Oldcastle BuildingEnvelope®

Date: January 18, 2017
Customer: NGG LTD
Project: Webster
Location:
Glass Type:

## MONOLITHIC GLASS PERFORMANCE DATA

| | ID # | | Notes |
|---|---|---|---|
| Lite: | 5075 | 5/8" Clear | a |

Nominal Thickness: **0.625 Inches** f

| Performance Properties | COG Results* | Units |
|---|---|---|
| Transmittance | | |
| Visible Light | 84 | % |
| Solar Energy | 59 | % |
| Ultraviolet | 49 | % |
| Reflectance | | |
| Visible Light (Exterior) | 8 | % |
| Visible Light (Interior) | 8 | % |
| Solar Energy (Exterior) | 6 | % |
| Thermal | | |
| *Winter Nighttime:* | | |
| U-factor/U-Value | 0.97 | Btu/hr-ft$^2$-°F |
| *Summer Daytime:* | | |
| U-factor/U-Value | 0.88 | Btu/hr-ft$^2$-°F |
| Shading Coefficient (SC) | 0.80 | - |
| Solar Heat Gain Coefficient (SHGC) | 0.70 | - |
| Relative Heat Gain | 173 | Btu/hr-ft$^2$ |
| Light to Solar Gain | 1.20 | - |

***Vertically Glazed Center Of Glass (COG) Results Calculated Using LBNL Window 7.4 Software.**

**Notes:** a) NFRC certified spectral data file
b) Data generated by Oldcastle BuildingEnvelope®
c) Average solar data
d) Simulated with LBNL Optics 6.0
e) Vendor supplied spectral data file
f) Please reference ASTM C1036 and C1172 for allowable glass thickness variations

Date: January 18, 2017
Customer: ABC Glass & Glazing Co.
Project: XYZ Building
Location: Anywhere, USA
Glass Types: GL-1, GL-1A, GL-2, GL-3, GL3A, GL-4

Oldcastle BuildingEnvelope®

# Performance Data Comparison*

| | ID# | Product Description | Notes | Thickness (in.) [f] | Transmittance (%) | | | Reflectance % | | | U-factor (U-value) | | SC | SHGC | LSG |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Visible | Solar | UV | Visible (out) | Visible (in) | Solar (out) | Win. | Sum. | | | |
| Outboard: | 5075 | 5/8" Clear | a | 0.625 | 84 | 59 | 49 | 8 | 8 | 6 | 0.97 | 0.88 | 0.80 | 0.70 | 1.20 |
| Air Space: | I | 5/16" Spacer, Air-Filled | | | | | | | | | | | | | |

***Vertically Glazed Center Of Glass (COG) Results Calculated Using LBNL Window 7.4 Software.**

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Date: January 18, 2017
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# ARCHITECTURAL GUIDE SPECIFICATIONS
# SECTION 08 81 00 GLASS GLAZING

**Note to Specifiers:**
The specifications below are offered as desirable inclusions in glass and glazing specifications (section 08 81 00), but are not intended to be complete. An appropriate and qualified Architect or Engineer must verify suitability of a particular product for use in a particular application as well as review final specifications.

## PRODUCTS

| | |
|---|---|
| **Approved Glass Fabricator** | Oldcastle BuildingEnvelope® |
| **Glass Description** | FLOAT GLASS<br>1. **USA** - Annealed float glass shall comply with ASTM C1036, Type I, Class 1 (clear), Class 2 (tinted), Quality Q3. **Canada** - Annealed float glass shall comply with CAN/CGSB-12.3-M, Quality Glazing.<br>2. **USA** - Heat-strengthened float glass shall comply with ASTM C1048, Type I, Class 1 (clear), Class 2 (tinted), Quality Q3, Kind HS. **Canada** -Heat-strengthened float glass shall comply with CAN/CGSB-12.9-M, Type 2 - Heat Strengthened Glass, Class A - Float Glass.<br>3. **USA** - Tempered float glass shall comply with ASTM C1048, Type I, Class 1 (clear), Class 2 (tinted) Quality Q3, Kind FT. **Canada** - Tempered float glass shall comply with CAN/CGSB-12.1-M, Type 2 - Tempered Glass, Class B - Float Glass.<br>4. **USA** - Laminated glass to comply with ASTM C1172. **Canada** - Laminated glass to comply with CAN/CGSB-12.1-M, Type 1 - Laminated Glass, Class B - Float Glass.<br>5. Glass shall be annealed, heat-strengthened or tempered as required by codes, or as required to meet thermal stress and wind loads. |
| **Monolithic Vision Glass** | **GENERAL**<br>1. Glass heat-treated by the horizontal (roller hearth) process shall have the inherent roller wave distortion running parallel to the bottom edge of the glass as installed when specified. |
| **Laminated Glass** | **GENERAL**<br>1. Laminated glass products to be fabricated in autoclave with heat and pressure.<br>2. Interlayer material: Polyvinyl Butyral sheets. |
| **Sealed Insulating Glass (IG) Vision Units** | **GENERAL**<br>1. IG units consist of glass lites separated by a dehydrated airspace that is hermetically dual sealed with a primary seal of polyisobutylene (PIB), or thermo plastic spacer (TPS) and a secondary seal of silicone or an organic sealant depending on the application.<br>2.-**USA** - Insulating glass units are certified through the Insulating Glass Certification Council (IGCC) to ASTM E2190. **Canada** - Insulating glass units are certified through the Insulating Glass Manufacturers Alliance (IGMA) to either the IGMAC certification program to CAN/CGSB-12.8, or though the IGMA program to ASTM E2190. |

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Date: January 18, 2017
Customer: NGG LTD
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Location:
Glass Type:

## MONOLITHIC GLASS PERFORMANCE DATA

| | ID # | | Notes |
|---|---|---|---|
| Lite: | 9988 | 1/4" Pilkington Mirropane™ T.M. Reflective #1 | a |

Nominal Thickness: **0.232 Inches** f

| Performance Properties | COG Results* | Units |
|---|---|---|
| Transmittance | | |
| Visible Light | 11 | % |
| Solar Energy | 26 | % |
| Ultraviolet | 4 | % |
| Reflectance | | |
| Visible Light (Exterior) | 68 | % |
| Visible Light (Interior) | 16 | % |
| Solar Energy (Exterior) | 32 | % |
| Thermal | | |
| *Winter Nighttime:* | | |
| U-factor/U-Value | 1.02 | Btu/hr-ft$^2$-$^o$F |
| *Summer Daytime:* | | |
| U-factor/U-Value | 0.92 | Btu/hr-ft$^2$-$^o$F |
| Shading Coefficient (SC) | 0.45 | - |
| Solar Heat Gain Coefficient (SHGC) | 0.39 | - |
| Relative Heat Gain | 103 | Btu/hr-ft$^2$ |
| Light to Solar Gain | 0.28 | - |

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| | ID# | Product Description | Notes | Thickness (in.) [f] | Transmittance (%) | | | Reflectance % | | | U-factor (U-value) | | SC | SHGC | LSG |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Visible | Solar | UV | Visible (out) | Visible (in) | Solar (out) | Win. | Sum. | | | |
| Outboard: | 9988 | 1/4" Pilkington Mirropane™ T.M. Reflective #1 | a | 0.232 | 11 | 26 | 4 | 68 | 16 | 32 | 1.02 | 0.92 | 0.45 | 0.39 | 0.28 |
| Air Space: | 1 | 5/16" Spacer, Air-Filled | | | | | | | | | | | | | |

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CANNONDESIGN

# SUBMITTAL IDENTIFICATION SHEET

**To be completed by Contractor/CM**

WEBSTER UNIVERSITY ISB
PROJECT NAME

8274 BIG BEND BLVD
ADDRESS

NUMBER

WEBSTER UNIVERSITY
OWNER

CANNON DESIGN
ARCHITECT / ENGINEER

DEVIN D GATES
SUBMITTED BY

088000-008
CONTRACTOR / CM SUBMITTAL NO.

CANNON DESIGN SUBMITTAL NO.

DRAWING / DETAIL REFERENCE

088000
SPECIFICATION SECTION / PARAGRAPH

MANUFACTURER / SUPPLIER

ITEM / PRODUCT ID

REQUIRED DATE

PRIORITY

CRITICAL

ITEM BEING SUBMITTED (check only one)

- ○ Shop Drawings
- ○ Samples ( _____ copies)
- ○ LEED Submittal
- ○ Certification / Qualifications
- ○ Record Documents
- ○ Product Data
- ○ Coordination Drawing
- ○ Calculations
- ○ Schedules
- ○ O&M Manuals
- ○ Other _____

ITEM BEING SUBMITTED FOR (check only one)

- ◉ Action
- ○ Information Only
- ○ Record

REMARKS OR DEVIATIONS

This is the product data for the GLE-012 added in 088000-001 Interior glazing shop drawings REV 1 for room 133A.

CONTRACTOR / CM CERTIFICATION
(SUBMITTALS NOT CERTIFIED WILL BE RETURNED WITHOUT REVIEW)

PARIC

PARIC CORPORATION
SUBMITTAL STAMP

THIS SHOP DRAWING HAS BEEN REVIEWED BY PARIC CORPORATION

Subcontractor remains responsible for dimensions, quantities, coordination with other trades and compliance with contract documents.

By:
Devin D. Gates

DEVIN D GATES — REVIEWED BY
02/06/17 — DATE

**To be completed by Reviewer**

08 8000-008
CANNON DESIGN SUBMITTAL NUMBER

2/7/17
RECEIVED DATE

- ◉ A. No Exceptions Taken
  No further review of submittal is required.
- ○ B. Make Corrections Noted
  Incorporate corrections in work; resubmission is not required.
- ○ C. Revise and Resubmit
  Revise as noted, and resubmit for review.
- ○ D. Rejected
  Submittal is not in compliance with Contract Documents; provide new submittal.
- ○ E. For Record / Information Only
  Submittal was reviewed for Record / Information purposes only.
- ○ F. Not Required for Review
  Submittal is not required by Contract Documents and has not been reviewed.

Review is for conformance with the design concept of this project and for general compliance with contract documents. Contractor is responsible for quantities, dimensions and compliance with contract documents and for information that pertains to fabrication processes, construction techniques and coordination of this work with all trades which will be affected thereby. This review is null and void if submittal deviates from contract documents and does not indicate or note deviations.

A/E COMMENTS

○ See attached sheet(s) for additional comments

Kelvin Patel — REVIEWED BY

Digitally signed by Kelvin Patel
DN: C=US, E=kpatel@cannondesign.com, O=Cannon Design, OU=Architect, CN=Kelvin Patel
Date: 2017.03.21 19:12:49-05'00'

3/21/17 — DATE