Toward the Future City: An Ethical Design Philosophy for Urban Habitats | 对未来城市的伦理设计理念为城市栖息地

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Abstract | 摘要

Ever taller skyscrapers, increased density, and global interconnectivity are creating new pressures and complexities in both the urban environment and the public space. Contemporary attitudes toward shared environmental and social resources are shifting in response to the challenges of rising inequality, technological connectivity, and global security. Architects are beginning to respond with a heightened sense of ethical obligation to challenge these pressures in pursuit of a design that contributes to the health and well-being of the city, its inhabitants, and its ecology. This paper will discuss global trends in design and planning through the lens of building and project case studies – historic, contemporary, and future – that propose solutions for how the living spaces, work places, and shared urban habitats of the future may be designed more ethically by restoring both the foundational ecological systems upon which cities are built and urban connections to nature, creating designs that foster social connectivity and equality.

Keywords: Adaptability, Culture, Ethics, Sustainability, Urban Habitat, Urbanization

更高的摩天大楼、更稠密的人口和全球互联互通给城市环境和公共空间带来了新的压力和复杂性。面对日益严重的不平等、技术互联和全球安全等挑战，现代人对共享环境和社会资源的态度正在发生转变。建筑师开始用挑战这些压力的高度道德责任感来做出回应，去追求一种有益于城市、城市居民及其生态健康幸福的设计。本文将通过建筑和项目案例研究（历史、现代和未来研究）的透镜，讨论全球设计和规划趋势，拟定一种如何以更合乎道德的方式设计未来生活空间、工作场所和城市共享生境的方法，修复作为城市基石的生态系统，恢复城市与自然的联系，创造出有益于社会联系和公平公正的建筑及城市设计。

关键词：适应性、文化、伦理学、可持续性,、城市人居、都市化

The 2007 report from the United Nations Population Fund provided a snapshot of our planet in the midst of an astonishingly rapid transformation from a mostly rural to a primarily urban population. Much of this migration has happened in the global south – namely in South East Asia, and especially in China. Even in North America, urban growth is countering decades-long trends of suburbanization. The world's cities have pushed buildings higher, increased density, and leveraged technological solutions to manage the social and ecological crises of growth. Yet, technology alone cannot endow society with the qualities that ensure long-term well-being. The design of cities for the future demands a holistic ethical framework that embraces density and diversity, and pursues the flourishing of both humans and nature.

Explored through the lens of biophilic design principles and ecosystem functioning, an ethical design philosophy can be developed around the mutually dependent concepts of the flourishing of nature and of humanity. Within these concepts are possibilities for addressing challenges of health and well-

联合国人口基金会 2007 年报告给我们快速多变的星球提供了一个真实的写照，全球人口完成了从以农村人口为主到城镇人口为主的巨大嬗变。许多人口迁徙发生在南半球、东南亚，尤其是在中国。即使在北美，城市的发展也在对抗长达几十年的郊区化趋势。全球城市的发展使建筑变得更高，人口更稠密，所以通过技术性的手段来缓解城市发展造成的社会和生态危机。而只靠技术是无法使社会具有能够确保长久福祉的质量。未来城市设计需要采用一种整体性的伦理框架，将人口密度和多样性等因素统统考虑在内，并追求人类与自然的繁荣发展。

通过生命亲和设计原则的透镜和生态系统的机能发现，我们可以根据自然繁荣与人类繁荣相互依存的概念，开发出一种符合伦理道德的设计理念。这种概念可以化解城市面临的健康和福祉挑战，恢复生态资源，并事先做好计划，以便灵活应对气候的变化。

生命亲和设计的必要性

在人口稠密的全球都市中，比如纽约，许多城市人与自然之间存在高度僵化的关

being in cities, restoring ecological resources, and planning for resiliency in the face of climate change.

Imperative of Biophilic Design

In dense global cities like New York, many urbanites have highly scripted relationships with nature. Wealth, good fortune, or privilege affords some with the ability to escape from human-made canyons to windswept beaches or the mountains to reconnect with nature. Many more urbanites experience nature most often in the cracks of decaying infrastructure, tree-pits, and pockets of leftover urban space, and in the formal, bounded settings of city parks that provide local escapes. Whether in privileged enclaves or communal patches of urban green space, social patterns of escape to nature have become embedded in society. However, our connections to nature in our everyday experience of public, working, and living spaces are neglected.

Driven by the research of biologists and sociologists, biophilic[1] design is emerging as an ethical and moral imperative. We know that humans are mentally and physically healthier when they have direct access to nature. Connection to nature is known to measurably reduce stress and anxiety, improve productivity, and enhance attention and perception (Terrapin Bright Green 2014). These positive biological responses are not limited to immersive nature experiences, such as walking through a forest. They can also be designed into the urban environment by creating natural analogue conditions that mimic forms and phenomena found in nature. If we know that biophilic design can measurably improve health and well-being, our ethical framework for cities of the future must demand it. Likewise, if we know that our well-being depends on the health of natural systems, our framework must demand that our built environment restore and support ecologies.

In New York City, these values are driving a mode of design that is slowly transforming the city – socially and environmentally regenerative architecture and urban design. New architecture is taking on a refreshed civic function with a renewed purpose to address the most pressing issues of urban places, systemically and locally, in order to nurture a healthier, more vibrant city life. One highly visible sign of transformation is in the slow revolution on rooftops, where small patches are becoming green roofs, urban farms, and garden oases. The development of this fifth façade of green space is slowly reknitting urban ecological fabric while improving the health of the city.

Learning from Nature

Cities, like nature, require diversity, balance, and restraint to survive. Landscape architect and theorist Ian McHarg wrote, "Human adaptations entail both benefits and costs, but natural processes are generally not attributed values; nor is there a generalized accounting system, reflecting total costs and benefits. Natural processes are unitary, whereas human interventions tend to be fragmentary and incremental" (McHarg 1969). The well-being of a whole ecological system requires an equality of its constituent parts, which are invaluable to the survival of the whole. McHarg advocates that dense urban cores must be designed in concert with open space, and that urban systems should be designed in concert with ecosystems. To develop cities that are in harmony with nature and encourage the flourishing of people, McHarg argues that cities must begin to develop by approaching the unitary mode of nature. Cities must design systemically to halt the forces of fragmentation, such as economic determinism, and create more interdependent, and therefore healthier, urban spaces.

Our acknowledgement of interdependence is foundational to applying an ethic of human or natural flourishing. Cultural anthropologist Mary Catherine Bateson argues that our survival on the planet demands a shift in our relationship to social and ecological systems, breaking from structures of self-sufficiency and adopting structures of mutual dependence. In other words, our individual sense of value and well-being must expand to include the well-being of the whole of society and of the planet.

Designing with the whole city and ecology in mind requires new ways of planning and developing. New York developer Jonathan F. P. Rose describes a society of compassion, cooperation, and altruism –a transformational ecology – organized to celebrate the interconnectedness of society and nature. His "transformational ecology" requires society to adopt whole

系。财富、好运气或特权使某些人可以逃离人造峡谷，前往微风吹拂的沙滩或山峦，去重新接近自然。而更多城市人通常是在残垣断壁的缝隙、树坑和城市遗弃空间中体验自然。在城市公园的周边地带，人们可以暂时逃离这喧嚣的都市。不管是享有特权的飞地还是城市公共绿色空间，逃离城市、接近自然已经成为社会的一种发展形态。但在平日对公共、工作和生活空间的体验中，我们却忽略了与自然的联系。

受益于生物学家和社会学家的研究成果，生命亲和设计[1] 逐渐成为设计师必须遵守的一个伦理道德标准。我们知道，当人们直接接近自然时，才能获得更加健康的精神和身体状态。接近自然可适度缓解压力和焦虑，提高生产力，集中注意力和增强感知能力。(Terrapin Bright Green 2014)这些生物反应不限于身临其境的自然体验，比如走过一片森林。我们还可以创造一种能够模拟自然形态和现象的状态，从而设计出积极的生物反应，使其适应城市环境。如果我们知道设计可适度改善健康和福祉，我们未来城市的伦理框架就必须要求在高楼大厦和城市空间中体现这一点。同样，如果知道我们的福祉取决于自然系统的健康状态，这种框架就必须要求我们营造的环境能够恢复和支撑生态系统。

在纽约，这种价值观产生了一种在潜移默化中改变城市的设计模式：即社会和环境可再生的建筑和城市设计。新的建筑采用全新的城市功能和全新的用途，以解决城市空间面临的最紧迫问题，从而系统和局部地塑造一种更为健康、更有活力的城市生活。在这种城市变革中，一个比较明显的标志是屋顶逐渐发生变化，一些小块空地逐渐变成绿色屋顶、城市农场和花园绿洲。随着第五立面绿色空间的开发，城市正在重新编织其生态构造，同时改善城市的健康状态。

学习自然

像自然一样，城市也需要多样化、平衡和生存限制。景观建筑师和理论学家 Ian McHarg 写道，“人类适应性必须同时考虑收益与成本，但自然过程通常没有属性值；此外也没有反映总成本和收益的广义会计制度。自然过程是浑然一体的，而人类干预则倾向于碎片化和不断增加。”(McHarg 1969) 整个生态系统的健康需要系统构成部分实现平等，即对总体系统的生存至关重要的部分。McHarg 提倡在设计城市稠密核心区时，必须使其与开阔空间和谐存在，此外城市系统的设计也

1: Biophilic design is based on the principles of the biophilia – a term popularized by biologist E.O. Wilson to describe the innate human affinity for nature and natural processes.
生命亲和设计基于亲生命原则，这是由生物学家 E.O. Wilson 推广开来的一个术语，用于描述人类亲近自然和自然过程的固有本性。

systems of thinking that refocus our values on a collective well-being, and to counter the economic structures that commoditize the individual and component, devaluing the whole. Rose's transformational ecology depends on healing the environmental mistakes of the past for the future well-being of society, cities, and planet. The highest potential of our future urban economy and culture is directly tied to the interconnected, mutually dependent flourishing of people and nature. Rose's 2012 LEED Gold Via Verde development in the South Bronx, one of New York City's most distressed neighborhoods, is one example of his transformational model. The high-rise residential building is mixed-income and mixed-use, with integrated green spaces designed to support the health of its residents, including a terraced green roof to host gardening plots for tenants and a communal garden that produces over 1,000 pounds of fresh vegetables each growing season. (GrowNYC 2015)

Figure 1. Rendering of green spaces and towers at City Point, Brooklyn, NY, USA (Source: COOKFOX Architects)
图1. 绿色空间和塔楼渲染图，City Point，布鲁克林，美国纽约州（来源：COOKFOX 建筑事务所）

City Point, Brooklyn

City Point, a 1.8 million-square-foot (168,000-square-meter) complex of retail, office, entertainment, and high-rise residential buildings in downtown Brooklyn, has become, almost unwittingly, a catalyst for a more vibrant and diverse urban community (Figure 1). Having been first designed by COOKFOX Architects just prior to the global financial crisis in 2008, the project was redesigned to fit the new economic realities that demanded renewed consciousness to the needs of the community, focusing on diversity.

The unique site sits at the collision of several Brooklyn street grids and its edges connect with an overwhelmingly diverse collection of neighborhoods: a high-rise corridor of apartment buildings rising along Flatbush Avenue, a large public housing community, office and retail districts, a major university, and a historic brownstone neighborhood. The monumental task of the City Point project was to stitch together these fragments and create a hub of community services that would anchor the flourishing of downtown Brooklyn.

To accomplish this, COOKFOX created a pedestrian experience to attract people in and through the building, with a porous streetscape of many entry points, disrupting privileged entries and ensuring access for the entire community. The carefully detailed streetscape reinterpreted the scale and proportion of the area's classic terracotta architecture into a modern expression that

应与生态系统相一致。为了开发能够与自然和谐相处并促进人类繁荣发展的城市，McHarg 认为城市在开发之初必须接近于一种浑然一体的自然状态。城市必须进行系统设计，阻止那些使城市产生碎片化的势力，比如经济决定论，然后创建一个相互依存度更高和更健康的城市。

我们认为相互依存是实现人类伦理道德或自然繁荣发展的基石。文化人类学家 Mary Catherine Bateson 称，我们在地球上生存需要转变我们与社会和生态系统的关系，需要打破自给自足的社会结构和采用相互依存的社会秩序。换句话说，我们每个人的价值观和福祉必须加以扩大，以追求整个社会和星球的健康幸福。

设计时心中牢记整个城市和生态系统，这需要采用新的规划和开发方式。纽约开发者 Jonathan F. P. Rose 描述了一种充满同情、合作和利他主义的组织型社会——一种转型的社会生态——以祝贺社会与自然产生相互关联。他的“转型的社会生态”需要社会采用整体系统思考方式，重新将我们的价值观投注在集体福祉之上，并对抗我们个人和要素商品化（贬低总体价值）的经济结构。这种转型的社会生态取决于我们纠正过去对环境犯下的错误，以实现社会、城市和地球未来的幸福安康。对于我们未来的城市经济和文化，其最大潜力与人和自然实现相互关联、相互依存的繁荣发展直接相关。Rose 在纽约最贫困的小区 South Bronx 设计了“2012 LEED Gold Via Verde”，这是其转型模型的一个范例。高层住宅楼是一种混合居住、混合使用的建筑，其中设计有改善居民健康的综合绿化区，包括一个为居民提供休憩园地的阶梯状绿色屋顶，以及每个生长季节生产出 1000 磅新鲜蔬菜的公共花园。(GrowNYC 2015)

布鲁克林 City Point

City Point 是布鲁克林市区的一个集零售、办公、娱乐和高层住宅楼为一体的综合设施，其面积达 170 万平方英尺。City Point 几乎在不经意间变成了一个城市建设的催化剂，催生出一个更有活力、更具多样性的城市社区（图1）。项目在 2008 年全球金融危机之前已经由 COOKFOX Architects 公司进行了首次设计，后来重新设计是为了适应新的经济现实，这要求对社区需求形成新的认识，同时聚焦多样性。

其独特位置在布鲁克林几个街道网的交叉处，周边是一系列高度多样化的小区和城市用地，包括沿着 Flatbush 大道的一个高层公寓楼、一个大型公共居住社区、一个商业办公区、一个富有历史韵味的活力零售区、一所重点大学和许多历史悠久的褐石小区。City Point 项目的艰巨任务是将城市碎片串连起来，并创建一个小区服务枢纽和连接器，将促进布鲁克林市区繁荣发展的各种多样性因素联系起来。

为此，COOKFOX 设计了一种吸引人流进入并穿过建筑的体验，建筑的多个入口形成了一种多孔的街道景观，这打破了拥有特权才能进入大楼的格局，以确保能够到达整个小区。这种精巧的街道景观用现代表现手法，重新诠释了该地区充满历史韵味的陶土建筑规模和比例，这对城市历史背景的厚重度和温暖度形成了一种补充。

在空中，建筑楼顶是一片片花园、绿色屋

complements the weight and warmth of its historic context.

Overhead, the rooftops of the buildings carry a rich system of gardens, green roofs, and urban agriculture. While the architecture and planning ties the building to its historic and cultural context, the garden level is a regenerative connector for the urban ecosystem (Figure 2). Rising from the garden level, two residential towers are arranged to protect the space of the garden, and convey a sense of generous openness to the city. Their orientation opens the sky view for pedestrians while providing the necessary high-density, high-rise, multi-income residences to create a diverse, mixed-use community that is socially and ecologically connected.

Ethic of Human Flourishing

In tandem with the green building movement, the architecture world has turned to embrace more socially conscious practices. While building performance will continue to improve with technological advances, designers still have much to accomplish toward healthier, more equitable designs.

Architects have always aspired to transform society through design. The early modernists explored radical models of urban living in response to dramatic societal shifts following WWII. New standardized, replicable forms that built on design innovations established between the wars were inspired by the manufacturing industry and made possible by advances in technologies for concrete, glass, and building systems. Vast high-rise housing designs reimagined entire neighborhoods as dense vertical communities that would free the land. Despite their environmental and social ideals, these towers, in their quest for efficiency, standardization, and universality were too often disconnected from any sense of history, place, or the wider ecology. The technological premise of high-density architecture reached its ultimate conclusion in the late 20th century as sealed, tinted glass fortresses designed for maximum efficiency, eliminated any outside variability. These towers had the unintended consequence of "sealing out" nature to the detriment of human well-being.

While the most profound, long-term benefits of holistic, biophilic design for human flourishing may be realized in the urban domestic sphere – homes, schools and hospitals – commercial office buildings have been leading innovation in pursuit of increased productivity and improved mental

顶和城市农业基地。虽然建筑和规划将大楼与其历史和文化背景联系了起来，但对于城市生态系统来说，花园层是一种可再生的连接布局（图2）。花园层向上是两座高层住宅楼，用于保护花园空间，并将巨大的开阔感传递给城市。塔楼所处的方位使行人在仰望天空时能够产生豁然开朗的感觉，同时提供了必需的高密度、高层、混合居住空间，以便创建一个在社会和生态层面上发生关联的多样化、多用途社区。

人类繁荣的道德观念

与绿色建筑运动相一致，建筑领域也开始拥抱社会化意识更强的做法。虽然建筑性能可以通过技术进步实现不断提高，但设计师距离更健康、更平等的设计还有很多工作要做。

建筑师一直向往通过设计改变社会形态。二战后，为了应对巨大的社会变革，早期的现代主义者探索了一些比较激进的城市生活模式。现在新出现的标准化、可复制建筑形态建立在两次世界大战之间确立的设计创新之上，其灵感来自于制造行业，并随着混凝土、玻璃和建筑系统的技术进步而成为可能。大量高层建筑设计将整个小区重新塑造成一种能够释放土地空间的高密度垂直社区。尽管塔楼是一种理想的环境和社会形态，但随着人们对效率、标准化和通用性的追求，这种塔楼结构就显得过于脱离历史感、广场或更广阔的生态系统。高密度建筑的技术前提已经得出了终极结论，这就是 20 世纪晚期出现的用有色玻璃围成的密封堡垒，这样设计是为了实现最大效率，同时消除外部可变性。塔楼建筑将大自然密封在外，危害人类健康幸福，这是一种意想不到的后果。

对于有助于人类繁荣发展的总体性生命亲和设计，虽然其最深远的长期效益可以在城市生活圈——家庭、学校和医院——内实现，但随着人们对提高生产力和改善员工身心健康的追求，商用办公大楼现在产生了很多创新的形态。许多新的商用摩天大楼现在被设计成亲近自然的平台，这是因为办公室租户需要洒满阳光的楼板、生物动力照明、高度过滤的空气、综合花园空间、天然材料和仿生布局，以提高人为绩效。诸如伦敦 Fenchurch 大街 20 号之类的高层建筑现在试验了一些新的建筑手段，它试图将公共花园纳入大楼之中，以实现公共福祉。而像东方明珠塔之类的摩天大楼则采用了整体系统思考方式，以便利用那些就地使用可再生能源的生态系统服务和花园景观，提高空气质量和增强可持续性及弹性。

在经济结构的另一端，新出现的廉价和支持性住宅开始采用一些更具整体性的建造模型，以实现社区福祉。作为布鲁克林 Brownsville 的一个高密度城市支持性住宅项目，Hegeman 住宅设计有助于实现

Figure 2. Rooftop garden at City Point, Brooklyn, NY, USA (Source: COOKFOX Architects)
图2. 楼顶花园，City Point，布鲁克林，美国纽约州（来源：COOKFOX 建筑事务所）

Figure 3. The Hegeman, Brooklyn, NY, USA (Source: COOKFOX Architects)
图3. Hegeman，布鲁克林，美国纽约州（来源：COOKFOX 建筑事务所）

Figure 4. Ground Floor Plan with Gardens, Hegeman, Brooklyn, NY, USA (Source: COOKFOX Architects)
图4. Hegeman，布鲁克林，美国纽约州（来源：COOKFOX 建筑事务所）

and physical health for employees. New commercial skyscrapers are being designed as platforms for nature as office tenants demand day-lit floor plates, biodynamic lighting, highly filtered air, integrated garden spaces, natural materials, and biomimetic patterns to improve human performance. Tall buildings such as 20 Fenchurch Street, London have experimented with new ways of integrating gardens into buildings for public benefit. Skyscrapers like Shanghai Tower employ whole systems of thinking to harnesses ecosystem services of on-site renewable energy and gardens that improve air quality, sustainability, and resiliency.

At the other end of the economic spectrum, new affordable and supportive housing is starting to embrace more holistic models to support the well-being of communities. The Hegeman residence, a high-density urban supportive housing project in Brownsville, Brooklyn, was designed to encourage mental, physical, and social wellness of its residents[2] (Figure 3). The stone and brick façade was designed to be clearly modern, but create a sense of permanence for the formerly homeless residents through architecture with weight, a sense of history, and a relationship with the surrounding neighborhood of modest masonry buildings. The apartments are arranged around a garden courtyard, with day-lit elevators affording views from every floor, thereby orienting residents to the outdoors (Figure 4). The direct visual connections to nature, along with tactile qualities of natural materials such as stone and wood, infuse the Hegeman with biological cues that reduce stress and anxiety, while enhancing attention and productivity. These biophilic responses are known to improve long-term health and learning, supporting human flourishing with design. To encourage community building between residents and neighbors, the project incorporates a shared community garden in a neighborhood that is starved of arable spaces.

Similar principles are beginning to be explored at the district scale, in an effort to improve the built environment and restore degraded ecologies to improve the long-term health outcomes of entire neighborhoods – even cities. In 2013, the Robert Wood Johnson Foundation released a series of maps illustrating life-expectancy in urban places by transit stop. The astonishing graphics revealed vast differences in life expectancy

居民的身心健康和社会福祉[2]（图3）。石砌立面设计明显具有现代风格，但这种厚重的建筑风格却给无家可归者产生了一种恒久不变的感觉，一种历史沧桑感，这是那些采用砖石建筑的小区所不具备的。公寓建造在花园周围，洒满阳光的电梯可以使居住者看到每个楼层的庭院结构，同时面朝户外美景（图4）。Hegeman 住宅可以直接与大自然接触，再加上木石等天然材料的质感，这都给 Hegeman 带来了一丝生物暗示，从而缓解压力和焦虑，提高注意力和生产力。这些生命亲和反应据称可以提高长期健康和学习状态，使人们在精巧设计的作用下繁荣发展。为了鼓励在居民和邻居之间进行社区建设，项目在一个缺乏可耕空间的小区内建造了一个共享的社区花园。

这种规模的小区现在开始探索一些类似的设计原则，并努力改善建造环境，恢复退化的生态，从而提高整个小区甚至整个城市的长期健康效果。2013 年，Robert Wood Johnson 基金会发布了一系列地图，它借助于公共交通停车站，说明了各种城市场所的预期寿命。在这些令人吃惊的地图上可以发现，即便在相对较小的距离内，预期寿命也存在巨大的差异。在纽约市，只有六个地铁站的距离可能意味着有将近 10 年的差异（图5）。

2: Supportive housing refers to subsidized housing designed for a discrete community of vulnerable people, such as formerly incarcerated homeless individuals. All the social services required by the population are located on-site, and residents receive ongoing assistance with their day-to-day struggles.
支持性住宅指采用补助资金建造的住房，其设计宗旨是给弱势群体建造一种独立的社区，比如此前因为入狱而无家可归的人群。这种人群所需的各种社会服务在现场就可以提供，居住者平日生活穷困，需要接受持续的援助。

across relatively small distances. In New York City, a distance of just six subway stops might mean a difference of nearly 10 years (Figure 5). Economic means is the simplest differentiator between stops; however, community well-being is determined by many gap factors, including the quality of housing, education, as well as access to basic services and healthy green space.[3] The Foundation's report titled, Beyond Health Care: New Directions to a Healthier America, advocates for building healthier communities with solutions that range from policy prescriptions, such as "incorporating health-conscious designs into building codes and zoning," to the design of green infrastructure and healthy buildings for education and living (Robert Wood Johnson Foundation Commission to Build a Healthier America 2009).

The Foundation helped create a test case that attempted to reverse these gaps. The pilot program took place in Village of East Lake in Atlanta, Georgia, USA, which was one of the poorest, most violent communities in the nation (Center for Promise Research 2015). The project aimed to transform a

经济手段是各站发展迥异的最简单原因；但小区福祉取决于多种因素，包括房屋质量、教育、基础服务便利性以及绿色健康空间便利性。[3] 标题为 Beyond Health Care:New Directions to a Healthier America（不止于保健：健康美国的新方向）的基金会报告倡议用合理方案建设更加健康的社区，包括采用“将注重健康的设计纳入建筑法规和区域划分”等政策处方，一直到用于教育和生活的绿色设施及健康建筑设计（Robert Wood Johnson 基金会建设健康美国委员会，2009 年）。

基金会帮助创建了一个测试案例，以尝试扭转这些差距。试点计划位于美国佐治亚州亚特兰大市东湖村，这是美国经济最为贫困、暴力犯罪最为猖獗的社区。(Center for Promise Research 2015)项目旨在将一大片被忽视的贫困小区变成一个健康和多元化的社区。新的开发项目采用整体系统方法进行施工，包括从房屋到景观、从学校到超市，各种设施都需要改造。项目拆除了 650 个劣质住宅区，然后在原地建造了 1500 个混合居住小区，这使该地的人口密度翻了一番。居民开始返回他们重建的家园，现在小区内建造了漂亮的娱乐景观区、步行街、日托学校、

Figure 5. Average life span by subway stop in New York City. (Source: Robert Wood Johnson Foundation)
图5. 纽约市地铁站的平均寿命。（来源：Robert Wood Johnson Foundation）

多样性的用地和室内空气质量得到大幅改善的新家。而就在几年内，健康指标发生了巨大变化，包括哮喘发病率、糖尿病和心脏病都大幅下降。地区学校从表现最差到跻身最佳学校之一，犯罪率大幅下降，就业率开始飙升。(Schwarz 2015)通过简单的建设，一个濒临死亡的社区开始繁荣发展，同时借助于更合乎道德的设计方法，打破经济决定论的固有模式。

一些激进的城市设计方案正在从发展中国家不断涌现出来，这可以为将来的发展提供一种模型。作为 ELEMENTAL 的创建者和最近的普利兹克奖获得者，Alejandro Avarena 介绍了一种新的适应性住宅拓扑结构。ELEMENTAL 努力为边缘化社区争取一种经济实用的住房模型，其广为人知的半住宅项目主要是为了满足基本的住房需求，同时又可以在日后进行改造（图6）。在智利伊基克的 Quinta Monroy 住宅项目中，Avarena 与生活在非正式居住地的贫穷社区密切合作，并努力争取政府补助，因为这些家庭无法花钱买到一个大小合适的住宅。 与建造小型住宅不同的是，Avarena 拟定建造一种半体住宅，或含有必要家居空间——厨房、浴室、卧室——的建筑，并为居住者扩建和改建住房提供一种结构框架，以便容纳人口不断增加的家庭或增加工作空间，这是非正式居所比较常见的一种概念。Avarena 的目标是使居住者在克服贫困时不失雄心，并将安全、自适应的住宅作为家庭繁荣发展的一个平台。ELEMENTAL 报告称，仅在一年之内，许多家庭的收入已经翻了一番，这给贫困家庭脱贫带来了重要的助推作用。(Tory–Henderson 2016) Avarena 的设计为人类繁荣发展提供了一种框架，经实践证明，这种模型可以在城市环境中复制。这家公司还在智利 Constitución 和墨西哥 Monterey 完成了类似的项目。未来的设计师可能会受到垂直非正式居所的启发，比如曾经存在于委内瑞拉首都加拉加斯的“Torre de David”。然后开发出一种安全、自适应的“半摩天大楼”系统，并激发创新。

生态繁荣的道德观念

在确立人类繁荣发展的道德观念之后，我们开始转向人与生态环境同时繁荣的共生观念。社会活动家 Jim Dodge 在他的论文“Living by Life:Some Bioregional Theory and Practice”（真实生活：一些生物区域理论和实践）中写道，“自然系统的健康与我们每个人、每个物种的身心健康直接相关，所以自然系统及其融过程，如果不是完全崇拜的话，值得我

3: In New York City, many neighborhoods have access to formal green spaces and city parks, yet the disparity in life expectancy is pronounced between neighborhoods. The differences are complex, but everyday connections to nature and natural cycles may be more influential in community health than large parks, which are limited to only occasional engagement, according to economic demands (i.e. demands of employment, family obligations, and proximity to safe, comfortable landscapes).
支持性住宅指采用补助资金建造的住房，其设计宗旨是给弱势群体建造一种独立的社区，比如此前因为入狱而无家可归的人群。这种人群所需的各种社会服务在现场就可以提供，居住者平日生活穷困，需要接受持续的援助。

Figure 6. Quinta Monroy Housing, 2004, Iquique, Chile (Source: Courtesy ELEMENTAL/Photography by Cristobal Palma)
图6. Quinta Monroy 大厦，2004 年，伊基克，智利（来源：Courtesy ELEMENTAL/Photography by Cristobal Palma)

neglected stretch of residences with poor environmental factors into a healthy and diverse community. The new development took a whole systems approach, transforming everything from housing to landscape, from schools to supermarkets. The density of the site was doubled by demolishing its 650 sub-quality residences and creating 1,500 mixed-income residences in their place. The residents returned to their reimagined community with new beautiful landscaped spaces for recreation, walkable streets, a day-lit school, mixed-use community services, and new homes with improved indoor air quality. Within just a few years, health metrics transformed, including a drastic drop in asthma rates, diabetes, and heart disease. Area schools went from worst performing to among the best, crime fell dramatically, and employment soared (Schwarz 2015). A community that was dying began to flourish with a simple built intervention to disrupt the patterns of economic determinism with a more ethical design approach.

Some radical urban design solutions are emerging from the developing world that may offer models for the future. Alejandro Avarena, founder of ELEMENTAL, and recent Pritzker Prize Laureate, has introduced a new adaptable housing typology. In pursuit of a financially feasible housing model for marginalized communities, ELEMENTAL's well-known half-house projects were designed to provide basic shelter needs, while inviting future alternations (Figure 6). At Quinta Monroy in Iquique, Chile, Avarena worked closely with the poor community living in informal settlements and concluded that government subsidies for these families could not pay for the right-sized homes. Rather than build smaller homes, Avarena proposed building half a house, or a building that contained the essential spaces of a home – kitchen, bath, bedroom – and provide the structural frame work for residents to expand and modify their home over time to accommodate growing families or add space for working – a concept that is common in informal settlements. Avarena's goal is no less ambitious than overcoming poverty with safe adaptable homes as a platform for families to flourish. ELEMENTAL reports that many of the homes doubled in value in just a year, giving poor families an important boost out of poverty (Tory-Henderson 2016). Avarena's design provides a framework for human flourishing and the model is proving to be replicable in urban places. The firm completed similar projects in Constitución, Chile, and Monterey, Mexico. A future designer may be inspired by the vertical informal settlement, such as once existed at "Torre de David" in Caracas, Venezula, and develop a "half skyscraper" system designed to be safe and adaptable, and inspire innovation.

们投以最明确的关注和最深的敬意”。(Dodge 2007) 在面对气候变化时，我们需要修复生态系统，这不仅是为了保护我们自己必需的水源、清洁空气和耕地，更是为了人类发挥健康的生物机能。

在第 641 美洲大道的楼顶空间上，死寂的屋顶变成了各种生物的乐园。在放过不用和生锈设备的地方，一团团微生物生态系统随地而起（图7）。由 COOKFOX 员工安装和维护的绿色屋顶上最初有六种景天属植物，在意外引入一些自生植物之后，屋顶生态系统开始不断发展进化。绿色空间变成了飞鸟和昆虫的乐园，包括定期在屋顶上寻找猎物的美国红隼。这片花园坐落在曼哈顿生态最为贫瘠而人口最为稠密的一个区域，这只是一种小面积的修复尝试，其设计用途是为了实现环境的繁荣发展。从工作空间向外看，几乎每个桌案都能看到这片花园，并且可以持续不断地接近自然和自然环境，从而提高注意力、减轻压力和提高生产力。屋顶上还实施了一个试验性的城市农场项目，这主要是为了给员工创造一个种植食物以及直接与土壤、植物互动的机会，以了解是否可以在城市进行小规模的粮食生产（图8）。

在一天的工作当中，我们在休息时可以从自己的工作位置清楚看到绿色屋顶，这使我们精神为之一振。看到自然茁壮成长的体验有深刻的个人印记，同时也是一个强有力的符号，这象征着我们的城市变成了一个更健康、更合理和郁郁葱葱的生态

Ethic of Ecological Flourishing

With the ethical concept of human flourishing established, we turn to its symbiotic concept, that of ecological flourishing. In his essay "Living by Life: Some Bioregional Theory and Practice," activist Jim Dodge writes, "the health of natural systems is directly connected to our own physical/psychic health as individuals and as a species, and for that reason natural systems and their informing integrations deserve, if not utter veneration, at least our clearest attention and deepest respect" (Dodge 2007). In the face of climate change, repairing our ecologies is vital, not only for preserving our basic essential resources of water, clean air and arable land, but also for healthy human biological functioning.

At the penthouse level of 641 Avenue of the Americas in New York City, a grim rooftop was transformed into a haven for natural life. Where disused and rusting mechanical equipment once sat, a teaming micro-ecosystem has taken hold (Figure 7). The green roof, installed and maintained by COOKFOX staff, was started with six species of sedum and allowed to evolve with the fortuitous introduction of volunteer plants. The green space has now become a haven for birds and bugs, including American Kestrel hawks that regularly hunt on the rooftop. Located in one of the most ecologically barren and dense parts of Manhattan, the garden is a small restorative effort designed for environmental flourishing. Extending from the workspace, the garden is visible from nearly every desk and is a constant connection to nature and natural cycles that promote improved attention, reduced stress, and higher productivity. The roof also hosts an experimental urban farming project, creating opportunities for the staff to grow food and interact directly with soil and plants to understand the possibilities for micro-scale urban food production (Figure 8).

With a clear view from my own workstation, I am energized by observing the green roof during moments of respite throughout the work day. The experience of witnessing nature thrive has become a deeply personal and powerful symbol for the possibilities of transforming the city into a healthier, more just, and verdant ecology of people and nature.

At a larger scale, designers are creating new protective infrastructure in New York City by rethinking the urban relationship to natural systems. Among them, Bjarke Ingels Group's "BIG U" imagines a variegated landscape of constructed berms, walls, and barriers designed to hold back and absorb floodwaters in lower Manhattan. In addition to recreational uses, the project transforms the formerly industrial edges of the island into an armature for nature, with spaces for new habitats to flourish. The waterside ecology designed into the project will provide efficient ecosystem services, filtering the particulates and pollutants generated by human activities on the land.

St. John's Center in New York City is an outmoded massive freight terminal extending over three city blocks that once formed the terminus of the elevated New York Central Railroad that snaked into lower Manhattan,

Figure 7. Green roof at 641 Avenue of the Americas, New York, NY, USA (Source: COOKFOX Architects)
图7. 第 641 美洲大道绿色屋顶，纽约市，美国纽约州（来源：COOKFOX 建筑事务所）

Figure 8. 641 Avenue of the Americas, New York, NY, USA (Source: COOKFOX Architects)
图8. 第 641 美洲大道绿色屋顶，纽约市，美国纽约州（来源：COOKFOX 建筑事务所）

系统。

在更大的规模上，设计师重新思考了城市与自然系统的关系，然后在纽约建造了一个新的防护设施。其中，Bjarke Ingels Group 的“BIG U”构想了一种由结构护堤、墙壁和屏障组成的多彩景观，其设计用途是为了保持和吸收下曼哈顿区的洪水。除了娱乐用途之外，项目改造了曼哈顿此前从事工业生产的边缘地带，以便保护自然，同时为新生存环境的繁荣发展预留空间。系统设计的水侧生态系统可以提供有效的生态系统服务，过滤人类在岛上活动产生的颗粒物和污染物。

now known as the High Line. The building's scale and industrial function is a formidable barrier between adjacent neighborhoods and the Hudson River Park (Figure 9). Located at the end of the Hudson River, these blocks are being redesigned to create 1.7 million square feet (158, 000 square meters) of mixed-use, mixed-income regenerative community that will bring new services and housing to an underutilized neighborhood. The building will be demolished, leaving eight existing railroad tracks running though the second floor. The most critical component organizing the entire new development is the insertion of a new publicly accessible green space on the exposed abandoned tracks (Figure 10). The elevated garden will function as a green public square, to both repair the local ecosystem and serve as a social connector by facilitating an interaction between housing, retail, and streetscape, effectively integrating immediate connections with nature in the daily routines of residents and users (Figure 11).

Survival Design

The density, verticality, and creative collisions of cities provide a rich ground to design for the flourishing of both humans and nature. By virtue of their scale and capital, mega-projects such as supertall skyscrapers are able to affect market transformation for healthier environments, and in more ecologically integrated buildings, architects, engineers, and developers can push innovation and create new whole-system models for development.

It has often been noted that the first skyscrapers were not banks and corporate headquarters; rather, they were shared structures in the form of cathedrals, temples, and public monuments. These great constructions, often created over generations by a whole community of laborers and supported by entire cities, were the economic, social, and creative lifeblood of the societies that built them. The remarkable urban transformation projects that have captivated New York City – the High Line, Hudson Yards, and World Trade Center – all share the common feature of open, green space. These public spaces are the cathedrals, temples, and monuments of our modern city. While thousands of workers sit in towers above, many more thousands will experience these places as public gathering places, infused with nature. Besides these highly designed spaces, few projects in New York City have had as much of an impact on community life as the tactical urbanism that has turned vehicular streetscapes into pedestrian areas and oases

纽约圣约翰中心是一个过时的大规模货运码头，横跨三个城市街区，此前曾是纽约高架中心铁路的终点，最终蜿蜒进入下曼哈顿区，现在是著名的“高线公园”。建筑的规模和工业职能是附近小区和哈德逊河公园之间难以逾越的障碍（图9）。这些街区位于哈德逊河末端，现在重新设计后，形成了一个占地面积达 180 万平方英尺的多用途、混合居住小区，这给利用率不足的附近地区带来了新的服务和住房。圣约翰中心现在即将拆除，只留下现有的八个铁轨穿过建筑二楼。在整个新开项目发当中，最为重要的工作是在遗弃的露天铁轨上建造一个新的绿色公共空间（图10）。空中花园可以发挥绿色公共空间的作用，帮助修复本地生态系统，而且可以作为社会连接器，便于住房、零售店和街道之间进行互动，并将这种与自然的直接联系融合到居民和用户的日常生活当中 （图11）。

生存设计

城市密度、垂直度和创意碰撞给设计提供了丰富的依据，从而实现人与自然的繁荣发展。借助于规模和资本，诸如超高层摩天大楼之类的大项目可以影响市场变革，建造出更为健康的环境和生态整合性更高的建筑，而建筑师、工程师和开发者可以推动创新，开发出更具整体性的新模型。

Figure 9. St. John's Center, before, New York, NY, USA. (Source: COOKFOX Architects)
图9. 圣约翰中心（改建之前），纽约市，美国纽约州（来源：COOKFOX 建筑事务所）

Figure 10. St. John's Center, after. Outmoded rail structure converted to an elevated garden. New York, NY, USA (Source: COOKFOX Architects)
图10. 圣约翰中心（改建之前），纽约市，美国纽约州（来源：COOKFOX 建筑事务所）

Figure 11. The elevated garden at St. John's Center, New York, NY, USA (Source: COOKFOX Architects)
图11. 圣约翰中心空中花园，纽约市，美国纽约州（来源：COOKFOX 建筑事务所）

of planted space. These small discrete actions to pursue a new vision for urban design have transformed the city. For the survival of cities, architects, engineers, and developers must adopt a kind of tactical design to begin to transform our skyscrapers and streets to support the well-being of our entire city, creating spaces for the flourishing of both humans and ecology.

我们常常注意到，第一批摩天大楼并不是银行和企业总部，更确切地说，它们是以大教堂、寺庙和公共纪念碑形式出现的历史遗迹。这些庞大的建筑通常历经数代才完成，中间需要大量的劳动力和整个城市的支持，最后变成建造者的经济、社会和创新命脉。那些使纽约市美丽迷人的著名改造项目——高线公园、哈德逊园区、世贸中心——都有一个共同的特征，即设有露天的绿色空间。这种公共空间就是我们现代城市的教堂、寺庙和纪念碑。虽然有千千万万的工作者在高处的塔楼里工作，但更多人却将这些充满自然风格的场所作为公共聚集地。除了这些设计繁琐的公共空间之外，纽约很少有其他项目对社区生活的影响能有机会城市主义如此之深，机会城市主义的做法是把车流街景变成步行街和植物绿洲。为了追求城市设计的新愿景，这些零零散散的小行动改变了整个城市。为了城市的生存，建筑师、工程师和开发者必须采用一种战术性的设计，对我们的摩天大楼和街道进行重新改造，以支持我们整个城市的健康幸福，并为人类和生态的繁荣发展创造空间。

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