WORLD ARCHITECTURE

ISSUE NO. 17 $10 US £6 UK

HERMAN HERTZBERGER

THE GENIUS OF JEAN PROUVÉ
PELLI'S TOWERING FOOTNOTE
MARCH OF THE KILLER CITIES

THE INTERNATIONAL ACADEMY OF ARCHITECTURE

SUNBREAKER THE CLEVER COMFORT

It is NACO, obviously

Ideal for sunprotection, NACO sunbreakers are also a facing of great architectural elegance.

Available in blades of various widths and several colours; of easy installation; fixed or moveable; NACO sunbreakers need no maintenance.

NACO: a vast experience for great solutions.

00198 ***ROME*** *(ITALY)*
Corso d'Italia, 35/B
Phone (06) 84.15.766
Telex 626433 NACORM
Telegr. NACOLITE
Fax (06) 88.45.197

naco

an **RTZ Pillar** company

WORLD ARCHITECTURE

THE OFFICIAL MAGAZINE OF THE INTERNATIONAL ACADEMY OF ARCHITECTURE (IAA) NUMBER 17.
EDITORIAL BOARD: PIERRE VAGO; CARL AUBOCK; GEORGI STOILOV; A IKONNIKOV

Consultant Editor
Sir Norman Foster
Editor
Martin Pawley
Art Director
Rob Norridge
Account Director
Michael Delaney
Production Manager
Belinda Estall
Circulation
Peter Gilbert
Sales Manager
Paul Townsend

World Architecture is published by Cheerman Ltd. The views expressed in World Architecture do not necessarily reflect those of Cheerman Ltd or the International Academy of Architecture

All editorial matter should be addressed to: The Editor, World Architecture, 301-305 Euston Road, London NW1 3SS, England.

All advertising and subscription enquiries to: Cheerman Ltd, 301-305 Euston Road, London NW1 3SS, England.
Tel: 071-278 3000.
Fax: 071-278 1674.

© Cheerman Ltd 1992
All rights of reproduction reserved

RATES:
UK rate: £6 + £3 post & packing.
US $10 plus $5 post & packing:
Elsewhere prices inclusive of post & packing in local currencies are as follows: Subscriptions of six copies are available for the price of five, that is, five times the local currency rate shown below
AUSTRALIA A$17
AUSTRIA S197
BELGIUM F585
CANADA $18
DENMARK Kr108
FRANCE 95F
HONG KONG HK$117
IRELAND Ir£22
ITALY Lir20322
JAPAN Y1908
MALAYSIA M$41
NETHERLANDS 32F
NORWAY KR100
PORTUGAL E2280
SINGAPORE S$29
SPAIN P1740
SWEDEN KR95
GERMANY DM28

STUDENT RATES:
US$6 + $2 p&p or
£3.50 + £1 p&p. Only bankers drafts accepted with proof of student status.

World Architecture is published bi-monthly (6 times a year) by Grosvenor Press International Ltd. Subscription is US $60 per year. Second Class Postage Pending at Rahway N.J. Postmaster send address corrections to World Architecture, c/o Mercury Airfreight International Ltd. Inc, 2323 Randolph Avenue, Avenal, New Jersey 07001.

Cover The interior of Herman Hertzberger's new Ministry of Social Affairs building in Amsterdam.

Foreword Full Metal Jackets. 33

Profile **Herman Hertzberger** 34
Herman Hertzberger on the Language of Architecture.
Frank Duffy on the uniquely human properties of the architecture of Herman Hertzberger. 36
Buildings and projects 1969-1992. 46
A chronology. 53

Essay **From construction to design** – the architecture of Jean Prouvé. 54
Jean Marc Weill argues that the father of modern curtain walling converted the construction process into a design method – but that few have followed him.

Project **Wild Gateway.** A new gateway for the State University of New York at Binghamton marks a radical new departure for a public institution. Graham Vickers on a new project by Ellerbe Becket. 58

Practice **Ancient and Modern.** Jeremy Myerson interviews Richard MacCormac, the RIBA president with street credibility – and a different approach to every project. 62

Interiors **Towering Footnote.** How do you design the entrance to the tallest building in the country? Jeremy Myerson looks at the mighty lobby to Cesar Pelli's One Canada Square. 68

Concept **Artificial vs. Natural.** Georgi Stanishev talks to architect Georges Heintz. 70

Face to Face **Museums in the Air.** Tim Ostler meets Dr Alan Borg of the Imperial War Museum and asks; What was it like working with Arups? 76

Books WA looks at the Louis Kahn revival and a nearly complete compendium of Modernism. 79

Academy **March of the Killer Cities.** The International Academy of Architecture's contribution to the crucial United Nations conference on the environment at Rio de Janiero. 80

Polemic **Berlin Story.** Pierre Vago on the history – and the future – of the replanning of Berlin. 81

Technical An eight page survey of curtain walling projects with an introduction on the future of intelligent curtain walling by David Blake of Crittall windows. 91

Client: Direct Line Insurance; Architect: Tibbalds Colbourne Partnership; Construction Management: Taylor Woodrow Management; Photo: Richard Moore; Scope of Works: Curtain Walling and Cladding;

WORKSHOP
CORRESPONDENCE
ADDRESS

Ing Grill & Grossmann Ges. M.B.H.
Steel and Light Metal Construction
Austria. A-4800 Attnang-Puchheim
Tel: 07674/2581. Telex. 026456
Telefax: 07674/2581-235

21-22 POLAND STREET, LONDON W1V 3DD
TELEPHONE: 071 437 4840, 071 437 7326 • FACSIMILE: 071 439 2862

Renton-Howard-Wood-Levin-Partnership

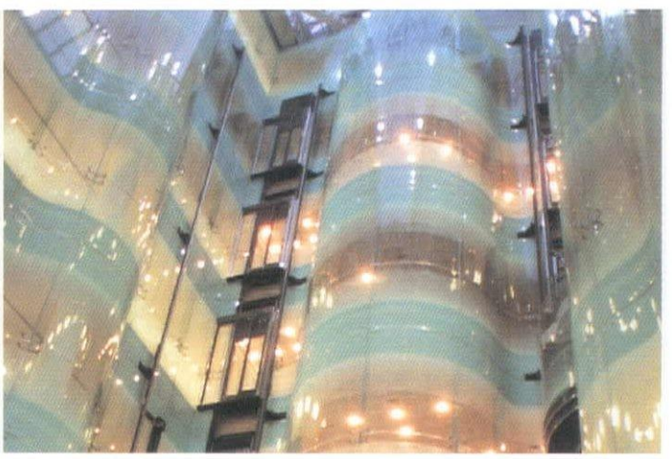
CRITERION PICCADILLY - LONDON

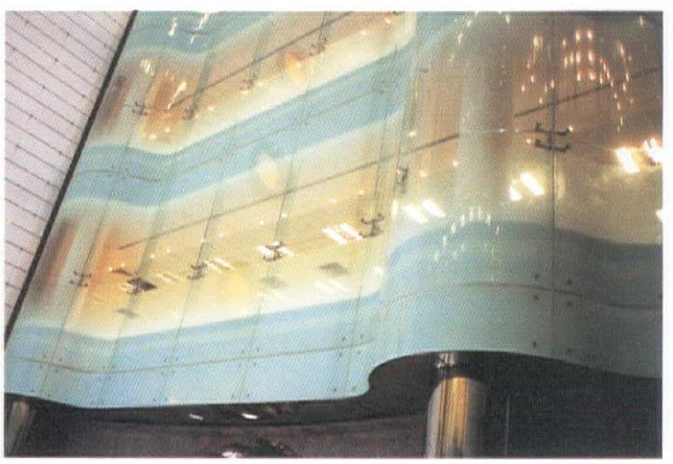
The First Step in the Next Generation of Structural Glazing Technology.

ECKELT GLAS

Brüder Eckelt + Co Glastechnik GmbH A-4400 Steyr, Resthofstraße 18 Tel. (0 72 52) 67 7 71, Telex 02-8166, FAX (0 72 52) 63 30 324
London contact Telephon No: 071 437 7326

LITEWALL
Point fixing system





Construction Manager: Wimpey Construction Management.
Architect: Renton Howard Wood Levin
Project Manager: Arnold Project Services
Client: Mountleigh/Sogo

The glazed atrium at No.: 1 Jermyn Street St. James´ is an architectural highlight in the centre of London. This seven-storey structuralliy-glazed atrium, which forms the focal point of new headquarters offices, expresses a unique atmosphere of light and ambience. A quality befitting such a prestigious project in a major city. The atrium will be looked upon as the forerunner of future curved structural-glazing systems. The curved toughened glazed units are coated to varying degrees through slab edge to eye level, and supported structurally with the LITEWALL flush-faced point fixing system - giving the atrium its impressive and striking aura.
Quality made a reality.

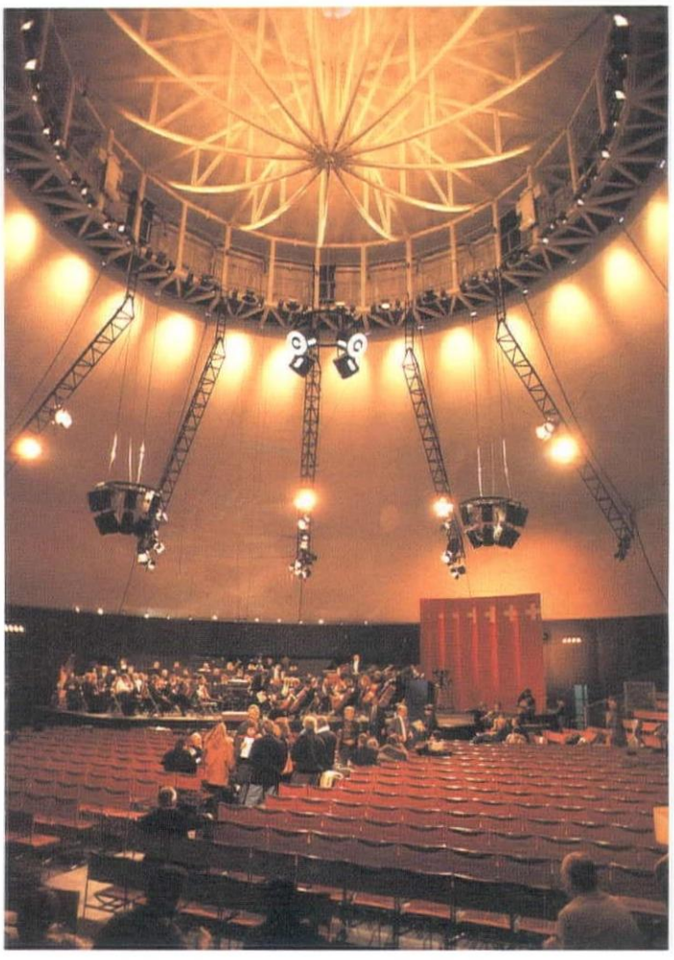
A detail of the fixing: The 5000 kG heavy fabric Membrane connected and tensioned with steelwires to its curved steel supports.

Constructive specifications with regard to the membrane.

Bieri Membranbau AG. the manufacturer of this structure which is designed for the 700 Year celebration of the "Eedgenoßenschaft of Helvetica".
Designed by the world famous Architect Mario Botta.

This construction with its steel-tubular supports, in combination with a cover of fabric, is extremely interesting specially due to its location at "Castle Grande in Bellinzona".

Covers for Play-grounds and Townsquares
Tents for Exclusive VIP-parties and other festivities
Mobile semi-permanent Aluminium Sportstructures
Aluminium storage halls and Exhibition halls
Air-supported structures for sport and industry
Tensioned-structures as eye-catcher



Bieri Creative Architecture with Fabric buildings

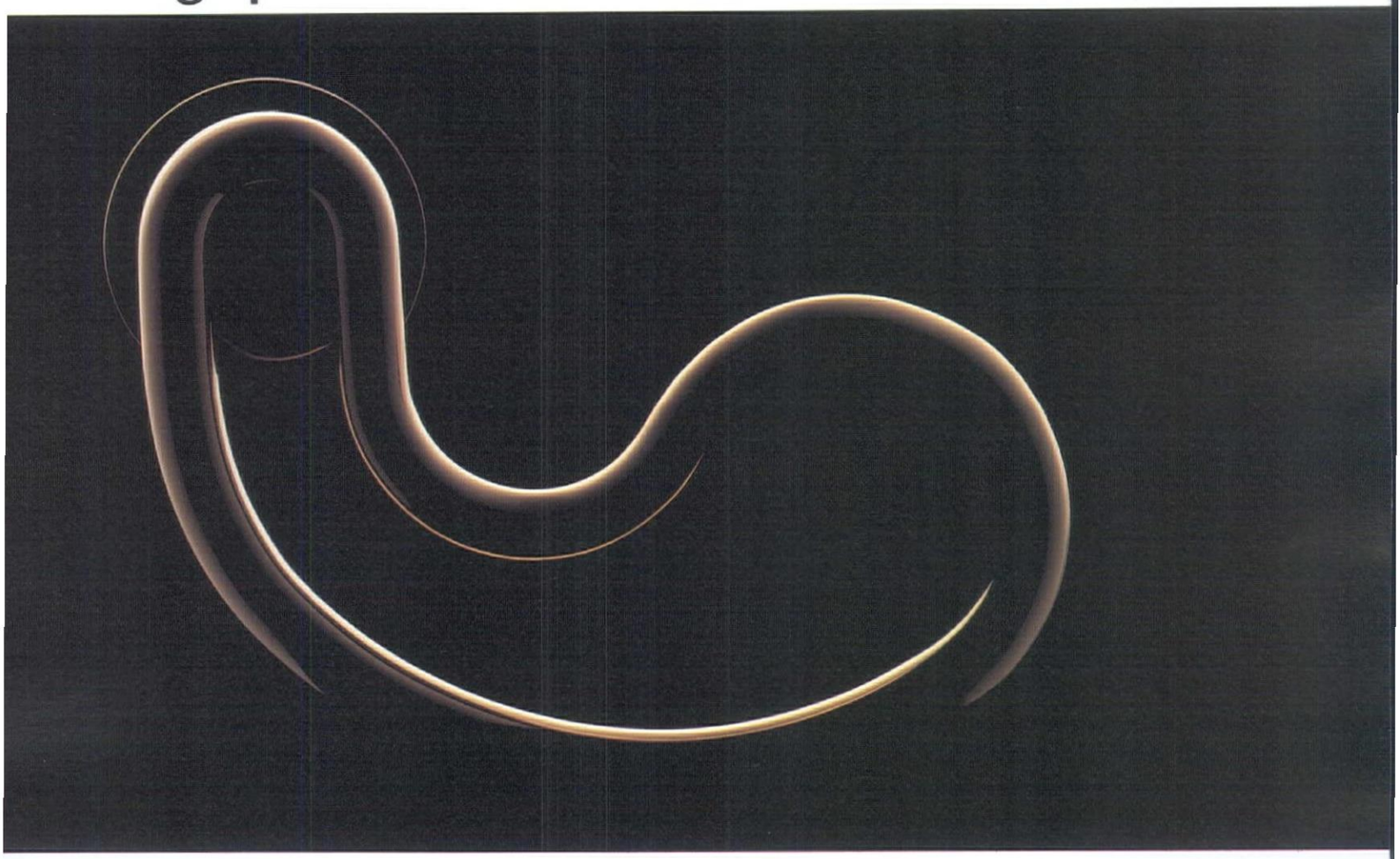
Bieri Membranbau Nederland b.v.
Schuitvaart 23
Postbox 43, 4715 ZG Rucphen
Nederland
Telephone: (31)1654.3566/1241
Telefax: (31)1654.3105

Bieri Membranbau AG.
CH-6022 Großwangen
Switserland

Telefoon: (41)45.710710
Telefax: (41)45.712977

High profile.

Gae Aulenti



Serie Otto A in ottone

Le maniglie Fusital
sono disegnate,
oltre che da
Gae Aulenti,
anche da:
Mario Bellini
Cini Boeri
Achille Castiglioni
Gianfranco Frattini
Gregotti Associati
Vico Magistretti
Sottsass Associati
Marco Zanuso.

Le maniglie Fusital:
design d'autore.

Fusital
DESIGN D'AUTORE

VCRINTERNATIONAL S.r.l.
20055 Renate (Mi) Italy
Telefono 0362-982260
Telex 322192 VCRINT I
Telefax 0362-924455

Show-room:
Milano - Via Sant'Andrea, 8
Telefono 02-795574
Firenze - Via Felice Fontana, 53
Telefono 055-351217

AUSTRIA - SVIZZERA
Valli & Colombo Gesellschaft m.b.H.
Tel. (0662) 661746/7
Telefax (0662) 662024

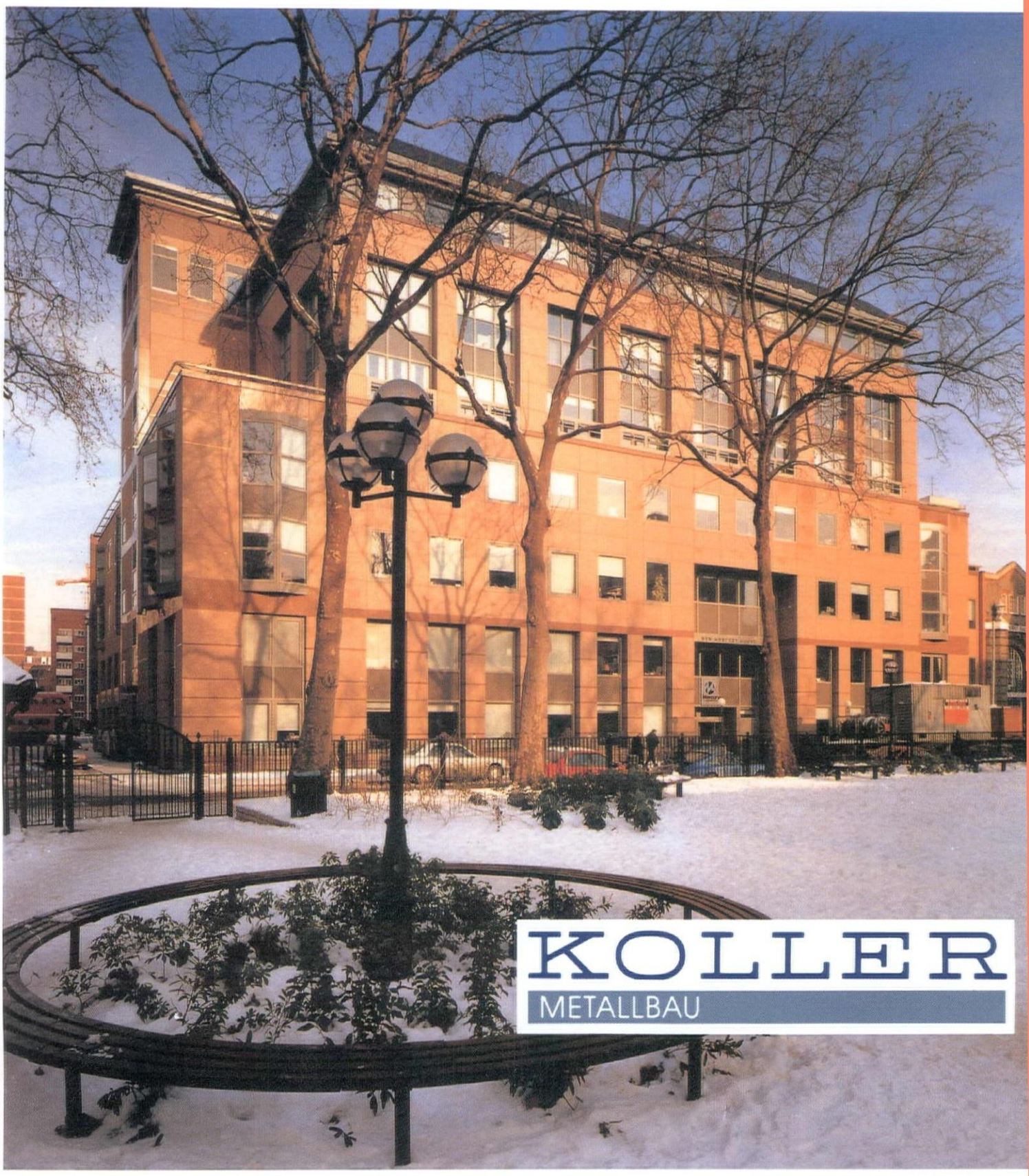
GERMANY
Valli & Colombo GmbH. & Co. KG.
Tel. (07063) 7035
Telefax (07063) 6623

BENELUX - FRANCE
Valli & Colombo N.V.
Tel. (03) 4573517
Tel. à partir de la France
19 (32) 34573517
Telefax (03) 4570828

GREAT BRITAIN
Valli & Colombo Ltd.
Tel. (0827) 63352
Telefax (0827) 53626

IRELAND
Valli & Colombo Ltd.
Tel. (01) 536255

U.S.A.
Valli & Colombo (U.S.A.) Inc.
Tel. (818) 359-2569
Toll Free (800) 423-7161
Telefax (818) 3580743



New Mercury House. Acknowledgements: Client: Cable & Wireless PLC. Architect: RHWL. Construction Management: Bovis Construction. Facade package: Granite on strong back curtain wall system, double glazed windows, aluminium cladding.

KOLLER (UK) LTD
Telephone 081 940 1636
Fax 081 948 8238
96 Lower Mortlake Road
Richmond, Surrey TW9 2JG

CURTAIN WALLING, WINDOWS & CLADDING

DESIGN, BUILD & INSTALLATION
THROUGHOUT THE WORLD

We make sure that your building stays clean. Zarges.

Don't you agree that the travelling gear fits into its surroundings well?
That's the aim of our design engineers – to create travelling gear which is both economic and absolutely safe but which will not spoil the appearance of a building.
Whether you are interested in travelling gear for external installation or, later, for cleaning and maintenance purposes, don't hesitate to get in touch with us. You can rely on our international experience in this field.
Zarges – for top quality in light engineering.

Headoffice
Federal Republic of Germany
ZARGES LEICHTBAU GMBH
D-8120 Weilheim, Department: SKV
Tel.: 08 81/6 87-245 · Telex: (17) 881800
Fax: 08 81/6 87-2 81

G.B. + North Ireland
KOBI CRADLES LIMITED
Head Office:
Kobi House, Alpine Wag, London E 6 4LA
Telephone: 4 47 14 74 34 64
Telefax: 4 47 15 11 23 06

Italy
M C M S.R.L. Construzione Metalliche
38014 Lamar di Gardolo (TN) n. 60
Tel.: 0461-99 03 47 · Fax: 0461-99 03 00

USA, Mexico
VERTA Corporation
Scaffold Systems Division
Headquarters: 10921 Valley View Road
Eden Prairie, Minnesota 55344
Tel.: (612) 944-05 16 · Fax: (612) 944-68 99

France
CME Constructions Métalliques Evronnaises
Boulevard du Général Leclerc · 53600 Evron
Tel.: (43) 01.61.87 · Fax: (43) 01.76.10

Hongkong
BOAG Building Supplies Ltd.
7th Floor, Cavendish Centre
23 Yip Hing Street
Wong Chuk Hang, Hong Kong
Tel.: (852) 5 55 56 66 · Fax: (852) 8 73 06 25

Switzerland
Conrad Kern AG
Althardstraße 147 · 8105 Regensdorf
Tel.: (01) 8 40 21 21 · Fax: (01) 8 41 11 93

Austria
ZARGES-LEICHTMETALLBAU Ges.m.b.H.
Leberstraße 96, A-1110 Wien
Tel.: (222) 7 49 15 53 · Telex: 131168
Fax: (222) 7 49 83 25

Commercial building · Heidenkampsweg, Hamburg. Arthitect's office: V. Krautwedel, architect in Hamburg

ZARGES

A CISAL SINK MIXER IN THE KITCHEN IS SECOND ONLY TO THE COOK.

cisal
RUBINETTERIA

Rubinetteria CISAL spa 28010 Alzo (NO) - ITALY - Via P.Durio, 160
Tel. (0322) 969495-6-7-8 / 969615-6-7 - Telefax (0322) 969518 - Telex 200494 CISAL I - Teleg. CISAL

CISAL Deutschland Gmbh Hohenzollerndamm 198 A W-1000 Berlin 31 Germany
Tel. 0049/30/8613440 - 8613919 - Fax 0049/30/873610

Planning concepts for security

Perfect from planning to implementation: locking systems from DOM. A programme that makes complex systems possible - for new buildings and existing property. DOM offers organization and security - in all sizes. The DOMtronic electronic security system, for example, facilitates person, room and time-related access control. Ask for your copies of our broschures.

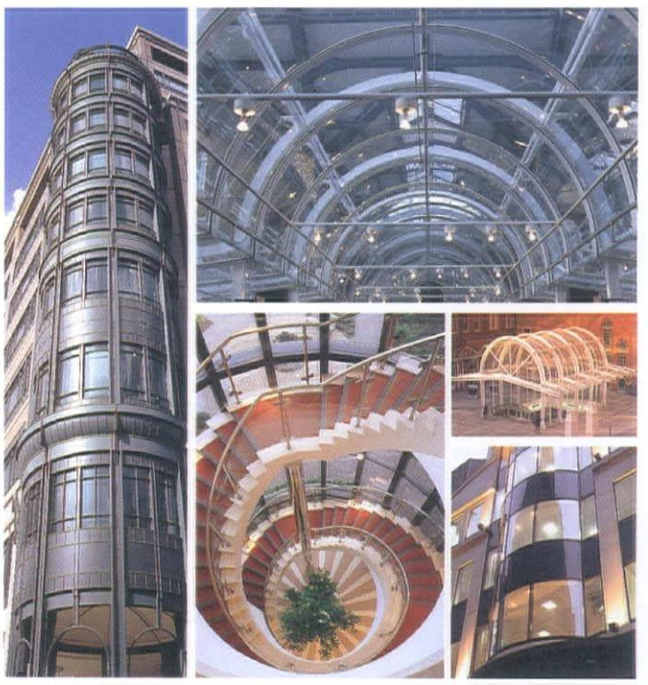
DOM Sicherheitstechnik
Postfach 19 49
W-5040 Brühl
Telephone: 022 32/704-0

DOM®

Ihr Schlüssel.

DOM SICHERHEITSTECHNIK

INTERGLASS
QUALITY IN GLASS LTD



- Do you want to bring a cost effective and new dimension to your work?
- Do you want a product on which quality is never compromised?

If the answer is Yes ... You need more information about our curved and toughened architectural glass panels.

From 220mm x 325mm to 2130mm x 3650mm in materials 5mm to 19mm thick.

For more details contact:

INTERGLASS
QUALITY IN GLASS LTD

Greenfield Industrial Estate, Tindale Crescent,
Bishop Auckland,
Co. Durham, DL14 9BT, England.
Tel: (0388) 603667. Fax: (0388) 609744.

4 WAYS THAT HALLMO HAS TOPPED THE COMPETITION.

1. **QUALITY.** With its unique specifications for appearance and performance, the project requires total quality for the curtain wall, which must offer maximum thermal performance, acoustic performance and weather resistance (to both air and water).
HALLMO has succeeded in all its design objectives and all tests have been passed without any difficulty whatsoever.

2. **PRECISION.** No tolerances are allowed for this project; indeed, the greatest precision is required in the execution of all its elements. The clarity and detail of HALLMO's design have been decisive factors in solving the problems involved in the project.

3. **ON-TIME DELIVERIES.** HALLMO and the other companies involved in this project have made on-time deliveries a primary goal, thus achieving proper coordination of all the intricately-connected elements involved.
The facade system, which was specially designed by HALLMO, has allowed the work to proceed in strict accordance with the original timetable.

4. **ASSEMBLY SYSTEM.** The modular design of the elements in the project, and the assembly system for the facade (onto special iron supports) have allowed all elements on the inside of the building to be assembled without an external crane system, which would have caused undesirable problems for the building yard and would have interfered with the other jobs in progress.

In these 4 WAYS, HALLMO has won the top spot in its field.

6000 sq. mt. of Structural Glazing and Facade Cladding installed to varying curves and inclined from the vertical axis. The challenge to find the technical and production solution was met autonomously by the design team at HALLMO, making it one of the most prestigious projects undertaken.

hallmo

Structural glazing - Curtain walls - Modular cladding - Architectural metal works in brass, copper, bronze, stainless, steel to suit individual requirements, Aluminium windows and doors.

Hallmo srl - 33082 Azzano Decimo (PN) - Italy
Via Fiumicino, 11 - Tel. (0434) 640444 - Fax (0434) 640188

"Noah's Ark" - Office Development, Hammersmith, London - Project: Arch. Ralph Erskine, Rock Townsend, Lennart Bergström - Property: Pronator AB, Ake Larson Byggare AB - Project Management: Ake Larson Ltd, London

HOPPE®

Handle of excellence.

Serie "Braies"

Elegance and Durability

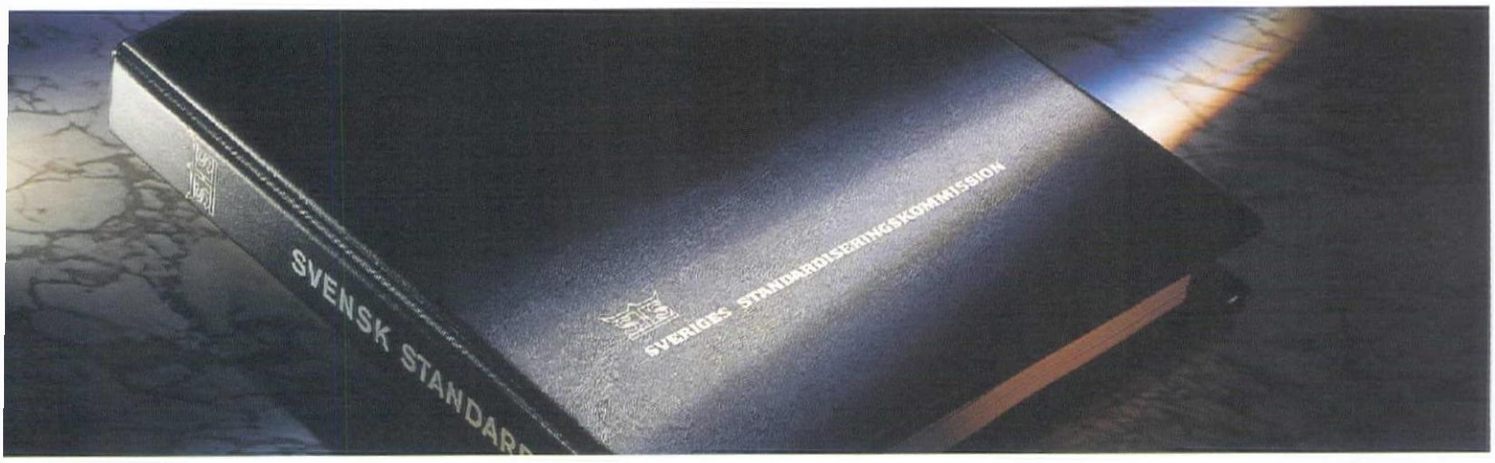
HOPPE develops, produces and distributes door-handle sets, window handles and a program "around door and window" of aluminium,brass, steel, synthetics and zinc,

in a wide variety of styles and colors to coordinate with any home decor.

HOPPE®

CH- 7537 Müstair
Telephone 082/85821
Facsimile 082/85990
Telex 852606

700 YEARS ON, SCANDINAVIAN SPECIFIERS ARE STILL INSISTING ON THE HIGHEST STANDARDS



In the 700 years since this wooden-walled Tithe Barn was built, it has been subjected to some of the most vicious and varied weather conceivable. And yet it's still standing in its original glory. Of course, the choice of Scandinavian redwood was particularly sensible, as it is a phenomenally durable softwood. But any structure that can survive 700 years of Scandinavian weather, must have been built to the very highest standards and with painstaking dedication to the most minute detail.

Today, such dedication still runs deep in the Swedish character. It runs even deeper in the volumes of manufacturing standards issued by the Swedish National Testing Institute. You can be absolutely certain that we've followed them to the letter, because all SP windows and doors carry the official seal of approval — the much-coveted 'P' mark.

Receiving this accolade is no mean feat. Our equipment, our designs, manufacturing processes, packing cases, and literally every component — from the wood down to the plating on the tiniest screw — has to reach the documented standard. And this standard has to be maintained permanently without exception.

Quality control begins in our own forests about half the size of Belgium, and it continues throughout production. We regularly and rigorously test windows as they are made. The slightest fault results in the most thorough reappraisal of the whole structure. And in addition to our own testing, we are often subjected to random inspection from the Institute, which inspects our own inspectors and further tests our own testing equipment!

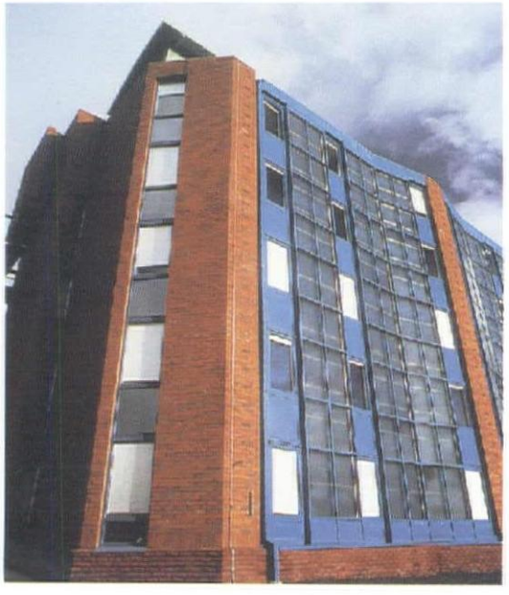
SVENSK FÖNSTER KONTROLL

The much coveted 'P' mark which appears on all SP windows and doors.

If you're assuming such standards are imposed everywhere in the world, you'd be wrong. They are unique to Sweden. But if you have the idea that all this quality means absurd expense, we have a *surprise* for you. Our comprehensive range of double and triple-glazed windows is amazingly competitive. It is also the best-selling range in Scandinavia.

Rather like Swedish cars, SP windows and doors manage to combine superb style with incomparable quality and value. If you feel the time has come to insist on the highest standards for windows and doors, contact SP Sweden today. We'll tell you even more about our superior performance, naturally.

Student residence for the University of Strathclyde, Glasgow. Main contractor: Kaiser Bautechnik Ltd. Architect: GRM Kennedy & Partners. Builder: G.A Group Ltd.



Modern housing in Milton Keynes. Developer/contractor: Penta Properties. Architect: Denton Scott Associates.

DISTRIBUTORS:

Swedish Window Co. Ltd.
Liddard Windows & Doors
Christie & Vesey (Malden Joinery)
Peter Howe Joinery Sales Ltd.
Bristol City Timber
Ellis & Booth

SP SWEDEN

WINDOWS AND DOORS

Superior Performance Naturally

SP Sales & Marketing U.K.
31 Perrivale Close, Assart's Farm
Nuthall, Nottingham NG16 1QG
Telephone: 0602 770808
Facsimile: 0602 770353
Car Phone: 0860 265832

I.C./Espace Léopold – Bat.D1 Centre International de Congrès (European Parliament) Arch: Associates D. Bontinck, C.D.G., s.v. Structures s.c., M. Vanden Bossche
ain Contr: Joint venture: Compagnie d'Entreprises CFE s.a., Les Entre. M. Delens s.a., Bâtiments et Ponts Construction s.a., Travaux s.a.

oto: S. Brison

rtal Europe SA
rtal House
verside Business Park
l Internationalelaan 55/D (B20)
RUXELLES 1070
lgium

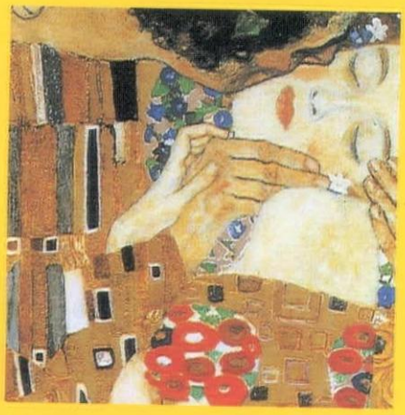
l: 010 32 (0)2 529 49 11
x: 010 32 (0)2 521 01 76

fices also in France and Germany

PORTAL

Portal UK Division
55A High Street
BAGSHOT
Surrey GU19 5AH

Tel: 0276 72295
Fax: 0276 72874



VIENNA, THE OLD EUROPE REFLECTED THROUGH A NEW MIRROR

Hans Hollein

Project	HAAS HAUS
Location	WIEN
Client	SIE - WIEN
Architect	HANS HOLLEIN
Product	PANORAMI® SYSTEM CURVED STRUCTURAL GLAZING CURTAIN WALLING

FOCCHI

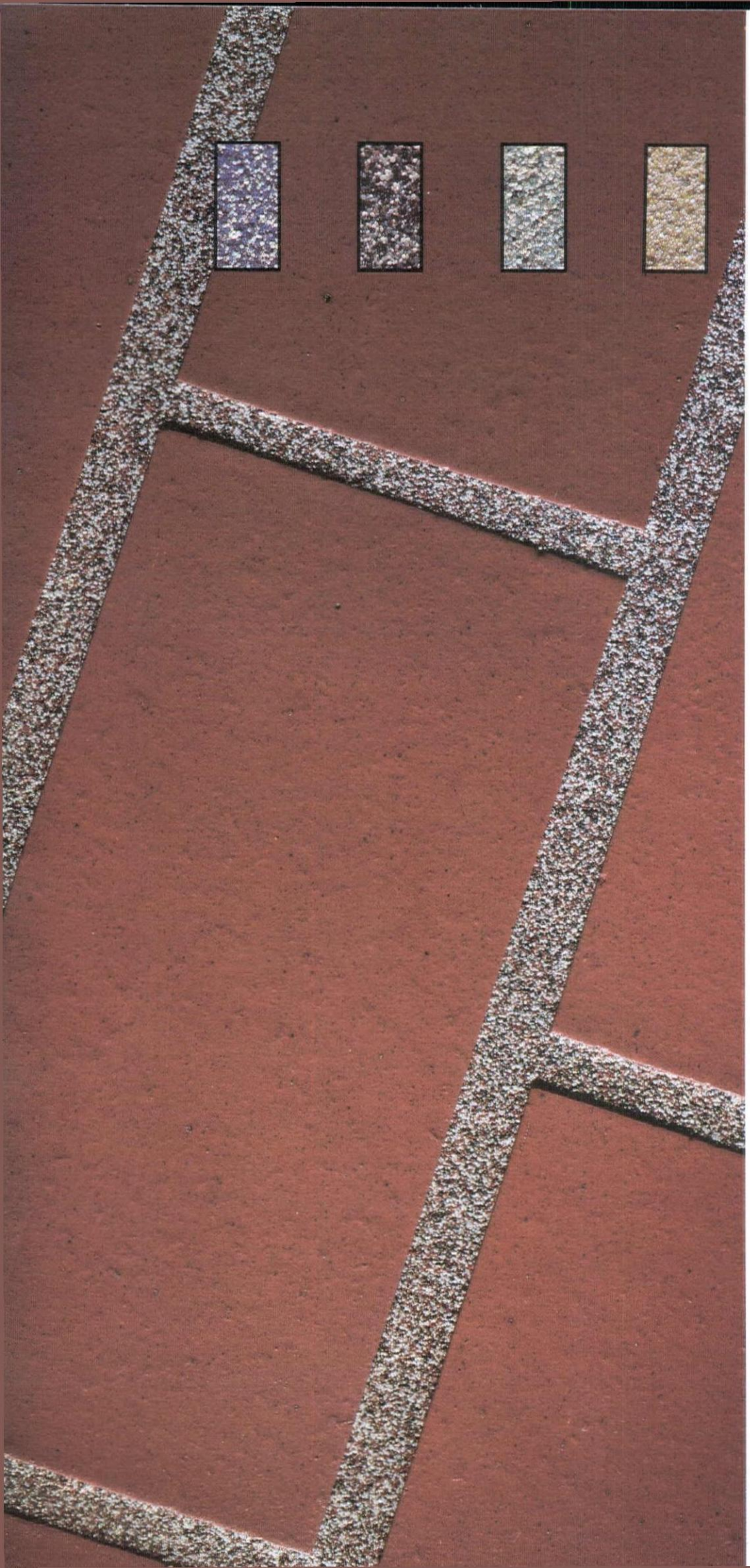
Metal and glass as contemporary means of building and in a dialectic opposition to stone, a material used since ages. Glass is not to fill, not meshes, window or screen but an autonomous

three dimensional elements of the plastic presence of the building.
Structural glazing makes this desired homogeneity and continuity of material possible.

Hans Hollein

Focchi S.p.A.
Curtain walls
Circonvallazione Ovest, 9
47037 Rimini (Italy)
Tel. 0541.740055
Telefax 0541.742167
Telex 55068 FOCCHI I

Focchi UK Ltd
p.o. box 646
Padbury
Buckingham
MK 18 2AF
Telephone 0280.823344
Telefax 0280.823301



THE INTERSECTION OF DESIGN AND PERFORMANCE

Introducing New Spec-L Grout
Ceramic Tile Grout From LATICRE

Finally, one grout gives you high fashio as well as high performance.

New LATAPOXY® Spec-L Grout, the fir and only multi-color grout, offers a rang of designer blends to complement virtua any tile decor.

It's stainless and super-tough, with color consistency you can count on.

Unique and easy to use, Spec-L Grout is ideal for demanding commercial and high-fashion residential applications. Use it whenever design is as important as performance.

For more information, call today:
(800) 243-4788, ext. 235.

LATICRETE INTERNATIONAL, IN
1 LATICRETE PARK NORTH • BETHANY, CT • 06524-3423
TELEPHONE (203) 393-0010 • TOLL FREE (800) 243-4
TELEX 96-3541 LATICRETE BTHY • TELEFAX (203) 393-

® Registered Trademarks of LATICRETE International, Inc.
© Copyright 1992 LATICRETE International, Inc.
US & Foreign Patents Pending.

Robertson

ARCHITECTURAL WALLS

make a world of difference

Designers are continually seeking more variety in the availability of metal panels for architectural walls.

A variety which will produce a total wall cladding system incorporating the latest technology in design, whilst retaining the flexibility to meet all levels of budget costs.

Your project will benefit in so many ways when you specify Robertson architectural wall panel systems:

- attractive facades
- flat or micro-rib profile
- variable panel size to suit individual requirements
- a choice of windows and glazing systems
- composite construction to eliminate interstitial condensation
- durability and a choice of high quality finishes

Whatever your project, you will find that our attention to detailing really counts. And, combined with our efficient response to your project requirements, that must place Robertson quality and value for money right at the top – that makes all the difference.

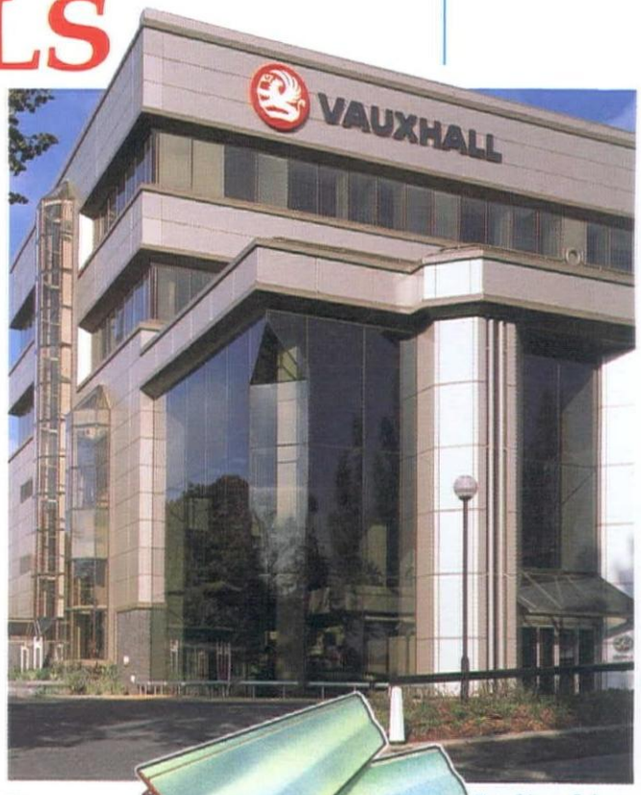
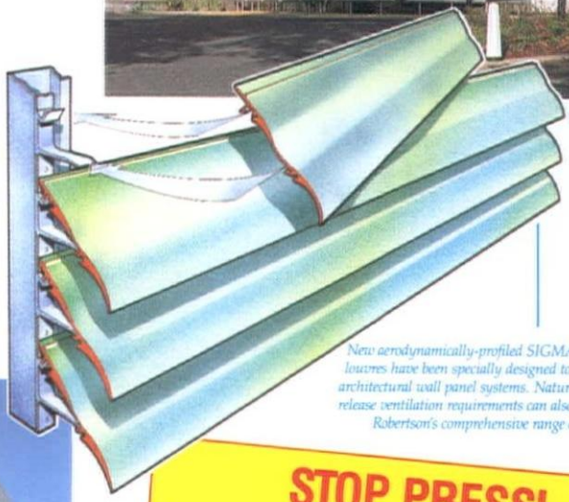


Photo: © Jeremy Cockayne



New aerodynamically-profiled SIGMA aluminium louvres have been specially designed to complement architectural wall panel systems. Natural and smoke release ventilation requirements can also be met from Robertson's comprehensive range of ventilation products.

Photo© Higgs & Hill PLC

STOP PRESS!

A new £2.5 million continuous production facility is now on stream at Ellesmere Port, utilising the latest technology to give Robertson advanced state-of-the-art panel production capabilities for the manufacture of composite cladding panels.

Robertson

a Robertson Ceco company

Where details count

H.H. Robertson (UK) Ltd
Cromwell Road, Ellesmere Port, South Wirral L65 4DS
Telephone: 051-355 3622 Fax: 051-355 1276

Examples of stainless steel applications manufactured and installed by Jordan Engineering at Canary Wharf.

The plant room louvres, colonades and entrance facias, manufactured and installed by Jordan Engineering at One Canada Square, Canary Wharf.

At Jordan Engineering we have continued to develop our expertise in meeting architects' exacting standards and our services now include:

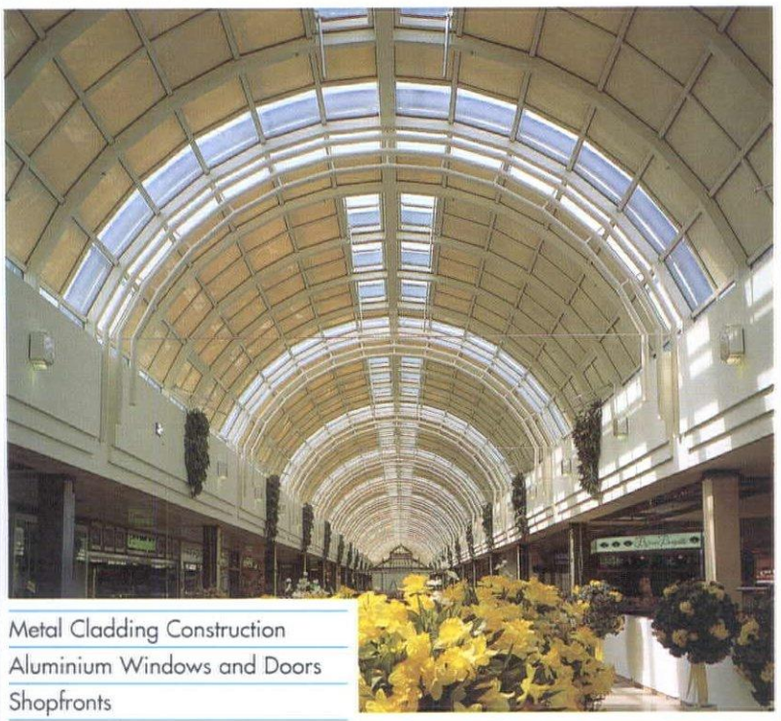
- *Engineering and detail design.*
- *Co-ordination between architect and manufacturer.*
- *Fabrication and assembly.*
- *Site installation and repairs.*
- *Provision of site supervision and tradesmen to install other manufacturers' cladding panels and fixtures.*

Jordan Engineering UK Ltd maintain a quality management system which meets the requirements of BS 5750 : Part 1/ISO 9001/EN 29001 (1987), BS 5882 (1990) and AQAP 1 edition 3.

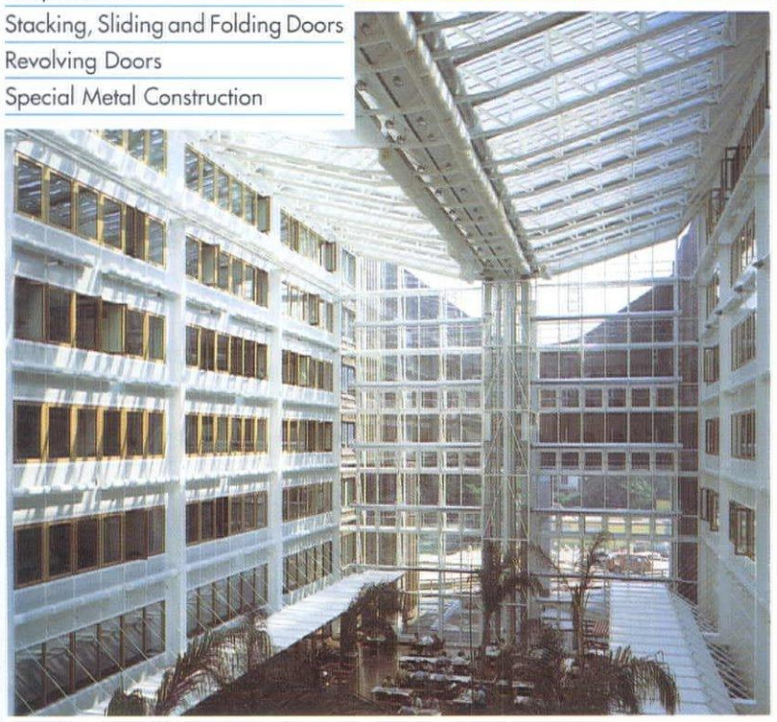
JORDAN
ENGINEERING
UK LIMITED

YATE BRISTOL BS17 5JW ENGLAND
TELEPHONE: (0454) 315252 TELEX: 44780
FAX: (0454) 315377

Design in Metal



- Metal Cladding Construction
- Aluminium Windows and Doors
- Shopfronts
- Stacking, Sliding and Folding Doors
- Revolving Doors
- Special Metal Construction



Thanks for our long experience in metal cladding construction and the many innovations we have made we can be relied upon for sound professional advice.
Our aim is to provide a complete and comprehensive service design consultation, planning, manufacture, finishing, site erection and after sales service. Everything under one roof. Projects completed in Germany, in the U.K. and elsewhere in the world are our best recommendation.

West Germany
MBM
Metallbau Möckmühl GmbH
Alte Stadt, D-7108 Möckmühl
Phone 0 6298/38-0
Telex 466724 mbm d
Fax 06298/38-13

MBM
KONSTRUKTIONEN

N&P WÜ 0591/1

: SOZAWE, Ministry of Social Affairs
The Hague, Netherlands
: Hermann Hertzberger, Amsterdam

If you like innovative architecture with glass come and talk to us. Light diffusion, opaque areas, vision areas, directing of light, all in one i.g.unit.

2700 sqm OKALUX units with clear and translucent areas

Innovations in insulating glass

OKA SOLAR®
Optisch geregelter Sonnenschutz

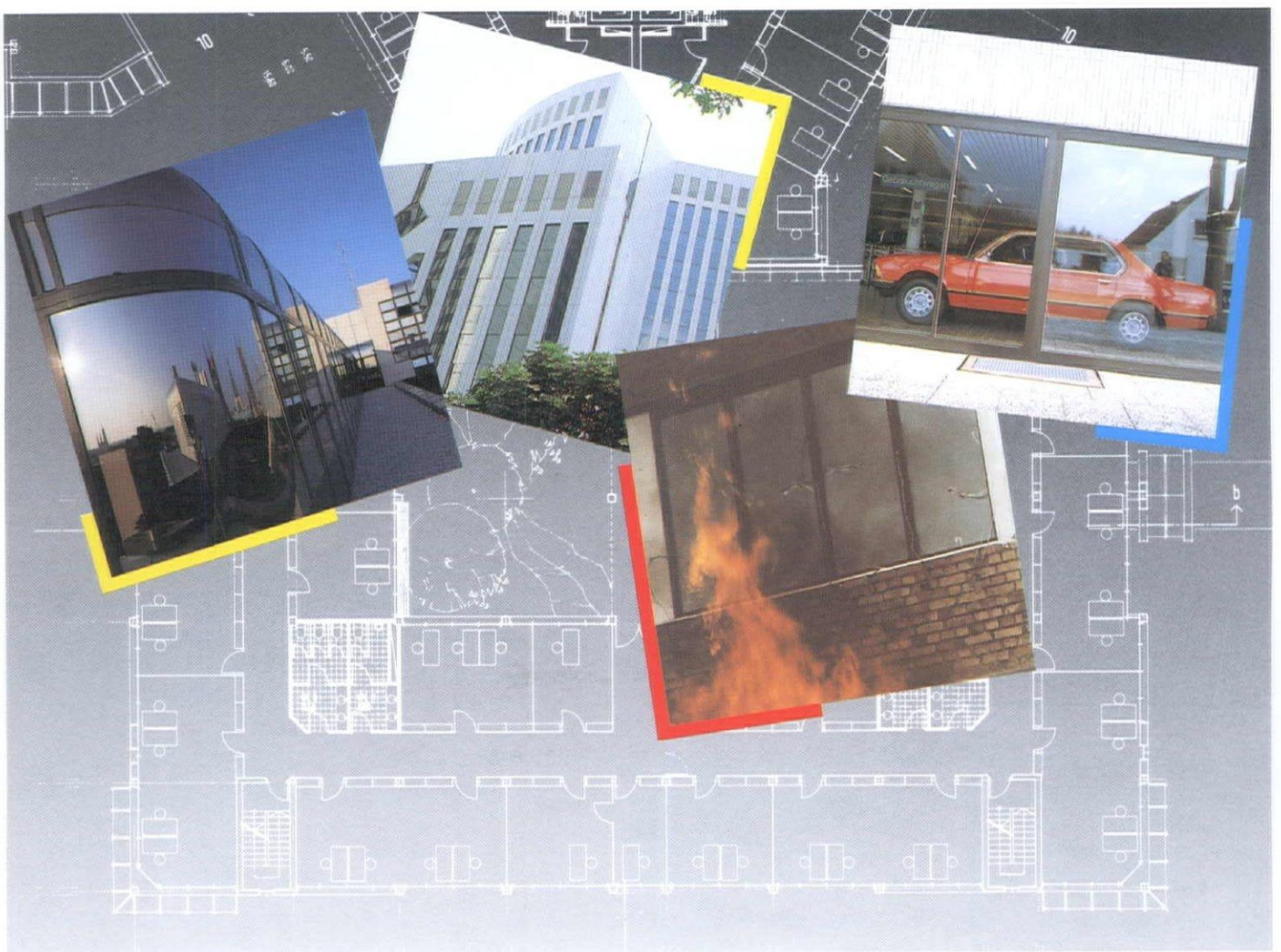
OKA LUX®
Lichtstreuendes Isolierglas

OKA THERM®
Mehrscheiben Isolierglas

OKALUX

OKALUX Kapillarglas GmbH D-8772 Marktheidenfeld-Altfeld Germany
Phone 09391/1041 Telefax 09391/6814

Special applications call for special glass ... and Schott



These days there are many architectural applications where any old glass just won't do. If the application is special, the glass must be special too. And SCHOTT, Europe's leading manufacturer of special glass, has three architectural glasses that are really very special.

IROX® is a reflective solar control glass. Its surface coating is beautifully uniform and everything is reflected in it in its natural colour over the whole face of the building. Windows and spandrels alike. That's a special feature of IROX. Also the coating is fired on to give it outstanding weathering properties. In fact IROX solar control glass looks so good on the outside that it would be easy to forget that it lowers air conditioning costs, creates a pleasant environment inside the building and lets people inside see the outside world in its natural colours.

PYRAN® is a fire-resisting glass that allows architects to give free rein to their imagination while still complying with the requirements of fire protection. PYRAN provides transparency with no wires attached. Even when there's a fire. It's been tested to various national standards and achieved fire ratings from 30 minutes to over two hours. All with one thickness. 6.5 mm. So PYRAN's the answer both for looks and fire resistance.

AMIRAN® non-reflecting shop window glass opens shoppers' eyes to window displays. Now they can actually see the goods without having to dodge the reflections. Large areas can be glazed and reflections cut to less than 1%. Designers can forget about complicated and costly ways to combat reflections. AMIRAN does it for them. And it's available now.

IROX, PYRAN, AMIRAN – three special glasses for three special applications.

Schott Glaswerke
Optics Division – Flat Glass Sales
Postfach 2480, 6500 Mainz, West Germany
Tel: (0 61 31) 66 29 69

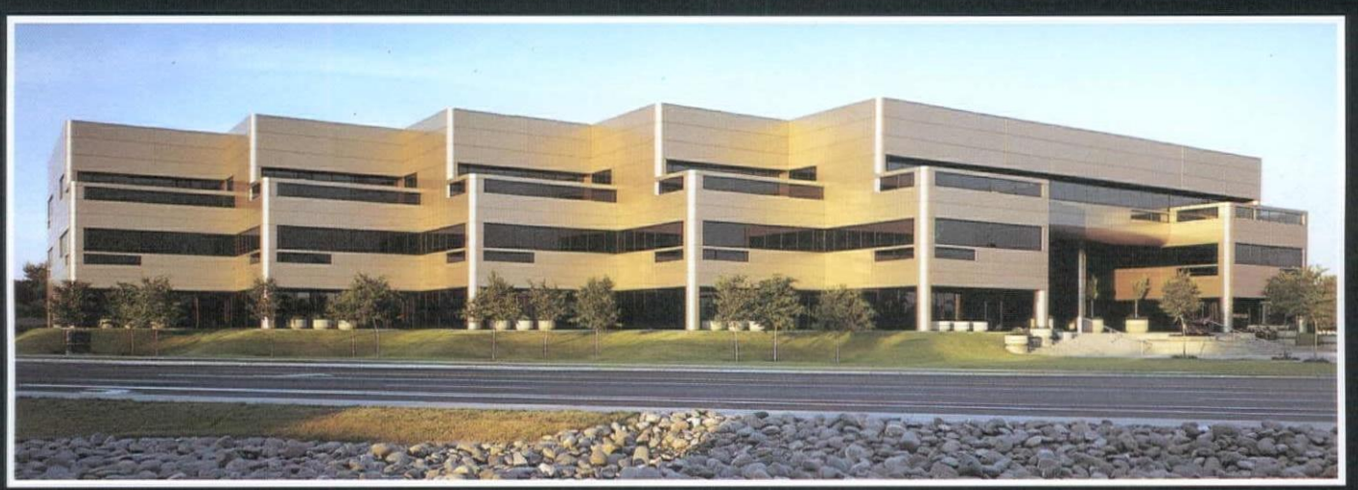
SCHOTT

No. 1 in Europe for Special Glass.

The best dressed buildings in the world are wearing

ALUCOBOND®

Made in Germany – used worldwide



Biltmore Commerce Centre, Phoenix, Arizona/USA

S.T.A. Office Building, Adelaide/Australia

ALUCOBOND composite aluminium cladding is a high tech product born of ALUSINGEN's years of research, experience and dedication to quality. The buildings shown here are just a few in a long list of buildings worldwide that have been faced with ALUCOBOND – just one of the vast range of materials and colours available from:

ALUSINGEN GmbH
ALUSINGEN-Platz 1
D-7700 Singen/Hohentwiel
Federal Republic of Germany
Tel.: (49) 77 31-80-0
Fax: (49) 77 31-80-28 45

Facing the future – now.

New Tech Park Factory Building/Singapore

ALUSINGEN

A member of the A•L Alusuisse-Lonza Group

Swift "Batiment Gulliver II", La Hulpe, Brussels, Belgium; Architect: Ricardo Bofill; System: Curtain wall in structural glazing and fixed glazing.

CHAMEBEL

1932-1992
SIXTY YEARS OF EXCELLENCE

CHAMEBEL N.V. – LEUVENSESTEENWEG 9
1830 MACHELEN – BELGIUM
TEL. 02.254.02.11 – FAX 02.254.03.77

CHAMEBEL S.A. – RUE PHILIPPE LALOUETTE 18
93700 DRANCY – FRANCE
TEL. 01.48.95.08.00 – FAX 01.48.95.07.11

CHAMEBEL LTD – 2 CHITTY STREET
LONDON W1P 1LQ – UNITED KINGDOM
TEL. 071.436.5281 – FAX 071.580.0213

CHAMEBEL GMBH – LILIENTHALSTRASSE 51/53
6140 BENSHEIM – DEUTSCHLAND
TEL. 06251.62194 – FAX 06251.62263

A MEMBER OF THE WARD GROUP PLC

VARIATIONS ON A THEME

MINIATURE, LOW PROFILE.

COOL RUNNING, LOW ENERGY.

DECORATIVE OPTIONS,
EMERGENCY PACKS.

VERTICALLY MOUNTED
5 AND 7 WATT TC,
10 AND 13 WATT TC.D LAMPS

EASY INSTALLATION,
MINIMUM MAINTENANCE

HIGH IP RATING WITH DIFFUSERS.

SMALL SCALE.

CATALOGUE AVAILABLE.

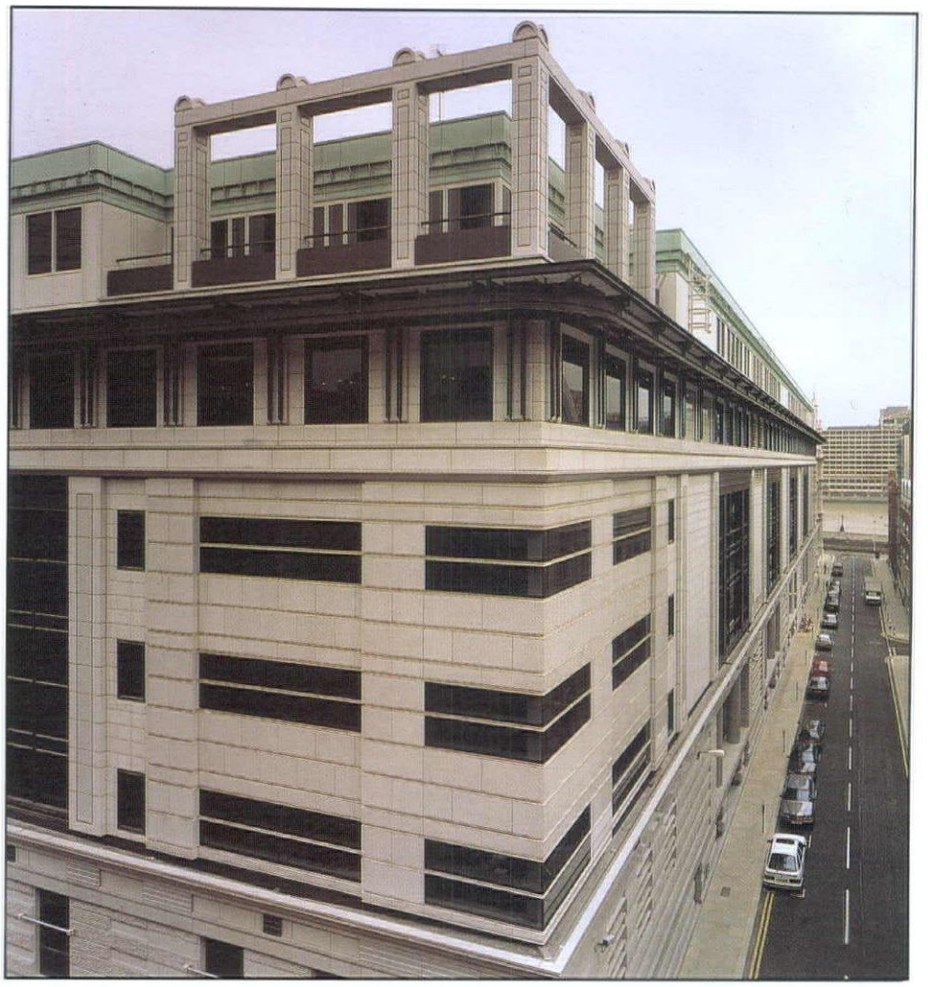
SOLSTICE

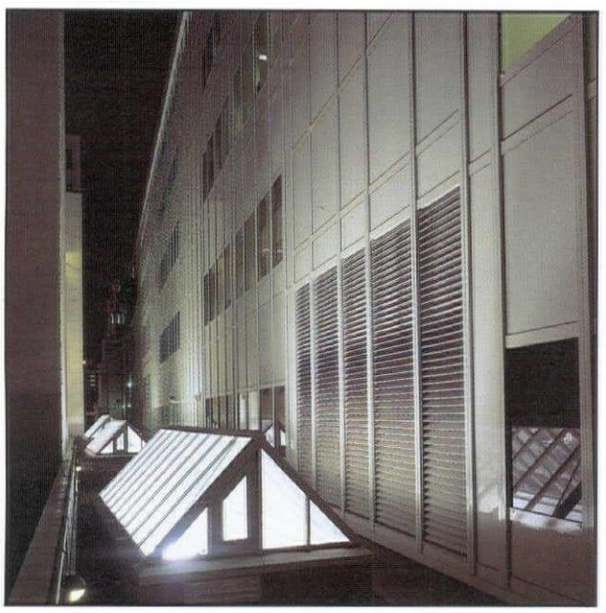
LOW ENERGY DOWNLIGHTERS

TEL: 071 497 1400

Concord GTE

FAX: 071 497 1404





Project	:	Bank Building in the City of London
Client	:	J.P. Morgan
Architect		Building Design Partnership
Management Contractor	:	Higgs and Hill Management Contracting Ltd

The building above comprises approx. 8.025M² of façade, granite and windows, in double glazed and thermally broken construction.

Designed, produced and erected by:

fassadentechnik rudolph gmbh

F.R. (U.K.) LIMITED

F.R. (UK) Limited, Curtainwall Technology

10/12 Parkfield Street • London N 1 OPS • Phone 071-359 59 73 • Fax 071-704 80 56

MEMBERS OF THE GÖTZ GROUP

specialist for curtainwall technology

POHL

Bending technology
with finesse.

Plaza Tower
600 Anton Boulevard
Costa Mesa, California

Custom-formed Stainless Steel Cladding

Product:

- Stainless steel panels
  AISI 316
  with linen finish
- Stainless steel bullnoses
  (vertical and horizontal)
  AISI 316 #4 finish

Owner:	IBM, Three Town Center (an affiliate of C.J. Segerstrom & Sons)
Architect:	Cesar Pelli and Associates/CRSS Architects
General Contractor:	Peck/Jones Brothers Construction Co.
Curtainwall Contractor:	Benson Industries

CHRISTIAN POHL GMBH
Head Office
Robert-Bosch-Straße 6
D-5000 Köln 71 (Fühlingen)
Phone: (02 21) 7 09 11 – 0
Telefax: (02 21) 7 00 15 01
(02 21) 7 08 91 23

CHRISTIAN POHL GMBH
- Division UK -
P.O. BOX 138
Newbury, Berks. RG14 5XH
Great Britain
Phone: 635-551 218
Telefax: 635-551 837

POHL INCORPORATED
-Division US -
7 Opportunity Way
Newburyport, Massachusetts 01960
USA
Phone: 508-462 0250
Telefax: 508-462 7153

CHRISTIAN POHL GMBH
- Division Spain -
c/Regoyos, 18-20
08397 Pineda de Mar (Barc.)
Spain
Phone: 93/762 5684
Telefax: 93/762 5684

POHL

Bending technology
with finesse.

TRESPA G2

The Architectural Difference

G2 is the first of a new generation
of TRESPA exterior architectural panels,
the result of TRESPA R&D-developed technologies
which have been project-proven since 1984.
TRESPA G2 production technologies
are patented worldwide.

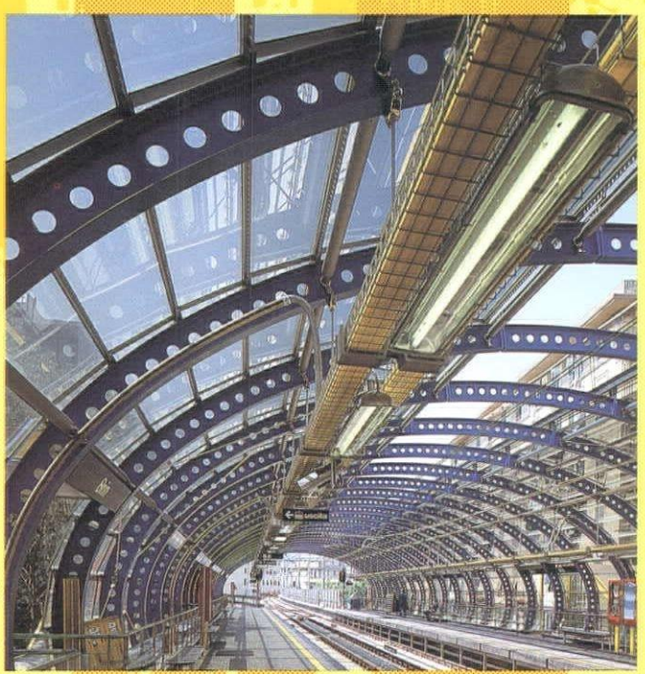
Hoechst

Hoechst Holland N.V., P.O. Box 44, NL - 6000 AA Weert, Netherlands, Tel.: +31 4950 - 76933, Fax: +31 4950 - 76574

solarsiv

Active Glass

When functionality and energy saving are top priorities, when comfort and usefulness go together with aesthetics and design means both innovation and creativity, solar control glass SOLARSIV is a leader. SOLARSIV as guarantee of environmental comfort: it can be realized for safety, sound-proofing, anti-vandalism and any other special purposes.



The Certosa Underground Zone - Architect: Piano
Fixtures installed by: Buiatti - Product: Solarsiv - blue 20/30/40

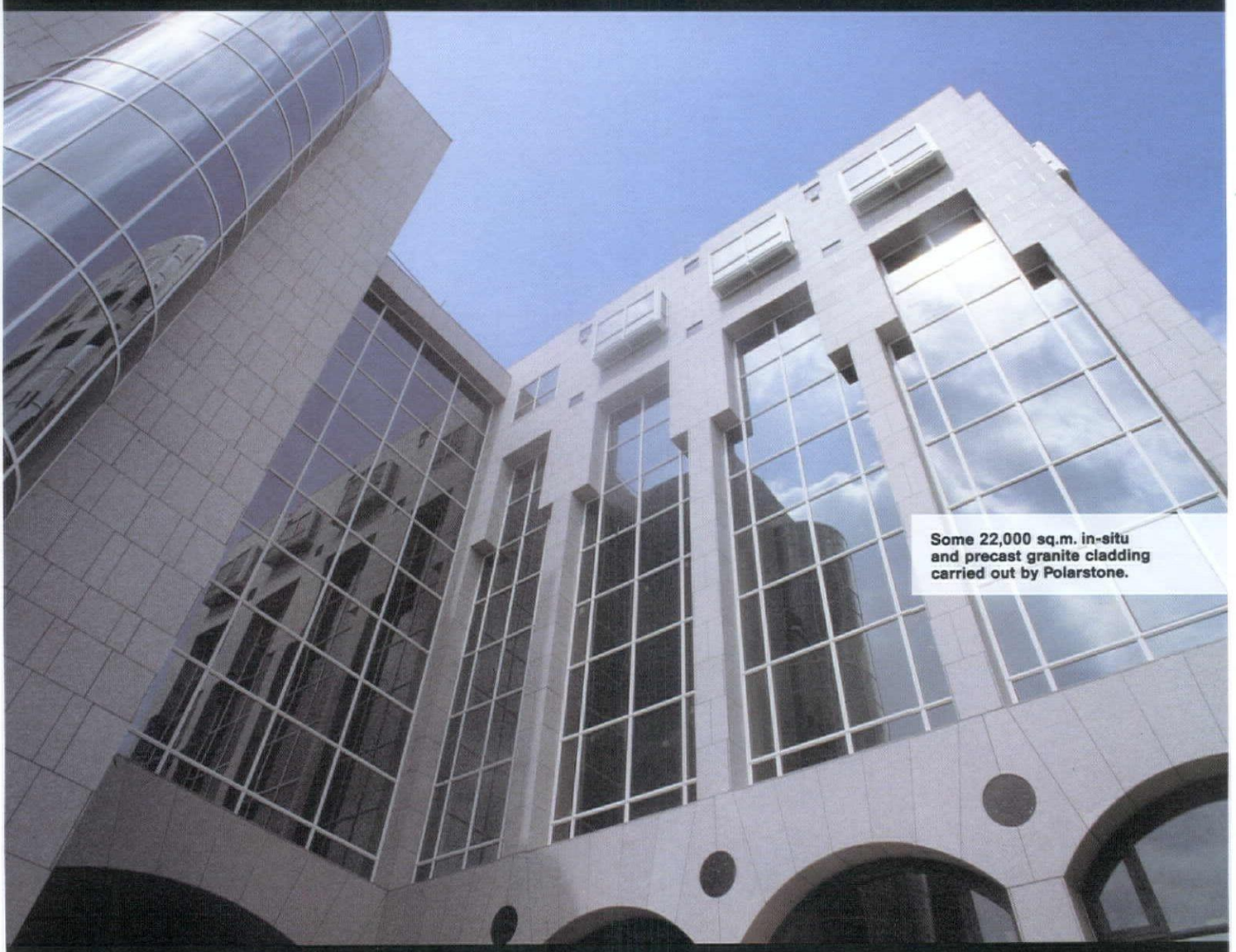
siv
Società Italiana Vetro

SIV S.p.A. - Special Products Sales Department - Via G. De Grassi, 8 - 20123 Milano - Tel. 02/88061 - Fax 02/865319 - 8806222

PLANIMEDIA 03 92 G 19

POLARSTONE

GRANITE AND STONE CLADDING



Some 22,000 sq.m. in-situ and precast granite cladding carried out by Polarstone.

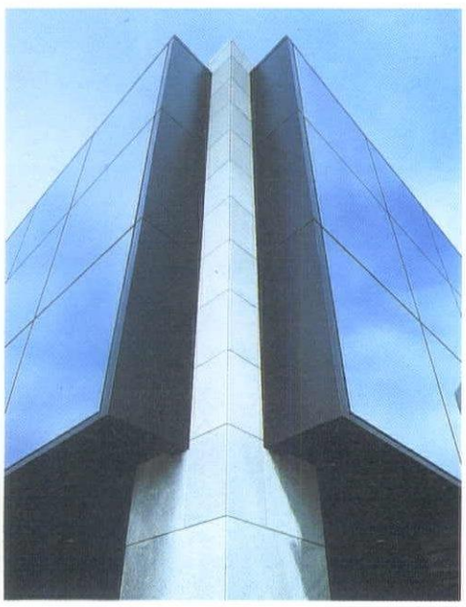
Polarstone undertakes the full design, supply and installation of marble, granite and stone architectural cladding, both in-situ and as stone-faced precast panels

POLARSTONE
MARBLE AND GRANITE

The Building Centre 26 Store Street London WC1E 7BT Tel: 071-580 3107 Fax: 071-580 3104

WORLD ARCHITECTURE

FULL METAL JACKETS



The Maas headquarters building near Antwerp, Belgium uses structural glazing by Chamebel. Architects: Delhaize

It is a convention of contemporary architectural criticism to disregard the technicalities underlying the much-bewailed homegenization of the urban environment, and concentrate instead on the declining aesthetics of street and square, regardless of the fact that both are the result of the application of different forms of cladding to more or less identical structural frames. But while this predeliction for the superficial may prolong the comforting illusion that architecture and planning still lie at the end of a rainbow reaching back to Ancient Greece, it does little to explain commercial architecture.

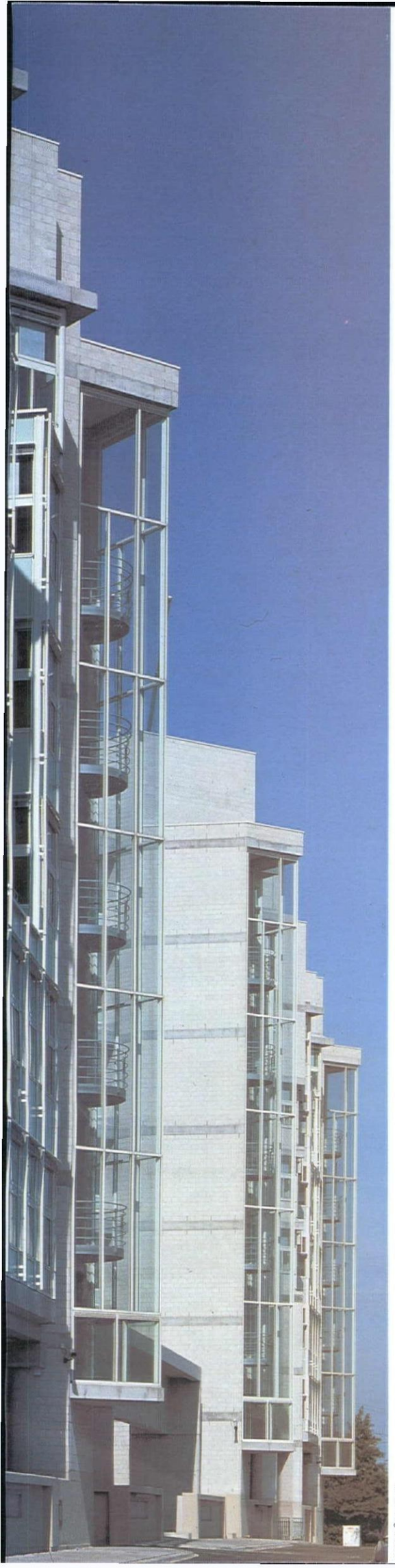
Curtain walling is a case in point. Effectively as old as the present century, this technique for enclosing multi-storey buildings has undergone enormous development over the last twenty years until today it possesses the capability, not only to waterproof and insulate vast areas of new urban floorspace, but to rescue even vaster areas from what, even ten years ago, looked like terminal obsolescence. In their present state of development, curtain walling for new buildings – and overcladding for old ones – are powerful tools for upgrading and prolonging the life of the undistinguished collection of steel and concrete structural frames that make up the bulk of the built environment of the world's cities – tools that can be employed without requiring demolition or even extensive alteration to create new living and working environments that will operate at the highest levels of performance.

But this remarkable potential for the renewal of the urban environment – for all its massive economic and technical significance – is barely acknowledged today. In Britain some of the largest and most advanced commercial curtain walling structures are barely reported in architectural magazines and, without the persistence of advertisers, would almost certainly never find a place in their pages.

Yet the potential of curtain walling today is not a subject devoid of interest. It is a tale of growing technical expertise, precision and performance; part of a larger struggle for supremacy that is being fought out between the designers and producers of all the integrated elements of the superstructure of the modern building. Where a decade ago it was calculated that the structure and servicing of the floors, including the raised floors above slab and the suspended ceiling below, could add up to nearly half the cost of a multi-storey building – today it seems that modular, pre-wired and ducted curtain walling panels might soon edge into the same territory – with the possibility of surface advertising space as well.

With traditional thinking about urban design in a state of crisis – beset with unresolved transport, maintenance, security and communications problems – coming to terms with the potential of the highly serviced, upgradable urban structures of tomorrow should not be an afterthought. It should be the central concern of architectural magazines today.

Martin Pawley



The Ministry of Social Affairs at the Hague. Designed in 1979, completed in 1990. A continuation of the 'handwriting' of the past.

van der Vlugt & Claus

HERMAN HERTZBERGER

THE LANGUAGE OF ARCHITECTURE

One of the new projects illustrated in this issue of *World Architecture*, the Ministry of Social Affairs building at the Hague, was already designed ten years ago. This fact alone shows that it is a continuation of a style of "handwriting" that had been adopted fairly consistently in all my previous buildings. Such an approach in materials and construction methods entails a conscious restriction of possibilities, but conversely quite an extensive vocabulary can be gained by this means.

When an architect's handwriting starts to write itself, complete with its own expression – which as it were embodies the essence of all that went before, and inescapably also the restrictions thereof – there comes a time when the desire to escape from these restrictions becomes irresistible. Then it becomes necessary to expand one's palette. Once that direction has been taken, it soon becomes clear that there are other and perhaps even better means of realizing one's objectives.

Although each handwritten language has its own means of expression and its own limitations, the same things can, in principle, be said in different languages. Nonetheless the danger exists that certain intentions and spatial themes can be

associated with a specific building style or manner of design.

There is an increasing tendency to equate a certain discourse with a certain formal idiom, and vice versa. But things are not that simple; you cannot regard so-called human architecture (whoever coined that term?), or shall we say any architecture that's not cynical, as belonging to a particular style. That sort of so-called humane or humanist architecture does not really exist. What does exist is a basic attitude of respect for human beings, for their values and their dignity, and that is not tied up with any particular building tradition or architectural style.

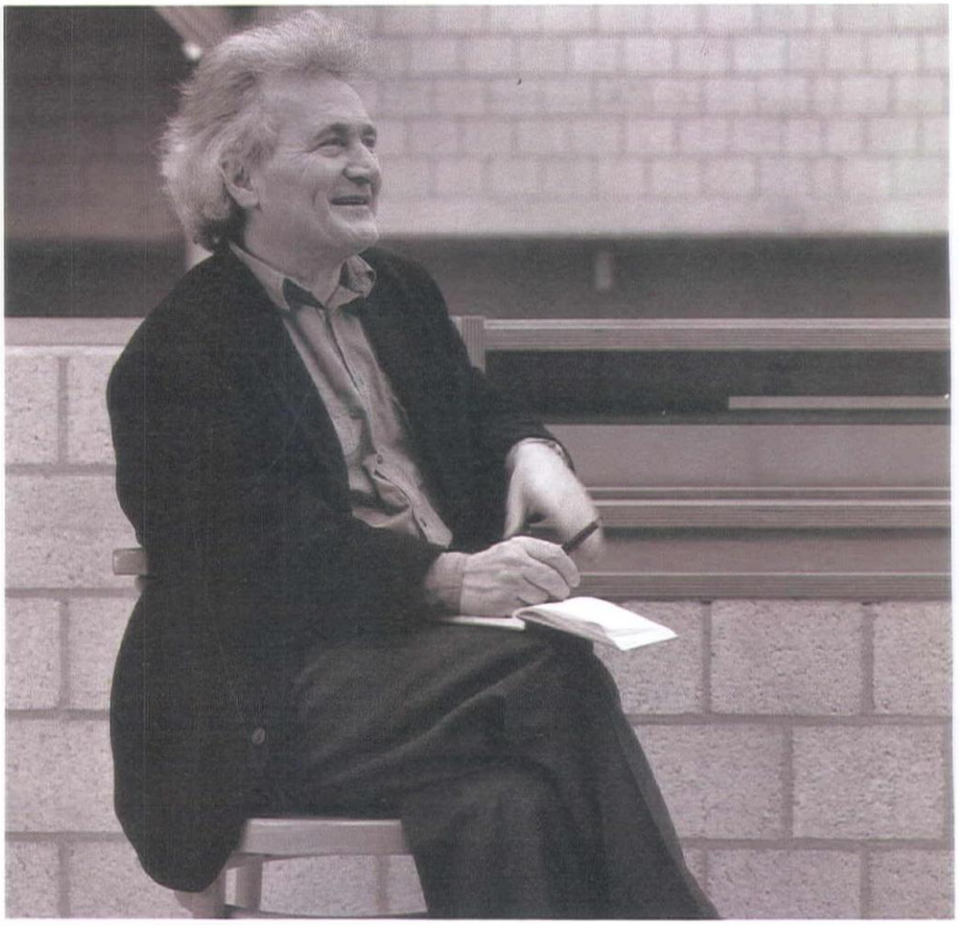
Architects are constantly engaged in constructing some kind of story, and the problem is that people have to live in those stories. People are our toys – as mice are toys for cats – because architects are powerful, with their mandates for putting up large buildings or small ones. All too often the people who have to be fitted in somewhere come as an afterthought. The question whether or not architecture has a social function is not at issue, because socially indifferent solutions simply do not exist

Each intervention on the part of the architect, regardless of what he may have had in mind, has inescapable social implications. If we say "straight", then people will live in straight houses, streets and cities. If we say "round", they live in round houses, streets and cities. The point is how much difference will that make to them. I think *that* is the question.

To me human dignity and equality – however moralizing those terms may sound to some – are the only possible criteria. When architects promote inequality between people, even when that happens unconsciously, I find that unacceptable, although I must admit: the borderline between a sense of responsibility and a patronizing attitude can get extremely blurred at times.

Taking the situations of people as your starting point leads to a certain attitude towards the way things function and the way things are organized, but that in itself does not result in one particular form. Such a quasi-functionalist connection does not exist. A solution can have many faces, so long as it accommodates the situation of people.

So in our search for formal solutions that improve the daily environment of people we must not leave any possibilities unexplored, and that alone makes it necessary to respond to the fascination of what is new and different, which is why some shifting of the focus of attention is inevitable. The desire to try out solutions that have not yet been explored is one that must be encouraged, whatever the risks.



The fascination of the new is the challenge of how to translate new concepts into the answers to the questions of our time that are more effective than the old and trusted recipes. Our time is characterized by instability, rapid change, pressure and stress. The continuous revision of our task, forces us to look repeatedly for new formulations of that task in terms of spatial mechanisms. Our time is characterized by a dizzying succession of trends, and today's architect must be able to adapt himself very quickly without losing his bearings.

But it is not enough to draw attention to the speed of change and the resulting uncertainties. The point is that all this must be turned into something positive. As far as that is concerned, we must not only rise to the challenge and answer the call of the new possibilities, we must also put them to use in a meaningful way. Modernity is not a matter of more and more computers, at some point they also will have become just another system of administration. What we need is the capacity to take the step from one novelty to another, harnessing the potential of each to lessen uncertainty.

As an architect, one is in a position to do more than express uncertainty. Our task is to set up landmarks in one way or another, so that people can cope better with uncertainty and find the inspiration to do something with new possibilities.

The crucial point is that each new concept should contain the seeds of responsiveness to further change: for tomorrow it too will be old. Concepts must be capable of responding to change or they soon become obsolete. To be able to cope with change they must possess the capacity to absorb different programmes of meaning, different interpretations: to absorb them and also to emanate them.

When we talk about concepts which are up to date and which will remain so, then we are expressly not talking about the exterior appearance of things – the jacket enclosing the body – but rather the spatial organisation of the body itself. The architect's first and foremost concern must be making space and leaving space. Knowing how to use the space between "competence" and "performance" can yield solutions with a greater potential. And, because also the time factor has to be built in: more space for more time.

Herman Hertzberger
January 1992

HERMAN HERTZBERGER AND THE ARCHITECTURE OF TIME

Herman Hertzberger's architecture takes a long time to mature, but once built it provides a benchmark for later designers. Here Frank Duffy evaluates the genius of the 'in between realm'.

Going out of fashion is an excellent test of an architectural career. For an artist to begin to slide into what Matthew Arnold called the "trough", the black hole of disregard which always follows success, is in itself a sign of achievement. Hungry subsequent generations must - to win their own identity - tread their predecessors down.

Herman Hertzberger today is not exactly at the epicentre of architectural debate in British architectural schools. The speed with which he is being forgotten is a perverse indication of his importance. No doubt, like those other giants, his immediate predecessors in the 1950s and 60s, Aldo van Eyck, Hans Scharoun, and Louis Kahn, he will soon be completely invisible. No matter - in 30 years, Hertzberger's works and ideas will be disinterred, as fresh as ever. Like Otto Wagner and Sir Edwin Lutyens the perspective of real greatness will only become apparent after the period of necessary rejection which is the correlate of great intellectual and artistic strength.

Why can we be certain of this? Because Hertzberger is not only an intellectual architect but also that much rarer thing - an architect who builds consistently with ideas. And the ideas which Hertzberger has explored most exhaustively are to do firstly with construction, secondly with the relationship between the architect and the user, and thirdly with the most difficult entity of all - the passage of time. It is these three highly unfashionable obsessions - rational construction, designing with users, and the aesthetic effect of the passage of time - which guarantee both his current unpopularity and his inevitable revival.

A body of work: a structure of ideas

It would be an understandable mistake for English and American readers to think of Hertzberger as primarily an alternative office architect - a kind of one-man SOM in blue jeans. Nothing could be further from the truth. Centraal Beheer certainly made Hertzberger internationally famous in the early 70s when, for half a decade at least, it was the most interesting and important office building in the World. Sociaal Fonds, his latest office for a government department in The Hague, is no less conspicuous although, for reasons we shall soon discuss, rather less interesting. Hertzberger would immediately reject the crude characterisation of himself as an office architect, not just because factually it doesn't happen to be true but because , even if it were, it is completely contradictory to his own highly developed ideas. What it is essential to understand is how completely and consistently Hertzberger's most successful architecture is the mirror image of his ideas.

The Hertzberger oeuvre is diverse in terms of function - old peoples' homes, housing, schools, offices, arts centres, factories, student housing (ie practically the whole gamut of ordinary late twentieth century urban life), but it is extremely consistent in materials, style and constructional technique. Today Hertzberger invariably uses concrete frames, strongly expressed grids, glass, breeze blocks, bare fibrous boards, glass blocks (ie the entire stained, monochrome, usually rain soaked, brutalist architectural vocabulary that Post Modernists - and the public - love to hate). Nor has his architectural vocabulary changed very much during his entire career. His vision is prefabricated in more ways than one.

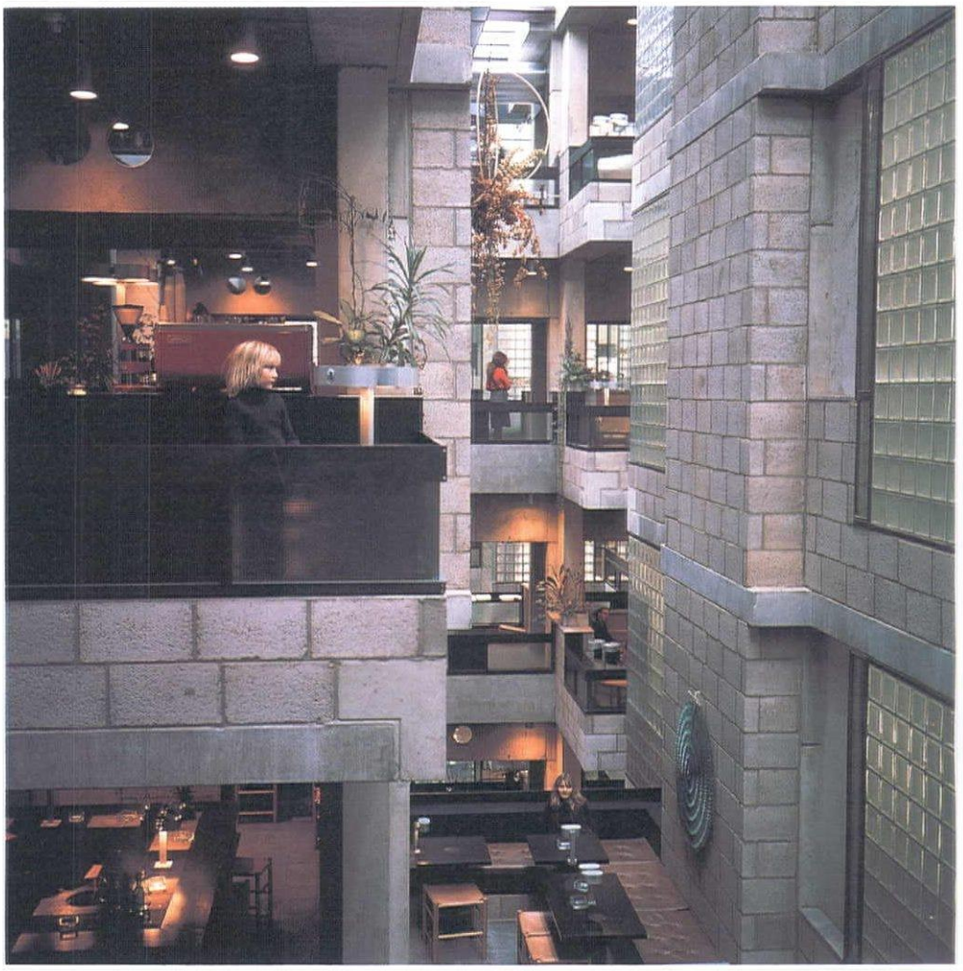
Where did the vision come from? Why is it so strong? What are these ideas on which it depends?

Origins and originality

Hertzberger is a creature of the Modern Movement - in its particular highly respectable, both intellectually and artistically, Dutch form. The key to his

Centraal Beheer 1972, the main organisational plan showing office squares, staircases and bridges.

The central "street" at Centraal Beheer showing simple finishes but complex space.



development was his close association with Aldo van Eyck and particularly his editorial work from 1959 to 1963 on the highly influential architectural magazine *Forum*. The pedigree goes back through that journal directly to Team 10 (at whose Bridgwater meeting in 1947 Aldo van Eyck made a memorable attack on architectural rationalism). And Team 10, of course, derives from CIAM and thus from the European pioneers of Modern Architecture.

Stylistically this pure - practically aristocratic - modern genealogy explains Hertzberger's dependence on Corbusian forms and details as well as his strong affinity with the work of the Smithsons and of Louis Kahn. In detail, and more regionally, it explains his deference to that tremendously strong Dutch modernist architectural tradition, which survives vigorously to this very day, and whose great monuments include Rietveld's Schroder House in Utrecht (1924), van der Vlugt and Brinkman's (and Mart Stam's) Van Nelle Factory in Rotterdam (1926-30), Duiker's Open Air School in Amsterdam (1929-30), Chareau and Bijvoet's *Maison de Verre* in Paris (1931), and Aldo van Eyck's Children's Home in Amsterdam (1955). This remarkable and unbroken tradition contains within itself the prototypes of practically every formal device ever used by Hertzberger.

Intellectually Hertzberger has been hardly more innovative and is just as easy to place within the lively tradition of modernist Dutch architectural discourse. Four such recurrent themes have been identified by Arnulf Luchinger in his book on Hertzberger's work:

The first is "Structuralism", a key notion borrowed by van Eyck in the fifties from the social anthropology of Claude Levi-Strauss and put to architectural use. The anthropological (and of course ultimately linguistic) distinction between a relatively small number of persistent underlying archetypes of human behaviour, and the wild diversity of individual choice translates, in the architectural variant, into the difference between archetypal forms and what users choose to make of these forms. The beautiful image of the ruined Roman amppitheatre at Arles, which was occupied in the Middle Ages and itself used as a little city, is often employed to convey this distinction between the archetype and the interpretation.

The second, "Participation", is closely related within the Dutch architectural debate, to these same structuralist ideas. If choice is possible, how is it to be exercised? Hertzberger often uses the metaphor of the sand pit, within the framework of which each child has freedom to create his or her own world, to illustrate the idea of free choice within constrained structures. More practically the important Dutch architect and theorist, John Habraken, has converted this idea into an operation as a participative reality in housing by involving end users in decisions about locating short-life partitions, bathrooms, and kitchens within the long-life structural shells of standard dwellings.

The third-theme, "The In-between Realm", is another key idea much used by Team 10 to describe the importance of humanising functionalist architecture, with its banal Taylorist inheritance of designing for *existenz minimum* dwellings, by elaborating the design (and hence the social significance) of such transitional spaces as entrances, thresholds, and doorsteps. Again lessons learned from social anthropology (not to mention from vernacular tradition) have been woven into much modern Dutch domestic architecture.

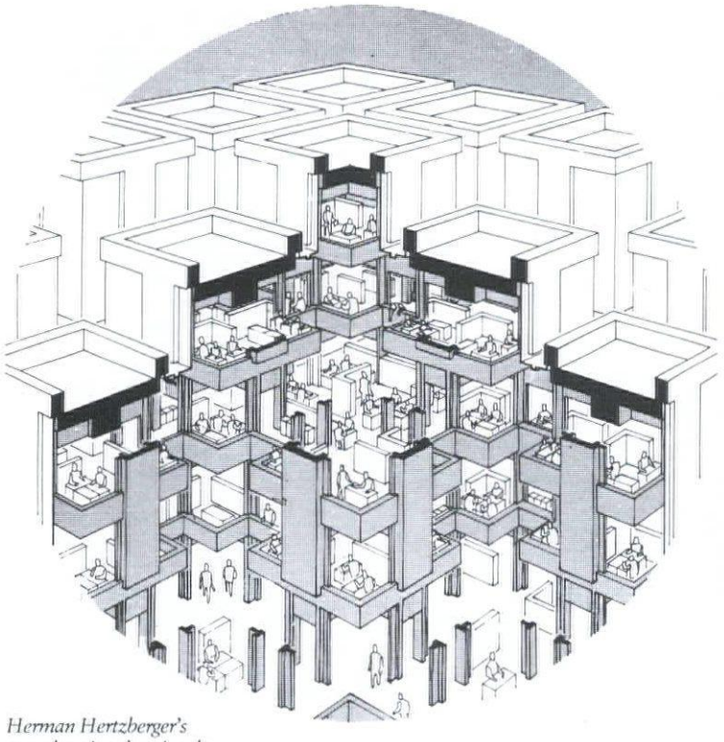
Finally "Ordinariness", a word much used by the English Modernists Alison and Peter Smithson, is an equally critical post-Team 10 cultural orientation. Design should be popular. Architecture should be accessible. Elitism might have satisfied Adolf Loos but it isn't good enough for Social Democratic Holland - nor was it for Welfare State England for that matter. Hence the persistent Dutch concern for designing the interface between the individual and the world of architecture - which is epitomised in the detailed but robust humanism of Aldo van Eyck's wonderful Childrens' Home.

Originality is not the point. What makes Hertzberger's architecture so outstanding has been his insistence on, and persistence in using every project to articulate and reinforce the links between the intact physical vocabulary of Dutch modernism, and these four recurrent political and intellectual themes.

Correspondences

Centraal Beheer (1957, 1970-72) is a key example. This astonishing and highly programmatic building, viewed in the cold light of architectural history, is the last of the great European deep plan *Bürolandschaft* offices. Hertzberger tries hard to humanise and personalise the open plan office by

The top-lit central "street" that runs through the building.



Herman Hertzberger's own drawing showing the relationship of the interlocking office floors.

Centraal Beheer Insurance Offices 1968-1972 and 1990

The definitive work of Herman Hertzberger's career so far, this "work space" for 1,000 employees was designed to act as a single articulated machine, consisting of 60 square-planned offices stacked in pyramidal decks and connected on each floor by bridges. The large central "street" that runs through the complex consists of a vertically and horizontally developed space modelled on the spatial arrangement of a medieval town. In the same way the extensive top-lighting, the transparency of the metal staircases and the use of glass brick walls and interior planting create an outdoor atmosphere quite different to the conventional burolandschaft office interior. Even the lighting system is designed to resemble street lighting in the open air. The building was extended in 1990 to include a link passage to another building – partly as a result of the enormous number of visitors attracted by its architecture.

exploiting strong architectural forms to make a series of interlinked but highly identifiable places. These places (not without a certain rookery nook cosiness) are intended to be (and in fact are still) appropriated, loved, and "lived in" by footloose staff who might otherwise be tempted to go to work for the company next door. This was the dawn of real – as opposed to nominal – worker power in Northern European offices. What happened immediately afterwards (the tendency has continued to this very day) is that real worker power and statutorily reinforced industrial democracy has led to the rapid and widescale adoption of more and more cellular, individual offices, eventually – as in numerous German and Swedish examples – for everyone. The open plan, however ingenious the architecture, was already effectively doomed by the mid 70s.

Seen from Hertzberger's own perspective, Centraal Beheer was something slightly different – the working out in glass blocks and concrete of the structuralist dichotomy between archetypal and timeless architectural forms and the imaginative potential for choice and invention among end users. In structuralist terms it was *langue* versus *parole*, in other words a giant sandpit for industrial democracy. It was the simple beauty of this idea – and the very real skill with which it was worked out – that blinded Hertzberger, and many others, to the force of the contrary privatising trend that was already developing.

Perhaps it is less surprising now, looking back with the hindsight of 20 years, that Centraal Beheer was never successfully imitated or replicated.

In Amsterdam – Slotervaart De Drie Hoven (1965, 1971-74) offers yet another contrast between intention and reality. Here from Hertzberger's perspective the intention was, within the confines of an enormous home for old people of varying levels of dependency, to work out the architecture of the "In Between Realm". One particularly beautiful manifestation are the thresholds, complete with stable doors and a space for the welcome mat, that separate the little individual apartments from the highly articulated and very successful single loaded corridors. Another example, at an entirely different scale, is the way in which the various wings of the complex (each intended for patients needing various degrees of care) come together to meet in a central communal space which successfully combines grandeur with livability and intimacy.

But here again Hertzberger's elegant formulation of the design problem does not completely correspond to the emerging social reality. An alternative perspective is that a home of this size, structured architecturally in these highly articulated ways, is likely to be inflexible, institutional, divorced from the real community outside, and may not be what old people actually want. Magnificent but not quite home.

An exterior view of Centraal Beheer showing the individual square office structures.

Bruno Krupp

The Amsterdam *Studenthuis* (1959, 1964-66) is different because it majors in "Ordinariness". Indeed it is often brilliantly photographed with real students eating real student breakfasts in gritty urban surroundings with fly posters programmatically half-adhering to the rough concrete walls.

But has the *Studenthuis* been any better at accommodating changes in student expectations over its lifetime than, for example, the very different and, in comparison extraordinarily sheltered and elitist, student housing built at Oxford or Cambridge at the same time? What both share is an architectural rhetoric which seems more assertive than domestic reality would seem to justify.

And, in the case of Hertzberger, why is the "Ordinariness" he aspires to not more sympathetic to the ordinary - and very refined - bricky urban texture of the older Amsterdam which surrounds the *Studenthuis?*

The Utrecht Music Centre (1973-78) links the old town centre and a new shopping centre. Here is Hertzberger at his most informal and quirky - deliberately creating a populist and informal setting for culture in an ancient city. It's blue jeans again, the rejection of formality, in order to create a "participative" architecture for the people - totally the opposite of the plush and the marble of nineteenth century high culture. Admirable in intention, the Music Centre's similarity in materials to the London South Bank Arts Centre makes one wonder whether something less aggressively programmatic might have become more popular.

But then for Hertzberger the programme is always the thing. His architecture when it is successful - and all the examples listed above are considerable artistic feats - works not because it is elegant, but because it is obsessive, driven by an overriding desire to achieve, with limited resources, a programmatic idea. In fact only when Hertzberger is driven by one of the great programmes of the Dutch Modern tradition - "Structuralism", "Participation", the "In-between Realm", "Ordinariness" - is he able to transform his harsh, sternly puritanical, and unchanging vocabulary of tartan grids, prefabricated frames, penetrating voids, glass blocks, bent metal light fixtures, concrete blocks into an architecture which is touching and musical and conveys his meaning.

Ideas and the opposite

Hertzberger's *oeuvre* is not enormous but some of it is banal. Examples include his low cost housing. Is it cost restrictions or is it the absence of a driving architectural idea which make projects like the Haarlemmer Houttuinen scheme (1978-82) or the Documata Urbana housing Kassel indistinguishable from the work of English community architects like Hunt Thomson or Levitt Bernstein? Another extremely important example is Sociaal Fonds, the Ministry of Social Affairs in the Hague completion 1990. Sociaal Fonds can be seen as Centraal Beheer without the genius. All the complexity of construction and of section is there, and all the energy, but not the resolution - and above all not the big idea.

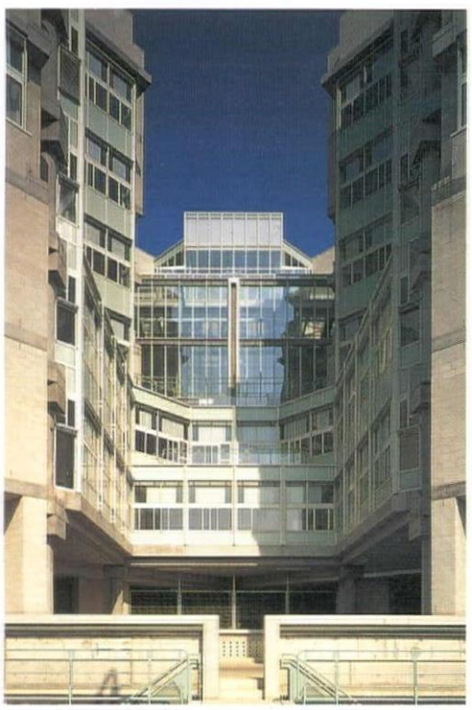
There is a clue here which helps us to understand the special nature of Hertzberger as an architect - and also, because he is such an unreconstructed modernist, about the modern movement itself. The chief reason that Sociaal Fonds disappoints some critics is not so much that the programme is wrong - in fact the high proportion of individual office cells is probably highly appropriate for a Dutch government office in the last decades of the twentieth century - but because such an a social programme was not a wild enough or marginal enough idea to challenge Hertzberger's imagination. Rationality, alone, as Aldo van Eyck pointed out over 40 years ago to Team 10 at Bridgwater, is not enough.

The greatness of Centraal Beheer, Hertzberger's finest achievement, is not that the problem was typical or that the brief was right but that it is a building driven by a passionately held idea - an idea that bordered, even at the time on the implausible. But such an idea, and such an architect! □

Atelier Kinold

Roof gardens adjoin the office squares at intermediate levels.

Ministry of Social Affairs, The Hague



One of two pedestrian entrances from the tram station. At this level the lower floors cross the chords of the cruciform blocks to produce rectangular courtyards.

The site

The site is located directly opposite the suburban railway station, Laan van Nieuw Oost Indië, in The Hague; it is surrounded by roads and tramlines (the tram makes a loop here before retracing its route), and consequently there is very little room left around the ministry. The only buildings originally on the site – a semi-detached house and a petrol station – were left standing. They are situated at the eastern extremity of the site and were not in the way, while the discrepancy in size and scale, though considerable, did not call for their demolition. On the contrary, there was every reason not to avoid such a contrast.

In addition to garaging for 336 cars for the ministry itself, the building accommodates parking for 85 cars for the railway station. Some parking zones are situated on the side facing the railway tracks, so that the offices overhead have an unobstructed view over the railway embankment. The same principle has been adopted on the other side of the building, which looks out over areas of housing.

The form of the building

The point of departure for the building was to keep it as low as possible, so as to reduce its domination of the surroundings. This resulted in a relatively deep building volume. In order to avoid interior courtyards and yet to position as many work spaces as possible along the periphery of the building, the external façade was angled inwards at regular intervals.

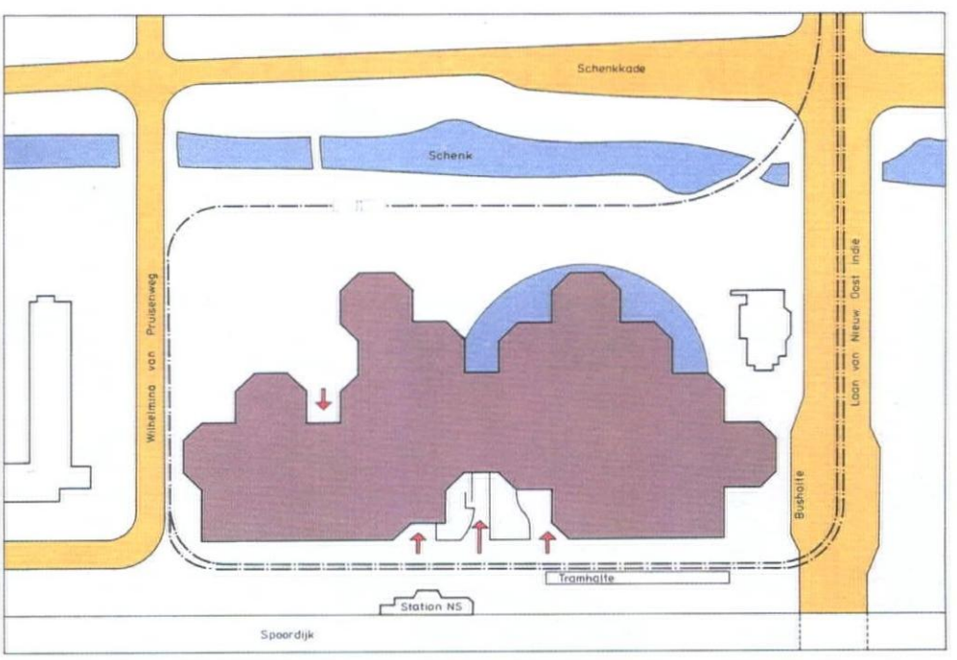
The building volume is divided up into several more or less separate structures, grouped next to and opposite each other along an elongated central zone. Each of these "office blocks", consisting of a number of interconnected octagons, can accommodate one or more departments all of which are directly accessible from the central zone.

The central zone

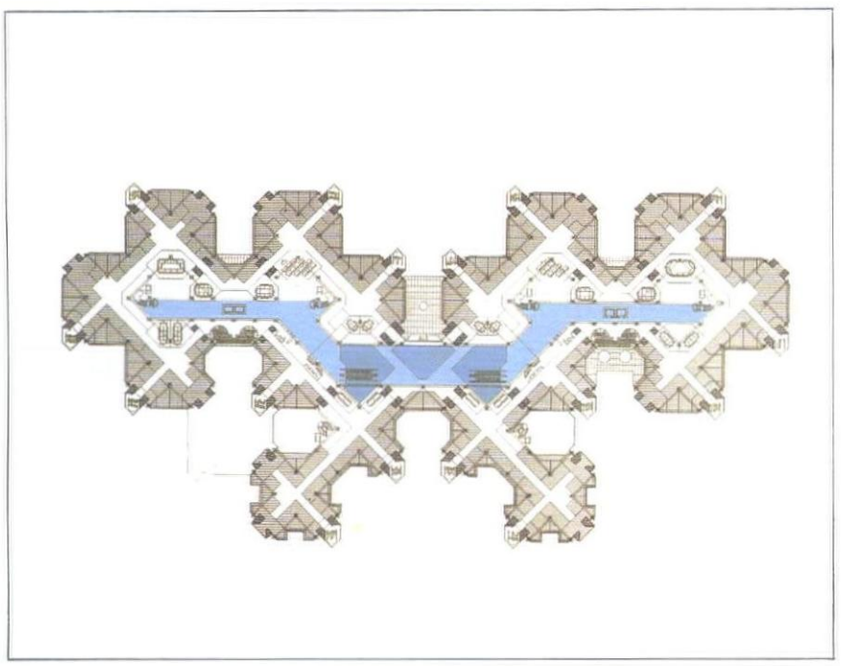
The spatial backbone of the ministry is the hall extending from one end of the building to the other across several storeys; it is the main artery in which is located all communal facilities, such as lavatories, conference rooms and coffee counters. The street-like character is intensified by the glass roofs and direct access to the terraces which are open to everyone in the building.

Everyone passes through this central zone at one time or another: whether entering the building or going from one department to the next, this is where people encounter each other either by chance or by design. In traditional buildings the different spaces are connected by corridors, which makes it almost impossible for chance encounters to take place, except in a restaurant area. The central zone, which removes the strict separation between different floors and thus spatially determines the entire internal organisation, is therefore the key to the building as a whole: it encourages social interaction, and discourages the kind of situation where everyone tends to stick to their own room or department.

Social interaction is not only important on the level of temporary leisure and relaxation from work,

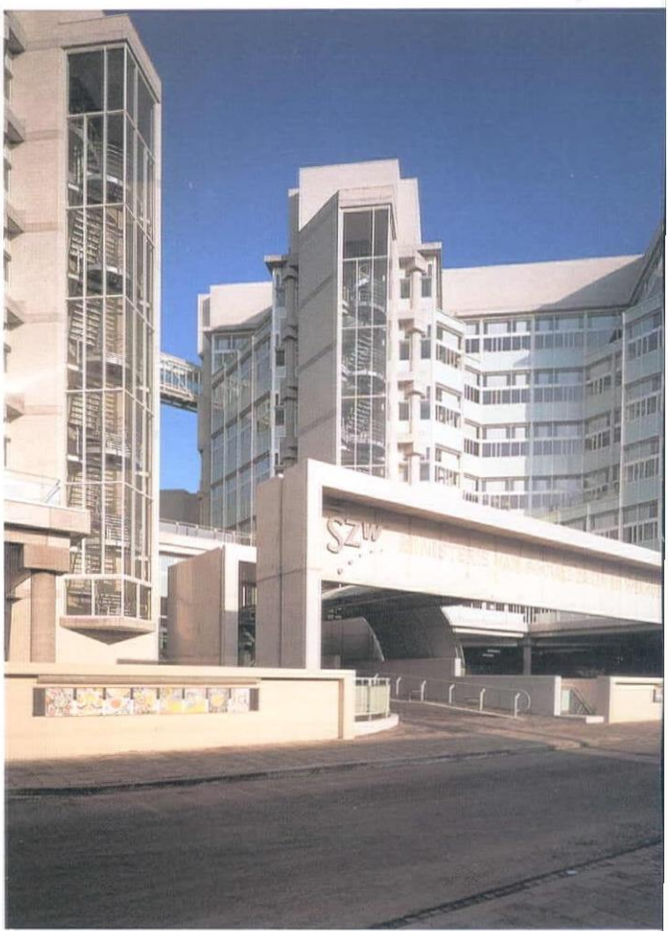


Block plan of the Ministry building showing canal, lake and railway and tram stations in close proximity to main entrance.



Plan of upper floors of the Ministry showing diagonal grid of corridors and the central atrium with its dogleg progression around the main entrance.

The main entrance to the complex with its concrete portal and tubular tunnel at ground level. The offices are raised above the service and parking level, with their glazed stair towers prominent all around the perimeter.



Robert Oerlemans/Joop van Reeken Studio

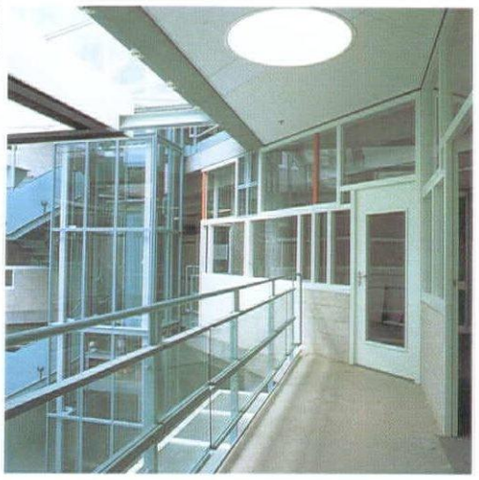
An aerial view of the Ministry showing its complex interlocking planform and the skilful interpenetration of courtyards between the cruciform office blocks.

KLM Luchtfotografie

van der Vlugt & Claus

The ministry complex seen across the Schenk canal to the north. The area between the building and the canal is landscaped.

Jan den Hengst



Office walkways skirting the atrium at high level.

it serves an intellectual purpose, also, as everyone knows who has encountered a colleague purely by choice and discovered that his problem was not so difficult to solve after all. This is how the spatial organisation of a building can actually offer positive conditions for communication.

The main entrance

The entire building has only one entrance which is security controlled. Because the building screens off the railway station from the residential neighbourhood it might have been a good idea to have a public way cutting across the building, eg in the middle of the long façade, but this was considered unacceptable. All that is left of this plan is that the potential is there for such a passage to be created if the need should arise in the future. For this reason the most we could do was to make the only central entrance function optimally, so that there is no hierarchical distinction between the access routes for car users from the car park, bicycle owners from the bicycle park, and people arriving on foot. A primary feature is the pedestrian route diagonally opposite the station exit and tram stop, which bridges the open car park and which stairs lead up to the main entrance to the building. Taxis and ministry vehicles can drive up to the entrance. Everyone approaches the central reception counter, and passes a security barrier before entering the rest of the building.

Internal circulation

From the main entrance escalators lead to the left and right sides of the building, and from there routes lead, via six free-standing staircases and lifts, up to the different extremities of the building. In addition there are large central lifts linking all floors and also enabling movement of goods within the building. The emergency staircases are situated on the periphery of all the departments.

The "office blocks"

Each office unit consists of one or more successive or superimposed octagonal islands of ± 420 m^2, in which the space can be arranged in many different ways. Each unit accommodates an average of 32 people in rooms with one, two or three work-areas.

Although the building was designed primarily for cellular offices, it lends itself to more open organisational forms where and when the need arises.

The island office units are organised in such a way that there is always an open area where the corridors widen. This yields an extra space which can be used in different ways in different islands. The corridors have been kept as short as possible, being longer than strictly necessary to link adjacent islands. All the doors in the office areas are the sliding kind. This not only enables larger openings to be created than with conventional doors, but means that they will more likely be left open, thus enhancing the open character of the island. Furthermore the extra space obtained by installing sliding doors enhances the limited floor-space of the offices.

Each of the office islands, occurring as they do in three forms, becomes smaller as the building rises, since more and more space is pared off for the large number of balconies. On the exterior this creates niches in the building mass, which appear to bisect the volume. The uppermost office floor is so reduced in area that it manifests itself as a diagonal.

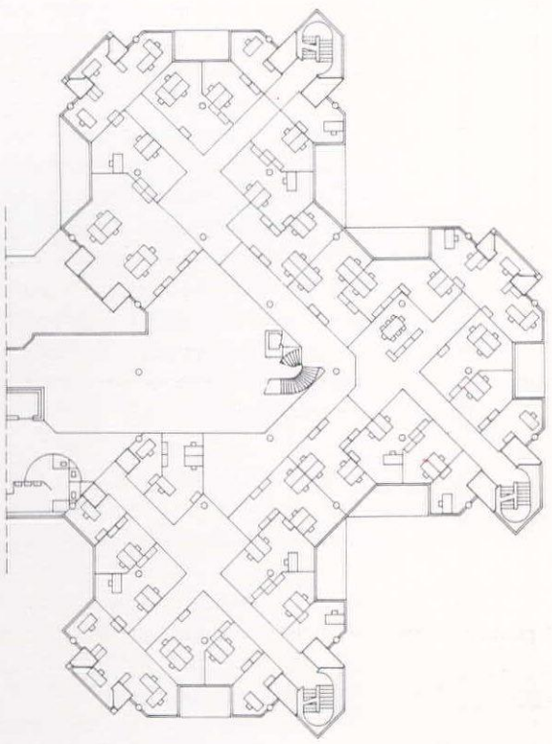
This effect of shifting direction from the bottom upwards culminates in the roof which forms a solid spine. The longest façade of the building ± 187 m is articulated into two symmetrical halves, each of which is subdivided again by the deep recesses. This gives the most massive side its rhythm of four

A section of the toplit central area showing rooflights above and internal stair towers.

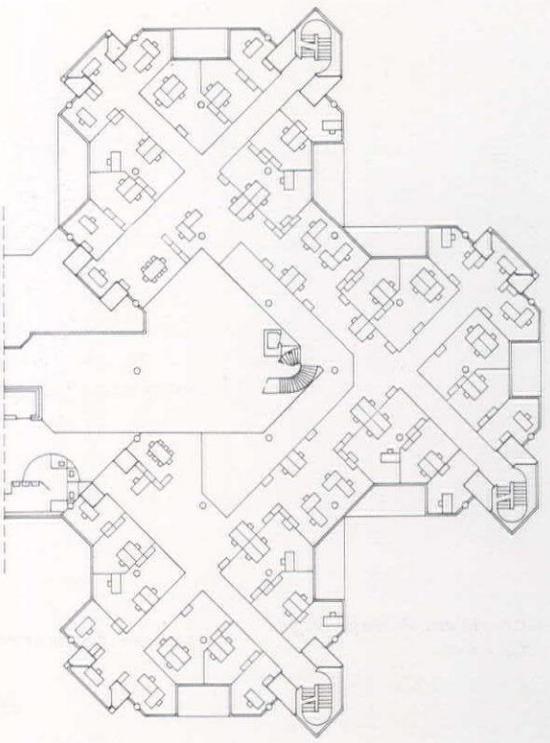
Robert Oerlemans/Joop van Reekum Studio

An office interior showing the 'street lighting' used in the central atrium area.

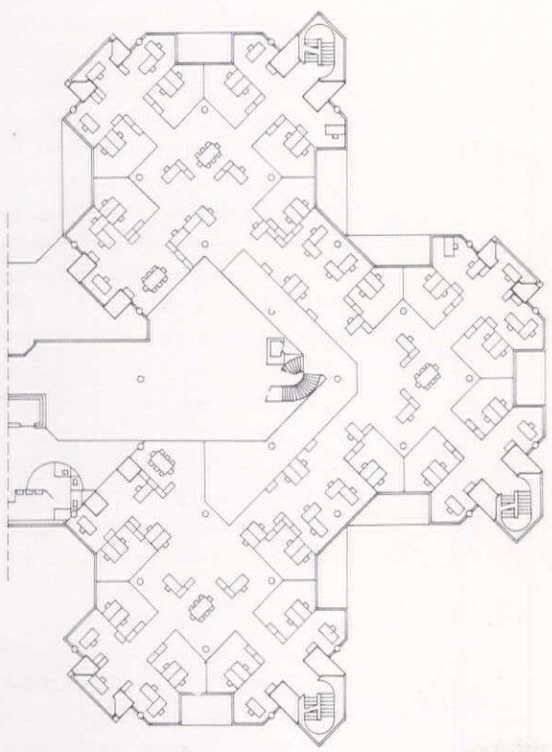
The flexibility of the Ministry building is shown by the variety of office layouts below. Using the same floorspace and the same sector of the plan, they range from a completely cellular arrangement to 100 per cent open planning.



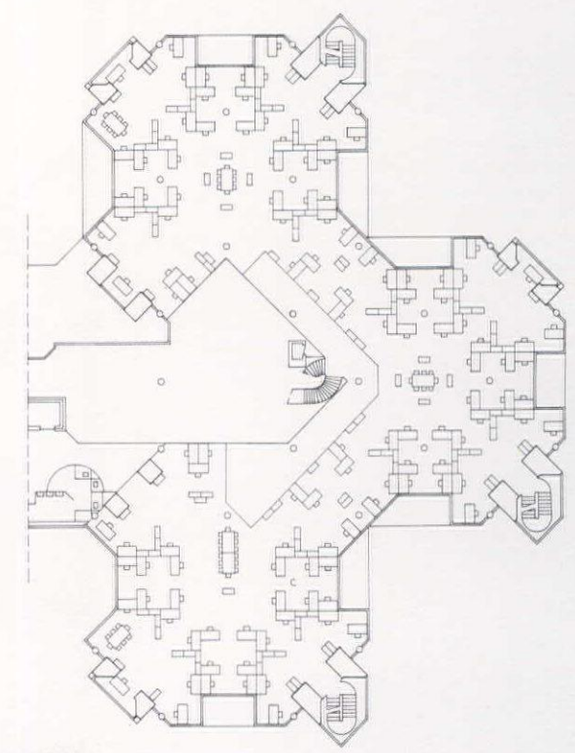
uitsluitend kamers/ only rooms



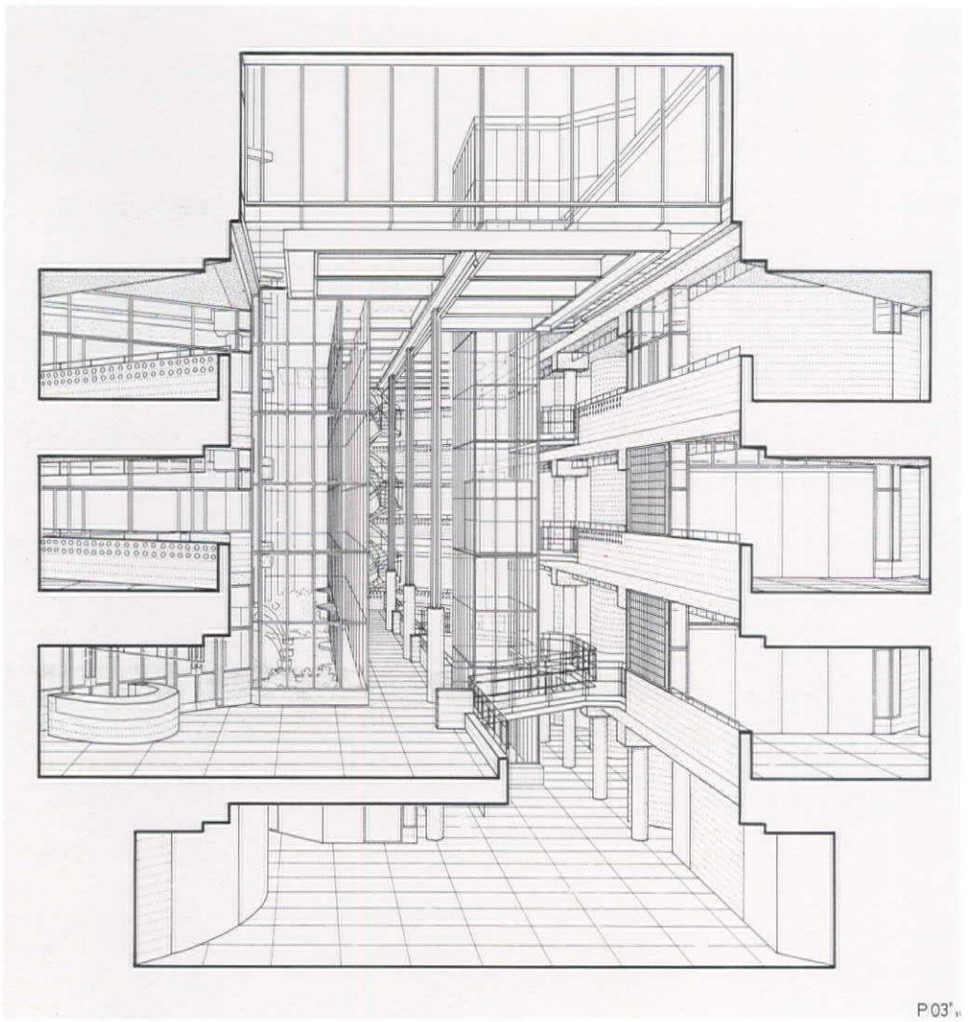
30% open kantoren/ 30% open offices



60% open kantoren/ 60% open offices



uitsluitend open kantoren/ only open offices



P 03'

Cutaway perspective showing offices above ground floor level either side of the central toplit atrium space. The expressed structure of the building is the common thread that makes the complex plan legible and thus expressing the order of the whole.

Atelier Kinold

Rooflights allow daylight to penetrate into the central space and finally, through glass floors to the lowest levels. The offices connect via decks and bridges.

projecting "towers" separated by space, in the sequence a, b, a. On the other side of the building the rhythm is more complex and hence less directly legible; here, the different heights of the building sections are visible next to and behind each other.

The form of the building is primarily a symmetrical structure. The way that structural framework is filled in follows this symmetrical principle only where it is in fact obvious to do so, as with the office units. Wherever the programme or organisation calls for a deviation from the principle, the appropriate new "logic" is obeyed so that, as in the human body, there is not much symmetry to be discerned on the inside, while even on the outside there are many more deviations than there appear to be at first sight.

Construction

From a constructional viewpoint the building is a regularly constituted skeleton made up of a large number of identical prefabricated concrete elements, which are assembled on site. These elements have been combined in such a way that a repetition of similarly identical spatial units is obtained.

The main beams, all diagonally positioned, form a continuous service zone across all floors. The pattern has been chosen with a view to creating consistently square spaces as secondary zones outside the primary zone of the main structure.

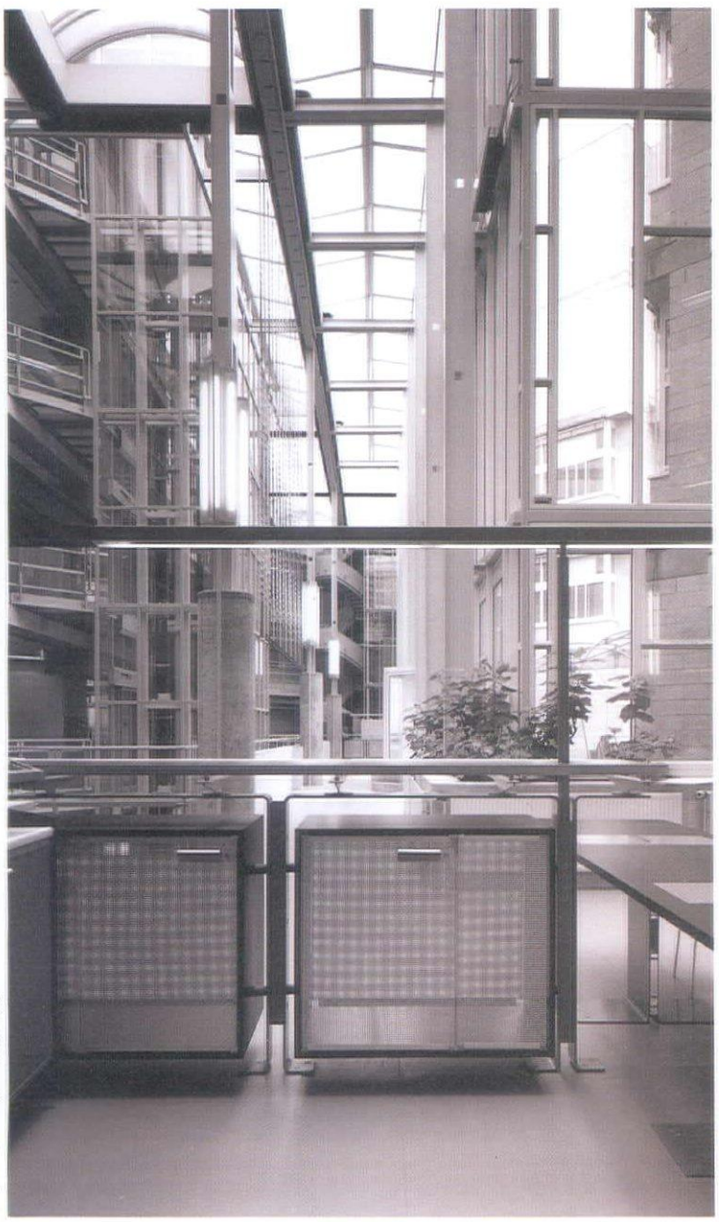
Thus the building structure makes it possible to achieve any desired office organisation. The regular column spacing offers much scope for variation in readjustment, so that the building will prove to be relatively adaptable to future needs.

The structure is the architectural common thread running through the entire complex, making the different components legible and thus ordering them. Apart from the spatial division and organisation, the structure also provides the starting-point for the services, in a pattern of ducting throughout the building that is wholly integrated into the sequence of construction.

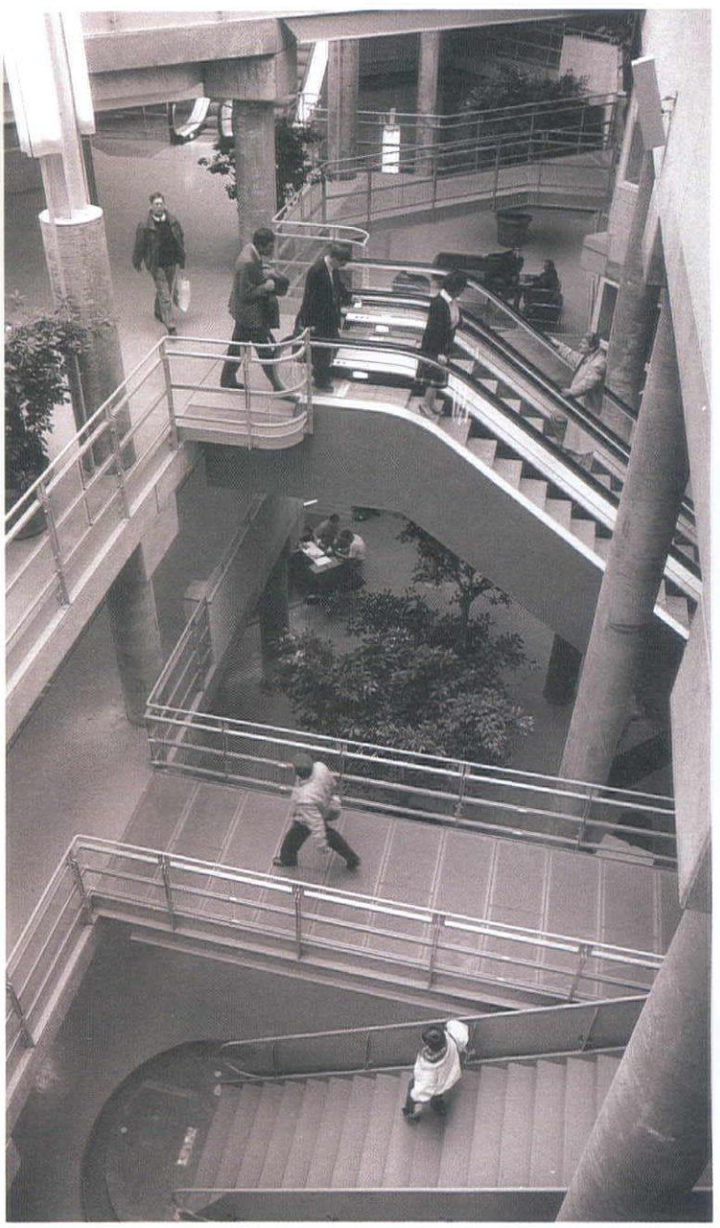
The way the central hall as a spatial main artery cuts through the entire length of the building is therefore followed by the direction of the secondary beams which, although smaller than the main beams, perform a function that is at least as important from a visual point of view.

One of the most intriguing design themes of this building is the integration of these two elements. The problem boiled down to making the linear beams and the diagonal beams come together in such a way that the latter would ensure a convincing and continuous lengthwise definition of the space. The solution to the support of beams coming from

Interior of central space at first floor level showing rooflights, glazed screens and fair faced block walls.



The main entrance with 'street lighting', glass floored bridges and escalators allowing the free interpenetration of space.



Robert Oerlemans/Joop van Reeken Studio

eight directions was provided by square stanchion - heads, which, forming "table-tops" one metre square, can accommodate beams from any direction. The intersection points, 20 of which were needed to be able to meet all the demands of the building, were individually and collectively designed as a single plastic theme. The heavy main beams coming together from different directions, and the lighter secondary beams, are joined by profiling the higher beams in such a way that they match the dimensions of both types. The consequence of this is that the direction of the central hall is just as strongly manifest as that of the main beams of the building. The intersections thus sum up the entire structural principle, and represent the structural and constructional concept of the building as a whole. They are the most important elements of the building.

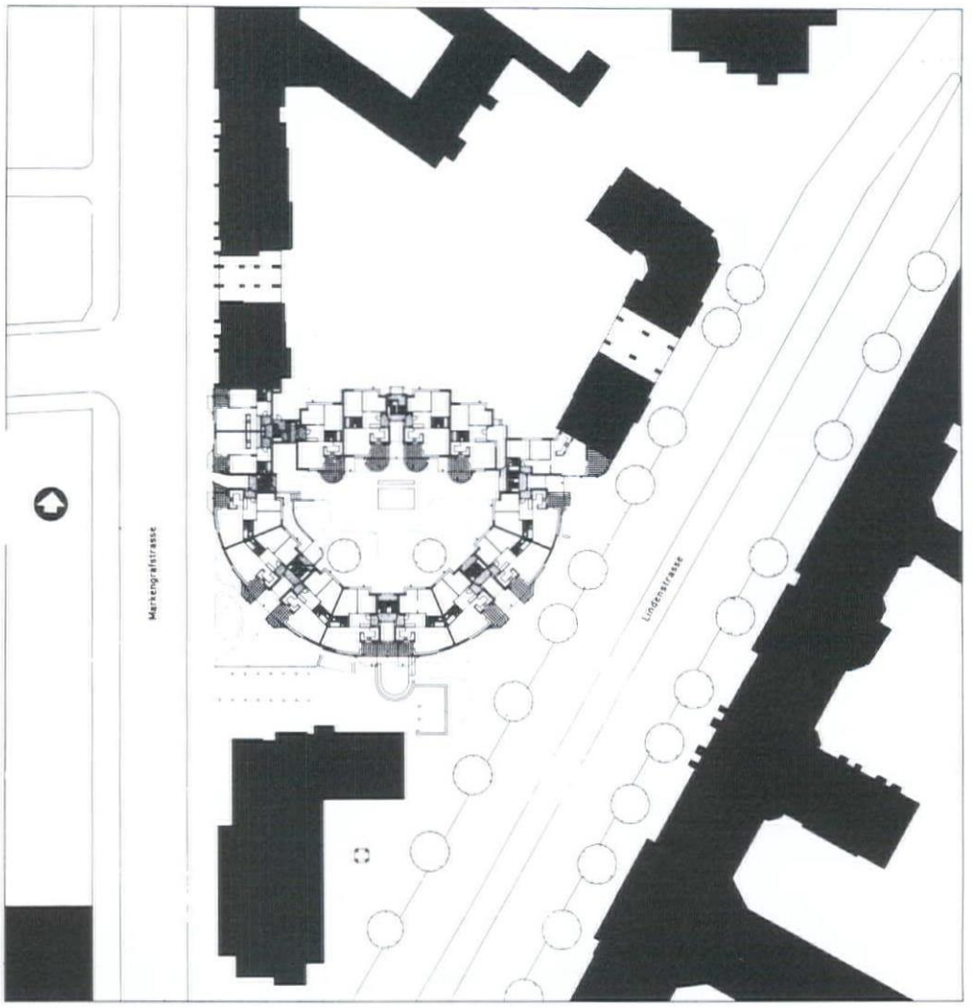
Thanks to the large-scale repetition elements and the possibility of extending floors at will - wholly or partially - the building was eminently suited to prefabricated concrete construction. Another advantage was that the quality of the finish that could be obtained was high enough for the elements to be exposed without applied finishes. The parking space beneath the front of the building uses the same column spacing as the office floors. The decision to adopt a system whereby pre-fabricated components could be assembled on the building site represented a considerable cost saving, and this in turn made it feasible to erect such a complex structure within a limited budget. □

LINDENSTRASSE HOUSING PROJECT, BERLIN 1984-1986

Built under the auspices of the International Building Authority in West Berlin prior to the reunification of Germany, this 48-unit apartment complex is set around a courtyard penetrated by public walkways on a tapering site between the Lindenstrasse and the Markengrafstrasse. The formation of the apartment block permits a separation of the established building line from the church occupying the corner site. A concrete frame structure, with rendered and painted walls, the complex is extensively glazed on both inner and outer perimeters. Access to the apartments is by way of open public stairways which are designed to act as "vertical walkways" linking the four storey apartment units with the rooftop gardens above and the communal courtyard and car parking below.

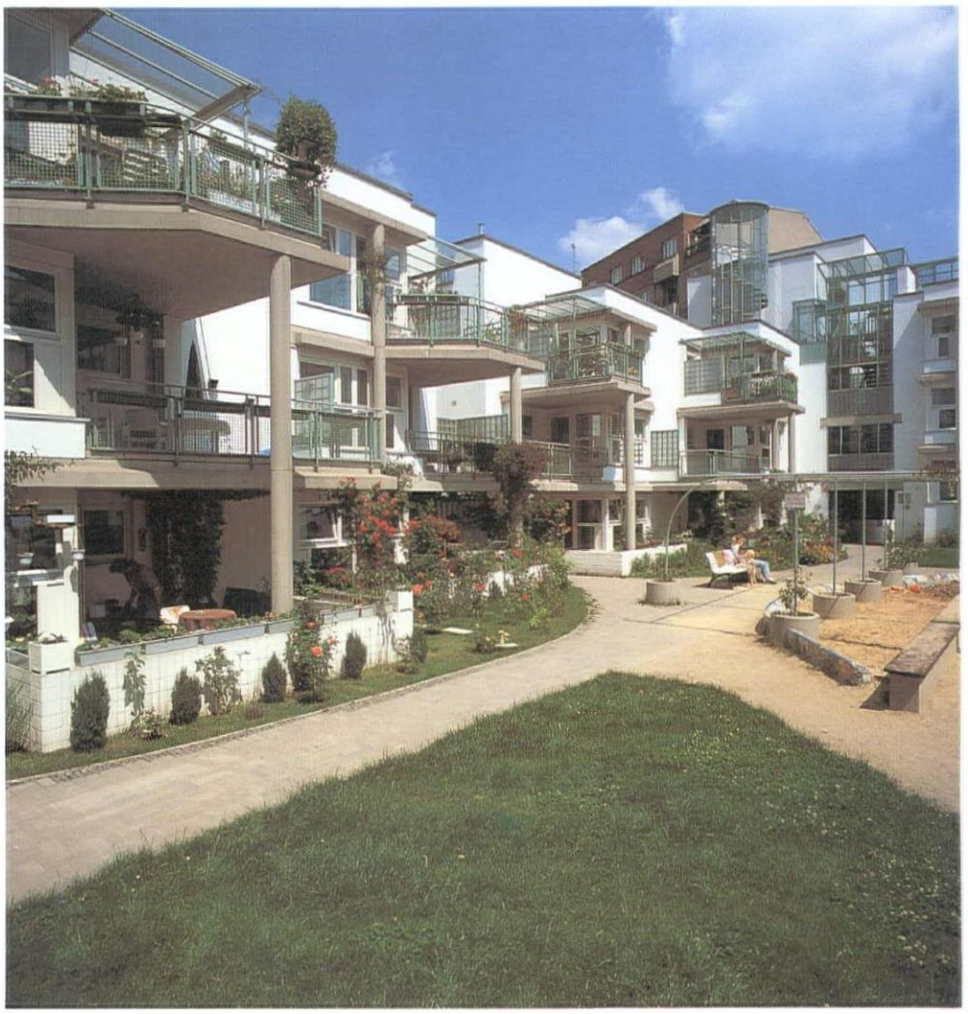
The apartments are planned on one level with varying balcony sizes. Built in the tradition of German public housing that began under the Weimar Republic, the Lindenstrasse apartments were designed in association with the Berlin architects Hinrich and Inken Baller.

Site plan.



Exterior view of apartments.

Uwe Rau



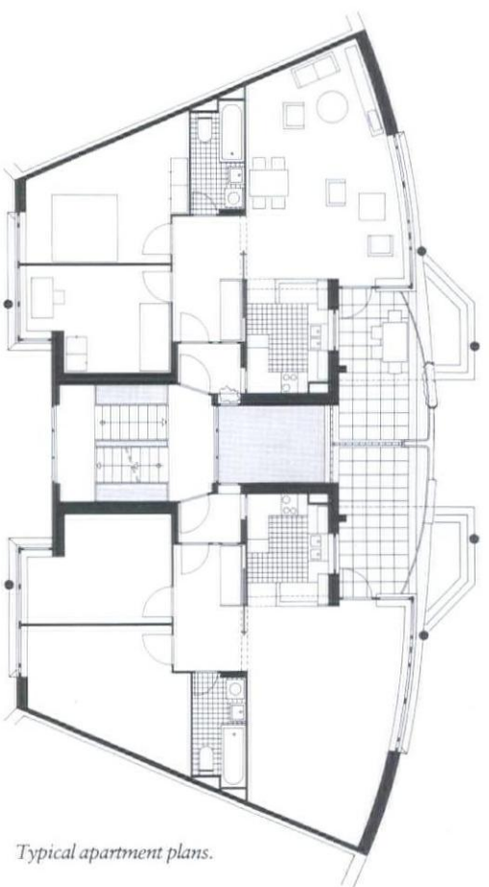
View of interior courtyard.

Uwe Rau

View of interior courtyard.

Uwe Rau

Axonometric view from the south east.

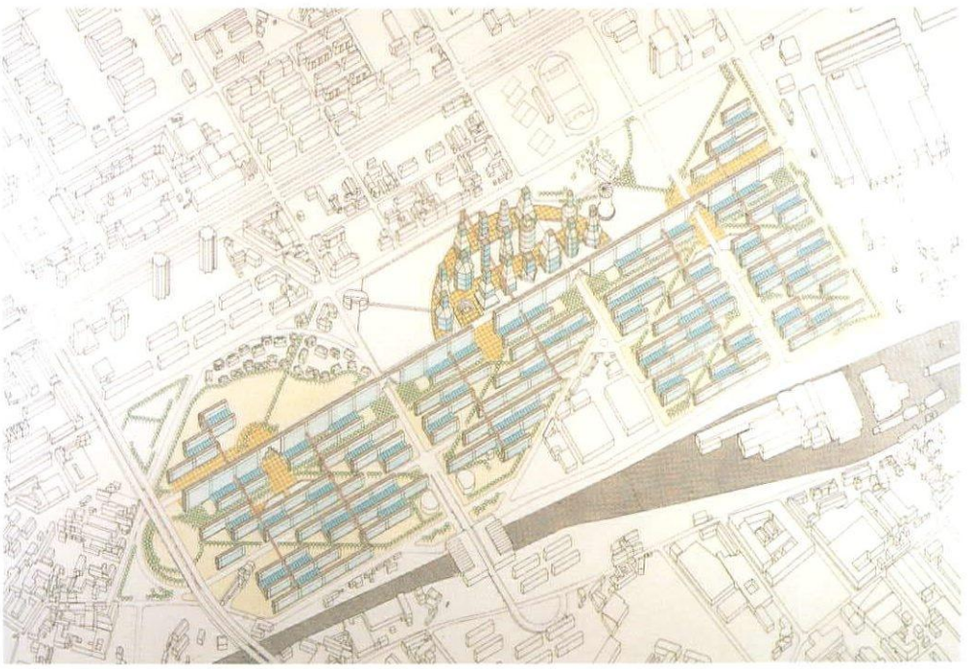


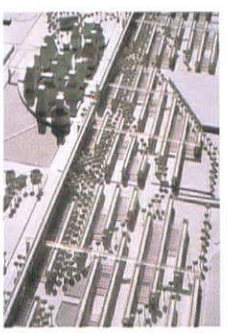
Typical apartment plans.

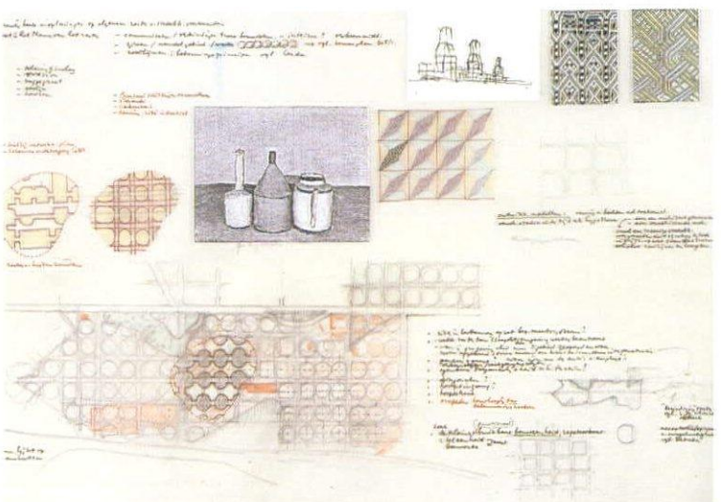
PIRELLI PLANNING PROJECT, MILAN 1986

This urban plan consists of a new system of building lines related to the grain of the existing city. Within the grid thus created it is intended that new buildings, a variety of building types and retained existing buildings can coexist in the same framework. The overall plan thus operates as a kind of urban textile weave whose "design" would emerge through the different linear emphasis of the rows and groups of buildings. The section of the the plan shown here covers 400,000 square metres of the city with a mixture of offices, university laboratories, apartments and light industry. The line drawings show a notional relationship between terraces and tower-shaped blocks with high level walkways. It is intended that this form of urban planning will encompass surface development and podium development by subtle changes of level, while certain traffic streets will be decked over.

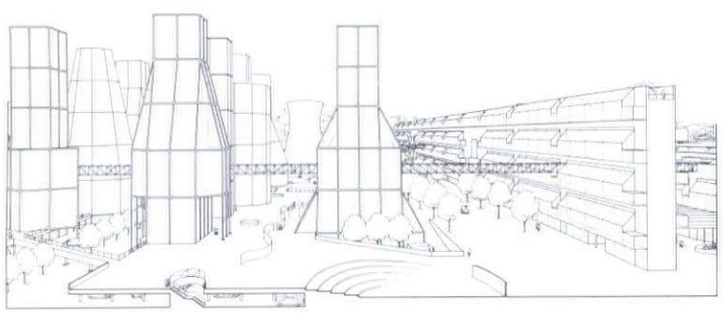
Plans, model and exploratory drawings showing the "weave" of 400,000 square metres of the city.

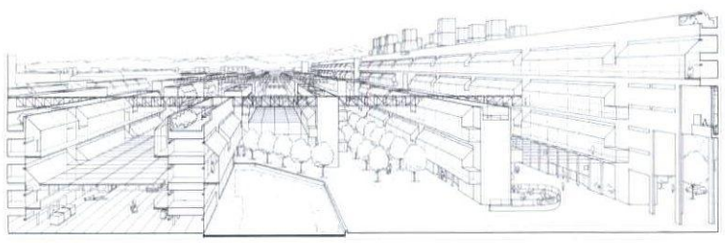


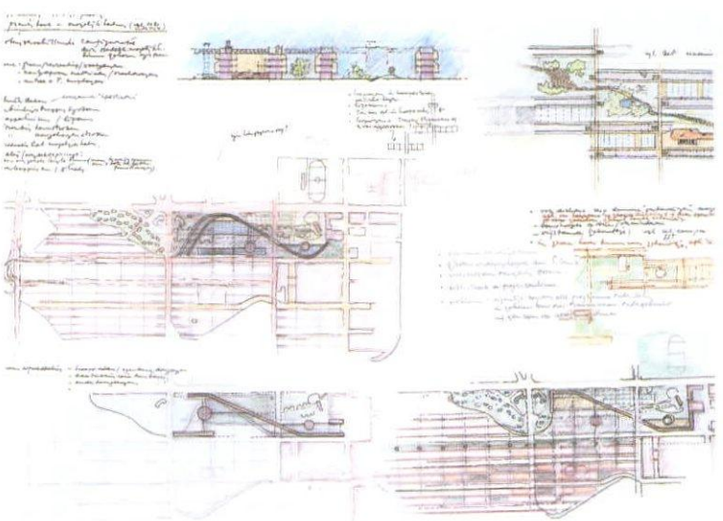




Proposed mixed development in a sector of the city. The three nearest towers were intended for the Pirelli corporation.

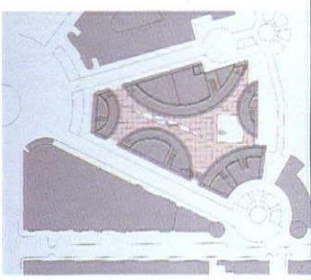






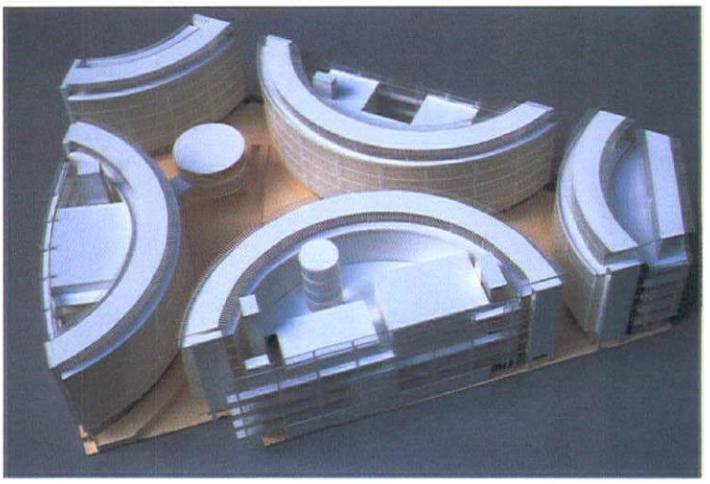
COLOGNE MEDIA PARK 1991

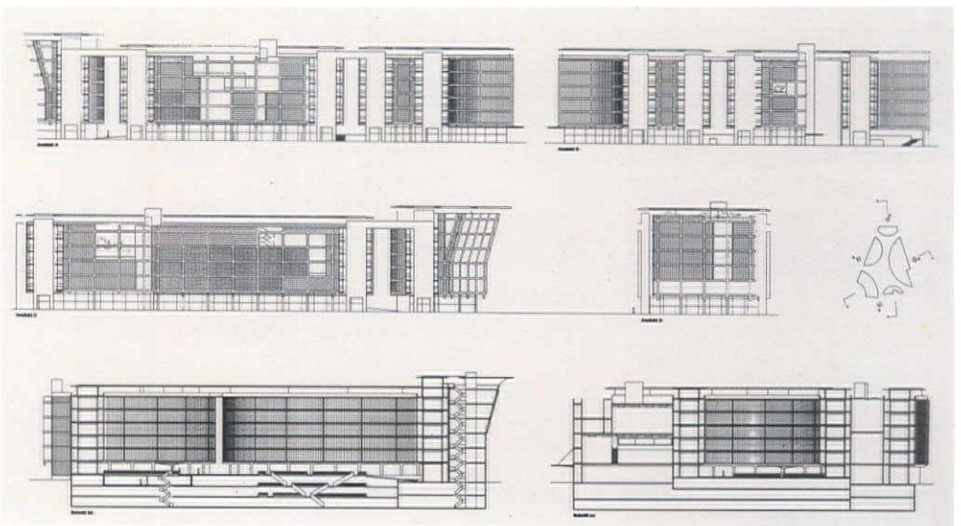
This competition entry for a large media centre lays emphasis on the creation of public spaces having a recognisable traditional form and access directly from the city street pattern. This is achieved despite the use of a plan form derived from segments of circles of different diameters. Within the five partially circular buildings the structural frames follow a square grid and, because the internal areas have the character of private secondary courtyards, they effectively create the rear façades of the buildings. The whole complex is designed so that shops are sited on the ground floor facing outwards, while office accommodation is confined to the interior. The studios and other large spaces are located in the inner courtyards, and apartments are sited above the office floors. A system of pedestrian integration ensures that movement is possible between buildings as well as from the periphery. Goods access to the complex is achieved through a basement floor level with separate goods lifts for the TV and film studios.



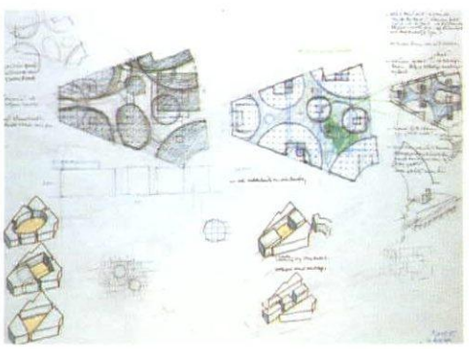
Above: Square structural grid and courtyards superimposed over an early version of the scheme.

Final "thin wall" design with large internal courtyards containing studios.

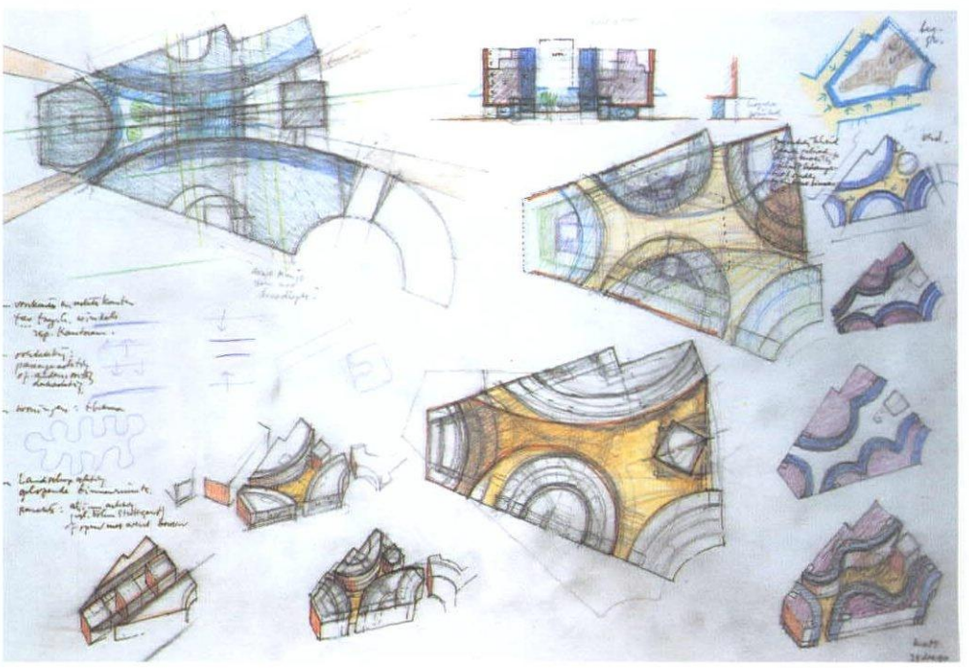




Elevations and sections of block 5 of the 5 block complex.

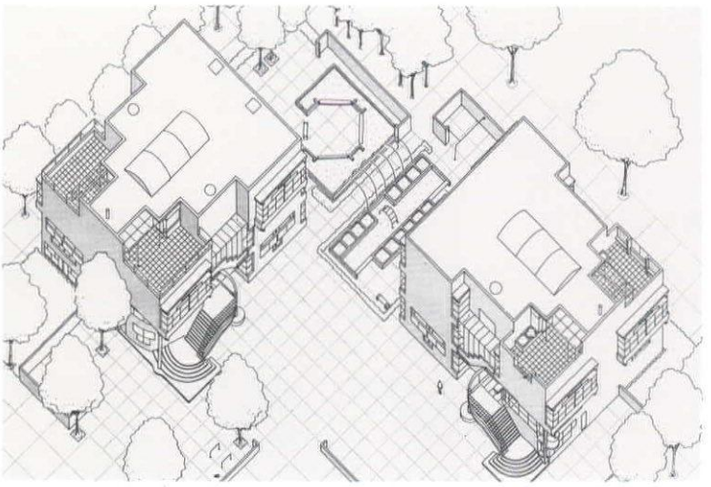


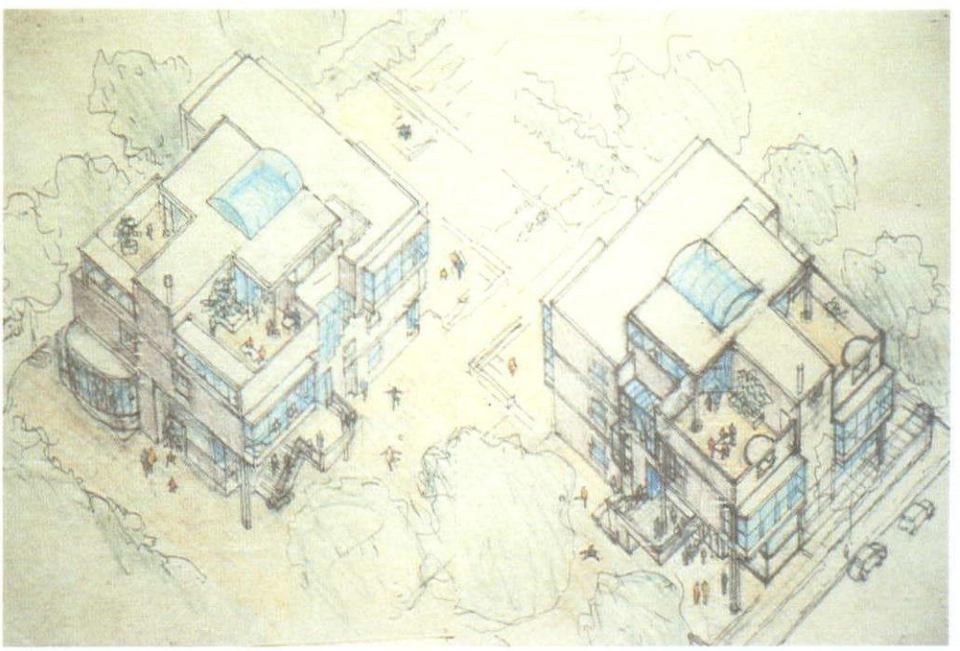
Early design sketches show "cookie cutter" effect of circular cutouts from existing city block.

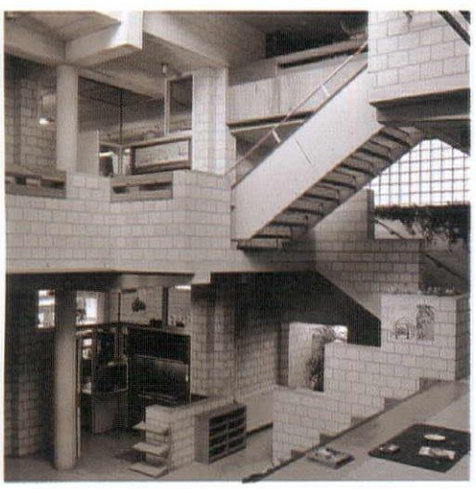


MONTESSORI AND WILLEMSPARK SCHOOLS, AMSTERDAM 1980-1983

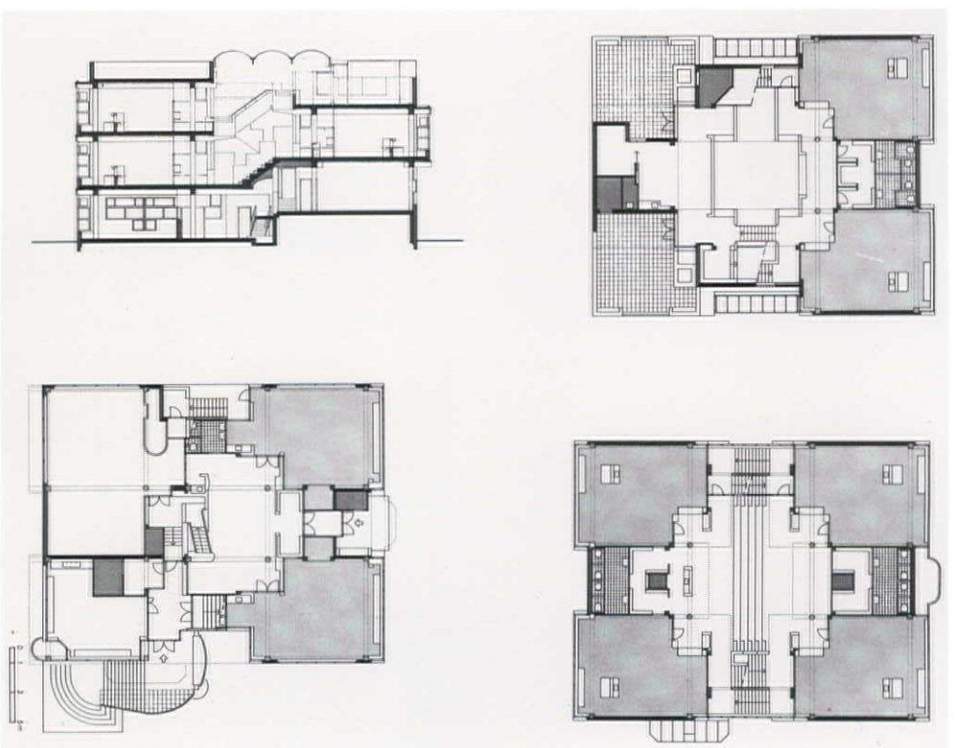
These two state primary schools were developed as part of a government research programme. With their attached kindergartens they were designed for a restricted corner site in a mature suburb of the city. They were deliberately designed to resemble large villas to conform to the low density development in the area. Both rectangular in-situ concrete buildings are largely closed to the exterior to reduce traffic noise and provide instead a large internal space above first floor level, top-lit from barrel vaulted rooflights. This interior volume is the central hall of each school, open to all levels and crossed by steps to act as informal seating. It is visible from all classrooms. Because of their different orientation the outside spaces around the two schools are articulated differently and the entrances on the different corners are approached in different ways.







The plain interior finishes of the two schools, with their fair faced concrete block and concrete environment, is transformed by the quality of light that penetrates through to the central hall from the rooflights, glass brick walls and windows.

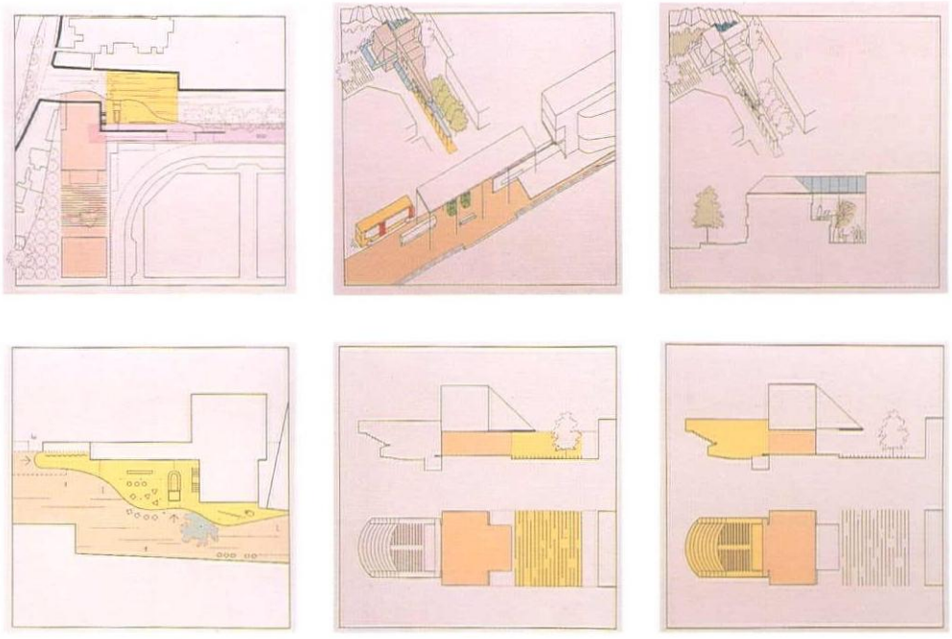


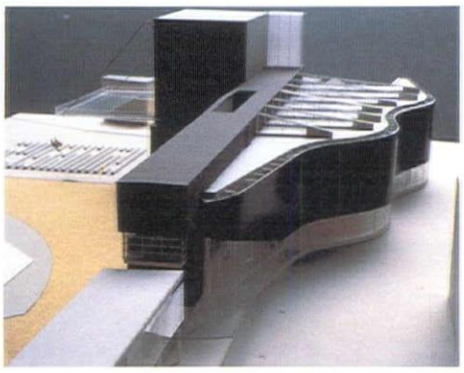
Floor plans and section of the Willemspark school show central hall and split level arrangement beneath rooflights.

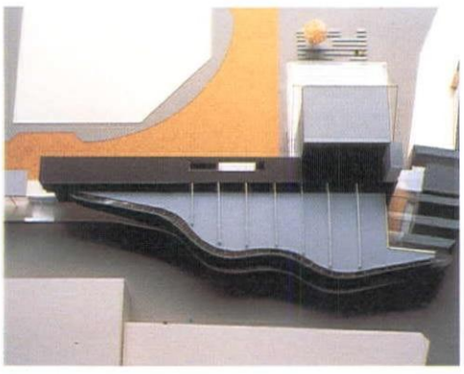
STADSTHEATER, DELFT 1991

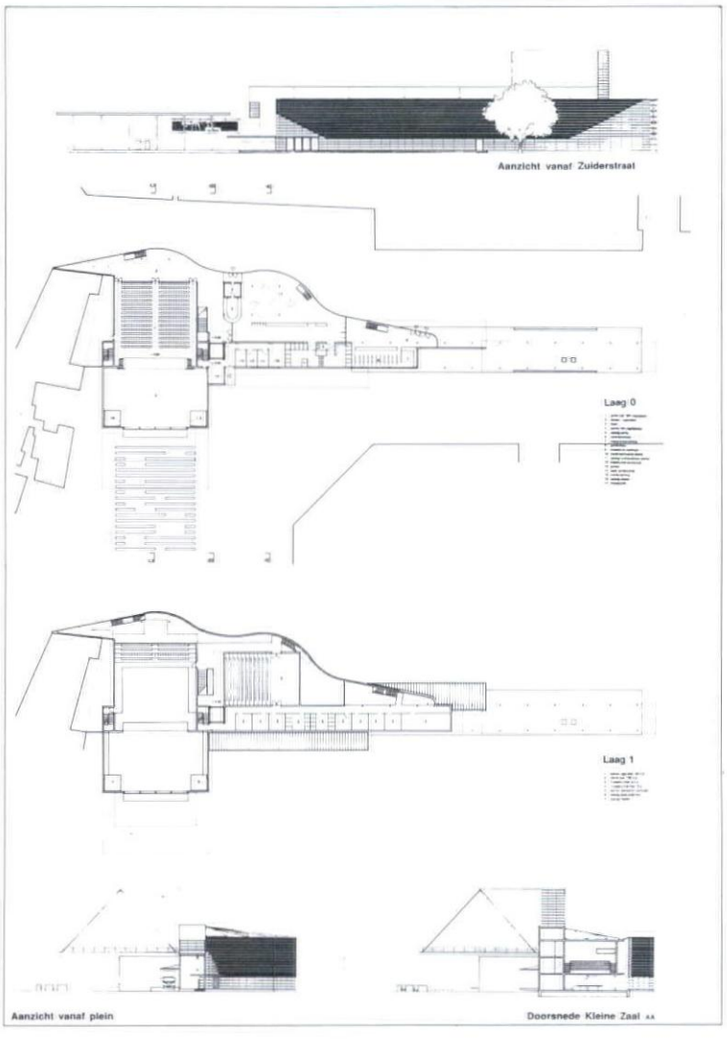
This project marks a strong departure from the rectangularity characteristic of Herman Hertzberger's earlier work, but only in the treatment of the theatre foyer and ancillary accommodation marking the outer façade. The main combined indoor and outdoor theatre building is of rectangular form and is sited at the junction of two streets, wrapping around a corner building and forming the visual terminus of a narrow linear park. The formal arrangement of the trees in the Zuderstraat breaks up as the glazed curvilinear northern wall of the theatre foyer bulges into it, and then reforms at 90 degrees, oriented north and south along the line of the Achterom.

The auditorium itself has a tension-supported canopy at the rear that shelters the outdoor stage. A covered service entrance for vehicles serves both backstage areas and is concealed by the long foyer accommodation wing. Various colour schemes and means of shielding the outdoor theatre, as well as distant access portals are explored in the drawings.





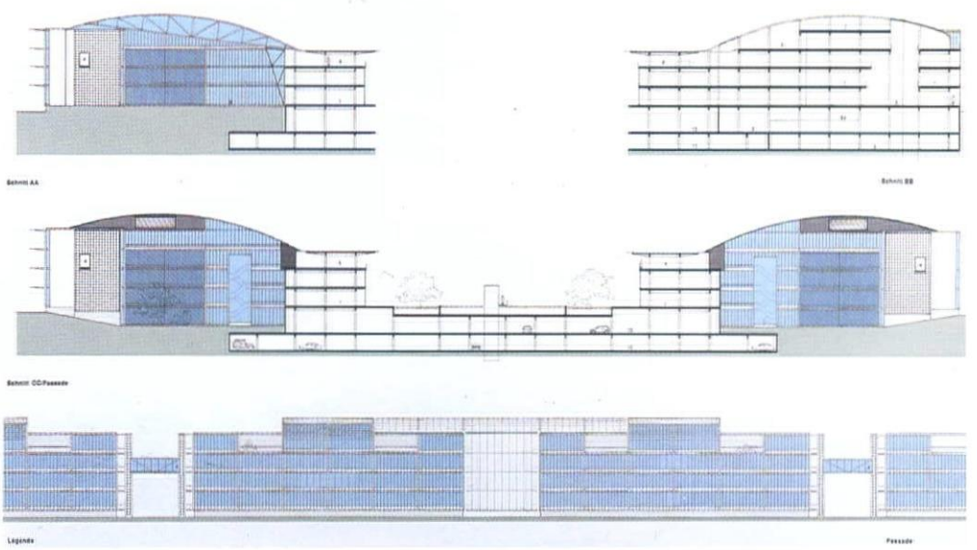


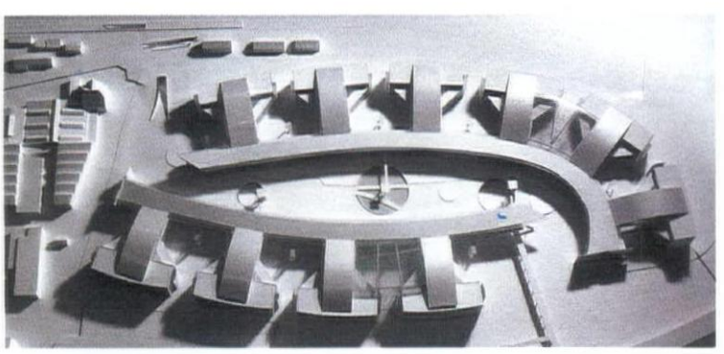


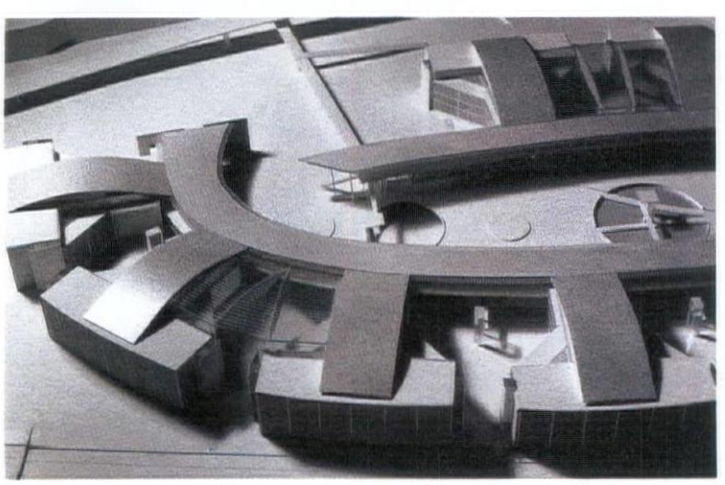
TRANSFORMATIONS OFFICE COMPLEX, ZURICH, 1991

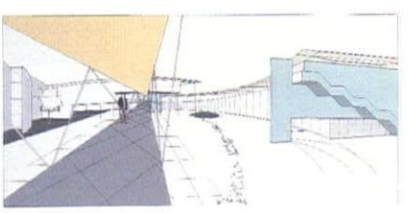
This competition project consists of a double bank of ten almost identical office buildings connected to two curving spines. Located in the Wallisellen district of the city, next to a complex of overpass roads, the design makes the best use of a difficult backlands site by creating a sheltered public area between the two spine structures. At the same time it maintains the maximum possible flexibility in the disposition of its office floorspace. Individual four-storey blocks can be combined into a single complex for one tenant, or subdivided into as many as ten separate businesses. If necessary each office building can have its own separate main entrance and the internal movements of the staff can be customised by the variable siting of lifts and staircases.

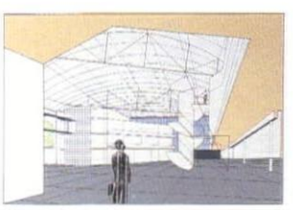
The service roads serving the ten office buildings run beneath the central enclosed area and emerge into the Geerenstrasse and Richtistrasse by way of tunnels.

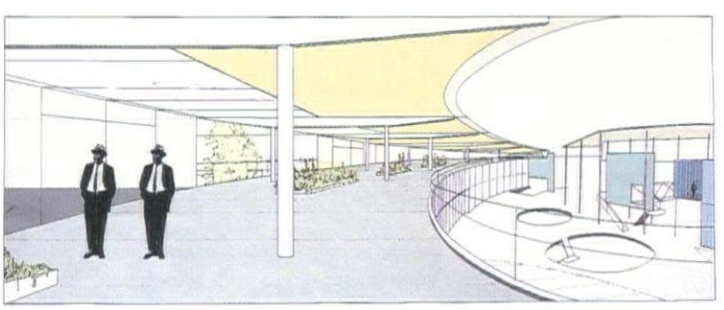












Model pictures show differing degrees of integration between office buildings by means of atrium roofs. Views from the high level pedestrian access routes can be clearly seen.

The architect's sketches show how connecting access through the curving spine and views of enclosed public area are achieved.

HERMAN HERTZBERGER: A Biography

1932 Born in Amsterdam
1958 Graduates from Delft Technical Unviersity
1958 Sets up his own office
1959-69 On editorial board of the Dutch architectural magazine Forum (with Aldo van Eyck, Jaap Bakema and others)
1965-69 Lectures at Academy of Architecture in Amsterdam
Since 1970 'Extraordinary professor' at Delft Technical University (now Delft University)
1979 Member of advisory committee for award of the Merkelbach Prize 1979
Since 1986 'Extraordinary professor' at Université de Genève
Since 1990 Chairman of the Berlage Insitute, Amsterdam

Guest Professorships

1966-67,
1970-77,
1980 M.I.T., Cambridge (U.S.A.)
1968 Columbia University, New York (U.S.A.)
1969-71,
1974 Toronto University (Canada)
1978 Tulcane University, New Orleans (U.S.A.)
1979 Harvard University, Massachusetts (U.S.A.)
1981 University of Pennsylvania (U.S.A.)
1982-86 Université de Genève (Switzerland)
1987 Various universities in the U.S.A.

Awards

1968 City of Amsterdam Prize for Architecture for the students' house in Weesperstraat
1974 Eternit Prize for Centraal Beheer office building at Apeldoorn
Fritz-Schumacher Prize for his complete oeuvre
1980 A.J. van Eck Prize for Vredenburg Music Centre, Utrecht
Eternit Prize (honorary mention) for Vredenburg Music Centre
1985 Merkelbach Prize, architectural award by the City of Amsterdam; for the Apollo Schools
First prize in competition for Filmhaus Esplanade project in West Berlin
1988 Merkelbach prize for De Evenaar school in Amsterdam
1989 Richard Neutra Award for Professional Excellence; Berliner Architekturpreis awarded by West Berlin for the LiMa housing project on Lindenstrasse/ Marktgrafenstrasse in Berlin
1991 Premio Europa Architettura for his complete oeuvre

Executed Projects

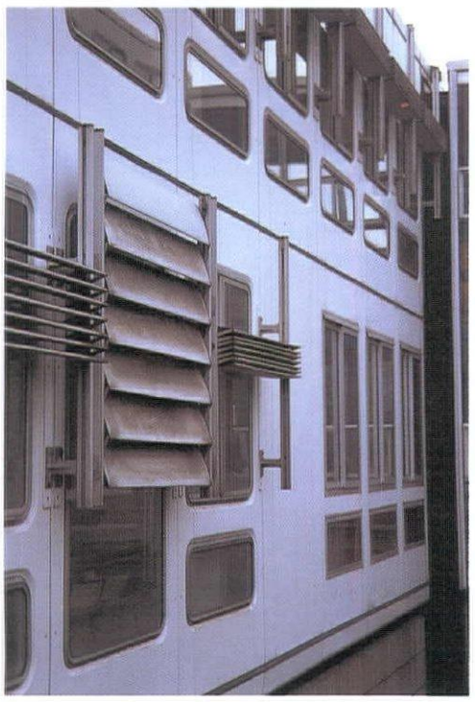
1962-64 Extension Linmij laundry, Amsterdam
1959-66 Weesperstraat Student Accommodation, Amsterdam
1960-66 Montessori School, Delft
1967 House conversion, Laren
1968-70 Extension Montessori School, Delft
1969-70 Diagoon Dwellings (experimental houses), Delft
1968-72 Centraal Beheer, Office Building, Apeldoorn
1964-74 De Drie Hoven, Home for the Elderly, Amsterdam-Slotervaart
1972-74 De Schalm, Neighbourhood Centre, Deventer-Borgele
1973-78 Vredenburg Music Centre, Utrecht
1978-80 Housing, Westbroek
1977-81 Second extension Montessori school, Delft
1980-82 Design of parts of the Vredenburg Square, Utrecht
1978-82 Haarlemmer Houttuinen Housing, Amsterdam
1979-82 Documata Urbana Dwellings, Kassel-Dönche (Germany)
1980-83 Apollo Schools: Amsterdamse Montessori School and Willemspark School, Amsterdam
1980-84 De Overloop, Home for the Elderly, Almere-Haven
1982-86 LiMa Housing, Berlin-Kreuzberg (Germany)
1984-86 De Evenaar, Kindergarten and Elementary School, Amsterdam
1986-89 Het Gein, Housing, Amersfoort
1988-89 Schoolvereniging Aerdenhout Bentveld, extensi of 8 classes for Kindergarten and Elementary Schoo Aerdenhout
1989-90 Housing, Almere
1979-90 Ministry of Social Affairs, Office Building. The Hague

Unexecuted Projects

1968 Houses type Monogoon
1969 Town planning for an extension of Deventer, Steenbrugge
1971 Memorandum of objectives and criteria for renewal of the old city centre of Groningen, in co-operation with De Boer, Lambooij, Goudappel and others
1974 City centre plan for Eindhoven, with Van den Broek and Bakema
1975 Houses/shops/parking near Musis Sacrum (Theatre) as well as renewal of Musis Sacrum, Arnhem
Town planning consultant for the University of Groningen Proposal for a university library, involving a 19th century church, Groningen
1976 Institute for Ecological Research, Heteren
1977 Town planning Schouwburgplein (Theatre square), Rotterdam
1978 Library, Loenen a/d Vecht
1979 Extension 'NI Linmij', Amsterdam-Sloterdijk
1980 Building upon Forum area, The Hague Housing project, Berlin-Spandau (Germany)
1984 Extension Academy for the Art 'Sint Joost', Breda

Competitions

1964 Church, Driebergen
1966 Town-hall, Valkenswaard
1967 Town-hall, Amsterdam
1970 Town planning Nieuwmarkt, Amsterdam
1980 Town planning Römerberg, Frankfurt a.M. (Germany)
1982 Crèche, West-Berlin (Germany)
1983 Town planning Cologne/Mülheim-Nord (Germany)
Office building Friedrich Ebert Stiftung, Bonn (Germany)
Office building Grüner & Jahr, Hamburg (Germany)
1985 Office building Stadtwerke, Frankfurt a.M. (Germany)
Film centre (academy/museum/library, etc), West-Berlin (Germany)
Extension town-hall, Saint-Denis (France)
1986 Town planning Bicocca-Pirelli, Milan (Italy) Museum for paintings (Gemäldegalerie), West-Berlin (Germany)
1988 Housing project, Maastricht
Office building for Schering, West-Berlin (Germany)
1989 Building for national library 'Biblothèque de France', Paris (France)
Cultural centre with concert building 'Kulturzentrum am See' Luzern (Switzerland)
1990 Agency for the Nederlandse Bank, Wassenaar
Office building for the Benelux Merkenbureau, The Hague
Urban design competition for a suburb of Grenoble (France)
Housing and kindergarten, project for the Media Park Köln, Cologne (Germany)
1991 Office Block for the Media Park Köln, Cologne (Germany)
Office Complex Richtiareal Wallisellen, Zürich (Switzerland)



All photographs by Jean-marc Weill

FROM CONSTRUCTION TO DESIGN

In this essay Jean-Marc Weill casts light on the career of the father of modern curtain walling, the French engineer and inventor Jean Prouvé. He was, says Weill, a man whose method of design was securely based in the practicalities of the means of construction.

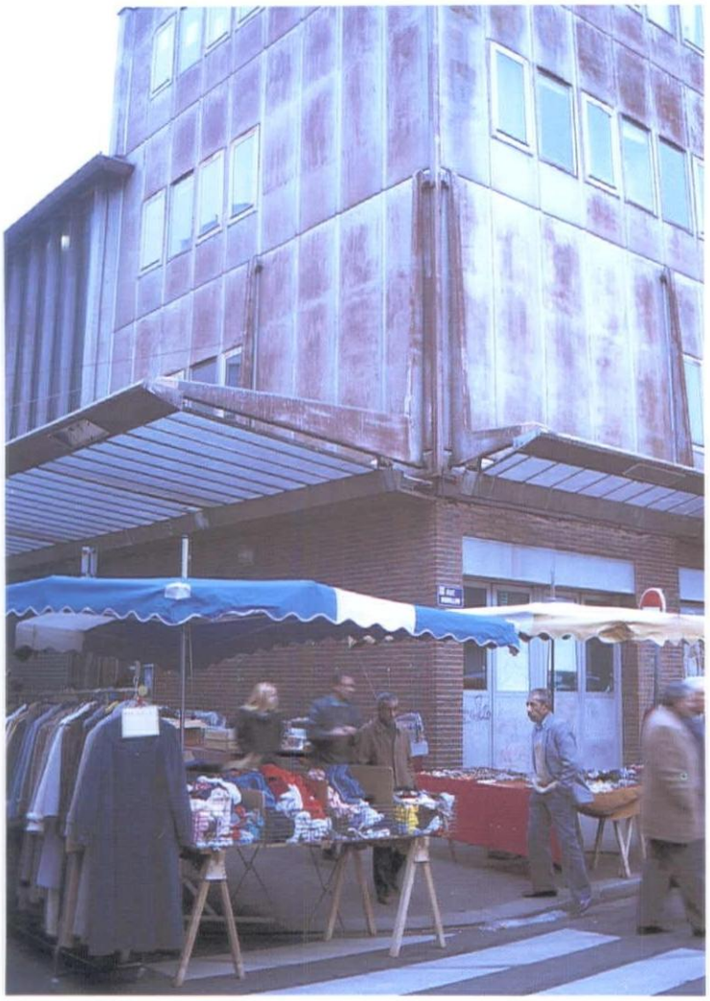
The French engineer Jean Prouvé, perhaps the greatest pioneer of light metal structures and curtain walling of the present century, was born in Nancy in 1901 and died there in 1984. He came from an artistic family and his father, Victor Prouvé, was an Art Nouveau artist in ironwork of some note. Jean Prouvé trained neither as an architect, nor as an engineer, but started life as an apprentice blacksmith. He only entered the world of building construction as a result of commissions to design and build outdoor furniture that came from his father's connections with the art world.

It was while working at this trade that he received, at the age of 17, his first individual commission, which was to design and build a welded steel door for the painter Victor Guillaume. This project led, in due course, to a number of other commissions and by 1923 Prouvé had already specialised in metalwork for architects. From that year onward he was increasingly associated with the Modern Movement, creating metal structures for such pioneer Modernists as Robert Mallet Stevens and others.

By 1932 Prouvé had become sufficiently well known to form his own company, Les Ateliers Jean Prouvé, specialising in structural sheet metalwork and stainless steel structures combined with tubular steel frames. He closely followed the methods of pressed metal construction developed in the French motor industry during the 1930s, chiefly by Citröen, where the conventional approach to using heavy steel structural chassis frames with light steel bodies bolted to them had given place to a three dimensional forming of composite welded structures, called "unitary construction". This method used far less steel and greatly reduced the weight of the vehicle. Prouvé's approach to building elements was to try to achieve the same result by the same means.

Throughout his life, although his completed buildings were few, Prouvé carried out an immense number of design studies and built many

(Above) The steel curtain walling system used at Orleans High School 1955.



The development of Prouvé's curtain walling systems. The Clichy covered market (top) designed in association with architects Beaudouin and Lods in 1937 marked the beginning of modern steel curtain walling practice.

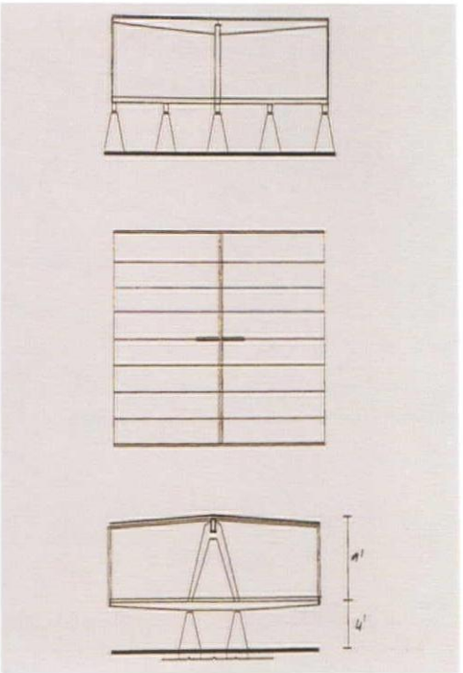
The Mozart Square apartment building (top right and above), architect Mirabaud, of 1953 shows the incorporation of vertically sliding metal shutters with ventilating louvres.

prototype assemblies for a new machine architecture. Despite his own background he never ceased to argue for complete control of the building process by the architect, not merely a mastery of matters of design, but of fabrication, assembly and construction as well. Unfortunately his exacting specification for the skills of the architect was beyond many of his contemporaries, and in many cases is still so today.

Prouvé's first major design opportunity came in 1937 when he was appointed consultant engineer to the architects Eugène Beaudouin and Marcel Lods, who had been commissioned to create a new covered market at Clichy near Paris. Prouvé rejected the traditional masonry construction of French markets and developed instead an unique pressed metal cladding system for the steel framed building designed by the architects. His work here constituted an historic advance in the technique of curtain walling, for he devised one of the first successful lightweight steel sandwich panel systems made up from an inner and an outer panel of pressed metal, both of which elements gained their strength from their shape, rather than their weight. The Clichy steel curtain walling sandwich panels were fireproofed internally with 5mm asbestos and insulated with glass fibre, an early use of this material. They were kept at the correct distance from one another by a system of light metal sections, while coil springs ensured the correct degree of curvature to resist windloads. The vertical structural strength of the panels themselves was ensured by profiling their edges rather than by inserting separate steel mullions in the conventional way. With their integral glass windows, and ventilation and sun-shading systems the Clichy curtain walling panels were the most advanced of their day – not least because the process of installation that Prouvé developed had actually influenced their final shape. This was an

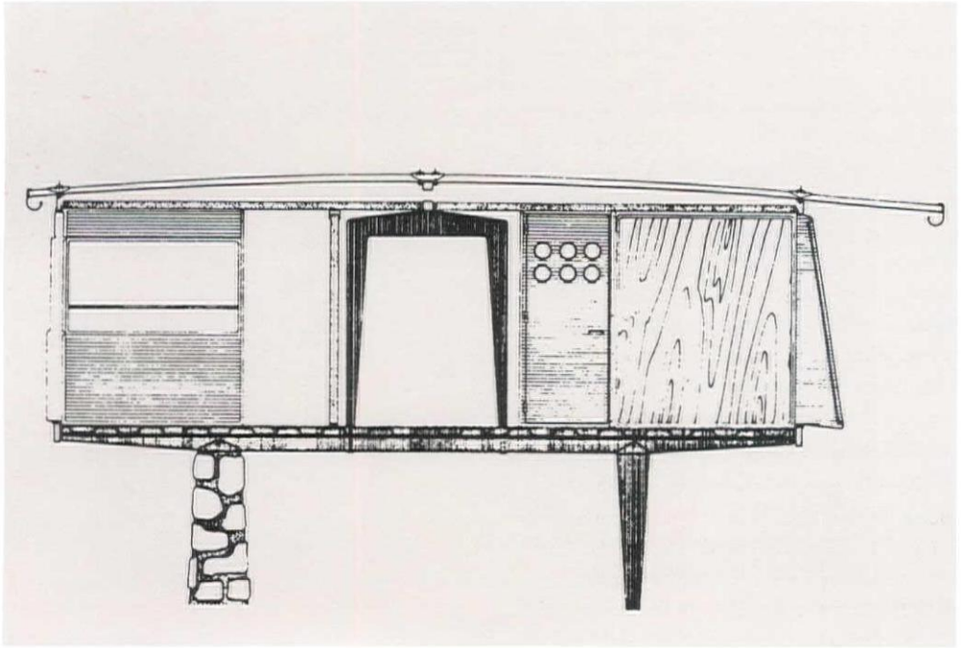
A prefabricated house at Meudon built in 1949.

Plan and section of the emergency airfield dwelling design that preceded the Meudon houses.



(Right) A Meudon prefabricated house photographed in 1991.

(Below) Section through the first completed Meudon prototype showing use of steel, aluminium, plywood, and glass fibre.

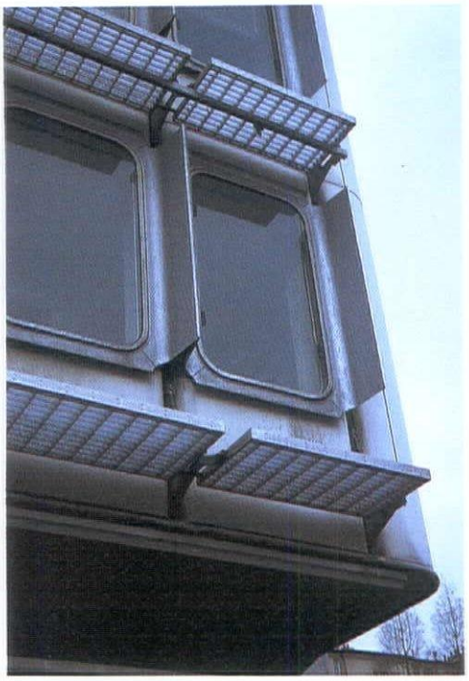


example of what the engineer was later to call "constructional conception", a paradoxical notion whereby an analysis of the process of making and installing the finished object guided the first design approach to it.

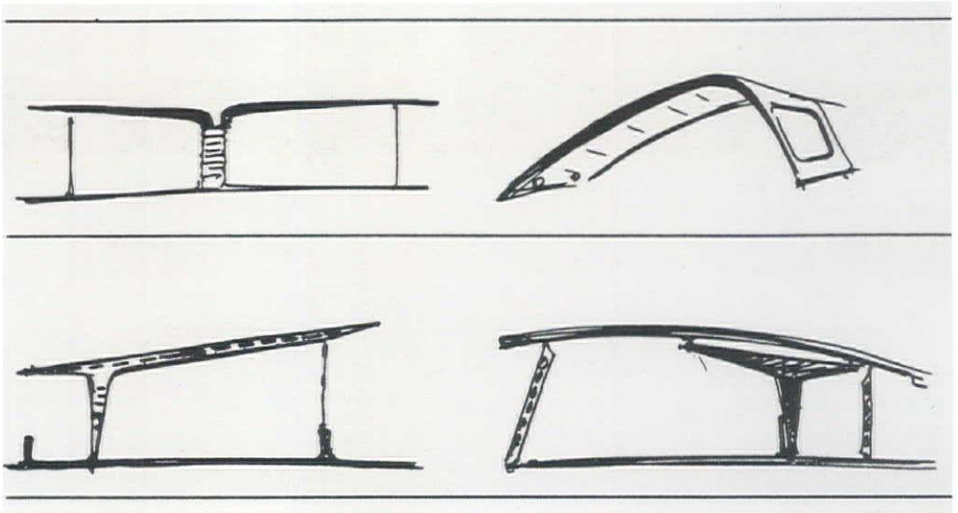
Despite his familiarity with American skyscraper construction, the lightness and efficiency of the curtain walling system at Clichy amazed the famous American architect Frank Lloyd Wright when he visited the building just before the outbreak of World War Two.

In the years after Clichy the success of this curtain walling system encouraged Prouvé to experiment with more ambitious component structures where "strength through shape" and "constructional conception" could combine in the creation of whole buildings without separate structural frames. Until 1954 he worked from his own workshops at Maxéville, near Nancy, constructing prototype components and putting them into production under the same roof. Later he opened his own consultancy in Paris and produced designs for curtain walling for a number of buildings including the large Lycée at Bagnols.sur-Céze, completed in 1958, where he collaborated with the architects Badani and Roux-Dorlut.

However, the nearest Prouvé ever came to his ideal of a mass-produced building type designed for ease of assembly was in the design and construction in 1949 of 25 emergency housing units at Meudon near Paris. This project actually had its beginnings in 1944 following the liberation



(Far left and left) UNESCO Building number five, architect Zehrfuss, completed in 1969 shows an advanced curtain walling system with projecting mullion and spandrel sunshades to reduce heat gain and facilitate cleaning.



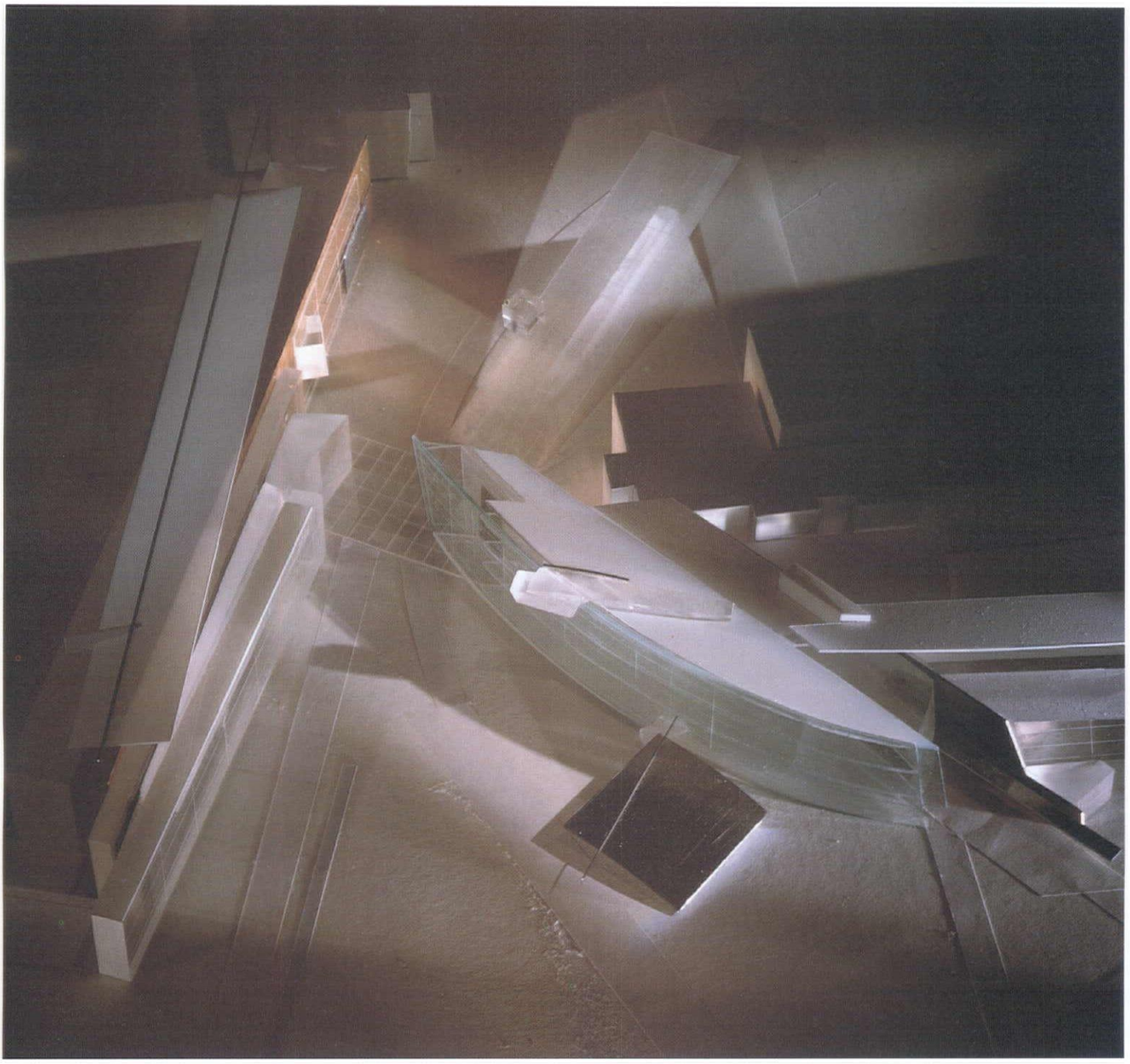
Jean Prouvé's alphabet of structure. Double and single pressed metal roof beams; propped cantilevers and pressed steel panels with integral windows.

of France from the Germans, when Prouvé had been commissioned to design and manufacture 800 emergency dwellings for the homeless in the war-damaged *départements* of Vosges and Lorraine. The 36 square metre demountable dwellings he designed then were extremely basic, intended to be portable by four men and sited on disused military airfields to avoid the need for roads and infrastructure. But before this emergency programme could be got under way, these demountable dwellings were succeeded by another commission for 25 prototype permanent dwellings.

This second design employed a light, folded steel central column pin-jointed to a pair of steel lattice ridge beams terminating in folded steel gable end walls. The roofs and walls of these prototypes were hand-formed from glass-fibre insulated aluminium sandwich panels which were bolted into position. Production models of the houses were to have been assembled on aircraft production lines and trucked all over the country. Unfortunately, as with the contemporaneous British prefabricated AIROH house (the acronym came from "Aircraft Industry Research Organisation on Housing"), and the American Wichita House designed by Richard Buckminster Fuller, the vast government orders that were expected never materialised. In the end the 25 prototypes, which still stand, were the only Meudon houses ever built.

Despite his many other projects, the development of Prouvé's thoughts about prefabrication and factory assembly as architecture are circumscribed by the two building types at Clichy and Meudon. Both structures express his extraordinary determination to uncover a rational framework of thought with which to analyse invention and construction in order to develop a new process of design.
Far from running counter to the creative aspect of architecture, this rationalism actually liberates it by showing the importance of a kind of "vertical integration" in construction. A path whereby the architect can extend his knowledge of the production of building elements and his understanding of their assembly into buildings without losing control of either process.

Part of the explanation for the renewed interest in the work of Jean Prouvé that is currently taking place, is that he was one of the very few designers of the Modern era to demonstrate that emotion and poetry are not only present in the understanding of structures, but can never be separated from the process of construction itself. □



All photographs and drawing supplied by Ellerbe Becket

WILD GATEWAY

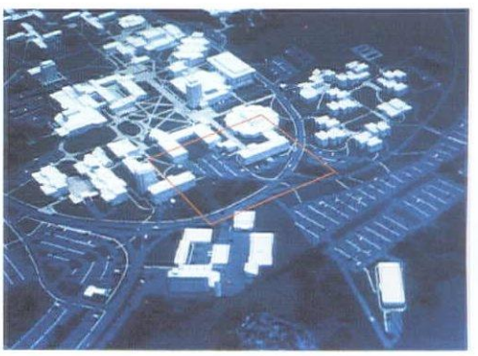
State universities get straight buildings, while private universities award glamorous commissions. That used to be the order of things in the United States but, as Graham Vickers explains, Ellerbe Becket's work at the State University of New York's Binghamton campus is changing all that.

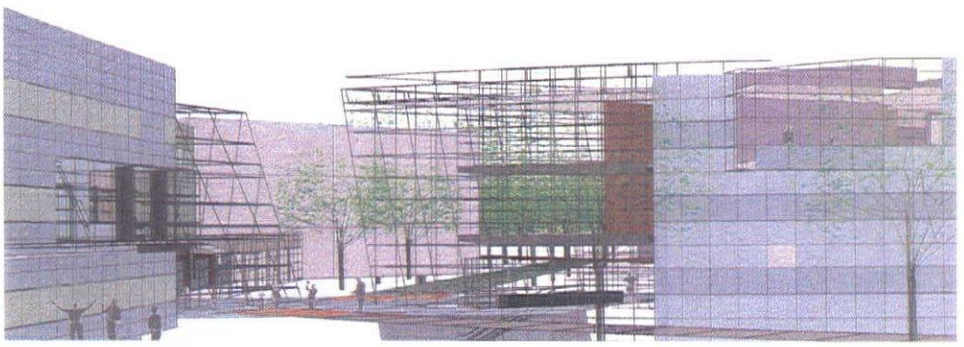
State universities in the United States are not usually the most obvious places to look for adventurous architecture. The more prestigious commissions tend to come almost exclusively from the privately funded universities and it therefore takes a particularly enlightened administration to make a state establishment the focus of dramatic architectural experiment.

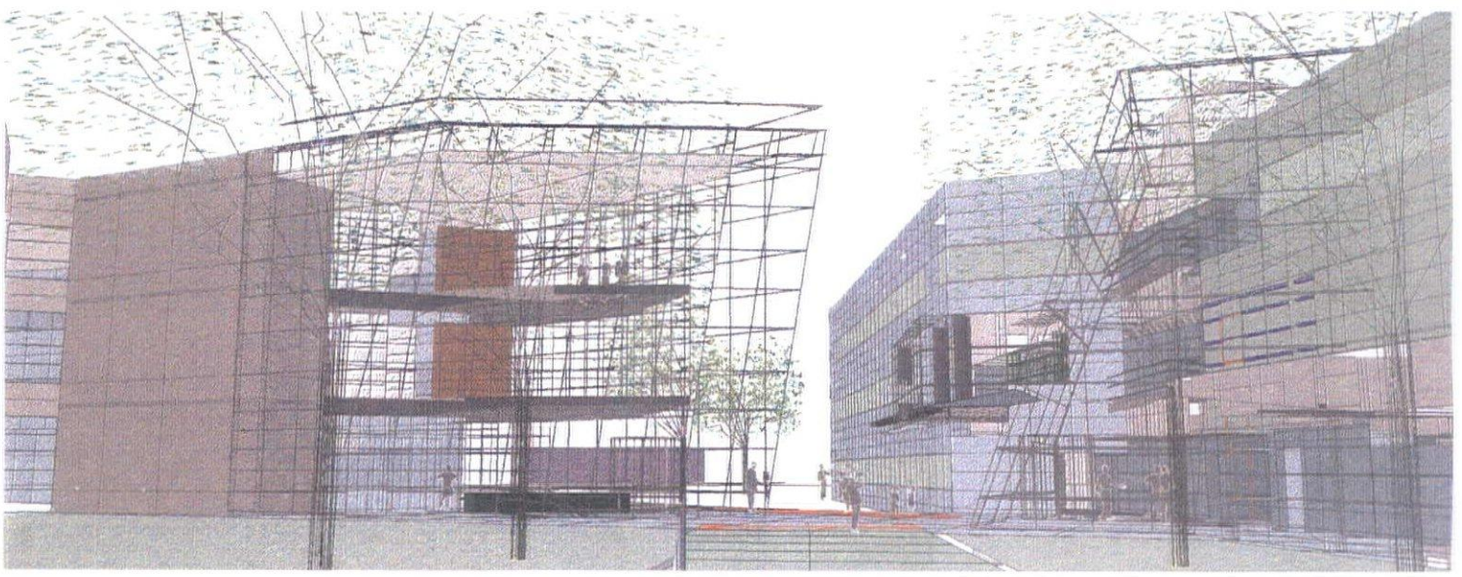
However, that is what has happened at the State University of New York (SUNY) at Binghamton where the New York office of Ellerbe Becket has been commissioned to design a 13,000 square metres new academic facility.

The office's reputation rests upon the work of Senior Vice President & Design Principal Peter Pran, and Vice President & Design Director Carlos Zapata. Together, over the past five years or so, they have brought the office a reputation for imaginative and dynamic solutions that rarely appeal to conservatives – which is why they were particularly gratified to win the commission. Pran was doubly pleased to have won the commission

The Binghamton Campus of the State University of New York. Gate area shown.







against Robert Venturi for whose work he reserves a fine hatred.

The proposed building is intended to serve as a pedestrian gateway to the campus, receiving visitors and potential students who approach the campus from the main parking areas. It is as much the psychological impact of the gateway as its practical function that interests the architects. Even so, both considerations are enthusiastically addressed despite the campus's rather dispiriting context of uninspiring 50s brick buildings.

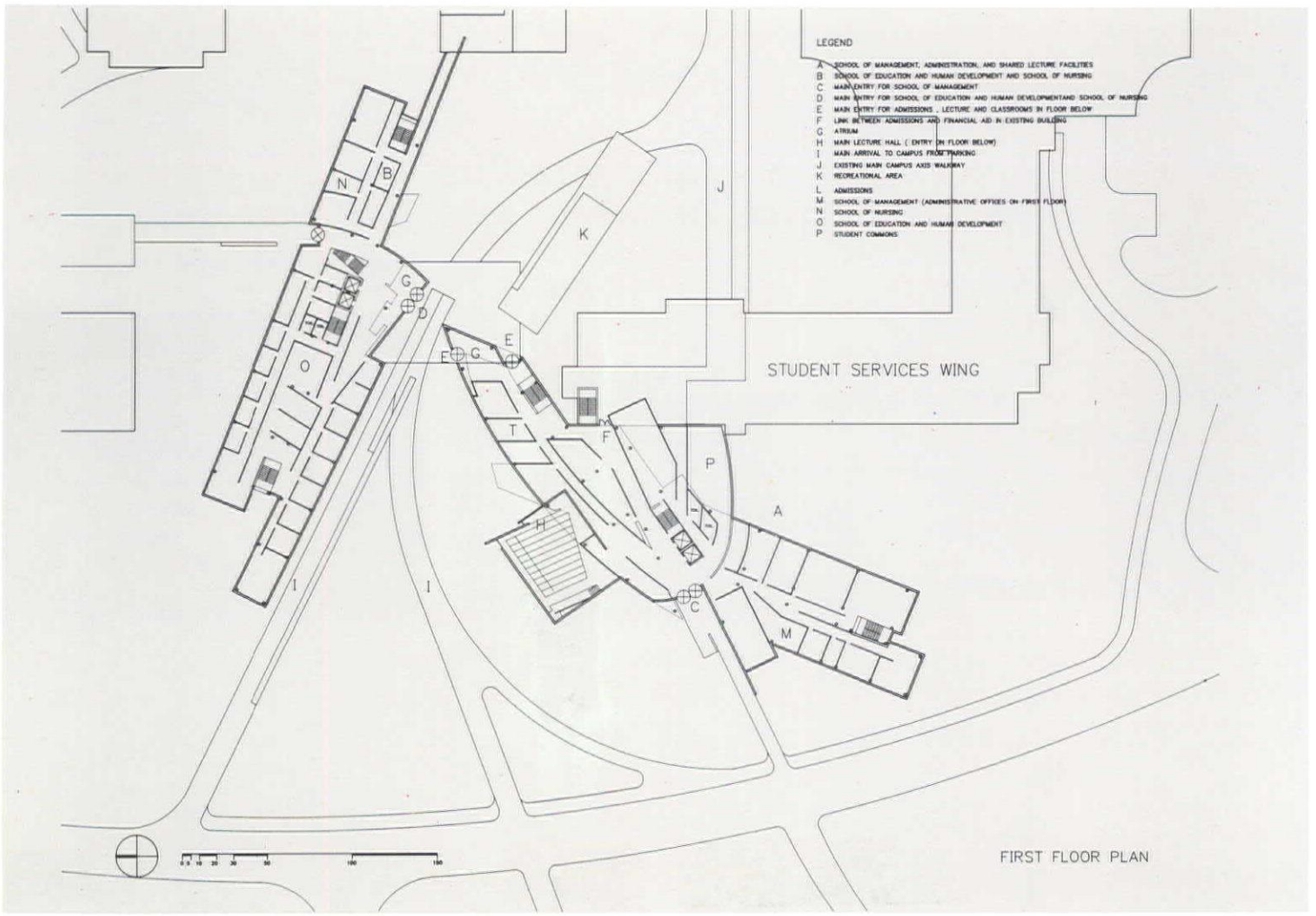
"You have to make a statement that doesn't look as if it's dropped down from the moon", says Peter Pran. "Obviously it has to fit in . . . but at the same time it has to go beyond that. They asked for a gateway to the campus. Now, the standard solution is something that is supposed to look like Yale or Harvard – cutesy little arches. I have really never seen a gateway done in a contemporary way. But at Binghamton all the forces of the site create tension at this point. It has the potential to be a tremendously rich experience."

The building houses SUNY Binghamton's School of Management, School of Nursing, School of Education and Human Development, the Academic Computing Center, various research programmes, Undergraduate Admissions and shared lecture halls and classrooms. However it seems reasonable to assume that the appointment of Ellerbe Becket is primarily intended to raise the profile of a leading liberal arts institution within the SUNY system but one hitherto sequestered in nondescript surroundings.

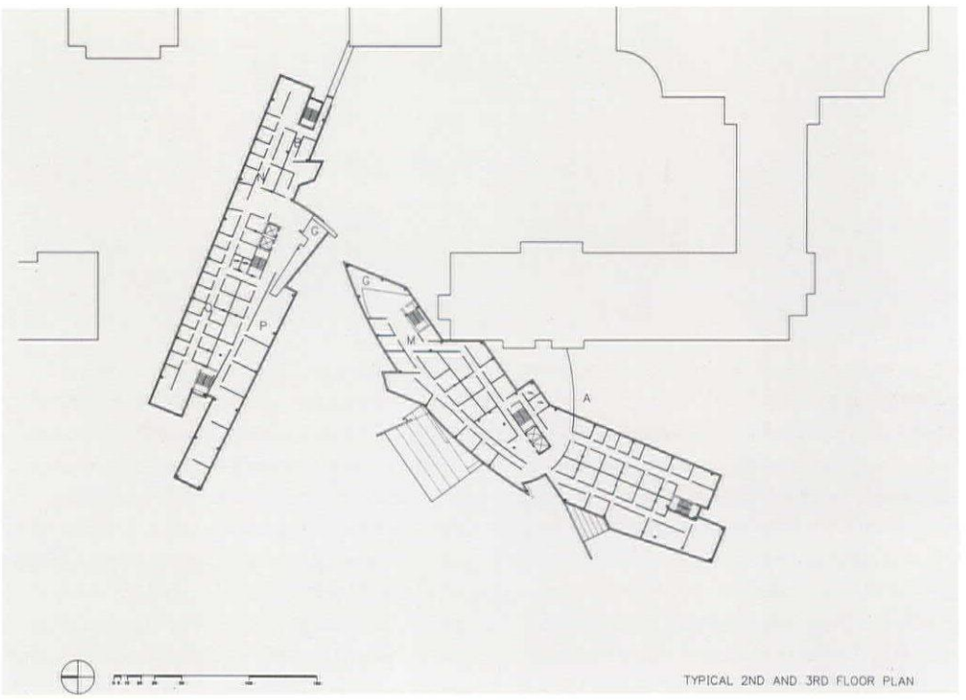
The scheme is based on a dynamic interplay between its two buildings. Building "A" is curvilinear, a swooping segment with an inclined, wedge-shaped tip which almost touches the adjacent bar-shaped Building "B". This point of near contact is where the main arrival route from the parking areas passes between the buildings. At this same point, in "A"s curved tip, an atrium contains the Admissions Office, and access to the shared lecture halls and classrooms, all identifying the point of entry as a gateway, although one

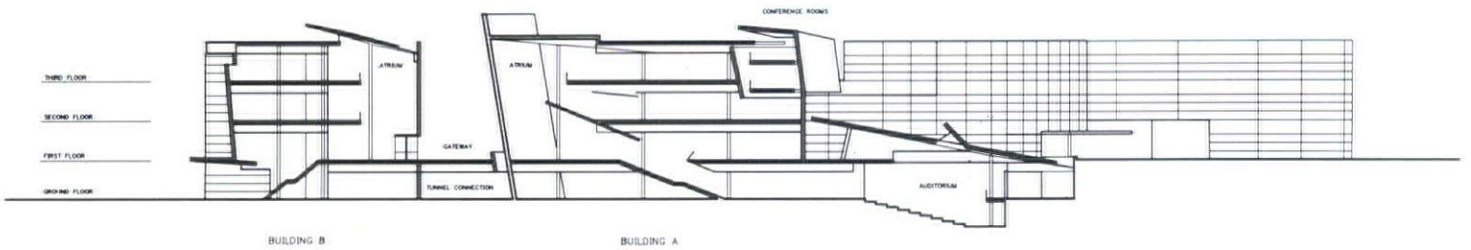
Computer-generated images of the prow of building 'A' from outside the campus (top left) and from inside (above).

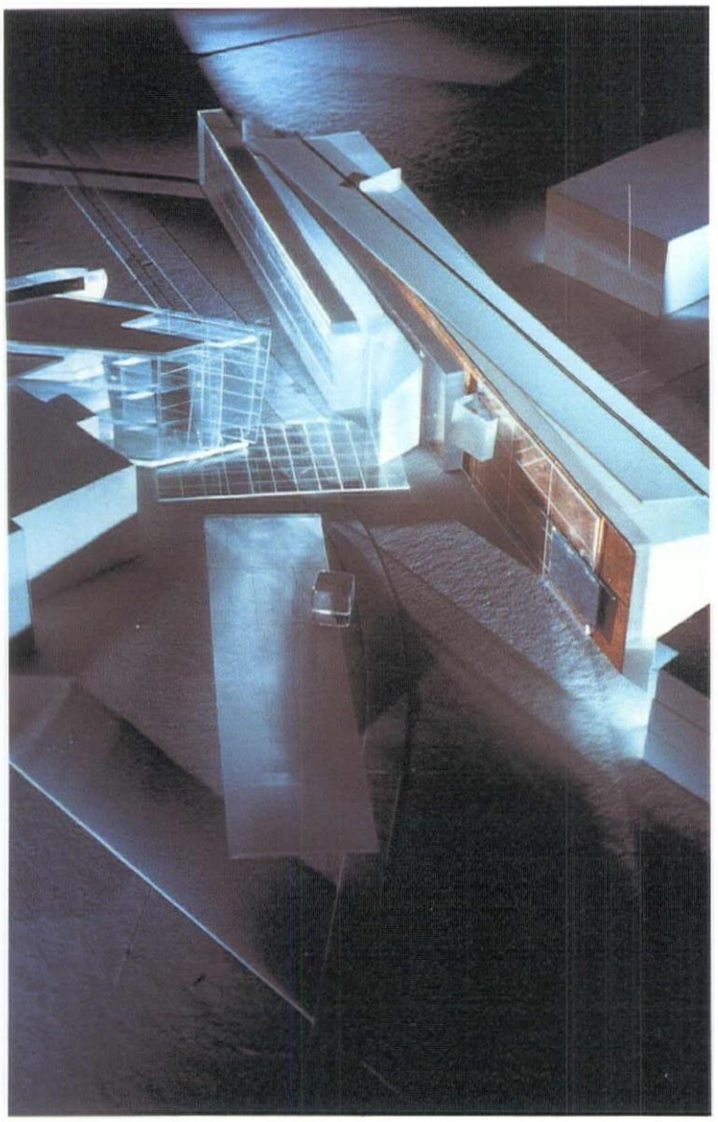
(Opposite page) Model of new campus pedestrian gate showing building 'A' curving in to meet the linear building 'B'.

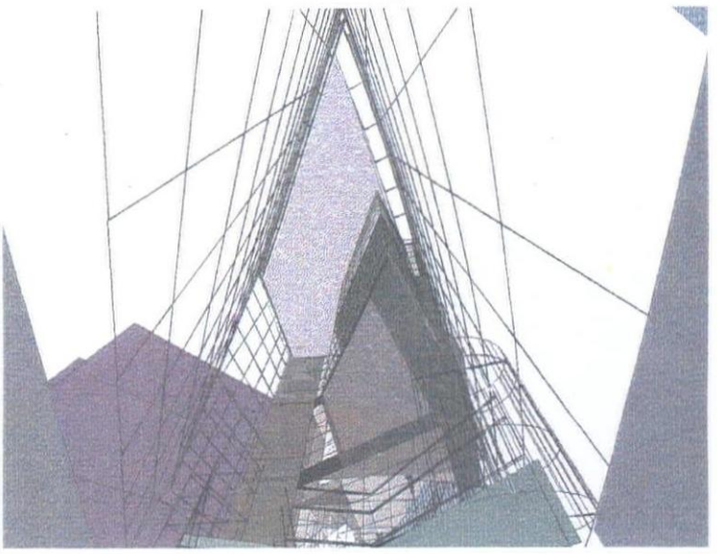


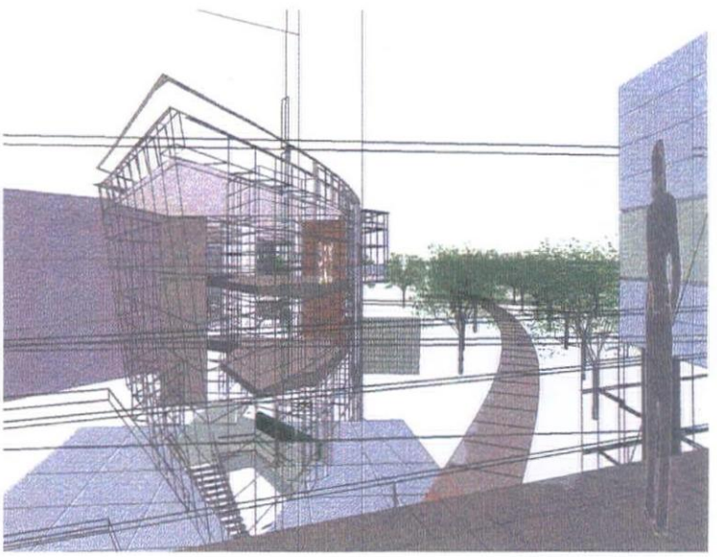
Site plan of western entrance to campus (top) shows ground floor of both Ellerbe Becket buildings splayed against Student Services Wing with curving path from car parking area. Typical second and third floor plans (right), and a section through both buildings (below).











Model shot with the more rectangular building 'B' emphasised (left). View upward into prow of building 'A' (top) and same building seen from 'B' (above) anticipate spatial experience of gateway.

which owes nothing to traditional expressions of the idea. It is interaction of the two buildings, the outwardly inclined end of Building "A"s curved tip poised to make contact with its neighbour, that replaces conventional pomp with a kind of electrically charged dynamism.

As to the context, Carlos Zapata notes "Binghamton presents a neutral background. You cannot be too abrupt. We maintained the same height as the neighbouring buildings, but you can no longer get away with calling it contextual architecture by copying a little window from the building next door – if you do that it becomes a clone".

In fact the existing campus is dominated by a series of rectangular buildings on a 90° grid. The new buildings manage to break the grid at what is arguably the only point at which this could have been done meaningfully – the main access point. A favourite device of Pran and Zapata's – the curved roof that rises up from the ground – is used here for the main Lecture Hall whose interior hall subsequently relates to both ground and first floors.

On the third floor of Building "A" the Faculty Commons cantilevers out from the façade and above the roof to give a broad view of the campus and the entry zone. Finishes use a base continuation of the neighbouring buildings' concrete and tile embellished with stone, stainless steel and copper to add a degree of richness to the new buildings.

Binghamton promises to be an interesting venture for reasons beyond the integration of its bold effects into the existing campus. Already distinguished by having won the support of the University President, the Vice President, three Deans and the State University Construction Fund, the project will have to be realised within tight budgetary constraints. If it is successful, it may be seen as the act that other state universities have to follow. In an educational system where competition between establishments is often highly developed, Binghamton may just set an agenda in which creative architecture, once the exclusive province of wealthy private institutions, becomes a major force of expression and identity in the public sector too. □

ANCIENT AND MODERN

All photographs supplied by MJP Architects

Havant County Council offices

Richard MacCormac is an enigma among RIBA presidents. The first respected designer to hold the position for several years, he represents a generation that has come to terms with post-Modernism and Classical Revival without losing touch with a Modern heritage – or even a qualified admiration for High-Tech. Jeremy Myerson explores the mind of an architect with an ideology for every job.

When you are elected President of the Royal Institute of British Architects on a ticket of architectural quality, then it should come as no surprise when your own practice is subject to the closest scrutiny. But Richard MacCormac is happy to let the work of MacCormac Jamieson Prichard, the practice he started in London with two colleagues in 1972, if not speak for him, at least complement the well-chosen words with which he tries to heal the bitter rifts in British architecture.

MacCormac, quietly spoken and donnish as befits an architect with a strong academic pedigree, sees himself as something of a healer. He has taken RIBA's top post not on his track record as a grassroots activist but on the strength of his calibre as a designer who can unite rather than polarise.

Certainly the work of his own practice stands exactly at the centre of an ideological tug of war which has, almost cartoon-style, Foster, Rogers and the High Tech school ranged one side against the historicist camp led by Quinlan Terry and John Simpson on the other. "What is so tragic

about the Classicist versus Modernist debate," says MacCormac, "is that it is like a religious war. Instead of people saying that they share spiritual values, they're just engaged in public bar sneering."

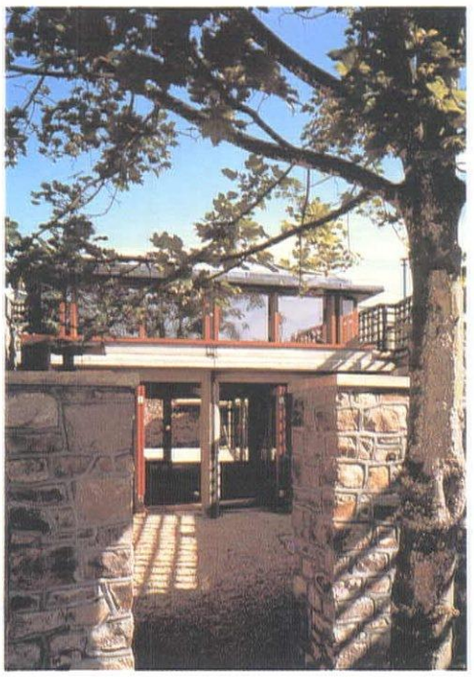
He finds the war of words wearisome and, looking at the output of MacCormac Jamieson Prichard, it is not hard to see why he finds it so unnecessary. Like Ted Cullinan, MacCormac's buildings reveal a foot in both camps. His work combines a Palladian organisation with a progressive Modernism in its use of materials and forms. MacCormac makes no apology: "Any authentic new work which relates to the past alters our perception of the present. Copying and pastiche can't do that. I know I can be a soothing influence in the debate."

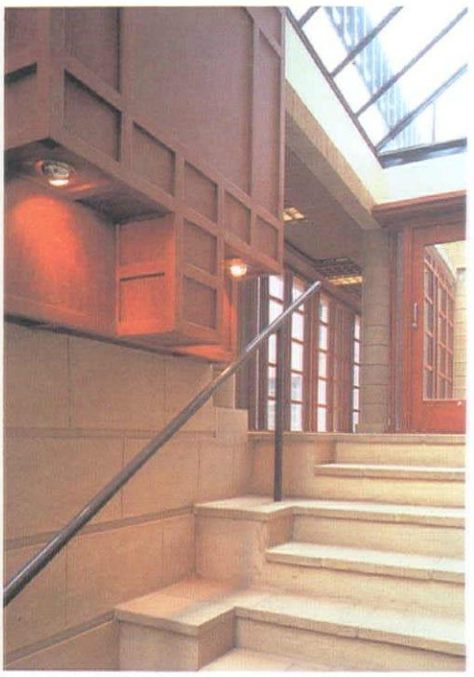
MacCormac traces his approach to architecture back to his undergraduate student days at Cambridge where, like Ted Cullinan, he "got big doses of Frank Lloyd Wright". This encouraged him to explore what he describes as the constructive aspect of architecture. "From Arts and Crafts to High Tech, I believe the common ground is that people share in making things," he says. "This was much more how we saw Wright than how we saw Corbusier."

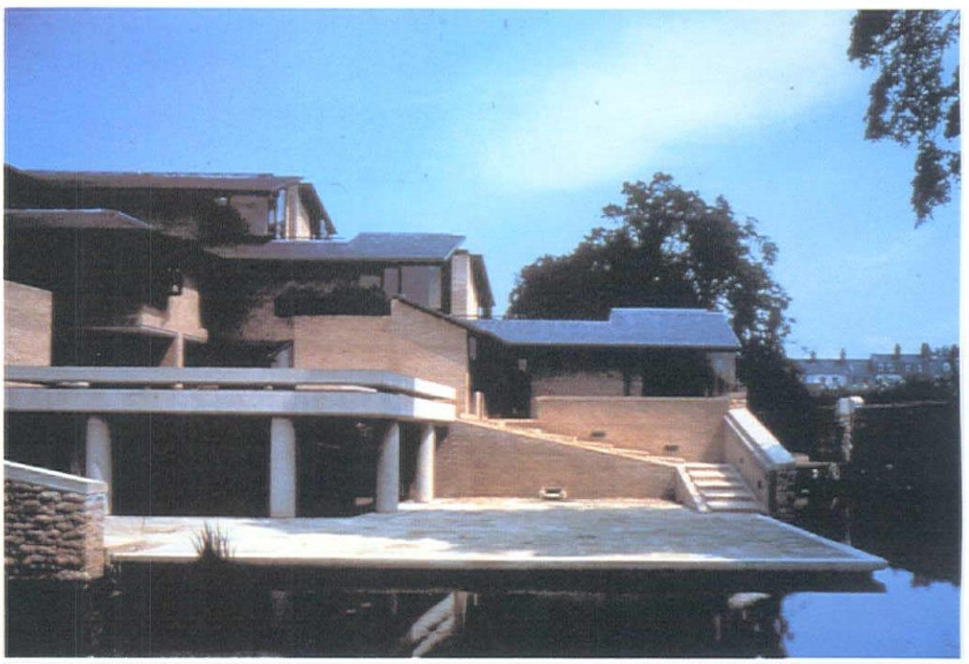
MacCormac explored Wright's debt to geometry and use of a formal language when he took a postgraduate MA at University College in London under the influential scholar and critic Reyner Banham. "I've always been interested in architectural language," he says. "Of course the idea of language runs against the grain of functionalist ideology. Modernists would argue that if the programme determines form, there can't be any other form-generating force. I never believed that."

Indeed MacCormac is refreshingly clear on where he and the British practitioners of the High Tech school part company: "Foster, Grimshaw, Rogers and Michael Hopkins are interested in perfecting types, in establishing a style of practice to do with technique. I'm interested in the way architecture develops and the conditions under which it develops. My practice is the medium for that process. Like Cullinan, our approach is looser: we'll develop an ideology for each job from base. That, of course, makes the process difficult."

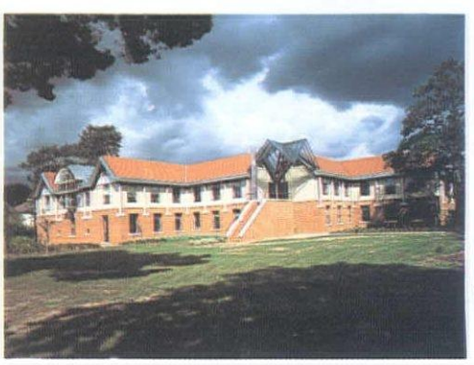
For all his revisionist point of departure, however, MacCormac readily admits to a debt to Modernism in his work. "There's renewed interest in the aesthetics of the Modern Movement among young architects in our office now," he says. "But Modernism in another historical development. People have become eclectic in their

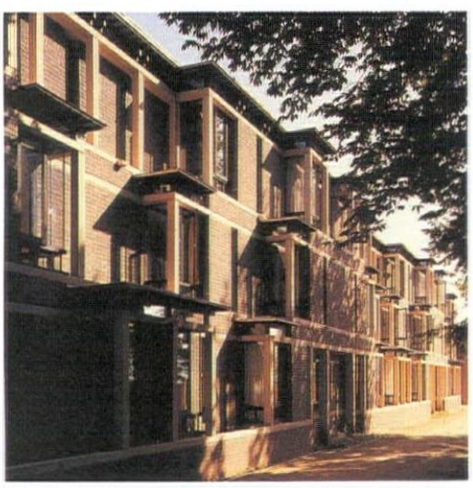






Bristol Faculty of Arts 1979 (top/left and right) shows breadth of MacCormac's early vision. The Sainsbury building, Worcester College Oxford (above) and Havant County Council offices (right).





Vining Street, Brixton (top left) and undergraduate accommodation at Queen Mary College (right), contrast with the Oxbridge image of New Court at Fitzwilliam College, Cambridge (above).

interests. And as with all interesting historical stuff, you don't just copy it – you let it feed your own ideas."

MacCormac started his own practice in 1972 with David Prichard and Peter Jamieson; Sandy Wright became a partner but later left the firm. "We knew little about running a business," MacCormac remembers. Early work centred on public housing (MacCormac had gained valuable housing experience in the 60s with the London Borough of Merton). But in 1979 the practice won a competition to design the Faculty of Arts at Bristol University. It was the start of a sustained bout of work in higher education on which the reputation of the practice is now based. The Bristol scheme, built in five phases over nine years, involved relocating 12 departmental centres to a row of semi-derelict villas. "Bristol still represents the best example of our use of architectural language," says MacCormac.

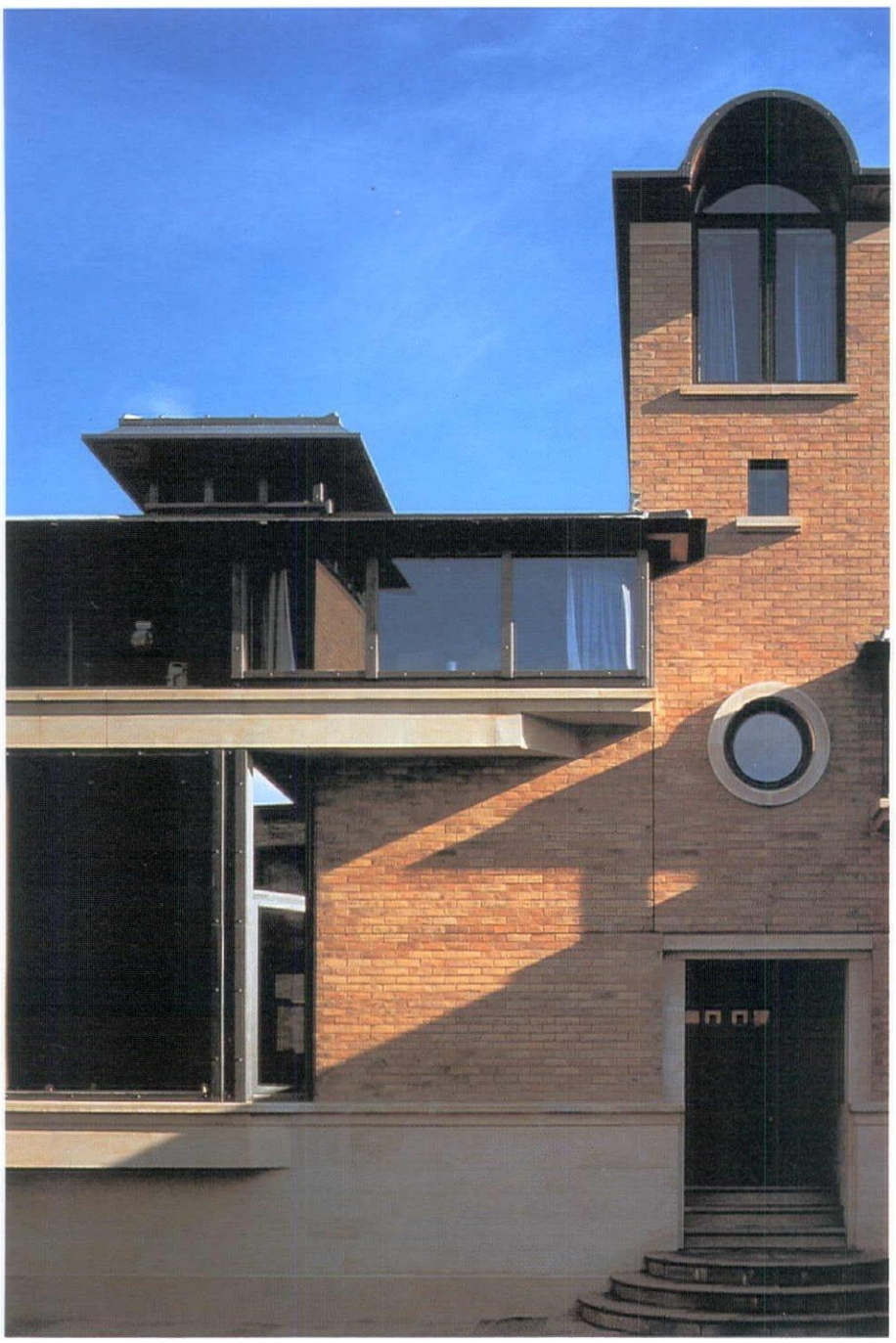
Ironically MacCormac Jamieson Prichard broke into the educational market at precisely the time it was about to stop expanding; as a new Conservative Government in Britain was screwing down the hatches on public spending. But a series of commissions from colleges in the ancient universities of Oxford and Cambridge, which are to an extent independent from state funding and cyclical dips in the economy, enabled the practice to advance its ideas.

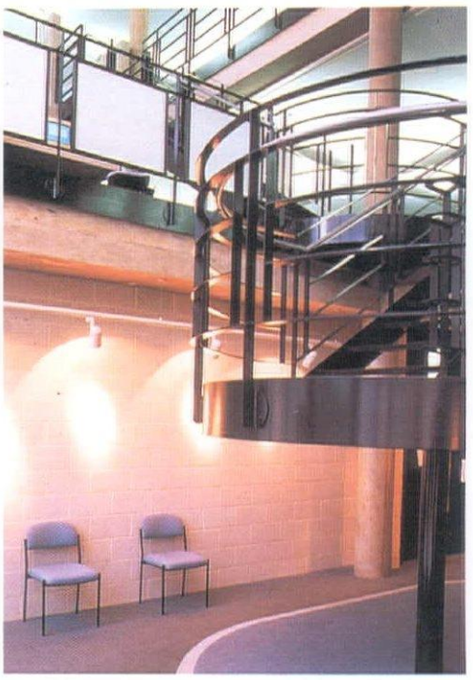
Worcester, Wadham and St John's Colleges at Oxford and FitzWilliam and Trinity Colleges at Cambridge represent a body of work with what MacCormac opaquely describes as having "an idiosyncratic consistency. On the whole the buildings are very different to each other – clients like to know they are getting something not done before".

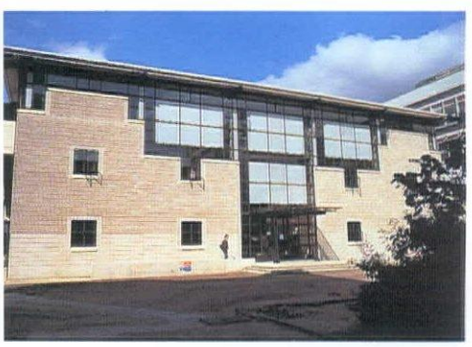
Interestingly, the standards of accommodation at Oxbridge colleges are driven, says MacCormac, by revenue-earning conference facilities. This means that students get a good deal in terms of design quality. "In residential buildings of this type, it is all a question of empathy," he explains. "We really try to get inside the minds of the people who will live in them. Our work has been popular with students. Circulation is so important. A recent survey showed that students are very prone to depression and isolation. So we play on the theme of the interrelation of stair and kitchen, and keep on inventing interesting new relationships to bring people into contact with one another."

Indeed the grouping of student life around the staircase, a model abandoned in Britain by some designers of college accommodation in the 60s, is triumphantly reaffirmed by such buildings as Blue Boar Court at Trinity College designed with Sandy Wright. Blue Boar is a reflection of what has been described in some quarters as the modest Modernism of the "Cambridge School" of MacCormac and Cullinan. At FitzWilliam College, MacCormac has built on an initial concept by Sir Denys Lasdun, himself a modern architect deeply interested in tradition (see WA14).

Away from the gleaming spires and relative







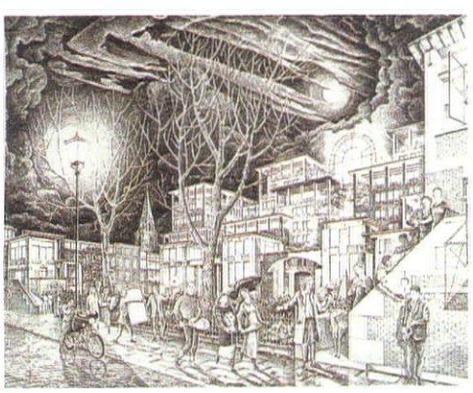
Blue Boar Court, Trinity College Cambridge (above) clearly shows a different ideology to the enigmatic Information Technology Building at Queen Mary College (top right and right).

tranquility of academia, the practice is heavily involved in urban design and planning. Here, MacCormac once again sees the pointlessness of "an adversarial system in Britain at the moment". Two acclaimed London planning schemes – one, a redevelopment of the Spitalfields area, the other a competition entry for Paternoster Square – reflect MacCormac's abiding interest in the anatomy of the city.

"If you look at the history of London, say the area between the Strand and Long Acre, you find symmetries of use and scale across streets and assymetries across blocks," he explains. "Today the modern developer thinks about blocks, not streets. There is a failure to see the underlying structure which is just blotted out. London's rich variety is under threat, although I don't know how you can legislate to preserve it."

MacCormac currently is planning an analytical exhibition on the anatomy of London, based on the hypothesis of an arrangement of what he describes as "transactions". At one pole are "local

Night view of Fitzwilliam College Chapel.



Apocalyptic drawing of redeveloped Spitalfields.

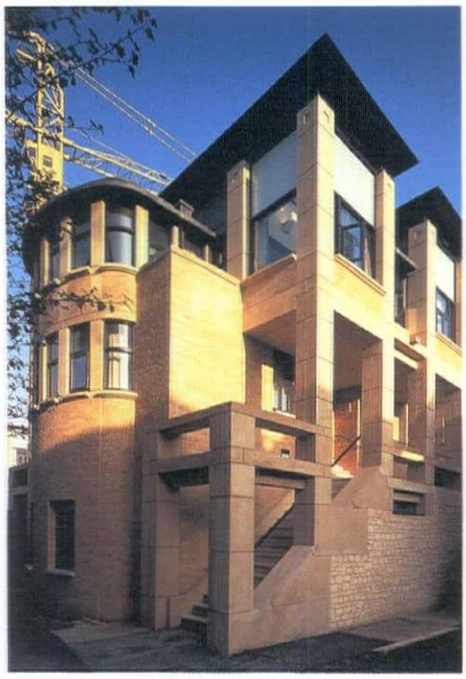
transactions" such as street markets, public bars, homes. At the other are "foreign transactions" – offices, factories, warehouses. Supermarkets occupy an area some way inbetween. MacCormac's argument is that the foreign transactions are threatening the local ones. "We have to design places for symmetries of use," he pleads. With the Spitalfields redevelopment scheme, MacCormac was careful to keep large office blocks distinct from local shops, for instance.

MacCormac Jamieson Prichard is currently trying not just to make a mark on London's surface but to burrow below ground with a design for an Underground station at Southwark, which will form part of the extension to the Jubilee Tube line. Other architects working on the line include Sir Norman Foster & Partners and Michael Hopkins. "Each station has been conceived independently of the others," says MacCormac, before you jump to conclusions about a uniform aesthetic for the station interiors.

The other major scheme in the office – which employs 40 staff in the heart of the Brick Lane home of London's Bengali community – is a £14 million training headquarters for telecommunications giant Cable & Wireless, parent of Mercury Communications. This building at Coventry is now on site and scheduled for completion early in 1993. According to MacCormac's partner David Prichard: "Its formal ideas are those of an English country house. They originate from a landscape approach to the site which looks out over farmland. The buildings's wings aspire to possess the land on the other side of the road."

The busy workload in the practice means additional burdens for Richard MacCormac, whose official duties as president of RIBA already represent more than a fulltime job for most men.

The Bowra building at Wadham College, Oxford (left) with St John's College (below).



But MacCormac is determined not to abandon his lead design role in the practice.

"The problem I'm finding is not in designing projects but in realising those projects. It's difficult to draw everything I am designing," he says with a quiet candour that is characteristic. "I'm a self-critical person and critical of others. I know young staff find me hard to work with. I know when we've got there and when we've not got there. I have this sense of always trying to achieve the exemplary in whatever we're doing."

Within the remit of RIBA initiatives, the need for education at school level in the principles of good architecture greatly concerns MacCormac. "I'm taken by the idea of a young design sensibility soaking up early influences," he says. Frank Lloyd Wright's use of grids, he points out, was influenced by the Froebel system of kindergarten training applied by his mother. Mozart was a highly accomplished musician technically by the age of six. "Children experience things immediately. Later they lose innocence, and scepticism takes over. If you take a building like Richard Meier's new Barcelona museum, I can see how a young child could relate to this jewel-like structure on a very elementary level."

For an RIBA President whose avowed aim as a busy practitioner is to reaffirm the architect's primary role as a designer, the cause of visual education in schools is a worthy one. It is, of course, a long-term cause but then, with his deep understanding of the influence of history, MacCormac was never a man for a quick fix. □

Two views of the new Cable and Wireless Group telecommunications training centre.

TOWERING FOOTNOTE

How do you design the entrance lobby to the tallest building in the country? Cesar Pelli buried escape stairs and cut through lift cores to let the light into One Canada Square, as Jeremy Myerson reports.

The lobby at One Canada Square. Marble, stainless steel and a vast space achieved at the cost of great effort.

The corner stairwells (above and plan) descend through the core to beneath the lobby, then rise from the first basement floor so as not to break up the lobby space.

Whichever way you look at it, up or down, *One Canada Square* has become *the* symbol of the Canary Wharf development in London. You can't miss it on the skyline: the stainless steel obelisk-shaped tower designed by Cesar Pelli – the tallest building in Europe apart from Helmut Jahn's office skyscraper in the Frankfurt Messe – physically reminds everyone within the metropolis exactly where Canary Wharf is.

And once you've entered the Canary Wharf mini-city which developer Olympia & York has constructed in the docklands to the east of the City of London, the base of Pelli's landmark 50-storey tower sits at the epicentre of the entire scheme, its large and expansive lobby area linking through to retail facilities and the Docklands Light Railway station that Pelli also designed.

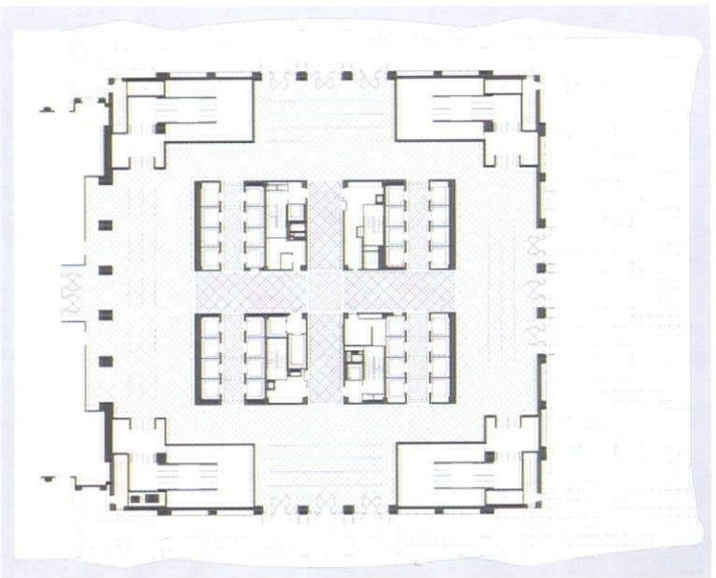
"The tower at One Canada Square is the primary junction for the scheme, now and in the future," says Vinay Kapoor, vice-president of development at Olympia & York. He explains that in a further phase of the development, scheduled to be built in the mid-1990s, three new towers to the east of Pelli's obelisk will balance the existing tower and form a new square. Thus the focus of Pelli's building will shift within the site and its entrances turn to embrace a new perspective.

Given the long-term plans for the building, its street level entrance lobby is an interior space of enormous importance.

Even if the lasting image of Canary Wharf is undeniably vertical, the horizontal hold of its lobby on the ground is as impressive in its own way as the vertical thrust of its textured-steel elevation which reflects the soft, changing light of east London.

The most unusual feature of the lobby is the systematic and symmetrical penetration of the core at the square base of the tower. This is unusual in that skyscrapers typically have a solid central core right through. Client and designer decided, however, that the core should be intentionally broken up to allow daylight to penetrate. Thirty two high-speed lifts from Otis have been arranged in four banks of eight with four lifts facing each other. The core is therefore

Plan of ground floor shows 32-lift central core penetrated by broad passages to allow views from side to side of the enormous space.



centrally broken not only east to west and north to south, but also north to south, within the banks of lifts. Wherever you wander within the lobby area, you can see to the edge of the building and beyond.

"This concept of creating internal open space at the foot of the tower may be unconventional," says Kapoor, "but we gained experience of doing such a thing with First Canadian Place in Toronto and also the World Financial Center complex in New York. I suppose we've now perfected it. The aim is to expand the horizontal dimension of the tower instead of the vertical one."

On every one of the 48 floors above, the core is split into two rectangular units for lifts and services areas. This allows for large, open spaces so that people can create flexible floor plans and enjoy spectacular views.

In lobby areas, fire regulations are always the problem with this open organisation of space. At *One Canada Square*, the escape stairs go down one floor and out diagonally to the corners before coming back up. This allows the main lobby space to be totally uninterrupted. The objective was not achieved without a struggle. The mainspring, according to project architect Robert Bostwick, design team leader in Cesar Pelli's office, was aesthetic. "Cesar is interested in form, simple and straightforward," says Bostwick. Indeed the grid of the building – a standard 3m horizontal planning module with a 4.1m vertical module dictated by floor heights – is reflected in repeating rectilinear motifs in the interior.

A large three-dimensional model of the lobby measuring 1.5m square was built so that Pelli's designers could explore the interior finishes using sophisticated rendering and painting techniques on paper. Four different types of marble have been used for the lobby area. The inner core of the building around the lift areas has been finished in a reddish hue using Rosso Rubino Italian marble; at the perimeter a green stone from Guatemala, Quetzel, has been used in conjunction with the stainless steel outer skin; a Spanish stone, Neromarquina, has been specified to provide a black trium; and the grey flooring which carries through from the retail areas is Italian, Fiorde Pesco. All the marble was sourced through Millerdruck, an American company.

"There is simplicity in the colours and forms," says Kapoor. "The richness comes from the quality of the materials. As Olympia & York is the owner of the building and we must maintain it, our involvement extended to selecting the actual pieces of stone slab. We make the extra effort to get the best we can." Bostwick testifies to this attention to detail: "They're not an easy client but they are about as good as you'll get – right from the masterplanning to the details in the finishes."

View across the southern side of the lobby.

New York lighting consultant Howard Brandston worked with Cesar Pelli's office on the lighting scheme which consists principally of downlighting, in some areas through the glass planes of specially designed lighting fixtures. These have encountered technical problems, however and were missing on my visit to Canary Wharf.

"The aim of the lighting," explains Robert Bostwick, "is to distinguish the lobby space. The lobby area is formal and business-oriented with the downlighting more geometric and regular in keeping with the tower. The nearby retail space is more friendly and informal with indirect light bouncing off surfaces."

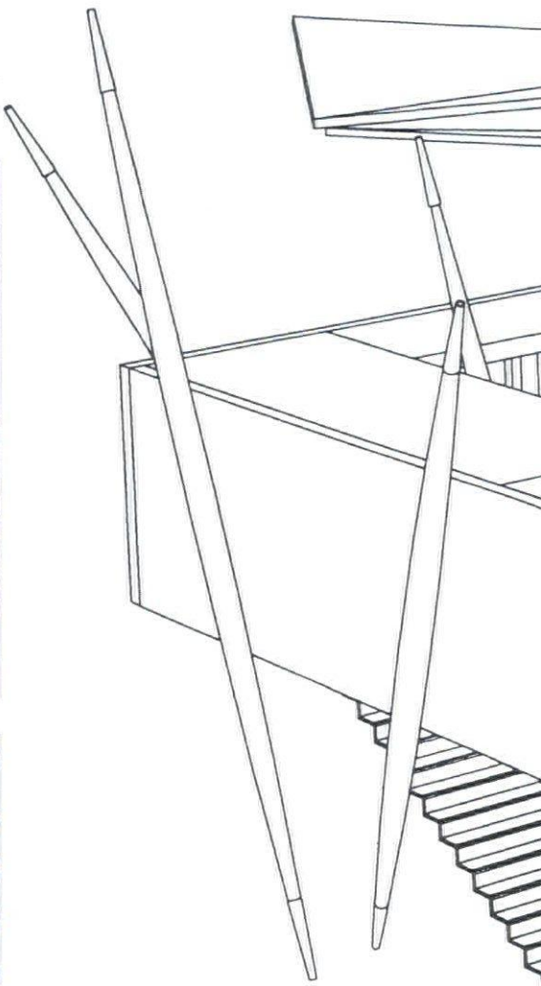
Already One Canada Square has a growing list of tenants. They include the International Wheat Council and the International Sugar Organisation, both of which were threatening at one point to leave London altogether; also the *Daily Telegraph* newspaper. That lobby area is set to see a lot of activity but, given the openness of its organisation, the simplicity of its form and durability of its finishes, it should handle the traffic well.

Large towers often get their entrance areas horribly wrong, aping the monumentalism that stacks of storeys imply or underplaying the grandness of the space at the base of the sky-scraper. This one gets it just about right, a cavernous arena shot through with arrows of light and – save for a limited art programme – dignified only by a pure functionalism. □

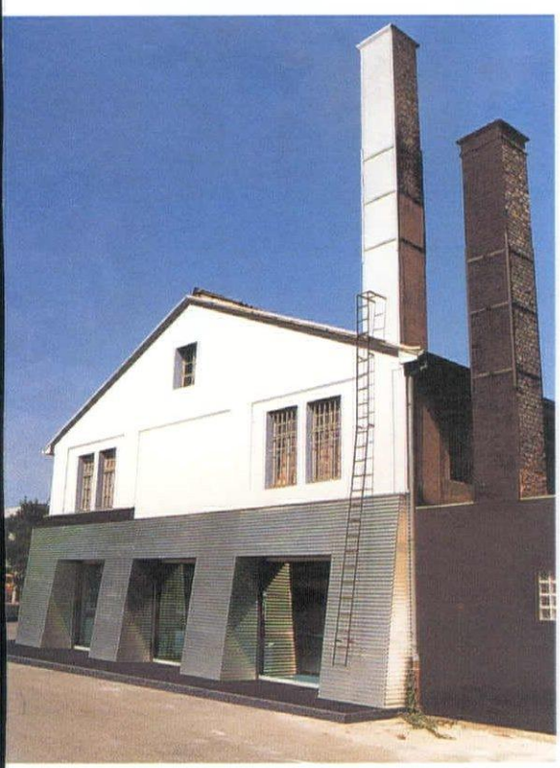
INTERNATIONAL FORUM OF YOUNG ARCHITECTS PUBLICATION

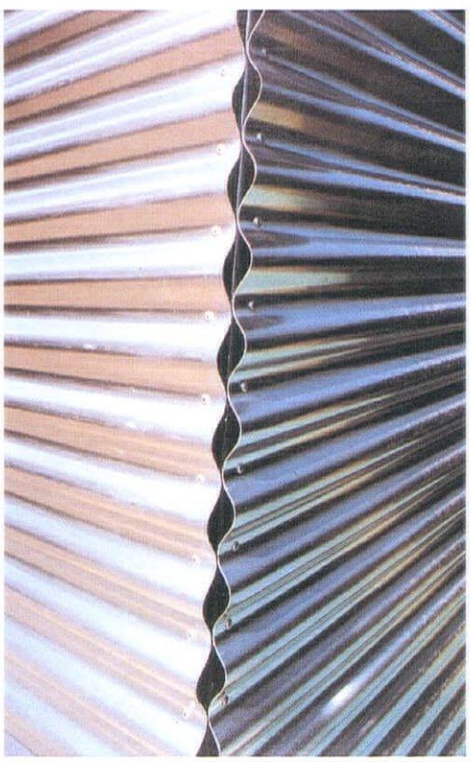
The International Forum of Young Architects is a world-wide organisation aiming at stimulation of avant-garde trends, conceptions and projects in architecture.

Editor/Design
Georgi Stanishev



Below and Centre: Project for the National Wood Centre Pavilion, ORTF, Paris, 1991. (In collaboration with E. Albisser, T. Casel, P. Keyling, R. Lang.)



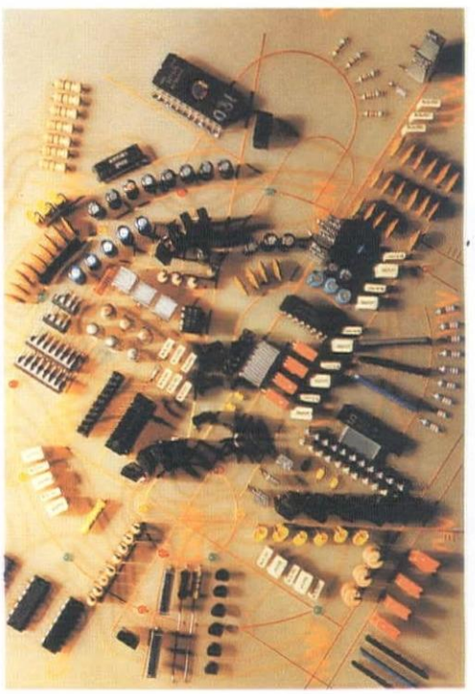


Showroom and headquarters of SAGOS Company, Strasbourg, 1989.

ARTIFICIAL VS NATURAL

in the Architectural Zoo of Georges Heintz.

The revival of the 1960s is not a mere nostalgic fashion in the most innovative architecture communities today. The influential centres of the present day architectural avant-garde, like the Architectural Association School, OMA, and others, continue to keep the young generation in touch with the roots of the Modern Movement. This is proved by the attitudes and works of Georges Heintz, an architect practising in Strasbourg, profiled here by Georgi Stanishev.



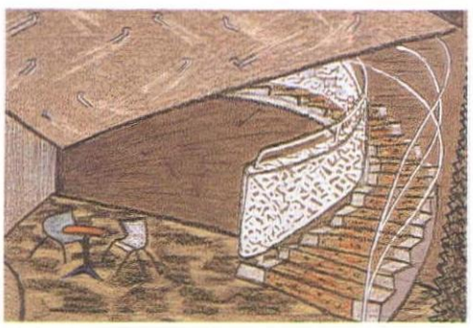
Model of Iakov Chernikhov's Composition of a City, from: "Architectural Fantasies. 101 Compositions". Student's experimental work given by Georges Heintz.

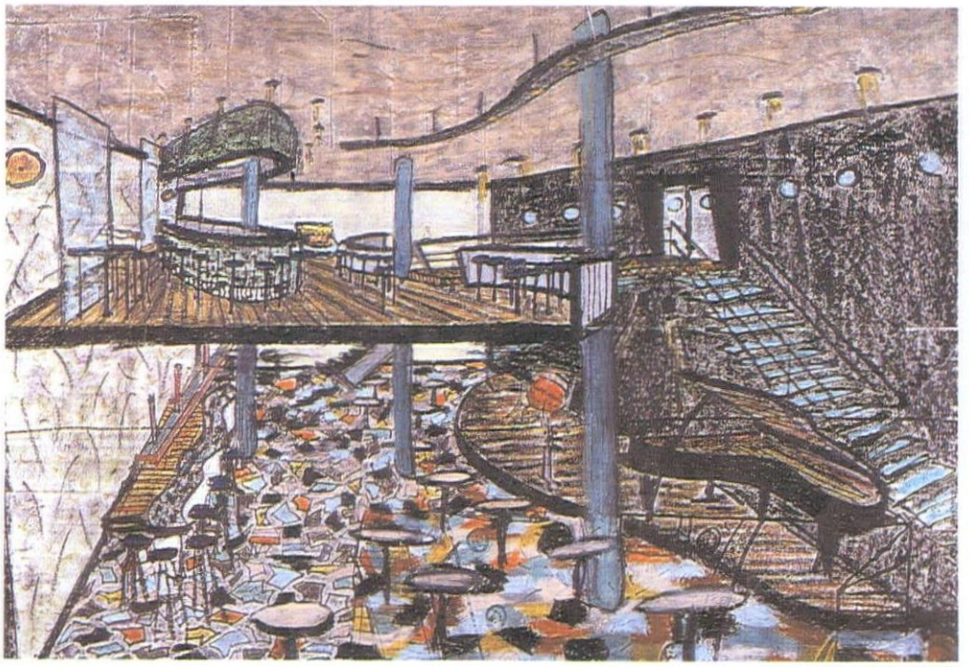
Georgi Stanishev: One of the things that made a strong impression on me when I entered your apartment was the number of objects exhibited there. I mean all those strange creations that openly expose their artificial origins, instead of "the real things" they are made to look like: desk lamps with stone-like plastic bases, flower-like PVC lamps to light-up the corridors, leopardskin-like leather armchairs, tables with almost kitsch scenographic decoration, etc. Is this an obsession with artificiality?

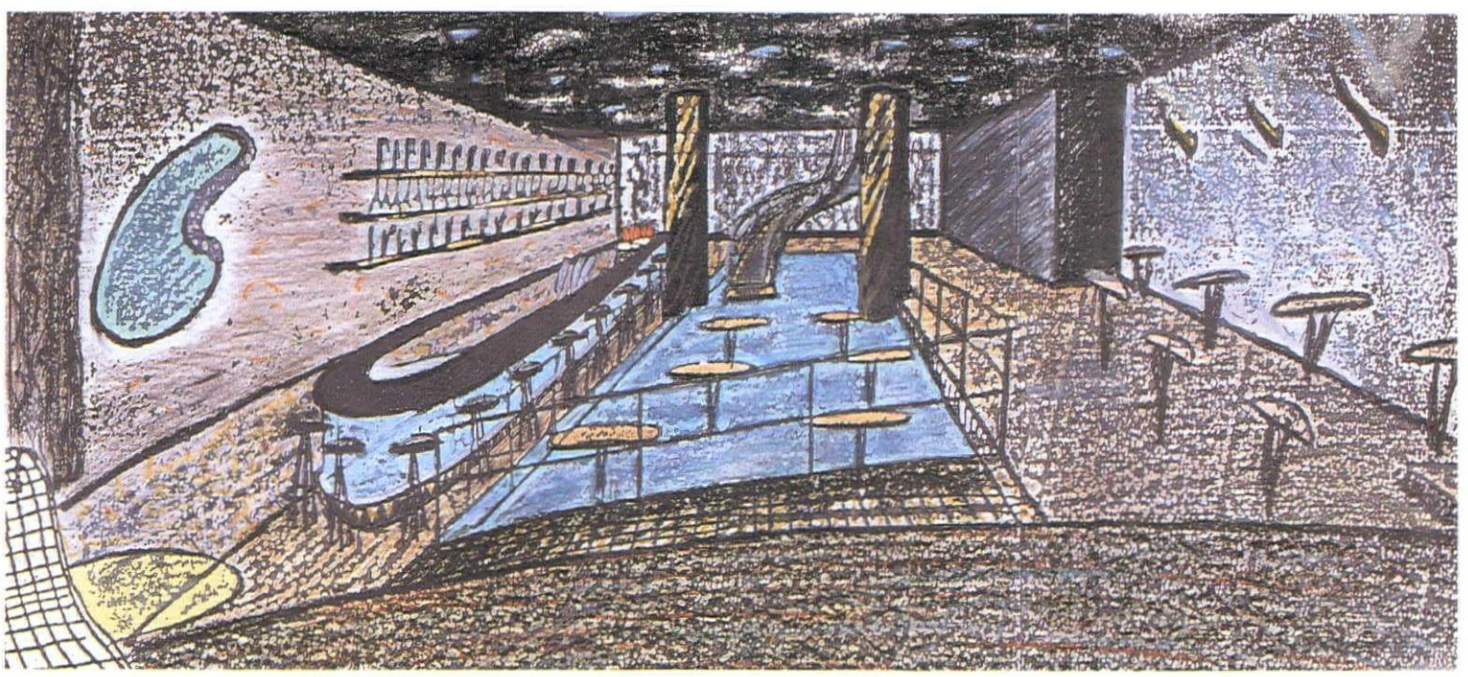
Georges Heintz: No, these objects simply belong to the man-made world. They talk about what they are and behave like "real things" that are about other real things. I agree that my private space looks like a zoo, but it is an artificial zoo. Simulation is hiding the real nature of things. I prefer the objects to show what they are doing: either telling the truth or lying. I think this sort of simulation is akin to design and fashion.

Let us try to determine where this belief comes from, and which cultural and artistic tradition forms the background to your work. Would you like to comment on the influence of the post-war avant-garde, especially of the 1960s, which I find most relevant in that context. What lessons are you drawing from the architectural culture of that period?

Like all 60s' people I resist theory. I am afraid of theories that fix design rules: I don't want to be a hostage to words that somebody else, even myself, has already said. The 60s taught us to see the significance of processes, not merely results. I find that architecture is an expression of processes: of thinking, of production, of communication etc.







"The Equilibrist", a Jazz-Bar in Strasbourg, 1987.
Drawings for the interior design.

I suggest that the opposition between the two conceptions of art – process versus result – was the basic ideological discovery of the post-war design culture.

This means that forms should work as diagrams of processes and you should be always surprised by what springs up as a result of your design. But at the same time, looking at the scope of your projects, one can easily discover several forms that are repeated as if they come from a vocabulary. I can point out a few of them at a glance:

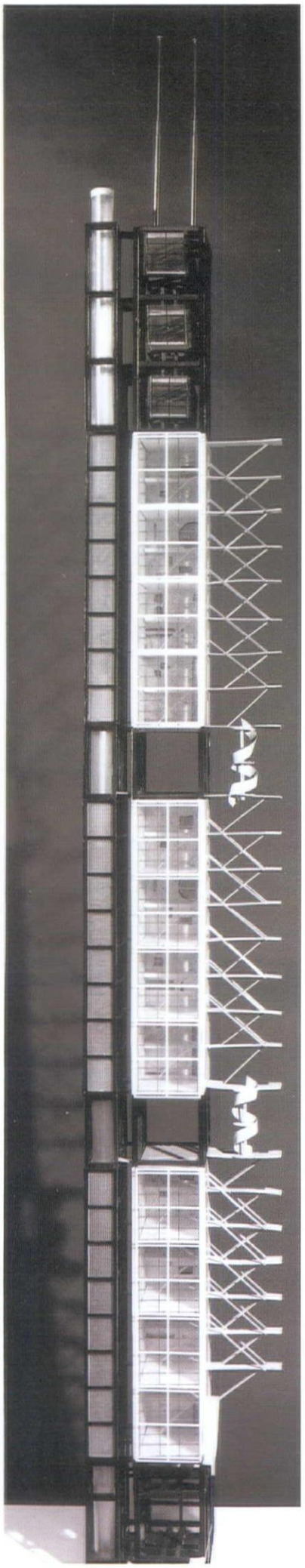
- **boomerang-like forms, and the cone, can be easily found in several variants in your works;**
- **the slightly curved contour is quite often used for walls in plans and elevations;**
- **different types of deviations from linear rectangularity are also present.**

Does the similarity of formal result in all these cases reflect similar processes?

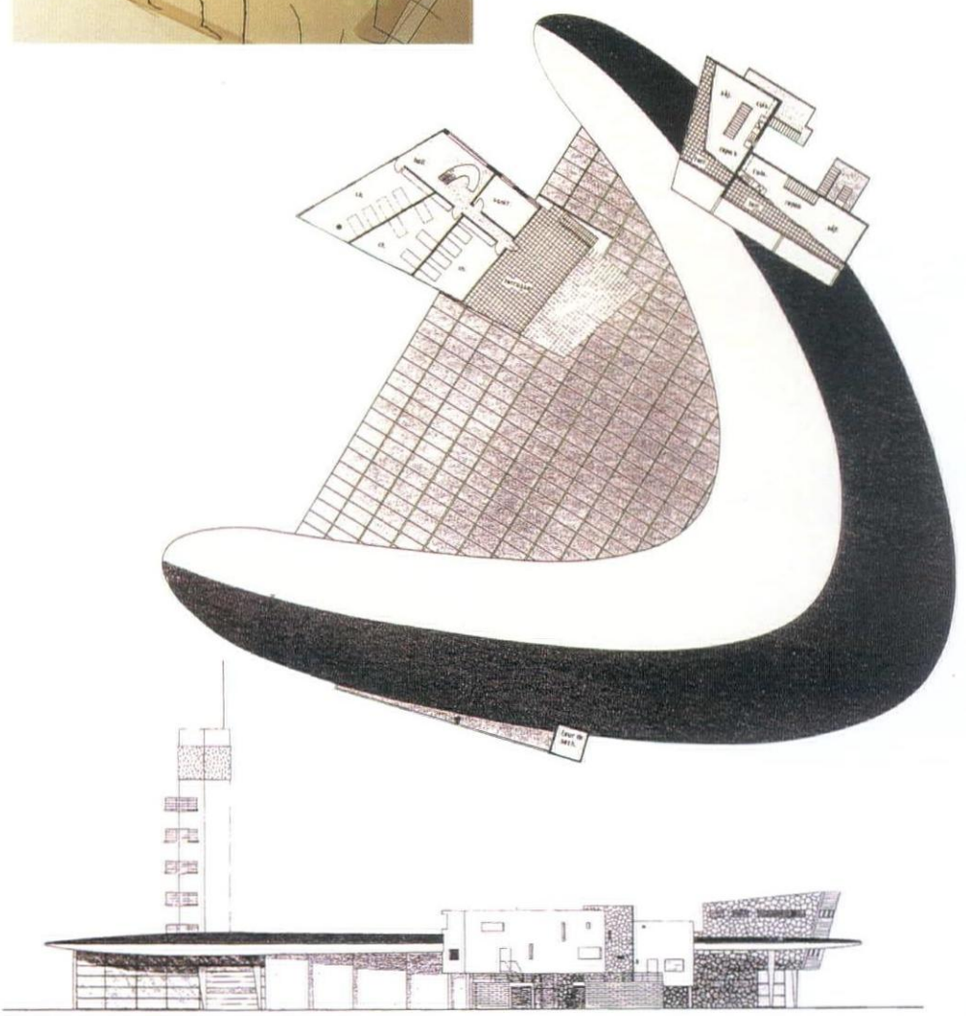
You are right. We have some ready-made formulae that reflect similarities in generic situations. But this vocabulary is not limited. We actually use the language from the very open field of the Modern Movement. The important thing is that the grammar, syntax and structure of our compositions does not repeat anything given by tradition or history. We use the same formulae to express different meanings by using them in different contexts, programmes or functions. For instance the form of the boomerang may be an expression of a radically new conception, even if it is used as a ready-made form.

Let's work through an example from your own design practice

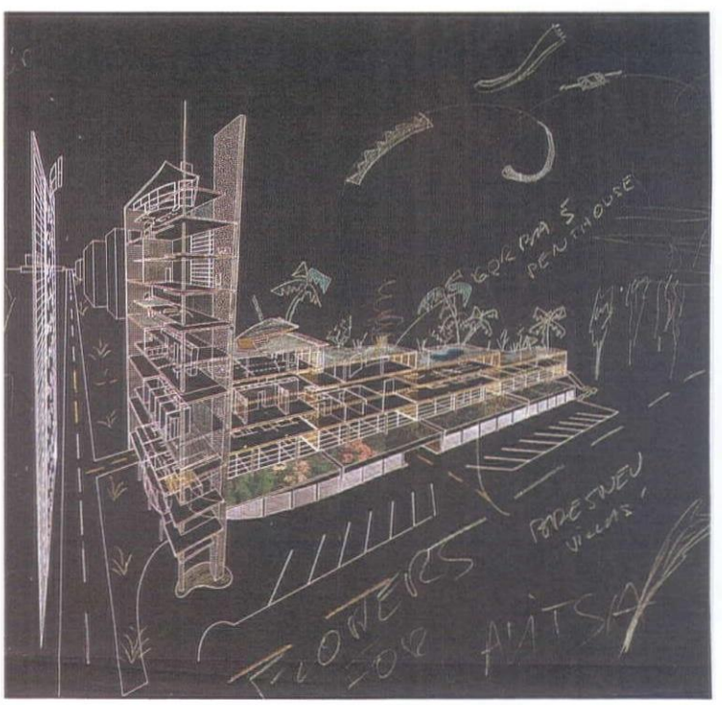
Well, in the project for the Central Fire Station in Haguenau, in which the French typology appears as a linear structure, the boomerang shape emerged as an expression of a triangular model of the communication process, translated into spatial terms. The intention was to cut off the thermal

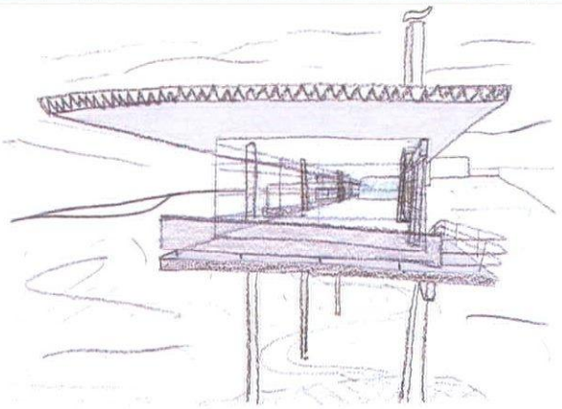


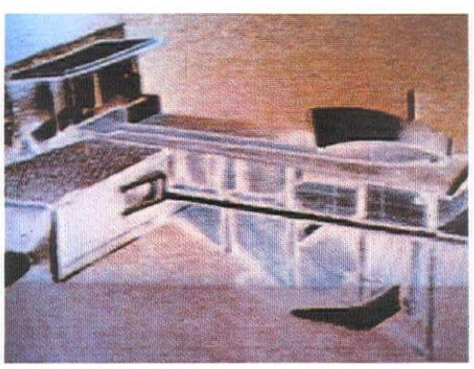
Project for the Central Fire Station, Haguenau, 1991. Model, plan and elevation.



Left: Tower and Barn: a diploma project, 1984. Right: Project for Social Housing in Ostwald, 1989. (In collaboration with R. Lang.)







Above: Project for Villa Ada, Heiligenberg, 1988. (In collaboration with R. Lang.) Drawings, screen images.

losses, which are high in the linear model with its countless doors. So we replanned it with only two, reaching out of the triangular shape of the plan. From that basic configuration, after rounding off the angles for circulation reasons, the resultant form of the "boomerang" was outlined. It worked perfectly.

Can you interpret other ready-made formulae from your vocabulary in a similar way?

Another observation of ours concerns inclined lines and surfaces, especially façades. The best project to illustrate this is the Showroom of the SAGOS Company in Strasbourg. We designed its façades of corrugated metal panels because of the very low budget. It is like a piece of *barriada* architecture, and even reflects the same spontaneity; look at the angles. They do not simulate complicated procedures or interrelations: the side panels are just placed as if they rest on one another accidentally. The walls are inclined also to reflect the sun's rays from the south: a showroom has to attract attention and act as a big mirror. So, as you can see we used that small vocabulary in a very contextual way that reflects different thinking and processes of invention.

What about the National Wood Centre. This is the most controversial structure in your zoo: a nearly archetypal image of woods created with a typical "cocktail sticks" cliché; yet the actual material of these supports is real wood; furthermore these timber supports have an entasis-like shape, diagrammatically reflecting the stresses, but recalling ancient columns, while yet inclined in all directions.

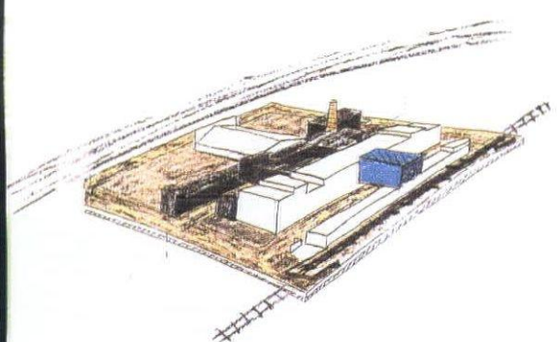
It was a design competition, organised by a company that wants to develop new non-traditional applications for wood. Instead of transforming wood into a high-tech material, we chose the opposite: to create an image that speaks, in terms of a very mysterious and archaic images. It is easy to think of these blind wooden panel walls as a reflection of an archaic wooden hut, because you don't see what is in it. Actually it is supported by wooden columns that go right through the building. The real difficulties came from the programme condition that the structure could be transported in one truck and be assembled in a new place every two days.

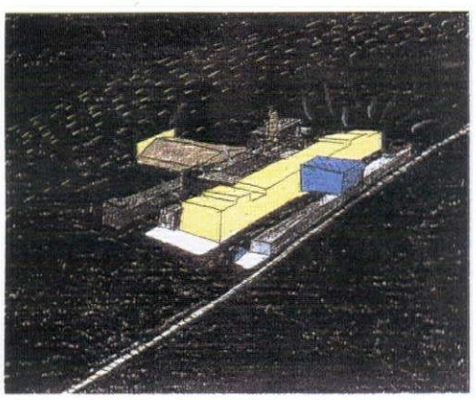
I like the immediate cinematographic effect of the building. It gives the impression of an action that is stopped in a freeze-frame.

I find similarities here with some ideas of the surrealists. You may consider it as an architectural realisation of the André Brèton's *Explosante Fixe,* from his book *L'Amour Fou.* We won the competition, but this project will never be built.

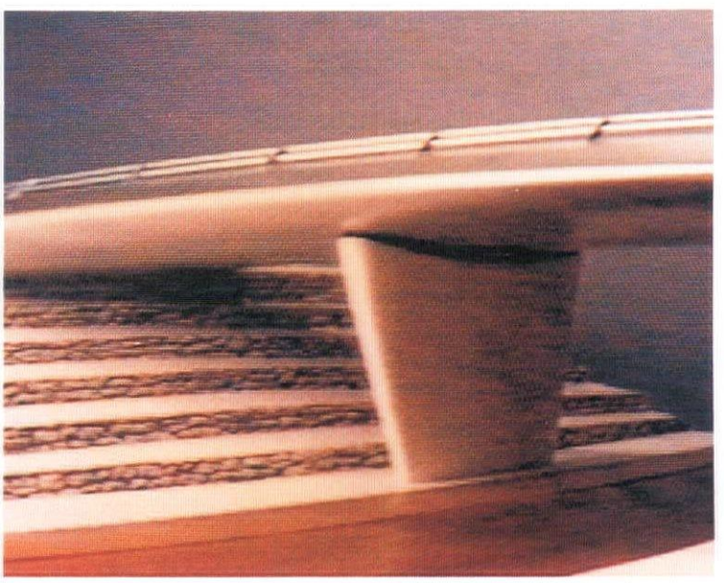
Actually there are other features of your work that seem to relate to the cinema, or, in another way, to the culture of comics. Let's take the numerous conceptual drawings that frame the spaces of your projects. Is there a parallel between your design process and film or comic techniques?

Yes, in a very specific way, yes. In France the culture of comics is very influential and in some ways I respect comics as serious visionary art. Unlike the Americans we have an elaborate comics culture where irony works as a socially and artistically efficient generator of ideas. What concerns the





Left: European Centre of Art Creation "Milk Factory", Strasbourg, 1990. Drawings. Right: Project for a bridge in Alsace, 1988. (In collaboration with R. Lang.) Screen image.

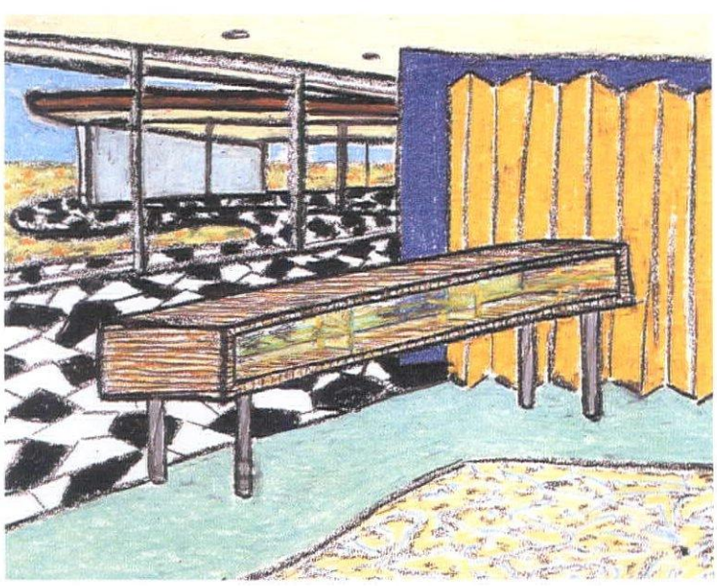


methodology of design is the way I find this process very similar to the production of a film scenario or a comic strip. One programme, let's call it an architectural "plot" or a "story", usually has many scenarios in our studio.

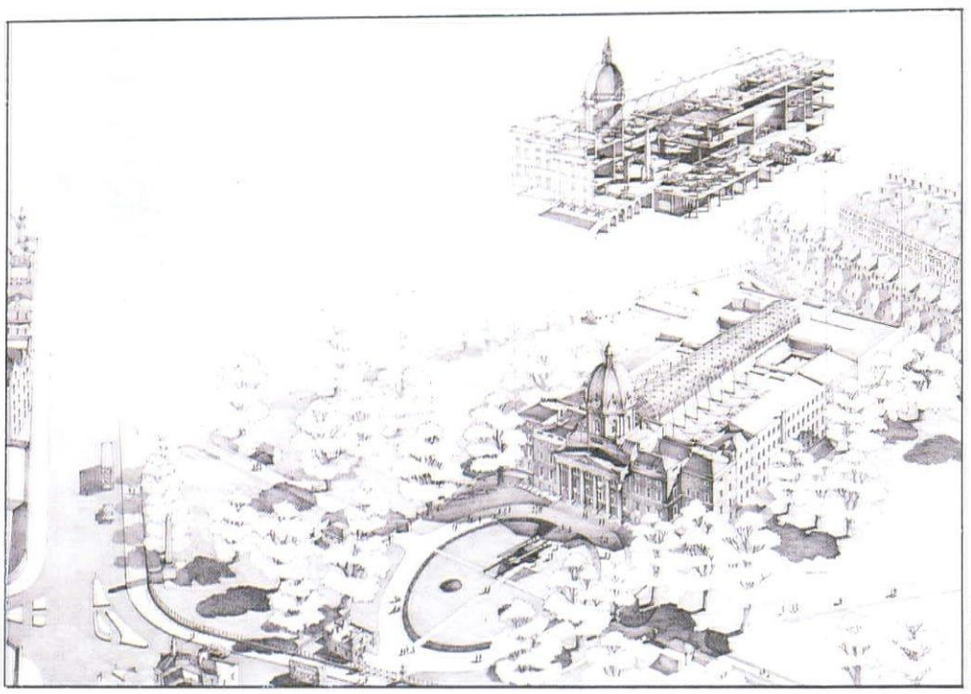
What do your architectural stories talk about?
I will go on illustrating your metaphor with examples. This is the Villa Ada, standing on a very sloping site. In the beginning we made a kind of a Richard Neutra villa, situated according to the horizontal lines of the slope. The story started after discussions with the client, who revealed himself as very tough person, a kind of "Tarzan character". And that changed the whole story: the building turned against the slope as an aggressive creature facing the open space. And this happened just because the client has shown us his character, his "hero genre" that defined his story as a comic strip. That was how the story of the man influenced the story of the project.

What other architectural stories are you trying to produce now?
We take a risk by not having any established attitude or language. We try to discover, to unveil, architectural stories. I produce these stories using the very common language of the Office of Metropolitan Architecture, where I once worked. And this language is a very current one. It is based on everyday life. There is nothing artificial in it. I feel myself a designer of building "stories" rather than languages, and that is what I derive pleasure from. □

Above: Project for "Fond Regional D'Art Contemporain", Celestat, 1991. View of the model. Below: Project for Villa Burg, Westhoffen, 1990. Drawings.



MUSEUMS IN THE AIR



Arup Associates

Converting Bedlam into a high-tech museum was not easy. That is why the Imperial War Museum has asked Arup Associates to consider further expansion plans. Tim Ostler talks to director Dr Alan Borg about the experience of working with the firm on the first major alterations to the Lewis and Smirke building for 140 years.

How do you see the Imperial War Museum's place within Britain's military tradition?
Well, I suppose I see the Museum's place, very simply as an historical museum. It's not our job necessarily to comment on what has happened, and I think in terms of the history of warfare in the twentieth century, simply telling the story is sufficient comment in itself. You don't actually need to say war is a bad thing to explain what has happened to this planet in this century.

What is your own background?
I was trained as a historian and as an art historian. I worked in the Tower of London, and then in 1978 went to be the first Keeper of the Sainsbury Centre at UEA.

Were you at the Sainsbury Centre when the architects were being commissioned?
Very interestingly, no. The view of the patrons Robert and Lisa Sainsbury was that they would create with an architect – Norman Foster, of course – a building into which, almost as an afterthought, you would put museum professionals and a collection. It is clear to me, splendid though I think the Sainsbury Centre is, that that is entirely the wrong way to do it.

So you didn't consider Foster Associates for the work at the Imperial War Museum?
I didn't consider Foster Associates for this building. That's not because I have anything against Sir Norman – we're actually commissioning him to build something which we're calling – 'The American Air Museum in Britain' – at Duxford Airfield. But I didn't think this was a job for Foster Associates, because a key element here was relating the new structure to the existing historic building. And I felt, rightly or wrongly, that that was not particularly Foster's *métier*.

(Above right) A cutaway of the new galleries floats above an axonometric view by Crispin Wride

Nicholas Grimshaw and Associates

Aircraft and rockets under the translucent space frame vault of the new gallery

How did you set about commissioning architects for the Imperial War Museum?
When I arrived in 1982, and indeed for the first part of the contract, museum building projects were managed for us by the Property Services Agency. They'd actually appointed an architectural firm as consultants (I'd better not tell you which one) and largely because I was extremely innocent about the way government agencies work I simply said: "I'm not having that. I want another one." We eventually got our own way, but it was rather a struggle.

Your way being to commission Arups, or to open the search to other architects?
It was actually to commission Arups. Personally I'm not very keen on things like competitions. I think it is the job of anyone commissioning architecture to have a good idea of what the field is . . . We talked informally to a number of architects. But I think we all felt that Arups were going to be the right sort of architects for the sort of problems we had.

What was it that Arups had done in the past that led you to this view?
It was the various things they had done with historic buildings . . . I was particularly struck by the new offices they had done for the Hadleigh Council Offices, in Suffolk. And then also, one of the things I looked at was the Liverpool Garden Festival, and the pavilion which Arups had done – which seemed to me an interesting structure, and to be looking at some of the same sort of problems.

Have you any comments about Arups' method of working?
I don't really think so, in that it seems to me the absolute essential thing is to get on with

whatever group or team of people you're working with. We did like the Arup team approach . . . What I was pleased with was the amount of consultation which *they* wanted. I believed that they paid a lot of attention to detail.

We had an option to get them to design the displays. We decided against that because if you have an architect who designs the museum's display, you are likely to end up with displays which are to a degree inflexible. They will fit in with the building – it is arguable that this is what happens in the Sainsbury Centre – and any major change that you want to make will not work.

You seem to be suggesting that architects are not very good at designing open systems.
I don't think I'd say that. But I think that if you've designed the box, you will design the inside of the box to go with the outside. Whereas on the downstairs displays, for example, we said very firmly to Arups that what we want is a "television studio": a fully-serviced space with nothing in it.

Were there any major proposals which Arups had to work hard to persuade you to accept?
There tends to be a conflict in a building like this where we are limited entirely by the outside perimeter wall . . . over the problem of open space versus crowded contents. For example, the initial proposal we agreed on with Arups was to have the aisles much fuller and to have a double-height art gallery. I think it was Arups who thought the space would look much better without that, and we were eventually convinced, although it meant that we could put less art gallery space in this phase than we had hoped.

Do you feel, in retrospect, that that was the right decision?
If you're going to tell me I can build the second half, yes it was the right decision!

Were there any things which you had to work hard to persuade Arups to accept?
The conservation requirements of museums usually run contrary to architects' desires for light . . . The upper half, where the bigger exhibits are, is actually considerably higher in its lux levels than my curators would want; it's also probably considerably lower than Arups would have liked.

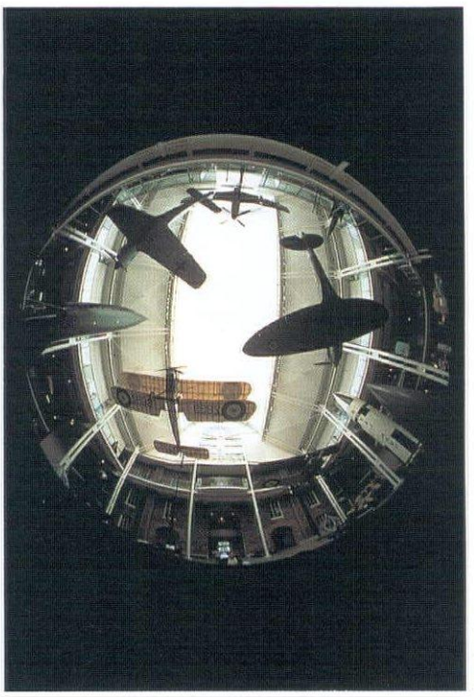
What are the special problems involved in displaying militaria and the other material in the musuem?
The most important problem . . . is that you have some very big objects, going down to some very small ones, with everything in between.

One of the things that I did here was to make a philosophical distinction: we will not try to show the big objects as part of the historical story, we will take those objects out and make a display in a large entrance hall . . . the intention being that people should look at them and say "Wow, isn't that a splendid object!" without being told anything about what it's for. You then go downstairs and you discover that these very splendid and dramatic-looking objects are actually machines which were being developed for the practice of war.

I presume that this made Arups' job a little bit simpler, by being able to concentrate structural loads in one area.
Yes. It makes *everyone's* job a bit simpler, because it's difficult to tell a coherent story with small objects when they keep being punctuated by large ones. But we did pose certain problems. For example, we believe in the integrity of certain objects. The aeroplanes hanging up there are real aeroplanes with real engines in. One of the options would have been to take the engines out to reduce the weight (it has other sorts of problems, of course, because the engine is what holds the propeller on). But to me, and I think to our visitors, it makes a difference to know that that's a real aeroplane that fought in Battle of Britain.

Have the alterations had a marked effect on the attendance figures of the museum?
Well they did, of course, immediately we opened, and we did very well. We've had a bad year this year, along with virtually every major tourist attraction, (thanks to) the disappearance of American tourists and the interesting fact that if you actually have a shooting war, people tend not to come to war museums.

What is included in Stage 2?
Stage 2 is a phased development option, in seven or eight stages, and does not rule out the possibility of continuing the vault. It will include: galleries to cover the post 1945 world; more art galleries; a gallery devoted to Special Forces – special operations, resistance and that



Arup Associates

RE8, Spitfire and Focke Wulf 190 under the lattice barrel roof.

sort of thing; a new education centre; a new cinema; and other essentially ancillary services – perhaps a new reading room and so on. Realistically we have to say that we're not going to get the money to do it all in one go.

You were quite highly funded by the Government in the first phase, I believe?
Well funded, but we had to raise a lot ourselves, of course . . . I now realize that actually we built this thing the wrong way round. If we'd started at the back, and you still came into a grotty entrance, it would be much easier to convince the Office of Arts & Libraries, and the Minister thereof, that we still needed funds. But as you come into a very smart-looking entrance, they tend to think we've done it all!

How does the end of the Cold War affect the Museum?
Well, it means that very large and formerly expensive bits of kit are available. It's actually quite often cheaper to give something to me than to scrap it. It also means the post-war galleries that we are doing will become even more interesting . . . And yes we will be acquiring for Duxford some Cruise missiles, and even a Cruise missile launcher, about which I have a wonderful thought that I might drive it round the roads of Cambridgeshire!

RISEN FROM THE GRAVE

Louis I. Kahn: in the realm of architecture. *By David B. Brownlee and David De Long. Rizzoli International Publications, Inc. 448pp. £40 (cloth) £27.50 (paper).*
Louis I. Kahn: writings, lectures, interviews. *Edited by Alessandra Latour. Rizzoli International Publications, Inc. 352pp. £35.00 (cloth) £25 (paper).*

Review by Martin Pawley

The exhumation of the reputation of Louis Kahn from the mass grave of Modernism has taken far less time that might have been supposed. These two compendious books, one a catalogue written to accompany a major travelling exhibition organised by the Los Angeles Museum of Contemporary Art, the other a definitive collection of Kahn's portentous but ultimately anticlimactic writings, not only represent excellent value in paperback form, but clearly show the scope of the change in critical opinion that has taken place since the great American master died of a heart attack in Pennsylvania Station, New York, in 1974 on his return from a visit to one of his great projects in India.

Louis Isadore Kahn was born in 1904 of Jewish parents in Estonia, then a part of Imperial Russia. His father was a non-commissioned officer in the Imperial army who emigrated with his family to the United States almost immediately after he was born. Thereafter Louis grew up in Philadelphia, gradually attaining distinction because of his drawing ability and eventually attending the University of Pennsylvania from 1920 to 1924, where he received a strict Beaux-Arts architectural training. After working in the city architects' office in Philadelphia for a number of years he undertook an influential tour of Europe in 1928-29 that exposed him to the rising tide of international Modernism. From then on his interest in the larger question confronting architecture in the age of mobilised societies intensified through the years of the New Deal and World War Two, a period apostrophised here in a short paper "Standards versus essential space in war housing", which is reprinted in Latour's compilation.

From 1947 onward Kahn's career developed a formidable impetus, driven by a growing reputation as a teacher, a political presence symbolised by his presidency of the American Society of Planners and Architects, and his own indisputable design talent. Led by the much-admired Richards Medical Research buildings at the University of Pennsylvania – itself derived from Kahn's own early water colours of San Gimigniano – his output of work during the 1950s and the 1960s attracted increasing attention and the award of prestigious commissions and honours. As the American critic Vincent Scully writes in the foreward to *In the Realm of Architecture*, Kahn devised a way to "transform the ruins of ancient Rome into Modern buildings". It was a technique that served him well in many different parts of the world until his death. Today, with the loosening of the bonds of Modernism, its potential for formal inspiration is greater than ever – as indeed is the retrospective richness of the work so beautifully described and illustrated here.

THE SPECTRE OF TECHNOLOGY

Modernism In Design *Edited by Paul Greenhalgh. Published by Reaktion Books, London. Price £9.95*

Review by Jeremy Myerson

Consider the following: "The result of this tremendous body of prejudices and obstructions, supported as it is by the authority of the law, has been to lend a disproportionate importance to very small points. To obtain permission to build a flat roof is in itself such an achievement that it is likely to over shadow, in the mind of the architect, the significance of his original conception. The result is that at present it is almost impossible to judge objectively the aesthetic qualities of a building."

This sounds like an accurate description of the state of British architecture and planning today. In fact it is Berthold Lubetkin complaining about his struggles in 1937 in a country which has been more consistently resolute in its resistance to Modernist principles in architecture and design than anywhere else in Europe.

Such a dubious accolade has led to much cultural soul-searching among British design historians. Several of the most active have contributed to this heavyweight anthology of academic essays which discusses the legacy of Modernism across a broad range of geographical and cultural contexts.

Lubetkin's quote pops up in a useful discussion by Tim Benton of the philistinism of English architectural criticism in the 1930s. By attacking the automation concept of functionalism, many critics were able to present the war against Modernism as a fight for humanism. But Benton points out that what they really objected to was not the idea of functionalism but "the spectre of communism, cosmopolitanism, social purpose and the stripping away of traditional detailing".

Britain's cultural tradition was resistant to any attempts to apply logic or analysis to questions of art, and the actual arrival on British shores in the 1930s of such figures of European Modernism as Lubetkin, Gropius, Breuer and Mendelsohn fuelled fears that went to the roots of society.

Not that Britain had anything like the radical political conditions that contributed to the intensity of the debate about Modernism in Germany in the 1920s. Martin Gaughan's essay explores the Germany of the Bauhaus and suggests that: "The crises in German capitalism were deeper, the mobilisation of its classes more marked, than elsewhere . . . Cultural Modernism, in its many and wide-ranging forms, had a much more significantly oppositional role to play here than in other bourgeois democracies, where Modernism was essentially concerned with aesthetics." Even so, as the British experience has demonstrated, debates about aesthetics can get pretty bloody.

Paul Greenhalgh, editor of the anthology, makes the distinction between distinct phases of Modernism: the "Pioneer" phase running up to the early 1930s; and the "International Style" phase which dates from the 1932 exhibition of the same name organised by Philip Johnson and Henry-Russell Hitchcock at the New York Museum of Modern Art.

The first Greenhalgh describes as a "set of ideas" about transforming human consciousness and improving human conditions, which was realised only in a handful of objects and buildings; the second phase he marks down as "less of an idea than a style and a technology". But this, of course, was realised on a far grander scale: the International Style remodelled thousands of cities and objects all over the world after 1945.

Such a bold distinction could be tricky given the number of countries and movements this book seeks to cover, with their overlapping influences and unfocussed discourses. But Greenhalgh covers himself at the outset when he says that the essays will "not explain the Modern Movement in design in all its aspects, nor will they uniformly defend, rebuke or apologise for it. Rather they are intended to complicate it".

Therein lies both the strength and the drawback of this important but flawed anthology. It has undeniable breadth but its picture is also complicated and its ideas do not always interconnect across the span of frenetic pre-war cultural change in Europe.

It is instructive to read Gillian Naylor's detailed account of Sweden's humanist approach to Modernism, in which craft traditions were reflected in mass produced objects and Erik Gunnar Asplund's Stockholm Pavilion of 1930 was widely admired, or Guy Julier's exploration of the Modernist roots of the Spanish design boom in the 1980s. It is rather less instructive to wade through the backwaters of the French furniture industry or Belgium's interwar contribution to Modernism at certain exhibitions.

And while Penny Sparke's essay on post-1945 Italian design for the home charts with admirable clarity the shift from providing shelter and meeting social need to indulging in international symbols of luxury and status, one senses that Greenhalgh's Modernist catch-all is just too broad to lock any particular set of arguments into an analytical vice.

Where the book succeeds is on the level of individual contributions, none more enlightening and entertaining than Wendy Kaplan's account of Pioneer Modernism on the American West Coast in which she discusses the work of Frank Lloyd Wright, Irving Gill, Rudolf Schindler and Richard Neutra.

March of the killer cities

World Architecture *is the official magazine of the International Academy of Architecture. This year the Academy is participating fully in the United Nations World Conference on Development and the Environment, to be held in Rio de Janiero from June 1st to June 5th 1992. This month's news and views from the Academy consist of the contribution to the debate of the Academy's president Georgi Stoilov, which deals with the concept of an ecologically correct urban settlement:* "Ecopolis", *the city of the future.*

The urbanisation of our planet is a universal process and it is increasing and accelerating all the time. The reasons for its continued growth are demographic, concerned with the over-population of the planet and the concentration of productive forces, the impoverishment of great masses of the earth's population, and the operations of the world economy.

The chaos of contemporary urbanisation causes two disastrous consequences: the destruction of nature's equilibrium and the creation of insanitary and disease-prone human environments that threaten human survival. In this sense many of the world's cities have become "killer cities". They do not energise man but provoke his spiritual and physical degradation. The object of the "Ecopolis" programme is to analyse the sickness of the contemporary city, to formulate plans for ecologically clean cities, and to reconcile those plans with the need for economic growth and development. The term "Ecopolis" is a neologism to describe this new city form of the future.

There was a time, when built areas covered an insignificant percentage from the surface of the planet and they did not have a particular influence over the whole organism of Nature, while the technologies of living processes were harmless . . .

Nowadays, in the epoch of total ecological crisis and a super-urbanized planet, the past criteria, principles and methods for planning and development of the city are no longer suitable or sufficient.

The technologies of all processes which take place in the city and have a drastic impact on urban environment must be radically changed so that the influence of human settlements on Nature can be radically changed also.

All this imposes the need for new methods and approaches in the process of planning and management of the development of the cities and the urbanisation process.

The basic law in these new principles, methods and criteria should be the ecological law of preserving and developing nature's equilibrium and harmony in the chain *Man-Society-Nature.*

This will lead to the elevation of the role of ecology and in particular urban ecology as a discipline for the research and monitoring of the condition of the urban environment. An integration and fusion of urbanism and ecology will take place, and a new discipline will be born which will act as a system for planning and management of the city development and the processes of urbanisation.

All cities and the other human settlements are spatial structures, and the space itself is the realm of the architect.

Future urban structures may be changed radically – they could be on land, underground, afloat, in the sky. But they will always be structures of volume and space. The global model of these spatial, functional, socio-cultural, technological structures will always be a product of architectural thought.

But the creation of these new structures of internal harmony (man-man, man-machine) and the external harmony (man-nature) becomes a very complicated problem. The traditional architect and town-planner must be replaced by a new type of creative professional's the Eco-urbist.

Thus Urban Ecology will take the decisive position in the interdisciplinary team that will control the planning and management of future urban development.

The formation and development of "Ecopolis" cities, will motivate the development and improvement of both the complex methodology Eco-urbia and its component urban disciplines.

Computers and other modern facilities will help in the creation of multi-variant Eco-urban models, capable of registering the influence of thousands of factors, aims and criteria which act simultaneously.

The methodology of Eco-urbia will include a complex analysis and prognosis of all factors which influence urban environment and define its qualities. This is valid for the technologies in all living processes: in production, transport and communications, in households, public facilities, energetics, socio-cultural contacts. In the global eco-urban model, certain indicators should be considered: ecological, economical, technological, social, psychological, aesthetic, moral-ethical, etc.

The "Ecopolis" programme is valid both as concerns the programming of new cities and the reconstruction and sanitation of existing urban structures. For in this programme, the therapeutical and preventive measures will be bound up in one system.

The "Ecopolis" programme has many aspects and levels. They refer to:

- the formation of an eco-urban consciousness;
- the elaboration of methodology, criteria and mechanisms for research, monitoring and management;
- the preparation of staff and equipment;
- the formation of international, national and local policy;
- the approval of regulations and legislation.

The role of the citizen, of public opinion, of social organisations and mass media in the "Ecopolis" programme is a decisive one.

Due to its high moral and humanitarian objectives, principles and criteria the "Ecopolis" programme will create a sense of UNITY. Only this sense of unity of mankind in the face of common catastrophe or towards common prosperity will cause a feeling of "one world" to be disseminated everywhere. □

Forum of ideas – Ecopolis '92 Rio

The United Nations World Conference on Environment and Development Rio '92 will consider the global problems of survival and development. In this conference, the questions of the protection of air, water, land, climate and the universe as a whole, are the fundamental programme.

The International Academy of Architecture, which is a non-governmental organisation with the UN, proposed to the Preparatory Committee to hold a World Exhibition of "Ecopolis" and a Forum of Ideas called "Ecopolis" as constituent parts of UNCED '92 Rio.

Mr Maurice Strong, Secretary-General of UNCED, agreed with the proposal and Dr A Ramachandran, Executive-Director of UNCHS (Habitat) supported it actively with financial assistance. The Programme for Ecopolis-Rio '92 has been widely published in many countries.

The exhibition programme envisages designs and ideas on the Ecopolis-life-stimulating city. At time of going to press, 68 designers from 31 countries had already confirmed their participation.

The reports and discussions emanating from the conference and exhibition will outline major ideas and principles for the development of the "Ecopolis" programme as a new way of thinking about the urbanisation of our planet. □

Berlin story

Throughout his long life Pierre Vago has seen plans for Berlin come and go. Here he reflects on some of the most promising post-war developments, but deplores the failure of the new United Germany to seize the great architectural and planning opportunity offered by the demolition of the Berlin Wall.

On June 1st 1989, in the presence of several hundred architects from what was then the Federal Republic of Germany, as well as government representatives, I had the honour of giving the opening speech at the Congress of German Architects at Duisburg.

I began with a reminder: the Congress was taking place in the *Ruhregebiet*, "which is in the *Land* of Nordrhein-Westfalen; and this *Land* is part of the Federal Republic of Germany, which is a part of Germany . . . and Germany is part of Europe, this Europe of history and of culture, whose unity in diversity is the outcome of centuries of fighting, centuries of being torn apart, a Europe which has however finally become conscious of the thousands of ties which unite it, the very differentiation of its parts which constitutes its intellectual wealth. Among so many other things, this Europe shares a profound yearning for freedom, for human dignity, for a minimum level of social justice. It has learnt to accept the co-existence of beliefs, of convictions, of different ways of doing things, and has won the right to express these differences . . .
An objective vision of history has convinced it of the permanence of certain values, essentially ethical, and of the fragility of political, economic and administrative systems". Not a totally prophetic statement, but six months later, the Berlin Wall would fall.

The reuniting of a great city cut in two by an armistice line which then became the frontier between two antagonistic systems, presented – amongst others – great problems of urban planning.

In March 1955, the West Berlin Senator responsible for Architecture and Town Planning declared: "One day, probably in a very surprising way, the government and the city will be faced with the task of making Berlin the capital of a united Germany." At that time improvisation would not provide adequate solutions. "The planning problems should be thought about now, considered by the most competent authorities, and widely discussed."

In 1957-58, the first step in a thoroughgoing reconsideration, there was an international competition on the theme of "Capital Berlin". According to the very well-prepared programme, only the centre was involved, but under a very wide definition. An overall plan for the conurbation had already been developed ten years before, first of all under Scharoun, and then under Karl Bonatz, brother of the famous Stuttgart architect.
But political events forced architects and planners to start again. The Soviet blockade of Berlin, the establishment of the Soviet Occupation Zone as the capital of the Eastern State, the transfer of the Federal Government to Bonn, the divergent and intentionally antagonistic development of the two halves of the city, all made it more and more difficult to develop a coherent plan. Nonetheless, this inevitable necessity was constantly talked about, on both sides of the dividing line. When a competition for the development of the centre of East Berlin was organised by the authorities of the new capital of the new "Democratic" Republic, 56 teams took part.

The international competition launched in the West suffered from several serious handicaps. So as not to "provoke" the Soviets, any proposal for a centre of government, or even for government buildings, was excluded from the programme. Additionally, the great majority of participants presented proposals which were in deliberate contrast to the conception imposed on the East: for the East-West polemic also found expression in architectural and planning terms.

Despite everything, the "Capital Berlin" competition, which benefited from the lengthy and detailed preparation done by a working group led by Otto Bartning, helped by Rudolf Hillebrecht, produced very interesting results. I was lucky enough to be invited to sit on the jury, with Alvar Aalto, van Eesteren and Walter Gropius (though Gropius didn't actually take part). Many non-German architects were personally invited, among them le Corbusier, Piccinato, Roland Rainer, Robert Matthew and Sven Markelius. A hundred and fifty one projects were submitted, and were "screened" in four months by twelve pre-examiners.

The Jury met in June 1958, and awarded the first prize to a young German team (Spengelin, who was then 33, Eggeling and Pempelfort).

At the end of 1989, the removal of the Wall erected in 1961 should have had the immediate consequence, in the planning field, of an urgent and vigorous return to work on the planning and organisation of a reunited Berlin, and all the more so a little later when a parliamentary decision made the city once again the capital of Germany, now one of the greatest of European political, economic and cultural powers.

Conscious of how important the issues were, the International Academy of Architecture immediately wrote to the Berlin Senate, but received no reply.
An urgent appeal by Berlin's highly respected *Akademie der Kunste* met with the same response.

Now what we are seeing is a frenzied sell-off of particularly significant and sensitive parts of the Eastern sector, much sought after by German and foreign financial, commercial and industrial groups. Very recently, the Senate set up a competition, a not very impressive improvisation, in which certain architects – chosen by whom, and according to what criteria? – were invited to take part, either as competitors or as members of the Jury, as they wished. Other applicants were either accepted as participants in the competition – or refused.

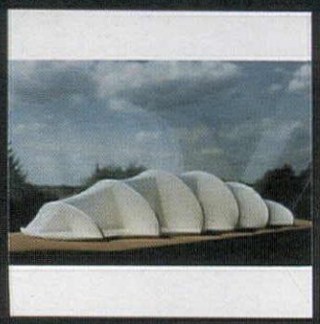
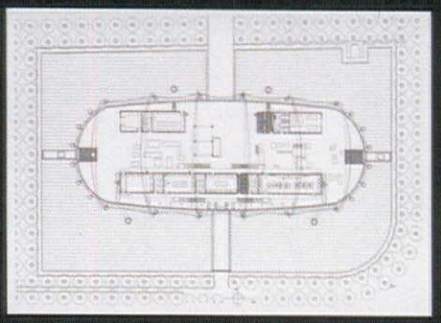
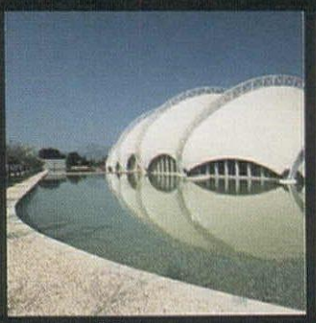
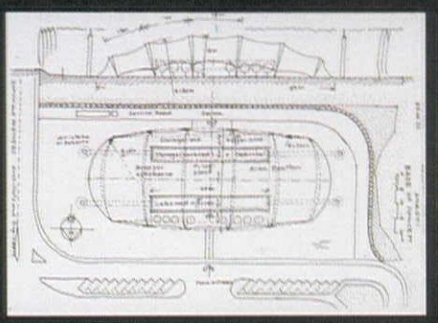
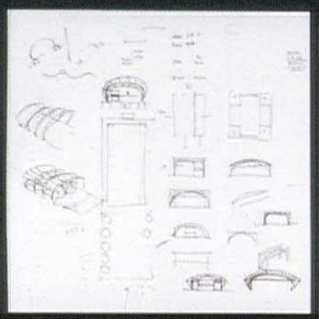
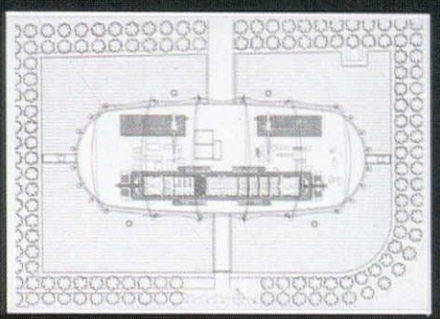
This competition concerned a particularly important area, the historic Potsdammerplatz-Leipzigerplatz quarter, a piece artificially cut out from the urban fabric, its major sites already sold to a few powerful German and Japanese corporations, in the total absence of an overall plan or of structures within which the area concerned should find its place. The documentation provided was superficial and inadequate; the deadline ridiculously tight (two months!); the reward offered was too little or too much (20,000 DM, if I'm not mistaken). A jury, of which, out of politeness, I will give no further description, 'judged' these projects in conditions which were, according to first hand information, quite extraordinary, indeed almost unbelievable. There was a vote. By eleven votes to four, a project by two German architects was awarded the first prize.

Then – a big surprise! A counter-proposal was put forward, commissioned long before from an eminent English architect, by private developers, the owners of the land. A ferocious struggle then ensued, in the Press – and behind the scenes – between this outsider and the winning project. It was one of the "developers" who was made responsible for the public exhibition of the two plans, and the British project was given every advantage.

The battle wasn't any longer being fought about planning. It had become politico-financial. The real problems of integration were relegated to the background.

Everything about this sad affair is scandalous and lamentable. Can we believe that it concerns the future of the capital of a great and civilised country, Berlin, which only a few years ago declared itself proudly to be "the cultural capital of Europe?" When will our German friends realise the absolute necessity of taking these matters properly in hand?

M.T.CEOLA

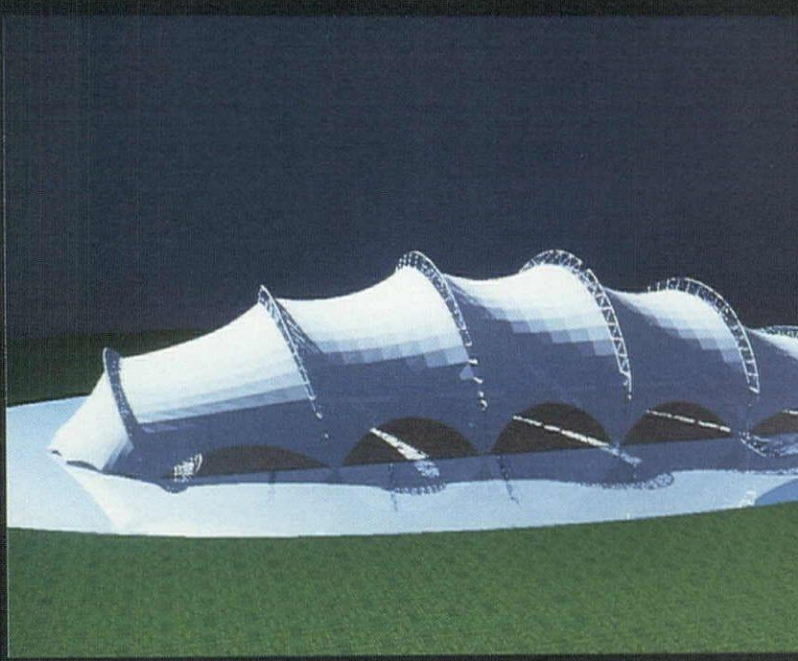
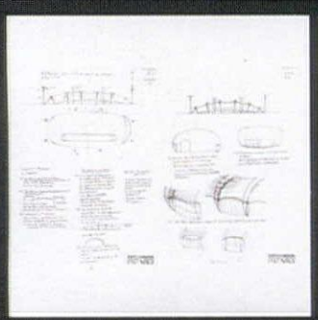
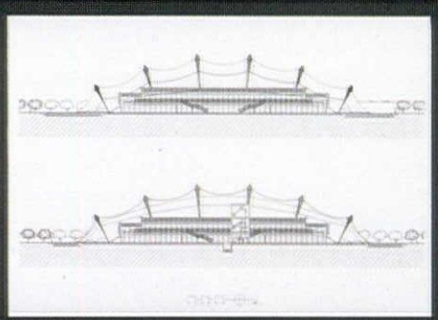
THE STRENGTH OF LIGHTWEIGHT SYSTEM.

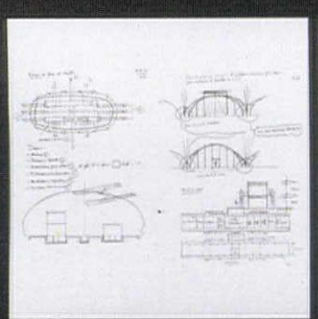
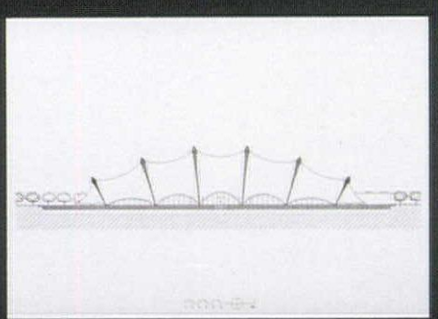
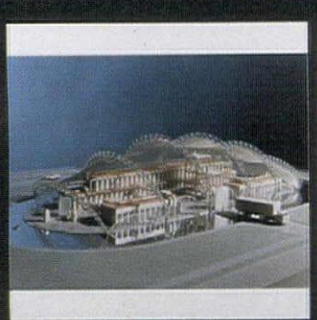
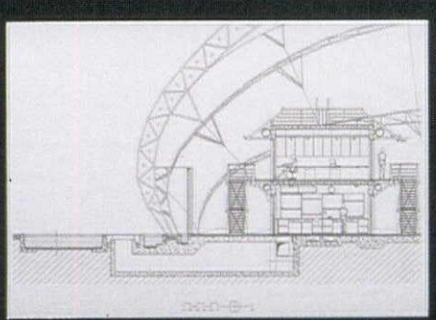
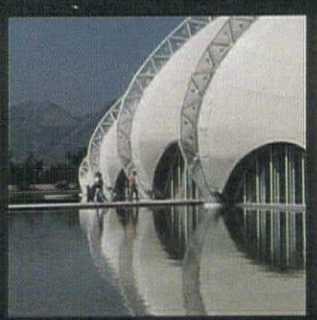
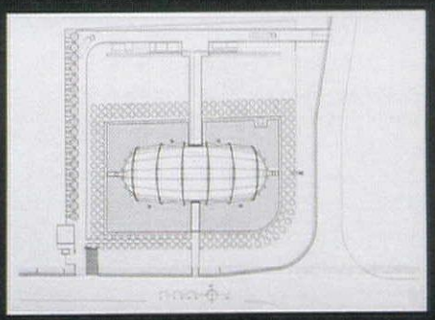
What have we constructed up till now?

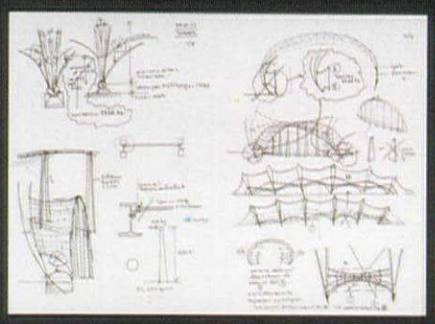
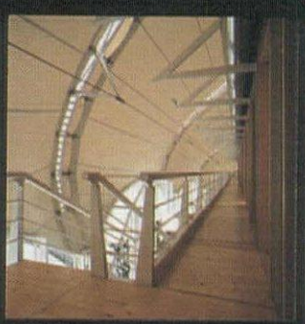
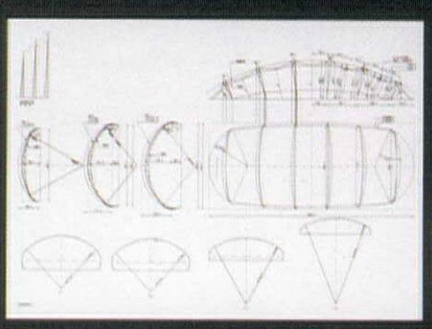
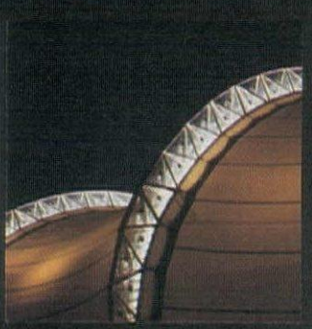
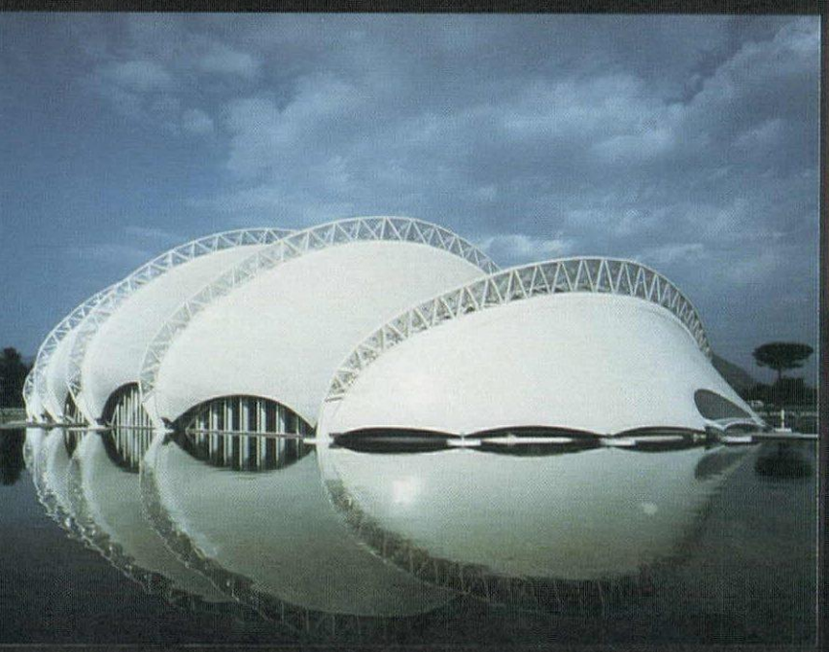
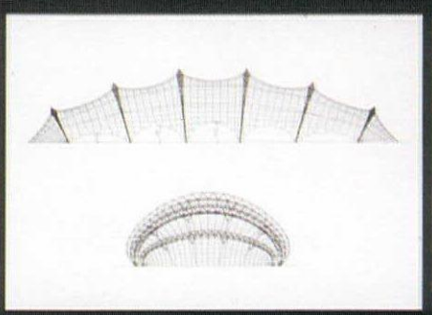
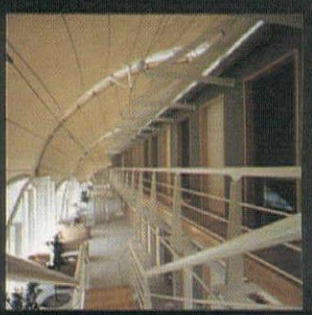
The VENAFRO Research Centre, designed by the architect Samyn, L'EUROPEAN AVENIDA, which you can admire from 22th April at the Seville Expo 1992.
The tensile structure BIGO at Genova designed by architect Renzo Piano, which you will be able to see realized from 15th May at the International 'Cristoforo Colombo' Exhibition 1992.

And above all.....

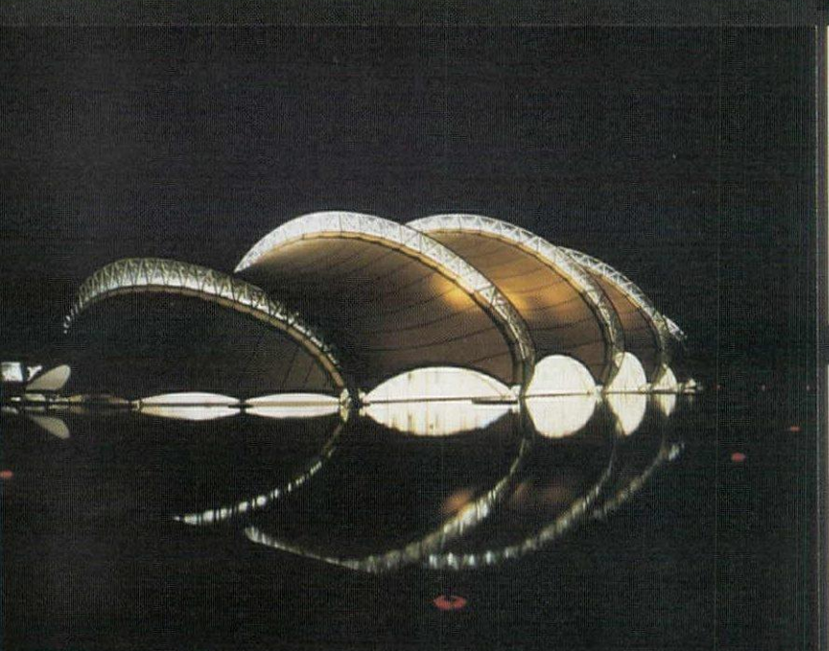
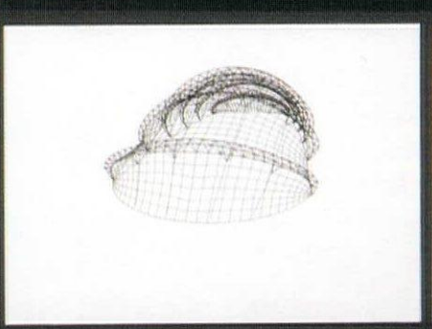
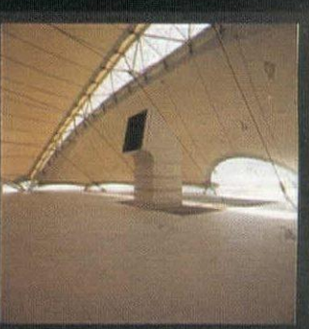
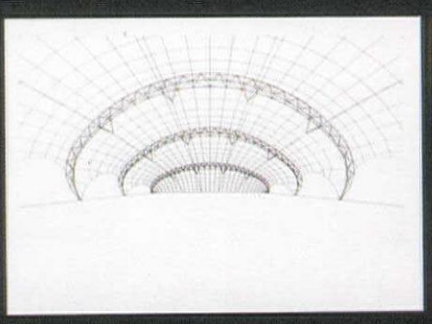
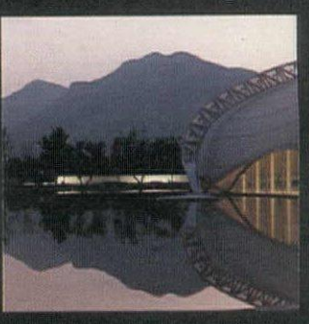
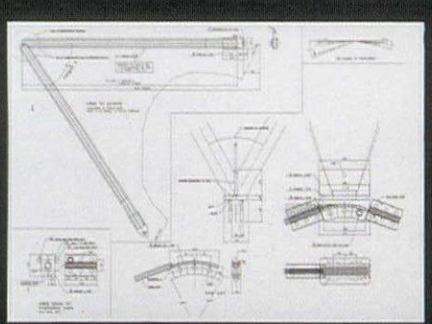
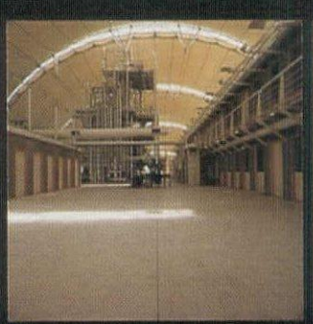
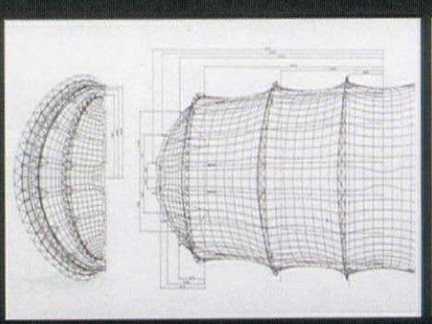
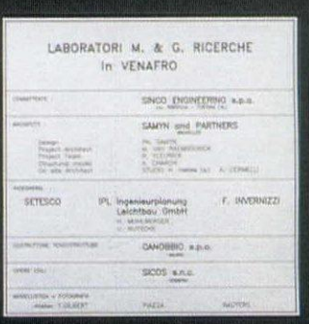
An exclusive know-how for the designing construction and erection of tensile structure. Our 60 years experience makes us the sector's leading company with exceptional breakthroughs: like that of being the only company in Italy with an assembly line of fiberglass-PTFE.

CANOBBIO

CANOBBIO s.p.a. via spartaco, 23 20135 Milano tel. 02 55188168 telefax 02 55183182

MDI

MILLER DRUCK INTERNATIONAL, LIMITED
One Canada Square
London, E14 9GE
071-537-5454

Specializing

in Supply and Fix of Interior & Exterior Natural Stones, Precast Paviors, & Ceramic Tiles

MDE

MILLER DRUCK ENGINEERING, LIMITED

Specializing

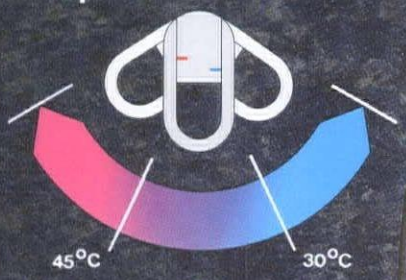
in Engineering & Site Survey Services

CHORUS

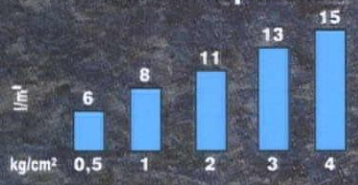
A VERY EFFECTIVE LINE.

IN EFFECT

Accuracy and precision in selecting the desired water temperature.



High delivery rate which ensures a good flow even with a low water pressure.



Tests to perform flawlessly through 4.000.000 on-off cycles. CHORUS is provided with a very compact ceramic discs cartridge which allows the highest functionality and the utmost safety. Each mixer is individually tested to 15 BAR (213 psi) water pressure. Approvals by the strictest quality control Institutes in Europe document RAPETTI quality. Long experience and the highest standard guarantee 5 years of trouble free operation.

RAPETTI

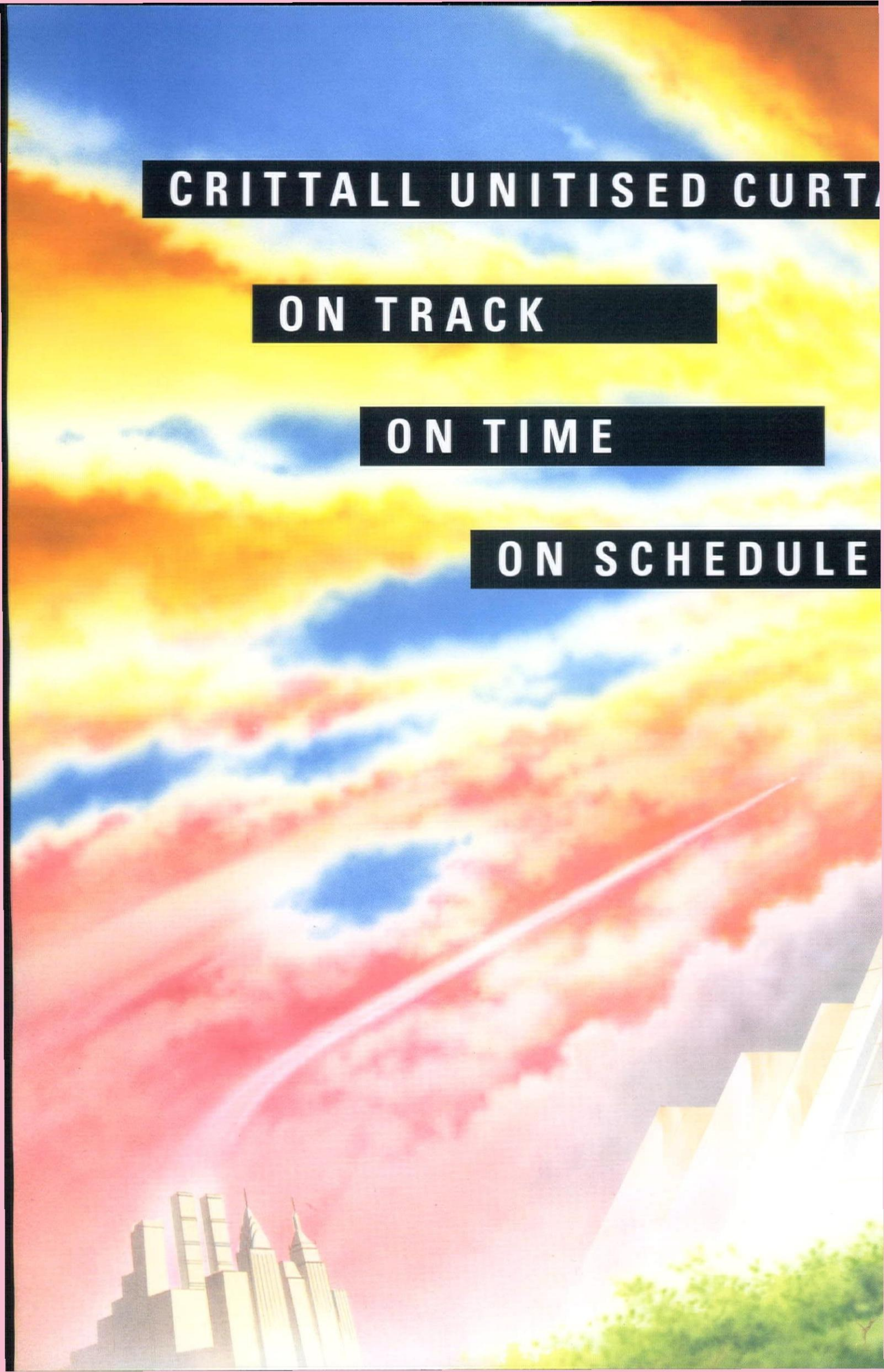
enjoy the quality.

For informations mail this coupon to:
RUBINETTERIE RAPETTI I-46043 Castiglione d/S
ITALY - Fax 0039 376/638127

Profession

CHORUS

WA


CRITTALL UNITISED CURT
ON TRACK
ON TIME
ON SCHEDULE

WALL

THE LEADER MOVES INTO THE FAST TRACK

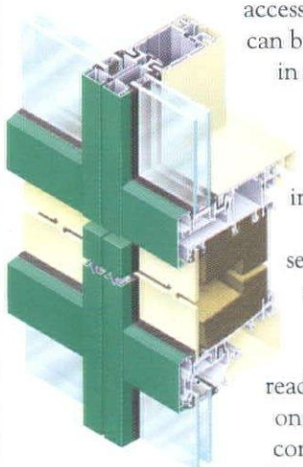
The ideal building envelope would be lightweight in construction, "fast track" in installation.

It would offer design freedom and optimum quality control. And all to a realistic budget.

The ideal is now a reality.

Crittall's state-of-the-art Unitised Curtain Wall, backed by U.S. high rise expertise and experience, comes in module-wide, storey high panels, fabricated and glazed under factory-controlled conditions. Each panel is thermally broken, fully drained and pressure equalised for superb, long life thermal and weather performance.

Craned direct from vehicle to floor slab, each panel is erected *totally from the inside* utilising a unique anchorage and levelling system with absolutely no need for external access, so the building can be closed in, even in adverse weather.



An integrated, insulated back pan allows fast internal finishing. Internal cover sections are applied at the fitting-out stage, ensuring the building is ready for occupation on time, in pristine condition. And the wall will cater for a full range of thermal and structural movements throughout the building's design life.

Best of all, this advanced Unitised Curtain Wall is made here in Crittall's new modern facility – and backed by our resources, expertise and service.

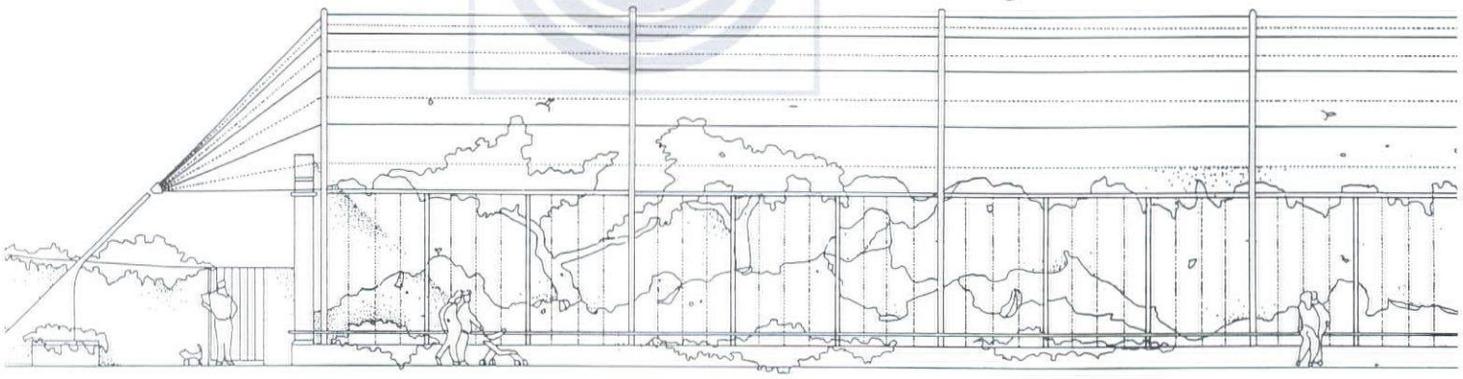
Crittall

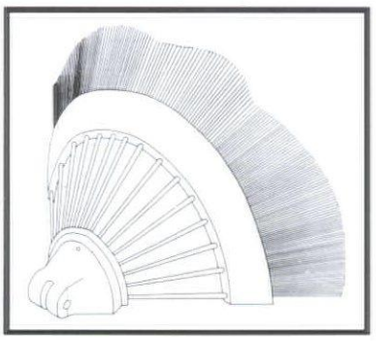
DESIGN WITH VISION

Crittall Windows Limited,
Springwood Drive, Braintree, Essex CM7 7YN.
Telephone: (0376) 24106.
Fax: (0376) 49662. Telex: 98244.

Winner of the British Construction Industry Small Projects Award 1991.

New African Aviary, London Zoo, Regents Park





High Tensile Cables and Tie-Rods

GUY LINKING LIMITED

Hi-Tensile Cables for Structural+Marine+Engineering Industries

5 Court farm, Stutton Road, Brantham, Manningtree, Essex CO11 1PW
Telephone 0473 327388 Telex 987703 Fax 0473 328320

Kaufmann
Gruppe

Gottlieb-Daimler-Straße 6
D-7963 Altshausen
Telefon (0 75 84) 2 94-0
Telefax (0 75 84) 2 94 30
Teletex (17) 7 58 411

Kaufmann
insulation glass

SICOM GMBH
security systems

LAMINEX
function glass

FENTEC GMBH
plastics elements

30 years experience in insulation glass at the KAUFMANN - company.

We recommend us to you as your glass dealing partner and producer of insulation glass.

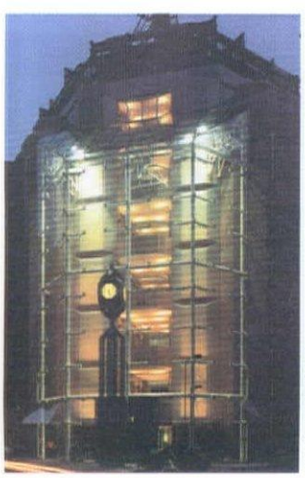
Do YOU also have something to protect?

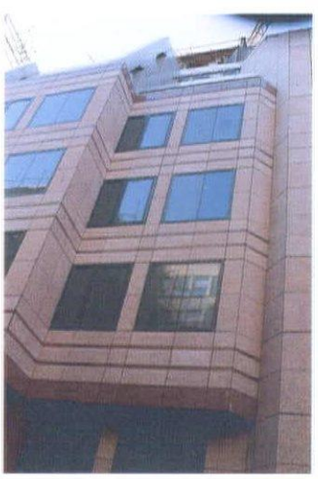
- breaking-in
- bullet penetration
- explosion
- sound-protection etc. stopping glasses
- all glasses tested to DIN 52 290

Test certificates are available.
Bullet-proof glass of the classes A/B/C/D
Post and bank glass with and without elaboration as insulation glass in all executions.

Short-term dates of delivery favourable conditions.

Test our capability!





FINSBURY DIALS – one of some objects we executed together with Schmidlin AG in Great Britain

THE NEW SKYLINE OF

280 mt.

U.O.B. – Singapore
The 2nd tallest building in the world outside North America
Kenzo Tange & Associates architects 61 J.V.

101 Collins Street – Melbourne
One of the largest office towers in the southern hemisphere
Denton Corker & Marshall arch.

Hotel Vila Olimpica Barcelona
The tallest mediterranean tower
S.O.M. Chicago & G.C.A. arch.

British Telecom London
Maurice L. Fielding & Associates arch.

Crystal Palace Brescia
B. Fedrigolli Arch.

Torre Nord Genova
S.O.M. & SEICOM arch.

Generali – Venezia
Prof. Pierluigi & Guido Spadolini arch.

Canary Wharf – FC3 London
Troughton McAslan, Adamson Associates arch

IAITA Quaternario

National Westminster Bank London
Internal demountable partitions
S.O.M. architects

International Award for Innovative Technology in Architecture

PERMASTEELISA

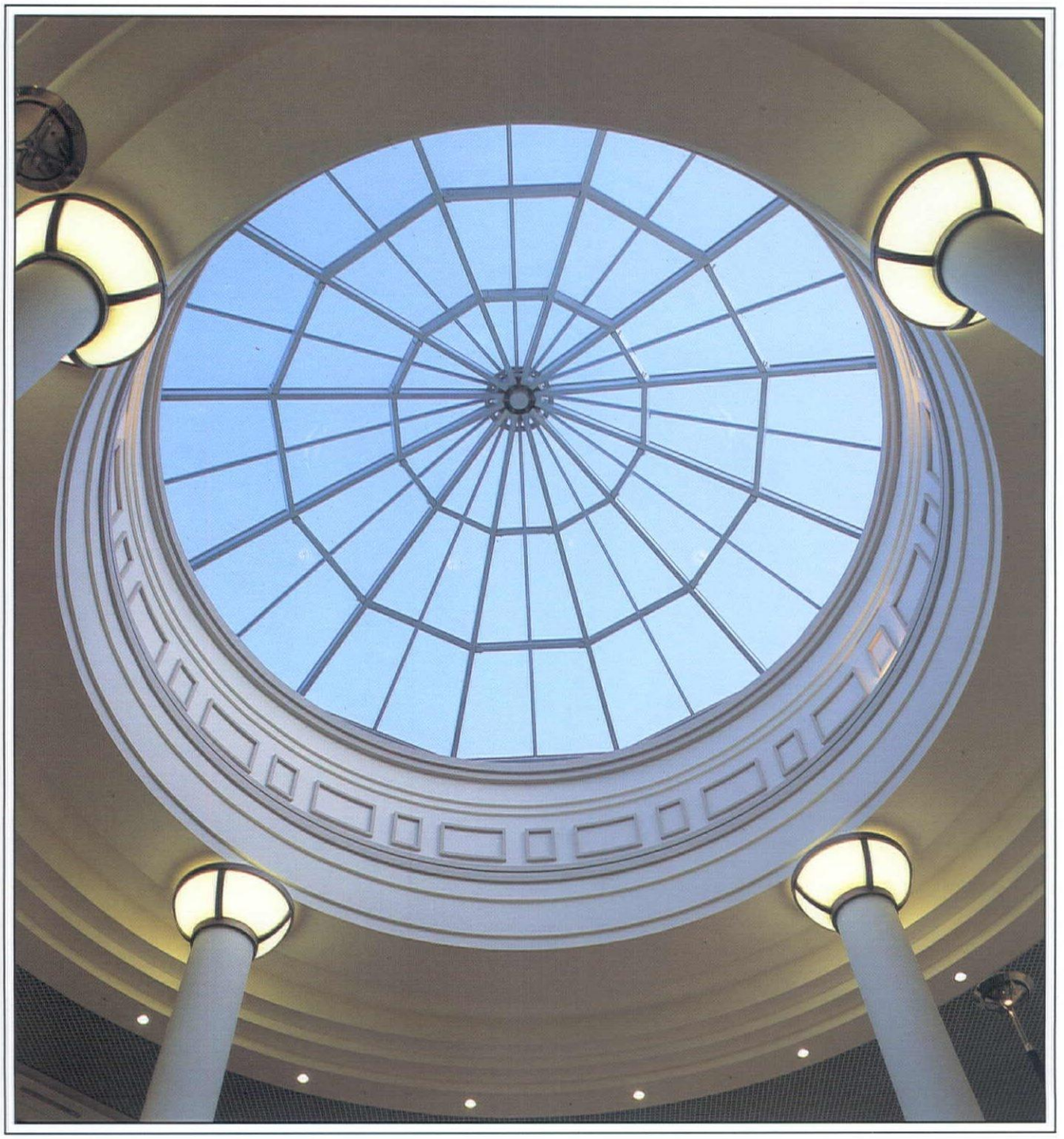
architectural components

2 Beatty House, Admirals Way – LONDON E14 9UF – England. Ph. 071-538-1061/2 Fax 071-538-2869
Other offices & factories in: Venice, Sydney, Melbourne, Singapore, Bruxelles, Lugano, Barcelona.

CURTAIN WALLS
PARTITIONS
OFFICE layout

Sydney Opera House
Joern Utzon, Hall, Todd & Littlemore arch.

TECTONIC PATENT GLAZING



• *Curtain Wall* • *Structural Glass Assemblies*
• *Patent Glazing* • *Windows*
• *Ventilation and Rooflight Systems*

Briggs Amasco
Curtainwall Ltd.

Halfords Lane, Smethwick, Warley, W. Midlands B66 1BJ. Tel: 021 558 2191. Fax: 021 558 8013

The Shires Shopping Development, Leicester. Architects: Chapman Taylor Partners

CURTAIN WALL

Still in the forefront of building technology, curtain walling is beginning to become more than just a cladding system. Here David Blake of Crittall Windows charts the history of the modern curtain wall and wonders whether it might not end up servicing as much floorspace as it shelters.

It is generally recognised that the origins of the curtain wall can be traced back to the Crystal Palace exhibition building designed by Joseph Paxton for the Great Exhibition of 1851. Despite the introduction of the first steel framed buildings some thirty years later, it was not until early this century that applications of suspended glass and metal mullions really multiplied. Early German applications included Walter Gropius's Fagus factory in 1911 and the Bauhaus Workshops in Dessau of 1925. In the USA, Willis Polk's Hallidie building in San Francisco marked a great advance in 1917.

Although the use of metal and glass curtain walling increased between the Wars, and aluminium emerged as a building material during the Thirties, it was not until after the Second World War when aluminium became available relatively economically, that the modern curtain wall truly arrived, with such early examples as the United Nations building in New York and the Alcoa Building in Pittsburgh.

All these curtain walled buildings were clad using so called 'stick systems', meaning that an assembly of machined bars and connecting pieces, spandrel panels and glass, was attached to the building on site and sealed *in situ*.

Forty years on, these early primary seal systems which relied on mastic have fallen into disrepute. We now know that sealants have a finite life, are applicator sensitive and often simply cannot cope with thermal movement. Once the joints are breached there is nothing to prevent leakage and nothing in the long term to satisfactorily stop it other than local and continued patching.

Rainscreen and pressure equalised systems rely on a primary external gasket to keep the moisture out coupled with a pressure equalised zone behind. This maintains the pressure internally in the curtain wall zone to the level of external pressure to prevent wind driven penetration and is obviously sealed on the inside to maintain the integrity of the chamber. Incorporated with the pressure equalisation zone is a drainage path to dispose of any moisture that penetrates the primary defence. These systems, widely used in both North America and Europe, whilst representing a significant step forward on primary seals, still do not address some of the major concerns when used in the traditional stick form. Obviously any system that relies as a design concept on a pressure chamber internally maintaining external pressure needs completely effective internal air seals otherwise the pressure is lost and the concept fails and leakage results. Since these seals are largely internal, any breakdown involves costly and time consuming remedial work. Yet this critical operation relies on the recognised most common cause of failure, site installation, so difficult to control effectively on a joint by joint basis even with the most rigorous inspection procedures.

Also many so-called pressure equalised stick systems do not maintain a fully integral internal seal in the design, which will lead to failure risk; and certainly normal stick systems can only cope with a limited amount of building movement, without building in special movement joints such as double transoms.

An emerging technology starting in Canada and Europe and now gaining more and more acceptance in the United States and the UK, recognises these problems and addresses them with unitised pressure equalised and rainscreen panel walls. In order to ensure the integrity of the pressure equalised zone and to achieve much more precise quality control, module-wide panels of storey height are assembled and glazed in the factory, delivered to site in packs and craned onto their respective floors. Finished panels are then lowered from the floor slab, hung onto the building and interlocked for fast track installation without the need for external access. The system can actually be so fast that conventional construction cannot take full advantage of it, but at least one major UK contractor considers the premium cost to be justified on grounds of programme security and flexibility alone. Although this approach has been restricted to prestige projects in the past, there appears to be a growing realisation that this small premium insures against failure to a significant extent; reduces maintenance costs because the relatively few joints are concealed and protected from the external environment; improves the long term performance and air-tightness of the wall, and offers fast installation without the cost of external access.

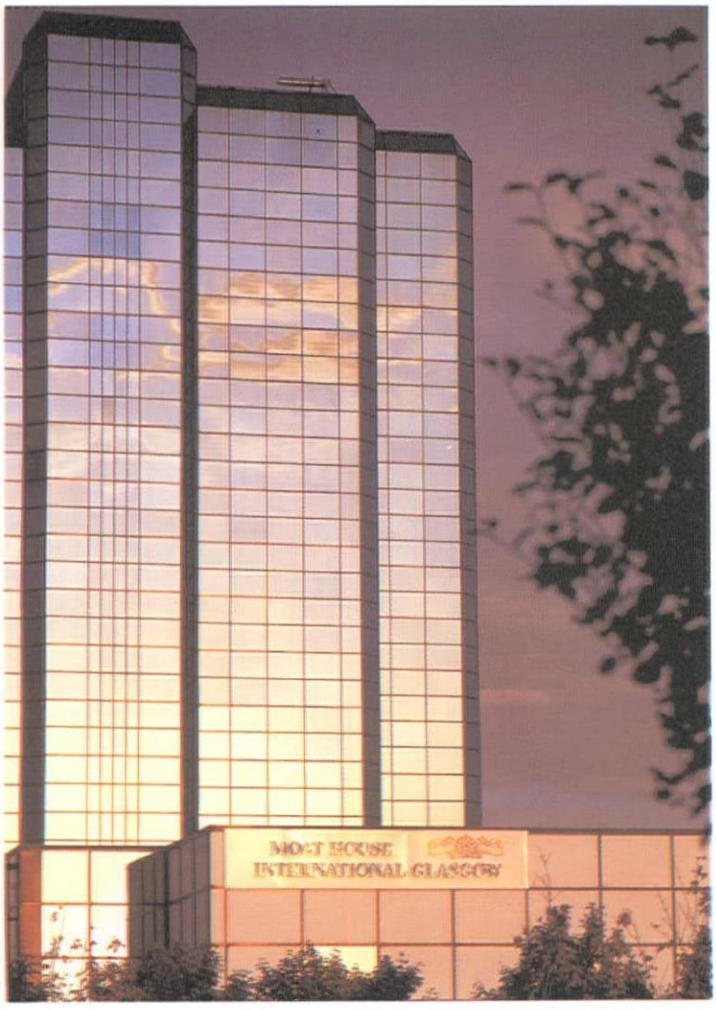
An impressive example of this technology is the Antamex curtain wall system used to clad the Cesar Pelli tower at Canary Wharf. Crittall PPG in the UK have also developed this technology in collaboration with Systems Q/C in the United States, with whom they retain an ongoing relationship to ensure that they keep abreast of the latest technology. An example of the result is the Queen's Moat 17 storey hotel on the site of the Scottish Exhibition Centre in Glasgow. The system has since been developed to add such features as vision lights replaceable from the inside in the event of breakage, and internal trims applied after fitting out with integrated vapour barriers to facilitate internal dry lining.

Fashions of course change and, although curtain wall is generally recognised as the normal cladding for office towers, it is now selected for other reasons. Particularly in its unitised form it offers lightweight – well insulated walls that maximise lettable floor space, lighten the building and allow fast track construction.

In the same way, integrated stone thin veneer panels offer traditional appearance with the economics, technical benefits and buildability of prefabricated construction; and structural silicone glazing offers completely flush glass wall.

What then of the future? Much research is beginning to go into 'intelligent walls' that interact with the external environment to bring optimum internal conditions whatever the climate.

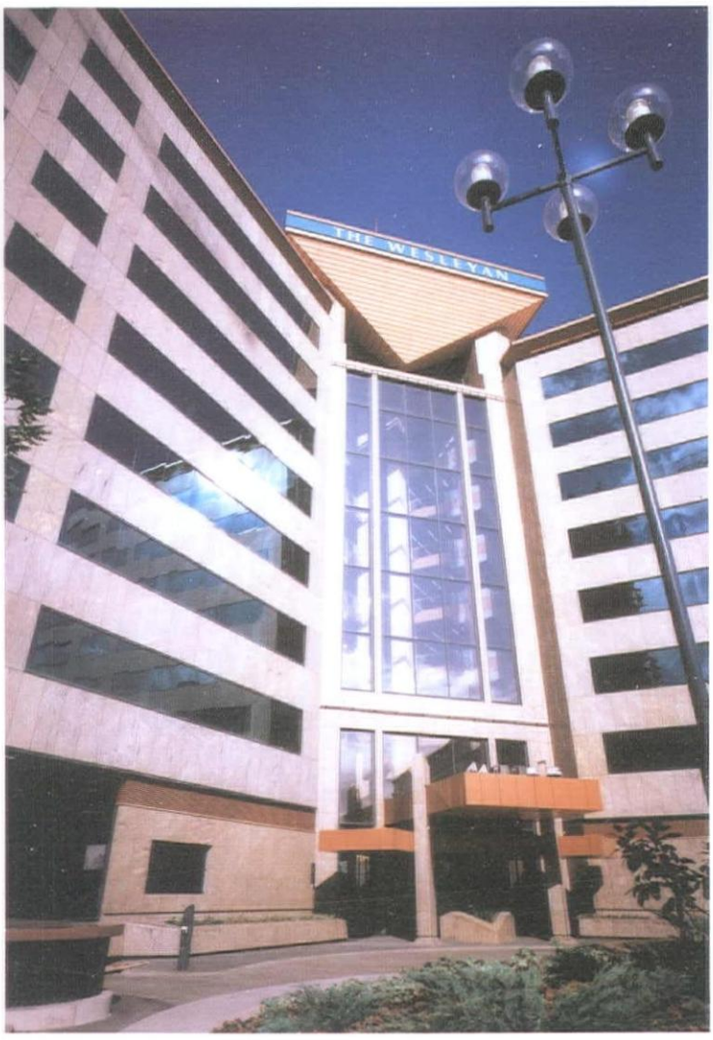
Although curtain wall elements have already been used to form conduits for services and utilities, unitised construction now offers the opportunity to factory fit these and arrange for them to be 'activated' as each unit locks into place. Moving even further ahead, one leading American specialist suggests that, with suitable glass alternatives, maybe one day the wall will be rolled *down* the skyscraper, and zipped together to give structural stability and provide a flexible membrane. □



Left: The Moat House International, Glasgow, UK is clad with fast-track Barrier Unitised curtainwall from: Crittall PPG, Springwood Drive, Braintree, Essex CM7 7YN, UK. Tel: 0376 24106

Below: Office building, Espoo, Finland, by Ari Malmio. The project uses the Schüco FW50 glazing system. This was the first time that Stopsol Super glass from Glaverbel had been successfully bent. Tambest Safety Glass, P.O. Box 15, 33701 Tampere, Finland. Tel: 358 31 634 000

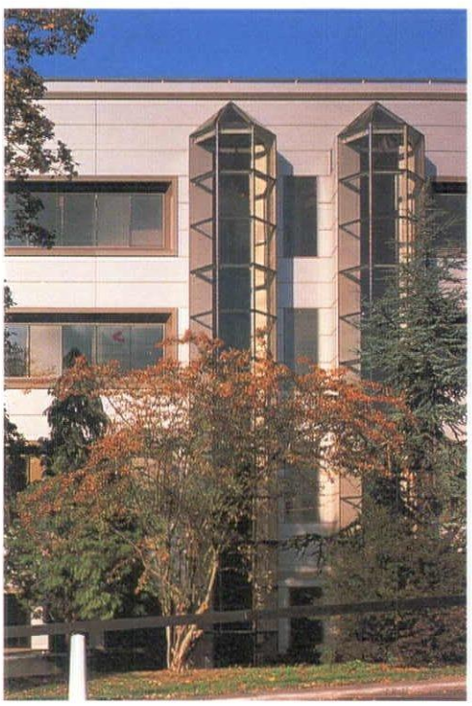
Two projects using Don Reynolds International curtain walling systems. Top right, Delta 2000 by the Oxford Architects Partnership. Bottom right, A.P.V., Newcastle-Under-Lyme by Robert Swan Associates. Don Reynolds International Ltd, Concept House, Brackenbeck Road, Lidget Green, Bradford BD7 2LW, UK. Tel: 0274 521122



Right: The Wesleyan Building, Birmingham, UK utilizes glazing systems by: MBM Fabri-clad Ltd, Woodgate Business Park, 1 Bell Heath Way, Clapgate Lane, Birmingham B32 3BZ, UK. Tel: 021 423 2655

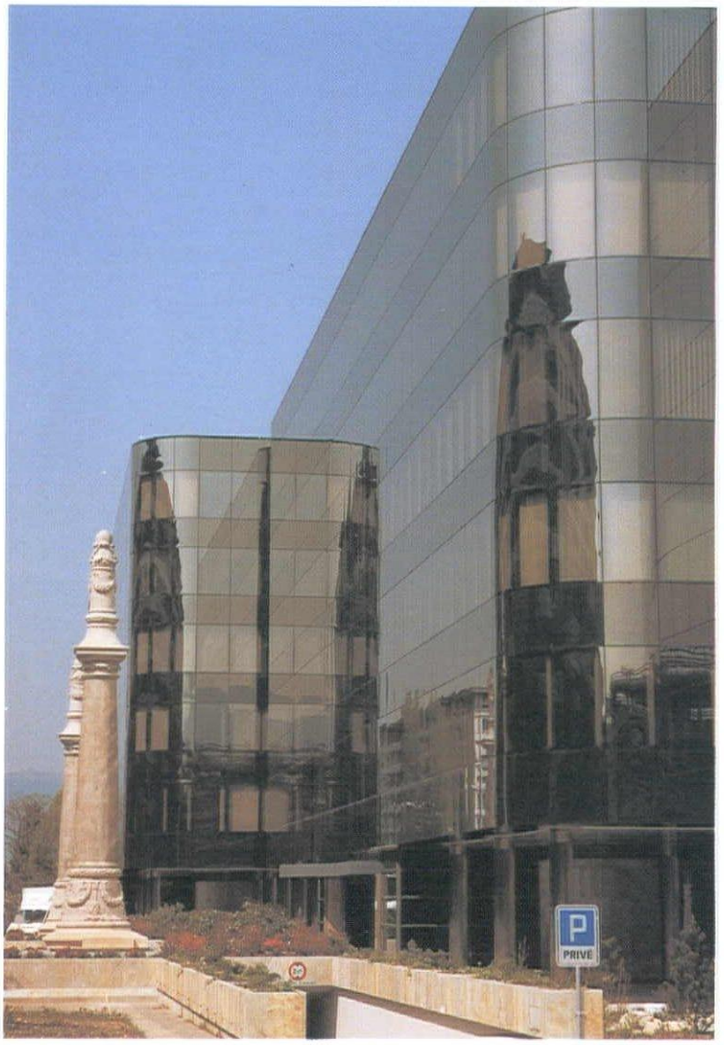
Three buildings using systems from Focchi S.P.A. Below: Office bulding, Naples by Ing. Valerio Piscitelli uses THERMA curtain walling with thermal break. Below right: Aeritalia H.Q., Naples by Domenico Olivieri and Onofrio Lombardi uses PANORAMI triple glazed structural façades. Bottom right: Gildo Pastor Centre, Fontvieille/Monte Carlo by J. Iori uses curtain walling with thermal break. Focchi S.P.A., Circonvallazione Ovest 9, 47037 Rimini, Italy. Tel: 39 541 740055

Right: Vauxhall Motors, Luton, UK refurbished using Robertson's Formacore aluminium honeycomb panels and ribbon window system. H.H. Robertson (U.K.) Ltd., Cromwell Road, Ellesmere Port, South Wirral L65 4DS, UK. Tel: 051 355 3622



Above: Reynolds Systems (Reynotrade) supply the high quality aluminium profile systems Reyno and Reynotherm. Seen here is an example of the Reynotherm 700 curtain walling system. Reynolds Systems (UK) Ltd, Normandy Lane, Stratten Business Park, Biggleswade, Beds SG18 8QB, UK. Tel: 0767 600166

Right: C.A.L. Administrative Centre, Lancy-Genf. Structural Glazing by:
Temperit AG,
Wässeristrasse 16,
CH-8340 Hinwil.
Tel: 01 938 01 51



Below: Simon Jersey company headquarters, designed by Studio BAAD employs the "DesignWall" structural glazing system by:
Kawneer Europe,
Astmoor Industrial Estate,
Runcorn, Cheshire
WA7 1QQ, UK.
Tel: 0928 563732

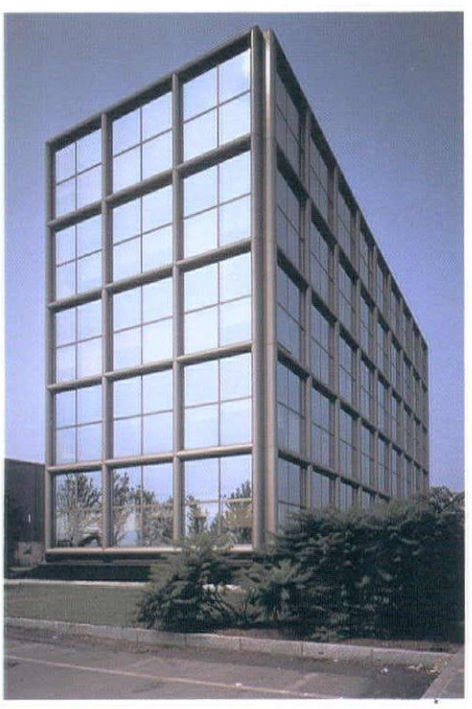
Above: Combining aluminium outside with timber inside, CLIMA thermally broken composite windows are particularly suitable for refurbishment projects. Metallkommerz S.r.l., Via Campi della Rienza, 41, 39031 S. Giorgio/Brunico (BZ). Tel: 0474 3 08 53

Above: Jeremie Square, Brussels by architects J. Baudon/P. Hayot using the Kawneer Europe Series 1600 curtain wall system.
Kawneer Europe, D-4050 Mönchengladbach 2, Erftstrasse 75, Germany.
Tel: 021 66 84 84

Right: Photo studio, Eindhoven, Holland, clad in Trespa G2 panels from:
Hoechst Holland N.V.,
P.O. Box 44, 6000 AA Weert,
Netherlands. Tel: 04950 76933

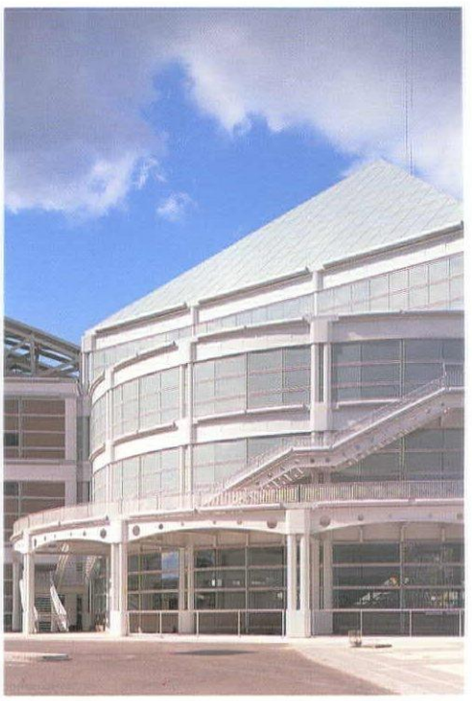
Left: Swarovski offices, Feldmeilen (ZH) uses structural glazing by: Temperit AG, Wässeristrasse 16, CH-8340 Hinwil. Tel: 01 938 01 51

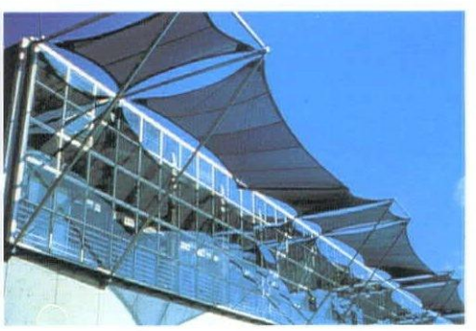
Above: Schofield Shopping Centre, Leeds, by architects Crampin and Pring features pre-fabricated, pre-glazed roof panels by: Vitral U.K. Ltd., 94 Regent Street, Cambridge CB2 1DP, U.K. Tel: 0223 356662



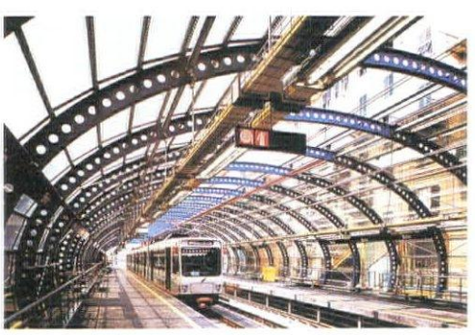
Above: Office building in Castelnuovo del Garda, Italy uses Ipasol Blue glass whilst the Alfa Insurance building in Amsterdam is glazed with Ipasol silver glass, both by: Interpane Glas GMBH, Heerdter Sandberg 30, D-4000 Düsseldorf 11, Germany. Tel: 0211 58 80 61

Two examples, from Eckelt Glas, of LITEX-Design glass in use. Below, the striking Toyota Ferry import centre near Vienna, Austria and, below right, the Frankfurter Messehalle in Frankfurt. Metal and Glass Design Ltd, 21-22 Poland Street, London W1V 3DD, UK. Tel: 071 437 4840





Above: Liverpol Street Station, London. This entrance canopy utilizes the Admiral 90 glazing bolt, from Marcus Summers, which allows flexibility under wind or other loads. Marcus Summers Plc, Units 2-4 Admiral Hyson Industrial Estate, Hyson Road, London SE16 3PA, UK. Tel: 071 237 8171

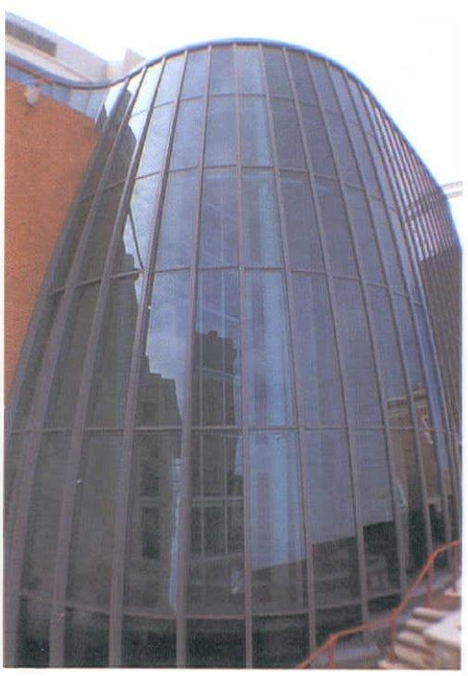


Above: Two examples of structures using Rhône-Poulenc's Rhodorsil silicone sealant. Rhône-Poulenc Silicones UK, Mole Business Park, Randalls Road, Leatherhead, Surrey KT22 7BA, UK. Tel: 0372 362055

Left: Brin Station, Genoa Light Rail System by the Renzo Piano Building Workshop, framework and glazing by Buiatti S.p.A., via Piaggio, 70 20037 Paderno Dugnano, Milan, Italy. Tel: 01039.2 9182705

Left: Sheikh Hamdan Bin Zayad Building, Abu Dhabi by architects Cassia and Associates uses a special grid system developed by Chamebel whilst the Maas N.V. office building near Antwerp, Belgium, below, is built using Chamebel's structural glazing system. Chamebel N.V., Leuvensesteenweg 9, 1830 Machelen, Belgium. Tel: 02 254 02 11

Above: Palace of Justice, Naples, by architect Corrado Beguinot with concept by Kenzo Tange. This project uses both specially developed curved double-glazing and standard Linea 2000N curtain walling from Buiatti. Buiatti UK, 5 Claylands Place, The Oval, London SW8 1NL, UK. Tel: 071 587 1271

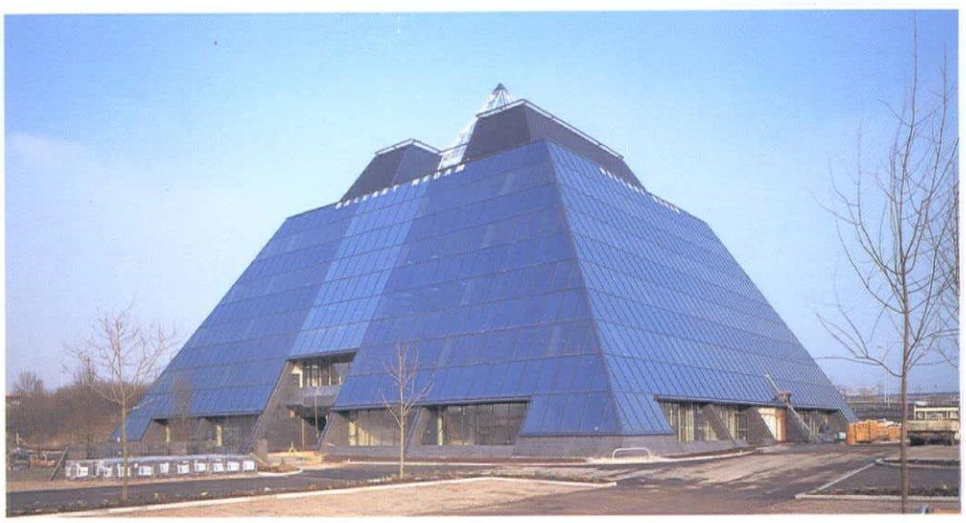


Above: Vantage West, London and, left, Tower Bridge Road, London. These two projects both utilize curtain walling systems designed, manufactured and installed by GIG, Austria. For more information contact: Metal and Glass Design Ltd, 21-22 Poland Street, London W1V 3DD, UK. Tel: 071 437 4840

Right: Ludgate Circus, London. A new development using powder coated aluminium and granite faced prefabricated units by:
Briggs Amasco Curtain wall Ltd., Halfords Lane, Smethwick, Warley, W. Midlands B66 1BJ, UK. Tel: 021 558 2191

Below: Ministry of Social Affairs, The Hague designed by Herman Hertzberger using moveable, continuous rooflights by:
Bik Bouwprodukten bv, Postbus 3, 1716 Opmeer,
Van Roozendaalstraat 13, Netherlands. Tel: 02263-66161

Right: Stanstead Airport and , Far right, Shopping Centre, Uxbridge, UK, both utilizing Bent Tempered Glass by:
Darby Group plc., Darby House, Sunningdale Road, Scunthorpe, S. Humberside DH17 2SS. Tel: 0724 280044

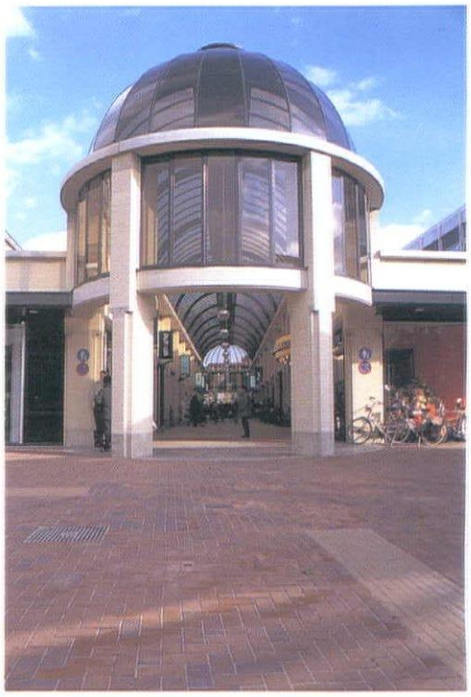


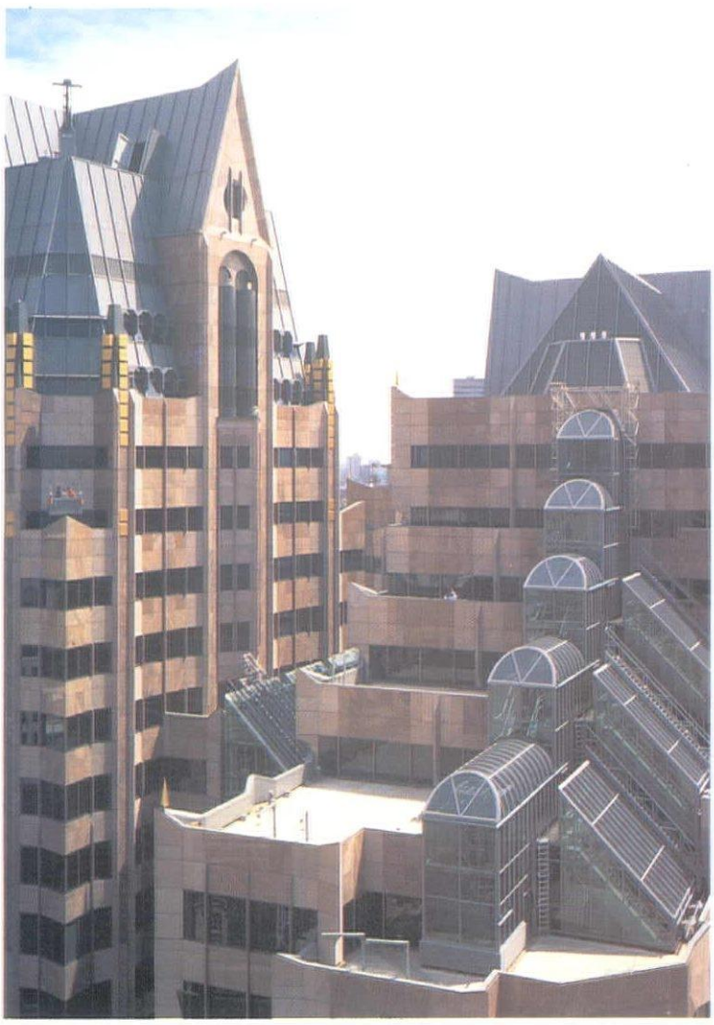
Right: Kings Valley Office Park, Stockport, UK designed by Michael Hyde Associates using Tectonic Frontier curtain walling by:
Briggs Amasco, Curtainwall Ltd., Halfords Lane, Smethwick, Warley, W. Midlands B66 1BJ, UK. Tel: 021 558 2191

Left: Office building, Nieuwegin, Holland clad in a new-generation cladding panel developed and patented by: Hoechst Holland N.V., P.O. Box 44, 6000 AA Weert, Netherlands. Tel: 04950 76933

Below left: New Tech Park, Singapore. Rear ventilated ALUCOBOND cladding by YKK Industries Pte Ltd., Singapore.
Alusingen GMBH, Alusingen – Platz 1, Postfach 160, D-7700 Singen/Hohentwiel. Tel: 0 77 31 80-0

Below: Shopping centre, Almelo. Barrel-vaulted arcade roof panels by:
Bik Bouwprodukten bv, Postbus 3, 1716 ZG Opmeer, Van Roozendaalstraat 13, Netherlands. Tel: 02263-66161





Left: Minster Court, London by architects GMW Partnership. Cascade stairs and sloping glazing by Portal SA. Above: Finsbury Dials, London by architects Thomas Saunders. Vertical planar glass wall and sloping glazed roof by: Portal SA, Portal House, Riverside Business Park, B1070, Brussels. Tel: 01032 2 52 94 911

WORLD ARCHITECTURE

ADVERTISERS INDEX

Reader Reply No	Advertiser	Page No
1	Alusingen CmbH	23
2	Bieri Membranbau	6
3	Briggs Amasco	90
4	Bruder Eckelt	4 & 5
5	Canobbio Spa	82 & 83
6	Chamebel	25
7	Cisal Spa	10
8	Concord	26 & 27
9	Crittal	86
10	DOM	11
11	FR UK Ltd	28
12	Focchi Spa	16 & 17
13	Grill & Grossmann	2 & 3
14	Guy Linking	88
15	H H Robertson UK Ltd	19
16	Hallmo Srl	12
17	Hoechst Holland NV	30
18	Hoppe AG	13
19	Interglass Ltd	11
20	Jordan Engineering	20
21	Kaufmann	88
22	Koller UK Ltd	8
23	Laticrete International	18
24	MBM GmbH	21
25	Miller Druck	84
26	Nippon Electric	IBC
27	O & K Rolltreppen	OBC
28	Okalux GmbH	22
29	Permasteelisa	89
30	Pillar Naco Industries Europe Srl	IFC
31	Pohl, Christian, GmbH	29
32	Polarstone	32
33	Portal SA	15
34	Rapetti Rubinetterie Spa	85
35	SIV	31
36	S P Snickeriel AB	14
37	Schott Glass	24
38	VCR Int Srl	7
39	Zarges GmbH	9