

NFRC Training for Modeling Specular Systems with WINDOW6 / THERM6

Windows & Daylighting Group
Building Technologies Department
Ernest Orlando Lawrence Berkeley National Laboratory

Download from
<http://windows.lbl.gov/software>

Introduction

- Training website
<http://windows.lbl.gov/software/nfrc/w6t6review/>
- If all of the default settings are kept, there should be very little (if any) *operational* difference between version 5.2 and version 6.3 of either program.
- These versions have capability to model shading systems and frits, but for NFRC product certification, they can only be used for specular systems.
- Results will change slightly
(see comparison paper on web)
 - SHGC change in WINDOW – bug fix
 - U-factor change in WINDOW – single-glazed systems
 - CR change in WINDOW – RH fix
 - U-factor change in THERM – Jamb cavity fix

BUG FIXES -- WINDOW

- SHGC calculation
- Single glazing fix for frame / edge U-factor (edge and COG were the same)
- CR: RH value used is from the boundary condition library not the INI file; also using exact temperature values, instead of deriving from RH

BUG FIXES -- THERM

- Selecting Frame cavity segments – fixes both THERM 5 and THERM 6 bugs related to selecting frame cavity segments
- Jamb cavity radiation (now in exact compliance with 15099)
- Material.csv lib import – new material-NFRC.lib file
- File / Properties – “Type” now works properly
- Fixed program crash when glazing system doesn’t fit
- File/New always maximizes drawing area
- Pulldowns now have horizontal scrollbar – so long names should always be visible.
- U-factor tag case sensitivity now fixed (SHGC Exterior & SHGC exterior are now equivalent)
- “Period” in filename

Program Changes -- WINDOW

Database:

- Tables have been added to the database for shading systems
- Fields have been added to existing tables
- No fields in existing tables were deleted or renamed
- These changes in the db should not affect programs that are reading the db directly

Program Changes -- WINDOW

File / Preferences:

- Options tab – identical
- Optical data tab – identical
- Thermal calcs – no need to go to this tab, results won't change for specular systems if these values change
- Optical calcs – the only option that will change results is “Use matrix ..” -- make sure it is unchecked (the default state)
 - calc time will be quite long, you will notice it right away

Program Changes -- WINDOW

New libraries:

- Shading Layer
- Shading Material Libraries
- Don't use these for certification runs

Program Changes -- WINDOW

Window Library:

- Energy Plus IDF file

Program Changes -- WINDOW

Glazing System Library, Detailed View:

- IG Height / IG Width – these are for shading systems, do not show unless “Shade or frit” is set for glass layer
- NFRC 100-2010 Environmental Conditions
- Glass is a pulldown, but default is Glass, so there is no need to change anything

Program Changes -- WINDOW

Glass Library:

- Import – has third choice of Frit – don't pick this
- Diffusing checkbox – should never be checked for specular glazings

Program Changes -- THERM

Can see which version you are running

New Material library from NFRC 101

- material-NFRC.lib
- In THERM install and also available from NFRC website
- Libraries / Material Library / Load Lib
- “Frame Cavity” Materials – no year in name

Program Changes -- THERM

Options/Preferences/Simulation tab:

- “ISO 15099 Jamb Cavity Radiation Fix” should always be checked
- this is the default, should never need to change it (at some point we will remove it)

Import Glazing System:

- NFRC CMA button : Ignore
- Shading layers: None (Ignore – should always be “None”)
- Glazing system pulldown list shows full name (doesn't truncate) (this is true of all pulldown lists)

Program Changes -- THERM

Insert Glazing System Dialog box

- Glazing system width
(feedback, grayed out unless “NFRC CMA” button was clicked in previous dialog box)
- Site line to shade edge
(ignore)
- Exterior boundary condition set to
NFRC 100-2010 Exterior
- Interior – input box is not there for the default “Use convection plus enclosure radiation”
(used to be there but grayed out)

Program Changes -- THERM

When double clicking on a Glazing system

- Shading properties group box at the bottom –should be N/A

Glazing System Boundary conditions:

- Double click on either interior or exterior glazing system boundary, shows “Default Boundary Condition” – this is what will be used when program inserts glazing system.
- This default changes (for the glazing system) if you manually change it.
- Shading system modifier – should always be None

Migrating Files – WINDOW 5.2 – 6.3

- W6 will migrate W5 databases, adding new fields as necessary
- W5 can open W6 databases, but this will introduce errors in the W5 calculations (such as for SHGC 0/1), so be careful not to do this.
- Do not import records from a W5 db into a W6 db -- the program will want to update the W5 db to the latest W6 version.
- Copy the W5 database, and open the database in W6 and let the program update it. Then you can import files between the two databases that are now both in the W6 format.
- New Environmental Conditions Library names:
 - The W6 migration will not change library names, so for Environmental Conditions records whose names have changed
 - you can import from the W6.mdb install db
- Recalculate all values (glazing systems and windows) in the migrated W5 databases – bugs were fixed and the results will be slightly different.

Migrating Files – THERM 5.2 – 6.3

- Reassign Exterior BCs before simulating
- THERM will automatically regenerate the BCs (based on option 2, the way that they are defined) the first time a THERM 5 file is simulated in THERM 6.
- Change all frame cavities to Frame Cavity NFRC 100 (from 100-2001) – use Edit/Select Special. (and also for Slightly ventilated).
- Change materials if using new new nfrc-material.lib
- Re-simulate all files migrated from THERM 5 to THERM 6 – jambs, meeting rails, etc will have slightly different values due to the ISO Jamb Cavity radiation fix.

Microsoft Windows 7 Issues

- Programs will be installed in c:\Program Files (x86)
- Installation installs “writeable” files to c:\users\public\LBNL
- Knowledge Base talks about this
<http://windows.lbl.gov/software/Window7VistaIssues.html>

Simulation Manual Updated

- Manual updated with new screenshots
- Some errors were fixed
- Available on the public download website

Training website

<http://windows.lbl.gov/software/nfrc/w6t6review/>

**Windows & Daylighting Group
Building Technologies Department
Ernest Orlando Lawrence Berkeley National Laboratory
Berkeley, CA**