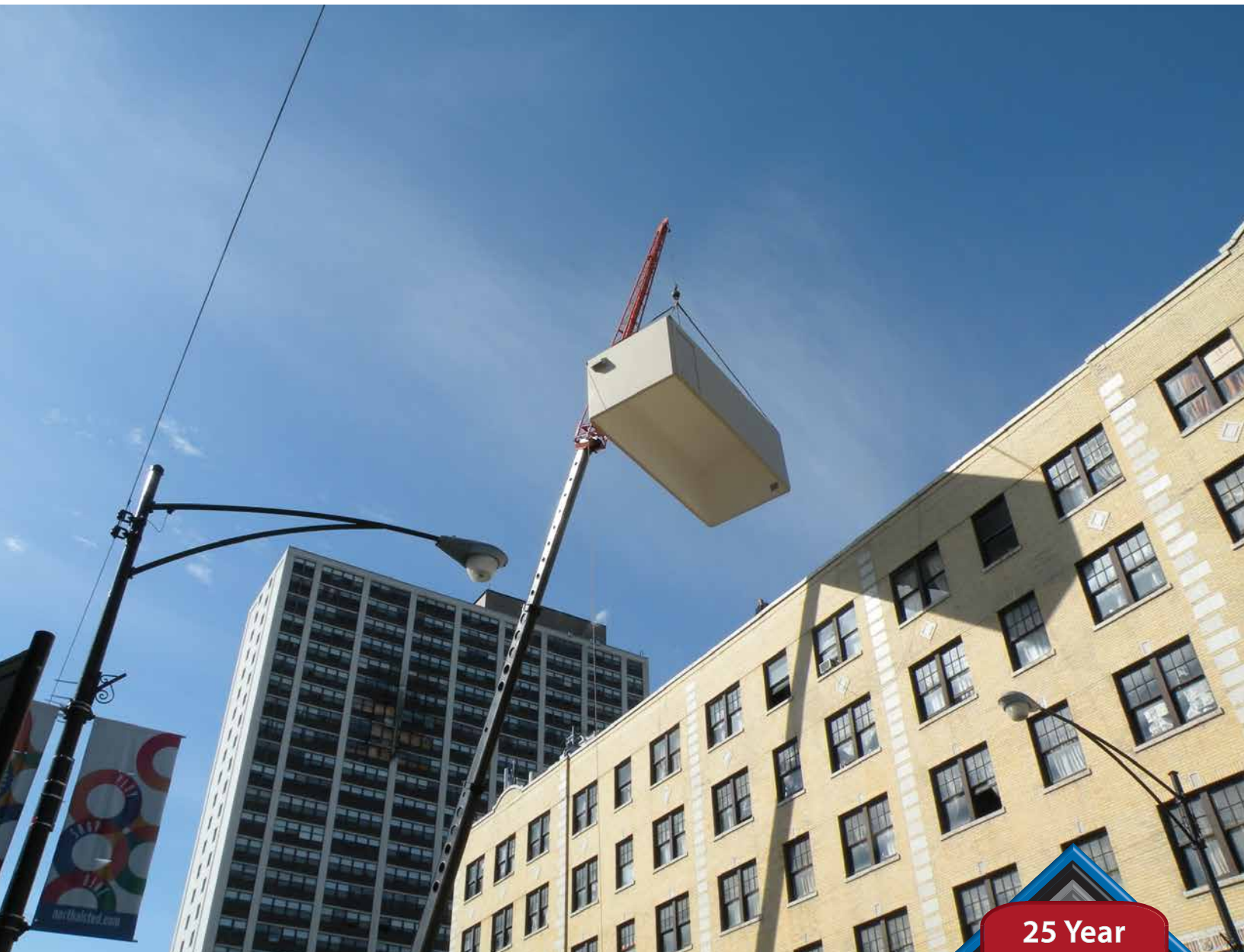




FIELD EQUIPMENT SHELTERS FOR THE **TELECOM** INDUSTRY

Case Studies & Success Stories



**25 Year
Warranty**

TABLE OF CONTENTS

Introduction	2
Light As A Feather But Stronger Than Steel	3
Equipment Shelters That Can Stand Up To Any Weather Conditions	4
Graffiti Free Buildings With Shelter Works	5
ACMA and Code Compliance	6
Telecommunications Shelters In The Arctic	7
It's Not An Igloo, It's a Fiberglass Shelter	9
25-Year Warranty	11
Features and Benefits	12



INTRODUCTION

Shelter Works products are engineered specifically to meet the rigid requirements of telecom applications to protect the industry's critical field equipment. Any project is available with PE stamped drawings and can be engineered to comply with applicable National and local codes. These maintenance-free fiberglass composite equipment shelters are constructed using our trademarked FiberBeam™ technology and are insulated, weather-tight, durable and secure.

Because of the way we construct our product, Shelter Works buildings are perfectly suited to service a multitude of different applications in the Telecommunications industries.

Applications include:

- Cellular
- Fiber Optic PoP
- Microwave
- Broadcasting / CATV
- Coastal / Offshore
- Alternative Energy / Solar
- Instrumentation / SCADA
- Critical UPS
- Transmitter
- Rooftops
- Remote Locations
- Public Safety / 9-1-1

Built To Your Exact Specifications

Whatever type of integration you need, we can do it. Here are the types of options many of our customers appreciate

Options Available:

- Custom Sizes and Colors
- Increased Insulation Values
- Sound Attenuation
- Power Distribution and Lighting
- HVAC Systems
- TVSS and Grounding Systems
- Fire Detection and Suppression Systems
- Metal or Fiberglass Base/Floor Systems
- Partition Walls, Knock Outs and Bulkheads
- Detectors and Alarms
- Cable Trays and Equipment Racks
- Oversized or Special Doors
- RF Shielding
- Equipment Integration
- Transportation and Field Services
- State Certification/3rd Party Inspections

Need a creative solution for your field equipment protection needs?

Give us a call at (800) 794-8037

Or Request A Quote at www.shelterworks.com

Built for
Life.™

LIGHT AS A FEATHER, BUT STRONGER THAN STEEL

You have no doubt seen hundreds, if not thousands of cellular telephone towers as you drive from town to town across the country. You can't miss them; tall steel poles with antennas on top and usually an equipment shelter at the base. But have you noticed that you never see cell towers in cities?

In cities across America, tall buildings serve as the towers and the equipment is located on the rooftops. Of course, the equipment that services those towers needs to be protected—from tampering as well as from Mother Nature. In addition, the equipment protection structure acts as a shelter for the crew as they provide maintenance services to the tower equipment so high above the ground; it's no fun to work outside in the wind, rain, snow or cold of winter.



Verizon is one of America's largest cellular telephone service providers and in Chicago, as they have been upgrading their systems to 4G, they have called on Shelter Works to protect their equipment with 10' x 22' high-quality lightweight fiberglass shelters with foam core insulation and steel grating floors. The new equipment is quite heavy and the rooftops were not designed to carry it, so it was important to find a shelter that was light weight but still strong.

The building had to withstand brutal Chicago winters, both in terms of snow loads and wind loads as well, and Shelter Works fiberglass buildings are perfect for such an application. Cinder block, steel or other traditional building materials simply cannot do the job, as the weight restrictions are too tough. Shelter Works buildings are light as a feather but tough enough to withstand the rigors of the Windy City.

In addition, the installation is easy and fast. Bob Erpenbach from United Contracting explains, "It's such a simple process; it can be done in an afternoon. Because these are lightweight structures, it has become a very standard project. We just clip to the stainless steel lifting rings and a crane hoists it up onto the building—easy as can be."

So the next time you need to put a roof on your roof, call Shelter Works. We'll custom-design a high-quality structure that protects your critical equipment from all the elements, is stronger than steel but with very little weight.



EQUIPMENT SHELTERS THAT CAN STAND UP TO ANY WEATHER CONDITIONS



When battery backup's fail in the winter and Programmable Logic Computers (PLC's) melt in the summer heat, it's time to rethink your field equipment shelter needs. This was the situation that faced a Maintenance Specialist in the Kansas City area. He's in charge of some communication and control equipment throughout the Midwest. The company he works for serves customers in 26 states and has been a long time repeat customer of Shelter Works for many years.

For the communication gear in the Kansas City area, a metal box that was protecting the equipment previously was simply not doing what it needed to do. The gear was installed in a metal box and hung on a pole, with an access door for service personnel to use when necessary. The gear and the service personnel were susceptible to whatever environmental conditions existed at the time--overheating in the summer and freezing in the winter, while during storms the equipment and personnel were totally exposed to the rain, lightning or snow.

The Maintenance Specialist and his team were upgrading equipment and included a new Shelter Works shelter as part of the upgrade. He explained,

"The Shelter Works prefabricated shelters provide a great answer for many of the different applications we need. These Shelter Works equipment shelters hold up very well; we've had some for more than 10 years now that show no wear and tear."

Because they had considerable experience with the quality and longevity of Shelter Works prefabricated shelters, they didn't hesitate one minute. As a matter of fact, this particular equipment shelter was needed very quickly, and because the local Kansas City area operations had built this kind of 6' x 6' equipment shelter before, Shelter Works was able to manufacture the building in just two weeks' time.



GRAFFITI-FREE BUILDINGS WITH SHELTER WORKS

While many believe graffiti to be an “art form” that dates back thousands of years, many others see it as an inevitable nuisance that must be dealt with. Our customers are eager for easy solutions to eliminate the illicit artwork spray-painted onto buildings throughout their cities.

After installation, many of our clients who are responsible for the on-going maintenance of the fiberglass buildings discover graffiti on the sides of their structures over the years. Shelter Works buildings are made with a polymer gel coat that resists graffiti and makes clean-up super easy.

We recommend using a solution called Methyl Ethyl Ketone (or MEK) to easily remove spray paint from the walls of our shelters. Some people prefer to use Odorless Mineral Spirits to remove the graffiti, but in a side-by-side test we conducted internally, we found the MEK to be significantly more effective (see picture below).

THE GRAFFITI TEST

We bought standard black and red spray paint from the local hardware store and “tagged” four different areas of a building wall. On the left-hand side, we used the Odorless Mineral Spirits and on the right, MEK. While the Mineral Spirits decreased the visibility of the paint, the MEK eliminated the paint much more effectively.

In addition, the solvent had no effect on the gel coat, so the originally-intended color of the building remains intact. So if you find that you need a building that can withstand the abuse of clandestine artists, specify a Shelter Works prefabricated fiberglass building.



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or Request A Quote from www.shelterworks.com



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FIBERGLASS SHELTERS MANUFACTURED BY ACMA CERTIFIED TECHNICIANS

Did you know that the owner of Shelter Works and members of the Shelter Works production crew are American Composites Manufacturing Association Certified Composite Technicians? The ACMA is the composites industry's largest trade group in the world. Certified Composite Technicians (CCTs) are recognized as experts in their field and they set the industry standard with their level of knowledge and expertise.

Our fiberglass shelters are made through an Open Mold, Spray Up process that is dependent on operator skill. Our commitment to continuing education and re-certification ensures that you receive the quality fiberglass shelter you expect when you work with Shelter Works.



CODE COMPLIANCE

We offer PE stamped shelter drawings and calculations which comply with National and State building codes such as:

- IBC International Building Code
- NEC National Electric Code
- IECC International Energy Conservation Code

In addition, our manufacturing facility has been certified by a nationally recognized 3rd party inspection agency to verify our quality program and production methods comply with multiply State Regulatory Programs, including the Industrialized Buildings Commission. If requested, we can provide shelters with State Certification and factory inspection seals prior to delivery.



TELECOMMUNICATIONS SHELTERS IN THE ARCTIC



Ten miles outside of Anchorage, Alaska, there sits one of Shelter Works' telecommunication shelters, protecting an 8000-pound battery plant, relay racks, cable trays, fiber optic cables and coax cable as well. GCI Communications Corporation is the largest telecom carrier in Alaska, providing wired phone service, cell phone, Internet, Cable TV and data systems for the vast state of Alaska. They reached out to Shelter Works to meet their very exact specifications for a custom-engineered telecom shelter.

GCI Communications Corporation maintains a facility that handles telephone, cable, wireless and internet services throughout the state of Alaska. This telecommunications shelter is co-located with a fire station and a natural gas pump station and needed a fiberglass telecom shelter to protect the telecom equipment that could meet special requirements in terms of functionality, protection from the Alaskan weather, integration equipment, and finally, color.

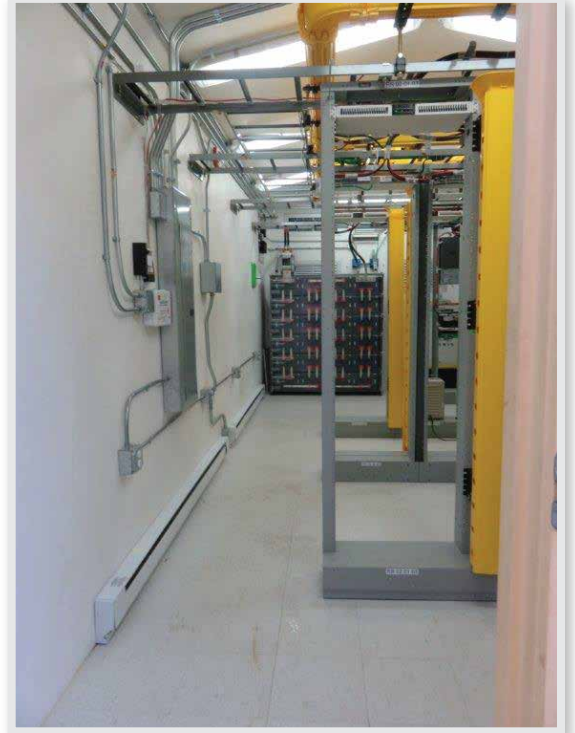
Fully Integrated Telecommunications Shelter

"We were looking for a fiberglass telecom shelter that was aesthetically pleasing, built for Alaskan winters, and included an integration package all in one. I wanted one-stop shopping. I didn't want to get a building and then have to hire separate contractors for all the integration work that needed to be done. I've done that before and it slows everything down, is hard to manage, and isn't very cost- or time-efficient. I did not want to go down that road again, so when I found that Shelter Works makes custom telecommunications shelters, I was happy," explained Geoffrey Pamplin, Facilities Engineer for GCI Communications Corp.



Reinforced and Insulated Floors

The floor structure was another challenge that needed special attention. The significant 8,000 pound weight of the battery plant required a weight distribution plate and an intricate reinforcement structure under the back three feet of the floor to accommodate 1500 pounds per square foot. In Alaska, they do not use concrete slabs for such projects for two main reasons: frost heaving is prevalent with such extreme winters, and if you need to add any additional floor penetrations, it is impractical to bore through the concrete. At its coldest, the facility can sustain several weeks of -20 degree temperatures and up to 2-3 feet of snowfall per day. For those servicing the equipment, they cannot afford to have the cold penetrate the shelter, so proper insulation in the floors, walls and roofing is a must. These factors, combined with the need for a rodent guard on the bottom, posed no problem for the engineers at Shelter Works. The entire building has a full vapor barrier with no thermal bridges. Unlike any other telecom building manufacturer, this feature is unique to Shelter Works and comes standard with their composite design. In addition, there is a thermal barrier in the floor to isolate sub-zero temps from transferring from the steel base through to the interior floor. While most of the snow is very dry due to the low temperatures, the spring snow can be quite wet and heavy, so the roof had to be developed in such a way as to handle 125 pounds of snow per square foot.



Weatherwise Telecom Shelter

All weather conditions need to be factored into all Shelter Works telecommunications shelters. While summer temperatures only reach 65-70 degrees, it can seem so much hotter. The intensity of the continuous sunlight caused by the tilt of the earth towards the sun in summer, along with the heat generated by the equipment, means that multiple air conditioning units are also needed. A fire alarm and a free air cooling system can also operate off of the direct current battery plant in the event of a loss of power to ensure continual functionality.

The electrical requirements of such a telecom shelter are quite extensive, with relay racks that hold 500 pounds of equipment, cable trays, fiber optic jumpers, Ethernet cables, multiple air conditioning units and other integration necessities.

**Do you need a custom-engineered telecom shelter, complete with integration package, for your challenging situation?
If so, give Shelter Works a call at 800-794-8037 or [click here to request a quote.](#)**

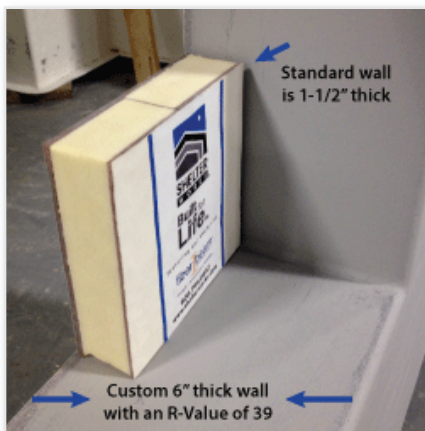
IT'S NOT AN IGLOO, IT'S A FIBERGLASS SHELTER

Our fiberglass shelters are used all over the globe. As a matter of fact, we recently finished some custom fiberglass buildings that are being used as microwave repeater stations just south of the Arctic Circle. They were shipped to a remote region of Ontario, Canada just off of James Bay, between the Albany and Moose Rivers. The area is so off the beaten path it doesn't even have an official name. In order to find it on a map you have to use it's latitudinal and longitudinal coordinates.

Given the extreme temperatures and harsh environment, our customer chose fiberglass over metal because our fiberglass buildings are:

Stronger: Composite materials have the highest strength to weight ratio. With the use of our proprietary composite lamination process, FiberBeam Technology, our fiberglass buildings, pound for pound, are stronger than steel. This provides the structural integrity needed to withstand the heavy snow loads and winds commonly found in this area.

Lighter: This comes in handy when the costs associated with transportation are a concern. These shelters will be located in a very remote area where there are no roads. Once they reach the rail yard in the closest town, they will then be loaded onto the back of a truck where they will travel a man-made ice road to their final destination. When you compare the weight of a fiberglass building to that of a metal building of the same size, the fiberglass one will weigh considerably less. This calculates into cheaper transportation and moving costs as well as ease of on-loading and off-loading.



Better Insulated: These shelters have custom 6" thick walls filled with foam insulation that provides for an estimated R-Value of 39. The average daily temperatures during the cold season, December through March, range from lows of -15 degrees F to highs of 16 degrees F. The average annual snowfall is 28" and a large portion of that snow will not even melt until the Spring thaw. Without thermal conductors like metal or wood studs, the walls on these shelters will keep the cold outside, where it belongs.





Ice Road

Vandal and Corrosion Resistant: In some parts of northern Canada, polar bears like to tear the siding off of metal buildings. Our shelters lack the seams to make that possible. Shelter Works buildings are better suited for harsh and damp environments because they will not corrode, rust, rot or decay, making them virtually maintenance free. They also come with our 25 year warranty.

Customization: These shelters are multi-use and need a separate room to suit each purpose. We were able to split them into three sections by using partition walls. One room houses the telecom equipment and batteries for the shelter's intended use as a repeater station. The second features wall mounted bunk beds to be used if and when a service technician's helicopter is unable to depart due to inclement weather, while the third is for a generator room. Because there is no access to commercial electricity, these shelters will have to develop their own power by way of dual 48VDC generators which power a significant battery bank. The generators, located inside the shelter, are fueled by massive diesel tanks located on the outside. The diesel tanks need to supply enough fuel to last 3-4 months at a time.

At Shelter Works we excel at customizing fiberglass buildings for housing critical field equipment, and these shelters are no exception. To see what other interesting challenges we take on visit our website www.shelterworks.com



James Bay

WARRANTY

Shelter Works products are engineered specifically to meet the rigid requirements of industrial applications because they need to live up to the tagline: "Built for Life." We take a tremendous amount of care in designing the highest quality shelters, engineering each aspect, from the submittal drawings and the construction process to core materials, resin and gel coats, door construction and hardware, to final electrical wiring and installation. All of our shelters go through extensive quality checks to ensure that every shelter will perform to expectations.

We view our relationships with our clients as long-term partnerships; they rely on us to provide long-term solutions that protect for years and years. A 25-year warranty conveys that sense of partnership and gives customers peace of mind. They know they can trust the quality of our products to protect their critical field equipment.



Need a creative solution for your field equipment protection needs?

Give us a call at (800) 794-8037

Or

**Request A Quote
Now**



(800) 794-8037

REASONS TELECOMMUNICATIONS COMPANIES PREFER SHELTER WORKS COMPOSITE CONSTRUCTION BUILDINGS

FEATURES	BENEFITS
Molded Surfaces With Encapsulated Core Materials	Improves strength, longevity, structural integrity and energy efficiency
Maintenance-Free Design	Lowest lifetime cost of ownership
50+ Year Lifespan With a 25 Year Warranty	Confidence and peace of mind
Lightweight Design	Reduces freight and crane costs
Corrosion Resistant	Will not deteriorate, rust or decay
Tamper-Resistant Construction	Increased shelter security / reduced vandalism
Impact Resistant	Absorbs impact without damage
Energy Efficient	Reduces operating and energy costs
UV Resistant	Minimizes fading and chalking on exterior surfaces
Exclusive FiberBeam™ Construction	Ultra Strong -- Pound for pound stronger than steel
Easy to Install	Cuts field construction time and labor costs
Graffiti-Resistant Finish	Ensures easy clean-up if shelter is tagged with paint
Non-Conductive	Reduces grounding requirements
RF Transparent	Ensures clear radio transmission
Field Erectable	Freedom to build on site in hard-to-reach locations
Custom, Flexible Designs	4'-16' wide up to 40' long

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