

# **Section 1**

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## **Section 1 - Introduction**

### **1.1 Introduction**

Welcome to Fox Blocks.

You have made an excellent decision to use Fox Blocks Insulated Concrete Forms (ICFs) for your next project. Fox Blocks forms have been cleverly designed to be contractor friendly. The thick Expanded Polystyrene (EPS) panels fit tightly together with a reversible interlock that are easy to build with and reduces waste. Buildings constructed with Fox Blocks walls are energy efficient, typically using less energy for space heating and space cooling than observed with similar buildings constructed using conventional wall systems. Consistent with this, buildings built with Fox Blocks ICF forms should have lower operating costs when compared to structures built with other conventional wall systems.

The Fox Blocks ICF category encompasses all ICF brands Airlite Plastics Co. sells: Fox Block ICF with its cross-ties molded in place in the expanded polystyrene panels; Silver Fox, the Fox Block with increased R-value; Fox 1440, the knock-down ICF system which requires assembly on-site; and Fox Tilt-Up using Fox 1440 panels and tilt inserts. All these brands form flat concrete walls. Sections 2 through 5 address Fox Block ICF while Section 9 focuses on Fox 1440. Whichever brand you build with we are confident you will be pleased with your decision and have an excellent building experience.

### **1.2 Company History**

Since 1996, Airlite Plastics Company has been manufacturing ICF products and delivering the services our customers need for the construction industry. With a continued commitment to product development and industry leadership Airlite Plastics Co. designed the Fox Block ICF Wall System in 2006. In a few short years the Fox Block ICF Wall System has become a performance leader and is one of the most recognized brands in the industry. Fox Blocks ICFs can be purchased through local building materials suppliers. The local dealers provide contractors cost effective and timely supply of Fox Blocks ICF, reduced freight costs and the Fox Blocks labor saving design. This adds up to making you more competitive on every project.

Airlite Plastics Co., based in Omaha, Nebraska, is a business with over 60 years of combined experience with injection molding plastics and shape molding EPS. Airlite Plastics received the prestigious Edgerton Quality Award in 2003, a testament to their commitment to delivering quality products. Airlite Plastics has achieved the International Standard of Operation (ISO) 9001 certification, a quality assurance program associated with the injection molding operation.



1\_2A Fox Blocks Home



1\_2B Fox Blocks Commercial

### **1.3 Description of General Types of ICF Wall Forms**

#### Description of Insulating Concrete Forms

Insulated concrete forms (ICFs) are stay-in-place forms with the side panels of the formwork made of an insulating material. They are permanent formwork, and after the concrete hardens these insulating panels serve as the insulation component of the ICF wall. Insulating Concrete Forms are manufactured to form concrete walls with a predetermined thickness and shape. The structural function of the wall is provided by the concrete and rebar components of the ICF wall assembly.

#### General Types of ICF Wall Assemblies

Insulated Concrete Forms most commonly consist of concrete between polystyrene foam, although other form materials such as polyurethane, recycled wood fibre and cement mixtures exist. The foam is usually either expanded polystyrene (EPS with typical R-value of 4 per inch) or extruded polystyrene (XPS with typical R-value of 5 per inch). Cross-ties are needed to hold the panels of the forms together, the cross-ties are typically plastic. The forms, in general, fit together with an interlocking connection that enables the forms to be stacked up to desired height to create a wall form. The ICF forms themselves come in many shapes and sizes.

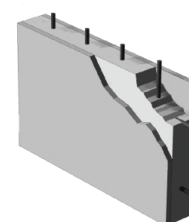
ICF forms have two identifiable variables. They are the form's size (outside dimension) when looking at the exterior of the form and the cavity shape and width that is filled with concrete. The exterior shapes of the forms are block, panel or plank insulation.

ICF blocks resemble a traditional concrete masonry unit (CMU), although the dimensions are typically much larger than CMUs. ICF block forms arrive on site ready to stack with their cross-ties in place. Panel shaped forms are available in different sizes and resemble traditional plywood forms. Plank systems differ from block systems in that they can be shipped flat, either because the cross-ties can bend or the cross-ties are inserted as the wall is constructed.

Differences in the interior cavities determine the shape of the placed concrete. The most common cavities are Flat, Waffle Grid and Screen Grid (Post and Beam). Concrete poured in ICFs with flat cavities cast walls with a uniform cross-sectional thickness. Concrete placed in Waffle-Grid ICFs cast walls with varying cross-sectional thickness, with vertical columns and horizontal beams. The space between the columns and beams is filled with a concrete bridge of thinner thickness. Screen-Grid ICF forms cast vertical columns and beams without any concrete bridging between the posts and the beams.

### Flat ICF Wall System

This system has a solid concrete wall of uniform thickness. This system has a nominal concrete thickness of 4, 6, 8, 10, 12 or more inches. The actual thickness of the concrete wall can be plus or minus  $\frac{1}{2}$ " of the nominal thickness. Bracing for the forms and steel reinforcing (rebar) for the concrete is as required by the design engineer or the Building Code.



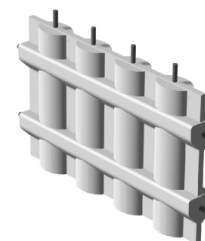
Flat wall core with foam in place

Courtesy of the Portland Cement Association, 2001

1\_3A Flat Wall ICF

### Waffle-Grid ICF Wall System

This system has a solid concrete wall of varying thickness. It has a nominal concrete thickness of 6 to 8 inches for horizontal and vertical concrete cores. Maximum spacing of vertical cores is 12" o.c.. Maximum spacing of horizontal cores is 16" o.c.. The concrete webs between the cores have a minimum thickness of 2". Bracing for the forms and steel reinforcing (rebar) for the concrete is as required by the design engineer or the Building Code.



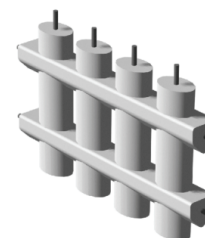
Waffle grid core with foam removed for clarity

Courtesy of the Portland Cement Association, 2001

1\_3B Waffle Grid ICF

### Screen-Grid ICF Wall System

This system is often termed "post and beam". It has a perforated concrete wall of varying thickness. This system has a nominal concrete thickness of 6 to 8 inches for the horizontal and vertical concrete members. Maximum spacing of vertical cores and horizontal cores is 12" o.c.. Unlike waffle grid ICFs, the screen-grid systems do not have concrete webs. Bracing for the forms and steel reinforcing (rebar) for the concrete is as required by the design engineer or the Building Code.



Screen grid core with foam removed for clarity

Courtesy of the Portland Cement Association, 2001

1\_3C Screen Grid ICF

## **1.4 Description of Fox Blocks ICF Wall Forms**

Fox Blocks are an Insulated Concrete Form (ICFs) system used to build and insulate walls. This section of the Product Manual will show that the ICF walls are stacked up on a footing or slab on grade. The specified rebar is placed in the cavity between the EPS panels and held in place by the 8" o/c plastic ties. Concrete is then placed into the cavity and consolidated.

The resulting wall assembly has a reinforced concrete core, which serves as the structural component of the wall, the EPS provides the insulation, and web flanges serve as full length, continuous 1 1/2" wide furring strips for the attachment of interior or exterior finishes. The Fox Blocks ICF wall system meets building code requirements in US and Canada. Please refer to [www.foxblocks.com](http://www.foxblocks.com) for code compliance reports.



1\_4A Fox Blocks Foundation

## **1.5 The Fox Blocks Clever Advantages for Residential and Commercial Projects**

### THE CLEVER ADVANTAGES

“ Fox Blocks is proving to be the ultimate building system you should use for your next commercial or residential project.”

### A COMPLETE LINE OF PRODUCTS AT VERY COMPETITIVE PRICES

- 4", 6", 8", 10" & 12" Fox Blocks Insulated Concrete Form (ICF) Wall Systems.
- ICF Roof and Floor Systems.
- Bracing - Alignment System.
- Accessories. Please see [www.foxblocks.com](http://www.foxblocks.com).
- We are the manufacturer of Fox Blocks.
- Superior cost control because we truly make the components of Fox Blocks ICF.
- Local effective supplies. Check dealer locator on [www.foxblocks.com](http://www.foxblocks.com).

## EXCELLENT CUSTOMER SERVICE

- Simply put, our customers are #1, and they are our greatest resource. We train our staff to be the most customer focused professionals in the business. You are supported by a full time network that provides a full range of technical support and years of field experience to set the new standard in the ICF industry.

## QUICK INSTALLATION, EASE OF CONSTRUCTION AND DESIGN FLEXIBILITY

- Each form comes ready to use and is clearly marked for easy alignment/assembly during construction.
- Our unique and strong reversible interlock form design provides a secure method of keeping the forms securely connected during installation. This reduces job site waste and allows you the ultimate flexibility in your construction techniques. The proven design helps you install Fox Blocks forms quickly and with ease to maximize your job site efficiency and control your labor costs.
- The ties have multiple rebar supports providing easy field installation and a full spectrum of design options.
- The open design of the tie gives you maximum concrete flow and improved placement and the consolidation.
- The ties are engineered to rest one on top of the other (hard plastic to hard plastic) as the courses are placed one on top of the other. This makes achieving final elevations much easier than with other ICF systems, which do not have the ties in contact and where the forms compress while the concrete is being placed.
- The recessed full length furring strip in the forms provides a continuous 1 1/2" surface to secure most interior exterior wall covering.
- A patented robust extended length reinforced corner form with significant areas provided for attachment of cladding exterior surface finishes.
- A hole in the 90-degree corner forms is designed for the insertion of a length of rebar or pipe to tie the corner together vertically.
- The internal corner bracket (patented) connects the inside and outside EPS panels and this improves both the strength of the corner forms and safety during construction and placing of the concrete in the Fox Blocks wall.

## ENGINEERED TIES, STRENGTH OF FORMS & FORM PRODUCTS THAT ARE PROFESSIONALLY TESTED AND BUILDING CODE COMPLIANT TO THE INTERNATIONAL CODE STANDARDS

- Ties engineered to provide superior strength.
- Quality molding Expanded Polystyrene (EPS) forms are durable and Third-Party tested to code standards.
- Form panels have a 2 5/8" minimum thickness of EPS resulting in minimal deflection of EPS panels during concrete pouring.
- The form meets all International Codes Council building requirements for Residential (IRC) and Commercial Building Codes (IBC). This includes the Miami-Dade product approval requirements, as well as other state and local code requirements.
- Security & safety, the Fox Blocks ICF wall system has a 2 to 4 hour fire resistant rating on a load bearing wall without the addition of a wall covering.

- Acoustical comfort, the Fox Blocks Wall system has a Sound Transmission Class (STC) rating of 50 + ?.
- Thermal Comfort, the Fox Blocks wall system has a steady state R-value of R-24.

#### FOX BLOCKS HELPS YOU BUILD GREEN THROUGH ATTRIBUTES WHICH CONTRIBUTE TO LEED REQUIREMENTS AND THE GREEN BUILDING STANDARD

- Recycled plastic materials.
- Optimizing energy efficiency & performance.
- Improving Health attributed to indoor air quality & reduced air infiltration.
- No HCFCs, CFCs, or Formaldehydes used in the manufacturing process.
- Increased security and comfort, more durable building system leading to extended building life.

Reasons builders should consider Fox Blocks ICF construction for their next residential or commercial project include the advantages Fox Blocks provides the owner. These features are inherently part of Fox Blocks walls: increased thermal performance and reduced air leakage, resulting in lower energy costs and increased comfort; reduced sound transmission leading to a quieter environment for occupants; and improved building system durability leading to increased building design life.

Less air leakage into the home creates a noticeable increase in the comfort by the owner or resident. These walls provide high thermal values and tight construction as an integral part of the structural wall construction. The continuously placed, reinforced concrete walls and the tightly fitting Fox Blocks forms combine to reduce air infiltration.

In addition to advantages of energy efficiency, ICF walls inside the building have advantages in structural strength and reduced acoustical transmission. Thicker heavier walls can reduce the undesirable experience of hearing exterior sounds inside the home.

Concrete construction provides a fire and storm resistant, durable structure which requires less maintenance. Owners report appreciating the solid look and feel of their Fox Blocks homes.

### **1.6 Fox Blocks ICF Product Manual Overview**

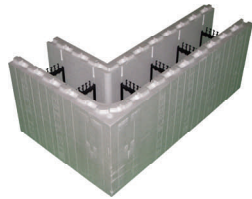
This Product Manual will inform you about the Fox Blocks ICF product, and guide you through the steps needed to complete successful projects. Please review this manual in detail as the construction sequence for Fox Blocks ICF walls is an enhancement to traditional building materials and systems.

The portion of this Product Manual addressing construction of Fox Blocks walls has been prepared with the assumption that the installer is familiar with typical framing and has a basic knowledge of construction, and as such will provide product specific information to supplement that basic knowledge. Fox Blocks provides training, which installers may find beneficial to attend. Please contact Fox Blocks at 1-877-369-2562 or [www.foxblocks.com](http://www.foxblocks.com) for information on upcoming training sessions in your area.

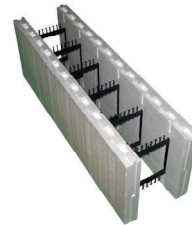
The information contained in this Product Manual is current as of the date it was published. There may have been subsequent updates, and as such, all installers are advised to visit [www.foxblocks.com](http://www.foxblocks.com) regularly to check for updates or obtain a current edition.

Fox Blocks ICF walls must be built in compliance with applicable codes and regulations. Installers are advised to check with the local authority having jurisdiction to confirm what the requirements are before planning and constructing the build, to ensure that the requirements are met.

Installers should consider this Product Manual as a guide to be used in conjunction with their years of construction experience. If you have any questions, please see our website at [www.foxblocks.com](http://www.foxblocks.com) or call us at 877-369-2562.



1\_6A Fox Block 90° Block



1\_6B Fox Block Straight Block

## **1.7 Fox Blocks ICF Website [www.foxblocks.com](http://www.foxblocks.com)**

The Fox Blocks ICF website is the go-to-resource for anyone interested in Fox Blocks ICFs. You are welcome to visit it at any time which is convenient to you, as it is available 24/7. The Fox Blocks ICF website has all the current information about Fox Blocks ICFs and provides the opportunity for you to e-mail questions you may have, or contact your regional manager directly.

A short list of the information on the Fox Blocks ICF website is:

- Fox Blocks ICF product information and specifications
- Accessory products
- Project estimating
- Technical information
- Installation Manual
- Design details
- Industry Blog
- Why Use Fox Blocks ICF
- Clever News and Events
- Fox Blocks ICF installer training
- Contact us to learn more



## **Fox Blocks ICF Website Privacy Policy**

This is a privacy policy for Fox Blocks and Airlite Plastics Co. Fox Blocks respects your privacy.

We invite you to contact us if you have any questions about this policy. You may contact us by mail at the following address or you may call our toll free number:

Fox Blocks  
Airlite Plastics Co.  
6110 Abbott Drive  
Omaha NE 68110

Phone: 1-877-369-2562

You may contact us by using our online [contact form](#).

The e-mail addresses collected from the contact form are not sold, or disclosed to any third parties. These addresses will only be used by our business to respond to your request. You will not receive any mailings you did not request.

Any data collected will be used by ourselves and our agents. Fox Blocks and Airlite Plastics Co. hereby reserves the right to transfer any data collected in the event of an acquisition, full or partial, of company or its assets.