

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:

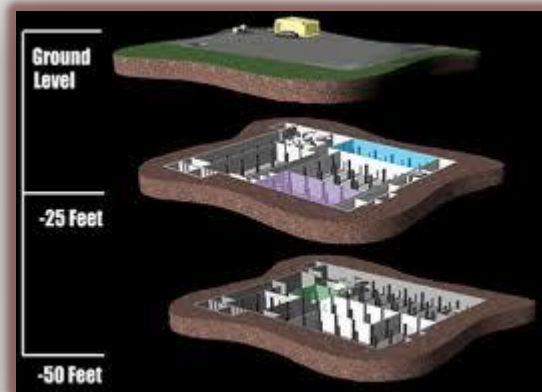
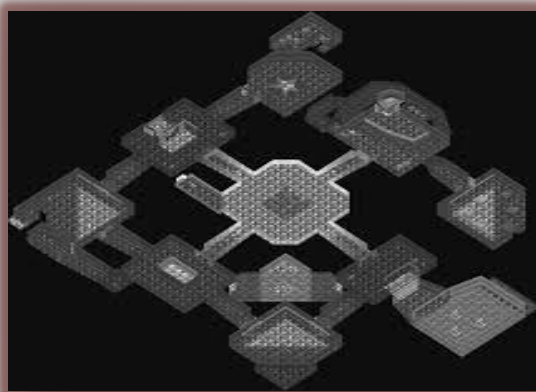
- Risk/Threat Assessments
- Architectural, Mechanical, Electrical, Structural, Blast, and Ballistic Engineering
- Shelter Dynamics & Programming
- Fortification Designs & Placement
- EMP/HEMP Mitigation Engineering
- CBRN (Chemical, Biological, Radiological & Nuclear) Air Filtration Systems
- Blast Doors, CO₂ 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

Advanced Firebreak Technology System

Our amazing Advanced Firebreak Technology System, is brought to you directly from our partners, Colorado Firebreak, offering ideal wildfire protection for residential, commercial, and community development projects and any other structural application needs.

Customized Wildfire Protection to Defend Your Home

Colorado Firebreak has developed a revolutionary high-tech wildfire mitigation system to guard homes from the destruction of wildfire.

These customized wild land fire defense solutions include sophisticated systems that will protect both your home and the trees and vegetation that surround it. Colorado Firebreak also provides simple do-it-yourself fire retardant spray options that offer effective, but more limited defense.



More than 600 Colorado homes were destroyed by wildfire last year. These homeowners lost valuable assets and irreplaceable mementos. Colorado Firebreak has the wildfire protection systems you need in a wildfire disaster. Colorado Firebreak designs and builds customized systems to deliver fire retardant sprays in the event of a wildfire. We engineer and install fully-automated wildfire mitigation systems that become operational when sensors detect the UV wavelengths unique to fires. Colorado Firebreak also sells the FireIce Home Defense Unit. In combination, these options create a customized

firebreak for your home, outbuildings, and the surrounding trees and property. You decide the level of protection you desire.

Defend Your Home with Our Fire Retardant Delivery Systems

For most homes, Colorado Firebreak recommends our mid-range wildfire protection system, designed to protect your home and an area 50-feet around it. It includes wildfire detection sensors that wirelessly signal the control panel to activate Stage One.



Stage One, FireIce powder is combined with water pumped from an underground storage tank. This creates the FireIce protective gel, a revolutionary fire retardant product used by many professional firefighting organizations to stop fires fast. Multiple fire suppression lines installed on the home deliver the FireIce gel so that it covers the home. As the fire nears, the control panel activates Stage Two.

In Stage Two, fire suppression lines in the tree canopy at the perimeter of the home spray water on all trees. The microclimate that Stage Two creates lowers temperatures and raises humidity, producing a natural firebreak around

the home. Because Stage Two applies water to the area 50-100 feet around the home, it can protect valuable vehicles, outbuildings and trees.

The Colorado Firebreak system is fully self-contained, including an isolated water tank and power sources. Depending upon the system chosen, it is activated either manually or automatically and relies on either electrical or gas power generation. The system is customized to your home and property's environment, and to the area you want to protect.

The FireIce Home Defense Unit

For the homeowner who wants a do-it-yourself fire retardant system, Colorado Firebreak recommends the FireIce Home Defense Unit. Using the same FireIce gel that our automated systems use, the Home Defense Unit is designed to deliver fire retardant through a powerful sprayer on wheels. It includes enough FireIce to cover a home up to 2,500 sq. ft. Additional buckets of FireIce® may be purchased as needed.



FireIce gel is:

- Environmentally friendly and non-toxic. It is safe for plants, wildlife, pets, and children.
- Non-corrosive and cleans up easily. Just rinse with water to wash it off.
- Long-lasting and effective. It does not break down over time and consistently outperforms the best Class A foams.
- FireIce is designed to protect structures in heat as high as 2000 degrees Fahrenheit.

Request a Wildfire Mitigation Consultation Today!

The team at Colorado Firebreak knew that wildfire mitigation solutions that focus only on the home offer inadequate protection. Their goal was to engineer and construct a system that would protect the home and create a firebreak around it.

Our team has extensive experience with high-pressure water systems, fire science, threat evaluation, and fire systems engineering, and this specialized knowledge and skill allowed us to create a unique wildfire protection system. The system's innovative design not only covers the home in a fire retardant gel spray, but hydrates the trees and vegetation around the home producing a micro-climate that lowers air temperatures, raises humidity, and acts as a natural firebreak.

There is no system that offers your home 100% guaranteed protection from wildfire. But, by combining a Colorado Firebreak system with standard wildfire protection advice like clearing flammable debris and thinning vegetation, you can mitigate the risk to your home from a wildfire threat. Learn how you can defend your home in the event of a wildfire. Colorado Firebreak delivers the fire retardant products and systems to provide a customized wildfire mitigation solution. Our team can construct a high-tech system that creates a firebreak around your home or a larger perimeter of your property.

Let us meet with you and inspect the unique challenges presented by your home and property. Our team will develop a customized plan to mitigate the risk to your family's home in a wildfire disaster.

EMP/HEMP Mitigation Products and Services

Advanced Survival Technology is dedicated to the analysis, design, fabrication and installation of specialized shielding, components and systems to mitigate the harmful effects of Electromagnetic Pulse and Geomagnetic Storms on buildings, vehicles, and structures world-wide. Our Team of highly skilled professional engineers, project managers, and fabricators have worked on military, government, and private projects world-wide.

Due to varying worldwide conditions, the need now exists for uniform and effective hardening, hardness verification and hardness maintenance of command and control centers, critical communications, data and computer centers, and intelligence systems that require 100% operations during and after an EMP/HEMP or Geo-Magnetic Storm (GMS) event. In critical time-urgent applications where momentary upsets are mission-aborting, the hardening requirements include stringent facility shielding, point-of-entry (POE) protection and special protective measures.



Advanced Survival Technology can provide comprehensive and effective hardening, hardening verification and hardness surveillance of bomb shelters, buildings, facilities, hardened shelters, command/control centers, data processing centers and business continuity centers against the damaging effects of Electromagnetic Pulse (EMP), HEMP, GMS, or transportable High-Powered Microwave (HPM) weapons. The function of these facilities supporting critical time-urgent applications requires network interoperability and effective physical protections, electromagnetic shielding, point of entry (POE) protection, and related special protective measures. At EMP Engineering we offer cost effective solutions and full manufacturing capabilities for most any type of HEMP/EMP/GMS mitigated facility along with full hardened shelter design/build services. We are dedicated to the design and implementation of robust, hardened CBRN and EMP measures – including specialized shielding / mitigation, components and sub-systems, to prevent the harmful effects of intentional or unintentional Electromagnetic Pulses and Geomagnetic Storms.

Our services include (but are not limited to):

- Professionally Designed and Engineered HEMP/EMP/GMS Mitigation Solutions
- Custom HEMP Shielding Fabrication, Installation, and Project Management
- HEMP Verification Testing, Hardening, Hardening Assurance, Maintenance, and Remote Surveillance
- Custom designs for Electromagnetic Compatibility (EMC), Electromagnetic Interference (EMI), Nuclear and Lightning Electromagnetic Pulse (EMP), and TEMPEST solutions
- Electromagnetic pulse (EMP) Solutions that integrate with Architectural, Structural, Electrical, and Mechanical Engineering services to create a secured and safe shelter / bunker environment
- Full Service Professional Architectural, Engineering Solutions and Products for Hardened Facilities including CBRE (chemical, biological, radiological, explosive) Filters, Structural Engineering, Blast Engineering, and Electrical/Mechanical Engineering
- Engineering Solutions to keep your designed environment effective against evolving threats now and in the future
- All designs and projects are HEMP hardened per MIL-STD-188-125-2
- Portable, custom designed HEMP Resistant Electrical Generators, Communications Centers, and Data Centers fabricated in ISO shipping containers at 10', 20', 30' and 40 foot lengths. These can be ballistic/blast hardened with CRBN Air-Filtration systems. Custom evaluations, installation, and commissioning services included.
- Custom HEMP Shielded Rooms and Faraday Enclosures designed, built to any size, and installed

Creating a protective electromagnetic-threat facility shield requires an electromagnetic barrier with additional special protective measures that incorporate electrically continuous housings that substantially reduce the coupling of EMP electric and magnetic fields into the protected area. The electromagnetic barrier shall consist of the Facility HEMP Shield and protective devices for all POE's. Additionally, reliability, maintainability, safety and human engineering, testability, configuration management and corrosion control all need to be incorporated to the HEMP protection system design.



To accomplish this goal, a Client specific Vulnerability identification/Hardness Program overview and criticality assessment must be conducted that incorporates design, engineering, fabrication, installation and ongoing effectiveness testing activities to achieve the following:

- Provide an electromagnetic threat- protected facility or system design based upon verifiable performance specifications against identified threats that ideally suits the requirements of our clients.
- Provides a means of verifying achieved hardness levels through a cost-effective program of testing and analysis.
- Develop a maintenance/surveillance program during the procurement phase that supports the Client's operational and life cycle HEMP hardness requirements.
- Based on the anticipated threat, facility location and Client's protection program establishes the HEMP configuration baseline consisting of documentation of the physical characteristics of the HEMP protection system, subsystem and baseline performance data.

Services

HEMP Hardening Design and Engineering

HEMP Hardened Systems Integration

HEMP Project Management

HEMP Quality Assurance

HEMP System Testing

HEMP Education, Training, and Consultation

Sectors

Departments/Ministries of Defense

Power Grid Operators

Civil/Critical Infrastructure Operators

Oil Companies/Oil Infrastructure

Residential/Commercial/Industrial Hardening

VIP and Government Continuity

Aircraft Operators and Aviation Facilities

Electronics Manufacturers

Advanced Survival Technology understands EMP hardening, design, and integration of life-safety systems that must work during and after a HEMP/EMP attack, such as power systems, CBRN air-filtration systems, water systems, communications systems, sensor systems. Work with the experts when your life and continuity depends on performance. We have the experience to understand your needs, and the knowledge to meet them.