

DESIGN DESTINATION: BUENOS AIRES

SPECIALIST: THE LOHASMITH

DESIGN QUEST: TIMBERTASTE

# HOME REVIEW

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## SMALL PRODUCTS BIG DESIGN

VDGA CREATES A WELCOMING AMBIENCE FOR  
AN INDUSTRIAL WORKSPACE IN PUNE

A MOLECULAR COLLABORATIVE  
SAV ARCHITECTURE+DESIGN

HONESTY AT ITS CREST  
GA DESIGN

WINDOW ROOFING & FACADE SPECIAL  
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Glass façade on the exterior embracing the vertical stacks of cardboards on the inside presents a curious view to any visitor of the showroom.

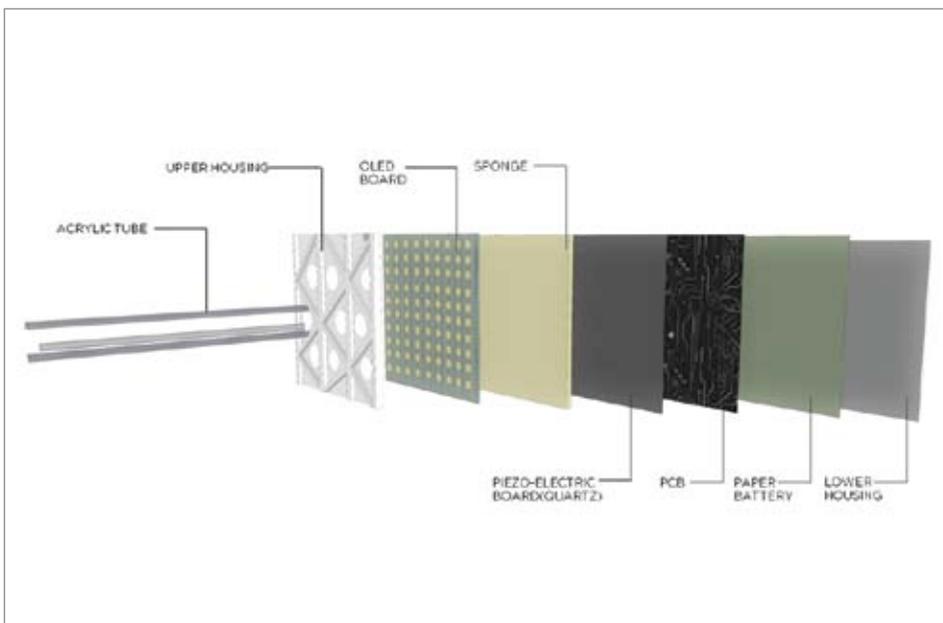
# THE CARDBOARD JUNGLE

*The Paper Pavilion is an award-winning demonstration of how cardboard, an experimental recyclable material, along with piezoelectricity, a fascinating hi-tech electricity-generation technology, can be used to build sustainable design. The project challenges the boundaries of what sustainable design can accomplish with limitless imagination.*

Text By Ramya Srinivasan  
Photographs Larry Teo Courtesy v2com



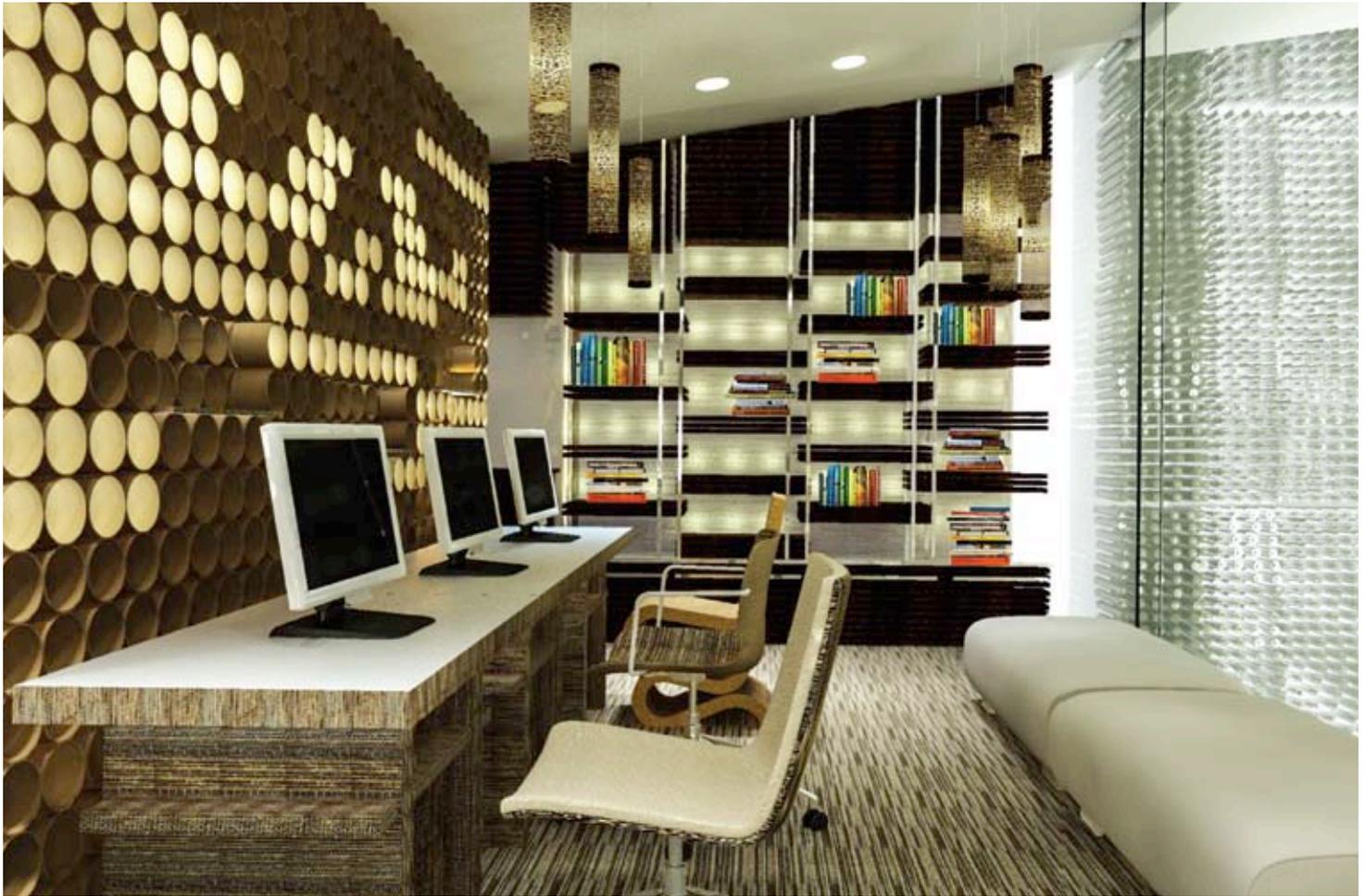
The Paper Pavilion is a conceptual green design for a recyclable furniture showroom conceived by student designer Larry Teo of Singapore's Temasek Polytechnic.



The Paper Pavilion emerged as one of the winners of the American Architecture Prize 2017 under the Architectural Design/Small Architecture category.

**When Larry Teo, a student designer of Singapore's Temasek Polytechnic, had to design a recyclable furniture showroom concept using a sustainable and unconventional building material for his school project, he decided to use cardboard as the primary ingredient.**

Inspired by the Frank Gehry Wiggle Chair, that is fashioned out of an everyday item such as cardboard, as well as the works of the Japanese architect, Shigeru Ban, Teo finalised on cardboard as the recyclable material of choice for this furniture store.



Cardboards, when positioned strategically, render a magical interplay of light and shadows accentuating the beauty of the furniture pieces in display.

Located at Singapore's Geylang Bahru Industrial Estate - an industrial town rezoned by the Urban Redevelopment Authority of Singapore for residential and commercial use - the showroom, originally a warehouse has now been conceptualised as an idiosyncratic display space.

Teo explains, "I decided to remove the brick wall from outside the warehouse and instead cover the exterior of the building with a glass façade." The idea was to allow passers-by an unobstructed view of the symbiotic appearance of the glass façade and cardboards.

Cardboard maybe a humble material otherwise, but here the layering creates a magical charm. Teo says, **"My main idea was to provide an immersive experience of the beauty of cardboard to anyone who walks into the store. It should slowly grow on them as they walk through the space."** And the Paper Pavilion certainly does that with its vertical superimposition of cardboards on top of each other creating an ascending effect throughout the two-storey building.

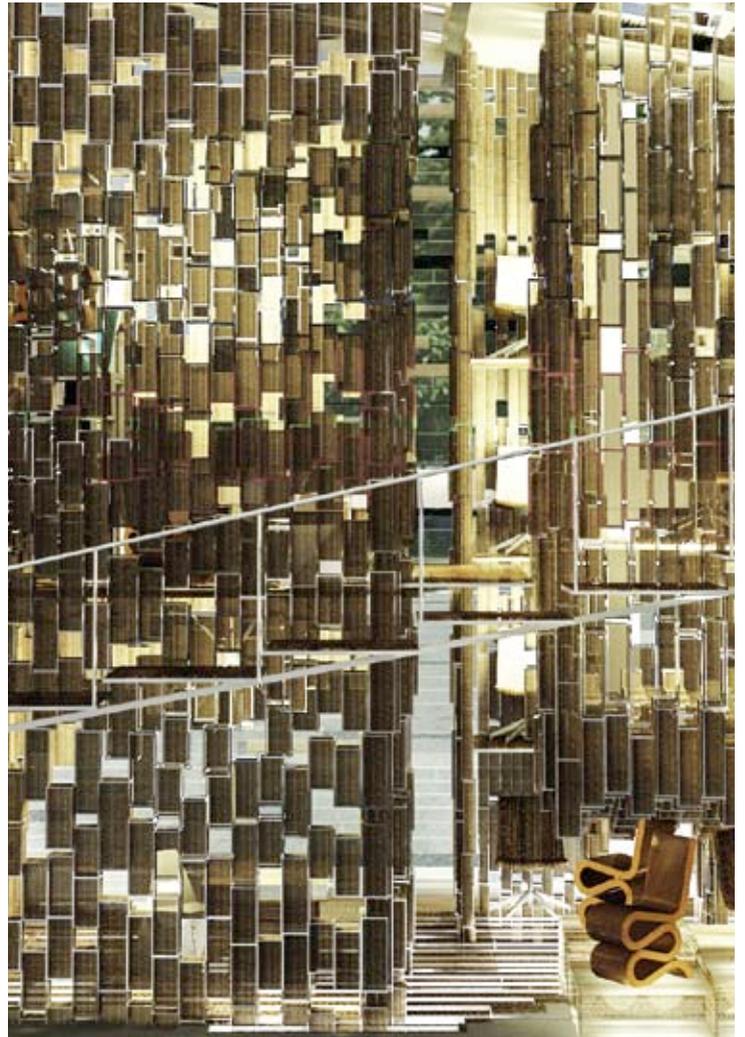
Teo calls this upward arrangement of cardboards, 'Paper Trees'. He explains that "it's a reference to their past existence as real trees." This resurrects a metaphorical jungle, where trees were cut down for the production of paper resulting in the by-product of cardboard.

This vertical alignment also exploits the material's inherently dazzling lighting properties. **"When you slice the cardboard into many pieces and stack them together, it creates a raised effect and many tiny holes through which light goes through to cause shadows. Also, when lit from inside it looks like a glowing lantern,"** explains Teo.

This interplay of light and shadows accentuates the beauty of the furniture pieces in display. Also, the optimised natural filtering of light through the apertures emulates the effect seen in actual jungles, where sunlight that reaches the floor and understory levels is filtered by a multitude of overhanging canopies. By creating a natural framework for illumination, the Paper Pavilion successfully avoids the use of excessive artificial lights with an ingenious energy efficient solution.



During the day, the cardboards funnel the light from the top to the inside, thereby avoiding the use of excessive artificial light.

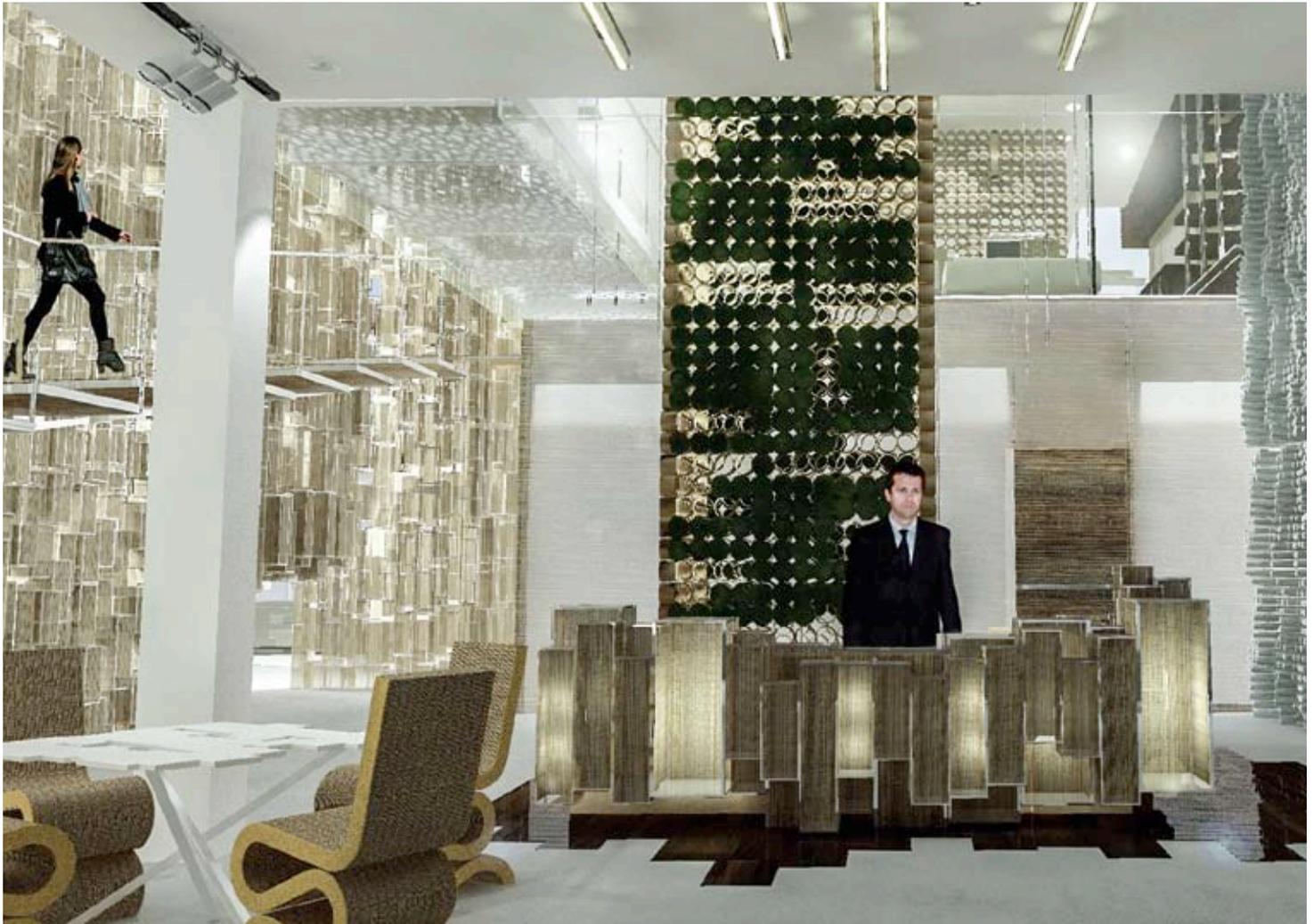


Teo took his inspiration from Frank Gehry's Wiggle Chair that adapts a simple, sustainable material such as cardboard into a stylish masterpiece.

**As another inventive approach towards producing energy, Teo has employed piezoelectricity for anthropogenic energy harvesting, tapping into a natural source to generate electricity. Through this method, the residual energy from visitors to the showroom is converted into power.**

"I came across this idea during my internship in Tokyo. In Japan, they use piezoelectric boxes in train stations to generate electricity. So, when people step on these boxes, it generates power," shares Teo. In the Paper Pavilion, he chose to implement this feature by placing receptors on a wall; these receptors react to the sound energy and vibrations of the inhabitants by collecting that energy and transferring it as extra power for the building.

For its original ideas in the field of sustainability, the Paper Pavilion has been selected as one of the winners of the American Architecture Prize 2017 under the Architectural Design/Small Architecture category. It was also previously shortlisted in the Top 300 out of 11,000 international entries at the iF Design Awards Germany 2016 in the Interior Architecture Category, on top of several other accolades in Singapore awarded by the IDEA Spatial Design Awards and Singapore Design Award 2015.



Piezoelectric receptors on the wall utilise the sound energy and vibrations of the visitors to create an unorthodox source of electricity for the building.

Teo is currently an architectural intern, planning to pursue higher studies in the field. He credits his passion for architecture to his interest in building Legos and sketching when he was a child. A young designer with an interest in avant-garde concepts related to environmental sustainability, some of his other achievements include the Gensler Singapore Scholarship, Pomeroy Studio Prize, Waldmann Lighting academic award and a double-win at the Spatial Design (SPADE) Awards in 2015 and 2016 respectively.

Today, the realm of building sustainable design is being challenged by a younger generation of architects like Teo. For them, **it is not about using fancy gadgets; instead the focus is on employing simple, everyday materials that are cost efficient.**

It is in the use of alternative concepts such as piezoelectricity to recycle waste for additional energy channels. At the Paper Pavilion, all these unconventional ideas come together to create an enthralling presentation of luminous paper trees.

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