BUILD GREEN ENVIRONMENTS FOR FUTURE RESILIENCE

Driving Low-Carbon Transformation

As the key department responsible for the development and maintenance of public facilities in Hong Kong, the ArchSD is committed to leveraging our expertise, reach and partnerships to advance low-carbon building design, construction and practices.

Carbon Neutrality Strategic Framework

To align with Hong Kong's Climate Action Plan 2050 and its Energy Saving and Green Buildings Strategy, we have formulated the "3A Strategy", namely Amplify, Accelerate and Act Together under our Carbon Neutrality Strategy Framework to speed up the progress in decarbonising Hong Kong's built environment.

3A Strategy

AMPLIFY

To adopt performance-based approach to go beyond and above statutory requirements and apply green and high productivity construction technologies to maximise decarbonisation performance in projects.

ACCELERATE

To explore, develop and adopt smart and advanced technologies to accelerate low-carbon transformation in our projects.

ACT TOGETHER

To work hand-in-hand with stakeholders to combat future climate challenges and build the carbon neutral future together.

To address the increasing demand in achieving a low-carbon built environment, we are integrating carbon appraisal in our projects and building up our capabilities and capacity with a view to progressing low-carbon building designs. Through the collection, analysis and tracking of carbon performance in projects, a holistic overview of carbon performance can facilitate deep decarbonisation as well as the setting of overarching decarbonisation strategies in Hong Kong's built environment.

Visit our website to learn more about our Carbon Neutrality Strategic Framework and 3A Strategy.

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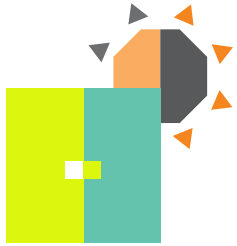
Sustainable Building Design Strategies

Our strategy for sustainable building design goes beyond statutory requirements to maximise decarbonisation performance. We achieve this by widely adopting integrated passive and active design approaches. Through meticulous planning, optimal site orientation and strategic material selection, we create resilient, energy-efficient and future-ready buildings that harmonise with their microclimate environments.

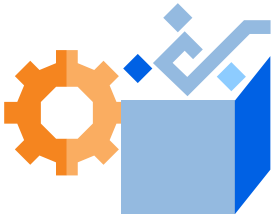
PASSIVE DESIGN APPROACHES

Mitigating urban heat island effects

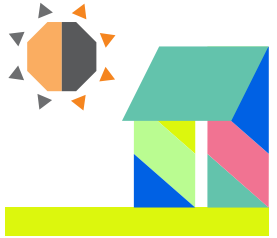
Optimising natural ventilation around buildings



Maximising daylight penetration



Enhancing passive cooling



Reducing heat gain through building envelopes

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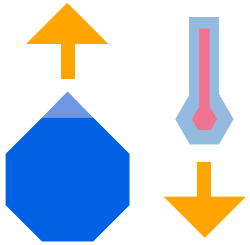
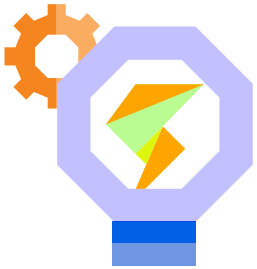
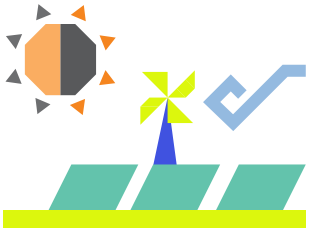
ACTIVE DESIGN APPROACHES



High-efficiency heating, ventilation and air conditioning (HVAC) systems and water-saving devices



Energy-efficient lighting systems



Renewable energy technology application and integration

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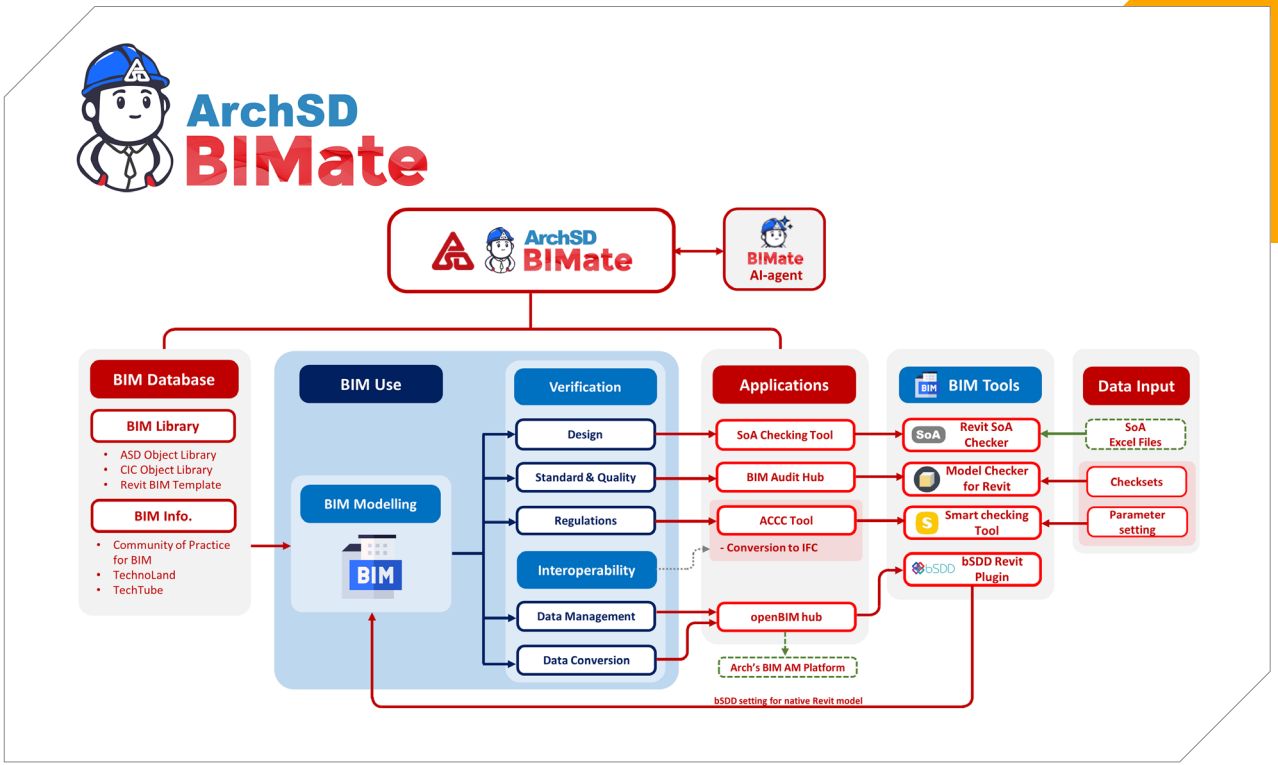
High-Productivity and Innovative Construction

To accelerate the low-carbon transformation of our projects, we are adopting green, high-productivity construction technologies and methods. Technologies such as Building Information Modelling (BIM), Modular Integrated Construction (MiC) and Multi-trade integrated Mechanical, Electrical, and Plumbing (MiMEP), are extensively used in close collaboration with industry partners and contractors. Additionally, we are promoting the application of robotics, AI, applied R&D, new materials and digitisation to enhance energy and resource efficiency, as well as overall cost-effectiveness.

In 2024, we launched a self-developed BIM tool, "ArchSD BIMate" aimed at seamlessly integrating resources and utilizing AI technology to develop application tools and plugins. This development provides clear strategies, standardizes the modelling methodologies and promotes automated checking to ensure a smooth project delivery process.

As an all-in-one solution, "ArchSD BIMate" provides users with direct access to BIM resources, significantly enhancing efficiency. By applying automated tools, teams can collaborate more effectively and accelerate the pace of innovation. This development reflects the ArchSD's commitment to advancing digital construction, fostering intelligent workflows, and delivering higher-quality projects for the industry, leading the construction industry towards greater achievements.



ArchSD BIMate

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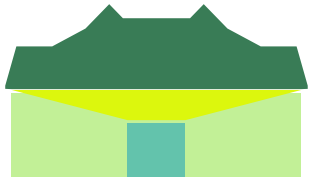
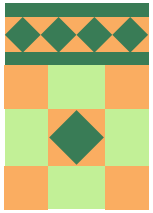
Driving Low-Carbon Transformation

HERITAGE BUILDING INFORMATION MODELLING

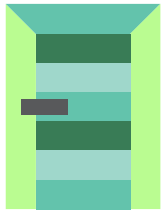
Building on our innovative construction methods, we also apply Heritage Building Information Modelling (HBIM) technology for facilities development, upkeep and heritage conservation to preserve cultural legacy. Our approach includes:



Minimising impact on historic buildings



Prioritising in-situ materials for repair and restoration



Preserving original materials and furniture during alterations for future reuse

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Advancing Green Building Excellence

Pursuing green certification can enhance environmental and sustainability performance. The ArchSD has strategically adopted the BEAM Plus standards to ensure industry-leading performance. As of December 2024, 63 new buildings were certified under BEAM plus (New Buildings); 5 office interiors achieving BEAM Plus Interiors certification; and 3 existing buildings recognised under BEAM Plus Existing Building (Selective Scheme).

BEAM Plus-Certified Buildings up to 2024

Type of Certificates	Rating		Sub-total
BEAM Plus (New Buildings) Certification* (Versions 1.1, 1.2, 2.0)	**Platinum**	**Gold**	
	19	44	63
BEAM Plus (Interiors) Certification (Version 1.0)	**Platinum**		
	4		4
BEAM Plus (Interiors) Certification (Version 2.0 – Non-residential)	1		1
BEAM Plus Existing Building (Version 2.0 Selective Scheme) Certification	**Excellent**	**Satisfactory**	
	2	1	3

*Reference to specific versions of BEAM Certificate:
Version 1.1 – BEAM Plus New Buildings, 2010;
Version 1.2 – BEAM Plus New Buildings, 2012; and
Version 2.0 – BEAM Plus New Buildings, 2019.

BUILD GREEN ENVIRONMENTS FOR FUTURE RESILIENCE

Driving Low-Carbon Transformation

Managing our Footprint

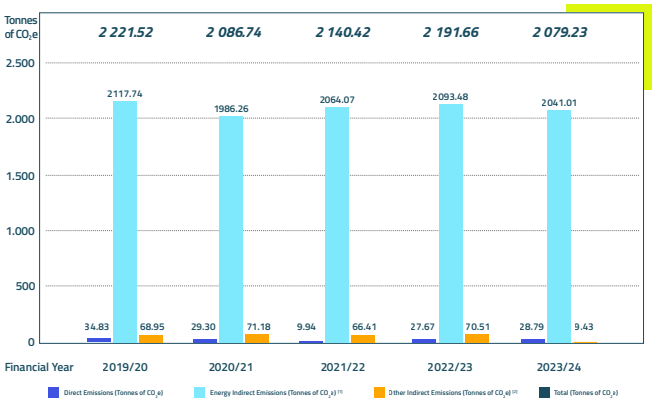
Guided by our Quality, Environmental, Anti-bribery, Occupational Health and Safety Policy, we deliver facilities and services with a focus on environmental responsibility. Our efforts target carbon reduction, improved energy and resource efficiency, and advanced waste management. To further minimise our footprint, we have implemented various waste-reduction, energy-saving and water conservation measures. Below are the key initiatives adopted at the QGO and APB Centre:

Carbon Emission Management

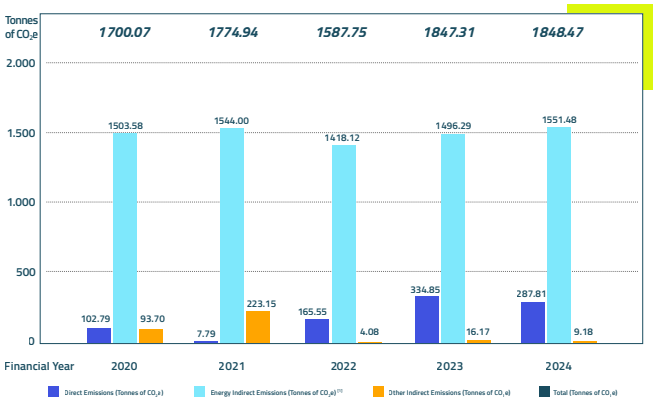
Manage greenhouse gas emissions through comprehensive assessments and targeted reduction initiatives, including:

- Conduct regular carbon audits aligned with the Greenhouse Gas Protocol and the local guidelines from the Environmental Protection Department and the Electrical and Mechanical Services Department to measure and track our footprint.
- Monitor electricity consumption, energy mix and efficiency to mitigate operational environmental risks.
- Adopt electric vehicles (EV) in new maintenance term contracts and fleet operations at the QGO and APB Centre.
- Install EV charging infrastructure at the QGO, APB Centre, and ArchSD's projects.
- Advise clients on adopting innovative, smart and low-carbon technologies to minimise their environmental impacts.

Carbon emissions produced by the QGO



Carbon emissions produced by the APB Centre



[1] A territory-wide default emissions factor was used to calculate these emissions.

[2] The figures were calculated by measuring the actual usage of fuel in mobile sources and paper consumption (A3 and A4) and wastepaper collected for recycling at the QGO.

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Energy Saving

- Set annual reduction targets for electricity consumption to drive continuous improvements using 2018 as the base year.
- Reduce energy consumption and enhance energy efficiency across our operating premises:
  - Adhere to the ISO 14001 standard for improving environmental performance of office operations and ISO 50001 standard for managing energy consumption at the APB Centre.
  - Use occupancy/motion sensors to control lighting in low-traffic areas.
  - Maintain room temperatures at 25.5oC to balance comfort and energy savings.
  - Enable energy-saving mode for office equipment during office hours and power them down after office hours.
  - Automatically switch-off external lighting at the APB Centre by 8 p.m.
- Monitor energy-use patterns to identify abnormalities and optimisation opportunities, such as lighting retrofits.
- Install photovoltaic panels at the APB Centre to generate renewable energy.

Green Procurement

- Incorporate environmental and well-being considerations into purchasing decisions to support a circular economy:
  - Refer to the Green Specifications from the Environment Protection Department to purchase goods and services to promote resource efficiency and circularity.

Resource Efficiency

- "Slim and Trim" cumbersome procedures and obsolete practices to promote smarter and greener practices for increasing efficiency and effectiveness in operations:
  - Foster a work-smart culture through comprehensive digitalisation, e-workflow adoption and use of innovative and smart technologies.
  - Implement various CO-i projects to shorten processing time and save paper.

Waste Management

- Advise clients on efficient resource utilisation during project construction.
- Promote sustainable construction methods, including pre-cast concrete implementation, onsite sorting of construction and demolition waste, and recycling and upcycling of construction materials.

Waste Reduction

- Issue and promote green house-keeping guidelines featuring:
  - Digital transformation (e-functions/systems) to minimise paper use; double-sided printing and envelope reuse.
  - Designated recycling stations at offices for metal and plastic waste to facilitate recycling.
  - Formulate measurable annual waste-reduction targets and monitor progress.

Water Efficiency and Recycling

- Manage water consumption across operating premises to ensure efficient water utilisation:
  - Install auto-sensing taps and dual flush cisterns to avoid excessive use.
  - Conduct regular leakage detection inspections and preventive maintenance of water supply system.
- Conduct ongoing analysis of water consumption patterns to identify and address abnormal usage, and explore new efficiency management opportunities.

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Green Recognitions

Through the collective environmental efforts of our management and staff, the ArchSD has achieved the Hong Kong Green Organisation Certification (HKGOC) for 5 consecutive years. This recognition from the Environmental Campaign Committee and the Environment and Ecology Bureau not only testifies to our ongoing commitment to workplace environmental protection, but also motivates us to pursue further sustainability advancements.

'Excellent Level'
Energywi$e certificate

'Excellent Level'
Wastewi$e certificate

'Good Level'
IAQwi$e certificates (APB Centre)

'Good Level'
IAQwi$e certificates (QGO)

Hong Kong
Green Organisation