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The Logic of Luxury: New York's New Super-Slender Towers

纽约的新超纤细高层: 奢华的逻辑



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卡罗尔·威利斯是纽约摩天大楼博物馆的创始人兼董事，她还同时承担20多个展览会的组织工作。她是建筑和城市方面的历史学家，是《金融决定形式：纽约与芝加哥的摩天大楼和都市天际线》(1995)一书的作者，她还撰写和编辑了许多行业内的专著和文章。她也经常出现在电视纪录片和电台节目中。

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Abstract

The recent exhibition "SKY HIGH & the Logic of Luxury" at The Skyscraper Museum examined a dozen super-slim, ultra-luxury residential towers on the rise in Manhattan. These pencil-thin buildings—all 50 to 90+ stories—constitute a new typology of skyscraper, even in a city where tall, slender structures have a long history. Predicated on sock views, these trophy properties exploit the city's system of transferable air rights and employ a development strategy of slenderness to stretch up to 300-400+ meters and have slenderness ratios ranging from 1:12 to 1:23. Sophisticated engineering and advances in material strengths have made these spindles possible, but Manhattan's extraordinary apartment prices and the international market for investment real estate explain their proliferation. Exclusivity is key: small floor plates with 1 to 2 units require only 2-4 passenger elevators. The conditions that created this rarified new form will remain indigenous to Manhattan, however, the paper posits.

Keywords: Slenderness, Super-Slender, Tower, Luxury

摘要

最近在摩天大楼博物馆举行的主题为“与天试比高·奢华的逻辑”的展览中，展示了曼哈顿正在建设的十二座超纤细、超豪华的住宅塔楼。即使在这座已拥有超高、超细建筑相当长历史的城市，这些如铅笔一样细、50-90多层的建筑，还是构成了摩天大楼的一种新类型。在获得震撼性景观视野的同时，这些居高临下的物业通过拔高到300-400多米和拥有1:20到1:23高宽比的纤细策略，开发了城市系统中的空中使用权。高超的工程技术和高端的建筑材料使得这些纤细建筑成为可能，但是曼哈顿极其昂贵的房价和国际市场投资房地产的热潮才是此类建筑兴起的有力解释。专属性是此类建筑的关键：楼板面积很小，每层只需布置1-2个单元，因此只需配置容纳2-4个乘客的电梯。曼哈顿固有的特性形成了这类罕见的新建筑类型，至少，本文是这么认为的。

关键词：纤细、超纤细、塔楼、奢华

All buildings are a product of time and place. This paper describes a group of super-slim, ultra-luxury residential towers currently on the rise in Manhattan—all 50 to 90+ stories—that represent an entirely new type of skyscraper, even in a city where improbably slender structures have a long history. More than a dozen such remarkable buildings are underway in New York City, and there will be more (see Figure 1).

These celebrity spires are headline grabbers, in part for their "starchitect" designers, but even more for their stratospheric condo prices. The only tower that is currently topped out and fully enclosed—which is named One57 and designed by Pritzker-winner Christian de Portzamparc—has sold two penthouses for \$90 million. Other reported sales range from \$30-\$60 million. While some owners will enjoy their aeries as a primary residence, many apartments are being purchased as investments by wealthy individuals, LLPs, and by international buyers: they are, in effect, "strong-boxes in the sky," in the phrase of one noted real estate appraiser.

所有的建筑都是时间与空间的产物。本文描述了一组超纤细和超豪华的曼哈顿住宅塔楼，这些建筑一般在50-90多层高，尽管超级纤细的结构在这座城市里已经有相当长的历史，但是它们还是代表着一个全新类型摩天大楼的崛起。目前，在纽约有十二幢这样的建筑正在开发中，并将会有更多此类建筑崛起（参见图1）。

这些高层“名流”是新闻报道的头条，一部分原因在于其“明星”设计师，但是更主要的原因在于它们不菲的价格。目前唯一一座已经建成的塔楼名为“57街1号”（One57），由普利茨克奖得主克里斯蒂安·德·波特赞姆巴克（Christian de Portzamparc）设计，顶楼的两个单元已经以9千万美元的高价售出，其它单元据报道售价3千万到6千万美元不等。尽管有部分业主将这些高空中的房屋作为他们的首要住所，但更多单元是作为投资品被富有的个人、公司和国际买家购买。它们是“结实的空中盒子”，一位著名的地产评估师如此评价。

2013年10月，摩天大楼博物馆举办了“与天试比高·奢华的逻辑”的展览，探讨了此类建筑的设计，并分析了它们形成的条件。



Figure 1. From left to right – One57, 111 W. 57th Street, 432 Park Avenue, 56 Leonard, 30 Park Place, Tower D in Hudson Yards (Source: Atelier Christian De Portzamparc; SHoP Architects; CIM Group & Macklowe Properties; Alexico Group; dBox, Courtesy of SPI; Diller Scofidio & Renfro).

图1. 从左至右依次为: 57西街111号, 公园大道432号, 莱昂纳多街56号, 公园广场30号, 哈德逊广场塔楼D座(来源: Christian De Portzamparc工作室; SHoP建筑事务所; CIM集团 & Macklowe 房产公司; Alexico集团; dBox, Courtesy of SPI; Diller Scofidio + Renfro建筑事务所)

In October 2013, The Skyscraper Museum mounted the exhibition “SKY HIGH & the Logic of Luxury” which surveyed this group of designs and analyzed the conditions that created them. This paper summarizes that longer effort, which is archived in full on the Museum’s website, and it also endeavors to explain this phenomenon in the context of real estate market as it has continued to evolve in 2014¹.

Here are eight examples of the type (see Figure 2). As you see, the design approach is not stylistic; the façade treatment can be a complete glass membrane or a masonry curtain wall with punch windows. The structural system can be internal shear walls and mega-columns or an exterior bearing wall. Some of the towers are exceptionally tall: indeed, the loftiest one—by the same developer as One57—will rise to 1,423 ft, making it the tallest rooftop in the city.

But it’s not height that characterizes the type, it’s slenderness. Slenderness is the key design and development strategy of these towers, which range in height from 600 ft. to 1400+ ft. Slenderness keeps floor plates small—as tiny as 2,500 sq. ft.—in order to create the exclusivity of only one or two apartments per floor. It also reduces the number of elevators required (indeed, some of these towers of 50-80 stories have only three elevators: two passenger cars and one for service!) which further narrows the core. Slenderness lifts the project’s maximum legal FAR (floor area) as high in the sky as possible to achieve commanding views. These and other points described below constitute the “logic of luxury” of my subtitle.

¹ The exhibition “SKY HIGH & the Logic of Luxury” at The Skyscraper Museum (10/13-5/11.14) examined a dozen super-slim, ultra-luxury residential towers on the rise in Manhattan. A virtual version of the entire exhibition can be viewed here: 摩天大楼博物馆举办的“与天试比高·奢华的逻辑”的展览(13年10月至14年5月11日) 仔细探讨了曼哈顿在建的12幢超纤细、超奢华的住宅塔楼。展览的电子版可参阅以下网址:
http://www.skyscraper.org/EXHIBITIONS/SKY_HIGH/video_intro.php

本文总结了这项耗时很长的研究(研究内容存档于博物馆的网站上), 同时随着这一现象在2014年的“愈演愈烈”, 本文也试图在房地产市场的背景中解释这一现象。⁽¹⁾

图2展示了此类建筑的8个案例。正如你所看到的, 方案设计并不是风格化的; 建筑外墙处理可以是完整的玻璃幕墙, 或者是带有窗户孔的砖石砌墙体。结构系统可以是内部的剪力墙和巨柱, 也可以是外承重墙结构。一些塔楼是非常高的: 事实上, 最高的一座塔楼——由“57街1号(One57)”项目的开发商开发——高达1423英尺, 是城市中最高的建筑。

但是高度并不是此类建筑的特征, 纤细才是此建筑类型所突出的特点。纤细度是设计和开发这些塔楼的关键, 它们的高度范围在600英尺到1400多英尺不等。纤细度使得建筑每层楼面面积较小, 一般在2500平方英尺左右, 从而形成每层一到两户的专属公寓。同时, 这也会减少所需电梯数量(事实上, 有些50-80层的塔楼仅设有三部电梯, 两部客梯, 一部服务电梯), 进一步缩小核心筒的空间。纤细使项目获得最大的合法容积率, 从而获得优越的景观。以上及以下所描述的观点构成了本文要表达的副标题“奢华的逻辑”。

有多么纤细?

工程师们所定义的纤细度指的是底和高的比, 这个比例通常是1:10或1:12。这类塔楼需要昂贵的措施来减少放大的风压效果, 包括额外的材料和结构用以增强建筑的强度, 以及用阻尼系统抵抗摇摆力(见图3)。1:12的纤细度比较形象的比喻就是: 一把一英寸宽的尺子竖起来。图中所比较的是原来的世界贸易中心大厦1号楼和正在建设的公园大道432号的一座超纤细的住宅楼, 后者的纤细度为1:15。尽管1971年建成时, 世界贸易中心是当时世界最高的建筑, 它高1368英尺, 楼面各边长209英尺, 它的底与高度之比小于1:7, 它虽然高, 但并不纤细。



Figure 2. Top from left to right - One57, 111 W. 57th Street, 432 Park Avenue, MoMA Tower, Bottom from left to right - 56 Leonard, 30 Park Place, 50 West Street, Tower D in Hudson Yards (Source: Atelier Christian De Portzamparc; SHoP Architects; CIM Group & Macklowe Properties; NYC Department of City Planning; Alexico Group; dBox, Courtesy of SPI; Time Equities Inc.)

图2. 上部从左向右依次为: 57街1号, 57西街111号, 公园大道432号, 大都会博物馆大楼; 下部从左向右依次为: 莱昂纳多街56号, 公园广场30号, 西街50号, 哈德逊广场塔楼D座(来源: Christian De Portzamparc工作室; SHoP建筑事务所; CIM集团 & Macklowe 地产公司; 纽约市规划局; Alexico集团; dBox, Courtesy of SPI; Time Equities公司)

How Slender?

Engineers generally define “slenderness” as a thinness of a ratio of base-to-height of 1:10 or 1:12. Such towers require expensive measures to mitigate the exaggerated forces of wind, including additional material and structure to stiffen the building and dampers to counteract sway (see Figure 3). To visualize a 1:12 ratio, think of a ruler 1-inch wide set on end. The graphic compares the original 1 World Trade Center and the super-slender residential tower 432 Park Avenue, now under construction, which has a slenderness ratio of 1:15. Although 1WTC was the tallest building in the world on its completion in 1971, at 1,368 ft., with a huge floor plate 209 ft. on each side, its base-to-height ratio was less than 1:7. So, tall, but not slender.

The white grid of the 96-story 432 Park Avenue, designed by Rafael Vinoly, is a square shaft just 93 ft. on each side that rises to 1,396 ft. (426m). Its rooftop is thus higher than either the original or new 1WTC, and when topped out in 2014, it will be, for a year or so, the tallest rooftop in New York City, as well as, according to the building’s marketing materials, the “tallest in the Western Hemisphere” (see Figure 4). Again, its slenderness ratio is 1:15.

The skinniest building now under construction in New York and in the world is 111 W. 57th St., designed by SHoP Architects. On a base only 43 ft. wide, it will rise more than 1,350 ft.—which is an unprecedented ratio of 1:23. The structure was designed by the WSP Group, the same engineering firm responsible for the majority of the super-slender towers now in development.

The title of “world’s most slender building” is a category that has never had much competition. The current record-holder is a 72-story apartment tower in Hong Kong known as Highcliff, which has a slenderness ratio of 1:20 (see Figure 5). Completed in 2003, Highcliff was a model with no followers. Even in high-priced Hong Kong, where regiments of 50-story pencil towers comprise housing estates and luxury apartments commonly reach 80 stories, the slenderness of High Cliff was not repeated.

Engineering Slenderness

The downside of slenderness, from a developer’s perspective, is tall, thin buildings are extra-expensive to design and construct. Like sapling trees, slender towers are particularly vulnerable to sway in the wind, so special testing in wind tunnel laboratories allow structural engineers to study performance and adapt their designs to these unprecedented conditions. Buildings cannot flex too much, since movement can damage joints, cause leaks, break windows, and even jam elevators. In addition, future residents’ sensitivity to even slight motion (and, especially, acceleration) is a key consideration. Engineers design dampers for the tops of tower to control for discomfoting movement and the proverbial waves in the toilet.

In addition to the need for high-strength materials and special engineering, construction of super-slender towers can also be exceptionally logistically complex and expensive when the site is tight and the small footprint and floor plate require the use of the passenger elevator core for the erection process.

Whether in Hong Kong, New York, or anywhere, engineering and economics intermix. The engineering expertise to erect super-slender towers has been in place for a decade. Why, then, is this new type only now proliferating?

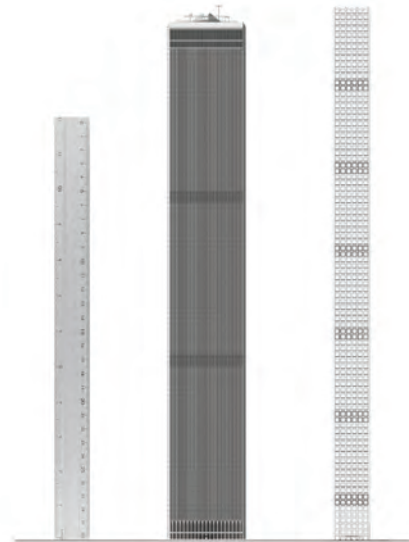


Figure 3. Tall, but not Slender – A comparison between 432 Park Avenue and the former 1WTC (Source: The Skyscraper Museum).

图3. 高但不纤细——公园大道432号与世界贸易广场1号楼的比较 (来源: 摩天大楼博物馆)



Figure 4. Exterior renderings of 432 Park Avenue and 111 W. 57th Street (Source: CIM Group & Macklowe Properties; SHoP Architects).

图4. 公园大道432号和57西街111号的外立面效果图 (来源: CIM 集团 & Macklowe 房产公司; SHoP 建筑事务所)



Figure 5. Hong Kong Slenderness – Highcliff and Sorrento (Source: Colin Hamilton; Carol Willis).

图5. 香港超纤细塔楼——豪宅晓庐和擎天半岛项目 (来源: Colin Hamilton; Carol Willis)



Figure 6. Time Warner Center and 15 Central Park West (Source: Skidmore, Owings & Merrill LLP; Robert A.M. Stern Architects).
图6. 时代华纳中心和中央公园西15号 (来源: SOM建筑事务所; Robert A.M. Stern 建筑事务所)

A New Platform for Sky-high Prices

The high prices that have ignited the recent proliferation of super-slender residential towers have existed in Manhattan only since around 2004. In particular, two buildings were instrumental in demonstrating both a new price platform for condo sales and the value of the southwest corner of Central Park: the glassy twin towers of the Time Warner Center and the masonry mansion 15 Central Park West (see Figure 6). Neither building is technically slender. At the Time Warner Center, completed in 2004, the single residential tower sold its first condos in 2001 for record prices of around \$30 million and an average of nearly \$3,000 psf².

In 2008, the year of its completion, 15 Central Park West recorded a penthouse sale of \$45 million, for an average of \$6,400 psf. The same unit famously sold for \$88 million in 2012—the highest price ever in the city at the time—to the co-ed daughter of a Russian billionaire³. These buildings raised the expectations of developers and gave confidence to their lenders that high-priced towers with commanding views of Central Park could garner sky-high prices.

Location, Location, Location

This map of the blocks that border Central Park, which The Skyscraper Museum created for its exhibition SKY HIGH, shows the footprints (in red) of the new super-slender towers that were planned and had permits in October 2013. Today, three more have been announced in this same zone and another is rumored. The shortest of the group will be 51 stories and the tallest are 88 and 89 stories (see Figure 7).

² SKY HIGH PRICES is a chart that compiles information on 28 condominium projects from the late 1970s through the present:

《天价》是一个表格，汇总了1970年代后期以来28个公寓项目的信息：

http://www.skyscraper.org/EXHIBITIONS/SKY_HIGH/timeline.php

³ “This sale is an outlier. It works out to be about \$13,000 per sq. foot, the highest on record, for anything,” says Jonathan Miller, chief executive of real estate appraiser Miller Samuel: “这笔交易是个异数，最后价格约为1.3万美元/平方英尺，无论从那个方面来说，都是有史以来最高的。”Jonathan Miller，地产评估公司Miller Samuel的首席营运官说。
(<http://www.forbes.com/sites/luisakroll/2011/12/19/billionaires-daughter-pays-record-sum-for-nyc-pad/>)

公园大道432号白色格子外观的住宅楼有96层，是个平面为正方形的柱筒状建筑，平面的每边只有93英尺，高度达1396英尺（426米），是由拉斐尔·维诺里（Rafael Vinoly）设计的。它的屋顶高度超过原有和新建的世界贸易中心1号楼，它在2014年竣工后的一年左右时间内，将会保持纽约最高楼的记录，同时根据有关该大楼的市场资料，此楼也将成为“西半球最高建筑”（见图4）。再次强调，它的纤细度比例为1:15。

目前世界上在建的最“苗条”的建筑应该算是纽约57西街111号项目，它是由SHoP建筑事务所设计的。建筑基础部分平面宽度只有43英尺，建筑高度超过1350英尺，纤细度达到前所未有的1:23。建筑结构是由WSP集团负责设计的，他们负责目前绝大多数在建的超纤细塔楼的结构设计。

在“世界上最纤细的建筑”类型中，竞争者向来不多。目前的纪录保持者是香港的豪宅晓庐，是一个高72层的公寓楼，纤细度为1:20（见图5）。香港豪宅晓庐于2003年完工，作为一种建筑业的模式还没有出现任何后来者。即使在地产价格高企的香港，虽然有大量的50层的铅笔一样的塔楼，豪华公寓高80多层也是比较常见的，但豪宅晓庐的纤细度尚未被复制。

工程设计实现纤细

从开发商的角度来看，超纤细建筑的缺点是它太高、太细，这使它的设计和建造费用极其昂贵。就像树苗一样，细长的塔楼承受风力的能力相对较弱，所以要进行风洞实验，结构工程师根据实验研究建筑的结构性能，使其设计适应这些前所未有的状况。建筑的弯曲幅度不能太大，弯曲运动会损坏重要连接处，引起裂缝和打破窗户，甚至会堵塞电梯运行。此外，未来住户对轻微震动（特别是加速运动）的敏感度也是一个要考虑的关键因素。工程师为塔顶所设置的阻尼器可以减少令人不安的震动和厕所中经常出现的摇摆。

除了高强度建筑材料和特殊的工程设计，建造一个超纤细的塔楼也需要异常复杂的后勤工作和高昂的成本，尤其是当场地比较局促，建筑占地投影较小时，在施工过程中需要利用乘客电梯。

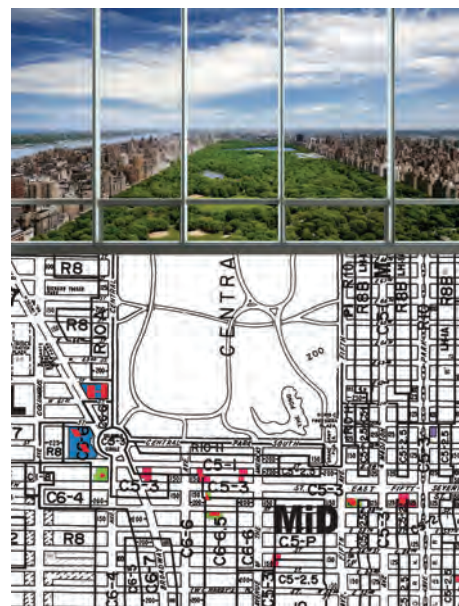


Figure 7. A view toward Central Park from One57 and Zoning Map of Midtown Manhattan (Source: The Skyscraper Museum. This complex and high-content graphic was created for The Skyscraper Museum by Ondel Hylton, in collaboration with the author.)

图7. 从57街1号看向中央公园的景色和曼哈顿中城的分区图 (来源: 摩天大厦博物馆。该复杂而内容丰富的图片由Ondel Hylton与作者为摩天大厦博物馆联合绘制)

Why are they all located in this area? To restate the obvious: for the VIEW. Whether on Park Avenue or mid-block on 53rd St., the *raison d'être* of these super-slender towers is to maximize the number of units with commanding views of Central Park. When a building is 100 percent residential, the no-view lower floors are devoted to amenities such as a gym, spa, pool, screening room, meeting spaces, wine cellars, and back-of-house operations. At 432 Park Avenue, the first condo starts above the 30th floor.

Several projects, including One57 and a second project by the same developer, Extell, are mixed-use projects with hotels occupying the lower floors. The Tour Verre, designed by Jean Nouvel, uses its first three floors for galleries for the Museum of Modern Art, has a hotel in the middle zone, and condos above. These towers are essentially periscopes to raise living rooms as high in the sky as possible in order to capture a park panorama. For these ultra-luxury lifestyles, condo buyers have committed to sales that are reported to range from \$3,000 to \$6,000 a square foot, and higher.

Zoning: Air Rights, As of Right, and FAR

While innovative engineering and strong economics enable the design and development of the super-slender towers, the complicated formulas of New York's zoning law constrain the total size of the building in terms of its floor area, but also may encourage an extra increment of height. In order to understand how, some historical background is necessary.

Since 1916, when New York passed its first zoning law mandating building setbacks to protect sunlight on the streets, the city has regulated high-rise building. Major revisions to the law in 1961 changed the formula to a "floor area ratio" (FAR), which limited the maximum space in square feet an owner could erect on a given lot, but did not prescribe a specific form.

While dramatically "down-zoning" development compared to the 1916 regulations, the 1961 law created two key provisions that re-set the rules of the real estate game. First, in order to allow the system to function, it established the principle of "as-of-right," which allows property owners to design and build whatever they wish without a public review process, so long as they follow the rules for their lots. Second, owners can sell their under-developed floor area (FAR), or "air rights," to developers of a contiguous site—a mechanism known as "transferable development rights" (TDRs). When the under-built area of a lot is sold and used on an adjacent site, the low-rise space will then remain open forever. FAR is finite: it can only be used once.

All of the super-slender towers now in development use this mechanism of purchased air rights to create their additional stories. Often they also change the footprint of the new tower to use only a portion of their full lot at lower levels, so as to rearrange their allowable FAR higher in the sky. At 432 Park Avenue, for example, the mid-block structure is set back 60 ft. from the street, fronted by a plaza, and with a low-rise commercial building at the corner, creating a wide zone of open space. (See Figure 8) Again, FAR is a cap-and-trade system.

All the slender midtown projects, save one, are being built "as of right." Developers, of course, prefer the as-of-right option, because it avoids the uncertainties introduced by the review process, as well as saves the considerable expense of lawyers and consultants⁴. The only project that took its chances with the public review process was Nouvel's Tour

无论是在香港、纽约或其它任何地方，工程与经济都是相互关联的。工程专家在建造超纤细塔楼研究上已有十年的时间，但是为什么这种新类型的建筑现在才有繁荣发展的趋势呢？

天价新平台

大概从2004年起，才出现如今的高房价，点燃了曼哈顿超纤细住宅楼的蓬勃开发之势。尤其要提到两栋极具代表性的建筑，它们不仅使公寓售价提升到一个新的台阶，也体现了中央公园西南角的价值：它们是时代华纳中心的双子塔和中央公园西15号的砖石墙体大厦(如图6)。严格说来，这两个建筑都不算纤细建筑类型。时代华纳中心于2004年建设完工，其第一套公寓2001年售出，销售记录达3千万美元，每平方英尺售价为3000美元。⁽²⁾

中央公园西15号于2008年完工，其顶层公寓售价达到4500万美元，每平方英尺售价为6400美元。2012年，同一公寓以8800万美元卖给了俄罗斯亿万富豪尚在大学读书的女儿，并创造了当时最高房价。⁽³⁾可观的售价，使开发商和银行都对此类建筑抱有厚望和信心，他们相信毗邻中央公园俯瞰美景的楼盘可以卖到天价。

地段、地段、地段

摩天大楼博物馆在举行“与天试比高”展览时，绘制了一张中央公园周边街区的地图，并用红色把这些2013年10月前获得批准的超纤细建筑的位置标出。截至今日，该区域内又有三个项目宣布将投建，并且坊间流传还有另外一个项目将建造。如图7所示，这些建筑最低51层，最高的为88和89层。

为什么他们都会选择此地进行建设呢？再说一下明显的原因：为了景观。无论是在公园大道或者是第53街的中间区域，那些超纤细的建筑都尽可能增加享有中央公园美景的住宅户数。当一幢建筑为纯住宅时，不能享受到高处景观的低层空间会被用作服务设施，比如：健身房、水疗中心、游泳池、放映室、会议室、酒窖和后勤操作等。公园大道432号的公寓就是从30层起作为住宅功能的。

一些项目，包括由同一个开发商开发的57街1号(One57)和Extell项目，是多功能综合性项目，它们的低区楼层为酒店。Tour Verre项目，由让·努维尔(Jean Nouvel)设计，一到三层用于现代艺术博物馆的画廊，中间区域为酒店，住宅在最上面。此类型的建筑都是



Figure 8. Model of 432 Park Avenue (Source: Carol Willis).

图8. 公园大道432号建筑模型(来源: 本文作者Carol Willis)

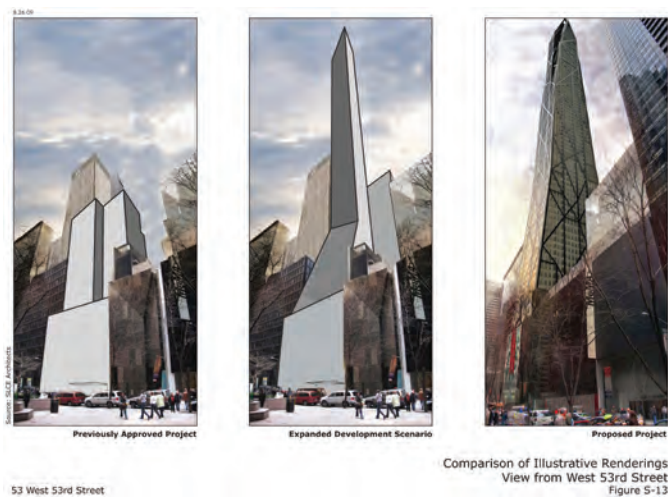


Figure 9. Comparison of MoMA Tower with Original and Additional FAR: Views from W. 53rd Street (Source: NYC Department of City Planning).
图9. 大都会博物馆塔楼原有容积率和增加容积率后对比: 从53西街看的景象 (来源: 纽约市规划局)

Verre, developed by Hines, which was originally designed in 2007 to be 1250 ft. tall. In hearings in 2009, the City Planning Commission decided to allow a maximum height of only 1,050 ft. and sent the architect and developer back to the drawing board. Halted by the collapse of the financial markets, Hines revived the project in 2013 (see Figure 9).

Put simply, the developers of the current super-slender, ultra-luxury towers endeavor to use the expensive FAR of both their original lots and purchased air rights to rearrange their floor area as high in the sky as possible. This costly approach gives rise to what I have termed “the logic of luxury.” Spending more on design and construction and creating exclusivity can reap exceptional profits.

The Logic of Luxury

Since zoning regulations count FAR only as floor area, not as volume, one way for a developer to increase both the spaciousness of apartments and the height of the tower is to raise ceiling heights. A 12.5 ft. ceiling in New York is considered luxurious, and while that height is generally the standard for the new slender towers, at least two thus far are using 15.5 ft. between floor slabs. This additional 3 ft.—almost 25 percent more air between floors—also cumulatively increases the tower’s full height, for example, from 1,000 ft. to 1,250 ft., thereby lifting more apartments into the sky.

Developer Michael Stern of 111 W. 57 St. stated that this new 15.5 ft. slab-to-slab height will likely be widely adopted⁵. Why? Because of the efficiencies of the humble switchback scissor stair, which allows for a more compact service core (see Figure 10). The project architect for 432 Park Avenue, the first tower where this solution was used, explained:

“As in most New York City typical residential buildings, cast-in-place-concrete scissor stairs are used to achieve more net-to-gross area efficiency. Scissor stairs combine two stair enclosures in one intertwined unit and usually are about 10 percent more efficient than two independent stairs.”

⁵ Two have required review by the Landmark Preservation Commission for issues of siting on the lot: 111 W. 57 and for the Extell project called the Nordstrom Tower, and both were approved.

有两个项目要求接受“地标保护委员会”关于坐落在基地上有关问题的审查: 57西街111号和Extell项目Nordstrom大厦, 两个项目均得到了通过。

把起居室尽量放置在高空中, 并能享受中央公园全景。对于那些比较注重享受生活品质的公寓购买业主来讲, 平均每平方英尺的销售价格可以达到3000美元至6000美元, 或者更高的价格。

分区: 高空使用权、既有权利和容积率

当工程技术的创新和强劲的经济使得超纤细塔楼的设计和开发成为可能, 纽约有关建筑分区的法律规范复杂的计算公式, 限制了建筑的单层面积, 但是也许正是这些限制鼓励了建筑高度的增加。为了更好的理解这一现象, 我们先了解一下历史背景。

自从1916年, 当纽约颁布第一条为保护街道阳光而要求建筑退后的分区法规时, 这个城市开始对高层建筑进行规范。在1961年, 法规有了一个重大的修编, 改变了容积率的公式, 这个公式限制了业主可以建设的最大建筑面积, 但是对建筑的形体没有具体的要求。

1961年的法规与1916年颁布的法规相比, 对开发项目进行了极大的“分区限制”, 1961年法规创建的两个新条款重新制定了房地产业的游戏规则。第一, 为了使系统起作用, 颁布了“既有权利”原则, 允许土地拥有者在没有公共审核程序的基础上, 在其土地上设计和建造任何建筑, 只要他们遵守相关的法律规定和规范。第二, 业主可以向相邻的业主转让未用完的容积率, 或称“空中使用权”——这一模式被称为“可转让开发权利”。当未用完的容积率被出售并被邻近地块使用后, 那幢低层建筑所在地块将永远保持这个状态。容积率是限定的: 因为它只能被使用一次。

所有目前正在建设中的超纤细塔楼都是使用购买得来的容积率增加额外的楼层。通常, 塔楼低层将采用较小的投影, 为上层预留更多的容积率。例如公园大道432号, 建筑中区部分向后退界60英尺, 前面形成了广场, 角落里设置了一个低层商业建筑, 此布局使公共空间最大化 (见图8)。需要再次说明的是, 容积率是一个有上限的交易系统。

所有市中心正在建设的纤细建筑, 除一个例外, 都是利用“既有权利”开发的。对于开发商来讲, 他们当然喜欢“既有权利”, 因为它不仅避免了来自公共审核程序的一些不确定因素, 同时也可以省掉很多律师费和顾问费。⁽⁴⁾ 唯一一个经过公共审核程序的项目是由海因斯 (Hines) 开发的Tour Verre (Nouvel 设计), 2007年原设计高度为1250英尺。在2009年的听证会上, 城市规划委员会决定允许的最大高度为1050英尺。此决定使建筑师和开发商不得不重新进

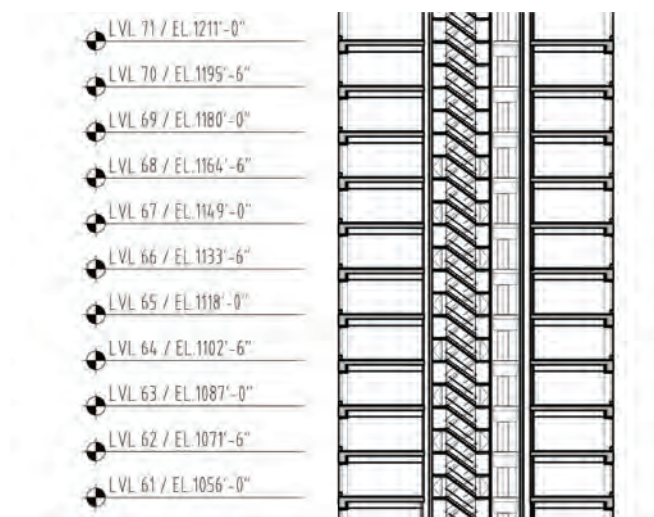


Figure 10. Partial Elevation of 432 Park Avenue Illustrating Scissor Stairs (Source: CIM Group & Macklowe Properties).

图10. 公园大道432号剪刀梯局部立面图 (来源: CIM 集团 & Macklowe 地产公司)

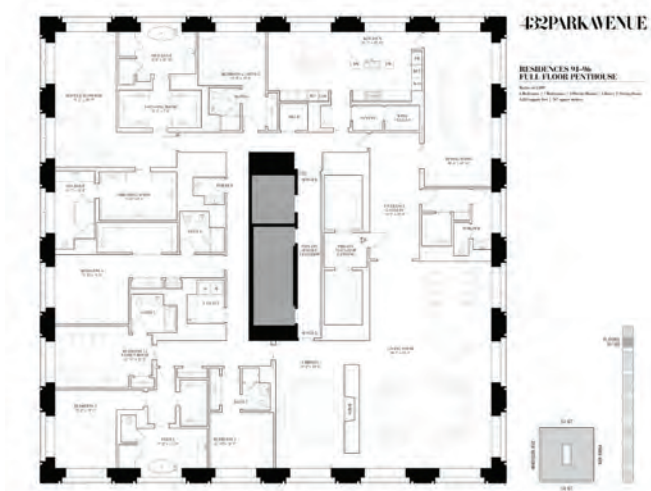


Figure 11. Full Floor Penthouse Floor Plan of 432 Park Avenue (Source: CIM Group & Macklowe Properties).
图11. 公园大道432号顶层全层住宅平面图 (来源: CIM集团 & Macklowe地产公司)

The architects and engineers developed their own design for a prefabricated staircase that complied with the building code's stair height clearances and created the most minimal footprint and thinnest profile possible. The resultant floor-to-floor height needed to be 15.5 ft.

The example of the service-core stairs at 432 Park Avenue is one of the clearest illustrations of "the logic of luxury." The extravagance of the elevated ceiling height is "paid for" by the both the space saved by the efficient staircase and the elimination of the second pair of elevators above the 68th floor. At an average of \$6,000 psf, this area is transformed from service corridors to profitable private condo floor space.

Exclusivity

Exclusivity is an aim of the interrelated logic of luxury and strategy of slenderness. Small tower footprints and floor plans serve this goal. The full floor, minus the core area of mechanical systems and vertical circulation, comprise around 7,000 sq. ft., for the largest towers such as at 432 Park Avenue and a mere 2,000 sq. ft. for the most slender, as at 111 W. 57th St.

Look at this floor plan of 432 Park Avenue (see Figure 11). For this 96-story tower, there are just five elevators: two pairs of passenger cabs and one for service. Indeed, the second pair drops away after the 68th floor and just two cabs service the apartment to the top. Limiting the number of units to one or two per floor allows for a reduced the area of the core devoted to elevators, further slimming the silhouette. Further, a full-floor unit with elevator access directly into the apartment is highly coveted. Stepping out of the elevator not into a common corridor, but to a view of Central Park or a river vista is the ultimate power trip. It's what developer Gary Barnett calls the "WOW factor," which is self-explanatory.

The slenderness strategy is being applied in several towers 600 to 900 feet tall and in areas outside the Central Park zone. In Midtown South, around Madison Square Park, a glass spike that rises above a 60-ft. base and will rise to 777 feet will join two buildings that pioneered the type in 2006, One Madison designed by Cetra Ruddy and Sky House by FXFowle.

行设计, 期间因金融市场的崩溃, 此项目一度停止, 直到2013年海因斯才重启此项目 (见图9)。

简单来讲, 目前建造超纤细建筑和超奢华塔楼的开发商, 竭力有效使用原有土地的容积率并购买上空使用权, 使其建筑能够最大地使用上空面积。这种昂贵的方法被我称作“奢华的逻辑”。通过设计和建造上投入更多的资金来创造独一无二的建筑, 使开发商最终获得更加可观的收益。

奢华的逻辑

既然分区法只用楼层面积来计算容积率, 而不是体积, 那么, 开发商一般会使用提高层高的办法增加公寓的空间感同时增加了建筑的高度。在纽约, 12.5英尺的层高是奢华的。但是此高度是新型的纤细塔楼的标准层高, 目前为止, 至少有两栋塔楼采用了15.5英尺楼层净高。这个额外的3英尺为各层增加了25%空间, 同时也使塔楼的整体高度从1000英尺增加到了1250英尺。从而使公寓更加被拔高。

57西街111号开发商米高·斯特恩 (Michael Stern) 声称这种15.5英尺的层高将会被广泛采用。⁵为什么呢? 因为狭小的过山车式剪刀梯在面积上效率很高, 使核心筒的服务设施更加紧凑 (如图10)。公园大道432号项目首次使用了这种方法, 其项目建筑师解释道:

“对于纽约大多数典型的住宅建筑, 现场浇筑混凝土剪刀梯的使用可提高得房率。剪刀梯把两个独立的楼梯间合并在一个单元里, 这样可提高10%的得房率。”

建筑师和工程师们自行开发了符合建筑规范要求高度的预制楼梯, 占用了最小的平面投影面积, 形成了最薄的剖面。这样的楼梯要求建筑的层高为15.5英尺。

公园大道432号项目的核心筒楼梯是“奢华的逻辑”的最佳代表和阐释。这种奢侈的层高来自于楼梯节约的面积以及68层以上只设有一对电梯这两个措施。这些面积从后勤通道转移到了可盈利的公寓里面, 均价为6,000美元每平方英尺。

专有性

专有性是“奢华的逻辑”和“纤细战略”相互作用后形成的目标。较小的投影面积和楼层平面为这个目标服务。整层面积扣除核心筒机电系统面积和垂动路线面积后, 在最大的塔楼比如公园大道432号项目内, 余下面积达到7000平方英尺; 在最纤细的塔楼57西街111号项目内, 余下得到2000平方英尺的净面积。

请看公园大道432号项目的平面 (见图11)。对于一个96层的塔楼, 这里只有5部电梯, 两对客梯, 一部服务电梯。实际上, 第二对电梯到68层就停止了, 只有两部电梯为顶部的公寓服务。将每层控制在1-2户可使核心筒用于电梯的面积减小, 从而进一步使建筑轮廓变细。另外, 每层一户, 电梯直接进入户是多么令人向往。从电梯中走出, 不是进入一个公共走廊, 而是立刻看到中央公园或者河景, 堪称是权利的终极之旅。这就是开发商盖里·布兰特 (Gary Barnett) 所称的“哇!”元素, 其含义不言而喻。

纤细策略应用在了多个600到900英尺高的塔楼上, 而且也被用于中央公园以外的区域。在南市中心, 迈迪逊广场公园周边, 将建成一座从60英尺基座上拔起的、高达777英尺的玻璃塔楼, 它将加入2006年建成的两个类似先锋建筑, 一个是Cetra Ruddy设计的“曼迪逊一号 (One Madison)”另一个是FXFowle设计的“空中楼阁 (Sky House)”。

⁵ http://skyscraper.org/PROGRAMS/LECTURES/SHOP/111_57th.html Skip ahead to 1:11:00 into the video.

In lower Manhattan, slender towers have been designed by Herzog & de Meuron, Helmut Jahn, Robert A.M. Stern, and Rafael Vinoly. In Hudson Yards, the 28-acre master plan that is being developed over the western rail yards for Penn Station, two slim residential towers designed by Diller, Scofidio +Renfro and David Childs of SOM are designing structures of 870 and more than 900 feet. In the ex novo wide-open spaces of Hudson Yards, it is notable that tall and slim—if not super-slim—is the preferred form for 21st century luxury (see Figure 12).

Conclusion

These super-slim, ultra-luxury residential towers clearly constitute a new type in the history of the skyscraper. Sophisticated engineering has made these spindles possible, but it is soaring condominium sale prices, in part driven by an excited international market for real estate investment, that explains their recent proliferation. Their forms are shaped by the particular constraints and opportunities of New York's zoning law and by the economics of the "logic of luxury."

The "the logic of luxury" is proffered, not as a marketing phrase or an endorsement of the concept, but as an analysis of the type. In 1995, I published *Form Follows Finance*, which analyzed how the same factors shaped office buildings (differently) in New York and Chicago in the 1890s through the 1930s. The logic of luxury is a 21st century corollary of a different formula for profits that nevertheless follows parallel principles.

These elite towers are certainly not a solution for high-rise mass housing, nor an admirable model of sustainable-design values that the Shanghai conference has challenged us to consider. But rich people have to live somewhere, and multi-stories for millionaires are an efficient use of land and infrastructure resources. Will this new type be unique to New York? Will it be exported to other cities or travel down market? I think not. Few places and housing markets (perhaps Hong Kong, Monaco, the Middle East) that will both allow the form under their municipal codes and support prices for apartments that will exceed their costly construction.

All buildings are a product of time and place, and Manhattan's new super-slim, ultra-luxury towers bespeak both the history and the present success of New York.

在曼哈顿下城，Herzog & de Meuron，Helmut Jahn，Robert A.M. Stern和 Rafael Vinoly等设计师也在此设计了纤细塔楼。在哈迪逊广场 (Hudson Yards)，伯恩火车站西广场28英亩的总体规划中，两栋分别为870英尺和900多英尺高的纤细住宅楼正由Scofidio +Renfro的Diller和SOM的David Childs进行设计。对于前所未有地开阔的哈迪逊广场，这两栋又高又纤细的塔楼十分显眼，很显然，高和纤细——或者说超纤细——是21世纪推崇的奢华形式 (见图12)。

结论

这些超纤细、超奢华的住宅塔楼无疑在超高层建筑历史中构成了一种新的类型。高端的工程技术使得这些纤细建筑成为可能，但是，极其昂贵的房价和一定程度上受到国际地产市场投资的追捧是此类建筑兴起的动因。它们的外形体量是由纽约分区法规的具体限制条件和经济上的奢华逻辑所塑造的。

“奢华的逻辑”这一提法并不是一种市场口号或是对其理念的认可，而是此类建筑的分析。在1995年，我出版了《金融决定形式》一书，分析了从1890年代到1930年代，纽约和芝加哥办公建筑是如何被同样的因素 (以不一样的方式) 所塑造。

这些精英塔楼当然不是解决大众高层住宅的方式，也不是上海超高层建筑大会所要求我们关注的可持续设计可参照的模式。但是富人总得住在某处，为百万富翁建设的多层建筑显然是一种节约用地和公共基础设施资源的方法。是否这种类型将会是纽约所独有的呢？这种类型是否会输出到其它城市或随着市场而推广呢？我觉得不会。这种类型只有少数的几个地方和住宅市场 (也许是香港，摩纳哥，中东)：能够既在建筑法规上允许这种体量形式，又具有比这类建筑高昂的造价更高的房价。

所有的建筑都是时间和空间的产物，曼哈顿的新超纤细、超豪华塔楼，彰显了纽约过去的历史，代表着纽约现在的成功。



Figure 12. Exterior Rendering of the Hudson Yards (Source: Diller Scofidio & Renfro).
图12. 哈迪逊广场外立面效果图 (来源: Diller Scofidio + Renfro建筑事务所)