



**BSR/ASHRAE/IES Addendum ch
to ANSI/ASHRAE/IES Standard 90.1-2016**

Public Review Draft

Proposed Addendum ch to Standard 90.1-2016, Energy Standard for Buildings Except Low-Rise Residential Buildings

**First Public Review (February 2019)
(Draft Shows Proposed Changes to Current Standard)**

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(This foreword is not part of this standard. It is merely informative and does not contain requirements necessary for conformance to the standard. It has not been processed according to the ANSI requirements for a standard and may contain material that has not been subject to public review or a consensus process. Unresolved objectors on informative material are not offered the right to appeal at ASHRAE or ANSI.)

FOREWORD

This addendum addresses two areas of uncertainty in the definitions of daylighted zones:

- 1) What areas should be considered daylighted around the perimeter of building atria?
- 2) At what size does an exterior building overhang render the *sidelighted area* noneffective for displacing electric lighting?

For multi-story spaces the *daylight area under skylights* is:

- On the top floor, areas that are within 70% of the top floor ceiling height from the edge of skylights that are not obstructed by opaque obstruction that are less than one half the top floor ceiling height, and
- Areas directly below the skylight

The proposed changes indicate that the *primary and secondary sidelighted areas* would not be considered for areas near windows with external overhangs and no *vertical fenestration* above the external overhang where:

- The external overhang has a *projection factor* greater than 1.0 for north orientations in the Northern Hemisphere, or has a *projection factor* greater than 1.0 for south orientations in the Southern Hemisphere, or where the external projection has a *projection factor* greater 1.5 for all other orientations.

Figures 3.2-5 and 3.2-6 have been created to aid in the understanding of the proposed daylighting definition additions and would be formatted to match existing daylighting area calculation figures found on pages 14-17 of the 90.1-2016 Standard.

This proposal is expected to increase cost-effectiveness of daylight controls requirements as it removes from the daylighted area definitions those areas where daylighting availability is significantly diminished.

[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) 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 ch to 90.1-2016

3.2 Definitions

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daylight area:

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

- a. 70% of the ceiling height ($0.7 \times CH$) 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 ($0.7 \times [CH - OH]$, 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*, where CH is the ceiling height of the uppermost *floor* (see Figure 3.2-5).

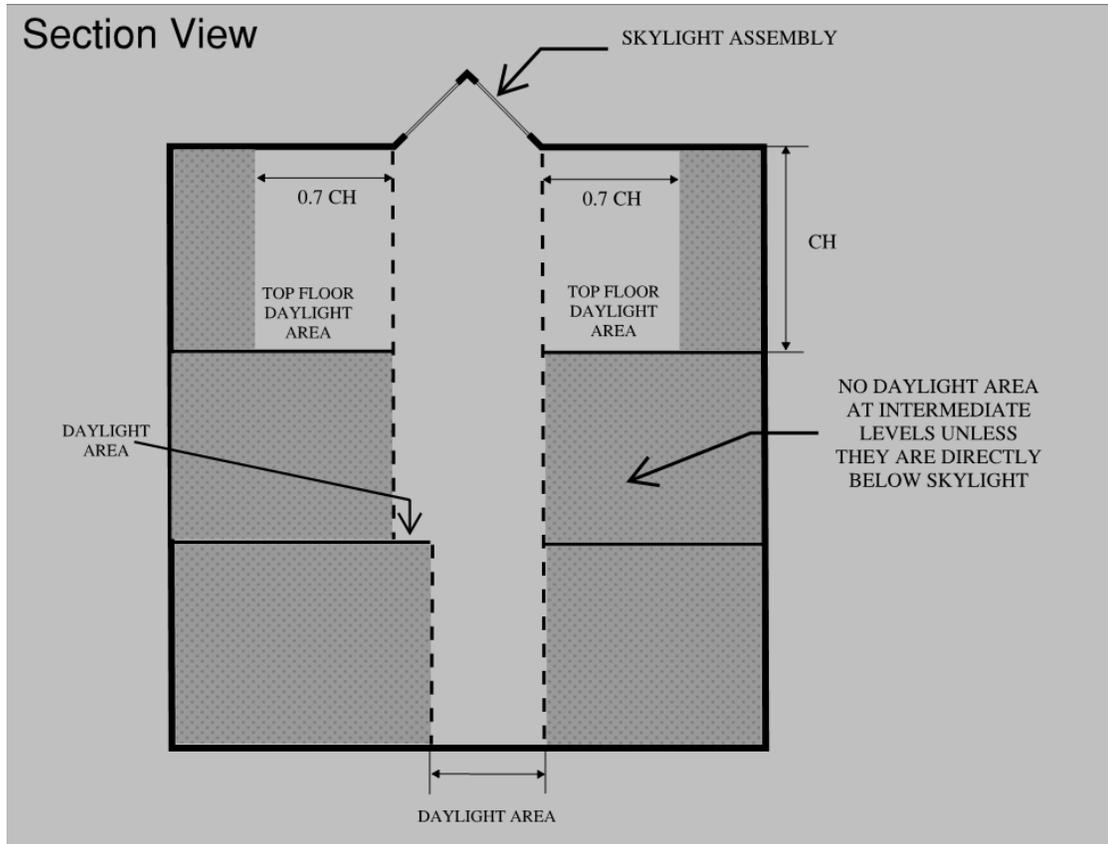


Figure 3.2-5 Computing *daylight area under skylights* in multistory spaces

primary sidelighted area: the total *primary sidelighted area* is the combined *primary sidelighted area* within each *space*. Each *primary sidelighted area* is directly adjacent to *vertical fenestration in an exterior wall* below the ceiling (see Figure 3.2-3).

- 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.

9.4.1.1 Interior Lighting Controls

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Exception to 9.4.1.1(e)

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

1. Primary sidelighted areas where the top of any existing adjacent structure is twice as high above the windows as its distance away from the windows.
2. Sidelighted areas where the total glazing area is less than 20 ft².
3. Retail spaces.
4. 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 1.5 for all other orientations (see Figure 3.2-6).

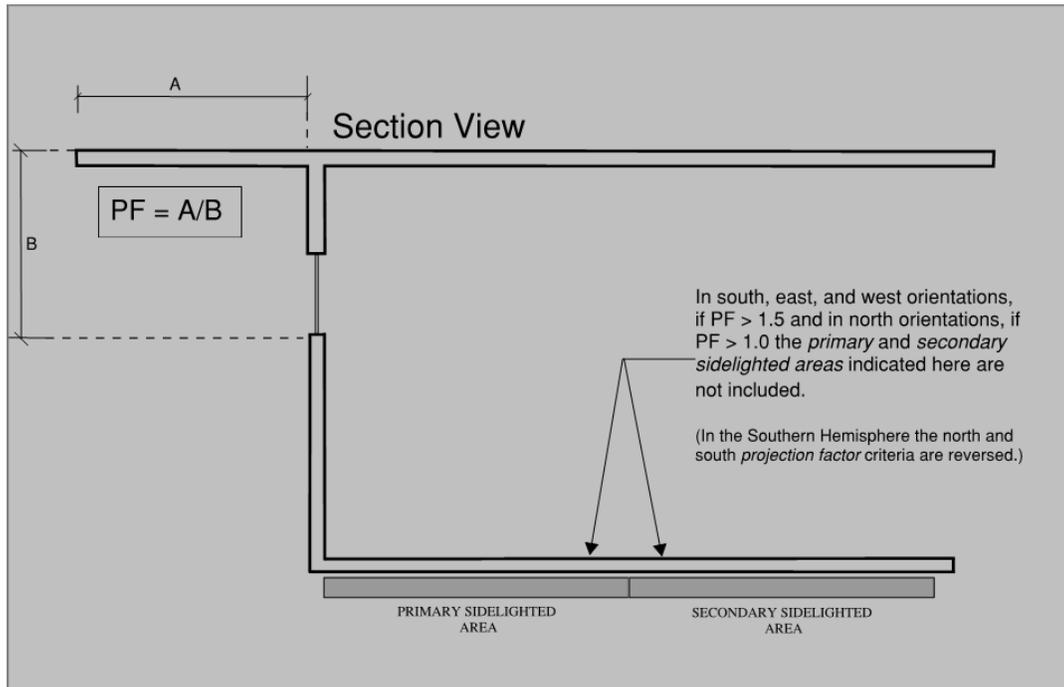


Figure 3.2-6 Computing *primary* and *secondary sidelighted areas* with external projections