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The Wonders of Waste

Architect Vinu Daniel of Kerala-based Wallmakers is rewriting the rulebook for sustainable architecture with techniques that respect and draw from each site.

By Vaishnavi Nayel Talawadekar



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As a student of architecture at university in Kerala, Vinu Daniel had a penchant for going against the grain. “I never aspired to be an architect. I wanted to be a musician — I even plotted an escape in my third year,” says the founder of Kerala-based architecture practice Wallmakers. He was equally disenchanted by the pedagogy of the course. “It put architecture first and nature second, which was weird — aren’t we supposed to tread carefully?” he continues. But a chance encounter with eminent British-Indian architect Laurie Baker in his fourth year of university was a turning point for Daniel, inspiring in him an epiphany and motivating him to develop his own architectural ethos.

Baker’s philosophy, borrowed in large part from Mahatma Gandhi, was rooted in sensitizing nature to the built environment by restricting materials to those found within a five-mile radius. “He was a big believer in architecture serving the community, specifically the underprivileged in villages and those in congested urban catchments,” says Daniel. Charged with a new perspective, he moved to Pondicherry after graduating and trained in Nubian techniques and vault making under French architect Satprem Maïni at T Auroville Earth Institute, while also working on rehabilitation projects in tsunami-stricken areas of Tamil Nadu. In 2007, he felt a calling to return to Kerala and establish his own earth-rooted practice. The firm was christened after its maiden project: a compound wall built with surplus mud bricks and discarded beer bottles.



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Previous spread

A In Kerala, architect Vinu Daniel of Wallmakers is bringing a dynamic, semi-improvisational approach to design that involves salvaging and collecting material from the site itself. Wallmakers’ Shikhara residence uses his patented shuttered debris technique. Image by Sagar Kudtarkar

This spread

B-D Chuzhi (“whirlpool” in Malayalam) are precast swirled beams of poured debris, earth and salvaged plastic bottles. The subterranean home that is their namesake emerges from a rock bed with minimal impact on its surroundings. Images by Syam Sreesylam

E The dining area at Pirouette House, which uses the “rat trap” masonry pattern for thermal efficiency and lower material use. Bricks are also staggered to create larger volumes, and the home is oriented for better cross-ventilation in the local heat. Image by Jino Sam

Over the years, Daniel’s resolve has remained steadfast. “Today, less than thirty percent of the world’s population lives in buildings made of earth, even though it’s a more sustainable and durable material than cement,” he rues. “In India, we find plastic and construction debris everywhere. I cannot ignore this waste. Instead, I look at it as new material.” He and his team are devoted to giving mud and waste pride of place in their material palette, in addition to employing green techniques like compressed stabilized earth block masonry, gabion wall systems using quarry waste, and composite casuarina roofs.

By the same token, the architect has developed novel techniques to upcycle waste, many of them by serendipity. His now-patented shuttered debris technique, for example, came into being a few years ago when one site — a former dump for construction waste — came with vestiges of its past life. The soil was studded with debris and stones as wide as three inches, making it ill-suited as an ingredient for mud bricks. “We asked ourselves how else we could utilize it and decided to add the debris to the cement and soil formula. The intervention proved wildly successful,” he explains.

With these techniques being used in various permutations and given the unique qualities of each site, no two projects are the same. Pirouette House takes a leaf from Baker’s “rat trap” masonry system, in which the vertical placement of bricks increases thermal efficiency while reducing the total volume of bricks used. Shikhara — built using the shuttered debris technique — features a bastion-like facade that shields the interior from the unrelenting Kerala sun. Wallmakers’ latest experiment, a subterranean home called Chuzhi, is the first of its kind in the firm’s portfolio. Designed as a subterranean space emerging from a rock bed, it blends with the natural surroundings and preserves three existing tamarind trees.

Even with a repertoire so diverse, Daniel still considers himself a student of the site. “I let it guide me as it lays bare its treasures,” he says. “The landscape dictates the method. I just have to follow its lead.”



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