



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

Rendered to:

PEMKO MANUFACTURING COMPANY, INC.

SERIES/MODEL: CC-130

TYPE: Side-Hinged Single Door System

Summary of Test Results			
Data File No.	Seal Description	STC	OITC
E0577.01B2	Operable Test: Pemko Seals, S773 and S44 one row head and jambs, PDB411 door bottom, ACP112 bottom corners	46	37
E0577.01B	Inoperable Test: Sealed with duct seal on both sides	47	37

Reference should be made to Architectural Testing, Inc. Report No. E0577.06-113-11 for complete test specimen description. The complete test results are listed in Appendix B.



ACOUSTICAL PERFORMANCE TEST REPORT

Rendered to:

PEMKO MANUFACTURING COMPANY, INC.
5535 Distribution Drive
Memphis, Tennessee 38141-8214

Report No:	E0577.06-113-11
Test Dates:	10/14/14
Report Date:	12/02/14
Record Retention End Date:	10/14/18

Test Sample Identification:

Series/Model: CC-130

Type: Side-Hinged Single Door System

Overall Leaf Size: 35-3/4" by 83-5/16"

Leaf Description: Wood Flush with Proprietary Core

Project Scope: Architectural Testing, Inc. was contracted by Pemko Manufacturing Company, Inc. to conduct sound transmission loss tests on a Series/Model CC-130, 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 tests were 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 these tests meets the requirements of ASTM E 90. The microphones were calibrated before conducting sound transmission loss tests. 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 specimens. The filler wall achieved an STC rating of 69.

The specimen plug was removed from the filler wall assembly. The door system was placed on a foam isolation pad in the test opening. Duct seal was used to seal the perimeter of the test specimen to the test opening on both sides. The interior side of the door 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 door leaf was opened and closed at least five times prior to testing.

Test Procedure: The door was closed and latched 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. One background noise sound pressure level and five sound absorption measurements were conducted at each of five microphone positions. Two sound pressure level measurements were made simultaneously in both rooms, at each of 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:

Door Construction:

		Main Frame
Size		40" by 88"
Thickness		6-3/4"
Stop		5/8"
Corners		Mitered
	Fasteners	Welds
	Seal Method	None
Material		16 Gauge steel
	Reinforcement	Mortar filled
Frame Weight		338 lbs

Leaf Description: The door leaf was a wood flush side-hinged single door. The weight of the door leaf was 124 lbs. Per the client's request, the contents of the door leaf are proprietary.

Sample Descriptions: (Continued)

Components:

TYPE	QUANTITY	LOCATION
Weatherstrip		
Pemko S773	1 Row	Head and jambs stop/face
Pemko S44	1 Row	Head and jambs rabbet
Pemko PDB411 door bottom	1	Bottom rail
Pemko ACP112	2	Frame bottom corners
Hardware		
Full mortise butt hinge	3	Hinge stile
Sargent 11 line lock	1	Lock stile
Drainage		
No drainage		

Comments: The design drawings (included in Appendix C) supplied by the client, accurately describe the Series/Model CC-130, side-hinged single door system. The dimensions on the drawings that are circled and/or checked were verified against the test specimen. The door was disassembled, and the components will be retained by Architectural Testing for four years. 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 CC-130, side-hinged single door system is listed below.

Summary of Test Results			
Data File No.	Seal Description	STC	OITC
E0577.01B2	Operable Test: Pemko Seals, S773 and S44 one row head and jambs, PDB411 door bottom, ACP112 bottom corners	46	37
E0577.01B	Inoperable Test: Sealed with duct seal on both sides	47	37

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.

This report does not constitute certification of this product nor an opinion or endorsement by this laboratory. It is the exclusive property of the client so named herein and relates only to the specimen tested. This report may not be reproduced, except in full, without the written approval of Architectural Testing.

For ARCHITECTURAL TESTING, INC:

Digitally Signed by: Daniel P. Platts

Daniel P. Platts
Senior Technician - Acoustical Testing

Digitally Signed by: Todd D. Kister

Todd D. Kister
Laboratory Supervisor - Acoustical Testing

DPP:jmc

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

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



Revision Log

<u>Rev. #</u>	<u>Date</u>	<u>Page(s)</u>	<u>Revision(s)</u>
0	12/02/14	N/A	Original Report Issue



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Appendix A

Instrumentation

Instrument	Manufacturer	Model	ATI Number	Date of Calibration
Data Acquisition Unit	National Instruments	PXI-1033	65217	04/14
Source Room Microphone	PCB Piezotronics	378B20	64902	11/13
Source Room Microphone	PCB Piezotronics	378B20	64903	11/13
Source Room Microphone	PCB Piezotronics	378B20	65103	05/14
Source Room Microphone	PCB Piezotronics	378B20	64905	11/13
Source Room Microphone	PCB Piezotronics	378B20	64906	11/13
Receive Room Microphone	PCB Piezotronics	378B20	64907	11/13
Receive Room Microphone	PCB Piezotronics	378B20	64908	11/13
Receive Room Microphone	PCB Piezotronics	378B20	64909	11/13
Receive Room Microphone	PCB Piezotronics	378B20	64910	11/13
Receive Room Microphone	PCB Piezotronics	378B20	64911	11/13
Receive Room Environmental Indicator	Vaisala	HMW92	64286	06/14
Source Room Environmental Indicator	Vaisala	HMY60Y	Y002653	06/14
Microphone Calibrator	Norsonic	1251	65105	04/14

Test Chambers

HT Receive Room Volume	234 m ³
HT Source Room Volume	190 m ³



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Appendix B
Complete Test Results



AIRBORNE SOUND TRANSMISSION LOSS
ASTM E 90

Test Date	10/14/14
Data File No.	E0577.01B2
Client	Pemko Manufacturing Company, Inc.
Description	Series/Model: CC-130, side-hinged single door system, with Pemko Seals S773 and S44 one row head and jambs, PDB411 door bottom, ACP112 bottom corners (operable)
Specimen Area	2.27 m ²
Technician	Daniel P. Platts

Freq (Hz)	Background SPL (dB)	Absorption (m ²)	Source SPL (dB)	Receive SPL (dB)	Specimen TL (dB)	95% Confidence Limit	Number of Deficiencies
80	38.7	4.4	105	77	25.7	2.30	-
100	35.5	4.9	105	77	26.1	1.71	-
125	38.6	4.9	106	78	25.8	1.64	4
160	40.5	4.8	106	73	30.3	0.78	3
200	39.9	4.6	105	67	35.9	0.62	0
250	34.8	5.0	106	63	39.5	0.60	0
315	28.2	5.2	101	58	39.7	0.48	2
400	24.8	5.4	100	54	42.8	0.49	2
500	22.2	5.7	99	51	43.9	0.16	2
630	20.2	5.5	101	53	44.9	0.52	2
800	19.2	5.8	101	51	45.9	0.35	2
1000	16.6	6.0	100	49	46.3	0.17	3
1250	14.4	6.7	97	45	47.2	0.28	3
1600	10.8	7.0	101	49	47.1	0.35	3
2000	7.5	7.3	99	47	47.1	0.24	3
2500	6.0	8.1	98	44	48.4	0.16	2
3150	5.7	9.7	98	43	48.8	0.11	1
4000	5.9	11.6	98	40	50.0	0.13	0
5000	6.2	14.7	96	37	50.4	0.32	-

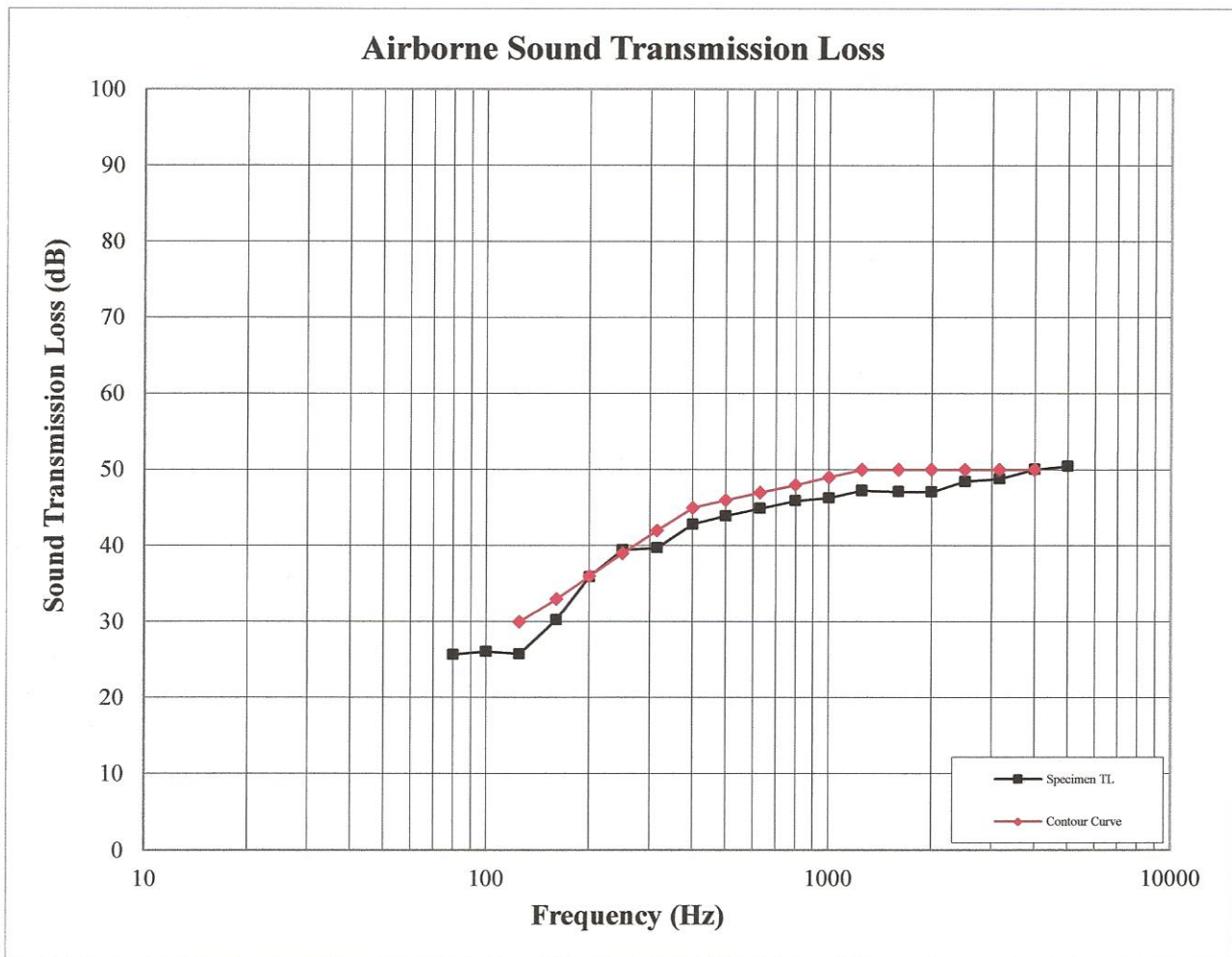
STC Rating	46	(Sound Transmission Class)
Deficiencies	32	(Sum of Deficiencies)
OITC Rating	37	(Outdoor-Indoor Transmission Class)

Notes: 1) Receive Room levels less than 5 dB above the Background levels are highlighted in yellow.
2) Specimen TL levels listed in red indicate the lower limit of the transmission loss.
3) Specimen TL levels listed in green indicate that there has been a filler wall correction applied



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Specimen Area	2.27 m ²
Technician	Daniel P. Platts





AIRBORNE SOUND TRANSMISSION LOSS
ASTM E 90

Test Date	10/14/14
Data File No.	E0577.01B
Client	Pemko Manufacturing Company, Inc.
Description	Series/Model: CC-130, side-hinged single door system, sealed with duct seal on both sides (inoperable)
Specimen Area	2.27 m ²
Technician	Daniel P. Platts

Freq (Hz)	Background SPL (dB)	Absorption (m ²)	Source SPL (dB)	Receive SPL (dB)	Specimen TL (dB)	95% Confidence Limit	Number of Deficiencies
80	36.9	5.3	105	75	27.6	1.96	-
100	36.4	5.8	106	76	27.0	1.76	-
125	39.5	4.9	106	77	26.5	1.22	5
160	41.6	4.6	106	73	29.8	0.84	4
200	40.0	4.5	105	66	36.7	0.57	0
250	35.3	5.0	106	61	41.6	0.61	0
315	28.9	5.3	101	55	42.5	0.59	1
400	25.9	5.4	100	51	45.3	0.46	1
500	22.8	5.7	99	50	45.4	0.24	2
630	20.0	5.5	102	52	46.3	0.50	2
800	16.6	5.8	101	51	46.7	0.35	2
1000	13.4	6.1	100	48	47.5	0.17	3
1250	12.0	6.7	98	44	49.3	0.27	2
1600	12.2	7.0	101	47	49.0	0.35	2
2000	13.2	7.3	99	45	49.5	0.21	1
2500	8.8	8.1	98	42	51.0	0.20	0
3150	9.0	9.5	99	40	52.0	0.13	0
4000	7.5	11.3	98	37	53.6	0.17	0
5000	7.3	14.1	96	34	54.3	0.35	-

STC Rating	47	(Sound Transmission Class)
Deficiencies	25	(Sum of Deficiencies)
OITC Rating	37	(Outdoor-Indoor Transmission Class)

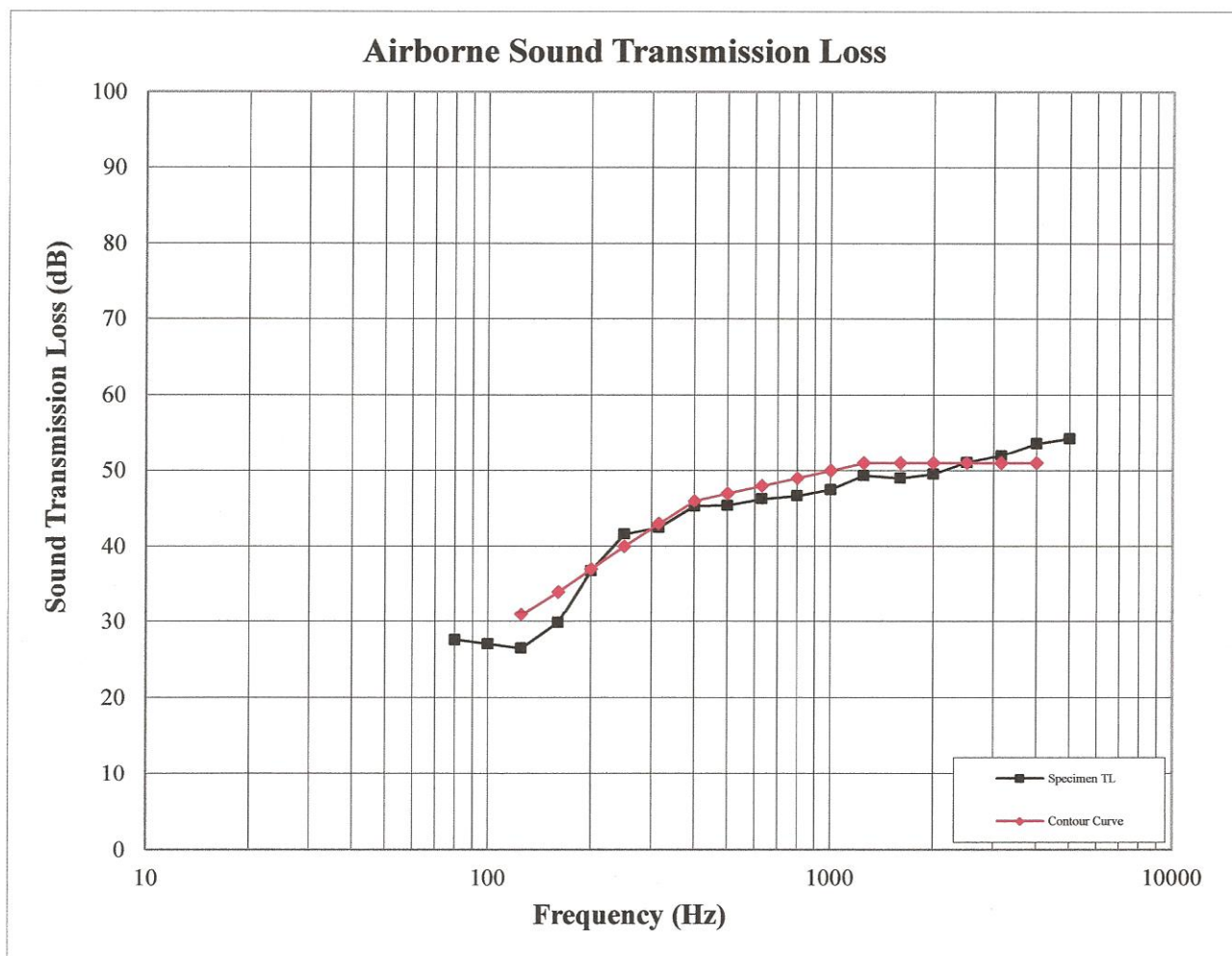
Notes:

- 1) Receive Room levels less than 5 dB above the Background levels are highlighted in yellow.
- 2) Specimen TL levels listed in red indicate the lower limit of the transmission loss.
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AIRBORNE SOUND TRANSMISSION LOSS
ASTM E 90

Test Date	10/14/14
Data File No.	E0577.01B
Client	Pemko Manufacturing Company, Inc.
Description	Series/Model: CC-130, side-hinged single door system, sealed with duct seal on both sides (inoperable)
Specimen Area	2.27 m ²
Technician	Daniel P. Platts

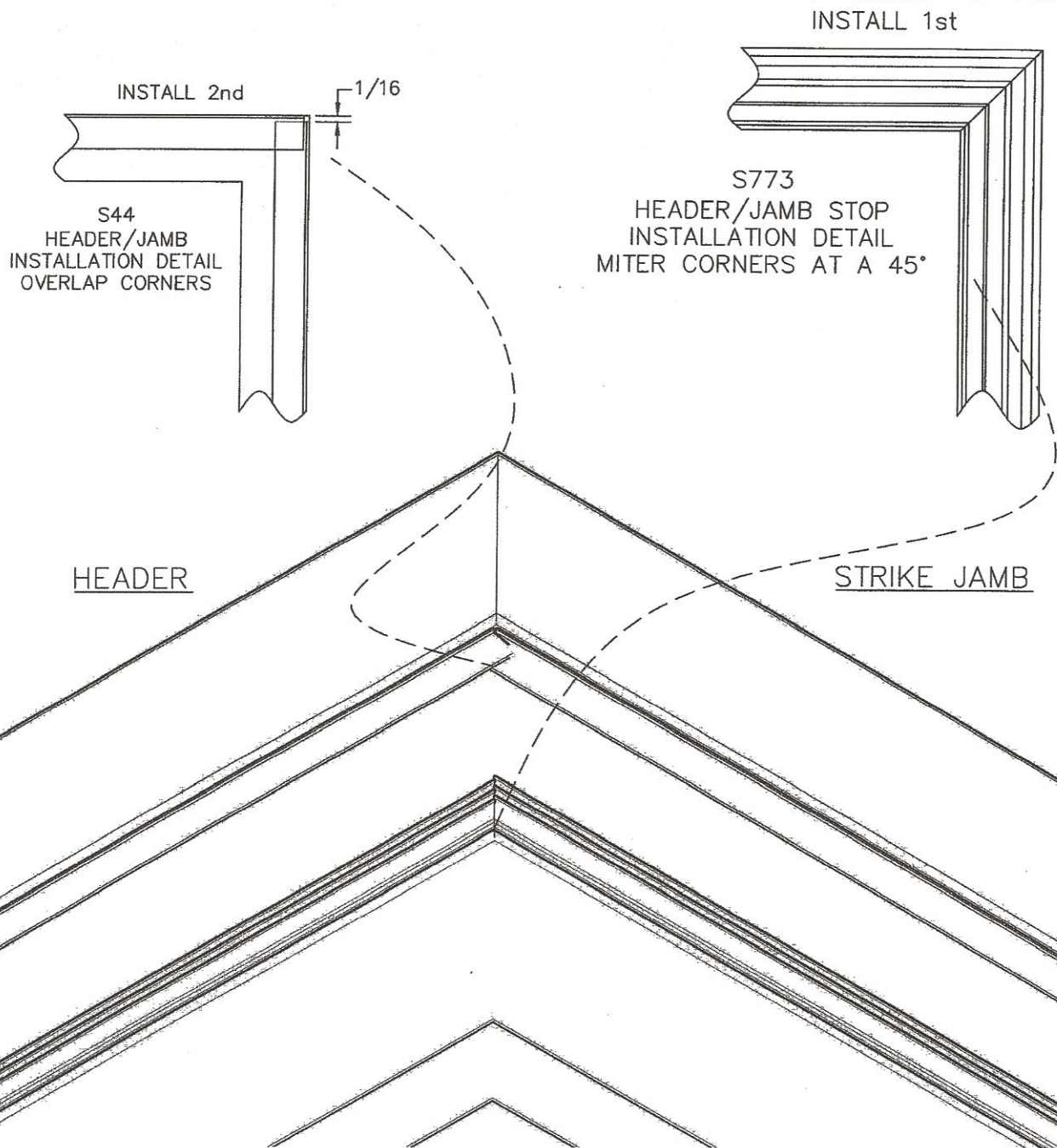




E0577.06-113-11

Appendix C
Design Drawings

SEAL INSTALLATION DIAGRAM (PEMKO/STC SEAL SET - TEST E0577.01-B2)



Architectural Testing

Test sample complies with these details.
Deviations are noted.

Report# E0577.06
Date 11/10/14 Tech DGP

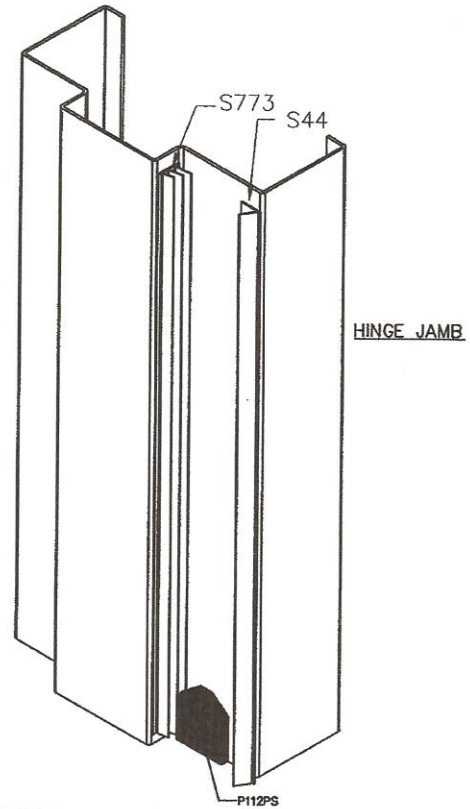
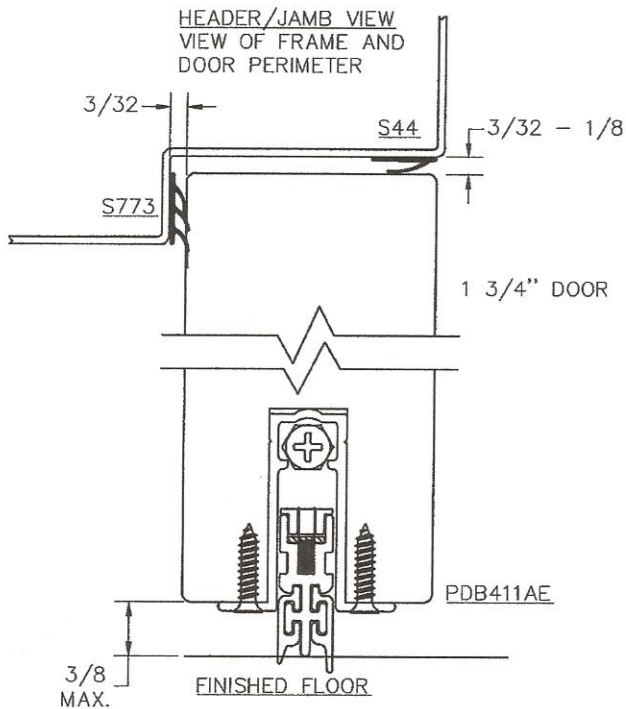
PEMKO Manufacturing Company

Manufacturer reserves the right to make changes without formal notice.

PEMKO/STC SEAL SET - TEST E0577.01-B2

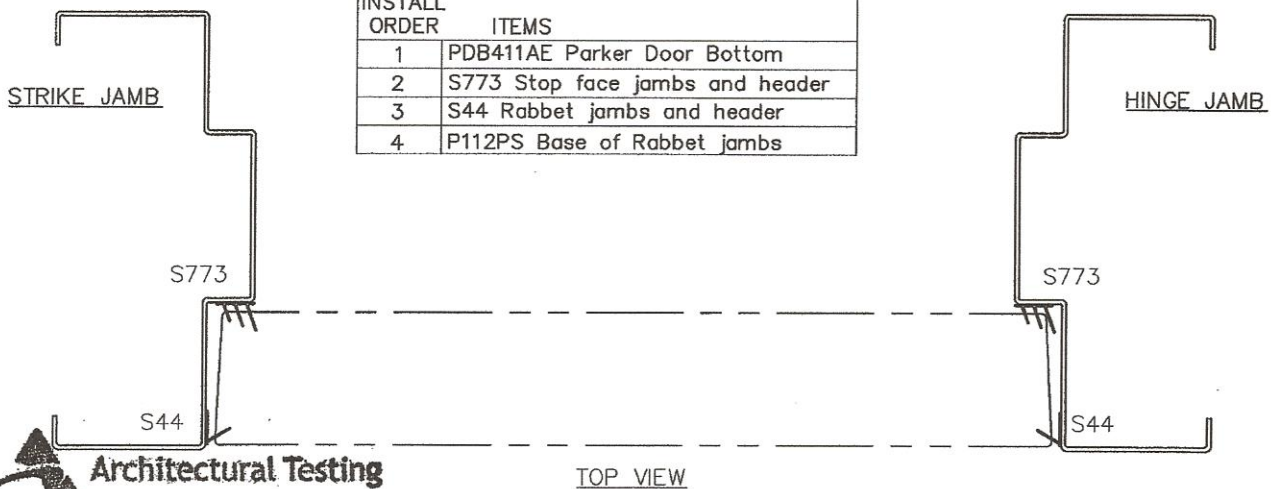
SYSTEM DETAIL OF AN ACOUSTICAL SEAL SET FOR DOOR & FRAME

Effective Date: October 2014



DO NOT SCALE

LIST OF MATERIALS	
INSTALL ORDER	ITEMS
1	PDB411AE Parker Door Bottom
2	S773 Stop face jambs and header
3	S44 Rabbet jambs and header
4	P112PS Base of Rabbet jambs



Architectural Testing

TOP VIEW

Test sample complies with these details.
Deviations are noted.

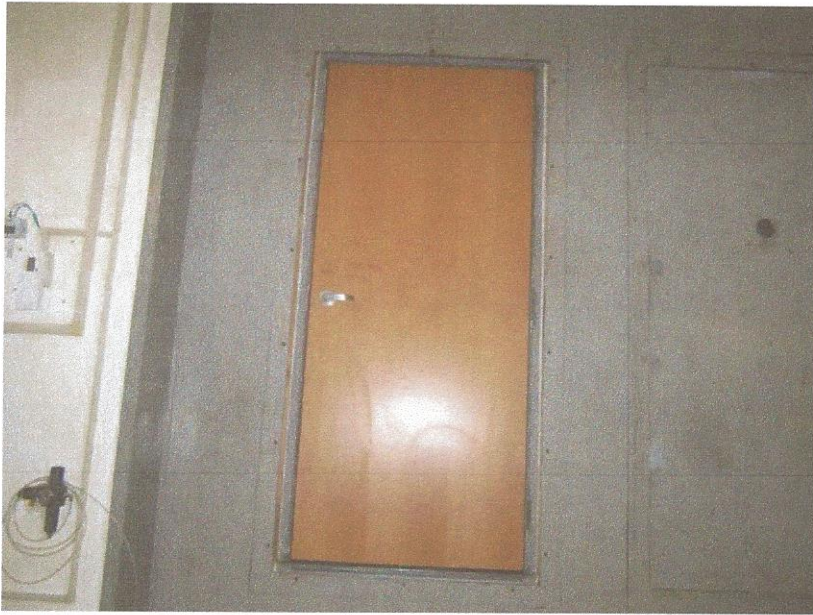
PAGE 1 OF 2

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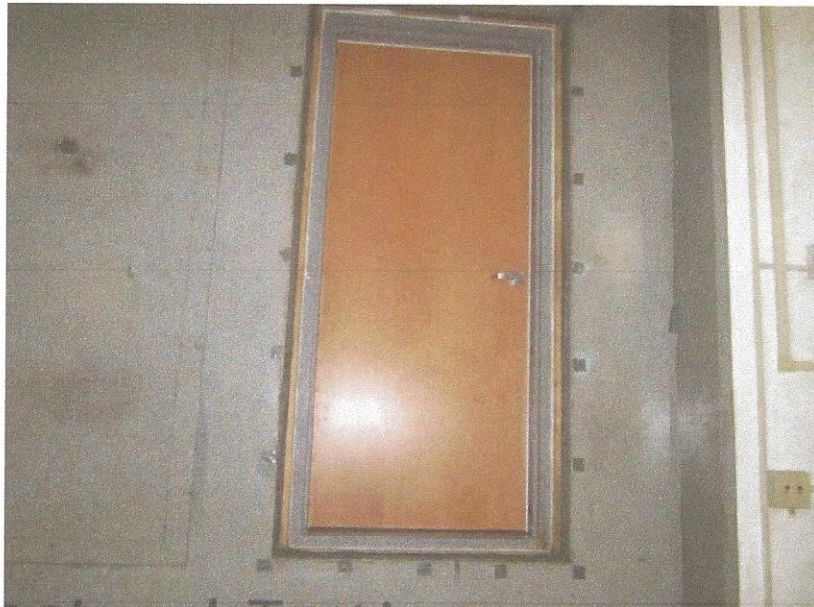
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Date 11/10/14 Tech DFP

Appendix D

Photographs



Receive Room View of Installed Specimen



Source Room View of Installed Specimen