

VISCERA BRANDS LLC

AIRBLAST LOADING TEST REPORT

SCOPE OF WORK

ASTM F1642/GSA TS01 TESTING ON SINGLE PANE, 1/4 IN TEMPERED, FIXED WINDOW
ASSEMBLIES WITH INVISCAGE CRISIS SHIELD CS-650

REPORT NUMBER

S1413.01-119-12 R0

TEST DATE

03/17/25

ISSUE DATE

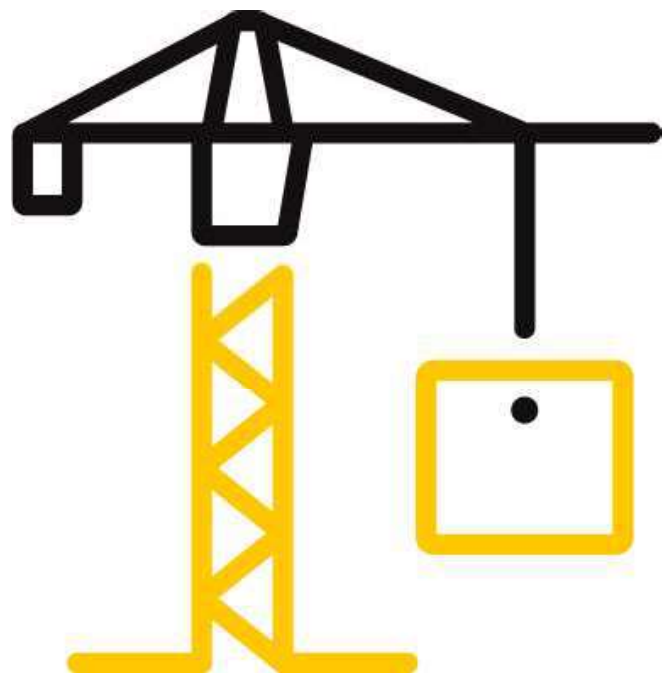
04/21/25

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TEST REPORT FOR VISCERA BRANDS LLC

Report No.: S1413.01-119-12 R0

Date: 04/21/25

REPORT ISSUED TO

VISCERA BRANDS LLC

12810A Century Drive

Stafford, TX 77477

SECTION 1


SCOPE

Architectural Testing, Inc. (an Intertek company) dba Intertek Building & Construction (B&C) was contracted by Viscera Brands LLC to perform airblast loading tests in accordance with ASTM F1642 and GSA-TS01 on single pane, 1/4 in tempered, fixed window assemblies with Invisicade Crisis Shield CS-650. Results obtained are tested values and were secured by using the designated test methods. Testing was conducted at the Intertek B&C test facility in York, Pennsylvania.


This report does not constitute certification of this product nor an opinion or endorsement by this laboratory. Intertek B&C will service this report for the entire test record retention period. The test record retention period ends four years after the test date. Test records, such as detailed drawings, datasheets, representative samples of test specimens, or other pertinent project documentation, will be retained for the entire test record retention period.

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For INTERTEK B&C:

COMPLETED BY:	Scott T. Gladfelter
TITLE:	Senior Project Engineer
SIGNATURE:	
DATE:	04/21/25

Digitally Signed by: Scott Gladfelter

REVIEWED BY:	Virgal T. Mickley, Jr., P.E.
TITLE:	Senior Staff Engineer
SIGNATURE:	
DATE:	04/21/25

Digitally Signed by: Virgal Thomas Mickley, Jr.



STG:vtm/aas

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SECTION 2

SUMMARY OF TEST RESULTS

Product Type: Single Pane, 1/4 in Tempered, Fixed Window Assemblies with Invisicade Crisis Shield CS-650

TITLE	SPECIMEN #1	SPECIMEN #2	SPECIMEN #3
ASTM Hazard Rating	No Hazard	Minimal Hazard	Minimal Hazard
GSA Performance Condition	Cat II	Cat IIIA	Cat IIIA
Average Peak Reflected Pressure	6.82 psi	6.88 psi	6.84 psi
Average Positive Phase Impulse	46 psi-msec	46 psi-msec	45 psi-msec
Average Positive Phase Duration	11.90 msec	11.87 msec	11.64 msec

SECTION 3

TEST METHODS

The specimens were evaluated in accordance with the following:

ASTM F1642/F1642M-17, *Standard Test Method for Glazing and Glazing Systems Subject to Airblast Loadings*

ASTM F2912-17, *Standard Specification for Glazing and Glazing Systems Subject to Airblast Loading*

GSA-TS01-2003, *US General Services Administration Standard Test Method for Glazing and Window Systems Subject to Dynamic Overpressure Loadings*

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SECTION 4**TEST FACILITY**

Intertek B&C's shock tube is housed in a 10,000 square foot state-of-the-art test facility located in York, Pennsylvania. A photograph of the shock tube is provided in Figure #1.



Figure #1
Shock Tube and Test Facility

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TEST PROCEDURE

Blast loadings are produced on the specimen to simulate the effects of a high explosive charge at a specified standoff distance. Shock waves are generated by the sudden rupturing of a thin aluminum membrane. The shock wave expands as it travels down the tube and impacts the target with a specific positive pressure and impulse.

SECTION 6

MATERIAL SOURCE/INSTALLATION

The test specimens were provided by the client. Each specimen was installed into a steel frame by an Intertek technician for testing. Representative samples of the test specimens will be retained by Intertek B&C for a minimum of four years from the test completion date.

SECTION 7

EQUIPMENT

In accordance with ASTM F1642 and GSA TS01, four reflective pressure transducers were utilized for data acquisition at a 1MHz sample rate. Two reflective pressure transducers were located on the specimen holder at the top and right side (when viewed from the interior). A third pressure transducer was located on the shell to the exterior of the specimen, and a fourth was located in the witness chamber, directly to the interior of the specimen holder. A sketch of the specimen holder and corresponding reflective pressure sensor locations is provided in Figure #2.

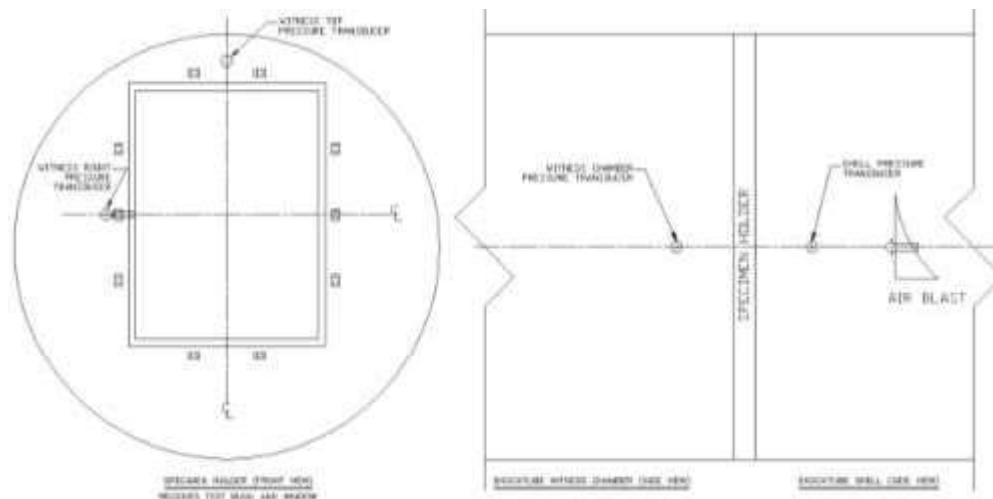


Figure #2
Pressure Sensor Locations

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LIST OF OFFICIAL OBSERVERS

NAME	COMPANY
Cory E. Straub	Intertek B&C
Eric J. Beaudoin	Intertek B&C
Scott T. Gladfelter	Intertek B&C

SECTION 9

TEST SPECIMEN DESCRIPTION

Product Type: Single Pane, 1/4 in Tempered, Fixed Window Assemblies with Invisicade Crisis Shield CS-650

Product Sizes

MEASURED DIMENSIONS	WIDTH (inches)	HEIGHT (inches)
Overall Size	48	66
Fixed Day Lite Opening	44-1/2	62-1/4

Frame Construction

FRAME MEMBER	MATERIAL	DESCRIPTION
Head, Sill, and Jamb	Aluminum	4-1/2 in deep by 1-3/4 in wide extruded "W" shape member

LOCATION	JOINERY TYPE	DETAIL
All Corners	Butt	Two, #12 by 1-1/8 in long pan head screws

Glazing

GLAZING DESCRIPTION	GLAZING BITE
1/4 in thick tempered glass with applied Invisicade Crisis Shield CS-650 wet glazed into aluminum frame	1 in

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SECTION 10

TEST RESULTS

Test Date: 03/17/25

Ambient Temperature: 67°F

Relative Humidity: 40%

The results are tabulated as follows. Pressure time plots are presented for each specimen. Pre-test and post-test photographs are provided in Section 12.

Test Specimen #1

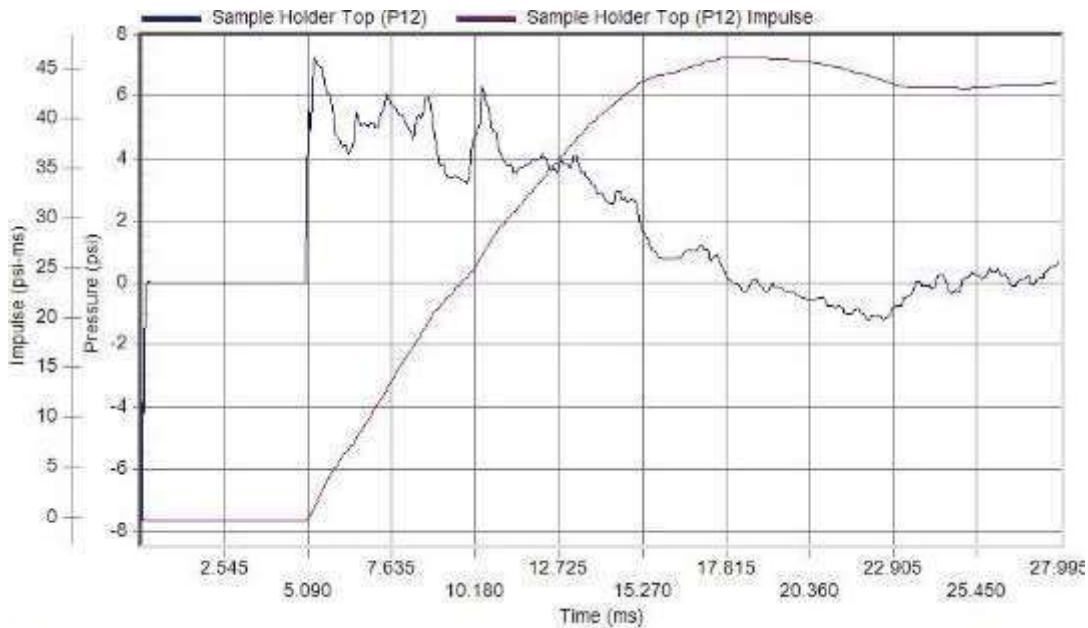
DESCRIPTION	RESULTS
Ambient Temperature	67.4°F
Glazing Temperature	67.4°F
ASTM Hazard Rating	No Hazard
GSA Performance Condition	Cat II
PEAK POSITIVE PRESSURE	
Top Pressure	7.23 psi
Right Pressure	6.44 psi
Shell Pressure	6.79 psi
Average Pressure	6.82 psi
Witness Chamber Pressure	0.29 psi
PEAK POSITIVE PHASE DURATION	
Top Duration	12.65 msec
Right Duration	13.03 msec
Shell Duration	10.01 msec
Average Duration	11.90 msec
PEAK POSITIVE PHASE IMPULSE	
Top Impulse	46 psi*msec
Right Impulse	46 psi*msec
Shell Impulse	46 psi*msec
Average Impulse	46 psi*msec
GLAZING RESPONSE	
Exterior Lite	Fractured
Glazing Pullout Length and Location	None
Glazing Tearing	None
WITNESS CHAMBER RESULTS	
No debris was observed.	

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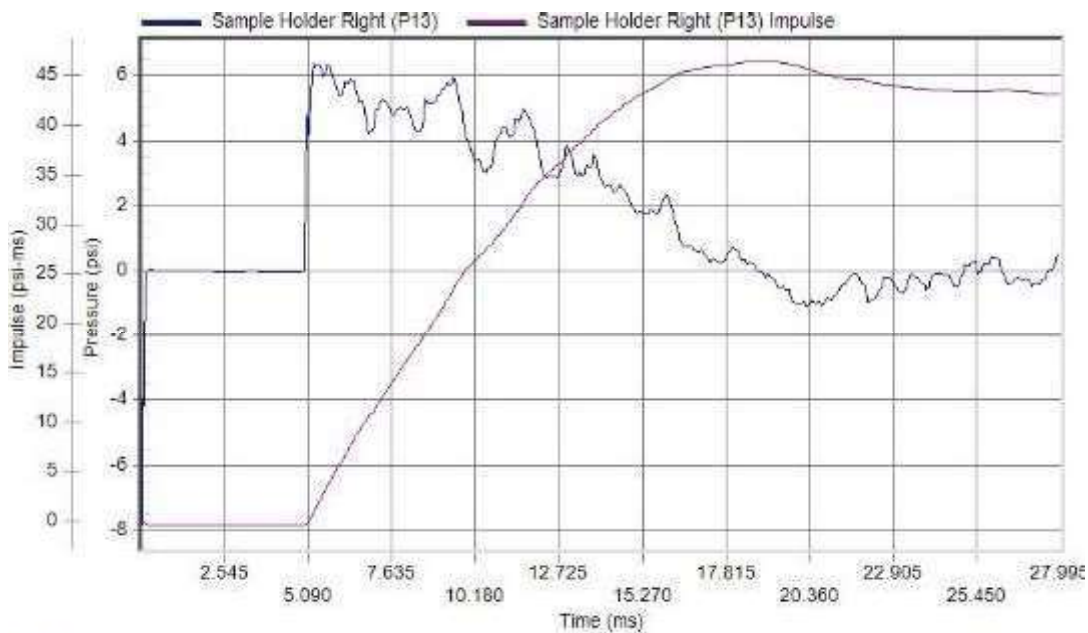
Date: 04/21/25

Test Specimen #1 - Pressure Time Plots



Peak Pressure: 7.23 psi at 5.31 ms
Duration: 12.65 ms

Test Date: 3/17/2025
Test Time: 10:46 am



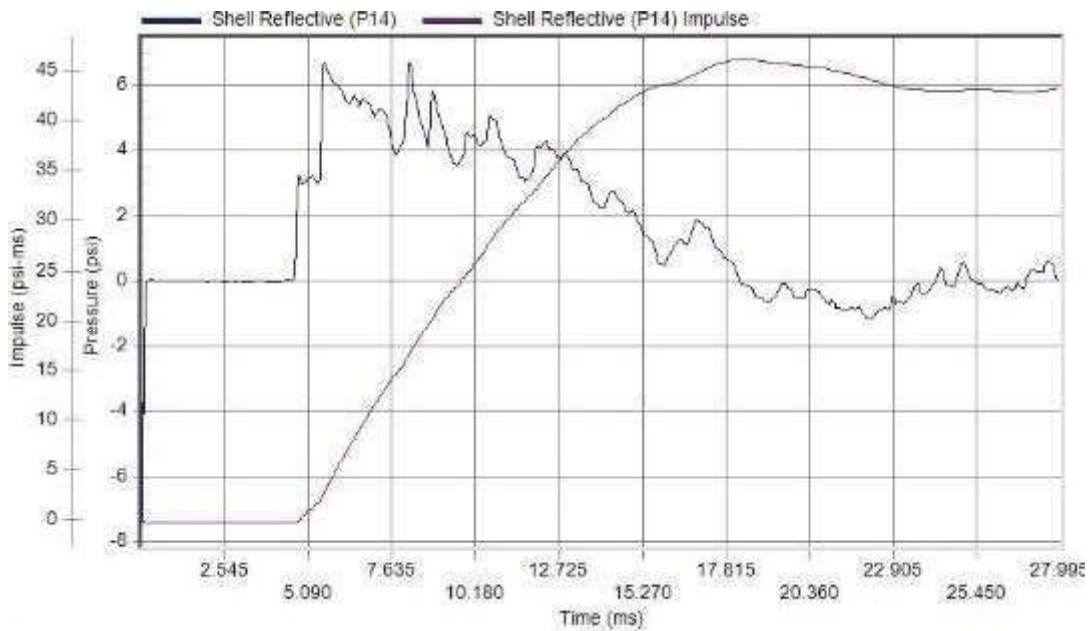
Peak Pressure: 6.44 psi at 5.71 ms
Duration: 13.03 ms

Test Date: 3/17/2025
Test Time: 10:46 am

TEST REPORT FOR VISCERA BRANDS LLC

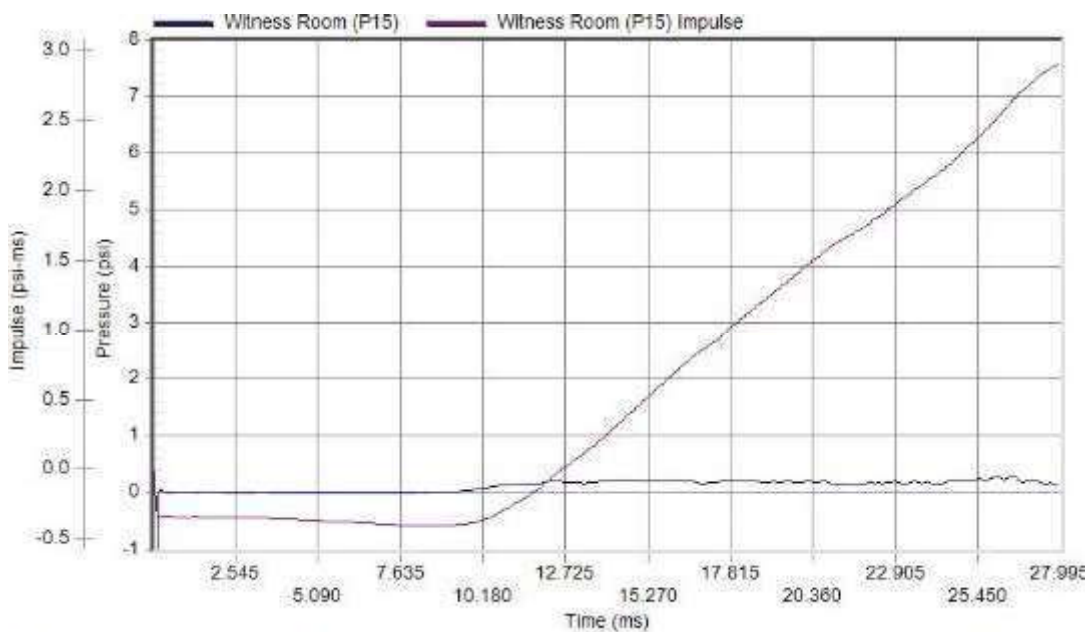
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Peak Pressure: 6.79 psi at 0.19 ms
Duration: 10.01 ms

Test Date: 3/17/2025
Test Time: 10:46 am



Peak Pressure: 0.29 psi at 26.49 ms
Duration: 0.00 ms

Test Date: 3/17/2025
Test Time: 10:46 am

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Test Specimen #2

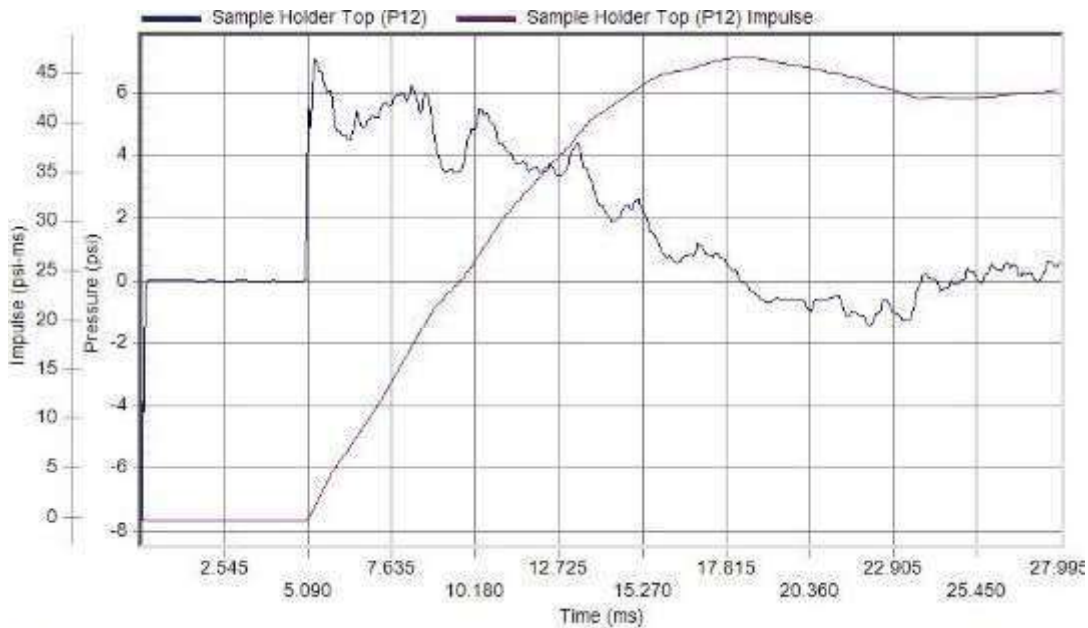
DESCRIPTION	RESULTS
Ambient Temperature	67.2°F
Glazing Temperature	67.2°F
ASTM Hazard Rating	Minimal Hazard
GSA Performance Condition	Cat IIIA
PEAK POSITIVE PRESSURE	
Top Pressure	7.11 psi
Right Pressure	6.72 psi
Shell Pressure	6.82 psi
Average Pressure	6.88 psi
Witness Chamber Pressure	0.30 psi
PEAK POSITIVE PHASE DURATION	
Top Duration	12.90 psi*msec
Right Duration	9.41 psi*msec
Shell Duration	13.29 psi*msec
Average Duration	11.87 psi*msec
PEAK POSITIVE PHASE IMPULSE	
Top Impulse	47 psi*msec
Right Impulse	46 psi*msec
Shell Impulse	46 psi*msec
Average Impulse	46 psi*msec
GLAZING RESPONSE	
Exterior Lite	Fractured
Glazing Pullout Length and Location	19-1/2" vertical and 6" horizontal at right hand sill and jamb
Glazing Tearing	None
WITNESS CHAMBER RESULTS	
No debris was observed.	

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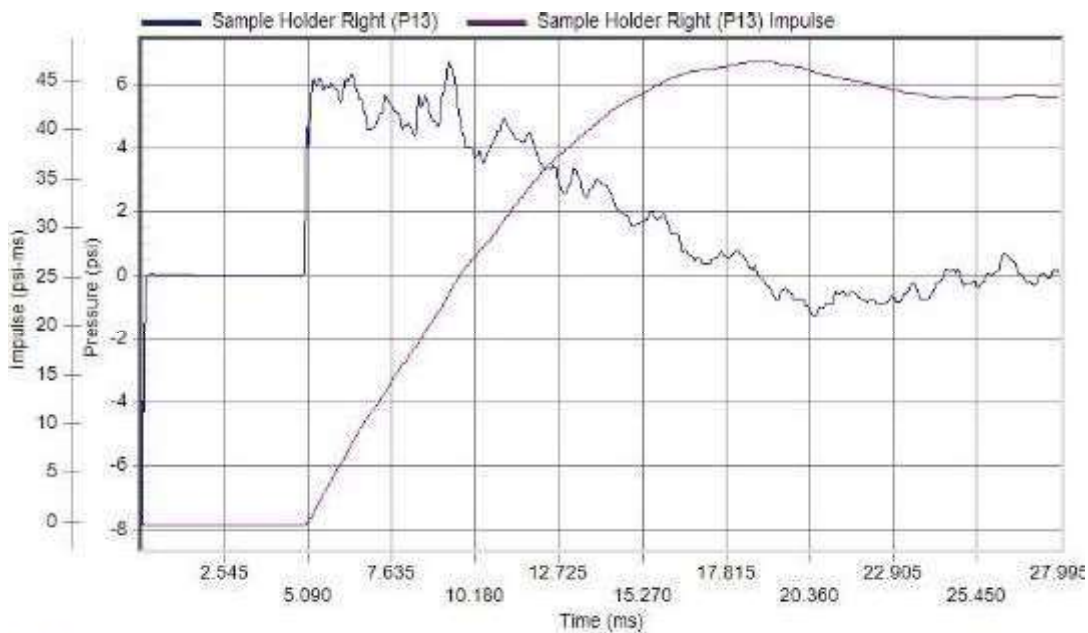
Date: 04/21/25

Test Specimen #2 - Pressure Time Plots



Peak Pressure: 7.11 psi at 5.34 ms
Duration: 12.90 ms

Test Date: 3/17/2025
Test Time: 11:39 am



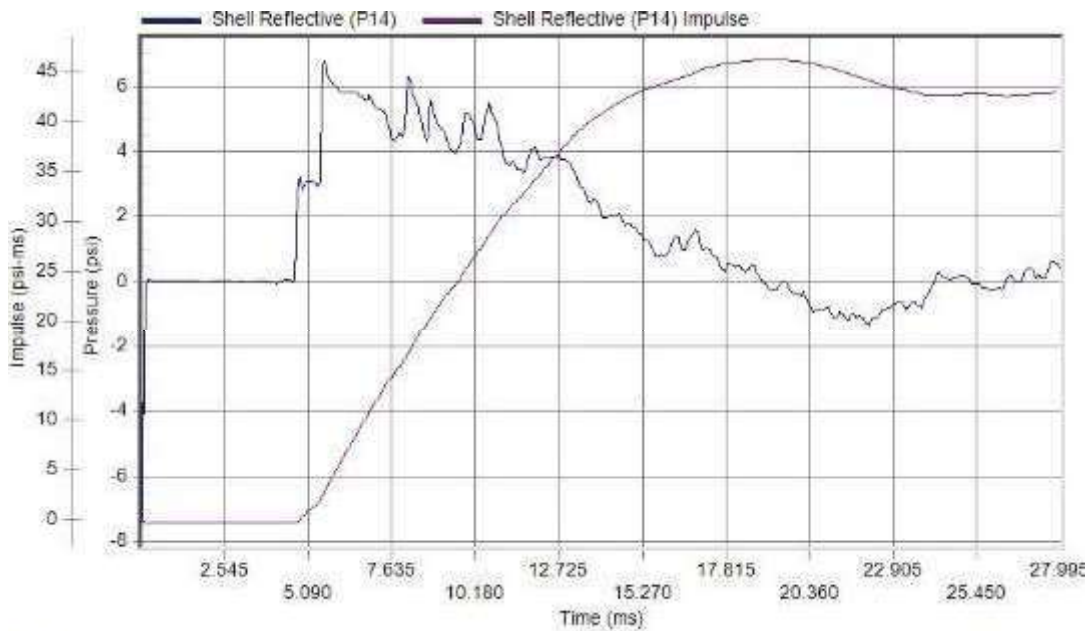
Peak Pressure: 6.72 psi at 9.37 ms
Duration: 9.41 ms

Test Date: 3/17/2025
Test Time: 11:39 am

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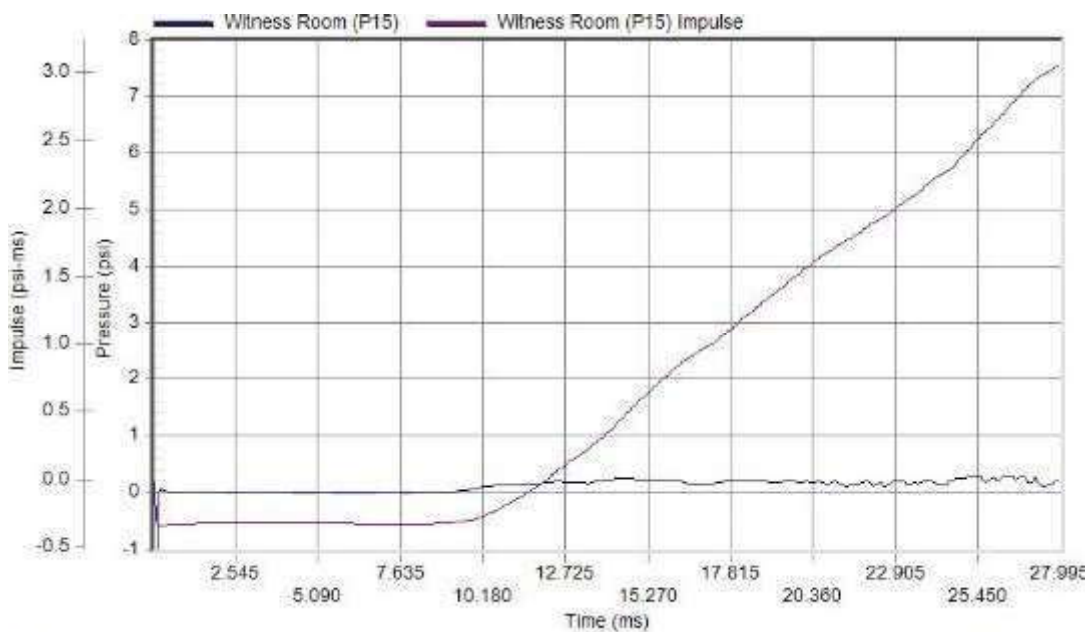
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Peak Pressure: 6.62 psi at 5.59 ms
Duration: 13.29 ms

Test Date: 3/17/2025
Test Time: 11:39 am



Peak Pressure: 0.30 psi at 26.78 ms
Duration: 0.00 ms

Test Date: 3/17/2025
Test Time: 11:39 am

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Test Specimen #3

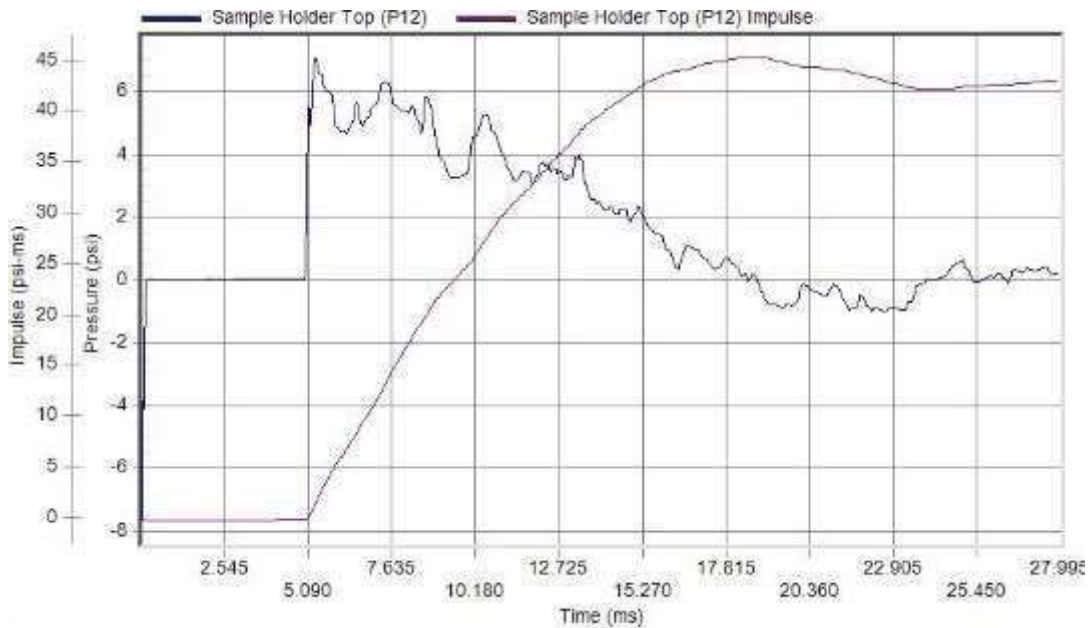
DESCRIPTION	RESULTS
Ambient Temperature	67°F
Glazing Temperature	67°F
ASTM Hazard Rating	Minimal Hazard
GSA Performance Condition	Cat IIIA
PEAK POSITIVE PRESSURE	
Top Pressure	7.08 psi
Right Pressure	6.75 psi
Shell Pressure	6.69 psi
Average Pressure	6.84 psi
Witness Chamber Pressure	0.33 psi
PEAK POSITIVE PHASE DURATION	
Top Duration	13.13 msec
Right Duration	9.14 msec
Shell Duration	12.65 msec
Average Duration	11.64 msec
PEAK POSITIVE PHASE IMPULSE	
Top Impulse	45 psi*msec
Right Impulse	45 psi*msec
Shell Impulse	45 psi*msec
Average Impulse	45 psi*msec
GLAZING RESPONSE	
Exterior Lite	Fractured
Glazing Pullout Length and Location	21" vertical and 8" horizontal at right hand sill and jamb
Glazing Tearing	None
WITNESS CHAMBER RESULTS	
No debris was observed.	

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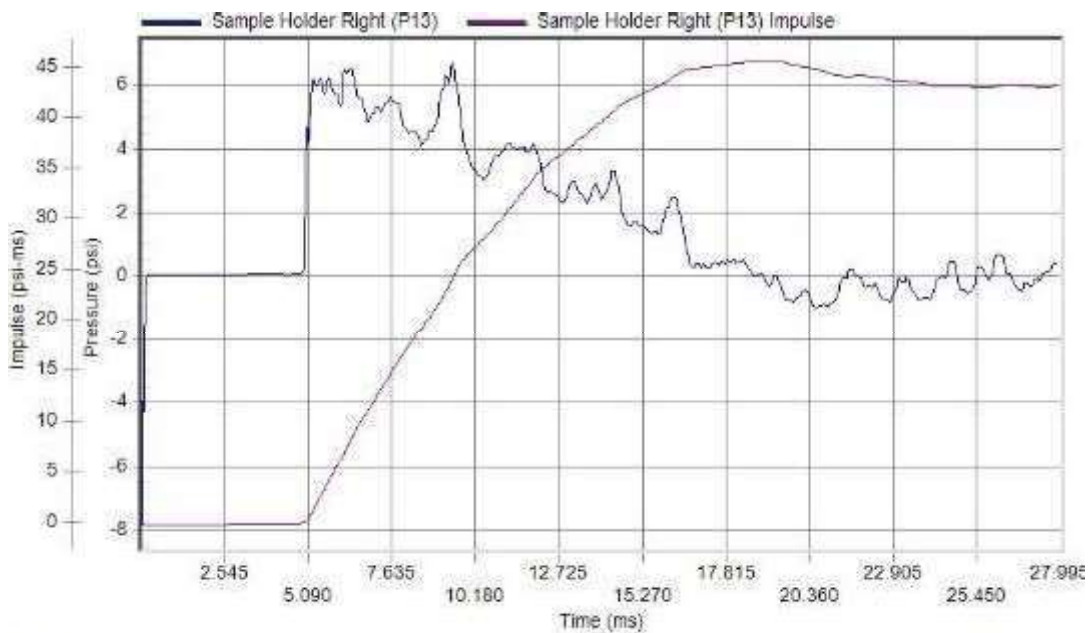
Date: 04/21/25

Test Specimen #3 - Pressure Time Plots



Peak Pressure: 7.08 psi at 5.33 ms
Duration: 13.13 ms

Test Date: 3/17/2025
Test Time: 1:37 pm



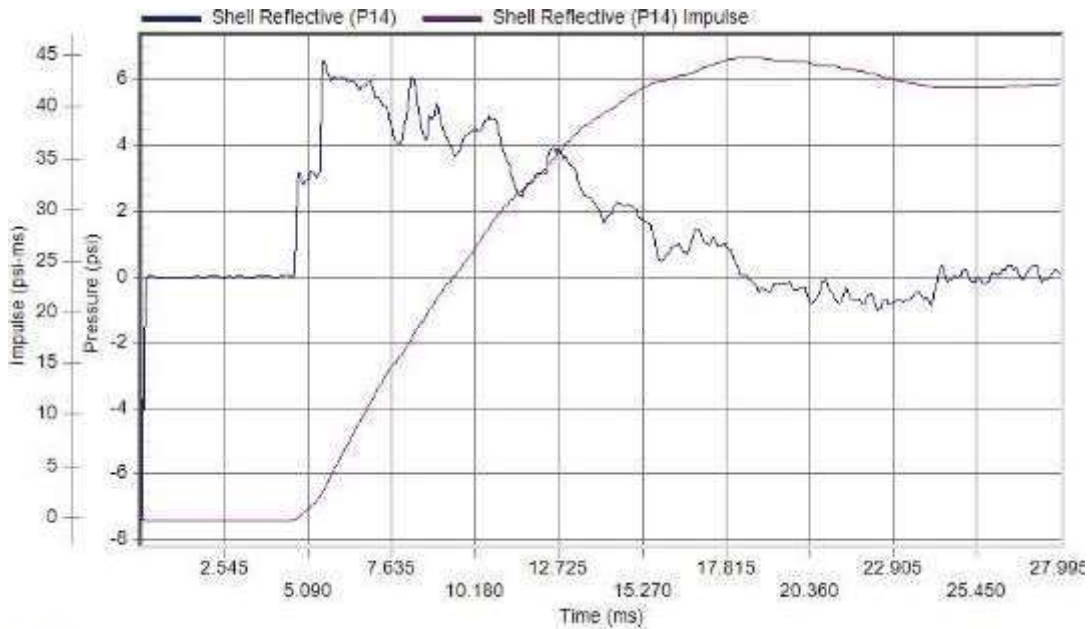
Peak Pressure: 6.75 psi at 9.49 ms
Duration: 9.14 ms

Test Date: 3/17/2025
Test Time: 1:37 pm

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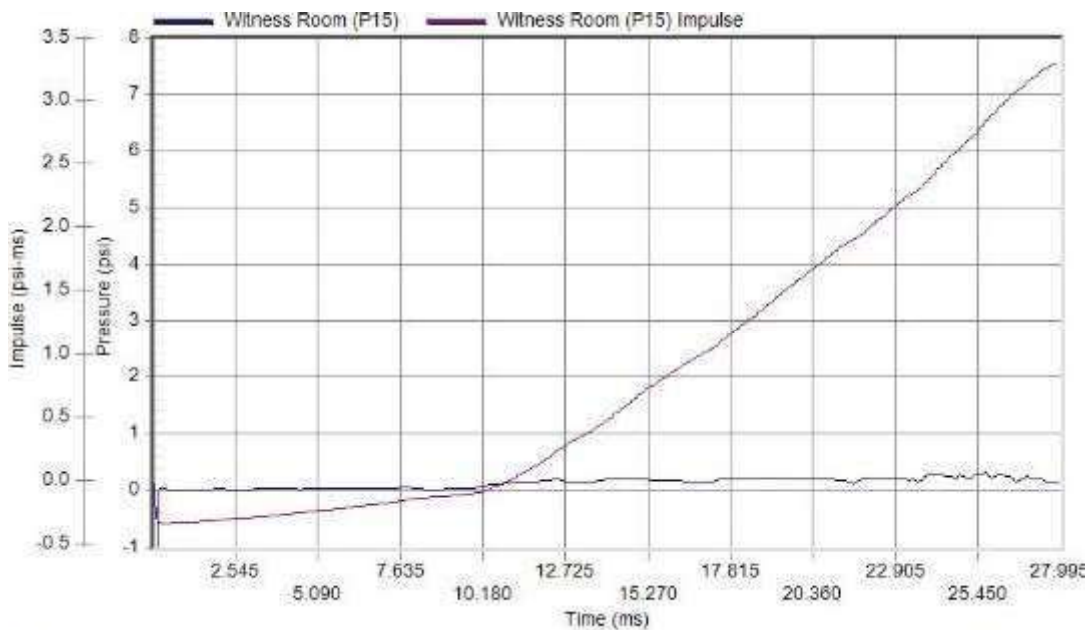
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Peak Pressure: 6.69 psi at 5.59 ms
Duration: 12.65 ms

Test Date: 3/17/2025
Test Time: 1:37 pm



Peak Pressure: 0.33 psi at 25.70 ms
Duration: 0.00 ms

Test Date: 3/17/2025
Test Time: 1:37 pm

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SECTION 11

CONCLUSION

The test specimens achieved the following ratings:

TITLE	SPECIMEN #1	SPECIMEN #2	SPECIMEN #3
ASTM Hazard Rating	No Hazard	Minimal Hazard	Minimal Hazard
GSA Performance Condition	Cat II	Cat IIIA	Cat IIIA

SECTION 12

PHOTOGRAPHS



Photo No. 1
Pre-test Specimen #1, Interior

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Photo No. 2
Post-test Specimen #1, Interior



Photo No. 3
Post-test Specimen #1, Witness Chamber

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Photo No. 4
Pre-test Specimen #2, Interior



Photo No. 5
Post-test Specimen #2, Interior

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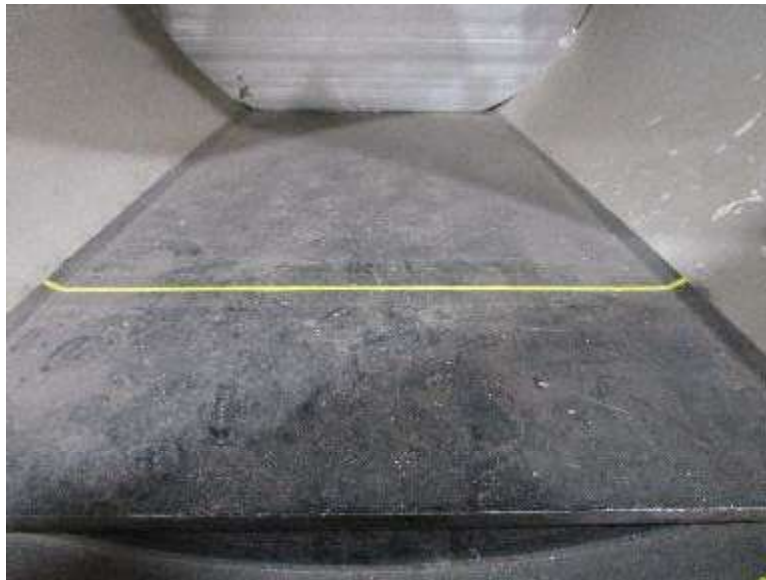


Photo No. 6
Post-test Specimen #2, Witness Chamber



Photo No. 7
Pre-test Specimen #3, Interior

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Photo No. 8
Post-test Specimen #3, Interior



Photo No. 9
Post-test Specimen #3, Witness Chamber



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SECTION 13

REVISION LOG

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