

FLEETWOOD WINDOWS & DOORS

ACOUSTICAL PERFORMANCE TEST REPORT

SCOPE OF WORK

ASTM E90 SOUND TRANSMISSION LOSS TESTING ON A 3000-T, XO SLIDING DOOR

REPORT NUMBER

I6982.02-303-11 R0

TEST DATE(S)

09/18/18

ISSUE DATE

10/03/18

RECORD RETENTION END DATE

09/18/22

PAGES

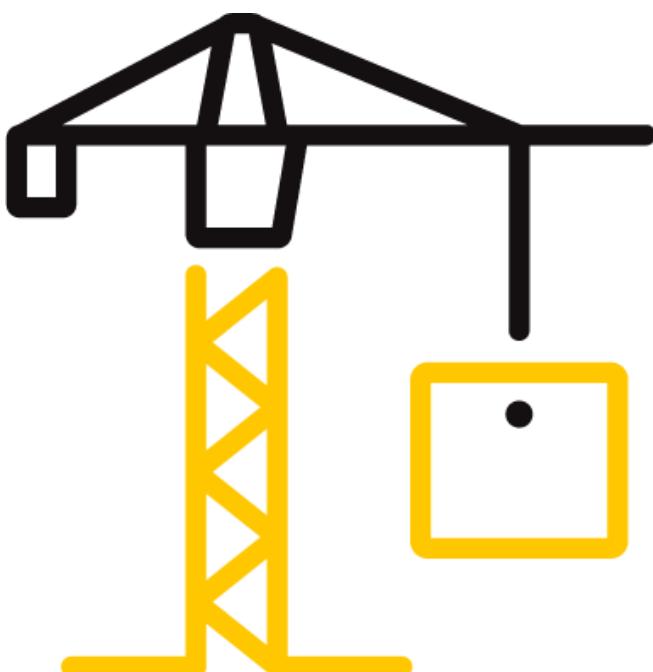
11

DOCUMENT CONTROL NUMBER

ATI 00596 (07/24/17)

RT-R-AMER-Test-2761

© 2017 INTERTEK



TEST REPORT FOR FLEETWOOD WINDOWS & DOORS

Report No.: I6982.02-303-11 R0

Date: 10/03/18

REPORT ISSUED TO**FLEETWOOD WINDOWS & DOORS**

P.O. Box 1086

Corona, California 92878

SECTION 1**SCOPE**

Intertek Building & Construction (B&C) was contracted by Fleetwood Windows & Doors to conduct a sound transmission loss test. Results obtained are tested values and were secured by using the designated test method(s). The complete test data is included herein. The client provided the test specimen. All measurements were conducted in the HT test chambers at Intertek B&C located in Lake Forest, California.

This report does not constitute certification of this product nor an opinion or endorsement by this laboratory.

SECTION 2**SUMMARY OF TEST RESULTS**

SERIES/MODEL	3000-T
TYPE	XO Sliding Door
GLAZING (Nominal Dimensions)	1" IG (1/4" Laminated Exterior, 1/2" Air Space, 1/4" Laminated Interior), Glass Temperature 75° F
DATA FILE NO.	I6982.02
STC	35
OITC	30

For INTERTEK B&C:

COMPLETED BY:	Ryan R. Lau	REVIEWED BY:	Leeland S. Hoover
TITLE:	Technician II	TITLE:	Laboratory Manger
SIGNATURE:		SIGNATURE:	
DATE:	10/03/18	DATE:	10/03/18

RRL:LSH:ab

This report is for the exclusive use of Intertek's Client and is provided pursuant to the agreement between Intertek and its Client. Intertek's responsibility and liability are limited to the terms and conditions of the agreement. Intertek assumes no liability to any party, other than to the Client in accordance with the agreement, for any loss, expense or damage occasioned by the use of this report. Only the Client is authorized to permit copying or distribution of this report and then only in its entirety. Any use of the Intertek name or one of its marks for the sale or advertisement of the tested material, product or service must first be approved in writing by Intertek. The observations and test results in this report are relevant only to the sample(s) tested. This report by itself does not imply that the material, product, or service is or has ever been under an Intertek certification program.



TEST REPORT FOR FLEETWOOD WINDOWS & DOORS

Report No.: I6982.02-303-11 R0

Date: 10/03/18

SECTION 3**TEST METHOD(S)**

The specimens were evaluated in accordance with the following with the exceptions stated in the Test Procedure section of this report:

ASTM E90-09 (2016), Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements

ASTM E413-16, Classification for Rating Sound Insulation

ASTM E1332-16, Standard Classification for Rating Outdoor-Indoor Sound Attenuation

ASTM E2235-04 (2012), Standard Test Method for Determination of Decay Rates for Use in Sound Insulation Test Methods

SECTION 4**SPECIMEN INSTALLATION**

A sound transmission loss test was initially performed on a filler wall.

The specimen plug was removed from the filler wall assembly. A filler wall-reducing element was used to adjust the test opening size to accommodate the test specimen. The reducing element consisted of a double 2x6 wood stud wall construction with three layers of 5/8" drywall on both sides. The stud cavities in the wall were insulated with two layers of R-19 fiberglass insulation. The specimen was placed on an isolation pad in the custom test opening. Duct seal was used to seal the perimeter of the specimen to the test opening on both sides. The interior side of the specimen, when installed, was approximately 1/4" from being flush with the receive room side of the filler wall. A stethoscope was used to check for any abnormal air leaks around the test specimen prior to testing. Operable portions of the test specimen, if any, were cycled at least five times prior to testing.

TEST REPORT FOR FLEETWOOD WINDOWS & DOORS

Report No.: I6982.02-303-11 R0

Date: 10/03/18

SECTION 5
EQUIPMENT

The equipment listed below meets the requirements of the test methods stated in Section 3 of this report.

INSTRUMENT	MANUFACTURER	MODEL	DESCRIPTION	ASSET #	CAL DATE
Data Acquisition Card	National Instruments	PXIe-4464	Data Acquisition Card	INT00627	10/17 *
Data Acquisition Card	National Instruments	PXIe-4464	Data Acquisition Card	INT00395	10/17 *
Data Acquisition Card	National Instruments	PXIe-4464	Data Acquisition Card	INT00396	10/17 *
Source Room Microphone	PCB Piezotronics	378C20	Microphone and Preamplifier	INT00239	04/17
Source Room Microphone	PCB Piezotronics	378C20	Microphone and Preamplifier	INT00240	04/17
Source Room Microphone	PCB Piezotronics	378C20	Microphone and Preamplifier	INT00241	04/17
Source Room Microphone	PCB Piezotronics	378C20	Microphone and Preamplifier	INT00242	04/17
Source Room Microphone	PCB piezotronics	378C20	Microphone and Preamplifier	INT00243	04/17
Receive Room Microphone	PCB Piezotronics	378C20	Microphone and Preamplifier	INT00244	04/17
Receive Room Microphone	PCB Piezotronics	378C20	Microphone and Preamplifier	INT00245	04/17
Receive Room Microphone	PCB Piezotronics	378C20	Microphone and Preamplifier	INT00246	04/17
Receive Room Microphone	PCB Piezotronics	378C20	Microphone and Preamplifier	INT00247	04/17
Receive Room Microphone	PCB Piezotronics	378C20	Microphone and Preamplifier	INT00228	04/17
Receive Room Environmental Indicator	Comet	T7510	Receive Room	INT00299	10/17
Source Room Environmental Indicator	Comet	T7510	Source Room	INT00300	10/17
Microphone Calibrator	Norsonic	1251	Pistonphone Calibrator	INT00288	06/17

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

TEST CHAMBER

	VOLUME	DESCRIPTION
RECEIVE ROOM	231 m ³	Rotating vane and stationary diffusers Temperature and humidity controlled Isolation pads under the floor
SOURCE ROOM	196 m ³	Stationary diffusers only Temperature and humidity controlled

	MAXIMUM SIZE	DESCRIPTION
TL TEST OPENING	4.27 m wide by 3.05 m high	Vibration break between source and receive rooms

N/A-Not Applicable

TEST REPORT FOR FLEETWOOD WINDOWS & DOORS

Report No.: I6982.02-303-11 R0

Date: 10/03/18

SECTION 6**LIST OF OFFICIAL OBSERVERS**

NAME	COMPANY
Corey Jones	Fleetwood Windows & Doors
Ryan R. Lau	Intertek B&C
David A. Pendleton	Intertek B&C

SECTION 7**TEST PROCEDURE**

The sensitivity of the microphones was checked before measurements were conducted.

The transmission loss values were obtained for a single direction of measurement.

Two background noise sound pressure level and five sound absorption measurements were conducted at each of five microphone positions.

Two sound pressure levels were made simultaneously in the receive and source rooms at each of five microphone positions.

The air temperature and relative humidity conditions were monitored and recorded during all measurements.

Data for flanking limit tests, repeatability measurements, and reference specimen tests are available upon request.

Intertek B&C will store samples of test specimens for four years.

TEST REPORT FOR FLEETWOOD WINDOWS & DOORS

Report No.: I6982.02-303-11 R0

Date: 10/03/18

SECTION 8**ACOUSTICAL TEST CALCULATIONS**

Transmission loss (TL) at each 1/3 octave frequency is the average source room sound pressure level minus the average receive room sound pressure level, plus, 10 times the log of the specimen area divided by the sound absorption of the receive room with the sample in place.

STC Rating

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

OITC Rating

The Outdoor-Indoor Transmission Class (OITC) is calculated by subtracting the logarithmic summation of the TL values from the logarithmic summation of the A-weighted transportation noise spectrum stated in ASTM E1332.

SECTION 9**SPECIMEN DESCRIPTION**

	FRAME	FIXED	ACTIVE
SIZE	96-1/4" by 96-1/8"	46-7/8" by 94-1/8"	49-3/4" by 94-1/4"
THICKNESS	4-1/2"	1-3/4"	1-3/8"
CORNERS	Coped	Butted	Butted
FASTENERS	Screws	Screws	Screws
SEAL METHOD	Sealant	Sealant	Sealant
MATERIAL	Aluminum	Aluminum	Aluminum
REINFORCEMENT	N/A	N/A	N/A
THERMAL BREAK MATERIAL	Insulbar	Insulbar	Insulbar
DAYLIGHT OPENING SIZE	N/A	42-3/4" by 88-5/8"	42-3/4" by 88-5/8"

TEST REPORT FOR FLEETWOOD WINDOWS & DOORS

Report No.: I6982.02-303-11 R0

Date: 10/03/18

MEASURED OVERALL INSULATION GLASS UNIT THICKNESS		1.068"
SPACER TYPE		Aluminum Box

	EXTERIOR SHEET	GAP	INTERIOR SHEET
MEASURED THICKNESS	0.126", 0.029", 0.127"	0.504"	0.125", 0.030", 0.127"
MUNTIN PATTERN	N/A	N/A	N/A
MATERIAL	Laminated	Air*	Laminated
LAMINATE MATERIAL	PVB	N/A	PVB

GLAZING METHOD	Channel
GLAZING MATERIAL	N/A
GLAZING BEAD MATERIAL	N/A

	TYPE	QUANTITY	LOCATION
WEATHERSTRIP	Polypile with center fin	1	Interior sill
	Polypile with center fin	3	Head of frame
	Polypile with center fin	1	Meeting stile of active
	Polypile with center fin	2	Meeting stile of fixed
	Foam filled gasket	1	Left jamb
	Foam filled gasket	1	Right jamb
	Polypile	1	Head of frame
	Leaf gasket	1	Bottom rail of active
HARDWARE	Mortise lock	1	Active lock stile
	Metal keeper	1	Frame jamb
	Roller assembly	1	Active panel
DRAINAGE	N/A	N/A	N/A

TOTAL WEIGHT (lbs)	AVERAGE WEIGHT (lbs / ft²)
496	7.71

* - Stated per Client/Manufacturer, N/A-Not Applicable

The client did not supply a report drawing of the test specimen.

TEST REPORT FOR FLEETWOOD WINDOWS & DOORS

Report No.: I6982.02-303-11 R0

Date: 10/03/18

SECTION 10
TEST RESULTS
ASTM E90
AIRBORNE SOUND TRANSMISSION LOSS


TEST DATE	09/18/18						
DATA FILE NO.	I6982.02						
CLIENT	Fleetwood Windows & Doors						
DESCRIPTION	Series/Model: 3000-T XO Sliding Door with 1" IG (1/4" Laminated Exterior, 1/2" Air Space, 1/4" Laminated Interior), Glass Temperature 75°F						
SPECIMEN AREA	5.95 m ²	RECEIVE TEMP.	22.2 °C	SOURCE TEMP	19.4 °C		
TECHNICIAN	RRL	RECEIVE HUMIDITY	53%	SOURCE HUMIDITY	56%		

FREQ (Hz)	BACKGROUND SPL (dB)	ABSORPTION (m ²)	SOURCE SPL (dB)	RECEIVE SPL (dB)	SPECIMEN TL (dB)	95% CONFIDENCE LIMIT	NUMBER OF DEFICIENCIES
80	38.0	4.7	100	73	30	1.56	-
100	31.2	4.5	101	77	26	1.26	-
125	36.7	4.7	104	80	25	0.95	0
160	43.0	5.2	104	81	24	0.61	0
200	36.6	6.9	103	82	20	0.70	5
250	22.4	7.0	103	78	24	0.57	4
315	17.9	7.0	104	74	29	0.49	2
400	20.5	6.1	103	72	31	0.61	3
500	19.5	5.5	103	69	35	0.38	0
630	20.0	5.8	104	68	36	0.26	0
800	20.1	6.0	104	66	37	0.24	0
1000	14.3	6.1	104	67	36	0.17	2
1250	12.1	6.2	101	65	36	0.15	3
1600	10.8	6.7	101	63	37	0.19	2
2000	11.7	7.9	103	63	38	0.19	1
2500	8.0	8.7	103	61	40	0.18	0
3150	5.9	9.8	102	58	42	0.29	0
4000	5.1	11.8	102	56	42	0.33	0
5000	5.3	14.8	100	54	43	0.47	-
STC RATING	35	(Sound Transmission Class)					
DEFICIENCIES	22	(Sum of Deficiencies)					
OITC RATING	30	(Outdoor-Indoor Transmission Class)					

Notes:

- 1) Receive Room levels less than 5 dB above the Background levels are red.
- 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

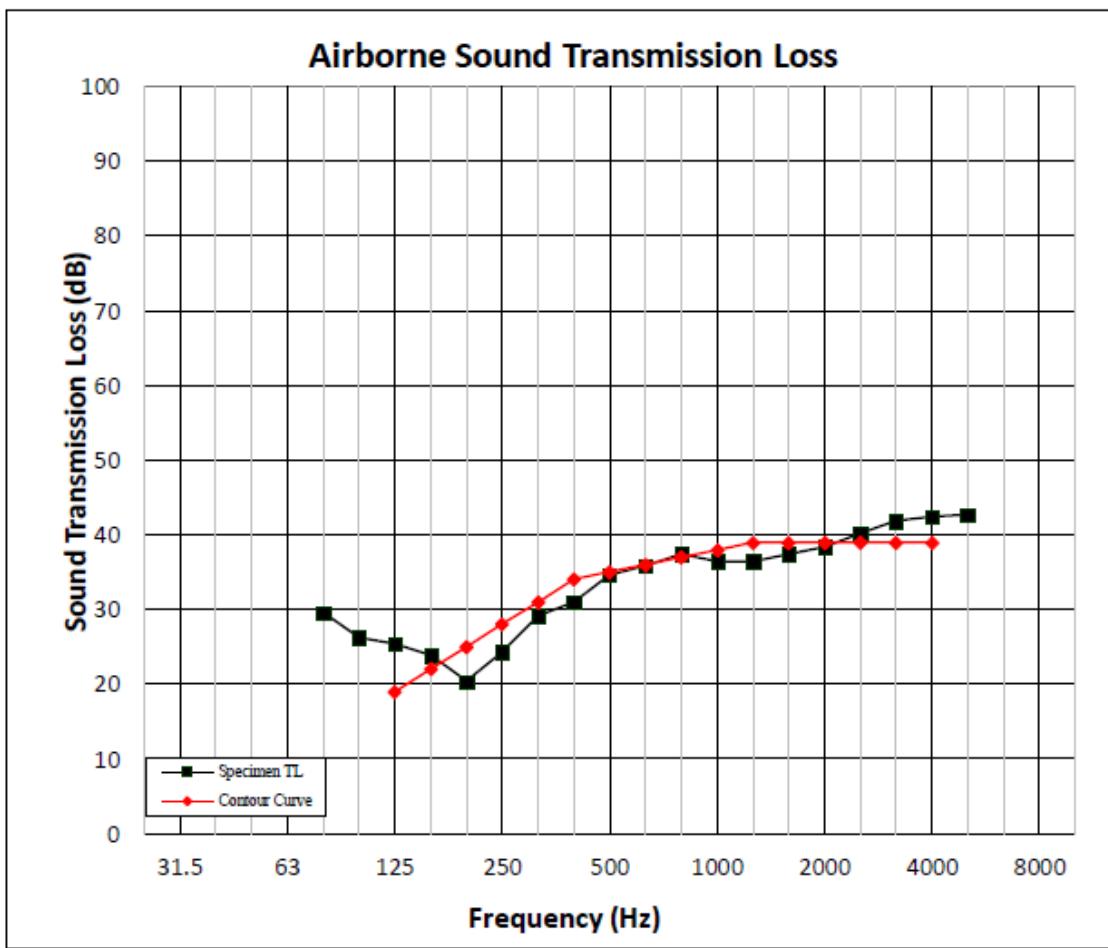
TEST REPORT FOR FLEETWOOD WINDOWS & DOORS

Report No.: I6982.02-303-11 R0

Date: 10/03/18

SECTION 11**RESULTS GRAPH****ASTM E90**
AIRBORNE SOUND TRANSMISSION LOSS

TEST DATE	09/18/18		
DATA FILE NO.	I6982.02		
CLIENT	Fleetwood Windows & Doors		
DESCRIPTION	Series/Model: 3000-T XO Sliding Door with 1" IG (1/4" Laminated Exterior, 1/2" Air Space, 1/4" Laminated Interior), Glass Temperature 75°F		
SPECIMEN AREA	5.95 m ²	RECEIVE TEMP.	22.2 °C
TECHNICIAN	RRL	RECEIVE HUMIDITY	53%
		SOURCE TEMP	19.4 °C
		SOURCE HUMIDIT	56%



TEST REPORT FOR FLEETWOOD WINDOWS & DOORS

Report No.: I6982.02-303-11 R0

Date: 10/03/18

SECTION 12
PHOTOGRAPHS**Source Room View of Test Specimen****Receive Room View of Test Specime**



Total Quality. Assured.

25800 Commercentre Drive
Lake Forest, California 92630

Telephone: 949-460-9600
Facsimile: 717-764-4129
www.intertek.com/building

TEST REPORT FOR FLEETWOOD WINDOWS & DOORS

Report No.: I6982.02-303-11 R0

Date: 10/03/18

SECTION 13

REVISION LOG

REVISION #	DATE	PAGES	REVISION
0	10/03/18	N/A	Original Report Issue