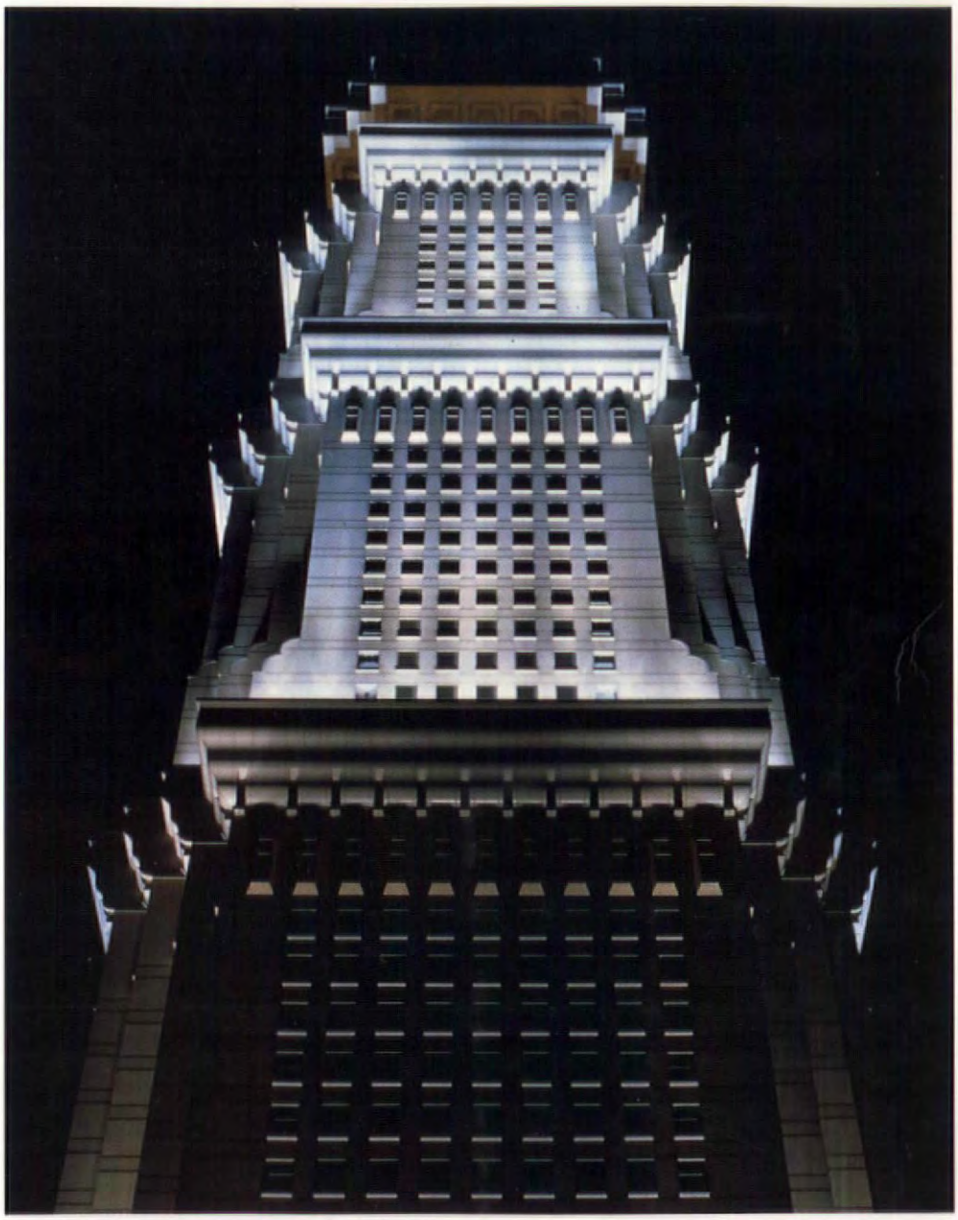
WORLD ARCHITECTURE

ISSUE NO. 54, MARCH 1997 US$14.95 UK£10



C.Y. Lee – an architect for a new China

Italy – in the wake of "bribesville"

Exclusive – Renzo Piano's bank at Lodi

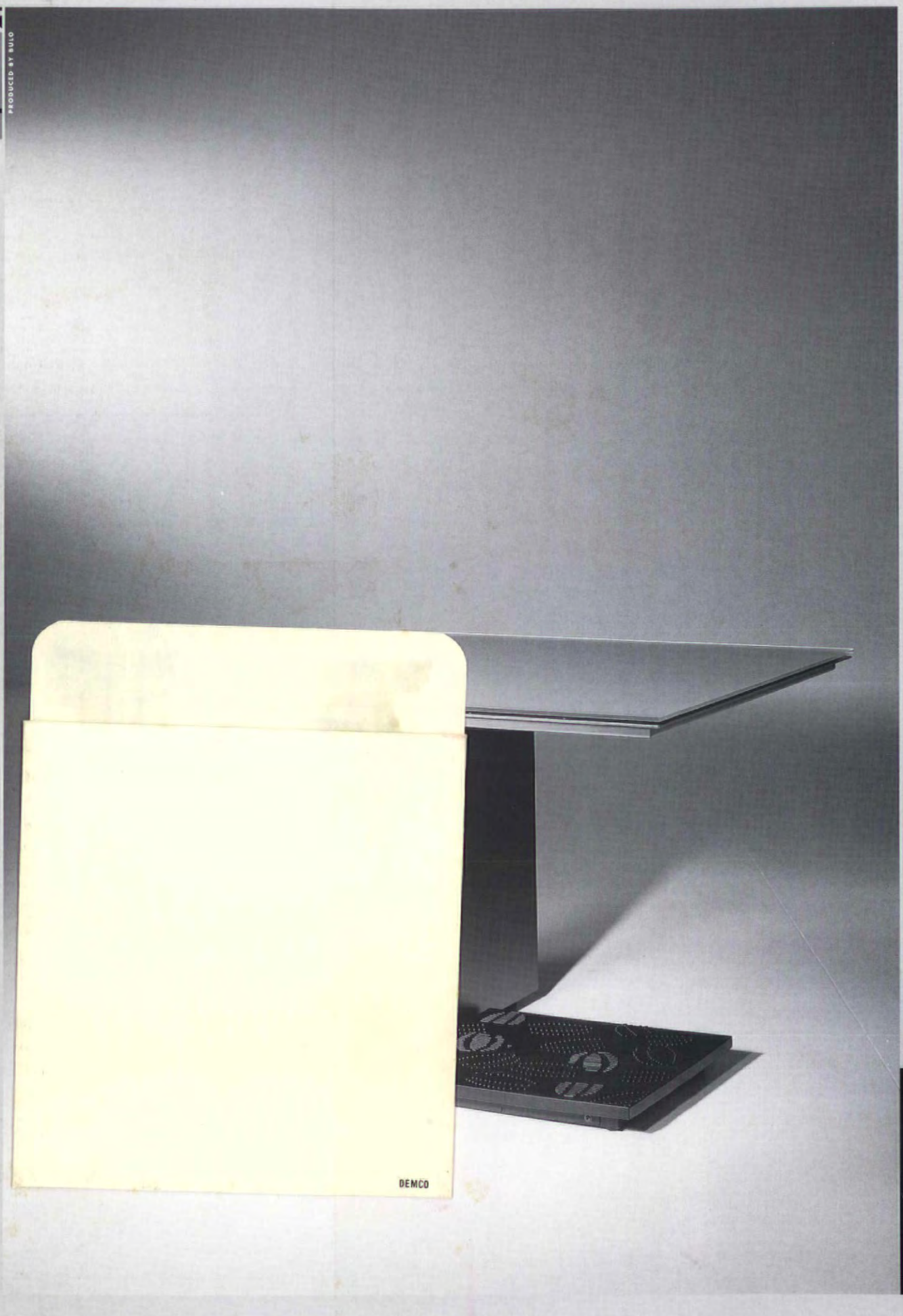
Industrial buildings in the 1990s

Face to face with Nicholas Grimshaw

THE BUSINESS MAGAZINE FOR THE GLOBAL ARCHITECT

20 March: join us for the grand opening of our new London showroom.

OFFICE FURNITURE



Industriezone Noord II • 2800 Mechelen • Belgium • Tel.+32(0) 15.28 28 28 • Fax +32(0) 15.28 28 29 • Internet: http://www.bulo.com

BULO®

Clove Building Maguire Street Butler's Wharf London SE 1 2NQ. Phone: 0171-4036993 • fax 0171-4035075

Contents

World Architecture Issue No. 54, March 1997

Studio Valle go to court in Padua page 60

Renzo Piano's Banca Popolare di Lodi page 66

Motorola in Mexico, by Heery International page 134

An impressive finish page 148

Photo Mario Carrieri.

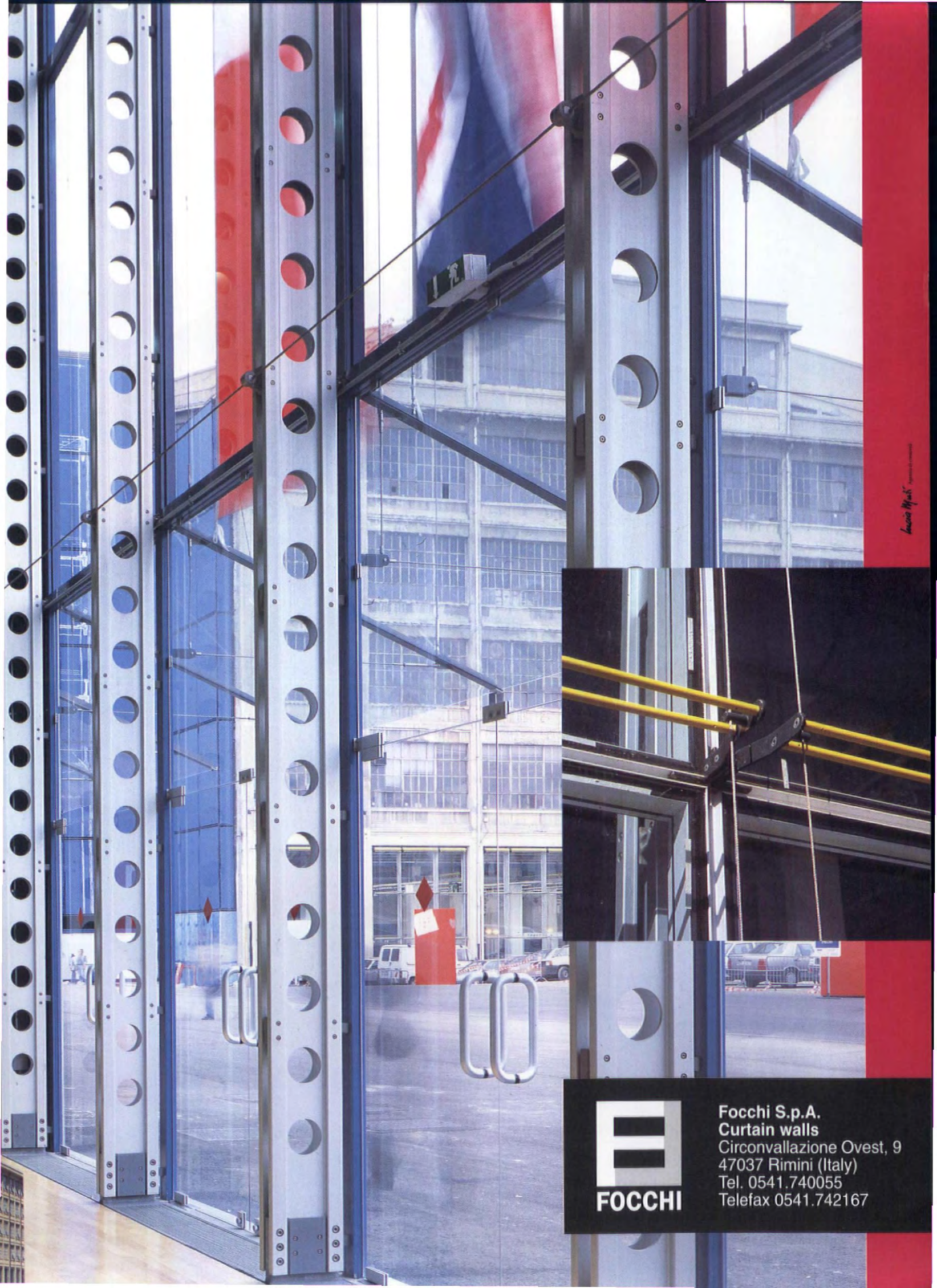
UNIFOR 22078 Turate (CO) Italy, via Isonzo 1 Phone (+39)2.967191 Fax (+39) 2.96750859

Naòs, Pierluigi Cerri.

UNIFOR

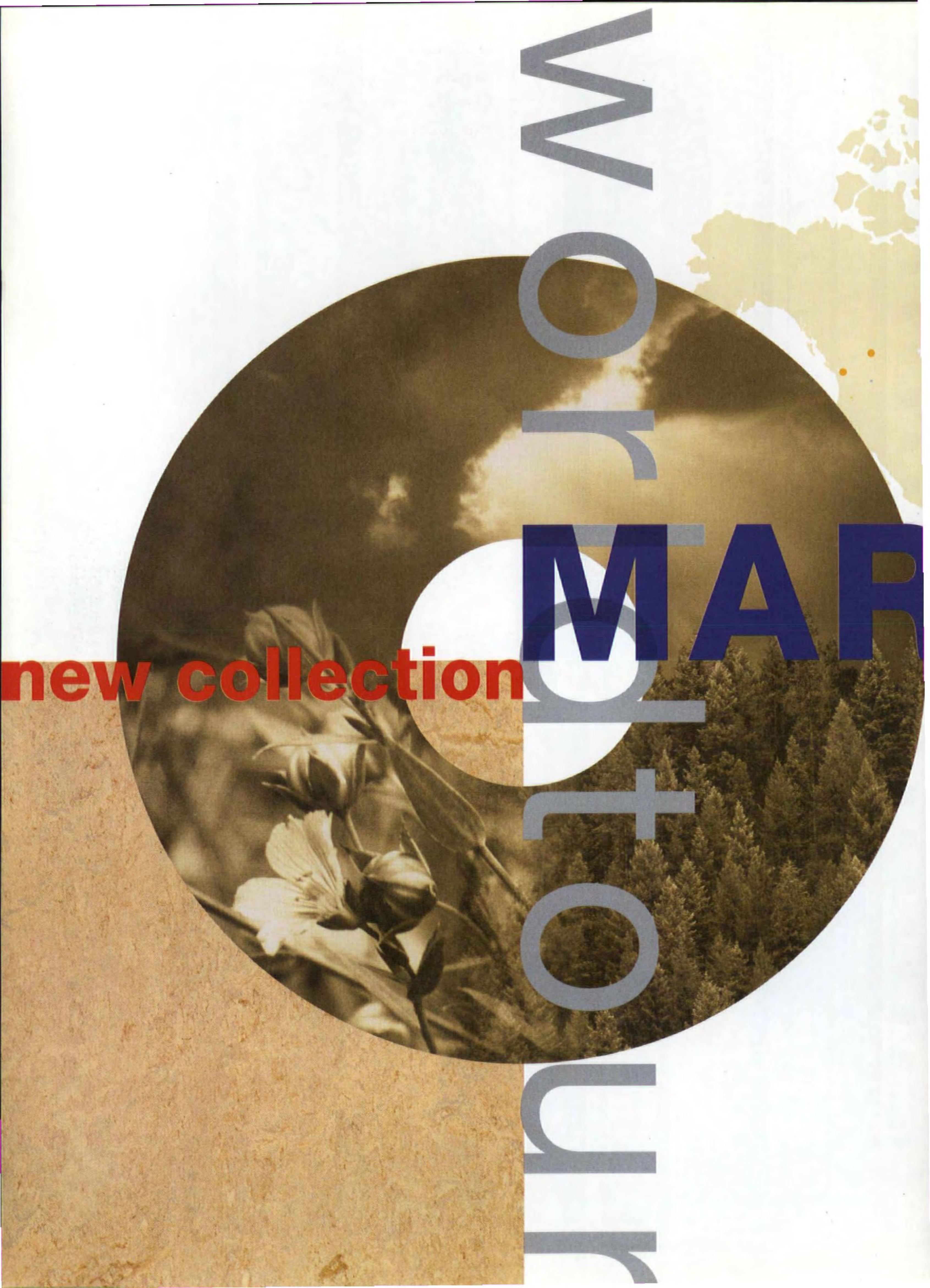
LINGOTTO, TORINO
ITALIA

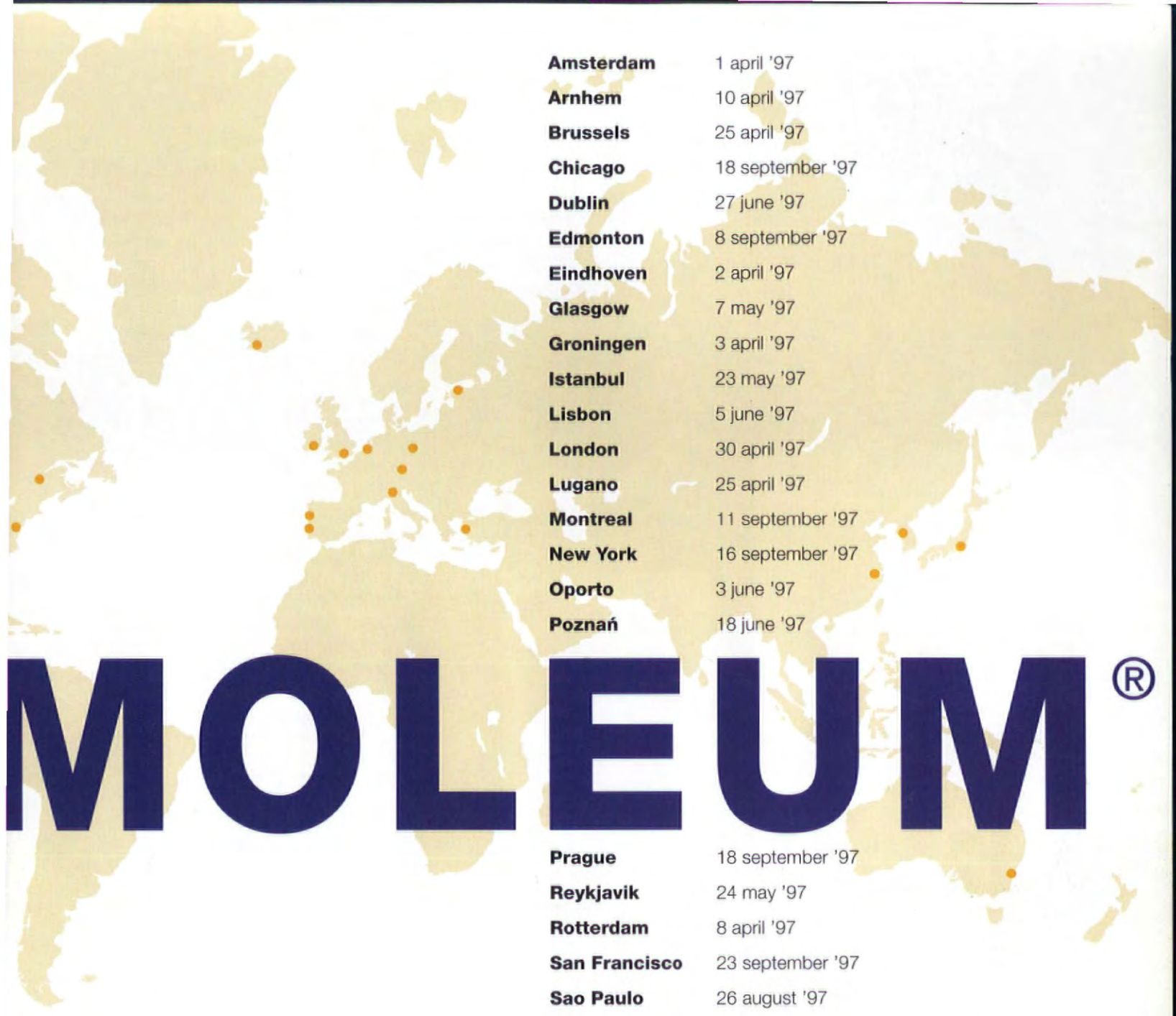
Project	**LINGOTTO**
Location	**TORINO**
Architect	**RENZO PIANO**
Focchi Products	**STRUCTURAL GLAZING** **CURTAIN WALLING**



FOCCHI

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


new collection
MAR



Amsterdam	1 april '97
Arnhem	10 april '97
Brussels	25 april '97
Chicago	18 september '97
Dublin	27 june '97
Edmonton	8 september '97
Eindhoven	2 april '97
Glasgow	7 may '97
Groningen	3 april '97
Istanbul	23 may '97
Lisbon	5 june '97
London	30 april '97
Lugano	25 april '97
Montreal	11 september '97
New York	16 september '97
Oporto	3 june '97
Poznań	18 june '97

MOLEUM®

Prague	18 september '97
Reykjavik	24 may '97
Rotterdam	8 april '97
San Francisco	23 september '97
Sao Paulo	26 august '97
Seoul	24 september '97
Shanghai	12 september '97
Sydney	30 september '97
Tallinn	2 october '97
Tokyo	5 september '97
Toronto	10 september '97
Vancouver	4 september '97

http://www.marmoleum.com

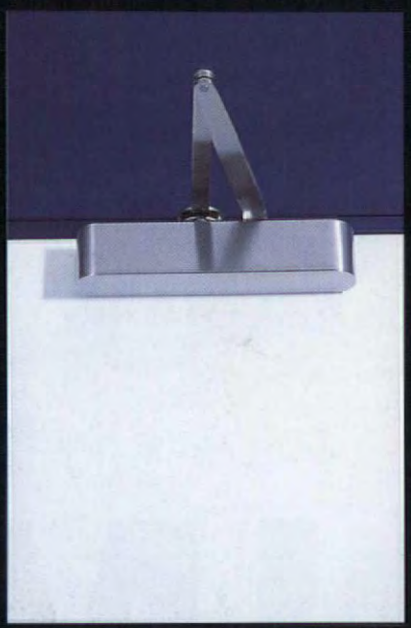
telefax intl. +31 75 647 77 05

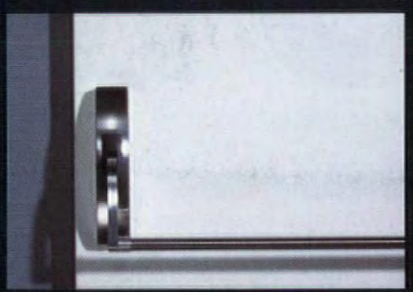
the natural choice

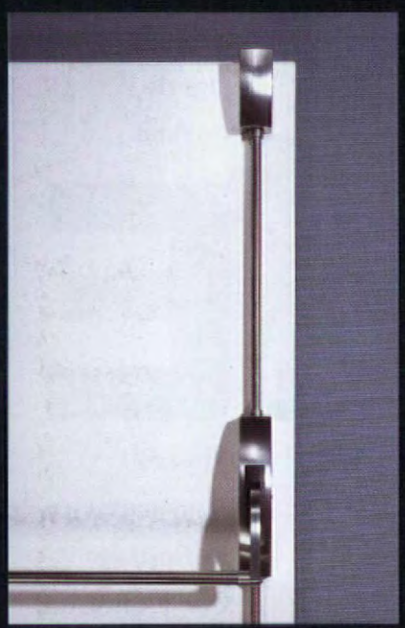
forbo

d line

Knud Holscher Design







d line offers a range of high quality stainless steel fittings meeting practically every requirement within a building not only for doors, windows and bathrooms - but interiors in general.

d line's Panic Equipment and Door Closer programme offers a range of high quality stainless steel products designed for both commercial and residential buildings.

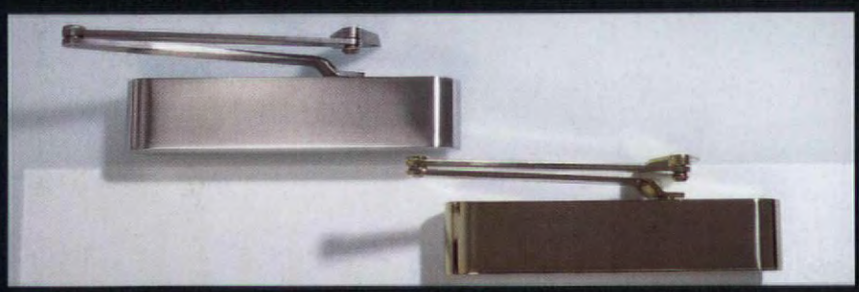
A new key locking mechanism for safety and security doors has recently been developed. The existing single panic latch has been designed to integrate with a mortice cylinder lock.

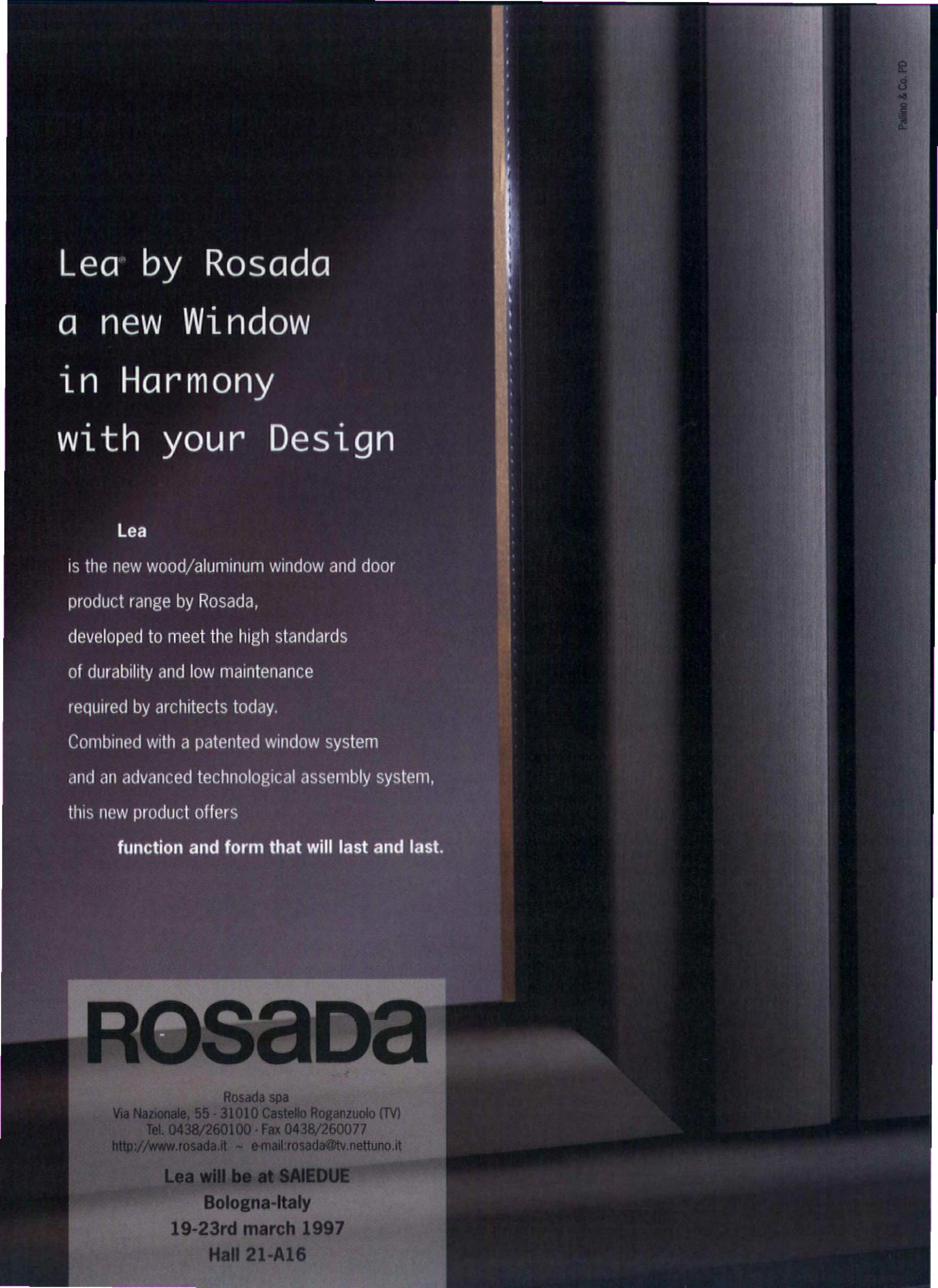
The **d line** range incorporates a full architectural ironmongery and sanitaryware programme.

d line's full range is available in polished and satin stainless steel, AISI 316, and is manufactured in Denmark by **d line**™ *international as* which is a DS/EN ISO 9001 certified company.

For further information please contact:

Worldwide
d line™ *international as*
Carl Jacobsens Vej 28, Valby
1790 Copenhagen V
Denmark
Phone: +45 3618 0400
Fax: +45 3618 0401





Lea® by Rosada a new Window in Harmony with your Design

Lea

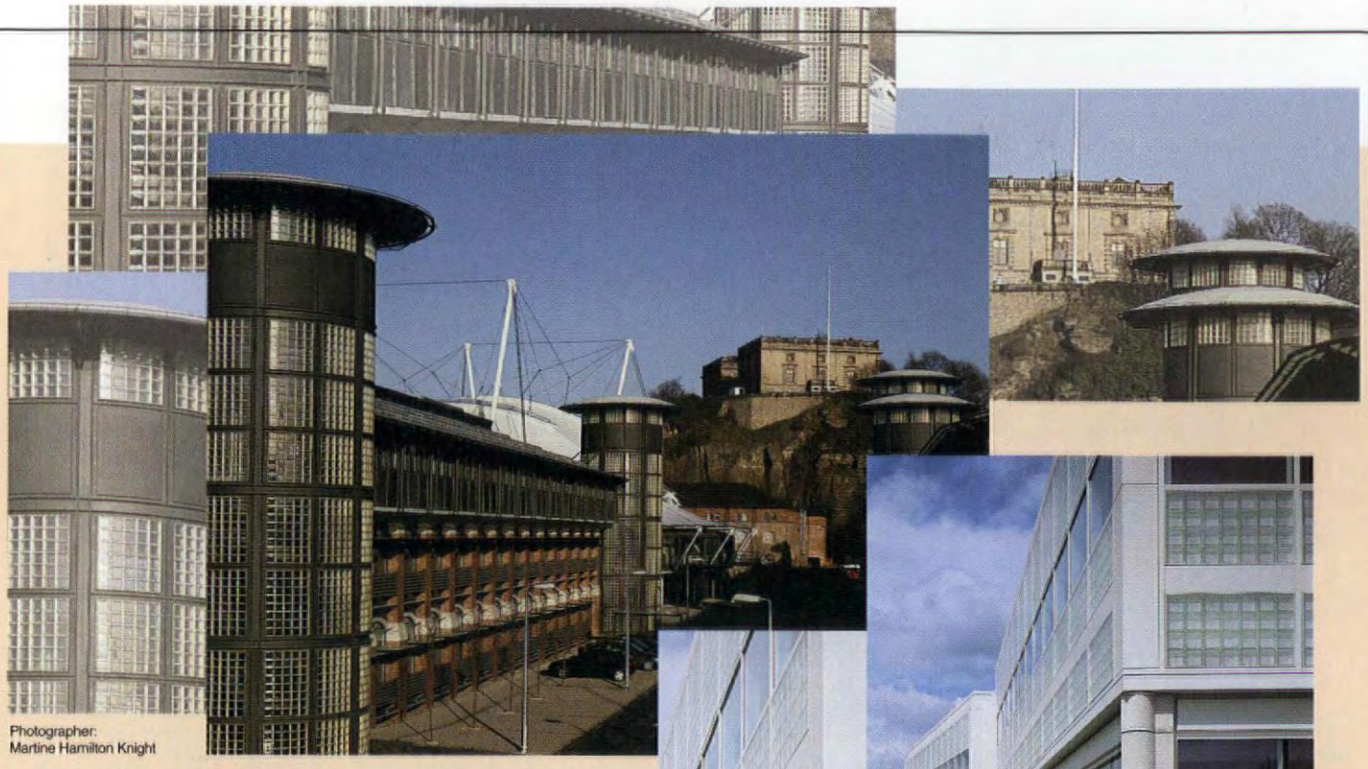
is the new wood/aluminum window and door product range by Rosada, developed to meet the high standards of durability and low maintenance required by architects today. Combined with a patented window system and an advanced technological assembly system, this new product offers

function and form that will last and last.

ROSADA

Rosada spa
Via Nazionale, 55 - 31010 Castello Roganzuolo (TV)
Tel. 0438/260100 - Fax 0438/260077
http://www.rosada.it ~ e-mail:rosada@tv.nettuno.it

Lea will be at SAIEDUE
Bologna-Italy
19-23rd march 1997
Hall 21-A16



Photographer:
Martine Hamilton Knight

Project ~ Inland Revenue Offices, Nottingham, England
Architect ~ Michael Hopkins & Partners
VUE® Pattern

Project ~ Stockley Park, London, England
Architect ~ EP Associates Ltd. Architects
VUE® Pattern and VUE® Pattern with "LX" Fibrous Glass Insert

Photographer:
Martin Charles

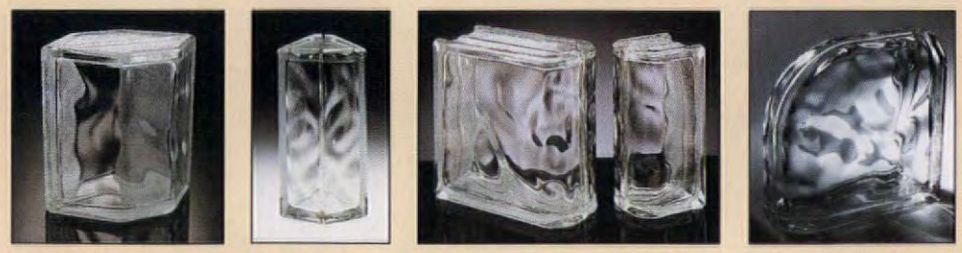
There are some building products which, more than others, enable designers to achieve that goal. PC GlassBlock® products, crystal clear glass in an expanding variety of shapes and patterns have inspired many designers, encouraging and helping them to turn imagination into reality.

Imagine excellence ... and try to create it.

With PC GlassBlock® products, you can design and specify with confidence ... consistent product quality, unmatched customer support worldwide through our sales and distribution network, installation options that include mortar, mortar-free silicone and grid systems.

The daily goal of architects and designers.

Imagine excellence ... and let us help *you* create it.



These shapes have helped designers turn their ideas into reality (left to right) HEDRON® I Corner Block, TRIDRON 45° Block®, EndBlock™ Finishing Unit, and the newest shape, Encurve™ Finishing Unit, all in the DECORA® pattern.

For more information, contact:

PITTSBURGH CORNING®

International Sales Corporation
800 Presque Isle Drive
Pittsburgh, PA 15239-2799 U.S.A.
Telephone: 412-327-6100
Fax: 412-733-4815

Pittsburgh Corning United Kingdom, Ltd.
Southcourt, 29 South Street
Reading Berkshire RGI 4QU, England
Telephone: 44-734-500655
Fax: 44-734-509019

A WINDOW WITH A VIEW.

Pallino & Co. Padova

Today's technology enables many to produce windows but few can combine it with experience. The value of this product is made up of our team of experienced craftsmen.

ROSADA

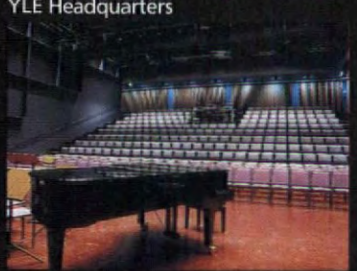
Rosada has been in the window and door business for close to 40 years. This makes it possible to propose design solutions which work. You can see our standard line of products on Internet.

Rosada SpA ~ Via Nazionale 55 ~ 31010 Castello Roganzuolo (Treviso) Italy
Phone +39(438)260100 ~ Fax +39(438)260350 DIVISIONE FINESTRE Rosada Internet: http://www.rosada.it ~ e-mail: rosada@tv.nettuno.it

Material with the potential to reflect strong identity

The main building of the University of Tampere was designed to communicate the value structures of the academic world with a combination of both classical and innovative architecture. The structural material chosen for the purpose was steel, since steel has the potential to reflect the identity of the users of the building.

The Finnish Broadcasting Company
YLE Headquarters



Helsinki Pop & Jazz Conservatory

In order to serve architects and designers extensively we have developed a wide range of facade cladding materials, structures, building components and construction systems that enable the materializing of strong identities in architecture. Products that we offer for this purpose include

Liberta -facade cassettes
Nordicon -elements
Alamentti - sandwich elements
Producta -room modules

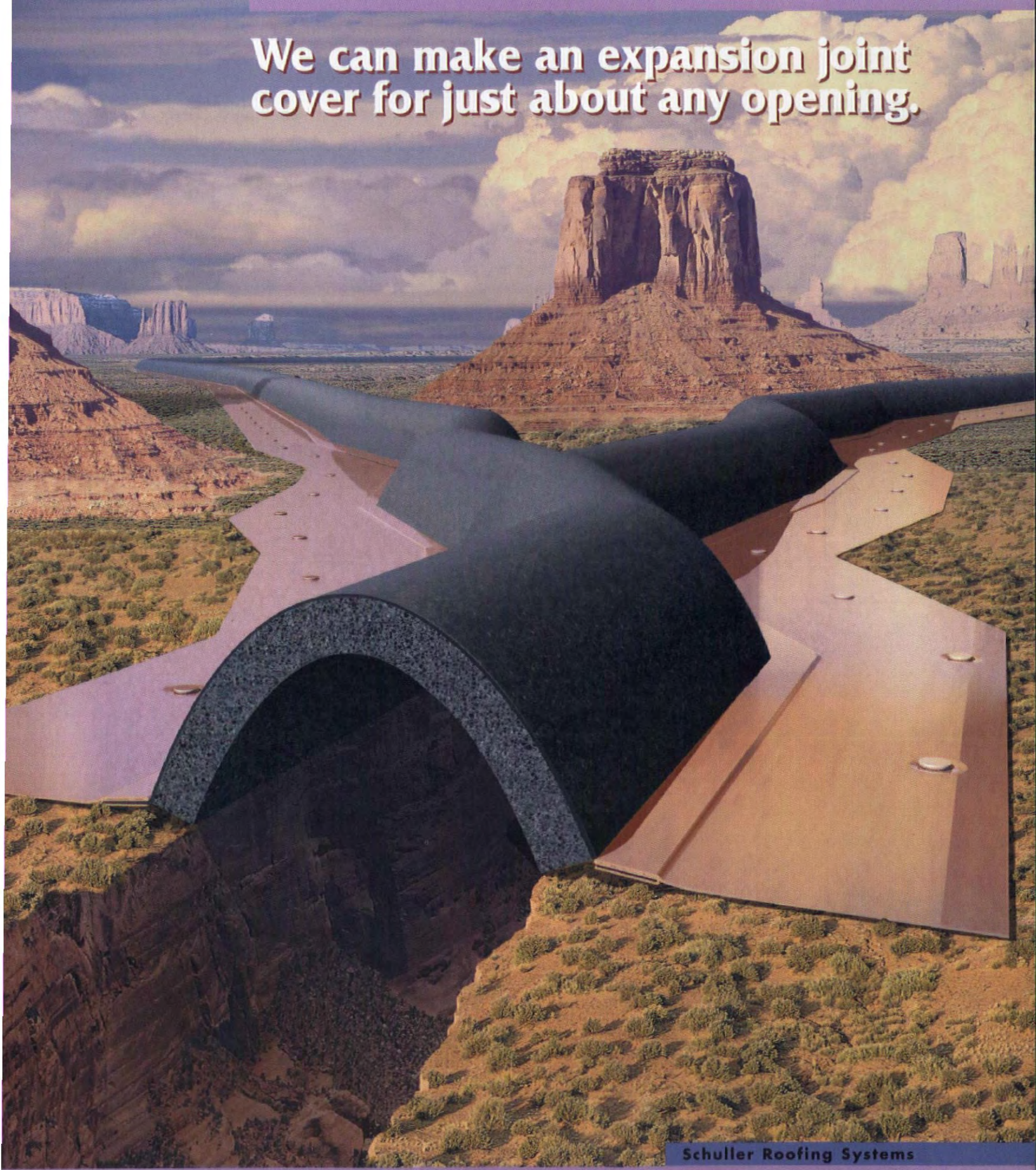
RAUTARUUKKI

Steel Structure Division
P.O. Box 860, FIN-00101 Helsinki, Finland
Tel. +358-9-417 711, fax +358-9-417 76 373

Helsinki-Vantaa Airport
Domestic Terminal

Neste Oy Head Office

We can make an expansion joint cover for just about any opening.



Schuller Roofing Systems

If you can draw it, we can make it.℠ No matter how unusual your roofing challenge, Schuller can turn your rough sketches into custom-manufactured, high quality Expand-O-Flash® expansion joint covers. And, when used in a total Schuller roofing system, they can be included in one of the most comprehensive performance guarantees in the industry. We've got you covered.

Schuller Technical Service Department: Worldwide, 207-784-0123; USA, 800-445-1500; Fax, 207-784-0125.

SCHULLER

design: Paolo Galeotti/Renzo Baldanello

GIOTTO, A PERFECT WORLD

IN DESIGN, QUALITY AND CHARISMA, AND IN ITS FUNCTIONAL EXTENSIONS,
GIOTTO IS THE OFFICE FURNITURE PROGRAM, WHICH COMBINES THE FASCINATION OF MATERIALS LIKE MAHOGANY,
SILVER AND LEATHER WITH THE REFINEMENT OF HANDCRAFTED PRODUCTS.

codutti
linee di arredamento ufficio

Codutti s.p.a. 33037 Passons - Udine - Italy - Via Bonavilla, 24 - Telefono 0039 432 541414 - Fax 0039 432 540045 - Telex 450006 APIUD I COD - e-mail: **codutti@ud.nettuno.it**

GELDERAADVERTISING++

How to give everyone the ideal climate without wasting any energy.

Hi-VRV™
VRV & HRV & D-BACS

Creating the perfect climate in large buildings is no easy task without a tailor made system. Daikin's Hi-VRV air conditioning system offers you precisely the features you need.

VRV - Variable Refrigerant Volume air conditioning offers cooling, heating and dehumidification.

HRV - Heat Reclaim Ventilation, a fresh air system, supplying fresh air to the indoor climate through a high efficiency heat exchanger. The reduced cooling loads give savings in energy consumption of up to 23%.

D-Bacs - Daikin Building air conditioning control system, an integrated management, monitoring and control system for modular and central climate control. It all adds up to an efficient, intelligent air conditioning system, resulting in considerable energy savings.

DAIKIN

DAIKIN HI-VRV. AIR CONDITIONING WITH THE HIGHEST IQ.

Yes, I'd like further information about Daikin air conditioning systems.

Name: .....

Job title: ..... Company: .....

Address: .....

..... Postcode: .....

Tel.: ..... Fax: .....

Send or fax this coupon to:
Daikin Europe NV - Marketing Dept.
Zandvoordestraat 300 - 8400 Oostende - Belgium
Tel: 32/59/55.81.11 Fax: 32/59/55.88.99
Internet: http://www.daikin.be

3 YEAR WARRANTY

ARRIS

voted

BEST ARCHITECTURAL CAD

ARRIS computer image by A.J. Diamond, Donald Schmitt and Co., Architects and Planners
Modeled and rendered by Dalibor Cizek and David Hileman

The Software for Architects

In November, 1996, a unique competition was held in Boston to determine the **Best Architectural CAD** software. The results?
Over 300 architects and design professionals voted ARRIS, by Sigma Design International, the **"Overall Winner"** in a head-to-head contest with AutoArchitect using AutoCAD, Microstation TriForma by Bentley, AllPlanby Nemetscheck, ArchiCAD, MiniCAD, DataCAD, and Architrion.

ARRIS voted:

- ★ *Best Overall Architectural CAD*
- ★ *Best Conceptual Sketching*
- ★ *Best Design*
- ★ *Best Presentation*
- ★ *Easiest at 3D Modeling*
- ★ *Most Accurate 3D Modeling*
- ★ *Best Quick-Shaded Perspectives*
- ★ *Best Animation*
- ★ *Best Rendering*
- ★ *Best Network Collaboration*

WINNER 1996 ARCHITECTURAL CAD CUP

"We congratulate the ARRIS Team and also Sigma Design, the developers of ARRIS. They clearly demonstrated that they are the current standard bearers of architectural CADD excellence."

Geoffrey Langdon
CAD Shoot-out Organizer

ARRIS

Life's short. Work smarter.

http://www.arriscad.com 318-449-9900 1-888-990-0900 (toll free US & Canada)
654 Madison Avenue, New York, NY 10021 USA FAX: 318-449-9901 E-Mail: arris@arriscad.com

Download the future.

Various images rendered by Cooper Carry & Associates, Inc. using MicroStation MasterPiece™.

If you're an engineer or designer, patience isn't a virtue. Old solutions may be comfortable, but they can jeopardize your competitive advantage. That's where Bentley can help.

Whatever your specialty, we'll give you the tools to take on the most challenging projects. Our solutions for Geoengineering, Mechanical, Architectural, Plant and Civil engineering are not only designed for the way you work today, but for the way you'll work tomorrow. Engineering automation across the enterprise is what the world is demanding—and what we can help you achieve right now.

Consider Bentley's Engineering Back Office™ family of web-enabled engineering products for use on both the Internet and your company's Intranet. They combine the power of the Internet and three-tier client/server technology, letting you share information with colleagues in distant places. These new Bentley ModelServer™ products provide on-demand universal access to engineering information—even with standard browsers.

Another innovation is OpenSpace™, our ongoing initiative for creating integrated engineering applications with our strategic affiliates—companies that offer the best technology in their areas of expertise.

We pay equal attention to satisfying your needs after you invest in our products. Bentley SELECT™, our service and technology subscription program, is widely regarded as the best in the industry. We make licensing, purchasing and upgrading easy and affordable.

Today, over a quarter million engineers and designers worldwide work on MicroStation® and other Bentley engineering products.

Work on projects with colleagues in different offices, distant buildings, other countries.

Contact us today for our free White Paper, *Engineering and the Enterprise*, and ask about our wide range of products and services. Why wait? Download the future today.

Engineering the future together

BENTLEY

Bentley Systems, Inc. Americas, 690 Pennsylvania Drive, Exton, PA 19341-1136 • (610) 458-5000 • FAX: 610-458-1060 • www.bentley.com
Bentley Systems Europe B.V., Wegalaan 2, 2132 JC Hoofddorp, The Netherlands • +31 23-5560560 • FAX: +31 23-5560565
Bentley Systems Pty. Ltd. Asia Pacific, 51 City Road, S. Melbourne VIC 3205, Australia • +61-3-9699-8699 • FAX: +61-3-9699-8677

RAL-digital

RAL ON SCREEN

You can now have installed a software incorporating all RAL colours, thus enabling the planning of colour with design, to complement your current programme.

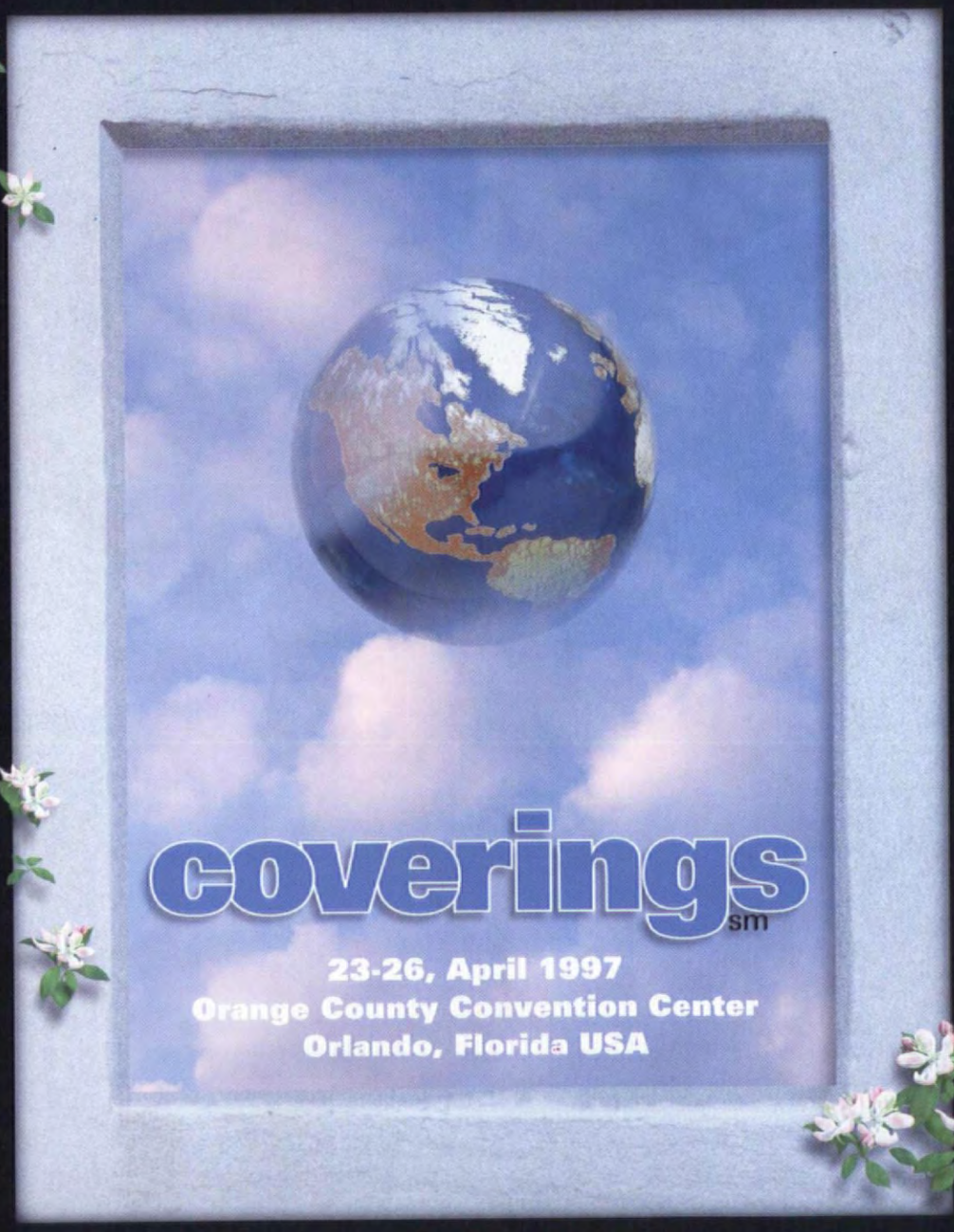
Ask for further information.

RAL
Siegburger Straße 39
D-53757 Sankt Augustin
Tel. 0049-2241-1605-0
Fax 0049-2241-160516

International Flooring Exposition

International Wall Covering Exposition

International Tile & Stone Exposition

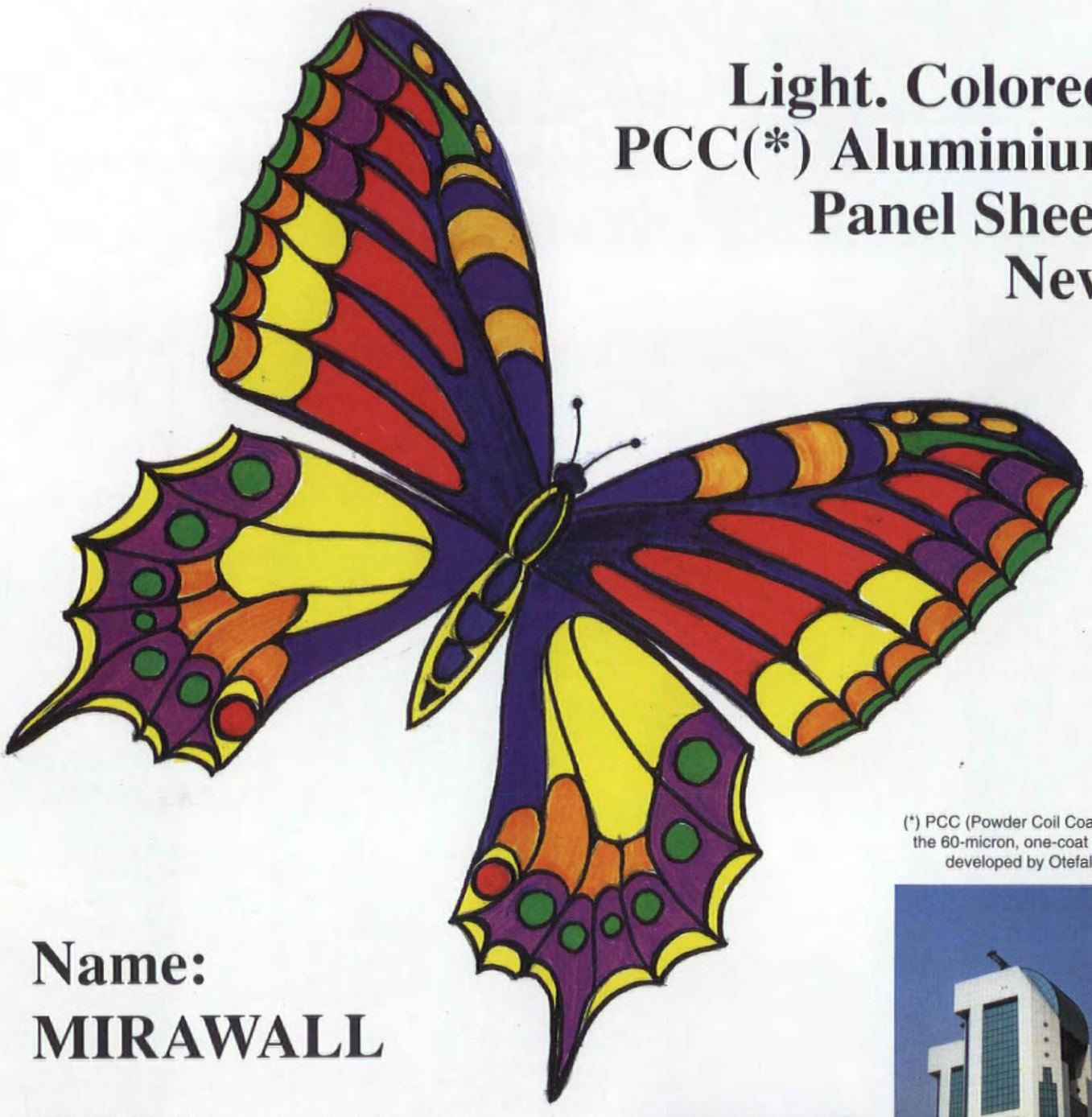


Don't miss your window of opportunity.

NEW forces are transforming your marketplace. No longer can traditional trade shows expose you to the world of new products, suppliers and ideas that your customers demand! But Coverings℠ will—with three world-class expositions with over 1,700 exhibitors displaying products on over 750,000 square feet and thousands of products you've never seen before. Plus free conferences and seminars, industry events, an outstanding location and much more. Set a course for Coverings right now and let the forces of change propel you to new growth and profits. Make your plans to attend this Mega Show today.

voice: 561.747.9400 · fax: 561.747.9466 · e mail: info@coverings.com · internet: www.coverings.com

Light. Colored. PCC(*) Aluminium Panel Sheet. New.



(*) PCC (Powder Coil Coating): the 60-micron, one-coat finish developed by Otefal Sud.

Name: MIRAWALL

MIRAWALL: Flat, "panel quality" aluminium sheet, with the new extra-thick Pulcolam polyester powder paint.
Ideal for curtainwalls and ventilated walls in terms of cost and quality. Up to 5 mm thick for large panels.

80 COLOURS READY in stock and on stand-by for 1-3 weeks delivery. Gloss, matt, and metallized.
Special colours on request. Perfectly matches powder painted profiles, with superior weathering properties. Non directional.

BENDING & FORMING UNLIMITED: The thick, tough Mirawall finish won't crack or discolour when bent or subject to impact. No need for back milling. Huge savings on production costs over panels made with laminated plastics or batch painted after forming.

MIRAWALL by: OTEFAL SUD SPA
V. Lungo Serio, 38 - 24050 Grassobbio BG, Italy
Tel. ++39 35 586331 - Fax ++39 35 586370

GLASS.
THE UNIQUE MATERIAL THAT MAKES IDEAS SHINE THROUGH.

BRIN UNDERGROUND STOP, GENOVA (ITALY) - ARCH. RENZO PIANO

In a world more and more crowded with clouds and bounds, Pilkington SIV Glass -in the largest range available- is a technological choice in total respect of environment and natural beauty values. It's research and insight. It reflects light and opens up new horizons. It's pure materia, that shapes the greatest ideas.

PILKINGTON

SIV

Every kind of glass, to create everything.

Building Division - Tel. (+0039) 041/5334511 - Fax (+0039) 041/5313301 - Tel. (+0039) 039/687361 - Fax (+0039) 039/6058066

Maximum comfort, minimum consumption – bathroom fittings from GROHE

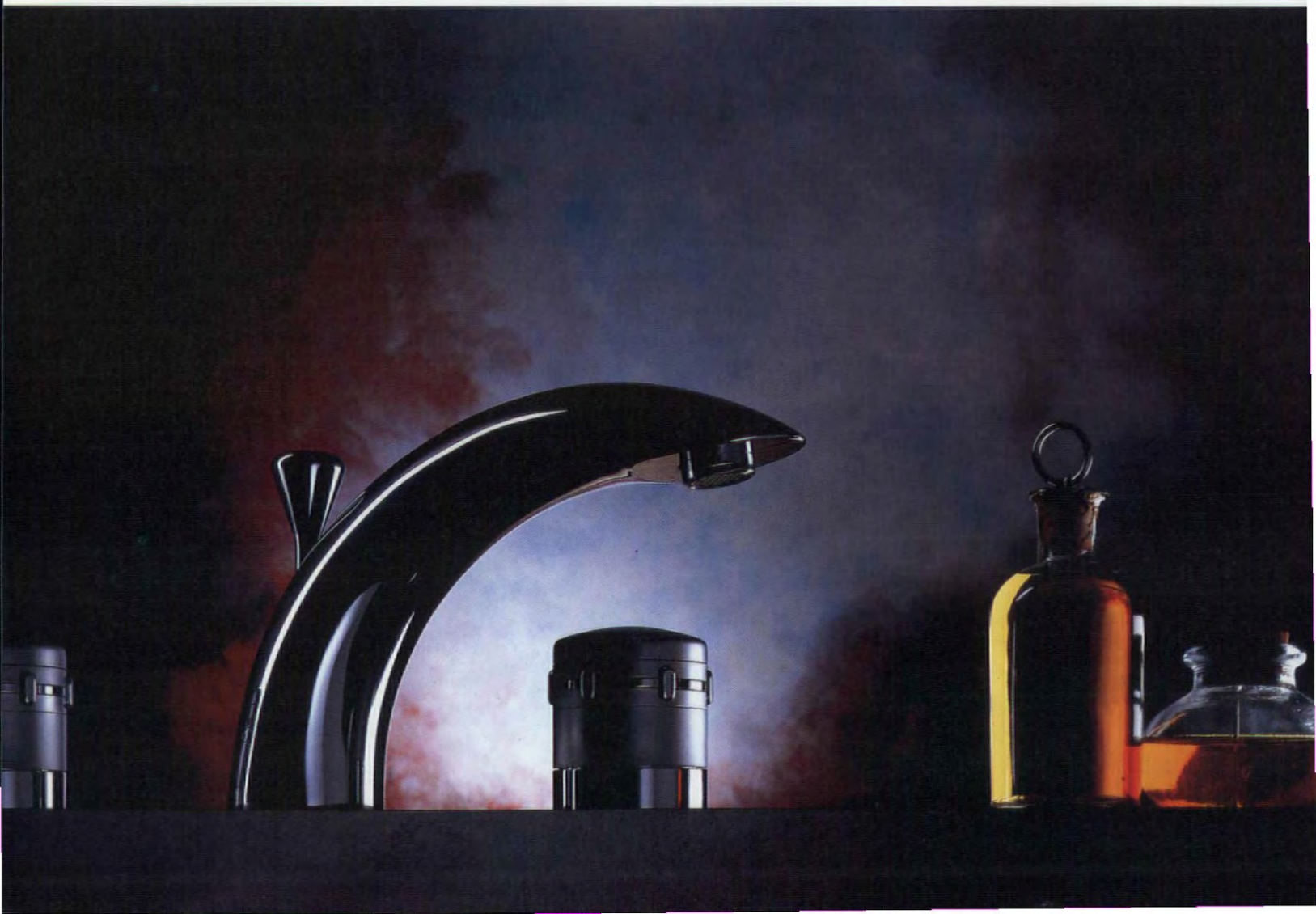
The leading German bathroom fittings manufacturer supplies bathroom fittings for maximum comfort and minimum consumption.The thermostat fitting Automatic 1000 – only one of a wide variety of Grohe products – offers just that. Thanks to its precision temperature selector, water reaches the desired temperature in seconds, and remains there throughout the shower. The result: noticeable savings on water and power, especially when users turn off the water to soap-up.To resume showering at exactly the same temperature, all you need to do is turn the water back on. No additional temperature adjustment is necessary.

A further potential cost-cutter is the economy button, with its integrated flow-rate-limiter. It prevents wasteful extravagance, but without impairing showering comfort. The Automatic 1000 thermostat cuts water and related fuel bills by up to 50 percent. The competitive price offers an attractive alternative for the shower, both for homes and for professional applications.

Like all other GROHE fittings, this thermostatic fitting was designed to be combined with other components, namely the Relexa Plus shower head range. Matching design apart the Relexa Plus range is also ideally suited for technical reasons. Both, for example, are specially constructed to produce a perfect spray pattern even with the reduced rates of flow required to cut water consumption.

To ensure the spray pattern remains constant for a long period of time, the Relexa Plus shower series puts an end to scaled shower heads, once and for all. The revolutionary conical water jets are made of silimer, a technical rubber which has a high load-bearing capacity and stability, and is so elastic that while lime does deposit it can no longer build up – no more tedious and often unsuccessful attempts to rid the showerhead from the scale. Just one wipe of the hand or a firm sponge and it's full steam ahead for more showering comfort. Descaling becomes child's play, and its all done without chemicals. This fast cleaning method has been given a name: SpeedClean, it comes with a five-year guarantee.

The Relexa Plus shower series, of course,



can also be combined with many other GROHE fittings – with the very elegant and harmonious Chiara thermostat for example. This thermostatic mixer also has an economy button and a built-in safety device against scalding. The Chiara line captures the exclusive clarity of modern bathroom design. As for comfort, the fittings leave nothing to be desired. The stylishly designed levers respond smoothly to a light touch. You control the temperature of the water with consummate ease, from refreshingly cool to soothingly warm.

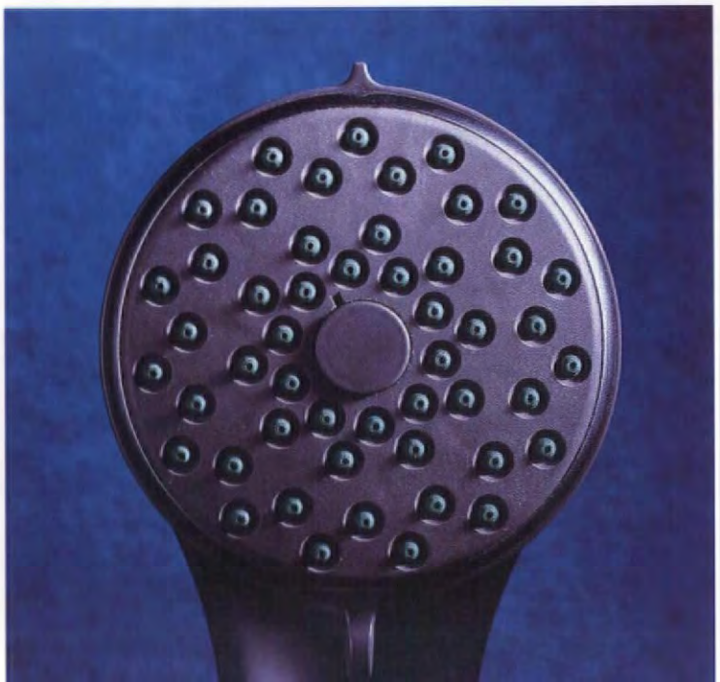
The Chiara range, like most other GROHE fittings, is available in a variety of stylish colours and colour-combinations – chrome, white, chrome/gold, white/gold to mention only a few.

For further information please write to:
Friedrich Grohe AG, Info-Service,
PO Box 1361, 58653 Hemer, Germany

Far right *This elegant Chiara three-hole thermostat brings added sophistication into every bathroom. It is designed to provide perfect water temperature control every time you bath or shower*

Above *An architect's dream the Chiara line: designed to perfect the ultimate bathroom*

Left *The ultimate in descaling Grohe's SpeedClean function turns descaling into child's play, without the use of any chemicals. This function is even covered with a five year guarantee*

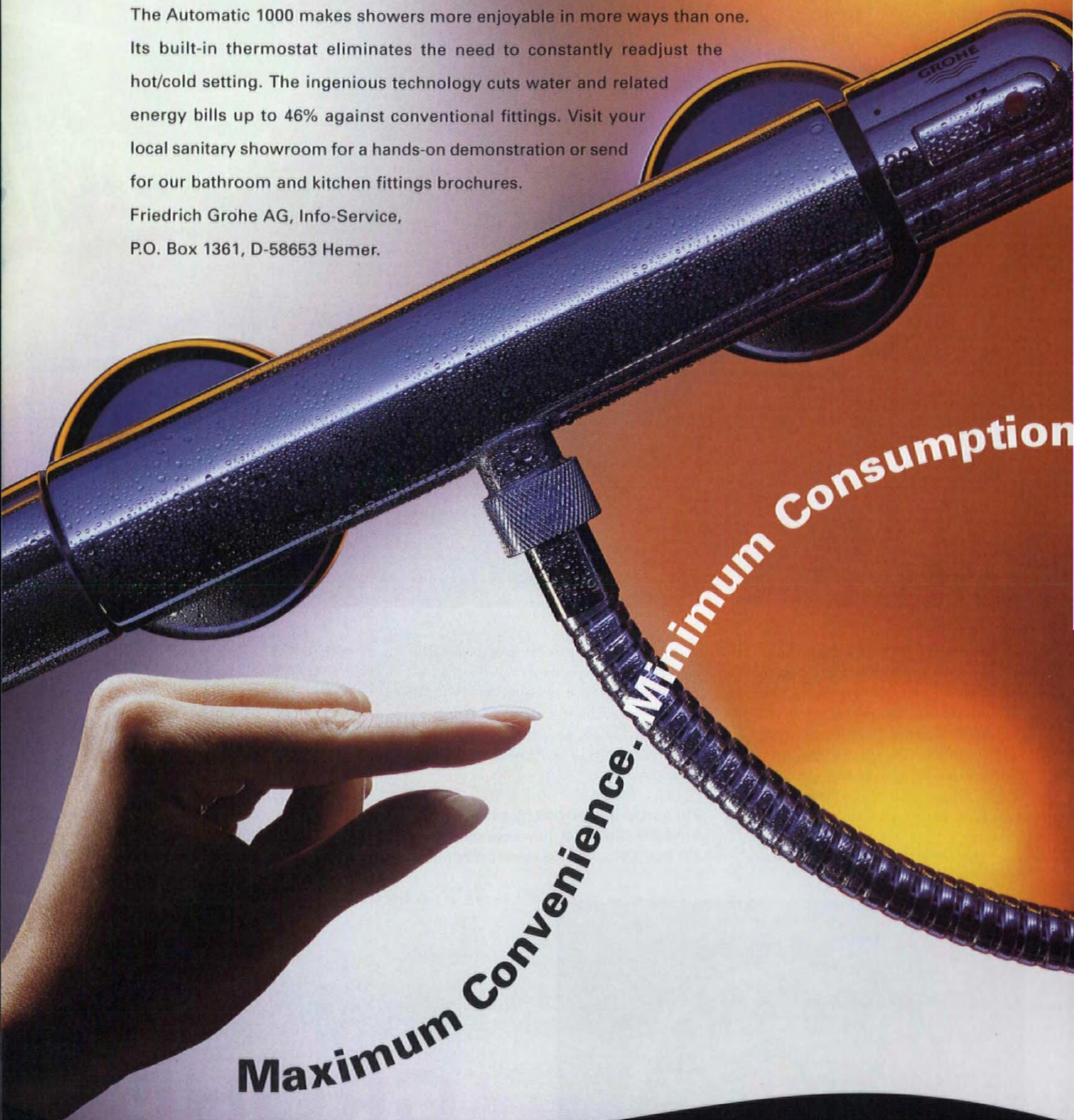


GROHE

WATER TECHNOLOGY

GROHETEC®

The Automatic 1000 makes showers more enjoyable in more ways than one. Its built-in thermostat eliminates the need to constantly readjust the hot/cold setting. The ingenious technology cuts water and related energy bills up to 46% against conventional fittings. Visit your local sanitary showroom for a hands-on demonstration or send for our bathroom and kitchen fittings brochures.
Friedrich Grohe AG, Info-Service,
P.O. Box 1361, D-58653 Hemer.



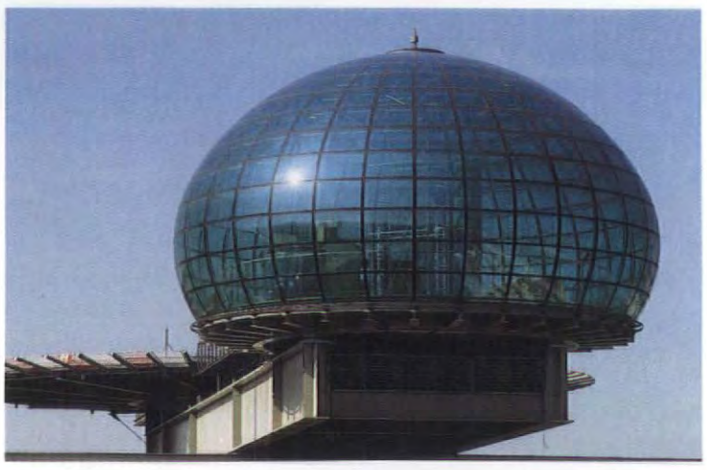
Maximum Convenience. Minimum Consumption

GROHE
WATER TECHNOLOGY

hard glass

Turin: internal view of the cupola realized at Lingotto. Project: Renzo Piano Building Workshop.

THE *hard glass* PRODUCTION RANGE IS THE RESULT OF EXTENSIVE RESEARCH AND TESTING AND CAN SUPPLY ALL THE TYPES OF GLASS MOST SUITED TO YOUR NEEDS: MULTIFLOAT (LAMINATED GLASS FLAT OR CURVED VERSIONS), GUARDIAN (A VIRTUALLY UNBREACKABLE, BULLET AND ATTACK RESISTANT GLASS WITH POLYCARBONATE, ALSO IN SPLINTERPROOF VERSION), BOW-GLASS (CURVED VERSION OF MANY OF THE TYPES LISTED ABOVE), CALORIT (HEATED GLASS). CONSIDER USING *hard glass* PRODUCTS. THE COMBINATION OF UNIQUE ITALIAN CREATIVITY AND ADVANCED TECHNOLOGY WILL BE CLEARLY SURPRISING.



hard GLASS ITALIAN GLASS TECHNOLOGY

RINA QUACER CISQ ISO 9002

The company has received ISO 9002 Total Quality System - Certification

HARD GLASS S.P.A. - ITALIAN GLASS FACTORY
VIA OLMEO, 7 - TAGGI' DI SOTTO - 35010 VILLAFRANCA PADOVANA
ITALY - TEL + 39 - 49 / 9075066 - FAX + 39 - 49 / 9075297

LUDUS

Design: Bonini & Spicciolato

COLOMBO
DESIGN

CORRADO BORRELLI

COLOMBO DESIGN S.P.A.
Via Baccanello, 22 - 24030 Terno d'Isola (BG) Italia - Fax 035.4940257 - Export Office: Tel. 035.905475

ISOLE

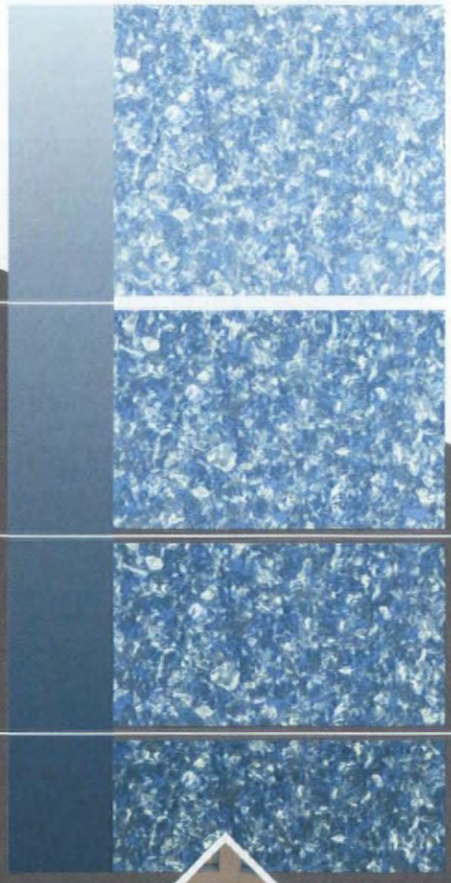
Design: Anna e Carlo Bartoli

COLOMBO
DESIGN

COLOMBO DESIGN S.P.A.
Via Baccanello, 22 - 24030 Terno d'Isola (BG) Italia - Fax 035.4940257 - Export Office: Tel. 035.905475

Fractalis®
COLOURS & DESIGN

FRACTALIS offers finishes and effects that will be harmonious in any motif; classic or contemporary, rustic or sophisticated, period or eclectic.
Whether the goal is a subtle complement or a milieu of artistic innovation, walls and architectural components finished with **FRACTALIS** will always make the appropriate contribution. Color is the central element of design and should be never compromised. The **FRACTALIS** Collections are available in the exact color, hue and value required for the perfect project. Tangerine to turquoise, goldenrod to grape, peach to Prussian blue .. it's your choice, and the color possibilities with **FRACTALIS** are endless. The **FRACTALIS** palette will coordinate with your favorite paint, fabrics, furniture, or flooring, so you never have to compromise the look you want. Included in the **FRACTALIS** Collections are classic finishes which were inspired by the architectural splendor of Venice and Florence. Each Collection represents a different pattern which is offered in a bold or subtle textured effect. **FRACTALIS** provides a versatility that lets you play to the subdued patina of a period piece or match the bold feel of Italian marble. **FRACTALIS** is the only designer finish that can take you exactly where you want to go. Clearly, **FRACTALIS** program has a renaissance theme, but is technology



Client:
Nice Paint Co. (China)
Specifier:
Tony Sin
Collection:
Fireworks

Client:
Ipercoop Porta Marcolfa (Italy)
Specifier:
Ing. Spada
Collection:
Liquidsky & Goatskin

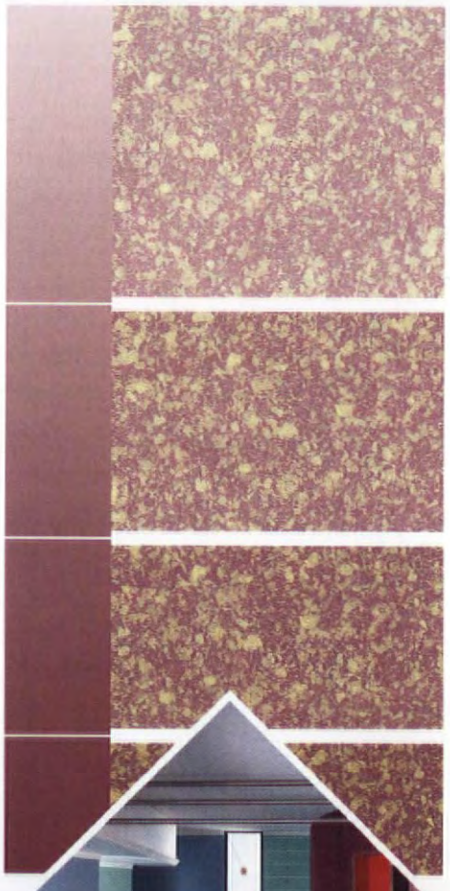
Client:
Residence Owner (Italy)
Specifier:
Arch. Bonetti
Collection:
Goatskin

Water-based Designer Finishes

driven. Formulations are based on aqueous technology which meets or exceeds the most stringent international standards for occupational safety and for the environment ... and odor is not a problem. Regarding building code requirements and performance criteria, **FRACTALIS** is also without equal. What's more, it's washable and easy to touch up. The technology that our products is based on was developed in the early 1980's, patented in 1985, and introduced to the commercial and residential construction market in 1986. It is estimated that over 25 million square meters of commercial and residential space has been finished to date.
Currently **FRACTALIS** designer finishes are available in over 25 countries and their annual installation rates in excess of 7 million square meters; which establishes **FRACTALIS** as the leading brand worldwide.

Fractalis...

here... now...
ready the moment
you create it.



Specifiers Tools Package

Internet Web Site:
www.pianeta.it/fractalis

Client:
Lafayette Galleries (Germany)
Specifier:
Joseph Stoffer
Collection:
Venicelook

Client:
Morandi Fashion Store (Italy)
Specifier:
R.R. Bulgarelli
Collection:
Polaris

SPETRA
COLOR TECHNOLOGY

SPETRA S.r.l. • Via Venezia 14/A
41034 Finale Emilia (Modena) - Italy
Tel. +39-(0)535-92530 - Fax +39-(0)535-93400
www.pianeta.it/fractalis - eMail: fractalis@spetra.it

MERIDIANA

DESIGNER: FABIO REGGIANI

IP40

REGGIANI

97 NEW luminaires for '97

OTTOLOTTO

IP55

DESIGNER: FABIO REGGIANI

REGGIANI SPA ILLUMINAZIONE
VIA DELLA MISERICORDIA 33
20057 VEDANO AL LAMBRO MI ITALY
FAX 039 492714

REGGIANI LTD. LIGHTING
12 CHESTER ROAD
BOREHAMWOOD HERTS
WD6 1LT LONDON UK
FAX 0181 2073923

REGGIANI GmbH
LICHT-UND BELEUCHTUNGSTECHNIK
GRIESFELDSTRASSE 7
A-2351 WIENER NEUDORF
FAX 02236 64576-10

INTERNET:
http://info.co.uk/reggiani/

WORLD
ARCHITECTURE

World Architecture is published by Cheerman Ltd. The views expressed in *World Architecture* do not necessarily reflect those of Cheerman Ltd. All editorial, advertising and subscription enquiries to: World Architecture, 3-6 Kenrick Place, London W1H 3FF, England. Tel: +44 (0)171-470 7000. Fax: +44 (0)171-470 7007. e-mail: warch@atlas.co.uk World Architecture ISSN No 0956 9758 is published monthly for US$150 per year by Cheerman Ltd, 3-6 Kenrick Place, London W1H 3FF. Second Class postage paid at Champlain, New York and additional entries. Postmaster: send address corrections to Hyde Park Media, c/o I.M.S. Box 1518, Champlain, NY12919. Distribution – UK: Central Books, 99 Wallis Road, London E9 5LN. Tel: 0181 986 4854. USA: Eastern News, 250 West 55th Street, New York, NY 10019. Tel: 212 649 4484. Rest of World: USM, 86 Newman Street, London W1P 3LD. Tel: 0171 396 8000. Fax: 0171 396 8002. email: usm.co.uk.

In search of a national identity

Just as beauty is in the eye of the beholder, so apparently are nations' perceptions of their own identity. In three month's time Hong Kong will be returned to Chinese sovereignty. The island super-power will become a Special Administrative Region and her foster parent is making every effort to ensure that her presence is maintained, both economically and physically – in the shape of a flagship building for the British Council, costing a cool £60 million (US$96 million).

Terry Farrell & Partners have had a significant presence on the island since the 1980s, and are widely considered to be a major player in the UK as well. As such, their choice as architects for the three buildings for the consulate-general, the residency and the British Council headquarters seems neither surprising nor cavalier. What is more intriguing is that in the British government's express desire for a building that is "definably British and geared to projecting British interests" the team have come up with what is described as a "well-groomed, well-tailored and disciplined" solution.

One wonders how much such a conservative solution to a landmark project has to do with the collaboration of so many diverse interests, including the Foreign & Commonwealth Office and the British Council, which has its own design director. What has resulted is an architectural manifestation of the British stiff-upper-lip. How ironic that at home the Brits are up in arms over two major world-beating skyscraper projects for the City of London – Sir Norman Foster's Millennium Tower, and Santiago Calatrava's City Point. Why was this determination to push the boundaries of engineering and public tolerance not engaged in producing a landmark building in Hong Kong, where skyscrapers are the downtown context?

The British Council hosted a symposium in Hong Kong on the "City of the Future" in February, where Terry Farrell was reported to have spoken in favour of "going vertical", arguing that it is socially and environmentally irresponsible to design future cities on a horizontal plan. Interesting, then, that the government should choose him to build a 10-storey groundscraper in the archetypal "City of the Future", and, what is more, that he should agree to do it.

Nicola Turner

WA welcomes letters to the Editor. Please send them to 3-6 Kenrick Place, London W1H 3FF, UK or fax: +44 171 470 7007.

The myth of monumentality

"It's like thinking you can drink champagne all your life then finding out that you need water. Water is reality. Architecture is reality. Architecture is permanent."

As every student knows, the second of Sir Henry Wotton's three conditions of architecture is "firmness", which follows commodity and precedes delight. Dating from the seventeenth century, all these conditions remain unquestioned, or at least "firmness" does, when it is properly modernised into structural strength, permanence and monumentality. The absence of dissent is understandable. If we enjoy a lively public concern about the design of buildings – as opposed to the deadly public indifference that greets the design of ships or airliners – it is because people naturally assume that they will be around forever.

However, widely accepted though this view may be, there are exceptions to it. Temporary buildings are of course not meant to be permanent, but these days there are other buildings, built in anticipation of a long life, that turn out not to have one – for example city centre office buildings of the grandest type. The reason for this downturn is not hard to find. In recent years many of these flagships of commerce have taken a hammering at the hands of information technology, not only because they have difficulty in keeping up with its space demands, but because management telepresence, which is one of the principal achievements of information technology, has made many buildings seem superfluous, ill-sited, or no longer well-adapted to the needs of the people who work in them.

What this means in plain language is that when buildings that have been designed for one purpose turn out to be in urgent need of costly reconstruction to suit another purpose – which one might say is the case with the many office buildings now being converted into apartment blocks across Europe – it is not too hard to see that some discounting of their value at the investment stage cannot be far behind.

Despite this logic, when confronted with the question of the impact of telepresence upon the prospects for architecture, few architects see great dangers in it. One distinguished Asian architect, who has worked in the Philippines and mainland China as well as his own country, is particularly insistent that the threat is illusory. "Cyberspace will always be temporary, like being in an aeroplane," he says. "Sooner or later you have to land somewhere or you crash. It is like thinking you can drink champagne all your life then finding out that you need water. Water is reality. Architecture is reality. Architecture is permanent."

Nearly all established architects take this view. East and West they believe that buildings are monuments, not instruments. The enormous cost of the construction process, the length of time it takes, the cultural importance attached to it, all of these are persuasive arguments in favour of the idea that architecture will always be regarded as a weighty matter by clients, planners, financiers and the public. Cyberspace or no cyberspace, buildings will remain the epitome of permanence, as they have been since ancient times. The idea that electronic simulations of distant places might one day seriously threaten their status seems implausible, not least at a time when preparations to celebrate the Millennium involve grand building projects whose very object is to act as historic markers for centuries to come.

Impregnable as this traditional view might seem, there can be no doubt that the arrival of telepresence in business has had an impact on property values. At the most elementary level it has, for many practical business purposes, conquered distance, and in doing so established new criteria for the specification, performance and location of new buildings. We know this is true because many major design firms, simply through the installation of teleconferencing facilities (which they have been quick to adopt), have demonstrated that remote control can supplant direct control, and distance working supplant working in the same building. By purchasing advanced communications equipment, these building users are demonstrating that ideas of space and distance that used to determine the size and location of buildings 20 years ago, have already been altered. Indeed, part of the alteration has been the massive enlargement of the scale of operations open to architects, an enlargement that has made global practice a reality.

Enthusiasts for virtual worlds in architecture may be reluctant to lock horns with traditionalists in the matter of permanence versus the temporariness "that has to land somewhere or you crash", but they cannot do so indefinitely. The moment they admit that cyberspace has implications for architecture and urban design they beg the question of what these implications are. Will telepresence bring about revolutionary changes in planning, transportation, energy consumption, infrastructure, population distribution and employment, or will it not? If the answer is that it will, then how can these changes fail to impinge on the idea of permanence that lies at the heart of architecture?

Sooner or later the value of permanence to architecture is going to be questioned. To a degree it already has been, as we can deduce from the reduction in real construction cost and the increase in construction speed that has taken place over the last ten years; notwithstanding an improvement in thermal performance, an improvement in environmental control, and a massively increased quantity of information technology in first class office buildings all over the world that should have cost more. In the US major design firms now accept that facilities management, alterations to existing buildings and the mapping of client "exit strategies" now accounts for a significant proportion of their workload – in effect they are being paid to undo the downside of old-style monumentality in preparation for a more flexible future.

Follow this line of reasoning further and you rapidly reach the conclusion that telepresence might not even be an information or an entertainment issue. It might principally be an architecture and planning issue. The kind of issue in fact that architects will only be able to confront by coming to terms with impermanence in ways beyond Sir Henry Wotton's dreams.

Martin Pawley

News Review

WA's News and Business round-up

French government in one-sided build-up to France 1998

The French government's preparations for the 1998 soccer World Cup have run into stormy waters. In January the European Commission started legal action against the government for its handling of the contract to build and run the FF2.7 billion (US$480 million) Grand Stade Saint-Denis – the stadium that will host the 1998 World Cup Final.

It is alleged that the French government ignored European Commission single-market rules when it awarded the contract to build the 80,000 capacity stadium to SGE, a team of contractors comprising the utilities group Générale des Eaux; Bouygues, the construction company, and GTM-Entrepose, who are 48 percent owned by Lyonnaise des Eaux, another utilities company. SGE were also allowed to alter their tender after bidding had officially been closed. The action has come about after suggestions that the competition was not run entirely according to the European Commission mandate, and after allegations of mal-practice from competing teams of contractors . The Commission is also concerned that the contract was advertised as an operating concession,

when in fact it was a building contract.

The Commission have given the French government two months to respond, after which it is possible that the matter will be referred to the European Court of Human Justice. Also, if the court were to rule in favour of the Commission, competing bidders might also qualify for compensation.

The case is perhaps the most high profile incident to date in the Commission's Europe-wide crack-down on the application of European Union laws on public procurement of construction contracts. Whatever the outcome it seems inevitable that the completion of the now half-built stadium, located on the outskirts of Paris, will be delayed, although the French government have given their assurance that the tournament will run smoothly.

© Wojtenski

Denmark and Britain Poole resources

An Anglo-Danish team of architects and engineers have won the British Highways Agency's (HA) first design competition. The winning team, comprising architects Dissling + Weitling, consulting engineers the Flint & Neill Partnership, consulting engineers Rambøll and landscape architects Terence O'Rourke, were chosen from a shortlist of three. The competition attracted 99 submissions.

Five steel A-frame pylons, set 142 metres apart from each other, will support a slender multiple-cable-stayed bridge, over a total length of 700 metres. The 53- metre-high spans have 1.2-metre-diameter legs. The pylons are linked by a 9.5-centimetre-diameter cable which will stabilise the pylons during erection and share loads once the bridge is complete. Aesthetic suitability and cost effectiveness were particular concerns to the HA in choosing the winning entry.

Commenting on the design Ian Firth, a partner with the Flint & Neill Partnership said: "Economically, a very large span was out of the question. Equally, very short spans would need a lot of foundations". The Flint & Neill Team's entry is designed to "tiptoe across the bay" making minimal environmental impact on a notable conservation area. Added to this, the proposal comes in at an estimated £25.3 million (US$40.4 million), which is within the specified budget of £25.9 million (US$41.4 million).

CAD image – Hayes Davidson

In brief

BULGARIA

Anglo-Bulgarian alliance, with US backing

Sheppard Robson International (SRI) have been appointed as a supporting town planner and eco-tourism consultant for a three-year Global Environment Fund/Bulgaria Blodiversity project on behalf of US AID and the Bulgarian Ministry of the Environment. The brief includes: comprehensive national park environmental strategies; management plans for the Central Balkans and Rila Park areas; eco-tourism policy planning; environmental improvement and design guidance advice. SRI have also been appointed as master planners and town planning consultants to develop a strategic blueprint for a new port and industrial area at Hidd in Bahrain.

CHINA

Lohan in Shang-high

Lohan Associates, Chicago-based architectural practice, have won an international competition to design Jin Hui Plaza, a mixed use project in Shanghai, People's Republic of China. The project consists of two 40 storey towers, each of which comprise hotel and office functions. The design also incorporates a five storey retail podium, a public plaza and underground parking. The development will cover a total area of 1,250,000 square feet. Jin Hui Plaza will go on site later this year.

The Plaza is Lohan Associates' third project in Shanghai: Shen City Plaza (a 28,000-square-metre, mixed-use office and retail centre), and Changfa (a 41,000-square-metre mixed-use development) are currently under construction in the city.

GERMANY

Brits take Berlin

British firm, Renton Howard Wood Levin Partnership (RHWL) have won a major project in Berlin. The competition involved seven invited practices in a three stage consultative process on the master planning of three large adjoining sites for Axel Springer Verlag (ASV) – a large Hamburg-based media group. RHWL were awarded the commission for the new 75,000-square-metre Multi Media Centre, which will be connected to ASV's existing headquarters building. RHWL's proposals won favour because they reflect the form and orientation of the traditional Berlin street block. The Centre will be organised around a series of offset internal courtyards, allowing a high degree of flexibility. The other two sites – comprising a mixture of residential and commercial areas – were both won by German firms, Assmann and Company, and Krüger, Schuberth, Vandreike.

KOREA

Sasaki go lakeside in Korea

The Doosan Marine Resort in Chunchon, Korea is to be redeveloped by Sasaki Associates Inc. The Massachusetts, US-based firm will provide master-planning, programming, concept architecture and site design services for the five-hectare waterfront site. The development will include 300 condominiums, a family hotel – which is currently under construction – a clubhouse, marina and related lakeside amenities. Sasaki will be working in association with the Sisang Design Group, a Seoul-based practice.

MEXICO

Mexico on the up

The Mexican economy is recovering far more quickly than expected after the devaluation crisis of 1995 (see Country Focus *WA*53). Emergency loans from the US have been repaid three and a half years ahead of schedule, and after shrinking by 6.2 percent in 1995, it is estimated that Mexico's GDP grew by four percent last year. Private investment is expected to sustain growth through 1997, a trend that is likely to impact construction and, in the longer term, re-stimulate investment from US architectural practices.

THE NETHERLANDS

Dutch engineering deal goes flat

Dutch firms DHV Beheer BV and Heidemij NV have brought to an end merger talks that would have created a new engineering giant with an annual turnover of approximately US$800 million. Arnhem-based Heidemij NV, the larger of the two companies, who have grown rapidly in recent years due to acquisitions, were disappointed with DHV Beheer BV's decision not to continue negotiations. Beheer were concerned about the expense of the deal, and potential short-term disruption to business.

THAILAND

RTKL over the hills

RTKL have completed master planning, architectural and thematic design for the expansion of Central Airport Plaza in the mountain resort town of Chiang Mai, Thailand. The project, which incorporates the development of an existing retail centre, a new 200-room hotel and 10,000 square metres of office space on a 12.83 hectare site, will be developed by Central Pattana. The project will be carried out over two phases: the first phase involves the renovation of the existing five-level retail centre and the reconfiguration of the common areas. Work began in January, with completion following in October. The second phase is due for completion in October 1998.

UAE

Speirs & Associates light the way in Dubai

Edinburgh, Scotland-based Jonathan Speirs & Associates have been appointed as the lighting architect sub-consultants to W S Atkins Overseas, on the Chicago Beach Resort development in Dubai, UAE. The project (featured in *WA*52) incorporates the Tower Hotel – a 321-metre hotel located on a man-made island 400-metres into the Arabian Gulf – and the Resort Hotel – a 26-storey structure with a gently curving roof line. Speirs & Associates, principal responsibilities cover all external lighting for both buildings, and interior lighting for the Resort Hotel. In the words of Speirs himself: "Our brief is to create a magical and memorable experience that will further put the project on the world map after dark."

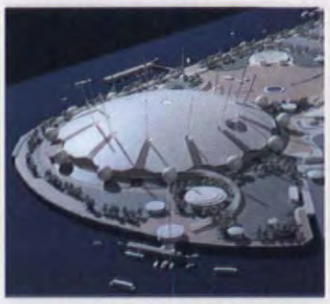
UK

The future looks bright for construction

According to the findings of a report by UK-based construction forecaster CFR – published in *Building* magazine – the industry is heading towards a period of rapid and sustainable growth. Construction output in 1996 may only have grown by 0.3 percent, but at present levels of investment an increase of 2.7 percent can be expected for 1997 – followed by a further increase of 3.4 percent in 1998. Given the Conservative government's policy of withdrawing from investment in public assets, it comes as no surprise that the private building sector has led

the way in the recovery process.

Pre-millennium tension



The Millennium Exhibition, Greenwich, London (featured in *WA*52) has become a party-political "hot potato" in the run-up to the Spring election. In late-January the Conservative Government confirmed the formation of Millennium Central as the official client for the development, a defiantly positive gesture in contrast to the Labour Party's reluctance to commit their support to the project, should they find themselves taking over office from the Conservatives in the Spring.

At the end of last year the project – which is due to go on-site in April – ran into controversy when contractors W S Atkins considered imposing penalties of £1 million (US$1.6 million) per month on the construction manager for non-completion of the project on the agreed deadline. This move came about in recognition of the restricted timescale and the fact that the project was still to be assured of the required grant – of £200 million (US$320 million) – from the Millennium Commission. In January this year it was announced that the Millennium Exhibition had been reduced in cost by up to £150 million (US$240 million) in an effort to ensure funding. This may mean that the 12 satellite domes around the main Millennium Dome and the piers on the site's Thames bank may be scrapped. The debate goes on.

Manchester runway confirmed

In a move that has already been referred to as the most significant boost to the region's economy since the building of the Manchester Ship Canal in the nineteenth century, permission has been granted for the building of Manchester airport's second runway. The £172 million (US$275 million) construction project will not only double the capacity of the airport (to 30 million by 2004), but also create 15,000 jobs at the airport and another 30,000 in firms in servicing it. Local voices have expressed concern about the impact on Manchester's green-belt, and noise pollution but John Gummer, Environment Secretary clearly felt that the financial benefits of the development outweighed the environmental drawbacks.

USA

J A Jones in the middle of the Pacific

The J A Jones Construction Company have won a US$12,500,000 contract for construction work at Kwajalein Atoll, in the Marshall Islands for the US Army Engineering District. Located 2,000 miles from Hawaii, in the middle of the Pacific Ocean, the project consists of a saltwater intake structure, pumping station, fuel tank farm and a ground-based radar facility. The development went on site late in 1996, completion is expected in January 1998. J A Jones have also won a contract to construct the Paul Porter Performing Arts Center on the campus of Brevard College, North Carolina. Construction began in December 1996.

Oklahoma City Memorial

The design evaluation panel has been named for stage one of the Oklahoma City Memorial International Design Competition. The open competition commemorates the bombing of the Alfred D Murrah Building, and its victims on 19 April 1995. Six hundred participants have already registered, representing 45 of the United States, and eight nations world-wide. The nine person panel includes six creative/design professionals, and three members of the Family and Survivor Committee – who will work together to produce a list of three to five finalists. The list will be announced on 19 April 1997. The winner will be announced in early July.

Shallow promises from Hong Kong's government

Hong Kong's government have received assurances from developers that families seeking flats will be favoured over commercial investors seeking assets to resell. In a market in which residential prices rose by approximately 25 percent in 1996 the government might initially appear to be taking a humane view on behalf of the British colony's population in a readiness for the return to Chinese rule on 1 July this year. However, the reality is that the government have done nothing to change the policy at the root of the problem, namely that it is they who retain the right to say how many sites and how much re-claimed land will be made available for domestic purposes.

Such is the demand for housing that in some cases a ballot system is operated just to get on a shortlist for a property once it has been made available to buy – recently, prospective home-owners have been spending up to HK$2 million (US$261,000) simply to ensure places on these lists. The supply of flats does not meet the demand because it suits the government to perpetuate the existing system. Perhaps the hand-over to Socialist China will not come as such a shock to Hong Kong's population?

In a separate development affecting the island, the Chinese central government have given their initial approval to plans for a 27 kilometre bridge, to run from the city of Zhuhai – on the Chinese mainland – to Hong Kong. The development would help to ease ever-increasing traffic congestion problems, and would also provide a new trade route after the hand-over. The six-lane bridge, which will cost approximately Yn13 billion (US$1450 million), is one of several ideas to provide improved access from the mainland to the islands in the Pearl River Delta. An official from Zhuhai says the bridge could be completed by 2004.

MOMA expansion attempts to attract names from outside the "establishment"

by Kelly Shannon US correspondent

In mid-January, the Museum of Modern Art (MOMA) in New York City announced the selection of ten architects to compete for the commission to design the museum's expansion. The prestigious opportunity to transform such a significant cultural institution has been awarded to a group of designers: two from Japan – Toyo Ito and Yoshio Taniguchi; two from the Netherlands – Wiel Arrets and Rem Koolhaas; Dominique Perrault of France; the Swiss team of Jacques Herzog and Pierre de Meuron; and four New York firms – Steven Holl, Bernard Tschumi, Rafael Viñoly and the office of Tod Williams and Billie Tsien.

Planning for the museum's expansion was initiated in February 1996, when the museum acquired the Dorset Hotel on West 54th Street, bordering the museum's sculpture garden. The architects have been asked to not only design an expansion, but also to rethink the entire museum complex – including the original building, designed in 1939 by Philip L Goodwin and Edward Durrell Stone, and subsequent additions by Philip Johnson and Cesar Pelli.

Although the chosen architects are hardly unknown, many commentators are surprised by the "establishment" names which have been passed over, including Richard Meier, Norman Foster, Charles Gwathmey, Peter Eisenman, Frank Gehry and Renzo Piano. MOMA's director, Glenn D Lowry and Terence Riley, chief curator of architecture and design, have deliberately attempted to veer away from the established firms, in the hope of focusing attention on "that generation which would be the leading architects of the next century... In making the selection, they decidedly favoured the idea of innovation and surprise over existing models of modern art museums." However, while few of the names selected have the international reputation of Foster, Gehry or Meier, none are particularly "young", and almost all have been involved in successful museum designs.

By May, three finalists will be chosen and the commission will be awarded by the end of the year.

Cologne braced for the latest in event-architecture

Europe's second mobile theatre opened in Cologne, Germany earlier this year with an interpretation of the musical "Gaudí". Sited in the shadow of Cologne's austere Gothic cathedral, on the banks of the Rhine, the temporary structure – which will house the musical for four years – provides a striking contrast to the cathedral's medieval forms. The Frankfurt-based Working Group for Textile Architecture (WGTA) described the structure – which was assembled in only five months – as "one of the most remarkable event buildings to have been erected in recent years". The "Musical Dome" continues the widespread use of textiles in large-scale, temporary architecture throughout the world.

The original design work on the dome – which provides 4,000 square metres of covered space, and can accommodate up to 1,700 people – was carried out by Hamburg-based architect Klaus Latuske. The structure, which divides into three main areas: foyer, auditorium and stage, is based on a primary load-bearing system, consisting of four gateway-like steel-tubes, three-brace links, and a double-layer membrane system made of plastic-coated fabric.

HHPA's impressive performance

Hardy Holzman Pfeiffer Associates (HHPA) have won a commission to design and build a new US$42 million, multi-use performance facility in the heart of Columbus, Georgia. The Columbus Performing Arts Complex – which comprises a 2000-seat auditorium, a 450-seat recital hall and a 150-seat "flexible theatre" – will take up an entire city block. The complex will also be home to the Columbus State University's performing arts programme.

In total the facility will provide over 100,000 square feet of music and theatre rehearsal/instruction space, which is intended to be used by the community at large. It is hoped that the complex, and all of its associated amenities – restaurants, an outdoor amphitheatre, food kiosks etcetera – will provide a 24-hour environment which will contribute to the on-going revitalisation of the city.

Phase one of the 200,000 square foot development is expected to be completed in early 1999.

People and Practice

INDONESIA

Ciputra feel benefit of low interest

Indonesian property developers, Ciputra Development have announced a 1996 profit increase of 40 percent over their 1995 total – from Rp93.1 billion (US$39 million) to Rp130.6 billion (US$54.7 million). The company expect a further 25 percent increase in 1997. The dramatic advances are a surprise to Indonesian property speculators who predicted, in the early 1990s, that demand would dry up due to oversupply. However, Harun Hajadi, director of Ciputra, feels that the upturn has come about because people have been encouraged to take out mortgages due to increasingly favourable interest rates.

TURKEY

Swanke Hayden Connell secure interests in Istanbul

Swanke Hayden Connell International Limited (SHC) have launched a joint venture Turkish Company with Proje Yonetim A S project managers and quantity surveyors. Swanke Hayden Connell Projects A S is based in Istanbul. One of the key figures in establishing the new company is SHC's New York-based principal Altan Gursel – himself a Turk.

UK

New associates at Buro Happold

Consulting engineers Buro Happold (voted third in the table of leading structural engineers in the *WA*1996 *World Survey*) have announced the appointment of four new associates. Neil Billet, Tim Mander, Tanya Ross and Paul Westbury. All four appointees will take up posts throughout the multi-disciplinary practices' engineering groups.

The company have also bought a 33 percent share in the New York architectural practice FTL, as part of a global drive to promote its fabric structure expertise.

New Managing Director at Farrell & Partners

Jim Holland has been made the new Managing Director at Terry Farrell & Partners' London office. Holland, who has 19 years experience as Operations Director for a major construction group working throughout South-East Asia, will work alongside Farrell, focusing his attention on the business side of the practice – complementing Farrell's overview of general policy and design issues. Farrell & Partners' numerous projects in Hong Kong and Korea are directed from the London office. Holland's appointment reflects the practice's current priorities (see *OnScreen*).

USA

Smith Group subsidiary

Detroit-based architectural and engineering firm, the Smith Group, have established a new subsidiary, Smith Group Program Management, in Phoenix. Ron Schappaugh – previously president of 3D/International – will assume the presidency of the new outfit.

HDR in good health

Michael Smyser AIA has joined Henningson, Durham & Richardson (HDR), as project manager in the company's Alexandria, Virginia office. Previously Smyser was a senior associate and project director for Hansen Lind Meyer Inc. He has over 20 years of experience in the planning, design and project management of medical, institutional and corporate projects.

Herschel Block has joined HDR's Chicago office as a senior consultant. He comes to the firm with a background of experience in health care services, having spent nine years working with national health care consulting firms and has a full knowledge of hospital management.

Promotions at SOM

Skidmore, Owings & Merrill (SOM) have announced that William F Baker and Philip J Enquist have been made new partners of the 60-year old architecture and engineering firm. Toni L Griffin, Anwar A Hakim and Philip J Sawyer have also been made associate partners.

Kajima get their man

Kajima Construction Services Inc have named James Stievater as senior vice president of its south and south-central regions in the US. Previously, Stievater was the Sao Paulo-based managing director of the Turner Corporation, a subsidiary of Turner-Birmann Construction Management Company.

Moscow, the main attraction

Moscow celebrates its 850th anniversary on 6 September this year, and with the millennium getting ever closer, this city – perhaps to a greater extent than any other major capital – is reinventing itself in preparation for the dawning of the next "brave new world". The increasing demand for office space in the city offers a good indication of how much the economic climate has already changed, at least on the surface.

Where once the boulevards of the world's Socialist capital were lined with monumental tenement blocks in battle-ship grey, Moscow now has the air of *Superman*'s Lois Lane as she removed her glasses for the first time: Muscovites have broken free of over half a century's suppression and an unexpectedly attractive vision has been revealed.

The efforts of Yuri Luzhkov, Moscow's dynamic mayor, have done much to change the face of the city. Three years ago he announced that by 1997 Moscow would be a "civilised world capital". This was to be achieved with the construction of three new public places – one spiritual, one social and one memorial. The Cathedral of Christ the Saviour, at 37 Prechistenskaya

Naberezhnaya on the banks of the Moskva River, fulfils the first of these promises. The original cathedral on the site was an immense marble construction, built to commemorate the Russian's defeat of Napoleon in 1812. It was pulled down, on Stalin's instructions in 1931. Luzhkov – who was awarded the title of "Merited Builder of the Russian Federation" by President Boris Yeltsin in 1996 – has fast-tracked the construction process to ensure that this new politically loaded icon of artificial historicism will be complete in time for the anniversary.

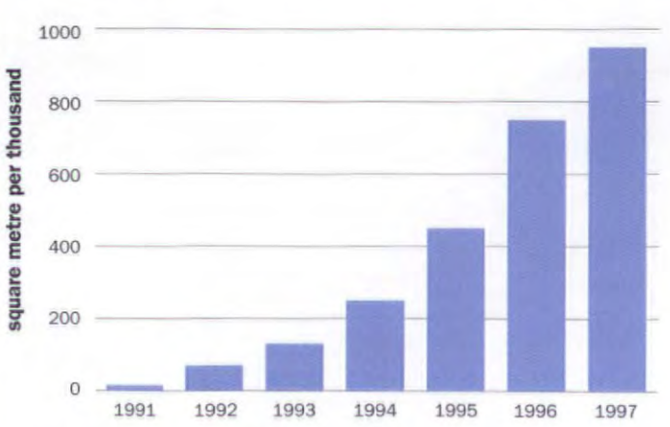
Perhaps more significantly, Moscow now commands the attention of western multi-nationals who want to both enforce their identity on the virgin territory and stake-out their share of a potentially immense commercial market.

Coca-Cola, Mars, Unilever and Nestlé, amongst many others have all taken office space in the city, where office rental prices are amongst the highest in the world – at anywhere between US$880 to US$950 per square metre. The amount of office space available to prospective tenants is tightly controlled by the Russian government. Very few new sites are released each year, and it is practically impossible to acquire freeholds – even leaseholds are only available for 49-year tenures. However, all this has done nothing to quell the demand.

According to Jones Lang Wootton, in Moscow, over the past 18 months the stock of international office space in the city has increased by approximately 50 percent. All available sites are snapped up quickly – the amount of office space taken up by western firms has increased four-fold, from 250,000 square metres in 1994, to 950,000 square metres at the end of last year.

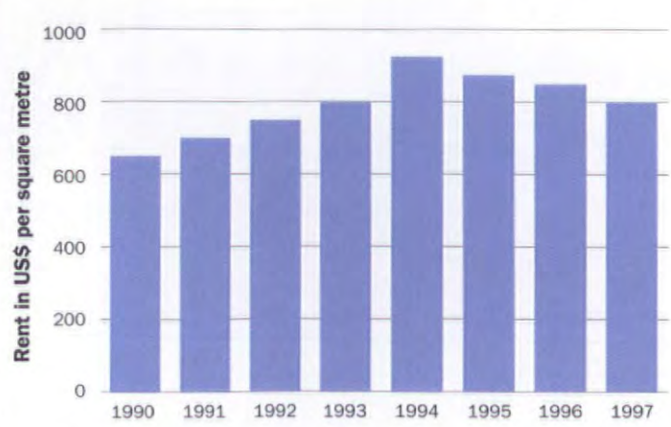
However affluent Moscow may appear, the reality is that the apparent boom has been built on foreign money, and its longevity will depend on the flexibility of the government and the sustained spending power of the Russian population. Whilst the signs are good, Russia's young capitalist economy is still in a chaotic hurry to get results. AM

International quality office stock: actual and forecast



Source: Jones Lang Wootton, Moscow

Moscow prime office space rents: existing and forecast



Source: Jones Lang Wootton, Moscow

Business booms in Berlin...

by Layla Dawson in Germany

The largest building as yet completed on Unter den Linden, Berlin's number one business address, is Christoph Mäckler's Lindencorso shopping arcade, offices and penthouse flats. For the client, Société Generale d'Entreprises (SGE), D Katz and K Marks, the Frankfurt architect, former pupil of O M Ungers, has designed: 10,500 square metres of shops on two levels; 16,300 square metres of office space over four floors and 25 apartments on a set back roof level – to satisfy Berlin's planning requirement on height and visual impact. Where previously smaller buildings stood shoulder-to-shoulder the amalgamated 4,897 square metre site now occupies a city block bounded by Unter den Linden, Friedrichstrasse and Rosmarinstrasse.

In the city where old is being built as new Christoph Mäckler has designed a massive sandstone structure in keeping with the planners desired block regimentation. Unlike most of the new Berlin, at least Mäckler's design is solid masonry, not stuck on cladding waiting for time and weather to loosen its anchorage and drop on the pavement below.

Another small victory over the pressure to pack a site with rentable space has been the creation of a covered perimeter arcade where, in the chill of a Berlin winter, prospective shoppers will at least find shelter. Below ground there is a 400-seat auditorium and two levels of parking for 229 cars. Having won the design competition in November 1992, two years after German reunification the first tenants and owners were able to move in during 1996.

Lindencorso is a solid and functional shell built with contemporary technology but its protruding stone linings to openings, horizontal scoring of the block surfaces, accentuating of the courses and metal window frames conjure up images of bygone decades. This is retrospective, not modern architecture, well suited to the mood of Berlin today.

...while offices lie empty across Germany

In January Robert Orr, director of Jones Lang Wootton's Frankfurt am Main office reported a further fall in commercial rents as a result of an over supply of office accommodation. Since the beginning of the 1990s the highest rents have fallen by 40 percent. Some properties have halved in value since 1990. In the important business centres: Hamburg, Düsseldorf, Berlin, Munich, Leipzig and Frankfurt am Main, 3.6 million square metres of office space stand empty despite the fact that 1.5 million square metres conform to the highest standards and 1.6 million meet standard servicing requirements.

Although in cities like Leipzig and Frankfurt the demand for offices during 1996 exceeded that of previous years – in Leipzig by 59 percent and Munich by 15 percent, compared to 1995 – the over-production of new and refurbished buildings has outstripped demand. Two thirds of the empty properties in Leipzig come into these two categories. Older and more modest accommodation has been easier to dispose of in a city where the present average rent is DM38 per square metre. In Hamburg the average rises to DM48, and in Frankfurt DM65.

The empty, warm and dry interiors of the superfluous office blocks must strike the seven million unemployed, and increasing number of homeless, as obscene. It says much for their resignation and feelings of powerlessness that, unlike in the 1960s and 1970s, there is no widespread movement encouraging illegal squatting or occupation. It seems extraordinary that investors have not been advised of the effects of home offices and shrinking company headquarters, supported by IT and faster world communications. Apart from a few professionally organised property agents, estate managers in Germany do not have a good reputation for advising clients accurately. Part of the blame for this development imbalance in Germany's major cities can also be laid at the feet of architects, many of them with international reputations, who have been too naïve or opportunistic to question their commissions. One look at the British or American examples might have told them what was in store. The old recipes won't work anymore. Who can say that these empty floors will ever be needed for traditional office use? Architects are supposed to be creative thinkers but are unfortunately not renowned for their solidarity in the face of client stupidity – as seen in the case of the Cardiff Opera House, UK. Perhaps they are hoping for a second bite of the cherry when they are asked to convert these highly serviced buildings into homes? Architectural firms have expanded in the building boom but if the depression deepens they will be looking for all the work they can get, or laying off their employees.

Demand

Figures in square metres

	Berlin	Düsseldorf	Frankfurt	Hamburg	Leipzig	Munich
1993		310,000	463,853		200,000	400,000
1994	410,000	293,000	288,145		74,000	350,000
1995	450,000	225,000	276,995	249,290	104,000	400,000
1996	400,000	230,000	280,907	409,545	165,000	460,000

Source: Jones Lang Wootton, Frankfurt am Maim, Germany

Prime rents

DM per square metre, per month

	Berlin	Düsseldorf	Frankfurt	Hamburg	Leipzig	Munich
1991	85	55	95	50	70	75
1992	85	55	85	55	55	65
1993	75	50	75	53	40	55
1994	55	45	67	53	40	50
1995	55	40	65	50	36	50
1996	50	38	65	48	28	50

Source: Jones Lang Wootton, Frankfurt am Maim, Germany

East End regeneration: less haste for a long-term future

According to Andrew Carter, policy researcher at the British Urban Regeneration Association, the reason that the East End of London contains the majority of London's "dysfunctional" architecture can be put down to the lack of NIMBYs ("not-in-my-backyards") there. "Basically" he explains, "the local population have less political clout and so they are less able to prevent development that they don't like. Even the green belt restrictions are less stringent there than they are in the rest of London."

At the beginning of February, a competition-winning design by Alex de Rijke, Philip Marsh and Sadie Morgan for an ecology centre in London's Docklands was ditched in favour of a design-build scheme by a yet-to-be-revealed contractor and architect. This is symptomatic of the London Docklands Development Corporation's hasty way of working: the Docklands Light Railway (DLR) is an eyesore which would have been better built underground – even though it would have cost more and taken longer – and it is now too late to commission more sensitve architects to design the offices that surround it.

Successful regeneration means good design – which Lee Mallet, Editor of the UK weekly *Building Design* summarises as "more of a bang for the same bucks". Carter suggests that the Greater London Council (GLC) was abolished because the message was, "identify development opportunities for the private sector and apply for public money for it". No other area has received so much government money for development than the East End, but without good design, the money is useless. So how can the viscous circle of politically vulnerable populations in areas where developers can tap into government coffers, be broken?

Freelance contemporary art curators Helen Carey and Tamar Arnon have come up with a successful "quality design" solution that they have tried and tested in the micro-environment of Beacon House, an ex-seaman's hostel just east of the City – now home for 163 homeless people, managed by Look Ahead Housing Association (LAHA). Their approach involves combining community initiative with private finance to a mutually beneficial end. The logical extension of this was on the door step so, backed by LAHA, they launched "One Mile East" in January of this year.

The "One Mile East" regeneration scheme – which focuses on the mile between the two financial districts of the City and Canary Wharf – is currently comprised of rail track supported on brick arches sectioned off with high wire mesh fences. The logic is simple – surely it is in the City's interest to prevent social discord in their own "backyard". The picturesque wharves and naval bunkhouses could become a new Covent Garden, siphoning off some of the dollar-rich tourists that inevitably visit Tower Bridge, making a potentially lucrative return on any private investment.

Less than a month from the project's launch Carey and Arnon have secured the support – both financially and in kind – of the NatWest Group, John Laing PLC, Railtrack, DLR, Abbey National, Freshfields and many other local businesses. The local authority, Tower Hamlets will contribute a portion of their government donated Single Regeneration Budget (SRB) and their grant for planning gain.

As with the Beacon House project, local artists will be commissioned to transform the mile, with the help of community volunteers, into an exciting cultural strip of land which illicits pride, discourages vandalism and abuse, and encourages investment. KM

Disputing the indisputable in Denmark

Strange events surrounded the result of a recent international competition to design the new Danish State Archives near Copenhagen. The competition – which was organised by the Danish Federation of Architects – was won by Behnisch & Behnisch in late-January. The Stuttgart-based firm's angular, deconstructivist design beat off competition from nine other proposals, including Mario Botta, Enric Miralles, and a team comprising Matthew Priestman Architects + Boje Lundgaard & Lene Tranberg Arkitekter.

The ten-man jury was made up of seven non-architects (including chairman Ms Jytte Hilden, Danish Minister for Culture; Johan Peter Noack, director-general of the Danish National Archives; Otto Käszner, Copenhagen city planner) and three practising professionals (Theo Bjerg, Poul Ove Jensen and Knud Fladeland Nielsen). Bjerg, Jensen and Fladeland made a formal objection to the jury's findings on the grounds that the winning entry did "not display any of the qualities which must be expected from a building complex with such a prominent location and functions of such national importance" – the building is to be located in the Ørestad district to the west of Copenhagen. Otto Käszner felt that there seemed to be "a discord between the overall functional pattern required by an archive building and the expressive form of the proposal". Both formal dissents indicated that the Matthew Priestman Architects + Boje Lundgaard & Lene Tranberg Arkitekter entry would have been their preferred choice.

What is interesting here is not the result – that Behnisch & Behnisch won the competition is an indisputable fact – but rather the way the result was reached. The reactions of Käszner, Bjerg, Jensen and Fladeland, as Priestman puts it, "calls into question the validity of professional opinions".

According to Priestman "competitions are never as clear as they should be... it's disappointing but you have to live with it". Stefan Behnisch was understandably keen to re-assert the facts of the matter – that they won and there were no second prizes. AM

OnScreen

Mark Dytham reports from the Hong Kong office of Terry Farrell & Partners. The firm's design director, Steve Smith, gives an insight into how the firm's offices in both the UK and Hong Kong, use advanced technology to keep up to speed with the surge in construction activity in preparation for the island's return to Chinese rule.
(All images on these two pages by Wave Digital Imaging Limited.)

Terry Farrell & Partners first projects in Hong Kong (HK) are nearing completion. The Peak tram building became fully operational in February and the British Consulate opened on 30 January, in readiness for the colony's handover. With several projects for Mass Transit Railway Corporation (MTRC) on site in Hong Kong, Terry Farrell & Partners were ranked fifth in January's *WA* Top 250 survey for transport-related projects, and with over 40 staff in Hong Kong the office has become more than just a satellite operation.

Until recently the HK office was more computerised than the London office, explains Steve Smith, design director for the HK office. Initially computerisation was very much a function of the client requirements: "If the client demands electronic [involvement] then we have to supply it or not do the work. All the HK clients just expect it, so we have to provide it, but now the latest projects in London require more computer input so its balancing up."

The London and HK offices are linked with an ISDN line, which is used for sending e-mail, drawing files and for video conferencing using Intel Pro Share, but Smith still thinks that the design process works best when the people involved are in the same place. "We link up on competitions and major design issues. Again this is best if all the people involved have met up and worked together on the project for a while. After that it is possible for areas of the design to be taken away and considered as partly self-contained packages of work, though the computer certainly does not replace the need for people to meet. A lot of the communication that takes place face-to-face is lost when using technology. It's the same whether you use the phone, fax, e-mail or telepathy, they all have their limitations, particular cultures and codes of manners." But electronic communication does also have unexpected advantages. For example, a recent submission for a competition in Korea needed laser cut acrylic sheets for a model. This process was not readily available in HK, so MicroStation files were e-mailed to a model maker in the UK and the finished sheets arrived in HK five days later.

Most of Farrell's work is taking place in extremely constrained urban environments. The computerisation of the office has helped in allowing the firm to co-ordinate more readily. This is particularly the case with their rail and subway projects where the intricate web of tunnels and services with the existing city infrastructure can be mind-blowing. "The thing to remember with railways is that stations are only a part of a much larger project. It all has to fit together, so being able to communicate between consultants is essential. Everyone has to work off a common base of the rail alignment. I cannot imagine how the Victorians did it without even having the ability to make multiple prints of drawings."

3D computer models play a big part in the office, again this was initially driven by client demands in HK. "Here, as soon as the technology is available to do something it becomes a requirement to provide it. As soon as we are able to make copies everybody wants one. Now we can print in colour it becomes a requirement. 3D modelling is now a standard deliverable, even for quite technical studies. VR presentations and 'walk-throughs' will be a common form of presentation quite soon."

Farrell worked with Wave, a computer visualisation company based in HK, to generate their 3D images for presentation. The images for a headquarters building on the new Chek Lap Kok airport were generated in a matter of days. Although Smith finds the process of developing models on the computer a very interactive process which helps visualise the issue and clarify the concept, he still thinks there is something missing. "I don't know why but computer renderings tend to look weightless. They are excellent at rendering light qualities, transparency, translucency and the qualities of surface, shine, reflection and colour. Other architectural effects such as mass, weight, gravity, solidity, can tend to look like stage sets or cartoons. In other words CAD models seem to work best with certain types of architecture."

Smith anticipates that, as the use of 3D modelling becomes more readily available, the actual computer model will replace 2D drawings entirely: "Plans will be cut through the model. The software is already there but not commonly used yet. The problem with CAD" Smith explains is, "it can become a habit. It can lead to an obsessive interest in the components and smaller elements of the design rather than the big picture." This he equates to the culture of the machine rather than its capabilities.

Considering most of the computerisation of the office has taken place in the last two years, Farrell's team seem to be completely at one with the technology. Initially pushed into the digital world by client pressures, their web site (http://www.archinet.co.uk:80/terry-farrell/) complete with animated computer images, show that they are now pushing the technology envelope.

Smith with his trusty PowerBook tucked under his arm awaits the arrival of a computer with infinitely rapid processing capabilities and a vast memory that looks like a drawing board with screen like paper, operated with a pencil. "This would be my ideal computer" he said reaching for a drawing pen. "There is something special about the hand to eye co-ordination of traditional drawing that is missing from the operation of computers."

Opposite page *Two views of Terry Farrell & Partner's headquarters building at Chek Lap Kok airport, Hong Kong.* ***Below*** *Cladding detail for Central Station, by Ove Arup in association with Rocco Design – Wave Digital Imaging Limited produced the design for use on an Ove Arup Christmas card.* ***Bottom*** *View of the main atrium of the Cathay Pacific headquarters building at Chek Lap Kok airport by Llewelyn-Davies*

The digital wave

Farrell along with Arup Associates, Rocco Design, Foster and Partners and many other HK practices turn to Wave Digital Imaging Limited, for their high end computer modelling. The members of Wave were responsible for the full 3D model for Chek Lap Kok airport, MTRC Kowloon Station, MTRC Tai Kok Tsui, Cathay Pacific headquarters, the British Museum Millennium Project, Rocco Design Partner's submission for the Central Station tower and retail development, and many other projects throughout the world. Wave's web site includes a rendered image of a Foster project which took seven machines two days to render. The final image was over 30 megabytes. The compressed JPEG file on the site is clickable so you can zoom in anywhere to view a 100k file at full resolution.

Dennis Stanfill, a partner at Wave believes that 3D CAD modelling should be used as a design tool, not simply as a way to produce presentation images and encourage his clients to make full use of the process to explore different design, material and lighting possibilities.

Stuart Mercer, design director at Arup Associates in HK recently commissioned Wave to generate a 3D CAD model of a bow-string truss column, which supports the roof and glass wall on the Hong Kong Station project for the new airport railway. "The model helped test the impact of some additional light fittings and supporting brackets which we needed to add to a form that is very difficult to visualise in any other way. All the connections are exact in every detail so we can zoom right in and inspect and modify any portion as necessary. We also hope that presenting such an image to the subcontractor will help reinforce our concerns over the detail and quality we are expecting... whether this works or not we have yet to see."

Web Watch

With 30 June looming, the Lan Kwai Fong Live (http://www.lkf.com) site takes advantage of the *fin de siecle* atmosphere, giving constantly updated images of HK's most happening area from a ViewCam. The 97 Group of restaurants teamed up with AsiaNet to provide this site. Jamie Higgins, Post 97 general manager, explained: "Most cities go through a hey-day: There was Paris in the 1920s and London in the 1960s and I think this is the decade for HK. This is the most international city in Asia and Lan Kwai Fong district is the centre of the microcosm."

Mark Dytham is partner of Klein Dytham architects, based in Tokyo. He can be contacted via WA or Tel/fax: +81 3 3796 1709; or e-mail: zapkdarc@gol.com

Events

LECTURES, CONGRESSES AND CONFERENCES

AUSTRALIA

Biennial Oceanic Architecture and Design Student Conference International student conference to be held at Deakin University, from 6-11 July 1997. Contact Carlie Spiteri, School of Architecture and Building, Deakin University, Woolstores Campus, Geelong, Victoria 3217, Australia. Tel: +61 3 5227 8364. Fax: +61 3 5227 8365. e-mail: morphe@ deakin.edu.au. Web: http://www .ab.deakin.edu.au/morphe /morphe.html

BULGARIA

INTERARCH '97 VII World Triennial of Architecture Organised by the International Academy of Architecture (IAA) and the Union of Bulgarian Architects, the Triennial will consist of a symposium – on architectural education in the twenty-first century – and an exhibition. From 23-29 June 1997 at 2 Tzar Osvoboditel Blvd, Sofia 1000, Bulgaria. Contact Milka Kostourkova. Tel: +35 92 9872931/9871313. Fax: +35 92 9877165

CANADA

Underground Space: Indoor cities of tomorrow The seventh international conference on underground space and facilities, to be held in Montréal, Canada. 29 September-3 October 1997. For further information contact the Organising Committee, City of Montréal, 303 Notre-Dame Street East, 5th floor, Montréal, Québec, Canada H2Y 3Y8. Tel: +514 872 8334. Fax: +514 872 0024. e-mail: 7econfso@ odyssee.net

THE NETHERLANDS

Series of lectures at the Berlage Institute, Amsterdam Five o'clock lecture: Roemer van Toorn "Fresh conservatism, landscapes of normality" 13 March. Evening lecture: Mels Crouwel "Building on Air" 11 March. Studio presentations: Graduation presentation, 18 March; Edge Conflict II, MVRDV, 20 March; Edge Conflict I, Daniel Libeskind. For further information contact the Berlage Institute, Marnixstraat 317, PO Box 59178, 1040 KD Amsterdam, the Netherlands. Tel: +31 20 4285080. Fax: +31 20 6237614. e-mail: bia@xs4all.nl

POLAND

Challenges to Civil and Mechanical Engineering in 2000 and Beyond A Council for Tall Buildings and Urban Habitat (CTBUH) endorsed conference to be held at the Technical University of Wroclaw, from 2-7 June 1997. Themes include: an analysis of twentieth century achievements in engineering and how the industry might be improved at the turn of the millennium. Contact Secretariat of Conference CCME 97, Technical University of Wroclaw, Institute of Building Engineering, Wybrzeze Wyspianskiego 27, 50-370 Wroclaw, Poland. Tel: +48 71 3203721. Fax: +48 71221465. e-mail: kobiel ak@pioneer. ib.pwr.w roc.pl

THAILAND

Annual conference/exhibition of the Association of Siamese Architects 27-30 March 1997. Queen Sirikit National Convention Centre, Bangkok, Thailand. For further information telephone +66 2 319 4124. Fax: +66 2 319 6410

UK

Portable Architecture The Portable Buildings Research Unit of the University of Liverpool are calling for papers on the application of demountable and portable building systems in preparation for a conference on 30-31 May 1997. Contact University of Liverpool, School of Architecture and Building Engineering, Leverhulme Building, Abercromby Square, Liverpool L69 3BX, UK. Tel: +44 151 794 2604. Fax: +44 151 794 2605. e-mail: paconfex @liv.ac.uk. Web: http://www. liv.ac.uk/~paconfex/home.html

Nationality and Scottish Architecture A symposium investigating the nature of Scottish architecture, its claims to uniqueness and the sources from which it derives its character. Organised by the Architectural Heritage Society of Scotland, and to held at the Edinburgh College of Art, Lauriston Place, Edinburgh EH3 9DY, UK. Symposium runs from 21-23 March 1997. Tel: +44 131 221 6000

Smart Practices in a Complex World Second in the *Spaced Out III* series of lectures, run by the Institute of Contemporary Arts (ICA). The series seeks to highlight the interdisciplinary manifestations of architecture and art. Contact the ICA, The Mall, London SW1Y 5AH, UK. Tel: +44 71 930 3647

Conquest of vertical space in the twenty-first century Call for papers for international conference on multi-purpose high-rise towers and tall buildings, to run from 8-10 October 1997 in London. Contact the Concrete Society, 112 Windsor Road, Slough SL1 2JA, UK. Tel: +44 1753 693313. Fax: +44 1753 692333

ARCHITECTURE AND DESIGN COMPETITIONS

GERMANY

Techtextil 1997: Textile structures for new building The working Group for Technical Textiles, in connection with the International Trade Fair for Technical Textiles (13-15 May 1997) are holding a competition open to students of architecture and construction engineering. Entries must be submitted by 7 March 1997. For further information contact Mr Michael Jänecke, Ludwig-Erhard-Anlage 1, D-60327 Frankfurt am Main, Germany. Tel: +49 69 7575 6578. Fax: +49 69 7575 6710

ITALY

Grand Prix Ceramica Casalgrande-Padana International award for professionals who have used either Granitogres or Marmogres porcelain tiles in projects completed between 1994 and 1997. Deadline 31 July 1997. For further information contact Grand Prix, c/o Ceramica Casalgrande-Padana, Strada Statale 467 n 73, 42013, Casalgrande (RE), Italy. Tel: +39 522 9901. Fax: +39 522 996121

International Ideas Competition for the design of Centocelle Park, Rome The Municipality of Rome have launched an open ideas competition for the design of an urban park on the site of the former Centocelle airport, situated to the east of the city. The ten person jury includes: Joseph Rykwert, Oriol Bohigas and Bernard Huet. Deadline for the reception of applications 19 March 1997. Entries to be received by 30 June 1997. Applications for registration should be sent to Segretaria Tecnica, Ufficio Sistema Direzionale Orientale, Comune di Roma, Via del Turismo 30/32, 00144 Rome, Italy. Tel: +39 6 67 10 64 30. Fax: +39 6 59 14 505

UK

The 1997 Benedictus Awards Architects who have designed commercial or residential projects incorporating laminated glass in

an innovative manner are invited to submit portfolios for the 1997 Benedictus Award. Entry deadline 3 March 1997. Registration by 7 March 1997. Contact Toni Elston. Tel: +44 1442 346531 or DuPont Benedictus Awards. e-mail: haneslahr@ mci.com

EXHIBITIONS

AUSTRIA

Turning Point An exhibition by Philip Johnson comprising his *Wiener Trio* – a three part object arranged in order "to make space accessible". Until 23 March 1997. Austrian Museum of Applied Art (MAK), Stubenring 5, A-1010 Vienna, Austria. Contact Christina Werner. Tel: +43 1 71136 233. Fax: +43 1 713 10 26

BELGIUM

Les Plaisirs et les Ombres An exhibition of work by Raoul Vaneigem. Until 17 March 1997. Contact the Fondation pour l'Architecture, Brussels, Belgium. Tel: +32 2 649 0259

SWEDEN

Rafael Moneo An exhibition of the architect's designs for the new Swedish Museum of Architecture and the new Museum of Modern Art, in Stockholm, Sweden. Until 10 February 1998. Contact Catharina Siegbahn at Arkitektur Museet, Skeppsholmen, S 11149 Stockholm, Sweden. Tel: +46 8 463 0500. Fax: +46 8 611 47 61

UK

The Power of Erotic Design An exhibition, designed by Nigel Coates, of the erotic in twentieth century culture, from Freud to Madonna. 1 May-12 October 1997. Design Museum, Shad Thames, London SE1 2YD, UK. Tel: +44 171 403 6933. Fax: +44 171 378 6540

Charlotte Perriand: Modernist Pioneer Retrospective of the influential French designer's long career. Until April 1997. The Design Museum, Shad Thames, London SE1 2YD, UK. Tel: +44 171 378 6055

The Architect of Floors: modernism, art and Marion Dorn designs Retrospective of the American born designer whose relocation to the UK in 1923 helped shape British attitudes towards design, as a creative medium. Until 6 April 1997 at the Whitworth Art Gallery, Manchester, UK. Contact Penny Hamilton. Tel: +44 161 275 7450. Fax: +44. e-mail: Whitworth@man.ac.uk

Denys Lasdun A comprehensive retrospective of Lasdun's career, which coincides with the rise, fall and rebirth of modernist principles in the twentieth century. Until 16 March 1997 at the Royal Academy of Arts. Contact Katherine Jones, RA, Piccadilly, London, W1V 0DS. Tel: +44 171 494 5615. Fax: +44 171 439 4998

Romanian Architecture of the Twenties and Thirties Until 26 March 1996. Royal Institute of British Architecture, Architecture Centre, 66 Portland Place, London W1N 4AD, London, UK. Tel: +44 171 580 5533. Fax: +44 171 637 5775

Contemporary Norwegian Architecture Until 12 April. RIBA Architecture Centre, contact details as above.

USA

Go Out Into The Streets: views of the city from the Washington Print Club Until 30 March 1997. An exhibition depicting visions of urban life through a range of prints, ranging from Giambattista Piranesi to Richard Estes. Contact Elly Muller or Lisa Eddy at the National Building Museum, 410 F Street NW, Washington DC 20001, USA. Tel: +202 272 3606 or 272 2448. Fax: +202 272 2564

TRADE SHOWS

FRANCE

Euro City 97 An exhibition of products for the urban environment to be held at Parc des Expositions de Paris, Porte de Versailles, 75015, Paris, France. 3-5 June 1997. Contact Caterina Proietti, Euro City 97, Hereford House, Bridle Path, Croydon, Surrey CR9 4NL, UK. Tel: +44 181 6804200. Fax: +44 181 6815049

MIPIM Now in its eighth year MIPIM is the meeting place for the international property market. Over 7,000 participants and 9,000 square metres of exhibition. 13-16 March 1997. Palais des Festivals, Cannes, France. Contact REED MIDEM ORGANISATION Tel: +33 141 90 45 20. FAX: +33 141 90 45 30.

GERMANY

Interzum 97

Trade fair for new products in the furniture production and wooden interiors sector. 2-6 May, 1997. Contact Elisabeth Nürnberger at Köln Messe, Messeplatz 1, D-50679 Köln, Germany. Tel: +49 2 21/8 21 25 62/2627. Fax: +49 2 21 8 21 3417

ITALY

TexFair

An exhibition of products aimed at the domestic and contract furnishing markets. 9-12 May, 1997. For further information contact the Ente Organizzatore, Cosmit, Corso Magenta 96, 20123, Milan, Italy. Tel: +39 2 485921. Fax: +39 2 4813580

JORDAN

PAX 97

The first international construction exhibition to held in the Near East, designed to attract visitors from the West Bank, Gaza, Jordan and the Iraqi community in Amman. 5-8 May 1997. Contact Saatchi & Saatchi. Tel: +962 6 612825/6. Fax: +962 6 633090

PORTUGAL

ICSC-Europe 22nd Annual Conference, Leasing and Trade Fair 17-19 April 1997 Lisbon, Portugal. For all further information contact Tessa Kilgour at ICSE-Europe, 37 Pottery Lane, London W11 4LY, UK. Tel: +44 171 727 3935. Fax: +44 171 727 6081

RUSSIA

Batimat MosBuild 97 Moscow's third international building exhibition will be held at the Krasnaya Presnya Expocentr, Moscow, Russia from the 12-15 March 1997. Contact Constantine Bridgeman. Tel: +7 502 221 3350. Fax: +7 502 221 3351

UK

Spectrum 97

Spectrum, the business environment for specifiers and design-led exhibitors, runs from 17-20 March 1997. To be held at the Royal College of Arts. Contact Danielle Benson, RCA, 27 Southover, London N12 7JG, UK. Tel/fax: +44 181 446 9580

USA

COVERINGS International Flooring Exposition (IFE), the International Tile & Stone Exposition (ITSE) and the International Wall Coverings Exposition (IWCE), 23-26 April 1997, Orlando, Florida. Contact COVERINGS 900E Indiatown Road, Suite 207, Jupiter, FL 33477. Tel: +561 747 9400. Fax: +561 747 9466.

Italy has long been regarded as the home of world-class design, many of the leading architects such as Mario Bellini turning their hands to product design as well as building, and exporting their expertise successfully, along with Renzo Piano and Aldo Rossi. But the complexity of Italy's economic and political situation at the end of the twentieth century, complicated further by the "bribesville" scandals of the early nineties, is far from conducive to overseas architects, and even the Italians are hard pushed to get projects off the ground in their homeland. David Lane, of *The Economist*, reports from Rome.

Italy: keep out

Five years have passed since Italy started being shaken by the *tangentopoli* (bribesville) scandals. Few would have guessed in February 1992, when investigating magistrates from Milan's *mani pulite* (clean hands) team learnt of kickbacks being coerced for cleaning contracts at an old peoples' home in the city, that this was the start of the uncovering of generalised corruption and a trigger for upheavals that would bring epochal changes to the country's political system. *Tangentopoli* caused the disappearance of the five political parties from which all the coalitions that had governed Italy since the end of the Second World War were drawn, and sparked a major re-shaping of Italian politics which is still underway.

"Bribesville" scandals hit construction industry

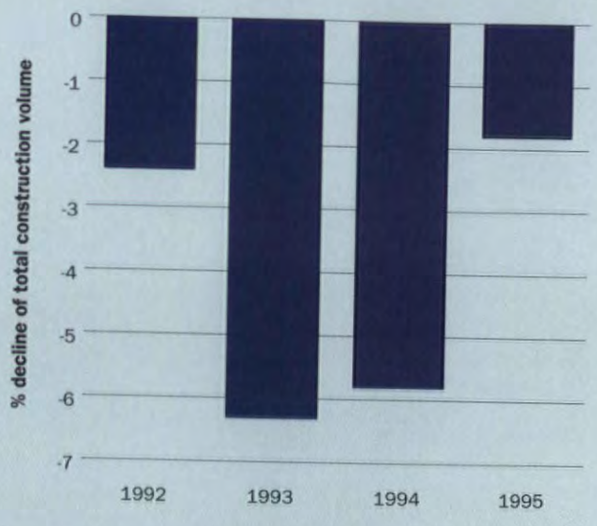
The scandals also hit the business world, with leading companies and well-known corporate bosses, as well as innumerable minor players, caught up in investigations into false accounting, illicit financing of political parties, bribery and corruption. The reverberations continue to be felt as court cases against those charged are heard and, given the slow pace of Italian justice, the fireworks and rumblings are likely to continue for many years. It is not surprising that construction was hit hard by the *mani pulite* magistrates. Construction has many ties into the political and administrative systems: public works contracts and planning and building consents are the interfaces at which the industry makes contact with politicians and civil servants. An important effect of *tangentopoli* has been to put a brake on construction and, in turn, on business in the architectural profession.

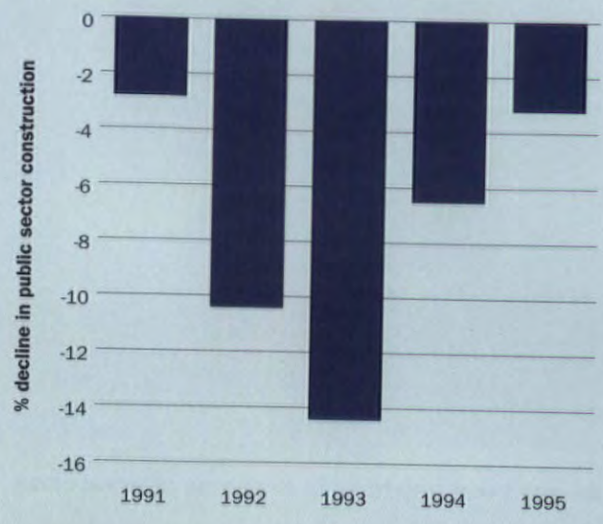
But *tangentopoli* has not been the only adverse factor hitting construction orders and work portfolios in architectural practices during the mid-1990s. National economic performance has been a disappointment. After growing strongly in the second half of the 1980s (an average of 3.1 percent annually), Italy's economic revival slowed. Real annual GDP growth averaged just 1.2 percent between 1991 and 1995, and last year was in line with this average: far from the booming environment in which building and architectural business is encouraged. Moreover, the prospects do not seem much brighter for this year, as Italy struggles to put its financial parameters in line with what is needed to qualify for early participation in European economic and monetary union(EMU).

Although there was an improvement in budget deficit in 1996, Italy was still significantly outside the limits. Bringing down the level of gross public debt will obviously take many years. The

▲ Andre Gallant/Image Bank

Statistics published in 1996 by the ANCE, the national builders' association



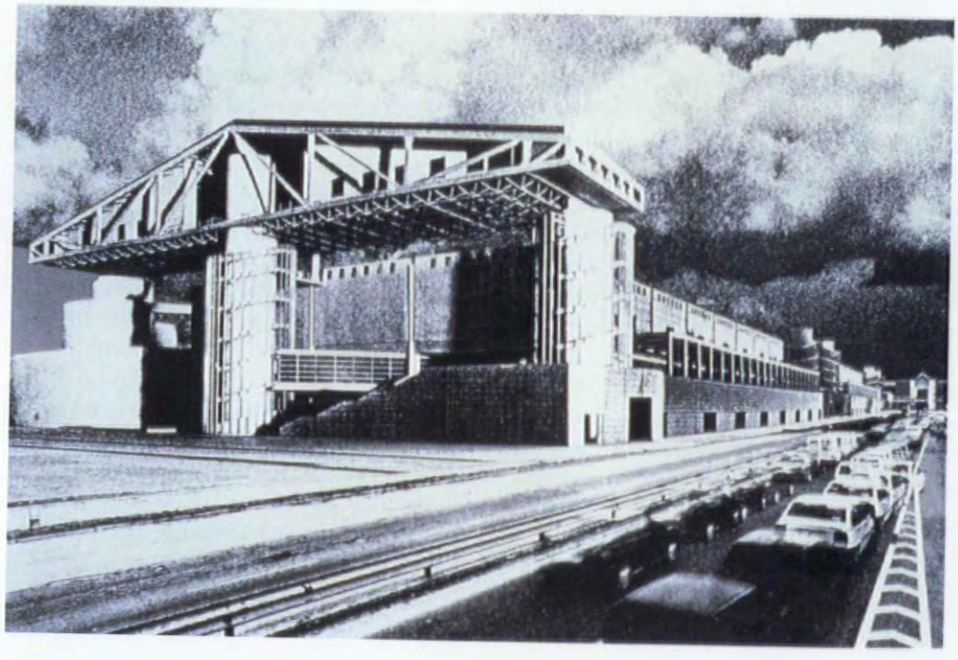


Just how difficult the mid-1990s have been in Italy is revealed clearly by the statistics and reports published by Associazione Nazionale Costruttori Edili (ANCE, the national builders' association) While ANCE's economic research department was able to report in October last year that there was a consensus among official bodies and forecasting agencies that the outturn for 1996 would be growth, it seemed unlikely to be substantial. But a turnround in fortune was in sight – ***see graph above left*** *showing results of ANCE's annual report published in June 1996. Activity in the residential sector has been less affected than non-residential public sector contruction which has been hit by the double blows of* tangentopoli *and public sector austerity –* ***see graph above right.*** *During the decade 1986-1995, Italian investment in public works was 2.0% of GDP, against 3.0% in the European Union. Investment in residential construction has, however, been the main area of activity for Italy's construction companies: at L84,503bn in 1995, it accounted for 58.2% of total construction work. Of the L145,259bn total, investment in non-residential building absorbed L35,174bn. ANCE notes that the situation would have been even worse but for the 'Legge Tremonti' tax measures aimed at encouraging business investment.*

1997 budget measures taken at the end of last year were aimed at getting Italy into the first batch of EMU qualifiers, at least in terms of the deficit criterion. With former central bank governor Carlo Azeglio Ciampi as treasury minister in the centre-left government formed by Romano Prodi after elections in April 1996, rigour in public sector accounts has been the order of the day. Weak economic growth coupled with belt-tightening by the government, clearly offer poor prospects for construction and consequently for architectural work in Italy's home market.

Suburban developments in the business capital, Milan

Part of the problem in Milan has been excessive development in the outskirts. According to Richard Trella, head of Richard Ellis' Italian operation, such developments often suffer from lack of public transport and poor specification. "As the distance from the centre increases and the benefits of the transport system are reduced, over-pricing and poor physical specifications have resulted in a large supply of buildings remaining vacant for considerable periods of time," says Trella. He adds that there is demand in the Milan outskirts but to date the supply of properties has generally failed to meet tenant requirements. Rome also suffers from low quality suburban developments. While the capital's EUR(built during the Fascist era) and the neighbouring new Torrino district are well-rated, with buildings acceptable to multi-national companies, to the south-west of Rome, along the Grande Raccordo Anulare GRA ring road, there are pockets of office developments of poor quality and specification. Says Trella:



Left *View of the north end of Mario Bellini Associati's Milan Trade Fair extension complex, one of the most significant developments in Milan, due for completion this year. This new 120 metre wide exhibition complex has been under way for the last decade. It extends on two main levels for 700 metres bridging two broad streets along an important axis of vehicular traffic penetration into the city. The glazed tympanum provides a symbolic gateway to the Fair and to the city of Milan.*

Opposite page *Primary School in Giussano, near Milan, also by Mario Bellini Associati and completed in 1995. The school is composed of two parts, clearly articulated by the architecture. The classroom block is linked to the green recreation area, allowing sunlight into the building. The lecture hall, gymnasium and dining-room are linked to the surrounding urban context, and attached to the single-space cylindrical volume of the entrance hall which provides a focal point for all the rest of the building*

Moreno Gentili

"These have been built by private developers in poor locations. The majority remain vacant and may never be occupied." He might well have added that poor location, quality and specifications have generally been accompanied by lack of architectural flair. However, even much of the building in EUR and Torrino, whether commercial or residential, together with urban planning in those areas, raises questions about architectural quality.

What the architects say

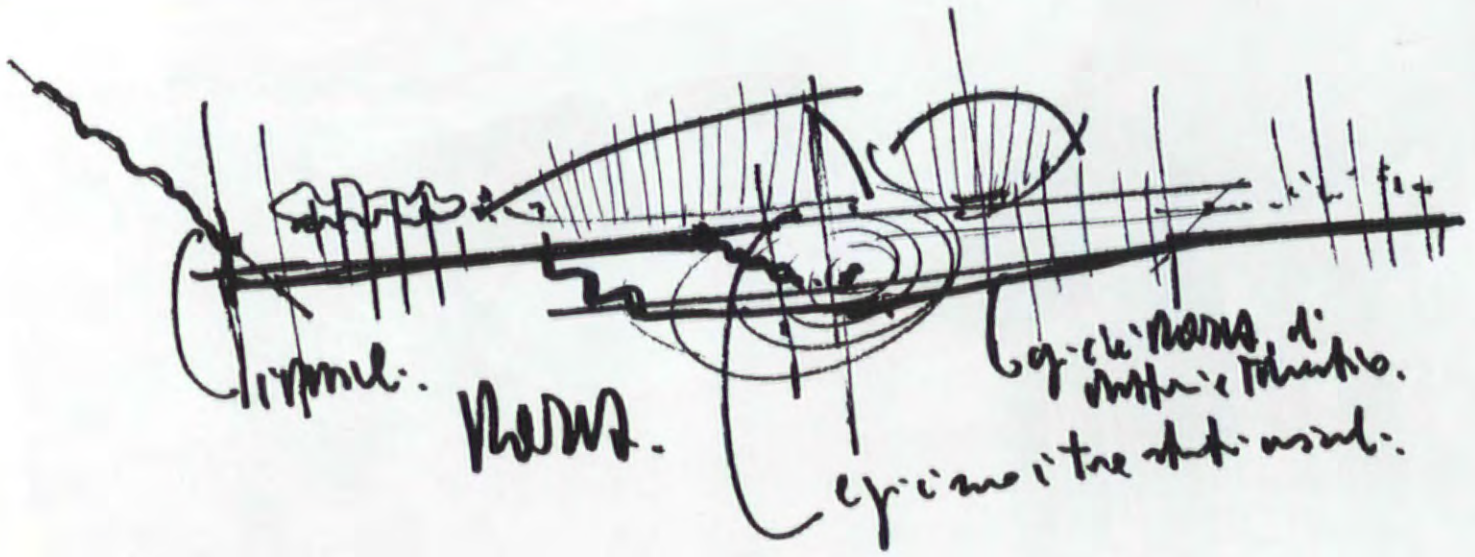
In spite of the apparently bleak times through which the country is passing, some Italians are able to see shafts of light in the present, and bright prospects for the future. Massimiliano Fuksas, a leading architect, is one of these. He says: "Italians always look on the positive and optimistic side rather than the negative and pessimistic. We are a people full of vitality, never dead and not down for long. Italians do very well in coping with the impossible, less well in dealing with the normal." Fuksas, who graduated from Rome's La Sapienza university in 1969, having already established his own studio two years earlier, believes that the page has now been turned on the problems and disappointments of the 1970s, 1980s and early-1990s. "Italy was formidable in the 1950s and 1960s," he says, observing that post-war economic challenges were met, and that the period was also one of architectural richness. Fuksas cites the Settebello Rome-to-Milan first-class express train and construction of the *autostrade* network as examples of the flair and confidence of the architectural profession in the 1950s and 1960s. "But then everything collapsed." If he is correct, however, the catharsis of *tangentopoli* will lead to a new era.

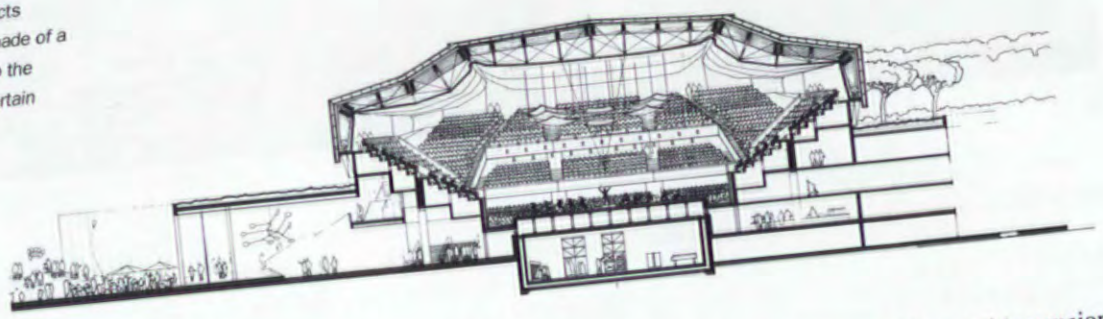
Bureaucracy stunts architectural activity

In today's climate of rigour and austerity, nobody expects that architects will be winning much business from the political parties and their friends: the system in the 1980s and at the beginning of the present decade generated a substantial volume of work merely for party congresses, conferences and meetings. Public sector works are likely to be closely scrutinised and kept under tight control. Moreover, the bureaucracy and red-tape that hinder Italian architects and builders are only easing slowly. An on-going study being undertaken by ANCE shows that 41 percent of competitive tenders were still undecided eight months after publication of the tender, while only 34 percent had given rise to site works. In the 25 percent of the cases in which tenders had been awarded but sites were inactive, the reasons were incomplete bureaucratic procedures, legal appeals to regional administrative tribunals, annulment of tender decisions and appeals to the council of state, and the lack of permits and authorisations. In his film *Roma*, the director Federico Fellini vividly illustrated the problems encountered in constructing an underground railway in the Italian capital. Little has changed in the intervening quarter

Effect of a weak economy on the property market

The combination of *tangentopoli* and the low tone in the economy has been reflected in the property market. Efforts by Italy's commercial, financial and industrial companies to be more efficient have led to corporate downsizing and more rational property use. Fewer employees need less space. Alternatively, existing or larger payrolls are squeezed into less. Roberto Trella, head of the Milan subsidiary of international property consultants Richard Ellis, notes: "Current activity in the market is at very low levels in both investor and occupier sectors. This has resulted in a practical standstill in transactions, with selective declines in values and rentals." But at least prices seem to have stabilised following a collapse in 1991/1992. Even now, however, prime properties in the central area of Milan, Italy's business capital and, together with Rome, the focus of commercial property interest, are being let for about 30 percent less than at the early-1990s' peak. Purchase prices are similarly lower. Italy's less-than-buoyant real estate market has meant fewer and poorer opportunities for architects. The boom years between 1985 and 1990 when rents and capital values in central Milan increased by about 300 percent are now a distant memory.





Above *Perhaps the most successful Italian firm working overseas is the Renzo Piano Building Workshop. Although the majority of their work is outside the domestic market two significant projects in Italy are shown here.* ***Top*** *The Pilgrim-age Church in San Giovanni Rotondo to be completed by 1999.* ***Below*** *Section through thenew auditorium in Rome which exemplifies an occupational hazard for architects working in Rome – an archeological discovery was made of a sixth century BC villa, and this will be integrated into the design of the foyer. The date for completion is uncertain*

of a century since the film was made, and the Metropolitana has not grown much since then. "More town plans are not required. They only obstruct progress," states Fuksas.

Roma 2000, the Giubileo

Sandro Bignozzi, a civil engineer and pro-gramme manager at Roma 2000, the state rail-ways' subsidiary that is undertaking infrastruc-ture works to prepare the capital for the year 2000 Giubileo (Jubilee) and after, says that uncertainty about laws is awesome. "Because of the need to cut through the legal undergrowth, an Italian culture has developed in which these capabilities are paramount and are rewarded. Architectural, engineering and managerial skills tend to be unappreciated and worth less than the ability to get round the law. This has hit professional standards," claims Bignozzi. He adds: "There is a Jesuit saying that it is easier to obtain a pardon than a permit. Working reali-ties bear this out. It can take forever to get building permits. So the solution is to build first, without permission, and then wait for an amnesty." But matters are not completely black. Roma 2000 is a testbed for a new approach towards major projects that is modelled on pro-cedures used in other western countries: all the relevant authorities and bodies are brought together to provide agreements and approvals in two fundamental planning phases. For Roma 2000 this has cut times from six to two years. "This is still too long, but it is a great improve-ment," says Bignozzi.

Planning restrictions, conservation concerns

Town plans and planning permits impose tight constraints within which architects must work in Italy. Whether towns or cities are small or large, preservation of urban centres is the rule: demolition and re-building are not allowed. Concern for architectural and artistic heritage requires conservation. Demand for city-centre space has led to attention being given to renewal, with old, and often abandoned, buildings being subjected to re-structuring and conversion. Fuksas, whose own studio occu-pies half of a renaissance palace near Rome's Piazza Campo dei Fiori, believes that although it is not possible to re-build everything, major renovation projects will be a crucial part of architects' and builders' work.

Important examples already exist. One in Rome is the Birreria Peroni, a complex of Lib-erty buildings around Piazza Alessandria, near Porta Pia. Trella at Richard Ellis considers that this is one of the best urban renewal projects: it is also one of the most successful. The mix of offices, residential accommodation and retail properties – together with space allocated to the city authorities, museums and galleries which should open soon – was quickly fully occupied after the project's completion. Several factors worked in favour of the Peroni project. Says Trella: "It occupies a prime central site; it has ample car parking; it is a diversified project attracting different categories of user; and it is good quality." He adds that work in transform-ing the capital's old and abandoned *mattatoio*

"The solution is to build first, without permission, and then wait for an amnesty"

Above *The glass "bolla" executive lounge on the roof of Lingotto, the regenerated Fiat car factory in Turin, by the Renzo Piano Building Workshop.* ***Below*** *The Bierreria Peroni buildings, a complex of Liberty buildings around Piazza Alessandria, near Porta Pia in Rome, considered to be one of the most successful urban renewal projects, albeit less well known internationally than Lingotto*

slaughterhouse ought to start soon.

The Birreria Peroni, most of which was built between 1908 and 1912 is the work of Gustavo Giovannoni, an important figure in the capital's architecture and urban planning in the opening decades of the twentieth century. Brewing operations were shut down in 1974 and the substantial complex virtually abandoned. Legislation in 1978 allowed a recovery plan prepared by Alberto Racheli to win approval from the city authorities in 1980. Work started in 1986 and was finished in 1992. Racheli is responsible for work on the part of the site betwen Via Mantova and Via Alessandria that Peroni has kept, as well as for the overall plan. Massimo Bodini is the architect responsible for developing the other part of the site, between Via Mantova and Via Bergamo. Racheli is currently working on two other recovery projects of Peroni city-centre, turn-of-the-century breweries, one in Livorno, the other in Brescia.

Renzo Piano at Lingotto

Turin's Lingotto is, however, better known than the Peroni brewery. Lingotto was a Fiat car factory where production started in 1919 when the first Fiat 501 Torpedo rolled off the assembly lines, and cars continued to be produced there-until 1982. Topping the five-storey plant is a one kilometre roof-top test-track. An international competition for Lingotto's transformation, launched in 1984, was won by Genoa-based Renzo Piano Building Workshop, and work started in 1990. Lingotto is now a multi-function centre that includes exhibition and conference facilities, an auditorium, offices and a hotel. The glass "bolla" (bubble) executive lounge on Lingotto's roof, with attached helicopter pad, has become a symbol for the project which received considerable public attention at the time of the NATO meeting in autumn 1995 and the European intergovernmental conference in spring last year.

Gregotti Associati – Bicocca project, Milan

Visitors to Turin may be struck by the many disused industrial sites: Lingotto-style solutions are only feasible for a small number, however. The same is true in Milan, Italy's business capital, where de-industrialisation has also left factories empty. Milan's biggest project is Bicocca, an abandoned Pirelli plant in the northern part of the city, where Gregotti Associati International is engaged in a multi-function development that includes offices, research centres, residential projects and a congress centre. Meanwhile, south of Milan, in the town of Lodi, a

Gabriele Basilico

former dairy site is being transformed into the headquarters for the Banca Popolare di Lodi, a Renzo Piano Building Workshop project (see *Projects in Italy* in this issue). Italian banks, owning many prime city centre properties, have been active over the years in developing or converting them. One such example is provided by the Banca Monte Parma which marked its 500th anniversary in 1988 by renovating its eighteenth century Palazzo San Vitale palace in the centre of Parma, giving the building an auditorium as part of its restoration. Indeed, in a country rich with palaces, these are not surprising as targets for renewal and re-utilisation. Fuksas' studio in Rome is an example. So also is the restructuring of Palazzo Grassi on Venice's Grand Canal, undertaken by Gae Aulenti in 1985/1986. Since then it has hosted exhibitions such as *Futurismo e Futurismi, Andy Warhol* and *I Fenici.*

The hope of privatisation

Privatisation of publicly owned properties, about which the government has been talking for several years, but which has yet to get seriously underway will offer new opportunities to architects: the military have prime sites in the historic centres of Italy's towns and cities. As architects' portfolios show, however, there is work beyond old factory sites and historic palaces. In spite of the problems of *tangentopoli* and public sector financial austerity, major new projects continue to be initiated. Work is in-hand at Malpensa, the intercontinental airport north-west of Milan, and will be completed by the end of this century. The interiors are the work of Milan-based Sottsass Associati. Ettore Sottsass describes his firm's work at Malpensa as being "closer to the humanistic approach of Florence's railway station than to the triumphalistic approach of Milan's central station."

It is perhaps no coincidence that while working on Malpensa airport, Sottsass should draw comparisons with railway stations. Railways seem to be a focus of significant expectations of architectural work. The first results of Roma 2000's efforts for the Giubileo will concern the railway stations at Saint Peters, Ostiense and Tiburtina: Bignozzi says that building permits should be granted by June. "Opinion polls show that the main problems for Romans are traffic or traffic-related, hence the importance attached to developing and exploiting the railway network," he explains. Fuksas also points to railways and stations as offering great potential for work, though the general need for improved infrastructure and investment in hospitals, old people's homes and even mundane facilities like urban waste incinerators, ought to generate architectural business.

Too many architects and too little work means no room for foreigners

Italian architects are the first to recognise that the profession definitely needs more business. There are around 65,000 registered architects in Italy, of whom only one third are practicing professionally. The majority, of whom some practice part-time, are found in various occupations, like teaching and the civil service. Some have looked abroad, and have been successful in adventuring beyond national borders. The portfolio at Sottsass Associati shows important projects in-hand in Australia (Noosa Heads), Singapore(Jasmine Hill), Belgium (Lanaken and Houtem Lieven) and Japan (Yokohama). Sottsass' recently completed foreign projects include work in China (Zhaoqing) and Japan (Tokyo). At the end of last year, Gae Aulenti was selected to design the new Asian Art Museum in San Francisco. Fuksas has studios in Paris and Vienna, the former with 30 staff being as large as his Rome studio. His recent work in France includes the Maison des Arts in Bordeaux and projects at Brest University: at Salzburg in Austria, Fuksas is working on the

Left *The biggest construction project in Milan is Bicocca, an abandoned Pirelli plant in the northern part of the city, where Gregotti Associati International are creating a multi-use development.* ***Right*** *In a country rich with architectural heritage there is room for many innovative restoration projects such as Massimiliano Fuksas's studio in Rome.* ***Below*** *Work has begun on Malpensa, the intercontinental airport north-west of Milan, and will be completed by the end of this century. Sottsass Associati, one of the larger Italian firms, are working on the interiors, which Ettore Sottsass describes as "closer to the humanistic approach of Florence's railway station than to the triumphalistic approach of Milan's central station"*

"Nowadays, engineering seems to rule... architecture has been neglected, crushed between political and industrial interests"

Europark-Interspar shopping centre.

At least Italian architects have little competition from foreigners at home. "There are few foreign architects in Italy, in spite of free circulation within the European Union and the mutual recognition of architecture graduate qualifications. But it is a very difficult environment here," says Amedeo Schiattarella, general secretary of the *Ordine degli Architetti di Roma*, the professional association for the Rome province. Schiattarella notes that its 10,000 members makes his association Europe's largest professional body in the architectural profession. Milan's Ordine has about 7,500 members and is followed by Turin and Naples

in terms of numbers.

Yet Italy's many universities with architecture faculties continue to turn out a stream of graduates from degree courses that generally take at least six years: the minimum is five years. "Every year a total of 1,200 graduates in Rome sit the state examination for entering the profession, of whom 400 pass," says Schiattarella.

Rome is an indicator of a serious national situation. It is not hard to see the magnitude of the dual problem of (a) too many architecture graduates left outside the profession and (b) too many graduates being accepted onto professional rolls. Legally established minimum fee levels, a device aimed to counteract dumping and thereby guarantee quality, are of limited effectiveness and are, in any case, presently under close scrutiny by Italy's anti-trust and competition authority. In addition to having too many practitioners and potential practitioners, and too little work for them, Italian architecture also suffers from an imbalance in the way that architects are trained. "Degree courses and the theses that complete them may be demanding, but they are in a theoretical vacuum. Architects are not required to do practical work before taking state examinations and obtaining enrolment onto professional rolls. The Rome association is pushing hard for this to be reviewed," says Schiattarelli.

Undertaking projects has never been harder – the good news: things can only get better

"It is paradoxical that many tourists to Italy are drawn by the architectural achievements of the past. The present is very difficult: today's achievements are scarce," observes Schiattarelli. Says Bignozzi: "Undertaking projects is frightenly hard. It has never been worse. This is the bad news. The good news is that it can only get better: indeed, there are signs that improvement is on the way." Bignozzi points to a large engraving on the wall of his office. It is a working drawing of the erection of the obelisk in Saint Peter's square. Domenico Fontana, the man responsible for the project, described himself as *architetto e conduttore* (architect and manager).

Architects used to run the show, but no longer. Over the centuries the architect has lost ground. Nowadays, engineering seems to rule, with finances, costs, environment, construction and materials all engineered. Schiattarelli complains that architecture has been neglected, crushed between political and industrial interests. Italian architecture: tackling today's problems and building tomorrow's role, is a major challenge. **WA**

Building in Italy

GENERAL INFORMATION

Italy, the boot-shaped peninsula in Southern Europe, has a total area of 301,230 square kilometres. This area includes the islands of Sicily (off the southern tip of the mainland) and Sardinia (west of Italy in the Tyrrhenian Sea). It has an extensive coastline of about 5,000 kilometres with the Adriatic Sea to the east, the Ionian Sea and Mediterranean Sea to the south, the Tyrrhenian Sea to the west and the Ligurian Sea to the south-west. It shares land borders with France to the west, Switzerland and Austria to the north and Slovenia to the east.

The terrain is predominately rugged hills and mountains. The Alps form a barrier in the north from the rest of Europe. The Apennine Mountains run the length of Italy. The Po Valley is the largest of Italy's intermittent plains and coastal lowlands. This alluvial plain, which runs east-west between the Alps and the Apennines, is the most fertile in Italy. There are three major tectonic plates that create geologically unstable conditions throughout southern Italy and Sicily, which are subject to seismic activity.

Climate: Generally, a Mediterranean climate prevails except in the Alpine regions of the extreme north. The southern portion of the peninsula is hot and dry. Sardinia and Sicily are drier and warmer than the mainland.

Precipitation: The average annual precipitation in the highlands exceeds 1,000 millimetres and rainfall in the lowlands is under 750 millimetres.

Population: 58.3 million; Urban 69 percent, Rural 31 percent.

ECONOMIC DATA

Consumer price index:		Exchange rates:	
1990 = 100		Italian Lira per US$	
1991	106	1991	1151
1992	112	1992	1471
1993	117	1993	1704
1994	121	1994	1630
1995	128	1995	1585
1996 (est)	134	1996	1528

Language: The official language is Italian, which is almost universally spoken. There are small areas along the northern border where German, French and Slovene are spoken.

Ethnic composition: Italian 98 percent.

Religious affiliation: Roman Catholic 98 percent, other two percent.

Capital: Rome.

TRAVEL & BUSINESS INFORMATION

Time difference: Italy is one hour ahead of Greenwich Mean Time (GMT) and six hours ahead of Eastern Standard Time (EST).

Currency: Lira (L).

Business hours:
Government: 8:00-2:00, Monday - Friday
Banks: 8:30-1:30, Monday - Friday
Business: 8:30-12:00, 2:00-5:30 Monday - Friday (varies).

Airport information: The main international airports are in Milan and Rome. Rome's Leonardo da Vinci (*Fiumicino*) airport is 38.5 kilometres from Rome. Milan's Linate airport is located about 15 kilometres from Milan. Both airports provide bus service from the airport into the city.

Dialling code: Italy's country code is 39. The international dialling-out access code from Italy is 00.

GENERAL CONSTRUCTION INFORMATION

Construction outlook: Government funded construction has slowed since 1992 because of the *tangentopoli* (bribesville) scandals. Corruption investigations are ongoing. Milan's *mani pulite* (clean hands) team discovered kickbacks being coerced for cleaning contracts at an old peoples' home which led to revelations of widespread corruption throughout Italy. The political system is consequently undergoing major changes, and the construction industry has been badly hit. A very competitive bidding climate is expected for 1997.

Rates of inflation: The inflation rate for the construction industry for 1997 is estimated at 3.5 percent annually.

Procurement of construction: In common with other European countries, there is a great deal of regulation – both formal and informal – of the construction industry in Italy. This is especially true in the public sector where a multitude of procedures dictated by national and regional authorities are sometimes contradictory. The

AVERAGE TEMPERATURES

(minimum/maximum)

	January	July
Genoa	5°/10°c	21°/28°c
Naples	4°/12°c	21°/29°c
Rome	4°/12°c	18°/31°c
Sardinia	6°/13°c	19°/30°c
Venice	1°/6°c	19°/28°c

NATIONAL HOLIDAYS:

January 1	New Year's Day
April 25	Liberation Day
May 1	Labour Day
June 2	National Day
August 15	Assumption Day
November 1	All Saints' Day
December 8	Immaculate Conception
December 25	Christmas Day
December 26	Saint Stephen's Day

Easter Monday is observed on different dates each year in March or April. The date changes yearly in accordance with the lunar cycle. There are regional holidays. For example, Saints Peter and Paul day in Rome is on June 29. Most Italians take vacation during the months of July and August.

result is a highly bureaucratic planning approval process that is complex and lengthy.

A standard form of construction contract for private sector work is published by *Associazione Nazionale Costruttori Edili* (ANCE). However, it is not mandatory and not widely used. The typical contract package includes drawings, general contract, specifications, and form of tender. Completion of the bid package, drawings and specifications vary with the method of construction contract used. For private sector work, the most common method is the fixed price stipulated sum, where they are about 35 to 60 percent complete. Other common construction contract types include design/build and unit price contracts.

The owner appoints a project manager, *direttore dei lavori* (either project designer or independent project manager) to manage the construction process.

Design professions: There are three primary design professions in Italy; architects, engineers and *geometra*. Architects or engineers are required for major projects. The *geometra* handles most of the small scale projects. To practice in Italy, architects and engineers must be members of their professional societies – the *Ordine Nazionale Architetti* for architects and the *Ordine Nazionale Ingegneri* for engineers. An owner typically has separate contracts with the architect and engineer, but this is not a law.

Contractors: The industry has several large general contractors, but the majority of construction companies are small to medium sized mostly family owned firms. The traditional contracting approach is to use a general contractor. Trade contracting is used, but it is not customary. The six largest Italian general contractors are: Impregilo, Astaldi, CMC, Coopsette, Italstrade, Coop Costruttori. The *Albo Nazionale dei Costruttori* maintains a registration system for public work. Registered contractors are classified for type of work and construction value.

Governing codes and standards: UNI and European Union standards apply. Local planning codes apply. Each of 20 regions have their own codes. Italian specifications are descriptive rather than prescriptive. References are rarely made to performance criteria or specific standards.

CONSTRUCTION COST GUIDES

Approximate construction costs:
The following square metre unit rates for the Rome area are provided for rough comparison purposes.

	Lira/m²
Offices, mid-rise, good quality	1,900,000
Residential units, 2 storey, high quality	1,500,000
Private apartments	1,400,000
Libraries	2,400,000
Schools	1,900,000

Regional cost variations:

Rome (central Italy)	100
Milan (northern Italy)	105
Bari (southern Italy)	95

MATERIALS AND METHODS

Material availability: With the opening up of national markets encouraged by the European Union, there is now an extraordinary range of materials and components available on the Italian market.

Labour availability: With high unemployment, the labour supply is plentiful.

Equipment availability: The full range of equipment is available from European sources.

USEFUL ADDRESSES

Eute Nationale Italiane di Unoificazione
(Italian National Standards Institute)
Piazza Amando Diaz 2
1-201123 Milano
Italy
Tel: +39 2 876 914

Associazione Nazionale Ingegneri e Architetti Italiani (ANIAN)
(National Association of Italian Engineers and Architects)
Via Flavia 104
00187 Roma
Italy
Tel: +39 6 486 15
Fax: +39 6 474 4397

Associazione Nazionale Costructtori Edili
(ANCE)
(National Building Contractors Association)
Via Guattani: 16
00161 Roma
Italy
Tel: +39 6 848 81
Fax: +39 6 844 4364

Consiglio Nazionale Degli Architetti
Via Santa Marva del L' Anoma, 10
00186 Roma
Italy
Tel: +39 6 689 6009
Fax: +39 6 686 6414

World Architecture *and* Hanscomb *wish to thank Copper International Srl of Rome for assisting in the presentation of the information in this Country Focus.*

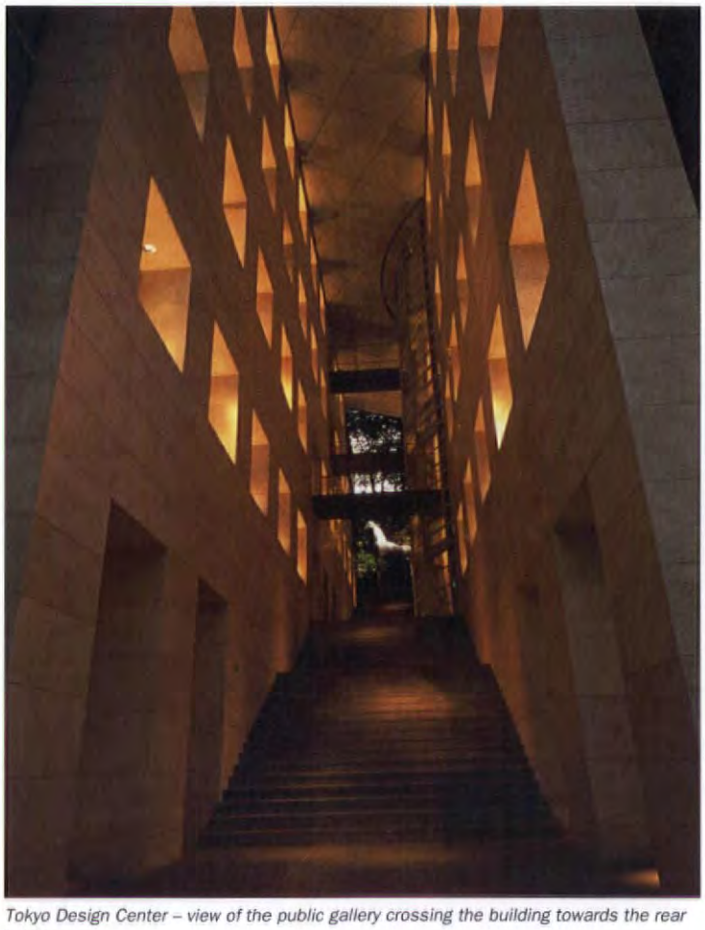
Italy – Major architectural practices/design firms

This table was compiled with information supplied by the practices listed.

Architectural practice / design firm	Total architects	Total staff	Total offices	Area of Specialisation	Health care	Industrial	Commercial	Office buildings	Housing / Residential	Planning	Interiors	Sport / Leisure / Recreation	Hotel / Restaurant	Education	Laboratories / Research	Transport	Other
Architetti Gae Aulenti	3	7	1					•			•					•	•
Architetti & Associati	10	13	1		•	•	•	•	•	•	•	•	•	•			•
Arteco	7	14	1		•	•		•	•	•	•	•	•	•			•
BBPR Associati	15	15	1		•	•	•	•	•	•	•	•		•		•	
Mario Bellini Associati srl	30	40	7			•	•	•	•	•	•	•	•	•			•
Ottavio di Blasi Associati	7	8	1			•		•	•			•			•		
Architetti Cini Boeri	4	6	1					•		•	•	•	•				
Canali Associati srl.	4	25	4		•	•	•	•	•	•	•	•					•
Architetti Antonio Citterio	15	20	2				•	•	•		•		•				•
Architetto Collova	1	5	1				•		•			•					•
Architetti Pasquale Culotta	4	10	1					•	•		•	•					
Architetti Ricardo Dalisi	3	4	1														•
Architetti Anna Castelli Ferrieri	1	4	1			•			•	•	•	•					•
Studio Toni Follina	8	10	1		•			•		•	•	•		•			•
Massimiliano Fuksas																	
Studio di Architettura Gardella	6	9	1				•	•	•		•			•			
Architetti Giovanna Giannattasio																	
Gregotti Associati International	65	80	2		•	•	•	•	•	•	•	•	•	•		•	•
Architetti Michele De Lucchi	30	40	3			•	•	•			•					•	
Architetti Vico Magistretti	1	1	1			•		•	•		•		•	•			•
Architetti Mendini	10	20	2				•	•	•	•	•	•					•
Architetti Roberto Menghi	1	1	1				•	•	•		•	•		•			
Architetti Gianemilio & Anna Monti	2	4	1					•	•		•			•			•
Architetto Emilio Morasso	8	10	2			•	•	•	•		•	•	•			•	•
Roberto Pamio Architetto	4	6	2				•		•								•
Renzo Piano Building Workshop	70	95	4			•	•	•	•	•	•		•	•		•	•
Architetti Marco Piva	4	4	1			•					•		•				
Architetti Paolo Piva	1	3	2						•		•			•			
Quattro Associati	5	9	1			•	•	•	•	•				•			
Architetti Roberto Querci	1	2	1														•
Architetti Franco Raggi	3	10	1		•		•	•			•	•					•
Architetti Umberto Riva	2	2	1							•	•			•			
Prof. Arch Aldo Rossi	6	15	2				•	•	•	•	•	•	•	•	•	•	•
Architetti Alberto Salvati	2	5	1			•	•	•	•		•	•	•	•			
Architetti Luca Scacchetti	7	8	1			•	•	•	•				•			•	
Architetti Scarpa	2	4	1			•	•		•		•						•
Architetti Roberto Serino	1	1	1								•						
Architetti Sottsass Associati	9	34	3						•	•	•		•			•	
Architetti Pierluigi e Guido Spadolini	10	35	1		•	•	•	•	•	•	•	•	•	•		•	
Francesco Trabucco	6	20	2		•	•	•	•	•	•	•	•	•	•			•
Architetti Matteo Thun	1	12	1			•	•		•		•	•	•				•
Gino Valle Architetti	4	10	4					•		•	•	•	•				
Studio Francesco Venezia	5	5	1					•	•		•	•		•			•
Architetti Antonio Zanuso	6	8	1					•	•	•	•	•		•		•	•
Architetti Marco Zanuso	3	6	2		•	•		•	•	•	•		•	•	•		
Prof. Arch Oswald Zoeggeler	8	10	1					•	•	•	•	•	•	•			

Milan Trade Fair Extension – view from the north end of the complex during the final stage of construction

Villa Erba Exhibition and Conference Centre, Lake Como, Italy – view of the exhibition centre standing in the middle of Villa Erba's nineteenth century park



Tokyo Design Center – view of the public gallery crossing the building towards the rear garden

MARIO BELLINI ASSOCIATI

Office
4, Piazza Arcole
20143 MILANO
Italy
Tel: +39 2 5810.3877
Fax: +39 2 5811.3466
e-mail: mbellini@mbox.vol.it

Associated/joint venture offices
Melbourne, Australia
Tokyo, Japan
Dubai, United Arab Emirates
London, United Kingdom

Key Personnel
Arch. Mario Bellini (Chairman)
Arch. Claudio Bellini (Managing Director)
Arch. Giovanna Bonfanti (Design Director)
Arch. Luca Clavarino, RIBA (Business Development Director)
Arch. Carlo Malnati (Technical Director)
Dr.ssa Stefania Secondi (Financial Director)

Company size 45 - 50 by mid 1997

Recent clients
Victoria Arts Centre, Melbourne
Natuzzi Americas/High Point, North Carolina
Matsushita Inv. and Dev. Co Ltd, Tokyo
National Gallery of Victoria, Melbourne
Hans Group, New Delhi
Arsoa Osho Co Ltd, Tokyo
Ente Autonomo Fiera Internazionale di Milano
Somatel SA, Moscow
J C Decaux, Paris
Al-Rostamani Group, Dubai
Municipality of Giussano, Milano
SchmidtBank Zentrale, Hof-Saale
Ceid Italia Srl, Gruppo Fondiaria, Milano
Nichji Co Ltd, Osaka
Azienda Energetica Municipale, Milano
Sowa Shoji Co Ltd, Tokyo
Palazzo Grassi Spa, Venezia
Nomura Real Estate Dev Co Ltd, Tokyo
Villa Erba Spa, Cernobbio (Como)
Scotti Immobiliare Spa, Milano
Autogrill Spa, Milano

Company profile
The practice, founded by Mario Bellini in the mid-1960s, became a Limited Company in 1987. The professional services provided range from masterplanning and architecture to landscape design, and from exhibition design to furniture and product development. In 1987, the Museum of Modern Art (MoMA) in New York held a monographic exhibition of Mario Bellini's industrial design work. In 1996, the Royal Institute of British Architects (RIBA) in London held an exhibition of Bellini's architectural work.

The Company has always taken great care to conduct its business in a structured and disciplined manner, with management procedures aligned to the strictest Quality Assurance requirements, in order to offer the highest standards of services to clients worldwide. The Company is currently undergoing the process of bringing such management systems and procedures into line with UNI EN ISA 0 9001, and will ultimately seek Quality Assurance Certification by the Italian Certification Institute within the building industry, ICMQ, by the end of 1997.

The Company carries a substantial Professional Indemnity Policy, with the Limit of Indemnity on an "each and every" claim basis in any one year of three billion Lira. Since its inception, the Company has never had any claim filed against it.

The Company has its own custom-designed 2,000 square metre headquarters in Milan and is engaged in many foreign countries, either in association or in joint venture with local architectural or engineering practices. Its technical skills, active international marketing, sound management and effective financial control, plus the ability to complete its assignments on time and within budget, enable the Company to guarantee a thoroughly reliable and satisfactory performance to all its clients, regardless of the size of the appointment.

Its uncommon artistic creativity, combined with the constant desire to achieve the highest design quality, place Mario Bellini Associati amongst the top European Consultancy Companies in its field. In 1995 the Company added a new workstation by Silicon Graphics (hardware Indigo 2, software Alias Studio/Alias Animator and Unix Operating System, the most sophisticated computer graphics tool currently available for architectural design and rendering) to its already powerful CAD System network. The Company has, in-house, its own architectural model making workshop and a fully catalogued and constantly updated technical library. It also carries out continuous research on new products and materials.

Areas of specialisation
Masterplanning/museums and arts galleries/trade fair complexes/international conference centres/hotels, leisure and entertainment/offices/banks/retail/housing/interiors/furniture and product design.

Dockyard facilities, Port of Genoa, Italy

Ansaldo office buildings, Genoa, Italy

Dubai Tennis Court, UAE

Residential building, Genoa, Italy

STUDIO MORASSO

Consulting Architects

Head office
Via alla Torre dell'Amore 18
16146 Genoa – Italy
Tel: +39 10 363956
Fax: +39 10 367510
e-mail: emorass@mbox.vol.it

Middle East office
PO Box 3405
Ruwi, PC 112
Sultanate of Oman
Tel: +968 601889
Fax: +968 601893

Key personnel

Arch Emilio Morasso	Chairman
Erik Ferrari	Partner
Roberto Grillo	Partner

Size of practice
10 specialists

Recent clients
Azd Enterprises, *Muscat, Sultanate of Oman*
Base Holding SpA, *Genoa*
Coopsette Scrl, *Reggio Emilia*
Electa Bruno Mondadori Srl, *Milan*
Elettronica Industriale SpA, *Milan*
ENEL SpA, *Turin*
ESKO International, *London*
Fiumara Nuova SpA, *Genoa*
Frayland LLC, Dubai, *UAE*
Gruppo COIN SpA, *Venice*
IKEA Italia SpA, *Milan*
Khansaheb Civil Engineering LLC, *Dubai, UAE*
RAI-Radio Televisione Italiana, *Genoa*
Riparazioni Navali Porto di Genova, *Genoa*
Studium Srl, *Genoa*
Telecom, *Genoa*
Tyrol Immobiliere, *Montecarlo*
Vernazza Autogru Srl, *Genoa*

Practice profile
Studio Morasso has been based in Genoa since 1980, working in technical and artistic design. Activities range from scenography and industrial design with an emphasis on conversion in urban areas, housing, schools, offices, commercial centres, sport and entertainment parks. A particular interest is the sensitive restoration of historic buildings.

The Studio provides all planning facilities, from the original idea to final realisation, and has temporary offices in several countries to ensure the client's desires are fully realised. Working in teams, one person is always responsible for each project, with a highly qualified professional group advising on all aspects, so that a really creative result can be achieved.

Currently under design in the Middle East are: a hotel, a Golf Course Country Club and a motordrome. In Italy some conversions of industrial areas are being carried out in the north, and there is the exciting prospect of work commencing on a mosque.

Area of specialisation
Although the Studio Morasso has a small professional staff the team maintain permanent contact with relevant specialists in: heating and ventilation; electrical power systems; interior design; landscape gardening; structural and civil engineering and environmental "rescue".

STUDIO SPADOLINI E ASSOCIATI

Office

Studio Spadolini e Associati
Vai della Robbia 38
50132 FIRENZE
Italy
Tel: +39 55 244247
Fax: +39 55 243989

Key personnel

Pierluigi Spadolini
Guido L Spadolini
Fabrizio Papetti
Adinolfo Lucchesi Palli
Luisa Pieraccioni
Gianni Leonardini
M Benedetta Spadolini
Andrei Perekhodtsev
Marco Marchetti
Giorgio Salimbene
Marco Luchi
Remo Caldani
Marco Frescucci
Simona Livi
M Grazia Fraiese

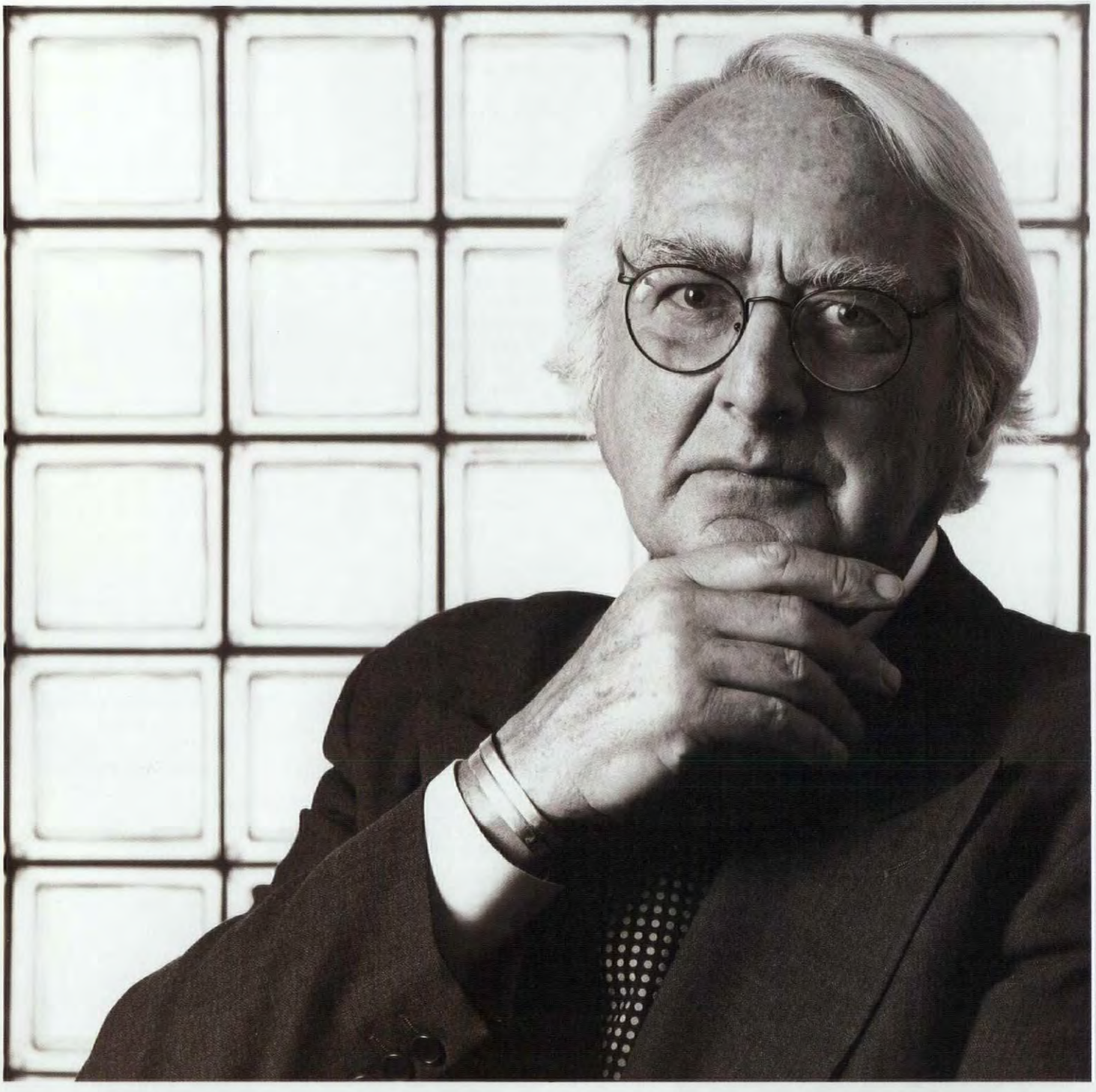
Recent clients

Assicurazioni Generali
Bayer Italia
ENEL
FS Ferrovie dello Stato (State Railways)
Confindustria
FIAT
Ministero per i Beni Culturali e Ambientali
Ministero di Grazia e Giustizia
Ministero delle Poste
Ministero della Difesa – Arma dei Carabinieri
Vicariato di Roma
University of Florence
Telecom Italia
Iritecna (IRI Group)
Mededil (IRI Group)
Expo 92 Sevilla
CIGA Compagnia Italiana Grandi Alberghi
Monte dei Paschi di Siena
Banco di Napoli
Cassa di Risparmio di Firenze
Cassa si Risparmio di Pesaro

Practice profile

Studio Spadolini e Associati has its roots in the Florentine school, a school in which architecture is driven by the real needs of people, in a global context. Pierluigi and Guido Spadolini have a strong belief in the relationship between the individual and the environment. The environment includes both innovative as well as traditional technology, that is capable of being applied architecturally in new ways, aiming for a natural coming together of forms and the human dimension.

The basic principle of the Florentine school is meditation of reality through humanism and technology. The environment we inhabit is represented by a kind of architecture that must be innovative in the way it expresses a community's culture, and other qualities. The aim of Studio Spadolini is to inject human values into architecture through an understanding of social structures, because even though technology may be modern, humanity should always feel in charge of its own space, not alienated from its context. Humanity remains the measure of all things.



Whiter than white

Richard Meier is one of the only non-Italian architects to have won work in Italy. Although his previous attempts at infiltrating the protectionist realm of Italian architecture have failed, he is now working on two high-profile projects in Rome. Intriguingly, this Jewish American non-religious architect has been chosen to design the Church of the Year 2000 – perhaps the most prestigious project in the capital of Catholicism. Architects in Italy and overseas have persistently complained of dirty dealing within the country's construction industry. In conversation with Renata Rosso, Meier relates a straightforward, corruption-free commission.

Face to face

"I spent a great deal of time in Italy. I was there at the American Academy in Rome as resident architect. I visited it on numerous occasions... But when you work there you understand it perhaps at a different level."

Richard Meier was involved with his first Italian project in 1976, when he designed a small museum "Villa Strozzi" in Florence, which wasn't realised due to a lack of funds.

"I have no perception of [corruption]... I have never seen it, it doesn't exist – as far as I am concerned – in anything we are doing in Italy"

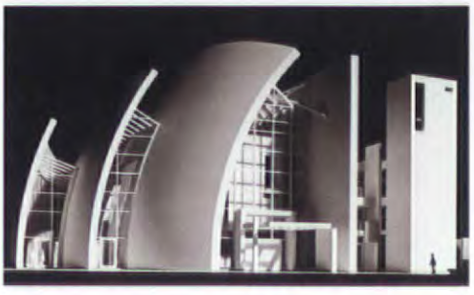
The aim was to involve Italian architects, as well as foreign architects. Giovanni Michelucci, Ignazio Gardella and Carlo Scarpa were chosen alongside Hans Hollein and Alvar Aalto. Last year he also received the commission to realise the Museum of the Ara Pacis in Rome – one of two Meier projects in Rome which show every chance of being completed. Why should this be such a unique position for a foreigner? "Well, I think that Italy is a country which is used to doing things their own way... I don't think that Italy has, until recently, been open to that kind of intervention." That the Vatican should open its arms to a Jewish American non-religious architect is, in the circumstances, astonishing.

Many overseas architects have tried in vain to build in Italy. Most relate tales of bribery and corruption compounded by the protectionist attitude of some of the myriad of small construction companies who run the industry. Meier, however, is enjoying a relatively easy ride, free of underhand dealing. Asked what perception he has of corruption in Italy, he replies: "I have no perception of that because that is something that doesn't exist in my practice anywhere, and I have never seen it, it doesn't exist – as far as I am concerned – in anything we are doing in Italy."

Richard Meier is much admired in Italy, where he has been compared to Bramante, who came from Milan to Rome to instill qualities of luminosity in a comparatively dark city. The difference, they say, is that Meier comes free from bribes or corruption. When asked about difficulties related to working in Italy, Meier describes the usual hazards of working abroad, in the form of language and communication, and the cultural divide. Some may consider this response diplomatically wise despite the regular complaints issued from Italians and foreigners alike. "I don't think that it is any more difficult for a foreign architect to work in Italy than it is for an Italian architect to work there...it is a way of thinking that makes it a little bit difficult, although, quite honestly, I haven't experienced that difficulty, but I am sensitive to that as an issue. And I think there are cultural differences" he continues, "which have to do with ways of working, a sense of time, priorities, which one learns about as you are working. You know, the notion of time influences a certain way of operating, a certain way of doing things. One of the major problems is continuity, is keeping up a certain pace and level of work that I am used to."

The Church of the Year 2000

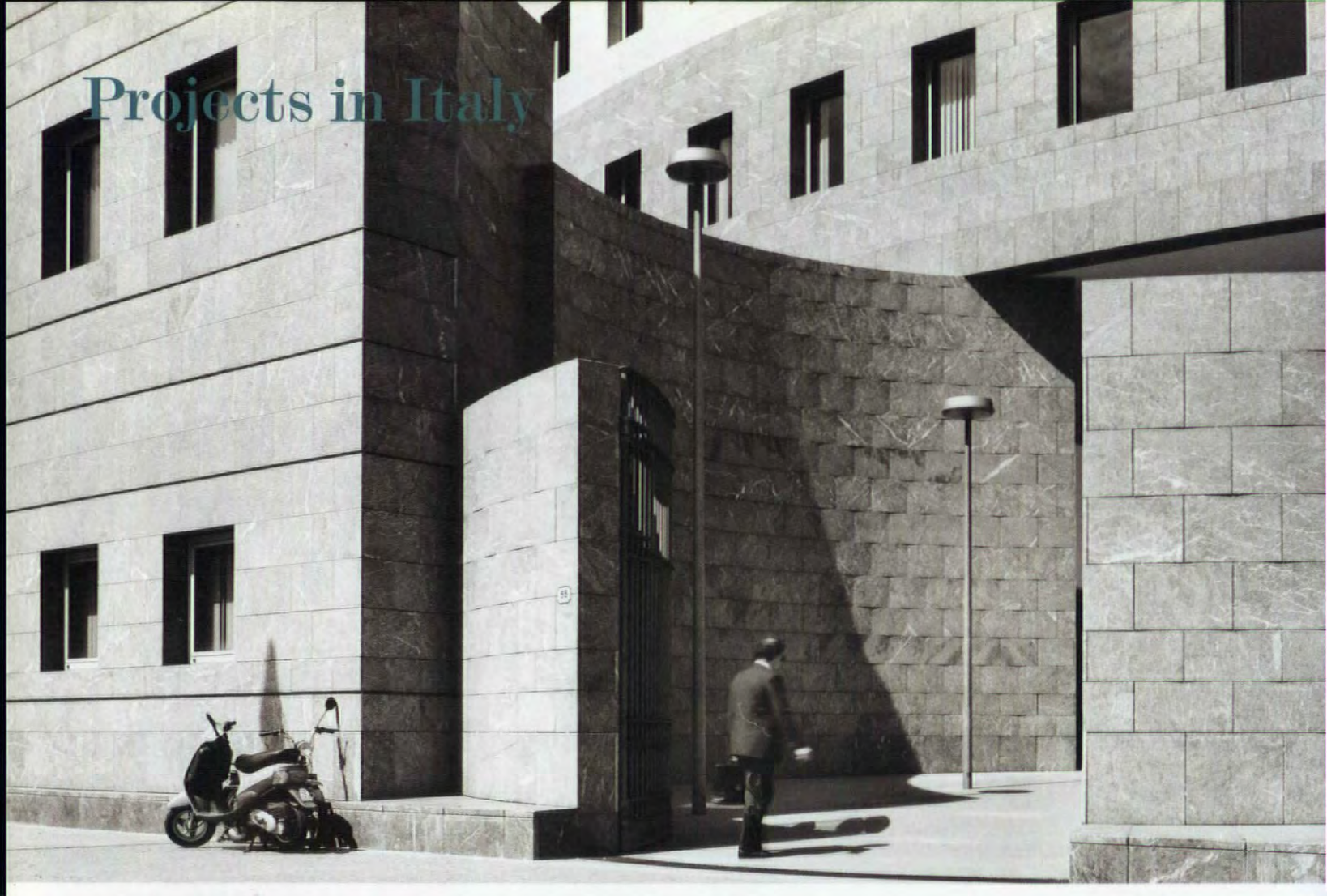
After an international competition which included entries by Tadao Ando, Gunter Behnisch, Santiago Calatrava, Peter Eisenman and Frank Gehry, Richard Meier was selected to design the Church of the Year 2000. The Vicariate of Rome sponsored this international competition to commemorate the Jubilee by inviting six non-Italian architects. Earlier this year Meier spoke about his project at Rockefeller University in New York City. "The Church" he said, "has had an extraordinary 2000 years of history of artistic patronage. This history constitutes one of the most sustained and enriching relationships in the history of western art...at this time of extreme positions and instantaneous communication of images, I think that this kind of a relationship has become increasingly important. I have spent a good part of my career as an architect trying to deal with places of art and trying to strike a balance between form and empty vessels, so for me building this new church in Rome has been a kind of joyous new step."



"I always believed in an architecture which stands apart from artifices of time...apart from categories, from labels and appropriations. The church, as it seems to me, is timeless despite the effects of time on stone or concrete, despite the knowledge of long years for its realisation, and what makes the church timeless is a simple act ordained by open luminous space of looking up, of giving oneself over to a gesture of humility."

The site is a suburb of Rome, between the Prenestina and the Casilina highways. The competition brief called for a new Parish church and a community centre to serve the 8,000 residents of the Tor Tre Teste community, an area dominated by a lower middle-class income housing complex. Tor Tre Teste is an isolated suburb lacking any residential fabric; buildings have been juxtaposed without an urban plan. There is no context, rather, there is a negative context. Once Meier said that "sometimes a decision to turn one's back on a negative context can become a positive gesture". He agrees that this is the case here: "I often tell people that really it is very much like the Bronx. Here the attempt is to create a place which has in part a secular space, in part sacred. Hopefully a space that will help the people who live there re-situate themselves in the world. I think one way of doing this is the way in which this complex allows the people...to use the place for play, for celebration... The new church has to be a fairly strong architectural landmark...capable in some way of visually reorganising the shape of this rather dishevelled high density built-up neighbourhood."

Meier is optimistic about his latest Italian adventure, which shows every sign of making it onto the construction site. He does not anticipate bureaucratic problems although "we haven't gotten the permission from the city of Rome, yet...". Presumably they will be as keen as he is to see it completed by the year 2000. **WA**



Public spirit

Project New Law Courts building, Padua
Architect Studio Valle Architetti Associati
Text Sebastiano Brandolini

Many Italian architects are fascinated by physical weight, but few can handle it like Gino Valle. His recently completed Law Courts in Padua are clear proof of this. It is a large building, which gives the appearance of looking even more immense than it is. Its semi-circular plan makes the building's presence felt from afar, from close by, from the train, from the car, within and without. Both elevations of the building, one facing a major entry road into town and the other a railway wasteland, describe a modern stone monumentality.

This monumentality is not used merely as a descriptive devise, it is built to last. It is intended to serve justice for generations and to withstand mismanagement and terrorist attacks. It provides a solid start for any future developments of the area – which are still at the mercy of local planning. At the opposite end of the urban block stands the Law Courts. The neo-romanesque Temple of Peace represents a sort of alter ego, commemorating the victims of World War I. Much of the land around the courts is now vacant, but all will change in the future when a new masterplan, also by Valle, is implemented.

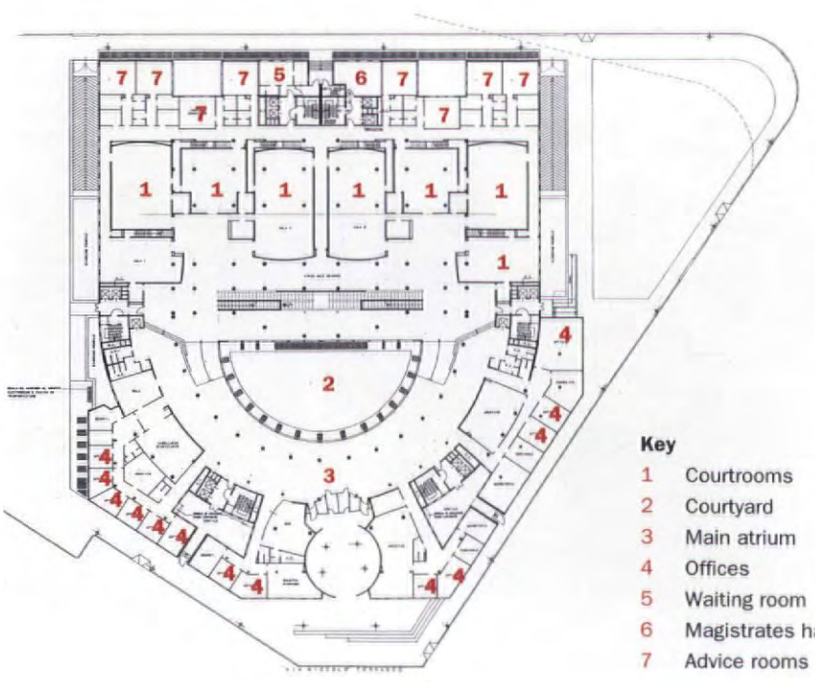
The building is made up of two volumes: a two storey base following the irregular shape of the site and mediating with the scale of the existing buildings, and a three storey semi-circular drum in the centre. On the railway side, the two volumes run parallel and generate a single linear head-on frontage. Both volumes are clad in stone, a darker stone for the perimeter and a paler one for the drum. The public entrance is on the main street – here the building asserts its monumental aspirations with utter clarity by way of its curved end. The entrance is elegantly carved out of the perimeter layer in a gestural manner, forming an intimate circular court. On this side the building, fragmented into a sequence of individual

Opposite page *The circular entrance of Gino Valle's monumental Law Courts building showing both the two storey base with a third storey of punched voids through which the three storey semi-circular drum at the centre can be glimpsed.* ***Right*** *The vast stone construction of the exterior is carefully balanced by a light interior with clean detailing and a clear articulation of space.* ***Bottom*** *Ground floor plan*

Project	New Law Courts Building, Padua
Client	Padua City Council
Architect	Gino Valle with Piera Ricci Menichetti
Collaborators	Marco Carnelutti, Gianpietro Franceschinis, Walter Vidale, Nelson Ziszutto
Built-in furniture	Michele Valentini, Umberto Rovini, Alessandra Casoni
Structural engineer	Giancarlo Turrini

pavilions, positively relates to the city, becoming itself part of it.

The interior presents an intensely humane character. From the outside one might imagine that Valle's architectural interpretation of justice is based on the application of a joyless discipline – yet the inside is an uninterrupted and orderly sequence of movements, sights, and surprises. The entry axis from the round court is tilted by about five degrees against the axis of the semi-circular drum; as one enters the building this produces a gentle disorientation. The ground floor space around the semi-circular courtyard is a feast for the eye with light entering from different angles and clear articulation of the section and the mezzanine level. This is a true public space, simple and accessible, and yet surprising; the sensation when visiting the courts is that it is itself an interpretation of fair justice. It is an architectural gift to the public. **WA**



Dressing up

Project Marino alla Scala
Architect Gregotti Associati International
Text Sebastiano Brandolini

For many years the municipality of Milan has been discussing the possibility of creating a Fashion Museum – so crucial has fashion become to the city's economy. With the purchase of Marino alla Scala, originally a small *palazzo*, and subsequently a hotel, Nicola Trussardi (of the international fashion house) has made the first gesture towards a permanent contribution to the fashion industry, albeit from the private sector. The renovation of the *palazzo* by Gregotti Associati was delayed – due to allegations of corruption regarding the artifically inflated sale price of the building – but work began just over a year ago and has now been completed.

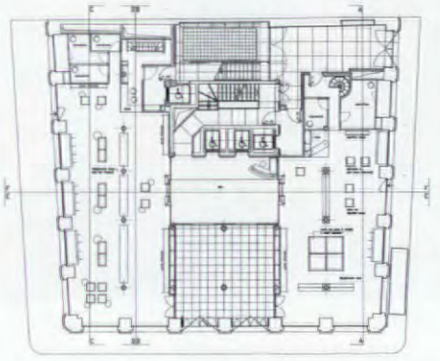
Trussardi wanted to turn Marino alla Scala into a unique art showcase. Because of this, he retained the hotel name Marino alla Scala as a perceived guarantee of success, only displaying the Trussardi name discretely, behind the main facade. His idea was of a palace where culture and fashion could cross-breed with each other, mingling the timeless ideals of art with the constantly fluctuating aspirations of fashion.

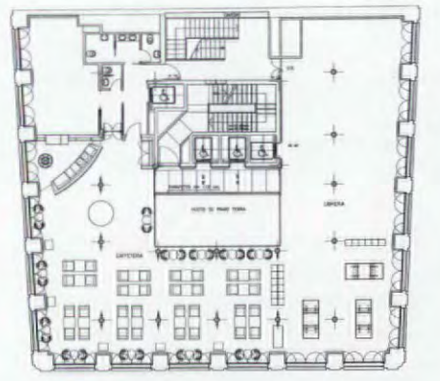
The architects were not given a detailed brief but simply told to capitalise on the site of the Piazza della Scala and to provide a flexible architectural container which could be rearranged at any time. On the ground floor are two shops – one overlooking Piazza della Scala at the front and one facing Piazza Filodrammatici at the back, with a double height entrance in-between.

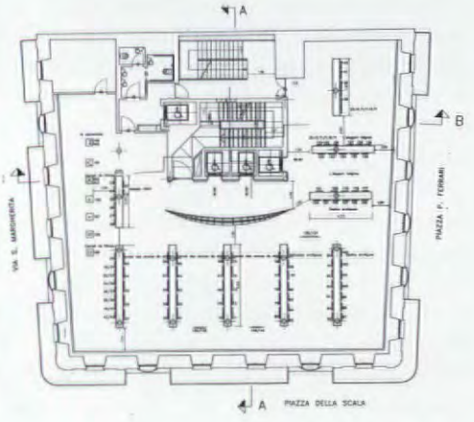
The scheme pivots around and across this glass-volume entrance space: it distinguishes between the various activities whilst maintaining a liberating sense of transparency; a suspended structural glass bridge acts as a first floor landing to the lifts which are lined with mosaic tiles. On the *piano nobile* (first floor) the atmosphere is relaxed and intimate housing a restaurant and a bookshop. The top two floors contain offices for Trussardi's companies, designed with a very flexible layout. It could be asked why, if it was Trussardi's intention to give Milan a public house of culture, the cafeteria and the bookshop are not on the ground floor. The art gallery, an asset of this private facility, sits up on the second floor, bearing no direct relation to the double-height entry sequence and the transparency of the two lower levels. This is for reasons of security but it does little to dimish the disappointment of finding that the art gallery is an almost incidental addition to the spatial equation.

The absence of ceremonial movement through the building (there is no open staircase) has determined much emphasis on the materials and the details, which are simultaneously warm and cool. Many opalescent glass surfaces are combined with terrazzo floors, and the terracotta red lift shaft contrasts with the abstract light descending from the ceiling. This is hi-tech modern minimalism, a style which in Italy is only now starting to take hold, combined with the picturesque beauty of a nineteenth century *palazzo*, and of the adjoining Scala Theatre. **WA**

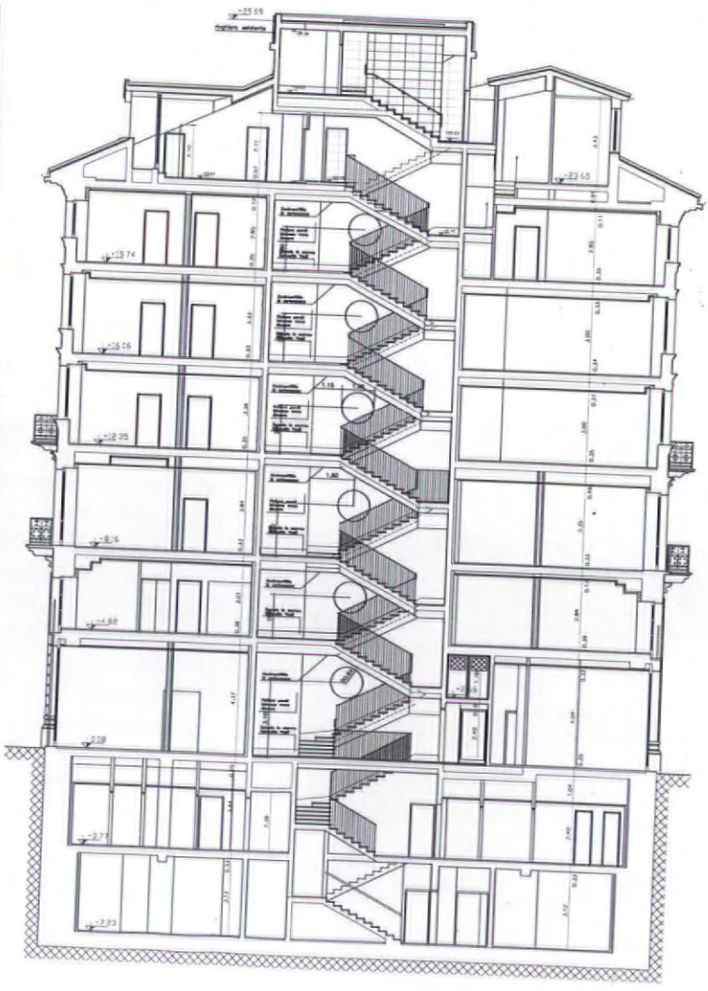
Below *Floor plans top to bottom: ground floor; first floor; exhibition layout for one of the first exhibitions, of Picasso, showing the Piazza della Scala entrance with Piazza P Ferrari to the right (west) and Via S Margherita to the left (east).* ***Bottom left*** *The understated entrance retaining the original entrance and the prestigious Marino alla Scala name with the name Trussardi discretely displayed below on the lintel*







All photographs Donato di Bello



Top *A suspended structural glass bridge acts as a first floor landing to the lifts which are lined with mosaic tiles. The first floor (piano nobile) houses a restaurant and bookshop, creating a relaxed and colourful atmosphere.* ***Above*** *The bow-shaped wooden screen in front of the elevators on the ground floor.* ***Right*** *Section through Marino alla Scala*

Project	Marino alla Scala	**Main contractors**	
Client	Nicola Trussardi	**Building works**	Sice Previt – Milano
Project architects	Pierluigi Cerri with Alessandro Colombo (Gregotti Ass.Int)	**Electrical**	Iep – Milano
		Mechanical	Sesti Impianti – Milano

Variation on a theme

Project Cefalù Town Hall, Sicily
Architect Pasquale Culotta and Giuseppe Leone
Text Sebastiano Brandolini

All photographs Giovanni Chiaramonte

Italy is frequently thought of as the nation of restoration. It has conserved its historical architectural patrimony more entirely than any other country – partly due to inertia, and partly by intention. Many architects who specialise in restoration projects are able to make their work imperceptible to the untrained eye. Buildings are fed through a time machine and returned to their original splendour. More often than not the attitude taken by these practitioners is that only the architecture of the past was true, just and beautiful. But the most successful restoration projects are often the ones which make the revealed potential of the transformed building apparent, and which consider history not as a static or frozen shackle, but as mobile, contradictory and in a constant state of flux. They interpret historic buildings not as awaiting a return to a pristine state, but as the presentation of layers of possibilities for the future.

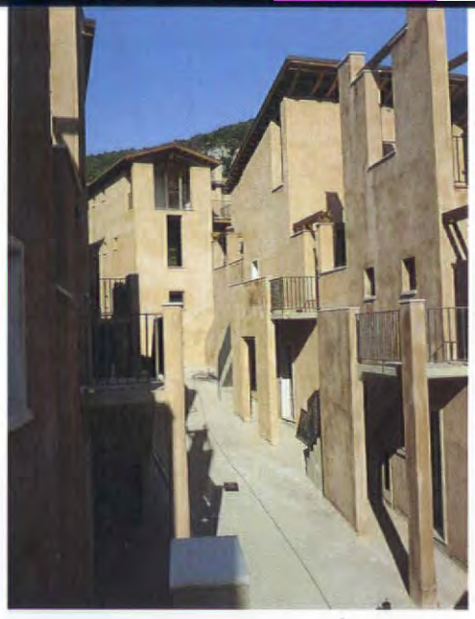
Cefalù, Sicily is a compressed village suspended between the sea, rock and sky, with an imposing Norman cathedral guarding the horizon from the centre. It presents the idyllic postcard image that defies alteration, for fear of disrupting a God-given balance. But, over the years, the indigenous architects Culotta and Leone have learned to respect the urban grain of Cefalù, and promote the city as a dynamic structure able to sustain contemporary changes.

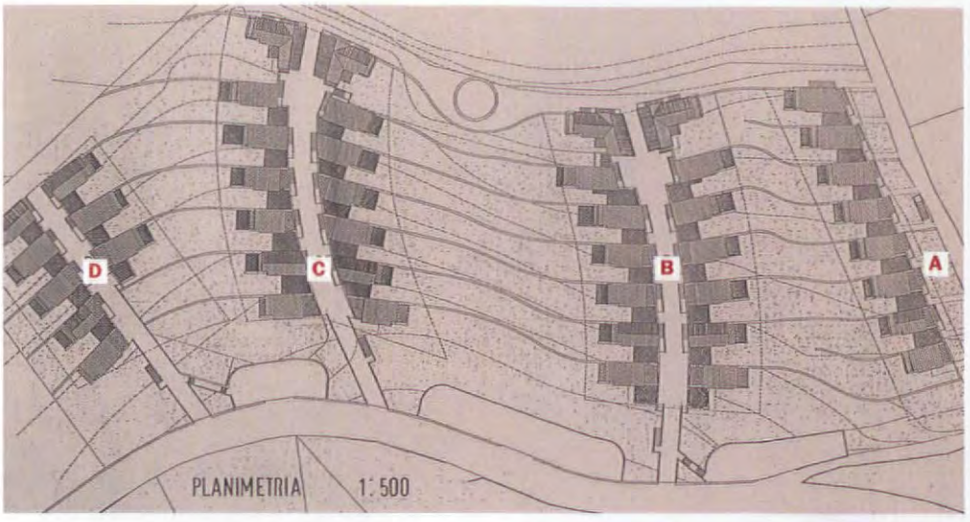
The spirit of Culotta and Leone's Cefalù Town Hall restoration is both modern and traditionally Mediterranean. The dazzling whiteness makes the building serene, surreally beautiful and timeless. A new facade overlooking an existing *piazza* generates a complex of visual axes, both from without and within. The building has a thick facade, heavy and physical, with recessed openings and a protruding cornice, directly confronting the cathedral. The dry and intentionally under-stated details turn the new Town Hall into a permeable volume, constructed of filters and layers through which the strong natural light makes its way down into the courtyards, and then reflects back onto the ceilings. Plaster clads the building inside and out, giving the impression that all has been carved out of the same mineral, like in a cave. Here, the sense of place cannot be disjointed from the sense of time. This is what links the existing framents into a coherent urban block: an old church with its monastery, an army barracks, and a myriad of mini-transformations and adaptions which have taken place over the centuries.

It is no easy task to build a minimalist urban building which produces unity by combining the disparate aspects of Cefalù, but the Culotta/Leone town hall does so with cutting precision. This idea of restoration is far from a dogged academic interpretation of history, but comes very close to the simple and practical spirit of the Mediterranean tradition. **WA**

Left *The interior of the town hall is clad in white plaster, echoing the exterior and giving the impression that the building has been carved out of one block of stone. The result is a minimalist urban building with a strong reference to the spirit of the Mediterranean.* ***Above*** *The white town hall opposite the Norman cathedral in the idyllic setting of Cefalù*

Project	Cefalù Town Hall, Sicily
Client	Town council of Cefalù
Architects	Culotta e Leone Architetti Ass. with Arch. Salvatore Vignieri
Technical consultant	Ing. Gioacchino Di Giorgio
Chief engineer	Ing. Matteo Crisà
Electrical engineer	Ing. Giuseppe Muratore and P I Riccardo Ruffino





__Top__ The narrow streets between the houses echo the steep alpine terrain. Some houses face the street with a perforated screen. __Top right__ Site plan showing the four phases of development, the completed cluster is C, shown second from the left. The other clusters are currently under construction. __Bottom left__ Concept sketch showing the turret formation and pitched rooves. __Below__ Much emphasis is placed on maximum fenestration to afford views of the lake and golf course to the south, and the mountains to the north

Border lines

Project Lake Garda housing development
Architect Oswald Zoeggeler
Text Sebastiano Brandolini

Over the years Italy's economy has increasingly come to depend on tourism. On the hilly shores of Lake Garda where Oswald Zoeggeler has built a four-phase housing development, culture, sport, landscape and weather all conspire to provide the perfect holiday ingredients. The climate of the region is mild, even during the winter months, and the olive groves produce a much esteemed oil. It is an area much appreciated by Germans, who travel from their homeland across the Brenner pass to enjoy Italy from the fringes. From the hills lies the view of the lake down below with its deep Mediterranean waters, and the first massifs of the Alps. All this has encouraged a unique clientele, and along with this, a somewhat dispersed lifestyle dominated by leisure facilities. Hotels, many with adjacent golf courses, sit alongside second homes – while most of the existing villages have been renovated, some in a rather dubious taste.

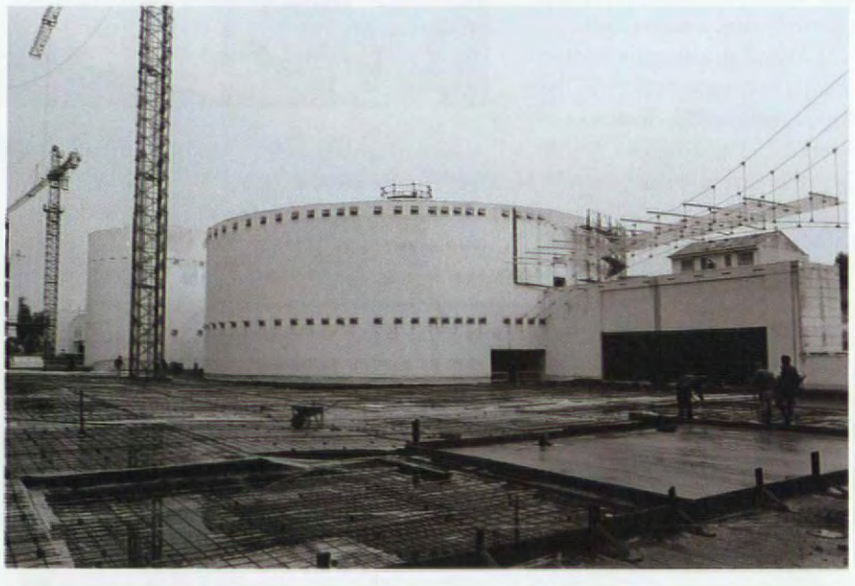
Oswald Zoeggeler, the architect, is based in Bolzano (Bozen in German), in the bilingual South Tyrol region. Stylistically his practice has successfully established a regionalistic interpretation of Alpine architecture; in most of his buildings one senses a nostalgia for the density which once denoted the clusters of houses on the south-facing mountain slopes. At times he uses architectural references which are reminiscent of eighties post-modernism, but his style tends more towards the vernacular and popular. Zoeggeler considers modern architecture inappropriate, and quite simply disruptive, in an alpine context.

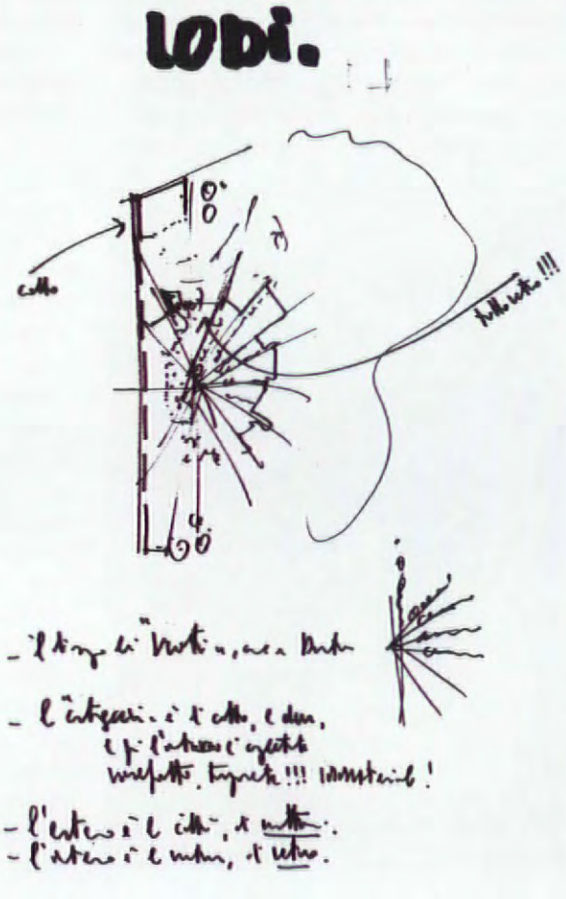
Once completed, this residential project will comprise four separate linear clusters of row houses; so far, the first cluster is built. The project contains many vernacular alpine references, and many other references, such as verrandahs and pitched roofs, drawn from the leisure tourist industry which sustains the region. Each cluster of houses is placed on gently sloping terrain and all except one contain a corridor down the middle, leading into the kitchen-living room at ground level. An exterior staircase gives access to a first floor terrace placed above a ground level bedroom. The first and second contain bedrooms. The first floor terraces rhythmically separate the housing units, each taking up the shape of a turret, practically windowless on the street side, and with large

panoramic windows towards the landscape, as if they were haystacks.

Each "tower" differs from the next, some with one and others with two roof pitches. Some roofs are legible from the street facade while other houses present a perforated screen instead. Once, in the poor Alpine regions, this wealth of architectural variety did not exist. These houses have developed as a result of the affluent growth in an area blessed with both an Alpine backdrop and Mediterranean sunlight. The south facing rows of houses look onto the lake and a nearby golf course, whilst the north facing rows look onto the mountains, emphasising the twofold nature of the programme and of the site. **WA**

Project	Lake Garda housing development
Client	Contrada Srl
Architects	Zoeggeler Oswald
Structural engineers	Trafojer Florian
Cost consultants	Zoeggeler and Trafojer
Interior design	Zoeggeler and Trafojer
Landscape design	Zoeggeler and Trafojer





The urban "quarter" of the new Banca Popolare di Lodi is focused around a large glass-covered piazza, which meets two security vaults, in the shape of agricultural silos – a direct reference to the industry upon which Lodi survives. The complex includes other silos containing air conditioning equipment and a drum-shape auditorium resembling a barn. These free-standing volumes are described by Piano as a "parody" and provide a foreground to the office-block facade. Completion date 1998

Building blocks

Renzo Piano is no theorist, he does not teach, only seldom lectures, and is principally a tool-maker. Ideas do not precede his buildings, but are the buildings themselves. His latest generation of terracotta works, from Ircam in Paris, Expo in Genoa, Rue de Meaux housing in Paris, the Cité Internationale de Lyon through to Potsdamer Platz in Berlin, describes a progression from the hi-tech language of "light" materials, and an appraisal of what he describes as "heavy, tasty" building products. In this exclusive report on the latest in the Renzo Piano Building Workshop's terracotta portfolio, Sebastiano Brandolini visits the site of the new headquarters building for the Banca Popolare di Lodi, and talks to the president of the bank, Angelo Mazza, and the architect. Photography by Berengo Gardin.

The client

In 1983, the Banca Popolare di Lodi asked four well-known Italian and foreign architects to participate in a competition to present proposals for the area occupied by the industrial buildings of the former Polenghi Lombardo factory.

The four submitted projects were very different, but none of them entirely satisfied our expectations. Eight years later, in 1991, the bank decided to start the building programme afresh. But the previous context of reference had changed. So we decided unanimously to push forward the old idea by way of a new proposal, and to commission the Renzo Piano Building Workshop for the task. We wanted a new building relevant to the town and appropriate to the banking institution's needs, as well as one that was technologically sophisticated.

Our bank enjoys a constructive and collaborative relationship with the local public administration. The 50,000-square-metre-site had always been occupied by an industrial plant, and there were no special zoning constraints. The significant size of the plot offered the architect the possibility to reorganise an entire town quarter incorporating new streets, public parking, a piazza, and a sequence of green spaces – which also endeared the public administration to the Piano scheme.

The Banca Popolare di Lodi required a new major head office. Had this been built in the heart of Lodi, it would no doubt have disrupted the atmosphere of the existing urban context. So, we decided to represent the relationship between the bank and the city in a new way, whilst also confirming an ancient and discreet harmony. We always imagined a building which would adapt to the existing dimensions and colours of the existing town as much as possible. Hence the choice to bring the town "into" the building, by creating a covered piazza. We also took the opportunity to help the town resolve some practical problems to do with the quality of life, such as increasing the availability of parking.

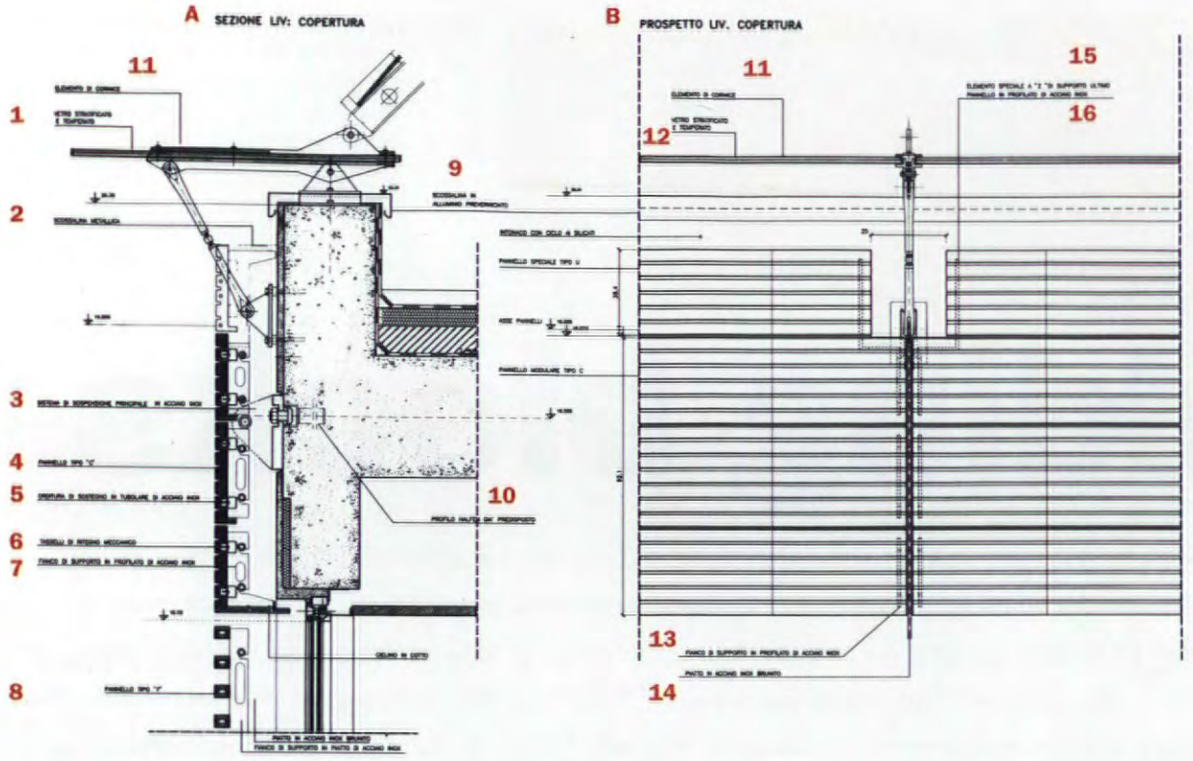
Security issues, which are of fundamental importance for any bank, and especially important in such an "open" scheme, have been brilliantly resolved by Piano's office with the use of sophisticated technological solutions. Lodi has one of the most beautiful squares in Italy; the piazza, which elegantly combines local history, architecture and public spaces. It was not our intention to create an alternative to this historic piazza. Rather, we wanted to create a meeting place which contained some elements drawn from the original, alongside some new ideas. The result is the inclusion of a major new headquarters building, some public facilities (including the auditorium) and room for commercial activities to function alongside each other in harmony with the existing urban context. The piazza will be closed to the public during night hours but will remain visible through a transparent barrier.

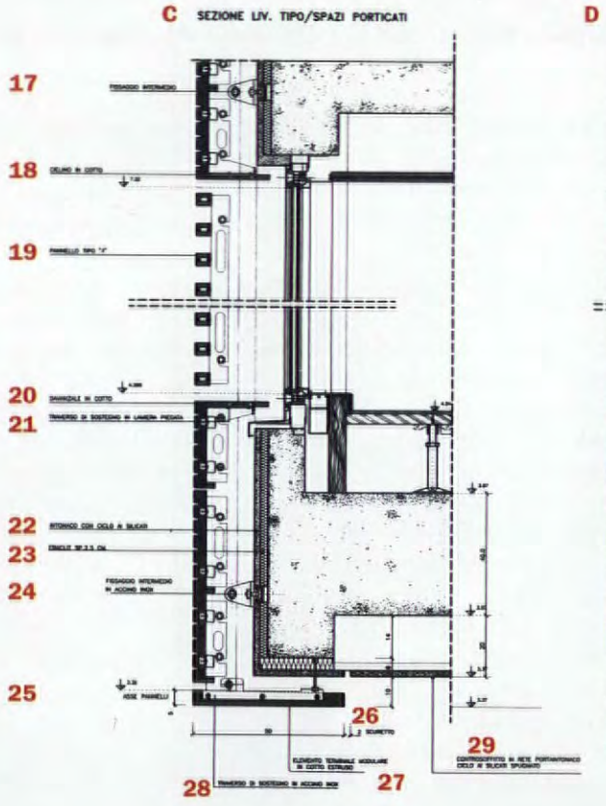
The use of interior space is one of the most significant assets of Piano's scheme, and maximum flexibility has been employed to ensure dynamic transformations of the spaces for future uses. The raised floors and the suspended ceilings can be adjusted easily.

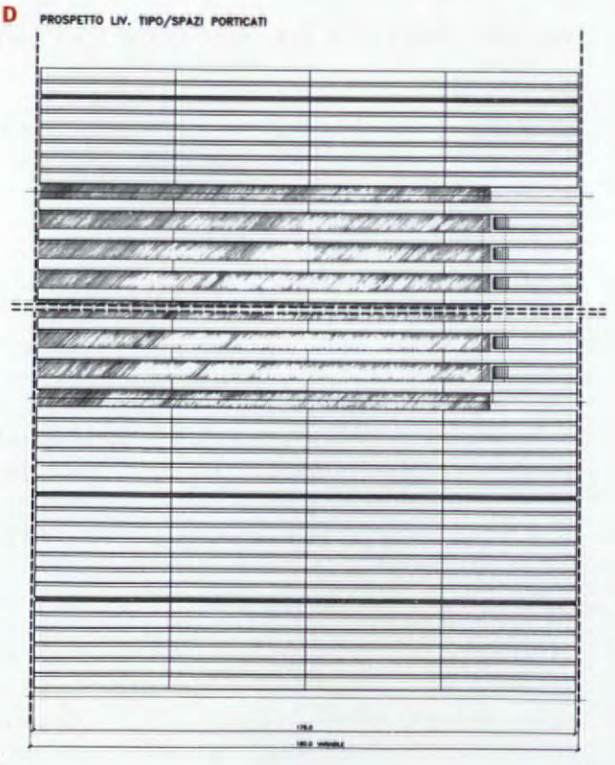
The architect

This is a site which unless properly interpreted would have become a physical barrier between Lodi's centre and the station. From the start, we wanted to translate this site into a public place, which was no easy task. People can come here to eat, relax or read, or can just move through it on the way to and from the station. Now the site represents a new quarter bordering the centre of Lodi, and resembling a physical, tangible wall which extends and connects to the late-nineteenth-century tree-lined circumference of the town. The nearby railway station can be viewed as a companion to our building; yet neither of the two is dependent upon the other. It has not yet been decided what kind of public space the two buildings will share in the future, but something will no doubt have to happen there.

Towns such as Lodi, with an historically agricultural and small-manufacturing economy, have progressively changed over the years, partly due to the proximity of Milan. The new Banca Popolare di Lodi head office bares witness to these ongoing transformations, and demonstrates a simple strategy to turn defunct industrial sites into new office areas. Formal similarities have been noted between our designs for Lingotto in Turin and the bank at Lodi – despite the disparity of size and one being a conversion and the other a new-build. The changes this building produces derive from a new permeability of the plot of land: there is no close-perimeter block, the bank is not a defensive institution, there are few functional separations, and no clear hierarchy between







Key

A Roof level section

1 laminated and tempered glass
2 metal flashing
3 main suspension system in stainless steel
4 panel type "C"
5 support frame in stainless steel tubes
6 mechanic dowels
7 lateral support side in stainless steel
8 panel type "F"
9 pre-varnished aluminium flashing
10 ready-to-use halfen profile

B Roof level elevation

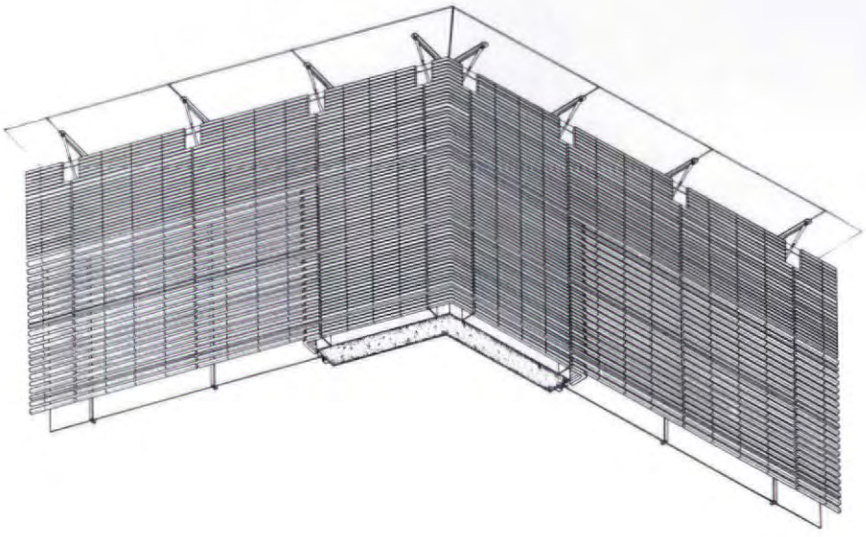
11 eave element
12 laminated and tempered glass
13 lateral support profile in stainless steel
14 plate in burnished stainless steel
15 special "Z" element for final support
16 stainless steel panel

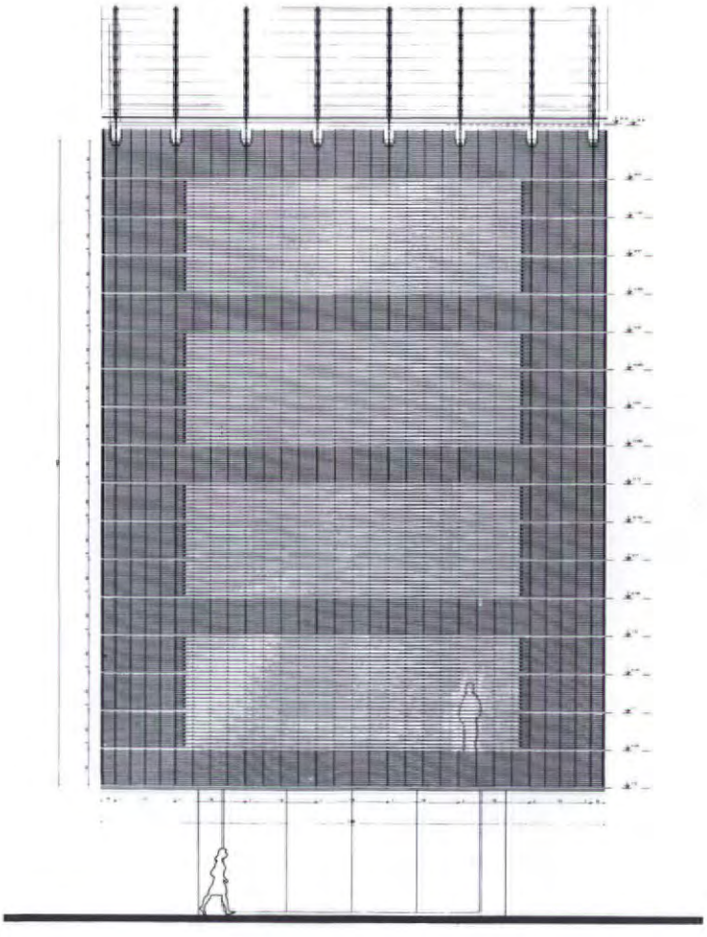
C Typical floor section/portico spaces

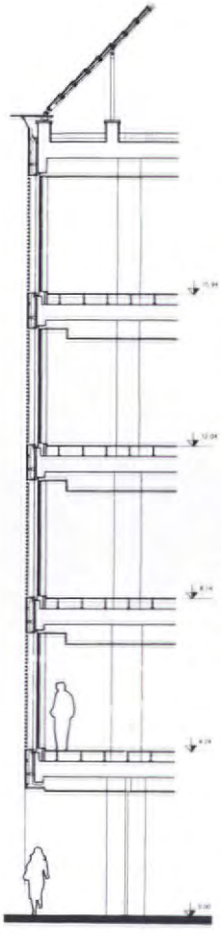
17 intermediate fixing
18 terracotta underside lining
19 panel type "F"
20 terracotta sill
21 horizontal folded metal support
22 silicate plaster
23 eraclit 2.5cm thick
24 stainless steel intermediate fixing
25 panel axis
26 closing panel
27 modular terminal element in extruded terracotta
28 stainless steel horizontal support
29 suspended ceiling in metal mesh with silicate sponged plaster

D Typical floor elevation/portico spaces

Over the years the RPBW have refined their use of terracotta cladding. At Lodi terracotta has been used to refer to the agricultural context of the site. **Middle** *Detail of the upper edge of the Lodi facade.* **Bottom** *Elevation and section of typical bay*







inside and outside. We went for a mixed urban design, taking advantage of the scale and position of the area, and of a programme which allowed different functions to coexist.

Variations on the bank "type"

I do not like categorising buildings by type, in fact here I tried breaking the predictability of those forms which define a typical "bank". From the past we inherited a repertoire of banking buildings, all recognisable and setting out a language of classical confidence. I wanted to maintain this aspect of confidence, but not its associated language. So, this bank is really more like a large office building horizontally laid on the ground, from which we extrapolated out those parts which literally signify money, namely the vaults. By making the vaults visible and by exposing them to the public, we played a kind of humorous game, *vis-à-vis* the bank building type but also the issue of security. As a result the elongated office slab turns into something more friendly and accessible. And this is why it did not feel inappropriate to us to locate a public piazza and an auditorium next to the bank.

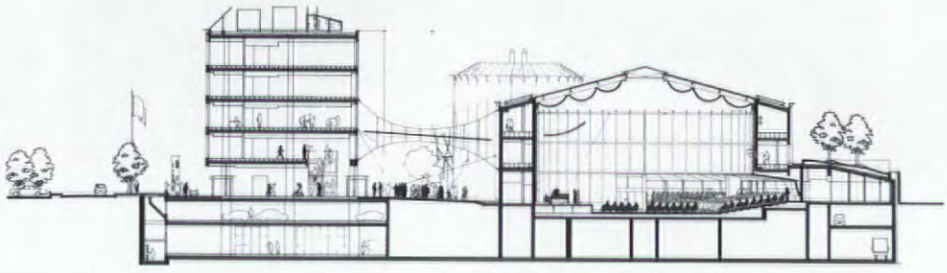
The bank is a two-sided building. The side with the underground garage is straight and can be viewed in a single glance; on the other side the piazza is set amongst a cluster of cylindrical elements which disrupt and accompany the prevailing linearity. Each silo has an individual character. There is a formal analogy with the wonderful farming structures in the area, which have complex central spaces compressed between simple forms. But I believe the analogy is not superficially formal, in the sense that here form is a tool to generate public interaction, which is the prime public objective of the scheme. The piazza, with a suspended glass sail, mediates between the different geometries. Hopefully it will stay open and lively until the small hours, and the gates at the two extremes will not turn the piazza into a private affair.

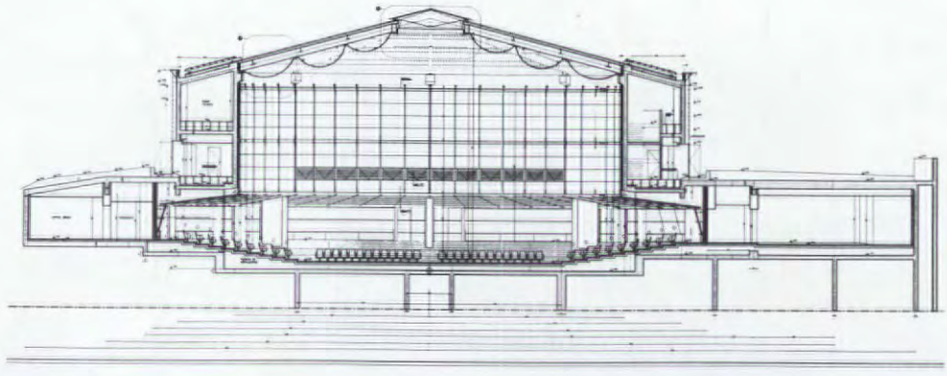
Terracotta cladding

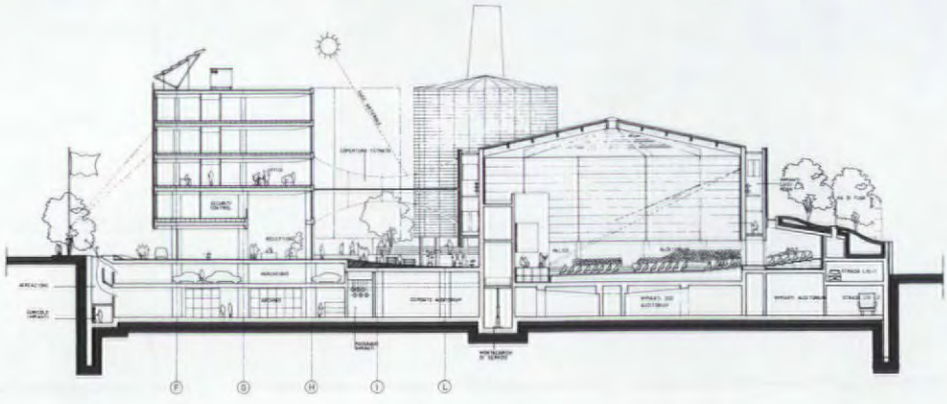
The terracotta cladding is the logical extension of this in a way. We have used terracotta cladding panels already in other projects, in Paris, Genoa, Lyon, so these are no longer an experiment for us. We are using them in Berlin too, but there they will be bigger. Over the years

Piano successfully employs the earthy colour of terracotta with the transparency of glass over the piazza which links the bank with the public auditorium. ***Below*** *Sections from top to bottom; longitudinal section showing bank to the left with parking below and the auditorium to the right; longitudinal section through auditorium; transverse section*

we have refined them, and made them simpler. The panels we drew here are very easy to hook up and take down, really straightforward. It is a material we know, and which we have learned to appreciate in different contexts. The roots of Lodi still lie in agriculture and farming, and so here terracotta panels build up that kind of association. Terracotta, as a decoration, gives the facades the right degrees of solidity and lightness – like a dress which brings out the best of the person wearing it. At this level the building feels like an agricultural shed, thin and long like a horizon line; reflecting light in different ways depending upon the season and time of day, never impeccably clean, a hand-made extrusion of the soil below. It is something one physically identifies with, like a bicycle.



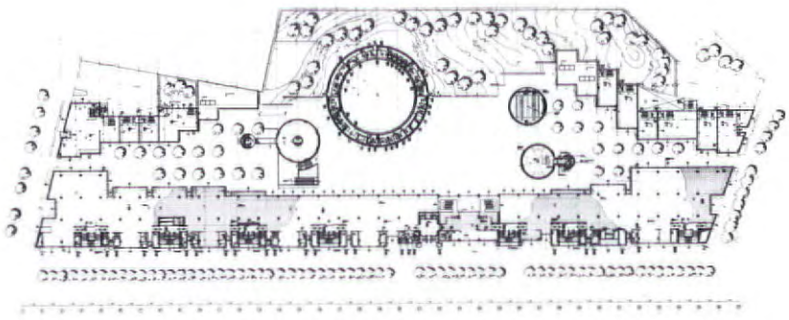


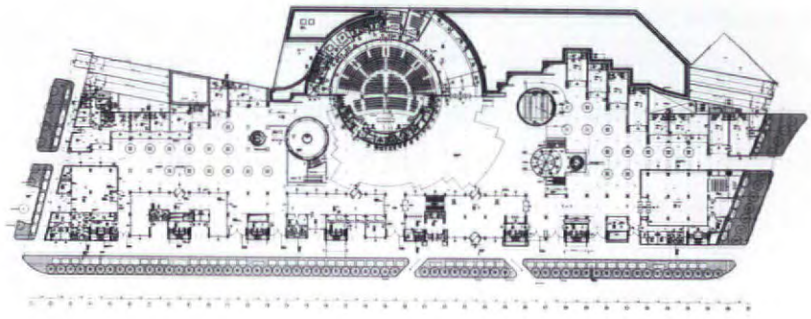


Appraisal

In designing his scheme Renzo Piano thought very much as a builder. For him the very act of assembling and erecting the structure is the most rewarding part of the architect's job. In Lodi this method and belief is clearly apparent. Piano has incorporated a sophisticated idea of facade and roof. Both are treated as skins and, as the master-builder, he extrapolates the intent from the way in which the composition is put together. One of the main advantages of analysing the bank before its completion is the legibility of this intent. As with all pure builders, there is something rough and schematic in Piano's work which he strives to refine. He calls this aspect of his style "archaic".

Piano strives towards making his buildings always lighter, clearer, purer and easier to read than the last. With some optimism, Piano likes to describe them as bicycles: "Simple and visible, the kind of object that when it breaks you do not panic". This process of architectural distillation is difficult to control. In Lodi, for example,





Top *First floor plan*
Right *Ground floor plan*

Piano put much effort into finding the right balance between weight and lightness. On the one hand, weight was necessary in order to express the scale and importance of the buildings and to refer to the monumental farm sheds. On the other hand, lightness was required to satisfy the modern logic of the building process. This equation was resolved not by way of variety and fragmentation but by unifying the treatment of the wall surface, thus creating a mass of one material with its own specific weight.

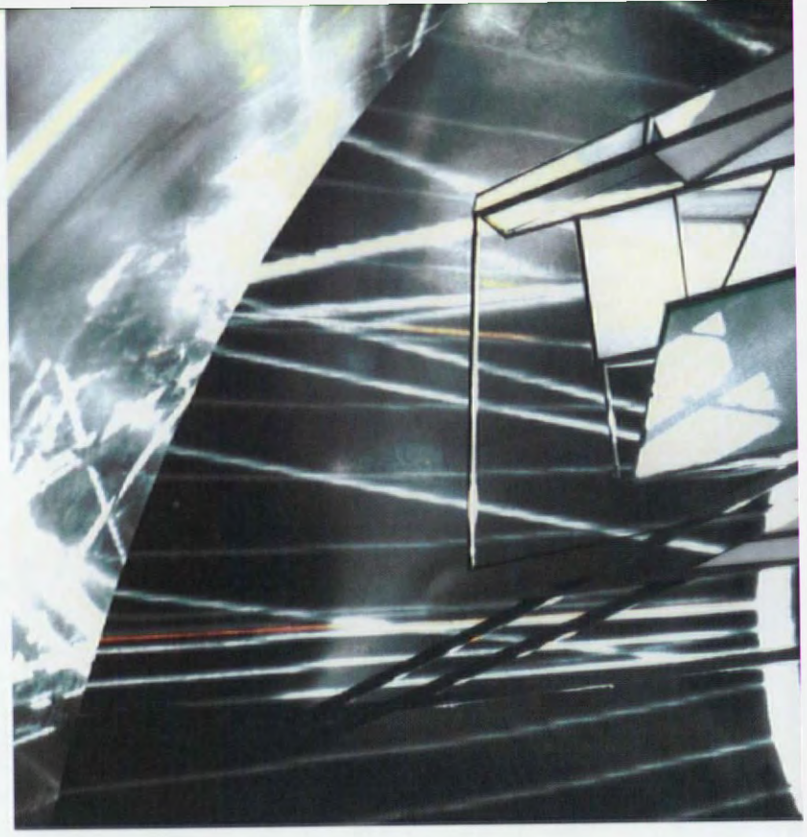
Terracotta pieces are assembled on metal supports to provide screens rather than walls. As at the Cité Internationale de Lyon (featured in *WA* 45) the way in which the screens are hung can be seen from close up; they protect either the windows (on the south side) or the exterior structure (on the north-side). This is logical, and produces an articulated repertoire of details in different formats and shapes: flat panels, vertical and horizontal corner panels, beam undersides, sills, etcetera. Piano sees this as a modern decoration, without historical trickery. It is a cladding which is not necessary from a structural, functional or insulation point of view, but which simply makes this 70,000-square-metre building more acceptable, blurring its identity as a mere office. The terracotta skin enables the building to be viewed "out-of-focus"; depending on weather, light conditions, time of day, time of year, and what happens inside, the building is transformed. The subtle handling of this terracaotta kit produces vibrant light modulations, and a variety in unity motif, in the classical sense. The building absorbs or generates light, shines or disappears; especially on the parking side its scale is hard to tell. In this sense, it is not unlike a large industry, borrowing something from the father-figure of all industries, which Piano has gradually renovated over many years – Lingotto in Turin. **WA**

Banca Popolare di Lodi

Cost breakdown

	cost per square metre in billions of Italian Lire
Substructure	
Foundations (*plinths, retaining walls*)	5
Superstructure	
Frame & upper floors (*reinforced concrete, prefabricated concrete slab*)	25
Roof (*copper tiles, waterproofing barrier*)	10
External & internal walls	3
External doors *(glazing)*	5
Internal doors	2
External cladding *(in "terracotta" & inox)*	9
Internal finishes	
Wall finishes (*included in walls cost*)	
Floor finishes *(carpet, marble, wood)*	5
Ceiling finishes *(gypsum false ceiling)*	3.5
Fitting and Furnishing	3.5 (estimated)
Services	40
External Works	20
TOTAL	**131 billion Italian Lire (approx. US$78 million)**

Project	Banca Popolare di Lodi	**M E Services**	Manens Intertecnica (Verona)
Client	Banca Popolare di Lodi	**Acoustic**	Muller BBM
Architect	Renzo Piano Building Workshop	**Lighting**	P Castiglioni
Design team	A Alborghetti	**Graphic**	P Cerri
	V Di Turi		
	S D'Atri (CAD)	**Builders**	
	G Grandi (architect in charge)	**General contractor**	Co Fin spa (Lecco)
	M Howard	**Special steel structures**	Eiffel (Paris)
	G Langasco	**External cladding**	Gruppo Bodino (Turin);
	F Santolini		"Il Palagio" (Florence)
		Glazing	Focchi spa (Rimini)
Consultants		**Special glass**	Sunglass (Padua)
Structural engineering	MSC (Milano)	**False ceiling and computer floor**	
Services engineer	Manens Intertecnica (Verona)		Sadi (Vicenza)

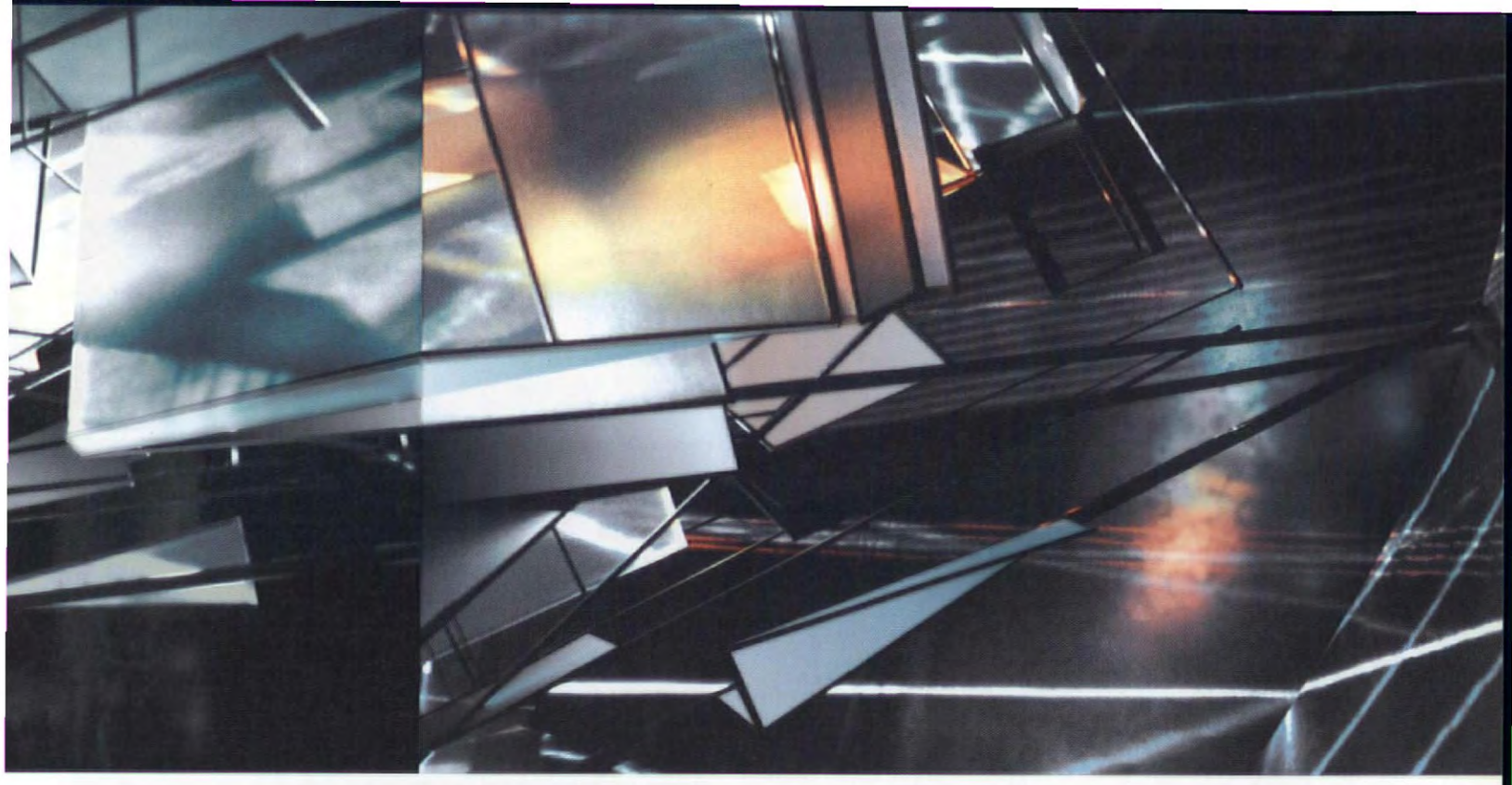


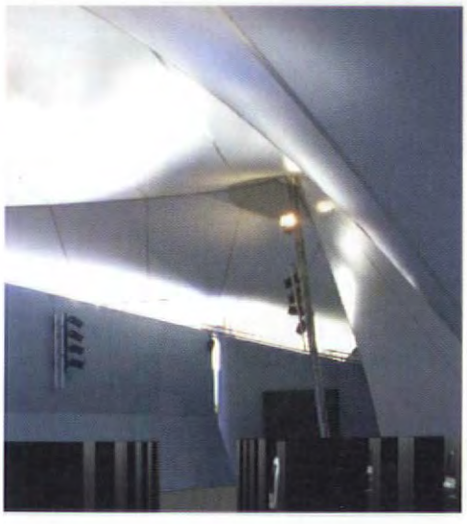
According to Hani Rashid and Lise Anne Couture of Asymptote Architecture in New York, the rapid increase in the rate of change and variation to our lives create fluctuating conditions to which the traditional demands for an architecture of stability and certitude are rendered false and redundant. In conversation with Georgi Stanishev they argue for a "non-perfectionist" architecture that provides infinite possibilities for the reinvention and multiple use of space.

Designing the unpredictable

Georgi Stanishev: Since 1990 you have continued to explore the margins of architecture, examining its relationship with science, art, politics. What are the links between these areas and are there borderlines between them today?
Asymptote: We are focusing on "links" rather than "divisions". The struggle is not to explore the borders or limits that architecture has with other disciplines but rather to recognise and understand ways in which architecture is influenced and in turn exerts influence. The presupposition that there is a separation between architecture and other fields of cultural influence is problematic for us. We seek to blur that distinction. We aim to prevent architectural discourse and method from being exclusive – from focusing on specialisation and the elitist endeavour tied to an early twentieth-century preoccupation with efficiency, hygiene and perfection.

Architecture has long been considered in terms of its pursuit of certainty, consistency, and permanence and not thought of in terms of the corollaries of uncertainty, impermanence, fluctuation and discontinuity. The flux we perceive today is due in part to the influences of media, digital technologies, telecommunication advances and the like, and is the compelling territory in which architectural experimentation and speculation is manifest.
Theoretical speculation and design practice do not usually share the same instrumentation, yet your architectural projects presuppose a strong theoretical approach to the design process. What is the operational strategy that generates your design works?





The formal strategies that we employ in the design process are not autonomous from other aspects of the architectural projects. Rather the process of generating form cannot be seen as separate from the process of generating programmes or responses to other, contextual issues. Speculative projects are more "theoretical devices" because they do not refer to specific building proposals. They are suggestive of possible spatial solutions where issues such as technology and culture must be addressed to broaden our notion of context.

How do these speculative projects work and what is the purpose they try to achieve?

The Optigraph series and Hyperfine Splitting works both operate as processes which question phenomena and influence driving spatiality in architecture. The Optigraph "outputs" were performed in what we would call analogue [analogous] procedures. Hyperfine Splitting on the other hand, sought to remedy a problematic nostalgia for geometry, anachronistic tools and form. We set out to develop works that contain these principles blurred to the state of ambiguity and abstraction. The Hyperfine Splitting series seemed to move us further and further away from presence and towards architectural assemblies of abstract qualities of time, speed, duration.

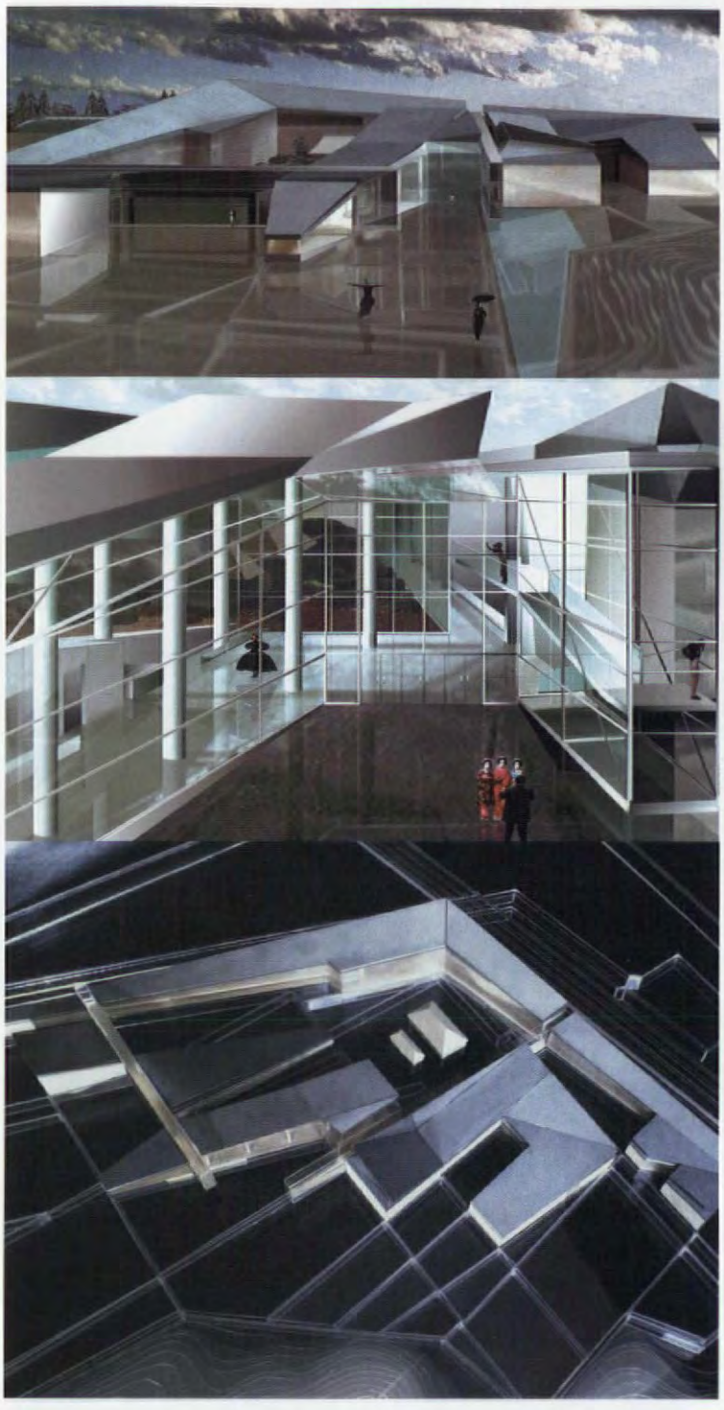
How do such pre-architectural devices influence the sphere of your competition works and other architectural projects?

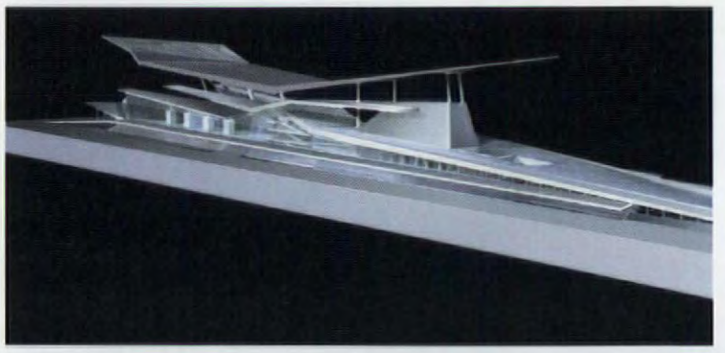
The devices have a very real effect. To take one example, the design of the Yokohama Port Terminal was influenced by the Hyperfine Splitting series. These series were focused on what we perceived as the ineffable space located within media domains such as the televisory or cinematic. This revealed to us an architectural apparatus closer to an atmosphere than to the traditional Euclidean sense of space. The inherent instability of the resultant space opened it to the possibility of intrinsic multiple readings which influenced actual

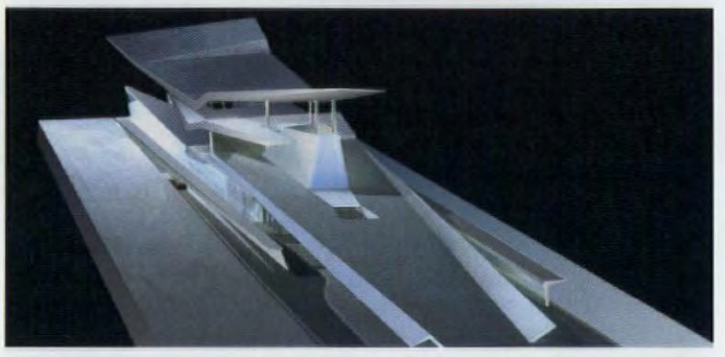
Top *Hyperfine Splitting. The instant prior to a catastrophic moment unleashes an architecture constituted of Paraxial Rays and The Lingering Possibilities of Input. A nanosecond passes and all is at once liquid...this formless field reveals limitless precincts of the untenable, each unfolding upon the other. Memory too is systematically eroded by this infinite trajectory towards some reconfigured realm. Here the persistent abandon of the station point reveals an ineffable frontier of the vanishing point. Architecture persists even in this place of yearning and anticipation well beyond the sanctuary of order*

Opposite page and above *Univers, Aarhus, Denmark; completed scheme, August 1996. Asymptote in association with Ingenieurburo Teschner, Hamburg, Germany, and Construction Management Consultants: Byggeplan – Data A/S, Aarhus, Denmark*

The Univers structure for the Aarhus International Theatre Festival brought together architecture, theatre and media technology to provide an architecture which would anticipate the spirit of twenty-first century urbanism. The "sail and mast" technology allowed for a luminous field condition that filled out the main square of the city. The spaces were divided into three categories: Social Space, Information Space and Performance Space







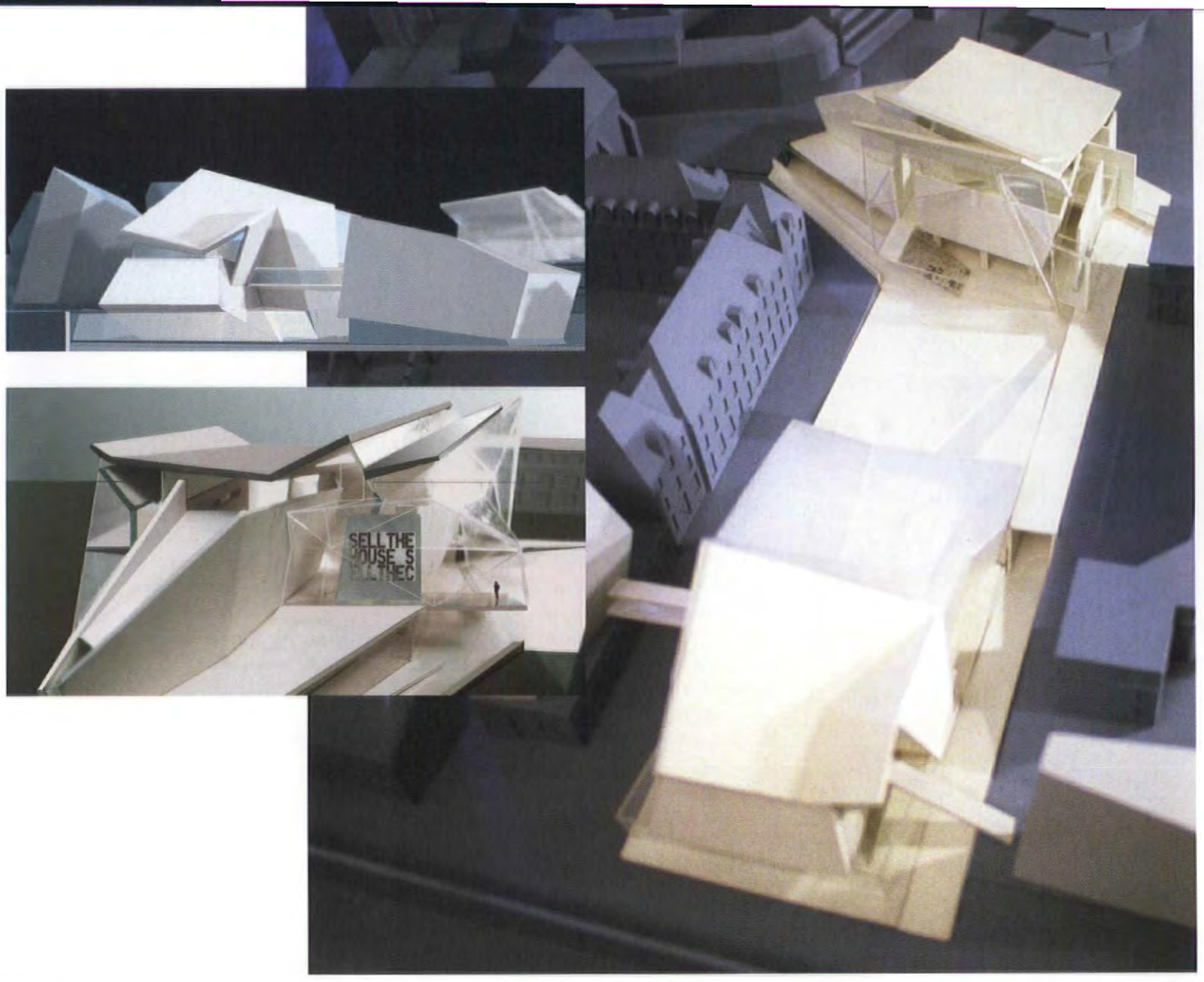
Left top to bottom *Tohoku Historical Museum, Japan, 1995*
This museum focuses on the region's agrarian-based cultural heritage. The exhibition spaces house artifacts that evoke the traditions and rituals as well as the myths and narratives related to the history of rice cultivation. Two existing irrigation canals serve as organisational devices for this scheme and as the main avenues of public circulation. Glass-enclosed passageways with transparent floors laid above these canals overlook a variety of garden spaces and lead to the different exhibit halls. Traces of speed and modernity permeate the site in the form of reflections of the trains and cars on glass surfaces that overlook the gardens; the inclined and bellowed roofs of the various pavilions, on the other hand, are a deliberate abstraction of traditional and sacred Japanese forms

projects. Thus the architecture of our Yokohama Port Terminal design proposal became an attempt to combine this "ineffable space" with a practical solution. It is a building project that offers multiple interpretations – fluctuating between readings of figure or ground and resisting any singularity of the meaning. Its roof design, for example, although elegant and "formed" was in part the result of creating a massive reflecting devise which floated above the entirety of the building and reflected rays of light from the surrounding water down onto the structure and into the spaces beneath. The building would therefore contain light, reveal flux and operate as an atmospheric ensemble rather than a singular and static structure situated in the bay against the skyline of the city.

Can you talk about your current fields of experimentation?
Our recent forays into the possibilities of digital imaging and computer generated methods has brought us into a new series of endeavours. We are now exploring the implicit spatialities held within the territories of the digital world allowing ambiguity of meaning and the transience of form. The parameters of the digital realm opening the possibilities of infinite and fluid juxtaposition are of primary interest for us at the moment. From this speculative work there is a seepage of sorts into design and our so-called professional work. The Aarhus Theatre for example emerged from a number of investigations into the making of fluid and transitional space. The building emerged not so much as a direct result of computer generated images and studies, but rather as space aspiring to contain the dynamics and possibilities inherent in computer modelling and simulation.

This process of speculating on the possible uses of digital technologies enables us to investigate the merging of architecture, city and event through the use of modelling, animation software and the like. However the real potential lies in using these aspects of technology as tools for conducting experiments on the architectural possibilities of the "yet-to-be-built".

How do these new technologies catalyse the architectural imagination and the invention of new architectural types?
It becomes evident that digital technology can be used to challenge the traditional roles of architecture as "container" or "signifier". This



Opposite page right *Yokohama Passenger Ship Terminal, 1994*
The Yokohama Passenger Ship Terminal projects three distinct identities: an international gateway to Japan, an extension of the city of Yokohama into the bay, and a unique public place inviting curiosity, desire and abandon. The new terminal serves as a point of entry to the city, efficiently fulfilling the requisite processing functions associated with passengers and cargo, yet also embracing the delirium that tourism and escape inspire. The terminal is to be viewed and experienced from beneath the Bay Bridge during the approach into the port of Yokohama. It is a vivid sight against the backdrop of the city: taut volumes embedded in the lifted horizon; lines of a tethered structure that seems momentarily held from floating out to sea

Above *Contemporary Art Centre and Theatre Tours France, 1993*
ASYMPTOTE in association with: Bulle and Brinon Architectes, Paris.
The site of the new Contemporary Art Centre and Theatre of the National Conservatory is located in the centre of the historic city of Tours. Both the Theatre and the Art Centre are clearly distinguishable by their architectural articulation. The solid volume of the theatre apparatus appears silhouetted against the translucent surface of the building and gives expression to its "muteness", while the Art Centre reveals the inherent aspects of tension and equilibrium constantly rebuked and sought after in art. The courtyard formed by these two buildings is an "interior" exterior space

technology undermines the tendency of architecture to conform to the status quo and to reinforce the existing structures of power. One way that we began to reconsider architecture was in its role as "interface". This architecture has been regarded as a mediating structure not only between physically adjacent conditions but between diverse sites, separate or simultaneous events, as well as between divergent and irreconcilable cultural forces.

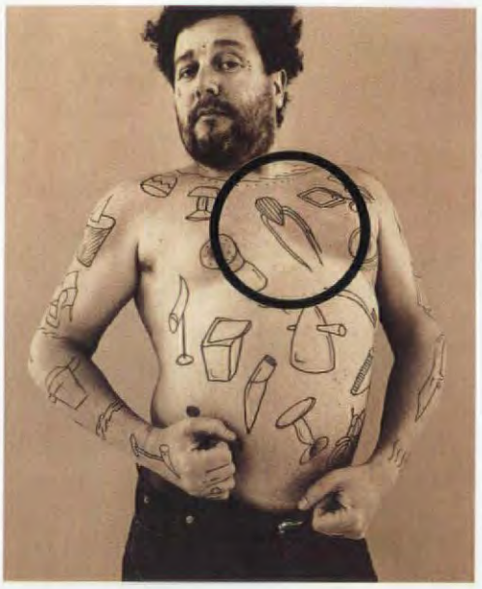
The field upon which architecture is deployed in our "post-information age" is broader and less well defined. The singular point of view or experience is replaced by a "non-perfectionist" architecture that deliberately builds on notions of the unpredictable, the unplanned, and remains open-ended with respect to future possibilities.

Why should the "post-information age" be calling for a "non- perfectionist" architecture?
The "post-Information age" refers to the ubiquitous and excessive contemporary condition of media culture, one that has proliferated to the extent that there is no longer any "information" to be had from Information. The infinite possibilities for navigating have made any search for "information" an infinite pursuit. The ever increasing rate of change creates a constantly fluctuating condition which demands not a space of stability and false certitude but one that offers multiple readings and infinite possibilities. This opens up the field of architecture for pioneering reinvention within the misalignments, thus a "non-perfectionist" architecture.

Is there an avant-garde today and what are its pioneering functions in the present day architectural culture?
Experimentation is a form of critical practice. The role of the avant-garde is to continue a process of critique through current processes and methodologies. The overlay or adoption of different techniques – whether derived from scientific theories of self-organisation or other types of evolutionary models – are capable in the end of a critical distance from the existing systems of valorization. They are relevant in their production of architecture only to this extent, namely that they remain outside the processes of production.

For us however the interest in this type of experimentation does not remain purely within the realm of the "theoretical" but inevitably is translated and transformed in the process of generating building proposals. **WA**

Books



STARCK NAKED

Starck. *Design by Mark Thomson. Taschen Verlag, Cologne and London. 336pp, colour illustrations throughout. £24.99/US$39.99 (hardback)*

Reviewed by Conway Lloyd-Morgan

The designer looks out from the cover, his nude torso fetchingly adorned with drawings of his own works, the Olympic Flame over his right kidney, Juicy Salif over the breastbone, the Aprilia Moto roaring towards his bellybutton. It is an image both ludicrous and curious, down to the mocking body-builder pose and the ironic, slightly apologetic look in the designer's eyes. This could only be Starck, is one's first realisation. No-one else could achieve the same anatopism, or present themselves in quite that way, arrogant yet somehow modest, saying "I did this/this was done".

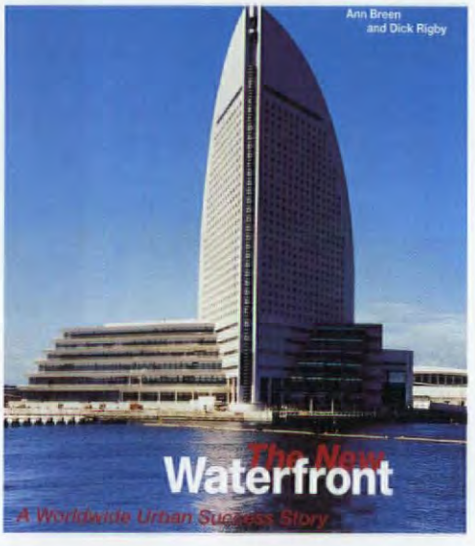
Inside the book the reader finds an endless gallery of images, laid to a stark and fully-bled grid, with occasional simple exhortations *Pax now* set against a photograph of Starck's face in stitches after a bike accident, *Le Civisme est d'avant-garde* (Starck in a suit of armour), *Nous sommes Dieu* (Starck with megaphone on head, like a dunce's cap). The other photographs of interiors, furniture, industrial design, projects and architecture are intercut with images of Starck's family and friends, what he calls his "tribe". Captions are at a minimum, often just the name of the product and its date: many pictures have no explanation at all.

The quality of the photography, design and print is excellent, making reading by looking itself a pleasure. At the end, three short interviews with different journalists deal with Starck's current preoccupations and thinking. Over the endpapers, a list of homages: Mendelsohn and Gaudi, Lynch and Wenders, Calder and Chareau, Mendini and Scarpa.

Those who glibly think of Starck as the egotist *par excellence* will find much in this book to justify such a superficial view. But Starck is not a media animal: he doesn't talk to the press that often, doesn't appear on television, doesn't go to parties or appear on the social pages of magazines and newspapers. Meeting him, he is both conscious of and astonished by his success, willing to talk about the future but not to explain the past. For Starck, his work stands for itself, not for him. He is not a personality, rather a persona – the Latin word means mask, and its transliteration into French, as Michel Tournier has pointed out, means both an individual person and the absence of any person. What he presents in this book – an astonishing body of work for some 25 years' activity – could be entitled "what has been done" as much as "what I have done". There is no celebration here of how Starck has achieved all this, rather an insistence, underlined by the formal visual design of the book itself, that all this needed to be done. This approach is explained by the texts at the end, setting out – in oblique and Starckian fashion – his ideas on the duty of designers and the necessity of design. Just as his naked torso on the cover becomes a costume for his favourite designs, so the images of Starck and his family and friends that punctuate the book are not there to say to the reader "look what we did" rather "think about how and why".

This modest message is delivered, of course, with glee, bravura and wit. Not to confuse the reader but to amuse, to drive the delight through the pages to the end, where, as in the best stories, some but not all is revealed (just as some but not all was revealed on the cover). The book holds up a mirror to the creative process, and through its design (excellently crafted by Mark Thomson) it sets a new benchmark as to how books on design should present and celebrate the complex but real mysteries of the craft.

Taschen published their first book on Starck eight years ago, just as their innovative approach to marketing books was breaking up the dozy chumminess of British bookselling. That first book had a thin and lightweight text, and a conventional structure. It is a mark of the distance that both Starck and his publishers have gone in the interval that this book's authoritative dismissal of convention seems so right and so convincing.



GOODBYE TO THE WORKING WATERFRONT

The New Waterfront: a worldwide urban success story. *Ann Breen and Dick Rigby. Thames and Hudson, Washington DC. 224pp, 363 illustrations, 177 in colour. US$79.95/£35 (hardback)*

Reviewed by Martin Pawley

Anyone old enough to have sailed to New York on an ocean liner, or arrived in Helsinki, or Hamburg or Hong Kong or Venice, or Tallinn by seagoing ferry knows, the experience is a revelation. Entering a port city by water means there are no impenetrable traffic jams, no unsightly railway yards, no blocked views, no incomprehensible routings. Approach an ancient port by water and the structure of the city built up around it is plain, and access to it virtually uninterrupted. Step

ashore and you can walk to the centre – or at least to where the centre used to be. If anything comes close to the idea of a sustainable city, this does.

But today, with very few exceptions, the traditional waterfront has ceased to exist. In the course of the twentieth century ships got larger, docks expanded, cargo-handling became mechanised, and then vanished altogether into new container ports that were always located some distance away from old city centres because they had to be linked to new motorway networks and rail heads. As a result thousands of square miles of wharves, basins, warehouses and moorings became derelict all over the world. The huge areas of waterfront thus rendered useless became known as Docklands, and Docklands became the new frontier of urban renewal.

The New Waterfront is a book about what has been done with these ancient wastelands, written by two waterfront enthusiasts. In the course of their researches they claim to have examined 300 projects worldwide, and consider that this is only a fraction of the total. In part this is because their definition of waterfront is not confined to the great set-piece docklands redevelopment schemes like Pacifico Yokohama, Rowe's Wharf in Boston, Baltimore Inner Harbor, Rotterdam Harbour or Aker Brygge in Oslo, that are the best known projects of the 90 featured in the book, but includes modest leisure complexes located on bays, ponds, lakes and rivers, even man-made ones, that are more water frontage than waterfront. The thing all these projects have in common is not so much size or cost as success, "a tangible sign of the vitality of cities, even in a world increasingly dominated by suburbs," as the authors note.

Whether there is, or even was, local opposition to the replacement of trade and fisheries with retail spaces, IMAX cinemas, bars and restaurants, is not discussed. The not unreasonable view being taken that rundown waterfronts have demonstrated their uselessness by their very abandonment, and restoration to any sort of economic life is a good thing in itself. Thus there is a photograph of dilapidated Cannery Row in Monterrey, after the collapse of the sardine fishery, followed by a photograph of people looking at the fibre glass models of whales and squid that have replaced it. On a larger scale at Rowe's Wharf the developer's achievement is defined with admirable brevity; "High praise for fitting 665,000 square feet of space into the most historic section of Boston".

In a work that is more organised than written, there is little space for authoritative architectural criticism or design comparison, but a great deal for accumulations of data in panels and sidebars. In the same way chapter heading references to the compendious gazetteer makes it easy to find any featured project. Leafing through such a crowded and well-illustrated work of retail, leisure and tourist reference, only the most determined browser will notice that the chapter entitled "The working waterfront" musters only two projects out of the 90 in the book.

CARRIED AWAY

Portable Architecture. *Robert Kronenburg. Butterworth Heinemann, Oxford, UK. 160pp. 12 colour, 155 b/w illustrations. £35 (paperback)*

Reviewed by Matthew Barnett Howland

The question of whether something portable can be called architecture is more than a semantic issue, for the answer depends upon one's view of the role of the site, *vis-a-vis* the interpretation of place and the specifics of a given situation. The 19 case studies examined here are objects that certainly excel on their own terms, but by definition most have a transient and incidental relationship with the ground and their site in general. It is this characteristic in fact that has allowed the design teams in question to focus on other parts of the architectural equation – such as programme and technology – to produce results often beyond the reach of more conventional building practice.

This focus is a necessity as well as a freedom. It is largely because the buildings have no fixed address that they have demanding operational requirements. It is likewise the lack of contextual concerns and site specifics that has enabled the designers to concentrate on meeting these strenuous criteria. When an enlightened client or extraordinary environmental conditions are often part of the scenario, it is no wonder that this type of project encourages innovative structural and detail solutions, and often acts as the test-bed for the application of new technologies and materials to the building industry. On top of this, some of the buildings are of considerable elegance and refinement, most notably Renzo Piano Building Workshop's pavilion for IBM.

By and large, these projects occupy the sphere of simple concepts ingeniously executed. Although superficially it is the world of circuses and fairs, Nissen huts and portakabins, stage-sets and juggernauts, this collection is one of sophisticated objects that provide a dedicated solution to specific problems. Notwithstanding a debate about the distinctions between architecture, building, engineering and any number of design disciplines, the book is of undoubted interest to anyone who appreciates creative thought in any field.

BOOKS RECEIVED

The Skyscraper, Bioclimatically Considered. Kenneth Yeang. Academy Editions, London. 200pp, over 600 illustrations. £29.95 (paperback)

The Destruction of Art: iconoclasm and vandalism since the French Revolution. Dario Gamboni. Reaktion Books Ltd, London. 416pp, 151 b/w illustrations. £25 (hardback)

A Critic Writes: essays by Reyner Banham. Foreword by Peter Hall. Edited by Mary Banham, Paul Barker, Sutherland Lyall and Cedric Price. University of California Press, Berkeley. 351pp, 32 b/w illustrations. US$39.95 (hardback)

The Projective Cast: architecture and its three geometrics. Robin Evans. The MIT Press, Cambridge, Massachusetts. 413pp, b/w illustrations throughout. US$52.50/£33.50 (hardback)

Australian Architecture Award Winners: Australia's best architecture 1981-1995. Neville Quarry. Craftsman House (G+B Arts International), Basel. 248pp, 150 colour plates and 250 b/w photographs. £45 (hardback)

de-, dis-, ex-. Ex-cavating Modernism. Edited by Alex Coles and Richard Bentley. Black Dog Publishing, London. 114pp, b/w illustrations throughout. £9.95 (paperback)

Seeking the architecture of the new China

C.Y. Lee and Partners

The same distance from Japan as it is from the Philippines, and a bare 20 minutes by jet from the coast of China, the island of Taiwan has a curious status in the modern world. Historically part of China, it is now classed as an "economic entity" rather than a nation. Yet it possesses every feature of nationhood, not least a national architecture. The capital city Taipei, and the great southern port city of Kaohsiung have a collection of the largest and most interesting, but least well-known modern buildings in the world. Among them the massive 408-metre T&C tower, and its predecessor the brooding 222-metre Grand 50. These and other important buildings were designed by Taiwan's leading architectural practice, C.Y. Lee & Partners.

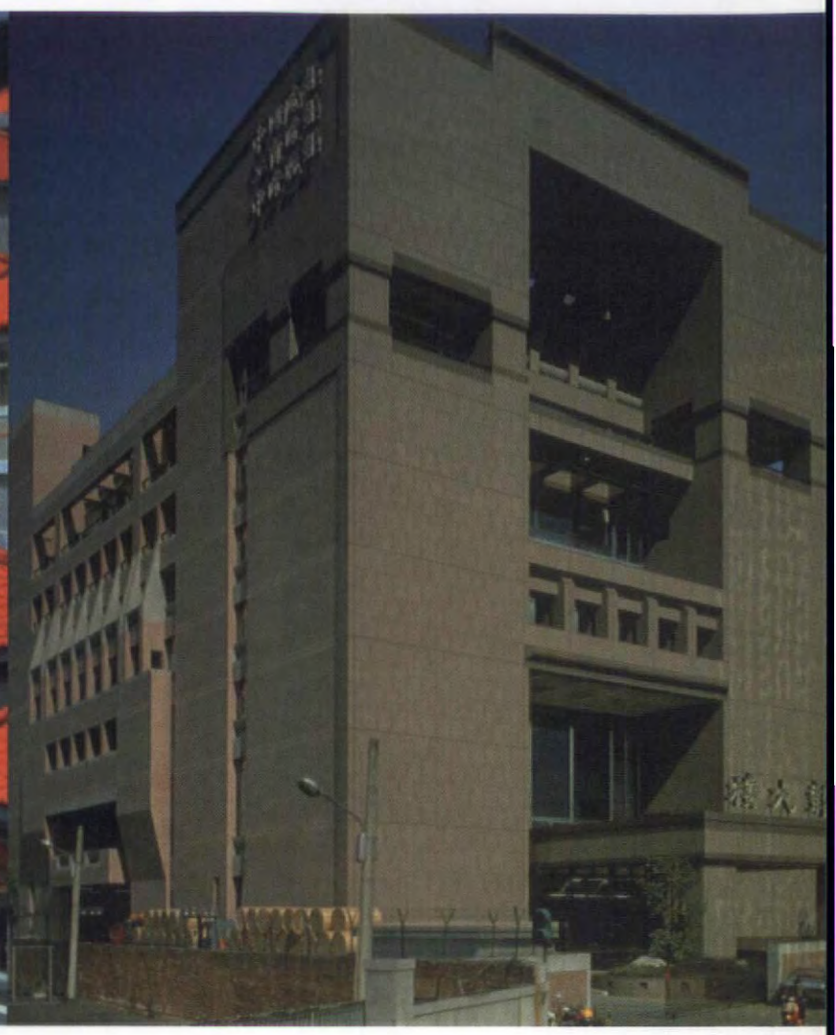
Taipei is a city of 3 million people whose collection of large modern buildings is immense, ranging from the 46-storey Hong Kong-style Shin Kong Life tower, to the traditional aesthetic of the Chiang Kai-shek Memorial Hall; but none of them looks like the Hung Kuo building. Seen from a distance it may merely seem square and low, but that is because the flight path of Sung Shan domestic airport limits the height of all buildings in Taipei's banking district to 60 metres. Move closer and the difference becomes clear. The building is not curtain walled or tiled, like most of its neighbours, instead it is clad in two-tone granite, polished and matte. Nor is it asymmetrical like most modern buildings, instead it is axially composed on every side. Furthermore it displays a traditional artifice elsewhere forgotten: lions at the entrance, a vast porch penetrating a rusticated two-storey base on its centre line, and side walls that step back as they rise behind steeply battered corners, in a way that accentuates their height. Most remarkable of all are its upper storeys, which form a massive rectangular attic that floats above flying cornices, cantilevering out to the lot line on heavy concrete hammerhead beams.

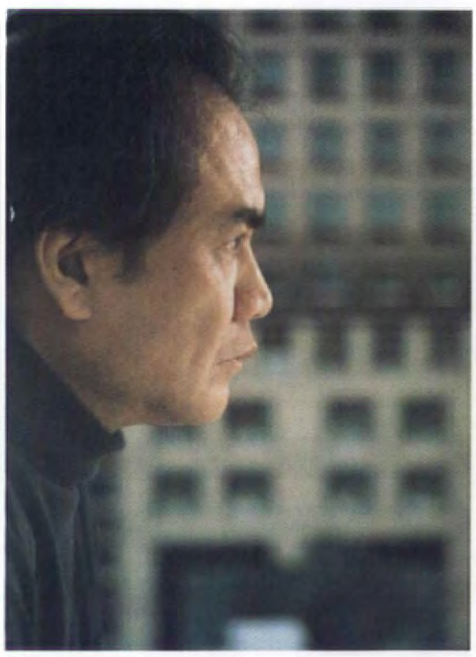
If this building is mechanomorphic, looking like a robot, as some Taiwanese say, that is only as one might see it from outside. The illusion is dispelled at once by going inside. There the immense volume of the entrance hall and the warren of tiny offices around it provide a lesson in the relationship between spatial generosity and economy that no Western architect has ever learned.

The designer of this building, Chu Yuan Lee, has his suite of offices on the eighth floor. Above are the offices of the eponymous Hung Kuo corporation, a successful development and construction company that has diversified into newspapers, banking and hotels. Hung Kuo is one of C.Y. Lee & Partners' most important clients, so it is convenient that the corporation, C.Y., and his partner Chung Ping Wang, Senior Vice President J.T. Wu, an expert in building codes, and their staff of 150 should all work in the same building. The two other C.Y. Lee vice presidents head branch offices on the Chinese mainland: James Wang in Shanghai and V.T. Wu in Beijing.

Chu Yuan Lee is slight, artistic figure. Unlike most of his staff, who wear Western clothes, he wears baggy Chinese trousers, a collarless shirt and a voluminous black woollen cardigan. He looks like anything but one of Taiwan's most successful and commercial architects, but that is what he is. The designer of the Hung Kuo building is also Taiwan's leading designer of condominiums, the creator of the Grand 50 skyscraper, and the man behind the massive T&C tower that soars 368 metres above the port of Kaohsiung

Below left *Greenland Village condominium housing complex, Taipei, 1986.* ***Below*** *Office building for Chinatimes, Taipei, 1986.*





"In the US you could smell the detergent. Everything was the way it was supposed to be. In those days Taiwan was chaos."

C.Y. Lee, senior partner, leader and mentor of the firm

in the south. Lee is a phenomenon and his business partner and his staff openly admire him. As Chung Ping Wang says, "For C.Y. the next ten years are going to be the best of his life, and I am proud to be able to help him achieve his ambitions."

C.Y. Lee was born in Guangdong, China, in 1938. He was brought to Taiwan by his parents in 1949 as part of the massive influx of more than 1.5 million followers of the nationalist leader General Chiang Kai-shek. During Lee's youth Taiwan was a perilous place, dependent on the Cold War balance of power between Mao Tse-tung's People's Republic of China and the United States. Later, as time passed, the island's enterprise economy began to succeed where the mainland's command economy failed. Against all probability the island remained independent and prospered, diversifying swiftly from heavy industry into transportation, advanced technology electronics

Opposite page *Concord Plaza in Shanghai, is a 68-storey commercial building. The glass tower supports a dish, in the form of a Lotus flower, which contains a restaurant. The development is due for completion in 2002*

and computing. By this means Taiwan's Gross National Product rose from US$1.5 billion in 1953 to US$263 billion in 1995. Less than half the size of Ireland, but with a population of 23 million, the island was exporting US$90 billion in goods and services by the early 1990s – more than the value of all the exports from mainland China.

But economic success is not the whole story of Taiwan. Its future is overshadowed by its problematic relations with the mainland. Even though the two Chinas are developing increasingly strong trade links, there are still no direct flights between them. At the beginning of 1997 only 29 minor nations accorded diplomatic recognition to Taipei, while 158 major nations, including the United States, recognised the People's Republic in Beijing. Neither a sovereign state nor an offshore island, Taiwan prospers in limbo: an economic entity that occupies no international space.

"When I arrived in the 1970s, downtown Saint Louis looked like hell, but that was where the Chinese food store was."

C.P. Wang, senior partner and general manager

The vicissitudes in the relationship between the two Chinas are a leitmotif of life in Taiwan, a strange interplay of affinity, proximity and enmity in which, surprisingly, architecture has begun to play an important part. In Taiwan and China too architecture has become a language that mediates between separate political systems with a common cultural root. The quest for an authentic fusion of modern functional design with Chinese cultural traditions lies at the heart of the problem. For C.Y. Lee & Partners this quest is the core of their work and their continued explorations.

For Chu Yuan Lee, as for most of the architects of the Asia Pacific region, the most formative country has been the United States. Of the 1,000 or so substantial design firms in Taiwan today, virtually every one is headed by architects who have studied or worked in America. Lee himself is typical in this regard. He began his studies at Tainan's Cheng Kung University in the 1950s, gaining his Bachelor of Science in architectural engineering in 1961. Then he made his way to the United States and lived and worked there for most of the next 14 years.

Lee arrived in San Francisco in the summer of 1964 and travelled to New York City on his way to Princeton University to begin his graduate studies. He was overwhelmed by what he saw of the wealth and efficiency of North American civilization.

"Everything was organised and advanced," he remembers. "You could smell the detergent, everything was the way it was supposed to be. In those days Taiwan was chaos by comparison."

After receiving his Masters degree at Princeton, Lee worked with a series of American firms of architects, learning as much as he could about the design and construction of modern American commercial buildings. At the end of the 1960s, when he briefly returned to Taiwan as a visiting professor at Tunghai University, he met his future business partner Chung Ping Wang who was a student there. Also a mainlander, but ten years younger than Lee, Wang too took his first degree in architecture in Taiwan and then left for the United States, reading for a Masters degree at Washington University, Saint Louis from 1971 to 1973. His first impressions of America were more mixed than those of Lee.

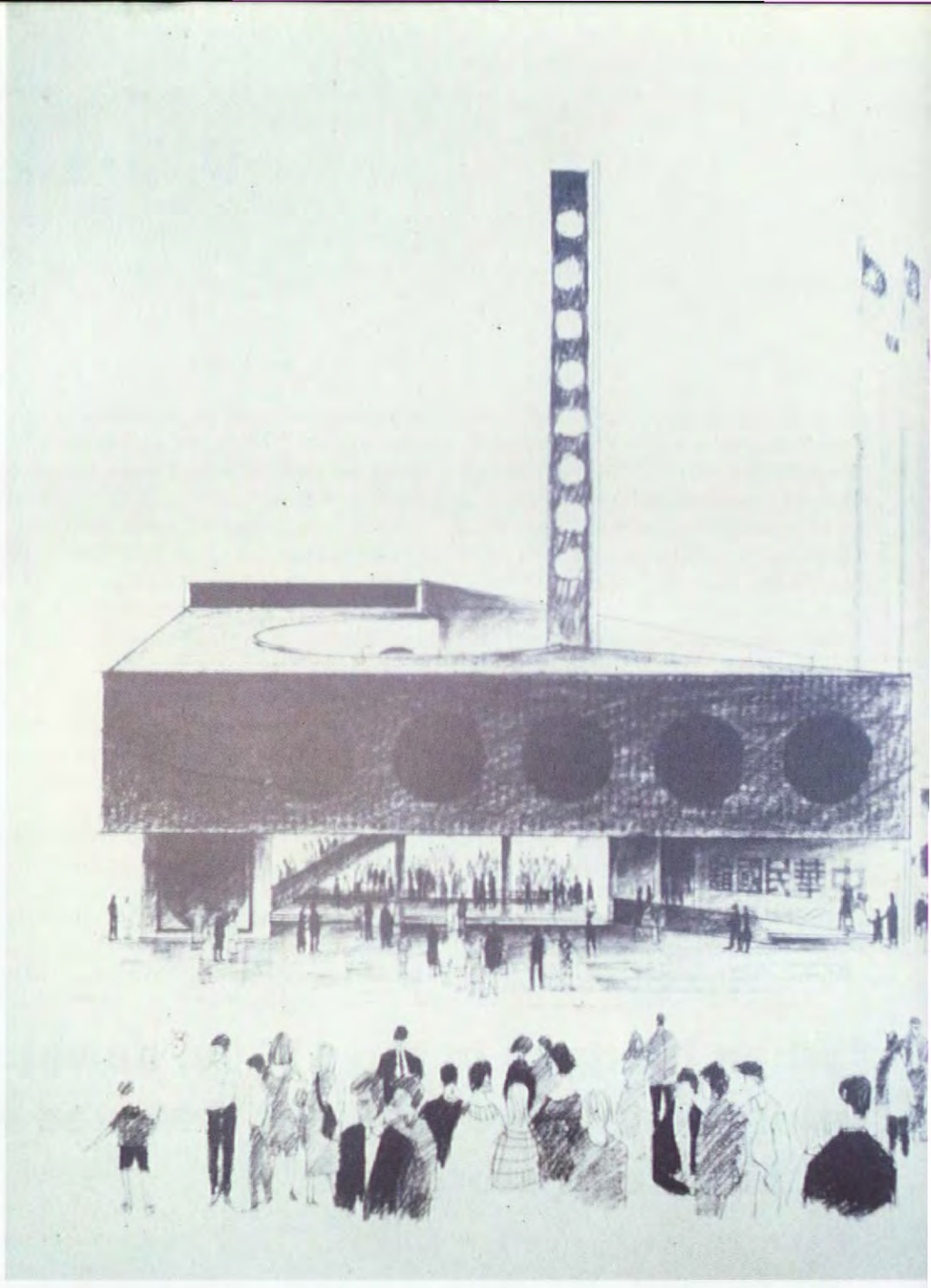
"The landscape of the Mid-West was huge with enormous flat fields and no hills, I had never seen anything like it before. But Saint Louis was different. When I arrived in the 1970s, downtown Saint Louis was derelict, it looked like hell to me, but it was where the Chinese food store was so I had to go there."

Lee's first commission on his return to Taiwan in 1978 was a development called Asia World Plaza. It came about because a group of investors wanted to build the largest private sector project ever seen in Taipei, a 140,000-square-metre mixed-use development comprising a department store and an 800-bedroom hotel. The design and construction of this US$23 million project occupied Lee and a rapidly recruited staff of assistants for nearly five years, the fees underwriting the marketing of the new firm, and the finished result acting as the foundation for the reputation of the firm of C.Y. Lee & Partners, Architects and Planners.

Today Lee sees Asia World Plaza as the starting point in his own quest for an authentic Chinese architecture, principally because it is an almost perfect example of American influenced design. Fresh from a leading design office on the American West Coast, his scheme for the hotel was a state-of-the-art American project. A complex of bold and simple forms, whose strong and vigorous external character was enhanced by powerful horizontal bands. Internally the geometrical purity and unexpected vastness of the hotel atrium carried other associations that led back to the geometrical purity of the progenitors of the American revolution.

"Asia World was an air-conditioned one-piece sculpture in reinforced concrete," he reflects today. "For a hotel the material would not be acceptable now. Even then I wanted to clad it in metal, but in the end we had to settle for dark mosaic tiles instead. Also the huge circular plan created problems. It meant that every room in the hotel was an irregular shape and that cost money and time in fitting out.

"The most interesting thing about it to me now is something that I did not see in it before. Something that is not Western about part of the department store. The curved wall where it faces the street is not semicircular or angular, it is a strange shape, a flattened ellipse. There is something very Chinese about that. It is a worn-down shape. A shape created by use. If a Japanese architect had done it, it



Right *1969 competition-winning design by Atelier Cambridge, which included C.Y. Lee, for the Republic of China Pavilion at Expo '70, Osaka. The project was not executed*

Opposite page top and centre *Two views of the exhibition of ten years of work by C.Y. Lee & Partners held at the City Museum of Taipei in 1989, the largest architecture exhibition ever held there. The exhibition toured five major cities in mainland China in 1993*

Opposite bottom *An eloquent expression of Buddhist belief. The Zen Temple at Puli village in Nanto County, central Taiwan, currently under construction. The grassed over steps are cut into the gently sloping hillside*

might be a sharp angle. If an American had done it, it would have been a quadrant. The department store at Asia World is a very Chinese shape."

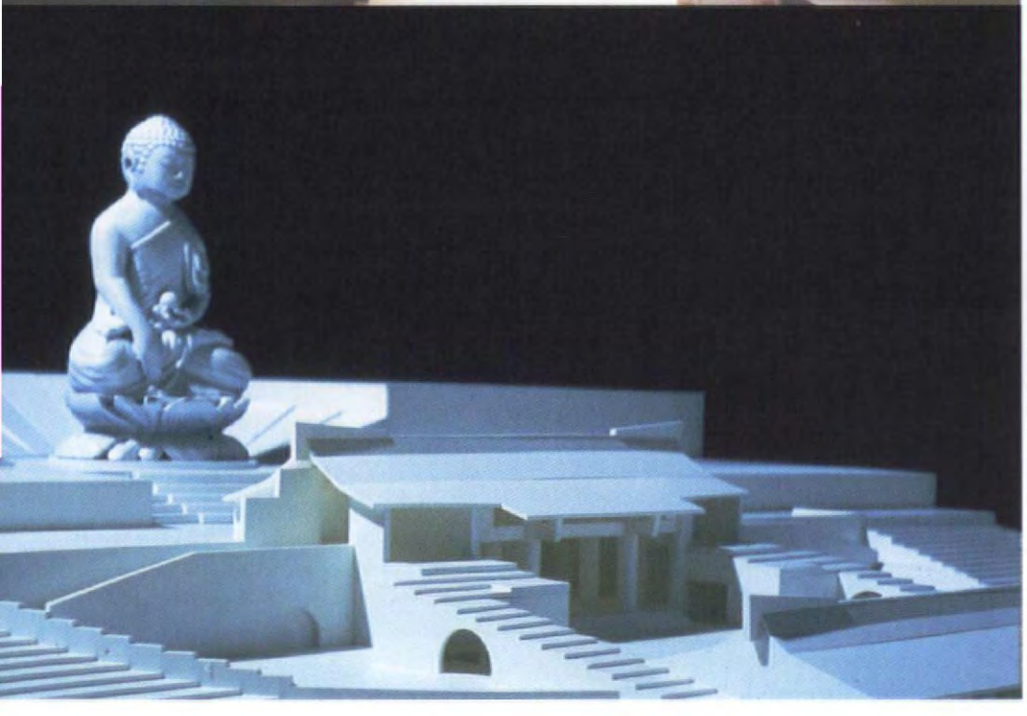
Lee's fascination with the combination of Chinese tradition and modern design may have begun subliminally in this way, but it progressed overtly after the permanent establishment of his office, taking the form of a growing interest in Chinese culture and a more critical evaluation of the Western approach to design he had absorbed during his American years. Throughout the 1980s he immersed himself in Buddhist teachings and studied his own Chinese heritage, Taoism, the writings of Confucius, art, history and philosophy. He learned t'ai-chi, and began to instruct the junior members of his growing staff, providing a new ideological leadership and purpose.

Chung Ping Wang, who joined him as a partner in the early days of Asia World, and nowadays acts as the firm's general manager, spending more than half his time taking care of the administrative and financial side of the business, pays particular tribute to the role of Lee as motivator and design leader during the period leading up to the opening of branch offices on the Chinese mainland in Shanghai and Beijing. That was a period when the Taipei office expanded rapidly from 7 to 150 staff, then peaked at 200 in 1992; it was a time when 16-hour days were the norm for weeks on end.

"In those days we were completely client-driven," Chung Ping Wang recalls. "As the property market rose, the developers pushed the schedule harder and harder. When we asked for a month they said three weeks. When we asked for a week they said tomorrow. It was C.Y. who saw beyond this to the central issue of our work, which was to find a correct expression of Chinese culture in modern architecture. To this end he initiated the idea of the exhibition of our work that was held at the Taipei Museum of Art in 1989, the largest architectural exhibition ever held there. The exhibition later travelled to mainland China and toured five major cities."

The expression of Chinese culture in modern architecture is a good collective description of the best of C.Y. Lee's buildings of the last ten years. It covers an enormous variety of structures: the Mercury office building of 1986, the Fubon Ming-Shang bank, and the Ta-an public housing project of 1987 with its traditional Chinese "horseback" skyline; also the Tong Lung group headquarters building in Taichung, a perfect American-style flush-glazed commercial building – except for the massive metal-clad Lotus flower on its roof. Perhaps most different of all is the Falin Buddhist temple at Taitung, a beautifully landscaped project with grass steps rising to a giant statue overlooking a lake and mountains.

Of all these exploratory buildings, the most radical, as well as the most expensive, was the Hung Kuo headquarters, completed in 1989.

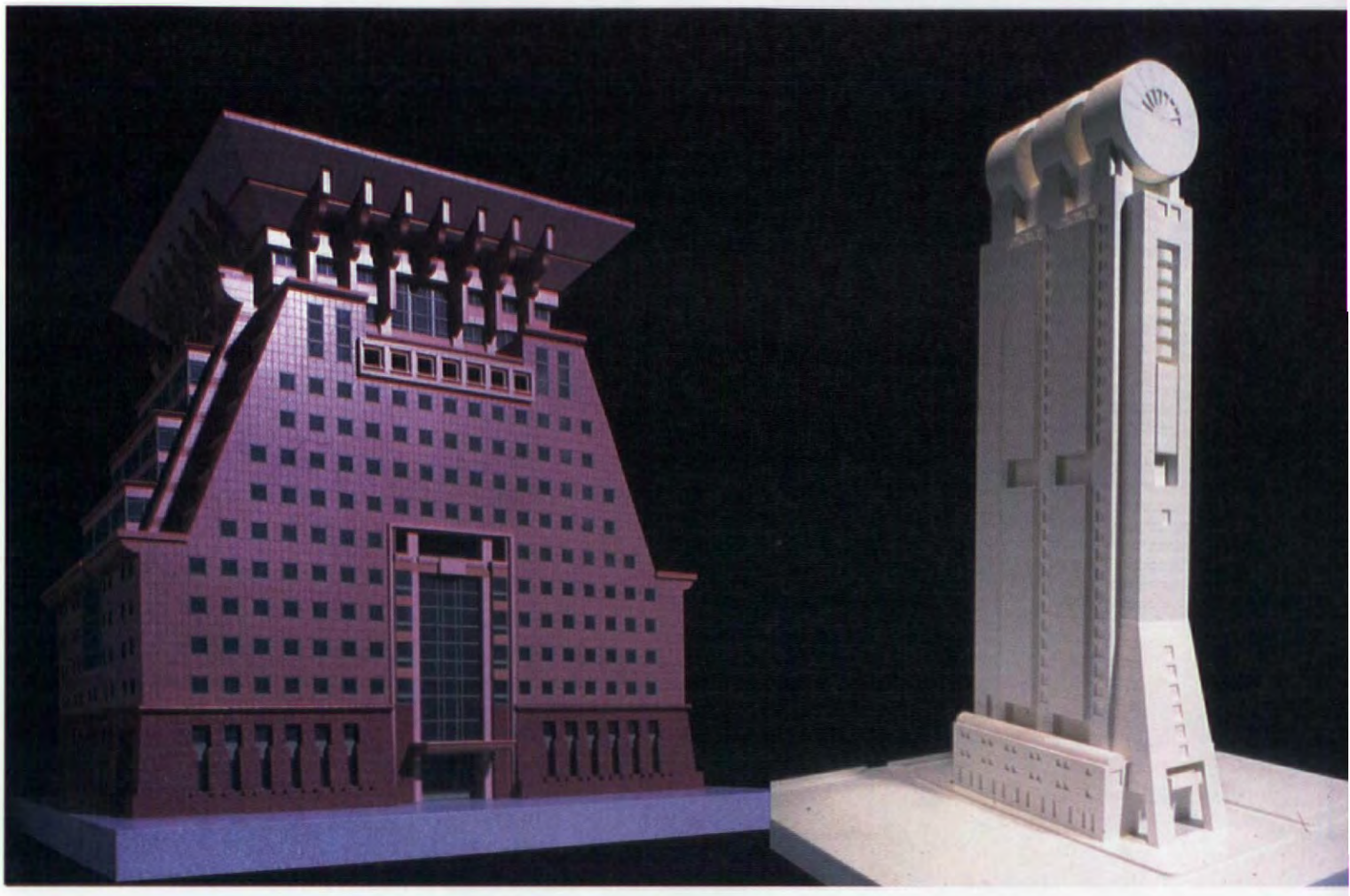


More than any of Lee's designs it embodies the paradox that lies at the heart of the idea of combining the modern with the traditional. Externally it evades the straitjacket of conventional Western office building, but it does so without returning slavishly to traditional forms: internally it exploits the shocking contrast between its vast columniated marble entrance hall and grand lift lobbies, and its densely-packed office floors with their low floor to ceiling heights.

So radical is the departure from the conventional net-to-gross rules of office design at Hung Kuo that the visitor at first suspects that the expensive materials and high quality finishes used in the large proportion of the building's volume devoted to public areas, coupled with the loss of net usable floorspace incurred by setbacks, terraces and double-height spaces, must have involved a huge cost penalty. But this is not the case. Considered very expensive in 1989, the building attracts premium rents that more than compensate.

Lee himself does not see the success of this building in economic terms. For him the unique balance of public space and office space at Hung Kuo was achieved by an analysis of space and form at a cultural level. It was the fruit of his long search for architectural inspiration at the heart of Chinese philosophy, in the teachings of Confucius and Tao. There he found two different concepts of space – unconditioned space, which permits personal freedom by not being programmed for any particular use, and conditioned space, which is dedicated to specific purposes. To dwell entirely in conditioned space is to be imprisoned: to dwell entirely in unconditioned space would be a kind of paradise. By treating office floorspace as conditioned space, and public areas as unconditioned space, Lee translated this formula into architecture.

"Following this line of thought," he explains today, "I naturally saw that the more unconditioned space there was, the better the building would be. I made the triple-height entrance lobby immense, with columns like a forest, while the 'conditioned' offices are small, like machines. The benefit comes from the contrast experienced in moving from one to the other inside the building. Hung Kuo is an experimental combination of East and West, with everything exaggerated to make the issues clear. Its economic success is not really mysterious.



What the tenants are paying for is volume, not floorspace, and provided it has the proper unconditioned identity, volume is no less marketable than floorspace."

Despite Lee's disclaimer, the fact that his daring departure at Hung Kuo passed the test of marketability has clearly been important. This can be seen in the way that its basic design has been adapted for the architect's first building on the Chinese mainland, the 15-storey Newland Headquarters office building in Beijing, which is nearing completion under the supervision of C.Y. Lee & Partners' 10-strong Beijing office. It can also be seen in the unprecedented scale of the Taiwan projects that followed.

The Southern Taiwanese city of Kaohsiung, which boasts Taiwan's newest international airport as well as the largest seaborne container port in South East Asia, is a place of great economic significance. The Taiwanese government plans to turn the city into a regional operations centre for air and sea transport, a role that will massively increase in importance the moment the authorities in Beijing permit direct flights between Taiwan and the mainland. Much infrastructural investment has been made in preparation for this eventuality, with the Taiwanese construction industry steadily increasing the quantity of first class hotel, office and retail floorspace in the city. It was in this connection the Chang-ku construction corporation, one of C.Y. Lee & Partners' major clients, commissioned the architects to design an office building there.

Lee's reaction to this commission was to use it as a means to explore the idea of a uniquely Chinese skyscraper form. Originally the building was to have been a modest 20 storeys high. Lee seized upon the high-rise issue and argued that it should be taller.

"The history of the skyscraper is the history of the monument," he explains. "You can trace it from the ancient Egyptian obelisk right up to the television transmission tower, even to the space rocket on its launch pad. Tall element equals monument. And the purpose of a monument is to establish an identity, to express who you are and the total sum of your culture. When I came to design the Kaohsiung tower I wanted to experiment with the idea of a really tall building, a world building. Because of Kaohsiung's good economic prospects the client was prepared to double the height of the tower, then to go beyond that. The building was going to be the Kaohsiung World Trade Centre, so we took it up to 50 storeys. Then it became an experiment for everyone, for the owner, the architect, the contractor and the sub-contractors. We needed to explore super high-rise construction in Taiwan. We all wanted to learn from it, to learn how the construction industry could develop in the future, to move from the scale of national development to the scale of world development."

From the outset Lee determined that his 50-storey tower would not be dominated by its engineering structure, even though it was a formidable engineering challenge to T.Y. Lin, his structural engineer. A steel frame building with 30mm granite cladding from top to bottom, he wanted it to have the architectural and symbolic qualities of William van Alen's Chrysler building, or Helmut Jahn's Messeturm, where engineering is clearly subordinated to art. Early on he resolved that the traditional Chinese principles of proportion would apply, even at this heroic scale. As a result there are strong projecting cornice lines at 25th, 35th and 45th levels, together with a huge "head" soaring above the building's torso. These features increased costs, but the cornices are claimed to break up vertical air currents that would otherwise create unpleasant downdraughts at the base. The head itself is a large cantilevered structure supported by giant consoles. It contains a restaurant and viewing galleries.

The Grand 50, as Lee's building is now called, was completed in 1992 in a shell and

Opposite page left *The first transmigration of C.Y. Lee's "inclusive" architecture to mainland China. The Beijing Newland headquarters office building, currently nearing completion.* ***Opposite right*** *Tun-Hua South Road office tower, Taipei. A current project for an office building topped by "auspicious emblems" in the form of giant Chinese coins.* ***Left*** *The Lotus housing development, Taipei County. Currently under construction*

"Condominiums by C.Y. Lee? We can sell those."

core format at a cost of US$140 million. The night it was opened it was floodlit from top to bottom and the people of Kaohsiung celebrated their possession of the tallest building in the country. In truth it is like no other skyscraper in the world. Separated by a considerable distance from Kaohsiung's other tall buildings, it can be seen for miles, brownish grey as the fighting top of a battleship, looming over the urban sprawl of the industrial city. Close to, the single windows and granite cladding give it an extraordinary quality of secrecy. Inside, the entrance hall is proportionally much smaller than that of the Hung Kuo building and much of the space is taken up by escalators, but larger volumes can only be found at the elevator interchange levels higher up the building.

If the Grand 50 is a skyscraper whose engineering is dominated by its architecture, its successor, Kaohsiung's US$400 million T&C Tower, already topped out at 85-storeys in the heart of the city's financial district near the docks, is a move forward into a new age of experiment. The largest mixed-use building ever built in Taiwan, it boasts a floor area of more than 300,000 square metres including a 5-storey basement and a 12-storey retail and entertainment podium. Above the 12th level are legs in the form of twin 36-storey office blocks that rise to a multi-storey bridge at half the height of the building. Above this is a 36-storey hotel tower rising on the central axis. A composite steel and reinforced concrete structure designed again by structural engineer T.Y. Lin, the building has no pilings, resting instead upon a vast 60,000-square-metre structural basement. In order to reduce its superstructure weight it is only clad in granite up to its 12th storey, elsewhere glass cladding is used with panels of granite on all sides of the single tower above the 35th floor. Above this level too are "auspicious emblems" of the kind seen at a much smaller scale on the Tong Lung building seven years ago. Cloud walls and Lotus flowers of enormous size decorate the roofs of the T&C tower, giving it a distinctive identity from a great distance, despite the cluster of 35- and 45-storey towers that are already going up around it.

The opening up of the Chinese mainland represents the greatest challenge and opportunity for C.Y. Lee & Partners in the future. With their major clients beginning to move into the Chinese property market, and with their own branch offices already established in China – V.T. Wu and his team of ten in Beijing, and James Wang with another ten in Shanghai – the firm has half a dozen projects already under construction in Chinese cities. These include the Newland office building in Beijing; the 45,000-square-metre Tenjing telecommunications tower; the mammoth 230,000-square-metre Shanghai Concord Plaza and the 125,000-square-metre Yuda World Trade Centre. Today Chu Yuan Lee and Chung Ping Wang are hopeful that the concept of an authentic Chinese architecture expressed in these buildings – together with dramatic examples of their recent work in Taiwan – will lead to even larger commissions there.

Ever since his own first visit to the mainland in 1989, accompanied by his Zen grand master on a study tour of Buddhist temples, Lee has understood that the task of rebuilding China will be the greatest architectural task of the twenty-first century. His own contribution so far has been his search for an authentic fusion of modern and traditional forms to give a fresh identity to this work.

Because China occupies a central strategic position in the continent of Asia, where more than half the population of the world lives, and because China has a larger population than any other country, success in this search will not be unimportant. As C.Y. Lee says: "If you can meaningfully address the problem of architectural identity for China, a country with 25 percent of the world's population, you can solve one of the great architectural problems of the world." **WA**

Projects

Opposite page and right *Thought by many to be the first authentic Chinese skyscraper, the Grand 50 was originally intended to be only 20 storeys high.* ***Below*** *Standards of finish are high, both internally and externally*

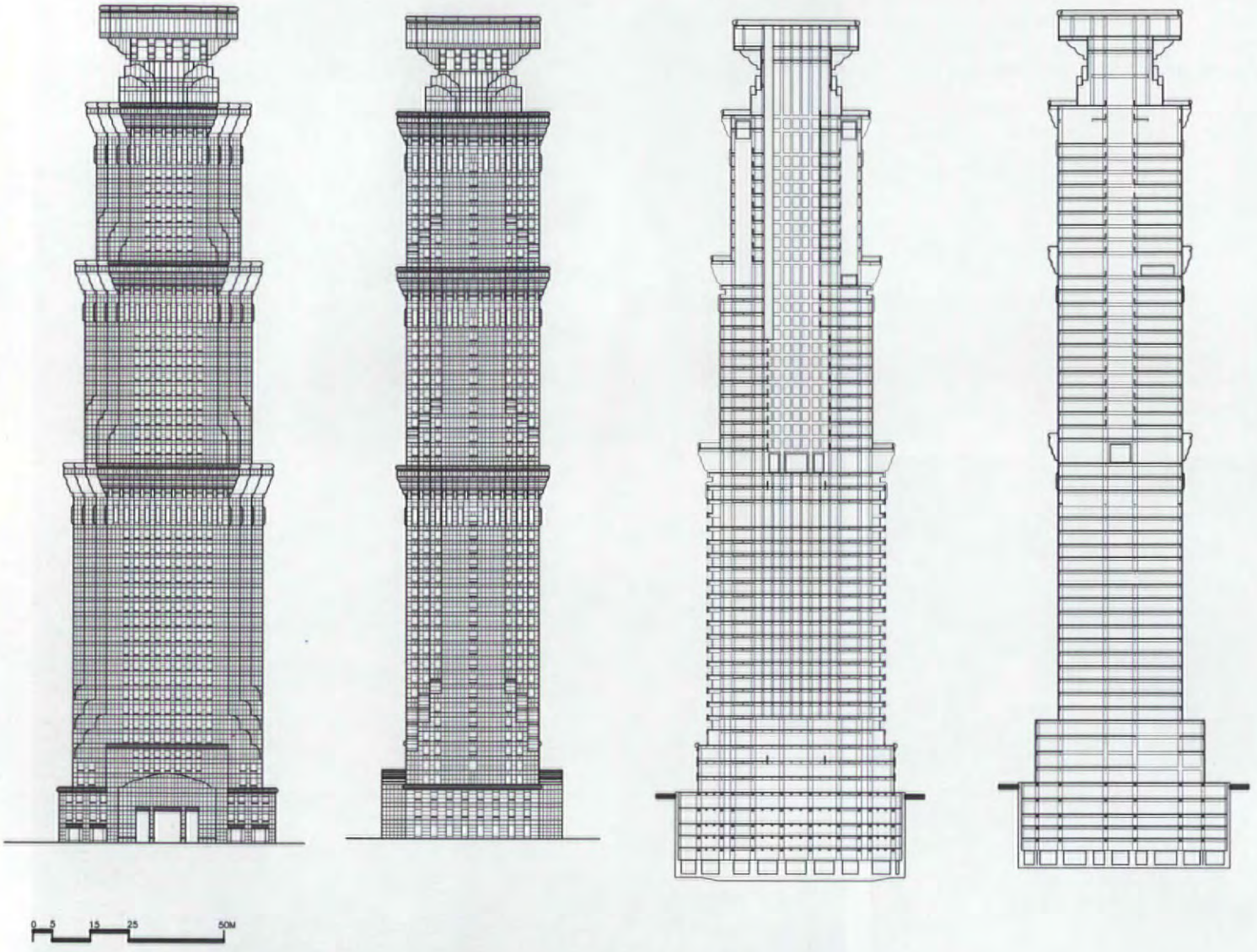
Grand 50 office building

Originally intended to be a 20-storey office building in Kaohsiung for the Chang Ku group of companies, the design for the Grand 50 was progressively developed to its present height in the late 1980s when developments in the Pacific region made it clear that Taiwanese architects, developers and construction companies needed to establish their ability to build so called "world buildings" in addition to structures of local size. Inspired by the example of the heavily decorated 1931 Chrysler building in New York City, C.Y. Lee resolved to have the building's architectural design dominate the engineering feat that is always central to such pioneering structures. In this way he was able to create what many consider to be the first authentic Chinese skyscraper.

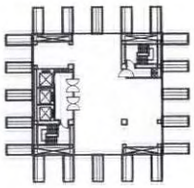
It is because of its architecture that the Grand 50 clearly differentiates itself from the glass-clad, steel-frame, geometrical American towers which have, until recently, been the model for super-high buildings all over the world. With the aid of structural engineer T.Y. Lin, Lee was able to produce a modern, air-conditioned, IT-equipped building that successfully combined the elements of traditional Chinese architecture with Western technology. The Grand 50 is a steel-framed, stepped tower, clad from top to bottom in 30mm granite tiles with recessed single windows rather than glass walls. The building's pronounced cantilevered cornice projections and corner set-backs at levels 25, 35 and 45 not only give it a unique "battleship" silhouette from a distance, but break up incipient wind vortices which might otherwise become too powerful at street level. The tower itself is capped with a large summit structure that rests on giant consoles. This feature contains an omnidirectional observation deck and restaurant, providing unrivalled views of the city from a height of 222 metres.

Given its relatively small 4,000-square-metre site, the Grand 50's total floor area of 83,000 square metres is indicative of the unlimited plot ratios permitted in the port city of Kaohsiung. One of the most remarkable and little-known skyscrapers ever built, the Grand 50 is located on a site some distance from the centre of the city in an area scheduled for further private sector redevelopment. The construction cost of the project was US$140 million.

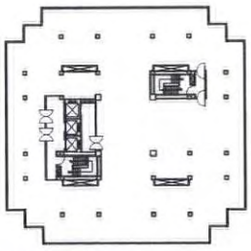
Date: 1992



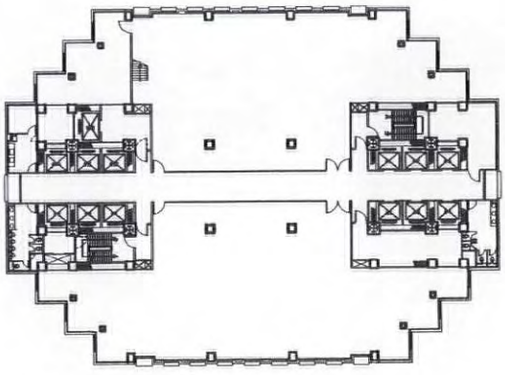
Left and opposite page right *The cantilevered cornice projections and corner set-backs break up incipient wind vortices which might otherwise become too powerful at street level. The "bowl" on top of the building contains a viewing platform and restaurant.* ***Above, left to right*** *Front elevation, side elevation, longitudinal section and transverse section*



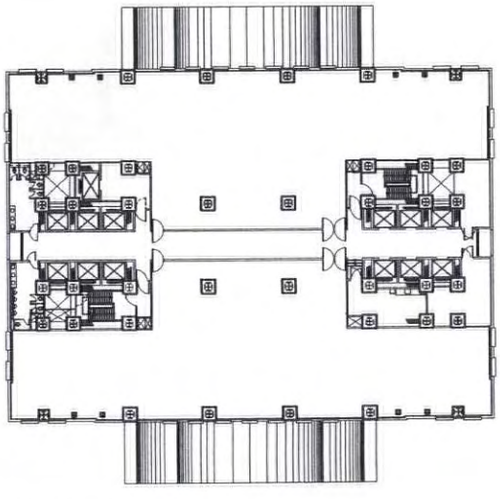
49th floor plan



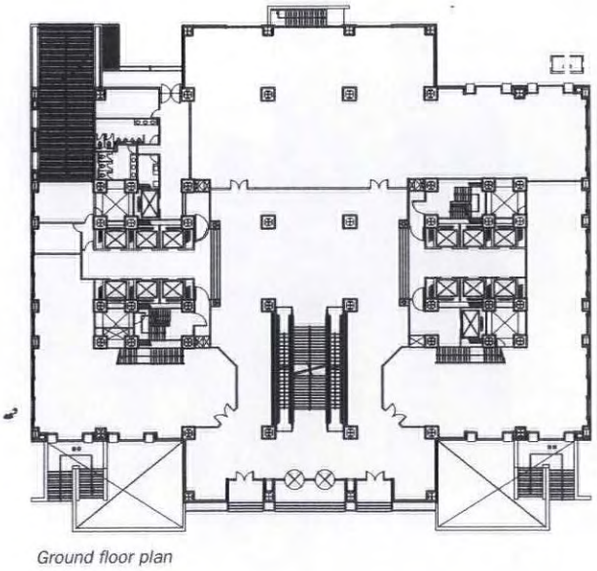
50th floor plan



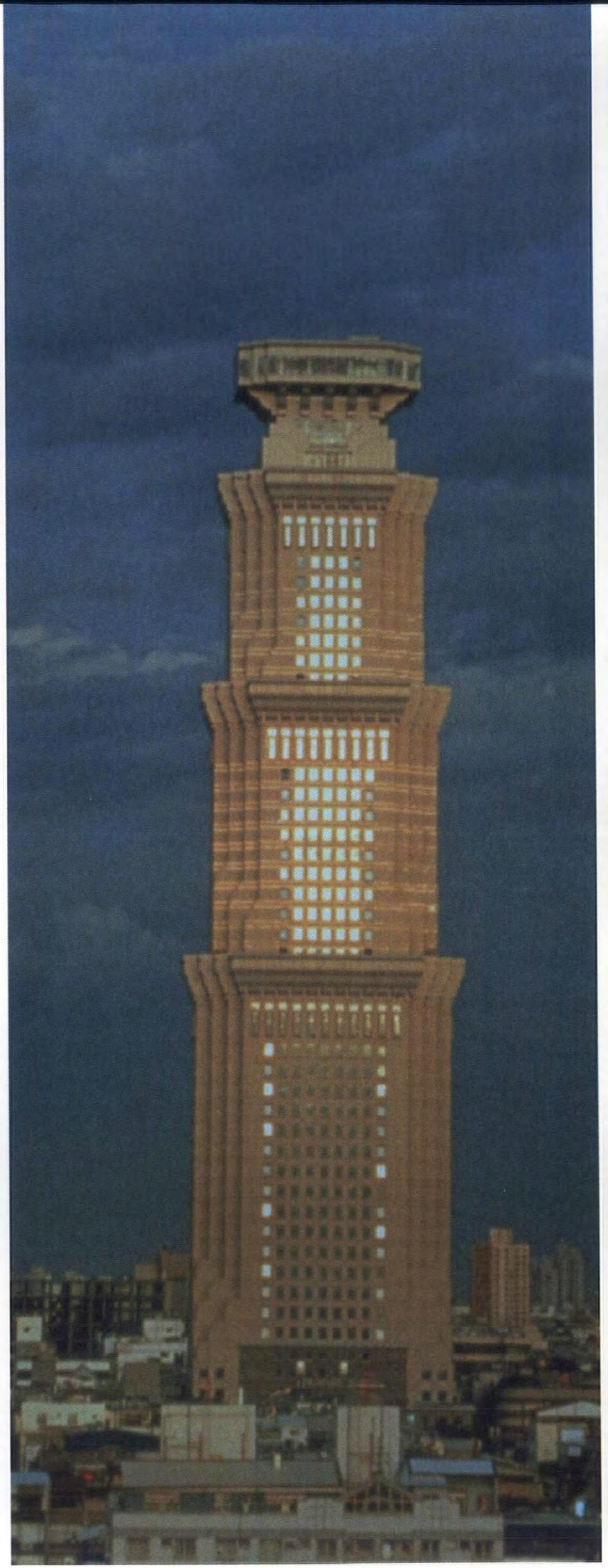
20th floor plan



Fifth floor plan



Ground floor plan



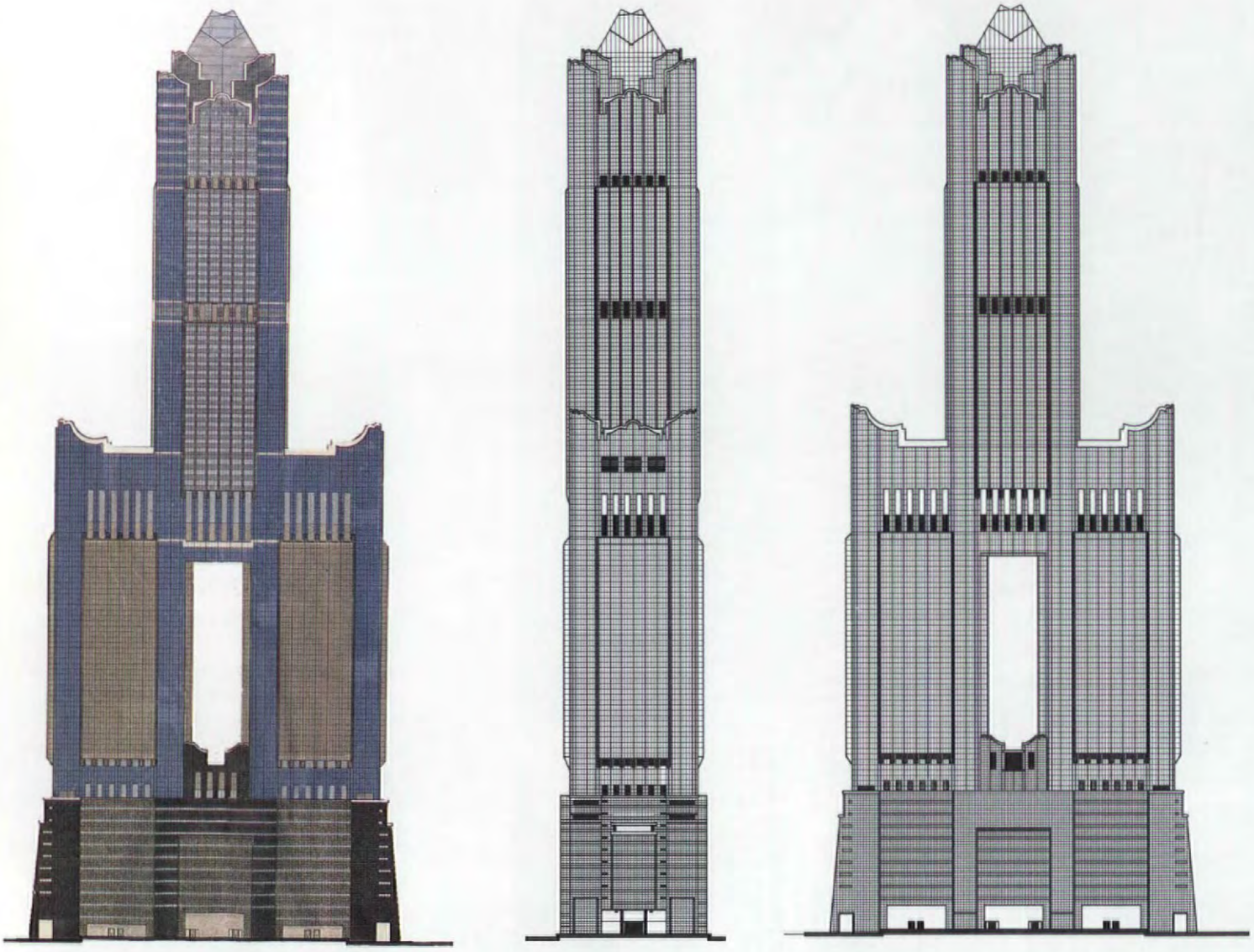
Opposite page and left *The 408-metre tower dominates the Kaohsiung city skyline. The unique bipod structure of the building enables it to better withstand severe typhoon wind loadings and gives a memorable profile*

T&C Tower

The successor to the Grand 50 is the T&C (Tuntex and Chientai) building, an 85-storey mixed-use skyscraper now nearing completion in the central business district of Kaohsiung adjacent to the largest port in the country. C.Y. Lee & Partners won the commission to design it in a limited competition held in 1986.

When completed in 1998, its 368-metre central tower will dominate the skyline of the city, symbolising the increasing importance of the port to Taiwan and the trade and commerce of the whole Pacific region. The original competition scheme for the T&C Tower took the form of a single tapering tower rising to only 72 storeys. Subsequently a "stretched" version of the design was proposed to rise to 95 storeys, and this version would have been the fourth tallest building in the world had it been completed when it was proposed in the late 1980s. After further design changes the version under construction today is ten storeys lower but features an unique bipod structure supporting a central tower above a perforated torso.

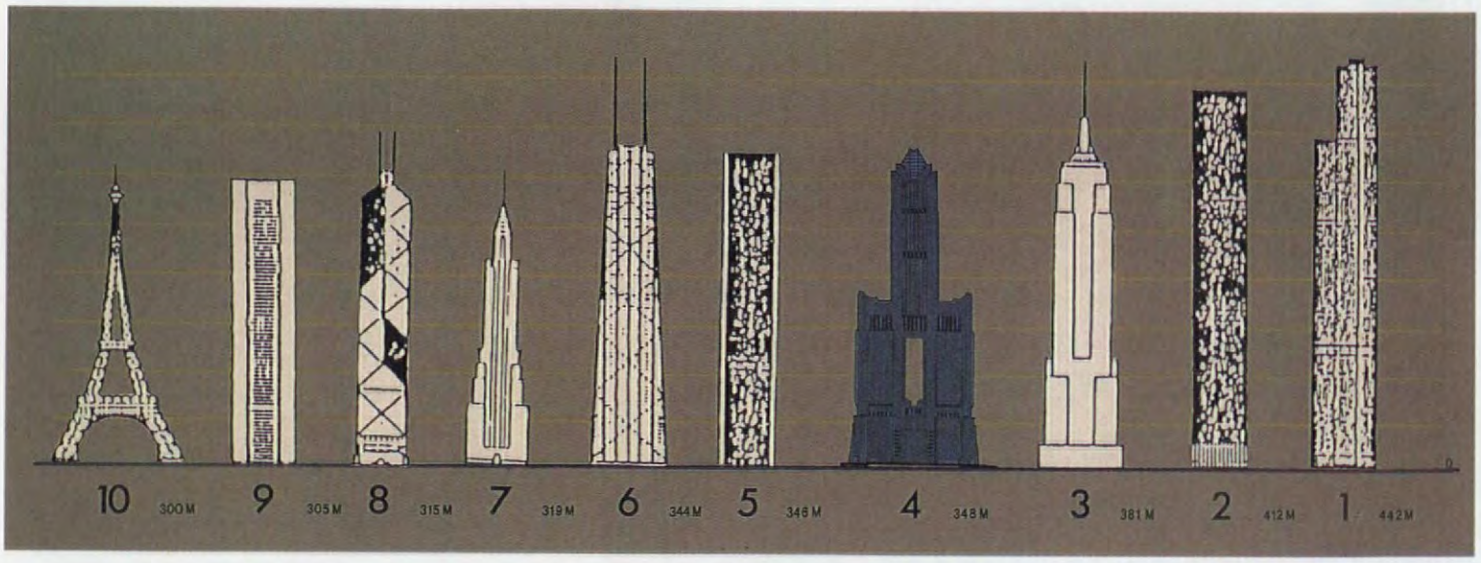
As with the Grand 50, the task of designing and building this huge structure was commissioned by the clients in order to gain experience of super-high building construction for the future. It was undertaken as a joint venture by the Tuntex development corporation of Taipei and the Chientai Cement company. Structural design of the T&C building was by T.Y. Lin, the engineer responsible for the earlier Grand 50. His chief innovation in this case is the excavation of a massive five-storey, 6,000-square-metre reinforced concrete basement with a displacement equal to the building's weight so that no piling is required to support the central tower, even though its ratio of height to base is an unprecedented 6:1. Further stability is ensured by the installation of twin movement dampers near the top of the central tower itself.

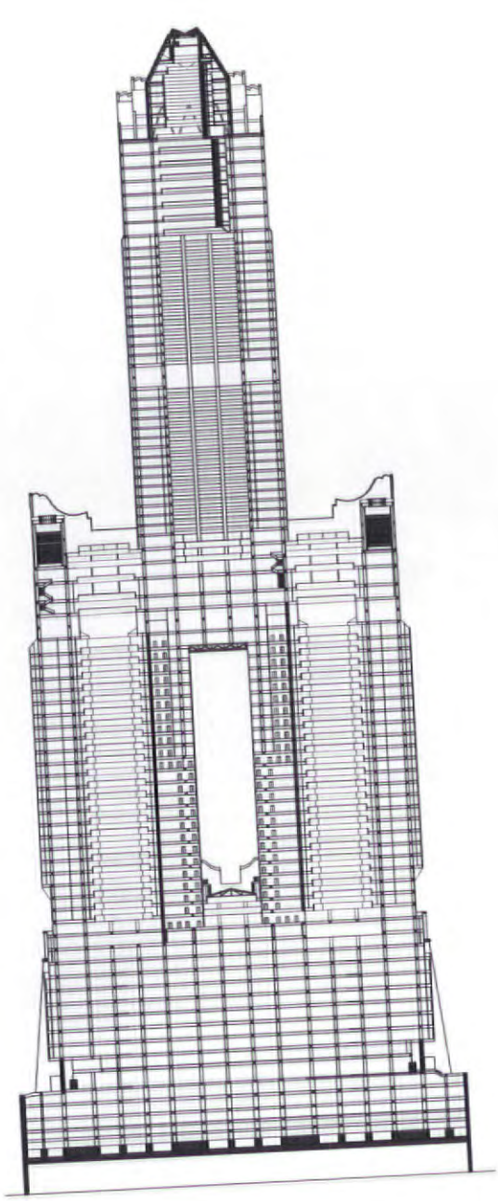


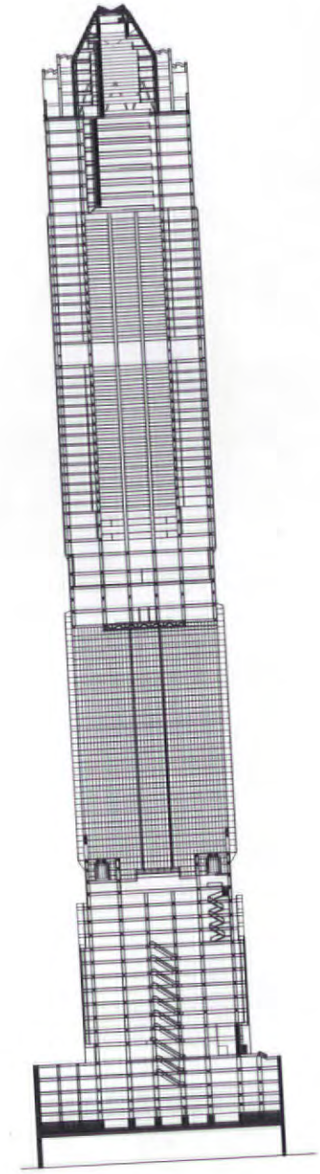
Above from left *Colour rendering of east elevation, north elevation, east elevation, overall building section, cross section*

Below *How the T&C tower compares to some of the world's tallest buildings:*

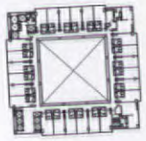
1 *Sears Tower – 443m*
2 *World Trade Center North – 412m*
3 *Empire State Building – 381m*
4 *T&C Tower – 368m*
5 *Standard Oil Building – 346m*
6 *John Hancock Tower – 344m*
7 *Chrysler Building – 319m*
8 *Bank of China Building – 315m*
9 *Texas Commerce – 305m*
10 *Eiffel Tower – 300m*



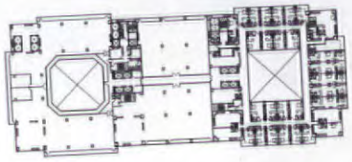




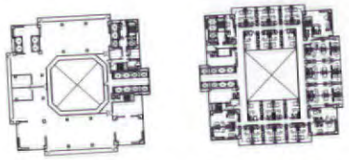
72nd-75th floor plan



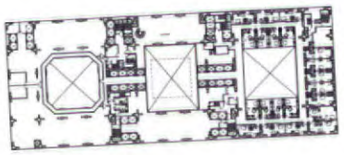
45th-56th floor plan



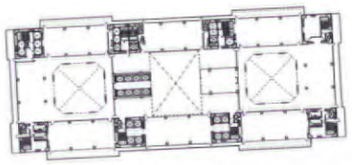
35th floor plan



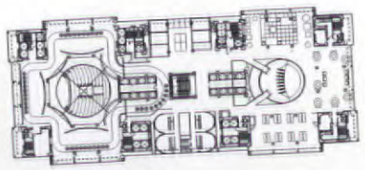
18th-23rd floor plan



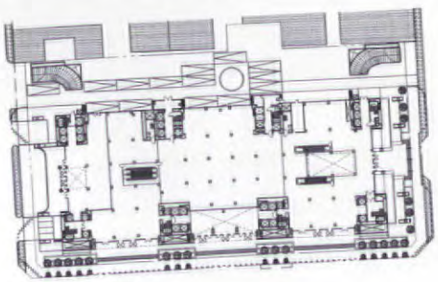
13th floor plan



12th floor plan



11th floor plan

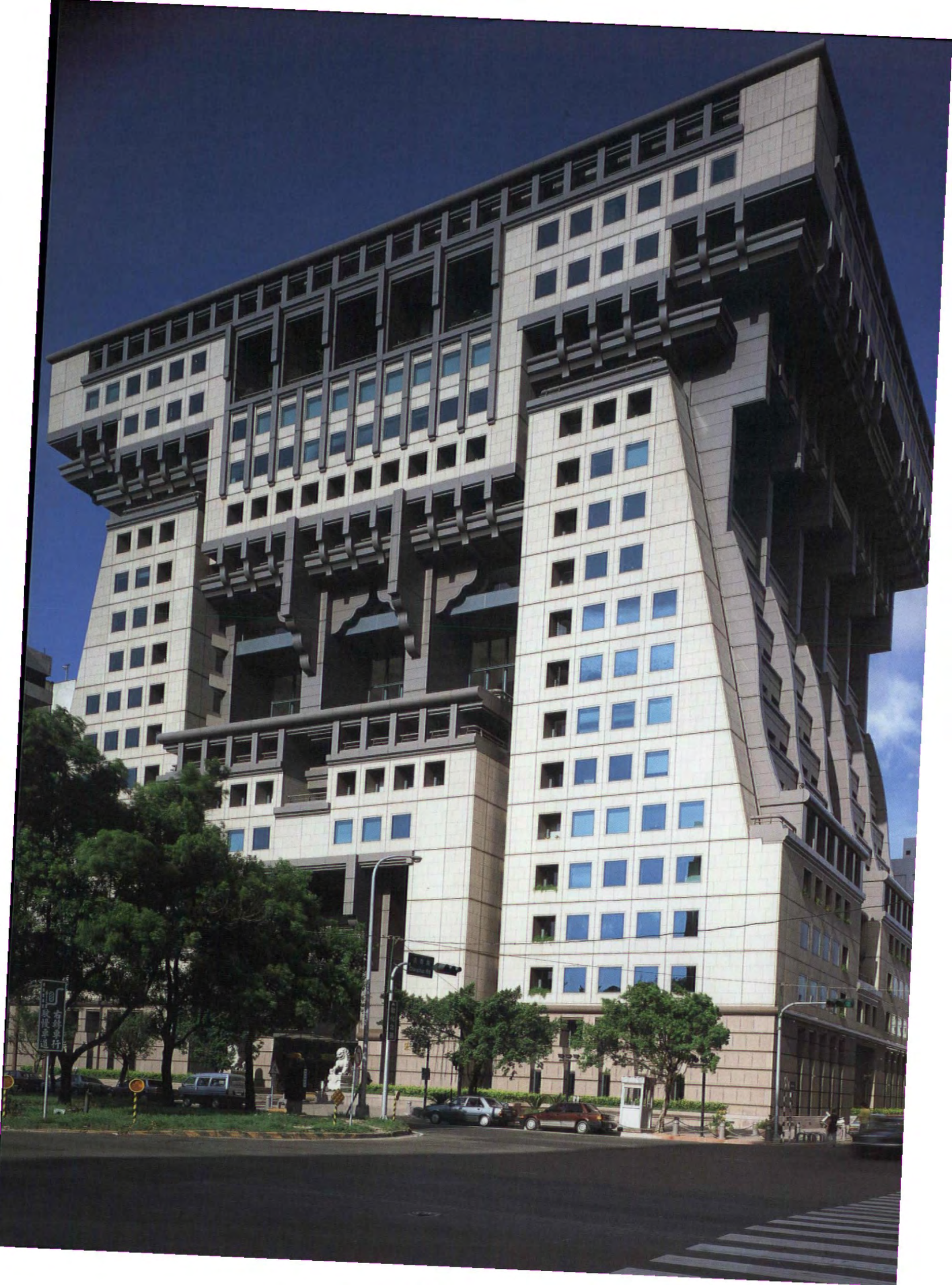


Ground floor plan

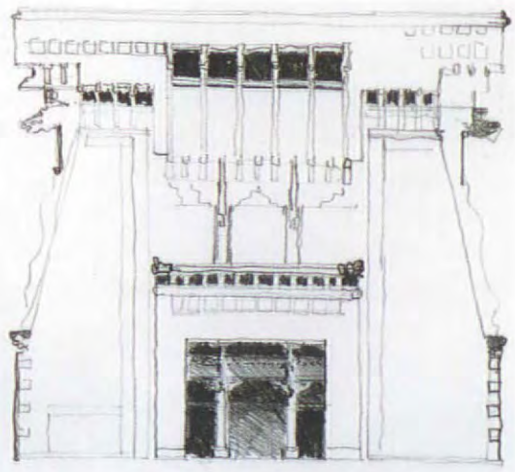
The basement levels beneath the building incorporate car parking for 2,000 cars while a massive retail and entertainment complex occupies the podium from street level to level 12. Above the 12th floor twin 20-storey office towers rise on either side of an immense central aperture designed to help the building to withstand typhoon wind loadings. Above level 32 a central hotel tower comprising another 60 storeys rises to 380 metres and is then topped by a three-storey observation deck and restaurant. The total floor area of the building is 306,337 square metres, or approximately three times that of the Canary Wharf Tower in London's Docklands designed by the American architect Cesar Pelli.

While the substructure is predominantly reinforced concrete, above ground the building is of steel frame construction. The building envelope is finished in 30mm granite tiles from ground to 12th floor level. Above here, for reasons of weight, the higher office and hotel towers are clad in high thermal performance tinted glass. At the base of the central aperture, above the "shoulders" of the two office towers, and topping the central hotel tower are dramatic "auspicious emblems" in the form of giant steel-framed flower structures. C.Y. Lee & Partners has collaborated with Hellmuth Obata and Kassabaum and Turner Construction Management in the development and construction of this landmark building. The construction cost is estimated to be US$400 million.

Date: 1998



Opposite page and centre right *The unusual external appearance of the building is in strong contrast to its American-style neighbours.* ***Top right*** *Preliminary design sketch.* ***Bottom right*** *Decoration and deep set windows produce a richly textured facade*



Hung Kuo office building

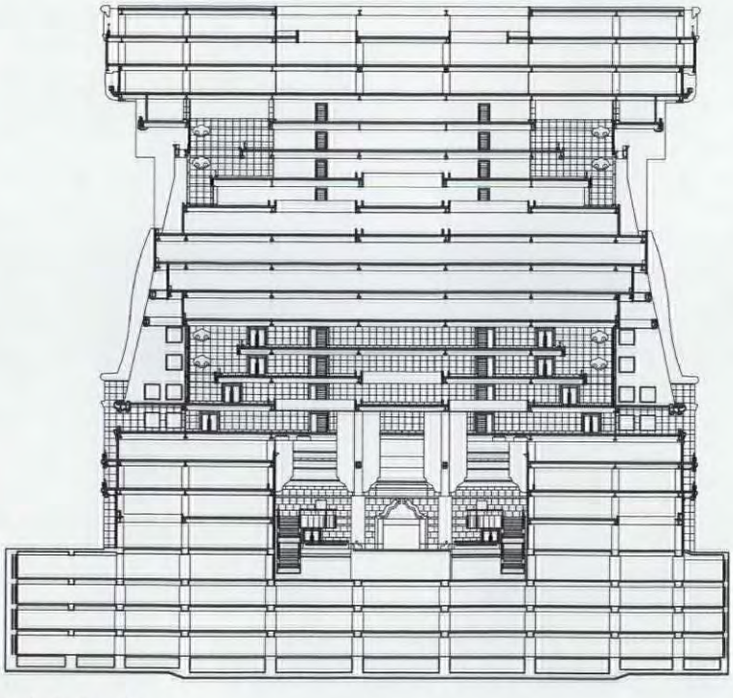
Completed in 1989 in the centre of Taipei, this 19-storey, 60,000-square-metre mixed-use building is the headquarters of the Hung Kuo development company as well as the location of C.Y. Lee & Partners' offices and the offices of other companies and foreign delegations. Topped by the 65-metre building height limit imposed over a 3 kilometre radius around Taipei City Airport, the design of the building is chiefly remarkable for its unusual external appearance and lavish use of internal open space coupled with high density office floors.

Using a combination of steel frame and reinforced concrete construction, the complex structure of the building allows the functional requirements governing the design of the office floors to be subordinated to a kind of internalised spatial structure that reflects the status of the building within the city as a whole. As a result the ratio of net usable space to gross floor area is nearer to 35 per cent than 25, but the grandeur of the public spaces and the deep penetration of daylight through the building create a unique internal environment.

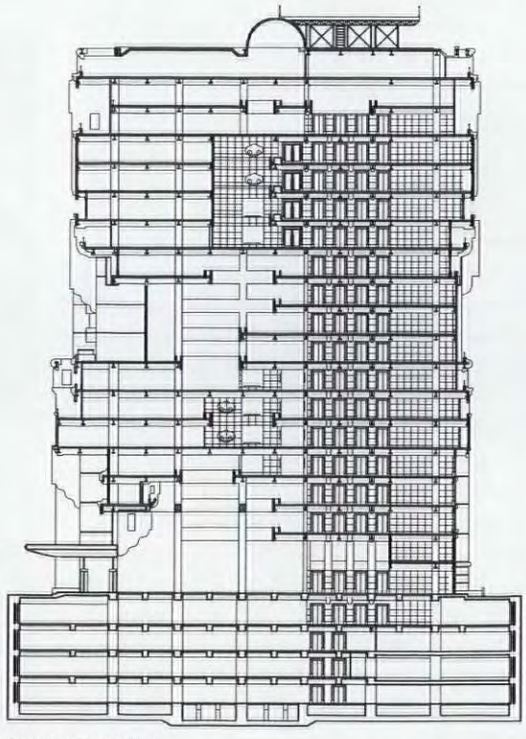
This lavish use of space can be most clearly seen in elevation and section where the generous use of the building's 5,000-square-metre site and its unusual external shape – with battered granite-clad walls and deep recesses plunging through the centre of the main facade – makes a strong contrast with the American-influenced design of its immediate neighbours. Internally the cavernous spatial theme is continued via a broad glass entrance leading from the porte-cochère into a large, three-storey marble-clad lobby of enormous proportions with water features and giant columns in the stylised shape of trees. The architect produced numerous alternative schemes for the site before the final version was accepted. Since then the success of the approach has been confirmed by the successful letting at high rents of all the available offices in the building. The construction cost of the project was US$100 million.

Date: 1989

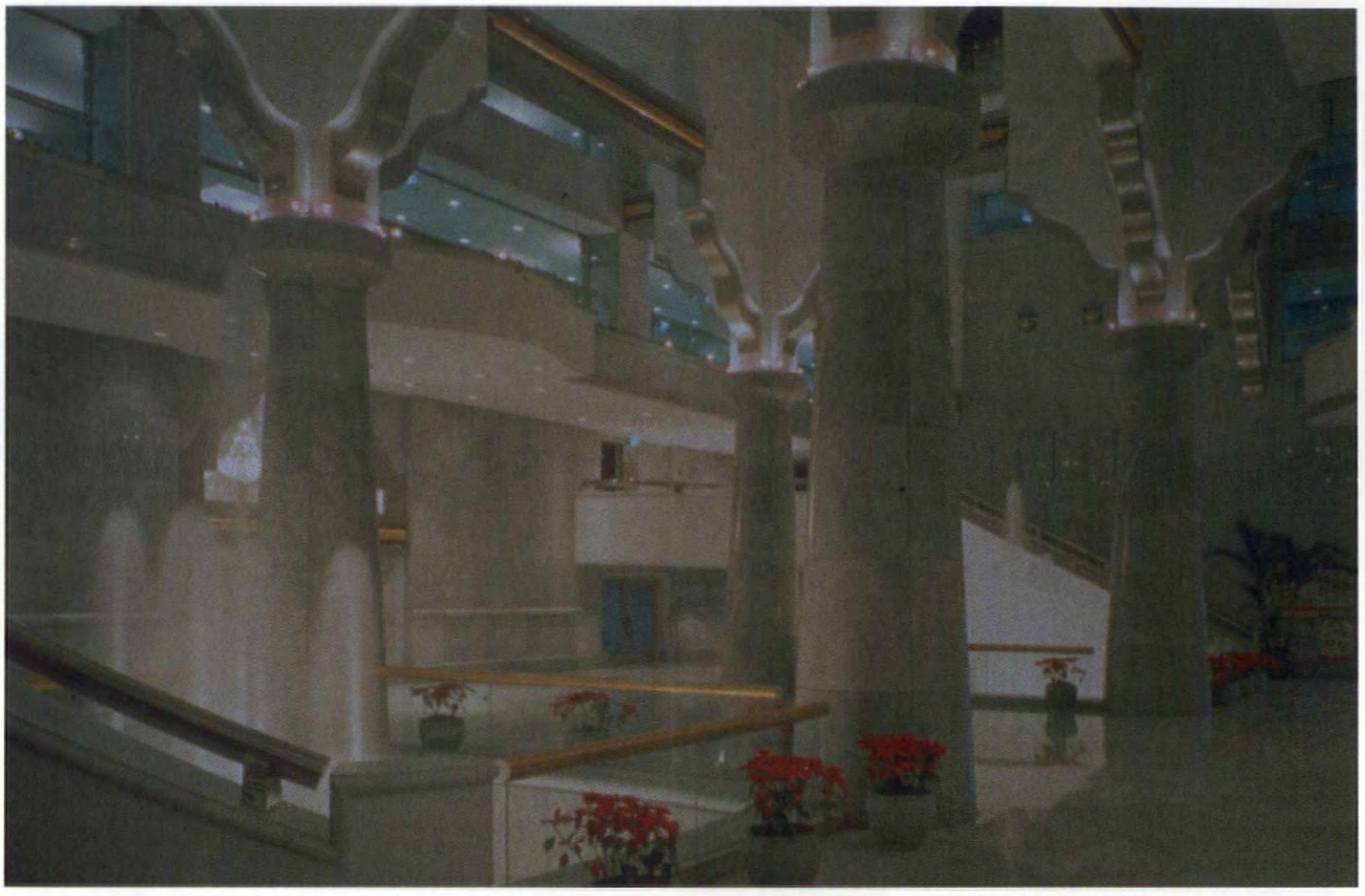
Above *Night view clearly shows the distinctive outline of the building.* ***Above right, opposite page top and opposite right*** *"Fretwork" decoration is used extensively throughout the building especially for the capitals of the stylised tree columns*

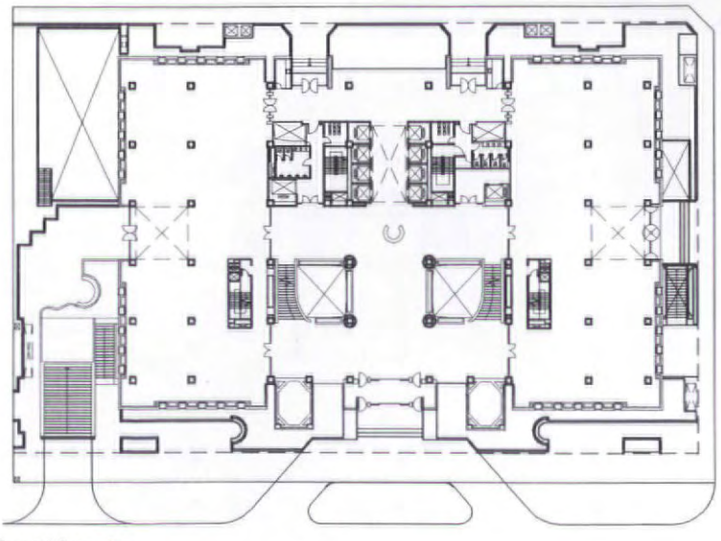


Longitudinal section

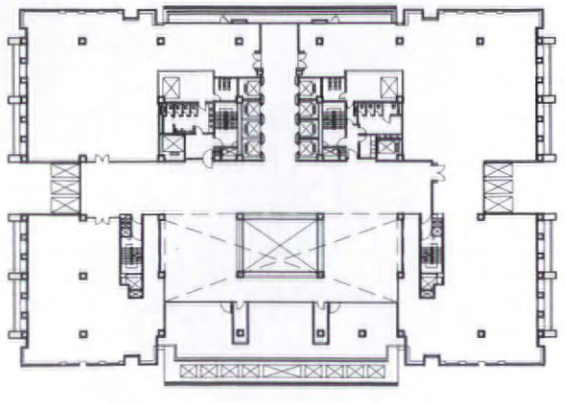


Transverse section





Ground floor plan



Ninth floor plan

Right *A 12-storey American-style commercial building is transformed by the addition of a 35-metre high metal clad "flower"*

Tong Lung headquarters building

An elegant American-style office building dramatised by a "diamond cut" oblique glazing panel and an enormous roof-top "auspicious emblem" in the shape of a steel-framed, metal clad "flower", this 10,000-square-metre corporate headquarters for the Tong Lung Group in the city of Taichung is predominantly conventional with its reinforced concrete frame enclosed by aluminium curtain walling with butt-jointed glass. The presence of the 35-metre-high rooftop flower is explained by the architect as the result of a need for "a human touch" to assert an architectural identity over what is otherwise a predominantly engineering-based 12-storey commercial building. In the process it also confers a specific identity on the Tong Lung Group. The construction cost of the project was US$13.5 million.

Date: 1990

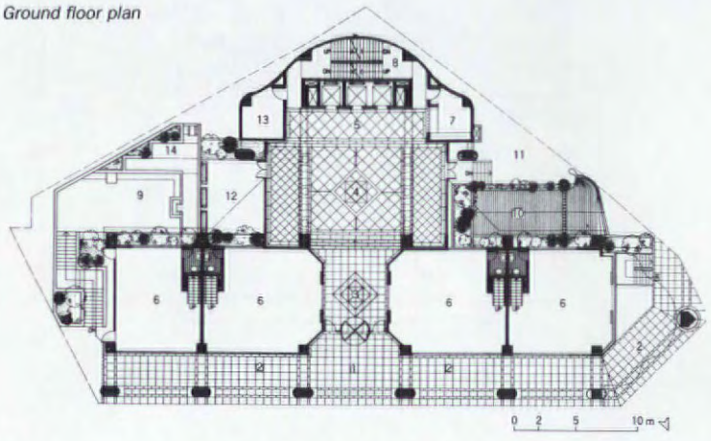
Key – Ground floor

1	Entrance	8	Stairs
2	Arcade	9	Sunken garden
3	Entrance lobby	10	Driveway
4	Atrium	11	Loading
5	Lift lobby	12	Outdoor garden
6	Retail units	13	Mechanical room
7	Security room	14	Landscaping

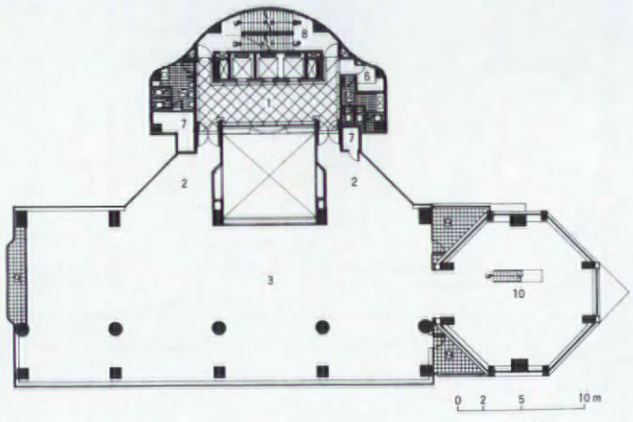
Key – 12th floor

1	Elevator	6	Kitchen
2	Lobby	7	HVAC room
3	Office	8	Stairs
4	Restroom – women	9	Balcony
5	Restroom – men	10	Tower room

Ground floor plan



12th floor plan



Left *The precast concrete and polished granite facade of the building is reminiscent of 1890s Chicago.* ***Above*** *Ground floor banking lobby*

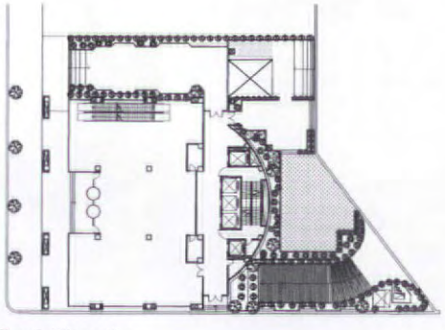
Cosmos Bank

Despite its 1890s Chicago appearance, the plan of the 19-storey Cosmos Bank, a speculative development in Taipei by the Prince Motor Corporation, is similar to that of the much more modern looking Mercury Group building completed a decade earlier. In both cases the facade is symmetrical and the service core is a full-height, semi-detached structure behind the main building – in the case of the Cosmos Bank, joined there by the tower of a mechanical parking system.

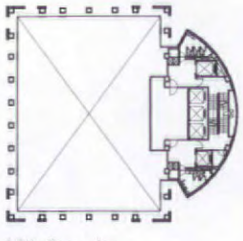
The site itself measures 1,768 square metres in area, only 44 per cent of which is occupied by the building's footprint. The construction is steel frame, rising to 72 metres and clad in precast concrete and polished granite, with the main facade demonstrating the architect's mastery of an expressive but simplified classical language, with its huge attached ground floor columns bulging under their apparent load, and successive storeys of deep-set window openings decorated with projecting keystones and heavy half-round sill mouldings.

The undramatised nature of the upper storeys of this 23,000-square-metre building is a source of regret to the designer, who produced several earlier schemes for the client featuring projecting and flying cornices, oversailing roofs and deep facade penetrations, all of which were rejected. The construction cost of the project was US$38.5 million.

Date: 1995

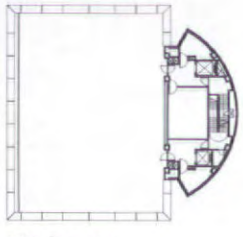


Ground floor plan



18th floor plan

Second floor plan



19th floor plan

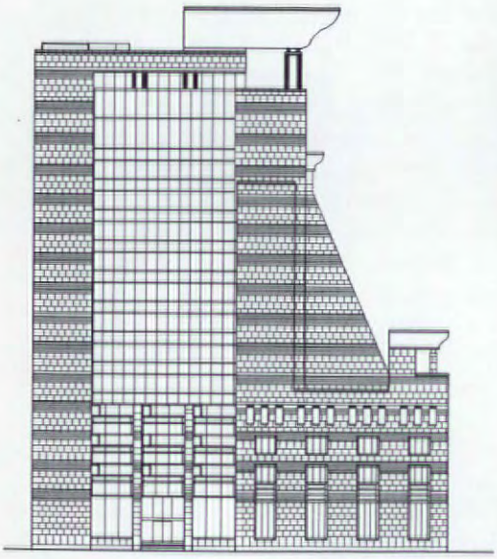
Right *Based on Egyptian and Indian architectural types, the building has a sense of power and authority, especially when illuminated at night.* ***Bottom right*** *The marble-clad main entrance lobby* ***Bottom left*** *Side elevation*

Fubon Ming-Shang Bank

This 14-storey reinforced concrete bank building in Taipei is of an unusual set-back design derived from historic Egyptian and Indian examples selected for their power and authority when viewed from street level. The pronounced setbacks of the upper storeys are clad in aluminium with the flank walls finished in granite. At 56 metres above ground level is a large convex curved "floating cloud" roof over a full width balcony which, like the rest of the structure, is very effectively illuminated at night.

With a relatively small site of only 1,645 square metres, the building's footprint occupies less than half at 672 square metres. Internally, the steeply raked front elevation yields a gross floor area of 12,478 square metres with a characteristically lavish use of internal public space in the marble-clad main entrance and banking hall where Arabic motifs are skilfully blended with Chinese flower geometry. As with the Hung Kuo building, the Fubon Group accepted the architect's argument that reduced square footage could be more than made up for by means of high quality finishes, lavish use of space and a distinctive and commanding appearance. The construction cost of the project was US$15 million.

Date: 1989



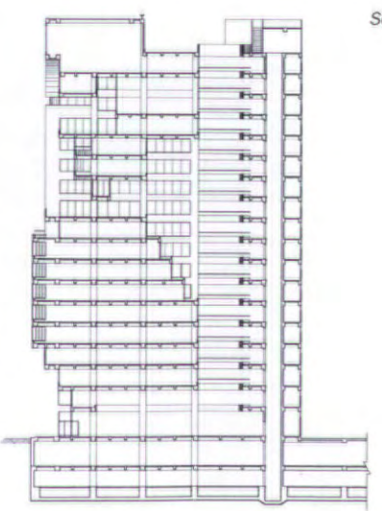
Left *The barrel vaulted roof appears to float above the aluminium clad facade.* ***Bottom left*** *The full height atrium is overlooked by terraces on every floor*

Mercury headquarters building

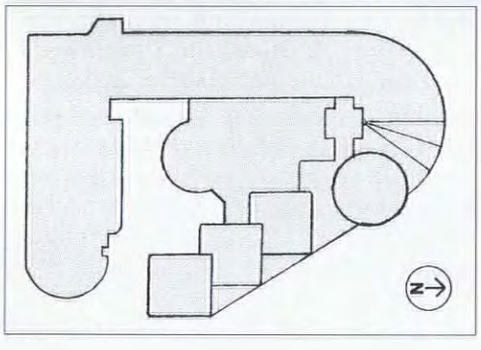
Designed for a local retail, finance and insurance company and located in Taipei, this 18-storey concrete framed building clad in flat aluminium panels has a symmetrical facade and an axial plan leading from the main entrance to a rear atrium linking the main building with a full-height semicircular service core behind. The front elevation features a projecting central bay formed by the chord of a circle flanked by smaller cylindrical bays in niches on either side. The roof of the building takes the form of a broad barrel vault, peaking 56 metres above pavement, with radial glazing panels apparently resting on the deep side walls. Directly beneath it is a brilliantly daylit conference room.

Built on 30 per cent of a 1,900-square-metre downtown site, the building contains 15,000 square metres of serviced floorspace. Internally the entrance lobby widens towards the rear and rises into a tall atrium space over which a series of internal terraces are successively set back in order to permit daylighting from above. The interior of the atrium is skilfully lit and decorated with Chinese motifs, rectangles and diagonals in dogtooth patterns executed in polished grey granite. The construction cost of the project was US$18 million.

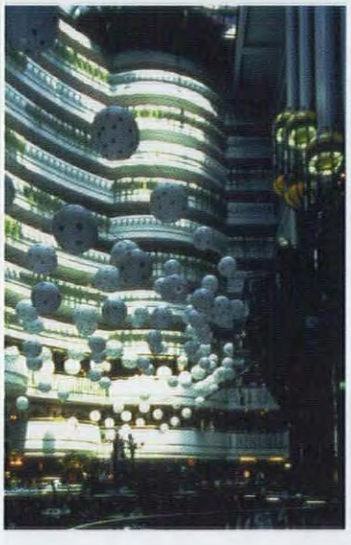
Date: 1986

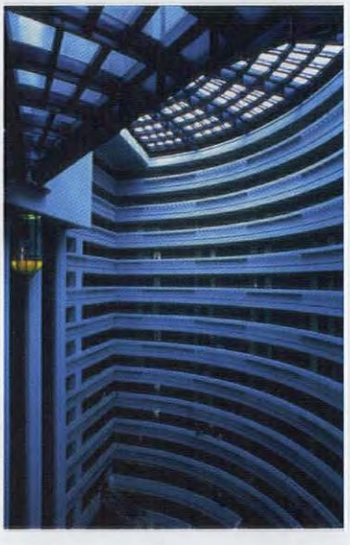


Section



Above *The mosaic tile-clad north-east facade.*
Left *Building plan.*
Right and far right *Access balconies create interior spaces comparable to Frank Lloyd Wright's Guggenheim Museum*





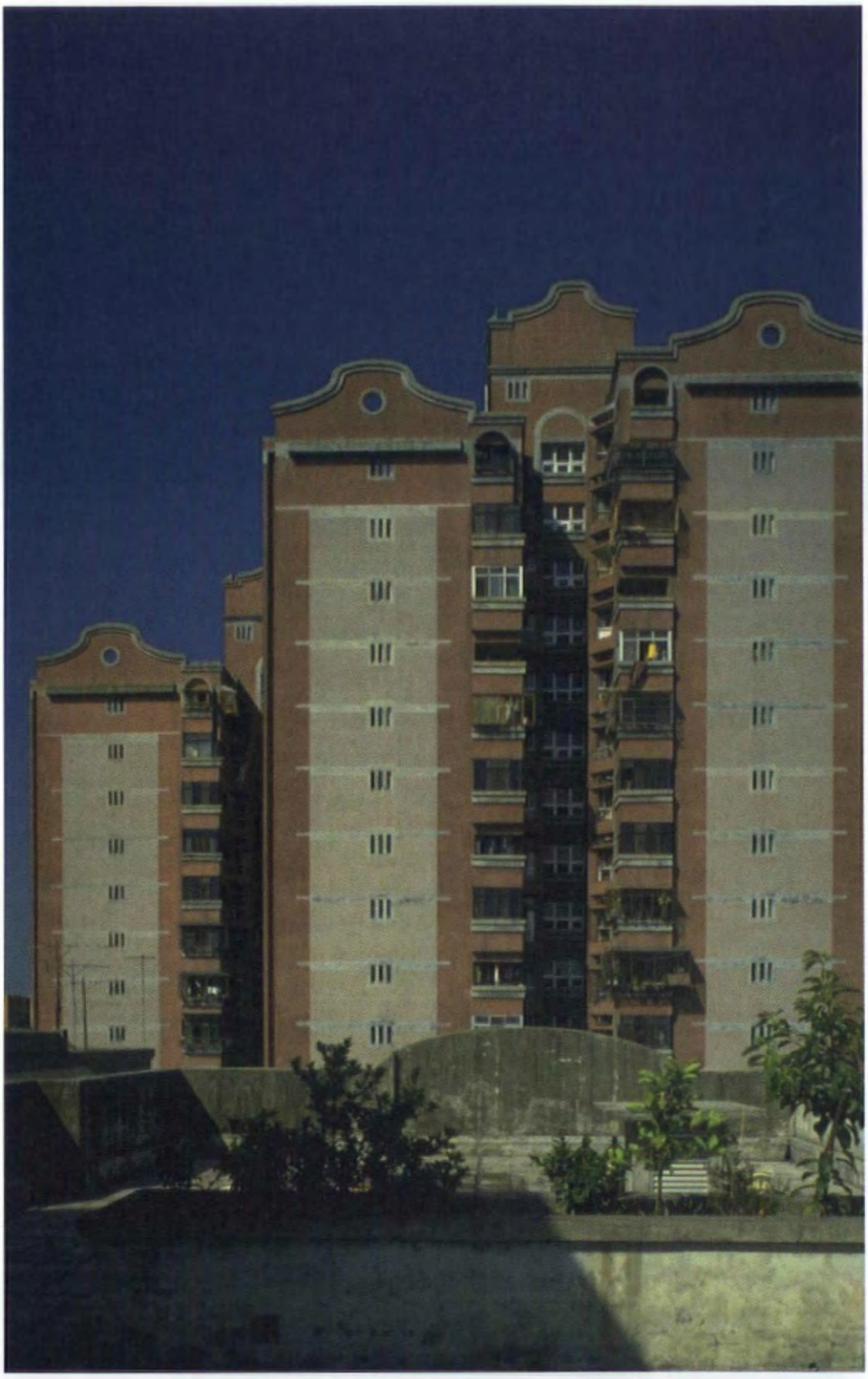
Asia World Plaza

The first major commission conferred on C.Y. Lee after his return to Taiwan from the United States, this department store and 800-room hotel complex in Taipei was one of the largest ever built at that time with a gross floor area of 138,000 square metres on 15 floors. The design of the complex was influenced by the architect's work for Pereira in Los Angeles. Compared to C.Y. Lee's later work this pair of buildings is much more clearly based on a machine aesthetic with a bold use of simple forms and dramatic three-dimensional geometry.

The buildings, which enclose an internal courtyard later occluded by another structure, are reinforced concrete and were originally to have been clad in aluminium. In the event, mounting cost led to the use of a rendered finish with dark brown mosaic tiles instead, with the result that today the complex has a gloomy and almost monolithic sculptural quality. For this reason the power and scale of the whole composition is now most readily grasped from the inside of the hotel atrium where a soaring ring of hotel room access balconies follows the 50 metre radius of a one-third sphere, conveying a spatial impression comparable to that of Frank Lloyd Wright's Guggenheim Museum or Etienne-Louis Boullée's project for a monument to Sir Isaac Newton.

Less dramatic in its general form, the department store building presents a unique curvature to a main street intersection, neither circular in plan nor elliptical but compressed into three arcs. An indication of the path of rejection of mechanical Western geometry that the architect was shortly to follow. The construction cost of the project was US$150 million.

Date: 1982



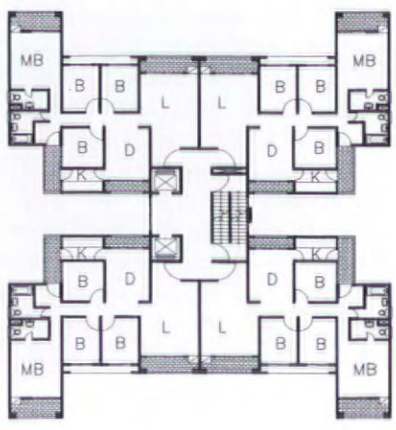
Left and bottom left *Different block heights and curved rooflines add visual interest to the 21-block development.*
Bottom right *Typical floor plan*

Ta-An public housing

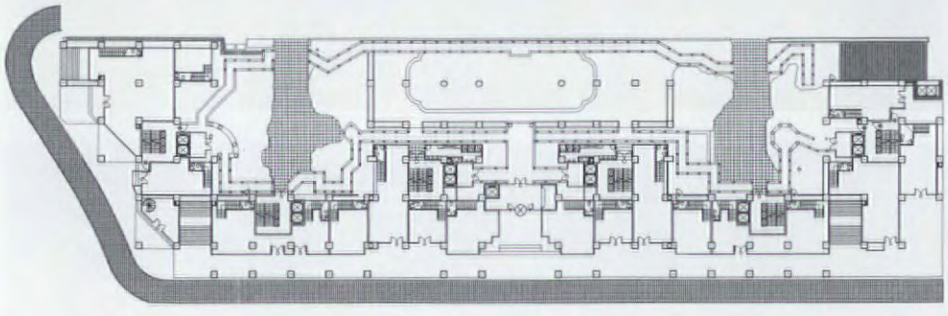
In a country of 22 million persons where 18 per cent of all housing is built by the public sector with very strict budgets, the opportunities for free architectural expression are not easy to see. But at the 1,400-unit Ta-An apartment development for the Taipei Housing Authority C.Y. Lee & Partners did succeed in breaking free of the uniformity generally forced upon architects by the terms of their employment. Built in tile-faced reinforced concrete for seismic reasons, the Ta-An buildings exploited differences in height from 13 to 18 floors in order to introduce a degree of variety into the appearance of the 21 separate apartment buildings, the tallest 50 metres high.

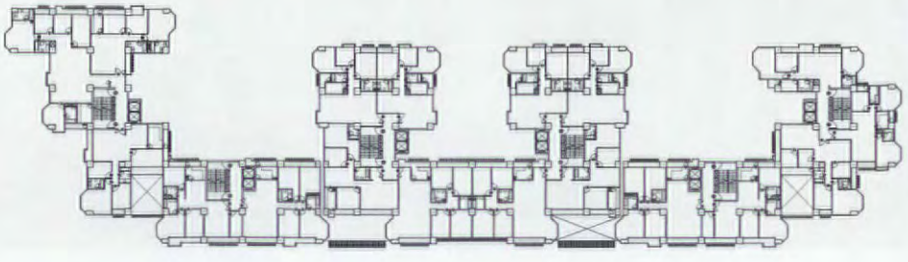
A further variation was achieved by using fireclay tiles of different but muted colours, although this move was initially opposed by housing officials who believed that all public housing should be brightly coloured. The final distinction was achieved by the resurrection of a traditional Chinese detail known as the "horseback", a curved tile shape with a central circular motif formerly used as a firewall in row housing, but here used as a parapet at roof top level to provide an interesting roofline in place of the more common flat roof. Together with thoughtful internal planning, high construction standards and a site overlooking the largest park in Taipei, these innovations soon gave the Ta-An estate a high reputation. Many of the apartments have since been sold and their market value remains high. Construction costs for the development equated to US$715 per square metre.

Date: 1987



Right *The visual richness of the facade is achieved through careful massing and clever use of traditional Chinese details.* ***Bottom right*** *Ground floor and third floor plans*





Tung Wang Palace housing

Part of the reason for the flexibility showed by the Taipei Housing Authority over the design of the Ta-An public housing scheme was the success and popularity of former C.Y. Lee housing projects in the private sector. Among the first of these was the Tung Wang Palace housing project, a 400-apartment high-density 18- and 19-storey scheme on a relatively small 5,000-square-metre site in central Taipei. This project was conceived from the outset as an attempt to combine such traditional romantic Chinese features as hanging gardens and circular portals, with the modern concept of urban condominium living in high-rental air-conditioned apartments with basement car parking. The final result is a complex that does indeed boast traditional Chinese features but in a somewhat miniaturised form. Cost and code limitations led to the projecting "Chinese Gardens" becoming small precast sheltered platforms that project only 1.5 metres forward of the exterior wall line, while the unglazed circular portals give onto recessed balconies.

Despite these economies the rich modelling of the facades achieved by the skilful massing and composition of these features, coupled with the warm texture of the clay tile cladding applied to the building's in situ reinforced concrete structural frame, give the project a unique quality and visual richness that has sustained its value over more than a decade. By urban standards the amenity values are high. Each apartment has a separate built-in air conditioning system, while behind the central access arch at ground level is an extensive Chinese garden area for the use of residents, with secure car parking provision running to 70 per cent of occupancy.

The Tung Wang Palace project was one of the first C.Y. Lee & Partners carried out for the Tuntex conglomerate, later to act as clients for more ambitious commercial schemes. The construction cost of the project was US$50 million.

Date: 1985

Above *The development is a mix of two-storey row houses and 17-storey apartment towers – all with underground parking.* ***Below*** *The 24,000-square-metre site contains 520 units*

Hung Kuo Tunhuang housing complex

Financed by the Hung Kuo development group, this large complex of town houses and apartment towers on a 24,000-square-metre urban site contains a broad spectrum of dwelling types combined with a high level of communal servicing including basement parking for row houses as well as apartments. The construction is conventional in poured reinforced concrete with exposed aggregate and tile finishes and the roofs are finished in red pantiles. Storey heights range from two-storey row houses to 17-storey apartment towers. There are 520 units in all.

One of the most notable features of this design is the use of a modified scissors plan coupled with double height spaces in the apartment towers so that each apartment has its own private elevator stop. The larger apartments also feature double height living rooms and large balconies. These innovations proved immensely attractive to purchasers and the development is one of the most successful ever marketed in Taipei. The construction cost of the entire development was US$80 million.

Date: 1988

Above and below *The four towers are crowned with "auspicious emblems" in the form of massive concrete flowers which incorporate penthouse terraces*

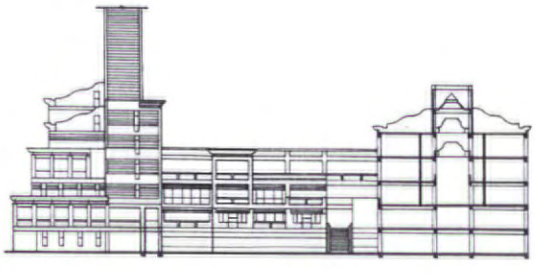
Marine Prospect housing

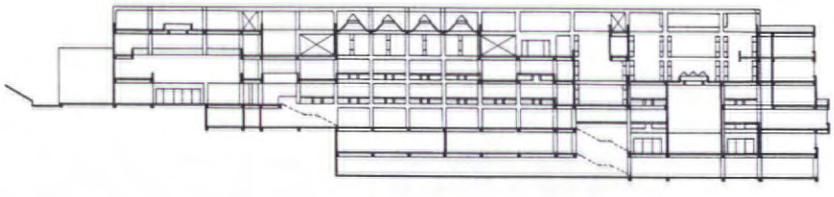
Located in Tanshai, Taipei County, and skilfully sited to give views over the mouth of the Tanshui river and the South China Sea, these four 23-storey condominium towers with a total of 400 apartments are of conventional poured reinforced concrete construction, the exterior clad in light pink coloured clay tiles and a hard mosaic in order to resist wind and rain erosion. With three basement levels of car parking below ground and 8,500 square metres of landscaped approach road and park-like site, the towers are somewhat insulated from the surrounding suburban mixed-use development which dates from a much earlier period.

The most notable feature of these towers however, and the subject of considerable argument between the client, Tuntex/Reuntex developments, and the architect, is the presence of very large rooftop "auspicious emblems" in the form of massive concrete flowers incorporating penthouse terraces that are set amongst right-angled "cloud walls" that combine to take the height of each tower up to 85 metres. the construction cost of the four towers was US$53 million.

Date: 1992

Above *The building wraps around three side of its site. External finishes are clay tiles and exposed aggregate.*
Below *Sections*



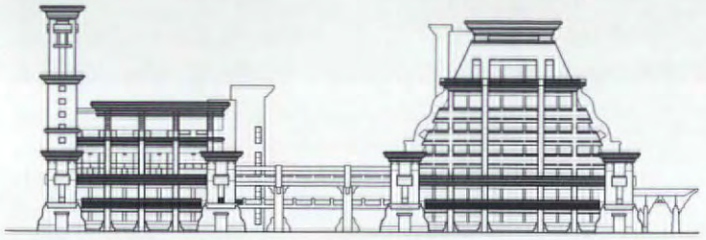


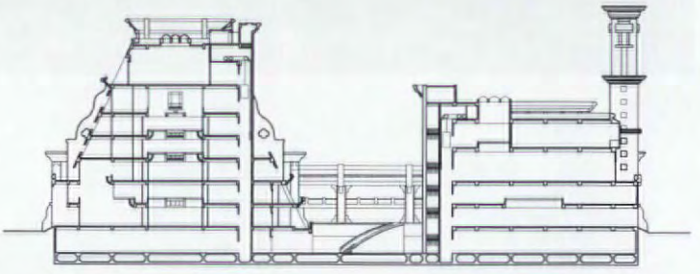
National University of Chin-Hwa, Human Science building

A small city south west of Taipei, Hsinchu is the location of two large campuses of the national university specialising in science and technology. One of number of academic buildings by C.Y. Lee & Partners, the Human Science Building at Chin-Hwa University consists of a hollow rectangle of buildings that wraps around its elevated 700,000-square-metre site like a metaphorical dragon. The necklace of connected buildings has a total floor area of 22,000 square metres, including the roof of the theatre which is used as a public open space. Pedestrian access routes negotiate considerable changes in level, giving occasion for the use of grand flights of steps, like the approach to the Human Sciences Building itself, with its large cantilevered porch.

Like all Taiwan state university system buildings, strict cost controls were observed in the design and only sparing use is made of air-conditioning units, with no central system installed. The construction of the buildings and the structural system employed are simple and repetitive. Poured in place reinforced concrete, rendered and finished with clay tiles is the external finish throughout. The only relieving feature is grey exposed aggregate which is permitted on certain unclad concrete elements like the immense entrance porch. The central vertical feature is an electronic belfry capped with an incomplete floral emblem. The construction cost of the project was US$11 million.

Date: 1989





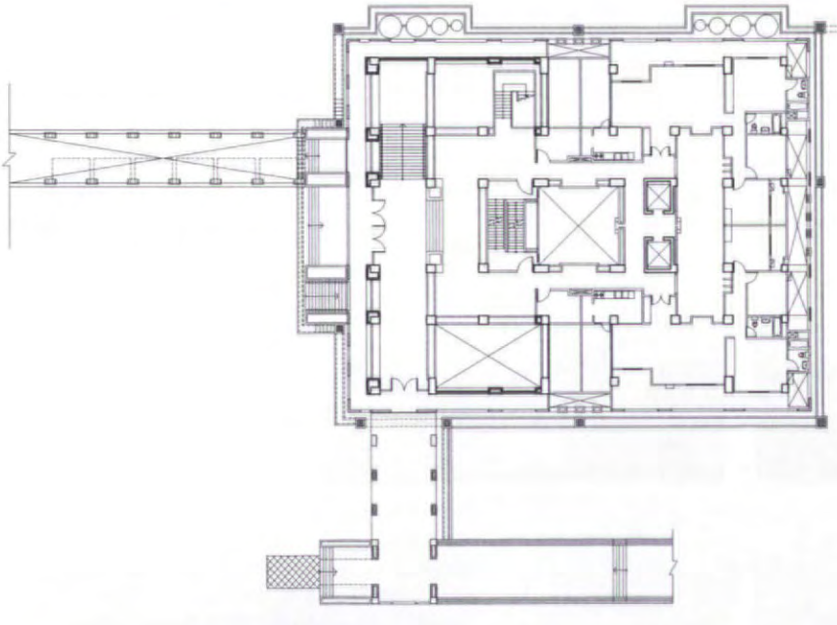
Top *The two main architectural elements, the ziggurat and bell towers, are linked by massive horizontal mouldings shown* ***below*** *in detail.* ***Above*** *Elevation and long section*

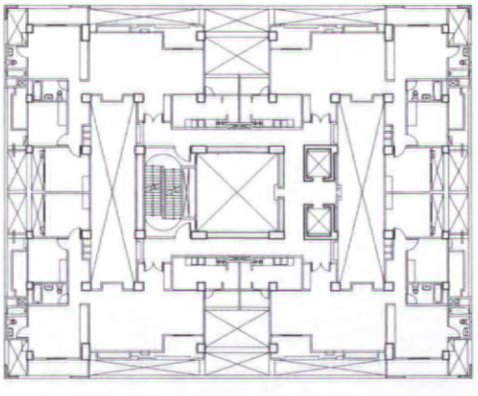
National University of Chung-Chen, Administrative building

A small city in the centre of Taiwan, Chiayi is the location of a campus of the national university of Chung-Chen. One of the most prominent buildings is the unusual 7-storey, 15,000-square-metre administrative complex of the university, the main ziggurat-shaped element of which is structured using inclined reinforced concrete buttresses shaped into giant consoles, apparently to support a large flat-topped roof structure. In fact the accommodation beneath this roof consists of a high level boardroom above an atrium serving cellular offices on all sides, many of which have access to external balconies.

As in much of C.Y. Lee's later work the use of decorative Chinese motifs in this building complex presents a powerful impression: a strong, bulging horizontal emphasis maintained by great half-round mouldings in concrete that pass outside the great supporting ribs and cross the pedestrian access to a sunken plaza above head height to link up with the twin towers of the second great building element, which is capped with two flat-topped bell towers equipped with electronic bells. Like many of the architect's university buildings the Chung-Chen Administration Building uses a small palette of materials: exposed aggregate concrete structural members and mouldings, pink clay tiles set on reinforced concrete walls, and well-shaded glass. The construction cost of the project was US$8.5 million.

Date: 1991



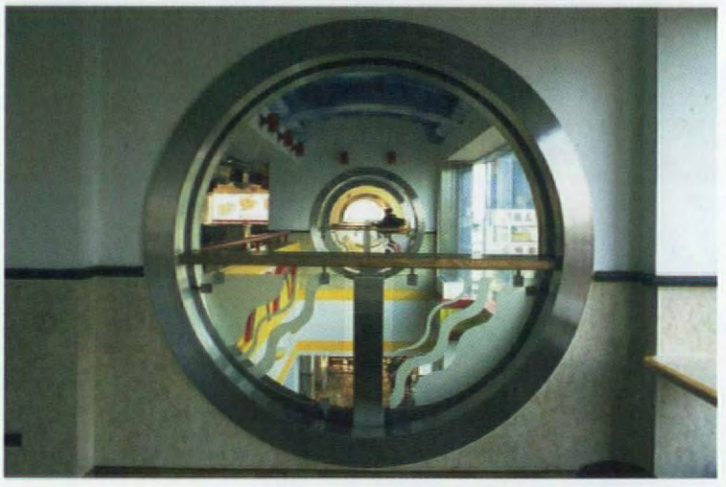


Top *Clad in blue tiles with exposed aggregate bands, the building is topped by concrete "lucky clouds"* ***below left****.* ***Left*** *Ground floor plan.* ***Above*** *Second floor plan*

National University of Cheng Kong Aerospace Faculty apartments

Located outside the port city of Tainan, which was once the Dutch and later the Chinese provincial capital of Taiwan, is the campus of the Cheng Kong University. The concrete frame construction Aerospace Faculty apartment building occupies a large 32,000 square-metre-site on the campus and can be recognised by its light blue tiled finish and exposed aggregate concrete bands. Ten storeys high and with 7,000 square metres of gross floor area divided into apartments, the building is chiefly notable for its concrete "lucky cloud" floating roofs, which top each of its tallest towers. The apartments themselves have open balconies and some provide split level accommodation. There is a single parking basement. The construction cost of the project was US$3.6 million.

Date: 1988



Top left and above left *McDonald's in Keelung. Ship motifs were used to theme the interior.* ***Top right and above*** *McDonald's in Kaohsiung. The barrel vault roof is echoed in the circular motifs used in the interior*

McDonald's restaurants

Following a policy now abandoned in favour of the use of existing premises, the original McDonald's restaurants in Taiwan were new, purpose-built structures and those in Taipei were of considerable size. The two McDonald's restaurants designed by C.Y. Lee & Partners were in the provincial cities of Keelong and Kaohsiung and relatively small at four and six storeys high with gross floor areas of only 1,000 square metres.

Both were completed in 1988 and were intended to raise the standing of McDonald's by increased sophistication through careful attention to design quality whilst retaining the familiar McDonald's livery and logo, and adhering to the use of popular materials and finishes. The Keelong McDonald's featured a ship motif running through from the high level "bridge" above the roof to the construction of ship-shaped booths in the interior. The Kaohsiung restaurant established its identity by means of dramatic external barrel vaults in orange and red, and the use of circular motifs in the interior. At the end of 1996 there were over 100 McDonald's restaurants in Taiwan. The construction and fitting out cost of the Keelong and Kaohsiung projects were US$0.45 million and US$1 million respectively.

Date: 1988

Above *The rear facade shows exterior finished in exposed aggregate and red clay tiles with pantiled roof.* ***Right*** *The end elevations have an almost art nouveau appearance*

National Institute of Arts Library building

The Taiwan National Institute of Arts is a prestigious institution for the study of fine art, dance, music and other cultural pursuits, with a student body of approximately 1,000. Master planned by C.Y. Lee & Partners as a result of a 1981 competition win, the Institute's campus is located in Kuantu on an elevated site with extensive views of the city over the Tanshui river.

The Library is the most recent building completed by C.Y. Lee & Partners for the Institute and it occupies a prominent position at the highest point of the 200,000-square-metre site, with access from front and back at different levels, linked externally by an imposing flight of steps. Constructed in reinforced concrete with an exposed aggregate finish that contrasts with panels of red clay wall tiling and black pantiles, the Library seems at first sight to be of conventional design, but it has surprising subtleties. Its main entrance, for example, features broad axial access steps from a pedestrian plaza which pass between flanking staircases that lead down to the lower levels, but these are concealed by what appear to be two enormous plinths with half-round mouldings.

In the same way the apparently simple pitched roof of the Library is actually a complex structure, its deep concrete ridge beam splits into two over one-third of its span to create a large elliptical rooflight that admits daylight to the heart of the building. In turn the gable end of the building beneath the ridge has an almost art nouveau appearance which results from the skilful manner in which it is penetrated by a window bay whose rendered surround curves smoothly into the roof slope over its lower storey and the in situ concrete edge beams of main roof itself.

Internally the building is fitted out in a sparse but functional manner with exposed finishes and large Chinese motifs perforating the walls beneath the bearing points of the main concrete beams. The construction cost of the 7,000-square-metre library was US$2.6 million.

Date: 1994

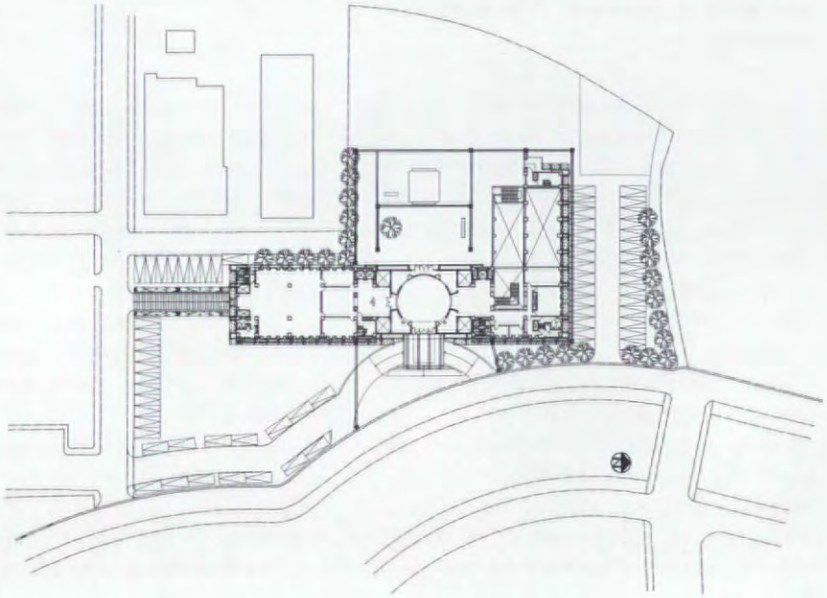
Above *The building makes strong use of bold classical geometric forms.* ***Below*** *Entrance elevation.* ***Bottom*** *Site plan*

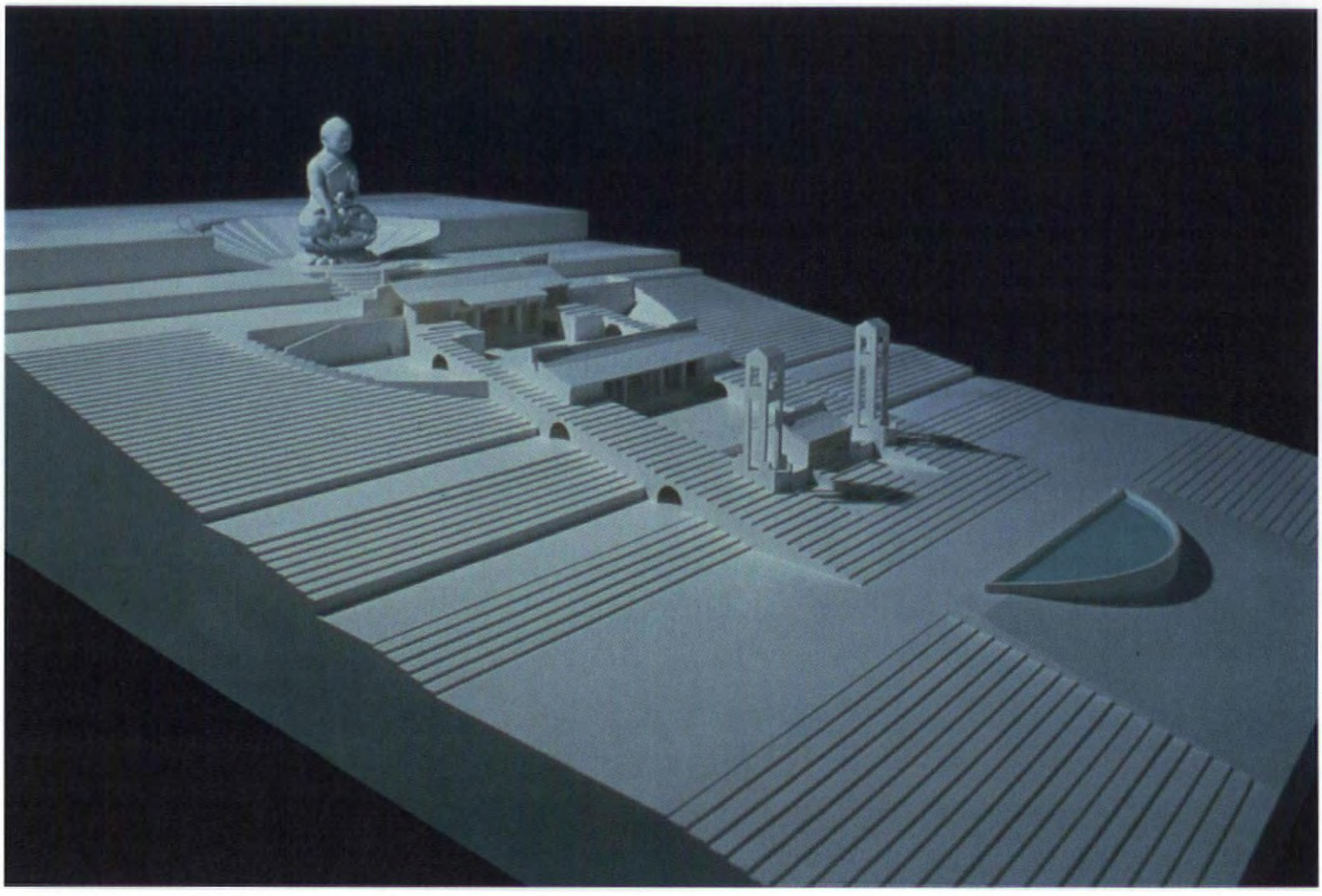
Academy Sinica, Literature and Philosophy building

A government facility for the highest levels of academic research, the Central Academy Sinica on the outskirts of Taipei houses research personnel working in a variety of fields including philosophy and literature. The department devoted to these two disciplines was designed by C.Y. Lee & Partners and completed in 1995. It comprises a central cylindrical entrance hall that gives access to a library on one side and the main research accommodation on the other.

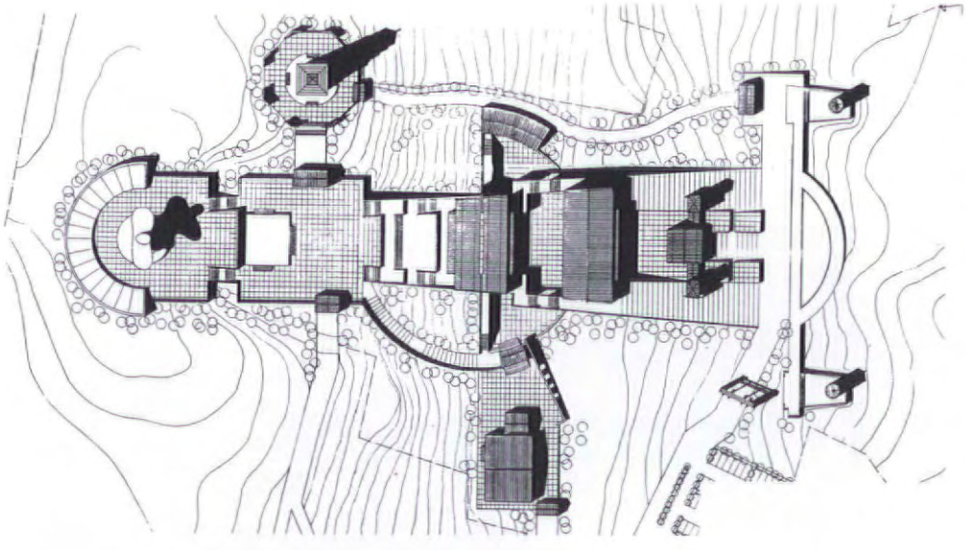
Rising to eight storeys in height and of reinforced concrete construction, the bold classic geometrical forms of the department are intended to mirror the pursuit of logical truth that takes place inside. The distinctive top-lit, drum-shaped entrance building is clad with tiles laid diagonally and recessed with double decorative rings above the first floor base and beneath the deep cornice at the top. The powerful Egyptian form of the battered walls on either side of the entrance connect the drum with the two flanking buildings, both of which feature deep window penetrations, strong cornice lines and a surface cladding of grey granite tiles with open joints. The gross floor area of the three buildings is 7,500 square metres and the construction cost was US$6.3 million.

Date: 1995





Above *Model view of the temple showing the scale of the ceremonial approach.* ***Below*** *Site plan and section*

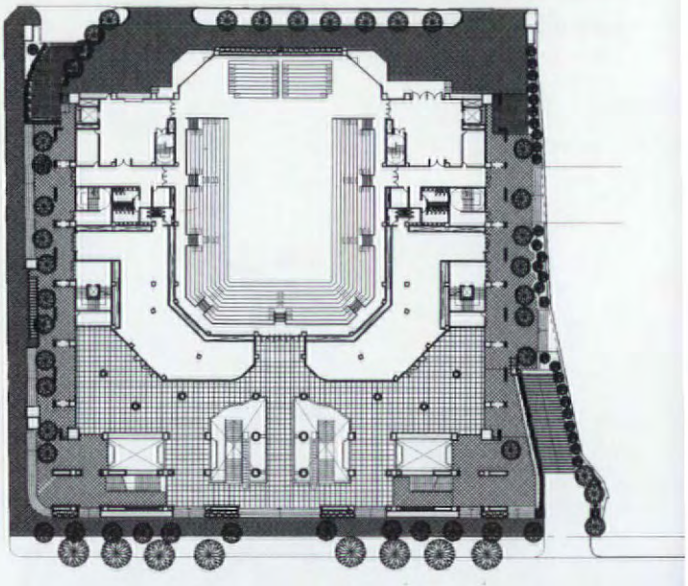


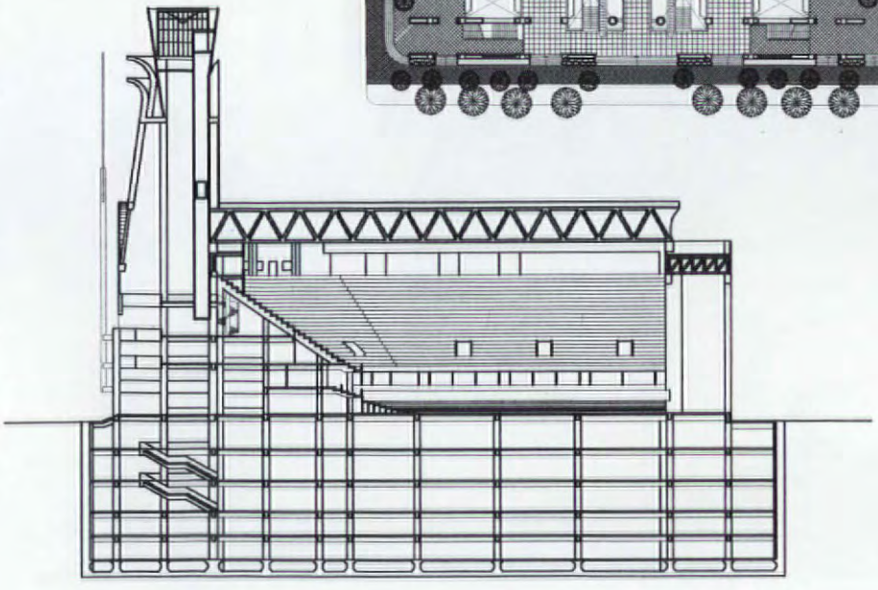
Falin temple

Taitung County is a rural district of Taiwan located in the remote mountainous south east corner of the country. This was the location chosen for this landscaped Buddhist temple with its arched and recessed concrete enclosures crossing a ceremonial approach leading, via grassed steps, some 800 metres from the lowest point to the foot of a 40-metre statue of the Buddha. The temple is laid out over a large site on the lower slopes of a mountain which descends to a lake and then rises again to another mountain on the other side.

Date: 2000

Above *The tower over the main entrance is topped by a dramatic flower motif symbolising joy and happiness.*
Right *Ground floor plan and section*





Chung Hwa Arena

A project of the Chung Hwa Foundation this 6,000-square-metre multifunctional sports facility for 10,000 spectators in Taipei will replace a temporary basketball court and provide facilities for concerts and a variety of cultural activities.

With a total floor area of 60,000 square metres and a maximum height of 50 metres the structural system is a combination of steel frame and poured reinforced concrete, with external wall finishes in tile. There will be extensive car parking in the four basement floors and the glazed roof of the arena will be supported by a horizontal steel space frame.

The main street elevation is composed of a structure enclosing the access stairs to the arena which stand on either side of a squat central tower over the main entrance. This tower will carry a large circular electronic billboard topped with a dramatic flower motif symbolising joy and happiness. Currently under construction the arena is expected to cost US$73 million.

Date: Late 1999

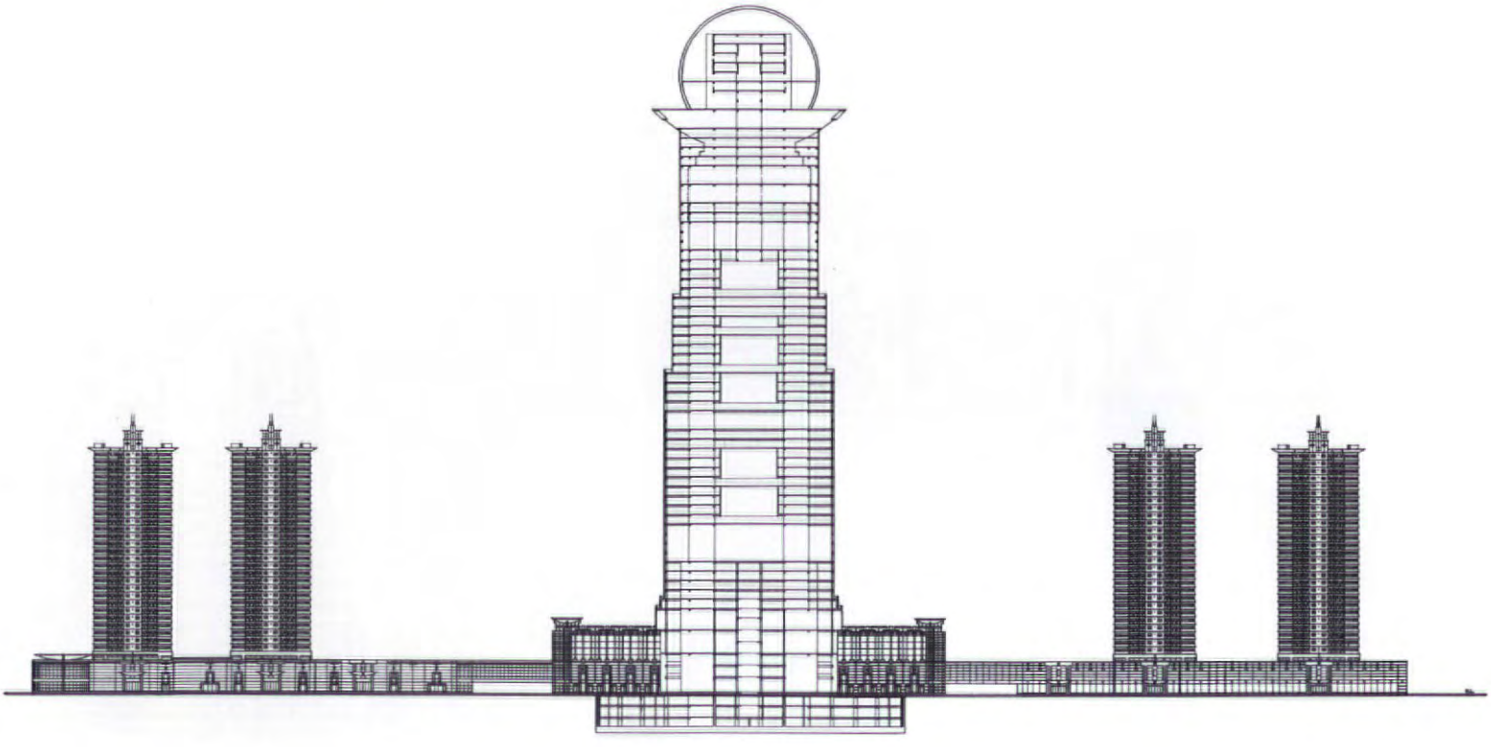
Left *A glass office tower supports a dish containing a geodesic dome in the form of a Lotus flower, within which is a restaurant. The whole building sits on a granite clad retail podium.* ***Bottom*** *Longitudinal section*

Concord Plaza

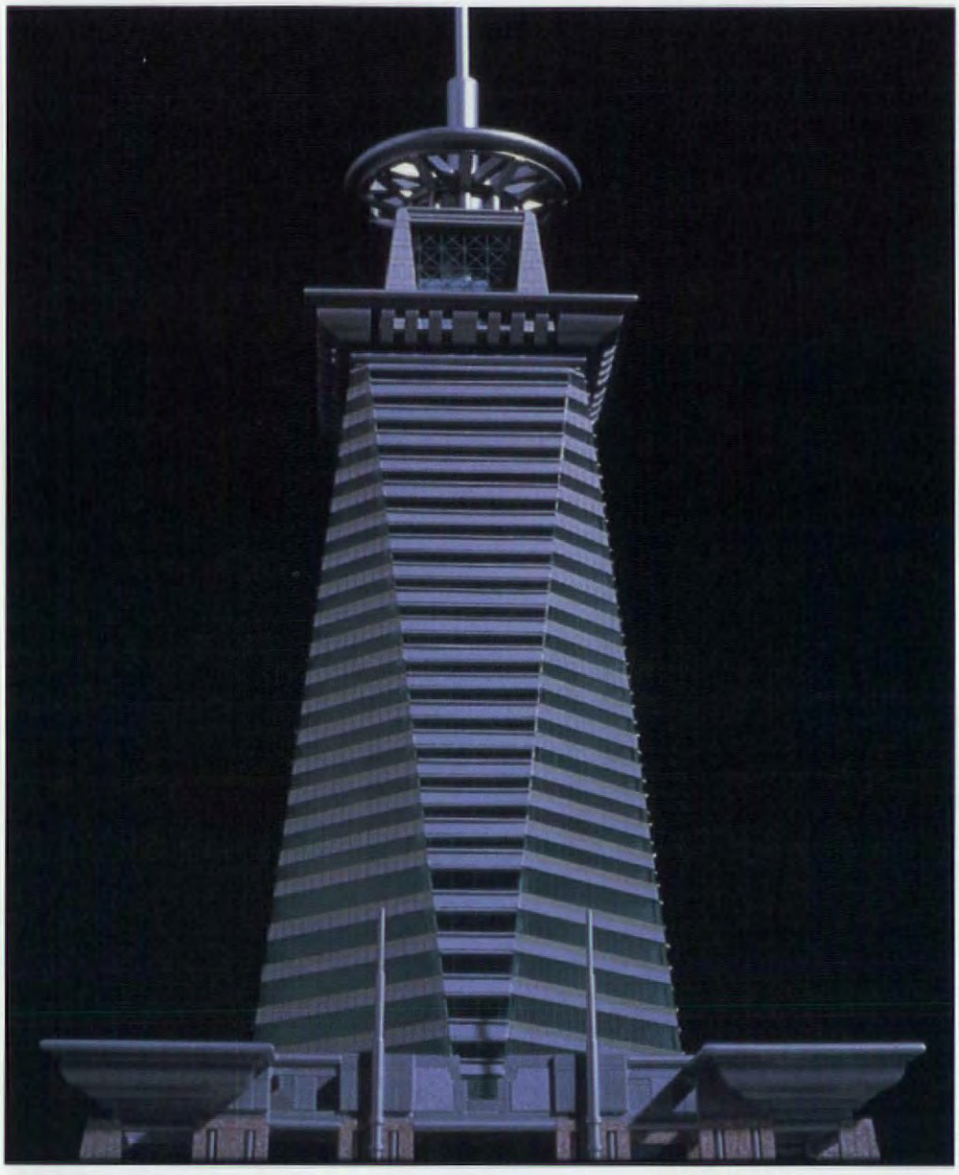
In the Chinese city of Shanghai this 68-storey commercial building is topped by a restaurant located in a large geodesic dome in the shape of a Lotus flower. The restaurant rests upon a projecting circular dish structure which is supported by great consoles in the shape of cantilevered dragons illuminated from below so as to convey the impression that the head of the building floats upon light. Beneath the dragons is a square supporting office tower clad in glass which increases in area every 10 storeys and features a large, side-lit, double-height, atrium and local elevator lobby at each of these levels.

The whole tower rests upon a granite-clad commercial podium with retail elements that occupies levels one to six. There is extensive car parking in the four-storey basement. The building offers a total of 230,000 square metres of serviced floorspace in the podium and tower and reaches a height of 250 metres. The building is currently under construction.

Date: 2002



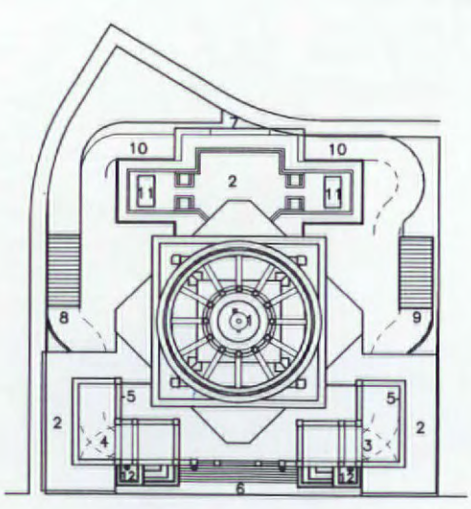
Right *The glass curtain walled tower takes its form from a rotating square.* ***Bottom left*** *Site plan.* ***Bottom centre*** *Front elevation.* ***Bottom right*** *Section*

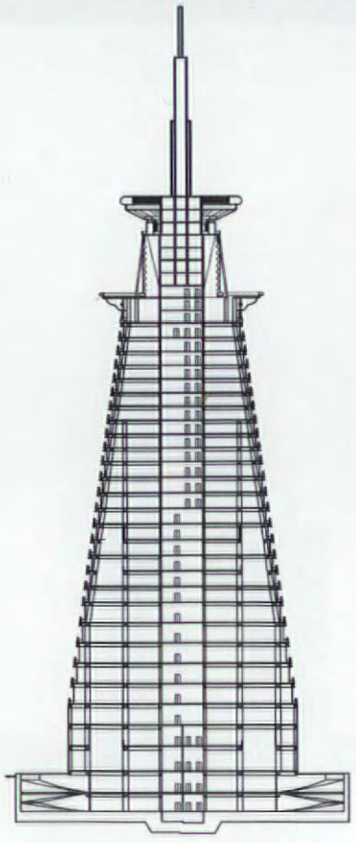


Post and Telecommunications Tower

Based upon the geometry of the rotating square this 26-storey, 180 metre-high tower in the Chinese city of Tenjing combines the function of telecommunications repeater, telecommunications staff training centre, and office building. Clad in glass curtain walling with aluminium spandrel panels the structural frame is a combination of steel and reinforced concrete. The total floor area of the building will be 45,000 square metres. The lower podium storeys are differentiated from the tower by being finished in clay tiles. The podium roof also serves as a garden.

Date: 1998





Key – Site plan

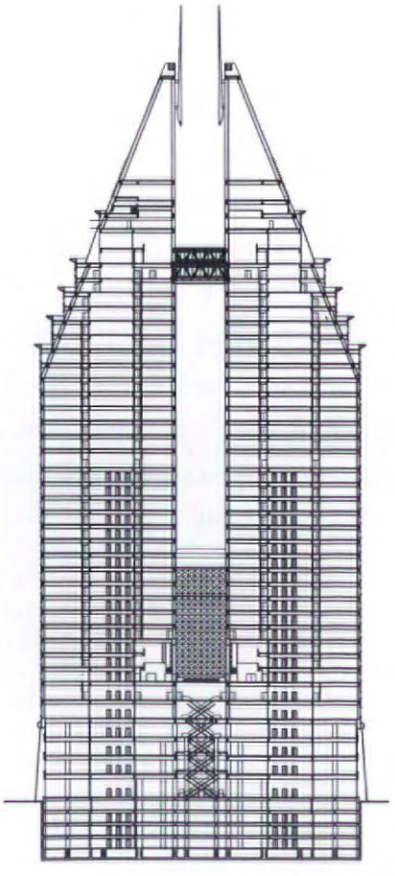
1 Main tower
2 Main podium
3 Ground level parking entry
4 Ground level parking exit
5 Ground level garage
6 Main entrance
7 Exhibition main entry
8 Basement parking entry
9 Bicycle basement entry/exit
10 Driveway
11 Cooling tower
12 Fountains

Left *A mixed-use structure with public viewing and recreation facilities on top of the twin towers. Exterior finishes will be granite and glass curtain walling.* ***Bottom left*** *The opulently finished seventh floor sky lobby.* ***Bottom right*** *Longitudinal section*

Yuda World Trade Centre

Built on an 8,200-square-metre site in the provincial Chinese city of Zhengou, this twin-towered structure includes a unified podium for retail purposes, 30 storeys of separate offices linked by bridges at levels 15 and 30, and high level, four-storey, public observation, restaurant and amenity facilities between levels 36 and 40. Reaching a maximum height of 200 metres with a total of 125,000 square metres of gross serviced floorspace, the structure of the building is reinforced concrete with a combination cladding of two-colour granite and tinted glass curtain walling. There are four basement floors containing extensive parking. The building is presently under construction and will have reached level 30 at the time of publication.

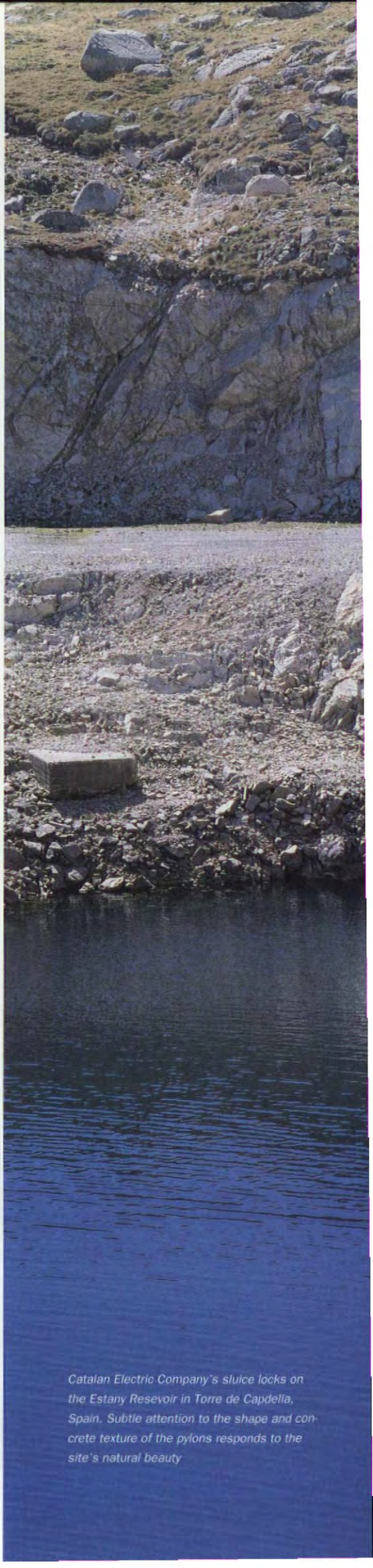
Date: 1998



Industrious architecture

Throughout the early 1990s international economic forecasts predicted the fall of manufacturing industries – whether toothpaste, tractors, semiconductors or speciality steel. Now these industries have reasserted themselves with a vengeance. Alan Phillips, author of *The Best in Industrial Architecture* (published by Batsford, 1993) analyses the evolution of industrial building from the Bauhaus to the present day. The global interdependency of industry lends itself to an analysis by type (comestibles, manufacturing, municipal industries and laboratories) rather than location. Hanscomb cost consultants reveal the figures behind the facts.

The market opportunity for architects wishing to practise within the environment of industrial architecture is huge, as it relies on production which is central to the affluence of all trading economies. The warehouse and distribution system is the total trade – the sum of imports and exports. Subsequently in North America alone over the last financial year, pension funds invested more than US$5 billion dollars in warehouse construction, although pension funds are less frequent acquirers of industrial real estate than private investors, or corporate owner occupiers. This level of investment in just one building type within the overall industrial sector bears out Landauer's 1991 Real Estate Market Forecast which stated that industrial buildings would be "first in the queue of recovering property types" and that manufacturing would "lead the economic revival of the 1990s".



Lluis Casals

Catalan Electric Company's sluice locks on the Estany Resevoir in Torre de Capdella, Spain. Subtle attention to the shape and concrete texture of the pylons responds to the site's natural beauty

▲ © Petra Hodgson

▼ Bernhard Kroll

The factory aesthetic

Industrial architecture has produced a contemporary generation of buildings which are as important in the realm of late twentieth century architecture as ecclesiastical buildings were in the middle ages.

The history of twentieth century theories that brought about the evolution of the "factory aesthetic" can be traced back to the Deutscher Werkbund and the Bauhaus school. Together with architectural scholars such as Auguste Choisy, they maintained that form would always arise as the logical consequence of technique, and pointed back to the great gothic cathedrals, as an example of an architecture that proved that beauty derived through an optimum relationship between form and the fitness of materials to perform their functions.

Sheds and warehouses

In his book *Learning from Las Vegas*, Robert Venturi categorised industrial buildings as either "ducks" or "decorated sheds". John Outram's Kensal Road factory in London, (1990) is an example of a "decorated shed" where the decoration is an indication of the building's intention. There is a constant demand for such a timeless industrial type where the production shed at the rear, and the front office, is embellished with a facade that simultaneously symbolises the nature and prestige of the industry within, and fulfils the building's duty to the public realm.

The "duck" on the other hand, is a building with explicit iconography such as Philippe Starck's Laguiole knife factory in France, (1987), which although not knife-shaped, has a giant blade thrust through its roof.

Two additional categories: the composite shed and the dumb shed complete this summary. Simultaneously functional and symbolic sheds such as Sir Richard Rogers' PA Technology Centre at Princeton, New Jersey, (1986) may be described as composite.

Contrary to Venturi's polemic, there are still many architects who believe that beauty need only tell its own story, a story which becomes more potent when expressed in simple and abstract terms. A dumb shed such as the warehouse in Igualada, Spain by the Barcelona based, Correa, Gallardo Mannino Asociados is a beautiful example of this sophisticated category, where the building's systems support the programme alone in the absence of ornament, symbol and semiotics.

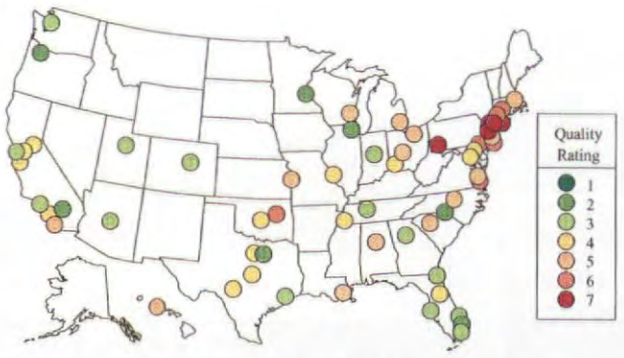
Manufacturing and engineering buildings

The programme for sheds, warehouses, speculative industrial buildings and, to a lesser degree, laboratories, are driven by standard requirements; flexibility, economy and standardisation and the need for a non-specific or dumb space which can accommodate many variations of storage and production processes. In general, the opposite is true in engineering and manufacturing buildings.

Designing a building to accommodate the complex process of manufacturing motor

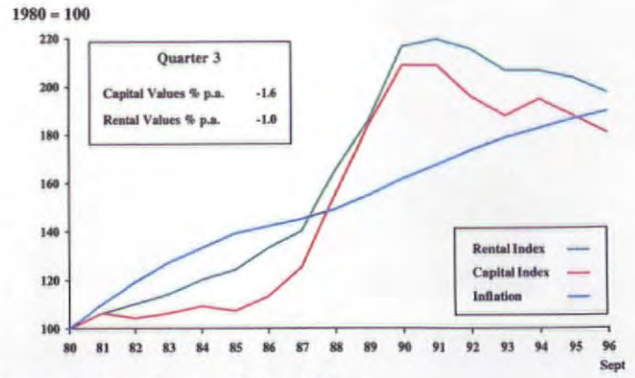
"Industrial architecture has produced a contemporary generation of buildings which are as important... as ecclesiastical buildings were in the middle ages."

Major US warehouse/distribution markets
Ranked by Landauer Market Quality Ratings



Source: Landauer Associates Inc's Landauer Real Estate Market Forecast

European index of prime industrial construction



Source: Jones Lang Wootton, October 1996

cars, for instance, or a factory to make furniture or dyes presents problems of analysis and research that demand very special architectural skills. The kind of analysis required must take into account technical, social and theoretical considerations. It has to respond to the hierarchies of management, the needs of the workforce, the requirements of the manufacturing process, equations of efficiency and the ethos of the corporate philosophy. This being done, the architecture often expresses eccentricity in response to the specific problem. This carries it beyond the limitations implicit in Venturi's shed category system.

The Dye Plant in Nottingham that Nicholas Grimshaw and Partners are currently working on defies simple categorisation. The strength of Grimshaw's work lies in its distance from idiomatic device, stylistic slavery or historical quotation. It is as original and unique as the product it serves. In contrast, Frank Gehry's chair factory for Vitra, Germany, (1994) is very "duckish". That is not to say that the building is shaped like a giant chair, but its programme, structure and mechanics suggest rather than explain the function of the structure because of Gehry's use of deconstructivist style systems.

In the procurement process of architecture – within the hugely wealthy arena of manufacturing and engineering – clients like Vitra are the exception rather than the rule. An architecture that clings to style, fashion and idiomatic device soon falls victim to the passing of time.

Opposite page, clockwise from above left *Bauhaus Art School by Walter Gropius (1925-6) Dessaus, Germany. Designs for industrial products were developed here and were realised in the design of the school; industrial training centre, Gropenmain Germany by Mark Asipuwicz with Hampe Architeckten; LPT's Terminal 8 West located on reclaimed land adjacent to Stonecutters Island, Hong Kong; computer rendering of interior of Grimshaw and Partner's Dye Plant, Nottingham, UK, unfinished.* ***Below*** *Abbott Laboratories, Texas (1996) by HDR. The architects focused on flexibility in the design, which alternates between office and manufacturing space*

Laboratories

It was Louis Sullivan who proposed that "form follow function". Within the traditions of industrial architecture, the type of late twentieth century building which best tests this proposition is the laboratory building.

At Richard Roger's Inmos laboratory building in Gwent, Wales, (1982) for example, the functional elements of structure, enclosure and services are visually articulated to demonstrate how each is at the service of its function. The structure, a series of triangulated booms suspended from a centralised core, supports the light canopy of the roof which hovers over the external walls. This device declares a column-free interior and explains the requirement for flexibility and demountability.

This type of architecture, more concerned with operations than fashion, although wholly within the tradition of the factory aesthetic and the zeitgeist of late twentieth-century expressionism is popular with clients who are not looking for their corporate image to be engaged with an architects obsession with style.

Municipal architecture

In municipal works, the engineer will design the water pumps, sewerage settling tanks or recycling machinery and lay them out according to the precise technical requirements of their operation. The architect will then wrap the lot up, like a lady-in-waiting with a penchant for a particular style of clothes. There are many notable exceptions such as the grass covered sewage pumping station in Iceland by ÚTI Inni Architects, (1993) which blends into the environment rather than making a stylistic statement.

Municipal industrial architecture is often characterised by robust composition, and muscular constructional elements. By contrast, Michel Kagan's Cité Technique, Paris (1993)

Mark Trew

INDUSTRIAL CONSTRUCTION IN ASIA PACIFIC

HONG KONG The expansion of the Hong Kong financial and services sector combined with the relocation of manufacturing activities to the mainland continues to affect the dynamics of the industrial market. In the last decade manufacturing has fallen from 40 percent to 10 percent of the Gross Domestic Product.

SINGAPORE The market is heavily biased towards high specification properties as the requirement for greater efficiency by end-users take priority. Demand for owner-occupation was particularly strong from multi-national companies seeking to establish regional distribution centres near to emerging Asian markets.

INDONESIA Increased demand for industrial property has been facilitated by the implementation of several investment deregulation packages since mid-1994. The role of foreign partners as investors will remain crucial in order to entice foreign industrialists to relocate their factories to Indonesia.

AUSTRALIA The lack of high-class industrial stock throughout Australia is likely to lead to an increase in speculative developments, especially multi-unit complexes mainly in Sydney, Melbourne and Brisbane.

makes an exquisite rearrangement of Corbusian syntax, submerging a series of modest functions beneath an heroic flourish of modernism. In this case, it becomes an icon of scholastic contemporaneity in the company of floating fire stations, sewerage works and water towers. Municipal works still promote themselves as fine architecture in the service of the public sector.

Comestibles

It would seem that the great bread manufacturers, chocolate makers and meat processing multinationals do not believe in the dictum that good architecture is good business. To many comestible giants, function is arranged by the systems engineer, the shed is fashioned by the lowest-bid design-and-build contractor and the colour of the cladding is decided by the outcome of a local high school competition.

Rich opportunities exist: for example the surreal juxtaposition by LBR in their design for a Norwegian dairy in Ostlandmeieriet, (1989) where the conventional idea of a milk bottle has been treated like a Claes Oldenburg sculpture and enlarged to a scale that is simultaneously familiar and unfamiliar. The American architects SITE, led by James Wines, have explored the overlap between sculpture, installation art, and architecture to build a chain of extraordinary warehouses that have brought the mail order company BEST to the attention of a worldwide audience. It could be said that Philippe Starck's Flamme d'Or on top of the Asahi Brewery and Beer Hall in Japan, 1990 is a move towards art-architecture, but the huge illuminated blob is both wilful and gratuitous and misses the opportunity to make a sculpto-tectonic response to the universal phenomenon of beer drinking.

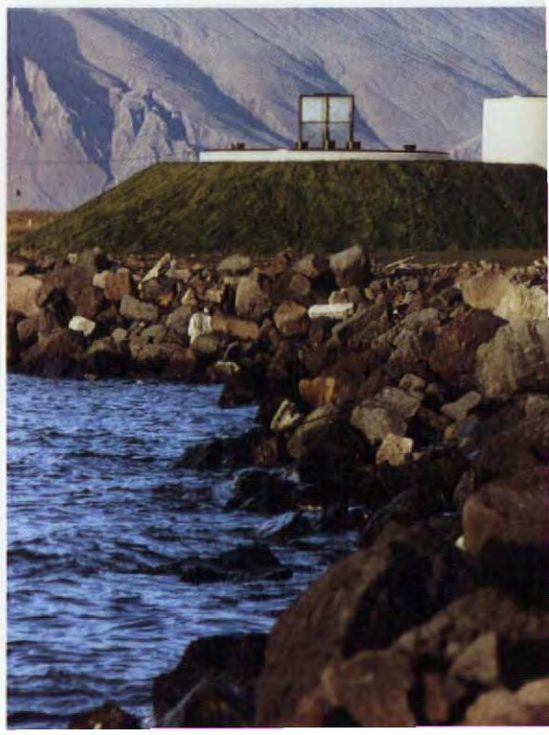
In fact, most of the comestible factories are orthodox in both concept and realisation. Even Michael Graves' winery in Napa Valley combines the historicist-academic tradition, with precedent and reference to make an Arcadian collection of post-modern buildings that become more self-regarding and idiomatic than abstract symbols of the culture of wine.

Style, like post-modernism, is difficult to avoid but in the beautifully crafted brewery for Simonds Farson Cisk by Peake Short and Partners in Malta, (1991) – the form of which is dictated by the demands of climate control – it is apparent that although fine art may have a role in support of good building, architecture can triumph without it.

From theory to the current marketplace

The American domestic industrial market has been quick to learn from its "casino strategy" of the 1980s. A new environment of "invest in the future" is creating a cautious recovery in the overall industrial market, especially in comparison to the explosive growth of the Pacific Rim "tiger economies" or even the growth patterns in China where the sheer size of the architectural market potential within the industrial property type is colossal. In the first quarter of 1996 overall industrial land prices in Beijing increased by 4.9 percent and although they are due to decline during 1997, Beijing will hold the most expensive real estate values in the world and yet will still complete 2.2 million square metres of industrial construction in the period 1996-98. The same holds for Shanghai, with huge areas set aside as designated industrial construction zones holding land sale values of between US$60-100 per square metre.

The Thai industrial production economy is also buoyant with a current annual growth of approximately eight percent. The current



© Otto Baitz/Esto

"For the largest and most dynamic opportunities in all areas of the industrial architectural market, follow the rainbow that lands in the East. But follow it quickly..."

Ed Asmus

Opposite below *Sewerage works near Reykjavik, Iceland by ÚTI Inni Architects, (1993).* ***Above*** *Clos Pegasse Winery, Calistogo, California, US by Michael Graves, (1984).* ***Right*** *LPA's Coca-Cola bottling plant in Sacramento, California (1996). The building is metal clad using Coke-red metal against grey concrete and a smooth white metal panel at the public entrance shaped to form the edge of a vaulted roof representative of the underlining "swirl" of the Coca-Cola logo*

account deficit on manufactured goods has declined, with industrial exports, particularly in the areas of steel, chemicals and cars, expanding by 20 percent over the last financial year.

Although 25 percent of the total land set aside as designated industrial development zones is currently vacant, international corporations like Union Carbide are still investing heavily in Asian industrial economies, with Thailand still showing a developing level of industrial land sales.

Apart from manufacturing, engineering and the huge warehouse property type as its real estate by-product, laboratories – especially those dedicated to research and development in information technology – are another global opportunity for architecture.

In both established and emerging trading nations, the appearance of facilities such as the new Microsoft campus in Seattle, US signals a "trigger effect", where one giant industry acts as a honey pot around which other suppliers and contractors swarm for sustenance. Throughout Europe and in Japan, the "trigger effect" has seen the emergence of the Science Park – a relatively new property type, but one where many architectural practices can operate within an overall master plan.

Although construction starts in European Science Parks have slowed, industrial production and therefore procurement opportunities for construction design, is not performing well. In Italy, growth has collapsed from 6.1 percent in the second quarter of 1995 to 0.4 percent in the first quarter of 1996. This is in the context of an inflation environment over the same period averaging 5.5 percent. Germany saw a modest growth of 1.7 percent in the second quarter of 1995 fall to -2.9 per cent in the first quarter of 1996. Over the same period, Spain's industrial growth has fallen from 5.6 to 0.5 percent whereas the UK has performed relatively well with only a 1.3 percent fall.

So it would seem that for the largest and most dynamic opportunities in all areas of the industrial architectural market, including municipal architecture, follow the rainbow that lands in the East. But follow it quickly because the tidal wave of information technological innovation is moving so fast that the current research and development laboratory buildings arising will house inventions. Cyberspace may replace physical space as the locale of business. Certainly, the third millennium will see a radical decline in construction as we currently understand it. **WA**

Industrial buildings
Hanscomb

Since the Industrial Revolution we have spoken of developed and under-developed countries, referring to their degree of industrialisation. The perception is that this phenomenon, which changes the social and economic fabric of a nation, is universally desirable. However, whilst it has its benefits (ie an expanded economic base and improved living standards), it also has its problems (ie environmental pollution). Hanscomb look at the international industrial building sector to find out how, where and when the action is 150 years after the "big bang".

Where is the construction activity in manufacturing?

The Asian/Pacific market continues to be the fastest growing market. Eric Berman of Hanscomb indicates that the Asian market is still primarily fueled by investment coming from Europe, North America and advanced Asian countries such as Japan and Korea. There is some investment from expanding local industries. However, multi-national companies, often in a joint venture with a national firm, account for most large plants and for much of industrial construction value.

Central and South America continue to attract the attention of the multi-nationals. While this region may not be as active as Asia, industrial development continues to be strong, particularly in Brazil, Argentina and Chile. During the past couple of years over ten automotive related plants were announced or begun.

The North American market will continue to see growth in 1997. The pattern of small, but consistent increases in the industrial sector should continue in Canada. Industrial construction in the US should have a strong year. Mexico is still recovering from the economic crisis of 1995. While industrial investment continues, it may be several years before pre-1995 levels are achieved.

David Lawrence of Hanscomb reports that the manufacturing sector in Europe is mixed. The sector is expected to remain active in eastern European countries such as Poland, the Czech Republic, Hungary and Russia. Manufacturing construction in most of western Europe will remain stagnant, two exceptions are the UK and Ireland.

Site selection

Competition for the investment of multi-national manufacturing plants is significant. With the expanding globalisation of trade, there is more competition among countries (and within countries) for major manufacturing plants. Consider the competition within the US for the recently completed Mercedes-Benz plant in Alabama, where the incentives offered are reported to total almost US$300 million. Many developing countries may relax government restrictions, eliminate requirements for a local partner or make it easier to move through the government bureaucracy to attract new industrial development.

Government incentives may help attract manufacturing investment. Nevertheless, investors evaluate the total business climate.

"... developing countries may relax government restrictions, eliminate requirements for a local partner or make it easier to move through the bureaucracy to attract new industrial development"

They consider many factors that are often inter-related:

- Low business costs
- Skilled work force
- Infrastructure (transportation, utilities, etc)
- Quality of life
- Political stability

The changing nature of manufacturing

There are many forces at work that are reshaping the design of industrial buildings around the world. Perhaps the biggest influence of all is the increasing need for flexibility and expandability. Product life cycles are shorter and technical change becomes more rapid. This leads to two responses:

- Buildings are designed for shorter lives and become more disposable (generally the trend in North America).
- Greater flexibility is designed into the building (generally the trend in Europe and Japan).

The rapidity of technical change also means that industrial buildings are never finished. Design by change order, no matter how much it is deplored, becomes a fact of life. There is rarely a breathing space before expansions and changes need to occur.

A further trend influencing design is the move to outsourcing and just-in-time logistics. Designs and site layouts need to recognize the complex logistical sequencing that this dictates. Large scale warehousing is replaced by extensive aprons for trailer trucks and the like. For large industrial plants, outsourcing often means the development of a campus or complex of industrial facilities as suppliers are encouraged to establish themselves near the main plants.

In most developed countries, automation has reduced the number of manufacturing jobs while raising the skill levels required. This can be a significant factor in the facility design. Where processes have been automated, technical training becomes more important and training areas become a part of these buildings. Often, the work environment may be upgraded.

Table 1 – Industrial Building Cost Comparison

All Costs in US$				
Less Than $300	$300 to $500	$500 to $700	$700 to $900	Greater than $900
Brazil	Australia	Belgium	Denmark	Japan
India	Canada	Finland	France	Switzerland
Malaysia	Chile	Great Britain	Germany	
Mexico	Czech Republic	Hong Kong	Sweden	
	Indonesia	Ireland		
	New Zealand	Italy		
	Portugal	Netherlands		
	South Africa	Norway		
	Spain	South Korea		
		United States		

All costs converted using December 1996 exchange rates.

Table 2 – Typical Elemental Cost Percentages

Substructure	4 - 11
Superstructure	10 - 16
External Enclosure	6 - 12
Roofing	2 - 5
Interior Construction	10 - 23
Conveying Systems	0 - 2
Mechanical	25 - 36
Electrical	15 - 20
Equipment (non-process)	1 - 2

It may be that image is becoming more important. Increasingly, park-like settings are replacing the traditional image: a foreign firm building their first manufacturing facility in a country often constructs an image building. However, even on the home front many firms are more conscious of the appearance of their facilities.

Costing issues

Even though the cost of manufacturing facilities is usually dwarfed by the cost of manufacturing and process equipment and other capital costs, it does not mean that there is any lack of concern on the part of owners for reducing costs and maximizing value, especially in today's competitive climate. Here are some of the factors that will contribute to determining the magnitude of industrial building costs:

- All the usual factors that one learns in Building Economics – configuration, bay sizes, clear interior height, single versus multi-story, etcetera.
- Requirements for cooling and air conditioning – often dictated by location and/or process.
- Integration of process with facility in areas such as:
  Structural loads required for the process
  Pits and trenches
  Isolation of vibration and sound
  Flatness and tolerance rating of slabs
- As most industrial facilities are single story the issue of the type and character of roof and its integrity are very important. This applies not only to the type of roof covering, but whether the roof is flat or pitched, the extent of penetrations, what will be located on the roof versus on the ground, etcetera.
- Extent of glazing and lighting through roofs and walls.

Another factor that always needs to be clarified is the scope of process work to be included with the building costs for items such as equipment supports, mezzanines, mechanical and electrical services, spot cooling, etcetera. Increasingly owners are requiring integration and rationalisation of products used in the base building and in the process, to simplify maintenance and replacements. A good example is the use of the same type of valves for both the process and building services.

Costs can often be influenced by the company's insurers and risk managers. Naturally, they will require high levels of protection to mitigate the risks, which in turn influence the insurance premium. These affect the design of sprinkler systems and water supply design, HVAC systems, extent of fire walls over and above code requirements, and security systems. In the case of multiple buildings, the minimum space between buildings maybe dictated by insurers.

A further process related issue that will influence the method of cost control and often the design, is taking advantage of tax and depreciation rules as they apply at each location. In the US, the way an item is attached may determine how it may be depreciated.

The extreme time pressures under which manufacturers operate are translated to the facility. It is the norm for an industrial building of any size to be designed as it is being built. This requires sophisticated project management and project controls to avoid the inherent confusion and likely additional costs.

Cultural leanings will influence costs. In the US, buildings are considered more disposable, whereas in Europe, the tendency is toward greater flexibility. This flexibility is apparent in some basic building differences. Structurally, there is a preference in Europe for industrial buildings to have column free, or at least longer spans than are typical in the US. Floor slabs in Europe are also often thicker than in the US, to allow greater flexibility in floor loading.

Industrial buildings can of course range from the more traditional manufacturing facilities costing in the US in the range of US$400 to US$700 per square metre to sophisticated hi-tech facilities ranging upwards from US$3,750 per square metre. Clearly there are significant cost challenges with the latter, epitomized by wafer fab semiconductor manufacturing projects, very few of which weigh in at less than a US$1 billion investment (construction and equipment). Don McIntosh, Director of Corporate Facilities for Advanced Micro Devices in Sunnyvale, California, knows that the critical cost issues for these building types are two-fold. First, because the manufacturing system housed probably has a life of about three years, they are constantly trying to find ways of making the building shell easier to adapt to the new equipment that will be coming down the line. The second major trend is a move away from built-in clean rooms to the creation of mini-environments, where the clean air requirements are concentrated at each individual tool. Don says, "This significantly reduces the volume of air requiring treatment for temperature, humidity, particle and molecular control, and reduces our operating costs. We are looking into ways of offsetting the additional cost by building cheaper and more flexible building shells. Another significant advantage to us is that we cut down significantly on double and triple gowning, thus making our employees more productive. We are also moving to modularising these units which will make them easier, and we hope, cheaper to replace". **WA**

Nicholas Grimshaw ascending the stairs of his London office

Jo Reid & John Peck

Nick Grimshaw is the founder and lynchpin of Nicholas Grimshaw and Partners, a British architectural practice at the forefront of industrial design. The firm has a long history of success, from the Herman Miller Building in Chippenham, UK, in the eighties, to the Vitra Furniture factory in Weil-Am-Rhein, Germany and, most recently, a Textile Dye Plant in Nottingham, UK. As a very British architect Grimshaw feels close ties with the Industrial Revolution, and suggests in conversation with Katherine MacInnes that since England precipitated that revolution, it could also be the first country to offer ways of resolving the problems associated with coming out of it.

"Hundreds of millions of square feet of typical pension funded sheds have been built in the last few years" complained Nick Grimshaw in his talk on "The Future of Industrial Buildings" at the Royal Society of Art (RSA) over a decade ago in 1984, "– each with two metres of brickwork, a few small windows for the boss by the door, metal-clad sides and a cavernous, windowless interior which is of little use other than for the storage of cornflakes packets". Industrial buildings were, until recently, at the bottom of the design pile. But why employ an expensive architect when a cheap, off-the-peg "pension funded shed" would do?

"I think that the first point would be quality of life." explains Grimshaw. "People are no longer doing simple repetitive tasks. You know, sitting in front of looms or putting caps on bottles, that kind of thing." Machines service the production line. "And they are the kind of machines operated by someone in a white coat who likes to go for breaks in an office with a

Industrial revolution mark two

window looking onto a tree with a squirrel in it. They have different expectations."

Grimshaw practises what he preaches, the workers in the Vitra Furniture Factory in Weil-Am Rhein, Germany (1981) look out onto four courtyards named after the seasons with trees that "look good in spring in the spring courtyard etcetera". Instead of being hidden in the bowels of the building like the engine of a ship as they traditionally were, the printers in Grimshaw's *Financial Times* building in London's Docklands (1988) have a view and the glass facade also allows people outside to see the vast printing presses churning out the latest pink papered news.

"Secondly," Grimshaw continues "I think that everyone who builds a building nowadays would like to think that it could be used by somebody else. It has to be flexible. The Herman Miller building in Chippenham, UK [1983] has been quite radically changed around. Panels, doorways and entrances have been moved and its usage has changed – now it is all manufacturing and they have put more people in, and it has all worked. The Igus Factory in Köln, Germany [1992] expanded I think five times using the same components so that you have got a modular system specific to that company." But as for off-the-peg solutions? "Michael Hopkins had a very good modular system, the Patera System but it didn't take off.

In his RSA speech, Grimshaw went on to say that the days of the grandiose building "which expresses the grandiose aspirations of a particular industry, like the thirties' Hoover building, London are gone". So do flexible buildings preclude iconic statements? "When did I do that lecture by the way?", "1984" "'84, yes because subsequently... well... I think I would probably modify my comments and say that in Germany, because of private or family ownership, they do look for identity in their buildings in quite a big way. Funnily enough you have got rather an interesting spectrum because in America the exact reverse is true, it still applies in America that industrial buildings are looked upon as the cheapest possible thing you can make – I mean really cheap."

Before building the Research and Development facility for Rank Xerox in Welwyn Garden City (1988) Grimshaw was invited to visit their building in Silicon Valley, USA. "We went round huge slab-sided and concrete industrial buildings which they'd bought and turned into ... well basically rooms with guys sitting in dimmed light working infront of computers making programmes. The corridors were a quarter of a mile long and they called them Oxford Street and Bond Street etcetera. But they don't 'produce' anything there. America had a huge number of goods made for the electronics industry made in Japan, and then Korea starts supplying Japan and now it is Malaysia supplying Japan with parts. And so you get these chain reactions going around the world. And soon China will start feeding components into the bottom of the chain."

"Modern industry doesn't have much pollution – so it doesn't have to be isolated from the main centres of business"

I think that if one wanted to be optimistic one would say that we would go more towards the Igus direction where the architect is commissioned to do a high quality system for the client to accommodate their type of machines and their type of business, because nothing satisfactory seems to exist 'on-the-peg'."

So how does this affect architecture? "Whether the value of the machinery that now operates the production line will have an effect on the quality or at least the amount that they are prepared to spend on buildings I don't know. It's an interesting question. But indirectly there is certainly more stress on location and 'point-of-use', you know, producing things where they are needed. Parkland Dye Factory in Nottingham UK [1997] produces fabric for transport seating that was previously imported from abroad. They are located in the middle of the country so they can supply surrounding car manufacturing plants direct. Another example in the domestic market is the *Financial Times* which have regional printing works as well as printing in London because it saves enormously on the cost of distribution."

Grimshaw believes that the fundamental change for architects to consider is that "workplaces will become much more dense... Modern industry doesn't have much pollution, noise or traffic so it doesn't have to be isolated from the main centres of business. For example: people can be sitting infront of a computer designing printed circuits which can be made in the floor below in the same building by a couple of machines which can then be inserted into a computer on the floor below that. And then you could have finance and personnel etcetera on the two layers above that. Most importantly, I don't see any difference in the type of building that you would require for any of those functions."

Predictably, Grimshaw is not a fan of the "journalistic" term "hi-tech" with which his architecture is often associated, but I asked him whether it was a manifestation of his vision of the future: offices, warehouses, plants all in one "industrial" building. "This architectural type comes from a long British tradition of industrial design and possibly from the utility ideas after the war when people learnt to do things in an extremely basic way" he explains. " Architects simply tried to organise it in a systematised way. It has become identified with Britain because America was the country of cover up – suspended ceilings, suspended floors and curtain walling. My view on building is a constructional view – a traditional English school who try to build and construct things really well." **WA**

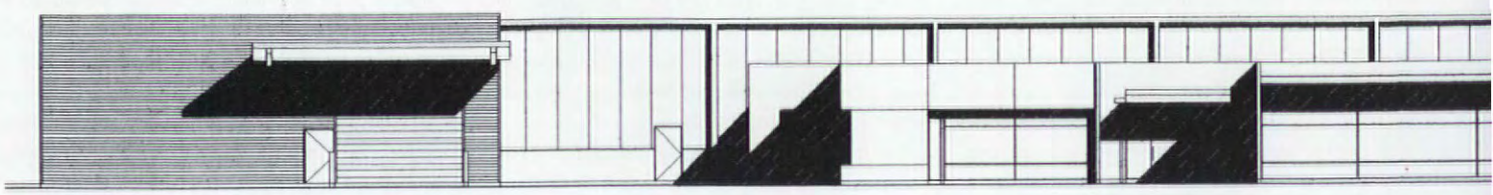
International tastes

Cracker factory, Melbourne, Australia

Architect Joseph Toscano Architects
Photography Tim Griffith

Japanese corporate philosophy dictates that all staff – workers and management – enter through one door. So when Australian architects, Joseph Toscano, were commissioned by Sakata to build their new processing facility in Laverton, the building was designed accordingly. The scale of the basic shed form matches that of local factories. The administrative style, technological mechanisms and the product itself are Japanese. The building resonates with a vernacular building type: a verandah attached to the front of a core building with a lean-to stretching off the back.

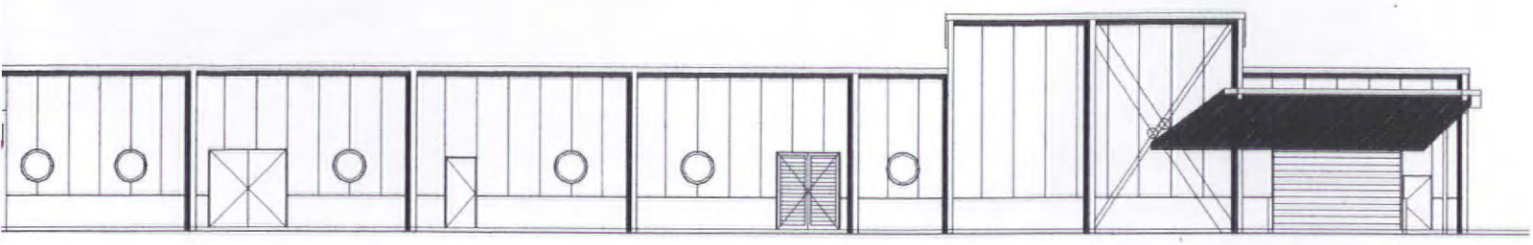
From the outset the Australian team worked together with the Japanese company to achieve the most pleasant and effective solution in the time available. Having visited the existing plant in Japan to establish the method of work, the



architects produced a list of design features that could be accommodated within the budget. With the client they selected a combination of these elements that could effectively "lift" the simple extruded shed form of the building. These included: exposed aggregate precast concrete feature panels to the entry courtyard walls; a large staff tea room with full height tinted glazing to the north and west walls; integrated site landscaping design; integrated project graphics (which resulted in a new company logo), and high quality furniture and finishes in the office and tea room buildings.

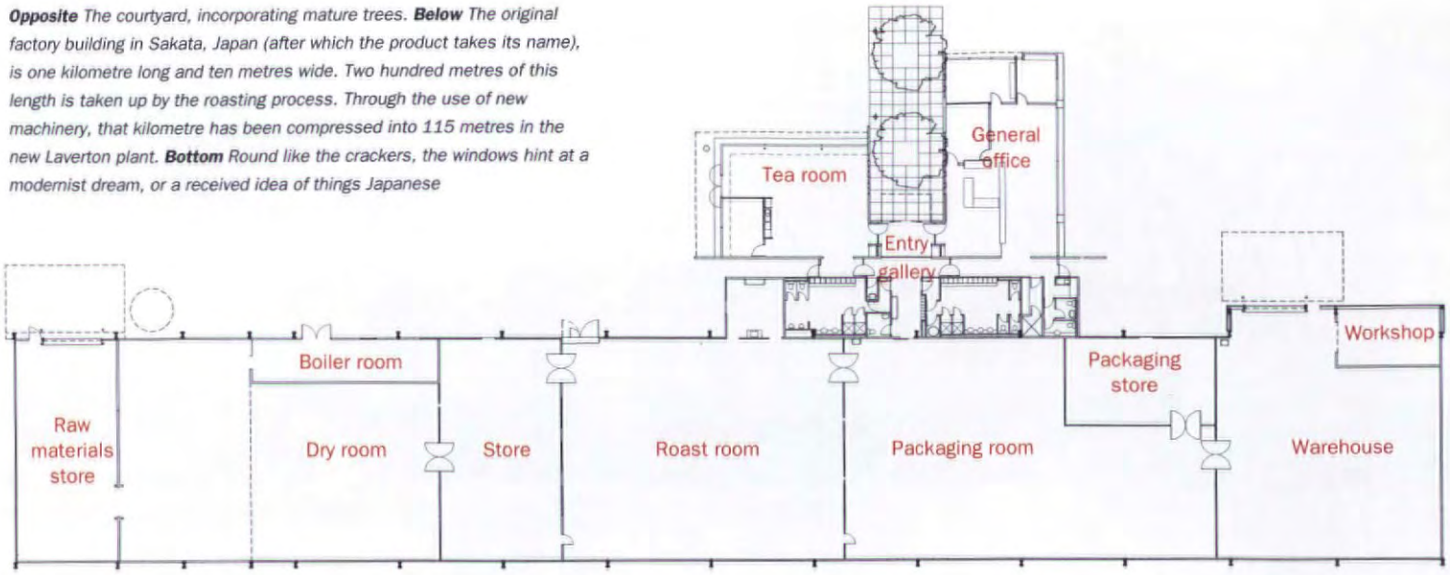
By a subtle combination of these elements a serene attractive building entrance has been achieved with a courtyard that is a simple composition of walls, paving and two deciduous trees. On either side of this courtyard, the

Opposite above *View through the glass wall of the staff canteen.* ***Above*** *Both loading bays are sheltered from the prevailing south-west wind to minimise heating requirements.* ***Below*** *North elevation of the building. Subtle allusions to the vernacular can be seen in the verandah attached to the front of a core building with a lean-to stretching from the back*




SAKATA

Opposite *The courtyard, incorporating mature trees.* ***Below*** *The original factory building in Sakata, Japan (after which the product takes its name), is one kilometre long and ten metres wide. Two hundred metres of this length is taken up by the roasting process. Through the use of new machinery, that kilometre has been compressed into 115 metres in the new Laverton plant.* ***Bottom*** *Round like the crackers, the windows hint at a modernist dream, or a received idea of things Japanese*



front buildings of the administrative offices and staff cafeteria are open to all the office workers and the plan is representative of the egalitarian social order advocated by Sakata.

The site specific nature of this project increases its environmental/energy performance. Two loading docks are sheltered from the prevailing south-west winds by the large building form; the appropriate orientation of major spaces with adequate roof overhangs and with a zoned mechanical services system and the inclusion of a number of mature trees within the building.

The only specific iconic touch in the factory is the set of round windows, strung along the lean-to wall facing the access road to the delivery bay. The Melbourne-based architect, Alex Selenitsch noted that: "Round like the crackers, the windows simultaneously hint at the modernist dream of well-run industries and hygiene and, given the frame and panel walls they are set in, represent a received idea of things 'Japanese'". **WA**

Client	Sakata Rice Snacks
Architects	Joseph Toscano
Structural/Civil Engineers	Bill Gamble Project Consultants
Landscape Design	Landarche Pty Ltd
Graphics	Emery Vincent Associates
Building Contractor	Vaughan Constructions Pty Ltd

Well disposed waste disposal

Overslagstation Binckhorst Den Hagg, The Netherlands

Architect Jan Brouwer Associates
Review Peter Wislocki

A waste handling plant on a backland site, separated from The Hague's modern city centre by a busy, elevated railway line, does not immediately suggest an opportunity to create fine architecture. Jan Brouwer, an architect who has made the reality of technology – as opposed to its gratuitous expression – a prime generator of design over many years, has produced a scheme of spatial and structural sophistication, in response to a brief of apparent banality.

With the rapid growth of the Dutch seat of government, the problem of treating and removing The Hague's refuse in an ecologically sustainable manner was becoming acute. The municipal authority's strategy utilises the canal network, transporting waste efficiently out of the city. However, the waste must be compacted into containers for ease of handling.

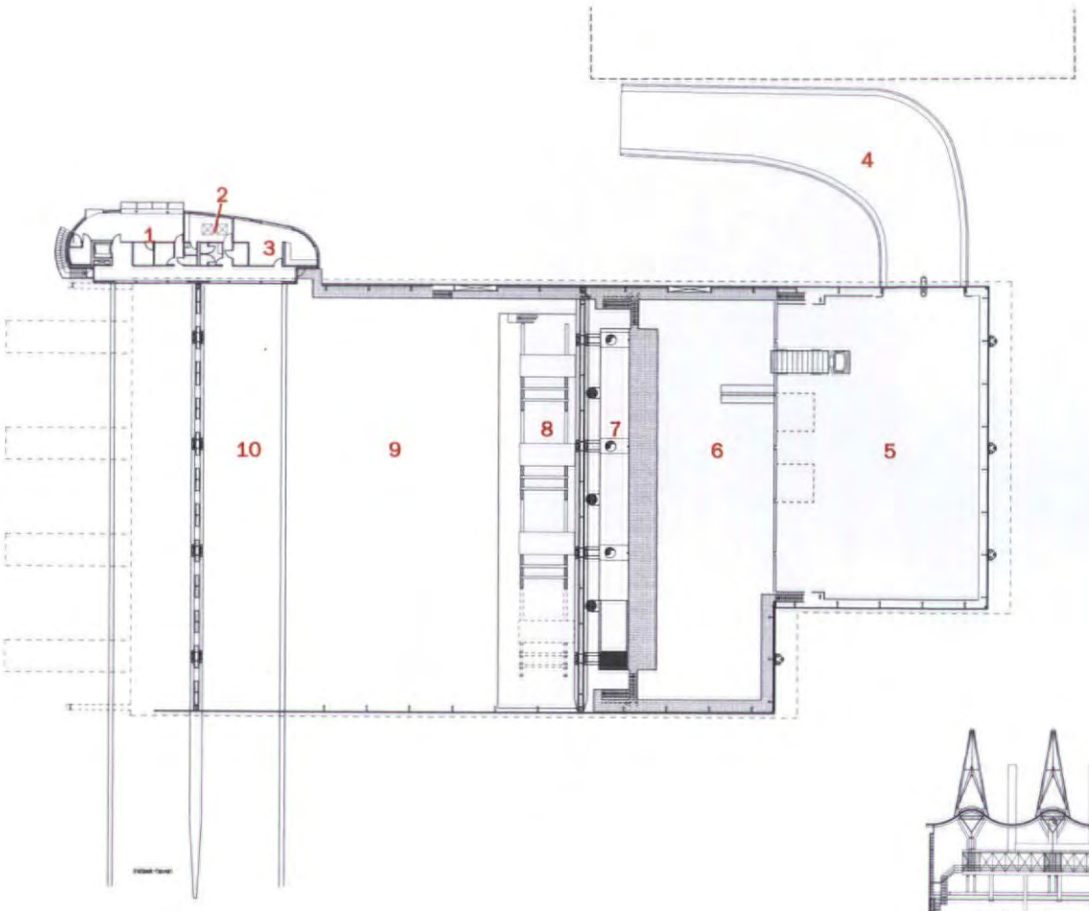
Every major move in Brouwer's design is derived from the waste management process. Garbage trucks arriving from the eastern end of the site mount a weighbridge before ascending an external ramp, entering the building at its southern end. Inside, they reverse towards a number of chutes, dumping their contents into containers at the lower, ground level. These, in turn, are lifted on gantry cranes, moving towards barges which enter through a newly cut channel coming from the west into the Overslagstation's northern end. Brouwer's design anticipates a doubling of the facility's throughput – the second phase extending the building on the opposite side of the canal channel, towards the north. The cantilevered, cable-stayed roof trusses which will support the roof of the extension have been erected as part of the first recently completed phase.

Jan Brouwer – whose reputation as a leading industrial architect and building-component designer places him at the heart of a distinct Dutch tradition of latter day functionalists, including CEPEZED and Benthem Crouwel amongst others – has articulated the building's steel structure, here concentrating columns in zones of the plan which minimise obstruction to vehicles and barges. The skin of the building, whilst necessarily repetitive and planar, is extensively glazed; the clear volume within the building's southern end glowing in light filtered through a wall composed almost entirely of glass blocks. The functionally distinct control room is expressed as an asymmetrically curved volume, floating at first floor level alongside the east facade.

It is a tribute to both client and architect that a building of some architectural ambition has been procured from a brief that could have been accommodated within an industrial shed. WA

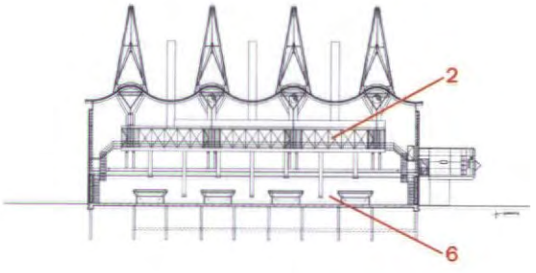
Above *The dramatic profile of Jan Brouwer's waste handling plant in The Hague's port area.* ***Opposite clockwise from top to bottom*** *Plan of the building showing the office/control room jutting out from the main rectangular plan on the land side and the waste vehicle docking bays to the left; detail of the hi-tech suspended roof above the docking bays; longitudinal section through the building showing the cantilevered section over the water on the right; the curvilinear roof contrasts with the cantilevered, cable-stayed roof trusses which will support the roof of the extension*

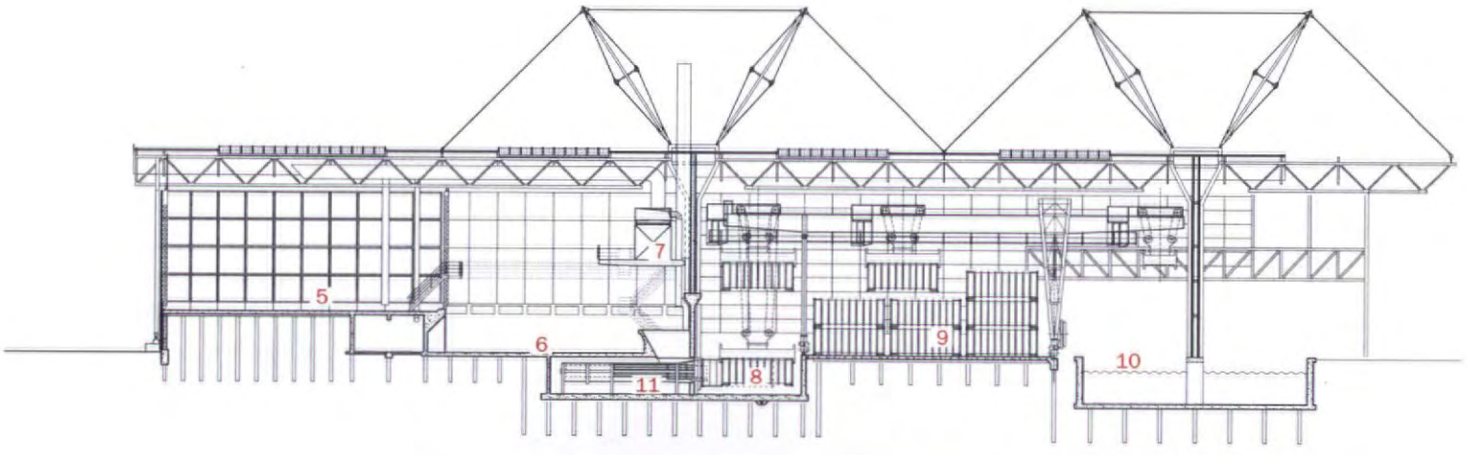
Project	Overslagstation Binckhorst Den Hagg, the Netherlands
Client	N V Afvalverwerking Rijnmond/ Managementteam OSSB Den Haag
Architect	Jan Brouwer Associates buro voor architektuur en planning BV prof ir Jan Brouwer
Assistant architect	ir M van der Palen
Engineers	Pieters Bouwtechniek Utrecht B V
Technical consultant	Valstar Simonis B V
Main contractor	Strabag, aannemingsmaatschappij, Dordrecht

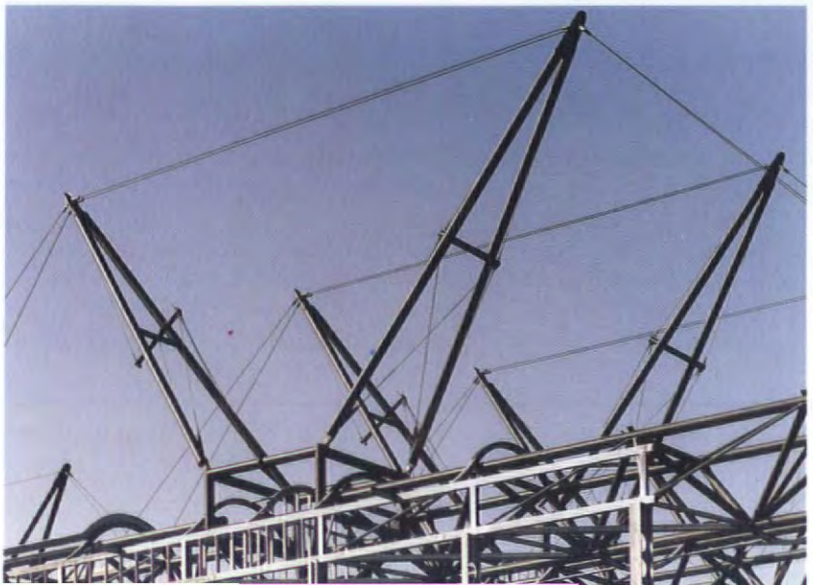


Key

1 Office/control room
2 Locker room
3 Canteen
4 Ramp
5 Dump platform
6 Dump floor
7 Ventilation units
8 Container switching Installaton
9 Container storage
10 Dock
11 Compression installation







Left *Vertical planes punctuate the exterior of the building. Site landscaping used many of the existing desert plants.* ***Below*** *Taken from the colours of the sunset on the Mexican desert, Heery's designers matched the orange hues of the desert sunset with one of the stucco colours. In contrast to the reception area (pictured here), the production area is utilitarian white*

Motorola Mexico

Chihuahua, Mexico

Architect Heery International
Photography R Steven Hornaday

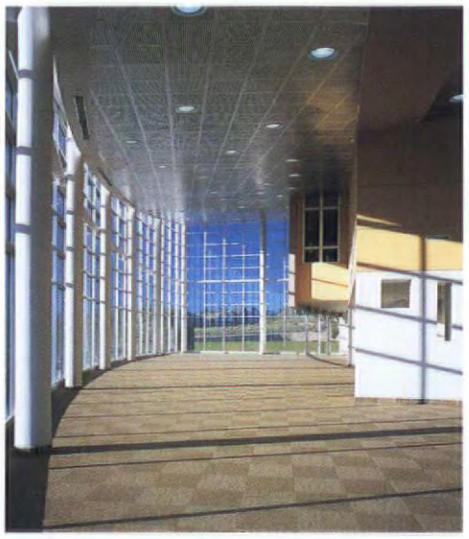
One of the most distinctive features of the facility Heery International designed for Motorola Mexico is its colour palette which is taken from the colours of the sunset on the Mexican desert. Scott J Dreas the project manager who has recently been made Vice President of Heery, explained that they made the decision not to use purple when American Industries (a Chihuahua-based international investment agency) advised them that in some parts of Mexico purple symbolises death. Instead the Heery designers used a varient of blue in the design of the new manufacturing plant in Chihuahua.

Motorola chose Heery because of previous connections with the company – in 1981 Heery were used in the construction of Motorola's Florida plant. The location within Mexico was chosen because of its proximty to the US border, the resultant export tax advantages and the availability of skilled labour – many workers were made redundant after the exodus of many US firms following devaluation. The budget for the development was put together in the US, affording Heery an unusual amount of freedom.

Spatially, the building has been designed with the intention of creating a feeling of openness, allowing an logical progression from the empty desert to the production plant. Instead of applying the standard landscaping technique of extensive greenery, Heery have taken care to use a limited amount of "grey" (purified but undrinkable) water to irrigate a soccer field on the site.

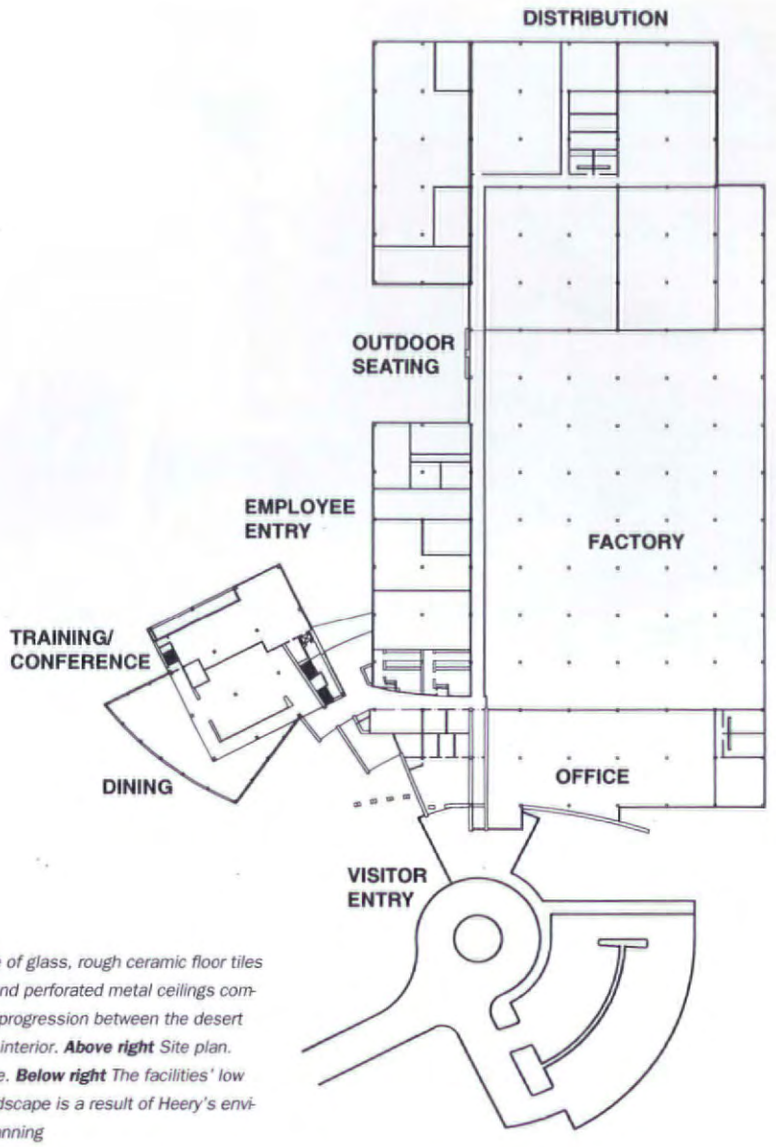
The layout of the building combines the traditionally circular patterns of the Mexican landscape and land development and the US "Jeffersonian" square grids. A circular point of entry radiates curves culminating in the facade. The employee support and service areas – main dining room, training areas and conference rooms – are on a structural grid which is again rotated to take advantage of the views.

The materials used continue the basic concept of combining US and Mexican traditions:



the public areas use hi-tech products while adobe and masonry are used in the flexible production area at the back – in common with the desert local vernacular. The aim of the building is to create a working environment appropriate to its 24 hour schedule including sensitive night lighting – "random spot lights designed to emulate the desert night sky".

Despite Heery's contextual sensitivity the 225,000-square-foot facility has certainly made a significant visual impact on Chihuahua. But the opportunity to create a landmark building for the area has not been completly ignored – the hi-tech public and staff spaces on the Pan American highway side of the building present a dynamic profile to travellers on what is South America's most used road. Added to this, the curvilinear glass facades provide mountain views to the east and west. **WA**



Above left *Extensive use of glass, rough ceramic floor tiles (manufactured locally), and perforated metal ceilings combine to provide a logical progression between the desert exterior and the modern interior.* ***Above right*** *Site plan.* ***Below left*** *Main entrance.* ***Below right*** *The facilities' low profile on the desert landscape is a result of Heery's environmentally sensitive planning*

Project	Motorola, Chihuahua, Mexico
Client	Motorola Inc
Architect	Gregory H Peirce (Heery)
Project designer	Joe Dreher (Heery)
Project manager	Scott J Dreas (Vice President of Heery)
Engineer	Duane R Dunlap (Heery)
Construction Manager	Beck International
Consultants	American Industries

Laminates Factory

Johor, Malaysia

Architect Kajima Design Asia

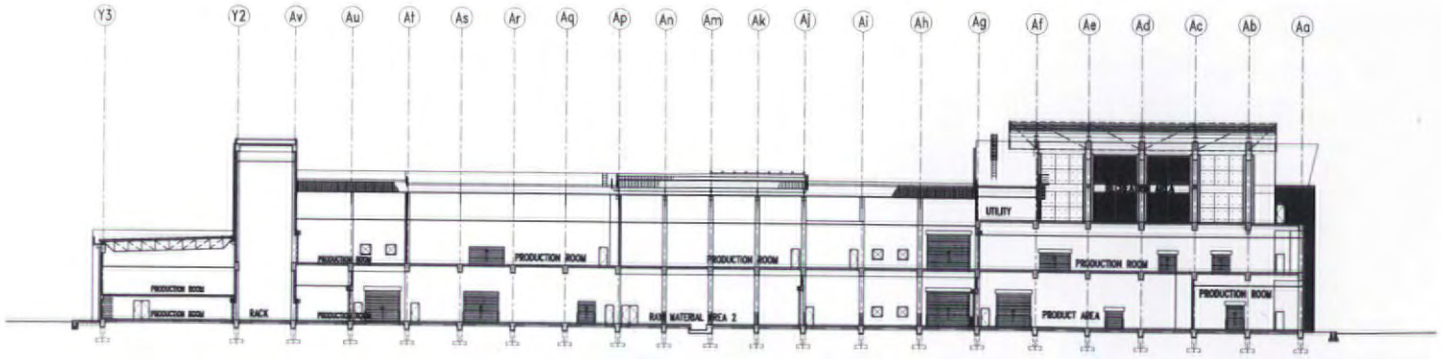
Kajima Design Asia designed the Laminates Factory for the production of print circuit boards for the Japanese company, SNC Industrial Laminates SDN BHD in Johor. SNC provided Kajima with an unusually luxurious brief for a factory building, partly because there is a persistant shortage of available labour in Malaysia so the company were keen to attract employees with appealing "fringe benefits" – recreation facilities, rooftop canteen etcetera – and partly to enforce a sense of identity in an alien environment.

The development, which has a floor area of 30,000 square metres, has taken almost five years to complete. Located at the Pasir Gudang Industrial Estate the site covers an area of 60,700 square metres.

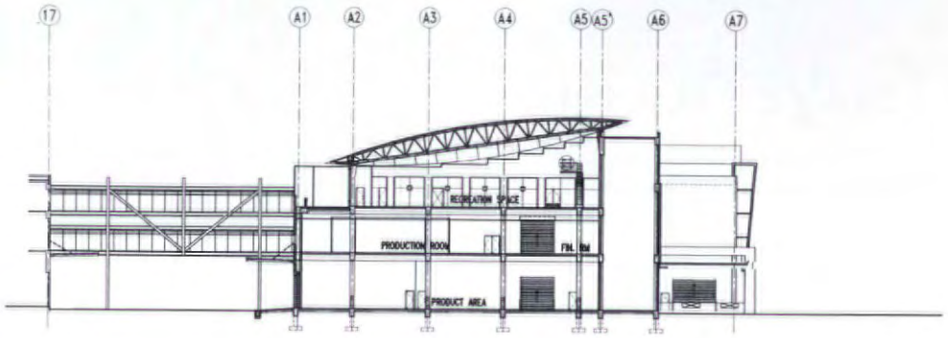
In their design for the Laminates Factory, the architects sought to soften the traditionally oppressive industrial image. The production line buildings were wrapped in earth coloured bricks; tropical landscape design was integrated into the main facility area to promote a "healthy", natural atmsophere, and specific design areas lift the building from being a purely functional response to the brief to a more considered aesthetic interpretation of the client's wishes. These include the wing-shaped roof and a glass curtain-wall which faces the pedestrian deck connecting the two buildings.

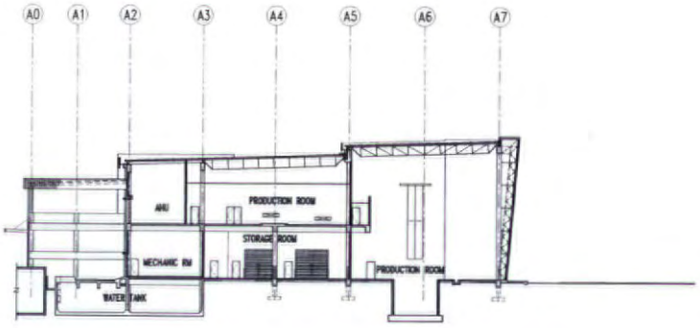
In order to resolve the contrast between the very human scale of the facility with the heavy industrial image of the chemical plant – chemical tanks, boilers and pipes – Kajima introduced special air-conditioning and humidity controls to provide a pleasant environment appropriate for both the machinery and the employees. (Humidity averages between 80 and 90 percent in Malaysia.)

The basic structure consists of reinforced concrete and fair-faced brick rising three storeys above ground. Phase one, which was designed in Kajima Design Asia's head office in Tokyo in the spring of 1991, cost a total of US$30 million. Phase two, which was developed in the Singapore office, came in at approximately US$10 million. **WA**

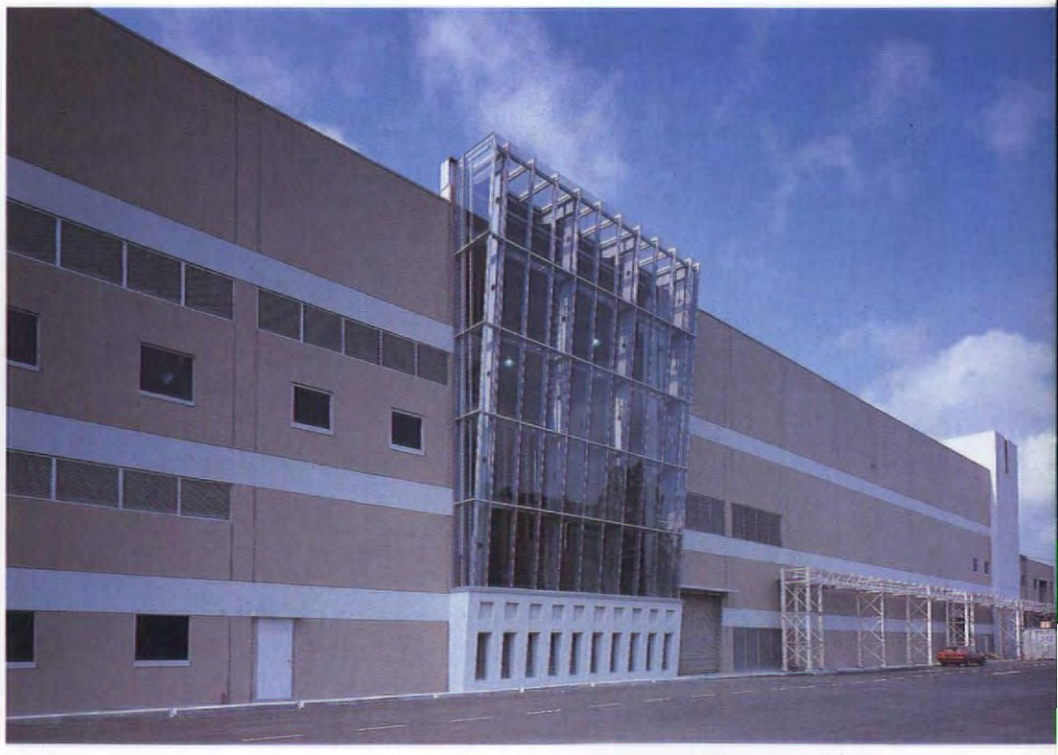


Project	Laminates Factory
Client	SNC Industrial Laminates SDN BHD
Architect/project designer/project manager/engineer	Kajima Design Asia
Construction manager	Kajima Malaysia SDN BHD
Consultants	Unibina Architect (authority submission); arkitec tac (architectural); Jurunding Asapp (structural); Sumitomo Densetu (mechanical); Keu ruteraan Binati Kindenko)





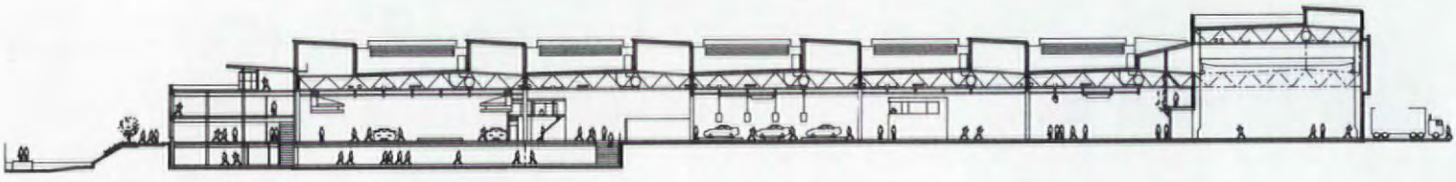
Opposite page top *Exterior view showing the main transport reception area and wing-shaped roof.* ***Opposite page bottom left*** *Detail of the wing-shaped roof, one of the design elements that lifts the building from being a purely functional response to the client's brief.* ***Below*** *Two glazed pedestrian bridges facilitate movement between buildings.* ***Below right*** *The triple height glazed facade of the factory allows natural light in whilst controlling temperature and humidity levels of the interior work space.* ***Plans from top*** *Longtidutinal section; section showing the wing-shaped roof and connecting bridge and the space devoted to recreational activities at the top of the building; section through the main production area*



Renault Technocentre

Guyancourt, France

Architect Jean-François Schmit



A 150-hectare site at Saint-Quentin-en-Yvelines, near Guyancourt to the west of Paris is the location of Renault's first Technocentre. The FF6.4 billion development is a statement of Renault's intent to secure its future well into the twenty-first century.

For the first time the company's research and development resources will be concentrated in one area. The ultimate goal of the reorganisation is the lowering of design and development costs for future ranges of cars.

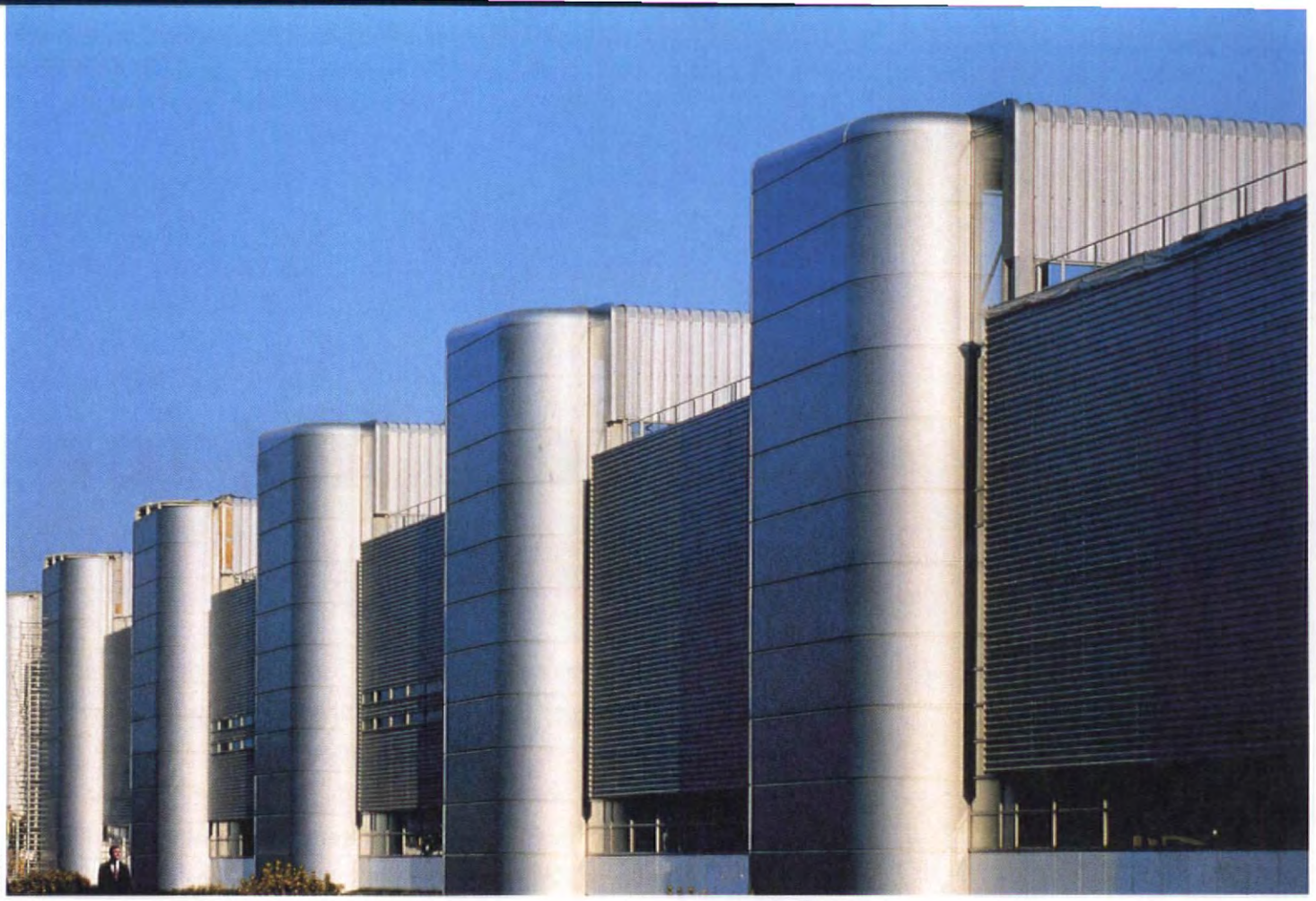
The Technocentre will provide optimal living and working conditions for the 7,300 people (6,300 Renault employees, and 1,000 outside suppliers and support staff) on the site. It has been designed as a pedestrian zone. In total there are 15 kilometres of footbridges and covered walkways – no point on the site is more than a ten minute walk away.

Alain Goustard

Following preliminary excavation work, the project went on-site in 1994. The entire development will take 300 contractors five years to build, and will consist of 360,000 square metres of buildings set in 100 hectares of landscaped park land. Construction will take place over three stages. The first two – comprising two of the centre's three main structures, the Prototype Build Centre and the Advance Precinct – have already been completed.

The prize-winning Prototype Build Centre (PBC), designed by Jean-Paul Hamonic is the Technocentre's physical point of convergence, where designers gather to see their work materialise. It incorporates all the mechanisms necessary to produce two working prototypes per day in a technical configuration as close as possible to that of a mass-production assembly line. Covering an area of 47,000 square metres, the shed-like structure has a strikingly "mechanical" external appearance. The contrast between the corrugated steel and polished concrete – smooth and grooved – surfaces, as well as the combination of voids and volumes, evokes notions of speed and fluidity. The dominance of grey in the colour scheme accentuates the visual link to the building's function as a centre for vehicular experimentation.

Flexibility and departmental interaction are prime considerations in the design and layout of the Technocentre as a whole. The interior of the PBC, for example, whilst in essence a

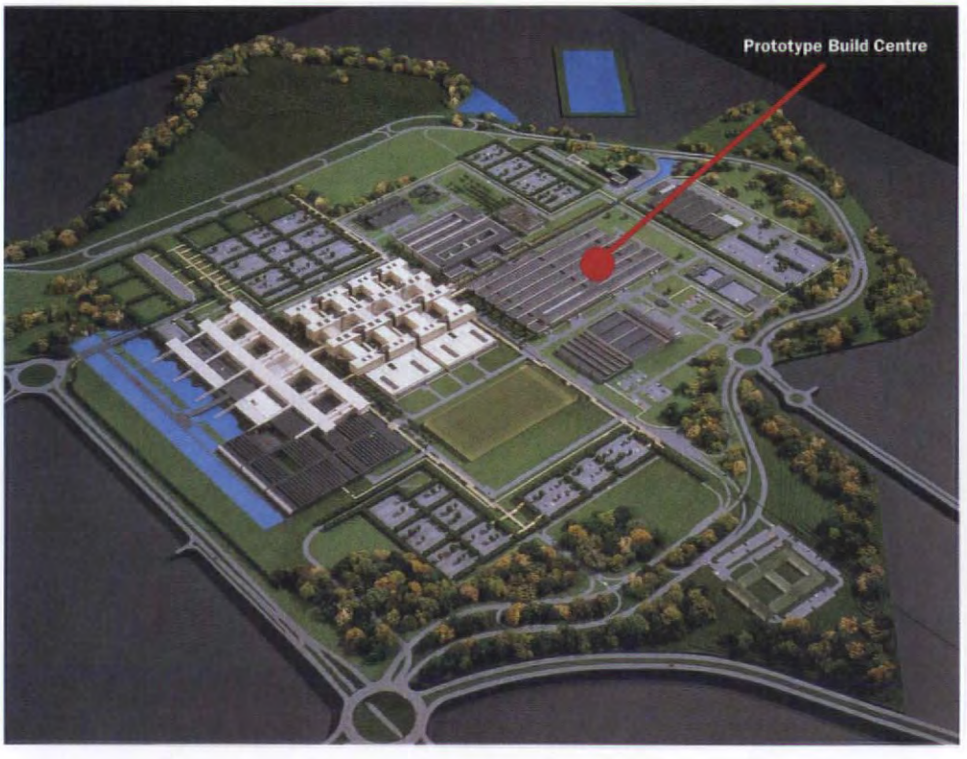


Ch Lebon

conventional production line, has made maximum use of the space and light available in order to provide optimal working conditions. The curved, metallic roof line has enables natural light to be used at all times of day.

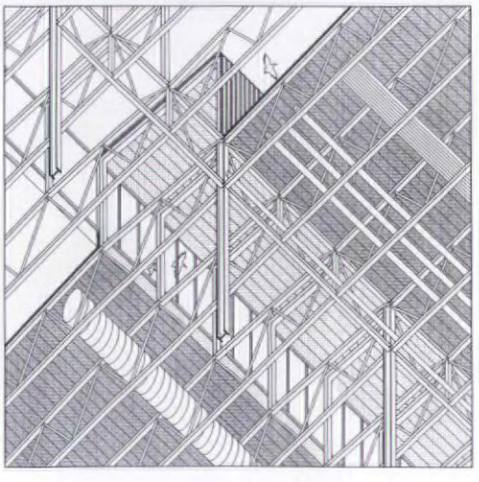
The Guyancourt Technocentre will be fully operational by 1998, exactly 100 years after Louis Renault assembled his first Renault in a garden shed in Boulogne-Billancourt. **WA**

Opposite page top *East-west section through the Prototype Build Centre (PBC) – the first completed phase of the Renault Technocentre at Guyancourt.* ***Opposite page bottom*** *Interior view of the PBC, illustrating the use of natural light.* ***Above*** *The exterior is made up of series of contrasting voids and volumes, and smooth and corrugated surfaces, evoking notions of fluidity and mechanised harmony.* ***Below*** *Site plan, indicating the location of the PBC.* ***Below right*** *Axonometric view of the roof of the PBC*



J P Salomon

Project	The Renault Technocentre, Guyancourt
Client	Société Renault S A
Principal architect	Jean-François Schmit
Associate architects	Valode and Pistre; Chaix and Morel; Hamonic; Lacoudre; Schmit; Brunet-Saunier; Fricout; Ferrier
Site development	Groupement d'Intérêt Economique
Property development	Société Civile Immobilière (SCI)
Landscape architect	Signes
Prototype Build Centre	
Architect	Jean-Paul Hamonic
Contractor	Durand/Renault S A
Sub-contractor	Sofresid



Looking for luxury

Conway Lloyd Morgan takes a look at the high-quality products that contribute to superior interior finishes in corporate buildings – Balenciaga outfits for staff, vases of Murano glass and amethyst and office furniture constructed from materials originally developed for use on the Stealth Bomber. Lightweight luxury is out, quality is all and clients with a vision are reaping the benefits.

Dressed to impress

"The receptionists' outfits are by Balenciaga," Andrew Chadwick points out, in the entrance foyer of his award-winning headquarters building for Andersen Consulting in Paris. The original foyer design, by Wilmotte, has largely been retained, but with new seating and desking, and the *haute couture* outfits. "They were a necessary element in the overall design concept," he adds. Andersen Consulting were moving to a more dynamic use of office space, without fixed offices for personnel, many of whom were out of the building most of the time. "If you are asking people to change their working practices, you have to change the whole environment to fit the new arrangement, not just the floor plan."

In this context an indulgent touch, such as the Balenciaga clothes or the specially designed carpets in the entrance hall and boardroom, is a contribution to the work ethic of the building.

Products of prosperity

Eva Maria Melchers is a German designer who specialises in using precious stones and natural materials in her work, such as a range of vases in Murano glass and amethyst (created with the Italian designer Marcello Panza), or a washstand in oak, bronze and glass. "My aim is twofold", she explains, "firstly to defend the tradition of stone-carving and other craft techniques, and show they do not have to work only on a small scale. And secondly to show that traditional techniques need not be confined to traditional design forms." Beyond this, she feels that the use of special or precious materials has always been part of a design tradition going back to antiquity. But such patronage of skill was not only a statement of wealth or culture, it was often a political or social statement, as it was in the Medici palaces in Florence, the first banker's marbled halls. The same principle holds true today.

A floating black slab on a thin

angled support: looking almost insubstantial, but capable of taking a person's weight without even flexing. Part of the peace dividend (whereby materials previously used in war-time are reintroduced for peace-time usage) is reflected in Californian group PIL Design's office furniture, with desks and nesting tables made from kevlar, graphite and carbonfibre compounds originally developed for use on the Stealth Bomber. According to Miranda Leonard of PIL the chance of working with such a high-technology material was enough of a sculptural challenge in itself. The question of whether the material was fit or appropriate was not an issue: rather it was seen that a senior executive would enjoy the dynamic associations of the desk, with its nine foot length for half-inch thickness, and dramatically curved computer monitor stand. The design values of PIL's nesting computer tables were also recently confirmed when a set was purchased for the collection of the San Francisco Museum of Modern Art.

No room for lightweight luxury

"Flaunt it, baby, flaunt it!" shouted Zero Mostel in *The Producers*, seeing a successful actress stepping out of her Rolls Royce. For a while in the 1980s everyone did: then came the recession, and the flaunting stopped. Now luxury is back, with rich colours, exclusive materials, exotic decorative surfaces. But also with a difference. Show is not just for show, but has a function: it is part of the corporate statement, a necessary indulgence exactingly selected for its message in a complex and competitive market. These special effects carry the mission statement of the company or agency forward, or underline a management declaration of status or purpose.

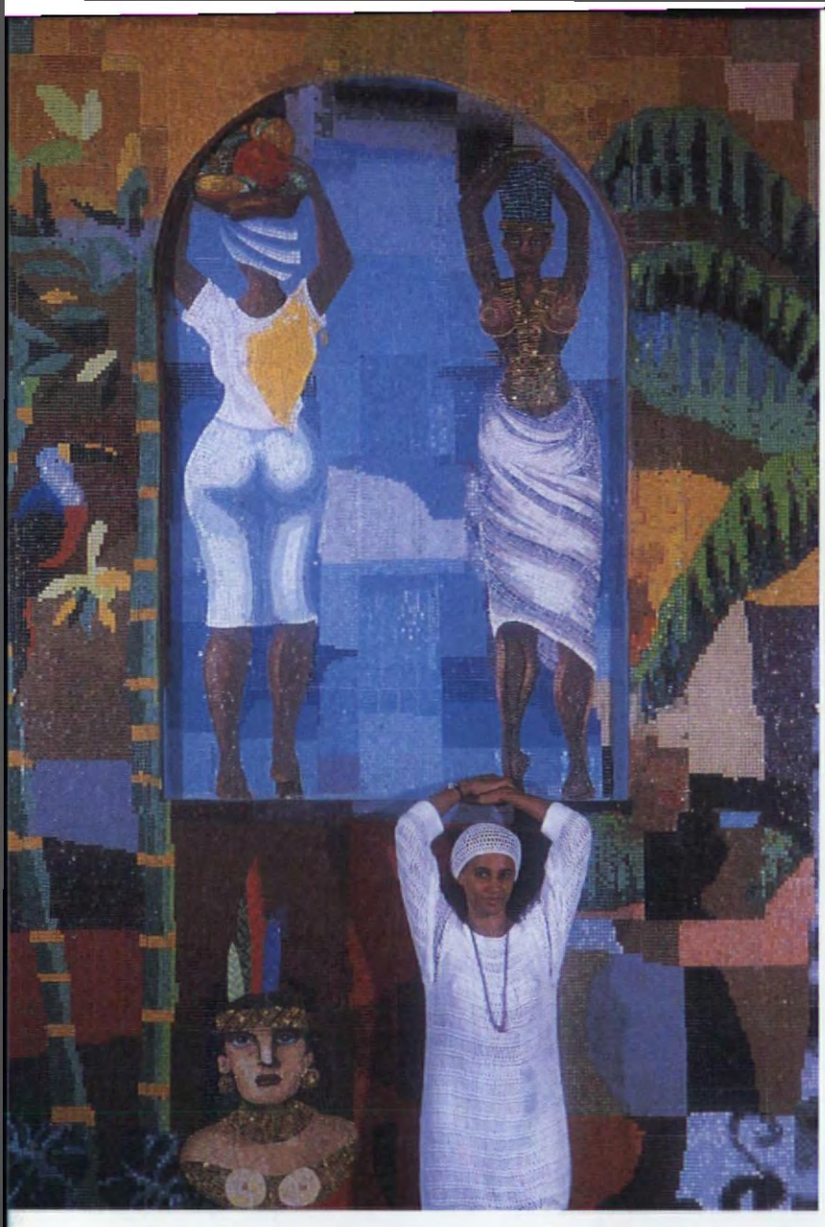
The most notable low point in the recent story of luxury was the row over the fitting-out costs of the European Bank for Reconstruction and Development (EBRD) headquarters building in the City of London. Much of the general press coverage was ill-informed (a large part of the cost overrun was due to major structural changes made to the building, rather than to decorative elements, such as the marbled facings in the lift lobbies) and the row itself was politically motivated (against Jacques Attali's directorial style). But there was a kernel of truth in the perception that the decorative flourishes were unnecessary or overdone. The use of mirror lettering in the signage, for example, was simply distracting. The clear message was that lightweight luxury was out.

Today, four years after the EBRD debacle, purposeful luxury is again acceptable. Purposeful in the sense of adding to the prestige and functioning of a building, or of emphasising a corporation's concept of itself. At the Andersen Consulting headquarters, employees are not only greeted by elegantly attired staff – they log into the building through an electronic pass card which brings up on screen a personal greeting, a check list of appointments, a note of where their desk is for the day, and a schedule of messages. The same system can be used to check who else is in the building, and where they are to be found. This system, too, was part of the architect's proposals, a way of not only redesigning the space but helping the staff adapt to a new system.

A Melchers vase on a boardroom table in malachite or lapis lazuli, or in Murano glass encrusted with agates, is making a statement of cultural authority. The executive behind the US$10,000 PIL desk may not show up on radar, but proclaims a commitment to contemporary extremes of technology transfer.

This glittering new world of material and technical opportunity requires not indulgence but skill on the part of architects and designers – an awareness that all elements of a design or concept must flow consistently together, and support not only the necessities of the building but the aspirations of the client. **WA**

Opposite page *Chadwick's award-winning Andersen Consulting offices in Paris, complete with specially-commissioned carpets and Balenciaga outfits for the staff in reception.* ***Top left*** *Eva Maria Melchers specialises in using precious materials in her designs such as that for an oak, bronze and glass washstand. Also by Melchers, a bright red Murano glass dish with Zoisite* ***bottom left*** *and* ***bottom right*** *Murano glass vase with rock crystal discs and amethyst thorns*



Mosaics – the ultimate in interior finishes

From corporate headquarters to subway stations and airports, the ancient craft of mosaic design is still alive and well. The bright colours and display of craftsmanship serve to enhance any interior with the space to accommodate the opulence and luxury of glass or ceramic- tile artwork. *World Architecture* gives three examples of recent commissions where architects have employed the services of mosaic masters to add the finishing touch to interiors: the International Airport of Cartegena de Indias, Colombia; the Rome metro, Italy and Sun Life Assurance's Administrative headquarters in Bristol, UK – plus a look at the functional application of mosaics in swimming pools.

Colour in Cartegena, Colombia

In his Arcos Bosques project, (see Blow up, Country Focus, *WA*53) the Mexican "maestro" González de León commissioned the services of Luigi Scodellere, artistic director of the Byzantine Studio in Mexico, to realise his abstract paintings in the mosaic style. His paintings were based on foreshortened perspectives of the building itself. Scodellere learned his mosaic skills in his native Italy before establishing Mosaicos Venecianos de México in Central America in 1953. González de León was particularly impressed by the ochre coloured plaster used to fix the mosaic pieces, a technique used by the Italian masters of the renaissance. In addition, the architects decided together with Scodellere, upon four goldleaf mosaic wall-to-ceiling alcoves in each of the four foyers, lending the entrance a sumptous air of luxury.

The latest project from this successful international firm involved co-ordinating with the Colombian architect Luís Eduardo Bustamante and the Mexican architect Sergio Hernandez. Eduardo Bustamante was responsible for the mosaic site in the International Airport of Cartagena de Indias, on the Caribean cost of Colombia. Sergio Hernandez created the computer digitalisation of the design in order to analyse how it could best be translated into mosaic form.

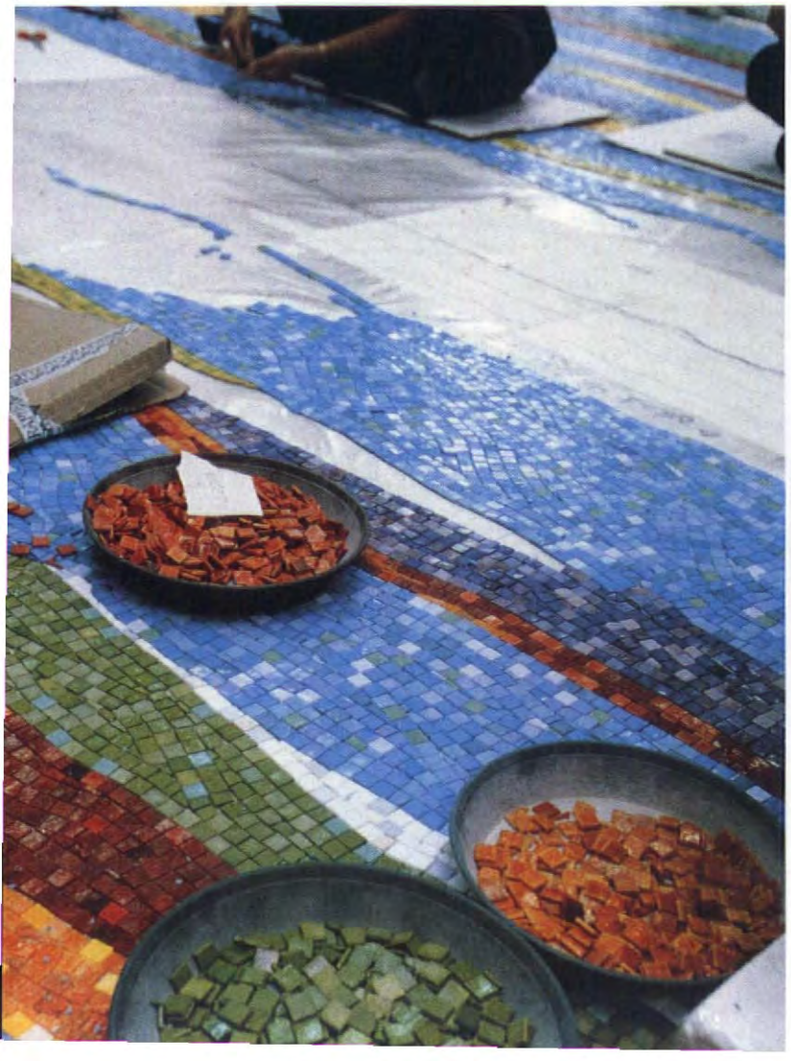
Brazilian artist, Aurea Oliveria was commissioned to produce the design which depicts the history of Cartagena de Indias from pre-columbian times to the Spanish conquest of the late fifteenth and early sixteenth century. The mural – which measures 17.45 by 7.30 metres – is filled with symbols, animals, Indian warriors, slaves and Spaniards. The lower level, comprising a total of 43 square metres, consists of 20 by 20 millimetre mosaic tiles which provide colour for the ocean and birds in the background. The raised work, the main central tower, and the animals and vegetation made up of 10 by 10 millimetre tiles, cover an area of 69 square metres and tell the story of a conquered nation.

In order to achieve different levels and textures, the wall was raised and the mosaic – composed of different sizes of tiles, 20 by 20 millimetres or 10 by 10 millimetres – was executed using a computer generated planning technique. In an attempt to blend the two worlds – the computers of the late twentieth century with the mosaic technique that Renaissance artists learned from Byzantium – all the main characters were hand cut. The *smaltii* mosaics which resulted were then inserted into the computer field mosaics.

Art for all in Rome, Italy

The 31 stations that make up the Rome metro in Italy are to be transformed into a museum of contemporary art by summer this year. The project, known as Arte-Metro Roma, is already underway. The first of the stations to have been completed is the Colosseum; 12 will have been completed by the end of this month.

At around the turn of the eighteenth century, Paris replaced Rome as the unofficial international capital of art. It is arguable that Rome has since become better known for political and religious controversies, and whilst the city has never lost its connections with the international arts establishment, the Arte-Metro Roma project does serve as a reminder that the links between the arts and the general public have become strained. Piero Dorazio, artistic director of the project, feels that "if it is true that Rome has been the cradle of inter-



Opposite page left *Aurea Oliveria stands infront of her mosaic in the International Airport of Cartenega de Indias, Columbia.* ***Opposite page right*** *The design depicts the history of Cartagena de Indias from pre-columbian times to the Spanish conquest.* ***Far left*** *Detail of some of the 1,675,080 minature pieces of enamel which adorn the walls of the Colosseum metro, Rome.* ***Above and left*** *The Arte-Metro Rome project is a conscious attempt to re-build the links between the arts and Rome's people*

Carlos Dominguez

national arts, it is not equally true that the relationship of Rome's inhabitants with the arts has been very close or direct during the last 50 years". It is hoped that Arte-Metro Roma will go some way to redressing the balance.

Dorazio chose the mosaic as the prefered technique to bring light and colour to the walls of Rome's metro in preference to the cheaper and more practical alternatives of paint or ceramic panels. The reason being that Dorazio regards himself as a faithful pupil of futurist master Gino Severini, who promoted the rehabilitation of the mosaic through the medium of contemporary painting techniques and industrial processes. Added to this, glass paste has a greater resistance to wear and tear than any of the alternatives.

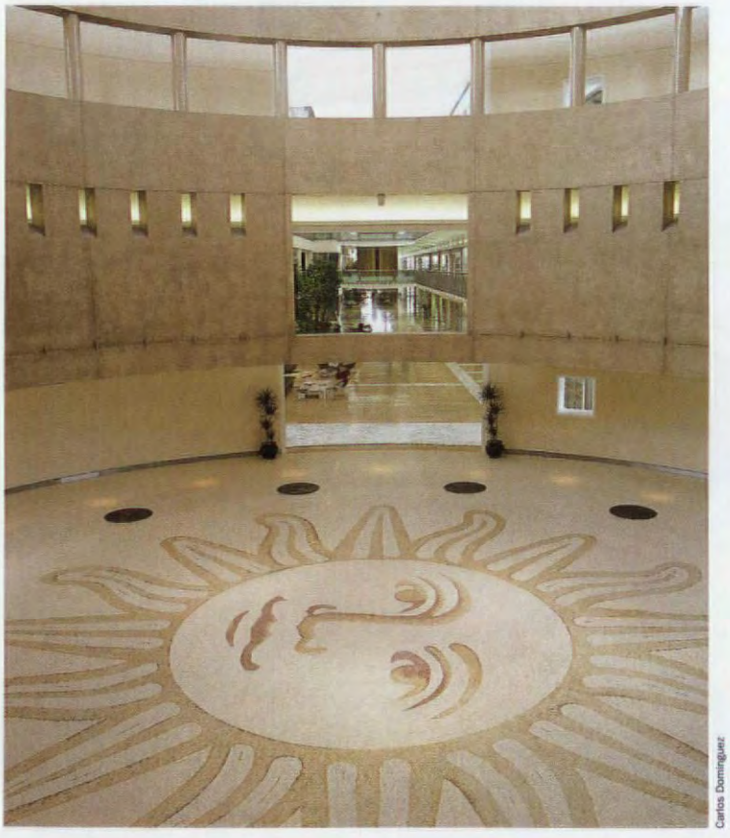
Sicis of Ravenna won the contract to produce the materials and lay the enamel for the project. The statistics from their work on the Colosseum design reveal the extent of the task ahead of them: 1,675,080 pieces (at an average size of 15 millimetres by 15 millimetres) were required to cover the 470 square metres. This equates to approximately 3,500 pieces per square metre. The three actual works, signed by Piero Dorazio, Kenneth Noland and Emil Schumacher – cover an area of 170 square metres. These areas are complemented by 300 square metres of background, designed by Piero Dorazio, made up of seven tones of blue.

The design of the Colosseum sets the tone for the rest of the stations, in terms of there being a projected 2,700 square metres of pure decoration and 3,300 square metres of background.

Stoney-faced in Bristol, England

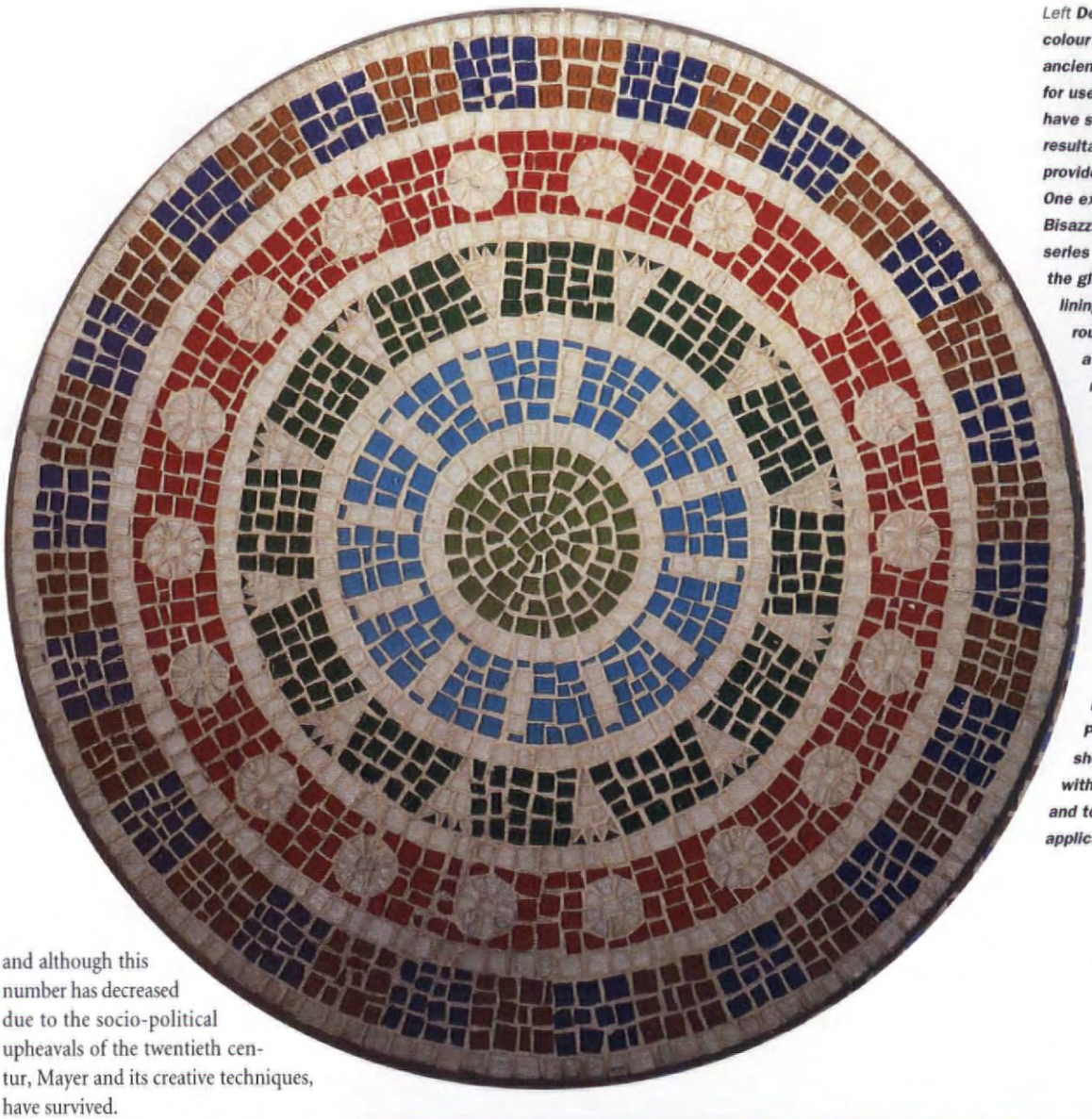
Franz Mayer of Munich Inc, Germany (established in 1847) are currently celebrating 150 years in the business of "international stained glass and mosaics". Mayer Inc established an office in New York as early as 1888, from where the company were able to assert their reputation as leading practitioners in the ancient craft of stained glass and marble mosaic production. Amongst Mayer Inc's most notable commissions in the early part of this century was the large stained glass window above the main altar of St Peter's, Rome (1910).

The company's roots can be traced to the arts and crafts ethic which spread from Britain throughout Germany and the rest of Europe in the latter half of the nineteenth century – an ethic which later found its formal identity in the Deutsche Werkbund, a formative influence on the Bauhaus. At the turn of the century Mayer, and its sister company Zettler, employed over 500 craftsmen,



Carlos Dominguez

This page *The design and realisation of the Sun Life logo in the lobby of the company's new administrative headquarters in Bristol, England was the result of a three-way collaborative process between Franz Mayer of Munich Inc, SOM and representatives from Sun Life Assurance*



Left ***Detail from Bisazza Mosaico's Vetricolour range of glass mosaics. The ancient art of coloured-glass production for use in decorative screens could not have survived for over 1,000 years if the resultant finish – the mosaic – did not provide a unique and practical function. One example of this can be seen in Bisazza Mosaico's Panorama Piscine series*** *below.* ***The natural properties of the glass provide a suitable material for lining a swimming pool and the surrounding deck: it is waterproof, with a smooth surface, and the dimensions of the small blocks of tesserae allow the mosaic surface to fit around corners and on curved surfaces. The play of light on the undulating water heightens the texture of the glass below the surface. Mosaics have been used in swimming pools since Roman times, and still fulfil both functional and decorative roles for swimming pools. Graphic mock-ups of Bisazza Mosaico's Panorama Piscine series can be produced showing the possibilities available with the enormous variety of colours and tones, and comes with a non-slip application for use in children's pools***

and although this number has decreased due to the socio-political upheavals of the twentieth centur, Mayer and its creative techniques, have survived.

Franz Mayer worked closely with both the architects of the new Sun Life Assurance administrative headquarters in Bristol – Skidmore, Owings and Merrill (SOM) – and representatives of Sun Life Assurance themselves, in the design and realisation of the Sun Life logo on the marble mosaic floor in the lobby of the building. The fruits of the three-way consultative process resulted in the use of Crema Marfill and Travertine in beige, yellow, red and certain tones of Sienna. Venetian gold mosaic *tesserae* were used for the sun logo itself. The stones have an average size of 15 by 15 by 10 millimetres within the sun logo, and approximately 20 by 20 by 10 millimetres for the background areas. The surface is polished, two of the sides sawn and two sides chopped.

Of the 1,100,000 stones used, many had to be individually cut to shape. The mosaic was set in place using the "negative" technique, whereby the stones are glued, face down, onto paper which is peeled away once the mosaic is in place. **WA**

Armourcoat
Hard plaster finishes
Photography (except Dubai): Colin Gates

The UK firm of Armourcoat, the self-confessed "leader in hard plaster technology" has built up a formidable international reputation with clients who are looking for a stylish, yet practical, plaster finish to their interior. Their work can be seen in corporate headquarters, fashion-conscious restaurants and flagship stores all over the UK and internationally, from Jakarta and Singapore to Paris, Frankfurt and Dubai. In the past they have worked with such architects as Skidmore, Owings and Merrill, Farrel & Company and Conran Design Partnership.

Armourcoat has been largely responsible for the revival of interest in the ancient craft of polished hard plaster finishes, which began in Ancient Egypt, Greece and Rome. Up to 12 successive coats of increasingly fine-textured lime-based renders were applied with a trowel, finished with slaked lime and marble dust to ensure a well-compacted, smooth, glassy surface which did not crack and took colour well. Vitruvius was an enthusiastic exponent of the hardness and durability of the plaster, and wrote that "it will have strength and brilliancy and an excellence that will last to a great age". Seventeenth century exponents of Venetian plasterwork went a long way to perfecting the craft. During this time a finish called *marmarino*, which added marble dust to the basic recipe to give a marble effect, became popular.

Today these ancient techniques have been honed by Armourcoat, who originally set up business supplying specialist plasters for squash courts. Traditional plastering recipes have been improved to give a better quality and consistency. Their decorative finishes are made from gypsum or cement bases individually blended with matured lime, marble dust and natural stone aggregates. They are coloured with natural pigments, chosen to hold their colour and withstand ultraviolet light, and metallic powders. The tone and shine of the plaster is varied with oils, soap and wax treatments. In some interiors you can see your face in the mirror-like finish. In others a more traditional treatment is achieved with a dragged and pitted irregular texture.

Hard plasters are applied to a variety of substrates including drylined surfaces, concrete, brickwork, blockwork and existing plasterwork. The process is suited to any kind of plaster surface, and can accommodate angles, columns and curves. Each section or wall of an interior is completed in one uninterrupted application process to ensure a seamless natural-looking effect. Clients choose Armourcoat as an economic long-lasting and more easily transportable alternative to the more expensive natural stones. **WA**

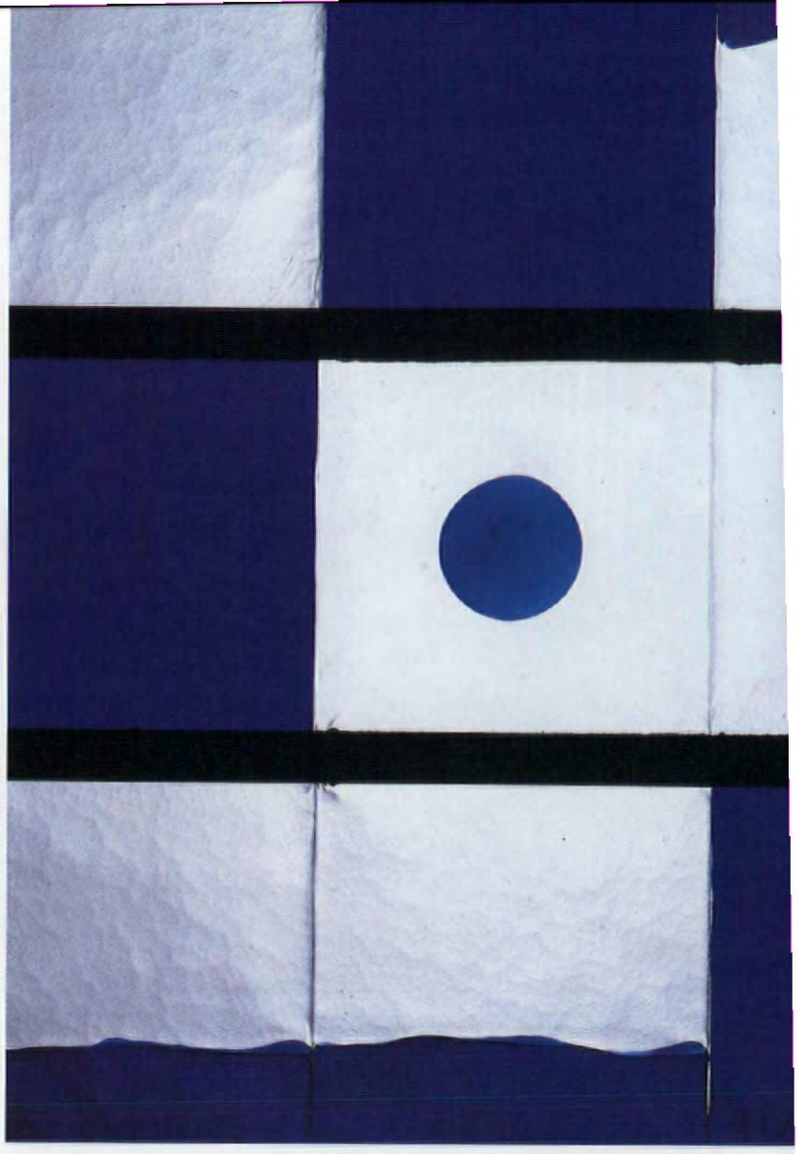
Above *Hard plaster finishes by Armourcoat are used in a variety of commercial interiors, including the walls of the London Underground Corporate Headquarters' staff canteen by Pringle Brandon. The effect here is of a dragged and pitted irregular texture*

Left *The UK-based firm have worked extensively overseas. They were chosen to provide the polished finish to the pillars in the foyer of the Forte Grand Beach Hotel in Dubai by Nizan Inbar architects*

Below *Sir Terence Conran's glamorous and lucrative restaurant and bar Mezzo, in London's Soho, has used Armourcoat's polished plaster for the grand staircase sweeping down to the main restaurant*

Above *Armourcoat's plaster finishes can be applied to any plaster surface and is as appropriate for angled staircases, such as the one at Skidmore Owings & Merrill's Texaco UK headquarters building shown here, as on flat walls*

La Murrina
Glass tiles: Le Formelle range



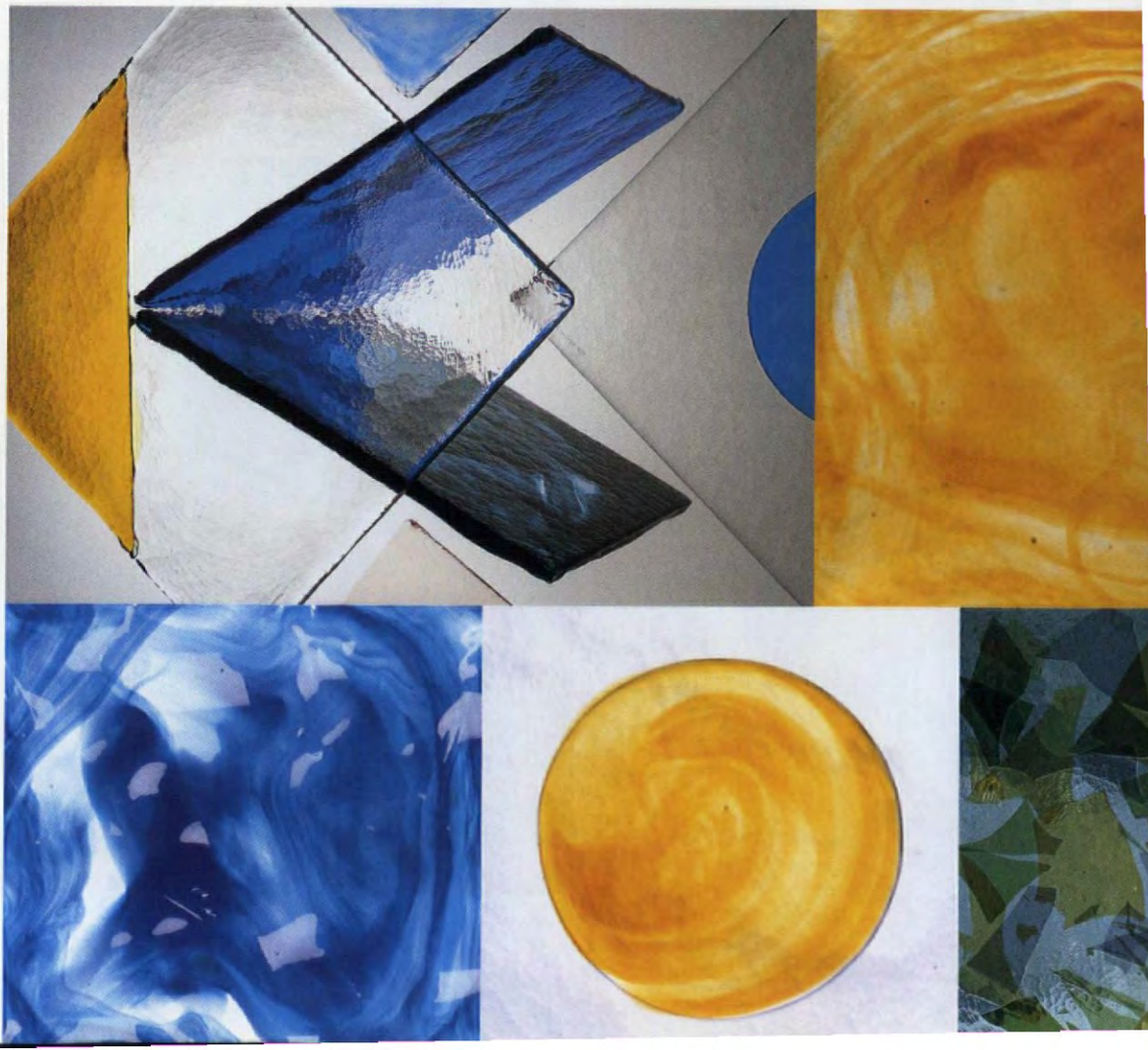
La Murrina was founded on the island of Murano, Italy in the 1970s. The company produces individual, hand made glass products. They actually produce the glass that they use – going as far as to mix the basic constituents of sand, silica and lime – in order to maintain control over the purity and clarity of their products.

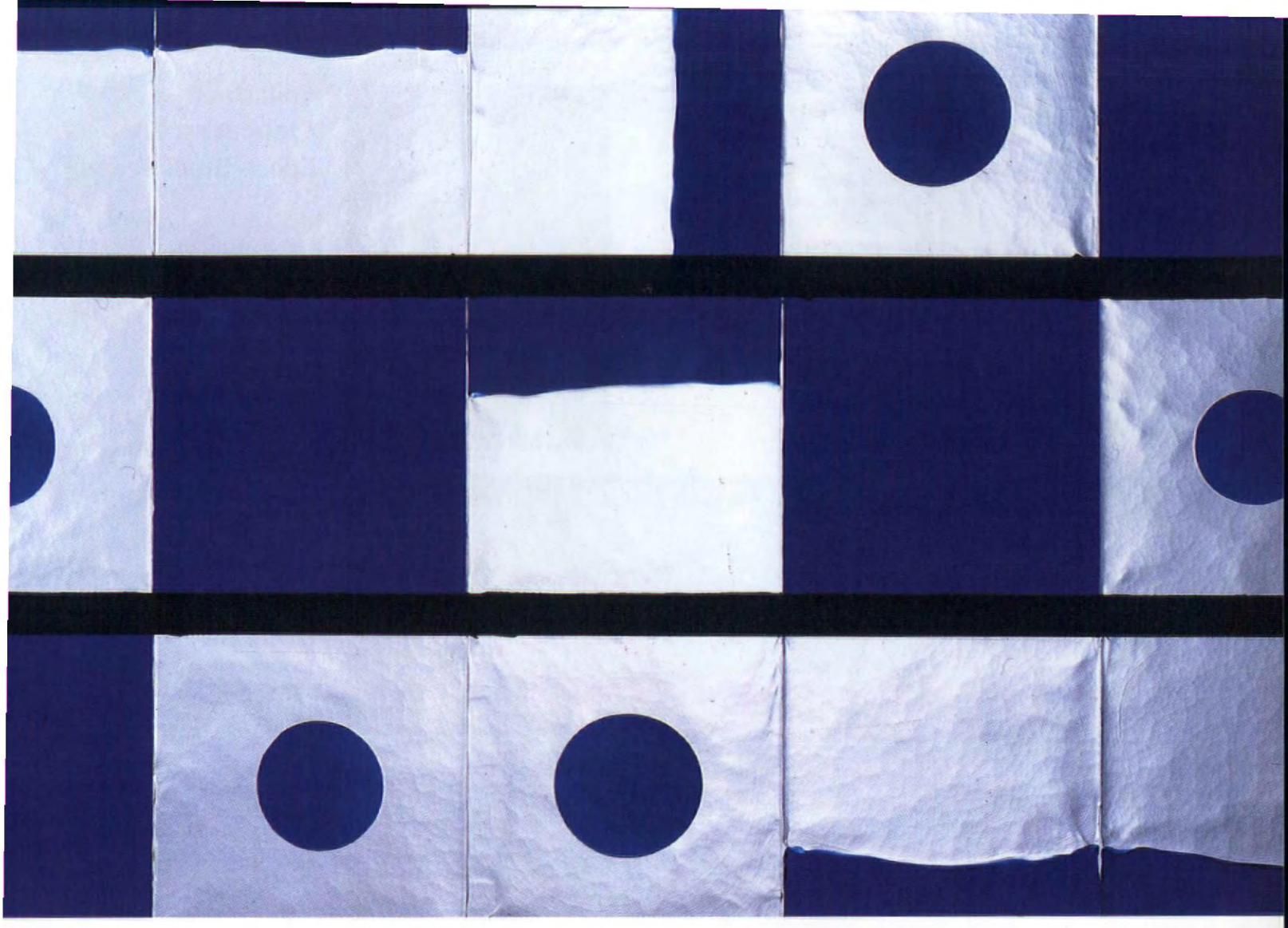
La Murrina's latest product is the Le Formelle range of tiles. The glass for these is not blown or made in a mould, but poured into a *marver* (the metal or stone surface on which soft, heated glass is rolled, pressed or – in the case of the tiles – poured.) The use of the *marver* means that the edges of the tiles are never straight, and may need to be cut to shape, according to the needs of the client. The tiles are available from a minimum of 20 centimetres x 20 centimetres, to a maximum of 50 centimetres x 50 centimetres, with increases of five centimetres in between.

Le Formelle tiles may be put to use in a variety of ways. If used as an internal wall or a decorative glass screen – commonly used in a public space, such as a bar, restaurant or reception area – a frame must be constructed to hold the tiles. The frames, which are generally manufactured by either the contractor or shopfitter, from wood or aluminium are necessarily bulky due to the need to compensate for the lack of uniformity between the individual tiles. The uneven edges mean that the tiles cannot support each other, therefore not only do the frames provide the only means of support but they must also be individually crafted according to the exact dimensions of the tiles.

Perhaps the most sellable characteristic of Le Formelle tiles, and all other La Murrina products, is that they are all unique – every item is inscribed with the "La Murrina" signature. The company's use of traditional glass manufacturing techniques ensures that all their products can be seen as individual, never to be repeated, works of art. **WA**

Main picture right *Hand-made Le Formelle tiles built into a frame – made of either wood or aluminium – for use as a decorative screen.* ***Opposite page bottom right*** *Le Formelle* in situ, *illustrating two possibilities for displaying the tiles.* ***Below*** *Five of the options within the Le Formelle range: the effect of the Foglia Liberty tile, in the* ***bottom right corner*** *is achieved by building up a layer of tiles upon each other*





Left *View from the sky-lit room at the top of the Thiene Palace, Vicenza down the 100-step marble staircase recently installed by Edilco. The Palladian structure, which houses a branch of the Banca Popolare Vicentina, required a radical interior overhaul in order to bring it up to date with modern banking practices.* ***Below*** *Subtle and undemanding, Edilco's Steel Series can be custom made to fit into any space. The elliptical, spiral staircase at the Banca Popolare Vicentina not only fits into a tight space, but also remains sensitive to its historical context*

Edilco Staircases: The Edilco Steel Series

Edilco's Steel Series enables the user to create mixed-lathing and spiral metal self-bearing staircases, in the absence of a central newel, and banister railings with sectional modular elements in metal.

The series is made up of individual, modular elements. Consequently, each of the components can be customised according to the needs of the client.

The staircases can be made to fit any dimensional scheme. Its load-bearing structure is composed of two bars, combined in extruded iron with a flat cross-section. Step treads are available in wood, marble, granite and glass, with or without step rises. The singular, personalised nature of the construction system means that whatever the scale of the required staircase assembly is rapid, and any site idiosyncrasies can be compensated for well in advance of construction.

Amongst the company's most recently completed projects is the Thiene Palace which houses the Banca Popolare Vicentina, in Vicenza, Italy. A notable Palladian structure – originally constructed in the 1400s, but added to over the centuries and eventually acquired by the Banca Popolare in 1800 – the building required a complete interior refurbishment to bring it up to date with banking practices today. Edilco were commissioned to construct a staircase which would not only meet these requirements but also remain sensitive to historical context and provide a pivot from which the rest of the interior space could be oriented: an elliptical, spiral staircase adorned with 100 white marble covered steps which climbs to a white-walled sky-lit room at the top of the building.

Edilco's banisters can be used for straight flight, spiral flight, mixed-lathing and spiral, for rectilinear and curved tracts, and for common closings. They are made up of individual elements which are linked by screws thereby avoiding the need to use potentially weak and unsightly soldering. In the case of the Banca Popolare Vicentina, in Vicenza the ultra-modern appearance was finished off with banisters in bright nickel steel. **WA**

Saint-Gobain Glazing: Priva-lite Manufacturer: Saint-Roch

Priva-lite, manufactured by the Belgian subsidiary of Saint-Gobain, Saint-Roch is an internal glazing system that offers the user the choice between privacy and transparency. Whilst providing all the conventional benefits of internal walling systems, Priva-lite can also be turned into a visually solid screen at the flick of a switch.

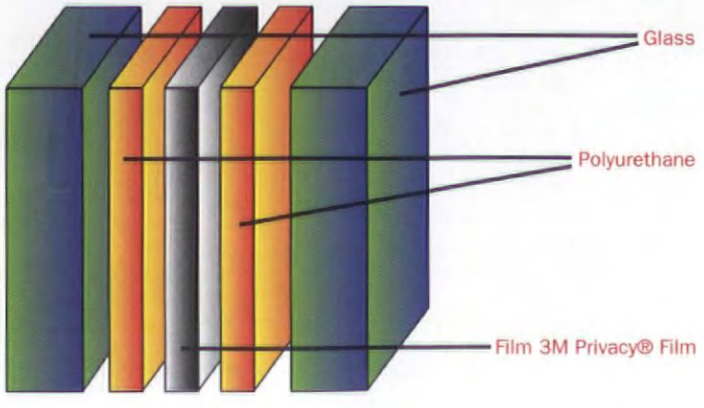
A mass of minute liquid crystal droplets is contained within the 3M® Privacy film. The film is sandwiched between two sheets of polyurethane which is laminated into two panes of heat strengthened glass. Two electrical leads from each panel connect the glass to transformers which in turn are connected to the electrical mains. When the electric current to the glass is switched off the liquid crystals are randomly displaced and diffuse light in all directions. In this state, Priva-lite is translucent, displaying a whitish colour and blocking vision.

Priva-lite was first launched on the European market in 1989. In its original incarnation it used the Taliq liquid crystal film. However, since January this year Priva-lite have been manufactured exclusively with the 3M® crystals which facilitates the use of the product externally. 3M® crystals are more resistant to the effects of ultra-violet rays, and direct heat from the sun, thus making Priva-lite more durable. Infact, the 3M® crystals eliminate almost all ultra-violet rays, and reduces heat gain and glare by diffusing light.

Priva-lite screens are laminated to bullet-resistant standard. Therefore, if used in a bank not only would the cashier be screened from an attacker, but he/she would also be safe from attack. This benefit also enables objects to be displayed closer to the glass in exhibition display cases. Furthermore, Priva-lite can be used for back-projection, or as a video-slide projection screen.

Priva-lite is available in a variety of single laminates – neutral or tinted – high performance double glazed units and multi-laminates – for security or acoustic insulation, or for use as fire-resistant glazing. WA

Dennis Gilbert



Top and above *Two interior shots of Leo Burnett international advertising agency's London office. When "off" the liquid crystal droplets are randomly displaced diffusing light in all directions leaving a translucent, whitish colour. When turned "on" the liquid crystals align rendering Priva-lite transparent.* ***Right*** *Detail of the 3M® Privacy film sandwiched between two sheets of polyurethane, which are in turn laminated into two panes of heat strengthened glass*

Portfolio

Tempa Glass Industries Ltd
TempaScreen is a new line of decorative glass. The permanently fused ceramic patterns are available translucent, opaque or metallic, and can be clear or coloured. Ceramic-coated glass is ideal for architectural or interior design. Patterns can range from simple standard designs to innovative custom images that incorporate multiple colours, densities and textures.

Tempa Glass Industries Ltd
1500 Railway Street, North Vancouver,
British Columbia, Canada V7J 1B5
Tel: +604 980 0576. Fax: +604 980 6839
e-mail: csr@tempaglass.com
Internet: www.tempaglass.com

Marlite Modules ™
Marlite Modules ™ is a new hard surface product for interior walls available in a range of finishes with engineered tongue and groove edges.

Other decorative wall products include: Surface Systems ™, and Marlite Plank ™. Marlite also offers Displawall ® slotted panels, Sanitary FRP panels, HPL Doors and Restroom Partitions.

Marlite
202 Harger Street, PO Box 250, Dover, Ohio,
USA 44622
Tel: +330 343 6621. Fax: +330 343 7296

The Gage Corporation
The Gage Corporation design and manufacture the world's foremost collection of architectural metal ceilings. We feature an impressive selection of standard designs, visually recreating virtually any material, surface, colour or pattern. Please contact the factory for descriptive literature and samples.

Gage Corporation Int
803 S Black River Street, Sparta, WI 54656,
USA
Tel: +608 269 7447. Fax: +608 269 7622

Kemlite
Kemlite ® Company, Inc manufactures Class A and Class C fibreglass reinforced plastic wall and ceiling panels, called Glasbord ®. These panels are ideal for use in high moisture and abuse areas to maintain a sanitary, attractive wall covering for many years without the high maintenance that is required of other wall finishes. Glasbord panels are the only FRP panels to have the protective Surfaseal ® finish which provides superior cleanability and durability when compared to other FRP panels and UV frontside identification which allows the panel to be identified after installation.

Kemlite Company, Inc
25 Tower Quays, Birkenhead, Wirral,
Merseyside L41 1BP, UK
Tel: +44 151 650 0123. Fax: +44 151 650 0365

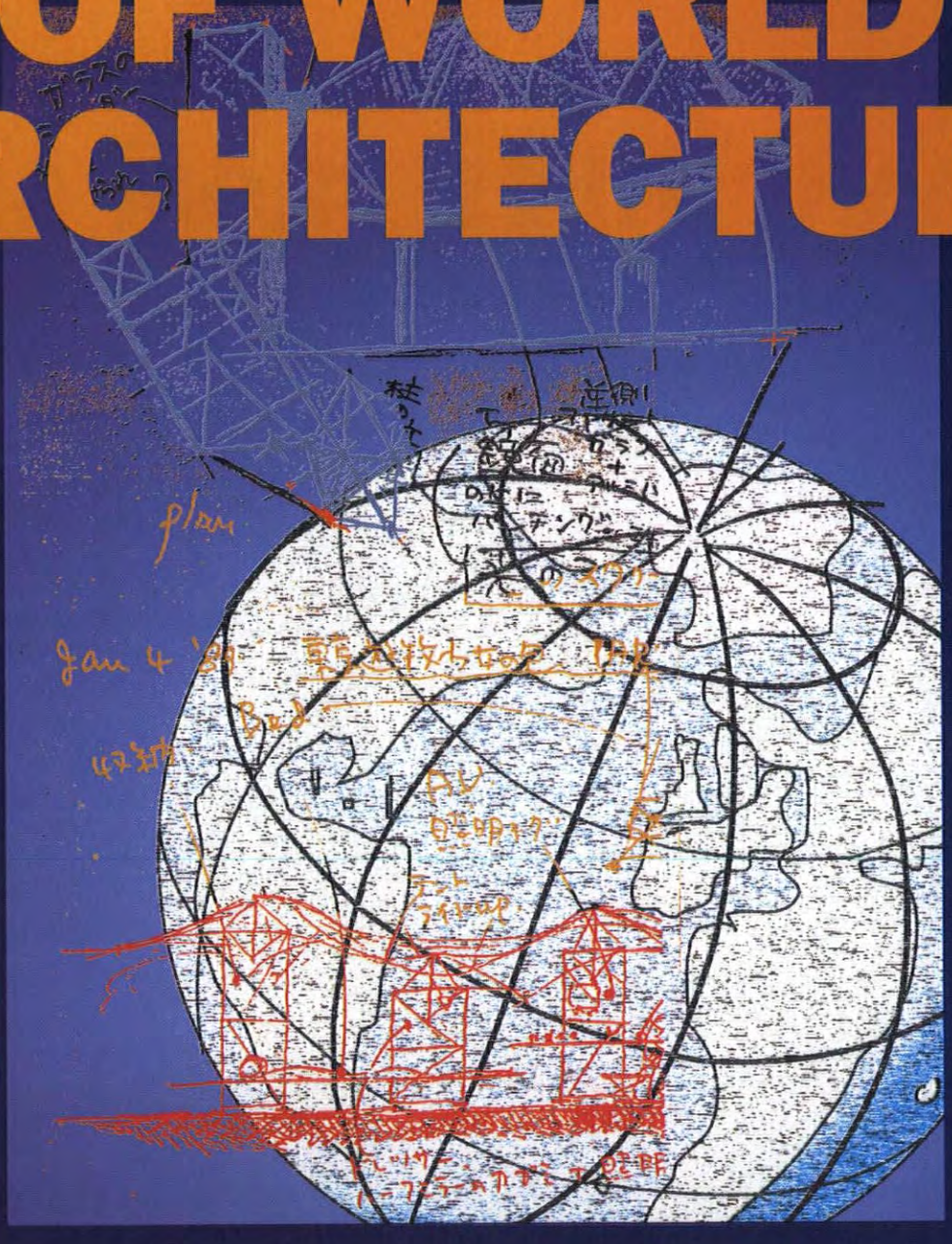
Alliance Ceramicsteel Products
Alliance interior products are designed around the Ceramicsteel surface to provide unsurpassed performance as a solution to the functional, aesthetic and environmental demands of the design architect and discerning end user.

Alliance Europe NV
European Headquarters, Zuiderring 56,
PO Box 19, 3600 Genk, Belgium
Tel: +32 89 356531. Fax: +32 89 356539

Conwed
For solutions to your most difficult interior noise problems Conwed offers Respond ® acoustical wall and ceiling products. Custom manufactured to your specifications, these products address and reduce noise in schools, churches, lobbies, courtrooms and cafeterias.

Conwed
1205 Worden Avenue E, Ladysmith,
WI 54848, USA
Tel: +715 532 5548. Fax: +715 532 5410

THE GIANTS OF WORLD ARCHITECTURE



THE ANNUAL SURVEY OF THE WORLD'S TOP 250 ARCHITECTURAL FIRMS

World Architecture's 1997 World Survey of the top 250 architectural firms is based on the largest set of data ever produced. Coverage of this unique and authoritative survey has increased by 25%. As ever, WA's report provides not only an authoritative and detailed listing of the world's largest practices, but also a wealth of data included in charts, commentaries and tables examining the figures from every conceivable angle. In addition, the range of information includes areas of specialisation, charts showing the change in activity-share by region and by market sector, and the international view of which regions will grow or recede this year. The most favoured consultants are listed and trends throughout the construction industry in general as well as within specialist firms are analysed.

The *World Architecture* 1997 World Survey of the top 250 architectural firms features comprehensive details of the largest, most successful and most sought-after architects and engineers in the world. To order your copy, price UK£25/US$40, telephone +44 (0)171 470 7000, fax +44 (0)171 470 7007 or write to *World Architecture*, 3-6 Kenrick Place, London W1H 3FF, UK.

CERAMIC TILES FROM SPAIN

NOVOGRES S A

Spain
Tel: 34 64 533360
Fax: +34 64 543389

UK – Zaria Corporation Ltd
Tel: (Dublin) 1 453 0288
Fax: (Dublin) 1 453 2990

NOVOGRES S A specialises in the manufacture of earthenware floor tiles in single fire and have just begun to produce tiles with very high technical characteristics. The picture shows the granite series, for heavy transit areas with a PEI V and MOHS 6. The collection is available in dimensions of 41.5 x 41.5 centimetres, with various trims and skirtings as complementary pieces. Colours available are grey, Oxford grey, beige and brown.

CERAMICA GOMEZ S A

Spain
Tel: +34 64 219700
Fax: +34 64 203560

Rewarded on eight occasions for their export activity, Cerámica Gómez present their ceramic earthenware floor tile, available in dimensions of 31.6 x 31.6 centimetres, 45 x 45 centimetres and 50 x 50 centimetres. These tiles are suitable for high traffic areas and have a high chemical resistance. The Almagro series, available in dimensions of 45 x 45 centimetres, has a water absorption level of less than three percent.

CERAMICA ESPAÑOLA DE REVESTIMIENTOS S A "CERYPSA"

Spain
Tel: +34 64 601452
Fax: +34 64 602553

UK – Ida In't Veld
Tel: +44 1844 292796
Fax: 44 +1844 292889

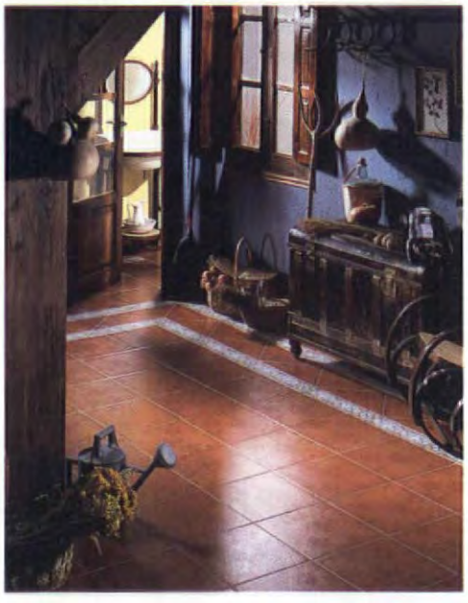
The Vulcano series is especially suitable for interior or exterior use in public buildings and high traffic areas. Technical characteristics include a scratch resistance of five, and a water absorption level of 3.2 percent. The series is complemented by a wide range of special pieces in white, grey, beige, pink, green, blue and black. Cerypsa's other most significant series include FRIDA (20 x25 centimetres), MONTI (33 x 33 centimetres), MARTA (25 x 37.5 centimetres), ALICANTE (45 x 45 centimetres), CARMEN (25 x 37.5 centimetres), ONDA (33 x 33 centimetres), LAURA (25 x 37.5 centimetres) and the RONDA series (33 x 33 centimetres).

REALONDA S A

Spain
Tel: 34 64 600800
Fax: +34 64 602199

UK – Bob Penfold
Tel: +44 1564 702434
Fax: +44 1564 702053

Realonda present their new range of products in the 33.3 x 33.3 centimetres format, corresponding to the Dallas Red series, with anon-slip, rough texture and a PEI II abrasion resistance. This tile is ideal for interior or exterior use – public buildings, kitchens and terraces. Realonda also introduce another new range of products in 28 x 44 centimetre format, corresponding to the NIMES, MARSELLA, OPORTO and EVORA series in contrasting light and dark colours. Also available is the new series of floor tile with dimensions of 45 x 45 centimetre (LYON, ESTORIL) with PEI IV.



GRES DE VALLS, S A

Spain
Tel: +34 64 626400
Fax: +34 64 626303

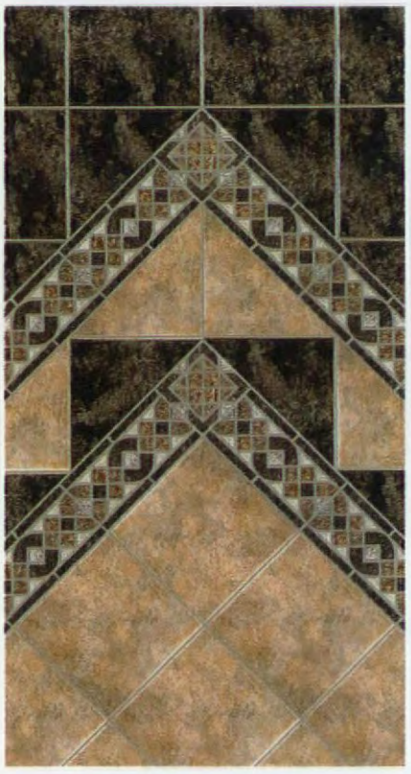
UK – Douglas Fogarty
Tel: +44 121 7041710
Fax: +44 121 7111291

Gres de Valls specialise in the manufacture of floor and wall tiles in white paste with complementary special pieces decorated in third and fourth fire. The Terra series, shown in the picture, can be used in the home and also in high traffic areas. With an abrasion resistance of PEI IV, a water absorption level of 4.7 percent and scratch resistance MOHS 7, this floor tile is ideal for use in places exposed to sudden changes in temperature. Amongst other new lines available are the SEGEL and COUNTRY series, with a stony appearance, and the marbled NUMANCIA, VENUS and ARABESCO series with dimensions of 41 x 41 centimetres; the rustic red paste SATILLO series with dimensions of 44 x 44 centimetres and 33 x 33 centimetres, and the PIZARRA series, with an authentic slate finish in 33 x 33 centimetres, 16.5 x 33 centimetres and 16.5 x 16.5 centimetres.

CERAMICOS DIAGO S A

Spain
Tel: +34 64 217088
Fax: +34 64 218652

UK – Paul Edward
Tel: +44 127 069277
Fax: +44 124 067852
Peter Harrsion
+44 138 6870422
+44 138 6871322



Cerámicos Diago S A celebrate 90 years as manufacturers of high technical quality products with the launch of a varied range of resistant floor tiles, such as the PIZARRA series (33.3 x 33.3 centimetres) in salmon (PEI III) and green (PEI II) with water absorption of up to four percent. Other series available are ASIA (20 x 30 centimetres), VERMER (25 x 40 centimetres), BOSCO (25 x 33.3 centimetres) and MISTRAL (31.6 x 45 centimetres) in wall tiles; and TREMP, LEYRE, ORDINO (33.3 x 33.3 centimetres), ASTORGA, NATURA, MANILA (43.3 x 43.3 centimetres), WISMA; SHIWAN; FOSHAN; TIBET;SHANTOU;BOMBAY;VIENA; and NEPAL (50 x 50 centimetres) in floor tiles. Also worth mentioning are the 25 x 33.3 centimetre format and modular formats 16.5 x 16.5 centimetres, 16.5 x 33.3 centimetres, 10.7 x 43.3 centimetres. Also, the new rustic range in stone, earthenware and wood, and the incorporation of classical sparkling patterns in the 50 x 50 centimetre floor tile.

PERIS CIA S A "PERONDA"

Spain
Tel: +34 64 602012
Fax: +34 64 600361

UK – Stone Co-ordinated Ceramics
Tel: +44 1782 273272
Fax: +44 1782 286440

Peronda have recently invested in the installation of new equipment in order to increase and improve their production. As a result of this, Peronda present the MADERA series floor and wall tile available in 15 x 60 centimetre format with bas-relief in imitation wood, the MENFIS floor tile in 45 x 45 centimetre (PEI IV imitation natural stone), RUSTICOS floor tile in 45 x 45 centimetre, 22.5 x 45 centimetre and 22.5 x 22.5 centimetre formats (MOHS 9 in stone and natural slate) and ANTICA wall tile in 25 x 25 centimetre.

REAL CERAMICA

Spain
Tel: +34 64 590201
Fax: 34 64 590225

UK – John Melrose
Tel/fax: +44 141 8866978

A recently established company specialising in the manufacture of single-fired earthenware floor tiles (31.6 x 31.6 and 40.8 x 40.8 centimetres) and twice fired short cycle wall tiles. Their line of products include heavy transit floor tiles and their rustic series together with complementary pieces available in 40,8 x 40.8 centimetre and 50 x 50 centimetre formats. The MONACO series in 50 x 50 centimetre shown in the picture, is an example of the marbled effect floor tile. This floor tile is available in Oxford grey, grey, beige, green and emerald. Among other new lines are the 31.6 x 45.2 centimetre wall tile consisting of various series of marbled effect and brilliant white tiles, and also the 27 x 37 centimetre wall tile.

BALDOSAS VALLES

Spain
Tel: +34 3 7710033
Fax: +34 3 7710301

UK – Ida In't Veld
Tel: +44 1844 292796
Fax: +44 1844 292889

The activities of this terracotta manufacturer can be divided into three sections: the manufacture of unglazed floor tiles; the restoration of hand-made tiles and the manufacture of hand-made and decorated wall tiles and complementary special pieces. All of their products have a rustic, natural and traditional appearance. Baldosas Valles also manufacture a two centimetre thick, lightweight terracotta tile, MODEL EXPORT in 30 x 30 centimetre format. The company also present hand-made enamelled wall tiles in 10 x 10 centimetre and hand-made borders in 7 x 20 centimetres. The different formats are very versatile and range from 15 x 15 centimetres to 50 x 50 centimetres.

CERAMICAS AZAHAR S A

Spain
Tel: +34 64 328261

UK – Brian Painter
Tel/fax: +44 1932 243987

Cerámicas Azahar specialise in the production of porous single-fire ceramic wall tiles in 23.5 x 35.5 centimetre, 20 x 25 centimetre and 31.6 x 45 centimetre formats accompanied by a wide range of special and complementary pieces. Their products are intended for use in bathrooms, kitchens and other areas of the home. Pictured is the ROMA series, a wall tile with a water absorption level of more than 10 percent available in 31.6 x 45 centimetres. Other series which stand out are the INDO AQUA, EXCLUSIVE, NIEVE in 20 x 25 centimetre and MURANO, CAPRI and VERONA in 23.5 x 35.5 centimetre format.

Project: Skanska, copyright: HJS Arkitektur AB, Stockholm

speedikon Panorama in Europe

Since its foundation in 1981, IEZ has expanded rapidly throughout Europe, the US and Asia Pacific. This growth was due to the fact that the IEZ product suite for AEC was ported to PC platform. *speedikon*, as a powerful building specific solution, runs on widely used hardware. Furthermore it is integrated into basic graphic products, such as AutoCAD or MicroStation.

The following examples, from major projects carried out by prestigious architectural firms, give a panorama of the different approachs to design throughout Europe.

Project: Electrolux – New Headquarters Stockholm, copyright HJS Arkitektur AB, Stockholm

IEZ AG

IEZ AG
Berliner Ring 89
D-64625 Bensheim
Germany
Tel: +49/62 51/13 09 0
Fax: +49/62 51/13 09 21

Project: Electrolux – New Headquarters Stockholm, copyright HJS Arkitektur AB, Stockholm

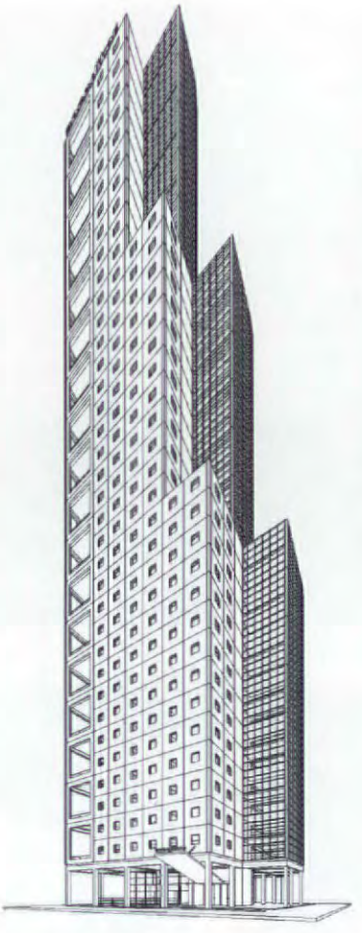
Project: Skanska, copyright: HJS Arkitektur AB, Stockholm

Swedish projects elaborated with *speedikon*

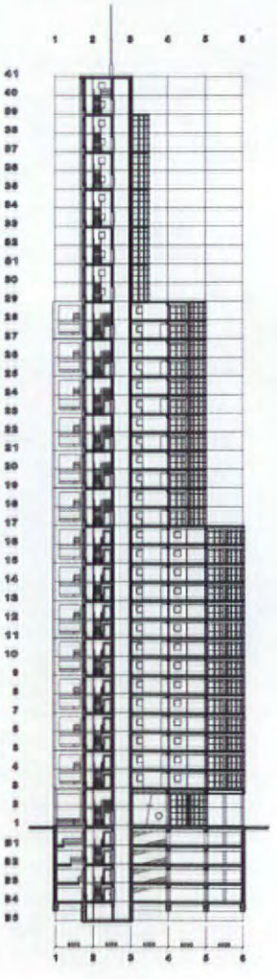
HJS Arkitektur is the third largest architectural practice in Sweden. Headquartered in Stockholm, with additional branches in Östersund, Linköping and Malmö, the company has 90 employees and an annual turnover of 75 MSEK (Million SEK). HJS' main customers are based in the manufacturing sector – for example the pharmaceutical company ASTRA and telecom company Ericsson – whose projects are located both in Sweden and abroad. Some of the company's customers are also based in the governmental sector, such as Stockholm International Fairs.

At the beginning of the 1980s HJS Arkitektur started to use CAD for drawing production. After one year of investigation (1994/95) they finally selected *speedikon* as the most suitable CAD application. Ingemar Ståhl, renowned architect and HJS key-partner explains: "The main reason for us was *speedikon's* multi user capacity which allows our staff to simultaneously work in large and complex projects using the reference technique – and even in geographically remote locations. A key feature however is the concept of a central data model which you can display in interactive views, iso – front, left, top – at the same time".

Project: Museum extension to Villa Torrigiani, copyright: Cadvise Holland BV



Project: 140m hight-rise condominium tower, copyright: Cadvise Holland BV

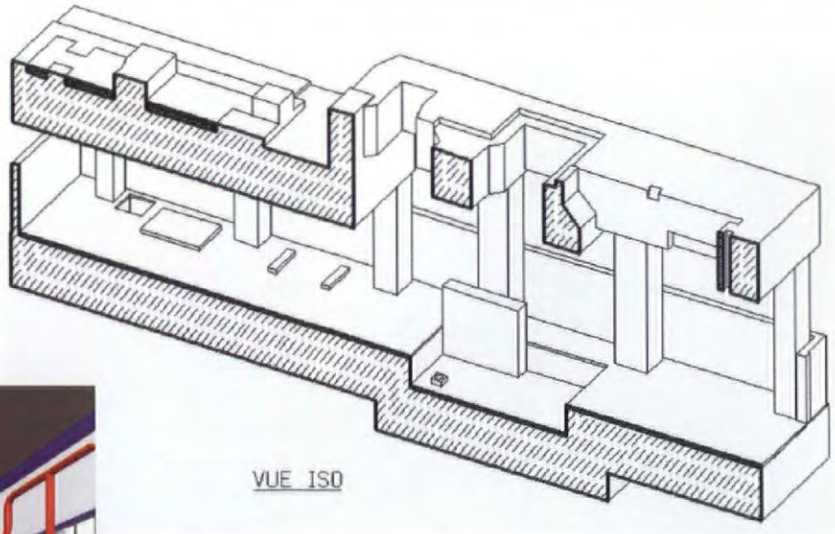


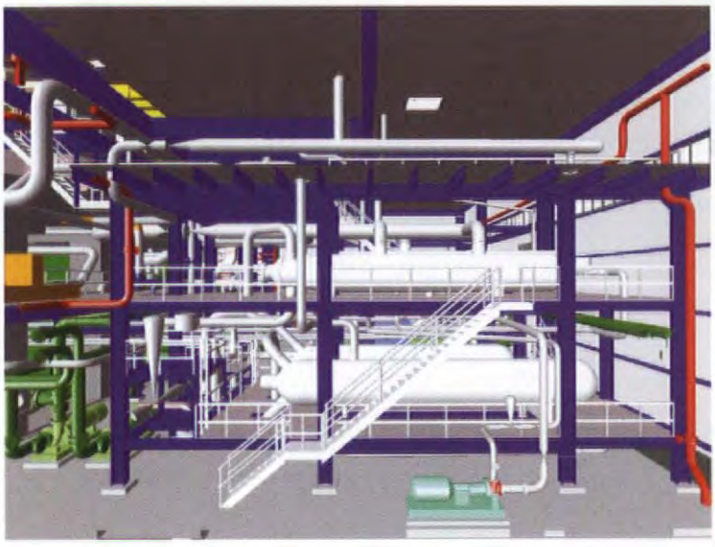
Redefining the design process with *speedikon*

In 1994, when *speedikon's* implementation on MicroStation became available, two research projects were executed, at IEZ's request, by a small consultancy company from the Netherlands – Cadvise Holland bv – who had been involved in the implementation from day one.

The first is the extension to the Villa Torrigiani museum – a blend of classical Italian domestic architectural elements – connected to a hi-tech steel museum hall by a pedestrian bridge in a glass atrium. The result proved the capabilities of the software to address multiple styles of architecture, and convinced many users of its drawing output – plans, section perspectives, roof plans etcetera. The resulting poster – still available from IEZ – has become a collectors item for architects and designers with an interest in CAD. The drawing represents a combination of all possible drawing outputs from the *speedikon* building database without any modification or embellishment by the CAD system.

A very different angle is used for the second project – the *speedikon* Tower – which is used to research new ways to simulate the design of a 140 metre high rise condominium tower. Director and designer Patrick Stuyts explains: "One of the challenges was to design directly with *speedikon*, without the use of sketch paper and pencil. The ability to quickly and on-line generate plans, sections, isometrics and perspectives from the model for review stimulated this exciting design process. When the complete set of final design drawings including elevations, sections and perspectives of the 40 floor tower as well as the complete *speedikon* database was delivered to IEZ, the research project showed *speedikon's* support for the design and construction documentation of large scale projects and encouraged many current users of *speedikon* that 3D Building Modelling starting in the design phase is the future way for the architectural design process".





Project: Turbine pedestal – machine room view and 3D perspective view, copyright: GEC Alsthom, France

speedikon (Civil Architecture) in Power Plant Design

GEC ALSTHOM is a world leader in energy and transport.

The Power Plant Group (PPG), a subsidiary of GEC ALSTHOM, is in charge of turnkey contracts for all types of power plants such as thermal power plants, combined cycle power plants as well as conventional nuclear power plants.

The PPG manage design purchasing, construction, commissioning and maintenance. Their engineering departments – based in Belfort, France and Knutsford, UK – undertake all aspects of project engineering from feasibility studies and conceptual design to plant layout, equipment specifications, detail engineering and systems integration. The PPG's design offices use the latest 3D CAD technology to interface with other GEC ALSTHOM units, outside participants and subcontractors involved in a project.

One year ago, the design offices have been equipped with Intergraph's Plant Design System CAD software – based on MicroStation (Bently) software – for steel structure, equipment and piping modelling. The complex components of concrete constructions, such as turbine pedestals, water cooling pumping stations etcetera, are made with *speedikon* which is fully compatible with Intergraph's software regarding design and interference checking. At present, eight *speedikon* M/A (Architecture) and 4 *speedikon* M/K (Construction) seats have been purchased for the design offices.

W Nodale, the PPG's CAD manager underlines:"*speedikon* is based on the concept of a building data model (object data base). It is made up of single intelligent construction elements (objects) such as wall, columns, building elements. This is where the decisive advantage lies for our practice. *speedikon* can be used either with MicroStation or AutoCad software. It is a powerful 3D CAD software capable of designing buildings of whatever size."

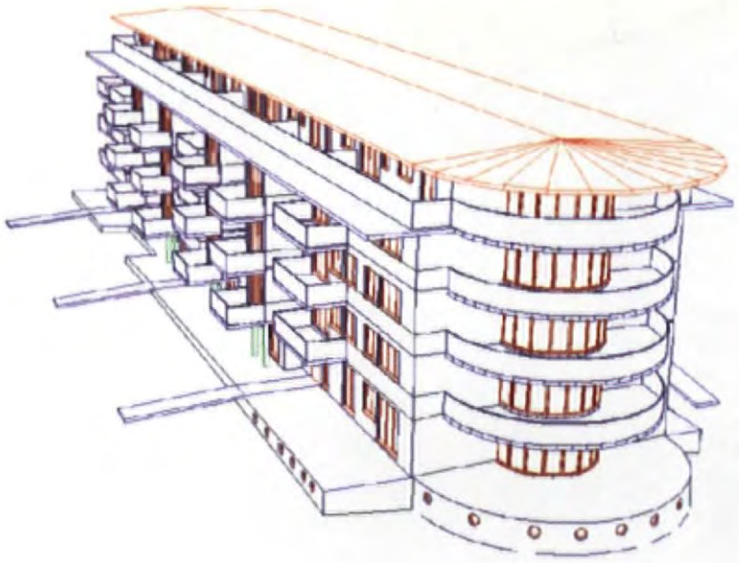
The software gives the opportunity to manage all types of materials used in a building and calculate the volume of concrete as well as the surface of rooms.

The current and expected benefits of using *speedikon* are:

- Time saving for design due to the easy use and great functionality of the software.
- Daily up-to-date design due to the 3D environment.
- Integration in Intergraph's PDS environment for piping design and interference checking.
- Direct management of quantities involved in a project.

The attached pictures show an example of a turbine pedestal designed with *speedikon* in a 3D perspective view as well as a machine room view showing integration of *speedikon* and PDS files.

Project: Midt på Bryn – The project shows an office building in Oslo. The Norwegian company TechnoCad modelled this project from 2D drawings in only 40 man hours, copyright: Archus, Arkivision, TechnoCad, Norway



Project: Residential building on the Stralau peninsula in Berlin, copyright: R+K Morsbach, Aachen

***speedikon* A – user report**

One of the first architectural practices who decided to use *speedikon* A were Aachen-based practice, R+K Morsbach. According to Karl Morsbach, it is important for the competitive architect to be able to design creatively on the screen without having to think about wall thicknesses or materials. With *speedikon* A the user can transform every AutoCAD polyline into an intelligent wall using a simple "define" command. In this way the user can design with AutoCAD and then transfer the simple 2D lines, with only few specifications, into an intelligent data model. Definitions set this way can be changed at any design stage. Intelligent selection criteria are available for later cross-functional modifications. These criteria enable the architect to change the material of all load-bearing exterior walls with just one command.

One project won by R+K Morsbach is a residential construction on the Stralau peninsula in Berlin. Located at Friedrichshain 6a, the building is similar in style to a house-boat. Amongst the building's defining features are porthole windows in the basement floor, the round bow and the "smokestack" chimneys. Forty-one well situated flats were created from a total surface area of about 4,100 square metres, divided in six floors.

Karl Morsbach reports: "In entering the building data model we were able to fully exploit the advantages of *speedikon*. The use of different copy functions helped us to save a significant amount of time. Thus modifications could be made quickly and without tedious rework. After the entry of the model, the exploitation of surfaces and rooms was possible without problems and without bigger expenditure of time. Just as easy was the plotting of sections, elevations and perspectives".

Added to this, thanks to the *speedikon* filter technique, it is possible, with a simple click on a button, to represent and plot the floor plan drawings in another plan representation – information on the degree of window detailing, and the hatchings of the walls are already contained in the building data model.

The most important feature of all *speedikon* products is the software specific separation of the building specific functions from the graphic user interface. This architectural software is based in IEZ's frontend/backend concept. This enabled IEZ developers to bring the *speedikon* kernel in a relatively short time to a basic standard CAD system like AutoCAD, without the need to develop a completely new product.

Using *speedikon* A the architect has the option of a model-oriented approach. In contrast to drawing-oriented CAD systems, the architect enters a digital building model in the scale 1:1 into the system. What sounds very difficult in theory, turns out relatively easy in every day practice. As usual, the architect works in the floor plan level. The input of walls, columns and building elements is carried out via dialogue boxes. This ensures a reduced training period. All building elements are logically connected in the building model in the background. This connection allows that moving of walls automatically changes the gross and net surfaces. In the same way, placing a window cuts out a wall on the corresponding place. The wall is restored when deleting the window in just the same way. All this can be done in any scale, without worrying about hatchings. Karl Morsbach explains: "In summary we can say that *speedikon* A has had a successful start. The IEZ building model philosophy is promising and directive, as shown by the different developments of competitors, now moving in the same direction".

Pavone
design: Bruno Rey, Charles Polin

PLANK

mod. 1630.00

92 45 52 44

sedute

PLANK s.r.l. Via Nazionale, 35 I-39040 Ora (BZ) Tel.: 0039-471-8035-00 Fax: 0039-471-8035-99

A

David Pisani

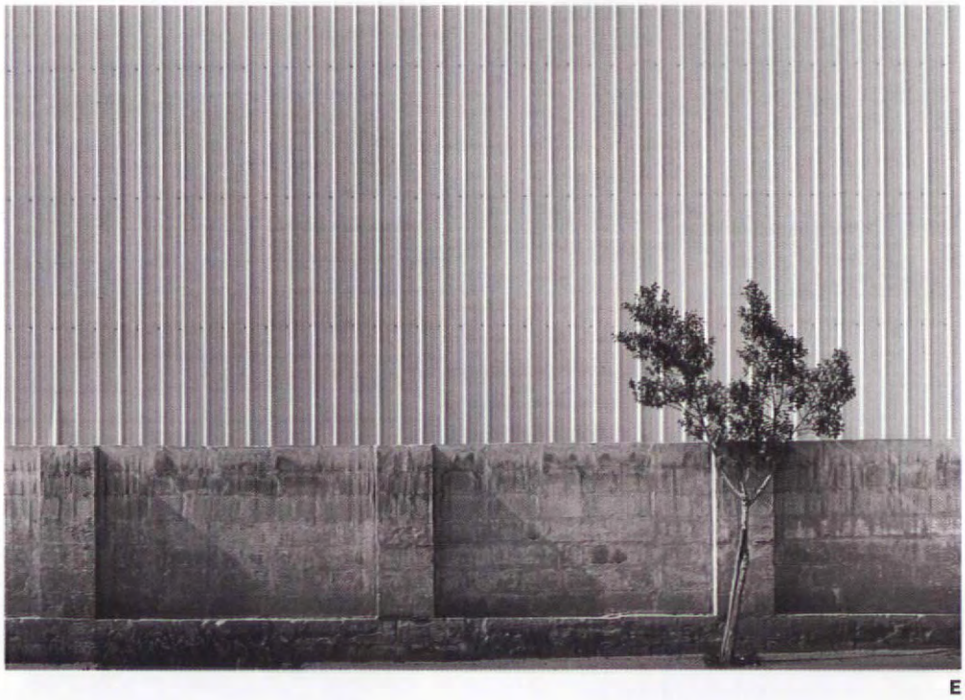
PO Box 9 St Julians, Malta. Telephone: +356 33 12 67. email: wlight@maltanet.omnes.net

The Paris Biennial of Fine Art Photography has recently hosted an exhibition of David Pisani's architectural photography in Malta, "Valletta and the Grand Harbour – Portrait of a maritime capital" from which these photographs have been selected. Valletta has been listed as a World Heritage Site, and the exhibition aimed to illustrate both the potential beauty of this city and also its urgent cry for restoration.

B

C

D



E

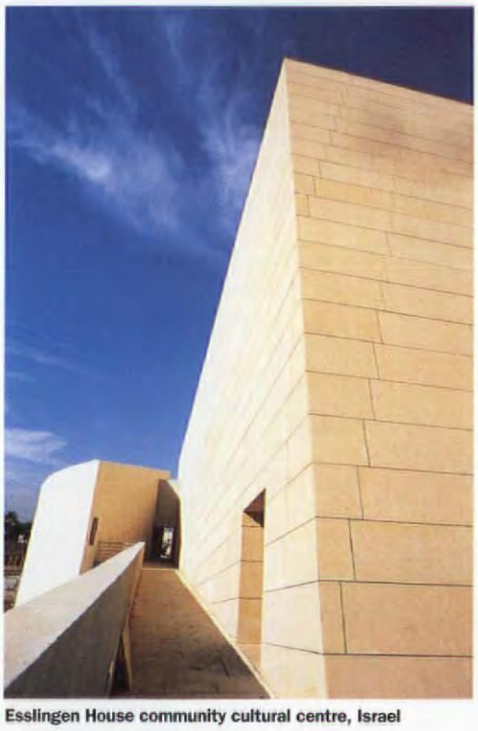
Free Print Offer

Subscribe today and you will receive a 14" x 10" colour print of your choice by David Pisani. Simply turn to the subscription form at the back of the magazine, and mark your choice from the five shown here. Then complete and return the form to *World Architecture*.

EXCITING REDESIGN
WA 55 APRIL ISSUE

In next month's World Architecture

Kisho Kurokawa – Ehime Museum of Science



Esslingen House community cultural centre, Israel

Miyagi Sant Juan Bautista museum in Japan

BUSINESS

International news, reviews and previews.

The third of *WA*'s OnScreen special features comes from Los Angeles, where Mark Dytham visits Frank Gehry's office to discuss the latest technological tools being used by the doyenne of post-modernist architecture.

COUNTRY FOCUS – Israel

These are relatively tough times for architects in Israel. For the first time this decade some of Israel's estimated 4,000 architects are having to look for work instead of turning it down. But when people complain of a recession in the building industry they are talking in purely comparative terms. Larry Derfner reports from Tel Aviv. Plus a *Face to face* interview with Moshe Safdie, proving the point that one ready route to becoming a leading architect in one's homeland is to move away, make a big international spash, and then return on one's own terms – and project reviews including the giant Jerusalem City Hall Complex by Jack Diamond in association with Kolker Koker Epstain, Bogud Figueiredo Niv-Krendel and Meltzer Igra; Esslingen House community cultural centre in Tel Aviv by Chyutin Architects; house at Ramat Hasharon by Yoav Messer; the new Faculty of Law at Rishon le Zion by Rechter Architects and the Bernard M Bloomfield Museum of Science in Jerusalem by Hillel Schocken with Ari Avrahami.

PROFILE – Kisho Kurokawa

WA's profile on Kisho Kurokawa, originally scheduled for publication in *WA*54, covers the achievements of one of the twentieth century's architectural stars. Kurokawa came to prominence as co-founder of the Metabolist Movement in the 1960s, since when he has won awards and admiration from all quarters of the architectural community. *WA* reveals the man and his thoughts, as well as providing extensive coverage of his buildings and projects.

Future profiles will feature Cannon (US) in May; Leigh & Orange (Hong Kong) in June plus a profile of Ove Arup in the Top 100 Engineers Survey; DP Architects (Singapore) in July/August.

SPECIAL REPORT – Museums

Tourism is one of the world's major industries, and museums are moving in on the action. *WA* investigates this lucrative market to find out who the clients are, where the grants or government funds are being allocated and where in the world the next projects are likely to come up. An international analysis is provided by three journalists reporting from Japan, Germany and the US building a picture of the business potential of this photogenic architectural type. *WA* is given a sneak preview of Frank Gehry's Guggenheim Museum in Bilbao, Spain; plus detailed coverage of projects including the Museum of the Future, Linz Ars Electronica Centre to the nautical Miyagi Sant Juan Bautista Museum in Japan. A separate analysis looks at recent Jewish museum projects and examines the role of private and corporate sponsers in private museums.

MIPIM'97
THE INTERNATIONAL PROPERTY MARKET
March 13-16
Palais des Festivals-Cannes-France

MIPIM opens the door to commercial property deals

You can make direct contact with over 1000 corporate end-users and investors, all of whom attend MIPIM looking for new opportunities.

MIPIM is the only forum for meeting international decision makers in commercial property. Last year this unique exhibition and conference attracted over 6500 participants from 50 countries, and 282 exhibitors. Where else can you meet *developers, property advisers, regional/city authorities, banks, investors, end-users and other allied professionals* – all gathered under one roof for four intensive days. MIPIM represents the best way to forge new business contacts, create strategic alliances, initiate new projects and stimulate inward investment – all in the unrivalled setting of Cannes. And remember as a British company you may qualify for a DTI subsidy if you reserve the stand in time.

MEET AT MIPIM

M I P I M

THE MEETING PLACE FOR EVERYONE WHO MATTERS IN PROPERTY

CONTACT: DAVID SCHINDLER
PHONE: 0171 528 0086 - FAX: 0171 895 0949

REED MIDEM ORGANISATION LTD
247 Tottenham Court Road
London W1P 0AU

Reed Exhibition Companies

CRATERE Photo: Axel D. Tliche.

WORLD ARCHITECTURE

Advertisers Index

For free information on advertisers or services tick the appropriate boxes/service numbers and fill in your details on the reader information service card facing this page.

Nothing is as magical as walking through a Nordwall partition wall

especially if there is a Lualdi door

UNITED KINGDOM
163, Eversholt Street
GB - LONDON NW1 1BU
Tel. + 44 171 9166166 - Fax + 44 171 3888118

FRANCE
FORM' A SA
165, Rue J. J. Rousseau
F - 92138 ISSY-LES-MOLINEAUX CEDEX
Tel. + 33 41 460230 - Fax + 33 41 460259

CZECH REPUBLIC
SLAR HI-TEC SYSTEMS S.R.O.
Peluskova 1405 - Kyje
198 00 PRAHA
Tel. + 42 2 81940081 - Fax + 42 2 81940087

HUNGARIA
STEVENS KFT
Karpat ut 44
H - 1133 BUDAPEST
Tel. + 36 1 1206590 - Fax + 36 1 1206590

SWITZERLAND
VERAGOUTH S.A.
CH - 6930 BEDANO
Tel. + 41 91 9451441 - Fax + 41 91 9452838

GREECE
AMSCO S.A.
14th Km National Road Athens - Lamia
GR - 14565 NEA KIFISIA - ATHENS
Tel. + 30 1 8070511 - Fax + 30 1 8000068

EGYPT
RIDICO ENGINEERING & TRADING PROJECTS
30 Mousadek St. Dokki
CAIRO
Tel. + 20 2 3358183 - Fax + 20 2 3602988

LEBANON
STE' ENERGIE FROIDE LIBAN
Damascus Street, Museum Sq.
Azar Building - BEIRUT - LEBANON
Tel. + 961 1 601301 - Fax + 961 1 601301

HONG KONG
FLEXIBLE SPACE SYSTEMS LTD
Ground Floor Tung Fai Gardens,
17 Po Yan Street
SHEUNG WAN - HONG KONG
Tel. + 852 2559 9799 - Fax + 852 2559 9225

DOMINICAN REPUBLIC
BOHENCO C. POR A.
Ave Tiradente, 26
SANTO DOMINGO
Tel. + 851 542 6223 - Fax + 851 542 6387

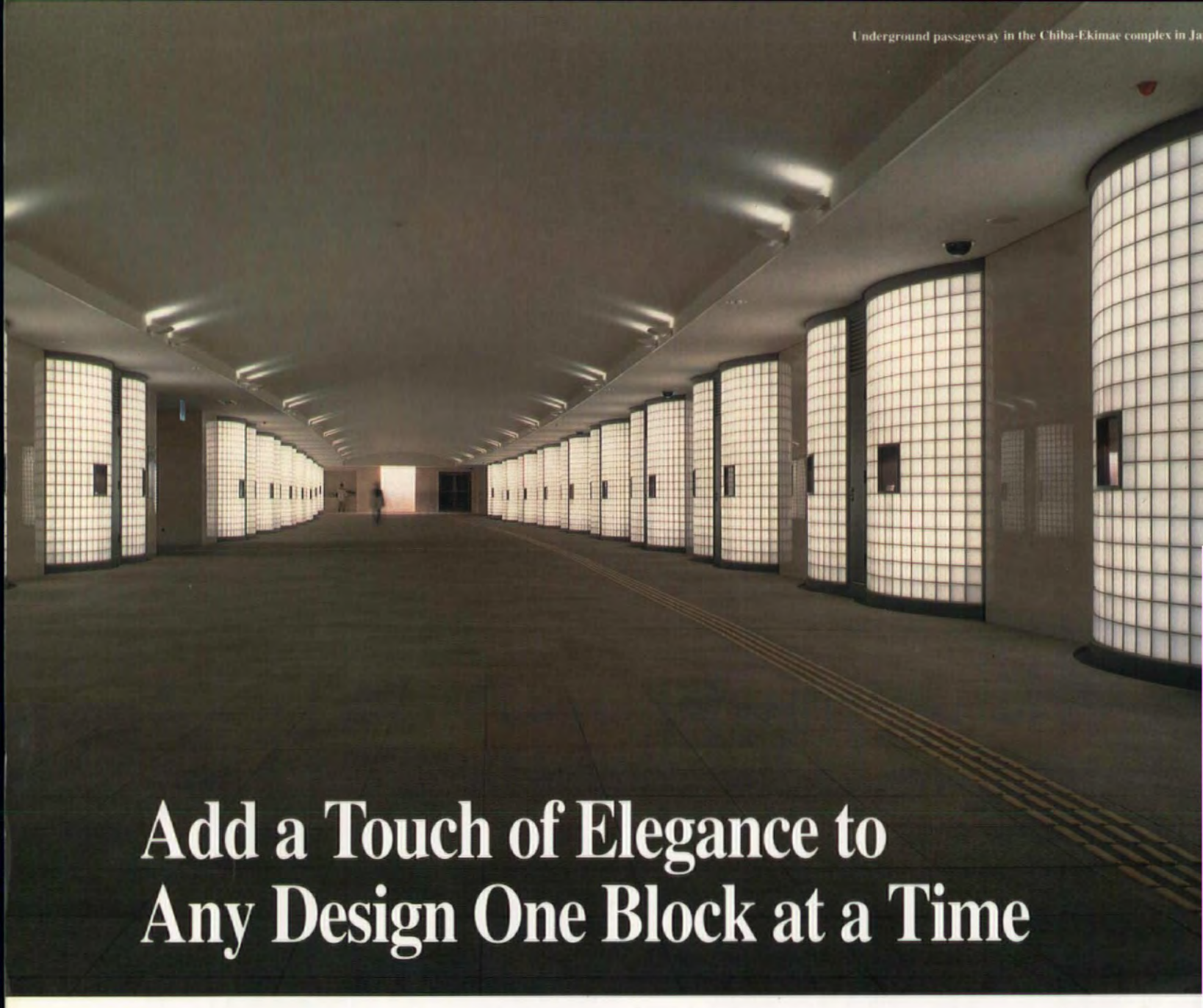
NORDWALL
LE PARETI MOBILI

Plant and Headquarters:
35028 PIOVE DI SACCO (PD) ITALY
Via dell'Industria - Zona industriale
Tel. +39 (0) 49 5842333 r.a.
Telefax +39 (0) 49 5842591

LUCE NORDWALL

DIVA NORDWALL

EXTRA NORDWALL



Underground passageway in the Chiba-Ekimae complex in Ja

Add a Touch of Elegance to Any Design One Block at a Time

Maximize Design Potential with the Versatile Look of Opaline Glass Blocks

Opaline translucent opalescent glass blocks bathe interiors with a soft, milky-white light reminiscent of the radiance of opals. As exterior walls, they subtly modulate the intensity of natural light, helping to create a truly tranquil environment. In interior spaces, opaline blocks emit a uniform and soft light that gently fills rooms with the warm feeling of comfort.

Two types of opaline glass blocks are available to accommodate a wide range of architectural styles. When used with certain designs and furnishings, lattice-patterned opaline walls can help create the ambiance of traditional Japanese "shoji," translucent sliding panels made from paper and wood. Or, when used with more contemporary settings, they accentuate the beauty of modern interiors.

PLAIN

With a smooth finish both inside and out, this style emits a softly diffused light over an entire area.
Size: 145 x 145 x 95 mm or
190 x 190 x 95 mm

SILK

The fine grid-pattern on the inner surface provides an elegant setting as it gently spreads light.
Size: 145 x 145 x 95 mm or
190 x 190 x 95 mm

Opaline

Translucent Opalescent Glass Blocks

Nippon Electric Glass Co., Ltd.

Building Material Division, 1-14, Miyahara 4-chome, Yodogawa-ku, Osaka 532, Japan
Tel (International): 81-6- 399-2728 Fax (International): 81-6-399-2740
Telex: 523-3885 NEGLAS J Cable: NEGLASS OSAKA

Representatives

Sumitomo Corporation (UK) Plc.
Vintners' Place, 68, Upper Thames Street,
London EC4V 3BJ, United Kingdom
Tel : 0171 246 3761
Telex : 887382 SUMI G
Fax : 0171 246 3924

T. I. Tiles International Limited
9 Tollpark Road, Wardpark EAST
Cumbernauld G68 OLW, United Kingdom
Tel : 01236 732727
Fax : 01236 451631
E-mail : Ti-tiles-int@cqm.co.uk
Internet: http://www.colloquium.co.uk/
www/thistle/build1.html

Nippon Electric Glass America, Inc.
650 East Devon, Suite 110
Itasca, Illinois 60143, U.S.A.
Toll-free : (800)733-9559
Tel : 630 (285) 8500
Fax : 630 (285) 8510