

UNSDGs

- Both active and passive design approaches are adopted in our buildings to improve energy efficiency and thermal comfort
- Innovative construction methods including Building Information Modelling (BIM) and Modular Integrated Construction (MiC) are used to streamline our construction processes and minimise our environmental impact



Building Resilience through Sustainable Design and Innovative Construction

GRI102-44

Sustainable Building Design

Buildings carry a considerable burden of high electricity consumption and carbon emissions. Among the various end uses of electricity, buildings account for around 90% of electricity consumption in Hong Kong which generates over 60% of the city's total carbon emissions. Throughout the years, we have devoted considerable effort towards adopting innovative, sustainable and smart building designs to drive the efficient utilisation of energy, material and land resources.

Passive Design Approaches

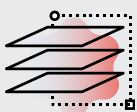
Passive design approaches harness building architecture to provide energy saving benefits and enhance thermal comfort. Appropriate measures in suitable planning, disposition, orientation, building form and material selection are adopted to optimise the interaction between a building and its local microclimate. The aspects taken into consideration include:



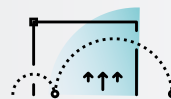
Mitigating heat island effect or elevated temperature



Natural ventilation



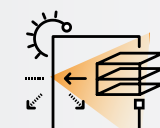
Air ventilation around buildings



Passive cooling



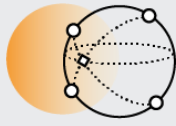
Daylighting



Reducing heat gain through building envelope

Active Sustainable Building Design Approaches

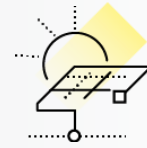
As opposed to passive design, active design approaches utilise electrical and mechanical systems to create and sustain comfortable conditions. These installations contribute to improving building energy efficiency, water conservation and enhance indoor air quality. The aspects taken into consideration include:



Heating, ventilation and air conditioning (HVAC) systems and water efficient devices



Lighting systems



Renewable energy technologies

Selection of Sustainable Construction Materials

The selection and prioritisation of sustainable construction methods and materials are also key aspects of sustainable buildings. During construction, prefabrication and pollution control are commonly practised. Additionally, the 3R principles – reduce, reuse and recycle – are widely adopted to effectively manage construction and demolition waste. When sourcing materials for new building projects, ArchSD is committed to using sustainable materials such as recycled materials and timber from well-managed sources.

Liantang/Heung Yuen Wai Boundary Control Point

This project aims to respond to the increasing demand to expand cross-boundary transport infrastructures for future economic growth and regional integration and co-operation. The Liantang/Heung Yuen Wai Boundary Control Point will join with the 'Eastern Corridor' in Shenzhen, which is considered an expressway that connects to the eastern part of Guangdong. It will reduce the transportation time required between Hong Kong, Shenzhen and Guangdong East significantly and promote further future development within these areas.

The project ties together various green elements. The adoption of green roof mitigates heat gain from sunlight and as a result reduces energy consumption for cooling. Glass, including low-E glass are vastly adopted to allow natural lights pass through, not only creating a harmonious environment but also saving daytime light usage.



Sustainable Building Design Features

- Adopt green roof to reduce heat gain from sunlight
- Inclusion of glass to receive more natural light and mitigate artificial light use
- Adopt low-e glass curtain wall and install sun shading fins to mitigate heat gain from sunlight
- Use of renewable energy by installation of solar panels to absorb sunlight



Green roof for heat gain mitigation



Skylight to enhance the effect of natural daylight



Low-e glass curtain wall and sun shading fins to reduce heat gain from sunlight



Cognitio College (Kowloon)

The project comprises of both the design and construction of a 30-classroom secondary school at Site 1A-2, Kai Tak Development, with a total construction area of around 13,500 m². In alignment with the 'Green City' concept of Kai Tak Development, the project adopted a passive sustainable building design approach. The overall courtyard space and peripheral greening consists of at least 20% of the site area. In recognition of the sustainable efforts, this project received the Grand Award under New Buildings Category in the Green Building Award 2019.



Sustainable Building Design Features

- The podium deck, surrounded by four block clusters linked by semi-open corridors, creates spaces in different orientations, which allows natural breeze to pass through the building and optimise the urban air ventilation in surrounding areas
- Exterior spaces are designed in diverse lush ambience, including grass lawn, farming area, sitting terrace, roof greenery and terrace planters on different floors that minimise heat island effect
- Most classrooms are designed with 3-side natural lighting and incorporating three window typologies for better sunlight orientation response
- Rainwater harvesting system is adopted to conserve water resources



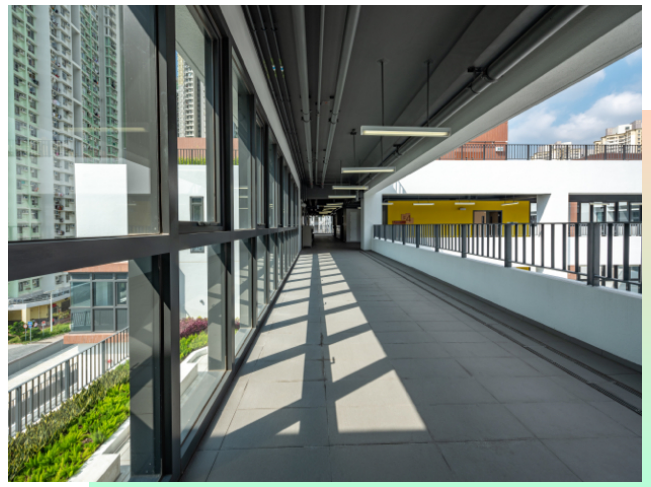
The podium deck creates opportunities for air to flow



Classroom designed with 3-side natural lighting



Adoption of green roof to reduce heat island effect



Maximising the use of natural daylight to reduce artificial lighting

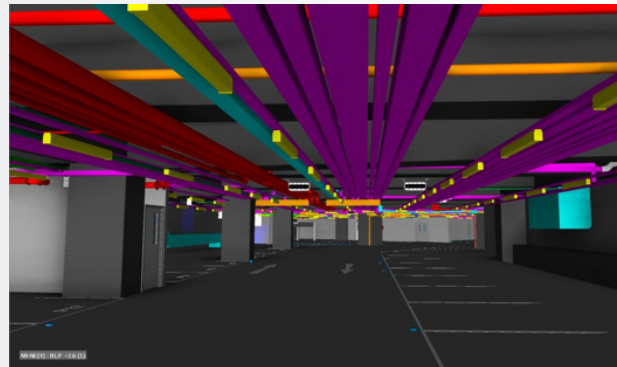
Innovative Construction

Building Information Modelling

Building Information Modelling, also known as BIM, is a process which allows the digital visualisation of building data. It is an innovative way to improve the overall building quality through optimising design and planning, bridging communication and reducing waste. For instance, BIM can facilitate a smoother planning process by enabling digital visualisation of designs. It can also perform simulations of the complete construction process enabling better coordination between stakeholders. The adoption of this innovative building method can minimise aborted works caused by unfeasible designs and safety pitfalls.



Visualisation of real time construction sequences through the adoption of BIM



Replication of design in real life through the adoption of BIM

Design for Manufacture and Assembly and Modular Integrated Construction

Modular Integrated Construction (MiC) is a general term which refers to an important concept: factory assembly followed by on-site installation. MiC is an example of Design for Manufacture and Assembly (DfMA), which is a construction method whereby free-standing volumetric modules with completed finishes, fixtures and fittings are adopted. By transferring on-site construction processes to a controlled off-site prefabrication factory, this significantly increases construction productivity by reducing site constraints and results in an increased level of quality control. In the reporting year, the stargazing facility in Sai Wan leveraged the benefits of modular construction to overcome remote site location restraints while also minimising environmental impact to the surrounding countryside.

West Kowloon Government Offices

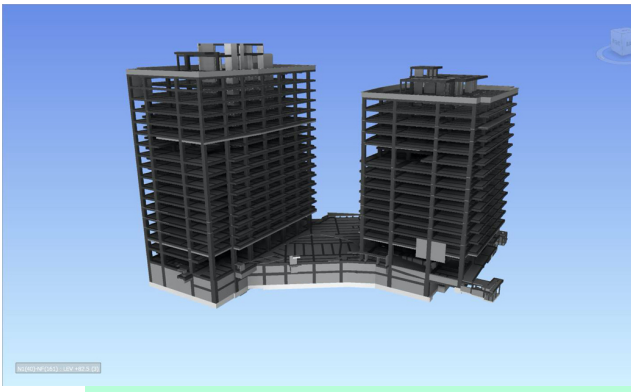
The West Kowloon Government Offices located in Yau Ma Tei represents the new epoch for government office design. The project has a total construction floor area of 98,000 m² and is comprised of two towers of 15 and 17 stories respectively. With green and sustainable features and open design adopted throughout the project, the project also aims to nurture culture and creativity with the surrounding community. Breaking away from the conventional office design, the project also aims to establish a new model of modern workplace for government offices that fosters staff interaction and well-being. With innovation in mind, the project also adopts a wide variety of innovative construction method including the implementation of BIM and DfMA allowing for efficient planning, design, constructing, and managing.



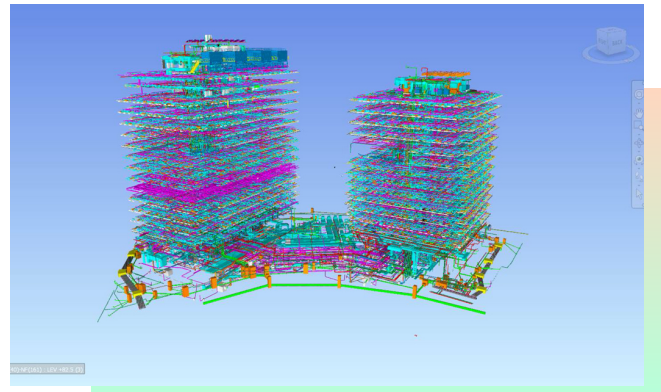
Practising Innovative and Sustainable Construction Methods

Innovative Construction Methods

- To enhance site safety, BIM was adopted to create and optimise temporary structures i.e. working platform on the Excavation and Lateral Support (ELS) at the basement level
- To facilitate the selection of a safer and more desirable truck path and construction sequence, BIM allowed for real time construction sequences to be visualised
- To improve site planning, BIM optimised the use of site space for safe pedestrian paths with railings and convenient vehicular access
- To identify and tackle logistic issues, 4D scheduling and sequencing was adopted to identify traffic considerations and potential hazards in the vicinity
- Through the adoption of DfMA, the cooling tower, which would normally block off critical paths near the end of the project during installation, had major components assembled off-site, and thus reduced the on-site installation required



Intelligent 3D model-based process allowed for efficient planning, design, constructing, and managing



Intelligent 3D model-based process allowed for efficient planning, design, constructing, and managing

Star Gazing Facilities at Sai Wan

The project involves the construction of a stargazing facility on an abandoned campsite located between Sai Wan and Ham Tin Wan in Sai Kung for the general public to enjoy a 360-degree stargazing experience.

Due to its remote location, MiC, an example of DfMA was adopted to allow for a more efficient construction and repair process. Components of the curved ring-form bench were prefabricated in off-site factories minimising site constraints and ensuring a higher degree of quality control. The project was completed quickly taking only three months to complete the main part of the works.

The reconstruction works did not involve tree felling and the benches were built with respect to the surrounding tree line, which also minimised ecological and visual impacts. The project showcases the incorporation of innovative construction and sustainable design in achieving a symbiosis of human, nature and architecture.



Practising Innovative and Sustainable Construction Methods

As the stargazing facility is located in an inaccessible location, it was challenging for work vehicles to get to the construction site directly. In this regard, MiC was adopted to allow for easy transportation and repairs.

- The curved ring-form bench was assembled using prefabricated components made in factories
- Individual panels can be removed and replaced with new ones when necessary
- The installation of the modular ring component adopted a tenon technique as opposed to welding, which can be installed even in rainy conditions



Manufacturing process of prefabricated components of the curved ring-form bench



Manufacturing process of prefabricated components of the curved ring-form bench



The bench is ergonomically-designed to allow visitors to enjoy stargazing at 360 degrees by sitting in a comfortable position

New Territories West Regional Office and Water Resources Education Centre of Water Supplies Department in Tin Shui Wai

The Water Supplies Department Tin Shui Wai Building is a 7-storey building for the New Territories West Regional Office and Water Resources Education Centre of Water Supplies Department in Tin Shui Wai. In addition to serving as an office, it also provides exhibits, live demonstrations and interactive games to enable visitors to gain a thorough understanding of water resources and conservations in Hong Kong.

Building Information Modelling (BIM) was adopted in the planning, design and construction stage to optimise the building design and the construction activities. BIM model was handed over to maintenance team for achieving sustainable facilities up-keeping. The project received the Platinum rating under BEAM Plus Assessment (New Buildings) in 2019.



Practising Innovative and Sustainable Construction Methods

- In the planning and design stage, BIM was adopted to visualise the building design and predict any constraints in 3D form, thus resolve potential problems in early stage
- In the construction stage, BIM was used to allow the real time construction consequences to be visualised before the commencement of work so that the construction team could plan ahead to reduce delays
- In the post-construction stage, BIM model was handed over to maintenance team to achieve sustainable facilities up-keeping



Design visualisation to improve planning

Temporary Quarantine Camps at Lei Yue Mun Park

To assist the government's response to the Covid-19 outbreak in Hong Kong since early 2020, temporary quarantine (Q) camps were constructed at Lei Yue Mun Park, with a view to obviate risk from the rapid and widespread of virus in the local community. The projects involved the design and construction of temporary Q camps in Basketball Court and Football Pitch of the Lei Yue Mun Park, which would respectively provide 118 and 234 Q units.

To provide a quick response in meeting the arising demands of the pandemic, the adoption of innovative MiC enabled the construction of temporary Q camps within a short time frame. MiC technology significantly shortened the site construction time by transferring the production and assembly process of the components of individual Q units to off-site factories, which further allowed multiple construction processes to take place concurrently. With the adoption of MiC, the Lei Yuen Mun Park Basketball Court and Football Pitch temporary Q camps were rapidly completed within 26 days and 56 days respectively.



Practising Innovative and Sustainable Construction Methods

- The deployment of MiC technology allowed the production and assembly process of the individual Q units to be carried out in off-site factories, some construction processes which involved interior decoration, building services, furniture and electrical installations were all completed off-site.
- The components with the accommodation facilities, doors and windows, air-conditioners, and individual toilets and so on for individual Q units were already ready and further transported to the construction site for connection to services. The whole process not only greatly shorten site construction time, it can also enhance productivity, quality control and site safety.
- The two-storey temporary Q facility at Lei Yue Mun Park Football Pitch adopted a steel MiC system in which threaded steel bar with couplers were used as the connection system and installation was conducted at the top of the module, which further allows for easy disassembly and reassembly at another location.
- On-site audit checks for MiC modules were conducted to ensure quality and safety, which included concrete core test, welding inspection/tests, check on fire protection materials, and dimension check.



One storey high temporary Q camps with 118 Q units built at Lei Yue Mun Park, Basketball Court



Two storey high temporary Q camps with 234 Q units built at Lei Yue Mun Park, Football Pitch



Two storey high temporary Q camps with 234 Q units built at Lei Yue Mun Park, Football Pitch



Off-site manufacturing of Q units



On-site assembly of Q units

Climate Resilience

With rising temperatures, sea level rise and the expected increase in the frequency and magnitude of extreme weather events, the impacts of climate change are constantly a wake-up call of the urgency to strengthen the city's resilience against climate change through appropriate mitigation, adaptation and resilience strategies. ArchSD recognises its role in building the city's climate change adaptive capacity and resilience. The project of constructing reinforced wave breaking walls at Siu Sai Wan Promenade while adopting DfMA demonstrates our efforts in combatting climate change with innovative solutions.

Project Built with Climate Resilience

CASE STUDY

Construction of New Wave Breaking Boundary Wall & Alteration of Existing Boundary Wall at Siu Sai Wan Sports Ground

In September 2018, super typhoon Mangkhut caused extensive damage to the city including damage to the structures on the external walls of buildings, toppling of numerous trees and severe flooding in coastal areas. Siu Sai Wan Sports Ground also felt the impacts of typhoon Mangkhut with major facilities inside the venue including the power supply installation, covers of the spectator stands, field tracks and grass pitches severely damaged.

The project of constructing a new wave breaking boundary wall and altering the existing boundary wall at Siu Sai Wan Sports Ground aimed to mitigate the damages caused by flooding while also enhancing infrastructure preparedness for future extreme weather conditions.



Strengthening Climate Resilience with Innovative Solution

The project consisted of two phases. Phase 1 was the 400mm extension to the existing boundary wall which commenced in mid-July 2019 and completed in the end of August in 2019. Meanwhile, Phase 2 was the construction of the new boundary wall facing harbour which commenced in early September 2019 and was completed in the end of December 2019.



Phase 1: 400mm Extension to the Existing Boundary Wall



Phase 2: Construction of New Boundary Wall Facing Harbour

To provide a quick and swift response to alleviate the adverse impact on nearby residents, ArchSD adopted a solution of DfMA. This allowed for an increased efficiency in product manufacture and assembly with enhanced quality and less wastage.



DfMA Process



DfMA Process



DfMA Process

Interview with Staff



Mr. Tony NGAN **Senior Project Manager**

In the Project Management Branch, my major responsibilities involve advising and overseeing various aspects of government building projects, from planning to completion and maintenance. In addition to allocation of work, I am also responsible for managing relationships with key stakeholders. In 2019, one of the projects that I participated in was the construction of the West Kowloon Government Office.

ArchSD is determined in taking the lead when it comes to adopting sustainable building design. The construction of the West Kowloon Government Office is no exception and currently has obtained a Gold Rating in the provisional assessment for BEAM Plus New Buildings. To remain at the cutting edge, the project adopted innovative construction methods including Building Information Modelling (BIM) and prefabricated building services modular construction, which drove better efficiency and minimised safety risks at the project site. In recognition for its adoption of sustainable and technological innovations, the West Kowloon Government Office is listed as a finalist for the Quality Building Award 2020 and The HKIE Structural Division Excellence Award 2020.

ArchSD also places great emphasis towards social considerations in our projects in several ways. For instance, a sky garden was designed to enhance air ventilation while also creating leisure and open space at the West Kowloon Government Office. The building also incorporated inclusive features such as designing door entrances that are wider than the minimum clear entrance width requirements. In recognition of the inclusive design, the project was granted a merit award under the 2019 Inclusive Environment Recognition Scheme.

As we are mindful of the impact caused by our building projects to nearby communities, we also frequently engage with the community through organising various activities to build stronger relationships with the community.

Looking forward, we will continue to incorporate environmentally friendly and inclusive designs into our projects, and are committed to strengthening communication with users and communities nearby to construct a sustainable city.

Our Response

At ArchSD, one of the goals in the coming years is to increasingly promote the adoption of innovative construction methods and incorporating inclusive design in government buildings. This commitment is clearly demonstrated through the best practices adopted in the construction of the West Kowloon Government Office project. We would like to further extend our appreciation to our staff for their devoted efforts and remarkable work.

Interview with Professional Institution



Mr. Felix LI

President of The Hong Kong Institute of Architects

Serving as the centre of talented and passionate architects, The Hong Kong Institute of Architects (HKIA) shares the same vision and commitments as ArchSD in driving the development and growth of architectural industry in Hong Kong. We work closely to promote architectural excellence in design and professional practices, while facilitating the sharing of intelligence, knowledge and experience throughout our partnership. We also co-organise designs competitions, webinars and site visits to foster the exchange of ideas between the professionals and academics in the architectural industry.

Speaking of 'Constructing a Green Community', ArchSD is certainly a critical driving force for the city's sustainable building design, in particular for the public sector. We are glad to see that ArchSD takes up the responsibilities as a pioneer to incorporate different green features and management measures across the lifecycles of its buildings and express full support to the local green building scheme - Building Environmental Assessment Method (BEAM). We appreciate ArchSD's active promotion and adoption of industry leading practices and technologies which in turns bring up the standards and set goals for the vendors of government-funded building projects and other industry players to design and operate in a sustainable manner.

ArchSD's effort in promoting the development of a green and dynamic industry is also much appreciated. Being one of the long-term partners with ArchSD, HKIA shares same commitment, and we have been working with ArchSD in collaboration to advocate sustainable design. Besides co-organising educational events, HKIA and ArchSD have also been working hand in hand in a wide scope of design competitions. Recent examples include the 'Moongate' Design for Victoria Park Lunar New Year Fair 2019, in which ArchSD generously provided support and professional advice to the young architect on the selection of environmentally friendly and recyclable materials, as well as the construction methods.

We understand ArchSD's aims and values go beyond mere green buildings, but a sustainable and liveable city that satisfies various needs of the community. The collaboration with various governmental departments have illustrated ArchSD's efforts in fulfilling its commitments to serve our community. We look forward to seeing and supporting ArchSD's determination to lead the best architectural practices and guide the industry to build for a better Hong Kong.

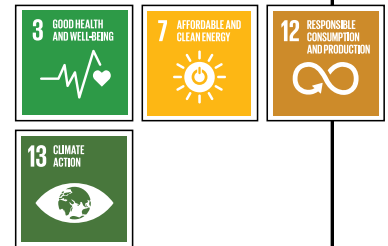
Our Response

ArchSD values the opportunities of working collectively with all stakeholders including professionals in the architectural industry. With the shared vision and mutual respect, we have developed in the past years, we regard HKIA as one of our long-term partners and wish to demonstrate architectural excellence through our collaboration and partnership. We will engage more professional parties to promote industrial and sustainable development.



UNSDGs

- We have established a robust IMS encompasses aspects of environmental protection, occupational health and safety, and quality management to benchmark our environmental performance and ensure it remains at international standards
- We conduct regular carbon audits at our offices to quantify our carbon footprint and explore technological advancement as well as good operational practices to optimise resources consumption
- We circulate green housekeeping guidelines and organise environmental awareness raising activities to promote green office practices



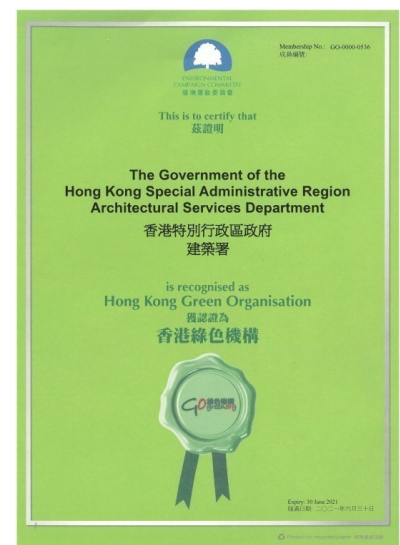
Promoting a Green Working Culture

GRI 102-44

In light of the pressing climate and environmental changes, ArchSD does not only leverage our expertise in architecture to build for the city's sustainability and climate-resilience, but also shoulder our indispensable responsibilities as a government department to create a green workplace. We developed a departmental Quality, Environmental, Health and Safety Policy with commitments to achieving pollution prevention, as well as and energy and natural resources consumption reduction. We also focus on fostering employee environmental awareness through programmes and daily engagement to optimise our sustainability efforts.

Alongside with the policy, our Integrated Management System (IMS) has been serving as the foundation of our exhaustive environmental and energy management (ISO 14001 and ISO 50001), occupational health and safety (ISO 45001) and quality management (ISO 9001). By doing so, we benchmark and attach ourselves to international standards. The systematic approach also allows us to formulate guidelines, procedures and strategies for the monitoring and improvement of energy, waste, water and indoor air quality performance.

The concerted efforts from our management and staff has earned ArchSD once again the Hong Kong Green Organisation Certificate (HKGOC). The consecutive recognition from the Environmental Campaign Committee serves as a testimony and future motivation to our conscientious contributions to the environmental protection in workplace.



Hong Kong Green Organisation Certificate

Energy Use and Carbon Emission Management

ArchSD clearly understands the need to contributing and acting in response towards the government's long-term plan to combat climate change. Acknowledging energy consumption, principally electricity consumption, is the primary source of our carbon footprint, we manage our consumption practices across our operating premises to ensure efficient energy utilisation. We continue to monitor our electricity use and explore different energy efficiency measures, such as lighting retrofitting works at our offices, to minimise the related greenhouse gas (GHG) emissions.

In addition to the HKGOC regarding overall environmental performance, ArchSD is pleased to maintain its 'Class of Excellence' Energywise Certificate under the same scheme in the reporting year. We are proud that our energy saving efforts have continued to gain wide recognition from the industry and general public.

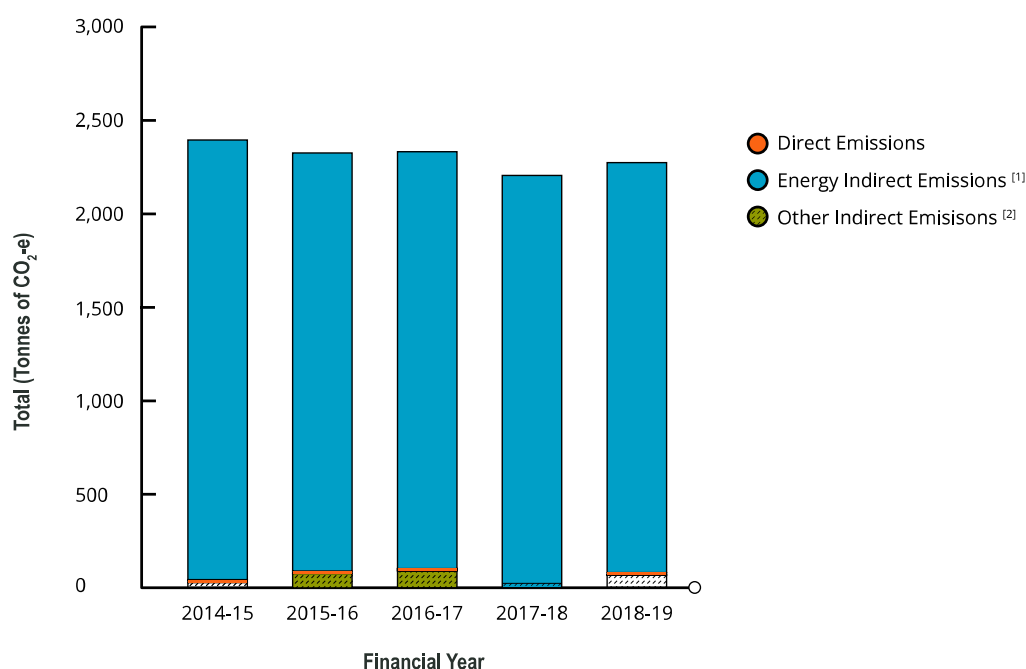
ArchSD formulates proactive measures to incorporate the elements set out in the Hong Kong Climate Action Plan 2030+ published by Environment Bureau, including a set of city-wide carbon emission reduction targets and actionable items. In order to understand our performance in direct and indirect GHG emissions and move towards the common goal, we regularly conduct carbon audits to quantify our carbon footprint. The audits are carried out in accordance to the international standards Greenhouse Gas Protocol and making reference to guidelines published by the Environmental Protection Department (EPD) and the Electrical and Mechanical Services Department (EMSD). Three major GHGs, namely CO₂, CH₄ and N₂O, induced from our electricity and fuel consumption are tracked closely and taken into considerations in the audits. Other operational data are also incorporated into the calculation to truly reflect our performance on a consistent and measurable basis.



'Class of Excellence' Energywise Certificate

Carbon Emissions Produced by our office located at the Queensway Government Offices

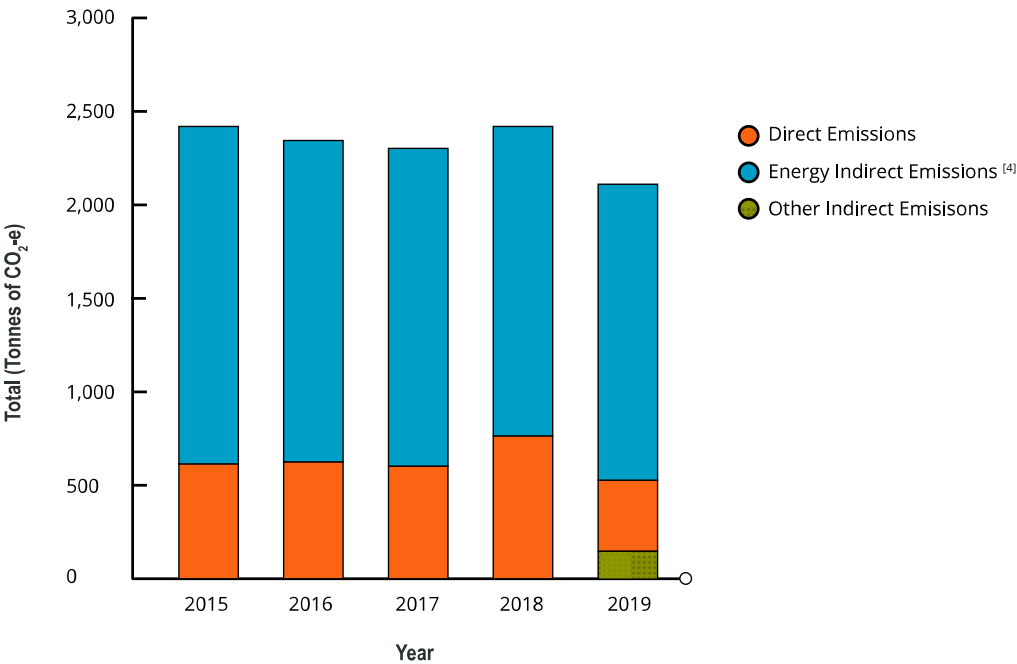
The carbon emissions produced by our office located at the Queensway Government offices (QGO) have remained stable over the last past five years.



	FY2014-15	FY2015-16	FY2016-17	FY2017-18	FY2018-19 [3]
Direct Emissions (Tonnes of CO ₂ e)	18.92	6.90	6.87	7.12	9.70
Energy Indirect Emissions (Tonnes of CO ₂ e) ^[1]	2,344.73	2,255.11	2,247.02	2,219.03	2,192.62
Other Indirect Emissions (Tonnes of CO ₂ e) ^[2]	34.72	83.78	95.09	29.61	72.53
Total (Tonnes of CO₂e)	2,398.37	2,345.79	2,348.98	2,205.76	2,274.85
<p>[1] - A territory-wide default emissions factor was used to calculate these emissions.</p> <p>[2] - The figures were calculated by measuring the actual usage of fuel in mobile sources and paper consumption (A3 and A4) and waste paper collected for recycling at QGO.</p> <p>[3] - The slight increment in total carbon emission recorded in FY2018-19 was due to the increase in fuel usage of mobile sources combustion for transportation needs to remote project sites; the increase in overall electricity consumption of commonly used facilities in QGO; and the decrease in paper recycling, which ArchSD has been persuading electronic digitisation and actively promoting CO-i in our office operation.</p>					

Carbon Emissions Produced by our office located at APB Centre

Upgrades made to the building’s air conditioning system, regular maintenance and the application of various energy efficiency features at the APB centre resulted in a gradual drop in carbon emissions of about 13% in 2019 compared to 2015



	2015	2016	2017	2018	2019
Direct Emissions (Tonnes of CO ₂ e)	619.08	628.22	601.86	769.69	370.63
Energy Indirect Emissions (Tonnes of CO ₂ e) ^[4]	1,802.93	1,719.53	1,686.67	1,642.88	1,576.60
Other Indirect Emissions (Tonnes of CO ₂ e)	6.72	5.05	13.98	5.04	162.43
Total (Tonnes of CO₂e)	2,428.72	2,352.80	2,302.51	2,417.61	2,109.66
[4] - A territory-wide default emissions factor was used to calculate these emissions.					

Waste Management

In support of the government's advocacy on waste management, ArchSD encourages waste reduction at source and promotes active recycling across our branches and offices. Green housekeeping guidelines are issued to disseminate information about appropriate practices in waste reduction, recycling and handling. For example, the guidelines set out principles for paper consumption and reduction to avoid unnecessary wastage. At the APB centre and QGO, collection facilities are set up for the collection of various recyclables, including but not limited to wastepaper, plastic bottles, used toner cartridges, aluminium cans and used CDs.

Additionally, we formulate annual targets to drive improvement progress, together with close monitoring on the implementation of different waste management programmes.

Our efforts in responsible waste management has also earned us a 'Class of Excellence' Wastewi\$e Certificate for consecutive years under the HKGOC Scheme.



'Class of Excellence' Wastewi\$e Certificate

Water Management

ArchSD is committed to conserving water resources by efficient water usage and deploying different water saving devices. The installation of sensor taps and dual flush cisterns have helped avoid excessive water consumption in workplace. Our potable water and flushing water consumption is closely tracked while maintenance work is regularly arranged to ensure proper functioning of the water system.

In addition, our general circular entitled 'Measures of Green Housekeeping' which outlines good practices is circulated to raise our staff's awareness of water conservation.

Indoor Air Quality Management

Regarding indoor air quality (IAQ) as one of the material conditions of a pleasant and healthy working environment, we adhere to good management practices suggested in the guidelines published by the EPD. To play a key role in promoting green and comfortable workplace, we have supported the EPD's voluntary IAQ Certificate Scheme to pursue a good performance in IAQ. The IAQ performance is assessed by accredited bodies regularly. During the reporting year, both APB Centre and QGO were again awarded 'Basic Level' IAQwi\$e Certificates.



The APB Centre and QGO both received the 'Basic Level' IAQwi\$e Certificates

Cultivating Environmental Awareness

ArchSD does not limit our efforts in resource efficiency improvement and pollution prevention, but also nurtures environmental awareness across our workplace and invites our staff to join the department's long-term environmental sustainability journey. We wish to infuse a green culture into our staff's working style and thereby to shape their roles and responsibilities. To this end, we constantly disseminate environmental messages and reminders of good practices via the intranet, emails and other communication channels to them.

We organise activities and training sessions in relation with different environmental initiatives, global issues and trends for our staff and encourage their proactive participation in events held by external organisations. During the year, our staff took part in over 43 events. In addition, a designated team of 71 Green Wardens has been established to facilitate the spread of green messages and provide assistance in implementing ArchSD's green programmes and activities. We also support our staff to gain professional qualifications in diverse environmental domains, for instance, a group of our staff members maintain the BEAM Pro green building related qualifications. With the considerable amount of resources and time we devoted, we can expect a raising environmental awareness and knowledge at all levels within ArchSD.