INSULATED METAL PANEL TESTING

Shock Tube Testing
BakerRisk’s shock tube enables full-scale dynamic blast testing of large specimens without the hazards and high costs associated with the use of high explosives and open air arena testing. Capable of satisfying test specifications put forth by GSA, ASTM, ISO, and EN for a variety of components, the shock tube offers a full suite of configurations and instrumentation to meet the most demanding blast validation requirements.

BakerRisk’s shock tube apparatus consists of two major sections, a driver section and an expansion section. Blast pressures are generated when a rupture diaphragm, placed between the two sections, fails due to pressure in the driver section. A shock wave then travels down the expansion section and loads the test specimen at its end. The gas-driven shock tube is capable of testing structural components to a variety of pressure and impulse combinations. The pressure and impulse applied to a test specimen can be varied independently, with an applied peak pressure range from 1 psi (0.07 bar) to 45 psi (3.10 bar), and an applied impulse range from less than 10 psi-ms (0.7 bar-ms) to over 1000 psi-ms (69 bar-ms) for some test pressures. The expansion section has a target area for the installation of test specimens, which can range between 8ft (2.4m) square up to 16ft (4.9m) by 10ft (3m).

Uniform Static Pressure Testing
Built with internationally recognized testing standards such as ASTM-F2247 in mind, BakerRisk’s static test apparatus allows for cost-effective testing and experimentation requiring precise static load-deflection measurement. Reconfigurable and highly adaptable to different specimen types and sizes, the static test apparatus is well suited for static load validation of a wide variety of insulated metal panel configurations.
ABOUT BAKERRISK
Baker Engineering and Risk Consultants, Inc. is one of the world’s leading explosion analysis, structural design, and risk engineering companies. BakerRisk provides comprehensive consulting, engineering, laboratory and range testing services to government agencies and private companies who are involved with dangerous, highly hazardous, reactive, or explosive materials.

- Blast Effects & Explosion Testing
- Dynamic Structural Analysis and Design
- Risk Engineering
- Process Safety
- Incident Investigations
- Reactive Chemicals Testing & Management Systems
- Materials Engineering and Failure Analysis

Insulated Metal Panel Testing
BakerRisk has tested numerous configurations of insulated metal panels, under a variety of different support conditions, a variety of different pressure levels, and a wide range of resulting response levels, including failure.

Insulated metal panels have been tested with catch systems, allowing the panel to fail, minimizing load transfer to the structural frame, yet protecting building occupants from cladding debris.

Applied Engineering Resources and Services
As a fully-featured applied engineering consultancy, BakerRisk offers much more than a testing agency with regard to product testing, development, and validation. BakerRisk’s testing services offer:

- Experienced and practiced professional design engineers who deal with the governing codes and standards daily, to provide the most up to date and efficient testing program to meet your needs.
- Full structural analysis and test configuration consultations using state-of-the-art Single-Degree-of-Freedom and dynamic finite element analytical models to ensure the most economical and expedient solution to your validation.

Structural Testing Clients
In addition to flexible and expedient testing services provided to clients in a multitude of industries, several large agencies and organizations rely on BakerRisk as the go-to solution for their structural validation needs. Among these clients are:

- Government agencies (GSA, DTRA, DDESB, USACE, PDC, Army, Navy, Air Force, DOS)
- Retrofit system manufacturer (Sherwin Williams, Glass Lock, Fyfe, Structural Group)
- Joint industry programs (Explosive Research Cooperative)
- Door and window vendors (Deansteel, Fendor, Graham Architectural, Overly, Oldcastle Glass, Permasteelisa Group, United States government)

Structural Testing Standards
The Wilfred E. Baker Test Facility provides testing services that meet current practice standards of:

- GSA – TS01-2003
- ASTM International, F 1642-04
- EN 13123 – 1:2001
- EN 13124 – 1:2001
- ISO 16934:2007
- ASTM F2247-11