MANDATORY MEASURES
DAYLIGHTING

(Reference: Sub-Chapter 4, Section 130)
Large enclosed spaces, such as large retail warehouses, are required to have a minimum amount of daylight available. The minimum requirements apply to both conditioned and unconditioned spaces that are:

1. In Climate Zones 2–15
2. Have a floor area greater than 5,000 square feet
3. Have a ceiling height greater than 15 square feet
4. Have a general lighting system with a power density greater than 0.5 watts per square foot

Buildings that meet the above criteria must have:
- At least 75% of the floor space of the building in a primary sidelit zone or skylit zone
- No more than 5% of the roof area may contain skylights

Section 140.3 (c)
DAYLIGHT ZONES

Regions within a building that are close enough to a source of daylight that daylight harvesting is possible are considered within a “daylight zone.”

**Skylit Zone:** An area illuminated by one or more skylights

**Primary Sidelit Zone:** A daylit area directly adjacent to one or more windows

**Secondary Sidelit Zone:** An area not directly adjacent to a window that still receives some daylight through its proximity to the window

*All daylight zones must be marked on the building floor plans.*
SKYLIT ZONE

When determining the skylit zone, the shape of the zone is the same as the geometric shape of the opening of the skylight. For example, a rectangular skylight creates a rectangular daylight zone, and a circular skylight creates a circular zone.

Calculation Steps:
1. Multiply the average ceiling height of the building by 0.7
2. Add this value in all directions around the skylight (starting at the edge of the rough opening)
3. Subtract any area in which a permanent obstruction would block daylight (taller than half the distance from the floor to the bottom of the skylight)
CALCULATING THE SKYLIT ZONE

Obstruction height less than half the ceiling height

Obstruction height more than half the ceiling height

SIDE VIEW

TOP VIEW

0.7 x CH

0.7 x CH

Section 130.1 (d)1
PRIMARY SIDELIT ZONE

The primary sidelit zone is a daylit area directly adjacent to one or more windows.

Calculation Steps

1. Determine the window head height for each window
2. The length of the zone is one window head height into the area adjacent to the window
3. The width of the zone is the width of the window plus half the window head height one each side of the window
4. Subtract any area on a plan that is blocked by a permanent obstruction that is six feet or taller.

Window Head Height = Vertical distance from the finish floor level to the top of a window.
SECONDARY SIDELIT ZONE

Secondary sidelit zones are extensions of primary sidelit zones. They represent areas where daylight is present, but may provide less illumination because of their distance from windows.

Calculation Steps

1. Add one additional window head height to the same dimensions determined for the primary sidelit zone
2. Subtract any area that is blocked by a permanent obstruction that is six feet or taller
CALCULATING THE PRIMARY SIDELIT ZONE (SIDE VIEW)

PRIMARY SIDELIT ZONE

Controlled fixtures in the primary sidelit zone

SECONDARY SIDELIT ZONE

Controlled fixtures in the secondary sidelit zone

1 HH

2 HH

0.5 x HH
PRESCRIPTIVE COMPLIANCE REQUIREMENT FOR SECONDARY SIDEKIT ZONES

When using the prescriptive compliance method, the automatic daylighting controls requirements for primary sidelit zones also apply to general lighting luminaires that are at least 50% in a secondary sidelit zone.
ACTIVITY: CALCULATING DAYLIT ZONES

Calculate and draw the Primary and Secondary Sidelit Zones on the convenience store plan in your workbook.

Assume the following:
• Window Head Height: 10 ft.
• Aisle Height: 4 ft.