



CONSTRUCTION
INDUSTRY COUNCIL
建造業議會

Sustainability Report

可持續發展報告

2013



About the Construction Industry Council (CIC)

有關建造業議會 (議會)

The CIC was established as a statutory body on 1 February 2007 in Hong Kong under the *Construction Industry Council Ordinance* Cap 587. The CIC amalgamated with the then Construction Industry Training Authority on 1 January 2008 and the then Construction Workers Registration Authority on 1 January 2013. The CIC became the single co-ordinating body of the construction industry in Hong Kong, bringing industry platform, construction manpower training and trade testing as well as registration services under the purview of the CIC.

議會是根據《建造業議會條例》第587章於2007年2月1日在香港成立的法定機構。議會於2008年1月1日與前建造業訓練局合併，並於2013年1月1日與前建造業工人註冊管理局合併，議會成為香港建造業界單一統籌機構，將業界平台、建造業人力培訓和測試、以及註冊服務納入議會工作範疇。

Mission

使命

To strengthen the sustainability of the construction industry in Hong Kong by providing a communications platform, striving for continuous improvement, increasing awareness of health and safety, as well as improving skills development

為加強香港建造業的可持續發展提供一個溝通平台，強化健康及安全意識，提升技能發展，力求不斷改善

Vision

願景

To drive for unity and excellence of the construction industry of Hong Kong

團結香港建造業 精益求精

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主席的話



Ir LEE Shing-see, GBS, OBE, JP

李承仕 工程師

金紫荊星章，OBE，太平紳士

Chairman, Construction Industry Council

建造業議會 主席

The Construction Industry Council (CIC) was incorporated by the *Construction Industry Ordinance (CICO) Cap 587* in 2007. In the past seven years, the CIC has evolved from a communication platform for the construction industry to the sole statutory organisation handling the matters of the construction industry of Hong Kong. Sustainability carries a special meaning for the CIC. We cover not only the environment and social aspects but also shoulder the responsibilities that contribute to the sustainable development of the construction industry in Hong Kong. The densely built environment of Hong Kong not only amazes people from around the world, the construction industry of Hong Kong has also been providing impetus to the economic and social development, in a modest yet solid way. Thus it is of paramount importance to upkeep the momentum of the industry development. With this inaugural *CIC Sustainability Report*, we hope to share with our stakeholders as well as the community the beliefs and initiatives of the CIC to contribute to the betterment of our home Hong Kong.

建造業議會(議會)在2007年根據《建造業議會條例》(條例)第587章成立。過去七年，議會由行業溝通平台逐漸演變成處理香港建造業事宜的唯一法定機構。對議會來說，可持續發展具有特別意義。我們不僅要照顧環境和社會發展等範疇，還肩負起香港建造業持續發展的責任。香港的密集建築環境令世界各地人士感到驚訝，香港的建造業更為經濟和社會發展提供溫和而穩固的動力，因此我們必須保持行業的發展勢頭。議會致力把香港建設成更美好的家園，希望藉著發表首份《可持續發展報告》，把這個信念及相應的措施在持分者間和社會各界廣泛宣揚。

Executive Director's Message

執行總監的話

The management philosophy of the CIC is to create value for the organisation, while at the same time contribute to the industry and to society at large. The CIC is dedicated to construction excellence and nurturing a professional culture among the industry practitioners. As such, the CIC strengthens ties with industry, enhancing partnerships with the industry players and intensifies our linkages with various aspects of the industry. Our ultimate goals are to enhance the understanding of the construction industry with the wider public, to train new blood for the construction industry so as to maintain a core skilled workforce for the industry, and to enlighten the industry with new technology and innovation. Needless to say, environment and people are inevitable components in these initiatives as well as in the other greening and caring activities of the CIC. Our sustainability initiatives are a reflection of the aspirations of the CIC to realise the efforts to “build a better Hong Kong”.

議會的管理哲學是為機構創建價值，並為整個建造業和社會作出貢獻。議會致力培育業界的專業文化，精益求精。因此，議會持續加強與業界的溝通和鞏固夥伴關係，以使我們跟業界在各方面的聯繫更緊密。我們的最終目標是加深社會大眾對建造業的認識、為建造業培訓生力軍以保持核心技術勞動力、並透過創新科技提升建造業。人與環境無疑是這些措施及議會其他綠化和關懷行動的重要元素。我們推行的各項可持續發展措施，正反映了議會努力建設更美好的香港。

Ir TO Wing, Christopher
陶榮 工程師

Executive Director,
Construction Industry Council
建造業議會 執行總監



Highlights of 2013

2013 要聞

The CIC is dedicated to meeting the needs of its stakeholders with the goal of driving for improvements, both for the industry and for the CIC itself. The highlights of 2013 activities are as follows:

Striving for Excellence of the Industry

The CIC promoted good practices through alerts and guidelines. These publications were result of the valuable inputs from industry practitioners. Backed by research, the CIC issued “Report on the Strategic Implementation of Prefabrication”, “Phase 1 Industry Key Performance Indicators (Productivity, Health & Safety, Manpower)” and “Final Draft Report of the Roadmap for Building Information Modelling Strategic Implementation in Hong Kong’s Construction Industry”. The CIC seminars and conferences provided a platform for knowledge enrichment and sharing of good practices. The CIC also extended exchanges with its Mainland and overseas counterparts by entering into Memorandum of Understandings with the China Construction Industry Association, as well as Constructing Excellence of the United Kingdom. With the two signatory events of 2013 – the Sustainable Building 2013 Hong Kong Regional Conference (SB13 HK) and the Construction Safety Week 2013, messages of sustainability and safety were widespread.

Meeting Manpower Needs

The CIC had different schemes for workers training, including in-house training, Enhanced Construction Manpower Training Scheme and collaborative training schemes. Together with our supervisor training programs and continuous training programs for industry practitioners, the CIC offers all round trainings for our industry practitioners. The CIC also provides trade test services to the workers through civil, building, electrical and mechanical as well as machinery operator tests.

Building Image of the Industry

In order to promote the construction industry to all walks of life, the CIC launched different initiatives for different groups of the public, aiming to increase the awareness and appreciation of the construction industry by the general public. 13 Build Up Ambassadors were appointed to promote the industry. The liberal studies materials and the “Building Your Life Experience Day” were tailored for secondary and university students respectively. The CIC Photo Competition and ZCB Upcycling Competition aroused the interests of various groups. Not to mention the CIC advertisements in various media. All of these initiatives allowed the information on construction industry to reach the wider public.

議會致力回應不同持分者的需求，不斷改善香港建造業及議會。2013年的活動亮點如下：

推動業界精益求精

議會以提示及指引宣導良好作業方式，這些刊物都是由從業員付出寶貴意見而得出的結果。議會發表的《預製建築方法策略應用報告》、《第一階段業界關鍵績效指標(生產力、健康與安全、人力)》、以及《香港建造業策略性推行建築信息模擬路線圖之最終草擬報告》均為研究結果。議會舉辦的研討會和論壇提供一個增進知識和分享良好作業方式的溝通平台。議會又致力與內地及海外機構交流，分別與中國建築業協會及英國 Constructing Excellence 簽署諒解備忘錄。可持續建築發展香港地區會議 (SB13 HK) 及建造業安全周2013這兩個重頭項目更把可持續發展及安全的訊息廣傳開去。

應對人力需求

議會舉辦不同的技術人員培訓，包括內部培訓、強化建造業人力訓練計劃及合作培訓計劃。加上建造業監工課程和為業內人士而設的持續進修課程，議會為建造業從業員提供全面的培訓。議會亦提供土木、建築、機電及機械操作的工藝測試服務。

建立行業形象

為加強公眾對建造業的認識，議會為不同人士推出不同項目，旨在提升公眾對建造業的認識和認同。議會委任13位Build Up活力大使，負責宣傳建造業；專為中學生及大學生發表通識教材及舉辦「建造您人生體驗日」；建造香港攝影比賽及零碳天地的升級再造設計大賽吸引不同興趣人士的參與；加上議會在不同媒體的廣告等，均都使建造業的訊息得以廣傳。

Growth of the CIC

With the increasing diversification and expansion of services, the CIC now has office premises and training facilities in 17 locations in Hong Kong, of which the Yuen Kong Training Ground in Yuen Long and Wong Lung Hang Training Ground in Tung Chung were newly opened in 2013 and the CIC Service Centre in Nam Cheong MTR Station commenced operation in 2014. We shall continue our endeavors to support the healthy and sustainable development of the construction industry in Hong Kong through our various service points and our diversified initiatives.

議會發展

議會在全香港17個地點設有辦公室和訓練場地，以應付日趨多元及廣泛的服務，其中包括2013年新開設的元朗元崗訓練場和東涌黃龍坑訓練場，以及位於南昌港鐵站，在2014年投入服務的南昌服務中心。議會繼續透過各服務點和多元化的活動致力為香港建造業的健康及可持續發展作出貢獻。

Our Location 我們的位置



CIC Sustainability Framework

議會可持續發展框架

Construction Industry Sustainable Development 香港建造業的可持續發展

- Image Building
建立形象
- Training of New Blood
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Go Green and Low Carbon 綠化和低碳

- Low Carbon Living
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People Oriented 以人為本

- Care about Workers
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關懷僱員



Construction Industry Sustainable Development 香港建造業的可持續發展



Embrace our future with a world
class construction system

以世界級的建築制度建設未來



Image Building

建立形象

What do you think of the construction industry?

When the general public is asked this question, it is common to receive a negative response. Such a perception creates hurdles attracting new blood to join the industry and to encouraging people to understand more about the construction industry. This vicious cycle is not conducive to the development of the construction industry.

A more positive perception needs to be promoted. The momentum for change came with the first batch of “Build Up Ambassadors”. These 13 inspiring young adults who are passionate about the construction industry vowed to promote the construction industry to the public. Nine of the “Build Up Ambassadors” are practitioners with years of experience while the remaining four are CIC trainees who were undertaking or had just graduated from CIC training courses.

Their experiences were reported in Recruit, am730, Sing Tao Daily, on Radio Television Hong Kong, and in promotional advertisements in bus stations, MTR stations, as well as in talks at construction recruitment fairs and in schools. With the support of their families to develop their careers in the industry, the Build Up Ambassadors also influenced others, especially young people to learn more about opportunities in the industry.

你對建造業有何看法？

普羅大眾對這個問題的回應多較負面，而此等觀念不單窒礙業界吸納新血，亦削減了大眾對建造業的興趣。這樣的惡性循環實在不利建造業的發展。

我們需要廣泛地宣揚正面的觀念。其中一支改革的力量來自首屆「Build升活力大使」，由13位對建造業充滿熱誠的年青人全力向公眾推廣建造業。當中9位「Build升活力大使」是擁有數年工作經驗的建造業從業員，其餘4位大使則是現正就讀或剛修畢議會培訓課程的學員。

他們的故事已經由《Recruit》、《am730》、《星島日報》、香港電台、巴士站及港鐵站的宣傳廣告，以及建造業招聘會及學校講座等傳遍整個香港。在家人的全力支持下，各位大使在建造業大展拳腳的同時，亦讓更多社會人士尤其年輕人了解到行業提供的機會。



Different media has been used to effectively communicate what exactly construction is about. The second series of the television drama “Dreams Come True”, co-produced by the CIC, the Development Bureau, and Radio Television Hong Kong, aired in January 2014. The storyline was about young people pursuing their dreams and how they found the construction industry to be their destiny. The CIC supported the production by providing skills training to the actors, advice on skills presentation, and by arranging shooting locations at CIC premises.

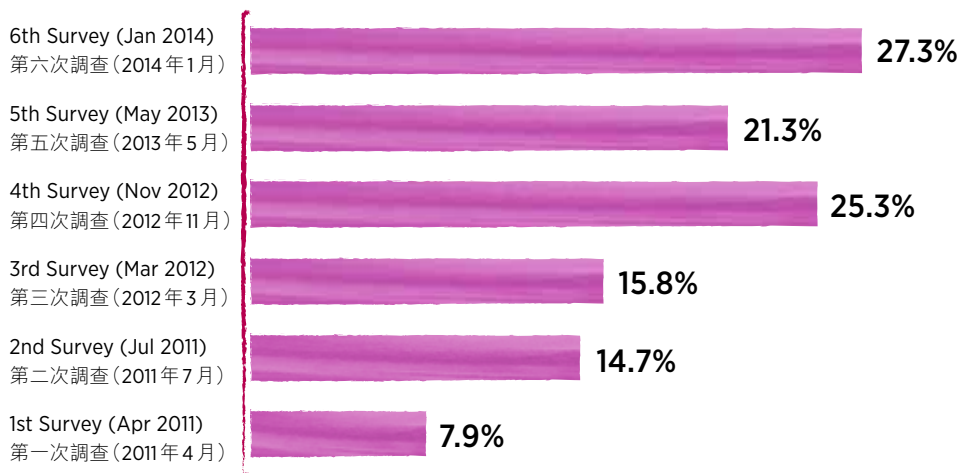
The public outreach publicities on construction industry have yielded encouraging result. The Development Bureau has engaged a consultancy firm to conduct a series of image tracking survey on the construction industry since 2011 to gauge the effectiveness of the promotion and publicity measures of the “Build Up Publicity Campaign”. For example, the perception to join the construction industry among youngster aged from 15 to 24 showed an increase from 7.9% in 2011 before the launch of the “Build Up Publicity Campaign” to 27.3% in 2014. The result revealed that not only the pool of potential new blood was enlarged but also the public’s understanding about the construction industry was improved.

我們也透過不同媒體向大眾展示建造業的面貌。由議會、發展局和香港電台聯合製作的電視劇《總有出頭天》第二輯已在2014年1月播出。故事講述年輕人的築夢過程，以及如何發現建造業正是他們的志向所在。除了為演員提供技術培訓和工藝表現建議，議會亦提供場地方便拍攝。

各項有關推廣建造業的宣傳活動得到鼓舞的成績。發展局自2011年起委託的顧問為建造業的形象做一系列的調查以評估「Build Up宣傳計劃」各項宣傳及推廣措施的成效，當中由15歲至24歲有意加入建造業的年青人從2011年「Build Up宣傳計劃」推出前的7.9%上升到2014年的27.3%。此結果顯示潛在的生力軍數目人數增加，而大眾對建造業的認識亦加強。

Whether Youngster would Consider to Join the Construction Industry in the Future 年青人會否考慮加入建造業

“Yes 會”



	年Aged 15-17	年Aged 18-20	年Aged 21-24
6th Survey (Jan 2014)	26.9%	27.7%	28.0%
5th Survey (May 2013)	24.6%	16.3%	21.9%
4th Survey (Nov 2012)	25.6%	20.9%	31.0%
3rd Survey (Mar 2012)	15.3%	18.4%	13.8%
2nd Survey (Jul 2011)	22.0%	4.9%	7.4%
1st Survey (Apr 2011)	11.1%	4.8%	3.4%



It Works Because I Work
我建造 您的未來



Winning photos of the CIC Photo Competition 2013
建造業議會建造香港攝影比賽2013得獎作品

Training of New Blood

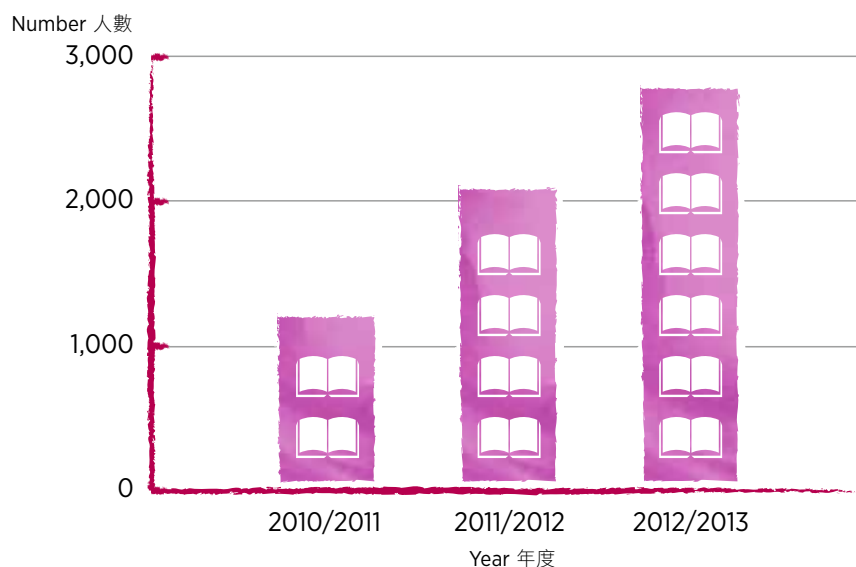
培訓生力軍

“One brick, one tile” by industry practitioners contributes to the diversified built environment of Hong Kong. The construction industry is one of the major pillars in the economy with a significant contribution in the gross domestic product (GDP) of Hong Kong. Nevertheless, the industry has been facing the issues of an ageing workforce and a fluctuating demand for labour. Maintaining a stable workforce to fulfill the industry’s needs is crucial. The CIC provides skill-based training for new workers as well as continuous skill upgrading for experienced industry practitioners.



Scope of our training programmes has expanded from classroom instruction by the CIC to collaborative training, partnering with industry stakeholders to deliver the training. This not only copes with the surging demand of recent years due to the booming industry, but also to explore diversified modes of training to achieve the optimal result. Our graduates are equipped with semi-skilled worker qualifications and further trained up by the industry through on-the-job training to progress to be skilled workers.

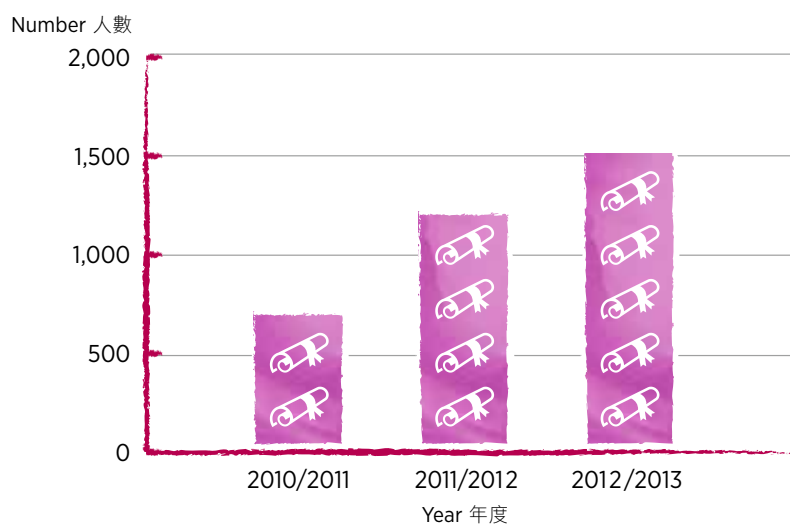
Number of graduates of CIC in-house and collaborative construction worker training
建造業議會本部培訓及合作培訓計劃之畢業生人數





Number of graduates of CIC in-house construction worker training aged under 35

建造業議會本部培訓課程之畢業生數目 — 35歲以下



建造業從業員以「一磚一瓦」堆砌成香港獨有的多元化建築環境。建造業更是香港的主要經濟支柱之一，於本地生產總值佔有相當比重。然而，業界正面對勞動力老化和人力需求波動的問題，維持穩定的勞動力以應付業界需求是當前要務。因此議會專為行業新人提供技術培訓，亦為現職人士提升技術。

議會的培訓已由一般的課堂訓練，延伸至與業界持分者合作提供的培訓計劃。除為了應付近年業界急促發展帶來的大量人力需求外，這類合作計劃提供了不一樣的培訓模式，有助探索如何達到最佳的培訓效果。我們的畢業學員均已具有半熟練技工的資格，進一步接受在職培訓後即可成為熟練技工。



For the experienced industry practitioners, lifelong learning is required to refresh and update their professional knowledge. As such, the CIC offers a comprehensive range of professional courses covering technical skills, safety, theoretical knowledge as well as management know-how.

對於有經驗的同業來說，終身學習可持續提升自己的專業知識。議會亦提供廣泛的專業課程，涵蓋技術技能、安全、理論知識以及管理知識等範疇。

Training outputs of part-time courses

建造業議會兼讀制課程訓練成績

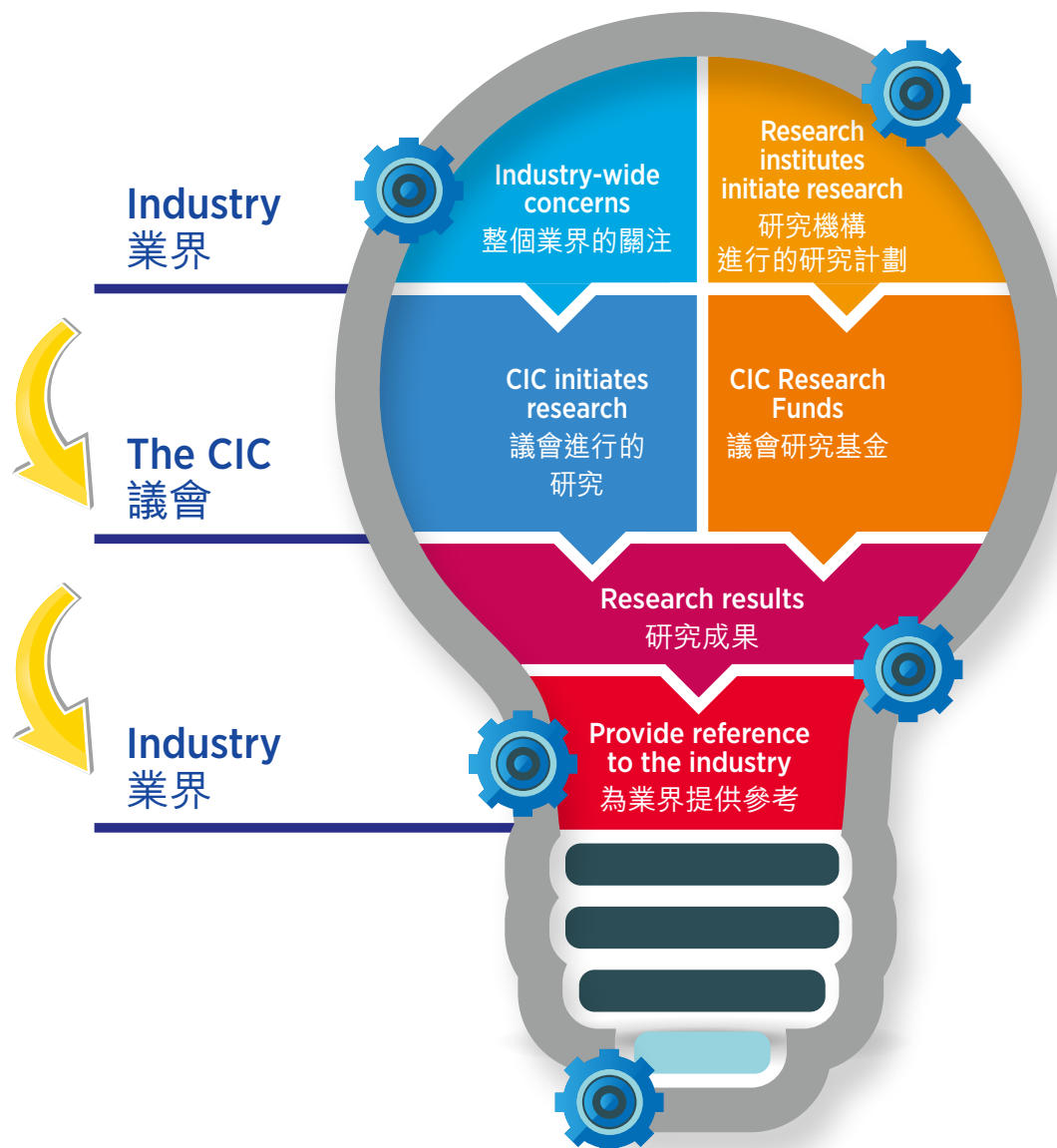


Innovation in Construction

創新建築

Innovation is one of the catalysts to enhance the productivity and global competitiveness of the construction industry. One of the CIC's functions is to provide impetus to innovation and technology. Certain industry-wide issues may require research to explore possible solutions. The CIC initiates research based on the needs of the industry. The CIC also provides research grants to research institutes to spearhead new methodology and technology with an ultimate goal to inspire the industry or to have the new inventions adopted.

創新是提升建造業生產力和全球競爭力的重要元素之一。議會其中一項職能是推動創新科技和技術。業界某一些問題可藉研究來探討解決方案。議會根據業界的需要而提出研究，同時亦為研究機構提供資助，尋求新的方法和技術，達致啟發業界或促使業界採用新技術的最終目標。



CIC Initiated Research

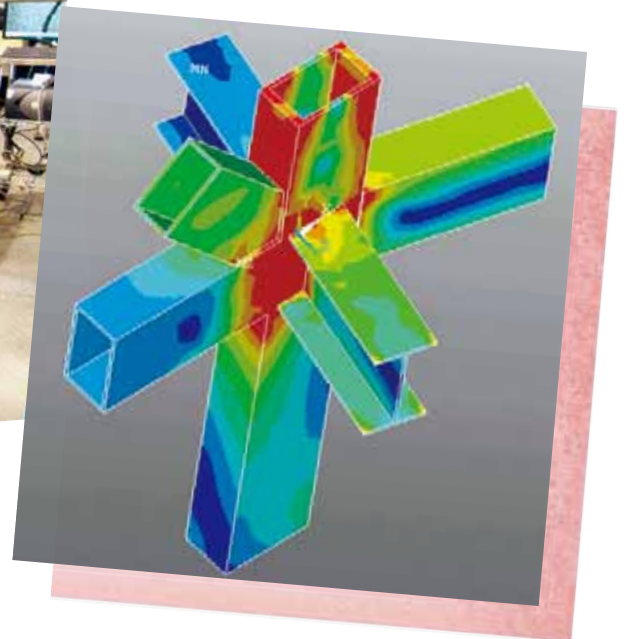
The CIC initiates research projects to facilitate policy formulation, advocate technology advancement and prepare references for good practices and improvement measures. Our key projects are summarised below:

- “The Construction Industry Council Manpower Forecasting Model” has been conducted to estimate the demand and supply of workers in different trades
- In view of the shortage of river sand for construction work, the CIC has been researching river sand substitutes for concrete production and cement sand mortar production
- A study on the strategic implementation and application of prefabrication in Hong Kong was conducted with an aim to alleviate labour demand in the construction works and improve productivity
- The CIC is undertaking research on the Comprehensive Hong Kong Based Carbon Labelling Scheme Covering Emission Intensive Construction Materials to ingrain awareness of low carbon products from the initial stage of construction
- To review the work life and welfare of workers, the Feasibility and Implementation Strategy of “No-Saturday-Site-Work” in the Hong Kong Construction Industry was commissioned

議會提出的研究

議會提出的研究項目主要旨在促進政策制定、倡導科技進步，以及提供良好工作方式和改善措施作為參考。我們的重點研究項目如下：

- 「建造業議會人力資源預測模型」估算不同建造業工種的人力需求和供應
- 議會進行混凝土和水泥砂漿生產用河砂替代品研究，以解決建造業河砂短缺的問題
- 進行有關在香港採用預製組件的策略性實施和應用研究，以緩解建造業勞動力需求和提高生產力
- 議會正研究為香港的高排放建築材料推行全面碳標籤計劃，希望業界於建築初期開始使用低碳產品
- 進行「在香港建造業實施工地星期六休息的可行性研究及實施策略」，以檢討工友的工作情況和福利



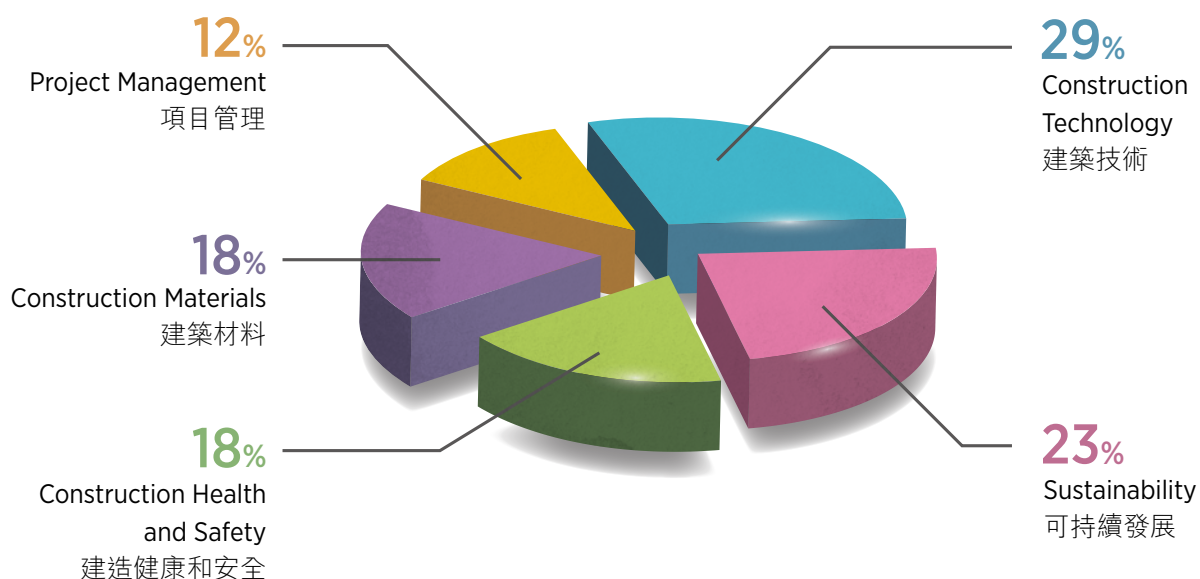
CIC Research Funds

Since the launch of the funds in 2012 up to the end of 2013, the CIC Research Fund has received promising responses with a total of 109 applications. To date, HK\$17.7 million has been granted for 17 research projects, covering the research areas of construction health and safety, construction materials, construction technology, project management and sustainability.

議會研究基金

自從議會研究基金於2012年成立以來，截至2013年底，議會總共收到109份申請。議會現已向其中17項研究計劃撥出總共17,700,000港元研究經費，研究範圍包建造健康和 safety、建築材料、建築技術、項目管理及可持續發展。

Research Area of CIC Funded Projects 議會研究基金研究範圍





Subject Area 主要研究範圍	Research Title 研究項目	Research Institute 研究機構
Construction Health and Safety 建造健康和安 全	1. S-Helmet – a proactive construction safety management system based on real-time localisation S頭盔 — 基於實時定位的主動性建築安全管理系統	The Hong Kong Polytechnic University 香港理工大學
	2. Pilot Medical Examination Scheme for Construction Workers 建造業工人醫療體檢試驗計劃	The Hong Kong Polytechnic University 香港理工大學
	3. Electrical and Mechanical Safety in Construction 建造業的機電安全	The Hong Kong Polytechnic University 香港理工大學
Construction Materials 建築材料	4. Recycling Used Timber Formwork into Lightweight, Thermal-insulating Cement-bonded Particleboards 回收廢舊木模板製成輕質、熱絕水泥膠合刨花板	The Hong Kong Polytechnic University 香港理工大學
	5. Development of Ultra-Ductile Cementitious Waterproofing Rendering by Recycled Plastic 以再用塑膠，開發超韌性水泥的防水渲染	Nano and Advanced Materials Institute Limited 納米及先進材料研發院有限公司
	6. Development of High Modulus Concrete for Tall Buildings 開發應用於高層建築的高模量混凝土	The Hong Kong University of Science and Technology 香港科技大學

Subject Area 主要研究範圍	Research Title 研究項目	Research Institute 研究機構
Construction Technology 建築技術	7. Adopting Eurocodes by Hong Kong Construction Industry Technical Guide on Effective Design and Construction to European Steel Code EN 1993-1-1 採用歐洲規範於香港建造業 — 根據歐洲鋼鐵標準 EN 1993-1-1作有效設計及建造之技術指引	The Hong Kong Polytechnic University 香港理工大學
	8. Practical Guidelines on Seismic Detailing for Concrete Buildings in Hong Kong 香港混凝土建築的抗震實用指南	The University of Hong Kong 香港大學
	9. Gyroscopic Stabilisers for Construction Cranes and Gondolas 建築起重機及吊船的陀螺穩定器	City University of Hong Kong 香港城市大學
	10. Innovative Design Technique for Steel-Concrete Composite Structures in HK 應用於香港的鋼筋混凝土複合結構創新設計技術	The Hong Kong Polytechnic University 香港理工大學
	11. Labour and Cost Efficient Construction Method for Retrofitting Reinforced Concrete Columns with Fibre Reinforced Polymer 具勞動及成本效益的加裝鋼筋混凝土柱與玻璃鋼建造方法	City University of Hong Kong 香港城市大學
Project Management 項目管理	12. Development of an Automatic Image Collection and Analysis System for Improving Onsite Construction Productivity 開發自動圖像採集與分析系統以提高建造工地的生產力	The Hong Kong Polytechnic University 香港理工大學
	13. An Empirical Study of Construction Time Performance of High-rise Private Building Projects in Hong Kong 香港私人高層樓宇的施工時間表現研究	The Hong Kong Polytechnic University 香港理工大學
Sustainability 可持續發展	14. Formulation of Sustainable Trigeneration System Design for High-rise Commercial Buildings in Hong Kong 制定應用於香港高層商業樓宇可持續三聯系統設計	City University of Hong Kong 香港城市大學
	15. Feasibility of Delivering High-rise Low Carbon Buildings in Hong Kong 在香港推行低碳高層樓宇的可行性	The University of Hong Kong 香港大學
	16. Cost-Benefit-Analysis (CBA) for Implementing Green Buildings (GB) Promotion Incentives: with Transaction Cost (TCs) Considerations 實施綠色建築推廣獎勵措施的成本效益分析：同時考慮交易成本	The Hong Kong Polytechnic University 香港理工大學
	17. A Study of Impact of Building Envelope on Urban Outdoor Thermal Environment 建築物外圍結構對城市戶外熱環境的影響研究	The Chinese University of Hong Kong 香港中文大學

Go Green and Low Carbon

綠化和低碳



Embrace our next generation by ingraining understanding of a green and low carbon environment to sustain living standard

培育下一代了解綠化和低碳環境以維持優質生活



Low Carbon Living

低碳生活

In response to the Government's strategy to reduce carbon emissions, the CIC constructed ZCB – Hong Kong's first zero carbon building to showcase low carbon work places and lifestyles, as well as low carbon building technologies. The vision for ZCB is to be a leading exhibition, information and education centre for low carbon building practices to target the problem of climate change through the reduction of greenhouse gas emissions with a view to promote their wider application in Hong Kong.

ZCB aims to achieve zero carbon emissions through passive design, energy efficient active systems and on-site renewable energy generation:

Passive Design – ZCB can switch between a sealed air conditioned environment to a porous cross ventilated mode. Situated on the northwest corner of the site, the building and its surrounding open space receive prevailing cool south easterly winds. ZCB is naturally ventilated for 40% of the year. This significantly reduces energy consumption from mechanical cooling.

為回應政府減少碳排放的政策，議會興建全港首座零碳建築物「零碳天地」，以展示低碳工作場所、生活方式，以及低碳建築技術。零碳天地的願景是成為低碳建築展覽中心、資訊中心和教育中心，減少溫室氣體排放以應對氣候變化的問題，並促使低碳技術在香港獲廣泛應用。

零碳天地旨在透過被動式設計、高效節能系統和可再生能源，達致零碳排放：

被動式設計 — 零碳天地可隨意設定成密封空調環境或對流通風布局。建築物座落西北，連同周圍的空地均能享受到清涼的南偏東風。零碳天地每年有40%的時間採用自然通風，大大減少機器降溫造成的能源損耗。



Active Systems – Connected to more than 2,800 smart sensors, the Building Management System (BMS) monitors building performance for evaluation and real-time display of data in the Building Environmental Performance Assessment Dashboard (BEPAD).

On-site Renewable Energy Generation – Renewable energy at ZCB is generated through a combination of photovoltaics (PV) and a biofuel tri-generation system which uses waste cooking oil to produce approximately 145MWh of renewable energy per year.

Low Carbon Construction Materials – ZCB used rapidly renewable materials, recycled materials and sustainable timber in its construction, such as bamboo flooring, natural linoleum flooring, eco-pavers and pulverised fly ash (as partial cement replacement for concrete mix) as well as sustainable timber from certified sources under the Forest Stewardship Council (FSC). The use of low carbon construction materials and low carbon construction methods contributed to a reduction of about 30% (660 tonnes) embodied carbon at ZCB as compared to an ordinary construction.

主動式系統 — 樓宇設備管理系統連接超過2,800個智能監測儀器，監察樓宇的運作並進行評估；建築物環境表現評估儀表板即顯示實時的相關數據。

可再生能源現場發電 — 零碳天地的可再生能源是來自太陽能光伏板發電，以及利用廢棄食油煉成生物柴油推動的三聯供系統發電，每年可生產大約145MWh再生能源。

低碳建材 — 零碳天地的主要建築物料為快速再生的建材、可循環再用的物料和環保木材，例如竹地板、自然油氈地板、環保地磚、混有再生物料及高碳灰含量的鋼筋混凝土（以部分水泥取代混凝土），以及得到森林管理委員會認證的環保木材等。使用低碳建築材料和低碳施工方法的零碳天地，較一般建築物減少了大約30%(660噸)的隱含碳。





From March 2013 to January 2014, through the use of cost effective passive design and active systems, ZCB self-generated 214MWh renewable energy. ZCB achieves a 45% reduction in energy consumption compared with a benchmark of 156kWh/m²/yr for a commercial building of comparable size of 1,400m² as cited by the Electrical and Mechanical Services Department.

Open Landscaped Area with an Urban Native Woodland

A vast open landscaped area, inclusive of an urban native woodland of about 3,000m² comprising 222 native trees from 44 species, surrounds ZCB. This green area contributes to the improvement of the microclimate of a dense urban area in Hong Kong by cooling the local environment and helping to mitigate the urban heat island effect. It is estimated that the landscape design will lower the local air temperature by up to 1°C. Each mature tree also has the capacity to absorb 23kg of carbon dioxide (CO₂) per year.

由2013年5月至2014年1月期間，被動式設計和主動式系統為零碳天地生產了214MWh再生能源，極具成本效益。根據機電工程署的指引，與1,400平方米的商業樓宇每年156kWh/m²的基準相比，零碳天地有效地減少了45%的能源消耗。

觀景區與都市原生林

零碳天地四周是一片廣闊的開放觀景區，區內大約3,000平方米為都市原生林，栽有約44個品種共222棵的原生樹。這個綠色區域有助降溫和減輕城市熱島效應，改善香港這個人口密集城市的微氣候。這個園林設計估計可令附近環境溫度下降約1°C。每一棵成熟的樹每年亦可吸收23千克二氧化碳。



Recognition of the ZCB

The ZCB has been recognised by various architectural and environmental awards as follows:

零碳天地的認受性

零碳天地獲得以下建築和環境獎項：



	Organiser 主辦機構	Award 獎項
1.	Environmental Campaign Committee – 2013 Hong Kong Awards for Environmental Excellence 2013 香港環保卓越計劃 — 環保創意卓越獎 — 優異獎	Certificate of Merit of Green Innovation Awards 綠色創新獎優異獎
2.	U Magazine - U Green Awards 2013-14 您想綠色生活大獎2013-14	The Best of Eco-life award – Favorite Green Building 最喜愛的綠色建築
3.	Chivas 18 Architecture and Design Awards 2014 Chivas 18 建築設計年獎2014	Public / Community Building 公共 / 社區建設
4.	The Hong Kong Institution of Engineers – Quality Building Award 2014 香港工程師學會 — 2014年度優質建築大獎	Quality Building Award 優質建築大獎
5.	Environmental Protection Department - Friends of EcoPark 2013/14 環境保護署 — 環保園之友2013/14	Friends of EcoPark 環保園之友
6.	Reed MIDEM – MIPIM ASIA 2013 Awards Reed MIDEM — 亞太區房地產領袖高峰會2013大獎	Best Innovative Green Buildings – Bronze Winner 最佳創新綠色建築 — 銅獎
7.	Royal Institution of Chartered Surveyors – Hong Kong Property Awards 2013 皇家特許測量師學會 — 香港房地產年度大獎2013	Grand Award Winner of the Innovation Award 年度創意大獎
8.	BCI Asia – FuturArc Green Leadership Award 2013	FuturArc Green Leadership Award
9.	Australian Institute of Quantity Surveyors Infinite Value Awards 2013 澳大利亞測量師學會 Infinite Value Awards 2013	GHD International Project Award GHD國際項目獎
10.	Hong Kong Green Building Council and Professional Green Building Council – the Green Building Award 2012 香港綠色建築議會及環保建築專業議會 — 環保建築大獎 2012	Grand Award – New Building Category (Building under Construction) – Hong Kong 環保建築大獎 — 新建築類別（建造中的建築物）— 香港
11.	Hong Kong Institution of Engineers – Innovation Award 2012/2013 香港工程師學會 — 最佳創新獎2012/2013	Champion Award (Construction Category) 最佳創新獎（建築類別）
12.	Marketing Magazine's Marketing Excellence Awards 2012	Excellence in Corporate Social Responsibility: Gold 卓越社會責任企業：金獎

Carbon Labelling Scheme for Construction Products

建築產品碳標籤計劃



Cement 水泥



Reinforcing Bar 鋼筋



Structural Steel 結構鋼

The construction industry consumes 40% of materials entering the global economy and generates significant amounts of greenhouse gases (GHG) – the main cause of climate change. The embodied carbon of construction materials used can contribute up to 25% of a building's lifetime carbon footprint. To counter the adverse impact to the environment, the CIC launched the “Carbon Labelling Scheme for Construction Products” (the “Scheme”) to provide a benchmark on the carbon footprint of construction products for the industry to utilise low carbon materials wherever possible.

At the pilot stage, the Scheme currently covers three GHG emission-intensive construction materials: Portland cement, reinforcing bar and structural steel. The iron and steel industry, and cement industry account for 30% and 26% of total industrial CO₂ emissions respectively. Focusing on these three materials, a significant amount of emissions are anticipated to be reduced by low carbon production practices of cement and steel manufacturers and by using labelled low carbon materials in the industry.

The Scheme intends to facilitate the procurement decision for low carbon construction products by upstream bodies in the supply chain, thus encouraging the demand for and supply of low carbon products, as well as motivating the development of low carbon production technology, which could contribute to low carbon construction and sustainable developments in Hong Kong.

建造業消耗了全球經濟約40%的物料，並產生大量溫室氣體，而溫室氣體正是導致氣候變化的主因。建築材料的隱含碳量可造成高達25%的樓宇生命周期碳足跡。為了減低對環境的負面影響，議會推出「建築產品碳標籤計劃」(碳標籤計劃)，為建築材料的碳足跡訂立基準，讓業界盡量使用低碳建材。

碳標籤計劃目前仍在試驗階段，現針對三種較高溫室氣體排放量的建築材料，分別是水泥、鋼筋和結構鋼。鋼鐵工業和水泥工業分別佔整個行業二氧化碳排放量的30%和26%。針對這三種建材，假設水泥和鋼鐵製造商採用低碳生產方式，而業界同時使用低碳建材，相信能顯著降低排放量。

碳標籤計劃亦希望令供應鏈上游的團體在進行採購決定時，選擇低碳建築產品，從而增加低碳建材的供求，以及推動低碳產品的技術發展，協助香港的低碳建築和可持續發展。

Greening in the CIC

議會綠化計劃

“4Rs” in the CIC 議會的「4R」



CIC Green Roof

In January 2014, the CIC finished building its first green roof at the Aberdeen Trade Testing and Training Centre. This marked a significant step to have in-built “go green and low carbon” facilities in the CIC’s premises.

Green roof systems can help to improve thermal performance and act as roof insulation for the building which reduces the amount of energy used in the building. The plants on the green roof can help to reduce carbon dioxide and trap dirt as well as other airborne particles so as to improve the air quality. In addition, they can filter noxious gases and reduce the heat island effect. The construction of the green roof system took into account energy conservation. Solar LED (light emitting diode) lighting was installed along the green roof area. The LED lighting will be activated automatically during night time.

A new irrigation system which controls water usage by sensors was installed. The irrigation system is equipped with a small observatory system which can collect weather data from around the green roof area and activate the irrigation system if necessary. Environmental friendly materials were used to construct the green roof. An eco-paver system made from recycled glass was used in our green garden to comply with environmental requirements.

The CIC will continue embedding green initiatives in its renovation and construction plans.



議會綠化天台

在2014年1月，議會在香港仔工藝測試及訓練中心修建了首個綠化天台，成為議會轄下設施「綠化低碳」的重要一步。

綠化天台系統有助提高樓宇控溫表現並為樓宇隔熱，減少樓宇的能源耗用量。在天台栽種植物既可減低二氧化碳及收納塵粉和空氣中的微粒，改善空氣質素，又能過濾有害氣體，降低熱島效應，可謂一舉兩得。議會在修建綠化系統時亦考慮到節能減排，在屋頂的範圍鋪設了太陽能發光二極管(LED)照明系統，夜間即會自動亮燈。

綠化天台也安裝了以感應器控制用水量的新灌溉系統。這個灌溉系統還配備了一個小型天文監察系統，可從天台區域收集氣象數據，在必要時自動灌溉。綠色屋頂以環保物料建成，包括使用以回收玻璃製成的環保地磚，符合環保要求。

議會將會在未來的裝修和建築項目中，繼續大力推動綠化設施。



People Oriented

以人為本



Embrace our people with a culture
to care and of mutual help

在社群中建立關懷和互助的文化



Care about Workers

關懷工友

The construction workforce in Hong Kong is facing an acute ageing problem. According to the CIC's workers registration statistics, as at March 2013, 44% of the registered workers are aged over 50. As the majority of tasks in construction sites are physically demanding, medical examinations can provide workers with useful information about their health condition and whether they are fit enough for construction tasks. In view of this, the CIC launched a one-year Pilot Medical Examination Scheme (PMES) for local construction workers in March 2014. With the payment of HK\$10, registered workers can receive a basic medical examination. Up to the end of May 2014, more than 650 workers have participated in the PMES.

Safety is another grave concern for workers. The CIC and the construction industry are committed to the goal of "zero accidents" yet fatalities and injuries are not uncommon. As such, the CIC, together with Development Bureau, have held the Construction Safety Week each year since 2012 to highlight the significance of construction site safety and to engage workers, safety officers as well as other front-line practitioners to be vigilant within their working environments.

香港建造業正面臨嚴重的老化問題。根據議會的工人註冊數字，截至2013年3月，44%的註冊工人年齡超過50歲。由於工地工作要求大量體力勞動，身體檢查可以為工人提供關於他們健康狀況的有用資料，以評估是否適宜於工地工作。有鑑於此，議會在2014年3月為本地工人推出為期一年的建造業工人醫療體檢試驗計劃。只需支付港幣十元，註冊工人就可獲接受基本的身體檢查。截至2014年5月，已有超過650名工人參與此計劃。

安全亦是工人關注的另一個重要事項。議會和業界均致力實踐「零意外」，唯致命工業意外仍偶有發生。因此，議會聯同發展局在2012年起，每年舉辦建造業安全周，強調工地安全的重要性，讓工友、安全主任和其他前線業界人士提高警惕。

Construction Safety Week 2013 achieved: 2013 建造業安全周取得以下成果：



CIC Charitable Activity Calendar
議會公益活動年曆

2013



Fundraising for the Construction Charity Fund

The CIC held the Construction Industry Sports Day cum Fun Day 2013 at the Kowloon Bay Sports Ground on 17 March 2013. Some 28 organisations with 445 in-service personnel from construction and engineering companies, consultants, government departments, institutions and trade unions participated in this meaningful and exciting event. The event aimed to promote a healthy lifestyle and to foster a closer link among practitioners in the construction industry. To extend our care to those practitioners or their families who suffered from injuries or a death from a construction related accident, a total of HK\$50,000 was raised for the Construction Charity Fund through a “Bet for Charity” race.

建造業關懷基金籌款

議會在2013年3月17日在九龍灣運動場舉行了建造業運動會暨慈善同樂日。大約28個團體共445名來自建築及工程公司、顧問公司、政府部門、學會和工會的人士參與了這個既有趣又具意義的活動。這個活動旨在宣揚健康的生活態度，以及加強建造業界人士的聯繫。為了表示對建造業意外傷亡的同業和其家人的關懷，議會透過「慈善牙骰賽」比賽為建造業關懷基金籌得港幣五萬元善款。





Helping to House the Needy

Two CIC instructors led 15 CIC trainees participating in the Habitat for Humanity China's Green Joyful Home for Disabled Project (the Project). The Project aimed to provide basic renovation and improvement services for home interior space for the disabled families, providing them with safe and decent homes and to create user-friendly and green living space. Our volunteers helped a needy family to clean, tidy up and reorganize interior space. In addition, we also renovated the wall and installed home safety furniture with environmental friendly materials. Our team was well received as energetic and skillful.

In addition to the above, CIC staff also made donations to various charitable events held by the Community Chest of Hong Kong, Oxfam Hong Kong and ORBIS Hong Kong. Recognising the CIC's commitment to corporate social responsibilities, the CIC was named as a "Caring Organisation" by the Hong Kong Council of Social Services for the third consecutive year.

協助安置有需要人士

兩位議會導師帶領15名學員參加了仁人家園的綠色樂居無障礙活動(活動)。該活動的目的是為傷健家庭提供基本家居翻新及改善服務，以提供一個安全、舒適的居所及方便使用且綠色的生活環境。義工為受助家庭清潔、整理及重置家居。除此以外，我們也翻新牆壁和製作安全使用的傢俱。團隊的充沛精力和高超技術，令他們深受歡迎。

除了上述各項活動外，議會的員工亦在香港公益金、香港樂施會和香港奧比斯等多個慈善團體舉辦的活動中慷慨解囊。議會連續第三年獲香港社會服務聯會冠名為「同心展關懷」機構以表揚其對履行社會責任的承諾。

Care about Employees

關懷僱員

The CIC has a more than 600 full-time employees and a part-time workforce of more than 200, amongst them around 63% are male and 37% are female. The CIC believes that the staff are the key to the growth and success of the CIC. We attract and retain employees with a view to create a strategic and competitive workforce. We are also committed to providing a safe, healthy and fulfilling work environment to help our people to achieve a work life balance while at the same time creating value to the organization through increased efficiency and productivity.

Benefits and Recognition

To support staff to have more time with their families, the CIC has introduced a five day work week for back office staff. The CIC has also adopted leading market practice by introducing paternity leave and an education fund for employees' children. The CIC emphasises staff self-development. Our staff are entitled to study leave and a subsidy sponsoring continuous learning. Long serving staff and employees with exceptionally good performances are rewarded under the Long Serving Staff Award and the Annual Outstanding Staff Award.

議會現有逾 600 位全職員工及逾 200 位兼職員工，男女比例分別為 63% 和 37%。議會深信員工是議會發展和成功的關鍵。我們以建立一個具策略性和競爭力的員工隊伍為目標以吸納及挽留人才。我們亦致力為員工提供一個安全、健康和滿意的工作環境，讓他們在工作和生活上取得平衡。

福利和表彰

為了讓員工有更多時間享受家庭樂，議會為後勤工作人員推行五天工作周。議會亦率先引入侍產假，並為員工子女提供教育基金。議會重視員工的自我發展，員工可申請學習休假以及持續進修補助。在議會長期服務或有傑出表現的員工更有機會獲得長期服務獎或全年傑出員工獎。



Team Work

We believe that team spirit can be fostered through staff participating in social and recreational activities, and the CIC encourages staff get together to spend quality time outside the workplace. Apart from the corporate-wide Annual Outing, Sports Day cum Fun Day and Annual Dinner, funding is also set aside for individual departments to hold various social or recreation activities for their staff. All these activities are popular among our staff and have a high attendance rate.

Assistance

For staff who encounter work or personal issues which may require professional support, the CIC engages the Christian Family Service Centre to provide an Employee Assistance Programme.

In recognition of the efforts the CIC made in caring for our staff and in nurturing a devoted, co-operative, loyal, efficient and innovative workforce, the CIC was awarded the Distinguished Family-Friendly Employer 2013-14 Award by the Family Council.

團隊精神

我們相信員工透過參與社交及康樂活動可培養團隊精神，而議會亦鼓勵員工在工餘時間共用閒暇。除了議會一年一度的旅行、運動會暨慈善同樂日和周年晚宴外，個別部門也獲撥款為員工舉行聯誼及康樂活動。各項活動均深受員工歡迎，出席率十分理想。

援助

為協助因工作或個人問題而需要尋求專業人士支援的員工，議會參與了基督教家庭服務中心的僱員支援計劃。

議會獲家庭議會頒發「2013/14傑出家庭友善僱主」獎項，表揚議會關懷員工且致力培育一個投入、合作、忠誠、高效和創新的工作隊伍。



CONSTRUCTION INDUSTRY COUNCIL 建造業議會

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