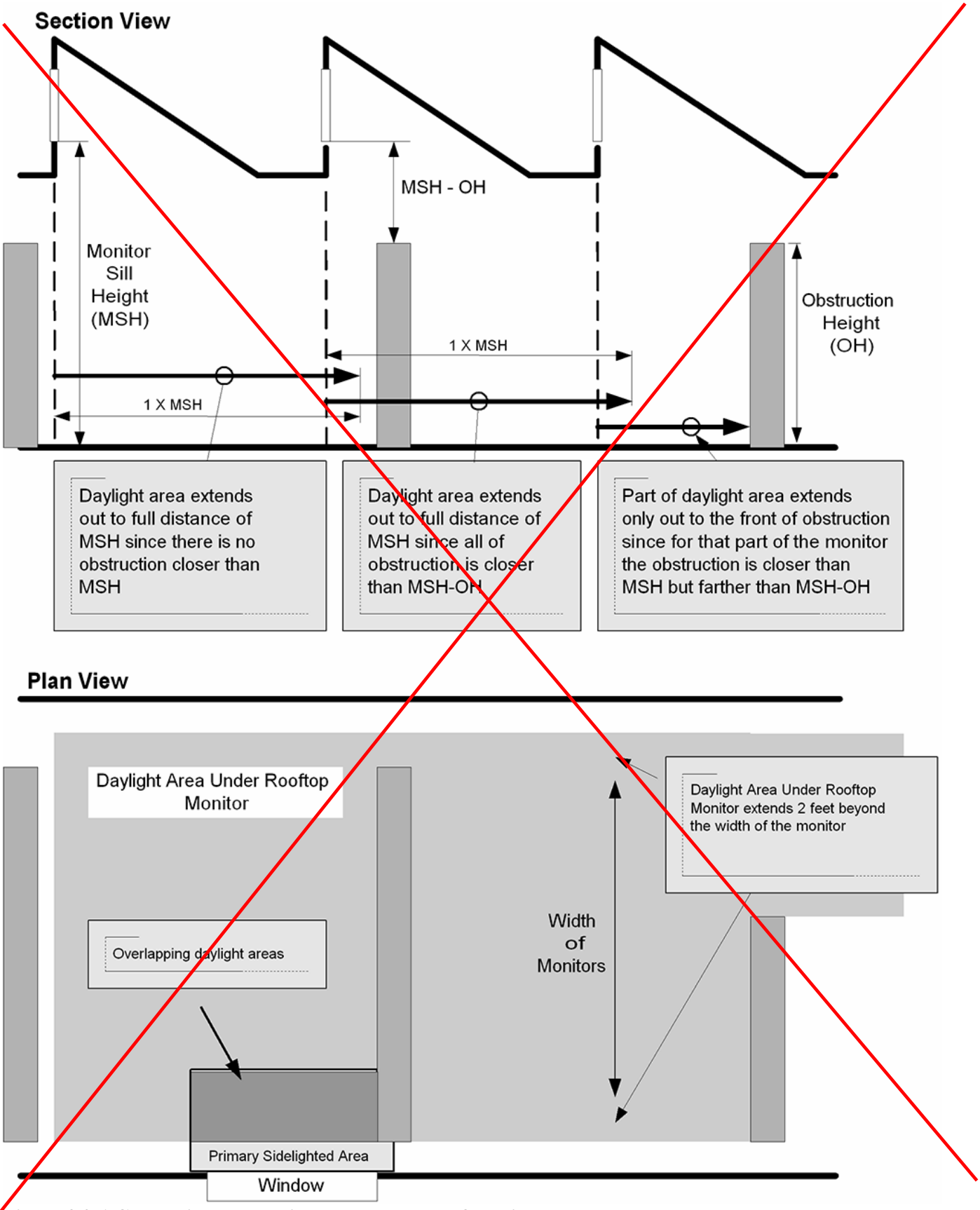

Figure 3.2-1 Computing the daylight area under roof monitors.

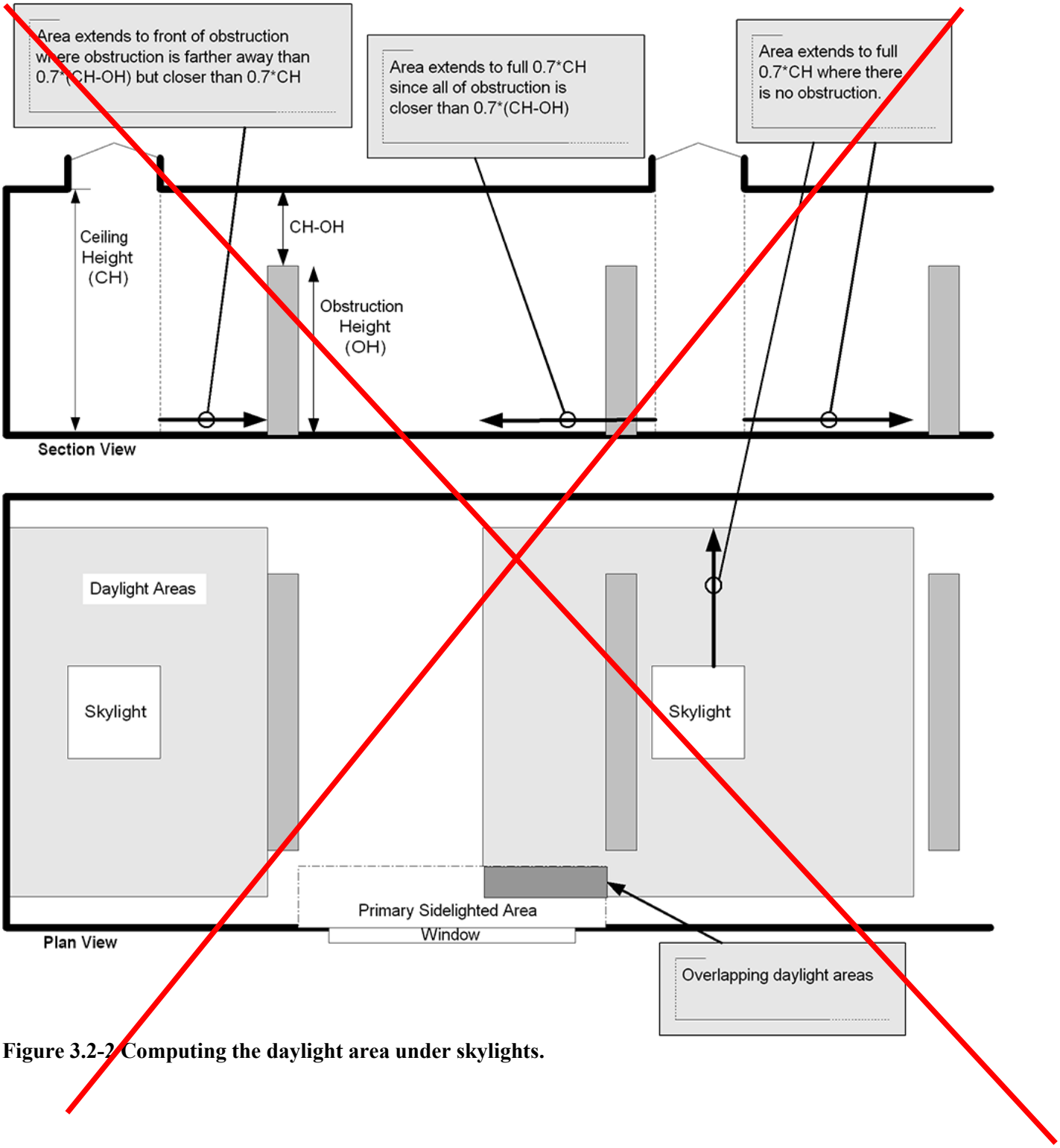

Figure 3.2-2 Computing the daylight area under skylights.

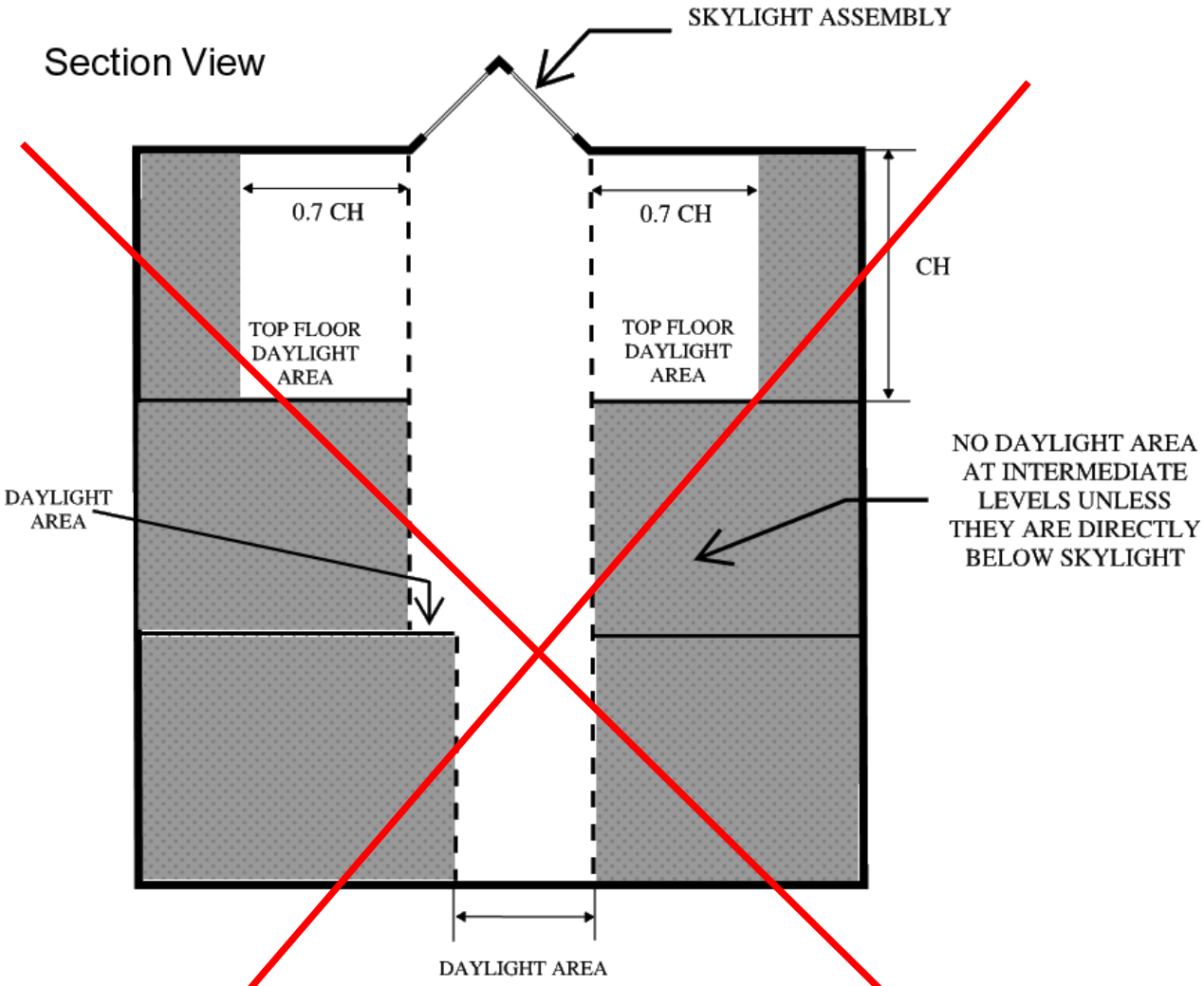

Figure 3.2-3 Computing the daylight area under skylights in multistory spaces.

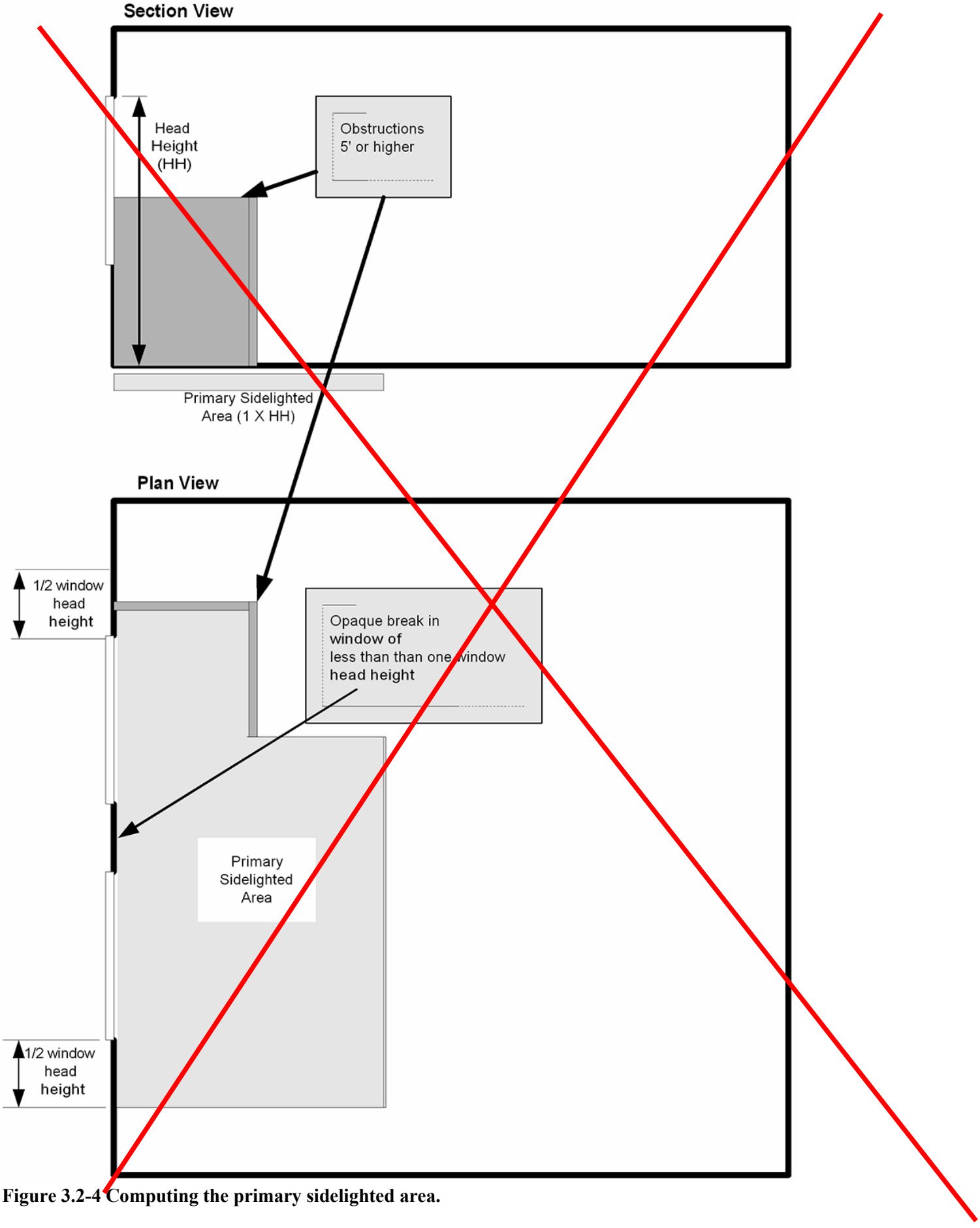

Figure 3.2-4 Computing the primary sidelighted area.

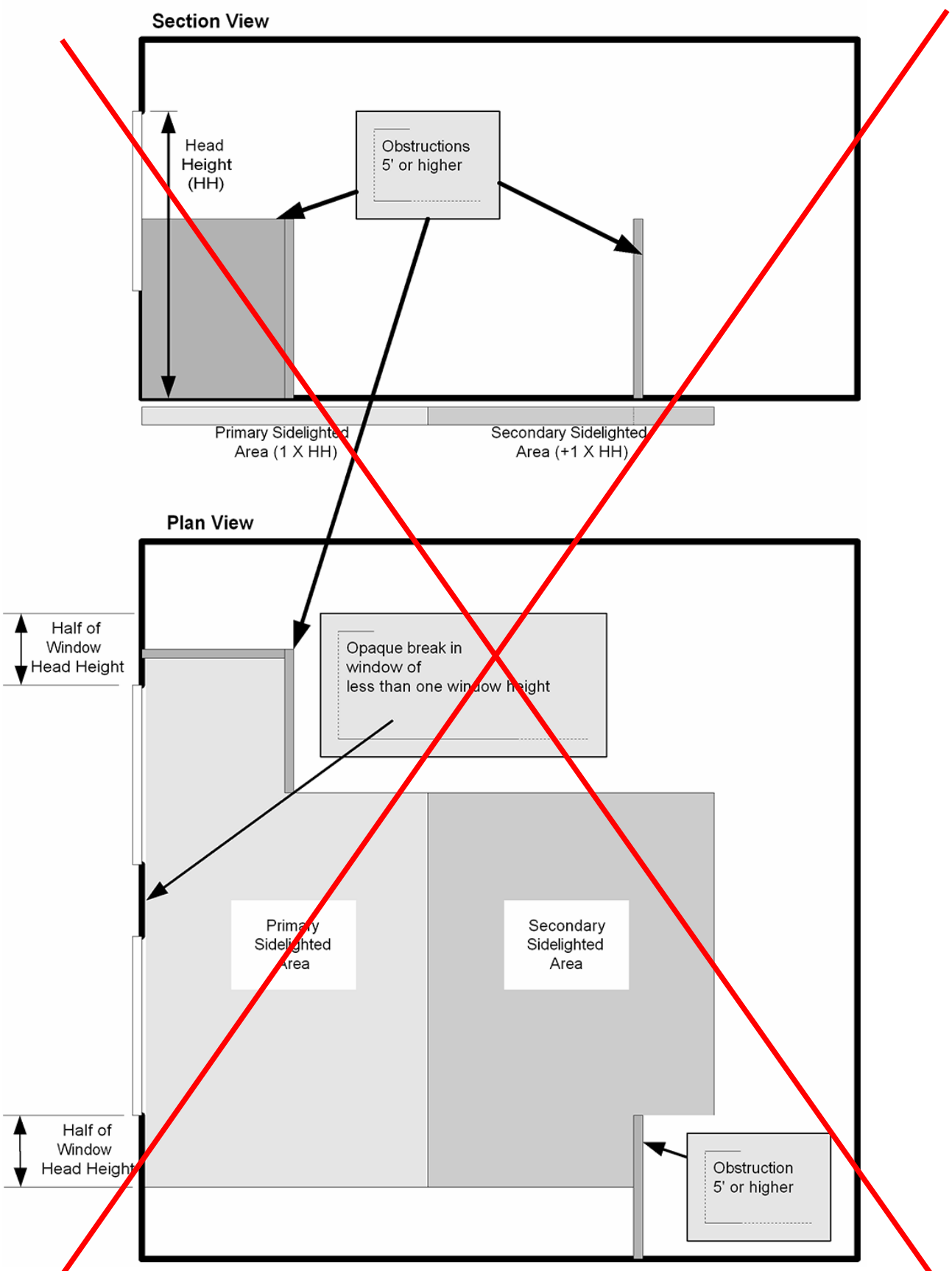

Figure 3.2-5 Computing the secondary sidelighted area.

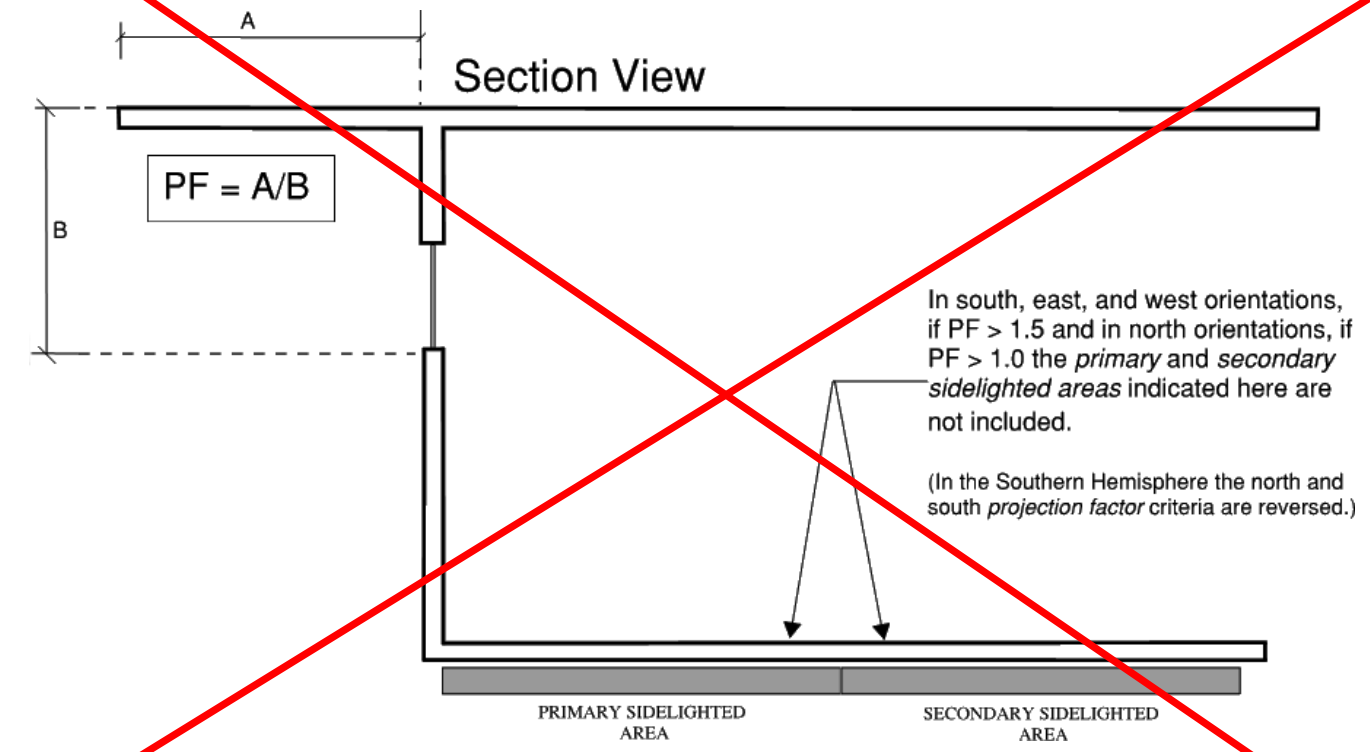

Figure 3.2-6 Computing the primary and secondary sidelighted areas with external projections.

driver: a device designed to operate a solid-state (e.g., LED) light source.
dry-type transformer: see *transformer*.

[…]

Amend Section5.0 as follows below.

5.0 Building Envelope

[…]

5.5.4.2.2 Maximum Skylight Fenestration Area. The total *skylight* area shall not be greater than that specified in Tables 5.5-0 through 5.5-8.

Exception to 5.5.4.2.2: The total *skylight* area is permitted to be increased to not greater than 6% of the *gross roof area*, provided the *skylights* meet all of the criteria in Section 5.5.4.4.2, Exception 1 and the total *daylight area under skylights,* determined according to Section 9.1.5.3, is a minimum of half the floor area of the *space*.

5.5.4.2.3 Minimum Skylight Fenestration Area. In any *enclosed space* in a *building* that is

a. 2500 ft^2 and greater;
b. directly under a *roof* with ceiling heights greater than 15 ft; and
c. one of the following *space* types: office, lobby, atrium, concourse, corridor, storage (including nonrefrigerated warehouse), gymnasium, fitness/exercise area, playing area, gymnasium seating area, convention exhibit/event *space*, courtroom, automotive service, fire station engine room, manufacturing corridor/ transition and bay areas, retail, library reading and stack areas, distribution/sorting area, transportation baggage and seating areas, or workshop, the total *daylight area under skylights,* determined according to Section 9.1.5.3, shall be a minimum of half the floor area and either
    1. provide a minimum *skylight* area to *daylight area under skylights,* determined according to Section 9.1.5.3, of 3% with a *skylight VT* of at least 0.40, or
    2. provide a minimum *skylight effective aperture* of at least 1%.

[…]

Amend Section 9.0 as follows below. The text below is shown as "new", but this is a relocation. Comments are not applicable to either the diagrams or the text. Comments can only apply to the location of this next text.

9.0 LIGHTING

[…]

9.1.4 Interior and Exterior Luminaire Wattage. The wattage of lighting *equipment*, when used to calculate either *installed interior lighting power* or *installed exterior lighting power*, shall be determined in accordance with the following criteria:

a. For lighting *equipment* with replaceable *lamps*, the wattage shall be the *labeled* maximum wattage of the specified and installed *lamps*.

b. For lighting *equipment* with integral *ballasts*/*drivers*, remote *ballasts*/*drivers*, or similar devices, with

1. factory-set wattage for lumen output settings, the wattage shall be the *labeled* wattage of the *luminaire*.
2. field-adjustable wattage for lumen output settings, the wattage shall be the maximum field-adjustable wattage of the *luminaire*.

c. The wattage of lighting track, plug-in busway, and other flexible systems designed to allow the addition and/or relocation of *luminaires* without altering the wiring of the *system* shall be

1. the specified wattage of the *luminaires* included in the *system* but not less than 10 W/lin ft of the track/busway or
2. the *labeled* wattage limit of the current-limiting device, remote *driver*, or *transformer* supplying the *system*.

d. The wattage of a DC low-voltage *lighting system* that employs flexible cabling for plug-in connection of the lighting *equipment* and a remote power supply shall be *labeled* maximum wattage of the *system* power supply. For *systems* that also provide power to *equipment* other than lighting, the wattage shall be *labeled* maximum wattage of the *system* power supply reduced by the wattage of the non-lighting *equipment* connected to the *system*.

e. The wattage of a retrofitted *luminaire* shall be the *manufacturer*'s *labeled* input wattage of the new *light source* plus *driver.*

f. The wattage of all other miscellaneous lighting *equipment* shall be the specified wattage of the lighting *equipment*.

9.1.5 Interior Daylighting Zones. The dimensions of *daylight areas* shall be determined according to Sections 9.1.5.1 through 9.1.5.5.

9.1.5.1 Primary sidelighted area. *Primary sidelighted area* dimensions (Figure 9.1.5.1) shall be calculated as:

a. The head height shall be the distance from the floor to the top of the glazing
b. The width shall be the width of the *vertical fenestration* plus, on each side, the smaller of:
    1. one half of the *vertical fenestration* head height, or
    2. the distance to any 5 ft or higher *opaque* vertical obstruction.
c. The depth shall be the horizontal distance perpendicular to the *vertical fenestration*, which is the smaller of:
    1. one *vertical fenestration* head height, or
    2. the distance to any 5 ft or higher *opaque* vertical obstruction.

9.1.5.2 Secondary sidelighted area. *Secondary sidelighted area* dimensions (Figure 9.1.5.2) shall be calculated as:

a. The *secondary sidelighted area* width is the width of the *vertical fenestration* plus, on each side, the smaller of:
    1. one half of the *vertical fenestration* head height, or
    2. the distance to any 5 ft or higher *opaque* vertical obstruction.

b. The *secondary sidelighted area* depth is the horizontal distance perpendicular to the *vertical fenestration*, which begins at the edge of the *primary sidelighted area* depth and ends at the smaller of

1. one vertical fenestration head height or
2. the distance to any 5 ft or higher opaque vertical obstruction.

If the adjacent *primary sidelighted area* ends at a 5 ft or higher *opaque* vertical obstruction, there is no *secondary sidelighted area* beyond such obstruction.

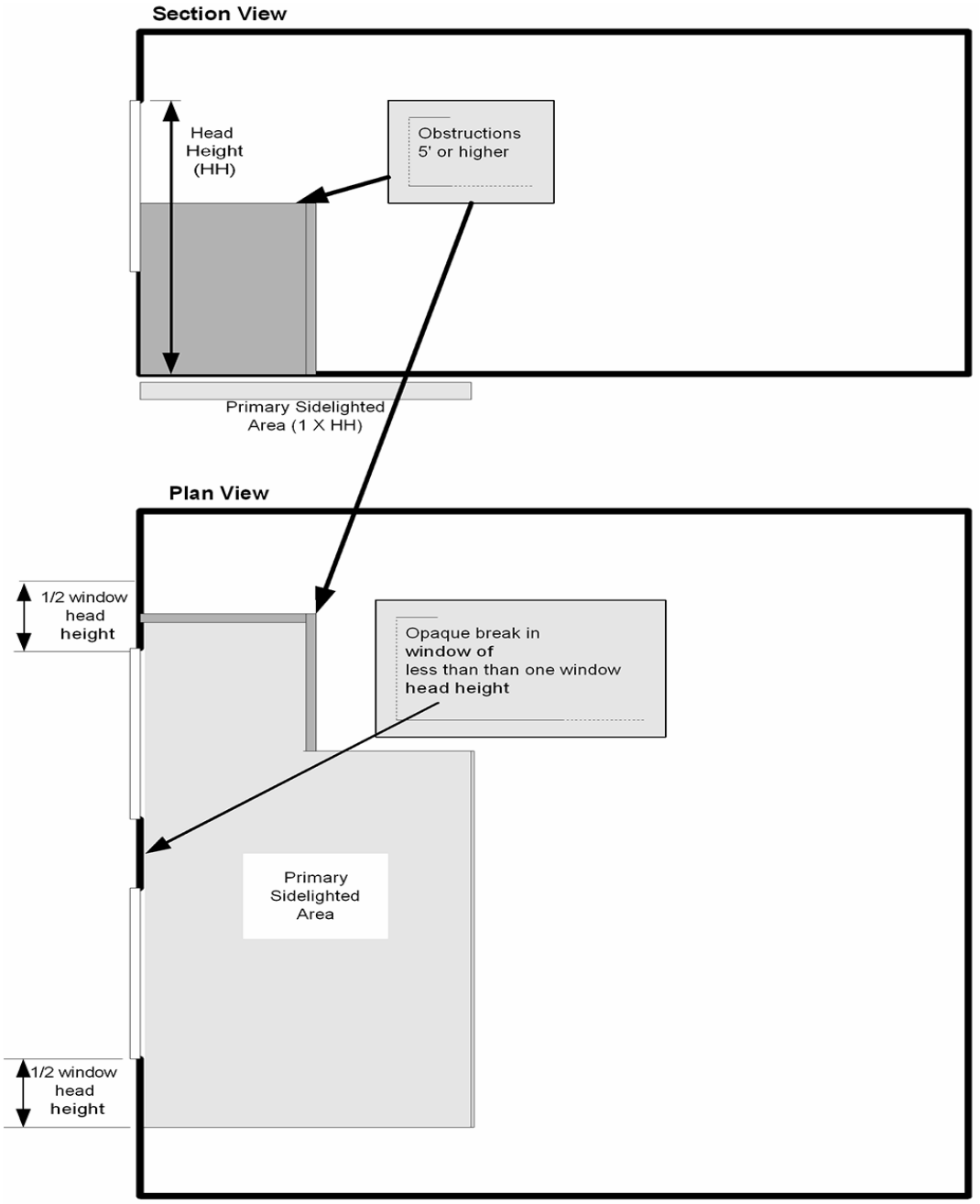

Figure 9.1.5.1 Computing the primary sidelighted area.

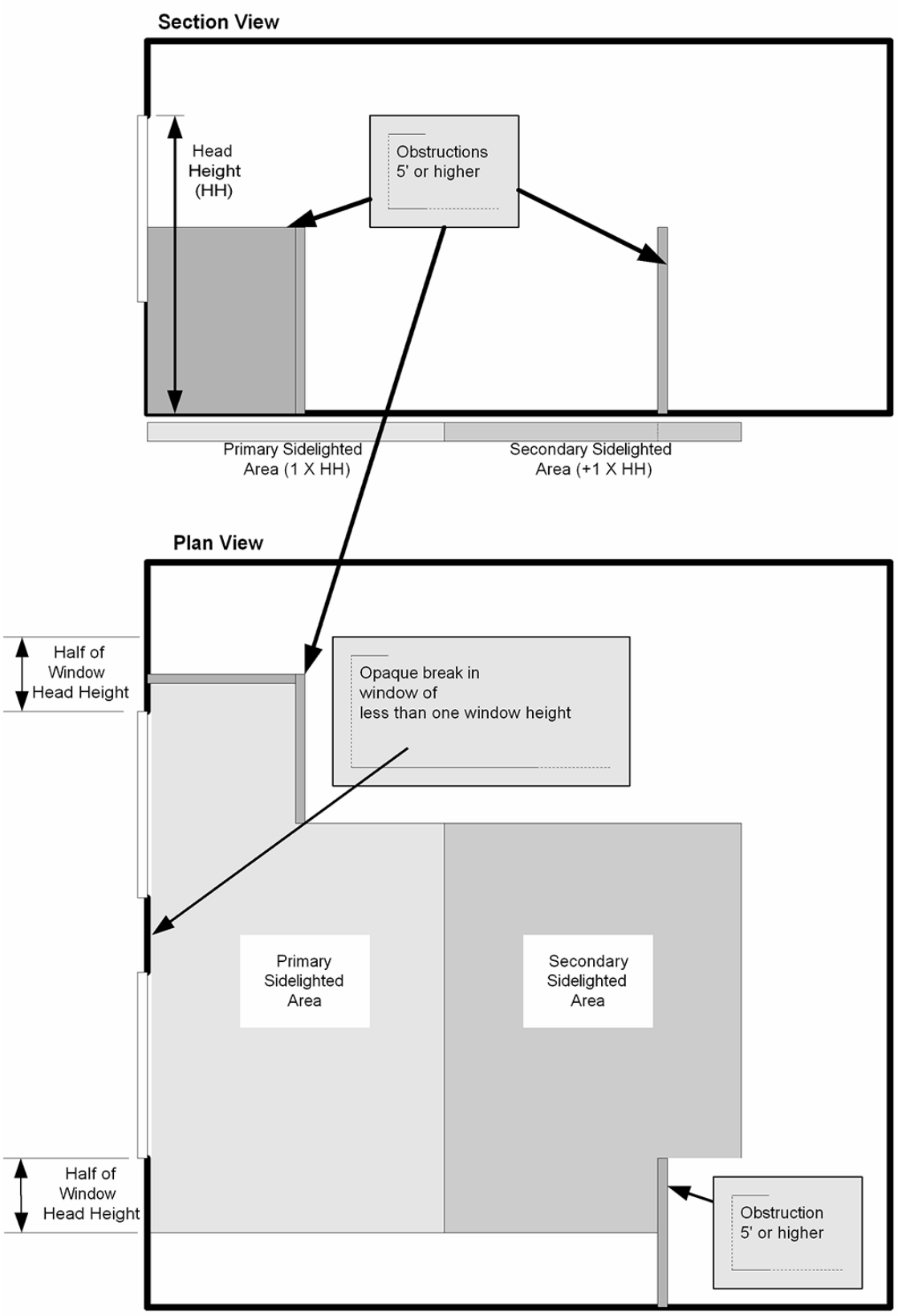

Figure 9.1.5.2-1 Computing the secondary sidelighted area.

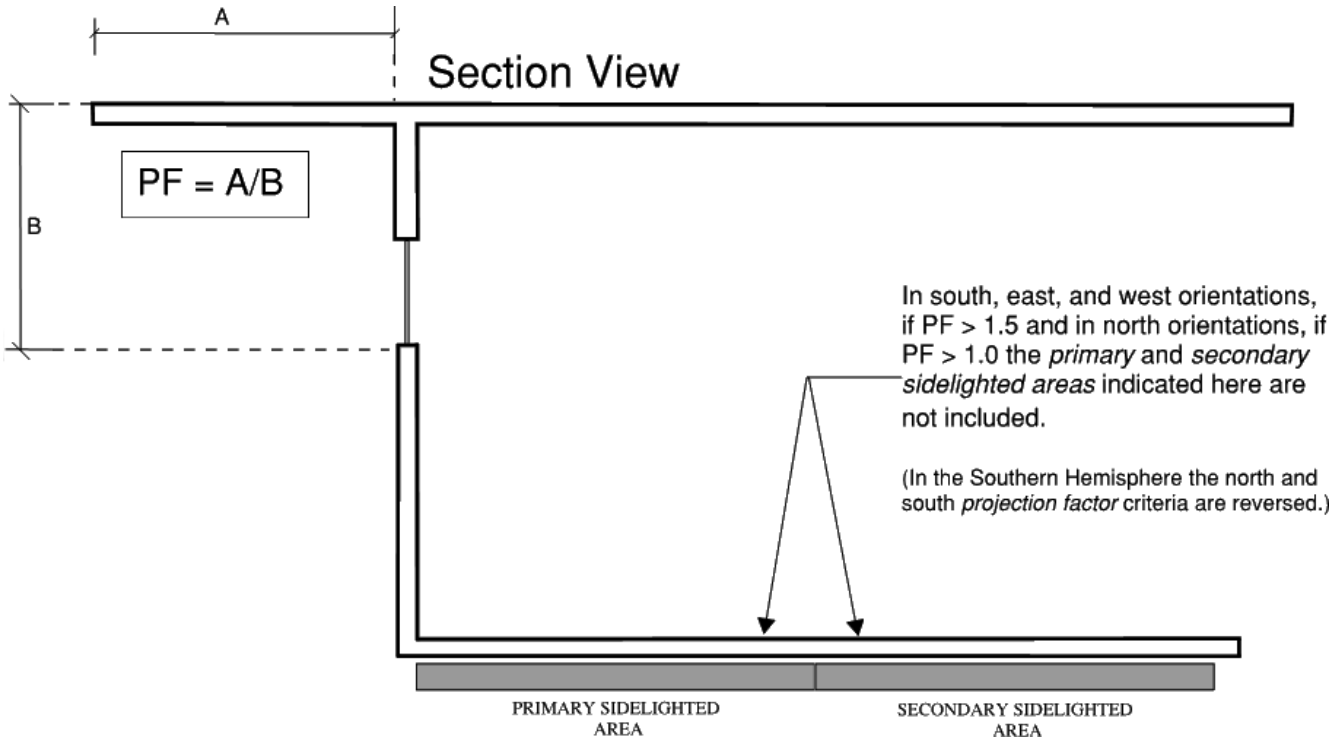

Figure 9.1.5.2-2 Computing the primary and secondary sidelighted areas with external projections.

9.5.1.3 Daylight area under skylights. The *daylight area under skylights* (Figure 9.1.5.3) shall be calculated as the combined *daylight area* under each *skylight* within a *space*, and is bounded by the opening beneath the *skylight* and extending horizontally in each direction a distance equal to the smaller of:

a. 70% of the ceiling height (0.7 × CH) or
b. the distance to the nearest face of any *opaque* vertical obstruction, where any part of the obstruction is farther away than 70% of the distance between the top of the obstruction and the ceiling (0.7 × [CH – OH where CH = the height of the ceiling at the lowest edge of the *skylight*, and OH = the height to the top of the obstruction).

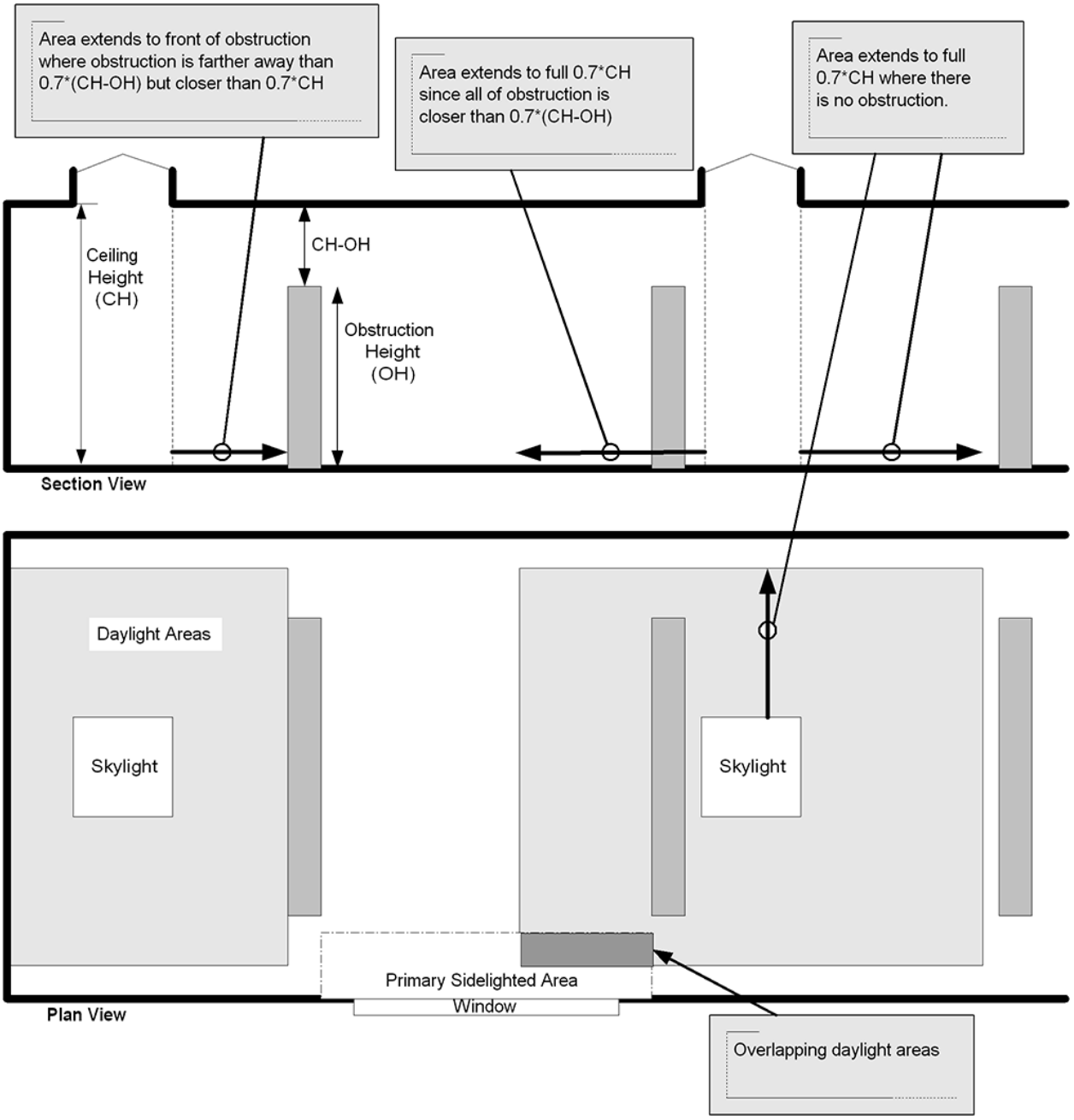

Figure 9.1.5.3 Computing the daylight area under skylights.

9.1.5.1.4 Daylight area under skylights in multistory spaces. The *daylight area under skylights in multistory spaces* (Figure 9.1.5.4) shall include floor areas directly beneath the *skylight* and portions of the uppermost floor adjacent to the multistory *space* that meet the criteria for a *daylight area under skylights*, where CH is the ceiling height of the uppermost floor.

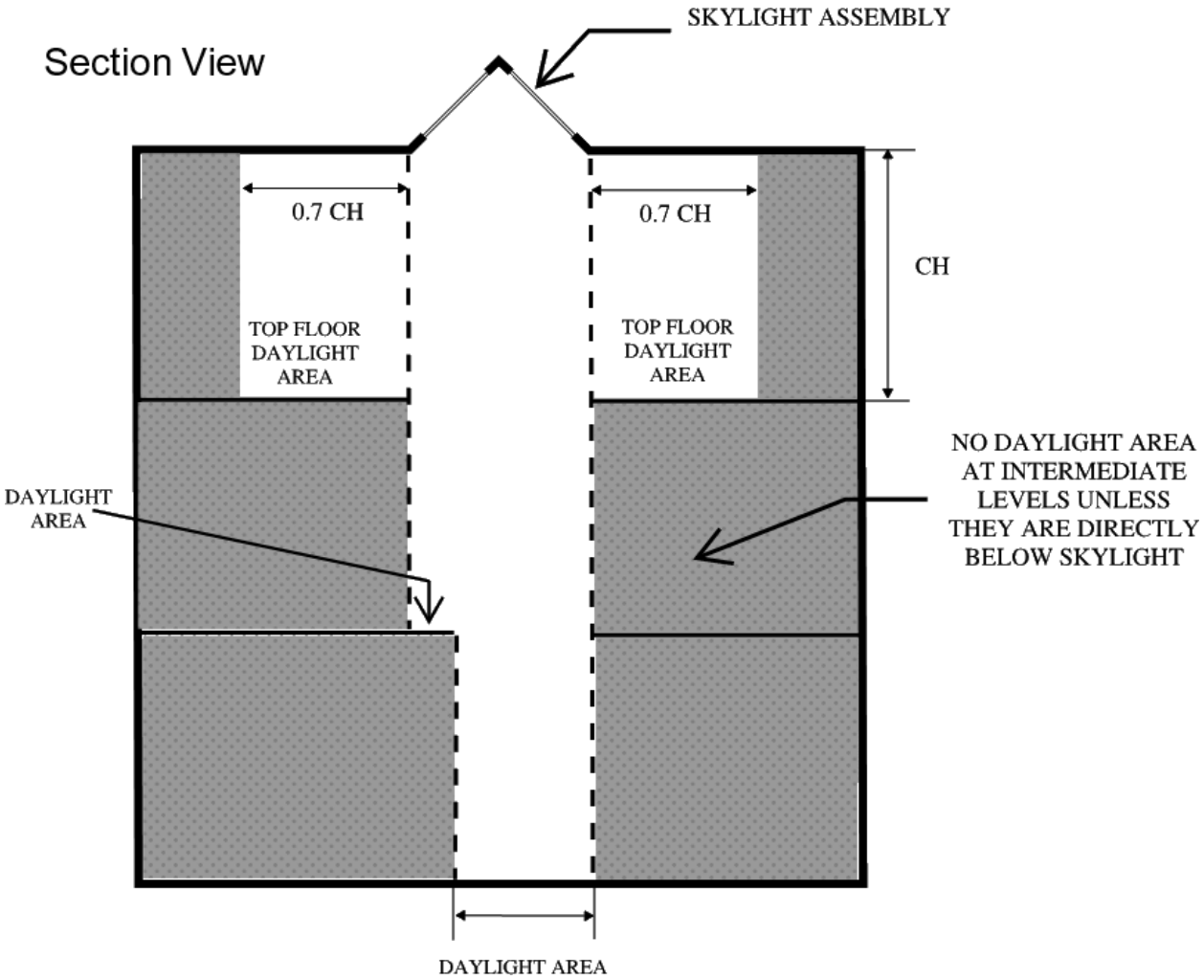

Figure 9.1.5.4 Computing the daylight area under skylights in multistory spaces.

9.1.5.5 Roof monitors. The *daylight area* under each roof monitor (Figure 9.1.5.5) shall be calculated as the product of:
a. the width of the vertical fenestration above the ceiling level plus, on each side, the smallest of:
1. 2 ft,
2. the distance to any 5 ft or higher vertical obstruction, or
3. the distance to the edge of any primary sidelighted area
and
b. the smaller of the following horizontal distances inward from the bottom edge of the vertical fenestration:
1. The monitor sill height (MSH) (the vertical distance from the floor to the bottom edge of the monitor glazing)
2. The distance to the nearest face of any opaque vertical obstruction, where any part of the obstruction is farther away than the difference between the height of the obstruction (OH) and the monitor sill height (MSH – OH).

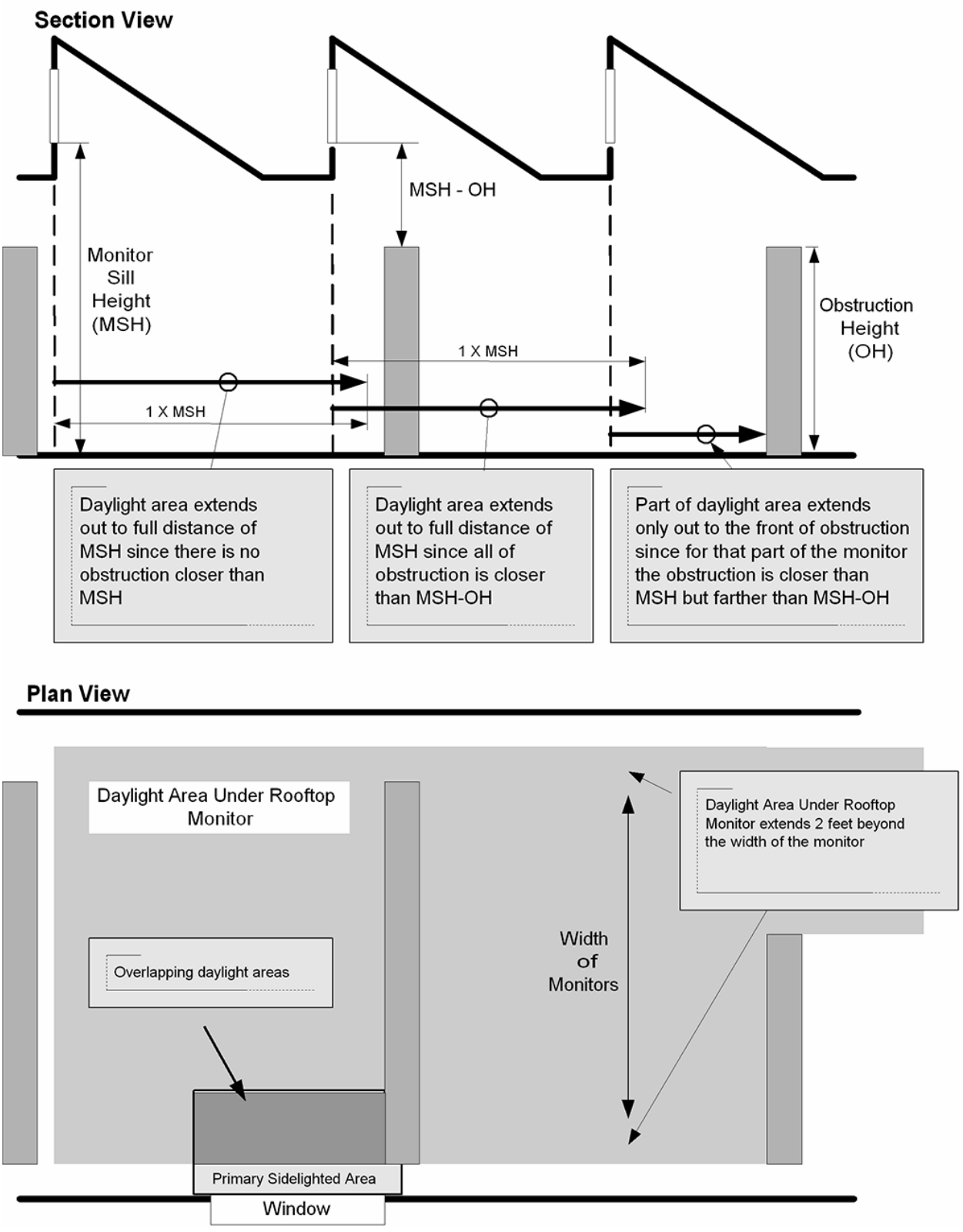

Figure 9.1.5.5 Computing the daylight area under roof monitors.

9.2 Compliance Paths. *Lighting systems* and *equipment* shall comply with Section 9.2.1.
[…]

Modify section 9.4.1.1 as follows. Note the introduction points the reader to an informative appendix.

9.4.1.1 Interior Lighting Controls

…

e. Automatic daylight responsive controls for sidelighting: In any *space* where the combined input power of all *general lighting* completely or partially within the *primary sidelighted areas* is 75 W or greater, the *general lighting* in the *primary sidelighted areas* shall be controlled by photocontrols.

In any *space* where the combined input power of all *general lighting* completely or partially within the *secondary sidelighted areas* is 75 W or greater, the *general lighting* in the *secondary sidelighted area*s shall be controlled by photocontrols. *General lighting* in the *secondary sidelighted areas* shall be controlled independently of the *general lighting* in the *primary sidelighted areas*.

Primary sidelighted area dimensions shall be determined according to Section 9.1.5.1. *Secondary sidelighted area* dimensions shall be determined according to Section 9.1.5.2.

The control *system* shall have the following characteristics:

a. The calibration adjustment control shall be located no higher than 11 ft above the finished floor. Calibration shall not require the physical presence of a person at the sensor while it is processing.
b. The photocontrol shall reduce electric lighting power in response to available daylight using *continuous daylight dimming* to 10% or less and off.
c. When an *automatic* reduction control has reduced the lighting power to the unoccupied *set point* in accordance with Section 9.4.1.1(g), the daylight responsive control shall adjust the electric light in response to available daylight, but it shall not allow the lighting power to be above the unoccupied *set point*.

Exceptions to (e): The following areas are exempted from Section 9.4.1.1(e):

i. *Primary sidelighted areas* where the top of any existing adjacent *structure* or natural object is at least twice as high above the windows as its horizontal distance away from the windows.
ii. Sidelighted areas where the total glazing area is less than 20 ft^2.
iii. *Primary sidelighted areas* adjacent to *vertical fenestration* that have external projections and no *vertical fenestration* above the external projection, where the external projection has a *projection factor* greater than 1.0 for *north-oriented* projections or where the external projection has a *projection factor* greater than 1.5 for all other *orientations* (see ~~Figure 3.2-6~~ 9.1.5.2-2).

f. Automatic daylight responsive controls for *toplighting*: In any *space* where the combined input power for all *general lighting* completely or partially within *daylight area under skylights* and *daylight area under roof monitors* is 75 W or greater, *general lighting* in the *daylight area* shall be controlled by photocontrols. Follow sections 9.1.5.3 through 9.1.5.5 to determine area under skylights and roof monitors. The control *system* shall have the following characteristics:
    a. The calibration adjustment control shall be located no higher than 11 ft above the finished floor. Calibration shall not require the physical presence of a person at the sensor while it is processing.
    b. The photocontrol shall reduce lighting power in response to available daylight using continuous daylight dimming to 20% or less and off.
    c. When an automatic reduction control has reduced the lighting power to the unoccupied set point in accordance with Section 9.4.1.1(g) the daylight responsive control shall adjust the electric light in response to available daylight, but it shall not allow the lighting power to be above the unoccupied set point.
    d. General lighting in overlapping toplighted and sidelighted daylight areas shall be controlled together with general lighting in the daylight area under skylights or daylight area under roof monitors.