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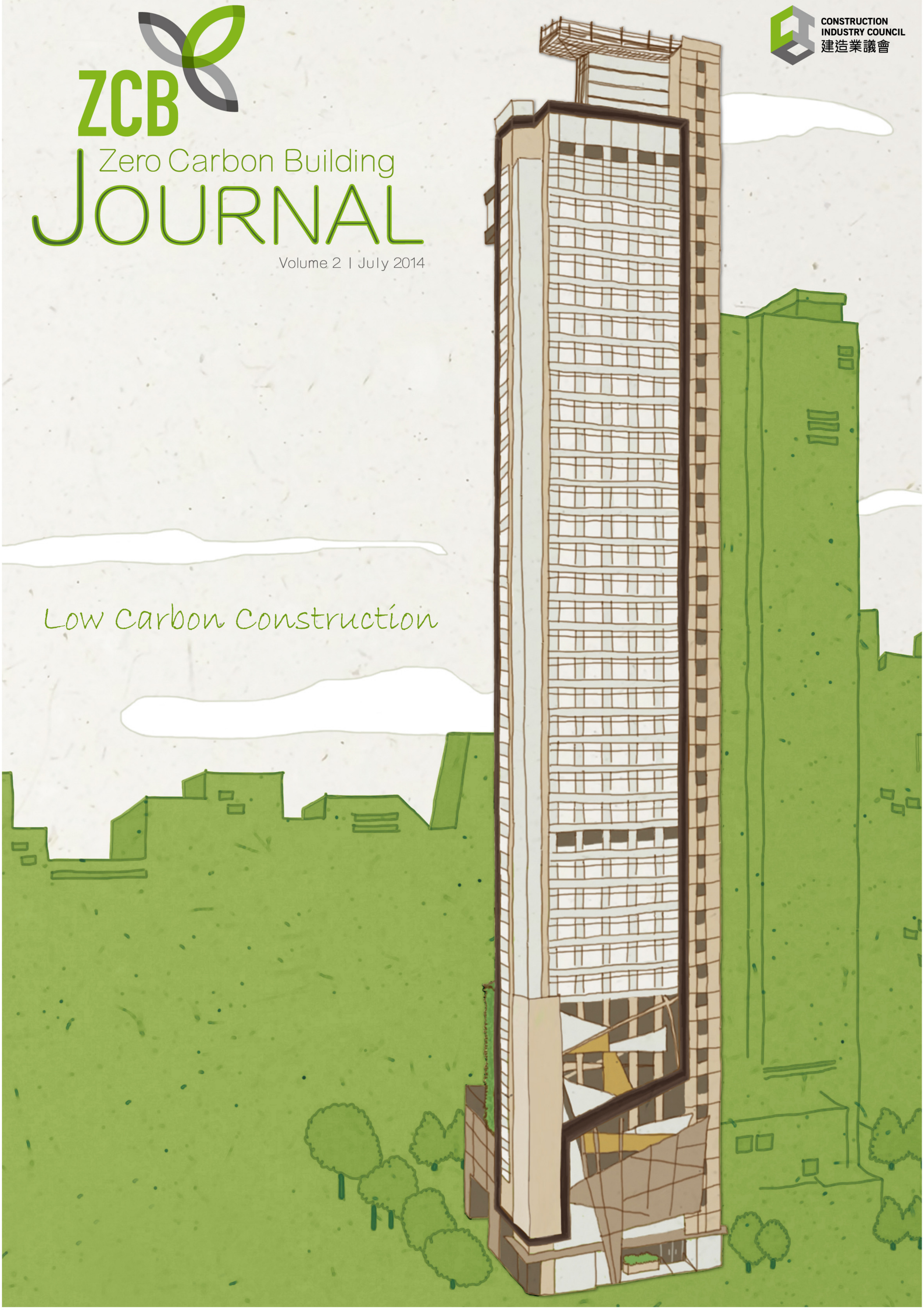

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Holiday Inn Express Hong Kong SoHo: A Hotel With Multiple Green Awards, Triple Platinum and Three Stars

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Holiday Inn Express Hong Kong SoHo is a site-specific, 36-storey, 274-room business hotel, combining green design practices, construction, and operation to create a functional sustainable built environment. As the hotel is located on a confined site; advanced planning was necessary. Building Information Modelling (BIM) software was used to enhance construction logistics. For quality control, over 50% of building components for hotel floors were prefabricated in regional factories. A full scale mock-up was created to improve design and constructability. With a tight construction schedule, a 4-day cycle was achieved with a effective design planning programme, construction technology, mock-ups and careful selection of equipment and materials. A perfect safety record from the Hong Kong Labour Department was also achieved.

Efficient building services engineering design and commissioning managed to save energy, prolong life-cycle, and reduce maintenance costs and operational manpower. Rainwater recycling and utilization of solar energy were deployed. Eco-friendly innovations such as Peltier headboards, permanent magnet fan coil units and energy optimization solution for the centralized air-conditioning system increase the comfort level of guests while reducing energy consumption. A PowerBox™ system was fitted for comprehensive energy data monitoring and management to enable optimum performance of the hotel. Since the grand opening at the end of November 2012, the hotel's annual energy consumption has been recorded at 209kWh/m². This is about 50% lower than the energy consumption benchmark for hotels set by EMSD in 2007.

The Holiday Inn Express Hong Kong SoHo is the first high-rise building in the world that achieved four platinum or equivalent ratings in green building assessments: BEAM Plus by the Hong Kong Green Building Council (HKGBC), Three-Star by China Green Building Council, LEED by the US Green Building Council, as well as Green Mark by the Building & Construction Authority in Singapore. Additional merits include: Merit in Quality Building Award 2014; 2013 HICAP Sustainable Hotel Awards – Sustainable Project Design; Merit in Green Building Awards 2012 awarded by HKGBC; and Distinction in Intelligent Hotel Building 2012 awarded by Asian Institute of Intelligent Buildings.

Keywords: green building, green hotel, energy optimization solution, iFCU™, PowerBox™, Starfon™

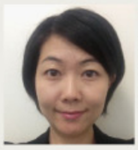
Ir Conrad Wong has over 25 years of construction project management experience. He is the Vice Chairman of Yau Lee Holdings Limited, the Managing Director of Yau Lee Construction Company Limited and Yau Lee Wah Concrete Precast Products Company Ltd., the Vice Chairman of REC Engineering Company Limited as well as the Chief Executive Officer of VHSoft Technologies Company Limited.

Ir Wong is active in public and community services. He has been appointed as the Chairman of the Hong Kong Green Building Council, the Chairman of Occupational Health and Safety Council, the Deputy Chairman of Vocational Training Council, a Member of the Antiquities Advisory Board, a Member of MPF Industry Schemes Committee as well as the Director of the World Green Building Council. In the past, Conrad served as the President of the Hong Kong Construction Association, the President of the International Federation of Asia and West Pacific Contractors' Associations, the Chairman of Pneumoconiosis Compensation Fund Board and Member of the Construction Industry Council.

Antonio Chan is currently the Executive Director of REC Engineering Group and is responsible for operations in the Hong Kong region composed of REC Engineering Co. Ltd., REC Engineering Contracting Co. Ltd., REC M&E Engineering (Shanghai) Co. Ltd., REC Engineering (Singapore) Pte. Ltd., Tin Sing Chemical Engineers Ltd., and REC Green Technologies Co. Ltd.

Antonio has been in the industry for more than 30 years and has worked in various professions including as a consultant, contractor and as a developer. He has worked in Hong Kong, China Mainland as well as the United Kingdom.

In Holiday Inn Express Hong Kong SoHo, Antonio led REC who was responsible for the MEP Design and Build and also RGT offering green technology solutions to facilitate the energy efficient and sustainable development of the project.



Carmen Wong is currently the General Manager of REC Green Technologies Co., Ltd. and is responsible for operation of REC Green Technologies Co. Ltd. Carmen has been working at Yau Lee Holdings for more than 15 years in research and development in building projects. R&D green technology products have been successfully applied to Holiday Inn Express Hong Kong SoHo. The most successful of these is the iFCU™ Retrofit Kit creating a new energy efficient fan coil unit.

K.W. Wong is currently a Senior Engineer at REC Green Technologies Co. Ltd. He has been involved in green building projects and energy efficiency projects for several years. He is experienced in China Green Building Label (3-Star) and was responsible for the application of 3-Star for Holiday Inn Express Hong Kong SoHo.

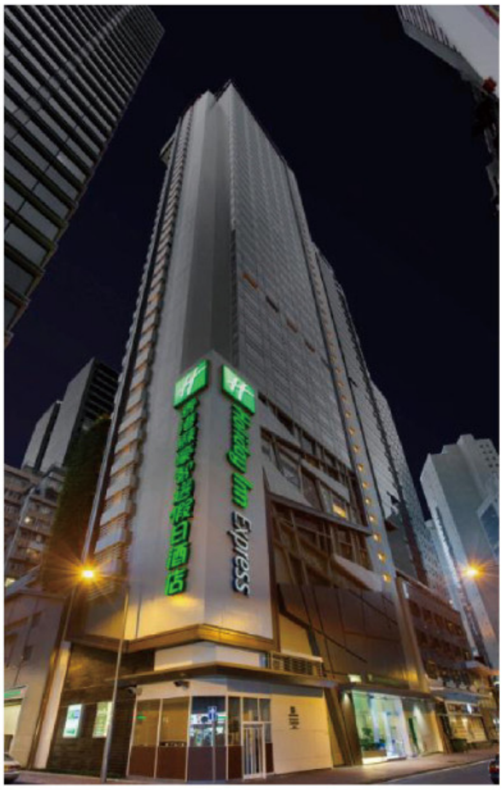


Figure 1 Holiday Inn Express Hong Kong (SoHo)

Introduction

Since 2005, Yau Lee Holdings Limited has a vision of "Becoming a Green Integrated Corporation". With previous experience in hotel building, Yau Lee decided to design and build Holiday Inn Express Hong Kong SoHo, its second hotel development. From the outset, the aim was to design, construct and operate the greenest high rise building in the world. Therefore, green building assessment tools and criteria were studied and incorporated in the building design.

Table 1 shows the scopes of some reputable green building assessment tools. It shows that the assessment criteria of site, energy, water, material and indoor environment are common to all of the assessment tools. The following sections of the paper will describe the hotel building according to this set of criteria.

Table 1 Scope of various green building assessments

Green Building Assessment	HK BEAM Plus	China 3-Star Green Building Label	US LEED	Singapore Green Mark
Scope of Site	Site Aspects (SA)	Land Saving	Sustainable Site	Environmental Protection
Scope of Energy	Energy Use (EU)	Energy Saving	Energy and Atmosphere	Energy Efficiency
Scope of Water	Water Use (WU)	Water Saving	Water Efficiency	Water Efficiency
Scope of Material	Material Aspects (MA)	Material Saving	Material and Resources	(also included in Environmental Protection)
Scope of Indoor Environment	Indoor Environmental Quality (IEQ)	Indoor Environmental Quality	Indoor Environment Quality	Indoor Environmental Quality
Other Scope	Innovations and Additions (IA)	Operation and Management	Innovation and Design Process	Other Green Features and Innovation

Site

Building Envelope

According to the Energy Efficiency Office (2013), space conditioning accounted for 30.5% of the total electricity consumption in Hong Kong in 2011, as shown in Figure 2. Good passive design of the building envelope can reduce the energy consumption from air-conditioning systems in summer, which is a major portion of annual energy consumption. Figure 4 and Figure 5 show the building orientation and the materials of the building envelope respectively. The eastern facade is connected with an adjacent building. The western facade is insulated with precast walls and an open staircase. The northern and southern facades are insulated with low-emissivity double glazed curtain walls. Insulated façades ensure the heat gain/loss through the building envelope is minimized.

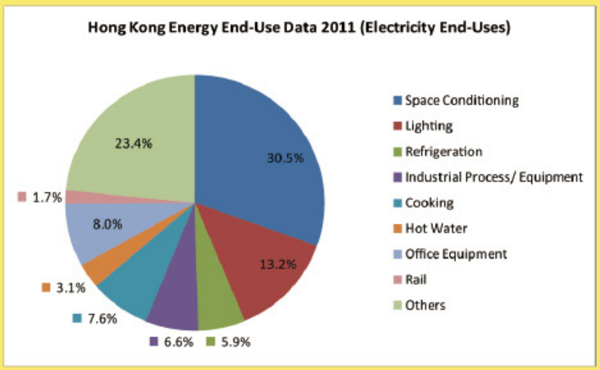


Figure 2 The end usage of electricity in Hong Kong in 2011

Figure 3 Holiday Inn Express Hong Kong SoHo

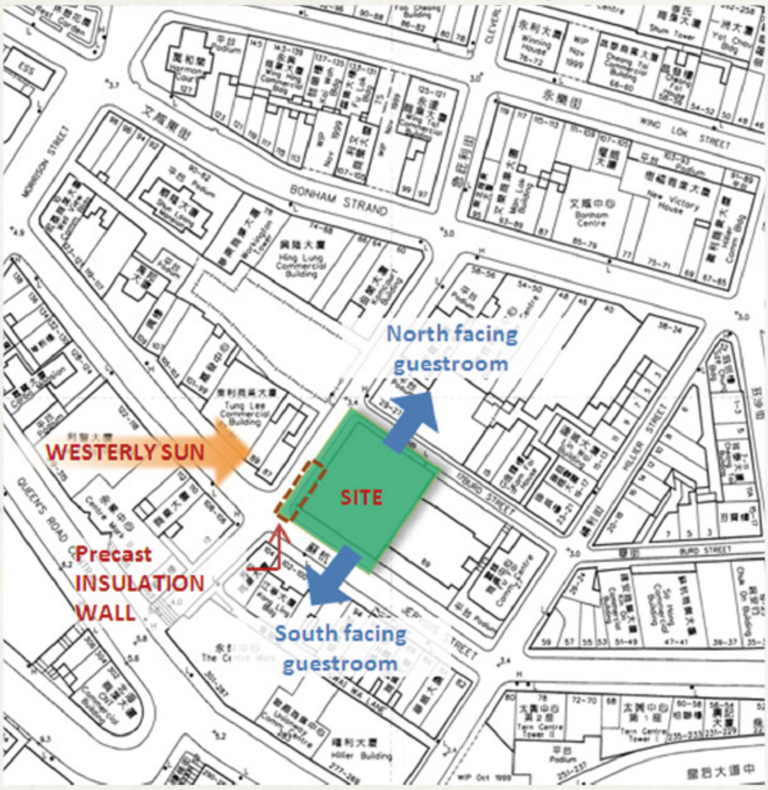


Figure 4 Building Orientation

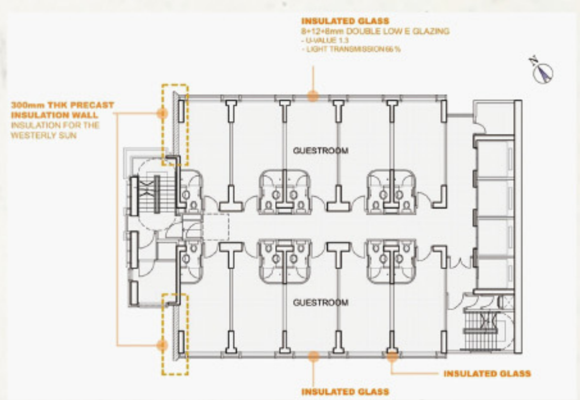


Figure 5 Building envelope materials

Greening

The greening criteria is included in all four green building assessments. For example, 2 credits are given under the HK BEAM Plus assessment for providing appropriate planting on site equivalent to at least 40% of the site area (HKGBC/BSL 2012), 1 credit is awarded under the 3-Star Green Building Label (Hong Kong version) for providing appropriate planting on site equivalent to at least 30% of the site area (China Green Building Council, 2010). Therefore, greening was considered in the early planning stage and a landscape master plan was drafted and discussed in the design stage. The area of vegetation was carefully considered, taking into consideration the variety and quantity of planting on site.

Greening was introduced at different levels of the building. The building incorporated 47.5% greenery in total, including a signature vertical green wall and a green rooftop. The lawns introduced on the 39/F, R/F and UR/F can significantly reduce the surface temperature in summer. Moreover, it can also reduce roof runoff. The lawn on R/F not only acts as a buffer to screen the chillers and cooling towers but also provides a comfortable open space for users. The vertical green wall, planters and lawn on 2/F enhance the quality of the environment in the restaurant area and the outdoor environment, providing an "oasis in the city". They can also improve the microclimate, through absorbing heat and reducing the hard surface temperature.

The planted species, as shown in Table 2, have adapted to the local climate. Hong Kong Herbarium (2003) suggests that they are common in Hong Kong. They are resistant to drought, require limited fertilization and require little maintenance.

Table 2 Selected plant species in the building

No	Scientific Name	Common Name	Type	Planting Location
1	Nephrolepis auriculata (L.) Trimem	Tuberous Sword Fern	Herb	Vertical Green Wall (see Figure 6)
2	Asparagus densiflorus (Kunth) Jessop cv. Sprengeri	Springers Asparagus	Subshrub	Vertical Green Wall and Green Roof
3	Axonopus compressus (Sw.) P. Beauv.	Carpet Grass	Perennial Procumbent Herb	Green Roof (see Figure 7)
4	Melia azedarach L.	China-berry; Persian Lilac	Tree	6/F Podium (see Figure 8)

Figure 6
The signature vertical green wall at 2/F

Figure 7
Part of the green area on the roof

Figure 8
The tree planted on 6/F

Energy

Eco-friendly Hotel and its High Efficiency Building Services Systems

Chiller with High Coefficient of Performance

Two high efficiency water-cooled chillers are used in the hotel building. According to EMSD (2012), the coefficient of performance (COP) for screw type water-cooled chillers with cooling capacity from 500kW–1,000kW should not be less than 4.7. The cooling capacity of the hotel chiller is 684.2kW and the COP is 5.48. It has twin compressors and a primary pump, and saves a total of 373,846kWh/year, which is much higher than the statutory requirement. A comparison is shown in Table 3.

Figure 9 Water cooled variable speed chiller with twin compressors

Table 3 A comparison between the hotel chiller and the requirements in the Building Energy Code 2012

	Building Energy Code 2012 (BEC)		Chiller in the Hotel Building
Mode of Cooling	Water-cooled	Water-cooled	Water-cooled
Type of Compressor	Screw type	Screw type	Screw type
Cooling Capacity [kW]	50 – 1,000	> 1,000	684.2
Power Consumption [kW]	N/A	N/A	124.8
COP (cooling)	4.7	5.2	5.48

Energy Optimization Solution for the Centralized Air-Conditioning System

An Energy Optimization Solution (EOS) has been designed and implemented to optimize the energy consumption for the centralized air-conditioning system. It responds to the real time system load and the external weather conditions to continually monitor and control different system components. The chiller system has achieved a 27% energy reduction. There are various control strategies in the energy optimization solution, and the corresponding energy savings are shown in Table 4. The energy consumption of the centralized air-conditioning system is reduced by 172,700 kWh/annum.

Figure 10 Energy Optimization Solution (EOS)

Figure 11 The chiller is controlled by EOS coutrol algorithms

Table 4 Energy saving of the energy optimization solution for the building's centralized air-conditioning system

No	Control Strategies	Energy Saving [kWh/annum]
1	Cooling tower fan speed control and sequence control	125,000
2	Chiller sequence control	4,700
3	Chilled water pump sequence and speed control	29,000
4	Chilled water temperature optimization	8,000
5	Primary air unit (PAU) fan speed control	6,000
	Sub-total =	172,700

Intelligent Fan Coil Unit (iFCU™)

The building's centralized air-conditioning system includes a patented permanent magnet fan coil unit—Intelligent Fan Coil Unit (iFCU™). Unlike the conventional fan coil unit (CFCU), which makes use of electrical energy to generate a magnetic field for driving the motors, the iFCU™ makes use of a permanent magnet for driving the motors, to reduce power loss and enhance efficiency. The energy-free magnetic field from the permanent magnet results in energy savings. In addition, the absence of carbon brushes in the iFCU™ can reduce both friction and heat generation resulting from axial rotation of the motor. A comparison of FCU, with 600cfm, between the energy consumption of CFCU and that of iFCU™ is shown in Table 5. The energy consumption of iFCU™ is 40%–80% lower.

Table 6 shows the estimation of average energy saving from using iFCU™ over CFCU. With 274 rooms in the hotel and 274 identical FCUs operating continuously over 24 hours, it is estimated that adopting iFCU™ over CFCU could save 155,440kWh per annum.

Figure 12 Intelligent Fan Coil Unit (iFCU™)

Table 5 Comparison between the energy consumption of CFCU and iFCU™

Fan Speed	CFCU Input Power [W]	iFCU™ Input Power [W]	Energy Saving per FCU [W]	Percentage of Energy Saving [%]
High	112	67	45	40
Mid	98	33	65	66
Low	85	17	68	80

Note: The above data refers to FCU with 600cfm

Table 6 Average energy saving using iFCU™

Fan Speed	Energy Saving per FCU [W]	Daily Operating Duration [hour/day]	Annually Operating Duration [day/annum]	Energy Saving [kWh/annum]
High	45	3	365	49.3
Mid	65	3	365	71.2
Low	68	18	365	446.8
			Energy Saving per iFCU™ =	567.3
			Energy Saving for 274 no. iFCU™ =	155,440.2

Water to Water Heat Pump

Heat pumps are systems that can extract thermal energy from a lower temperature medium, and force that energy to a higher temperature medium. Therefore, heat pumps can produce chilling and heating simultaneously. The Energy Efficiency Office (2010) states that most heat pumps produce more than 1kW of chilling work on one medium plus more than 1kW of heating work on another medium, when 1kW of energy is consumed. With such high energy efficiency, heat pumps can enhance energy saving.

With the need for hot water for showers and the need for chilled water for the centralized air-conditioning system, four heat pumps were adopted for the building. Compared to conventional water boilers with 80% average efficiency where 0.8kW of heating work is done on water when 1kW is consumed by the boiler, the heat pumps employed in the building have a coefficient of performance (COP) equal to 3. This means that 3kW of chilling work is done on chilled water plus 3kW of heating work is done on hot water when 1kW is consumed by the heat pump. The estimated energy saving through using heat pumps for the hot water system is 667,680.2kWh/annum as shown in Table 7.

Figure 13 Heat pump

The chilling work done by the heat pumps on the chilled water is not included in Table 7, as it achieves energy saving for the air-conditioning system, specifically the chiller. By rough estimation, the energy saving of the chiller due to the chilled water produced by the heat pumps is 84,025kWh/annum.

Table 7 Energy saving through using heat pumps for hot water systems

Hot Water System	Boilers	Heat Pumps
Energy Consumption of Boilers/ Heat Pumps [kWh/annum]	886,987.5	212,699.7
Energy Consumption of Pump Systems [kWh/annum]	2,643.4	9,251.0
Sub-total [kWh/annum]	889,630.9	221,950.7
	Energy Saving [kWh/annum] =	667,680.3 (75.1%)

PowerBox™ – On-line energy management, monitoring and analysis software

An energy monitoring system "PowerBox™" was installed to monitor the energy consumption of the hotel building, as shown in Figure 14. The recorded data helps the implementation of energy optimization solutions (EOS) for the building. It also helps to quantify the energy saving for each of the EOS.

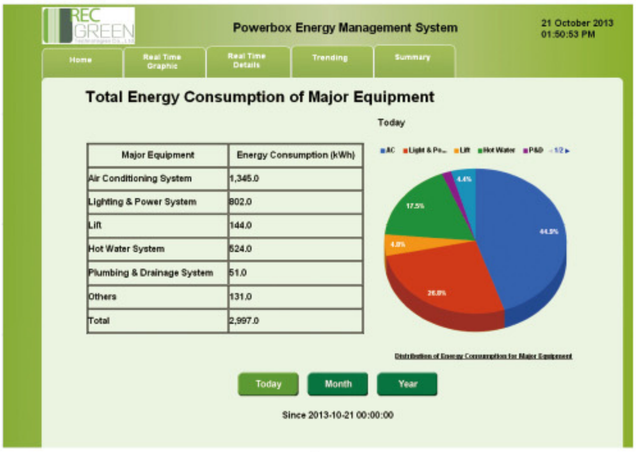


Figure 14 PowerBox™, On-line energy management, management, mouitoring and analysis software

Lift Counterweight Optimization

Figure 15 Adjustable lift counterweights are installed in the lift systems

Lift counterweights are normally designed and set at a constant value, at a certain percentage of the handling capacity of the lift car. This practice applies to almost all buildings. However, the passenger loading profile varies from building to building. Lam *et al.* (2006) suggest that the optimal counterweights in residential buildings is 35% of the lift car handling capacity—this value results in the lift system consuming the least energy.

The building's lift system utilizes adjustable lift counterweight systems. By analysing PowerBox™ data and adjusting the lift counterweights, the lift system's energy use is reduced by 15,930kWh/annum.

Use of Renewable Energy

Solar Hot Water System

There are 24 solar hot water panels installed on the building rooftop, as shown in Figure 16. The solar energy is used to directly heat potable water instead of generating electricity, as the latter process would involve energy loss during the conversion to electricity. The energy harvested from the solar hot water system is estimated at 70,570kWh/annum.

Figure 16 Solar hot water panels and solar buffer tanks

Water

Recycling of Rainwater and Condensate Water

Two recycle water tanks, each with a 5,000L capacity, as shown in Figure 17, have been installed inside the building to store rainwater and the condensate water from the air-conditioning system. The rainwater and the condensate water are recycled and used to irrigate the building's greenery. The amount of collected recycled water is greater than the total demand of the greenery. Therefore, irrigation of greenery relies only on recycled water.

Figure 17 Recycle water tank and a rainwater inlet on the green roof

Low Flow Sanitary Fittings

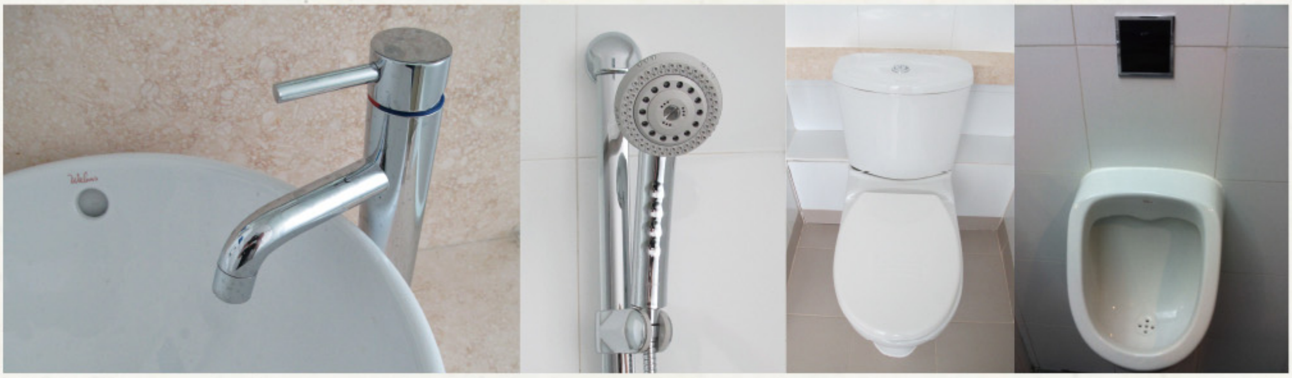


Figure 18 Low flow sanitary fittings

Low flow sanitary fittings as shown in Figure 18 are installed in the building. The faucets and shower heads use potable water. Table 8 shows their designed water flow rate. Aerators are installed in all the faucets and shower heads to achieve the design values. When water passes through the aerators, air bubbles are injected into the water stream, creating the same volume flow with less water. As a result, the water flow rates of the faucets and the shower heads are reduced by 51.4% and 47.5% respectively.

Using seawater instead of potable water for flushing is a common practice in Hong Kong. This saves a substantial amount of potable water. Seawater is used to flush the hotel's water closets and urinals. Low flow urinals and dual flush water closets, provide low flush and high flush options. These low flow sanitary fittings do not reduce potable water consumption but will reduce the loading on the building drainage system and the municipal drainage system.

Table 8 Design flow rates of sanitary fittings

Sanitary Fittings	Baseline Water Flow Rate [L/s]	Design Water Flow Rate [L/s]	Reduction [%]
Faucets	0.138	0.067	51.4
Shower Heads	0.158	0.083	47.5
Water Closets	7.5L per flush	*6L per flush	20
Urinals	4.5L per flush	3.78L per flush	16

*Dual flush (3L/6L) water closets are employed in the hotel building, and the high flush volume is used for comparison

Construction Process and Building Technologies

Simulation of Wind Loading

A wind tunnel modelling study of the hotel was conducted at the CLP Power Wing/Wave Tunnel Facility in HKUST. This is shown in Figure 19. A 1:400 scale model of the hotel was built for the simulation of the wind loads affecting the site. With the information obtained, we were able to fine tune the use of rebar and concrete. Hence the building structure could be designed in the most efficient way. The use of rebar was reduced by 45 tonnes and grade 40 concrete was used instead of grade 60.

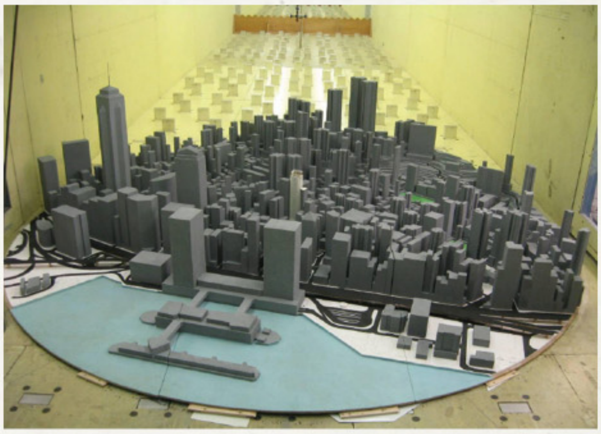


Figure 19 Wind tunnel modelling study

Building Information Modelling

The construction schedule for the hotel was tight. A 4-day cycle was targeted. Using BIM software for underground utilities outside the building and typical floor construction, three-dimensional and real-time data helped establish a clear and detailed construction schedule. This enhanced productivity in both the design and construction stages. Early planning was made possible with reduction of on-site coordination time. To further save time, a combined formwork system was adopted for 50% of building elements, such as the staircase and end wall façade, which were prefabricated off-site. A 4-day floor cycle was successfully achieved.

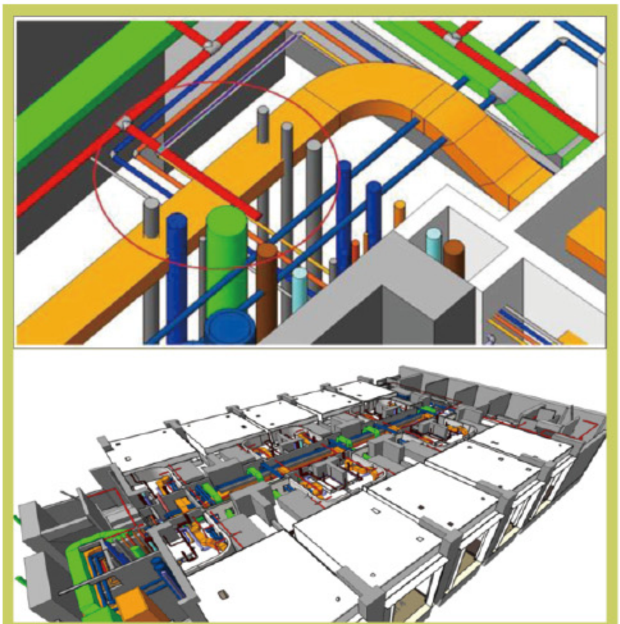


Figure 20 BIM was used for construction

Standardized Design and Prefabricated Construction

With the time constraints and the confined site area, approximately 50% of the building elements were standardized and prefabricated prior to site delivery. Materials were used more efficiently and on-site wastage was greatly reduced. Doing so also improved construction precision and quality while reducing wastage of materials. The standardized building elements included the tower's external walls, staircases (Figure 21), and guest room elements (Figure 22).

Figure 21 A precast staircase

Figure 22 Standardized curtain walls of guest rooms

Materials

Choice of Materials

The materials used at the site were chosen after careful consideration. The goal was to be green and efficient at the same time. Materials used included:

- Low Volatile Organic Compounds (VOC) products;
- Double-coated Low-E glass;
- Forest Stewardship Councils (FSC) certified timber: reused timber or timber from a sustainable forest was used in the hotel's formwork, falsework, furniture, and doors;
- Starfon™- to lower the heat island effect while preserving natural resources with resistance to termites, other insects, water and stains.

Recycled Material Use: Starfon™

Acquired from the US, the patented Starfon™ was used for the first time in the construction of the hotel lobby and the building facade. Starfon™ is an eco-friendly building material. It adopts an innovative and patented extruded cementitious composite technology with selection of materials such as cementitious binders, recycled glass or other inorganic fillers. During the curing process of the substrate, additional input of heat is not required. Various combinations of UV curable inks and coatings can be added to the product. Compared with other coating methods, such as aqueous coatings and varnish, UV coating is a clean technology that eliminates the emissions of VOC and reduce energy consumption.

Starfon™ products range from marble, printed image, wood, monotone, fiber optics and metals. In accordance with BS EN 12467:2004, ASTM C1185-08 and all related coating tests, the products possess good mechanical properties, good durability and are resistant to fire, chemical and dangerous substances.

The uses of Starfon™ in the building are shown in Figure 23.

Figure 23 Use of Starfon™

Indoor Environment

Daylighting

Daylight can enhance indoor environments. Large glazed windows and doors were adopted in the building design to facilitate daylight penetration. Corridors of the guest floors are naturally lit therefore daytime artificial lighting energy is conserved. Low emissivity (low-E) double-coated glass is used in the insulated glass units (IGU) of the curtain walls, to permit visible light while the heat flows in and out of the building are efficiently controlled. Details of the IGU are shown in Table 9. The estimated energy saving through using IGU with low-E double-coating in the building envelope is 3% while views from guestrooms are maintained.

Figure 24 Large glazed windows are used in the corridors

Figure 25 Large glazed windows are used in the Multi-function Room

Table 9 Comparison between IGU & IGU with low-E double-coating

Glass Type	Lighting Transmission	Shading Coefficient	U-Value [W/m²K]
IGU with double low-E coating	66%	0.42	1.3
IGU	78%	0.79	2.7

Demand Control Fresh Air Supply and Motorized Curtain System Interlinked with Keycard Control

The demand fresh air control and motorized curtain system are interlinked with keycards inside guestrooms. Whenever a guest leaves the room, the curtains are automatically drawn together to reduce the fresh air and solar heat gain during unoccupied periods as shown in Figure 26.

The motorized curtains are also programmed to be drawn together at 11pm to prevent light pollution however when a guest steps inside the room, the curtains are opened automatically to reveal a lovely view.

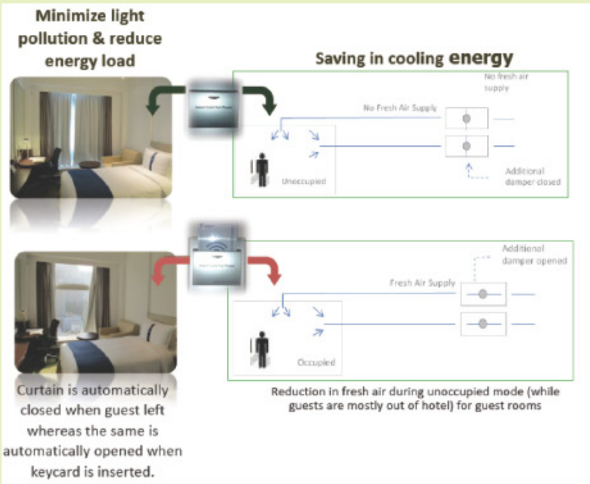


Figure 26 Fresh air supply and motorized curtain system interlinked with keycard

Access for Disabled Persons

Six hotel guestrooms were designed according to the Design Manual – Barrier Free Access 2008. The guestroom layouts, including the bathrooms and the shower compartments, meet the recommended design requirements to enable a wheelchair user to move easily without assistance. Moreover, the guestroom furniture is accessible and used in a convenient manner. Figure 27 and Figure 28 show the layout of a guestroom with barrier free access.

Figure 27 Guestroom with barrier free access

Figure 28 Wheelchair users can easily move from the living area to the bathroom area without assistance

Other Scope

Innovative Features

Peltier Headboards

Conventional air-conditioning devices cool down the whole guestroom. Guests prefer to be covered by a thick blanket to keep warm whilst the room temperature setting is kept at a relatively low value. This is a tremendous waste of energy. By using Peltier headboards, a guestroom's temperature setting can be raised from the normal 23°C–27°C, thus saving considerable energy from the air-conditioning system throughout the night. A photo of Peltier Headboards is shown in Figure 29.

Solar Hot Water Cladding (SHWC)

Yau Lee has developed a product named "Solar Hot Water Cladding" as shown in Figure 30. It is aluminium cladding with water tubing installed in the back, connected to a water re-circulating system. Potable water flowing through the water tubing is heated and then cools down the building envelopes.

The building adopted an integrated central hot water supply system which consists of the SHWC, the solar hot water system and the heat pumps. The SHWC together with the solar hot water system can save energy by preheating the water before it passes to the heat pumps.

Pattern Recognition Energy Saving Solution (PRESS)

A Pattern Recognition Energy Saving Solution, featuring pattern recognition software and electronic interfacing devices, is connected to the existing CCTV cameras. It turns off unnecessary lighting and air-conditioning in corridors when no one is in the area.

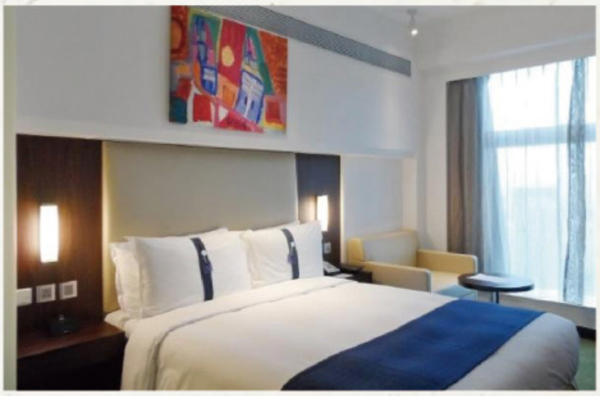


Figure 29 Peltier Headboards

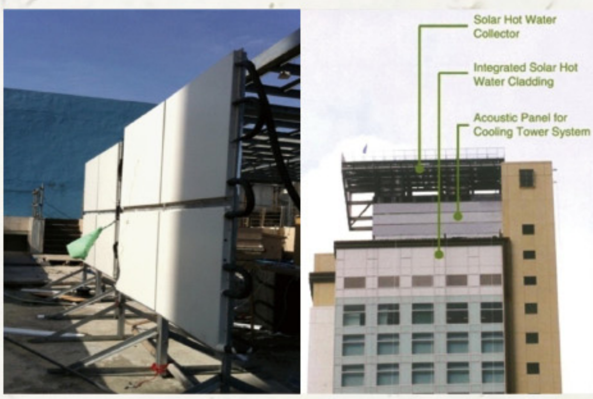


Figure 30 Solar hot water cladding

Figure 31 Concept of Pattern Recognition Energy Saving Solution (PRESS)

Operation and Maintenance Features and Cost Effectiveness

The cost for maintenance of the above features was HKD$0.26M during the first year of operations. Yet, these features cut energy costs by around HKD$1.9M, hence they are cost effective.

Corporate Social Responsibility (CSR)

To share our vision of sustainability with the public, green tours for guests and technical visits for industry are organized to promote the hotel's eco-friendly facilities and solutions. As of September 2013, over a hundred technical visits had been conducted for local and overseas government departments, developers, design consultants, hotel operators and stakeholders. Education leaflets are also available at the hotel lobby and in all guestrooms. A green corner has been set up to introduce green features.

Through collaboration with a local charitable NGO—Nesbitt Centre, we established a means of contributing to the cultural side of the community. The centre is dedicated to adults with learning disabilities. An art project was set up to encourage its students to create paintings that were inspired by their trips through the streets of Hong Kong's Sheung Wan district. Copies of the paintings have now become part of the hotel decor, with one in each guestroom.

Figure 32 Technical visit for the industry

Figure 33 Green tours for guests

Figure 34 An art project with a local charitable NGO - Nesbitt Centre

Conclusion

In conclusion, Holiday Inn Express Hong Kong SoHo is a green integrated corporation that has achieved reduced carbon emissions, water conservation, energy optimization and minimal use of natural resources. With a number of innovative ideas on energy optimization solutions and sustainable practices, the hotel is a pioneering attempt to inspire not only Hong Kong, but also Mainland China, and the world. All the green technologies and solutions adopted in the project can be applied in any building. Committed to raising public awareness and to encourage the construction industry to adopt green practices and build in a green way, the developer would like to turn sustainability into a norm, protect the earth, and benefit generations to come by building a quality tomorrow.

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