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For New York's Glazing & Design Professionals

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#13 – GLASS AND ENERGY – WHOLE SYSTEM U-VALUES

The Energy Conservation Construction Code of New York State – 2007 list three methods for compliance. Design professionals will most likely use the Total Building Performance Method or ASHRAE 90.1 Energy Standard for Buildings. The State adopted the 2004 version of ASHRAE 90.1 with an effective date of April 9, 2008.

This document provides a brief example of the use of the simplest, but most stringent method of compliance with U value requirements. This method is allowed for commercial buildings with less than 50 % window and door glazed area.

First, go to chapter two and select the commercial climate zone for the County the project is located in.

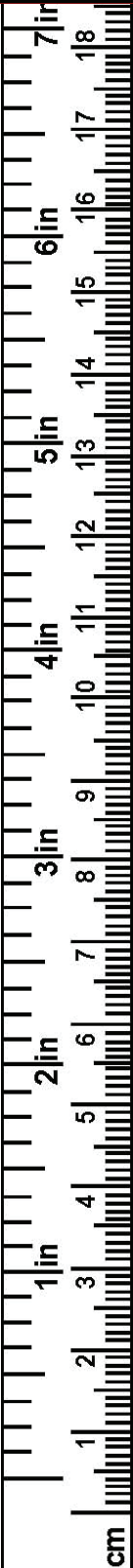
Second, calculate the percentage of wall area that is glazed by dividing the area of the windows and doors by the area of the above grade exterior walls.

Third, go to chapter eight and select one of the four charts for the project climate zone depending on the window and door glazing percentage. The U value listed there is the requirement, a “whole system” U value, not just the center-of-glass. The U values get more stringent as the percentage of glass and doors increases, and they get more stringent in the colder areas of the State.

Fourth, calculate the percent of vision glass by dividing the area of the glass using the daylight opening dimensions by the total area of the glazing, using the frame width and height dimensions.

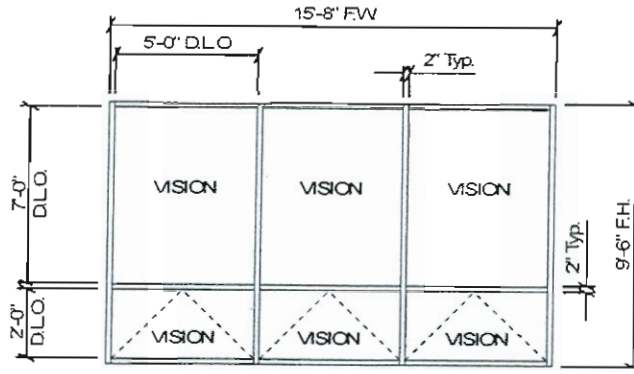
Fifth, select framing material and glass and determine whole system u-value using the AAMA 507 Standard or chart supplied by the framing manufacturer.

Here's an example, using a commercial building in Albany county, with 30% glazing area. The required U value is .50. The percent of vision glass is 91%. By using the Tubelite T14000 thermally broken framing and 1” insulating glass with Pilkington low e, a .45 system u-value is achieved, which complies with the .50 requirement.



“Inch by Inch...It's a Cinch”

**Project Specified U-Factor
Example Calculation
(Based on entire elevation)**



Vision Area = $3(5' \times 7') + 3(5' \times 2') = 135.0 \text{ ft}^2$

Total Area = $15'-8" \times 9'-6" = 148.8 \text{ ft}^2$

Percent of Vision Glass = $\frac{\text{Vision Area}}{\text{Total Area}} \times 100 = \frac{135.0}{148.8} \times 100 = 91\%$

Tubelite, Inc.
14000 Center Glazed Wall System

System U-Factor vs. Percentage of Vision Area

