



兴建中的富蝶邨
Fu Tip Estate under construction

创建明日家园 Building Tomorrow's Homes

发展及建筑处的主要职能

- 推行和监察房屋建设计划
- 制定和检讨有关公营房屋土地供应、发展、规划、设计和建设的策略与政策
- 制定、推行和探讨机构采购、安全和环境管理策略
- 就全港／区域／地区规划研究及规划标准与准则提供意见
- 监察房屋资讯系统

Key Functions of the Development and Construction Division

- Implementing and monitoring the Housing Construction Programme
- Formulating and reviewing strategies and policies with regard to public housing land supply, and the development, planning, design and construction of public housing
- Formulating, implementing and reviewing corporate procurement, safety and environmental management strategies
- Contributing to territorial/district/local planning studies and planning standards and guidelines
- Monitoring the Housing Information System

2022/23年度完成的公共租住房屋(公屋)/绿表置居计划(绿置居)发展项目(按时序排列):
Public Rental Housing (PRH) / Green Form Subsidised Home Ownership Scheme (GSH) projects completed in 2022/23 (in chronological order):

屯门第54区3及4号工地(东) Tuen Mun Area 54 Sites 3 & 4 (East)	菁田邨 Ching Tin Estate	菁信楼 Ching Shun House
青鸿路 Tsing Hung Road	青富苑 Ching Fu Court	青盈阁、青隆阁 Ching Ying House, Ching Lung House

2022/23年度完成的其他资助出售单位发展项目(按时序排列):
Other Subsidised Sale Flats (SSFs) projects completed in 2022/23 (in chronological order):

东涌第54区 Tung Chung Area 54	裕雅苑 Yu Nga Court	雅德阁、雅昌阁、雅荣阁、雅盛阁、雅欢阁、雅泓阁 Nga Tak House, Nga Cheong House, Nga Wing House, Nga Shing House, Nga Foon House, Nga Wang House
马鞍山路 Ma On Shan Road	锦骏苑 Kam Chun Court	骏驰阁、骏腾阁、骏骠阁、骏驹阁、骏骥阁 Chun Chi House, Chun Tan House, Chun Biu House, Chun Kui House, Chun Kei House
钻石山第三期 Diamond Hill Phase 3	启翔苑 Kai Cheung Court	启怡阁、启悦阁 Kai Yi House, Kai Yuet House
安睦街第一期 On Muk Street Phase 1	愉德苑 Yu Tak Court	

公屋/绿置居和其他资助出售单位^[1]
PRH/GSH and other SSFs ^[1]

	2023/24年度至2027/28年度 ^[2] 五年期内预计建成单位总数(约数) Total estimated production in the five-year period from 2023/24 to 2027/28 ^[2] (approximately)	2022/23年度 ^[2] 单位落成数目(约数) Production completed in 2022/23 ^[2] (approximately)
公屋/绿置居 PRH/GSH ^[3]	76 400个单位 units	3 700个单位 units
其他资助出售单位 Other SSFs	35 300个单位 units	6 900个单位 units
总数 Total	111 600个单位 units	10 600个单位 units

注 Note:

- [1] 数字根据2023年3月房委会的预测及计至最近的百位整数。由于进位原因,数字相加结果可能不等于所列总数。数字会因应房屋建设计划而修订。
Figures are based on the forecast as at March 2023 which are rounded to the nearest hundred, and thus may not add up to the total due to rounding. Figures are subject to changes of the programme.
- [2] 财政年度由每年4月1日起至翌年3月31日止。因此,当有些工程项目(特别是以三月为目标完工期的项目)完工期有少许延后,这些项目的落成日期便会落入下个财政年度。
The financial year starts on 1 April of a year and ends on 31 March of the following year. Therefore, when some projects encounter slight delays in completion (especially those with target completion dates in March), the completion dates will be brought forward to the next financial year.
- [3] 数字指房委会预计于每个财政年度中落成的新单位数目。除新建单位外,从现有屋邨回收的单位,亦是编配予公屋申请者的重要单位来源。
Figures refer to the estimated number of new units to be completed by the Housing Authority in each financial year. In addition to new units, units recovered from existing estates are also a major source of units for allocation to PRH applicants.

零售设施、私家车与货车泊车位 (2022/23年度落成量)

Retail facilities, private car and lorry parking spaces (completed in 2022/23)

零售设施的总楼面面积 (约数)

Gross floor area of retail facilities (approximately)

5 500平方米 m²[4]

私家车与货车泊车位的数目 (约数)

Number of private car and lorry parking spaces (approximately)

700个 units^[5]

注 Note :

[4] 数字计至最近的百位整数。
Figure is rounded to the nearest hundred.[5] 数字计至最近的十位整数。
Figure is rounded to the nearest ten.

「设计及建造」采购模式

「设计及建造」采购模式可让承建商在单一合约下，一并负责项目的设计和建造。就房委会的项目而言，「设计及建造」模式带来多项好处。尤其是委任「设计及建造」承建商，可让我们调拨本身资源，为其他新项目施工前规划。

《2022年施政报告》述明，拟于2028/29年度至2032/33年度的五年期内落成单位中，应最少一半采用「设计及建造」采购模式兴建；而房委会已朝着这个方向展开工作。我们2022年6月和12月为首两个「设计及建造」的项目招标。这两个项目分别是古洞北第19区第二期（涉及约4 340个单位），以及屯门第54区4A（南）号工地和5号工地（涉及约2 490个单位），合共6 830个单位；第三个「设计及建造」项目亦已在筹划阶段，项目位于东涌第114区及117区，涉及约5 290个单位，定于2023年4月招标。

我们拟于2023/24年度以「设计及建造」采购模式招标，以期建造约11 000个单位，并继续物色2024/25年度起可供采用「设计及建造」的项目。

Design-and-Build Procurement Model

The Design-and-Build (D&B) procurement model allows a contractor to take responsibility for both the design and construction of a project under a single contract. For HA's projects, the D&B model can bring a number of benefits. In particular, appointing a D&B contractor enables us to redirect our own resources to pre-construction planning of other new projects.

The 2022 Policy Address stated that the D&B procurement model should be adopted for at least half of the flats scheduled for completion in the five-year period from 2028/29 to 2032/33, and HA has already begun to work towards implementing this. We issued tenders for our first two D&B projects in June and December 2022 respectively. These projects are at Kwu Tung North Area 19 Phase 2, involving about 4 340 flats, and Tuen Mun Area 54 Site 4A (South) and Site 5, with about 2 490 flats, totally 6 830 flats. The third D&B project is also in the pipeline. Situated at Tung Chung Area 114 and Tung Chung Area 117 and involving about 5 290 flats, it is scheduled for tender in April 2023.

We plan to issue tenders with the D&B procurement model in 2023/24 for construction of around 11 000 flats, and will continue to identify potential D&B projects from 2024/25 onwards.

专题故事 Feature Story

迎接创科新时代 Embracing a New Era of Innovation and Technology

近年来，创新科技大大改变了我们的日常生活，触及起居、工作、学习、与世界交流等各个层面。这些科技和数据管理发展日新月异，令可供用作规划和建造房屋的工具也取得重大进展；当中一些工具更带来前所未有的好处，例如对正在设计和兴建的建筑物而言，提升效率、加强安全、提高成本效益、改善环保表现和人类居住的舒适度。本章介绍现时房委会采用的一些先进科技工具，并概述所带来的各种具体效益。

房委会项目资讯管理及分析平台（「智筑目」）

为应付庞大的公营房屋工程量，房委会自主研发资讯管理及分析平台「智筑目」，透过云端数码科技，应用三维数码地图作为基础底座，利用数字孪生技术，串连和整合辖下公营房屋建筑项目不同工序的资讯，利用流动及电脑等装置在任何时间、任何地方，全流程提供各个处于规划、设计、建造及交付等领域工程项目的视像化资讯，以强化项目的管理工作。在规划房屋用地阶段，「智筑目」能参考周边发展的立体模型，以做好决策；在楼宇及单位设计阶段，「智筑目」能分析附近的环境影响，以优化项目布局及单位设计；在建造项目时，「智筑目」能整合工地安全数据、检查报告和工程进度表现数据，强化安全和质量管控；楼宇交付使用前，「智筑目」能配合工地监察系统的数据提升验收效率。



智筑目

Innovation and technology have transformed our daily lives over recent years, covering almost every aspect of the way we live, work, study, and interact with the world. These astonishing advances in technology and data management have led to major developments in the tools available for planning and building housing. Some of the tools now available offer unprecedented benefits in terms of enhancing the efficiency, safety, cost-effectiveness, environmental performance and human comfort of the buildings being designed and built. In this chapter, we survey some of these state-of-the-art technological tools being used by HA, and the specific benefits they are bringing for all.

HA Project Information Management and Analytics Platform (HA-PIMAP)

To cope with the massive amount of public housing construction, HA has developed HA-PIMAP, a cloud-based digital platform that uses Digital Twin technology with 3D digital map as its base layer to collate and integrate information and to provide visualisation for public housing projects at various stages of planning, design, construction to handover anytime anywhere through laptop and computer in order to enhance project management. At the planning stage, the 3D model of surrounding developments shown in HA-PIMAP helps expediting the decision-making process; when at design stage, HA-PIMAP can analyse the nearby environmental impact to optimise the layout and design of building and domestic flats; at construction stage, HA-PIMAP can integrate site safety data, inspection reports and progress performance data to enhance safety and quality control; before handover of buildings, HA-PIMAP can integrate the data collected from the site supervision system to uplift inspection efficiency.

「智筑目」已于2022年在房委会辖下的业旺路建筑工地开始试用，运用多种感应器、摄影机及科技工具，能迅速侦测多项预设隐患，并即时向管理人员发出警示，以建立强大而全面的工地安全文化及表现，并提升工地安全监督工作的成效。



「智筑目」的操作界面能展示从整个工地的感应器及其他探测器收集得来的数据，并提供统计摘要

HA-PIMAP includes a dashboard that displays data from sensors and other detectors across the site and provides statistical summaries

扩大「发展及建筑工地流动系统」的应用范围

为加强驻工地人员与承办商之间的沟通，并改善追踪工地巡查记录，房委会2016年开始使用自行设计的「发展及建筑工地流动系统」。鉴于流动通讯技术近年不断发展，我们一直更新和提升该系统。截至2022/23年度，该系统已备有12个不同的流动和网络应用程序，用于验收建筑工程、屋宇装备工程和结构工程。

年内，我们完成该系统第四阶段的开发工作，包括为该系统推出第12个流动应用程序，即「物料测试申请应用程序」。有了这个新应用程序，人员便可利用智能手机为物料申请进行测试，而该应用程序亦可用作记录、检查和分享物料测试申请和样本收集的结果。在工地运作上，该应用程序取代当时所用的多个旧应用程序，让人员通过流动电话，以划一的方式共用「发展及建筑工地流动系统」平台。我们将继续探讨如何扩大该系统的应用范围，并使之与其他系统融合，从而提升该系统的效能。

HA-PIMAP began piloting in 2022 at HA's Yip Wong Road construction site. The platform had proven capabilities in efficiently detecting a range of pre-defined potential hazards through a range of sensors, cameras and technological tools, and immediately alerting management staff to build and maintain a powerful all-round site safety culture and performance and enhancing the effectiveness of site safety supervision.

Extending the Development and Construction Site Mobile System (DCSMS)

HA's DCSMS, which has been in use since 2016, is a mobile system designed to enhance communication between our site staff and contractors to improve the traceability of our site inspection records. As mobile technology has further developed over the years, we have also been making continual modifications and improvements to DCSMS. By 2022/23, the system included 12 different mobile and web applications for use in the inspection of architectural works, building services works and structural works.

This year we completed Phase 4 of DCSMS development, which involved rolling out the system's twelfth mobile app, the Materials Testing Request Module. This new module enables materials testing requests to be made via smartphones, and it can also be used to record, check and share materials testing requests and sample collections. The module supersedes a number of old apps that were being used for site operations, replacing them with a single and standardised mobile access via the common DCSMS platform. We will continue to explore ways of further extending the scope and efficiency of the DCSMS through interfaces with other systems.

年内，我们推出与「房署新居智入伙」系统相关的「损坏项目执修模组」。新推出的「房署新居智入伙」系统，取代旧有的「损坏情况报告表」，让新建公共屋邨的租户或业主可在网上以电子形式呈报有问题或损坏项目。这个新系统优点甚多，包括可直接连至「发展及建筑工地流动系统」内的「损坏项目执修模组」，以更快、更有效率地监察已获确认损坏项目的修缮过程。「房署新居智入伙」系统第一阶段已于2022年年中推出，租户可透过房委会网站或「房署资讯流动应用程序」进入「房署新居智入伙」网站。租户只需输入单位内损坏项目的位置和类别，并上传最多25张照片，即完成呈报。至今我们透过「房署新居智入伙」系统已收到并处理超过2 200份报告，过程中不但确保输入资料一致，亦便利日后资料检索。我们现正为系统的第二阶段进行研发工作，分别于2023年年底和2024年年中推出，以供资助出售单位业主呈报单位内的损坏项目和屋邨管理人员呈报屋邨／屋苑内公用地方的损坏情况。

During the year we also rolled out a Defect Rectification Module in connection with the Housing Smart Intake (HOST) System. The newly-launched HOST System, which replaces the previous Defect Report Form, is a web-based e-submission platform where tenants or owners can report problems or defects in new public housing estates. One of the benefits of the new HOST system is that it directly interfaces with the Defect Rectification Module of the DCSMS, making the process of monitoring the rectification of verified defects much faster and more efficient. Phase 1 of the HOST System was rolled out in mid-2022, under which tenants are able to access the HOST website from HA Website or via the iHousing Mobile App. To report a defect, tenants simply need to input the location and category of the defects identified inside the unit, and they can upload up to 25 photos. To date, over 2 200 reports have been submitted and handled via the HOST System, in a process that is ensuring consistency in data entry and facilitating easy future retrieval of the data. Phase 2, for the reporting of defects by owners in subsidised sale flats projects and the common areas of estates/courts by the estate management, is under development for roll-out in end-2023 and mid-2024 respectively.



住户可用手机扫描张贴于住宅电梯大堂的二维码进入「房署新居智入伙」网页，或由房委会网站或应用程序的连结进入系统网页
Tenants can access the HOST website by scanning the QR code posted in domestic lift lobbies via mobile phone, or via the link from the HA Website or iHousing Mobile App



「房署新居智入伙」网页
HOST website

建筑信息模拟技术和地理信息系统

房委会采用**建筑信息模拟技术**和地理信息系统已多年，在多方面取得理想成绩。我们在呈交法定图则、进行施工规划或衍生式设计活动时，均应用建筑信息模拟技术。此外，我们结合使用建筑信息模拟技术和地理信息系统，进行规划、设计和分析等工作。我们2022年在应用建筑信息模拟技术方面所取得的成就，获得本地建造业界的肯定，并获不同机构颁发合共四个与建筑信息模拟技术有关的奖项，当中一个是表扬我们对推动本地发展建筑信息模拟技术的贡献。



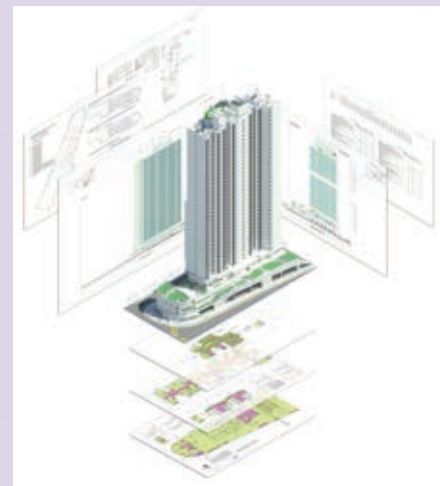
施工前利用建筑信息模拟技术进行大量研究，以确保房委会的设计合乎可建性、降低风险，以及优化建筑与安全规划
BIM is used to conduct extensive pre-construction studies to ascertain the buildability of our designs, minimise risks, and enhance construction and safety planning



颁奖机构： Awarding organisation:	建造业议会 Construction Industry Council
颁奖活动名称： Award title:	建造业议会「2022建筑信息模拟成就嘉许礼」 Celebration of CIC BIM Achievement 2022
奖项类别： Award category:	2022建筑信息模拟机构 BIM Organisations 2022
获颁奖项： Award attained:	2022建筑信息模拟机构 BIM Organisations 2022
获奖机构： Organisation:	香港房屋委员会 Hong Kong Housing Authority

Building Information Modelling and Geographic Information System

HA has been using **Building Information Modelling (BIM)** and the Geographic Information System (GIS) for a number of years now, with encouraging results on many fronts. BIM has been applied to statutory submissions, construction planning, and generative design activities. We have also integrated the use of BIM and GIS for planning, design and analysis. In 2022, our BIM achievements were recognised by the local construction industry, with four BIM awards received from different organisations, including an award for our contributions to local BIM development.



利用建筑信息模拟技术制作图则，以便按法定要求呈交建筑图则
BIM is being used for the production of drawings, to facilitate statutory submission of general building plans

房屋署副署长(发展及建筑)梁健文先生(左)在建造业议会的「2022建筑信息模拟成就嘉许礼」上获颁「建筑信息模拟机构奖」
Deputy Director of Housing (Development & Construction), Mr Stephen K M Leung (left), receiving the Organisation Award at the Construction Industry Council Celebration of BIM Achievement 2022

房委会其中一个获奖项目是「建筑信息模拟新里程 – 成功呈交与审批法定图则」。该项目主要探讨如何应用建筑信息模拟技术制作图则，以便向独立审查组呈交建筑图则。我们的工程项目人员研发出可加快工作流程的方案，以及多种创新的自动化工具，不但有利于改进图则的制作过程，也有助我们广泛使用建筑信息模拟技术。

房委会的另一获奖项目是「应用建筑信息模拟技术于施工安全规划及风险管理」，也是我们其中一项新举措；在施工前利用建筑信息模拟技术进行大量研究，从而得知如何降低工程项目的风险，提升施工安全。

此外，我们继续探讨如何在设计工作中应用衍生式设计技术，以期善用人工智能，使建筑设计和结构设计的工序尽量自动化。



One of our winning projects entitled “BIM in Statutory Submission and Control – a successful step” focused on BIM’s use in the production of drawings to facilitate the submission of general building plans to the Independent Checking Unit. Our project staff developed an efficient workflow solution and a number of innovative automation tools that have improved the drawing production process, bringing advances that have significantly expanded our implementation of BIM.

Another winning project was entitled “Planning for Success: BIM for Construction / Safety Planning and Risk Mitigation”. This was one of our new initiatives, which made use of BIM to conduct extensive pre-construction studies, and showing how it was minimising project risks and enhancing construction safety.

Meanwhile, we will continue to explore the use of Generative Design (GD) technology in our design work, with the aim of utilising artificial intelligence to automate our architectural and structural designs wherever possible.

获奖队伍的代表出席建造业议会的「2022建筑信息模拟成就嘉许礼」，获奖项目是「建筑信息模拟新里程 – 成功呈交与审批法定图则」和「应用建筑信息模拟技术于施工安全规划及风险管理」
Representatives from the winning teams of the projects “BIM in Statutory Submission and Control – a successful step” and “Planning for Success: BIM for Construction/Safety Planning and Risk Mitigation” at the Construction Industry Council Celebration of BIM Achievement 2022

颁奖机构： Awarding organisation:	建造业议会 Construction Industry Council
颁奖活动名称： Award title:	2022建筑信息模拟成就嘉许礼 Celebration of BIM Achievement 2022
奖项类别： Award category:	2022建筑信息模拟项目 – 「建筑信息模拟新里程 – 成功呈交与审批法定图则」 BIM Projects 2022 – BIM in Statutory Submission and Control – a successful step
获颁奖项： Award attained:	优胜者 Winner
获奖项目： Project:	新葵街公营房屋发展项目 Public Housing Development at San Kwai Street

颁奖活动名称： Award title:	建造业议会的「2022建筑信息模拟成就嘉许礼」 Celebration of CIC BIM Achievement 2022
奖项类别： Award category:	2022建筑信息模拟项目 BIM Projects 2022
获颁奖项： Award attained:	优胜者 Winner
得奖项目： Winning project:	应用建筑信息模拟技术于施工安全规划及风险管理 Planning for Success: BIM for Construction / Safety Planning and Risk Mitigation



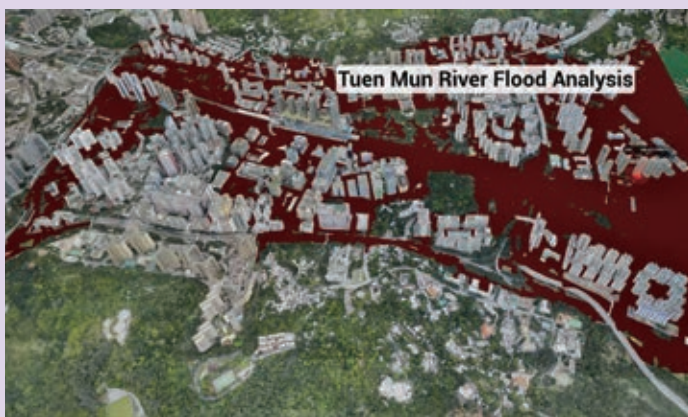
获奖队伍的代表出席「2022年欧特克香港建筑信息模拟设计大奖」，就所负责项目「应用建筑信息模拟技术于施工安全规划及风险管理」接受奖项

Representatives from the winning team at the Autodesk Hong Kong BIM Awards 2022, where they received an award for their project "Planning for Success: BIM for Construction / Safety Planning and Risk Mitigation"

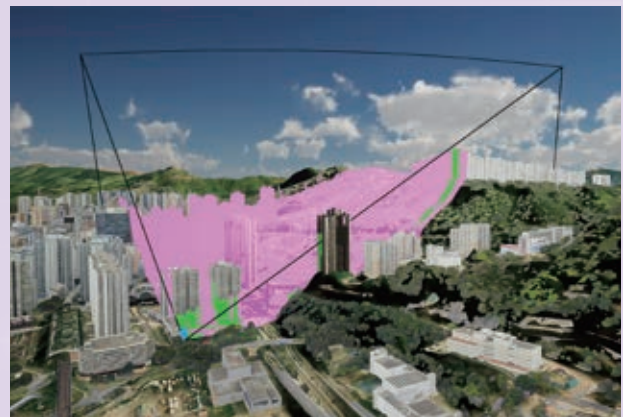
颁奖机构： Awarding organisation:	欧特克远东有限公司 Autodesk Far East Limited
颁奖活动名称： Award title:	2022年欧特克香港建筑信息模拟设计大奖 Autodesk Hong Kong BIM Awards 2022
奖项类别： Award category:	专业奖 Professional
获颁奖项： Award attained:	杰出建筑信息模拟应用－项目安全与风险管理 Outstanding BIM Applications – Project Safety and Risk Management
获奖项目： Winning project:	应用建筑信息模拟技术于施工安全规划及风险管理 Planning for Success: BIM for Construction / Safety Planning and Risk Mitigation

创新科技（例如建筑信息模拟技术、地理信息系统）发展一日千里，必定有利我们的工作「提量、提速、提效和提质」。我们继续研究新方法，把这些工具应用于房委会项目，从而加快达至建屋量的目标。举例来说，我们现正扩大地理信息系统的使用范围，并应用于视觉影响评估、太阳辐射评估、水浸评估和视域评估，使我们的规划、设计和分析工作更精准到位。

Innovative and fast-developing technologies such as BIM and GIS can certainly help enhancing quantity, speed, efficiency and quality of our work. We will continue to explore new ways of applying these tools in our projects to help us better meet our housing production targets. For example, we are expanding our use of GIS for more advanced planning, design and analysis work by incorporating it in our visual impact, solar radiation, flooding and viewshed assessments.



结合建筑信息模拟技术与地理信息系统，制作模型，模拟水浸情况
Integration of BIM and GIS models for flooding simulations



结合建筑信息模拟技术与地理信息系统，制作模型，以进行视觉评估／视觉影响评估
Integration of BIM and GIS models for Visual Appraisals/
Visual Impact Assessments

「组装合成」建筑法

「组装合成」建筑法在工地以外地方预制组件，再把组件运往施工的工地安装；有效减低恶劣天气和劳工短缺对工程所造成的影响，从而提升施工效率。

房委会分别在东涌、安达臣道石矿场和德田街三个公营房屋项目采用「组装合成」建筑法，合共提供约2 000个单位。其中东涌项目和安达臣道石矿场项目的「组装合成」组件，2023/24年度开始装嵌。

2023年3月，房委会安排传媒和业界代表参观东涌第99区的「组装合成」模拟搭建单位，让他们了解房委会如何在辖下的房屋发展项目中应用该建筑法。该模拟搭建单位楼高两层，属实物原大模型，用于测试承建商在现场进行组装的成效，以及确保建筑的质素。我们透过该项目，全面仔细分析「组装合成」建筑法的整体成本效益，并评估其带来的好处及挑战，以期日后在合适的公营房屋项目中，更广泛采用「组装合成」建筑法。

Modular Integrated Construction

Modular Integrated Construction (MiC) is a construction method that involves using prefabricated modules that are constructed offsite and then transported to the construction site for installation. MiC can reduce the impact of adverse weather conditions and scarcity of labour resources, making for greater efficiency in construction.

HA has adopted MiC for three public housing projects located in Tung Chung, Anderson Road Quarry and Tak Tin Street, providing a total of about 2 000 units. The MiC modules for the Tung Chung and Anderson Road Quarry projects will begin to be assembled in 2023/24.

In March 2023, HA arranged a visit to its mock-up of the MiC project in Tung Chung 99 for the media and industry stakeholders to understand how MiC is being applied in HA projects. The mock-up is a two-storey full-scale model built to test the effectiveness of the contractor's on-site installation method and ensure built quality. Throughout this project, we will carefully evaluate the overall cost effectiveness of this method and assess the benefits and challenges of adopting MiC, with the aim of facilitating wider application of MiC in suitable public housing projects in the future.

东涌第99区的「组装合成」模拟搭建单位
The MiC mock up in Tung Chung Area 99



我们一直致力探讨「组装合成」建筑法在香港的发展潜力，并与学术研究人员合作，共同制订一套适合房委会采用的「组装合成」建筑法规格和表现衡量准则。我们也透过这些合作，了解香港采用「组装合成」建筑法在物流方面所遇到的限制，并就申请运载特阔货物许可证制订指引，以便把大型预制组件从工厂运送至建筑工地。

As part of our efforts to explore the potential of MiC in Hong Kong, we have been collaborating with academic researchers on developing MiC specifications and performance measurement criteria that are suitable for HA. These collaborations are also helping us identify logistical constraints on the use of MiC in Hong Kong, and develop guidelines relating to wide load permit applications when transporting large pre-fabricated structures from factories to construction sites.



房屋局局长兼房委会主席参加为传媒和业界代表安排的「组装合成」模拟搭建单位参观活动

The Secretary for Housing cum Chairman of HA joins the visit to the mock-up of the MiC project for the media and industry stakeholders

小型无人驾驶飞机(「无人机」)用以检查建筑物

2020年，我们开始使用配备摄影机的无人机，为七个公营房屋项目(即锦晖苑、渔湾邨、海达邨、蝶翠苑、和田邨、青富苑和愉德苑)的楼宇外墙拍摄高解像度数码影像，然后利用摄影制图法处理所收集的影像，再为相关建筑物制作立体模型，并以人工智能技术找出建筑物的裂缝及其他问题所在位置。事实证明，相比传统的检查方法，这个做法更为准确、安全、快捷和有效。此外，影像清晰，配以详尽的人工智能记录，验楼督察和承建商得以据此制作完备的损坏项目清单，更有效地进行相关修缮工作。经过多次试验后，证实无人机具备不少优点，因此由2022年8月起，我们使用无人机为正在施工的新工程项目检查外墙。此外，我们正研究使用更先进并配备更优质摄影机的无人机，以便潜入需要关注的更隐蔽地方(例如装有排水渠和喉管的外墙凹入天井位)进行较全面的外墙检查。

Small Unmanned Aerial Vehicles (UAVs / drones) for building inspections

In 2020, we began using UAVs equipped with cameras to capture high-resolution digital images of the exterior walls of seven public housing projects, namely Kam Fai Court, Yue Wan Estate, Hoi Tat Estate, Dip Tsui Court, Wo Tin Estate, Ching Fu Court and Yu Tak Court. The images they collected were then processed using photogrammetry to create 3D models of the buildings, and artificial intelligence technology was used to identify the locations of cracks and other problems. This process proved to be more accurate, safer, faster, and more effective than traditional inspection methods. In addition, the clear images and comprehensive AI records generated have enabled building inspectors and contractors to create a comprehensive defect checklist and carry out associated rectification works more effectively. Given the clear positive benefits from these UAV trials, from August 2022 we have begun to use UAVs for external wall inspections on new projects under construction. We are also exploring the use of more advanced UAVs with higher quality cameras, in order to penetrate deeper into the confined and concerned areas such as the re-entrants with drains and pipeworks for more comprehensive external wall inspection.



装上摄影机的无人机检查和田邨的外墙
A UAV with a mounted camera inspects external walls
at Wo Tin Estate

建筑机器人技术

由2020年起，我们在新订的建筑合约中加入有关使用建筑机器人的规定，藉此提高各个施工范畴的生产力、质素、安全和环保表现，而油漆便是其中一个范畴。2023年2月，我们在青衣的一个公营房屋项目中试用油漆机器人，为一个住宅单位墙壁和天花板油漆，成效理想。我们又利用建筑信息模拟技术为机器人编制工作流程，不但能使油漆工序自动化，而且可提升工作的效率和精准度。我们继续探讨如何在公营房屋项目中推广使用建筑机器人技术。



数码化室内
油漆喷涂机器人

在公营房屋项目中试用油漆机器人
A painting robot trial in a public housing project



Construction robotics

We have introduced construction robotics into new construction contracts since 2020, with the aim of enhancing productivity, quality, safety, and environmental performance in various construction areas. One of these areas is painting. In February 2023, we tested a painting robot in a public housing project in Tsing Yi, to paint the walls and ceilings of a domestic flat. The results were satisfactory. By using BIM to compute the robot's workflow, we were able to automate the painting process and improve the efficiency and accuracy of the work. We will continue to explore ways of extending the use of construction robotics in public housing.