sandbox

Green Tower Hong Kong
Designing against the horizon

A competition for multifunctional skyscraper in Hong Kong

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The Competition

Introduction

For many years people have perceived the world in a linear manner. They wondered what's behind the horizon and followed their desires of land conquering until they clashed with someone else's idea to do the same. As the borders fluctuated, some areas appeared to be more desirable than others and the architecture had to maneuver its way to stack up growing masses. And while our imagination started to shoot up towards the sky, we sometimes seemed to have lost our way creating crammed, confined spaces that were more similar to coffins than areas where one would like to live.

Thankfully, there is a better solution on the horizon (how ironic!) as skillful, innovative and clever designs are navigating towards sustainable urban spaces that combine the best of compact, practical planning with agri-tecture.

Hong Kong and its challenges

Hong Kong is one of the most vibrant and dynamic cities in the world. Some view it as a skyscraper heaven full of lavish lifestyle, whereas some notice obstacles related to living in such high density. And while the city is still viewed as one of the wealthiest in the world, it faces a number of challenges.

Hong Kong's most pressing issues are overpopulation, housing crisis, air and water pollution, and a lack of sufficient food and energy supply, especially due to the fact that its economy was severely damaged by the pandemic.

Geographically, Hong Kong consists largely of steep hillsides. Since traditional farming requires a large amount of land the local production is only able to complement the imported foods to meet the consumption needs. And because import intensifies the existing issues (cost of living and pollution) there is a growing demand for innovative and sustainable solutions that can help the city meet the needs of its residents.

Vertical farming

The concept of vertical farming appeared at the beginning of the 20th century, but its modern version came to being only in 1999 when a parasitologist challenged his medical ecology students at Columbia University to feed 50,000 residents using just roof-top gardening. With approximately 52.6k square meters of usable space, the students were able to provide a 2000 kcal diet to only 2 percent of the assigned population and hence the professor proposed an indoor and vertical solution.

Ever since then, the idea grew in popularity and vertical farming, in its current state, can provide access to fresh, safe, and sufficient food, and allow the cohabitation between humans and plants regardless of climate and location. A great example of that being the world's largest vertical farm in Dubai that is set to produce even 1k tonnes of leafy greens each year.

Vertical farming has been demonstrated to be the most effective and productive system when the space is reduced and the climate in the area is challenging. Some of the most successful vertical farms today are installed in the Middle East and Asia as the energy cost is relatively low and abundant and the climate is harsh and not stable.

It is clear that in the future food production in the cities will be a must for every new building as climate change and disruptions in the food supply chain will be more and more present in our societies.

Design challenge

This architecture competition is exclusively for architecture students and young architects, and seeks to design a pioneering, self-sufficient residential skyscraper that utilizes the idea of vertical farming and addresses the challenges that Hong Kong faces nowadays. The designed building should provide a unique and cutting-edge living experience for its residents, fulfilling all the needs of modern societies and include innovative solutions to the challenges of urban agriculture and sustainable living. It should be a visually striking and memorable building, with a strong connection to the surrounding city and a sense of place.

We would like to encourage all participants to search for universal ideas that could be also implemented in other cities. Look for concepts that can be beneficial in many different locations and rethink how contemporary high-rise buildings are supposed to look, work and influence modern cities and their inhabitants.

Objectives

The designed building should pursue the following objectives:

Multi-functional
The building should be a hybrid combining vertical farming units with residential functions, cultural/educational facilities, sport amenities (pool, gym etc.), and shared spaces for socializing such as a lounge, a game room, and a rooftop garden.

Self-sufficient and sustainable
The building needs to be self-sufficient and should be designed to minimize its environmental impact. This might include features such as solar panels, green roofs, and rainwater harvesting, as well as the use of environmentally friendly materials and techniques. The vertical farming facilities should be designed to be as efficient and versatile to be able to support a range of crops, including vegetables, herbs, and fruit.

Accessible and diverse
The building should be accessible to people of all ages and abilities, with features such as ramps, elevators, and wheelchair-accessible restrooms. The layout of the building should be intuitive and easy to navigate, and there should be designated parking spaces for people with disabilities. There should be a variety of unit types, including studios, one-bedroom, and two-bedroom units, to cater to the needs of different types of residents. The tower should also include a number of affordable apartments to help address the housing crisis in Hong Kong.

Resilient
Resiliency is simply the ability to endure. The design of the building should increase its longevity with the use of sustainable materials and building techniques and adapting to the environmental conditions. The structure should be able to survive natural and human-caused threats.

The competition site

The vertical farming residential tower will be located in the heart of Hong Kong. The participant should select a building site that bears all characteristics of a densely populated and highly urbanized area - with good access to public transportation, a subway station located within walking distance and a surrounding area that is predominantly residential, with a mix of high-rise apartments, smaller residential buildings and several small retail and commercial establishments in the vicinity. The chosen site may be currently empty or assume demolition of the existing buildings.

Program

1. **Affordable Housing** – at least 50% of the skyscraper's apartment volume should consist of affordable apartments ranging in size from 25 m² to 100 m². All apartments are supposed to have access to common spaces and additional facilities..

2. **Vertical Farm** – food production zone should not occupy more than 20% of the skyscraper's volume. The farm should be able to supply the local neighborhood and its products need to allow for easy transport from the production zone to the points of distribution - local markets.

3. **Commercial/work spaces** – they shouldn't occupy more than 20% of the skyscraper's volume. As the main goal of the competition is to design a multifunctional residential building, participants are asked to focus on the needs of the tenants and propose additional functions that might be found accurate to the location and will attract visitors.

4. **Technical zones** – shouldn't occupy more than 10% of the skyscraper's volume.

5. **Parking** – participants are asked to propose an alternative to the typical car park that promotes various forms of transportation and environment-friendly solutions.

Participants are asked to prepare their own functional program that incorporates the bullet points mentioned above. The task is to design a skyscraper that is multifunctional, covers the needs of Hong Kong inhabitants and fits in its urban tissue. It is required to provide solutions that will be beneficial to individual residents, community and the city as well. The division into public, semi public and private zones is suggested.

Registration & submission requirements

The registration and submission is possible only via sandbox.archi website. No other mode will be accepted.
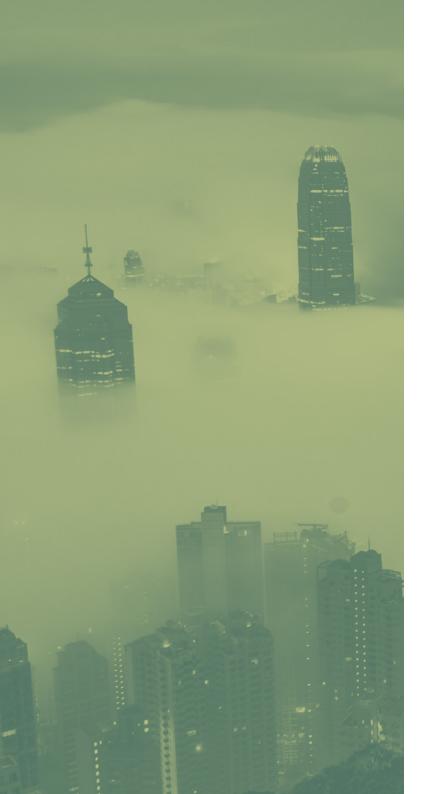
Registration
The registration of the entry is possible only upon paying the registration fee. Once the payment has been processed, the participant will receive the confirmation e-mail with the registration number that has to be included on all submission panels in the bottom right corner. Each participant can submit more than one project but each project has to be registered separately by paying additional registration fees. The registration fee is non-refundable. Therefore, should a participant or team change their mind, refuse or fail to submit an entry after registering, the registration amount will not be refunded. By registering for this competition, you are automatically agreeing to the terms and conditions of sandbox.archi.

Submission
All final sheets submitted must not include your name or any other mark of identification. This is an anonymous competition and the registration number is the only means of identification, therefore the registration number must be included on all competition sheets.

All submissions must be the original work of the participants. The visual materials of the submission must not have been previously published by the participant or the members of participant teams.

Upload requirements

1. 2x A1 landscape or portrait orientated presentation boards.
- The size of each board cannot exceed 10 MB.
- The delivery format is JPEG.
- The project boards must include:
    - master plan – presenting the orientation of the building and links with the neighborhoods
    - at least 2 plans of the upper floors that are the best representation of the concept
    - at least 1 cross-section;
    - diagrams explaining the concept and function distributions
    - sketches/renderings;
    - at least two outside visualizations/perspective drawings;
    - all additional drawings that will help to understand the idea behind the project;
    - any additional text description of drawings for better understanding Nevertheless, the concept should be mainly represented in a graphical way.
2. Cover picture of the project (JPEG file 1000x1000 px) with the size not exceeding 5 MB.
3. Text description in 200–500 words in .txt or .doc format.

Schedule & Fees

Early Birds Registration	March 15 – April 16	$99	students $79
Regular Registration	April 17 – June 4	$129	students $99
Late Registration	June 5 – June 25	$139	students $119

Submission Deadline | June 25

Shortlist Announcement (20) | July 15

Finalists Announcement | July 30

Results Announcement | August 20

If you would like to take part in the competition as a group (more than 3 registrations from one university/school) please contact us to receive a group discount along with further information. The request must be sent from the official university email address as only recognized university staff can apply for the discount.

Please include basic information about yourself, participants and the school so that we can offer additional support for getting your students involved in architecture competitions.

Evaluation Criteria

Innovation
The designed building is supposed to search for new solutions in structural systems, technology and/or functional programs.

Relevance
The proposed solutions should face the existing and the most urgent problems defined by the participants.

Coherence
The participants are supposed to take into consideration the urban, sociological, and historical context. The design needs to be coherent with the existing surrounding.

Sustainability and efficiency
The building is required to be sustainable and zero-energy consuming. The chosen solutions need to contribute to the wellbeing of local residents as well as the city scale.

Aesthetic values
The building is supposed to bring an additional value to the city panorama and its general appearance.

Awards

1st prize

$3,000
winning certificate,
publication in social media,
interviews & articles on
sandbox.archi website,
a copy of Architecture
Competitions Yearbook 2022

2nd prize

$2,000
2nd place certificate,
publication in social media,
interviews & articles on
sandbox.archi website,
a copy of Architecture
Competitions Yearbook 2022

3rd prize

$1,000
3rd place certificate,
publication in social media,
interviews & articles on
sandbox.archi website,
a copy of Architecture
Competitions Yearbook 2022

Most resilient design $200
a certificate, a copy of Architecture Competitions Yearbook 2022.
For those who will present the best ways of designing resilient structures.

Best urban design $200
a certificate, a copy of Architecture Competitions Yearbook 2022.
For those whose design will be the best suited in urban tissue.

7 Honorable mentions
Honorable mention certificates, publication.

10 finalists
Finalists certificates, publication.

All awards will be followed with publications on social media platforms and the website of the competition. The interviews with the winners will be promoted on competitions.archi and different architectural platforms. All participants will receive Participation e-Certificate.

Rules and Procedures

Eligibility

- The minimum eligible age for participation is 18 years.
- The competition is open worldwide for young designers and students under the age of 35.
- A student is someone who is currently enrolled in a full-time graduate/undergraduate program at a university anywhere in the world on the date of registration. In order to confirm student status, the participant(s) will be asked to present a valid student ID or a document issued by the school.
- Students have the right to pay reduced entry fees. If the submission is done by a team, all members have to be students to qualify for the reduced entry fee.
- Design proposals can be developed individually or by teams (4 team members maximum). The team member list must be finalized until the last day of registration.
- Sandbox.archi employees, their associates and immediate family members or household members are not eligible to participate or receive awards in competitions hosted on sandbox.archi. That includes currently working employees, jury members, community moderators or contract agencies, and their direct relatives. Immediate family includes spouses, parents, step-parents, siblings and step-siblings, children and step-children. Household members include all people who share the same residence at least three months of the year.

Copyrights

The participants confirm that the submission does not infringe any copyright, rights related to trademarks, trade secrets, designs or patents of any third party.

The participants shall be ready to supply copyright licenses for images used if requested by the organizer. A failure to supply such licenses may be grounds for disqualification.

By registering for the competition, the participants acknowledge and agree that all aspects of the submission (including, but not limited to narratives, descriptions, details, images, illustrations, photographs, and animations and names and images of the participants) may be used by the organizer or sponsors for publicity purposes.

The participants agree to participate in the promotional activities and the publicity arrangements for the competition. The organizer is authorized to use any and all statements made by the participants in connection with the competition without additional approval.

The organizer reserves the right to undertake promotional activities and/or publicity arrangements through the website or other channels, as well as to discontinue any of its activities and/or arrangements at any time.

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