Building Elevation

Superstructure Construction

Centralized General Research Laboratory Complex (Block 1)

Area 39, Pak Shek Kok, Chinese University of Hong Kong

The main contract undertaken by China Resources Construction comprises the construction of a 9-storey building with gross floor area of 18,360 square metre. The building accommodates lecture halls, seminar rooms, meeting rooms, offices, laboratory areas designed with flexibility for open laboratory or modular laboratory arrangement with specialized laboratory provisions.

The work also includes large-scale site formation and construction of carriageway, pedestrian pavement and cycle track with associated landscaping linking the existing University Campus Circuit North.

The laboratory complex, named Lo Kwee Seong Integrated Biomedical Sciences Building, will be occupied by the School of Pharmacy and School of Biomedical Sciences of the Chinese University of Hong Kong.

Basement Construction

Being a research laboratory complex in the university, it provides a safe and comfort environment for operators and end users consisting of comprehensive safety design, adequate luminosity, comfort room temperature, good internal air quality. In fact, operator safety is the prime concern in building design. Typical laboratory equipment in the laboratory complex includes fume cupboard, bio-safety cabinet, cage washing machine, specially made laboratory sink, eye washer and emergency shower.

One of the major considerations of E&M installation in the building is to prevent leakage of toxic gas and chemical wastes. Therefore, the building has installed independent fume ducts together with fume exhaust air fan at the roof to discharge combustion or toxic gases to away enough from the building. In view of safety requirement, the MVAC installation has been also designed to interlock with fume cupboard to ensure correct flow and pressure to prevent back drag of combustion air during operation of fume cupboard. Comprehensive and stringent testing and commissioning of the installed E&M system secures the safe and efficient operation within the laboratory complex.

Green design

Solar wind powered road lighting is used. Wind and solar energy is transferred to electrical energy for supporting the electrical load of the road lighting. Rainwater Recycling System is installed to collect rainwater, treated and reuse as irrigation system of planters. Vertical greening is provided at balconies of typical floors

Green construction

Tio2 Air-Pollutant Removal (APR) concrete paving block material was adopted. It would help abate nitrogen oxides (NOx), which are the third major green-house gases leading to global warming.

China Resources Construction also constructed the underground utilities with pipeline of over 3000 meters long. Continuous revisions and changes in design to incorporate users' requirements during construction stage under tight programme is another challenge which the main contractor has overcome tactfully.

client
Chinese University of Hong Kong

architect
Andrew Lee King Fun & Associates Architects Ltd

structural engineer
C M Wong & Associates Ltd

E&M consultant
Parsons Brinckerhoff (Asia) Ltd

quantity surveyor
Northcroft Hong Kong Ltd

main contractor
China Resources Construction Co Ltd

contract sum
HK$340,000,000

contract period
July 2010 to January 2012

awards
HK-BEAM Certification - Platinum (Provisional)

Roof Floor Completed with Architectural Finishes & E&M Installation

Typical Lobby / Breakout Area

Typical Passenger Lift Lobby


BEAM Society
香港環保建築協會

This is to certify that the
評 估 證 書

LO KWEE-SEONG INTEGRATED
BIOMEDICAL SCIENCES BUILDING
The Chinese University of Hong Kong, Shatin, N.T., Hong Kong
羅桂祥綜合生物醫學大樓
香港新界沙田香港中文大學

IN ACCORDANCE WITH THE BUILDING ENVIRONMENTAL ASSESSMENT METHOD (BEAM) FOR NEW BUILDINGS (V4/04 VERSION)
ACHIEVING THE PROVISIONAL RATING OF

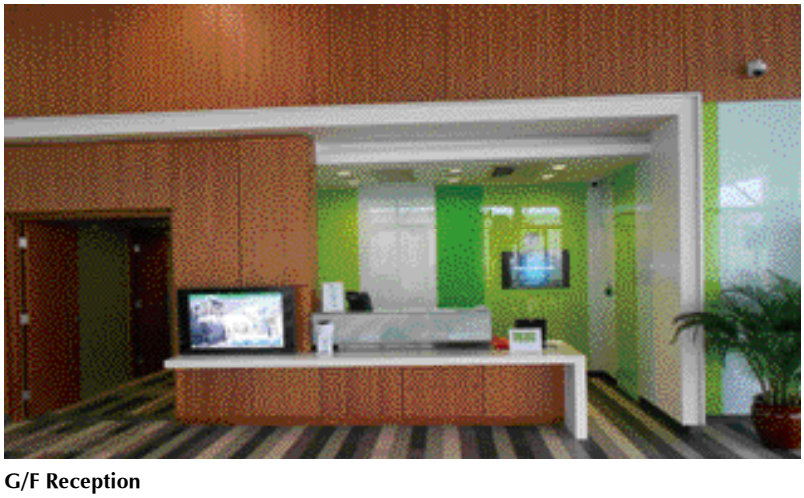
PLATINUM
STANDARD

Prof N S Wong
Executive Committee Member of BEAM Society

ISSUE DATE: 29th February 2012

Green 18

Building 20, Hong Kong Science Park, Pak Shek Kok, Tai Po



G/F Reception

G/F Lobby

The development is focusing on the construction of an 8-storey Grade A office building with variety special green features promoting the innovative green concern in Hong Kong Science Park. The construction work includes large-scale site formation, featured and sophisticated facade system, various representative green features such as wind turbine, heliostat system, solar heating system and ETFE Roofing System, etc.

Green design
There are a wide range of green features being incorporated into the Building Management System (BMS) and Information Technology (IT) system, such as:

Wind turbine system
Wind energy would transfer to electrical energy through operation of wind turbine and support the electrical load of the building.

Rainwater recycling system
Rainwater would be collected, treated and reuse as irrigation system of planters.

Solar water heating system
Solar panels installed at top roof floor collect heat energy for heat water consumption in the building's lavatories.

Green roof system
Green roof system provides good performance in insulation and to eliminate the heat loss at roof floor.

Ethylene Tetrafluoroethylene (ETFE)
The design applied 5 layers of ETFE membrane with air void in between. Installation of ETFE at top of atrium can greatly reduce the heat loss and enhance light transmission to the atrium.

Heliostat system
External sunlight would be collected by external mirrors and reflect to the internal mirrors and further reflect to the lower level of atrium.

Facade System with vertical and horizontal fins
Controlled by BMS, the vertical and horizontal fins system re-directs the wind energy from external to internal offices and atrium area

Green wall system
Green wall would generate oxygen through photosynthesis inside the building.

Green construction
Gypsum block wall system was adopted to replace traditional concrete blockwall to reduce wet trade and enhance the site tidiness of working environment during the course of construction. Tio2 Air-Pollutant Removal (APR) concrete paving block material was adopted. It would help abate nitrogen oxides (NOx), which are the third major green-house gases leading to global warming.

Advance construction techniques
Throughout the construction period, Building Information Modeling technology (BIM) is adopted for the preparation of combined building services drawings (CBSD) and combined builder works drawings (CBWD) effectively in order to reduce unnecessary materials wastage and minimize conflicts during design preparation stage.

In conclusion, Green 18 offers a positive and proactive role in promoting the green concept to the Hong Kong Science Park.

Wind Turbine System

Heliostat System

Atrium Void

client
Hong Kong Science and Technology Parks Corporation

architect
Simon Kwan & Associates Ltd

structural engineer
AECOM Asia

E&M consultant:
J Roger Preston Ltd

quantity surveyor
Beria Consultants

main contractor
China Resources Construction Co Ltd

contract sum
HK$305,000,000

contract period
August 2009 to May 2011

awards
HK-BEAM Certification – Platinum
Participation in Hong Kong Quality Building Award 2011
Participation in Hong Kong Green Building Award 2012

BEAM Society
香港環保建築協會

This is to certify that the
評 估 證 書

GREEN 18
18 Science Park East Avenue, Hong Kong Science Park,
Shatin, New Territories, Hong Kong

綠景樓
香港新界沙田香港科學園科技大道東18號

IN ACCORDANCE WITH THE BUILDING ENVIRONMENTAL ASSESSMENT METHOD (BEAM) FOR NEW BUILDINGS (4/04 VERSION), ACHIEVING THE RATING OF
就新建樓宇的設計及建造，按建築環境評估法(4/04 版)進行，已獲評定爲以下級別

PLATINUM
STANDARD
白金級別

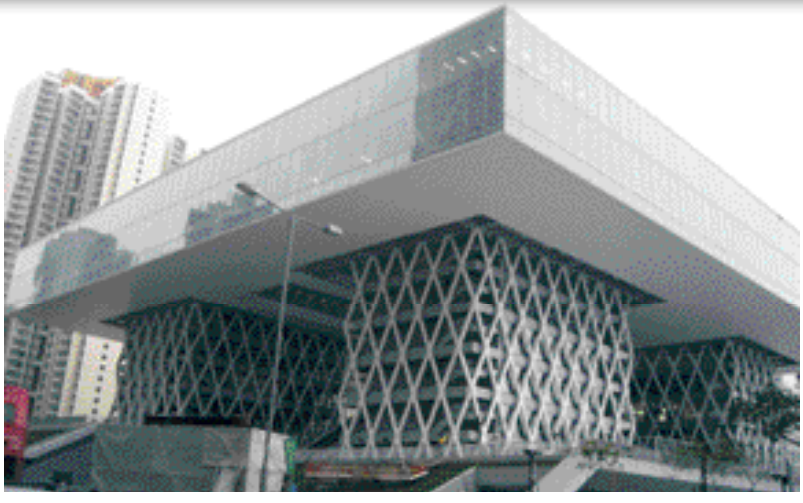
Ir Cary Chan, 陳永康先生
Chairman, Technical Review Panel of BEAM Society
香港環保建築協會技術評審委員會主席

ISSUE DATE: 25th August 2011
簽發日期: 二零一一年八月二十五日

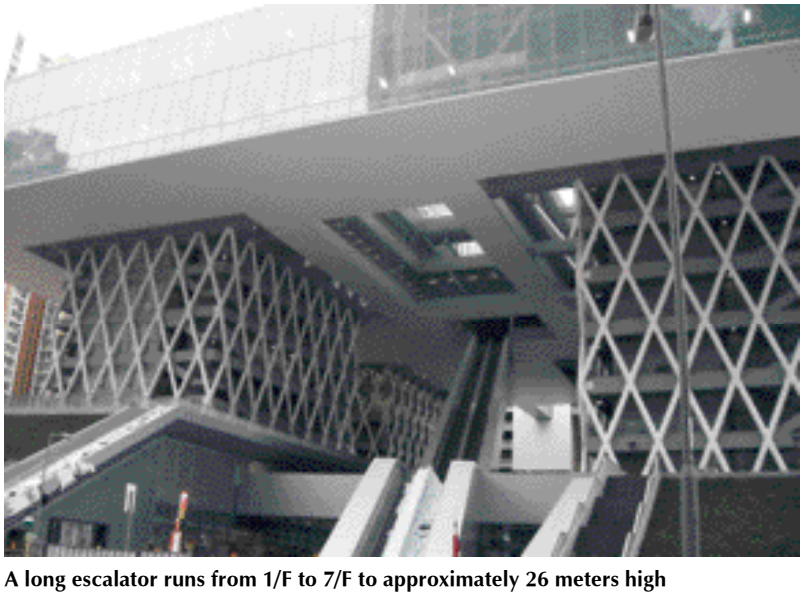
BUSINESS ENVIRONMENT COUNCIL
商界環保協會

The Hong Kong Design Institute new campus

Tseung Kwan O, Kowloon, Hong Kong



Use of fair-face concrete as external wall finishes for the plant rooms located at sky garden at 9/F of HKDI building



A long escalator runs from 1/F to 7/F to approximately 26 meters high

Construction of the new campus of The Hong Kong Design Institute (HKDI) is a prestigious project for main contractor China Resources Construction. Designed by French architectural firm Coldefy & Associates Architects Urbanistes, the design was selected as the winner in an international design competition.

The main contract includes the construction of a 12-storey building comprising two podia of 2 and 3 levels respectively, a 3-storey sky platform and 4 tower blocks for the new campus of The Hong Kong Design Institute.

The construction of the podium floor is mainly a RC structure and the construction of tower blocks and the sky platform is a composite structure of structural steel and reinforced concrete. The quantity of structural steel used is approximately 3200 tons.

The HKDI campus has a 2-level auditorium with 740 seats, lecture theatres, classrooms, studios, library, offices and sports playground. A gymnasium is located on ground floor. Basketball court and swimming pool are situated on 1/F.

The 3-storey sky platform is located at 7/F to 9/F, the area of the sky platform is approximately 100.8 m x 101.6 m which is mainly supported by pre-tension structure at 9/F. The construction of the sky platform consists of large falsework system.

The large falsework system for the 7/F slab of the complex had to be propped from the ground floor and podium level. Massive scaffolding systems were installed. The falsework system had to be in place for the construction of 8/F and 9/F and remained intact until the 9/F structure had gained sufficient strength. The dead load and construction load for this requirement had to be taken into account carefully in the design of the falsework system.

The Lee Wai Lee campus is an 11-storey high building for the reprovisioning of the Vocational Training Council and Lee Wai Lee campus. The building is a traditional RC structure. The HKDI and the LWL campus is connected by link-bridge at 1/F, 2/F. 7F, 8/F and 9/F.

Green design

The roof of each tower is designed with green roof system covered by a light layer of vegetation. The green roof provides insulation to the building and helps to lower air temperature especially in the summer.

The use of fair-face concrete as external wall finishes for the plant rooms located at sky garden on the 9/F of HKDI building offers practical and natural finishing touch to the facade.

owner
Vocational Training Council

design architect
Coldefy & Associates Architects Urbanistes

project architect
P&T Architects and Engineers

structural engineer
Ove Arup & Partners / P&T Architects and Engineers

BS engineer
Parsons Brinckerhoff (Asia)

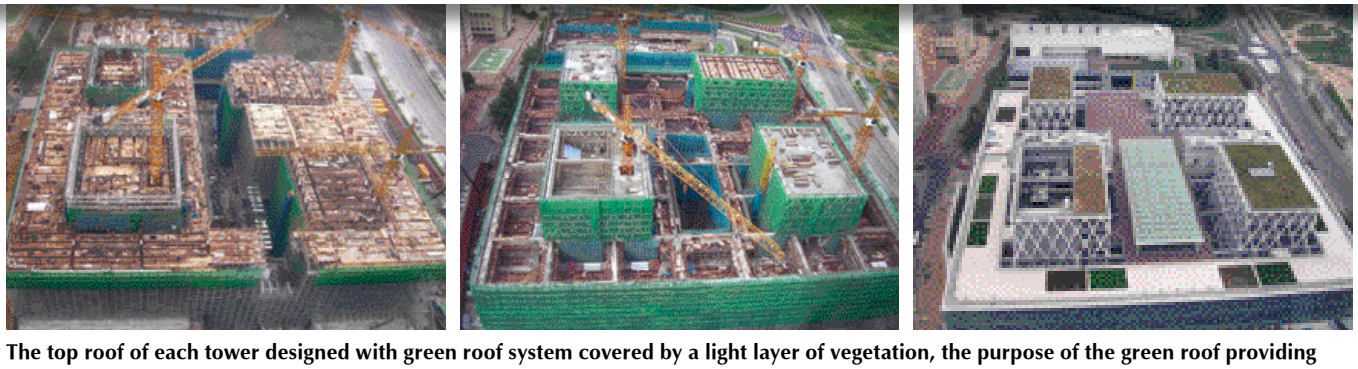
landscape architect
ACLA

quantity surveyor
Widnell Ltd

main contractor
Penta-Ocean – China Resources Construction Joint Venture

Fast Facts

contract sum	HK$ 1,094 million
commencement date	10 May 08
building handover	April 2010
site area	21,700 sq m
GFA	82,647 sq m
building height	Approximately 55.4 meters
scope of works	Pile cap, superstructure, M&E works, curtain wall, internal and external fitting-out



The top roof of each tower designed with green roof system covered by a light layer of vegetation, the purpose of the green roof providing insulation to the building and helping to lower urban air temperatures

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JEBSEN BUILDING PRODUCTS

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Run Run Shaw Creative Media Centre

City University of Hong Kong

The Run Run Shaw Creative Media Centre at City University of Hong Kong has ushered in a new era for creative media in Asia. The centre is a masterpiece of architecture and a landmark for Hong Kong and the world.

With state-of-the-art teaching and research facilities, the centre helps nurture the next generation creative media and communication professionals. It establishes itself as a hub for professionals by promoting interdisciplinary exchange, research and synergistic collaboration.

Situated on Tat Hong Avenue in Kowloon Tong, the Run Run Shaw Creative Media Centre is a 9-storey complex with study space, staff offices, student/staff amenities and supporting facilities, laboratories and theatres and advanced audio-visual equipment.

According to the architect Mr Libeskind, the unique building exterior captures the creative spirit and intensity of Hong Kong. Within, it provides a stimulating environment and meeting point for creative media professionals from around the world and for student-staff interactions, interdisciplinary collaborations and synergies with industry.

The dynamic-looking building is the permanent home of the School of Creative Media and also houses the Department of Computer Science, Department of English, Department of Media and Communication, and the Centre for Applied Computing and Interactive Media.

China Resources Construction is the main contractor for the project and the centre was officially opened in 2011 and followed a six-month festival of world-class events including a series of symposia, performances, exhibitions and world premiere screenings.

華潤大廈
全港首幢更新**環保大廈**

專訪：華潤物業有限公司 副總經理 鍾冠文先生

請簡介華潤大廈的背景和歷史

華潤大廈在1983年落成，為灣仔北區的甲級寫字樓大廈，佔地6,600平方米，分別有兩座大樓，一為高48層的寫字樓大廈，另一座為五層高的展覽中心，三層地庫主要為停車場，二、三樓為食肆和商場。

為何要翻新大廈？

從商業和環保角度去看，這個地段是十分有價值的，如果拆卸後再重建，對整體社會環境來說會有較大的影響，例如：拆卸會產生大量運輸和廢料，帶來極大的能源消耗，是絕對不理想的。所以我們請來專家，建

築師和顧問公司一起去思考，用一個環保方法來重新把華潤大廈改裝，讓大家享受到有效和舒適的工作及生活環境。

翻新工程主要範圍包括甚麼？

整體來說，外牆改裝工程最大，整幢大樓用上了最先進的玻璃幕牆系統，而內裡包含有很多綠色元素，令大廈有一個現代化的外觀，而同時提供一個節能舒適的戶內環境；此外在頂樓層亦作出結構性修改，因為頂樓層很舊，加上有一個舊式招牌，在環保上未能達到今時今日新的取向，所以在新的外牆上就加了裝飾的LED燈飾，這是低能源消耗的燈飾，耗電量低，為香港夜景帶來多一分精彩，又達到環保的指標。

戶內方面，升降機和扶手電梯都作出了重新配置，希望運用新指標，提高效率同時達到節能效果。此外，大堂除了改建外，在安排方面，採用了大量天然產品，減低維修上無謂開支。

整幢大樓的冷氣系統方面，也會重新提升。例如：室內安裝二氧化碳探測器，藉以去控制空調供放，節省能源，對碳的排放和改善室內空氣質素會有很大的幫助。

大廈翻新後，你覺得對業主和住客有甚麼得益之處？

對業主來說，在社會責任上，我們是應該追隨社會的發展，由於現在翻新工程費用一般較高，而我們亦定立了很高的指標，令我們取得LEED白金級認證，對使用這幢大廈的客戶來說會更受歡迎，不論在室內質素或實用性、方便性來說，我們都考慮到，就算在人流交通方面，我們也重新安排，務求市民使用大廈時會更舒適。

翻新工程是否由你們負責？

整個工程都是由華潤集團屬下的華潤營造進行施工的。外牆施工而不影響用戶難度非常高。我們的施工方法是採用了香港比較少人使用，而我們又認為是對客戶、對週遭人流比較好的方式。我們先在外牆安裝一個可控制自動升降的工作臺(elevated working platform)去進行各項施工。所以在施工過程中不會有棚架，讓室內使用者對外觀景的影響，減至最低，還有嘈音、空氣質量等影響，亦都減至最低，因為我們保留原有的窗

戶，只會在室外進行工程，令室內空氣不受任何影響，於完成幕牆安裝後，才拆改原有的窗戶。

施工過程一般最多只有約150工人，因為我們做的方式都是預先安排和把工作分散的，計劃得比較仔細，因為我們不想集中某段時間施工，對客戶會做成太大滋擾 所以我們將不同工程，分在不同時段做。最複雜的是外牆，另外一個難度高及複雜的工程是從五樓到地庫作結構性修改。因為要配合不同人流和運輸的需要，我們將大廈以前集中在首層大堂多人流的地方，現分成兩個區，地下大堂及一樓大堂，所以我們加建了不同通道和自動扶手梯,把人流分散到兩個區域，作出有效的結構性改變。

到2012年2月中為止，大約有百分之七十的樓面已經完成翻新，玻璃幕牆也基本上完成施工。華潤大廈翻新工程總費用約5億760萬元。

在建築過程中亦獲得業界及相關部門的認同，包括：勞工處、職安局、發展局所舉辦的活動，我們也獲得多個獎項。

大廈旁的公共花園，現在情況如何？

位於華潤大廈北面的港灣道花園是和康民署，還有灣仔區議會共同協商後，一起協議改造的。因為以往的花園較舊式和有圍牆，以往的洗手間和小食亭較接近，市民使用率都不高，所以當時我們認為可以做改善工程。新設計主要將圍牆拆掉，改為開放式設計，但公園依然會有小食亭和洗手間，現在小食亭和洗手間已分開在不同角落，洗手間新穎，透光設計，採光程度較以前佳，提供過往的設施，如；捉棋盤、椅子，加上現代化的涼亭，整體工程已完工，耗資約4000萬元。預計二月尾會移交康民署，期望三月可以給市民使用。

這個公園擁有權是政府的，我們只是出資作改善工程，維修補養都是政府負責，我們已落實以低收費在未來十年負責公園的維修，公園中間為廣場，可以進行各種活動，為灣仔北的市民帶來一個理想的好去處。

翻新後的華潤大廈，令灣仔北充滿現代化和活力，因為看到現在灣仔北，配合政府工程，灣仔北從天馬艦開始，已出現全新局面。

簡介華潤集團

華潤（集團）有限公司（以下簡稱“華潤”或“華潤集團”）是一家在香港註冊和運營的多元化控股企業集團，其前身是1938年於香港成立的“聯和行”，1948年更名為華潤公司，1952年隸屬關係由中共中央辦公廳變為中央貿易部（現為商務部），2003年歸屬國務院國有資產監督管理委員會直接管理，被列為國有重點骨幹企業。

1983年，華潤將所管理的下屬機構經重組轉為以股權為紐帶的公司，在此基礎上成立了華潤（集團）有限公司。此後華潤的業務由總代理貿易轉向自營，並通過一系列實業化投資，推動企業逐步發展成為在香港和內地頗具影響力的、以實業化為核心的企業集團。

華潤集團下設7大戰略業務單元、21家一級利潤中心，有實體企業1,200多家，在職員工33.8萬人。華潤在香港擁有5家上市公司。其中，華潤創業、華潤電力、華潤置地位列香港恒生指數成份股，成為華潤旗下“藍籌三傑”。華潤集團是全球500強企業之一，在《財富》全球500強排名中位列2010年第346位。

集團核心業務包括消費品（含零售、啤酒、食品、飲料）、電力、地產、醫藥、水泥、燃氣、金融等。華潤的多元化業務具有良好的產業基礎和市場競爭優勢，其中零售、啤酒、電力、地產、燃氣、醫藥已建立行業領先地位。

華潤自2001年開始實施“再造華潤”發展戰略，通過兩個戰略期的發展，已建立起雄厚的產業基礎，產業地位和發展能力大幅提升。

簡述華潤集團在建築方面的發展

在建築方面，由集團屬下的華潤營造有限公司負責。我們發展的策略是重質不重量，每一個項目都要以高質素完成，以客為重。因此，近年完成了多項施工技術要求甚高的地標性項目，如：城市大學的邵逸夫創意媒體中心；香港科學園的Green 18大樓，一間特色的環保大廈；還有位於將軍澳的VTC新大樓，中文大學的生化實驗室大樓及施工中香港房屋協會位於深水埗的重建項目K25等。

深水埗保安道/懷惠道/東京街市區重建項目(K25)

香港房屋協會市區重建項目K25（合約編號）地盤位於九龍深水埗區保安道/懷惠道/東京街交界，上蓋工程分別在4個區域總共興建4座建築樓宇，包括當中一個區域興建2座28層高的私營房屋合共327個住宅單位，而其中首五層低層平臺包括老人院、私人會所、商舖等，還有2層停車場地庫，另有露天泳池，而其中3座建築樓宇由2條行人天橋相連；整個項目建造合約總值為$494,685,000，總承建商為華潤營造有限公司，合約期由2010年8月20日 至2013年1月15日，合共880天。

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