Building Technology Research Institute
香港建築科技研究院

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香港建科院通訊
BTRi Newsletter

5.2026

01 行政總監的話
MESSAGE FROM THE CEO

行政總監的話
Message from CEO

黃國輝工程師
Ir Wong Kwok-fai, Alfred

我們在第一期香港建築科技研究院（香港建科院）通訊時分享了我們的願景：加快建築創新的應用、推動標準優化，並透過認可與認證機制建立信任。目前，這些願景正帶來實質成果，並獲得業界肯定。

香港建科院最值得注意的里程碑，莫過於建築產品認可計劃（CPAS）。這套一站式認可機制，從根本上優化了審批流程，讓創新、高質素及具成本效益的建築產品在香港工務工程及私營項目中應用。藉著簡化重複提交審批的程序，我們不僅為業界提供了更多元化的產品選擇，也顯著降低了供應商進入香港市場的門檻。

我們的應用研發項目在成本效益、工地安全與可持續發展方面展現顯著成效。從採用高延性輕質複合混凝土（LD-ECC）新材料以提升施工效率並縮短約 50% 工期，到遙控天秤系統，以及利用生物炭進行土地淨化以推動可持續發展——我們正見證這些創新技術，從先行先試階段逐步邁向實際應用。

我們在標準制訂方面的進展同樣令人鼓舞。香港首份超高性能混凝土（UHPC）結構應用的《技術指引》及《特別規格》已正式發布，為先進材料的廣泛應用確立了框架，以達至長遠提升項目的結構效率、耐用性及可持續性。此外，香港建科院亦正進行全面的標準檢視——包括整合建築標準、優化設計參數，以及制訂區域性準則——旨在全面提升香港建築項目的成本效益與施工效率。

我們正積極將創新的成果推廣至整個業界，因為我們深信知識共享才能創造深遠影響。這是我們對業界的承諾，誠邀大家一同參與，與我們並肩推動建造創新。

When we published our first newsletter, we shared our vision to accelerate construction innovation adoption, advance standards, and build trust through accreditation and certification. Today, these visions are delivering tangible results and industry recognition.

The most notable milestone of the Building Technology Research Institute (BTRi) is the Construction Product Accreditation Scheme (CPAS). This one-stop accreditation mechanism fundamentally changes how innovative, high-quality, and cost-effective construction products gain approval for use in public works and private projects in Hong Kong – reducing duplicated submissions, enabling more diversified product choices for the industry, and offering suppliers greater access to the Hong Kong market.

Our applied R&D projects are showing clear impact across cost effectiveness, work safety, and sustainability. From adopting new materials such as Low-density Engineered Cementitious Composite (LD-ECC), which enhances construction efficiency and reduces the total construction period by approximately 50%, to remote-controlled tower crane systems, and biochar for land decontamination, advancing sustainability – we are seeing innovation move from pilot to practice across all these fronts.

Our progress on standards has been equally remarkable. The release of Hong Kong's first-ever Technical Guidelines and Particular Specifications for Structural Use of Ultra-High Performance Concrete (UHPC) establishes a framework for widespread adoption of this advanced material, enabling enhanced structural efficiency, durability, and sustainability. More broadly, BTRi is undertaking a comprehensive standards review – including alignment of construction standards, optimisation of design parameters, and formulation of region-specific criteria – to enhance cost effectiveness and construction efficiency across Hong Kong's construction projects.

We are actively disseminating the benefits of innovation across the construction industry, because impact lasts only when it is shared. This is our commitment to the industry, and we invite you to be part of it.

02 香港建科院 封面故事
BTRI COVER STORY

建築產品認可計劃
Construction Product Accreditation Scheme (CPAS)

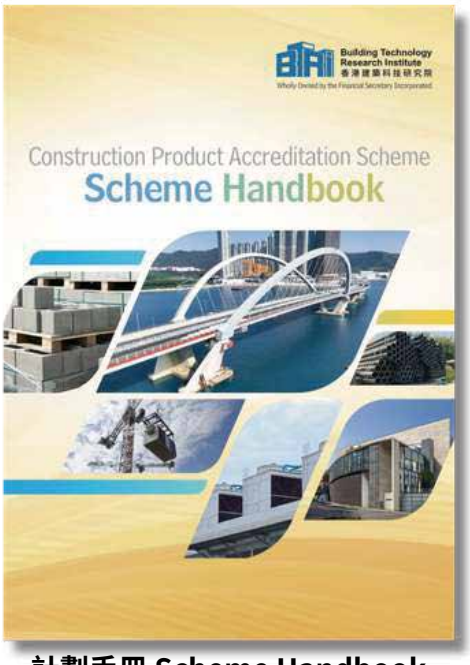
一站認證
Certify once

全面快通
Fast PASs for all

走向國際
Go Global

建築產品認可計劃（CPAS）於2025年9月推出，是一項獲政府認可的建築產品認可制度。CPAS有助簡化各工務工程項目的審批流程，減少重複提交文件，並改善工期的確定性，讓來自不同地區優質及具成本效益的建築產品引入本地市場，使業界選材時有更多元化的選擇。在私人發展方面，屋宇署亦已將指定建築產品的接納標準納入CPAS產品規格，未來將透過參考CPAS認可產品資料庫，進一步加快審批流程。

The CPAS was launched in September 2025, and it is a government-recognised accreditation for construction products. One accreditation streamlines acceptance across all public works projects, reducing duplicated submissions and improving programme certainty. The Scheme will also allow construction products of high quality and cost-effectiveness from various regions to enter the local market, enabling more diversified choices of products for selection by the industry. For the private sector, the Building Department has also incorporated the acceptance criteria for designated construction products into the CPAS product specifications, streamlining the approval process by referencing to the approved product database.



計劃手冊 Scheme Handbook

獨有優勢: 香港建造業界的「快速通行證」
Exclusive Privilege: "Fast Pass" Entry into HK Construction Industry

傳統上，縱使建築產品已經獲得一個項目團隊的審批，在另一項目使用前仍然需要重複審批才能用於工程項目。在審批過程中，許多未在政府工務工程中使用過的建築產品亦往往需要更長時間審批。CPAS藉其簡便的申請流程及透明的認可機制，產品認可程序一般可在兩個月內完成，猶如獲取香港建造業界的**「快速通行證」**。獲有效認可證書的產品將被認定為符合一般工務工程項目的規格，大大簡化同一產品在不同工程項目的審批過程。同時，因CPAS的認可規格是基於香港沿用的國際標準。CPAS不僅能讓產品開啟香港的建造業市場，更可協助產品接軌世界，走向國際。

Conventionally, construction products often require repeated approvals in each and every project, even though they were approved in other projects previously, not to mention that new materials would take much more time in the process. With the simple application and transparent accreditation mechanism, the CPAS accreditation can generally be completed within 2 months, facilitating a **"fast pass"** entry into the Hong Kong construction industry. Accredited products will be recognised to fulfil the material property requirements of public works projects, streamlining the approvals across projects. At the same time, as CPAS accreditation standards are based on international standards being adopted in Hong Kong, CPAS not only enables products to enter Hong Kong's construction industry market but also helps them connect with global standards and expand internationally.

計劃特色
Key Features

01 統一認可
Recognised Accreditation

計劃獲政府認可，獲認可產品可於
工務工程項目及私人工程中採用
Government-recognised Accreditation
Scheme for public and private projects

02 合規保證
Quality Assurance

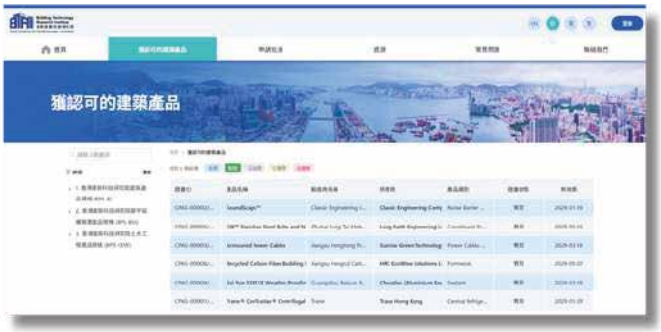
通過獨立評估和定期合規審查，
保障產品品質與可靠性
Robust Quality Assurance Process for Products

03 申請簡便
Simple Application

網上一站完成，申請過程快捷簡明，
審批過程中獲得 BTRi 的全力支持。
Fully Online, Quick and Easy Application
with Full Support from BTRi.

04 透明框架
Transparent Assessment

提供清晰的產品技術要求，
並確保提供獨立且具公信力的技術評核
Prudent and Transparent Assessment Criteria



產品規格及認可產品名單公開透明，可隨時網上查閱。
Product Specifications and the List of Approved Products are open, transparent and available online for viewing.

合規保證
Robust Quality Assurance Framework

CPAS設有嚴謹的五步驟驗證流程，不僅確保測試證書的真實性，還會透過現場抽查以保障產品品質，全面建構一套可靠的合規保證體系。

CPAS adopts a robust 5-step authentication process that not only ensures the authenticity of testing certificates but also safeguards product quality through on-site inspections, forming a comprehensive and reliable quality assurance framework.

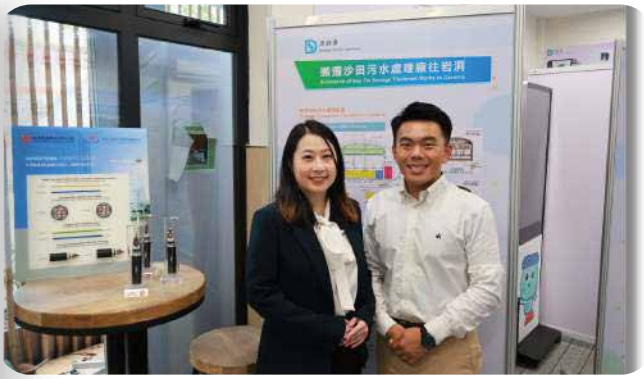
成功案例
Successful Case

香港建科院已為一款裝甲電纜產品頒發 CPAS 證書。該款獲認可電纜已獲渠務署「搬遷沙田污水處理廠往岩洞」項目採納，標誌着該新認可的產品在香港工務工程項目的成功應用。

BTRi has granted a CPAS certificate to an armoured power cable product. The accredited cables are accepted in the Drainage Services Department (DSD)'s "Relocation of Sha Tin Sewage Treatment Works to Caverns" project, marking their successful application in a Hong Kong public works project.

工程團隊：由於承建商提交的這款裝甲電纜物料已附上CPAS認可證書，確認有關產品符合標準、安全可靠，可放心採用，從而令工程審批工作提速、提效及提質。

Feedback from Project Team: *"Since the contractor has submitted this armoured cable material together with a CPAS approval certificate, confirming that the product complies with the required standards and is safe and reliable, it can be used with confidence. This, in turn, helps expedite, streamline, and enhance the efficiency, ensure the quality and the project approval."*



供應商：CPAS 對我們是一個革新的概念。香港建造業是一個千億市場、充滿機遇。我們透過申請 CPAS令審批流程變得簡單。我們不但在兩個月內就獲得證書，CPAS 證書更令我們的產品成功拿下在香港的首個工程項目，並可將其應用至其他項目。在此感謝 BTRi 團隊在整個申請過程中給予我們的支持！

Feedback from Supplier: *"CPAS is truly a game-changer for us. We know that the Hong Kong construction market is a multi-billion-dollar market teeming with opportunities. With CPAS, the approval process is made simple. Not only did we receive the certificate within 2 months, but the CPAS certificate also helped our Armoured Cable product land the first-ever project in Hong Kong, with the freedom to expand its usage to other projects. Thank you, BTRi team, for their support along the accreditation journey!*

搶先申請 早佔先機
Apply Now to Unlock Your Fast Pass Opportunities

https://cpas.btri.hk

如欲了解更多關於 CPAS 及已認可產品的資訊，
請即瀏覽 **cpas.btri.hk** 。

If you are interested in knowing more about CPAS and the approved products, please visit **cpas.btri.hk** now.

03 應用研發項目成果 ACHIEVEMENTS OF APPLIED R&D PROJECTS

推動高延性輕質複合混凝土之應用
Piloting Low-density Engineered Cementitious Composite (LD-ECC) for Yuen Long South Embankments

香港建科院聯同土木工程拓展署及路政署，共同推動創新高延性輕質複合混凝土——LD-ECC的應用。該創新物料已率先應用於元朗十八鄉路交匯處往元朗公路分支路的路堤建造工程中。

LD-ECC 具備多項重大技術突破：其密度低於水，但抗壓強度卻比傳統輕質混凝土填土物料高出三倍。此外，該物料具備高延性及裂縫自癒能力，其裂縫控制與耐疲勞能力均比傳統輕質混凝土高出幾倍。

BTRi, in collaboration with the Civil Engineering and Development Department (CEDD) and the Highways Department (HyD), is jointly promoting the application of an innovative lightweight concrete — LD-ECC. This innovative material has been pioneered in the embankment construction for the slip road leading to Yuen Long Highway at the Shap Pat Heung Road Interchange.

LD-ECC features several major technical breakthroughs: its density is lower than that of water, yet its compressive strength is three times higher than that of traditional lightweight concrete fill materials. Furthermore, the material possesses high ductility and crack self-healing capabilities, with its crack control and fatigue resistance several times higher than those of traditional lightweight concrete.

為確保新材料於實際應用中的安全與可靠性，項目團隊、香港建科院專家以及香港理工大學共同嚴格審視了多項關鍵技術文件，當中包括擬議的監測計劃、材料性能報告以及詳細的施工方案。

LD-ECC 的成功應用不僅克服了現場複雜的技術難題，更大幅提升了整體施工效率，令整體工期縮減約 50%。該路段最終提早五個月完成，於 2026 年 1 月 18 日順利通車，大幅便利市民出行。目前，香港建科院正與土木工程拓展署攜手制定相關標準，期望讓這項創新物料在香港、粵港澳大灣區，以至全球得以更廣泛應用，從而充分發揮其效益。

To ensure the safety and reliability of this new material in practical applications, the project team, BTRi experts, and The Hong Kong Polytechnic University (PolyU) rigorously reviewed several key technical documents. These included the proposed monitoring plan, material performance reports, and detailed construction plans.

The successful application of LD-ECC not only overcame complex on-site technical challenges but also significantly enhanced overall construction efficiency, reducing the total construction period by approximately 50%. Consequently, the road section successfully opened to traffic five months ahead of schedule on 18 January 2026, greatly facilitating public commuting. Currently, BTRi is working closely with CEDD to develop relevant standards, aiming to facilitate the wider application of this innovative material in Hong Kong, the Greater Bay Area (GBA), and globally, thereby fully maximising its benefits.

遙控天秤系統的效能分析及技術規格制訂
Performance Analysis and Development of Technical Specification for the Remote Control Tower Crane System

遙控天秤系統把傳統天秤由高空駕駛室內的控制台轉移至設於地面的控制艙，讓操作員能在更安全及符合人體工學的工作環境下進行吊運作業。遙控天秤系統讓操作員不再需要於高空、密閉及擁擠的駕駛室中長期工作，可顯著降低其暴露於極端天氣、疲勞及高空失足等風險。系統改善了職業安全及操作員的工作環境，有助應對行業技術勞工短缺等行業挑戰，同時提升吊運精準度及整體生產力。

為配合發展局於《工務技術通告第 09/2025 號——採用建築機械人》下推動遙控天秤系統的發展，香港建科院正與香港科技大學合作進行遙控天秤系統的效能分析，並制訂通用技術規格。研究團隊通過建築署及渠務署的試點項目收集效能數據，並與傳統天秤的數據作對比，評估其在吊運效率、營運安全及工人健康方面的表現。研究結果將作為持續優化遙控天秤系統技術，以及制訂通用技術規格的重要基礎。

The Remote Control Tower Crane System (RCTCS) relocates the control console of conventional tower cranes from elevated cabins to a ground-based remote control station, enabling operators to conduct lifting operations in a safer and more ergonomic working environment. By removing operators from isolated and congested high-level cabins, RCTCS significantly reduces operators' exposure to extreme weather conditions, fatigue, and fall-related risks. With improved occupational safety and operator welfare, RCTCS helps address industry challenges such as skilled labour shortages while improving lifting accuracy and overall construction productivity.

To support the development of RCTCS, as promulgated under DEVB Technical Circular (Works) No. 09/2025 – Adoption of Construction Robots, the BTRi is collaborating with the Hong Kong University of Science and Technology (HKUST) to conduct performance analysis and develop comprehensive technical specifications for the system. Performance data are being collected from pilot projects commissioned by the Architectural Services Department (ArchSD) and DSD, enabling benchmarking against conventional tower crane operations. The assessment focuses on lifting efficiency, operational safety, and worker wellness. The findings will form the basis for continuous technological enhancement of RCTCS and the establishment of unified, industry-wide technical specifications.

為組裝合成建築法項目開發基於區塊鏈技術的數碼工程監督系統
Development of Blockchain-enabled Digital Supervision Systems for MiC Projects

香港建科院聯同香港大學，為建築署的組裝合成建築法（MiC）項目開發基於區塊鏈技術的數碼工程監督系統，涵蓋工廠製造階段的工地外品質檢查、跨境運輸、地盤吊裝及安裝監察。系統結合流動應用程式、網上儀表板、建築信息模擬（BIM）、物聯網感測及區塊鏈加密紀錄，提升 MiC 全流程的可追溯性及透明度。

該綜合系統包含三個功能單元：第一個單元用於記錄工廠生產中的數碼化檢測和人員核實過程；第二個單元用於運輸過程中的人工智能物流監控、預計到達時間預測和風險預警；第三個單元為現場安裝過程作自動驗證、BIM定位和進度跟蹤。這套一體化數碼工作流程有助系統地優化 MiC 監督流程，加強不同工作階段之間的協作與數據銜接，總體提升 MiC 項目的效率和品質。

The BTRi, in collaboration with The University of Hong Kong (HKU), developed blockchain-enabled digital supervision systems for the ArchSD's Modular Integrated Construction (MiC) projects, covering off-site quality inspection during factory production, cross-border transportation, and onsite lifting and installation monitoring. By integrating mobile applications, web-based dashboards, Building Information Modelling (BIM), IoT sensing and blockchain-secured records, the systems enhance traceability and transparency throughout the MiC process.

The integrated system comprises a first module for digital inspection and stakeholder sign-off during factory production, a second module for Artificial Intelligence (AI)-enabled logistics monitoring, estimated time of arrival prediction and risk alerts during transportation, and a third module for automatic verification for installation, BIM-linked positioning and progress tracking. This integrated digital workflow helps systematically optimise supervision across the entire MiC process, enhance collaboration and data continuity between different stages, and uplift the overall efficiency and quality of MiC projects.

建造業人工智能應用策略研究
Strategic Study on AI Applications in Construction

香港建科院聯同建盛（亞洲工程）顧問有限公司，就建造業人工智能（AI）應用展開了策略研究。研究有系統地檢視了全球與建造業相關的AI及數碼化方案，評估香港業界對於採納AI的準備程度及辨識應用時可能遇到的障礙，並建立了一個網上的共享資料庫及知識分享平台——**「AI應用資源庫」**。

在該資源庫中，我們將全球市場上的AI方案進行系統性分類，歸納為28個針對特定行業挑戰的應用類別，涵蓋工地監督、法定合規追蹤及建造工程項目管理等範疇。可掃描二維碼以了解更多詳情。

BTRi, in collaboration with Asia Infrastructure Solutions (AIS), conducted a strategic study on AI applications in the construction industry. The study systematically reviewed global AI and digitalisation solutions relevant to construction, assessed Hong Kong's industry readiness for AI adoption, and identified key adoption barriers. We also established an **AI Toolkit** – a web-based repository – as a knowledge-sharing base.

In the AI Toolkit, we categorised AI solutions in the global market into 28 application contexts addressing specific industry challenges - such as site supervision, statutory compliance checking, and construction project management. Scan the QR code to learn more.

了解更多
Scan and know more

AI應用資源庫
AI Toolkit

研究以實證為本，不僅確立了對建築活動具顯注效益且適合於工務工程中强制採用的優先應用場景，同時也制定了相關的基準要求，以供工程項目團隊納入工程合約條款之中。

發展局於2026年3月4日公布的《技術通告第3/2026號—採用人工智能技術》中，已選取當中三個應用場景列為優先強制採用項目，分別為：設計優化、招標文件自動查核，以及智能數碼工地監督系統資料檢索。

Building on an evidence-based approach, the study not only set out prioritised use cases that were impactful to construction activities and ready for mandatory adoption in public works, but also laid down their associated baseline requirements for project offices to incorporate into the works contracts.

Three of the top prioritised use cases were selected for mandatory adoption according to DEVB's Technical Circular No. 3/2026 - Adoption of AI Technology issued on 4 March 2026: Design Optimisation, Automated Tender Document Checking & Smart Digital Works Supervision System Information Retrieval.

研究亦建議採取分階段推進策略，由試行優先應用場景起步，逐步將經驗證的方案納入建造業的強制要求，並輔以**五項策略性配套措施**：

- 在工務工程中實施強制應用規定，同時為私人工程項目提供誘因，雙軌並行推動應用；
- 建立經驗證的效能基準評估機制，以實證數據增強業界信心；
- 制定能力框架及認可制度，有系統地提升從業人員的專業技能；
- 建立綜合平台，連繫本地需求與經驗證的全球方案供應商；及
- 優先編製入門配套及實用指引，降低業界採用人工智能的門檻

The study also proposed a phased approach from piloting priority use cases to mandating proven solutions in the construction industry, supported by **five strategic enablers**:

- A dual-track approach combining mandates for public works with incentives for private projects;
- Verified performance benchmarking to build confidence through evidence;
- Workforce capability building through competency frameworks and accreditation;
- An integrated solution hub connecting local needs with verified global suppliers; and
- Prioritised starter packages with practical guides to lower adoption barriers

除了上述的措施外，研究亦為建造業的長遠轉型提出了策略性藍圖，涵蓋三個階段：基礎建設與驗證、標準化與整合、以及規模化與成熟應用。連同五項策略性配套措施，該藍圖為香港建造業提供了實際基礎，以實現可規模化及可信賴的AI應用。

Beyond these immediate mandates, the study laid out a high-level roadmap for long-term industry transformation, covering three phases: Foundation & Validation, Standardisation & Integration, and Scaling & Maturity. Together with the five strategic enablers, this roadmap provides a practical foundation for scalable and trusted AI adoption in Hong Kong's construction industry.

展望未來，更多優先應用場景將隨着相關AI及數碼化方案的成熟程度與市場普及化的提升，逐步被採納及納入強制規定。為支持業界渡過這一轉型階段，香港建科院正積極探索如何協助業界從業人員採用經驗證的AI方案，同時配備基準評估工具及入門方案，從而降低行業應用的門檻。

Looking ahead, more prioritised use cases will be adopted and mandated in pace with the maturity and market availability of relevant AI and digitalisation tools. To support the industry during this transition stage, BTRi is actively exploring ways to help industry practitioners adopt verified AI solutions, alongside performance benchmarking tools and starter packages – lowering barriers for industry-wide implementation.

應用綠色並具成本效益的生物炭及粒化高爐礦渣粉為土地淨化
Use of biochar and GGBS as a green and cost-effective alternative for land decontamination

為減少建築工程造成的碳排放，並提高未來土地淨化處理的成本效益，土木工程拓展署委託香港建築科技研究院在香港科技大學的支持下，探索利用副產品和其他綠色材料作為黏合物修復受重金屬和碳氫化合物污染的土壤，以減少對水泥的依賴。

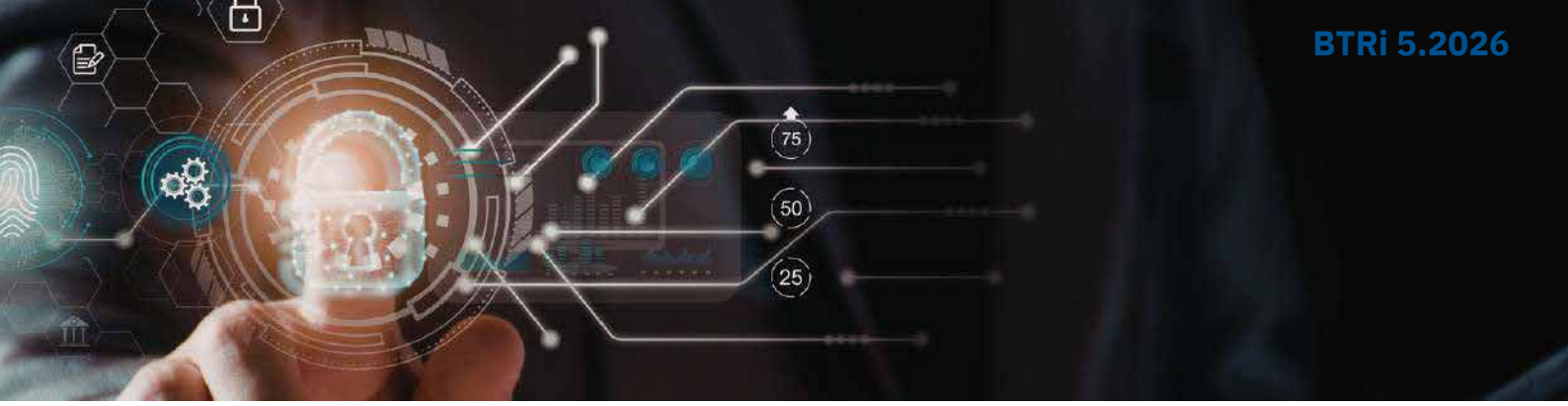
生物炭正被探索作為一種新興黏合物，以減少土地淨化處理的碳足跡。它作爲一種由生物量（例如園林廢物的副產品）製成的富碳材料，具有成本效益、金屬和有機物吸附能力強以及碳封存和循環再用/廢物利用等環境效益等優點。當與其他工業副產品（例如粒化高爐礦渣粉）混合作為輔助水泥質材料時，混合物能夠獲得強度，並部分取代水泥，從而為土地淨化提供可持續且具成本效益的方案。

香港建科院正與香港科技大學合作，在北部都會區的土木工程拓展署的試點項目中驗證現場性能，旨在為往後廣泛採用制定指引。

With the aim of reducing carbon emissions caused by construction and enhancing the cost-effectiveness of future land decontamination processes, CEDD commissioned BTRi, with the support of HKUST, to explore the use of by-products and other green materials as a binder for the remediation of soil contaminated by heavy metals and hydrocarbons with a view to reducing the reliance on ordinary portland cement (OPC).

The use of biochar is being explored as an emerging binder to reduce the carbon footprint of land decontamination. It is a carbon-rich material produced from biomass, e.g. by-products of yard waste, which offers advantages of cost efficiency, high metal and organic adsorption capacity, and environmental benefits such as carbon sequestration and waste recycling/reuse. When combined with other industrial by-products like ground granulated blast furnace slag (GGBS) as a supplementary cementitious material, the mixture acquires strength and partially replaces OPC to present a sustainable and cost-effective approach for land decontamination.

BTRi is collaborating with HKUST to verify the on-site performance in CEDD projects in the Northern Metropolis as a pilot, aiming to establish a guideline for wider adoption.



以智能數碼管治提升吊運作業的安全水平與運作效益

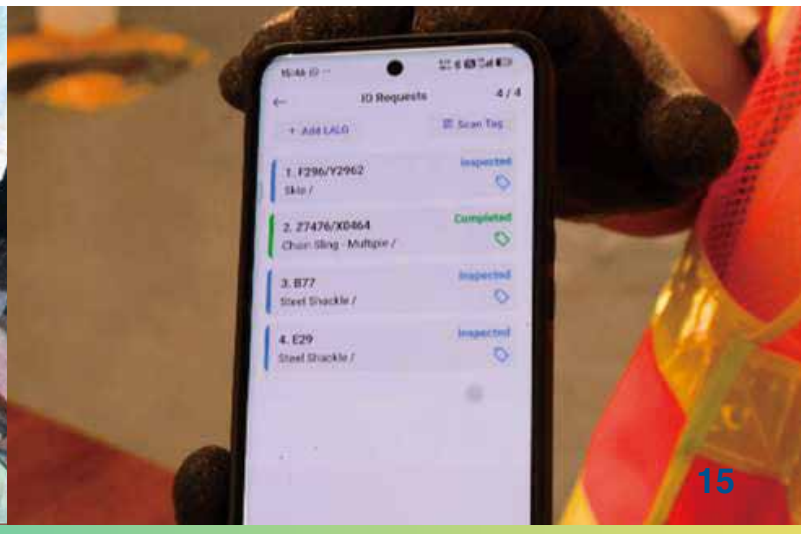
Enhancing Safety and Effectiveness of Lifting Operations via Smart Digital Governance

吊運工作一直是建築工地上風險最高的工序之一。現時常見的問題包括過度依賴紙本認證文件、現場難以核驗 LALG 證書之真實性與有效性，以及在設備整個生命周期內跨工程項目追蹤設備使用情況的能力有限。這些不足不僅增加行政負擔及現場查核時間，亦可能導致識別危害時有延誤、加重違規風險，以及增加工地安全隱患 。

香港建科院致力推動建造業創新，以提升吊運作業的安全水平與運作效益。其中一項措施，是透過與威格科技有限公司合作推出 WISE LOTS（Wise Lifting Operation Tracking System）。該系統是一個以科技為本的數碼平台，革新吊運工作以及起重機械與起重裝置（簡稱LALG）的管理模式，從而加強工地安全、提升合規性、並促進設備使用的可追溯性及整體透明度。

Lifting operations remain one of the highest-risk activities on a construction site. Common challenges include reliance on paper-based certification, difficulties in verifying the authenticity and validity of LALG certificates on site, and limited traceability of equipment deployment across multiple projects over the equipment lifecycle. These shortcomings not only increase administrative burden and site verification time but may also lead to delayed hazard identification, increased likelihood of non-compliance, and elevated safety risks.

BTRi is driving the construction innovation for uplifting safety and effectiveness of lifting operations and one of the initiatives is through collaborating with We Guard Technology Limited to introduce WISE LOTS (Wise Lifting Operation Tracking System), a technology-driven digital platform that transforms the management of lifting operations and lifting appliances and lifting gears (LALG), enhancing site safety, regulatory compliance, traceability and transparency across the construction industry.



WISE LOTS 透過為專業人員提供可靠的身份註冊機制，並支援 LALG 證書的電子簽發及認證，以取代傳統紙本制度。

香港建科院透過與推展中的工程項目的緊密協調，促成試點試驗，讓系統在實際工地環境下進行測試，並支援其於工務工程項目中率先試行。與此同時，香港建科院亦收集前線工作人員的意見反饋，並就運作上的挑戰提供專業意見，協助完善系統，提升系統的可用性、運作效能及可追溯性，以便更有效支援安全及高效的吊運作業。

展望未來，香港建科院將持續推動 WISE LOTS 等創新方案的廣泛應用，藉以優化建造工序及提升運作效益，支持業界邁向更安全、更智能、更可靠的未來。

WISE LOTS addresses these challenges by enabling secure identity registration for professional personnel and supports electronic issuance and authentication of LALG certificates to replace conventional paper-based practices.

Through close coordination with ongoing projects, BTRi facilitated a pilot trial to test the system under real site conditions and supported its early adoption in a public works project. BTRi also gathered feedback from frontline workers and provided professional input to address operational challenges, helping refine the system for improved usability, effectiveness, and traceability to better support safe and efficient lifting operations.

BTRi will continue to advance the adoption of innovative solutions such as WISE LOTS to enhance construction practices and operational efficiency, supporting the industry's transition towards a safer, smarter, and more reliable future.

04 標準優化的成果
ACHIEVEMENTS OF STANDARDS ADVANCEMENT

檢視本地建築標準
Review of Local Construction Standards

香港建科院正與政府部門、業界及學術機構緊密合作，全面檢視現行本地建築標準，以提升建造業的整體效率、可持續性及成本效益。是次檢視重點包括優化現有設計參數、制定區域性準則，以及為新興建築材料及創新建造技術建立相關標準。在借鑑國際標準及優良作業方法的同時，兼顧本地發展需求，此項工作旨在統一技術要求、促進新技術的應用，並支持香港建造業的長遠發展。

BTRi is undertaking a comprehensive review of existing local construction standards in close collaboration with government departments, industry stakeholders, and academic institutions, in order to enhance efficiency, sustainability, and cost-effectiveness across the construction industry. The review focuses on optimising existing design parameters, introducing region-specific criteria, and establishing standards for emerging materials and innovative construction methods. By drawing reference from international standards and best practices while addressing local development needs, this initiative aims to harmonise technical requirements, facilitate technology adoption, and support the long-term advancement of Hong Kong's construction industry.

重點成果
Key Results

統一建築標準

在統一本地不同的地基設計及土力勘察要求後，相關優化措施可於部分工務工程項目中**減少約 33% 的特定施工工序，有助提升施工效率**。

Aligning Construction Standards

After aligning different local requirements for foundation design and ground investigation, the optimisation can lead to **a reduction of approximately 33% in specific work processes** for certain public works construction projects.

優化現有設計參數

就建築物的設計外加荷載進行了全面檢討，涵蓋辦公室、零售店舖、餐廳、戲院及街市等用途，以降低建築成本。初步研究結果顯示，在不影響安全的前提下，**餐廳及戲院的設計荷載或可減少約 20%，街市則可減少約 10%**。

Optimising Existing Design Parameters

A comprehensive review was conducted on the design-imposed loads of buildings, specifically for offices, retail spaces, restaurants, cinemas, and markets, with an aim to reduce construction costs. Preliminary findings indicate a **potential reduction of approximately 20% in the design loading for restaurants and cinemas, and 10% for markets.**

制定區域性準則

本研究透過考慮北部都會區獨特地形所衍生的風荷載數據，為該區新發展地帶制定經優化的設計風壓參考分佈，以**優化結構性能並提升成本效益**。

Developing Region-specific Parameters

A review study was conducted to provide a refined wind pressure profile for the new development zone in Northern Metropolis, taking into account the wind load data specific to the Northern Metropolis' unique topography, in order to **optimise structural performance and enhance cost efficiency.**

建立新材料及創新技術標準

我們已就於建築工程中採用高強度鋼材組合柱、高強度鋼筋及超高性能混凝土展開研究。為這些**新材料建立相關標準，對於促進其在本地項目中有效應用**，及鞏固香港在基礎設施和城市發展方面的全球和地區性領先地位，至關重要。

Establishing New Material Standards

Studies were undertaken for adopting high-strength steel in composite columns, high-strength steel reinforcement, and ultra-high-performance concrete in construction works. **Establishing standards for these new materials is essential to enable effective adoption in local projects** while underpinning the global and regional leading position of Hong Kong in infrastructure and urban development.

引入新設計及質量管理模式

我們進行研究以引入樁筏式地基設計及鋼筋產品認證計劃。透過制定新的設計及質量管理模式，可為創新設計提供**實用的技術指引、提升建築工程的效率及成本效益，並確保工程表現的穩定性與可靠性。**

Introducing New Design and Quality Management Methods

Studies were carried out to introduce piled-raft foundation design and a product certification scheme for steel reinforcement. The development of new design and quality management methods is critical to providing **practical guidance for innovative designs, enhancing efficiency and cost-effectiveness across construction processes, and delivering reliable performance.**

推出首份本地超高性能混凝土（UHPC）結構應用技術指引及特別規格
First-ever Technical Guidelines and Particular Specification for Structural Use of UHPC

香港建科院聯同土木工程拓展署，於2025年12月12日正式發布全港首份UHPC結構應用的《技術指引》及《特別規格》。這項具里程碑意義的技術文件，為香港廣泛應用這款先進建築材料奠定了標準化的專業框架。

是次編制工作匯聚了頂尖的跨界別專家。香港建科院牽頭成立了包括香港理工大學，以及萬利仕（亞洲）顧問有限公司的專案團隊，並榮幸邀請到兩位UHPC領域的兩位權威學者東南大學劉加平院士及馬來西亞蒙納士大學 Sudharshan N. Raman 教授擔任顧問。團隊系統化地整合了中國內地及國際間的豐富實務經驗與技術標準，制定出既具備國際視野，又精準切合香港獨特結構與環境需求的基準要求。

展望未來，香港建科院正與土木工程拓展署緊密合作，積極推動多個採用新 UHPC 指引的「先行先試」項目。香港建科院將繼續致力推動建築科技創新，為香港打造更高質量、更具韌性的城市基建。

The BTRi, in collaboration with the CEDD, officially released Hong Kong's first-ever Technical Guidelines and Particular Specification for the structural application of Ultra-High Performance Concrete (UHPC) on 12 December 2025. This milestone technical document establishes a standardised professional framework for the widespread application of this advanced construction material in Hong Kong.

The compilation of this document brought together top-tier, cross-disciplinary experts. BTRi spearheaded the formation of a dedicated project team, including academics from The PolyU, as well as Mannings (Asia) Consultants Limited. Furthermore, we were honoured to invite two authoritative scholars in the field of UHPC—Academician Liu Jia Ping from Southeast University and Professor Sudharshan N. Raman from Monash University Malaysia—to serve as advisors. By systematically integrating extensive practical experiences and technical standards from both Mainland China and the international arena, the team has formulated benchmark requirements that not only possess a global perspective but also precisely cater to the unique structural and environmental needs of Hong Kong.

Looking ahead, BTRi is working closely with CEDD to actively promote several pilot projects adopting the new UHPC guidelines. BTRi will continue its steadfast commitment to driving innovation in construction technology, striving to build higher-quality and more resilient urban infrastructure for Hong Kong.

香港建科院展開建築材料標準對照研究 支持香港建築標準持續提升

BTRi Launches Study on Standard Benchmarking for Construction Materials supporting the continuous advancement of Hong Kong's Construction Standards

香港建科院現正展開一項針對香港工務工程所採用建築材料標準的系統性研究，旨在為建築署更新《一般規格》（General Specifications，GS）提供清晰、全面且具體的技術建議。

該研究涵蓋超過 26 類常用建築材料，包括建築及機電材料的性能要求、測試方法及所參考的相關標準。研究團隊為《一般規格》中既有的技術要求與最新的國際及內地標準進行全面對照分析，並就有需要的項目提出修訂建議，以確保相關要求與主流材料標準框架保持一致。

本研究採用結合人工智能驅動引擎與專家驗證的混合方法，整合多項先進技術，包括語義分塊（semantic chunking）、向量嵌入（vector embedding）、語義檢索（semantic retrieval）、大型語言模型（LLM）及知識圖譜建構。人工智能引擎可自動抽取並對應不同標準條文，建立跨標準的語義關聯，從而識別各項標準之間的實質差異及等同性。所有人工智能產出結果均會交由相關領域專家進行審閱及技術評估，並提出最終建議，以確保研究結果具備高度的科學嚴謹性、專業性及準確性。

此項研究不僅大幅提升標準對照工作的效率與精準度，亦建立了一套可重用及具擴展性的分析框架，為《一般規格》日後的持續修訂及優化提供有力支援，標誌着推動香港建築標準持續發展的重要一步。

The BTRi has launched a systematic review of construction material standards for public building works in Hong Kong, with the aim of providing clear and comprehensive technical recommendations to ArchSD to facilitate their update of General Specifications (GS).

The study covers over 26 types of materials that are commonly used, encompassing the performance requirements, testing methods and referenced standards for building and building services materials. By comparing the technical requirements in GS against the latest international and Mainland standards, the study proposes amendment recommendations to ensure consistency with prevalent material standard frameworks.

The study adopts a hybrid approach that combines an AI-driven engine with expert validation, integrating several advanced technologies, including semantic chunking, vector embedding, semantic retrieval, large language models (LLM) and knowledge graph construction. The AI engine automates the extraction and mapping of clauses across multiple standards, builds cross-standard semantic relationships, and identifies substantive differences and equivalencies between standards. All AI outputs are then reviewed by subject matter experts, who conduct reviews and technical assessments and provide the final recommendations to ensure robustness and professional accuracy.

This initiative not only enhances the efficiency and precision of standards benchmarking but also establishes a reusable and scalable analytical framework that supports future GS revisions. It marks an important step toward the continuous advancement of Hong Kong's construction standards.

制定組裝合成建築法灣區標準
Formulation of GBA Standards for MiC

為促進粵港澳大灣區組裝合成建築法的協同發展，發展局委託香港建科院制訂組裝合成建築法灣區標準。作為香港建科院制定的首批大灣區標準之一，該套標準將成為重要的實務指引，推動大灣區在組裝合成建築法方面的區域合作及標準化應用。

目前，組裝合成建築法灣區標準的整體框架，以及一本闡述基本原則的指引文件正同步制訂中。香港建科院已於2025年11月12日舉辦首場香港工作坊，廣泛收集本地業界的專業意見；未來亦將成立工作組，進一步諮詢內地建造業界的意見。上述活動所蒐集的建議，將用於完善組裝合成建築法灣區標準，以確保其切合整個大灣區的發展需要。

期望組裝合成建築法灣區標準於本年內完成定案。標準實施後，將有助提升組裝合成技術在大灣區的應用水平，並協助區內建造業更有效接軌國際市場。

To facilitate the synergistic development of MiC in the GBA, the DEVB commissioned the BTRi to formulate the MiC GBA Standards. As one of the first batches of GBA standards developed by BTRi, the Standards will serve as pivotal practical guidance to support effective regional collaboration on MiC and drive the standardisation of MiC practices across the GBA.

A structured framework for the MiC GBA Standards, together with a Basic Guideline outlining the fundamental principles, is currently under development. On 12 November 2025, a stakeholder engagement workshop was conducted in Hong Kong to gather professional insights from local industry practitioners. Further engagement workshops will be arranged to collect views and recommendations from Mainland construction industry counterparts. Feedback gathered through these exercises will be considered holistically to ensure that the MiC GBA Standards are well aligned with the overall development needs of the GBA.

The MiC GBA Standards are targeted to be finalised later this year. Upon implementation, they are expected to enhance the overall practice and application of MiC technologies within the GBA and enable the industry to better connect with international markets.

制定高強鋼結構設計灣區標準
Formulation of GBA Standards for Structural Design of High-Strength Steel Structures

高強鋼相比一般在基建中使用的S355鋼材強度高近二至三倍，因此具備減少材料用量、減輕結構自重及提升施工效率等優勢。近年，高強鋼結構已在香港多個大型工程項目中取得成功應用，並展現良好的工程效益及可持續性。

為更好融入和服務國家發展大局，支持建築行業的高質量發展，香港建科院聯同香港理工大學國家鋼結構工程技術研究中心香港分中心，開展《粵港澳大灣區高強鋼結構設計標準》制定工作，並已完成初稿的草擬工作。標準的製定參考了歐洲規範及國家標準，涵蓋建築及橋樑設計。並於2026年2月27日舉辦了專題工作坊，邀請政府部門、本地建造業界及學術界代表，就標準的主要內容、實施安排及推廣策略作深入交流。未來將與廣東省相關機構協作，以完善和深化有關標準。

該灣區標準將通過統一要求及規範，建立一套與國際接軌的設計標準，以推廣高強度鋼材的高效應用，提升大灣區鋼結構的安全、效率及可持續發展，亦為高品質高強鋼材料及鋼結構技術對接海外市場提供技術基礎。

Compared with S355 steel commonly used in infrastructure works, high-strength steel can offer strength levels nearly two to three times higher, and therefore has advantages in reducing material consumption, lowering structural self-weight and enhancing construction efficiency. In recent years, high-strength steel structures have been successfully adopted in a number of major projects in Hong Kong, demonstrating favourable engineering performance and sustainability.

To better integrate into and serve the overall national development strategy, and to support the high-quality development of the construction industry, the BTRi, in collaboration with the Chinese National Engineering Research Centre for Steel Construction (Hong Kong Branch) at PolyU, has commenced the development of the GBA Standards for Structural Design of High-Strength Steel Structures and completed the initial draft. The standard was developed with reference to European standards and national standards (Guobiao), covering the design of buildings and bridges. A dedicated workshop was held on 27 February 2026, bringing together representatives from government departments, the local construction industry and academia to discuss the key provisions of the standard, as well as its implementation and promotion strategies. Going forward, BTRi will continue to work with relevant organisations in Guangdong Province to refine and further develop the standard.

The GBA standards will, through unified requirements and specifications, establish an internationally aligned design standard with a view to promoting the efficient use of high-strength steel, enhancing the safety, efficiency and sustainability of steel structures in the GBA, and providing a technical basis for high-quality high-strength steel materials and steel structure technologies to connect with overseas markets.

05 認可、認證與測試的成果
ACHIEVEMENTS OF ACCREDITATION, CERTIFICATION & TESTING

「組裝合成」製造商認可計劃（MiC-MAS）：政府工務工程投標必備，助力MiC製造商走向全球市場

Modular Integrated Construction Manufacturer Accreditation Scheme (MiC-MAS): Mandatory Requirement for Hong Kong Public Works, Helping MiC Manufacturers Explore the Global Market

2026 年 2 月 9 日，發展局發布《技術通告（工務）第 2/2026 號》，明確規定自2026 年 4 月 1 日起，**工務工程項目必須選用經香港建科院 MiC-MAS 認可的供應商**，包括持有正式證書或臨時證書的製造商。持有正式證書的製造商在投標時不受合同額度限制。持有臨時證書的製造商亦可供應總值不超過4億港元的MiC組件。

為協助業界了解MiC-MAS最新要求，香港建科院已於 2026 年 3 月 17 日舉辦了一場簡介會，向 MiC 製造商及業界人士詳解技術通告內容、認可製造商可享有的簡化審批措施、MiC-MAS 評審與監督流程、先進 MiC 技術與全球商機。會議反應熱烈，充分反映業界對質量保證、合規要求及 MiC 未來發展的高度關注。

On 9 February 2026, the DEVB issued Technical Circular (Works) No. 2/2026, specifying that starting from 1 April 2026, the **Government shall adopt the BTRi's list of accredited MiC Manufacturers** (both Full Certificate and Provisional Certificate) **under the MiC-MAS as the list of approved MiC suppliers for public works.** Manufacturers with a Full Certificate have no contract value limits in bidding, while manufacturers with a Provisional Certificate can supply MiC modules up to HK$400 million.

To support MiC manufacturers in understanding the latest requirements of MiC-MAS, BTRi held a briefing on 17 March 2026, to brief on the content of the technical circular, streamlined approving measures for accredited manufacturers, the MiC-MAS assessment and surveillance procedure, advanced MiC technologies and global opportunities. The briefing received an enthusiastic response, which fully reflects the industry's strong attention to quality assurance, compliance requirements and the future development of MiC.

憑藉香港作為「超級聯繫人」的獨特角色及利用香港國際化的優勢和經驗，香港建科院正協助國家及香港成熟的建築創新技術進入國際市場。 香港建科院致力成為連接區域創新技術與國際需求的橋樑，推動全球建造業邁向更可持續及高效能的未來：

- **中東：**首批認證企業鋁遊家已與沙特簽署合作，率先將香港 MiC 技術輸出海外；
- **澳洲：**香港建科院正與維多利亞州政府及業界對接 MiC 技術應用，年內將組團考察，為促成長遠商業合作奠定基礎

香港建科院將繼續透過提供認可與認證服務，支持 MiC 的發展，進一步提升其質量與可靠性。

Leveraging Hong Kong's unique role as a "super connector" and its international edges and experience, BTRi is assisting the Nation and Hong Kong in promoting advanced construction innovation technologies to international markets. BTRi is committed to acting as a bridge between regional innovative technologies and global demand, driving the global construction industry toward a more sustainable and high-efficiency future.

- **Middle East:** Aluhouse, an early accredited MiC manufacturer, has signed a collaboration agreement with Saudi Arabia, leading the export of Hong Kong's MiC technologies abroad
- **Australia:** BTRi is liaising with the government and industry of the State of Victoria on the application of MiC technology and will lead a delegation visit within the year to lay the groundwork for long-term cooperation

BTRi will continue to support the development of MiC through accreditation and certification, further enhancing its quality and reliability.

06 香港建科院活動
BTRI EVENTS

香港建科院活動 BTRi Events

2025年9月
Sep 2025

香港建科院帶領代表團到滬杭商務考察
BTRi Executive Visit to Shanghai-Hangzhou

了解土木工程與基建發展領域中的尖端技術與材料
Unparalleled exposure to cutting-edge technologies and materials in civil engineering and infrastructure development

2025年11月
Nov 2025

香港建科院首個研討會：「前瞻香港未來：從策略思維到先進標準」
BTRi First Seminar: Future-Proofing Hong Kong: From Strategic Mindsets to Advanced Standards

共同探討提升香港建築項目成本效益的可行措施
Explored actionable measures to enhance the cost-effectiveness of construction projects in Hong Kong

2026年1月
Jan 2026

香港建科院交流酒會
BTRi Cocktail Reception

探討行業的核心挑戰與未來機遇
Network and exchange insights on the industry's key challenges and opportunities

2026年2月
Feb 2026

業界新年茶聚
Chinese New Year Tea Gathering

凝聚力量以識別及應對業界痛點
Unified effort to identify and address the industry's pain points

2026年3月
Mar 2026

香港建科院研討會「構建前瞻香港：人工智能、機械人及先進技術驅動基建發展」
BTRi Seminar "Building a Future-Ready Hong Kong: AI, Robotics, and Advanced Technologies for Infrastructure Development"

探討建造業如何從藍圖轉化為實質應用成果
Explored how the construction industry turns blueprints into practial outcomes

2026年5月
May 2026

香港建科院帶領代表團赴馬來西亞考察
BTRi Executive Visit to Malaysia

深入了解當地在先進材料、建築技術及數碼化發展方面的尖端成果
Exposure to Malaysia's cutting-edge advancements in advanced materials, construction technologies and digitalisation development

香港建科院尊尚會員 BTRi Patron Members

香港建科院會員計劃
BTRi Membership Programme

加入我們，攜手共創建造業的未來
Join Us in Shaping the Future of Construction

聯繫大學、政府及業界，共同推動和促進建造業創新發展
Promote and drive construction innovation via university-government-industry collaboration

了解更多
SCAN TO LEARN MORE

會員福利 Member Benefits

工作坊、研討會、座談會
Workshops, Seminars, Forums

高管商務考察
Executive Visits

業界交流活動
Industry Networking Events

透過香港建科院刊物提升品牌形象及曝光
Branding and Visibility through BTRi's Publications

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A premium membership offered with enhanced benefits

優越會員 Elite Member

享有核心福利的基本會員
A foundational membership offered with core benefits

最新活動 Upcoming Event

香港建科院澳洲考察：開拓 MiC 海外市場機遇
BTRi Executive Visit to Australia: Explore MiC Overseas Business Opportunities

在發展局及澳洲維多利亞州投資局的支持下，是次的商務考察旨在推動MiC在澳洲的供應鏈發展。
With the support of the Development Bureau and Invest Victoria, this executive visit to the State of Victoria, Australia, aimed at facilitating the development of the MiC supply chain in Australia.

2026年7月12日 至 18日
12 July - 18 July 2026

立即參加
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大學和政府會員 University and Government Members

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香港建築科技研究院（香港建科院）
Building Technology Research Institute (BTRi)

香港灣仔港灣道6-8號瑞安中心30樓3009-3012室
Units 3009-3012, 30/F, Shui On Centre, 6-8 Harbour Road, Wan Chai, Hong Kong

btri.hk
(852) 2953 5050
(852) 2507 2922
info@btri.hk

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香港建築科技研究院
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