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Sky's Not the Limit: Creative Challenges of Vertical Urbanism in Mexico | 天空不是限制：墨西哥垂直城市主义的创造性挑战

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We are a firm located in Monterrey, Mexico that creates and provides architectural design solutions under a work scheme that combines creativity, originality, functionality, and efficiency. Vidal Arquitectos' creativity cannot be defined by a particular architectural style because each project is unique and original, created to meet the needs of both developers and end users. Our work involves an architectural philosophy that combines respect for the land, the visual integration with the environment, use of natural materials to ensure the cleanliness of the work over time and creative solutions for spaces and forms.

我们位于蒙特雷坚定，墨西哥提供了创建和建筑设计方案的工作下，结合创意，原创性，功能性和效率的方案。维达尔建筑师的创造力不能由一个特殊的建筑风格来定义，因为每个项目都是独特的，原始的，创建满足开发人员和最终用户都需要的。 我们的工作包括为结合这土地，视觉整合的环境中，使用天然材料，以确保在时间和空间和形式的创造性解决方案的工作洁净的建筑哲学的尊重。

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Abstract | 摘要

Architecture must combine an aesthetic proposal that harmonizes with the environment, and a practicality that fits the demographic and economic conditions of the location in which a project is built. This paper discusses architecture in Monterrey – a city in northern Mexico that has grown exponentially in the past two decades (particularly because of vertical projects), becoming a megacity within the limitations of a developing country. The challenges architects must face to develop in this city are mainly due to low budgets and government regulations. Given this, it is necessary to use creativity to overcome these and other problems in order to design and build large-scale projects.

Keywords: Budget Limitations, Creativity, Latin America, Mexico, Vertical Urbanism

建筑必须结合，与用适合那里的项目的构建地方的人口和经济状况的实用性环境和谐美学的建议。本文讨论在城市蒙特雷，在墨西哥北部的一个城市，已成倍增长，在过去的二十年尤其是在垂直项目的建筑，正在成为一个发展中国家的限制的大城市。建筑师必须面对制定该城市的垂直项目所面临的挑战主要是低预算和政府规章。鉴于此，有必要用创造力来解决这些问题和其他问题，以设计和建设的大型项目。

关键词：预算限制、创造力、拉美、墨西哥、垂直城市化

A work of architecture is many things at once: a challenge, an investment, a functional space to fulfill an objective, a life dream, or a positive contribution to society. However, when a work of architecture is considered an entity with soul, personality, and with a back story, it acquires a level beyond the simple set up of walls, façades, and slabs. The project emerges from the ground with a profound mission, a visual dialog with its context made out of nature and urban habitat, having a soul of its own and connecting with a person who is willing to listen, who dwells in the created space and mutually becomes a part of it. The ultimate result is that when a user enters such a space, they feel the warmth of "someone," instead of the coldness of "something" – these beings connect with the spaces at a deeper level.

We will address the challenges of vertical projects in the city of Monterrey, Mexico: the way that these structures can be efficient works of architecture, capable of combining function, visual aesthetics, budget, and their own unique and original personality.

一个建筑工程是由很多东西组成的：一个挑战，一个投资，一个实用的空间装满的目标，一个梦想 或 一个正面的社会贡献。但是当把一个建筑工程当作是有灵性的，有个性的与有一个背景故事，能达到的境界是要超越一堆板子，外墙与结构的。这个项目会从地面上升出一个深奥的任务，这是一种视觉的对话加上这个背景所实现的天然与市区的居住地，有了自己的灵性还有与愿意听的人连接，能持续在所创造的空间里。最终极的结果是当使用者进到这个空间想感受到因为”某个人”而温暖。而不是因为”某个东西”而凄凉。人们与空间连接，空间能自由发挥。

我们会注明挑战以垂直项目在蒙特雷市，墨西哥，能使用的手段来克服就是要有效率的建筑能混用不同的功能，视觉的美感，预算与建筑自己的个性的重要性这可以让它们是独一无二的。

墨西哥新莱昂、蒙特雷市的原始与背景

蒙特雷市是新莱昂周的首都，位于在墨西哥的东北部，与其他部位分离但是与美国德州的南部交接。这个城市的原始背景，就向全球很多的地方一样，是因由水源在沙漠中而让创始人选中的地方。蒙特马约尔迭戈与十二名西班牙家族在1596年创了蒙特雷女士市就在现在的圣卡塔琳娜区。(Esparza 2014)（图1）

Origin and Context of the City of Monterrey, Nuevo Leon, Mexico

The city of Monterrey is the capital of the state of Nuevo Leon, located in the northeastern part of Mexico, set apart from the rest of the country and connecting with the south of Texas. This city, like many others around the world, originated because of the availability of water in the middle of a deserted area chosen by its founders. Diego de Montemayor and a group of 12 Spanish families founded the city in the year 1596 – the Metropolitan City of Our Lady of Monterrey – near the Santa Catarina and Santa Lucia springs (Esparza 2014) (Figure 1).

At the end of the 19th century, Monterrey was driven by the arrival of technologies such as the railroad, telephone, communications, and public lighting which were available during 1882. Between the years 1890 and 1910, the city witnessed rapid industrial growth due to founding companies dedicated to beer, glass, cigarettes, soft drinks, bricks, furniture, and clothing. Others were dedicated to metallurgy and steel foundry. During those years, different factors merged to speed up this growth, some of which were the high taxes imposed by the United States on steel exports to Mexico. This awakened the interest of investors to start founding metallurgy companies. Another factor was that the State of Nuevo Leon pardoned taxes for a period of time for these types of industries. As a result, the construction industry was also incentivized with no government taxes to all projects with a cost higher than 2,000 pesos (USD$105).

As noted by Vizcaya, an important factor for the citizens of Monterrey, who were aware of their territorial conditions, was towards sustainable development. There was "...a constant desire for economic improvement, and entrepreneurs willing to take risks, but always taking such chances to be greatly successful. They were willing to suffer great deprivations, knowing that in the long run all of their efforts would be rewarded."

With all of these industries and available job offerings, Monterrey was made out to be a very attractive city for hard-working people. With a fast growing population – due to rural immigration, people coming from other cities, and the increase in infrastructure – the city began to fuse with five of its surrounding municipalities.

Today, Monterrey remains a constantly growing city which, at the moment, cannot yet be considered a megacity like Mexico City, but could be in the near future. According to the National Institute of Statistics, in 2015, the population of the city was 3.9 million people.

Figure 1. Monterrey, Mexico (Source: Google Images)
图1. 蒙特雷，墨西哥（来源：谷歌图片）

Growth and Challenges of Vertical Projects in Monterrey and its Metropolitan Area

After describing the origin, characteristics, and development of Monterrey and its metropolitan areas, we will now address the rise of vertical projects and the challenges involved in making such increasingly important projects.

The first high edification in this city, The Chapa building, was completed by the end of the early 50s with 12 floors – quite innovative for the time (Cavazos coord., 2008). From there emerged many other projects, most of which were conservationist. Very few modern structures were developed until the 90s, as investors began to repeat models from other parts of the world. The complexity that Monterrey acquired over time began to demand other architectural proposals responsive to the new times and the demand of the growing population that demanded more character from corporate, commercial, and residential spaces. Monterrey has suffered the significant changes and problems of any growing city: index population increases, service delivery problems, and increased

在十九世纪末是被铁路的来临所控，电话，通讯与路灯也是同在1882年开放的。在1890年与1910年之间在蒙特雷市的工业成长得非常快都是因为有很多啤酒，玻璃，香烟，柔饮，砖头，家具与衣服的企业开发。另一些专门是做造铁与融钢的企业。在这些年，因为很多工厂都在快速的成长这个城市的工业，一些原因是因为美国出口到墨西哥的关税太高。这样就提醒了很多投资者来开发造铁厂。

另一个原因是因为新莱昂周在那段时期开这样的厂都可免税。所以当时的建筑企业也是被政府诱引着如果项目超过了2000块钱就可免税。

例如说 Vizcaya，是一个对蒙特雷市当地很重要的一家工厂，大家都知道的。它的领土的状况，它们最好的赌柱就是它们持续的发展："……一个持续的经济进展的需求，愿意冒险的企业家，但是总是要捉好时机来成功。也愿意承受剥夺，但是他们知道在长期间会因为他们的努力而得到收获"。

因为这些工厂还有这些工作机会使蒙特雷市变成一个很吸引工人，因为外来人的，快速的人口成长，从别的城市来的人还有建筑的增加，这个城市与另外周围的五个城市合并了。

蒙特雷市是一个不断在成长的城市，虽然现在还不能跟墨西哥城，那个大城市比

traffic and crime, to name a few. Therefore, the population in certain sectors of the city has chosen to seek safer places to live, which has motivated the emergence of vertical projects at certain socioeconomic levels (Figure 2).

Quesada (2006), an author who explains how cities have grown in a qualitative way in Latin America, registers that the transformation in the last few decades of Latin American cities is characterized by the population decline of historical centers that have now become commercial by polycentrism. This means that, while in the past there was only one center in the heart of the city, centers have now emerged in many different sectors; residential segregation has focused on catering exclusively to residential centers with specific characteristics for the various reasons related to social problems that cities with high population indexes have.

Residential segregation has continued to increase, with the process accentuating due to an increasing polarization of urban space. With rising levels of crime, cloistering rich families in protected areas has become the norm. The model luxury condominium with private security systems is widespread in the cities of Latin America. The middle classes, less numerous, have also adopted a similar system in condominiums or multi-family housing, with neighborhood organizations. Access to ancient public roads is now private, and transit is regulated by residents and the new private security systems in their charge. This is what has produced substantial changes on the use of public roads, which are now increasingly private (Quesada, 2006).

The above described residential segregation phenomenon faced by Latin-American cities, has also occurred in Monterrey and its metropolitan area. Certain Monterrey zones have drawn interest from investors, enterprises, developers, and buyers, particularly in San Pedro Garza García, which combined with its population increase, has motivated the rise of vertical projects in high proportions. Other cities in Mexico share the same problem: inhabitants of Chihuahua, for example, have looked for exclusivity and security in housing projects such as Lumina – a 40-story apartment building, located in a private development set upon the highest hills of the city. Lumina is more than a modern and functional construction, it is an icon of the city, as it is located in one of the most remarkable natural elevations in the area and crowned with a bright light on the top. Pointed to the sky, this light is a symbol of hope (Figure 3).

Although we are now far from the adverse times faced by the habitants of Monterrey

Figure 2. La Diana (Source: Vidal Arquitectos)
图2. La Diana（来源：维达尔建筑师事务所）

较，但是在最近的未来会快速成长的。根据国内的统计在2015年城市的人口是三百九十万人。

垂直项目的成长与挑战在蒙特雷市与它的宗主区

讲解它的由来之后，蒙特雷市与宗主区的特色与发展，我们知道要建立垂直项目与这些挑战都使这个项目如此的重要。

在这个城市的第一个大的建筑叫做CHAPA 建筑有十二层楼是在五零年末期建完的，在当时是很先进的(Cavazos coord., 2008)。从他们起开始了很多项目，有一些很保守的少部分比较时髦的，直到九零年代，因为投资者想要重复其他地方的样式。但是，时间过得越久城市也越复杂而产生了新的建筑想法来给人们所需要的答覆在于企业，商业与居住地的空间。这是因为蒙特雷市经过了很大的改变也产生了很多成长的问题：人口增加，服务交货，交通与治安。但是，某一些地方的人选择了比较安全的地方来居住，这刺激到在某一些社会经济区发展出垂直项目（图2）。

Quesada（2006）这个作者讲解了这城市是怎么一定性成长的。在拉丁美洲统计了，在最近这几十年拉丁美洲的城市的变化、特色是以在历史中心人口减少，而现在是贸易，由多中心，意识是，在之前只有一个市中心，现在在不同地区上都有中心点，最后是隔离了一些居住地点因为不同的特征不同的因素都是与多人口的城市有关。

再加上，居住地的隔离不断的增加这定下来了一个市区的两极分化。增加了犯罪率，绑架案与其他罪刑，造成了有钱的家族与世隔绝在受保护的地区，是正常的。在整个拉丁美洲的城市里都有这种豪华住宿带有保安系统。中产阶级的人，少数人，也采纳居住在大家庭的房子模式，以房邻组织。之前的这些公共路现在都是私人的，车辆的路过也被控制在邻居与安全系统的掌控下。这就是所说的有很大的改变在于之前是公用的路线再改成私人的(Quesada 2006)。

居住地的隔离现象拉丁美洲的城市要面对的在下面讲解，也在蒙特雷市与宗主区发生过。在一些蒙特雷市的地区有划出一些企业家，投资者，采购的与发展人的利益，尤其是在San Pedro Garza Garcia (圣佩德罗加尔萨加西亚)，加上了它的人口增加，激动了大量的垂直项目的升长。在墨西哥的其他城市也分享同样的问题，例如Chihuahua(奇瓦瓦)他们的人都寻找独特的与安全房屋项目的管控四十个情节在一栋建筑，在城市最高的高地上建了一个私人地区。这个建筑不仅是时髦与实用的，是这个城市的特征，因为它是盖在城市最高的天然地区而且还在屋顶带了一盏亮灯，照上天空代表着希望（图3）。

Figure 3. Lumina (Source: Vidal Arquitectos)
图3. Lumina（来源：维达尔建筑师事务所）

Figure 4. Qualia (Source: Vidal Arquitectos)
图4. Qualia（来源：维达尔建筑师事务所）

at the end of the XIX century, there are still challenges to overcome; at the moment, creating large projects might be able to answer to our present times.

Unlike what has happened in some other countries (where vertical projects are capital supported), the economic, political, and structural conditions of Mexico slow the development of these types of projects. We are going to discuss four challenges in particular, faced at the time of creating new vertical projects in Monterrey: economic limitations, investors' idiosyncrasy, technological challenges, and government regulations.

Because of the economic limitations, Mexican architects need to become business managers to ensure that their projects stay within the available budget. Keeping a tight control on costs is strategically important to avoid raising the price originally offered to the client as the work is being developed and finished. It is for this reason that architects should be careful that the projects they shown to the developer in drawings and models is realistically executable in an efficient manner without raising the originally anticipated costs.

Another important challenge for Mexican architects, who are specialists in designing vertical projects, is the idiosyncrasy of the developers which results in an unwillingness to take risks. This also relates to the economic aspect, since it is common among developers to have the idea that innovative proposals are expensive or non-functional. Because of this, the role of the architect is to reduce the sense of risk for their clients by using functional, on budget proposals while achieving a balance between innovation, functionality, and budget. Another aspect that the architect must take care of is being able to achieve a balance between the client's requests and the available architectural solutions: on the one hand, the client must be satisfied, and on the other, the architects' role as an expert advisor should be respected (Figure 4).

Technology in construction is vital to the success of any project; however, technology may also represent a problem as is in the case of the obsolete building systems used in Mexico. The civil engineers have used the same systems for the last 20 years because they are afraid of risk, innovation, and of finding other ways to solve structural problems. Even if a design is innovative, it will later encounter a big barrier: the work cannot be done constructively. In other more developed countries, investment are made in engineering research so better, more cost effective products can be made. That being said, architects in Mexico should understand and learn new construction systems in order to be able to propose new, innovative projects (Figure 5). Lucena, for example, is a housing

虽然我们远从十九世纪末面临蒙特雷市的居住者，在今天也有创新的项目来答覆今日的挑战需求。

不像在别人国家，它们的垂直项目有金钱支持，经济，政治与结构在墨西哥的状况都会缓慢这种项目的发展。我们会讨论到要面临的四种挑战在蒙特雷市新建垂直项目，墨西哥：经济的限制，投资者的想法，科技挑战与政府规则。

在经济限制之前，墨西哥建筑师须要成为企业管理以确保项目停留在现有预算内。保持对成本的紧密控制也是战略上的重要，以避免一旦工作完成将要提供给客户的价格。正是出于这个原因，设计师应该小心，显示出开发商在项目图纸和模型，是一种有效的方式，而不提高原始成本现实可执行文件。

另一个对于墨西哥的建筑师的挑战，尤其是在于设计垂直项目是导致不愿意冒险开发者的特质。这也牵涉到经济方面，因为它是常见的开发者有的想法，创新性的建议是昂贵的或无功能的。在这之前，建筑师的作用是通过使用功能，以减少客户风险意识，对预算草案的同时实现之间的创新性，功能性和预算平衡。该架构师必须照顾另一个方面是能够实现客户端的请求和他的建筑解决方案之间的平衡；一方面客户端必须满足，另一方面建筑师“作为专家顾问的作用应得到尊重（图4）。

技术性施工是任何项目的成功也是最重要的关键，但是，技术也可以代表一个问题，因为在墨西哥使用过时的建筑系统的情况下。土木工程师必须使用在过去的20年的相同的系统，因为他们害怕风险，创新和寻找其他方式来解决结构性问题。即使一个设计新颖，它会以后再遇到的一大障碍：工作不能以建设性的完成。在其他较发达的国家都会投资在程研究这样取得以较低的成本做出更好的东西。墨西哥建筑师应该了解，为了能够提出新的，创新性的项目要学习新的建设系统（图5）。作为一个例子是Lucena（卢塞纳），在一个非常复杂的地区有多住宅项目。有着

Figure 5. Lucena (Source: Vidal Arquitectos)
图5. Lucena（来源：维达尔建筑师事务所）

project located on a complicated site. With a triangular shape and 16 meters difference in levels (between the street and the lowest point), the project consists of two towers connected by a bridge where parking is located at street level. By having this structural element, the parking has a great view of the city and the lower site can be used as the common area (Figure 6).

In Monterrey, like in the rest of Mexico, government regulation plays an important part in a any vertical project's development. The slow process of securing building permits, compliance with each municipality's requirements for urban development, as well as standards of control and constant changes in regulations from municipal administrations, is what both developers and architecture firms have to assume in order to move forward with their projects. Architects must assess this situation before making their design proposals. Through strategically intelligent architecture, it is possible to comply with regulations imposed by the government and not only fulfill them, but at the same time use them in favor of the project.

Overcoming Challenges with "Soulful Architecture"

At first, vertical projects in Monterrey imported their style from elsewhere, including the United States. That was the beginning of the search for an identity and unique style for the city. Today, Monterrey has sought its own architectural identity through vertical projects that propose vanguard and a bold visual aesthetic, minding the architectural principles of respecting the environment and generating a new urban scheme. An example of this is Helicon Tower (Figure 7).

This modern and creative proposal brings together the best of the tradition of the city and the dynamic nature of a globalized corporate world. It is located in the Valle Oriente area, where the most important corporations – both local and international – have chosen to settle their corporate offices. This tower, at 150 meters high and 40,000 square meters, is as risky in its aesthetic as it is effective in its functionality, and for this reason it has not only become a reference in the city, but also, from the beginning, it was a commercial success as it attracted the attention of major companies related to creativity who saw this building as the ideal location to establish their corporate offices.

It is important to note that at the time this project began in 2010, vertical projects

Figure 6. Lucena (Source: Vidal Arquitectos)
图6. Lucena（来源：维达尔建筑师事务所）

Figure 7. Helicon (Source: Vidal Arquitectos)
图7. Helicon（来源：维达尔建筑师事务所）

三角形和在大街上和最低点之间差了16米的水平，该项目由一座桥连接两栋塔楼分别为停车场位于街道的同一水平。有了这个结构件，停车场有这个城市的一个很大的景点和下面区域被用作公共区域（图6）。

在蒙特雷市，像在墨西哥的其余部分，政府规则起着开发垂直项目的重要组成部分。确保建筑许可数的缓慢，符合城市发展的每一个城市的要求，以及标准控制和市政管理部门法规不断变化，是开发商和建筑公司都以垂直项目必须承担。使他们的设计方案之前，建筑师必须评估这种情况。通过策略性，智能结构，能够以符合政府规定的条件，而不仅是满足它们，但在同一时间要对项目的有利于使用。

克服挑战与“深情建筑”

首先，在蒙特雷市垂直项目是从别处进口自己的风格，包括美国。这个地区是寻求身份和独特风格的开始。如今，全市已通过提出先锋队，一个大胆的视觉美感透过垂直项目寻求自己的建筑标识，自扫门前雪尊重环境，并产生一个新的市区方案的架构原则。例如说Helicon（赫利塔）（图7）。

in Monterrey did not surpass 20 stories because developers felt that this was the best economically viable height and that the infrastructure available could only accommodate buildings of that height. With Helicon, not only was the height doubled, but it was also achieved in a creative and visually appealing way. The design proposal was echoed throughout other parts of the world as it was named the 2010 Best Tall Building in the Americas by the International Property Awards in London, England. This project stands out among others in the city, not only for its height, but for the combination of two elements: the first being its squared solid volume, which is oriented towards the industrial part of the city; and the second being a cantilevered green mass, overlooking the mountains to pay tribute to the beautiful surrounding landscape. These elements contrast, representing the symbolism of a city that both values its past, but is also located in its dynamic, changing, and global present and future.

When proposing an architectural work, the designer has to take into account where the project is located and engage in a dialogue with this location in order to take advantage of topographical features integral to the design, and very importantly, to the needs and requirements of the client. An example of this is Kalah – a project located in the Valle Oriente that consists of 300 apartments distributed across four towers. This complex starts at the foot of the mountain and is distinguished by a pattern of ascending survey lines that end in the tower located at the highest point, responding to the specific particularities of the surface. These characteristics set the tone for the finished work, so it was proposed to place, at the very bottom, parking which serves an elongated base that respects the lines of the terrain; this elongated volume is repeated in the second and third level as indicated by the topography. The resulting strip on the first level was exploited as a commercial area and some "town-houses," while terraces and gardens where placed above the parking – an efficient solution to the resulting space created by the adjustment of the project to the field (Figure 8).

To achieve this, we studied in detail the topographic characteristics of the land and proposed a creative, efficient, and economical idea. In addition to paying respect to the environment, the project has a design language that can be seen from the base, which is a similar color to the mountain and the tower arrangement which, in turn, visually talk to each other. About the materials used:

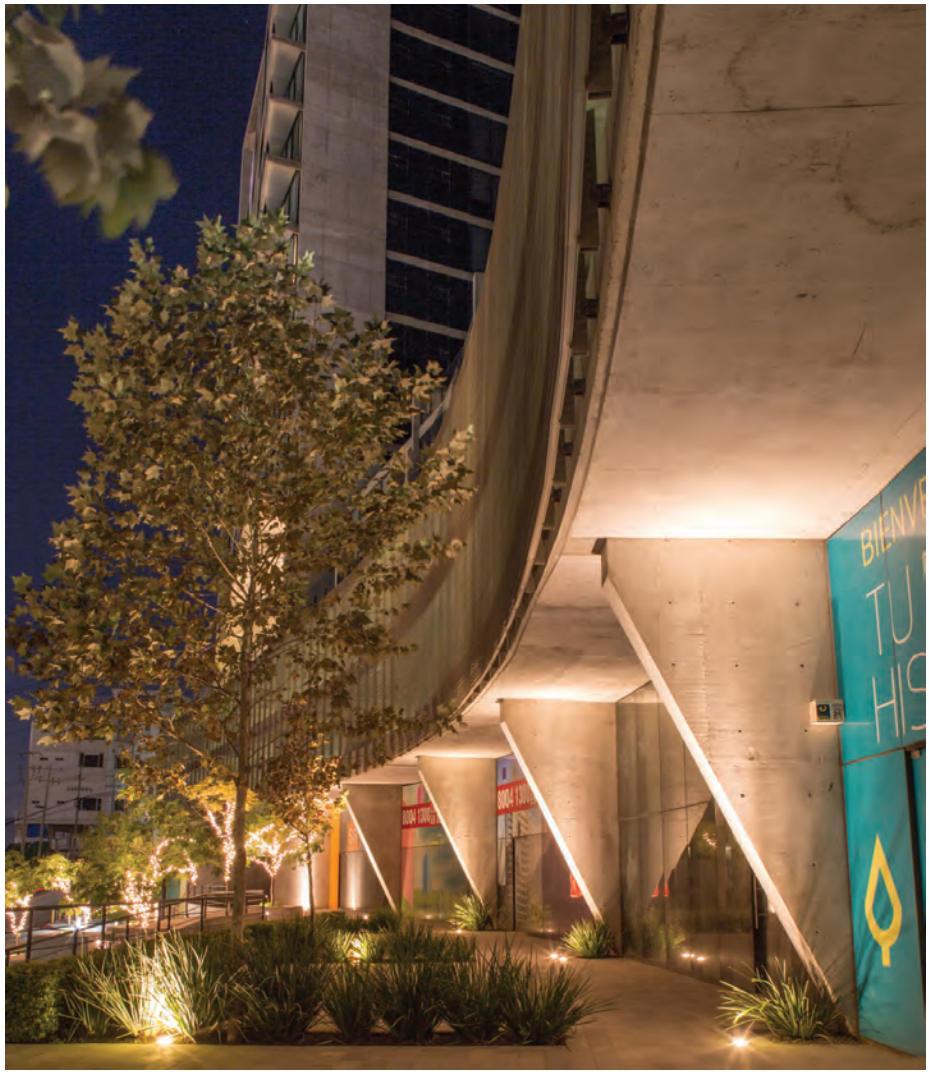

Figure 8. Kalah (Source: Vidal Arquitectos)
图8. Kalah（来源：维达尔建筑师事务所）

这家现代化和有创意的建设中汇集了最好的城市传统和全球化世界企业动态的特性。就在Valle Oriente的地区，其中最重要的本地和国际的公司，都选择在这个地区，订下总公司的办公室。这个搭有150米的高度和面积40000平方米是在它的艺术上有风险就像它的效能与功能，所以因为这个因素这不只是成为了一个城市的重要点而且从一开始就是一个成功的商业地区。

因为吸引了很多创意性的大公司，谁看到这栋楼都是建立自己的企业办公室的理想位置。需要注意的是这个项目始于2010年的时候是很重要的，在蒙特雷市垂直项目没有超过20层，因为开发商认为这是最好的经济上可行的高度和基础设施能提供身高只有适合的建筑。随着赫利不仅是高一倍，但也有人在创意和视觉上吸引人的方式来实现的。其设计方案在世界其他地区也有呼应，因为在2010年它是有得到国际地产奖在英国伦敦评为美国最好的高层建筑。该项目在其他的城市脱颖而出，不仅因为它的高度。另有两个元素的结合：第一个，对城市的工业部分面向一个平方固量，第二个，一个悬臂绿色质量，看起来在山上，以此来悼念位于背景中的一道亮丽的风景。这种反差表示珍视过去一个城市的结合，但它也位于其动态的，不断变化和全球存在。

当提出一个建筑作品，设计师必须考虑到那里的项目位于从事与它对话，以充分利用地形地貌的一种策略设计整合，而且很重要的是，需要合乎客户端的需求。这样的一个例子是“Kalah”， 位于Valle Oriente的一个项目，它由300个公寓分布在四个塔。这种复杂的开始在山脚下，它是由上升，在位于最高点塔楼结束测量线的图案区分，这是为了响应所述，表面的特定特殊性。这个特性定调完成的工作。所以当初的提议是最底层的停车空间是尊重地形的线长形底座的地方，此细长体积重复着在第二和第三层由地形所指示的。在第一层被利用作为一个商业领域，以及一些“小镇- 房屋”， 露台和花园，其中放置在停车空间，一个有效的解决方案，以通过该项目的领域的调整产生的所得空间的上方（图8）。

为了实现这一目标，我们详细的研究地形特征，并提出了一个有创意的意见，有效和经济的想法。除了付出给环境的尊敬这个项目有一个语言设计是可以从基础开始的，其中有一个从山和塔的安排都有类似的颜色，这在视觉上互相的交谈。关于所

Figure 9. Torre Lovft (Source: Vidal Arquitectos)
图9. Torre Lovft（来源：维达尔建筑师事务所）

the design contemplates low maintenance alternatives like concrete, aluminum paneling, and a gray stone with lots of texture called wooden black that covers the tower façade. This same material palette is repeated in the four towers, but used in different ways, giving each tower its own personality without breaking the unity of the complex as a whole.

The essence of architecture is design that goes beyond combining tiles, materials, structure, and walls; meaning that it comes alive and has its own personality and spirit, and is able to transmit it to everybody admiring the work. In Santa Catarina, Nuevo Leon, Mexico, a building of 160 meters with loft type apartments rises with the views of the beautiful Sierra Madre and the Huasteca mountains (Figure 9).

Speaking about Lovft is not just metaphorical, because what catches attention from this apartment building and its offices and shops is a particular architectural detail – a large, bright red block placed on the edges of the building. If we try to interpret Lovft as an icon that contemplates the city, we can say that this element protruding from its body is the heart that gives him strength. Another great feature of Lovft is that in one of the two mezzanines, the Vidal Architects' offices are located. This is a significant detail, because it gives the building its spirit, housing an office that tries to elaborate and create more architectural designs that share the same philosophy as Lovft.

678 is another great project that has its own strengths and concept. It is a complex of three buildings that blend together without losing their individual personality. 678 owes its name to the numbers of the towers in the complex, called Santa Maria Towers 6, 7, and 8 (Figure 10).

678 has three buildings of 200 meters in height, and each one is built simultaneously, keeping similarities between each other. The buildings have a diamond-shaped structure of green glass on their tops. These elements are a constant in the three buildings, but each one keeps its own personality because these architectural elements are different and uniquely executed on them. The space that divides the elements is located at different heights in the three buildings, and the shaped diamonds on the top of the buildings have different designs and inclinations. As for the personality of the 678 towers, we can say that the layout, location, and verticality of the buildings could represent three giant brothers coming down the hill to watch and protect the city, metaphorically speaking.

A Future Vision of Vertical Projects

In order to think about possible trends and paths that the project will follow in the future, it is necessary to take into account the problematic social situation of large cities, particularly the increase in population. In Mexico, it is estimated that the population will reach 128.4 million in 2040, which will require 486,000 additional housing units per year, reaching 43.2 million housing units for that year. This will mean that it will be needed close to 351,000 additional construction acres to meet that need towards the year 2040.

使用的材料，设计考虑了非常低维护的替代品如混凝土，铝面板和灰色的石头有很多质地叫黑木覆盖塔的门面。此相同的材料板被重复在第四塔，但在不同的用途，这给每个塔自己的个性而不会破坏整体的统一。

架构的本质是设计超越结合瓷砖，材料，结构和墙壁；这意味着它开始活跃，并有自己的个性，精神和传输给大家所钦佩的工作作为一个整体。在圣卡塔琳娜市，墨西哥新莱昂周的160米阁楼式公寓的大楼升起了美丽的主母山脉和Huasteca山脉的美景（图9）。

谈到爱不只是比喻，因为抓住这个公寓楼的注意力的东西，办公楼和商铺是一个特殊的建筑细节。这是一个很大的鲜红色块在建筑物的最上边，如果我们试图解释爱作为考虑一个城市的图标，我们可以说，这个元素从他的身体是突出的心脏，就是那个给他的力量。阁楼的另一个爱的大特点是，在这两个夹层之一维达尔建筑师办公室的位置，用是一个非常显著的细节，因为在与精神的建筑，办公室试着阐述，并与爱同样的理念创造出更多的建筑设计。

678是具有自己的优势和概念的另一个伟大工程。这三栋楼，没有失去自己的独特个性融合在一起的复合体。 678欠它的名字叫做圣玛丽亚，6，7和8塔复杂塔的数量（图10）。

678有三个建筑物都是200米高，每一个可以同时建立并保持相互之间的相似之处。建筑物顶部有绿色玻璃的钻石形结构。这些元素都在三座建筑恒定的，但每个都保持自己的个性，因为这些建筑元素是不同的，在他们独特的。该划分的元素空间分布在三个建筑物和建筑物上的顶部的形状的钻石不同高度有不同的设计和不同的倾斜度。而对于678塔的个性，我们可以提到，建筑物的布局，位置和垂直度可以代表三巨头的到来兄弟下山观看和保护城市，打个比方。

Figure 10. Torre 678 (Source: Vidal Arquitectos)
图10. Torre 678（来源：维达尔建筑师事务所）

That is why the building of the future will not be in urban areas that already have high saturation levels, but instead, they will be placed in remote areas and they will keep great distance from one another. They will be like autonomous colonies, interconnected by large proportions in which 20 or 30,000 people with live, developing their daily lives there with homes, schools, work centers, universities, banks, parks, farms, shopping centers, and all else necessary in regard to services. The buildings will be separated by large green areas, and will be connected with one another through a system of underground trains.

Sustainability and adaptability will be two key factors in these buildings. On the first point, the height of the building will be taken as an advantage to capture sunlight and convert it into energy, along with wind. Views will be nice and clean, and the structures will be accessible via ramps and elevators. Regarding adaptability, buildings will not be rigid objects, but, thanks to changes in constructive systems and technological advances, it will be possible for the architectural works to grow or decrease as needed.

To make possible the productive coexistence of life in the future, it will be necessary to rethink many things as human beings and as a society. We would have to raise the collective level of consciousness to a point that collaborative work is possible and less competitive than it is now, and recover the sense of community that makes possible a more human and productive way to live.

What we intend to state is that coexistence in the decades to come is important as megacities will not only depend on infrastructure itself, but on the quality of life that we as human beings will be able to build through learning how to live together in a cooperative way. Our communities must be based on a collective consciousness that allows us to interact in new peaceful and productive ways. The design of future buildings will indeed help to reach that kind of coexistence, but first we have to design a new concept of human interaction based on human rights, peace, and a sense of community.

Buildings must, in short, respond to the new way we want to live together in order to build a true society of coexistence. We humans must not adapt to the houses that are designed only for economic or personal interests, but rather it should be the other way around. Only then, architecture will complete its journey to become a discipline with soul, as we have argued throughout this conference. Meanwhile, we will be waiting for that dream to come true.

垂直项目的一个未来的愿景

要考虑可能的发展趋势和路径，该项目将在未来的跟进，既要考虑到大城市的社会形势问题，特别是人口的增加。在墨西哥，据估计，人口将在2040年达到1.284亿，这将需要每年额外的486000套住房，达到了当年4320万套住房。这将意味着，需要接近351000增建亩满足这一需求向2040年。

这就是为什么未来的建筑物不会在已经有高饱和水平的城市地区，但是，它们将被放置在偏远地区，他们将继续相互保持着很大的距离。他们会像自治殖民地和关联大的比例，其中将住20或30,000人，将会有发展自己的日常生活与家庭，学校，工作中心，大学，银行，公园，菜场，商场和一切必要的关于服务。这些建筑将被大型绿地分开，将彼此通过地铁的系统连接。

可持续性和适应性将会在这些建筑物的两个关键因素。关于第一点，建筑物的高度将被视为一个优点来捕获太阳光，并将其转换成能量相同的风。视野将是非常干净和投入性将通过坡道和电梯。关于适应性，建筑物不会是僵硬性物体，但由于在建设性的系统和技术进步的变化，这将是可能根据需要在建筑作品增长或下降。

为了使可能生活在未来生产共存，这将是必要重新考虑许多东西作为人类和社会。我们将不得不提高良心的集体水平提高到一个协同工作的点是可能的和非竞争性的就像现在；恢复社会的意义上成为可能活得更人性化和生产方式。

我们的一个特大城市的想法是，在其中将会有伟大的人类，而不是伟大的巨型建筑。

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