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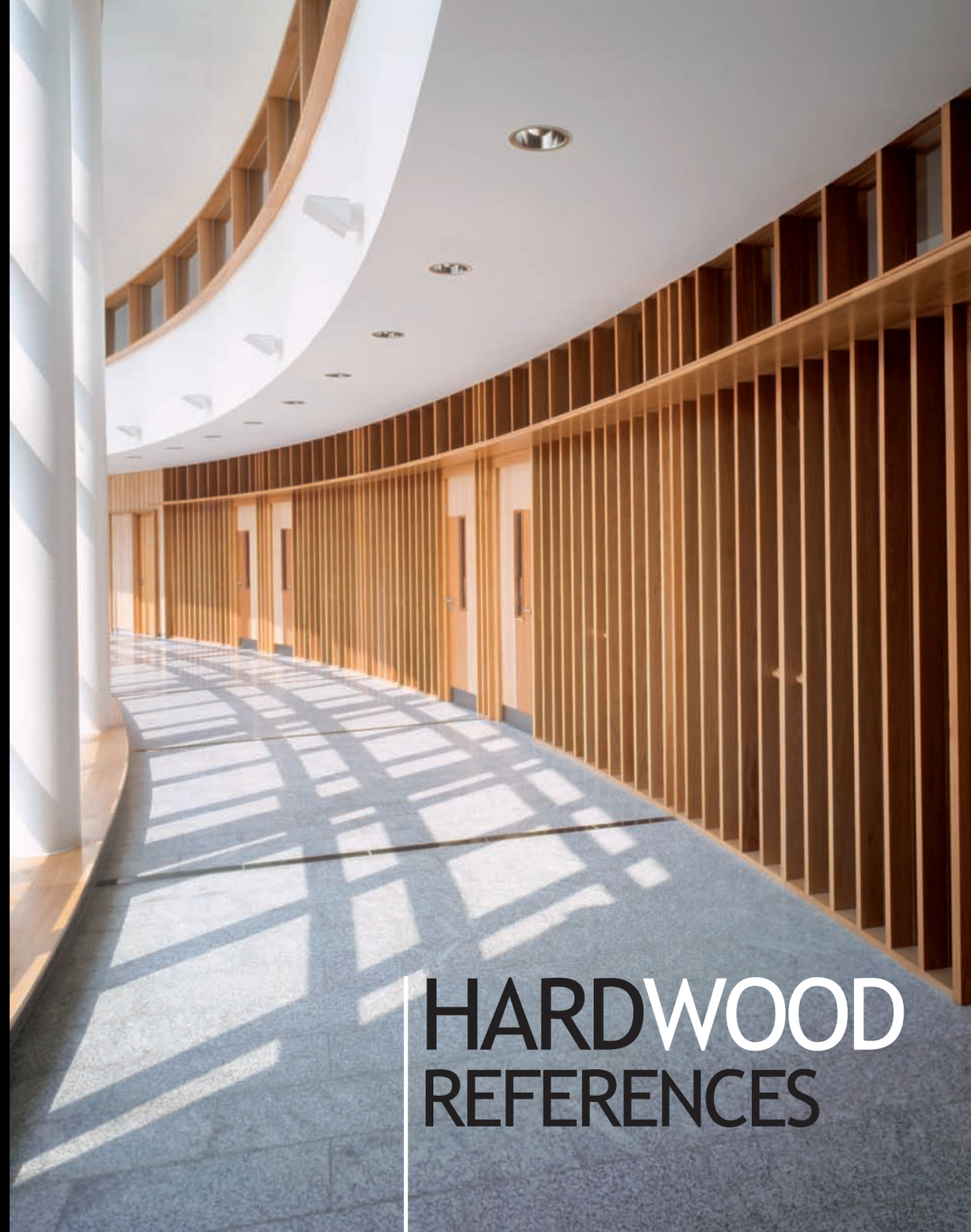
AMERICAN HARDWOOD EXPORT COUNCIL



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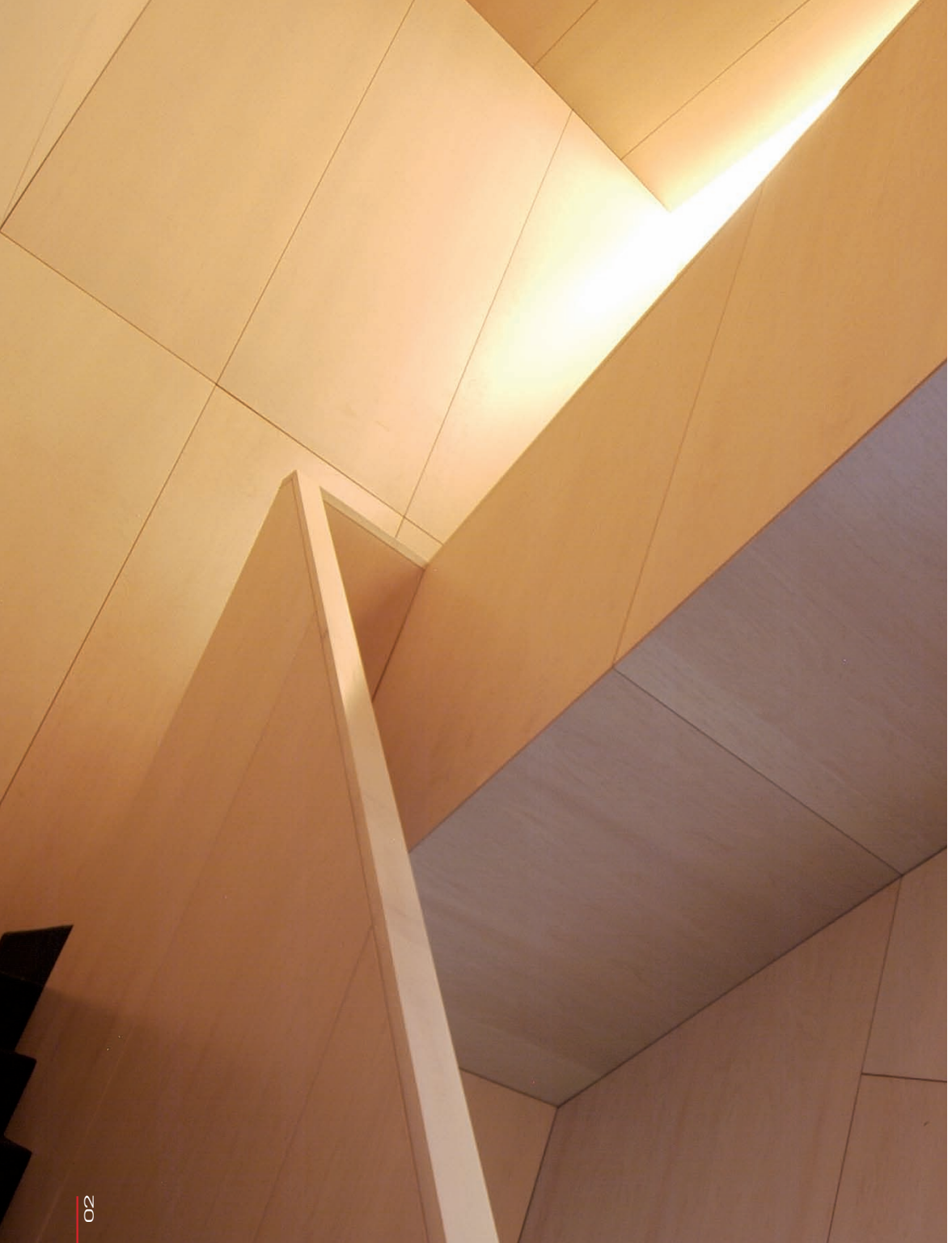

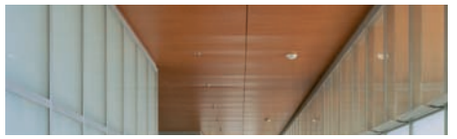

Cherry
Deep reddish colour. Fine, uniform straight grain. Easy to machine. Smooth finish when sanded, stained and polished. Uses include high-end furniture, joinery, flooring.

Maple - hard
Cream coloured sap wood, brown heartwood. Can have highly figured grain. Good strength properties, especially hardness and resistance to abrasion and wear. Excellent finishing. Uses include flooring, furniture, panelling, interior joinery.

Maple – soft
Similar colour and grain to hard maple. Excellent machining and finishing properties, widely available in a range of specifications. Uses include flooring, furniture, panelling, interior joinery.

Ash
Pale yellow colour. Excellent strength/weight ratio. Steam bends easily. Machines well. Good nailing, screwing and gluing. Stains easily and evenly. Uses include interior joinery and furniture, structural uses.

Tulipwood
Creamy white sapwood and occasional dark heartwood. Machines easily. Minimal movement. Takes paint, enamel and stains well. Uses include furniture, interior joinery, light construction, structural.

Red oak
Similar appearance to white oak but with a slight reddish- brown hue. Stains well. Most widely available species across the USA. Uses include flooring, furniture, cabinetry, joinery, doors etc, structural.

Black walnut
Rich dark colour. Works and finishes easily. Good dimensional stability.
Uses include flooring, furniture, joinery.

White oak
Hard and heavy but finishes well for interior applications. Long, straight grain. Durable.
Uses include furniture, all interior joinery, structural.

GRAPHIC DESIGN: THE PLAN EDITIONS

Introduction

In the last few years in Europe we have witnessed significant changes in attitudes to wood and how it is used. The result is a widespread increase in the use of wood in building. Research shows that many European architects now see wood as an essential element of their "palette" of materials and very much as a modern material. This change in attitude is summed up by Ruth Slavid, architectural journalist and author of Wood Architecture, who observes: "Wood is no longer the sole preserve of the traditionalist, but has an important role to play in the contemporary world."

Wood has a number of major advantages over other building materials; firstly it is renewable. How many other building materials can make that claim? Secondly, it performs. It is a natural insulator, has good acoustic properties, a high strength to weight ratio and has flexibility and workability. Of course wood is not one homogenous material, as there are many different wood species. The versatility of all these species opens up many design possibilities. However, such choice also provides a challenge to any potential specifier. An understanding of wood as a material is essential for making the right choice of species or product to achieve successful designs.

New attitudes towards wood have certainly given a boost to hardwood consumption in building in Europe. Temperate hardwoods in particular have grown in importance in recent years and are currently very fashionable, with North American hardwoods playing a key role in this mix. Why? Well in a nutshell: they are sustainable, available and they perform.

How better to show their performance than by referencing their use. This publication illustrates twelve recent examples of how hardwoods have successfully worked to provide both form and function in building design. We hope you will also be inspired by this oldest but newest of materials!

David Venables, European Director
American Hardwood Export Council (AHEC)

Editorial

The use of wood in European architecture – from homes and offices to performance spaces and public buildings – continues to rise. Structurally, it is a strong, flexible material that gives designers the ability to realise the most visually extravagant dreams. It also lends a craftsmanship and level of detail to finished buildings that is hard to rival. In short, wood can turn an ordinary interior into something quite extraordinary, as demonstrated here.

The buildings featured in this brochure have been chosen to give readers an idea of the rich variety of uses for hardwoods, from American black cherry and white oak, to European maple and American white ash. The building types are diverse from the headquarters of a watchmaker and a car leasing firm to an airport lounge and a small financial 'city'.

Perhaps not surprisingly (given the well-known acoustic qualities of wood) four of the twelve projects featured are performance spaces. At the Sage performing arts centre, in Gateshead, Foster and Partners specified American white ash for the main hall for a variety of reasons: it is a readily available, highly sustainable hardwood that also has a depth of colour. Not only that, it is hard and resilient, yet machines well and is available in long lengths. Gnosis Architettura and Alessandro Castagnaro chose American black cherry and American white oak for their mechanical and physical properties to achieve continuity – both spatial and acoustic – in the restoration of a 1963 building (which includes an auditorium) for media company RAI in Naples. And it is not just the performance spaces that benefit from the use of wood. In Copenhagen, Henning Larsen's Opera House resonates across the harbour; a result of reflections not from the glass façade, but from the stained maple panels that create the curved outer walls of the main auditorium within.

Feast your eyes on some of the most successful uses of hardwood in European architecture today.

By Nicola Jackson, a freelance architectural writer

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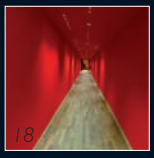


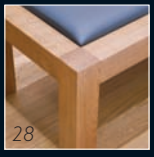

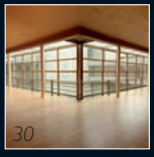

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Front cover: Marine Institute, Galway by OPW, Dublin
Inside front cover: Castellón Auditorium, Castellón by Carlos Ferrater, Barcelona

Vacheron Constantin HQ
Geneva, Switzerland

SPECIES:
American black cherry and maple

ARCHITECT:
Bernard Tschumi urbanistes Architectes (BTuA)

PHOTOGRAPHY:
BTuA
Gitty Daragar

The oldest watch manufacturer in the world has never stopped using its imagination, innovating and drawing its inspiration from a tradition of excellence. This concern for research and perfection is the invisible signature of the master watchmakers at Vacheron Constantin. So it was in this spirit that the design for the new factory was created by Bernard Tschumi urbanistes Architectes (BTuA). Great care was taken both in the finish and in the choice of materials. The result is an alliance of American cherry and stainless steel, a true reflection of the perfection and quality of the company's products.

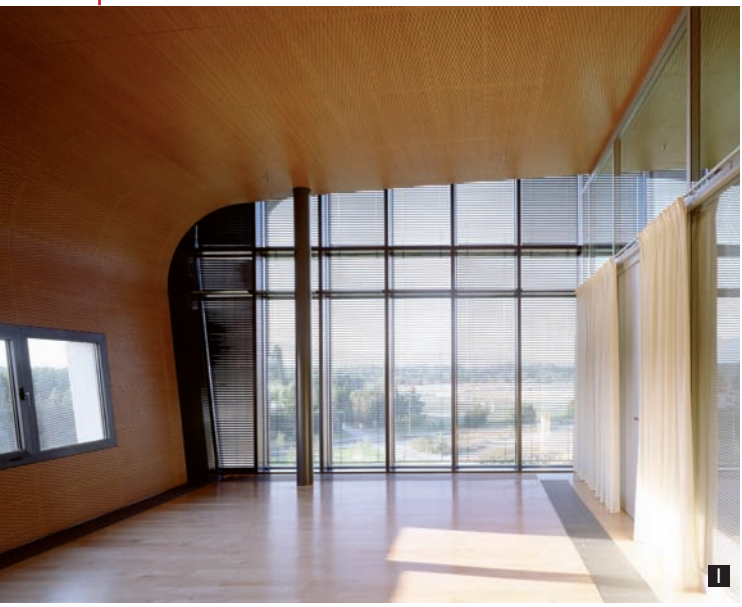
The concept is based on an envelope with stainless steel on the outside and wood, American cherry, on the inside. The building is set in landscaped parkland. The fold and shape of the outside is precise and purposeful with wood used to make the interior warm and welcoming. The building is not closed in on itself, as it allows abundant light to flow in from the north and filtered light from the south. Light effects, filtration, reflections of glass and steel, wood and concrete, repeat continuously to provide an interior landscape of great variety and contrast. The atrium linking the building's five storeys is entirely glass so light pours into this space, enhanced by the rich red colour of the

1 *Cherry flooring blends into cherry panelling*

2 *Cherry ceiling contrasts with steel and glass*

3 *Hardwood provides a distant perspective*

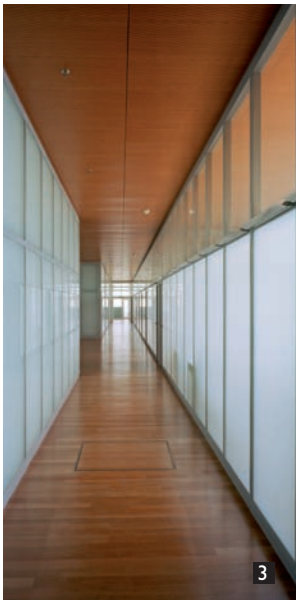
4 *Stainless steel and wood forms the basis of the architectural concept*



American black cherry finishing. The reflections of light provide a sense of depth and richness as the light travels downwards passing through the oblong bays. Skylights and light-filled patios illuminate the working areas, which have wood ceilings and floors all in controlled atmospheric conditions to create a comfortable but precise working environment, necessary for this level of skilled craftsmanship.

The selection process of the finishing materials was rigorous, as the designers sought to specify those materials that both met the company's requirements and reflected its prestigious image. The stainless steel exterior is both luminous and austere. The interior, in contrast, is warm, deep and textured. The designers decided upon American cherry for its grain, and for its intense colour. In the upper storeys maple is used for the office flooring. The wood interiors have been finished in several different ways, including a natural oiled finish to the joinery in the reception hall and showroom. Removable floors were installed in the technical areas. But the most striking feature is that the American cherry flooring blends into the cherry panelling on the walls, which extend to the ceiling, equipped with veneered acoustic panels that run through the whole building. Solid wide board American cherry flooring has been used in the reception area with an oiled finish, whereas in the observation area

“The selection of American cherry inspired the original design. It defined the interior spaces, providing comfort and warmth”



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an engineered strip parquet floor, also in cherry, covering 2,000m^2. At the end of the assembly section the floor curves and a wave of cherry bends upwards along the wall and becomes the ceiling. In total, the wood and steel combination extends over an area of 10,000m^2. On the upper floors, in the office areas, removable maple floors were also installed to allow for network access. According to the architects, American cherry was selected because of its extensive environmental credentials. While the choice of stainless steel and wood forms the basis of the architectural concept, wood was a perfect choice because it is both recyclable and renewable.

By Isabelle Guitet, IC.COM and David Venables, AHEC

1 *White oak flooring complements existing frame*

2 *Iroko doors and birch ply in contrast*

3 *White oak floor meets European oak stair*

“Simon Conder draws heavily on American white oak as a material that he has learned to trust. “It’s consistent in grain” he says “and has tremendous warmth”

Simon Conder, an architect of twenty years standing, is one whose career spans two distinct generations of a profession working in a world of changing values. Not least of these is the progression from some of the energy-rich “devil may care” designers of the 80s and 90s to those now obsessed by the need to produce “sustainable” buildings for this millennium. For more than ten years Conder’s sustainable designs have been incorporating the extensive use of wood in buildings that are now winning awards.

His work is varied; from larger scale projects such as laboratories, apartments and community centres, to a small award-winning black rubber beach house. His projects range from the new (Sheldon Medical Practice) to conversions of old buildings (Pinions Barn). He has worked in Denmark, Japan and Hawaii and his commissions have included Germany. The practice, which started in 1984, has won well over twenty awards – including the Gold Award of the Wood Awards in 2005 for Pinions Barn – having been Highly Commended the previous year with its Dungeness beach house. Simon Conder Associates is now renowned for the meticulous way it creates places that are calm, reflective and entirely specific to the people using them. Simon Conder draws heavily on American white oak as a material that he has

SPECIES:
American white oak, European birch and oak

ARCHITECT:
Simon Conder Associates

PHOTOGRAPHY:
Tessa Musgrave
Courtesy of Wood Awards 2005

Pinions Barn, UK

3

learned to trust. "It's consistent in grain," he says, "and has tremendous warmth." He also likes the predictability of its yield, or waste, so that costs can be more easily predicted than with some other hardwoods. But most important is the fact that, "it is easy to work with and is stable and doesn't move," he confidently states. And that says a great deal about his understanding of the materials he works with in buildings that for him must be sustainable.

All wood can move, so the fact that Simon Conder pays the necessary attention to the detail of such elements as ambient and hardwood moisture content, gives testament to his formula for success – at least as far as the installation of materials is concerned. He also works with installers of the highest standards, never more evident than in his successful Pinions Barn – using iroko, birch plywood, American and European oak, which won the 2005 Gold Award of the Wood Awards – recognising quality of design, workmanship and installation. To quote the awards supplement, the judges felt the details were executed in an extremely effective way. "This is a very high quality, very fashionable conversion, extremely well carried through."

By Michael Buckley, World Hardwoods

Marine Institute, Galway, Ireland

SPECIES:
American white oak, maple, ash, red elm, beech and iroko

ARCHITECT:
Office of Public Works, Dublin

PHOTOGRAPHY:
Richard Davies

It's a wonder that anyone at the new headquarters of Ireland's Marine Institute does any work. Situated on a headland in Galway Bay near the village of Oranmore, the building looks out to the cool waters of the Atlantic, where the seascape is broken by the shape of islands, and to the left and right of the bay, mountains sweep down to the water. "It's an ideal spot," said Ciaran O'Connor, the Office of Public Works' assistant principal architect, who led the design team. However, inside there is just as much to captivate. Everywhere you look, O'Connor and his team have countered the clinical environment of a research facility with the warmth and texture of wood. Of the many reasons for using wood, O'Connor cites its ecological credentials first, but says, "the primary reason is its ease of use and flexibility in terms of shaping, moulding, and that it can be used for so many effects". And it has certainly been used to good effect – from the floors, doors and windows, to panelling, furniture and ceilings – hardwood is always part of the internal view. In all, more than 50 containers of sustainably managed tropical and temperate hardwoods were used in this project. The building, a concrete block and steel construction, comprises a half crescent, which mirrors the curve of the bay, while behind there are the rectilinear laboratories, from where the scientists can also enjoy the views. "It's a combination of a very rational sort of structure and a more romantic layout for the areas that are less functionally defined or restricted," said O'Connor.

1 *Halved crescent mirrors Galway Bay*

2 *Ocean light fills enclosed spaces*

3 *Hardwood joinery contrasts granite floors*

4 *Light enhances hardwood interiors*

While the specification for the laboratories was fairly rigid, O'Connor's enjoyment of timber starts on the other side of the laboratory door. Here, relaxation areas, which feature American ash wall panelling on acoustic felt, solid oak flooring from Junckers and soft furnishings, provide a complete change of mood from the clinical, more monotonous environment of the labs. The oak flooring and ash panelling are continued in other areas of the building, and where acoustic control is important, moulded ash – treated with DRICON to achieve fire class 0 – and acoustic felt also feature on the ceiling. "The ash has a rounded finish; it's like a flat curve which works well acoustically because it deflects the sound in different ways. The sound doesn't come belting straight back at you so you don't get an echo," said O'Connor. And the rounded profile had another, unexpected benefit. "We found that when we cut across the grain in that particular shape, it brought out the figure of ash beautifully. It made it look completely different from if it was cut straight." The doors throughout the building have also been used to explore and show off the wide variation in the colours and textures of different wood species. There is a sort of hierarchy to the doors and their design. The doors into the labs and other staff areas are simpler patterns of beech and American cherry veneers, while the doors into other areas, such as the meeting rooms,

> *People respond well to wood, it warms a building and, although light requires some other surfaces from which to reflect, wood then softens light*


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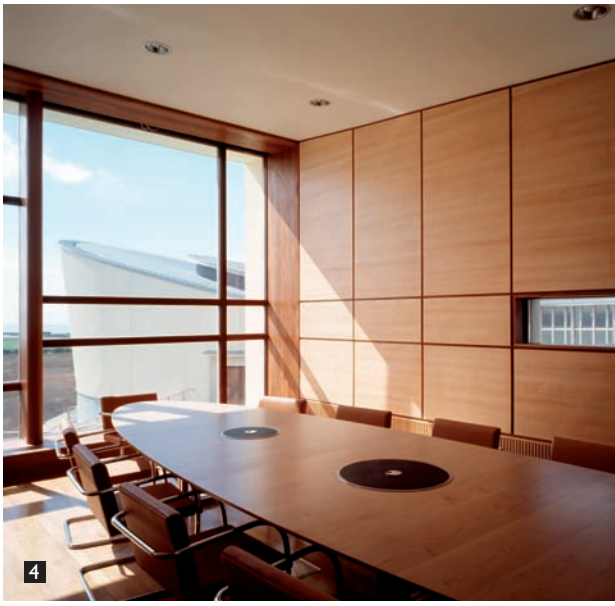
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are an elaborate patchwork of up to 14 species. These doors feature veneers of ash, koto, American maple, white beech, bird's eye maple, wenge, American red elm, cherry, steamed beech crown, Irish oak, sapele, teak crown, American black walnut crown and rosewood. O'Connor sums it up "People respond well to wood, it warms a building and, although light requires some other surfaces from which to reflect, wood then softens light." The passage of light was an important consideration in the design. "You only get about 30% of reflection of light off timber, compared with about 80% reflection off a white-painted plastered wall," said O'Connor. With the ash panelling, the oak floors, the American black cherry, American white oak and maple joinery, the team's anti-sauna tactic was to have light coming in from at least two directions in each space, much of it through the iroko-framed windows, some of which extend the full height of the wall. This durable timber is untreated and will be left to weather naturally in the Atlantic sea air. Now that the building is finished and in use, O'Connor is pleased with the result, if not a little envious of its inhabitants. "It's a remarkably beautiful place. I think we've done the site justice. I'd be quite happy to work down there."

By Keren Fallwell, TTJ Journalist
and Michael Buckley, World Hardwoods
First published in Timber Building

1 *Black walnut joinery*

2 *Walnut horseshoe and closures*

3 *Patchwork walnut flooring*

"The sunken lounge was designed to create the impression that the built in seating was carved out of the profiled edge of a raised area of solid walnut floor. Precision cut stack laminated American black walnut allowed us to create sinuous forms and integrate horizontal slots for displacement ventilation"


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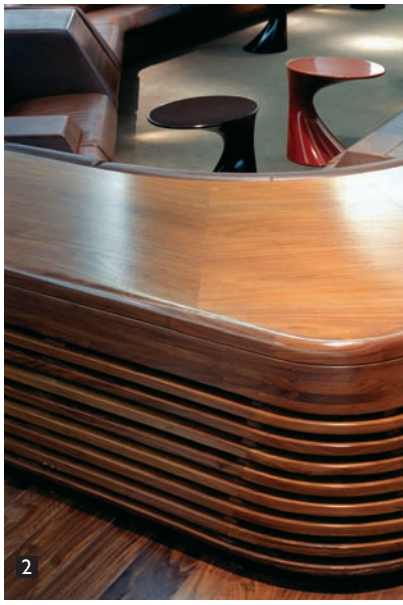
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"Sunken Lounge" is a unique, bespoke piece of joinery furniture designed by Softroom for the new 26,000m^2 Virgin Atlantic Clubhouse at Heathrow Airport in London. As part of the brief for the lounge, Virgin's in-house design team were keen that the Clubhouse should not look like a "sea of seats". To this end, generous seated accommodation for 30-40 passengers is provided in this specially developed unit, which surrounds a lively bar area at the heart of the Clubhouse. These horseshoe shaped enclosures are built up out of the same American black walnut timber as the upper floor, stack-bonded and sculpted into an original form. Let into this sinuous, polished shell are generously proportioned leather upholstered sofas. Centre armrests in the sofas flip open to provide power and data points for laptops, while side tables can be brought up for impromptu dining. Stainless steel fins at the back of the unit provide support for integral accessories including a planter, magazine rack and coloured glass screen.

Ergonomics were a primary consideration in the design, and the final form was the result of a lengthy process of design development, including paper and CAD studies, full scale mock-ups and prototypes. These were trialled with a wide range of potential users in order to fine tune the seat height, width and padding. An important factor was the

SPECIES:
American black walnut
DESIGNER:
Softroom

PHOTOGRAPHY:
Softroom
Richard Davies

Virgin Atlantic Sunken Lounge, London Heathrow, UK

3

By Michael Buckley, World Hardwoods

ability to use the seating not only for relaxation but also dining and work.

Throughout the Clubhouse, much of the air-conditioning system is built into the joinery. Overhead a unique sweeping ceiling recalls an expanse of sky, raked by gently drifting clouds. Its undulating geometry, echoed in the layout of the floor, weaves across the space and unites the room along its remarkable length. The dramatic design of the ceiling was made possible by relocating the air-conditioning to low–level, thereby avoiding the oppressive low–slung grid of tiles and grilles normally found in airport environments, giving the Clubhouse an entirely original character.

Copenhagen Opera House, Denmark

SPECIES:
American white oak and European maple

ARCHITECT:
Henning Larsen Tegnestue A/S

PHOTOGRAPHY:
Hørning Parquet Fabrik A/S
Adam Moerk

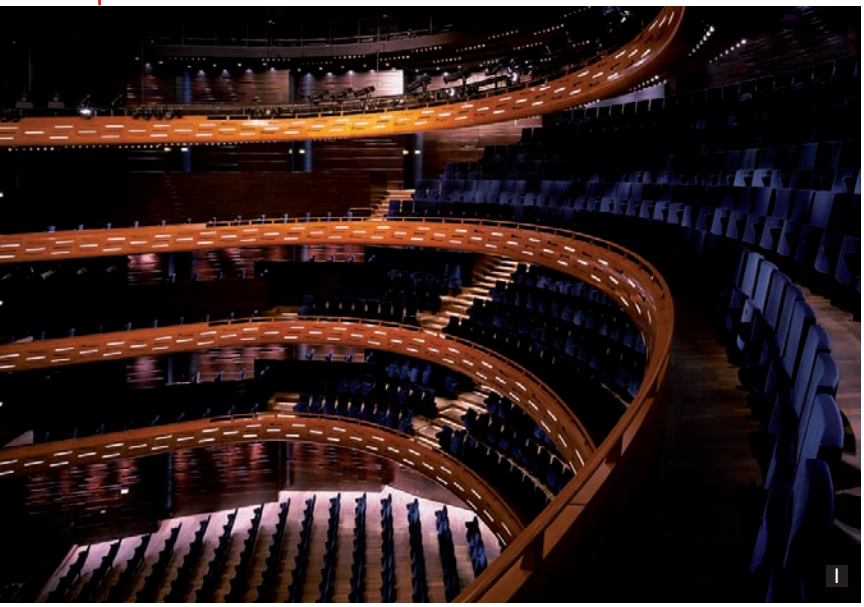
Put together a 500 year theatrical heritage, award winning architect Henning Larsen, a budget of DKK 2.5 billion (€335 million) and a modern building design which incorporates natural materials and what do you get? A stunning architectural icon and a "state of the art" music venue, which provides the Danish people with an engaging design experience, as well as a performance arena of the highest technical quality.

The sheer scale of this project is most impressive. The total area of the building is 41,000m², comprising 14 storeys, five of which are underground. The main auditorium has seating for 1,500 people. The building boasts over 1,000 rooms including several small rehearsal rooms and one large practise room for full orchestra, situated directly below the main auditorium. The glass façade and steel constructed cantilever roof make this sculptural building gleam like a jewel on its unique island location in Copenhagen harbour. But on closer inspection the real glow emanates not from reflections in the glass, but from the stained maple panels within, which create the curved outer walls of the main auditorium. Fashionable temperate hardwoods are also used extensively in the interior

1 *Gentle curving maple defines the tiers*

2 *Oak floor provides perspective*

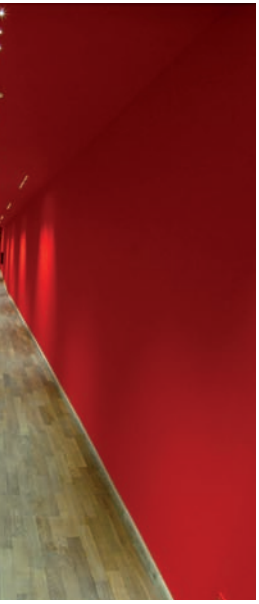
3-4 *White oak for a sure footing*

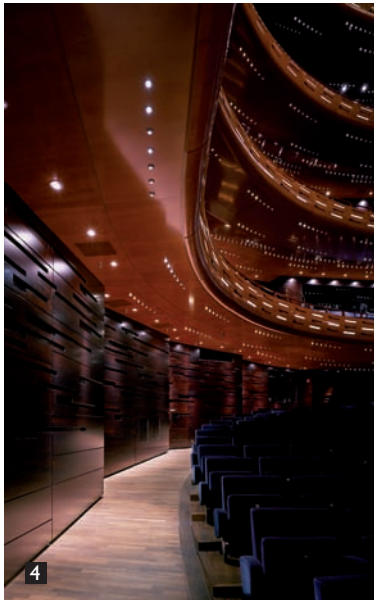


of the auditorium, where more maple panels, this time stained dark, provide a warm and regal ambience. The flooring throughout is American white oak, incorporating a dark smoked finish, which according to the architects was chosen by the client for its uniform texture and colour. A total of 2,400m² of white oak strip flooring was manufactured and supplied by Danish specialists Hørning Parquet Fabrik A/S and was the winner of the 2005 "Danish Floor Award" presented to flooring contractor P.Rasmussen og Sønner a-s.

The Opera House, part of a wider development project for the harbour was donated to the Danish state by the A.P Møller & Chastine Mc-Kinney Møller Foundation and is a milestone in the history of the Royal Theatre. The new venue will allow the Royal Theatre to stage large performances not possible in the old Royal Theatre, built in 1874. The Royal Theatre will continue to maintain both venues new and old, which will provide a broad ranging music programme without compromising artistic standards. Commissioned at the beginning of the new millennium, building work began in late 2001 and was completed almost 3 years later in October 2004. The building was formally opened in January 2005 with a Royal Command performance. Alongside the Danish architects Henning Larsen Tegnestue A/S, the

> *Here is another spectacular example of a major European public building where hardwood has provided a design solution, which not only looks fantastic but also gives the desired technical performance*





team of specialist collaborators included structural engineers Buro Happold, Arup Acoustics and Theatre plan. Here is another spectacular example of a major European public building where hardwood has provided a design solution, which not only looks fantastic but also gives the desired technical performance. White oak was chosen specifically for the flooring and it is good to see American and European hardwood combining to demonstrate that wood is a first choice material for modern architecture.

By David Venables, AHEC

1 *Foster's icon on the Tyne*

2 *Hardwood provides the acoustic*

3 *American white ash gives light to the sound*

4 *Undulating panelling for acoustic excellence*

> *"American white ash is a readily available and highly sustainable hardwood with a wealth of character and warmth of colour. It's hard, yet machines well, and being available in long lengths provided an excellent material for the Sage project"*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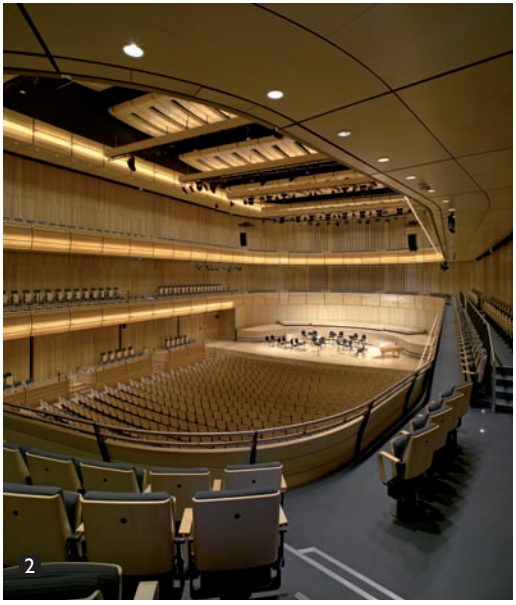
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The Sage, Gateshead's new £70m performing arts centre designed by Foster and Partners, is a glistening stainless steel clad structure, spanning 80m and stands high above the River Tyne looking across to Newcastle. The building consists of six concrete areas – three music halls and three machinery rooms – covered by a stainless steel and glass roof. Each of these areas is separated from one another to prevent noise being transmitted through the structure. To provide the necessary acoustic performance, adjustable ceiling panels, and a timber based panelling system was specified. The Gateshead Metropolitan Borough Council insisted on certified hardwood so the choice was limited but the result is spectacular. American ash was selected for the main hall and European birch for the smaller hall and rehearsal room. Prefabricated wooden sections for the ceiling reflectors were fixed to steel frames before being winched into the ceiling void. Each reflector is composed of numerous sections faced with two layers of 6mm marine grade birch plywood bonded together to achieve the correct radius of curvature for optimum deflection of sound. The plywood is covered with certified American ash veneer and the section edges are clad in flexible ply to accommodate the tight radius. To give some mass to this thin structure for acoustic purposes, each section was lined with 75mm thick MDF. Having been manufactured under controlled atmospheric conditions,

SPECIES:
American ash and European Birch

ARCHITECT:
Foster & Partners

ACOUSTIC ENGINEERS:
Arup Acoustics

PHOTOGRAPHY:
Tessa Musgrave
Courtesy of Wood Awards 2005

The Sage, Gateshead, UK


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maintaining the moisture content and temperature of the wood components once they reached site was essential but not easy. Ambient temperature and humidity had to be checked daily. At one stage, temporary doors were fitted to the concrete structure and large heating elements introduced to prevent unacceptable movement in the wood components. At first glance the ash panelling in the main auditorium appears to run parallel to the wall line. However, closer inspection reveals that it gently undulates. The panelling is mounted directly to the concrete block walls which, for reasons of economics, were built as flat surfaces. To achieve the complexity of curvature the designers required, each section of panelling had to be built up using layers of moisture-resistant MDF finished with ash veneer and solid ash profiled lumber. Numerous different profiles were used for the ash strips with each having its own unique position on the panel sections. One piece out of sequence would have ruined the whole visual effect, and caused consequences for the acoustic excellence. Who was it who erroneously stated that 'timber was a low-tech material'? There is nothing low-tech about the interior of The Sage – ask the joiners who worked on it. Better still, ask the musicians about the degree of acoustic perfection attained in The Sage.

By Duncan King, AHEC

Castellón Auditorium, Castellón, Spain

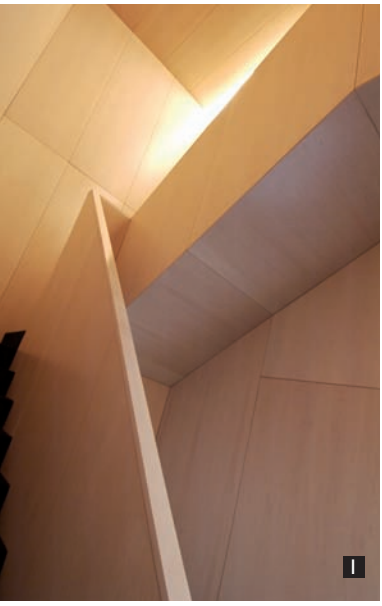
SPECIES:
American hard maple

ARCHITECT:
Carlos Ferrater

PHOTOGRAPHY:
AHEC

Music making and wood has a long historic tradition that still thrives today. But it is not just the relationship with the instruments themselves that is important. Wood also plays a major part in the venues which deliver musical experiences. A growing number of architects in Europe are discovering the benefits of combining the aesthetic qualities of fashionable hardwoods and the performance they offer in terms of acoustic properties and practical design solutions. So what wood species are in fashion right now? The answer is temperate hardwoods, as they offer distinct and interesting grain patterns, a wide spread of colours, tones and good environmental credentials. With American hardwoods being able to offer the widest species range, it is not surprising they are featuring very strongly. Some of the recent examples from around Europe and the names of the architects involved say it all. Renzo Piano used American cherry in the Rome Auditorium, while Foster & Partners chose certified American ash for the Sage Music Centre in Gateshead (UK) and Allies and Morrison have used American white oak in the theatre and auditorium at Queens College Cambridge (UK). Whereas, French architect Claude Vasconi favoured stained American maple for his

1-5 *Hard maple provides continuity throughout the auditorium and conference hall*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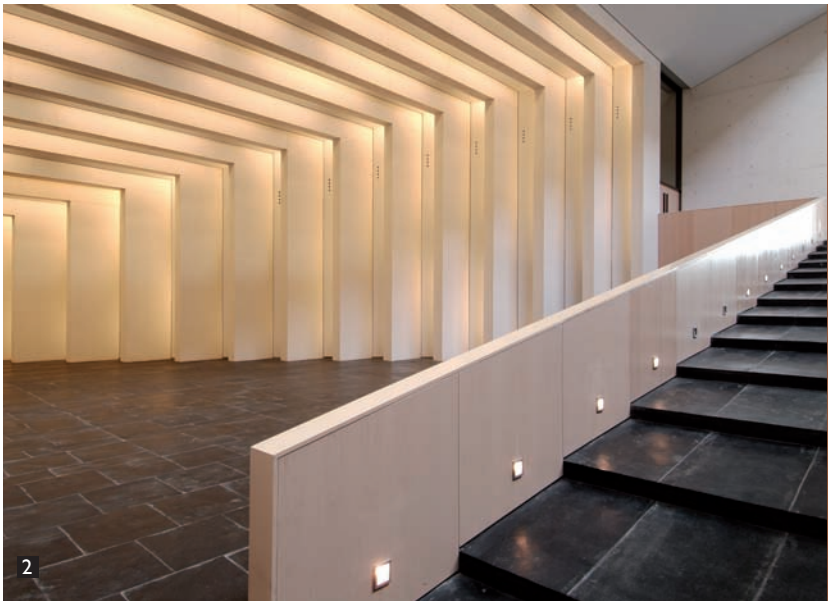
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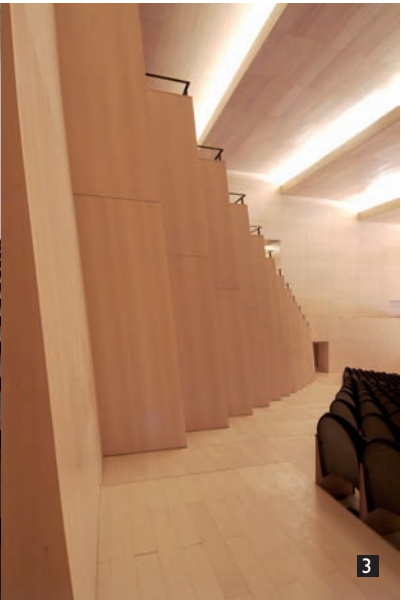
interior design of the Velizy Theatre in Paris. Now it is the turn of one of Spain's more important architects, Carlos Ferrater, who has used American maple for the city of Castellón's new Auditorium and Conference Hall, in the Valencia region of Spain. This major public project, which opened in 2004, combines elegance and functionality. The relationship between light and space plays a key role in the design, so too does the synergy created between the interior of the building and its external environment. The outside structure built in white reinforced concrete is contrasted with the warmer interior spaces where grey stone and light coloured American maple combine. A series of large glass roof panels bathe and fracture the interior spaces with natural light. The light coloured maple is the common theme that links all internal areas as it is to be found in the Foyer, the small "Chamber Music" hall, the "multi purpose" hall as well as the main "Symphonic" hall which seats just over one thousand two hundred people. The walls are constructed from acoustically profiled particle board, surfaced with decorative maple veneer, while maple plywood is used for the ceiling panels. All wood surfaces have been treated with a M1 fire retardant coating.

Hardwood joinery is also an important feature in the design of the office areas, library and cafeteria,

“A growing number of architects in Europe are discovering the benefits of combining the aesthetic qualities of fashionable hardwoods and the performance they offer in terms of acoustic properties and practical design solutions”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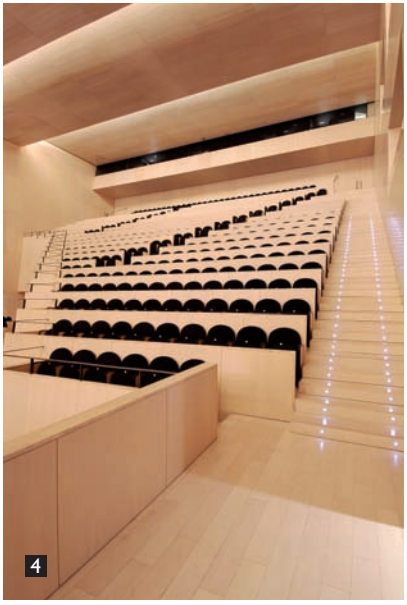
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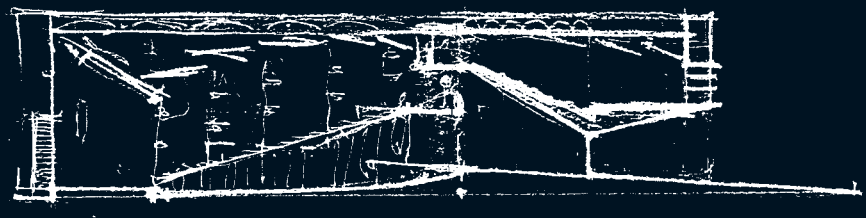
where solid and veneered maple work together for the internal doors, stairs and panelling.

By David Venables, AHEC



1 *American white oak furniture by Luke Hughes*

2 *Continuity in flooring and furniture*

3 *Event hall combines the new and the old*

4 *The effect of wood and white*

"North American white oak was used because of its colour, consistency, availability and price"

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New timber is married with old in Hopkins Architects' new visitor facilities for a National Trust Home, Ickworth House near Bury St Edmunds in Suffolk, built by the eccentric 4th Earl of Bristol in 1795 to house his European treasures. The Italianate house has a central Rotunda, which is flanked by symmetrical links to the East Wing, used as the family house, and the West Wing, which was left incomplete. Facilities for visitors to Ickworth have been created within the vast, barn-like West Wing. The reception, cafeteria, and shop have been removed from the central Rotunda, allowing it to be restored to its original state. Two new floors have been inserted into the West Wing. Entry is through an existing door at ground floor level into the new reception and information area. Visitors then move into the shop and restaurant with views through the orangery into the walled garden. On the first floor is a spacious hall for events. The lower ground floor houses the education suite, the main kitchen, stores and staff areas. The brick enclosing walls and timber trusses have been retained unadorned throughout. All new elements – such as timber screens and barrel-vaulted precast concrete floor panels that form the ceiling of the restaurant – are clearly contemporary insertions. "We considered using pine to match the wood used in the existing roof but reclaimed pitch pine

SPECIES:
American white oak

ARCHITECT:
Hopkins Architects

PHOTOGRAPHY:
Richard Davies

Ickworth House, Bury St Edmunds, UK

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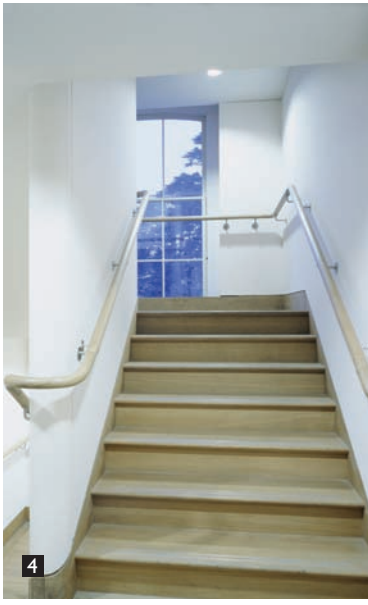

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was too expensive. Instead, North American white oak was used because of its colour, consistency, availability and price. Oak was a natural choice for the new joinery elements including furniture, because it has been used extensively in the main house" stated by the project architect.

The project team led by Hopkins Architects included: structural and services engineer, Buro Happold, and furniture designed by Luke Hughes & Company Ltd.

First published in Architecture Today

Navarra General Archive, Pamplona, Spain

SPECIES:
American black cherry, maple and European oak

ARCHITECT:
Rafael Moneo

PHOTOGRAPHY:
AHEC

The wonderfully imperious sounding Palace of the Kings of Navarra in Pamplona dates from the twelfth century. Looming haughtily over the town from an elevated plateau, its medieval bulk is a prominent fixture in the urban skyline. The re-use and adaptation of such ancient structures can often be problematic, but since falling derelict in the late twentieth century, this particular relic has been successfully renovated and revitalised by Rafael Moneo to house a new regional archive and study centre. As might be expected, the new work exudes the crafted elegance that has become Moneo's signature, but here it is given a tougher edge through creative juxtaposition and engagement with historic structures and materials.

Moneo has strong connections with Navarra (he was born in Tudela south of Pamplona), and in many ways his architecture has an affinity with the minimalist and muscular character of medieval structures. He frequently employs alcazar–like forms – tall neutral containers, often toplit with massive walls. His approach to Pamplona's palace has been one of both reduction and addition, stripping away distracting accretions from the sixteenth and nineteenth centuries and adding a new set of contemporary interventions around the

1-5 Extensive use of cherry, maple and oak provides visual warmth


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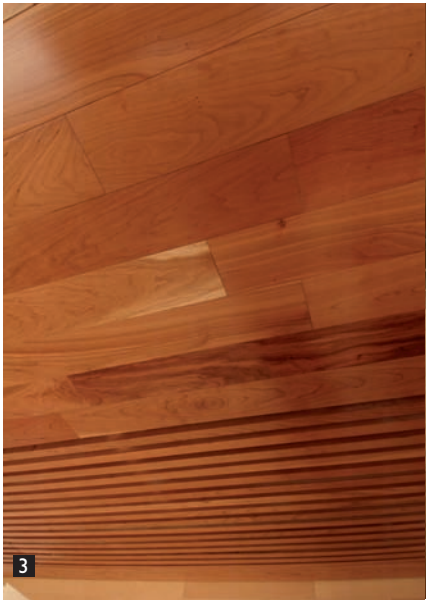
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medieval core, so the complex is now a finely judged synthesis of the very old and the very new. Clad in mottled grey and gold local limestone cut from the quarries that supplied the original Palace, Moneo's strong cubic volumes share a formal and material kinship with the original buildings, but are clearly distinguishable as being of their time. New and old parts wrap around a central cloistered courtyard, with the remains of the palace on the north and west sides now transformed into an academic research centre, with reading rooms, lecture hall, administration and workshops. These connect with Moneo's new tower for archive storage on the south and east side. Archives are housed in a trio of blocks linked by a quadrangular ramp around a central void. The cloister in the main central courtyard is now enclosed by a glass skin which, in its lightness and transparency, contrasts with the hermetic impermeable outer walls that are a massive, brooding presence in Pamplona's townscape. The building has many different sorts of interior realm, from theatrically gloomy stone vaulted hall in the north wing, to the more airy volumes of the reading room and library with their warm timber walls and shelves. Hardwood is used extensively throughout the interior, to great effect.

American cherry is employed in the wall panels and furniture, its rich red tones set against the

“Hardwood is used extensively throughout the interior, to great effect. American cherry is employed in the wall panels and furniture, its rich red tones set against the pale maple flooring”


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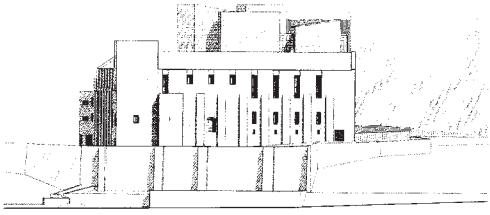
pale maple flooring. Reclaimed oak is used for the cloister doors and new oak for the cloister windows. Moneo's elegant custom-designed shelving (all 45,000 lineal metres of it) is also made from American black cherry, which was specified to encompass natural features and colour variations. Detailing is refined, and there is an obvious sensitivity about how things are made and put together. Fittingly for a building dedicated to the care and conservation of historic archives, the past informs the present, but in Moneo's hands, it is a fertile reciprocity.



by Carla Bertolucci
First published in Architectural Review

■ *1-3 American tulipwood provides the visual interest in this office HQ*

> *"The tulipwood wall at the heart of this building never fails to attract comment and is a major feature of the building"*


1


2

This £5million project required the complete refurbishment of an existing 90,000sq.ft building, previously the Headquarters for Hewlett Packard, which had been empty for some years. Lex selected the WAM design solution, commenting that the WAM proposal was "the most exciting and adventurous." The design concept is based around creating a 'Social Heart' to the building, which provides a focus for the eight hundred people working in the two level building. This 'Heart' manifests itself as a randomly shaped object containing core facilities and is set within an atrium-like space. Visually it appears as though a vertical timber curtain has been pulled loosely around the core, so that its appearance changes as you walk around it, providing a stunning backdrop to the office. The fluidity of the shape contrasts with the rectangular forms used elsewhere and was extensively CAD modelled by WAM and sent to the joinery workshop for full size templates to be made. The wall is clad in flexi ply painted black and then each shaped fin is fitted via a slide and lock mechanism allowing removal and replacement if damage occurs. There were over 700 fins made off-site while the wall was being prepared.

At an early stage the joinery team at WoodWorks and WAM worked together to achieve this part of the project, with a trial section produced for client

SPECIES:
American tulipwood

ARCHITECT:
Walker and Martin (WAM)

PHOTOGRAPHY:
Courtesy of Wood Awards 2006

Lex Vehicle Leasing HQ, Stockport, UK

3

approval. The joinery team took the concept on board and when budget considerations became paramount, suggested using American tulipwood – the variety of colour, tone and grain fitting perfectly with the concept of a "randomly shaped, seemingly irrational object." Light, shape and materials are all used to full effect to reinforce the layering of spaces from the seemingly chaotic, social heart outwards to the rational working environment while maximising the external views and natural light.

This layering not only provides interest and stimulation, but also a variety of efficient workspaces. The tulipwood wall at the heart of this building never fails to attract comment and is a major feature of the building. The building is well–liked by its inhabitants, as well as visitors, and provides a world–class work environment – not only technically comfortable and environmentally friendly, but a joyful and stimulating place to work.

By Michael Buckley, World Hardwoods

Santander Group HQ,
Boadilla del Monte (Madrid), Spain

SPECIES:
American hard maple, black cherry

ARCHITECT:
Kevin Roche John Dinkeloo & Associates

PHOTOGRAPHY:
AHEC

The ambitious new headquarters of the Santander Banking Group is not just a building, but is a financial city situated in Boadilla del Monte, 20km from Madrid. Designed by internationally acclaimed architects Kevin Roche John Dinkeloo & Associates, the Group Santander City is a €480 million project, conceived by its President, Emilio Botin, and developed as one of the largest managerial campuses in the world, balancing a commercial requirement for functionality with the more human needs for comfort and recreation. The 1,600,000m^2 site includes office and management buildings, an auditorium and a service centre. These are complemented by recreational facilities, a medical and day-care centre. Significant emphasis was placed on preserving open spaces, with only a fifth of the land area developed. The surrounding spaces boast over 2,500 trees and 138,000 bushes and plants of 122 different species, as well as millennial olive trees. The allocation of the plot is simple and effective. Located in the centre of the complex and in the main symmetry axis, the Pereda Building is the main architectural landmark of the group, differing in size and shape from the surrounding spaces. The extensive public areas are characterised

1 *American black cherry joinery throughout*

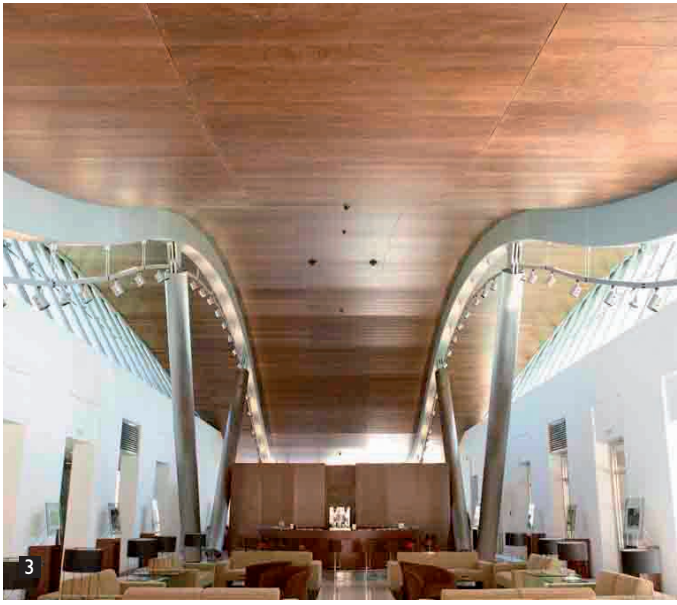
2 *Solid maple lattice roof*

3 *Hardwood joinery connects celing, doors and furniture*

by peace, calm and cleanliness, and well tended gardens are featured throughout. In an effort to maintain functionality of the space, the architects incorporated enormous parking lots under the pedestrian squares, positioned to provide direct access to the different buildings throughout the campus. Hardwoods have played an important part throughout the interior design of the complex. American black cherry has been used for doors, joinery and other interior applications throughout. This attractive, warm species features prominently in the auditorium and the main lecture hall. The teaching centre and the residence hall are located in the eastern section of the enclosure, designed to separate both buildings from the office complex. Both are equipped with their own services areas and leisure spaces, providing users with a respite from the office and management areas and a quiet area for study. These two buildings are not only functionally related, but also physically connected through a continuous open-air gallery fitted-out with a wavy roof in tropical hardwood.

The teaching centre is a square building including a library, several multi-purpose rooms with capacity for about 600 students, classrooms, meeting rooms, a lecture hall with 200 seats and an auditorium with seating capacity for 1,000 people. The auditorium is fitted out with American cherry, selected in part

“Hardwoods have played an important part throughout the interior design of the complex. American black cherry features prominently in the auditorium and the main lecture hall”



to complement the red colour scheme of the Group’s corporate image. The art gallery within the Pereda Building showcases a selection of paintings and sculptures belonging to the Group, from artists such as El Greco, Rubens, Picasso, Van Dyck, Chillida and Romero de Torres. It also hosts a series of tapestries and a collection of coins and bank notes. The magnificent collection of tapestries is mounted on American maple, which is also featured on the columns as a backdrop for the paintings. Complementing the interior joinery and panels, a solid lattice of American maple runs along the main axis of the building’s roof and connects the different rooms of the art gallery.

By Carlos Kasner, Salomon

■ *1-3 Black cherry joinery and white oak panels combine for sound acoustics*

> *“Naturally the main effort was focused on restoring the acoustic qualities of the auditorium. Here, the use of different types of American hardwoods, selected on the basis of their mechanical and physical properties, has helped to achieve a spatial and acoustic continuum”*


1


2

The auditorium of the media company RAI in Naples has recently been the focus of a restoration project developed by Gnosis Architettura and Alessandro Castagnaro. The building was originally designed by Renato Avolio De Martino, Raffaele Contigiani, and Mario De Renzi and completed in 1963.

Raised above street level on six piers, the auditorium is the most emblematic part of the RAI complex. Its closed volumes are sliced laterally by external staircases and supported by a dynamic and visible structural grid resembling a cylinder. Squeezed in underneath, the low foyer gives access to the auditorium, a 14,000m^3 space with a high ceiling supported on six pre-stressed reinforced concrete beams spanning 75m. However, this impressive hall ceased to be a venue for symphonic music or other concerts in 1993, when it was converted into a television studio for a limited number of spectators. The restoration project was inspired by the need to give back to the city of Naples a place where people can enjoy symphonic music as well as a facility for conferences or meetings – without sacrificing its capabilities as a television studio. The renovation work re-established the original spatial configuration of the auditorium before its gradual conversion into a television studio. Naturally the main effort was focused on restoring the acoustic

SPECIES:
American black cherry and white oak

ARCHITECT:
Gnosis Architettura and Alessandro Castagnaro

PHOTOGRAPHY:
Antonio De Martino

RAI Auditorium, Naples, Italy

3

qualities of the auditorium. Here, the use of different types of American hardwoods, selected on the basis of their mechanical and physical properties, has helped to achieve a spatial and acoustic continuum.The ceiling with its large pre-stressed beams has also been modified. The original ceiling-mounted lighting system has been restored and upgraded to current technological standards with six strip lights that create a sort of vision-guide to the back of the stage. In order to improve acoustics, approximately 350m^2 of comb-like panels designed on the basis of sound diffusion studies are hung over the main floor. The panels comprise 3mm thick strips of an ultra light material, white forex, sandwiched between 4cm thick slats of American white oak. The side walls adjacent to the stage are also lined with American white oak panels. These elements are 18mm thick and fulfil a similar acoustic and illuminating function as the ceiling. The load bearing pillars in the main auditorium are panelled in American black cherry to differentiate them from the elements they support. These elements are linked to the rest of the auditorium by American cherry flooring which combines effectively with seating which is predominantly red in colour.

By Luigi Prestinenza Puglisi and Anna Baldini, Architectural Critics

Environmental Credentials

The environmental credentials of the American hardwood industry are impressive by any standards. After a very shaky start when industrialisation and fires in the 1800s decimated Eastern hardwood forests, many important lessons were learned. A legislative framework at both federal and state levels was developed in the 1900s to protect the whole forest environment. Forest harvesting education programmes, enlightened management and industry initiatives have together subsequently produced a result that is the envy of many other hardwood producing countries. Forestland ownership by about 4 million individuals, who control 73% of the resource, is an integral part of the success formula in which American rural communities are closely linked with their forests. The 2000 RPA Assessment, a nationwide forest inventory mandated under U.S. federal law to be undertaken every 10 years, shows that over the last 50 years the inventory of hardwoods standing in U.S. forests has doubled as harvesting levels have remained well below the level of growth. The U.S. hardwood inventory now stands in excess of 10,000 million m3 and is growing at a rate of 40 million m3 per year after harvesting. Today the USA is the largest producer of sawn hardwood lumber in the world with an increasing forest resource. That is a true measure of sustainability.

www.sustainablehardwoods.info

American Hardwood Species

Choosing the right species for a project is essential for good design. Awareness of the characteristics and working properties of a chosen species will enable a specifier to have a better idea of how that species will perform in any given situation. Availability is also an important consideration, as even the best wood design can fail if the species cannot be obtained in the required specifications or volumes. Opposite are brief technical details on some of the main American hardwood species, most of which are featured in this publication.

For more detailed information on these species and others that are available, including: sap gum, willow, red elm, red alder, basswood, yellow birch, cottonwood and hickory, visit

www.ahec-europe.org