

ACOUSTIC

**SOUND TRANSMISSION CLASS
TEST REPORT****Series/Model: T-WDW1 Teutonic
Fixed Window**

Prepared for:

Kolbe & Kolbe Millwork Co., Inc.**Attn: Ms. Tasha Verhasselt**

1323 South 11th Avenue

Wausau, WI 55401

US

Customer PO: Signed Quote

Prepared by:John Wegscheider
Project Manager
Building Materials and Acoustics Testing
Telephone: (651) 659-7353**Reviewed by:**Shaun Montgomery
Product Testing Technician
Product Testing Department
Telephone: (651) 659-7313

It is our policy to retain components and sample remnants for a minimum of 10 days from the report date, after which time they may be discarded. The data herein represents only the item(s) tested. This report shall not be reproduced, except in full, without prior permission of Element Materials Technology.

EAR Controlled Data: This document contains technical data whose export and re-export/retransfer is subject to control by the U.S. Department of Commerce under the Export Administration Act and the Export Administration Regulations. The Department of Commerce's prior written approval is required for the export or re-export/retransfer of such technical data to any foreign person, foreign entity or foreign organization whether in the United States or abroad.

This project shall be governed exclusively by the General Terms and Conditions of Sale and Performance of Testing Services by Element Materials Technology. In no event shall Element Materials Technology be liable for any consequential, special or indirect loss or any damages above the cost of the work.



AIRBORNE SOUND TRANSMISSION LOSS (STC) ASTM E90-09
INTRODUCTION:

This report presents the sound transmission results of a:

T-WDW1 Teutonic Fixed Window

The testing and data analysis were completed on: **Friday, September 05, 2014**

This report must not be reproduced except in full with the approval of Element Materials Technology. The data in this report relates only to the items tested.

Summary of Results
T-WDW1 Teutonic Fixed Window

Glazing Description		Test Results		
		STC	Def	OITC
Glass Type:	31/32" (24.6 mm) Insulated Glass Unit (IG)	28	22	23
Exterior Lite:	1/8" (3.2 mm)			
Gap / Airspace:	23/32" (18.2mm)			
Interior Lite:	1/8" (3.2 mm)			

Project Number: ESP017526P-16

Page 3 of 5

Report Date: 9/30/2014

SPECIMEN DESCRIPTION:**Manufacturer:** Kolbe & Kolbe Millwork Co., Inc.**Specimen:** Fixed Window**Model # / Series:** T-WDW1 Teutonic**Material:** Vinyl**Size:** 35.50" W x 71.50" H**Area:** 17.6 -ft²**Weight:** 87.3-lbs**Weight (psf):** 5.0 -lb/ft²**Glazing Details:**

(Measured Thickness)

31/32" (24.6 mm) Insulated Glass Unit (IG)

Exterior Lite:	1/8" (3.2 mm)
Space/Gap:	23/32" (18.2mm)
Interior Lite:	1/8" (3.2 mm)

Sash Size: N/A**Daylight Opening:** 30 1/8" x 66"**Additional Details:** The Specimen was identified as a T-WDW1 Teutonic Vinyl Fixed Window.**Hardware:** NA**Drainage:** 2 Weeps**Weatherstripping:** N/A

TEST METHOD:
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(10), "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.)

A₂ = Sound absorption of the receiving room with the sample in place (sabins)

OITC Procedure

ASTM:E1332(10a), "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(10a). 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-ft³ (83-m³) and the receiving room has a volume of 5825-ft³ (165-m³).

Windows & Doors: Windows and Doors are operated at least 5-times prior to testing. The test unit is operational unless otherwise stated. The temperatures and relative humidity of the termination room met the requirements of the standard during and after the test. All frequencies met the requirements for 95% confidence established by the standard unless noted. Noise reduction measurements were performed in a single direction (source room to receiving room).

TEST EQUIPMENT:

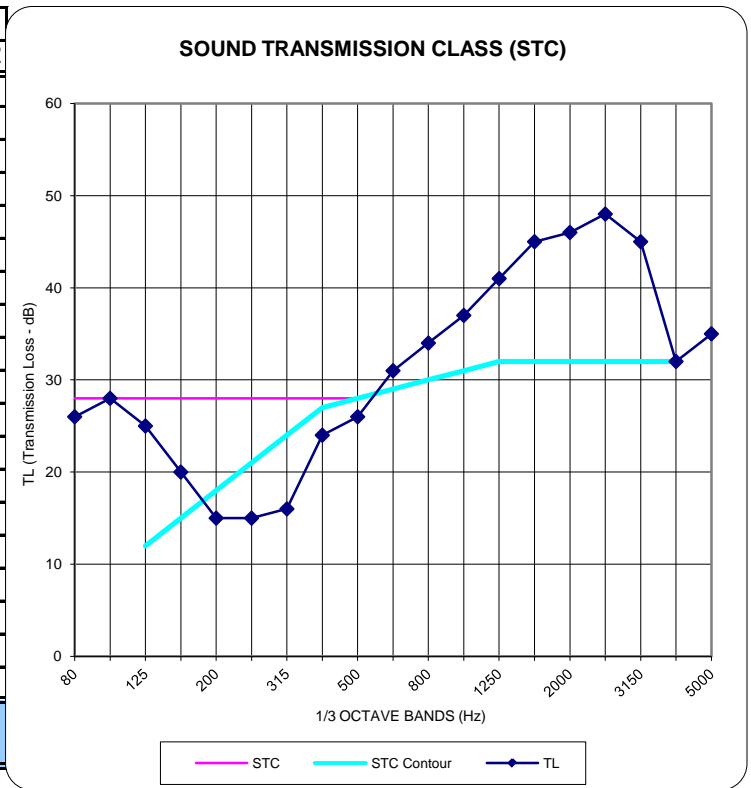
Item Description	ID#	Manufacturer/Model	Serial #	Cal. Due	Location
1/2" Pressure Condensor Mic	PT-162-075	Gras/40AD	19220-1244	5/22/2015	Reverberation Chamber
1/2" Pressure Condensor Mic	PT-162-108	Gras/46AD	167994	12/10/2014	Source Chamber
Microphone Calibrator	PT-162-076	Norsonic/1251	29144	5/22/2015	N/A
Data Acquisition Module	PT-162-086	National Instruments/NI9234	154DoE4_1548E92	7/1/2015	Control Center
Temp/Humidity Sensor	PT-162-077	Dwyer/Series RH	M90714-e4SV-Y	6/4/2015	Reverberation Chamber
Temp/Humidity Sensor	PT-162-079	Dwyer/Series RH	m93237-E09w-A	6/4/2015	Source Chamber

REMARKS:

The test sample will be retained for a period of 10-days and then discarded if no written return-request received.

TEST RESULTS

1/3 Oct. Band, Hz	L ₁ (dB)	L ₂ (dB)	Bkgd (dB)	A _v (m ²) Sabins	TL (dB)	Def (dB)	95% Conf.	Notes	
								1	2
80	92.2	62.9	36.8	4.6	26	-	1.8		
100	97.5	64.7	41.4	5.6	28	-	1.3		
125	99.0	70.9	42.6	3.0	25	0	2.5		
160	95.0	71.6	36.1	3.2	20	0	2.4		
200	90.0	71.0	35.4	4.4	15	3	1.4		
250	92.9	73.6	37.5	4.1	15	6	0.9		
315	94.6	74.9	33.6	4.1	16	8	0.7		
400	96.1	68.1	32.6	4.3	24	3	0.7		
500	98.6	68.5	31.7	4.6	26	2	0.5		
630	97.4	62.0	28.0	4.8	31	0	0.5		
800	95.3	56.7	24.6	5.3	34	0	0.3		
1000	93.0	51.0	23.0	5.4	37	0	0.3		
1250	92.4	45.4	21.4	6.1	41	0	0.3		
1600	93.3	42.3	20.2	6.6	45	0	0.3		
2000	93.5	40.9	19.5	7.5	46	0	0.3		
2500	94.2	39.5	19.1	8.3	48	0	0.2		
3150	91.5	39.3	19.9	9.1	45	0	0.3		
4000	87.0	46.5	20.8	11.0	32	0	0.3		
5000	85.0	40.8	21.6	13.2	35	-	0.4		


STC Rating: 28

TL = Transmission Loss (dB)

Def = Deficiencies (below STC contour)

Deficiency: 22

Note #1: Noise Level was less than 10dB above ambient.

Note #2: Confidence Level Exceeded

OITC Rating: 23
Test Conditions:

 Laminated Glass Temp(°C):
 Exterior: N/A
 Interior: N/A

 Temp(°C): % RH: ATM (hPa)
 Source Room: 23.8 51 983
 Receive Room: 23 52 983

SPECIMEN IDENTIFICATION:

Type: Fixed Window
Series: T-WDW1 Teutonic Fixed Window
Size: 35.50" W x 71.50" H **Area:** 17.6 -ft²
Depth: 3 1/4"
Mass: 87.3 -lbs **Mass (psf):** 5.0 -lb/ft²

Test Date: 5-Sep-14
Time Stamp: 9:31 AM
Tested by: PAD

Glazing Description
31/32" (24.6 mm) Insulated Glass Unit (IG)

Exterior Lite: 1/8" (3.2 mm)
 Gap / Space: 23/32" (18.2mm)
 Interior Lite: 1/8" (3.2 mm)



* As stated by Manufacturer.