

DOCKET

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Section 140.3 NR Prescriptive Envelope

EQUATION 140.3-C – VISIBLE TRANSMITTANCE CALCULATION

Issue: formula says $VT = .53 \times VTc$ (often referred to as VLT in glass product literature). In my review of NFRC rated Low E glass, VT was typically about $.9 \times VLT$. Nelson Pena, on 7/28/10, wrote that VT shall be $.8 \times VLT$. Where does .53 come from?

(a)7. Exterior Doors.

Issue: Standards ought to clearly differentiate between glass doors and opaque doors.
Proposal: Change title to “Opaque Exterior Doors”.

TABLE 140.3-A

Issue: Nonresidential metal frame walls have a greater thermal resistance than those shown for High-Rise Residential and Guest Rooms. For nonresidential buildings, typically operated daytime hours only, and with relatively high internal heat gain, the most efficient envelope thermal resistance will in practice be lower than for residential and guest room facilities that have lower internal heat gain, and are always operated 24 hours/day.

TABLE 140.3-B

Issue: Are there high-rise residential and guest rooms that are built as “metal buildings”? If not, this criteria can be deleted from the table.

TABLES 140.3-A and B

Issue: Fenestration portion of table could be more clear.

Proposed change:

1. Column 3: Change Windows to Vertical (“window” means factory-assembled in Title 24 definitions, so excludes “site-built”. If “vertical” is not inclusive enough, add note to table indicating that “vertical” is any glazing that does not qualify as a “skylight”)
2. Column 5: Delete word “Operable”
3. Column 6: Change “Fixed” to “Fixed Window”
4. Column 7: Change “Operable” to “Operable Window”

140.3(c)1.

Issues:

- a) Use of term “or” could be taken to mean that the 75% requirement cannot be met by combining Sidelit and Skylit areas.
- b) Sidelit daylight area definition and Skylit daylight area definition are incomplete. Sidelit area does not include the extension beyond the window jambs. Skylit area does not include the skylight footprint area.

Proposed language: The sum of the floor area that is within the Primary Sidelit Daylight areas, and the floor area that is within the Skylit Daylight areas, as defined at **T-24 ref.**, shall be at least 75% of the total space floor area.

Section 146.3 NR Prescriptive Lighting

Table 140.6-C, footnote 3.

Issues:

1. “Ornamental” is not defined.
2. Standards are not clear as to whether all chandeliers, and all sconces, are to be considered “ornamental”. If only certain fixtures are to be considered “ornamental”, what are the criteria.
3. The Standards do not explain how to calculate the task area of an ornamental light fixture. It is not clear that a definition can be developed that would be easy to apply and to enforce.

Section 150.1 Residential, Performance & Prescriptive

150.1(c)1.A. Language discusses installing insulation equal to the R-value “or U-factor”.

Two problems with this wording:

1. Table 150.1-C does not list U-factors (table notes reference section 150.1(f) for metal frame assembly U-factors).
2. The U-factors represent an assembly thermal value, not the thermal value of the insulation.

Standards language may indicate an insulation R-value for wood frame construction, and an assembly U-factor for metal frame construction.

TABLE 150.1-C.

Issue: Confusing glazing terms. Skylights are “fenestration”.

Proposal: At column 4, change “fenestration” to “vertical”. See also comment 1 for Table 140.3, above.

Section 150.2 Residential, Additions and Alterations

EXCEPTION 2 to Section 150.2(a)

Issue: language allows less than the required R-value at roofs. However, it neglects to state that such a building must comply using the *performance* approach, modeling the proposed roof insulation.

150.2(a)1.B.

Issue: The Prescriptive standard varies the allowed addition fenestration area depending on the area of fenestration removed due to the location of the addition. However, removing fenestration is not necessarily an active measure taken to improve energy efficiency. And it is not clear why the removal of 50 sq. ft. of high-performance fenestration would provide double the additional allowed fenestration area for the addition as would the removal of 25 sq. ft. of low-performance fenestration.

Proposal: Do not give a fenestration area credit for the removal of existing fenestration. Tailor the addition fenestration area allowance to the type of space(s) the addition will consist of. The 20% CFA fenestration area allowance for new construction is predicated on residences having a balance of living, sleeping and support spaces. The addition fenestration area allowance would be more fair if it was structured as follows:

Addition fenestration area shall be the sum of the following:

1. Addition bedroom, kitchen, bathroom, home office, circulation, and support area
CFA x 15%
2. Addition living, dining, family room CFA x 25%

Note: Where the building code requires greater window area than the Prescriptive fenestration area allowance, the Title 24 fenestration area allowance shall match the building code minimum window area requirement. This clause is only applicable if the proposed addition does not include fenestration whose area is not, at least in part, required by the building code.