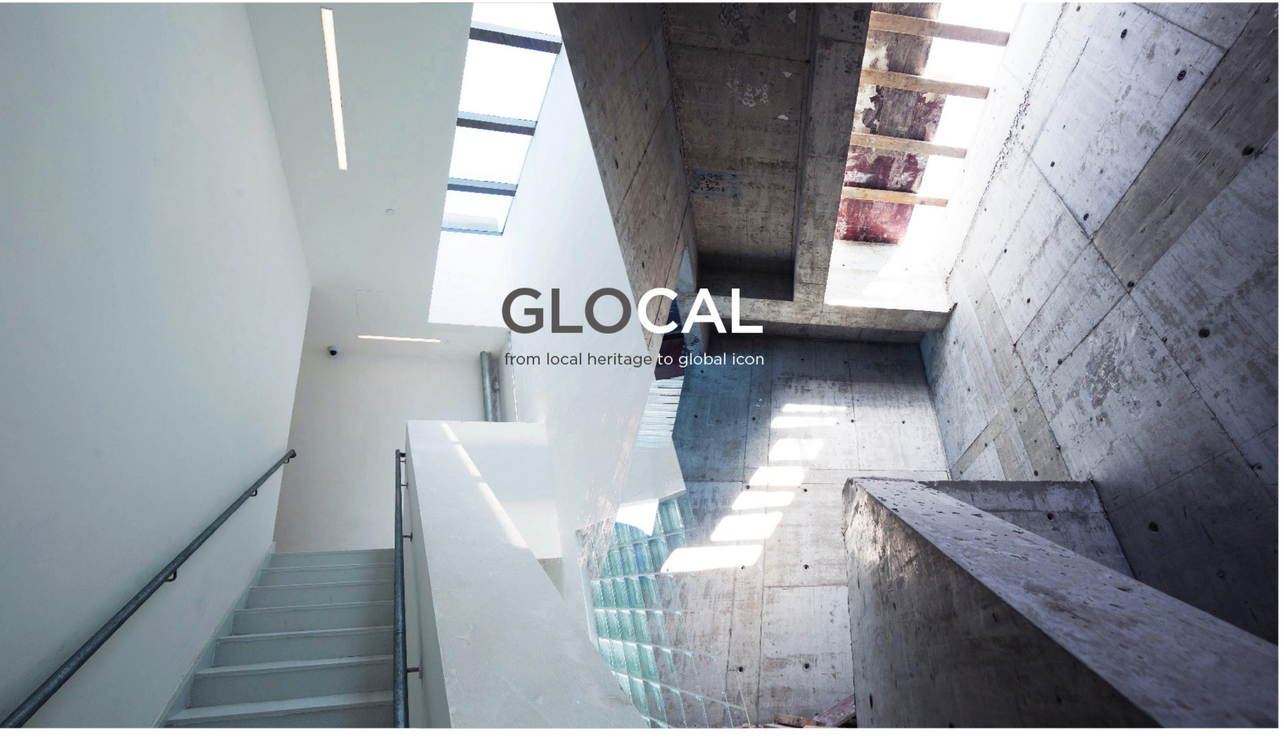


Paul Y

GLOCAL

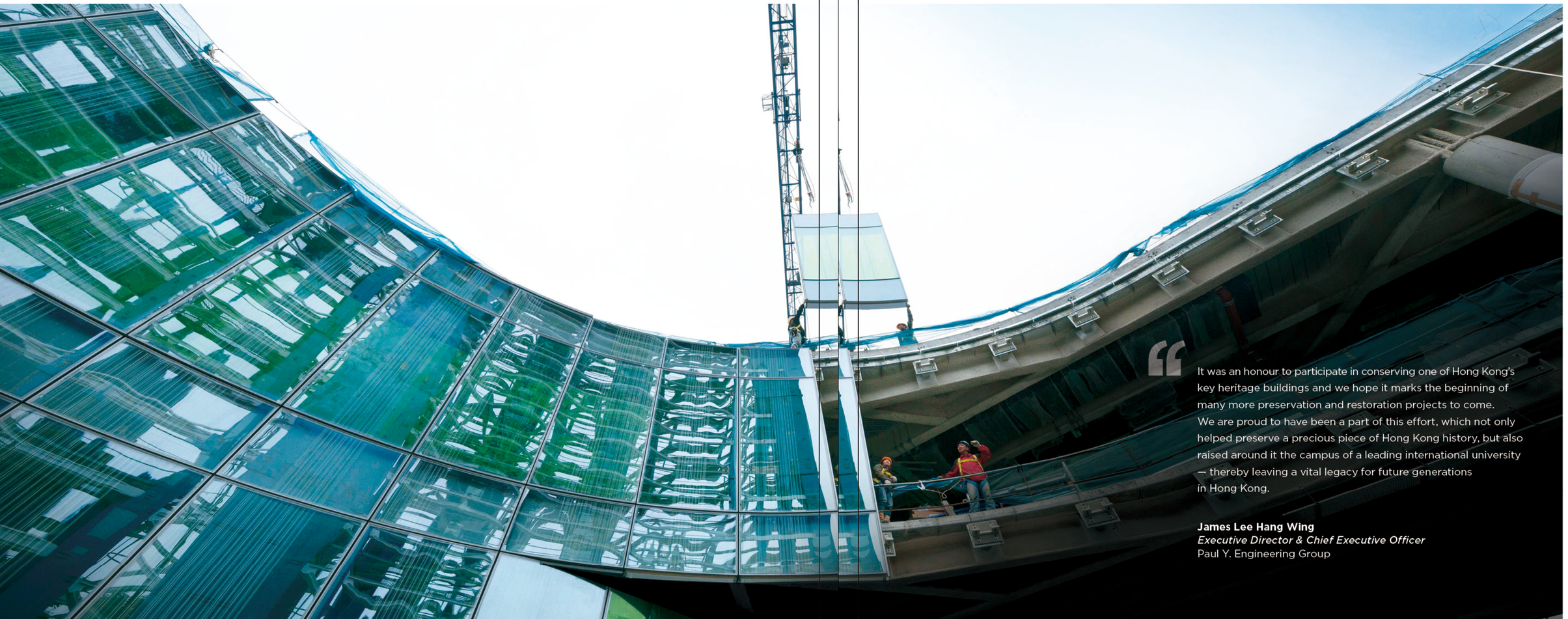
FROM LOCAL HERITAGE TO GLOBAL ICON

保 華 建 業
Paul Y. Engineering

GLOCAL

from local heritage to global icon

Paul Y. Engineering Group Limited



It was an honour to participate in conserving one of Hong Kong's key heritage buildings and we hope it marks the beginning of many more preservation and restoration projects to come. We are proud to have been a part of this effort, which not only helped preserve a precious piece of Hong Kong history, but also raised around it the campus of a leading international university — thereby leaving a vital legacy for future generations in Hong Kong.

James Lee Hang Wing
Executive Director & Chief Executive Officer
Paul Y. Engineering Group

Local Heritage, World-class Appeal

The University of Chicago Center in Hong Kong (UCCHK) is unveiling its new campus to the world, heritage buildings on the west side of Hong Kong Island with a luminous future. Located at the site of the ex-Victoria Road Detention Centre, these Grade 3 historic buildings have been transformed into first-class facilities for one of the top institutions in the world. Its rebirth is a rare hybrid of reclaiming history with state-of-the-art new additions, one that takes heritage restoration to a higher level and sets a new benchmark for local preservation projects.

World-class contractor Paul Y. Engineering (PYE) harnessed its expertise and resources to unite all related parties, successfully navigating the challenges to deliver a construction poised to be a new Hong Kong landmark and international icon.

A Historic Decision

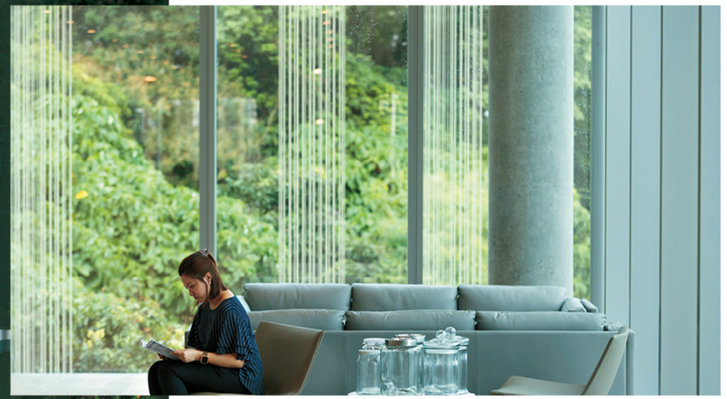
In June 2013, the Education Bureau identified The University of Chicago Booth School of Business as a prospective operator of the ex-Victoria Road Detention Centre for its Executive MBA programmes in Hong Kong. Within the next two years, UCCHK engaged PYE as the main contractor for this prestigious project. PYE, together with other participating parties, conducted numerous feasibility studies, consulted restoration and structural experts and sought government views on regulatory issues.

Construction began in June 2016 and the new campus was open in 2018. Moving its Asian headquarters from Singapore to Hong Kong, University of Chicago looks to cement its status as a top global educational institution.

Standing Out in a Field of Challengers

UCCHK held a rigorous selection process for proposed designs at the ex-Victoria Road Detention Centre site. The winning entry came from Revery Architecture (formerly Bing Thom Architects) among a field of prestigious international architects. Weaving a sinuous design around the complex of heritage structures that emphasise generous light and the area's verdant foliage, the building touches down only at points of least intrusion, unifying old and new, inside and out. By working closely with PYE and other parties, UCCHK was able to resolve all construction, preservation, structural and compliance issues, tackling the challenge of building this epic building on a slope on time.

Hybrid Heritage: Above and Beyond Restoration



The majority of restoration and revitalisation projects today seek only to preserve the facade of the heritage buildings, with adaptive facilities for modern use. The new UCCHK campus showcased a ground-breaking perspective that respects both heritage buildings and the natural landscape, while adding a brand-new structure. PYE and the project team seamlessly merged these elements through cutting-edge design and construction techniques. Not only was this a valuable experience to PYE, but the rarity of such hybrid project in Asia means the success of UCCHK has the potential to inspire others.

British Army Royal Engineers' Mess and Quarters

1930s 1950s 1960s

Jubilee Battery

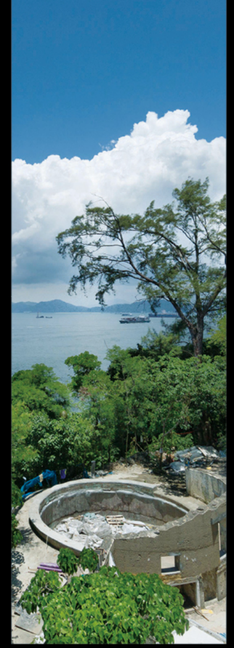
Victoria Road Detention Centre

Preserving Historic Moments

PYE believes conservation is the natural partner of construction, as only through respecting the past can we innovate and build our future. Conservation serves to remind us of our shared identity, while preserving our history. The historic buildings at the site reflect three key historic uses: It was originally part of the Jubilee Battery in the late 1930s, the British Army Royal Engineers' Mess and Quarters in the 1950s and the Victoria Road Detention Centre in the 1960s, which represent key milestones in Hong Kong's modern history.

Part of Hong Kong's Historic Defences

The location of the site was part of the Jubilee Battery, a vital part of Hong Kong's defences against the Japanese troops during the Second World War (WWII). Situated at the seaside and west point of Hong Kong Island, at the foot of Mount Davis, the site served as a strategic military base in wartime.



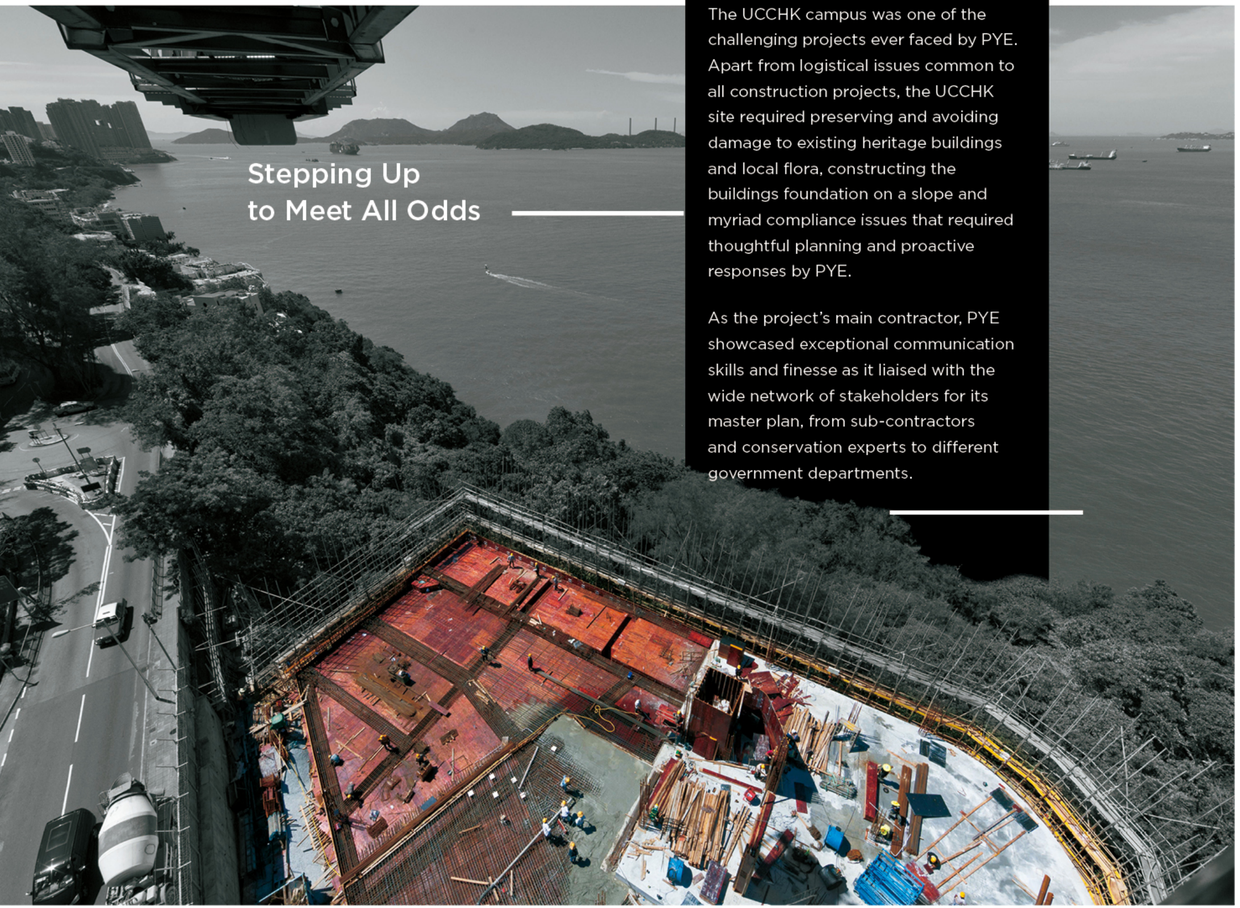
Ruins from that era still remain. Some of them, including the Battery and the Magazine rooms, are preserved, along with the heritage buildings, to commemorate the war and the all-important defence of the island during WWII.

A Symbol in Hong Kong's Collective Memory

Known as the "White House" for its tall, white walls, the Victoria Road Detention Centre saw heavy use in the 1960s. It was also known as the Mount Davis Concentration Camp, where the Special Branch of the Royal Hong Kong Police Force held political prisoners during the 1967 riots. This tumultuous time saw a period of large-scale social mobilisation throughout Hong Kong, an important period that had far-reaching impact on the region's social development.

A Window into the Hong Kong that was

The simple and functional design of the White House is representative of the International Modernism style, which explored new materials, rejected classical precedents and sought to simplify design by reducing ornamentation and emphasising architectural space. This architectural style was developed in the 1920s and 1930s, and became a dominant architectural style in Hong Kong's government buildings throughout the 1950s. As such, the White House provides a looking glass into the era of British Colonial rule and the social development of this era.



Stepping Up to Meet All Odds

The UCCHK campus was one of the challenging projects ever faced by PYE. Apart from logistical issues common to all construction projects, the UCCHK site required preserving and avoiding damage to existing heritage buildings and local flora, constructing the buildings foundation on a slope and myriad compliance issues that required thoughtful planning and proactive responses by PYE.

As the project's main contractor, PYE showcased exceptional communication skills and finesse as it liaised with the wide network of stakeholders for its master plan, from sub-contractors and conservation experts to different government departments.

Excellent Compliance on a Tight Schedule

As a project with significant cultural value, the UCCHK campus involved many government departments, including the Education Bureau, Antiquities and Monuments Office, Transport Department, Lands Department and Buildings Department. This required much coordination and paperwork, such as floorplan approval and licence applications, which PYE skilfully tackled in spite of the many stringent legal requirements.

In all, PYE only had 2 years to complete the project. The schedule was so tight, PYE found itself handling many tasks concurrently and even re-sequencing its procedures, demonstrating immense flexibility and execution skills.

With space already at a premium on-site, the logistical challenges were further compounded by the location adjacent to a seaside road with heavy traffic. Transporting, storing and disposing of building materials all became daunting tasks. Leveraging its tremendous building innovation and prowess, PYE coped with the challenge by using a massive tower crane to move materials in and out of the site vertically.

Overcoming Space Constraints

Through coordination with the Transport Department, the team was also able to alleviate traffic congestion and disturbance to residents.

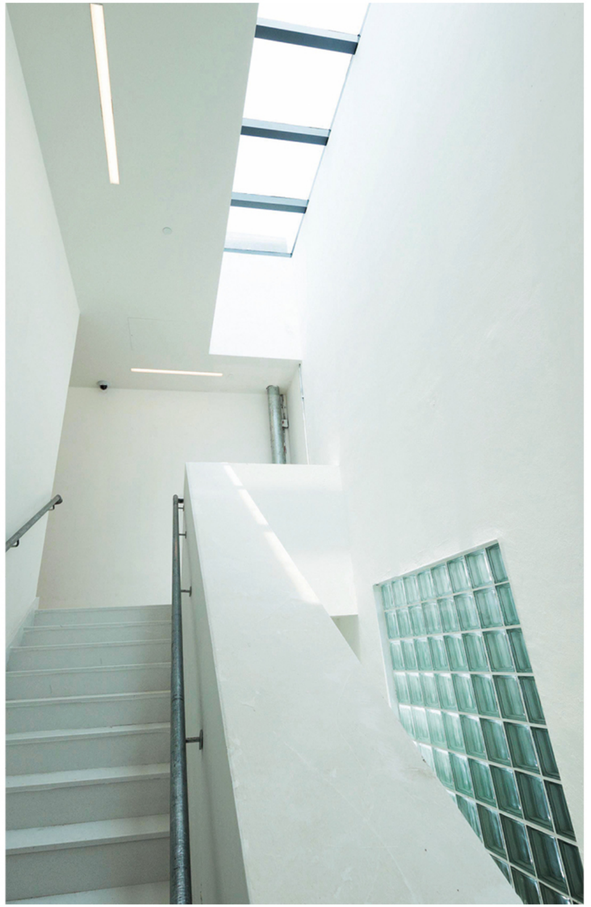
Steeply Built to Last

The UCCHK campus is located on a slope with a nearly 30-degree incline. Large areas cover significantly different levels, complicating construction. PYE's team first built a battery of mini piles 15m deep, and supporting columns ranging from 2m to 20m high, in order to support the foundation. Completing the foundation and site formation works accounted for a full year, or half of the estimated project schedule. Construction of the superstructure (lower ground floor of the new campus) could not begin until July 2017, when the foundation work was accomplished. In the face of such huge challenges, PYE's excellent building expertise shone through.

A Master Builder's Skill

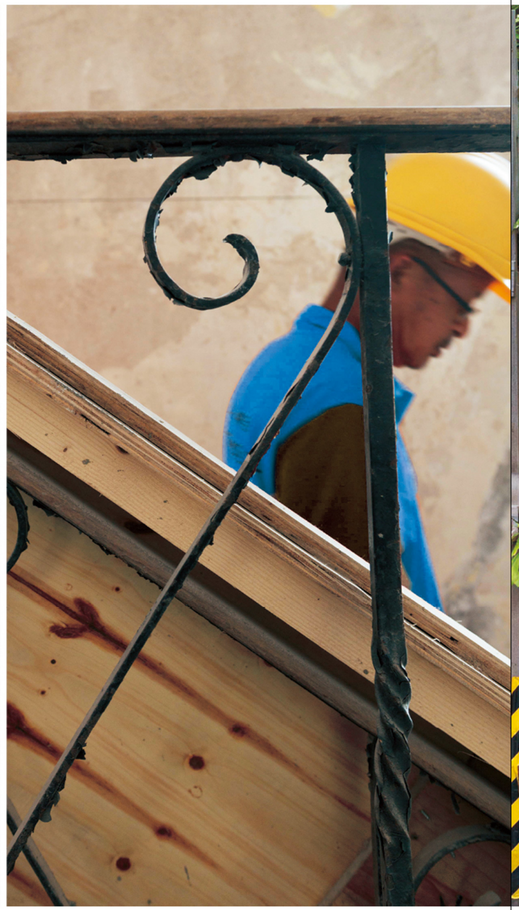
The UCCHK campus's new teaching centre, the Treehouse, is a sinuous modern building that weaves into the hillside and abundant greenery. The curves of the building, coupled with the steep slope of the site, were a particular challenge. Each curtain wall had to be specially made to the profile of the building, which required exceptional craftsmanship.

PYE suggested the use of a steel structure with bolt and nut connections on-site, leaving major welding to be done in the factory, a feature rarely used in a 3-storey building, to fast-track construction. UCCHK accepted this proposal, which eliminated many of the procedures involved with wood or concrete work, while also making the Treehouse more sustainable.



Streamlined with High Technology

As one of Hong Kong's pioneering firms in the use of high technology to simplify and streamline the building process, PYE extensively deployed Building Information Modelling (BIM) to effectively plan, design, construct and manage the project. Drones were used from time to time to take photos to keep UCCHK apprised of the site's development. A set of CCTV cameras were also installed on site and equipped with Wi-Fi. UCCHK and relevant parties could control these via their mobile phones to stay posted on the construction's progress.



A Building to be Proud of

Lewis Lo *Senior Project Manager*
Paul Y. Engineering Group

"In spite of their age and the varying designs, materials and technologies behind each heritage building, it's amazing how they've stood the test of time. If what we have built and transformed today remains after 50 or 60 years, we would be very proud indeed of what we have accomplished.

Hong Kong has very limited land. But development, demolition and reclamation are not the only solutions. By blending together old and new elements, we can create unlimited possibilities."

Building New Doesn't Mean Destroying the Past

Eddie Yeung
General Manager
Paul Y. Engineering Group

"This was one of the tough construction projects we've ever engaged in, considering the limited time and space, and steep slope of the site. I would say it was several times harder than other projects. But with our masterful planning and execution, we prevailed.

In Hong Kong, our heritage is vanishing day by day. Our philosophy for economic development seems to be to "demolish and rebuild" at a profit. This isn't healthy. Development and conservation can happen together. It may come at a higher cost, but judging from the results of the UCCHK campus, it's worth our while to do."

Trees with Significant Value on the Campus

Flame of the Forest –

40 years old

20m - 30m high

800mm in diameter

Thin, delicate branches are vulnerable to strong wind, thus requiring special attention

Two Horsetail Trees –

The larger one is estimated to be over **70** years old

20m - 30m high

1m-2m in diameter respectively

Grows fast and has deep roots— suited for growing in windy areas

Preservation Down to the Last Detail

Critical to the project was preserving the Grade 3 historic buildings' historical authenticity. PYE collaborated with conservationists to conduct state-of-the-art preservation and restoration work, sparing no expense or time and utilising meticulous craftsmanship.

Premium materials were manufactured via traditional techniques or imported to ensure that new and old merged seamlessly and sustainably. From the permeability and breathability of the paint to the fine plasterwork, everything was done to be as authentic as possible. Education and training were also provided to workers on-site to avoid unnecessary damage to existing heritage elements.

CELL PRINT

The original prison cells featured floor-to-ceiling blockwork. PYE took pains to preserve this in the least intrusive way. A very advanced product, lithium silicate, was chosen to protect the structure. This had to be imported from Europe, where it has previously been used in the preservation of ancient cathedrals.

GUN TURRETS ON THE ROOF

All the slabs in Block A and B were taken down in order to reinforce the structure. Big steel channels were used to brace the historic gun turrets, battery and magazine area while this was done.

COVED CEILINGS

The original coved ceiling had to be removed and later recreated using traditional techniques and materials imported from the United Kingdom, including horse hair and lime putty. This time-consuming, laborious and expensive process was overseen by a British master plasterer with specially trained local artisans.

WINDOWS

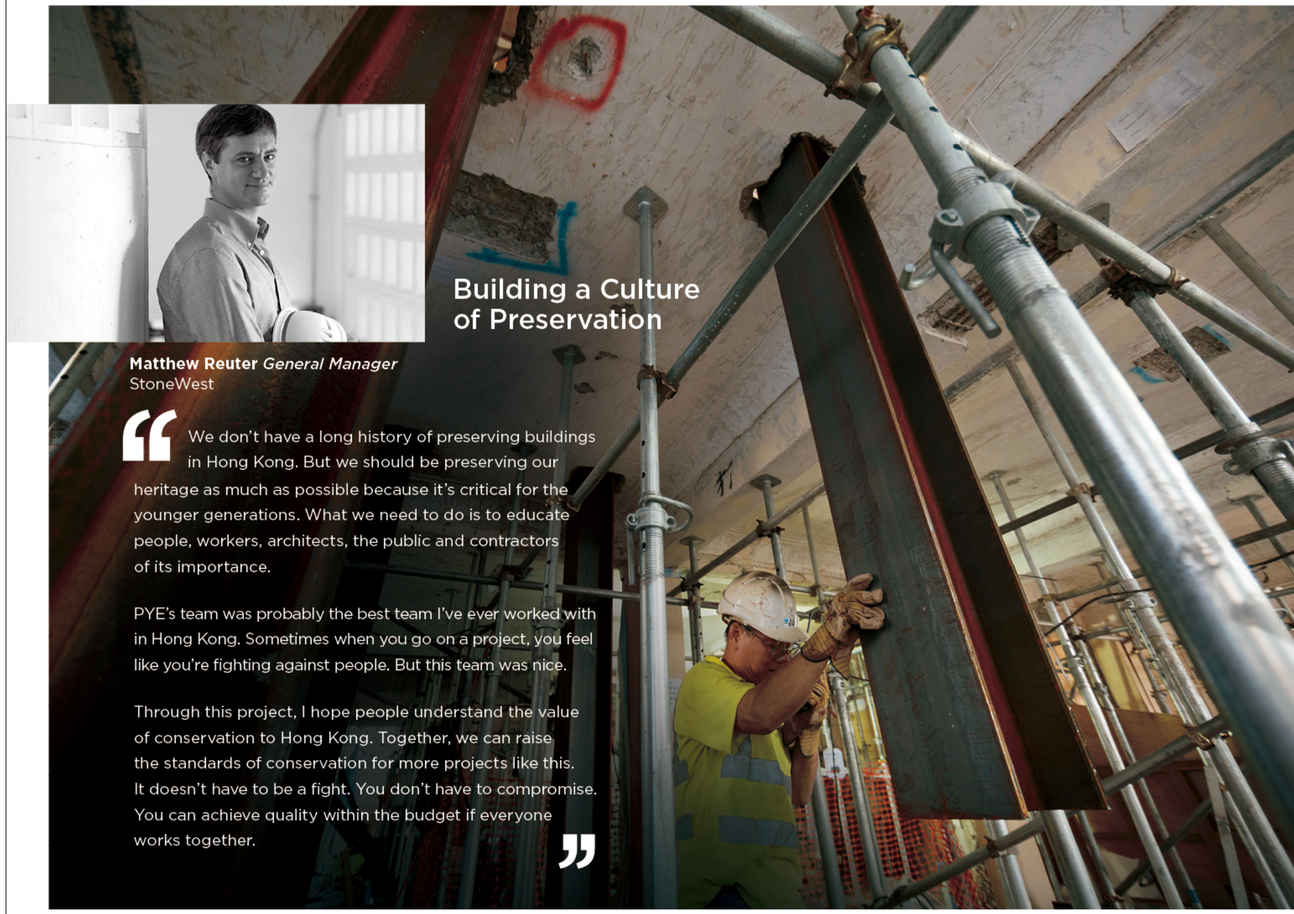
The original brittle windows, though irreplaceable, had to be changed to meet current safety standards. Sourcing replacements that were as close as possible to the originals was a lengthy process and required immense cost as each bespoke section of glass was handmade in Europe.

FIREPLACE

The only slabs of masonry kept in place within the heritage buildings is the traditional fireplace. Throughout the reinforcement work on the main buildings, huge steel structures were installed to maintain these items in place—a significant cost, but well worth it.

BAT CAVE

A cave located within range of the magazine was a habitat for local bats. Minor strengthening work was carried out on its surroundings, but the cave itself was left 'as is'. The team went so far as to monitor vibrations at the site, to minimise disturbance to the bats.



Building a Culture of Preservation

Matthew Reuter *General Manager*
StoneWest

"We don't have a long history of preserving buildings in Hong Kong. But we should be preserving our heritage as much as possible because it's critical for the younger generations. What we need to do is to educate people, workers, architects, the public and contractors of its importance.

PYE's team was probably the best team I've ever worked with in Hong Kong. Sometimes when you go on a project, you feel like you're fighting against people. But this team was nice.

Through this project, I hope people understand the value of conservation to Hong Kong. Together, we can raise the standards of conservation for more projects like this. It doesn't have to be a fight. You don't have to compromise. You can achieve quality within the budget if everyone works together."

Preserving an Urban Eco-System

Apart from structural heritage, the site also contained a natural heritage — approximately 100 trees that provided shelter to animals while producing food for pollinators.

Located on a windy escarpment by the sea, the trees grew at an angle into the hillside, making tree preservation especially difficult. PYE worked closely with tree experts to set up “tree protection zones” around each tree to minimise intrusion during construction. Professional arborists were engaged for monthly tree maintenance and check-ups. Workers were also educated to avoid damaging trees during the project and avoid exposing the trees to construction dirt.

Keeping Nature Close to Heart

Jacky Lau
Arboriculture

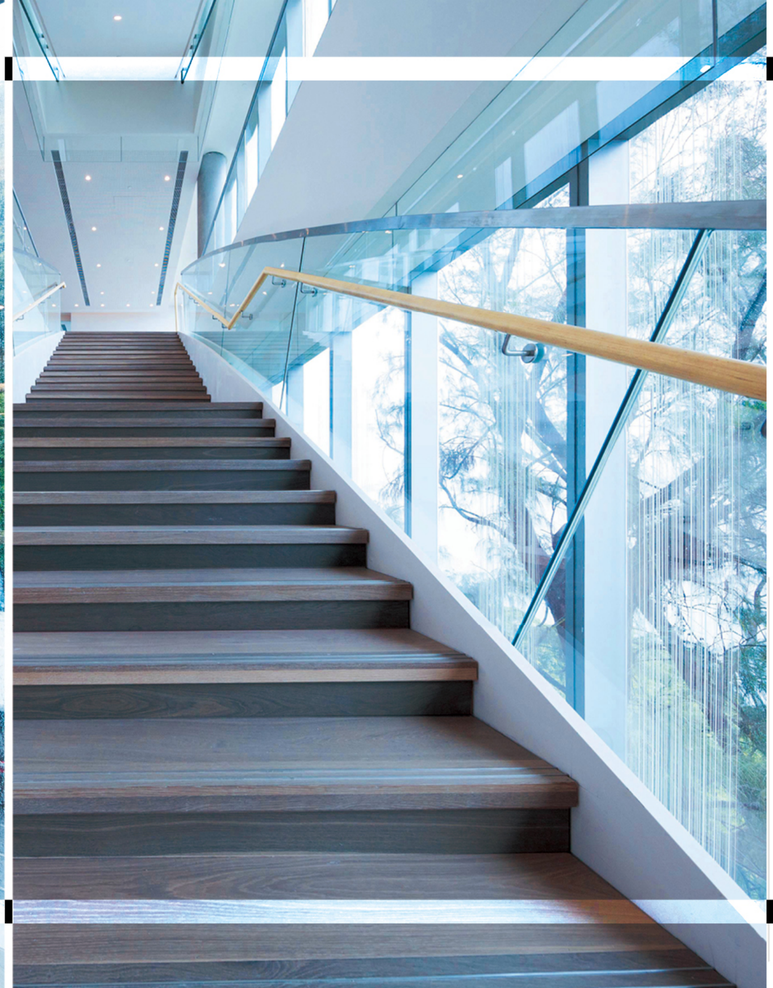
Assistant Manager
Oriental Landscapes Limited

“Construction doesn’t have to mean destruction to nature. In fact, with proper planning and execution, building procedures can be carried out in a way that won’t harm trees and other on-site plants.

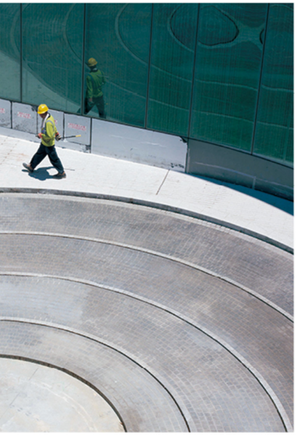
I think the UCCHK campus has set an excellent example of good practice in tree preservation. PYE’s team was very professional and did a great job in this regard. The workers took all measures necessary to ensure minimum disturbance to the trees, so all the trees are in great shape and I’m sure they will provide the new campus with amazing greenery.”

“Coordination among different stakeholders was one of the challenges in this historic conservation project. During the construction process, thanks to the effective communication between different working groups, we managed to overcome difficulties and obstacles through cooperation and combined effort, and successfully realised a mission of turning these Grade 3 historic buildings into world-class educational facilities, which was particularly meaningful.”

Pui Chiew
Associate Director
Arcadis



NEW FACE



Teaching Based in the Old and New

The new UCCHK campus houses a teaching centre for study abroad programmes within the University of Chicago Booth School of Business's Executive MBA programme, as well as new and expanded programmes on social innovation and entrepreneurship, serving as a base for academic exchange, collaboration and engagement in Hong Kong, China and Asia.

In addition to the brand new Treehouse, the preserved heritage buildings have been adapted into functional classrooms. Students are able to use modern academic facilities in historic buildings, alongside many preserved items, such as the cell prints and fireplace.

History as a Social Blueprint

The Block B Annex, courtyard, white fence walls and former guard post have been transformed into the Heritage Interpretation Centre illustrating the history of the ex-Victoria Road Detention Centre. These facilities are open for public appreciation with guided tours.

Extensive hiking trails traversing the site have been reconnected and integrated into the new campus, with plans for ongoing maintenance. The battery within the site has also been retained and is open to the public via the modified trails. Visitors may take in the natural environment as well as extraordinary sea views from the landscape deck.

Revitalising Lived History for the Future

Conservation and education are perfectly matched—by preserving heritage we leave a valuable legacy for future generations; through education we sow the seeds of knowledge (an intangible legacy) for their benefit. The new campus has a fitting operator, the University of Chicago, one of the world's top educational institutions. With internationally acclaimed Executive MBA courses and the prestige of a university that has produced among the most Nobel Prize winners, it represents education at its finest.

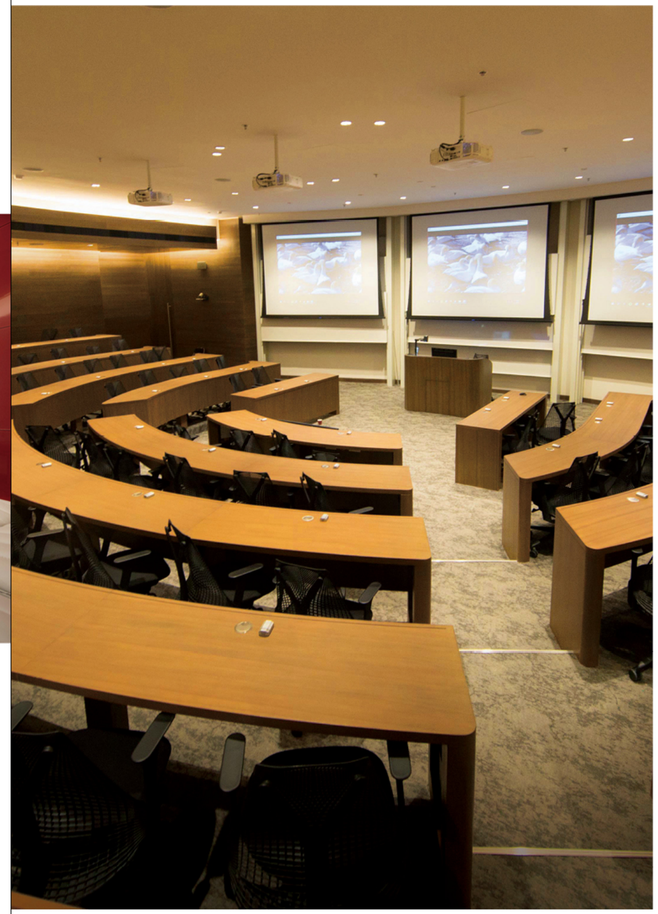
The University has turned the former detention centre into a treehouse of ideas with a history and a story to tell. Not only have the heritage buildings been preserved and restored for education, they also serve as a place of inspiration, an icon for global education and collaboration that consolidates Hong Kong's status as a key education and research hub.

A Strategic Asian Base of Operations

"This project represented a great challenge. But by working closely with PYE and other consultants, we were able to cope with all the space, time and compliance hurdles. We successfully conserved and restored historic buildings with cutting-edge techniques and technology, while reinforcing the structures and equipping it with modern amenities for practical use. Plus, we are pleased to provide new facilities for citizens to come and appreciate its history.

The new campus will serve a number of purposes for the University of Chicago: Fulfilling our social responsibilities while helping preserve an important chapter of Hong Kong history; providing an important platform to engage Booth students and alumni in Hong Kong; and serving as a base for our Executive MBA programme, which will expand our international presence and strengthen Hong Kong's social impact sector."

Gavin Tun
Executive Project Director
The University of Chicago
Booth School of Business



Milestones

2016

Jun Commencement

Jun - Dec Asbestos Removal, Demolition, Tree Felling, Foundation and Site Formation Works

2017

Nov New Building Steel Structure Completion

Dec New Building Topping Out

2018

Feb New Building Weather Tight

Apr to **Mid** of **Jun** Statutory Inspections

Mid of **Jul** OP Issuance

28 Jul Move-in

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