

RESOURCES UTILISATION AND CONSERVATION

- Sustainable Building Design
- Greening and Landscaping
- In-house Green Management



SUSTAINABLE BUILDING DESIGN

In Hong Kong, buildings account for over 90% and 60% of the citywide electricity consumption and carbon emissions respectively. Over the years, we are fully committed to adopting innovative sustainable and smart building design to enhance the efficient use of energy, material and land resources.

Passive Design Approach

Passive design approach uses building architecture to minimise energy consumption and improve thermal comfort. Suitable measures in planning, disposition, orientation, building form and material selection are adopted to optimise interaction with the local microclimate. Our considerations aspects include:



Mitigating heat island effect or elevated temperature



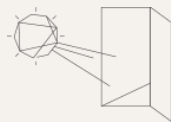
Natural ventilation



Air ventilation around buildings



Passive cooling



Daylighting



Reducing heat gain through building envelope

Active Design Approach

Active design approach uses electrical and mechanical systems to create and maintain comfortable conditions. These installations will facilitate energy efficiency, conservation of water, and improve indoor environmental quality. Our considerations aspects include:



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



Lighting systems



Renewable energy technologies

Selection of Construction Methods and Materials

The selection of sustainable construction methods and materials is another important aspect of sustainable buildings. Common practices include prefabrication, pollution control during construction and the application of reduce, reuse and recycle (3R) principles to manage construction and demolition waste. In terms of sustainable materials, recycled materials and timber from well-managed sources are widely adopted in ArchSD's new building projects.

Social Considerations

The accessibility and quality of public spaces is highly valued in Hong Kong as a cosmopolitan city. We strive to incorporate social considerations in many of our buildings by enabling group activities and communication of community members, in order to create a harmonious atmosphere within the city.

CASE STUDY

Hong Kong Children's Hospital



- Automatic demand control of chilled water circulation system
- Automatic demand control of fresh air supply with carbon dioxide sensors
- Heat wheel for heat energy reclaim of exhaust air
- Heat pump for hot water / space heating / dehumidification
- Solar hot water and photovoltaic panels on roof top
- Rainwater and condensate water recycling systems
- Over 40% of greenery coverage on ground floor, terraces and vertical greening on fences to reduce the heat island effect and improve air quality
- Maximisation of building perimeter and provision of atrium to maximise daylight penetration
- Vertical shading on the building façade to reduce glare and heat to achieve substantial energy savings and thermal comfort.



Hong Kong Children's Hospital

Hong Kong Children's Hospital (HKCH) is going to be the first public children hospital in Hong Kong, specialising in tertiary services and quality care for complex and rare pediatric cases. The project was completed in September 2017 in Kai Tak Development Area. HKCH consists of two 11-storey towers and a single-storey basement with three bridge linkages connecting both towers in the middle. The building provides a total floor space of around 168,000 square metres with a capacity of total 468 beds for in-patient, day-patient services, as well as research and training facilities.

CASE STUDY

Hong Kong East Community Green Station, Sham Shui Po Community Green Station and Tuen Mun Community Green Station



- Adoption of large overhanging roof and vertical greening to reduce solar heat gain thus reduce energy consumption significantly
- Implementation of various greening features such as green wall and courtyard garden
- Application of low-E glazing on windows to use natural daylight yet minimise heat gain to increase energy efficiency
- The flyover above HKECGS contributes to the passive cooling of the building.

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MORE DETAILS



Hong Kong East Community Green Station, Sham Shui Po Community Green Station and Tuen Mun Community Green Station

Putting green living into practice as well as style, Community Green Stations are built to enhance environmental education and provide recyclables collection service in the local community, with a view to promote green living and encourage more public participation in waste reduction and waste recovery. They were built on underutilised areas and with sustainable materials such as used modular containers and recycled bamboo rods salvaged from construction scaffolding.

During the year, the Hong Kong East Community Green Station (HKECGS) was conferred an International Architecture Awards 2017 as well as a Gold Award from the HKIA Cross Strait Architectural Design Awards 2017. HKECGS creates a connection between the surrounding communities and provides an enjoyable environment to the public.

CASE STUDY

Redevelopment of Tai Lam Centre for Women



- Variable refrigerant volume (VRV) air-conditioning system
- T5 energy efficiency fluorescent tubes with electronic ballast and lighting control by occupancy sensors
- Light-emitting diode (LED) type exit signs
- Heat pump for domestic hot water
- Automatic on/off switching of lighting and ventilation fan inside the lift
- Renewable energy systems such as a solar hot water system and a photovoltaic system
- Greening features on rooftops
- Rainwater recycling system for landscape irrigation.

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MORE DETAILS



Redevelopment of Tai Lam Centre for Women

Tai Lam Centre for Women (TLCW) is the only maximum security institute that holds adult female prisoners. There was a need to redevelop TLCW to alleviate its problem of overcrowding and enhance its facilities. In view of this, the redevelopment of TLCW had been commenced in 2012 and the project was completed in November 2016.

The TLCW had undergone two phases of redevelopment. The first phase involved the construction of a new complex block to house a hospital unit with 60 beds for general patients in the institution, a rehabilitation unit, a Category A prisoner unit including 44 cells, and other supporting facilities. The second phase involved the demolition of the existing hospital block and a dormitory block to make way for construction of a new block providing 240 penal places for remands, as well as constructing a new multi-purpose block.