

For discussion on
7 June 2022

Legislative Council Panel on Education

**Campus Development Projects of
The Hong Kong University of Science and Technology and
The Education University of Hong Kong**

**8017EL – New Research Building 1
8004EN – New Academic Building in Tai Po Campus**

PURPOSE

This paper briefs Members on the proposed capital works projects for The Hong Kong University of Science and Technology (HKUST) and The Education University of Hong Kong (EdUHK), namely –

HKUST

(a) **8017EL** – New Research Building 1

EdUHK

(b) **8004EN** – New Academic Building in Tai Po Campus

PROPOSAL

2. HKUST proposes to construct a research building on its Clear Water Bay campus (**8017EL**), whereas EdUHK proposes to construct an academic building (**8004EN**) on its Tai Po campus. Details of **8017EL** and **8004EN** are at **Enclosure 1** and **Enclosure 2** respectively.

3. We plan to submit the proposals for upgrading the two capital works projects to Category A to the Public Works Subcommittee and the Finance Committee in the current Legislative Council Session.

ADVICE SOUGHT

4. Members are invited to offer views on the proposed capital works projects of HKUST and EdUHK.

**Education Bureau
May 2022**

**The Hong Kong University of Science and Technology
8017EL - New Research Building 1**

PROJECT SCOPE AND NATURE

The scope of works of **8017EL** involves mainly the demolition of an existing dangerous goods store and construction of an eight-storey research building which will provide approximately 5 100 square metres (m²) in net operational floor area (NOFA)¹. The School of Engineering of The Hong Kong University of Science and Technology (HKUST) will be the major user of the building. Upon completion of the proposed project, the building will provide the following new facilities –

- (a) laboratories of about 3 500 m² in NOFA;
- (b) study space of 800 m² in NOFA;
- (c) offices of about 500 m² in NOFA; and
- (d) support space of about 300 m² in NOFA, including building management and security offices and storage areas, etc.

2. The proposed project will also provide pedestrian linkages, comprising a linkbridge to Lee Shau Kee Campus and covered walkway to Cheng Yu Tung Building, for convenient access within the HKUST campus. Photovoltaic panels will also be installed on the roof for contributing to environmental sustainability. A location and site plan, an artist's impression and floor plans of the project are at **Annexes 1 to 3 to Enclosure 1**.

JUSTIFICATION

3. In support of the Government's policy to promote innovation and technology in Hong Kong, HKUST has been pursuing its long-term strategy to develop the southern side of the campus and to provide additional space and facilities to accommodate the expansion of research and education in the fields of

¹ NOFA is the floor area allocated to the users of a building for carrying out the intended activities. Unlike the construction floor area which takes into account all areas within the building structure envelope, NOFA does not include areas for the basic facilities (if any) such as toilets, lift lobbies, stair halls, public or shared corridors, stairwells, escalators and lift shafts, pipe or services ducts, barrier-free access facilities, gender mainstreaming facilities, refuse rooms, flat roofs, car parking spaces, loading and unloading areas and mechanical plant rooms, etc.

innovation, technology and entrepreneurship. Among all, HKUST has identified the following key research focuses, having regard to their strong potential in transforming daily lives and bringing in co-operation opportunities with technological enterprises in the Guangdong – Hong Kong – Macao Greater Bay Area –

(a) Autonomous Systems and Robotics

To attain a new and effective paradigm for industrial manufacturing through advancement in autonomous systems, robotic hardware and software design. Key research areas include unmanned aerial vehicles such as drones and autonomous driving.

(b) Artificial Intelligence and Metaverse

To utilise emerging technologies such as edge computing, augmented reality and virtual reality to develop metaverse ecosystems. Key research areas include artificial neural network, machine learning, language technologies and text mining, computer vision and image processing, as well as knowledge representation and reasoning.

(c) Quantum Science and Technology

To develop new quantum materials, quantum simulation and quantum devices and sensing; and to understand the mechanism and identify the potential use and applications of quantum computing.

(d) Big Data and Data Science

To develop frontier technologies and applications in big data analytics, blockchain and crypto-fintech to offer high-impact solutions for big data-related cross-disciplinary challenges.

(e) Design Thinking and Entrepreneurship

To nurture talent with design thinking and problem-solving skills; and to continue the promotion of entrepreneurship to facilitate knowledge and technology transfer into solutions for real problems.

(f) Smart Cities, Sustainability Living and Environmental Science

To promote green finance and smart construction; to develop new energy and fuels; and to commercialise enterprising technologies to address issues ranging from climate change to smart living.

(g) Health Science and Technology

To discover the mechanism of and treatments for cancer, neurodegenerative problems and other diseases; and to make use of technologies for health management and addressing public health issues and crisis.

4. The new research building will mainly provide facilities for research, industrial collaboration and translational activities in multiple disciplines of science, engineering, technology and innovation. It will adopt an open plan design with shared breakout space and function space to facilitate interaction and collaboration, which are important for fostering multidisciplinary synergy and innovation. Specifically, the following facilities are planned for the new building –

- (a) laboratories for research and development of physical sciences and technologies in an open setting to enable research teams to create, explore and share knowledge; and
- (b) a variety of other facilities for interactive activities such as collaboration and breakout space, exhibition space, function space and workshops for enriching learning experience and supporting joint research endeavours.

FINANCIAL IMPLICATIONS

5. The latest estimated cost of **8017EL** is \$486.3 million in money-of-the-day prices, which will be funded by the \$16-billion provision set aside for University Grants Committee-funded universities to enhance or refurbish campus facilities as announced in the 2019-20 Budget.

6. The project has no impact on tuition fees. The additional recurrent costs associated with this project will be funded by HKUST. The proposal has no additional recurrent financial implications for the Government.

IMPLEMENTATION TIMETABLE

7. We plan to submit the proposal for upgrading the project to Category A to the Public Works Subcommittee and the Finance Committee (FC) in the current Legislative Council Session. HKUST plans to commence the construction works of **8017EL** upon obtaining funding approval from FC for target completion in around three years.

PUBLIC CONSULTATION

8. The proposed project is located within the campus of HKUST and there are no residential developments in its immediate vicinity. It is unlikely that the project will affect other public residents in the area. HKUST organised an open exhibition on its campus on the proposed new research building from November 2021 to February 2022. No adverse comments were received.

9. HKUST also briefed local community stakeholder of the Hang Hau Rural Committee and Sai Kung District Council on the proposed development in February 2022 and received no adverse comments.

附件 1 附錄 1 Annex 1 to Enclosure 1

香港科技大學 8017EL - 新科研樓 1

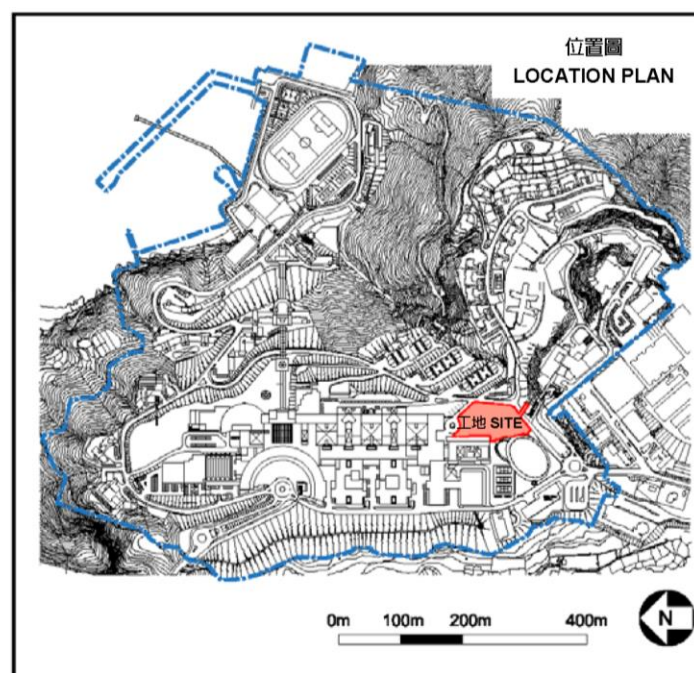
The Hong Kong University of Science and Technology 8017EL - New Research Building 1

位置及工地平面圖 Location and Site Plan



LEGEND 圖例

- BOUNDARY OF THE HONG KONG UNIVERSITY OF SCIENCE AND TECHNOLOGY
香港科技大學界線
- SITE BOUNDARY
工地界線
- PEDESTRIAN ENTRANCE / EXIT
行人出入口
- VEHICULAR INGRESS/ EGRESS
車輛出入口
- BARRIER-FREE ENTRANCE / EXIT
無障礙出入口
- AT-GRADE GREENING
地面綠化
- LANDSCAPED ROOF
天台綠化
- PHOTOVOLTAIC PANEL
太陽能光伏板
- EMERGENCY VEHICULAR ACCESS
緊急車輛通道



附件 1 附錄 2 Annex 2 to Enclosure 1

香港科技大學
8017EL - 新科研樓 1

**The Hong Kong University of Science and Technology
8017EL – New Research Building 1**

構思圖
Artist's Impression



從西南面望向大樓的構思透視圖

Perspective view of the building from southwest direction



從東北面望向大樓的構思透視圖

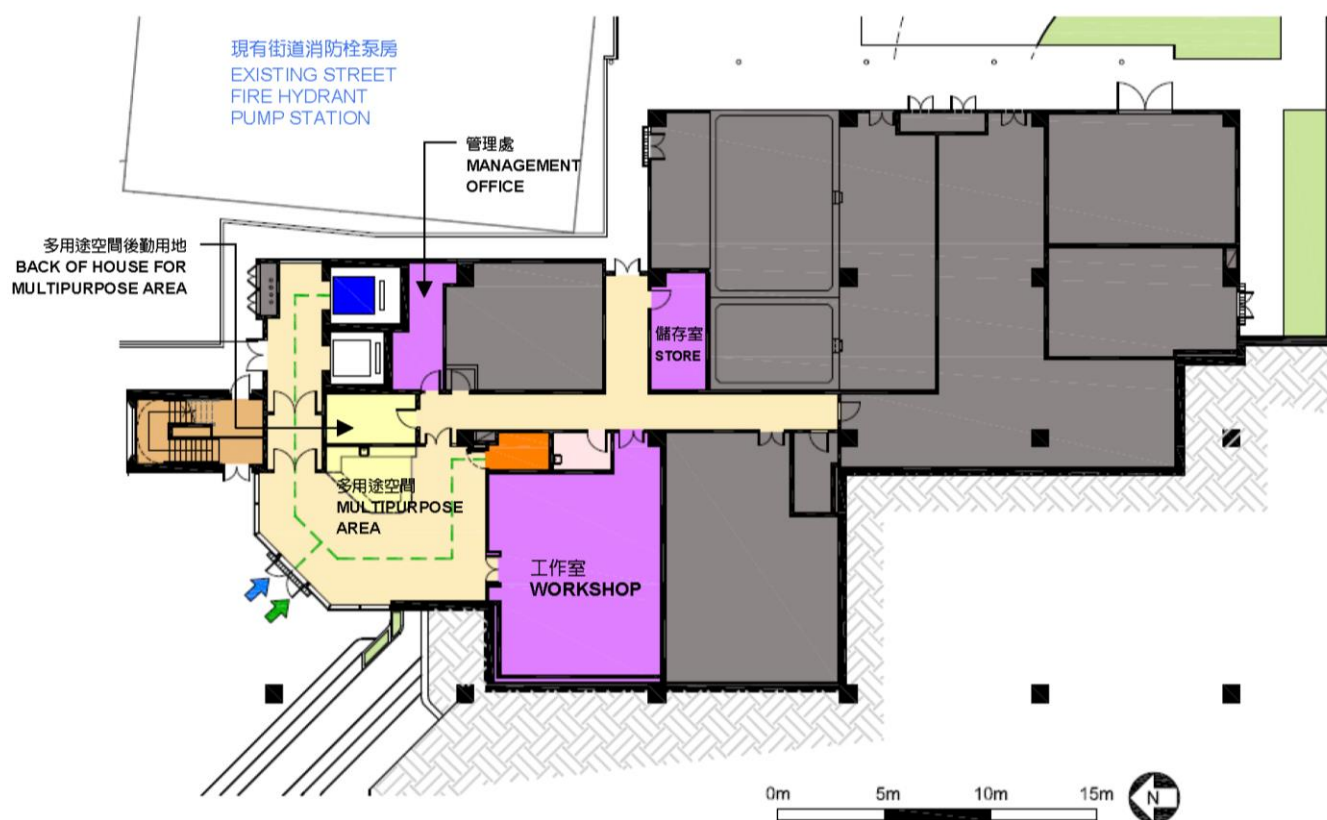
Perspective view of the building from northeast direction

香港科技大學
8017EL - 新科研樓 1

The Hong Kong University of Science and Technology
8017EL - New Research Building 1

樓層平面圖 Floor Plan

底層地面平面圖
Lower Ground Floor Plan



LEGEND 圖例

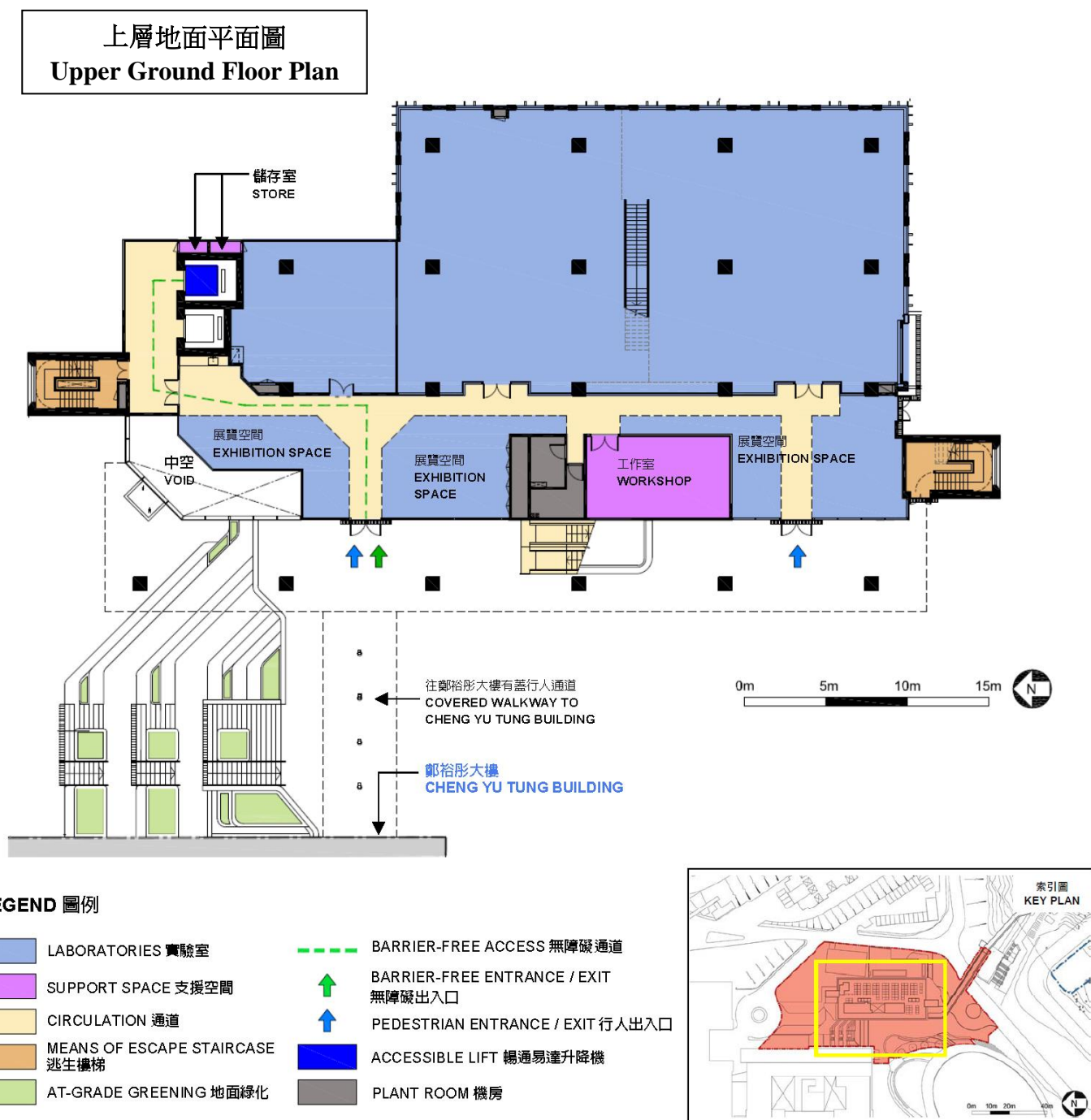
	STUDY SPACE 學習空間		BARRIER-FREE ACCESS 無障礙通道
	SUPPORT SPACE 支援空間		BARRIER-FREE ENTRANCE / EXIT 無障礙出入口
	CIRCULATION 通道		PEDESTRIAN ENTRANCE / EXIT 行人出入口
	MEANS OF ESCAPE STAIRCASE 逃生樓梯		ACCESSIBLE TOILET 暢通易達洗手間
	AT-GRADE GREENING 地面綠化		ACCESSIBLE LIFT 暢通易達升降機
	CLEANER'S ROOM 清潔房		PLANT ROOM 機房



香港科技大學
8017EL - 新科研樓 1

The Hong Kong University of Science and Technology
8017EL - New Research Building 1

樓層平面圖 Floor Plan

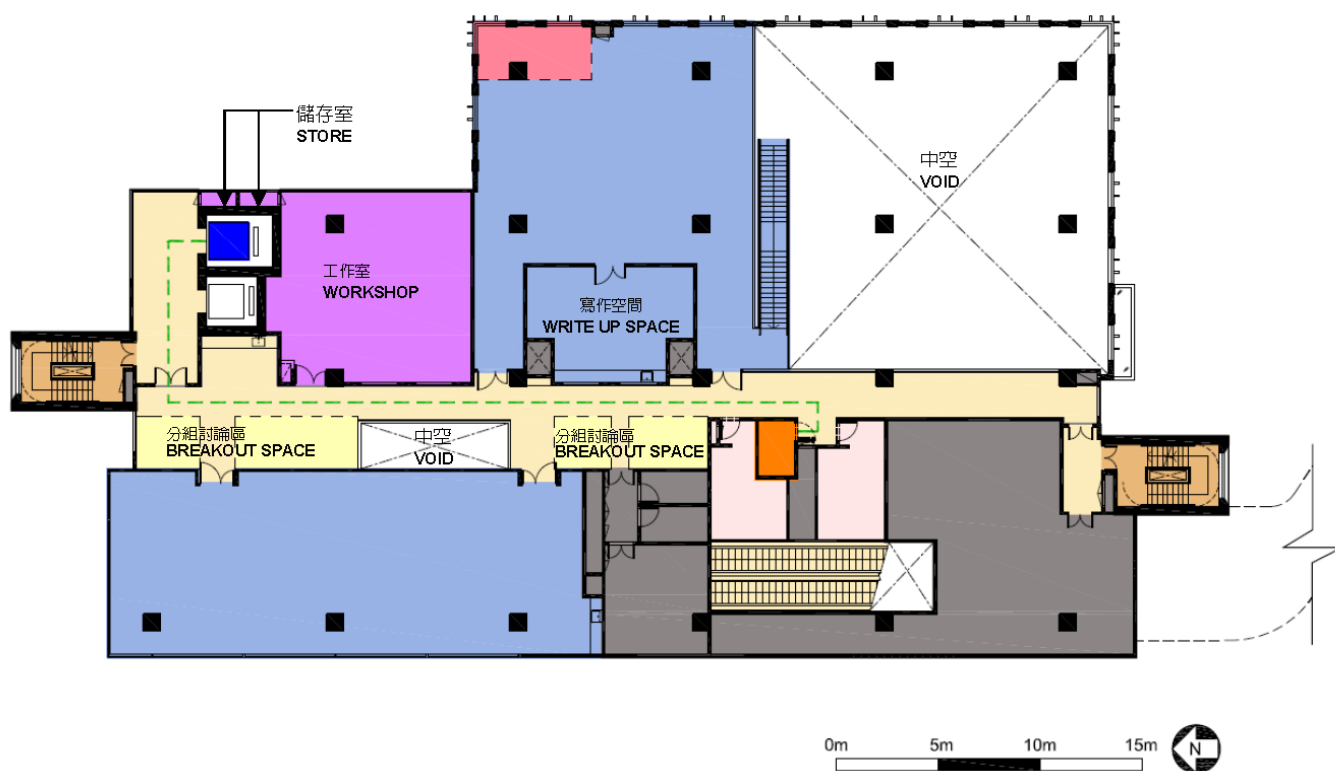


香港科技大學
8017EL - 新科研樓 1












The Hong Kong University of Science and Technology
8017EL – New Research Building 1

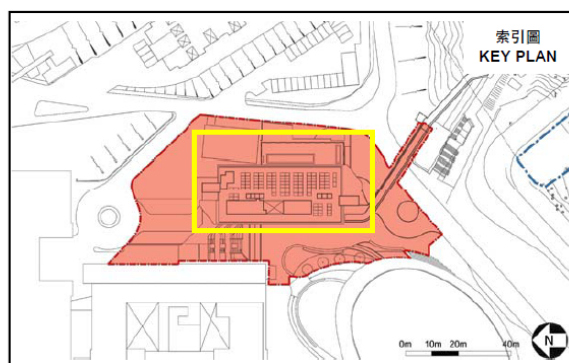
樓層平面圖 Floor Plan

一樓平面圖
First Floor Plan



LEGEND 圖例

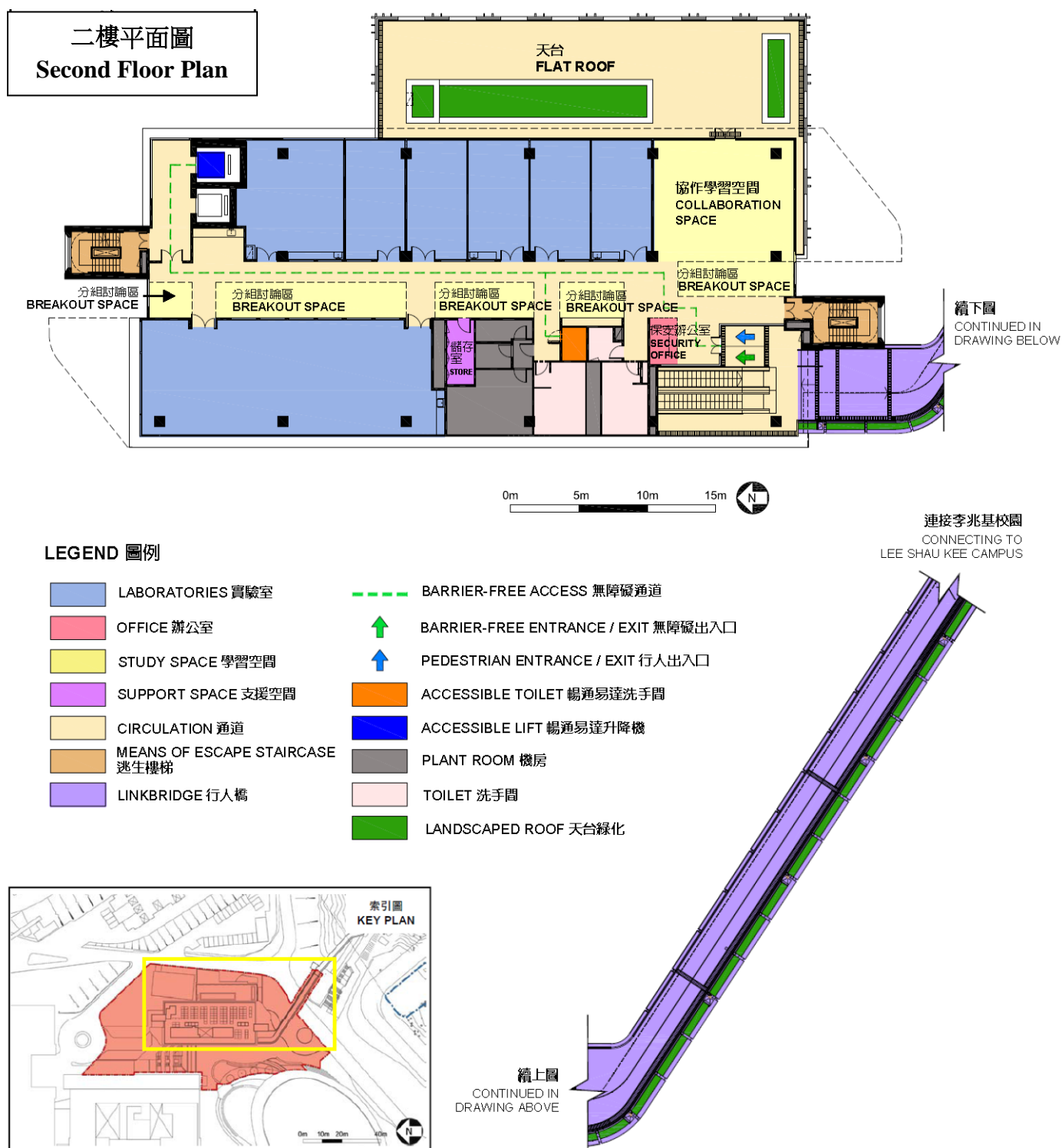
 LABORATORIES 實驗室	 BARRIER-FREE ACCESS 無障礙通道
 OFFICE 辦公室	 ACCESSIBLE TOILET 暢通易達洗手間
 STUDY SPACE 學習空間	 ACCESSIBLE LIFT 暢通易達升降機
 SUPPORT SPACE 支援空間	 PLANT ROOM 機房
 CIRCULATION 通道	 TOILET 洗手間
 MEANS OF ESCAPE STAIRCASE 逃生樓梯	



香港科技大學
8017EL - 新科研樓 1

The Hong Kong University of Science and Technology
8017EL – New Research Building 1

樓層平面圖 Floor Plan

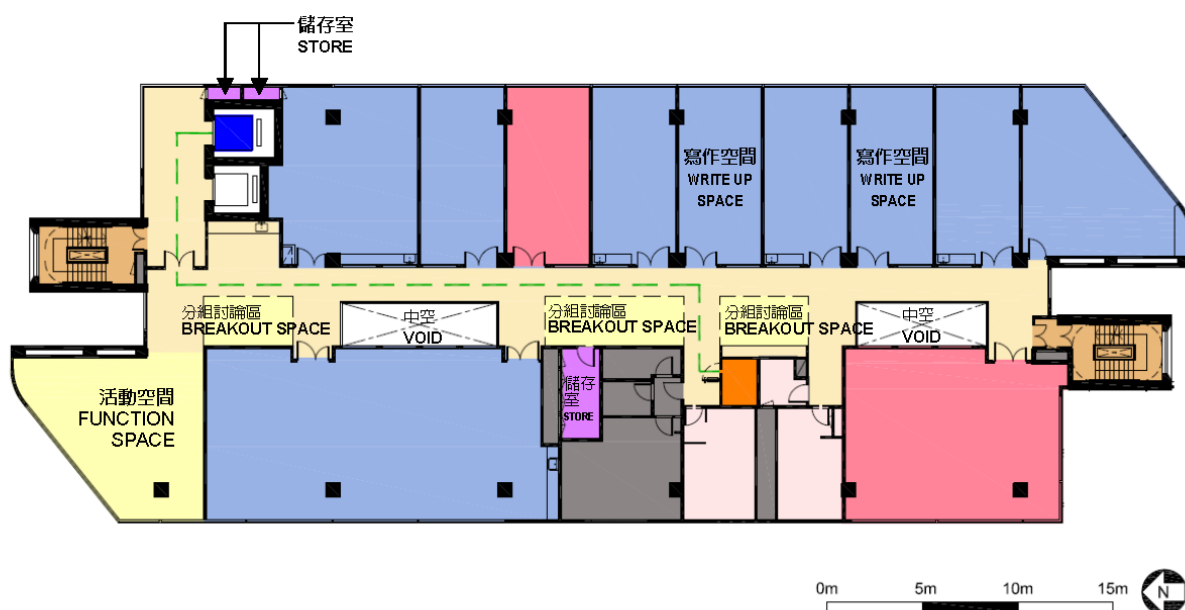


香港科技大學
8017EL - 新科研樓 1












The Hong Kong University of Science and Technology
8017EL – New Research Building 1

樓層平面圖 Floor Plan

三樓平面圖
Third Floor Plan



LEGEND 圖例

	LABORATORIES 實驗室		BARRIER-FREE ACCESS 無障礙通道
	OFFICE 辦公室		ACCESSIBLE TOILET 暢通易達洗手間
	STUDY SPACE 學習空間		ACCESSIBLE LIFT 暢通易達升降機
	SUPPORT SPACE 支援空間		PLANT ROOM 機房
	CIRCULATION 通道		TOILET 洗手間
	MEANS OF ESCAPE STAIRCASE 逃生樓梯		

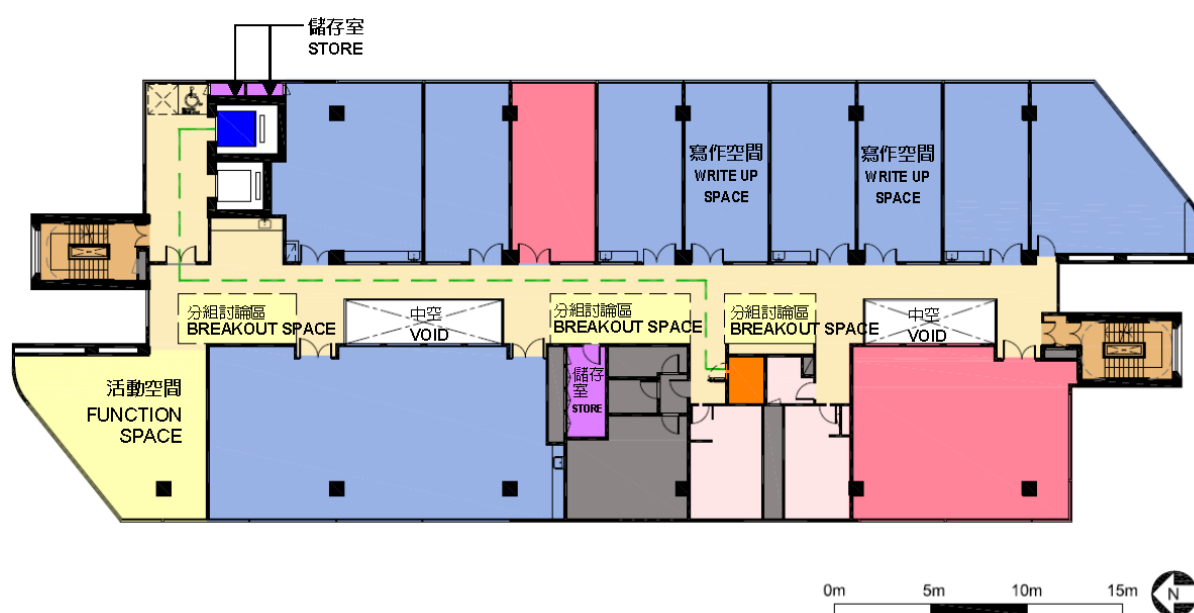


香港科技大學
8017EL - 新科研樓 1












The Hong Kong University of Science and Technology
8017EL – New Research Building 1

樓層平面圖 Floor Plan

四樓平面圖
Fourth Floor Plan



LEGEND 圖例

 LABORATORIES 實驗室	 BARRIER-FREE ACCESS 無障礙通道
 OFFICE 辦公室	 ACCESSIBLE TOILET 暢通易達洗手間
 STUDY SPACE 學習空間	 ACCESSIBLE LIFT 暢通易達升降機
 SUPPORT SPACE 支援空間	 PLANT ROOM 機房
 CIRCULATION 通道	 TOILET 洗手間
 MEANS OF ESCAPE STAIRCASE 逃生樓梯	

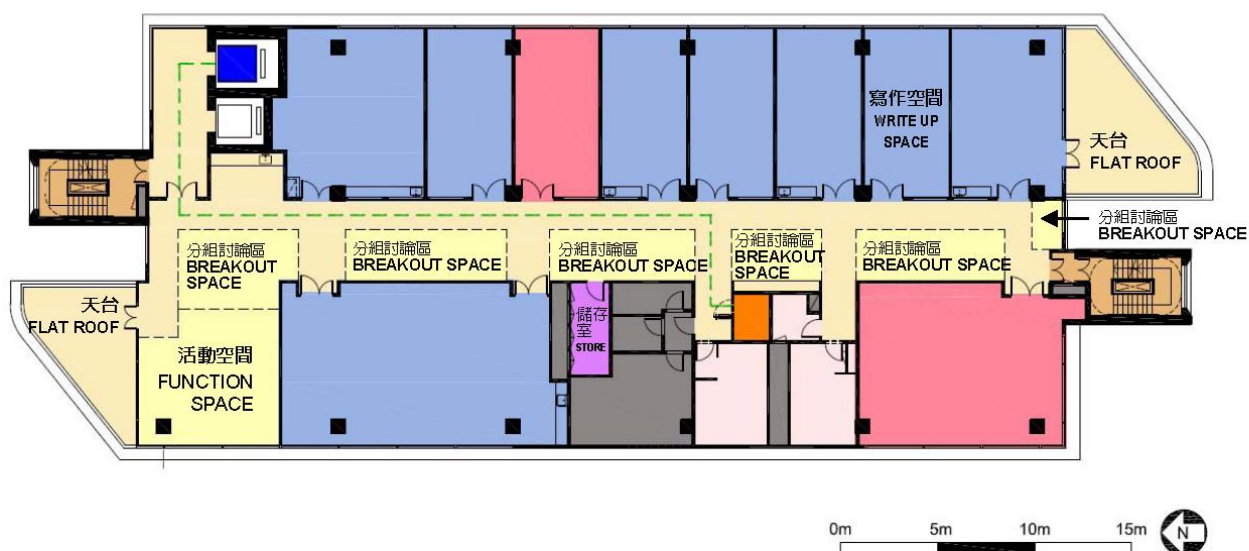


香港科技大學
8017EL - 新科研樓 1












The Hong Kong University of Science and Technology
8017EL – New Research Building 1

樓層平面圖 Floor Plan

五樓平面圖
Fifth Floor Plan



LEGEND 圖例

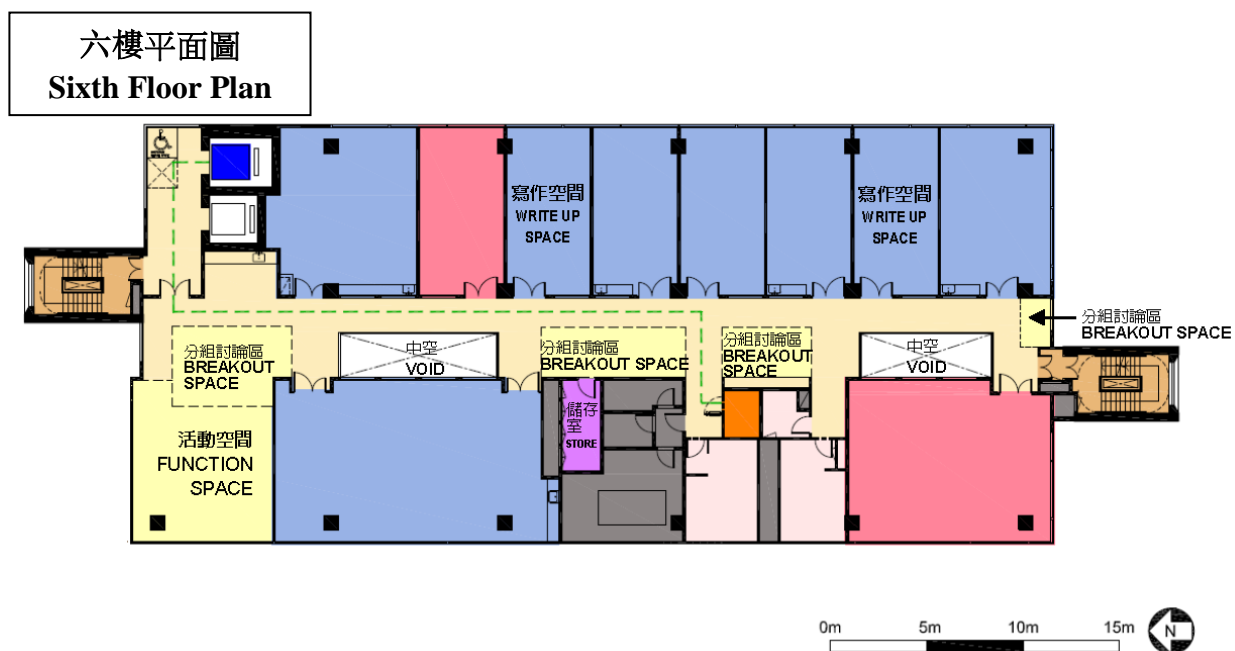
 LABORATORIES 實驗室	 BARRIER-FREE ACCESS 無障礙通道
 OFFICE 辦公室	 ACCESSIBLE TOILET 暢通易達洗手間
 STUDY SPACE 學習空間	 ACCESSIBLE LIFT 暢通易達升降機
 SUPPORT SPACE 支援空間	 PLANT ROOM 機房
 CIRCULATION 通道	 TOILET 洗手間
 MEANS OF ESCAPE STAIRCASE 逃生樓梯	














香港科技大學
8017EL - 新科研樓 1

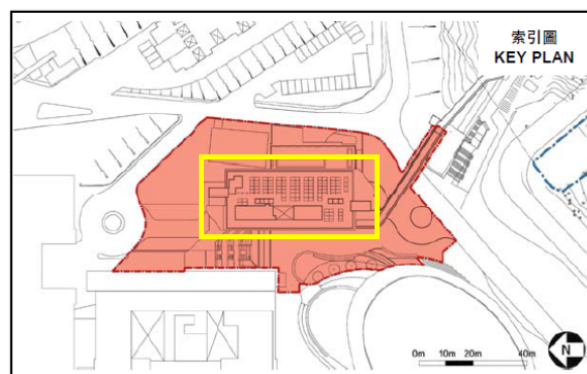
The Hong Kong University of Science and Technology
8017EL – New Research Building 1

樓層平面圖 Floor Plan



LEGEND 圖例

 LABORATORIES 實驗室	 BARRIER-FREE ACCESS 無障礙通道
 OFFICE 辦公室	 ACCESSIBLE TOILET 暢通易達洗手間
 STUDY SPACE 學習空間	 ACCESSIBLE LIFT 暢通易達升降機
 SUPPORT SPACE 支援空間	 PLANT ROOM 機房
 CIRCULATION 通道	 TOILET 洗手間
 MEANS OF ESCAPE STAIRCASE 逃生樓梯	

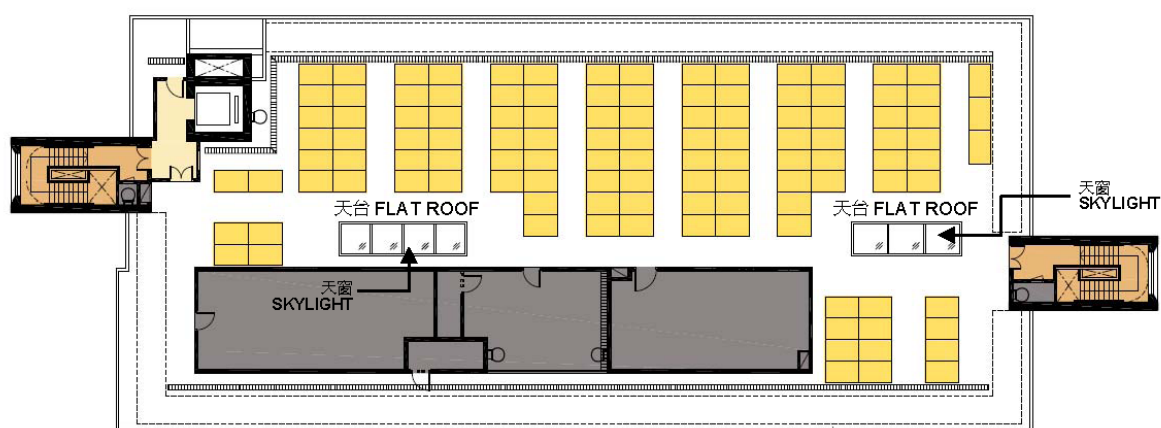


香港科技大學
8017EL - 新科研樓 1

The Hong Kong University of Science and Technology
8017EL - New Research Building 1

樓層平面圖 Floor Plan

天台平面圖
Roof Floor Plan



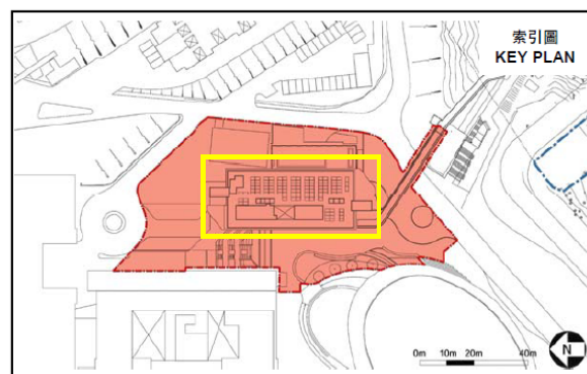
LEGEND 圖例

PHOTOVOLTAIC PANEL
太陽能光伏板

CIRCULATION 通道

PLANT ROOM 機房

MEANS OF ESCAPE STAIRCASE
逃生樓梯



**The Education University of Hong Kong
8004EN - New Academic Building in Tai Po Campus**

PROJECT SCOPE AND NATURE

The scope of works of **8004EN** involves mainly the construction of an eight-storey academic building which will provide approximately 7 600 square metres (m²) in net operational floor area (NOFA)¹. The Department of Science and Environmental Studies of The Education University of Hong Kong (EdUHK) will be the major user of the laboratories in the new building whilst other teaching facilities will be open for use by all departments. Upon completion of the proposed project, the building will provide the following new facilities –

- (a) laboratories and ancillary working space for researchers and postgraduate students of about 3 200 m² in NOFA;
- (b) classrooms of about 2 000 m² in NOFA;
- (c) study space of about 1 000 m² in NOFA;
- (d) offices of about 1 200 m² in NOFA;
- (e) support space of about 200 m² in NOFA, including server rooms and storage areas, etc; and
- (f) a reprovisioned basketball court on rooftop of the new building.

2. Photovoltaic panels will also be installed on the upper roof level for contributing to environmental sustainability. A location and site plan, an artist's impression and floor plans of the project are at **Annexes 1 to 3 to Enclosure 2**.

JUSTIFICATION

3. The campus of EdUHK has been in use for over two decades. Over time, some of the existing facilities have become outdated and could not cope

¹ NOFA is the floor area allocated to the users of a building for carrying out the intended activities. Unlike the construction floor area which takes into account all areas within the building structure envelope, NOFA does not include areas for the basic facilities (if any) such as toilets, lift lobbies, stair halls, public or shared corridors, stairwells, escalators and lift shafts, pipe or services ducts, barrier-free access facilities, gender mainstreaming facilities, refuse rooms, flat roofs, car parking spaces, loading and unloading areas and mechanical plant rooms, etc.

with the needs of the contemporary learning environment. EdUHK also lacks the necessary campus space to carry out teaching and research activities as the demand for space and infrastructure to support teaching and research has far outgrown the capacity of the existing provision on-campus. With the growing trend of technology-enhanced pedagogical approaches, there is a pressing need for new academic facilities which can support the application and integration of education technology, pedagogy and interactive learning, especially in the context of Science, Technology, Engineering and Mathematics (STEM) and Artificial Intelligence (AI) education. The demand for additional teaching space with contemporary classroom settings will become more acute, starting from the 2022/23 academic year (AY), when EdUHK will launch a series of new undergraduate programmes on AI and educational technology, sports science and coaching, as well as integrated environmental management, which are beyond the realm of teacher education. EdUHK's offering of the new programmes ties in with the Government's plan to nurture future talents in these emerging areas.

4. Furthermore, EdUHK has undergone significant development in the scope and nature of its research activities in recent years. There has been a substantial increase in theoretical and applied research, which extends to knowledge transfer and start-ups. Currently, EdUHK has three university-level and 11 faculty-level research centres, forming a vibrant research community. In the 2021/22 AY, EdUHK has identified environmental sustainability, big data analytics, psychology and neuroscience, life and career development, and sports science and coaching as its new focus areas for research development. Plans are also afoot to set up new laboratories of human behavioural neuroscience, design thinking and robotics, and digital humanities on the existing campus. As the first major campus development project since the inauguration of its Tai Po campus in 1997, the new building will provide additional laboratories and workspace for faculty members, undergraduate students and research postgraduate students to strengthen the EdUHK's research capacity and synergise with its existing research arms, in line with its "Education-plus" approach.

5. With a view to nurturing future educators and social leaders through curriculum revamp and innovation, the new building will provide contemporary facilities for teaching and research in the digital era. Specifically, the following facilities are planned for the new building –

- (a) a multi-functional auditorium with a capacity to accommodate about 400 persons for conducting large lectures or events;
- (b) ten classrooms and two lecture theatres with enhanced multi-media equipment as well as study space and breakout space to suit the need of the latest learning environment; and
- (c) laboratories and ancillary research space to support the expanded realm of research focus areas of the university.

FINANCIAL IMPLICATIONS

6. The latest estimated cost of **8004EN** is \$698.7 million in money-of-the-day prices, which will be funded by the \$16-billion provision set aside for University Grants Committee-funded universities to enhance or refurbish campus facilities as announced in the 2019-20 Budget.

7. The project has no impact on tuition fees. The additional recurrent costs associated with this project will be funded by EdUHK. The proposal has no additional recurrent financial implications for the Government.

IMPLEMENTATION TIMETABLE

8. We plan to submit the proposal for upgrading the project to Category A to the Public Works Subcommittee and the Finance Committee (FC) in the current Legislative Council Session. EdUHK plans to commence the construction works of **8004EN** upon obtaining funding approval from FC for target completion in around three years.

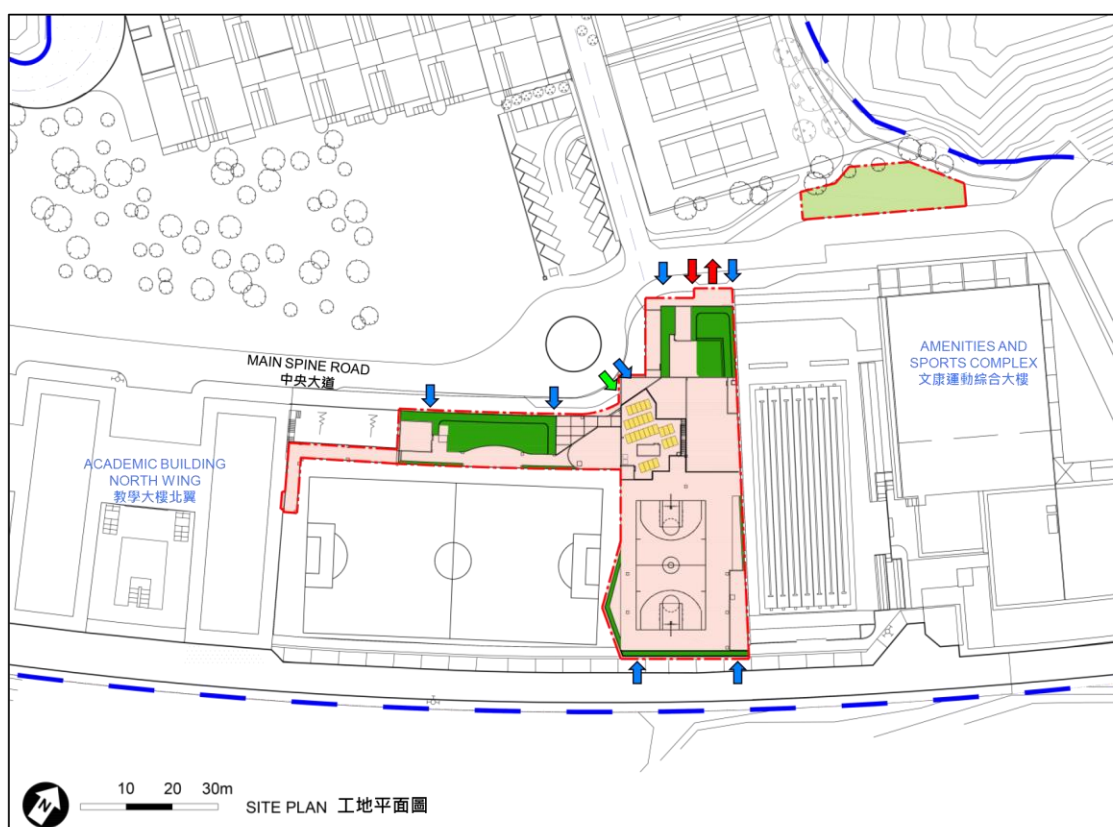
PUBLIC CONSULTATION

9. EdUHK consulted the Planning, Housing and Works Committee of the Tai Po District Council in November 2021 and received Members' support for the proposed development. EdUHK also briefed and consulted its staff members and students on the proposed project at various occasions and received no adverse comments.

香港教育大學
8004EN - 大埔校園新教學大樓

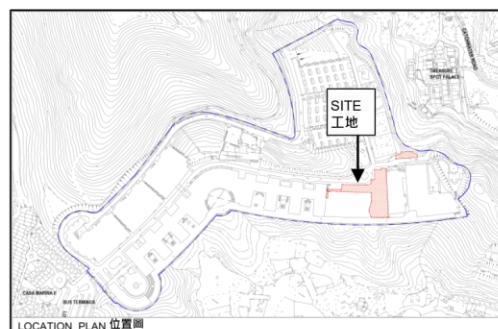
The Education University of Hong Kong
8004EN – New Academic Building in Tai Po Campus

位置及工地平面圖
Location and Site Plan



LEGEND 圖例

- | | |
|---|---|
| --- BOUNDARY OF THE EDUCATION UNIVERSITY OF HONG KONG
香港教育大學界線 | ↑ PEDESTRIAN ENTRANCE/ EXIT
行人出入口 |
| - - - SITE BOUNDARY
工地界線 | ↑ BARRIER-FREE ENTRANCE/ EXIT
無障礙出入口 |
| LANDSCAPED ROOF
天台綠化 | ↑ VEHICULAR INGRESS/ EGRESS
車輛出入口 |
| AT-GRADE GREENING
地面綠化 | |
| PHOTOVOLTAIC PANEL
太陽能光伏板 | |



香港教育大學
8004EN - 大埔校園新教學大樓

**The Education University of Hong Kong
8004EN – New Academic Building in Tai Po Campus**

構思圖
Artist's impression



從南面望向大樓的構思透視圖
Perspective view of the building from south direction



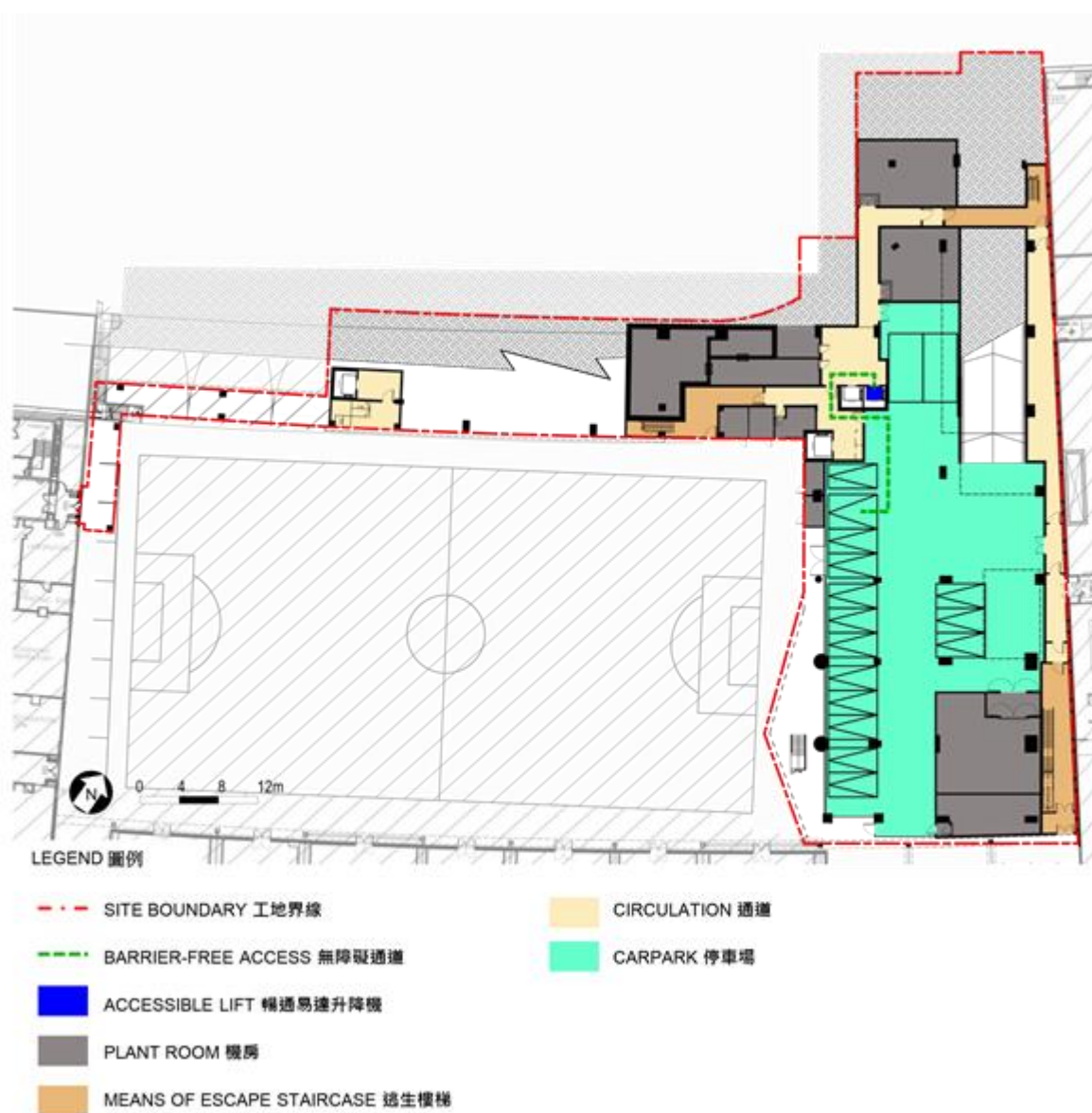
從西面望向大樓的構思透視圖
Perspective view of the building from west direction

香港教育大學
8004EN - 大埔校園新教學大樓

The Education University of Hong Kong
8004EN – New Academic Building in Tai Po Campus

樓層平面圖 Floor Plan

低層地下平面圖
Lower Ground Floor Plan



香港教育大學
8004EN - 大埔校園新教學大樓

The Education University of Hong Kong
8004EN – New Academic Building in Tai Po Campus

樓層平面圖 Floor Plan

地下平面圖
Ground Floor Plan

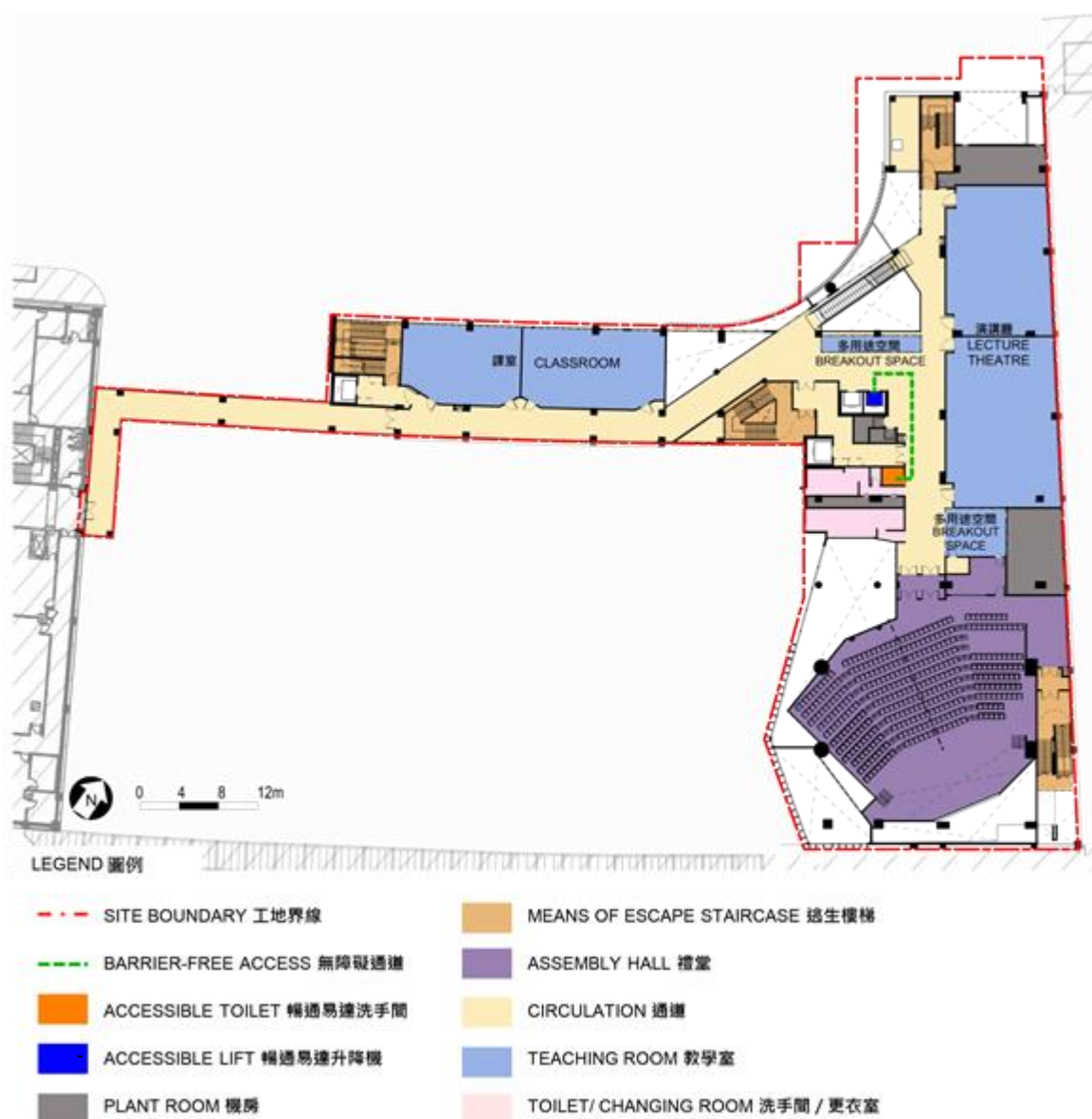


香港教育大學
8004EN - 大埔校園新教學大樓

The Education University of Hong Kong
8004EN - New Academic Building in Tai Po Campus

樓層平面圖 Floor Plan

一樓平面圖
First Floor Plan

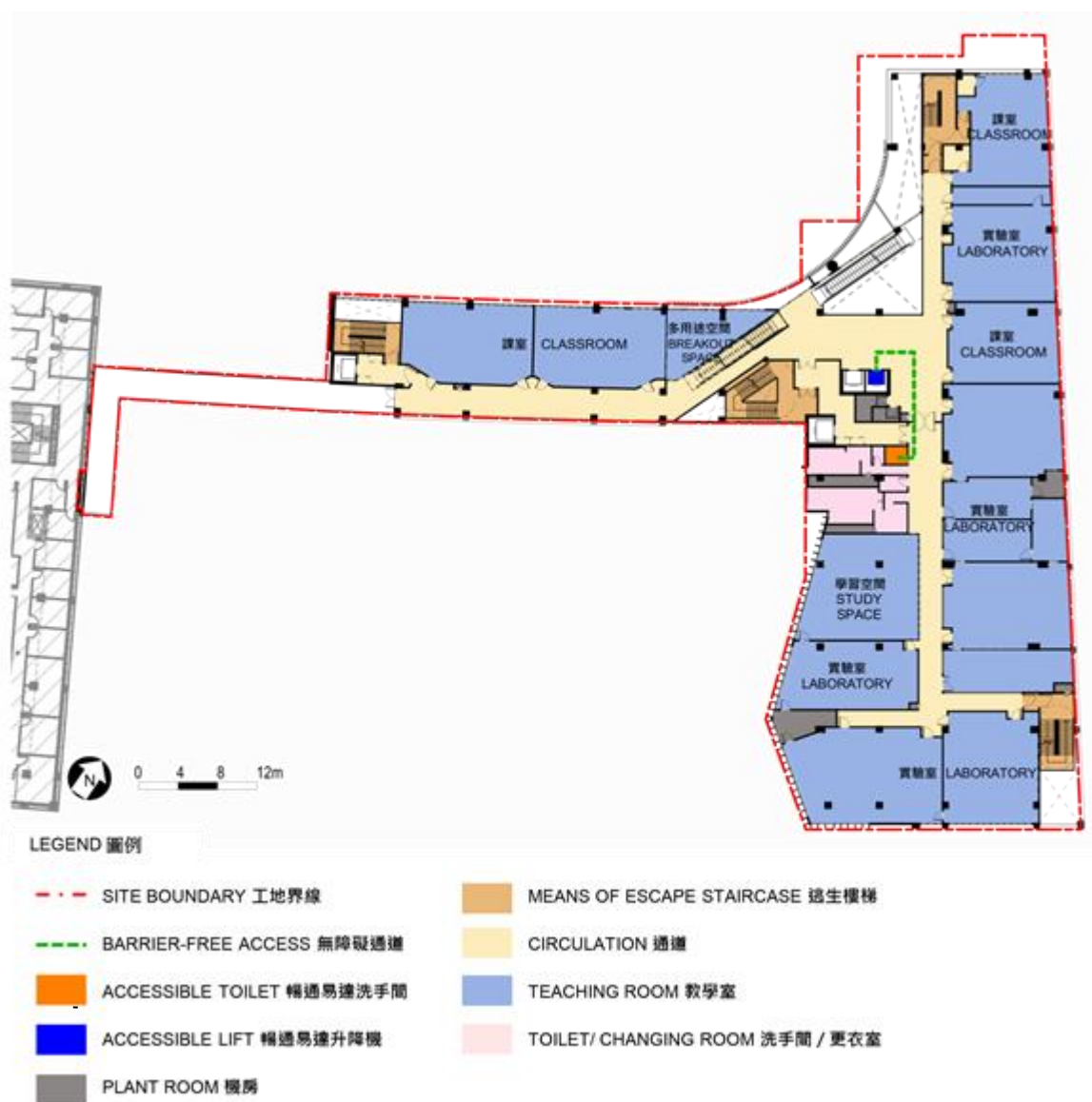


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樓層平面圖 Floor Plan

二樓平面圖
Second Floor Plan



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樓層平面圖 Floor Plan

三樓平面圖
Third Floor Plan



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樓層平面圖 Floor Plan

四樓平面圖
Fourth Floor Plan

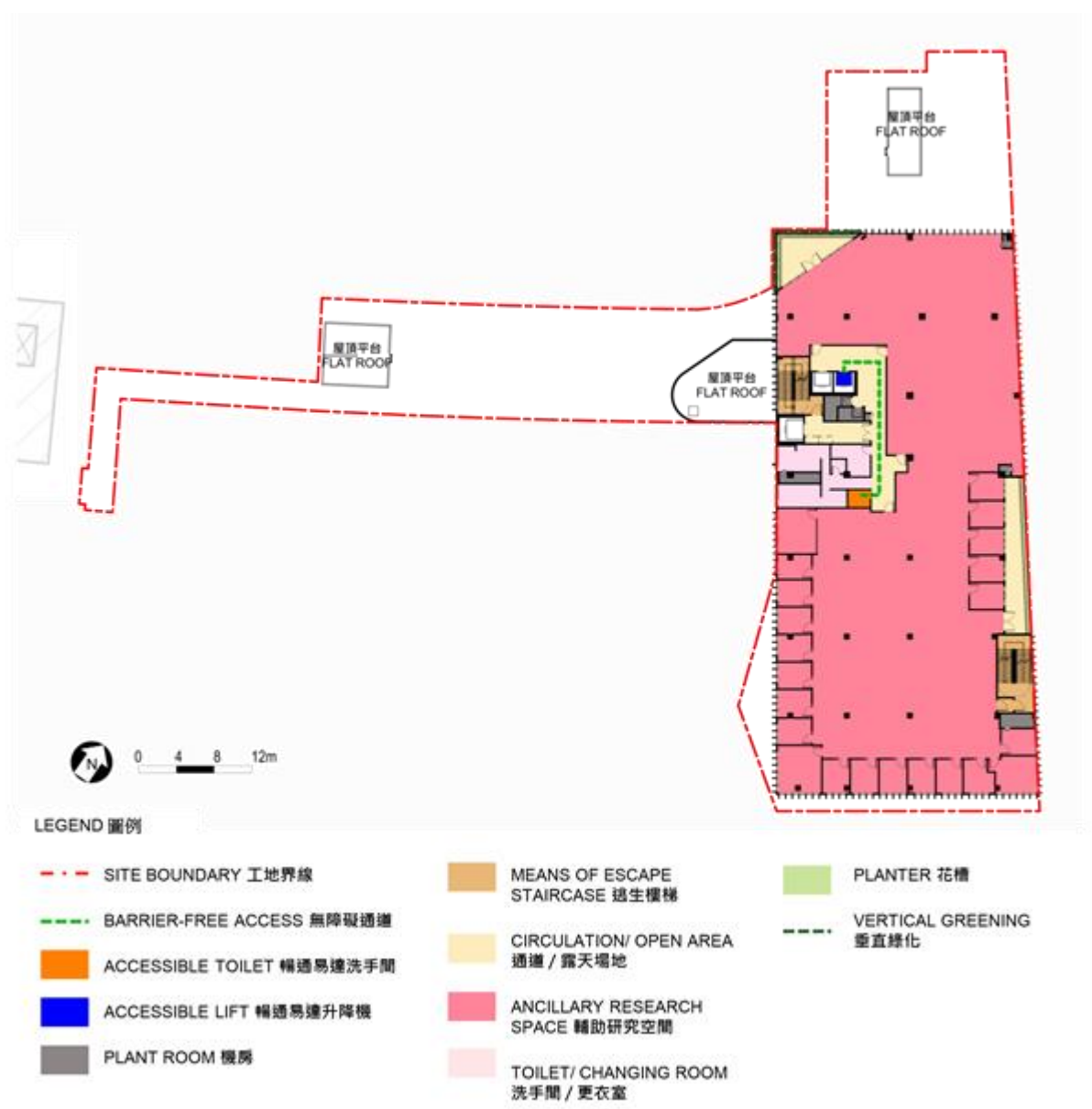


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樓層平面圖 Floor Plan

五樓平面圖
Fifth Floor Plan

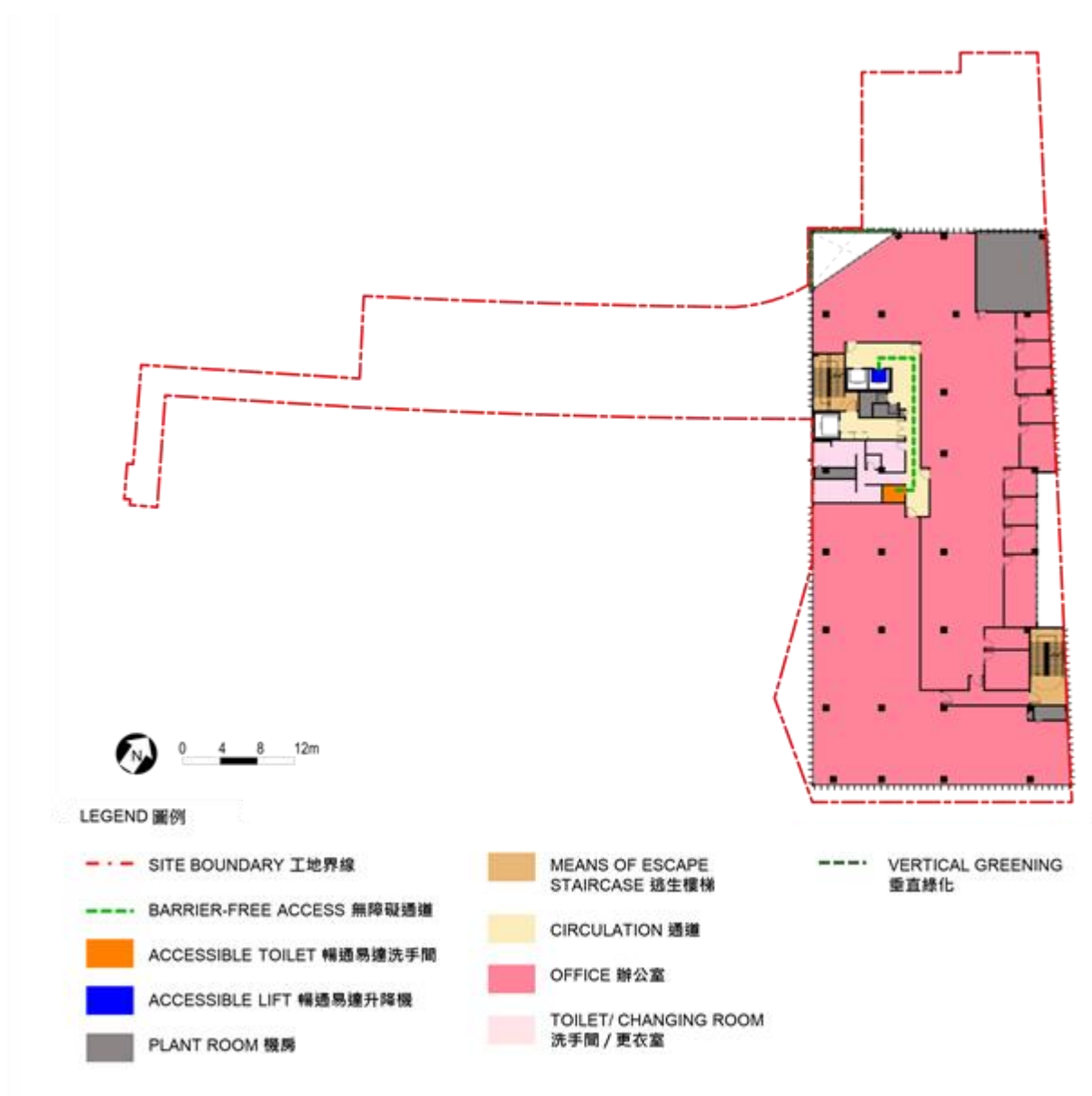


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樓層平面圖 Floor Plan

六樓平面圖
Sixth Floor Plan

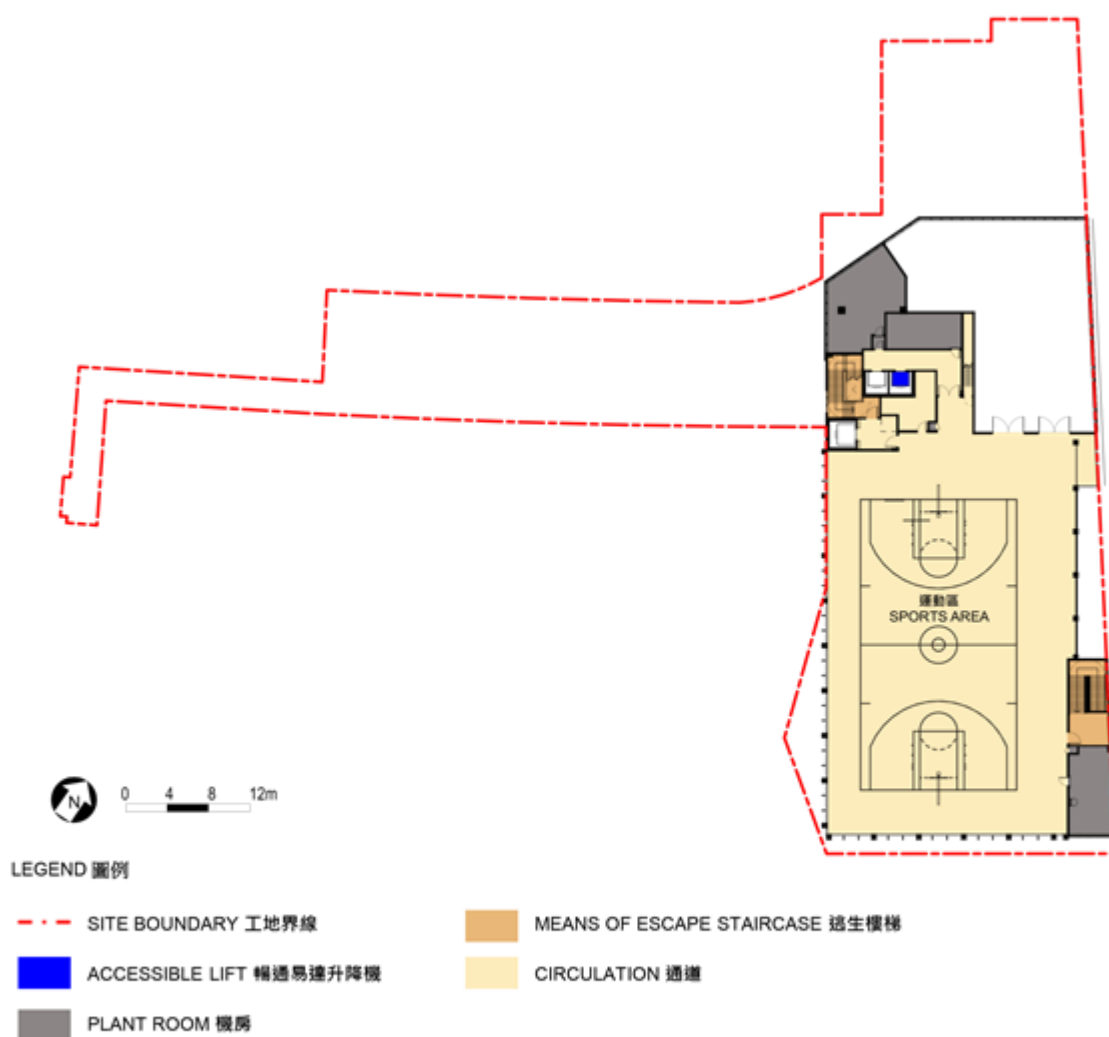


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樓層平面圖 Floor Plan

屋頂平面圖
Roof Plan



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樓層平面圖 Floor Plan

上層屋頂平面圖
Upper Roof Plan

