SHELTER WORKS

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FIBERGLASS SHELTERS FOR THE NATURAL GAS INDUSTRY

WHY SHELTER WORKS?

When thinking about a protective solution for your critical field equipment, you'll find that a fiberglass shelter from Shelter Works is hard to beat.

Our fiberglass enclosures are some of the strongest, most flexible, most cost-effective, and highest-performing equipment shelters in the industry. If you are looking for less hassle and lower cost, with proven durability and long-lasting performance, look no further.

Shelter Works is an American-based manufacturer of fiberglass equipment shelters with over forty years of experience in designing and manufacturing FRP enclosures for every industry. We provide equipment protection solutions for industrial and municipal applications throughout the country. We take pride in the quality and durability of our buildings and are dedicated to delivering the right protective solution and optimal operating environment for your critical field equipment. Our fiberglass field equipment shelters meet most military, government, and enterprise equipment enclosure needs.

INDUSTRY LEADING WARRANTY

When you work with Shelter Works, you can specify with confidence. All of our fiberglass shelters are backed by our industry-leading 25-year warranty.

Our motto is "If it was built by Shelter Works, It was Built for Life." To live up to it, we take tremendous care in designing the highest quality shelters - engineering each element for unmatched durability. We combine top-quality components with our innovative FiberBeam™ and FiberWrap™ technologies to ensure the integrity of our products.

We put our shelters through extensive quality checks to ensure each one will perform to expectations and live up to our claim. We back that up with an industry-leading 25-year warranty so you can have peace of mind knowing your field equipment is protected.

POLYMER TECHNOLOGY : GELCOAT VS. PAINT

Shelter Works' gelcoat provides superior resistance to Ultra Violet deterioration and hydrolysis. It uses the same resin chemistry found in the structural fiberglass composite. The gelcoat is sprayed into molds during the manufacturing process, where it chemically transforms from a liquid to a solid through crosslink polymerization. When the fiberglass composite is applied, the polymer chains crosslink between the gelcoat layer and the fiberglass composite, bonding the two layers into one at the molecular level. The color is now an integral part of the fiberglass, not a coating. Therefore, it will never flake, peel or need repainting.

NATURAL GAS STORAGE FIELD SHELTERS

NATURAL GAS STORAGE

Throughout America, underground fields provide local storage of natural gas supplies in rural areas outside of major metropolitan cities. Gas companies utilize these fields to lower the stress on our limited gas pipelines and increase availability near the point of usage versus at the point of collection. Gas stored deep underground mixes with water which can be salty and corrosive, so wellhead separators are installed at the wellhead to separate the gas from water and other impurities before it is processed.

WELLHEAD SEPARATORS

Shelter Works worked on a project with Randy Cunningham, Sales Representative at Control Equipment Sales Company (CES), where their customer, a natural gas supplier, replaced smaller tanks with larger, higher-capacity tanks that allowed for greater efficiency. As demand for gas increases, more gas and water flow in and out of the field, creating the need for higher-velocity wellhead separators to deal with the greater volume of water.

IMPROVED SAFETY

"Safety and overall lifetime cost were top priorities for this project. Metal buildings tend to corrode quickly in this environment, while fiberglass is easy to clean and maintain.

Shelter Works builds such a high-quality, structurally sound shelter. The engineers were happy to specify the Shelter Works buildings," Cunningham explained. "They did look at other suppliers, but in the end, they chose Shelter Works. We have had a long-standing relationship with the people of Shelter Works, so we knew they would deliver a strong product."

Shelter Works worked with Cunningham and his client to design and build twenty-two 12' x 14' x 10'(h) fiberglass buildings. In addition to upgrading the equipment, the engineers wanted improved safety features to protect the equipment and the people who service it. They added wood reinforcement within the walls for more structurally sound buildings. They also added strategically placed windows for improved visibility within the shelters.

ENERGY EFFICIENCY

Because this storage field is in a cold weather climate, they also specified two-and-a-half-inch foam in the walls and 3-inch foam for the roof. The engineers used the inherent insulating properties of fiberglass and the additional insulation to trap heat generated by the equipment in the building, keeping the shelter warm inside without the need for electricity.

"SHELTER WORKS BUILDS SUCH A HIGH-QUALITY, STRUCTURALLY SOUND SHELTER, THE ENGINEERS WERE VERY HAPPY TO SPECIFY THE SHELTER WORKS BUILDINGS."

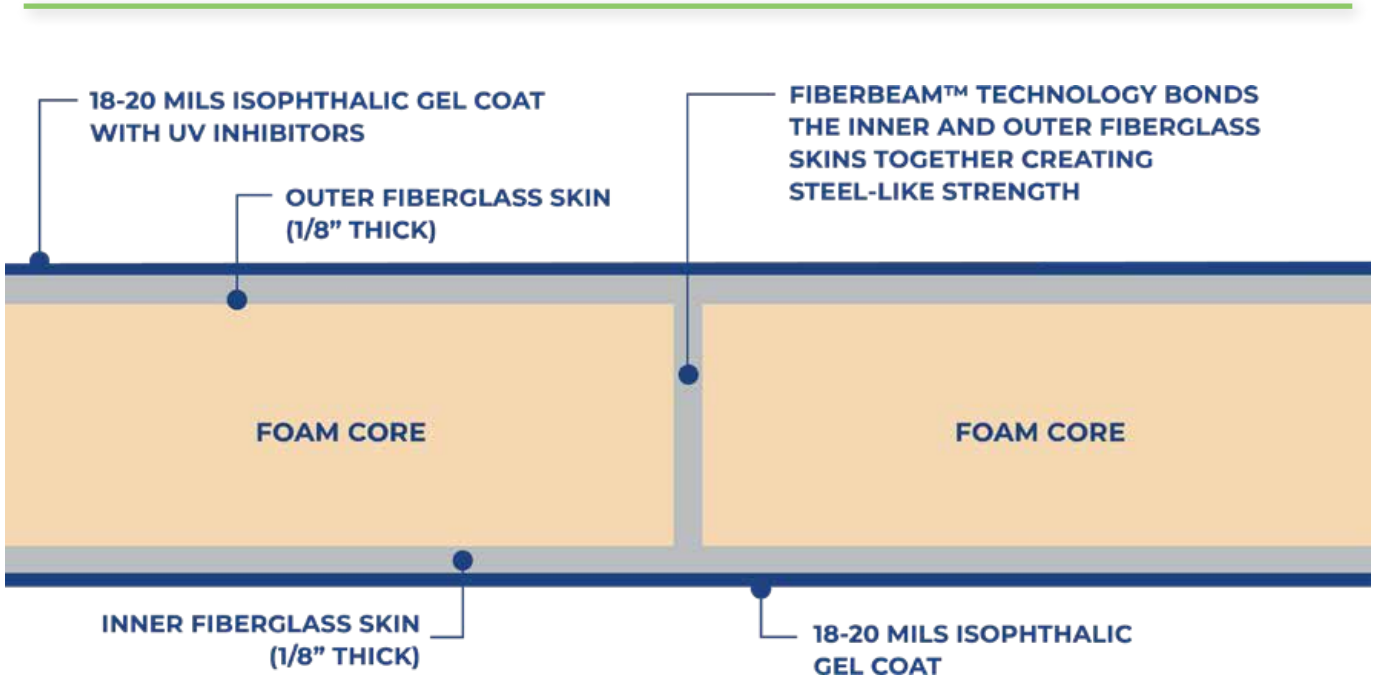
RANDY CUNNINGHAM, *SALES REPRESENTATIVE*
CONTROL EQUIPMENT SALES

FIBERBEAM TECHNOLOGY

Shelter Works fiberglass shelters feature our exclusive FiberBeam™ technology - an innovative and proprietary composite lamination process that results in a shelter that is, pound for pound, stronger than steel.

Foam is a good insulator but not a great structural material. Typical FRP sandwich panels, made with a foam core, consist of three layers: two outer fiberglass skins and a core of insulating material. They can delaminate due to environmental stresses like moisture and thermal expansion, causing structural instability.

Shelter Works manufactures fiberglass enclosures using a proprietary FiberBeam™ technology. FiberBeams are essentially fiberglass studs that run vertically through the walls and roof of the shelter. They provide a solid structural connection between the inner and outer layers of the fiberglass skins, holding the walls in place around the foam. The result is a lightweight composite building, equal to the strength of steel, that will not come apart or delaminate.



VIDEO - WHY IS FIBERBEAM SO IMPORTANT?

FIBERGLASS REGULATOR STATION FOR MUNICIPAL UTILITY SUPPLIER

Powell Controls, Inc., established in 1996, is a manufacturer's representative and distributor of products used in the natural gas and power generation industries. Powell Controls is a one-stop shopping solution for valves. heaters, flow meters, flow computers, regulators, chromatographs, and Shelter Works fiberglass field equipment enclosures.

One of their customers, a municipal utility supplier in Massachusetts, currently houses four of their natural gas regulator stations in Shelter Works fiberglass buildings. The regulator stations, located within the city's distribution system, reduce the pressure of the gas to the appropriate operating pressure so it can be delivered to the end user.

The shelters protect the valves and pressure regulators from the elements while providing security from public access, tampering, and vandalism. Since they can be found in residential areas, they also present a more aesthetically appealing visual than valves, pipes, and instrumentation.

Each of the four shelters includes the following features:

- **Multiple Entry/Exit Points** - Each shelter has a double door on a long wall and a single door on a short wall for increased technician safety in case of an equipment malfunction or emergency. The double

doors also allow easy access to equipment when it needs repair or replacement.

- **Natural Ventilation** – Each shelter has vents on opposing sides of the building. A low vent where cool air enters the shelter causes warmer air to rise and exit the shelter through an upper vent. The shelters also utilize a wind turbine that uses natural breezes to encourage air circulation. When used in conjunction with each other, the vents and turbine create a natural cross flow of air causing the air to circulate.

- **Wood Reinforcement** – Each shelter has one wall with 1/2 inch wood reinforcement throughout, where they mount the RTU (Remote Terminal Unit) that relays pressure information from the equipment to the SCADA for monitoring.

Over the years Powell Controls has sold four shelters to this customer. According to Bob Powell, President of Powell Controls, one of the reasons they like Shelter Works fiberglass buildings is that they are long-lasting and require minimal maintenance.

"THE FIRST SHELTER WORKS BUILDING WE PUT IN 15-20 YEARS AGO. IT'S LOCATED IN A SHADY AREA, SO IT HAD SOME MOSS GROWING ON IT. THEY POWER WASHED IT AND IT LOOKS JUST AS GOOD AS THE SHELTER THAT ARRIVED SIX WEEKS AGO"

BOB POWELL, *PRESIDENT*
POWELL CONTROLS, INC.

TURN KEY SOLUTIONS FOR ANALYZER AND RTU SHELTERS

ACP (Advanced Control Panels) in Portage, IN, provides turn-key solutions for electronic monitoring. They are specialists in designing, building, and installing flow monitoring technology for the natural gas, petroleum, water and waste industries. They recently completed a project for a Northwest Indiana gas utility that consisted of an Analyzer Building and an RTU (Remote Terminal Unit) Building, and they used Shelter Works fiberglass enclosures to protect the equipment inside.

ANALYZER SHELTER

The 8’ x 8’ x 8’ analyzer shelter protects the gas chromatograph and analyzers used for monitoring the gas quality at the distribution point. The shelter includes three bulkheads, areas of the wall with no insulation, that allow for stainless steel tubing from the gas pipeline to enter the enclosure to be processed and for the vent lines to exit the shelter. Bulkheads are recommended for any infield penetrations measuring more than 2” in diameter. Formed openings were also incorporated during the manufacturing process to accommodate the explosion-proof air conditioning and exhaust to be installed by ACP. Both the bulkheads and formed openings ensure the integrity of the shelter and preserve the 25 year warranty.

The analyzer shelter has additional custom features including an aluminum base skid with diamond plate flooring, because the end-user had a concern the carrier gas and calibration gas cylinders would damage a basic vinyl floor, and wood reinforcement in all the walls for mounting equipment.

RTU BUILDING

The 8’ x 12’ x 8’ RTU building houses the RTU panel that connects to and captures data from the transmitters, flow meters, water heater, and odorizer. The RTU panel then relays the information about pressures, temperatures, gas flow, and gas quality from the remote location at the distribution point to a central processing center or SCADA system. Since this enclosure is for housing monitoring equipment, the end-user opted for vinyl flooring for a fully enclosed shelter.

Both shelters have increased insulation of 3” with an R-Value of 21, air conditioning units for climate control, and translucent skylight to illuminate the interior of the shelters.

“I HAVE WORKED WITH SHELTER WORKS FOR OVER 5 YEARS AND HAVE EXPERIENCED GREAT CUSTOMER SERVICE THROUGHOUT THE PROCESS OF RFQS, SUBMITTAL PACKAGES, PRODUCTION SCHEDULE UPDATES, AND DELIVERY COORDINATION. ACP HAS INTEGRATED OVER 100 SHELTERS AND THE QUALITY HAS ALWAYS BEEN EXCELLENT.”

CHRIS SEARS, VICE PRESIDENT
ADVANCED CONTROL PANELS

EQUIPMENT PROTECTION AT HIGHER ELEVATIONS

Located in a valley along the Piceance Basin, this custom fiberglass shelter sits at an elevation just above 6000 ft (1.15 miles). It protects control valves and piping used as part of the treatment and reuse system for water produced from oil and gas operations.

Durable fiberglass buildings are a practical solution for field equipment protection in cold-weather areas. They are resistant to wind, moisture, and snow. Fiberglass also has excellent insulative properties that prevent heat loss. This shelter, with standard 1.5” insulation and a field-installed heater, maintains an interior temperature well above freezing, protecting the equipment from the winter cold and snow.

This custom-sized 8’ x 14’ x 6’ shelter doesn’t have doors. Instead, it has four hatches, two on each of the long walls, that are held open by gas springs so a technician can access the equipment. When not in use, the hatches are locked in place with pad-lockable 2-point door hardware.

Shelter Works color matched a paint sample provided by the customer. The end-user chose “Light Stone” to blend the building with its environment and maximize its attractiveness.

SHELTER WORKS

"IT IS WORKING VERY WELL. IT IS HEATED INSIDE TO ABOUT 70 DEGREES, BUT YOU WILL NOTICE THAT IT IS INSULATED SO WELL THAT THE SNOW DIDN'T EVEN MELT OFF THE TOP!"

RANDY KENYON, PROFESSIONAL ENGINEER

CGRS, INC.

SOUND ATTENUATION FOR CITY GATE

City gate stations play a vital role in natural gas distribution. Consisting of metering and pressure regulating equipment, they are located at the custody transfer points where natural gas is delivered from transmission pipelines to distribution companies, such as CenterPoint Energy. From these station sites, lines in the distribution network move gas to the local area residents and businesses. Some of the components of a City Gate Station include pipes, valves, meters, and pneumatic controllers for monitoring and controlling gas flow. This can also be the point in the natural gas distribution process where the mercaptan is added, giving the natural gas its distinctive smell.

A GROWING COMMUNITY

Typically, city gate natural gas pressure reduction stations in the southern United States do not require protection from the elements. When CenterPoint's station was constructed in Atascocita Shores there were no structures near the station. However, the station site was in a residential area. Later The Lodge at Westlake, a large apartment complex, was constructed in close proximity to CenterPoint's City Gate site. Shortly after, the residents began to complain about the whistling noise produced by the station's regulators during peak consumption times, mostly noticeable in the winter months. This necessitated a solution that would eliminate the noise and a Shelter Works fiberglass building, with its standard 1.5" foam insulation provided enough sound attenuation to solve the problem. An added benefit was that the station was then hidden from view and the fiberglass shelter blended in with the residential environment.

PROVIDING A SOLUTION

The Shelter Works fiberglass building provided a cost-effective, aesthetically pleasing, and low maintenance solution for CenterPoint Energy. The building itself was 14' x 35' x 8' and included one door on each of the long walls, two vents for basic natural ventilation, and two skylights to assist in visual inspection of the station. Installation was fairly simple. A concrete foundation was constructed around the city gate for the building to be placed on top and anchored.

Dennis Hutchison, Operations Supervisor for Centerpoint Energy, first encountered Shelter Works at the TASK Oil & Gas Supply booth at a tradeshow in Houston where we were represented by Mike Calhoun of TASK. Hutchison determined that the shelter would solve his noise problem and worked with Calhoun to get the building. When asked if Centerpoint was satisfied with their shelter, Hutchison stated

"We are very happy with the final product. I haven't received one complaint from a customer since the building was put in place."

CORROSION RESISTANT FIBERGLASS SHELTERS

SHELTERS THAT WON'T RUST, ROT, CORRODE, OR DECAY

The unique characteristics of Shelter Works' fiberglass field equipment shelters make them naturally resistant to cracking, peeling, and dents which are catalysts for rot and corrosion. Shelter Works fiberglass enclosures stand up to pollution, humidity, chemicals, and water, making them the ideal solution for locations prone to rain and humidity. The shelters do not require routine maintenance, resulting in a lower lifetime cost of ownership for longer-lasting field equipment protection.

Metal buildings experience corrosion in the form of rust or pitting. Corrosion is preventable with coatings, paints, and other inhibitors, but these solutions require costly regular maintenance that can increase the overall lifetime cost of the building.

The only exterior metal used in a Shelter Works assembly is the stainless steel screws that hold the walls and roof together—upgrading the screws to 316 stainless steel provides additional protection in corrosive environments.

Wood shelters will experience wood rot caused by moisture and fungi that deteriorate the timber. Once discovered, rot usually requires the replacement of the affected wood. The best prevention for rot is routine maintenance and repainting of areas that exhibit cracking and peeling.

Shelter Works Fiberglass Reinforced Polymer (FRP) buildings only use wood encapsulated within the protective coating of the fiberglass, guaranteeing that the wood will not rot for the duration of the building's 25 Year Warranty.

Corrosive fumes and microorganisms cannot find their way through Shelter Works' fiberglass shelters because they utilize the same gelcoats used to produce today's marine craft, transportation equipment, and aircraft. Gelcoat is not a paint applied after production. The gelcoat is molecularly bonded to the fiberglass during manufacturing, becoming part of the composite structure. It will not crack or peel like paint. The gelcoat outer layer protects the shelter from moisture, chemicals, and UV damage that can cause the corrosion and rot seen in metal and wood shelters.

Our customers need durable, maintenance-free structures that will be aesthetically pleasing over long periods. That's why we are putting science to work for our customers and using high-quality gelcoats instead of paints.

FIBERGLASS FILTER SEPARATOR BUILDING

FIELD EQUIPMENT PROTECTION

Relcon, a manufacturer's representative for Shelter Works, provides engineered solutions for freeze protection and temperature maintenance of piping, tanks, and process control instrumentation for industrial and commercial facilities throughout the Midwest. Their products are found in the industrial, commercial, and utility markets, including gas, electric, and water utilities, waste and water treatment, power production, process, petrochemical, and refining. They recently worked with Shelter Works to provide a custom shelter enclosure to one of their customers, a natural gas distribution company.

FILTER SEPARATORS

The shelter protects a filter separator from freezing temperatures and exposure to the elements. Andy Newquist of Relcon, explained that filter separators separate solids and liquids from natural gas. Specifically, they remove impurities such as pipe scale, water, iron sulfide, liquid hydrocarbons, compressor lube oil, and sulfur products. They are located at purchase points from the interstate pipelines (transmission pipelines), where pressure cuts can cause liquid to fall out. They are also used in underground storage fields where gas, withdrawn from the field for injection into the pipeline, can contain impurities.

SHELTER FEATURES

The 12’ x 20’ x 10’ fiberglass building replaces an existing enclosure that was too small. It adds two feet to both the length and the width of the building’s footprint, making it easier and safer to service the equipment inside.

- Increased Insulation: It was built with 2-1/2” (R-Value 18) insulation in the walls and ceiling for improved structural stability and reduced heat loss in colder temperatures.

- Doors: The shelter includes a roll-up door that allows operators access to the filter’s manway for periodic maintenance. There is also single-door access for secondary access.

- Knockout Panels: The two 12’ walls have matching 6’-6” x 12” knockout panels, a removable cutout in the wall that allows for easy placement of the shelter over existing pipes. The panel is removed for installation, and a hole is cut in the panel to accommodate the pipe. Once the building is installed, the panel is replaced and secured with a supplied trim kit.

- Ventilation: The shelter utilized natural ventilation. The two 20’ walls have adjustable vents. One wall has two upper vents, and the opposing wall has two lower vents. When used effectively, natural ventilation results in a cost-effective way to maintain good indoor air quality when electricity is not available.

OUR CUSTOMERS PRAISE THE HIGH QUALITY AND DURABILITY THE ENCLOSURES AS WELL AS SHELTER WORKS ABILITY TO CUSTOMIZE FEATURES TO MEET THEIR VARIETY OF APPLICATIONS”.

ANDY NEWQUIST, RELCON, INC.

WHY SHELTER WORKS FIBERGLASS BUILDINGS ARE BETTER

- **Performs in Any Environment** – The durability of a Shelter Works fiberglass shelter remains unchanged, even in extreme temperatures, hurricane winds, Alaskan snow loads, and coastal climates. They withstand humidity, chemical exposure, and other corrosive environments.

- **Maintenance Free** – A molded fiberglass shelter will last for decades exposed to the harshest elements without noticeable deterioration. It is easy to clean and does not require routine staining or painting.

- **Lowest Lifetime Cost of Ownership** Fiberglass shelters do not require costly maintenance. The shelter pays for itself many times over during it's long and useful life.

- **Easy to Install** – Lightweight, fully assembled shelters arrive on-site ready to set in place using common construction site equipment.

- **Energy Efficient** – Shelter Works' unique manufacturing process creates continuous insulation throughout the walls and roof. The foam insulation, encapsulated within the fiberglass, will retain its insulation properties for the life of the shelter.

- **Customizable** – Every shelter is engineered to order. Our shelters are designed and manufactured to meet the customer's need.

- **Versatile**– Fiberglass shelters are suitable for any application.

BUILT FOR LIFE

SHELTER WORKS FIBERGLASS SHELTERS ARE MAINTENANCE-FREE STRUCTURES THAT ARE "BUILT FOR LIFE" AND COVERED BY OUR INDUSTRY LEADING 25-YEAR WARRANTY. MANUFACTURED USING UV RESISTANT GELCOATS THAT CAN WITHSTAND DECADES OF EXPOSURE TO THE ELEMENTS WITH MINIMAL FADING, OUR SHELTERS WILL NOT RUST, ROT, CORRODE OR DECAY.

BUILT FOR LIFE

VISIT OUR WEBSITE WWW.SHELTERWORKS.COM