

## ACOUSTICAL TEST REPORT

## Rendered to:

FABRI TRAK SYSTEMS, INC.

TYPE Base Wall, Wall Partition and Fabri Block with a Fabri Trak System

Report No: 01-47632.01
Test Date: 10/23/03
Report Date: 11/05/03
Expiration Date: 10/23/07

130 Derry Court York, PA 17402-9405 phone: 717.764.7700 fax: 717.764.4129 www.archtest.com



## ACOUSTICAL TEST REPORT

#### Rendered to:

FABRI TRAK SYSTEMS, INC. 11 Russell Avenue South River, New Jersey 08882

> Report No: 01-47632.01 10/23/03 Test Date: Report Date: 11/05/03

Expiration Date:

10/23/07

## Test Sample Identification:

Type: Base Wall, Wall Partition and Fabri Block with a Fabri Trak System

Overall Size: 8' x 8'

Project Summary: Architectural Testing, Inc. (ATI) was contracted by FABRI TRAK SYSTEMS, INC. to conduct a transmission loss and sound absorption test on a Base Wall, Wall Partition and Fabri Block with a Fabri Trak 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.

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

ASTM E 90-02, Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions.

ASTM E 413-87 (Re-approved 1999), Classification for Rating Sound Insulation.

ASTM E 1332-90 (Re-approved 1998), Standard Classification for Determination of Outdoor-Indoor Transmission Class.

ASTM C 423-02, Standard Test Method for Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method.

ASTM E 795-00, Standard Practices for Mounting Test Specimens During Sound Absorption Tests.



**Test Equipment**: The equipment, used to conduct these tests, meets the requirements of ASTM E 90-02 and ASTM C 423-02. The microphones were calibrated before conducting the sound transmission loss and sound absorption tests. The test equipment and test chamber descriptions are listed in Appendix A.

## Test Procedure for Transmission Loss:

Sound transmission loss tests were initially performed on a filler wall consisting of a double stud wall constructed with 2" x 4" wood studs spaced 16" on center. Two layers of 5/8" type "X" Gypsum board were fastened to the source side of the filler wall. Two layers of 5/8" type "X" Gypsum board were fastened to the receive side of the filler wall. The cavity was filled with R-19 fiberglass insulation. The perimeter and seams were sealed with acoustical sealant. A sound transmission loss test was then conducted on the filler wall. The filler wall achieved an STC rating of 61. The filler wall plug was removed. The test specimen was installed and sealed on both sides with duct seal. The interior face of the sample, 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 before the test.

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.

## Test Procedure for Sound Absorption:

The sound absorption of the reverberation chamber was measured before the test specimen was installed. This measurement shall be referred to as the empty room test. For the Type "A" mounting, the test specimen was installed vertically inside the filler wall opening with the fabric faced side exposed to the sound field. The perimeter of the sample was sealed to the wall surface with duct seal. The sound absorption test was then re-run. The absorption measurement with the specimen inside the chamber shall be referred to as the full room test.

For the empty and full room tests, ten decay measurements were conducted at each of the five microphone positions. The sound absorption test was conducted at 1/3 octave band frequencies ranging from 80 to 5000 hertz. The air temperature and relative humidity conditions were monitored and recorded during the empty and full room measurements.



## Sample Description:

The base wall partition was constructed with 3-5/8", 24 gauge galvanized metal track and studs on 16" centers. Each side was covered with one layer of 1/2" drywall, screwed, spackled, and taped. The surface received one coat of primer. The total weight of the base wall, base line wall partition was 224.0 lbs.

The Fabri Block Vinyl was adhered to the receive side drywall using contact adhesive. The seams were butted and caulked.

The Fabri Trak had a 1" profile and was stapled to the vinyl surface penetrating the wall. A perimeter load track was installed around the wall and a mid-wall track was installed vertically at the center point of the wall creating two 4' wide x 8' high panels, minus a 4" space at the floor where a vinyl cove base is installed with a cove base adhesive to the Fabri Block. A layer of 6 lbs density fiberglass was installed with staples to the vinyl backer. FR 701 Fabric was then stretched and installed into the top load track system.

The sample test set-up was photographed with a digital camera and the pictures are included in Appendix C.

**Comments**: The area used for calculating transmission loss and sound absorption was 64.0 sq/ft., which was the entire system. Sound absorption test results for the absorptive area only (61.33 sq/ft) were also calculated. The total weight of the sample was 335.0 lbs. The client did not supply drawings on the Base Wall, Wall Partition and Fabri Block with a Fabri Trak System. The specimen was returned per client's request.

Test Results: A summary of the sound absorption tests are listed below:

## Sound Absorption:

Sample ID Number and	1/3 Octave Band Absorption Coefficients					NRC	SAA	
Sample Description	125	250	500	1000	2000	4000	1110	
01-47630.01A Base Wall, Base Line Wall Partition	0.23	0.04	0.03	0.03	0.06	0.06	0.05	0.06
01-47632.01A Base Wall, Wall Partition and Fabri Block with a Fabri Trak System. (64 sq/ft)	0.17	0.23	0.67	0.96	1.04	1.01	0.70	0.71
01-47632.01A1 Base Wall, Wall Partition and Fabri Block with a Fabri Trak System. (61.33 sq/ft)	0.18	0.24	0.70	1.00	1.08	1.05	0.75	0.74



Test Results: A summary of the sound absorption tests are listed below:

## Sound Transmission Loss:

ATI Job File No.	Sample Description	STC	OITC
01-47630.01A	Base Wall, Base Line Wall Partition	37	24
01-47632.01B	Base Wall, Wall Partition and Fabri Block with a Fabri Trak System.	43	29

The complete test results are listed in Appendix B.

This report is prepared for the convenience of our customer and endeavors to provide accurate and timely project information. It contains a summary of observations made by a qualified representative of Architectural Testing, Inc. The results of this report apply only to the specimen that was tested. The statements made herein do not constitute approval, disapproval, certification or acceptance of performance or materials.

A copy of this report will be retained by ATI for a period of four years. This report is the exclusive property of the client so named herein. This report shall not be reproduced, except in full, without written approval by Architectural Testing, Inc.

For ARCHITECTURAL TESTING, INC:

Kurt A. Golden

Technician - Acoustical Testing

Digitally Signed by: Todd D. Kister

Tost D. Ristn

Todd D. Kister

Laboratory Supervisor - Acoustical Testing

KAG:vlm 01-47632.01





## DOCUMENT CONTROL ADDENDUM #01-47632.00

Current Issue Date: 11/05/03

Report No.: 01-47632.01

Requested by: Buzz Wilson, FABRI TRAK SYSTEMS, INC.

Purpose: Sound transmission loss and sound absorption test report on a Base Wall,

Wall Partition and Fabri Block with a Fabri Trak System.

**Issued Date:** 11/05/03

Comments:



## Appendix A

## Instrumentation:

Instrument	Manufacturer	Model	Description	ATI Number
Analyzer	Agilent Technologies	35670A	Dynamic signal analyzer	Y002929
Receive Room Microphone	ACO Pacific	7047	1/2", pressure type, condenser microphone	Y001775
Source Room Microphone	ACO Pacific	7047	1/2", pressure type, condenser microphone	Y002757
Receive Room Preamp	ACO Pacific	4012	1/2" preamplifier	Y002185
Source Room Preamp	ACO Pacific	4012	1/2" preamplifier	Y002756
Microphone Calibrator	Bruel & Kjaer	4228	Pistonphone calibrator	Y002186
Noise Source	Delta Electronics	SNG-1	Two, non-coherelated "Pink" noise signals	Y002181
Equalizer	Rane	RPE228	Programmable EQ	Y002180
Power Amplifiers	Renkus-Heinz	P2000	2 - Amplifiers	Y002179 Y001779
Receive Room Loudspeakers	Renkus-Heinz	Trap Jr/9"	2 - Loudspeakers	Y001784 Y001785
Source Room Loudspeakers	Renkus-Heinz	Trap Jr/9"	2 - Loudspeakers	Y002649 Y002650

## Test Chamber:

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

	Maximum Size	Description						
TL Test Opening	14 ft wide by 10 ft high	Vibration break between source and receive rooms.						



# Appendix B Complete Sound Absorption Test Results



## SOUND ABSORPTION ASTM C423

Architectural Testing

ATI No. 01-47630.01A

Client Artistic Wall Solutions

Specimen Base Wall, base line wall partition

Specimen Area 64.00 Sq Ft Mounting Type A Wall mount

Operator Kurt A. Golden

Empty Room Full Room

Date 22-Oct-03 22-Oct-03

 Temp F
 70.2
 70.1

 RH %
 66.1
 65.3

RH %	66.1		65.3				
	<b>Empty Room</b>		Full Room		Absorption		
Freq		Uncert	Absorption	Uncert	Coefficient	Uncertainty	
(Hz)	i - 1		(Sabines)		(Sabines/Sq.Ft.)		
50		0.158	44.23	0.392	0.04	0.007	
63	l I	0.441	52.31	0.282	0.18	0.008	
80		0.005	52.59	1.040	0.18	0.016	
100		0.155	55.84	0.465	0.13	0.008	
125	1	0.308	59.60	0.121	0.23	0.005	
160		0.311	53.57	0.244	0.15	0.006	
200	1	0.191	54.45	0.140	0.11	0.004	
250		0.083	49.30	0.034	0.04	0.001	
315	1	0.073	50.23	0.350	0.06	0.006	
400		0.139	52.93	0.012	0.06	0.002	
500		0.003	50.56	0.057	0.03	0.001	
630		0.058	52.76	0.081	0.06	0.002	
800	1	0.094	55.73	0.032	0.03	0.002	
1000	l .	0.048	59.85	0.171	0.03	0.003	
1250	1	0.073	66.24	0.075	0.04	0.002	
1600	1	0.084	70.86	0.032	0.05	0.001	
2000		0.132	76.83	0.148	0.06	0.003	
2500	1	0.051	90.94	0.046	0.09	0.001	
3150	1	0.140	110.87	0.073	0.09	0.002	
4000	I .	0.155	134.26	0.458	0.06	0.008	
5000		0.050	176.96	0.138	0.10	0.002	
6300	1	0.019	232.94	0.259	0.11	0.004	
8000	3	0.023	312.69	0.156	0.08	0.002	
10000	•		<u> </u>	<u> </u>	<u></u>	<u> </u>	
Excest NE	C Pating	0.042					

Exact NRC Rating 0.042 Exact SAA Rating 0.056

NRC Rating 0.05 SAA Rating 0.06



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ATI No.

01-47630.01A

Date

10/22/2003

Client

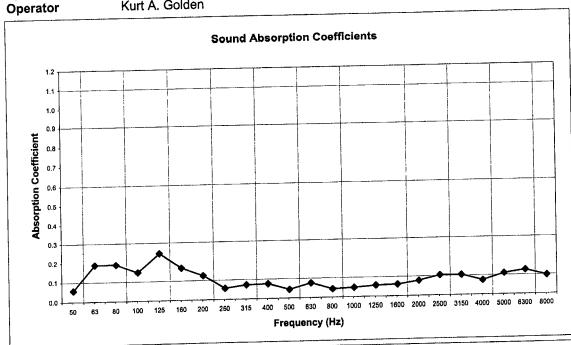
Artistic Wall Solutions Base Wall, base line wall partition

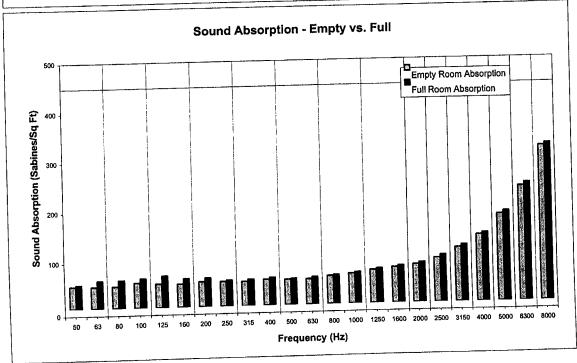
Specimen Specimen Area

64.00 Sq Ft

Mounting Type A Wall mount

Kurt A. Golden







#### SOUND ABSORPTION ASTM C423

Architectural Testing

ATI No.

01-47632.01A

Client

FABRI TRAK SYSTEMS, INC.

Specimen

Base Wall, wall partition Fabri Block and 1" Fabri Trak System rec side

Specimen Area

64.00 Sq Ft

Mounting Type A

Operator

Kurt A. Golden

Date

Empty Room 23-Oct-03 Full Room 23-Oct-03

Temp F

69.6

69.6 66.5

remb L	09.0		00.5			
RH %	66.5		66.5		Absorption	
	Empty Room		Full Room	11		Uncertainty
Freq	Absorption	Uncert	Absorption	Uncert	Coefficient	Unicertainty
(Hz)	(Sabines)		(Sabines)		(Sabines/Sq.Ft.)	0.007
50	39.38	0.149	44.04	0.439	0.07	0.007
63	41.64	0.213	52.28	0.226	0.17	0.005
80	44.64	0.030	51.97	0.227	0.11	0.004
100	45.93	0.417	60.21	0.104	0.22	0.007
125		0.358	53.03	0.726	0.17	0.013
160		0.108	52.23	0.013	0.16	0.002
200		0.025	57.08	0.383	0.16	0.006
250		0.006	60.88	0.443	0.23	0.007
315	1	0.020	68.66	0.024	0.33	0.000
400	1	0.275	81.83	0.135	0.52	0.005
500		0.177	90.72	0.220	0.67	0.004
630		0.082	96.40	0.101	0.73	0.002
800		0.024	108.49	0.201	0.88	0.003
1000	l I	0.152	117.23	0.346	0.96	0.006
1250	1	0.101	126.65	0.297	0.99	0.005
1600	l .	0.063	130.71	0.061	0.98	0.001
2000		0.167	138.90	0.133	1.04	0.003
2500	1	0.014	149.31	0.339	0.99	0.005
3150	ı	0.084	170.67	0.425	1.03	0.007
4000		0.242	193.66	0.367	1.01	0.007
5000		0.037	236.22	0.135	1.03	0.002
6300	· <b>L</b>	0.019	292.98	0.140	1.05	0.002
8000	1	0.663	366.65	0.125	0.96	0.011
10000		1		l		
Evact NE		0.725	<u> </u>	<u> </u>		

Exact NRC Rating Exact SAA Rating 0.725 0.705

NRC Rating SAA Rating

0.70 0.71

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ATI No.

01-47632.01A

Date

10/23/2003

Client Specimen FABRI TRAK SYSTEMS, INC.

Specimen
Specimen Area

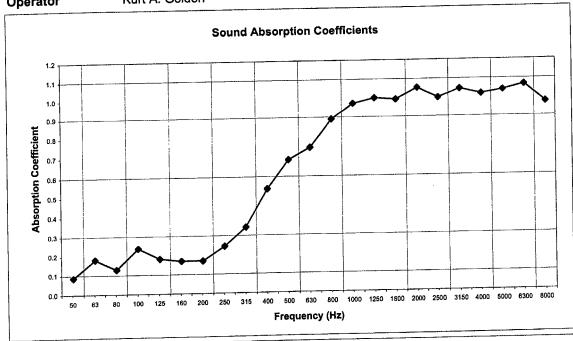
Base Wall, wall partition Fabri Block and 1" Fabri Trak System rec side

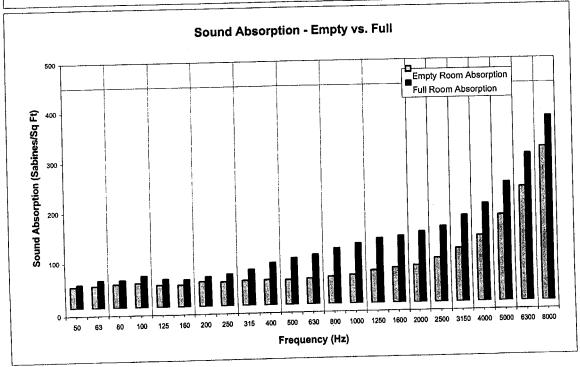
64.00 Sq Ft

Mounting Type A

Operator

Kurt A. Golden







## **SOUND ABSORPTION** ASTM C423

Architectural Testing

ATI No.

01-47632.01A1

Client

FABRI TRAK SYSTEMS, INC.

Specimen

Base Wall, wall partition Fabri Block and 1" Fabri Trak System rec side

Specimen Area

61.33 Sq Ft

Mounting Type A

Operator

Kurt A. Golden

**Empty Room** 

Full Room

Date

23-Oct-03

23-Oct-03

Temp F

69.6

69.6

66.5 RH %

66.5

Empty Room			Full Room		Absorption	
Freq	Absorption	Uncert	Absorption	Uncert	Coefficient	Uncertainty
(Hz)	(Sabines)		(Sabines)		(Sabines/Sq.Ft.)	
50	39.38	0.149	44.04	0.439	0.08	0.008
63	41.64	0.213	52.28	0.226	0.17	0.005
80	44.64	0.030	51.97	0.227	0.12	0.004
100		0.417	60.21	0.104	0.23	0.007
125		0.358	53.03	0.726	0.18	0.013
160		0.108	52.23	0.013	0.16	0.002
200		0.025	57.08	0.383	0.16	0.006
250		0.006	60.88	0.443	0.24	0.007
315		0.020	68.66	0.024	0.34	0.001
400	1	0.275	81.83	0.135	0.54	0.005
500	ł .	0.177	90.72	0.220	0.70	0.005
630	1	0.082	96.40	0.101	0.76	0.002
800		0.024	108.49	0.201	0.91	0.003
1000		0.152	117.23	0.346	1.00	0.006
1250	1	0.101	126.65	0.297	1.03	0.005
1600	E .	0.063	130.71	0.061	1.02	0.001
2000	1	0.167	138.90	0.133	1.08	0.003
2500	1	0.014	149.31	0.339	1.03	0.006
3150		0.084	170.67	0.425	1.08	0.007
4000		0.242	193.66	0.367	1.05	0.007
5000	1	0.037	236.22	0.135	1.07	0.002
6300		0.019	292.98	0.140	1.10	0.002
8000		0.663	366.65	0.125	1.00	0.011
10000		}		<u></u>	<u> </u>	<u> </u>
	C Rating	0.756				
		0.706				

**Exact SAA Rating** 

0.736

**NRC Rating SAA Rating**  0.75 0.74

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ATI No.

01-47632.01A1

Date

10/23/03

Client Specimen FABRI TRAK SYSTEMS, INC.

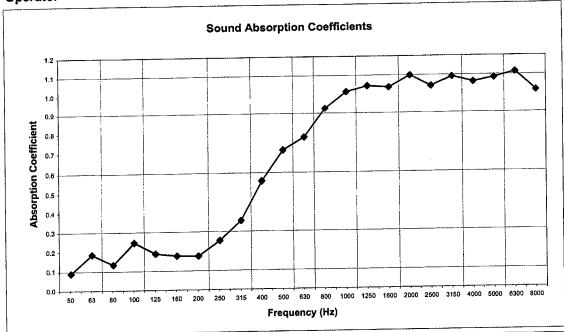
61.33 Sq Ft

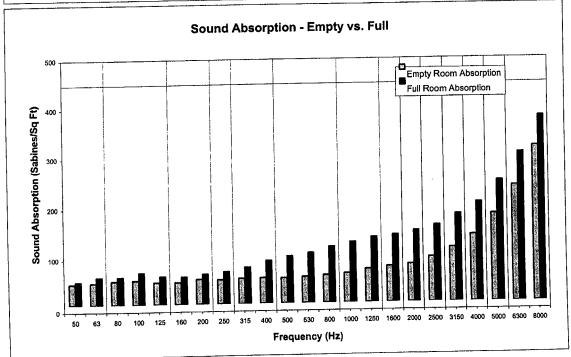
Base Wall, wall partition Fabri Block and 1" Fabri Trak System rec side

Specimen Area

Mounting Type A

Kurt A. Golden Operator







## SOUND TRANSMISSION LOSS

ASTM E90

10/23/03

Date

Architectural Testing

ATI No.

01-47632.01B

Client

FABRI TRAK SYSTEMS, INC.

Specimen

Base Wall, wall partition with Fabri Block with a 1" Fabri Track System on receive side

Specimen Area

64.00 Sq Ft 76.00 Sq Ft

Filler Area Operator

Kurt A. Golden

	Bkard	Absorp	Source	Receive	Filler	Specimen
Temp F	70.0	69.7	70.0	69.6	81.3	69.8
RH %	64.8	65.1	64.9	65.2	58.5	65.0

Evan	Bkgrd SPL	Absorp (Sabines	Source SPL	Receive SPL	Filler TL	Specimen TL	95% Conf	No. of Defici-	Trans Coef
Freq (Hz)	(dB)	/Sq Ft)	(dB)	(dB)	(dB)	(dB)	Limit	encies	Diff
80	38.9	51.3	95.5	81.1	31.6	15	2.94	0	15.4
100	42.2	60.1	94.3	79.5	38.1	15	3.09	0	22.2
125	38.9	54.1	97.1	77.0	41.6	21	3.21	6	20.1
160	45.1	57.2	98.3	75.3	43.1	24	1.52	6	18.8
200	43.6	57.8	101.1	71.6	44.9	30	1.00	3	14.3
250	34.8	62.2	101.5	71.3	47.2	30	0.74	6	16.1
315	32.7	70.4	100.2	64.6	51.9	35	1.31	4	16.0
400	30.9	85.9	100.1	59.0	54.8	40	0.61	2	14.2
500	27.2	91.7	101.2	53.9	59.6	46	0.35	0	13.1
630	21.8	97.5	102.5	51.3	62.8	50	0.46	0	12.7
800	22.0	111.8	103.3	46.9	66.0	54	0.32	0	11.3
1000	19.8	116.2	103.3	44.5	69.6	56	0.37	0	12.6
1250	19.4	129.7	105.3	43.5	72.6	59	0.29	0	13.1
1600	15.6	130.4	110.3	46.9	71.2	61	0.53	0	10.2
2000	15.2	137.9	107.0	43.0	68.0	62	0.39	0	6.7
2500	10.9	149.8	105.3	41.6	67.8	61	0.28	0	7.0
3150	9.0	168.3	105.6	40.9	73.6	61	0.46	0	12.3
4000	1	193.8	104.4	36.3	79.0	63	0.43	0	15.0
5000		241.8	102.6	30.0	82.4	67	0.68	0	14.8

STC Rating

43 (Sound Transmission Class)

Deficiencies

27 (Number of deficiencies versus contour curve)

**OITC Rating** 

29 (Outdoor/Indoor Transmission Class)



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ATI No.

01-47632.01B

Date

10/23/03

Client

FABRI TRAK SYSTEMS, INC.

Specimen

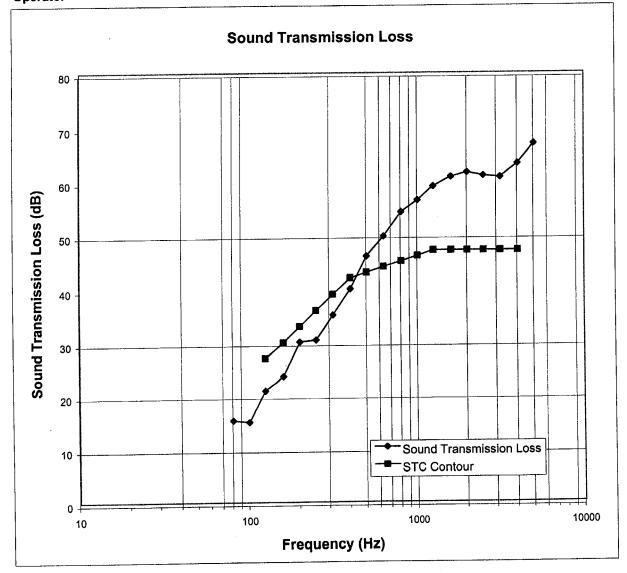
Base Wall, wall partition with Fabri Block with a 1" Fabri Track System on receive side

Specimen Area

64.00 Sq Ft 76.00 Sq Ft

Filler Area Operator

Kurt A. Golden

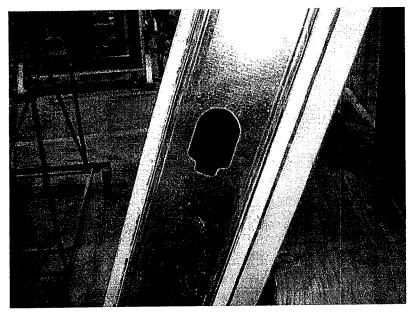




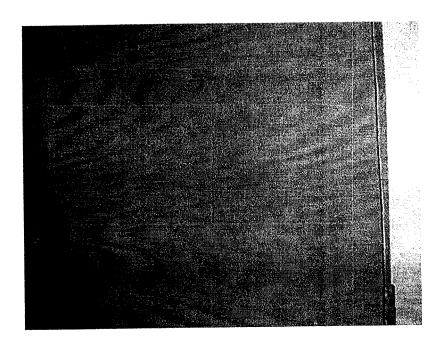
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Appendix C
Photographs

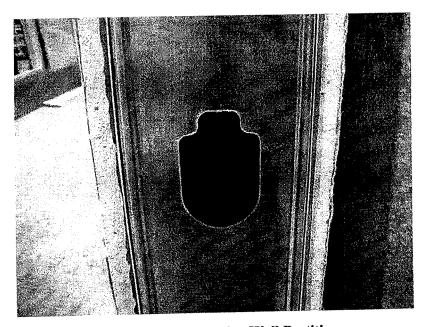


**Side View of Sample** 



Receive Side of Sample





Side View of the Base Line Wall Partition