COST BENEFITS OF GEO-BRICKS

- *One GeoBrick is equivalent in size to 3 kiln fired bricks*
- *GeoBricks are cheaper to buy than equivalent sized first grade kiln fired bricks*
- *GeoBricks do not require mortar to hold them together. Mortar comprises 30% of brick masonry costs.*
- *GeoBricks do not require highly skilled masons to build. Unskilled labor with basic training can erect a wall.*
- *Geo-Brick Walls are faster to erect. With a team of 2, the walls of a 100m^2 hall can be built approximately in 2 days.*
- *GeoBrick walls do not need to be plastered, because the consistent shape of the bricks ensures good presentation of the wall.*
- *Because of lack of plastering, maintenance cost is also reduced.*
- *Using the mobile GreenMachine® GeoBricks can be manufactured onsite, which eliminates brick transportation costs.*
- *Because of onsite production, wastage due to transportation and handling is also eliminated.*

QUALITY BENEFITS OF GEO-BRICKS

- *With 8% cement content, GeoBricks have triple the compressive strength of kiln fired bricks*
- *With no cement content, GeoBricks have twice the compressive strength of kiln fired bricks*
- *A GeoBrick wall is able to deflect up to 11 cm in horizontal direction thus minimizing risks due to earthquakes, hurricane winds of up to 193 km/hr and other such natural hazards*
- *GeoBricks have high insulation rating, more superior than comparable construction material. As a result, inside GeoBrick structures are cooler in the summer and warmer in the winter.*
- *GeoBricks have less wastage due to the ability of the GreenMachine® to manufacture them onsite.*
- *GeoBricks are strong enough that they do not allow small arms fire to penetrate.*
- *GeoBricks are suitable for single and double storey structures. Higher structures require frame structures to withstand earthquake forces.*

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IHFD
International Home Finance & Development, LLC

The Art of Innovation

THE GREENMACHINE®

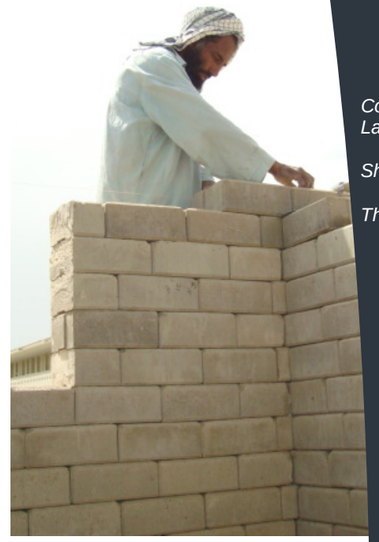
A New Technology
A New Construction Material
A Positive Environmental Contribution

The GreenMachine®

The GreenMachine® is a patented, one-ton, rugged, self-contained hydraulic machine that is towed easily. It uses local materials for cost effective, on-site construction. It produces structural, precision-engineered tongue & groove compressed earth blocks (GeoBricks) which can be stabilized with small quantities of cement for greater strength and weather resistance.

GreenMachine® Characteristics	**GM3-12**
Weight	1¼ tons
Size (HxWxL)	165x206x340 cm
Ground clearance	24.13 cm
Engine	Yanmar 10hp (7.5kW)
Fuel	diesel
Production rate/minute	5 /minute
One cubic meter soil + 1 3/4 bags cement	92 TerraBricks
Machine hours to make TerraBricks for a 1,000 square foot house shell	20 hours

The dimensional accuracy of each GeoBrick enables mortarless dry stack construction by unskilled labor while the GeoBricks are still "green". It is a cost effective sustainable building system for housing, schools, clinics, work buildings, barns, outbuildings, sheds, retaining



GEO-BRICK STRUCTURES

- COMPATIBLE WITH TRADITIONAL AND ALTERNATIVE CONSTRUCTION TECHNIQUES, INCLUDING ROOFING AND FRAMING SYSTEMS
- SUPERIOR ENERGY EFFICIENY DUE TO THERMAL MASS BENEFITS.
- EXCELLENT RESISTANCE TO HURRICANE WINDS.
- FIREPROOF, NON-COMBUSTIBLE AND WATERPROOF.
- BULLETPROOF TO SMALL ARMS FIRE SUCH AS AK-47.

The GeoBricks

The GeoBricks exceed the prevailing US Code standards for adobe and soil-based block materials, defined as non-fired clay masonry.

GeoBricks were tested at Kleinfelder Laboratory in Albuquerque, New Mexico, a certified materials testing laboratory. GeoBricks exceed the Adobe compressive strength standard of 21 kg/cm^2, and measured at 110 to 158 kg/cm^2 depending on cement content. They also outperformed the Adobe wall standards for compression strength, modulus of rupture, lateral load and shear strength.

Thermal dynamic tests, conducted by the Oakridge National Laboratory Building Technology Center, show that a properly engineered GeoBrick wall significantly out performs an equivalent wood frame wall system. This is due to the inherent thermal mass benefit of a soil block wall and varies by geographic region.

GeoBrick housing has resisted seismic tremors of 5 on the Richter scale of 1-10 without structural failure.

GEO-BRICKS SPECIFICATIONS

Brick Dimensions:	101.6mm x 203mm x 254mm (h x w x l)
Tolerances:	0.4 mm all sides
Brick Type:	Tongue and Groove
Construction Method:	Dry-Stack w/o mortar
Compressive Strength:	158 kg/cm^2 (2240 psi) with 8% cement
Modulus of Rupture:	12 kg/cm^2 (170 psi) with 8% cement
Absorption:	260 kg/m^3 with 8% cement
Brick Weight:	9 - 11 kg depending on soil density
Material:	Sub soil mixed with 8% cement content

Number of GeoBricks per Cubic Meters:	110 Bricks
Wall coverage per square meters:	39 bricks.

TEST RESULTS OF GEO-BRICK WALLS

Compressive Strength:	>9,980 kg/cm^2
Lateral Load:	193 km/h wind load w/o failure
Shear Strength:	no movement up to design load
Thermal Performance:	superior to comparable wood frame wall by average factor of 1.84 (R14)

GEO-BRICKS CHARACTERISTICS

- Dimensional precision of 0.4 mm on all sides.
- Made from 100% subsoil, or 92% subsoil and 8% cement for greater compressive strength of 158 kg/cm^2 (2,240 psi).
- Tongue and groove block design that allows for mortarless dry stack construction.
- Mortarless construction reduces costs and eliminates a point of thermal leakage.
- Ready for immediate use; cure in the wall.
- Less labor intensive construction

MILITARY APPLICATIONS

GeoBricks were fired at from 23 meters with AK47 and the bullets did not penetrate. Resistance to small arms fire indicates significant benefits in military applications.

The GreenMachine® can be used for:

- Contingency/emergency construction for military structures
- Force protection for U.S. troops, equipment and allies
- Substitute for sandbags
- Revetments, fortifications and retaining walls
- Military civic action/nation building for schools, clinics, community buildings, farm buildings, and housing.