

March 1, 2014

JIAC INTERIM PROJECT REPORT FOR INDOOR WINDOWS:

The following report summarizes the test results for the Green Building Research Laboratory (GBRL) testing of two 3 inch square samples of glazing provided by Indow Windows and labeled as “IRB6” and “IRB7”.

Sample Description:

Two samples of IRB (IRB6 and IRB7) were provided. Each had a protective film that was removed for testing.

Methods:

A Perkin Elmer Lambda 950 Spectrometer was used to acquire transmissivity data for each sample in 2nm wavelength increments from 250 to 2500 nm. Each sample was tested three times and only the average results are presented (although variances between results from sample runs were consistently less than 0.1%). VT (visible transmittance) is calculated using the weighted photopic response of the human eye in the spectrum (380-780 nm). The solar transmissivity (ST) is calculated using a weighted ASTM G173-03 solar reference spectrum. This is a surrogate measurement for Solar Heat Gain Coefficient that only accounts for direct transmission of radiation.

A Window Energy Profiler from EDTM was used to measure VT, IR transmissivity, and SHGC. Note that this instrument is **not expected to be as accurate as the spectrometer** and, in particular, provides only a nominal estimate of SHGC. Tests with the Window Profiler were repeated a total of 3 times and only the average results are presented. Individual measurements were repeatable to within 4% for all readings.

Results:

Sample ID	VT (%) (Spectrometer)	VT (%) (Energy Profiler)	ST (%) (Spectrometer)	SHGC (Energy Profiler)	IR trans. (%) (Energy Profiler)
IRB6	61.7	46	34.3	0.27	8.3
IRB7	75.5	71	51.9	0.42	27.0

Using the IRB7 sample as a baseline for comparison, the IRB6 sample reduces visible light transmission by 18.3%* while reducing solar radiant loads (ST) by 33.9%. So, it can be said that IRB6 effectively reduces solar gain while having a modest adverse impact on visible light transmittance.

* $(75.5-61.7)/75.5=18.3\%$