City of Numerical Codes

A Criticism of Regulatory Plan and Urban Form

指标城市: 详细规划法与城市形态批判

（同济-哥伦比亚-斯坦福三校联合设计）

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课程背景

本课程属于“城市建筑学”系列，针对建筑学硕士研究生。并且与哥伦比亚大学迈克尔 • 贝尔教授联合授课。（在英语中），“城市主义”（Urbanism）这一术语规定了关于城市与城镇人居环境的功能条件，形态特征与空间愿景，这构成了“城市性”（Urbanity）。规划设计者试图用一系列的可测度的，量化的属性来定义一种良好的出“城市性”，譬如人口密度、容积率、覆盖率、绿地率、建筑退界，等等。为了保护城市可以享受到的日照，空气与绿地（所谓的“公共资源”），城市的这些控制指标的量化在 20 世纪初成为欧美的通行做法，并催生了现代区划法的诞生。

1915 年，42 层的公平人寿大厦在曼哈顿下城矗立起来，由于它没有任何体型上的退台收分，影响了周围建筑的采光。由此，对于建筑体型的控制变得尤为紧迫。1916 年，纽约出台了第一部区划条例，这是对建筑进行形态控制的早期典范之一。1916 年纽约区划条例设定了“建筑包络形”（zoning envelop）原则，对高密度地区的高层建筑进行形态控制。1916 年区划法与之后的 1961 年区划法修订一起决定了纽约的天际线。这两部法律也为研究（广义的）指标与城市形态之间的关系提供了素材。

建筑插画师和理论家休 • 菲利斯用建筑图解的方式记录了 1916 年的纽约区划法对建筑形态的影响，他探索在“建筑包络形”规定下的最高回报与最合理的建筑体型。这些图解被收录在菲利斯的“明日都市”（1929）一书中。1920 年代，后退收分的高层建筑成为一种新的建筑风格，即装饰艺术风格，后来也影响到芝加哥与上海。

同样的，在过去的几十年中，中国的城市建筑形态是被一种严格（甚至严苛）的指标系统所控制（覆盖率、容积率、绿地率、退界、建筑高度等等）。在许多情况下，这些指标是包括在“控制性详细规划”内的，这种分级规划出现于 1980 年代。在夏南凯教授的《控制性详细规划》中，控制性详细规划的体系分为六大类，即 1）土地使用控制、2）环境容量控制、3）建筑建造控制、4）城市设计引导、5）配套设施与 6）行为活动控制。虽然在一定的历史时期，这种规划对城市的环境质量起到了一定的控制作用，但是也产生了积极或消极的影响。一个还没有被研究透彻的问题是，这些规划指标在历史上究竟是因为何种原因而被制定出来？在制定这些指标的同时，当时的规划者对城市建筑形态的想象是怎样的？当快速城市化的进程告一段落，规划者与公众开始用一种反思式的视角来看待过去的控制指标。这种指标-形态的关系也应该放在一个更大的思考框架内进行考察。

从 1980 年代开始，“新城市主义”运动开始批判传统的区划法，并且提出一种基于形式控制的规划条例（form-based code）。新城市主义认为城市建筑与社区的形态具有一种跨历史的、普遍的特征，而现代的区划法正是剥夺了这种普适特征的元凶。新城市主义提出了许多研究指标与建筑形态关系的方法，比如“城市断面”（urban transect）等等。通过调整一个参数（如容积率），来看待渐变的容积率条件下的可能的社区形态。这不是简单的建筑形态生成，而是需要结合设计与生成的形式导则推演。新城市主义是在美国城市语境下形成的城市设计策略，但是它需要被批判性的考察以供中国的城市语境参考。与此同时，中国在推行“街区制”，街区制是一种来自西方的社区形态原则，这使得这种跨语境比较变得更为迫切。

课程要求

该课程将指标视为可以调整的、决定城市建筑形态的参数，通过自变量（指标）与城市建筑形态（从变量）的关系的研究，重新审视指标体系的合理性与有效性。课程要求同学考察控制性详细规划中的各种指标与城市建筑形态之间的关系。需要指出的是，本研究务必要求严格的尊重真实的各种建成环境形态的可能性来论证指标的合理性与有效性，即所有的空间要素都必须是具备可实现性的。同学要求完成四个任务：

1. 以《控制性详细规划》介绍的六种控制体系为基础，回顾现代城市史中的控制性指标演进的历史，学习菲利斯等人的图解方法，通过图解的方法对指标产生的建筑形态与城市形态进行推演。

2. 同样，根据以上六种控制体系，在美国城市规划体系中寻找对应的控制体系，对单一的指标进行研究，通过单项指标的渐次变化发现生成的建筑与城市形态的规律，比如容积率渐次变化，退界的渐次变化，覆盖率渐次变化等等，街区大小渐次变化，不同功能组合的渐次变化等等，并进行跨语境的对比研究。

3. 在单一指标体系的基础上，对指标体系进行叠加，分析在两个或两个以上的指标体系的影响下，不同的指标组合对城市形态与建筑形态的影响。必要时候通过参数化工具进行推演。

4. 根据前面的三项研究环节，各组完成一份研究报告。报告应该包括特定指标体系的历史背景回顾，中美指标体系对比，指标作为自变量的形式生成导则研究，指标体系的合理性与有效性评估，以及最终的指标控制体系修正建议。

The term “urbanism” stipulates the condition, character and vision of livable built environment in towns and cities, or “urbanity.” Planners and designers intend to define a good “urbanity” in terms of a series of measurable, quantitative properties (such as population density，FAR，setbacks and building coverage). To protect the light, air and greenness (the common good) which could be brought to the city, standardization and regulation of the quantitative properties of a city became a common practice at the turn of the 20th century and it gave rise to the modern land-use zoning.

In 1915, when the 42-story Equitable Building was erected in Lower Manhattan, the need for controlling the height and form of all buildings became clear. The New York 1916 Zoning Resolution (see attachment-1) was one of the earliest examples of such practices in a modern metropolis. By introducing the idea of “zoning envelop”, the 1916 Zoning Resolution as well as its successive zoning codes (such as the 1961 Zoning Resolution) have regulated the skyline of New York City for a century and it provides an important test ground for examining the interaction between codes and urban form.

Architectural draftsman and theorist Hugh Ferriss documented the 1916 Zoning Resolution through a series of massing studies, exploring the possible maximum forms in a “zoning envelop.” These renderings were included in Ferriss’ *The Metropolis of Tomorrow* in 1929. By the end of the 1920s, the setback skyscraper became a new building style (Art Deco) in world cities from Chicago to Shanghai.

Likewise, for the past decades, architectural forms in post-reform China have been shaped by rigid, sometimes harsh, zoning regulation through simple numerical codes – building coverage, population density, FAR, green area ratio, setback, building height, etc. In most cases these codes are covered by the “regulatory plan” (控制性详细规划, see attachment-2), which appeared in the 1980s. Although those parameters were intended to control the development intensity and the quality of the built environment as a result, it has exerted deep influences, either positive or negative, on the Chinese urban form and living culture. However, what remains ironically indisputable is the deep logic of the Chinese planning regulation and the urban vision associated with the codes. As the delirious urban growth in China has come to an end and a more conscious perspective is being contemplated among policy-makers, practitioners and the general public, the code-driven city model should be interrogated in a larger analytical framework in terms of its architectural and cultural implications.

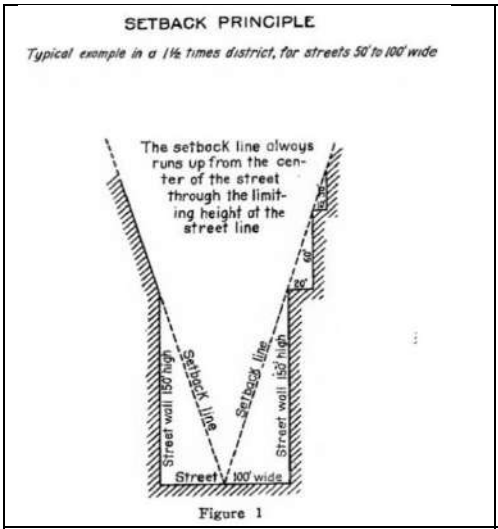
Since the 1980s, a group of planners, designers and researchers (basically in the United States) have developed certain methods and visions which attempted to critique the conventional zoning practice and at the same time raised a system of form-based based planning codes. These methods and visions are loosely referred to as the “New Urbanism.” Although the New Urbanist methodology presents an alternative view of the city as livable habitat, it has yet to be critically examined in the contemporary Chinese context. Meanwhile, China’s recent policy to eventually ban the “gated communities” (街区制，see attachment-3) further complicated this topic and raised new research questions.

This course requests the students to rethink the relationship between urban form (streets, building massing, landscapes, neighborhoods, public spaces) and numerical codes. Students are encouraged to critique, analyze and restructure the planning code system with visualization tools. The outcome of this studio is not a design scheme, but a series of illustrated research reports/guidebooks/manuals. We expect our studio to experiment with new views and methods to decode the deep logic underlying the Chinese urban form, and, as a result, present new prescriptions leading to a better urbanity.

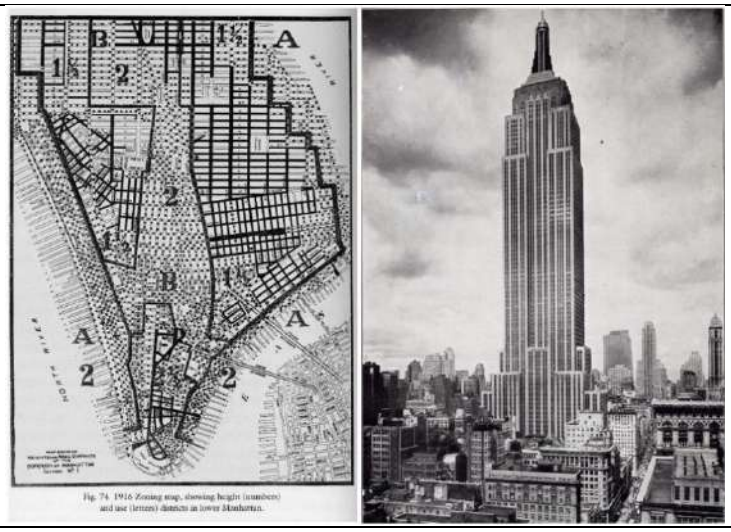
In the one-semester studio, students are required to finish 4 successive “projects,” each tackling a specific research question and the 4 projects will constitute a comprehensive report.

1. Tracking, exploring and comparing the histories of planning code in the world (basically the U.S.) and in China.
2. Identifying and analyzing the spatial elements, proportions and scales which tend to be controlled in the planning code.
3. Visualizing the relationship between the planning code and the urban form by focusing on a group of “parameters”.
4. Finishing a report/manual/handbook by consolidating all the findings and conclusions.

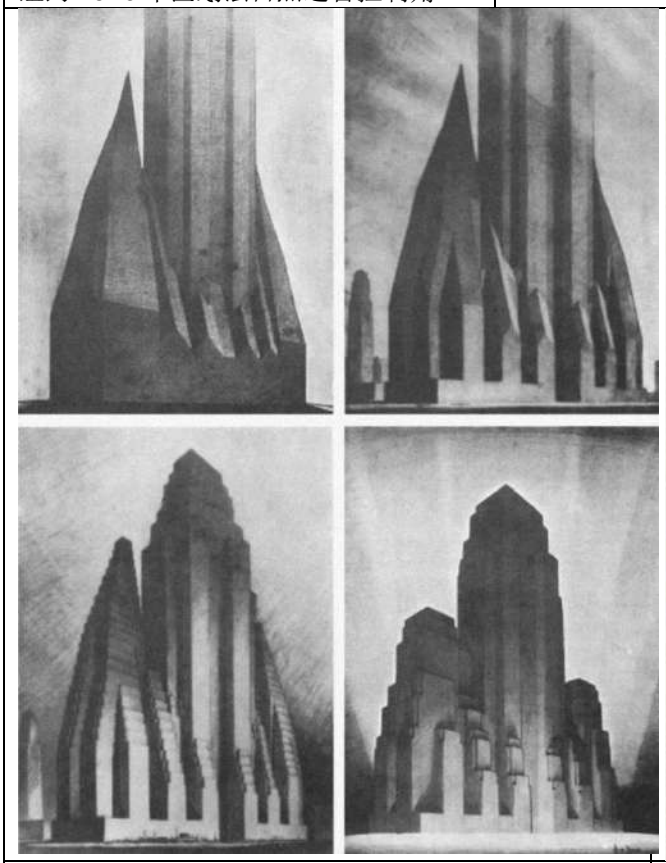
   Details of the 4 projects will be explained in the first meeting (09.20).



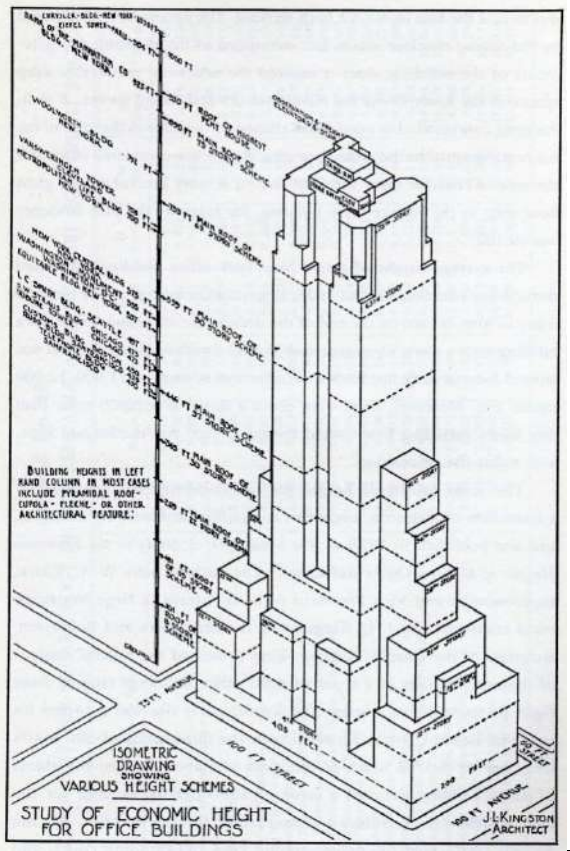
Setback Line, NY Zoning Resolution, 1916
纽约 1916 年区划法日照退台控制角



NY Zoning and its Architectural Implication
纽约区划及其对建筑形态的影响

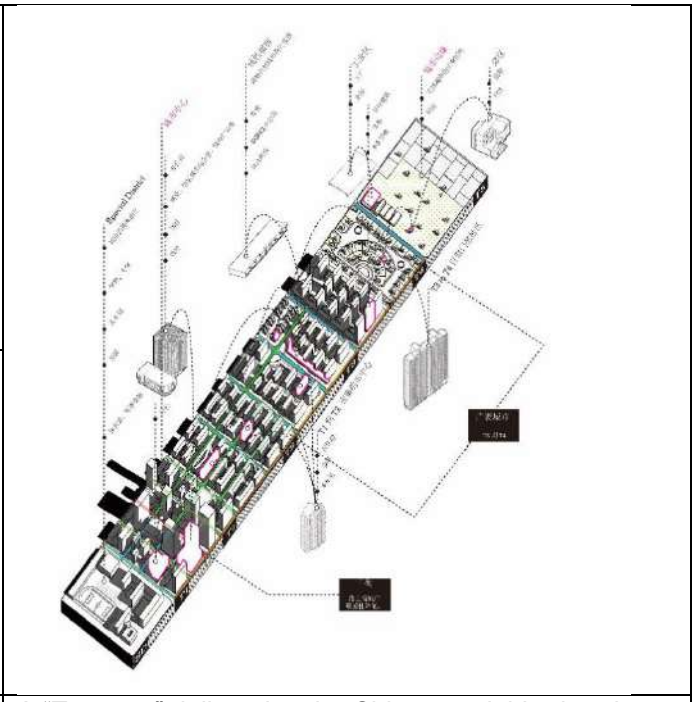


Hugh Ferriss' visualization of an imaginary city block shaped by the 1916 Zoning Resolution
休・菲利斯对纽约 1916 年区划法的体量图解研究

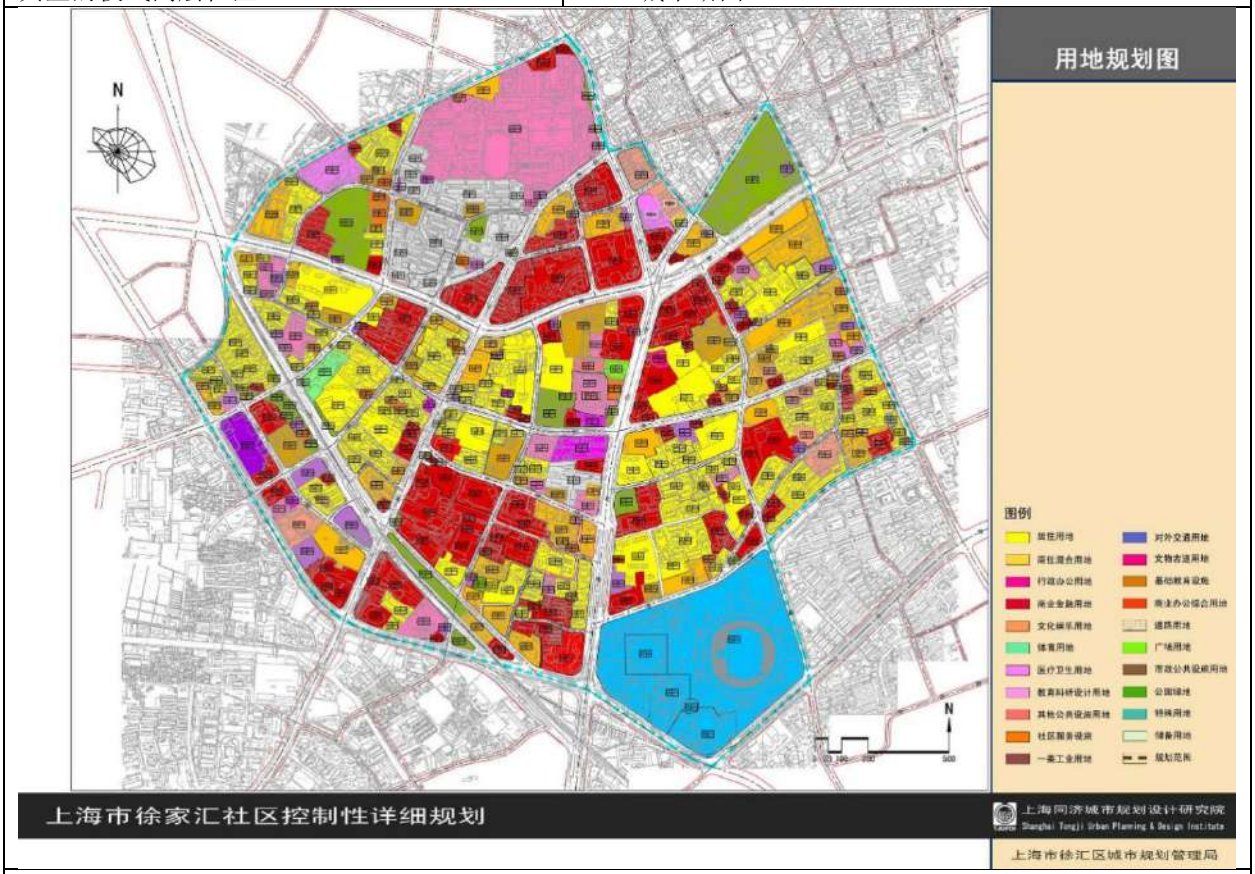


Study of Economic Height for Office Buildings
根据纽约 1916 年区划法的理想高层建筑体量研究

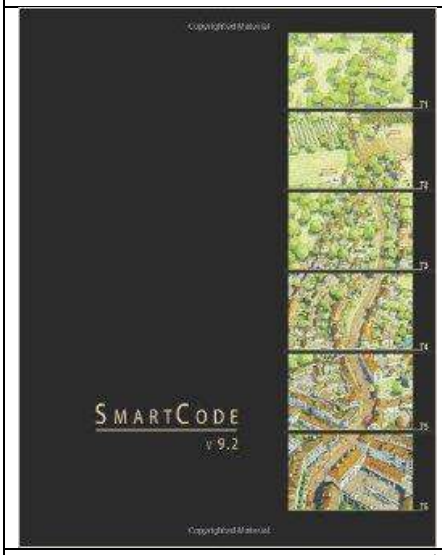
A Typical Highrise Neighborhood in China
典型的板式高层社区

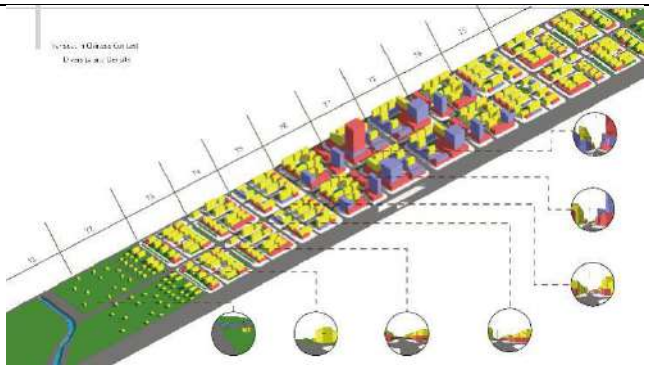


A “Transect” delineating the Chinese neighborhood form 城市断面



A “Regulatory Plan”





Smart Code and “Urban Transect” 精明准则与城市断面

Tentative Course Schedule, Infra-Architecture, 2016		
Date	Topic	Assignment
Week 1 09.20	Intro	
Week 2 09.27	Project 1 Lectures and background research	
Week 3 10.04	Tan and Chang's Bay Area conference, no class.	
Week 4 10.11	Project 2	
Week 5 10.18	Project 2	
Week 6 10.25	Project 3	
Week 7 11.01	Mid-term?	
Week 8 11.08	Michael Bell workshop Project 3	
Week 9 11.10	Michael Bell workshop Project 3	
Week 10 11.22	Project 4	
Week 11 11.29	Project 4	
Week 12 12.06	Wrap up, pre-review?	
Week 13 12.13	Final Review?	

Student Name	School ID	Role in the team
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LIANG Yuecun(梁越存)	1630172	
LI Hao(李昊)	1630168	
LU Guanyu(陆冠宇)	1630162	
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