

# Fortified and Hardened Structures

## Private / Residential

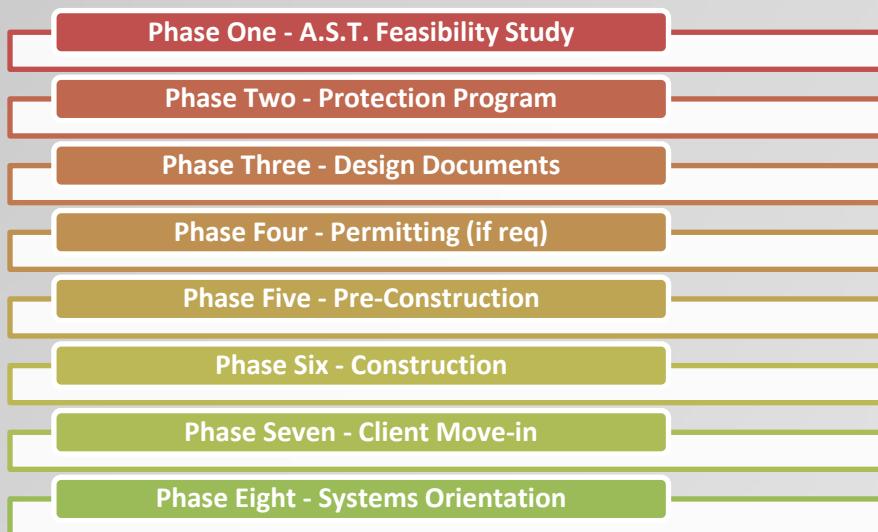
### Balanced Survivability

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 confidentially 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:



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!**

# **Fortified and Self-Sustainable Residential Homes & Land/Community Development**

## **The Advanced Defender Building System**



Advanced Survival Technology is proud to announce a new partnership with Defender Technologies to bring an incredible new patented building technology system to the public and private sectors. We are proud to present the Advanced Defender Building Technology System, offering endless multi-hazard protection capabilities and applications to meet any residential, commercial, industrial, government, or military need.

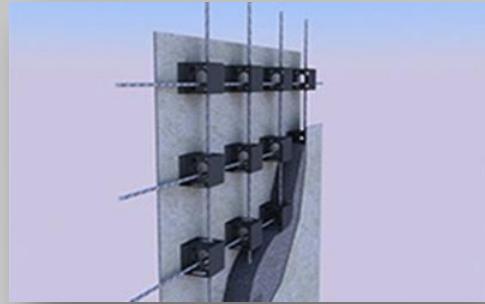
This building system is focused on protective and resilient construction and self-sustaining community developments. Builders and Land Developers are encouraged to contact Advanced Survival Technology, to participate in our vision for the development of resilient and protective structures as we progress into an ambiguous future for severe weather and planetary risk threats.

This patented building system is available anywhere in the world, and offers innovative technology that enables the development for structurally engineered applications to withstand hurricane and tornado force winds up to 200 mph, resistance to earthquakes (up to 7.0 on the Richter scale), flying projectiles, mold, fire, carpenter ants, mud slides, and flood/water damage. This building system provides the necessary hazard mitigation for survivability, sustainability, protection, and green energy savings, as well as the added benefits of shorter construction time, labor costs, and possible insurance savings (contact us for more information on whether these insurance savings are available in your area.)

Since the start of the 21st Century, this building technology has been utilized globally to construct over 60,000 units in more than 15 countries with 30,000 additional unites scheduled for completion by the end of 2013. While no technology can be rendered "indestructible", our Advanced Defender Building System comes as close as any affordably priced structure can be, and is the wave of the future in the building industry!

## **Advantages of the Defender Tech Building System:**

- 4-inch (thicker on multi-storied or ballistic/blast resistant structures) concrete reinforced on 16-inch centers with vertical/horizontal steel reinforcement bars.
- 4000 p.s.i. concrete custom-poured to spec on-site (not pre-fabricated or shipped in)
- Tested to withstand 1800 degree Farenheight direct flame for over two hours with no loss of structural integrity - (inquire about our new patented firebreak system)
- Residential, Commercial, Industrial, Government/Military, FEMA, HUD, and Community Development Applications
- Engineered to withstand 200 mph winds
- Exponentially stronger than wood-frame
- Tested to withstand light ballistics (can be engineered and tested to provide heavier ballistic/blast protection needs) to include 9 mm, .45 cal, and M-16. (Bullets did NOT penetrate or compromise the structure, photos available demonstrating these test results at 80 feet)
- Designed to withstand earthquakes
- "Green Construction" (uses up to 75% less trees in construction)
- Extremely Energy Efficient (estimated to use 40% less energy than traditional stick-built)
- Acoustically superior
- Designed to exceed IBHS Fortified Gold Standard which typically carries on a 40%-60% discount on insurance premiums (contact us for more information in your area)
- Does not absorb water (unlike concrete block)
  - Resists Mold
  - Impervious to Termites and Ants
  - Does Not Rot



Over 60,000 homes in 15 nations have been built using this system that is incorporated into our Advanced Defender Building Systems. Known as, DefenderWall™, this system's components have been tested and proven to be the new innovative way to construct structures with protection, resiliency, and sustainability. Best of all, DefenderWall™ systems saves lives and saves on energy costs (green building). Here are a few residential projects that have been constructed utilizing this phenomenal building technology:



Advanced Defender Building Systems can be utilized for residential and commercial construction, and in addition, provides significant construction opportunities with government building applications, such as HUD Housing Developments, FEMA, Defense and State departments, just to name a few. This system can also be utilized for the construction of retaining walls, blast/ballistic resistant structures, in addition to the obvious building of safe homes in tornado alley and hurricane-prone areas.

*We can also incorporate EMP/HEMP mitigation strategies as well as our new Advanced FireBreak Systems that can be remotely activated to protect your structure and surrounding parameters (up to 150 feet). You will find designated sections in this brochure that discuss these additional threat mitigation options.*

### Building Green – Stronger, Safe, Smarter

Our innovative Advanced Defender Building Technology enables our clients to build structures engineered to withstand hurricane and tornado force winds up to 200 mph.

These structures also resist termites, water damage, earthquakes (up to 7.0 on the Richter scale), mold, fire, carpenter ants, mudslides, and fire (also offering additional FireBreak and EMP (Electro-magnetic Pulse) Protection options found in the lower portions of this brochure.)

### Compare

DefenderWall™	vs	Wood Frame Built
1. Resists High Winds		Decimated by Hurricanes & Tornadoes
2. Resists Fire		Is Fuel for Fire
3. Resists Flood Damage		Powerless Against Floods & Water
4. Resists Earthquakes		Offers No Protection Against Earthquakes
5. Resists Termites		Is Food for Pests
6. Resists Mold & Mildew		Mold & Mildew Destroy Wood
7. Resists Projectiles		Walls Are Mostly Hollow, No Protection
8. Resists Mudslides		Mudslides Decimate Wood Homes
9. Resists Carpenter Ants		Carpenter Ants Feed on Wood
10. Environmentally Friendly		Destroys Trees, Consumes More Energy

**Which Would You Prefer?**

## **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.

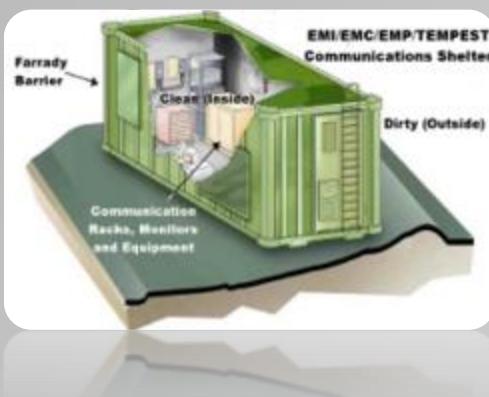
### **Our services include (but are not limited to):**

- 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 CBRN 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.