WINDOW 6.2 / THERM 6.2. Complex Glazing Homework Problem

5/15/09

Venetian Blind Problem

Description:

Model an "integral" Venetian blind:

Calculate the U-factor, SHGC and Tvis values for this blind in a fixed picture window, in the following states:

- Closed
- Non-retractable open

Modeling assumptions:

- Use Nominal Glass thickness

Venetian Blind description:

- Slat Width: 15 mm
- Slat Spacing : 13 mm
- Slat Material: Light Green
- Slat Tilt: make it positive rather than negative – right now W6 will not accept negative values for Tilt. This means that the slats will have the curve facing outside rather than inside.
- Slat Material Thickness: 0.25 mm (make sure to set this in the Material Library)
- Rise: 0.80 mm
- Space between the top of the blind hardware and the IG spacer: 1/8"
- Space between the bottom of the blind hardware and the frame: 0"
- Space to between the right and left side of the blind and the frame: 1/8"
- Blind is centered in the IG

Glazing System description:

- Overall width of glazing system: 27.8 mm
- Glass Layer 1: 3 mm clear (ID 102)
- Glass Layer 2: 3 mm Low-E (ID 9921)
- U-value = 0.354, SHGC = 0.176, Tvis = 0.748

THERM Files:

The following THERM files are supplied:

- Sill (sample-sill.thm)
- Head (sample-head.thm)
- Jamb (sample-jamb.thm)
- Venetian Blind Head Rail hardware (VenetianHeadRail.thm
- Venetian Blind Bottom hardware (VenetianBottom.thm)

Frame description:

Use a ½" high foam rubber spacer

Results:

- Submit a simple report with whole window properties for U-factor, SHGC, and Tvis for the closed and open non-retractable cases.
- WINDOW 6 database (export windows to Project database) and THERM files – the export only works into the program working directory.

Fritted Glass Problem

White frit from CGDB (supplied with the install W6.mdb)

Make an IG with the following frit:

- 60% coverage of White Frit
- Put the frit on surface 2 (this requires flipping the frit layer, which is not currently obvious in the feedback – we will work on this in the final version of WINDOW 6)
- ½ " air space
- Inner layer is 3 mm clear glass (ID # 102)

Results:

- Submit a simple report with glazing system (IG) properties for U-factor, SHGC, and Tvis
- WINDOW 6 database (export glazing system to Project database) – the export only works into the program working directory.