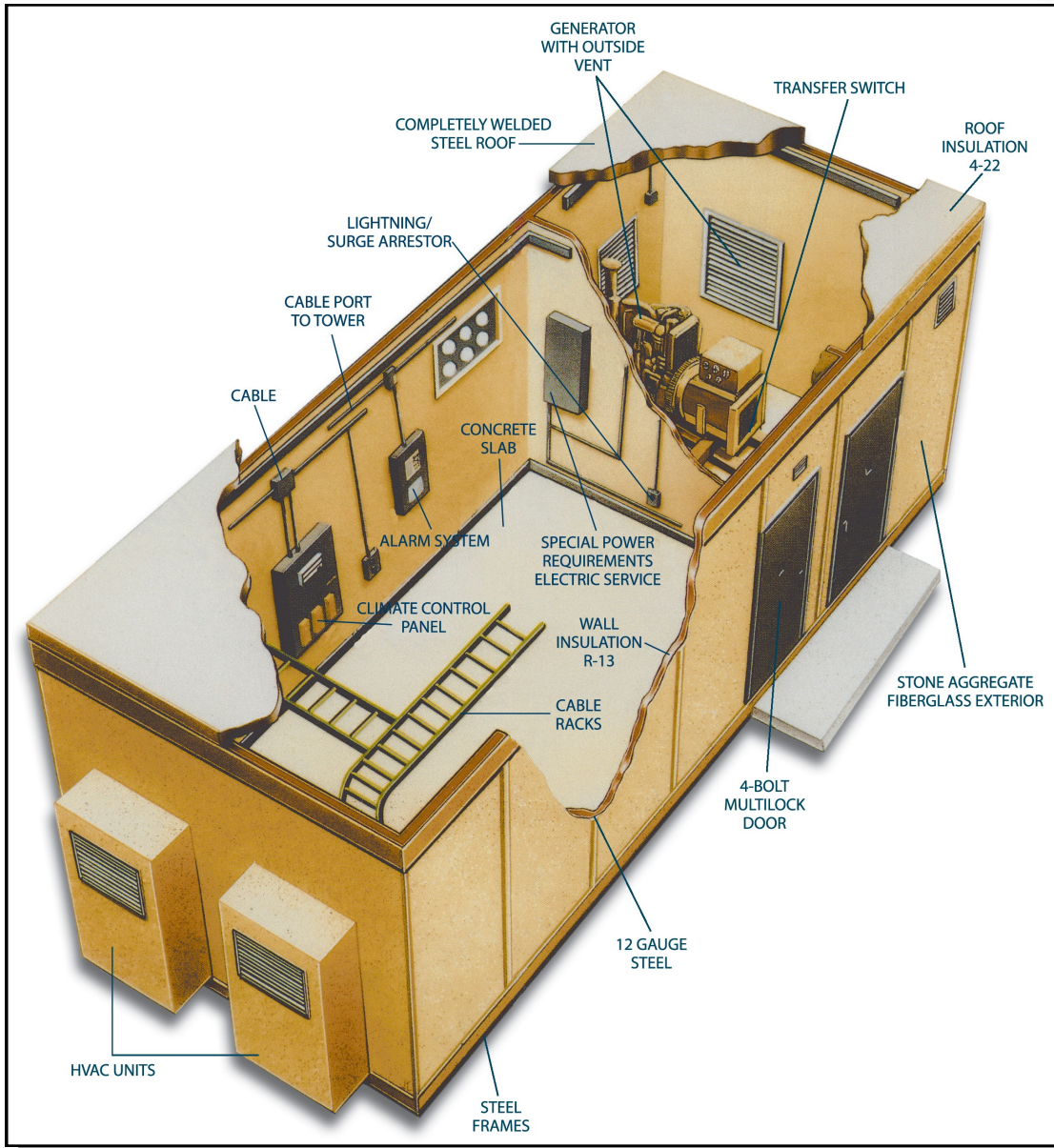


Pre-Fabricated Equipment Space



Leveraging modern design, manufacturing, and logistics technologies, network operators can now purchase professionally-engineered, factory-constructed, globally delivered and locally placed modular equipment space, enabling:

- ◆ Overall schedule improvement (up to 50% or more vs. conventional construction)
- ◆ More predictable and possibly reduced equipment space construction budgets
- ◆ Mitigated construction risks with factory assembly-line manufacturing
- ◆ Avoidance of delays due to in-process construction permit inspections
- ◆ Improved quality and finish from a larger selection of construction materials
- ◆ Additional time savings by pre-installation of alarms, HVAC, Generators, etc.
- ◆ Minimized risk of interruption to existing operations and facilities
- ◆ Standardization of operations and maintenance procedures across multiple sites

Introduction

Conventional design and construction of suitable equipment space for Telecommunications projects typically involves very high levels of risk for project timelines and budgets because efficient procurement and delivery of quality materials to skilled trade contractors at a job site can be extremely difficult. Even after resolving material and labor issues, many other factors (such as on-site weather, in-process construction permit inspections, maintenance of traffic, local events, etc.) can cause unwanted surprises resulting in cost increases and/or construction delays for weeks or even months!

Today, with modern design, manufacturing, and logistics technologies, most of these conventional construction risks can be mitigated at a lower final cost using Pre-Fabricated Equipment Space (PFES) from Telequity Group. Due to these benefits, virtually all major U.S. telecommunications operators (including AT&T, VERIZON, and the U.S.G.) have switched from conventional construction to ordering pre-fabricated modular equipment space for most of their network improvement and expansion projects. Telequity Group is pleased to introduce this turn-key product for export, delivery, and installation in projects located virtually anywhere in the world.

Much larger multi-module, multi-story units are available, but a typical 12' x 30' (4m by 10m)

Pre-Fabricated Equipment Space Example Applications

Existing designs are available for many Telecommunications applications, including:

- | | |
|---|---|
| <input checked="" type="checkbox"/> Cable Landing Stations | <input checked="" type="checkbox"/> Optical Amplification/Regeneration Huts |
| <input checked="" type="checkbox"/> Cellular/Wireless Equipment Sites | <input checked="" type="checkbox"/> Central Offices/Points-Of-Presence |
| <input checked="" type="checkbox"/> Data Centers | <input checked="" type="checkbox"/> Network Access Points |
| <input checked="" type="checkbox"/> Network Operation Centers | <input checked="" type="checkbox"/> Disaster & Diversity Space |

Typical Design Features

telecommunications equipment shelter will be pre-equipped and fully-tested with redundant HVAC units, one 50kw Generator, a Fire Suppression System, an Alarm system, and many other features. Typical design specifications for each major area are provided below:

Structural Design

Floor Assembly

- Steel framed structural floor
- 4" rebar reinforced concrete poured floor
- 3" Sprayed urethane foam insulation
- 28awg galvanized steel bottom sheet
- VCT Floor and base molding
- Removable lifting lugs for transportation

Exterior/Interior Wall Assembly

- 4" 12 gauge galvanized steel bent panel exterior wall system
- 3" Sprayed urethane foam insulation in exterior walls
- 5/8" GP Densglass exterior sheathing
- Stone aggregate composite panel siding
- 4" 16ga Track and stud interior
- Fire Rated Panel (FRP) interior wall finish



Example 12 x 30 Structure (During Construction)

Roof Assembly

- 60 Mil EPDM roofing, color white
- 6" 12awg Galvanized Steel Bent Panels
- 3" Sprayed Urethane Insulation
- FRP over 5/8" sheetrock interior finish

Doors

- Hollow metal frame and door (2) 42"w x 84"h, door threshold, sweep, and weather stripping
- Passage set, door hood, door closer, dead bolt lock set, and door viewer

Systems Design



Example Generator

Generators (Emergency Power)

- (2) Kohler or similar 50 Kw, 3-Phase, 110/220 Volt Generators, 60 Hz
- (2) 200 Amp Kohler or similar ATS
- (2) Sub-base tank 200 Gallons
- Fuel Polishing System ASA 200 GPH
- Motor operated intake/exhaust dampers

HVAC Systems

- MarvAir or similar HVAC Units (2)
- Exhaust Fan with motorized louver damper

Alarms, Fire Protection, Monitoring

- NAPCO Panel, MA 3000 Series or similar
- Smoke Detector, Gentex #7100HF or similar
- High and Low Building Temperature and Humidity Sensors/Alarms
- Intrusion Alarm/Liquid on Floor Alarm
- Loss of Commercial Power Alarm/Generator Running/Remote Start
- HVAC Failure Alarm
- Surge Suppressor Failure Alarm
- Fire Extinguishers, CO2, 10lb (2)
- IP/CCTV Camera Systems (2)

Electrical Components

- Transient Voltage Surge Suppressor, Joslyn #1265-85 or similar
- 20 Amp light switches (2)
- 20 Amp receptacles (6)
- Fluorescent Light Fixtures (6)
- HPS Exterior light w/Photocell (1)
- Emergency/Exit Combo lights (2)

Grounding

- #2 AWG Copper Halo Grounding system
- (4) Vertical Drops w/#2 pigtails for connection to site ground ring
- (2) 1/4" x 4" x 20" Master Ground Bar
- (1) 1/4" x 4" x 6" Telco Ground Bar
- All metal objects grounded to halo

Cable Ladder

- (20 LF) of 10" Cable Tray

Turn-Key Procurement Solution

The ordering of pre-fabricated modular equipment space is very easy as compared to conventional construction processes. Customers simply choose the design, options, and site location for quotation development and ordering. With an order complete, the final design is issued to the factory for production with scheduled customer inspections of in-process work possible throughout assembly, staging, shipment, arrival, and site installation.

To discuss your project requirements, please contact us at your convenience.



Telecommunications Applications

Pre-fabricated modular construction techniques have become very popular across many different industries after several Government, Military, and Higher-Education projects claimed various architectural and design awards from select prestigious organizations. Such techniques have contributed significantly to the success of many projects within the telecommunications industry as well. A selection of proven applications are shown below:

Wireless or Fiber Equipment Shelters



Project Overview: In order to improve wireless service coverage for its customers, a major U.S. operator deploys 600 sites per year with pre-installed generators, HVAC, alarms, fire suppression, etc. The pre-fabricated 360 sq. ft. solution meets or exceeds all U.S. construction codes and can be delivered within 5 weeks to a U.S. destination or 8 weeks to 95% of all international destinations at a turn-key, fully operational cost in the range of US\$200,000 ~ \$400,000 per unit.

Options illustrated by photos: Simulated natural gray stone exterior, red brick exterior, single-module design.

Data Center



Project Overview: The U.S. Army required a two-story Command Data Center building with 15,000 sq. ft. (~1,400 sq. meters) of office space, computer rooms, conference rooms, bathrooms, break rooms, and other facilities in a short time. The project was accomplished with 26 modules that were manufactured in 5 weeks, transported in 6 weeks, and set on site in 6 weeks (for a total of 17 weeks from start to finish) at a total cost of US\$3.9M.

Options illustrated by photos: Raised floor, drop ceiling, steel framed walls, fiberglass insulation, multi-module design.

911 Call Center



Project Overview: Prompted by an ever-increasing volume of emergency calls with outdated computer and radio systems, the Newark Police Department opted for a major upgrade, both in facility and equipment. Under a tight schedule, this state-of-the-art Communications Center was completed in less than 6 months. The two-story building provides 15,000 sq. ft. (~1,400 sq. meters) of office space, computer rooms, conference rooms, bathrooms, break rooms, and other facilities at a cost of US\$4.2M.

Options illustrated by photos: Brick exterior, ribbon (office) windows, tile flooring, custom foyer, custom reception desk.