In the park
Yongsan, Seoul
The Vertical Cities Asia International Design Competition is organised by the National University of Singapore (NUS) School of Design and Environment (SDE), and is sponsored by the World Future Foundation (WFF) and Beijing Vantone Citylogic Investment Corporation.

The competition was launched on 1 January 2011, premised on the belief that a new paradigm of high density compact urban development was necessary for rapidly urbanising Asia, which is besieged by massive rural-urban migrations. Either existing urban architectural models will continue to be recycled to accommodate increasing populations with devastating effects on land, infrastructure, and the environment or new models of urban architecture will be formed to take on the specifics of Asian urban development.

Through this series of international student competitions, we hope to stimulate our students to think about this critical issue and propose solutions. A one square kilometre territory will be the subject of the Competition. This area, to house 100,000 people living and working, sets the stage for tremendous research and investigation into urban density, verticality, domesticity, work, food, infrastructure, nature, ecology, structure, and program – their holistic integration and the quest for visionary paradigm will be the challenges of this urban and architectural invention.
Seoul growth 1920
0.3 million
Seoul growth 1930
0.7 million
Seoul growth 1960
2.4 million
Seoul growth 1970
5.2 million
Seoul growth 1980
7.2 million
Seoul growth 1990
8.3 million
Seoul growth 2000
10.2 million
Seoul growth 2010
10.5 million
Seoul central business districts

Major domestic companies, news agencies, law firms and financial institutions including domestic and international insurers.

Bank headquarters and other financial institutions including, securities and asset management companies, as well as finance-related government agencies, such as the Korea Exchange and Financial Supervisory Service.

IT, manufacturing, consumables and pharmaceuticals, for overseas cosmetics, luxury goods and fashion-related companies.
Plot and surroundings

- Seoul station
- Namsam mountain
- Hyochang stadium
- War memorial of Korea
- US military base
- National museum of Korea
- Green belt
- Seoul performing arts centre
- Yeoido business district
- National cemetery
Residential towers
Electronic market
Namsan mountain
Yongsan park
River park

namsam mountain

yongsan park

ter park
High-rise wall
Green space comparison

M2 OF GREEN SPACE PER PERSON IN CITIES OF THE WORLD

Source: http://blog.sustainablecities.net/2011/07/13/how-many-metres-of-green-space-does-your-city-have/

with mountains
18.6 m² green p.p.

without mountains
5.63 m² p.p.
8.1%  
4,924 ha  

Water area
Water sign in national flag
Water in public space Seoul
Water use Seoul

Elderly

- Fishing

- Sailing

- Bathing

Young

- Swimming

- Ice skating

- Playing
the most significant cultural sites always kept water in its surroundings. Whether the water was in the form of a stream, lake, pond or river, people valued the water and built palaces near the presence of waters
Four major rivers project

Goals:
1. Decrease floods and water scarcity problems
2. Restore the ecosystem
3. Increase quality of cultural and leisure activities
4. Create a new green economy
Oh Se-hoon, Mayor of Seoul: “We expect the Han River to become a more recognizable symbol of Seoul, both economically and culturally, once the Han River Renaissance Project is completed.”
Artificial stream
Only as leisure function, no engineering
Great succes as new public space

Cheonggyecheon restored stream
Water concept

No control

<1960

Dams in Han river
Covering streams

1960-2012

Restore/make controlled streams

our concept
Water concept

No control

<1960

Dams in Han river
Covering streams

1960-2012

Restore/make controlled streams

our concept
Water flow with streams
Rainfall in urban environment

Seoul before Urbanization

Evaporation 51%
Runoff 9%
Infiltration 40%

Seoul after Urbanization

Evaporation 30%
Runoff 47%
Infiltration 23%
Water connecting with park
Water system
Water dams
Water system with subway

To Han River

Subway metro stations

Water direction
Building water system
Plot in Tokyo grid
Plot in Manhattan grid
Plot in Chicago grid
Combined grids
Combined grids
Combined grids
Existing roads
Grid placement
Grid placement
Water in grid
Existing infrastructure
New infrastructure
Land exchange

\[ (+/-150,000 \text{ m}^2) = (+/-150,000 \text{ m}^2) \]
Waterfront property

1400m waterfront property

12000m waterfront property
Building typology Manhattan

Manhattan - NY

one plot multiple buildings
different heights
collective space (courtyards)
opening to the street
Building typology Manhattan

9100 sqm plot
4497 sqm built
0.50 built/unbuilt
74768 sqm GFA

FAR: 8.2
Building typology Chicago

FAR 8.0

one plot one building
one building height
public space on the street
Building typology Chicago

- 5885 sqm plot
- 5004 sqm built
- 0.85 built/unbuilt
- 30644 sqm GFA

**FAR: 5.2**

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<tr>
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Paris is midrise high dense city it is a typology in between separate housing and towers, the building block.

Streets are public space
Courtyard are private space
Building typology Paris

4140 sqm plot
2702 sqm built
0.65 built/unbuilt
16212 sqm GFA

FAR: 3.9
Riverfront
Land Area: 466,101 m²
GFA: 272,300 m²
FAR: 5.9
Districts

Residential
Land Area: 170,480 m²
GFA: 476,504 m²
FAR: 2.8
Program

- Sport Center/Physical Therapy: 20%
- Hospital: 60%
- Medical Center/Elderly Care: 15%
- General Practitioner/Specialist/Dentist Pharmacy: 5%

Health
210,000 m²
Program

Water Research Center
District School
High/Middle/Primary
Nursery/Vocational

Education
215,000 m²
With surroundings
River walk
At the basin
At the river
In the river
Seoul size

1960: 2.4 million

2010: 10.5 million
Urbanisation
South Korea

Global urbanisation

Percentage of World Population

Tallest building timeline from 1890 till now.
High-rise residential, Seoul
Mountains vs buildings
Seoul, height limit?
Dreamhub
Daniel Libeskind
Masterplan
“The Open Ended City”
Current situation

“The Open Ended City”
Green?
Connect east with west
Connect station with water
Green space for surrounding area
Existing Green buffer
100.000 sqm building?
two square towers
footprint: 1600 sqm (x2)
47 floors
188 m high
slenderness: 1:5
square tower
footprint: 1.600 sqm
94 floors
376 m high
slenderness: 1:10
two slim towers
footprint: 900 sqm (x2)
83 floors
332 m high
slenderness: 1:11
two square tower with 5 floor plint
footprint: 1,600 sqm (x2)
37 floors tower
168 m high (total)
slenderness: 1:4
transverse pyramid
footprint: 5,600 sqm
52 floors tower
208 m high
one tower, half of plot
footprint: 2.800 sqm
52 floors
208 m high
slenderness: 1:5
three slim towers
footprint: 900 sqm (x3)
56 floors
224 m high
slenderness: 1:8

tower with 5 floor plint
footprint: 2.800 sqm
42 floors tower
188 m high (total)
slenderness: 1:4

block
footprint: 5.600 sqm
26 floors
104 m high
slenderness: 1:4

two square tower with 5 floor plint
footprint: 1.600 sqm (x2)
37 floors tower
168 m high (total)
slenderness: 1:4

longitudinal pyramid
footprint: 5.600 sqm
52 floors tower
208 m high

slim tower
footprint: 900 sqm
167 floors
668 m high
slenderness: 1:22
Core influence

John Hancock Center
office depth (m): 9.7
floor space (m²): 1440
core (m²): 241
office (m²): 1199
space efficiency (%): 83

World Trade Center
office depth (m): 19.7 / 10.1
floor space (m²): 4086
core (m²): 1134
office (m²): 2654
space efficiency (%): 64

Shanghai World Finance Center
office depth (m): 14.5
floor space (m²): 2864
core (m²): 710
office (m²): 2154
space efficiency (%): 75

Taipei 101
office depth (m): 13.9
floor space (m²): 3421
core (m²): 916
office (m²): 2505
space efficiency (%): 72

Jin Mao Tower
office depth (m): 12.8 / 17.7
floor space (m²): 2849
core (m²): 696
office (m²): 2153
space efficiency (%): 76
FAR: 5.1
site area: 2,418,530 m²
program: 12,000,000 m²
“By the bay”
Program

FAR: 6.1
site area: 118,500 m²
program: 723,000 m²
Masterplan program detailed

Hotel
4% - 100,000 sqm

- High class housing: 20%
- Middle class housing: 30%
- Social housing: 50%

Residential
50% - 1,250,000 sqm

- 5 star hotel: 39%
- 3 star hotel: 59%
- 1 star hotel/hostel: 29%
GFA Residential: 25.000 sqm

- 4% fitness/wellness
- 11% penthouse 280sqm
- 15% junior suites 140sqm
- 20% 3 bedroom 106sqm
- 20% 1 bedroom apartment 69sqm
- 30% 2 bedroom apartment 86sqm
GFA Hotel: 17.000 sqm

- 6% fitness/wellness
- 3% back office
- 3% lobby / reception
- 5% restaurant / bar
- 6% conference center/meeting room
- 10% other rooms
- 9% suites 49 sqm
- 25% deluxe rooms 29 sqm
- 33% standaard rooms 20 sqm
Floor plan
hotel

49m²  20m²  20m²  29m²
Floor plan
residential, 1-bedroom
Floor plan residential, 2-bedroom, 3-bedroom
Floor plan
junior suite
Mass study
Mass study
Mass study
Mass study
Mass study
The park
Water storage
Office buildings
Retail buildings
In the park
In the park
Floorplan basement
Floorplan ground floor
Floorplan first floor
Section residential/hotel
Section residential/hotel

- Concrete insulation
- Concrete damp braking foil
- Plaster
- EPDM glued on concrete
- Multiplex 20 mm
- Sealing
- Rubber sealing
- Double glazing
Detail residential/hotel

- concrete facade element
- distance piece
- insulation (hard)
- wide slab flooring breedplaatvloer
- damp braking foil plaat
- floor screed
Section office
Detail office

- steel column Ø324
- filled with steel reinforcement concrete
- single glazing
- double glazing
- aluminium facade element