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From Icon to Community: The Repositioning of the Mega Tower in the City Context | 从地标到垂直社区：重新定义现代巨型塔楼



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Bryant Lu has been instrumental in leading development and driving changes at RLP. He shared the same design philosophy with over 600 professionals across Hong Kong, Beijing, Shanghai, Guangzhou and Shenzhen. Under his leadership, RLP has received over 130 international and local design awards and has been selected as a Top 50 architectural firm by UK's "bd" magazine in 2016. As a civic-minded architect, Bryant also actively contributes to society through his involvement with various non-profit organizations. He is currently working on Wuhan CTF Finance Centre (648m), Tianjin CTF Finance Centre (530m) and New World Centre in Hong Kong (265m).

吕庆耀带领吕元祥建筑师事务所在香港外设立北京、上海、广州和深圳办事处。与六百多名员工拥有相同理念，公司在过去40年获颁发逾130个国内外的设计奖项，是世界排名第50大建筑师事务所。他现正参与两个周大福金融中心项目：武汉高648米和天津高530米及高265米的香港新世界中心。



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Guymo Wong has been involved in the design and administration of developments in both Hong Kong and China since 1989. He is leading a versatile and energetic team of 80 professionals across Hong Kong and China. Guymo has accumulated extensive experience in multidisciplinary design for major private and public sector projects, such as design of mega-towers; planning studies for railway-related property developments for the MTR; a variety of schools and churches; and residential developments ranging from luxury houses to large-scale residential projects.

Biography 黄佳武自一九八九年起便参与统筹及设计香港和中国主要开发商之发展项目。他目前在吕元祥建筑师事务所带领着80人的专业团队为主要的开发商进行总体规划，建筑设计及产品研究等专业服务。黄佳武累积多元化的专门技术，为大型的私营及公共项目提供精湛的设计，例子包括中个的巨高层塔楼、与铁路有关的物业发展所进行的规划研究；各式各样的学校及教堂；及从豪华洋房以至大型住宅小区等不同形式的住宅发展。他透过在房地产商及政府机构之工作经验，对开发流程，特别是产品开发及设计管理拥有全面的经验和能力。

Abstract | 摘要

Historically, mega-towers were frequently labelled “egocentric displays of power,” becoming iconic symbols of a city or an individual. In today’s age of global hyper-urbanization, supertall towers are, for the first time in history, becoming more than just iconic power symbols. These towers address a real urbanization problem: they create more building space with less land. New generation mega-towers have evolved from being independent structures into complex mini-cities with integrated underground transportation systems and pedestrian connections. Their underground and above-grade connections to infrastructure are often more challenging to design and build than the towers themselves. Given this complex and highly dynamic design environment, the existing mega-tower delivery model is no longer fit for purpose; a new, more efficient model must be explored. This paper compares two mega-towers: Tianjin CTF Finance Centre (530m) in Tianjin, China and Wuhan CTF Finance Centre (648m) in Wuhan, China; discusses the design and build challenges involved in both.

Keywords: Master Planning, Megatall, Mixed-Use, Project Management, Urbanization

从历史上看，高层塔楼经常被贴上“自我权力表现”之标签，目的是要成为某个城市或某个人的标志性象征。在全球加速城市化的时代，超高层塔楼从建筑师的手里一下子超越了“标志性的权力象征”这种狭隘的形象。如今，超高层塔楼在城市化的问题中担当了一个重要的角色：在更少的土地上创造出更多的空间。新一代的超高层塔楼已经从一个单独的构筑物逐渐演化成复杂的迷你城市，并与复杂的地下交通系统和步行系统整合在一起。那些复杂的地下基础和配套设施系统在设计和建造上，通常比大楼本身的挑战还要大。由于这种设计的复杂性和高度动态性，现有的超高层塔楼设计模式变得越来越捉襟见肘，需要发展一种新的更有效的设计模式。本文比较了两个在中国的超高层和巨高层塔楼：天津周大福金融中心（530米）和武汉周大福金融中心（648米），讨论两个大楼在设计和建造方面蕴含的挑战，并提出一种可以运用于新一代巨高层塔楼的设计组织方式。

关键词：总体规划、巨型高层建筑、混合用途、项目管理、都市化

“Come, let us build ourselves a city, with a tower that reaches to the heavens, so that we may make a name for ourselves; otherwise we will be scattered over the face of the whole earth.”

– Genesis 11: 4, The Bible

Since the dawn of humankind, towers constructed by human hands have served one overriding purpose: to express power. Towers have been variously depicted as a challenge from humanity to the gods, a demonstration of local or personal prestige and even, to put it bluntly – as the ultimate phallic symbol.

Often a product of boom times in wealthy cities and nations, the primary function of these early icons was to be just that: an icon, designed to represent the high status or a person, city or nation, or to fuel the ego of a developer or a government and broadcast that image to the world. But as the world changed and societies evolved, many of these

“来吧！我们要建造一座城和一座塔，塔顶通天，要传扬我们的名，免得我们分散在全地上。”

一创世纪11章第4节，圣经

自人类社会出现以来，用人力建造高塔唯有一个超越一切的目的：表达权力。高塔被广泛地描述为是人类对神权的一种挑战、对一个民族或某个人威望的展示。

高塔往往是富裕城市和国家繁荣时代的产物，而这些早期的标志性建筑的主要功能只是：象征权利、象征一个人一座城市或一个国家、亦或是政府或开发商为证明自己并向世界推广自己的手段。但随着世界的变化和社会的发展，许多曾经的地标现已落寞，成为了无人问津的纪念碑。

21世纪的世界变化虽然巨大，但人们在看待全球各个城市中的高耸建筑结构时，“高塔依然代表着权力”这种原始的、利己的目的依然萦绕于世。然而，如今的超高

original icons have now fallen and become monuments to forgotten people.

The world in the 21st century is a very different place, but the echo of this original, egotistical purpose still lingers when one considers many of the tall buildings in cities across the planet. For many people, towers still represent power. However, today's mega-towers are challenging this idea and a dramatic shift is beginning.

These new towers are still iconic – but they act as symbols of something entirely different – the strength of a community and the vitality of a neighborhood. This paper will examine the evolution of the modern mega-tower as well as the tower's significance to the wider world and the local community. A specific example, Wuhan CTF Finance Centre in China, will be examined in detail.

Evolution: From Erection to Icon

The first modern skyscrapers to be built, let us call them Generation One, were located in Chicago in the 1880s – the Montauk Block and the Home Insurance Building – both ten stories tall. Designed to house offices and make businesses more efficient, these towers were part of society's response to rising land values sparked by an influx of people into cities, and the corresponding increase in the urban population and fall in the availability of land.

These buildings also served as a training ground for architects and engineers as they developed the Commercial style of architecture – steel-framed edifices which steadily grew higher, stronger and bolder over the next 50 years. Despite their prominence in Chicago, New York and the US Midwest, and the fact that they paid testament to the obvious skill of their designers and builders; these buildings were ultimately just places of work – destinations serving only themselves.

Then came Generation Two, the first example of which was the mighty Empire State Building built in 1931. At 443 meters this magnificent super-tall building became – and has remained – an icon of a nation and its people. One reason for its wide popularity was a new and crucially different design feature – a public observation deck on the 102nd floor, giving the public a never-before-seen 360-degree view of Manhattan.

This provision was the first nod to the potential “community service” these towers could provide: a public space located at the

top of a city. This space immediately captured the imagination and the hearts of the public – cementing its place in popular culture and inspiring stories, books and films, notably, *An Affair to Remember* and *Sleepless in Seattle*. This excitement and enthrallment illustrates the latent potential power lurking within tall buildings – the notion that towers can provide a community with something that “belongs” to them.

Through the years, towers have risen higher and higher, with breakthroughs in engineering and technology allowing supertall towers to become ever more complex, beautiful, lofty and iconic. Yet still, their function within the city has remained relatively static – they are a place to do business and the focal point of a city's skyline, sometimes even defining a city; but still they remain disconnected from the community around them.

In spite of this fact, supertall towers and mega-towers are widely considered by developers, planners and governments to be the primary generator of urban development and renewal. Thanks to advancements in material science, wind analysis modelling and vertical transportation mechanics, not to mention pressing demand, high-density urban development and growth can be promoted and sustained, and more and more skyscrapers are being built.

This is particularly the case in Asia, the fastest-growing region on Earth. With rapidly rising urban populations and precious little space, mega-towers are the seemingly perfect solution to all problems.

The Vertical City Paradox: Functional but Disconnected

Today's mega-towers are mostly Generation Three – the next evolutionary step of Generation Two towers. These towers often invoke the concept of the “vertical city” – where multiple uses are contained within a single building, providing the building's occupants with many of the conveniences one would find in a mature, developed urban neighborhood. Generation Three skyscrapers contain an impressive diversity of facilities organized around a comprehensive vertical transportation system.

One example is Tianjin CTF Finance Centre, situated in the newly-developed Teda urban area in Tianjin's Binhai New Town. Rising to 530 meters, Tianjin CTF Finance Centre is a standalone mega-tower surrounded by

层塔楼已开始跳出这种古老的意念，同时一个戏剧性的转变也正在拉开帷幕。

这些新的高层建筑依然具有标志性——但它们的象征意义已经完全不同——社区力量和街区活力。本文将阐述现代超高层建筑的演变过程以及高层建筑对广阔世界和当地社区的意义，以中国武汉周大福金融中心为例。

演化：从建造到标志

“第一代”的现代摩天大楼，美国芝加哥的莫纳德诺克大厦和家庭保险大厦只有10层高。这些“高层塔楼”主要用作办公用途以便提升业务运作效率，并以此来应对大量人口涌入都市后，用地稀缺而引发的地价上涨。

同时，这些大楼也成为建筑师和工程师们的技术培训基地，使他们在接下来的50年里发展出越来越高耸、坚固、设计大胆的钢结构商业建筑大楼。这些大楼尽管十分显眼地昭示了设计师和建造者的非凡能力，但归根到底，都只不过是些工作场所而已。

接着，出现了“第二代”摩天大楼，最早的例子就是坐落在美国纽约，1931年建造的雄伟的帝国大厦。这座高达443米的超高层塔楼一直是美国及美国人的象征。它之所以受到如此广泛的欢迎，原因之一是其位于102层的观景平台，为公众带来一个前所未有的全景视野，可以俯瞰整个曼哈顿。

这类高耸的塔楼为城市提供的位于高处的公共空间如此深入人心，深植于城市流行文化中，说明了高层建筑自身所蕴含的一种力量，即高层塔楼可以为社会大众提供一些“专属”他们的东西。

从此以后，工程技术的突破性进展，使超高层塔楼和巨高层塔楼变得越来越复杂、瑰丽、高耸和有标志性。但这些大楼在都市中的功能依然如故——都只是进行商务活动的地方，一个城市天际线的焦点，或顶多形成地标，定义了所在的那个城市。但这些高层建筑与周边的社区仍然保持着距离。

这些高层塔楼对于开发商、规划师，以及政府部门来说，被认为是城市发展和更新的主要驱动力。由于科技的进步，亦因城市空间需持续性地增长而产生的对高密度城市开发的迫切需要，越来越多的摩天大楼被因此建造起来了。

这种情况在世界上发展速度最快的亚洲，尤其明显。随着城市人口的快速增长和都市空间资源的日益稀缺，超高层塔楼似乎成为解决所有问题的最佳方案。

institutional, commercial and retail buildings, but its design is fully confined within the site boundary, with the exception of one underground pedestrian connection to an adjacent metro station (Figure 1).

With a total gross floor area of 389,900 m², this tower is the vertical city personified. Its 99 floors are stratified into different zones, including a 23 story ultra-luxury hotel; 21 floors of serviced apartments; 34 office floors; five stories of lobby and clubhouse facilities at the lower floors connecting to a five-story retail arcade and hotel public facility podium; and four basement levels which house car parking spaces, a mechanical plant and a back-of-house area (Figure 2).

Impressively demonstrating the integration of facilities, form and structure, Tianjin CTF Finance Centre is inarguably an icon for the city, as are so many Generation Three towers. But while remarkably efficient and self contained, these towers are still more about themselves than the surrounding area. Their zones are well-defined, but often have limited connectivity with each other; there is a distinct lack of accessible and good quality public space; and most crucially – these towers lack a connection to the wider community. They are still disconnected islands floating in an urban sea (Figure 3).

From Icon to Community Generator – Creating Connections

As the most populous country on Earth, China is the ultimate “people-oriented” place. The unprecedented rural to urban migration occurring in modern China is leading to rapid, hyper-density urbanization as the country's

垂直城市的悖论：功能强大但缺乏联系

今日的超高层塔楼比“第二代”摩天大楼更进一步有所演进，成为了“第三代”。这些超高层塔楼经常强调“垂直城市”的概念，多种用途的空间聚集在一栋建筑里，就好像令使用者能够在一个充分发展的、成熟的城市街区里那样享受到各种的方便。

天津周大福金融中心就是这样的一个例子，位于中国天津市滨海新区，塔楼高度为530米。虽然周边环绕着一些公共设施、商业零售地块，但大楼的设计被清晰地限定在地块边界之内，与周边的唯一的联系只有通向邻近地铁站的地下人行通道（图1）。

这座总建筑面积达38.99万平方米的超高层塔楼就是一座具体化的垂直城市。其99层的空间在垂直方向上，被分成不同的功能区，包括高端酒店、服务式公寓、办公、大堂和会所以及商场；还有地下停车场、机电设备和物业辅助等功能（图2）。

与许多“第三代”塔楼一样，天津周大福金融中心令人惊叹地显示出功能、形式和结构的高度整合，毫无争议地成为了城市的地标。但是，尽管这些大楼具有超凡的效率和自给自足的特点，其积极意义更多地还只是关乎自身而未惠及周围社区。这些大楼的功能分区明确，但却缺乏相互之间的连接；明显缺乏易达性好且高品质的公共空间，而最关键的是一一这些大楼缺乏与周边广大社区的联系。它们依旧象孤岛一样漂浮在城市的汪洋中（图3）。

从空间标志到社区引擎——创造联系

人们只有在功能及配套完备，富有生气，相互联系的社区中才能有欣欣向荣的健康

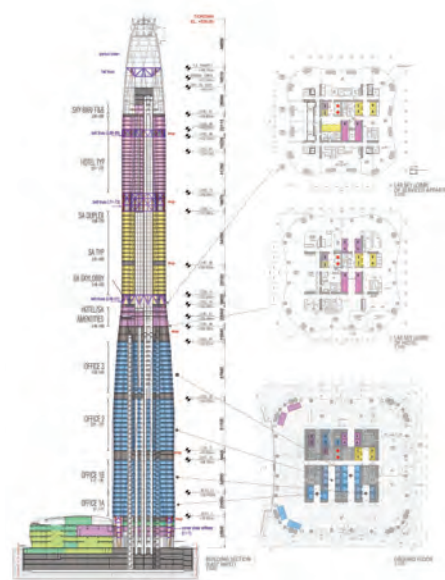


Figure 1. Tianjin CTF Finance Centre: section showing a stratified vertical city (Source: RLP)
图1：天津周大福金融中心：建筑剖面显示分层的垂直城市（来源：RLP）

生活。设计师们在最新的“第四代”巨高层塔楼中，已经意识到这一点并正在为此采取改良行动。“第四代”塔楼弥补了之前缺失的部分：创建繁荣的，可持续发展的迷你城市之外也同时与周边环境建立多元化的、牢固的联系。通过这种方式，为城市超高强度发展所带来的问题提供完整的解决方案。

建设中的武汉周大福金融中心，就是这种“第四代”塔楼的一个最佳例子。武汉周大福金融中心首要的任务是成为一个“以人为本”的开发项目，强调社区感和联接性。这一开发通过一个地下“根系”——地下车道、轨道以及步行道系统——与城市其他区域建立高强度的联系，从而将这座大厦稳稳地植入整个城市中（图4）。



Figure 2. Tianjin CTF Finance Centre: a carved-out city block in a low-rise neighbourhood (Source: RLP)
图2：天津周大福金融中心：在百米高度邻里区内分割出来的独立孤岛（来源：RLP）

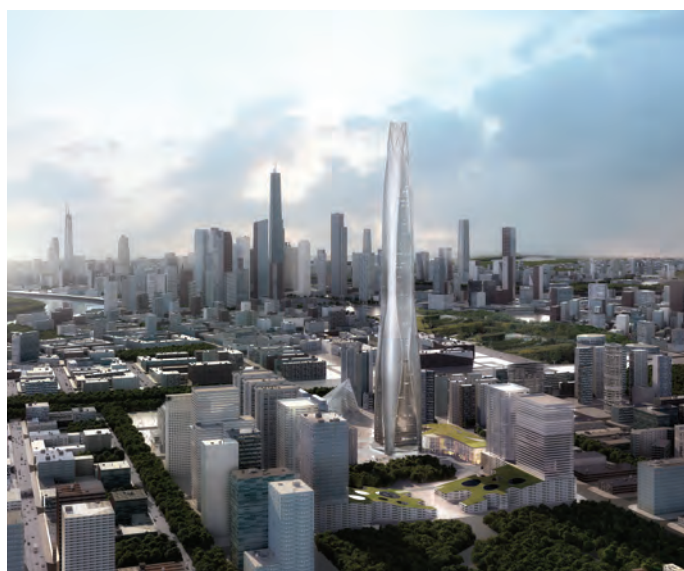


Figure 3. Tianjin CTF Finance Centre: an icon in the community (Source: RLP)
图3：天津周大福金融中心：在社区中的地标（来源：RLP）

cities rapidly run out of space to house new arrivals. This current growth model is unsustainable and, as we have seen repeatedly in other countries, leads to massive society-wide problems – traffic congestion, pollution and declining quality of life.

People can only truly thrive in functioning, living, connected communities. The designers of newest generation of mega-towers, “Generation Four” if you like, have begun to realize this and are acting accordingly. Generation Four towers create solutions to these hyper-density related problems by providing the missing piece of the puzzle: creating flourishing, sustainable mini-cities with multiple robust connections to the surrounding environment.

Wuhan CTF Finance Centre, currently under development, is an example of a Generation Four tower. Located on a vast site, with most of its area consisting entirely of public green space, Wuhan CTF Finance Centre is first and foremost a people-oriented development which emphasizes community and connectivity. The development is highly connected to the rest of the city via an underground “root” system – road, rail and pedestrian connections – which firmly “plug the project in” to the rest of the city (Figure 4).

Designing a New Generation of Mega-Tower

Wuhan CTF Finance Centre is situated in an urban renewal area of Wuhan, the capital city of Hubei Province. Wuhan, historically known as “two waters and three towns,” is widely known as being the traditional transportation hub of Central China. The site sits next to a flood prevention dam on the Yangtze River in a key, centralized position in a newly-planned CBD area.

Looking at the site from above, it is immediately obvious that the Wuhan CTF Finance Centre project is not the typical “carved-out plot” commonly seen in earlier generations of mega-towers; it is much more a node with multiple connections to the surrounding area. It is a high-density development with a plot ratio of eight, much higher than the more typical 2.5 or 3 common in Generation Three towers. The plans allow for the release of a startling 53,000 m² of land for the construction of a city park, while increasing the supply of office space by 80 percent when compared to similar projects (Figure 5).

Wuhan CTF Finance Centre’s design stresses its connection to the urban and community environment on every level, and in doing



Figure 4. Wuhan CTF Finance Centre: visually connecting and physically integrating with the community (Source: RLP)
图4. 武汉周大福金融中心：在视觉上 and 实体上与社区紧密联系（来源：RLP）



Figure 5. Wuhan CTF Finance Centre: genius loci with three-dimensional pedestrian links with the community (Source: RLP)
图5. 武汉周大福金融中心：公共场所设计与其三维人行联系（来源：RLP）

设计新一代的巨高层塔楼

从空中俯瞰项目基地，可以立刻看到，武汉周大福金融中心明显不再是常见的，象前几代高层塔楼一样的“孤立地块”，它更象是一个与周边地块有多重联系的节点。武汉周大福金融中心的设计在各个层面上都强调了与城市和社区环境的联系（图5）。

主要挑战和应对策略

如何将不同性质的社区与大型的商务/零售中心联系起来

武汉周大福金融中心的规划和设计并不仅仅是为白领人群创造一个有吸引力的上班地点，在这里，通过多条地铁线和道路系统，可以建立起主城区与项目周边居住社区的交通联系，并提供现状城区环境中所没有的舒适、环保、更有活力的城市空间。

项目的商业部分设计不单着眼于所在的新兴商务区上班族的需要，同时其商业业态定位也满足家庭亲子的需求。其中设置的儿童教育和培训功能，可以很好地将充满活力的生活气氛延续到下班以后。

如何为社区公共活动提供一个安全和宜人的场所

项目首层和公园联成一体，提供了毫无阻碍、自由行走的步行环境。大多数的外部车行交通被置于地下，以减少地面交通造成的空气污染。地面以上的天桥系统可以令步行者方便地从大厦的不同功能区域到达交通枢纽。

人们可以在步行途中，流连于多种多样的开放空间，休闲放松或是举行活动。这里的城市公园不仅仅是一个巨大的绿色空间，还是一个巨大的舞台，上演着不同的生活场景——艺术展览、运动比赛、孩子和大人的活动天堂。

so, the design demonstrates the project's commitment to providing public space. The project will accommodate a total gross floor area of 532,000 m², configured as a vertical city, with office, retail and residential functions. An additional 200,000 m² will be provided for car parking spaces and back-of-house functions at the basement levels. The offices will be housed in the 648-meter high, 118-story mega-tower with a total floor area of 327,000 m² floor for lease or sale. The remainder of the development will include four 90m residential towers located at the four corners of the site, and a 100,000 m² four-level retail podium which will connect to the office and residential components of the project.

Key Challenges and Strategies Adopted

Connecting a Significant Business and Retail Hub to Different Communities

The planning and design of Wuhan CTF Finance Centre involved much more than the rather linear concept of "creating a magnet" to draw in the working population of the new CBD. This project casts its net to a much wider demographic: connection to the cross-river rail and underground road network will provide rapid and convenient transportation links for members of the university and the high-tech research community living and working in the nearby Wuchang district, allowing them to mingle with business people working in the tower.

The retail portion of the development is also being positioned as a family and children's mall – the planned children's education and learning facilities will extend the value of the development to yet another demographic and bring life into the tower outside of office hours.

These unique links will connect the surrounding residential neighborhoods and the main city with a less congested, greener and more vibrant urban space – a place which does not exist in the current city fabric – providing the entire city with new green space.

Providing a Safe and Enjoyable Venue for Community Interaction

The at-grade level of both the project and the park sites encourages the unrestricted flow of pedestrians and designated urban spaces for where the public, shoppers, members of the university and business communities and more can interact. Most of the external vehicular traffic will be at the underground level, which will reduce the amount of traffic-related air pollution in the

at-grade portion of the development. The above-grade tree bridge network also allows convenient pedestrian movement between the functional, recreational and transportation portions of the site.

The numerous open spaces give the circulating pedestrians various opportunities for relaxation and other activities. The city park provides not only a large green space, but also a large stage for different activities like art exhibitions, sports events and a vibrant public space for children and adults alike.

Controlling the Design and Maintaining the Future Built Environment

From the start, it was essential that the developer proactively controlled the urban design rights of the surrounding area, in order to maintain the desired overall environment and set a baseline for the planning and integration of activities for different communities. One strategy which provides these safeguards is to take up the design of the city park and its pedestrian connections with the project.

During the project's initial land sale deal, the developer also bought another 25,000 m² of retail GFA under the city park site – this will allow direct below-grade connections to the development. To ensure that the functionality of the development and the connected areas is truly harmonious into the future, the demarcation of maintenance responsibilities in connected by non-project site areas must be carefully considered, otherwise this harmonious concept could rapidly unravel.

Bringing a Mega-Tower Office Project to Life Beyond Office Working Hours

Most CBD and mega-tower projects across the world face a common problem – the notion of the vacated city – or "dead city" – after office hours and on non-working days. To allow effective, continuous and constant use of the area, regional retail and residential elements were planned into the project. These discrete elements will allow different communities to enjoy various activities around the clock, providing multiple uses for this public space which can be enjoyed at different times of day.

Connecting With Each Other

Merging "work," "play" and "live" destinations is not a particularly innovative concept these days (Figure 6). Wuhan CTF Finance Centre's uniqueness lies in its connectivity, which will feature:

发展商如何控制设计品质，以及未来保持项目的环境品质。

发展商需要主动地控制周边地区的城市设计，以便能够对不同性质的社区活动作出良好的规划和整合。策略之一是将公园及其与大厦之间的立体步行系统，与大厦一起整体设计。发展商还购买了位于公园地下的25000平方米空间用于商场开发，这样，就可以在地下层，直接建立起塔楼与公园两块基地之间的联系。

如何使一个办公巨高层塔楼在工作时间以外仍然充满活力。

世界上大多数的中央商务区和超高层塔楼项目面临着一个问题：在非工作时间或休息日期间，便会成为一个死寂的空城。在这个项目中，为了使城市土地使用效率最大化，地区性的商业和居住元素也被纳入这栋塔楼的规划中，这样就能使不同性质的社区为这里带来全天候的各种不同活动，所有的公共空间可被设计为具有多重用途，以适应一天不同时段的需求。

相互联系，成为一体

合并“工作”、“玩乐”和“生活”的城市空间/场所如今并不算什么创新的理念（图6），武汉周大福金融中心的独特之处在于其联接性，表现为以下特征：

1. 形成轨道交通枢纽，包括三条轨道交通线分别位于地下层、地面层，和地上高架层；
2. 在地下通过步行通道与邻近开发项目相连接，商业零售部分预留了与后续开发项目的联系出入口；
3. 步行联系未来的商业开发、城市公园、北部的文化中心和现有的河滨长廊公园
4. 在地上高架层和地下层，设有行



Figure 6. Wuhan CTF Finance Centre: a "mega-hub" for work, live and play (Source: RLP)

图6. 武汉周大福金融中心：集“工作”、“玩乐”和“生活”的超级城市空间/场所（来源：RLP）

1. A metro/tram transportation hub, including three metro/tram lines at the basement level, street level and above-grade viaduct levels;
2. Six pedestrian connection points to adjacent developments at the basement level, including to retail facilities which will be provided in an adjacent future development;
3. Six pedestrian connection points with current and future metro and rail lines;
4. Two pedestrian links to the city park to the east at two levels;
5. Six pedestrian connection points which will connect to future commercial developments, the city park, the cultural centre to the north and the current promenade park;
6. Connections to public and cultural facilities in the vicinity;
7. Public loop roads at the above-grade and basement levels.

Connectivity does not strictly mean “transportation”; the concept also involves the creation of connections between people. Wuhan CTF Finance Centre seeks to create a space that the surrounding community can enjoy around the clock, through the provision of public open space and numerous services and facilities. Business clubhouses and office rest lounges will be located throughout the building; retail facilities will feature family- or child-based themes to help stimulate interest and attract people to the property; and the development will be well connected to green spaces. Residential facilities will also provide private open green spaces at the deck level and exclusive clubhouse facilities for residents.

Given the project’s proximity and accessibility to the major commercial, residential and educational areas of Wuhan and its strong pedestrian, road and rail transport links, this project has the potential and the capacity to attract people into the neighborhood – creating a community and providing Wuhan citizens with unprecedented opportunities for fun, leisure and learning.

The tower itself has been designed specifically to define and draw people to the area, rather act as an outright display of power. Its enormous height will make it a natural icon – this is unavoidable – but an icon which serves rather than displays. Wuhan CTF Finance Centre will serve as a nexus for new

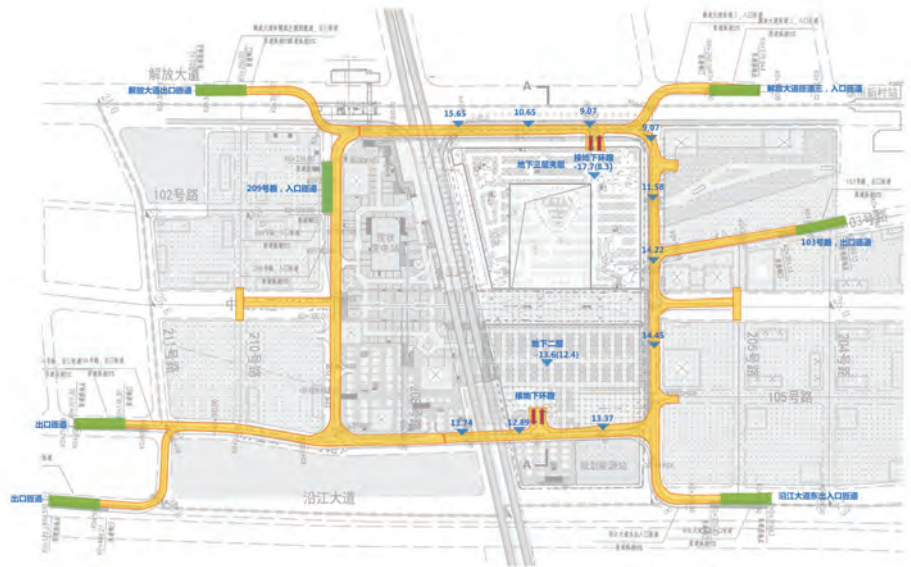


Figure 7. Wuhan CTF Finance Centre: underground vehicular loop road with community parking at B2&3 (Source: RLP)
图7. 武汉周大福金融中心：B2&3层之地下环路及社区停车库（来源：RLP）

development and a place where people can gather and connect with one another.

人和车用之公共环路。

The tower’s structure consists of a central concrete core with corner setbacks at various levels which echo the shuttle lift stacking, and perimeter moment frames comprised of composite columns, belt trusses and perimeter spandrel beams. The tower’s structure will be fully integrated with a versatile energy-efficient façade system which will be put through stringent wind load analyses, with the aim of minimizing the materials used for the structure.

While emphasizing the tower’s verticality, a curvilinear spline will begin at the base of the tower and wrap around the building’s envelope all the way to its top. The primary purpose of the spline is to mitigate the wind loads exerted on the surface of the tower, but it will also provide a certain important aesthetic. The overall image of the tower will be of a flower about to blossom – symbolizing the bright future which lies ahead for Wuhan.

The green space created by this project also makes it unique. The city parks and large waterfront park balance the impact of the development, both visually and environmentally. The green areas within and outside Wuhan CTF Finance Centre site are seamlessly connected – creating a long, unbroken space where nature and people intermingling (Figure 7).

联接性并不是仅限于“交通运输”；这一理念还包含了创造人与人之间的联系。武汉周大福金融中心力求创造一个“场所”，通过提供公共开放空间和众多服务与设施，使周围社区民众可以全天候地享用。商务会所和办公空间的休息室分布于大楼各处；零售设施以家庭或孩子为主题，吸引人们在非办公时间来这里；同时，项目还和绿化空间有着良好的联系。城市公园和宽阔的滨水公园在视觉感受上和环境影响上都很好地平衡了项目开发对周边的影响。项目的居住部分在平台层提供私家的绿化开放空间和专属的住户会所。基地内部和外部的绿化空间完全结合在一起，创造了一个连续的带状空间，人文与自然在其中相互交融（图7）。

驱动未来

这幢塔楼本身的设计目的是能定义所在的地方，并吸引人们前来，而不是彻底的权力展示。其异乎寻常的高度会使其自然成为一个地标——这无法避免——但是却可以进一步成为一个服务性大于展示性的空间标志。武汉周大福金融中心将成为现状城市与新的都市空间发展的联接点，并成为一个人们喜于聚会和互相交往的场所。

要创造此种新一代的巨高层塔楼，需要一种不同以往的社区型组织来支持——这是一个巨大的合作网络，让人们从设计阶段直到大楼最后建造完毕，一起协同工作，共同引导这个项目直至其完成。“第三代”孤立型的超高层塔楼常需要有一个大



Figure 8. Wuhan CTF Finance Centre: a city park integrating urban design with the city fabric (Source: RLP)
图8. 武汉周大福金融中心：城市花园融入城市设计中的都市脉络（来源：RLP）

Driving the Future

Creating these new mega-towers requires another kind of community – a vast cooperative network of people working together to shepherd a project from the design stages through to final completion. Whereas standalone mega-towers require a large project team, they are focused on completing the tower only. Connected Generation Four towers are fantastically complex undertakings requiring highly specialized knowledge, skills and experience. In the case of Wuhan CTF Finance Centre, planning the connections to the surrounding environment – the “spaghetti under the surface” – was actually more complex than planning the tower itself.

In Asia, particularly in China, executing a project of this scale requires a dedicated team with deep experience – not only architecture and design experience, but cultural experience as well. Such teams need to be able to coordinate, liaise, negotiate and enter into dialogue with a wide array of people and companies – from government departments to transportation engineers to contractors and beyond – all in the specific and unique context of modern-day China.

With Wuhan CTF Finance Centre, a number of specific challenges were encountered. While unique to the project, firms seeking to undertake these projects in the future should

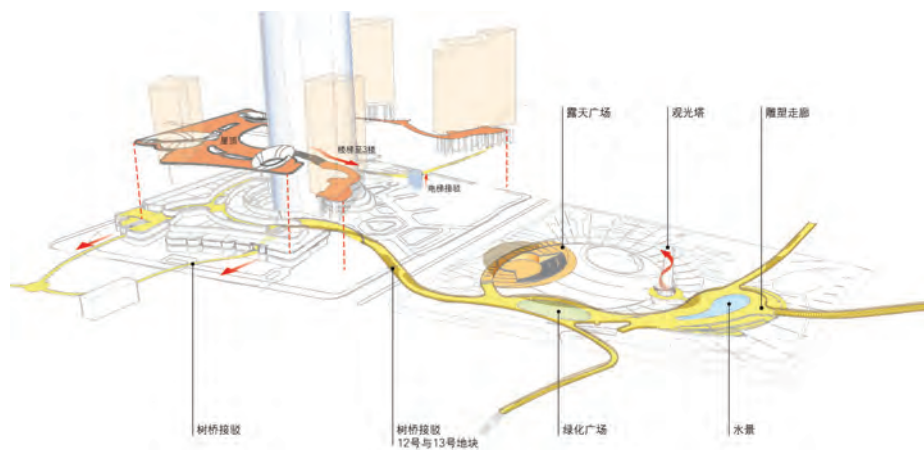


Figure 9. Wuhan CTF Finance Centre: the Centre is linked with the surrounding neighbourhood via a landscaped bridge and an underground arcade (Source: RLP)
图9. 武汉周大福金融中心：树桥和地下商业通道构成三维交通流线一部份（来源：RLP）

be aware that these types of challenges will certainly reoccur in other mega-tower projects in China. These include (Figure 8 & 9):

Multi-disciplinary design challenges which occur during the design, development and implementation stages. These can include the need to create large amounts of specialized building materials, which can rapidly escalate costs.

The need for large teams of consultants and specialists. While necessary, these teams must be unified by a unified, strong leadership team.

Exceptionally complex designs involving enormous amounts of information. Potential solutions involve the use of Building

型的项目团队，其主要关注的仅仅是如何完成这个塔楼的建造。注重联系的第四代塔楼，其设计和建造是一项超级复杂的任务，需要高度专业化的知识、技能和经验。在武汉周大福金融中心的例子中，规划与周边环境的联系，实际上比规划大楼本身要复杂得多。

对于武汉周大福金融中心来说，设计面临了一系列挑战。虽然对这个项目来说，这些挑战都有独特性，而对于希望将来继续承担类似项目设计的设计事务所来说，应该清楚，这些类型的挑战一定会在中国其它的巨高层塔楼项目中一再地出现（图8、9）：

多专业设计的挑战

这个挑战会出现在设计、开发和建造等各个阶段，例如可能需要创造大量专门的建

Information Modeling to resolve potential design clashes, and factory-fabricated products to decrease construction times.

Numerous logistical barriers and other hurdles exist in terms of obtaining the various necessary statutory approvals from government bodies. Flexible schedules need to be utilized and keen attention paid to the time lag between design approval and statutory approval.

Firms operating in China must seek solutions to these and other issues quickly, as over the next five years, 71 percent of the world's completed super-tall and mega-towers will be located in China.

Conclusion

The world has come a long way since the first tall buildings scraped the sky over Chicago. In most parts of the world, the “good old days” of a building being a symbol of power and pride are gone forever. Today, self-contained, standalone towers are becoming an anachronism, with their importance to the cities of today in rapid decline.

This is not to say that mega-towers are irrelevant. Far from it – in Asia especially, they have a vitally important role to play in the urban environment. The mega-towers of the future – Generation Four and whatever comes next – will still be icons that embrace and celebrate the achievement of creating incredible buildings, but they will also, more importantly, celebrate their connection to the neighborhood, embrace the public and generate living, thriving communities.

筑材料，并因此会使造价大大提升。

庞大的专家和顾问团队

这些多样性的专家和顾问团队必须有一个强有力的领导组织加以统一。

异常复杂的设计

这类项目的设计往往涉及巨量的信息与多重单位的协调。解决这一问题的潜在方法包括使用建筑信息模型（BIM）来避免可能出现的设计碰撞，以及使用工厂预制构件来节省施工时间。

后勤系统或其他辅助系统的难点

这些难点的存在主要是由于项目的设计必须通过各种各样的政府部门审批。因此，设计进程的时间安排需要有灵活性，同时必须非常注意方案审核通过与正式审批通过之间的时间差。

在今后五年里，全世界建成的超高层或巨高层塔楼中，有71%将位于中国，因此，在中国执业的设计公司都必须尽快找到解决以上诸多挑战的方法。

结论

自从在美国芝加哥建起世界上第一幢摩天大楼至今，世界已经经历过诸多变迁。在世界的许多地方，建筑作为骄傲的权力象征的“过去的好日子”已经永远逝去了。如今，自给自足的、孤立于世的塔楼也变得不合时宜了，它们对于今日之城市的重要性也在迅速消弭。

但这并不是说，高层塔楼已经过时。恰恰相反——尤其在亚洲，这些塔楼在城市环境中的角色更为重要——“第四代”巨高层塔楼或其后继者，将仍然是一种城市标志，蕴含了对创造建筑奇迹这种成就感的称颂，但更重要的是，这些巨高层塔楼同时还是对另一些成就的称颂：与周边环境相连接，容纳公共活动并激发活力，以至对社区的振兴。