NSG GROUP

Technical Bulletin

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LBNL WINDOW 6 AND OPTICS 6 PROCEDURES TO COMPUTE THE SOLAR / OPTICAL PERFORMANCE OF NEW PRODUCTS AND LAMINATED GLASS

Notes on Window and Optics 6 Programs

Window 6 and Optics 6 programs are available free from LBNL at
http://windows.lbl.gov/software

When installed on your computer the Optics 6 database files ("Glazing.mdb" and "UserGlazing.mdb") are found in the "LBNL Shared" folder. Optics 6 accesses the selected file directly, but the Window program must first "import" data from the Optics files into its own "w5.mdb" database before that data can be used.

After downloading compressed ("zipped") Window, or Database "**Updates**" from the LBNL website, these files first need to be "unzipped". Follow the LBNL instructions on their website, using the browser button to carefully select the appropriate destination folder. Updated database files should be placed in the LBNL\LBNL Shared folder (where they are directly accessible by Optics 6). The unzipped files, or selected data from them, can then be "imported" to the existing Window 6 database file with the Window 6 "Import" button.

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Procedure #1

Importing new .mdb (Access Database) format Glass Data into Window 6.

The following procedure is used to "import" new glass data, from Pilkington NA Inc. for example, in Access database format ("*.mdb") only, into the Window database file to compute U-Factors, SHGCs, etc., for single glazing or multiple light insulating glass units. Note Window 6 will not import text files ("*.txt"). Text data files must first be imported and saved in the Optics 5 database file ("*.mdb"), and then imported by Window 5; see procedure #2.

1.   Open Window 6

2.   Select: Libraries | Glass, or F3 from the top-row menu bar, or click on the Glass Library icon

3.   Click the Import button or Alt+I

4.   Set the Format pull-down menu list box value to read "Window 5 or 6 Database"

5.   Click the Browse button to the right of the Import database list box

6.   Locate and select the file with a file type ending of '*.mdb' .

7.   Click the OK button

8.   Highlight (by clicking on the file name(s)) the file (or files) you wish to import and then click the Select button

9.   Spectral data within the file (or files) will now be added to the current glass library database file active at the start of this process (typically c:\Program Files\LBNL\WINDOW5\w5.mdb

10.   NFRC_ID numbers will be assigned based on the next available value in sequence. (Do not allow the NFRC ID number to exceed 32768.

11.   Use Window 6 to perform calculations

Procedure #2

Importing New .txt (Text format) Glass Data to Optics 6 and then Window

The following procedure is used to "import" new glass data, in text file format ("*.txt") into Optics 6. Optics 6 converts the data to Access data base format and saves it in a "*.mdb" file. This data can then be accessed by Window 6 to compute U-Factors, SHGC, etc., for single glazing or multiple light insulating glass units. The *.mdb" file can also be accessed by Optics 6 to construct laminated glass assemblies. Such laminates are then saved and used as User Database "Laminates" in the Shared "UserGlazing.mdb" file in the "LBNL Shared" folder. They are then imported by Window 6 to compute U-Factors, SHGC, etc... See procedure #3

1.   Open Optics 6

2.   Select: File | Import Text Files(s)… from the top-row menu bar, or   Ctrl+I

3.   Select the Computer icon, locate and select the file name
      (file name will be placed within the list box File name:)

4.   The file will be imported into the UserGlazing database within Optics
      (path to locate file c:\Program Files\LBNL\LBNL Shared\UserGlazing.mdb)

5.   A NFRC_ID number will be assigned based on the next available value in sequence

6.   If you have trouble finding an imported file in Optics 6 make sure the "User Database" is selected (in the box under the Help menu item). Also select the "View All" tab to reveal all the imported glass products.

7.   Importing the .txt file in Optics, as described above, automatically saves it as an .mdb filem and makes it available to Window 6 to be imported for IG assembly and calculation.

Procedure #3

Lamination

Optics 5 uses full spectral (wavelength by wavelength) data and gives an accurate full spectral data output which you then import into Window 5 to compute thermal (SHGC and U-Value) properties.   This lamination method is especially preferred when using spectrally selective glasses (Pilkington **EverGreen™** High Performance Tint, Pilkington **Arctic Blue™** High Performance Tint, etc.) as the errors using only average transmission and reflection values could be significant.

The Optics 6 database carries most North American glasses along with some Pilkington UK products. The program can laminate a few glasses with their coatings against the vinyl, where data is available, such as: Pilkington **Energy Advantage™** Low-E Glass and Pilkington **Solar-E™** Solar Control Low-E Glass. Those products have data in the Window database from laminated samples actually measured by LBNL.

1.   Open Optics 6

2.   Click on "Laminate" tab (upper left corner of screen).

3.   Click on "Layer" "#1" tab. (This tab will already be highlighted by default on starting Optics 5)

4.   Click "Add Glazing" tab. (This tab will already be highlighted by default on starting Optics 5)

5.   Select "Main Database (IGDB)" or "User Database" as required, on 2nd row from top, if not already selected

6.   If desired, click and drag the "Manufacturer" tab or any other tab in upper right hand area of the screen and drop it under the "Add Glazing" tab. This will "group" the data by manufacturer name or tab description.

7.   Click on any column heading to "sort" the items by the column name.

8.   Click on + signs to expand the glass listing and select (by double clicking) the glass for the first ply of the laminate

9.   Flip the ply if needed by using the "Flip Layer" command in the "Edit" menu

10.   Assemble each subsequent layer "#" using "Add Glazing" and "Add Interlayer" tabs for glass and pvb as appropriate

11.   Ensure "Lamin." tab on the "Layer" row is pressed and highlighted. This is needed to save the overall performance properties of the laminate and not just one layer.

12.   Perform "Save As" with the "File", "Save CalcLam.usr As…" menu functions, (create your own filename). It will be saved in the "UserGlazing.mdb" database in the "LBNL Shared"

folder, even though the database indicator at the top of the screen may still be showing as "Main Database (IGDB)". (Export it as a text file and/or send as an e-mail attachment if desired)

13. Open Window 6 to compute Solar/Optical performance (SHGC, U-Value, color, etc.)

14. Set Preferences: File | Preferences | Optical Data Tab | "Optics 6 User Database". "Browse" if necessary to show the "UserGlazing.mdb" file address in the menu box. The "UserGlazing.mdb" file is usually located at: C:\ Program Files \ LBNL Shared \ UserGazing.mdb. Click "OK"

15. Click the "Glass Library" icon, or "F3" to open the Glass Library screen

16. Click "Import" (in left hand column of buttons). Select "IGDB or Optics User Database" (not "Window 6 Database") in the "Format" box for the "UserGlazing.mdb" file in the "LBNL Shared" folder.

17. Click to highlight and then "Select" the newly created laminate from the list showing in the User database. Note its ID number. The new laminate(s) is/are now saved.

18. Select "Glazing Systems Library" icon, or key "F5"

19. Assemble a new Glazing System with any number of "Layers" by using their "ID" numbers

20. Calculate the Solar/Optical performance (F9)