SUGARCRETE

University of East London

Chemical Systems Technologies

SUGARCRETE : BIOMASS BASED BUILDING BLOCKS

Chemical Systems Technologies, a global leader with over 35 years of experience delivers sustainable and innovative solutions to the sugar industry. In collaboration with the University of East London, UK, we are now producing Sugarcrete blocks in India.

Sugarcrete is an ultra-low carbon biomaterial construction block, featuring an interlocking shape, made from upcycled sugarcane waste, bagasse.

Our vision is for SUGARCRETE blocks to be produced by women in villages around sugar factories, fostering economic empowerment and improving their livelihoods.

PROCESS:

SUGARCANE

India grows 400 million tons, each year there by being the largest biomass source.

BAGASSE

The fibrous residue after sugar has been extracted from sugarcane.

SUGARCRETE BLOCKS

Bagasse based building blocks designed for interlocking, sustainable and biodegradable

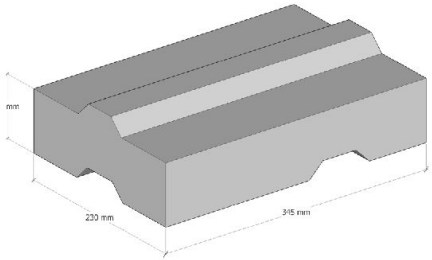
SCHOOL ROOM

Low mortar use with no cement, quick and simple construction

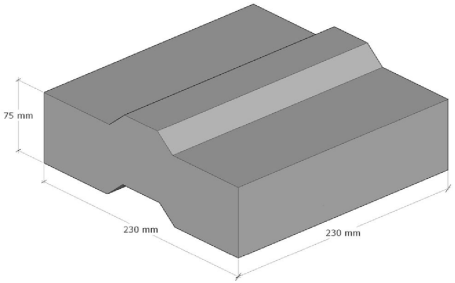
BLOCK TYPOLOGIES:

Utilizing two block typologies, standard (equivalent to two clay bricks) and corner (equivalent to three clay bricks) all the required details such as corner conditions, windows and doors can be addressed.

The blocks interlock minimizing wall displacement in case of **seismic** activity. The groove **minimizes lime mortar** required for wall assembly.



Corner Brick



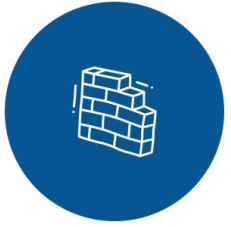
Standard Brick

Interlocking System

OVERALL BENEFITS:

Negative Carbon Footprint

Cost Effective



Lighter than traditional bricks

Superior insulating properties.

Sustainable, prevents topsoil erosion

Creates employment

PERFORMANCE VALUES

Life Cycle Assessment A1-A3:

0.48 kgCO2e / standard block

Thermal Conductivity:

0.07 W/m.k DIN 52612 / 52616

Fire Rating:

Class B-s1 d0 UNE-EN ISO 1182:2021

Moisture Buffer Value:

MBV 3.11 g/m2R

Density:

500-600 kg/m3 ASTM D-1622

Compressive Strength:

1-2 MPa ASTM D-1621

Please note these values are for guidance only and will need to be tested by accredited laboratories local to where the material will be implemented.

This is the world's first building ever built with SUGARCRETE blocks, a novel material that upcycles sugarcane biomass into construction blocks as a negative carbon, sustainable alternative to traditional clay bricks or flyash/ hollow concrete blocks.

The interlocking blocks need very little mortar (non-cement). The walls present a high thermal and acoustic performance while being fire-resistant and able to withstand seismic shocks better.

This schoolroom uses approximately 3500 SUGARCRETE blocks that sequester 1,875 kg of CO2

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