**Original Article**

# Indoor 'Public' Space: A study of atria in mass transit railway (MTR) complexes of Hong Kong

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**Abstract** Building and city are mutual 'ground' and 'figure'. In the process of urban development, buildings are typically shaped by urban space. In the past few decades, Hong Kong has become noted for its record economic development and its exceptional compact use of urban land. Shortage of developable land and pressures of increasing population have shaped Hong Kong's existing urban form. Although it has been criticized for its 'lack of identity', Hong Kong's architecture has indeed demonstrated several unique and distinct features. Most notably, the incorporation of internalized 'public' spaces together with elevated pedestrian systems into major urban buildings is successfully designed and utilized in local urban contexts. This pragmatic design is particularly obvious in the comprehensive mega-structures above and around the city's Mass Transit Railway (MTR) stations. In these mega-structure buildings, atrium spaces are focal points physically and psychologically. With the trend of more holistic integration and superimposition of various functions and buildings in these MTR properties, atriums have become increasingly significant local public spaces. This article attempts to analyse the atrium spaces of station-related properties to correlate the building interiors and urban spaces. Three Hong Kong atrium features are identified for their corresponding community values. As an objective of this research, the authors hope to provide useful references for developers, architects and planners to create meaningful public space in dense urban environment.
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**Keywords:** atrium; mega-structure; pedestrian system; high density; mass transit railway

## Introduction: Moving Between Indoor and Outdoor

The Nolli Map, for the first time, provides a clear representation of the internal building space together with the urban space (Tice, 2005). It clearly conveys how building interiors are also a part of urban space. The interior spaces of buildings actively shape the outside city environment, particularly when most such buildings are only one to two stories high. Nolli Map opens a door towards analysing and recognizing urban space. Rocco Yim, an award-winning architect of Hong Kong who has designed many impressive buildings, said: 'Since the 1980s, when we started to deal with projects in our urban areas, the term "relationship" has, for us, taken on a wholly new dimension. Preoccupied with the making of architecture in the city, I have to come to cherish the notion of the city in architecture'(Hope and Ryan, 2002). Where once architecture gave shape to the city, architecture should now be shaped by the city (Figure 1).

Hong Kong, one of the Asian economic 'dragons', is considered to be an economic miracle. At the same time, the special administrative region of China (after 1997) is also one of the most densely developed areas in the world. Although only a quarter of Hong Kong's 1120 $km^2$ land is developable, it caters to the livelihood of approximately 7 million citizens and 40 million visitors a year. The land population density, as at mid-2009,

 

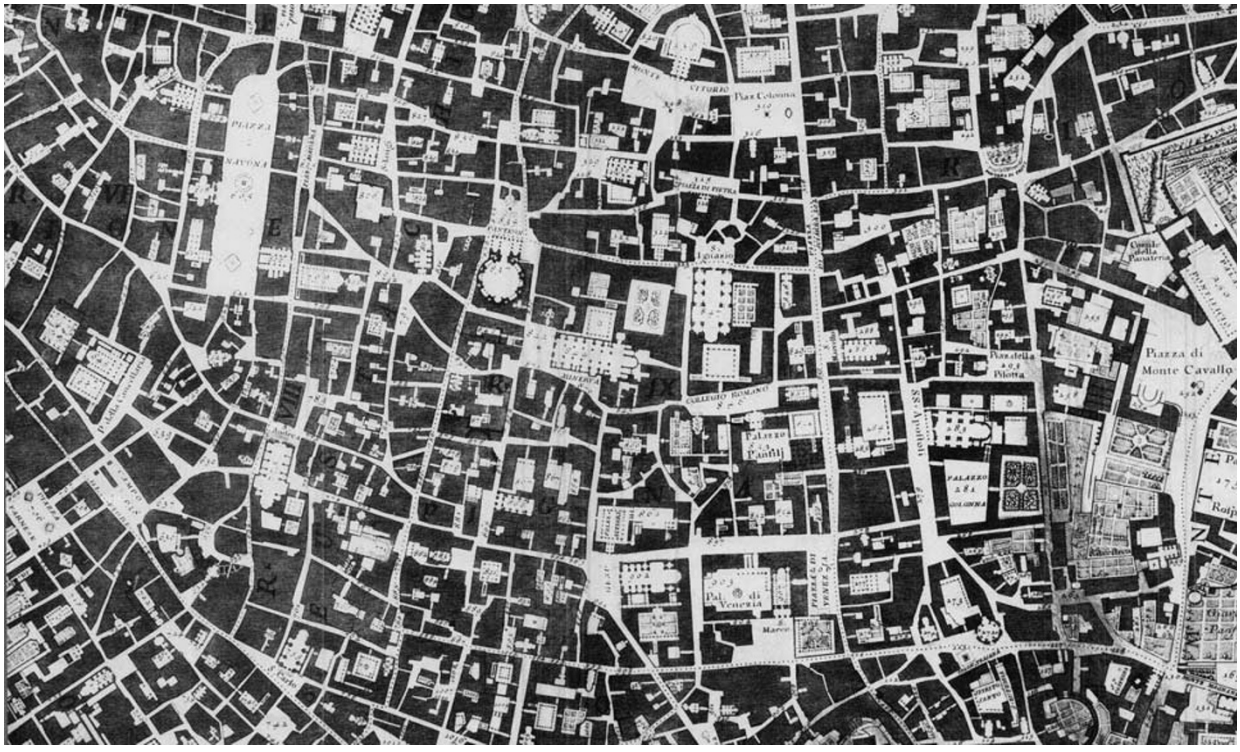


**Figure 1:** Nolli map.
Reproduced from web image (http://cityeu.wordpress.com/2010/11/03/wonderfull-maps%C2%A0nolli/).

stood at 6480 persons/km$^2$, and Kwun Tong, with 53 110 persons/km$^2$. It was the most densely populated district according to the Census & Statistics Department in Hong Kong. When the density is calculated at the street block level, some may be as high as 400 000–600 000 persons per kilometre (Yuen and Yeh, 2011). As a comparison, the population density of Greater London is 4978 persons/km$^2$, and Manhattan, New York City is 27 394/km$^2$ (United States Census Bureau, 2010; Office of National Statistics, UK, 2011).

In contrast to many cities in Europe and North America with lower population densities, the model of high-rise and intense development appears to be a viable method of sustaining the huge population of Hong Kong. Although the existing pattern of monotonous building design has been heavily criticized by local concerned groups, it is undeniably an economically viable approach to accommodate the population within such a small territory (Yeh, 1996; Yeh *et al*, 2001; Shelton *et al*, 2010). It is an internationally accepted proclamation that the virtual urban planning approach of Hong Kong, stacking floors with different usages on top of another, results in one of the most energy-efficient urban built forms in the world (Lau *et al*, 2005).

The high-rise and high-density developments of Hong Kong are driven by the shortage of buildable land and the pressure of an ever-increasing population. Thus, efficient land use and high yields from saleable floor areas are the prior missions of estate development and building design. The urban architecture in Hong Kong presents in a compact manner, which is linked and consolidated by a comprehensive public transportation system. This system not only provides for the convenience of residents and passengers, but also supports city life with high-efficiency mobility.

The Mass Transit Railway Corporation (MTRC) has been running the territory's mass transit railway (MTR) since 1979, which has then been continuously expanding its network from 15 to 84 stations currently, including those owned by the former Kowloon-Canton Railway Corporation before the two rail corporations merged in 2007. The rail companies have not only facilitated urban growth within built districts, but have also integrated commercial and residential property into development of these rail stations (Tang *et al*, 2004; Karakiewicz, 2005; Yeung, 2008; Xue *et al*, 2010). These mixed-use developments, ranging in scales from 200 000 to millions of square metres in

  

gross floor area, could be seen as mega-structures. In simple terms, Hong Kong is predominantly a linear rail city composed of transit-oriented developments (TOD) with large-scale mega-structures (Banham, 1976; Koolhaas and Mau, 1995; Frampton, 1999, 2002; Cervero and Murakami, 2009; Xue *et al*, 2010) (Figure 2).

Mega-structures in the station properties of Hong Kong include retail, office, hotel and residential buildings, with corresponding car parking spaces underneath those usages. More importantly, they are built to accommodate different modes of transportation. Typically, an MTR station of this type has its platforms being positioned at the underground levels, with its bus and taxi terminals being located on the ground level and pedestrian bridges being connected with the upper levels of surrounding buildings. The three layers – train, bus and pedestrian – are closely interlaced into a three-dimensional traffic network. In this sense, such a station mega-structure is no longer an isolated building, but a city within city. In the station mega-structures, Hong Kong architects spend a lot of effort in designing grand atriums, which are frequently considered as the highlight of a building project. Its urban significance besides pure aesthetics, however, is rarely discussed.

As mentioned above, the prominent atrium buildings in Hong Kong are closely associated with the MTR station complexes. This is partly the physical feature of the so-called 'rail + property' development. Compared with the other world cities, Hong Kong is prominent in using this

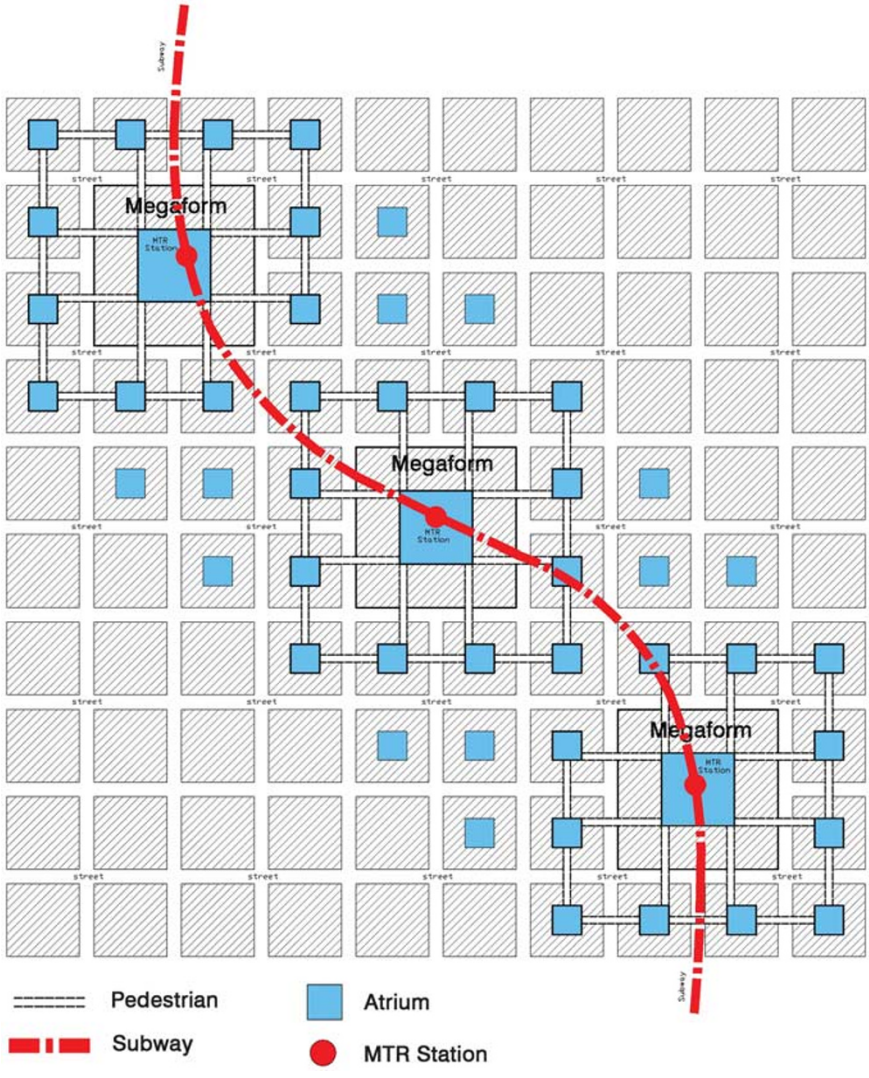


**Figure 2:** Atriums and urban space.

mode of development and design. TOD has been discussed mainly in the American and European context (Bernick and Cervero, 1997; Cervero, 1998). This article is intended to explore the phenomenon of atrium building and 'interior urbanism' in the TOD mega-structures for the high-density urban environment. After discussing the physical characteristics and social aspect of atrium building, the authors further conclude the features of atrium in various MTR complexes in Hong Kong. The emphasis is on the physical planning, implication to design and inspiration for the high-density development in the other cities.

## Atrium – Centre of Station Mega-Structure

In his book *Urban Space*, Rob Krier mentions: 'The aesthetic quality of each element of urban space is characterized by the structural interrelation of detail. I shall attempt to discern this quality wherever we are dealing with physical features of a spatial nature. The two basic elements are the street and the square' (Krier, 1979). The public nature of urban space is closely associated with human and social activities. Both square and street are considered as components of urban public space as they accommodate frequent urban and social activities. Public space is also the 'eye' of a city, revealing its genius loci, people and culture in a tangible and condensed way (Miao, 2001).

In Hong Kong, outdoor public space consists of waterfront promenades, parks and pocket parks within the urban districts and large swathes of open space in the New Territories. As a large proportion of land use is occupied by buildings and transportation right of way, the supply of public space in the urban centre is believed insufficient, especially in the old districts such as Mongkok, Sai Wan and Wan Chai (Xue and Manuel, 2001).

However, the compact public space finds its existence in Hong Kong. Local building regulations used to allow for 100 per cent site coverage by a podium of 15 metres or less before 1 April 2011 (65 per cent after this date). Unsurprisingly, most commercial and residential buildings, built before this date, were constructed with such large podiums as shopping malls, parking and mechanical rooms, so that the developers can maximize their profits. Unless there is special lease condition, the developers will be reluctant to provide open space in their development site.

Meanwhile, for such comprehensive mega-structure station buildings, they usually contain a large number of retail shops. An appropriate indoor 'public' space would be imperative for retail business. An internalized 'public' space is therefore generated and well shoulders this task. Within these mega-structure buildings, the urban plaza enters to the interior. This phenomenon, as a prerequisite, fulfils usual urban design concerns of place-making and public realms, of providing multiple accessible linkages, of creating vistas and a sense of enclosure in the semi-public spaces. This vertical planning repositions conventional horizontal urban patterns into vertical. The city, therefore, becomes more three-dimensional and a vertical matrix of land uses and spaces (Yeang, 2006).

The origin of atrium may date back to Roman housing and English country house. The introduction of enlarged 'open' space within an interior first appeared in commercial buildings, such as shopping arcades, galleries and winter gardens (Saxon, 1994). The atrium building was popular in North America in the 1970s, epitomized with the prominent designs by John Portman (Riani *et al*, 1990; Womersley, 2002), which is termed as 'interior urbanism' (Rice, 2010). In Hong Kong, social interaction has partly taken place through consumerism. The atrium model was introduced to Hong Kong in the early 1980s, when The Landmark in Central was constructed. The open indoor space attracts people, which results in increased business for the retail shops around the atrium. Because of the commercial success in the early 1980s, and the government giving compromise in the floor area calculation, the design of atrium soon spread to the big-scale commercial building design and especially in the MTR-related complexes. It has to be noted that 90 per cent of private property development in Hong Kong are monopolized by three to four big companies, for example, Sun Hong Kei, Cheung Kong and Henderson (Feng, 2001). Most of the MTR property developments are collaborated with these big companies. Their methods have set the trend (Figure 3).

Most buildings with this type of atrium design have comprehensive functions. With several retail clusters organized by atriums of different shapes, these atrium spaces act as nodes of routes and functions. They accommodate activities and become active places in the city. In these buildings,

  


**Figure 3:** *The Landmark* – the first commercial atrium building in Hong Kong.

escalators and lifts are extensively positioned along circulation space to make the upper floors accessible. The atrium is usually surrounded by balconies and corridors, forming the parts of an indoor street system. This design benefits shop owners as it provides shoppers with an interesting, safe, air-conditioned and well-lit environment free from vehicular traffic and adverse weather. Within such buildings, people can easily find the way to the atrium, where various retail types such as furniture, electronics, clothes, food, recreation and entertainment are readily visible and accessible.

Some atrium space opens 24 hours a day like traditional outdoor space, acting as focal points of urban life in high-density Hong Kong. This space not only provides efficiency in way-finding for customers, but can also be altered for different occasions so as to enrich shopping experience and satisfaction, such as Christmas decorations during Christmas and live broadcast of World Cup matches. Urban plazas, which have given way to high-density development, reincarnate in the atriums of these types of comprehensive mega-structure buildings and flourish in a colourful and vibrant interior manner. The spacious atriums become essential nodes of pedestrian movement, act as a new spiritual place and boost the civic pride of the commercial city.

Pedestrians may stop at these nodes for meeting or relaxation and then move on to other destinations. Pedestrian bridge systems, which connect the atrium of a building to that of another, act as pivotal components in promotion of such atrium space design. Hong Kong started to build pedestrian bridges in the 1960s, in order to relieve traffic congestion and to ensure pedestrian safety. In the 1980s, such pedestrian bridges and cross-street tunnels began to be transformed into networks, notably in CBDs of Central and Wan Chai. By the end of December 2008, there were 693 pedestrian bridges and 429 pedestrian tunnels recorded in Hong Kong (Highways department of Hong Kong, www.hyd.gov.hk/eng/public/publications/factsheet/index.htm) (Figure 4).

As it was first introduced into local context, the pedestrian bridge has gradually evolved and merged into the urban pedestrian transit system. In addition to acting as a medium of pedestrian transit, pedestrian bridges in Hong Kong function more than as connectors. The mega-structures themselves are large in scale, however, insignificant compared with that of the city, their radiation and rippling effects are limited. With pedestrian bridges that not only connect the ground and first floors, but also nearby buildings, the formerly isolated 'islands' of each building are activated and synergized. In turn, the internal spaces of the connected buildings are opened and attached to the pedestrian network, providing better accessibility for occupants of commercial, office or residential towers above. People can freely walk from here to there, while vehicular


**Figure 4:** Pedestrian bridge system in the city.

traffic below is not interrupted. In this pedestrian network system, an atrium acts as a node of a daily commute. People who live or work in a certain distance from this system are benefited substantially.

MTR exits of some new major stations are usually integrated with the atrium space, which can facilitate a huge influx of people into and out from station during peak hours. The MTR, atrium space and elevated pedestrian system redefine the urban public space network. 'Atrium and galleries are kind of stage, people are both performers and audience. There are occasional and instant displays – the relationship of people and space is highlighted. Walking is no longer a discrete process, but an interactive cultural space' (Zhang, 2009). As mentioned above, the public space in the old city area is in severe shortage. Atrium spaces in the station properties well supplement urban space and facilitate civic life in the city.

In this city, more than 90 per cent of the population rely on public transportation, and one-third use railway system. The percentage of using public transportation and subway in Hong Kong is higher than that of Beijing and Shanghai (www.bjjtw.gov.cn., 2005). This makes heavy patronage to shopping malls and their atriums that are affiliated with the MTR properties. In Tsing Yi station shopping complex alone, there

  

are 200 000 people every day; in exits of Mongkok Station connecting to Langham Place, 700 000 people can be counted in any single day. It is obviously recorded by major chain shops that the number of customers and the total sums they spend in branches of MTR-related shopping malls far exceed those in ordinary streets. Objectively, the shopping malls in MTR enjoy more business and are successful in commerce. Atrium design punctuates the shopping mall, and gives senses of centrality and climax spatially and psychologically. Outdoor plazas and streets can then be described as being 'absorbed into' the building interior. However, indoor and outdoor spaces can still coexist. The atrium shoulders the functions of plaza, street and traffic diverter.

## Compromise between 'Public' and Commercial Interests

Architecture is inherently public and in its 'publicness' it is an integral part of human culture, especially in a city where private architecture is overwhelmingly dominant. The provisions of public space inside private premises become particularly interesting and deserve special attention (Baniassad, 2006). As discussed above, the commercial atriums of shopping mall and MTR complexes display social functions in citizens' daily life. They improve the life quality in the old derelict and dense city area, where public space is generally in shortage and poor quality. Nevertheless, such an enlarged indoor space described in this article is not equivalent to the 'genuine' public space of conventional definition. A public space should be accessed by all residents in a city. Because of their open nature, public space is often the most inexpensive social and recreational facilities for the majority of urban residents who cannot afford private amenities such as clubs and golf courses. This mass-placating role of urban public space can be observed in societies ranging from ancient Rome to modern capitalist cities (Moughtin, 1992; Lang, 1994; Miao, 2001). In Hong Kong, the meagre public spaces in the city areas are heavily used. In the holidays, people walking dogs, whole family outing and the Filipino domestic helpers praying and singing songs are commonly seen.

In the shopping malls of Hong Kong, the indoor 'urban' space is controlled and supervised by private owners. The MTRC spent a huge amount of money to build underground subway tunnel and train station; and the private corporations bid the right of land development above the MTR station with astronomic figure of capital. They have to offset the cost and earn profits efficiently by building high-density properties with plot ratio 1:10 or even higher. Apparently, the purpose of building shopping mall with atrium does not originate from philanthropy, but from commercial consideration. Some activities, which are commonly conducted in traditional public space, may not be allowed in these spaces without prior permission from the building management, while passage by foot, chatting, meeting, sitting (in some dedicated places) and, especially, shopping are encouraged. There are overwhelming criticisms such as 'public space, private interests', 'gentrification and evicting the deprived class' and 'government colluding with developers' in academic articles and mass media (Cuthbert and McKinnell, 2001; Yee, 2006).

As a democratic society, picky criticism and sensitivity to capitalist tycoons are part of civic life. Arguments against the big corporations gaining huge amount of profit through developing high-density properties are not uncommon. However, the application of this development model partly alleviates the plight of public space shortage, when more than 50 per cent of Hong Kong people live in flats less than 45 $m^2$. In those shopping malls and atriums, poor people, even in rags, are not denied of window-shopping. Underprivileged children, who live in the public housing estates, can stroll along the mall after school, can enjoy cool air and burgers, or watch the promotion activities and festival decorations from Christmas to Chinese New Year.

Popular stars are often invited to stage in the shopping mall atrium, as a common strategy to attract a large number of audience and media coverage. During the World Cup of football season, large TV screens in the atrium broadcast the live matches in some shopping malls with seats and hot water bath arranged for people who watch the match overnight. Brand shops, expensive restaurants and lower-priced food court, and grocery stores coexist around atriums. These are the most common strategies to utilize societal value of atrium by mall management, attracting a lot of potential customers of different classes, and thus making a lot more revenue from shop rents.

Some commentators might have pointed out that in gentrified shopping malls, the quiet environment contrasts drastically with traditional

busy streets with hawkers and stalls. In Hong Kong, most of the shopping malls are as busy and crowded as the streets outside. Moreover, the hot and rainy weather in Hong Kong lasts for about 7 months in a year. Some local people prefer to stay in the air-conditioned indoor space rather than being exposed to the hot and humid streets. The 'semi-public' space in the shopping mall atriums has its community value.

The design with atriums in these station megastructures is not originally driven by design theories such as interior urbanism, but the spontaneous evolution of urban context, and ever-rising consciousness about the commercial value of it by developers and architects. Some features of the atrium are categorized as below with their corresponding functions, urban contexts and building types above and/or near the stations. This is only for the convenience of discussion. In fact, most atriums have one or two, or all features, some obvious, some not. The selected cases bear distinctive features, which are clearly understandable through illustrations and description. They also possess significant impact in the formation of locals' daily life and regional urban development. Station complex with 'less obvious' above-mentioned features are thus not included in the discussion. Owing to text length restriction, it is difficult to involve all Hong Kong stations into the categorization. Thus, only those we believe to be the most representative for each feature are chosen.

## Feature A: Transparency and Vista

This feature of atrium is usually found in redevelopment projects above stations of overcrowded developed areas, surrounded by the typical local urban scene of unstoppable hustle and bustle. The building is supposed to be built to ease urban congestions with the provision of public accessible open space.

The buildings of this feature are usually standalone commercial and shopping mall complexes attached to the rail network underground or by footbridge. The atrium may not be a necessary path for work for most people. The shopping malls function mainly as retail and leisure purposes. These buildings are particularly outstanding and visually permeable to the exterior world through full-height glass curtain wall or skylight. Typical examples include *Langham Place* of Mongkok Station and *iSquare* of Tsim Sha Tsui Station. Only the former is further introduced as a generic illustration of similar contexts.

### The 'Semi-open Plaza' of Langham place

Langham Place is located in Mongkok, Kowloon Peninsula. Before redevelopment, the site consisted of dilapidated housing blocks built in the 1950s. Property resumption of the site began in the 1990s by the Urban Renewal Authority. Langham Place was then developed and opened in October 2004 (Xue, 2003; Xue and Manuel, 2005). The 180 000 $m^2$ development consists of a 45-storey high-rise hotel, an office tower and a shopping mall, all of which are linked underground to the busy Mongkok MTR station as one of the station's exits.

The atrium floor is on the fourth level. People can still easily find the way from underground to that level through shops and escalators of the lower floors. They can stay or walk through. The two smaller atriums from ground to the fourth floor are important in connecting people from various modes of transportation or busy streets near the mall. The atrium on the fourth floor also acts as a node between the lower levels and the upper levels. While travelling up and down the escalators, the grand space of the atrium can be experienced, providing a bird's eye view of the whole scene (Figure 5).

The 60 m high atrium between shopping and office block acts as both an internalized plaza and functional transit. Its glass wall provides daylight and views of the townscape of Mongkok (Jerde Partnership, 2004). Its indoor 'openness' is breathtaking and distinguishes itself from other buildings.

Promotional, festive events and semi-open cafes find the place to thrive. The festive atmosphere of this complex attracts young people, tourists and businessmen, injecting vitality to the old area. Its positive effect to the surroundings is evidenced by the continuous staggering property prices (rents increased 10-fold in 2004), increasing occupancy rate and the denser economic activities (Xue and Manuel, 2005) (Figures 6–8).

## Feature B: Way-finding and Pedestrian Traffic

This feature is particularly obvious in projects of massive developments and important regional

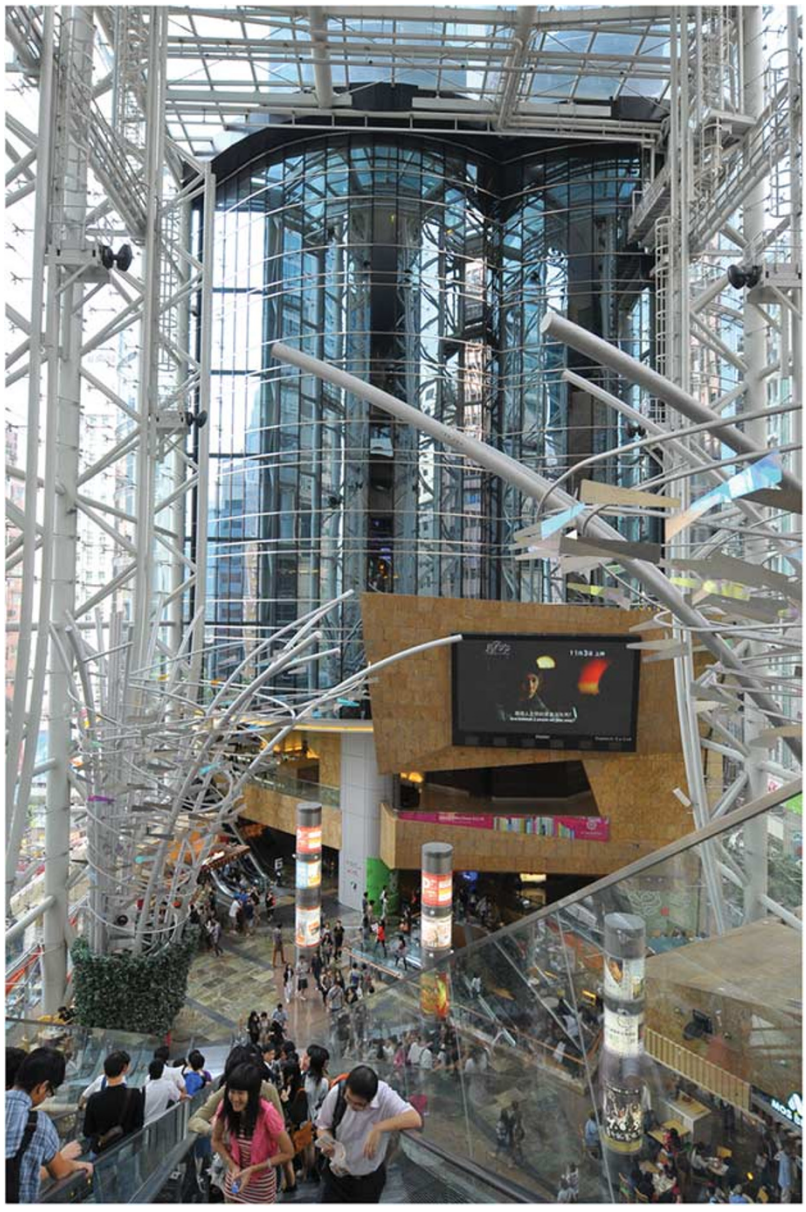

**Figure 5:** The transparent atrium in *Langham Place*.

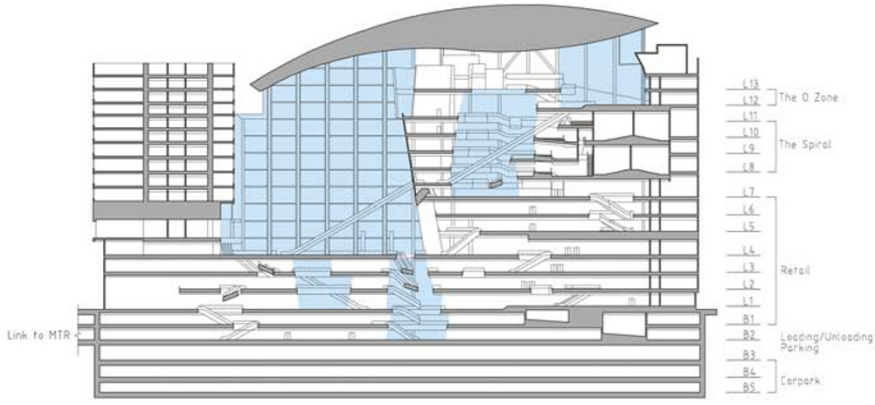


**Figure 6:** Section of atrium of *Langham Place*.

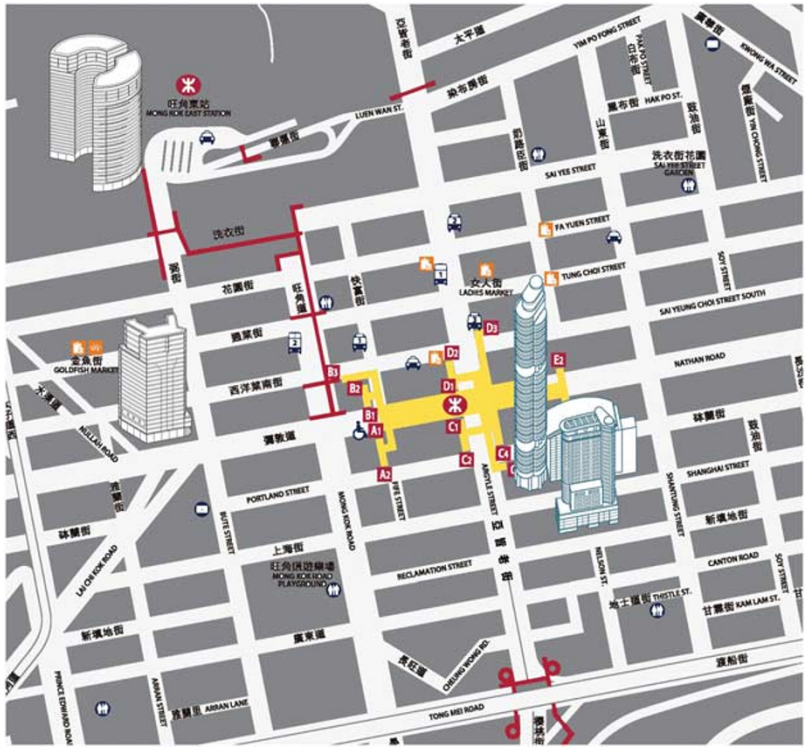


**Figure 7:** Location of *Langham Place* with MTR station.

hubs, with a variety of transportation means and heavily loaded with commuters daily. The atrium usually locates in station mega-structure with massive above-station residential or office towers with large population.

These hubs cater predominantly to commuters who are en route to work from home or vice versa. Commuters travel across these atriums with quick pace during peak hours, but the same places would create a different atmosphere during weekends when they go there for leisure. Atriums appear in a couple of numbers with different sizes in these hubs, acting as effective nodes, which facilitate way-finding. Typical examples for those in residential hubs include *Telford Garden* of Kowloon Bay Station, and *Citylink Plaza* and *New Town Plaza* of Shatin Station. For those found in central business districts, a variety of transportation means are extensively connected with footbridge networks to different atriums of different buildings (Figure 9).

## The 'Traffic Junction' of Telford garden

Telford Garden is located at the Kowloon Bay MTR station. It was the first TOD of residential estates developed by the MTRC in 1980. It has helped transform the area from an industrial area into a mixed commercial and residential area. The whole development consists of 41 residential towers above a podium, which also houses the shopping centre *Telford Plaza* and the MTRC headquarters office building. Bus and taxi terminals are on the ground floor, the shopping centre is on the first and second floors, and rail is elevated through this station. In addition, the podium acts as a central garden and covers a train depot.

Telford Plaza Phase I (52 171 $m^2$ gross floor area), completed in 1980, was the largest shopping mall in East Kowloon at the time. Inside the shopping mall, there are six square atriums along the North–South axis. The building shape is rectangular with regular structural grid. The six atriums face six entrances towards the garden, and five pedestrian bridges link the building complex to the office, Phase II and MTR headquarters and nearby facilities. A 300 m bridge links it to Choi Hung Estate, a large-scale public housing estate. The connection of external pedestrian system makes the atrium a turning point. Telford Plaza Phase II, completed in 1997, is six stories high with a gross floor area of 21 030 $m^2$.

**Figure 8:** Photo of the main atrium inside.

In comparison with Phase I of the shopping centre, it has a more compact and vertical layout, leading to a lower building footprint. Compared with Phase I, Phase II has more spatial interests, openness and the ability to accommodate greater variety of public uses. The skylight makes the interior space broader and easy for people to find way.

The podium of Telford Garden connects and radiates to different directions of office towers, factories and private, as well as public housing estates. The podium also connects every part of the rail development, including Phases I and II of Telford Plaza, the 41 residential towers, cinemas, post office, community centre, music and dancing schools, kindergarten, university annex and clinics. Different people walk through atriums, regardless of whether they are heading home or to office, for leisure or study (Figures 10–13).

## Feature C: Event Space and Artistic Urban Amenities

This feature is usually found in projects of comprehensive TOD projects built on land from

**Figure 9:** Escalators in *Festival Walk* are arranged diagonally, hinting and linking different directions.

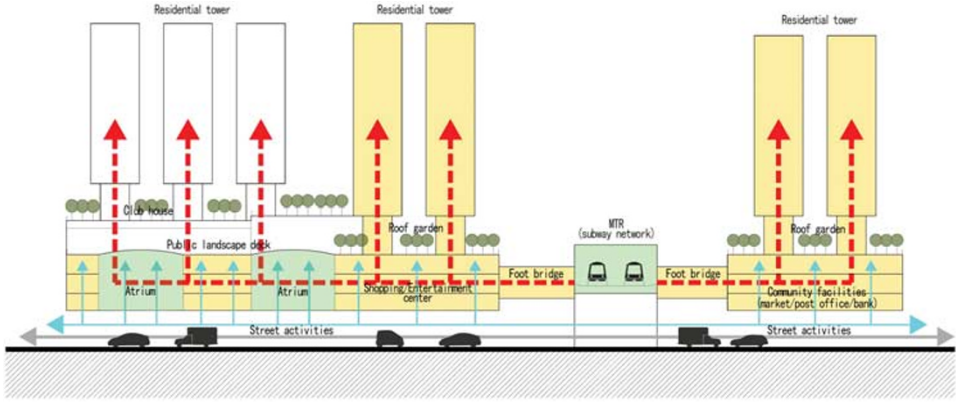


**Figure 10:** Section of *Telford Garden* and MTR station.

  

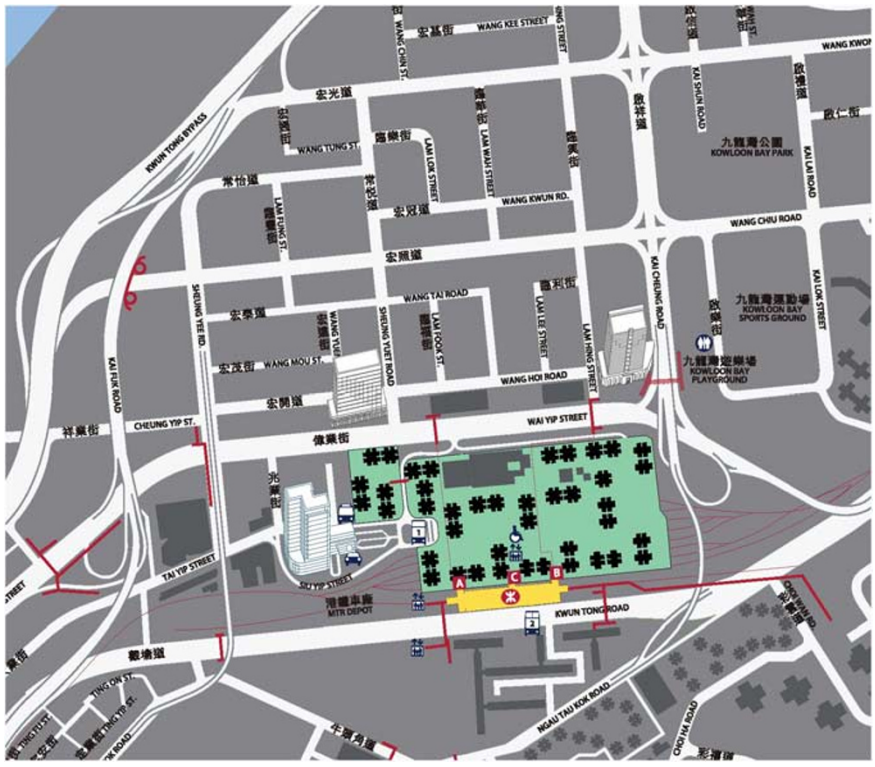


**Figure 11:** Location of *Telford Garden* with MTR station.

**Figure 12:** Pedestrian footbridge from *Telford* to bus stop.

reclamation. Office, residential, hotel and other uses are built on top of the shopping mall podium. Atriums in the shopping mall are integrated with the station area as a whole piece.

Owing to the comprehensive nature of development, these hubs are both the origin and destination for different types of commuters en route to workplace from home and vice versa. Atriums appear in a couple of numbers with different sizes. They are especially designed to facilitate public congregation, festival event and large promotional activity during weekends,

**Figure 13:** Residential estates above the mall.

which partly overcome the 'island' psychological understanding of the development from the rest of urban environment. The enormous size of the atrium can house hundreds of people together to enjoy shows and events. Sometimes, art pieces and urban furniture are also displayed inside atriums to further enhance the social value of the mall. Typical examples include *The Elements* of Kowloon Station, *Olympian City* of Olympic Station and *APM* of Kwun Tong Station. Only the former one is introduced as a generic illustration of similar contexts (Figure 14).

## The 'Place for Public Congregation' in The Elements

Kowloon Station is located at a site with an area of 13.54 ha on the West Kowloon reclamation area. A podium of 100 per cent site coverage serves as a transportation and retail node. The station, which serves the Airport Express railway and Tung Chung lines, is located underground. The ground floor is utilized as terminals for local and cross-border buses, as well as mechanical rooms. The Elements shopping mall

  

**Figure 14:** Civic activities in the commercial atrium.

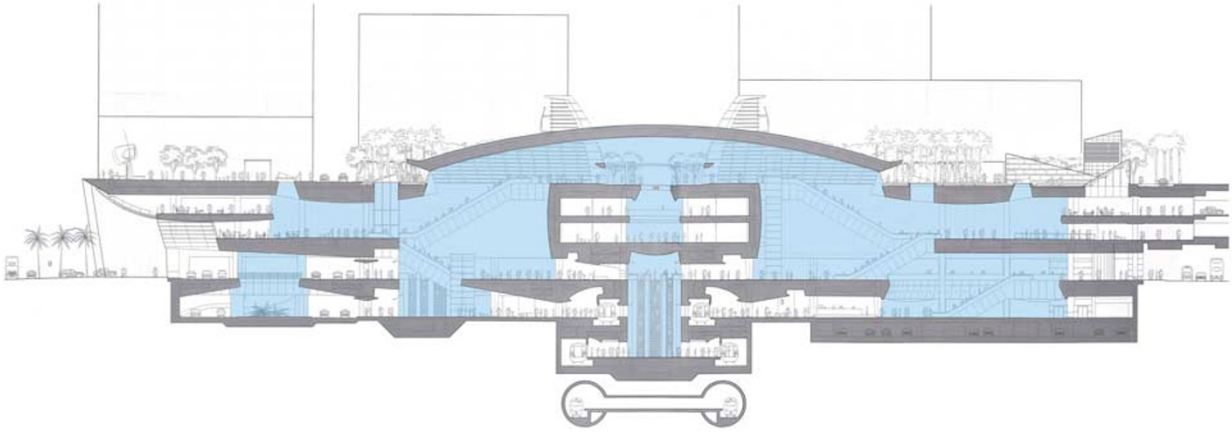

**Figure 15:** Section of *The Elements* and MTR station.

occupies the first and second floors. Fourteen high-rise towers of 50–118 stores high are built on the podium. The top level of the podium also acts as a rooftop garden. With 1.7 million square metres in gross floor area, the development plot ratio of the site is 1:12.

Kowloon station provides airport check-in service. Airport-bound passengers can obtain boarding passes for their flights before the rail journey to the airport terminal, located 30 km away. It is, however, being commented that the station mega-structure development behaves as an urban island floating on the railway lines. Even developments encircling the station are connected to each other by roads and railway lines; the station can mainly be accessed by the railway. As a design strategy to counteract the lonely 'island' psychology, passengers, residents and tourists alike are being held by and encouraged to stay inside rather than to leave the station mega-structure. Atriums here create a friendly atmosphere and a continuous dialogue between the indoor and outdoor environment. Art pieces and urban furniture are placed underneath,

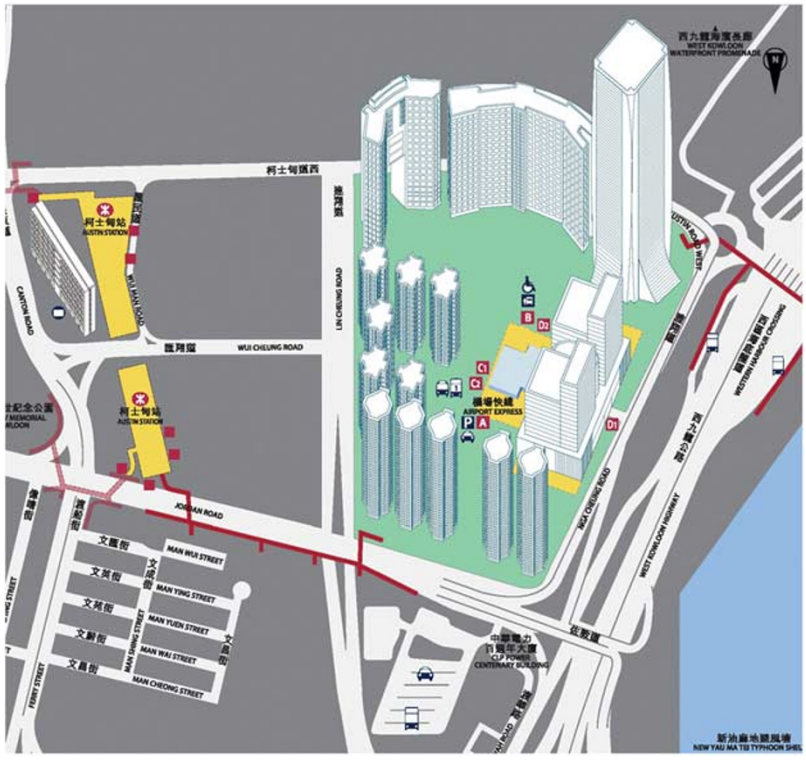


**Figure 16:** Location of *The Elements* with MTR station.

which effectively increases the social values of the mall. All these above facts congregate together with a sense of community rather than as solely a detached island (Terry Farrell and Partners, 1998) (Figures 15–18).

## Conclusion

In Hong Kong, high-density living and development are unavoidable. However, a good design can turn limited land into infinite possibilities, transforming the otherwise horizontal urban sprawl into a vertical densification miracle. In a city where an inch of land is more expensive than diamond, developers tend to look for as much return as possible from land. The existence and survival of public space and public interests are therefore severely challenged by the overwhelming financial benefits. In an era of globalization and strong consumerism, shopping seems to be a common 'public' activity (Chung and Sze, 2001). As such, public space must be, to some extent, associated with the retail market. There is much criticism of the phenomenon 'public space, private interests' and gentrification of urban space in Hong Kong (Atkinson and Bridge, 2005; Yee, 2006). These criticisms doubt the 'abuse' of 'public space' in the shopping malls developed by the big monopoly companies. However, we argue that atrium and shopping mall also partly compensate the unsatisfactory conditions of public space in the city.

As a consequence, commercial and public interests have to be kept balanced. High density has brought along cramped urban space, traffic jams and increasing pressure for developable land. The atrium design is partly a solution to alleviate the shortage of public space. The atriums, together with the elevated pedestrian bridges, invigorate the originally passive isolated buildings into ones with active urban public space. Thus, it can be commented that urban space in Hong Kong is internalized to building interiors. Although not all 'civic' activities can be entertained indoors, the atrium compensates the insufficient outdoor public space. More indoor spaces are being planned and built; interior 'urbanism' seems imperative both academically and practically.

In addition to the academic backgrounds from the aforementioned, the three features of atrium can be used to testify how indoor public space can be incorporated into overcrowded

**Figure 17:** Atrium with *fire* sculpture.

urban environment in different urban contexts: particularly, how a transparent atrium can be placed in an old developed area to relieve open space pressure, how a traffic hub atrium can direct human circulation for different means of transportation, and finally how an event space atrium can facilitate public gathering. It is also found that each of the atriums and the corresponding functions correlates with the commuters' en route to work.

In talking about urban atrium, Michael J. Bednar (2003) suggested a few design criteria that would possess significant social values. First of all, the atrium spaces should be readily accessible from existing exterior places. This can be accomplished through direct physical linkage and/or visual transparency. Entrances to them should be located at street level or above or below. It should also be related to a major road, a regional pedestrian footbridge network or urban squares to facilitate public accessibility. Second, successful atrium spaces should be legible and easily understood for purposes of way-finding circulation and orientation. Third, atrium spaces should serve fundamentally as public pedestrian purpose, which should contain

**Figure 18:** Ice rink in the atrium.

pedestrian amenities and provide opportunities for socializing and public occasion. This strategy not only makes the shopping mall more popular as a leisure destination, but with a community value added towards the society as a whole.

Bednar's suggestions are compatible with the atrium features we have discussed. All the studies above shall be inspirational to architects and planners when similar high-density TOD strategies could be found applicable in their own urban contexts. This article is hoped to enhance the awareness of this building type in the high-density environment design.

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