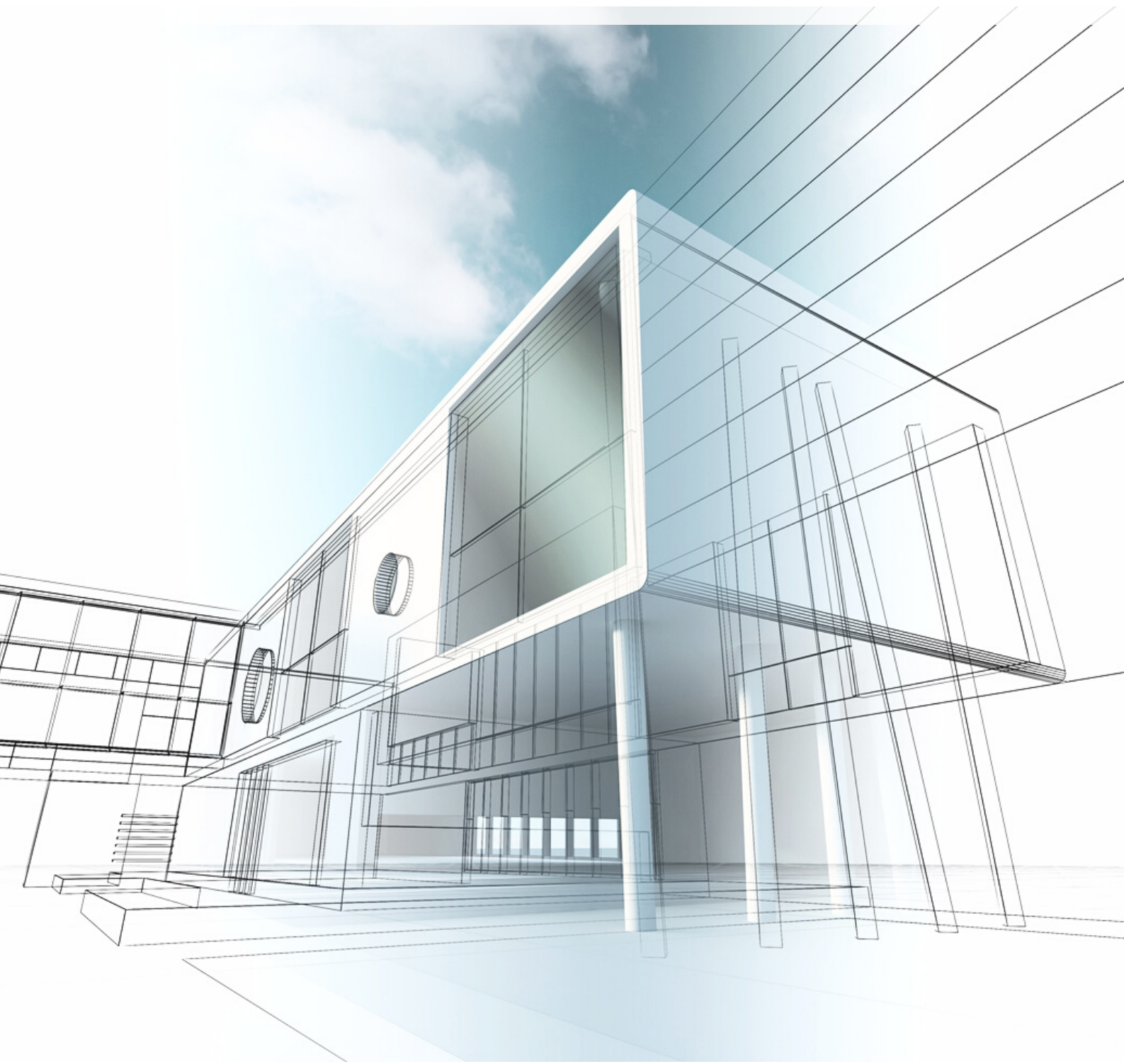


BEST METHOD FOR CONSTRUCTION



What is the best material to build from for strength, longevity and water tightness?



Poured in place, steel reinforced, swimming pool formula, waterproof concrete.

Poured in place

Uniform strength and ability to withstand earthquakes and other disasters.

Steel reinforced

Engineer approved for maximum strength.

Swimming pool formula concrete

BRANZ approved KIM mineral admixture to make the concrete waterproof. Swimming pools made from this hold water without needing a waterproof coating. When used for buildings, this eliminates leaky homes.

THERMAL MASS PRINCIPLE



Waterproof concrete core



Insulation on both sides

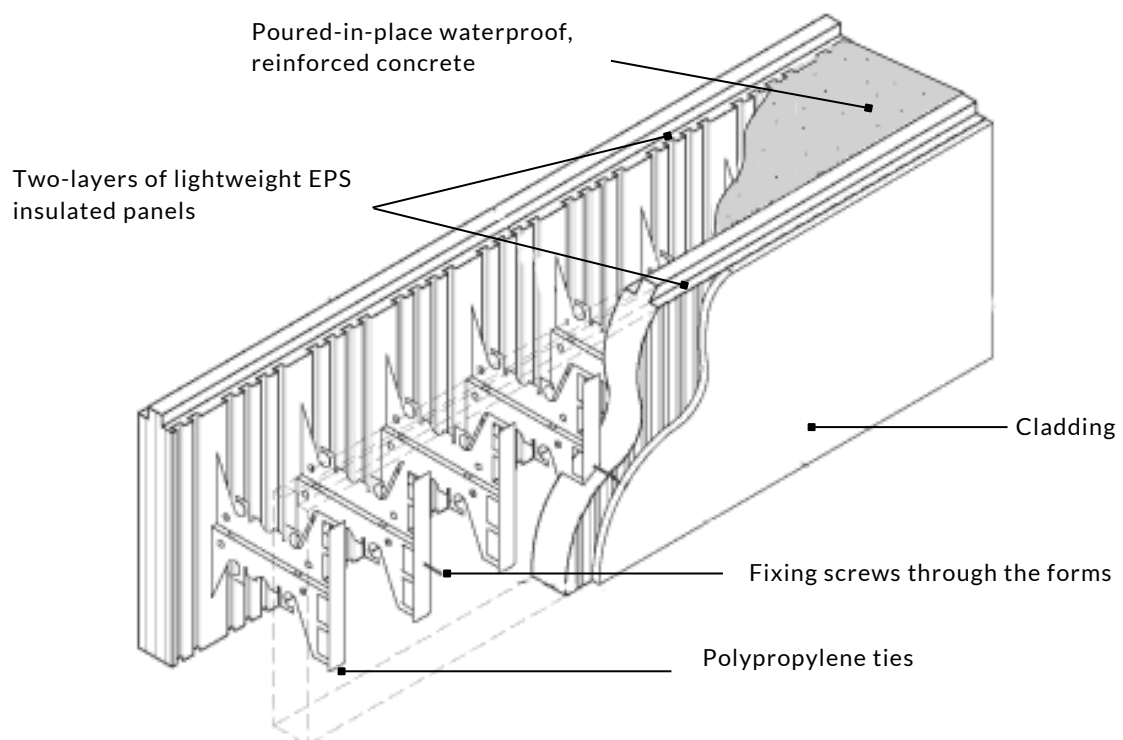
Isolate the concrete on both sides.

- Concrete core takes more than a season to change temperature - isolated thermal mass
- Very stable temperature inside houses or apartments
- Up to 80% energy cost savings for heating and cooling
- Over twice council insulation requirements
- Very resistant to owners or tenants trying to damage the houses
- Other benefits:
 - Inert materials so cannot rot or degrade - very low maintenance
 - Waterproof concrete so no leaky homes
 - Increased soundproofing so neighbours are not disturbed
 - No black mould to cause illnesses
 - Resistant against earthquakes, tornadoes and fires
 - Incredibly strong so withstands even cars crashing into the house or apartment
 - All New Zealand made products

INSULATED CONCRETE FORMWORK

The most **cost effective** and **efficient** way to produce double insulated waterproof concrete buildings:

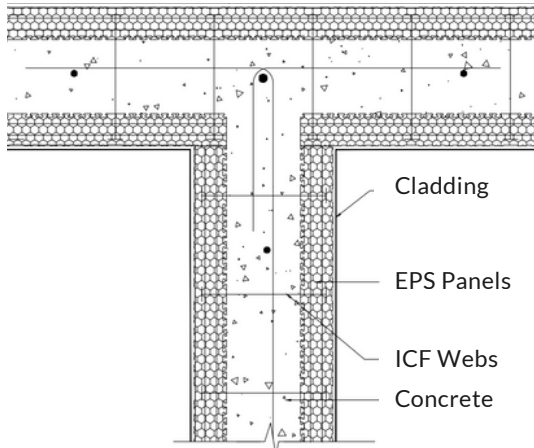
Use the insulation panels as formwork for the concrete.





WHAT IS ICF?

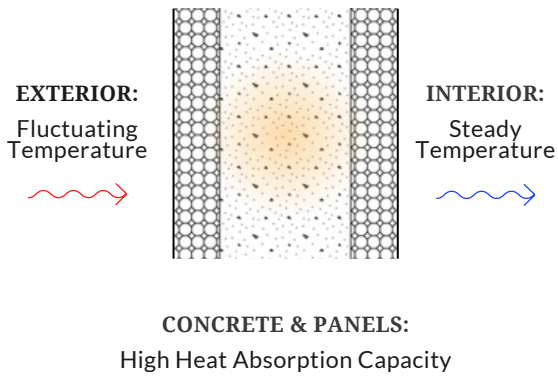
TYPICAL ICF WALL JUNCTION



Insulated Concrete Formwork, or ICF, are hollow and lightweight insulated forms that are erected at the construction site. The forms are easy to assemble due to their lightweight material and are stacked on top of each other on-site. The forms are filled with 150mm of poured-in-place, waterproofed, reinforced concrete. Unlike traditional concrete forms, which are removed after the concrete cures, ICFs are left in place.

ICF provides excellent thermal efficiency with a high R-Value over 4.2, which exceeds New Zealand's standards. Due to the air-tightness and insulative materials of the ICF forms, the thermal performance of the build outperforms traditional timber framing methods. Air leakage in timber framed builds is a large contributor to energy loss, resulting in less effective insulation and higher energy costs. ICFs reinforced, solid concrete in-between two layers of EPS foam creates an air-tight structure with continuous insulation on both sides of the wall and no thermal bridging.

THERMAL MASS EFFECT



ICF IN NEW ZEALAND

Insulated Concrete Formwork construction is an advanced and innovative building technology that meets New Zealand Building Standards and often exceeds minimums required by code.

The Fino Casementi is a multi-level Hotel in Christchurch, New Zealand - that was constructed using ICF. This building was designed with structural integrity and durability. After the devastating earthquake that took place in Christchurch in February 2011 - The ICF constructed building remained standing.

BENEFITS OF ICF



Thermal Efficiency

ICF homes are extremely energy efficient due to the thermal properties of concrete and the air-tightness of the structure. This results in homes that are warm in winter, cool in summer - which produces low energy bills and eliminates issues of dampness/mould. ICF builds exceed New Zealand standards with an R Value above 4.2.



High Performance

ICF builds are designed to endure. These buildings are able to withstand earthquakes and have waterproofing properties so the build will not leak and rot. The strength of the concrete plus two layers of insulation result in a build with incredible structural integrity that will last the test of time.



Quick Installation

Due to the ICF blocks being so lightweight, they can be assembled very quickly with their simple Lego-like stacking design. The concrete pour is quicker than traditional methods of construction. Additionally, the forms are left in place after the concrete pour. This quick installation results in a much more cost effective build with lower labour costs.



Fireproofing

ICF blocks are manufactured with fire-retardant properties resulting in a much smaller combustible material compared to timber framing. The insulated forms would melt, not ignite. 150mm thick concrete forms achieve a 4hr. fire rating.



Soundproofing

The concrete and double layer of insulation provided with ICF greatly reduces sound pollution. This makes ICF an optimal material to build with for shared walls in terraced housing and apartment buildings with a sound transmission class (STC) rating of 55+.



Versatile & Sustainable

ICF blocks come in many shapes and sizes and are not limited to restrictive designs. The blocks can also be cut to shape with a hot knife. Additionally, ICF block waste can be recycled to create other blocks or be used as soil aeration material for plants, landscapes, compost heaps and drainage materials.