

Insulated Concrete Forms (ICF) - Frequently Asked Questions

How does it compare to other ICF products?

There are a number of reasons why Durisol insulated forms are better than other polystyrene ICFs:

Environmental Considerations

Durisol insulated concrete wall forms contain no polystyrene, foams or plastics. Unlike other ICF systems, there are no VOCs or off gassing with Durisol.

Styrofoam and EPS systems are all petroleum based products. Durisol is not a petroleum based product and therefore has less of an overall environmental impact. Using Durisol is also an example of reducing the overall demand for oil and oil derivatives.

Durisol is comprised of simple ingredients; cement, pulverised fuel ash PFA and wood aggregate. Nothing in the Durisol process is remotely hazardous or detrimental to the environment.

Energy input for both cement and Styrofoam products are comparable

100% recycled wood content. We only use recycled waste wood (100% clean, natural softwood,) that is taken from sources such as old pallets, and would otherwise be sent to landfill sites.

Performance Considerations

Durisol does not burn or melt. This is not the case with Styrofoam and other ICF products. The smallest Durisol wall has a 4 hour fire rating, zero flame spread, smoke spread of 11 and no black smoke or toxic fumes created in the event of a fire.

Durisol is more energy efficient. The insulating thermal mass/dynamic effects are better with Durisol than other ICF systems because with Durisol, the insulation is placed primarily on the exterior of the concrete mass. Polystyrene ICF foam blocks put 50% of the total insulation on the interior, which actually prevents the transfer of heat/energy between the concrete mass and the interior conditioned space. With Durisol, all insulation inserts are positioned towards the exterior, where it should be, to maximize any thermal mass gains.

Durisol facilitates improved indoor air quality. The Durisol material is a hygroscopic material - which means that it has a very large capacity to store and release moisture as required, depending on the environmental conditions. This storage capacity refers to storing moisture in the form of water vapour and increased material moisture content - not liquid water. Also, the Durisol material and wall system is extremely vapour permeable. It does not act as a vapour barrier, but acts as a vapour regulator and keeps indoor RH (Relative Humidity) levels at a healthy and comfortable level. We have conducted full scale wall tests and have proven that Durisol does not allow condensation within the wall cavity when used without a vapour barrier, and maintains RH levels below RH 65-70 naturally.

Durisol promotes healthy indoor environment and inhibits mould growth. Firstly, because the material is hygroscopic and vapour permeable, RH levels are kept low enough such that it is not possible to reach the level of RH where mould can start to grow (typically 70% RH). Combined with the high pH (alkaline) environment resulting from the cement content, this means that the wall system actually helps to inhibit mould growth. Something that doesn't happen with the other systems.

The composition of Durisol is all natural and benign materials - unlike polystyrenes. The following link shows some current research that shows the negative health implications of polystyrene.
<http://www.ejnet.org/plastics/polystyrene/health.html>

Durisol is more impact resistant. Both render and drywall, when attached to Durisol result in a solid, durable, impact resistant finish. Polystyrene ICF substrates result in render and drywall finishes that can easily be damaged through regular use.

Durisol is more resistant to insects. We have completed a 7 year termite study with US Forest Service and found no damage to the Durisol material over this period of time. Although Styrofoam does not provide a food source to termites, it does provide a protected high humidity environment that can also serve as a pathway for termites. It has been found that termites readily chew through the Styrofoam. This does not happen with Durisol.

Construction Considerations

Durisol Wall Forms are much stronger, and can withstand higher concrete pressures. We have zero blow-outs in the field when poured in accordance with our recommendations.

The blocks require less bracing than the foam ICFs and Durisol walls don't bow and bend as easily as the foam blocks. Also, since the blocks are uniform, it is possible to drywall or attach screws to any point on the finished surface, not just at the discrete plastic web locations that are difficult to find with traditional ICF materials.

Because the Durisol is a free draining material, it is possible to use a high-slump concrete (7" - 9" slump) without adversely affecting your concrete strength. When pouring a very wet concrete mix, the Durisol material immediately starts to drain the moisture so that it does not result in weaker concrete, while ensuring that there are no voids and making the pouring process easy.