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[CATEGORY: LEARNING]

SUSTAINABLE SINGAPORE GALLERY

Location of Project: Singapore, Singapore

Project Stage: Completed (2018)

INTRODUCTION

Commissioned by the Public Utilities Board (PUB), this gallery housed within the iconic Marina Barrage, chronicles the island city-state's physical transformation while highlighting future environmental challenges.

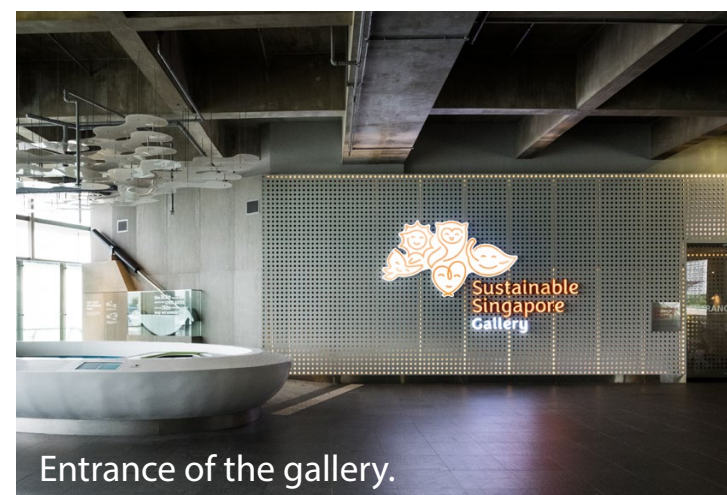
The Barrage, completed in 2008, marked the conversion of the Singapore River, the Marina Bay and the Kallang Basin into a freshwater reservoir that contributes a significant portion of Singapore's water supply that additionally alleviates flooding risks. Far from being a banal, utilitarian infrastructure, the Barrage was intended as an attractive recreational space. This program is articulated by the gallery, as a space of learning and public engagement that gives a meaningful expression to both the concept of sustainability and the context of the Barrage.

Catering to a wide spectrum of audience that comprise the general public, the gallery faces the challenge of narrating Singapore's sustainable journey in a way that is accessible. Climate change being an abstract concept, the gallery is confronted by the need to animate the message in a way that can be readily understood, animated such that a lasting interest may be nurtured. More importantly, the gallery seeks to create an overarching awareness among visitors, culminating in a call to action that would encourage visitors to adopt a more sustainable lifestyle. The design strategy addresses these issues by means of translating the gallery message and narrative into space and objects that are more illustrative than descriptive. Through demonstration and interactive engagement, visitors are immersed in the concepts as a way of learning by praxis.

The gallery is therefore a journey through space and time, in which Singapore and its history of environmental transformation have been transposed within the space of the gallery. The gallery organizes sustainability into 6 different aspects, each in turn translated into an exhibition zone that demystifies the big idea of sustainability into smaller, manageable chunks. Utilizing an assemblage of relevant everyday objects, the gallery seeks to create maximum engagement with visitors in ways that they could relate to by presenting various possibilities in which they can contribute to mitigating climate change at home. It is believed that demonstrating the relevance of sustainability in visitors' lives would lead to a greater success in promoting sustainability in Singapore and beyond.



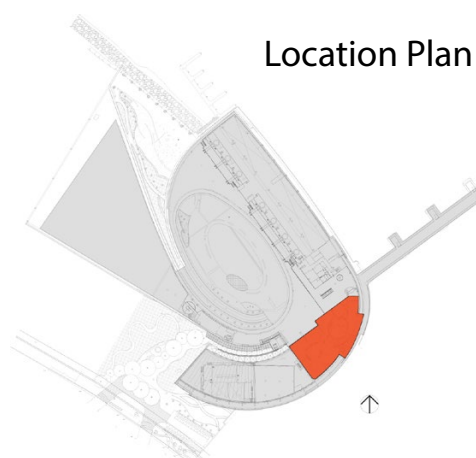
Zone A (Red Dot) begins the visitor's journey.



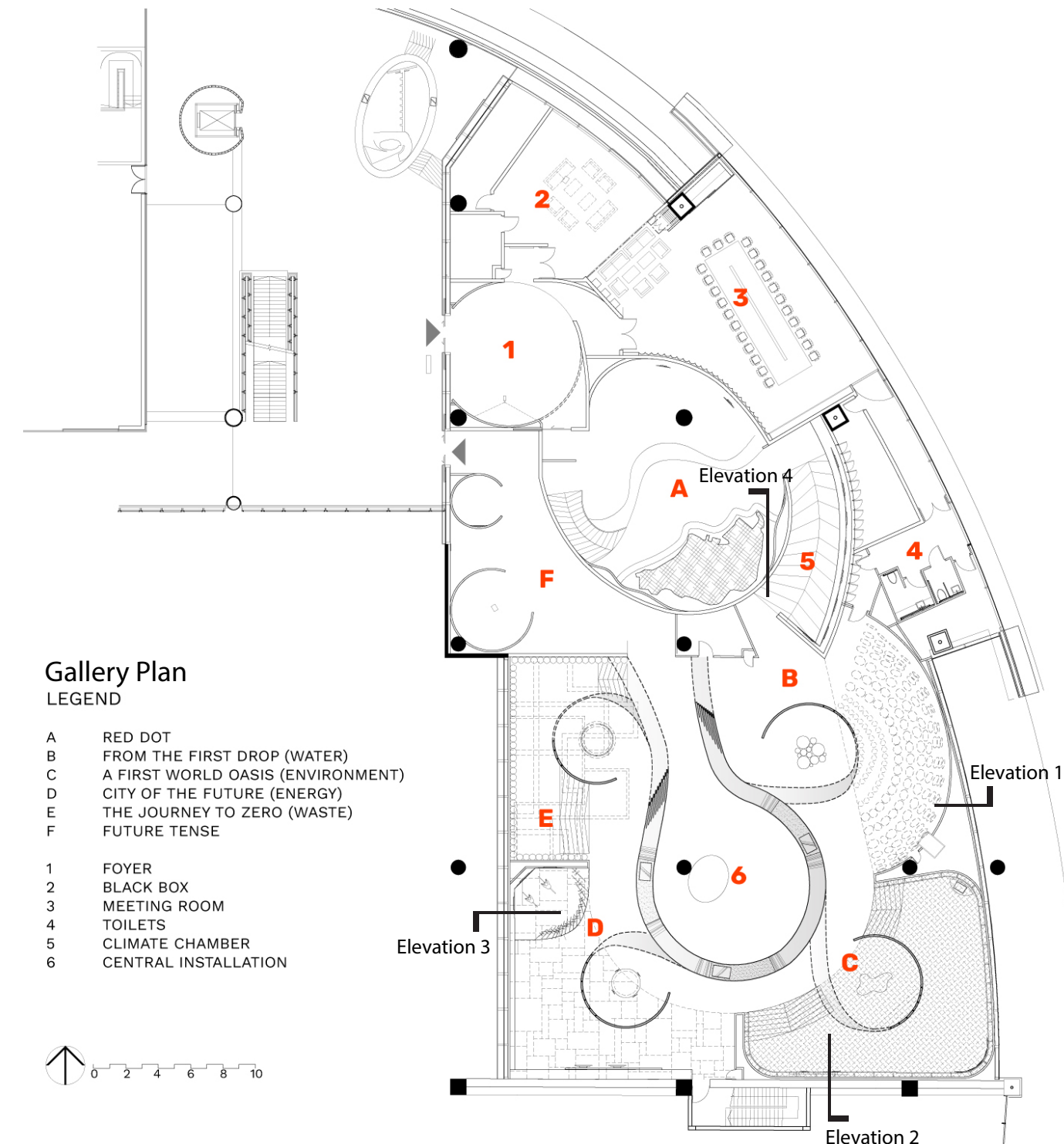
Entrance of the gallery.



Entering the gallery through the Foyer.



Location Plan



Gallery Plan LEGEND

- A RED DOT
 - B FROM THE FIRST DROP (WATER)
 - C A FIRST WORLD OASIS (ENVIRONMENT)
 - D CITY OF THE FUTURE (ENERGY)
 - E THE JOURNEY TO ZERO (WASTE)
 - F FUTURE TENSE
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- 1 FOYER
 - 2 BLACK BOX
 - 3 MEETING ROOM
 - 4 TOILETS
 - 5 CLIMATE CHAMBER
 - 6 CENTRAL INSTALLATION



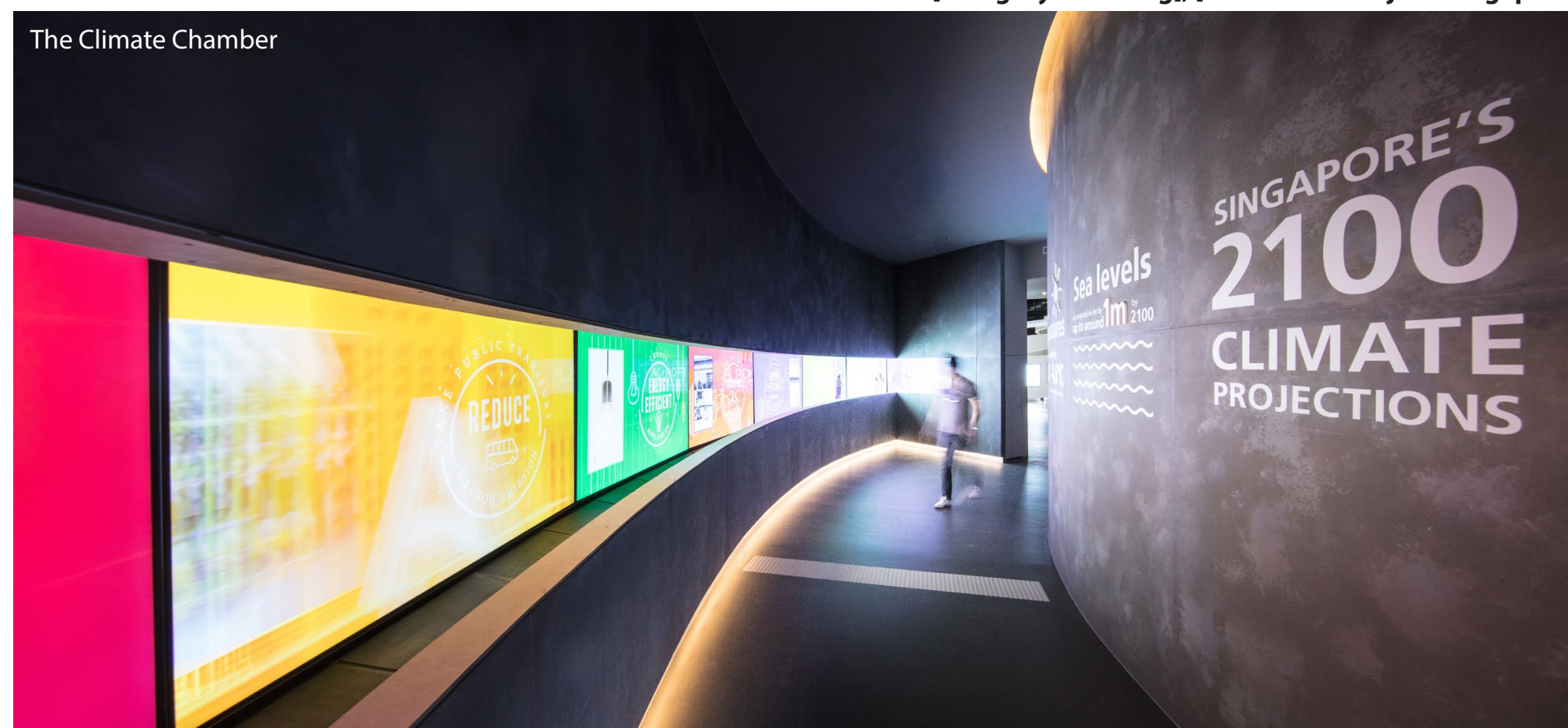
EVALUATION CRITERIA #1: SPATIAL DESIGN

Integrated within the overall experience of the Marina Barrage, visitors enter a series of expanding chambers that culminate in the large open gallery housing the main exhibit and 6 zones. Without changing the existing structure of the Barrage, the gallery transports visitors from the sombre environment of an infrastructure to a space of imagination where the narrative of sustainability comes alive.

Arriving at the Foyer, visitors proceed to Zone A: The Red Dot that showcases Singapore's efforts to address climate change as a gradual invitation into the narrative. The feature of the space is a suspended grid of LED lights that is programmed to display real-time sky and weather conditions. The combination of lighting, interactive multimedia and reflective finishes create a futuristic ambience that contrasts with the concrete envelope of Marina Barrage. Visitors continue their experience through the Climate Chamber, a tunnel-like multimedia space that guides them to the main exhibition space, as through transported through space and time.

The main gallery, loosely segmented into 5 zones, creating a human scale for the space while allowing visitors to explore the exhibit in a non-linear way. A guiding element in the form of a white 'ribbon' with a fluid, organic form provides a spatial anchor to connect the zones. This form is a manifestation of the Singapore River that is central in Singapore's economic history and socio-political lore.

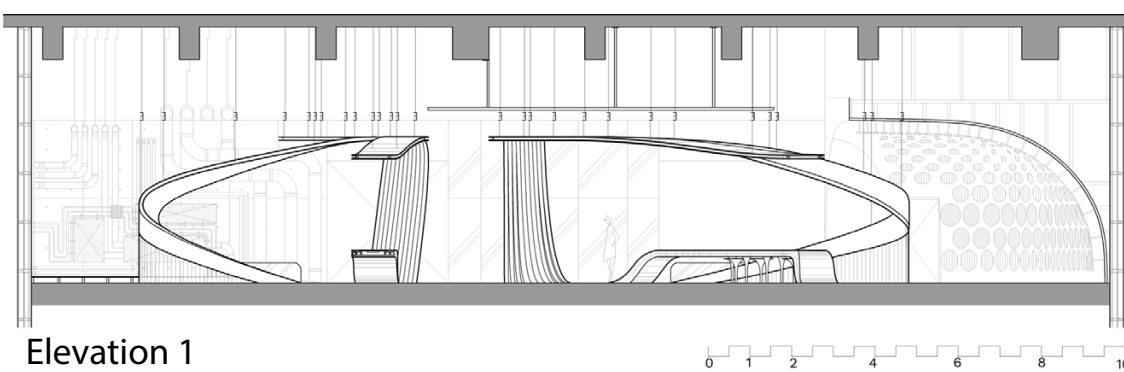
Individually the zones are articulated through distinct textures and colours that are each evocative of their contents. Spot and ambient lighting, interactive media, graphics and finishes are coordinated to so as not to distract visitors but to facilitate visitors' immersion in the content and message.



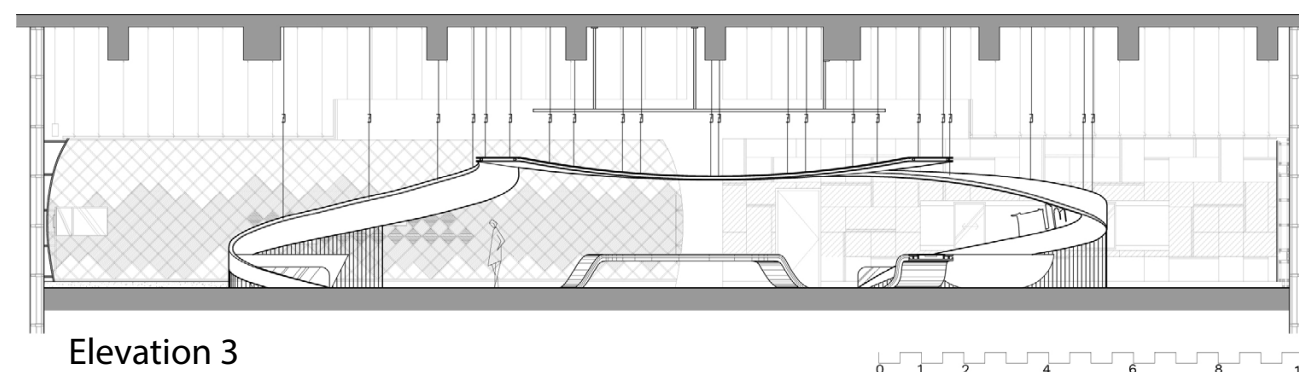
The Climate Chamber



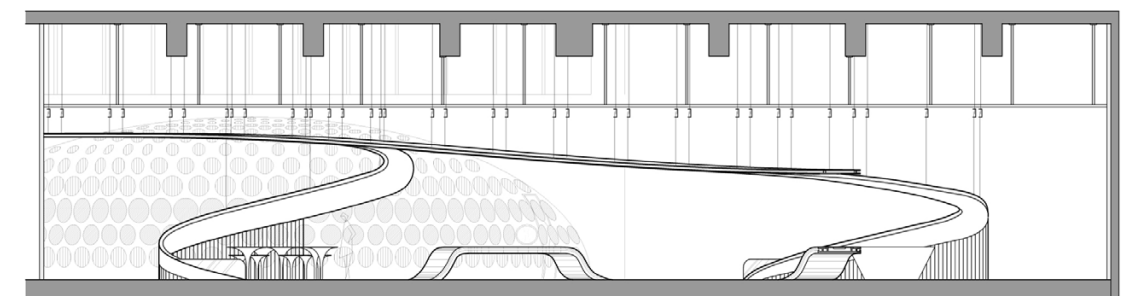
Overview of gallery.



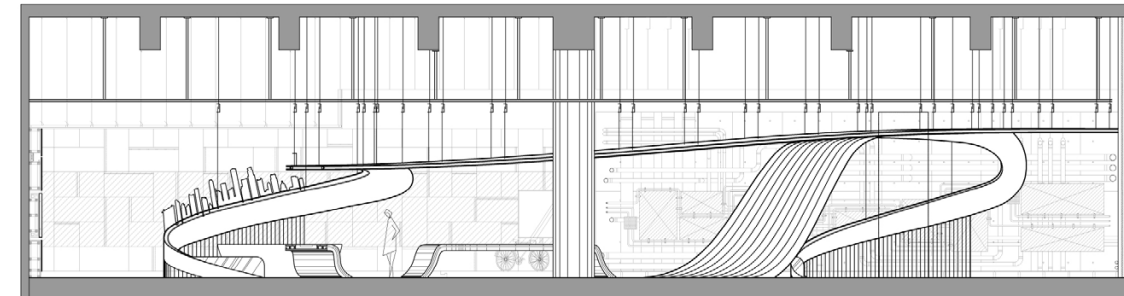
Elevation 1



Elevation 3



Elevation 2



Elevation 4



Overview of organic 'ribbon' element.

Architectural Photography by Finbarr Fallon

EVALUATION CRITERIA #2: COMFORT

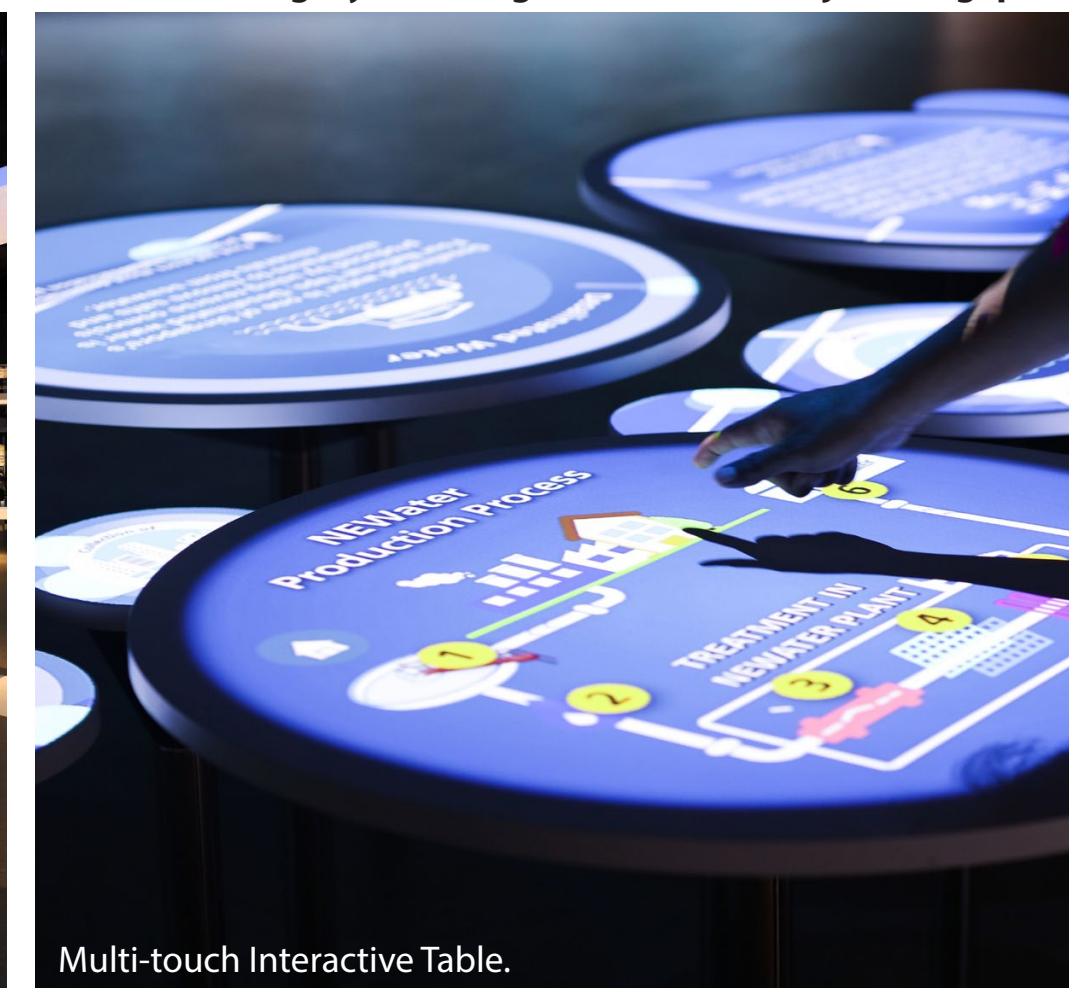
Guided by the 'ribbon' spine, wayfinding within the gallery is intuitive, allowing visitors to naturally explore the gallery guided by their curiosity. Segmentation of the gallery into the various zones provide some containment of sound from both visitors and multimedia elements, reducing background and ambient sounds that may affect visitors' experience. To ensure visual comfort and readability of the gallery's content, lighting within the gallery is designed for balance, allowing the content to draw attention while the background remains sufficiently illuminated for circulation. This creates a conducive environment that facilitates visitors' experience. Interactive elements are placed at a comfortable height that allows both children and adults to engage with the multimedia and exhibits, ensuring that the gallery remains highly accessible for all visitors.

The gallery's dynamic lighting, expressive textures, reflective finishes and interactive media consoles create an imaginative experience with a futuristic ambience. The welcoming and inclusive atmosphere encourage open-ended self-exploration that transforms visitors from being a passive audience into active individuals.

As part of an innovative public infrastructure, the gallery expects to host visiting VIPs and delegates. A screening room and a meeting room were incorporated to the gallery. Placed along the northern end of the gallery space, the meeting room and supporting spaces capitalize on the scenic views of the surrounding Marina Bay and comfortably shielded from the excitement of the gallery with appropriate insulation.



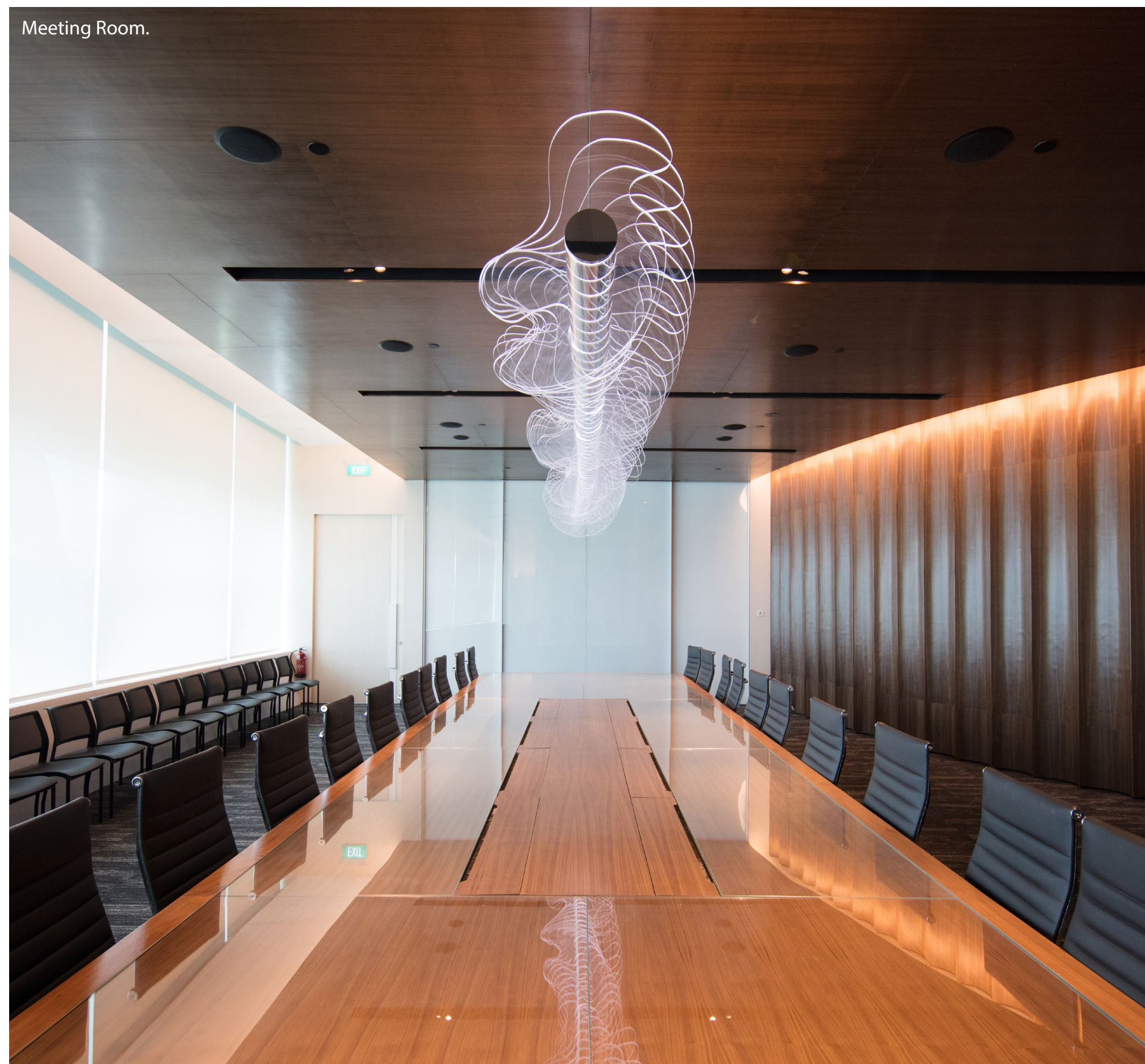
Multi-touch Interactive Table.



Multi-touch Interactive Table.



Zone E (Future Tense) addresses the issue of waste and recycling in Singapore. A sculpture made of recyclable materials was jointly created with contributions by schoolchildren.



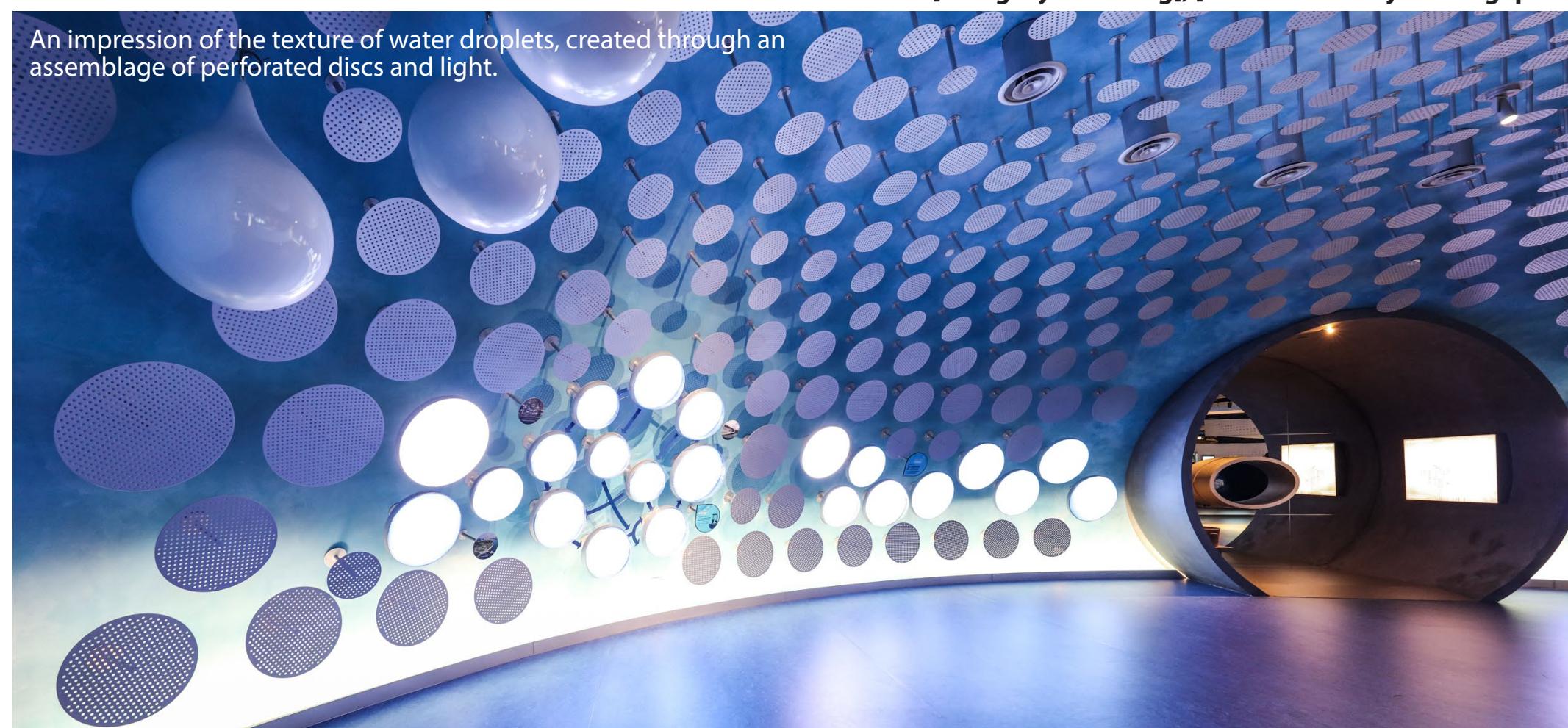
Meeting Room.

EVALUATION CRITERIA #3: AESTHETICS

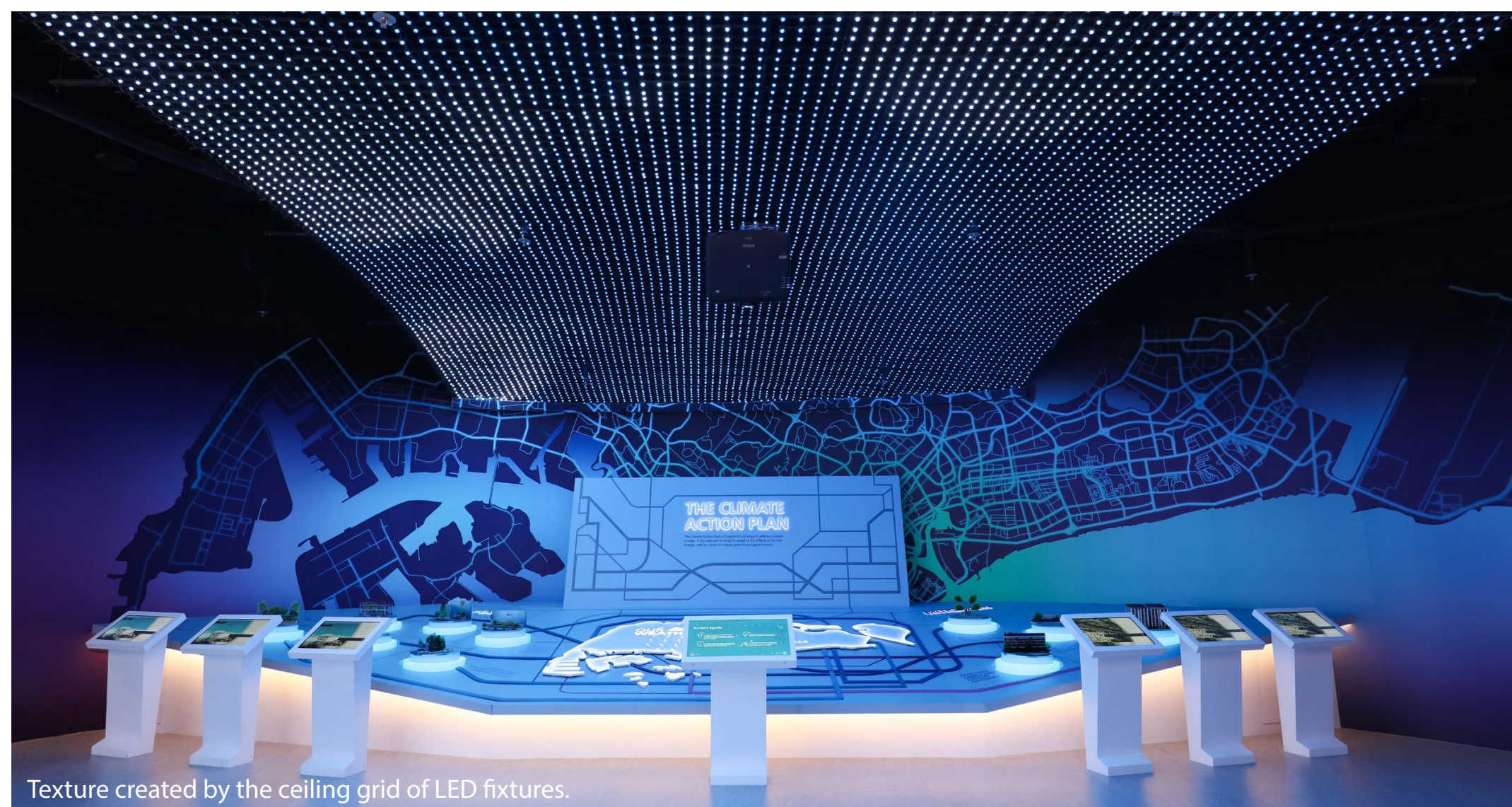
The design emphasizes textures and materiality to create an immersive environment that engages visitors with the message while at the same time articulating the content of the individual zones. At each zone, appropriate household objects are assembled as part of the exhibits to amplify the accompanying content. The message of the gallery is then not only described to the visitors through text, graphics and multimedia but are also demonstrated through the objects as visitors build association of the concepts with items visitors may find personally meaningful.

At Zone B ('From the First Drop'), perforated circular discs are arrayed on the wall to form texture that is reminiscent of water droplets, highlighting the story of Singapore's water ecology. At Zone C ('A First World Oasis'), multi-layered graphics and text create the impression of a lush environment that reflects the lush Garden City. A similar strategy is utilized in Zone D ('City of the Future') where lighting and superimposed transparencies create the silhouette of the future city. Reflective walls and ceiling reinforce the futuristic ambience. At Zone E ('Journey to Zero'), copper conduits and pipes are assembled to create a framework for the message and exhibits, while a sculptural tree made of recycled materials facilitates an explanation of Singapore's waste management. At the final zone, Zone F ('Future Tense'), common PVC pipes are designed to form a contoured feature ceiling.

While these colourful assemblages are arrayed on the wall, the bold white 'ribbon' presents a stark contrast, weaving through the 5 zones as a recurring, unifying visual and spatial element. A sense of order is maintained that brings emphasis to the gallery's message in an interesting way that is yet not distracting.



An impression of the texture of water droplets, created through an assemblage of perforated discs and light.



Texture created by the ceiling grid of LED fixtures.



Colour and materiality by incorporating household elements such as copper conduits.



The layering of transparencies, lighting and reflection create an impression of depth.



Multi-layered graphics create shadows that provide an impression of depth.

EVALUATION CRITERIA #4: INNOVATION

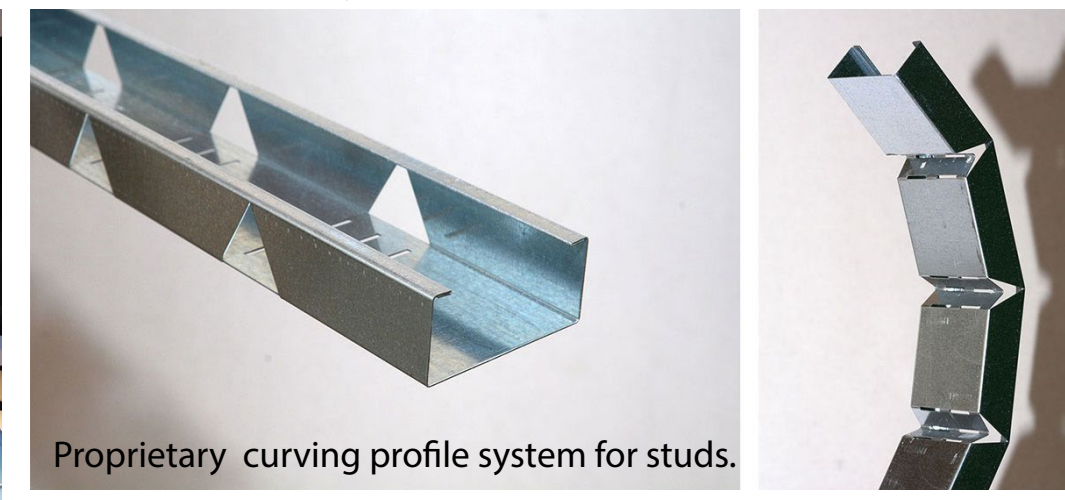
To achieve the seamless, organic form of the white 'ribbon', a proprietary curving profile system for studs was selected. The curving profile system allows the exploration of organic, 3-dimensional curves that enable the expression of Singapore River's complex shape. Suspended from above, the 'ribbon' descends at various locations, transformed into sculptural balustrades or railings as it interfaces with the floor. The curving prolife system is similarly used at Zone B to create the organic shell that forms the physical envelope of the zone.

Environmental Considerations

The selection of everyday objects facilitates the potential of recycling by reducing construction debris upon completion of the gallery's lifetime. In Zone E, schoolchildren were invited to participate in the process of making the feature sculptural tree out of recycled materials. In partnership with a local primary school, students transform recycled materials they have collected into artwork to be later consolidated as part of the sculpture. In line with the gallery's message, the artwork communicates the importance and value of recycling: that recyclable objects can be made into interesting objects of expression.



Curving wall and 'ribbon' at Zone B (From the First Drop).



Proprietary curving profile system for studs.



Curving wall and 'ribbon'.



Overview of 'ribbon' element: an organic element weaving through the gallery.



'Ribbon' element at Zone C (A First World Oasis).



At Zone E (Journey to Zero) the 'ribbon' descends, interfacing with the floor.

EVALUATION CRITERIA #5: REALISATION EFFICIENCY

In creating a space for public education, the gallery faces the challenge of illustrating the solemn concept of climate change and sustainability in a way that is accessible and interesting, given its wide spectrum of audience from all ages and backgrounds. Utilizing an assemblage of everyday objects, the gallery has created an intriguing way to engage the public that serves to further organize the overarching concept into 6 readily-understood themes that culminate in a 'call to action'. These themes, articulated spatially and in the form of objects and interactive multimedia, contribute to the function of the gallery in demonstrating the concepts that would encourage visitors to reflect on the ways both big and small that they can contribute towards sustainability.

Visitors engage with the gallery's message and content not only through an exploration of the gallery space but also through various actions that involve the interactive components. The design posits an unconventional concept of the gallery no longer as a space for the passive absorption of information but as a space that encourages an active attitude towards learning, by facilitating visitors' self-exploration and curiosity. This self-exploration is constructively guided by 'anchors' such as the 'ribbon' that lend some structure to the content.

Segmented into the various zones, the gallery creates a human scale within the infrastructure of the Barrage that facilitates the visitors' pleasant experience. By adapting the curving profile system for studs, seamless organic and fluid forms were feasibly achieved and constructed. Having a flexible yet resistant form, the curving profile maintains structure that can be bent in all directions by hand, allowing installers a quick and easy method of construction on site.



Zone F (Future Tense) concludes the gallery experience.



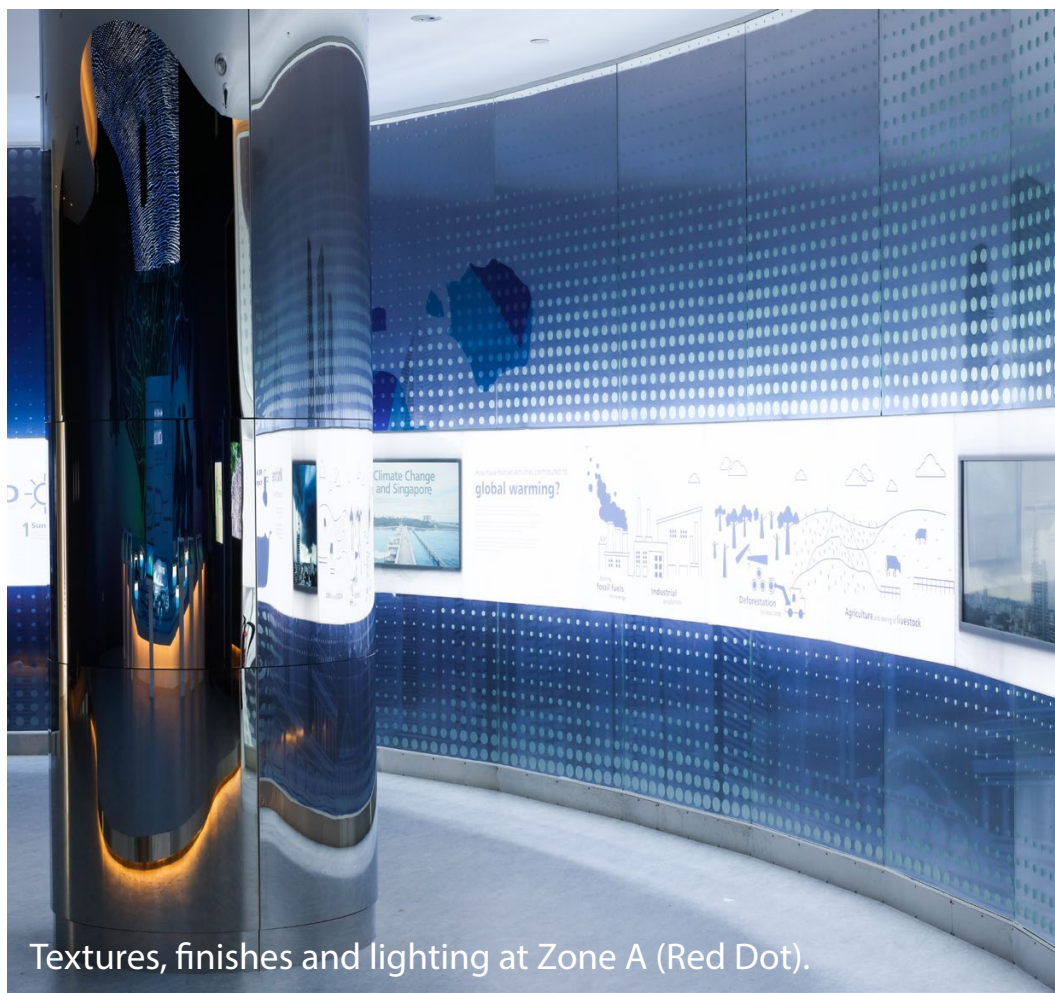
An immersive interactive exhibit on cycling in a 'car-lite' town.



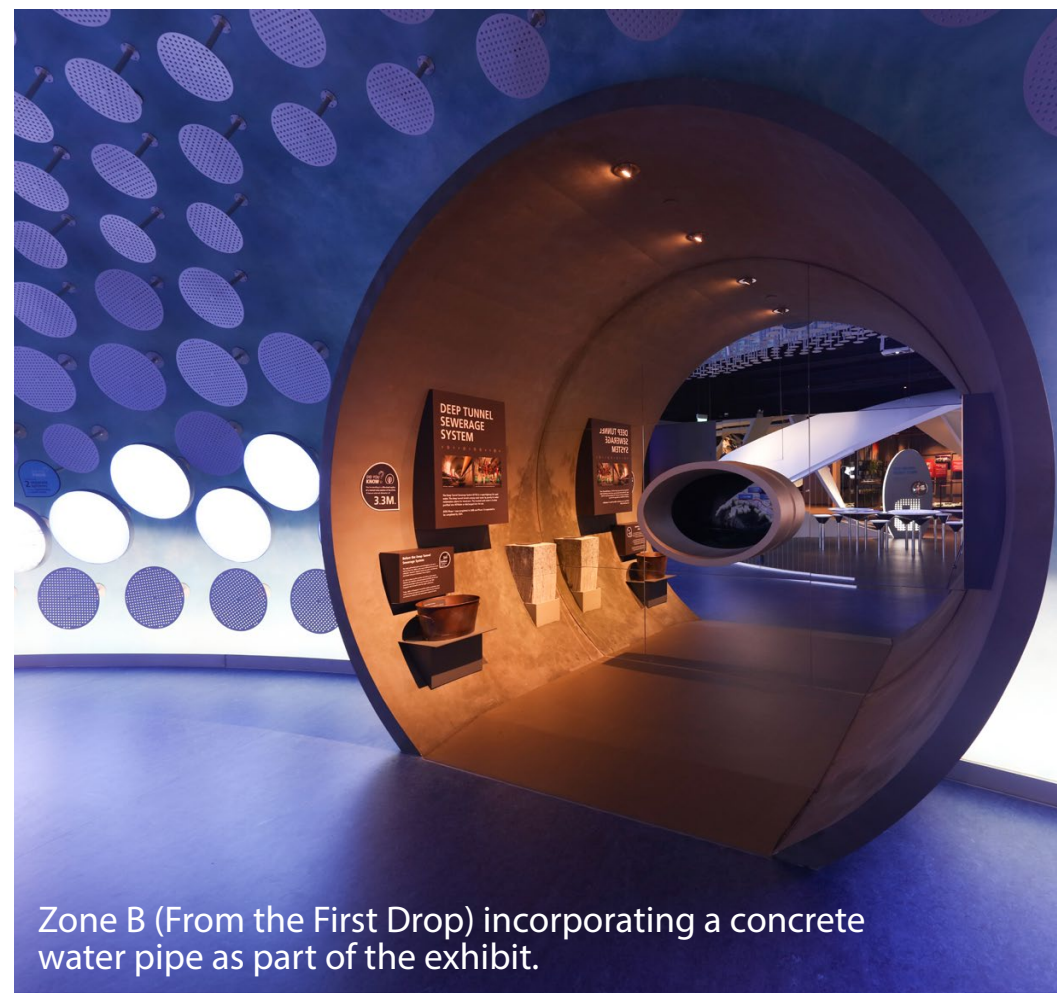
Zone E (Journey to Zero)



Reflective finishes and lighting create a futuristic ambience.



Textures, finishes and lighting at Zone A (Red Dot).



Zone B (From the First Drop) incorporating a concrete water pipe as part of the exhibit.



Zone D (City of the Future).



Ceiling pattern at Zone F (Future Tense) created by PVC pipes.



Zone C (A First World Oasis).



Zone E (Journey to Zero).