

EXECUTIVE DIRECTOR'S REPORT

執行總監報告



Unifying Strength to Create a Better Future

2019 was a year of challenges and opportunities for Hong Kong's construction industry. Together, we embraced a new wave of global scientific and technological innovation while facing unprecedented levels of social unrest. As the industry's most passionate advocate, the Construction Industry Council (CIC) has spared no effort in mobilising industry stakeholders in driving innovation in order to establish Construction 2.0. By enhancing site safety, construction quality, productivity and competitiveness, it is our goal to steer the industry into a new age of long term sustainable development and build an international city unrivalled in quality, yet still feels like home.

凝聚力量 共創未來

2019年是香港建造業充滿挑戰與機遇的一年，時值社會動盪，全球創新科技的浪潮又迎面而來。建造業議會(議會)作為行業發展的倡導者，積極攜手與業內不同持份者推動行業革新，打造「建造業2.0」，全面提升香港建造業的工地安全、建造質素、生產力及競爭力，進一步推動行業的長遠及可持續發展，建設一個宜居的優質國際大都會。



Innovative Technology, Leading the Way Forward

Hong Kong's infrastructure development has been globally recognised, but it still faces a number of challenges such as an ageing workforce and mounting construction costs. As a result, Hong Kong's construction industry needs to continue seizing upon opportunities presented by emerging scientific and technological innovations. To accelerate the modernisation of the construction industry, we need to capitalise on innovative technologies such as 5G, artificial intelligence and IoT systems to facilitate the automation and digitalisation of the construction industry and uncover new opportunities.

As one of the key driving forces of development within Hong Kong's construction industry, the Construction Industry Council committed tremendous resources and organised multiple initiatives and events to accelerate the adoption of innovative technologies in 2019. One of which was the first mega-scale construction industry exhibition in Hong Kong, the Construction Innovation Expo 2019 (CIExpo) held in December of last year. The CIExpo brought together local and international industry professionals and showcased advanced construction technologies in four major categories, "Offsite Construction", "Robotics and Automation", "Digital Solutions" and "Advanced Technologies and Materials". The four-day expo successfully provided a knowledge sharing and networking platform for the industry. CIExpo attracted over 228 exhibitors from 15 countries and regions, as well as 23,800 total visitors during a time of social unrest and demonstrated the industry's determination to explore and pursue the latest advances in construction technology.

During the expo, the Construction Industry Council held the CIC Construction Innovation Award Presentation Ceremony along with several international conferences to bring together innovative thinkers and increase Hong Kong's understanding and competitiveness on the global stage. Over 40 local and overseas experts, academics, government officials and entrepreneurs were on hand to share their knowledge and practical experience in "Building Information Modelling (BIM)", "Modular Integrated Construction (MiC)", "Design for Manufacture & Assembly (DfMA)" and "Robotics and Automation". Meanwhile, the Building Asia Forum analysed existing infrastructure development as well as future opportunities in various regions around Asia.

創新科技 開拓革新

香港基建發展的實力獲得世界廣泛的認同，但同時香港正面對勞動人口老化及建築成本高昂等挑戰，因此，香港建造業正積極把握科技創新的機遇，以加快行業的升級轉型。創新科技的浪潮席捲全球，隨著5G、人工智能及物聯網應用技術日趨廣泛，勢將帶動建造業的自動化及數碼化發展，為業界帶來龐大潛在發展機遇。

作為香港建造業發展的驅動者，議會投入大量資源，銳意加快推動創新科技，於2019年先後舉辦多個以創科為主題的大型活動。議會於2019年12月舉辦全港首個大型建造業展覽 – 「2019建造創新博覽會」(創博會)，匯聚了本地及世界各地的先進建築科技及行業專才，展示「裝配式建築」、「建造機器化」、「建造數碼化」及「先進技術及材料」四大領域的成果，同時成功為業界提供一個知識交流及商業配對的平台。為期四天的創博會舉行期間，正值社會動盪之際，但仍吸引了228個來自15個國家與地區的參展商參與，超過23,800個參觀人次，充分顯示業界勇於探索科技及追求創新的決心。

為匯聚海外創新思維和技術，並提升國際競爭力，議會在創博會中舉辦了建造業議會創新獎頒獎禮及多場國際會議，廣邀40位本地及海外專家、學者、政府代表和企業家分享在「建築信息模擬」(BIM)、「組裝合成」建築法(MiC)、「裝配式建築」(Design for Manufacture Assembly, DfMA)及「機械人與自動化」等創新技術的專業知識和實踐經驗，並於創建亞洲論壇的活動中，探討亞洲不同地區的基建發展及機遇。



Promoting New Technologies, Diversifying Development

As the implementation partner of the HK\$1 Billion Construction Innovation and Technology Fund (CITF), the Construction Industry Council received 1,073 applications, with a total of 753 approved applications in 2019. This resulted in HK\$160 million being distributed within the construction industry with the hope of encouraging wider adoption of emerging technology and nurturing of talent.

To grasp the enormous development potential provided by new technologies, the Construction Industry Council used the fund to encourage the use of BIM software and hardware. This was done along with the introduction of the Building Information Modelling Certification and Accreditation Scheme, and publishing standards such as the *BIM Standards for Mechanical, Electrical and Plumbing* and the *BIM Standards for Underground Utilities*. We also built the CIC BIM Space in Q2 of 2019 which boasts a total area of over 6,000ft², and acts as both a BIM technology learning space and training centre. The Construction Industry Council also organised the first ever CIC BIM Competition in 2019 for both the tertiary education sector and the construction industry to further facilitate the adoption of BIM technology.

Introducing innovative technology and advanced construction methods can help the industry create a safer and more reliable working environment. MiC and DfMA are both cutting edge technologies that can drastically improve existing construction environment and overall productivity. In March 2019, the Construction Industry Council established the DfMA Alliance to facilitate co-operation between off-site manufacturers by organising seminars, site visits and establishing new guidelines. In September, the Construction Industry Council jointly organised a 3-day Executive Programme with the Building and Construction Authority (BCA) of Singapore where delegates were invited to visit local construction sites and they were able to learn how MiC was applied. In addition, arrangements were made for government departments and industry delegates to visit the Mainland, Germany, and the United Kingdom to promote knowledge exchange with experts from abroad. The Construction Industry Council also worked with various government departments to establish *Guidelines on the Statutory Requirements for MiC Projects* to enhance awareness and benefits of MiC to industry stakeholders.

推廣新科技 多元發展

作為十億港元「建造業創新及科技基金」的執行機構，議會於2019年度內共收到1,073宗申請個案。年內批出753宗涉及逾1.6億元的撥款予業界，鼓勵業界廣泛利用新興建築科技和培育人材。

為了把握科技進步帶來的龐大發展潛力，議會透過「建造業創新及科技基金」支援業界採用BIM軟件和硬體、推出建築信息模擬認可及認證計劃及發表新增的《建築信息模擬標準機械、電氣及管道》及《建築信息模擬標準地下管線》等刊物，加快BIM技術的普及化。議會亦於2019年第二季設立全新「建造業議會建築信息模擬空間」(CIC BIM Space)，面積逾6,000平方呎的場地提供了BIM相關資訊及訓練支援，議會又於2019年上半年舉辦了首屆「建造業議會建築信息模擬比賽」，全方位向大專學界及業界推廣BIM技術的應用。

引入創新科技及先進施工技術，能有助業界打造出一個更安全及可靠的工作環境。MiC及DfMA正是能夠徹底改善現有建造環境及提高生產力的創新施工技術。2019年3月，議會成立「裝配式建築聯盟」，透過研討會、場地考察及制訂指引等推動場外預製及組裝建築的合作。在9月，議會與新加坡建設局合辦了為期三天的行政人員課程，並邀請了業界代表到當地實地考察，汲取實踐MiC的經驗，並為政府部門及業界安排到內地、德國及英國的考察團，促進各地專家的技術交流。議會亦聯同數個政府部門合作，推出《「組裝合成」建築法項目法定要求指引》以提高各持份者對「組裝合成」建築法的認識。



In addition, the Construction Innovation and Technology Application Centre (CITAC) launched a new website and i-Club in 2019 to promote new innovations in construction. In addition, CITAC revamped its roster of exhibits to showcase the latest advanced technologies from around the world, and organised a series of discussion forums. In May 2019, the Construction Industry Council signed a Memorandum of Understanding (MoU) with the Hong Kong Science and Technology Parks Corporation, with the Chief Executive acting as witness, to jointly promote the adoption of construction robotics and automation as well as to uncover innovative new advances in technology.

Developing Talent, Active Transformation

Outstanding construction industry practitioners are integral to the development of Hong Kong's construction industry. In 2019, the CIC launched the "Construction Industry Council Approved Technical Talents Training Programmes", aimed at encouraging graduates from the Hong Kong Institute of Construction (HKIC) to sign apprenticeship contracts in order to encourage long-term employment. Subsidies will also be offered to apprentices to support their continual education, with the aim of improving their career prospects.

Guided by the motto, "To Dedicate • To Excel", the Hong Kong Institute of Construction is committed to training a professional and dedicated construction workforce. In 2019, we launched a number of new programmes, including the "Certificate in Leak Detection on Water Mains", the "Foundation Certificate in Vacant Flat Refurbishment for Housing Department", the "Professional Certificate for Building Information Modelling (BIM) Manager" and the "Certificate in Modular Integrated Construction (MiC) for Foremen". In order to respond to the demand for electrical and mechanical technician training, the HKIC also offered a new Certificate in Electrical Installation, and will continue to develop similar training programmes to groom more professionals for the industry.

此外，建造業創新及科技應用中心於2019年推出了全新的網頁及i-Club以推廣嶄新建築科技，並更新了展覽品以展示搜羅自世界各地先進的創新技術，及為業界舉辦了多場論壇。2019年5月，在行政長官的見證下，議會與香港科技園公司簽署合作備忘錄，合力推動香港建造業採用建築機械人和推行自動化，以及引進其他創新科技。

培育專才 活化轉型

優秀的建造從業員是香港建造業發展的重要一環。議會於2019年推出了「建造業議會認可技術專才培訓計劃」，鼓勵學院畢業生與僱主簽訂學徒合約及推動長期聘用的精神；學徒更可獲資助持續進修，拓展前景。

議會旗下的香港建造學院肩負「專業樂業 精益求精」的教育使命，致力培訓專業及有熱誠的建造業團隊。2019年新辦課程包括：「地下水管測漏證書」、「房屋署空置單位翻新工程基礎證書」、「建築信息模擬經理專業證書」，及「組裝合成建築管工證書」等。此外，學院為回應訓練機電技術人員之需求，開辦了全新電氣裝置證書課程，未來將陸續發展其他機電相關課程，冀為業界培訓更多專業人才。



The Hong Kong Institute of Construction also engaged the Hong Kong Council for Accreditation of Academic and Vocational Qualifications to conduct programme assessments. By the end of 2019, seven programmes, including five streams within the full time Diploma in Construction and two part-time safety supervision programmes, obtained QF Level 3 recognition. To further improve the overall direction and effectiveness of its courses, the Hong Kong Institute of Construction planned to develop full-time courses (one and two years) in 2019 and established both a development blueprint and roadmap for 2020–2022. In addition, the School of Professional Development in Construction also established several development goals for the future, including enhancing both BIM and MiC training to align with industry development trends.

Facing the challenges of an ageing workforce and labour shortages, the Construction Industry Council has in recent years focused on promoting professionalism among construction practitioners in order to attract younger talent into the industry. In August 2019, the Construction Industry Council sent four graduates from the Hong Kong Institute of Construction to participate in the WorldSkills Competition held in Kazan, Russia. Before setting out, contestants were provided with one year of rigorous training to further enhance their skills. Through a mixture of thought exchange and competing with the very best on an international stage, the contestants from Hong Kong were not only able to broaden their horizons, but also acted as industry role models and showcased the strength of Hong Kong's young practitioners to the world.

Excellence and Safety, Sustainable Development

In 2019, the Construction Industry Council established the “Task Force on Construction Industry Site Supervision” which comprises representatives from both within the industry and government departments. Their task was to jointly review current site supervision and quality control processes at major structural construction projects and to propose improvements. The Construction Industry Council subsequently held a “Conference on Informatisation” with leading local and overseas enterprises discussing how to best optimise site supervision using digital technologies. This multi-pronged approach ensures that the Construction Industry Council helps establish a sound professional model in site supervision.

同時，學院透過香港學術及職業資歷評審局為課程進行評審。截至2019年底，已有七項課程取得資歷架構第三級別認可(包括五項全日制建造文憑科別及兩項兼讀制安全督導相關課程)。為進一步完善整體培訓方向，學院於2019年規劃全日制課程(一年及兩年)發展並訂下發展藍圖及2020–2022年路線圖。建造專業進修院校亦於2019年確立了未來的發展目標及工作，加強BIM及MiC的培訓，配合整體建造業的發展方向。

面對勞動人口老化及短缺的挑戰，議會近年加大力度推廣建造業從業員的專業形象，藉以吸引更多生力軍入行。2019年8月，議會派出四名香港建造學院的畢業生參與在俄羅斯喀山舉行的「世界技能大賽」，出賽前議會提供了為期一年的培訓，加強選手的比賽技術及工場運作能力。透過國際舞台上的競爭及交流，擴闊了香港青年選手的視野，同時也展現了香港年青從業員與世界接軌的實力，為業界建立良好的模範。

質素與安全 持續發展

議會於2019年成立了「建築施工督導專責小組」，凝聚業界及政府部門代表，共同檢視主要結構建造工程的施工督導及質量控制機制，並提出改善方案。議會隨後亦舉辦「信息化研討會」，分享了本地及海外領先企業以數碼技術優化施工督導的流程。多管齊下，促使業界建立完善、專業的施工督導範本。



For the eighth consecutive year, the Construction Industry Council and the Development Bureau co-organised “Construction Safety Week” in June 2019 under the theme of “Innovation in Safety”. With a focus on working at height, the event encouraged the industry to utilise innovative technologies and to work together to create a “Zero Accident” environment. During the event, the Construction Industry Council organised a safety themed video contest focusing on various themes such as working at height, lifting, machinery operation and working in confined spaces. The rationale behind the event was to improve construction practitioners’ safety awareness. The Construction Industry Council also distributed working at height training kits utilising VR technology as well as a *Work-at-Height Safety Handbook* to nearly 100 sites. In February 2019, the Construction Industry Council also set up Hong Kong’s first “Safety Experience Training Centre”, which employs advanced training equipment to highlight some of the most common accidents that take place in the construction industry. The aim of which was to further enhance safety awareness among industry stakeholders.

In *Hong Kong’s Climate Action Plan 2030+*, the Government pledged to reduce absolute carbon emissions 20%-30% by 2030. In order to support Hong Kong’s carbon reduction target, the Construction Industry Council launched the “CIC Carbon Assessment Tool” in November 2019 to measure carbon emissions from construction materials and processes based on data collected from around the industry. This initiative is aimed at improving the performance and efficiency of sustainability-focused engineering projects, and encouraging the construction industry towards contributing to Hong Kong’s carbon reduction goals. Over 150 construction sites have already adopted this tool. In addition, the Construction Industry Council launched the “CIC Green Product Certification” scheme in November 2019, which will be operated by the Hong Kong Green Building Council and provides a certification platform for construction products and materials. To obtain this certification, factors such as carbon footprint, environmental management system, efficiency, performance, human toxicity, resource consumption and ecosystem impact will all be considered.

另外，議會於2019年6月與發展局第八度合辦「建造業安全周」，以「安全創新」為主題，並聚焦高空工作，藉此鼓勵業界應用創新技術，攜手締造「零意外」的工作環境。活動中，議會又舉辦安全短片比賽，主題圍繞高空工作、起重及機械操作及密閉空間工作等不同工作類別，推動業界人士注重安全實踐。議會亦向近一百個工地免費派發以虛擬實境技術開發的高空作業安全培訓套件和《高空工作安全手冊》，以提高工友的安全意識。在2019年2月，議會成立了香港首間「安全體驗訓練中心」，內設先進的訓練設備，涵蓋了各類建造業常見意外，以加強業界持份者的安全意識。

根據《香港氣候行動藍圖2030+》，政府承諾到2030年將其絕對碳排放量減少二至三成多，為支持香港的減碳目標，議會於2019年11月建立首個網上共享平台，設立「建造業議會碳評估工具」，透過收集業界數據，評估建築用料和施工過程的碳排放量，以提升工程項目可持續發展的表現及效率，促進建造業為減碳目標作出貢獻，現有超過150個工地採用此工具。另外，議會於2019年11月設立「建造業議會綠色產品認證」，由香港綠色建築議會負責營運，為建造產品及物料提供一個認證平台，獲取認證的考慮因素包括碳足跡、環境管理系統、效率、性能、人體毒害、資源消耗及生態系統的影響。



Industry Supervision and Management Enhancement

The Subcontractor Registration Scheme, which was implemented in Hong Kong over 10 years ago reached a new milestone in 2019. The Construction Industry Council set up the "Registered Specialist Trade Contractors Scheme" in April 2019 to enhance the regulation of subcontractors and to ensure their minimum standards in the managerial, financial and technical capabilities. Seven designated trades were identified for pilot programmes under this scheme, including reinforcement bar fixing, concreting formwork, erection of concrete precast components, concreting, curtain wall, demolition and scaffolding. The core elements required for registration are safety, management, job experience, project management and finance. At present, a number of government departments and public bodies, including the Works Department under the Development Bureau, the Hong Kong Housing Authority and MTR Corporation Limited now require the use of registered specialist trade contractors in construction contracts.

Way Forward

As one of the key pillar industries for Hong Kong's economic growth and long-term sustainable growth, the construction industry faces unprecedented challenges with the global outbreak of COVID-19 in 2020. The ongoing epidemic has disrupted capital and supply chains resulting in delays in construction work, underemployment or unemployment, etc. More than 500,000 registered construction workers in Hong Kong have been impacted by the outbreak, and it is expected that levy income will be significantly reduced.

業內監管 提升管理

在香港實施了十多年的分包商註冊制度今年也邁進新里程。議會於2019年4月成立「註冊專門行業承造商制度」以提升分包商的規管，並確保其管理、財政及技術達最低標準。制度由七個指定行業作先導計劃，包括扎鐵、混凝土模板、安裝混凝土預製構件、澆灌混凝土、玻璃幕牆、拆卸及棚架，註冊的核心元素包括安全、管理、工作經驗、施工及財務等多方面。目前多個政府部門及公營機構，包括發展局轄下的工務部門、香港房屋委員會及香港鐵路有限公司等，已承諾在未來的建造工程合約上要求採用註冊專門行業承造商。

展望未來

2020年新型冠狀病毒在全球各地爆發，建造業是香港經濟增長及長遠可持續發展的重要支柱產業之一，業界正面臨前所未有的嚴峻挑戰。持續的疫情令部分建造業的供應鏈及資金鏈斷裂，引致基建工程延誤、工友就業不足或失業等問題，其影響之大，涉及全港逾50萬名註冊建造業工友，而議會預期從業界所得的徵款收益亦會大幅減少。



Nevertheless, as a strong proponent of the construction industry, the Construction Industry Council is committed to fighting the coronavirus epidemic, overcoming difficult times to lead the way forward towards a sustainable future. The CIC hopes to promote new policies and initiatives in the following eight key areas to realise its vision for the future:

1. Industrialisation;
2. Embracing Construction Innovations and New Technologies;
3. Construction Industry Sports and Volunteering Programme;
4. CIC Approved Technical Talents Training Programme;
5. Hong Kong Institute of Construction Repositioning;
6. Construction Digitalisation;
7. Long-term Employment of Construction Workers; and
8. Safety Design for Building Construction and Maintenance

At this point, I wish to thank my CIC colleagues, government bureaux and departments involved, members of the industry and the construction community as a whole for actively supporting the development of the construction industry. The Construction Industry Council will continue to encourage the industry to put its best foot forward, and work with all stakeholders to promote the sustainable development of the construction industry towards a brighter future.

Ir Albert CHENG
Executive Director

April 2020

儘管如此，議會作為建造業的強大後盾，竭力與業界齊心抗疫，共渡時艱，並積極帶領同業在2020年在「疫」境中邁步向前，為建造業的持續發展而努力。議會期望就以下八大重點工作範疇，推動各項新政策和措施，實現議會未來的新願景：

1. 工業化；
2. 採納建造業創新及嶄新科技；
3. 建造業運動及義工計劃；
4. 建造業議會認可技術專才培訓計劃；
5. 香港建造學院的重新定位；
6. 建造數碼化；
7. 建造業工人長工制；及
8. 建築安全施工及保養設計

在此，我衷心感謝建造業議會的同事、相關的決策局及政府部門、業界和社會各界人士積極支持建造業發展的工作。議會亦會不遺餘力積極帶領同業昂首向前，與行業各個持份者心連心，推動建造業的持續發展，共創美好的未來。

鄭定寧工程師
執行總監

2020年4月