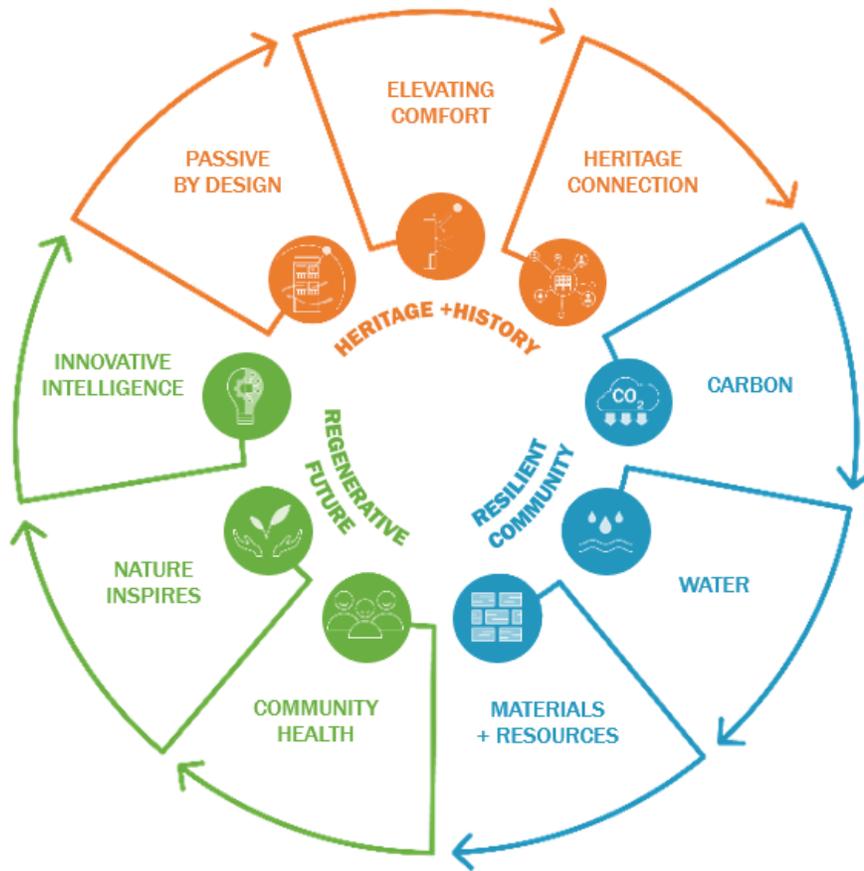




TEMASEK SHOPHOUSE

Overview of Holistic Sustainability Framework

This Holistic Sustainability Framework was created in collaboration with SJ Group's Sustainability & Resilience Office and environmental design consultancy Atelier Ten, a member company of SJ Group.



Heritage + History

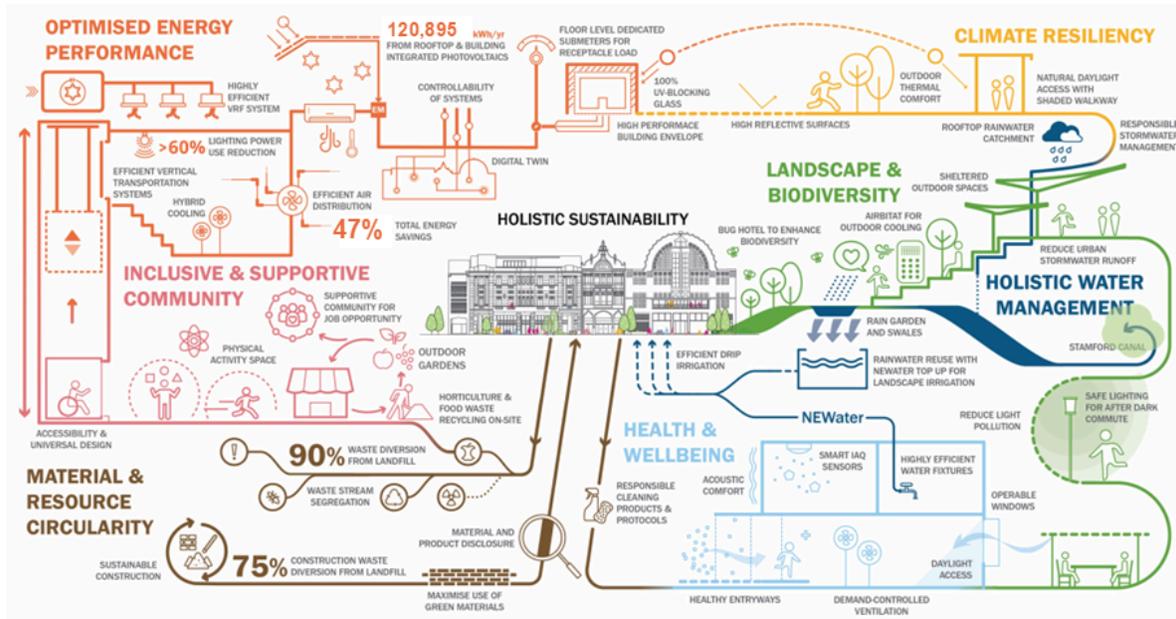
Resilient Community

Regenerative Future

<p>Passive by Design – Maximising daylight access and passive spatial design inspired by the original</p>	<p>Carbon – Supporting low-carbon operations and reduced operational energy use, with a roadmap</p>	<p>Community Health – Establishing healthier workplaces and collaborative gathering</p>
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<p>architectural features of the conserved shophouses to enhance indoor environmental quality while preserving heritage character.</p> <p>Elevating Comfort — Optimising thermal and visual comfort through hybrid cooling systems, efficient lighting, and high-performance building systems to create comfortable and productive shared spaces.</p> <p>Heritage Connection — Creating an inclusive and equitable platform that engages collaborators and collects ideas to foster innovation for future generations.</p>	<p>towards improved energy performance and carbon reduction.</p> <p>Water — Managing water responsibly through rainwater harvesting and efficient water use strategies.</p> <p>Materials & Resources — Sourcing sustainable and environmentally responsible materials and promoting waste reduction practices during construction and operation.</p>	<p>spaces that catalyse synergy and embrace social cohesion</p> <p>Inspired by Nature — Integrating nature-based solutions and promoting biophilic health to enhance and encourage connections between indoor environments and natural ecosystems.</p> <p>Innovative Intelligence — Leveraging smart building technologies and digital monitoring systems to improve building performance, energy efficiency, and operational optimisation.</p>
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Holistic Sustainability Framework in Action



The Holistic Sustainability Framework is organised around 7 key pathways and informs the features integrated across the building and its outdoor spaces:

Pathway	Key Features
1. Optimised Energy Performance	i. Hybrid cooling system Combines ceiling fans with air conditioning to enhance air movement and allow higher temperature setpoints without compromising thermal comfort
	ii. Integration of solar photovoltaic panels Supported through a multi-year partnership with Sembcorp to apply decarbonisation solutions across the premises
	iii. Active systems Energy-efficient lighting, demand-controlled ventilation using CO ₂ sensors, and smart building management systems

	<p>With these features in place, TSH is expected to achieve up to 47% energy savings, exceeding the current Singapore Super Low Energy standard of 40% energy savings.</p> <p>TSH is also on track to become Singapore’s first heritage shophouse to achieve the BCA Green Mark Platinum Zero Energy certification.</p>
<p>2. Climate Resilience</p>	<p>i. Shaded outdoor walkways and reflective surfaces Reduce heat gain, helping to reduce heat build-up around the building and reduce cooling load requirement</p>
<p>3. Landscape & Biodiversity</p>	<p>i. Nature-based systems Water, shade, planting and airflow are designed as integrated environmental systems</p> <p>ii. Biophilic design for people Connecting people everyday to nature to support comfort, wellbeing and social interaction</p> <p>iii. Climate-responsive outdoors Nature-led strategies to manage heat, rain and microclimate across TSH, a dense, urban site. The outdoor space integrates Airbitat, an innovative cooling system that uses one-quarter the energy of traditional air-conditioning, helping the outdoor community space to remain comfortable.</p> <p>iv. Urban biodiversity embedded Habitats and ecological continuity woven into the public realm</p> <p>v. Designed to evolve over time Spaces that adapt through use, stewardship and learning</p>

<p>4. Holistic Water Management</p>	<ul style="list-style-type: none"> i. Rainwater harvesting system Collects and stores rainwater for non-potable uses such as landscape irrigation. The system is complemented by water-efficient fixtures and responsible water management practices to reduce potable water demand and support more sustainable building operations. ii. Climate Stone Permeable pavement that allows rainwater to seep through to the ground and channelled to the TSH rain garden for reuse. TSH is the first in Singapore to pilot this innovation. iii. Rain garden A landscape feature designed to collect and temporarily hold rainwater. Collected rainwater is filtered through aquatic habitats and drained into the rainwater harvesting tank, before being used for irrigation in the garden.
<p>5. Health & Wellbeing</p>	<ul style="list-style-type: none"> i. Movement Active design, walkability, and mindful eating ii. Biophilic outdoor The outdoor spaces integrate greenery and nature-based design to strengthen connections between people and the natural environment. Native planting and pollinator-friendly gardens support biodiversity, while preserved mature trees and landscaped courtyards create welcoming spaces for community gatherings along Stamford Canal and Handy Green. iii. Air Indoor environments are supported by a hybrid cooling system that combines air

conditioning with ceiling fans to improve air movement and reduce energy consumption. Demand-controlled ventilation using CO₂ sensors helps maintain good indoor air quality by adjusting airflow based on occupancy levels.

iv. Water

Rainwater harvesting systems collect and store rainwater for non-potable uses such as landscape irrigation. Together with water-efficient fixtures and responsible water management practices, these measures help reduce reliance on potable water and support more sustainable building operations.

v. Material sourcing, optimisation, and management

Sustainable material strategies guided both the design and construction phases. These include the use of environmentally responsible materials, efficient structural design to minimise material use, and construction waste management practices that diverted a significant portion of waste from landfill. Timber from older or diseased trees on site has also been repurposed into furniture and fixtures.

vi. Thermal environment

Passive design strategies and efficient cooling systems help maintain comfortable indoor environments while minimising energy use. The hybrid cooling approach allows for higher temperature setpoints while maintaining occupant comfort, supported by improved air movement and responsive building systems.

	<p>vii. Visual comfort</p> <p>The building maximises natural daylight through the original architectural features of the conserved shophouses, reducing reliance on artificial lighting during the day. Energy-efficient lighting systems further enhance visual comfort while supporting overall energy efficiency.</p> <p>These efforts have placed TSH on track to achieve the International WELL Building Institute WELL Certification (Platinum).</p>
<p>6. Material & Resource Circularity</p>	<p>i. Adaptive reuse</p> <p>In preserving conserved shophouse façades and key architectural elements, as well as the use of sustainable material strategies, TSH is able to significantly reduce demolition waste and embodied carbon associated with new construction – diverting 75% of waste from landfill</p> <p>ii. Waste management strategies</p> <p>For daily operations like food, paper, horticulture will help to divert 90% of waste from landfills</p> <p>iii. Responsible waste management and reduction</p> <p>Incorporated in day-to-day operations is reflected in its ongoing efforts to be <u>True Waste</u> certified.</p>
<p>7. Inclusive & Supportive Community</p>	<p>i. Ease of movement across the site</p> <p>ii. Accessibility to transit network</p> <p>Located within walking distance of major public transport nodes, improving</p>

	<p>accessibility for visitors and the wider community.</p> <ul style="list-style-type: none">iii. Accommodating and accessible seating A variety of seating areas throughout the site support rest, social interaction, and community gatherings.iv. Inclusive, universal design Thoughtfully designed spaces such as levelling out the floors of the different blocks with gentle ramps to ensure the site is welcoming and usable for people of different abilities.v. Intuitive wayfinding Clear spatial organisation such as through colour coding of the different blocks help visitors easily navigate the building and surrounding spaces.vi. Supportive walkability Through the Stamford Canal decking which provides comfortable pedestrian access connecting Orchard Road to Handy Green <p>These aspects also make up what is included in the WELL and LEED certification requirements.</p>
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