

# CLARKDIETRICH BUILDING SYSTEMS, LLC ACOUSTICAL PERFORMANCE TEST REPORT

**SCOPE OF WORK**

ASTM E90 SOUND TRANSMISSION LOSS TESTING ON A UL-U423, WALL SYSTEM

**REPORT NUMBER**

L3173.13-113-11-R0

**TEST DATE**

10/16/20

**ISSUE DATE**

01/06/21

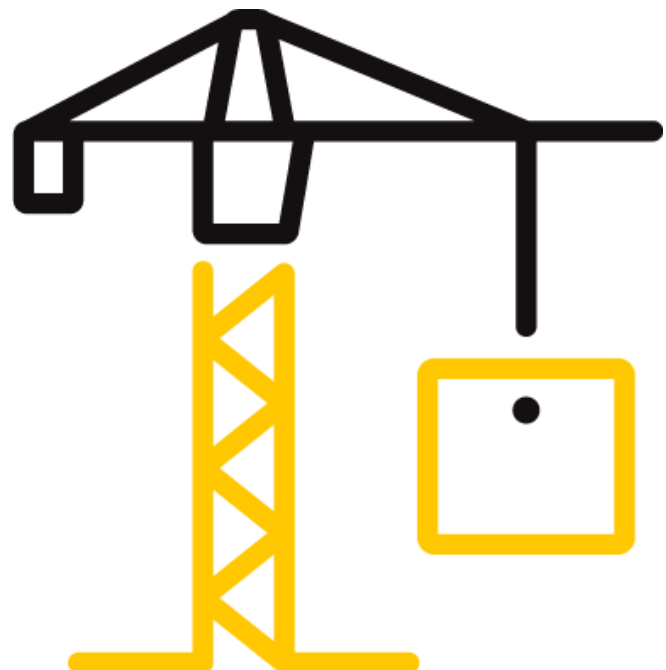
**PAGES**

11

**DOCUMENT CONTROL NUMBER**

RT-R-AMER-Test-2758 (01/24/19)

© 2017 INTERTEK



## TEST REPORT FOR CLARKDIETRICH BUILDING SYSTEMS, LLC

Report No.: L3173.13-113-11-R0

Date: 01/06/21

### REPORT ISSUED TO

#### CLARKDIETRICH BUILDING SYSTEMS, LLC

9050 Centre Pointe Drive  
West Chester, Ohio 45069

### SECTION 1

#### SCOPE

Intertek Building & Construction (B&C) was contracted by ClarkDietrich Building Systems, LLC to conduct a sound transmission loss test. Results obtained are tested values and were secured by using the designated test methods. 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 York, Pennsylvania.

This report does not constitute certification of this product nor an opinion or endorsement by this laboratory. Intertek B&C will service this report for the entire test record retention period. The test record retention period ends four years after the test date. Test records, such as detailed drawings, datasheets, representative samples of test specimens, or other pertinent project documentation, will be retained for the entire test record retention period.

For INTERTEK B&C:

<b>COMPLETED BY:</b>	Zachary P. Golden	<b>REVIEWED BY:</b>	Kurt A. Golden
<b>TITLE:</b>	Technician Team Leader Acoustical Testing	<b>TITLE:</b>	Project Lead Acoustical Testing
<b>SIGNATURE:</b>		<b>SIGNATURE:</b>	
<b>DATE:</b>	01/06/21	<b>DATE:</b>	01/06/21

ZPG:jmcs

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 CLARKDIETRICH BUILDING SYSTEMS, LLC

Report No.: L3173.13-113-11-R0

Date: 01/06/21

### SECTION 2

#### SUMMARY OF TEST RESULTS

<b>SERIES/MODEL</b>	UL-U423
<b>TYPE</b>	Wall System
<b>DATA FILE NO.</b>	L3173.01G4
<b>INSULATION TYPE</b>	R-19 Fiberglass Unfaced
<b>STC</b>	63
<b>OITC</b>	50

### SECTION 3

#### TEST METHODS

The specimens were evaluated in accordance with the following:

**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 (2020)**, *Standard Test Method for Determination of Decay Rates for Use in Sound Insulation Test Methods*

### SECTION 4

#### SPECIMEN INSTALLATION

The specimen was constructed in the laboratory. A sound transmission loss test was initially performed on a filler wall. The 96" wide by 96" high specimen plug was removed from the filler wall assembly. The specimen was placed on an isolation pad in the 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.

**TEST REPORT FOR CLARKDIETRICH BUILDING SYSTEMS, LLC**

Report No.: L3173.13-113-11-R0

Date: 01/06/21

**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	PXI-4462	Data Acquisition Card	63763-3*	04/20
Data Acquisition Card	National Instruments	PXI-4462	Data Acquisition Card	65125*	05/20
Data Acquisition Card	National Instruments	PXI-4462	Data Acquisition Card	65126*	05/20
Source Room Microphone	PCB Piezotronics	378C20	Microphone and Preamplifier	65968	01/20
Source Room Microphone	PCB Piezotronics	378B20	Microphone and Preamplifier	64903	09/20
Source Room Microphone	PCB Piezotronics	378B20	Microphone and Preamplifier	65103	03/20
Source Room Microphone	PCB Piezotronics	378B20	Microphone and Preamplifier	64905	03/20
Source Room Microphone	PCB piezotronics	378B20	Microphone and Preamplifier	64906	03/20
Receive Room Microphone	PBC Piezotronics	378B20	Microphone and Preamplifier	64907	01/20
Receive Room Microphone	PCB Piezotronics	378C20	Microphone and Preamplifier	64908	01/20
Receive Room Microphone	PCB Piezotronics	378B20	Microphone and Preamplifier	64909	01/20
Receive Room Microphone	PCB Piezotronics	378B20	Microphone and Preamplifier	64910	01/20
Receive Room Microphone	PCB Piezotronics	378B20	Microphone and Preamplifier	65586	08/20
Receive Room Environmental Indicator	Comet	T7510	Receive Room	64915	01/20
Source Room Environmental Indicator	Comet	T7510	Source Room	64914	02/20
Microphone Calibrator	Norsonic	1251	Acoustical Calibrator	Y002919	04/20

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

**TEST CHAMBER**

	VOLUME	DESCRIPTION
RECEIVE ROOM	234 m <sup>3</sup>	Rotating vane and stationary diffusers Temperature and humidity controlled Isolation pads under the floor
SOURCE ROOM	207 m <sup>3</sup>	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

## TEST REPORT FOR CLARKDIETRICH BUILDING SYSTEMS, LLC

Report No.: L3173.13-113-11-R0

Date: 01/06/21

### SECTION 6

#### LIST OF OFFICIAL OBSERVERS

NAME	COMPANY
Adam Shoemaker	ClarkDietrich Building Systems, LLC
Zachary Golden	Intertek B&C
Kurt Golden	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 level measurements were made simultaneously in 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.

### 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.

## TEST REPORT FOR CLARKDIETRICH BUILDING SYSTEMS, LLC

Report No.: L3173.13-113-11-R0

Date: 01/06/21

### SECTION 9

#### SPECIMEN DESCRIPTION

<b>SOURCE SIDE GYPSUM BOARD</b>	Two Layers 5/8" Type X
<b>FURRING CHANNELS</b>	25 Gauge (18 mil)
<b>STUD TREATMENT</b>	ClarkDietrich Sound Clip (CDSC)
<b>LATERAL BRACING</b>	1-1/2" U-Channel/CRC, 16-Gauge
<b>STUDS</b>	3-1/2" S162 (1-5/8" Leg Structural Stud) (33 mil), 20-Gauge, 24" Centers
<b>TRACK</b>	3-1/2" T125 (1-1/4" Leg Structural Track) (33 mil), 20-Gauge
<b>INSULATION</b>	R-19 Fiberglass unfaced
<b>RECEIVE SIDE GYPSUM BOARD</b>	Two Layers 5/8" Type X

MATERIAL	ACTUAL DIMENSIONS (inches)	ACTUAL THICKNESS (inches)	MANUFACTURER AND SERIES	QUANTITY	AVERAGE WEIGHT
<b>SOURCE SIDE GYPSUM BOARD</b>	48 by 96	0.625	5/8" USG Sheetrock® Brand Firecode® X Panels (UL Type SCX)	4 sheets	2.20 lbs/ft <sup>2</sup>
	<i>Note: Base layer screws spaced on 24" centers. Face layer screws spaced on 8" centers. Board joints staggered. Perimeter and joints sealed with acoustical sealant and foil tape. Screw heads sealed with foil tape.</i>				
<b>FURRING CHANNEL</b>	2-23/32 by 96	0.002	7/8" Steel, 25 gauge (18 mil)	5 pieces	0.24 lbs/linear ft
	<i>Note: Spaced on 24" centers perpendicular to studs, friction fit into clips.</i>				
<b>STUD TREATMENT</b>	3 by 1-1/4	0.04	ClarkDietrich Sound Clip™ (CDSC)	15 pieces	0.13 lbs each
	<i>Note: Used to attach furring channels. Clips spaced on 48" centers.</i>				
<b>LATERAL BRACING</b>	1/2 by 96	1.5	U-Channel/CRC-16 gauge	1	0.44 lbs/linear ft
	<i>Note: Placed through stud cut outs and held in place by LS543 SwiftClip™ LS Series™ support clip on each stud</i>				
<b>STUD</b>	1-5/8 by 96	3.5	ClarkDietrich S162 (1-5/8" Leg Structural Stud) (33 mil), Steel	5 pieces	0.88 lbs/linear ft
	<i>Note: Spaced on 24" centers. Screwed to top and bottom track.</i>				
<b>INSULATION</b>	24 by 96	6	Johns Manville unfaced fiberglass batts	4 pieces	0.28 lbs/ft <sup>2</sup>
	<i>Note: Fiction fit.</i>				

## TEST REPORT FOR CLARKDIETRICH BUILDING SYSTEMS, LLC

Report No.: L3173.13-113-11-R0

Date: 01/06/21

MATERIAL	ACTUAL DIMENSIONS (inches)	ACTUAL THICKNESS (inches)	MANUFACTURER AND SERIES	QUANTITY	AVERAGE WEIGHT
RECEIVE SIDE GYPSUM BOARD	48 by 96	0.625	5/8" USG Sheetrock® Brand Firecode® X Panels (UL Type SCX)	4 sheets	2.20 lbs/ft <sup>2</sup>
	<i>Note: Base layer screws spaced on 16" centers. Face layer screws spaced on 16" centers with screws offset 8" from the base layer. Board joints staggered. Perimeter and joints sealed with acoustical sealant and foil tape. Screw heads sealed with foil tape.</i>				
TOP/BOTTOM TRACK	1-1/4 by 96	3.5	T125 (1-1/4" Leg Structural Track) (33 mil), Steel	2 pieces	0.71 lbs/linear ft

TOTAL WEIGHT (lbs)	AVERAGE WEIGHT (lbs/ft <sup>2</sup> )
642.75	10.04

Photographs are included in Section 11.

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

**TEST REPORT FOR CLARKDIETRICH BUILDING SYSTEMS, LLC**

Report No.: L3173.13-113-11-R0

Date: 01/06/21

**SECTION 10**  
**TEST RESULTS**

**L3173.01G4 DATA**

<b>SPECIMEN AREA</b>	5.95 m <sup>2</sup>	<b>RECEIVE TEMP.</b>	20.3 °C	<b>SOURCE TEMP</b>	20.5 °C
<b>TECHNICIAN</b>	Zachary Gol	<b>RECEIVE HUMIDITY</b>	47%	<b>SOURCE HUMIDITY</b>	45%

FREQ (Hz)	BACKGROUND SPL (dB)	ABSORPTION (m <sup>2</sup> )	SOURCE SPL (dB)	RECEIVE SPL (dB)	SPECIMEN TL (dB)	95% CONFIDENCE LIMIT	NUMBER OF DEFICIENCIES
80	35.5	5.0	107	72	36	2.20	-
100	32.0	5.4	108	70	38	2.03	-
125	32.4	5.9	107	65	42	1.44	5
160	40.6	5.2	110	64	47	0.80	3
200	39.5	5.0	110	60	51	0.59	2
250	31.9	5.5	107	55	52	0.68	4
315	26.0	5.8	109	52	56	0.53	3
400	22.4	6.1	110	51	59	0.83	3
500	17.8	6.5	109	48	60	0.37	3
630	19.7	6.0	107	47	60	0.28	4
800	16.9	6.3	107	45	62	0.18	3
1000	11.5	6.5	108	42	66	0.41	0
1250	9.8	7.1	107	41	65	0.16	2
1600	7.1	7.4	105	34	71	0.31	0
2000	7.1	8.0	106	37	67	0.30	0
2500	7.2	9.1	106	35	69	0.27	0
3150	7.2	10.8	104	30	72	0.14	0
4000	7.9	13.5	103	24	75	0.20	0
5000	8.8	17.3	102	20	78	0.32	-
<b>STC RATING</b>	63		<i>(Sound Transmission Class)</i>				
<b>DEFICIENCIES</b>	32		<i>(Sum of Deficiencies)</i>				
<b>OITC RATING</b>	50		<i>(Outdoor-Indoor Transmission Class)</i>				

- 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

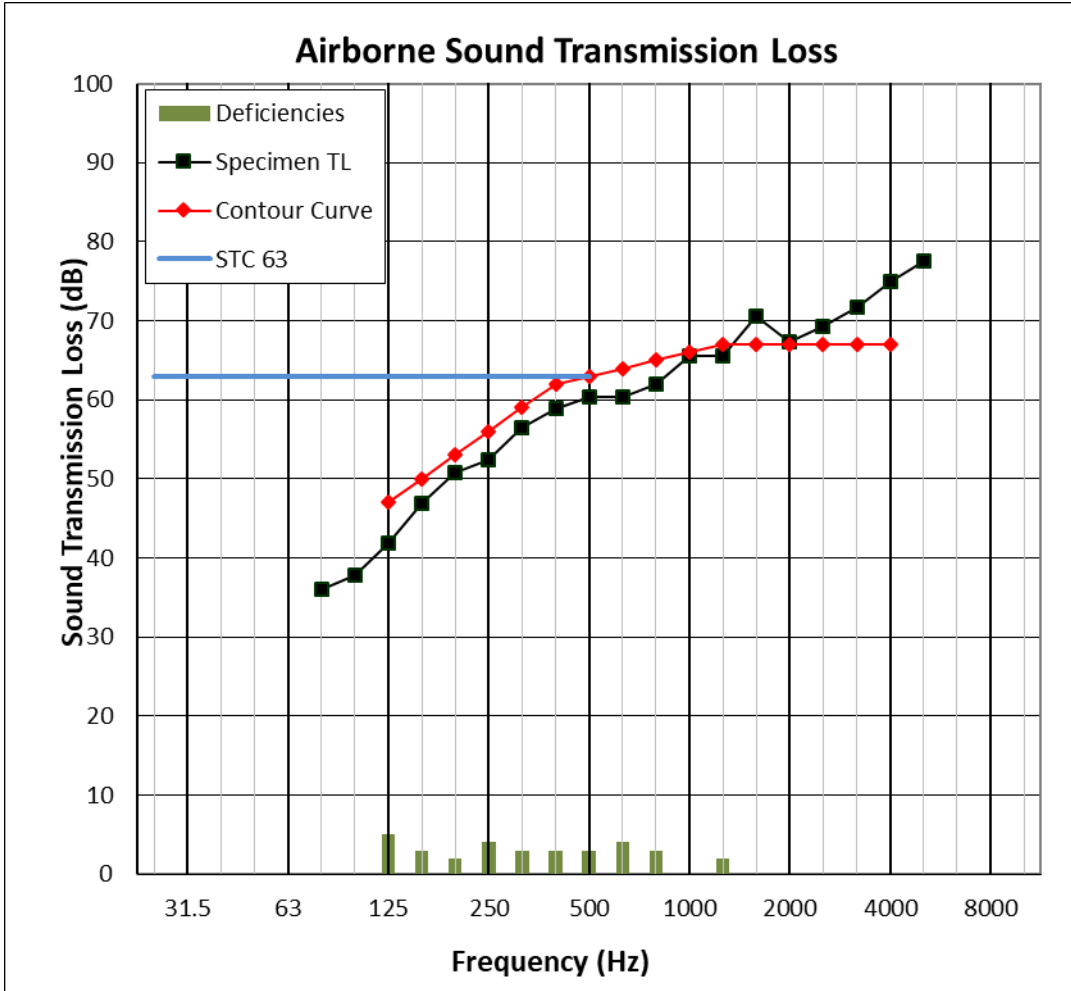


## TEST REPORT FOR CLARKDIETRICH BUILDING SYSTEMS, LLC

Report No.: L3173.13-113-11-R0

Date: 01/06/21

### L3173.01G4 GRAPH



## TEST REPORT FOR CLARKDIETRICH BUILDING SYSTEMS, LLC

Report No.: L3173.13-113-11-R0

Date: 01/06/21

### SECTION 11 PHOTOGRAPHS



**Photo No. 1**  
**Receive Room View of Installed Specimen**



**Photo No. 2**  
**Source Room View of Installed Specimen**



Total Quality. Assured.

130 Derry Court  
York, Pennsylvania 17406

Telephone: 717-764-7700  
Facsimile: 717-764-4129  
[www.intertek.com/building](http://www.intertek.com/building)

## TEST REPORT FOR CLARKDIETRICH BUILDING SYSTEMS, LLC

Report No.: L3173.13-113-11-R0

Date: 01/06/21

### SECTION 12

#### REVISION LOG

REVISION #	DATE	PAGES	REVISION
0	01/06/21	N/A	Original Report Issue