



Climate Seal™

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The Worlds Best Thermal - Acoustical - Preservation Window Inserts



Architectural Testing

ACOUSTICAL PERFORMANCE TEST REPORT

Rendered to:

Climate Seal™

**TYPE: Dual Window System Consisting of a
Wood Double Hung Window with the One-Lite
Magnetic Seal Interior Storm Window System**

Report No:	01-46456.01
Test Date:	07/30/03
Report Date:	09/26/03
Expiration Date:	07/30/07

130 Derry Court
York, PA 17402-9405
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ACOUSTICAL PERFORMANCE TEST REPORT

Rendered to:

Climate Seal™

123 Columbia Court North – Suite 201 – Chaska, MN 55318
952.448.5300 – Fax: 952.448.2613 – 800.387.4085

Report No: 01-46456.01
Test Date: 07/30/03
Report Date: 09/26/03
Expiration Date: 07/30/07

Test Sample Identification:

Option 1:

Prime Window Type: Wood Double Hung
Prime Window Glazing: 3/32" Annealed

Option 2:

Prime Window Type: Wood Double Hung
Prime Window Glazing: 3/32" Annealed, sash sealed with duct tape
Storm Window Series/Model: One-Lite in Jamb, three sided magnet
Storm Window Glazing: 1/8" Acrylic

Option 3:

Prime Window Type: Wood Double Hung
Prime Window Glazing: 3/32" Annealed
Storm Window Series/Model: One-Lite in Jamb, three sided magnet
Storm Window Glazing: 1/4" Acrylic

Option 4:

Prime Window Type: Wood Double Hung
Prime Window Glazing: 3/32" Annealed
Storm Window Series/Model: One-Lite Flush Mount, four sided magnet
Storm Window Glazing: 1/4" Acrylic

Option 5:

Prime Window Type: Wood Double Hung
Prime Window Glazing: 1/4" Annealed, with the sash and glass sealed with duct tape
Storm Window Series/Model: One-Lite Flush Mount, four sided magnet
Storm Window Glazing: 1/4" Acrylic

Sample Descriptions:

Prime Window Construction:

	Frame	Bottom Sash	Top Sash
Size	37-5/8" x 64-3/8"	34-1/2" x 31-1/2"	34-1/2" x 31-1/2"
Thickness	6"	1-1/2"	1-1/2"
CORNERS	Coped	Coped	Coped
Fasteners	Screws	Screws	Screws
Seal Method	None	None	None
MATERIAL	Wood	Wood	Wood
Reinforcement	NA	NA	NA
Thermal Break Material	NA	NA	NA
Daylight Opening Size	NA	31-1/8" x 27-1/8"	31-1/8" x 27-1/8"

Option 1 Glazing:

Prime Window Glazing:

MEASURED THICKNESS	0.09"
MATERIAL	Annealed

The prime sash glass was exterior glazed onto an unknown adhesive and held-in-place with metal, push-in pressure clips. No sealant or putty was applied over the push-in metal clips. Option 1 was a baseline test with no storm window.

Sample Descriptions: (Continued)

Option 2 Storm Window Construction:

		Frame
Size		37-1/2" x 64-1/2"
Thickness		1"
CORNERS		Butted
	Fasteners	NA
	Seal Method	None
MATERIAL		Co-extruded, dual durometer PVC
	Reinforcement	NA
	Thermal Break Material	NA
Daylight Opening Size		36" x 62-1/2"

A 1" x 1" sheet metal angle was faced with foam tape on one surface. For the in-jamb storm window mounting, the angle was screwed to the prime window frame around the interior perimeter. Foam tape provided an isolation break between the prime window frame and the angle. The storm panel was fastened to the angle with the use of 1" wide magnets located on the stiles and top rail of the storm window. The bottom rail contained a 1/2" diameter Q-lon™ gasket. The glass to glass air space between the top sash of prime window and the storm window was five inches. The glass to glass air space between the bottom sash of the prime window and the storm window was three inches. The prime window sash were sealed to the window frame with duct tape.

Option 2 Glazing:

Prime Window Glazing:

MEASURED THICKNESS	0.09"
MATERIAL	Annealed

Storm Window Glazing:

MEASURED THICKNESS	0.13"
MATERIAL	Acrylic

The prime sash glass was exterior glazed onto an unknown adhesive and held-in-place with metal, push-in pressure clips. No sealant or putty was applied over the push-in metal clips. The storm window was channel glazed.

Sample Descriptions: (Continued)

Option 3 Storm Window Construction:

	Frame
Size	37-1/2" x 64-1/2"
Thickness	1"
CORNERS	Butted
Fasteners	NA
Seal Method	None
MATERIAL	Co-extruded, dual durometer PVC
Reinforcement	NA
Thermal Break Material	NA
Daylight Opening Size	36" x 62-1/2"

A 1" x 1" sheet metal angle was faced with foam tape on one surface. For the in-jamb storm window mounting, the angle was screwed to the prime window frame around the interior perimeter. Foam tape provided an isolation break between the prime window frame and the angle. The storm panel was fastened to the angle with the use of 1" wide magnets located on the stiles and top rail of the storm window. The bottom rail contained a 1/2" diameter Q-lon™ gasket. The glass to glass air space between the top sash of prime window and the storm window was five inches. The glass to glass air space between the bottom sash of the prime window and the storm window was three inches.

Option 3 Glazing:

Primary Window Glazing:

MEASURED THICKNESS	0.09"
MATERIAL	Annealed

Storm Window Glazing:

MEASURED THICKNESS	0.25"
MATERIAL	Acrylic

The prime sash glass was exterior glazed onto an unknown adhesive and held-in-place with metal, push-in pressure clips. No sealant or putty was applied over the push-in metal clips. The storm window was channel glazed.

Sample Descriptions: (Continued)

Option 4 Storm Window Construction:

		Frame
Size		39-3/8" x 66-1/4"
Thickness		1"
CORNERS		Butted
	Fasteners	NA
	Seal Method	None
MATERIAL		Co-extruded, dual durometer PVC
	Reinforcement	NA
	Thermal Break Material	NA
Daylight Opening Size		37-7/8" x 64-1/4"

A 1" x 1" sheet metal angle was faced with foam tape on one surface. The angle was then screwed to the prime window frame around the interior perimeter face with the foam tape separating the prime window frame and the angle. The panel was fastened to the angle with the use of 1" wide magnets located on all four members of the storm window. The glass to glass air space between the top sash of prime window and the storm window was five inches. The glass to glass air space between the bottom sash of the prime window and the storm window was three inches.

Option 4 Glazing:

Primary Window Glazing:

MEASURED THICKNESS	0.09"
MATERIAL	Annealed

Storm Window Glazing:

MEASURED THICKNESS	0.25"
MATERIAL	Acrylic

The prime sash glass was exterior glazed onto an unknown adhesive and held-in-place with metal, push-in pressure clips. No sealant or putty was applied over the push-in metal clips. The storm window was channel glazed.

Sample Descriptions: (Continued)

Option 5 Storm Window Construction:

		Frame
Size		39-3/8" x 66-1/4"
Thickness		1"
CORNERS		Butted
	Fasteners	NA
	Seal Method	None
MATERIAL		Co-extruded, dual durometer PVC
	Reinforcement	NA
	Thermal Break Material	NA
Daylight Opening Size		37-7/8" x 64-1/4"

A 1" x 1" sheet metal angle was faced with foam tape on one surface. The angle was then screwed to the prime window frame around the interior perimeter face with the foam tape separating the prime window frame and the angle. The panel was fastened to the angle with the use of 1" wide magnets located on all four members of the storm window. The glass to glass air space between the top sash of prime window and the storm window was six inches. The glass to glass air space between the bottom sash of the prime window and the storm window was four 4 inches. The prime window sash were sealed to the window frame with duct tape.

Option 5 Glazing:

Primary Window Glazing:

MEASURED THICKNESS	0.25"
MATERIAL	Annealed

Storm Window Glazing:

MEASURED THICKNESS	0.25"
MATERIAL	Acrylic

The prime sash glass was exterior glazed onto an unknown adhesive and held-in-place with metal, push-in pressure clips. Duct tape was applied over the push-in metal clips. The storm window was channel glazed.

Sample Descriptions: (Continued)

Option 6 Storm Window Construction:

		Frame
Size		39-3/8" x 66-1/4"
Thickness		1"
CORNERS		Butted
	Fasteners	NA
	Seal Method	None
MATERIAL		Co-extruded, dual durometer PVC
	Reinforcement	NA
	Thermal Break Material	NA
Daylight Opening Size		37-7/8" x 64-1/4"

A 1" x 1" sheet metal angle was faced with foam tape on one surface. The angle was then screwed to the prime window frame around the interior perimeter face with the foam tape separating the prime window frame and the angle. The panel was fastened to the angle with the use of 1" wide magnets located on all four members of the storm window. The glass to glass air space between the top sash of prime window and the storm window was six inches. The glass to glass air space between the bottom sash of the prime window and the storm window was four inches.

Option 6 Glazing:

Primary Window Glazing:

MEASURED THICKNESS	0.25"
MATERIAL	Annealed

Storm Window Glazing:

MEASURED THICKNESS	0.25"
MATERIAL	Acrylic

The prime sash glass was exterior glazed onto an unknown adhesive and held-in-place with metal, push-in pressure clips. Duct tape was applied over the push-in metal clips. The storm window was channel glazed.



Architectural Testing

ATI No. 01-46456.01BA

Date 07/30/03

Client Climate Seal™

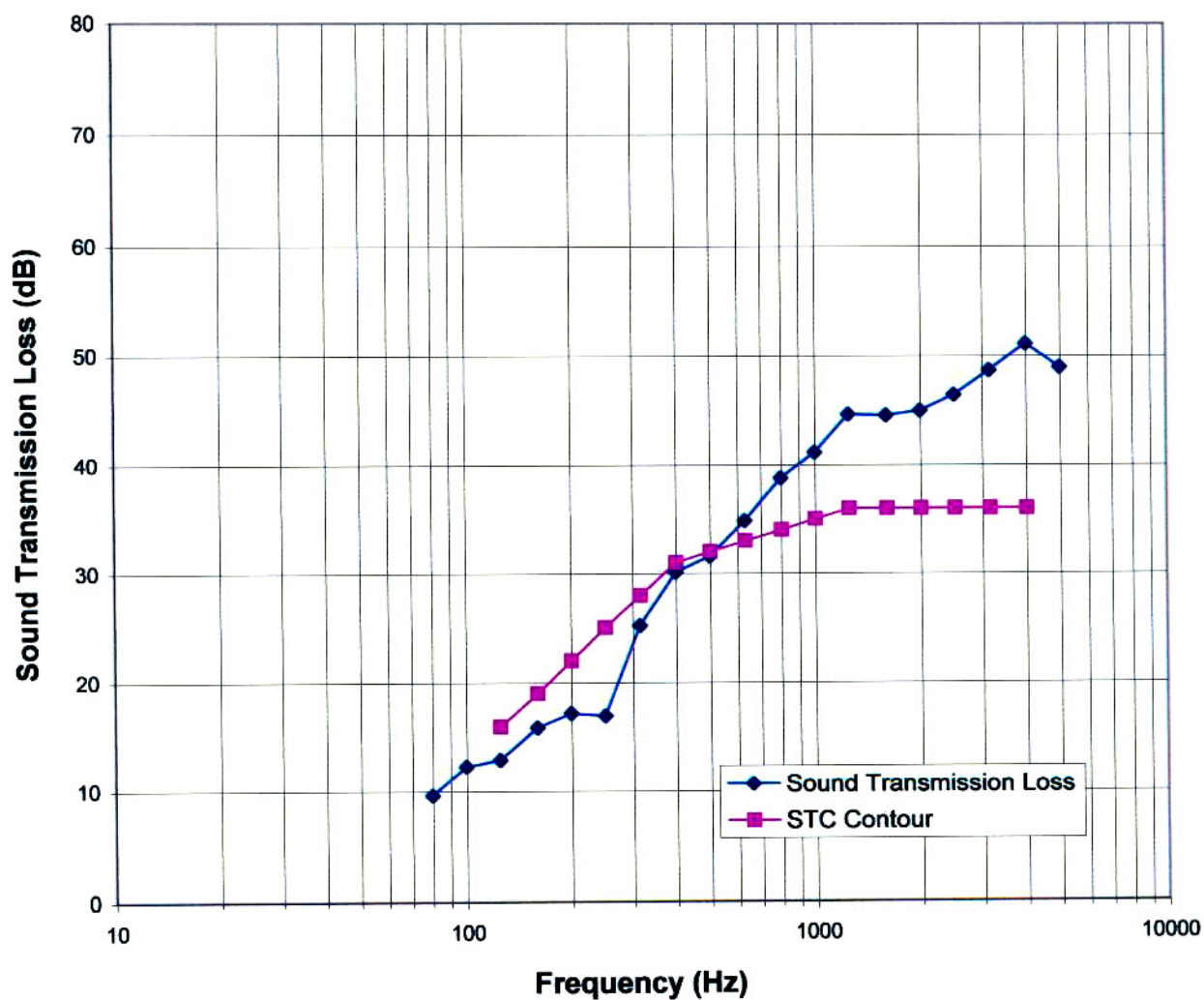
Specimen Wood double hung window SS Glass, with 1/8" Acrylic storm window, Prime sash taped, single panel, in jamb, 3 sided magnet

Specimen Area 16.82 Sq Ft

Filler Area 123.18 Sq Ft

Operator Todd D. Kister

Sound Transmission Loss



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SOUND TRANSMISSION LOSS

ASTM E90

Architectural Testing

ATI No.	01-46456.01C	Date	07/30/03
Client	Climate Seal™		
Specimen	Wood double hung window SS Glass, 1/4" Acrylic storm panel, single panel, in jamb, 3 sided magnet, 3" AS bottom, 5" AS top		
Specimen Area	16.82 Sq Ft		
Filler Area	123.18 Sq Ft		
Operator	Todd D. Kister		

	Bkgrd	Absorp	Source	Receive	Filler	Specimen	
Temp F	79.5	79.2	78.0	79.0	69.8	78.9	
RH %	57.3	57.7	59.5	58.0	67.2	58.1	

Freq (Hz)	Bkgrd SPL (dB)	Absorp (Sabines /Sq Ft)	Source SPL (dB)	Receive SPL (dB)	Filler TL (dB)	Specimen TL (dB)	95% Conf Limit	No. of Defici- encies	Trans Coef Diff
80	38.8	53.8	84.3	69.6	36.4	10	3.36	0	18.2
100	42.5	55.1	87.1	69.5	40.3	12	3.77	0	19.2
125	41.3	45.5	91.5	70.0	47.4	17	2.14	1	21.6
160	44.6	47.2	95.5	73.7	47.7	17	0.92	4	21.7
200	44.6	49.8	100.5	75.5	53.2	20	0.38	4	24.2
250	39.3	48.2	102.9	79.2	57.9	19	1.14	8	30.1
315	37.9	46.9	101.4	70.2	63.2	27	0.57	3	27.8
400	35.8	48.9	100.6	64.0	67.6	32	0.59	1	27.0
500	30.4	47.7	100.6	63.1	69.6	33	0.39	1	28.0
630	21.9	51.1	103.7	63.1	71.7	36	0.48	0	27.2
800	21.9	55.6	105.9	61.7	70.3	39	0.42	0	22.7
1000	20.4	58.7	105.9	59.1	77.4	41	0.43	0	27.4
1250	20.9	66.8	106.9	58.1	83.6	43	0.47	0	32.1
1600	15.5	69.5	111.5	64.0	86.5	41	0.29	0	36.6
2000	10.6	74.3	109.1	61.1	87.0	42	0.29	0	36.8
2500	7.2	88.8	107.8	56.1	85.7	44	0.32	0	32.6
3150	6.9	106.0	107.8	51.9	86.5	48	0.35	0	30.0
4000	7.5	128.8	107.1	49.0	85.6	49	0.40	0	27.7
5000	8.5	173.2	105.4	50.1	83.0	45	0.79	0	29.2

STC Rating 34 (*Sound Transmission Class*)
Deficiencies 22 (*Number of deficiencies versus contour curve*)
OITC Rating 23 (*Outdoor/Indoor Transmission Class*)

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Architectural Testing

ATI No. 01-46456.01C

Date 07/30/03

Client Climate Seal™

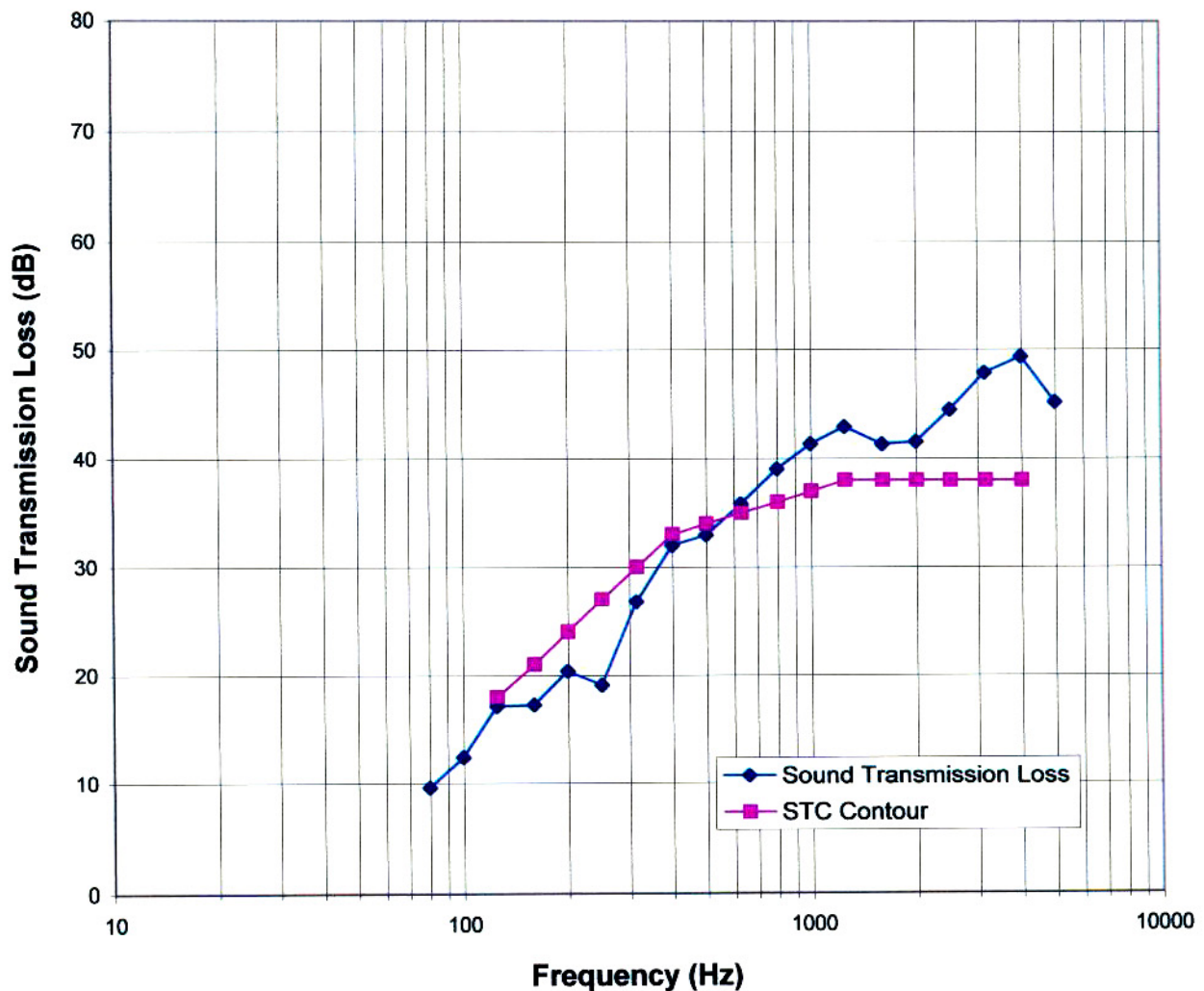
Specimen Wood double hung window SS Glass, 1/4" Acrylic storm panel, single panel, in jamb, 3 sided magnet, 3" AS bottom, 5" AS top

Specimen Area 16.82 Sq Ft

Filler Area 123.18 Sq Ft

Operator Todd D. Kister

Sound Transmission Loss



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SOUND TRANSMISSION LOSS

ASTM E90

Architectural Testing

ATI No.	01-46456.01D	Date	07/30/03
Client	Climate Seal™		
Specimen	Wood double hung window SS Glass, 1/4" Acrylic storm panel (Flush Mount - 4 Sided Magnet)		
Specimen Area	16.82 Sq Ft		
Filler Area	123.18 Sq Ft		
Operator	Todd D. Kister		

	Bkgrd	Absorp	Source	Receive	Filler	Specimen	
Temp F	79.3	79.2	79.6	79.0	69.8	79.3	
RH %	58.7	58.9	57.6	59.2	67.2	58.6	

Freq (Hz)	Bkgrd SPL (dB)	Absorp (Sabines /Sq Ft)	Source SPL (dB)	Receive SPL (dB)	Filler TL (dB)	Specimen TL (dB)	95% Conf Limit	No. of Defici- encies	Trans Coef Diff
80	41.2	60.0	83.4	69.3	36.4	9	2.38	0	19.1
100	41.9	55.4	86.7	67.6	40.3	14	4.37	0	17.7
125	40.4	53.2	91.6	68.5	47.4	18	2.24	3	20.6
160	44.1	48.9	95.4	70.4	47.7	20	0.75	4	18.7
200	45.0	47.4	100.5	73.0	53.2	23	0.60	4	21.7
250	38.7	45.4	102.8	76.0	57.9	22	0.92	8	26.8
315	38.0	44.6	101.4	69.1	63.2	28	0.81	5	26.4
400	35.6	48.8	100.5	61.2	67.6	35	0.49	1	24.3
500	31.4	47.8	100.5	59.6	69.6	36	0.46	1	24.6
630	22.4	52.0	103.7	59.8	71.7	39	0.44	0	24.0
800	22.6	56.7	105.8	59.2	70.3	41	0.41	0	20.3
1000	20.4	59.7	105.9	56.7	77.4	44	0.34	0	25.0
1250	20.8	64.5	107.1	56.6	83.6	45	0.30	0	30.3
1600	15.7	71.6	111.5	60.7	86.5	45	0.36	0	33.4
2000	10.8	74.4	108.9	57.1	87.0	45	0.28	0	33.0
2500	7.6	85.9	107.8	52.7	85.7	48	0.19	0	29.1
3150	7.0	108.1	107.9	50.6	86.5	49	0.16	0	28.7
4000	7.0	129.8	107.1	49.5	85.6	49	0.33	0	28.3
5000	7.7	169.8	105.2	51.1	83.0	44	0.52	0	30.3

STC Rating 37 (*Sound Transmission Class*)
Deficiencies 26 (*Number of deficiencies versus contour curve*)
OITC Rating 24 (*Outdoor/Indoor Transmission Class*)

NVLAP	Accredited by the National Institute of Standards and Technology (NIST) under the National Voluntary Laboratory Accreditation Program for the specific test methods under lab code 200361. The laboratory's accreditation or test report in no way constitutes or implies product certification, approval, or endorsement by NIST. This test report applies only to the specimen that was tested.
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Architectural Testing

ATI No. 01-46456.01D

Date 07/30/03

Client Climate Seal™

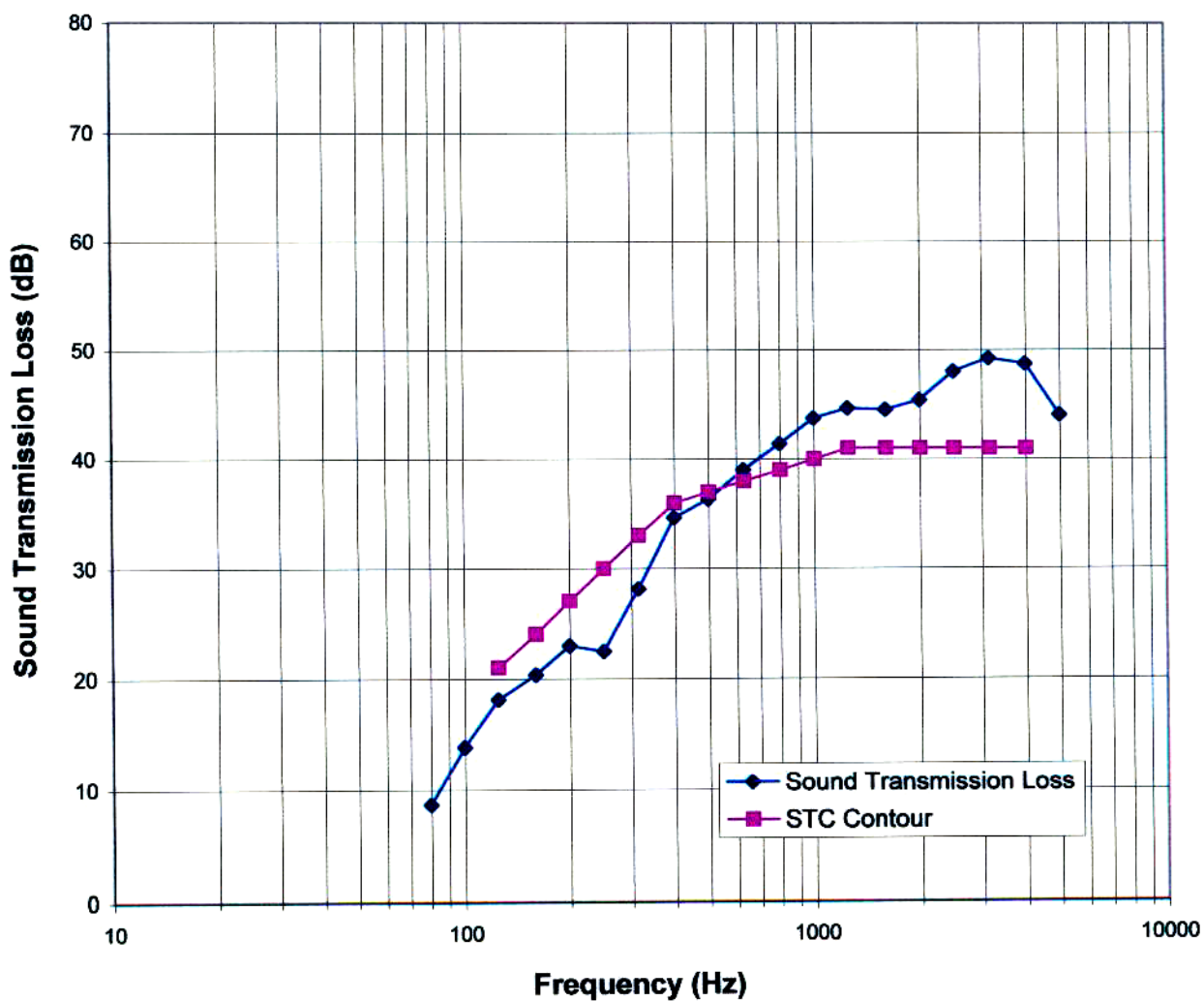
Specimen Wood double hung window SS Glass, 1/4" Acrylic storm panel (Flush Mount - 4 Sided Magnet)

Specimen Area 16.82 Sq Ft

Filler Area 123.18 Sq Ft

Operator Todd D. Kister

Sound Transmission Loss



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SOUND TRANSMISSION LOSS

ASTM E90

Architectural Testing

ATI No.	01-46456.011	Date	07/30/03
Client	Climate Seal™		
Specimen	Wood Double Hung 1/4" Glass, 1/4" acrylic single panel, Flush mount, 4 sided magnet, sealed with duct tape, sash and glass sealed with tape		
Specimen Area	16.82 Sq Ft		
Filler Area	123.18 Sq Ft		
Operator	Eric Miller		

	Bkgrd	Absorp	Source	Receive	Filler	Specimen
Temp F	80.6	80.1	80.2	80.2	69.8	80.3
RH %	62.9	63.1	62.2	63.2	67.2	62.9

Freq (Hz)	Bkgrd SPL (dB)	Absorp (Sabines /Sq Ft)	Source SPL (dB)	Receive SPL (dB)	Filler TL (dB)	Specimen TL (dB)	95% Conf Limit	No. of Defici- encies	Trans Coef Diff
80	48.2	55.4	84.2	65.1	36.4	14	1.98	0	13.8
100	44.3	50.3	87.2	62.7	40.3	20	5.55	0	11.9
125	42.5	46.5	91.6	64.8	47.4	22	2.21	6	16.4
160	43.7	45.2	95.5	60.1	47.7	32	0.60	0	7.9
200	45.3	47.3	100.6	66.5	53.2	30	0.55	4	15.0
250	41.6	45.1	102.9	69.3	57.9	29	1.15	8	19.9
315	39.4	47.4	101.3	64.5	63.2	32	0.78	8	22.2
400	36.3	48.9	100.5	56.0	67.6	40	0.62	3	19.1
500	30.2	48.5	100.0	53.9	69.6	42	0.32	2	19.4
630	22.4	52.6	103.3	54.2	71.7	44	0.32	1	18.8
800	22.0	56.1	105.7	54.5	70.3	46	0.39	0	15.7
1000	20.3	61.1	105.7	53.0	77.4	47	0.42	0	21.6
1250	20.3	67.8	106.5	50.8	83.6	50	0.31	0	25.3
1600	15.1	69.1	111.3	54.8	86.5	50	0.26	0	27.4
2000	10.7	73.8	108.8	51.9	87.0	51	0.21	0	27.8
2500	7.6	85.8	107.5	51.1	85.7	49	0.25	0	27.8
3150	6.7	104.6	107.7	49.0	86.5	51	0.16	0	27.2
4000	6.9	125.2	107.1	45.6	85.6	53	0.21	0	24.1
5000	7.8	161.7	105.4	43.3	83.0	52	0.44	0	22.2

STC Rating 44 (*Sound Transmission Class*)
Deficiencies 32 (*Number of deficiencies versus contour curve*)
OITC Rating 30 (*Outdoor/Indoor Transmission Class*)



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Architectural Testing

ATI No. 01-46456.011

Date 07/30/03

Client Climate Seal™

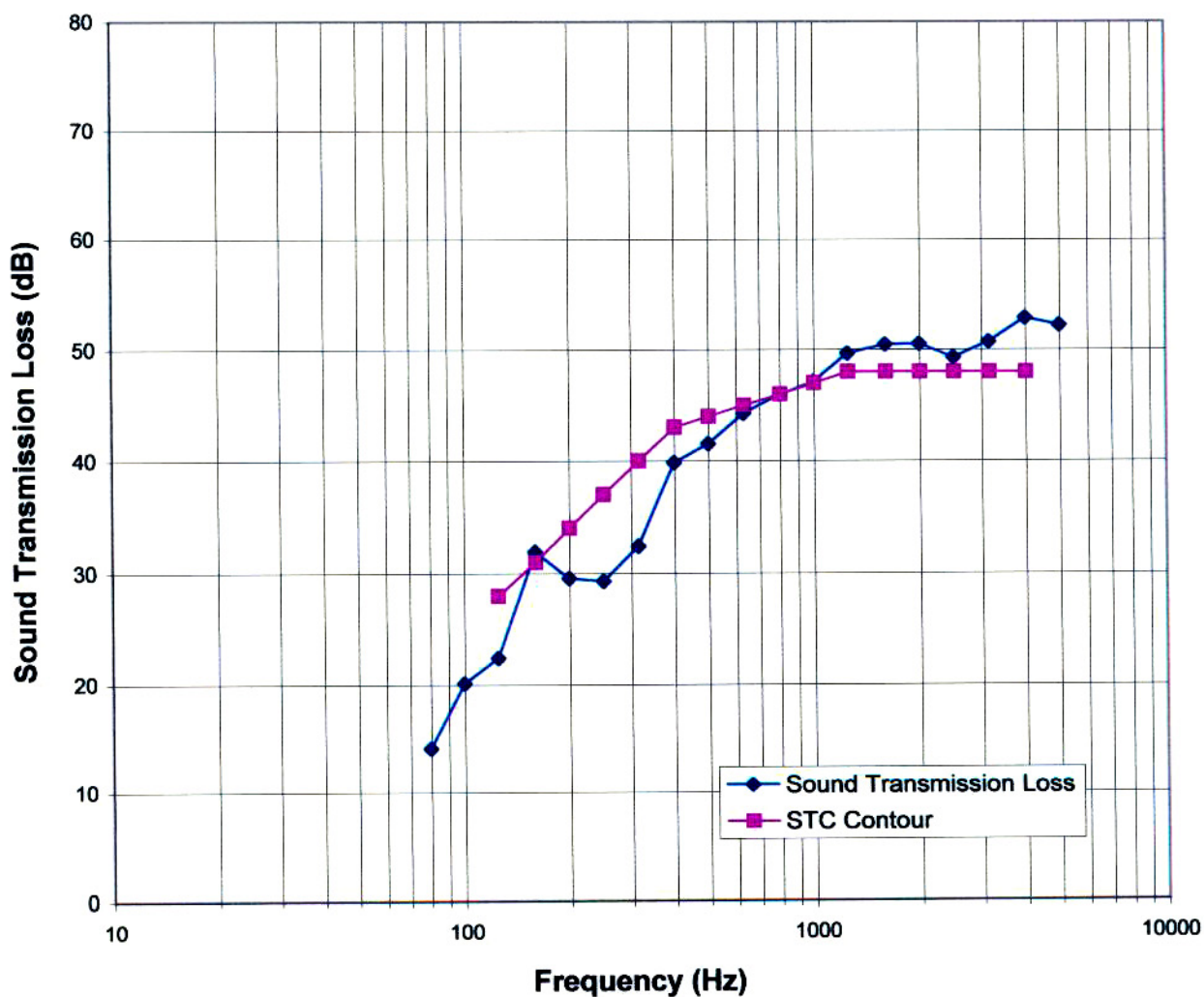
Specimen Wood Double Hung 1/4" Glass, 1/4" acrylic single panel, Flush mount, 4 sided magnet, sealed with duct tape, sash and glass sealed with tape

Specimen Area 16.82 Sq Ft

Filler Area 123.18 Sq Ft

Operator Eric Miller

Sound Transmission Loss



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SOUND TRANSMISSION LOSS

ASTM E90

Architectural Testing

ATI No.	01-46456.011A	Date	07/30/03
Client	Climate Seal™		
Specimen	Wood Double Hung 1/4" Glass, 1/4" acrylic single panel, Flush mount, 4 sided magnet, glass only sealed with duct tape, in jamb mount		
Specimen Area	16.82 Sq Ft		
Filler Area	123.18 Sq Ft		
Operator	Eric Miller		

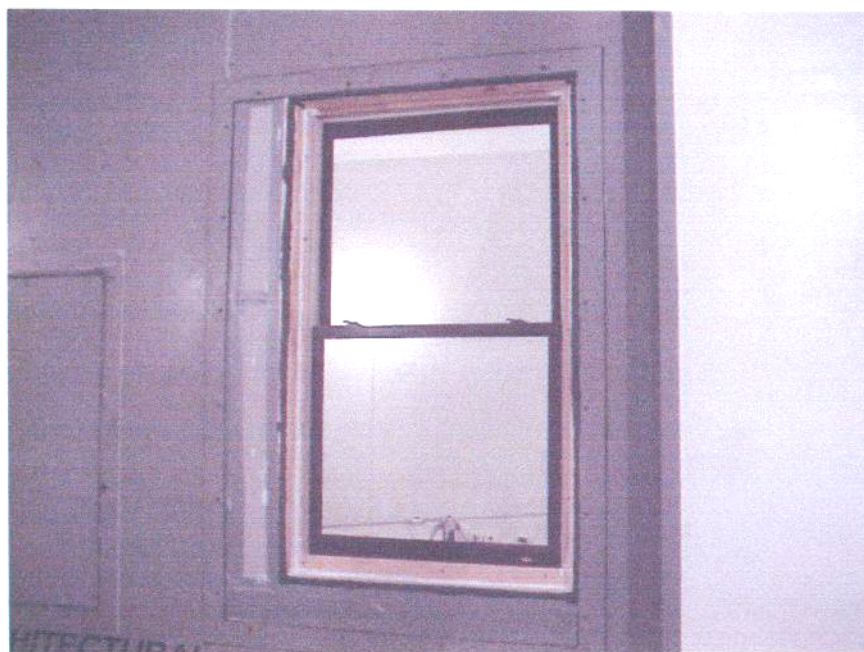
	Bkgrd	Absorp	Source	Receive	Filler	Specimen	
Temp F	80.6	80.1	80.2	80.2	69.8	80.3	
RH %	62.9	63.1	62.2	63.2	67.2	62.8	

Freq (Hz)	Bkgrd SPL (dB)	Absorp (Sabines /Sq Ft)	Source SPL (dB)	Receive SPL (dB)	Filler TL (dB)	Specimen TL (dB)	95% Conf Limit	No. of Defici- encies	Trans Coef Diff
80	48.2	55.4	83.5	69.2	36.4	9	1.72	0	18.7
100	44.3	50.3	87.0	66.7	40.3	15	6.08	0	16.2
125	42.5	46.5	91.6	66.5	47.4	21	2.03	3	18.1
160	43.7	45.2	95.6	63.8	47.7	28	0.65	0	11.5
200	45.3	47.3	100.5	70.9	53.2	25	0.84	5	19.5
250	41.6	45.1	102.9	73.9	57.9	25	1.08	8	24.5
315	39.4	47.4	101.3	67.9	63.2	29	0.82	7	25.7
400	36.3	48.9	100.4	58.9	67.6	37	0.32	2	22.1
500	30.2	48.5	100.2	57.4	69.6	38	0.38	2	22.7
630	22.4	52.6	103.5	58.3	71.7	40	0.37	1	22.8
800	22.0	56.1	105.8	58.2	70.3	42	0.35	0	19.3
1000	20.3	61.1	105.8	55.6	77.4	45	0.38	0	24.1
1250	20.3	67.8	106.9	55.9	83.6	45	0.29	0	30.0
1600	15.1	69.1	111.4	61.2	86.5	44	0.43	0	33.8
2000	10.7	73.8	108.7	56.5	87.0	46	0.35	0	32.6
2500	7.6	85.8	107.6	54.0	85.7	46	0.28	0	30.6
3150	6.7	104.6	107.8	53.0	86.5	47	0.19	0	31.0
4000	6.9	125.2	107.2	50.8	85.6	48	0.32	0	29.4
5000	7.8	161.7	105.3	48.0	83.0	47	0.51	0	26.9

STC Rating 40 (*Sound Transmission Class*)
Deficiencies 28 (*Number of deficiencies versus contour curve*)
OITC Rating 26 (*Outdoor/Indoor Transmission Class*)

	Accredited by the National Institute of Standards and Technology (NIST) under the National Voluntary Laboratory Accreditation Program for the specific test methods under lab code 200361. The laboratory's accreditation or test report in no way constitutes or implies product certification, approval, or endorsement by NIST. This test report applies only to the specimen that was tested.
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Photographs



**Receive Room View of the Prime Window
Installed in the Filler Wall**



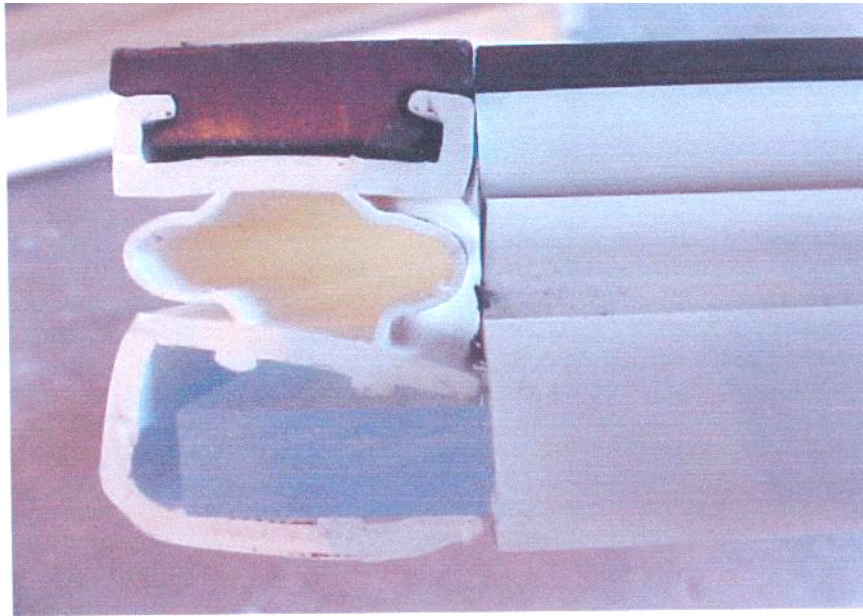
Magnetic Seal Surface of Storm Panel



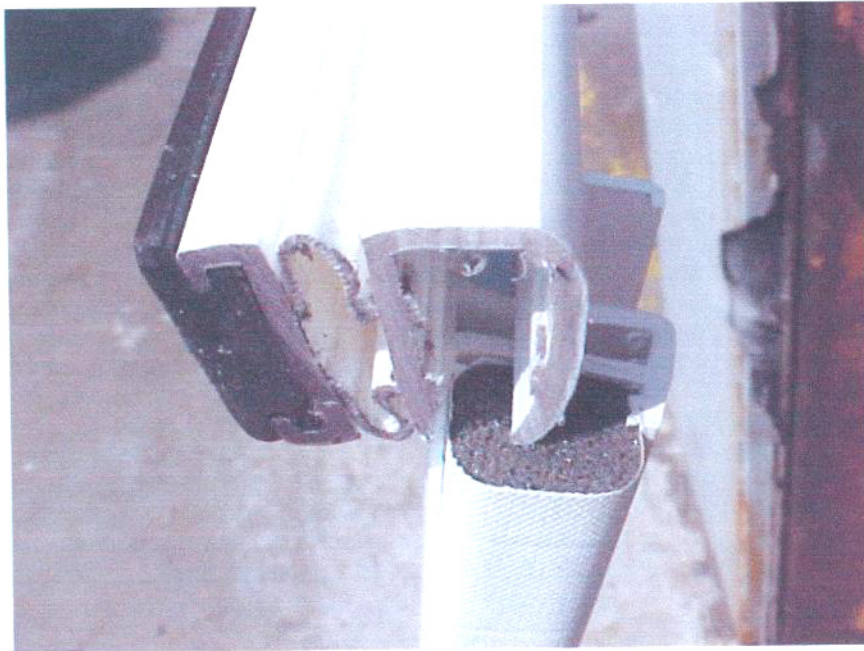
**Sheet Metal Angle Mounted to Test Sample
for Frame Mount Application**



Frame Mount Storm Window Installed onto Sheet Metal Angle



Co-extruded Dual Durometer Frame Extrusion



Bottom Rail Extrusion with 1/2" Diameter Q-lon™ Gasket