

# R W Building Consultants, Inc.

Consulting and Engineering Services for the Building Industry

P.O. Box 230 Valrico, FL 33595 Phone 813.659.9197

Florida Board of Professional Engineers Certificate of Authorization No. 9813

June 11, 2014

Joseph Zammit  
Fleetwood Window and Doors  
1 Fleetwood Way  
Corona, CA 92879

REF: Non-Impact Glazing Comparative Analysis for Fleetwood Norwood Sliding Glass Door  
(Corresponding Test Reports: TEL 01990465-A, TEL 01990465-B, TEL 01991010, TEL 01991011)

Joseph,

Attached is the non-impact glazing comparative analysis for the above mentioned product.

Included are:

1. A summary chart identifying the tested glazing details, the corresponding non-impact comparable glazing and the ASTM E1300 calculated load resistance. For the sliding glass doors, the non-impact glazing considered is 3/16" tempered insulated glass.
2. A drawing identifying the tested impact glazing and the comparable non-impact glazing details. For example, if the tested impact unit is the "A" glazing, then the non-impact units is "A1".
3. The ASTM E1300 calculations for each tested impact glazing and the comparable non-impact glazing details.

Please contact me if any additional information is required.

Sincerely,

A handwritten signature in black ink, appearing to read 'LFS', is written over a light blue horizontal line.

Lyndon F. Schmidt, P.E.  
Florida PE No. 43409  
V.P. Engineering  
R.W. Building Consultants, Inc.

# FLEETWOOD GLAZING COMPARATIVE ANALYSIS

Norwood 3070 Sliding Glass Door

Test Reports: TEL 01990465-A, TEL 01990465-B  
 TEL 01991010, TEL 01991011

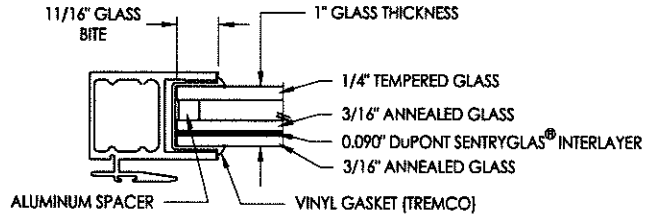
		DLO (in.)	ASTM E1300 LOAD RESISTANCE (psf)
TESTED GLAZING	A	53 x 92	84.7
COMPARABLE GLAZING	A1	53 x 92	187

TESTED GLAZING	B	53 x 88	85.3
		43 x 112	94.0
		53 x 122	67.8
COMPARABLE GLAZING	B1	53 x 88	195
		43 x 112	143
		53 x 122	131

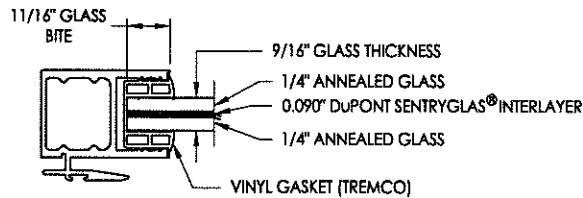
TESTED GLAZING	C	44 x 136	86.4
COMPARABLE GLAZING	C1	44 x 136	111

# TESTED IMPACT GLAZING

TEST REPORTS: TEL 01990465-A, TEL 01990465-B



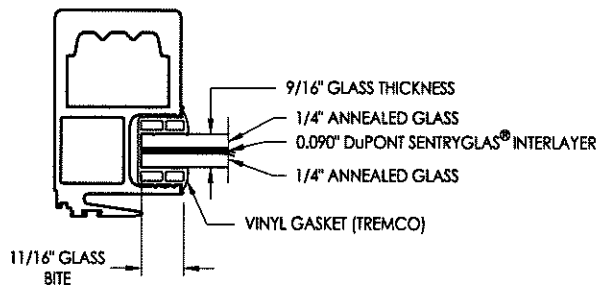
**A** GLAZING DETAIL



**B** GLAZING DETAIL

# TESTED IMPACT GLAZING

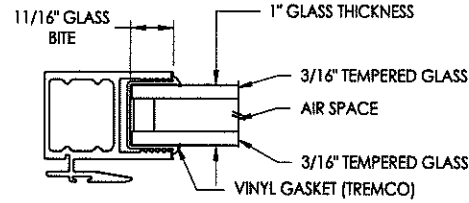
TEST REPORTS: TEL 01991010, TEL 01991011



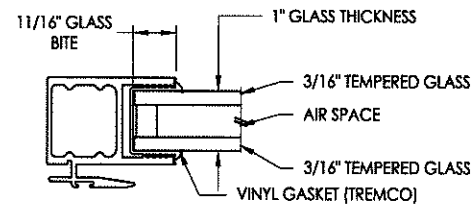
**C** GLAZING DETAIL

# NON-IMPACT GLAZING

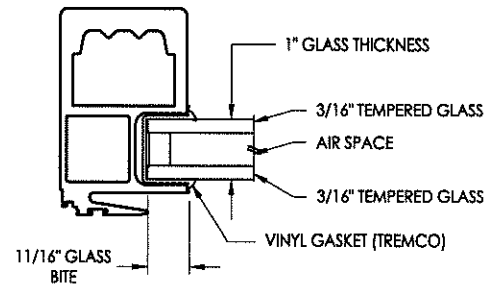
VERIFIED PER ASTM E1300



**A1** GLAZING DETAIL



**B1** GLAZING DETAIL



**C1** GLAZING DETAIL

PRODUCT: FLEETWOOD NORWOOD 3070		PART OR ASSEMBLY: GLAZING DETAILS	
NO.	DATE	BY	REVISIONS
DATE: 6/09/14			
SCALE: N.T.S.			
DWG. BY: JK			
CHK. BY: LFS			
DRAWING NO.: NA			
SHEET 1 OF 1			

# Glass Load Resistance Report -- FLEETWOOD NON-IMPACT GLASS COMPARISON

## Glazing Information

Edge Supports: 4 Sides  
Glazing Angle: 90°  
Lite Dimensions:  
Width: 53.0 in.  
Height: 92.0 in.

## Project Details

Project Name: FLEETWOOD NON-IMPACT GLASS COMPARISON  
Location: PF 1666  
Comments: TESTED IMPACT GLASS  
"A" GLAZING

## Glass Construction (Rectangular)

Double Glazed Insulating Unit	Air Space: 0.5 in.
Outboard Lite: { Fully Tempered }	Inboard Lite: { Annealed }
Nominal Thickness: 1/4 in.	Interlayer Type: SentryGlas® Plus
	Outboard Ply Thickness: 3/16 in.
	Interlayer Thickness: 0.09 in.
	Inboard Ply Thickness: 3/16 in.
	<u>Nominal Thickness: 3/8 in.</u>

## Short Load Duration, Resistance, and Deflection Data

Load (~ 3 sec.):	75.0 psf
Load Resistance:	84.7 psf
Approximate center of glass deflection:	0.5 in.

## Conclusion

**Based on your design information, the load resistance is greater than or equal to the specified loading.**

## Statement of Compliance

Procedures followed in determining the resistance of this window glass are in accordance with ASTM E1300-04.

### Disclaimer:

This software can be used to determine the load resistance of specified glass types exposed to uniform lateral loads of short or long duration subject to the following conditions:

- The glass is free of edge and surface damage and has been properly glazed in the opening in conformance with the manufacturer's recommendations.
- Procedures exist to determine load resistance for rectangular glass assemblies that are:
  - a. Continuously supported along all four edges,
  - b. Continuously supported along three edges,
  - c. Continuously supported along two parallel edges, and
  - d. Continuously supported along one edge.
- The software user has the responsibility of selecting the correct procedures for the required application from the software.
- The stiffness of members supporting any glass edge shall be sufficient that under design load, edge deflections shall not exceed  $L/175$ , where L denotes that length of the supported edge.
- The manufacturer states that the Safety Plus II 0.090 Polyurethane Large Missile Resistant interlayer is comparable to the PVB interlayer.
- The non-factored load values for laminated glass are representative of test data and calculations performed for an interlayer at a temperature of 50° C (122° F).

For other limiting conditions that may apply, refer to Section 5 of ASTM E1300 and local building codes.

Neither SDG nor GANA guarantees and each disclaims any responsibility for any particular results relating to the use of the Window Glass Design 2004 Software Program. SDG and GANA disclaim any liability for any personal injury or any loss or damage of any kind, including all indirect, special, or consequential damages and lost profits, arising out of or relating to the use of the Window Glass Design 2004 Software Program.

Prepared by: LFS on 6/11/2014



# Glass Load Resistance Report -- FLEETWOOD NON-IMPACT GLASS COMPARISON

## Glazing Information

Edge Supports: 4 Sides  
Glazing Angle: 90°  
Lite Dimensions:  
Width: 53.0 in.  
Height: 88.0 in.

## Project Details

Project Name: FLEETWOOD NON-IMPACT GLASS COMPARISON  
Location: PF 1666  
Comments: TESTED IMPACT GLASS  
"B" GLAZING

## Glass Construction (Rectangular)

Single Glazed Lite { Annealed }  
Interlayer Type: SentryGlas® Plus  
Outboard Ply Thickness: 1/4 in.  
Interlayer Thickness: 0.09 in.  
Inboard Ply Thickness: 1/4 in.  
Nominal Thickness: 1/2 in.

## Short Load Duration, Resistance, and Deflection Data

Load (~ 3 sec.): 75.0 psf  
Load Resistance: 85.3 psf  
Approximate center of glass deflection: 0.37 in.

## Conclusion

**Based on your design information, the load resistance is greater than or equal to the specified loading.**

## Statement of Compliance

Procedures followed in determining the resistance of this window glass are in accordance with ASTM E1300-04.

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Prepared by:  on 6/11/2014  
LFS



# Glass Load Resistance Report -- FLEETWOOD NON-IMPACT GLASS COMPARISON

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## Glazing Information

Edge Supports: 4 Sides  
Glazing Angle: 90°  
Lite Dimensions:  
Width: 53.0 in.  
Height: 122 in.

## Project Details

Project Name: FLEETWOOD NON-IMPACT GLASS COMPARISON  
Location: PF 1666  
Comments: TESTED IMPACT GLASS  
"B" GLAZING

## Glass Construction (Rectangular)

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Single Glazed Lite { Annealed }  
Interlayer Type: SentryGlas® Plus  
Outboard Ply Thickness: 1/4 in.  
Interlayer Thickness: 0.09 in.  
Inboard Ply Thickness: 1/4 in.  

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Nominal Thickness: 1/2 in.

## Short Load Duration, Resistance, and Deflection Data

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Load (~ 3 sec.): 65.0 psf  
Load Resistance: 67.8 psf  
Approximate center of glass deflection: 0.44 in.

## Conclusion

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**Based on your design information, the load resistance is greater than or equal to the specified loading.**

## Statement of Compliance

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Prepared by:  on 6/11/2014  
LFS



# Glass Load Resistance Report -- FLEETWOOD NON-IMPACT GLASS COMPARISON

## Glazing Information

Edge Supports: 4 Sides  
Glazing Angle: 90°  
Lite Dimensions:  
Width: 53.0 in.  
Height: 88.0 in.

## Project Details

Project Name: FLEETWOOD NON-IMPACT GLASS COMPARISON  
Location: PF 1666  
Comments: NON-IMPACT COMPARABLE GLASS  
3/16" TEMPERED "B1" GLAZING

## Glass Construction (Rectangular)

Double Glazed Insulating Unit	Air Space: 0.5 in.
Outboard Lite: { Fully Tempered }	Inboard Lite: { Fully Tempered }
Nominal Thickness: 3/16 in.	Nominal Thickness: 3/16 in.

## Short Load Duration, Resistance, and Deflection Data

Load (~ 3 sec.):	75.0 psf
Load Resistance:	195 psf
Approximate center of glass deflection:	1.04 in.

## Conclusion

**Based on your design information, the load resistance is greater than or equal to the specified loading.**

## Statement of Compliance

Procedures followed in determining the resistance of this window glass are in accordance with ASTM E1300-04.

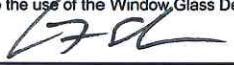
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Prepared by:  on 6/11/2014  
LFS



# Glass Load Resistance Report -- FLEETWOOD NON-IMPACT GLASS COMPARISON

## Glazing Information

Edge Supports: 4 Sides  
Glazing Angle: 90°  
Lite Dimensions:  
Width: 53.0 in.  
Height: 122 in.

## Project Details

Project Name: FLEETWOOD NON-IMPACT GLASS COMPARISON  
Location: PF 1666  
Comments: NON-IMPACT COMPARABLE GLASS  
3/16" TEMPERED "B1" GLAZING

## Glass Construction (Rectangular)

Double Glazed Insulating Unit	Air Space: 0.5 in.
Outboard Lite: { Fully Tempered }	Inboard Lite: { Fully Tempered }
Nominal Thickness: 3/16 in.	Nominal Thickness: 3/16 in.

## Short Load Duration, Resistance, and Deflection Data

Load (~ 3 sec.):	60.0 psf
Load Resistance:	131 psf
Approximate center of glass deflection:	1.33 in.

## Conclusion

**Based on your design information, the load resistance is greater than or equal to the specified loading.**

## Statement of Compliance

Procedures followed in determining the resistance of this window glass are in accordance with ASTM E1300-04.

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Prepared by:  on 6/11/2014  
LFS

# Glass Load Resistance Report -- FLEETWOOD NON-IMPACT GLASS COMPARISON

## Glazing Information

Edge Supports: 4 Sides  
Glazing Angle: 90°  
Lite Dimensions:  
Width: 44.0 in.  
Height: 136 in.

## Project Details

Project Name: FLEETWOOD NON-IMPACT GLASS COMPARISON  
Location: PF 1666  
Comments: TESTED IMPACT GLASS  
"C" GLAZING

## Glass Construction (Rectangular)

Single Glazed Lite { Annealed }  
Interlayer Type: SentryGlas® Plus  
Outboard Ply Thickness: 1/4 in.  
Interlayer Thickness: 0.09 in.  
Inboard Ply Thickness: 1/4 in.  
Nominal Thickness: 1/2 in.

## Short Load Duration, Resistance, and Deflection Data

Load (~ 3 sec.): 60.0 psf  
Load Resistance: 86.4 psf  
Approximate center of glass deflection: 0.16 in.

## Conclusion

**Based on your design information, the load resistance is greater than or equal to the specified loading.**

## Statement of Compliance

Procedures followed in determining the resistance of this window glass are in accordance with ASTM E1300-04.

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