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Four Hours And Two People Is All It Takes To Build A Toilet With This New Technology

The new technology that has been developed will ensure that it does not take more than four hours or two people to build a toilet

[Features](#), [Tamil Nadu](#)

Written By: [Saptarshi Dutta](#) | Edited By: [Sonia Bhaskar](#)

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HIGHLIGHTS

- 1 The technology has been developed by CSIR's Structural Engineering Research
- 2 The textile mesh is corrosion resistant and so it is durable
- 3 The material can also be produced on-site

A popular complaint faced by sanitation experts in implementing sanitation facilities in India has been the cost and time of building a [toilet](#). Even before [Swachh Bharat Abhiyan](#) had taken off, sanitation initiatives like Total Sanitation Campaign had to deal with the question of how will rural India build toilets without the construction process becoming a costly and time consuming affair. Ever since the Swachh Bharat Abhiyan began, research has been done on developing low cost toilets. Council of Scientific and Industrial Research's (CSIR) laboratory Structural Engineering Research Centre (SERC) has developed textile reinforced concrete panels which can aid in the construction of toilets in less than 4 hours.

Situated in Chennai, [Tamil Nadu](#), Structural Engineering Research Centre has developed these concrete panels which are non-metallic in nature and hence, can withstand corrosion. The challenge for the scientists at SERC was to come up with a strong and durable material without using conventional iron or steel, as their usage increases costs. Instead, the scientists used materials which were less expensive but durable in nature. The SERC developed textile mesh which is made of glass, aramid (a heat-resistant synthetic fibre), polypropylene, jute and coir. Glass was particularly used to ensure that the material was corrosion resistant. The textile reinforced concrete prototype technology (TRCPT) does not require moulds during casting, making it durable and corrosion resistant. SERC had developed the technology in June 2017.

Construction is a costly process and often due to corrosion, the durability of a building is damaged. In rural areas, people cannot afford to reconstruct their houses or toilets regularly. This corrosion resistant material will help build durable toilets, said Smitha Gopinath, Scientist, Structural Engineering Research Centre.

Using the textile mesh, wall panels can be constructed within 30 minutes. A toilet like unit can be installed in less than 4 hours with 2 workers, if the SERC textile mesh is being used. No special equipment is required to build a toilet using the textile mesh. With supervision, even unskilled workers can construct toilets using the textile mesh. This will be highly beneficial for implementation of Swachh Bharat Abhiyan's objectives, which requires rapid building of toilets to eradicate open defecation.

For Swachh Bharat, it is necessary to build a number of toilets in the rural areas, but in a cost effective manner. The textile mesh developed by SERC ensures that toilet building is no longer a time consuming process, nor does it take more than two people to build one, said Ms Gopinath.



Toilet constructed using textile mesh

A typical construction of a toilet using textile mesh will cost ₹ 15,000, though SERC is confident that the cost could go less, especially since the material can be produced on site and needs no extra expenditure for transportation. Further, the material can also be used for construction of houses and other structures, not just toilets, giving rural people the opportunity to utilise textile mesh for multiple constructions.

The laboratory signed a Memorandum of Understanding (MoU) with the Hyderabad based organisation Smart Built Prefab Pvt. Ltd. The organisation has helped in the building of more than 1,000 toilets in [Andhra Pradesh's](#) Vizianagaram district using concrete steel panels.

The technology developed by SERC is more durable for building toilets. The time taken to assemble the materials and build a toilet is much lesser. We can use this technology to make toilet construction much easier, said Simhadri Raju, Managing Director, Smart Built Prefab Pvt. Ltd.

The durability and ease of construction using textile mesh is expected to see a rapid increase in building of toilets in many parts of Tamil Nadu and its neighbouring states. SERC is also interested in transferring this technology to other states if the Union government shows interest.