

CATEGORY
POTENTIAL TECHNOLOGY – ACCELERATION : GHTC-INDIA



PRODUCT / TECHNOLOGY



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Technology Detail

**PRECAST BUILDING COMPONENTS USING PLASTIC,
INDUSTRIAL & CONSTRUCTION & DEMOLITION (C&D) WASTE**

Alternate to conventional building materials/ components



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Video

CONTACT DETAILS

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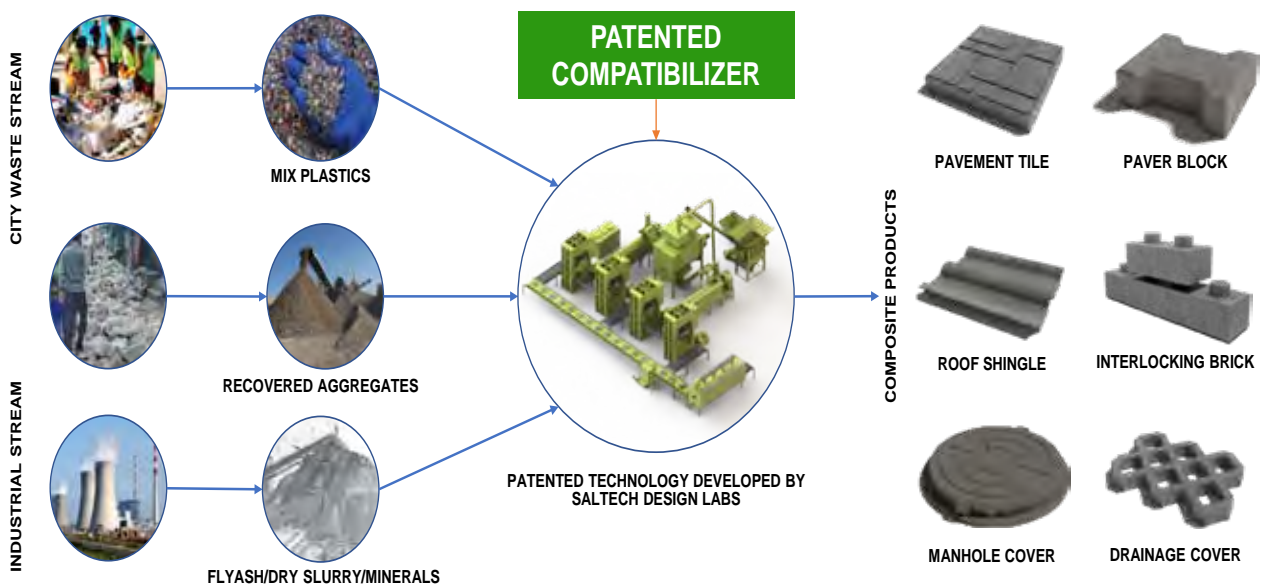
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BRIEF

Saltech design labs has designed & developed machinery which can produce building blocks made out of discarded single use plastic, C&D waste, Fly Ash into high-value alternative composite building materials using polymer as binding material. The aim is to work towards creating a carbon neutral building economy which reuses and recycles the existing waste materials, thus preserving natural raw materials & producing components which are cost effective precast products such as paver, brick, block, roof shingle, and tile etc. The particular emphasis is given to the low-cost affordable housing & infrastructure market to drastically reduce the high costs of construction materials and labour by providing more economical, sustainable and climate-positive factory-made precast products, which are ready to install.



SALIENT FEATURES

- Polymer Composite Material specifications include, Density: 1400 to 1600 Kg/m³, Water Absorption <0.2%, Flame Retardant Category: V2, Compressive Strength (without MS reinforcement): 30 MPa to 75MPa.
- 98% raw material used in the composite material is waste. No requirement of cement & water for manufacturing the material.
- Performance properties are far better than conventional concrete & other products, and durable upto 50 years due to polymer as binder base.
- Multiple industrial solid wastes are used as filler/aggregates, making the manufacturing process carbon negative in nature.
- Modular shapes and interlocking design make it easily deployable. Provides high strength to weight ratio without mild steel reinforcement.
- Overall energy utilized to process per kg of waste into composite material is extremely low as compared to other traditional methods of waste disposal as well as building materials manufacturing.
- Products does not require curing like concrete based products thus reduce inventory space, material, time for manufacturing & help in improving construction speed.

ECONOMIC ASPECTS

- The products are competitive in price with traditional products like concrete, fly ash and clay products.



SUSTAINABILITY ASPECTS

- With significant/almost entire raw materials being waste based, very low requirement of cement, water, energy for manufacturing, these pre-cast products are very low carbon alternate materials & highly sustainable in nature.

SUITABILITY & AVAILABILITY

- Applicable to all climatic conditions.
- The manufacturing technology can be supplied pan India & the agency is open to establish partnership model for local recycling/manufacturing and selling of composite products.
- Presently, the technology is suitable for manufacturing precast products only. New R&D is going on for using it onsite work directly.

LIMITATIONS, IF ANY

- Polymer products applications may be avoided in very high temperature environment



MARKET LINKAGES

- The agency is a start up & presently based in Ahmedabad, however manufacturing/ supplying can be ensured pan India through partnership models.

MAJOR PROJECTS

- Rajkot Municipal Corporation, Govt. of Gujarat.
- Statue of Unity project by Gujarat Ecological Education and Research (GEER) Foundation - Forests & Environment Department, Govt. of Gujarat
- Godrej Properties Ltd - Real Estate subsidiary of Godrej Industries Ltd.
- Tata Housing Development Company Ltd - Subsidiary of Tata Sons Ltd (Tata Group)
- Pandit Deendayal Petroleum University - Academic Institute for Higher Education (Private University), Gandhinagar, Gujarat
- Shrutina Foundation - NGO making old age homes.

CERTIFICATION/INDIAN STANDARD/ ENDORSEMENT

The products/materials have been tested for 8 categories of performance properties in multiple accredited laboratories as follows:

- Central Institute of Petrochemicals Engineering & Technology (CIPET - IPT), Ahmedabad
- Center for Advanced Research in Building Science and Energy (CARBSE - CRDF), CEPT University, Ahmedabad
- Capital Consultancy Engineering Research Laboratory (NABL & GOVT. approved), Gandhinagar

