

**ICF SPECIALIZED CONSTRUCTION SOLUTIONS LTD**

Smirnis No. 2, Building Ayios Andonios Apt. 103,  
7103 Aradippou, Larnaka – Cyprus

Tel: (+)357 24 815040 Fax: (+)357 24 815 041

Email: [info@icfsolutions-cyprus.com](mailto:info@icfsolutions-cyprus.com)

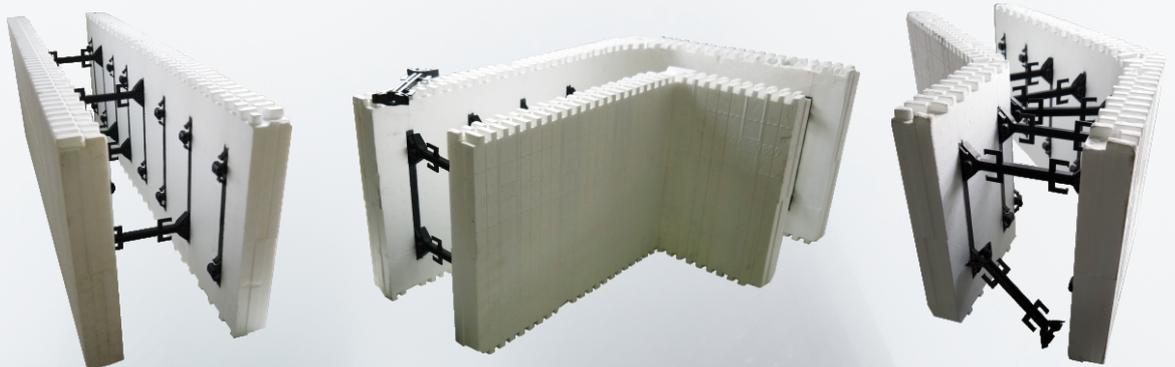
Website : [icfsolutions-cyprus.com](http://icfsolutions-cyprus.com)



[www.icfsolutions-cyprus.com](http://www.icfsolutions-cyprus.com)

# SEE YOU AT THE TOP

 **icf**solutions  
[www.icfsolutions-cyprus.com](http://www.icfsolutions-cyprus.com)





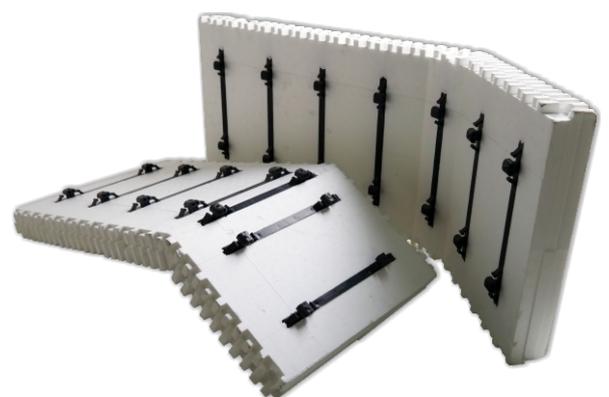
## WELCOME TO EXCELLENCE

ICF Solutions Cyprus Ltd, is a Cyprus registered company, which manufactures expanded polystyrene (EPS) by-products in a competitive manner.

The Company's mission is to provide the market, with cost effective, high quality and friendly to the environment products.

Our manufacturing facility is located in the new industrial zone of Aradippou/Dromolaksia area, very close to the international airport of Larnaka. It is 10 minutes away from the port of Larnaka, and not more than an hour from the port of Limassol. The capital of Cyprus, Nicosia, is located 30 minutes away.

For the production of the EPS Polystyrene and ICF forms, our manufacturing facility is using state of the art European automated machines. For the production of the EPS Polystyrene we use high quality EPS raw material with flame-retardant additives.





General View of the Facility

The expanded polystyrene (EPS), is a purely isotropic inert, lightweight porous material, and is considered an ecological material. The production of EPS polystyrene is environmentally friendly, since they are not used CFCs and other harmful chemicals (CFCs, HCFCs, HFCs, CO<sub>2</sub>). EPS has no impact on the environment even in landfill sites or in incinerators, nor does it contain substances that could pollute the air or soil. The manufacture of EPS solutions does not release hydrosoluble substances that could contaminate ground water supplies. Expanded polystyrene is 100% recyclable and can be reused to produce other materials such as lightweight concrete, recycled plastic etc. Apart from applications in the construction industry as an excellent insulation material, it is extensively used in the packaging industry.



EPS Polystyrene Pre-Expanded Machine

EPS polystyrene is a rigid and tough, closed-cell foam made from the monomer styrene, a liquid hydrocarbon that is manufactured from petroleum. Pentane is used as the propellant reaction gas. EPS is made up of 98% air and only 2% of pure hydrocarbon material. EPS structures are produced through a process called steam moulding. The EPS tiny beads expand up to 60 times their initial volume, in a pressurized chamber with the aid of steam at temperatures 80-100°C. This expanding process is precisely timed to determine the size of the beads. The strength of the EPS structure is determined by the density of the expanded beads. The beads are stored in silos to dehydrate and stabilize to be ready for further processing. In the final stage the EPS beads are placed in metal molds in the moulding machines, and with fusion they expand further, bond together and takes the shape of the mold.

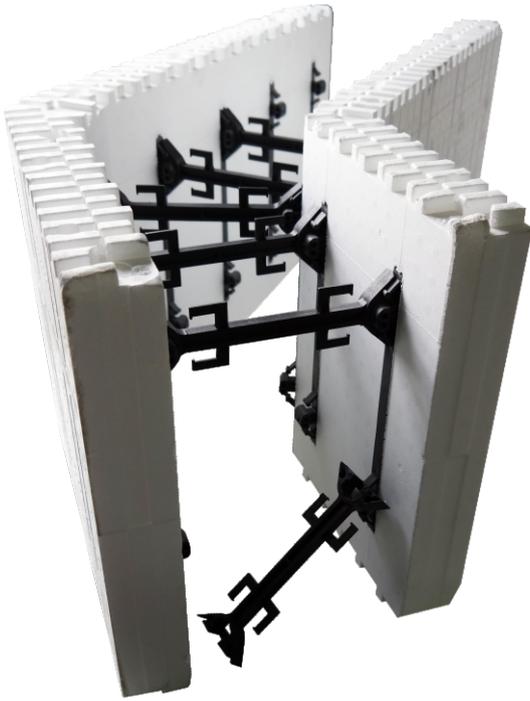


ICF Form Moulding Machine

EPS thermal conductivity  $\lambda$ , depends on the quality of the raw material and the density of the EPS structure. It varies from 0.045 W/mK for EPS30 of density 10 kg/m<sup>3</sup> to 0.033 W/mK for EPS200 of densities 26-30 kg/m<sup>3</sup>. Some more properties of EPS200 are (1) compressive strength 200-250 KPa for 10% deformation, (2) continues design load of 7 ton/m<sup>3</sup> for 2% deformation, (3) water absorption 0.5-1.5% by volume, (4) permeability resistance 40-150  $\mu$  (5) -50/+75oC minimum / maximum temperature resistance, (6) chemicals during production – none (7) aging material – none (8) reaction to fire – non toxic.

For the manufacturing of our ICF Blocks products we use EPS200.

## WHAT ARE ICFS ?



Insulated concrete forms (ICFs) are hollow foam blocks which are stacked into the shape of the exterior walls of a building, reinforced with steel rebar, and then filled with concrete.

Insulated concrete forms combine one of the finest insulating materials, Expanded Polystyrene (EPS), with one of the strongest structural building materials, steel reinforced concrete.

The result is a wall system of unmatched comfort, energy efficiency, strength and noise reduction.

### What are the advantages of an insulated concrete form structure?

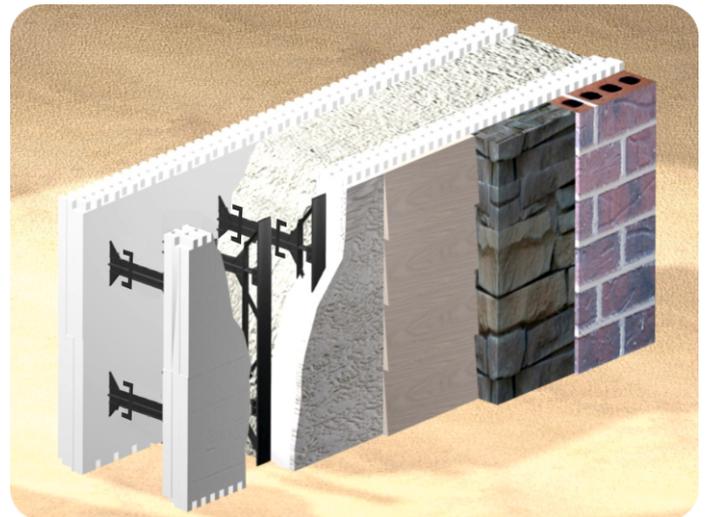
Insulated Concrete form structures are much more comfortable, quiet, and energy-efficient than those built with traditional construction methods.

Whether you're building a concrete home or a multi-level commercial structure, you can't beat the rewards of building with ICF Blocks. ICF Blocks concrete forms provide a lightweight, high-strength alternative to using steel or wood frame.

ICF Blocks is dedicated to the evolution of the building process through the manufacture of products having minimal impact on the natural environment. ICF Block Wall Systems provide structural integrity through reinforced concrete while providing comfort, energy, efficiency, and sound mitigation through superior EPS insulation.

Together these materials form an air tight, and disaster resistant structure that is unbeatable in strength and durability. This solid monolithic concrete envelope reduces air infiltration, minimizing the potential of mold growth and draft paths.

The end result is a comfortable, efficient and healthier environment with a life cycle that out-lasts other competing conventional building methods used today.

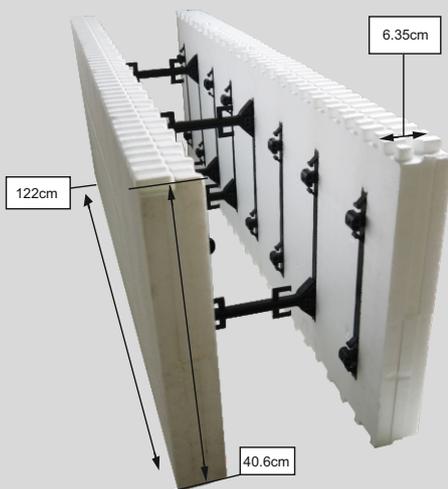


Design It For Life...  
Design it with ICF Blocks

ICF Block Systems is the most innovative Insulating Concrete Forms (ICFs) company in the market today. As a respected leader in green building components, we believe in building structures that are energy-efficient, safe, healthy, comfortable and sustainable. Our market is growing at an ever increasing rate due to the necessity for building homes, commercial and governmental facilities that are environmentally friendly resulting in green energy savings of fossil fuels and smaller carbon footprints.

Whether you are designing a residential or commercial concrete structure, you cannot beat the benefits of designing with ICF Blocks. We provide you with multiple design options while eliminating concerns for waste factors, environmental issues, or the trade off between functionality and design.

Together we can complete a worldwide common goal - to see lives changed and communities rebuilt through the use of this amazing revolutionary building component.



8" (20.32cm) FORM SHOWN

Insulating Concrete Forms (ICFs) are coming of age with the emergence of green and sustainable construction. ICF construction is an excellent way to meet the public demand for homes and buildings to be more energy efficient and environmentally responsible while also providing the benefits of extreme comfort, quiet and safety.

All ICFS are not created equal - ICF Blocks feature a 1" (2.54cm) repeating cut pattern on block connections, 6" (15.24cm) web spacing and complete 2.5" (6.35cm) fully interlocking connectors. These features coupled with the symmetrical web design and completely reversible forms result in one of the lowest waste factors of any ICF on the market today and provide limitless design flexibility as well as superior structural integrity.

As you begin formulating the plans for your new home, there seems to be no end to the number of choices you have to make. Its natural to pour hours of time and effort into choosing the wall coverings, exterior finish and other aesthetics for your new home. But first take some time to decide what will be inside these walls.

Traditional wood frame or CMU construction cant compare to the comfort, safety, sustainability, and energy efficiency of walls built with BuildBlock insulating concrete forms (ICFs)

## Design Freedom

In addition to the many ICF home plans now available virtually any home plan can be adopted for ICF Blocks. Also, because of the innate flexibility of the foam material you can have unique foot-prints, arches, angles, and curves as part of your design. Exterior walls can be finished with brick, masonry, stone, stucco or siding.

## Quiet Comfort

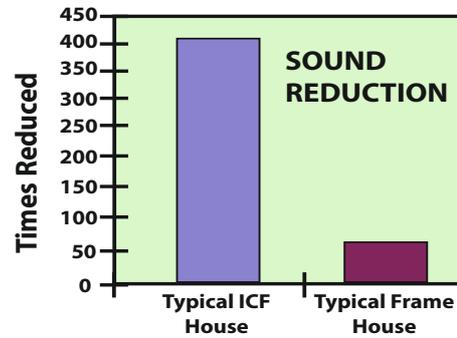
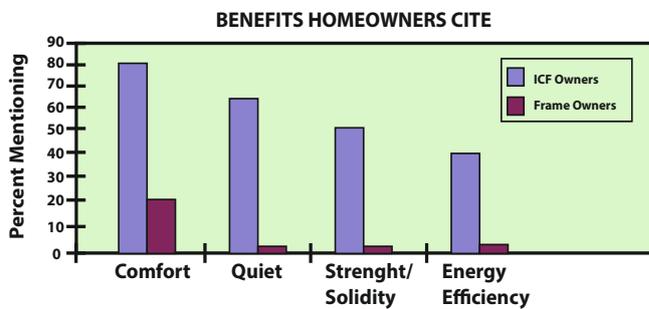
75% less outside air infiltrates a ICF Block home

- Stable room temperatures
- No hot spots, no cold drafts
- Greatly reduced pollen, allergens and dust

ICF homes are 3 times quieter than wood frame homes

## Safe & Sound

ICF Blocks create a monolithic concrete wall that is 10 times stronger than a woodframe wall. ICF Block homes can withstand hurricane and tornado strenght winds and are fire and earthquake resistant

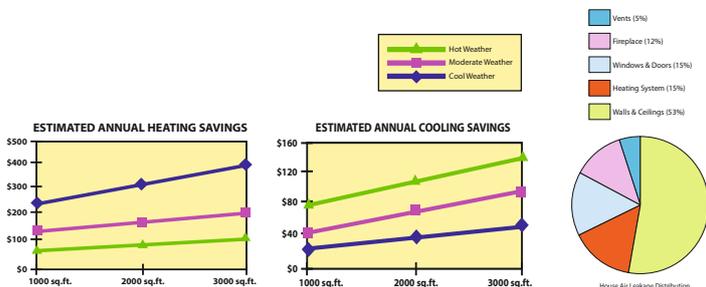


Energy efficiency is the core feature of insulating concrete form construction because so many owner /occupant benefits stem from it

Actual studies show that homes built with ICF exterior walls require an estimated 44% less energy to heat and 32% less energy to cool than comparable wood frame houses,

However, homes and structures built with proper complement of windows, doors, HVAC (heating, ventilation, and air conditioning) systems, and methods, generally accomplish at least a 50% savings in heating and cooling. And in some cases, depending on the areas and climate, homeowners experience as much as an 80% decrease in energy use and costs.

At a time when energy costs are soaring, many building owners are deciding it makes more sense to spend money on a safer, longer lasting, and more energy efficient structure than to spend that same money on utility bills.

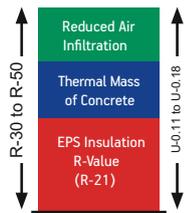


# ENERGY EFFICIENCY AND SAVINGS

## EFFECTIVE R-VALUE

The Total Effective R-Value (U-Value) performance of BuildBlock ICFs consists of three factors:

- a) the R-Value of the expanded polystyrene
- b) the thermal mass of the concrete, and
- c) the enormous reduction in air infiltration (leakage)



## INSULATING VALUE

First, the R-Value of ICF Blocks polystyrene alone is R-20, compared to wood frame's R-9 to R-15. So, if ICF walls are expected to cut the conduction losses through foundation and above-grade walls by about half.

## AIR INFILTRATION

Air leakage accounts for as much as 40% of the heat load requirements of a wood framed structure. Nothing blows through solid concrete! ICF walls reduce air infiltration by about half, compared to wood frame.

## THERMAL MASS

But ICF walls do more than cut down the biggest types of energy loss. The concrete gives them the heat-absorbing property, "thermal-mass." This is the ability to smooth out large swings in temperature. It keeps the walls of the house a little warmer when the outdoor temperature hits its coldest extreme, and keeps the house a little cooler when the outdoor temperature is hottest

As a result with the combined performance of these three factors, ICF walls actually perform as high as R-50 in some areas.

Environmentally Friendly

At a time when energy costs are soaring, it makes more sense to spend money on a safer, longer lasting, and more energy efficient home than to spend that same money on utility bills. Depending on the climate, ICF Block homeowners enjoy up to 70% savings in heating and/or cooling costs!

Expanded Polystyrene density	1.5lbs/cu.ft. (25kgs/m <sup>3</sup> )
Average thickness of EPS	2.5"(6.35cm)/ panel (5" (12.7cm)total
Steady State R-value (foam)	R-21(U-Value 0,27 W/m <sup>2</sup> K)
Effective R-value (concrete, form, air infiltration, and thermal mass)	R-24 to R-50 (U-Value 0,23 W/m <sup>2</sup> K -U-Value 0,11 W/m <sup>2</sup> K)
U-value	U-Value 0,23 W/m <sup>2</sup> K -U-Value 0,11 W/m <sup>2</sup> K
Actual R-value	4.4 (1,3 W/m <sup>2</sup> ) Per inch of EPS
Thermal Mass (form & concrete)	6" (15,24cm) core:72lbs/32.6kgs sq.ft. 8" (20,32cm) core:96lbs/43,5kgs sq.ft.
K-Factor	.24 Per inch of EPS
Water absorption	Less than 3% (ASTM C272)
Water vapor	0.56 perms per 2.5"(6,35cm)
Sound class	STC Sound Class rating of 54 with 1/2-inch sheet rock both sides STC Sound Class rating of 51 with 1/2-inch sheet rock one side
Fire wall	Fire wall rating 5,000 to 12,000 lbs per lineal foot for 3 hours.
Concrete compressive strength	3000 psi (206 bar)
Concrete pouring temperature	Down to 0°F (-18°C)



THERE IS ONLY ONE  
ENERGY GRADE FOR  
OUR HOMES

A

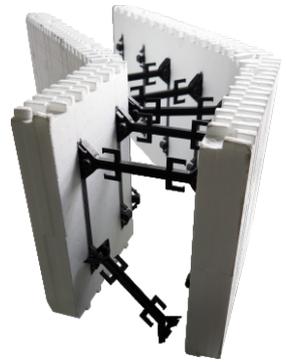
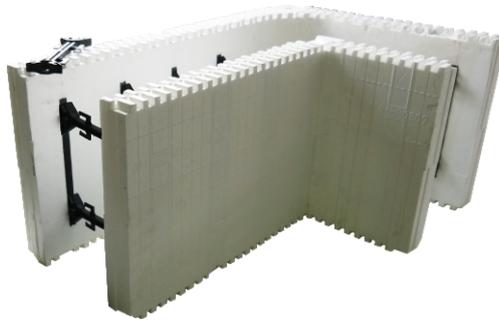




 **icfsolutions**  
[www.icfsolutions-cyprus.com](http://www.icfsolutions-cyprus.com)



SOME OF OUR PROJECTS



[www.icfsolutions-cyprus.com](http://www.icfsolutions-cyprus.com)



