

**ASTM E 90 SOUND TRANSMISSION LOSS  
TEST REPORT**

**Rendered to:**

**ALUMIN TECHNO**

**SERIES/MODEL: W62/OD**

**TYPE: Side-Hinged Single Door System**

<b>Summary of Test Results</b>			
<b>Data File No.</b>	<b>Glazing (Nominal Dimensions)</b>	<b>STC</b>	<b>OITC</b>
D0490.01	1" IG (1/4" tempered, 1/2" air space, 1/4" tempered)	32	28

Reference should be made to Architectural Testing, Inc. Report No. D0490.01-113-11 for complete test specimen description. The complete test results are listed in Appendix B.

## ACOUSTICAL PERFORMANCE TEST REPORT

Rendered to:

ALUMIN TECHNO  
Selitskogo Str., 12  
Minsk, 220075  
BELARUS

Report No: D0490.01-113-11  
Test Date: 04/22/14  
Report Date: 05/06/14  
Record Retention End Date: 04/22/18

### **Test Sample Identification:**

**Series/Model:** W62/OD

**Type:** Side-Hinged Single Door System

**Overall Size:** 40" by 87"

**Glazing (Nominal Dimensions):** 1" IG (1/4" Tempered, 1/2" Air Space, 1/4" Tempered)

**Project Scope:** Architectural Testing, Inc. was contracted by Alumin Techno to conduct a sound transmission loss test on a Series/Model W62/OD, side-hinged single door system. A summary of the results is listed in the Test Results section, and the complete test data is included as Appendix B of this report. The sample was provided by the client.

**Test Methods:** The acoustical test was conducted in accordance with the following:

ASTM E 90-09, *Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions.*

ASTM E 413-10, *Classification for Rating Sound Insulation.*

ASTM E 1332-10a, *Standard Classification for Rating Outdoor-Indoor Sound Attenuation.*

ASTM E 2235-04 (Reapproved 2012), *Standard Test Method for Determination of Decay Rates for Use in Sound Insulation Test Methods.*

**Test Equipment:** The equipment used to conduct this test meets the requirements of ASTM E 90. The microphones were calibrated before conducting the sound transmission loss test. The test equipment and test chamber descriptions are listed in Appendix A.

**Sample Installation:** Sound transmission loss tests were initially performed on a filler wall that was designed to test door system specimens. The filler wall achieved an STC rating of 68.

The specimen plug was removed from the filler wall assembly, and the window was placed on an isolation pad in the test opening. Duct seal was used to seal the perimeter of the side-hinged single door system frame to the test opening on both sides. The interior side of the side-hinged single door system frame, when installed, was approximately 1/4" from being flush with the receiving room side of the filler wall. A stethoscope was used to check for any abnormal air leaks around the test specimen prior to testing. The leaf was opened and closed at least five times prior to testing.

**Test Procedure:** The window was closed and locked for this test. The sound transmission loss tests were conducted in accordance with the ASTM E 90 test method using a single direction of measurement. The sound transmission loss test consisted of the following measurements: One background noise sound pressure level and five sound absorption measurements were conducted at each of the five microphone positions. Two sound pressure level measurements were made simultaneously in both rooms, at each of the five microphone positions. The air temperature and relative humidity conditions were monitored and recorded during the background, absorption, source, and receive room measurements.

**Sample Descriptions:**

**Frame Construction:**

		<b>Frame</b>
<b>Size</b>		40" by 87"
<b>Thickness</b>		2-7/16"
<b>Corners</b>		Mitered
	Fasteners	Keyed and staked
	Seal Method	Sealant
<b>Material</b>		Aluminum
	Reinforcement	N/A
	Thermal Break Material	Insulbar

*N/A-Non Applicable*

**Sample Descriptions:** (Continued)

**Leaf Construction:**

		<b>Vent</b>
<b>Size</b>		36" by 84-3/8"
<b>Thickness</b>		2-7/16"
<b>Corners</b>		Mitered
	Fasteners	Keyed and staked
	Seal Method	Sealant
<b>Material</b>		Aluminum
	Reinforcement	N/A
	Thermal Break Material	Insulbar
<b>Daylight Opening Size</b>		38-3/4" by 77"

**Leaf Glazing:**

<b>Measured Overall Insulation Glass Unit Thickness</b>	0.980"
<b>Spacer Type</b>	Aluminum

	<b>Exterior Sheet</b>	<b>Gap</b>	<b>Interior Sheet</b>
<b>Measured Thickness</b>	0.228"	0.524"	0.228"
<b>Muntin Pattern</b>	N/A	N/A	N/A
<b>Material</b>	Tempered	Air*	Tempered
<b>Laminate Material</b>	N/A	N/A	N/A

<b>Glazing Method</b>	Interior
<b>Glazing Material</b>	EPDM
<b>Glazing Bead Material</b>	Aluminum with EPDM

\* - Stated per Client/Manufacturer, N/A-Non Applicable

**Sample Descriptions:** (Continued)

**Components:**

TYPE	QUANTITY	LOCATION
<b>Weatherstrip</b>		
Polypile with center fin	1 Row	Bottom rail
1/4" Diameter hollow bulb gasket	1 Row	Head, jambs, leaf perimeter
3/4" Polypile with center fin strip	2	Stile bottom corners
1/2" Polypile with center fin strip	2	Bottom rail corners
<b>Hardware</b>		
Adjustable hinge	2	Hinge jamb
Multi-point lock system	1	Lock stile
Keeper	3	Lock stile
<b>Drainage</b>		
1-1/4" by 3/16" Weep slot	2	Bottom rail
3/16" Diameter weep hole	1	Bottom rail

**Comments:** The weight of the test sample was 166 lbs. The design drawings (included in Appendix C) supplied by the client, accurately describe the Series/Model W62/OD, side-hinged single door system. The dimensions on the drawings that are circled and/or checked were verified against the accessible components of the test specimen. The test specimen was returned per the client's request, so the internal components and dimensions could not be verified against the drawings. Photographs of the test specimen are included in Appendix D.

**Test Results:** The STC (Sound Transmission Class) rating was calculated in accordance with ASTM E 413. The OITC (Outdoor-Indoor Transmission Class) was calculated in accordance with ASTM E 1332. A summary of the sound transmission loss test results on the Series/Model W62/OD, side-hinged single door system is listed below.

<b>Summary of Test Results</b>			
<b>Data File No.</b>	<b>Glazing (Nominal Dimensions)</b>	<b>STC</b>	<b>OITC</b>
D0490.01	1" IG (1/4" tempered, 1/2" air space, 1/4" tempered)	32	28

The complete test results are listed in Appendix B. Flanking limit tests and reference specimen tests are available upon request.

Architectural Testing will service this report for the entire test record retention period. Test records, such as detailed drawings, datasheets, representative samples of test specimens, or other pertinent project documentation, will be retained by Architectural Testing for the entire test record retention period.

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For ARCHITECTURAL TESTING, INC:

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Kurt A. Golden  
Senior Technician - Acoustical Testing

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Todd D. Kister  
Laboratory Supervisor - Acoustical Testing

KAG:jmc

Attachments (pages): This report is complete only when all attachments listed are included.

- Appendix-A: Equipment description (1)
- Appendix-B: Complete test results (2)
- Appendix-C: Design drawings (4)
- Appendix-D: Photographs (1)

### Revision Log

<u>Rev. #</u>	<u>Date</u>	<u>Page(s)</u>	<u>Revision(s)</u>
0	05/06/14	N/A	Original Report Issue

## Appendix A

### Instrumentation:

Instrument	Manufacturer	Model	Description	ATI Number	Date of Calibration
Analyzer	Hewlett Packard	HP35670A	Real time analyzer	004112	06/13 *
Data Acquisition Unit	Agilent	34970A	Data Acquisition Unit	62211	07/13
Receive Room Microphone	GRAS	40 AR	1/2" Microphone	Y003247	02/14
Source Room Microphone	GRAS	40 AR	1/2" Microphone	Y003239	02/14
Receive Room Preamplifier	GRAS	26 AK	1/2" Preamplifier	Y003251	09/13
Source Room Preamplifier	GRAS	26 AK	1/2" Preamplifier	005656	06/13
Microphone Calibrator	Bruel & Kjaer	Type 4228	Pistonphone Calibrator	Y002816	02/14
Noise Source	Delta Electronics	SNG-1	Noise Generator	Y002181	N/A
Equalizer	Rane	RPE 228	Programmable Equalizer	Y002180	N/A
Power Amplifiers	Crown	Xti 2000	Two, Amplifiers	005769 005770	N/A
Receive Room Loudspeakers	Renkus-Heinz Inc.	Trap Jr./9	Two, Loudspeakers	Y001784 Y001785	N/A
Source Room Loudspeakers	Renkus-Heinz Inc.	Trap Jr./9	Two, Loudspeakers	Y002649 Y002650	N/A
Receive Room Environmental Indicator	Vaisala	HMW92	Temperature and Humidity Sensor	064286	05/13
Source Room Environmental Indicator	Vaisala	HMW60Y	Temperature and Humidity Sensor	Y002653	05/13
Weather Station	Davis Instruments	VantagePRO 6150C	Weather Station	Y003257	06/13

\*- Note: The calibration frequency for this equipment is every two years per the manufacturer's recommendation.

### Test Chamber:

	Volume	Description
Receive Room	234 m <sup>3</sup> (8291.3 ft <sup>3</sup> )	Rotating vane and stationary diffusers Temperature and humidity controlled Isolation pads under the floor
Source Room	206.6 m <sup>3</sup> (7296.3 ft <sup>3</sup> )	Stationary diffusers only Temperature and humidity controlled

	Maximum Size	Description
TL Test Opening	4.27 m (14 ft) wide by 3.05 m (10 ft) high	Vibration break between source and receive rooms

N/A-Non Applicable



**Appendix B**  
**Complete Test Results**

**SOUND TRANSMISSION LOSS**  
ASTM E 90

<b>Test Date</b>	04/22/14		
<b>ATI No.</b>	D0490.01		
<b>Client</b>	Alumin Techno		
<b>Specimen</b>	Series/Model: W62/OD, side-hinged single door system with 1" IG (1/4" tempered, 1/2" air space, 1/4" tempered)		
<b>Operator</b>	Kurt Golden		
<b>Sample Area</b>	2.25 m <sup>2</sup>		
<b>Filler Area</b>	10.75 m <sup>2</sup>		
	Source	Receive	Specimen
<b>Temp C</b>	23	23	23
<b>RH %</b>	50	52	52

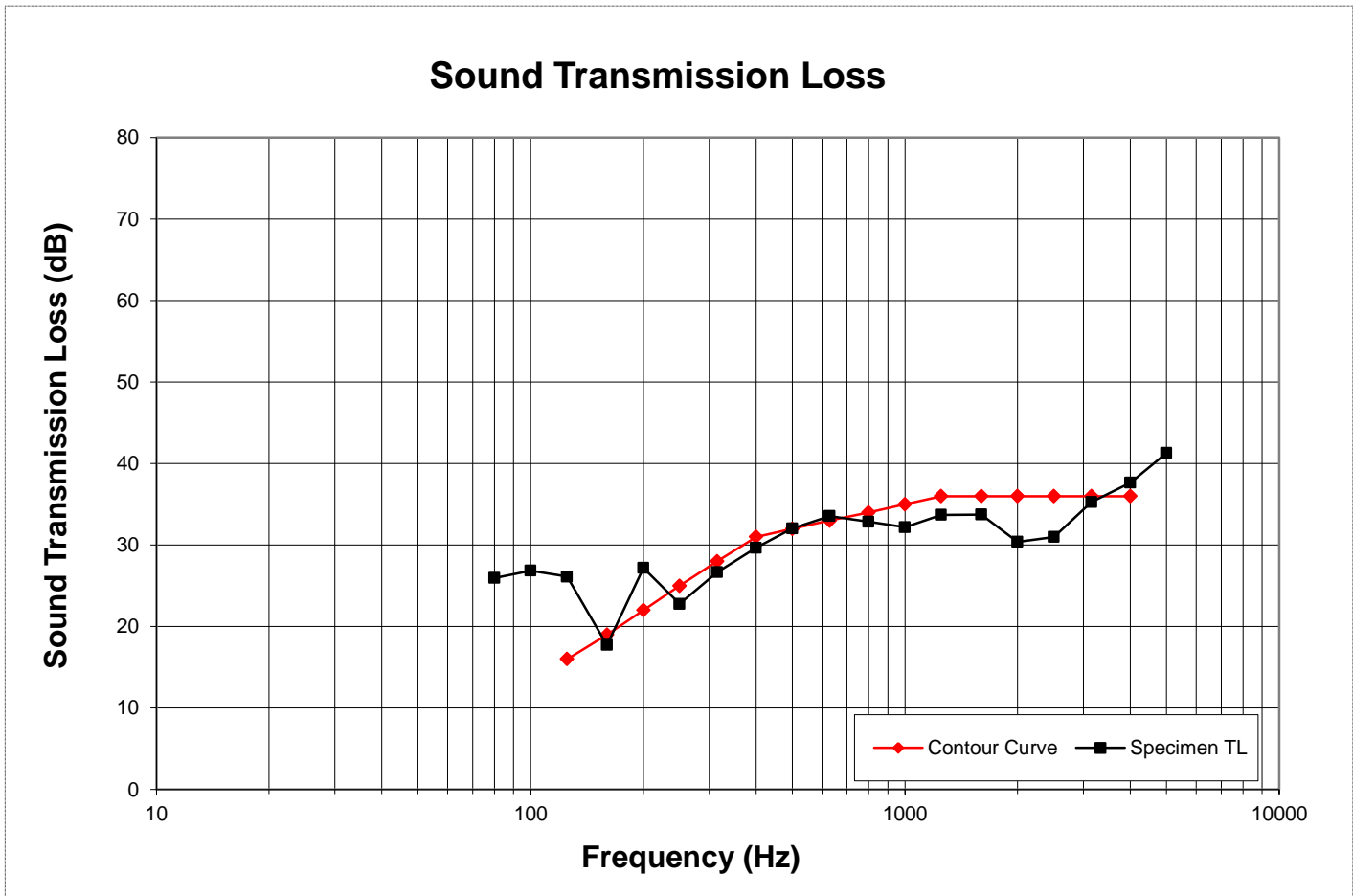
Freq (Hz)	Bkgrd SPL (dB)	Absorp (m <sup>2</sup> )	Source SPL (dB)	Receive SPL (dB)	Filler TL (dB)	Specimen TL (dB)	95% Conf Limit	No. of Deficiencies	Trans Coef Diff
80	40	5.6	91	62	29	26	1.1	-	-2.1
100	37	5.0	93	63	35	27	2.9	-	3.0
125	36	5.6	96	66	45	26	1.5	0	11.9
160	36	4.9	96	75	47	18	2.7	1	22.8
200	34	5.0	101	71	56	27	1.0	0	22.4
250	32	5.6	102	75	60	23	0.5	2	30.2
315	28	5.7	103	72	66	27	0.7	1	32.1
400	25	5.7	103	69	69	30	1.1	1	32.2
500	22	6.0	103	66	68	32	0.6	0	29.0
630	23	5.6	104	67	69	34	0.5	0	28.5
800	18	6.0	105	68	70	33	0.2	1	30.8
1000	15	6.1	105	69	73	32	0.3	3	34.4
1250	13	6.6	104	65	72	34	0.3	2	31.6
1600	13	6.6	106	68	71	34	0.5	2	30.7
2000	9	7.2	105	70	71	30	0.2	6	34.1
2500	8	8.1	105	68	76	31	0.3	5	38.1
3150	9	9.5	106	64	78	35	0.4	1	36.1
4000	9	11.6	106	61	81	38	0.5	0	37.0
5000	9	15.0	105	55	84	41	0.6	-	35.8

**STC Rating**      **32**      *(Sound Transmission Class)*  
**Deficiencies**    **25**      *(Number of deficiencies versus contour curve)*  
**OITC Rating**    **28**      *(Outdoor Indoor Transmission Class)*

- Notes:
- 1) Transmission loss coefficient differences less than 6 indicate the lower limit of the transmission loss for this specimen. These cells are highlighted red.
  - 2) Transmission loss coefficient differences between 6 and 15 indicate there has been a filler wall correction applied. These cells are highlighted green.
  - 3) Receive Room levels less than 5 dB above the background levels are highlighted in yellow.

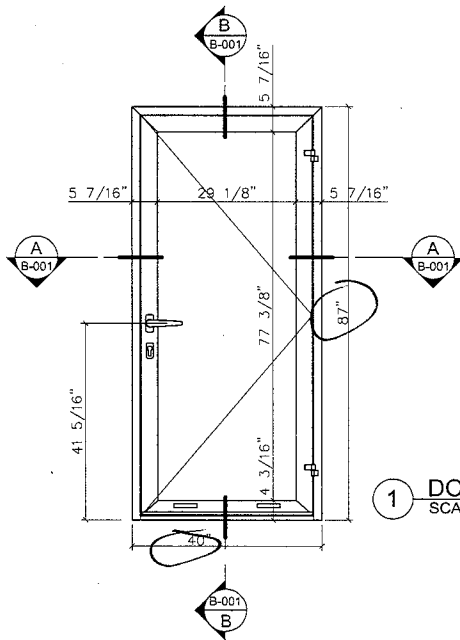
**SOUND TRANSMISSION LOSS**  
ASTM E 90

<b>Test Date</b>	04/22/14		
<b>ATI No.</b>	D0490.01		
<b>Client</b>	Alumin Techno		
<b>Specimen</b>	Series/Model: W62/OD, side-hinged single door system with 1" IG (1/4" tempered, 1/2" air space, 1/4" tempered)		
<b>Operator</b>	Kurt Golden		
<b>Sample Area</b>	2.25 m <sup>2</sup>		
<b>Filler Area</b>	10.75 m <sup>2</sup>		
	Source	Receive	Sample
<b>Temp C</b>	23	23	23
<b>RH %</b>	50	52	52



Note: To obtain the Sound Transmission Class (STC), read the Sound Transmission Loss of the contour curve at 500 Hz. The sum of the deficiencies below the contour curve cannot exceed 32. The maximum deficiency at any one frequency cannot exceed 8.

**Appendix C**  
**Design Drawings**

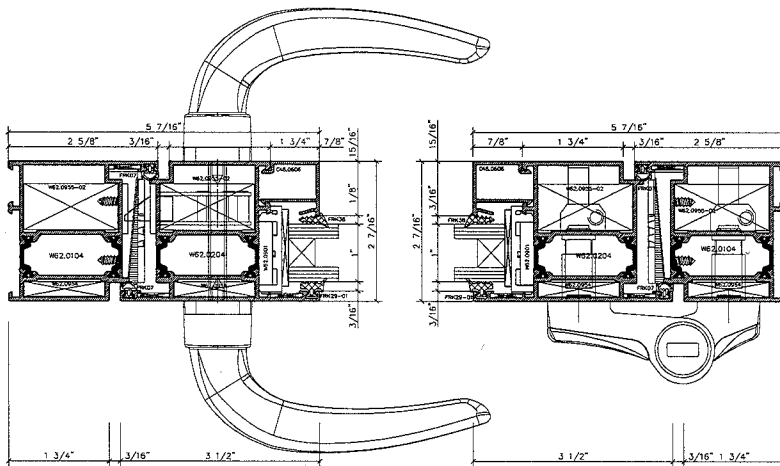


1 DOOR ELEVATION  
SCALE: 1/2" = 1'-0"

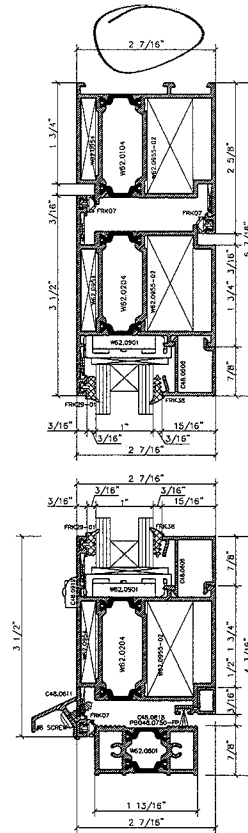


Test sample complies with these details.  
Deviations are noted.

Report# D0490.01-113-11  
Date 4/30/14 Tech K6.



2 SECTION A-A  
SCALE: 6" = 1'-0"



3 SECTION B-B  
SCALE: 6" = 1'-0"

CLIENT:  
**ALUTECH SRO**

PREPARED BY:  
**Professional Grade CONSTRUCTION GROUP INC**  
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DATE	REVISION	#

APPROVED  
DATE: 12/10/2013

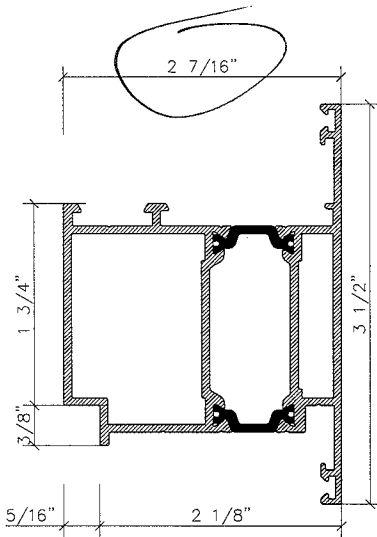
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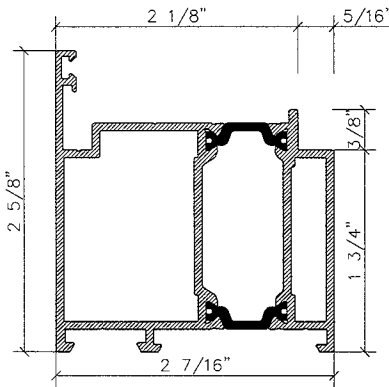
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CHECKED BY: AA  
DRAWING No: **B-001** SIZE: B

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ACOUSTIC TESTS SWING OUT DOOR  
01 OF 04



① THERMALLY BROKEN DOOR  
FRAME EXTRUSION W62.0204  
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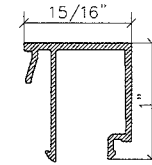


② THERMALLY BROKEN DOOR  
PANEL EXTRUSION W62.0104  
SCALE: 1'-0" = 1'-0"

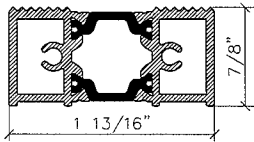


Test sample complies with these details.  
Deviations are noted.

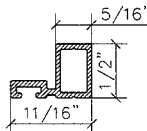
Report# D0490-01-113-11  
Date 4/30/14 Tech K6.



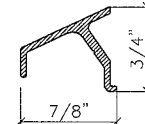
③ SNAP MOLDING  
EXTRUSION C48.0606  
SCALE: 1'-0" = 1'-0"



④ SADDLE EXTRUSION  
C48.0801  
SCALE: 1'-0" = 1'-0"



⑤ SWIPE HOLDER  
EXTRUSION C48.0618  
SCALE: 1'-0" = 1'-0"



⑥ WATER DEFLECTOR  
EXTRUSION C48.0611  
SCALE: 1'-0" = 1'-0"

CLIENT:  
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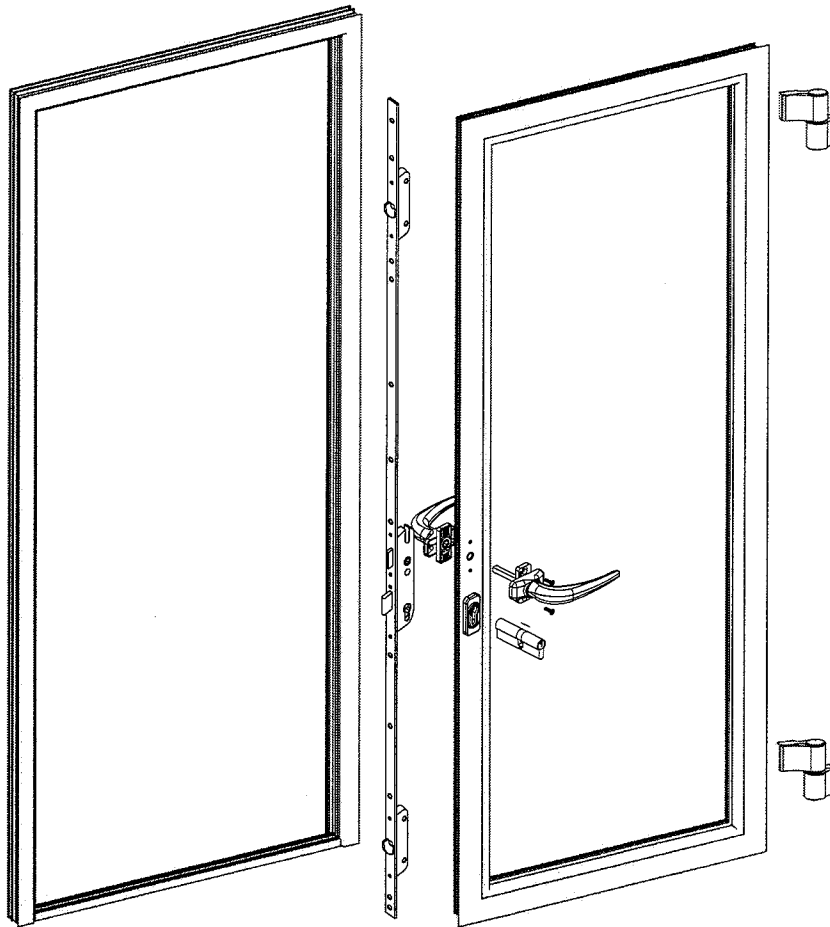
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**DOOR  
EXTRUSIONS**

DATE: 12.05.2013  
DRAWN BY: PS  
CHECKED BY: AA  
DRAWING No: **B-002** SIZE: B  
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COUNT - 8-28-14-04 02 OF 04





**Architectural Testing**

Test sample complies with these details.  
Deviations are noted.

Report# D0490-01-113-11

Date 4/30/14 Tech KG.

Illustration	Article	Description	Q-ty
	W62.0204	Door panel extrusion L= 36 1/8" L45°	2
	W62.0204	Door panel extrusion L= 84 3/8" L45°	2
	W62.0104	Frame extrusion L= 87" L45° on the top L90° on the bottom	2
	W62.0104	Frame extrusion L= 40" L45°	1
	IG unit	1" Insulated glass(1/4" CLTPx1/2"AlRx1/4"CL TP)30 1/8"x78 3/8"	1
	W62.0801	Saddle extrusion L= 35 1/4"	1
	C48.0818	Swipe holder extrusion L= 34 3/8"	1
	C48.0611	Water deflector L= 36 1/8"	1
	C48.0606	Snap molding 90° L= 30 3/4"	2
	C48.0606	Snap molding 90° L= 77 5/16"	2
	PB048.0750-FP	Weather stripping L = 40 3/8"	1
	FRK38	Rubber gasket L = 200"	1
	FRK 29-01	Rubber gasket L = 200"	1
	FRK07	Rubber gasket L = 400"	1
	W62.0901	Glass shim	4
	11213400	Glass shim 3 15/16"x1 1/4"x1/16"	4
	11213600	Glass shim 3 15/16"x1 1/4"x1/8"	4
	C48.0919	Decorative cover	2
	C48.0909	Swipe holder end cap	2
	W62.0902	Saddle fixator	2
	W62.0903	Saddle fixator	2
	W62.0954	Corner insert	6
	W62.0955-02	Corner insert	6
	W62.0957	Corner insert	10
	2051i	HORUS double handle HC-see lock installation instructions	1
	2100B	Cover plate	2
	7000V	LOIRA+hinge	2
	6-32958-03-0-1	Door lock with cylinder by Gretsch-Unitas GmbH	1
	2438	#8 1"Phillips flat head, zinc plated steel screw	5
	2482	#8 1/2"Phillips pan head, zinc plated steel screw	5
	2480	#8 3/8"Phillips pan head zinc plated steel screw	8

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**Appendix D**

**Photographs**



**Receive Room View of Installed Test Specimen**



**Source Room View of Installed Test Specimen**