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Author:	James von Klemperer, Design Principal, Kohn Pedersen Fox Associates
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# Urban Density and the Porous High-Rise: The Integration of the Tall Building in the City – from China to New York

## 城市密度和多孔性高层建筑: 高层建筑与城市网络和公共空间的整合——从中国到纽约



James von Klemperer

### James von Klemperer

Kohn Pedersen Fox Associates PC  
11 West 42nd Street  
New York City, NY  
USA 10036

email (电子邮箱): jvonklemperer@kpf.com  
www.kpf.com

James von Klemperer is Design Principal at Kohn Pedersen Fox Associates where he has worked since 1983. He is responsible for a wide range of program types and scales of projects. In his work, he follows projects through the full process of design, from conception to completion.

Jamie is currently leading the design of One Vanderbilt Place in the USA. His other US work includes, the Foley Square Courthouse in New York, and the Park Fifth residential development in Los Angeles.

In China, Jamie has completed major mixed use projects, such as Hang Lung Plaza 66 (Shanghai), and Hua Mao China Central Place (Beijing). Other Chinese projects include Jingan Kerry Center and the Tianjin Riverside 66 retail market.

Jamie was also the chief designer of Dongbu Financial Tower, winner of the Korean National Architecture Award. Other Projects in Korea include the master plan for New Songdo City, a 1500-acre town and the Lotte World Tower still under construction.

詹姆斯·冯·克伦佩勒自1983年进入科恩·佩德森·福克斯联营公司工作，现担任公司的设计负责人。他一直负责各种类型和规模的项目，项目跨度范围从房子的大小到一个城市的尺度。他在工作中参与项目设计从构思到完成阶段的全过程。

在美国，詹姆斯目前领导了范德比尔特广场设计团队，这个高楼项目毗邻纽约中央车站。他设计的华盛顿彼得森国际经济研究所和康涅狄格州的金神大赌场项目都获得了美国建筑师学会奖章。他在美国其他工作包括：纽约弗利广场法院、洛杉矶第五园住宅开发项目，于2007年获得了NYAIA奖。

在中国，杰米已经完成了几个重要的混合功能项目，如恒隆广场66(中国上海)，以及华贸中心(中国北京)。他参与开发的中国项目包括静安嘉里中心和天津海河66零售中心，成为2009年NYAIA奖的赢家。

在韩国，杰米是东部金融大厦的首席设计师，此项目是NYAIA奖和韩国国家建筑奖得主。他领导了新松岛市总体规划，一个1500英亩的镇，并在2007年获得第一个由ULI颁发的绿色城市奖，在这一项目中，他参与了几个重要建筑的主创设计，包括第一世界住宅综合体、国际学校 and 100英亩的中央公园。他设计的乐天世界大厦正在建设中，设计高度555m，将于2015年完成。

### Abstract

As the skyscraper matures as a building type, its role in actively connecting to, and reinforcing, major threads of urban fabric becomes increasingly more important. The creation of public spaces inside of and adjacent to tall buildings allows for significant additions to the public realm, facilitating better connections between varied uses, providing needed access to critical transportation functions.

In this more integrated version of the tall building type, the density afforded by a vertical structure is complemented by strategically devised porosity of plan and section. This paper examines three major tower projects which exemplify a progressive approach to permeable design: the recently completed Jingan Kerry Centre in Shanghai, the Lotte Supertower in Seoul, now half completed, and the One Vanderbilt tower being proposed next to Grand Central Terminal in New York City. These projects suggest possibilities for innovative approaches to private development strategies, public planning processes, and architectural design.

**Keywords: Permeable Design, Public Space, Spatial Continuity, Sectional Variety, Organic Grids, Urban Fabric**

### 摘要

随着摩天大楼作为一种日渐成熟的建筑类型，它对联系并增强城市结构的积极连接作用变得越来越重要。高层建筑内部和相邻公共空间的创造允许大量增加公共领域、促进各种用途之间更好的连接、以及提供对重要交通功能可达性。

在这种集成度更高的高层建筑类型中，由垂直结构所带来的密度辅以平面和剖面的多孔战略构想。本文探讨了三个大型高层项目，用渐进方式渗透的设计：最近完成的上海静安嘉里中心、完成一半的首尔乐天世界大厦、纽约市大中央车站旁拟建的范德比尔特塔。这些项目对私人开发项目、公共规划流程以及建筑设计的战略创新方法进行了可能性尝试。

**关键词: 透水设计, 公共空间, 空间连续性, 截面多样性, 有机网格, 城市结构**

### Introduction

Urban density, as measured by the concentration of built area, rate of occupancy, and intensity of user activity, is one of the most important factors affecting our ability to deal with critical opportunities and challenges of today's cities. The potential for high efficiencies of land use, energy consumption, and personal time all point to the advantages of condensed utilization in downtown districts. For more than a century, tall buildings have allowed for high ratios of usable floor area to land area, thus serving as essential components of center city planning and design. However, if not strategically conceived, building density can create major difficulties of an overcrowding of the ground plane, a lack of diversity of use, a scarcity of public space, and a less than optimal access to light and air.

### 引言

城市密度——由建成区面积的集中度、占地率和用户活动强度等几个因素确定，是影响我们应对当今城市关键机遇和挑战的能力的最重要因素之一。土地使用、能源消耗、个人时间的高效利用潜力都指向城市中心区的紧凑使用优点。一个多世纪以来，高楼大厦都采用高容积率，从而成为服务于中心城市的规划和设计的重要组成部分。然而，如果缺乏合理的战略构想，较高的建筑密度可导致一系列不良的效果，如地平面拥挤、功能多样性的缺乏、公共空间匮乏以及采光和空气质量的不理想。

作为对建筑密度的改变，精心策划而建造大规模建筑缓解了前文提到的由于密度过高所带来的挑战。新的公共开放空间的嵌入、公众使用功能的增加、公共流线与高层建筑的连接可以让城市生活通过其他的方式在密集环境中高效地流动。在某些情

As the converse of density, carefully planned porosity of constructed mass allows for essential relief from some of the challenges arising from extreme compaction mentioned above. The insertion of new public open spaces, the addition of varieties of public use, and the connection to public circulation routes into tall structures can allow city life to flow effectively through otherwise dense environments. In some cases, sectional manipulation makes it possible to replicate the ground plane at multiple levels, adding to capacity of the public realm.

The ultimate efficiency of such tall building projects comes with the connection to transport networks and even adjacency to major transport hubs. This remains one of the most important uses of vertical construction, to place large quanta of working and living quarters where users can access their space conveniently without needing to rely on the automobile. Ultimately, this can be seen as a strategy for the management of carbon footprint and other energy use metrics.

In such large mixed use environments, a degree of porosity can also naturally lend a measure of human scale, mitigating the some of the psychological challenges of occupying mega scale buildings. The aesthetic effect of unmitigated mega-masses can otherwise become a deterrent to the happy acceptance of dense living. Porosity becomes the natural enabler of efficient density.

This paper will examine three contemporary tall building projects whose primary design, commercial, and civic goals, include the active integration of a vertical structure with urban networks.

These projects can be listed and characterized as follows:

- Jingan Kerry Center (organic grid collage)
- Lotte Supertower (vertical city)
- One Vanderbilt Ave (a tree with roots)

The three tower projects occur in widely diverse locales (Shanghai, Seoul, and New York), rise to varying heights (270m, 555m, and 400m), and feature broadly differentiated mixes of internal use. The first has been recently completed, the second is half constructed, and the third is currently being permitted. What they all have in common is that they seek to achieve the strategic balance of density and porosity described above.

### Jingan Kerry Center Shanghai

The Jingan Kerry Center, a major mixed use project recently completed in Shanghai, tests several hypotheses about the role of the tall building in promoting the goals of progressive urban design. The investigations launched by these questions are both practical and theoretical in nature, and were pursued consistently by architect and client from the first sketch to the day the complex opened. They are as follows:

- First that a Superblock consisting of an assemblage of large scale buildings can be used to extend and reinforce the permeable grain of the historical city.
- Second, that an integrated cluster of variously scaled building elements can make an effective connection between ground plane and skyline, through a gradual sequence of formal and programmatic connections.
- Third, that the rectangular grid, which provides us with an organized basis for planning and construction, can be used to create a heterogeneous, and even organic design, responding deftly to a multitude of uses, visual agendas and contextual idiosyncrasies.

况下，通过对截面的精心设计可以在不同的高度上创造多个地平面，从而增加了公共空间的承载能力。

高层建筑项目的最终效率来自于与交通网络的连接，或者得益于临近主要交通枢纽的区位优势。垂直建设模式的最重要的是把工作和生活区设置在用户可以方便到达而无需依赖于汽车的地方。最终，这可以被看作是对建筑碳足迹和其他能源利用指标的管理策略。

在这样大规模混合功能环境中，一定程度的空隙可成为缓解庞大建筑物带来的心理挑战的人性化措施。否则，庞大建筑物的视觉效果可能成为对高密度生活积极接受度的威胁。多孔性成为高效密度的自然推动力。

本文将探讨3个当代高层建筑项目，其主要设计、商业和城市目标均包括垂直结构与城市网络的有效整合。

这些项目及其特点如下：

- 静安嘉里中心 (项目概念: 有机网格拼贴画)
- 乐天超级大厦 (项目概念: 垂直城市)
- 范德比尔特大道 (项目概念: 带根的书)

这三个高层建筑项目位于不同的环境中 (上海，首尔和纽约)，并且具有不同的高度 (270m, 555 m, 400 m)，而内部功能混合情况差异较大。第一个项目已于近期完成，第二个已完成一半，第三个项目刚刚获批。三个项目的共同点是，都寻求实现合理的密度和空隙率的战略平衡。

### 上海静安嘉里中心

静安嘉里中心是一个于日前在上海完成的大型混合用途项目，项目尝试了几种用高层建筑推动渐进式城市设计目标作用的设想。围绕这些问题开展的调查工作具有实践和理论性特点，并从项目伊始便成为建筑师和客户关注的问题。详情如下：



Figure 1. Jingan Kerry Center Shanghai

图1. 上海静安嘉里中心



Formulated at the inception of the architectural design phase of the project in 2005, these hypotheses were tested through three years of drawing and five years of construction. Now, with 3.5M ft<sup>2</sup> of building area constructed, the physical aspects of the architecture can be observed. More important, the ultimate test of how these ideas will play out over the usable life of the complex has just begun.

## Background

In the early years of the new millennium Kerry Properties, a leading Hong Kong based real estate company, and a sister company to the Shangri-la hotel group, had assembled a double block of land in the Jingan District of Shanghai. This stretch of Nanjing Road, known as China's busiest shopping street, offered excellent exposure to a steady flow of pedestrian life, as well as to the highway traffic to the south. Before the entire site had been acquired, a portion of the 5.7 hectare area had been secured and developed as a pair of structures, one office and one residential building.

The statistical brief for the project was articulated in loose terms as a fulfillment of the plot ratio of 5.1%, consisting of two hotels totaling 800 rooms, 100,000 m<sup>2</sup> of office space, and the balance of retail, entertainment, and conferencing facilities. The core of the urbanistic goals of the project were articulated in the project brief: how can a modern building of significant scale capture the spirit of Shanghai, particularly the area of Puxi surrounding the site, which had grown during the concession era. This spirit of old Shanghai was characterized by the client as a place that would feel central and important, but without the traits of obvious symmetry or monumental scale. The varied uses were to be placed in such a way as to de-emphasize their separate identities, and so reinforce a sense of the whole.

## Urban Grain

Key to the design process was an abstract analysis of a few late 19th Century blocks of the International Concession, which feature semi-public open spaced buried deep within an oversized block of shops and residential buildings. These abstract diagrams, figure ground sketches, and examination of historical typologies, underscored the importance of asymmetry, jogged circulation paths, and moments of surprise. Three major elements remained throughout the process as given components of the site plan: the existing Kerry buildings to the northeast; a public street named Anyi Lu which runs east west and thus bisect the site; and a small shop-house in the middle of the site where Mao Tse Tung lived in the early 1920's. Treating the site as a field containing indelible paths and immovable found objects supported the goal of recalling a historical fabric which had itself originally emerged out of a process of serendipitous planning and construction.

The puzzle-like planning idiom worked very well within a design process that required a frequent relocation of program elements and a rebalancing of areas, as the goals of the brief were redefined as the design matured. A good example of this is the succession of different locations proposed for the tall (260m) tower. The first fully developed set of FangAn drawings placed this tower at the extreme northern edge of the site, along Nanjing Road. This followed a basic logic that the major building should be honored by giving it the most prominent address. Just as this design was due to be approved by City officials however, regulations restricting the projected settlement of the foundation changed. This change had to do with the proximity of the raft foundation to a subway tunnel, which would be disturbed by the movement of an adjacent site. Rather than the 10mm previously set

- 首先，超级街区由大型建筑的组合而构成，可以用于延伸并加强历史文化名城的渗透作用。
- 第二，为各种规模建筑元素的集群可以使地平面和地平线之间建立有效的连接，通过正式和纲领性连接达到渐进作用。
- 第三，矩形网格的应用，为我们提供了规划和建设的组织基础，可以用来创造一个巧妙地应对多种用途、视觉效果和情境特质的变异或是有机的设计。

2005年该项目的建筑设计阶段之初便有了概念雏形，至今通过三年的图纸设计和五年的实际建设进行了测试。现在，随着350万平方英尺建筑面积的建成，建筑物理方面的实际效果已经可以被监测。然而更重要的是，这些概念将如何在建筑全寿命周期发挥作用的终极考验才刚刚开始。

## 背景

在新千年嘉里建设的最初几年，香港主要的房地产公司以及姊妹公司香格里拉酒店集团也在上海静安嘉里街区的取得了两块地块。这南京路的延伸区域被称为中国最繁华的购物街，人流络绎不绝，并且在南部连接高速公路。在整个地块被收购之前，其中5.7公顷的土地的已被抵押，开发为两幢建筑，一座办公楼和一个住宅楼。

项目具有较为宽松的建设条件：只需达到5.1%的占地率，包括两幢酒店，提供总共800间客房、10万m<sup>2</sup>办公空间以及零售，娱乐和会议设施，项目通过不同功能的混合达到了平衡。该项目都市化目标的核心在项目自身中阐述：巨大规模的现代建筑如何才能体现夺取上海精神，尤其是在浦西基地周围地区的环境中，而这些区域已经在租借时期中已发展。老上海的精神的特点的决定因素是客户需求，因为这样能体现其中心和重要性，但却不具有明显的对称性或巨大规模的特点。在不同功能分别以一种不再强调各自的特性的方式放置在一起，因而加强了整体性。

## 城市肌理

设计的关键过程是对19世纪晚期租借地块的抽象分析，这些历史风貌区建筑采用半公共的开放空间，大体量的商铺和住宅楼宇将空间隔开并围合。这些抽象的图表、基地特征草图和历史类型学的探究、对不对称重要性的强调、慢跑流线路径和空间体验中惊喜的时刻。贯穿整个过程的三大要素作为基地平面的组成部分：

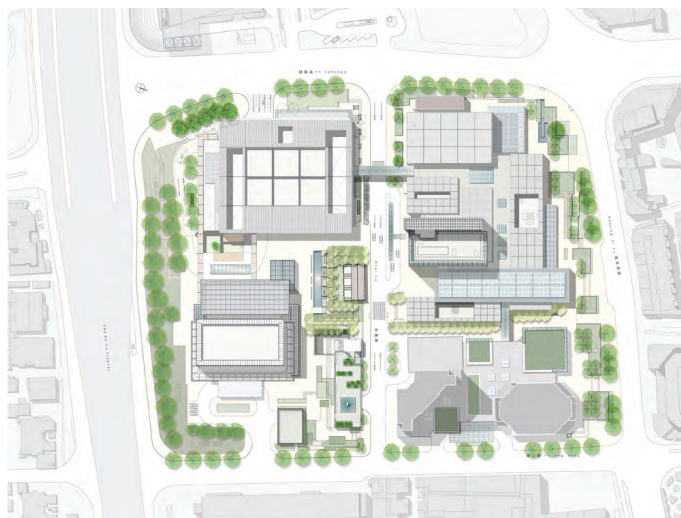


Figure 2. Jingan Kerry Center Shanghai

图2. 上海静安嘉里中心

as the maximum amount of settlement allowed due to the new load of the building, a reduced maximum was set at 5mm. This change, though small in dimension, was profound in its effect. The only way to satisfy this stricture was to move the tall tower far enough from the northern boundary of the property, that it proved necessary to “flip” the plan of the entire complex. Though this caused a 3 month reworking of all of the plans, the basic character of the previous solution was maintained. The “organic” qualities of the design made it possible to reorganize the site plan without great difficulty. There were no rigid axes or symmetrical spatial effects to maintain or disturb.

Just following this plan “flip”, the project went through major programmatic changes in response to the world slump in economies and their repercussions in the Shanghai real estate market. These changes too were accommodated with minimum difficulty. In a major adjustment to the program, one of the two hotels was quickly removed in favor of office use. Once again, the collage of grid plans proved reasonably easy to manipulate.

### Graduated Scales

The design of the Superblock is one of the challenges posed by many major urban developments in China today. Large sites, often 4 hectares or more, stretch well beyond the scale of conventional pedestrian habits, building floor plate sizes, and fire code requirements. The need to introduce subdivisions of roadways, passages, building masses, and circulation routes forces the Architect into the role of the Planner, and the owner into the role of a sort of urban caretaker. Large scale is a both a boon to the goal of creating a significant destination, and a bane to the goal of creating or maintaining a sense of human scale.



Figure 3. Jingan Kerry Center Shanghai

图3. 上海静安嘉里中心

东北区已有的嘉里建筑;东西向的公共街道安义路将地块一分为二;基地中间1920年毛泽东曾居住的一幢店铺住宅。将基地视为含有不可磨灭的路径和珍贵历史价值的区域,能够帮助实现对历史肌理的尊重,而历史肌理的产生也是基于许多偶然规划和建设过程。

拼图般的规划在设计过程中取得了良好的效果,需要频繁对方案的元素进行重组和再平衡,因为目标随着设计的深化而不断变化。一个很好的例子是,对260m高大楼的位置不断修改。第一轮方案图纸将建筑放在地基沿南京路的北部边缘区域。这遵循的基本逻辑是,重要的建筑应该放在基地最显要的位置上。因为设计由政府审批,法规对地基沉降限制有过变更。为了适应这一变化,项目不得不与地铁隧道筏板基础的相邻,将受到相邻基地运动的干扰。预先设定的允许最大沉降由于新建筑物负载而为10mm,现减小到5mm。虽然只是细微的变化但是却产生了巨大的影响。为了满足这个变化,唯一方法是使高塔的位置远离北部边界,这意味着需要整体的重新设计。虽然这意味着3个月的规划调整,同时延续原方案的基本特征。该设计的“有机”的特点使我们能够较容易地重新组织场地平面图。因为原设计没有僵硬的轴线或均匀对称的空间效果需要维持或被扰乱。

随着规划的改变,项目在回应全球不景气的经济和对上海房地产市场的影响方面出现了几个较大的变化。这些变化也被以最容易的方式解决。规划的主要调整,两间酒店中的一幢为了更有利于办公使用而被迅速取消。另外,网格的拼贴比较容易操纵。

### 规模与尺度

超级街区设计是中国今天许多主要城市发展所面临的挑战之一。巨大尺度的用地,通常面积超过4公顷,其尺度已经远远超出了传统步行习惯的街区大小、建筑物底板尺寸和防火规范要求的规模。因此,引入道路、通道、建筑体量、流通路线细分的需要迫使建筑师以规划师的视角,和或者以业主的管理城市的视角重新审视设计。较大的规模大利于创造引人注目的地标,同时也可能导致设计缺乏人性化尺度。

除了前文提到拼贴式规划策略,静安嘉里中心采用旨在分解建筑综合体整体巨大尺度的垂直和体量的设计策略。虽然这种在整体上分解巨大的体量而在更小的部分聚合的处理手法并不新颖,但是设计严谨地采用统一的立方元素和有意识的重组策略。

这种复合模式的目标是在项目的最小和最大部分之间创造建筑体积之间的连接。从这个角度上看,静安嘉里中心与洛克菲勒中心类似,洛克菲勒中心以更大的长度整合和协调其几何和建筑图案。洛克菲勒中心多次作为项目参考,在静安整体设计中为了将意图传达给客户和其他合作者被多次提到。

在基地中心的毛泽东曾居住的房子充分体现了这个增量策略。作为典型里弄房屋的片段,它仍然可视为与280M高的南楼和197M高酒店的有意义的联系。在静安嘉里项目中,尺寸较小的建筑元素都靠近地面,地面具有丰富的多样性,其大部分是由必备的零售空间组成。根据城市的经验,更小元素会被近距离看到,因而更为重要,而一些较大的部件由于距离的增加而不会同近处一样明显。在小型和大型建筑构件之间有意系列中等规模的建筑体量,包括零售商业街以及会议中心。建筑体量采用了分级的连接方式。因此,建筑的所有元素都达到了视觉上的平衡,并在地面高度的视觉效果同天际线一同考虑。



In addition to the previously mentioned strategy of plan bricolage, the Jingan Kerry Center adopts vertical and volumetric design strategies intended to break down the scale of the overall complex. While such an approach of dissecting the whole, or aggregating it from smaller parts is hardly unique, the consistent use of cubic elements, and the conscious tactic of exploiting their recombinant qualities, are pursued with an unusual degree of rigor.

The goals of this compositional mode are to create a link between the smallest and the largest of program components and architectural volumes. In this sense, the JingAn Kerry center follows in the footsteps of Rockefeller Center, which went to even greater lengths to integrate and coordinate its geometric and architectural motifs. Rockefeller Center served as a frequent reference in communicating the intent of the overall Jingan design to the client and to other collaborators.

In the center of the site, The Mao's house exemplifies this incremental scalar strategy. A fragment of construction typical of the granular elements of LiLong housing, it can still be understood as relating meaningfully to the 280 m tall south tower, and it's 197m tall hotel component. The dimensionally smaller building elements within the Jingan complex are located close to the ground, where intense variety of program - much of it consisting of retail - is called for. In the urban experience, such smaller components are seen from close up, and thus loom large, while some of the larger components are perspectively diminished. Between small and large building components are situated a series of middle-scale building masses, including the retail galleria, and the convention center. Building massing follows a strategy of graduated linkage. Thus, components of the project are brought into visual balance, and the experience at the ground level is visually connected to the skyline.

### Organic Grids

Historically, the grid is the most universal mode of planning cities - from Miletus to Chang'an, from Roman military colonies to Lisbon's Baixa, from New York City to London's Canary Wharf. At the smaller scale of the individual structure, the modern building is typically planned, structured, clad, and furnished using the ordering device of regular rectilinear modules. The Superblock offers an interesting opportunity to employ the grid to its greatest advantage in both the micro and macro scale. In such projects, large assemblages of grid structures are by no means unusual. What makes the design of the Jingan project somewhat unusual is the way it establishes a multitude of variations on the grid theme, assigning different modules, materials, and architectural expressions to different uses within the complex. Thus, the hotel is assigned one modular frequency, the office another; retail is subdivided into a series of proportional façade types, public space yet another, and so on. These façade types correspond to underlying structural dimensions which are chosen to house their respective uses (eg office at 9m on center).

While Jingan's many façade types are derived from the same basic modules, each intersecting neatly with its neighbor, the resulting assembly achieves a kind of organic overall effect. One might even find in these compositions qualities of the picturesque, as the concatenation of elements mimics the variegations of a cityscape. Again, this façade collage approach has its precedents, but it may not have been previously achieved at such a large scale in such a way as to balance consistency with variety.

The wall types which clad the Jingan buildings are differentiated by three critical features: modular dimension (as mentioned above), material, and depth. In this design materials graduate, on the whole,

### 有机网格

从历史上看, 网格是城市规划的最普遍的模式: 从米利都到长安, 从罗马军队殖民地到里斯本的拜沙, 从纽约到伦敦金丝雀码头。在规模较小的独立结构中, 现代建筑通常被规划的层次分明, 并使用常规直线模块。而本项目提供了一个有趣的方式, 在微观和宏观层面同时采用网格是它最大优势。在这些项目中, 网格结构组合大都非同一般。是什么让静安嘉里项目设计不同寻常, 是由于它建立了具有变化和多样性的网格结构, 使用不同的模块、材料和建筑手法来表达复杂的内部不同用途。因此, 酒店频繁使用一种模块, 办公室则使用另一种; 零售空间的立面被细分成几种类型, 公共空间又另外分成几种类型, 依此类推。这些立面类型对应于该被选择来安置他们各自的用途(例如, 在中心局在9米) 底层结构尺寸。

而静安嘉里项目中许多建筑立面的类型是从相同的基本模块推演而出, 每个模块与相邻的组件整齐相交, 实现了一种有机的整体效果。人们甚至可能会从中发现生动的组合特征, 元素的串联方式模仿城市景观的多元性。同样地, 这种立面的拼贴方法有其先例, 但这种方式可能未曾被运用在如此大的规模项目中, 以求得整体的一致性和多样性。

静安嘉里项目的建筑墙体类型由三个关键特征区别: 模块尺寸(如上所述)、材料和深度。在本设计的材料分级中, 就整体而言, 地面部分的材料较为密实, 而建筑物顶部的材料孔隙率更大。最坚实的墙壁是由石灰构成, 其次是陶板, 再次是铝框加重的玻璃, 较为轻质的玻璃和铝框, 最后是无框玻璃。在玻璃墙类型方面, 三种有细微差别的蓝绿色色调涂层玻璃被使用。

深度的变化是这栋楼立面类型的另一个区分特征。墙类型的层次结构从石墙划槽/空隙网格线划分开始。主塔底部通过使用强大的外部骨骼——从玻璃表面伸出的1.5米钢筋铝型材, 与其他部分相区分。墙上阴影的方式形成一个非常具有序列感的排列方式, 堪比文艺复兴的立面比例组成。例如, 威尼斯的圣索维诺图书馆, 深度蕴含着力量、显示贵族地位并体现在城市整体范围内的地方自豪感。这大楼的底部是项目的建筑锚固。北面的高塔具有一个更微妙的外部结构, 其上部外墙使用了垂直百叶板。最高的外墙使用了近乎齐平铝框的细节, 而塔的顶部使用了中空的网格。相比在洛克菲勒中心的核心建筑的设计, 前文讨论的墙类型可媲美纽约地标的石灰石(干净光鲜, 出手锯)和拱肩(石材, 铝)品种。正如洛克菲勒中心伪装成大规模材质统一的石材建筑, 静安嘉里项目则是不同立面材料的组合体, 表达其作为一个独特的具有尚未统一的整体项目。



Figure 4. Jingan Kerry Center Shanghai  
图4. 上海静安嘉里中心

from solid at ground level to void at the top of the buildings. The most solid walls are made of travertine, the next most solid of terra cotta, the next of glass with framed heavily by aluminum, then a lighter glass and aluminum frame, and finally aluminum frame with no glass infill. Within the category of glass wall types, three subtly graduated shades of blue-green coating are used.

Variety of depth is another critical differentiator of this building's cladding types. A hierarchy of wall types starts with stone walls divided by grid lines marked by recess/voids. The base of the main tower is distinguished by the use of a robust exoskeleton, a steel reinforced aluminum profile posted out 1.5 meters from the glass surface. The way that this wall throws shadows establishes a very strong grid order, in a manner comparable to the proportional compositions of Renaissance façades. As, for example, in the Sansovino library in Venice, depth connotes strength, nobility of purpose and overall pride of place within a multi building urban context. This tower base is the architectural anchor of the project. The north tower displays a more subtle exoskeleton, while upper façades show an engaged fin. The highest façades are traced with a close-to-flush aluminum detail and the tops of the towers are voided grids. To compare this design to the buildings at the core of Rockefeller Center, the wall-types discussed above are comparable to the varieties of limestone (cleanly dressed, shot-sawn) and of spandrel (stone, aluminum) in the New York landmark. Just as Rockefeller Center poses as a massively consistent body of stone, hewn by many hands yet belonging to the same "geological" mass, Jingan is a tapestry of related wall textures, expressing itself as one heterogeneous yet integrated whole.



Figure 5. Lotte Supertower  
图5. 乐天超级塔

## Lotte Supertower

The second tower which I will use to illustrate the potential for the tall building to integrate itself with active urban fabric is the 123 story Lotte Supertower now half constructed in Seoul. The site for the tower can be described as a kind of compacted sprawl – neighborhoods of slab housing and block office structures lacking a cohesive planning context. By piercing the +/- 30 story skyline of its immediate surroundings, the tower gives the Jamsil district a strong center. Having established a central concentration of building mass, the project adopts 2 major strategies to promote permeable urban design.

### Sectional Variety

First, the tower is programmed with a greater variety of functions than is normally found within a tall structure. The sequence of program elements is arranged in section from bottom to top as follows: multi modal transport; parking and automobile drop-off; public plaza; retail; health care; office; conference; hotel; residential; boutique office; observation deck/entertainment; military installation. The common thread of circulation that links these sectional segments, as in all high-rise towers, is the elevator core. Access to the various banks of elevators, and ease of transfer from one to the other is made possible by the multiplication of the ground plane. Primary arrival sequences are experienced below grade, at grade, and at a balcony level above grade.

### Spatial Continuity

In order for these entry levels to function efficiently, it is important that users understand a spatial continuity that allows them to orient themselves. The rabbit warren phenomenon which often results from overly compacted plans is avoided through the use of tall open interior spaces. These spatial "mixing chambers" take the form of sectionally curved vaults, articulated in wood, which also follow the curved plan of

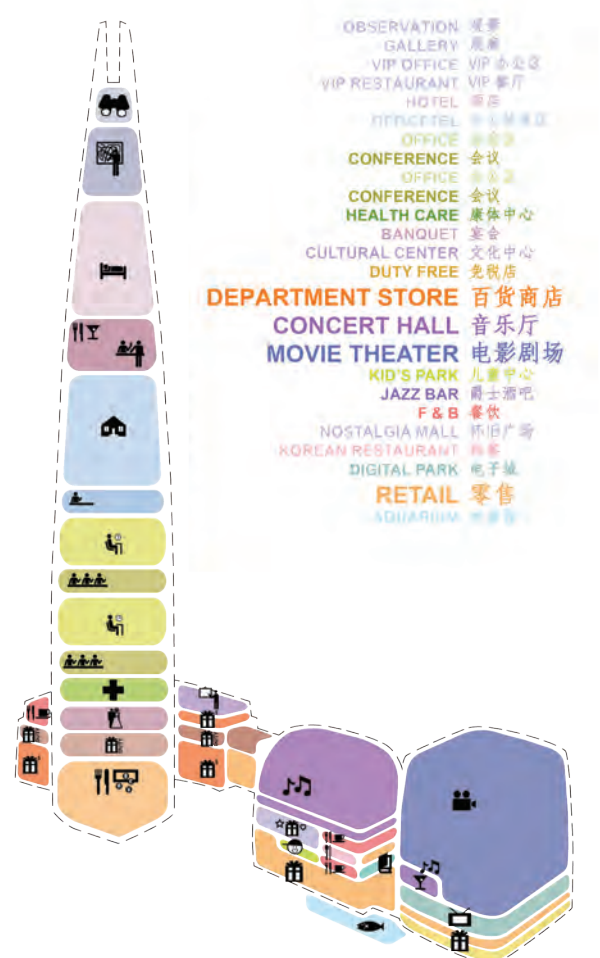


Figure 6. Lotte Supertower  
图6. 乐天超级塔



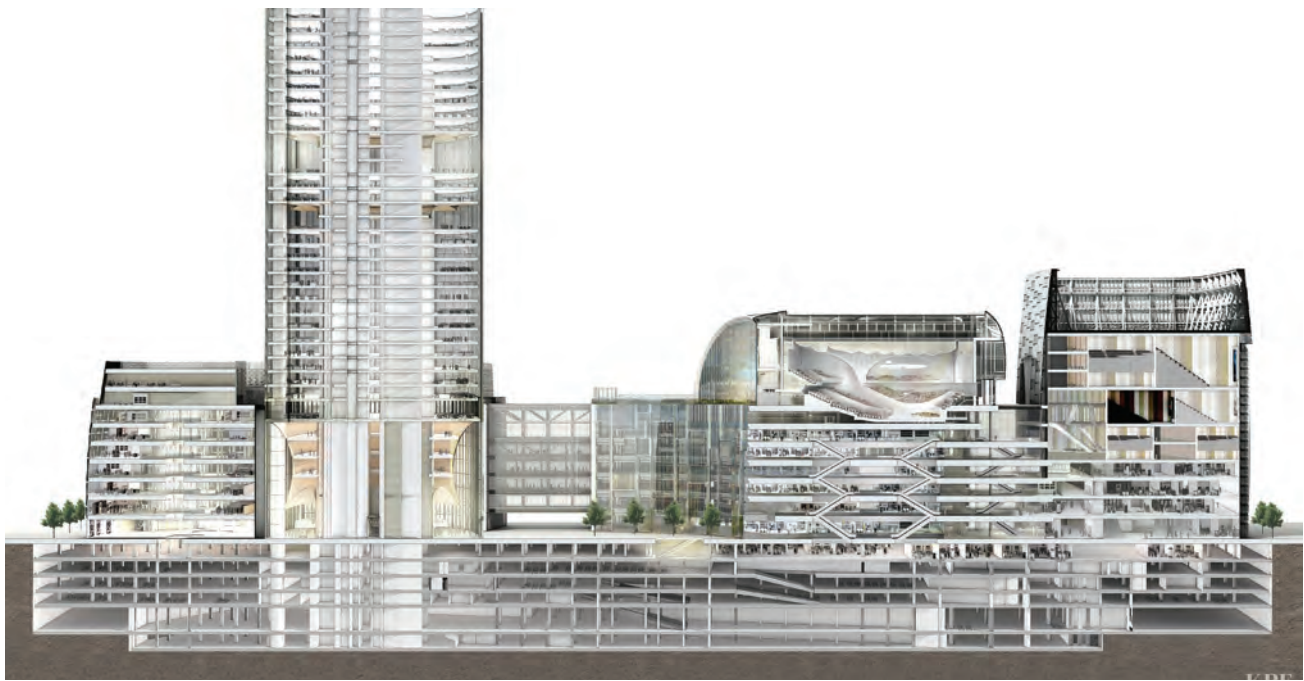


Figure 7. Lotte Supertower

图7. 乐天超级塔

the tower. The double curvature and consistency of materials establish a morphology that recalls the form of the hull of a wooden ship.

The base building design of the Lotte Tower calls for this motif of curved space to be repeated in public gathering areas higher up in the building. These include common conferencing spaces, hotel lobbies, residential sky lobbies, and observation deck spaces. This unified armature of design is intended to establish a way for users to understand where they stand relative to the whole building, even as they occupy one specific space far removed in dimension from other program components.

#### Base-Tower Continuity

The 123 Story tower has been designed and constructed at the same time as a 10 story base that accommodates as much area as its vertical counterpart. Vertical density is linked to horizontal density, and the range of complementary uses is increased. Connections between the two major building components are made via interior pathways at a variety of levels, but also by active outdoor public space. As has been proven over 80 years ago at Rockefeller Center, the porosity of the urban plan, the interruption of building mass by piazzas, walkways, and landscape areas can promote pedestrian connectivity. To literally connect by swallowing up all available space within covered structures can be counter-productive. Thus, one of the most effective measures taken to activate the tower and connect it to adjacent buildings is the carefully tuned outdoor plaza that rings more than half its periphery. This space forms a sort of outdoor room, compressed enough in its dimensions to encourage visual and pedestrian penetration of its boundary walls.

#### Super-Base

One of the most unusual aspects of the Lotte project is the insertion of public cultural institution at the top of the base. Sitting at the 8th floor, the roof level of a large retail and entertainment zone, is a top grade public concert hall accommodating up to 2000 seats. By placing a building type which we rarely see displaced from street level, or from the piano nobile, the project readjusts our normal expectations of the

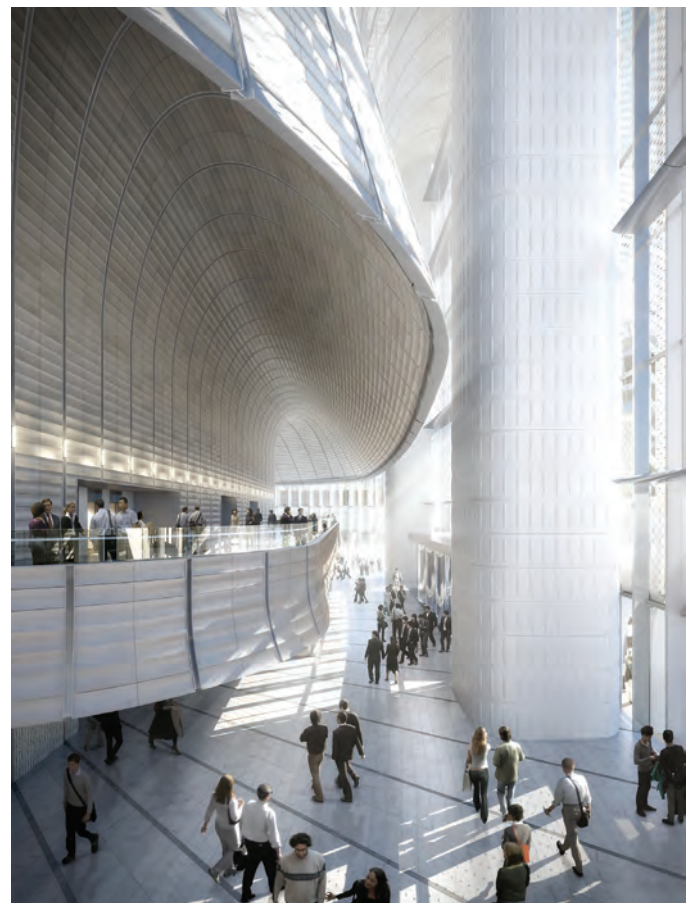


Figure 8. Lotte Supertower

图8. 乐天超级塔





Figure 9. One Vanderbilt

图9. 范德比尔特壹号

limits of the public realm. We are nudged one degree further into the acceptance and practice of occupying a vertical city. Density and public utility are effectively promoted by means of this construct of sectional continuity.

### One Vanderbilt

The last project in this trio of tall buildings is a 400m office tower designed for a site located immediately to the west of Grand Central Terminal in Manhattan. The surrounding area of East Midtown was the subject of a major up zoning proposal made towards the end of the Bloomberg administration, and defeated just before the end of the corresponding City Council term. The basic argument for the proposal was that downtown urban transit hubs should be enlivened and activated by optimizing the density of surrounding buildings, and that new and advanced building structures might be devised that can increase the connectivity of such districts. The One Vanderbilt site was chosen as a special spot whose strategic location warranted the increase of permittable FAR from 20 to 30.

Though these larger zoning measures were defeated in November of 2014, the new de Blasio administration, the City Council, and community groups have indicated their support for the specific One Vanderbilt tower, and the developer client, SL Green is proceeding with the planning.

### 乐天超级塔

我将用来说明高层建筑整合本身和城市肌理的潜力的第二个塔是在首尔已完成一半建设的乐天超级塔，该塔有123层。建筑的基地是紧凑的扩张模式，相邻社区采用平面的发展模式，而办公建筑缺乏一个有凝聚力的规划结构。通过在环境中建造一幢高约30层的建筑形成天际线，给詹姆斯地区塑造了一个强有力的中心。通过建筑的巨大体量建立集中的中心区域，项目采用2个主要战略，以促进渗透性的城市设计。

### 截面多样性

首先，该塔比一半高层结构建筑功能更为多样化。项目各功能顺序从下往上依次是：多种交通模式；停车场和汽车落客；公共广场；零售；医疗保健；办公室；会议；酒店；住宅；精品办公；观景台/娱乐；军事设施。以电梯为核心连接这些不同功能，这是所有高层建筑的共同点。不同电梯的可达性以及楼层间转换的便捷性由接地平面的换乘方法实现。主要的到达次序是：地下层、地平层、以及地面上的平台层。

### 空间连续性

为了使这些进入级别有效地发挥作用，重要的是用户了解其空间连续性，使他们能够给自己定位。=由于过度压缩的平面而导致的养兔场现象，可通过使用内部开放空间避免。这些混合空间采用局部拱顶形式、挂铰接木材，这也符合塔的弯曲形式。双曲率和材料的一致性建立一个能唤起对木船形式回忆的形态。

乐天大厦的设计要求在较高楼层的公众频繁聚集区运用弯曲空间。这包括常见的会议场所、酒店大堂、住宅的天空大堂以及景观平台。设计这个统一的部分的目的是建立一种让用户了解他们相对于整个建筑的位置，即使他们占据一个空间上相距甚远的特定的空间。

### 基础塔楼的连续性

这座高123层的塔楼已经设计并建造，同时一个10层高的裙楼，具有与其垂直部分相同规模的区域。垂直密度与横向的密度相关，补充性功能的种类也增加了。两个主要建筑构件之间的连接是通过内部不同层的路径和积极的户外公共空间实现。根据在洛克菲勒中心80年的实践经验，城市规划的空隙率，由广场、人行道和景观区对建设大规模的中断影响有助于行人连接。通过覆盖结构件包裹所有可用的空间连接会是适得其反。因此，激活塔楼并将其连接到相邻建筑物的最有效措施之一是经过精心设计的户外广场，超出其一半以上的外围周长。这个空间形成一种室外空间，尺寸上被压缩足够，以鼓励边界上视觉和行人的渗透。

### 超级建筑底座

乐天项目中最不寻常的一个方面是公共文化机构在基地上方的嵌入。一个大型零售和娱乐区的屋顶层位于8楼，是一个最多可容纳2000个座位高档的公共音乐厅。通过把我们罕见的建筑类型从街道高度上升，该项目重新调整了我们对于公共领域空间的预期。我们进一步推进垂直主义城市化的认同和实践。密度和公共设施实际上是由截面结构的连续性而实现。

### 范德比尔特壹号

三个高层建筑的最后一个项目是高400m的办公大楼，位于曼哈顿西部临近中央车站的基地中。东方城的周边地区是彭博政府执政后期指定的一个高层规划区，被相应的市议会在任期结束前击败。该提案的基本主要概念是，激活市区城市公交枢纽、优化周围建筑物的密度、设计新的和先进的建筑结构、增加这些地区的连通性。壹范德比尔特地块被选为一个特别的地点，其优越的地理位能够保证容积率从20增加至30。



Figure 10. One Vanderbilt  
图10. 范德比尔特壹号

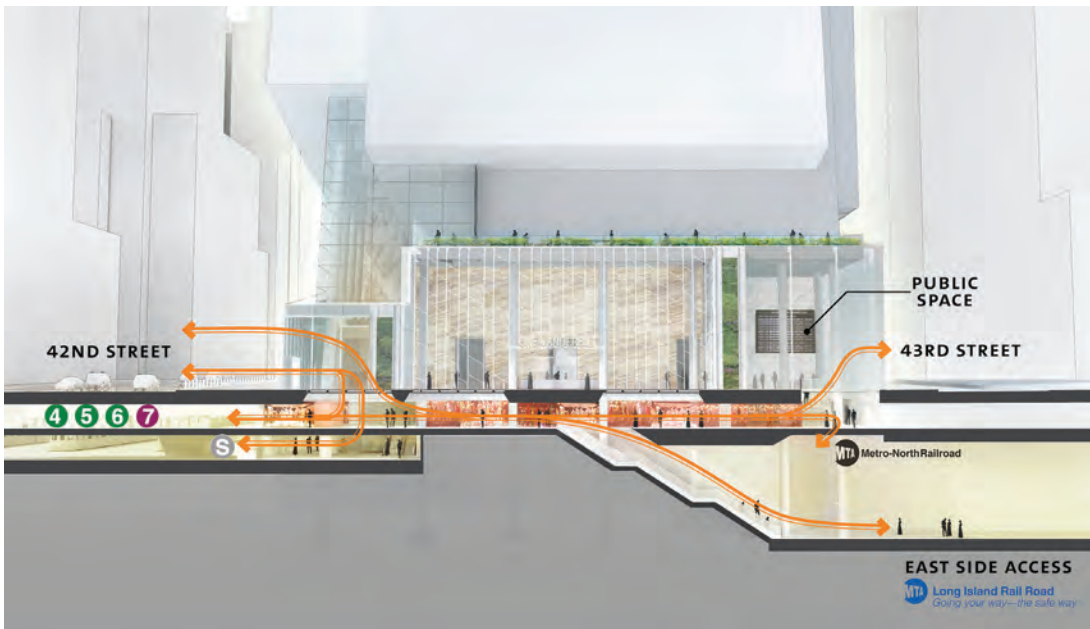


Figure 11. One Vanderbilt  
图11. 范德比尔特壹号

What makes the project remarkable is both the configuration of the public space at the base of the building, including its connection to public transport, and the public process that will make the increased density possible.

### Superior Design

During the Bloomberg administration, a set of complementary measures was discussed that would balance public realm improvements with the increase in FAR. While bonus structures are not unusual in City entitlement practices around the world, this particular linkage between design and vertical density would broaden the possibilities of such a practice in New York. Elements which led to the FAR 30 included the establishment of a public room within the base of the tower, linkage of the building to public transit spaces and circulation routes, helping to establish a major outdoor urban plaza, and the tapering of the tower to allow light and air to come down to street level.

虽然这些更大的分区措施在2014年11月被否决，新德·布拉西奥政府、市议会、社区团体已表示将给与范德比尔特塔特别支持，而开发商SL Green集团正将规划项目继续推行。

是什么让这个项目如此引人注目，不论是公共空间还是建筑物的基础部分，其公共交通连接设施和公众参与的过程都将使密度增加成为可能。

### 卓越的设计

在彭博社的管理下，一系列的补充措施被讨论，在提高容积率的同时保证平衡公共领域的改善。虽然额外的结构在世界各地的城市权利做法中都不太寻常，但设计和垂直密度之间的这种特殊的联系将增大在纽约应用可能性。使项目达到30的容积率的元素而包括建筑塔楼、建筑与公共交通场所和流线的连接，这能帮助建立一个大型户外城市广场，另外，向上逐渐收缩的建筑体量使光线和空气进入街道空间中。



### The Lifted and Linked Tower

As the developer, SL Green, and the Di Blasio administration move ahead with the review and approvals process, it is evident that a new model of interface between the tall building and the public realm is emerging. Citicorp Tower in New York and Leadenhall Tower in London have advanced radically inventive structural solutions aimed at opening up the ground plane. The One Vanderbilt design is more modest in structural terms, but goes deeper in its linkage to public space. The porosity of the open space at the base of the building, combined with connections to East Side Access platforms 90 feet below grade, and the visual uncovering of the architectural landmark of Grand Central Terminal constitute a uniquely inclusive configuration of urban design elements.

### Conclusion

The three projects discussed, all consisting of tall structures inserted into mature urban environments, illustrate the effectiveness of balancing urban density with architectural porosity. The goals of connecting large numbers of people to each other and to public transport can be best achieved with judiciously implanted public spaces and pathways. The design of the tall buildings, as they occupy our city centers, will evolve from a more autonomous structures to more spatially inclusive and synergistic environments. If private real estate enterprises and governmental authorities can recognize the collective benefits of an essentially collaborative process, a better city can emerge.

### 具有更高高度和多种连接的大厦

作为开发商，SL Green和德·布拉西奥管理部门推进了审查和审批过程，显而易见的是，高层建筑和公共领域交接平面的新模式正在形成。纽约花旗集团大厦和伦敦Leadenhall大厦在拥有先进的旨在开放接建筑基面的创造性的结构解决方案。壹范德比尔特的设计采用比较温和的结构设计，但其与公共空间有更为密切的联系。建筑物底部的开放空间连接到地下90英尺的东侧平台；同时，中央车站的标志性建筑的视觉效果构成了独特的城市设计元素的包容性组合。

### 结论

本文讨论的三个项目，均包括嵌入成熟的城市场环境中的高层建筑，阐述了平衡城市密度与建筑空隙率的效果。可以通过明智地植入公共空间和路径而达到连接大量的人和公共交通的目标。因为其占据城市的中心，高层建筑物的设计将演变成一个更为自主的结构，其空间将更具有包容性并具有更高的环境协同性。如果民营房地产企业和政府部门能够认识到协作过程的整体效益，则未来将有一个更美好的城市出现。



Figure 12. One Vanderbilt

图12. 范德比特壹号