

# Liteblok™ Compared

In order to compare wall systems, it is important to learn about their respective features, benefits, shortcomings and costs. In the paragraphs that follow, we compare Liteblok™ with many of the more common home building systems on the market to aid the consumer in making informed choices.

Liteblok™ is a unique building block that is patented worldwide. It is produced by introducing tiny air pockets into a regular concrete mix. The aerated mixture is poured into block shaped molds and allowed to cure in ambient conditions. The lightweight interlocking blocks are dry stacked to form a wall. Many of block cores are filled with grout and reinforced steel to provide the strength of the wall system.

## Wood Frame vs. Liteblok™

Wood frame refers to the 2x4 and 2x6 construction common in North America.

- Plywood and sheathing often contain formaldehyde based resins. Formaldehyde is an irritant linked to cancer. Recently, toxic drywall has been blamed for endangering the health of home owners<sup>1</sup>. Fiberglass particles in the air can also be a concern<sup>2</sup>. Liteblok™ is not manufactured with any toxic or hazardous substances and contains none
- Wood frame's low construction cost have led to its popularity. Typical Liteblok™ walls are comparable in cost
- Wood frame is complicated and labor intensive with framing, sheathing, sheetrock, insulation and vapor barrier required. Liteblok™ simplifies construction requiring only rebar and grout to complete the process
- Wood is eaten by termites, will burn and rot, and is prone to mold and mildew. The cavities in a wood frame home attract vermin. Liteblok™ is resistant to termites and vermin. Being totally inorganic, Liteblok™ will not burn or rot and is mold and mildew resistant
- Unlike Liteblok™ homes, wood framed homes experience rapid temperature swings due to their low thermal mass and suffer from a lack of air tightness
- Notoriously weak, wood framed structures do not stand up well against strong winds. Liteblok™ was designed for regions prone to high winds and seismic activity
- Wood frame homes typically offer little resistance to noise. Liteblok™ homes are noticeably quieter



## Structurally Insulated Panel (SIP) vs. Liteblok™

SIPs are typically made using expanded polystyrene (EPS), or polyisocyanurate rigid foam insulation sandwiched between two structural skins of oriented strand board (OSB).

- SIPs may fail as the insulation settles over time causing the outer skins to warp and buckle. Liteblok™ is durable and long lasting
- Insects and rodents like to build nests inside SIP panels and termites attack the wood. Aggressive pesticide treatment is usually recommended before and after construction to prevent infestation. Liteblok™ is not attacked by termites or vermin and requires no toxic pesticides or chemical treatments at any time
- SIPs burn easily releasing toxic fumes from the degraded EPS. Liteblok™ is totally inorganic and cannot burn
- SIP panels must be cut and prepared in advance and are typically a bit more expensive than wood frame



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## Insulated Concrete Forms (ICF) vs. Liteblok™

Insulating concrete forms (ICF) are rigid plastic foam forms that hold concrete in place during pouring and curing and remain in place afterwards to serve as thermal insulation for concrete walls.

- Embodied energy represents the total energy used in producing a product including manufacture, transportation, and disposal. ICF's embodied energy is about four times that of Liteblok™. Cement has a lower embodied energy than EPS, steel, or plywood<sup>3</sup>
- EPS in ICF systems is produced from toxic materials and has been described as “the least green of common insulation materials<sup>4</sup>”. Liteblok™ has no toxic ingredients
- Experienced builders and skilled labor is critical with ICF. Uneven walls or “blowout” possible during pouring of concrete. Highly skilled crews not required for Liteblok™ installation
- Difficult to achieve adherence to ICF's polystyrene surfaces. Stucco can be applied directly to Liteblok™ without the need for lathe or sheathing
- EPS generates a toxic smoke when it burns. Liteblok™ has excellent fire resistance
- Inside insulation reduces the benefits of thermal mass resulting in a lower per inch equivalent R value compared to Liteblok™ (in Southern climates)
- Fast and uncomplicated, Liteblok™ construction is less expensive than ICF



## Autoclaved Aerated Concrete (AAC) vs. Liteblok™

Mixture of cement, alumina, silica, and lime, heated evolving hydrogen which leaves numerous tiny air pockets within the material

- Silicosis danger from saw cutting and drilling AAC block. Fly ash, often present in AAC, may be toxic<sup>5</sup>. Liteblok™ is free of toxic or harmful chemicals and materials
- Requires special thin set mortars, tools, steel reinforcement and finishes. Special tools and materials are not required when working with Liteblok™
- Only exterior walls are load bearing while all Liteblok™ walls are load bearing
- Skilled labor requirement contributes to a wall cost higher than that of Liteblok™
- Energy consumed during autoclaving leads to higher embodied energy than Liteblok™



## Insulated CMU vs. Liteblok™

Insulated CMU is a layered system consisting of stucco, lathe, foam board, block, furring and dry wall. The foam board is installed on the outside for better insulating performance.

- Typical of many layered systems, the insulated CMU wall is prone to infestation by termites and vermin. Liteblok™ is a single layered system with no spaces for vermin to enter and inhabit
- Condensation at the block surfaces can lead to mold and mildew. Liteblok™ offers no organic nutrients for mold and mildew to grow
- Regular concrete reflects sound creating noisy rooms. Liteblok™ absorbs sound leading to quieter rooms within the home
- Labor intensive, multi-component CMU system is more expensive than Liteblok™

<sup>1</sup> [http://www.businessweek.com/bwdaily/dnflash/content/jul2009/db20090713\\_226837.htm](http://www.businessweek.com/bwdaily/dnflash/content/jul2009/db20090713_226837.htm)

<sup>2</sup> [http://www.healthyhouseinstitute.com/a\\_681-Fiberglass\\_Insulation\\_Use\\_With\\_Care](http://www.healthyhouseinstitute.com/a_681-Fiberglass_Insulation_Use_With_Care)

<sup>3</sup> <http://www.victoria.ac.nz/cbpr/documents/pdfs/ee-coefficients.pdf>

<sup>4</sup> <http://blogs.ebuild.com/insulation-moisture-air-pest-barriers/environmental-building-news-decries-polystyrene-insulation/20090804/>

<sup>5</sup> [http://environmentalintegrity.org/news\\_reports/Press\\_Release\\_Testings\\_Shows\\_High\\_Levels.php](http://environmentalintegrity.org/news_reports/Press_Release_Testings_Shows_High_Levels.php)



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