CITF DIGEST

CITF 建造業創科基金

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融匯科技 創建香港 WE INNOVATE, WE BUILD

Industry Engagement Day Plus - 活動掠影 Event Highlights

應科技大學知識移轉辦公室邀請，黃何詠詩女士代表發展局在其 Industry Engagement Day Plus 向科研團隊和投資者介紹建造業創新及科技基金（「基金」）。這項活動匯集了發展商、承建商、學者和本地初創企業，不僅為持分者提供了一個交流和合作的有利平台，同時也為我們創造了一個絕佳機會向合資格申請者宣傳基金。

回應活動以創新解決方案讓城市更安全、更環保、更美好的主題，黃女士分享了基金如何利用創新科技，幫助建造業提升建造安全、提高生產力和改善建造質量，同時減少對環境的影響。

黃女士亦特別提到基金如何扮演協作者的角色去推動本地建造業應用創新和科技。除了資助業界購買創新產品和解決方案以直接應用於工地外，更提供財政支援，以促進業界和研究團隊之間的合作，共同參與香港先驅應用項目，以為建造業帶來更廣泛的利益。 基金資助的3D金屬打印計畫的成功案例，展示了建造界與學術界合作所產生的協同效應。

At the invitation of the HKUST Knowledge Transfer Office, Mrs. Susanne WONG represented the Development Bureau to introduce the Construction Innovation and Technology Fund ("CITF") to both inventors and investors at their Industry Engagement Day Plus. The event, which brought together developers, main contractors, research scholars and homegrown start-ups, was not only a conducive platform for stakeholders to connect and collaborate but also an opportune occasion to promote the CITF to our potential applicants.

Supporting the direction that innovative technologies make our city safer, greener and better, Mrs. WONG shared how CITF helped the construction industry uplift construction safety, enhance productivity and improve build quality with less environmental impact via leveraging innovations and technologies.

Mrs. WONG also highlighted on how the CTF had served as a collaborator in driving innovations and technologies in the local construction industry. In addition to the subsidy financing the procurement of innovative products and solutions for direct onsite application, financial support would be provided to foster cooperation between industry practitioners and research teams to work on projects for wider benefits under an initiative called Pioneering Application in Hong Kong. The case sharing on a 3D metal printing project supported under the CITF illustrated the synergy through a pairing up between the construction industry and academia.

香港先驅應用項目的申請要求及資助範圍詳述如下 —

The application requirements and the funding scope of the Pioneering Application in Hong Kong are detailed below.

簡介香港的先驅應用項目
Introduction on Pioneering Application in Hong Kong

基金除了主動為業界搜羅不同科技產品以豐富預先批核名單外，亦鼓勵業界人士成為「創科先驅」，將革命性的建築科技引進香港。在先驅應用項目計劃下，基金資助業界引入具潛力並能為建造業廣泛應用的新興科技。該科技須為首次於香港工地應用，不論是在非香港地區發展的成熟科技，或者香港已有科技經優化、結合甚至加強並賦予新的應用功能，均符合要求。

In addition to proactively searching different technology products for the industry to enrich the pre-approval list, the CITF also encourages industry practitioners to become "Forerunner of Technological Innovation" and bring in revolutionary construction technologies to Hong Kong. Under Pioneering Application, the CITF subsidizes the industry to bring in emerging technologies which have good potential for wider benefits of the local construction industry. The technology could either be a proven technology outside Hong Kong which is newly adopted for on-site application in Hong Kong, or modification, combination or enhancement of technologies already exist in Hong Kong but put to a new functional use, is also eligible.

申請類別
Type of Applications

香港的先驅應用項目
Pioneering Application in Hong Kong

申請資格
Eligibility

主要申請者：繳付徵款的承建商、分包商、顧問或商會
合作夥伴　：本地高等教育機構、本地研究機構、數碼港、香港科學園、香港生產力促進局等機構

Lead applicants　: Levy-Paying Contractors, subcontractors, consultants or trade associations
Supporting partner : local tertiary educational institutions, local research institutes, Cyberport, Hong Kong Science and Technology Park, the Hong Kong Productivity Council, etc

資助模式及上限
Funding Mode and Ceiling

- **配對模式資助70%**
  Co-fund with 70% grant from CITF
- **每個申請上限為港幣1,000萬元**
  Capped at HK$10M per application

所需文件
Required Documents

1. 先驅應用項目概要（項目簡介、目的、同類先驅應用項目在境外的應用、創新元素、可複製性）
   Particulars of Pioneering Application (Project description, Objective, Reference Use of Similar Pioneering Application Outside Hong Kong, Innovation, Replicability)
2. 先驅應用項目的效益（尤其對於香港建造業而言）
   Merits of the Pioneering Application (especially to the construction industry at large)
3. 執行團隊的技術知識和能力
   Technical knowledge and competence of the implementation team
4. 執行計劃　Implementation plan
5. 成果 / 經驗分享計劃概要　Summary of Benefits / Experience Sharing
6. 預算　Budget
7. 其他（如適用）　Others (if applicable)

香港先驅應用項目 - 成功案例
Pioneering Application – Successful Case Sharing

協興建築早前成功申請基金，夥拍香港大學研究團隊，將「電弧增材製造」（WAAM）的三維金屬打印技術首次引進香港，為入境事務處總部大樓打造命為織· 愛的大型結構試點作品，就打印規模和結構複雜性而言，為全亞洲首創。

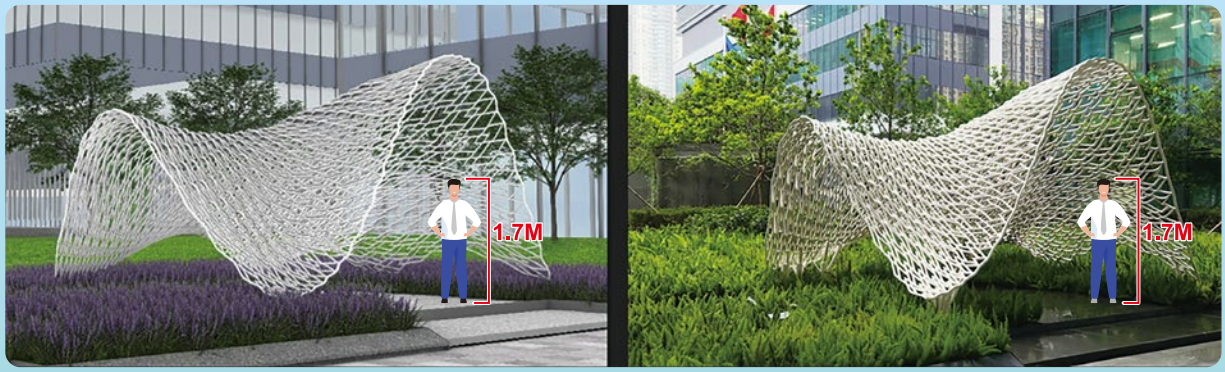
協興建築表示，與傳統建造技術相比，以WAAM技術打印的大型金屬結構可節省高達 70% 的設計時間，將施工時間從幾個月大大縮短至幾天。透過該技術打印不規則形狀的部件亦可節省高達80%的材料損耗，從而減低物料成本。

因應是次試驗成果，香港大學正積極研究如何將WAAM技術應用於大量生產結構複雜的工程組件，例如T-型接頭，以冀為業界帶來更大裨益。

Hip Hing Construction (“Hip Hing”) has successfully applied for the CITF and partnered with a research team from the University of Hong Kong (“HKU”) for a pilot application of Wire Arc Additive Manufacturing (“WAAM”) in 3D-printing in Hong Kong. The project features a production of a large-scale metal canopy “Weaving Love” at the Immigration Headquarters. In terms of printing scale and structural complexity, it is the first of its kind in Asia.

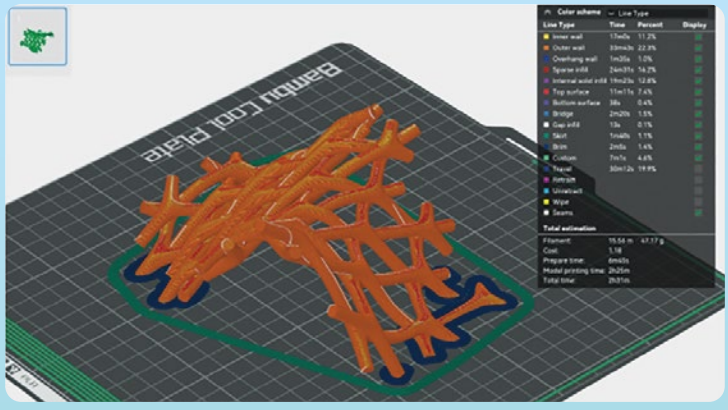
According to Hip Hing, as compared with traditional welding construction methods, the engagement of WAAM technology in printing large metal structures can substantially shorten construction time from several months to several days, saving up to 70% of design time. Printing irregularly-shaped parts with this technology can also save up to 80% of material loss, thereby reducing material costs.

Based on the promising results of this Pioneering Application project, HKU is actively exploring how to extend the application of WAAM technology in the mass production of complex engineering parts and components such as T-joints, with a view to bringing greater benefits to the industry.



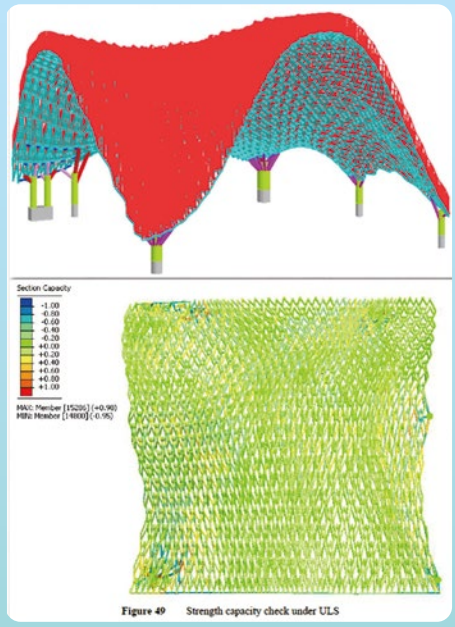
圖左為構想圖；圖右為現場完工圖

The image on the left shows an artist’s impression of the installation.
The image on the right shows on-site completion of the installation.



項目應用了建築信息模擬(BIM)軟件，圖為BIM模型設計及有關分析

The project adopts Building Information Modelling (BIM) software.
The images illustrate BIM model design and relevant analysis.



安全資訊 Safety Corner

「生命第一，對危險說不。」這口號精准概括了建造業議會對工地安全的高度重視，特別是事關工友生命安全。因此，基金就建造安全相關科技產品所設的每項科技上限增至港幣 200 萬元，比一般科技產品上限的港幣 150萬元為高，以鼓勵業界更廣泛應用創新科技，改善工地安全。

除了提供財政支援，基金秘書處將定期為大家搜羅科技「好物」。今期，我們找來了幾款專為從事工地高空工作工人而設計的產品。

The slogan of “Life First, Say No To Danger” has accurately summarised the great importance the Construction Industry Council has attached to construction safety, particularly where the life of workers is at stake. With a view to encouraging the industry to leverage on innovations and technologies to enhance construction safety, the CITF has uplifted the per-technology cap of safety-related technologies to HK$2M, a lot higher than the HK$1.5M cap for other technology products.

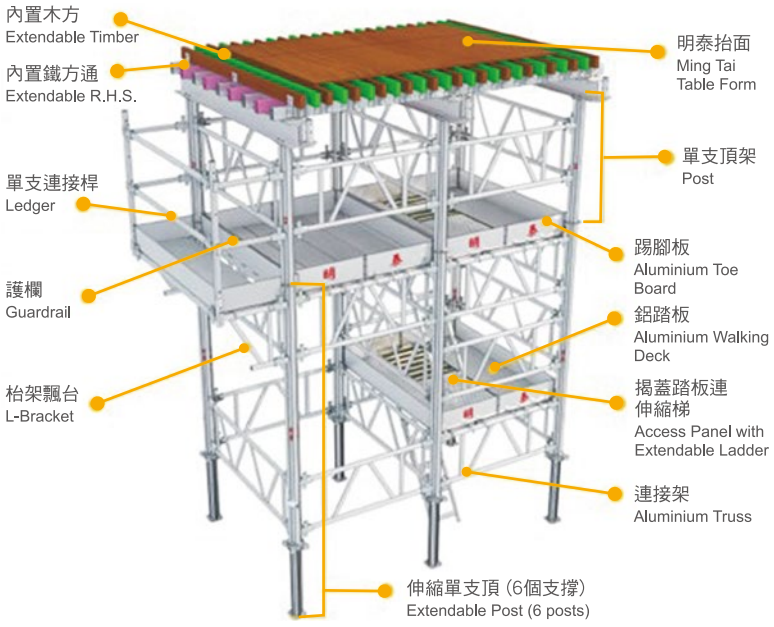
In addition to providing financial support, the CITF Secretariat will regularly search for technology "good stuff" for everyone. In this issue, we have found several products specially designed for workers working at heights on construction sites for your reference.

1. PA24-066 鋁台模系統 Aluminum Tableform System

這款鋁板模板系統將具彈性支撐結構與輕質鋁板模板和安全工作平台相結合。模板系統已安裝防護部件包括踏板、護欄、踢腳板等，以保障工人安全，不但能在場外預先組裝，還可以在不拆卸的情況下重複用於建造相似尺寸的混凝土樓板和樑。

This is an aluminum slab formwork system, combining the flexible supporting structure with lightweight aluminum slab formwork and safe working platform. The module system is installed with protection components including walking deck, guardrail, toe board, etc. to ensure the safety of workers. The formwork system can be pre-assembled off-sites to reduce the assembling time and space at the construction sites, and hence improving construction productivity. It can also be repeatedly used for constructing concrete slabs and beams with similar dimensions without disassembly, which can reduce construction waste.

主要構成 Main Struction



好處：

1. 系統配備安全防護部件，減少工人高空工作風險，提升安全。
2. 系統包含了模板、工作台及支撐結構，搭建後可多次使用，減少搭拆人手及時間投入，提高生產力，同時減少模板木材的浪費，提高環保效益。

Merits:

1. The system is equipped with safety protection components to reduce the risk of injury to workers and improve safety benefits.
2. This system can be reused multiple times after construction, improving productivity in terms of reduced manpower and time input in assembly and disassembly and at the same time enhancing environmental performance in the reduction of waste.

2. PA23-014 智能手錶 Smart Watch

這智能手錶配備了用於健康和位置監控的傳感器 (sensor)。搭配安裝於室內或危險和限制區域的藍牙發射器，智能手錶能透過後台軟件平台以 WhatsApp 向系統管理人提供工人的定位及接近危險區域警告。

This smart watch is equipped with sensors for health and position monitoring. Bluetooth transmitters placed indoors or in hazardous and restricted areas can provide the workers' position and warning of approaching hazardous areas to system administrator by WhatsApp through backend software platform.

好處：

1. 系統可以顯示工人的定位，防止工人進入受限制的區域，例如有高處掉落風險的位置，提高安全效益。
2. 系統持續監察工人的健康指數和掉落感應，遇到異常情況會自動發出警報，通知附近人員提供即時支援。工人亦可透過智能手錶發出求救。
3. 定位及記錄現場工人，方便工作安排，提高效率。

Merits:

1. The system can track the position of workers to prevent them from entering restricted areas, such as locations with risk of falling from heights to improve safety.
2. The system continuously monitors workers' health index and fall detection. It automatically issues an alarm when encountering abnormal conditions to notify personnel nearby to provide immediate support. Workers can also seek help through the device.
3. Locate and record on-site workers to facilitate work arrangements and improve efficiency.

3. PA24-083 外牆檢查機器人 External Façade Inspection Robot

這機器人是專門用於檢查高層建築牆壁缺陷，以代替工人人手檢查。該設備裝有一系列不同的工具和感測器，能夠識別外牆剝落等缺陷。

This robot is specially used to inspect wall defects in high-rise buildings to replace worker manual inspection. It equipped with a range of different tools and sensors, which can identify defects such as peeling facades.

好處：

1. 避免工人進行高空工作，杜絕安全風險，提高安全效益
2. 自動化建築物外牆缺陷檢查，減少人手投入，提高生產力
3. 人工智能技術，減少人為失誤，增加檢查的精準度，提高質量。

Merits:

1. Prevent workers from working at heights to eliminate safety risks and hence improve safety benefits.
2. Automate building exterior wall defect inspection to reduce manpower input and improve productivity.
3. Artificial intelligence technology reduces human errors, increases inspection accuracy and improves quality.

4. PA24-072 建築安全培訓的虛擬實境（VR）應用軟件
Virtual reality (VR) application software for construction safety training

該軟件是VR建築安全培訓平台，旨在為建築業提供全面的培訓方案。平台透過將VR技術與施工安全專業知識相結合，為工人提供了一個真實、安全的環境以提高他們的安全意識和技能水平。

This software is a VR construction safety training platform designed to provide comprehensive training solutions for the construction industry. By combining VR technology with construction safety expertise, the platform provides workers with a realistic, safe environment to improve their safety awareness and skill levels.

好處：

1. 在安全環境中進行高風險工序培訓，特別是搭棚及其他高空工作工種，提高工人的安全意識及工地安全。
2. 利用虛擬實境技術配合不同模組進行培訓，減少現場培訓對施工的干擾，提升效率。

Merits:

1. Conduct high-risk process training in a safe environment, especially scaffolding and other trade working at height, to improve workers' safety awareness and site safety.
2. Use VR technology to coordinate training with different modules to reduce the interference of on-site training on construction and improve efficiency.

CITF Statistics 統計數字

申請處理時間和獲批金額(截至2024年12月31日) Processing Time and Approved Amount (as of 31 December 2024)

類別 Category	日數 No. of Days
申請預先批核產品 Pre-approved applications	24.5日
申請非預先批核產品 Non pre-approved applications	39.4日

類別 Category	數量 No.	總金額(HK$) Amount (HK$)
建築信息模擬培訓 Building Information Modelling (BIM) Training	933	3,740萬
建築信息模擬軟件及硬件 BIM Software and Hardware	1298	1.4億
創新建築科技 Advanced Construction Technologies	1828	8.1億
「組裝合成」建築法 Modular Integrated Construction	90	2.2億
預製鋼筋 Prefabricated Steel Rebar	258	2.7億
人力發展 Manpower Development	43	1,600萬
總數 Total:	**4450**	**15億**