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设计教学空间的立场

Pedagogical Positions of Design Teaching Spaces

张利/ZHANG Li

绝大部分建筑人的建筑教育开始于建筑学院的设计教学空间。颇具怀旧色彩的“专教”一词在某种程度上传达了这类特殊教学空间的识别性。我们不想声称自己是环境决定论者，但不可否认的是，设计教室——或“专教”——对我们建筑价值观的最初树立有着至关重要的影响。我们在此启动建筑的行程，浸染建筑师的习性。我们在此以无知者的天真，毫无抵抗地接受这一空间传递给我们的立场。

设计教室从来不是，也不可能是一种中性的透明存在，虽然不止一个当代的前卫建筑学院声称要彻底去除设计教室的价值观引导。设计教室一定是其所属教育机构的建筑教育立场的真实物化，我们可以从3个方面识别一个设计教室所携带的教育立场。

第一方面是设计教室的社会结构立场。任何一个设计教室都容纳着由设计教师与设计学生所组成的群体，而其中隐含的组织结构与行为结构是非常令人感兴趣的。其一，在教师与学生之间，传统的基于逐桌辅导机制的垂直师生关系正被时下的基于围合式研讨空间的水平师生关系所取代。其二，在学生与学生之间，传统的单打独斗的个人空间也越来越多地与共享桌面的群组头脑风暴空间相结合。事实上，如何取得设计教学的个人空间与共享空间之间的平衡已经是困扰建筑学院决策者们的常见问题，各学院的创造性策略也是层出不穷。哈尔滨工业大学建筑学院充分利用了苏式建筑中的方形环廊，使渗透式的设计教学空间在旧的规则边界网格中灵活地蔓延，使历史韵味浓厚的空间历久弥新。天津大学建筑学院很早就建筑学院中引入多层次的社区化的凝聚感，随着学院建筑的改造与扩建，这种社区性不断得到增强。东南大学建筑学院使用了完整的可移动构件体系，在相当局限的空间中把局部空间组合的多样性最大化，实现了以变应变的有限中的无穷。香港中文大学建筑学院使用了高可视度的边庭空间，强调非正式交往中的叙事性与正式活动中的流动性。

第二方面是设计教室的技术立场。既然是技术，就总会默认地存在演化进程中的新与旧，也总难免在不同院校之间形成一种技术更新此起彼伏的“蛙跳”效应。清华大学建筑学院在旧建筑的方院之中加入通透的新楼，不仅在新楼的围护结构中实现了

一系列的节能技术措施，更通过新旧建筑体量组合，戏剧性地改善了局部室外气候。香港大学建筑学院纽鲁诗楼在其40余年的使用中，不停地融入高密度环境下的可持续性策略，从对气候的适应到对空间使用要求的适应，从热环境到光环境，以基本的建造解决方案来维持建筑空间的高性能。新近建成的西交利物浦大学的设计楼则是在各种空间环境技术的基础之上，赋予了最新的建造实验室以建筑学院的中心地位，让建造技术的过程与结果同时为设计教学服务。

第三方面是设计教室的美学立场。每个建筑学院的决策者都明白，设计教学空间的形式美是自己的学院所坚信的建筑美学的无声宣言。因而像每个内心强大的建筑师在面对形式泥沼时都会坚持走自己的路一样，每个自信的学院在此也都会毫不遮掩地把自己认定的形式干预纳入到设计教学空间之中。内蒙古工业大学建筑学院延续其校园早期工业建筑改造所定义的直线与浑厚语汇。重庆大学建筑学院通过其色彩和向心型中庭空间的使用强调创建者的初衷。华南理工大学建筑学院基于热带气候，把其庭院的环境友好性、空间适应性与界面通透性发挥到极致。同济大学建筑与城市规划学院在逐渐迭加的建筑群组之中，清晰地贯彻国际现代都市的材料与几何表达。中国美术学院则是在教学空间的内外勿庸质疑地传递其灵魂式信息，即对中国园林空间诗学的钟爱。

本期杂志是《世界建筑》对建筑教育空间话题关注的第一部分，我们将在后续专辑中呈现其他精彩案例。

感谢本期所涉及的建筑学院的相关作者，是他们使本期杂志的出版成为可能。□

作者单位：清华大学建筑学院/《世界建筑》
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Most of us start our architecture education in design studios. It is these spaces that give us the first identity of someone working in architecture. We don't intend to promote environment determinism here, but it is true that spaces for design teaching have fundamental impacts in the setting up of our values towards architecture. We first enter these spaces when we were young and ignorant, totally defenceless to whatever influence they would bring.

Therefore no design studio, or space of design teaching, is impartial. No matter how many avant-garde architecture schools claim to be impartial, they simply cannot. In a design studio we see the honest materialisation of the pedagogical positions of the institution to which it belong. We may observe these positions from three aspects.

The first is the position on social structure, to be more precise, the social structure of the people involved in the activities of a design studio, namely teachers and students. On one hand, in terms of the relationship between the teacher and the students, we see a global trend of the more horizontal structure replacing the traditional vertical one. On the other hand, in terms of the relationship among students, we see the increasing importance of shared common space as opposed to the isolated personal space. Actually, every leader of an architecture school must face the dilemma of balancing the shared and the individual working spaces in the studios. In different schools we see different yet equally clever solutions. HIT utilises the generous corridors circling the old Soviet quadrangle and results in a series of permeable teaching spaces out of a rigid grid. Tianjin U was the first to incorporate multi-layered atrium in a modern Chinese architecture school and it has been continuously enhancing the sense of community along with its expansions and renovations ever since. SEU adopts a fully-fledged mobile and rapid assemblage system in its studios and pioneers in creating infinite local spatial configurations within very limiting perimeters. CUHK features a highly

visible atrium along its entire length, adding spatial narrative and fluidity in all learning activities.

The second is the position on technology. By default, there are newer (more advanced) and older (more dated) technologies. In reality, architecture schools leapfrog each other with technological upgrades. When doing the new addition in the centre of its old courtyard, Tsinghua not only sported a full range of energy saving technologies in the new building facade but also managed to obtain a dramatic micro climate improvement between the old and the new. During its 40 years of use, HKU has been constantly upgrading the spaces of the architecture faculty, producing a very sustainable story both environmentally and programmatically. The wonderful new design building of XJTLU demonstrates itself as an undeniable jack of all trades, from spatial flexibility to the ultimate transparency of a modern fab lab.

The third is the position on aesthetics. Every dean understands that design studios is the silent manifesto of the belief his/her school holds. That's why all architecture schools would try to do some proprietary formal intervention in their design studios, fearlessly and unapologetically. IMUT sticks to the straight-line mass it has developed in its early renovation of industrial heritages. Chongqing U maintains its colour scheme and atrium centrality as a perseverance of identity. SCUT is obsessed with its U-shaped tropical courtyard and maximises its adaptability and transparency. Tongji is keen to give its entire possession of 4 buildings an unmistakable modern metropolitan vibe, in both material and geometry. CAA embeds its sole educational purpose in its building: the life-long preoccupation with the poetics of Chinese gardens.

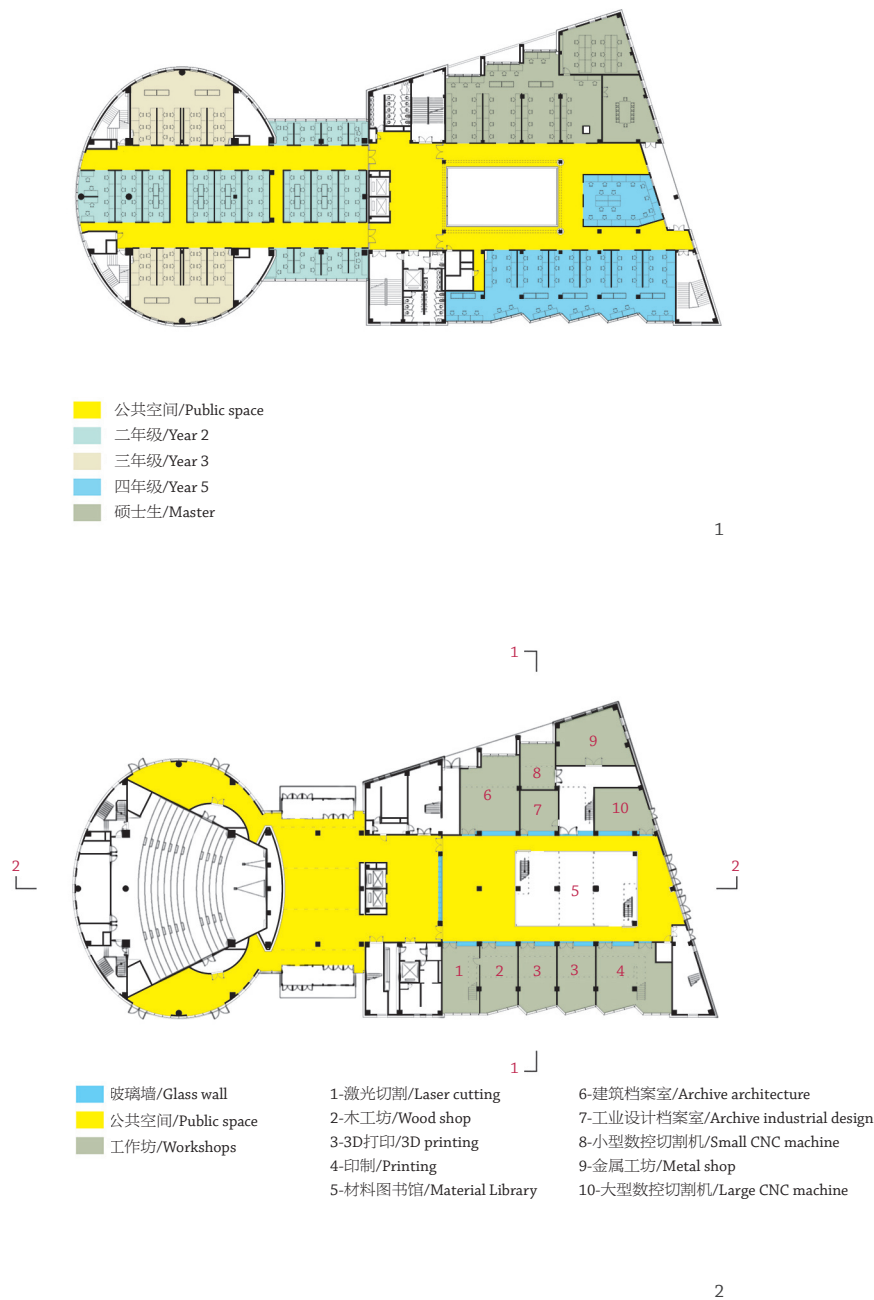
This issue is the Part I of WA's series on the subject of architecture teaching spaces. We would publish other institutions in the next part of the series.

Out thanks to all contributors from the institutions we are publishing in this issue. They made our publication possible. □

第三教师——西交利物浦大学新设计楼：学生走向建筑师之路

The Third Teacher—The New Design Building at XJTLU: How Students Become Architects

柯石安/Pierre-Alain Croset
尚晋 译/Translated by SHANG Jin



工作单位：西交利物浦大学建筑系
收稿日期：2017-06-19

2015 年当我来到苏州担任西交利物浦大学（简称“西浦”）建筑系担任主任时，我被告知西浦的南校区在建设一座新的“设计楼”，供建筑系和工业设计系共同使用。我意识到这座新的建筑将成为批判性反思空间与建筑教育关系的好机会。虽然在那个时刻，我无法想象到决策、设计和实施过程中的各种困难。这座新的设计楼于 2016 年 8 月启用，总建筑面积约 7000m²。建筑系有 450 名学生和 40 位教职员，工业设计系有 250 名学生和 20 位教职员。在第一学年结束之际，借助米兰·奥格尼亚诺维奇用照片记录的这座建筑在整个学年中的日常生活，就可以对设计的过程和结果进行一次批判性反思了。

1 对总体布局的批判性反思

当我来到西浦时，新设计楼已在施工。建筑本体的设计是由英国 BDP 百殿建筑设计（上海）公司完成的，西浦南校区的总体规划也是这家公司负责的。主要的限制条件在于平面的特殊形状，使 3 种不同空间组合在一起：容纳大讲堂的椭圆形，教室围绕着中庭形成的不规则四边形，以及连接两个主体的玻璃幕墙。建筑系对此提出了调整，其中唯一被设计公司接受的是去掉上层的讲堂，改为通用的“设计工作室”。在对平面的初步检查中，我发现总体布局对两个系的空间分隔仍是相当模糊的。对设计工作室没有提出任何明确的分隔，而是作为一般的“开放空间”，学生使用普通的课桌，每人只有 60cm 宽的空间。

在那个时刻去改变建筑的结构和立面已经是不可能的，但西浦的管理高层提出调整内部布局的可能性。这样就有机会构建一种更为理性的组织方式：突出两个系共享的最重要的空间，同时需要为战略规划中购置的新设施安排位置：一个材料图书馆、一个展厅及数字化制造高级实验室。我提出将所有的工作室和档案空间集中在首层，环绕中部的材料图书馆。材料图书馆采用具有启发性的双层厂房空间的意向，局部以夹层存放各种材料。这样，进入学院的第一感受就是学生制作模型的场景。工作室为设计学院创造出统一的形象，使大楼与建筑施工和工业制造的过程紧密相连。

在二层，中庭很容易改造为展览厅，成为整座建筑的中心。而上层也围绕它进行组织：工业设计系在这一层，第三四层是建筑设计工作室。第五层是两个系的办公室。

2 建筑学院鲜明的建筑特征

如何为建筑教育来设计具体的空间？在我看来，

1 二层平面/Second floor plan
2 首层平面，玻璃墙作为学生作业的展示架将中央区域分出材料图书馆，将两侧分出不同的工作室/Ground floor plan.
A glass wall, used as a permanent showcase of the students' work, divides the central area with the Materials Library and the lateral ones with the different workshops.

On arriving at Xi'an Jiaotong-Liverpool University (XJTLU) in Suzhou 2015 as the new Head of the Department of Architecture, I was informed about the construction of a new 'Design Building' on the South Campus to jointly house the Department of Architecture and the Department of Industrial Design. I realised this new building could represent a great opportunity to reflect critically on the relationship between space and architectural education. Nevertheless, at the time, I couldn't imagine the difficulties involved in the process of decision, design and realisation. The new Design Building opened in August 2016, with a capacity of 450 students and 40 academic staff for Architecture, and another 250 students and 20 academic staff for Industrial Design, with a total floor area of around 7,000 square metres. At the end of this first year of activity it is now possible to sketch a critical reflection on the process, and on the results, with the support of the photographs of Milan Ognjanovic who documented the everyday life in the building during all the academic year.

1 A critical reflection on the general layout

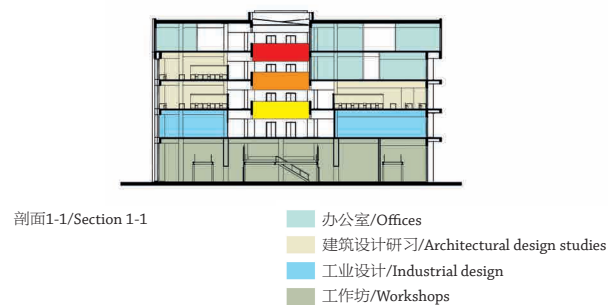
When I arrived at XJTLU the construction of the new design building had already begun. The base design had been made by the Shanghai branch office of a British architectural company BDP (Building Design Partnership), also responsible for the overall master plan of the XJTLU South Campus. The main constraints were contained in the particular shape of the plan, resulting of the assembly of three different types of space: an elliptical part for hosting the big lecture theatres, an irregular four-sided part for the classrooms organised around a central void with skylight, and a connecting glazed bridge between the two main volumes. The only changes already proposed by the Department, and accepted by the design company, were the elimination of the lecture theatres in the upper floors, replaced by generic "design studios". From a first examination of the plans I verified that the general layout had remained quite vague about the repartition of spaces between the two departments, and that nothing had been

proposed for a clear partition of the design studios, organised as generic "open space" with groups of students organised around rectangular tables, with only 60 cm for each student.

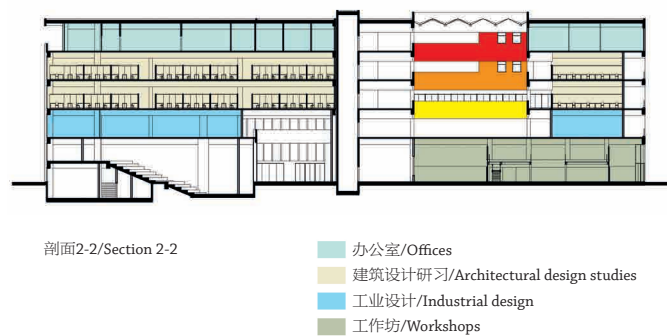
It was impossible to change the structure and the facades of the building but the senior management of XJTLU offered the possibility to modify the general layout. It was possible to imagine a more rational organisation that could highlight the most significant spaces to be shared by the two departments. It was also necessary to find a place for some new equipment approved in the strategic planning: a Materials Library, an Exhibition Gallery and an advanced Lab for Digital Fabrication and Prototyping. I proposed to group all the workshops and archival spaces on the ground floor around the central

Materials Library, following the inspiring image of an industrial factory with double height volumes partially covered by mezzanine floors for the storage of materials. In this way, the first experience on entering the building is the intense activity of students producing models and objects. The workshop provides a coherence of identity for a School of Design strongly related with the processes of building construction and industrial fabrication.

On the first floor, the central void could easily be transformed to an Exhibition Gallery, to be considered the heart of the entire building with the upper floors organised around it: the spaces of Industrial Design on this floor, the second and third floors for the Architecture design studios, the fourth floor for the offices of both departments.



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3.4 剖面，两层高的首层设有工作室，上面的4层围绕中庭组织起展览空间/Sections. The double height ground floor with workshop equipment, the four upper floors organized around the central courtyard used as an exhibition space.



- 评图空间/Pin-up & review
- 工业设计工作及指导/Industrial design work & tutorials
- 团队工作/Teamwork

5

要成为建筑师，学生就需要从日常设计实践中学习，因此设计楼的一个关键理念就是将学生的个人工作空间放在学院的中心，而不是在传统的教室中。我曾在工作坊中和都灵理工大学的建筑学硕士思考这些问题，那次活动的主题是 P.L. 奈尔维于 1947 年在著名的展览宫中设计的一座新建筑学院¹⁾。作为这一设计作品的参考，我引用了教育学家洛里斯·马拉古齐的著名理论。这一理论曾成功地在雷焦·艾米莉亚的“幼儿园模式”中进行试验，但从根本上看也适合培养建筑师和设计师：学生从老师和同学身上学习，也从“第三教师——空间”中学习。

对于建筑系学生来说，这位“第三教师”尤为重要。我记得许多美轮美奂的学院建筑让学生从它们的空间中得到启发成为建筑师，比如密斯·凡·德·罗的芝加哥克朗楼、阿尔瓦罗·西扎设计的波尔图建筑学院和利维奥·瓦契尼设计的南锡建筑学校。对于西浦，建筑已经完成设计并开始施工，这在很大程度上限制了再创造的可能。此外，还有预算和时间的制约。因此，我决定将注意力集中在 3 种不同工作空间的关系上：一是在学期开始分配给每个学生的个人专用桌，它将成为日常生活工作的“第二个家”；二是小型工作单元（即设计工作室），学生们在这里通过团队合作相互学习，并在每周教学中接受教师指导；三是集体空间，学生们在此向同学、老师和外请专家公开展示和讨论设计方案。

如何在不规则的建筑形体中组织这 3 种空间？如何保证每个学生无论在大楼的哪个位置都有良好的工作条件，同时避免过度分隔？在第一次游赏苏州传统宅院和园林之后，我就对木立面的现代特征着了迷，成对的门扇形成了千变万化的构图。我认



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5 设计工作室可作为灵活的空间/The Design studios as a flexible space

6.7 独立工作空间与团队工作的空间/A space for individual design work and teamwork



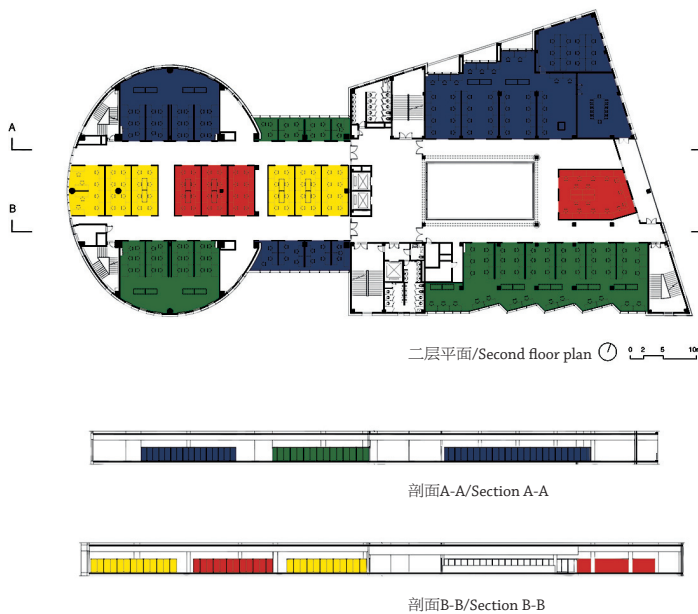
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8 评图/Final review

9 独立工作空间与团队工作的空间/A space for individual design work and teamwork

10 个人作业展/An individual exhibition

11 运用从中国传统色彩演化而来的颜色，不同设计工作室的木门分别涂刷成黄色、红色、深蓝与深绿/The wooden doors of the design studios are painted alternating the four colours of the Chinese tradition: yellow, red, dark blue and dark green

2 A strong architectural identity for a School of Architecture

How to design specific spaces for architectural education? In my opinion, to become an architect the student needs to be educated through the daily practice of the design activity, and for this reason a key concept of the Design Building was to put individual workspace of the students in the centre of the school, not traditional classrooms. I had the occasion to reflect on these questions working with a group of students of the Master program in Architecture at the Politecnico di Torino in a studio dedicated to the design of a new School of architecture¹⁾ in the well-known "Palazzo delle Esposizioni", realised by Pierluigi Nervi in 1947. As a reference for this design work, I used the famous theories of the pedagogist Loris Malaguzzi, successfully experimented in the "kindergarten-model" of Reggio Emilia, but fundamentally appropriate also to form architects and designers: students learn from teachers and from other students, but also from the "third teacher that is the space".

For architecture student, this "third teacher" is particularly important, and I remembered some beautiful schools as the Crown Hall of Mies van der Rohe in Chicago, the Architecture School of Oporto designed by Álvaro Siza, or the School of Nancy designed by Livio Vacchini, where fortunate students are stimulated by the space to become architects. At XJTLU the fact that the building was already designed and in construction restricted a lot the possibility for invention. Other constraints were the necessity to comply with the budget and limited time. I decided for these reasons to concentrate my attention on the relations between three different categories of workspace: the individual desk which every student takes possession at the beginning of the semester, becoming a "second home" for the working everyday life; the small work unit (the design studio) in which the student learns from other students in the teamwork, and learns from the teacher in the weekly tutorials; the collective space in which the student has to exhibit and discuss publicly the design work in front of other students, of the teachers and of the visiting critics.

How to organise these three categories of space in an uneven shape of the building? How to ensure good working conditions for each student, regardless of the location in different parts of the building, and at the same time how to avoid an excessive fragmentation? Since my



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为这种“中国现代性”图案是中国的国际建筑院校丰富的灵感源泉。同时我想起了阿尔伯蒂的名言：“事实上，根据哲学家的论断，如果城市就是一座大建筑，而且反过来建筑就是一座小城市，那我们何不将它的组成部分——庭院、凉廊、大厅、门廊等——也都视作小建筑？”²⁾想到这两个例子，我决定将这些工作空间沿着两条大走廊布置，让它们营造出中国传统城市街巷的感觉，并加上了木立面和双扇门。就像在城市中街道是公共的而住宅是私密的一样，明确区分个人工作与社交空间是可能的。每个学生都可以待在一个小工作单元里，享受个人工作的最佳条件。同时4m宽的中央“大道”可以作为公共社交空间，而不只是连接空间。模仿苏州传统立面结合模数化韵律与流变的手法，我设想出连续移动双扇门来实现不同功用的方式。因此，门扇做成了双面：一面涂色，一面覆软木。当所有门

扇都闭合时，就只能看到连续的木立面；而全部敞开时，学生可以将设计作业钉在软木面上。

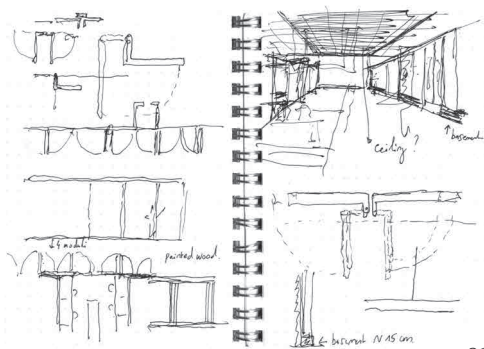
由于建筑进深很大，我意识到中部工作空间无法享受自然光，但同时我希望所有学生都有相同的基本配备：面对软木墙的90cm×180cm桌子，软木墙可以收集和展示学生的草图、图纸和照片。为了按不同年级组织空间，就必须考虑西浦的特殊条件。这所大学让本科生有机会在大二后转到利物浦大学读第二学位。由于现在已有50%以上的学生作出了这种选择，就必须根据学生人数的变化来组织设计工作室：大二有200多学生，大三、大四则不到100人，而每年的硕士生最多25人。因此，我决定把大二学生集中在中部空间，仅为他们提供基本配备：带软木墙的个人专用桌。其他设计工作室可以使用分隔墙和立面不规则形体之间的额外空间，在这里进行团队合作，制作大型城市模型。这样，

在大二后留下的学生会有更好的工作空间。随着年级的增长，大二学生有4m²，大三有6m²，大四有8m²；而硕士生每人有10m²。设计工作室的这种组织方式让不同年级的学生可以经常交流，尤其是在走廊进行评图时。这让学生可以相互学习：在同一条走廊中，大三学生面对着大二学生；而在中庭两侧，大四学生面对着硕士生。

3 担任施工顾问

设计与实施的困难主要在于一切都是在没有正式的建筑师委托下完成的。作为系主任，我有法律上的授权，可以代表用户的利益，但我对中国的设计和施工情况一无所知。一开始没有专业团队，很难表达我的意图。当刚从都灵理工大学毕业的卢泉清在2015年6月来到苏州读我的博士时，情况改变了。从此开始，她负责新布局的图纸，并参加了最初与校园管理办公室及施工单位的所有会议。随

12-20 大走廊仿佛传统中国城市的街道，有着木立面与木门，这里同时是展示与讨论学生作品的公共空间/The large corridors evoke the streets of a traditional Chinese city, with wooden façades and wooden paired doors, to be used as a public space for exhibiting and discussing the students' work.



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first visits to the traditional courtyard houses and gardens of Suzhou, I was fascinated by the modern character of the wooden façades, with paired doors offering a dynamic, ever-changing composition. I considered this image of "Chinese modernity" as a powerful source of inspiration for an international Department of Architecture in China, and at the same time I remembered the famous quote of Leon Battista Alberti: "In fact, if the City, according to the judgment of the philosophers, is like a great House, and the opposite the House is a small City, why don't we say that members of it as the courtyard, the loggias, the Hall, the porch, and all these are still the same like small houses?"²⁾ With these two references in mind, I decided to organise the work space along two large corridors which could evoke the streets of a traditional Chinese city, with wooden façades and wooden paired doors. As in a city, where the streets are public and the houses private, it was possible to obtain a clear separation between the spaces for the individual work, and the spaces for the social interaction. Every student could stay in a small work unit offering the best condition for the individual work, but at the same time the space of the central "streets", with a width of four metres, could be used as a common social space, and not only as a connective space. In the same way as the traditional Suzhou façades associate modular repetition and flexibility, I imagined how the paired doors could be moved continuously following different uses. For this reason, the doors have double faces: one face painted, and one face covered with cork. When all the doors are closed, you perceive only the continuity of the wooden façades, while when they are open the students can pin up their design work on the cork surface.

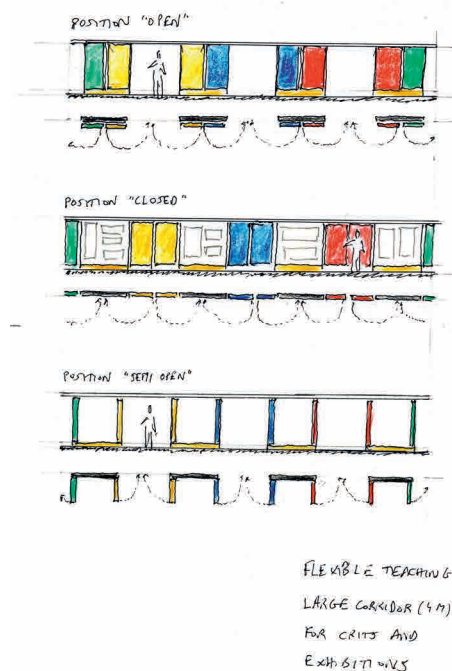
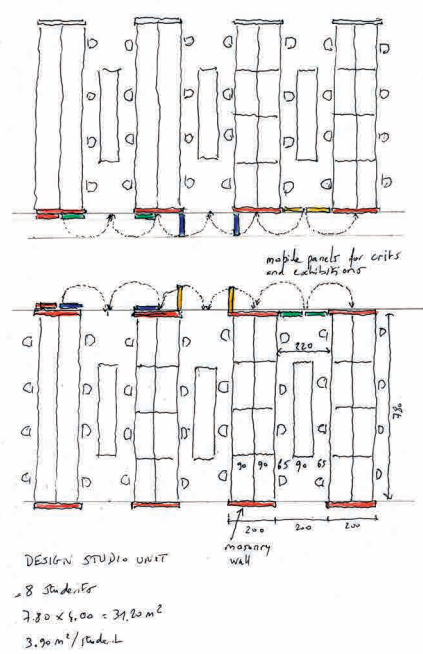
Due to the great thickness of the building, I was conscious that the central working spaces could not benefit from natural light, but at the same time I wanted to offer to all the students the same basic

equipment: a table of 90×180 centimetres facing a wall covered with cork for collecting sketches, drawings and photographs. To organize the spaces in relation with the different years of study, it was necessary to consider the special condition of XJTLU, with a double degree that offers Bachelor students the chance to migrate to the University of Liverpool after the second year. By the fact that this option is presently taken by more than 50% of the students, it is necessary to organize design studios for very variable numbers of students: more than 200 students in Year 2, less than 100 students in Year 3 and Year 4, and a maximum of 25 students for the Master program every year. I decided for this reason to concentrate on the 2nd-year students in the central space, offering them only the basic equipment of the individual table with the cork wall, while the other design studios would have gained an additional space between the partition walls and the irregular shape of the façade, to be used for the teamwork and for producing big urban models. In this way, the students who will remain after the second year will have a better working space. Following the progression of the programme, the students occupy four square metres in the second year, six in the third year, eight in the fourth year, while the Master program offers ten square metres for every student. This organisation

of the design studios allows for constant interaction between students of different years, especially when reviews are organized along the corridors: in this way students learn from other students, with year 3 students facing year 2 students in the same corridor, and year 4 students facing Master students on the both sides of the central void.

3 Working as a consultant of the construction company

The difficulties of design and realisation were mainly related to the fact that anything was done in the absence of any formal assignment as an architect. As Head of Department I was legitimately authorized to represent the interest of the users, but I was totally ignorant about how to design and build in China. Without a professional office, it was at the beginning very difficult to communicate my intentions, but something changed when LU Quanqing, who just graduated from Politecnico di Torino, arrived in Suzhou in June 2015 as an incoming PhD student under my supervision. From this moment, she became responsible for the drawings of the new layout and she participated to all the first meetings with the Campus Management Office and with the construction company. Successively a second PhD student, LIN Qian, arrived in March 2016 and assisted me on the definitive drawings. Finally, my colleague TSIEN Li-

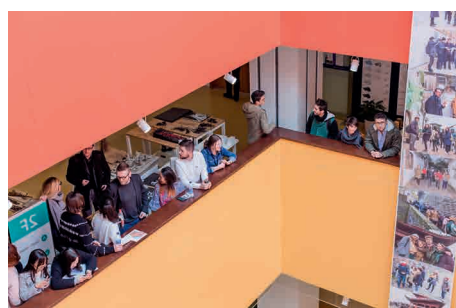


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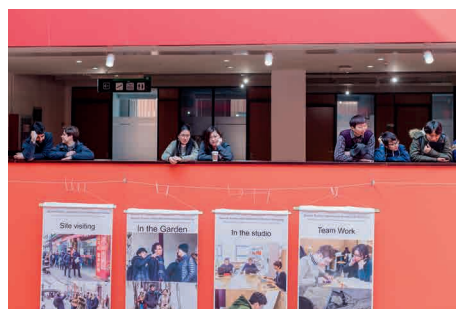
21.22 将设计工作室作为中国小城的概念草图/Sketches illustrating the concept of design studios as a small Chinese city



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23-25 2017年2月，苏州建筑国际工作坊最终评图/
Final exhibition of the Suzhou Architecture
International Workshop (February 2017)

后2016年3月来了第二位博士生林谦，他协助我完成关键图纸。最后，我的同事钱立安在施工最终阶段作为顾问进行了合作。

一开始，我认为自己作为负责设计的建筑师的顾问就可以，希望任何与室内设计有关的决策都能以一套统一完整的图纸为基础。不过，我很快意识到，不仅当地设计院无法准确读懂我的草图，而且没人想面对延误工期或提高成本的风险来调整已经审批的方案。在多次误解之后，我最终明白应该采取不同的策略：根据施工阶段逐步推进，并等待施工单位的问题。西浦校管办的项目经理刘云鹏在这一过程中为我提供了帮助，建议我避开建筑师直接与施工单位对话，以此建立相互理解。关于材料和建筑细部的最初决定在首层上。为了凸显工作室区的工业特征，我提出将地面留作素混凝土，用长长的一排玻璃架将中部核心筒与周围空间隔开。这些玻璃架将作为展示学生优秀模型的永久展架，通过用玻璃盖住厚重的混凝土柱，让所有的承重结构都能营造出轻盈通透的形象。为了让合作方理解这种

做法的意义进行了多次讨论。

通过逐渐与施工单位积累互信，就越来越容易进行调整，从而提高空间品质。例如，中庭的挂板最初是建筑长边用仿木铝板，短边用玻璃——与旁边的环境做法一致。由于需要将中庭改造为展览空间，我提出四边统一挂铝板，并用明快的颜色给空间带来活力。色调则从暗到亮，与自然光正相反：红色在顶部，橙色在中间，黄色在底部。

最细致的问题是门的施工，因为我希望让人从中品出一种“中国味”，同时又不会觉得做作。借助大量苏州古典园林门扇的照片和测绘图，我发现需要至少5cm的厚度。这不仅是为了尊重原比例，也是为了满足轮换展板所需的强度。我们按1:1的比例制作了一整套图纸，以使用木艺公司制作的模型来测试方案。我想让门闭合时的表面与底部及门楣齐平，这样当关上所有的门时，就只会看到连续的面。为了精确组装门扇进行了多次现场讨论，并根据建筑的不规则形为门扇提供了4种模数（180cm、190cm、200cm和230cm）。接下来的问题是色彩的选定。



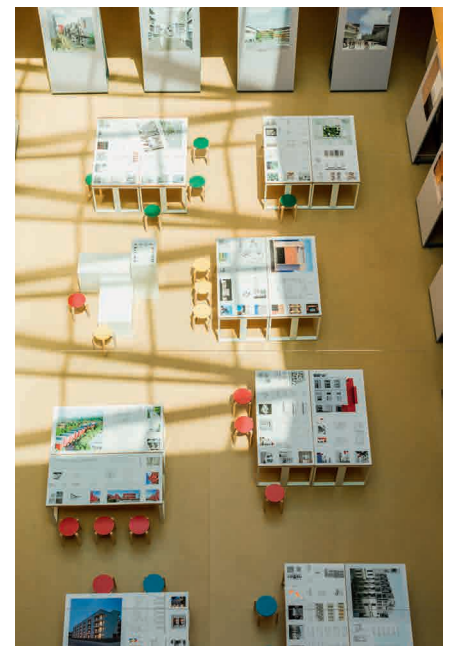
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An collaborated as a consultant in the last phase of construction.

At the beginning, I thought that it would have been possible to become a consultant of the architects in charge of the design, in the hope that any decision regarding the interior design could be founded on a set of complete and coherent drawings. However, I quickly realized not only that the local design institute couldn't interpret correctly my sketches, but also that nobody wanted to change the approved plans, in the face of the risks of slowing the construction, or increasing the costs. After many misunderstandings, I finally realized that I should follow a different strategy, proceeding step by step according to the different phases of the construction, and waiting for the questions of the construction company. LIU Yunpeng, the project manager for XJTLU's management office, helped me in this process, proposing me to speak directly with

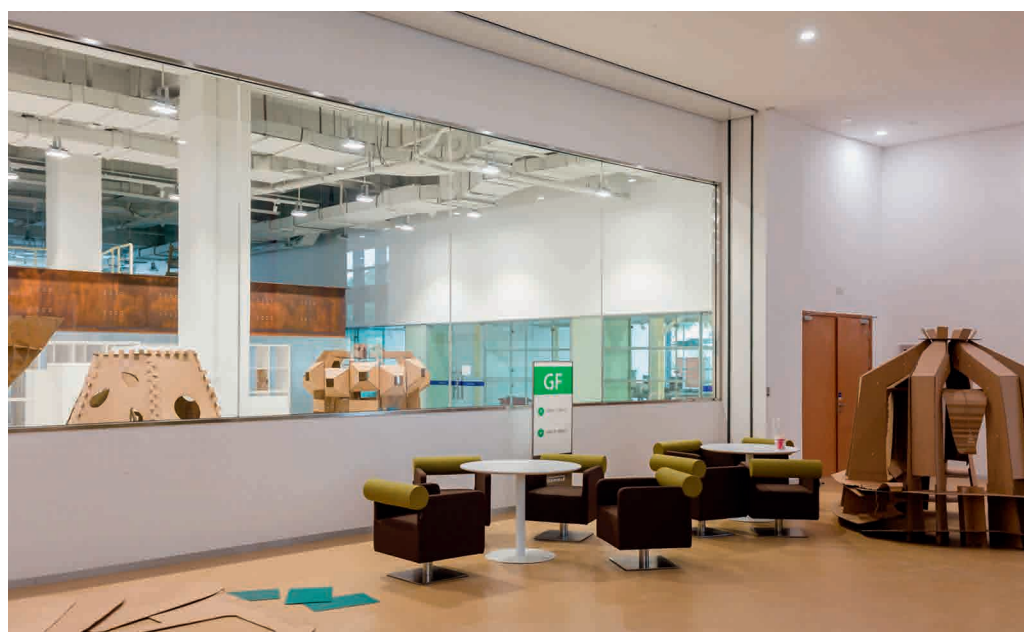
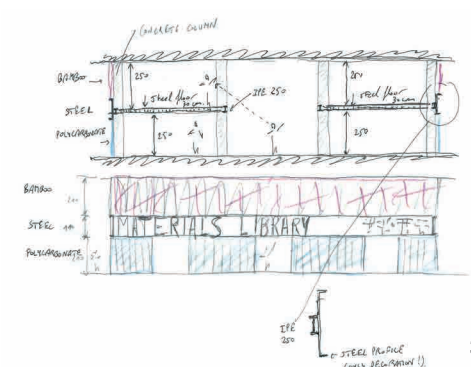
the building company, bypassing the architects and facilitating in this way the mutual understanding. The first decisions for materials and building details were to be taken on the ground floor. To highlight the industrial character of the workshops area, I proposed to leave the floor with the bare concrete, and to separate the central core from the lateral spaces by a long row of glass shelves, to be used as a permanent showcase for the best models produced by the students. Many discussions were needed to make them understand the importance of moving the glass to cover the heavy pillars in concrete, so that all the bearing structure could be hired for producing an image of transparency and lightness.

Little by little grew the mutual trust with the building company, so that it became increasingly easier to propose changes for increasing the quality of the spaces. For example, the cladding of the central void was originally with panels in aluminium



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26.27 2017年4月, “塞尔焦·帕斯科洛建筑事务所: 住宅汇总” 建筑展/Exhibition "Sergio Pascolo Architects _ Total Housing" (April 2017)



我希望用中国传统的4种典型色彩（黄、红、深蓝和深绿），但没有人能告诉我如何找到这些传统色彩的准确成分。最后，我提出用《乾隆皇帝像》和《科举图》等绘画作为直接在门扇上试色的参照。不同的色彩沿着两条内街交替变换，中部的设计工作室是红黄，与展庭的明亮色彩相连；外部工作室是蓝绿。这些交替的色彩在第三四层上进行了反转，所以能从任何地方同时看到全部4种色彩。

材料图书馆仍在施工中，其中将长期展出约 500 种样品，并分为 3 个房间：供小型展览和研讨会用的双层高中厅，以及分在两层上的侧厅。这个空间 2017 年被用于硕士毕业设计展。关于这个立面也有很多讨论。在我最早的一张草图中，我提出了用 3 种材料作挂板的简单想法：聚碳酸酯、钢和竹子。用聚碳酸酯和钢做挂板的技术方案经过与校管办出色团队合作轻松制定出来，但他们总是让我给出用竹子完成最终部分的图纸。我回答：“竹子是在中国广泛使用的一种优美材料。找到杰出的工匠就能施工，但这种方案是画不出来的。”两个系的同事胡安·卡洛斯·达拉斯塔和鲁杰罗·卡诺瓦提出与 20 名学生组织一次竹材工作坊，为创造妙趣横生的图案带来了机会。3 位来自上海的杰出工匠向建筑系和工业设计系的学生传授了竹材的营造技艺，并让他们亲手尝试制作 1:1 的优美竹栅栏。工作坊结束后选出了 4 个最佳方案来实施，并将在夏季完成。这样，和用来陈列学生优秀模型的玻璃墙一起，材料厅顶部的竹墙将成为展示学生创造力的平台。

项目信息/Credits

室内设计/Interior Design: 柯石安与卢泉清、林谦, 钱立
安合作/Pierre-Alain Croset, with the collaboration of LU
Quangqing, LIN Qian, TSIEN Li-An

项目管理/Project Management: 刘云鹏 (西交利物浦大学校园管理办公室) /LIU Yunpeng(Campus Management Office, XJTLU)

绘图/Drawings: 林谦/LIN Qian

摄影/Photos: Milan Ognjanovic

28.29 玻璃墙作为学生作品的永久展览/The glass wall as a showcase for the permanent exhibition of students' work

30 材料图书馆的想法是将它设计为有3个房间的展厅，中间的房间有两层高，运用3种材料（聚碳酸酯、钢和竹子），混合传统与现代元素/The idea of the Materials Library as a Pavilion with 3 rooms, the central one with double height, and 3 materials (polycarbonate, steel and bamboo), as a mix between tradition and modernity.

31 首层,材料图书馆在左侧,作为学生作业展示的玻璃墙在右侧/View of the ground floor, with the Materials Library to the left, and the glass wall used as a showcase for the students' work

32 入口大厅, 大玻璃窗正对着工作坊的部分/Entrance lobby,
with the big glass opening the view towards the workshop
facilities



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imitating wood for the long sides, and with glass along the short sides, as it has been realized nearby in the Environment Building. In the face of the need to transform the central void in an exhibition space, I proposed to unify along all the four sides the cladding with aluminium panels, but at the same time to vivify this space using bright colours, following a graduation from the darkest to the clearest which appears inverted with respect to the natural intensity of sunlight: red top, orange in the middle, yellow down.

The most delicate issue was the door construction, because I wanted a "Chinese touch" to be recognisable, but at the same time avoiding any risk to obtain the image of a fake. With the help of many photos of doors in historical gardens of Suzhou, together with survey drawings, I was convinced of the need to observe a thickness of at least five centimetres, not only for respecting the original proportions, but also for obtaining something solid enough to respond to the function of rotating display panel. We produced a complete set of drawings in scale 1:1 for obtaining the possibility to test the solution with a mock-up realised by the wood handicraft company. I wanted the closed-door surface to be on the same plane with the basement and the lintel, so that, when all the doors are closed, it would have been possible to perceive only the continuity of the wooden facades. Many discussions on the site were needed to obtain this precision in assembling the doors, with four different modules (180, 190, 200 and 230 centimetres) for adapting the doors to the irregular geometry of the building. Other problems concerned the final choice of colours. I wanted to use the four typical colours of the Chinese tradition (yellow, red, dark blue and dark green), but nobody could indicate me how to find the exact composition of these traditional colours. In the



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end, I proposed to use some paintings, as a Portrait of the Qianlong Emperor and a View of a Civil Servant Exam, as a reference for painting directly some samples of colour on the doors. Along the two internal streets, the colours are alternate, with the red and yellow for the central design studios in continuity with the bright colours of the exhibition courtyard, and the blue and green for the external studios. These alternate colours are inverted between the second and third floor, so that it is possible to perceive simultaneously all four colours from any part.

The Materials Library, still under construction, will house a permanent exhibition of about five hundred samples, and is divided into three rooms: a central room with a double height for small exhibitions and seminars, the lateral ones organized in two levels. The space has been used this year for hosting the final exhibition of the Master Thesis. Many discussions regarded the façade. In one of my first sketches, I represented the simple idea of a cladding with three materials: polycarbonate, steel and bamboo. The technical solutions for realizing the cladding in polycarbonate and steel were easily defined with the excellent team of the Campus Management Office, but they continuously asked me to have some drawings related with the final part to be realized in bamboo. I answered: "Bamboo is a beautiful material used in China, please find some excellent craftsmen and we will do it, we cannot draw a solution". Two colleagues of both departments, Juan Carlos Dall'Asta and Ruggero Canova, proposed to organize a bamboo workshop with twenty students, offering the opportunity to experiment some ways of creating an interesting pattern. Three excellent craftsmen, coming from Shanghai, instructed the students of Architecture and Industrial Design about the art of building with bamboo, offering them the possibility to



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experiment with their hands, at a scale 1:1, how to create the beauty of a bamboo fence. At the end of this workshop, the four best proposals have been selected for the realisation, to be completed during the Summer. In this way, as for the glass wall used as a permanent exhibition which houses the best models produced by our students, the bamboo wall crowning the Materials Library will be a showcase of the creativity of the students. □

注释/Note

1) 设计小组由柯石安(建筑设计), 卢恰诺·雷(建筑遗产), 米凯拉·孔巴(历史), 卡泰丽娜·蒂亚佐尔迪(智能建筑)指导, 2009-2010年第一学期/Design unit directed by Pierre-Alain Croset (architectural design) and Luciano Re (building heritage), together with Michela Comba (history) and Caterina Tiazzoldi (smart building), first semester 2009-2010.

2) Leon Battista Alberti, *De Re Aedificatoria* (On the Art of Building), 1452, Liber I (Book 1), *De Disegni* (On Design), MIT Press, 1988: 27.

33.34 材料图书馆的两层高空间作为2017年6月硕士课程最终展览/The Materials Library used for the final Master Exhibition (June 2017), with the central double height space
35 2017年4月在材料图书馆举办的竹材工作坊/Bamboo workshop (April 2017) in the Materials Library