

(Effective until March 15, 2024)

WAC 51-11C-40232 Section C402.4.2—Minimum skylight fenestration area.

C402.4.2 Minimum skylight fenestration area. For buildings with single story enclosed spaces greater than 2,500 square feet (232 m²) in floor area that are directly under a roof and have a ceiling height greater than 15 feet (4572 mm) for no less than 75 percent of the ceiling area, these single-story spaces shall be provided with skylights and daylight responsive controls in accordance with Section C405.2.4. Space types required to comply with this provision include office, lobby, atrium, concourse, corridor, gymnasium/exercise center, convention center, automotive service, manufacturing, nonrefrigerated warehouse, retail store, distribution/sorting area, transportation, and workshop. Skylights in these spaces are required to provide a total *toplit zone* area not less than 50 percent of the floor area and shall provide one of the following:

1. A minimum ratio of skylight area to *toplit zone* area under skylights of not less than 3 percent where all skylights have a VT of at least 0.40 as determined in accordance with Section C303.1.3.
2. A minimum skylight effective aperture of at least 1 percent determined in accordance with Equation 4-5.

$$\text{Skylight Effective Aperture} = (0.85 \times \text{Skylight Area} \times \text{Skylight VT} \times \text{WF}) / \text{Toplit zone}$$

(Equation 4-5)

Where:

- Skylight area = Total fenestration area of skylights.
- Skylight VT = Area weighted average visible transmittance of skylights.
- WF = Area weighted average well factor, where well factor is 0.9 if light well depth is less than 2 feet (610 mm), or 0.7 if light well depth is 2 feet (610 mm) or greater, or 1.0 for *tubular daylighting devices (TDD)* with *VT-annual* ratings measured in accordance with NFRC 203.
- Light well depth = Measure vertically from the underside of the lowest point of the skylight glazing to the ceiling plane under the skylight.

- EXCEPTIONS:
1. Skylights above daylight zones of enclosed spaces are not required in:
 - 1.1. Reserved.
 - 1.2. Spaces where the designed *general lighting* power densities are less than 0.5 W/ft² (5.4 W/m²) and at least 10 percent lower than the lighting power allowance in Section C405.4.2.
 - 1.3. Areas where it is documented that existing structures or natural objects block direct beam sunlight on at least half of the roof over the enclosed area for more than 1,500 daytime hours per year between 8 a.m. and 4 p.m.
 - 1.4. Spaces where the daylight zone under rooftop monitors is greater than 50 percent of the enclosed space floor area.
 - 1.5. Spaces where the total floor area minus the *sidelit zone* area is less than 2,500 square feet (232 m²), and where the lighting in the daylight zone is controlled in accordance with Section C405.2.3.1.
 2. The skylight effective aperture, calculated in accordance with Equation 4-5, is permitted to be 0.66 percent in lieu of 1 percent if the *VT-annual* of the skylight or *TDD*, as measured by NFRC 203, is greater than 38 percent.

C402.4.2.1 Lighting controls in daylight zones under skylights. Daylight responsive controls complying with Section C405.2.4.1 shall be provided to control all electric lights within *toplit zones*.

C402.4.2.2 Haze factor. Skylights in office, storage, automotive service, manufacturing, nonrefrigerated warehouse, retail store, and distribution/sorting area spaces shall have a glazing material or diffuser with a haze factor greater than 90 percent when tested in accordance with ASTM D 1003.

EXCEPTION: Skylights designed and installed to exclude direct sunlight entering the occupied space by the use of fixed or automated baffles, or the geometry of skylight and light well.

C402.4.2.3 Daylight zones. Daylight zones referenced in Sections C402.4.1.1 through C402.4.2.2 shall comply with Section C405.2.4.2 and C405.2.4.3, as applicable. Daylight zones shall include *toplit* zones and *sidelit* zones.

[Statutory Authority: RCW 19.27A.020, 19.27A.025, 19.27A.160 and chapter 19.27 RCW. WSR 19-24-040, § 51-11C-40232, filed 11/26/19, effective 7/1/20. Statutory Authority: RCW 19.27A.025, 19.27A.045, 19.27A.160, and 19.27.074. WSR 16-24-070, § 51-11C-40232, filed 12/6/16, effective 5/1/17. Statutory Authority: RCW 19.27A.025, 19.27A.160, and 19.27.074. WSR 16-03-072, § 51-11C-40232, filed 1/19/16, effective 7/1/16. Statutory Authority: RCW 19.27A.020, 19.27A.025 and chapters 19.27 and 34.05 RCW. WSR 13-04-056, § 51-11C-40232, filed 2/1/13, effective 7/1/13.]

(Effective March 15, 2024)

WAC 51-11C-40232 Section C402.4.2—Minimum skylight fenestration area.

C402.4.2 Minimum skylight fenestration area. Skylights shall be provided in enclosed spaces that meet all the following criteria:

1. Floor area of enclosed spaces is greater than 2,500 square feet (232 m²).
2. Space is located directly under a roof and have a ceiling height greater than 15 feet (4572 mm) for no less than 75 percent of the ceiling area.
3. Space type is one of the following: Office, lobby, atrium, concourse, corridor, gymnasium/exercise center, convention center, automotive service, manufacturing, nonrefrigerated warehouse, retail store, distribution/sorting area, transportation, and workshop.

Skylights in these spaces are required to provide a total toplit daylight zone area not less than 50 percent of the floor area and shall provide one of the following:

1. A minimum ratio of skylight area to toplit daylight zone area under skylights of not less than 3 percent where all skylights have a VT of at least 0.40, or VT_{annual} of not less than 0.26, as determined in accordance with Section C303.1.3.
2. A minimum skylight effective aperture, determined in accordance with Equation 4-5, of:
 - 2.1. Not less than 1 percent using a skylight's VT rating; or
 - 2.2. Not less than 0.66 percent using a *tubular daylight device's* VT_{annual} rating.

$$\text{Skylight Effective Aperture} = (0.85 \times \text{Skylight Area} \times \text{Skylight VT} \times \text{WF}) / \text{Toplit daylight zone}$$

(Equation 4-5)

Where:

- Skylight area = Total fenestration area of skylights.
- Skylight VT = Area weighted average visible transmittance of skylights.
- WF = Area weighted average well factor, where well factor is 0.9 if light well depth is less than 2 feet (610 mm), or 0.7 if light well depth is 2 feet (610 mm) or greater, or 1.0 for *tubular daylighting devices (TDD)* with VT_{annual} ratings measured in accordance with NFRC 203.
- Light well depth = Measure vertically from the underside of the lowest point of the skylight glazing to the ceiling plane under the skylight.

EXCEPTIONS:

1. Skylights above daylight zones of enclosed spaces are not required in:
 - 1.1. Spaces designed as storm shelters complying with ICC 500.
 - 1.2. Spaces where the designed *general lighting* power densities are less than 0.5 W/ft² (5.4 W/m²) and at least 10 percent lower than the lighting power allowance in Section C405.4.2.
 - 1.3. Areas where it is documented that existing structures or natural objects block direct beam sunlight on at least half of the roof over the enclosed area for more than 1,500 daytime hours per year between 8 a.m. and 4 p.m.
 - 1.4. Spaces where the daylight zone under rooftop monitors is greater than 50 percent of the enclosed space floor area.
 - 1.5. Spaces where the total floor area minus the sidelit daylight zone area is less than 2,500 square feet (232 m²), and where the lighting in the daylight zone is controlled in accordance with Section C405.2.3.1.
2. The skylight effective aperture, calculated in accordance with Equation 4-5, is permitted to be 0.66 percent in lieu of 1 percent if the VT_{annual} of the skylight or *TDD*, as measured by NFRC 203, is greater than 38 percent.

C402.4.2.1 Lighting controls in daylight zones under skylights. Daylight responsive controls shall be provided to control all electric lights within toplit daylight zones.

C402.4.2.2 Haze factor. Skylights in office, storage, automotive service, manufacturing, nonrefrigerated warehouse, retail store, and distribution/sorting area spaces shall have a glazing material or diffuser with a haze factor greater than 90 percent when tested in accordance with ASTM D 1003.

EXCEPTION: Skylights and *tubular daylighting devices* designed and installed to exclude direct sunlight entering the occupied space by the use of fixed or automated baffles, or the geometry of skylight and light well.

C402.4.2.3 Daylight zones. Daylight zones referenced in Sections C402.4.1.1 through C402.4.2.2 shall comply with Sections C405.2.5.2 and C405.2.5.3, as applicable. Daylight zones shall include toplit daylight zones and sidelit daylight zones.

[Statutory Authority: RCW 19.27A.020, 19.27A.025, 19.27A.160 and chapters 19.27A and 19.27 RCW. WSR 22-14-091, 23-12-101, and 23-20-021, § 51-11C-40232, filed 7/1/22, 6/7/23, and 9/25/23, effective 3/15/24. Statutory Authority: RCW 19.27A.020, 19.27A.025, 19.27A.160 and chapter 19.27 RCW. WSR 19-24-040, § 51-11C-40232, filed 11/26/19, effective 7/1/20. Statutory Authority: RCW 19.27A.025, 19.27A.045, 19.27A.160, and 19.27.074. WSR 16-24-070, § 51-11C-40232, filed 12/6/16, effective 5/1/17. Statutory Authority: RCW 19.27A.025, 19.27A.160, and 19.27.074. WSR 16-03-072, § 51-11C-40232, filed 1/19/16, effective 7/1/16. Statutory Authority: RCW 19.27A.020, 19.27A.025 and chapters 19.27 and 34.05 RCW. WSR 13-04-056, § 51-11C-40232, filed 2/1/13, effective 7/1/13.]