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SOUND TRANSMISSION TESTING CONDUCTED ON A WB EXT 1350 Ultra Series Access Door

The Williams Brothers Corp. of America
1330 Progress Drive
Front Royal, VA 22630

Date:	February 12, 2025
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Report Number:	ESP042978P-4

ACCREDITED
TESTING CERT #98.03

Ear Controlled Data

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Sound Transmission Class Testing (ASTM E90)

INTRODUCTION:

This report presents results of acoustical testing of a WB EXT 1350 Ultra Series Access Door. This testing was requested by The Williams Brothers Corporation of America and was completed on January 13, 2025.

This report must not be reproduced except in full without the approval of Element Materials Technology. The test results contained in this report pertain only to the specific assemblies tested and not necessarily to all similar constructions.

The results stated in this report represent only the specific construction and acoustical conditions present at the time of the test. Measurements performed in accordance with this standard on nominally identical constructions and acoustical conditions may produce different results.

TEST RESULTS SUMMARY:

	STC	def	OITC
Baseline Test: Filler wall value	*63*	*30*	*49*
Test 4: WB EXT 1350 Access Door tested as received (Operable)	*63*	*32*	*50*

Determination:
The sample maintained the wall assemblies STC value of 63, when installed as per the manufacturer's instructions.

Tabular and graphical presentations of the data are presented under "TEST RESULTS" below. Individual wall constructions are listed below.

SPECIMEN DESCRIPTION:

The specimen was identified as WB EXT 1350 Ultra Series Access Door. The sample consisted of a 16 ga. steel frame, a steel door with an Ultra Paddle Latch Lock. The sample measured approximately 40 ¾" x 40 ¾" and weighed 71.5 lbs. Two gaskets were present on the test sample, one measured ¼" x ¾" and was applied to the perimeter of the frame, and another measured 1/16" x 3/8" and was applied to each side and the bottom of the test sample frame.

Wall Construction:

The test wall was constructed using two separate walls separated by a ¾" space: Source room and Receive room. The Source room wall was constructed with nominal 2" x 4" wood studs placed 16" O.C., R-13 fiberglass insulation, two layers of 5/8" drywall, and a layer of Durock® cement board, all seams were sealed with duct tape. Receive room was constructed with nominal 2" x 8" wood studs placed 16" O.C., R-19 fiberglass insulation, and two layers of 5/8" drywall, all seams were sealed with duct tape.

The test sample was framed into the Source wall opening using a 2x4 buck and sealing the perimeter with duct seal. The receive wall did not have a corresponding opening, wall was left unopened.

TEST PROCEDURE

Sound Transmission Test

ASTM:E90(09), "Laboratory Measurement of Airborne Sound Transmission of Building Partitions," was followed in every respect. The STC value was obtained by applying the Transmission Loss (TL) values to the STC reference contour of ASTM: E413(22), "Determination of Sound Transmission Class." The actual transmission loss at each frequency was calculated by the following equations:

$$TL = NR + 10 \log S - 10 \log A_2$$

where: TL = Transmission Loss (dB)
NR = Noise Reduction (dB)
S = Surface area common to both sides (sq. ft.)
A_2 = Sound absorption of the receiving room with the sample in place (sabins)

OITC Procedure

ASTM:E1332(22), "Determination of Outdoor-Indoor Transmission Class", was followed in every respect. Basically, the OITC was calculated by using the sound transmission loss values in the 80 to 4000 Hz range as measured in accordance with ASTM E-90(09). These transmission loss data are then used to determine the A-weighted sound level reduction of the specimen for the reference source spectrum specified in Table 1 of ASTM E1332(22). The appropriate calculations were made to determine the OITC value. TL measurements were obtained in a single direction, from Source Room to the Receiving room. The source room has a volume of 2948-ft^3 (83-m^3) and the receiving room has a volume of 5825-ft^3 (165-m^3).

TEST EQUIPMENT:

Acoustic Lab Calibrated Test Equipment For STC Tests

Item Description	ID #	Manufacturer/Model	Serial #	Calibration Due	Location
1/2" Pressure Condenser Microphone	PT-162-216	BSWA/MP253	450005	10/2/2025	Source Chamber
1/2" Pressure Condenser Microphone	PT-162-075	GRAS/40AD	19220-1244	5/20/2025	Reverberation Chamber
Microphone Calibrator	PT-162-226	Norsonic/1256	125626796	10/2/2025	N/A
Data Acquisition Module	PT-162-107	National Instruments/NI9234	1735986-1893EB3	8/8/2025	Control Center
Temp and Humidity Transmitter	PT-162-077	Dwyer Instruments/Series RH	M90714-E4SV-Y	6/7/2025	Reverberation Chamber
Temp and Humidity Transmitter	PT-162-079	Dwyer Instruments/Series RH	M93237-E09W-A	6/7/2025	Source Chamber

TEST RESULTS: BASELINE

SOUND TRANSMISSION LOSS
ASTM E90

General Information

Project No.:	ESP042978P-3
Customer:	WB Doors
Test Date:	01-11-2025
Specimen ID:	Baseline Wall Test
Specimen Description:	Standard Full Wall Baseline Value 108.25" W x 96.12" H - 72.26 ft²
Specimen (depth-weight):	14" - lbs
Operator:	SJM

Data Table

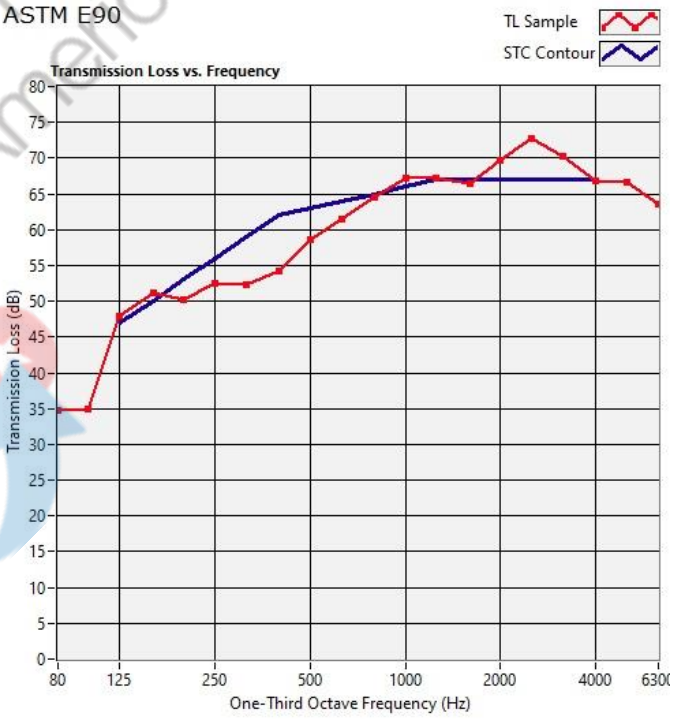
	TL (dB)	deficiencies	95% CI
80	35	-	2.16
100	35	-	2.58
125	48	0	2.03
160	51	0	1.78
200	50	3	0.78
250	52	4	0.84
315	52	7	0.76
400	54	8	0.48
500	59	4	0.40
630	62	2	0.41
800	64	1	0.31
1000	67	0	0.44
1250	67	0	0.35
1600	66	1	0.29
2000	70	0	0.28
2500	73 #	0	0.38
3150	70 #	0	0.27
4000	67 #	0	0.25
5000	67 #	-	0.28

background < 5.0 below receive room
* 95% Confidence Interval exceeded

Source Room
Temperature 21.4 °C
R.H. 49 %

Receive Room
Temperature 20.9 °C
R.H. 49 %

ATM 974 hPa



STC Rating	deficiencies	OITC
63	30	49

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TEST RESULTS: WB EXT 1350 Ultra Series Access Door:

SOUND TRANSMISSION LOSS
ASTM E90

General Information

Project No.:	ESP042978P-4
Customer:	WB Doors
Test Date:	01-13-2025
Specimen ID:	WB EXT 1350
Specimen Description:	Ultra Series Access Door Access Door 108.25" W x 96.12" H - 72.26 ft²
Specimen (depth-weight):	3 1/2" - TBD lbs
Operator:	SJM

Data Table

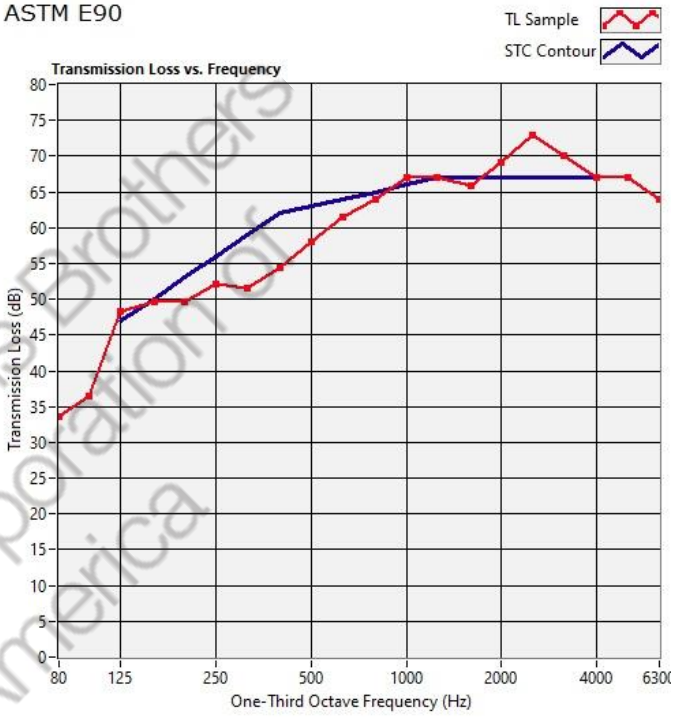
	TL (dB)	deficiencies	95% CI
80	34	-	2.67
100	37	-	2.32
125	48	0	2.21
160	50	0	1.50
200	50	3	0.87
250	52	4	0.69
315	52	7	0.80
400	54	8	0.50
500	58	5	0.47
630	61	3	0.33
800	64	1	0.39
1000	67	0	0.29
1250	67	0	0.35
1600	66	1	0.33
2000	69	0	0.27
2500	73 #	0	0.22
3150	70 #	0	0.34
4000	67 #	0	0.27
5000	67 #	-	0.26

background < 5.0 below receive room
* 95% Confidence Interval exceeded

Source Room
Temperature 21.3 °C
R.H. 48 %

Receive Room
Temperature 20.9 °C
R.H. 59 %

ATM
987 hPa



STC Rating	deficiencies	OITC
63	32	50

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