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Architectural Comfort in Future Vertical Downtowns

未来垂直城市的建筑舒适性



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Iñigo Ortiz is one of the Senior-cofounder of ORTIZLEON ARCHITECTS having established the practice with Enrique Leon in 1984. Educated at Madrid School of Architecture continued his studies and research at Architectural Association (London) (Wind influence in energy and building shape) and MBA IESE University (Barcelona). Also, he is fluent in Spanish and English.

Iñigo Ortiz 是 ORTIZLEON 建筑事务所的创始人兼合伙人。该建筑事务所于 1984 年由 Iñigo Ortiz 和 Enrique Leon 两人共同创立。Iñigo Ortiz 本科毕业于马德里理工大学建筑系，在英国伦敦建筑师协会 (Architectural Association) 获得建筑能源研究硕士学位，在巴塞罗那 IESE 商学院获得工商管理硕士学位。

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Enrique León 是成立于 1984 年的 ORTIZLEON 建筑事务所的联合创始人。他出生于 1953 年 (马德里)。于 1980 年在马德里理工大学获得建筑学学士学位，专业是建筑施工。同年，他创建 E-3 建筑事务所。从 1980 年至 1984 年曾负责多项住宅和交通建筑项目。

Paloma Martín was graduated in the Madrid School of Architecture. As an architect, she has collaborated in several first line architecture office and singular projects. Actually she is immerse in her PhD Thesis while she leads several projects in Ortiz.Leon Architects office.

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Abstract

The objective of this paper is to alert about how important is environmental comfort, as an architectural concept, in vertical urbanism and its perception by city dwellers and users.

To summarize, today there is a big gap between sustainability (energy focus) and what actual people feel and perceive when they approach and go into a skyscraper. From the external environment (street/outside) to the internal climate (building/artificial) we need spaces of transition in order to make our minds prepare in a positive attitude. We need a new set of "urban sensations" in order to reach a full body experience and not only visual.

Through two examples (BUPA-SANITAS building, Madrid, Spain) and (IBERDROLA TOWER, Bilbao, Spain) we rethink the approach to buildings in order that their environment provide physical and social ambience provoking post motivation. The conclusion is that "sensescapes" are needed towards vertical urbanism and architecture. Pleasure and comfort motivates behavior and lead us towards a good work performance and quality of living.

Keywords: Comfort, Environment, Future, Sustainable Architecture, Eco Buildings, Behavior

摘要

本论文的目的是为了提出建筑概念范畴内的舒适环境对生活在城市高密度的塔楼中的居民和用户的重要性。环境的舒适性可以激励环保行为。

当今，建筑界口中提及的可持续发展 (主要着重于节能) 和普罗大众实际接近并进入一栋摩天大楼所获得的感觉和感知之间有着巨大的鸿沟。从外部环境 (建筑物外的街道) 到达内部环境 (人工的建筑内)，人们需要一个过渡空间，以便我们的头脑能适应这种转变，形成一种积极的态度。我们需要一套新的“城市感知”。在设计建筑时，不仅要考虑人在视觉上的感受，还需要考虑人体其他感官的体验。

通过西班牙马德里市的 BUPA-SANITAS 大楼和西班牙毕尔巴鄂市的 IBERDROLA 大厦这两个例子，我们重新审视从建筑物外部进入到建筑物内部这段过渡空间，以便通过物理环境和氛围的营造唤起人们进入建筑物内的动机。我们得出的结论是，垂直的城市建筑需要“sensescapes”这样的感知建筑。环境的趣味性和舒适度会激发我们更好的工作潜能，提高生活的品质。

关键词: 舒适、环境、未来、可持续建筑、生态建筑、行为

Architectural Comfort

What do people like in their physical surroundings when they are approaching a high-rise building? What do designers want and what aspects do we have to take into account besides correct accessibility, rain or wind protection?

It's known that a basic aspect in a building lobby is not the first impact or perception, but the approach to the core of it, as this sensation affects directly to the people, predisposing to have a positive attitude of what they are going to find in the inside. Also this first glance is very important to perceive the quality, the sustainability or what the owners building wants to transmit to citizens.

建筑的舒适性

当人们走近并进入一栋高层建筑时，他们喜欢什么样的环境? 除了正确的连通性和防雨防风等方面，建筑设计师还需要考虑哪些其他方面的内容?

众所周知，建筑的大堂不是第一个让人感知并带来冲击感的地方，而是进入建筑核心体的这段通道。那儿才是对人类的感知产生冲击的第一现场，预先诱发出人们想进入建筑内部一探究竟的积极态度。正是这乍看之下无足轻重的一瞥，却在第一时间告知了人们建筑物的品质和可持续性，向人们传递了建筑业主想传达的信息。

建筑师应该去寻找“愉悦的体验”。简而言之，实际的动机不仅是愉悦感，还有缓解

Architects should be looking for a pleasant experience; it can simply be said that the actual motivations are not only pleasure but relief of discomfort. For example shade, rain protection and, in high-rise buildings, wind turbulences, are the first and easy way to identify how to achieve better predisposition.

As we eat and drink both to relieve discomfort and obtain pleasure we can try to obtain it through design, working with the surroundings of the building, the landscaping and with external architectural features.

We need an open area where to feel safer than in the sidewalk of the Street, a landscaping space that brings people nearer to nature. People in an instinctive way feel more comfortable with architectural signals related to local nature. There is a need to come up with a climax that can be seen and perceived by our intuitive senses. It is also needed to make a visual impact in pedestrians in terms of technology, interior design of sustainability. The building needs to be "greened" in all common spaces starting with the approach area in order to achieve a pervasive green concept. It is necessary to increase and intensify interaction between the occupants and the building environment.

In other words, as Roger Ulrich¹ said, "we are biologically predisposed to liking scenes with prominent natural elements"; this means architectural designs has not only be Green but to look Green; we have to nature the building and, in our case, the skyscrapers. If we implement this philosophy from the sketch in the design, there will be possibilities to have user proud of their building and will produce a mimetic effects in the next generation of high-rise buildings.

Double Gap Between Sustainability and Reality

The double gap is about two big gaps in sustainable buildings; the first is what it is supposed to consume and actually consumes (in terms of energy and expenses), and the other is about how sustainable is and how poor is the perception of its sustainability. The building not only has to be a green building but it has to look green and this is not an easy task because of the lack of proud of this characteristic.

Environmental comfort has to be a driver design in the near future high-rise buildings construction; it is a concept that has to be objectivized and rationalized in order that visitors and users will be impregnated with a positive attitude just before going into affecting the overall concept of high-rise downtown. Of course is important to identify the different types of users and visitors.

From the exterior environment (natural climate), to the indoor entrance we need intermediate spaces in order to make our minds easy not only to avoid discomfort but to create a new atmosphere of positive perception.

This will only occur spending much more time in the different stages of the design process of vertical cities, thinking in terms of comfort and what actually people will feel (through the senses) and perceive; all this will affect work quality and efficiency, level of absenteeism and, in case of shopping areas more consumption and in hotels more occupancy rates.

¹ Roger Ulrich is Professor of Architecture at the Center for Healthcare Building Research at Chalmers University of Technology in Sweden, where the care about this topic is written down in several publications such as "Toward a design theory for reducing aggression in psychiatric facilities" in 2013

¹ Roger Ulrich 瑞典查尔摩斯技术大学医疗保健建筑研究中学的建筑学教授，在众多文章中都表达了对之一话题的关切，诸如2013年发表的“在精神病治疗中心用设计来减少病患的攻击性行为”的文章。

不适。例如处理遮阳、防雨和高层建筑的气流等方法，都是去除不适性的最简单和直接的方法。

就如人们吃喝既是为了减轻饥饿等不适感，又是为了获得愉悦感一样，人们也可以通过建筑设计，建筑物与环境的相互作用，以及景观设计等众多方面来获得愉悦性。

我们需要一个比街道人行道更安全的开放空间，一个让我们更亲近自然的景观空间。人们的直觉使其更容易在与当地自然相关的建筑符号中找到舒适感。建筑设计师需要找到这个能被我们看见并感知到的最佳舒适点。我们可以通过科技、室内设计、环保设计等方法给人们带去视觉的舒适性。从进入建筑物的通道算起，建筑的各个空间都要呈现“绿色”，以使人们感知绿色环保的理念。同时要加强用户和建筑环境间的互动。

罗杰·乌尔里希说过：“我们在生理上倾向于喜欢以自然元素作为主导的场景。”这就意味着建筑设计不仅是绿色环保的，而且看上去也需要是绿色环保的，达到外表与理念的统一。在我们的摩天大楼案例中，就有这种拥有大自然属性的大楼。我们从设计草图开始便贯彻了这一理念，这将让建筑的用户为在这栋建筑中生活与工作而感到自豪，未来的高层建筑也将会争相模仿这种设计。

可持续性发展和现实之间的双重鸿沟

可持续性发展和现实之间存在着两条鸿沟。第一条鸿沟是在节能与开支方面，设计时理论消耗和实际消耗间的差异。第二条鸿沟是建筑的绿色环保内核和建筑外表的低绿色环保感知度的不对应关系。建筑不仅仅应该是绿色环保的，它的外表必须表现其绿色环保的本质。如果该建筑缺乏绿化环保的外表，便不能唤起绿色建筑使用者们的自豪感。

环境舒适度必定会成为将来高层建筑建设的一个设计驱动力，它必须被客观化和合理化，以便访问者和用户在建筑中孕育出一种积极的态度，让人们去影响市中心高层建筑的整体设计观念。当然，识别不同类型的用户和访客也很重要。

从外部环境(自然气候)到入口这段距离，我们需要过渡空间，来避免我们产生不适应性，并营造出一种全新的正能量环境感知力。

在垂直城市的不同设计阶段，将花费更多的时间去考虑人们通过感官实际会感知到的舒适性。舒适性会提高工作的质量和效率，减少旷工现象。购物中心的舒适度会提高人们的消费额，酒店的舒服度则会提高入住率。

以“舒适性”为设计标准，积极从使用者角度来重新思考建筑设计的方法，将会成为所有设计阶段的必要指标，尤其是建筑的方案设计阶段。建筑不仅仅是一栋物理上的庇护所，更应通过引人入胜的音效、舒畅的嗅觉感知、宜人的自然光线和绿化来激活人类的所有感官，营造全身心的舒适体验。这才是建筑设计领域的新趋势。

装修期与移交阶段

装修是一种减少因建筑物的毛坯形态而产生负面影响的工具。现代科技已可以模拟很多虚拟的情况，并对此进行分析，使建筑能对文化与商业的转变趋势做出反应。这种反应能力会不断提升。由于通过智能化手段去构思建筑，我们将能够设计出一个智能化的建筑。我们需要用我们的智慧去削弱“建筑设计”，而使建筑更加“被动式”。

更多的商业模式逐渐涌现出来，直接影响了办公租赁空间的可用

Rethinking the building approach, in terms of a more positive user view and comfort filter design, will be compulsory in all stages of design, beginning from the schematic design panel. A full bodied experience of a building requires to active all human senses, not only protection, but attractive acoustics and odor perceptions, natural light and greenery will be the key driver of this new tendency.

Fit-Out Stage and Turnover Period

Fit-out can be used as a tool to reduce negative impacts that derive from bare urban design in buildings. The power of building to respond to changes and cultural and commercial trends, also has to be developed as a result of analyzing different virtual situation. Based on this approach we will be able to come up with an intelligent building because it has been intelligently conceived. We have to use our intelligence to deactivate architectural design and make it more passive.

Many models of business have emerged which affect directly in the lettable spaces whose availability is possible to know through the web. Personal and spare time needs also to be accommodated in the work places so that both can be at the same time combined; this is commonly seen, every day in more places, where people are working while they are eating or smoking.

Also turnover period is essential to confirm correct landscaping and exterior spaces not only for circulation but also for break times.

Two key concepts will be fundamental in sustainable surroundings of buildings. One would be information; that means keeping the users informed through IT systems (Information systems) and also owners having to give designers more time to rethinking and evaluating design. This is needed because design takes a certain level of precision that has to be planned (BIM on VIM). Also behind a good design there must be a good team of experts.

The other concept would be “education for sustainability” as more information will lead into a right level of education of users and so there will be taken a 100% of the efficient capability of the design model.

As Boon Lay Ong says “From the moment of conception, a life is generated that physically develops in the surroundings of the womb. (...) A continual life process of environmental learning has begun. (...) Our genetic imprint means we respond individually to environmental stimulation...”

So information can be materialized in spaces, and can provide a variety of intuitive influence to people around the building accessing through spaces that may be acting as interface between the outside and the inside space. Feedback information from users is essential to update those flexible spaces to actual social demands.

“The making of architecture is also a making of place, an appropriation of a certain location or site and demarcating it for human purpose.” What these ideas point to be that the making of place is an ecological act that, on the surface at least, tells of the division and perhaps even antagonism between man-made and natural. And yet, lying beneath this surface, is a deep bond and dependency with nature that also needs recognition. This expression of our complex relationship with nature, on the other hand dependent and on the other antagonistic, may be found in many great architectures and may then be considered a key thematic concern in great architecture.

性。办公空间需要能给个人的业余活动提供空间，使办公与私人活动两者能够兼容。这种情况将越来越常见，人们一边进食或一边抽烟，同时又进行着手头的工作。

在移交阶段，确认外部空间和景观设计的正确性必不可少，外部空间不仅起到连接与交通的作用，还为人们的休息时间提供活动场所。

谈及可持续建筑，有两个必不可少的关键概念。一个是信息，意味着使用者可通过IT系统(信息系统)获知建筑信息。做到这点，需要业主或甲方能给予设计师更多的重新思考与设计评估的时间，以便设计能达到某种精准的水平。这种设计需要通过BIM模型和VIM模型进行规划，更需要一个优秀的专家团队去完成与实现这样一个好的设计。

另一个概念是“可持续发展教育”。提供更多的可持续发展信息，能提升使用者对可持续建筑的认识水平，从而把设计模型的高效性100%的发挥出来。

Boon Lay Ong说过：“从受孕的那一刻起，生命在子宫内的环境中孕育与发展。……生命中对环境持续进行学习的过程已经开始。……我们的遗传基因昭示着我们会单独应对环境刺激……”

信息可以在空间中实现物质化，通过连接内部空间和外部空间的界面——建筑给人们带来各种直观的影响。通过从用户这里反馈得到的信息，又可以对这些灵活的空间进行更新与调整，以满足当前社会的需求。

“建筑的建造是划定一块地方，建造一个以人类的活动为目的空间场所。这些想法把创造一个空间指向成一种生态的行为。”从表面上看，建造意味着一种分隔，是人为和自然之间的对立。然而，从更深的层面来看，又与自然有着紧密的联系与依赖。这反应了人类与自然之间错综复杂的关系。在许多伟大的建筑中，我们都能找到这种与自然既依赖又对立的关系。这也是伟大建筑需要重点关注的主题。

例如，身处于一栋位于东京的建筑物中，如果人们不知道这栋建筑是否抗震，会产生一种不安全感 and 不适感。一旦人们获知了这栋建筑的抗震、防火和空气质量等信息，人们就能获得充分的舒适感。

西班牙马德里市SANITAS大楼案例

上个世纪的社会已经创造了大量的公园和城市绿地等公共空间，使人们能更加亲近大自然。这些公共空间是十分有必要的。因为置身于大自然，会从心理学层面来提高幸福指数，促进身体的健康，缓解城市的压抑感。

为什么不在建筑物的周围也这样试试看呢？

这正是OrtizLeon建筑事务所在设计SANITAS办公楼时所做的。该栋建筑外部环境恶劣，紧邻高速公路，远离公共街道。设计师便在公共街道与建筑物这两者间创造一个绿色走廊(见图1)。它是一条能唤起正面能量的、绿色的悠然小径，缓缓的坡道与两边徐徐的流水，让人不自觉地想去寻觅泉水的源头，信步到建筑的入口。

这是条绿色有机长廊，被各类植被所包围，每种植物都有一块铭牌。需步行五分钟的小路蜿蜒曲径，会唤醒你的正面能量，屏蔽你的不舒适感。(参见图2)。

当然，这样的设计遍布整栋大楼。通过建筑内部带有水池的绿色庭院，使建筑内的使用者能看到绿色，感知大自然。不同的树木和植被的树叶、果实和气味都会告诉在办公楼里人们今夕是何季(见图3)。

For example being in a building in Tokyo without knowing if it is earthquake resistant might generate an insecurity sensation and discomfort, but in the other hand, if there is information about how the building works (earthquake resistance, fire resistance, air quality, etc...) the full comfort sensation may be achieved.

Sanitas Building Study Case, in Madrid, Spain

It is true that in the last century society has created a lot of urban spaces like parks and public gardens in the cities for public use in order to bring nearer nature to people; certainly we need it, because exposure to nature foster psychological well-being, promotes physical health and reduces stress in urban environments.

Why not to do this in the surroundings of the buildings?

This is what Ortiz.Leon Office did in Sanitas Complex. The building is in a hard urban environmental close to a motorway. Whereas adjacent buildings are much close to the public sidewalk, Sanitas building is as far of the public street as far as it was permitted, so this gave the designers the opportunity to create a green corridor between both of them (See Figure 1). It is a natural and green corridor with architectural features to create positive attitude; it has a light slope with moving water in both sides of the way inside so the feeling is that you are walking to the source of the stream.

This green corridor is organic, surrounded by vegetation (perfectly identified with its botanic name plates), and winding walk so during the 5 minutes that the walk to the building takes, there arises a new set of sensations that really affects your mood in a very positive way; your intuitive positive alarms are on and discomfort deactivated (See Figure 2).

Of course this way of designing is all over the building through all common spaces with internal green watered patios in order to maintain a continuous remain of Green sensation, so that you can see it and perceive it. Different tree species and plants, due to deciduous or perennial leaves, fruits and odors permit to user to know in which season of the year you are (See Figure 3).

Of course from the citizen point of view this building doubtless is a Green building, but thanks to its green distance from the Street, every person is able to evaluate, at least, all its sustainable intentions.

Iberdrola Tower Case Study, in Bilbao, Spain

The Iberdrola Tower, located just downtown Bilbao, may be the second most emblematic building in the city, after the ever known Guggenheim Museum, who's also strategically and intentionally separated from the public sidewalk (See Figure 4).

The gap between public and building interior is generated with the same concept and aim as in Sanitas Building case, but in a different way. There is created an internal space that, from the very beginning, gives the user shelter to climate discomforts, but in a "glassed" way, that lets you see through and look at the urban exterior activity.

This advanced and technological space predispose users to get (because there is no other similar in Bilbao), in a conceptual sustainable way, surrounded by local olive trees. It is clear that in this space your positive attitudes are switched on again.



Figure 1. Sanitas-BUPA Approach Space, Case Study (Source: Iñigo Ortiz)
图1. SANITAS - BUPA空间方法, 案例研究 (来源: Iñigo Ortiz)

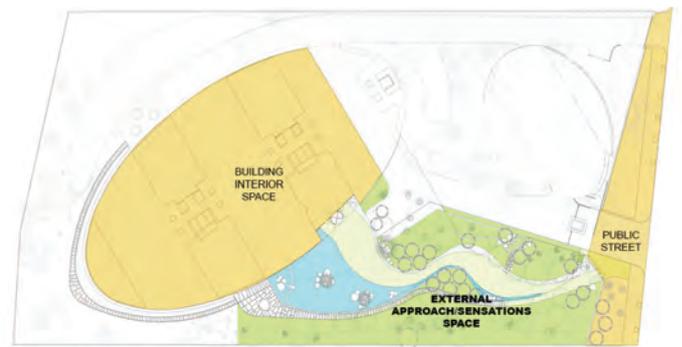


Figure 2. External Approach / Sensation Space between the Exterior Street and the Interior of the Building (Source: Iñigo Ortiz)
图2. 外部大街和建筑物的内部之间感知过渡空间 (来源: Iñigo Ortiz)



Figure 3. Sanitas Building Approach / Sensation Space from Public Street to Interior of the Building (Source: Iñigo Ortiz)
图3. SANITAS大楼通道/从公共街道到建筑室内的感知过渡空间 (来源: Iñigo Ortiz)



Figure 4. Great Lobby in Iberdrola Tower in Bilbao, Spain, accommodates the Approach / Sensation Space in the Interior of the Building (Source: Iñigo Ortiz)

图4. 毕尔巴鄂市的Iberdrola大厦宏伟的大堂，建筑物内部的感知过渡空间 (来源: Iñigo Ortiz)

Also this space is an interchange place for the different uses in the building (hotel, public offices and private offices) making it very efficient.

When designing new sustainable vertical urbanism designers have to realize that humans have many senses, and that comfort is not only a problem of temperature and humidity, but that there are also many aspects to take into account, and that there are many tool and architectural ways to achieve very good results (See Figure 5).

Also there are other aspects that the human has not been sense about, but that are aware of, like quality of air, V.O.C., microwaves, Feng Shui, bacteria, radon gas, etc., all of them affecting in different ways and to be considered separately.

Designers have to incorporate sustainable and sensory design in the process turning close building environments for occupant needs. In future vertical downtowns, the importance of studying people behavior will be the most important factor and will improve the energy efficiency of the buildings indirectly because of better attitude, using the building in the right and environmental way.

Up to building users having to adapt their way of staying, working or living to the building spaces, in the future, the buildings and their environments will adapt themselves to people for better habits and quality of life.

Comfort patches and corridors as Green surfaces and areas around the buildings that differ from their surroundings, will create a climax of continuous transformation of the urban scape looking for a drive direction of positive sense. These pleasing will come up as places where people want to be and want to go through because of their benefit and sustainability.

毫无疑问，这是一栋绿色建筑。幸运的是，由于它远离街道，每个人都感知到了它绿色环保的意图。

西班牙毕尔巴鄂市Iberdrola电力公司大厦

Iberdrola电力公司大厦刚好位于毕尔巴鄂市中心，是该座城市的第二大标志性建筑，紧邻扬名世界的古根海姆博物馆。两栋建筑都刻意地与公共人行道进行了分离 (见图4)。

Iberdrola电力公司大厦与SANITAS办公楼的设计理念相同，都要创造一个过渡空间。SANITAS办公楼项目是通过蜿蜒的小径来作为过渡空间，Iberdrola电力公司大厦则是在建筑内部创造了一个过渡空间，缓冲了气候变化所造成的不适感。该过渡空间为玻璃，进入建筑的人们仍能看到建筑外面的城市活动，不会产生突发性的疏离感。

该过渡空间被当地的橄榄树所包围，体现了该建筑的可持续发展概念，并成功地把绿色概念传达给了用户和访客。很显然，这样的空间很容易就触发了你的积极态度。

此外，这个过渡空间还是该建筑中不同功能区 (酒店、租赁办公和业主办公) 的转换处。

在设计新的可持续垂直建筑时，设计师必须认识到人类有很多感官，舒适性不仅仅指的是温度和湿度，还有其他诸多方面需要考虑，也存在着很多能获得良好效果的工具和建筑设计方式 (见图5)。

此外，人类还有其他不能明显感觉与感知到的方面，如空气质量、可挥发的化学物质、微波、风水、细菌、氡气等。所有这一切都会产生影响，需要分别考虑。

设计师们把用户作为导向，去设计具有可持续性和舒适性的建筑环境。在未来的城市垂直中心，研究人的行为变得尤为重要。如果人们能以积极的态度更环保和更正确地使用建筑，建筑物的能耗将会大幅度降低。

目前，人们必须去适应他们的工作或生活的建筑空间，而未来，建筑及其环境将会自动调节，以便适应用户的生活习惯，提高用户的生活质量。

拥有舒适的小型空间和走廊等绿色空间的建筑将有别于周围的建筑，能为人们带来更多积极感知的可持续建筑必将成为建筑设计界的连续转型的高潮与主导趋势。由于这些建筑的绿色环保与赏心悦目，人们会希望在此驻足和居住。



Figure 5. Iberdrola Tower Approach / Sensation Space to Interior of the Building (Source: Iñigo Ortiz)

图5. Iberdrola大厦的感知过渡空间 (来源: Iñigo Ortiz)



Figure 6. Internal Approach / Sensation Space between the Exterior Street and the Interior of the Building (Source: Iñigo Ortiz)
图6. 外部大街和建筑物内部之间的感知过渡空间 (来源: Iñigo Ortiz)

Lively spaces will be the future words for these spaces were the sum of many aspects from quality, economy, amenity, environment, health, education leadership to sustainability will be present, but in the other hand, adaptable spaces will be able to change as society and technology changes, and of course having in mind relation with the local culture, traditions and costumes (See Figure 6).

Conclusions

As it can be deduced of both cases analysis, and as a conclusion of it, the following aspects summarized the importance of having an approach/sensations space between Public Street and the building interior, to the mood of the users, and the positive perception of the building, referring this to the origins of architectural pleasure (See Figure 7):

- Lively spaces were the sum of many aspects from quality, economy, amenity, environment, health, education leadership to sustainability can be achieved.
- Green space fully surrounded by vegetation that provides a new set of sensations and deactivates discomfort.
- Incorporate sustainable and sensory design in the process turning close building environments for occupant needs.
- For designers and contractors to spend more time in the different stages of the design process of vertical cities, thinking in terms of comfort and through the human senses and perceptions.

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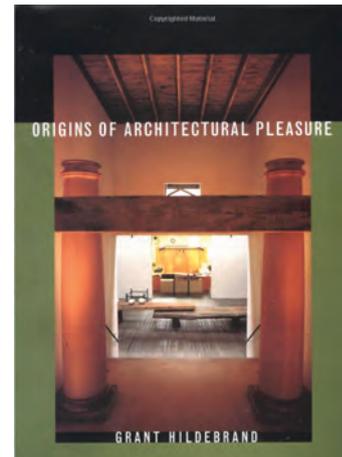


Figure 7. Architectural Pleasure (Source: Book "Origins of Architectural Pleasure" by Grant Hildebrand)
图7. 建筑愉悦性 (来源: Grant Hildebrand的《建筑愉悦性的起源》)

品质、经济、舒适、环保、健康、可持续发展的教育是未来我们在设计建筑时会更加频繁使用到的词语;将来,具有活力的空间也将会被反复提及。另一方面,随着社会和科技的变迁,高适应性的空间也将受到推崇。当然,这一切必须与当地的文化、传统与习俗相联系(见图6)。

结论

通过上述两个案例的分析,将从如下几个方面来总结在室外公共空间与建筑物内部之间创立一个过渡空间对改变用户心情的积极效用和提升建筑愉悦性的重要性(见图7):

- 具活力的空间是品质、经济、舒适、环保、健康、可持续性发展的教育等许多方面的总和。
- 被植物包围的绿色空间能唤起积极的心理,并解除不适感。
- 把可持续发展和感知设计带入整个设计的过程,将转变建筑封闭压抑的空间感,使整个设计更加人性化。
- 在垂直城市设计的各个阶段,我们作为建筑设计师或甲方,需要在舒适性和人类感知上投入更多的思考时间。