

工程和物業管理

安全研討會 2026

Safety Forum for Works and Property Management Services

設計為本・科技賦能・共築安全新時代

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○ incident
零事故



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香港房屋委員會
Hong Kong Housing Authority

智慧工地安全新紀元：物聯網與 AI 的深度應用

A New Era of Smart Construction Site Safety: Deep Applications of IoT and AI

Presented by

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IoT Safety Solutions IoT Scaffolding Monitoring + Remote Misting Control Solution



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- **Primary Monitoring:** Leverages advanced IoT technology to monitor Wall Tie integrity, preventing collapse risks from unauthorized cutting.
- **Fire Warning:** Simultaneously, temperature sensors provide 24/7 fire warnings for early detection.
- **Comprehensive Loop:** Creates a complete "Structural Monitoring + Fire Warning _ Auto Response safety system."

Component	Function
Wall Tie Detection	Real-time monitoring of cut or loose Wall Ties
Temperature Sensor	Real-time temperature monitoring for fire precursors
On-site Buzzer	Immediate audible alarm for on-site workers
WhatsApp Notification	Instant alerts pushed to project team mobile devices
Remote Valve Control	Manual or automatic activation of sprinkler system

Temperature Sensing · Fire Warning ·
Automatic Sprinkler Control



WhatsApp 警報
提供實時數據可視化與遠端管理



連接現場警報鐘響及標架灑水



Objectives



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- **Real-time alerts** for wall tie integrity and fire warning
- **24/7 monitoring** on scaffolding integrity and early detection of fire warning by sensor devices
- **Enables prompt responses** by automatic comprehensive loop
- **Instant messaging alerts** to Site Agent, General Foreman and Safety Officer by Whatsapp
- Integrate with **BEANiE / Centralized Management Platform (CMP) / 4S Dashboard**



Caution: human error





Expected Key Outcomes after IoT implementation



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Aspect	Current Site Application	With IoT Scaffolding Monitoring & Remote Misting Control Solution	Expected Key Outcomes
Safety	- Periodic spot checks - Reactive after an incident	24/7 continuous monitoring - Proactive alerts	Proactive monitoring and early detection of incident significantly reduce risks to workers and property.
Manpower	Labour-intensive physical inspections	- Remote monitoring - Exception-based response - Supports inspection records and oversight in high risk area	Minimize dependence on human involvement by effortless automation
Workers	- Unaware of early-stage risks - May feel subconscious anxiety about potential risks	- Enhanced confidence about site safety - Instant alert to workers for evacuation	Reduced risk exposure to on-site workers

Early
Warnings
to All

ACTIVE

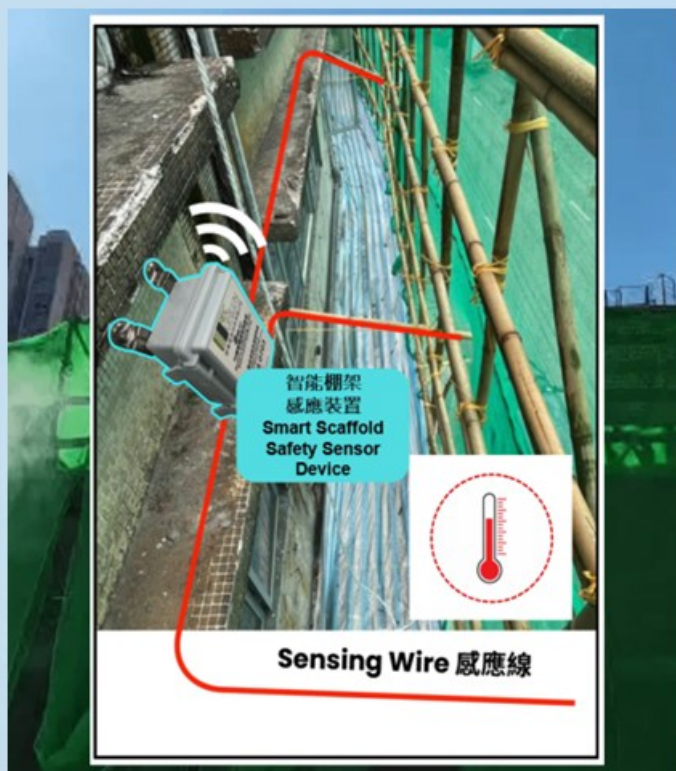




IoT Scaffolding Monitoring & Remote Misting Control Solution



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Hong Kong Housing Authority



IoT Scaffolding Monitoring &
Remote Misting Control Solution
智能棚架感應裝置
棚架自動灑水方案

Temperature Sensing · Fire Warning ·
Automatic Sprinkler Control

March 2026



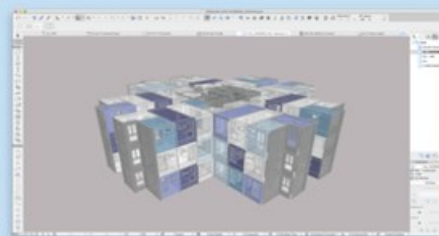
BIM-enabled Blockchain Multifunctional Platform



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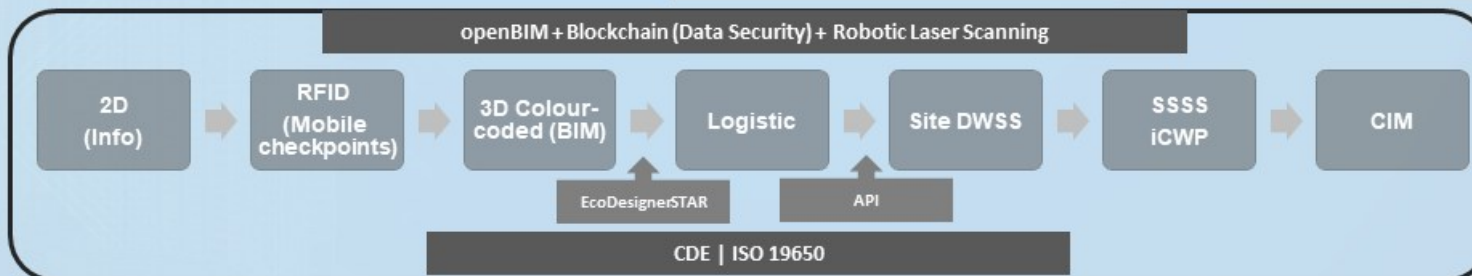
BIM-enabled Blockchain Multifunctional Platform

HK's First since 2018



- BIM-enabled blockchain platform processed 41,047 MiC modules
- 920,069 completed blockchain records with 99.9%+ pass rate

Towards a Conceptual Framework of Using Technology to Support Smart Construction: The Case of Modular Integrated Construction (MiC) (Loo and Wong, 2023) (<https://www.mdpi.com/2075-5309/13/2/372>)



Enhanced quality checking, joint inspection, real-time recording Traceability / big data analysis

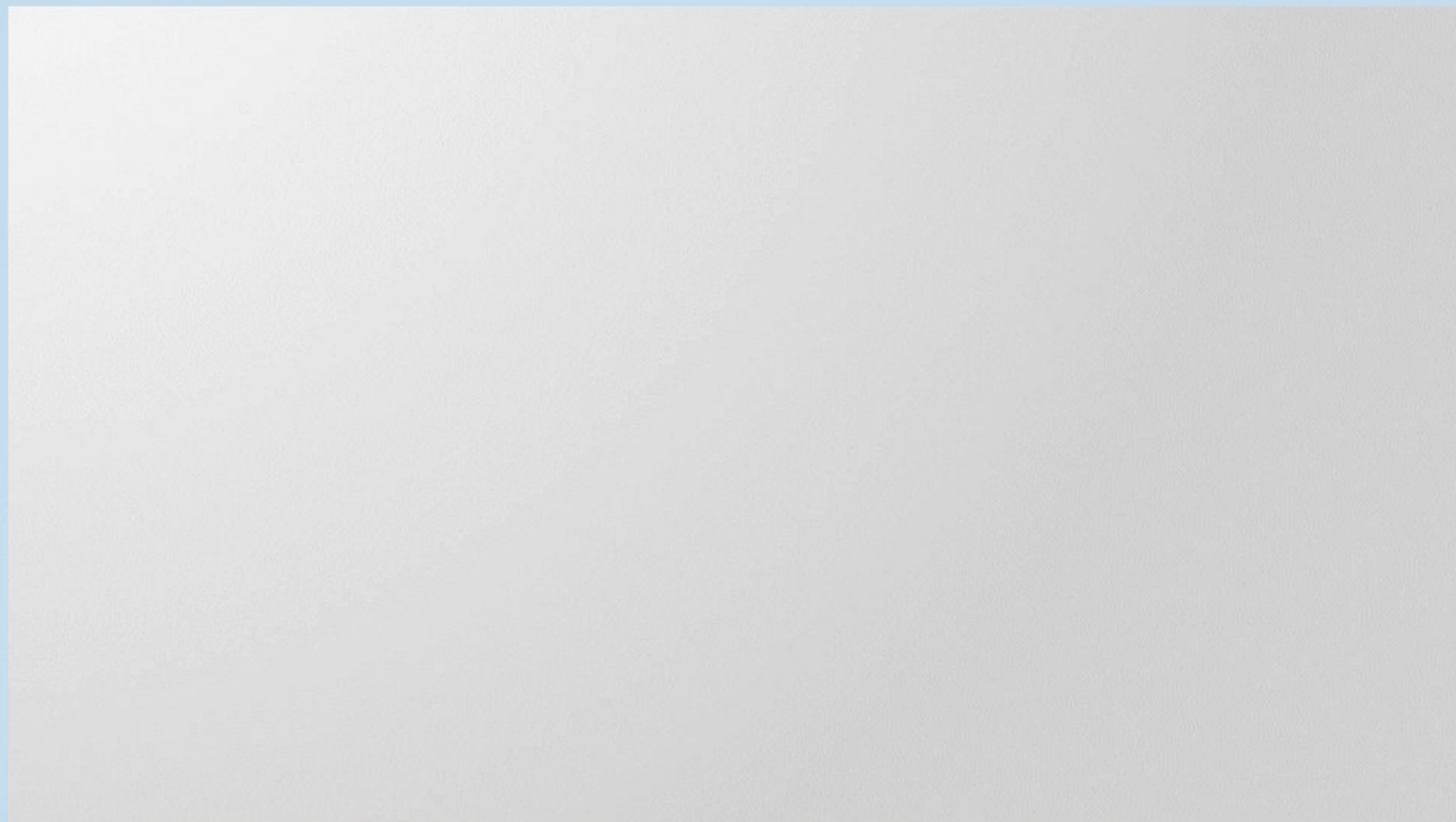
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We Build We Serve We Create

Green Integrated Corporation

Think Green, Practice Green, Act Green

Aim to provide a green living to our society & the world



BE Green BE Lean BE BIM

Thank You

Q & A

