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亚洲设计
ASIA DESIGN

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香港金版文化出版社 主编
深圳市金版文化发展有限公司

教育·福利空间
EDUCATION WELFARE SPACE

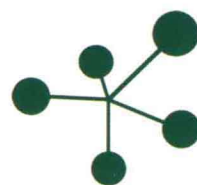
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公开教育的空间环境设计 以初级学校为主

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为了增进广大学生在IT(信息与科技)学科和全球化进程中的创造力, 发挥他们深层的潜力, 相关的教育改革方案和办法的提出已经急切地摆在了我们面前。公开教育作为一种新的教育理念被推出来满足学生们接受教育的需求。如果公开教育可以作为对学生们增长见识和自我意识的一种肯定, 那学校设施、组织和教育活动等所有方面都应该灵活全面地开放。特别要指出的是, 对于人类来说, 我们部分的参与教育带来了对人类行为的理念上的变化, 人类是被周边具体的教育环境所影响的, 所以我们应该建立教育环境来迎合学习的需求和人们心理上对智力的需求。公开教育并没有特定的方式和导向。它可以根据相关设施的具体情况随意增添和修改。这篇文章主要讲述一些针对公开教育的基本设施, 如空间大小、结构、教室构造、设备、教室摆设等。

一、教育环境功能的转变和公开教育的定义

1. 教育环境功能的转变

历史上教育环境功能的现状经历了多次的转变。在17世纪前, 教育场所都是些遮挡风雨的地方, 随着不断对人们的开放, 开始有了一些教和学的活动在里面。教育环境是一种工具式的教育, 它支撑了整个教育体系。在教育的众多角色中, 最重要的一面是把人类变得更有需求、更多欲望。基于这个思想, 最近的教育环境追求人性化, 相对应的, 教育环境被认为是满足人类心理和生理需求的空间。现代教育的理念就努力探讨如何把相关联的社区和学校设施的功能融合到一起。也就是说, 学校设施越来越多地发挥出为广人民和社区服务的战略作用。

2. 公开教育的定义

和教育环境不断扩大到社区范围的趋势相吻合, 韩国的教育标准正在不断地发展变化。与现存教育理念的标准不同的是, 它在不断地适应公开教育的发展, 把重点放在个人和自治上。公开教育着眼于学生学习过程中的经历和感受, 而不是他们在学习什么, 更多地给学生自主和权利选择。公开教育可以被总结为公开课程、公开组织、公开人际关系和公开的思维。

与此相应的, 所有的条件如设施、组织、学习材料和学习活动应该更自由公开。公开空间不仅仅意味着一处开放的场所, 更意味着多种多样的学习活动和学习内容, 他们基于公开教育的方针, 并相互关联。

学校中的每一处课程空间都应该设置得合理、活泼。在空间概念的另一个方面, 我们应该注重内外空间的交互连接, 例如孩子们的生活空间、课外活动空间、图书馆等。对于公开教育, 学校的空间应该具有多样性、灵活性、延续性。

二、教育空间设计的行为定义

1. 归属感

学校的设计要唤起学生对学校的归属感, 在人们心目中造成正面影响。校园环境及学校的外部环境也应该和内部环境一样起到这种作用。要达到这种目标, 小规模学校是首选, 学生们应该自发地适应在这种非官方的社会空间。非官方的学习空间如信息公告牌也应该准备满足这种需要。

2. 个体维护

实行个体空间维护是为了保持公共环境下的隐私, 维护预期的学习效果和维持公开教育环境下的情绪稳定。具体到开阔的教室空间中, 整个空间应该反映出空间的组织感——如何安排好大与小、开放和封闭。各种各样的课桌布局安排也是一个不错的方法。

3. 个人空间

个人空间定义了个体和他人之间的相互作用到底有多大, 也有保护和交换信息的功能。包括学校在内的官方空间应该考虑到学生私人空间的需求, 应该提供给他们可以保证个人隐私的特殊空间。

4. 区域

区域是给一个特定的团体和个人做独家使用、占用和维护的空间。它包括地理上的分割、保护、开发、个人占有、独家使用和控制。它通过个人化和特殊空间标志化给空间使用者心理上的稳定。所以, 在开放教育环境中如果不能保证区域的存在, 就会导致导向学习系统的不稳定。

因此,在学习空间和其他空间中明确地分界是必要的,学习区域的分割应该保证问题产生的最小化。

5. 过剩问题

这个问题如同人口过剩一样,当人和设施在单位区域里数量太多时产生,它可以导致环境的限制和压力,以及教育力量过于分散。教育中的过剩问题和社会交互作用的收缩相关联,它有时会导致过激的行为,削减学生们的整体感。要解决这个问题,应该在建筑室内建立分区,以降低区域中人口的密集度,或将建筑的高度增加。提供更多更好的照明有时也可以解决一部分问题。

三、室外教学的空间环境设计

1. 建筑比例和空间安排

实现室外教学系统后,相对小型的学校可收到更有效的效果,因为它有助于成员之间形成独立、友善的友谊。通常,根据教室的数量,建议每个学生使用面积为 $15\sim 20\text{m}^2$,每个教师 $3.3\sim 4\text{m}^2$ 。按照人力教育资源部规定的室外教学环境设计指导方针,设施与功能区的布置可按低、中、高等标准表示。理想的设计是根据学生的活动来设计学习空间。学校结构应是灵活多变的,各空间之间的通道也应最小化。

2. 学习空间单元的设计

室外教学基于室外空间和长期考虑,它应能适应教学内容变化。室外教学空间应配备有灵活的教室,教室的大小和结构可根据学习活动组织方法(分组讨论、小组讨论、独立学习)或两个以上班级的合作方式进行调整。此外,需要一个用于准备常用资料的媒体空间和灵活的学校结构。

(1) 学习空间单元

为完成各种学习活动建造学校的室外教学空间、以单元为基础的教室时,教师办公室、多用空间、教室、卫生间都是必需的。为形成以单元为基础的空间,要求每2~3个班级共用教师办公室、卫生间和多用空间。建议按学习活动的位置在教室周围布置各种设施,同时,用于课间休息的外部空间应与周围相协调。

(2) 为各种学习活动设计标准教室

用于各种学习活动的标准教室的面积应足够大。室外教学建筑包括必要的活动角(个人书桌,集体活动空间)、基础设施空间(地毯聚会空间,计算机、投影幻灯、视听设备空间,资料室,读书活动角,图书室)、选用活动角(讨论会、玩乐、画画、读书、写作、听力室等),设备空间(柜橱,清理柜橱)等等。每个区域都应按照不同的教学方法进行设计。

(3) 多用空间的构建

举办各种活动的多用空间的设计应与教室及例行学习活动的空间保持连贯性和一致性。它需要合适的区域和密度条件以保证非正式的学习和生活活动,从而扩展学生的学习内容。多用空间应以年级为单位来设计,而且每个年级应配备有多用空间,避免两个年级同时使用。一个班级的多用空间不应超越另一个年级的交通线。在与其他班级共用学习或创造专用空间时,可以使用多用空间。如果是传统的普通型多用空间,还可采用附加教室或延伸部分。

(4) 教师空间

室外教学期望教师与各年级之间合作互动,讲师之间的合作也极为重要。对于必要的教研活动与资料维护,专用办公室应与教室分开,而且应位于他们负责的教室附近。

(5) 公共卫生间

公共卫生间应设在各个年级教室的最近处,以减少人流密度。对于低年级,建议将卫生间建在教室内。

3. 设施布置

布置设施时应灵活运用设计理念,充分考虑使用者身高。其他的物理环境中,灵活性也有一定的限度,更重要的是如何根据空间的变化合理布置设施。

4. 环境设计与学习空间

一般等级的噪音被证明不会影响学生的学习成绩,但如果教学环境根据噪音等级来设计和建设,则能创造出更有效的学习环境。

颜色会影响人们的情绪,不同年龄的人的舒适颜色不同,因此,教室内部应选择适宜的颜色来吸引学生的注意力。另外,教室以外的每块地面的颜色应容易识别,与邻近颜色相互协调,浅色空间可使用浅色彩过渡到深色空间。

四、结论

信息技术和教育哲学正在教育方法学和内容上发生着变化,这也要求教育环境随之发生变化,然而,教育环境设计并不能完全反映教育环境的变化。人类行为会受到环境的影响,硬件环境、教育哲学、运行方法将会使教育效果得到最大化。因而,室外教学需要灵活的教育内容和组织,教育环境各个方面的研究应持续下去。

Space environmental design for open education focusing on elementary school

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Specific major : Environmental psychology and interior design
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In order to improve creativity and potential of individual students and develop them to be more competitive in the IT(information & technology) and globalization-based environment, an initiative move of education reformation to meet educational demand of students and relative educational method and contents is increasingly required. As a part of a new education method, the concept 'open education' was introduced and the Education Human Resources Department has been actively promoting the establishment and operation of Modernization model school. If the open education can be considered a positive education process giving students their own view of learning for self-realization, all aspects including school facilities, organization and education activities should be flexibly opened. Especially, we partly accept education brings ideal change of human behaviors, human beings are affected by surrounding physical environment, that is, educational facilities. Accordingly, the educational environment should be set up to embrace abundant learning system and live up to psychological needs along with intellectual values. However, most of elementary schools in the nation execute educational program based on the traditional methodology. In terms of spaces and facilities, it is far away from open education. The open education doesn't have any specific method and guideline. It is flexible in adding up and modification, depending on relative conditions of each school. However, this article will review basic elements which should be considered to embrace open education such as size, outline, structure, structural organization of classrooms, facilities, furniture of classroom, etc.

I. Changes in functions of education environment and definition of open education

1. Changes in functions of education space environment

The environment for education historically went through various changes in its function. Before 17th century, it served as a shelter to protect from rain and wind. As it is more and more opened, it went further to embrace teaching and learning activities. The education environment is kind of tool containing education and support entire education system. Among various roles, the most important thing is to foster human into more desirable human beings and in line with this philosophy, the recent education environment is pursuing humanization of education environment. To realize this agenda, the education facility is considered a space satisfying physical conditions as well as physiological desire.

The modern education concept is trying to combine functions between community and school where education facilities is related to community facilities. That is, the school facility is being accepted as a new entity whose facility is actively serving for active use of people and strategic point for community.

2. Definition of open education

In line with the trend where the education environment is expanded to the community, the internal education criteria is going through changes in terms of methodology. Deviating from the existing standardized education method, it is seeking for an open education, putting more importance on individuality and autonomy. The open education is focusing on how qualitative experiences students are exposed to 'in the process of learning' rather than 'what they are learning'. It is another name of open learning process giving students more authority and right. The open education can be characterized as open curriculum, open organization, open human relationship and open mind.

Accordingly, all given conditions including facilities, organization, learning materials and learning activities should be opened more flexibly. The open space doesn't simply mean a physically open space but various learning activities and contents should be smoothly developed, following the open education strategy and keeping interrelation between each other.

Each learning space inside of the school should be organized for classes to go on amicably. In the issue of learning space organization, another consideration should be given to mutual relation to outside spaces ranging from living space of children, classroom for extra activities and library. For an open education, the space of an open school should hold to variety, flexibility and continuity.

II. Behavioral definition for education space design.

1. Feeling of belonging

The school is designed to evoke feeling of belonging to school in students, stirring up positive image of school, relation to school. Outside environment such as a school campus as well as inner space should contribute to forming its identity. To achieve this objective properly, small-sized schools are more preferred and all students should be involved in voluntary interaction at the unofficial socialization space. Also unofficial learning space such as information exchange board should be prepared for interpersonal communication.

2. Privacy maintenance

Maintaining privacy is keeping balance between oneness and closeness, access and evasion. This is an important concept to contribute to desired learning effect and emotional stability especially in the open education environment. Accordingly, to keep privacy in the open classroom, the entire spaces should reflect the idea of opposing space organization - large vs small, opened vs closed. Various arrangement of desks can be one effective way for that.

3. Private space

The private space defines how closely each individual is interacting with others. It does have functions of protection and information exchange. The official space including school should also consider personal needs of students for private space. Specific spaces for students to secure private space in the group should be provided.

4. Territory

The territory is a kind of environmental device where a certain group or individual block for exclusive use, possess and maintains space. Its meaning includes geographical possession, protection, marketing, private-ownership, exclusive use and control. By personalizing and symbolizing certain articles or spaces, it can represent psychological stability of space users. Accordingly, the failure to secure territory in the open education environment implies destruction of stable instructors-learning system. Therefore, drawing a clear line between learning spaces and others is necessary and territory-related problems should be minimized considering separation between learning territories.

5. Overpopulation

The overpopulation issue occurs when the number of people or facilities per area unit is too much, which leads to environmental restriction and stress with declining concentration power, due to continuous stimulation from environment. The overpopulation in the educational context is directly related to shrinking social interaction and it sometimes causes violent and offensive behaviors and trained enervating feeling in students. To cope with the overpopulation, the population density can be lowered by setting up partitions at several spots indoors and in terms of architectural viewpoint, the ceiling can be heightened. Also more brightened lightings can solve the densely-populated problem to some extent

III. Space environment plan for an open education

1. Architectural scale and space organization

To realize the open education system, the relatively small-sized school can expect more efficient result. This is effective for forming independence and friendly relationship among members. Generally, depending on the number of classrooms, 15~20m² per one student and 3.3~4m² per teacher are recommendable basic area. In accordance with the open education environment plan guideline by Education Human Resources Department, the allocation of facilities and functions are formulated based on criteria belonging to lower, middle, higher grades by applying Block Plan. It is an ideal strategy for planning learning spaces in consideration of student activities. The school structure should be more flexible and not fixed and the traffic line between spaces should be minimized.

2. Organization of learning space unit

The introduction of open education is based on the open space and in the long term point of view, it should properly cope with changes of education contents. The open education space should be equipped with flexible classrooms, whose size and frames can be modified, in accordance with organizational methods of learning activities (group study, small-group study, individual study) or joint activity by more than two classes, facilities whose education equipment can be used everywhere and alcove corner for special learning objective. In addition to that, a media space for producing and preparing frequently-used materials and school structure for a flexible and incremental education trial is required.

(1) Unit of learning space

For building schools in the open education, unit-based classroom to carry out various learning activities, teachers' office near multipurpose spaces and classroom and learning spaces with restroom combined are necessary. To organize unit-based space, 2~3 classes are required to share teachers' office and restroom with multipurpose spaces. It is recommendable to set all facilities around classrooms for geographical connection of all learning activities. Also, outside spaces for break and learning around classroom should be arranged to connect mutual functions.

(2) Planning normal classrooms for various learning activities

Normal classrooms to proceed various learning activities should ensure enough area. The organizational elements for the open education are composed of necessary corner (personal desk, teachers' corner for group activities, metal plate), basic corner (rug meeting, computer, OHP, audio and visual equipment corner, materials corner, reading activity corner, laboratory), optional corner (discussion, play, drawing, reading, writing, listening corner, etc), equipment corner (cabinet, cleaning cabinet, etc) and appropriate area for these elements are required. Space per territory should be planned in line with the open education method.

(3) Organization of multipurpose space

The multipurpose space embracing various activities should be organized in a consecutive and consistent concept with a classroom, space for routine learning activities. It requires proper area and density conditions to support unofficial learning and living activities and to develop various study contents. The area of multipurpose space should focus on the grades rather than the classroom and each grade should be equipped with multipurpose space to embrace activities of more than two grades at the same time. The space in line with a classroom classification should be planned not to overlap the traffic line of other grades. The multipurpose space is useful to secure spaces for study or creating productive environment for learning when it is shared with several classes. In case of the basic traditional normal type, extra classrooms or partial expansion can be adopted.

(4) Space for teachers

In the process of open education, the cooperative class between teachers and grades is expected and the corporation between instructors are important. For necessary study activities of teachers and maintenance of materials, office for exclusive use of teachers should be prepared apart from classrooms and it should be arranged near the classroom they are in charge of.

(5) Restroom

The timetable for the restroom is not separately fixed and it should be set up at the nearest spot from classroom per each grade to minimize the traffic line during class. For the lower grades, the restroom established inside of a classroom is recommendable.

3. Furniture allocation

The production of all furnitures should consider body size of users including students and teachers and the flexible concept to cope with various support for learning and changing conditions should be introduced. In other physical environment, the flexibility has its limit and the flexibility using the arrangement of furniture to cope with change of spaces is more important.

4. Environmental plan for learning space

The normal level of noise proved not to affect academic performance of students but the noise itself can be problematic. Accordingly, in each spaces are organized in accordance with a noise level, more efficient learning environment can be created.

Also, the reflecting ceiling or rubber can be utilized to maintain inflow of light. The color has emotional effects in human beings and the favorable colors can be different on the age. Accordingly, the inside of a classroom should select colors to increase attention of students and also students like. Also, different colors for each floor except study rooms should be applied to increase a recognition power and instill vividity into a certain space and the less-lighted spaces can use light colors to be transformed into a positive place.

IV. Conclusion

The information technology and the change of education philosophy are bringing about continuous changes in contents and methodology of education and more flexible and transformed education environment is required to cope with this. However, the changing education environment is not fully reflected to the education environment design. Considering the fact human behaviors are considerably affected by environment, the education effect can be maximized when one is exposed to physical environment with education philosophy and operation method combined. Accordingly, for the open education requiring flexible education contents and flexible organization, more positive attitude and various aspects of study on education environment to cope with changes should be continued.

深圳实验学校

Shenzhen Experimental School

设计单位：深圳市·极尚建筑装饰设计工程有限公司

设计师：倪阳

建筑面积：18000m²

装修材料：石材、钢筋、地砖、涂料等

Design : Shenzhen Jishang Architectural Decorating & Design Engineering Co., Ltd.

Architect : Ni Yang

Built Area : 18000m²

Finish : Stone, reinforcement, ground tile, coating, etc.

深圳实验学校综合大楼是集教学管理、教学实验、学术研讨、图书管理、网络管理、学生诊疗等于一体的现代化大楼，在大楼设计中我们力图采用一种自然和谐、进取向上的风格，以体现这所现代化学校的实力与求发展的精神理念。

大楼内外环境结合。首层空间开放，门厅在功能上并非大楼的控制性入口，面积较小，设计师以简洁抽象的手法表现一种开放性、联系性，更好地将校史厅、报告厅、医务处等教学辅助空间沟通起来。

校史厅与学术厅、小礼堂着重展现文化气氛，朴实自然、现代感强，依托楼体以弧形创造集中的空间感觉。

走廊地面采用地砖，易于清理。教学区、阅览区采用开放式天花，强调构造感，并可降低成本，尽量利用自然光线，适于长时间学习、办公，节约能源。

普通办公区坚持以实用为主的原则，简朴、平和中不失活泼向上的气氛。校办公区则相对提高档次，展现学校的实力与形象。

室内材质色彩的运用方面，在整体和谐的基础上，点缀精致的造型和纯净明快的色彩，充分利用自然光营造宁静、雅致又充满朝气的学术氛围。

幼儿部

Infant Dept.

▼幼儿部入口 Entrance for Infant Dept



The comprehensive building of Shenzhen Experimental School building is an advanced building integrating teaching administration, teaching experiment, academic study and discussion, library management, network administration and diagnosis and treatment of students. During the design of the building, we tried to adopt a style of natural harmony and aggression, to reflect the strength of this modern school and the spiritual conception of development.

The building has integrated the inner and outer environment. The first floor offers an open space, and the hallway with small area is not the control entrance of the building on function. The designer reflects the openness and correspondence through a simple and abstract style, and connect the auxiliary space of teaching including the School History Hall, Lecture Hall and dispensary in a better manner.

The School History Hall, Lecture hall and the small assembly hall emphasize on reflecting an atmosphere of culture, and are simple and natural, with a strong sense of fashion, to create a sense of centralization through the arc of building.

The passageway adopts ground tile as floor, to assist cleaning. The teaching area and reading area adopt open ceiling, focus on the sense of structure, and reduce the cost. The areas utilize in maximum the natural light, which is applicable for learning and office work in long period and saves energy.

The common office area insists on the principle of practicality, maintains simplicity and moderation without losing the atmosphere of liveliness. The construction of public area of office building is in relatively higher level, to reflect the strength and image of the school.

In utilization of indoor material and color, on the basis of general harmony, the style with elaborate interlace and the pure and sprightly color utilize the natural light sufficiently, to create the quiet and elegant learning atmosphere full of liveliness.



▲入口 Entrance

▼休闲区 Recreation area





▲操场 Playground



▲走道 Corridor



▲教学楼 Teaching Building





►入口 Entrance



▲操场 Playground

高中部
Senior high school dept.



▲外观 Appearance



▲外观 Appearance



▲外观 Appearance



▲外观 Appearance



▲入口 Entrance



▲操场 Playground



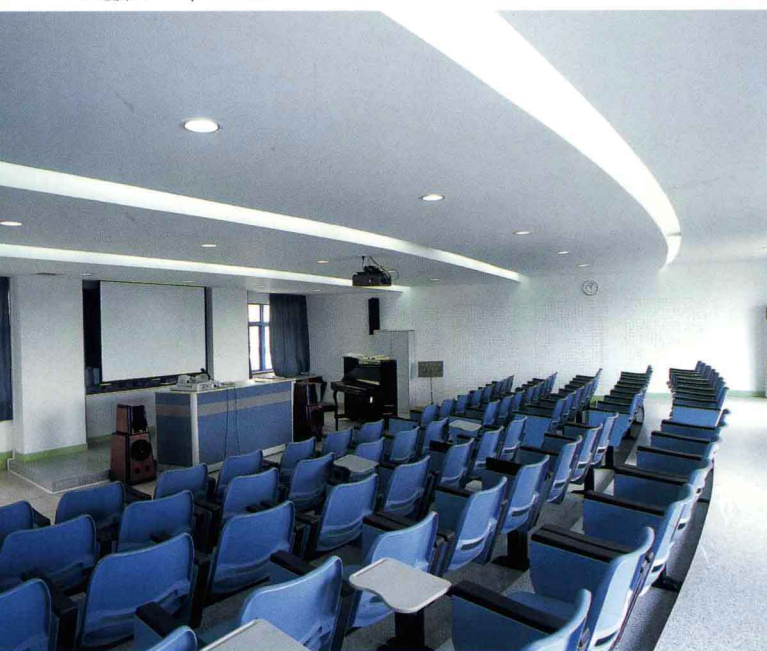
▲外观 Appearance



▲电脑室 Computer room



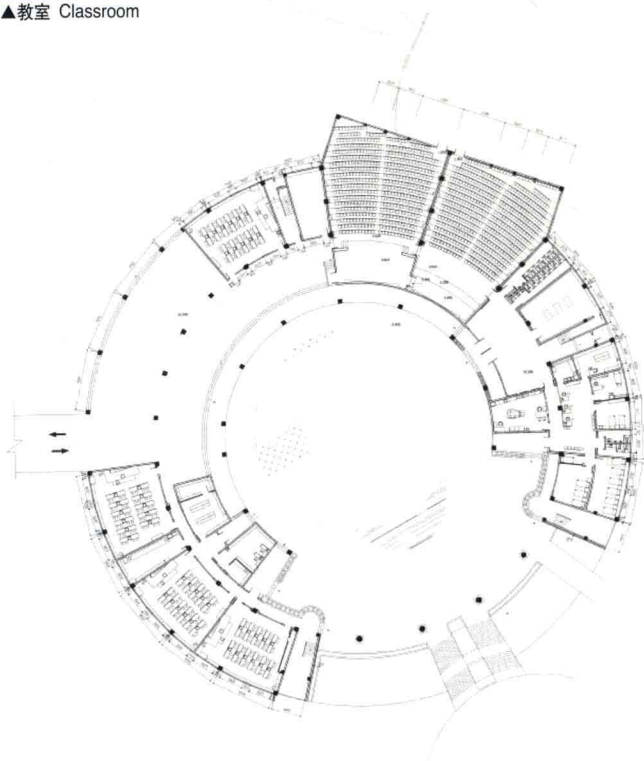
▲舞蹈室 Dancing room



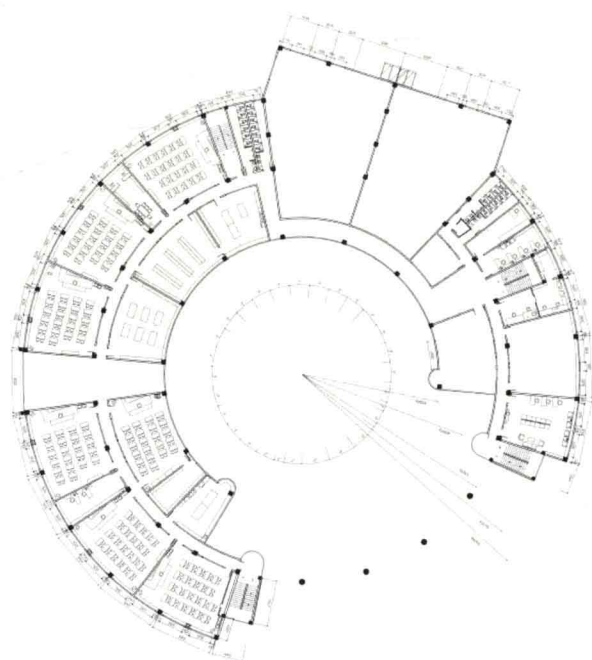
▲教室 Classroom



▲会议室 Meeting room



1楼平面图 1F Floor plan



2楼平面图 2F Floor plan