Fortified and Hardened Structures

Private / Residential

Balanced Survivability

Because it is impossible to protect against all threats and hazards, adopting a “balanced approach” in designs that considers intended functions, threat mitigation, and budget, is imperative. This is where Advanced Survival Technology's experience and know-how separates us from the general purpose Architects and Engineers. Our experience has shown here is no one-size-fits-all and there is no formula of security features and programs that will ensure 100% safety against all violent attacks or natural disasters. Designers and owners must understand the limitations of designed facilities and proposed countermeasures. Mitigating measures or countermeasures are specified to meet particular anticipated threats and determine the best possible means for survivability, sustainability, and continuity.

At Advanced Survival Technology, we design your facility to achieve a Balanced Survivability, ensuring that no one system or component is the "Achilles heel." No matter if it is Nuclear, Biological, or Chemical war, armed assaults, or any civilization altering scenario, our experienced and highly specialized team of engineers, scientists, and fabricators can confidentiality design and covertly construct your facility, efficiently and cost effectively, anywhere in the world.

Risk Assessment

Advanced Survival Technology's first steps in determining the feasibility of constructing a “HARDENED” home in a specific location is to completely understand our Client's priorities, goals, and budget; thoroughly examine the site and its surroundings; be fully aware of all regulatory agencies having jurisdiction; and to conduct a full Risk Assessment. This is completed using our proprietary "Confidential Client Interview Form". Once this information has been assimilated and agreed upon, the development of the A.S.T. Feasibility Study can be completed and submitted. This study is a condition precedent to establishing Program of Requirements, which then allows the Client to modify the Program or continue to the next phases. The planning, design, and construction of a hardened structure is technically specific and complex and is executed through the following phases:

- Phase One - A.S.T. Feasibility Study
- Phase Two - Protection Program
- Phase Three - Design Documents
- Phase Four - Permitting (if req)
- Phase Five - Pre-Construction
- Phase Six - Construction
- Phase Seven - Client Move-in
- Phase Eight - Systems Orientation

While each risk situation is unique and requires a methodical threat assessment tailored to the client's needs, Advanced Survival Technology's experience mitigating across a spectrum of threats has enabled us to design both permanent and modular, configurable systems that enables survivability in even the most demanding scenarios.

At Advanced Survival Technology our fortified structures can range from a single safe room to a multi-building self-sustaining, secured, survival community. However, they are principally designed as our Client's private residence or VIP house. Simply stated, your home is now your secured castle!

In order to prepare for anarchy, economic collapse, armed assaults, terrorist attacks, severe weather phenomenon, planetary risks, and other miscellaneous disasters and emergencies , our Team will work with you to maintain the highest level of preparedness possible. Given limited resources, managing the risk posed by major events is imperative. In an atmosphere of changing and evolving threats, resilience, sustainability, and preservation are the cornerstones, and are vital in building structures that will enable the Client to prevent, defend against, respond to and recover, from a wide range of Major Threat Events. We address these challenges by employing a Multi-Hazard Engineering methodology that not only recognizes individual hazards and threats sequentially but also address all hazards and threats simultaneously as a problem of optimization under constraints.

The facilities and structures can be protected against a wide range of threats including forced entry/assaults, climate change, chemical / biological / radiological / explosive (CBRE) agents, air-blast, ground shock, penetration, fragmentation and damage to the structure and equipment due to explosive loading.

Along with the Client's particular living, functionality, and storage requirements, the designs also incorporate active offensive and defensive components, and mechanical responses to reduce the effectiveness of any given threat while providing for individual and family long term living requirements.

Fortified structures are special, and so are the people who choose them. At Advanced Survival Technology, confidentiality of ALL PROJECTS is paramount. We serve as our Client's agent, representing their best efforts by professionally and stealthily implementing a design/build program to meet any Threat Event.

Advanced Survival Technology's team of experienced structural engineers and designers are available to review and design solutions to fortify/harden residential structures to mitigate a wide variety of attacks or disasters. The new hardening/fortification can be incorporated into new Residential designs or through upgrading an existing private home to client specific requirements.

A fortified home that is safe and secure against a variety of threats is an excellent way to protect your family and your investments. ***Learn more about our Advanced Defender Building Systems in the Fortified and Self-Sustainable Residential Homes & Community Development Section of this brochure.***

Let us assist you today, with the best "insurance" you will ever purchase...

PROTECTION & SAFETY FOR YOUR FAMILY!

Commercial and Industrial Applications

Advanced Survival Technology offers highly specific engineering expertise for any commercial or Industrial application. Commercial structures face differing levels of risk associated with CBRN threat, climate change and natural events, accidents or intentional (criminal or terrorist) events. The development of effective and efficient client/project-specific mitigation strategies requires the use of Risk Assessment. Risk is a combination of credible threats, vulnerability and consequence. Certain geographical areas have particular risk factors that affect facility capability need and placement such as population density, presence of critical infrastructure, location in a high terrorist threat or high natural disaster areas and military base/complex proximity.

Advanced Survival Technology employs the latest defense and approved sensory and filtering equipment to protect commercial and government buildings.

The CBRN Threat Mitigation and Assessments

Counter-terrorism experts within the DHS, CDC, and NIOSH are vexed by commercial and public building vulnerability. An office building has a high concentration of human life encapsulated in a small space; an ideal target for today's merciless terrorist. The experts repeatedly identify the HVAC system as the most likely distribution point for a toxic attack.

Advanced Survival Technology works with only industry leading and proven technologies to provide the most accurate Threat Assessments and Advanced Protection Systems against CBRN threats. From Metropolitan Commercial Development Projects to PetroChemical and Nuclear Power Plant Threat Mitigation needs, we have the most advanced and cost effective solution on the market. Contact your local A.S.T. office to review your commercial application requirements.

Save Innocent Lives	Protect Assets	**Limit Business Interruption**	Reduce Clean-Up & Abatement Costs
May Reduce Insurance Premium / Workers Compensation	**Terrorism Insurance**	Property Insurance	**Business Interruption Insurance**
Third Party Liability	Cost Effective & Modular Design with No Interruption to Commerse	**Limit Liability via Product Designation by DHS as defined in Safety Act of 2002**	

Military and Government Applications

Our Hardened Military Structures are designed to meet or exceed current Mil Spec and NATO Third generation standards. Third generation NATO hardened Aircraft Shelters are designed to meet NATO AASTP-1 and Mil Spec 188-125-1.

Hardened military structures are designed to withstand a wide range of threats including forced entry, CBRN (Chemical, Biological, Radiological and Nuclear) attacks, ground shock, penetration, fragmentation, and damage to the structure and equipment due to explosive loading.
Our balanced survivability approach ensures that no significant facility failure mode has been overlooked.

The Advanced Survival Technology Team of specialized and certified design, engineering, and construction specialists can provide Department of Defense designs or building services for any type of military facility or related requirement, including (but not limited to):

- Deep Earth Command and Control Bunkers
- NATO "Third Generation" Direct Attack Aircraft Hangers
- Earth Cover Magazines (ECM's)
- Hardened, Above-ground Blast & Ballistic Resistant Facilities
- EMP/HEMP Protected Facilities

The Advanced Survival Technology Team can provide the following services and products:

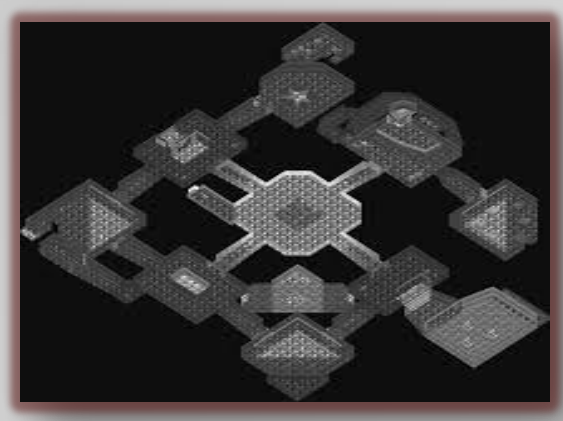
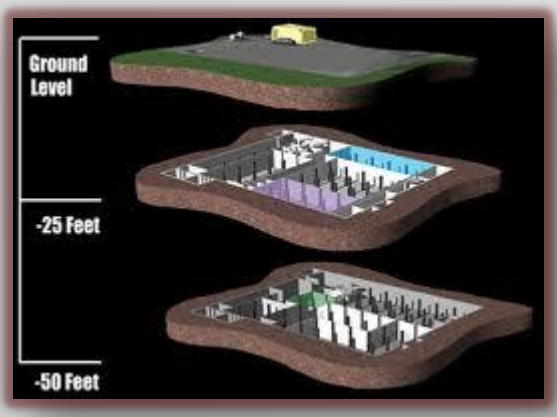
- Risk/Threat Assessments
- Architectural, Mechanical, Electrical, Structural, Blast, and Ballistic Engineering
- Shelter Dynamics & Programming
- Fortification Designs & Placement
- EMP/HEMP Mitigation Engineering
- CBRN (Chemical, Biological, Radiological & Nuclear) Air Filtration Systems
- Blast Doors, CO_2 Scrubbers & Oxygen Machines, and Miscellaneous Specialized Shelter Equipment
- Existing Facility Assessments & Recommendations

The Advanced Survival Technology Team designs structures according to UFC 3-340-01: Department of Defense Unified Facilities Criteria: Design and Analysis of Hardened Structures and UFC 3-340-02: Department of Defense Unified Facilities Criteria.



- Military grade pre-fabricated steel shelter systems. All designs meet or exceed the (USACE) United States Army Corps of Engineers design standards and are in accordance with the (IBC) International Building Code.
- Complete design and specifications for Command and Control Centers, Continuity of Government Facilities, Communication Centers, and similar Facilities.
- Full Blast Engineering and Mitigation designs.
- Full Facility HEMP shielding designs and complete specialized component protection.
- Military grade CBRE (chemical, biological, radiological and explosive) equipment including air filtration, blast doors, blast valves, etc.
- Military grade pre-fabricated steel shelter systems and reinforced concrete systems (permanent and modular systems available)

Special designs are available to mitigate for multiple types of missiles and munitions impact.

Structural Hardening of Buildings and Structures

Innovative structural solutions are needed to harden and fortify new or existing commercial structures to accommodate client priorities. Advanced Survival Technology has the required experience to design, engineer, and manage the construction of these specialized projects, offering complete turn-key services.

The Advanced Survival Technology's Engineering Team provides the following building "hardening" services to meet your damage mitigation expectations:

- **Blast mitigation design and construction for new or existing commercial buildings**
- **Analysis of structural building elements**
- **Site and building assessments of a commercial building from a wide variety of experts**
- **Security and Site Threat Assessment, including building "hardening" recommendations**

Building "Hardening" Process:

The Advanced Survival Technology Team provides a detailed survey to determine and record current structural integrity, barriers, detection systems, operations, logistics, security requirements, roads, landscaping, and other features.

This initial site survey information must be integrated and coupled with the appropriate structural "Hardening" design and planning to provide the necessary client specific level of protection (see chart below) for critical asset protection. Levels of Protection for Commercial Buildings:

Level of Protection	Potential Structural Damage	Potential Injury
Below Standard	Severely damaged. Frame collapse/massive destruction. Little left standing	Majority of personnel suffer fatalities
Very Low	Heavily damaged. Onset of structural collapse: Major deformation of primary and secondary structural members, but progressive collapse unlikely. Collapse of non-structural elements	Majority of personnel suffer serious injuries. There are likely to be a limited number (10% to 25% fatalities)
Low	Damages - unrepairable. Major deformation of non-structural elements and secondary structural members and minor deformation of primary structural members, but progressive collapse unlikely	Majority of personnel suffer injuries. There may be a few (<10%) fatalities
Medium	Damaged-repairable. Minor deformations of non- structural elements and secondary structural members with no permanent deformation in primary structural members	Some minor injuries but fatalities are unlikely
High	Superficially damaged. No permanent deformation of primary and secondary structural members and non-structural elements	Only superficial injuries are likely

Features

High Speed Detection and Shut Down in Seconds	• Critically providing detection-to-HVAC shutdown in seconds.
Elimination of False Positives	• Redundant design coupled with proprietary firmware and software algorithms generate a 99.7% confidence level.
Broad Spectrum Sensing	• Providing radiological library of up to 120 isotopes and a huge chemical spectrum offering the most reliable sensing available today.
Automated Response	• Eliminating human intervention for HVAC shutdown. Robust Design, Field-proven Technology – Built for the harsh building environment using base technologies which have been in use every day for decades.
Flexible, Modular "Plug and Play" Design	• Creating a backbone detection system that is simple to install into any architecture, and inexpensive to maintain and upgrade.
24/7/365 Remote Monitoring	• Providing first responders with useful real time data to expedite a safe building rescue.
Multi-level Security Protection	• Multi-key access and continuous real-time monitoring insure that your system is up and operating accurately.
Developed by Experts	• Created by building infrastructure professionals and experts in nuclear and chemical detection.
UL 508A Compliant	• UL 508A Compliant SAFETY Act Designated Technology