



# Blast Chamber Design & Testing

ABS Consulting provides design and testing of explosion containment chambers for commercial and defense related clients. Examples include computational blast and structural modeling, detailed design, development of fabrication drawings, prototype blast testing and R&D testing in support of product development.

ABS Consulting is a worldwide independent global risk management firm that provides clients with industry experts, risk modeling, practical engineering and technology-based solutions to assist clients in managing their operational, security, and catastrophic risks.

ABS Consulting's Explosion Hazards Group, located in San Antonio, Texas, offers a range of services related to assessing explosion hazards and designing protective structures.

ABS Consulting maintains computational blast and structural modeling capabilities integral to the analysis and design of explosion containment chambers. Additionally, ABS Consulting has performed explosion testing to assess the blast capacity of chambers.

## Types of Chambers Designed

- Emergency response containment vessels
- Ready storage magazines
- Demilitarization chambers
- Suspect package holding
- Chem/Bio IED containment
- Research chambers

## Modeling Capabilities

- Advanced modeling (Autodyn, LS-DYNA)
- Finite element method (ADINA, ANSYS)
- Simple models (BlastX, SDOF, MDOF)

## Design Activities

- Structural shell design and detailing
- Doors, vent systems, penetrations
- Reusable chambers (elastic design)
- Fatigue and fracture analysis
- Fragment mitigation
- One-time use chambers (plastic design)
- Solid Works rendering and detailing

## Explosion Testing

- Testing in support of design
- Final commissioning/proof testing
- Pressure containment assessment
- External blast leakage measurement
- WMD simulation testing

## Measurement Capability

- Shock pressures
- Gas pressure
- Load cells
- Strain gauges
- Accelerometers
- Deflection
- Thermal emissions
- Acoustic emissions
- High speed video

# ABS Consulting

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# Explosion Hazards Group

ABS Consulting is a leading independent global risk management firm. We provide clients with practical engineering and technology-based solutions to assist in managing operational, security and catastrophic risks. We provide problem solving utilizing advanced modeling and analysis tools plus performing research and development programs.

ABS Consulting has a worldwide network of offices providing a wide range of specialized engineering and risk management services. Included is the Extreme Loads and Structural Risk division with offices throughout the United States specializing in structural assessment for extreme events such as blast, seismic and wind storms. The Explosion Hazards Group, located in San Antonio, Texas, offers services related to blast hazards and associated structural design.

## Technical Capabilities

- Advanced Structural Analysis
- Hydrocode and Computational Fluid Dynamics (CFD)
- Explosion Hazards and Blast Resistant Design
- Seismic and Conventional Structural Design
- Terrorist Threat Assessment
- Physical Security Design
- Extreme Wind Modeling and Design
- Windstorm and Flood Assessment and Design
- Heavy Lift Systems
- Heavy Load Drop Analysis

## Consulting Services

- Blast Resistant Design
- Facility Siting
- Explosives Safety and Quantity Distance Siting
- Blast Chamber Design
- Explosion Incident Investigation
- Explosion Testing
- Terrorist Threat Assessment
- Anti-Terrorism and Force Protection (AT/FP)
- Physical Security
- Blast, Debris and Thermal Hazard Assessment

