水晶石 CRYSTAL IMAGING

建筑表现 1995-1999

ARCHITECTURAL RENDERINGS

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CRYSTAL IMAGING

COMPUTER GENERATED ARCHITECTURAL RENDERINGS

建筑设计是一个过程，计算机是辅助设计。我觉得建筑设计有形象思维，也有逻辑思维，完全借助电脑是不行的，所以手绘草图是必不可少的。另外，直线尺我认为也不可完全替代，模型的制作也不能没有，只有在你的草图不断地反复，最后又经过模型的三维的思考，你的空间概念比较成熟以后，那么好了，把你这些概念用电脑整理出来，这是电脑辅助设计。就是说靠电脑去表现你的比较成熟的想法，不要靠电脑去装饰你不成熟的东西。

对我们所有电脑的视觉形象，我都是这种看法，电脑绘图，我就同意比较如实地比较素地表现建筑空间，画过多的人、汽车，画过多的绿化、环境，不真实的光影，都是不恰当的。

——— 刘　力

真正意义上的建筑师的建筑表现，我认为在中文里用“表达”更合适，实际上是从他的构思草图阶段就已经开始了，所以很多知名的国际建筑大师，他的草图就是独一无二的，他的草图就是反映他所追求的那一类型建筑的精神。草图，一直到他后边的成图，完全是一个系列的。所以要区分一下“表达”和最后这张表现图，原来过多地把表达或者是表现理解成最后一张渲染图，而现在要逐渐转向过程的表达。每一个阶段都有建筑师要表达自己的设计意念的问题。

从建筑教育的角度来说，要努力培养出更多的擅长或者叫善于表达的建筑师，从现阶段技术发展来说，就是要努力培养出多面手，能够用多种手段多种方式来表达他自己的设计理念的建筑师。这是建筑教育对建筑表现的一个发展方向。

——— 朱文一

并不是说现在的计算机代替了原来的水彩，这个概念完全不一样，原来画水彩渲染，其实大家是有意识无意识地用水彩思考，用水彩或水粉提供的那种信息量，那种方式在思考。其实盖出来的就是水粉建筑。实际对甲方来说，他想看到的是这个还没存在的现实的最真实的表现。

——— 张永和

建筑是一个更完整的东西，在空中，在围绕一个空中，在世界当中再塑造一个世界，这个世界是可以为人所体验出来的，这个世界有什么样的因素，有非常多的秩序，理论的起源就在这里，这个秩序的目标是什么，就是整体感，合谐感。

我们看到从古到今伟大的建筑，凝聚人类的感情，是人类资源的一部分，实际上并不是这些建筑师有多了不起，是建筑师体验到那个时代的一种感情，然后把它传递出来。这是从受性的角度去讲，从精神性角度去讲，自然当中冥冥当中就有这种秩序，它是借由建筑师的手把它呈现出来 … …

——— 杨维帧

我并不认为现在参与国际大型投标多了，建筑表现越来越复杂，就直接代表建筑设计水平提高，我觉得这种规模和时尚变化并不能代表设计水平的真正提高，我更看重真正从理念上怎么去提高。

——— 崔　凯

摘自关于建筑表现的访谈，此访谈中“建筑动画”专题部分已收录入本书随书光盘。

Prologue

By Wei dazhong

Oct 22 1999

In the field of architecture design and graphics,computer architecture presentation is a novice that came into being only a decade ago. "Architecture Presentation" is an even more comprehensive concept that denotes not only computer architecture graphics,but also various means of computer-aided design.

Computer architecture presentation has blazed a new trail in presenting and designing constructions by applying entirely new tools. Before this CAP era,we used to present and design architecture through perspective drawing or simple models, which served to an extent,but were not scientific,faithful and accurate enough,and were especially unsatisfactory in presenting the design process or the complicated and diversified new techniques in modern archetecture. That was why,with its multi-perspective models,CAP attracted the attention of architects and estate owners as soon as it made its debut. With the development of computer software and hardware, CAP have manifested more and more advantages in modeling,light using,material, detail and background presentation,and helped to conceive and perfect designs.

To evaluate CAP,we should first look at its "design content",that is,its consistency with the design intention and the way it helps to complete and perpect the design. Secondly,it should be ensured that Computer architecture graphics---the final products of CAP---are faithful and accurate in conveying the design intention, the architeture taste,charecteristics of the background and the atmosphere.

Needless to say,it would be most ideal if architects themselvs could make and use CAP as means of design and presentation. However,in modern society that is characterized by increasingly specific labor division it is virtually unaffordable for architects to do so both in terms of time and efforts,so naturally it became the responsibility of the special graphics companies,whose guidelines,construction sense as well as the professional skills of the staff directly bear upon their job and products. On their part,CAP specialists should serve as efficient aids in construction designing, and even participants. To accomplish highly successful products,they have to possess the necessary knowledge background in architecture,architecture design and art as well as basic drawing skills. More important,they have to be highly proficient in computer application and capable of constant expansion of their presentation scope and techniques,especially capable of understanding and representing the original designs.

Unlike average computer graphics albums,this co-edited book by CCGC and World Architecture quarterly is,as is shown in its name "Architecture Presentation",high in design content.The book not only represents an analysis from the perspective of computer sciencs of the means and advantages of CAP in depicting architecture models,materials,lights,background and details,but also an explanation,through comparisons of presentation graphs and construction plans,of the way a design conception is integrated with and thus conveyed by computer presentation,thus shedding more lights on the relationship between architecture designs and their presentation.

The integration of architecture design and its presentation is a necessity in perfecting designs and improving presentations. CCGC has achieved conspicuous results in CAP thanks to its unremitting efforts and close cooperation with architects in designing and ever-expanding exploration of the architecture presentation field. This book may serve as a summarization of their jobs in the past few years. I sincerely wish they would continue to try,to learn,to explore and to score.

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序

电脑建筑表现，在建筑设计和建筑画领域中是近十多年来发展起来的，"建筑表现"的含义更加广泛，不仅包括了我们常说的电脑建筑画，而且包含了辅助设计的种种手段，电脑建筑表现是一种利用全新的手段和工具来表现和设计建筑的新事物。在没有电脑建筑表现之前，我们无非是用绘画和做简单模型的方式，靠透视学和手工，非手工的手段来表现建筑，设计建筑，虽然也能达到很好的效果，但在科学性、真实性和表现力等方面有时受到限制，对于构思过程及对现代建筑复杂多变的新技术的表现，往往显得力不从心。电脑建筑表现一出现，立刻由于它那多视角的模型，逼真的效果，真实的环境和对复杂的细部的表现，吸引了建筑师和业主，随着电脑软件、硬件的发展，在建模、光线、材质、细部、环境等等方面，电脑建筑表现越来越显露出其优越性，它为建筑师提供了更加广泛、更加充分，更加自如的表现，日益成为建筑师的构思和完善建筑设计的助手。

对于电脑建筑表现的评价，我们首先应注意的是电脑建筑表现的"设计含量"，它与建筑设计构思的结合，它如何辅助完成和完善建筑师的设计方案；其次，在电脑建筑表现的具体体现—电脑建筑画方面，要看它是否真实、准确地体现了建筑设计的构思，是否有建筑味，能否具有充分表达建筑个性的环境和意境。电脑建筑表现作为一种设计和表现的手段，当然最好由建筑师本人去用，去画，但由于现代社会分工日趋精细，建筑师不可能有那么多的时间和精力去做，这个工作往往就落到专业绘图公司的身上，绘图公司的指导思想、建筑意识以及专业人员的修养、水平就会反映到他们的工作及产品上。对于这些专门从事电脑建筑表现的人员来说，应该能成为建筑设计的得力助手甚至参与者，如果要能创作出高水平的作品，那么他们首先要懂建筑，懂建筑设计，要有建筑设计的意识和知识；其次，要具有一定的艺术修养和绘画的基本功；作为本职，必须能熟练地掌握电脑技术，能不断扩展自己的表现领域和表现技巧，这里特别重要的是对建筑设计的领悟和表达的能力。

水晶石电脑图像公司与世界建筑杂志社合编的这本书与一般的电脑建筑画集不同，它的书名"建筑表现"就体现了它的内容中的建筑设计的含量，书中不仅从计算机技术的角度分析了电脑建筑表现在建模、材质、光线、环境、细部等方面的表现手法与能力，而且以表现图与建筑方案相对照的方式，说明了设计的构思和如何与电脑表现相结合来完美地表达出构思，这样我们就能更加清楚地看出建筑设计与建筑表现之间的关系，建筑设计与建筑表现的密切结合是完善建筑设计，提高建筑表现水平的必然趋势。水晶石电脑图像公司对建筑表现的不断追求，与建筑师设计工作的密切配合，在建筑表现领域的不断扩展，都使得它在电脑图像表现方面取得了引人注目的成果，这本书就是他们近几年工作的一个总结，愿他们继续发扬勇于探索的精神，取长补短，开拓进取作出更新的贡献。

魏大中 99年10月22日

Foreword

By Wang Ge (Architect)

This is an era of highly diversified communications and exchanges, an unprecedented time for Chinese architects to exert their power. The mushrooming designs and finished projects vary vastly both in styles and in techniques, imitative at the very beginning, more initiative and characteristic later. With the presence of some world famous design corporations in the Chinese market, the breaths of masters were increasingly keenly felt. The style variation that stems from culture differences has deep and far-reaching influence upon Chinese architectural design.

Meanwhile, architectural presentation with computer in China began, after a period of rapid growth since its birth as an independent industry, to orient its own values and future development. Architects hold strong interests in the fledging industry because the actual result of a building is modified by the way a design is presented. As we have noticed, in the final phase of many a complex design contest, architects, including those from the world class design corporations, unanimously chose to work with Crystal Computer Graphics Company, whose industriousness, persistence and unremitting efforts in providing design guidance allowed it to build its fame in a short span of a few years and to win the recognition and respect of many colleagues in the architecture fiels. Apart from the visual impact of the picture itself, the success of the design presentation mainly lies in its respect for the architectural design and its conveyance of the "design intention". Architects and CCGC share this pith of the architectual presentation.

Computerized architectural presentation has its origin in computeraided design.Compared with their foreign colleagues, who often use computers in polishing and presenting their designs, the Chinese architects tend to beautify---as is seen in more traditional architecture renderings. So Chinese architectural students, who are generally strong in their drawing skills, find it exactly in their line to touch up the effect picture. However, this practice is not only more demanding, but also inefficient. In fact, the key point of an architectural presentation is the conveyance of the intended air and style, which entails both faithfulness and vividness. To be faithful, a presentation has to be a grasp of the pith of the original design as well as a thorough understanding of its style, technique and architectual language. To be vivid, a presentation has to watch its expression, skills and effects so as to be natural and even without a trace of affectation. So it is especially remarkable to present to this effect a piece of architecture without any background, a goal the group of young people with CCGC has succeeded in achieving. It is indeed encouraging that they were ambitious enough to have chosen to pursue the rugged road of design presentation, and hence maintained a distinctive working style. All members of CCGC find in their personality open-mindedness towards design presentation, and they automatically give priority to "design intention"instead of "picturesque effect". CCGC has received positive feedback following this principle in each cooperation with architects, and brought life to all designs through flexible thinking and communication.

Many people have expressed their doubt at the prospect of computer architectual presentation, which, if merely viewed as a kind of drawing, really promises no optimism. No form of art can always prevails just because of its youthful vigor. The same goes with CAP too, which would also wither away without drawing inspiration from other kinds of art. However,if viewed as a form of computer-aided design,CAP enjoys a prospect far exceeding our imagination. All kinds of AP---drawings, motion pictures or the yet coming reality imitation---entail the basic tools of design language: space, volume, shade, color, atmosphere, etc, to inspire the imagination of architects and high-ranking estate owners. Far from being just a finished product, a presentation is also a trigger for

前言

王戈（建筑师）

这是一个传播与交流多元化的时代，中国建筑师的力量得到空前的释放，不断出现的设计作品和建成项目风格与手法差异巨大，除了一些早期模仿性的作品外，也涌现了大量富于探索意味与性格的作品。一些国际知名设计公司对中国市场的介入，逐渐使人们亲身触摸到了大师的足迹。由不同文化背景产生而出的多样性风格，对中国建筑设计形成深远的影响。

与此同时，中国的计算机建筑表现在以独立的产业形式由产生至快速发展了一段时间后，开始面临对自身的价值定位及对未来发展的取向。出于专业的原因，建筑师们对这一新兴的专业怀有浓厚的兴趣，为设计方案选择不同的表现形式将对实际的效果产生不同的影响。我们注意到，在许多大型公共建筑项目竞标的方案最终完善阶段，建筑师们（这其中不乏知名的国外设计公司）大多选择了同一个合作伙伴—水晶石电脑图像公司。勤奋执着和对建筑设计引导的不懈努力使水晶石公司在短短几年内声名鹊起，赢得了许多建筑同行的认可和尊重。方案表现的成功包含很多超出建筑画本身的影响力，对建筑设计的尊重和对“建筑意”的理解，是水晶石公司与建筑师的共通之处，也是建筑表现的精神所在。

计算机建筑表现循着辅助设计的主线产生。在国外，建筑师大多采用计算机对建筑设计进行推敲与表达，以往国内则偏重于渲染—即传统的建筑画意味更强，相比较而言，渲染的方式对中国学生绘画基本功扎实的特点比较合适，而表现的难度较大，走的弯路也较多。这是因为表达和表现一个建筑设计，重要的就是传达该设计的气韵与神采。既要忠实，又要生动。为了忠实，就得透彻认识原设计的精髓，掌握其风格、手法和建筑语汇。为了生动，就得讲究表达的方式、技巧和效果。要紧的是真实、自然，不能有半点勉强和做作。在没有任何配景的建筑表现图里，这种把握的能力显得尤为突出。令人欣喜的是，水晶石公司这一年轻的群体敢于并勇于选择建筑表现这条艰险之路，并一直保持着个性鲜明的工作风格，一种对建筑设计开放的态度扩展了每一个成员的个性空间，并使他们自觉不自觉地把“建筑意”放在首位，不以“画意”凌驾其上。这种观念在每一次和建筑专业人士的合作经历中贯彻并产生良好的响应，每一项设计也在活跃思维和沟通的影响下更加充满活力。

有不少人对电脑建筑表现的前景表示怀疑，如果纯粹从“画”的角度来看，这的确不容乐观。毕竟，没有一个画种因其新兴的旺盛生命力而保持长期一统天下的局面。电脑建筑画如果不从其它绘画艺术中获取营养与启示，也将会变得枯涩苍白。但是，换一个角度，假如我们把电脑建筑表现放在计算机辅助设计的范畴里来考虑，它的前景则会远远超出我们的想象。每一类建筑表现，无论表现图，动画还是将来的虚拟现实，都将以设计交流的基本规则——空间、体量、光影、色彩、氛围……唤起建筑师和高层次业主富有想像力的激情。它不仅仅是一个成品，更是下一步设计的发源。动画等新技术表现手段的出现，使建筑师以不断更新的视角观看设计的方方面面，推敲

further designing. New presentation techniques like motion pictures have enabled architects to see all aspects of a design from constantly changing. angles of view, to weigh its form, material and three-dimensional outlook and to concentrate on a human oriented architectual world.

At the same time, with arts turning into an economical and cultural resource, now architectual designs have indisputably become products. That means architects have to keep to the original design completely when turning it from a concept to a finished architecture step by step, and computer architectual presentation are subjected to even greater pressure in terms of both time and quality. From that,architects need to draw inspiration and creativity, need to waken motivated and responsible. The flexible and curious working partners need to face challenges side by side with architectual drawers. While on the part of the architestural drawers, they have to be able to explore the highly diversified ideas of the architects and track the taste and thoughts of the designers.

Architecture presentation in many foreign countries has long become an independent industry. Become an limited drawing techniques and abundant time margin, the presentations can usually keep to fixed styles like personal signatures, and when these styles attract some design studios. fixed partnerships are thus forged. Since Chinded construction industry and architectural presentation industry are still at experimental stage and the multitudinous construction projicts have different demands and designing styles, the focuses of architects can not be unified. So it is unnecessary and impossible to present all the design works with one fixed model. Due to the diversification of designs, the presentations need to be able to endure trials of any background, which in turn need the characters, devotion and talent of many young people as a working team to accomplish highly personified presentation works.

CCGC tried to create an ideal work environment---combining the advantage of big corporations of highly qualified personnel and that of small workshops of intimate teamwork atmospnere. Teamwork and cooperative spirit enabled CCGC to shoulder many large-scale and highly demanding projects. As onlookers, we have noticed that in such a highly personified industry as CCGC is in, the internal service quality also varies. So they have made many useful attempts in exchanges with other forms of art as implementation to their knowledge background. The ways of teamwork have enabled every member to make rapid progresses. In the fledging industry, it is especially challenging to develop oneself and have academic pursuits.

CCGC has moved from the hustle and bustle Muxudi to North Yuetan Road where it is better wooded and less crowded. In the dusk of the evening, I stepped into the new site, with lights filtered through the late autumn woods glimmering ahead and with peace and confidence inside.

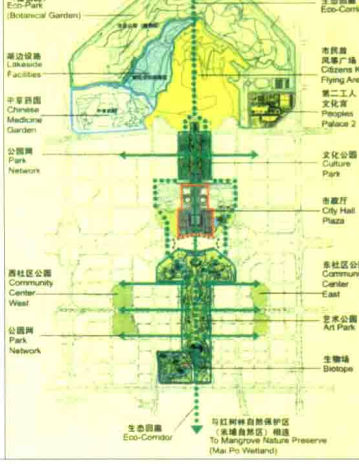
方案的体形，材料和空间感受，专注于以人为本的建筑世界。与此同时，在艺术成为一种经济上和文化上的资源的今天，建筑设计成为产品日益成为不争的事实。建筑师们必须将设计有步骤地具体而微地从概念一直贯彻到实施的终点，电脑建筑表现从时间上和完成水平上承担更大的压力。建筑师从这里需要激发灵感和创造力，需要充满激情和责任感。富于融通性和好奇心的合作者，需要和建筑画师一起承担新的挑战。建筑画师必须能够有效地挖掘建筑师们多样变化的思维，具备建筑设计师的思考和审美眼光。

国外的建筑表现独立成为一个行业已是很久远的事了，由于绘画方法的局限和时间的宽松，他们往往可以保持一种个人签名式的固定风格。这种风格被某个或某几个建筑事务所赏识，从而结成固定的合作伙伴。中国的建筑行业和建筑表现行业还处于实验探索时期，建设项目众多且要求不同，设计的手法风格迥异，建筑师的着力点也难以统一划一，试图用一套固定的模式去解决所有的设计表现变得笨拙和不可能。设计的多元化要求设计表现也能适应不同背景的考验，这需要许多年轻人注入他们的个性、才华和热情，并以团队的形式去完成非常有个人化色彩的表现作品。

水晶石公司努力创造良好的工作环境，使之在保持大公司高度专业化的人员优势之外，兼顾小工作室密切的气氛，团队感与合作精神使他们有力量承担众多高难度的大型项目，处于旁观者的角度，我们注意到水晶石公司在这一个性风格鲜明的行业中同样难以避免内部的水平差异，他们为此进行了很多有益的尝试，与其它艺术形式的交流构成水晶石公司内部知识结构的重要补充，小组配合的方式使每一名成员得以快速提高。在这一新兴的行业中，对自身发展的探索及对学术的探索显得格外艰辛。

1999年，水晶石公司从人流熙攘的木樨地迁往了月坛北街的新址，新的环境，行人很少，树木茂盛、道路宽阔。夜幕降临时走进去，面对深秋黄叶满林外的一片灯光，我感到了厚实与沉着。

群体规划 Urban Planning



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深圳市中心区

Shenzhen Central District

深圳市规划国土局

Shenzhen Planning & Land Bureau

作为深圳市的中心商务区（CBD），中心区的建设将促进深圳城市商务功能由主要服务于本市向“区域性”和“国际性”转化，满足二十一世纪区域及国际交流的功能要求，为深圳实现区域性及国际性金融、商贸、信息中心及旅游胜地的战略目标提供优良的城市活动空间。中心商务区集中在南片区中央绿化带两侧，将为国际性跨国公司的商务活动提供便捷、高效和优美的工作环境。中心区的行政中心功能将为更加高效的行政管理及公众参与活动提供良好的环境。中心区的行政中心功能集中在已开工的市民中心内，市民中心位于中心区北区的中轴线上，内容包括政府办公、博物馆、工业展览馆、档案馆、会堂及市民活动及庆典场所等，总建筑面积20万平方米，设计中充分考虑了同周边生态环境的有机结合，外形如大鹏展翅，气魄宏大，将成为深圳市的重要标志。1992年，中国城市规划设计研究院深圳分院编制了《中心区控制性详细规划》和《中心区交通规划》；1994年，深圳市城市规划设计研究院编制了中心区城市设计方案；经过严谨而精良的策划，1996年举行了由国内外著名设计机构参加的市中心城市设计国际咨询，同年8月，由国内外著名规划设计专家组成评委会，召开设计方案国际咨询评议会，美国李名仪／廷丘勒建筑师事务所的方案，因“在处理布局、轴线、交通、个体建筑形象、实施和改进的灵活性等方面解决得比较全面”而被推荐为优选方案。1997年，日本黑川纪章建筑／都市设计事务所以生态与信息共生的哲学观念编制了《中心区中轴线公共空间系统详细规划设计》；1998年，美国SOM事务所对即将全面开发的两个街坊进行了精彩的城市设计。

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SOM社区鸟瞰

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