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Author: Richard Witt, Design Partner, Quadrangle Architects

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# Sustainable High Density Neighborhoods

## 可持续高密度社区



Richard Witt

### Richard Witt

Quadrangle Architects, Ltd.  
901 King Street West, Suite 701  
Toronto, Ontario  
M5V 3H5 Canada

tel (电话): +1 416.598.1240  
email (电子邮箱): rwitt@quadrangle.ca  
www.quadrangle.ca

Richard Witt is a design partner at Quadrangle Architects, Ltd. in Toronto where he directs much of the firm's international and urban community oriented work. His expertise in urban mixed-use projects at a wide variety of scales and his desire to positively advance the built environment have resulted in a variety of high density projects in and on the edge of cities. These demonstrate the potential of density to advance the objectives of human scaled interaction and his interest in urban intensification, master planning, sustainable design and adaptive reuse.

理查德是多伦多Quadrangle建筑有限公司的设计合伙人，主要负责国际和城市社区方面的设计工作。他擅长设计各种规模的城市综合体，并且非常热衷于积极改善人工环境，从而设计完成了多个在城市内和城市周边的高密度项目。这些都体现了密度在推进人性化互动方面的潜力和他在城市集约化、总体规划、可持续设计和适应性再使用方面的兴趣。

### Abstract

The creation of sustainable, high-density communities starts with comprehensive master planning that strategically leverages the scale of the site. This paper will address how designers, developers and city planners can create high density communities within and outside urban centers by implementing a set of neighborhood design principles. Examples will illustrate how employing these principles provides increased desirability and value for residential development projects and delivers projects with measurable positive environmental impact.

Toronto provides a unique perspective to study high-density neighborhoods; this city of "neighborhoods" has recently shifted from a low-rise landscape into a high-rise metropolis. Making reference to the Canada Green Building Council (CaGBC) Neighborhood Development LEED® rating system and using specific Quadrangle projects such as the Fort York Neighborhood and Downtown Markham, this paper will present the opportunities associated with sustainable neighborhood development and demonstrate how such developments could potentially benefit the Chinese and international real estate market.

**Keywords: Neighborhood, Toronto, Community, Sustainable, Density**

### 摘要

创建可持续高密度社区首先要进行全面总体规划，从策略上利用好基地的规模。本文将阐述设计师、开发商和城市规划师如何通过实施一套近邻社区设计原则在城市中心及中心以外的地方建设高密度社区。文章举例说明利用这些原则将会提高住宅开发项目的吸引力和价值，同时使项目对环境产生一定的正面影响。

多伦多对于高密度社区的研究有着特殊的意义，这个由“近邻社区”组成的城市刚刚经历了从低层洋房的建筑景观到高楼林立的大都市的转变。本文参考加拿大绿色建筑委员会社区开发LEED®评级系统，并利用Quadrangle公司的具体项目比如“约克堡社区”和“万锦市中心”项目为例，说明可持续社区开发带来的相关机会和这些开发项目对中国以及世界房地产市场将会带来怎样的益处。

**关键词: 近邻社区, 多伦多, 社区, 可持续, 密度**

### Introduction

The accelerated urbanization of the world's growing population is creating a condition that demands a lot more buildings, for the new urban dwellers to live, work and play. The majority of those buildings will be places to live and will include the supplementary uses that come with that, such as schools, community centers, and other amenities.

For a person with an architectural education, and a practice that has substantially evolved through the design of buildings, it would be easy to conclude that the built environment's path to success is through the creation of isolated objects. Much of what is discussed in contemporary sustainable architectural debates focuses on a reduction in the environmental impact of buildings alone. The

### 介绍

随着世界人口剧增和城市化发展加速，人们对新建筑的需求越来越大，以保证新的城镇居民的生活、工作和娱乐。这些建筑主要是用来居住的，也包括其相关的配套设施，比如学校、社区中心和其它康乐设施。

对于一个有着建筑教育背景和建筑设计实践经验的人来说，很容易得出这样的结论：人工环境的成功来自于单个目标的制定。有关当代可持续建筑的讨论大部分都是在关注降低建筑本身对环境的影响。这个领域对成绩的认可也几乎完全基于某个建筑的设计和个体元素，而其实元素只是构成整个复杂系统的单个元素。可悲的是，即使是一个净零排放量的建筑也不会把任何事情变得更好，只不过没有更坏而

recognition of excellence in that area is addressed almost exclusively to the design of buildings and the individual elements that make up their complex systems of inter-related parts. The sad truth is that even a building which achieves a state of net zero emissions does not make anything better; it just doesn't make the situation worse. Few buildings perform at net-zero, and even then their embodied carbon footprint is not being considered.

If the built environment is thought of at a larger scale - as a collection of buildings, rather than as individually conceived architectural expressions alone, the opportunity for greater impact becomes clear. That impact begins with an understanding that healthy places to live and work must also be places where activity in or journey through isn't dependent on carbon emission and a dependence on cars. As Jane Jacobs said in *The Death And Life of Great American Cities* in 1961, "It may be that we have become so feckless as a people that we no longer care how things do work, but only what kind of quick, easy outer impression they give; If so, there is little hope for our cities or probably for much else in our society."

Recent years have pushed an agenda of busy main streets active with people, shops, places to work, and places to sit and share a drink. Forgotten in this agenda of density are places to live, places for families to grow and places for children to play. All too often, neighborhood living where life should occur on the street is being located in building-in-park settings arranged around clubhouses isolated behind the walls of gated communities.

### High Density Influx – Toronto and its Legacy

In comparison with most cities in North America shaped during the second half of the 20th century, Toronto is a rare exception. It does not generally exhibit the hallmarks of a planning ideology that mandated a perverted modernist legacy of suburban expansion and urban decay. Though it has its share of suburban tract housing on the periphery, the older neighborhoods at the city's core remained largely untouched. And, as a result, what exists today is the City of Neighborhoods – 140 of them which penetrate right to the financial core, and form the heart of the continent's fourth largest city (see Figure 1).



Figure 1. Unlike most cities, the low rise residential neighborhood of single family houses have been kept and come right next to the office towers and high-rise condominiums of more recent construction cycles. Source: Bing  
图一.与大多数城市不同,低层独立住宅区被保留下来,安排在更近时期建筑的办公塔楼和高层公寓的旁边。来源: Bing

已。很少有可以实现零排放的建筑,即便达到了净零排放,他们内在的碳足迹也还没有考虑在内。

但如果可以更宏观的看待人工环境,即把它看作建筑的集合效果,而不是某一建筑孤立的表现,那么即清楚看到发挥更大影响力的机会。这个影响力的第一步是要理解健康的生活和工作环境,是活动和行程不需要依靠碳排放和汽车的地方。像珍·雅各布斯在1961年《美国伟大城市的诞生与衰亡》一书中所说的:“可能是我们作为人变得懦弱,以致人们不再关心事情的本质,而只在乎事情外在的表象有多快速和便捷;如果是这样,那么我们的城市甚至整个社会都没有什么希望了。”

近几年,高调倡导的设计议程往往是繁忙的主要街道人来人往,商店、就业,以及可供人们休息聊天吃东西的地方触手可及。但这个密度设计议程忽略了人们居住、家庭成长和孩子玩耍的地方。太多时候,近邻设区的生活中本应该发生在街道上的活动更多的被安排到了封闭社区的墙院里会所楼内的综合建筑环境中。

### 高密度人口涌入-多伦多及其历史遗留问题

与二十世纪下半叶形成的北美众多其它城市相比,多伦多是个少有的例外。她并没有反现代主义郊区扩张和城市退化的规划理念遗留问题的典型特征。尽管她也有向城市边缘扩张的住房建设,但她的城市核心部分的老区并没有被触动。因此,现在的多伦多就是一个由近邻社区组成的城市-140个社区贯穿城区直至金融中心,这就是美洲大陆第四大城市的核心所在。(图一)

在多伦多,近邻社区的形象一般就是低层的独户住房;一般两到三层高,有着尖尖的屋顶和房后停车道。大多建设于20世纪初期,多伦多人都非常喜欢居住在绿树成荫的街道两边,汽车从茂密的树叶下缓缓驶过。但是,随着大多伦多区的人口激增,从2001年的529.7万增长到2013年的651.8万(预计2036年将达到894.9万,基于安大略省财政厅2013年报告和2006年加拿大全国人口普查数据),遵循同样的方法对于人工环境来说会带来很大担忧。政府在已开发土地的周围划上了“绿色环保带”,向上发展是高密度社区仅存的可行之路,这也是过去十年的建设方向。

多伦多是北美高层建筑第二多的城市。纽约毫无疑问占据领先地位,但令人瞩目的是多伦多的高层建筑数目是排在第三位的芝加哥的两倍。作为过去五年中西方国家少数几个稳定经济体之一,多伦多去年正在兴建的高层建筑的数目是纽约的三倍,是芝加哥的八倍。目前多伦多正在建设中的高层建筑比伊斯坦布尔以西的任何城市都要多,这个可观的增长主要是在高层住宅市场。尽管也有几处商用开发项目,但多伦多的高层公寓市场的热度是不可比拟的。大多伦多区的高层公寓价格在2006年到2012年之间平均每年增长7%,同期出售单位数目每年增加35%。(多伦多房地产委员会,2007-2013年报告)(图二)

### 可持续近邻社区:

2011年以前,加拿大的可持续设计框架范围只限于建筑物本身,没有更大范围的设计标准存在,直到社区开发LEED(ND)即美国绿色建筑理事会(USGBC)标准修改版的公布。目前有23个项目注册了社区开发LEED® ND。其中9个项目已获得第二阶段认证,由于项目开始早于该标准颁发的时间,因此认证是补发的。两个项目得到第一阶段的条件性批准规划认证,即处在项目获得授权或公众评议,正在准备获得资金的阶段。12个项目没有认证。目前加拿大还没有社区开发LEED® ND第三阶段的项目完成;完成第三阶段认证的意思是,在项目开始前提交申请LEED证书并完成整个流程的要求。

In Toronto, neighborhood has usually been perceived as low-rise single-family houses; typically two to three story houses, often with peaked roofs and rear laneway parking. Mostly constructed in the early 1900s, Torontonians greatly enjoy living in the homes on these tree-lined streets where slow-moving traffic passes under the lush foliage canopy. But as the population of the Greater Toronto Area swelled from 5.297 million people in 2001 to 6.518 million people in 2013 (and is projected to reach 8.949 million by 2036 (Ontario Ministry of Finance 2013, based on 2006 Census) following this same recipe for our built environment is cause for serious alarm. With the implementation of a “green belt” encircling the built up area, up remains the only place for density to go and for the past ten years that is where it has mostly been going.

Toronto has long been North America’s second city in terms of high-rise building. New York City is not surprisingly the leader; but remarkably Toronto has almost double the number of high-rises than the third city, Chicago, does. With one of the few stable economies of the western world over the past five years, last year Toronto had almost three times more tall buildings under construction than New York City, and about eight times more than Chicago. At the moment, there are more tall buildings under construction in Toronto than any other city west of Istanbul and this observable boom is mostly evident in the high-rise residential market. Although there have been a few notable commercial developments, it has been nothing in comparison to the frenzy of the condominium market. The average price of condominiums across the Greater Toronto Area rose approximately seven percent each year between 2006 and 2012 and the number of units sold rose by 35% per year in approximately the same period (Toronto Real Estate Board, 2007-2013 Reports) (see Figure 2).

### The Sustainable Neighborhood

There wasn’t a sustainable design framework for anything larger than a building in Canada until 2011 when LEED for Neighborhood Development (ND), an amended version of the USGBC standard, was released. There are currently 23 projects registered for LEED® ND. Of these, nine have been given Stage 2 status, which is retroactively applied since the projects predate the standard. Two projects have achieved the Stage 1 status of conditionally approved plan, a status available for projects before they have received entitlements or public review and are targeted to obtain funding. 12 projects have no status. There are so far no LEED® ND stage 3 projects complete in Canada; Stage 3 being completed projects which formally applied for LEED certification in advance and went through the process.

Although the ND rating system is yet to realize the potential of its impact, the framework offers a concise outline of sustainable considerations in the following general categories:

1. Smart Location and Linkage: Where to build. This encourages communities to consider location, transportation alternatives, and preservation of sensitive lands while also discouraging sprawl.
2. Neighborhood Pattern and Design: What to build. This emphasizes vibrant, equitable communities that are healthy, walkable and mixed-use.
3. Green Infrastructure and Buildings: How to manage environmental impact. This promotes the design and construction of buildings and infrastructure that reduce

Major City	Number of High Rises
New York 纽约	5,568
Toronto 多伦多	2,047
Chicago 芝加哥	1,076
Vancouver 温哥华	614
Miami 迈阿密	535
Los Angeles 洛杉矶	467
Montreal 蒙特利尔	447
San Francisco 旧金山	436



Figure 2A. Toronto is North America’s second most high-rise city, and currently has more tall buildings under construction than New York, Chicago, Miami, Boston and Houston combined. Source: BuzzBuzzHome.com

Figure 2B. Toronto currently has more tall buildings under construction than New York, Chicago, Miami, Boston and Houston combined. Source: Emporis.com

图2A. 多伦多是北美高层建筑第二多的城市，目前正在建设的高层数目比纽约、芝加哥、迈阿密、波士顿和休斯敦的加起来还要多。来源: BuzzBuzzHome.com  
图2B. 多伦多目前正在建设的高层数目比纽约、芝加哥、迈阿密、波士顿和休斯敦的加起来还要多。来源: Emporis.com

尽管社区开发(ND)评级体系还没有完全实现其潜在影响力，但该框架在以下几个方面为可持续发展提出了简明的要求:

1. 精明选址与社区连通性: 在哪里建。这会鼓励业界考虑选址，替代性交通工具以及并保护敏感土地，同时抑制城区蔓延。
2. 社区布局与设计: 建什么? 注重建设充满活力、平等的社区，具有健康、适宜步行以及混合使用等特点。
3. 绿色建筑和基础设施: 如何管理对环境的影响。鼓励建设和设计减少能源和水的使用的建筑物和基础设施，同时提倡使用更加可持续性的建筑材料、重新利用现有的和历史结构，以及运用其它好的可持续做法。

另外，评级系统设有鼓励“创新和设计流程”的额外分数，对超过现有评级分数的典范式的创新表现给予表彰。在美国，还有鼓励“地区优先性”的额外分数，表彰对地方环境的重要贡献。

评分系统设有100分的基础分，另外还有“创新和设计流程”6分，“区域优先性”4分。在100分中，社区布局和设计占44分，接近一半。其中许多元素是近邻社区成功的根本要素，包括: 适宜步行的街道，相互连通和开放的社区、街道网络、通达市政和公共空间的便捷性，通达康乐设施的便捷性、可见度和统一设计模式、绿化和林荫路以及近邻社区内的学校。其它一些与高密度初衷相关的元素包括: 集约开发、降低停车足迹和公共交通设施。

### 高密度近邻社区

在基于土地的设计规划后，综合体建筑往往被推荐作为通向成功建筑形式的一个有效途径。但是，混合使用并不是说每一个建筑和每一条街道都要如此，而是一个政策，不按用途进行单纯分割或者在用途之间划出绝对线。所有城市的大部分建筑形式是居民住宅部分，而使住宅成为综合型社区的一部分的最好的方法是融合，不是分离 - 这就是综合型城镇中的社区元素。

energy and water use, while promoting more sustainable use of materials, reuse of existing and historic structures, and other sustainable best practices.

Additional points are available for "Innovation and Design Process" which recognizes exemplary and innovative performance reaching beyond the existing credits in the rating system. In the United States, additional points are available for "Regional Priority" which encourages projects to focus on earning credits of significance to the project's local environment.

There are 100 base points available, with an additional 6 for "Innovation and Design Process" and another 4 for "Regional Priority". Of the 100 points almost half, 44, are for neighborhood pattern and design. Many of these elements are the fundamentals of a successful neighborhood, including; walkable streets, connected and open community, street network, access to civic and public spaces, access to recreational facilities, visibility and universal design, tree lined and shaded streets and neighborhood schools. Others are more related to an imperative for density including; compact development, reduced parking footprint and transit facilities.

### The Dense Neighborhood

As a successor to land based planning, a pervasive formula of mixed-use is being commonly recommended as the path to a successful built form. But, mixed-use is not every building and every street, it's a policy that doesn't segregate uses from each other or create absolute lines between them. The majority of built form for all cities is its residential components, and the best way to make this part of a mixed-use community is integration, not segregation – a neighborhood element in a mixed-use city or township.

The design for machine imperative pervades contemporary society, creating an us-versus-them condition; but this conflict doesn't need to exist. Rather than focusing on moving cars alone, our streets must be designed to move people, via foot, bicycles, cars and other means. Those same streets must also be able to coexist with, and be encouraging of, people who aren't moving (see Figure 3).

The same principles apply to create a neighborhood of any density:

1. Walkable street: Buildings have principal entrances facing walkable public spaces (streets, parks, plaza, but not parking).
2. Block size: Humans walk at about 80m per minute. Much more than two minutes of uninterrupted wall becomes oppressive.
3. Streets/streetwall: Building Height to Street Ratio of about 1:1 – creating human scale experience.
4. Safe streets and natural surveillance: Continuous sidewalks on both sides of the street, active uses facing streets, doors, windows, and a mixture of public and semi-private space.
5. Appealing streets: minimize street frontage faced with garages/service bays and curb cuts, a pedestrian life that is not faced by constant service and cross traffic.
6. Temporal context: A built form that understands time of day and time of year and variations of climate; Shelter, shade, wind break,

当代社会对机械动力的崇尚创造了一个“自他”相对的条件;但是这种冲突其实不需要存在。我们的街道设计不是单纯为了承载汽车,还有人,步行者、自行车、汽车以及其它多种方式。而且这些街道还必须能够与不移动的人共存,而且应该受到鼓励。(图3)

创建任何密度的社区适用同样的原则:

1. 适宜步行的街道: 建筑物的主要入口面对可以步行进入的公共区域(街道、公园、广场,而不是停车场)。
2. 街区规模: 人行走的平均速度是每分钟80米。在不间断的街墙旁边行走超过两分钟就会使人感到压抑。
3. 街道/街墙: 建筑物高度和街道宽度的比例1:1 - 创造人性化体验
4. 安全街道和天然监视: 街道两旁是不间断的人行道,面向街道、门、窗、以及公共和半私人混合空间的地方要积极的使用。
5. 具有吸引力的街道: 尽量减少街道正面与停车场/服务区及路缘坡道相对,行人生活不要一直受到服务和交通的干扰。
6. 时间环境: 尊重时间季节以及气候变化的建成形式: 遮风避雨、遮阳、挡风设置。
7. 兼容空间: 包容性和通用的设计。原地老化概念的重新定义 - 不单是养老,而是从出生开始即从摇篮到墓地,意思是说可以适合几代人活动的空间。

这些原则中的某些听起来可能很难在高密度结构中实现。但是从更宏观的角度来看,而不着眼于单个建筑物,无论它的规模、高度和密度,那么这些原则不仅可以实现,而且最终引向更加成功的社区建设。

### 城市情况

即将完成建设的多伦多“约克堡社区”就是一个将过去的近邻社区与未来的高层塔楼结合的典范。该项目开始于2001年,其使命就是参考国际和国内先例,建设开发一个多伦多概念的高密度居住环境。尽管这项开发可以大致归类为综合体项目,但是城市设计中的近邻社区元素是它与众不同的地方。零售和商业区占据繁忙南面和东面的街道,而且都设有公共交通设施。尽管其中一个角落有高架六车道高速公路穿过,但是遵循上述的原则指导,项目开发的主体近邻社区毫无疑问是以人为本的。



Figure 3. Mississauga's CityGate complex was the first in this suburban, wide-boulevard, condition to anticipate pedestrian and bicycle traffic along with convertible retail space at the ground floor. Photography: Brenda Liu/A-Frame Inc.

图3. 密西沙加的CityGate综合建筑群是这个郊区城市的第一个综合体建筑,宽阔的步行街,可以预计行人和自行车的流量,地面一层是可转换的零售购物中心。摄影: Brenda Liu/A-Frame Inc.

7. Spaces for all: Inclusive and universal design. A redefinition of the aging in place concept - not only old age but starting at birth, from cradle to coffin and all that means, spaces that accommodate multi-generational activity.

Some of those principles may sound difficult to accommodate in a dense configuration. But thinking at a scale larger than an individual building, regardless of its size height and density, these principles are not only possible, but ultimately lead to more successful neighborhoods.

### The Urban Condition

Toronto's close-to-complete Fort York Neighborhood is the prototype for how the neighborhoods of the past will meet the towers of the future. The mandate for the project, which began in 2001, was to look internationally and nationally to precedents and to develop a specifically Toronto concept for high density living. Though the development could be broadly classified as mixed-use, it is the way in which the urban design creates a neighborhood that sets it apart. The retail and commercial uses occupy the busy streets to the south and east, both of which contain public transit. In spite of the fact that an elevated six-lane highway traverses one corner, by following the principles outlined above, the main fabric of the development, the neighborhood, is decidedly human in its expression.

By creating a series of streets in strict hierarchy, the fast moving arterial roads connect to secondary roads which lead to servicing and below grade parking and extend into a series of local roads and mews. These slow moving tree-lined pedestrian streets connect to parks, and play areas. Residential entrances leading to semi private areas line the street and encourage social activity and create the necessary natural surveillance. The seemingly six-story building frames the street in a dense but human scaled form, with balconies and activity looking into the street life (see Figure 4).

With a slight setback from these podiums, 20 high-rise elements rise above, mostly in point tower format. The former industrial land at the boundary of the city core will soon be home to 10,000 new residents living in around 6,000 new residential units. With an overall density of the site (including roads) of almost 6x FSI/FAR the towers that provide the majority of that density have modest floor plates of 780m<sup>2</sup> with at least 25m of space between them - respectfully leaving space in the sky when viewed from the adjacent Fort York - Toronto's oldest settlement. Towers range in height up to 36-stories with most around 30-stories. The conclusions of the Fort York Neighborhood (especially tower to podium condition, floor plate size, and tower separation distances) have set many of the standards for what are now the city's Tall Building Guidelines and consequently the design of most new tall buildings in Toronto for the past ten years (see Figure 5).

### The (Sub)Urban Condition - The Urburb

In Toronto's former bedroom communities the quest for density is just as tangible. In locations where, five years ago, endless acres of cookie cutter low rise tract housing would have been arranged around whimsically envisioned arcing streets the new mandate is density, and lots of it. The suburbs are in the process of becoming cities in their own right, they are becoming urban, they are becoming Urburbs. For example, Mississauga (home to the Council on Tall Building and Urban Habitat's 2012's Tall Building of the Americas, the Absolute) has grown



Figure 4. The Fort York Neighborhood set the precedent in Toronto for human scaled street articulation with high density above. Photography: Scott Norsworthy  
图4. 约克堡社区是多伦多以人为本的街道设计与高层高密度居住结合的先峰。摄影: Scott Norsworthy

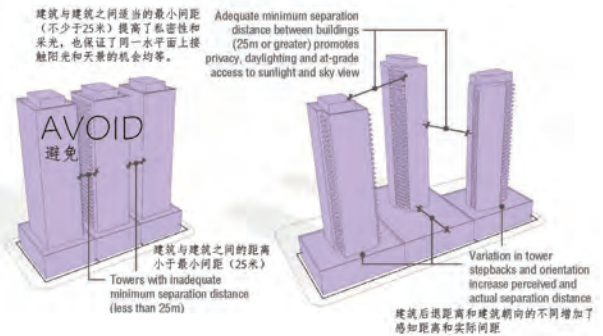


Figure 5. The City of Toronto Tall Building Guidelines outline the required conditions and relationships between towers. Source: City of Toronto

图5. 《多伦多市高层建筑指引》列出了高层塔楼的条件和塔楼间关系的要求。来源: 多伦多市政府

创建严格层次的一系列交通道路, 快速主干道与辅路相连, 通向服务区 and 地下停车场并延伸到一系列的小街巷。这些有林荫的慢速行人路与公园、游乐区相连。通向半私人区域的住宅入口排列在街道两旁, 适宜社交活动并创造了必要的天然监视体系。看似六层高的住宅建筑物既为街道提供密度又具人性化, 每户自带阳台和空间可观赏到街区生活。(图四)

自裙楼向上倾斜处, 还分别林立着20座高层, 绝大部分是塔楼形式。之前市中心边缘的工业用地很快即将成为容纳10,000名新居民的6,000个居民住宅单位。整个场址(包括道路)的密度为6x FSI/FAR, 密度最高的塔楼的楼板面积适中, 为780m<sup>2</sup>, 楼间距为25米, 为从附近的多伦多最早移民旧址约克堡空中鸟瞰还留有一定的空间。塔楼的高度一般在30层左右, 最高的达到36层。“约克堡社区”的建筑成果(特别是塔楼和裙楼的关系, 楼板面积, 以及塔楼间距)设定了很多现在《城市高层建筑指引》中的标准, 因此成为多伦多过去十年大多数新高层建筑的设计标准。(图五)

### 郊区情况-城郊区

对于多伦多从前的“卧城”社区而言, 密度的要求依然可见。五年前, 一排排好似饼干模具做出来的低层住宅屋围绕在毫无规划的弯弯的道路两旁, 现在这些地方有了新的目标, 那就是密度, 高密度。郊区正在经历向城区转变的过程, 它们变得城市化, 成

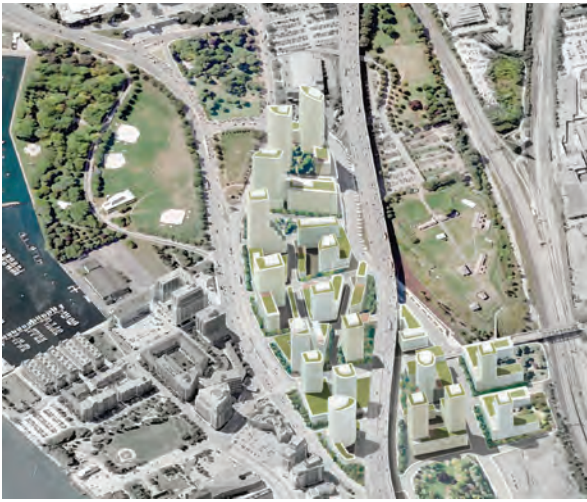


Figure 6. Aerial view of Mississauga's city center juxtaposes recent high density with vernacular suburban sprawl. Source: MississaugaLife.com Photography: Lachlan McVie  
图6.鸟瞰密西沙加市的市中心和高密度的市郊蔓延交错在一起。来源: MississaugaLife.com 摄影: Lachlan McVie

from a population of 156,000 in 1971 to 713,000 in 2011 and is now Canada's sixth largest city (Statistics Canada, 1971 Census and 2011 Census) (see Figure 6).

A new form of high-density neighborhood is more commonly happening in these locations where large pieces of land are available. As former small towns have amalgamated they have found themselves without locus (Aldo Rossi Architecture of the City) and have turned to invention. One such project is to the north-east of Toronto, in Markham (home to a substantial Chinese expat community and sister city of Wuhan and of Guangzhou's Huadu district). By 2030, the combination of medium to high-rise buildings on the 250-acre Downtown Markham (which includes a 72 acre ravine) will be home to 10,000 residents and will be the workplace of 16,000 employees (see Figure 7).

Although predating the LEED® ND standards by several years, the principles guiding Downtown Markham's design are akin to that standard in almost every way. Beginning with the basics of smart location and walkable streets, it extends as far as adjusting the town and region's transit routes to locate a transit hub within its boundaries. The adaptive and well-scaled blocks are fronted by a street edge with extensive pedestrian space, but the circulation goes further by incorporating a series of off street pedestrian and bicycle paths that weave through and provide access to all areas of the community. Described as "North America's Largest Mixed Use LEED® Registered Project" every building does, or will, fulfill the requirements of Silver or Gold certification. But more importantly, the development conceived at the scale of the city will deliver a much bigger environmental impact than the majority of its contemporaries.

## Conclusion

We need to provide new neighborhoods for a high density way of living and make that the norm for 21st century cities. By understanding that the ingredients which make a neighborhood viable and successful are not solely peaked roofs and low rise building but a combination of soft and hard infrastructures, we can maintain a strong residential and recreational community while providing considerable opportunities for dense living.



Figure 7. Once a low rise bedroom community, Markham is reinventing itself through the creating of entire new "downtown" with a mixture of uses which will provide a new genius loci. Visualisation: Quadrangle Architects Ltd.  
图7.曾经是低层“卧城”社区，现在万锦市正通过建设一个全新的混合使用的“市中心”改变自己的特点，提供新的天才的根基风气和特色。视觉效果: Quadrangle Architects Ltd.

为城市和郊区的混合体。比如，密西沙加(高层建筑和城市栖息地2012年美洲高层建筑委员会所在地-玛丽莲梦露大厦)的人口从1971年的15.6万增加到2011年的71.3万，现在是加拿大第六大城市(加拿大统计局1971年和2011年人口普查)(图六)

新形式的高密度近邻社区在这些有大片可用土地的地方更为常见。随着从前的小镇合并壮大，他们发现自己失去了根基(阿尔多·罗西《城市建筑》)，因此开始寻求创新。一个这样的例子就是多伦多东北部的万锦市(大量华人居住的地方，武汉和广州市花都区的姊妹城市)。到2030年，250英亩的“新万锦市中心”(包括一个72英亩的峡谷)的中、高层建筑将成为1万居民的新家并成为16,000就业人员的工作所在地。(图七)

尽管早于社区开发LEED® ND标准几年，“万锦市中心”的设计原则与标准中的原则非常接近。从精明选址和适宜步行的街道开始，到调整市和区域公交线路，乃至在其边界内建成一个交通枢纽。具有适应性和规模合适的街区，街道两旁提供大块行人空间；另外为了更好的交通循环，在社区内还结合设置了交织穿行的人行路和自行车道，可以方便通达社区的各个区域。作为“北美最大的LEED®注册综合体”，项目中的每个建筑都需要或将需要满足银级或金级标准认证。但更重要的是，这个基于城市规模的开发项目将比大多数同时代项目带来更大的环境影响力。

## 结论

我们需要提供适合高密度生活方式的新的近邻社区并使其成为21世纪城市设计的标准。一个成功可行的近邻社区的组成元素不仅是尖尖的屋顶和一排排低层房屋而是软硬基础设施的结合，理解好这一点，才能在保证高质量的居住和娱乐社区生活的同时为高密度生活提供巨大的机会。

绿色建筑和基础设施当然也是必要的构成元素。这些要素中蕴含的机会是形成和界定可持续近邻社区的重要部分。电、水、雨水和废物管理对于任何可持续计划的成功都是至关重要的，但他们本身却不是问题的解决答案。区域能源的实施可能会带来重大影响，但是它应该是城市设计的最佳操作延续，而不是为了弥补缺失。

Green buildings and infrastructure are obviously also an essential ingredient. The opportunities inherent in those will enable and define a substantial part of the sustainable neighborhood. Elements such as power, water, storm and waste management are critical to the success of any sustainable plan, but are not the answer in themselves. The implementation of elements such as district energy can make a big impact, but they should be in addition to designing within the best practices of urban form, not to compensate for the lack of it.

In comparing the two planned communities discussed in this article, Fort York Neighborhood and Downtown Markham, they are both attempting the same goal; desirable, safe, accessible, mixed use, high density and sustainable neighborhoods. By working at the intersection of dense neighborhood and sustainable neighborhood principles the projects are both providing an appropriate response to living in a dense urban form. The conclusions of their design, though made in Toronto, are not relevant only in Canada. As countries such as China and India search for ways to accommodate huge population increases in and around their cities, strategies of wiping clean the historic city and often razing the fabric of communal life are fast losing their appeal. The best practices of high density living and best aspects of neighborhood and community can serve as a template for residential and mixed use development, ready for cultural adaptation around the world.

对比文中讨论到的两个规划社区“约克堡社区”和“万锦市中心”，他们都试图为了实现同一目标：有吸引力、安全、易达到、综合使用、高密度以及可持续的近邻社区。通过结合高密度社区和可持续社区的原则，这两个项目都为高密度城市型居住环境提供了恰当的回答。他们的设计结论，虽然出自多伦多，但不只适用于加拿大。对于中国和印度等正在寻找应对城市人口剧增的国家的国家，将历史古城彻底改头换面破坏原有居民生活的做法正在失去吸引力。高密度生活的最佳实践和近邻社区的最优理念可以为住宅和综合开发项目提供一个模板，可供世界参考。

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