

# FACING TO THE FUTURE —ARCHITECTURE TREND

## 面向未来 —建筑趋势2015

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Edited by: Long Zhiwei

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Innovated and new “space”—new model of architecture structure

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GUANGDONG UNIVERSITY PRESS

广东人民出版社

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### 图书在版编目(CIP)数据

面向未来:建筑趋势 2015/龙志伟 编著. —桂林:广西  
师范大学出版社,2015.2

ISBN 978 - 7 - 5495 - 5679 - 3

I. ①面… II. ①龙… III. ①建筑设计 IV. ①TU2

中国版本图书馆 CIP 数据核字(2014)第 152903 号

出 品 人:刘广汉  
策 划:君誉文化  
责任编辑:肖 莉  
装帧设计:龙志杰

广西师范大学出版社出版发行

( 广西桂林市中华路 22 号 邮政编码:541001 )  
网址: <http://www.bbtpress.com>

出版人:何林夏

全国新华书店经销

销售热线:021-31260822-882/883

上海锦良印刷厂印刷

(上海市普陀区真南路 2548 号 6 号楼 邮政编码:200331)

开本:646mm×960mm 1/8

印张:68 字数:30 千字

2015 年 2 月第 1 版 2015 年 2 月第 1 次印刷

定价:568.00 元(上、下册)

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# 序 Preface

未来的建筑会是什么样子？我们将会生活在怎样的环境之中？

如果你错过《建筑趋势 2013》，那么你没有理由再错过本书——《面向未来——建筑趋势 2015》。翻开此书，相信你将会在一系列真实详尽的建筑案例中，找到你想要的答案。

建筑行业经过历史的变迁发展，正逐渐以崭新的面貌焕然一新地呈现在我们面前。科技在进步，生活水平在提高，遵循着这一永恒不变的主题，人们对“未来建筑”也都有自己的看法。智能建筑、绿色建筑、仿生建筑相继应运而生，各家建筑设计公司也纷纷在追求效益的基础上，越来越重视建筑与环境共生、建筑与健康等问题。不论是可持续化、生态化、智能化等设计理念，还是从建筑材料、结构、外形入手的设计方法，都旨在为人们创造一处真正的自然舒适的居住空间。

作为《建筑趋势 2013》的续编，本书系统地网罗了来自 NL Architects、Office for Metropolitan Architecture、C. F. Møller Architects、Philippe SAMYN and PARTNERS、architects & engineers、AART Architects、加拿大 CPC 建筑设计顾问有限公司等全球范围内数十家一流设计单位的最新案例作品 60 个。不仅案例更丰富、资料更详尽，在案例分类上，我们也从建筑外形、材料、空间结构、技术、理念 5 个方面作了更科学、更切实的调整和追求。本书不仅可以带你一睹最具视觉标志性的建筑形态，感受最具独特创意的建筑结构空间，还能在 3D 建模技术、参数化设计等技术领域中领略最具魅力的建筑风采，在回归自然、绿色环保的建筑理念中触摸来自“雪松木”、“混凝土”的纯朴质感，回味来自“耐候钢”的沉淀余韵，被“幕墙玻璃”、各类“金属板”所折射出来的时尚现代光辉所折服。这不仅是一幅描绘未来建筑的蓝图，更是一本在细节处精雕细琢的图书珍品。

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After years of transition and development, the construction industry is taking on a brand new look. Science is in progression and people's living standard is improving. Following this eternal topic, people have their own views on "future architecture". "Smart architecture", "green architecture" and "bionical architecture" are born one after another. On the basis of pursuing profit, the architectural design companies are attaching more and more importance to the existence of architecture and environment, as well as relationship between architecture and health. Whether the concepts of sustainability, ecologicalization and intelligence, or the design solutions of building material, structure and shape are all aimed at creating a truly natural and comfortable living space for people.

As the continuation of *Architecture Trend 2013*, this book systematically features the latest 60 works by tens of first-class design units home and abroad including NL Architects, C. F. Møller Architects, Philippe SAMYN and PARTNERS, architects & engineers, AART Architects. Besides the more abundant cases and elaborate statistic, we also adjust the classification more scientifically and faithfully from the aspects of building shape, material, spatial structure, technique and concept. This book not only provides you with the most iconic building form, the architectural structure of the most innovative concept, but also make you have a taste of the most charming building style by the 3D modeling technique, parametric design, feel the simplicity of "cedar" and "concrete" in the concept of returning to nature and environmental protection, chew the fantasy of "Cor-Ten steel" and admire the modern fashion of "glass curtain wall" and "metal plates". It is not only a blue print of future architecture, more a carefully-carved and detailed book treasure.

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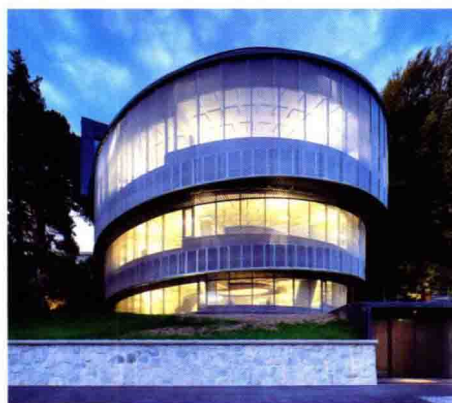
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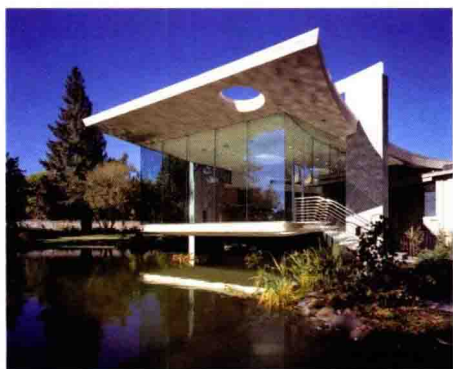
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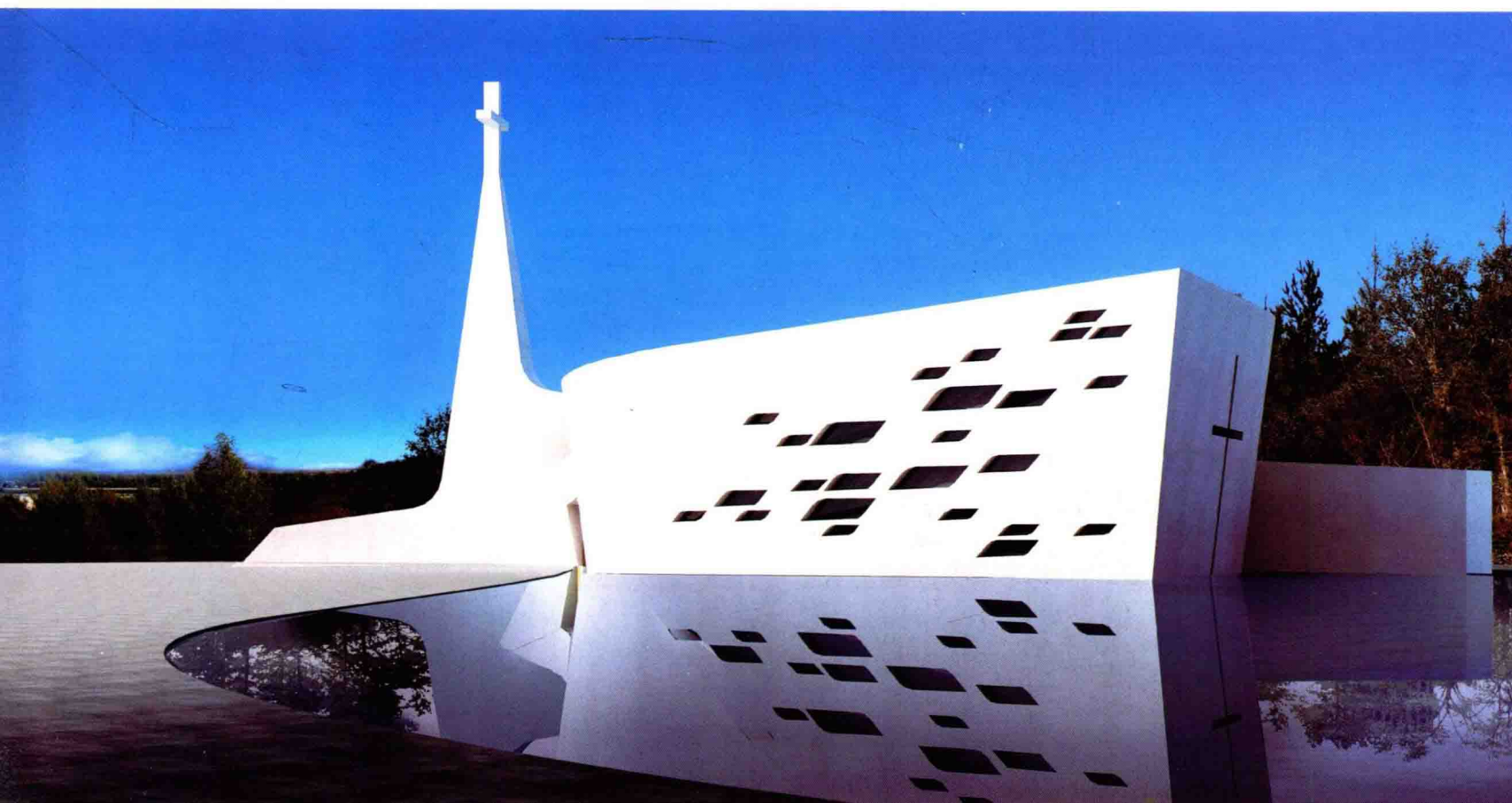
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广西师范大学出版社出版发行

( 广西桂林市中华路 22 号 邮政编码:541001 )  
网址: <http://www.bbtpress.com>

出版人:何林夏

全国新华书店经销

销售热线:021-31260822-882/883

上海锦良印刷厂印刷

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开本:646mm×960mm 1/8

印张:68 字数:30 千字

2015 年 2 月第 1 版 2015 年 2 月第 1 次印刷

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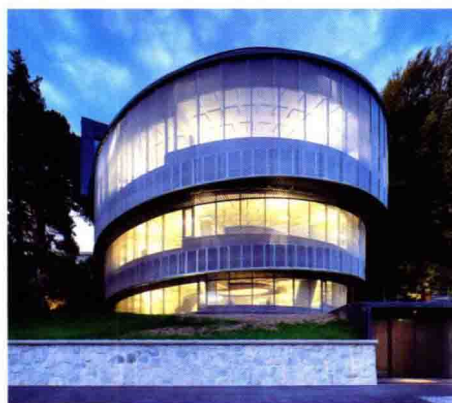
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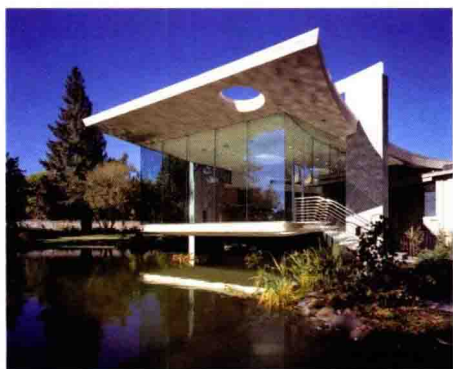
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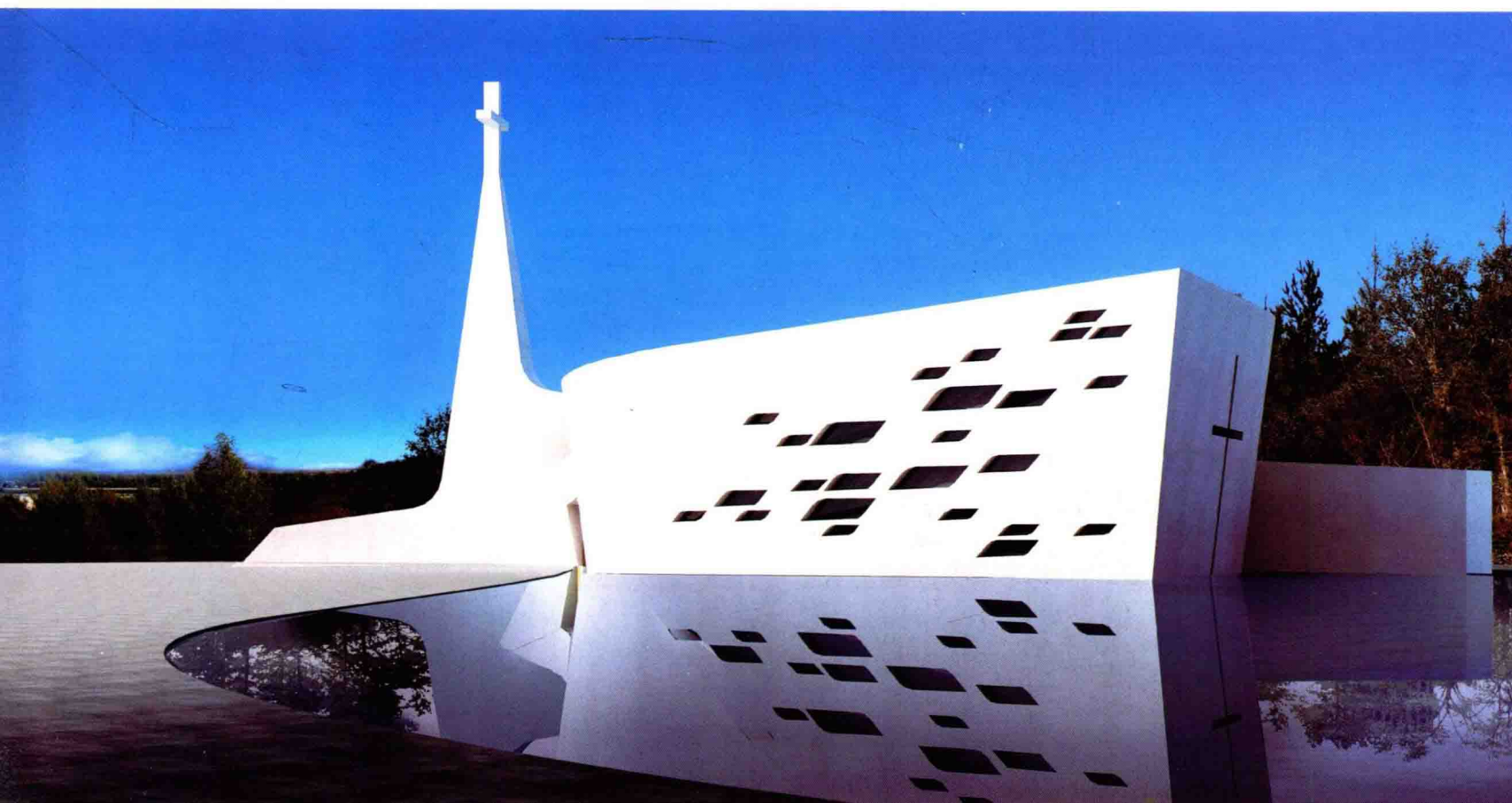
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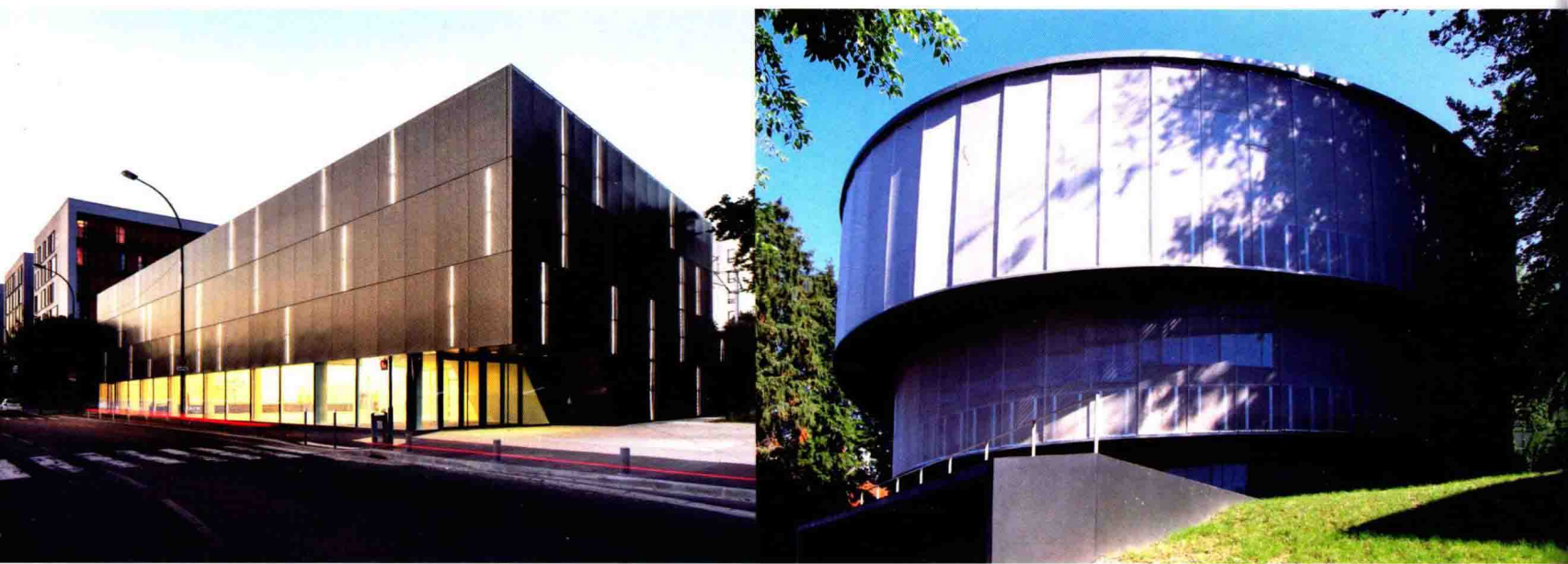






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## 创意新“空” ——建筑结构新模

## Innovated and new “space” ——new model of architecture structure

如果说把建筑外形比作一件“外衣”的话，那么建筑结构则是构成整个建筑的“骨骼”。再美的外形，没有一个坚实、可靠的骨架作支撑，也无法展现其美好的姿态。总体来说，近代建筑的主体结构大体上经历了三个发展阶段：砖（石）木混合结构、砖（石）钢筋（钢骨）混凝土混合结构以及钢和钢筋混凝土框架结构，而便于施工、安全、经济、适用和美观，则是支撑建筑结构不断更新、不断发展的五大原则。

在现代建筑学中，建筑结构设计作为建筑整体设计的一个基础，在某种程度上决定着建筑设计能否实现。因此，如何把握建筑结构的模式，变得尤为重要。

首先，高层建筑结构是中外所有建筑发展的大趋势。一个地区建筑的兴建与当地经济的发展有着密切的关系，而高层建筑往往是社会需求、经济发展的产物。这是因为，高层建筑不但能更有效地利用土地资源，提高空间的利用率，而且还具有体量大、视觉冲击力强、标志性强等特点。本章节中，英国伯明翰图书馆采用“建筑体块叠加”的方式提升建筑高度，德国耶拿电子有限公司研发大楼借助“楼层的交错式排列”拔高建筑，而瑞士苏黎世 Cocoon 则采用螺旋式上升结构，这些措施都是为了最大化地利用上升空间，进而增加建筑使用面积。

其次，随着物质水平的提高，民众的审美要求也在不断提升，因此，建筑结构在美学方面的利用与涉及也在逐步加深。追求美好的事物是人的天性，作为影响建筑结构发展的一个隐性因素，美学将会在未来的建筑设计中占据越来越重的分量。

此外，在建筑结构的发展过程中，越来越多的设计师开始注重对建筑屋顶的利用。现代建筑的屋顶不再像过去那样，利用砖瓦进行覆盖，大多采用平顶的设计方式。设计师们注重对屋顶空间的利用，一方面体现了可持续发展的理念，将建筑可利用的空间面积最大化，另一方面，也充分体现了现代建筑结构的美学以及地区文化魅力。本章节中的澳大利亚悉尼 Blakehurst 俱乐部利用 3D 数字建模软件打造几何体平坦屋顶，通过抬升屋顶，在最大程度上发挥建筑张力，进而形成了一个与户外相连的明亮又通风的空间格局；巴西圣保罗 Alphaville 俱乐部是一个大型综合俱乐部，活动频繁，来往人员较多，其中，俱乐部的网球场坐落在与该建筑相连的较低的地块上，因此，该屋顶被设计成观看网球比赛的观众席，居高临下的设计，便于网球爱好者及时捕捉到运动员在球场上的每一个动感的瞬间；而德国纽伦堡 Sipos Aktorik GmbH 生产车间则因其工业背景，采用屋顶天窗的设计，整个屋顶造型就像一个酒吧，除了能使车间得到丰富的自然采光外，还有利于缓解工人们的工作压力，激发工作热情。





If the architecture appearance is compared to a "coat", the architecture structure will be the "skeleton" constituting the whole building. No matter how beautiful shape, without a solid and reliable framework as support, can not show its wonderful posture. Overall, the main structure of modern architecture generally has experienced three development stages: brick (stone) and wood hybrid structure, brick (stone) and rebar (steel ribs) concrete composite structure, and steel and reinforced concrete frame structure. Moreover, the five principals for the building structure to be constantly updated and developed are the convenient construction, safety, economy, application and beauty.

In modern architecture, the architecture structure design, as a basis for the overall design of the building, determines that whether the design can be achieved in a way. Therefore, it is particularly important that how to grasp the architecture structure model.

First, the high-rise building structure is a general trend both in the domestic and foreign building development. The build of region architecture is closely with the local economic development, and the high-rise buildings are often the product of social needs and economic development. This is because the high-rise buildings are not only more efficient to use of land resources, and improve the utilization of

space, but also have a large volume, strong visual impact, prominent signs and other characteristics. In this chapter, like Birmingham library uses the method of "stacking building volumes" to enhance the building height; R & D building in Germany Jena Electronics Co., Ltd. is with the "floor staggered arrangement" to overstate the building; while Zurich Cocoon adopts spiral structure, these measures are designed to maximize the use of rising space so as to increase the usable building area.

Second, with the improvement of the material level, people's aesthetic requirements are also rising, so the building structure is gradually deepened to use and involve in the aesthetic aspects. To pursue the good things is human nature, so the aesthetics will occupy an increasingly important component in the future architectural design as an invisible factor affecting the development of building structure.

In addition, in the process of the development of the architecture structure, more and more designers begin to focus on the building roof utilization. Modern building roof is no longer as the past to use bricks for covering, most of the roofs use flat-top design. Designers also focus on the roof space utilization, which on the one hand reflects the concept of sustainable development to maximize the available space

area of the building, on the other hand, also fully embodies the aesthetics of modern architecture as well as the charms of regional culture. Taking this chapter for example, Blakehurst Club in Sydney, Australia is lifted the roof with 3D digital modeling software to create a flat geometry roof and plays building tension to maximum extent, so there forms a bright and airy space pattern connecting with the outdoor; Sao Paulo, Alphaville Club is a large comprehensive club with frequent activities and many people, and is located on the lower plot which is connected with the building, so the roof is designed to be the spectator seats for watching a tennis match. The condensing design is convenient for tennis enthusiasts to timely capture every dynamic moment from the athletes on the field; meanwhile, the workshops of Sipos Aktorik GmbH in Nuremberg, Germany are adopted the design of the roof skylight due to its industrial background. The entire roof shape is like a bar, which besides makes the workshops get rich natural lighting, and helps people ease the work pressure and stimulate the enthusiasm for work.