ACOUSTIC & INSULATION
PRODUCT TESTING LABS

ACOUSTIC | FIRE | THERMAL

ACOUSTIC AND INSULATION PRODUCT TESTING LABORATORIES

ACOUSTIC RESEARCH CENTER

FIRE SCIENCES LAB

THERMAL LAB

HISTORY

Owens Corning Laboratory facilities are world-class and have been conducting acoustics research since the 1940s. The Acoustics Research Center (ARC) was established at the Granville site in 1959 and originally known as the Energy Research Facility, which housed both the Acoustic and Thermal labs. Together, they played a pivotal role in the groundbreaking advancements in both thermal and acoustic research, as well as the development of fire suppression technologies.

HIGHLIGHTS

- One of the few acoustics labs that has both an anechoic chamber and a reverb chamber
- The only acoustics lab in North America that is accredited for official dishwasher testing

PROFESSIONALISM, QUALITY, AND CONFIDENTIALITY

The Owens Corning Acoustic and Insulation Product Testing Laboratories are proud to maintain:

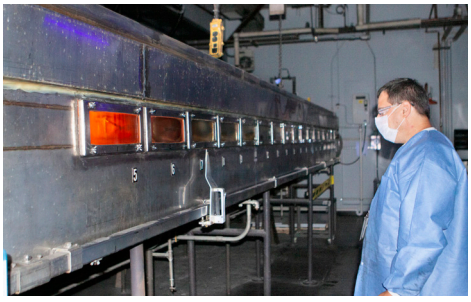
- A high degree of professionalism
- Focus on delivering the highest quality results
- Responsibility for project management
- Confidentiality for all project information and intellectual property
- NVLAP accredited testing (NVLAP Lab Code 100109-0)
- Active participation in ASTM, INCE, SAE, ASA, ASHRAE, and ANSI

INDUSTRIES SERVED

- Automotive, heavy vehicle, appliance, building, HVAC, architectural, and Aerospace
- Accredited testing per standards prescribed by ASTM, ISO, ANSI, and IEC

Custom Testing

- Competitive analysis
- Design optimization
- Performance validation



Special Services Programs

- Engineering for product innovation
- Root cause analysis
- Performance validation
- Market segment differentiation
- Innovative test hardware
- Specialized testing and analysis programs

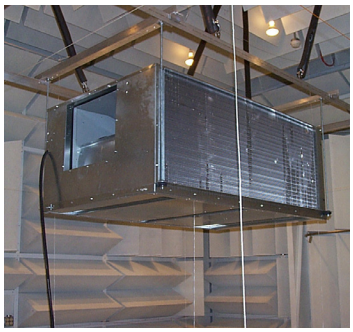
LABORATORY SERVICES

ACOUSTIC RESEARCH CENTER

FIRE SCIENCES LAB

THERMAL LAB

NVLAP ACCREDITED TESTS



ACOUSTIC RESEARCH CENTER	FIRE SCIENCES LAB	THERMAL LAB
ASTM C522 — Air Flow Resistance Testing of Acoustical Materials	ASTM E84 — Steiner Tunnel	ASTM C177 — Guarded Hot Plate
ASTM E1050 — Normal Incidence Sound Impedance and Absorption	ASTM E970 — Radiant Panel	ASTM C335 — Guarded Hot Pipe
ASTM C423 — Diffuse Field Sound Absorption	ASTM E136 — Combustibility	ASTM C518 — Steady-State Thermal Transmission Properties
ASTM E90 — Sound Transmission Loss	FMVSS 302 — Flammability of Interior Materials	ASTM C687 — Loosefill Building Insulation
ISO 3741/ANSI S12.51 — Sound Power	ISO 1182 — Reaction to Fire Tests — Non-Combustibility Tests	ASTM C1574 — Blown Density of Loosefill Thermal Insulation
ISO 3744, ISO 3741/ANSI S12.51 — Sound Power		ASTM E96 — Water Vapor Transmission of Materials
Appliance Sound Power: IEC60704-1 — Household Items IEC60704-2-3 — Dishwasher IEC60704-2-4 — Clothes Dryer IEC60704-2-6 — Clothes Washer IEC60704-2-14 — Refrigeration		ASTM C1374 — Blown Density of Loosefill Thermal Insulation at Multiple Thicknesses
ISO 3745/ANSI S12.55 — Sound Power		
ASTM E1222 — Acoustic Testing of Pip Lagging System		

ADDITIONAL TESTING

Sound Intensity (ISO 9614)	UL — 181 Flame Penetration Test
Muffler Transmission Loss	UL — 94 Flammability of Plastics for Parts in Devices and Appliances
Sound Quality Analysis	Quarter-Scale ASTM E119 Wall Test
	Modified S102 Tunnel Test
	IMO FTPC Annex 1 Pt. 1 Non-Combustibility Test
	ASTM E2768 (30 min. Tunnel Test)
	ASTM D92 Cleveland Cup Test

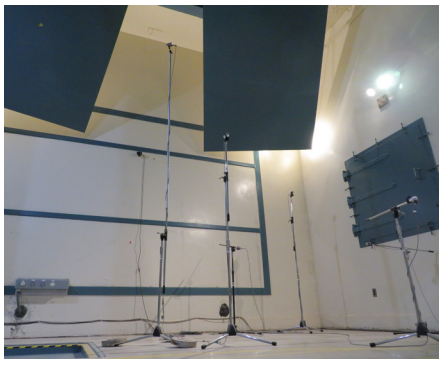
ADDITIONAL SERVICES

Benchmarking and Acoustic Performance Target Setting	Evaluating Thermal Properties of Materials
Vibro-Acoustic Analysis & Modeling	Testing Plan, Evaluation and Support
Research, Mimic, and Small Scale Testing	Nonstandard Test Development

ACOUSTIC RESEARCH CENTER

TESTING PARAMETERS

TEST STANDARD	TITLE	SAMPLE SIZE NEEDED	# OF SPECIMEN NEEDED PER SAMPLE	FREQUENCY RANGE OF INTEREST	SET-UP FEE REQUIRED?
ASTM C423	Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method	72 sq. ft.	As needed	SAA: 200 Hz–2500 Hz & NRC: 250 Hz, 500 Hz, 1k Hz, 2K Hz	Yes — for some mounts
ASTM C522	Airflow Resistance of Acoustical Materials	12 in. x 12 in.	3 to 5	N/A: Flow rates of 1, 2, 3, 4 & 5 liters/minute	No
ASTM E90	Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions	2 ft. x 2 ft. to 8 ft. x 12 ft.	As needed	N/A	Yes
ANSI S12.51	Determination of Sound Power Levels of Broadband Noise Sources in Reverberation Rooms	N/A	1	100 Hz–12500 Hz	Yes
ISO 3744	Determination of Sound Power Levels of Noise Sources — Engineering Methods for Free-Field Conditions Over a Reflecting Plane	N/A	1	63 Hz–10K Hz	Yes
ISO 3745	Determination of Sound Power Levels of Noise Sources — Precision Methods for Anechoic and Semi-Anechoic Rooms	N/A	1	63 Hz–10K Hz	Yes
ASTM E1050	Impedance and Absorption of Acoustical Materials Using a Tube, Two Microphones, and a Digital Frequency Analysis System	12 in. x 12 in.	3 to 5	80 Hz–6300K Hz	No
ANSI S12.5	Requirements for the Performance and Calibration of Reference Sound Sources	N/A	1	63 Hz–10K Hz	Yes
ISO 3741	Determination of Sound Power Levels of Noise Sources — Precision Methods of Broadband Sources in Reverberation Rooms	N/A	1	100 Hz–12500K Hz	Yes
ISO 6926	Determination of Sound Power Levels of Noise Sources — Requirements for the Performance and Calibration of Reference Sound Sources	N/A	1	63 Hz–10K Hz	Yes
ANSI S12.55	Precision Methods for Determination of Sound Power Levels of Noise Sources in Anechoic and Hemi-Anechoic Rooms	N/A	1	63 Hz–10K Hz	Yes
IEC60704-2-3	Household and Similar Electrical Appliances; Determination of Airborne Acoustical Noise; Particular Requirements for Dishwashers	N/A	1	100 Hz–12500K Hz	No
IEC60704-2-14	Refrigerators, Frozen-Food Storage Cabinets, and Food Freezers for Household and Similar Use — Measurement of Emission of Airborne Acoustical Noise	N/A	1	125 Hz–8K Hz	Yes
IEC60704-2-4	Household and Similar Electrical Appliances; Determination of Airborne Acoustical Noise; Particular Requirements for Clothes Washers	N/A	1	100 Hz–12500K Hz	Yes
IEC60704-2-6	Household and Similar Electrical Appliances; Determination of Airborne Acoustical Noise; Particular Requirements for Tumble Dryers	N/A	1	125 Hz–8K Hz	Yes
E1222	Acoustic Testing of Pipe Lagging System	Maximum length of 8 ft.; maximum ID of 8 in.; maximum OD of 8.5 in.	1	315 Hz–5000 Hz	Yes



TESTING PARAMETERS

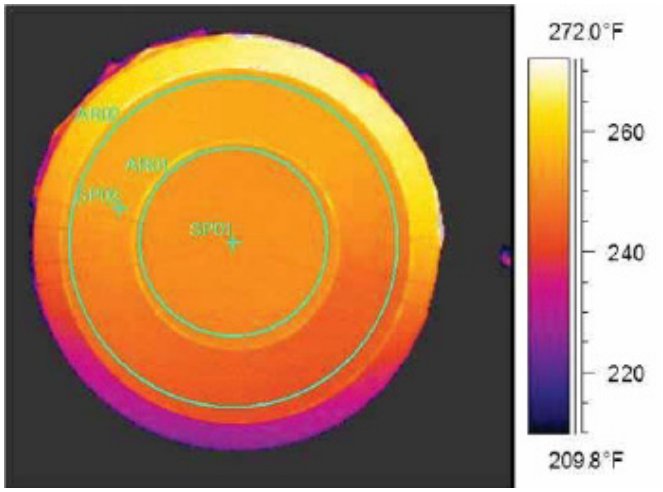
EQUIPMENT/ TEST NAME	DESCRIPTION	NUMBER OF SPECIMENS	SAMPLE SIZE	SAMPLE THICKNESS MIN. & MAX.	CONDITIONING TIME
ASTM E84 — Steiner Tunnel	Tunnel test for flame spread and smoke developed index	1	23.5 in. x 25 ft.	Up to 3.5 inches max	73.4˚F at 50% R.H.
ASTM E970 — Radiant Panel	Fire testing of attic insulations	3	10 in. x 40 in.	Up to 2 inches max	Condition to constant weight at 70˚F and 50% R.H.
ASTM E119 — Quarter Scale Wall Test	Wall assembly fire test mimic	1	22 in. x 22 in.	Up to 8 inches	Condition to constant weight at 70˚F and 50% R.H.
ASTM E136 — Vertical Tube Furnace	Behavior of materials in a vertical tube furnace	4	1.5 in. x 1.5 in.	2 inches	Dried in oven at 140˚F for 24 hours
ASTM C739 — Smoldering Combustion	Smoldering combustion of loosefill insulation	3	Random sampling	See method	Condition to constant weight at 70˚F and 50% R.H.
UL94 HB V0, HBF, and 5V	Flammability of plastic materials	3 to 5 — Depends on version	Depends on version	Depends on version	Depends on version of test to be performed — Consult method
UL 181 — Flame Penetration	Flame penetration for air-handling insulation material	Varies	22 in. x 22 in.	Varies	73.4˚F at 50% R.H.
FMVSS-302	Flammability of interior materials	5	4 in. x 14 in.	0.5 inches	24 hours at 73˚ +/- 4˚F

THERMAL PROPERTIES LABORATORY

TESTING PARAMETERS

TEST INSTRUMENT	# PIECES REQUIRED	METERING AREA	SAMPLE SIZE		SAMPLE THICKNESS		TEMPERATURE CAPABILITY	LENGTH OF TEST (HRS.)
			MIN.	IDEAL	MIN.	MAX.		
ASTM C518 Steady — State Thermal Transmission Properties								
Rapid k's 1 & 2	2	8" x 8"	16" x 16"	18" x 18"	¼"	2"	75˚F Mean	1
Fox 1, 9	1	10" x 10"	18" x 18"	24" x 24"	½"	6"	Surface Temp. 50˚F–150˚F	2
Fox 2, 3, 4, 5, 6, 8	1	10" x 10"	20" x 20"	30" x 30"	½"	8"	Surface Temp. 50˚F–150˚F	2
Fox 7	1	4" x 4"	12" x 12"	12" x 12"	½"	4"	Surface Temp. 50˚F–150˚F	2
ASTM C177 — Guarded Hot Plate								
High Temp. GHP1, GHP2, and GHP3	2	8" diam.	18" x 18"	18" x 18"	½"	2"	Surface Temp. 100˚F–950˚F	4
ASTM C335 — Guarded Hot Pipe								
High Temp. Pipe	1	24" length	36"	36"	3.5" ID	3.5" ID	Surface Temp. 100˚F–950˚F	4
ASTM E96 — Water Permeance								
E96	4	6" circles for dry test, 3" circles for wet test				1"		7–10 days

NOTE: Specimen sampling should be discussed to ensure representative data of the material is obtained.



CONTACT INFORMATION:
OWENS CORNING SCIENCE & TECHNOLOGY
2790 COLUMBUS ROAD — STATE ROUTE 16
GRANVILLE, OH 43023-1200

INFO.OCARC@OWENSCORNING.COM
PHONE: 740-321-7673

OWENS CORNING INSULATING SYSTEMS, LLC
ONE OWENS CORNING PARKWAY
TOLEDO, OH 43659 USA

1-800-GET-PINK®
www.owenscorning.com

Pub. No. 10024493-A. Printed in U.S.A. December 2021.