

# Tianjin Green Triangle

## Connecting people with good city form

*Serge Salat, Architect*

URBAN MORPHOLOGY  
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Tianjin is a dynamic, global city and the Green Triangle will play its part in delivering growth, jobs, homes and a community – all coming together in a world-class environment. The Green Triangle will become Tianjin's next great real estate, offering a managed environment that is safe and secure around the clock for businesses, residents and visitors. An environment that is always inclusive – never exclusive.

Its striking contemporary design will create flexible offices, safe residential communities, vibrant shopping and welcoming public spaces. What Tianjin Green Triangle offers by its unique combination of a green tower, an elevated garden promenade, a green amphitheater and a green triangular plaza is the opportunity to create in Tianjin a reference point at the entire city scale: an unforgettable urban experience associating the space of movement (the stations) and the places for people (the streets, the green roofs, the green amphitheater and enclosed plaza, the sharp triangular tower as a brand and an icon of green 21st century image of Tianjin, the buildings, with their elevated gardens, restaurants and luxury brand boutiques.

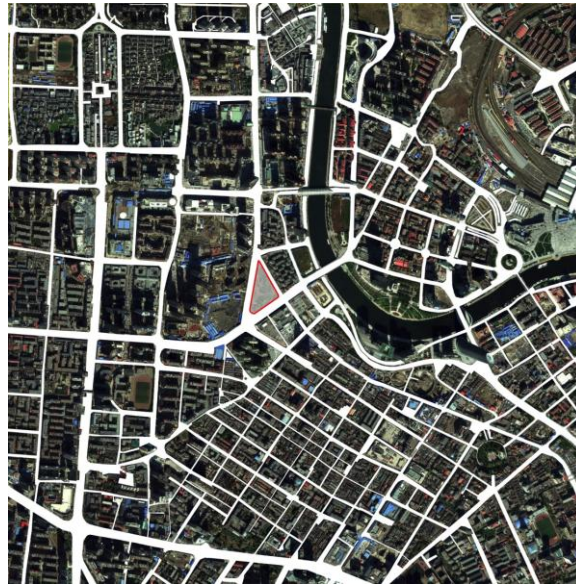
Tianjin Green Triangle is both a formal variation in triangular shapes offering astounding formal diversity and gradation in space within a coherent pattern, and a place for people to meet, simply look at other people or reinforce more complex and emotionally involved connections. Experiencing a complex sequence of movement, within a structured place, where people pursue a high variety of activities (children playing, old people playing mahjong, ladies practicing square dancing, lovers being together, couples or families dining outdoors or shopping), all these experiences of people offer a wealth of sensual variation. This is what the Green Triangle is about: connecting people through place making and multiple experiences sharing.

People need contact with other people. Even simple forms of contact, such as seeing and hearing other people, offer information about the social environment, are a source of inspiration, and a uniquely stimulating experience. The complexity of movement patterns of people converging to and diverging from subway and BRT stations represents a particularly colorful and attractive opportunity for stimulation.

Tianjin Green Triangle will thus become a focal point of intensity of social life. It will become a “special” station and play a focal role at entire city scale such as Piccadilly Circus in London and Times Square in New York. These stations are extremely attractive because of the form of their urban setting (their theatrical appeal connected to a plaza), the intensity of activities assembled around them, and above all the intense and colorful movement of people they offer.

## Vertical green

An innovative hub linking creatively a new type of community in Tianjin



*Tianjin Green Triangle in a 3km side selection of Tianjin urban network.  
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Compared to the other studied transit stations, Tianjin Green Triangle is located in a connected urban fabric whose results of connectivity are comparable to international benchmarks.



*From Left to right, Liu Yuan Station, Golden Triangle Station, Tu Cheng Station with a circle 800 meters radius showing a 10 minutes walk area.*

**Liu Yuan Station** displays a total length of streets of 8.75 km within the 800 meters circle, that is 4.4 km/km<sup>2</sup>; within the circle the number of blocks is 13, and the average block surface is 103 300 m<sup>2</sup>.

**Golden Triangle Station** displays a total length of streets of 22.5 km within the 800 meters circle, that is 11.2 km/km<sup>2</sup>; within the circle the number of blocks is 68, and the average block surface is 22 400 m<sup>2</sup>.

**Tu Cheng Station** displays a total length of streets of 11.6 km within the 800 meters circle, that is 5.8 km/km<sup>2</sup>; within the circle the number of blocks is 13, and the average block surface is 74 250 m<sup>2</sup>.

Like in other stations, superblocks limit anyway accessibility.





From Left to right accessibility analysis of Liu Yuan Station, Golden Triangle Station, Tu Cheng Station within a circle 800 meters radius showing a 10 minutes walk area. Red: accessibility at 200 m; Yellow: accessibility 400 m; Green: accessibility 800 m.

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Accessibilities at 200 and 400 m (walking distance in a TOD neighborhood) are extremely reduced while actual accessibility at 800 meters covers less than half the accessibility circle.

The Golden Triangle is surrounded by large arterials that limit accessibility and reduce physical and experiences accessibility.



Source: ITDP.

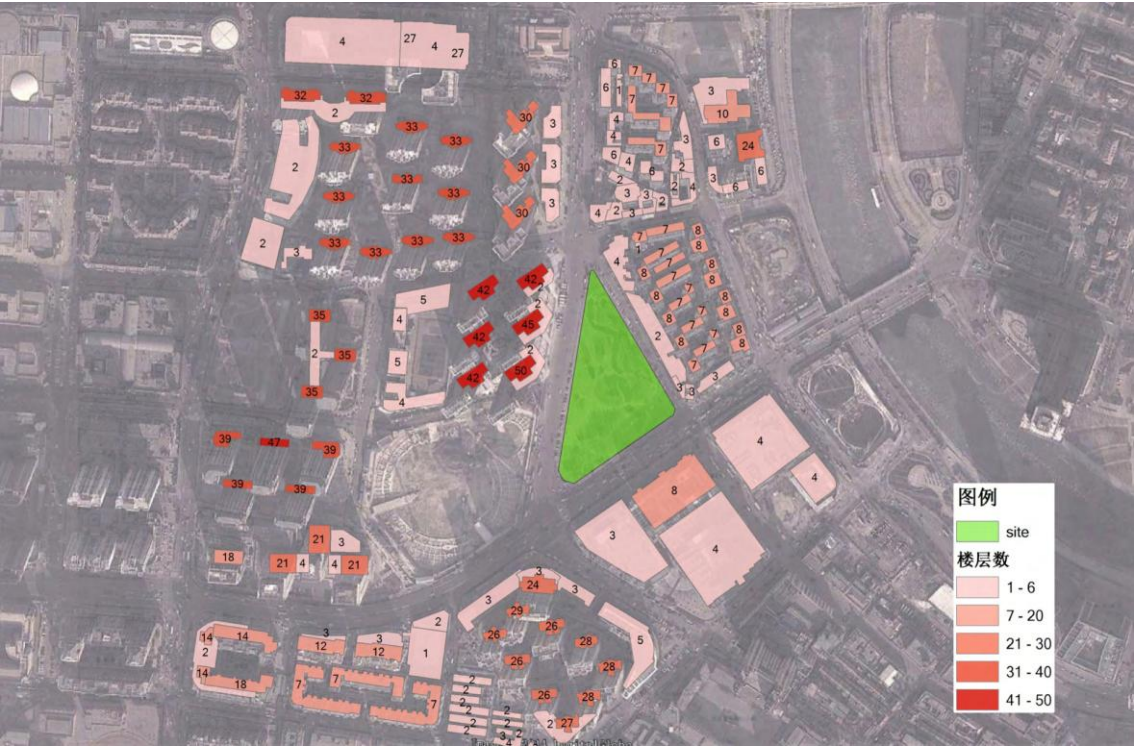
Urban fabric around the Golden Triangle is made of repetitive disconnected large structures and tall residential towers which fail to give a strong identity and imageability to the site.



Source: ITDP.

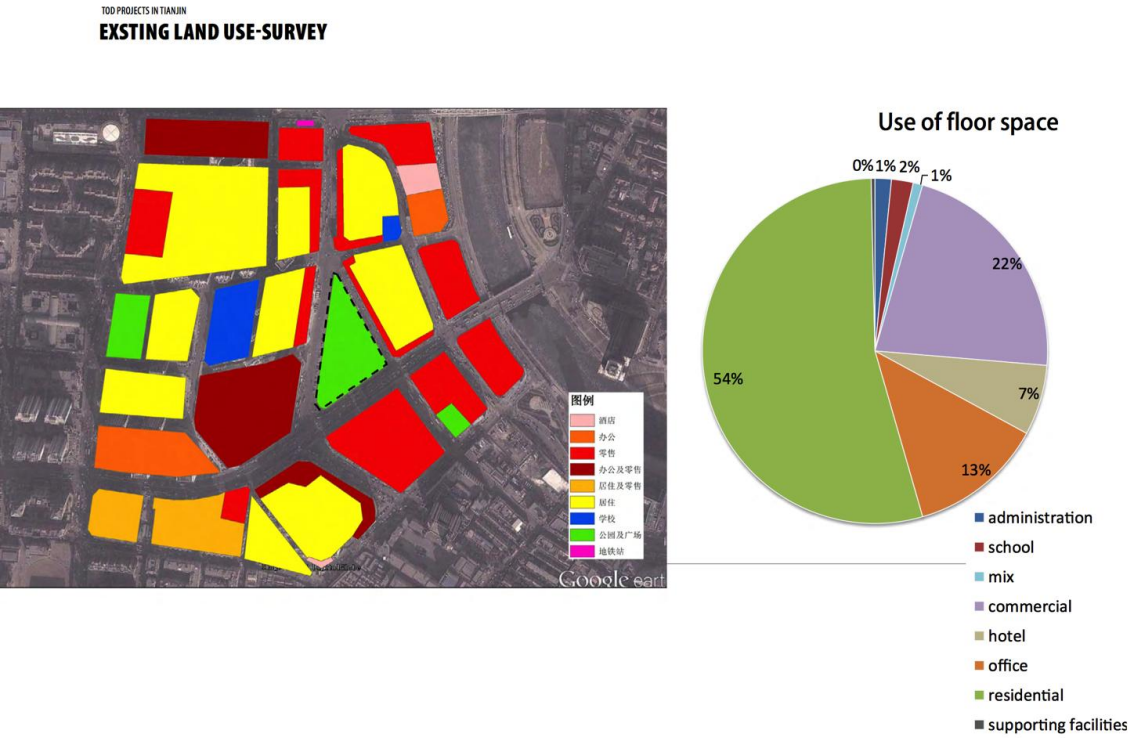


Urban disconnected fabric made of over scaled repetitive elements



Existing development intensity survey around Golden Triangle. Source: ITDP.

Existing land use around Golden Triangle displays low level of mixed use. Land use is zoned at the scale of several superblocks and not diversified within small block scale.

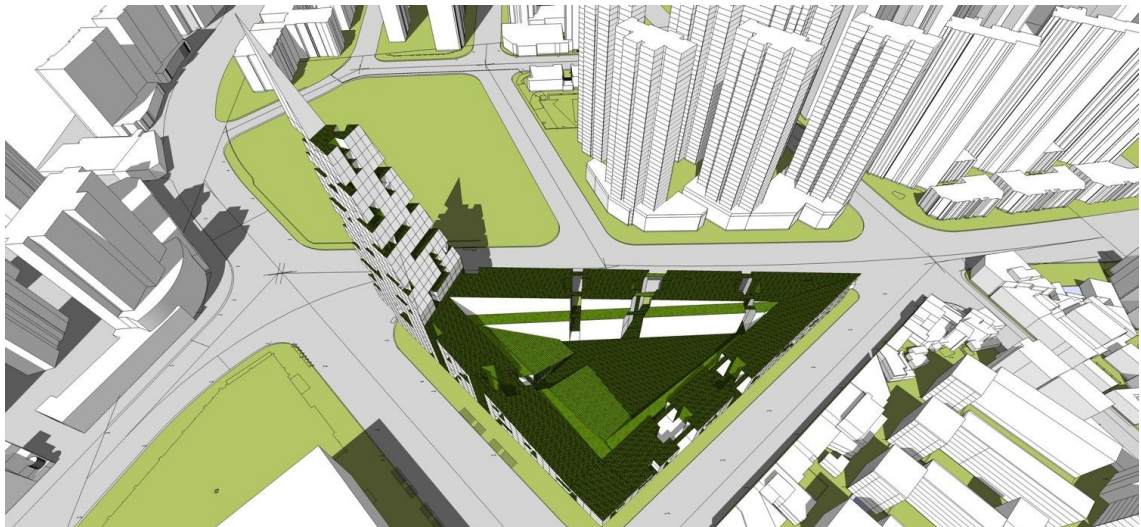


Existing land use around Golden Triangle. Source: ITDP.

Tianjin Green Triangle project aims at conserving the integrality of green space of the existing park and even adding to it. It enhances the global community by the creation of a strong focal point for social activities. It is the first step in a more global project to be carried further on to increase permeability of the superblocks, create elevated garden walkways above the arterials, create a series of connected gardens, linking the Green Triangle to the river and to the pedestrian commercial street. It is a powerful node for its strong image, physical and social amenities, diversity and variety of spaces and activities. It is a demo project of good development of a block, leading to further redevelopment of the neighborhood. Above all it is a linkage within the entire social and physical fabric of the community and it shows how such innovative and creative linkages can be created immediately to enhance the dynamism and economic vibrancy of Chinese cities.

Golden Triangle Park is an asset for the 250,000 people living in a radius of 2 km (with a very high density of offices). It should become a destination and a civic space for this community. Keeping the green space and even adding to it has many benefits:

- Environmental benefits: it reduces the heat island effect;
- Social benefits: it creates community civic space;
- Economic benefits: it increases property values.



*Tianjin Green Triangle, Serge Salat, Architect ©*



The project concept is vertical green

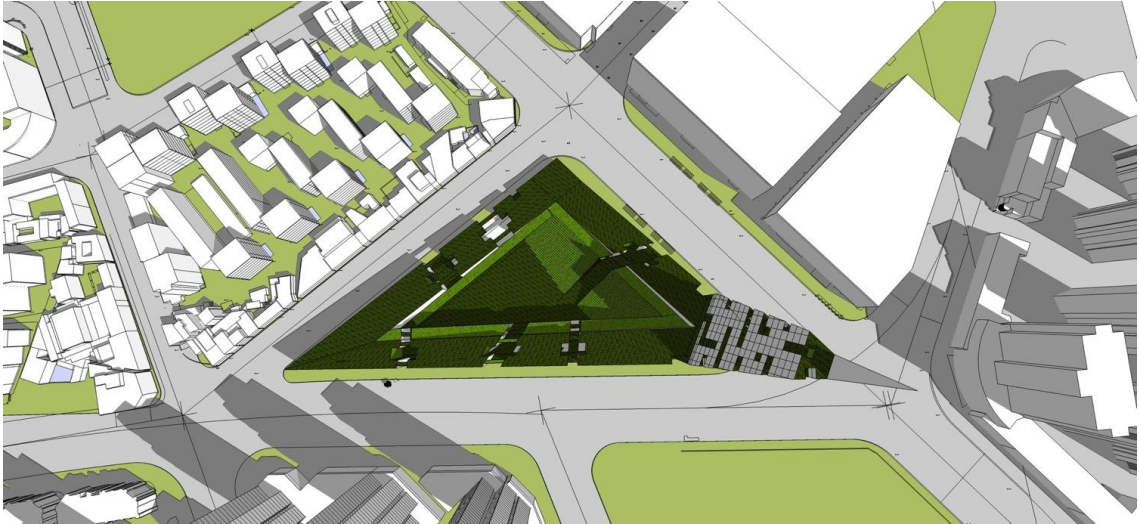


*Varenna, near Como Lake in Italy.*



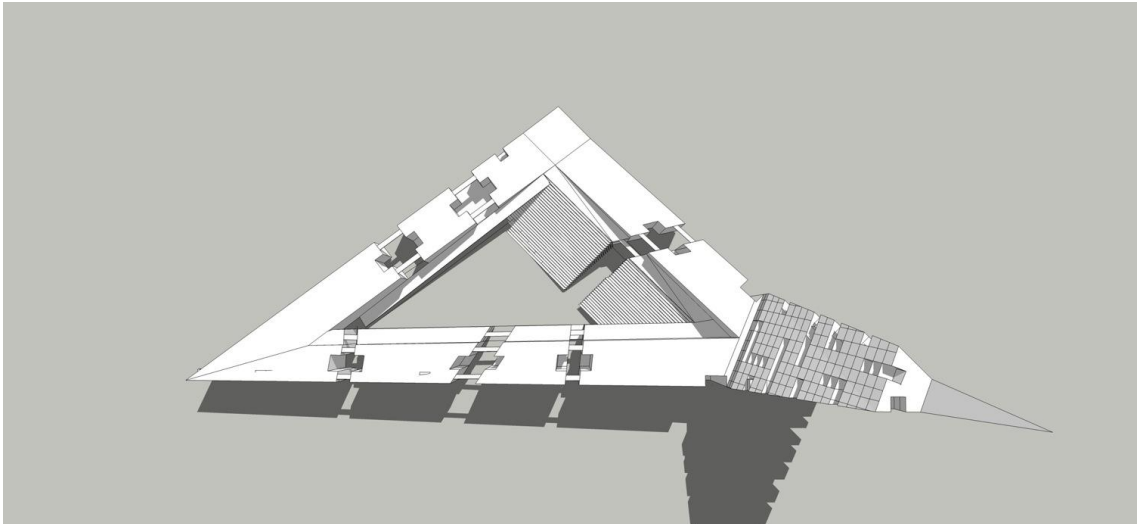
*Vertical Green Concept: REAP Rotterdam*

Tianjin Green Triangle is a green preserved island in a highly dense neighborhood. It preserves green space entirely: after project, there is more green space than before thanks to suspended gardens, green roofs and terraced gardens. 50% of the park is preserved at ground level; more than 50% is recreated in the form of elevated gardens.



*Tianjin Green Triangle, Serge Salat, architect*

**Perimeter block development leads to efficient land use.**



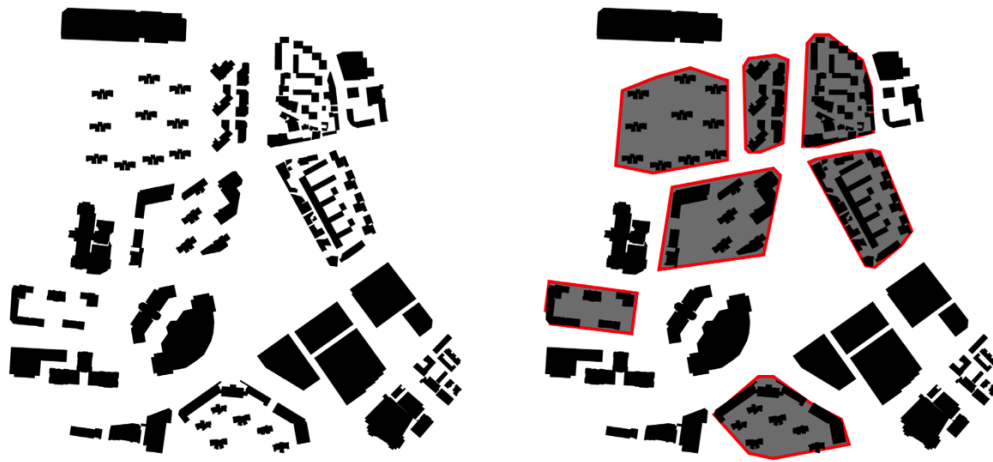
*Tianjin Green Triangle, Serge Salat, architect*

Perimeter block development reaches a FAR of 4 with medium rise buildings and 50 % of land preserved for inside green civic space.

The project increases the permeability and connectivity of the urban fabric

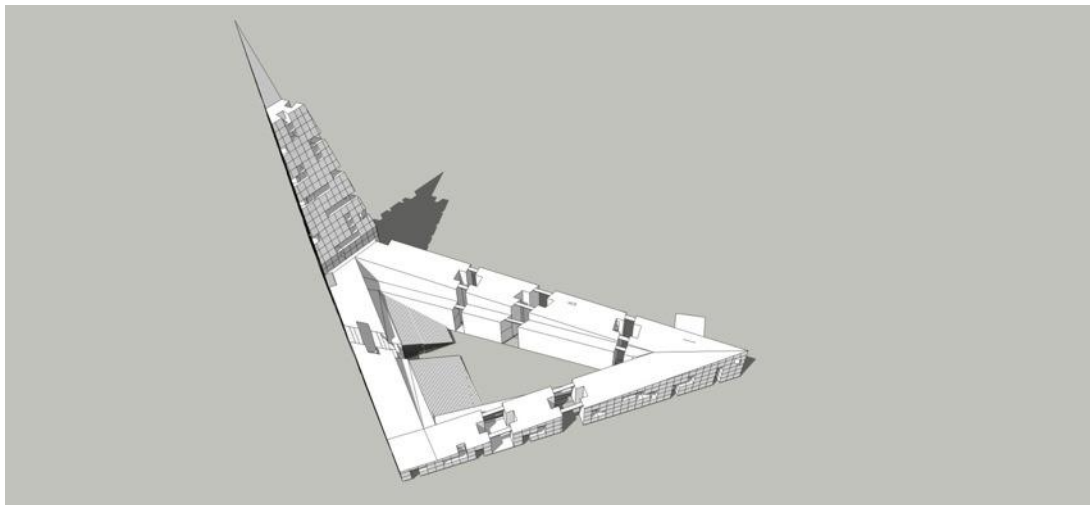
TOD PROJECTS IN TIANJIN

**PERMEABILITY -SURROUNDING URBAN FABRIC ANALYSIS-EXISTING**



*Permeability analysis. Source: ITDP.*

The surrounding fabric lacks permeability due to the closure of the superblocks. By its multiple openings the project increases significantly permeability.



*Tianjin Green Triangle, Serge Salat, architect*





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A pedestrian lane connects BPS and subway lines through the Green Agora. Six public passages allow crossing the garden from adjacent streets and move towards the river. The green roof promenade will be extended at second stage towards the commercial street and will replace the existing overpass.

The enhancement of Chinese urban fabric towards more people centered urban environment and higher value creation is achieved by applying 8 innovative design principles.

# Applying the 8 design principles of good city form in Tianjin Green Triangle

Tianjin Green Triangle creates a strong and vibrant node in Tianjin through the application of 8 key design principles derived from international best practice: imageability, enclosure, human scale, transparency, complexity, coherence, legibility, and linkage.

In a number of examples where these principles have been consistently applied, improved physical conditions have resulted in impressive increases in the number of pedestrians, a lengthening of the average time spent outdoors, and a considerable broader spectrum of outdoor activities.

## 1. Imageability

Tianjin Green Triangle is a place distinct, recognizable and memorable. The triangular arrangements of its elements capture attention and create a lasting impression. Tianjin Green triangle plays on the innate human ability to see and remember patterns. Its elements are easily identifiable and grouped into an overall pattern.



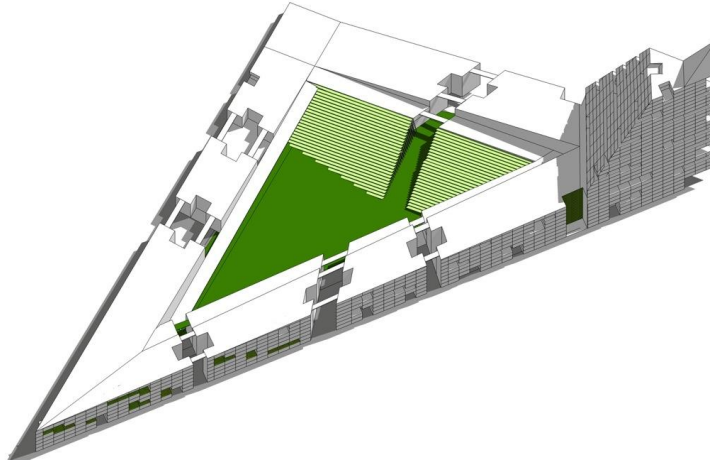
*Tianjin Green Triangle, Serge Salat, architect*

The triangular landmark tower is an element of imageability by its singularity and location, in relationship to its context and to the city at large. It is a visual termination point, an orientation point, and a point of contrast in the urban setting. It lifts a considerable area around itself out of anonymity, giving it identity and visual structure. The consistent characteristic triangular theme of the Green Triangle contributes to a cohesive sense of place and will inspire people to enter and rest in the space.

## 2. Enclosure

In Tianjin Green Triangle, the Green Agora is defined and shaped by buildings, walls, and streets. The height of vertical elements proportionally related to the width of the space between them gives the Agora a room-like quality. Gordon Cullen states that “enclosure, or the outdoor room, is, perhaps, the most powerful, the most obvious, of all the devices to instill a sense of position, of identity with the surroundings. ... It embodies the idea of here-ness”. Alexander, Ishikawa and Silverstein say that: “an outdoor space is positive when it has a distinct and definite shape, as definite as the shape of a room, and when its shape is as important as the shapes of the buildings that surround it.” In Tianjin Green

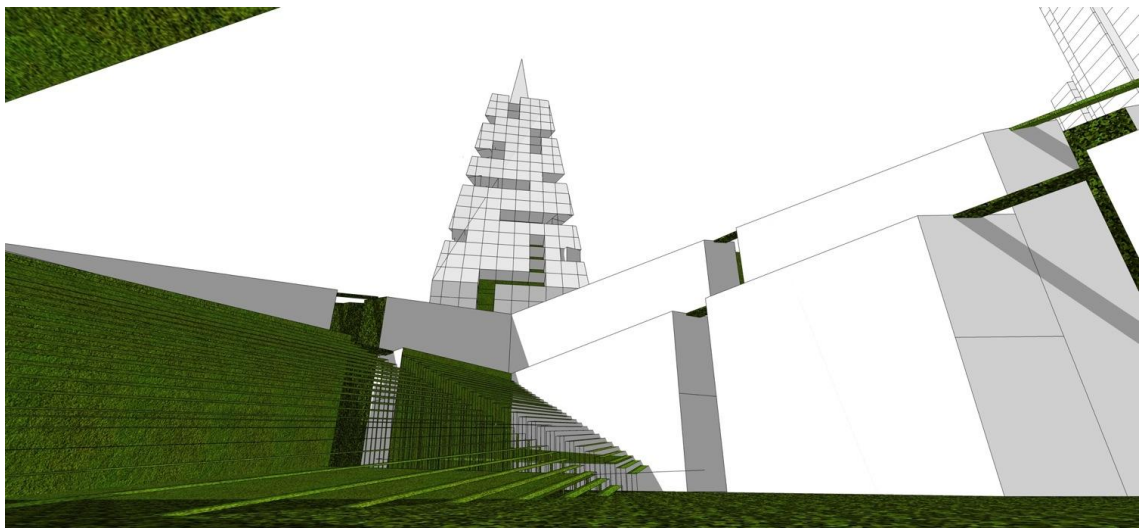
Agora, lining the plaza with gently sloping building fronts creates enclosure. The buildings become the “walls” of the outdoor triangular room; the plaza becomes the “floor”, and the sky projects as an invisible “ceiling”.



*Tianjin Green Triangle, Serge Salat, architect. The Green Agora is an astounding civic space.*

### 3. Human scale

In Tianjin Green Triangle, the size, texture, and articulation of physical elements match the size and proportion of humans, and correspond to the speed at which humans walk. The Green Agora size, smaller than 10,000 m<sup>2</sup>, corresponds to the scale of the most successful European squares. Moderate-sized buildings, and sequences of small spaces will create an intimate environment. Building details, pavement texture, trees and street furniture, will be further developed to contribute to human scale.

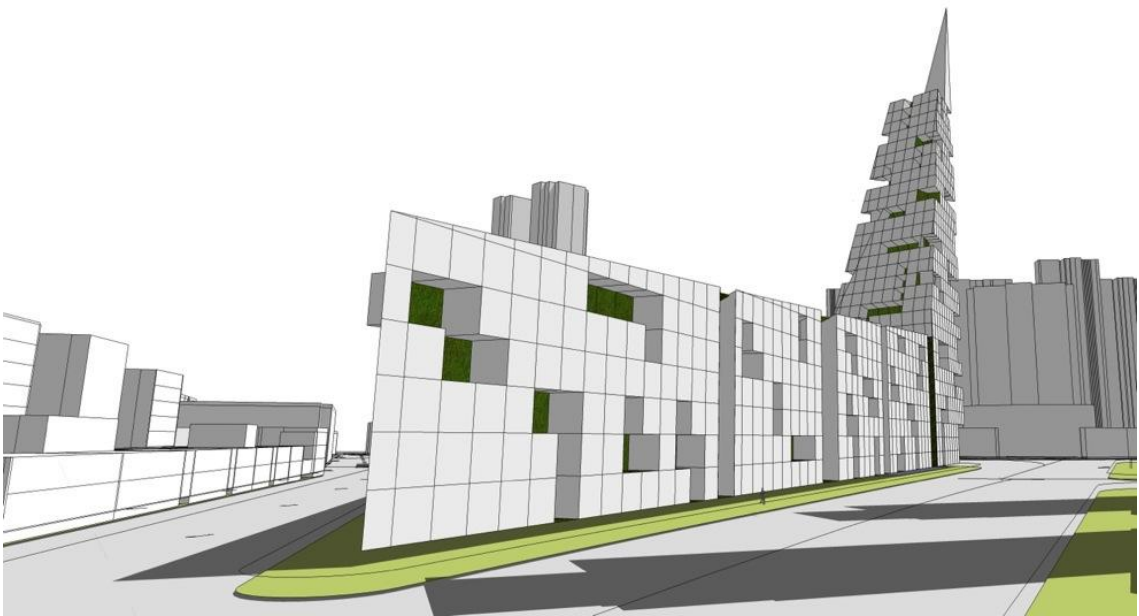


*Tianjin Green Triangle, Serge Salat, architect*





*Left: London King's Cross. Right: REAP Rotterdam.*

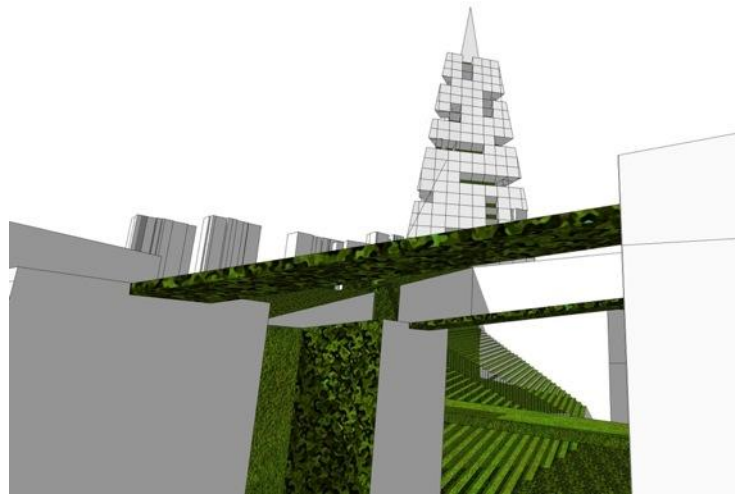


*Tianjin Green Triangle, Serge Salat, architect*

In order to create a series of personal and intimate spaces, the Green Triangle makes a very conscious use of physical and social distances. The relationship between distance and intensity, closeness and warmth, in various human contact situations, has an important parallel in the prevalent perception of architectural dimensions. The Green Agora is within the 70 to 100 meter limit that allows everybody to see everything what happens. In most situations in the Green Triangle the distance is reduced to 20 to 25 meters the maximum distance in a theater, which allows people to perceive relatively clearly the feelings and moods of others. Small gardens and the people who move about in these spaces are experienced at close range and with considerable intensity. These spaces are comparably perceived as intimate, warm and personal.

#### **4. Transparency**

In Tianjin Green Triangle, people will perceive what lies beyond the edge of the streets and the public spaces. Many entryways in the Green Agora contribute to the perception of human activity beyond the street and foster interactions between indoors and outdoors.

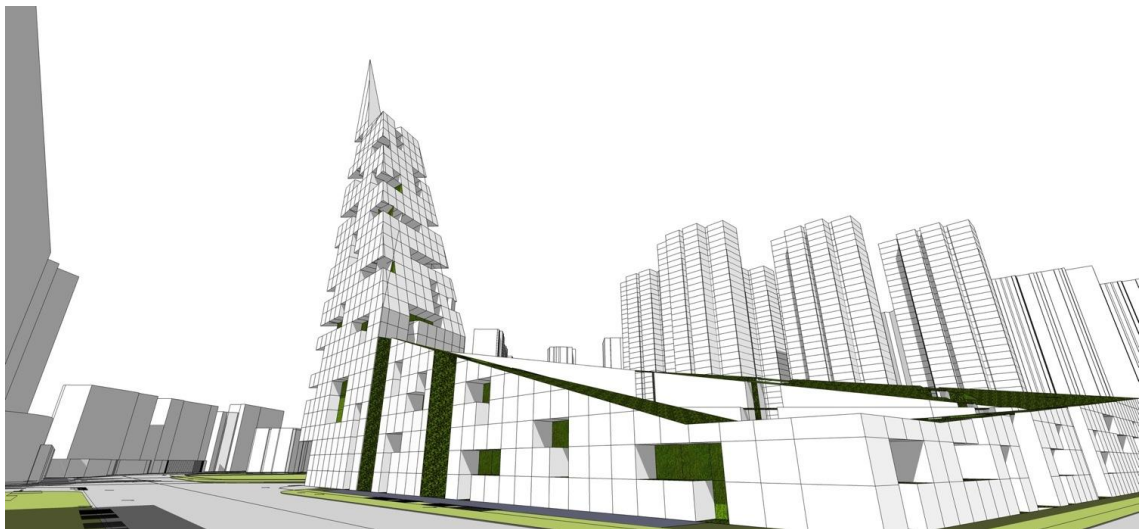


*Tianjin Green Triangle, Serge Salat, architect*

Tianjin Green Triangle assembles people and functions in time and space. It integrates, invites, and opens up rather than close in activities. Whether the public environment invites or repels depends of its degree of enclosure and of transparency, and how the border zone is designed. Flexible boundaries in the form of transitional zones are able to function as connecting links making it easier both physically and psychologically for activities to move back and forth between in and out. Contact through experience between what is taking place in the public environment and what is taking place in the adjacent residences, shops, offices and communal buildings provides an extension and enrichment of possibilities.

## 5. Complexity

Complexity refers to the visual and social richness of a place. It depends on the variety of the social and physical environment, specifically the number and kinds of activities and buildings, the architectural diversity, landscape elements, street furniture, signage, and human activity. Complexity is related to the number of noticeable differences to which a viewer is exposed per unit of time. People are most comfortable receiving information at perceivable rates. Too little information results in sensory deprivation; too much creates sensory overload. Slow moving pedestrians require a high level of complexity to hold their interest.



*Tianjin Green Triangle, Serge Salat, architect*

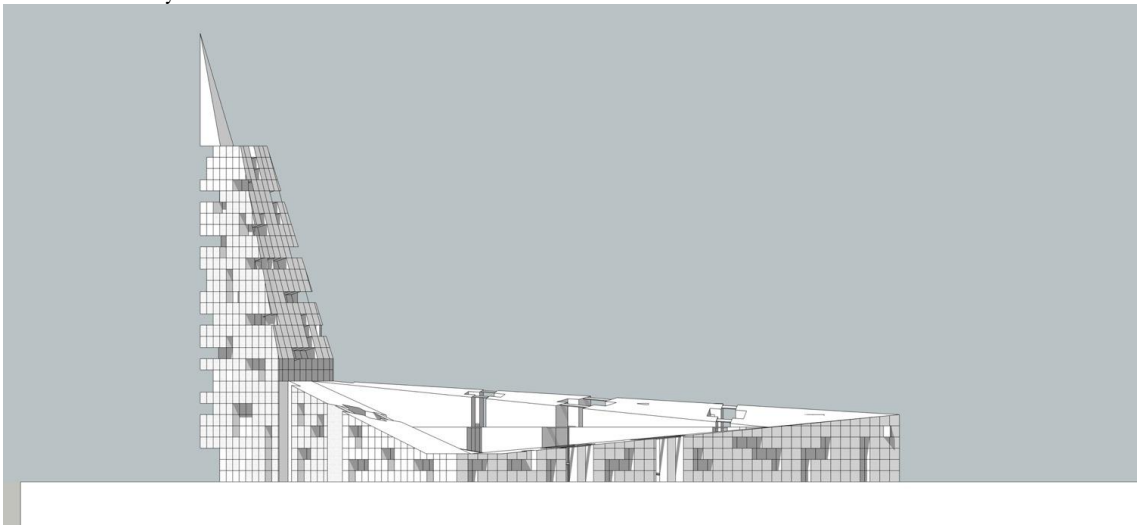
Walking is supported by complexity. Walking is physically demanding and there are narrow limits as to how far most people can or will walk. In a large number of surveys, the acceptable walking distances for most people in ordinary daily situations have been found to be around 400 to 500 meters. Crucial to determining the acceptable distance in a given situation is not only the *physical distance*, but also to a great extent the *experienced distance*. A stretch of 500 meters viewed as a straight, unprotected, and dull walk along a large arterial is experienced as very long and tiring, while the same length can be experienced as a very short distance if the route is perceived in stages.

Tianjin Green Triangle offers complex walks, split into sequences, at various levels along the edges of the Green Agora. Movement at the edge of a space makes it possible to experience simultaneously both the large space as well as the small details of the buildings façades or the spatial boundary along which one walks.

Complexity leads to self-reinforcing life between buildings. When someone begins to do something, there is a clear tendency for others to join in either to participate themselves or just to experience what the others are doing. In this manner, individuals and events can influence and stimulate one another. Once this process has begun, the total activity is nearly always greater and more complex than the sum of the originally involved component activities. In Tianjin Green Triangle, people and events are assembled in time and space so that the individual activities get a chance to grow together to larger, more meaningful and inspiring sequences of events. The process becomes positive: *something happens because something happens*. A self-reinforcing process can begin. This is the case because larger, more complex community activities can develop naturally from the many small daily activities.

## 6. Coherence

Coherence refers to a sense of visual order that leads to a high level of social integration. The degree of coherence is influenced by consistency and complementarity in the scale, character, and arrangement of buildings, landscaping, street furniture, paving materials, and other physical elements. Tianjin Green Triangle displays a high level of formal and geometrical coherence as the urban block is carved into smaller components following a set of consistent principles. Nikos Salingaros states: “Geometrical coherence is an identifiable quality that ties the city together through form, and is an essential prerequisite for the vitality of the urban fabric.”



*Tianjin Green Triangle, Serge Salat, architect*





*Tianjin Green Triangle, Serge Salat, architect. Geometrical coherence is created by the rhythm of the street edge.*

The social side of coherence is integration. Integration implies that various activities and categories of people are permitted to function together side-by-side. Integration of various activities and functions in and around public spaces allows the people involved to function together and to stimulate and inspire one another.

## 7. Legibility

The spatial structure of Tianjin Green Triangle can be easily understood and navigated as a whole. It provides people with a sense of orientation and relative location by physical elements that serve as reference points.



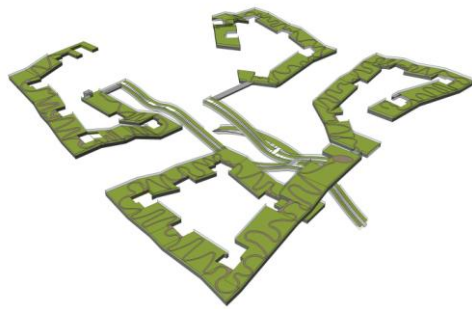
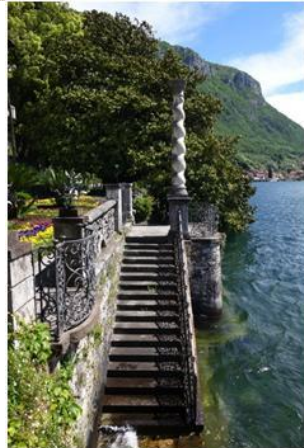
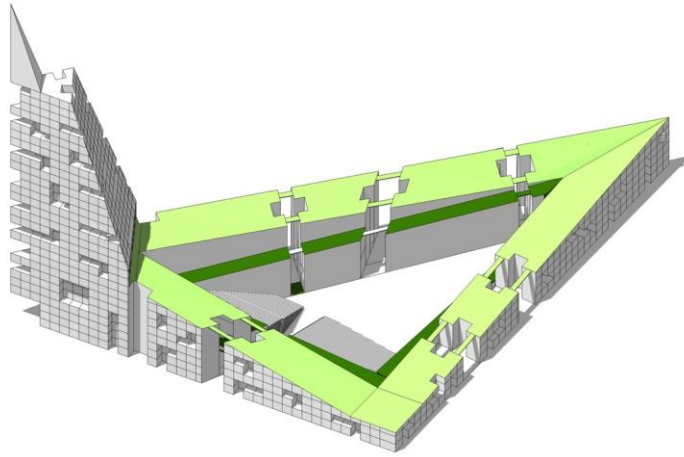
*Tianjin Green Triangle, Serge Salat, architect*

Tianjin Green Triangle increases the overall clarity of the cityscape, the ease by which its parts can be recognized and can be organized into a coherent pattern. Lynch suggests that when faced with a new place, people automatically create a mental map that divides the city into paths, edges, districts, nodes, and landmarks. Tianjin Green Triangle has well-defined and memorable edges, a distinct landmark, and is a busy node that allows people to form a detailed and accurate mental map. The Green Tower visual termination creates a focal point for the community as well as provides a sense of enclosure on a large city scale.

## 8. Linkage

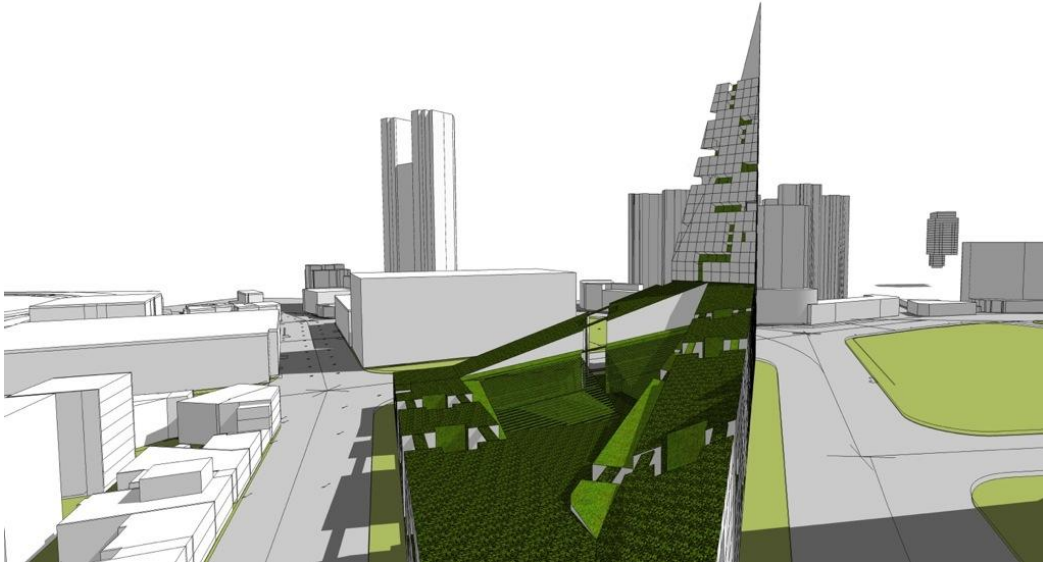
Linkage refers to physical and visual connections – from building to street, building to building, space to space, or one side of the street to the other – and above all from people to people. Linkages can be defined as features that promote the interconnectedness of different places and that provide convenient access between them. Tianjin Green Triangle is intensely linked by roof bridges and a continuous architectural promenade unfolding on several levels. The block is divided into smaller buildings separated and united by the continuous elevated gardens and their bridges.

Linkage in Tianjin Green Triangle is achieved by elevated movement space.



*Top: Varenna, Como Lake, Italy. Bottom: Bill Dunster, Zed Factory, proposal for a Chinese urban block.*

These green connections link people and events. The fact that the possibilities for seeing other people and courses of events is limited to a distance between 20 and 100 meters, depending on what is to be seen, in practice place very great demands on the degree of linkage.



*Tianjin Green Triangle, Serge Salat, architect*



In Tianjin Green Triangle, the physical structure supports the social structure by linking indoors and outdoors, at the various levels. Tianjin Green Triangle offers flowing, gentle transitions between various categories of public spaces. Its physical structure reflects and supports the desired social structure encouraging innovation, creativity, and high tech start-ups. Offices, shops and residences are organized around communal and outdoor spaces at different levels. The major function of these communal spaces is to provide the arena for life between buildings. The establishment of this physical and social structure permits movement from small groups and spaces towards larger ones and from the more private towards gradually more public spaces, giving a greater feeling of security and a stronger sense of belonging to the outside areas.





*Tianjin Green Triangle, Serge Salat, architect. Linkage is also achieved by creating vibrant street edges.*

### **Connecting spaces / connecting people**

Connecting people ranks essential. People and human activity are the greatest object of attraction and interest of urban life. Contacts at various levels in Tianjin Green Triangle offer people the opportunity of being together. The Green Triangle with its vibrant roof garden promenades and plaza enables people to see, hear and possibly interact in a non-committal form with other people. These contacts are the first essential step in a range of social activities, from very simple and non-committal contacts to complex and emotionally involved connections. Tianjin Green Triangle offers an opportunity to be with others in a relaxed and undemanding way. It is also an uncomplicated opportunity to maintain already established contacts through informal meetings.

### **Vibrant public domains: an immediate strategy for a better future.**

Chinese cities can be vastly enhanced immediately by these 8 design strategies. They create well-designed public spaces and urban landscapes, which will form the seeds for future transformations and mutations towards a Chinese city constantly turned towards the future and constantly transforming towards a better life all along the 21<sup>st</sup> century. Within the over scaled environment of Tianjin recent urbanization, Tianjin Green Triangle offers the unique opportunity to link people together and increase land value.

TOD land value capture is about financing infrastructure through increases in land value. As demonstrated by London King's Cross, land value increase is extremely high if boosted by creation of public space. London King's Cross developer, Argent, has invested 2 billion £ on 26 ha for the creation of 20 new streets, 10 public spaces including new major squares (less than 1 ha to give them the maximum interaction potential): land value has skyrocketed. These operations are the first steps in redeveloping entire neighborhoods. Land value rise around this first development diffuses and allows redeveloping adjacent blocks. The 8 key design principles of good urban form allow to create good public space and to increase land value.