

HKIA[®]J

香港建築師學報

MATERIAL AND DETAILING



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EDITOR'S MESSAGE

by Tris Kee
Editor-in-Chief

Along with the new terms of presidency at the HKIA in 2015 and the forth-coming celebration of HKIA's 60th anniversary, the HKIA Journal will be launching a new look to its members. It will feature a new cover and graphic direction, as well as new content and editorial. The new image of this Journal will reflect the vision set during the presidency election campaign; that of creating a platform to attract more of our younger members to engage with the Journal. Thanks to the contribution by the Board of Internal Affairs and Council, and all the Past Presidents' support, this issue of HKIA Journal not only features a brand new look, but is now able to tackle decidedly more in-depth issues within the architectural community.

As the Editor-in-Chief, I wish to personally thank the committee for their continuous efforts in helping to make a quality journal for its members. As a team, we aspire to create a more vibrant intellectual platform for architects to share their best projects, research papers, and exhibitions.

The new Journal will equally showcase established projects, corporate projects, experimental work created by younger firms, and even theoretical research conducted by scholars or students, showcasing work that has yet to be realized. We hope that the Journal can become a go-to source where members can find original and insightful news about the Institute.

This particular issue of HKIA Journal covers Materials and Detailing. Many great architects are able to manifest their architecture through a consistent expression of detail. Carlo Scarpa's Castel Vecchio exemplified how the deliberate use of detail is carried throughout the entire piece of architecture. Contrastingly, a contemporary architect, like Zaha Hadid, is able to translate contemporary use of high-technology parametric design into her most provocative use of detail such as The Maxxi Museum in Rome and The Dongdaemun Design Plaza in Seoul. The articulation of material in the cladding of the latter project challenges the nature of the metallic surface to behave like a fluid piece of fabric. This issue will feature an example from Zaha Hadid's Hong Kong Polytechnic University Innovation Tower, along with other Hong Kong innovative use of materials in adaptive reused industrial buildings in Genesis, Science and Technology Park Phase 3, experimental projects from Universities and more.

Another new initiative of the editorial board is to feature a balance of international and local work. This Journal aspires to think globally as well as to cover a wider range of projects exploring topics that reflect our cities' increasing diversity. We hope, this new and improved look can present an original and diversified content through a decidedly international lens in HKIA's new era. ■



PRESIDENT'S MESSAGE



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Dear Members,

It was June 2014 whilst election activities started to gather its momentum for the HKIA presidency 2015-16. How time flies and I have already walked through a quarter of the 2-year term. Without going into event details, I venture to look back and see how much have I managed to actualize my election statement, broadly listed under the following headings :

Showcasing Architectural Excellence to the Community

- Venice Biennale Response Exhibition in March;
- Annual Award 2014 Exhibition in May
- Cross Strait Architectural Award Exhibition in August
- Taiwan Exhibition in September
- Hong Kong Shenzhen Biennale in December

As promised, the Exhibition in Taiwan and HKSZ Biennale will be particularly tailored to promote participation by our young members. Please stay tuned for further details.

Let Architects' Voices be heard

- Response to CE Policy Address 2015,
- Meetings with Government Officials, Paul MP Chan and Eric Ma to exchange views;
- Representation at Government Committees and allied professional bodies (number of members appointed close to 60)
- Working with Legislative Councilor Tony Tse on members opinion survey of Method of Selection of CE in 2017.

Accreditation and Education

- Canberra Accord- gaining provisional status as an accreditation and validation agency in May
- CUHK and Chu Hai College Validation Visits in May and June

Towards 60th Anniversary 2016

- Formation of 60th Anniversary Organising Committee Chaired by Vice President Rosman Wai
- Formation of ACA17 Organising Committee Chaired by Bryant Lu

Enhanced connection with members

- HKIA Daily and Facebook

This less than 1-page event list is the outcome of many voluntary man hours of our Members, working closely with unfailing enthusiasm together with our Council, Boards and Committees. Coupled with the many local and overseas engagements, representing HKIA in outreaching to the community and in the international arena, the HKIA 'presidential journey' has indeed turned into something more colorful and adventurous than I have imagined ! The Institute looks forward to your support and participation as we steer into the HKIA 60th Anniversary in 2016. ■

With best wishes,

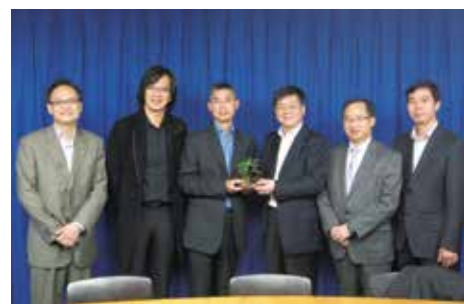
Vincent Ng, JP, FHKIA
President

EVENT PHOTOS

9 Jan
HKIA YMC New Year 2015 Drink Party & HKIA Café Launching



15 Jan
深圳市福田區企業發展服務中心關於學習香港行業協會
先進工作經驗拜訪學會



17 Jan
Oral Interview with Mr. I A Curreem



JANUARY



6 Jan
Launching Ceremony of
“Hong Kong Green Building Product Labelling Scheme”



8 Jan
Design Ideas Competition for Kai Tak River -
Kai Tak Development - Prize Presentation Ceremony

29-30 Jan

2015 HKIA Council Courtesy Visit to Beijing



7 Feb

Oral Interview with Mr. Ronald Poon



3 Feb

Dinner with HKIA Past Presidents and ARB Past Chairmen



26 Jan

Dinner with Hon. Tony Tse



31 Jan

CPD Seminar cum Site Visit - Revitalization of Pak Tsz Lane Park

FEBRUARY

EVENT PHOTOS

10 Mar
HKIA Spring Reception



9 Feb
Briefing on PNAP APP-156
- Design and Construction
Requirements for Energy
Efficiency of Residential
Buildings



4 Mar
Joint Professional Golf Tournament



FEBRUARY

MARCH



11 Feb
Luncheon with Chief Secretary, Mrs. Carrie Lam



9 Mar
VB2014 Response Exhibition Opening
Ceremony and Film Screening

19 Mar

1st HKIA Quarterly General Meeting



23 Mar
Meeting the Secretary for the Environment,
Wong Kam-sing



27 Mar
HKCPS Luncheon Talk by Financial Secretary of the Government of
HKSAR



28 May

HKIA Annual Awards 2014 Prize Presentation and Exhibition Opening Ceremony



13-15 May
CUHK Validation Visit 2015



28 Mar
HKIA Cross-Strait Architectural Design Symposium
2015



APRIL

MAY



17 Apr
YCPG Joint Professional Networking Party



Ronald Lu & Partners (RLP) office: Living Wall

GREEN FACADES VERSUS LIVING WALLS

—
Architect: M. K. Leung and Tony Ip, Ronald Lu & Partners

In recent years, green walls have been integrated as a popular design feature for permanent and temporary building works. Innovations like edible green walls as a solution for urban farming, green hoardings, extensive greening of building envelopes as an architectural expression are some of the many outstanding applications of green walls.

Our office embarked on the research for sustainable urban living space in 2006 and the research included findings on the vertical greenery. An area of 20 square metres at our office lobby was set aside in 2010 for our first experimental green wall design and construction in collaboration with the world renowned green wall designer Mr. Patrick Blanc. Despite its modest scale, the experimental green wall in our office comprises an automatic drip irrigation and nutrient system, built-in drainage and 353 plants of more than 50 plant species. As we celebrate its five years old birthday this month, we are glad to see an average yearly



RLP Office: Installation of Living Wall



Different Training Systems of Green Facades – Wire Rope and Wire Mesh

plant replacement rate of less than 10% and an annual labour maintenance of around 10 man-hours. Since then, our exploration on green walls has been active through our research and design works.

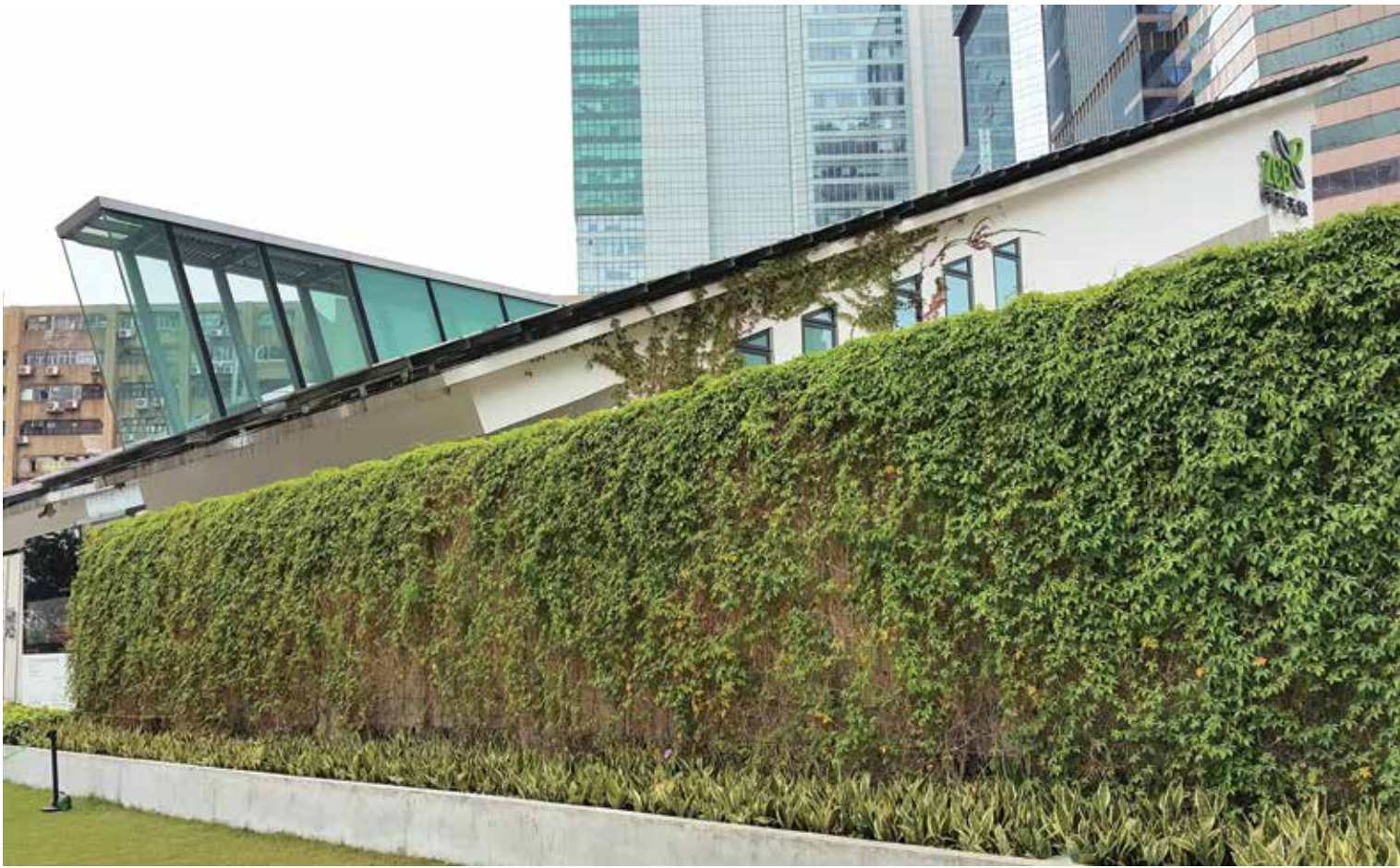
There are two main types of green walls: one is commonly known as “green facades” with climbing plants over walls or supporting structures; the other type is sometimes called as “living walls” which are designed as integrated systems of planting with built-in irrigation, drainage, growth medium mounted on steel frame.

Planters may be located at the base, intermediate levels or top of a “green facade”. Except for the inner sides of planters, waterproofing on walls is not necessary. Subject to species types and their robustness to climate, intended heights for the climbers, wall orientations and microclimate, suitable species and supporting structures should be specified. ZCB, one of our projects which extensively uses climbers

for its green facades, benefits greatly from the local research findings of Professor C. Y. Jim of the University of Hong Kong on climber species for different facade applications. Evergreen, perennial, herbaceous vines with high ornamental values and reasonably fast growth rates have been specified. Three types of training systems (wire rope / wire mesh / bare wall) are used to match the innate climbing modes of the climber species chosen. Widths and depths of planters (with a minimum of 600 by 600mm) holding soil for green walls also vary according to the height of green walls.

Species selection will also impact the design of the supporting system. For example, a denser, faster growing plant will require a greater space between supports. The density of plant will have further implications for the underlying structure, given that the greater the leaf surface area, the more impact rain will have on the weight of the system.

“Green facade is simpler in construction while living wall may have higher species diversity.”



ZCB: Green Façades



Blue Pool Road Residential Development:
Living Walls integrated with Retaining Walls

“Living walls” could be designed as modular or non-modular systems mounted on metal sub-frame. Modular systems in general are thicker and heavier than non-modular systems. Their sizes are usually designed to achieve a manageable weight of individual modules for ease of handling by maintenance personnel. The deciding factor for the dead-load of the system is the growth medium. Soil and non-soil types (e.g. growth medium substitute for modular systems and growth felt for non-modular systems) are available. Soil as growing medium is heavy especially after watering. Non-soil type growing media are more preferable if they could hold more air and retain water longer than soil. A balance of water and air ratio in the order of 3:7 is preferred. Depending on the locations of application and wind-load, light-weight systems would be more cost-effective for their smaller metal sub-frame sizes. Waterproofing shall be applied on the wall surfaces within the cavities between

the walls and the sub-frames. Care must be taken to seal up any crack or damage of the waterproofing construction at anchors.

Design for Eco-efficiency

“Green facades” are much simpler and cost less to construct and maintain. But the choices of plant species and planting density are comparatively fewer as compared to “living walls”. For congested sites, “living walls” become the natural choice to boost up their greening coverage to meet the stipulated minimum requirements for GFA concessions. In addition, “living walls” in general allow diversity in plant selection and hence more design opportunities for landscape graphics composition. They also provide instant greening effect due to pre-installation growing of plant species in nursery. However higher capital and maintenance costs, higher chances of system failure are the drawbacks of “living walls”. It is not uncommon in some cases



SK Yee Healthy Life Centre: Green Therapy with Living Walls



SK Yee Healthy Life Centre: The interior connects to a small garden, bringing light and air into the space

for the total replacement of defective “living wall” systems within short life spans of 3 to 4 years since completion.

To evaluate the ecological and economic efficiency in order to create more quality, less waste and use fewer resources, less cost, the concept of eco-efficiency taking account of the following considerations is recommended:

- i) Create Sensual Delight - seasonal visual appearance and olfactory sensation
- ii) Create Ecological Values - native plant species and potential habitats for local fauna
- iii) Create Microclimatic Enhancements - planting types and density for ambient cooling
- iv) Purify Indoor Air - species to absorb atmospheric pollutants
- v) Create Less Waste - less non-renewable resources and more durable construction

- vi) Reduce Water Consumption - xeriscaping and water-efficient automatic drip irrigation
- vii) Reduce Maintenance - minimal demand of plant trimming, plant and hardware replacement, pest control, etc.

As we were told by our friend Mr. Patrick Blanc revisiting our green wall, slightly under-watering and avoidance of too much nutrients are helpful to prevent fast plant growth and hence frequent trimming. ■

M.K. Leung is the Director of Sustainable Design of RLP. He is the laureate of the inaugural Singapore Institute of Architects – Uniseal G-Architect Award 2014 and is well recognized locally and internationally for his specialized knowledge and integrated design skills in sustainable building design.

Tony Ip is the Deputy Director of Sustainable Design of RLP. He is the recipient of the HKIA Young Architect Award 2010 and EcoStar Award 2014. Tony received his BEng, MSc(Eng), MArch & MUrbanDesign from HKU, BBE(Arch) from QUT and MSt IDBE from University of Cambridge.



View from courtyard and lotus pond

BACK TO BASICS - HONG KONG SCIENCE PARK PHASE 3

— Architect: Simon Kwan & Associates Limited

Location: Hong Kong Science park, Pak Shek Kok, Hong Kong SAR

Completion: 2014 - 2016

The Hong Kong Science Park (HKSP) Phase 3 redefines what is possible in sustainable design by incorporating the latest green technology and engineering advancements. The Project Vision of HKSP Phase 3 is a holistic integration of the latest green building technologies and sustainable design on an unprecedented scale, providing a showcase for future large scale development. In response to this, the project team had taken a new turn on sustainable design with strong emphasis on a “Back to Basic” passive sustainability concept. Combining the fundamentals of architectural design principles, and refined by advanced technological tools on precise macro/ micro-climate simulations; passive sustainable building design has been successfully elevated to an exceptional level, from overall master planning to effective provisions of natural ventilation in the offices.

The form of HKSP Phase 3 building is inspired by the interlocking cubes of Halite,

a naturally existed mineral crystal of sodium chloride. Sodium chloride presents from the natural phenomenon of evaporation of sea water. The analogy is recognized as the master planning of HKSP Phase 3, a sustainable complex which is dominantly influenced by the effects of sun, wind and the sea in the locality.

The refined final building form represents an engineered evolution of the primitive form of Halite. This engineering process manifests the role of incubator for the science and technology of Hong Kong Science Park. The resultant interlocking building form portrays a contemporary image of Hong Kong Science park as the leading scientific discovery institution in the region.

Solar and Wind Optimised Building Orientation

Hong Kong Science Park is characterised with its open and airy surrounding, the Master Layout Plan of Phase 3 was designed to make best use of the site and its natural resources (sun, wind and rain). Buildings in phase 3 are positioned and orientated in a way that promotes natural site ventilation, and minimised solar footprint to reduce solar heat gain. Computational Fluid Dynamics (CFD) simulation and Insolation simulation were conducted to study and fine tune the design to optimise the result.

Green Deck

The Green Deck is the heart of the Phase 3 development and the catalyst which the concepts evolve around. The Green Deck is organised in tiers and cascades down as an amphitheatre overlooking the Grand Plaza on ground level. The amphitheatre imitates the mountain ranges in distance, and draw visual connection with the natural hilly surrounding.



Link bridge

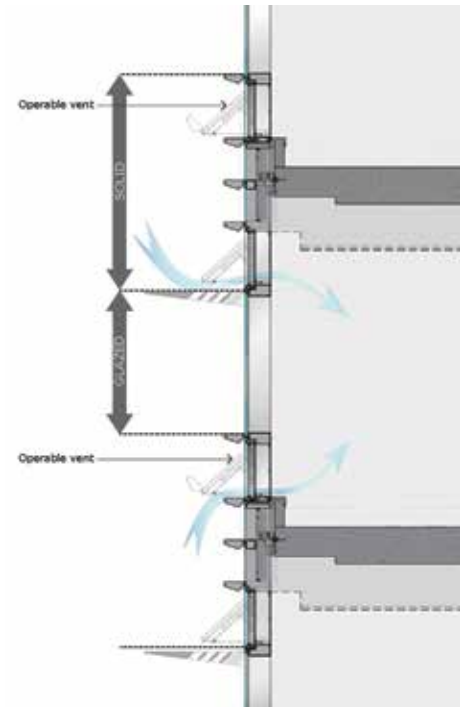
The main pedestrian routing is raised up to the podium level; and all of the buildings are well connected with link bridges and the Green Deck. Such segregation of vehicular and pedestrian traffic ensures continuous pedestrian walking experience otherwise interrupted by vehicles and services requiring ground level access. The architecture aims to emphasize existence of the natural elements, in particularly the wind which is a predominant phenomenon guiding the master planning to detailed design. The light weight steel structure and free flow canopy of the link bridge create psychological association of the wind.

As wind is one of the key concepts for HKSP Phase 3, such is reflected in the architecture and natural ventilation is provided wherever the condition is suitable. This approach is implemented from macro scale of master planning to the architectural style and manifest of detailing.

The buildings are fronted by a series of open air lobbies provided with semi-enclosed space to enhance the integration of outdoor and indoor environment. Large canopies supported on slender structure lightly touched on ground, provide weather protection for the outdoor escalators to bring up majority of the pedestrians arriving at Science Park West Avenue.

Natural Ventilation

Collaboration of passive sustainability design and building technology is demonstrated in approach to hybrid ventilation for the office floors. Automated lower and upper vents are incorporated in the curtain wall design and utilize local stack effects to increase natural ventilation, whereby cross ventilation across the open plan office is achieved by air flow to the open courtyard. Occupants may enjoy natural ventilation in transition seasons or non-office hours to suit their own comfort. Dynamic Thermal Analysis Simulation (CFD) and thermal comfort analysis have been undertaken to study the performance of natural ventilation and fine tuning the size and quantity of openings.



High Performance Building Envelope

Buildings in HKSP Phase 3 are sheathed in curtain wall system of high performance that blocks the solar heat from the building. Use of selective spectrum glazing enables sufficient daylight for the interior especially when coupled with the courtyard design. Sun shading and light shelf are stacked to enhance uniformity of daylight and energy efficiency.

Dynamic Thermal Analysis and Daylight Simulation were used to fine tune the façade design to achieve an optimal balance between heat rejection and daylight provision.

Courtyard

The overall building plan is flexible and accommodates several clearly defined

functions efficiently. The upper floors contain large floor plate office space organized around a well sized open air landscaped courtyard. The terrace gardens on upper floors break down the otherwise bulky massing and bring in natural element to the workplace.

Interior Design and Detailing

The interior design was defined by the stone feature wall that carried through the architectural concept of crystal halite structure into the interior space and detailing. The faceted stone feature wall was used in prominent areas such as the main lobbies and the Green Corridor. A simpler version of the stone feature wall was also developed, where the rhythm of the accentuated vertical lines were achieved

by an asymmetric level of the stone slabs.

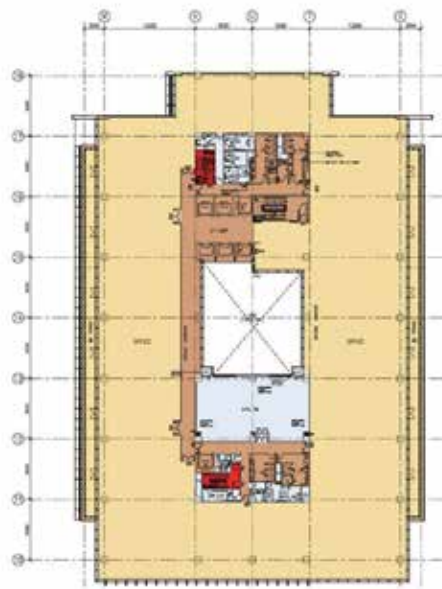
The resulting vertical lines became a major motif and were carried through as a common design thread when developing other areas to create a coherent look & feel within the whole development. Using the rhythmical arrangement of lines at different scale allowed a wide variety of use from graphic patterns to feature walls.

One particular area in the retail arcade where the feature wall is washed by natural lighting coming from a large circular skylight. The pattern of tone-on-tone wood strips arranged in a vivid rhythm, occasionally complemented by colorful counterpart, resembles the rainbow light spectrum refracted by crystals prism.

Recognition

The Phase 3 master plan received the **Grand Award in the New Building Category (Building Project under Design)** in the **Green Building Awards 2012** and the **Grand Award in the New Buildings Category (Completed Buildings)** in the **Green Building Awards 2014**, as well as **Sustainability Achievement of the Year in the RICS Hong Kong Awards 2015**.

Being one of the first commercial developments in Hong Kong to be designed and developed with carbon zero as a fundamental long term target and one of the earliest offices building in Hong Kong to achieve LEED Platinum certification and BEAM Plus Platinum Provisional Certification, Hong Kong Science Park Phase 3 has a long list of sustainable design features. These include ample open space; energy conservation strategies such as optimized energy performance, rainwater reuse for park irrigation, and waste reduction through the use of materials made with recycled content. Moreover green lease and the separate metering of each floor provide an incentive for tenants to reduce energy consumption. The buildings further achieve sustainability through natural ventilation, shaded outdoor space and green roofs. ■



Typical Office Floor Plan





View from courtyard and lotus pond

INDIGENOUS TECTONIC 本土營造

Bamboo as Spiritual Articulation

作為精神語彙的竹子

Architect: ADARC Associates Limited

Location: Luo Fu Shan Shui Museum

Completion: March 2013

Project Summary:

Luo Fu Shan Shui Museum is a collective “hidden” architecture works (GFA 6100 sqm) built to accommodate private artwork collections. The complex comprises of four major building components: the Gate (山水門50 sqm); the Museum (博藝庭園3300 sqm); the Spa (養生水堂1250 sqm); and the 5 Hotel villas (水靜宅園300 sqm each). The site is located inside the National Scenic Zone next to the second largest reservoir in Guangdong province, with the backdrop of the 1296 meter high Luo Fu mountain. Hilly slopes and water shoreline meandering in and out of the site, lends itself a natural setting that easily blend in with the architecture.

Design Philosophy:

Chinese ink painting tends to celebrate the metaphysics of “Emptiness” from the mountain, and of the “Loneliness” from the water. We believe that “beauty of nature exists without words-天地有大美而不言”;



Design Model



Oyster Shell Wall



Bamboo facade



Bamboo Corridor

buildings therefore have no need to stand out from the environment. Spaces are arranged into layer by layer, intermingled with the surrounding landscape; and architecture is built hidden, by making the structure sunken underneath the earth and slope. Roof turns green, façade turns inward looking, space turns sunken, mood turns unspoken. The project design took advantage from the poetic environment and the exquisiteness of the landscape setting, making the architecture being blended into the given physical conditions; and as a result, the built environment is transformed into a subtle, restrained mood of space and sensation that was at large subordinated to the beauty of nature.

Tectonic Strategy-bamboo as indigenous material and detail articulations

Although, bamboo as type of low-cost material, is often used in engineering activities, such as scaffolding; yet, it is too rare being applied as design

element in architectural projects for delicate articulation and emotional expression. As many know, traditional Chinese culture and arts celebrates the “Four Gentlemen”-Quincunx梅, Orchid 蘭, Chrysanthemum菊, and Bamboo竹. Among them, “Bamboo” represents the quality of integrity, humbleness, elegance, unworldliness, and progression, which are in high consistency with the pursuit of the architecture quality of the project. The spatial experience of the architecture as a whole is unfolded by layers of construction materials and tectonic expressions-bamboo corridor and verandas, natural stone features, oyster shell wall, fair faced concrete structure etc. The application of large amount of natural building materials, together with the blending of natural light, wind, and sounds from the forest around, creates an indigenous and poetic sentiment of architectural story.

Meanwhile, bamboo as a natural material, its fast-growing, low-cost, high

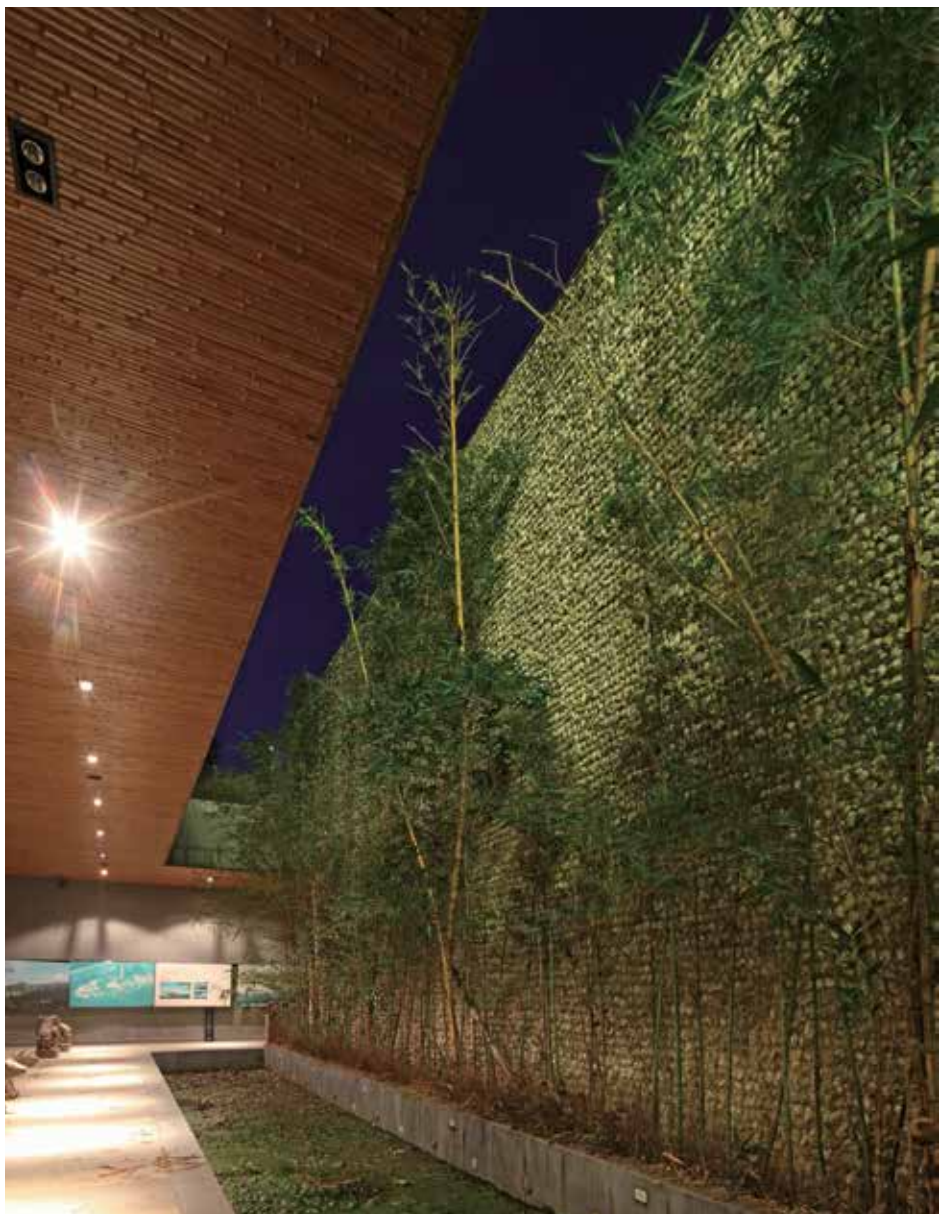
strength, easy-to-recycle, space and transportation efficient make it a very sustainable building material for modern construction. The physical character and engineering performance of bamboo makes itself an ideal natural material for light weight and speedy construction. In comparison to timber, the anti-tension and anti-compression properties of bamboo are 2-25 and 1.5-2 higher, respectively. Regarding its bio-character, the CO₂ absorption capacity of bamboo is 4 times better than timber. Moreover, the energy consumption for bamboo lumbering and production is only 1/4 and 1/8 to those, for making timber and concrete, correspondingly.

In this project, the architect developed a series of tectonic approaches for bamboo detailing and installation, to make possible the contemporary articulation and expression for modern Chinese architecture reconsidered. For construction, large-diameter bamboo is selected as primary

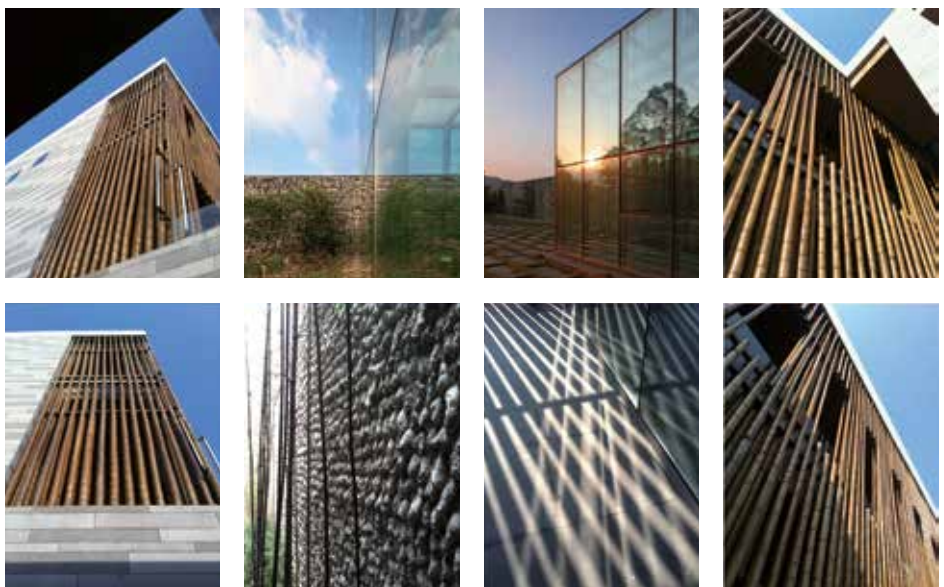
façade material - thanks to such positive properties of bamboo, as flexibility, low contraction, and high resilience etc. In general, bamboo members that received anti-corrosion and dip-paint process, will tend to be slippery and over-dried. The round shape of bamboo also makes the connection detail difficult to handle. Therefore, there must be pre-drill treatment on both ends of bamboo members. Screw and GMS connecting parts are then used to link up different bamboo members from different directions.

Viewpoint of Sustainability

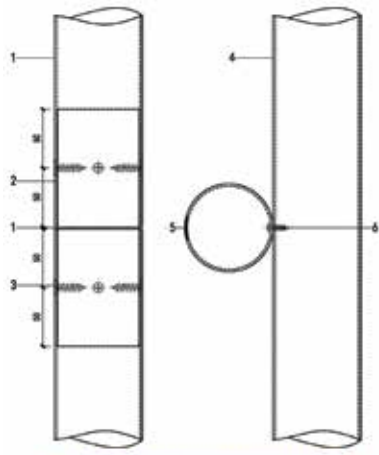
In response to the social and non-profit nature of the museum, the architect encouraged the use of local material such as oyster shell and inexpensive local stone to minimize the transportation and installation costs, which formed an important part of the passive sustainable design strategy. Moreover, in contrast to many hi-tech solutions such as double skin treatment, active E&M systems which are widely used in the industry as bold sustainable statements, the project tends to apply passive strategies such as using master layout orientation to catch prevailing wind, elevating the structure to encourage natural ventilation, making recess verandas and corridor to reduce heat gain etc. to reflect the indigenous and cost-effective tectonic philosophy along the whole process from design to delivery of the architecture. ■



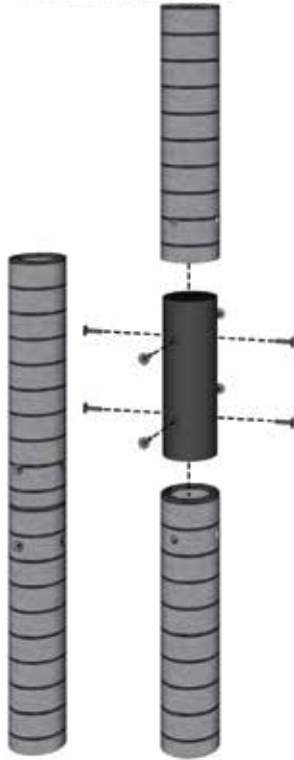
Bamboo corridor and oyster shell wall



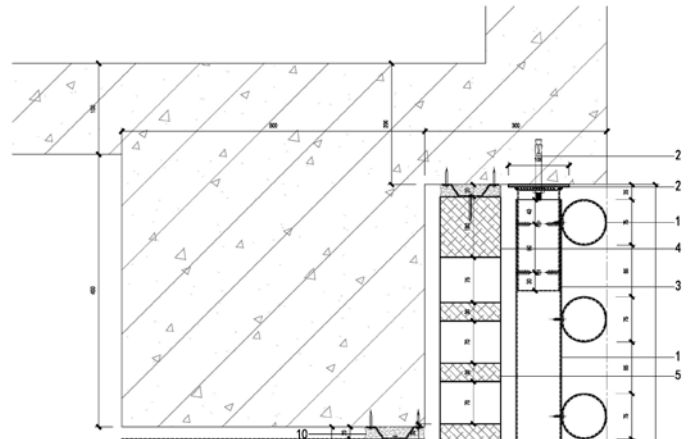
Architectural details



1. #75mm moso bamboo, closed contact, the gap with weather resistant adhesive
2. the log sleeve (Antiseptic treatment, field processing according to the inside diameter of the moso bamboo)
3. 4-#15X25 stainless steel self tapping screws
4. #75mm vertical moso bamboo
5. #75mm transverse bamboo with 25X20mm mounting hole, sealed after screw mounting
6. #15X25 stainless steel self tapping screws

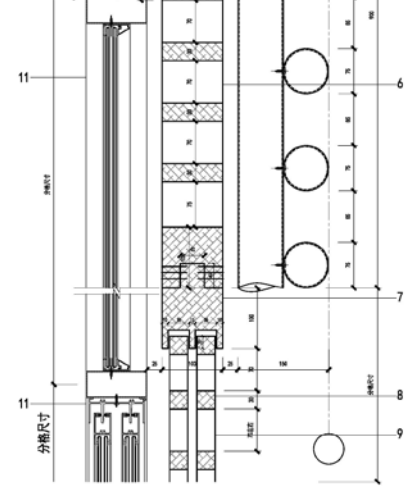


1. #75mm左右毛竹, 上下毛竹紧密接触, 接触处涂密封胶
2. 圆木套筒 (防腐处理, 按毛竹内径尺寸现场加工)
3. 4-#15X25不锈钢沉头自攻钉
4. #75mm左右竖向毛竹
5. #75mm左右横向毛竹, 25X20mm安装缺口, 螺钉安装后封住
6. #15X25不锈钢沉头自攻钉



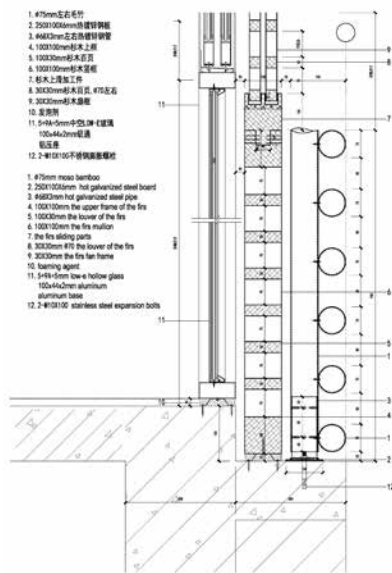
1. #75左右毛竹
2. 250X100X6热镀锌钢板
3. #68X3左右热镀锌钢管
4. 100X100杉木上框
5. 100X30杉木百页
6. 100X100杉木竖框
7. 杉木上滑加工件
8. 30X30杉木百页, #70左右
9. 30X30杉木扇框
10. 发泡剂
11. 5+9A+5mm中空LOW-E玻璃 100x44x2mm 铝通 铝压座
12. 2-#10X100不锈钢膨胀螺栓

1. #75mm moso bamboo
2. 250X100X6mm hot galvanized steel board
3. #68X3mm hot galvanized steel pipe
4. 100X100mm the upper frame of the fins
5. 100X30mm the lower of the fins
6. 100X100mm the fins mullion
7. the fins sliding parts
8. 30X30mm #70 the lower of the fins
9. 30X30mm the fins fan frame
10. foaming agent
11. 5+9A+5mm low-e hollow glass 100x44x2mm aluminum base
12. 2-#10X100 stainless steel expansion bolts



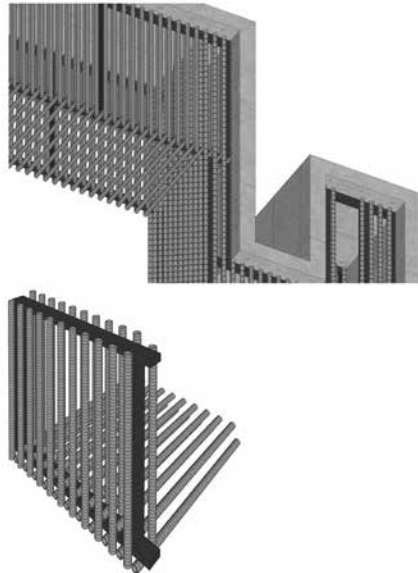
Bamboo connection details

Bamboo connection details

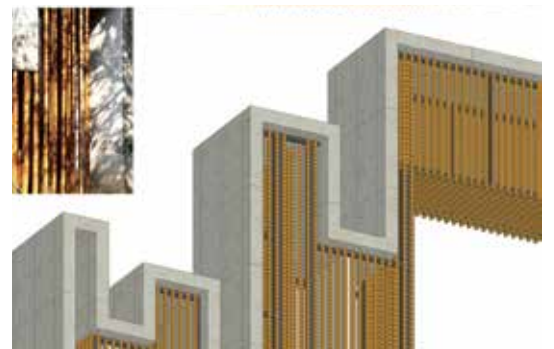


1. #75mm左右毛竹
2. 250X100X6mm热镀锌钢板
3. #68X3mm左右热镀锌钢管
4. 100X100mm杉木上框
5. 100X30mm杉木百页
6. 100X100mm杉木竖框
7. 杉木上滑加工件
8. 30X30mm杉木百页, #70左右
9. 30X30mm杉木扇框
10. 发泡剂
11. 5+9A+5mm中空LOW-E玻璃 100x44x2mm 铝通 铝压座
12. 2-#10X100不锈钢膨胀螺栓

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7. the fins sliding parts
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9. 30X30mm the fins fan frame
10. foaming agent
11. 5+9A+5mm low-e hollow glass 100x44x2mm aluminum base
12. 2-#10X100 stainless steel expansion bolts



Bamboo connection details



Fair face concrete and bamboo gate



YELLOW RIBBON

Wholesale Conversion of Industrial Building @ Wong Chuk Hang into GENESIS

Architect: BARRIE HO Architecture Interiors Limited

Location: No. 33 – 35, Wong Chuk Hang Road, Hong Kong

Completion: November 2014

Under the initiatives of Hong Kong Development Bureau to facilitate wholesale conversion of industrial buildings, the project aims to revitalize abandoned industrial building into a contemporary vertical artist village at Hong Kong Island South. Consisting of 22 floors, the project is anticipated to be completed by June 2014, marking a new chapter of adaptive re-use in architecture in Hong Kong.

With the support from the Hong Kong Arts Development Council, the 12th Floor of the GENESIS is dedicated to offer low rent studios to artists and designers to promote local art and culture development.

The Skin Architecture

While one of the client's expectations is to include elements of "Italian" and "Ferrari" into the building, the unique Ferrari yellow of the skin architecture and the twists on the elevation are reminiscent of the outstanding speed of the Italian sports car Ferrari. The identical Ferrari yellow also makes the newly furnished architecture prominent and which adds vitality to the surrounding area.

The Vertical Twist

The introduction of the Vertical Twisted Architectural Fins is an attempt to 'Dismantle' and to "Disorder" the monotonous elevation treatment of the original skin, whilst the Twists are the orthodox response to the Ascending Flyover

right in the front of the site. The Vertical Twisted Architectural Fins also perform as the Vertical Lighting Devices for the architecture.

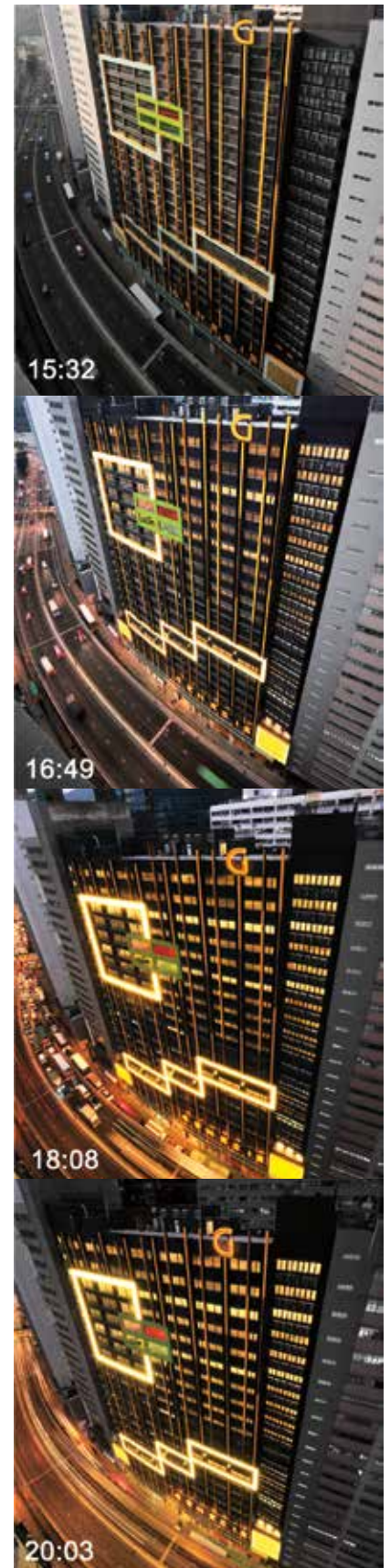
Such 'Verticality' reveals the Vertical Forces of the Ancient Gothic Church, but in a much more Contemporary Manipulations.

The Display Window in the Air

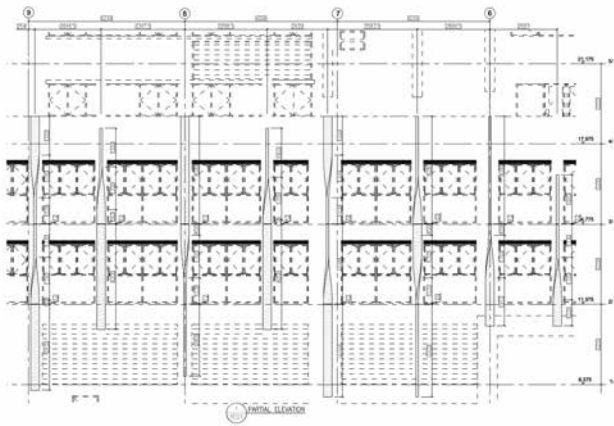
The Superimposition created by the "Set-Back" of introducing Balconies and Double Volume Display Windows are injected on the External Skins, the Balconies' Zones are recreated to serve the New Functions, whilst the manifestation of the "Double Volume Display Windows" are purposely set at an angle to coincide the gradient of the ascending flyover right in the front, recreating a new metaphor of "Window-Shopping in the Air" for the drivers and passengers.

All these Display Windows in the Air will be showcasing the Artworks of the Artists in the air.

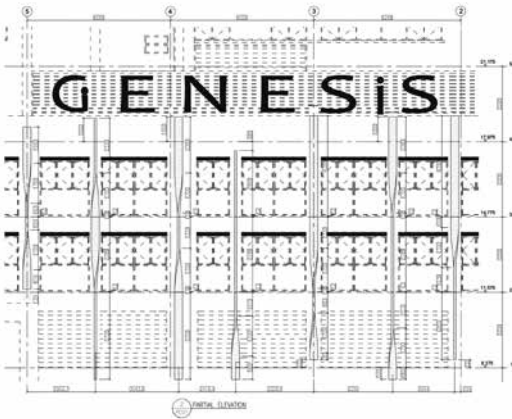
The GENESIS is to become a hub for young designers and artists, which follows plenty of worldwide precedents in bringing exciting cultural and commercial life to abandoned buildings formerly derelict, abandoned or simply underutilized. The project presents an architectural manifestation of design innovation, flexibility and adaptability. ■



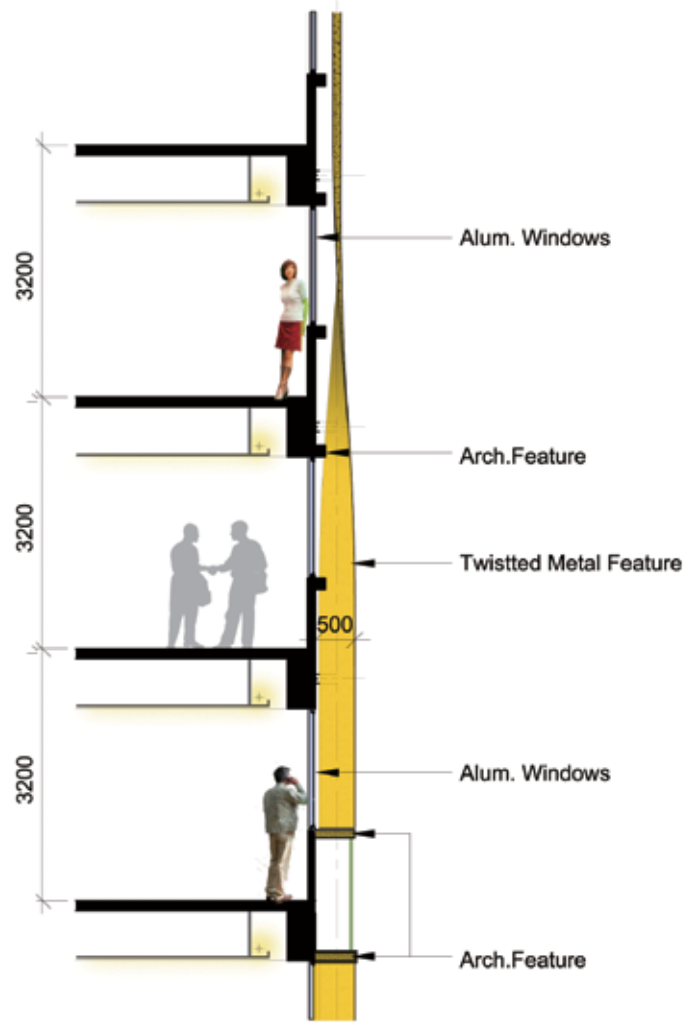
The Vertical Ribbon together with the LED Lights perform the lighting symphony in different night moments



Elevation showing the aluminium twisted feature at upper portion

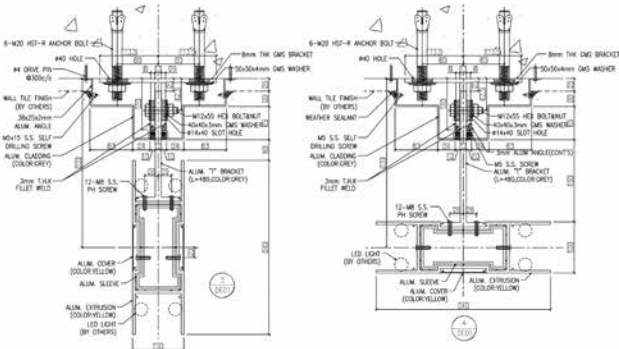
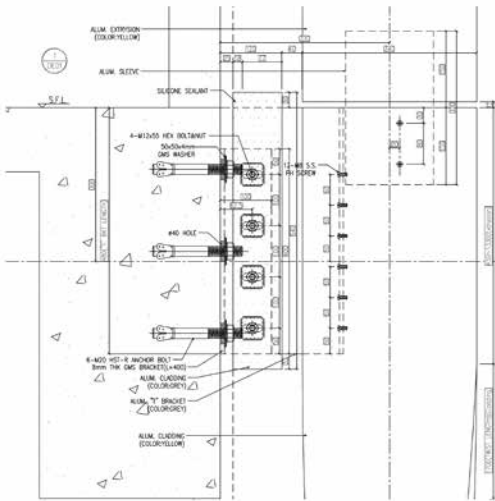


Elevation showing the aluminium twisted feature at lower portion

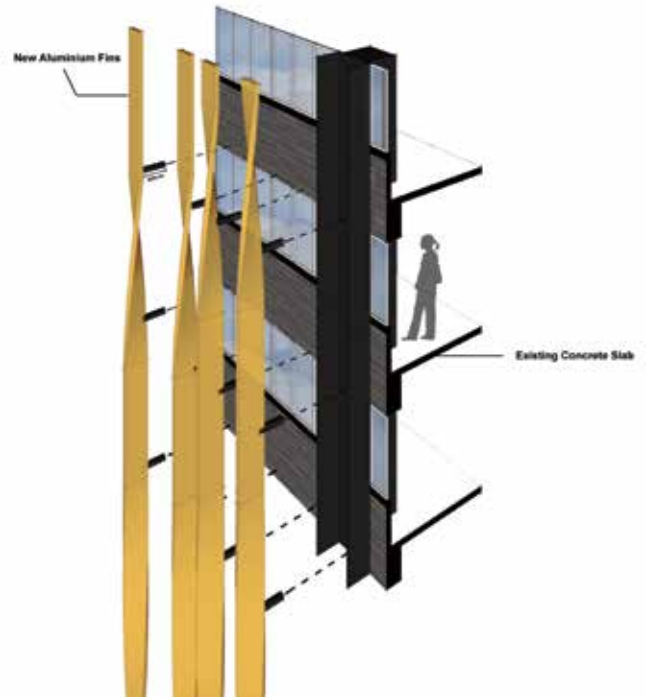


(1:50)

Sectional elevation showing the vertical twist



Anchor details



Axonometric drawing showing the vertical twist





WOW

Wave of Waste

Architect: BREAD Studio

Location: Stanley Plaza, Hong Kong

Completion: April 2015

The background

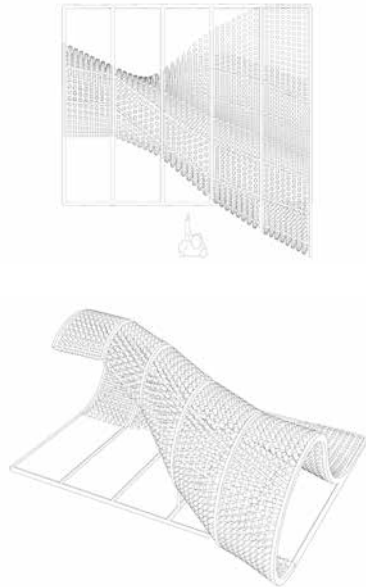
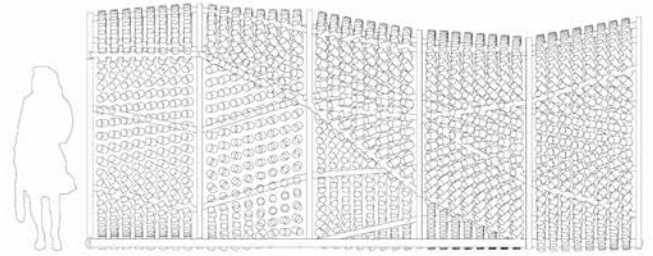
During the spring of 2015, BREAD studio was invited by the Hong Kong Youth Art Foundation to submit a proposal for a temporary art work for the annual Ocean Art Walk Festival in Stanley Plaza, Hong Kong. The proposal was selected as one of three installations for the festival. Like all the other large scale public art works the studio has completed, there are a lot of difficulties to overcome; including site analysis, public safety and budget constraints. This project, however, was especially challenging because of its limited time frame over the Lunar New Year and the particular requirements on material selection. Since the commission of the project, the team had two full months to complete the six-foot tall pavilion.

Co-organized by the Hong Kong Youth Art Foundation, Ocean Recovery Alliance and The Link Management Limited, Ocean Art Walk is an annual event to help draw public attention to our human-

caused climate change on our ocean and to encourage everyone to take action to save our waters. Set against the beautiful ocean backdrop of The Link's Stanley Plaza, the month-long festival features dance performances, film screenings and interactive art installations.



Image source_Wikipedia



The wavy form

To respond to the ocean waste theme of the event with the inspiration of big wave surfing, the team came up with a wave form of 3 metres high, allowing people to walk under it. Hong Kong is surrounded by water, so our close proximity to the shore gives the advantage of water leisure or sports. At the same time, loads of rubbish is left behind every time after the weekend or holidays in the summer. We hope this rubbish will vanish before the next time we visit the place. However most of the waste will stay drifting in the ocean for a long time. Depending on the ocean current, they will eventually come back to us, if not travel to other places around the world. Ocean waste is not only a local problem. Instead what we did here may be affecting people on the other side of the world. The team wanted to provide a setting of being eaten by a big wave of domestic garbage.

A built structure allowing public access requires RSE certification. This

pavilion is no exception. With the wind load at Stanley waterfront and the fact that no anchor is allowed on the granite-paved Plaza floor, convincing the RSE became a big challenge. When 4 of the 6 steel profiles are cantilevered, the team fine-tuned the form with the aid of 3D computer software to optimise the structure against the subdivision of the steel profiles and individual member sizes. As always the cost forms a key driving factor of the exercise. Each steel profile was made of 4mm mild steel RHS (50mmx75mm) and was cold bended into shape, with the tightest radius less than 600mm. To counterweigh the structure, the base was filled with one ton of sand. The sand was hidden within the base frame topped with timber floorboard.

“To cover a 5 meter long wave tunnel, it requires around 4000 soda cans. The first problem the team faced is the collection of thousands of these used cans within a month.”



The soda cans

Disposable drink containers account for a big part of the sculpture from their manufacturing process. In recent years plastic has been regarded as number one enemy of environmental protection. On the contrary we are relaxed about paper or aluminium cans. We don't mind using them although they are single-use products because they are recyclable. Sadly we forget about the fact that industrial processes are the second biggest source of global warming. Not to mention how many of them will actually reach the recycling stage? Or how many recycling bins in town are going to the correct facility? The team, therefore, chose trashed soda cans as the main materials. This serves as a reminder to us that consuming disposable drinks not only produces waste which harms our ocean but also causes climate change.

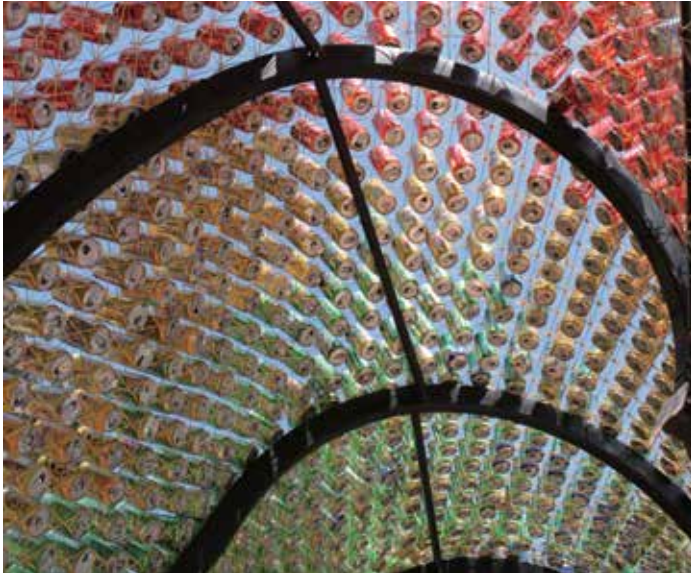
To cover a 5-metre long wave tunnel, it requires around 4000 soda cans. The first problem the team faced is the collection

of thousands of these used cans within a month. These cans cannot be purchased from a recycling store because all the cans sent there would have been already flattened. Finding sponsorship from a beverage company seems unrealistic with such a short time frame. The only solution left was to seek the assistance of local schools' for collection. Still storage and logistics appeared to be another challenge. With the kind assistance of nine schools, 4000 cleaned (with a few exceptions) cans were delivered to the site on-time three days before the grand opening of the pavilion.

The rubber bands

To put up 4000 cans in 2 days, the team needed a simple connection method that anyone can do without training. With nearly 90% of the budget already gone into manufacturing and logistics of the steel frame, the fixing detail needed to be not only quick to do but also reasonably cheap. The team came up with the idea of applying

two rubber bands, one thick and one thin, to hold each can. The thin one keeps the cans in place while the thick one gives the cans enough tension to stand perpendicular to the overall geometry. The rubber bands have a dual function of also providing the cans elasticity to vibrate under the strong breeze from the ocean at this particular site. Rubber bands are simply tied to each other on the 100mmx100mm wire mesh without any third medium. This connecting detail allows 20 students to put up the entire pavilion skin within two days (without any night shift). With a couple of red beans put inside each can, when wind blows, the cans shiver along with the trees in the background and make waves of sound which mimics the sound of the waves at the beach.



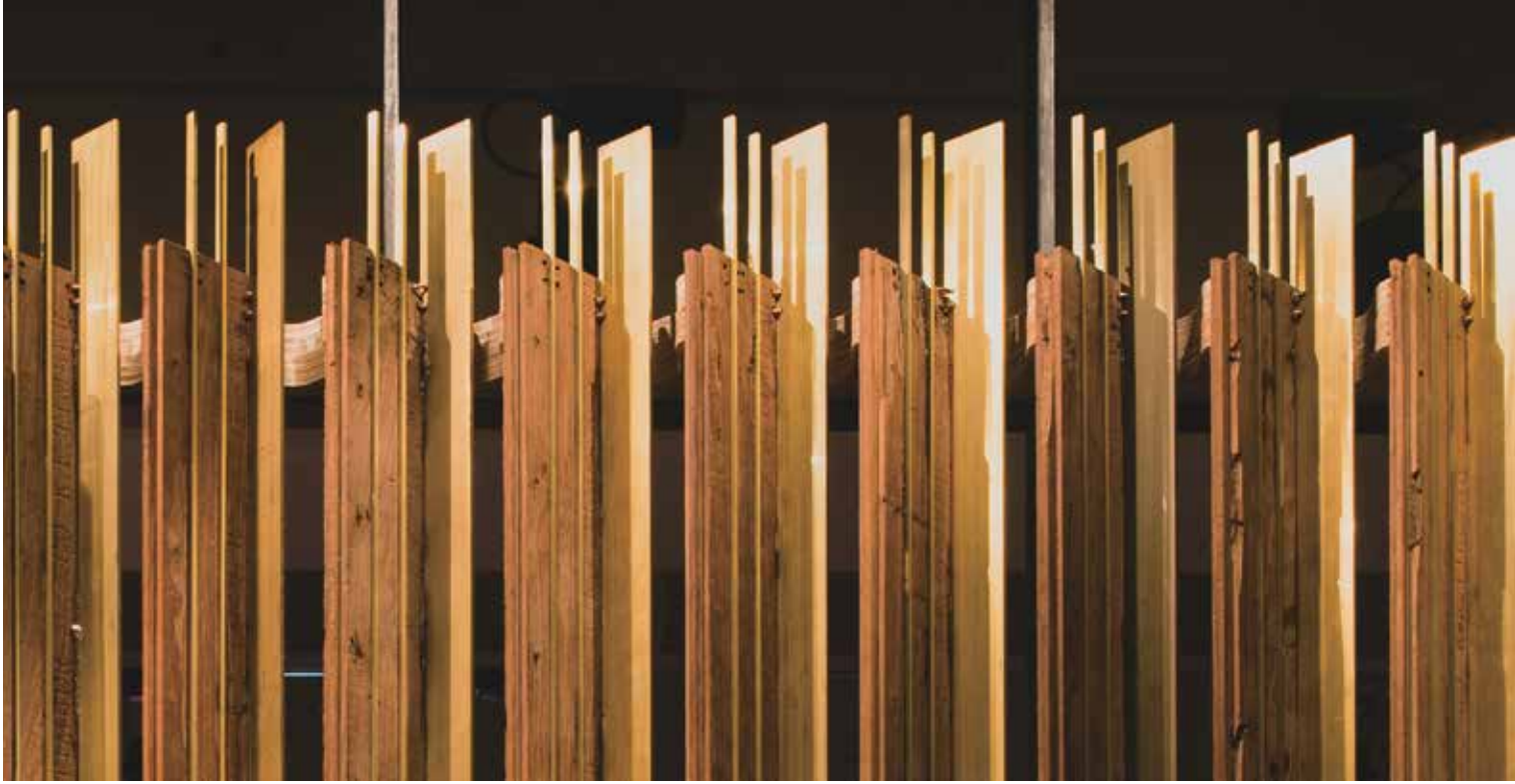
The result

To make the pavilion truly sustainable, the team planned to extend its exhibition life as long as possible, so the pavilion was designed in a way that the whole structure could be taken down into modules, transported and set up again at other venues. Although the Ocean Art Walk festival would last only a month at Stanley Plaza, the team was in discussion with various parties to find the piece a new home. Thanks to the excellent planning and collaboration of the teams from various organisations, the work was considered quite a success with being widely reported in local media and visited by thousands of tourists during the Easter holiday.

Like always with installations, there have been a few surprises which required the team to improvise along the process. Although the rubber band connection was sufficient to withstand the strong wind conditions, it was not prepared against aggressive children who were pulling

them off the structure. Masking tape added temporarily during the exhibition to prevent the wave from going “bald” within minutes. We realised then that the suspended cans together with its wavy form and rainbow colours were indeed so inviting, the people would unavoidably want to lay their hands on it regardless of the warning signs. Although this situation arose that unfortunately makes our pavilion very hard to maintain, nevertheless we as designers were pleased to see our work become such an interactive piece with the audience! ■

BREAD studio is an award winning multi-discipline studio with over 10 year experience in the design industry. The team consists of architect, surveyor, engineer, artist, graphic designer and contractor. The studio has won over 17 international awards and their works have been reported extensively by both local and international press which includes CNN, BBC, NT times, RTHK and SCMP.
- www.breadstudio.com



RE-MATERIALIZING THE ABANDONED

—
Architect: UPSOP

Location: Tsim Sha Tsui, Hong Kong

Completion: Fall 2014

Definition of Details

Details are fundamental for the understanding of spaces. There are different types of details, some believe they are a process of abstraction while others regard them as motifs. We believe that details are the articulation of construction¹ which reveals the material's property and building technology employed.

This manifestation of tectonics is not characterized in style and can be seen among architects across continents, such as Louis Kahn, Peter Zumthor, Yungho Chang, Kengo Kuma, etc. They are universal in a sense that perceptions were curated with the consideration of building materials as their points of departure. The outcomes are often coherent spaces that allow materials to speak for themselves. Bricks resist loads best in compression and therefore revealing them in an arch is the logical expression of force and system. To

us, details are not mere representations of thought but articulations of function and performance.

Detailing Abandoned Materials

How about when non virgin materials are used? Can the process of detailing respond to the material's intrinsic property of time? A renovation project was completed for a salon's reception testing the notion of detailing abandoned materials in the interior scale. Teak wood flooring panels removed from vacated buildings were reused for the sake of prolonging their life-cycle as construction materials. Detailing in this case is the means to deliver the inherent quality of the found objects.

The design process began by reinterpreting the recovered wood panels as unseen objects to be acquainted with. By analyzing their physical properties, several operations were developed for

the utilization of the panels in relation to the overall aesthetics and functional requirements of the renovation.

First, inspired by the geometrical properties of tongues and grooves found in parquet flooring, the flooring panels were interlocked to create doors for lockers with the bottom grooves used as troughs for sliding tracks. The detail took advantage of the geometry unique to parquet flooring panels. Such atypically layered sliding doors also save space at the narrow entrance compared to swing type ones.

Next, flooring panels were mounted vertically in an angle with separations to each other as a screen between areas of different functions. The slots found on the underside were used for embedding either brass or acrylic fins to reduce opacity or increase translucency of the screens. Such marriage of the two materials with the teak was purposely protruded at the end of the



“Details express what the basic idea of the design requires at the relevant point in the object: belonging or separation, tension or lightness, friction, solidity, fragility.”

“They lead to an understanding of the whole of which they are an inherent part.”

- Peter Zumthor



panels, extending the once void troughs into solid rectangular masses.

Lastly, the panels were exposed naturally the side with nail holes and friction grooves as claddings so as to enrich the texture of the applied wall. Such treatment unfolds the unfamiliar underside layer of parquet flooring as opposed to normal practices, claiming the end of their mission as parquet flooring while presenting the beginning of another with an implicit linkage to the past.

Fabrication Process

The solid teak wood flooring panels were uninstalled manually by a group of workers floor after floor within a vacated multi-storeys building in Hong Kong. Nails and screws were removed for planer finishing and surface treatment. Depending on the design, the leveled panels were further processed to enhance the tectonics of the display screen system and the locker system.

The former was fabricated by embedding into the grooves of flooring

panels with rectangular brass bars which were tightened with brass wires to form vertical fins. The later involved milling over the interlocked flooring panels with a CNC milling machine to create a directional pattern. They were then easily mounted on CNC profiled backing beams to give the angled and arrayed configurations for both the systems. The whole process was a balanced combination of craftsmanship and digital fabrication in search for purposeful and quality design.

Spatial Experience

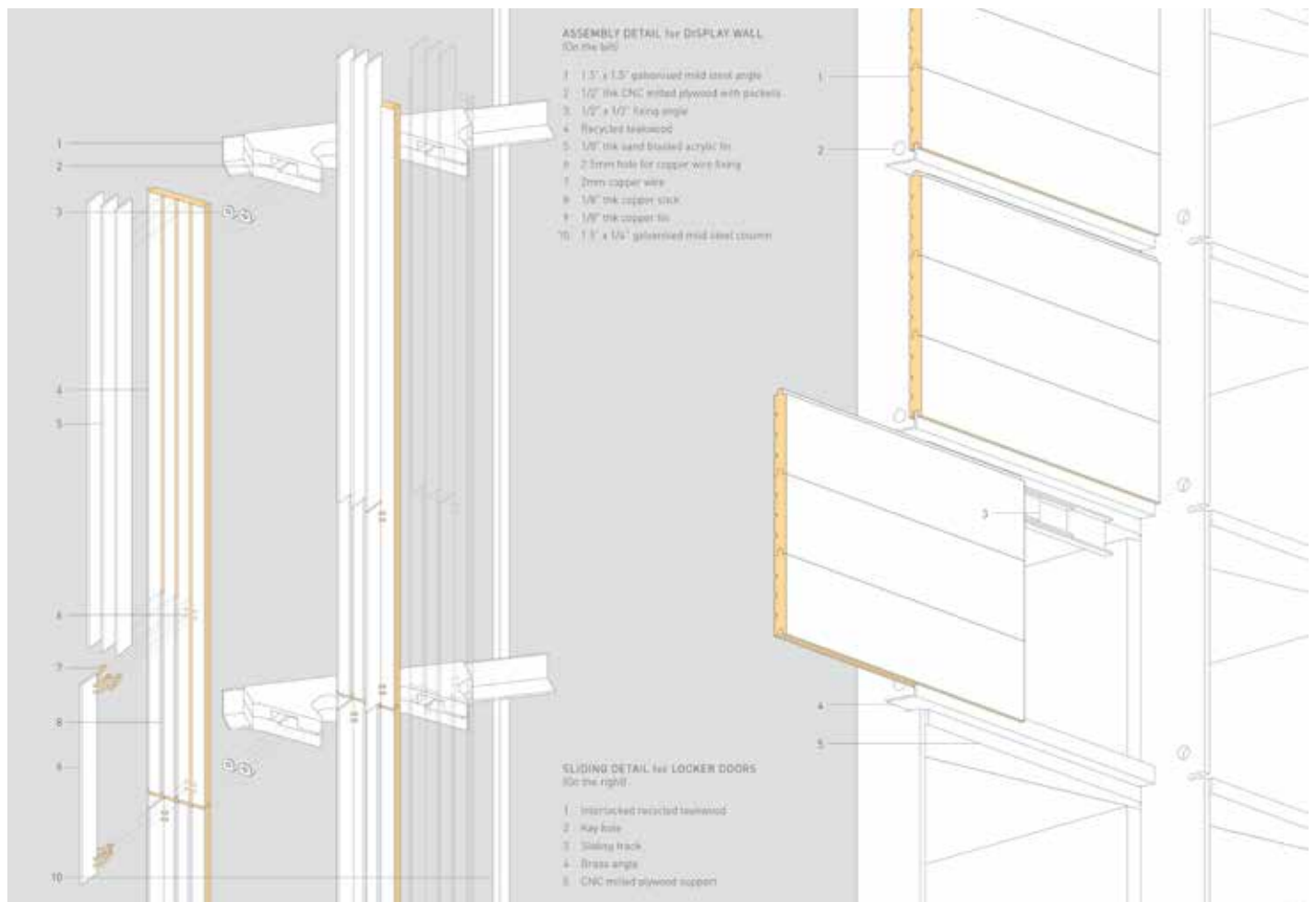
Customers arriving from the lift lobby are visually guided by the rhythmically layered teak wood panels that protrude diagonally into the shop on plan. Contrasting thin black metal frames complete the rectangular geometry above the heavy brass reception counter. Opposite to the counter stands an array of vertical fins made of teak, brass and acrylic. This L-shaped screen addresses the need for displaying hair care products while partitions the reception area from the styling area with

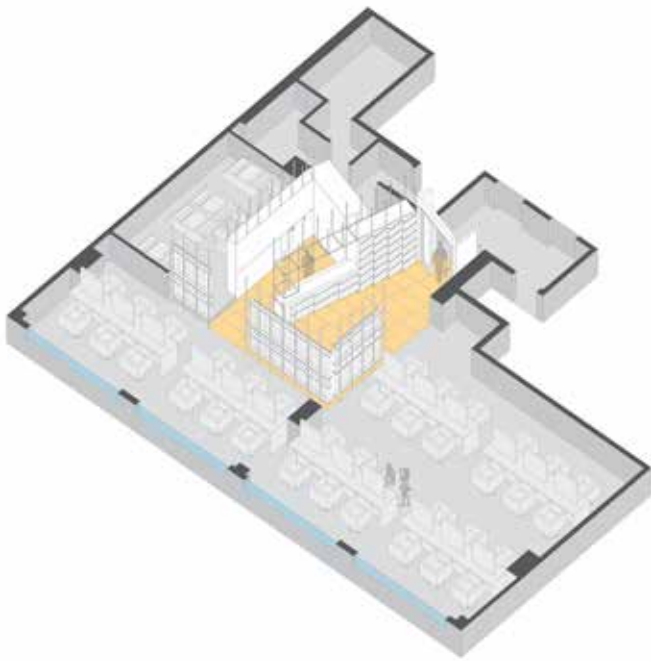
a degree of translucency. The meticulous use of materials multiplies the aesthetics and functionality of the abandoned wood panels, creating an upscaled reception area with coherent palette.

Reusing Construction Waste

The aim of using recycled materials was to prolong the life-cycle of construction materials. It is often neglected by both the industry and the clients in the constantly changing materialistic world of consumption. The idea was to reinterpret found flooring panels its unique geometric properties and physical characters in order to generate the tectonic language of the project from the object level. In cities of consumerism like Hong Kong, interiors are required to be refreshed and updated for keeping customers and level of competitiveness. However, very few clients or even designers consider recycled materials.

Construction waste generated in Hong Kong, both from construction and demolition, is divided into two groups:





inert and non-inert where inert materials accounts for around 90% and non-inert the rest². While inert materials such as debris, bitumen and concrete are reused in land reclamation site formation and even construction, non-inert materials are often disposed in landfills with pollution followed. Recycling this 10% of construction waste will work towards achieving a zero waste city. Hong Kong is lagged behind in the implementation of policies and incentives.

Through detailing the appreciation on the found materials can be elevated. Perhaps we can start advocating the client and the public about the importance of recycling materials with this tiny project. ■

1. Ford, Edward R. "Chapter 4: The Detail as a Representation of Construction." In *The Architectural Detail*. New York: Princeton Architectural Press, 2011.
2. Lu, Wilson. "Beyond the Inert and Non-inert Dichotomy: Towards "building a Zero Waste Hong Kong"." *Building Journal* 11, no. 1022-5560 (2013): 47.



Upscaling Operations (UPSOP) was founded by Gulik Hang and Dennis Cheung in the summer of 2014 in Hong Kong. Both Gulik and Dennis obtained their Bachelor of Arts in Architectural Studies degrees at the University of Hong Kong. Gulik graduated subsequently with a Master of Architecture degree from Harvard GSD while Dennis from the opposite end of Mass Ave at MIT. They are keen on bringing quality and purposeful designs to their home city via technology and craftsmanship.

TECHNOLOGY AND TECTONICS IN HKU ARCHITECTURE

—
Wang Weijen

Head and Professor, Department of Architecture,
The University of Hong Kong

Integrating Technology and Tectonic study into studio teaching is one of our efforts in curriculum reform. We focus the BAAS program on building up a clear sequencing of pedagogy with knowledge delivered for technology for each design studios. By starting the studio through investigating forms and tectonics in a local village, we lead them to the subsequent year exploring sites and programs in HK / Shanghai, looking into relationships among architecture, landscape and cities. With the increasing understanding of scale, material, locality and society, the final year's studio leads to a comprehensive cap stone project on housing for high-density condition, addressing in particular issues of structure, environment and context.

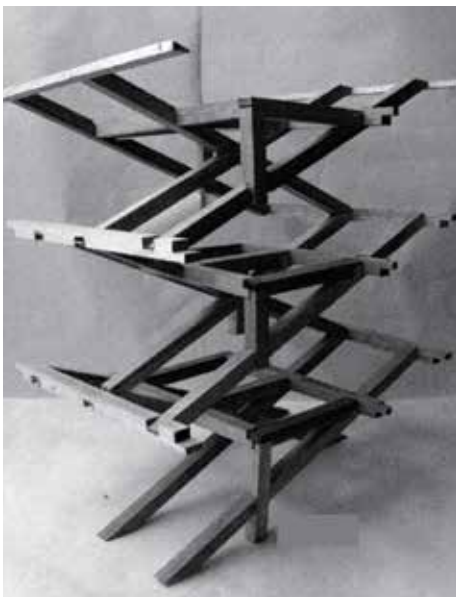
We focus the MArch program on facilitating investigations of design in architecture and urbanism addressing environmental and tectonic issues. We also invite leading architects internationally to take part in our MArch teaching, bringing design experiments together with material and technology innovations, including studio of Yung Ho Chang on Concrete, Fernando Menis on Landscape and Material, as well as Winy Mass on Housing Typology. We consider thesis project opportunities for students to develop capacities of critical thinking and framing multidisciplinary perspectives. Technological explorations often become the core for many thesis projects addressing issues of urban and rural ecology, material and structural, as well as infrastructural and landscape systems.

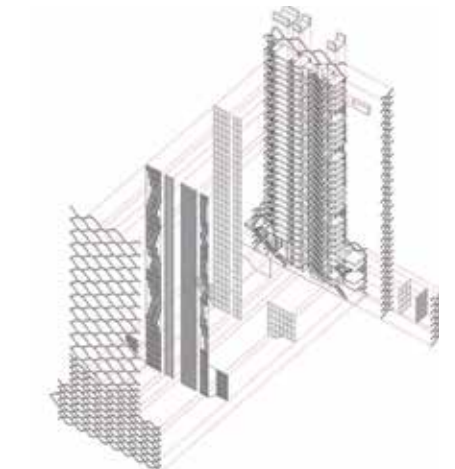
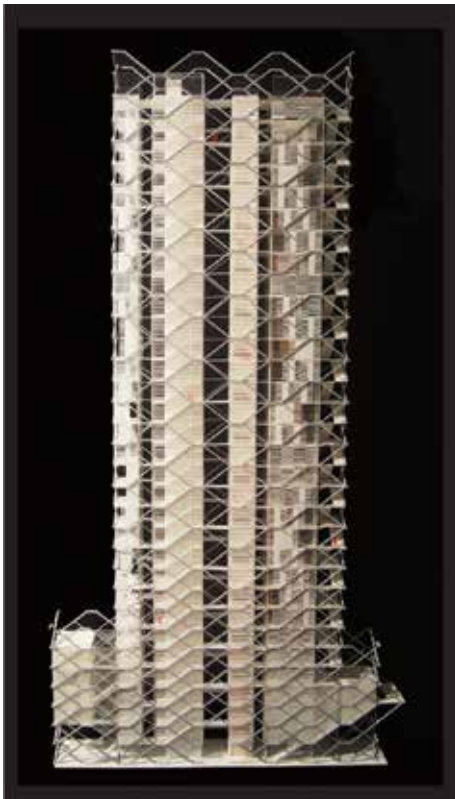
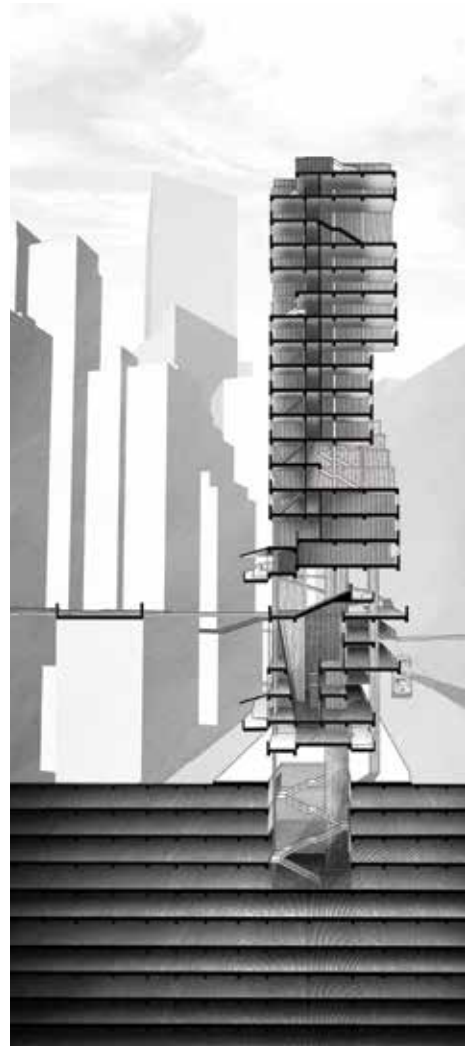
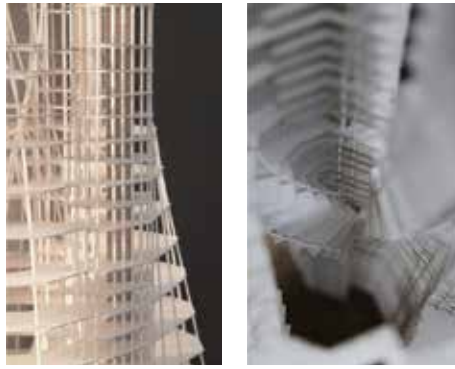
Public lecture series starting 2012 identifies clear themes and issues of concern for each semester: project/projecting, local/locus, tectonic/technology, sustain/

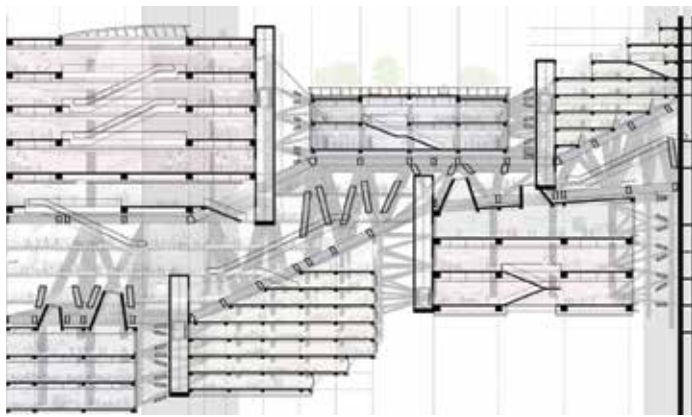
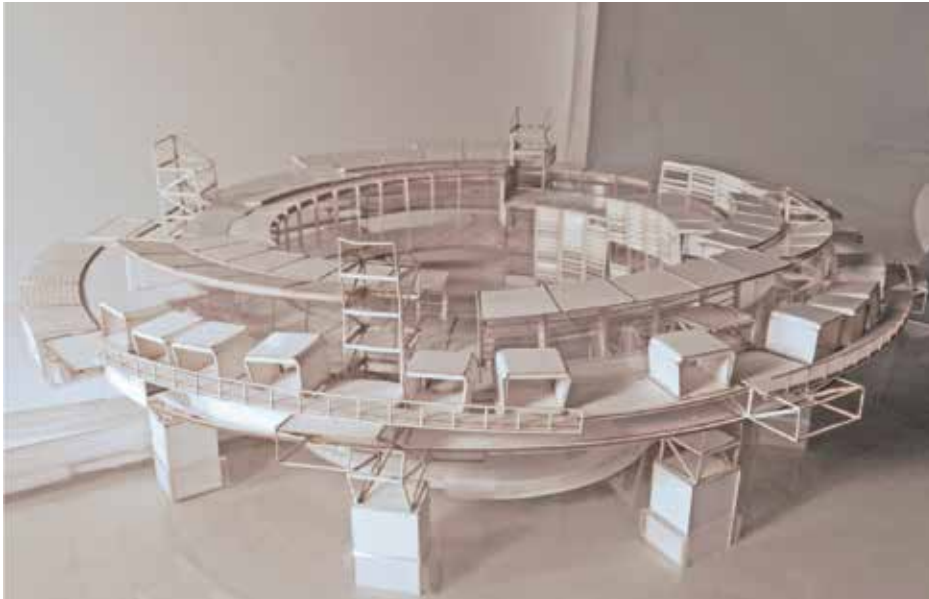
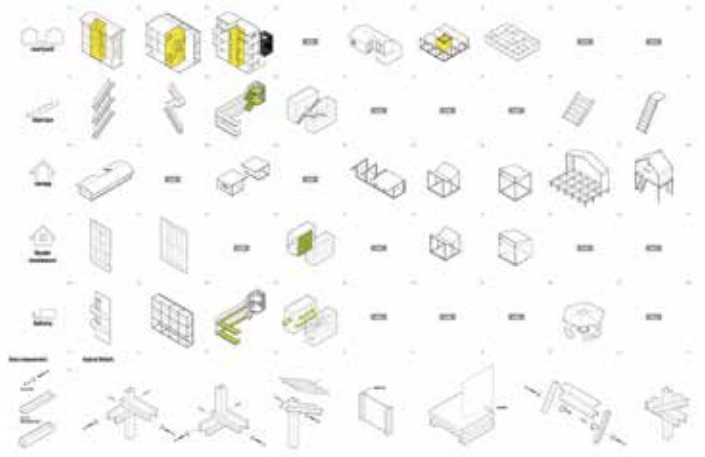


support. Symposiums ranging from “Housing China” to “Concrete Matters”, “Speculative Cities” and “Chinese Garden” are our initiatives to kick-off discussions for contributing to the discourses of architecture with issues of urbanism, culture and technology. By making stronger ties between teaching and communities, we also foster a series of workshops building full-scale installations integrating design with technology, including of artalive @ park in HK and community library in Yunnan.

We believe in the capacity of architecture for making better the human conditions and their natural environment. We are committed to developing excellence through unique opportunities of situating in this particular place and time, engaging Hong Kong and China for building up knowledge sharing globally for the betterment of architecture, city and nature. ■









Prefabricated shell structure made of foam board

DIGITAL CRAFTSMANSHIP

— The Art of Architectural Materialization in the advent of Design Computation

— Stefan Krakhofer

Introduction

Computers are the vehicles of our daily operations and since their adoption in the architecture, engineering and construction (AEC) industry, the mode of practice has experienced a paradigm shift; transforming from post-rationalization and pre-rationalization, to the embedded rationality. At the kernel for this continuous evolution is a sustainable agenda that strives for a lean AEC industry, improving building performance and encouraging a resource / material conserving design attitude.

Rational Design

Post-rationalization is concerned with evaluating buildings after they have been designed, merely resulting in minor performances enhancements. Pre-rationalized architecture adopts a rational during the design process that may address the structural system, material selection, or the overall architectural geometry^[1]. During

this process the design is developed within the adopted constraints of the rational, potentially resulting in an optimal solution. In contrast to both previous approaches, the embedded rational workflow relies on computation due to the necessity of combining performance assessment and form finding in a single iterative design system^[2]. It is argued that the embedded rational approach is “the most appropriate to truly open ended design optimization”^[3]. Despite the potential benefits, the underlying struggle experienced during embedded rationalization is not only due to its geometric nature, but due to the missing link of translating material properties and qualities, as well as their detailing and assembly sequences into a coherent digital format.

Integrated Design

As an alternative to the embedded rationalization a practice-focused approach emerged, called integrated design, which presents a collaborative method that emphasizes on holistic design. The focus is on well-organized and well-managed design data as well as a collaborative project environment. During the past ten plus years this approach has gained momentum with the transition from traditional Computer Aided Design (CAD) to Virtual Building Design, also called Building Information Modeling (BIM). The shift from traditional CAD to BIM has created a significant potential to embed the materialization process as early as during the concept phase, expediting design decision making during the design development phase.

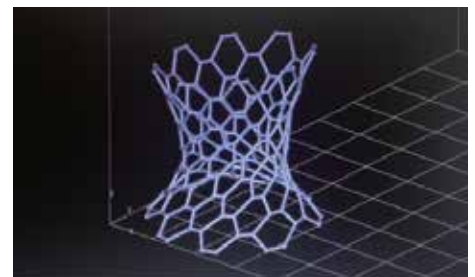
Virtual Building Design

Compared to traditional CAD, virtual building design provides a 3D solid-based modeling environment, able to assign physical material properties, 4D assembly ID's and 5D budget values. Due to the increase of information handling, the trajectory of complexity has changed direction from modelling geometry towards a new kind of design thinking that embraces the material demand and creates efficient detailing and assembly instructions^[4]. Still in its infant stage the digital materialization movement urges practice and academia alike to creatively explore its potential. The

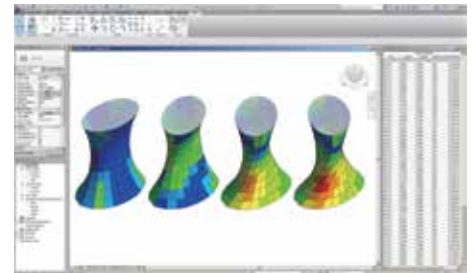
City University of Hong Kong, Department of Architecture and Civil Engineering has provided the environment to embrace this challenge and Dr Krakhofer transformed it into a vibrant area of design research, titled “Digital Craftsmanship”.

Digital Craftsmanship

Craftsmanship, described by Richard Sennett^[5] is not identified by actually getting once hands dirty in a workshop, but by intrinsic motivation. It is the basic human impulse of desire to do a job well for its own sake. Craftsmanship is the strategic acceptance of pragmatic ambiguity, rather than obsessive perfectionism, and grows from the never ending desire to learn. In this context, also modeling experts, computer programmers, engineers and architects can be good craftsman. Their skills can never be replaced, but can dramatically be enhanced by digital tools. Digital Craftsmanship transforms physical materials with digital means during the design, fabrication and assembly stages. A new genre of design service is being formed to aid the industry with refined methods and processes, providing specialist know-how regarding technology, geometry, management, design, detailing and digital materialization.



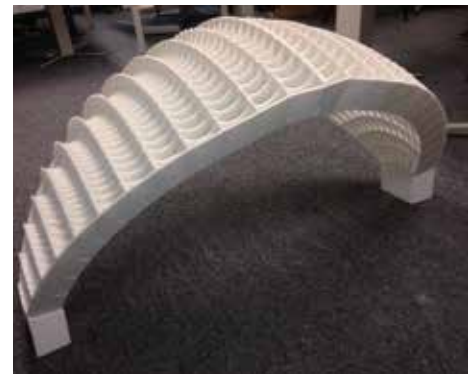
BIM model exported to 3D printing software



Revit BIM deflection analysis sequence



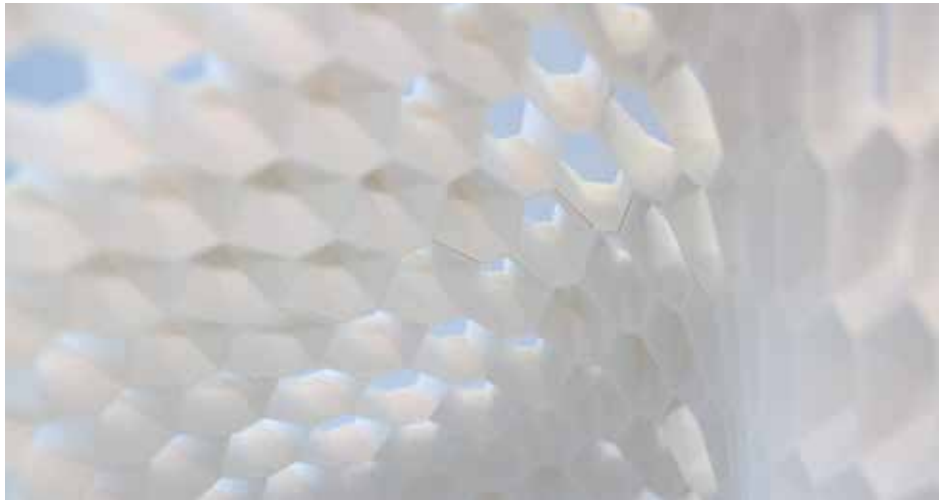
3D Print model and clean-up tools



Sydney Opera House Foam board mock-up



3D Printed Revit BIM Tower



3D printed Architectural skin based on Revit BIM



Sydney Opera House 3D Print mock-up

Sydney Opera House

The materialization demand has been transformed into the learning objective for mastering digital fabrication processes, not merely the software tools alone. The essential moment of learning sparks in the media-transition between the digital and physical where problem-feedback is most apparent. CityU's Digital Prototyping Lab is focusing on exploring the media transition by means of hands-on projects, such as the presented CANstruction HK - Sydney Opera House. Six CityU Architecture Students were challenged to build a scale model of the Sydney Opera House made of flat sheet material and capable to withstand the heavy load in form of food cans. During the geometry exploration, the roof shells have been panelized to match the food-can module, using the parametric adaptive components of the BIM platform Autodesk Revit. The first media transition moved from digital to small-scale 3D printing, providing rapid tactile feedback

and a model for collaborative discussion, concerning material choice and assembly sequence. The following step focused on digital-materialization by means of applying properties of 2mm cardboard to the digital model. The assembly sequence has informed the surface partitioning strategy of the shell structures. All elements were subsequently scale-true transformed to a 2-D plane for laser cutting. The resulting 2D cardboard components were assembled according to the sequence schedule in order to gain material feedback concerning bending and tolerances. After this step we learnt that cardboard in open spaces in Hong Kong rapidly absorb moisture due to high humidity. Over time the cardboard built lost its structural integrity and collapsed under deadweight. Learning from material feedback we chose 5mm Foam board and used CityU's CNC blade cutter for fabrication. Foam board properties exhibit high form-stability and little bendability that heavily affected the

assembly process and detailing of joints. The parametric Revit model was adjusted during multiple iterations to arrive at a model that could be rapidly assembled by hand and was strong enough to carry the load. Following the successful exhibition of the project at the PMQ, all canned foods used to build the structures were donated to Food Angel and its partnering food banks, and ultimately redistributed to the underprivileged communities across Hong Kong free of charge.

Conclusion

Digital architecture has gained acceptance to a point of justified isolation within the virtual realm. However, as soon the media transition from digital to physical is undertaken, the dimension of learning & understanding expands on a rapid rate. The experience has shown that the digital realm suggests a convenient place to work by being shielded from physical feedback. However, at the moment of experiencing



Sydney Opera House exhibition construction stage

the tactile dimension of architecture by means of feeling the embodied and materialized result, the urge of breaking into the materialized dimension becomes unstoppable.

Acknowledgements

The research project Digital Craftsmanship was funded by the Teaching Start-Up Grant, City University of Hong Kong. The Department of Architecture and Civil Engineering's Lab and the Digital Prototyping Lab provided valuable resources for the realization of the project. Lam Chung Fai (SA), Hui Sze Chun (SA), Leung Ka Ho (SA), Tse Hung Faat (SA), Cheung Ka Wai (SA), Tsang Ho Yin (RA) assisted in all the different phases of the project. ■

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Dr Krakhofer is an award winning architect, whose work has been exhibited at the Architecture Biennale in Venice and Hong Kong. Most recently he has received the 40 under 40 Architecture Award. Stefan's multidisciplinary background enabled a specialization in design tooling & digital craftsmanship. His research is concerned with new models of design thinking, and emerging modes of practice that transforms due to the pervasive role of information.



Image Credits: Iwan Baan

INNOVATION REALIZED

Architect: Zaha Hadid Architects (Design)

: AGC Design Ltd (Local) with AD+RG Ltd (Competition Stage)

Location: Jockey Club Innovation Tower, The Polytechnic University of Hong Kong

Completion: 2013

The Design Concept

“The fluid character of the Innovation Tower is generated through an intrinsic composition of its landscape, floor plates and louvers that dissolves the classic typology of the tower and the podium into an iconic seamless piece. These fluid internal and external courtyards create new public spaces of an intimate scale which complement the large open exhibition forums and outdoor recreational facilities to promote a diversity of civic spaces.” (Zaha Hadid Architects)

The Façade System

The Façade System of the Innovation Tower, being the soul of the design, is highly complicated and unprecedented in Hong Kong. Unlike other projects, the Innovation Tower begins with a 3D façade model composed of four separate systems:

1. Fair-faced Concrete Base
2. Aluminium Cladding
3. Tower Façade Glazing & Aluminium Fins; and
4. Top Façade Aluminium Cladding & Aluminium Fins



Image Credits: Iwan Baan

Each of the system carries its own special design characteristics. With the aid of 3D modelling software, the respective design and details were optimized three-dimensionally during the design stage. The 3D model established a seamless communication platform between the Design team and the Contractor on detail design development, fabrication limitations, modular dimensions, construction setting out and BIM clash analysis.

Fair-faced Reinforced Concrete

The Innovation Tower sits atop a structural Fair-faced Reinforced Concrete (FFRC) base with an inclined curvilinear profile exemplifying the dynamism of the building, yet with fluid transition of materials as it rises. As one of the prominent design elements, full scale mock-up of FFRC was essential for identification of potential problems and examination of surface finish against different formwork materials. MDO (Medium Density Overlay Plywood) and 3mm thick film faced plywood on top of conventional backing formwork were adopted for such comparison. From the result, the former is less flexible in terms of paneling and is more likely to result in undesired joints while the latter gives a more organized pattern of shutter board with acceptable standard of even FFRC finish surface.

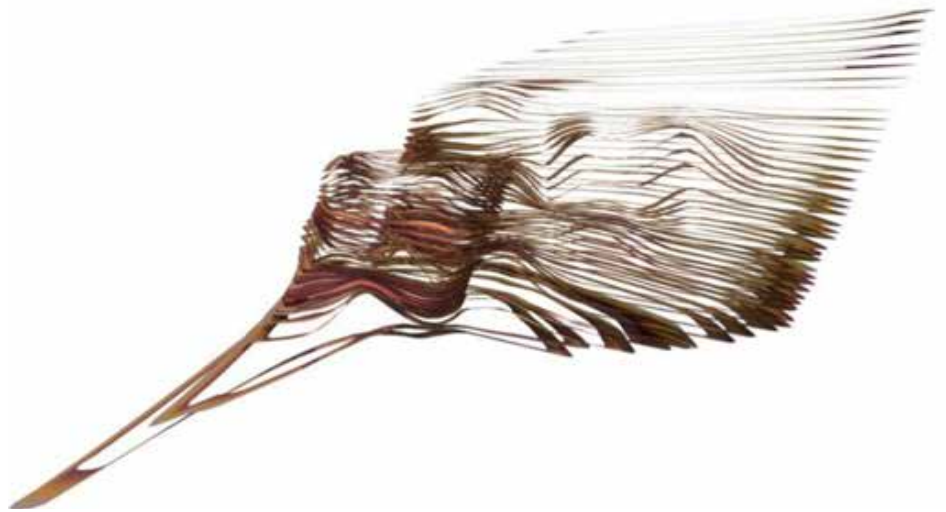
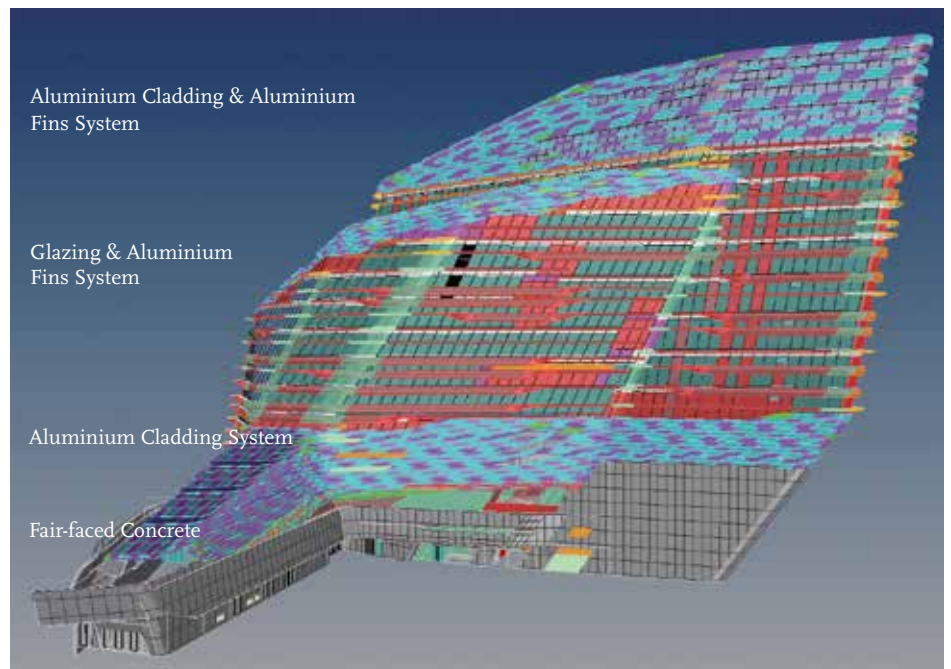


Image Credits: Zaha Hadid Architects

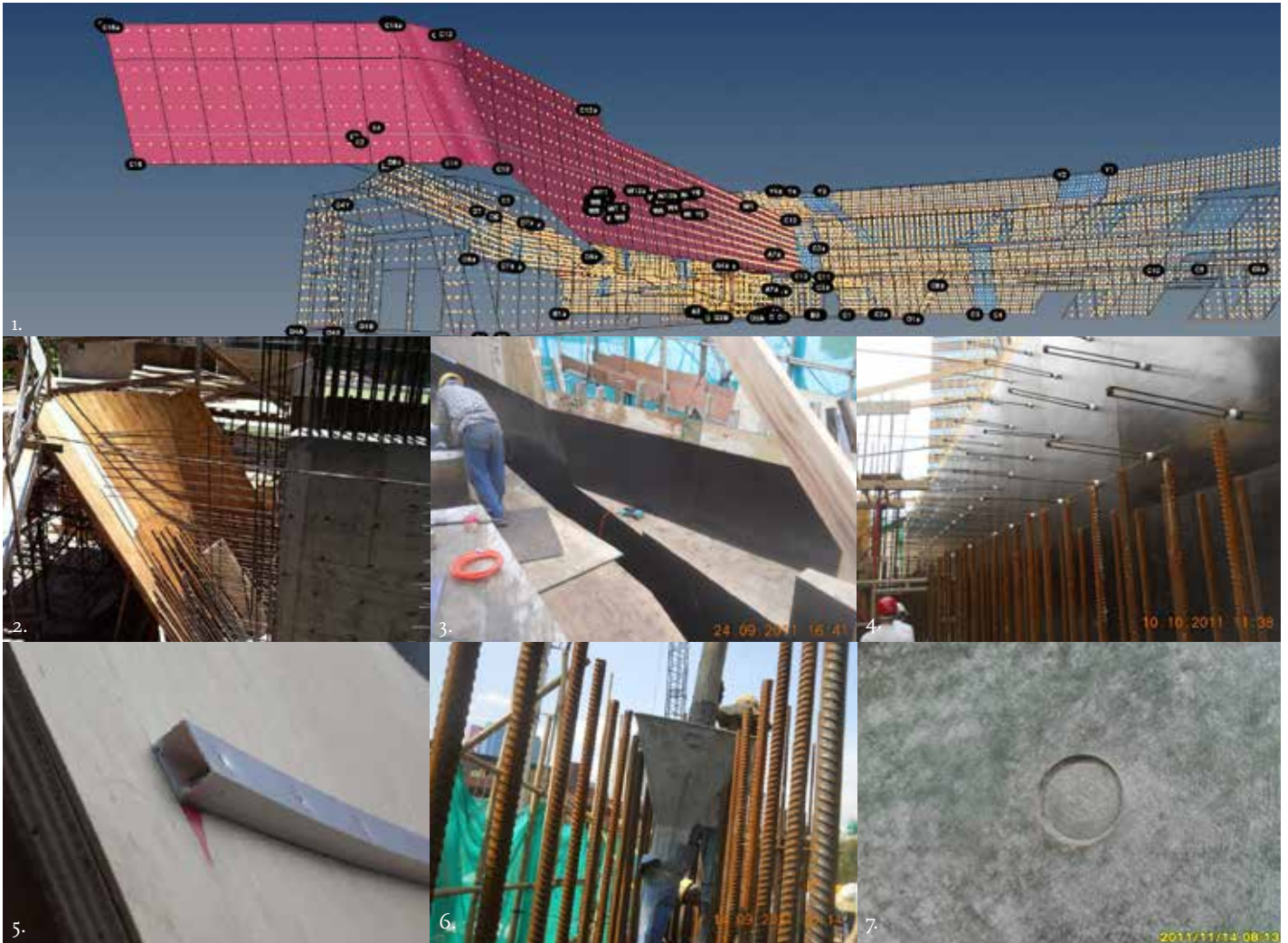


3D model of façade system

“The fluid character of the Innovation Tower is generated through an intrinsic composition of its landscape, floor plates and louvers that dissolves the classic typology of the tower and the podium into iconic seamless piece.”



Image Credits: Virgile Simon Bertrand



Sequence of construction of FFRC

From the experience gained from mock-up, formwork with 3mm thick film faced plywood on top of conventional backing formwork was adopted. The sequence of construction of FFRC is listed below:

1. Extraction of setting out points and dimension of the wall/ parapet panel and tie bolt pattern from the 3D model;
2. Erection of backing formwork;
3. Laying of 3mm thick film faced plywood according to the setting out drawing;
4. Setting out of the tie bolts;
5. Installation of plastic strip at construction joint and placing spacer for reinforcement;
6. Concreting with funnel and vibrator;
7. Patching up of tie bolt holes and application of sealer.

Single-glazed Semi-unitized Curtain Wall System

By using 3D modelling software, the glazing envelop of the Innovation Tower was unfolded into 32 nos. of flat and single curved surfaces. Each surface has its own shape and inclination due to the fluid and dynamic form of the building. To minimize construction difficulties due to the irregular profile of the glazing and curtain wall system, Semi-Unitized

Curtain Wall system, a hybrid of stick and unitized system, was adopted. This allows a guaranteed standard of factory fabricated components while offering a high degree of flexibility for efficient on-site installation. In order to reduce solar heat gain inside the building by cost effective means, 12mm thick tempered glass with solar reflective coating was chosen for the project.

Architectural Fins and Cladding System

Thanks to the ductile and malleable nature of aluminium, both fins and cladding can be crafted into various shapes with double-curved surface. The Architectural Fins was fabricated through the following processes:

1. Unfolding the shape into flat surface in 3D model;
2. Laser-cutting the unfolded flat surface;
3. Pressing the flat surfaces into double/single surfaces by negative mould with aid of machine;
4. Welding the surfaces together, installation of supporting frame and sanding the welded joints;
5. Applying PVF2 and self cleaning coating.

Detail panelling process for cladding systems was carried out in the construction stage to suit the limitation of raw material size and increase the buildability in handling the double-curved aluminium panel.

Conclusion

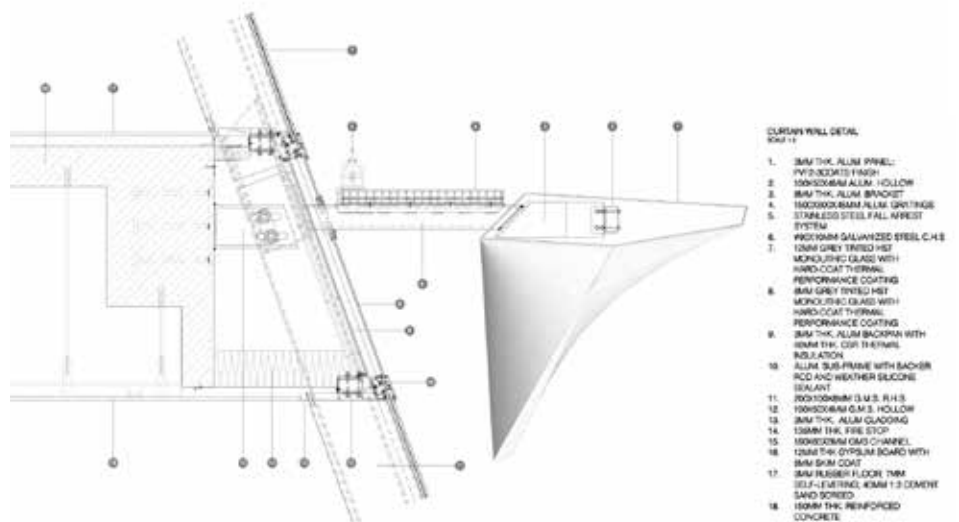
The construction of the Innovation Tower is unprecedented in the Hong Kong building industry. The collaborative commitment among the Client, Contractor and Consultants is the key to overcome various hurdles, contributing to the success of the project. ■



Image Credits: Doublespace



Factory mock-up for architectural fins



Architectural Fins detail



The primitive hut nestles within the roadside glade by a luscious bamboo grove under the embracing shade of a majestic camphor.

BUILDING A DWELLING AMONG MEN

[結廬在人境]

—
Dialogue between the Primitive Hut and Scroll Forest

草廬與竹簡心林之對話

「結廬在人境，而無車馬喧。問君何能爾？心遠地自偏。」 陶潛《飲酒（其五）》

—
Thomas Chung

Associate Professor, School of Architecture,
The Chinese University of Hong Kong

Inspired by Tao Yuanming's (陶潛) celebrated 5th century pastoral poem "Building a dwelling among men" (結廬在人境), we return to the basic premise of architecture as original shelter, erecting a thatched hut and a complementing bamboo fence scroll wall to re-enact the dialogue between the active and contemplative within one's life journey. We realized this pair of architectural installations in November 2014 on The Chinese University of Hong Kong's campus as part of the university's I·CARE Lecture on Civility (博群大講堂) on the same theme.

Bamboo scroll in hand, pausing at the thatched hut adjacent Chung Chi's College picturesque Lake Ad Excellentiam in a sunken arbour, students soak in the experience, reflect on their college life and overall orientation, record their thoughts of the moment. Rolling up the inscribed scrolls, crossing the road to Yasumoto International Academy's (YIA) busy plaza, they fill the bamboo fence scroll by scroll to construct a wall of individual thoughtfulness and hopes to be shared with all passers-by.

Lakeside: 21st century Primitive Hut

Architecturally, the hut attempts to situate a renewal of the idea of the 'Primitive Hut' within the Chinese University's humanistic topography. The hut's size, materiality and enclosure, with walls, desk against window, chairs, bookshelf and benches are designed to evoke archetypal settings for scholarly contemplation in both western and Chinese traditions, such as those depicted in paintings of St Jerome's study and landscapes with a thatched cottage by Tang Yin (唐伯虎), as well as summoning more modern exemplars such as Thoreau's Walden in the new world and Le Corbusier's Mediterranean 'Petit Cabanon'. Local references are bracketed by Hong Kong's most ancient evidence of dwelling, Han dynasty clay L-shaped houses found in the Lei Cheng Uk tomb, and images of Mai Po wetland's last thatched hut of the 1970s.



Students write down their thoughts on bamboo scrolls after immersing themselves in the hut.



The hut is oriented to capture the lakeside view of the zigzag bridge framed by arching bamboo blades.



The hut is built by local scaffolding experts using vernacular construction and natural materials. Green bamboo poles form the primary structure, while reed especially cut from the Mai Po marshes are dried to form the roof's top layer, with the substantial thatch came from drying cut grass directly from the hills on campus. The walls, platform and furniture of the semi-interior setting are clad entirely using bamboo scrolls to embody the scholarly ambience.

"We recall the 'primitive hut' as a reminder of the basic premise of architecture as original shelter, opening up a precious chance to rethink why we build and what we build for in our lives in 21st century Hong Kong."



Rolled-up reflections form the Scroll forest filling the bamboo fence wall of shared hopes on YIA plaza.



Morning view of fence wall anchored by bamboo platform.

Plaza side: Scroll forest, wall of shared hopes

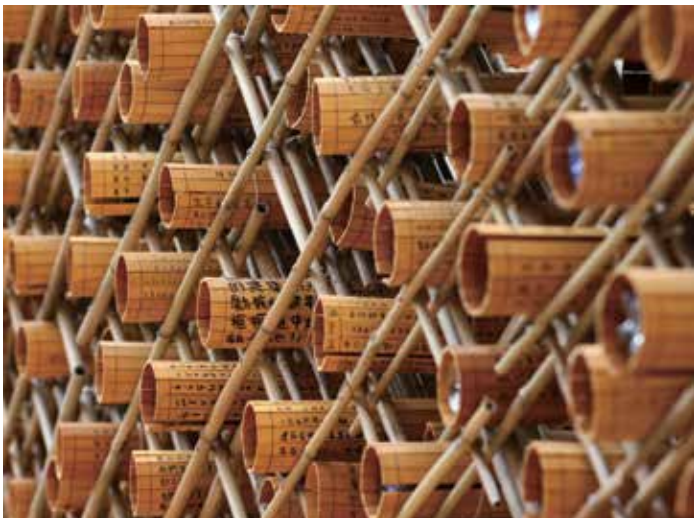
On the plaza side, a thick but porous 6 x 2m bamboo wall standing on a bamboo platform commands the plaza, welcoming visitors from the train station, while acting as a large directional sign pointing towards the secluded hut when viewed from YIA's grand staircase. The wall is made from tightly bundling 16 layers of standard folding fences, angled and shifting every two layers to create over 1,600 slots to hold scrolls. The choice of the rustic folding bamboo fence comes naturally from the later lines and best-known poetic image of Tao's poem "Plucking chrysanthemums along the eastern fence" (採菊東籬下). After visitors' momentary reverie in the secluded hut, their written words of wisdom are actively wrapped up, and inserted to build up this Scroll Forest into a wall of shared hopes (竹簡心林).

Making original architecture - A return to origins

In the midst of 21st century Hong Kong's ongoing vicissitudes, this project opens up a precious chance for us to rethink why we build and what we build for in our lives. The dialogue between the Primitive Hut and Scroll Forest hopes to contribute architecturally to this process of reflection, of society, life and oneself afforded by "Building a dwelling among men" (b* a.d.a.m) Here, we are guided by Joseph Rykwert's classic book *On Adam's House in Paradise* and his enlightening excavations of the idea of the primitive hut - the home of the first man.

In our perennial desire for renewal, our project attempts to make original architecture, or, as Rykwert puts it, to build "a primitive hut situated permanently perhaps beyond the reach of the historian or archeologist, in some place I must call Paradise. And Paradise is a promise as well as a memory."¹ ■

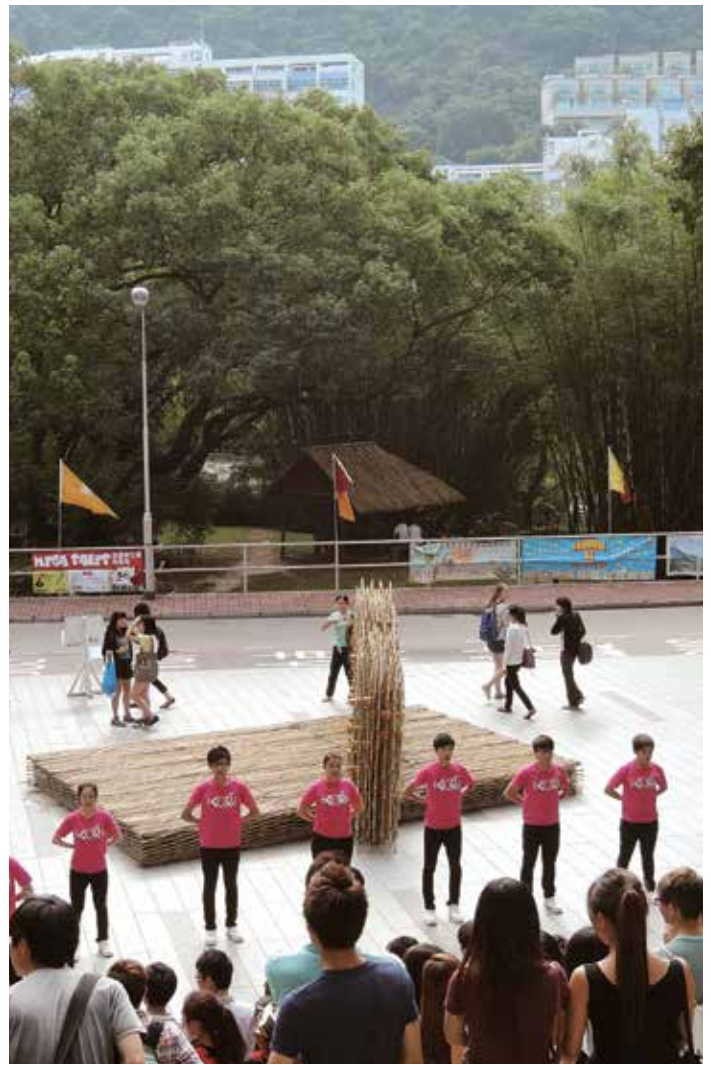
1. Joseph Rykwert. *On Adam's house in Paradise: the idea of the primitive hut in architectural history.* MIT Press, Cambridge, Mass., 1981, p.192.



Close up showing the wrapped scrolls written in many languages.



Inscribed scrolls are wrapped around recycled plastic water bottles of different colours. The layers of standard folding fence are carefully angled to create suitably-sized slots for the rolled-up scrolls.



View atop the grand staircase along visual axis directed by the bamboo fence wall on YIA plaza to the secluded thatched hut across the road, with students performing 'dem beat' in the foreground.



Besides leisurely enjoyment by students and visitors, various self-initiated events and activities spring up around the hut and scroll wall. These include tea-making gathering, outdoor seminars by professors both daytime and nighttime, Chinese music and poetry performance venue, etc..

Concept and Design

Thomas CHUNG

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Building team

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Leroy YUEN, Fiona YUNG, Kitty ZHOU

Project co-ordination

Siushan CHENG

Photography courtesies

I-CARE, Dr. Joseph Man CHAN, Tommy LI,

Andrew YU

nb: Our deep gratitude goes to The Chinese University of Hong Kong's I-CARE and to co-organiser School of Architecture for the giving us the opportunity and generous support to realize this meaningful project.



HOUSE ME TENDER

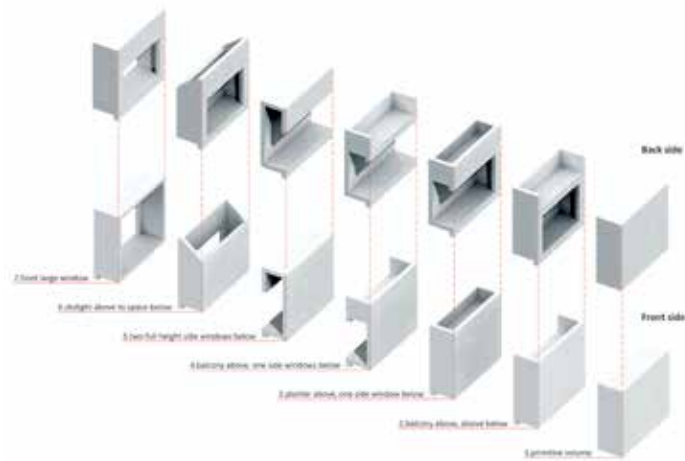
—
Open precast cell system for
individualized housing

—
Architect: Olivier Ottevaere and
Elsa Caetano, Double (O) studio

House me Tender recently won best residential project from Architectural Review / MIPIM Future Awards 2015

Mass produced precast elements have increasingly been favored by the housing sector in Hong Kong and China largely to minimize construction time and labor on site and to ensure greater building quality of industrialized components. These elements often consist of semi-precast slabs, partition walls and façade components that cover a still rudimentary cast in place column-slab system behind. The aspirations for such vertical housing models are more aimed at maximizing real estate profits for developers or at reducing the construction cost for affordable housing. They often fall short to internally offer better spatial and living qualities to its prospective residents and to generate a vibrant community structure from within.

While remaining competitive and efficient against current models, 'House me Tender' proposes new environmentally enhanced housing prototypes developed at incrementing scales that reassert the individual as the main protagonist for the making of their own living environment. This is achieved through mass



Precast variants from 1 plug-in type



9-storey prototype

customization of precast volumetric units. Prospective residents are able to choose from catalogues of variants, customized units that conglomerate into unique three dimensional living entities. This individualized process ultimately makes up the overall identity of the building.

A nine-storey prototype was first developed with a team of engineers and precast experts as proof of concept to further support the development of a forty-storey high-rise, the dominant building type in Hong Kong.

Most of the unit types are organized in duplexes (e.g. townhouses in the sky). Two standardized main box units serve the living and sleeping areas, complemented by two fitted cell units for bathroom and kitchen.

Additionally, catalogues of precast plugins allow future residents to individualize straight from the factory the extent of their living space, based on the user's needs and demands (i.e. number and type of windows, location of enclosure and amount of outdoor versus indoor living).

Mass customization is not a new concept and can be found in many other fields such as in product design or in the automobile industry, but as of today it

never was executed in built architecture or in housing. The concept of producing variations from a type is often paired with the advancement of digital fabrication and therefore directly dependent on software communicating with machines. While Architecture relies more and more on industrialized parts to construct buildings, this new paradigm for housing seems more than overdue.

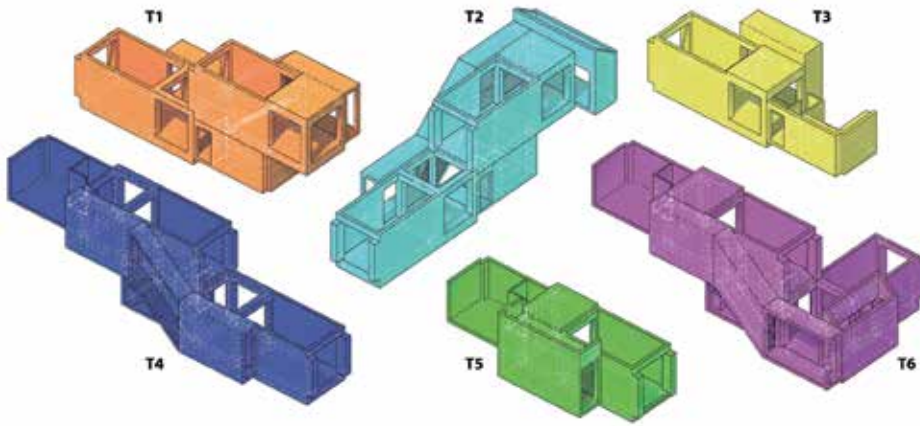
In developing housing prototypes that further employ total concrete precast structures comprised of volumetric units or cells systems, a first long term impact is environmental.

Some of the main benefits are:

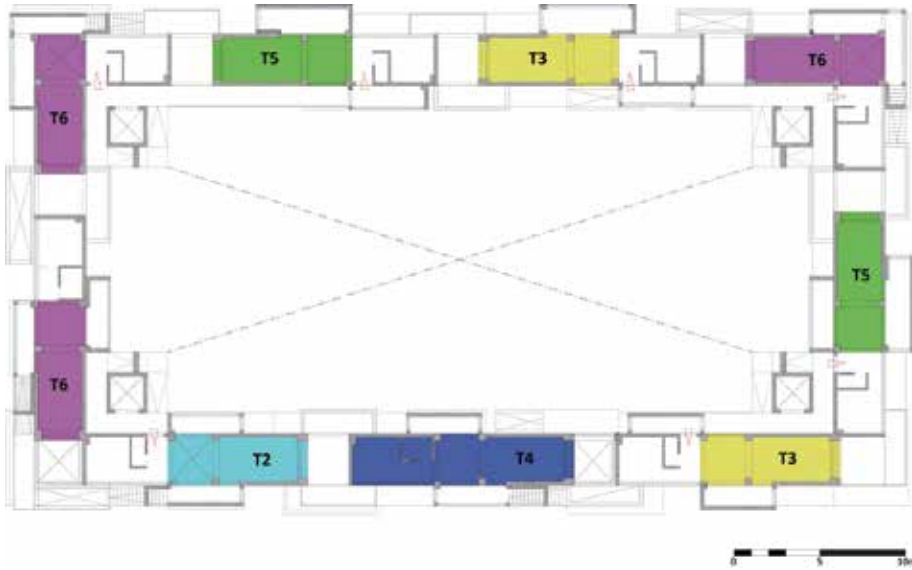
- Naturally ventilated spaces and shaded indoor and outdoor spaces.
- A better outcome for the life cycle of a residential building; from installation to maintenance and to dis-assembly. Commonly, a residential building in Hong Kong has a life span of around 50 years after which it is likely to be replaced. Dismantling precast constructions to its original parts is safer and can be managed under better control than precarious urban demolition today.



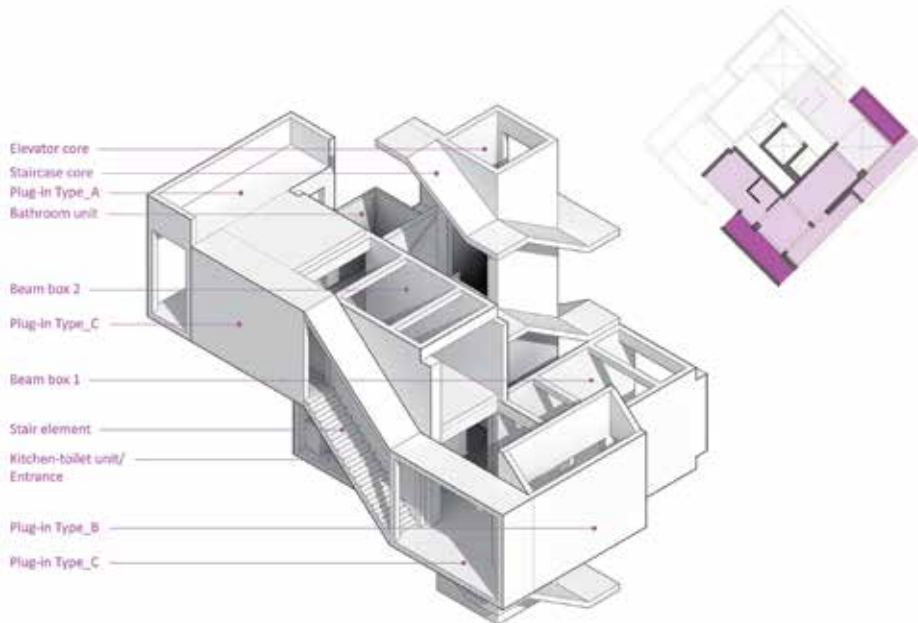
Components for 40-storey high-rise



Examples of unit types for high-rise prototype



Typical floorplan for 40-storey high-rise



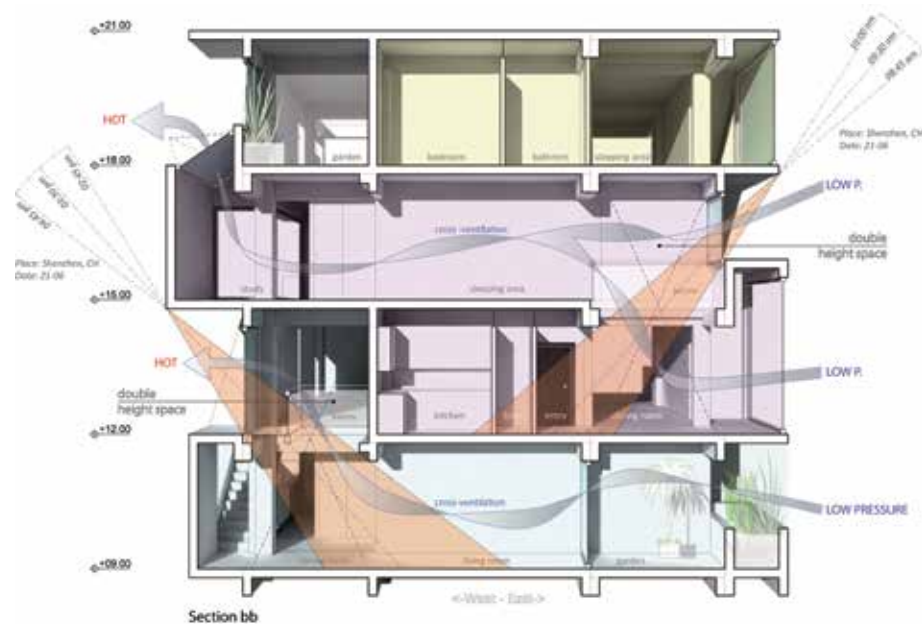
Precast components of 1 duplex unit

- Since precast elements are mass produced in a controlled environment from reusable formworks, waste of large amount of formwork materials necessary for onsite construction are significantly reduced as well as its associated air and noise pollution.

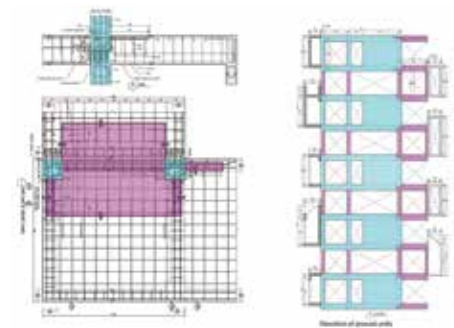
Overall this will minimize the time and cost of construction in situ.

- In addition, a factory environment offers a higher quality control of its architectural finishes (more sophisticated formwork materials) and of its structural performances (prestressed capabilities). This will ensure a greater durability of its products which ultimately decreases the need for maintenance of a building during its life cycle.

The second long term impact is technological. By advancing the use of volumetric units systems in precast technologies, there is a greater potential to fully integrate fixtures (i.e. toilet / kitchen / bathroom), window enclosures, various materials for finishes and services (i.e. clear and black water, electricity) within the specific concrete units prior to installation on site. In doing so, the construction rate will once again increase. A few recent precedents already exist where integration



Section of environmental study



Structural connection detail



Interior view

of such elements (bathroom/kitchen) within precast units were tested. Another area for technological advance is in the conception and making of the concrete formworks for more complex architectural forms and structural innovations. Alternative formwork materials, other than traditional timber, can be better experimented with and implemented in a factory environment (i.e. fiberglass, geotextiles, composites et al.). Furthermore, improvement of details for moment connection of precast volumes greatly reduces the need for additional structural elements and facilitates continuous assembly on site.

The third long term impact is of social values. From a construction perspective, the amount of labor necessary on site will become less yet more specialized, likely to improve health and safety standards and to incite workers to enhance their professional skills. In view of the building outcomes, innovation in mass customized precast cells systems and volumetric plug-ins units will bring forward more individual choices for the future dwellers in shaping their own living spaces with regard to their projected living standards. This will cause the current trend of relentless 'repetition of the same' seen in housing development

today (regular and repeated layout) to hopefully sway towards more 'repetitions of differences', enhancing substantially the spatial quality of the units and as a result the wellbeing of its occupants. Overall, the development and implementation of this new precast model would influence the general opinions on precast technology in housing by remaining economically viable and efficient in regards to construction. ■

Olivier Ottevaere is an architect, founder of Double (O) studio and an assistant professor at the University of Hong Kong. His interest in architecture is driven by a hybrid approach between physical experiments and geometrical organizations. Integration of active structural principles, properties of materials and procedures of construction prompt the design pursue at the onset of each of his projects. Searching for novel experiences of Space forms the ultimate social ambition for the architecture to come.



IS WHITE CARDBOARD THICK ENOUGH?

— Material Experiments By Year 2 Architectural Students Of Hong Kong Design Institute

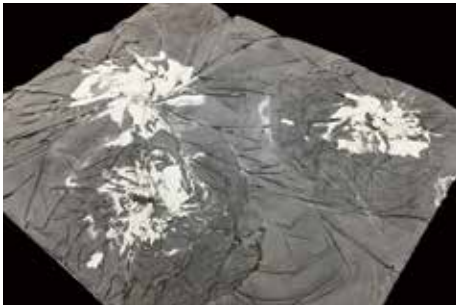
— Kuo Jze Yi



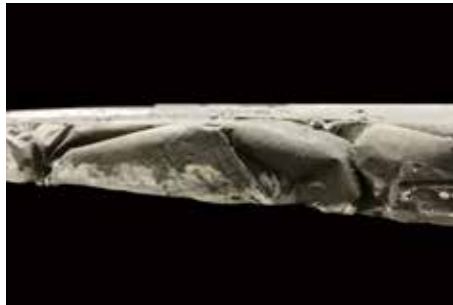
Experiment 1: How to make the thinnest concrete?
By Marco Leung Yin Sing, Box Nip Shing Chi & SY Lap Shing



Experiment 1: Concrete shell stands on 4 points.



Experiment 2: How to capture the liquid state of concrete?
By Sindy Tsang Sin Mei



Experiment 2: Close up of the smoothly "folded" concrete.



Experiment 2: First test model casted directly in a plastic bag.

Materials are light or heavy, soft or hard, opaque or transparent, smooth or rough... etc. Architects transform heavy stones to create building that conveys lightness, bend steel to form softly shaped handrail that is comfortable to be held, and polish the rough timber plank to make smooth flooring that reflects the light. The process of extracting qualities from material should be reinforced in the early architectural education, this would allow students to build up sophisticated design languages, and it would also allow them to experiment with the material behaviors and to be inspired by its inherent poetry.

Carlo Sparpa inserted concrete and steel structures into the ancient stone building of Castelvecchio, Verona Italy, where new and old space compliment each other by the way new concrete merges to the existing irregular masonry wall. The contrast clarity of two materials and structures tells the historical development process of this 14th Century building. The hardness of the linear concrete staircase emphasises the softness of the crumbling masonry wall, which creates layers of

spatial experience that is so enriching when one visits the museum.

Casa de Cha sets by the rocky seaside in Porto Portugal, by Alvaro Siza. As we walk into the building, we are suddenly embraced by the smooth timber lined ceiling and floor, completely opposite to the heaviness and hardness of the rocks that surround the building. The reddish warm colour of the wooden interior creates an intimate space in this harsh Atlantic Ocean environment. The white colour interior plaster wall reflects the bright natural light in a sunny day, which is then balanced by the dark warm tone of the timber ceiling and floors, providing an easy and relaxing space for one to escape in a hot summer afternoon.

These two moments of architectural space would not be possibly speculated or explained by only cardboard models, and the words and descriptions could only grasp a glimpse of the experience. If architectural students do not use real material to model and specify their spatial design, how could they understand lightness, heaviness, hardness, softness, transparency and

opacity?

This year, in the Principles Of Building course of Architecture Design, we asked our second year students from Hong Kong Design Institute to play with the construction materials, and through the "playing" process they would need to extract qualities from the material they chose.

It was surprising to see how the students enjoyed the jump from standard cardboard model making to concrete mixing and woodcarving. The studio was messier than ever, but creatively messy. The corridor was blocked by a few meters of models experiments. Next to the entrance door, students used spoons to mix cement mortar in a noodle bowl while one of the students was laying brick wall quietly in the corner of the room practicing different type of mortar joints.

For two weeks, the studio felt like a material lab. We discussed, how to make heavy concrete feels light, how to make solid concrete feels soft, and how to make a secrete wood joint that can not be easily taken apart. At the same time, some other stubborn students wanted to make a shell

structure out of brick tiles, and three students confused mixing polyester resin and fiber glass as the process of baking bread, spend the full week trying to find out the best mixing ratio between polyester resin and curing catalysis.

All these excitements came from students' confrontation to 1:1 material scale. Their curiosities were triggered by the material behaviors. The challenges of making something physically work in the real world and trying to convey ideas through materials, forms and space are precisely the joy of architecture making that we all share, and we also enjoy very much the fact that our senses can be awakened by the way architects play with the materials.

This stimulating learning environment of creative confusions, challenging authorities and boundaries, stubbornness of making something impossible to work, inspiration from mistakes, achieving carefully careless beauty are exactly what an architecture school should provide to students. Not to say that 1:1 material experiment can promise such an exciting studying environment, but in the context of Hong Kong where the majorities of us live in a fixed layout flat with no room for modification, the culture of DIY therefore almost non-exist. While apartment renovation remains only on the wall surfaces, which forces us to work and sometimes think superficially. In such confined architecture market, if we do not challenge the depth of material in the early architecture education, where else could we begin to practice beyond the surface of material? ■



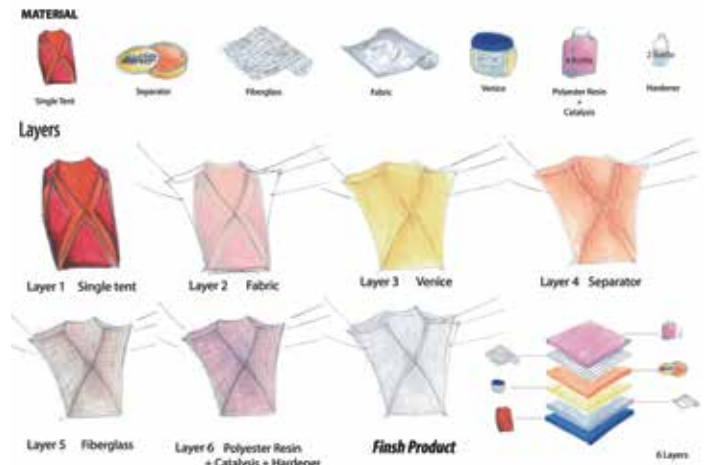
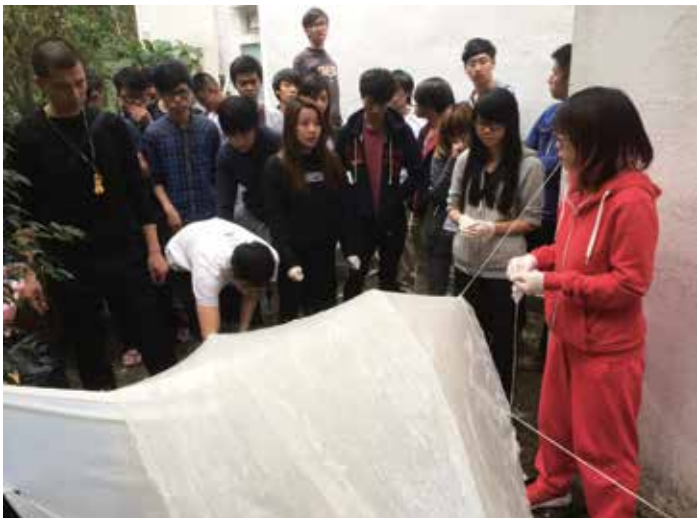
Experiment 3: How to pour concrete artistically?
By KF Leung Kwong Fai & Crystal Tsui Ka Ki



Experiment 3: Colourful patterns indicate sequences of concrete pouring.



Experiment 3: Colour concrete palettes.



Experiment 4: How to cast the sky?
By Theodora Li Tin Wai, Kaka Shek Ka Lai, Sharon Tsoi Yuk Ying

Experiment 4: Diagram explains the layers of material and its fabrication.



Experiment 5: Lu Ban Lock - How to make a secret timber joint?
By Chloe Leung Shun Kiu & Kary Yuen Chun Yi



Experiment 5: Test models and final model.



Experiment 6: Chidori Joint - How to make a secret timber joint?
By Allison Choi Hau Ying, Min Fan Ka Man & Horace Yeung Chi Ho



Experiment 6: Second test to diagonally lock four pieces of wood.



Experiment 7: How to lay bricks horizontally?
By Wallace Leung Wai Hei, Steve Tam Wai Ho, Hin Tse Yu Hin



Experiment 7: Underside of the brick shell.

Kuo, Jze Yi is a lecturer and researcher for Architecture and Urban Studies in the HKDI and Poly U. His researches focus on Material Poetry, Cinematic Architecture, Rural Development and Micro Cities. Kuo studied at the AA School of Architecture and his works can be viewed at kjyao.com.



Opening Ceremony of Preschools in Takeo Province

DESIGN DETAILING FOR EDUCATION

Pre-school participatory design and construction in Cambodia

Designer: IDEA Volunteers

Location: Site 1: Chuuk District, Kampot Province, Cambodia

Site 2: Tram Kak District, Takeo Province, Cambodia

Completion: January 2015

Participation In Design Enriches The Education

“We listened to their need, designed and built the school with them”. It is not on a daily basis that you would have the opportunity to use a building that you have designed and built according to your needs, your ideas and your own creativity. IDEA (Involve in Design, Empower with Action) Project believes that “all people should have equal opportunities to enjoy, partake in and have access to the design of a human environment and architecture”. Design detailing through children’s participation is therefore an important part to create a great sense of belonging and hence, enriches their education.

More Than A School Building Project

In 2014, a group of 40 volunteers from Hong Kong and Cambodia embarked on a peculiar design and build adventure, to create two pre-school projects in two villages in the Chuuk District of Kampot



Transformation of Stepping Stones in the Story into Music Drums on Site

Province and the Tram Kak District of Takeo Province, Cambodia. With the help of a local NGO, Cambodian Children's Advocacy Foundation (CCAF), the new schools provide good educational spaces for the pre-school children coming from poor families to receive basic education.

Through teamwork and knowledge sharing in workshops, volunteers coming from different fields are empowered with design skills that aim to enrich Cambodian children's education in both the physical setting and the creative teaching curriculum.

Design Detailing For Education

1) From Storybooks To Buildings

IDEA volunteers developed storybooks that consisted of a series of adventures and different checkpoints for each site. These storybooks formed the basis of the master plan design of the school project and detailing of the schools, the education kiosks and the playground design. In the middle of project, volunteers conducted a local consultation to tell the story and explain the school to all stakeholders to collect their views.



Design empowerment workshop with children to simulate rolling panels at window of the classroom

The essence of creating a story for the school is to make children, teachers and the community connected to the architecture. They all love the story and the school.

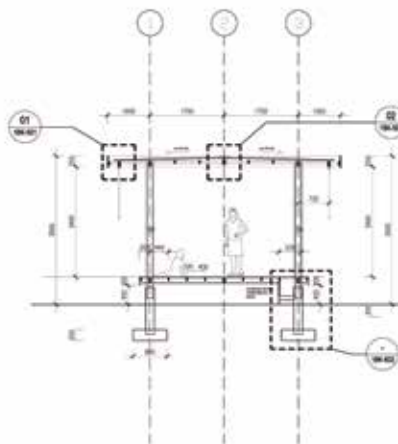
2) Participation In Design Workshops

In contrast to other school building projects, IDEA projects emphasize the interaction between volunteers and children in the construction stage. IDEA volunteers have developed a series of design workshops with the Cambodian children to inspire their design imagination and creativity. Depending on their age, children were given different design tasks to create small handcrafts and art pieces on their own.

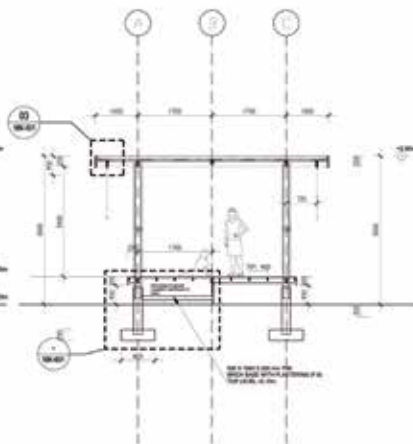
These simple handcrafts are similar to an architectural model, in an accessible



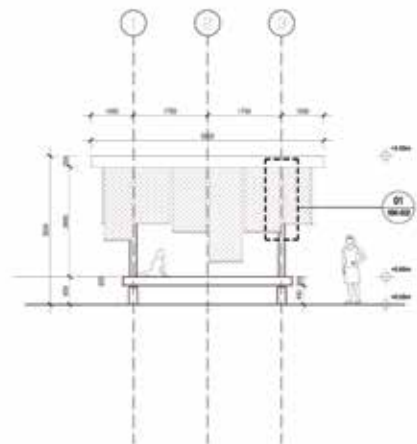
media, introducing the children to different architectural design details. Through these means, volunteers shared their understanding of the complex design detailing with children.



01 / Kiosk section with recess storage



02 / Kiosk section with recess storage



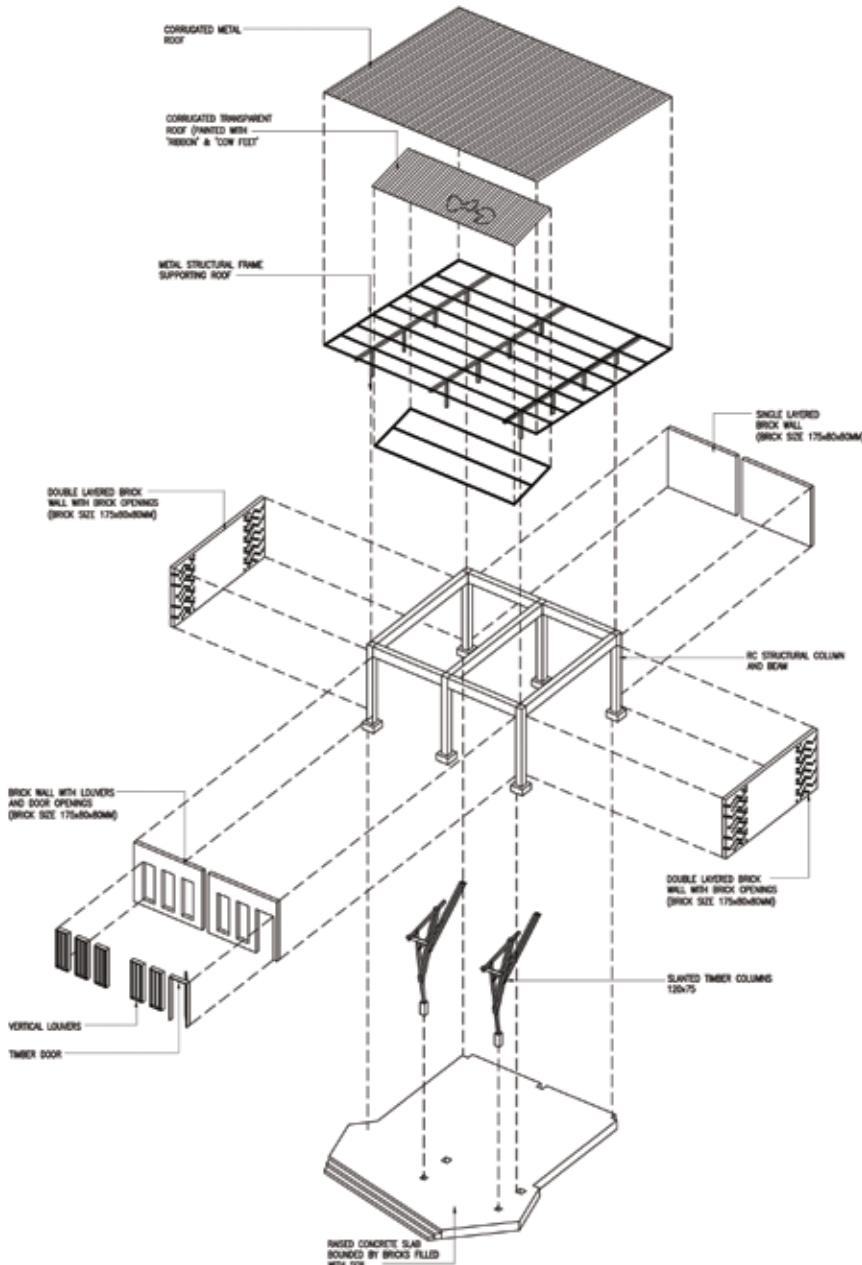
01 / Kiosk elevation



Hexagonal education kiosk to act as performance stage



Rainbow stairs with Library corner and talking pipes as handrail



3D Axonometric - Classroom Building at Tram Kak District

3) Design For Learning

School is a place that facilitates teachers to carry out different ways of teaching and learning for children, for example, learning by playing, by drama, and by singing. In contrast to the standard Khmer school design of a simple rectangular block, IDEA creates different forms of learning environment.

4) Creative Education Curriumlum

To ensure the sustainability, IDEA volunteers also developed creative teaching manuals and conducted a comprehensive training and class demonstration to the school principal and all teachers.

5) A Good Learning Environment With Passive Design

In the village, there is no electricity for the school. IDEA designs the schools with passive design strategies like natural ventilation and lighting. The design was made simple and minimalist, and materials were sourced locally.

Building orientation: The building was oriented to minimise direct sunlight into the classroom and in the outdoor podium area where children play and gather for assembly. The white colour painting on the walls reflects the heat from the sun, reducing heat gain from direct sunlight.

A gap between the roof and the walls was created to allow the warm air to escape the building and keep the students in a cooler temperature at the lower part of the space. Building height was also a major aspect.

Walls and openings and vertical blinds: Openings on the walls allowed



Comfortable learning environment inside classrooms and education kiosks with good lighting and ventilation

cross ventilation and vertical moveable blinds were used for large openings to allow control of light and wind into the classroom.

The kiosk is a pilotis wooden structure open to the air with moveable fabric blinds to protect from direct sunlight and rain.

IDEA Impacts

Since 2009, IDEA projects have adopted the participatory design approach in over 10 school building projects in Cambodia, Nepal and India. They have created a sense of belonging to each child, empowering local youth, serving their community and developing skills for their future. The storybook approach was a successful tool to develop the building design and detailing process for education. It was fully integrated with the passive architecture and the education curriculum. The success of IDEA projects since 2009 is measured by their popularity, as more students join the IDEA schools each year,

and local communities offer new sites to develop more pre-schools. IDEA projects provide pre-school education in Cambodian villages and have prepared children with a good education for primary schools and lifelong learning skills.

IDEA places values mostly on infusing creative thinking and civic mindedness to participants throughout the design process. The impact IDEA brings already exceeds the value of the building structure alone. It brings HOPE to children and people who share their IDEAs together.

In 2015, IDEA is organising another school building project in Chum Kiri District, Kampot Province, Cambodia. We welcome volunteers who are passionate on design and education to join this meaningful project to share our IDEAs.

Website: www.ideaproject.org.hk
 Email: info@ideaproject.org.hk
 Facebook: www.facebook.com/IDEA.Project.HK

Acknowledgments

The authors and IDEA Project wish to acknowledge the financial support of all donors; and thanks to all volunteers, organising committee members, local NGO (CCAF), local students, contractor, villagers, school teachers on their contribution in IDEA Cambodia Project 2014. ■

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Montjuïc Hillside Connector

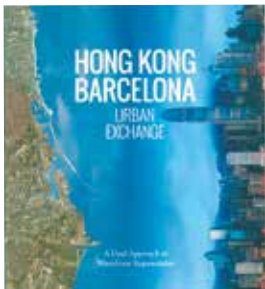
HONG KONG- BARCELONA URBAN EXCHANGE

Urban Strategies for the Regeneration of Litoral Morrot

Architect: HK Government Urban Exchange Group

Location: Barcelona, Spain

Completion: Master Plan Study, March 2015



The Hong Kong Barcelona Urban Exchange, a research initiative between the governments of Hong Kong, Barcelona, and the three professional bodies (the Hong Kong Institute of Urban Design, the Hong Kong Institute of Planners, and the Hong Kong Green Building Council) seeks to raise awareness of issues, formulating innovative approaches to shared problems, and foreseeing opportunities to pursue joint policy responses to urban design and planning issues of each city through discussions, workshops, design proposals and publications.

The platform held a recent symposium and press release of its research publication compendium of best practice 'A Dual Approach to Waterfront Regeneration' during March 9-11, 2015 in Barcelona, including presentations of ideas and proposals applying these principles to two study sites, Kwun Tong Waterfront in Hong Kong and Litoral Morrot district in Barcelona.

The Hong Kong team studied new opportunities for regeneration of one of the last remaining industrial waterfronts in Barcelona through the following aspects-



Conceptual Master Plan

Placemaking: in terms of identity, diversity and robustness of uses; Connectivity: in terms of legible pedestrian movement, accessibility and permeability, ground level streetscape enhancement and efficient linkage between activity cores and public transport nodes; Land-water interface: in terms of face-lifting the waterfront edge through interconnecting and user-friendly amenities; and finally, Green urban design: in terms of energy efficient and low carbon solutions applied at a neighborhood level that are responsive to changing conditions and suitable for adaptive re-use.

The challenges posed by the current socioeconomic and environmental context, economic crisis and climate change have led us to rethink the logic of waterfront regeneration by removal or substitution, and to establish a multi-layered, multi-dimensional approach responding to its topographical constraints to bring the city to the port without sacrificing its existing operational activities. Meanwhile, new visions and opportunities to the Litoral Morrot area are considered as follows:

New City Gateway – Transforming the experience of the city by creating

a physical gateway in terms of a new entrance point from the Mediterranean Sea that consolidates and extend cruise ship facilities with effective land-water connections and integrates them into a new mixed-use community.

New Waterfront Quarter – Completing the waterfront by extending the urban edge of the city to connect the heritage buildings and landscape of Montjuïc area through a range of public spaces and facilities along the existing city promenade.

New Tourism Hub - A critical mass of commercial mixed-use development to create a viable and easily accessible destination point for locals and tourists, extending the range of existing recreational activities in and around the water basins, and combining these with new business uses.

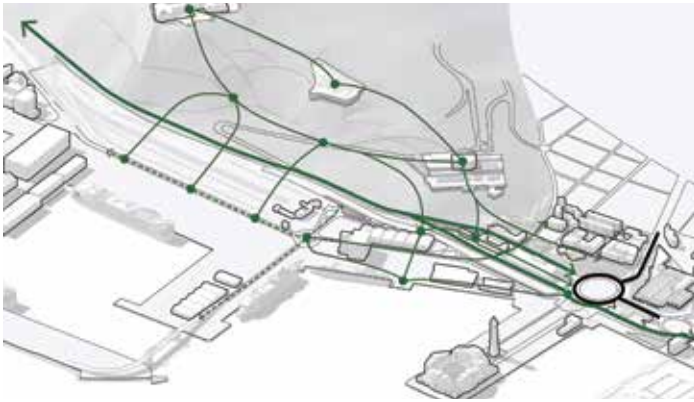
New Low Carbon Development - Planning and design reflecting opportunities to incorporate green design, infrastructure and energy initiatives, and integration of existing landscape and urban structures to promote pedestrian and bicycle-friendly mobility.

New Connective Structure – The

exceptional geographical characteristics and proximity to the city provides a 3-dimensional, multi-level approach to networks of pedestrian movement integrating the public and private development realms, creating a dynamic and enjoyable sense of movement and activity.

Integration of Heritage - The site preserves and enhances distinguished heritage buildings for adaptive re-use by integrating their unique qualities and location as vital physical and commercial components of the planning and urban design framework of Litoral Morrot.

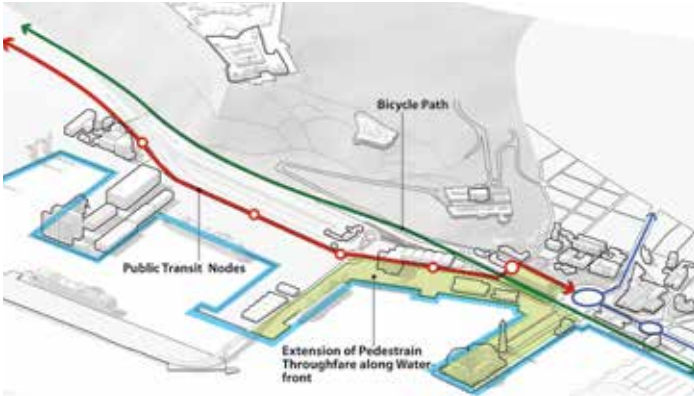
To this end, three major assumptions define the intervention strategies that formulate a new urban regenerative framework: the creation of Joint Spaces, the integration of Port and City, and the Configuration of an Urban Structure that integrates the infrastructure. Under these premises, a range of conceptual planning and urban design approaches has been developed for the Morrot area, testing preliminary urban fit in terms of a range of uses and infrastructures.



Pedestrian Connectivity



Montjuïc Ramblas



Pedestrian Interface



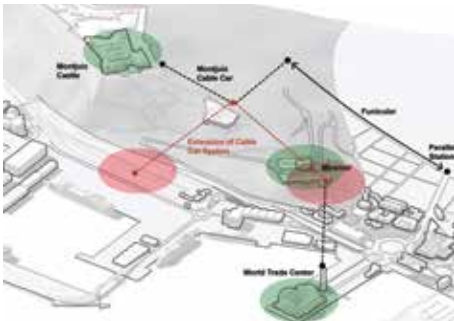
Master Plan Aerial View



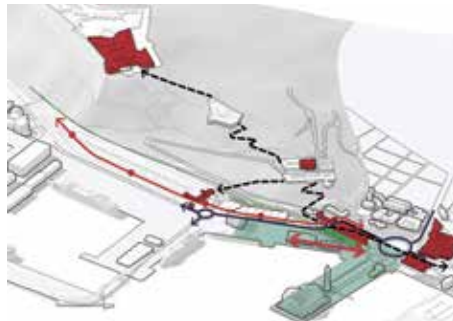
Zoning



Barriers



Sky Tram Network Extension



Heritage Connection

Placemaking

The starting point in developing a series of new urban places is to utilise a system of pedestrian connections to create a permeable system of links through the area of Litoral Morrot from Ciutat Vella. It is of particular importance to firstly reinforce all existing links with the city and the Montjuïc area, to counter existing barriers and then to develop a connective matrix of routes and paths linked to the waterfront area, commercial district and office zone that can be joined together through a phased pattern of development on the site itself.

Land-Water Interface

A successful land-water interface that serves the needs of the public, while at the same time accommodating the operational requirements of the cruise industry is a significant factor in the revitalisation of the area.



Commercial Matrix - View from Montjuïc

Linkage and Connectivity

The 'gateway' to Litoral Morrot from the city is the Plaça de les Drassanes, which, along with the Mirador de Colon to the north, marks the broad intersection of La Rambla and Avinguda del Paral·lel on the waterfront.

Green Environment

Integration of existing landscape and urban structures to promote pedestrian and bicycle-friendly mobility. Energy efficient and low carbon solutions applied at a neighborhood level that are responsive to changing conditions and suitable for adaptive re-use.

New Urban Profile

Connective link with the city through a sequence of pedestrian spaces, promenades and precincts. This acts to introduce variety along with ease and comfort of movement through a transition of urban elements in scale with the waterfront. Gradually the transformation process makes the current industrial/ logistics district into a welcoming destination for the public.

Commercial Matrix

Landscape-terraced commercial mixed-use blocks overcome the existing topographic and infrastructural barriers by bridging across Ronda Del Litoral freeway and stepping to the base level adjoining the waterfront. These semi-public spaces merge with the mountain's series of pedestrian and bicycle paths, integrating nature and new development seamlessly.

A New City Edge

The plan provides an energising and diverse city edge profile linking Pl. de les Drassanes and World Trade Centre with new development nodes associated with Moll Sant Bertran and Moll Costa.

Legible Relationship of Uses and Spaces

Transparent pavilions define a series of pedestrian courts associated with the proposed 'Montjuïc Ramblas' that provides both a vibrant public realm for festival market activities and a permeable framework for pedestrian circulation.

Montjuïc Hillside Connector

Reinforcing the tradition of hilltop public vistas in this city, a series of commercial pedestrian retail corridors terraces down from Plaça de l'Armada, to connect with Plaça de les Drassanes and the Montjuïc Ramblas to the waterfront, providing a new public access between the mountain and the sea. ■

Steven Hsun Lee

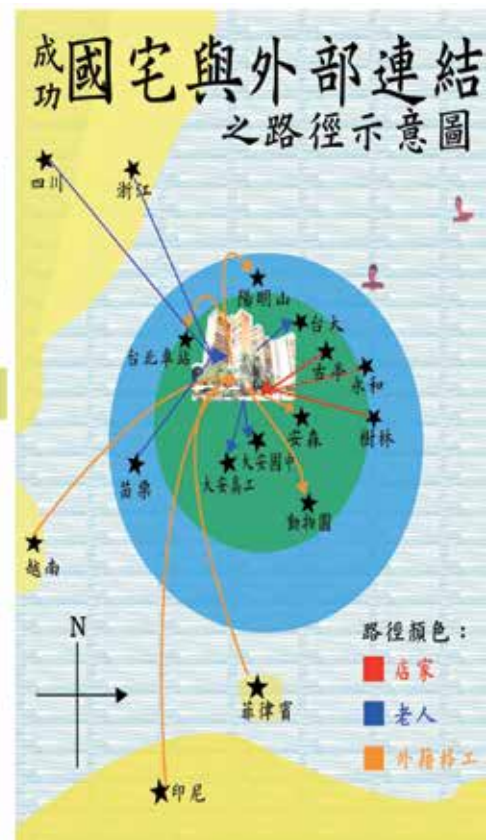
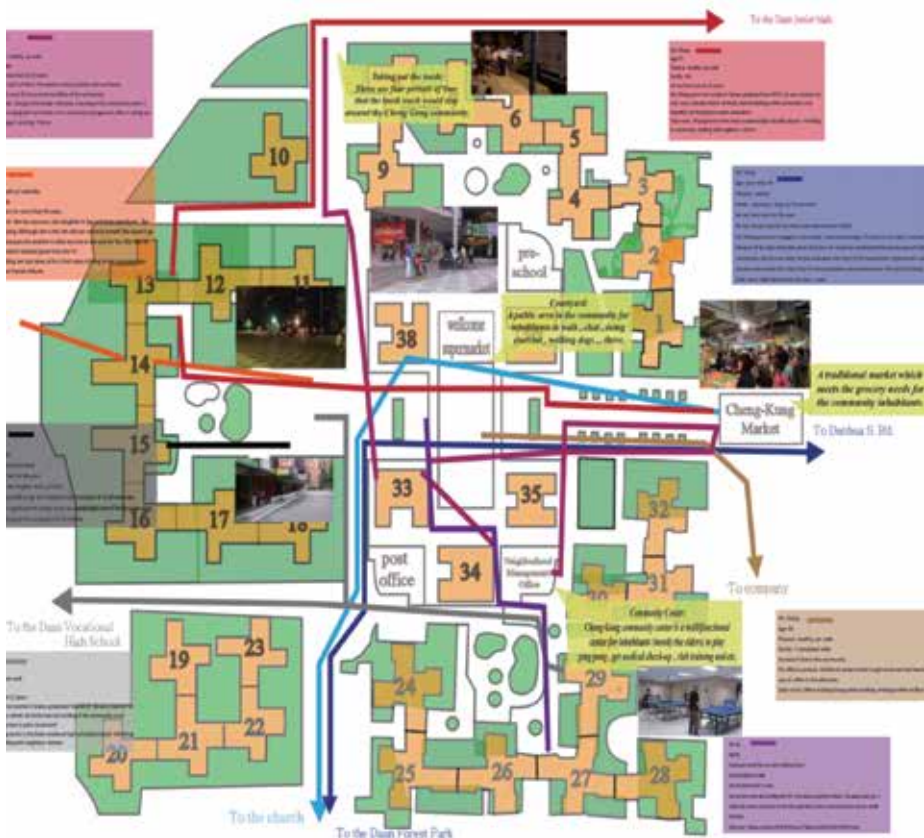
Architect, Founder & Director of PLA Group, a multi-disciplinary studio for planning, landscape and architecture.

Casey Nai-Huei Wang

Architect, Project Manager at Gensler and former Assistant Professor of Urban Design at the University Hong Kong.

Tony Ip

Architect, Deputy Director of Sustainability at Ronald Lu & Partners



COMMUNITY ENGAGEMENT AND CREATIVITY

Conversation through Food and Fashion

Shu-Mei Huang, Assistant Professor,
Graduate Institute of Building and Planning,
National Taiwan University

“We Own the City in Taipei” (hereafter WOCT) was an international exchange resulting from the collaboration among Department of Cultural and Creative Industries Management at National Taipei University of Education (NTUE), CITIES, Department of Architecture at Hong Kong University, the Center of Community Empowerment Network (the CENT) in Taipei and the Taipei City Urban Regeneration Office (URO) in the fall of 2014. Following We Own the City, an international writing project that brought together researchers and professionals from five cities (including Amsterdam, New York, Hong Kong, Moscow and Taipei) to explore how bottom-up processes can enable more creative and democratic urban initiatives, the WOCT was planned to engage university students as young urban citizens in making claims to actively OWN the city.

Beginning from early July through October of 2014, Professor Yung-teen



Annie Chiu and I have invited several local partner organizations to jointly plan the event. Particularly, the CENT provided some important advice in terms of extending the event into a series of group meetings, workshops, and educational programs beyond the five days scheduled for the international exchange so that more diverse audience could be reached, especially those who are not necessarily students but work on the frontline of community design. In that regard, the CENT initiated a reading club in order to prepare some community designers and volunteers by reading the edited volume *We Own the City*. Three cases were selected from the book, including “I Can Change the World With My Two Hands” (Amsterdam), “Voices from the Vegetable Garden” (Hong Kong) and “Manufacture New York” (New York). The participants read the chapters before discussing how they could bring new insight into community practices in Taiwan as a group. They were particularly

interested in knowing how different voice can come together and resulted in something tangible and even sustainable. Besides, the CENT also organized a “Community Salon,” where they invited selected projects which earned public funding from the city government in 2014 to present their progress and exchange various issues facing them. In doing so a larger community has been connected with the upcoming WOCT. In retrospect, the events successfully prepared the community network around the CENT to attend the WOCT as more active learners.

As teachers at NTUE, Annie Chiu and I had designed a studio “Historic Preservation and Community Design” that we co-taught in the fall of 2014 and the WOCT would be a featured event embedded in the class. Our goal was to enable the third-year students to learn about Community as Method in addressing changes of built environment in both contemporary and historical contexts. With five weeks before the WOCT, students

were divided into two groups to study two different communities and respective issues. They were expected to present their preliminary findings as catalyst for a focused discussion on community participation as design methods with the guest speakers, including Tristance Kee and Francesca Miazzo, among others.

The five day WOCT (13-17 October 2014) began with a forum where we invited guest speakers and representatives from both the private and public sectors to talk about how community-based initiatives like *We Own the City* expect policy changes. The officer from URO, Ms. Lin, presented how URO has developed innovative programs to better accommodate community effort. Dr. Lee from the CENT introduced how the Community Empowering Society has promoted research and practices of community engagement. It was not only a forum for different stakeholders to exchange their perspectives but also a conversation for the university students to



understand who are the different players in shaping and/or challenging community designs.

Two thematic roundtable extended the conversation and allowed the guest speakers to share with NTUE in detailed lessons learned from working with the communities. The fact that some contributors to the book are also educators who involved their students in these projects raised an important issue about service learning and community. Kee's report on how the Community Project Workshop trained students to serve as facilitators provided a good model. In addition, the CITIES Foundation's experiences of capitalizing on food and sustainable transportation in the Netherlands served as a critical case for both students and professionals in Taiwan to refresh our thinking about community design in the context of emergent global food crisis.

The students' presentation, as mentioned earlier, are a focal point of the WOTC. In the context of Wolong and Cheng Kung Housing Complex (CKHC) as two different sites - the two groups presented



In all more than 300 students and community planners attended the WOTC (photo taken by Yu-Jou Lin).



Tris Kee was sharing with the audience about lessons of community planning in Hong Kong (photo taken by Yu-Jou Lin).



what their preliminary site analysis with a focus on community space and patterns of everyday life. Wolong is a unique, cultural hub comprising several historical buildings on the edge of the campus, where university students from the Department of Cultural and Creative Industries Management have organized a wide range of educational programs and creative events to build up a sense of community within and beyond the campus. CKHC, a relatively contemporary planned housing project across street to the campus of NTUE, was built in the 1980s as home ownership housing scheme once developed by the city. Nevertheless, the 8,000 or so residents living in CKYC is an unknown community to the students at Wolong, and thereby one of the core issues we encourage students to explore in the class. The investigation hopefully would also allow students to better understand their daily encounters with strangers nearby Wolong and moreover to come up with creative initiatives to reward both their own learning environment and the neighboring urban fabric.

Among many proposals, a call for

building a communal kitchen (at Wolong 134) as a campus revolution and another concerning migrant workers who take care of the disabled aging community at CKHC stood out particularly. The goal to add a communal, open kitchen to the old staff housing is to raise awareness of cooking as critical to dynamic and health society. The students believed that cooking as a right to the city should not be sacrificed for their living in the university dormitory (most of which were not equipped with kitchen in Taiwan). Around the theme of cooking, they also paid attention to urban farming, food shed, food security, etc. On the other hand, the group of students who attend to the female migrant workers (FMW) from Indonesia designed an initiative “Dressing Up,” with which they invited the FMWs to dress up as the way they did back home to showcase their styles and beauty. By bringing attention to their appearance, those photos artistically recognized their contribution to the community/city and reminded us to pay more attention to their being invisibilized in the city. It is also a very effective way to allow the FMWs to feel

like urban citizens with dignity. The two cases, as only a fragment of the whole class, presented how students experiments with creative forms of community engagement.

As noted in the conclusion of the Taipei Chapter of We Own the City (Huang, 2014), it is important to engage minorities, to retain non-capitalist socio-economics intertwined with everyday urbanism rather than superficial events deployed by speculative urbanism. Themes emerge from the banal everyday life, such as cooking, can be transformative and revolutionary. We need space and time to allow bottom-up efforts to sustain moment of hope and creativity in diverse encounters and it is through these processes we can see unorganized citizens become connected across age, gender, class, and ethnicities. ■

Reference

Huang, S. (2014). City as Networks. In T. Kee and F. Miazzo. (Eds.) *We Own the City: Enabling Community Practice in Architecture and Planning*. Amsterdam: Hong Kong University Press & Valiz. pp. 234-241.

CONTEXTUALIZING MODERNITY: HONG KONG ARCHITECTURE 1946-2011 - A BOOK REVIEW

《城境—香港建築1946-2011》書評



《城境—香港建築 1946-1970》
香港 商務印書館，2014，ISBN 978 962 07 5631 3

描寫香港建築的中英文書籍頗多，但關於建築學和設計的厚實的書還一直在期盼之中。最近讀到薛求理先生的新著《城境—香港建築1946-2011》，不禁眼前一亮。作者對香港建築有如此認識，“香港建築的意義，在於最後殖民地（亞洲）國際都市的轉變，及在這個轉變過程中，建築的生產和運行。”香港彈丸之地，面對建築用地和人口的壓力，客觀條件並不優越，但作為亞洲四小龍之一，香港一路發展成為一個國際化的大都市，除了產業發展，人口增長和地理因素的影響之外，還因香港“崇尚經濟實用，不受政治思潮影響。西方現代主義的原則，在香港得到充分的發揮”。因此形成香港獨特的城市 and 建築環境。

本書主題“城境”的由來，是“香港溶入現代、環境變遷、磨合適應的過程”。作者棲身香港二十載，一街一景，皆是感情。該書內容覆蓋了宏觀反思與具體案例。作者總結了香港建築的三大特點：一是殖民地到全球化轉化過程中的烙印；二是土地緊缺條件下催生出高密度環境和處理手法；三是不談“主義”的實用性。

章節的編排主要是以時間為縱軸，第一至第四章圍繞前一階段的戰後重建（1946-1970）和當時為主導的建築類型（雖然許多建築類型一直延續到今天），如公共屋邨；以及沙田大會堂、香港文化中心、濕地公園等公共建築。第五章著重於香港建築條例的演進，其中小面積之擾和如何讓高密度變得合理是香港的特殊問題。由於土地緊缺始終困擾著香港，在這種形勢下，嚴格的土地管制和建造管理顯得十分必要。第六章至第九章圍繞後一階段的經濟騰飛、走向國際（1971-1997），以1971年港督麥理浩就職為界，主要包括全球化在香港的烙印，教育擴張後的校園建築，其中特別突出了對山地處理的建築設計技巧，以及高密度的城市環境，以地鐵站的TOD發展、高乘坐量模式為例。第十章則著重於1997年來香港建築的發展趨勢，其中公眾參與作為突出特點已成為大勢所趨，即所謂的公民建築。

全書編排內容稍有穿插與重迭，如公共屋邨和公共建築都寫到了21世紀，但因為“它們的起因和推動力，還是從1950年代開始，而且其中蘊含的經濟實用的精神一直延續到現在”。對設計力量和建築師的描寫主要著墨於第三章（設計力量在香港）和第八章（本土建築師的崛起），但也穿插於第四章（公共建築）和第六章（經濟起飛下的全球化建築）的實例中。又如不談主義的實用性在四、五、八、九章中的實例中均有體現。作者在第三章和第六章中提出了“本土”在香港的定義，即英國人開設、長期紮根於香港的事務所，也應歸於本土。亞洲四小龍的經濟起飛和中國的改革開放，才使得香港的本土事務所可以沖出島外。中國第一代建築師的

摘要：

薛求理博士的新著《城境 — 香港建築1946-2011》詳盡介紹了香港建築在戰後的發展，包括宏觀的思考和具體案例的分析。在這個過程中，香港從一個港口城市發展成國際金融和商業中心，從殖民地走向全球化，房屋在這樣的環境產生，有其獨特之處。長久以來，香港建築師重實踐而輕理論。本書作者在關照世界建築的平臺上觀察還評價香港建築，為香港建築研究帶來新鮮的材料和寬廣視角。

成就為世人仰慕，其中的一部分在1949年後流落香港，近年的不少研究已經開始追蹤他們在香港的工作和作品。《城境》的第三章總結了已有的學術發現及作者對這些前輩建築師的觀照。第八章主要列舉了六位建築師，這些建築師以他們突出的設計令人矚目，同時他們對建築和設計有自己的主張，因此有很強的“作者性”（authorship）。這六人以鐘華楠先生（現年84歲）開始，何弢、關善明、劉秀成、吳享洪，到嚴迅奇（1976年大學畢業）為止。讀者詫異，嚴迅奇之後，香港還有沒有突出的既有作品、又有主張的個體建築師呢？他們是否能象中國大陸的張永和、馬清運、王澐、劉家琨、繆朴等傑出代表被世人看見呢？（Visibility in the world）這需要香港建築師繼續努力，也需要薛先生等作者發掘。

許多1950至1960年代的建築正在香港消失，以重建更高密度的建築。面對保存香港建築面貌的迫切性，薛求理先生開展對香港建築的整理和研究，從而有了《城境》的誕生。本書由戰後重建說起，在這個大社會環境背景下，建築開發的艱難起步，其後探討建築條例對建築物設計的影響，最後解構全球化在香港建築上的烙印。這是一條研究的主線，並佐以大量建築物實例。作者不求面面俱到，只是挑選了一些具代表性的經典案例，但足以凸顯出本土建築師在地少人多和山地多平地少的現實中，是如何克服這些難題，建造出經濟實用且有美感可言的作品。這些研究成果既可在實際層面供建築師、政府、學者和公眾等參考，又可為其他地方的建築實踐提供借鑒。

建築理論不僅僅是與過去的對話，更應與建築實踐緊密結合。整本書10萬文字，480多幅圖畫，彩色印刷。思路清晰，詳實生動，圖文並茂，為瞭解香港戰後建築發展的歷程打開了另一新鮮的視角。其中我最欣賞的是第五章建築條例的演進對高密度的規範，和第九章以港鐵為例剖析高密度的城市環境，從這些內容可以看出作者對這些專題的深厚研究和認識。香港作為世界聞名的緊湊城市（compact city），寸土寸金，為私人開發的設計工程不得不炒盡容積率，實在令人唏噓。

長期以來，香港建築業界重視實業和實踐，理論總結的寥落和建築工地熱火朝天的場面不太相稱。薛求理先生十餘年來，關注中國大陸、臺灣和香港建築的發展，將大中華地區的建築放在世界建築之林的背景下來研討，著書多種。其英文著作《建造革命-1980年來的中國建築》（Building a Revolution: Chinese architecture since 1980）2006年面世以來，被國際學界廣泛引用。之後，薛先生涉足外國建築師在中國的實踐，寫成《全球化衝擊：海外建築設計在中國》（2006）和《世界建築在中國》（2010，英、繁、簡三種版本在海外、香港和上海同時發行）。他將研究觸角伸延到香港，其對香港的關照源於他對世界建築潮流的關注。本書的厚度由此而來。《城境—香港建築1946-2011》2014年6月第一次印刷1500本，一個月售完。第二次印刷於8月份登場，並出現在臺灣、澳門和中國大陸的書店裡。香港人口相對較少，一般書籍通常只能賣400本。《城境》說明，一本好的學術書，是可以雅俗共賞的。此書的英文版正在寫作之中，我衷心祝願薛先生筆鋒健碩，香港建築的事蹟可以早日披露於英語世界。■

臧鵬

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Mr Paul Chan, Secretary for Development (front row, centre), and Ir Conrad Wong, Chairman of the HKGBC (front row, seventh left), toasted with the Chairmen of the four Founding Members and Directors of the HKGBC for a brighter future of the Council.



HKGBC WINTER 2014/ SPRING 2015



Mr Paul Chan, Secretary for Development (seventh right), officiated at the opening of the Hong Kong exhibition booth with Mr Wai Chi-sing, Permanent Secretary for Development (Works) (sixth right); Ms Christine Loh, Under Secretary for Development (fifth left); Dr Christopher To, Executive Director of the CIC (fifth right) and Ir Conrad Wong, Chairman of the HKGBC (sixth left).



The GBA 2014 Award Presentation cum HKGBC 5th Anniversary was well-attended by 420 key industry players.

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<http://linkd.in/18Bc4jt>

Hong Kong's Participation in the World Sustainable Building Conference 2014 (WSB14)

The participation co-organised by the Construction Industry Council (CIC) and the HKGBC was a great success with over 110 delegates converged in Barcelona, Spain during 28-30 October, 2014 showcasing Hong Kong's significant role as the host of the next edition of the conference, World Sustainable Built Environment Conference 2017 (WSBE17), to be held in June 2017.

Green Building Award (GBA) 2014

Co-organised by the HKGBC and the Professional Green Building Council (PGBC), the GBA 2014 was finally concluded. Themed "Excellence in Sustainable Built Environment", a record of 96 nominations from Hong Kong and the Asia Pacific region were received and the Chairman's Award, 5 Grand Awards, 22 Merit Awards and 35 Finalists were presented at the Award Ceremony on 20 November.

WorldGBC Congress 2015 Hong Kong (27-31 October 2015)

<http://www.worldgbccongress2015.org.hk>

Thinking Beyond: Pathway to Future Sustainable City Development

Co-organised by the CIC and HKGBC, and fully supported by the World Green Building Council (WorldGBC), the WorldGBC Congress 2015 Hong Kong will welcome around 150 top leaders from the green building councils worldwide and 500 local delegates to exchange the latest green building development in a global context. Registration is open now.



Green Building Product Labelling Scheme <http://gbpll.hkgbc.org.hk>

The scheme is a new measure to certify eco-friendly building products with the first phase covering 15 product categories of the building materials. It will soon be linked up with BEAM Plus Material Aspect.

HK G-Share <http://g-share.hkgbc.org.hk/>

HK G-share is a free e-platform aiming to promote waste reduction and reuse of materials, encouraging both public and construction industry practitioners to minimise waste by exchanging reusable items.

Major Revision of BEAM Plus Existing Buildings (EB) (managed by BEAM Society Ltd.)

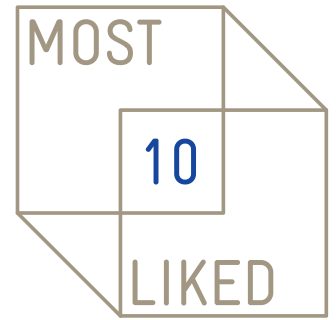
Focusing on the framework and the rating credits classification, 3 certification routes were proposed, including one-step full assessment, stepwise improvements and assessment by categories. The Sensitivity Analysis Report was issued on January 2015, and Stakeholder Engagement workshops were held in March and April, 2015. After fine-tuning, the tool is expected to be soft-launched in Q3 2015.

BEAM Pro Individual Online Account

BEAM Pro can now update profile, retrieve and submit CPD records online. Please login with BEAM Pro number and password (the middle 6 digits of your HKID card number) in the HKGBC website for details. ■

Yvonne IEONG -
HKGBC Director (2014-2015)
HKIA Council Member (2015-2016)

HK ARCHITECTURE CENTRE - BUILDING A NEW RELATIONSHIP BETWEEN ARCHITECTURE AND PUBLIC



In a world that calls for more Communication and Understanding, Architecture Center, can be the new institution of our time to enhance a better understanding to our Architecture and Built Environment, and to create value, impact and contributions for positive changes to the world.

There are a number of Architecture Centers in other parts of the World, and the nature of these centers varies according to the conditions of their situation and the belief of the leaders behind. Some of them have become active players in the city through provocation, promotion, or serve as platforms of voices and exchange.

Hong Kong Architecture Center (HKAC) is the only Center of this kind in Asia. 'Architecture for All' is its founding motto. In the past 10 years, HKAC has attempted to build up a new relationship between Architecture and Public, through Architecture Walks, Talks, Visits, Workshops so that the Community's awareness to Architecture can be heightened. In 2015, HKAC has initiated the project: 'Public Voting for the 10-Most-Liked Hong Kong Architecture of the Century'.

Citizens have been invited to vote on-line their most-liked Hong Kong Architecture and to state the reason of their choice. The public voting was supported by a series of other events, such as: the Grand-Architecture walk in Central for 200 citizen 1, Talks on Hong Kong Architecture at the HK Museum of History and on Radio, 100+ Platform for Young People, Student Ambassador program, Exhibitions at Pacific Place and Oil Street, Citizens photo and article competition.

After all, HKAC is a platform for us to contribute to the community. How far can HKAC go? It depends on us. ■

* HKAC Website : http://www.archicentre.hk/home_eng.htm

* HKAC Facebook : www.facebook.com/archicentre.hk

* 10-Most-Liked HK Architecture leading sponsor Create HK



Corrin Chan -
Chairman of Hong Kong Architecture
Centre