现代建筑集成

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科研建筑

百通集团

辽宁科学技术出版社

序　言

在21世纪即将到来之际，我们的社会正处在大动荡之中。高科技、信息化社会、产业结构发生了变化，对尖端技术的发与竞争，站在全球的角度考虑环境问题，对过去文化遗产极大关心等等……。随着社会的这些变革及需求，产生了一新的研究课题。研究所的作用从来没有像今天这样重要。研所的研究体制应该始终对社会的动向保持高度敏感性和灵活。

作为研究所的建筑应该具有各种高性能。例如：要考虑内人的活动特点、工作流程、能源种类，对环境的影响以及进尖端技术等内容。为了实现这一目的，建筑本身应具有优的实验环境，例如要控制温、湿度，光照度，空气清洁度以防止振动等。同时要为在高度人造环境下工作的研究者着想，为他们创造一个温馨舒适的空间，要创造一个使他们与大自接触的环境。

在我国，研究所大多数一直是归属于国家、都道府县或学等公共部门及民间企业。有许多研究所的建筑很讲究。但80年代前后我国完成了建筑科学领域的建设，以此为契机，究所的数量迅速增加，设施更加完善。自此，研究所以新的态展现在人们的眼前。人们认识到，研究开发新技术、新材、新产品无论是对于一个企业或是对于一个国家都是一个关到企业或国家生死存亡的战略问题。

按照归属分类，研究所可分为政府办、大学办（公办）民间企业办（民办）以及官民合办等形式。从其运营形式来、民办研究所是封闭的，而公办研究所是比较开放的。开放研究所也有积极推进公开化的例子。

从研究的领域来看，可分为物理、化学、生物、文化等领域，最近也有的研究所细分成电子领域、生物工程领域等类型。有的研究所其研究课题是环境问题等跨专业性的，有的研究所为了闯进不同于本企业的专业种类还进行多课题的开发研究。几个研究所共同研究一个课题或一个研究所研究几个课题的情况也是不少的。从研究的阶段来看可分为基础部分、应用部分、开发部分等。欧美研究所大多数把主要力量用于基础学科的研究，与他们相比，我国显得有些落后。政府方面最近好像开始认识到基础研究的重要性，公办基础研究机构得到充实，这是一件可喜的事情。应用、开发研究在企业中一般是在封闭状态下进行的，他们在对外保密的条件下进行产品试制直到批量生产。研究所与生产线的衔接与保密关系也涉及到它们之间的位置关系及其所在的建筑物的构造。

综上所述，现在有必要从建筑、功能、系统、环境、心理等角度重新对研究所的建筑进行思考。

研究所的主体功能当然是进行研究和实验，而且提供维持上述研究和实验的原料及处理好其排泄物是很重要的，就是说建筑的供排系统很重要，这就要求建筑物要适应这些功能，要具备便于进行空间处理和机器更新的系统。同时要注意到维持这些研究和实验的是信息管理系统，要重视引进新的信息系统，实行内外信息联网。

在提高上述硬件方面的性能的同时，现在最令人关心的就是这些研究者所处的环境问题了。这不仅仅是把食堂、会议室及运动建筑搞好的问题，还应进一步从精神、心理的角度探讨一下如何设计研究室、实验室、走廊等处的环境。为了提供更舒适的工作空间，必须从生物工程学的角度选用最佳材质、颜色和家具。必须尊重一个最基本的理念，那就是“研究是由

人进行的”。另外，研究所的另一个功能就是发表研究成果。也可以说它是运营主体——政府或企业的一张脸。研究所中既有保密的部分，也有向当地居民开放的地方。人们希望它能成为为该地区做出贡献的建筑设施。根据研究的领域，它可以成为国际交流更重要的场所。这样看，研究所作为人们交流的场所，它应该具有很充实的建筑空间。如果追加条件的话，那不限于对研究所而言，而是针对所有建筑提出的要求，即不仅要把建筑的内部和占地的环境搞好，还要考虑到它对周围地区产生的影响，要力图与周围的环境和谐一致，努力恢复该地区大自然的本来面貌。

现在，研究所建筑应该确立为独立的建筑种类。它是社会所需要的一种建筑，建筑家们应把它作为一项专门的研究对象。

本书所收录的是1988年以后竣工的研究所建筑。这些研究所的特点是有明显的新技术动向，建筑有特色、有魅力。它与当地居民关系密切，与当地的环境和谐融洽。收录的照片中，研究室和实验室内部较少，但是，看了这些照片介绍，就会了解到建筑地点情况和周围情况。读者可以结合所给出的图纸做出判断。

户至任宏
建筑研究所代表

reword

he 21st century draws ever closer, society is undergoing major changes. It is essing an increased dependence on high technology and communication and puter systems, structural changes in industry, competition to develop anced technologies, environmental problems that need to be addressed on a al scale and increased interest in assets from the past. New research and elopment are required in response to the transformation and demands of society, research centers are taking on a more important role. Research centers must e an organizational character and approach that enable them to adapt constantly sensitively to trends in society.

rder to arrive at a high-performance building, it is necessary to create an llent environment for experimentation that takes into account control over perature, humidity, level of illumination and cleanliness of air as well as the pression of vibration while giving due consideration to human movement, the of things, the variety of energy sources available and the effect on the ronment. It is also coming to be recognized that researchers who work in ly artificial environments need to be provided with humane spaces that soothe spirit and environments that permit contact with nature.

n has long had many research centers, both public institutes belonging to the ral and prefectural governments and universities and private institutes nging to various enterprises, and a number of them have been of interest itecturally. However, they became the focus of attention when the completion sukuba Academic New Town around 1980 stimulated a boom in the truction of new research centers and the development of research facilities. factor contributing to this trend was the acceptance of the perception that arch and development of new technologies, materials and products were vital to the survival of corporations and the country as a whole.

Research centers can be classified according to the organization to which they belong: public institutions such as government agencies and universities, private enterprises, and organizations in which government and business join forces. With respect to their form of operation, while research centers belonging to private enterprises are generally closed, public institutes are relatively open, and there are examples of research centers that actively pursue a policy of openness toward the public.

Centers can also be classified according to their fields of research, for example, physics, chemistry, biology and culture, but in recent years the categories have become more differentiated, as witness electronics and biotechnology. Moreover, research themes that straddle various disciplines such as the study of environmental problems have developed, and in many cases research and development are being attempted in multiple directions because corporations are seeking to expand their activities into new fields. As a consequence, a number of research centers may jointly undertake study on one theme, or one research center may simultaneously undertake studies on several different themes. Centers can also be classified according to the stage of research to which they are dedicated; i.e. basic research, applied research and development. Western centers are strong in basic research, an area in which Japanese institutes seem to lag. In recent years the Japanese government has shown signs that it does recognize the importance of basic research, and the strengthening of public institutes dedicated to basic research is to be welcomed. Applied research and development have generally been undertaken by corporations and have become increasingly closed. Secrecy is maintained as research leads to trial production and ultimately mass production. Coordination

etween the research center and the production line and increasing secrecy have an mpact on the way the two are situated relative to each other and the character of heir architecture.

would now like to consider research centers from the perspective of architecture, unction, systems, environment and the mental well-being of researchers.

The main subject of research centers is of course research and experimentation. The support system for supplying energy and disposing of waste products is an mportant feature. The architecture is required to possess a spatial arrangement that an easily adapt to such functions and a system that can easily accommodate nnovations in equipment. At the same time, information and management ystems support research and experimentation, and the introduction of new nformation systems and the development of internal and external networks are also onsidered important.

n addition to improvements in the performance of such hardwares, the nvironment for researchers is perceived now as a problem that must now be ccorded the highest consideration. This does not simply mean improving dining ooms, meeting rooms and athletic facilities, but reexamining the environment of acilities such as research rooms, laboratories and corridors from the standpoint of s effect on the mind and creating more humane and ergonomically superior orking spaces that have better materials, colors and furniture. It is necessary to eep in mind the basic fact that research is undertaken by human beings. Research enters also serve as places where the results of research are announced, and they re in a sense the faces that the agencies or corporations operating them present to e world. Although certain aspects of research centers require that secrecy be aintained, it is also necessary that centers be accessible and make contributions to the regions in which they are located. Moreover, depending on the field of research, such facilities can become important centers for international communication. Diverse architectural spaces that serve as places for communication among people are therefore demanded. One more point that might be made, though it applies to all buildings and not just research centers, is that effort is needed, not simply to improve the inside of facilities and the environment within the site, but to consider the effect of facilities on surrounding areas, harmonize the facilities with the environment and improve that environment, and help to restore nature.

Today, research centers are an established genre of building and a subject that architects must seriously consider as facilities necessary to society.

This volume is a selection of works that are indicative of new technologies and directions in research centers, distinctive and attractive architecturally, engaged closely in regional activities, or in harmony with the regional environment. Among the collected photographs there are only a few that show the inside of research rooms or laboratories because of the nature of research centers, but effort has been made in the selection to reveal the locational conditions and atmosphere of each research center as much as possible. Readers are invited to look at them in combination with the drawings and judge how successful the attempt has been.

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New Concepts in Architecture & Design

ISBN4-938812-15-0 C3052 P16000E
First Edition Oct. 1996
MEISEI PUBLICATIONS

#203, 3-11-1 Kanda Jinbo-cho, Chiyoda-ku, TOKYO 101 Japan

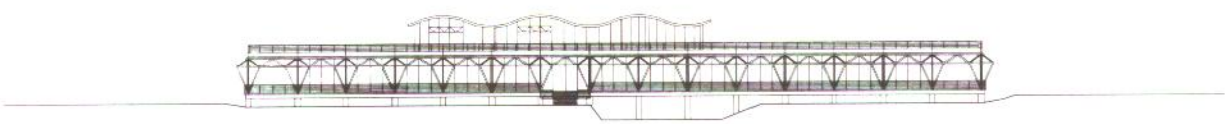
情報／通信　Information / Communication

SCT システムソリューションセンターとちぎ
SCT SYSTEM SOLUTION CENTER TOCHIGI

ーキテクトファイブ
RCHITECT 5 PARTNERSHIP

西側外觀 Exterior view of the west side

東側外観　Exterior view of the east side



East elevation　1:1000

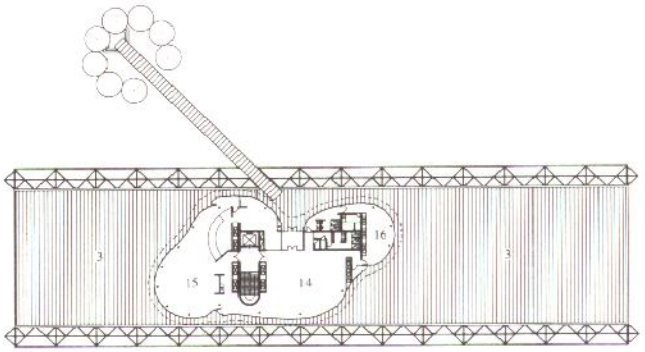
West elevation　1:1000

東側全景　Overall view of the east side

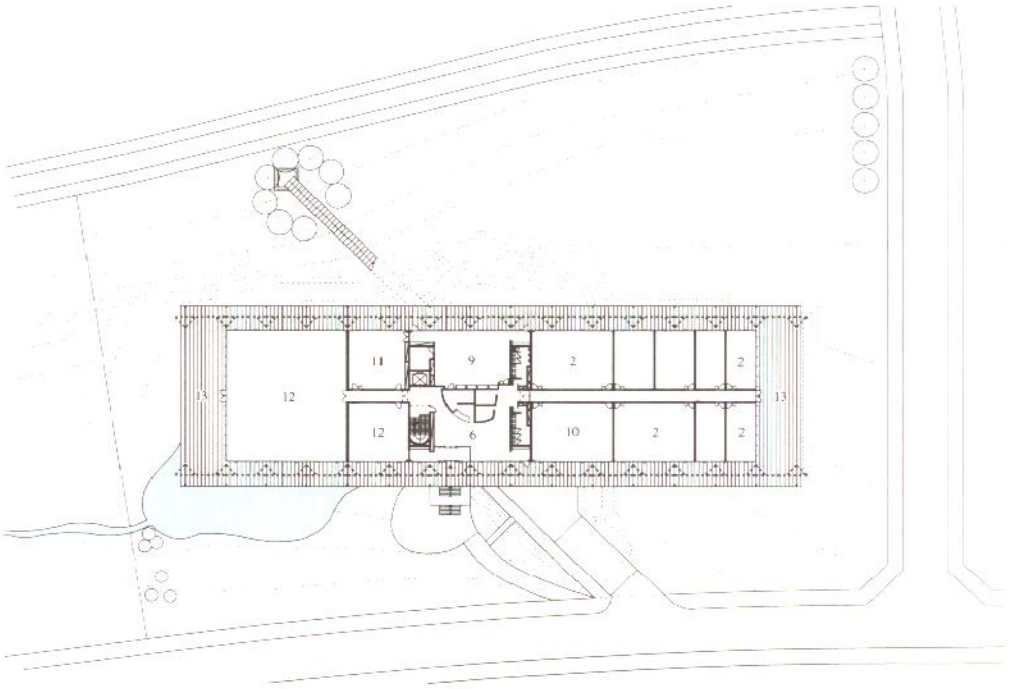
北西側全景　Overall view of the northwest side

1階 西側デッキ　1st-floor deck on the west side

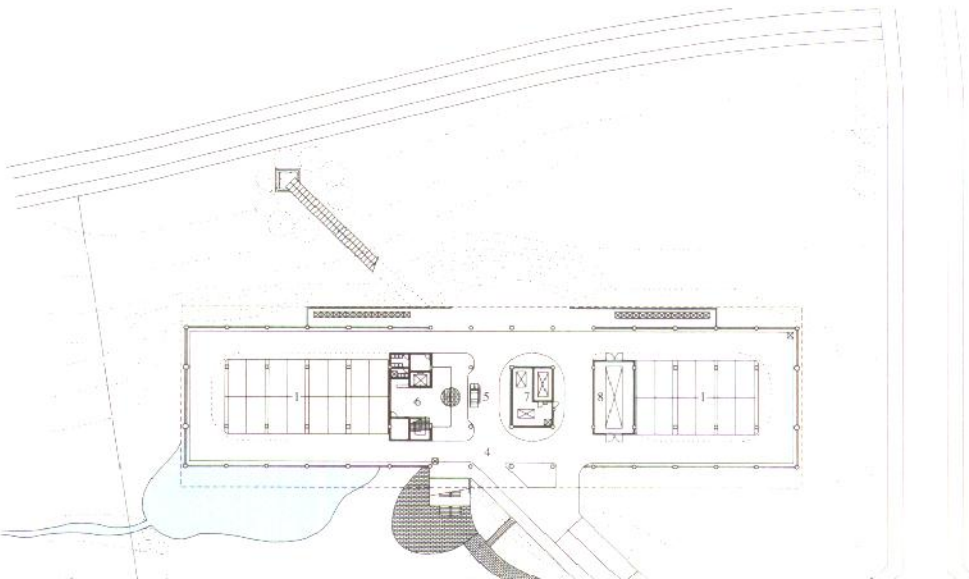
1 駐車場 Parking area
2 テスティングルーム Testing room
3 テラス Terrace
4 車路 Driveway
5 車寄せ Porch
6 エントランスホール Entrance hall
7 受水槽室 Water tank room
8 電気室 Electric room
9 ＳＳＣオフィス SSC Office
10 テスティング研修室 Training room for testing
11 研修室 Training room
12 レンタルオフィス Rental office
13 デッキ Deck
14 ラウンジ Lounge
15 レストラン Restaurant
16 リラクゼーションスペース Relaxation space



2nd floor plan



1st floor plan



2階ラウンジ　2nd-floor lounge