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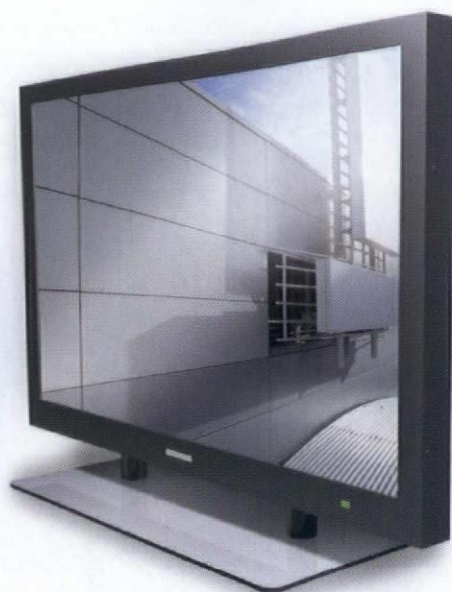
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15,205
(July 2002-June 2003)

ISSN 0003 8466

emap communications

The Architects' Journal is registered as a newspaper at the Post Office. © 2004. Published by Emap Construct, a part of Emap Communications Limited. Printed in the UK by William Gibbons Ltd. Origination and colour reproduction by Graphics (Kent), Sidcup, Kent



Aston Martin's headquarters in Gaydon, designed by Weedon Partnership, is featured on pages 44-47

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Cadell2 and Gross
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“Disappointed but not surprised”

James Dunnett of DCOMOMO UK's reaction as Westminster gives the go-ahead to Grimshaw's controversial Ellipse building for the Royal College of Art » page 8

aj news

Inspectors in secret PPG 7 order

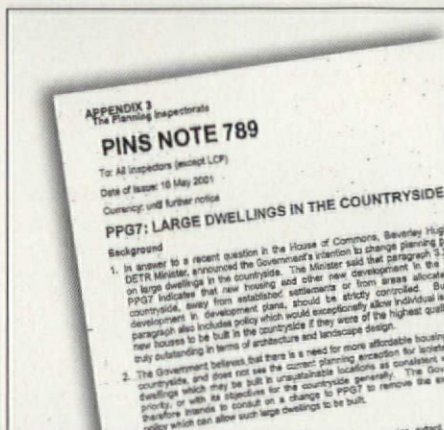
The government has secretly ordered planning inspectors to consider its proposed abolition of the country house clause when they rule on PPG 7 applications, the AJ has learned.

The deputy chief planning inspector issued a confidential planning note – PINS 789 – to his staff in May 2001, ordering them to take into account New Labour's intention to abolish the clause. In the three years since, up to 13 PPG 7 applications have been refused while not a single one has been approved. In the two years before the advice was issued, 22 per cent were successful.

The policy flies in the face of recent ODPM statements, which have sought to reassure applicants that inspectors would ignore the impending reforms until they are formally adopted (AJ 29.5.03).

But the PINS note specifically orders inspectors to take the new proposals into account, first mooted by then-planning minister Beverley Hughes in 2001. 'The minister's announcement indicates the government's aim to tighten controls over large dwellings in the countryside,' it reads.

'For the present, any decision to permit a dwelling exceptionally in the countryside,



The confidential advice for PPG 7 inspectors

under the provision of the extant policy, will need very cogent argument, with express reasons for preferring the extant policy in that particular case.

'Until the policy position is formally updated, any decision or recommendation to allow a dwelling relying on the provisions of the PPG 7 paragraph should be referred to your group manager prior to dispatch,' it adds.

Robert Adam – whose practice has a steady

stream of PPG 7 houses – said clients would be 'horrified to hear of the secret note'.

'Effectively there has been a secret pact in the last three years to contravene policy,' he said. 'Clients have been misled into spending up to £100,000 on inquiries they were never going to win. This is nasty and underhand. The government seems to have a secret agenda,' he added.

But a Planning Inspectorate spokesman insisted that PINS 789 does not represent anything underhand. 'The inspectorate has a published objective to ensure that policy is applied consistently,' he said.

'In this case it has updated planning inspectors on a ministerial announcement which is in the public domain. 'Inspectors are expressly reminded that paragraph 3.21 of PPG 7 remains extant unless or until it is removed, but that the ministerial statement should also be taken into consideration.'

Ed Dorrell



For more on the AJ's PPG 7 Save the Clause campaign – including the confidential planning note – visit Editor's Choice at www.ajplus.co.uk

Gorst's Ropers Farm scheme loses planning inquiry despite backing



The inspectors ruled, against planner's advice, that the Ropers Farm scheme near Chelmsford would impose upon the surrounding Green Belt

James Gorst Architects' proposal for a £2 million PPG 7 house in the Essex countryside has lost its planning inquiry.

The Ropers Farm scheme near Chelmsford was refused planning permission last year despite winning the recommendation of local planners.

A planning inspector last week upheld the council planning committee's decision that the house would impose upon the surrounding Green Belt.

The decision flies in the face of CABE's advice, which in a letter to planners last year said 'it was very happy to support the proposal', highlighting for praise the 'properly considered strategy towards ecology'.

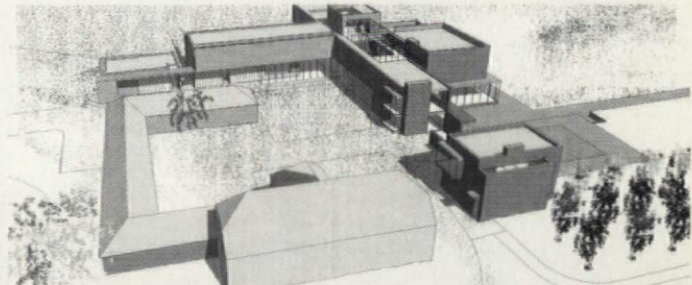
Gorst attacked the inspector's decision. 'It is the client that I feel most

sorry for,' he told the AJ. 'We followed the PPG 7 guidelines to the letter and believed we stood a very good chance of winning.

'We knew that the odds were against us but we were emboldened by the support that was shown to us by both CABE and the planners,' he added. 'But it did not feel like an impartial inquiry. It was almost like the inspector had been told not to approve.'

Gorst has also won the support of architectural historian Neil Guy, an expert witness at the inquiry. 'This was one of the most significant inquiries because of the planners' recommendation.

'It was as if it were a foregone conclusion. And if this is the case then it is a complete travesty of justice,' Guy added.



“We believe the changes will be a big step forward for a design-driven planning system”

Planning policy adviser Esther Kurdland welcomes news that planning departments are to be rewarded for employing design expertise » page 12

TAG McLaren boss, Foster client and self-confessed perfectionist Ron Dennis discusses his new HQ » pages 20-21



‘I would do it all over again’ says beleaguered Holyrood architect

The architect at the centre of the ongoing Scottish Parliament debacle – the wife of the late Enric Miralles – has vowed that she would ‘do it all over again’.

In the run-up to her appearance at the Fraser Inquiry, Benedetta Tagliabue told the AJ that she would ‘not hesitate’ to work on another scheme for the Scottish government.

The comments follow a further hike last week in the official estimated cost of the Holyrood building from £401 million to £431 million. The original figure for the scheme was set at £40 million in 1997.

The Barcelona-based architect has also come under fire in Scotland this week after it emerged at the inquiry that she has refused to sign up to a cap on fees.

But Tagliabue – who took over the scheme when Miralles died in 2000 – insisted that she was ‘unconcerned’ about the ongoing criticism and was still enjoying working on the project.

‘I accept the situation as it is now and I would accept it on another job,’ she said. ‘I am very happy

working in the UK and every time we go to Scotland I feel serene.

‘I find it completely different to working in Spain and that makes it very interesting. If the Scottish authorities asked me to do another job it would be great. I have really enjoyed working on the parliament.’

And she said she was completely unaffected by the criticism. ‘I can see why there are people saying what they are saying, but I interpret it as a positive thing,’ she said. ‘It shows the Scottish people’s love for the building.’

‘I think most of the criticism has come from the local press and we do not worry about this kind

of thing because we are an international practice. We work all over the place – in Spain, France, Italy and even in China,’ Tagliabue added.

● Bovis Lend Lease gave evidence to the Fraser Inquiry this week. The main contractor told the inquiry that it had had ‘no hope in hell’ of judging costs because neither the architect nor the Scottish authorities provided an official cost plan.

Ed Dorrell



Benedetta Tagliabue is ‘very happy’ working in the UK

Foster up for FT’s ‘influential European’ poll

Norman Foster has taken his place among the likes of Margaret Thatcher, Mikhail Gorbachev and Pope John Paul II as a candidate for the title ‘most influential European of the last 25 years’.

Foster has been included in a list of people nominated by the *Financial Times* as those who have made the most impact on the continent in the past quarter of a century.

The public is being asked to vote on the 23 candidates, who also include Francois Mitt-

erand, Jacques Delors and Silvio Berlusconi.

Other cultural figures include Luciano Pavarotti, Gunter Grass and Pedro Almodovar.

In his citation, Foster is described as ‘one of Europe’s leading cultural figures with the power to transform entire cities’.

‘It is not only that Foster is Europe’s pre-eminent architect, but that he has made architecture, design and urbanism a subject that governments and citizens cannot ignore.

‘Foster has transformed the image of the British architect, from gentleman amateur to a brilliant designer, synthesising engineering, design flair and green thinking, and one who makes an admirable profit,’ it adds.

Norman Foster told the AJ this week: ‘It is a great honour to be nominated amongst such distinguished company. It is also good for architecture and urbanism.’

Polling closes tomorrow and the winner will be announced at the end of the month.

HOUSING DESIGN LAGGING IN THE UK SAYS REPORT

Housing design in the UK is holding back recent improvements in the standards of British architecture, a new report by CABE has warned. The quango’s *Design Reviewed* document – unveiled last week – concluded that Britain’s office blocks and other commercial schemes are streets ahead of domestic new-build. Author Dan Thomson singled out Michael Hopkins and Partners’ Cattle Market project in Bury St Edmunds for praise. +

WESTON WILLIAMSON WINS NEIGHBOURHOOD PROJECT

Weston Williamson has won the RIBA competition for the River Irwell Neighbourhood in Springfield Lane, Manchester. The practice saw off competition from 79 practices from 19 countries to undertake the project for Urban Splash and Salford council. +

SOM CURBS HEIGHT FOR CROSSHARBOUR SITE

SOM has reduced the height of its proposals for the redevelopment of the London Arena site in Crossharbour by nine storeys following public consultation. The scheme – which now stands at 131m – will include apartments, retail development, a health club and 28,500m² of office space.

DOCKLANDS LIGHT RAILWAY EXTENSION GETS GO-AHEAD

The Department of Transport and the ODPM have given the green light to the £150 million extension of London’s Docklands Light Railway under the Thames to Woolwich.

POTTER RETURNING TO MCASLAN AS DIRECTOR

Aidan Potter, design director at Terry Farrell and Partners, is returning to John McAslan + Partners as a director. Potter spent 10 years at Troughton McAslan before joining Farrell in 1994.

Sea is key for Cadell2's Kirkcaldy

The Scottish town of Kirkcaldy is set to rediscover its seafront as the primary element in a major redevelopment plan drawn up by Cadell2.

The husband and wife team, both former directors at Edward Cullinan Architects, has produced a vision for the Fife town that will guide development over the next 15 years.

Their urban design framework, with landscaping by Gross Max,

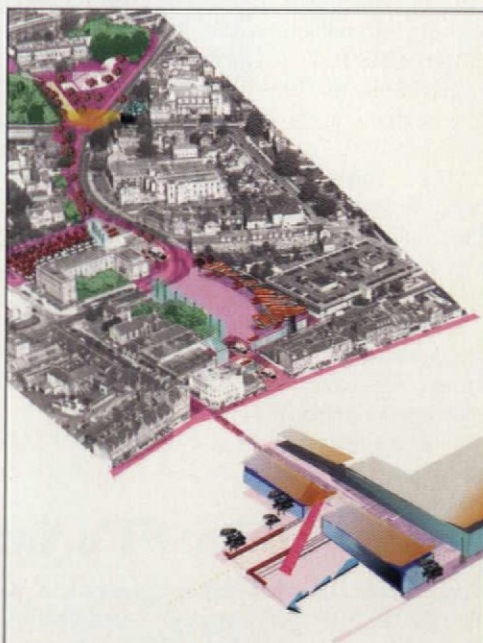
contains four key proposals. It turns the town back to the sea, reintroduces permeability with a cross-town route, creates a cultural campus and regenerates the old harbourside.

Fife council has now created a regeneration company to deliver the £31 million vision, which will begin preparing a series of competitions to find architects for each project.

Zoë Blackler



Volunteers' Green (circled left on overview), the existing gateway into town from the waterfront, has been a key civic space since the 10th century. The plan aims to bring the green back into use by surrounding it with buildings to create a sense of enclosure and revitalise the space. This area – which will become a £12 million cultural campus complete with a new library, an art gallery to house the town's impressive Peploe collection, and a new swimming pool – will be one of the first to be implemented.



Port Brae, the redundant harbour area and dock at the north-eastern edge of the town, will be regenerated as a series of residential-led mixed-use projects.

Ill-considered development in the 1970s and 1980s created a series of barriers to movement across town. To overcome this, the plan creates a green corridor running diagonally, which ties together the train station and Memorial Gardens in the north-west of the town with the high street, main town square and bus station in the south-east. This landscaped route continues with the creation of a new connecting road to the seafront.

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EU directive's passport to UK practice freedom

Architects could soon have unrestricted freedom to practice throughout Europe if the latest EU initiative makes it onto the statute books.

The European Commission is proposing to remove all remaining bureaucracy controlling practice in member states.

A draft directive, published as a White Paper last month, would see the introduction of a passport or licence card for UK-registered architects. It would replace the existing system, whereby practitioners must register with the host country's regulatory body before beginning work.

The chair of the RIBA's European Affairs sub-committee, John Wright, said the proposals were good news for UK architects.

'Although there are some parts of this draft directive that we don't like, we support many aspects,' he said.

The draft directive is still at the very earliest stages and will go through a period of consultation before being considered by MEPs.

Wright will be travelling to Brussels this weekend to work with the Architects Council of

Europe on its response to the consultation.

● A bid by building surveyors to be recognised as equal to architects under EU rules has been rejected by MEPs.

A group that included the RICS and the Chartered Institute of Building in the UK was hoping for an amendment to the new directive on 'the recognition of professional qualifications' currently being debated by the European parliament.

The proposed amendment read: 'Building design may also be exercised by other professionals, in particular by engineers, building surveyors and other appropriately qualified construction professionals who have undergone special training in the field of construction or the art of building.'

If the amendment had been adopted it would have given surveyors and others the same recognition as fully qualified architects.

Wright welcomed the MEPs' decision as 'very good news'. However, he added the changes could never have been adopted for 'technical legal reasons'.

Zoë Blackler



Edward Cullinan Architects has won planning permission for these buildings in its masterplan for Bristol Harbourside. The mixed-use project forms the last part of the first phase of the practice's bid to trigger regeneration in the surrounding area. The scheme will comprise a leisure and retail development, a new hotel and a cylindrical residential building that will 'act as the heart of the project'. The practice hopes to have completed phase one by the end of 2006.

Protesters seek call-in as Grimshaw's Ellipse is given go-ahead

Campaigners against Grimshaw's controversial Ellipse building for the Royal College of Art have pledged to fight on after Westminster gave the final go-ahead last week.

Objectors will now be pushing for a call-in by the secretary of state.

James Dunnett, co-chair of DOCOMOMO UK, said he was 'disappointed but not surprised' by the decision.

Grimshaw's £26 million six-storey glass extension to the Royal College would be a 'disaster for the urban and architectural composition created by Cadbury-Brown in 1960 with the original building,' he said.

Westminster originally approved the project in principle last July (AJ 3.7.03), subject to detailed design refinements to the roof, north elevation and main entrance.

DOCOMOMO, the Twentieth Century Society and the neighbouring Royal Albert Hall have all been fighting the plans.

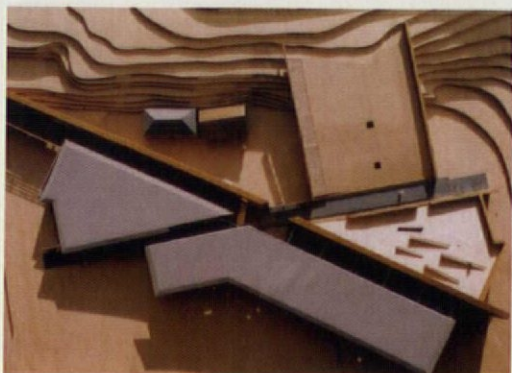
And Cadbury-Brown, whose Grade II-listed Darwin Building faces partial demolition, has condemned the Ellipse for 'lacking respect' for its context.

However, the RCA's rector Christopher Frayling has consistently rubbished the criticism as 'ill informed rant'.



Grimshaw's Ellipse building has been the subject of controversy

STUDENT SHOWCASE

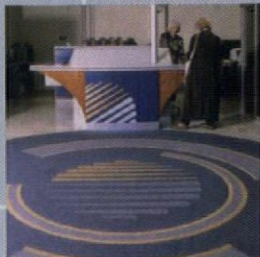
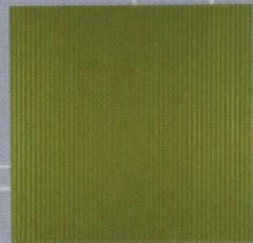
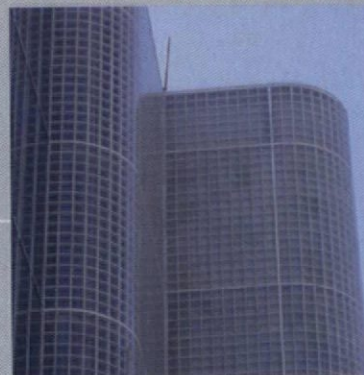


Claire Harrop designed this Lindisfarne Environmental and Cultural Resource Centre as a third-year project as part of her BA in architectural studies at the University of Newcastle upon Tyne. It is an orientation centre for visitors to Lindisfarne (Holy Island) in Northumberland, which uses axes responding to the strong topographical and historic force lines on the island to draw the visitor through the centre, providing a transition between harbour level and the rocky headland. The cave-like education areas are built against the rock, and the skeletal visitor areas are reminiscent of the many fishing huts that scatter the island.

Student Showcase is sponsored by Students' Union, a website set up by Union in association with The Architects' Journal at www.students-union.net. To submit work for publication in Student Showcase, email a publication quality image to ajstudentshowcase@emap.com



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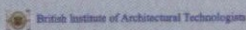
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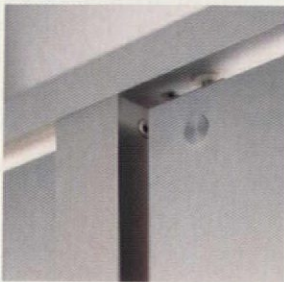
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Planners prepare for design bonus

Major planning departments are set to dramatically increase recruitment of design and architecture-qualified experts following an imminent change to regulations.

The ODPM is understood to be on the verge of unveiling a new set of performance indicators, which will financially reward planning departments that employ design expertise.

The move would answer increasing criticism from architects and the RIBA over the ability of planners to assess design-led applications.

John Prescott's decision is set against an overall review of the methods used to assess how the ODPM distributes its Planning Performance Grants. It is expected to announce the full set of criteria later this year.

CABE has welcomed the move as a 'positive decision by the govern-

ment', which should 'increase the number of designers and architects that are working within planning decision-making'.

'It is great that the government is promoting access to designers,' planning policy adviser Esther Kurdland said. 'We believe the changes will be a big step forward for a design-driven planning system. But we do have some issues with the wording of the potential criteria documents. We are keen to see more detailed wording about design and architecture.'

However, an ODPM spokesman refused to confirm that the new regulations are in the pipeline. 'We are looking at the criteria at the moment and this is something we have considered. But I cannot confirm the changes are definitely being introduced,' he said.

Ed Dorrell

Timber engineer for Gehry's Maggie's Centre goes bust

The timber engineering firm that designed the complex roof structure of Frank Gehry's Maggie's Centre in Dundee, Scotland, has gone into administration.

Cowley Structural Timberwork – which also worked with Will Alsop on the Stirling Prize-winning Peckham Library – is currently being run by accountants Kroll.

The receivership specialist has vowed to sell the Lincoln-based company – which has also collaborated with Foster and Partners, Michael Hopkins and Partners, and Grimshaw in the past – 'as a going concern if it is at all possible'.

However, it has already made 14 members of the 50-strong staff redundant. Founding partner



Creatively complex: Cowley's Maggie's Centre roof

Gordon Cowley hopes to restart the company in the future but 'on a much smaller scale'.

The company had grown steadily since its foundation in the 1970s and won many awards. However, late payments on two major schemes in 2003 are thought to have damaged cash flow.

Will Alsop described the company's demise as 'very bad news'. 'I've always thought of them as the kind of subcontractors that most architects would want to work with,' he said.

Administrator Stuart MacKellar said the accountant still hopes to save the company: 'Cowley has an excellent reputation, evidenced by us having already received expressions of interest for the business, which is encouraging.'

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Catherine Cooke (1942-2004)

The architect and Russian scholar Catherine Cooke has been killed in a car crash in Cambridge, writes Dennis Sharp. She will be remembered as one of the world's leading experts on Soviet and socialist urban planning and avant-garde architecture.

She led an immensely busy life working from a home base in her beloved Cambridge. From there she combined work as a lecturer in design at the Open University with that of an international peripatetic teacher, writer, editor and examiner, as well as personal tutor to generations of degree students.

Catherine had a formidable presence. She could be friendly, feisty, effusive, informative and profound in equal measure; and immensely generous with her time, money and ideas.

At the time of her death she was at the height of a research and writing career that began nearly 30 years ago. In 1975 she gained a PhD for her thesis *The Town of Socialism: The Origins and Development of Soviet Town Planning* at Cambridge and became fluent in Russian.

Earlier she had studied architecture at the Department of Architecture, Cambridge, 1961-67, before working as an architect and gaining experience in the office of Alvar Aalto in Finland and with Casson Conder and Partners in London. But it was her interest in the Soviet Union that was to provide the springboard for her investigations into



aspects of Soviet architecture and socialist town planning, leading to many articles, lectures and books.

In the 1980s, when many Modernist Soviet buildings – particularly in Moscow – were threatened with demolition, she began to record and list them, drawing attention to their state of disrepair. This led to her joining DOCOMOMO, for which she served on the International Education Committee and, more recently, as chair of DOCOMOMO UK (2000-02).

The daughter of a brigadier-general, Catherine Cooke shared her father's passion for sailing. It was reflected in other aspects of her life and many of us who were privileged to visit her house in Cambridge were convinced that she had designed it (or 'them', as it was two connected cottages) like a boat, with a minimal

sleeping space and the rest laid out as her unique archival working library, art collection and private gallery – or perhaps it was her English version of a dacha?

After receiving her doctorate, she began work as an editor. She became an editorial consultant for Academy Books and its *Architectural Design* magazine, a post that gave her the freedom to publish lavishly illustrated books about Russian artists and architects, including the English translations of Iakov Chernikhov's works in 1984 and her now-definitive *Russian Avant-garde: Theories of Art, Architecture and the City* (1995).

In 2002 Catherine Cooke resigned from her position as chair of DOCOMOMO UK to concentrate on academic work and pursue her interest in Russia after Perestroika.

Her interests took her back many times to the Soviet Union and more recently to countries within the Russian Federation. Her goal was simple: to get the Russian people to acknowledge the enormous contribution their architects and architectural teachers had made to their own cultural life and built environment.

She contributed much to a country that has seen and experienced the most fundamental changes in her own lifetime. Her untimely death will be mourned there as much as here.

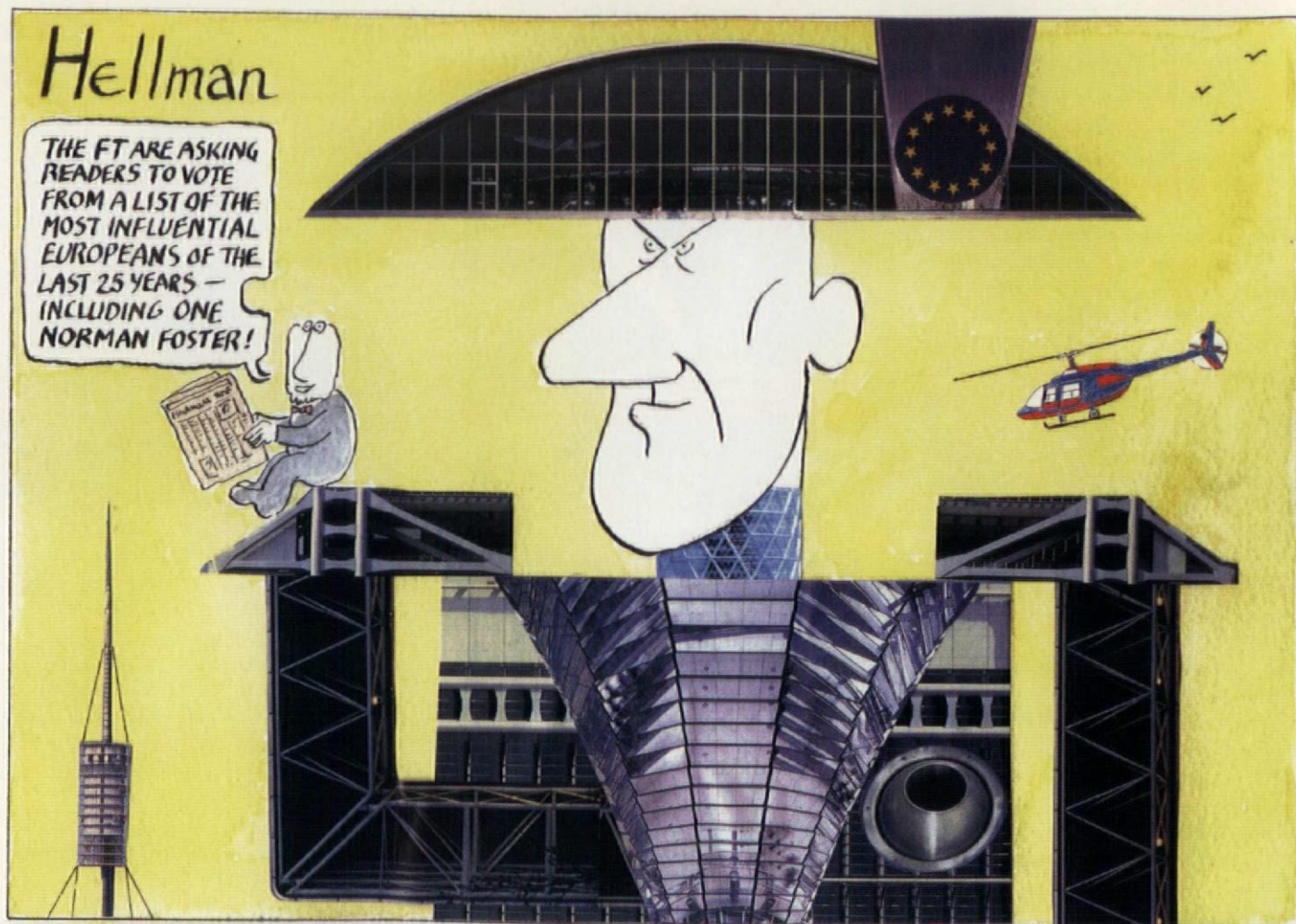
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who said what

'That is why we should give a damn. There is simply too little architecture that delights the senses so wonderfully, that invokes a murmured "wow". And then forces you to ask: "How?"'

Jay Merrick on Eero Saarinen's threatened TWA Terminal. *Independent*, 24.2.04

'Deathly walls of frigid glass are now marching along the banks of the Thames and down Euston Road. They envelop the eastern fringe of the City. All have one thing in common: pedestrians avoid them like plague pits. Glass buildings are totems of urban death'

Simon Jenkins.
Evening Standard, 26.2.04

'At their worst, as in Valencia, they topple over the edge of kitsch to create a world that seems remarkably like the set for a '50s science-fiction film, prefabricated Gaudí, extruded from a toothpaste tube by the yard'

Deyan Sudjic on the buildings of Santiago Calatrava.
Observer, 29.2.04

'Ten years ago I might have invented the Gateshead Hilton in pursuit of a cheap laugh. Now there is one'

Playwright Alan Plater. *Guardian*, 24.2.04

vital statistics

- One of the UK's biggest property agents, Lambert Smith Hampton, has predicted that London's beleaguered property market is about to enter three years of growth, due to a boom in the City's financial sector.
- The English language is losing its dominant global position, according to academic David Graddol. In 1995, English was second only to Chinese with 372 million speakers worldwide, but the language expert has predicted that within 50 years it will have slipped to fourth place behind Hindi and Arabic.
- Harry Potter creator JK Rowling has joined the list of Britain's billionaires – with a personal fortune of exactly £1 billion. The author – who has reached 552nd in the international rich list – still has a long way to go to match the Duke of Westminster's £8.7 billion.
- Home Secretary David Blunkett claims police numbers in England and Wales have reached an all-time high of 138,000, a 14,000 rise over three-and-a-half years.

At last, irrefutable proof that the Swiss have lost their touch.

Hygiene and water saving have always been high priorities for the Swiss so it should come as no surprise that Geberit has become the leading innovator in the field of hands free washroom equipment.

A tap without a handle?

With water becoming an increasingly scarce and expensive commodity, any measure that cuts wastage is a step in the right direction. Geberit's intelligent, infra-red controlled taps supply water on demand only, saving over 80% compared with traditional mixer taps.



But it doesn't stop there. With typical Swiss thoroughness, Geberit has taken the process further and designed a whole range of infra-red driven products to enable it to bring the concept of the hands free washroom to reality.

A hands free washroom?

The Geberit range takes infra-red control to its logical conclusion. Intelligent electronic taps, hand dryers and soap dispensers, combined with infra-red WC and urinal flushing,



provide the designer with everything he could wish for to create a modern hygienic washroom. Water and energy are controlled and conserved completely automatically and all functions are performed without the need for touching.

Remote programming?

With these intelligent infra-red systems, each urinal can be individually, electronically programmed at the touch of a button and adjusted to meet changing demands.

The Geberit system opens up exciting opportunities for both designers and architects. Fast and straight-forward to install, it's easy to clean and maintain, thanks to concealed plumbing and a clear floor area. As a result, washrooms can be impressively attractive as well as efficient and hygienic.

Have the Swiss lost their touch?
Well, yes. And no.



■ GEBERIT

Flushing without touching?

Automatic flushing is a relatively well known application for infra-red but Geberit has refined and developed the technology to the point where flushing of the WC or urinal is guaranteed each and every time, while saving over 60% of the water used by conventional methods. The benefits to hygiene and the washroom environment are clear.



To find out more, visit the website at: [www. Geberit.co.uk](http://www.Geberit.co.uk)
or telephone 01622 717811.

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Ever the twain shall meet



The sometimes thorny relationship between the worlds of architectural education and practice can disguise the reality – that most qualifying architects do indeed become practitioners – as a publication from the Bartlett School makes clear. Paul Finch reports

We are all familiar with architecture school end-of-year shows: the frantic rush to get the pin-ups looking as good as can be before opening night; the often fraught attempts to attract the supposedly glamorous and influential to the show; the more-or-less lavishly produced record of the school's achievements that year. To the untrained eye, the professionalism of the visualisation and drawings these days is matched only by the determination to make every idea, every line and every portfolio look fashionably obscure. You need explanation from the tutors or unit masters to make sense of it all – which is part of the appeal: it is a long way from what can be the grim reality of professional life where conflict resolution, planning battles and non-committed clients can come to dominate.

The worlds of education and practice, however, are separated much less than the scenario above might suggest. For one thing, the idea that naive, idealistic and totally unworldly students are foisted on to unwilling architectural employers is a nonsense. Most students do a year out; if they are innocent about the ways of practice before they go into this process, they are scarcely so by the time they come out. Second, there is Part 3. Having lectured recently to this category of half-student/half-professional at the Bartlett, it was encouraging to see, as usual, a full house of committed young people, still listening and taking notes at 8.30pm, after a long day. And pretty much all working in practice.

There are many practitioners who teach part-time, perhaps fewer as a proportion than there used to be, but still a vital link between the two 'worlds'; there are practitioners as external examiners; and there is a rooted idea of life-long learning that keeps links between the schools and individual professionals potentially throughout their working life. Even so, interaction between education and practice is relatively uncharted territory. It tends to be anecdotal rather than systematically recorded; the contribution that teachers have made to practitioners has only recently, via the Annie Spinks Award, begun to be acknowledged formally (and about time too). The Bartlett School has

decided to do something to record and celebrate the relationship between itself, its alumni and the offices in which they work (or have created), its teachers, examiners and contributors; the result, *Bartlett Works*, is a veritable *Who's Who* of architectural practices, lavishly illustrated, but for once a publication in which individual contributors to the design effort are named, rather than simply the principals.

A creative context

At one level, and certainly for Bartlett graduates, it is a catalogue to dip into, reminding the reader of people they knew or knew of and where they have travelled in their careers. This includes those (such as the film-maker Patrick Keiller) who have not pursued architecture, but taken up different but connected activities.

But at a deeper level, this book/catalogue is a proposition about the fundamental and essential commingling of teaching, history, theory, and the designing and making of buildings. You might say it is a visual riposte to the dim-witted question about what architectural education is *for* – that is to say, it is not about producing (vile phrase) oven-ready fodder for the practice machine, but encouraging creative people in a context of real-time delivery of the environment in which we live and work.

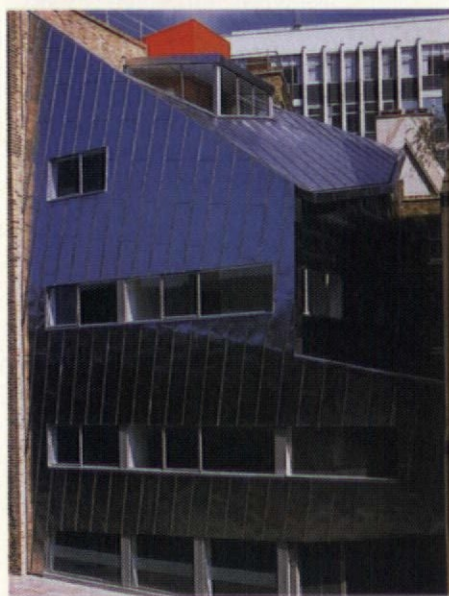
By and large, the work shown in this publication is completed buildings, though there is a share of projects too. This is the reverse side of the summer-show coin, this is the 'stuff', as co-editor Peter Cook might say, which at least in part derives from direct and indirect connections with the Bartlett School.

The idea for a publication of this type came from Peter Gibbs-Kennet, the former director of education at the RIBA, and someone conscious of the pressure to prove credentials under which schools now operate, with their perpetual cycle of investigation and validation by the RIBA, the ARB, and the university's own panels.

One thing about architecture schools these days is that they experience the same degree of regulation and control their graduates encounter in the world of building-making.



Bartlett Works emphasises significant contributions by Bartlett alumni. Above: Minamiyamashiro Elementary School, Japan, by Richard Rogers Partnership



Satellite DesignWorkshop's **The Cross Workspaces**



Redevelopment of San Michele Cemetery, Venice, Italy, by David Chipperfield Architects



Dulwich Pool House, London, by acq



Hedge House, Hampstead, by Jonathan Pile

As co-editor Iain Borden notes in an introduction, the world of ideas was the subject of an interesting compendium published in 2000 as *The Bartlett Book of Ideas*, the essence of all those end-of-year exhibitions. This follow-up, despite its title, lays much less emphasis on authorship and indeed Borden notes that there is no claim as to the particular influence of Bartlett alumni in relation to individual projects. And, of course, it would be perfectly possible for many, if not all, schools of architecture to produce a similar work, just changing the names of the personnel involved. It would be fairly interchangeable with the AA, for example.

However, it is the Bartlett that has done it and which should take the credit. This publi-

cation is a reminder, even if it makes no attempt to list the countless professionals and others involved in the making of a building, that architecture is a collective business.

As for those who are named, this acts as a reminder that within the collective that makes buildings, the individuals concerned are extremely important.

It is nearly 30 years since the Salaried Architects Group tried to promote the importance of, in particular, project architects who too often were omitted from the story of a building, which always had to be presented as the work of a practice.

Consultants who worked on the buildings shown in this book might ask why they are not credited; the response might be that

their own schools of engineering, surveying, etc should consider doing something along the lines of *Bartlett Works*. This is a publication with a generic, if simple, idea. It happens to be a terrific record of architectural and other forms of work, by a huge variety of people, and an interesting thing to dip into whether or not you have any connection with the Bartlett. Other similar publications from other schools will surely follow; they will need to be very good indeed to better this one.

Edited by Laura Allen, Iain Borden, Peter Cook and Rachel Stevenson, Bartlett Works: Architecture, Building Projects is published by August Projects with the Bartlett School of Architecture. 2004. 208pp. £26



Now we're motoring – but you can only drive the role model so far

From Le Corbusier's declaration that '*je ferai des maisons comme on fait des voitures*' to John Egan's repeated exhortations for the construction industry to learn from the automotive sector, the car industry has been held up as a benchmark for efficient production. Foster and Partners' McLaren Technology Centre (*Building study*, pp24-31) brings the two worlds together. But have we learned the lessons that Egan or Corbusier had in mind?

The success of the motor industry is generally attributed to the reduced labour, research and design costs associated with standardised production. Yet many of the most profitable companies concentrate on exclusive products which are highly labour-intensive and dependent on constant innovation. The trick is to offset or recoup – rather than reduce – unit costs. The McLaren building has demonstrated, not that buildings can be put up on the cheap, but that architecture can benefit from the basic rules of sponsorship – that suppliers can be persuaded to shoulder the cost of product development in return for association with a prestige project. The strategy of sponsorship or 'partnering' bought suppliers into the design process at an early stage, replicating the strong control and dialogue which characterises car manufacturing rather than the more fragmented relationships of the construction industry. While this reinforces Egan's edict that the construction industry should aim for greater collaboration, it suggests that strong leadership is more important than convoluted partnering. There was no doubt who was boss.

But if there are lessons to be learned, the McLaren building, like Grimshaw's Rolls-Royce factory (AJ 5.2.04) and Weedon's Aston Martin factory (*Buildings*, pp44-47) underline the fundamental difference between buildings and cars – that the former is site-specific, the latter are not. Each of these clients demanded a building which is highly individual and enjoys a particular relationship with its surroundings. How telling that each of these three forward-looking companies describes their building as a contemporary take on that most traditional of building types – the English country house.

Isabel Allen

The RIBA has 'managed' training for six years

Jon Rouse deserves many plaudits for CABE's success and action on so many fronts since it was set up five years ago. But he says (AJ 26.2.04) that 'a big underdeveloped area is... training professionals to become project managers', that he'd 'hoped to see the creation of a generation of 200-400 existing professionals... equipped to lead regeneration projects from a design approach', and that he'd 'hoped to have it set up by 2003/04 but the government decided we were not ready'.

I'm surprised that he does not know that the RIBA set up such courses six years ago. After much excellent work by Peter Lord, RIBA adviser on project management, as RIBA president I signed an agreement with the Association of Project Management in 1998 for it to run courses for architects to obtain a professional qualification. Since then 50 or more UK architects have completed such courses each year. An opportunity for the RIBA to obtain the government resources CABE expected for this? Following demand from overseas members the RIBA is exporting these courses to the US and the Far East.

On another matter: now that Jon is moving to head the Housing Corporation, I'm sending him the research I commissioned from Wright and Wright in 1998, as one of my President's Initiatives, on how the housing association sector could be improved. Many of the recommendations in that booklet are still relevant.

David Rock, RIBA past president

Table is essential part of disabled toilet provision

I was both delighted and dismayed to read Selwyn Goldsmith's informative article on the Approved Document Part M that

will come into force in May (Bog Standard Provision, AJ 19.1.04). Delighted because the provision of accessible and inclusive 'away from home' toilets for people with disabilities is an issue of social justice and human rights that should be addressed through the better design. Dismayed, because of a comment on the need for an adult changing table in large public buildings.

Not all people can use the toilet independently. Many thousands of adults and carers need a toilet with an adjustable-height changing bench, ideally equipped with a hoist to assist transfer from a wheelchair to the bench. Where this is not provided, wheelchair-bound adults with profound and multiple disabilities may be forced to lie on a toilet floor while their carers struggle to remove and replace a full body brace and change their incontinence pad. This undignified, unsafe, unhygienic and uncomfortable procedure can take up to half an hour.

If people with profound disabilities are not to be excluded from public life, every major venue which the public is likely to visit should provide a cubicle that is large enough to accommodate an adult in a wheelchair, an adult-size changing bench, a bin for adult-size incontinence pads and room for one or two carers. Milton Keynes Shopping Centre is one of a handful of centres that meets these standards.

PAMIS, an organisation to support people with profound learning disabilities and their carers, has an explanatory video, *Time for a Change*, that should inspire any architect that this is an issue worthy of the highest standards of design excellence.

Julienne Hanson, principal investigator, EPSRC research into the inclusive design of 'away from home' toilets in city centres

CRM's rear elevation at Derngate: approaching Modernism or simply a design mess?



An expensive new Mac

I am an admirer of Charles Rennie Mackintosh's work – at least before the pints of heavy took their toll.

There was a time when every CRM building was interpreted as a step along the way to the magic kingdom of the Modern Movement. The 1952 work on CRM by Thomas Howarth was titled *Charles Rennie Mackintosh and the Modern Movement* (coincidentally, both Howarth and the author of your piece, Kenneth Powell, said that he accepted the job at 78 Derngate with 'alacrity'). Powell suggests that the rear elevation of Derngate is approaching Modernism, but I feel it is more of a design confusion than a confident CRM concept and is not an example of Mackintosh at his peak.

It is unfortunate that no photographs of the building before, or during, the work were shown. These would have enabled us to see how much was restoration and how much was recreation.

Northampton is no doubt proud of a CRM memento, but was such a rebuilding/reincarnation justified? Does the profession want to appear so elitist that it considers £1.5 million a 'modest budget'? I'm glad you don't find copies of the AJ in GP's waiting rooms – such a comment would not generate much positive PR for architects.

Nicholas J Blake, Canterbury, Kent

'Sour grapes' don't feature on the menu

Arup's library sent me a copy of Ed Dorrell's article (AJ 12.2.04), followed by a copy of Max Fordham's letter (AJ 19.2.04).

I would like to correct one assumption in Fordham's letter. Dorrell's article was based on a telephone call to me, and the opinions expressed were entirely mine. There was no communication with Arup Acoustics and therefore 'Arup's sour grapes' could not be part of the equation. Max knows me well enough to understand that since my retirement from Arup in 1998, my main interests in life are sleep, food and wine, music and arguing. I am not aware that 'sour grapes' are included.

Derek Sugden, Hertfordshire

Office printer reveals PDF shortcomings

Robert Klaschka (AJ 12.2.04) has missed the point of Sutherland Lyall's gripe about PDFs, which is that, whatever their other merits, they are a pain in the neck when viewed in a browser online. As one of Lyall's co-conspirators, I am grateful then for Daniel Sim's advice on disabling Acrobat's browser integration. Now I can surf away at porn sites, while Acrobat does its stuff, instead of having to play Solitaire. One would think that browser integration would be a good thing; having to switch it off is hardly what you expect.

But there are other issues. The PDF format is, in origin, a way of describing a page layout for printing, but layout for a printed page is not always suitable for a screen which cannot, in most cases, display an A4 page legibly. Columned pages like those of the AJ demand too much scrolling up and down. Too many documents, whether on the web or on CD, are too blatantly just what was sent to the printers

without changes to layout, type size, bookmarks, or hyperlinks for navigation. I once came across a government pamphlet that was a sheet of A4 folded in four; on screen, half the text was upside down. The whole of the Velux catalogue is on CD, but much of the print is too small to be read on screen when printed on an office printer. Another CD wasted.

Yes, let's have PDFs, but they must be adapted for use on screen and bookmarked.

Alan Kennedy, London SW12

Do you have pictures of Liverpool schools?

I am engaged in research into the architecture and development of Liverpool's Board Schools, ie secular elementary schools built between 1870 and about 1905.

Most of these buildings have been demolished and it is proving difficult to obtain pictures of some of them. Examples are Harrington, Queen's Road, Roscommon Street, Sefton Park and Walton Lane, but there are many others.

If any reader has photographs or drawings of the exteriors of one or more of the schools of this period, and would be willing to lend them to me, I should be very grateful. All pictures would be treated very carefully and returned as quickly as possible. Postal costs would be reimbursed.

If you think you can help, please write to: F E Gersten, c/o The University of Liverpool, Department of Education, 19 Abercromby Square, Liverpool L69 7ZG.

Florence E Gersten, Liverpool

Please address letters to the editor at *The Architects' Journal*, 151 Rosebery Avenue, London EC1R 4GB, fax 020 7505 6701, or email angela.newton@emap.com to arrive by 10am on the Monday before publication.



We must conquer constraints to keep the lifeblood flowing

The day-to-day business of making architecture confronts ever more numerous constraints. How we respond to these will, to a large extent, determine the architecture of any project. We must therefore identify the operational 'context' in which the project is created, defining the 'rules of engagement'. Once defined, constraints can then be perceived as either negative laws that stymie innovation, or as the lifeblood of the creative process.

Which view you take will determine whether the process of responding to constraint (design) destroys an idea or informs the opportunity. I am firmly in support of the latter view, because architecture is built on constraint and creative response. The greater the problem, the more the need to think laterally to solve it; the more the need to innovate and progress.

Having said all this, I am constantly astonished by the crass stupidity of the rules that confront us. We would do well to rethink the systems of measurement that, in an audit-driven era, dominate. The measurement of the easily quantifiable leads to eradication of the intangible qualities of

'delight', since the latter do not rest easily on the balance sheets of scheme appraisals.

So what new tools should we use?

The system of finance, which has a formative impact, still uses an antiquated capital cost criterion when it should measure value – assessing capital cost, cost in use, environmental cost and the 'usefulness' of the product. Similarly, space standards are still assessed by a 50-year-old 'benchmark', Parker Morris, dating from an era of slum clearance, which they rarely achieve. We should measure the cubic volume of accommodation, not square footage; the ease with which space can be reconfigured and upgraded; the provision of private and public external space; the generosity and delight that we offer future inhabitants.

On an urban scale we measure plot ratios and habitable rooms per hectare; crude tools set by continuously outdated and reactive unitary

development plans which imply that cities have no 'section'. We classify occupation in terms of 'use class orders' which deny the shifting nature of work and the distinction between occupation and building fabric. We should, in fact, measure 'occupation' over the cycle of a day, a weekend, a week; the quality and extent of transportation and communication links; the impact of new ways of working; and proximity to commerce, education and retail facilities. In essence, the only measure is the ability of a location to service its occupants.

Building regulations correctly aspire to raise standards of construction and safety, but are similarly inflexible. The wit of a design is therefore often measured by the extent to which it overcomes regulations that preclude innovative models. We should

measure the ecological efficiency of a scheme, not its U-values. We should assess the impact that desirability of location has on density and daylight, rather than applying a universal 'daylight factor'. We should consider the benefits to neighbouring occupants, site workers and

the quality of build that off-site construction brings to the process of 'making', rather than only thinking about time.

It is for these reasons that I despair of the likely conclusion of current regulatory obsession with 'cold bridging' and its evil twin sister, 'interstitial condensation'. It is not that we cannot learn from a history of defects, but that we are confronted by a reaction of grotesque regulation rather than intelligent analysis.

The biggest cold bridge in any project is the glazing unit. The ultimate aim of the incessant waves of new building regulations seems to be its abolition. Glass, of course, is easily shattered and therefore 'dangerous'; it is also key to our enjoyment of buildings, so banning it would doubtless be fully supported by health-and-safety apparatchiks. Absurd? Unprecedented? No. Window tax has a well-documented history.



Aiming for a glazing ban?

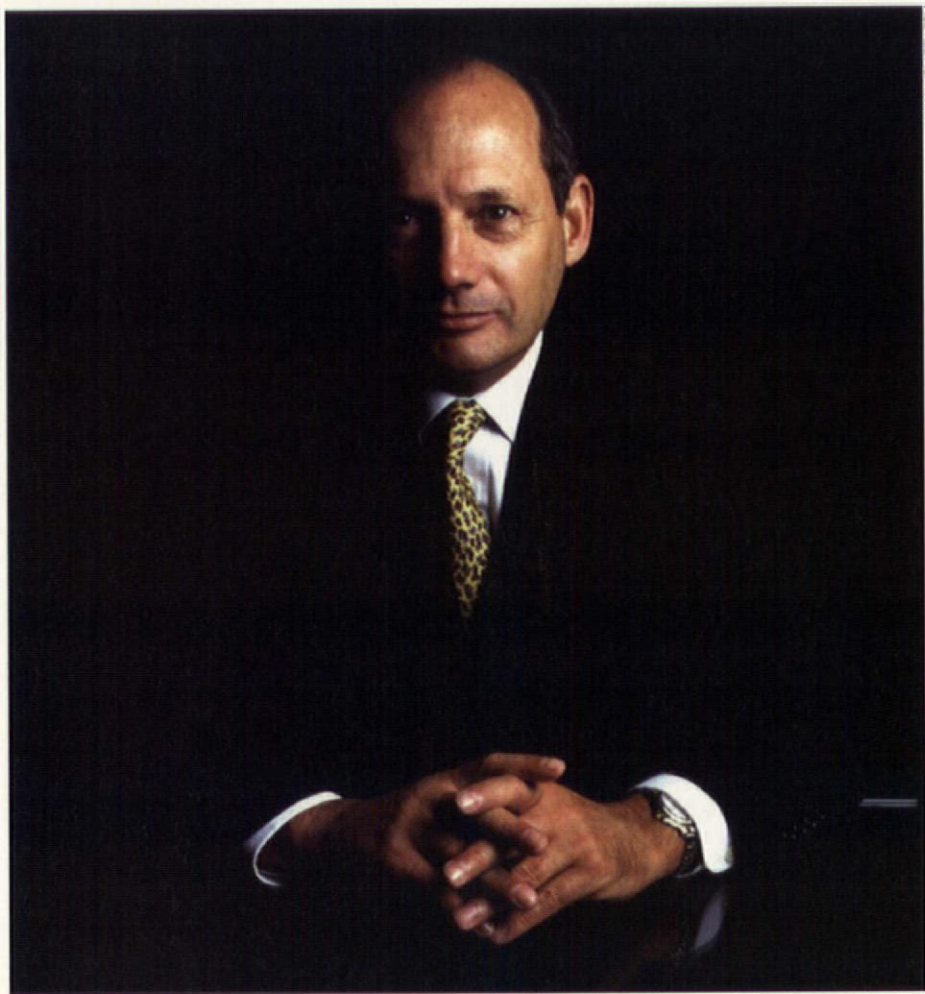
TAG McLaren boss Ron Dennis' obsession with detail made him the ultimate hands-on client. Did Foster, who designed his new HQ, finally meet his match?

There aren't many people who make Norman Foster appear slapdash. But Ron Dennis is one of them. As chief executive of Formula One team TAG McLaren, and client for its new Foster-designed Technology Centre just outside Woking (*Building study*, pp24-31), Dennis has had plenty of opportunity to view the Foster modus operandi in action. Already sufficiently impressed with the practice to entrust it with his multi-million flagship building (McLaren refuses to disclose costs but a figure of £160 million has been reported), Dennis found a kindred spirit in Norman Foster himself. Foster's recollection of the meeting is that 'although neither of us knew it when we first met, there was actually a natural synergy between us on a number of aspects of what our companies, in our very different fields, had been trying to do; meeting the challenge of social, technological and lifestyle change, the way they interlock, and looking at the re-evaluation of the workplace as a good place to be'.

Foster and Dennis became such close friends that both felt it would be politic for Foster to cede the running of the project to his senior partner David Nelson on the basis that, as Dennis puts it, 'nothing is more difficult than to criticise a friend'. Nevertheless, as Nelson recalls, 'Ron used to hate coming to the office because he thought it was chaotic. All of a sudden we had a doormat put in – we'd never had a doormat.'

Order and hygiene are big issues for Dennis. That McLaren operates a clear-desk policy goes without saying. More radical is the company no-bins policy. For Dennis, 'wastepaper baskets represent a whole cultural problem. They attract waste.' Accordingly they have been eliminated, or at least replaced with discreet narrow drawers built into the bespoke office furniture. Little wider than a portfolio, they can accommodate discarded sheets of paper (but not if they are subversively scrunched into unsightly paper balls) and very little else. Not that there is much else. The messy business of eating and drinking is strictly consigned to designated areas. And it is simply inconceivable that the building – or the company – could accommodate the type of person who accumulates miscellaneous junk.

The atmosphere within the supersleek headquarters is positively clinical. True to form, Dennis favours white on the grounds that 'it is definitely the easiest colour to keep clean and conveys a very clinical and hygienic



Driving force

ic environment' and has commissioned purpose-designed workwear 'which will make our employees look more like surgeons than operatives in an industrial company'.

For Dennis, the environment is the embodiment of his responsibilities towards – and expectations from – his employees. Dennis started out as a mechanic and started his own team with a fellow mechanic in 1972, but a bad road accident forced him into a managerial role and he swiftly developed a hands-on high-voltage management style. He subscribes to the mantra that 'If you can get the mindset that you look forward to going to work then you've got a very productive workshop' and says 'I don't think it's

right to send people home smelling of their workplace'. In return he expects absolute commitment and the degree of obsessive attention to detail which is necessary for the design and manufacture of £350,000 cars.

Dennis, like Foster, sees a clear relationship between his core business and the process of designing the building. 'There are lots of parallels to Formula One. There has been the same search for perfection, the same search for performance and the same demand for cutting-edge technology – but proven cutting-edge technology. We didn't want to be a guinea pig for technology, but we did want the latest and the best.'

But compared to McLaren's super high-

tech trade, even the most exacting architecture is an imprecise messy affair. 'The Foster spec is pretty high standard,' says Nelson. 'But Ron sees our spec as the lowest standards possible he will expect.' Although Nelson and Dennis have also become 'good friends and colleagues', he admits that 'meeting the man for the first time was fairly forbidding'. In fact, 'the meetings are still forbidding. I gave up counting at 150. I think we must be at 250 now. And they are three or four hours long.' Dennis explains his unusual degree of commitment by saying, 'I always said "if we are going to do this thing, let's do it in microscopic detail"'. And so he did. 'We had 25 people on this full-time and he still caught us out,' Nelson is quick to confirm.

Nevertheless, Dennis is delighted with the results, and takes as much pride in the 'behind-the-scenes' aspects of the building as with its outward appearance. For Dennis, buildings, like his cars, should be 'just as beautiful with their clothes off as with their clothes on'. But the headquarters is more than simply a virtuoso technological performance and an exemplary workplace. 'A lot of this building is about brand and what we stand for as a brand,' says Dennis. He uses the phrase 'mental aftertaste' to describe the impression a building can make on the visitor, and feels that he has achieved his dream of a mental aftertaste which is '90 per cent automotive/NASA and 10 per cent Disney. The Disney element is the magic you can create in the area producing your products. Perhaps 10 per cent magic would be more accurate.'

It has been a long haul getting there, and for Dennis, who typically took responsibility for finding a site, the slog started long before the interminable meetings with Foster. The lengthy process of finding a site (initial plans to build on a parcel of land in Kent that he bought 'very secretly' back in 1988 were scuppered when staff informed him that they had no desire to move to Kent), gaining permission to build on the Green Belt and the relentless pursuit of innovation and perfection have taken their toll. Dennis concedes that the building is late, but adds that 'it is very complex – it's occupied the best part of 15 years of my life'. And it wasn't even his day job: 'We've got this thing called a Formula One Team which is a bit of a distraction.'

Isabel Allen

'Ron has been an extraordinary inspiration. He is a perfectionist and that, along with the spirit of teamwork that he conveys, has permeated down into the building itself'
Norman Foster

'We have always liked to work with manufacturing companies, and McLaren make things to a far higher standard than those with whom we normally deal. It's very unusual that the client – especially the CEO – participates so much in the design'
David Nelson, senior partner, Foster and Partners

'Ron pushed us to the limit. It's hard to find a customer willing to challenge you and go with you so far. Most companies want you just to do the job as quickly and as cost-effectively as possible and they don't really exploit the value you can bring to a project' Lorenzo Targetti, executive vice-president, Targetti UK

'I could be the customer from hell. I'm most definitely the customer who requires tremendous attention to detail. The McLaren Technology Centre typifies that. It's a 57,000 square metre commitment to attention to detail' Ron Dennis



How Middle England was spared the dark satanic shopping malls

'We've stopped all them malls now outside towns. This is the first year we've done more building inside towns than outside. Even though I get a lot of pressure about it, I think it's right. We want people back in our cities.' So announced deputy prime minister John Prescott to the architecture correspondent of *The Times* a couple of weeks ago. Read slowly some of his random thoughts sounded almost Churchillian; 'We stopped all them malls now outside towns,' for example, and 'We want people back in our cities'.

It was almost as though he and the Labour Party had been locked in a life and death struggle with an intractable enemy ever since they seized power in 1997 and that they had only just been relieved after years in the frontline.

But who is this intractable enemy that dares to seize out-of-town sites with the aim of building shopping malls on them? Why, it is not Al Qaeda at all, but the Morrisons, Sainsburys, Tescos and Waitroses of this world. Illustrious brand names sacrosanct across Middle England where there are no military targets, only all the things that make life tolerable in abundance.

How did these major food retailers come to fall foul of the deputy prime minister in such a comprehensive way? Simply by planning their future expansion in accordance with the 'predict and provide' provisions of the strategic plan for the South East at the end of the 1990s. At that point in time Britain's big supermarket chains were already the best run businesses in Europe, and as for them being 'out of town,' that was simply planners' code for sufficient space for parking.

Since all planning revolves around the location of housing, shopping mall plans are closely tied to housebuilding demographics. In this contentious area it is crucial to know the passwords. On the met-

ropolitan side you have to be able to say 'vibrant multicultural city' with a straight face. Outside London, 'destroying our natural environment' goes down better – unless you happen to find yourself in Milton Keynes where the best thing to say is: '1.1 million of you? No problem! Come on down.'

In this case the key planner was housing expert Stephen Crow. He treated planned housing development as a straightforward matter. If his committee added up all the new households that on current trends would be formed in the next 15 years, and then added the current rate of migration into the South East from other parts of the country, together with global migration, he would know precisely how many new houses would be needed.

Then he put the finishing touches to his sum by saying that 'only' 550,000 out of his predicted 1.1 million would need to be built on greenfield sites – which was a more palatable way of saying that 'only' the other 550,000 would have to be crammed onto dark satanic brownfield sites in South and East London.

Anyway, good at maths as he was, Crow was a dunce at politics. He forgot to soften up the metropolitan side with lyrical talk of pavement cafés and bus lanes kept clear of traffic by vibrant policemen.

Nor did he properly denounce 'the destruction of our precious rural environment'. Instead he used the politically incorrect term 'housebuilding'. Trusting member of the establishment that he is, he then found himself giving the government all the logical infrastructure it needed to justify the building of 20,000 more houses a year than the local authorities in the South East had said they wanted.

The rest, as they say, is history. The houses didn't get built and nor did the M25 shopping centres.

'Crow forgot to soften up the metropolitan side with lyrical talk of pavement cafés and bus lanes kept clear of traffic by vibrant policemen'

David Bernstein

Levitt Bernstein

When and where were you born?

24 June 1939, New York City.

What is your favourite building and why?

Farnsworth House – timeless simplicity.



What is your favourite restaurant/meal?

Any pasta at San Giovanni, Casarza, Italy.

What vehicle(s) do you own?

A Smart and a 2CV.

What is your favourite film?

Fellini's *La Strada*.

What is your favourite book?

American Pastoral by Philip Roth.

What is your favourite 'design classic'?

Eames Lounge Chair.



What is the worst building you've ever seen and why?

Good grief... there are so many.

Who or what is your biggest architectural influence and why?

Louis Kahn – I was one of his students.

Who is the most talented architect you've worked with?

Patrick Hodgkinson.

If you hadn't been an architect, what would you have been?

Confused.

What would your advice be to architectural students?

Design for your clients as well as yourself.

What would your motto be?

That sounds like a 'mission statement' to me – no thanks.

We got 240 holes in one.



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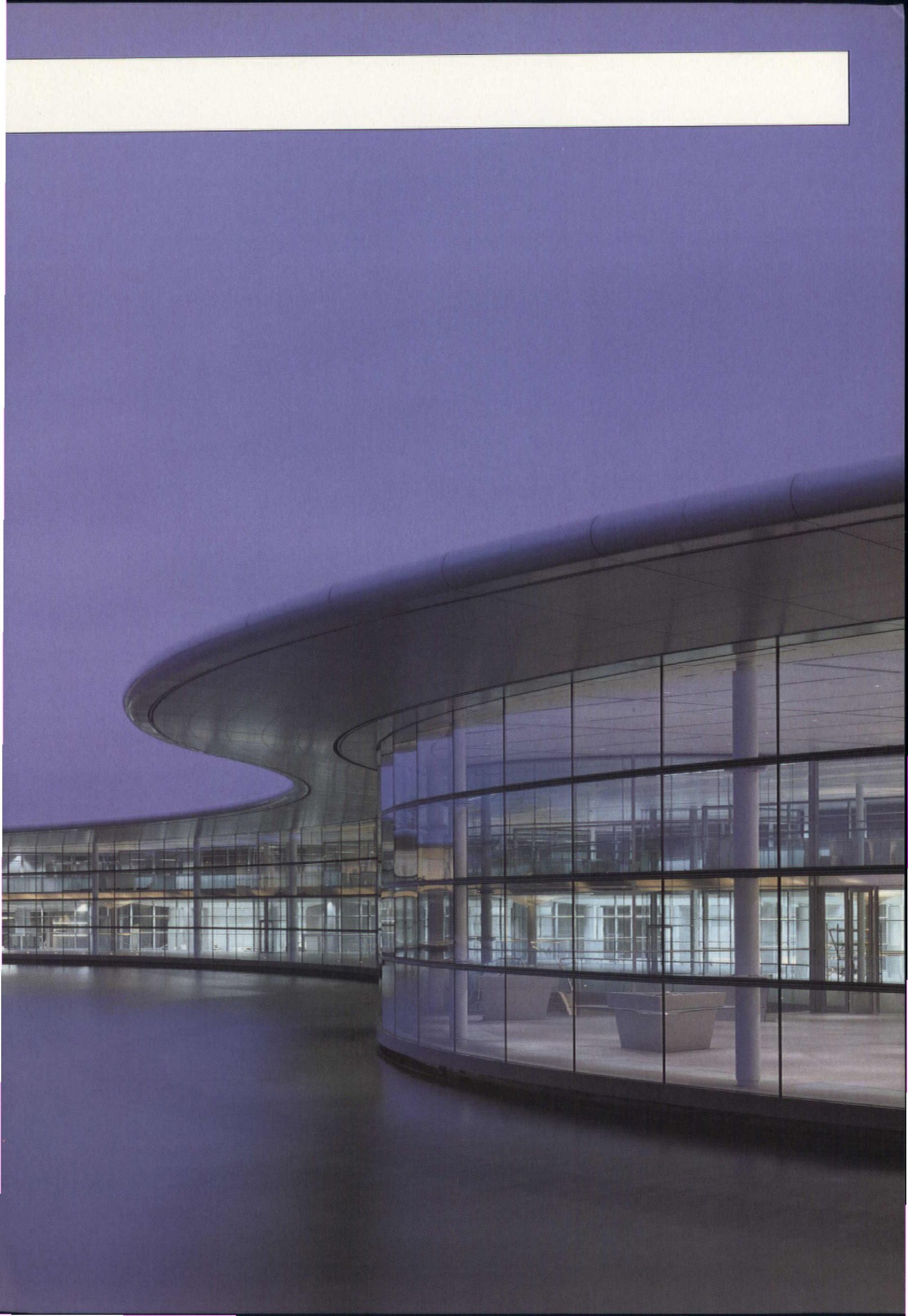


A MACHINE FOR WORKING IN

**Foster and Partners' centre for TAG McLaren at
Woking is an impressive theatre for technology**

By Barrie Evans. Main photographs by Nigel Young





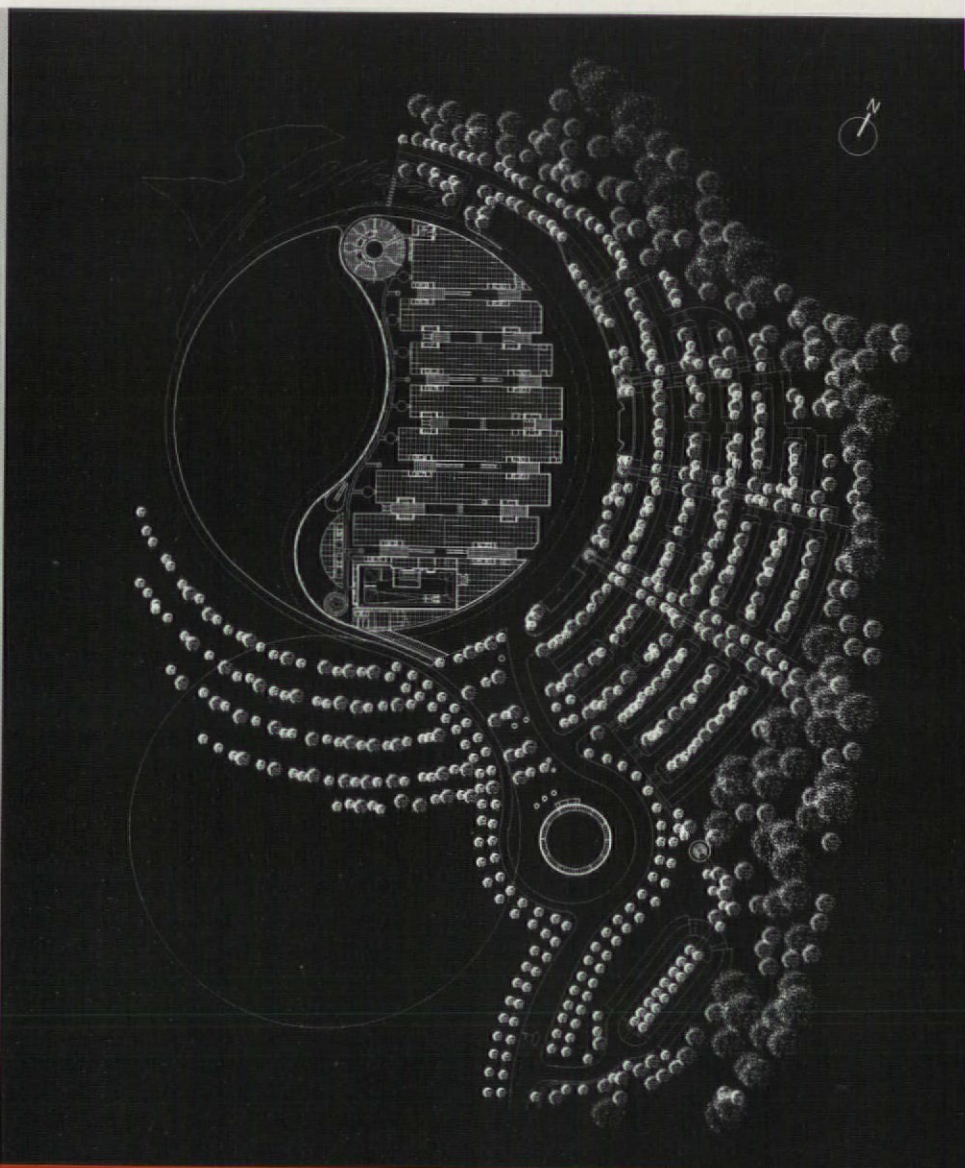
Are you a VIP? You won't be told but you will discover from the way you are directed to enter this building. The VIP, whether a prospective purchaser of the new £350,000 Mercedes-Benz SLR McLaren or a major business partner, will enjoy the semicircular drive that sweeps round the lake edge opposite the main facade, finally to cross the water and reach the entrance. There the car will be valet-parked; people who are serious about cars drive themselves.

The circular plan of the factory plus complementary lake is echoed in the circular Visitor and Learning Centre and in the gravelled entrance circle where VIPs leave their horseless carriages, also inside in circular lifts and landings. The line of the principal facade arcing away from the entrance snakes across the lake, fronting 'the big space' – big both physically and architecturally. 'Foyer' seems too small a term for this single, building-height volume that extends 200m across the lake front from the entrance, terminating in restaurants and a fitness centre.

The length and curvatures of its facade mean that often the lake and landscape beyond are viewed obliquely through it. Foster's early computer modelling of the facade, which had conventional wind-posts, showed that a lot of the more sidelong views out would be obscured by runs of these posts. So the structural logic has been changed to horizontal 12m windblades supported off columns, with the vertical structure pared down to silicone jointing of the suspended glazing and elliptical stainless steel tie rods, as used on the F1 cars. There are several different shapes of windblade needed to follow the snaking plan but the glazing itself is faceted in flat panels, which at this scale read as a continuous curve (see *Working Details*, pages 42-43).

As impressively done is the adjoining snaking, raised VIP walkway, punctuated by hydraulic lifts, its largely 2D cladding panels still allowing it to read as a 3D object. Deeper into the building are the glazed, double-height industrial spaces with offices above; on plan, eight fingers 18m wide with 6m streets between.

Glass-fronting of these spaces onto the foyer, apart from fire and other practical containment, is part of an industrial and commercial story that is more complex than the relatively straightforward housing of manufacturing we have seen in recent industrial buildings – Wilford's Sto (AJ 29.1.04) and Grimshaw's Rolls-Royce (AJ 5.2.04). This new building is consolidating the activities of the McLaren Group from some 18 sites around Woking. So the new building includes industrial space for automotive electronics and advanced composites and office space for the marketing and corporate hospitality companies. Several fingers of the plan are home to the new joint venture with Daimler-Chrysler to build the Mercedes-Benz SLR McLaren car. Other fingers will shortly be



Structure

The structure comprises a structural steelwork superstructure with a reinforced concrete slab on a profiled steel sheet. At ground floor and basement level the construction is reinforced concrete.

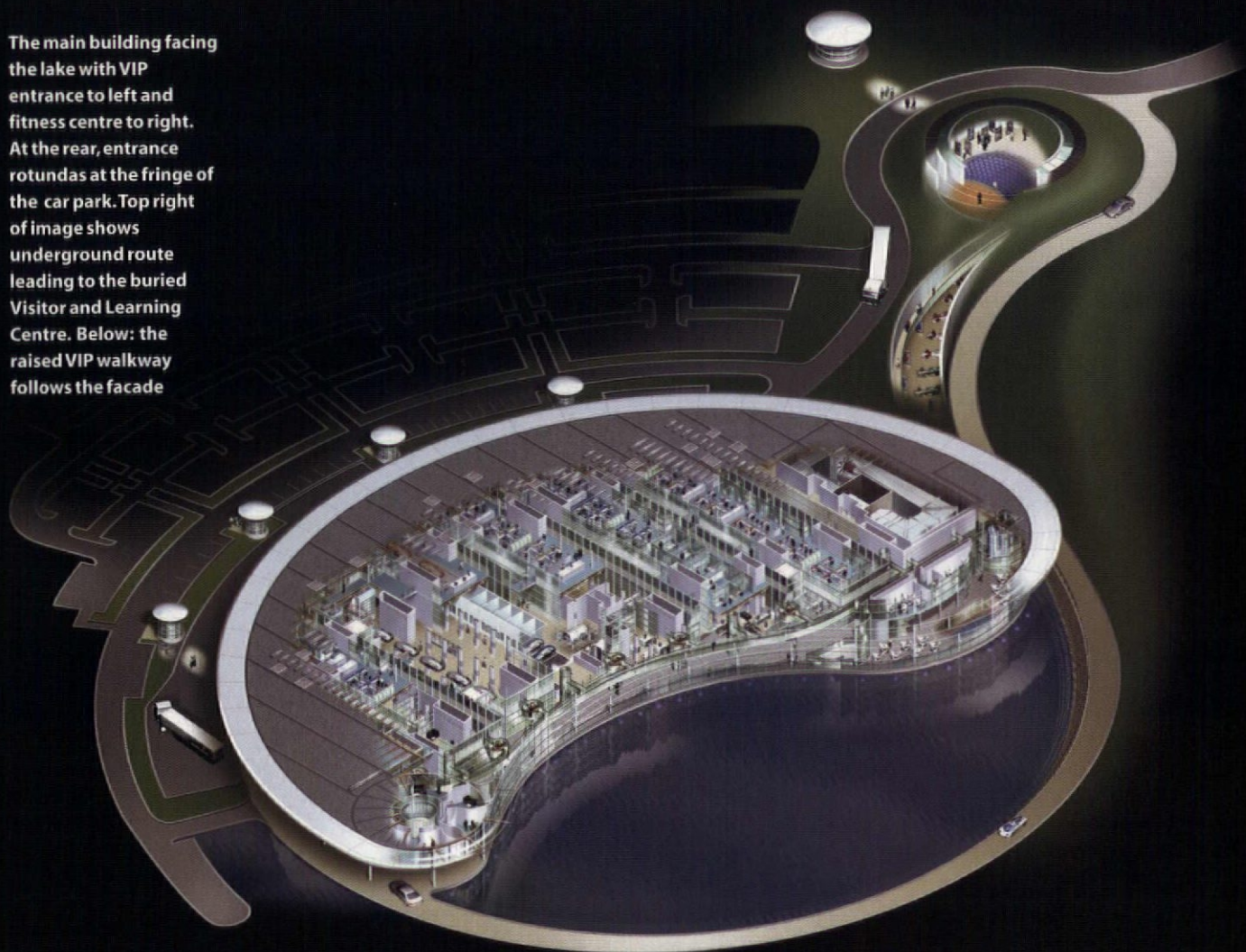
The first floor-level structure for each of the buildings was optimised by providing column supports at 12m centres and having a 3m cantilever either side of the 12m strip, so giving an overall width of floor plate between light wells of 18m. The cantilever ends have the beneficial effect of inducing 'hogging' moments at the columns, which reduce the 'sagging' moments in the major span. This allows the section size of the major spanning beam to be reduced. As the cantilever moments reduce to zero at the tip, the cantilever sections can be tapered to be significantly shallower there. Beams are at 3m centres and the undersides of the beams are exposed at both the roof and first floor levels. Stability is provided by braced cores.

Access to the buildings is via a sinuous walkway that floats within the atrium space. It is almost 180m long and is suspended from the roof structure using 30mm diameter stainless steel rods. These are connected to the walkway with cast stainless steel brackets that were jointly developed by the designers and the McLaren engineers. The structure to the walkway is made up from universal column sections and welded steel plate forming a stiff structural section that controls both horizontal and vertical vibrations from footfall. The walkway was made in sections 10 to 12m long that were brought into the building and lifted into position. To accommodate temperature movements the walkway is split into three sections each about 60m long. Lateral stability to each of the sections is provided by the bridges that link the walkway to the individual buildings.

The foundation solution for the project was optimised by the design of a ground water cut-off wall which, in combination with a sub-slab drainage system, minimises the effect of a ground water uplift pressure of around 60kN/m². This approach allows a raft foundation to be used and eliminated the need for 20 miles of piles.

Julie Wood, associate director, Arup

The main building facing the lake with VIP entrance to left and fitness centre to right. At the rear, entrance rotundas at the fringe of the car park. Top right of image shows underground route leading to the buried Visitor and Learning Centre. Below: the raised VIP walkway follows the facade





occupied by the Formula One team.

F1 cars are developed and built for each race in hygienic conditions that more resemble bio-labs than the average shop floor. This approach continues through all the fingers. The prospective car owner is very visibly part of the same precision engineering and attention to detail as F1. All processes intentionally bear close inspection. McLaren's choice of insistent white, including floor tiles, continues through to the custom-designed workbenches and storage units.

Attention to detail is meticulous. Only in this building will you find a clean-desk policy in the offices continuing through to a clean-workbench policy in the assembly areas. Services are carefully controlled with power, data and air outlets on special column casings, which also provide displacement ventilation outlets; the exposed structure of ceilings is uncluttered. In the kitchen, stainless steel units and switches align with the tile grid. There is not

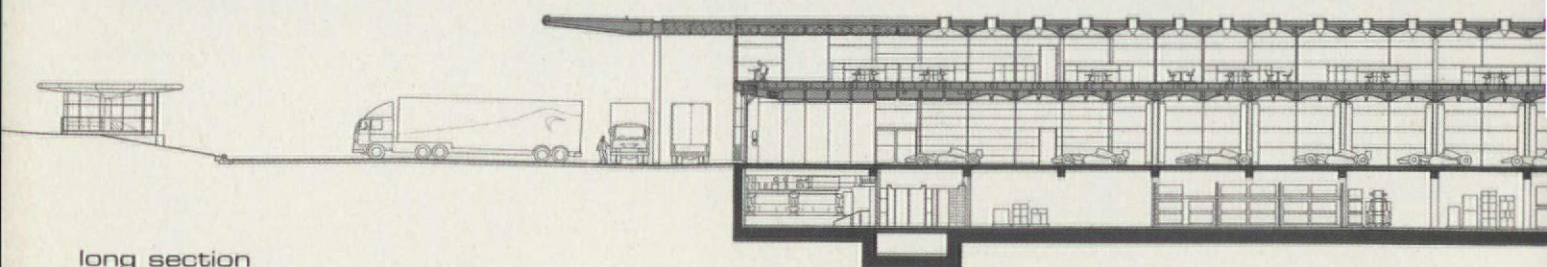
a blind in the building. For the cladding, apart from the foyer facade, glazing is flush with the framing, so that too will be readily cleaned when the windows are. The architect's wish to install rooflights was strongly questioned, partly because they would not always be perfectly clean.

McLaren's F1 commercial approach, of working closely with selected partners, continues for this building. Partly it is about control, as is so much in this project, here bringing in the construction partners as part of the team, involving them in developing special products. Particularly pressed to innovate have been Targetti for lighting, Faram for furniture and partitions, Schüco for cladding and Grohe for systems (see pages 34-40), where almost every sanitary-ware fitting is electronically monitored. Amec was the services provider and has now become the facilities manager for services. McLaren has also been involved in some of these developments as a technology partner,

such as in forming the windblades and various castings.

Partners have special status in being able to use parts of the new building for their own business events. Construction partners will have the chance to use the McLaren name in future marketing of specially developed building products. McLaren hopes to persuade some of them to use the exhibition space and auditorium of the Visitor and Learning Centre as a lower-cost alternative to taking space at European exhibitions. Construction partnering takes on a new meaning.

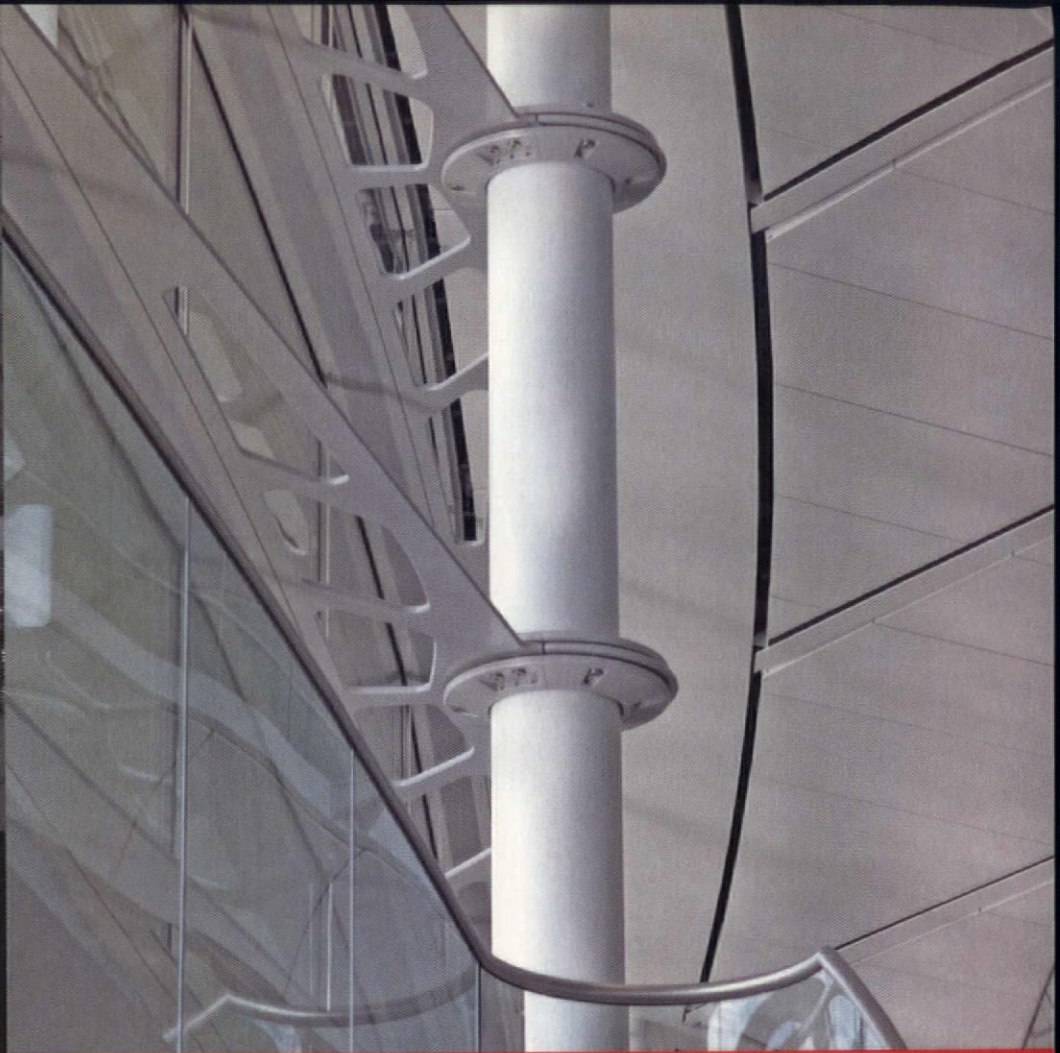
The Visitor and Learning Centre is yet to be finished; there is an annular rooflight towards the perimeter of the main circular exhibition space and to the circumferential corridor around the auditorium on the floor below. These rooflights emerge above ground ringing a dome – the rest of the centre is concealed below a turfed earth mound. The Visitor and Learning Centre is linked to the main building by a 150m underground,



long section



Above: hydraulic lifts bring up non-VIPs from entrance tunnels. Right: wind blades (see *Working Details*, pages 42-43). Opposite: the workshops are as carefully fitted out as the offices. Below: section; we were not allowed to publish plans



sloping, curved route that will also become a display space in its own right.

The centre and link will provide a 'McLaren experience' for visitors (yet to be developed) and was part of the project's Green Belt planning permission. Among other planning restrictions, the footprint limit was 20,000m², the same as the agricultural buildings originally on the site, with a height limit of 10m above datum. To get in all the 57,000m² of floor space and bulky equipment such as machine tools and a 145m wind tunnel, there are two levels of basement. The maximum employee capacity is 1,000.

Visitors to the Visitor and Learning Centre, non-VIP visitors to the main building and staff, all approach from the rear of the main building, where most of the car parks are located. There is a service area along the back of the factory – it is a 'back' in being a working area rather than any drop-off in architectural quality. To reach the main

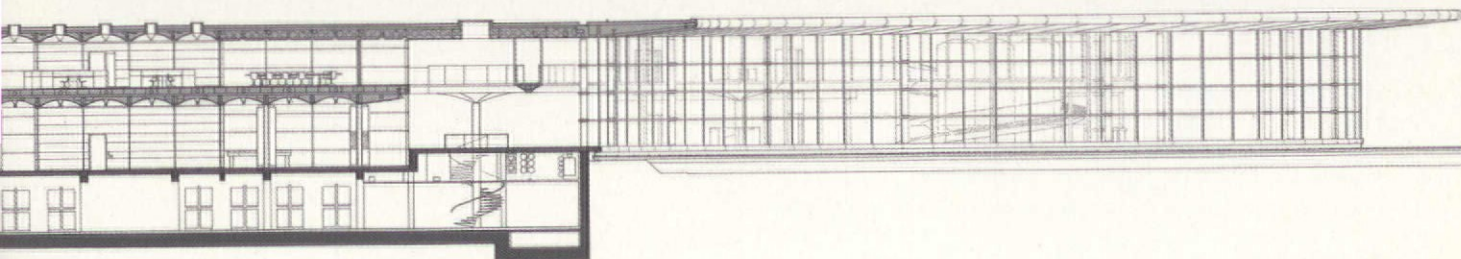
building you enter one of the rotundas on the car park fringe, descend utilitarian stairs and pass under the service yard into the building along lengthy plain tunnels, which are oppressively unwelcoming despite the ubiquitous whiteness. In case you had not got the message, you are not a VIP.

This is the least successful part of the building. The Foster office has tripped over entrances a few times before – for example, the difficulty of finding the entrance at Willis Faber, or the City Hall entrance route which crosses at right angles the main circulation as it spirals upwards. Here at Woking there are stairs up at half-way along the tunnel for staff (and some visitors). But the intended experience for ordinary visitors to this main building is to continue along to the tunnel end because there, it is felt, is a compensating architectural move. At the tunnel end you have reached the foot of one of the hydraulic lifts which emerge in the foyer serving ground and office level. The shaft

walls beyond the glass lifts are painted black at tunnel level to maximise the contrast between this and emerging into the light, open space of the foyer with lake views beyond. It is a dramatic experience.

In passing you note that the name Thyssen does not appear in the lift; no publicity since it is not one of the partners. The choice of a circular hydraulic lift follows McLaren's Ron Dennis saying that he had never seen a glass lift he liked, one that could be kept clean. 'Ron said...' crops up spontaneously many times in conversation. It is very much his project; he attended the two-weekly project meetings. When Foster project architect Nigel Dancey says 'the attention to detail never stops', it is the agenda set and pursued by Dennis. The architect-as-control-freak has been upstaged.

The overall result is a building hard to warm to, so tightly controlled; and not just the industrial areas. When was the last time you saw a new bull-pen layout in offices,





Services

The building's electrical distribution can be reconfigured to ensure the occupants can continue to use the electrically driven machinery. Supporting the electrical system are two combined heat and power plants. Working in conjunction with the heating, cooling and electrical system, these provide an efficient use of electrical energy.

The cooling to the building is provided by the energy centre, where the CHP, boilers and refrigeration units distribute chilled and heated water to the environmental conditioners.

In the production area, people are provided with heating and cooling from a combination of high-level air diffusers and mid-level air displacement outlets. The work benches have hand-level outlets for electrical and compressed air components. The outlet ranges also include IT plugs, along with switches for operating local fume-extract fans. The mid-level air displacement units have been integrated with the building's structural columns to maximise the floor area and provide an air distribution system that is at the ideal height for the occupants at desks. The work bench outlets have been designed with the McLaren design team to provide an ergonomic use of the benches.

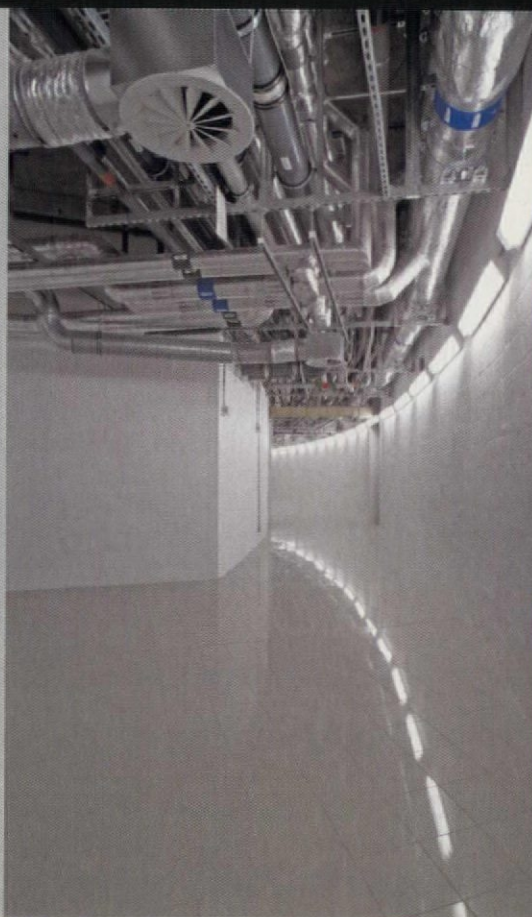
In the lower-level production area, light fittings are attached to the exposed surfaces of the electrical carrier systems. At the higher level, fittings are incorporated into architecturally designed troughs. These throw light both downwards and onto the curved ceiling panels. The curves have been designed to provide a natural diffusion of the light around the building.

In the office areas, the air conditioning is provided by displacement air through the floor with ceiling-level chilled panels. The panels are again curved to provide a large effective ceiling area and diffusion of the light from the architecturally designed light troughs. Some natural light is provided by skylights.

The Visitor and Learning Centre is naturally lit by roof lights and ceiling-mounted fittings. The air conditioning is displacement ventilation and power-chilled beams.

Heat from the building is ejected through the surrounding lake, reducing the number of cooling towers needed from seven to two. Rainwater from the curved roof is also collected here to maintain water levels during the year, with any excess passing into the adjacent environmental lakes. The lake also provides a focal point for local wildlife.

Peter Kemm, Amec





where people almost disappear from view (even if the screens are softened by supergraphics)? Why the corralling at all?

The building is immaculately done. And control, the attention to detail, is part of the building's message to staff, partners and customers. But you wonder about Dennis' aspirations being realised, aspirations for a building that is 'functional, inspirational, motivational'. Functional, of course, and you can see it being inspirational and motivational in getting people to do more. What seems at odds with the architecture is McLaren's evident need to get at least some people also to think differently, to be creative. The building never says loosen up, try something different.

We should not venture too far down this road of architectural determinism. Especially because, despite the evident quality, this building can be read as more background than foreground. With the planting of 100,000 trees and shrubs over the 50ha site, it may become a quiet classical pavilion set in a dominant landscape. And inside, beyond the set piece of the foyer, the workspaces are highly transparently enclosed. You can stand in one of the streets and look across the building through a sequence of fingers, seeing mostly one layer of industrial process and its apparently silent actors shifting beyond another into the distance. The work is the thing.

If there is more to admire than to enjoy here, you can't fail to be impressed.



Left: the pool in the fitness centre. **Above:** a car assembly area (these spaces are now animated by work in progress but we could not photograph it). **Opposite top:** the stairs coming up from the entrance tunnel to the assembly level and rising to offices above. **Opposite below:** the attention to detail is carried through into this basement services route

CREDITS

TENDER DATE

Outline consent granted
March 1997

START ON SITE

1998

GROSS INTERNAL FLOOR AREA

57,000m²

CLIENT

McLaren Group

ARCHITECT

Foster and Partners:
Norman Foster, David
Nelson, Nigel Dancey,
Iwan Jones, David
Summerfield

PROJECT MANAGER

Arlington Securities

STRUCTURAL ENGINEER

Arup

SERVICES ENGINEERING DESIGN

Schmidt Reuter Partner

QUANTITY SURVEYOR

Davis Langdon & Everest

PLANNING AND LANDSCAPE

Terence O'Rourke

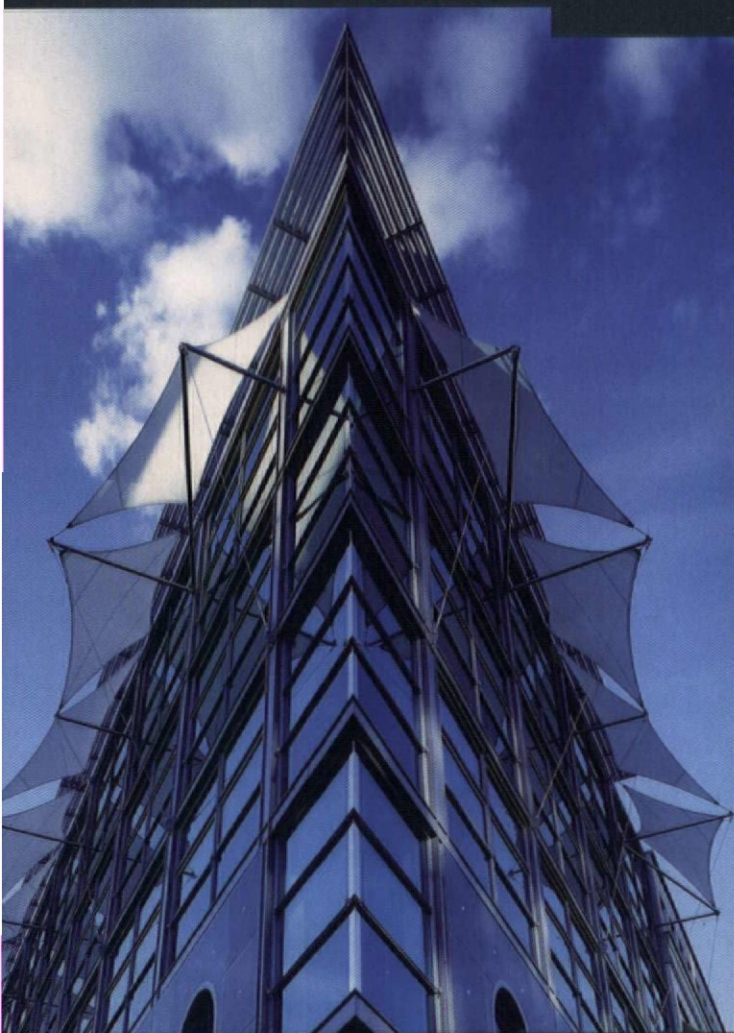
PARTNERS

*Mechanical and electrical
installation Amec;
lighting design and
manufacture Targetti;
office workstations and
partitioning Faram; water
management design and
supply Grohe; facade
manufacture Schüco;
screeding and admixtures
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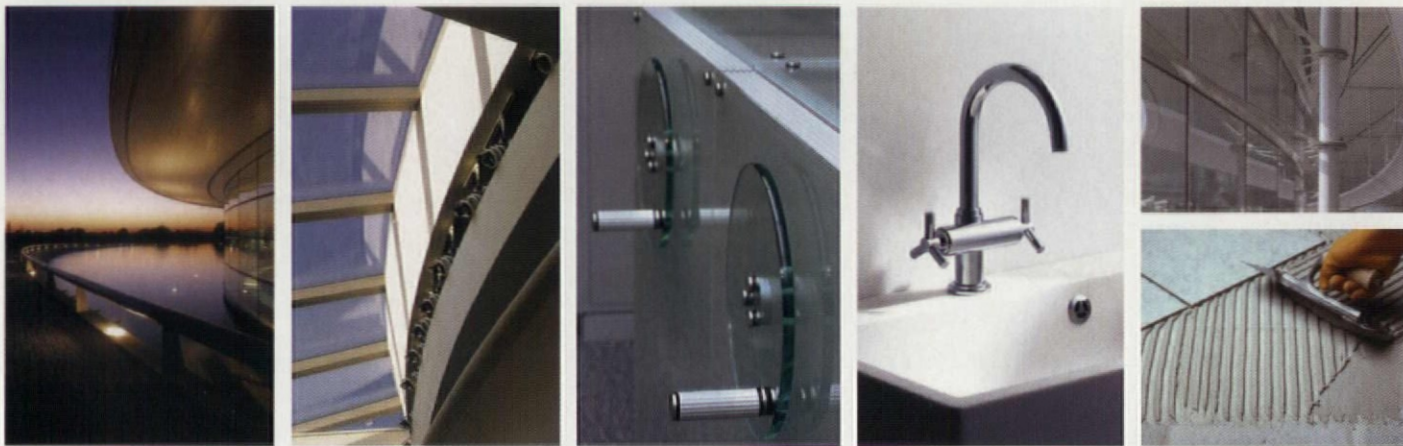
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Playing the team game

At its new headquarters, McLaren has used years of sponsorship know-how to produce a sophisticated product paradise with the aid of six supplier 'partners'

By Ruth Slavid



Left to right: AMEC used the lakes as a heat sink; lighting by Targetti UK; Special moving cabinets developed by Faram UK; traditional taps reinterpreted by Grohe; structural glazing by Schüco (top); Mapei provided a range of sealants and fixatives (bottom)

You could play a fun game of 'spot the product' at the new McLaren headquarters building, providing you don't mind never knowing if you have all the answers right. Normally there are some easy giveaways – the manufacturer's plate in the lift (useful for cursing at in the case of a breakdown) or on the back of the chair. But at McLaren there are no such clues. Unless, of course, the products come from one of the six supplier partners.

Partners in this sense is a peculiarly McLaren word. Sponsorship has long been at the heart of motor racing, so it is no surprise that when McLaren came to commission a building it carried across some of the same approach. And since McLaren's approach to sponsorship was uniquely sophisticated, this also has been brought to the building.

Development partners

One of the signs of this sophistication is calling the sponsors 'partners' because, says Tony Greer of McLaren's marketing division, 'it's two-way'. This could sound pretentious but it seems to have worked. Several of the manufacturers have developed new products for the project that they are now marketing more widely. AMEC, which was the services partner 'worked,' said Greer, 'to develop all the heating, wiring and M&E. A lot of what they did they had never done before. They took on a system they had never used on other projects.' Targetti UK, which developed special lighting for McLaren, has, says managing director Eddie Smith, 'a whole range of products that we have developed and are marketing.' Adrian

Clarke, director of furniture and partitioning company Faram UK, said: 'We have just won three major furniture jobs in the UK, and the background for McLaren has been a major influence.'

McLaren's approach to partners is that there should be a close and candid relationship that delivers mutual benefits. For McLaren these are likely to be in a large degree financial, although they will also include the sharing of expertise. The partners, says Greer, can 'trade on our name, our fame and our reputation'.

At least one of the partners on the building came from the more traditional racing-sponsorship route: Targetti UK, which since 1996 has supplied the fixtures for lighting the McLaren Formula One team pit garages. McLaren also had an existing relationship with facade supplier Schüco. Otherwise, the choice of partners was relatively pragmatic. 'It was decided on a financial but also from an aesthetic point of view,' said Greer. Most of the partners produce products that are visible, since they are the ones that are likely to achieve the most benefit. 'But we recognised,' said Greer, 'the massive cost of the M&E installation.' It was in response to this that it brought AMEC in as a partner.

It is possible to envisage a partnering set-up as described above that would be highly successful but very different from the one that actually happened at McLaren. The missing factor would be the nature of the client, and in particular of its chief executive, Ron Dennis. To talk about a 'hands-on' client would be an understatement. He would, said Greer, ques-

tion the fundamentals of everything. 'Why does it have to be done that way? Is there a better way? A cheaper one?'

Greer says: 'Fosters have never worked with a client who is so detailed. This has been, for many people, a very different way of working.' What could have been a clash of the titans seems to have been a meeting of true minds, a mutual admiration society set up by two controlling perfectionists.

Dare to be different

The result was an extraordinary level of innovation. In part, at least, this was a deliberate policy. 'We wanted Fosters to adopt or create something new,' said Greer. 'It would differentiate our building from another Foster building up the road.'

Whatever the financial benefits to McLaren have been, and since those are not even divulged internally we are unlikely to find out, for the partners they have worked out fine. Encouraged to use the building as a showcase, and with a clear association that they are all using to the full on their marketing material, they are certainly identified with the VIP end of the operation. Like the most treasured visitors who roar up to the privileged entrance, they are treated entirely differently from the lowly subcontractors, who merely supply the goods and slink away, albeit with full remuneration. The partners, like the VIP visitors, are doubtless paying dearly for their privileges – but they seem to believe it is worth it, in terms of prestige and the development that they have been encouraged to carry out.



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TARGETTI UK

For many owners and occupiers of buildings, daylight is something that they would like to have more of in their buildings. But while they would like to have it, they are often ready to compromise. Compromise, however, is not a Ron Dennis word, so this building gets as near to 24-hour daylight as is possible, apart from at the poles in midsummer.

Targetti UK had to negotiate even more complex relationships than did the other partners. It was dealing not only with Foster and Dennis, but also with the lighting designer, who was Claude Engle, an internationally renowned figure. 'We had to understand what Ron Dennis, Norman Foster and Claude Engle wanted,' said Eddie Smith, managing director of Targetti UK.

There are daylighting strips within the vaulted ceiling of the office areas, and the daylight filters through a special glazed panel within the Paragon light fitting, ensuring natural lighting without glare. At night, some of the fluorescent lighting reflects off the diffusers to again give a 'daylighting' component to the light. The effect, said Smith, is 'that during a bright sunny day or at night we have the same quality of light'.

Targetti UK has now added this product to its range, although Smith does not expect to actually sell any of the McLaren fittings in their original form. Instead he considers it like 'a test piece, to say this is what we can do for a major building'. Just as the company customised the fitting for McLaren, so it would expect to do on a project for the next client.

Targetti UK's inventiveness on this project was not restricted to the offices. The circular downlights in the circulation space were also developed specially, as Engle required that the light effect should be asymmetric. 'Engle is very specific, and almost always wants asymmetric reflectors,' said Smith. This even extended to the Paragon bollards in the car park, again designed specifically for the project.

Smith describes McLaren as 'at the Savile Row end of the market. It's unusual because most bespoke projects are not this size.'



Targetti UK developed a number of lighting solutions, including daylighting within the coffered ceilings of the offices

AMEC

AMEC is used to dealing with the unusual, but McLaren still represented a challenge in the range of the work and in the solutions that evolved. All of the systems can be defined as high technology, so it may be easier to differentiate between soft and hard technologies. At the hard end, and most outwardly appropriate to motor racing, is the wind tunnel – a 145m-long testing facility. It has a fan that is 4m in diameter and rotates at up to 600rpm, forcing through 15m³ of air a second. AMEC installed environmental controls that require 6,000 litres of chilled water and generate 1,500kW of excess heat.

AMEC is also maintaining the two incoming high-voltage supplies, and is responsible for the refrigeration plant.

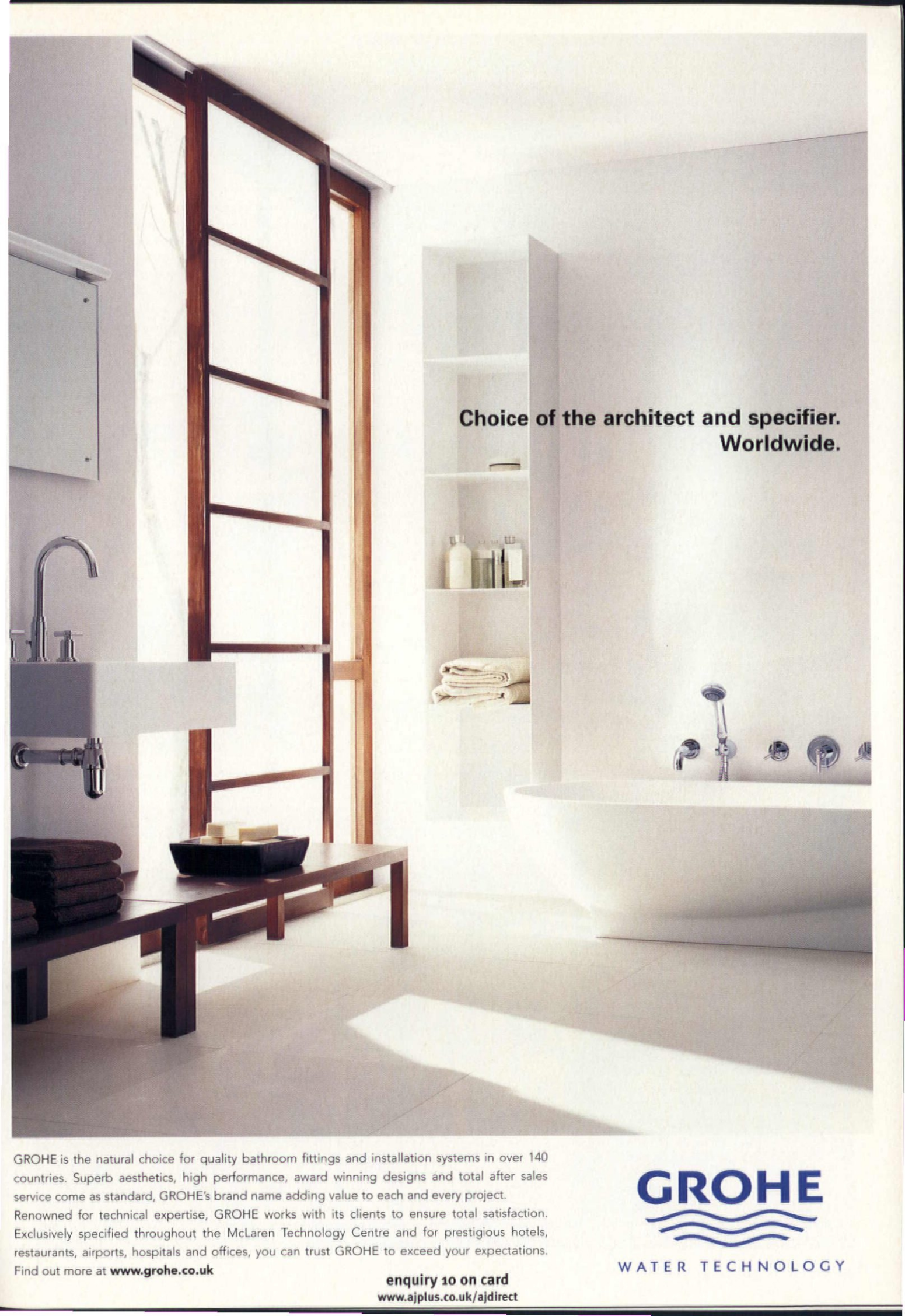
More architecturally exciting are the coffered ceilings that incorporate, as well as the special lighting supplied by Targetti UK, chilled beams. Although the technology behind chilled beams



AMEC is responsible not only for the design of M&E but also for its maintenance

is not new, these, like so much in this building, involved a substantial element of custom design. The buffer tanks that hold the chilled water for distribution double as a reservoir for the sprinkler system. AMEC was not only responsible for setting up these systems; it is also responsible for maintaining and testing them every week.

The 'softest' part of the environmental design lies in the lakes alongside the building. Although they are a crucial part of the aesthetic strategy, they are much more important than just that. They contain a total of 50,000m³ of water. Rainwater from the curved roof discharges into the formal lake to sustain its water level, with any excess going into the adjacent environmental lake and to the local river system. The water in the main lake is used as a heat sink, absorbing and dissipating the heat rejected by the refrigeration system. Again AMEC also has a maintenance responsibility for the cleaning of the lake and the maintenance of the heat exchangers.



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WATER TECHNOLOGY

FARAM UK

One of the nicest things about this project for Faram UK was that it overcame the traditional split between partitioning and furniture. 'In the UK,' said director Adrian Clarke, 'walls are generally treated as construction products and furniture as a client purchase, so the two are procured separately and with little thought as to how they will fit together. At TAG McLaren, the client's project team worked hard to overcome this anomaly, and the result looks and works well.'

He described the process as 'a completely unique experience. Fantastic – very different.' There were some very specific requirements. For example, the client wanted shaped, not flat, caps to the screens, so that people wouldn't leave coffee cups on them. McLaren used its own 3D-modelling process for these, which, to Clarke's amazement, could produce samples within 24

hours. Formula One runs at a different speed from the construction industry, where a more typical timespan to produce such a prototype would have been a month rather than a day.

The same partitioning system is used throughout the building – Faram P500 100mm. On the manufacturing levels it rises to more than 4.5m and provides the necessary acoustic suppression. There are double-door openings up to 3m wide, to allow fully assembled cars to pass through them. On the first floor, the same system is configured with double-glazed, flush-bonded glass throughout and veneered maple panels for the boardrooms. A low-height version of the partitions was used as screens on all the furniture, giving the project a consistency rarely seen.

Other developments included the creation of an integrated storage bin and a new form of mobile storage. This was designed to meet

McLaren's requirement for storage units that could go from one part of the building to another if people's working groups were reformed, with the requirement to shift desks. The system that Faram UK developed runs directly on the carpet with caterpillar tracks. This is an innovation that is receiving a lot of interest from other potential customers. Because so much of the building is glazed, McLaren wanted these units to be in glass rather than metal. They are therefore semi-frosted and, another of those obsessive details that can make or break a building, the glass matches the colour of the building's glazing.

With the desking, Faram UK devised a series of low-rise screens between all the desks, which are printed with colourful patterns, abstracted from the natural world. This provides a welcome touch of colour and differentiation in what is otherwise a predominantly monochrome building.



Faram UK's furnishing and partitioning solution, including specially developed partition tops (top right) and bespoke storage solutions (bottom right)

MAPEI

Sealants and finishes may not seem the most glamorous part of the project but if the client is looking for sparkle and durability, they are crucial. This is more the case when part of the building is effectively a factory environment but meant to be as ordered as the offices and hospitality areas.

This was the challenge that Mapei, the world's largest manufacturer of adhesives, sealants and chemical products for the construction industry, faced. For example, its Granirapid adhesive system, which offers rapid setting and hydration, was used to install the limestone in the pool area and for the porcelain tiles in the wind tunnel.

Foster and Partners chose to use the company's Ultraplan self-levelling compound for the interior floors. Its speed of drying was crucial in the construction cycle, helping to contribute to the resistance to loads and foot traffic.

Kerapoxy epoxy grout was used on all the tiled areas, including the wind tunnel. Since there are 26 colours in the range, it was never necessary to compromise on appearance. The grout is also solvent-free, fulfilling the environmental criteria on the project.



Sealants and adhesives from Mapei play a key role in giving the building its pristine appearance



McLaren's winning new technology.

The lighting for the exciting new Technology Centre

in Woking, England, where McLaren Formula One racing cars are designed and built has been produced by Targetti to the exacting standards of Norman Foster and Claude Engle. For all those who want to become winners in their working environment Targetti has created Plane, a luminaire designed by Daniel Bernard which gives a diffuse, uniform light, guaranteeing maximum visual comfort in any office environment. Another winning idea, just like the many others to be found at www.targetti.com

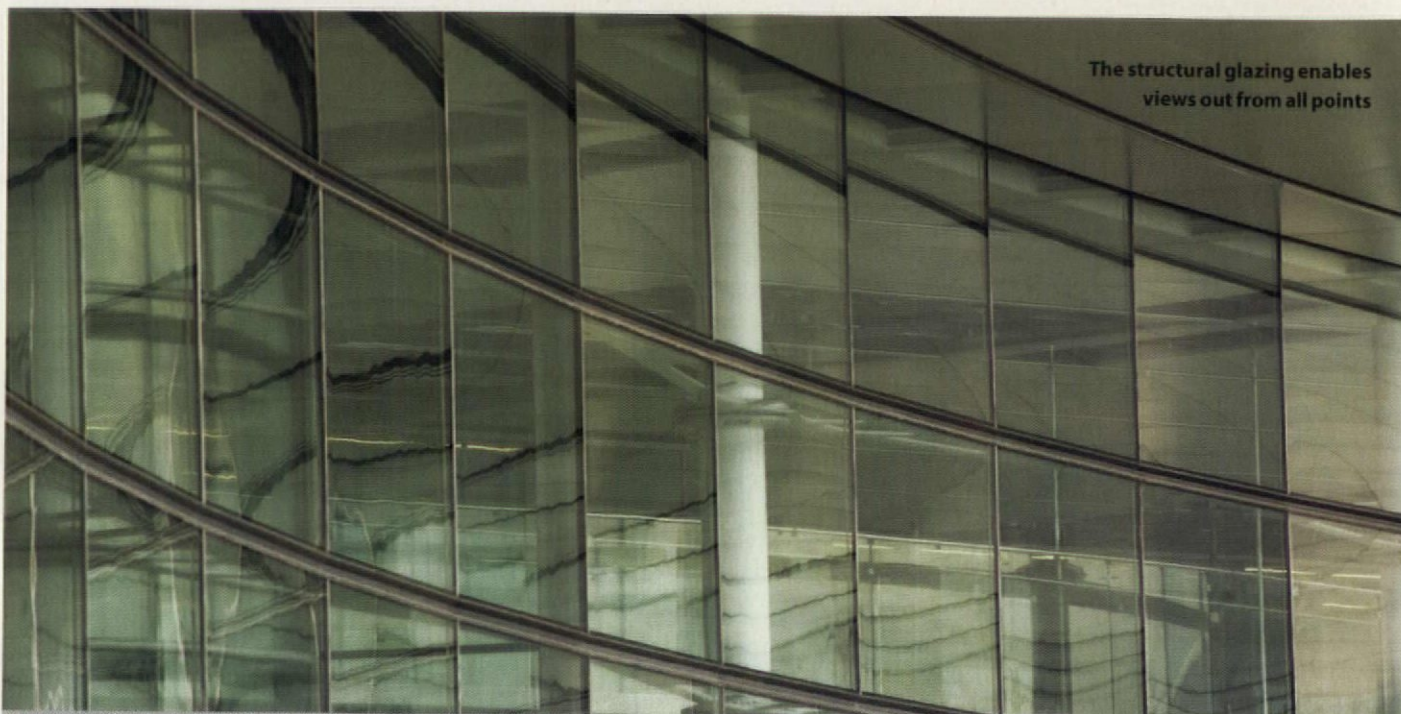


McLaren Technology Centre
OFFICIAL PARTNER



Culture of light

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The structural glazing enables views out from all points

SCHÜCO

Of all the partners, Schüco is the one whose involvement is the most immediately obvious to the visitor, since it provided the building envelope. The glass facade comprises 40 tonnes of laminated glass and, in one of the few direct references to the business of McLaren, it has windblades modelled on the rear-wing support struts of the McLaren F1 sports car that won the 1995 Le Mans 24 Hours race.

The main facade has 7.5m-high structural glazing and, by dispensing with the use of conventional transoms and mullions, fulfils

another of the client's requirements. This is that there should be an excellent view out from every part of the building, so that it was necessary to avoid the cumulative visual build up of mullions from certain angles.

One of the great savings that Schüco was able to offer was through its proposal to create the curved facade through a series of faceted sheets, a trick that, when executed cleverly, is remarkably successful. The windblades that support the facade involved some of the most complex design and engineering of the entire project (see *Working Details*, pages 42-43).

Companies such as Schüco operate in a way that can be quite difficult to grasp. It creates the systems for facades, windows and doors but does not actually fabricate all the elements itself. Instead it supplies key system elements, and provides support during the fabrication process. Normally, it does not select or recommend a company to carry out the fabrication until after the planning stage is complete. But in this case, because of the complexity and size of the project, it was necessary to find a fabricator that could measure up. As a result, international company Gartner was appointed at an early stage.

GROHE

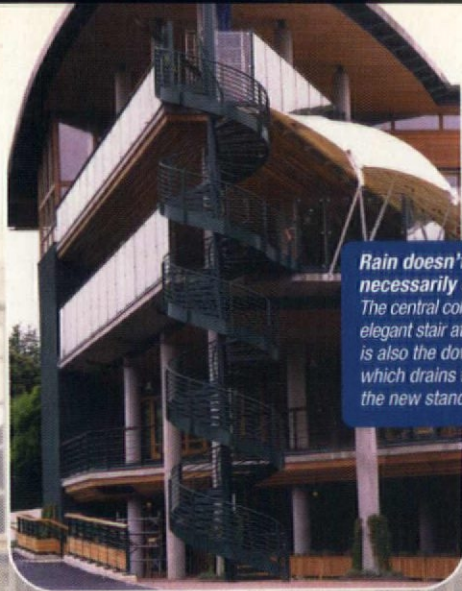
Water management is a key part of the McLaren building environmental strategy. On the macro-scale, this formed part of AMEC's approach to the management of the lakes. On the micro-scale, it extends to the way that water is used in every washbasin and WC. Grohe has responsibility for the 'central sanitary management system' through its Aqua 3000 system, which controls and monitors all sanitary facilities automatically. It is responsible for 650 components 24 hours a day, setting running times and sensor ranges.

Although Aqua 3000 was a pre-existing system, elements have been combined at McLaren in a new way. For example, three elements that Grohe had only used individually before have been combined on a washbasin. These are a touch-free washbasin faucet, a soap dispenser and a hand dryer. All three are controlled by an opto-electronic sensor. This solution is extremely hygienic, as it means users should not need to touch any of the elements, and also results in savings of water and energy.

Other elements that Grohe has supplied include its Rapid S universal installation system, and water disinfection and management systems. Taps in its Articulation range, which the company describes as a modern interpretation of the traditional two-handle mixer, have also been used in some of the washrooms.



Grohe's Aqua 3000 system combines a number of elements to provide an automated washbasin



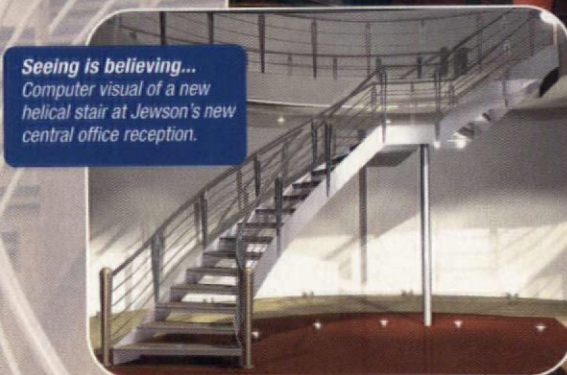
Rain doesn't necessarily stop play...
The central column of this elegant stair at Wimbledon is also the down pipe which drains the roof of the new stand.



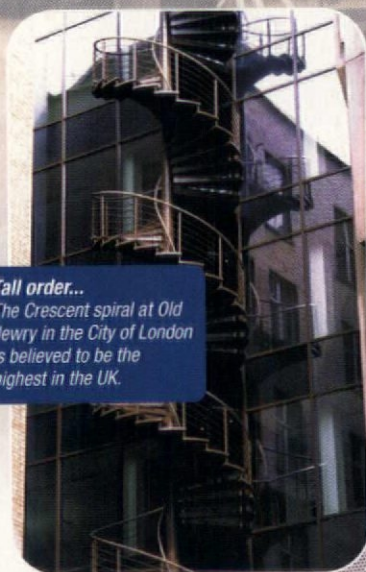
Every which way...
An interesting access/design solution for a popular chain of theme pubs.



Room with a view
A Crescent spiral chosen for new penthouse duplex apartments in Docklands



Seeing is believing...
Computer visual of a new helical stair at Jewson's new central office reception.



Tall order...
The Crescent spiral at Old Jewry in the City of London is believed to be the highest in the UK.



Not quite vertical flight!
This elegant helical stair at Cardiff heliport echoes Leonardo da Vinci's first drawings and thoughts on how man might ascend!



Room on top...
A spectacular Crescent spiral gives access to the viewing gallery at the London Transport Museum.

Every picture tells a storey...

So, when is a spiral stair not a spiral stair? Well, as these pictures show, a spiral stair can do many different things, from hiding a down pipe for rainwater,

to being a startling piece of modern design to add drama to a reception area. So just think what it might do your next project - then ring 01480 301522.

Crescent

Crescent of Cambridge Ltd.
Edison Road, St. Ives, Cambridgeshire PE27 3LG
Tel: 01480 301522 Fax: 01480 494001

email: crescent@crescentstairs.co.uk www.crescentstairs.co.uk

enquiry 12 on card
www.ajplus.co.uk/ajdirect

Suspended facade with aluminium windblades

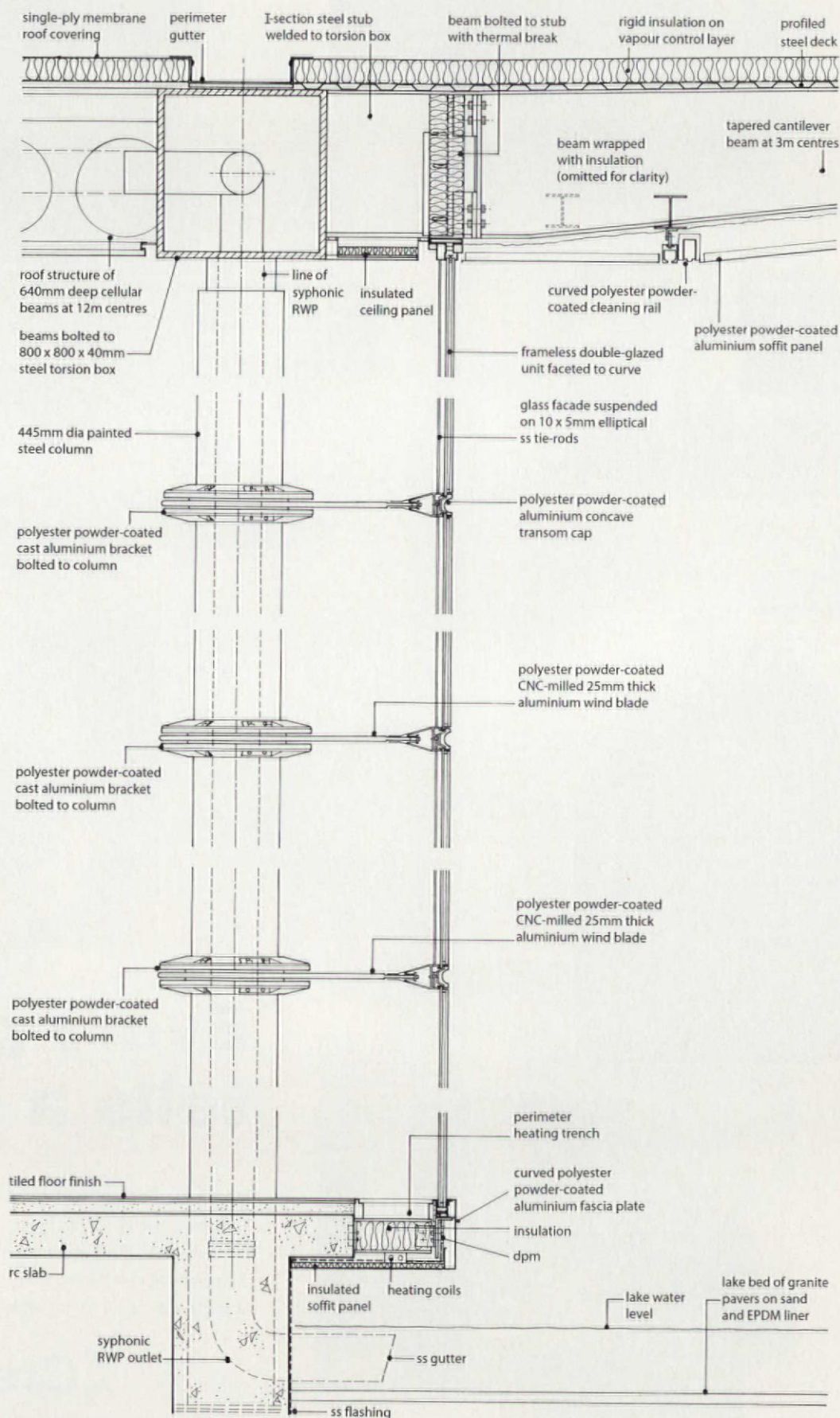
The curved facade which faces the lake was designed to be as transparent as possible, to take advantage of the dramatic views. It is a suspended glass wall 6.2m high and sheltered by a canopy which cantilevers 7m beyond it, terminating in a bull-nosed edge which follows the sinuous curves of the facade.

A series of 445mm diameter steel columns run behind the facade, supporting a 800 x 800 x 40mm steel torsion box. Steel stubs welded to the box connect to the main roof structure – 640mm deep cellular beams at 12m centres – and to the cantilevered overhang structure – tapered I-section beams at 3m centres. The double-glazed facade panels are suspended from the roof structure by 10 x 5mm, elliptical, stainless steel tie-rods, the same tie rods that are used to strengthen the bodywork of the Team McLaren Mercedes Formula One racing car. The rods form a storey-height framework from which the glass panels are suspended with apparently no visible means of support. Each polished stainless steel tie-rod holds 2.4 tonnes of glass in place and is connected to a curved transom which houses the edges of the glass panels.

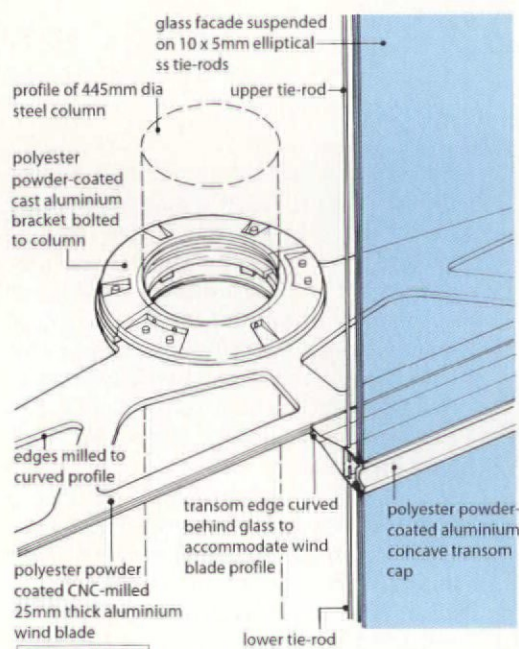
Wind loads are absorbed by 12m-long, 25mm-thick CNC-cut aluminium 'windblades' connected to columns by a machined aluminium collar. The streamlined design was inspired by the rear wing support struts of the 1995 Le Mans 24 Hours-winning McLaren F1 sports car. Each column supports three wind blades with curved outer edges – convex, concave or hybrid depending on position. The curved transom is fixed to the outer edge of each windblade.

Rainwater flows into syphonic pipes concealed within the steel columns; they pass underneath the ground floor slab to discharge into the lake via stainless steel gutters.

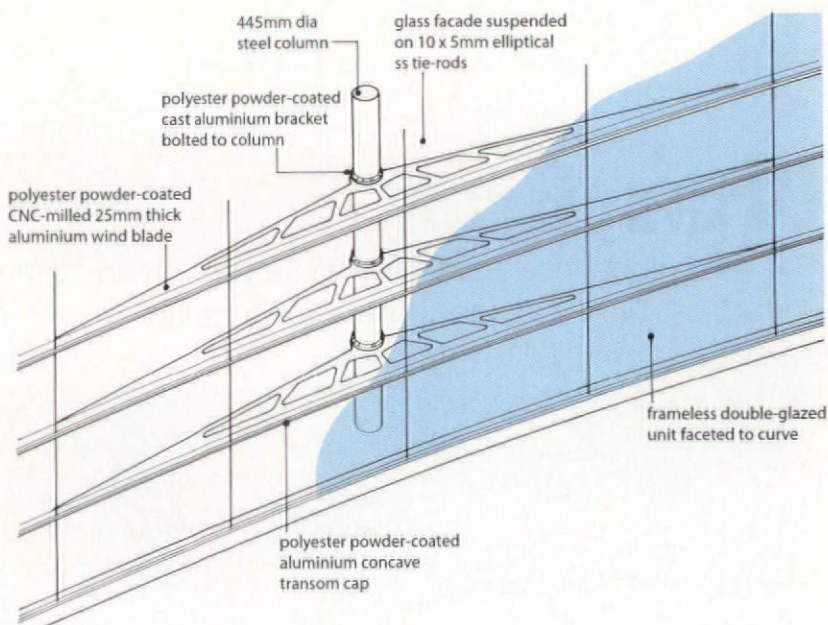
Susan Dawson



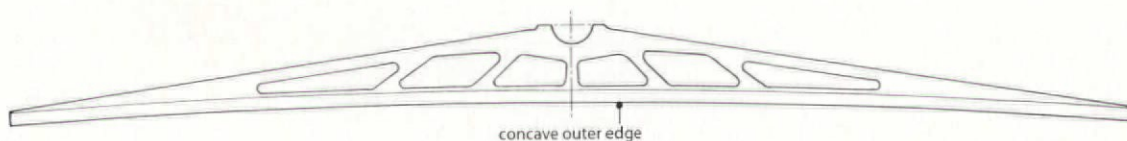
DETAIL SECTION THROUGH FACADE



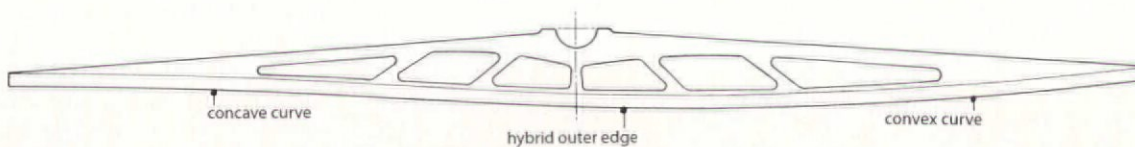
COLLAR DETAIL



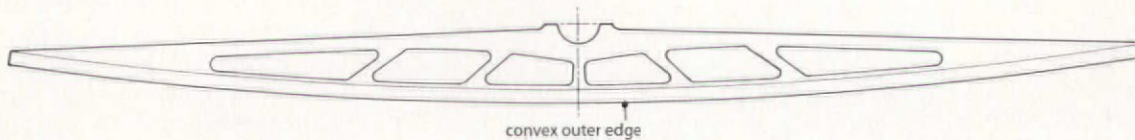
ISOMETRIC SKETCH OF FACADE



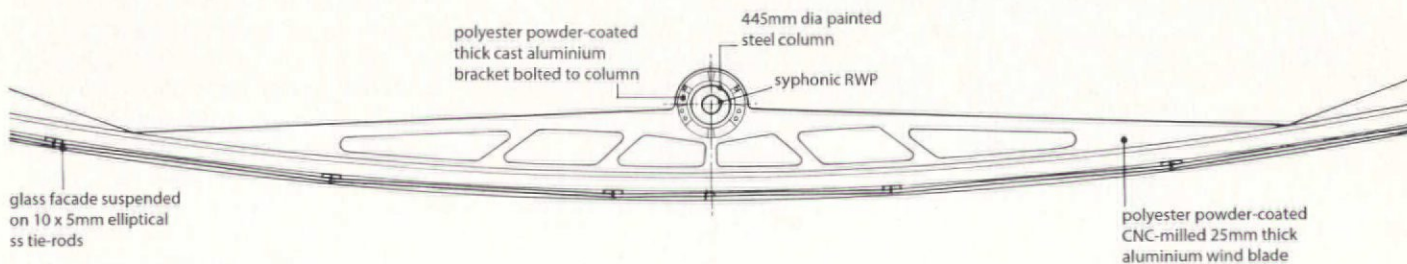
PLAN OF CONCAVE WIND BLADE



PLAN OF HYBRID WIND BLADE



PLAN OF CONVEX WIND BLADE



PLAN OF WIND BLADE, COLUMN AND FACADE

Brum, Brum

The new global headquarters of Aston Martin reflects the speed, efficiency, quiet operation and style of the car itself

By Austin Williams

Architects' report

By moving to Gaydon, Aston Martin sought to combine its headquarters, design and engineering, and production functions in one building. Its construction was part of a larger programme to design and manufacture Aston Martin's new car, the DB9. Therefore, deadlines were set in stone and the entire design team had to be flexible to keep up with the client's requirements. A build up of trust, which had developed from previous work at Gaydon, including a building for Aston Martin, led to a close partnering relationship.

Thus, late changes driven by Aston Martin's production programme could be incorporated with the minimum of disruption. For example, the addition of 250 design engineers to the capacity of the office in the last few months before construction began and, as the steelwork was being procured, the relocation of the directors' offices behind the stone facade of reception.

Our initial schemes for the reception building were predominately glass and steel. However, it became clear that this didn't fulfil the client's brief for an understated English facade concealing a modern production building. Therefore, we presented Aston Martin with a revised concept including a stone facade. On the approach to the building the stone entrance would be gradually revealed through a gently undulating and copped landscape.

In addition to the concealment of the production building by reception, its visual impact on the local rural environment was lessened by the gently barrel-vaulted roof and low perimeter walls, hunkering down behind the surrounding landscaped embankments.

Paul Mulligan, project architect, Weedon Partnership

I don't know much about cars, but I know excellence when I see it and the Aston Martin is about as good as it gets in that particular executive sporty market. Typified by the silver Vanquish driven by James Bond or Johnny English, the Aston Martin is that rare commodity: a British quality car. The marque is in the same historic bracket as Rolls-Royce and is similarly hand-crafted as a way of suggesting 'craftsmanship' over mass production.

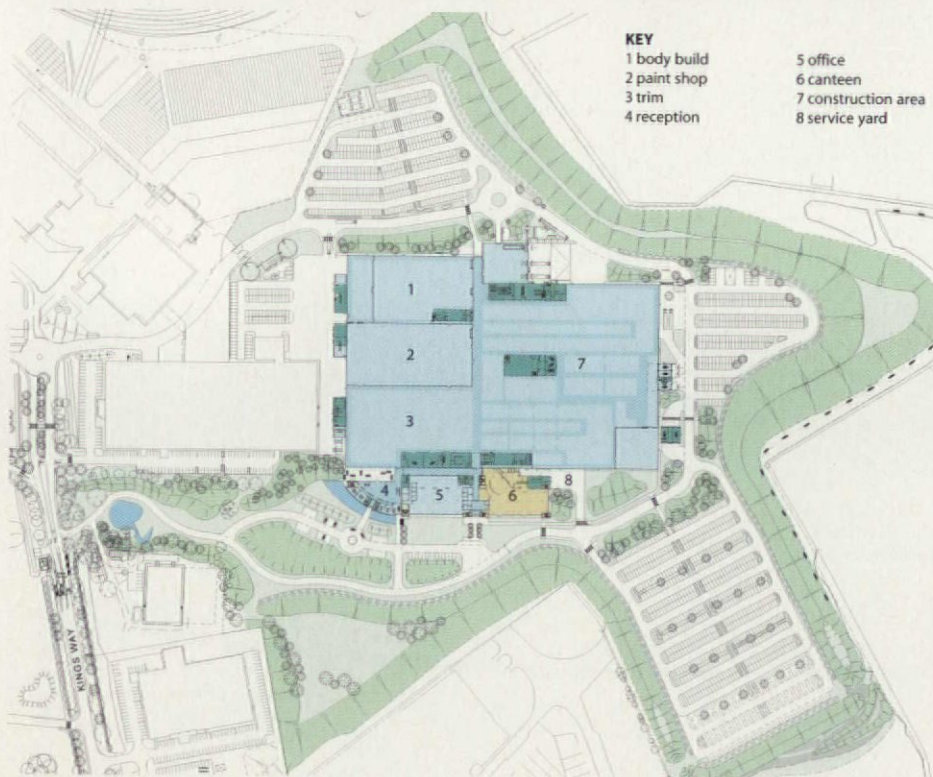
This notion of labour-intensive manufacture over Fordist mass-production is, in some way, intended to be seen as a positive thing – each new DB9 coming off the production line has more than 200 man-hours embodied in it – although I'm not necessarily convinced. Two days to hand-stitch the leather dashboards is a bit OTT, perhaps. That said, the new Aston Martin factory/headquarters is an impressive manufacturing arena for its quietness alone; this is partly because of the absence of heavy machinery and partly because of the atmosphere of respectful reverence emanating from workers and purchasers alike. Even though the site is a non-smoking area, nobody seems to have the gall to tell rich, prospective purchasers with 200 grand to spare to put their fags (or cigars) out.

Country house clause

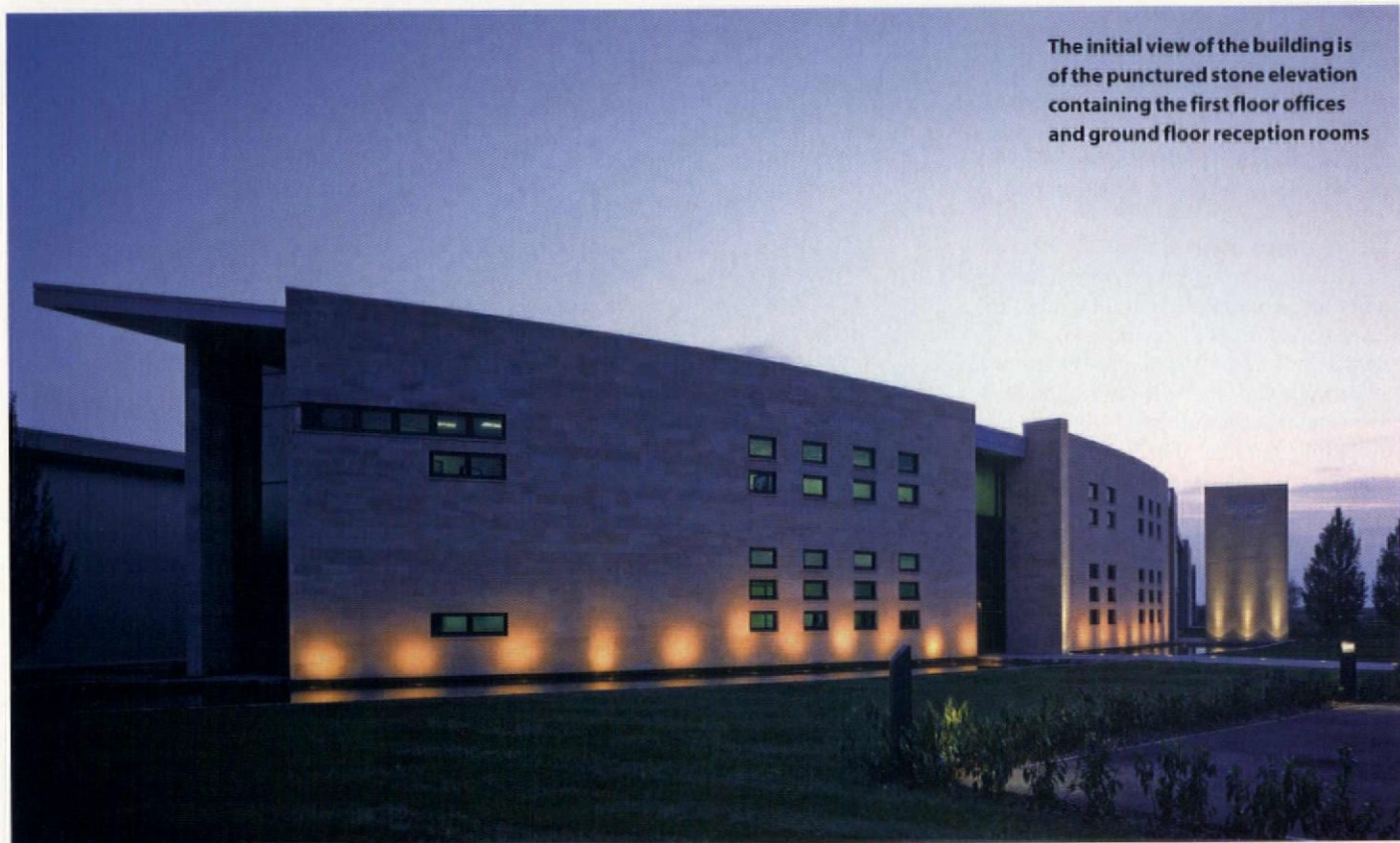
Architect Weedon Partnership has built a good reputation in the motor industry and has worked with a variety of vehicle manufacturers over the years. Having developed several buildings on the 405ha Land Rover site, it was in a good position to get the job after Aston Martin announced the closure of its Bloxham premises.

Accommodating changes in tight timescales means that both client and architect have to have, as Weedon partner Melanie Whild says, 'an enlightened attitude'. She notes that one of the difficulties of modern manufacturing in general, and car manufacturing in particular, is that they often have to design, to a certain extent, for outdated technology. 'Partnering arrangements,' says Whild, 'have always been the way that Aston Martin have produced their cars for the last 20-30 years and, to cater for all eventualities and to build on experience and excellence from specialist areas, we also find it a useful way to work.'

Getting it right first time, through negotiation, was important. Planning permission was obtained after months of weekly consul-



site plan



The initial view of the building is of the punctured stone elevation containing the first floor offices and ground floor reception rooms

Engineer's report

The brief was that this had to be 'Best in Class' with good levels of natural light within the production space. To help facilitate this, the building was 3D modelled, using IES, to determine how far into the building the sun would penetrate.

The quality of the glazing provides a relatively low tint but still with the necessary reduction in transmittance. Rather than specifying, say, a 70 per cent reflective tint, we looked at what was available and modelled each of them to find the best. By so doing, the client was able to see what it would be getting before making a decision. As a result, about 20 per cent was shaved off the installed cooling load with no significant difference to the chiller sizes, with consequent long-term benefits for the client.

The services were coordinated with the structure to provide an uncluttered roof space with the ductwork threaded through the trusses. A standard detail was developed, which allowed the vertical drops to the terminal units to sit in close proximity to the recess of the I-section column.

Office comfort-cooling is provided by an underfloor system, with some areas using fan coil units. The ground-floor reception area includes a dual heating/chilling system to offset the solar gains from the south-facing glazing. This operates on a load-shedding principle, so when the chillers are running at full capacity on the hottest day, temperatures in that area are allowed to drift upwards. This also allowed the chillers to be sized 70kW smaller.

For the production facility, due to its clean processes, a

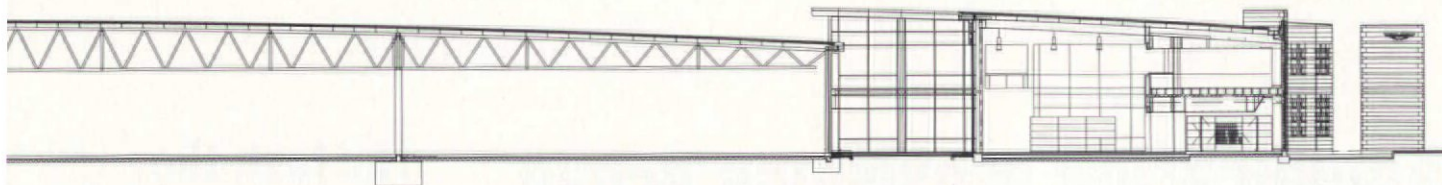
displacement ventilation system has been installed, largely for removing heat and maintaining temperatures in the summer. A pair of 48m³/s gas-fired AHUs serve the entire space via their parallel ductwork, which runs along the length of the building.

The lighting of the production area consists of high bay fittings within the production area and fluorescents in the checking bays. Particular effort has also been made to uplight the underside of the roof with opaque diffusers on the high bay fittings, which helps to 'lift' the height of the space and emphasise the clean and airy environment – complemented by the white steelwork and pipework. Pendant metal halide fittings are used in the reception area where the cars are on display. The initial idea of using spotlights to play on the cars developed into a more Minimalist approach. This, more 'basic' approach, gives good colour rendering and overall luminance.

External cladding is a wind pressure tested, self-supporting sandwich structure without any intermediate supports. Also to maximise the production area for the client, the trusses were spaced at 9m spanning 40m with a hit and miss column arrangement.

The drainage for the car parking areas was a matrix paving solution that utilised the voids of the single size aggregate to attenuate the water discharge. The cut-and-fill exercise was also 3D modelled to minimise off-site cart away – much of the cut material was formed into bunds to minimise environmental impact, which had the added benefit that the drainage ditches formed an environment that maintains and supports local wildlife.

Chris Evans, Andrew Chisem and Phil Hadland, The Rolton Group



A clean, light and airy production space where the car is built by hand

SPECIFICATION

1. SUPERSTRUCTURE

Steel Frame: square hollow section trusses on 9m grid spanning 30m across production space to gentle barrel-vaulted roof.

2. UPPER FLOORS

Hollow rib with cast concrete topping.

3. ROOF

Large span Key Bemo aluminium standing-seam roof with slip expansion fixings 150mm Rockwool insulation, vapour barrier and white polyester powder-coated decking (Sharkeys).

4. ROOFLIGHTS

Factory Street: barrel-vaulted polycarbonate roof lights.

5. DRAINAGE

Syphonic rainwater drainage system to balancing lake for attenuation (Fullflow).

6. STAIRCASES

Steel staircases with screed filled trays. Director's stair: polyester powder-coated steel with polished stainless-steel treads, handrail and balustrade (JSM Engineering).

7. BALUSTRADES

Structural glass balustrades with polished stainless-steel handrail (JSM Engineering).

8. EXTERNAL WALLS

Reception: Scotch Buff sandstone walls from Gatherley Moor Quarry, Co Durham (Realstone). Production space: 150mm-thick silver Paroc composite panels spanning from ground beam to eaves (Sharkeys).

9. WINDOWS

Kawneer curtain walling with grey body-tinted double glazing (Spec-Al).

10. EXTERNAL DOORS

Hormann insulated sectional overhead doors.

11. INTERNAL DOORS

Offices: beech veneer doors and frames, Planet glass doors.

12. INTERNAL WALLS

Reception: frameless glazed partitions with silicone pointed capless glazing to reception screen. White painted plasterboard walls and bulkheads 7mm-thick Travertine slabs 1 x 0.5m with reinforced backing to reception wall (K&R Interiors).

13. FLOOR FINISHES

Reception: 1 x 1m² Travertine floor tiles with reinforced backing. Offices: Milliken Colours carpet tiles. Production space: polished power-floated concrete slab (Mayfield).

14. CEILINGS FINISHES

Reception: Luxalon perforated metal planks. Offices: Armstrong mineral fibre tiles. Reception: plasterboard ceiling and bulkheads.

15. EXTERNAL WORKS

Existing bunds to perimeter of RAF base remodelled and hydroseeded with meadowland seed mix. Semi-mature tree planting by Conserve-a-Tree. Recycled plastic grilles to parking spaces with Breedon stone infill for rainwater attenuation. Great crested newt habitats and ponds.

and contain any smoke build-up and release it through dedicated compartmented vents. Fire exit doors are located in the external walls at regular intervals and internal walls as required. The overall building has been fire engineered to include a sprinkler, smoke vent and alarm system because of the fact that regulatory travel distances were not possible in such a vast facility. Vehicle doors have been provided as required by Aston Martin's process, with fire-rated roller shutters where necessary.

In general, this building is a well-engineered response to the brief, but which includes touches of design elegance that would not traditionally be considered important within a normal manufacturing facility. For Aston Martin, the car is still the star, but it is telling that such a car manufacturer – a breed noted for its incestuous love of its products to the detriment of all else – actually seems to be as proud of its architecture as it is of its automobiles.

CREDITS

ARCHITECT'S

APPOINTMENT

Spring 2000

PLANNING SUBMISSION

17 August 2000

PLANNING PERMISSION

31 May 2001

TENDER

Autumn 2001

START ON SITE

October 2001

COMPLETION

January 2003

MANUFACTURE

COMMENCEMENT

January 2004

CLIENT

Aston Martin: Dr Bez, CED, Frank Grimley, Mark Doyle, Lee Clarke, Les Parker, Alan Darroch, John Muirhead, Jamil Ahmed

CLIENT PROJECT

MANAGER

Ford Land: Tony Dipper, Lee Wheatley, Dominic Brinsmead

ARCHITECT

Weedon Partnership: Terry Lee, Paul Mulligan (Project Architect), Tim Bennett, Pete Spillman, Andy Griffiths

CONSTRUCTOR

SDC Builders: Brian Fox,

Mike Northwood, Phil Janes, Justin Mylchreest

M&E ENGINEER

The Rolton Group: Chris Evans, Phil Hadland, Lawrence Greatly, Neal Adcock, Robert Irvine

STRUCTURAL ENGINEER

The Rolton Group: Andrew Chisem, Paul Housego, Shaun Pentlow

MECHANICAL

SUBCONTRACTOR

Briggs and Forrester

ELECTRICAL

SUBCONTRACTOR

IDS Electrical

KITCHEN & RESTAURANT

DESIGN

ABDA

FIRE ENGINEERING

Hall and Kaye Fire

ENGINEERING

TRAVERTINE

The Lightweight

Stone Company

TILING

Birmingham Tile and

Mosaic

POWER FLOATED FLOOR

SLAB

Snowden Flooring

STAIRCASES

JSM Engineering

SANDSTONE SLABS

Realstone



Adjudication provisions prove more than a Minor problem

The fast, the furious and the truly turgid

Adjudication legislation protects householders from the rigours of the adjudication process, since its provisions are not automatically written into contracts with residential occupiers. However, many contracts commonly used by residential occupiers do include adjudication provisions, and householders can find themselves caught out.

One such contract is the RIBA Conditions of Engagement for use with a letter of appointment (CE/99), which was considered in *Picardi v Cuniberti* (AJ 6.3.03). In that case the judge agreed with the defendant householder's argument that the CE/99 adjudications provisions were unfair and, therefore, would not be binding on them. The adjudication provisions had not been sufficiently brought to their attention and, in the particular circumstances of the case, fell foul of the Consumer Contracts Regulations 1999.

In the more recent case of *Lovell Projects v Legg and Carter*, the defendant householders found themselves at the wrong end of an adjudication decision, and owing their contractor £85k. The adjudication provisions were in the JCT Minor Works contract that was used for the project.

When the contractor, Lovell, applied to the court to enforce the adjudication decision, one of the defences put up by householders Legg and Carter was that the adjudication provisions were unfair, and therefore not binding on them. The contractor's evidence, which was not contradicted, was that the householders' architect had told him that the clients had insisted that the Minor Works form be used. However, Legg and Carter's solicitor gave evidence that the adjudication provisions had not been brought to the attention of the householders. The judgment is silent about why Legg and Carter were so keen on using the Minor Works contract. Their enthusiasm for it is somewhat puzzling given that they were unaware that it included adjudication provisions, and that the contract price was greatly in excess of the maximum value for which Minor Works is recommended.

Legg and Carter tried, like Cuniberti, to persuade the court that the adjudication provisions were unfair within the meaning of the Consumer Contracts Regulations 1999. Everyone agreed that the regulations applied, the contractor being a

'seller or supplier' and the householders 'consumers'. But the judge disagreed that, on the facts of this particular case, the provisions were unfair. The householders were bound by them, and therefore by the adjudication decision.

Legg and Carter had engaged an architect, who had, on their behalf, insisted on the use of the Minor Works form. The judge described Legg and Carter as knowledgeable business people. The adjudication provisions were clearly set out in the contract, and the contractor took no advantage of any lack of experience or weak bargaining position on the part of the employers.

One of the arguments raised by the householders as to why the adjudication provisions were unfair was that they transferred the risk of the contractor's insolvency to the employers. The logic of this is that once an employer has paid over sums on the basis of an adjudication decision, and then successfully gets this decision reversed by pursuing

the dispute further in arbitration or litigation, if the contractor has gone bust in the meantime, the employer will not get their money back. However, as Lord Justice Jacob observed in the recent case of *Rupert Morgan Building Services v Jervis* (AJ 15.1.04), where the disputed sum is one that is due under the contract, employers can protect themselves by serving a withholding notice at the right time. Jacob went on to offer some sage observations about the prudence of an architect pointing out to their client the benefits of serving such a notice.

Following Lovell, similar considerations might apply to preserving a residential employer's statutory exemption from adjudication. Consideration should be given to drawing a residential client's attention to the adjudication provisions in some standard forms of building contract, explaining what might result, and pointing out that the client can avoid such provisions by not signing up.

Consider an architect who fails to do so, and whose client is obliged by an adjudicator's final decision to pay a disputed sum to their builder. If a contractor reverses the payment obligation, but the money cannot be recovered from the contractor, the client may well look to their architect for a remedy.

'Employers can protect themselves by serving a withholding notice at the right time'

I got a reproachful email from Jeremy Marks of CDP for suggesting that you should bring in graphic designers only at the end of that exhaustive and complex process that is web design. He suggested I look at his communications company's site. Not that old one, I thought. But, boy, this was one amazingly simple and easily navigated site marred only by the visitor's inability to change the text size.

And there was something else – quite a lot of you with websites have been given earfuls of flannel from web designers about how speed is a relative thing and that people secretly adore waiting more than a few seconds for your immortal works to upload to the screen. May I suggest you grab your web designers by the collective lughole and make them surf www.cdpweb.co.uk, where they will experience sheer, utter speed. Probably for the first time. Then the nasty bit: ask them how CDP does it.

Groaning through a pretentious building review in an architectural magazine, I wondered whether the desk editor who had let this turgid tripe through to the printed page was hoping to get bits of it enshrined on that wonderful website, The Word Spy at www.wordspy.com. Here you will find newly minted words. Lots of them. Sleuthing them out is known as lexicpionage and they are entered in the Word Spy lexicon only when they have appeared sufficiently frequently in newspapers, websites, books and so on. They include such useful architectural words as 'magnetic wood' and 'vasectomy zoning'. Magnetic wood? No, it exists. Devised by some Japanese prof, it is a timber-like matrix that is impregnated with magnetic nickel-zinc particles, which deflect all but 3 per cent of mobile phone signals. Makers of railway carriages are clamouring.

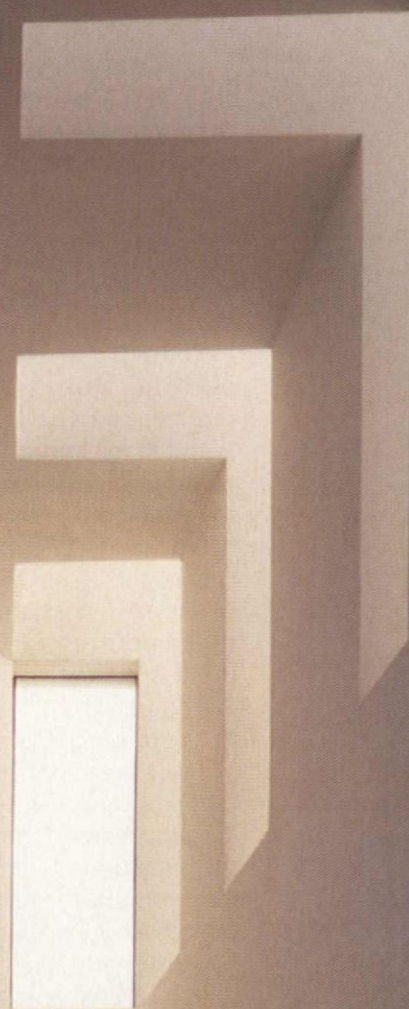
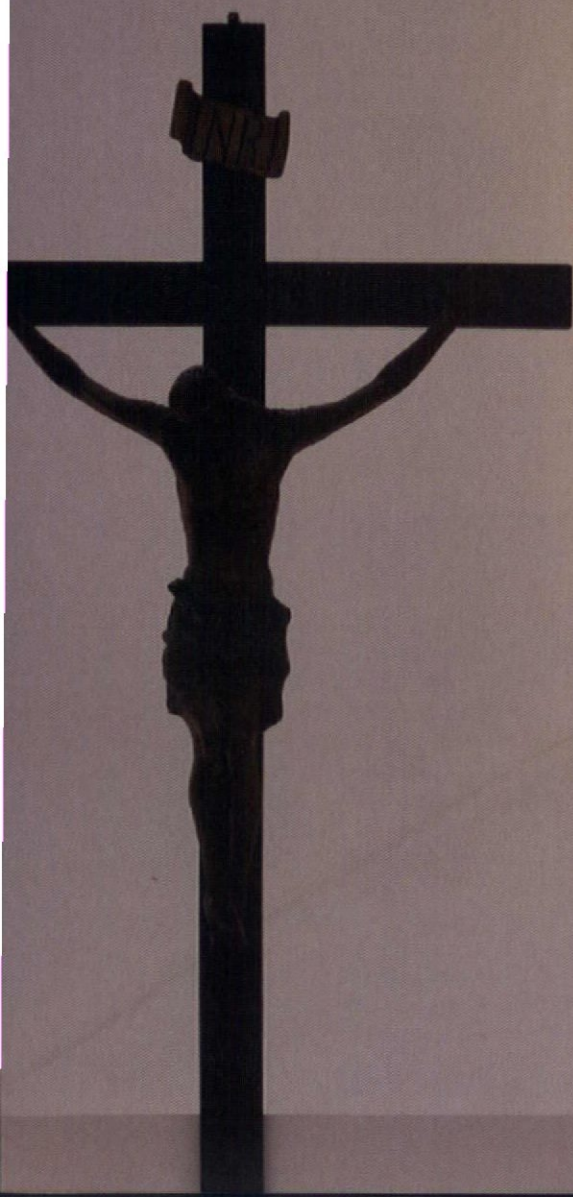
Vasectomy zoning means using a loophole in the US federal Fair Housing Act, which allows you to exclude families with children permanently from your luxury development if you make provision for old people. Hooray, a brat-free local environment.

Sue Lindsey

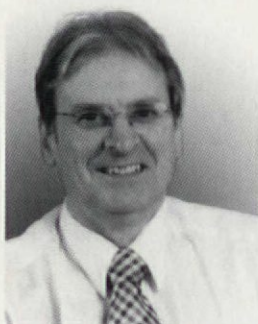
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CONCRETE QUARTERLY:207



The **Concrete** Centre™



A forthcoming BRE report, *Fire Safety of Concrete Structures: Background to BS8110 Fire Design*, has fully vindicated the

performance of concrete structures during fire. The study investigated the background to methods for establishing the fire resistance of concrete structures specified to BS8110. In particular, the BRE has examined and revisited the original research and test results that underpin the tabulated data.

The BRE research brings together a body of information that covers test results and research carried out over a number of years. With the passing of time there was a danger that much of the important work supporting the development of codes and standards could have been lost. There was a need to collate and assess all relevant information to ensure that the important lessons from the past are recorded and used to help define the strategy for a new generation of codes and standards.

The research found that the experimental results used as data for developing the tabulated approach in BS8110 fully supported the provisions of the code in relation to assumed periods of fire resistance. Furthermore, the research found that these provisions are in many cases conservative, since they are based on the assumption that structural elements are fully stressed at the fire-limit state, and they take into account the spalling characteristics of concrete.

Not only does the BRE report clearly demonstrate that the evidence from performance in real fires over a number of years proves that the tabular approach has been effective. It also suggests that the conservatism of the existing data means that further research would potentially result in even greater construction and cost economies for concrete structures.

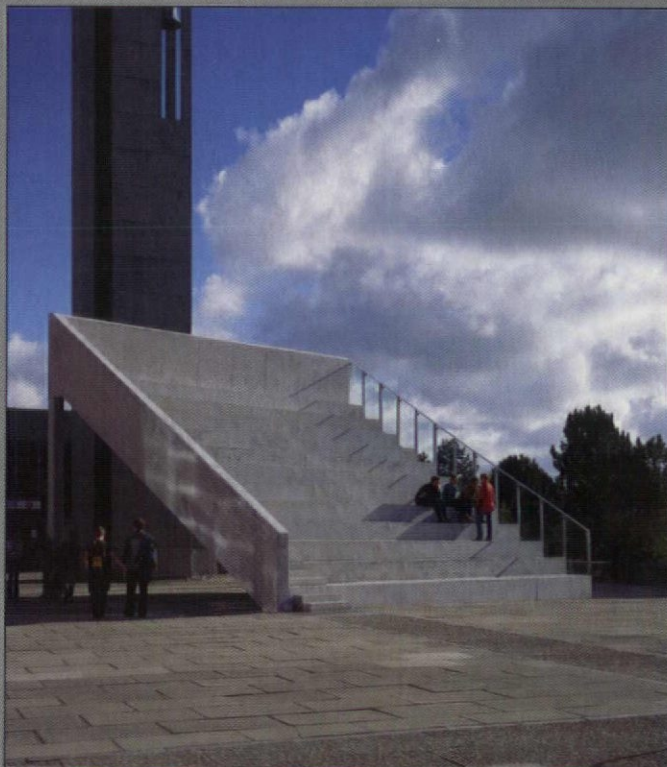
Ian Cox, director, The Concrete Centre

ROUND-UP

Stay out of the wet

An alternative has been launched to Silane, the omnipresent water-repellent material used for concrete surfaces and, in particular, for highways. Although Silane does the job effectively, it is unpleasant and highly flammable. The new material, Pavix, is water-based and has been subjected to comparative laboratory tests with Silane at London City University, and shown good results.

It doesn't have the toxicity problems of Silane, and is odour-free, fume-free and non-irritant. It is not flammable and will not contaminate water or cause other environmental hazards. Pavix is available in two forms, one for new concrete and one for established concrete, from asphalt and concrete repair specialist ASI.



Stairway to heaven

Artist Mark Pimlott has created an artwork for the Aberystwyth Arts Centre at the University of Wales Aberystwyth, which is, claims the university, the largest cantilevered staircase in the world. Called 'La Scala', and designed in association with structural engineer Price & Myers, the structure is 10m square and nearly 6m high.

It is constructed like a Georgian staircase, with each step a precast reinforced beam, made off-site. Each step rests on the next, with a narrow point of bearing between them. One side of the stair and the back are bound by concrete beams, into which the precast beams are cast. On the other side is a sheet of glass, simply bolted on to the precast steps.

The structure has both formal and informal uses. Visitors can sit on it and look out to Cardigan Bay, or it can be used for performances, concerts and special events.

Open that window

Scientists working on how best to ventilate office buildings and reduce their energy consumption have come up with a radical solution: open the windows. A £2.5 million research project funded by BP and undertaken by the Massachusetts Institute of Technology and Cambridge University into the reduction of energy consumption and cost of heating and cooling buildings, has found that one of the best ways to achieve this is to use natural ventilation. Opening the right window or vents to encourage airflow could cut a building's energy use by a third and increase the amount of fresh air available to a building occupant from 8 litres to 40 litres per second.

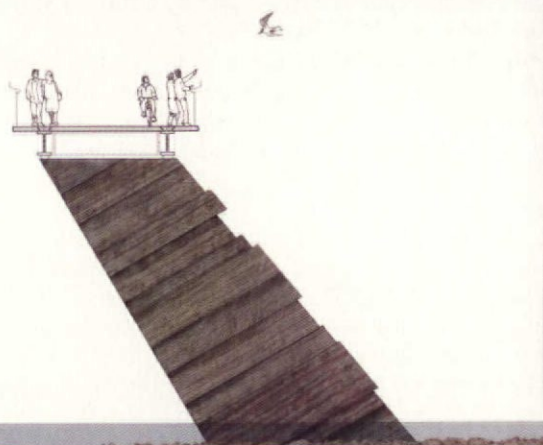
The Concrete Centre welcomes the findings, and believes exposing the building's structure and increasing natural ventilation realises the potential for concrete's inherent thermal efficiency to even out the peaks and troughs of internal temperature. This reduces reliance on energy-intensive heating and air conditioning, and provides more fresh air to occupants, reducing the chance of sick building syndrome.

Sharp and smooth

When it designed an office headquarters for McGraw-Hill in London's Canary Wharf, architect HLW International specified terrazzo not just for the floors but also for the reception desk and the servery.

The reception desk is in a cool white finish, of brown-coloured stones set into a white matrix, with impressively sharp edges. It is in fact a pair of desks, each about 7m long and made in six pre-formed pieces, which are then jointed with the same matrix. There is a steel framework inside, to support the top element, which cantilevers by about 1m.

'We have explained that nobody is allowed to jump up and down on it,' said project architect Henrietta Reed. In the servery, the same aggregate is used, but set in a specially coloured powder-green matrix.



New slant on Welsh piers

The regenerative effect of the Cardiff Bay redevelopment and associated barrage is to extend along the next stretch of coast, with a walkway linking to the Penarth headland. Designed by architect Patel Taylor and engineer Techniker for Vale of Glamorgan council, this will be in three sections.

The central and longest of these will curve round the reddish cliffs, at a total length of nearly 1km. Designed as a 'draped steel beam' it will span 85m between concrete piers. These piers have been designed to reflect what Andrew Taylor of Patel Taylor describes as 'the wonderful geological strata'. The inclined piers look as if they have been constructed from sloping, rectangular pre-eroded blocks. Their improbable looking slope is made possible by the fact that the curved walkway will be pulling inwards.

There will be eight or nine piers. Current thinking is that rectangular containers, each representing one block, will be precast and will act as permanent formwork for the in situ concrete and reinforcement. Taylor hopes that their surface will incorporate some of the reddish tinge of the cliffs.

Varying in height, but up to 14m high, the piers will support the draped steel walkway, on top of which will be precast concrete slabs and a stainless-steel balustrade. The project is currently going through the planning process and construction should start next year.



Ramp to success

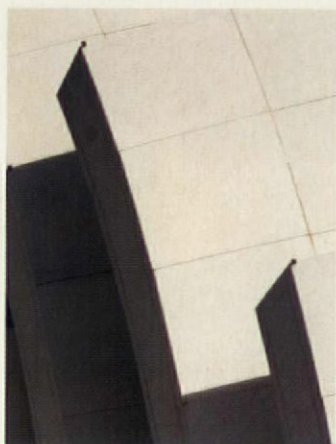
Laing O'Rourke has won the 2003 CONSTRUCT Award for Innovation and Best Practice for its elegant and innovative seamless vehicular ramps serving the car parks and Plaza at Tower Place, London.

Two ramps provide access to a below-ground public car park and to the above-ground Plaza drop-off point which bridges a dual-storey car park.

All construction work had to be carried out under the first-floor soffit of the advancing Plaza structure. Laing O'Rourke developed a precast construction system that incorporated a monorail lifting system and an edge beam system to allow the slab soffit to be constructed without beams, achieving an uninterrupted spiral soffit with the deck appearing to float between the circular columns.

The use of composite precast and in situ construction allowed quick construction of the ramp sections in 270° segments. Using precast also avoided any need for complicated end-stops. This was an elegant and effective solution to a difficult logistical problem.





Using the power of divine prefabrication

The award-winning Jubilee Church design by Richard Meier & Partners, at the Parish Church of Dio Padre Misericordioso building in Rome, utilised Italcementi's prefabricated concrete blocks to ensure consistent quality

By Sutherland Lyall. Photographs by Edmund Sumner/VIEW

In 1996 Richard Meier won the Vatican's competition for the Church of the Year 2000, for the Jubilee Church in the Tor Tre Teste area of Rome, with engineer Guy Nordenson, a former associate of both Buckminster Fuller and of Isamu Noguchi, who had set up the Arup office in New York.

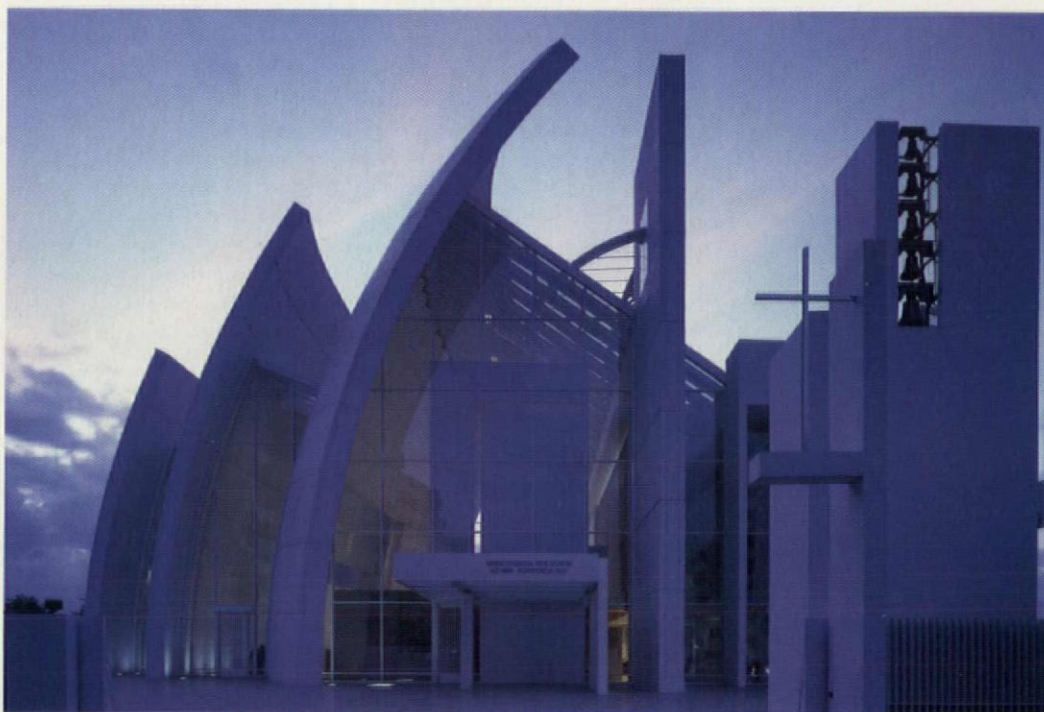
A big hitter, Nordenson set up on his own the following year and is now a professor at Princeton. He has a specialism in earthquake control, made the major report on the structural damage to the World

Trade Center, engineered the Steven Holl MIT dormitories, has worked on cantilevered structural glass and is working on MOMA, where he is curating a forthcoming exhibition on engineering design. The other engineers involved were the Italian Antonio Micetti, who created the final design, and Genaro Guala, who has worked with the concrete company Italcementi supervising the method and detail of construction.

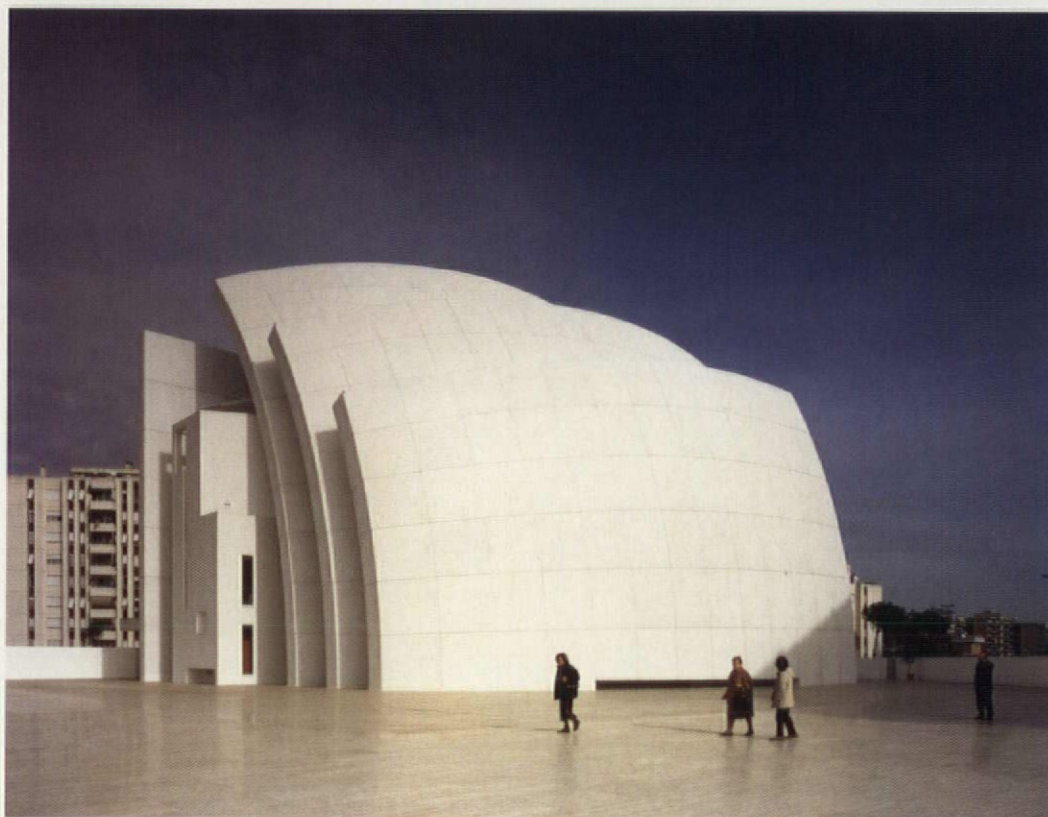
Meier's design includes a bell tower. The main church structure

consists of three sections, between 16 and 28m high, formed from a spherical surface. The sections are nested in a staggered array on one side. The other side is a more-or-less straight wall, and a sloping, hanging strip of diffusing skylight connects the two overhead. Inside, great cut-outs in the bottom part of the shells reveal the layers and create an unusual sensation of lightness. Nordenson says: 'When you go there, these cut-outs look quite magical.'

With the basic principles of







The curved block walls (left) were built using the support of a specially designed piece of equipment (below)

design established, the big issue was what materials to use. Nordenson says the construction strategy involved joining up a bunch of different ideas. One was that the concrete should be exposed, and initially Meier was not enthusiastic because he was concerned about quality. Micetti, however, was very excited about exposed concrete.

'I suggested that it be made from prefabricated concrete blocks so that the quality could be controlled in the prefabrication process,' he said, 'and also because it seemed to me to be a proper reflection of both traditional Roman stone-block construction and Pierre Luigi Nervi's work, much of which was prefabricated.'

So the notion of prefabricated blocks resonated with a number of the parties: the client, Meier, and Micetti who was a former associate of Nervi. This meant there was a metaphoric and historic echo with which everyone was at ease.

'The other aspect appealing to

me,' said Micetti, 'was that you would be constructing this in a very clearly understandable way. This was a church and to do with the community's feeling about itself, so that watching the construction process would be quite a wonderful thing for the residents and the children. It would take time. It was a fairly meticulous process. It would draw out their experience of it over a number of years and the children would grow up with this great machine travelling back and forth. So this was a great opportunity to take advantage of the theatricality of the construction process.'

With Meier won over, says Nordenson, he 'pushed Italcementi to produce an extraordinary quality and consistency of concrete.' In fact, Italcementi patented the new very white cement, Bianco TX Millennium.

Because of the spherical geometry common to the three shells, the blocks could come from the same mould. Measuring 2 metres

square and 800mm thick, they were all made off site on standard steel forms. The specials were created by simply cutting the edges in appropriate ways. The blocks have continuous grooves around their edges to accommodate the post-tensioned cables that run horizontally and vertically. So the rods and cables run throughout the body of the shell in both directions.

Nordenson says: 'One interesting thing Richard did was to create a joint pattern in the shells. The top of each shell and the openings inside are cut on a great circle or radial line. The vertical joints, which are in a stack-bond array, are parallel to the edges and follow minor circles.'

Final tensioning uses the Freyssinet cable system, involving anchors at the top and bottom of the walls. Access to the latter anchorages was from the basement, whose other function was as part of the natural ventilation system.

LA MACCHINA



Getting the blocks into place involved devising a special machine – soon dubbed by the workmen and locals La Macchina – which rolled on tram tracks following the curving profile of the shells, and which was curved vertically, straddling both sides of the shells. Nordenson says: 'The machine was very tall in order for its two legs to straddle the tallest wall. In effect, it was a robot platform and a rig that could be moved around. It would lift the block, turn it round, place it approximately, and allow the workmen to make the reinforcement connections and fill the channels created by mating grooves with grout. Three operators were involved in the placement operations and it was manually operated until the final positioning of the block, when computer control took over.'

Light at the end of the tunnel for Nightingale

Much faster than conventional methods, tunnelform construction is beginning to find its feet in the UK housing industry, as Watkins Grey International's cutting-edge Nightingale estate regeneration testifies

By Sutherland Lyall

Watkins Grey International's construction of pitched roofs and triangular bay windows at the Nightingale estate

Tunnelform construction has been around in Europe and America for 35 years. Originally developed by French company Outinord, it has recently been used in the UK for hotel construction and student accommodation. But its very first deployment for UK housing is at the £70 million Nightingale estate regeneration scheme at

Hackney in east London.

It is a big scheme and has involved the demolition of a tower block, the refurbishment of another, plus the regeneration of low-rise social housing, all by the London Borough of Hackney, and the construction of more than 500 new homes, which are being built using tunnel-form techniques. Dwellings

are for rent, for shared ownership and for open sale. The first units were handed over in 2001 and tunnelform seems to have been accepted. Residents are said to be very happy with the sound insulation, a consequence of the solid concrete construction, and reduced heating costs, partly the outcome of massive insulation.

Architect Watkins Grey International first became involved in the late 1990s when the new-build scheme was started as a joint venture by housing association Southern Housing Group, with developer Countryside Properties, whose building arm is also the main contractor.

The client was anxious that this whole scheme should be an innovative one, and tunnelform construction is not the only cutting-edge construction technique to be found at Nightingale. It is, however, the structural heart of the scheme and its element cost is reckoned at £20 million.

It has been adopted as a Housing Forum demonstration project and is being monitored by a university group. Tunnel-form has been sufficiently successful for the current third phase to have been built this way, and for its use to be earmarked for subsequent phases. It has been benchmarked against another regeneration scheme, the New Kingshold estate, being



built at the same time by Countryside and using the same cost consultant, but with conventional construction methods.

Watkins Grey director Alistair Walker says: 'Until now there has been no market for tunnelform. But there is in Europe and especially Holland.' In Holland, where Walker worked earlier as an architect, and Belgium, tunnelform is used for 40 per cent of all housing construction.

The absence of local interest is partly because of the conservatism of the housebuilding fraternity; partly because the technology is most suited to repetition of simple cellular spaces; and partly because the financial case for its use over other forms of housing construction has not yet been established. And that is partly what this exercise is about – establishing financial viability in a medium to large-scale project.

Part of the economic equation depends on how you source the specialist formwork. Because the technology has little track record in the UK, there is not a ready local hire market for tunnelforms. That is more significant a lack than it might sound, because the formwork has an average life of about 600 uses.

If you buy the formwork and have a target build involving smaller numbers than that, you have to amortise the total cost



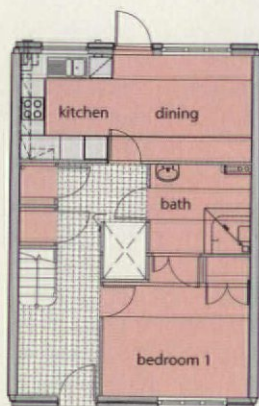
Top: the finished housing at Nightingale will look as if it has been built by conventional means. Above: near-complete housing in the background, and the starter walls in front

over the number of units you build – simply because you are unlikely to be able to sell or rent the formwork in a non-existent market. It is a circle of uncertainty. In fact, at Nightingale the client bit the bullet and purchased several sets of tunnelform kits. But there is no clarity yet about what will happen to them at the end of the project.

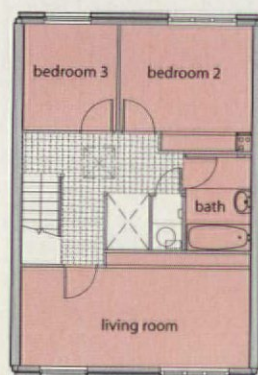
In addition, housing is not the same as hotels or student accommodation. The architect points out that you really need to know that tunnelform is definitely going to be the method of construction before you start designing housing – and to have the main contractor on board at an early stage. The reality is that the method of construction is decided by quantity surveyors or the builder quite a long way down the line – well beyond the time when serious changes can be made to the design.

And there are the external effects. Walker says: 'As ever, it's a matter of supply and demand. As [government-led] demand for new housing peaks, traditional construction won't be able to cope.' That probably means that fast-track construction such as tunnelform would begin to look attractive whatever the cost.

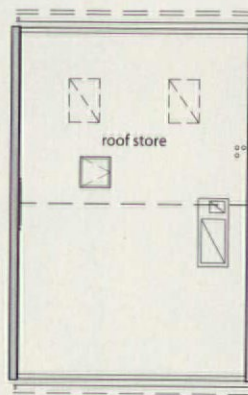
If that sounds slightly desperate, it is not because the method



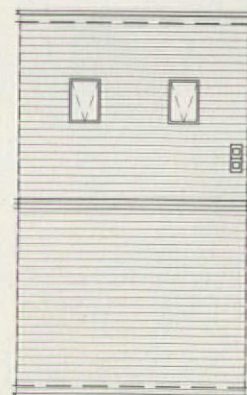
GROUND FLOOR PLAN



FIRST FLOOR PLAN



ROOF LEVEL PLAN



ROOF PLAN

A TYPICAL THREE-BED, FIVE-PERSON HOME

is not much faster than conventional methods, because it is, and not because it hasn't been financially proofed in the UK in those other areas of student accommodation and hotel bedrooms. It is probably just because it is new and thus attracts a premium from cautious builders. Incidentally, there is an ominous note for the government, because when conventional construction capacity runs out as housing construction starts to peak, it is reckoned that the maximum annual output from existing prefabrication and other alternative construction sources such as tunnelform is a mere 30,000 units.

Tunnelform construction takes a variety of final forms, but at Nightingale the architect has opted for pitched roofs and triangular-plan bow windows, which have been achieved by tweaking the formwork.

The pitched roofs are supported on beams spanning between triangular party walls built using the same system, and the whole concrete structure is wrapped in a layer of insulation and an external skin of brick and glazing with a conventional tile roof fixed to new-technology roof panels.

These 1.2m-wide warm-roof panels, made in Holland by Opstalan, are fully insulated and ready to receive tile battens sark-

HOW IT'S DONE

The surface of the ground slab has 75mm-high steel-angle starter walls accurately positioned to locate the steel tunnel formwork. Reinforcement bars are embedded at around 600mm centres and grids of reinforcement, of room length and room height, are tied to them. Two half tunnelforms are craned into position so their bottom edges are aligned against the starter walls, and screwjacks on the forms are adjusted to ensure that they are level. The forms are normally half-tunnels, inverted 'L's, to facilitate removal, although inverted 'U' tunnels are sometimes used for narrow spaces such as passages between units. Electrical conduits and boxes, heating pipes and the like are fixed in place together with box-outs for any openings.

The forms for the other side of such walls, normally half of the next tunnel, are then fixed using spacers to centre the reinforcement. Stop ends for the 200mm-thick walls and 175-250mm-thick slabs are installed.

The concrete pour starts at around 3pm and propane heaters are installed to speed setting overnight. At first light the following day, the forms are stripped – the ceiling formwork is lowered and in the process the side forms are pulled away and the whole half-folded ensemble is wheeled a third of the way out from the brand-new concrete tunnel. The concrete will have reached a strength of about 1,600 to 1,800 psi – enough to allow this stripping of forms. A crane with a special adaptor moves the forms the rest of the way and off to a temporary storage position.

In the meantime, the next set of wall reinforcement is wired in place, cable and pipe runs and box-outs installed, and then tunnelforms placed. By 3pm the next pour starts. And so the daily cycle continues to the end of the row and then, after a 10-day wait after the first pour, the next layer of rooms above is installed in exactly the same way, the vertical reinforcement being tied continuously through the floor levels. One recent US example, an apartment block in Denver, Colorado, was 25 storeys high.

At the Nightingale estate, the end walls are prefabricated timber panels, but it is common practice to incorporate a back wall form at right angles to the rest to produce a concrete external wall that would normally incorporate box-outs for windows and doors.

ing and tiles. Apart from eliminating the laborious process of fixing rafters and purlins, this approach to roofing makes it possible to have attic stores and attic bedrooms.

The storey-height external cladding is based on a heavily insulated timber-frame system that sometimes has an inner leaf of concrete and timber panels, and sometimes plasterboard. The external leaf is a brickwork rainscreen into which doors and window frames are inserted. Southern is reported as arguing that the tunnelform apartments should look completely conventional if the technology is to be accepted.

On the first two phases, internal non-load-bearing walls were of Belgian Promonta gypsum blocks. Without strict supervision of laying, internal blockwork can end up acoustically transparent. Here the 70mm and 100mm blocks were glued together using the thin-wall joint method. The gypsum surface was simply washed with a slurry of the adhesive – apart from this there were no wet trades such as plaster skimming.

Doors are clamp-in, powder-coated doorsets made by Dutch firm Polynorm. Factory finished and fitted with door furniture, the frames are clipped into place and the doors hooked on to their hinges. Two men can fix between 60 and 80 each day. The whole doorset can later be replaced in one operation by a maintenance operative.

One of the other innovations at Nightingale is the use of double-wall heating pipes. This is a composite system, with an outer casing enclosing unbroken pipe runs between heating manifolds and radiators, which can, if they need to be, be withdrawn and replaced. The system is laid directly on the concrete tunnelform slab and buried in the screed.



Left: installation of warm-roof panels. Right: pipework will be buried in the screed

Flexible finishes on the fast track

The versatility of precast concrete, which can be altered to produce a variety of colours, textures and finishes, is its unique selling point

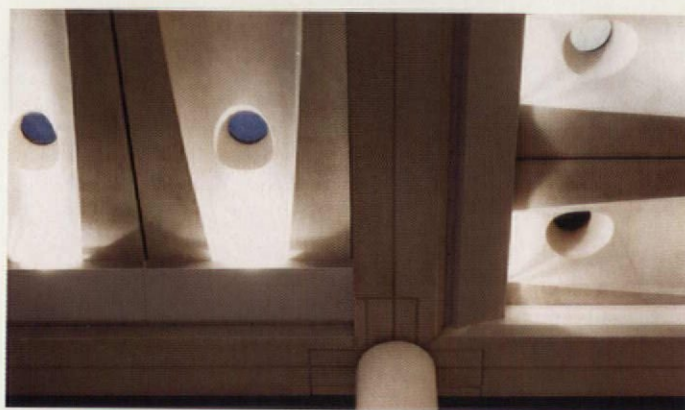
By Susan Dawson

Are you an architect looking for a building material that is solid, prefabricated, suitable for fast-track construction, yet one which can be finished in a variety of stone-like textures? Precast concrete is your answer. And if you are still biased by the outdated notion – originating in the poor performance of 1960s precast-clad tower blocks – that precast does not weather well, think again. Today's precast components are made of concrete so strong as to be virtually impervious (in excess of 40N/mm²) and are routinely detailed to eliminate streaking.

Precast concrete is uniquely versatile. Its composition, based on

stone aggregate mixes, can be altered to produce a great variety of colours, textures and finishes. Its most common use is as a cladding panel, and as such it is often cast from a mix that will produce the appearance and texture of natural stone – a specification generally known as reconstructed stone. Such mixes make the material acceptable in environmentally sensitive areas where new projects are required to blend in with traditional stone buildings. Precast cladding panels can also be faced with brick, natural stone slabs or terracotta tiles.

Precast concrete is a prefabricated product; it is produced and



SPOT THE DIFFERENCE: PRECAST VS CAST STONE

Precast is sometimes described as reconstructed stone or reconstituted stone. It should not be confused with what is generally known as cast stone. The properties, including the finishes, of these two materials are very different:

- **precast** is produced by the wet-cast method and is an extremely strong structural material with a low absorption rate and a variety of finishes and textures;
- **cast stone** is produced by the semi-dry method, also known as the 'moist earth' mix method. As the name implies, the material has the same texture as moist earth when freshly mixed. It has relatively low strength and high porosity, and can only be manufactured in fairly small unit sizes.

The methods of casting and finishing are very different. Precast components, after wet casting, are left in the mould for at least 16 hours to develop sufficient strength for handling. They are then finished as described above.

Cast stone components are cast semi-dry and struck from the mould almost immediately. No other finish is required and the surface texture and colour resemble those of some natural stones. With such low strength, the units are more vulnerable to chipping and, because of the high levels of porosity, care must be taken to avoid staining.

finished in the factory under controlled conditions. Most precasters have batches of samples which give a range of colours, textures and finishes; they will also cast a full-size sample panel so that it can be approved by client and architect before installation, removing any causes of delay on site.

Unlike cast in situ concrete, where the finished texture or pattern is an exact reflection of the surface of the mould, precast concrete units are nearly always finished after de-moulding. This removes laitance, the very thin layer formed of fine aggregate and cement particles that migrate to the surface of the unit during casting, and exposes the underlying aggregate/cement matrix. Various techniques are used to produce this result. Some expose the aggregate in its natural state; others change the appearance physically by abrading or fracturing the

surface. Within each technique the degree of exposure can be varied, with the result that a considerable variety of effects can be achieved.

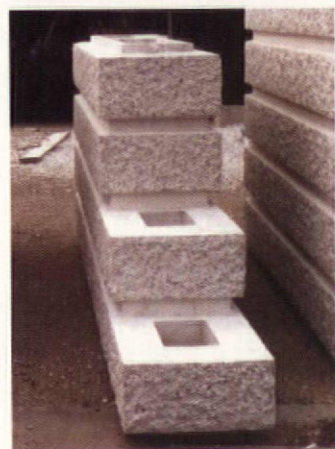
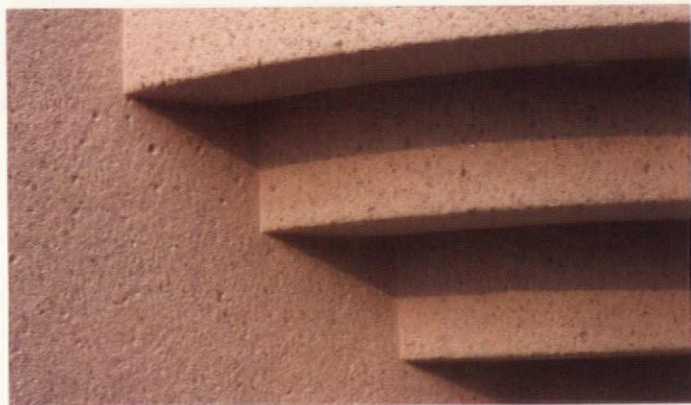
Finishing processes for precast concrete can be divided into two basic categories: wet and dry.

Wet techniques

Acid etching

Acid etching is a method of removing laitance from the concrete surface, exposing the texture and colour of the matrix beneath. Hydrochloric acid, in either diluted or gel form, is used to etch the surface. The depth of exposure is controlled by the level of dilution and/or the length of time the acid remains in contact with the concrete before it is washed off with water. Surfaces may also be etched more than once if a greater degree of exposure is required.

Care should be taken when acid etching vertical surfaces to avoid



Opposite top: the roof and columns of the Lawn Building at Paddington station were cast with a mix of white cement, limestone aggregate and Lee Moor mica sand; the units were then acid-etched to give a precise finish. Opposite below: an acid-etched surface is washed down with water. Above and left: a selection of grit-blasted precast units. Right above: Millbank House, Dublin, which uses polished precast concrete cladding panels. Right: a polishing machine in action at the Techrete factory



streaking. Very light degrees of exposure should also be avoided as this often fails to remove all the laitance; the residue may tend to craze in time as it is exposed to the weather.

Ideally, etching should be undertaken three to four days after casting, when the concrete has attained sufficient surface hardness, but not to the extent that it is difficult for the acid to penetrate. After etching, in most cases it will be necessary to rub in minor blow-holes exposed by the removal of the laitance.

Retarding

Retarding produces a similar effect to acid etching. There are three main methods: a retarding agent is painted on to the formwork surfaces; retarder paper is laid in the formwork; or surface retarders are applied after casting. In each case the retarder prevents the

surface of the concrete from hardening and allows it to be removed by either high-pressure washing with water or by brushing. The depth of retardation is controlled by using different strengths of proprietary products.

Dry techniques

Grit blasting

Grit blasting can produce a finish, similar to acid etching, or it can be used as a more aggressive means of removing laitance and exposing the coarse aggregates. Different grades of grit – from fine to coarse – will determine the depth of exposure revealed. In its most aggressive form, grit blasting will physically abrade and fracture the aggregate particles. The equipment used for this operation is driven by compressed air, and the force at which the grit particles hit the concrete surface is controlled by adjustment of the air pressure.

Tooling

Tooling can be undertaken using a variety of pneumatic or electric hand-held equipment, ranging from needle guns to bush hammers and chisel-point tools. The points within a needle gun may be varied in length, depending on the depth of exposure required. This will also be influenced by the pressure used and the duration of the treatment. The same applies to the use of other tools. Tooled finishes give a more rustic appearance due to the aggressive nature of the finishing techniques.

Polishing

Precast panels can be polished to varying degrees of smoothness, from a 'honed' matt finish to a high-gloss polish that can resemble that of polished granite. The polishing of small components, or those with rebated surfaces, is

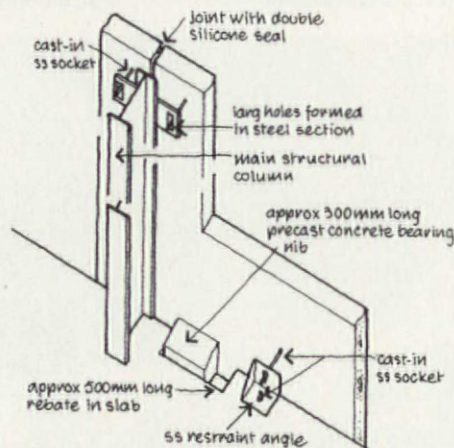
generally carried out by hand; the precaster Techrete has introduced a polishing machine that will polish large, flat precast units mechanically. The machine moves over the precast unit with a preset polishing and pressure programme. Using a diamond-tipped plate, it will grind about 3mm off the face of the panel to reveal the aggregate (coloured aggregates can be used very effectively). A series of abrasives are then applied to the surface. The final finish depends on the fineness of the polishing heads and the number of times they are passed over the panel surface.

Susan Dawson's technical handbook, Cast in Concrete, on how to use precast concrete, can be obtained from the BPCF, 60 Charles St, Leicester LE1 1FB (price £25, enclose cheque to be made payable to BPCF) or by credit card from www.concretebookshop.com

The many facets of the supporting role

Fixings vary depending on the type of cladding panel and the structure of the building, but they follow a number of general principles

By Susan Dawson



detail a

It makes sense for an architect involved in the design of precast panels to understand how they are fixed; a buildable design results from anticipating problems between the positions and choice of fixing, floor slab construction and structure.

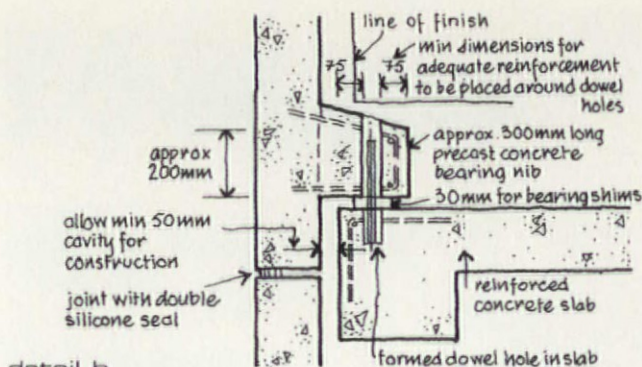
Fixings have two purposes: they support the dead load of a precast cladding panel; and they restrain it from the directional movement caused by applied loads. Two separate fixings for load-bearing and restraint are generally used, but they can be combined. The isometric A shows positions of load-bearing and restraint fixings on the inside face of a precast concrete panel.

Load-bearing fixings support the panel by transferring its weight on to the structural frame. They can take the form of corbelled concrete nibs cast integrally with the panel B. Such simple concrete nibs with dowel

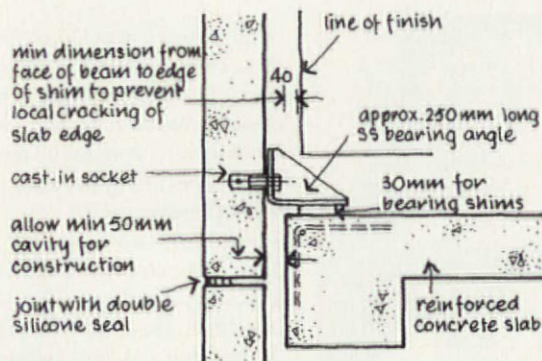
restraints are the most economical form of fixing, but if the structure is a concrete frame the height of the nib may interfere with a raised access floor.

If the raised access floor zone has insufficient depth to accommodate nibs, the panel can be supported on a pair of stainless-steel bearing angles C, each set on shim packs to allow for any adjustment of level. To reduce the tendency for the panel to fall outwards, it should be supported in line with its centre of gravity. It is also better to support panels at their bases rather than to top-hang them, to allow the concrete to remain in compression.

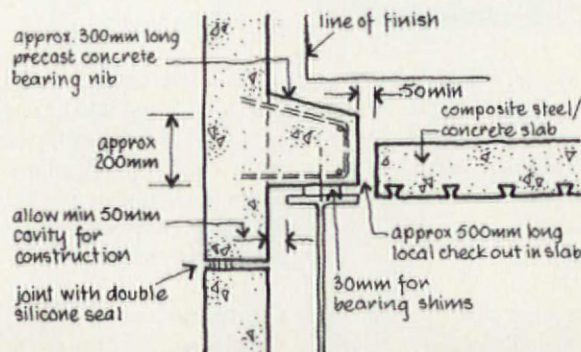
If the main structure is steel, the corbelled concrete nib can be dropped into a pocket in the floor slab D. Alternatively, steel angles can be bolted or welded to the steel structure to support the panels E.



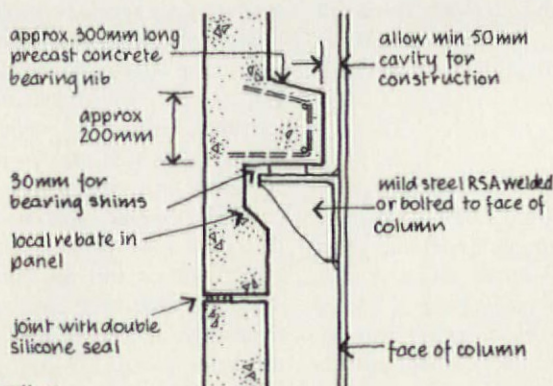
detail b



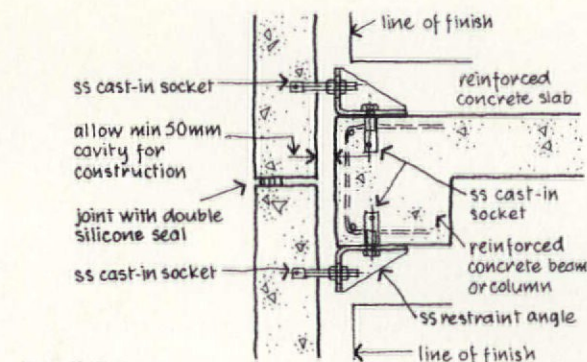
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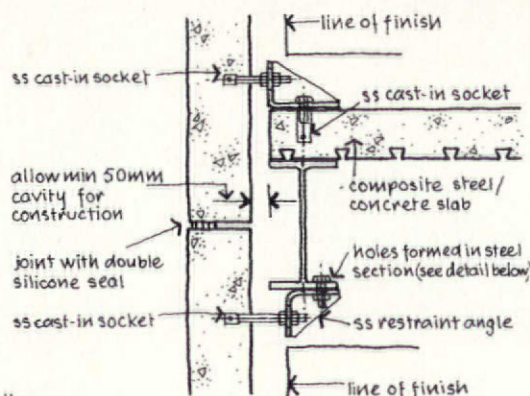
detail d



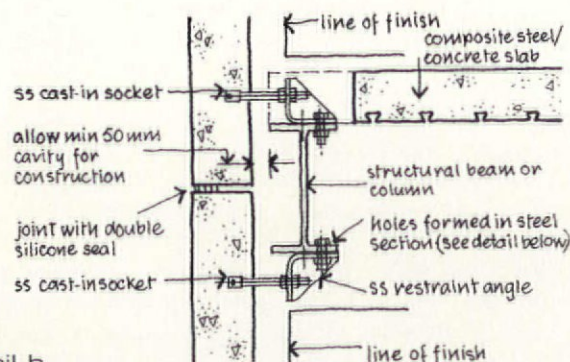
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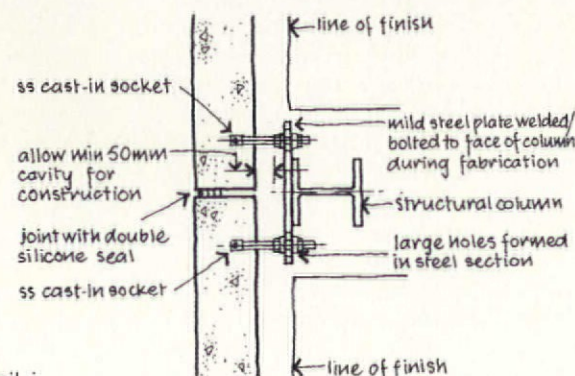
detail f



detail g



detail h



detail j

Restraint fixings

Restraint fixings are primarily intended to resist wind loads and allow adjustment for both line and plumb. Four restraint fixings per panel are usually used, set as close to the corner as is practical. Restraint fixings can take the form of a grouted dowel as in A, but are more often designed with an angle F, or plate G, which allows the panel to be positively attached to the structural frame as soon as possible after installation.

The design of restraint fixings must also allow for permissible deviations in the manufacture and erection of the panels, and the construction of the structural frame. Each restraint fixing must allow for adjustments of, typically, plus or minus 25mm in all three dimensional planes. The adjustment may be achieved by the use of shim packs, cast-in channels and/or slotted holes in the steel fixing angles or plates. A structural frame of concrete or concrete-encased steelwork may also incorporate cast-in channels.

Detail F shows restraint fixings of steel angles to a concrete structure. Slotted holes in the angles give tolerance. The stainless-steel studs screwed to the socket in the panels have washers and nuts on both sides of the angle. These are used as a 'pull-push' device to position the panel accurately on the face of the building.

Details G and H show restraint fixings of steel angles to a steel

structure with a composite steel/concrete floor slab. In G the upper steel angles are fixed to the floor slab with cast-in sockets, and the lower steel angles are bolted to the structural steel beam. In H, both upper and lower restraint angles are bolted to the structural steel beam; this has the advantage that the angles do not interfere with a raised access floor but, as in J, it may be difficult to position the angles accurately into pre-drilled holes.

Detail J is an example of steel-plate restraint fixings bolted to a steel structure. The plate gives combined restraint to the lower part of one cladding panel and the upper part of the panel below it. The steel plate is welded to the column at the fabricator's works and the detail requires accurate positioning of panels and structure. There is no interference with a raised access floor.

The pair of restraint fixings furthest from the panel's support fixings should also allow for movement caused by thermal effects and deflection, by using, for example, PTFE washers. Angles, plates and washers with interlocking serrated faces will be required in situations where any load acts in line with a slotted hole.

The support and restraint functions of a fixing can be combined. A concrete nib may include a hole for a doweled connection, which will act as a restraint fixing, as in B.

STAINLESS STEEL: MAKING THE GRADE

Grade 1.4301 (previously Grade 304) austenitic stainless steel is generally used for both support and restraint fixings. Grade 1.4401 (previously Grade 316) stainless steel is more suited for use in industrial, highly corrosive or marine environments. Mild steel fixings may only be considered where conditions are permanently dry, such as on the warm side of a vapour barrier. In such circumstances steel angles should be galvanised and nuts and bolts sherardised for extra protection.



FAVOURITE BUILDING
FERHAN AZMAN
TALKS TO CRISTINA
ESPOSITO ABOUT
THE BARBICAN ESTATE

Ferhan Azman has a vision of Chamberlin, Powell and Bon's Barbican Estate as 'a beautiful elevated city within a city', possibly the first romantic embodiment of 'Corbusier's urban utopia come true'.

Azman first saw the building, a vast collection of concrete monuments, in 1998, having just moved to London from Turkey. She recalls how, immediately struck by the sense of civility, culture and community, 'I fell in love with it and went back all the time. Sometimes to the theatre, sometimes the library. Sometimes just to sit there by the river café with a glass of wine.' Azman compares the development to 'a grand fortress' where she can take her children to play. 'People go to Hyde Park, I go there.'

Like a number of concrete landmarks around London, the



Barbican Estate: the grace and beauty of 'an aging female weightlifter'? Azman disagrees



Barbican is regarded with a nostalgic affection for its Modernist vision, where it was previously much maligned. Azman cites hers as a generation with a fondness for those bold towers – 'symbols of a revolution'. When building began in the 1950s, plans promised a brave experiment, one that proposed a 'social-housing-cum-cultural quarter'.

A Mecca for 21st-century urban trendies, the Barbican Estate now incorporates three residential towers and an arts centre composed of a theatre, concert hall, art galleries, cinemas and a library. Surely Azman must have been pleased when the Barbican attained listed status? 'I don't really care, I don't believe in them,' she states nonchalantly, 'maybe I have too much faith but I believe people will keep what's good.'

But does the Barbican, whose grace and beauty one critic compared to 'an aging female weightlifter', constitute good architecture? 'I think it has perfect consistency,' says Azman,

'everything is purpose-designed. It just works.' She is the first to admit that the intimidating concrete mass, for which the Barbican is much reviled in some camps, can be its biggest downfall. 'The public can't see the best bits, just these big concrete blocks.' But for Azman, the beauty is hidden within the labyrinth. 'I'm still impressed by the complexity, just walking around [the development] it has an opulent, expansive feel, like a beautiful, rough jewel.'

She finds the detailed manipulation of the Barbican's concrete fascias particularly fascinating. 'Every surface is actually hand-tooled,' she observes appreciatively. 'Can you imagine the dedication that went into that?' For Azman, good architecture is as much about using materials in an appropriate context as it is about structural composition. 'The concrete lent itself to a brick effect, that's why it works. Had it been rendered it would have failed.'

LETTER FROM MADRID

When you come to Madrid, writes *Simon Smithson*, (and you should, but wait till next year when the new airport will be in operation) you will, more than likely, take a cab in from the airport. To some extent you take your life in your hands for the taxista will drive hell for leather at more than 140km/h for the whole 15 minutes it takes to get into the centre. More than likely the driver will opt for the Avenida America route. The road cuts through a ridge in a strange, rather Roman-looking, brick-lined cutting (dating, I am told, from the Franco period) and as the cab careens down the hill on the other side you will catch a glimpse, dead ahead, of an extraordinary concrete building – Los Torres Blancas (pictured). Or rather you did, for this wonderful view will soon be blocked by a new hotel that, judging by the picture on the hoarding, is a poor inheritor of this prominent location on the entry road to Madrid.

In actual fact any route into the city is interesting from a construction point of view, if only because of the sheer quantity of building sites you will pass. A view of the surroundings of the capital is a view of tower cranes. Take for instance the other route I use on my way home from the site (the N2). When I first came here you dropped down into a valley of scrubland about 3km wide and 10km long before entering the city. Only a small monastery occupied this space and a few shacks. This view had probably remained unchanged for the past two decades, and yet in the space of two years this entire valley has been filled with 10-storey blocks of apartments. (So much for the myth of the Spanish sloth!) It is worth pointing out also that all these buildings, like the one that will block the view of the Torres Blancas, have concrete structural frames. Steel-framed construction is a rarity in the city, except for the very tallest of buildings.

Anyway, to get back to the Torres Blancas. The name, as you will have guessed, means 'White Towers', except of course there is only one tower and it's not white, or at least it wasn't – it had turned rather grey. Right now it's half white. It is being cleaned by a company that eschews scaffolding in favour of a team of abseilers. And there were supposed to be two towers, but I understand the developer went bankrupt soon after the first one was completed.

The towers (for decency's sake we should maintain the pretence) are known to all Madrileños, and many may even be able to tell you the name of

the architect, Saez de Oiza. The building, alongside Higuera's crown-shaped building at the university on the other side of town, is considered a masterpiece of Spanish Organicism. Built between 1961 and 1968 of cast-in-place concrete, the plan is all circles – at first glance a bit like the graphics on a 1960 pop-art poster. At its centre is a 24-storey open (circular) staircase, which features a red leather handrail.

It is at its most striking when seen in profile, a distinctive black cut-out against a red sunset at the end of a sweltering Castilian summer's day. The effect of this view (for me at least) is uplifting and I now realise this may be because it actually looks rather like a rocket sitting, ready to go, on the launch pad. To get an idea of the form of the building, imagine a mass of those metal canisters they use to store films in the basements of the BBC, all neatly stacked in a dozen piles one up against the other, only with slightly larger ones perched on top and

sometimes groups of smaller ones in the middle of the stacks, creating carefully modulated projections and indentations.

Inside are offices (at lower levels) single and duplex apartments (the penthouse flats are some 500m²) and on top an outdoor swimming pool, needless to say made up of intersecting circles. Here you wouldn't be surprised if you ran into Sean Connery and a bevy of bikini-clad girls – wasn't that 007's DB6 we saw in the basement car park?

What's remarkable about the building? Well, for one thing, the consistency of the design – all the way from plan to elevation, lift cab to door numbers. One could use this building as the basis of a whole design course. Also remarkable is its inventiveness, made possible, I suspect, by a strange coincidence of events. This was a country that, after the two decades of isolation that followed the civil war, was just beginning to open up to the ideas of the rest of the West, but which still had cheap labour (remember there were over two million Spaniards working abroad in search of better wages at this time). It still retained pre-industrial artisan skills and had an industry that had only managed to survive isolation by dint of its ability to improvise. What is also remarkable is how little we, in the UK, know masters of the concrete such as Higuera, Fisac, Cabrero and Torroja.

Simon Smithson is project architect for the Richard Rogers Partnership's new terminal buildings at Madrid Airport, now nearing completion



Azman comments that the bush-hammered effect is 'ingenious' in the way it hides the city grime and dirt, rendering it highly practical, and not just an aesthetic labour of love.

She is adamant that the Barbican did not influence her own handling of concrete, although it did teach her the value of using material only in the context of purpose. Not that Azman would pass up the opportunity to design something on the Barbican's ferocious scale – but she believes that small can be just as challenging. Azman Owen's successful Islington Courtyard was not intended to be at all 'fortress-like', just 'cosy' and highly intimate. Similarly the current refurbishment of a private house in Chelsea uses concrete in situ 'but on a very simple, understated scale'. 'I'd live in a concrete house,' Azman says frankly, 'cosy, pure, seamless, no bolts, no distractions. I've got quite enough distractions as it is – one less skirting board would be a blessing.'



CONCRETE ELEGANCE

The Concrete Centre, in association with the Building Centre, is to hold a 'Concrete Elegance' series of talks that examine the beauty and aesthetics of concrete structures and buildings. The talks will be given by leading architects, designers and industry figures.

- 19 May** **Spiral dreams**
CRC challenges metal for slimness

- 9 June** **Residential delights**
Elegant concrete houses

- 15 September** **Sculptural inspirations**
Concrete as art

- 20 October** **Prefabricated perfection**
The Bridge of Peace in Seoul

The talks, which are free, will be held at the Building Centre, 26 Store Street, London, from 6.30pm. For further details contact Andrew Scoones, tel: 0207 692 6209, email: events@buildingcentretrust.org, or you may register online at www.concretecentre.com



The **Concrete Centre**™

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Concrete Quarterly is published as a supplement in *The Architects' Journal*.

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London

Strasbourg Housing Competition 1950

Tuesday 9 March, 19.00. A Docomomo lecture by Nick Bullock at The Gallery, 70 Cowcross St, EC1 (020 7253 6624).

Preston Scott Cohen Wednesday 10 March, 18.30. A lecture at the AA, 36 Bedford Sq, WC2 (020 7887 4000).

Jeremy Dixon: Building the Royal Opera House Wednesday 10 March, 18.45. A lecture at the Theatre Museum, Russell St, WC2. Tickets £5. Bookings 020 7943 4804.

Alex de Rijke Wednesday 10 March, 19.00. An Architecture Foundation lecture at the Museum of London, EC2. Details www.architecturefoundation.org.uk

Gordon Cullen & Townscape Thursday 11 March, 18.30. A 20th Century Society lecture by Alan Powers at The Gallery, 70 Cowcross St, EC1. Details 020 7250 3857.

David Adjaye Tuesday 11 March, 19.00. A lecture at the Royal College of Art. Tickets (free) 020 7590 4567.

Between Earth and Sky: Eero Saarinen Until 13 March. An exhibition at the RIBA, 66 Portland Place, W1. Details 020 7580 5533.

Intervening in the European City Tuesday 16 March. A one-day AR conference with speakers including Gunther Domenig, Massimiliano Fuksas and Francine Houben. At the RIBA. Details zoe.phillips@emap.com

AJ Small Projects Award 23 March-24 April. An exhibition at the RIBA, 66 Portland Place, W1 (020 7580 5533).

The Architecture of Jean Renaudie Until 26 March. An exhibition at the AA, 36 Bedford Sq, WC1. Details 020 7887 4000.

Naum Gabo: Gabo and Colour Until 27 March. An exhibition at Annely Juda Fine Art, 23 Dering St, W1. Details 020 7629 7578.

Crystal Palace at Sydenham Until 18 April. An exhibition at Dulwich Picture Gallery, Gallery Rd, SE21. Details 020 8693 5254.

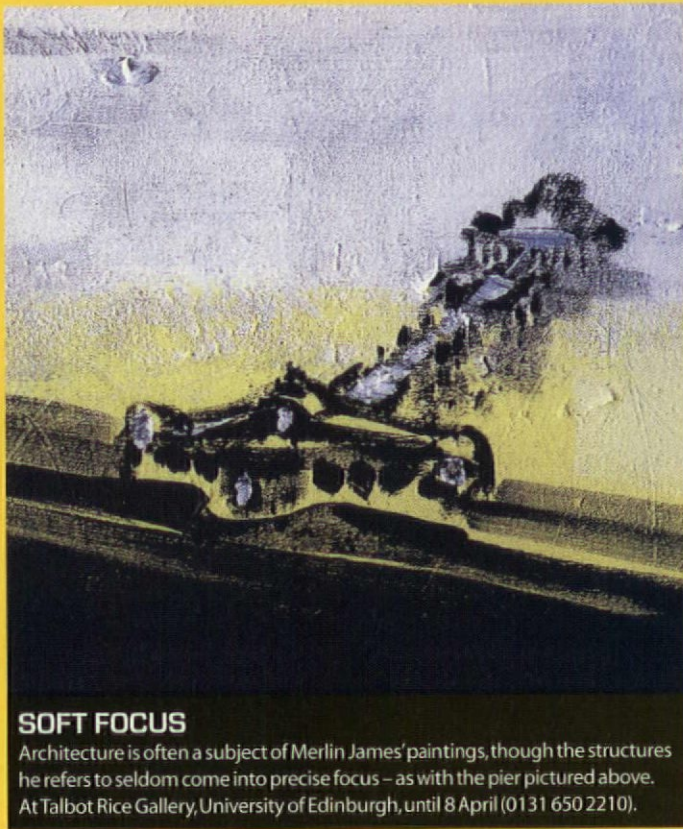
Women in the Workplace 1860-2004 Until 1 May. An exhibition at the Women's Library, LMU, Old Castle St, E1. Details 020 7320 2222.

East

Conservation + Design Show 13-14 March. At the Riding Stables, Hatfield House. Details 01992 504331.

Immaterial: Brancusi, Gabo, Moholy-Nagy Until 14 March. An exhibition at Kettle's Yard, Castle St, Cambridge. Details 01223 352124.

Brick Arches – Repair and Construction Thursday 18 March. A course at Cressing Temple, Essex. Details Pauline Hudspeth 01245 437672.



SOFT FOCUS

Architecture is often a subject of Merlin James' paintings, though the structures he refers to seldom come into precise focus – as with the pier pictured above. At Talbot Rice Gallery, University of Edinburgh, until 8 April (0131 650 2210).

The Possibilities of Architecture:

Archigram 1961-1974 Until 26 April. An exhibition (and some related events) at Nottingham Castle. Details 0115 915 3648.

North West

Best Studio featuring Ian Simpson

Architects; Design Berlin Until 8 March. Two exhibitions at CUBE, 113 Portland St, Manchester. Details 0161 237 5525.

David Adjaye: Asymmetric Chamber Until 8 March. A CUBE exhibition at the Tea Factory, 82 Wood St, Liverpool. Details 0161 237 5525.

Charlie Hussey Thursday 25 March, 19.30. A lecture at St George's Church, Chapel Yard, Friargate, Preston. Details Doug Chadwick 01254 59835.

The Stage of Drawing: Gesture and Act Until 28 March. An exhibition at Tate Liverpool, Albert Dock, Liverpool. Details 0151 702 7402.

Rick Mather Monday 29 March, 19.30. A lecture at Chester College, Parkgate Rd, Chester. Details Mark Kyffin 0161 236 5567.

South

Johanna Gibbons Thursday 11 March, 17.30. A lecture at the School of Architecture, Portland Building, Portland St, Portsmouth. Details 02392 842086.

South East

Victorian Developments in Building

Design Wednesday 10 March. A day school at the Weald & Downland Open Air Museum, Singleton, Chichester. Details 01243 811464.

RIBA CPD Event: Access versus Listed Buildings – Your Design Problems Solved Thursday 11 March, 16.00. At the Copthorne Hotel, Gatwick. Details 01892 515878.

RIBA CPD Event: Planning Supervisor Course 23-25 March. A three-day course at the Copthorne Hotel, Gatwick. Details 01892 515878.

Wessex

Thermae Bath Spa Until 14 March. An exhibition on building the new Bath Spa. At the Architecture Centre, Narrow Quay, Bristol. Details 0117 922 1540.

Visions of the Near Future Until 21 March. An Arnolfini exhibition at L Shed, Bristol Industrial Museum. Details 0117 917 2300.

Working with the CDM Regulations Monday 29 March. A Construction Study Centre course at the Avon Gorge Hotel, Clifton, Bristol. Details 0121 434 3337.

Bill Woodrow & Richard Deacon Until 3 May. An exhibition at the New Art Centre, Roche Court, East Winterslow, Salisbury. Details 01980 862244.

West Midlands

RIBA CPD Event: Production

Information Code Thursday 25 March, 14.00. At Birmingham. Details 0121 233 2321.

David Batchelor Until 28 March. Light sculptures at the Ikon Gallery, Brindleyplace, Birmingham. Details 0121 248 0708.

Getting Ready for Major Changes to the Building Regulations Wednesday 31 March. A Construction Study Centre course at Birmingham. Details 0121 434 3337.

Yorkshire

4x4 Making Places 2004: Masterplan Mania 4, 11, 18 & 25 March, 18.00.

An urban regeneration forum at the Brunswick Building, University of Sheffield. Details Jill Calligan 0113 244 9973.

Eero Saarinen Friday 12 March, 14.30. A lecture by Brian Carter at the School of Civil Engineering, Leeds University. Details 0113 343 2244.

Other Criteria: Sculpture in 20th Century Britain Until 28 March. An exhibition at the Henry Moore Institute, 74 the Headrow, Leeds. Details 0113 234 3158.

Eduardo Chillida Until 20 May. Retrospective exhibition of the Basque sculptor at the Yorkshire Sculpture Park, West Bretton, Wakefield. Details 01924 830302.

Scotland

Han van den Born Thursday 11 March, 17.00. A lecture at Robert Gordon University, Garthdee Rd, Aberdeen. Details 01224 263700.

RIBA Architectural Competitions Until 12 March. At RIAS, 15 Rutland Sq, Edinburgh. Details 0131 229 7545.

Malcolm Fraser Wednesday 17 March, 19.30. A lecture at the Royal Overseas League, 100 Princes St, Edinburgh. Details 0131 659 6058.

Re: Motion – New Movements in Scottish Architecture Until 31 March. An exhibition at The Lighthouse, 11 Mitchell Lane, Glasgow. Details 0141 221 6362.

Wales

Rut Blees Luxemburg 13 March-25 April. Urban photos at Ffotogallery, Turner House Gallery, Plymouth Rd, Penarth. Details 029 2070 8870.

RSAA Small Practice Surgery Series: DDA – The Architect's Role Tuesday 16 March, 16.00, at Plas Dolerw, Newtown; Wednesday 17 March, 12.30, at Llandudno. Details 029 2087 4753.

Information for inclusion should be sent to Andrew Mead at The Architects' Journal at least two weeks before publication.

Inner calm

BARRIE EVANS

Shigeru Ban

By Matilda McQuaid. Phaidon, 2003. 240pp. £45

At a time when architecture as space-planning and form-making is increasingly detached from construction – by a variety of procurement routes and component-based building – the architect-engineer has become a rare breed. Returning to the era of the master builder is seductive for architectural control-freaks everywhere. Not surprisingly, to achieve such control as Shigeru Ban often does, and allow experimentation, his projects are domestic, or at least domestic-scale. There isn't the bureaucracy of the larger job. Even Ban's more major projects read like scaled-up domestic pavilions – as does, say, the Neue Staatsgalerie in Berlin by Mies, who is one of Ban's main acknowledged influences.

Where Ban collaborates with others, they are typically either engineering-minded architects, such as Frei Otto and Renzo

Piano, or architecture-minded engineers, such as Buro Happold and Cecil Balmond.

Covering Ban's work since 1991, this monograph is a mix of serene buildings looking out into the landscape and ones in busy urban settings – buildings of inner calm, all of them displaying a theatrical Minimalism that few of us could live in day to day (or afford). The simplicity of plans, though, does not prohibit a wealth of archi-

Right: deep column-free space in Ban's GC Osaka Building, 2000.
Below: his Curtain Wall House, 1995



tectural invention. Ban is an architect to watch, one who has moved on from his reputation as the cardboard-tube architect. Even when the initial surprise may be an unexpected use of cardboard or woven timber, the buildings are composite structures underneath, with a complex brief shaped by the realities of client programmes and building codes. As Frei Otto says in a foreword, they are not to be understood as scaled-up student models.

Unfortunately, this message did not reach the author. There is reportage here of more than 30 projects but no architectural or engineering insight (except in sections on testing, prepared by others). The author's proposed structure for the book focused on single materials – paper, wood and bamboo – as if that explains something. Ban extended this structure to include prefabrication and skin, to incorporate projects that wouldn't fit this pointless straitjacket.

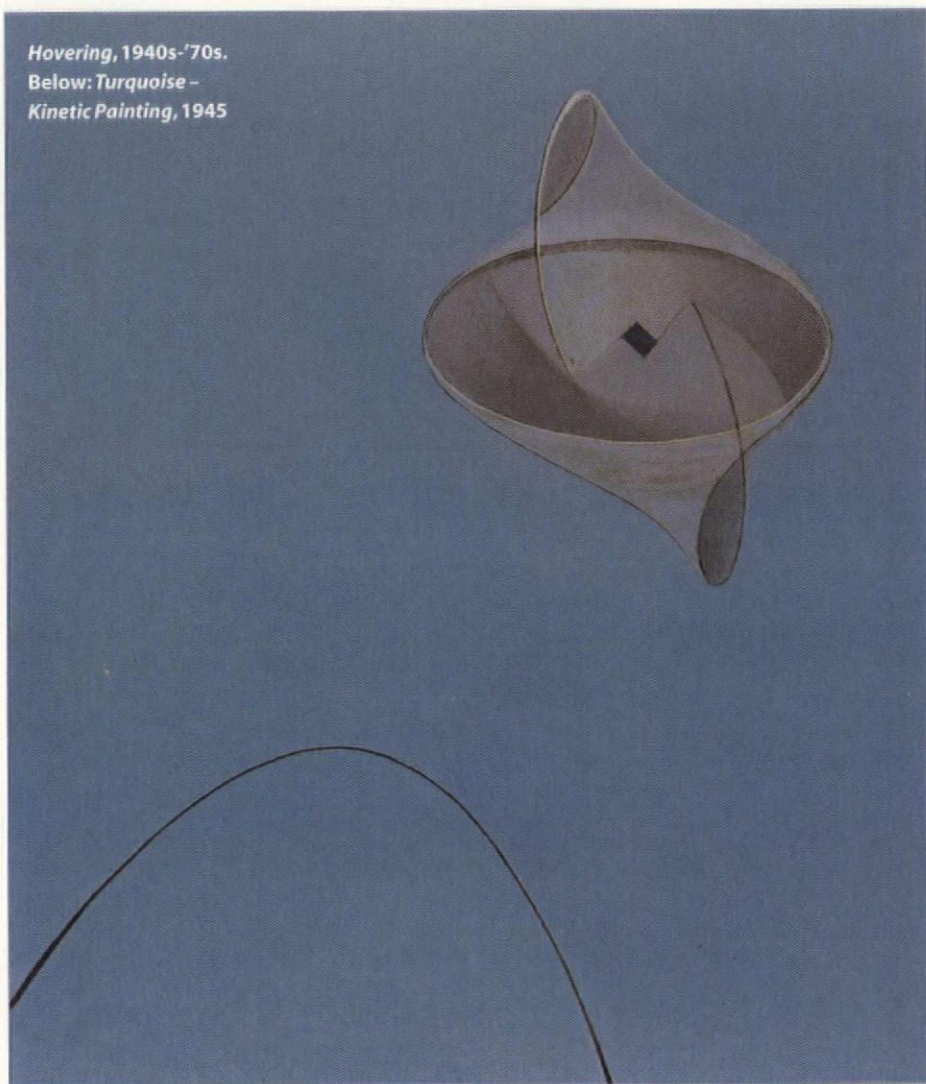
Material textures are very important in Ban's work, but not just of paper, wood and bamboo; for example, he has used steel and polycarbonate inventively for some time. The author's structure, based on the headline-grabbing materials of Ban's past, confirms the 'ideas-free' problem with this book. Thus the GC Osaka Building is in the 'wood' section because its steel frame is fire-protected by 50mm of particle board. But what is evident from the photos, though not from the text, are the spatial possibilities that come from Ban making the envelope of the building a steel vierendeel frame, providing 22m-deep column-free space.

Such shortcomings are a surprise in a Phaidon book. One guesses too that the photographs might have been better selected if the author had something particular to say about Ban. Even so, photographer Hiroyuki Hirai does Ban proud. He should have been credited as an author for his images are the main strength of the book and make it worth our time. There is an interesting combination of the abstract and the sensual in Ban's work – harder-edged than Scandinavian Modernism or traditional Japanese building, more tactile than Mies, and recognisably Ban's own.

Treat this monograph as an interactive, Post-Modern document – take Hirai's images and create your own text.



Hovering, 1940s-'70s.
Below: Turquoise –
Kinetic Painting, 1945



Staying in line

JAMES DUNNETT

Naum Gabo: Gabo and Colour

At Annely Juda Fine Art, 23 Dering Street, London W1, until 27 March

Abstract art tends towards architecture. The work of Naum Gabo, who studied engineering at the Technische Hochschule in Munich rather than fine art, illustrates this well. In his sculptures, immense stringed arrays demarcate space, following the complex curved geometry of their framework: a Constructivism of curves rather than straight lines. The interlocked spiral ramps and oval plan of Lubetkin's Penguin Pool reflect a similar sensibility. Gabo himself tried his hand at architectural design, for example submitting an entry in the Palace of Soviets competition, with curved plan forms roofed by shells. Settled in England from 1936 to 1946, he was one of the editors of *Circle* with Leslie Martin

and Ben Nicholson.

To those whose view of Gabo was shaped by the impressive Tate retrospective in 1976-77, this exhibition will come as something of a surprise. The Tate show, just preceding Gabo's death, displayed a succession of sculptural works of seemingly immaculate execution and natural or neutral colouring. The present show, apart from a single sculpture at its centre – a clear Perspex tower-like work from 1975, reminiscent of Le Corbusier's proposed cruciform

skyscrapers of the 1920s – is devoted to drawings, paintings and monoprints, often highly coloured and roughly executed. They are not a well-known aspect of Gabo's work.

In the *Realist Manifesto* published in Moscow in 1920, the 30-year-old Gabo wrote: 'We renounce colour as a pictorial element... colour is accidental and it has nothing to do with the innermost essence of a thing.' But later he explained that there are two words meaning colour in Russian – *tsvet*, surface colour reflecting light, and *faktura*, the depth of colour absorbing light. He had no quarrel with *faktura*. The colour in these graphic or painterly works can certainly be persuasive and distinctive, as in *Turquoise – Kinetic Painting* (1945) or the mauves of *Enclosed Space* (1968).

Another aspect of the *Realist Manifesto* is more directly illustrated: 'We renounce volume as a pictorial and plastic form of space... Look at our space – what is it if not one continuous depth?... We renounce mass as a sculptural element. It is known to every engineer that the static forces of a solid body and its material strength do not depend on the quantity of the mass... Thus we bring back to sculpture the line as a direction and in it we affirm depth as the one form of space.'

Enclosed Space does not suggest its converse volume, and the *Sketch for a Carving in Stone* (1930) conveys no sense of mass. The reduction of mass was a common 'progressive' theme – found, for instance, in Sant'Elia's Futurist architectural manifesto, and in the writings of Le Corbusier (who nonetheless certainly retained a sense of volume). The meaning of space as 'one continuous depth' is not quite clear, but it may imply the kind of undifferentiated space-as-background within which essentially linear motifs 'hover', as in *Hovering* (1940s-70s), or *Opus 10* (1960s).

Such space came to have a spiritual quality for many abstract artists and can be felt to have had for Gabo. But for those for whom a sense of mass lies at the root of sculpture, this mass-less sculpture is somewhat frustrating and hard to grasp emotionally. Perhaps the graphic media, with their essential linearity, did in fact suit Gabo's sensibility particularly well. You do not feel that the works in this exhibition are a tentative sideline.

James Dunnett is an architect in London





Gavin Scobie: Tyrebagger Circle

Off B979 to Inverurie, Nr Kirkton of Skene, Aberdeenshire

Gavin Scobie's *Tyrebagger Circle* is the 20th sculpture to be installed at Sculpture at Tyrebagger, a series of contemporary artworks specially commissioned for an area of Kirkhill Forest and the adjacent Elrick Hill, 10km outside Aberdeen, writes *Susanna Hastilow*. The contrasting landscapes of enveloping forest and open heathland share a geographical location with a long history of human presence. The ancient standing stones that punctuate the area and the distant city, visible from the hill, provide a unifying theme for the varied and thought-provoking sculptures – the meeting of culture and nature.

An area of dense, informal woodland offered Scobie a quiet and contemplative site. He drew upon the memory of a house that he discovered

deep in a forest in the north of Scotland and sought to recreate the sense of surprise and secrecy that he felt at the time. Screened by the trees, his sculpture remains hidden until you are opposite the entrance.

The work consists of three concentric fences of Scots pine, each progressively higher and denser towards the centre. You enter through a gateway and travel round to the far side of the structure. Here a wooden walkway leads across the middle space, through a narrow opening and into a decked inner circle. The inner fence, 5m in diameter, is above head-height and frames a circular view of the treetops above. The ultimate progression is upwards as your gaze is drawn towards the sky. Scobie likens the exploration of his work to a kind of procession.

The slit-like entrance to the inner space increases the feeling of privacy, while three simple benches invite contemplation of nature. The sculpture offers an experience that changes with the surrounding environment, as seasons pass, wood mellows and trees grow.

Scobie planned the work in minute detail on computer, and construction was carried out by craftsmen from Forest Enterprise. This was a departure from his usual practice, for he normally carries out all stages of a work himself, allowing the design to emerge in the making.

The arrangement and detailing of the outer

fences was influenced by Japanese frame-built architecture, in particular the enclosures of Shinto shrines; the distinctive gateway suggesting a ceremonial purpose. The idea of the circle developed from Scobie's interest in Greek theatres as well as from earlier gallery pieces. In 1996 he exhibited two works, *Cedar Circle* and *Fir Circle*, where chair-like forms were linked by large wooden rings.

Much of Scobie's work refers to the human figure in some way – its scale, the way it moves, or its implied presence. *Tyrebagger Circle* takes these ideas further, creating a space for actual people to inhabit. Scobie describes it as a sculpture about architecture, whereas some contemporary architecture seems, to him, to be architecture about sculpture.

Susanna Hastilow is a freelance consultant in museum and gallery education. Website www.tyrebagger.org.uk



Warwickshire Vacancy

Architectural Technician
Vac Ref 0403-3

Permanent / Contract

My client based in Leamington Spa specialises in the residential sector and is now seeking a Technician with a minimum of 2-3 years practice experience (preferably in the housing sector) to join their existing team. Good knowledge of current UK building regulations and AutoCAD is essential and the successful candidate will be expected to work with minimal or no supervision. This is a great opportunity to join a small, but expanding practice.

Birmingham Vacancies

Architectural Technician
Vac Ref 0402-75

Permanent

My client is seeking an Architectural Technician with 4 or more years experience gained in the Commercial and Industrial sectors or the Conservation and Refurbishment markets. In addition you will be fully conversant with Building Regulations and AutoCAD. This practice currently has a very big workload, and can offer an exciting variety of projects for the successful applicant.

Architectural Technicians
Vac Ref 0402-73

Permanent / Contract

This large Corporate Architectural Practice is seeking Architectural Technicians with at least 2 years professional experience. Good CAD knowledge is required along with experience in the Healthcare sector of architecture. The role will involve sourcing technical information, Health and Safety Assessments, preparing tender reports and recommendations, carrying out measured surveys, implementing and working to Quality Management procedures and liaising with team members and clients. This is a good opportunity for a young but highly professional individual.

Architect / Technician
Vac Ref 0403-4

Permanent

My client is a multi-site practice with an enviable reputation gained across a number of sectors; they are now seeking a permanent Architectural Technician or Architect, with excellent AutoCAD skills and the ability to run jobs. Ideally you will have a background in the Retail sector, but this is not essential as the client is happy to cross-train from other sectors. This is a good opportunity to join a leading UK based Architectural Practice.

North West Vacancies

Architectural Technician
Vac Ref 0402-78

Permanent / Contract

This Preston based practice is seeking an experienced architectural technician to work on a £3 million country house conversion project. Experience within conservation architecture would be a bonus but experience in all sectors will be considered. More importantly the candidate will have the ability to detail construction drawings with AutoCAD and knowledge of UK building regulations.

Architectural Technician
Vac Ref 0402-54

Permanent

A planning and design consultancy is seeking an architectural technician to work from their Manchester based office. The practice currently supports a number of the major house builders on luxury housing and apartment developments, and experience within this sector would be a bonus. AutoCAD skill is essential along with the ability to produce detailed drawings with minimum supervision.

Architect / Technician
Vac Ref 0402-28

Permanent

A large prestigious client based in Warrington is seeking Assistant level or Qualified Architects to work on a variety of interesting projects in the North West. The appointed candidates will be required to liaise with clients and undertake regular site visits. The ideal candidate should be IT literate and be proficient in the use of AutoCAD 2000, have strong interpersonal skills and be able to work with the minimum of supervision.



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PERMANENT POSITIONS – Matt or Faye

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MH0402-233 - Architectural Technologist - London - £26,000

Can you contribute effectively in a team environment? Large commercial practice requires highly AutoCAD proficient technologist to work in a small team. Expect your construction detailing skills to progress dramatically. Fantastic office atmosphere.

FB0402-227	CAD Tech (Commercial)	Bedford	£23,000
FB0402-231	Arch Technologist	Reading	£26,000
MH0402-234	Technical Manager (Res)	West London	£45,000 + bens
MH0402-111	Technical Coordinator	North London	£29,000 + bens

CONTRACT POSITIONS – Alex or Charmaine

CGR0402-209 - Architectural Technician - Cambridge - £16ph

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AD0402-67 - Vectorworks Technician - Surrey - £15ph

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CGR0402-107	CAD Technician (Leisure)	East Sussex	£17ph
CGR0401-255	Tech Design Assistant (Res)/N Kent		£16ph
AD0402-210	AutoCAD Technician (Res) Surrey		£13ph
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Ref:ASH27/02.

Architectural Technician **Wolverhampton** **£28,000**

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Ref:ASH27/03

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Architect - Central London - To £30k pa

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Ref: 0256

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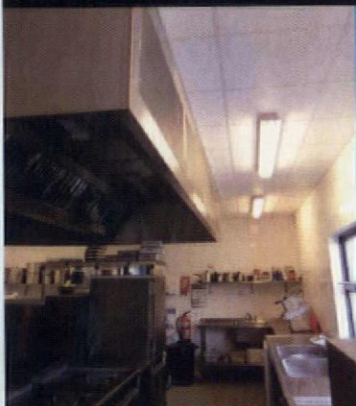
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BRITISH GYPSUM

AJ ENQUIRY NO: 301



A new biocide active ceiling tile looks set to become the latest weapon against MRSA and other airborne viruses and bacteria. The new Arteco Gyprex BIO ceiling tile is based on the standard 60mm x 60mm Gyprex tile, already widely used in hygiene-critical areas of hospitals. It can be fitted quickly and easily into an existing suspended ceiling grid with minimal disruption to routine.

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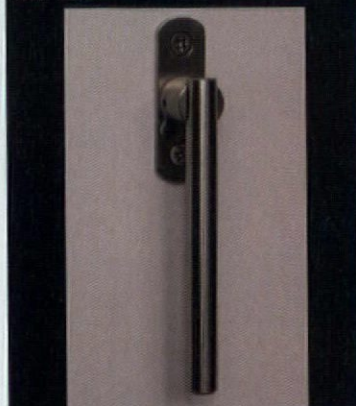
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From 1st February 2004, the new GALANT control panel will be available to security installers from leading control panel manufacturer Ademco Microtech, now known as Honeywell Security. The Galant is a 12-zone panel expandable up to 36 zones making it suitable for commercial as well as residential installations. It is available with hard-wire or wireless systems.

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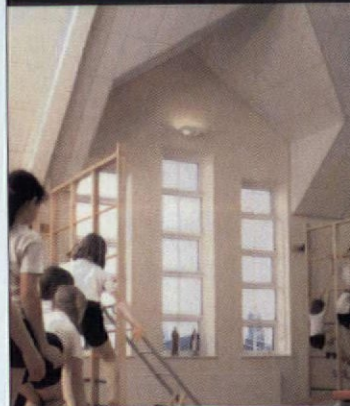
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With window security being of paramount importance HAF has designed a lockable window fastener without compromising aesthetics of the product. The Modis European fastener is manufactured in solid stainless steel and is suitable for opening windows to operate a concealed espagollette bolt. A catalogue is available from www.hafinternational.com.

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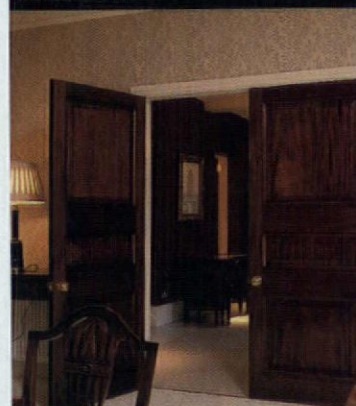
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British Gypsum has published a paper 'Improving Speech Clarity in Classrooms'. The paper explains in simple terms how reverberation times are affected by room design, layout and internal finishes, and how speech clarity can be adjusted by careful specification of ceiling and room linings. Copies of the paper are available by calling 08705456123.

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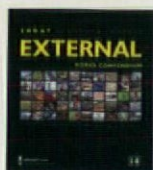
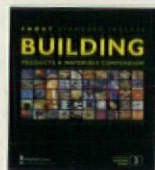
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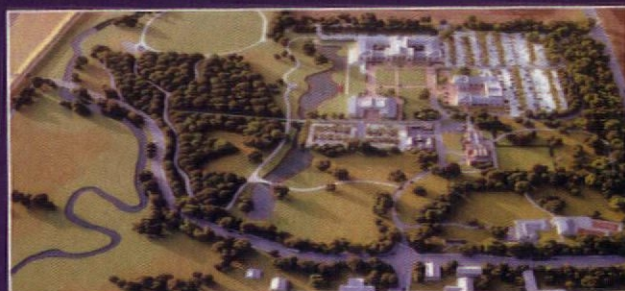
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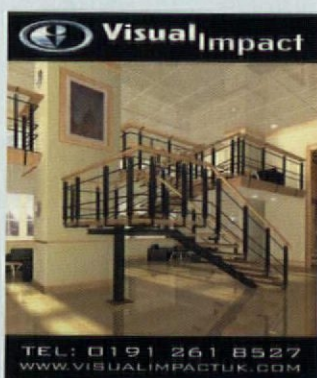


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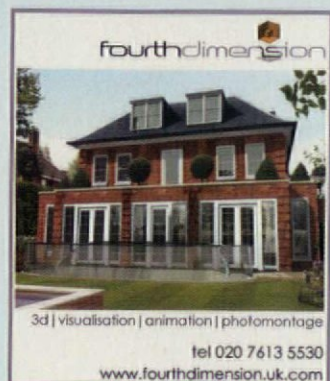
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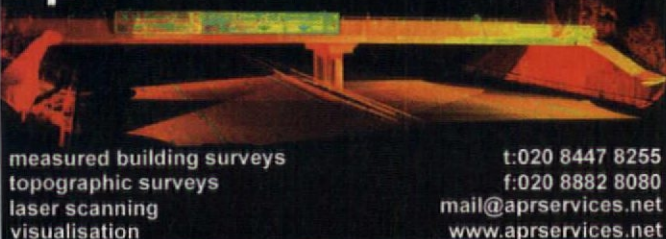
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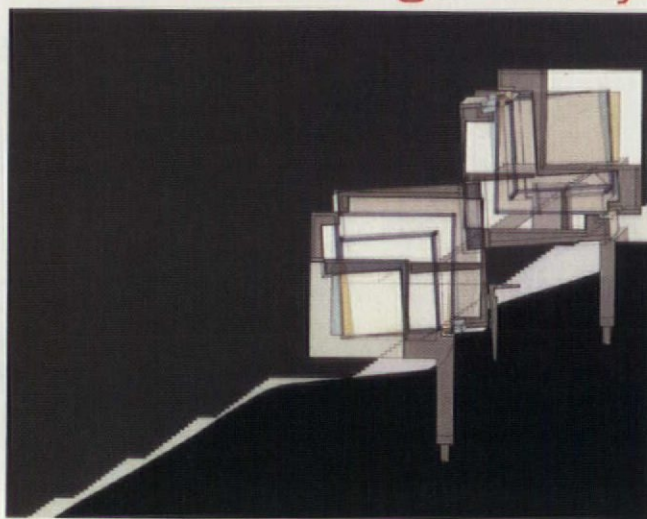
Cannes do

Those architects with strong nerves and stronger livers are preparing themselves for the jamboree that is **Mipim**, the great property exhibition held in Cannes each year. Attendance numbers are growing as the advantages of networking with potential clients from the business world become increasingly attractive to practices across the design spectrum. There is a familiarity about this event that allows the following predictions: (i) the Mayor of Cannes will announce that due to the traffic congestion generated by the show, there are doubts that it can continue in Cannes. He says this every year. He doesn't mean it; (ii) several architects will express shock at the hedonistic nature of the show and its attendant partying. Expect them to get over it, and return next year; (iii) several hundred chartered surveyors, having previously resolved not to stay up swilling lager in the Martinez Hotel booze tent, give it a go anyway. Every night; (iv) frequent visitor mayor **Ken Livingstone** declares his continuing love affair with the property industry, the importance of property to London as a world financial centre, and the further indisputable fact that the only thing more important than property is himself; (v) somebody will try to steal one of the buildings featured on Pipers' magnificent London model, centrepiece of the London stand; (vi) once again, more alcohol will be consumed, and more money spent, than at the Cannes Film Festival. What downturn?

Life of Bryan

A package arrives from Switzerland with two stylish books by Bryan Thurston, *Module 1* and *Module 2* – their titles a tribute to his hero Le Corbusier. Born in Suffolk, Thurston worked for YRM in the 1950s and then moved to Switzerland, where he has built some Brutalist-looking houses and schools while turning out designs for everything from London's South Bank to the World

the ones that got away



Astragal's 'The Ones That Got Away' competition features schemes that, for better or worse, stayed on the drawing board. Can you identify this project and its architect? Post your entry, to arrive by first thing Monday morning, to AJ Astragal, 151 Rosebery Avenue, London EC1R 4GB, or fax 020 7505 6701. The first correct entry to be pulled out of the hat wins a bottle of champagne. The never-built scheme in last week's competition (AJ 26.2.04) was Hawksmoor's proposed Baptistry for St Paul's Cathedral. Martyn Roe, of Hastings, was the winner.

Trade Center. As a taxonomist, Thurston rivals Charlie Jencks, producing one timeline that begins with Silbury Hill and Maiden Castle, proceeds via Alberti, Bernini, Loos, Wright and Le Corbusier, to conclude with – yes – **Bryan Cyril Thurston**. But he includes far more material on the architects he admires than on himself, and leavens the mixture with photographs of his favourite mountains, some family snaps, and a generous selection of his 'ballads'; for Thurston is a bit of a poet. If this all sounds something of a mixed bag, the books are surprisingly unified and elegant. They're available at RIBA bookshops and Triangle at the AA, while for details of his four-volume *oeuvre complète*, visit www.bryan-thurston.ch

Red-faced

The University of Liverpool faces a piquant dilemma over its choice of colour – pillar-box red – for the front door to 19 Abercromby Square, a listed property that was formerly the Bishop's Palace and later the US Confederate Embassy during the American

Civil War. It seems that when the university's communications department set up shop there last year, instructions were given for the doors to be painted the said colour. Alas, no listed building consent was sought or given – which might mean another coat of paint to bring the door back to its original hue. This would be slightly embarrassing, since the chairman of the university's centenary appeal, **Sir Neil Cossons**, is, of course, chairman of English Heritage.

Brain transplant

My old friend **Richard Weston** has a new post to add to his professorship at the Welsh School of Architecture: he is to succeed former AJ editor **Peter Carolin** as editor of *arq*, or *architectural research quarterly* as it is more prosaically called. The journal has won plaudits since its launch in 1996, both for its content and its design, and is a genuinely interesting publication for non-academics. Carolin comments that the Welsh School excelled in the 2001 Research

Assessment Exercise and will provide a distinguished new home for *arq*; Cambridge, of course, did not excel, dropping a point from 5 to 4, and has lost its diploma school as a result. It has, however, hosted the development of a high-quality publication, the current edition featuring: an examination of Tony Fretton's Warsaw embassy; an essay by Andrew Saint on Frank Lloyd Wright and his favourite builder, Paul Mueller; a review of the 1980 Federal Parliament House in Canberra by MGT; and a fine obituary of Cedric Price. Try it for yourself.

View reviewed

CABE's design review committee launched its annual publication with a nice party in Tower 42, the City of London's vertical landmark, better (if inaccurately) known as the NatWest Tower. Some of the guests were surprised at the number of schemes on which CABE comments these days which, as design review director **Peter Stewart** pointed out, runs to between 600 and 700 a year, though only up to 100 get a formal full-monty review. The magnificent view allowed guests to inspect progress on Moor House, the Foster scheme designed by his now ex-director **Ken Shuttleworth**, who takes over the CABE committee in April. It was promptly renamed 'Less is Moor House'.

Rave on

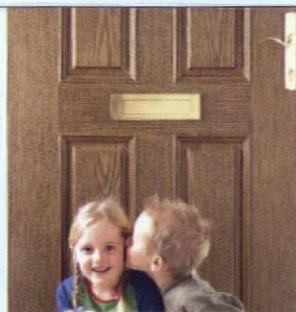
People who 'not only inspire us but are changing our culture' are celebrated later this month by *Wired* magazine's 'Rave Awards'. Shortlisted in the architectural category are: **Herzog & de Meuron** for Prada Tokyo; **Norman Foster** for Swiss Re; **Jeanne Gang** of Studio Gang for the Starlight Theatre, Rockford, Illinois; **Frank Gehry** for the Walt Disney Concert Hall in LA; and **Zaha Hadid** for the Cincinnati Centre for Contemporary Art. Results are printed on 15 March. Given that Rem Koolhaas thinks the Prada scheme represents a 'dysfunctional masterpiece', it seems a shoe-in.

astragal

METAL TECHNOLOGY

AJ ENQUIRY NO: 201

Metal Technology, one of the UK's leading independent architectural aluminium systems companies, has developed a new polyamide tilt-and-turn suite to complement its successful 420 casement window. Fully compliant with Document L, the new 520 thermally broken window has also been value-engineered to offer slim sightlines (from 45mm) while minimising the need for expensive glazing options to achieve stipulated U-values. Glass units of up to 32mm can be incorporated, which can assist with acoustic requirements.



HANSENGROUP

AJ ENQUIRY NO: 202

Steel doors play a vital role in providing security for both buildings and personnel, and AccentHansen has introduced a technical advisory service that covers all aspects of its products.

The company has one of the widest certified product ranges within the industry, manufacturing fire, acoustic and security doors at its Manchester base. AccentHansen is able to supply technical specifications and documentation. For literature or assistance on a specific project, call 0161 284 4100 or email sales@accenthansen.co.uk



WILSONART INTERNATIONAL

AJ ENQUIRY NO: 203

Worktop manufacturer and high-pressure laminate supplier Wilsonart has continued its investment in plant and equipment with the purchase of seven new fork-lifts from Lansing Linde for its site in Shildon, County Durham. The equipment includes two high-mast and two standard mast lifts, each with a load capacity of 3 tonnes; plus a heavyweight lift with an impressive 7-tonne capacity.



EUROCLAD

AJ ENQUIRY NO: 204

Euroclad's Euroseam 400 standing-seam roofing in Glen Green was specified for the refurbishment of the South Devon Tennis Centre near Ivybridge. The roof had to be visually sympathetic with the surrounding environment. In total more than 3,200m² of curved sheeting were installed, together with the company's 32/1000 linear tray around it.



CAPITAL MARBLE DESIGN

AJ ENQUIRY NO: 205

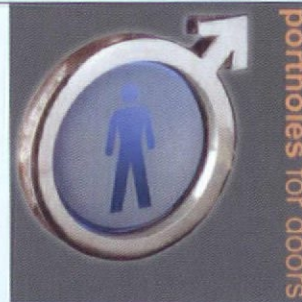
The Pietra Naturali Range available from Capital Marble Design is similar to natural stone but with the durability and ease of maintenance associated with porcelain. Larger sizes of 600 x 300mm and 600 x 600mm are now available along with many other 'earthy' colours and a new rustic mosaic to complement the range. It is ideal for both commercial and private contracts. Projects include the Nicole Farhi concession at Selfridges and Barola Café.



PHILIP WATTS DESIGN

AJ ENQUIRY NO: 206

Philip Watts Design now manufactures 25 different porthole kits for doors, ranging from signage panels to high-specification fire-rated stainless steel. All kits come complete with glazing and are remarkably simple to install. It also undertakes major interior projects, providing everything from bespoke balustrading to sculptural cast aluminium spiral and spinal staircases. Tel 0115 947 4809, fax 0115 947 5828, email sales@philipwattsdesign.com, or visit www.philipwattsdesign.com



portholes for doors

ARDEX

AJ ENQUIRY NO: 207

Ardex UK, a name synonymous with the development and manufacture of specialist building materials for the tiling and flooring industries, will make its debut at the Natural Stone Show 2004, Stand C1, held at ExCel, Docklands on 9-11 March. In order to meet the stringent demands of the fast-growing natural stone industry, Ardex has developed new adhesives and grouts which will further aid the installation of natural stones on walls and floors.



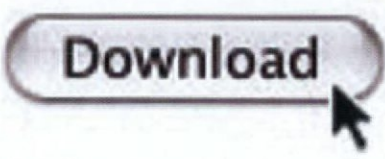
HOLLAENDER RAINER

AJ ENQUIRY NO: 208

When quality finishing touches were required for the recently reconstructed Parkway Bridge in Newbury, designers turned to Hollaender Rainer, market leader in maintenance-free handrailing systems. The bridge, which occupies a picturesque position over the Kennet & Avon Canal, was transformed with the addition of white powder-coated aluminium tube handrailing spanning its full width. The handrail's unique, contemporary design, incorporating elaborate waves and curves, posed no problems for Hollaender Rainer.



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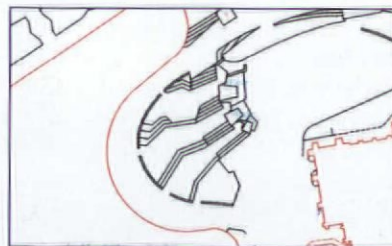
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