

ADVANTAGES AND LIMITATIONS OF CSEB

A local material

Ideally the production is made on the site itself or in the nearby area. Thus it will save transportation, fuel, time and money.

A transferable technology

It is a simple technology requiring semi skills easy to get. Simple villagers will be able to learn how to do it in few weeks. Efficient training centre will transfer the technology easily.

Market opportunity

According to the local costs (stabilizer, soil, sand, labour, equipments, etc.) the final price will vary, but most of the cases the cost shall be cheaper than fired bricks or sand cement blocks.

Limiting deforestation

Firewood is not needed to produce CSEB. Thus it will save the forests, which are being depleted quickly in the world, due to short view developments and mismanagement of resources.

Energy efficiency

Requiring only a little stabilizer (thus little fuel for it) the energy consumption in a m3 of CSEB can be from 2 to 4 times less than a m3 of fired bricks.

Flexible production scale

Equipments for CSEB are available from manual to motorized tools ranging from village to industry scale. The selection of the equipment is crucial, but once done properly it will be easy to select the most adapted equipment to each context to produce for the required scale.

- A proper soil identification is required with the possibility of a lack of soil.
- Bad quality or unadapted equipment for producing CSEB.
- Unawareness of the need to manage the resources.
- Unawareness of the basic principles of CSEB production and use.
- Untrained teams producing bad quality products.
- Wide spans or high-rise building design difficult to achieve.
- Low social acceptance due to counter examples done by unskilled people or wrong selection of the soil or the equipment.

An adapted material

Being produced locally it will be easily adapted to the various needs of the people: technical, social, cultural habits.

A job creation opportunity

This technology allows unskilled and unemployed people to learn a skill, therefore get a job and rise in the social values

Reducing imports

As semi skilled people can produce it locally, no need to import or transport over long distances heavy and costly building materials.

Management of resources

Produced locally, each quarry can be planned to be used as water catchments, wastewater treatment, reservoirs, landscaping, etc. It is crucial to be aware of this point: very profitable if well managed... disastrous if unplanned!

Cost efficiency

Produced locally, with a natural resource with semiskilled labor, almost without transport, it will be definitely cost efficient! More or less according to each case and one knowledge!

Social acceptance

Demonstrated, since long, CSEB can adapt itself to various needs: from poor income to well off people or governments. Its quality, regularity and aspect allow a wide range of final house products. To facilitate this acceptance, banish from your language "stabilized mud blocks", to speak of CSEB as the later translate the R & D done since half a century when mud blocks refers in the mind of most people as poor building material.

CSEB – EARTHQUAKE RESISTANCE

The CSEB technology has been demonstrated as an option for Disaster resistant housing in UN-Habitat (Istanbul-Turkey), which was constructed by Auroville Earth unit. CSEB technology was accepted by the government as a technology for Disaster resistance, in response to the Gujarat Earthquake (India- 2001).

There are interlocking CSEB that can be manufactured with hand-operated machines. The blocks are designed to include the structural details for earthquake resistance in the masonry thereby making the structure a reinforced masonry.

The interlocking block system has been used worldwide for disaster resistant housing.



INTERNATIONAL BLUE CRESCENT RELIEF AND DEVELOPMENT FOUNDATION,
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Special Features of Auram press 3000:

High output from the automatic opening: 1000 strokes/day.
 = 125 Blocks/Hour (plain full size blocks)
 Handling of the press with 3 men.
 Mix preparation and block stacking with 4 men.
 High and adjustable compression ratio from 1.6 to 1.83
 (1.77 for 9 cm height)
 Micro adjustment of compression ratio.
 Double compression with the folding back lid.
 Rollers to move the press on site. Only 2 men are needed.
 Block height adjustable with ring spacers:
 2.5 cm and from 5 to 10 cm.
 Micro adjustment of block height: 0.5mm accuracy.
 Interchangeability of moulds
 Moulds are provided for making 4/4, 3/4 & 1/2 sizes.
 Self-stability with the adjustable braces.
 Very easy maintenance with grease nipples and grease gun.



Technical Data of Auram press 3000:

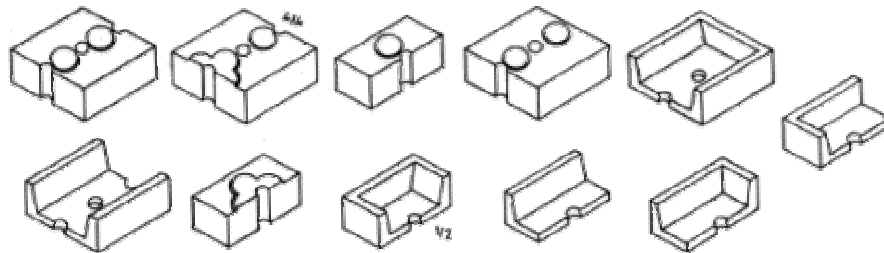
Available force	: 150 Kn. (15 tons)	Lid opening	: Automatic
Comp. Pressure	: 2.7 to 5.3 Mpa	Manpower	: 3 (machine) + 7 men
Comp. ratio	: Up to 1.83	Maintenance	: Grease nipples
Block height	: 25 and 50 to 100 mm	Net weight : (Frame + mould + tools + spare parts + hooper)	: 365 kg to 415 kg
Mould depth	: 85 to 183 mm	Package weight	: 485 kg to 535 kg
Piston stroke	: 34 to 52 mm	Working encumbrance	: 4.00 x 1.50 x 2.90 m (l x w h)
Folding back lid stroke	: 25 mm	Transportation encumbrance	: 0.80 x 0.70 x 1.40 m (l x w h)
Length of cycle	: 15 seconds		
Theoretical output	: 240 stroke per hour		
Practical output	: 140 stroke per hour		

Hollow Interlocking 245 CSEB:

Hollow interlocking blocks can insure disaster resistance of masonry in an easy way. The hollow interlocking blocks produced present these features:

Extreme consistency in height
 Self-aligning to reduce time and adjustments
 Possibility of casting RCC inside the blocks, to reinforce the masonry horizontally and vertically.
 Optimization of the hole diameter to allow a proper cover of the steel with concrete.
 Optimization of the area of the key to ensure the maximum adhesiveness' so as to resist the shear effect.
 Good seating of the blocks on top of each other for properly transmitting the load bearing.

Notes: * 180 blocks is the average output for the full building height. It includes setting up scaffoldings.



VARIETY OF BLOCKS



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