

Title:	ICC – Rising High for the Future of Hong Kong
Author:	Tony Tang, Architect and Project Director of ICC, Sun Hung Kai Properties Limited
Subjects:	Architectural/Design Building Case Study
Keywords:	Building Management Connectivity Construction Design Process Façade Fire Safety Mixed-Use Passive Design Urban Planning Vertical Transportation
Publication Date:	2016
Original Publication:	Cities to Megacities: Shaping Dense Vertical Urbanism
Paper Type:	1. Book chapter/Part chapter 2. Journal paper 3. <b>Conference proceeding</b> 4. Unpublished conference paper 5. Magazine article 6. Unpublished

# ICC – Rising High for the Future of Hong Kong

## 环球贸易广场——香港未来新高度



**Tony Tang**  
Architect and Project Director of  
ICC | ICC建筑师和项目总监  
Sun Hung Kai Properties Limited  
新鸿基地产发展有限公司  
Bangkok, Thailand  
曼谷, 泰国

Tony Tang graduated from The University of Hong Kong and has since practiced architecture and project management for over 25 years. Mr. Tang has participated in a number of major commercial and composite development projects in Hong Kong, Shanghai, Guangzhou, and Beijing. In 2012, Mr. Tang was involved in the completion of the International Commerce Centre (ICC), part of the Kowloon Station development. Mr. Tang is currently working at Sun Hung Kai Properties as the Deputy Project Director of Harbour Vantage Management Ltd. and Deputy Director of Architectural Design for Sun Hung Kai Architects and Engineers Ltd.

唐先生毕业于香港大学，毕业后的25年里一直从事建筑实践和项目管理。他参与过香港、上海、广州和北京的若干主要商业和综合开发项目。2012年时，他参与了环球贸易广场（ICC）项目的工作，九龙车站的部分开发。唐先生现在在新鸿基集团担任Harbour Vantage Management 有限公司项目副总监以及新鸿基建筑工程有限公司的建筑设计副总监。

### Abstract | 摘要

*Standing at 484 meters, Sun Hung Kai's ICC is the tallest building in Hong Kong and currently the 7th tallest in the world. ICC does not only add to the stock of the tall buildings in Hong Kong, it also helps to transform the once barren West Kowloon district into a new business, cultural and transportation hub of Hong Kong. The building and its associated amenities have been planned and developed over a decade-long period. This has shown a careful master planning and collaborative execution among the developer, architect, engineers and facility managers. This paper details the history, the concept and design of ICC as well as how the continuous devoted efforts in making ICC continues to demonstrate the "building home with heart" philosophy.*

### Keywords: Property Management

高达484米的新鸿基地产的环球贸易广场是香港目前最高的建筑，也是世界上第七高的建筑。环球贸易广场不仅增加了香港高层建筑的存量，也为曾经荒凉的西九龙地区转变成香港新的商贸、文化和交通中心提供了助力。建筑与与它相连的设施在十几年前就开始规划和建设。这表现出开发商、建筑师、工程师和后勤经理之间的精细规划和协同执行。本文将详细介绍环球贸易广场的历史、理念和设计以及为表达ICC“用心建造一个家”的哲学所不断投入的努力。

关键词：物业管理

### Introduction

#### Today, Tomorrow & Beyond

Standing at the southwestern tip of the Kowloon Peninsula, the International Commerce Centre (ICC) is the tallest Icon in Hong Kong. The 484 m tall building, with 118 stories, is a Grade-A office building offering 2.5-million square feet of office space. ICC also has an indoor observation deck that offers all weather 360 degree view of Hong Kong. The tallest portion of the building contains the highest 6-star hotel in Asia – The Ritz-Carlton Hong Kong, which has 312 rooms, all with stunning views of Hong Kong. The development is strategically located next to the forthcoming clusters of museums and exhibition centers in the West Kowloon Cultural District development and the Guangzhou-Shenzhen-Hong Kong Expressed Rail Link. This is a fruitful example of how a supertall building can be integrated with the nearby environment while riding on the success of railway development in Hong Kong.

#### The Design Concept

According to Architect William Patterson, tall buildings must relate the sky and the ground. The design concept behind ICC has fully captured the essence of this philosophy. The building resembles a tree sprouting from the earth towards the sky. The translucent

### 简介

#### 今天、明天及未来

香港环球贸易广场（ICC）矗立在九龙半岛的西南端，是香港最高的地标。这幢484米高、118层的A级写字楼可提供250万平方英尺的办公空间。ICC还设有一处室内观景平台，可在任何天气条件下360度视野俯瞰香港。建筑最高的部分设有亚洲最高的六星级酒店——丽兹·卡尔顿香港酒店，拥有312间客房，所有房间都有可饱览香港盛景。该项目在发展阶段即策略性地选择用地，靠近即将形成博物馆和展览中心群的西九龙文化发展区和广深港高速铁路。这是一个非常成功的案例，它展示了以香港铁路成功发展为基础的超高层建筑如何有效地整合周边环境。

#### 设计理念

据建筑师威廉·派特森（William Patterson）说，高层建筑必须联系起天空与大地。ICC的设计理念就体现了这一设计哲学的精髓。建筑模仿了从大地向天空伸展的大树。建筑屋顶的透明玻璃仿佛花瓣，寓意香港已获得的成就和经济成功。

ICC策略性的选址也与维多利亚港的建筑达成了一种和谐。与香港岛的国际金融中心（IFC）一起，相对而形成了维港门户之势。“维港门户”成为欢迎来自世界各地的旅游者和商人的象征（图1）。



Figure 1. The Harbour Gateway (Source: Sun Hung Kai Properties Limited)  
图1. 维港门户 (来源: 新鸿基地产)

glass feature at the roof of the building represents the petals of a flower, echoing the achievements and economic success of Hong Kong.

ICC is located strategically to create an architectural harmony with buildings across the Victoria Harbour. Together with the International Finance Centre (IFC) on Hong Kong Island, ICC and IFC form a stunning gateway across the Victoria Harbour. The "Harbour Gateway" is also a welcome sign to receive visitors and businesses from all over the world (Figure 1).

### From a Typhoon Shelter to a Sparkling Commercial Hub

ICC is situated on top of the Kowloon Airport Expressed Railway Station. In 1989, the Hong Kong Government resolved to relocate the congested and overly utilized Kai Tak Airport in East Kowloon with the present airport in Chek Lap Kok of Lantau Island. The new airport was envisioned as a modern and well-equipped airport that could bring more conveniences to businesses and international travellers. Lantau Island was a remote island that people used to travel to by ferry only.

The Hong Kong Government overcame this locational barrier by linking up the new airport with the urban district through 10 new core airport infrastructural projects. These projects would connect it with the central business district by rail and by road. The West Kowloon Reclamation Program was one of the core airport projects. This project not only could gentrify the West Kowloon district, it also opened a new leaf for the once barren land, which mainly contained aging residential blocks and a typhoon shelter.

### Extension of the Core Business Center – Asia's Vertical Wall Street

From the typhoon shelter to the present day, ICC plays a key role in extending the existing core financial district from Central to West Kowloon so as to strengthen the position of Hong Kong as one of the leading

financial centers in the world. At present, 90% of the total gross floor area is taken up by international banks and financial institutions; ICC is not just the tallest landmark in Hong Kong, but also a financial power house. It is essentially a vertical Wall Street in Asia.

### Locational Advantage

The geographical location of the ICC is a major key to its success in emerging as Hong Kong's latest financial hub. Situated at the tip of the Kowloon Peninsula, it is three minutes away from the Central Financial District, 10 minutes away from Tsim Sha Tsui (the city's core business area), 20 minutes by a direct train ride to the Hong Kong International Airport, and 30 minutes away from China.

Upon the completion of the Regional Express Link and the West Kowloon (XRL) Terminal by the 3rd quarter of 2018, the ICC's role as Hong Kong's gateway will be strengthened further as a train ride to mainland China will be as short as 14 minutes. With the anticipated continuity of economic growth in China, the location of ICC makes it an ideal regional headquarter for any multinational corporations that have interests in expanding their business in this part of the world, especially China.

### Phase Occupation Strategy

Rome Was Not Built in a Day. ICC was designed and built at a time when Hong Kong's economy was still in a state of doldrums. At that time, when the business sentiment and economic climate were in the down swing, several mitigation measures were taken to counteract the negative economic risk. These included completing and occupying ICC in different phases. The development of ICC was divided into three major phases.

Phased occupation could enable early handover of the completed portion of a massive project like the ICC in order to avoid over-saturating the market with office space. Income could be brought in, therefore minimizing the financial risk. Furthermore, shouldering the mission to tackle a lack of

### 从避风港到闪耀的金融中心

ICC 坐落于九龙机场快轨线车站的上方。1989年,香港政府决定将东九龙拥挤不堪、过度利用的启德机场搬迁至现在位于赤腊角大屿山的新机场位置。新机场致力于成为一处现代化的和设备精良的机场,为商人和国际旅游者提供便利。大屿山从前是一处偏远的岛屿,只能乘渡轮到达。

为克服这个地域性的障碍,香港政府用10项核心基础建设工程联系市区和新机场。这些工程项目以铁路和公路连接机场和中心商业区。西九龙复垦项目是核心机场项目之一。该项目不仅优化了西九龙区域,也为曾经贫瘠的土地打开了新的一页。西九龙区域曾经主要由年代久远的住宅区和避风塘构成。

### 核心商业中心的延伸——亚洲的垂直华尔街

从曾经的避风港到今天,ICC将现有的核心金融区从中环延伸至西九龙,以增强香港作为世界领先的金融中心之一的地位。如今,90%的写字间空间已出租给世界级银行及金融机构。ICC不仅仅是香港最高的地标性建筑,同时也是一个金融综合体。它本质上就是亚洲的垂直华尔街。

### 地域优势

ICC的地理位置是它成功成为香港最新的金融枢纽的关键因素。位于西九龙半岛的一端,它距离中环金融区只需3分钟,距离尖沙咀(城市的核心商务区)只需10分钟,乘直达列车20分钟可达香港国际机场,到达中国大陆也只需30分钟。

2018年第3季度区域快轨线和西九龙站(XRL)建成后,到中国大陆乘火车只需14分钟即可到达,ICC作为香港门户的角色将进一步得到加强。随着中国可预期的持续性经济增长,对旨在扩展东方世界业务尤其是中国业务的跨国公司来说,ICC的位置是其理想的区域总部位置所在。

### 入驻阶段策略

罗马不是一天建成的。ICC设计和建造之时,香港经济仍处于低潮期。那时,商业氛围和经济气候都处于下行区间,政府采





Figure 2. Phased occupation (Source: Sun Hung Kai Properties Limited)  
图2. 入驻阶段 (来源: 新鸿基地产)

office space in Central, this development approach could also ease the tense environment in the commercial office market (Figure 2).

## Space Utilization

ICC was designed as a composite building. The building is utilized not just for office occupants; it also contains a top of the class hotel, restaurants and Hong Kong's first indoor observation deck with a 360 degree view. By putting floors into various uses, the economic return could be stabilized.

### The 98% Occupation Rate

Filling up a supertall tower like ICC could be challenging. With the target to fill up the office space as well as making ICC as a single location for multiple uses, we have separated the building into three main portions: the office tower (levels 10–99), the hotel (levels 102–118), and the observation deck on level 100 and restaurants at level 101. We have recruited several major tenants to take up a large portion of office space to build up confidence for other potential tenants who would later on move into the building to take up the rest of the leased areas. This

strategy is successful, and we are keen to upgrade some of the facilities to enhance the competitiveness and resilience of the building. We see this as a win-win approach. We see ICC as a long term investment, and adding necessary equipment in the building will also enhance the building's value in the long run. At present, we have over 98% occupancy in the office space. The utilization of the other portions is also very good as a result (Figure 3).

### Integration of Life, Work and Play

ICC is oriented off the orthogonal to form a dynamic relationship with its neighbors and to offer the best views as far as possible. Its orientation also helps avoiding a geological fault directly under the tower's footprint. Being iconic and one of the most highly-occupied buildings in the Kowloon Station development, ICC is well integrated with its neighbors. We have created a large glazed atrium called the "Dragon Tail" to connect with the shopping arcade and the Airport Express / Mass Transit Railway station below. A covered walkway in between a central garden and other residential developments is also provided, making ICC a signal point not just for working, but for living, playing and leisure as well. One of the occupants shared with us his experience from London Heathrow to ICC one day during stormy weather. He was covered the whole way, and not being disrupted owed largely to the thoughtful design of the building.

Besides its surroundings, ICC itself is also a single destination for work, leisure and entertainment. Above the office portion of ICC is the sky100 at the height of 393 m above sea level – the only indoor observation deck

取了许多干预性措施以阻止负面的经济风险。这些措施包括分阶段完成ICC的建设和入驻使用。ICC的发展分为三个主要的阶段。

分阶段的入驻能够让ICC这样的大型项目的完工部分尽早移交，以避免写字间市场的过度饱和。其出租收益可将金融风险减至最低。进一步来说，肩负缓解中环区写字间匮乏问题的使命，项目的完工也能减轻商业办公空间的紧张压力（图2）。

## 空间利用

ICC被设计为一座复合型大厦。建筑不仅可以作为写字间使用，同时它的顶部还设有一家六星级酒店、高级餐厅和香港第一座拥有360度视野的室内观景台。将不同的楼层用于不同的用途，可确保经济回报。

### 98%的入驻率

对于类似ICC这样的超高层塔楼来说，空间招租是非常具有挑战性的。为了使写字间空间尽可能地出租并使ICC成为一站式多用途目的地，我们把整幢建筑分为三个主要部分：写字间塔楼（10层–99层）、酒店（102层–118层）、位于100层的观景台和101层的（景观）餐厅。我们首先招募了大型主要商户入驻，以占用写字间的一大部分，以此为今后可能迁移至此并租赁剩余写字间空间的其他潜在租户建立信心。这一策略非常成功，我们也非常希望升级（大厦的）一些设施以使其更具竞争力和弹性。我们认为这是一个双赢的办法。我们视ICC为一项长期投资。从长远来看，为大厦增添必要的设备也会增加它的价值。目前我们的写字间入驻率超过98%，因此其他部分的使用目前看起来也很好（图3）。



Figure 3. Space utilization (Source: Sun Hung Kai Properties Limited)  
图3. 空间利用 (来源: 新鸿基地产)



Figure 4. Cultural District Development and the Expressed Rail Link next to ICC (Source: Sun Hung Kai Properties Limited)

图4：文化区开发和紧邻ICC的快轨线（来源：新鸿基地产）

in Hong Kong with 360-degree views of the territory offering insight into local history and culture to visitors. Above sky100 is a whole floor of upmarket restaurants, which we call SkyDining. There are four restaurants, of which two are conferred with Michelin stars, offering memorable and unique culinary experience to visitors. The Ritz-Carlton Hong Kong – the city's and Asia's tallest 6-star hotel rises above the SkyDining floor.

Down the water front promenade will be the West Kowloon Cultural District (WKCD). It is going to be a vibrant and exciting development for Hong Kong. It will also provide a venue for world-class exhibitions, performances and art and cultural events to boost cultural exchange among citizens and people from all over the world.

With the geographical advantage instilled within the West Kowloon vicinity, ICC is a concerted mixture of work, play and leisure. The WKCD has further invigorated the vibrancy of the entire area, offering greenery and space for ICC tenants for recreational purposes. Besides, the significance of WKCD is often highlighted by various arts and cultural events in Hong Kong (Figure 4).

### Flexibility in Office Floor Configurations

ICC offers great flexibility to its tenants in order to meet their demands. Office units can be designed with spaces ranging from 3,000 sq. ft. to 600,000 sq. ft. Inter-floor connection is also available for multi-floor tenants so as to allow them better use of their office space to provide maximum security and convenience.

### Areas for Greenery and Outdoor Environment

To green the metropolitan and building environments, plants are grown everywhere in ICC, including outdoor and lobby areas as well as on office floors. Plants and flowers are grown in our outdoor planters, providing a green environment to the building itself and also to the society. Furthermore, besides

providing visual enjoyment to the occupants, those native plants could also help to enhance the air-quality in surrounding areas. Planters are placed in lobbies to green the indoor environment. Besides, vertical greenery is added to various levels of the main lobbies.

## Innovation

### Construction Features

Any project that involves building a supertall tower like the ICC is a great challenge. Thus, to ensure this mega project could be constructed in a cost effective, safe and environmentally friendly manner, innovative construction methods were used.

### Foundations of the Mega Development

Given the location of the tower above a cliff-like bedrock profile varying from 60m to 130m in depth, there were significant uncertainties attached to the use of traditional foundation systems. Instead, shaft-grouted barrettes were adopted as the foundation of the building, with 241 rectangular barrettes of an average depth of 70m. Grout was injected into each barrette to increase its friction. The ICC is the first supertall building in Hong Kong to use this type of foundation.

### Tailor-made Concrete for the Structure Frame

Tailor-made Grade 90 concrete mixed with volcanic aggregate was used to form the major part of the structural frame of the ICC. This formation of concrete helped to reduce the size of the core wall and column, resulting in less self-weight and more net floor area. Around 90,000 m<sup>3</sup> of Grade 90 concrete was used, making the ICC the first building in Hong Kong that used such a significant amount of super-high-strength concrete.

### Pre-stressed Concrete to Replace Structural Steelwork

ICC has four three-storey high outriggers connecting the core wall and the mega columns. The bottom one is the first pre-stressed concrete outrigger used in Hong Kong. This alternative allowed originally designed structural steelwork to be replaced by pre-stressed concrete, resulting in significant saving in the amount of steel used and therefore cost.

### The Eight Mega Columns

Structurally, the ICC has a lot of design that enhances safety. One of the designs is the eight mega columns with perimeters of up to 3.5m x 3.5m in cross section. These mega columns help resist lateral wind and gravity

## 生活、工作和娱乐的整合

ICC的方位并不正交（有一定的夹角），以其相邻地块形成良好的互动关系并尽可能地提供最好的景观。它的方位同时也有助于它避开正好位于其建筑楼座下方的地址断层。作为九龙车站发展项目中地标性的和拥有最高入驻率的建筑之一，ICC与其周边环境的关系非常融洽。我们设计建造了一个被称为“龙尾”的大型采光玻璃中庭，以连接购物拱廊和下面的机场快轨/地铁站。在中央花园和其他的住宅小区之间，设有一条有顶棚的步行道，使ICC不仅仅是一处办公地点，也是生活、娱乐和休闲之处。有一位租户曾与我们分享他在一个狂风暴雨的日子里，从伦敦西斯罗机场到ICC的经历。得益于考虑周到的建筑设计，他全程都得到了庇护，完全没有受到坏天气的影响。

除了周边环境之外，ICC自身也是一处集工作、休闲和娱乐的一站式目的地。在写字间部分之上是海拔393米的天际100（SKY100）——香港唯一的360度视野观景台，给观光客深入了解城市历史和文化的机会。在天际100之上，是一整层的高端餐厅，我们称之为天际餐厅（SKYDinning）。该层共有四家餐厅，其中两家是米其林星级餐厅，可为观光客带来独一无二的高空美食体验。丽兹卡尔顿香港酒店一全城和全亚洲最高的六星级酒店就位于天际餐厅上方。

顺着滨水步道走下去，就是（未来的）西九龙文化区（WKCD）。它将成为香港一个活力四射的开发区域。为世界级展览表演和艺术文化活动提供场地，并将极大地促进香港市民和世界各地人民之间的文化交流。

凭借邻近西九龙的地理优势，ICC是工作、娱乐和休闲的协同混合体。西九龙文化区将进一步地鼓舞整个区域的活力，并给ICC业主提供绿化和空间以供其休闲之用。同时，香港丰富的艺术和文化活动也常常突显西九龙文化区的重要性（图4）。

### 写字间平面划分的灵活性

为满足租户的要求，ICC提供了最大程度的灵活性。写字间单位的面积可以在3,000平方英尺到600,000平方英尺之间变化。并可提供楼层与楼层之间的交通联系，以便同时租用多层的业主能更好地利用他们的办公空间，同时最大程度地保障他们的安全和便利。

### 绿化区域和室外环境

为了绿化城市 and 建筑环境，ICC到处都种植有绿化植物，包括室外、大堂以及写字间各楼层。绿植和花卉在我们的室外花架上生长，为建筑本身以及社会提供一个绿意盎然的环境。与此同时，除了给租户提供视觉享受之外，那些本土植物也能提高



loads while also offering maximum clear sightlines to external views. Apart from the mega columns, the ICC also has four refuge floors and two fire rescue staircases, which help to move the building's population to safety in the shortest possible time during fire outbreaks (Figure 5a& 5b).

### Tackling the Dynamic Effect of Strong Wind

Another common problem faced by supertall towers in this region is the dynamic effect caused by strong wind. Extensive studies, including wind-tunnel tests, were conducted together with the Hong Kong University of Science and Technology to address the issue. For the first time in Hong Kong, a realistic wind profile was studied and adopted to design a supertall. Results showed that through aerodynamic modifications of the tower's configuration and corners, the structural frame of the building could effectively minimize and withstand the effect of high wind loads.

### Green Performance During Construction Stage

Innovative techniques have been adopted from as early as the construction stage to enhance the environmental performance of the building. These include the use of steel couplers to reduce waste of steel cutout, extra amount of PFA used to increase the recycled content, and the use of only ultra-low Sulphur diesel at the site before the related regulation is enforced. Overall, more than 50% of waste material from the construction of the ICC was diverted from the landfill.

### Construction Arrangement to Facilitate Phased Occupation

To achieve the phased-occupation, a 400m tall temporary access tower was built to provide an effective means to transport workers and materials to the worksite while the lower parts of the tower were occupied by tenants. Additional fireproof walls and acoustic enclosures were implemented to prevent dust, smell or noise from disturbing the tenants. Temporary fireman's lifts, service tanks and pumps were also provided to meet fire services requirements.

### Efficient & Reliable Vertical Transportation Overcoming Dynamic Effects due to Strong Wind

The most difficult challenge of ICC at planning stage is the dynamic effect on the 484-m tall building caused by strong wind, particularly on higher floor levels. Extensive studies, including wind-tunnel tests at the Hong Kong University of Science and Technology, have ascertained that through aerodynamic



Figure 5a. The Mega Column (Source: Sun Hung Kai Properties Limited)

图5a. 巨型柱 (来源: 新鸿基地产)

modifications of the tower's configuration and corners, the structural frame of the building can effectively minimize and withstand the effect of high wind loads. For the lifts, a building sway sensor was installed in the lift machine room on the roof, which commands the lifts susceptible to building sway effects to reduce speed, and, under extreme cases park the lift at pre-determined floors to ensure safety as well as minimize damages to the lift shafts as a result of strong swaying.

### Lift Zoning for Smooth Vertical Assess

In the design of the lifts and the vertical transportation system, the building was necessarily zoned with overlapping lift shafts and several lift lobbies (sky lobbies) on different high-level floors. Further, the use of high-speed double-decker lifts can cut down the number of lift shafts needed while a specially-designed, coordinated lift destination control system with crowd control sensors can ensure smooth vertical passenger movements even in rush hours. The specially designed regenerative drives of the lifts make use of surplus power to drive other lifts in the same system.

### Energy Efficiency of the Air-Conditioning System Automatic Tube Cleaning & Condenser Water Filtration System

For chiller water, spongy spheres were used for running through the tubes constantly. This eliminates tube fouling as well as removes debris from the tube's inner surface, resulting in better heat transfer, better refrigerant cycle efficiency and thus lower energy consumption.

Since our cooling towers are the open system type, the condenser's water can get contaminated. We use a filtration circulation system with centrifugal separator to remove the dirt to a collector. This way, the dirt accumulated on the condenser tubes



Figure 5b. The Coffor Dam (Source: Sun Hung Kai Properties Limited)

图5b. 围坝 (来源: 新鸿基地产)

周边区域的空气质量。大堂中放置的盆栽用于绿化室内环境, 同时, 垂直绿化给主大堂增加了层次感。

## 创新

### 建设特点

对于任何一个像ICC这样包含超高层塔楼的项目来说, 如何建造都是一大挑战。因此, 要使用创新的建设方法来保证这个巨大项目在建设过程中成本可控, 安全以及环境友好。

### 大型开发项目的基础

考虑到塔楼位于一个峭壁似的基岩之上, 基岩表面在海面下60m至130m之间, 所以使用传统的基础形式有很大的不确定性。于是, 在这栋建筑中使用了灌浆桩, 共241根长方形截面的桩, 平均深度70米深。水泥浆注入每根桩的桩体中, 来增加桩的摩擦力。ICC是香港第一个使用这种基础的超高层建筑。

### 主体结构使用定制的混凝土

定制的90级混凝土混合火山岩骨料是ICC主体结构的主要材料。这种配方的混凝土能够减小核心筒剪力墙和柱子的厚度, 从而减轻建筑自重并增加楼层净面积。ICC大约使用了90000m<sup>3</sup>的90级混凝土, 它成为香港第一个使用如此大量超高强度混凝土的建筑。

### 预应力混凝土取代钢结构体系

ICC有四个三层楼高的支撑梁连接核心筒剪力墙和巨柱。最底部的是一个香港第一个使用预应力技术的混凝土支撑梁。一开始设计的钢结构体系被预应力混凝土替代了, 节省了大量的钢材也因此减小了造价。

### 八根巨柱

ICC使用了很多提升结构安全的设计。其中一个设计是八根截面尺寸3.5m X 3.5m的巨柱。这些巨柱帮助抵抗侧向风力和重

of the chillers will reduce. Working together with the above-mentioned automatic tube cleaning system, it can further enhance the chiller co-efficient performance (COP) and thus save energy.

### Variable Speed Drives (VSD) Control Technology

Apart from the automatic tube cleaning and condenser water filtration systems, we have made use of variable speed drives (VSD) to control technology for all the air handling units in ICC. Via this technology, optimal control of the air-flow can be achieved and this would result in further energy saving.

### Early Warning Fire Services System – Aspirating Smoke Detection

Since the travel distance to the nearest exit door in an ICC floor exceeds the requirement of the Code of Practice for the Provision of Means of Escape in Case of Fire issued by the Fire Services Department, an alternative “fire engineering approach” was applied in ICC. Therefore, an Aspirated Smoke Detection System was installed, which could provide early warning to the occupants for evacuation in case of fire.

ICC is the first commercial building installed with this state-of-the-art system, which is normally found in data centers or computer rooms only. With this system, the occupants can start the evacuation process earlier, thus enabling them to reach a safe place as soon as a fire starts to spread.

In this system, an aspirating fan is applied to draw air from the protected area via sampling pipework and sampling holes. The sampled air is then passed through a high sensitivity precision detector that analyzes the air and generates warning signals when appropriate. It is up to 1,000 times more sensitive than point detection as well as point type aspirators, while PAL minimizes false alarm nuisances. The design of the system is in accordance with BS 5839, BS 6266 and/or BFPSA Code of practice for category 1 aspirating detection systems. Aspirating smoke detectors are distributed in different locations of a floor. A total of 5 loops are designed for each office floor.

As a vertical Wall Street with world-leading financial institutions, ICC is equipped with advanced design features to offer tenants and other building users a pleasant, efficient and safe environment to enjoy. This is the result of us working diligently on the design of the building, considering the architectural and operational aspects that the full potentials of the building could be realized.

力荷载，同时提供了最大的景观视野。除此之外，ICC还设置了4个避难层和两部消防疏散楼梯，火灾发生时最短时间让人流疏散到安全区域（图5a、5b）。

### 抗风设计

该区域超高层塔楼另一个常见问题是强风造成的风动力效应。为解决这个问题，设计团队与香港科技大学一同进行了风洞实验等拓展研究。这是在香港第一次使用真实的风模拟技术来设计一栋超高层塔楼。研究结果显示通过风动力学修改了塔楼的形态和转角，有效减轻了主体结构的风荷载，可以抵抗高强度的风荷载。

### 施工期间的绿色建筑表现

早在项目施工期间就已经运用了一些创新技术来提升建筑的环保表现。包括使用钢材连接装置来减少钢材角料的浪费，使用额外的可回收的PFA材料，以及在法规强制之前就使用超低含硫量的柴油。总体上，ICC项目中超过50%的施工废料避免填埋而被回收利用。

### 施工管理帮助实现项目分期使用

为了实现塔楼的分期使用，搭建出了400米高的临时交通通道，可以高效地把工人和建筑材料运送到还在施工的工作地点，并且不影响塔楼低区租户们的日常使用。额外的防火墙和隔声维护结构也设置好了，防止灰尘，废气或者噪音干扰租户。还设置了临时的消防电梯，消防水池和水泵以满足消防要求。

### 高效稳定的垂直交通

克服强风造成的动力效应

对于ICC这栋484米高的建筑来说，在规划设计阶段最困难的挑战是强风造成的动力效应，特别是对高楼层的影响。拓展研究包括在香港科技大学进行的风洞实验，确定了塔楼形态和转角的修改，以最大程度上减轻主体结构承受的风荷载。屋顶的电梯机房安装了摇摆感应器，根据检测到建筑摇摆的情况给电梯发出减速指令，在极端情况下可以让电梯在到达目标楼层前停止并落客，保证乘员安全的同时最小化强烈摇摆造成的梯井损坏。

### 电梯分区垂直方向平顺可达

在电梯和垂直交通系统设计中，塔楼必然会把电梯按高中低区分段，在不同区段设置电梯厅（空中电梯厅）。使用了高速的双轿厢电梯以减少电梯井道的数量，同时使用了特殊设计的，协调电梯终点的控制系统，该系统可以感应人流量保证即使在上下班高峰期时，乘客也能体验到平顺的垂直移动。特殊设计的可再生能源的电梯驱动器，每部电梯多余的能源可以用来驱动系统中的其他电梯。

### 空调系统的能源效率

自动清洁管道和冷凝水过滤系统

在冷却水管道中有海绵球持续运动，清理水管的污垢的同时清理管道内表面的残

渣。这样可以提高导热效率，提高制冷剂的循环效率，因此降低了能源消耗。

我们使用开放系统类型的冷却塔，冷凝器中的水会被污染。我们使用了带有离心分离器的过滤循环系统把污垢清理到收集器中。减缓污垢在冷凝管中的积累速度大大减低。它与上文提到的自动管道清理系统一起工作，更加强化了冷水机组性能系数（COP）从而节约能源。

### 可变速驱动（VSD）控制技术

除了自动清洁管道和冷凝水过滤系统以外，我们还用了可变速驱动控制技术（VSD）来控制ICC中所有空气处理设备。通过这种技术，可以最优化空气流动，进一步节省能源。

### 早期火灾报警系统——吸入式烟雾探测系统

ICC塔楼平面中，至最近疏散门的距离超出了消防主管部门颁布的《提供火警逃生途径守则》的要求。因此选用了“消防工程性能分析”的办法来证明ICC消防性能达标。安装了一种吸气式烟雾探测系统，它可以在火灾发生的早期就警告塔楼内人员。

ICC是第一个安装这种当时最先进系统的商业建筑，这个系统一般只用在数据库或者计算机机房中。这个系统可以让塔楼内人员尽早开始疏散，帮助他们尽快到达安全区。

在这个系统中，一个吸入式风扇从被保护区域内通过取样管道和取样孔洞吸入样本空气。样本空气随后通过高灵敏度的探测器，当出现异样时探测器发出报警信号。它比点探测器和点式吸入器灵敏1000倍以上，这些探测器以环状形式安装以最小化误报的情况。该系统的设计遵循BS 5839, BS 6266以及BFPSA等规范法规中关于吸入式烟雾探测系统的要求。吸入式探测器分布在每一楼层中的不同位置，每个楼层共有5个布满探测器的环。

作为世界顶尖金融机构青睐的垂直华尔街，ICC运用了高超的设计以提供给租户和其他使用者享受一个舒适，高效，安全的环境。这是我们孜孜不倦精细设计的结果，在建筑使用和运行维护过程中该建筑真正的潜能够被完全认识到。

### 瓦片状的玻璃幕墙

ICC最有特色的建筑特征之一是瓦片状的玻璃幕墙。设计成水平向分隔的立面是为了无遮挡的全景视线，选用特殊工艺的玻璃以减少眩光和减少吸收太阳热。从九龙站内部看建筑，瓦片状的立面给了建筑标识性很强的肌理，弱化了立面的尺度感。当从维多利亚港对面看过来时，由于建筑外表面带有角度反射了光线，使得瓦片状的立面组成了雕塑感很强的形体，塔楼好像是从内而外流淌出来一样。立面由窗墙



### Shingled Curtain Wall Façade

One of the ICC's most distinct architectural features is its shingled curtain wall façade. The horizontally orientated façade is designed for unobstructed panoramic views with glass specially selected to cut down glare and solar heat gain while maximizing views out of the tower. When experienced from within the Kowloon Station, the shingled façade gives the building an identifiable texture, breaking down the scale of each façade. When viewed from across Victoria Harbour, the shingled façade brings the sculptural form to life as the angled surfaces reflect light, making the tower appear to flow from within. The façade was realized by combining aspects of a window wall system with a unitized curtain wall system to create an innovative hybrid design which features advantages of both (Figure 6).

### Building Passive Design

We have also conducted various different built environment studies at the early design stage to explore opportunities to integrate design with natural systems, striking a balance between daylight provisions and solar heat transmittance and improved visibility without affecting thermal and acoustic comforts.

### Lighting Consideration

Being the tallest building in Hong Kong, energy consumption of the building has to be considered carefully. Thus, considerations over the energy performance of the building are of the main concerns of the project.

To maximize energy efficiency, allow maximum daylight access, and reduce demand for artificial lighting, office areas are located at the perimeter whilst amenities areas and lift lobbies are located at the inner core of the building. Office height is also restricted to maximize effective daylight access.

### Climate Control

Thermostats have been installed at common areas to monitor the premise's temperature. Additionally, a number of design features are incorporated into the ICC to mitigate the urban heat island effect. Examples include light-colored exterior material to avoid excess absorption of solar radiation, use of low emission glass on the curtain wall to reduce heat emission, and water features to reduce surface temperature (Figure 7).

### Our Guinness World Record Façade

As a landmark of Hong Kong, ICC takes part in promoting Hong Kong as a travel paradise and the "pearl of the Orient." In light of this, the ICC Light & Music Show was planned and



Figure 6. Shingled curtain wall façade (Source: Sun Hung Kai Properties Limited)  
图6. 瓦片状的幕墙立面 (来源: 新鸿基地产)

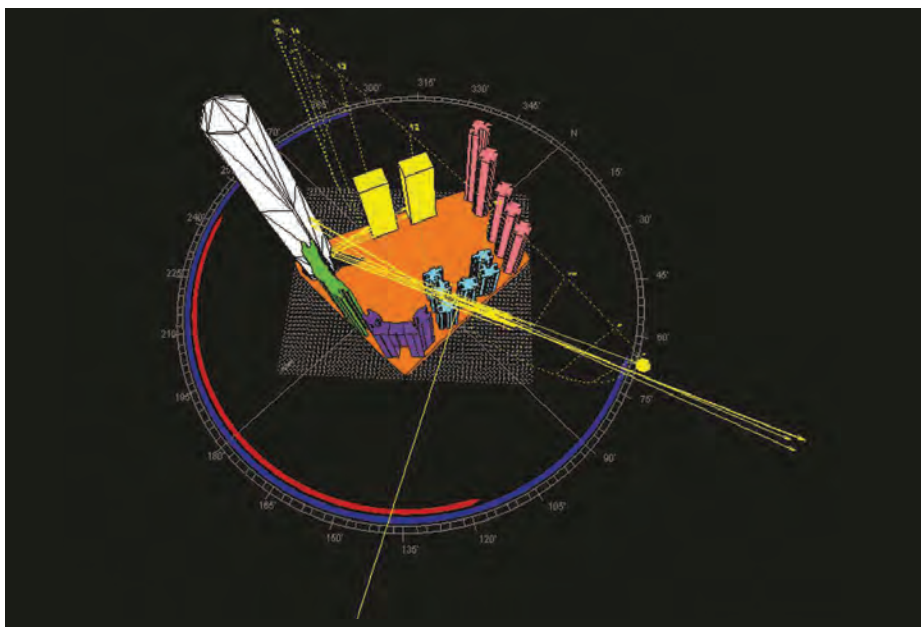


Figure 7. Environmental study (Source: Sun Hung Kai Properties Limited)  
图7. 环境研究 (来源: 新鸿基地产)

conducted. This was recognized in 2013 with a Guinness World Record certificate for being the largest light and sound shows on a single building. By combining music and story in light on 3 faces of our building (50,000 m<sup>2</sup> in total), an attractive and innovative lights and music show could be made as a present to the people of Hong Kong and tourists around the world. However, we have committed ourselves to be mindful of the environmental impacts of the show. We have strictly followed the external lighting charter set out by the Hong Kong Government, and patterns displayed are selected carefully to achieve this objective.

系统和配套的幕墙系统组成, 这种创新的混合设计兼具两者的优点 (图6)。

### 建筑的被动式设计

在设计阶段的早期我们通过一系列的建成环境研究, 探索把自然系统整合到设计中的机会, 取得了采光和太阳热传递之间的平衡, 提高视野范围的同时并不影响室内热学舒适度和声学舒适度。

### 照明方面的考虑

作为香港最高的建筑, 建筑物的能源消耗必须谨慎考虑。因此, 建筑物的能源表现是项目中重点考虑的部分。



## Property Management

In fact, striving for excellence in all aspects of this iconic skyscraper is nothing but a challenge. Our vertically integrated management team has performed very well and continues to boost the performance of the building.

### Management and Concierge Services

Being a world class mixed-use property and grade-A office space in which companies from all around the world have their offices, 24/7 customer service is in place to provide tenants with the most convenient services round the clock in order to turn the building into the warmest workplace for them to enjoy.

Running this supertall building, we have an elite team to meet high demands on security, facilities reliability, cleanliness and comfort, as well as customer services to meet the high expectations of our occupants. At the forefront of our tenant/visitor services, we have concierge desks in different lift zone lobbies of the building. Our concierges provide information and assistance to tenants and visitors alike. Concierges also organize events and activities for tenants, including sport games, seminars and outings.

### Internal and External Performance Measurement

We observe and follow various established management systems in ICC including ISO 9001 Quality Management System, ISO 14001 Environmental Management Systems, ISO 50001 Energy Management Systems, OHSAS 18001 Occupational Health and Safety System and ISO 22301 Business Continuity Management Systems, etc. to ensure that we get the best of time-tested management models and that our work processes are standardized and our systems audited yearly by ISO auditors. We are performance oriented; we measure our performance level methodically. The Key Performance indicators (KPI) include customer service performance, energy performance and building facilities performance, etc.

Every year, the building management team is required to deliver a set of results based on the company's key performance indicators (KPI). The KPIs seek to index ICC's performances in areas such as customer satisfaction on services delivered, laws and regulations compliance, and physical conditions of the building etc. These results are compared with other major properties within the group.

### ISO 50001 Energy Management System

ICC has successfully implemented the ISO 50001 Energy Management System since 2011 for controlling and managing the building's energy consumption. Comparing the energy consumption of ICC from 2012 to 2015 with the baseline in 2012, a combined total of about 11 million kilowatt hours (kWh) of electricity was conserved. This has been achieved by a combination of administration means as well as technical and innovative approaches. The ICC's Energy Utilization Index (EUI), a measure of energy consumption in buildings, is one of the lowest compared with similar types of supertall buildings in the Asia Pacific region (Figure 8a & 8b).

### ISO 22301 Business Continuity Management System

We have always planned for the unexpected and have a Business Continuity Management System (BCMS) in place to handle threats and incidents. In 2013, we achieved ISO 22301:2012, the Societal Security – Business Continuity Management Systems Certificate issued by the Hong Kong Quality Assurance Agency (HKQAA). ICC was the first building at that time

为了最大化能效，需要最大化自然采光减少人工照明。办公区域在塔楼平面中沿边缘布置，而辅助设施和电梯厅设置在建筑物的中心核心筒内。办公空间的高度严格按照最大化自然采光效率的方式设计。

### 气候控制

恒温器广泛安装在建筑中的公共区域中，探测各处的温度。ICC中整合了额外的设计策略以减缓城市热岛效应。例如使用浅色的室外材料避免过度吸收太阳辐射，玻璃幕墙使用低导热率的玻璃减少进入室内的热量，地面设置水景减少表面温度（图7）。

### 打破吉尼斯世界纪录的立面

ICC作为香港的地标，提升了香港作为旅游天堂以及“东方之珠”的美誉。有鉴于此，灯光音乐表演会在ICC筹划并举办。这项盛事于2013年举办，并且有吉尼斯世界纪录证书作为见证，这是在单体建筑上进行过的最大的灯光和声音的表演。建筑物三个立面上的灯光（总共50,000m<sup>2</sup>的立面面积）讲述着故事，配合着音乐，为香港市民和来自全世界各地的旅游者呈现了一场全新面貌引人入胜的灯光音乐表演。但是，我们要求自己仔细考虑这场表演对环境会造成怎样的影响。我们严格遵循香

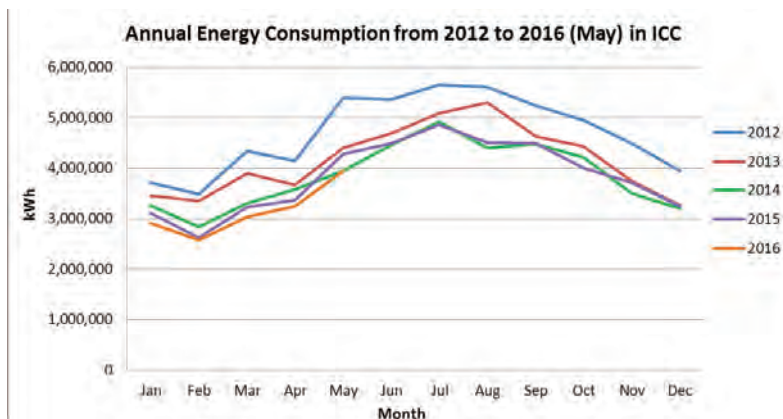


Figure 8a. Energy performance (Source: Sun Hung Kai Properties Limited)  
图8a. 能源性能 (来源: 新鸿基地产)

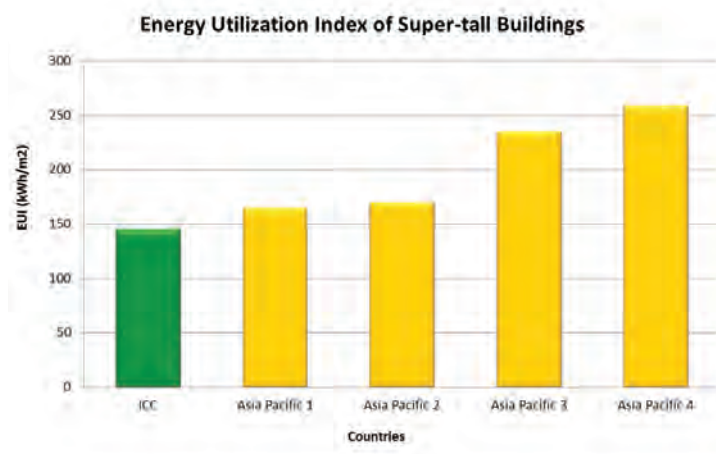


Figure 8b. Energy utilization index comparison (Source: Sun Hung Kai Properties Limited)  
图8b. 能源利用指数比较 (来源: 新鸿基地产)

to achieve this quality management certification in Hong Kong.

## Corporate Social Responsibility

ICC is not just a place where people work and play; it is a spot that gathers people's love and shares with the community. Over the years, voluntary works as well as education to younger generations are carried out continuously to fill our development with care and warmth.

### The Green Spread – “Give & Take” with the Community

The “green business” of ICC does not just rest within the building itself, we work hard in the “Give & Take” approach as well to spread green concepts to the community.

Besides encouraging tenants to participate in our waste recycling programs, we also collaborate closely with stakeholders in the society, NGOs and our business partners to gather greater green power to build a better future for our environment.

Since 2013, we actively “Take” various recyclables from the building and the local community, turning them into re-usable materials, and “Give” back to our society. Coffee grounds are one of the examples. There are 3 ways coffee grounds are collected from tenants: they will either be used at the ICC planters, organic farms and smoking areas as ash-tray fillers and cigarette butt extinguishers; re-distributed to tenants upon their request; or utilized by partnering schools and organic farms like C. & M.A. Sun Kei Secondary School and the HKFYG organic farm.

Besides being collected from tenants, food waste is also collected from our neighborhood at Kowloon station which includes Yan Oi Tong Chen Cheng Yuk Yee Kindergarten, YMMSS Yau Tsim Neighborhood Elderly Centre, and Ritz Carlton Hong Kong. After the collection, food waste will be treated by our in-house food decomposer or sent to a specialized company to form fish food.

### Utilization of Decomposed Fertilizer

Fertilizer formed after the decomposing process of the food decomposer is utilized both in-house and by our collaborating partners nearby. Like coffee grounds, besides being used at the planters and our organic farm to fertilize the greeneries, decomposed fertilizer is also packed properly for further

distribution to organic farms organized by NGOs and schools.

### Festive Food

Different kinds of post-festival food are collected from tenants and sent to Foodlink Foundation and St. James' Settlement People's Food Bank for further distribution to the under-privileged.

### Unwanted Clothes, Books & Computers

Used and unwanted materials are re-usable and useful for the needy. In order to re-life materials, used books and clothes together with unwanted computers and spare parts are collected regularly from tenants to further distribute to people who are in need through voluntary organizations, namely World Vision Hong Kong, The Salvation Army and Caritas Hong Kong.

### Turning Waste into Useful Materials

Landfills are not the only possible destinations for waste. In some cases, wasted materials can be useful. With the helpful hands of the Hong Kong Environmental Protection Association (HKEPA), we have cooperated with schools to re-life many different types of waste. For example, baskets of pebbles originally used at our water feature are no longer useful in ICC. Thanks to HKEPA, those pebbles were sent to Christian & Missionary Alliance Sun Kei Secondary School for beautifying the green path at their green corner. In addition, also with the help from HKEPA, we have worked with True Light Middle School of Hong Kong and other schools in the territory to turn unwanted furniture from tenant's premises into useful furniture in schools benefiting teachers and students.

### Happy Moments with the Needy – Voluntary Work

We share our happiness with those in need in the community. We actively participate as well as encourage our tenants and friends to join us to offer our helpful hands to people who need our care and love.

### Vertical Run for the Good of the Society

Since 2012, we have organized the annual “Vertical Run for Charity Event.” Thousands of participants in various age groups joined the event and multi-millions of donations were received over the past 4 years, helping the local charities to fund their projects. 2016 marks the 5th Vertical Run and has become a finale race for the Vertical World Circuit competition (Figure 9).

### Education to Younger Generations

We understand that to build a sustainable community not just depends on what we

港政府颁布的室外灯光法规，谨慎选择表演中的灯光图案，以满足环境要求。

## 物业管理

事实上，对于这标志性的摩天大楼来说，方方面面追求卓越不过是个挑战。我们纵向联合的管理团队表现得非常好，并继续致力于提升建筑性能。

### 管理和前台服务

作为一个世界级的混合用途房产和甲级办公空间，世界各地的公司在这里都有办事处。每天24小时客服为使用者提供最为便利的无间断服务，使大楼成为最温暖、最为他们享受的办公空间。

运营这座超高层建筑，我们拥有精英团队来满足安全性、设施可靠性、清洁度和舒适度方面的高要求，同时有客户服务来满足使用者的高期望。最重要的是，在大楼不同的升降区大堂都有租户/访客服务的前台。前台为租户和访客提供信息和帮助，同时也为租户组织活动，包括体育比赛、研讨会和远足。

### 内外性能测试

在ICC，我们奉行和遵守多项管理体系，包括ISO 9001质量管理体系，ISO 14001环境管理体系，ISO 50001能源管理体系、OHSAS 18001职业健康安全体系和ISO 22301业务连续性管理体系等，来保证我们有久经考验的最佳管理模式、标准化的工作流程，以及我们的系统会由国际标准化组织（ISO）审查员每年审核。我们以绩效为导向，有条理地衡量我们的绩效等级。关键绩效指标（KPI）包括客户服务性能、节能性能和建筑设施性能等。

每年，建筑管理团队需要提供一套基于公司关键绩效指标（KPI）的结果。KPI寻求在客户满意度方面，如服务、法律法规的遵守、大楼物理条件上与ICC绩效挂钩。这些结果与组内的其他主要物业作对比。

### ISO 50001能源管理体系

自2011年以来，ICC已成功履行了ISO 50001能源管理体系，用于控制和管理建筑的能源消耗。以2012年为基线，比较ICC自2012年至2015年的能源消耗，共节省了约1100万千瓦时（kWh）的电力。这是管理手段与技术创新方法相结合而实现的。ICC的能源利用指数（EUI），即建筑物能源消耗测量，是亚太地区同类超高层建筑中最低的之一（图8a、8b）。

### ISO 22301业务连续性管理体系

我们一直未雨绸缪，拥有业务连续性管理体系（BCMS）来应对威胁和意外事件。2013年，我们取得了





Figure 9. Vertical Run for Charity (Source: Sun Hung Kai Properties Limited)  
图9. 公益垂直跑 (来源: 新鸿基地产)

are doing today, but should be the continuous effort to make our homeland as "beautiful" as ever. Thus, education to the youth is one of the main focuses for us when promoting sustainability.

Over the years, we have invited schools, ranging from kindergarten, primary and secondary to higher education and universities to explore and learn from our sustainable strategies.

#### Promoting Visual Arts and Cultural Development

We have made use of the building façade system to promote visual arts and culture. The entire system is in fact a playing field for local artists to display their art pieces across the Victoria Harbour. Every evening, the façade will be lit up at limited time, to allow the public to view the arts projects which we have collaborated with local universities, the Hong Kong Tourism Board and the Arts Development Council of Hong Kong. Student projects are welcomed, and various different programs with schools and universities are run throughout the year (Figure 10).

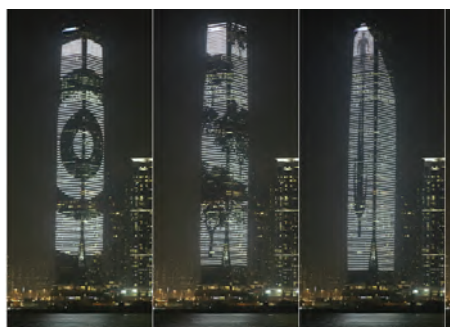


Figure 10. An artist's presentation of ICC's façade (Source: Sun Hung Kai Properties Limited)  
图10. 在ICC立面上的艺术家作品展示 (来源: 新鸿基地产)

ISO 22301:2012, 由香港品质保证局 (HKQAA) 颁发的社会安全-业务连续性管理体系证书。ICC是当时在香港取得这一质量管理认证的首座大楼。

#### 企业的社会责任

ICC不仅仅是人们工作娱乐的地方, 它更是一个汇聚友爱并与社区分享的地方。多年来, 志愿工作以及对年轻一代的教育持续进行, 用关怀和温暖来充实我们的发展。

#### 绿色传播——对社区的“给予与索取”

ICC的“绿色事业”不仅停留在大楼内部, 我们在努力研究“给予与索取”的方法, 把绿色理念传播到社区。

除了鼓励用户参与我们的废物回收计划, 我们还与社会中的利益相关者、非政府组织和我们的业务合作伙伴紧密合作, 汇集更大的绿色力量, 为我们的环境创造一个更好的未来。

自2013以来, 我们积极从大楼和当地社区“收集”各种可回收物, 将它们转化为可再利用的材料, “还给”我们的社会。咖啡渣是其中一个例子。有3种从用户处收集的咖啡渣的利用方式: 它们可以用在ICC的花盆、有机农场里, 或用在吸烟区作为烟灰盘填料和烟头灭火物; 也可按要求重新分配给用户; 或由合作学校和有机农场回收利用, 如基督教宣道会宣基中学和香港青年协会有机农庄。

除了从用户处回收, 我们也从附近的九龙站居民点回收食物垃圾, 包括仁爱堂陈玉怡幼儿园、油尖旺社区的老人中心、香港丽思卡尔顿。回收后, 餐厨垃圾将由公司内部的食物分解机处理或送到专门的公司做成鱼食。

#### 分解肥料的利用

食物分解机分解处理后形成的肥料被我们内部和附近的合作伙伴利用。就像咖啡渣, 除了被用在花盆和有机农场作为绿色植物的养料, 分解肥料也会适当包装, 进一步分发到由非政府组织和学校组织的有机农场中。

#### 节日食物

从住户处收集的不同种类的节后食物被送至食物宁基金会和众膳坊食物银行 (圣雅各福群会), 进一步分配给相对贫困的人群。

#### 不需要的衣服、书籍和电脑

对于需要帮助的人来说, 别人使用过和不想要的东西都是有用的。为了让旧物重生, 我们定期收集租户的旧书、旧衣服和不要了的电脑及配件, 通过志愿组织, 即香港世界宣明会、救世军、香港明爱, 进一步分发给需要的人。

#### 变废为宝

垃圾填埋场并不是废弃物唯一可能的目的地。在某些情况下, 废弃材料可能很有用。在香港环境保护协会 (HKEPA) 的帮助下, 我们与学校合作, 使不同类型的废弃物获得重生。例如, 以前用来净水的鹅卵石篮在ICC中已不再需要, 正因有了HKEPA, 这些卵石被送至基督教宣道会宣基中学, 美化他们植物角的绿道。同样, 在HKEPA的帮助下, 我们与香港真光中学及境内其他中学合作, 把租户的旧家具变成有用的教具, 有益于师生。

#### 与贫困人的快乐时光——志愿工作

我们与社区需要帮助的人们分享快乐。我们积极参与, 并鼓励租户和朋友加入我们, 向需要关爱的人伸出援手。

#### 为社会公益做贡献的公益垂直跑

自2012以来, 我们举办了一年一度的“公益垂直跑”。在过去的4年里, 成千上万

## Conclusion

The ICC is not just a supertall tower. It has established itself as the anchor of the city's latest financial / business hub, becoming like a vertical mixed-use city itself. During various stages of the building life-cycle, from design, construction, to management, efforts have been put into the building to continuously demonstrate the innovative minds of the building industry in Hong Kong. As a supertall building, ICC has been fully utilized not only for the benefits of the occupants of the building, but also for the local community and the territory at large. It has taken on green leadership amongst other modern developments in Hong Kong and in the region. The ICC, shining like a crown jewel on the West Kowloon skyline today, will bring an even brighter tomorrow, as its neighborhood area develops, witnessing and signifying the continuous success of the Pearl of the Orient (Hong Kong).

的参与者参加了各年龄组的活动，我们收到了数百万的捐赠，资助当地慈善机构的项目。2016年是公益垂直跑五周年，也是公益垂直跑世界巡回赛决赛（图9）。

### 年轻一代的教育

我们知道，建立一个可持续的社区，不仅取决于今日所为，还应该依靠我们为家园永葆“美丽”所做出的不懈努力。因此，对青年人的教育是我们促进可持续发展的主要关注点之一。

多年来，我们邀请学校，从幼儿园、小学、中学到高中和大学，来探索和学习我们的可持续发展战略。

### 促进视觉艺术与文化发展

我们利用建筑外墙来推动视觉艺术与文化发展。整个外墙系统实际上是当地艺术家的运动场，让他们在维多利亚港对面展示自己的艺术作品。每天晚上，外墙会限时点亮，让市民观赏我们与当地大学、香港旅游局和香港艺术发展局合作的艺术项目。学生项目很受欢迎，全年都有不同院校的项目在运行着（图10）。

## 总结

ICC不只是一座超级高楼，它已成为城市最新的金融/商业中心地标，其本身就像是一个垂直多用途的城市。在建筑周期的各个阶段，从设计、施工到管理，投入努力，不断展示香港建筑业的创新思维。作为超高层建筑，ICC得到了充分利用。不仅满足了大楼使用者的利益，也为当地社区和整个香港带来了收益。在香港和其他现代化发展中，它首重绿色领导。如今，ICC像闪耀在西九龙天际线的一顶宝石王冠，随着周边地区的发展，它将带来一个更加美好的明天，见证和象征着东方之珠的不断发展（香港）。