



全国高等学校建筑美术教程

名校名师系列

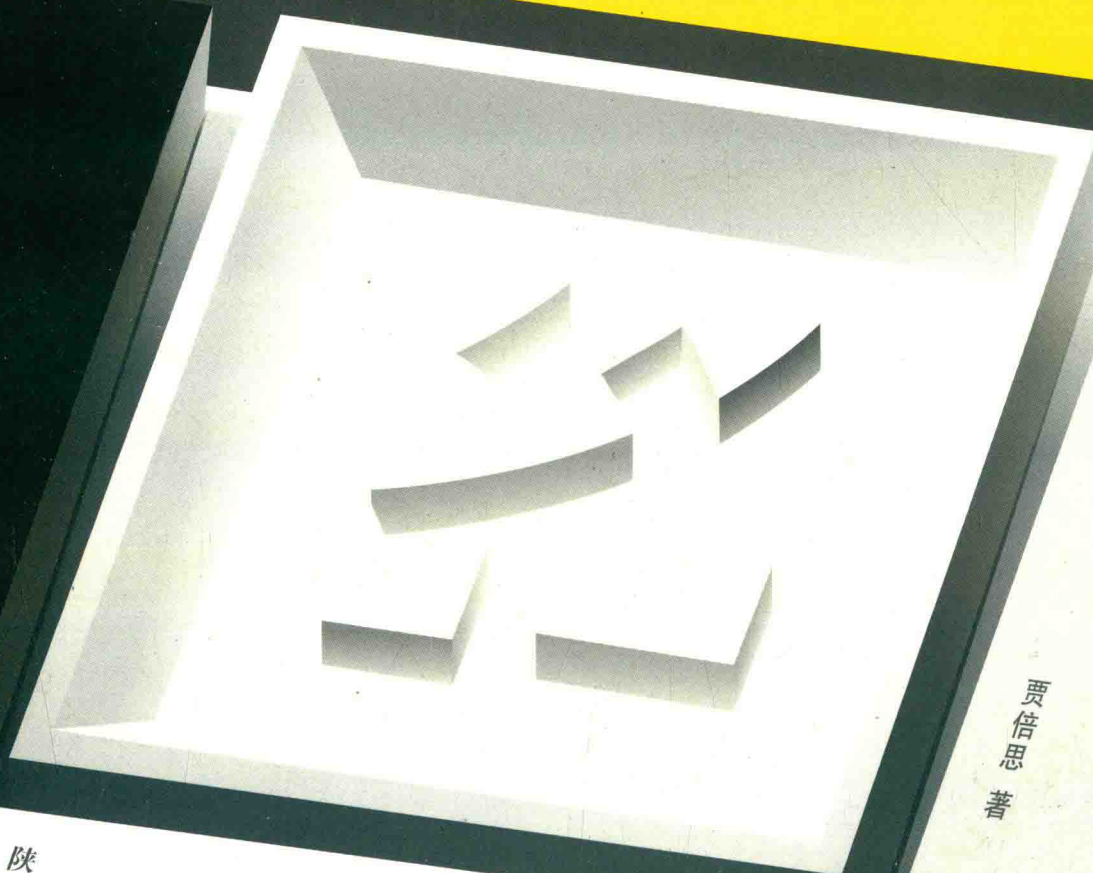
THE SERIES OF TEACHING MANIFESTOS IN ART OF ARCHITECTURE
THE GOOD TEACHERS FROM THE PRESTIGIOUS DESIGN SCHOOLS IN CHINA

ARCHITECTONICS OF MODERNISM

JIA BEISI
THE UNIVERSITY OF HONG KONG

香港大學 · 贾倍思

型和现代主义



贾倍思 著

陕西新华出版传媒集团
陕西人民出版社
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图书在版编目(CIP)数据

名校名师系列. 香港大学. 贾倍思. 型和现代主义: 汉英对照 / 贾倍思著. —西安: 陕西人民美术出版社, 2017.5
全国高等学校建筑美术教程
ISBN 978-7-5368-3287-9

I. ①名… II. ①贾… III. ①建筑画—绘画技术—高等学校—教材—汉、英 IV. ①TU204.11

中国版本图书馆CIP数据核字(2017)第012859号

全国高等学校建筑美术教程参编学校

清华大学 香港大学 同济大学 天津大学 浙江大学 昆明理工大学

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丛书策划 邱晓宇

责任编辑 邱晓宇

责任校对 熊 菁

封面设计 王立波

全国高等学校建筑美术教程·名校名师系列

香港大学·贾倍思——型和现代主义 汉英对照

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出 版 人 李晓明

出版发行 陕西新华出版传媒集团

陕西 人民美术出版社

经 销 新华书店

地 址 西安市北大街147号

邮 编 710003

印 刷 西安五星印刷有限公司

开 本 889mm×1194mm 1/12

印 张 17 $\frac{1}{3}$

字 数 450千字

版 次 2017年5月第1版 2017年7月第1次印刷

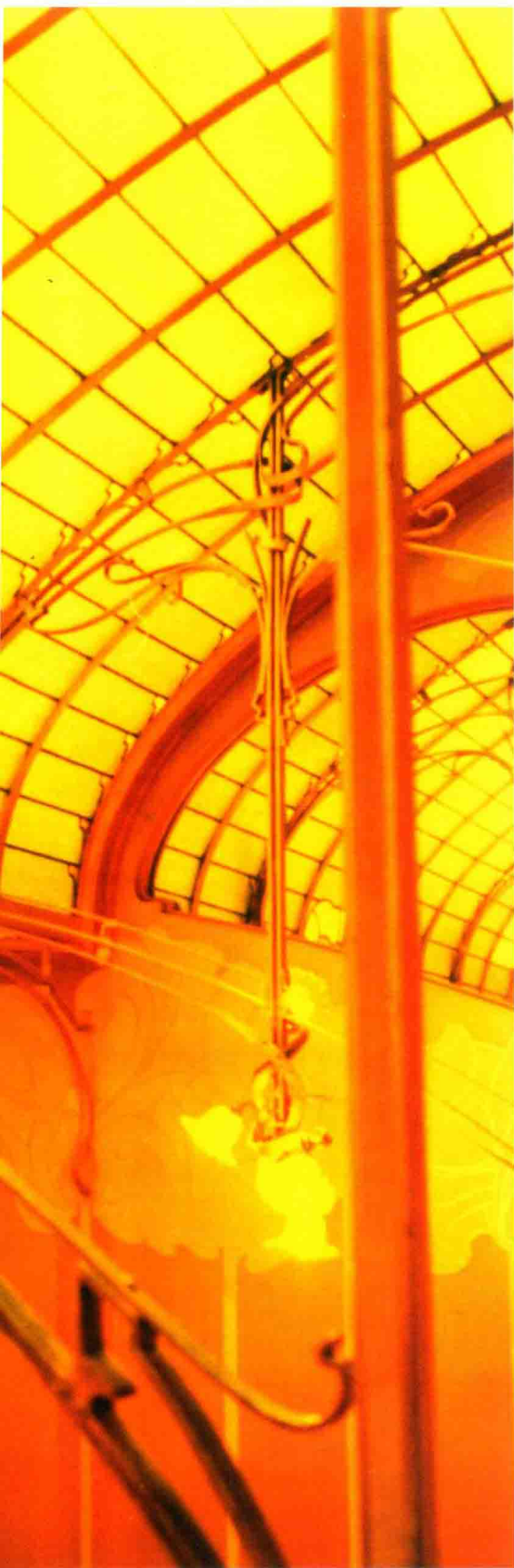
印 数 1-2000

书 号 ISBN 978-7-5368-3287-9

定 价 145.00元

发行电话 029-87262491 传真: 029-87265112

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再版前言

最近读到英国人杰弗里·斯科特 (Geffrey Scott) 的《人文主义建筑》一书。这是他在意大利工作旅行中撰写，于1914年出版的。我看的是1999年的再版。从初版到再版，经历了现代主义建筑运动对世界城市造成天翻地覆的变化。通过对意大利文艺复兴建筑的考察和相关的意大利文献的研究，他批判了19世纪后期的建筑观点，即伟大的建筑不是来自宗教、科学、材料、建造方式、社会运动，或大的业主（当时的教皇），虽然这些都和建筑相关。他认为伟大建筑的决定因素是人性的美。至于什么是美，可以留给好事者继续争论。但不可否认，美至少是和艺术相通的，在这个层面上，建筑不再孤独，不必世俗。

文艺复兴时期的建筑，包括那个时候大量传统建筑、城市结构和公共空间以及文艺复兴的绘画、雕塑一起完整地保留了下来，变成了全人类的文化遗产。虽然当时的功能、使用方式、业主和居民早已淹没于历史长河，但这些建筑和城市空间依然服务于今天的社会。今天外国旅游者徜徉于这里的大街小巷、宫殿教堂，而不用去关心建造技术、材料或构造，或早已逝去的那个社会。吸引他们的是美。

看来美比现代主义建筑强调的功能或建造更加永恒。我长期以来一直从事建筑的灵活性、开放性、被动式节能，和“可持续建筑”的研究和实践，我越来越相信，真正的可持续建筑是美的建筑，而且是和艺术紧密结合的。

现代主义建筑有美的和艺术的一面，却常被它的实用性、技术性、社会性和功能性所遮掩，13年前出版的《型和现代主义》试图平衡一下扭曲的建筑学术观点。每每遇到颇有成就的青年建筑师说上学的时候读过这本书，我都觉得有点尴尬——这本书是否真的对他们有一点影响？和13年前相比，今天的中国已是“轻舟已过万重山”！但中国的建筑从“量的增加”到“质的提高”的转型可能才刚刚开始，这本书的再版也许还有意义。但囿于个人能力和时代所限，书中谬误尚待读者不吝赐教。除了修改了几处明显的文字错误、重新排版和少量更换练习图片外，全书基本和初版一致，保持原貌。以期读者以时代的距离感来看这本书。

霍伟恩

2016年春于香港大学

Foreword to the Second Edition

My latest reading found *The Humanism of Architecture*, written by British writer Geoffrey Scott. It was published in 1914 for the first time, following his trip and working in Italy. The edition I read was published in 1999, after a tremendous change of urbanization in the world accompanied by modernism ideology in Architecture. Based on the studies of documents and observations of Italian Architecture of Renaissance, he criticize a few Architectural fallacies prevailing in the late 19th century. He found the great buildings were not outcomes of religious, science, material, construction, social movements, or big clients, such as Pops, no matter how influential of these factors. The determinate factor of the great buildings is humanism esthetic. What esthetic is, remains for debating of different interests. Nevertheless, esthetic paves the ground shared with art—Architecture is never alone or has to be pragmatic.

The buildings of Italian Renaissance, including large amount of conventional buildings, urban structure and open spaces, are largely preserved as human heritage together with the paintings and sculptures of the time. The original purposes and functions of the buildings have changed many times. The clients, occupants, residents faded in the history. However, these buildings and urban spaces continue serve the needs of current society. Lingering around the streets, palaces and churches building built in this period, the tourists from all over the world are attracted by the beauty of Architecture, without much understanding of the technology, materials and construction belong to that society which is long forgotten.

Apparently, the esthetic can last longer than any function or construction technology, the dogma of Modernism in Architecture. I have been engaging in research and design of technical flexibility, Open Building, passive low energy buildings and sustainable development. I tend to believe the truly sustainable buildings are the beautiful buildings bonding within art.

The esthetic component of the Modern Movement in Architecture is hidden in the shadow of pragmatism, technocratic, social ideology and Functionalism. The publication of *Architectonics of Modernism* 13 years ago, was a critic to the ill minded Architecture critics prevailing at the time. However I was still hesitated to ask if the book was really useful, whenever a young established architect told me he read the book when he was a student. China has changed a lot in last 13 years. However the transition from quantity orientated design in Architecture to quality orientate design may have just started. Therefore this second edition of the book may still have its significance. Confined by the personal capability and the day, there might be some hidden bias in this book to be corrected by the audience. However, this edition is largely the same as the first edition, except a new layout, correction obvious typo, and the adjustment of a few illustrations in student exercises. I hope the message of the book can still be detected in a distance of time.

Jia Beisi

Spring 2016 at the University of Hong Kong



前言

望着墙上的斑渍，炉边的煤堆，天上的白云或者流水不一定是愚蠢的。当一个画家仔细观察这些东西的时候，会有惊人的发现，通过充分发挥想象力和智慧，他可以勾画出人兽争战、群魔乱舞等奇幻壮丽的图卷。

（列奥纳多·达·芬奇 1452—1519）

照相机是白痴的工具，他以机器代替眼睛来看东西。而绘画是用线条组织形体和机理。这是一个从看到观察最后到发现的过程。随之而来的是启发和灵感。发明和创作都归因于一个观察行动，行动改变了事物。其他人视而不见——而你却看到了！

（勒·柯布西耶：我的作品，1960）

应黎锦超教授邀请，我于1996年到香港大学执教，我跟他说我要教“型的构造”，当时他是主席教授和建筑系主任。他看了我的报告后想了一会儿，同意了，而且放手让我自己独立组织全部的教学计划和内容。这门课后来吸引了许多学生，也引起不少校内外朋友的兴趣。黎教授在我到来一年后不再当系主任，三年后也不再当主席教授，并退休离开了学校。这门课也就此终止。

我和学生们度过了一段快乐的时光，我觉得有话要说，决定写一本有关这门课的书。这件事拖了很久，但我一直想写完之后让黎先生看一下，也许他还会写一篇序，但就在我刚把初稿写完，交到出版社，开始考虑写这个“前言”的时候，黎先生却突然去世了。这本书是献给他的，我想我的学生也会有同感。这样想并不能帮我从巨大的悲痛和深深的内疚中解脱出来，相反也许还将伴我度过余生。

教学程序和由此产生的创造性思维的关系是本书的中心所在。它也是在对理论和教学实践两方面深入研究的一个成果。这个研究建立了一个试验的基本框架，并通过“型的构造”设计组的学生合作而完成。建筑设计实践和建筑教育实践是两个不同事情。这种二分法已经存在了超过200年了。在工作中我越来越相信，前者属于过去，而后者面向未来。

当前建筑教育的问题之一是羞于或不敢提倡建筑教育的学术性。许多学校囿于现状，或者在过时的思想库里翻箱倒柜，或者重复过去培养专业人才的做法。这种状况应该改变。学校实际上

提供了一个一般实践领域无法提供的对建筑学本身执着探求的环境，学校应领导建筑学，而且责无旁贷。

建筑与艺术密不可分，房子也许可以。并且，这种建筑实在太普遍了！艺术之于建筑之重要，并不在于造一个什么样的形体，而在于它是否能给建筑一个灵魂。对敏锐的观察者来说，这种审美质量是可以感知的，至少能看到，有时感觉非常强烈。这种质量非常难以捉摸。建筑中的艺术教育非常困难，除非将其视为既是建筑又非建筑的东西。这个问题类似于为了寻找鼓声来源而将鼓皮撕破一样，只能失望地发现鼓里面什么都没有——更糟糕的是，鼓也被损毁了！从这个神秘的意义上来说，鼓声既不属于鼓的蒙皮也不属于鼓腔。或者说，建筑中的艺术既不是建筑也不是纯艺术，我称之为型的构造，当然这个词在不同的环境中有不同的含义。

这本书由三部分组成：理论、练习和构成原理，它们互相关联。理论是课程和练习的基石，其部分内容也是课程中运用的资料。理论部分又分为两个小部分：一是建筑教育史中的艺术训练，二是当前建筑趋势中的艺术思考。理论部分展示教育的许多观点和方法已在过去讨论和运用过了，而21世纪带来的新的问题却被忽视了，而且历史对这些新问题无法回答。未来还在黑暗中，需要创造性的心灵去探索 and 发现。练习部分包括课题内容、要求和方法，也包括部分学生作业插图，没有这些插图，书中的教育内容无法理解。这些练习是按由浅入深的顺序排列的。构成原理是一些在其他设计和艺术形式中常用的方法，在书中无非用形体构造的方法表现出来。

我首先感谢参与这门课的学生，特别是那些为本书插图贡献作品的学生。在本书的写作过程中，也得到建筑系几位出色的研究助理的协助，他们是艾米·薛、何文青和保罗·陈。研究生贺珺妍、弗朗西斯·弗里克和贾云艳将我的草稿加工成可发表的文章。我对他们的协助深表感谢。我也特别感谢王微琼女士的无私帮助，在我超时工作、夜夜晚归时所表现出的宽容态度，对此我受之有愧。



香港大学建筑系

2003年10月16日

Introduction

It is not to be despised if, after gazing at a spot on the wall, at the coals in the grate, at the clouds, or at a flowing stream ... If the painter looks at them carefully, he will discover some admirable inventions of which his intelligence may take full advantage to compose battles of animals and men, of landscapes or monsters, of devils and other fantastic thing that bring him honor and fortune.

Leonardo da Vinci, 1452—1519

The camera is a tool for idlers, who use a machine to do their seeing for them. To draw oneself, to trace the lines, handle the volumes, organize the surface...all this means first to look, and then to observe and finally perhaps to discover...and it is then that inspiration may come. Inventing, creating, one's whole being is drawn into action, and it's the action which counts. Others stood indifferent—but you saw!

Le Corbusier: My Work, 1960

When I was invited by Prof. Eric K-C Lye to come to the University of Hong Kong in early 1996 to teach, I told him that I want teach Architectonics. As the Chair Professor and Head of the Department of Architecture, he considered my proposal for a while. Then he agreed and granted me a completely free hand in its arrangement and content. This course later aroused tremendous interest from students and many friends both inside and outside the Department. Eric then retired from the Head position a year later, followed by his subsequent retirement from his parallel Chair position three years after. It was no surprise that this course was cancelled in his absence.

I had a wonderful time with my students. After the experience I felt I had something to say, so I decided to write a book about it. It took longer than I expected. However it has been always in my plan that Eric could enjoy a preview and write a preface if possible. But my timing was perversely unlucky. Just after I finished the book and started to write this introduction, he passed away. So I feel this book is best dedicated to him. I believe my students, whose works are illustrated here, feel the same way. Of course this can not release me from the deep sorrow—and gratitude—I feel towards him, which will probably accompany with me for the rest of my life.

In my teaching work, the relation between discursive procedures—language—based activities—and nonverbal creative thinking gradually evolved and finally become central to this book. Research was done both within the domain of theory as well as in reference to educational practice. These two research



undertakings established the basic framework of an experiment completed in collaboration with the students in my Architectonics studio. Those unfamiliar to architectural training will be surprised to learn that architectural practice and architectural education are two very different things. Yet this dichotomy has existed for more than 200 years. A belief behind all my work here is that the former—professional practice and its accepted norms and expectations—belong to the past, and the latter—architectural education, in its deepest (and misunderstood) aspects—belongs to the future.

Architectural pedagogy and instructors have become shy or afraid or concerned about being perceived or labeled as “academics” who allegedly lose touch with the day-to-day realities of professional architectural practice. At the same time, it is also true to say that many schools are merely lazy: they are content to stand still, recycle their thoughts and repeat the same actions that have produced competent professionals in the past. This situation should be changed. Academia provides a situation that potentially allows the discipline of architecture to be pursued with a thoroughness that is impossible to achieve in conventional professional practice. The schools bear the heaviest responsibility to advance pure architectural thought.

True architecture cannot be separated from art; or more aptly, from hyperdimensional art. Of course, mere functional buildings can be totally artless. And such buildings are all too common! The relationship of art to architecture is important, but not simply because it might give a building its “shape”. Art injects into an otherwise lifeless building a creative soul. To the sensitive observer, this aesthetic quality is felt at least as much as it is seen, and sometimes most strongly felt. This quality is highly elusive. Identifying or locating “artistic” elements in pure architectural terms is impossible, unless we could artificially separate these from the physical building, yet somehow preserve the original coherent whole which we call Architecture. The problem here is similar to that of tearing off the skin of a musical drum in hope of finding from where the sound comes, only to be disappointed finding that “nothing” is inside the drum—and worse, now the drum itself has been destroyed! In this mysterious sense, just as the drum sound belongs neither to the drum skin nor to the drum cavity, art in architecture belongs to neither “building” nor “fine art”. I call this elusive aesthetic effect architectonics, although the term has different meanings



in different contexts.

This book consists of three parts: *Theory, Exercise and Composition Principles*. They are interrelated. *Theory* lays a foundation for the course and exercises. Part of it was delivered to students in my lecture series. *Theory* is also divided into two sessions: art training in history of architectural education, and art thinking in current architectural movement. This work reveals, with evidence, that many educational issues have been studied and/or implemented a long time ago. It also points out that new challenges imposed by our own 21st century—to which architectural history fails to give appropriate answers—has been neglected in current architectural education. The future lies in the darkness waiting for creative minds to explore and discover. Documented exercises, issue in this book. The practice section includes topic coverage, requirement, method and student work illustrations. The educational content of the book can't be understand without these illustrations. Organization of these exercises aims to help students progress into increasingly complex and deep modes of thought and work. Although the same composition principles are frequently used through out the world of design and art, here they are represented in *architectonic* ways.

I remain grateful to all the students who participated in the course, especially those who contributed illustrations to the book. In working through the book, I received generous support from several remarkable research assistants in the Department of Architecture. To Amy Oi Wah Sit, Man Ching Ho and Paul Chan, I owe a special debt of gratitude. My thanks also go to Jessica Junyan He, Francis Frick, and Yunyan Jia who converted my scrawl into a polished manuscript. I wish to thank to Joanne Weiqiong Wang for her selfless support. She offered far more patience and forbearance than I deserved during my overtime work in the office.

Jia Beisi
Department of Architecture
The University of HongKong
16th October, 2003

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三维构成训练简介

三维构成的定义是对空间要素，如形体、形状、大小、质感、色彩、体积、容积、光影等在三维空间中的组织和关系的研究。空间的形是三维的状态。三维构成训练旨在掌握空间设计中的基本形态规律。

一个设计得很好的形，往往在形体和空间构成原理的运用上富有创造性，而且表达清晰。对一个初学者来说，这些原理往往难以辨认，因为建筑是一个集历史、文化、功能、技术为一身的复杂的综合体。而且在职业化的建筑教育体制下，建筑设计要求适应不同的需要，形态的原理变得无足轻重。这个三维构成训练课程正是针对以上问题而设置的，它的目的是将学生的注意力集中在纯粹美学和抽象的形体构成原理和技巧方面。

在课程练习中，我们的工具包括剪刀、刻刀、钉锤、胶水和任何可用的东西。当然常用的材料是模型木，如木条、木板，还有瓦楞纸、铁皮、玻璃与各种织体布料等。我们要求学生“做”，而不仅仅是画。

我们通过一系列练习来开发和提高学生对三维形体的感知力。我们鼓励观察形体和空间、光和影、尺寸和尺度。我们鼓励用接触和感觉来理解空间和材料。我们对手工制作要求很高，因为它是自由和诗意化表现的基础。

我们强调工作的速度，要求手的速度快过脑的速度，避免让评价和权衡打断和干扰创造性工作过程。探索未知，无论成功或失败都其乐无穷。当我们挣脱自我束缚，才可以开始领略三维构成课程的益处。

练习一 黑与白

目的：

我们能看见东西，是因为有光。不同的亮度和对比让被看的东西千变万化。我们能在黑中看到白，白中看到黑，看到在黑白之间的不同色调。这个练习的目的是训练我们眼睛区分不同色调的能力，训练我们的手敏锐地表达这些不同。

Architectonics: COURSE INTRODUCTION

Architectonics is defined as the basic study of the composition of, and the relationship between, various properties of forms, shape, size, texture, color, mass, volume, light and shadow in three dimensions. An architectural form is a three-dimensional entity. Architectonics deal with the fundamentals of spatial design.

When we say that a form is well designed, it also means that principles of composition in form and space have been creatively applied and clearly expressed. For a beginner in architecture, however, these principles are difficult to discern because other aspects of architecture such as history, culture, function and technology come into play, adding complexity to the building form. Furthermore, since compromises often have to be made and requirements are often revised—especially in professional practice—design principles become ever more obscure. In this Architectonics course, we will concentrate on the basic principles and skills of form composition in purely aesthetic and abstract ways.

For this course, we will use scissors, cutters, hammers, glues and found objects as tools for the various exercises. We will also use wood rods, wood veneers, corrugated paper, metals, glass, all kinds of fabrics as a few of several possible materials. We “make” things in this course—not simply draw them.

We are encouraged to expose and develop our sensitivity to architectural form through a series of design exercises. We are encouraged to see forms and space, light and shadow, dimension and scale. We are encouraged to understand space and materials by touching and feeling. Equally important is the appreciation of the qualities of handwork and handcraft, which embody a free and poetic expressiveness.

We are encouraged to work quickly; in fact more quickly than we can think. By suspending judgement and saving evaluation for later, we can more easily maintain a creative flow. Trying something new—having fun—is the most important attitude in this extended study. When we place fewer critical demands upon ourselves, we begin to enjoy the process of Architectonics.

Exercise 1. BLACK-AND-WHITE

Objective:

The sun gives the world light. With light we see things. We see things differently with different degrees of brightness and contrasts of light. We can distinguish white from black, black from white, and many intermediate tones between white and black. This first exercise trains our eye to distinguish different tones and our hands to produce them.