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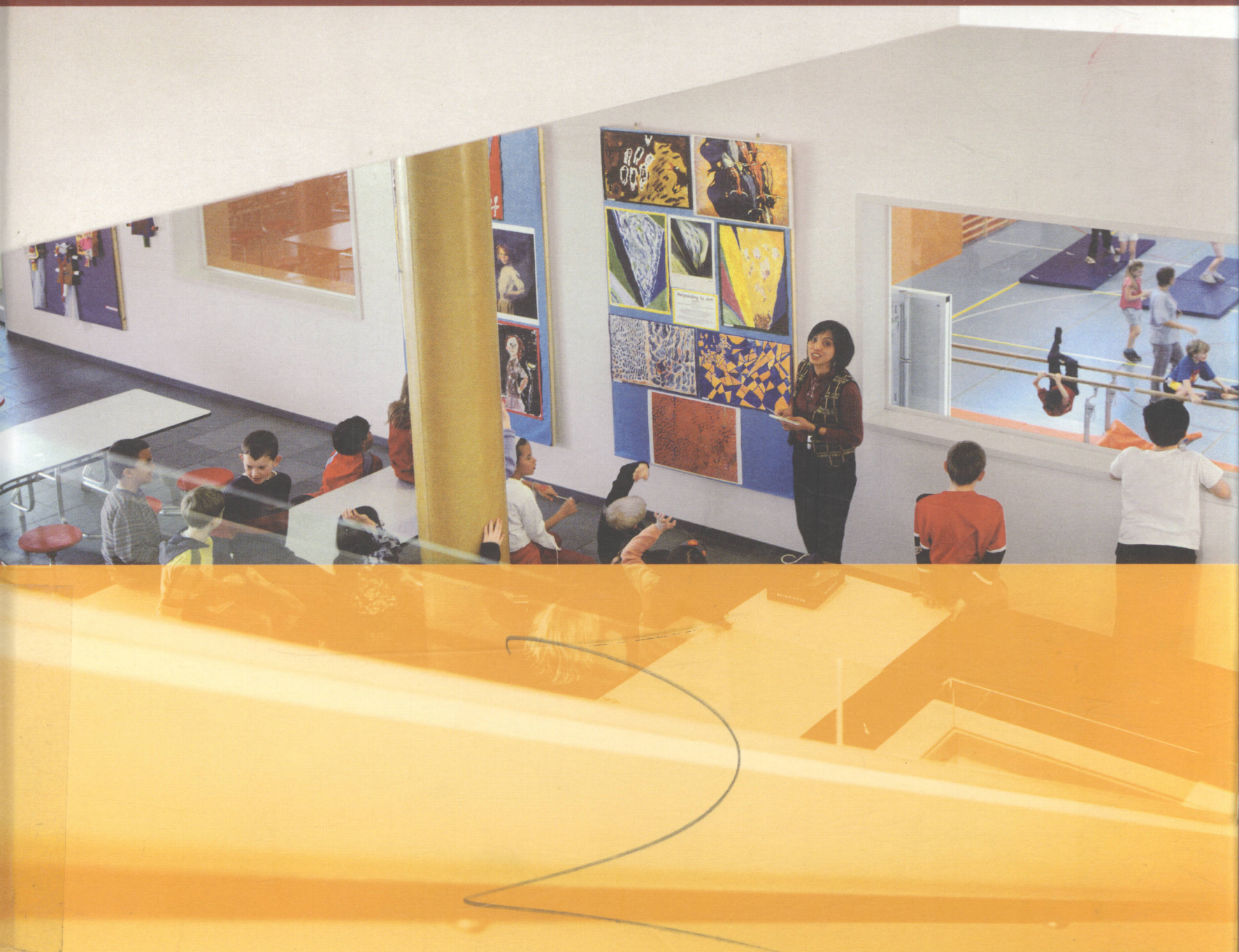
A DESIGN MANUAL

Schools and Kindergartens

学校与幼儿园

建筑设计手册

(德) 马克·杜德克 编著 贾秀海 时秀梅 译
安基国际设计传媒有限公司策划制作



华中科技大学出版社



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For Ben (St.Marylebone School, London), Matthew (Christ's Hospital, Sussex) and Amy (preschool playgroup, Nottinghill, London)

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Mohamed Boubekri

Susan Herrington

Susanne Hofmann

Norbert Huppertz

Pamela Loeffelman

Heather Marsden

Christina Niederstätter

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多萝西亚·波美

穆罕默德·鲍勃克瑞

苏珊·赫瑞特

苏珊娜·霍夫曼

诺伯特·呼朋兹

帕梅拉·兰佛曼

希瑟·马斯顿

克里斯蒂娜·尼德斯塔特



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学校与幼儿园的重建

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项目实例精选

NURSERIES AND KINDERGARTENS (0-6 years)

托儿所与幼儿园 (0-6岁)

56
Briar Hill Nursery
Briar Hill, Northampton, United Kingdom
Peter Haddon Architects

58
Kindergarten at Satit Bilingual School
Patumthani, Thailand
Aviruth Charoensup

62
Fawood Children's Centre
Harlsden, London, United Kingdom
Alsop Architects

64
San Felice Nursery and Preschool
San Felice, Reggio Emilia, Italy
ZPZ Partners

68
Lavender Children's Centre
Mitcham, Surrey, United Kingdom
John McAslan + Partners

70
Sondika Kindergarten
Sondika, Bilbao, Spain
Eduardo Arroyo, No.mad arquitectos

72
Hoyle Early Years Centre
Bury, Northwest England, United Kingdom
DSDHA

74
Xiayu Kindergarten
Qingpu District, Shanghai, China
Atelier DeShaus

76
National Day Nurseries Association
Grantham, United Kingdom
Mark Dudek with Michael Stiff and Andy Trevillion

78
Kindergarten Jerusalem Straße
Berlin, Germany
Staab Architekten

80
Sheerness Children's and Family Centre
Isle of Sheppey, Kent, United Kingdom
Architype

82
École Maternelle ZAC Moskowa
Paris, France
Frédéric Borel Architectes

84
Shenyang Xiaohajin International Kindergarten
Shenyang, China
Shenyang Huaxin Designers

86
Bubbletecture Maihara Kindergarten
Maihara, Japan
Shuhei Endo Architect Institute

56
布莱尔·希尔托儿所
英国, 北安普敦, 布莱尔·希尔
彼得·哈顿建筑师事务所

58
萨提特双语学校中的幼儿园
泰国, Patumthani
阿维鲁斯·查若萨普

62
法伍德儿童中心
英国, 伦敦, 哈尔斯登
奥尔索普建筑师事务所

64
圣·菲利斯托儿所和幼儿园
意大利, 伊米莉亚, 圣·菲利斯
ZPZ合伙人事务所

68
莱万特儿童中心
英国, 瑟里, 米查姆
约翰·麦克阿斯拉及合伙人事务所

70
松迪卡幼儿园
西班牙, 比尔巴鄂, 松迪卡
Eduardo Arroyo, No.mad 建筑师事务所

72
霍耶早期教育中心
英国, 英格兰西北部, 布瑞
DSDHA

74
夏雨幼儿园
中国, 上海, 青浦区
阿特列·德肖斯

76
国家日托协会
英国, 格兰瑟姆
马克·杜德克与迈克尔·斯蒂夫和安迪·特维林

78
耶路撒冷Straße幼儿园
德国, 柏林
斯塔布建筑师事务所

80
希尔尼斯儿童与家庭中心
英国, 肯特郡, 谢佩岛, 希尔尼斯
Architype

82
ZAC莫斯科瓦幼儿园
法国, 巴黎
弗瑞德瑞克·保瑞尔建筑师事务所

84
沈阳小哈津国际幼儿园
中国, 沈阳
沈阳华新设计团队

86
泡结构米原幼儿园
日本, 米原
远藤修平建筑师学会

SPECIAL SCHOOLS (6-18 years)

特殊学校 (6-18岁)

90
BSBO De Bloesem School
St. Truiden, Belgium
VBM Architecten

92
Stephen Hawkins School
Tower Hamlets, London, United Kingdom
Haverstock Associates

94
Pistorius School for Disabled Children
Herbrechtingen, Germany
Behnisch, Behnisch & Partner

98
Special School Sursee
Sursee, Switzerland
Scheitlin-Syfrig+Partner

100
Karviaistie Special School
Helsinki, Finland
Kirsti Sivén & Asko Takala

102
Osborne School
Winchester, United Kingdom
Hampshire County Council Architects

104
Feather River Academy
Yuba City, California, USA
Architecture for Education – A4E

108
Special Pedagogic Centre
Eichstätt, Germany
Diezinger & Kramer Architekten

90
BSBO De Bloesem学校
比利时, St. Truiden
VBM建筑师事务所

92
史蒂芬·霍金斯学校
英国, 伦敦, 哈姆雷特城
哈沃斯道克协会

94
皮斯特若斯残疾儿童学校
德国, Herbrechtingen
百尼斯切及合伙人事务所, 斯图加特

98
瑟斯特特殊学校
瑞士, 瑟斯
斯切特林-赛福瑞格及合伙人事务所

100
卡维斯特特殊学校
芬兰, 赫尔辛基
克斯提·斯文和阿斯科·塔卡拉

102
奥斯伯恩学校
英国, 温彻斯特
翰浦士尔县政府理事会建筑部

104
羽毛河学院
美国, 加利福尼亚, 尤巴城
A4E教育建筑

108
特殊教育中心
德国, 艾希施泰特
迪兹英格和克拉默建筑师事务所

PRIMARY SCHOOLS (4-12 years)

小学 (4-12岁)

112
Kingston International School
Hong Kong, China
Kwong & Associates

114
Montessori Primary School
De Eilanden, Amsterdam, The Netherlands
Herman Hertzberger

116
Druk White Lotus School
Ladakh, India
Arup Associates

120
Little Village Academy
Chicago, Illinois, USA
Ross Barney Architects

122
Ranelagh Multi-denominational School
Dublin, Ireland
O'Donnell + Tuomey Architects

124
Mary Poppins Primary School
Berlin, Germany
Carola Schäfers Architekten

126
North Kildare Educate Together School
Celbridge, County Kildare, Ireland
Grafton Architects

128
Burr Elementary School
Fairfield, Connecticut, USA
SOM 'Education Lab'

130
Hachoreh School
Zichron Yaacov, Israel
Shimon and Gideon Powsner

132
Westcliff Primary School and After School Club
Westcliff on Sea, United Kingdom
Cottrell and Vermeulen

134
Joint Denominational School
Sheffield, United Kingdom
DSDHA

136
Heinz Galinski School
Berlin, Germany
Zvi Hecker

138
Mossbrook Primary School
Norton, Sheffield, United Kingdom
Sarah Wigglesworth Architects

140
Taxham School Extension
Taxham, Salzburg, Austria
Maria Flöckner and Hermann Schnöll

142
Kingsmead Primary School
Northwich, Cheshire, United Kingdom
White Design Associates

144
Primary School Rolle
Rolle, Switzerland
Devanthery & Lamunière

148
Thorncliffe Park Public School
Thorncliffe Park, Toronto, Canada
Teepel Architects

150
Jubilee School
Brixton, London, United Kingdom
Allford Hall Monaghan Morris

154
Jockey Club Primary School
Hong Kong, China
Aedas + Design Consultants

156
Zürich International School
Wädenswil, Switzerland
Galli & Rudolf

158
South Bronx Charter School for the Arts
Hunts Point, New York, USA
Weisz + Yoes Studio

160
Helen S. Faison Academy
Pittsburgh, Pennsylvania, USA
Perkins Eastman

112
金斯顿国际学校
中国, 香港
邝颖文建筑师事务所

114
蒙台梭利小学
荷兰, 阿姆斯特丹, 爱兰登
赫尔曼·赫茨伯格

116
扎克白莲学校
印度, 拉德克
阿鲁普联合事务所

120
小村庄学院
美国, 伊利诺伊州, 芝加哥
罗斯·巴尔尼建筑师事务所

122
瑞纳拉美多教派学校
爱尔兰, 都柏林
奥东尼尔和图奥密建筑师事务所

124
玛丽·波宾小学
德国, 柏林
卡若拉·斯卡弗斯建筑师事务所

126
北基尔德尔共同教育学校
爱尔兰, 基尔德尔县, 塞布里吉镇
格拉弗顿建筑师事务所

128
贝尔小学
美国, 康涅狄格州, 费尔菲尔德
SOM "教育实验室"

130
哈克瑞士学校
以色列, 纪朗叶可夫
西蒙和基德恩·珀斯纳

132
韦斯特克利夫小学和课后俱乐部
英国, 滨海韦斯特克利夫
考特瑞尔和沃梅伦

134
联合教派学校
英国, 谢菲尔德
DSDHA

136
黑兹加林斯科学校
德国, 柏林
兹维·海克

138
苔溪小学
英国, 谢菲尔德, 诺顿
萨拉·维格沃斯建筑师事务所

140
特斯哈姆学校扩建工程
奥地利, 萨尔茨堡, 特斯哈姆
玛丽亚·弗劳克纳和赫曼·斯库纳尔

142
金迈德小学
英国, 切夏, 诺斯威奇
怀特联合设计事务所

144
洛利小学
瑞士, 洛利
戴万塞瑞和拉姆赛

148
桑克利夫公园公立学校
加拿大, 多伦多, 桑克利夫公园
提普勒建筑师事务所

150
银禧学校
英国, 伦敦, 布里克斯顿
Allford Hall Monaghan Morris

154
乔基俱乐部小学
中国, 香港
艾达斯及设计顾问团队

156
苏黎世国际学校
瑞士, 威登斯维尔
加利和鲁道夫

158
布朗士南区查特艺术学校
美国, 纽约, Hunts Point
维斯兹和尤斯工作室

160
海伦·S·费森学院
美国, 宾夕法尼亚州, 匹兹堡
博金斯·伊斯特曼

SECONDARY SCHOOLS (10-18 years)

中学 (10-18岁)

164
Collège Nicolas Robert
Vernouillet, Eure-et-Loir, France
Berthelier Fichet Tribouillet

168
Ale Upper Secondary School
Nödinge, Sweden
Wingårdh Arkitektkontor

170
Lycée Camille Corot
Morestel, France
Hérault Arnod Architectes

172
Gunma Kokusai Academy
Ohta City, Gunma, Japan
Kojima, Uno, Akamatsu

174
Montessori School
Ingolstadt, Germany
Behnisch & Partner

176
Kuoppanummi School Centre
Nummela, Finland
Perko Architects
Meskanen & Pursiainen

178
Instituto Rafael Arozarena
La Orotava, Tenerife, Spain
AMP arquitectos

182
Kvernhuset Junior High School
Fredrikstad, Norway
PIR II Arkitektkontor, Duncan Lewis

184
Public School Jardim Ataliba Leonel
São Paulo, Brazil
Angelo Buccì, Alvaro Puntoni

186
Exemplar School
Lambeth, London, United Kingdom
Alsop Architects

188
Lycée François Magendie
Bordeaux, France
Brojet Lajus Pueyo

190
Greenwich Academy
Greenwich, Connecticut, USA
SOM 'Education Lab'

192
St. Andrew's College
Aurora, Ontario, Canada
Kuwabara Payne McKenna Blumberg

194
Nærum Amtsgymnasium
Nærum, Copenhagen, Denmark
Arkitekter Dall & Lindhardt

196
Albert Einstein Oberschule
Berlin, Germany
Stefan Scholz Architekten

198
Sankt Benno Gymnasium
Dresden, Germany
Behnisch, Behnisch & Partner

200
Lachenzelg School Extension
Zürich, Switzerland
ADP, Beat Jordi, Caspar Angst

202
Perspectives Charter School
Chicago, Illinois, USA
Perkins+Will

204
Bishops Park College
Clacton, Essex, United Kingdom
Architects Co-Partnership (ACP)

206
Gymnasium Markt Indersdorf
Markt Indersdorf, Germany
Allmann Sattler Wappner Architekten

208
Instituto Villanueva del Rio y Minas
Sevilla, Spain
J. Terrados Cepeda +
F. Suarez Corchete

210
Collège des Tuillières
Gland, Switzerland
Graeme Mann & Patricia Capua Mann

214
Colegio Secundaria Industrial
Santiago de Cali, Colombia
Luis Fernando Zúñiga Gáez

164
尼古拉斯·罗伯特学校
法国, 厄尔-卢瓦尔省, Vernouillet
博塞列·费切特·特里保利特

168
艾乐·阿珀初级中学
瑞典, 纳丁哥
温格德建筑师事务所

170
利西·卡米利·卡洛学校
法国, 莫瑞斯特
埃罗·阿尔诺建筑师事务所

172
群马国际学校
日本, 群马县, 奥塔城
小島、宇野、赤松、柳泽

174
孟泰沙瑞学校
德国, 英格斯塔德市
百尼斯切及合伙人事务所

176
酷帕纳密中心学校
芬兰, 纽莫拉
珀克建筑师事务所
麦斯卡恩和帕斯艾恩

178
瑞菲尔·阿诺塔纳公立学校
西班牙, 泰尼瑞弗, 拉奥若塔瓦
AMP建筑师事务所

182
卡文哈斯特初中
挪威, 弗瑞德瑞克斯特德
PIR II建筑师事务所, 邓肯·刘易斯

184
扎迪·阿塔利巴公立学校
巴西, 圣保罗
安哥拉·布斯, 阿尔瓦罗·邦特尼

186
模范学校
英国, 伦敦, 兰姆拜斯
阿尔萨普建筑师事务所

188
莱西·弗朗西斯学校
法国, 波尔多
波拉杰特·拉杰斯·珀尤

190
格林威治学术学院
美国, 康涅狄格州, 格林威治
SOM "教育实验室"

192
圣·安德鲁学院
加拿大, 安大略省, 奥罗拉
库瓦巴拉·培尼·麦肯纳·布拉姆博格

194
诺朗姆·爱阿穆吉尼亚学校
丹麦, 哥本哈根, 诺朗姆
建筑师达尔和林德哈德森

196
阿尔伯特·爱因斯坦学校
德国, 柏林
斯蒂芬·司考兹建筑师事务所

198
桑卡纳·布诺体育中学
德国, 德雷斯頓
百尼斯切及合伙人事务所

200
拉彻歌扩建学校
瑞典, 苏黎世
ADP, 比特·乔迪, 卡斯珀·安格斯特

202
查特独立学校
美国, 伊利诺斯州, 芝加哥
博金斯和威尔

204
主教公园大学
英国, 艾斯克斯, 克莱克顿
建筑师合伙人事务所 (ACP)

206
马特·尹德斯得弗高级中学
德国, 马特·尹德斯得弗
艾尔曼·赛特·瓦普纳建筑师事务所

208
维兰纽瓦·若·伊·米纳斯学院
西班牙, 塞维尔
小特拉德斯·塞匹达和F. 苏勒兹·考切特

210
特里瑞斯学院
瑞士, 格兰德
格瑞米·曼和帕特里克·卡帕·曼

214
工业学校
哥伦比亚, 卡利, 圣地亚哥
路易斯·弗曼多建筑师事务所

SECONDARY SCHOOLS (10-18 years)

中学 (10-18岁)

216
Oskar Maria Graf Gymnasium
Neufahrn, Germany
Hein Goldstein Architekten

218
Instituto La Serra
Mollerusa, Lleida, Spain
Carne Pinós Desplat

220
Protestant Comprehensive School
Gelsenkirchen, Germany
Plus+ Bauplanung

224
Jo Richardson Community School
Dagenham, London, United Kingdom
Architecture PLB

216
奥斯卡·玛丽娅·格拉夫体育馆
德国, 纽法恩
赫因·哥尔德斯頓建筑师事务所

218
拉塞拉学校
西班牙, 列里达省, 莫里路萨
卡米·皮纳斯·戴斯普拉特

220
新教综合学校
德国, 哥尔森基恩
普拉斯和巴普拉昂格建筑工作室

224
乔·理查德森社区学校
英国, 伦敦, 达海姆
PLB建筑公司

ACADEMIES AND VOCATIONAL SCHOOLS (6-18 years)

专科院校和职业学校 (6-18岁)

228
Films Comprehensive School
Films, Switzerland
Werknetz Architektur

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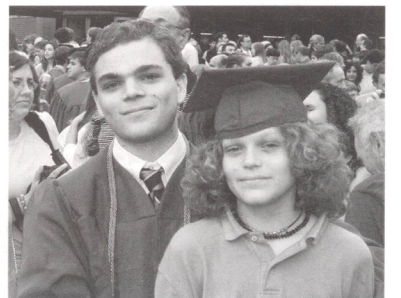
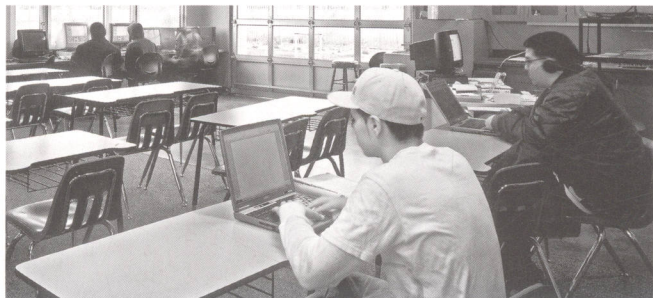
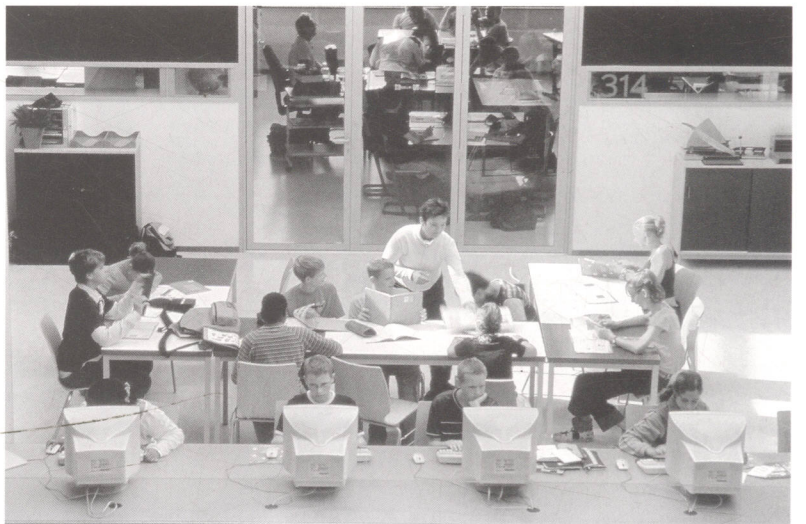
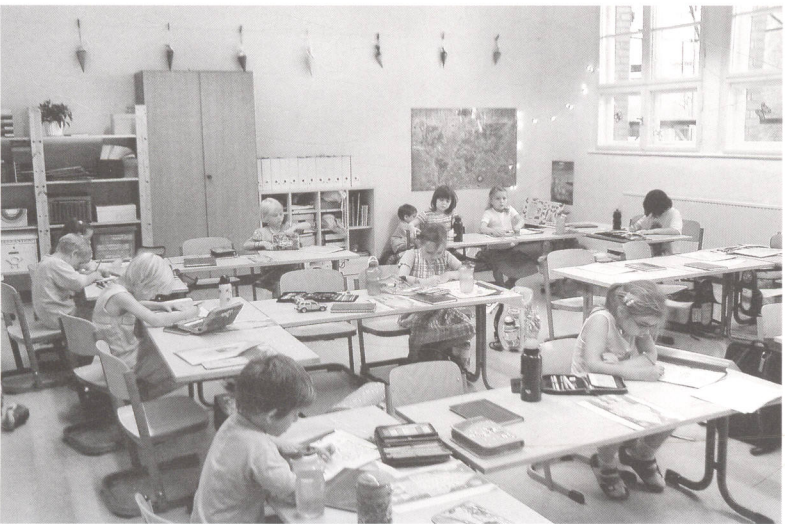
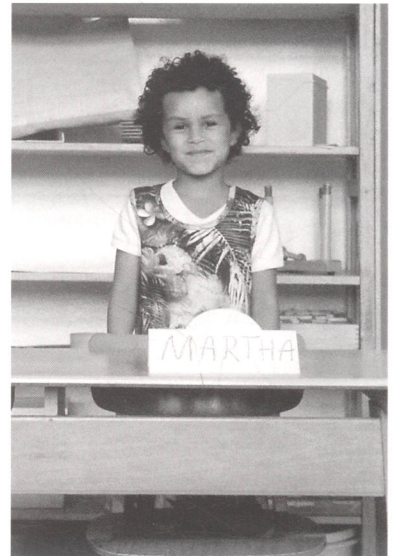
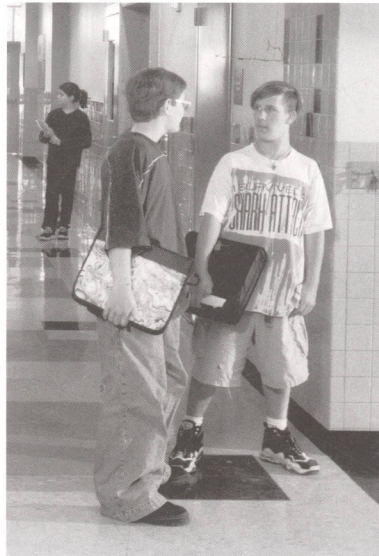
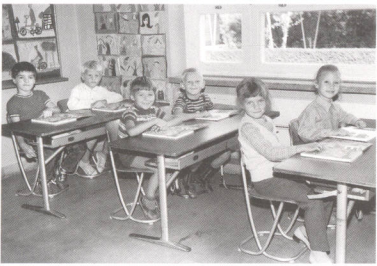
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Preface

What is the relationship between pedagogical visions and space for children? I ask this question because it is in my view a key to understanding good school or pre-school architecture, and is a primary idea which lies at the heart of this publication. Whilst we want and need buildings which respond to the immediate requirements of contemporary society, the schools we build now are also for a future which is hard to predict. Designers of school buildings need 'the vision thing'.

Look up the word 'vision' in the Thesaurus and many definitions relate to almost intangible qualities: imagination, perception, inspiration, innovation and creativity. One might add to this list the buzz word of the moment, 'future proofing', a concept which is so important at this time of substantial school investment, as many of these new schools may still be in use at the end of this century. How, in other words, should architects and designers approach these projects with a view to predict the future? What should dictate the vision, education or architecture?

Currently there is a widespread emphasis on innovative approaches to education which reflects a more personalised conception of learning than prevailed during the 20th century. This reflects the individualistic times in which we live. These theories and many other new ideas must somehow be incorporated by the architect into his or her design. Fundamentally, the architect needs a clear grasp of the educational theory which underpins the work.

The best new school builders recognise that education should lead architecture to the extent that many of the case studies featured here are explicit renditions of the latest educational theories, almost like a three-dimensional curriculum plan. Rightly so in my view; the pedagogical vision is of fundamental importance when designing a new school. If it is to have a direct bearing on the contemporary needs of teachers, pupils and future generations of school users, it must reflect the parallel needs of children's education and their social development in its design.

Architects who have not as yet designed a school may be asking themselves, what do I know about pedagogical visions? The question around pedagogical visions and space can and should be ordered in a number of alternative ways. The relationship is never linear, where the pedagogical vision dictates the architecture, as might be implied by my question. Rather, education and architecture enter into a relationship where, if everything goes according to plan, the two dimensions mesh together in a symbiotic formula to create a complex child-orientated environment which enables children to learn and the community to prosper.

The school has always been concerned with radical educational ideas set in new and stimulating settings. It had to be radical because since the beginning of the 20th century it was a system of mass education, constantly reinventing itself to provide more and more educational places of an ever improving quality. There is a similar impulse today, where education includes an ever widening section of the population. For example, the requirement to provide support for working mothers is perceived as a relatively recent phenomenon. It is now broadly accepted as a necessity and implies an extension of care and education downwards and sideways. Downwards to cater to young children and babies, and sideways to provide breakfast clubs and after school facilities for school age children.

So this is not only about pedagogic visions. The school designer goes further to extend the role of the school to the wider community and to society as a whole. I trust this book will inspire and help design teams to order priorities and create the best possible school environments for all of our futures.

I would like to thank the many people who have contributed to the creation of this book, all of the case study contributors and numerous teachers and educationalists who have provided observations and support during its development. In particular I would like to acknowledge Ria Stein and the team at Birkhäuser who have stuck with the project over more years than I care to remember. In her determination to get the book published, Ria has shown a degree of tolerance and understanding towards me beyond the call of duty. It is to her that I offer my greatest thanks for the final version of this publication.

I also wish to thank Penny Terndrup for her pastoral care and wisdom during the book's difficult gestation and birth, and Ken Macdonald who got me started with all of this 15 years ago.

Finally, recognition goes to the School of Architecture, University of Sheffield, where I am engaged as a part-time Research Fellow. Without their support this publication would not have been possible.

Mark Dudek
London, November 2006

序言

对孩子们而言，教育法的发展与空间之间的关系是怎样的呢？之所以如此发问，是因为在我看来它是理解幼儿园和学校建筑的关键，同时这也是本书的核心思想。我们想要而且需要这类建筑来满足社会的当前需求，同时现在的建筑也是为了难以预知的将来而设计的。学校建筑的设计师们需要以“远景事物”作为指导。

在辞典中查阅“vision”一词，你会发现很多定义与抽象的概念有关，诸如想象力、领悟力、灵感和创造力之类。此时人们很可能将一些现今社会的流行语加入其中，“见证未来”——对于当今巨额的教育投资而言，这是一个非常重要的理念，因为到本世纪末许多现在新建的学校仍将被使用。换句话说，建筑师和设计者们应该怎样带着一种预知未来的眼光来设计和建造这些工程项目呢？应该怎样来表达视觉景象、教育抑或建筑呢？

目前，人们更加强调采取创新的方法来对待教育问题，比起20世纪所盛行的理论，人们更加关注人性化的学习理念。这也折射出我们生活在一个追求个性化的时代。在一定程度上，建筑师需要将这些理论和许多新思想融入他们的设计当中。从根本上讲，建筑师们需要对那些作为建筑基础的教育理论有一个明确的把握。

很多优秀的学校建筑师们意识到，教育应当引领建筑达到这样一种程度：如同本书所研究的许多案例，它们能够清晰地表达最新的教育理论，就像一个三维的课程设计。与我的观点相同，在设计新的学校时，教育远景具有基础性的重要意义。如果说，教育模式对当今师生的需求和未来的学校使用者的需求有直接关系的话，那么，学校建筑的设计必须满足孩子们的教育需求及其社交能力的发展。

至今还没有尝试过设计学校建筑的建筑师们或许会问自己：我对教育远景知道多少呢？围绕教育

远景与教育空间这一核心所产生的问题，能够并且应该存在诸多解决方案。这种关系决不是线性的，就像我在刚才的问题中暗示过的一样，教育远景指导建筑。而事实上，当一切都按计划在充满挑战的新背景下发展时，教育与建筑会在一种共生的形式下相互结合，从而创造出一种复杂的、以孩子为中心的环境；这种环境有利于孩子们自身的学习以及整个学校社团的繁荣发展。

在新的充满刺激背景下，学校总是关注基础教育理念。之所以称之为基础，是因为自从21世纪开始，它便是一种大众教育体系，并且不断地发展提高，提供了越来越多的质量不断提高的教育场所。如今也出现了类似的趋势，教育服务所涵盖的范围正在不断地拓宽。例如：为职业妈妈提供支持服务的需求已经成为近期的一种现象。现在，这种需求已经作为一种必需品而被广泛接受，这也就意味着对孩子的看护和教育将逐渐向纵深和边缘化发展。纵深化是指对婴幼儿提供的各种看护服务，边缘化是指为学龄儿童提供早餐服务和课余设施等。

因此，这不仅仅只涉及教育远景问题。学校设计者应该进一步地拓宽学校在更广泛的社区和整个社会中所扮演的角色。我坚信，对于设计团队分清主次，从而为我们的未来创建出最好的学校环境，本书能够提供一定的启发和帮助作用。

在此，我谨向为本书的创作做出贡献的人们致以真诚的谢意。所有的案例研究者、无数的教师和教育学者都提供了他们无私的帮助和支持。我将特别对进行此项目研究多年之久的瑞斯坦（Ria Stein）和博克豪瑟（Birkhäuser）团队提出感谢。为了使本书得以出版，瑞斯坦给予了我超越她职责之外的理解和宽容。在此献上我最诚挚的感谢，正是她使得最终版本得以出版面世。

我也要感谢派妮·特族普（Penny Terndrup），在本书的酝酿和诞生过程中给予的关注与智慧。还有肯·麦克唐娜，是她使我15年前便萌生了要出版此书的念头。

最后还要感谢西菲尔德大学建筑学院，在那里我主要从事兼职研究工作，从而为我的创作提供了帮助。没有他们的支持，这本书就不可能出版。

马克·杜德克
伦敦 2006年11月

Nurseries and kindergartens

Architecture for the education of young children aged 5 or 6 to 11 years has been a distinct building type for over a century. Early years architecture for preschool children aged 0 to 5 or 6 years has been less distinct. Nevertheless early years and elementary school design can be discussed generally within the framework of a number of themes and building typologies. Three approaches have distinctive pedagogical concepts built into the architectural approach and are discussed here.

Firstly, there are new buildings where design priorities focus upon a strictly codified room schedule. This alone will dictate the architectural approach. Here is a case in point: 'There is a soft corner with a comfortable adult sized sofa, a large rug and some cushions and a child sized bookcase, and an additional accessible storage shelf. Each group room has its own bathroom and a side room exclusively used for naps and sleeping, and equipped with small mattresses.'

Because the schedule is expressed primarily as a series of quasi-functional zones underpinned by a pre-determined floor area relating to child numbers, the architectural narrative tends to be two-dimensional and very limited. There is an emphasis on a prescriptive approach where rules and regulations guide the architectural strategy. Everything is very much pre-determined by the zones or territories which are strictly imposed upon children. The main determinant of the architecture are age-related groupings such as 0-1 year olds, 1-2 year olds, 2-3 years olds etc. Although they are usually described as 'homebase' areas, many are similar in character to school classrooms. Each homebase area may be further designated into functional zones such as the cloakroom, the wet zone (with sinks for art and craft activities) and the quiet zone. This is a range of activities which is so tightly prescribed that the architecture tends to reduce and limit the scope for learning rather than extending and opening it up. The focus is on adult needs, such as safety and security, rather than on child needs, such as the promotion of exploration and discovery.

Clearly this approach can obscure the potential for creativity and imagination. The free spirit of young children is somehow narrowed down to a set of activities which are deemed to have educational value. Ultimately, the quality of the architecture is very much down to the skills of the architect selected, and his or her ability to interpret the brief in a truly child-orientated way. This is in my view a highly dysfunctional relationship between pedagogy and space, yet it is the basis of much contemporary practice.

The second design typology applies to those institutions which have adapted premises to suit new forms of pedagogy. This is space which emerges organically as a result of enlightened forms of education around which an existing school or nursery building adapts itself. Here the architecture follows the pedagogy. E. F. O'Neill's work at Prestolee School, Kearsley, set the tone for this approach. Prestolee School was an unremarkable county elementary school in Lancashire, northwest England, which was transformed between the years 1918 and 1953. Its head teacher throughout this time was Edward Francis O'Neill (1850-1975). He pioneered an active learning approach which flew in the face of convention with its emphasis on structured discipline dictating school design formulaically as, for example, a number of classrooms grouped around an assembly hall with an outside playground.

O'Neill objected to the concept that the child's day must be divided up between work and play and neatly segmented across the week into hour long subject lessons delivered by a specialist teacher with the aid of a blackboard. His thesis was that children learnt by doing, and he developed a school environment which enabled the children to work at their own pace following their own course of development. He viewed children as constructors and researchers of their own worlds, utilising their time best in a way which developed their own interests. O'Neill fashioned the school interior and exterior as a single seamless environment, which was a deliberate response to what he considered to be the artificial and damaging division between 'work' (indoors) and 'play' (outdoors).

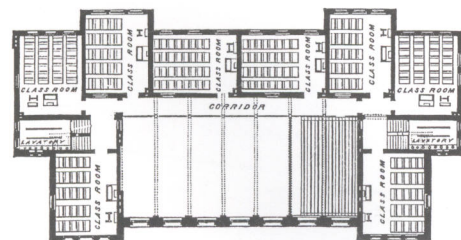
Children at Prestolee could carry out their tasks indoors or outdoors as they wished. He gradually developed the hard tarmac play yard introducing flower beds, a vegetable garden, water fountains, bathing pools and opportunities for construction; a windmill, 4 metres high standing on a 1.8 metre wall was constructed by the oldest junior boys.

Inside, one of the important transformations was the conversion of the assembly hall into an open plan classroom, accessible to pupils of all ages. Screens and other furniture were moved in, with long tables placed back to back forming large flat areas for specialised learning activities such as music, reading, art and construction. The idea was that learning materials could be used informally when individuals or small groups of children required them. The emphasis was on self-generated research rather than forced learning, and the flexibility of the environment became a key component. The school was open for 12 hours per day with children returning voluntarily for evening sessions. O'Neill's school became known as the 'learn by doing school'. Broadly speaking this was not high ar-



The first Margaret McMillan nursery school, Deptford, South London, 1923. School yard during recess

位于伦敦南部Deptford的第一所玛格丽特·麦克米兰 (McMillan) 托儿所, 1923年。图片为休息时的校园景致



Typical Robson school plan, Hackney, East London, 1911

位于伦敦东部哈克尼的具有代表性的罗布森学校平面图, 1911年



Margaret McMillan nursery school, Deptford, South London, 1923

玛格丽特·麦克米兰托儿所伦敦南部 Deptford, 1923年

托儿所与幼儿园

一个世纪以来, 针对5岁或6岁至11岁的幼龄儿童的教育建筑, 始终都是一种独特的建筑类型。然而, 针对0~5岁或0~6岁学前儿童的早期教育建筑却缺乏独特性。早期教育建筑和小学建筑的设计类型, 大都包括在繁多的建筑主题和建筑类型中。有三种方式把独特的教育理念融入建筑理念中, 我们将在此展开讨论。

首先, 是那些新式建筑, 它们将设计焦点放在房间的严格规划上。这种独立的设计将会支配其建筑方式。这有一个实例: “一个柔软的角落, 在这里, 有一个舒适的成人用沙发; 一块大地毯、一些软垫和一个孩子用的书橱; 除此之外, 还有一个储藏架。每一组房间都带有浴室和一间侧屋, 侧屋可用于小睡, 并且还配有小型床垫。”

因为该设计规划主要是通过一系列准功能区来体现的, 这些功能区的大小是以预先确定的楼层面积为基础的, 而楼层的面积又与孩子们的数量密切相关, 从而, 该建筑空间就趋向于二维空间, 而且非常有限。现在强调一种说明性的方式, 通过这种方式, 其标准和规则可以指导建筑策略。每一件东西的安排都应该考虑孩子的需要, 并根据区域空间来确定。建筑风格的主要决定因素是与年龄相关的分组情况, 例如: 0~1岁、1~2岁、2~3岁等不同的年龄段。尽管用于这些年龄段的建筑群通常被描述成“家庭式”区域, 但是它们大多都和学校的教室类似。每一个“家庭式”区域也许会被进一步划分为不同的功能区, 如: 衣帽间、清洗区 (有一些用于艺术与手工制作的洗涤槽), 还有无噪音区域等。在这里, 该建筑趋于减少并限制学习空间, 而不是扩大开放学习空间。另外, 此类建筑注重成年人对建筑的要求, 如安全性等等, 而不注重孩子的需求, 如促进其探索和发现精神的发展等。

很明显, 这种建筑方式阻碍了孩子们创新能力和想象能力的发展。在某种程度上, 孩子们的自由精神被限制在一系列被认为有教育价值的活动内。因此, 从根本上讲, 建筑的品质大多取决于: 建筑师所采取的技术, 以及通过一种真正的以孩子为中心的方式, 对建筑理念进行解释的能力。在我看来, 这是教育学和空间之间的功能混乱, 然而它却是许多当代实践的基础。

第二种设计类型主要适用于某些机构, 这些机构已采取各种前提措施以适应新型的教育模式。由于教育的启蒙模式, 这种设计类型便应运而生, 据此, 现有的学校和幼儿园建筑就要调整自己以适应这种模式。在这里, 建筑设计遵循教育新理念。E. F. 奥涅尔所设计的克尔斯雷的普雷斯托利学校, 采取的就是这种设计类型。

普雷斯托利学校是一所不起眼的县级小学, 坐落在英格兰西北的蓝凯尔市, 在1918~1953年期间发生了转变。这个时期的校长是爱德华·弗朗西斯·欧尼尔(1850~1975)。他倡导一种积极的学习方式, 该方式超越了传统的设计惯例, 强调将建筑本身也作为一门学科, 从而来指引刻板的学校设计, 例如许多教室围绕一个带有外部运动场的礼堂。

欧尼尔反对这样一种理念, 即将孩子的一天分成学习时间和玩耍时间, 把每星期的时间按小时来划分, 并且以1个小时为一个课程单元, 这些课程是由专门的教师以黑板为工具来教授的。他的论文倡导的是, 孩子们要通过自己动手来学习; 同时他还营造了一种类似的学校环境, 在这种环境下, 孩子们能根据自己的节奏来调整学习各自的课程, 从而有利于他们自身的发展。他认为: 孩子们是他们自己世界里的建设者和研究者, 在某种程度上, 他们能够充分利用自己的时间来发展其兴趣爱好。欧尼尔把学校的内外环境塑造成一个独立的无缝的环境, 他认为将“学习”(室内)和“玩”(室外)分割开来是一种人为的具有破坏性的行为, 而他的设计就是针对这一点而特意设计的。

在普雷斯托利小学, 孩子们能根据自己的意愿, 在室内或者室外开展活动。校园里有柏油碎石铺成的供嬉戏玩耍的庭院, 里面有花坛、菜园、喷泉和沐浴池, 并且还为孩子们提供了一个建造的机会, 在这里

chitecture in the tightly pre-planned form. Rather it emerges and develops, as educational needs are defined. Radical pedagogy goes hand in hand with spatial adaptations, which are constantly changing to match the needs of the evolving curriculum.²

There are many other examples of such developments during the 20th century from Margaret McMillan's ideal nursery school in London's east end in 1923 to Loris Malaguzzi, the renowned Italian educator who developed the Reggio Emilia system from 1963 on. What they have in common is the leadership of a visionary individual educator from which all else follows, including architecture and space.

The third distinct category is where an architect, strongly influenced by his or her personal experiences of childhood, develops a particularly child-orientated approach to design. Because the architect is in tune with his or her own early experiences and is aware of their architectural potency, this category has usually created the most advanced form of pedagogical building design.

Perhaps the prime example is the master architect Frank Lloyd Wright. Due to his fame in designing and building all types of architecture and inspiring subsequent architectural movements in the 20th century the story of his childhood inspiration is well known.

The youthful Wright explained how he and his mother worked together with the Froebel 'gifts', which became the source of profound pleasure and his subconscious awakening to the primacy of shape, texture and form. He describes his engagement with the Froebel block system as follows: 'The smoothly shaped maple blocks with which to build, the sense of which never afterwards leaves the fingers: form becoming feeling.'³ To understand the roots of this theory we have to go back further.

Friedrich Froebel (1782-1852), the important early years educator, had initially worked in the field of crystallographic science. In the first German edition of *The Education of Man* (1826), he makes the observation that whether organic or inorganic, crystalline or non-crystalline, developmental processes seemed to be the same; in essence they tend to develop outward from within, striving to maintain balance between inner and outer forces.⁴ His study of the natural sciences gave him a clear conception of the importance of geometric numbering systems and their underlying relationship to natural phenomena such as plant forms and crystals. Much of Froebel's slightly mystical theorising can now be dismissed (although it is important to recognise how seriously the Froebel idea is taken particularly in Japan and North America). Froebel's speculations brought him to the view that the random nature of child like play could be directed into an organised learning system, by somehow connecting this innate knowledge within the child to an appropriate systematic process. He called the system 'The Gifts and Occupations.'

In purely architectural terms, what was important about Froebel's system were the building blocks or 'building boxes.' Each set became progressively more complex as the child's understanding developed. Although they contained different shapes, rectangular, square and triangular spheres, they were all based on the same modular system. The child is unaware of the mathematical significance of his or her playthings, but the child's eye becomes accustomed to a correct sense of form; as a result, notions of proportion and harmony are lodged deep within the child's psyche.

On an intuitive level, it is clear how many of Wright's designs incorporated this precocious knowledge. The external view of his Avery Coonley Playhouse (1912), a kindergarten in the suburbs of Chicago for a private client, is formed by pure horizontal and vertical plains of materiality which can be precisely constructed in miniature.

Taking the logic of this towards more detailed features in the same building, we can see in the triptych stained glass windows of the main façade the use of coloured circles and squares in an abstract composition which Wright himself ascribed to the 'Seventh Froebel Gift.' (I have described the window designs as abstract but they are open to imaginative interpretation. At the time of their creation, discussion about their meaning between Wright and his client centred on balloons, American flags and confetti.)

Wright claimed that these circles and squares of brilliant primaries 'interfere less with the function of the window and add a higher architectural note to the effect of light itself.'⁵ They form what Wright called a 'kinder-symphony,' once again evoking Froebel's kindergarten education.

So what was the pedagogical vision in the work of Wright and other architects who followed him? The buildings which promote these principles develop an empathy with their users, by way of a sort of colour and form language. Rather than relying on a schedule of accommodation to dictate space, there is an altogether richer, more spatially coherent frame of reference. What Wright did in the Avery Coonley Playhouse was to develop a way in which children could quite literally read their environment as they moved around. For pre-literate children in particular, this means that the building becomes an integral part of the learning process, yet in a smooth

有一个耸立在1.8m高的墙上的4m高的风车，它是由高年级的男生们设计建造的。

内部的一个重要转变就是把一个礼堂变成了一个开放式的教室，这个教室对所有年龄段的学生开放。屏风和其他一些家具放置在这个教室里，还有一些背对背放置的长桌子，从而形成了多个广阔而平整的区域，以供专门领域的学习活动，例如音乐、阅读、艺术和建筑等。在这里，其理念就是，当个人或者小部分孩子们需要时，学习材料可以用做非正式使用，并且着重强调自发地研究，而不是被动地学习，在此过程中，环境的灵活性便成了一个关键性因素。学校每天12小时开放，并为孩子们提供自行晚自习的地方。奥尼尔的学校以“动手学习学校”而著称。宽泛地讲，这不是一座经过预先严格计划好的高级建筑，而实际上，它是随着教育需求的确定而出现和发展起来的。在这里，激进教育学与空间调整相互配合，并且其空间调整能随时发生变化，以满足不断发展的课程需求。

在20世纪，此项发展还有很多其他的例子，从1923年伦敦东面的玛格丽特·麦克米兰的理想式幼儿园，到意大利著名教育家Loris Malaguzzi，从1963年就开始研究发展Reggio Emilia系统。这些建筑的共同特点就是具有有远见的个人教育者为核心，其他的一切都围绕这个核心来进行，包括建筑风格和空间设计。

第三个与众不同的分类是建筑师采用了一种明显以儿童为核心的设计方式，而且这些建筑师深受其童年亲身经历的影响。正是因为建筑师结合他们自己的童年经历，并且认识到这些经历对建筑的影响力，从而，这类建筑便创造了教育建筑设计的最新模式。

也许首推的大师级建筑师应该是莱特，由于他在设计和建造各种类型的建筑方面享有极高的声誉，而且推动了随后的20世纪建筑的发展，因此，他童年的灵感故事便广为传诵。年轻时的莱特解释了他和他母亲是如何与福禄培尔的“天赋”一起学习和工作的，这也成为他意义深远的乐趣的源泉，也是他对形状、质地和形式的重要性顿悟的源泉。他是这样形容他和福禄培尔街区体系之间的联系：“流线型枫木建筑，永远停留在指尖的对该建筑的感觉：形式变成了感觉。”我们必须进一步向前追溯，以便更好地理解这个理论的基础。

费瑞德瑞切·福禄培尔（1782-1852）著名的早期教育家，最初在晶体科学领域工作。在第一期德国版本的《人类教育》（1826年）中，他做出这样的评论：无论是机器的还是无机的、结晶的还是非结晶的，其发展过程似乎都是相同的。本质上讲，它们都呈现出从外向内演变发展，并试图保持内外相互作用力平衡的趋势。对自然科学的研究给了他一个清晰的概念，即几何体系及其与自然现象潜在关系的重要性，其中，自然现象包括植物形态和晶体结构。现在福禄培尔晶体理论可以被舍弃了（福禄培尔的观念很受推崇，尤其是在日本和北美地区，尽管认识到这一点很重要）。孩子们天生具有自由随意性，如玩耍就是这样，福禄培尔认为，如果将其与适当的体系进程联系起来，一样可以融入到系统的学习当中。他称这个体系为“天赋和职业”。

在纯粹的建筑术语中，福禄培尔体系中最重要就是建筑积木或者说“建筑盒子”。每一套都会随着孩子们认知的发展而逐渐变得更加复杂。虽然它们包含不同的形状，如矩形的、正方形的以及三角形的区域，但它们都是基于相同的模块化系统的。孩子们并不知道他们的玩具具有数学逻辑的意义，但孩子们的眼睛已经对形式的正确感知习以为常了，所以，适度的比例与整体的和谐理念已经深深地扎根于孩子们的心灵。

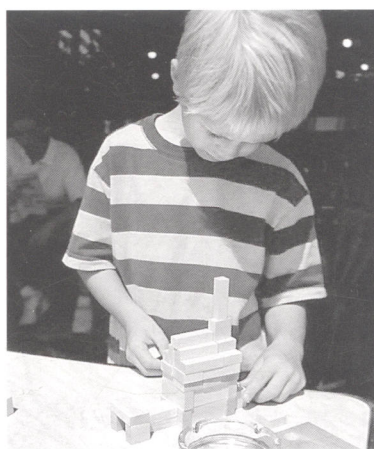
很显然，不少莱特的设计都是与这个早期的知识体系相结合的。其中，他为私人设计了一座艾弗里酷雷玩具房（1912年），坐落在芝加哥郊区的一所私立幼儿园，从外部来看，它是通过水平和垂直的纯物质平面而组合勾画出来的，并且可以在建筑模型中被精确地建造出来。

运用这个逻辑，对该建筑更多的特色进行详细的分析可以看到，在主外立面的三幅一联的彩色玻璃



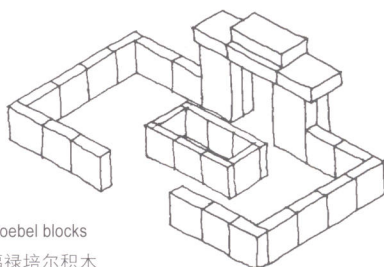
The windmill, built by senior pupils, at Prestolee School, Kearsley, Lancashire, 1946

位于Lancashire Kearsley的Prestolee学校中由高年级学生搭建的风车房，1964年



Nine year old playing with Froebel blocks

一个九岁男孩正在玩福禄培尔积木



Froebel blocks
福禄培尔积木

natural process of seeing, touching and smelling the environment. In other words, perception comes through all of the senses rather than just sight.

Of course, it is difficult to place a quantifiable pedagogic value on what ultimately may simply be described as good design which promotes a particular type of learning for children (which some people call environmental awareness). A child's conception of space is such a cerebral concept; developers and government funding bodies in charge of developing early years environments today usually seek more pragmatic values. In the UK at present this educational orthodoxy, which relates children's activities to educational values in an overly simplistic way, is threatening to diminish the richness of a children's culture which has in the past been closely linked to pedagogical visions and architectural space.

It cannot be conclusively proven that all children depend or indeed need good architectural space to thrive and learn during the early years. However, there is a growing body of evidence to suggest that a child's perception of space is critical, particularly where children come from deprived or abusive homes. Good perceptive design really makes a difference for children at every age, but in particular for those growing towards the end of primary school and the advent of secondary school, it is fundamental.

When discussing early years architecture, its culture and historical development, one must mention the municipal infant-toddler centres and pre schools of Reggio Emilia in Northern Italy. The system has evolved over the past 40 years, largely as a result of the inspirational childcare specialist and visionary, Loris Malaguzzi and his early work on how children learn. 'Reggio,' as it is known, is widely recognised as the best system in the world, where an advanced pedagogy connects with some of the most pleasing early years buildings anywhere. Reggio recognises that spaces for children are a fundamental part of the complex development support system which enables young children to gain knowledge.

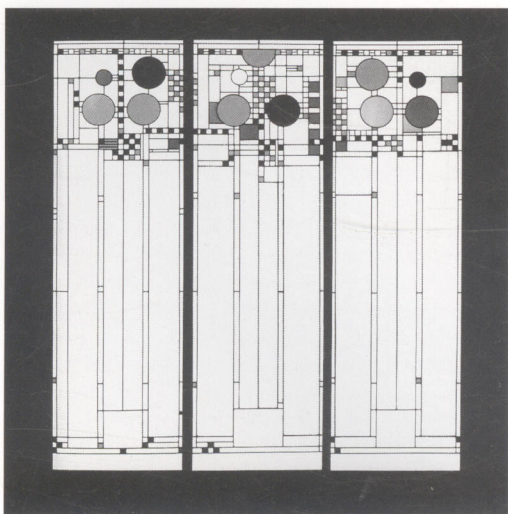
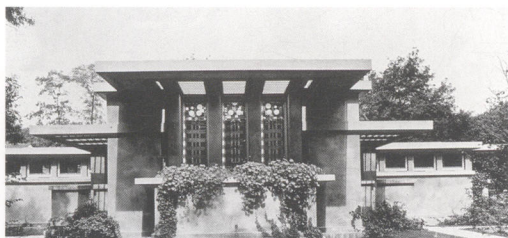
The system is one which speaks about the exciting process of cognitive and cultural development for young children. This is a highly developed science where a language has evolved which goes beyond the negative discourse which characterises much of the debate currently taking place in the UK and the USA. As mentioned previously, there appears to be a complete separation between the articulation of architectural and educational ideas; early years is often seen as a subject relating mainly to safety and social control rather than a great opportunity for young children. By contrast at Reggio, architecture and pedagogy is fully integrated and the level of discourse is deep and philosophical. Children's rights are the priority.

Reggio recognises that the development of knowledge does not take place in a simplistic linear way, but rather as a complex network of rich interconnecting influences which the world has to offer; therefore, the more complex and rich the learning environment is, the better the pace of knowledge and understanding will become. The school environment becomes a sort of workshop for research and experimentation where perception of things, and in particular, the relationships between children, become fundamental strategies for building individual cognition and knowledge. Reggio buildings are often beautiful by any subjective opinion, but the extent to which they encourage interaction with the users really defines their success.

'Reflections on the tools of design, with indications on spatial distribution and on the 'soft qualities': light, colour, materials, sound, smell and microclimate. The aim is to provide instruments of analysis and practical indications for designing the interiors and exteriors of infant-toddler centres and pre-schools.' 6

The Reggio research group have developed a series of guidelines which are framed in a strong pedagogical language. For example 'recognisability' means creating an architectural language and an environmental atmosphere which has a precise identity. It speaks of non-hierarchical space, where every area of the childcare building is potentially open to children and adults alike because there should be a democracy of function; every space is a potential area for learning and development. Another important feature which appears in every centre is a large central square called the piazza. The piazza is a place of meeting, a public place of the school which plays the same role as the piazza does in the town. It fosters encounters, group interactions, stories, social relations and the children's assumption of a public identity.

Many other influences and inspirations are cited as being important within this list of ingredients for the successful early years centre, including light, colour, the use of materials, smell, sound, the quality of environmental conditions and changeability, i.e. the extent



Avery Coonley Playhouse with triptych stained glass windows, Chicago, Frank Lloyd Wright, 1912

有彩色玻璃窗的Avery Coonley儿童剧院，地处芝加哥，由弗兰克·劳埃德·赖特设计，1912年



The piazza of Reggio Emilia preschool in Northern Italy, Nursery and Preschool San Felice, ZPZ Partners, 2000

位于意大利北部的Reggio Emilia伊米莉幼儿园的走廊由桑·菲利斯、ZPZ合伙人事务所设计，2000年

窗，运用彩色的圆形和方形结构，抽象地组合在一起，莱特将此归功于“第七福祿培尔天赋”（我已经描述过，窗户的设计是抽象的，但却可以充分调动我们的想象力。在其创作过程中，莱特与其委托人之间的讨论大都围绕着气球、美国旗、五彩纸屑等展开）。

莱特声称，这些闪耀的、重要的圆形和方形结构“不仅没有干扰窗户的功能，而且还增加了光照效果。”这些彩色玻璃窗形成了莱特所谓的“交响曲”模式，从而再一次唤起了福祿培尔式的幼儿教育。

那么，在莱特以及追随他的其他建筑师的作品里，体现的又是一种什么样的教育远景呢？其中，提倡这些理念的建筑物，通过运用一种颜色和形式语言而与用户产生共鸣。其建筑不是依赖一系列的迁就融合来支配空间的，在这里，有一个更丰富、更具空间和谐性的相关参照框架。莱特曾在艾弗里酷雷游戏房试验过这样一种做法：当孩子们随处走动的时候，他们完全可以从表面上读懂他们所处的环境。尤其对于那些还不识字的孩子们，这就意味着，该建筑已成为孩子们学习过程中的一个重要组成部分，该学习过程还只是一个平稳的简单自然的过程，即从视觉、触觉和嗅觉角度去感知周围环境的过程。换言之，感知来源于所有的感官而并非仅仅来源于视觉。

当然，很难将一个可量化的教育学价值，最终简单地描述成：为孩子们提供了一种独特学习方式的不错的设计（这种学习方式有些人称之为环境意识）。孩子们的空间概念只不过是一种大脑概念，现今，负责发展早期教育环境的开发商及政府机构，往往追求更富有实用价值的环境。目前，在英国正统教育中，与教育价值有关的孩子们的活动都过于单纯化，这种正统教育正迫使儿童文化的丰富性逐渐减弱，在过去这些都是与教育理念及建筑空间息息相关的。

在早期教育过程中，所有的孩子们依靠或者说确实需要良好的建筑空间，才能得以茁壮成长和学习，这一点还没有最终得到证实。不过，已有愈来愈多的证据显示，孩子们对空间的感知是非常关键的，尤其对于那些来自贫困家庭或是经常被辱骂的孩子来讲。好的建筑设计对每个年龄段的孩子确实会产生不同的效果，尤其对于那些即将小学毕业和刚进入中学的孩子们来说，这是最根本的。

当我们在讨论早期教育建筑以及它的文化和历史发展时，一定要提到位于意大利北部艾米利瑞吉欧的市立婴幼儿中心和学前学校。该教育体系已经存在了40年之久，这得益于那些富有灵感的儿童看护专家和梦想家，以及劳莱斯和他对于儿童如何学习的早期研究。众所周知，瑞吉欧体系被广泛地视为是世界上最好的体系，在那里，其先进的教育与其中一些最合适的早期教育建筑是分不开的。瑞吉欧体系认为，在复杂的发展支持体系中，儿童空间是其最基本的组成部分，该支持体系能够使孩子们获得知识。

该理论体系谈到了幼儿认知和文化发展，并称这是一个令人兴奋的过程。这是一个高度发达的自然科学，在此，语言得到了发展，并超越了消极言论——它是当前在英国和美国经常发生的争论的特点。如前所述，似乎是建筑的清晰度和教育理念完全脱节了，早期教育往往被视为是一个主要涉及安全和社会调控因素的课题，而不是孩子们的一大机遇。相比之下，在瑞吉欧体系中，教育与建筑是完全结合在一起的，而且富有深度和哲学性，其中孩子们的权利是首要的。

瑞吉欧体系认识到，知识并不是以一种单纯的线性方式发展的，而是以一种复杂的、内部之间相互影响的极其丰富的网状结构的方式来发展的。因此，愈是复杂和丰富的学习环境，我们愈能更好地认识和获取知识。学校环境变成了一个用于研究和实验的工场，在这里，对事物的感知尤其是孩子们之间的关系，已经成为建构个人认知和知识体系的基本策略。从任何主观角度看，瑞吉欧建筑都显示了其漂亮的形象，然而，这些建筑真正的成功之处却是，鼓励使用者与建筑之间相互作用的程度。

“对设计工具进行反省沉思，对空间分布和‘软品质’的指示作用进行反复推敲，其中‘软品质’包括光照、颜色、材料、声音、气味和小环境等。其目

to which the environment can be transformed over the year by its users. This is a philosophy which rides through the mediocrity and subjective basis of much contemporary design for early years.

Schools

One of the earliest examples of school buildings with a converging educational and architectural agenda was the work of E. R. Robson, surveyor, architect and educational theorist, who was the main driving force in the development of the London Board Schools at the end of the 19th and into the early 20th century. Indeed the group of school buildings which comprise the Phoenix School campus includes a Robson influenced elementary school which is still in use today, 100 years after it first saw the light of day. In this section we will provide a brief over-view of the key historical movements which influenced architecture for mass education from its inception to the present time.

England was the first country to experience industrialisation and sought educational provision for the so-called industrial classes from the beginning of the 19th century. From the implementation of the 1833 Factory Act, which enforced two hours of instruction daily for factory children, reform developed as an all too evident response to the plight of the exploited masses. However, the level of government grants allocated to erect schoolhouses in Great Britain was slow to get off the mark when compared with similar developments in other European countries at that time. For example the Irish Government provided a 2.5 million GBP subsidy to assist education in Ireland between 1821 and 1828. In Germany at that time, vast resources were being allocated, as the nation geared up to a period of sustained economic growth. In the United States, spending on school buildings in one year, 1851, in one town, Philadelphia, was 184,842 USD, as the population increased at a rate of 20,000 per annum.

It was not until the implementation of the UK Elementary Education Act in 1870, that made education compulsory for all children between the ages of 6 and 11, that the need to construct large elementary schools within the urban areas became an overriding necessity and similar sums were allocated from general taxation. At this time, the London School Board advertised for an architect and surveyor to direct the massive expansion anticipated throughout the mainly working class areas of the capital. The then architect surveyor to the Liverpool Corporation, E. R. Robson, was appointed.

Whilst school systems in some shape or form had been developing throughout the world from the earliest part of the enlightenment, there was no coherent idea as to how an architectural and educational theory should be integrated to create a new form of school building appropriate to its special function. Treatises on the subject were either written from a purely architectural perspective (with an emphasis on the external style rather the internal functioning) or from an essentially pragmatic viewpoint emphasising the health and safety needs of the children during their time in school.

Robson had travelled widely following his appointment in 1872. His view of overseas systems, particularly those he viewed in the USA, Switzerland and Germany, led him to the conclusion that although there was a tradition of secondary school education in those countries upon which England could draw, there was no such tradition in elementary schooling. Nevertheless observing the best systems of education the world had to offer proved to be a valuable experience in balancing his professional background in architecture with his broader remit as a promoter of good educational practice.

Robson's emerging theories were set out in a book published in 1874, *School Architecture: Practical Remarks on the Planning Designing, Building and Furnishing of School Houses*. This landmark publication covered key areas of the agenda in some detail such as the layout of schools, the interior environment, school furniture and architectural style. The publication was rich in advice on natural ventilation, orientation and heating. For example, on lighting Robson concluded that the coolest and steadiest light was from the north and recommended that there should be a minimum of 30 square inches of glass to every square foot of floor space (0.22 m² per m²). This he asserted was sound guidance based on previously unpublished German research. In fact, the most interesting dimension of this landmark publication was the extensive reference he made to the projects he had seen during his study trips abroad.⁷

Based on his first hand observations, Robson introduced the Prussian system of separate classrooms organised around a communal hall into his new school buildings in London. Previously lessons had taken place 'simultaneously' in vast communal halls. For the first time in English state schools, strict age-related class sizes were proscribed along with advice on their use, for example the need for circulation spaces around desks and at the front of the room for presentations was defined in precise feet and inches. No detail seemed unimportant to Robson. His great skill was to integrate both sides of the agenda by making himself proficient in both the architectural and educational aspects of school buildings.

Robson's work both in the theory and the practice of school design had far reaching consequences. Having developed many of his original ideas following his study visits to Europe and the USA, his buildings then became a source of great influence for others during the first 20 years of their usage. Visitors from abroad took what they needed, often re-importing the ideas Robson had originally taken from their own country; Robson was particularly influential to the developing school system in North America at the turn of the century.

Robson's comments on his American sojourn are interesting. He notes how school houses in America, and in particular those of New England, were ingenious, using new approaches to construction and in particular mentioning how important the school edifice was, perhaps for the first time recognising that school architecture communicated to children on a number of levels. One project example he cites as of particular merit is The High and Normal School for Girls in Boston. Erected in 1870, it had five storeys and a various range of accommodation including classrooms with single desks for 50 children, large classrooms for 100 students and rooms for the withdrawal of smaller study groups. The total number of pupils was 1,225. It was a model of robust, high quality space making which set a new standard in terms of advanced environmental design.

Robson is critical of the lack of convergence between educational and architectural theories stating that: "As in England, there is much critical investigation and discussion of education itself, but no trace that some of the vital points affecting buildings (and, therefore, indirectly the education) [...] have as yet been sufficiently tackled at close quarters or in the careful manner common to Germany."⁸

There is a genuinely held esteem for the German system of building for education, which he recognises as highly influential to most of what he had seen in America. Robson even asserts that it is their superior system of education to which the Prussians owe their success over the French in war, referring to the compulsory primary schooling which had been in place for over a century; it was not surprising to him that the Germans were so far ahead of the UK in many aspects of the developing urban culture. In 1870, Robson eulogised about the German system of mass education, especially that of Saxony and Prussia, describing it as the best system in the world. From the age of six, he observed, a German boy attends an elementary school. "Theoretically he goes under compulsion, practically of his own pleasure, for the German parents no more think of depriving their child of tuition than of breakfast."⁹

Building for education developed in juddering movements over long periods of time with phases of relative inactivity, followed by periods of frenetic investment and usually very speedy re-development. This happens in roughly 30-year cycles. So for example in the UK, there were major developments from the end of the 1950s through the 1960s, where architects experimented with system build solutions and high modernism, a reflection of 1960s Premier Harold Wilson's 'white hot heat of technological advancement'. An important forerunner was the Hunstanton School in Norfolk designed by Alison and Peter Smithson (1953). However, much of its technology was underdeveloped and has not stood the test of time. Currently there is a massive wave of renewal, with virtually every school in the country having at least a make-over, if not a total re-build by 2010, a case perhaps of political expediency finally recognising what a good social and economic investment education is.

In Germany, there was a significant investment during the 1980s, although it has to be stated that the German economic model has

的是,为婴幼儿中心和预备学校的内外设计提供分析工具和实践指导。”

瑞吉欧体系的研究小组,运用厚重的教育学语言,制订了一系列指导方针。例如“识别能力”,它是指创造一种建筑语言和具有高度和谐一致性的环境氛围。还谈及不分等级空间,在这里,儿童看护建筑的每一个区域都对儿童和成年人开放,因为它的功能是共享的,并且每一个空间都是一个学习和发展的潜在区域。每一个婴幼儿中心的另一重要特色,就是类似集市的一个大型中心广场。该广场是一个集会的场所,一个学校的公共场所,它和城镇里的集市所扮演的角色相同。在这里,人们的偶遇、团队之间的互动、传奇见闻、社会关系以及孩子们对公众社会的设想得到了充分的发展。

在这一成功的早期教育中心诸多因素中,还有许多其他重要的影响和启示因素,其中包括光照、颜色、用料、气味、声音、环境条件及其可变性效果等,也就是说,随着用户的使用,环境可以被改变的程度。其实这是一种哲学体系,一种超越当代许多早期教育建筑设计所特有的平庸和主观性的哲学体系。

学校

罗勃森的杰作是最早将教育与建筑议程相结合的学校建筑之一,他是一个测量师、建筑师和教育理论家,对于19世纪末20世纪初伦敦寄宿学校的建设发展,他是主要的推动力量。事实上,包括凤凰学校在在内的一系列学校建筑中,就有一所受到罗勃森影响的小学,而这所小学已有100年的历史,并且至今仍在继续使用。在这一节,我们将简单地概括一下主要的历史演变,正是这种演变影响了从古至今的大众教育建筑。

英国是第一个进行工业革命的国家,从19世纪初期便开始为其所谓的工人阶级的教育做准备。1833年《工厂法》出台,该法主要是要求工厂里的孩子们每天接受两个小时的教育,之后,各种改革完全演变成对受剥削群众困境的积极响应。但是,与同期欧洲其他国家的学校建设相比,英国政府拨给中小学的建校资金启动得很缓慢。例如,在1821~1828年期间,爱尔兰政府划拨了250万英镑来资助爱尔兰的教育。当时,德国进入了一个持续的经济增长期,并进行着大量的资源配置,以促进教育的发展。在美国费城的一个小镇,人口以每年20000人的速度增长,从而,1851这一年的时间用于学校建筑的资金就高达184842美元。

直到1870年,英国实施了《初等教育法》,规定6~11岁的所有儿童必须接受义务教育,这就需要在市区大规模兴建小学,这种需求是迫在眉睫的,并且需要从总税收中划拨出这笔巨额的开支。这时,伦敦学校委员会发出通告,招募一个建筑测量师,来对首都主要工人阶级的所属区域的大规模扩建工程进行总指挥。著名的建筑测量师罗勃森就是在当时被任命的,他就职于利物浦公司。

虽然,从启蒙运动最早的地方开始,学校体系已在全世界范围内,在其形式或模式上得以形成和发展,但是,还没有一个统一的观点,来指导我们应该怎样将建筑理论和教育理论结合在一起,从而创造一种新的学校建筑模式,以适合其特殊的功能。关于该主题的各种论文,要么从纯建筑角度(强调外部风格而忽略内部功能)出发,要么从务实的角度出发,即强调孩子们在校期间的健康和安全的必要性。

罗勃森在1872年上任后,他周游世界考察了很多地方。他结合对海外建筑体系的观察,特别是他在美国、瑞士和德国的见闻,得出这样的结论:尽管英格兰可以借鉴这些国家中学教育的风格,但是对于小学,却没有可借鉴的东西。然而,对世界最好教育体系的观察给罗勃森提供了宝贵的经验,有效地平衡了其专业的建筑背景和他对推动优质教育的深远影响。

罗勃森的新兴理论,于1874年出版的《学校建筑:对规划设计的实际评论、校舍的建筑与装修》一书中被提出。这一划时代的出版物详细地介绍了许多重要区域,比如:学校布局、内部环境、学校设施和建筑类型。在自然通风、建筑方位和供暖方面,该书提出了丰富的建议。例如,在光照方面,罗勃森总结

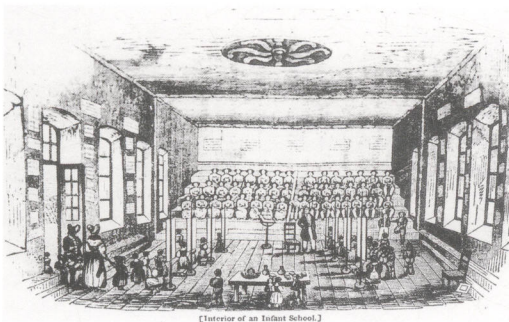
facilitated a much more steady investment. In the years following the Second World War, for understandable reasons, education in Germany took on a new significance; Nazi indoctrination which had infected the body politic during the years leading up to hostilities, was viewed by the allies as an anti-education mentality which helped Hitler to power with little widespread resistance from the people. The new education would stress a more progressive attitude developing thinking individuals with a democratic spirit and a responsibility to the liberal federal constitution rather than to the state.

Many of the new school buildings would help to express this mentality by adopting a modernistic, almost Bauhaus aesthetic (the design school founded by Walter Gropius which had been condemned and closed by the Nazis as being degenerate). A key idea was the open-air school, which was interpreted as a symbol of liberation from authoritarian rules and regulations – a concept which looked back to late 19th century Prussian ideas.

However, the new post war buildings did not mimic the open-air concept literally, instead extensive single-storey pavilion-like structures were created during the 1950s with dual aspect windows so they could be passively ventilated and naturally lit. Towards the end of the decade there was a tendency towards sober functionalism. For example, architect Paul Schneider-Esleben created a clearly articulated three-storey structure in exposed concrete, which became a much-imitated model of good practice.¹⁰

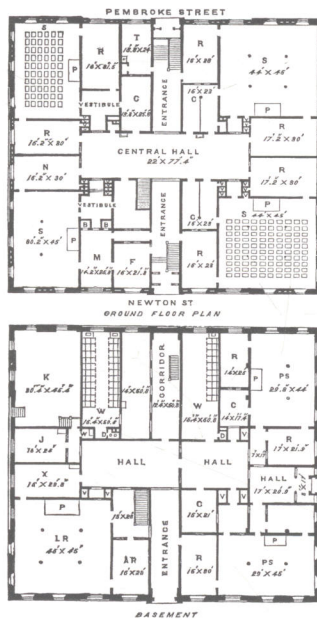
In Switzerland, with its clear functional school design, there was a different reaction to political developments. Jacques Schader's cantonal school in Freudenberg near Zürich (1960) is more of a reference to the Modern Movement in architecture than to historical concepts and ideologies.¹¹

The work of Hans Scharoun with his unbuilt proposal for an elementary school in Darmstadt (1951), followed by Günter Behnisch from the 1970s, for example his Secondary School at Lorch (1973), illustrate how some German States were interested in new architectural concepts for an educational system which had for too long been obsessed with control and regimentation at the expense of creativity and imagination. Whilst Robson, 100 years previously, had invested in his own research, looking at the best 'foreign' examples of school design, sadly little of this visionary ethos was explored within UK and USA settings during the 1950s and 1960s, and architects and architecture perhaps from the 1970s on took a back seat in the evolution of school design until quite recently.



David Stow's ideal plan for a classroom where all ages are educated simultaneously (1834-1836). According to Robson, the British and the Americans were still practicing the simultaneous method when Germans were developing age-related classrooms.

大卫·斯托的理想型教室（1834~1836），在这个教室里，各个年龄段的人都能同时接受教育。按照罗布森的理论，英国人和美国人仍采用这种同时受教育的方法，而那时德国人却在发展根据年龄不同来设置教室。



The High and Normal School for Girls in Boston, 1870
波士顿女子高等师范学院，1870年

说，最清爽最稳定的光线来自于北面，并且建议每平方米的地板至少应该使用0.22m²的玻璃。他声称，这项指导意见是基于先前未曾出版的德国人的研究得来的。事实上，这一里程碑式的出版物最有趣的方面，是大量借鉴了他在国外考察期间所看到的各个工程。

基于他的第一手观察资料，在伦敦新校舍的建筑过程中，罗勃森引入了普鲁士体系，将单独的教室组建在公共大厅的周围，以前不同的课程是同时在大厅上的。在英国国家学校中，根据班级使用过程中所提出的建议，首次放宽了与年龄相关的班级大小，比如以前，座位周围的流通空间和教室前面讲台的尺寸都精确到米和厘米。对罗勃森来说，似乎没有不重要的细节。他对校舍的建筑及教育方面都非常精通，因此，他的高超之处就是将这两方面相结合。

无论在学校设计的理论还是实践上，罗勃森的杰作都具有深远的影响。随着对欧洲和美国校舍的考察研究，他起初的观点也得到了不断的发展，之后，他的建筑在投入使用的前20年期间，对其他建筑产生了很大程度上的影响。国外游客在这里获取他们自己所想要得到的东西，实际上他们只是在引入罗勃森的观点，而这些观点最初都是来自他们自己国家的。在世纪之交，罗勃森对北美正在发展的学校体系尤其具有显著的影响。

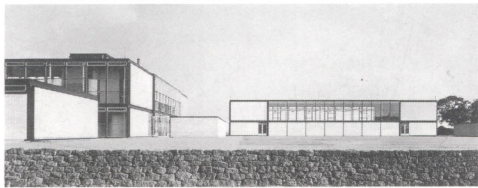
罗勃森对他在美国旅居生活的评论是非常有趣的。他评论说，美国的校舍，以及一些新英格兰的校舍，巧妙地运用了新式的建筑方法，而使其极其富有独创性；还特别提到学校大厦建设的重要性，也许这是首次认识到学校建筑与孩子数量间有着密切的联系。他举了一个很特别的例子：1870年建立的波士顿高级女子师范学校，有五层楼高，内有一系列规模不同的教室房间安排，其中包括：设有50张单人桌的教室，可容纳100人的大教室，还有用于规模更小的学习研讨会的休息室，共有学生1225人。这是一个强有力的典范，从高级环境设计方面来说，它为高质量的空间制作制定了一个新标准。

罗勃森批判了教育理论与建筑理论欠缺相互衔接，并且称“拿英格兰来说，就教育本身，有许多批判性的调查研究和讨论，但是，其中却根本没有涉及影响建筑（从而间接影响教育）的至关重要的因素，而实际上，其中一些因素几乎已经得到了充分的解决，或者也已经以类似于德国的小心谨慎的方式得到处理”。

罗勃森特别推崇德国的教育建筑体系，他也高度肯定了在美国所见识到的深远的影响效果。罗勃森甚至声称，正是由于他们具有优越的教育体制，从而使普鲁士在对法战争中取得了胜利，其中德国的小学义务教育，就已经实行了一个世纪之久。因此，他并不感到奇怪，迄今为止，德国在城市文化发展的许多方面都领先于英国。1870年，罗勃森赞扬德国的大众教育体系，尤其是萨克森和普鲁士，形容它为世界上最好的体系。他评述说，从6岁起，德国儿童就开始接受小学教育。“理论上讲，他们是被强制接受教育的，而实际上却是处于他们自己的意愿，对于德国家长来说剥夺孩子们的学费就像剥夺他们的早餐一样。”

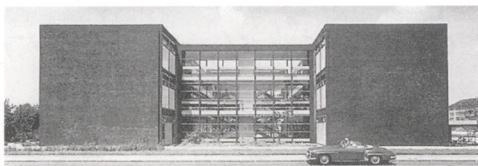
教育建筑沉寂了相当长的一段时期之后，开始发生急剧的变化，随后，便出现了投资的狂热时期和非常迅速的再发展时期。这种情况的发展周期大概是30年。例如在英国，从20世纪50年代末到20世纪60年代，就经历了一系列重大的发展，在此，建筑师采用系统的建筑解决方案和高度现代化的风格，反映了20世纪60年代哈罗德·威尔逊首相的“科技进步白热化”的观点。一个重要的先驱就是位于诺福克的胡斯坦顿学校，它是由爱立信和彼得·史密森(1953)设计的。不过，其大部分技术并不发达，而且没有经得起时间的考验。当前，出现了复兴的大浪潮，几乎国内的每所学校，都至少经过一次改造，如果到2010年还没有被完全重建，那么，从政治便利来讲，人们也许会认识到这是一个多么好的具有社会和经济利益的教育投资。

虽然德国的经济模型为更稳健的投资提供了便利，但在20世纪80年代期间，德国仍有过一次重大的投资。但是在第二次世界大战后的几年中，由于一些



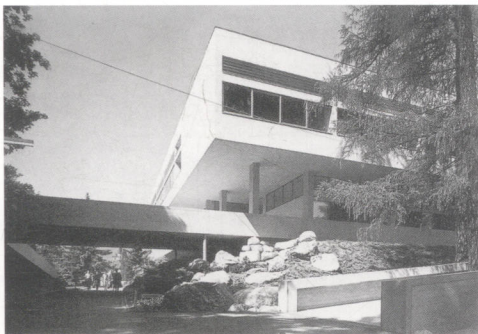
Secondary Modern School, Hunstanton, Norfolk,
Alison and Peter Smithson, 1953

位于诺福克Hunstanton的现代中学，由艾莉森和彼得·史密斯森设计，1953年



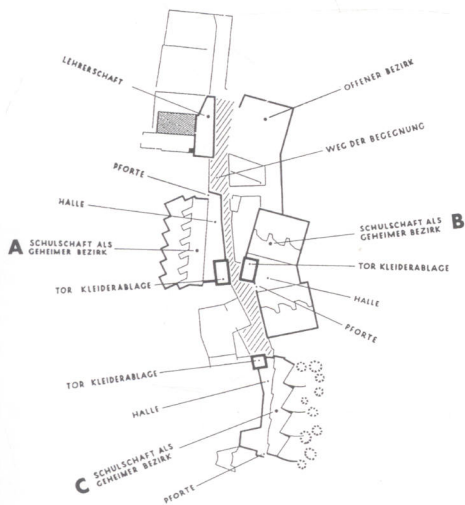
Volksschule Düsseldorf
Paul Schneider-Esleben, 1959-1961

Volksschule Düsseldorf, 由保罗·Schneider-Esleben设计, 1959~1961年



Cantonal School in Freudenberg
Zürich, Jacques Schader, 1960

位于苏黎世费登堡（Freudenberg）的州立学校，由Jacques Schader设计，1960年



Hans Scharoun's project for a primary school in Darmstadt, 1951 Floor plan

由汉斯·蒂查荣设计的，位于达姆施塔特的一所小学的建筑平面图，1951年

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- 10 *Detail*, special issue, 'Konzept Schulbau,' no. 3, 2003, p. 175.
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可理解的原因，德国的教育呈现出了一种新的趋势。在战争年代已深入整个国家的纳粹思想，被协约国认为是一种反教育思想，正是这种思想帮助了希特勒的权力统治，并且使得人们几乎没有什么反抗。新的教育体制强调一种更加进步的发展态度，由于这种态度认为，个人应该具有民主精神，而且应对自由联邦宪法而不是国家负责，从而这种态度才逐渐发展壮大起来。

通过一种现代派的几乎是包豪斯审美的采用(沃尔特格罗皮乌斯所创立的设计学校，被纳粹谴责为正在退化的学校而被关闭)，很多新校舍的建筑有助于解释与体现这种思想。其中一个重要的观点就是其露天学校，这被看做是从独裁主义的规章制度中解放出来的一个标志——这也是一个回顾19世纪末普鲁士观念而产生的概念。

战后新的建筑物不是机械地模仿露天的形式，而是模仿建于20世纪50年代的宽敞的单层亭式建筑，这种建筑带有双视窗，从而具有良好的通风和自然光照。在这10年的后期，人们倾向于冷静的实用第一主义。例如，建筑师保罗·施耐德-伊斯兰本，使用清水混凝土创造了层次分明的三层建筑物，随后该建筑被很多后来者模仿。

在瑞士，功能清晰的学校设计在政治发展上呈现出了不同的反应。杰克奎斯·斯卡德市区学校(1960年)坐落于苏黎世附近的费登堡，相对于历史概念和意识形态而言，该学校对现代建筑的发展提供了更大的参考价值。

汉斯·蒂查荣对达姆施塔特的一所小学(1951年)提出一些建议，虽然未被采纳，但从20世纪70年代起，其作品却被Günter Behnisch所效仿，例如，他的咯池(Lorch)中学(1973年)，阐明了德国的一些州在教育体系上是怎样对新的建筑概念发生了兴趣，而他们以前的建筑风格太注重于控制，显得过于呆板，并且忽略了建筑的创造力和想象力。同时，在100年以前，罗勃森就已经开始投资他自己的科研项目了，并把目光投向海外最好的学校建筑设计。遗憾的是，20世纪50年代和20世纪60年代期间，在英国和美国，这种充满幻想的气质却很少被人探索和发掘，而且，也许是从20世纪70年代起，建筑师和建筑学一直把学校设计的演变放在次要地位，直到现在才有所重视。

In Germany as in most European systems, the structure of education is divided into a number of tiers: primary level, aged 6-10 years, secondary level 1, aged 11-15 years and secondary level 2, aged 16-18 years. Added to these are children's early years centres, which provide daycare and other related services for community use often organising before and after-school clubs. In some states of Germany, the comprehensive school remains the basic secondary type, although it is under considerable critical re-appraisal. After the age of 10 (in some states after 12), the system is by and large divided between academic schools, the Gymnasien, and schools with a more vocational focus, the Hauptschulen (up to grade 9) and the Realschulen (up to grade 10). Although the federal states have their own guidelines, school building is the responsibility of the municipal or district authority, with the superior school authority and the various ministries for cultural affairs granting final consent to new building projects. The PISA Study (Programme for International Student Assessment) of education standards in 28 OECD countries, conducted in 2000, caused considerable anxiety with its largely negative assessment of German students' achievements compared to other leading economies. This has created much public attention for education issues and school environments.

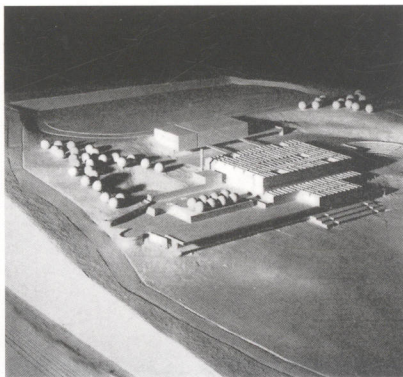
In the UK, formal schooling commences at the age of 5, however 'reception' classes are now provided for 4 to 5 year olds and as part of the extended schools agenda, with two hour sessional nurseries for 3 to 4 year olds in some schools, which are being developed as a coherent 'foundation stage' whenever funding permits. Outside of this school based provision there is also the children's centre programme, with subsidised daycare for children in deprived areas, along with a range of community facilities for other local children and their families. The money for this comes from a new government funding regime called 'Sure Start', which is distinct from education funding for schools. The commitment is to open 3,500 children's centres in the UK by 2010, providing a centre in every community.

Infant schools which are often organised into two separate schools (yet usually within the same site) provide education for children aged between 4 and 7. Junior schools cater for the educational needs of children aged between 7 and 11 years. Secondary school commences at age 11 and runs through to age 18, although often the sixth form, aged 16 to 18, will be in a separate part of the school or on a different site operating as an institution in its own right, the so-called sixth form college. There are a range of different school types, such as the academically orientated grammar school, and the more vocationally orientated comprehensive school; these are both leftovers from an earlier regime which run along-side new initiatives such as the academy programme. The UK system has traditionally been de-centralised and run by local education authorities, under the guidance of the government department for education (DfES). Funding was allocated on the basis of required school places within each authority, with a certain level of capital allocated to provide maintenance on an annual cycle. However, the system has been subject to radical change to cope with huge investment currently underway; this is explained in more detail below.

In the early 1960s, the vertical, hierarchical organisation of the secondary school system in Germany was questioned. A more horizontal structure was proposed, similar to so-called comprehensive models first introduced to the UK and the USA during the 1950s. This was based on a more socially egalitarian approach, where all students of whatever academic ability attended the same institution. The new educational structure would require a new school building type, which reflected this evening-out of opportunities. In the UK many examples of this new school type were introduced during the 1950s, with mixed results architecturally and educationally; for example Tulse Hill Comprehensive School (1956) was a perversely in-humane nine-storey slab block catering for 2,210 boys located on a single inner city site. Designed by the London County Council Architect's Department, it was an example of all that was wrong with arrogant local authority architects of the period. Middle class people, many of whom had attended private schools themselves, showed little care or respect for the well-being of their working class clients. Memories are still vivid, and it is understandable that for the current wave of school building public architecture has been placed in the hands of private practices with a proven track record in big public buildings.

The comprehensive school in Germany usually took the form of a similarly large complex albeit low-rise and horizontal in plan. However, because the designers had to use deep plan structures, the result were dingy, artificially lit, air-conditioned groups of rooms. One of the first projects of this type was the all-day secondary school in Osterburken (1967) by Bassenge, Puhan-Schultz and Schreck. The system over-loaded the programme with rooms, mixing large and socially complex groups together, which brought inevitable conflicts.

Added to this, the new pre-fabricated form of construction was technically poor and aesthetically disastrous virtually wherever it was used. Buildings made of exposed concrete with little colour or textural variety were to a certain extent forced upon architects and developers, as a result of tight budgets and limited time frames. For 'comprehensive', read 'bog-standard' as one politician was heard to describe the secondary school system during the early stages of the new Labour government in 1997. This referred as much to the sad, run-down architecture of these places as it did to the grim social and educational experience many students received.



All-day secondary school, Osterburken, Germany, Bassenge, Puhan-Schultz and Schreck, 1967

位于德国 Osterburken 的全日制中学，由 Bassenge, Puhan-Schultz 和 Schreck 设计，1967 年



Tulse Hill Comprehensive School London, London County Council, 1953-1966

位于伦敦的 Tulse 希尔综合中学，由伦敦郡议会设计，1953~1966 年

像欧洲的大部分体系一样，德国的教育结构分为多个层次：小学的年龄是6~10岁，中学一级的年龄是11~15岁，中学二级的年龄是16~18岁。除此之外，还有儿童早期教育中心，它提供了日托及其他的社区相关服务，如社区经常举办学前和学后俱乐部活动。虽然综合学校有待于进行重新评估，但在德国的一些州，其仍然处于基本的辅助地位。10岁以后（有些州是12岁以后），该体系大体上被分为学术学院、体育学校、职业学校、hauptschulen（至9年级）及 realschulen（至10年级）。虽然各联邦州都有自己的方针，学校建设是自治区和市级管理局的责任，但是，却需要学校与上级各部门及文建会对新大楼工程给予最后的同意。在2000年予以实施的PISA国际学生评价方案，在28个经济合作与发展组织的国家中进行了教育标准的研究。与其他发达国家相比，它对德国学生成绩的评估很大程度上都是负值，这引起了社会相当大的忧虑。同时，也引起了公众对学校教育环境和教育议题的注意。

在英国，正式开始上学的年龄是5岁。不过小班现招收4~5岁的儿童，并将此作为学校的延伸议程，在一些学校，对3~4岁的幼龄儿童，每天可以提供两小时的日托，在资金许可时，这正在发展成为一个具有连贯性的“基础教育阶段”。除了学校的基础供应之外，还制定了儿童中心方案，由国家出资照看贫困地区的儿童并提供给当地的儿童及其家庭一系列完备的社区设施。这笔款项来自一项新的政府拨款——称为“信心的开始”工程，这区别于其他的教育经费。预计到2010年英国将开设3500个儿童中心，每一个社区都会提供一个。

婴儿学校通常是2个分开的学校（但通常在同一个地方），为4~7岁的儿童提供教育。小学教育主要针对7~11岁的儿童。中学则针对11~18岁的学生，中学里的六年级主要针对16~18岁的学生，并且常常处在学校的一个独立部分或不同的场所里，但是却可以独立运营，这就是所谓的六年级学院。还有一系列不同类型的学校，如以学术为本的文法学校，还有以职业性为主的综合性学校，这些都是早期教育体系下的遗留产物，同时还运行一些新方案，比如说学术项目。英国体制历来都是把权力下放，在政府教育部门的指导下，由当地教育机构自己进行管理。在每一个教育机构所管辖的范围内，根据所需的学校面积进行资金的分配，与此同时，每年划拨一定的资金对各学校进行维护。不过，该系统已经过彻底的改变，以应对目前正在进行的庞大投资，以下是更详尽的解释。

20世纪60年代初，德国中学体制的垂直和分层结构受到了质疑。从而提出了一个更高的结构水平，其类似于所谓的综合模式，在20世纪50年代期间，该模式被首次引入英国和美国。这种结构主要是基于社会平等主义而设计的，在此，所有的学生，无论其学术能力如何，都能参加相同的机构。新的教育体制需要一种新的学校建筑类型，从而可以提供一种晚间进修的机会。20世纪50年代，许多关于这种新类型学校的实例被引入英国，这样一来，在建筑和教育方面便产生了融合的效果。比如，希尔特斯综合学校（1956年）是坐落在市中心独立一角的板型建筑，是一座极其缺乏人性化的9层楼高的建筑，总共有2210名男生入住。这是由伦敦郡议会建筑部门设计的，这也只不过是众多错误设计中的一例，而这些错误设计主要是由当时地方权威机构里傲慢的建筑师们造成的。中产阶级人士，其中许多人曾在私立学校有过亲身经历，他们说，那些建筑几乎没有给予工人阶级任何的关怀和尊重。这些记忆仍然历历在目，在当今学校建筑的浪潮中，公共建筑已交予在此领域中有着良好声誉的私人手中掌管，这种做法是可以理解的。

德国的综合中学通常采取大型、复杂、低层和横向规划的设计形式。但是，由于设计师不得不使用深平面结构，结果就出现了一系列阴暗的教室布局，在其内部采用人工照明并装有空调等设施。全日制中学奥斯特伯克学校（1967年）是使用这种风格最早的工程项目之一，该学校是由Bassenge、Puhan-Schultz和Schreck三人设计完成的。将大型和复杂的各社会群体混合起来，并设有众多的房间，从而使得该建筑项目负荷过重，也带来了不可避免的冲突。