

FOMCON®



FOMCON is a composite construction system that combines the strengths of aluminum, steel, PVC, and foam. This combination produces buildings that are easily erected, energy efficient, durable, and affordable.

The system is designed for rapid deployment and installation. Compared to traditional construction techniques such as wood or steel, FOMCON requires less than one-fourth the shipping space. In addition, FOMCON takes less time to build. These two factors save time and money.

FOMCON is less expensive and more durable than traditional construction. Due to the materials used, and the way the system is constructed, FOMCON's composite construction method combines the strength of lightweight materials such as PVC and foam to

enhance the rigidity and load-bearing capabilities of aluminum and steel.

Worldwide Structures has also developed an insulated flooring system, FOMCON FLOOR®, for use in situations calling for a crawl space or when the building is to be erected on rough terrain. The floor has an insulation rating of R40+.

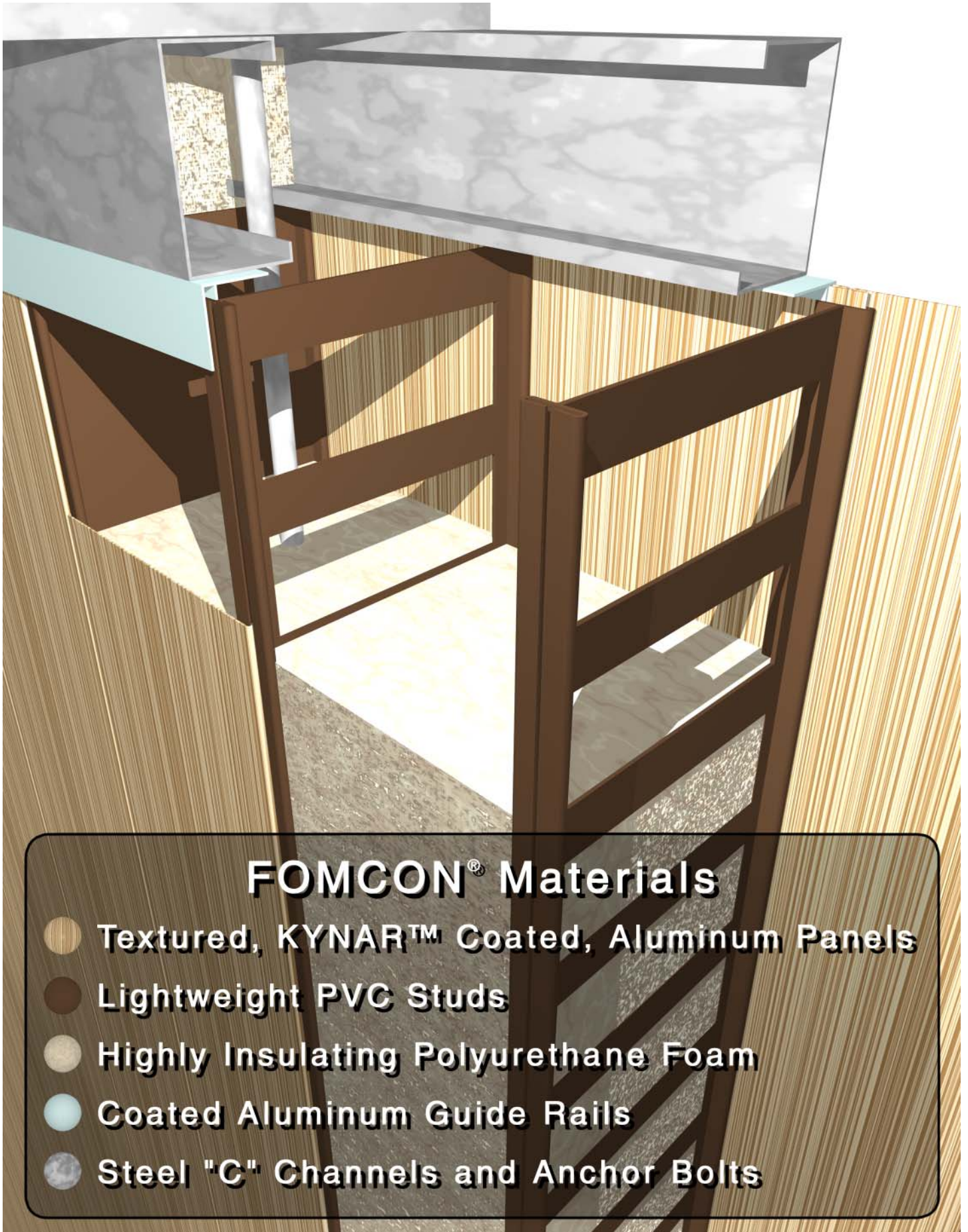
FOMCON is ecologically sound. The system uses more recycled materials than any other comparable building system. Also, due to its remarkably high insulating abilities, the FOMCON building system saves energy, and money, by reducing heating and air conditioning costs.

Almost any kind of permanent structure can be built with this system: houses, commercial buildings, industrial offices, schools, hospitals, motels, etc. The three-bedroom house

shown above is an example of a floor plan that has been successfully constructed using the FOMCON system. To erect a single unit of this plan requires one skilled person and six semi-skilled workers. This building can be erected on an existing pad in ten days. Simpler structures and projects of many units can be completed in 20% or less time than that required for comparable conventionally built units.

The FOMCON system is ideal for the development of low to moderate income housing. The system is also well suited for use in areas with extreme temperatures or climate changes such as the desert. With the ever-increasing cost of energy, FOMCON is the obvious solution for any new or remodeled structure. When one considers the short-term and long-term benefits, FOMCON beats the competition hands-down.

Cutaway of FOMCON Wall



FOMCON® Materials

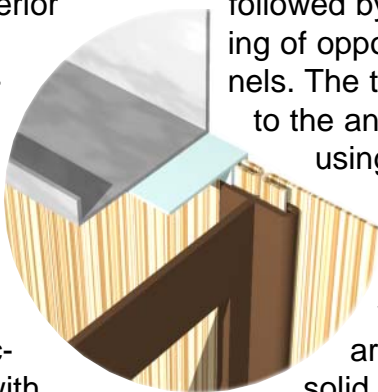
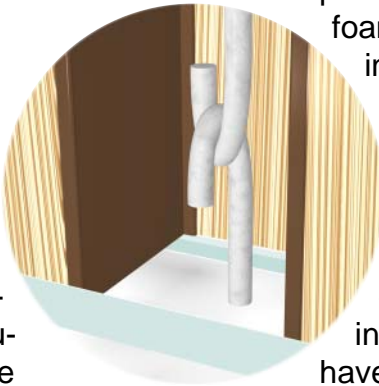
- Textured, KYNAR™ Coated, Aluminum Panels
- Lightweight PVC Studs
- Highly Insulating Polyurethane Foam
- Coated Aluminum Guide Rails
- Steel "C" Channels and Anchor Bolts

The Construction Process

The FOMCON Wall

FOMCON is extremely versatile. The system can be constructed on a concrete slab, a footing, or by using our proprietary flooring solution. A FOMCON building may be deployed and quickly constructed on most any terrain using only a crew of five, including one skilled lead worker.

Once the foundation or footing is poured, or the flooring system constructed, aluminum guide rails and steel anchor bolts are precisely placed. The guide rails ensure that the walls are perfectly straight. The anchor bolts secure the roof and walls to the foundation. The walls are constructed with aluminum panels separated by PVC studs. The first section installed is the exterior corner panel and stud plus the adjacent panels, followed by installation of the interior corner panel and associated studs.



The resulting structure is then filled with highly insulating foam. The aluminum panels are five and one-third (5¹/₃) inches wide and up to ten feet in length. The panels are placed in the guide rails and interlocked with the PVC studs that are approximately

the same width. These are used to connect the interior panels with the exterior panels. A solid PVC stud is placed every four feet.

Between the solid studs, studs with lightening holes are placed to allow the foam to flow evenly within a four-foot section of wall. Electrical outlets, fittings and conduit are installed concurrently. During wall construction, pre-fitted windows and doors are placed accordingly. Once the exterior walls have been erected, the interior walls and doors are put in place.

Prior to injecting the foam, guide rails are placed along the top of the interior and exterior walls. Dual-sided non-conductive tape is placed atop the guide rails followed by a top-plate consisting of opposing steel C-channels. The top plate is connected to the anchor bolts in the floor using steel bolts, as required. The foam is then injected into each of the four-foot wall sections which are separated by the solid PVC studs. In addition to providing insulation, the foam also strengthens the wall system and enables the aluminum panels to perform up to 98% of shear value before failure. This results in an extremely lightweight wall with a point

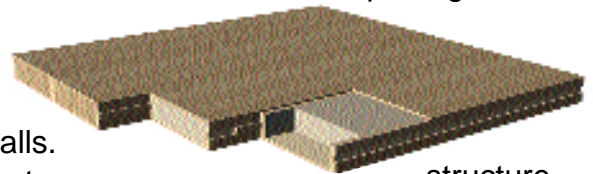
load bearing strength of 10,000 pounds.



Next is the placement of the roof trusses. Setting the roof trusses is followed by the second phase electrical wiring, and plumbing where called for. The ceiling panels are installed along with associated trim. Roof purlins, gable end panels, baseboard, soffits, and roof panels are then installed.

The FOMCON FLOOR®

The FOMCON FLOOR allows the transport and erection of a complete building in nearly any terrain. The flooring system is used as the container for transporting the



structure to the job site. A complete 48' x 20' structure can be packed in a container 8' x 8.5' x 20', and weigh less than 5,000 pounds.

In regions of extreme cold, the FOMCON FLOOR isolates the thermal migration from inside to outside and prevents or slows the melting of the soil layer or permafrost.

The system is designed to be used in conjunction with Chance® Helical Pier® anchors acting as the foundation pads. The floor can also be used as a perimeter foundation or as floors in a multi-level building.

System Description

GENERAL

The FOMCON® structural panel system consists of 5¹/₃" wide exterior and interior aluminum metal skins, roll formed to interlock with specially formulated extruded non-thermal conducting studs.

The panels are field erected to form both the exterior walls and interior walls of the structure. Almost total freedom in the location of doors and windows is available, thus allowing wide flexibility of design.

The wall cavities are filled with an ultra-light foamed compound (1.5–2.0 lbs./ cu.ft.) to form a rigid, fire-resistant, thermally efficient structure, that is many times stronger than a comparable wooden structure, requiring very little maintenance.

The design of the system, combined with the high insulating value (U= 0.0278), ensures that no metal connections go through the wall to reduce the thermal efficiency. The specially designed studs accomplish this by forming a thermal break between the

interior and exterior panels. This lowers the through-the-wall conductance. Thermal breaks in the window and door-frames, and the split track for placement of the wall system, assist in isolating the interior from the exterior.

FIELD INSTALLATION

The FOMCON system can be installed on slab, crawl space or full basement. The panels are set in a base track consisting of extruded aluminum angles set in caulk or a gasket tape seal. After the wall is set up, a top plate is attached to the panels and is bolted to foundation with a threaded eyebolt and steel anchor rod.

Roof construction is of standard truss design. FOMCON systems provide a specially designed steel truss system as a standard; however, other systems are easily adapted such as wood truss, flat roof or decking for second floor construction.

INSULATING EFFICIENCY

Insulating values of the FOMCON system are derived from laboratory

tests and conformed by structures now in service. The values attained remain highly stable, because the FOMCON core is of a closed pore structure and will not absorb water to any significant degree and will not deteriorate or sag over decades of service.

- Coefficient of Heat Transmission U = 0.0278
- Thermal Resistance R = 35+
- Air Infiltration at Joint = 0
- Moisture Vapor Transmission at Joint (perms/inch) = 0.1

THE ERECTED SYSTEM

FOMCON system panels consist of .030-inch gauge aluminum, with a factory applied KYNAR® paint finish on the exterior surface and a wash coat on the inner surface. The panels are field filled with a foamed plastic compound causing the structure to become rigid, insulating panels. The resultant transverse loading yield is greater than 8000 pounds per lineal foot and greater than 80 pounds per square foot. Racking shear is greater than 500 pounds per lineal foot.

Materials Used in Manufacture

1. Metals

a. The base metal for panel facing is aluminum alloy 3003-14 or 5005-14, with a thickness of .030, formed to interlock with cross members. Base metal for all extruded members is aluminum alloy 6063-T6.

2. Plastics

a. PVC or polyethylene is used in the cross member studs and for the window and door-frame breaks.

3. Finishes

a. FOMCON panels are finished on their exterior surface with a KYNAR thermo-setting finish. The quality of the finish is in compliance with the physical and chemical

requirements published by the Aluminum Association for decorative and protective organic finishes on aluminum.

b. Aluminum surfaces in contact with the foaming compound are coated with a special formulation to assure no chemical reactions occur.

c. The floor system for units— not constructed on concrete slab base—are the FOMCON FLOOR® which consist of panels one and one-half feet or two feet wide in lengths up to twenty feet and six inches thick with insulating foam between the inner and outer paneling.

4. Ancillary Materials

a. Concrete slabs, where uti-

lized, conform to 2000 psi testing in accordance with ASTM Specifications.

b. Roof is .019" aluminum KYNAR finished sheeting over a pre-engineered steel truss system.

c. Electrical wiring shall be acceptable as specified in U. S. A. National Electrical Code and Licitation No. 890. Wiring diagrams are included during final plan approval.

d. Lock hardware is Schlage or Equivalent.

e. Windows are double-glazed and have an R value greater than 4.

f. All steel studs and trusses shall meet specifications set by the Steel Stud Manufacturers Assn.

Worldwide Structures, LLC

P.O. Box 221776

Carmel, CA 93922

Phone/Fax: 831.626.3785

URL: www.wwstructures.com

Email: sales@wwstructures.com