



CONSTRUCTION  
INDUSTRY COUNCIL  
建造業議會



# CIC-ZCP Minecraft Competition - "Construct Your Sustainable City"

建造業零碳天地編程創作比賽 — 構建未來城市

# 流程 Agenda

部份 Part	項目 Item
1	比賽簡介 Competition Introduction
2	評分準則 Judging Criteria
3	比賽主題分享 Theme Sharing
4	比賽技巧貼士 Technical Tips
5	問答環節 Q&A Session



# 1. 比賽簡介 Competition Introduction



# 背景及目標 Background & Objectives

- 慶祝建造業零碳天地十周年
- To celebrate the establishment of the CIC-ZCP;
- 鼓勵探索城市規劃及發展的可能性
- To encourage students to explore the possibility of sustainable city planning and development in the city by implementation of imagination, digitalization and creativity;
- 深化STEM應用能力及認識創新建築科技
- To increase students' awareness and interest towards STEAM education and digitalization of the construction industry.
- 擴闊參加者對環保建築科技及碳中和的眼界
- Widen the vision of students towards sustainable construction development and carbon neutrality



建造業零碳天地



ANNIVERSARY  
LEADING TOWARDS  
CARBON NEUTRALITY  
引領邁向碳中和





# 比賽主題 Theme

- 構建未來城市 – 北部都會區的可持續發展
- “Construct Your Sustainable City – Sustainable Development for the Northern Metropolis”
  - 呼應特區政府及零碳天地的願景
  - Echo to the vision of the HKSAR and CIC-ZCP
  - 推廣可持續發展及碳中和
  - Promote sustainable development of the city and carbon neutrality



# 參加組別 Division

參加組別 Division	組別人數 Group Size
小學組 (小一至小六) Primary School Division (P1-P6)	最多6位同學 Max. 6 students
初中組 (中一至中三) Secondary School Division 1 (S1-S3)	
高中組 (中四至中六) Secondary School Division 2 (S4-S6)	

- 以2021/22學年計
- according to 2021/22 school year
- 每間學校參賽隊伍數目不限，每名學生只能參加一隊。
- There is no limit on the number of participating teams for each school; each student can join only one team.
- 每隊只能遞交一份作品。
- Each team can only submit one entry.



# 重要日程 Key Dates

日期 Date	項目 Items
21.5.2022	簡介會 Briefing Session
25.6.2022	報名截止日期 Application Deadline
30.7.2022 / 6.8.2022	培訓工作坊 ( 約 3 小時 ) Hybrid Training Workshops (Around 3 hours)
31.8.2022	遞交作品截止日期 Submission Deadline
10.2022	最後評審面試 ( 只限入圍參賽隊伍 ) Final Presentation (Applicable to shortlisted finalists only)
11.2022	頒獎禮及作品展覽 Award Ceremony and Winning Model Showcases in CIC-ZCP



# 培訓工作坊 Training Workshop

日期 Date: 30.7.2022 / 6.8.2022

時間 Time: 14:30 – 17:30

地點 Location: 建造業零碳天地 CIC-ZCP

## 工作坊內容 Content of Workshop (30.7.2022 / 6.8.2022)

創新建築科技 Innovative Construction Methods

環保建築 Green Construction

軟件操作技巧 Software Demonstration





# 作品型式 Format

- Minecraft 教育版成品 mcworld檔案
- .mcworld file of Minecraft Education Edition



# 作品遞交 Submission

- 以 mcworld檔案設計的完整的區域
- A completed neighbourhood in mcworld format

參加組別 Division	尺寸 Size
小學組 Primary School Division (P1-P6)	100 x 100
初中組 Secondary School Division (S1-S3)	150 x 150
高中組 Secondary School Division (S4-S6)	180 x 180

- 一段不長於3分鐘之影片介紹作品
- Introductory Video (within 3 mins)
- 一個不多於15頁之PowerPoint簡報介紹作品
- Introductory PowerPoint (within 15 slides)
  - 成品簡介 Introduction of work
  - 成品與主題的關係 Connection between work and competition theme
  - 概念發展 Concept development
  - 建築科技及可持續發展元素應用 Implementation of construction and sustainable elements
  - 困難與挑戰 Challenges and difficulties



# 獎項 Awards

獎項 Awards	獎品 Prizes
冠軍 ( 每組各一名 ) Champion (per each division)	\$3,000電子與生活用品現金券 及 證書 HK\$3,000 Electronic and Lifestyle product cash vouchers and a certificate
亞軍 ( 每組各一名 ) First Runner-up (per each division)	\$2,000電子與生活用品現金券 及 證書 HK\$2,000 Electronic and Lifestyle product cash vouchers and a certificate
季軍 ( 每組各一名 ) Second Runner-up (per each division)	\$1,000電子與生活用品現金券 及 證書 HK\$1,000 Electronic and Lifestyle product cash vouchers and a certificate
創意大獎 ( 每組各一名 ) Creativity Award (per each division)	
環保大獎 ( 每組各一名 ) Sustainability Award (per each division)	

- 所有成功遞交作品的參加者都可獲得電子參與證書
- All successful submissions will receive **an e-Certificate of Appreciation**



## 2. 評分準則 Judging Criteria



# 評分準則 Judging Criteria

準則 Criteria	比例 Ratio
主題表達 Expression of Theme	35%
可持續發展元素應用 Implementation of Elements of Sustainable Development	25%
先進建築技術及編程技巧應用 Application of Advanced Construction Methods and Coding / AI	20%
創意及美學觀感 Creativity and Aesthetic Value	10%
團隊合作及溝通 Team Collaboration and Communication	10%





# 主題表達 Expression of Theme

- 設計與北部都會區發展的連繫
- The connection between the design and the Northern Metropolis;
- 考慮到北部都會區發展方向並融合於設計上
- Implementation of the direction of the establishment and planning objection of the Northern Metropolis
- 在設計中展現城市規劃的多樣性
- Diversity of city planning within design;
- 設計在現實生活中的可行性
- Feasibility of the design in real life;



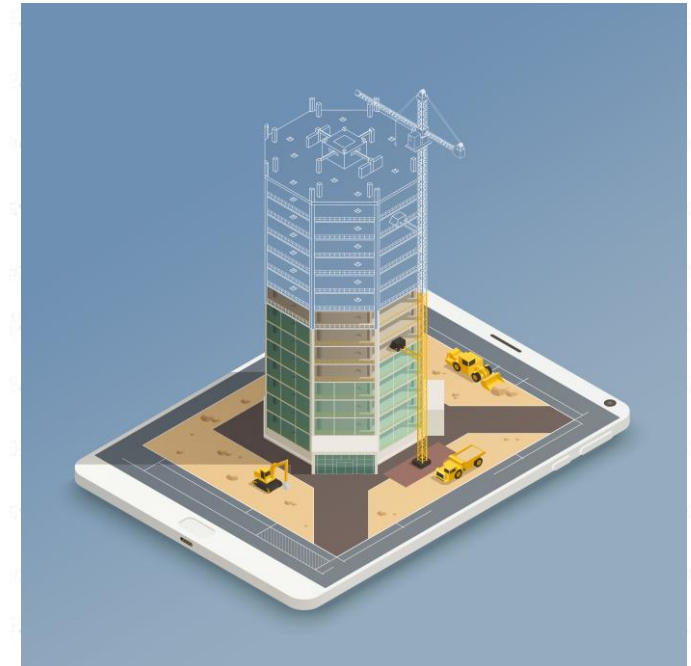
# 可持續發展元素應用 Implementation of Elements of Sustainable Development

- 設計考慮到可持續發展的三大元素 (經濟、社會及環境的影響)
- Consideration of 3 elements of sustainable development (economic, social and environmental impacts)
- 綠色科技的應用
- Implementation of green technology
- 與碳中和有關的設計策略
- Design strategy towards carbon neutrality
- 如何視覺呈現可持續設計於作品上
- Visualization of sustainable design strategy on model;



# 先進建築技術及編程技巧應用 Application of Advanced Construction Methods and Coding / AI

- 先進建築科技的應用
- Implementation of advanced construction methods
- 如何在設計中呈現先進建築科技
- Demonstration of advanced construction methods in the design
- 活用Minecraft Education提供的功能
- Flexibility of usage of all functions on Minecraft Education



# 創意及美學觀感 Creativity and Aesthetic Value

- 城市規劃及建築設計的創意
- Creativity of city planning and architecture design
- 整體設計的協調性
- Harmony of overall design
- 整體設計的美觀度
- Overall aesthetic value





# 團隊合作及溝通 Team Collaboration and Communication

(只限於出席最後評審面試之入圍參賽隊伍)  
(Applicable to shortlisted finalists of final presentation only)

- 評審面試中的表達技巧
- Clear presentation skill
- 與評審溝通對答技巧
- Communication skill
- 個人/團隊應變能力
- Personal/Team adaptability





### 3. 比賽主題分享 Theme Sharing



# 主題 Theme

- 建造業零碳天地編程創作比賽 — 構建未來城市
- **Construct Your Sustainable City – Sustainable Development for the Northern Metropolis**
- 副題：北部都會區
- **Subtopic: “the Northern Metropolis Plan”**
  - 發展達300平方公里，適合市民居住、工作和旅遊的大都會
  - Develop a holistic metropolis with a total area of 300 sq. km., which is good for people to live in, work and travel
  - 創科將會驅動此項目的可持續發展
  - Innovation and technology would be one of the key sustainable development engine.
  - 重視城鄉共融、發展與保育共存
  - Balancing city, countryside, development and conservation



# 北部都會區 the Northern Metropolis Plan



<https://www.youtube.com/watch?v=vagLlhw0js>

(English version: [https://www.news.gov.hk/eng/2021/10/20211006/20211006\\_100522\\_677.html](https://www.news.gov.hk/eng/2021/10/20211006/20211006_100522_677.html))



# 建造業展覽中心 建築無限 邁向未來

CIC iHub  
Stepping into the Future of Construction







## Construction Innovation and Technology Application Centre (CITAC)

建造業創新及科技應用中心



## CIC-Zero Carbon Park Indoor Exhibition Centre

建造業零碳天地展覽



## MiC Resources Centre

組裝合成建築法資源中心



# iHub

## 建造業展覽中心



## BIM Space

建築信息模擬空間



CONSTRUCTION  
INDUSTRY COUNCIL  
建造業議會



iHub serves as a **professional knowledge sharing platform** which aims to explore and promote innovative technologies which can foster productivity, sustainability and safety and are suitable for adoption in Hong Kong construction industry. The Hub provides regular half-day guided tours for industry stakeholders and the public to join and learn innovative construction technology and latest industry development through one-stop experience. For details of iHub, please refer to this website: <https://ihub.cic.hk/en/>

建造業展覽中心是一個**專業知識共享平台**，旨在推廣和促進可提高生產力、可持續發展和安全的創新技術、並適合香港建造業採用。本中心定期為業界人士和公眾提供半天的導賞團，讓他們通過一站式的體驗了解各種創新的建築科技和行業的最新發展。有關建造業展覽中心的詳情，請參閱本網站：<https://ihub.cic.hk/tc/>



# Sustainable Construction Technologies

## 可持續發展的建築科技

### 1. Air Improvement Photovoltaic (AIPV) Glass Canopy @ CIC-Zero Carbon Park 「空氣淨化太陽能玻璃天幕」 @ 建造業零碳天地



# Sustainable Construction Technologies

## 可持續發展的建築科技

### 1. Air Improvement Photovoltaic (AIPV) Glass Canopy @ CIC-Zero Carbon Park

#### 「空氣淨化太陽能玻璃天幕」 @ 建造業零碳天地

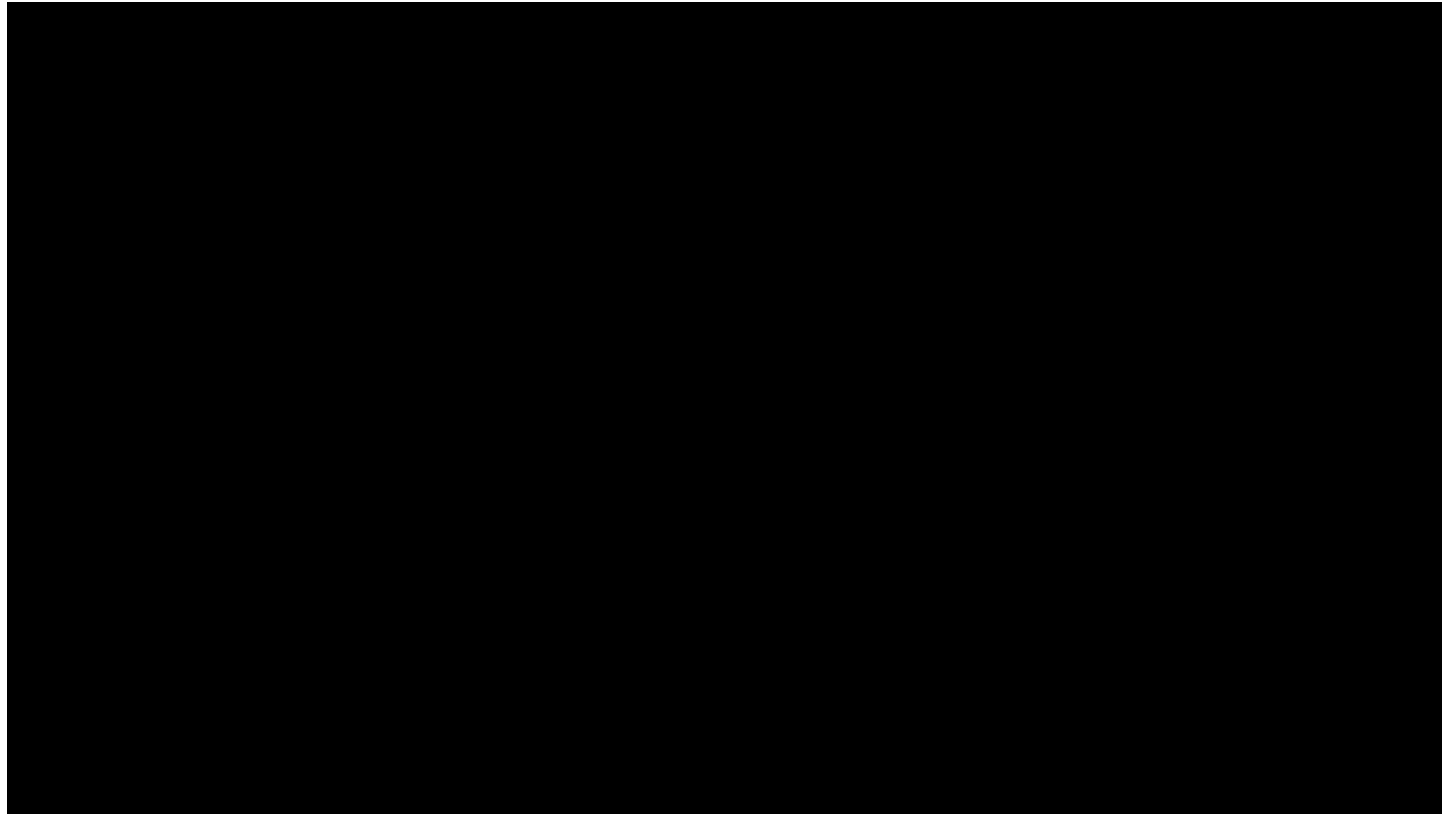
The glass canopy is made of 90% recyclable materials. It adopts the “Cadmium Telluride nano thin-film photovoltaic technology” which can purify the surrounding air by decomposing PM2.5 and volatile organic compounds. The system's self-cleansing effect keeps the glass surface clean, reducing the maintenance cost. More importantly, it generates renewable energy from sunlight, and provide energy for the coffee shop and the charging stations at the pavilion.

玻璃天幕由90%可循環再造物料建成，採用嶄新的「碲化鎘納米薄膜光伏技術」，可以分解PM 2.5懸浮粒子、淨化空氣、抗菌除臭，同時保持玻璃表面清潔，減低維修費用。更重要是可以將太陽能轉化成為電能，為零碳天地的咖啡店及涼亭內的充電站提供可再生能源。

# Sustainable Construction Technologies

## 可持續發展的建築科技

### 1. Air Improvement Photovoltaic (AIPV) Glass Canopy @ CIC-Zero Carbon Park 「空氣淨化太陽能玻璃天幕」 @ 建造業零碳天地



<https://youtu.be/UcummD8m7ts>



# Sustainable Construction Technologies

## 可持續發展的建築科技

### 2. Electrical and Mechanical Modular Integrated Construction for Stormwater Air-conditioning System (emMiC) @ CIC-Zero Carbon Park

機電組裝合成雨水空調系統 @ 建造業零碳天地





# Sustainable Construction Technologies

## 可持續發展的建築科技

### 2. Electrical and Mechanical Modular Integrated Construction for Stormwater Air-conditioning System (emMiC) @ CIC-Zero Carbon Park

#### 機電組裝合成雨水空調系統 @ 建造業零碳天地

CIC – ZCP introduced Hong Kong's first Electrical and Mechanical Modular Integrated Construction for Stormwater Air-conditioning System (emMiC). It makes use of the stormwater inside the box culvert running underneath as a condensing medium for the air-conditioning system. The energy consumption is 50% lower compared with the traditional air-cooled system. The module and the associated E&M equipment are pre-fabricated and commissioned off-site, then transported to the ZCP park. It only took two nights to complete the assembly. This environmentally-friendly construction method can reduce manpower and improve productivity.

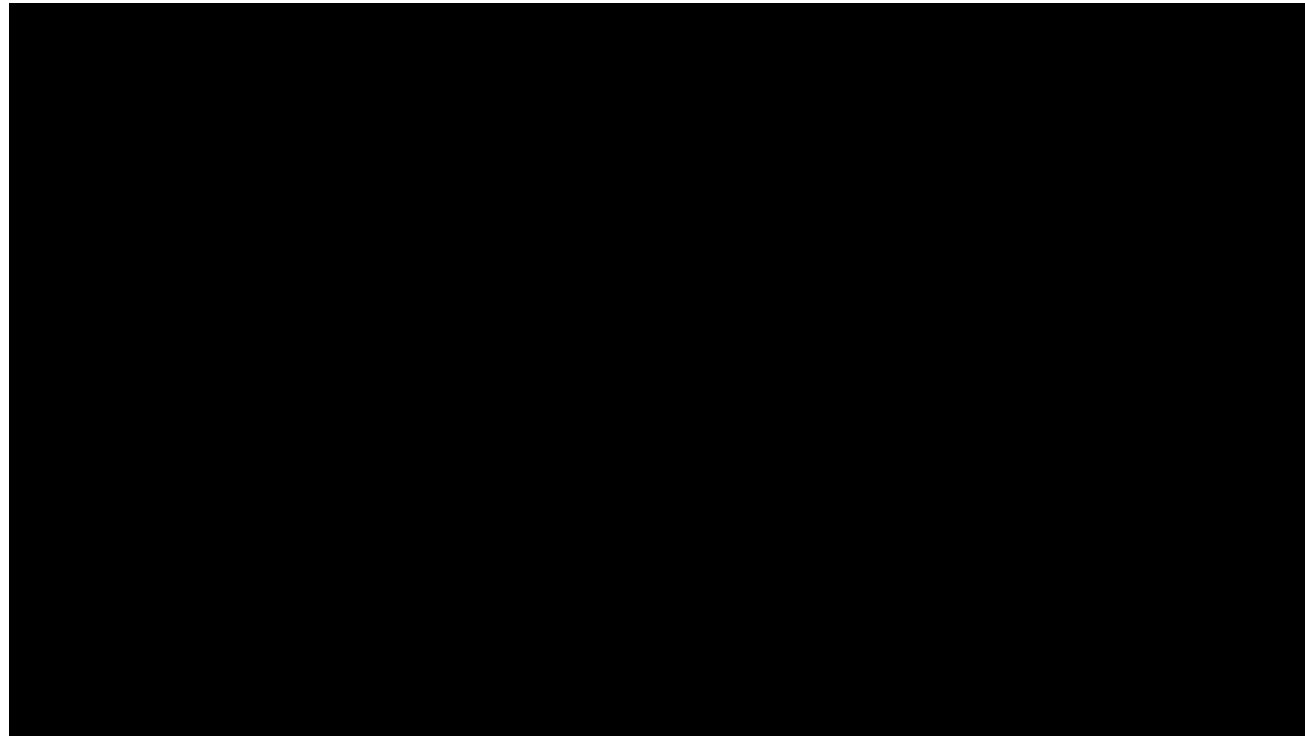
零碳天地引入全港首個「機電組裝合成雨水製冷系統」，抽取地下暗渠內的雨水製冷，用作冷氣系統的冷卻介質，較傳統冷氣能量消耗少**50%**。組件和機電裝置預先在工廠製造及測試，再運送到園區，只用了兩個晚上便組合完成，突顯這種環保建築技術可減低人力、提升生產效率的好處。

# Sustainable Construction Technologies

## 可持續發展的建築科技

### 2. Electrical and Mechanical Modular Integrated Construction for Stormwater Air-conditioning System (emMiC) @ CIC-Zero Carbon Park

機電組裝合成雨水空調系統 @ 建造業零碳天地



# Modular Integrated Construction (MiC)

## 「組裝合成」建築法

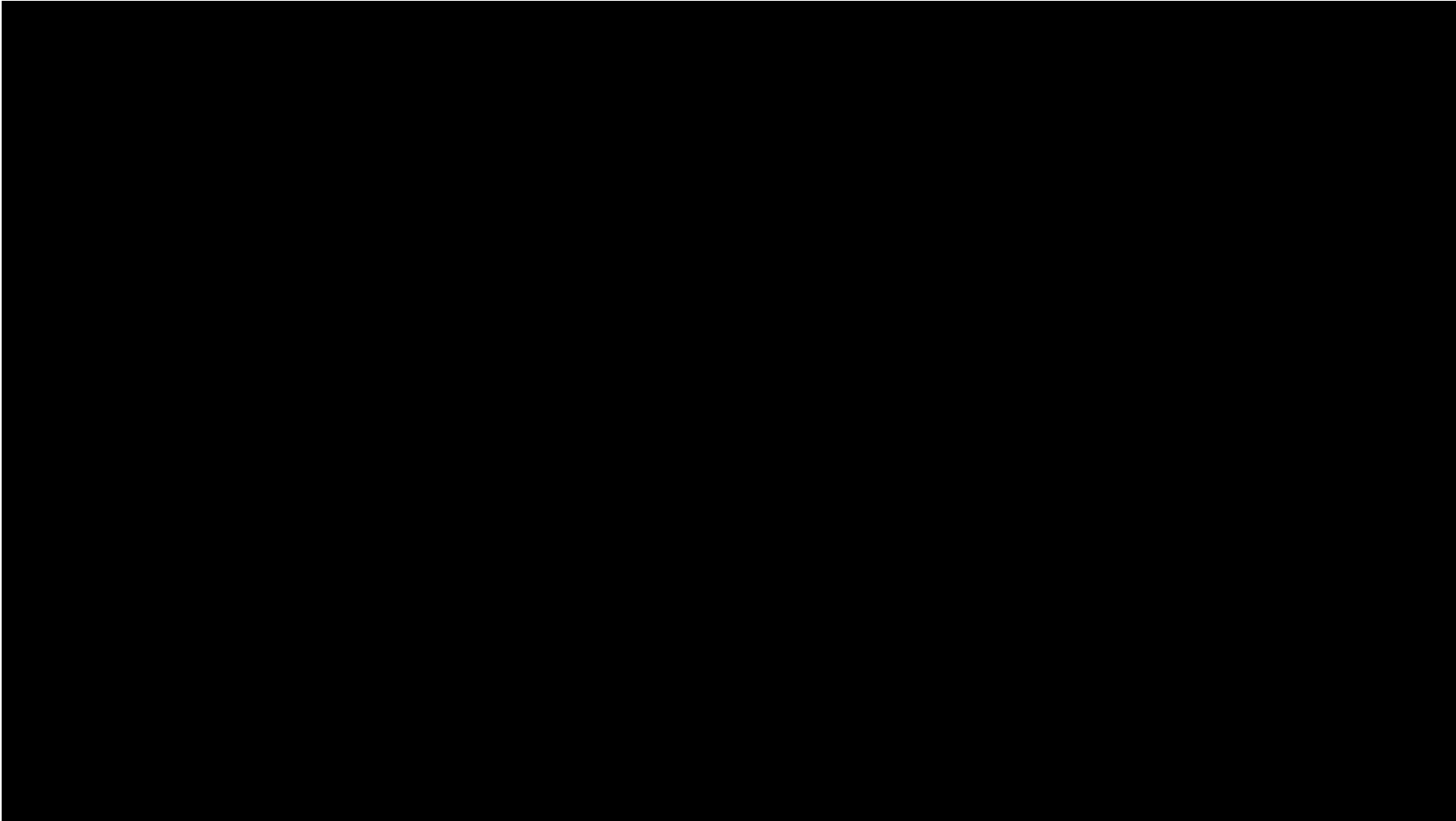
Modular Integrated Construction (MiC) is an innovative construction method. It adopts the concept of “factory assembly followed by on-site installation”. In this method, free-standing integrated modules (completed with finishes, fixtures and fittings) are manufactured in a prefabrication factory and then transported to site for installation in a building.

「組裝合成」建築法是一種創新的建築方法。它採用「先裝後嵌」的概念，在廠房中製造獨立的「組裝合成」組件（已完成飾面、裝置及配件的組裝工序），並運送至工地，再裝嵌成為建築物。



# MiC Resources Centre

## 「組裝合成」建築法資源中心

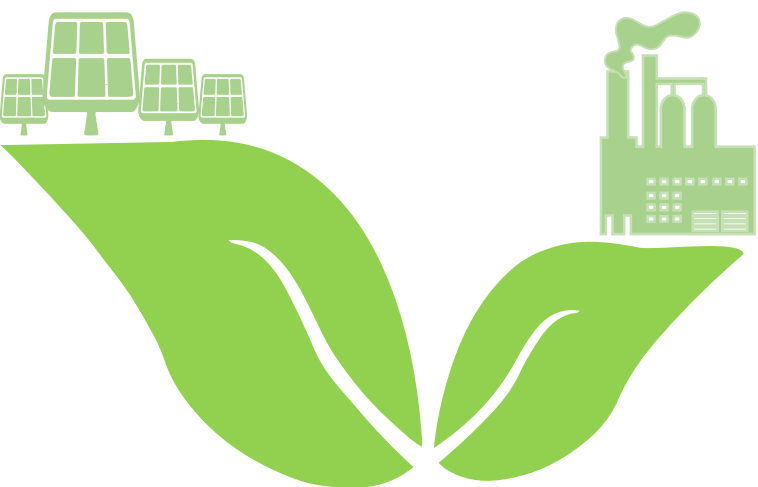


<https://youtu.be/1BNxdl-XG0Y>



# Benefits of MiC

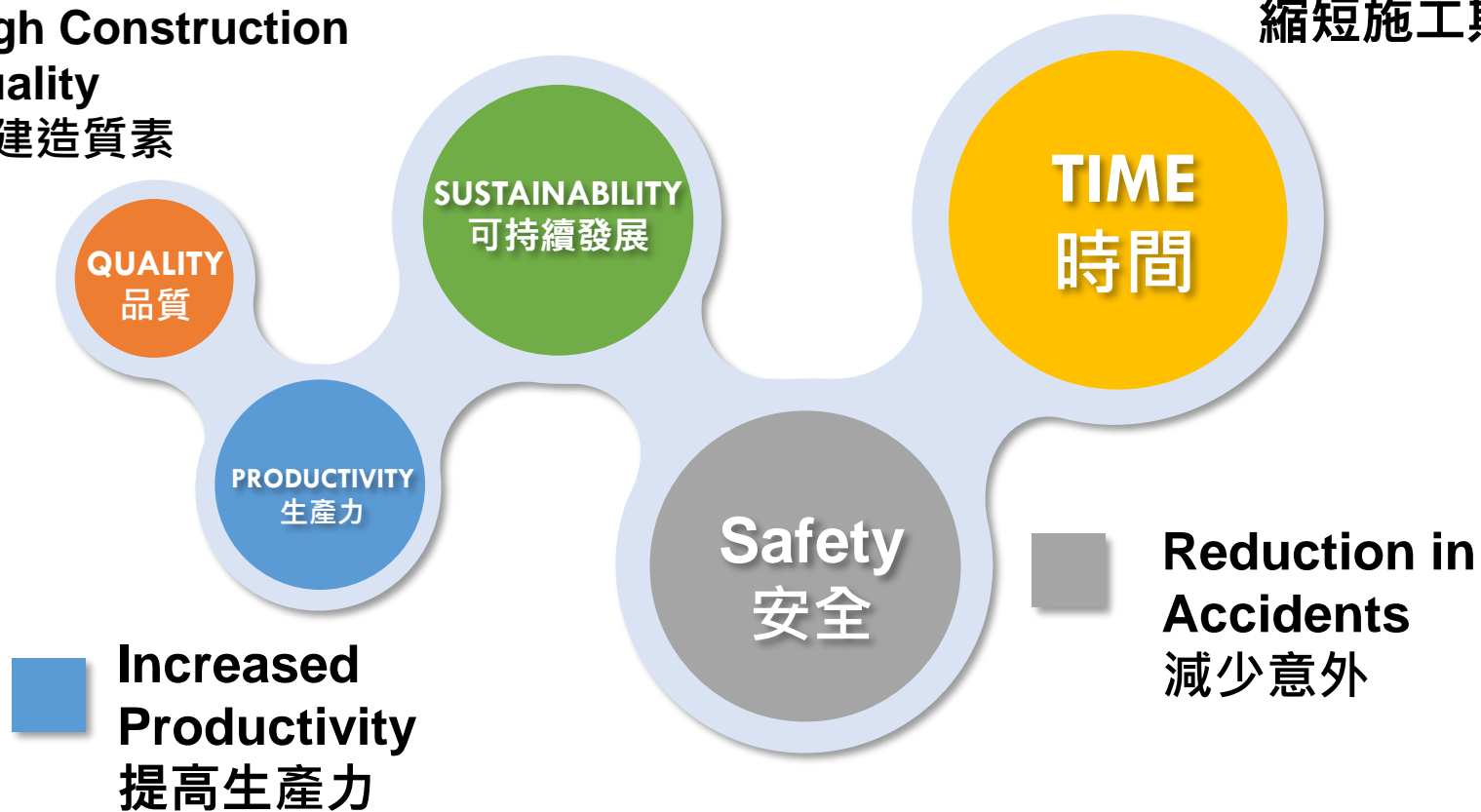
## 「組裝合成」建築法的好處



**High Construction Quality**  
高建造質素

**Reduced Construction Waste**  
減少建築廢料

**Shorten Construction Period**  
縮短施工期



# InnoCell at Hong Kong Science & Technology Park

## 香港科技園公司創新斗室

- 17-storeys hostel
- 17層的員工宿舍
- Provides over 500 bedspaces, in 5 types of room
- 提供約500個床位，5種類型的房間
- 418 Steel MiC Modules
- 418個鋼結構組件
- Completed in Oct 2020
- 於2020年10月完工

COMPLETED



Courtesy of HKSTP

- ❖ Advance completion by 5 months, i.e. **28% faster** 提前 5 個月完成，**快了 28%**
- ❖ Reduce construction waste by **20%** 減少 **20%** 的建築廢料
- ❖ Zero work injury and zero accident 零工傷、零意外

## 4. 比賽技巧貼士 **Technical Tips**



# Tips

Minecraft Sustainable City Development Competition



# Background Research

- Read the competition topic and subtopic requirement
- Study the topic
- Pick a decent theme before start working in Minecraft



How to build with less efforts?

How to create custom blocks and behaviours?

# Workshop Promotion

- Date: 30<sup>th</sup> July & 6<sup>th</sup> Aug, 2022
- Theme: Minecraft MakeCode coding and Basics of Resource Pack creation

More details will be released, stay tuned!

# Useful Minecraft References

- Start using Minecraft Education Edition and MakeCode:

<https://minecraft.makecode.com/setup/minecraft-education-edition>

- Minecraft Bedrock Edition Resource Pack references:

<https://docs.microsoft.com/en-us/minecraft/creator/documents/resourcepack>



Enjoy your build!



## 5. 問答環節 Q&A Session





如果您已決定參賽，稍後主辦方會以電郵方式與負責老師/家長聯絡，**請回覆電郵**以確認參賽名單及方便分發Minecraft Education帳號，。

若您需要時間考慮，請記得於截止參賽報名日期**(25/6)**前回覆，逾期不候。

If you have decided to participate in the competition, please reply our email, which will be sent later regarding the confirmation of participant list, in order to facilitate the allocation of trial account of Minecraft Education

If you need more time to consider the entry, please remember to reply our email by the application deadline (25/6). Late notice will not be considered.





歡迎大家報名參加  
「零碳小勇士」獎章計劃  
"ZCP Green Heroes" Award Badges Programme







歡迎大家報名參加  
**「零碳小勇士」獎章計劃**  
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感謝您的參與  
Thank you for your participation

