Wood Awards
IRELAND 2020

Wood Awards Ireland 2020

Promoting excellence in wood construction and design

The mission of Wood Awards Ireland is to promote excellence in wood construction and design. We seek innovation in design and excellence in execution. Wood is the inherent sustainable medium; neither singular nor one-dimensional. There are many facets to this renewable material from solid sections of hardwood and softwood to engineered wood. The awarded schemes explore the intrinsic physical properties of wood while also developing the inherent relationship between form, technology and the brief requirements of the client.

Wood Awards Ireland 2020

Foreword by CIARAN O'CONNOR

Edited by DONAL MAGNER

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in association with Forest Industries Ireland (FII).

Published in conjunction with Wood Awards Ireland 2020

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An Roinn Talmhaíochta, Bia agus Mara
Department of Agriculture, Food and the Marine

COFORD

Society of Irish Foresters

RIAI

ENTERPRISE IRELAND

Davagh Dark Sky Observatory
ARCEN Architects

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FOREWORD

Timber is the ideal ecological building material. It sequesters carbon, is renewable and biodiverse, so why is it still not an equal partner to our masonry building culture? Ireland's mild climate is ideal for growing timber. Many species grow three times faster here than they can in Scandinavia.

At the beginning of the 1900s, prior to Irish Independence, we had just 1% forest cover. Through various government initiatives we have now attained 11% forest cover. In addition, this rural based forestry related industry contributes an annual value of €2.2 billion to the Irish economy. Since the 1990s some 23,000 landowners – mainly farmers – have availed of forestry grants but recently the goal of reaching 18% forest cover by 2050 has stalled. The problem varies in different parts of the country as do the reasons.

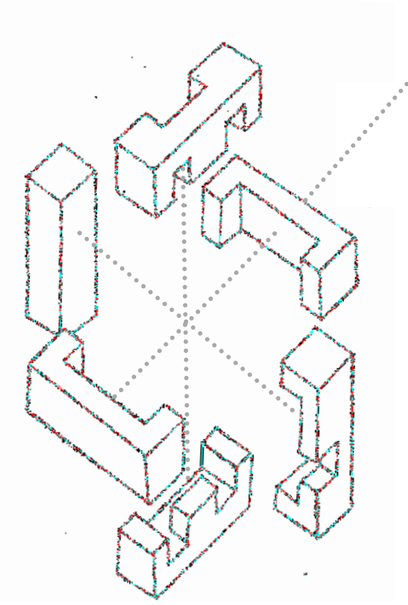
Some people feel that forestry is displacing people and therefore they oppose it on social grounds. There is a cohort of people who oppose specific species, such as Sitka spruce, which is a very adaptable tree and will grow in poor ground where other species will not. My resolution motto is, “the right tree in the right place”. It would match ecological, microclimate, economic and societal needs together and help overcome the disproportionate level of objection to granting forestry licences in Ireland at present.

In addition, the planting licencing system could surely be simplified. At present a different licence is needed for each stage of crop management, such as planting, harvesting road construction and felling. The Scottish system is much simpler where a single licence is provided for planting, access and managing up to clearfelling. The size of harvested areas, which can be larger in Ireland than some other European countries, could be reconsidered as the visual and landscape impacts of large clearfells can impact negativity on public perceptions of forestry. It is worth noting that Ireland was once predominantly covered by forests and that the idealised picturesque landscape of bare hills is a more recent cultural phenomenon.

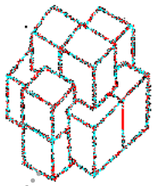
Farming is a huge contributor of Irish greenhouse gas emissions, which need to be reduced if Ireland is not to suffer major carbon tax penalties under EU regulations. Forestry has a vital role to play in benefiting farmers, the rural economy and the environment. For forestry and timber manufacturing to be sustainable, security of supply is vital. At present we import a quarter of a million cubic metres of logs annually mainly from Scotland, to keep our sawmills at full production.

The story of Ireland's sawmills is impressive. When I returned from Canada in the 1980s and worked on the innovative first phase of Killykeen Forest Park, holiday development, which featured the experimental use of six Irish grown timber species, the Irish sawmill industry had some 120 sawmills. None of these had combined drying and mechanical stress grading facilities. Today the number of sawmills have been rationalised, automated to modern standards, and can complete with

> *“Wood responds to insight and intellect. It has the unity and diversity of nature but needs human knowledge and respect for its pragmatic and poetic end use.”*



Building a wood culture.



> *“A wood culture like any vibrant culture must spread new roots, sprout new ideas and have contemporary relevance”*

European counterparts. Now, we have unified European timber standards for timber quality, structural grading and preservation.

The EU Green Agenda will support further developments in timber use from seed to sawdust, and from Green Procurement to carbon capture. Technological developments will continue apace. Ireland is a major exporter not only of sawn timber but medium density fibreboard (MDF) and oriented strandboard (OSB). Laminated timber and CLT will evolve with digital technology. Taller buildings in timber will become possible with structural and fire engineering developments over time. In the meantime, a combination of concrete, steel and timber seems the best way forward. Evolution not revolution is the best way to advance an Irish wood culture. The much needed circular economy must be matched by a sustainable wood chain. Forests can contribute to Ireland's climate change mitigation actions in the reduction of greenhouse gas emissions, as well as developing a sustainable timber industry.

Wood Awards Ireland is part of the development of the wood chain process. The competition highlights design quality, conservation and craft skill. They acknowledge that wood is a simple but not simplistic material. It responds to insight and intellect. It has the unity and diversity of nature but needs human knowledge and respect for its pragmatic and poetic end use. Those end uses help develop a creative wood culture. A wood culture like any vibrant culture must spread new roots, sprout new ideas and have contemporary relevance. These awards are part of that developing process.

From traditional craft to prefabrication, and from veneers to laminated timber, wood has shown itself to be a natural, authentic and ecological material with great versatility. It can be easily moulded and profiled, is effective as a heavy loadbearing structure or a lightweight wall. The long history of wood through human use means it has a special meaning for us, which is beyond most other materials.

I want to thank my fellow Wood Awards Ireland jury members and RIAI support staff for their insight, good humour and commitment throughout the whole process despite being disrupted by Covid-19. The jury’s decisions were unanimous in all cases. Donal Magner, working on behalf of the sponsors and organisers, deserves special mention for bringing the idea of a Wood Awards Ireland competition to fruition. Well done to all the commended and awarded projects. They all rise above pure utility, beyond basic construction, to combine all that is practical and necessary with the art and craft of timber, yet are meaningful and beautiful in architectural, engineering, furniture and artefact terms.

CIARAN O'CONNOR FRIAI
STATE ARCHITECT
RIAI PRESIDENT 2020-2021
CHAIRPERSON, WOOD AWARDS IRELAND 2020

Sandford Park School, O'Donnell+Tuomey

PREFACE

The aim of WAI is to promote wood as a sustainable, structural and functional design medium. The awards encourage Irish architects, engineers, designers, researchers, craftspeople, working in Ireland or overseas, to enter works of excellence and to further explore wood as a major contemporary renewable material. WAI is an all-Ireland competition organised by the Wood Marketing Federation (WMF) in association with Forest Industries Ireland (FII) and supported by the Royal Institute of the Architects of Ireland (RIAI) and the Society of Irish Foresters. The awards are part-funded by COFORD, Department of Agriculture, Food and the Marine (DAFM) and Enterprise Ireland (EI).

This year we invited third level students to participate in WAI. WMF has organised an All-Ireland Third Level Student Wood Awards competition since 2006 but this was discontinued after 2015 due to lack of sponsorship. As a result, there is no wood awards competition in Ireland for third level students who specialise in wood. WAI now has a category open to third level students which acknowledges the work carried out by students, their tutors and their colleges in promoting wood usage, design and research. We are encouraged by the response but third level students deserve their own wood awards competition.

Sustainability and best practice are essential elements of WAI. Architectural projects submitted, must comply with Ireland's Building Regulations. Sustainable timber sourcing is a key element of the project with emphasis on energy efficiency and traceability. All timber in submitted projects was sourced in sustainably managed forests and conforms to the EU Timber Regulation (No 995/2010). As WAI is an all-Ireland event, entries are accepted for construction projects from registered MRIAI and RSUA architects.

When Wood Awards Ireland was proposed in 2013, the Irish economy was slowly emerging from one of the worst recessions in living memory. Potential entrants were preoccupied with surviving the economic downturn instead of entering projects in a wood awards competitions no matter how well-intentioned. However, there was an openness to the idea. Also, an increasing number of architects and other practitioners were exploring wood as key building and design medium, while the Irish forestry and forest products sector was demonstrating strong resilience by increasing exports of wood and wood products during and after the recession. As a result, there was growing confidence the project would succeed even if Ireland hasn't a forest and wood culture comparable with other European countries. It was therefore encouraging, that the quality of the projects submitted in the inaugural event in 2014 justified the decision to proceed with the awards. Projects demonstrated excellence in wood construction, design and craft, qualities which are also in evidence in the 2020 awards. The projects reflect the role that wood plays in achieving the vision of the WMF “to promote wood as a renewable, sustainable and versatile natural material” as well as realising the mission of FII in “placing timber and forestry at the heart of Ireland’s rural economy”.

“All timber in award projects was sourced in sustainably managed forests and conforms to the EU Timber Regulation”

WAI is a partnership between a diverse range of stakeholders who believe passionately in wood and the role it plays in sustainable living and climate change mitigation. We acknowledge all the stakeholders who have entered this partnership including the jury, chaired by Ciaran O'Connor, State Architect and President, RIAI, who has been with this project from the beginning. This year, in addition to Ciaran, we acknowledge the input of Catherine Crowe, LUCA Architecture, Neil Kerrigan, EI, Karen McEvoy, Bucholz McEvoy Architects, Simon O'Driscoll, Simon O'Driscoll Furniture and Des O'Toole, Coillte and FII. Thanks to Dr. Sandra O'Connell, Director of Architecture and Communication RIAI for promoting WAI. We are grateful to Pat O'Sullivan, Technical Director, Society of Irish Foresters for invaluable editorial and administrative support. Thanks also to Karlo Benic, Facilities Coordinator, RIAI. Special thanks to Michael Warren for making the beautiful award sculptures.

Unlike in previous years when the jury visited projects, Covid-19 restrictions confined us to making selections based on individual applications while the RIAI poster exhibition provided additional information. These, along with a robust Zoom debate provided the judges with sufficient information to make informed choices.

It's important not to let this occasion pass without paying tribute to past WMF members for laying the foundations for this year's event These include John McLoughlin and Gerard Murphy, Coillte, Paul Harvey, Arch Timber Protection, Anne Jefferies, and the late Christy Conway, Michael Lynn and Dr. Eugene Hendrick, COFORD, Paddy Bowes, Wood NI, Patrick Murray, Murray Timber Group, Jim McNamara, Laois Sawmills Ltd., the architect and environmentalist Duncan Stewart, Richard Lowe, Coillte, David Venables, AHEC and EI representatives Willie Fitzgerald and the late Sean Wiley.

WAI 2020 would not have taken place without the funding from a number of organisations. We acknowledge the continuous support and funding by the Forest Sector Development Division of COFORD and the personal interest taken in the project by Fergus Moore, Senior Inspector DAFM. We also acknowledge funding for the WAI international category by EI and the support of Neil Kerrigan, Head of Manufacturing, Engineering & Energy Commercialisation. Finally we thank all applicants for entering the awards and making submissions of exceptionally high quality.

All these supporters and stakeholders, demonstrate that WAI is a collaboration that begins in sustainably managed forests which maintain the continuous supply of wood as ultimately, wood is a renewable resource, unlike fossil based material. Wood is an essential 21st century sustainable building and design medium, which is why Wood Awards Ireland is worth nurturing and supporting. .

Donal Magner
Project Manager
Wood Awards Ireland 2020

“WAI 2020 is a partnership between a diverse range of stakeholders who believe passionately in wood and the role it plays in sustainable living and climate change mitigation.”

WOOD AWARDS IRELAND SCULPTURES BY MICHAEL WARREN

The presentation of original sculptures in wood to the competition winners is a feature of the Wood Awards Ireland competition. Since its inception in 2014 these works have been created and made by Michael Warren Hon. MRIAI, one of Ireland's foremost sculptors. He was commissioned by the Wood Marketing Federation, not just because of his international status but also because wood has been the medium of choice in many of his challenging and inspiring works. In addition to Ireland, he has been commissioned to create public sculptures in Andorra, Ecuador, England, France, Japan, Korea, Morocco, Portugal, Saudi Arabia, Spain, Taiwan, United States of America and the West Indies.

Since the 1970s Michael Warren has held a number of major national and international exhibitions. More recent solo exhibitions include *Unbroken Line* in the Centre for Contemporary Art, Carlow (2010); *Gravity* in the Crawford Art Gallery, Cork (2011); *One Foot in the Real World* in the Irish Museum of Modern Art, Dublin (2013); *Those who go / Those who stay* in the Limerick City Gallery of Art (2014) and *Predella*, Galerie Weiller, Paris (2016). His work has been exhibited at solo and groups shows in the Hillsboro Fine Art Gallery, Dublin between 2005 and 2018.

Michael Warren has received Irish and international awards including the Macaulay Fellowship (1978), Mont Kavanagh Award for Environmental Art (1980); Utsukushiga-Hara Open-Air Museum Award, Japan (1989), Medalla al Mérito Artistico, Madrid (1991) and Decoration of Cultural Merit, from the Government of Ecuador (1998). Michael Warren was conferred with Honorary Membership of RIAI in 2012.

Tulach a' tSolais (Mound of Light)
Oulart Hill, Co. Wexford
Michael Warren 1998-99

Michael Warren with the Wood Awards Ireland 2020 sculptures, to be presented to the outright winner and category award winners.

OVERALL WINNER WOOD AWARDS IRELAND 2020

PROJECT
Center Parcs, Ireland
Ballymahon, Co. Longford
John Sisk & Son (Holdings) Ltd.

PROJECT TEAM
Architects: Holder Mathias Architects

Project Manager: James Moloney, John Sisk

Engineers: Philip Duffy, D & S Baucon Ltd., Peter Brett Associates

Timber joinery: Dave Tracey, John Sisk Joinery

Engineered wood subcontractors: Wiehag Timber Constructon

Opposite: Entrance to Aqua Sana Spa, Center Parcs Ireland, Co. Longford

Center Parcs Ireland was chosen as the overall winner of WAI 2020. Completed by John Sisk & Son (Holdings) Ltd., this large-scale leisure project explored wood in all its forms from solid timber to engineered wood comprising glulam and cross laminated timber (CLT).

Located near Ballymahon, Co. Longford, Center Parcs provides a world-class family holiday destination within Ireland, a real alternative to overseas family breaks. The €233 million resort includes 466 self-catering lodges and 30 apartments. The lodges were designed and built in strict accordance with Irish Building Regulations and are A2 energy rated.

All wood used in the project was Forest Stewardship Council (FSC) and Programme for the Endorsement of Forest Certification (PEFC) certified. The imported wood was in rough sawn format which was then manufactured in an Irish sawmill to a wide range of different sizes. Once machined, the wood was treated with wood preservative Celcure M65 to increase its durability and lifespan.

“All wood used in the project was Forest Stewardship Council (FSC) and Programme for the Endorsement of Forest Certification (PEFC) certified.”

Treatment of the wood well in advance of delivery to site was critical in order to ensure correct moisture content for installation during different times of the year. This can be particularly challenging on site during winter months when the levels of moisture are particularly high so careful planning was required to ensure timely supply to site of seasoned materials.

Wiehag was the specialist Austrian subcontractor employed to deliver the glulam and cross laminated timber (CLT) packages for the Subtropical Swimming Paradise (STSP), the focal point of the Center Parcs development. Wiehag developed a 3D model for the glulam and CLT superstructure of the STSP. This was fabricated with the main substructure 3D model – produced by the design team – to ensure that the critical interface between the glulam curved arches and the reinforced concrete buttress columns – rising two storeys out of the underground plant room basement – was managed effectively.

NORWAY SPRUCE
Picea abies

EUROPEAN LARCH
Larix decidua

WESTERN RED CEDAR
Thuja plicata

SIBERIAN LARCH
Larix sibirica

ELLIOTIS (SLASH) PINE
Pinus elliottii

BANGKIRAI
Shorea laevis

CATEGORY A

LARGE-SCALE PUBLIC BUILDINGS

Open to public and commercial buildings, commissioned by community, public or private clients.

WINNING PROJECT
Sandford Park School

ARCHITECTS
O'Donnell + Tuomey

HIGHLY COMMENDED
McCullough Mulvin Architects

COMMENDED
ARCEN Architects

Opposite: detail of Sandford Park School.

WINNER
LARGE-SCALE PUBLIC BUILDINGS
SANDFORD PARK SCHOOL

Architects: O'Donnell + Tuomey
Sheila O'Donnell, John Tuomey, Darragh Collins, Jitka Leonard
Engineers: M&E Engineers
Structural Engineers: Horganlynch
Main Contractor: Townlink

IROKO
Milicia excelsa

DOUGLAS FIR
Pseudotsuga menziesii

BIRCH
Betula spp.

This new school, comprises ten classrooms, three meeting rooms, internal and external social spaces and ancillary accommodation. It is a two-storey brick and timber building, with hardwood timber windows and exposed timber trusses and roof joists internally.

At the heart of the building is a large social space with forum seating which links the two floors and the external space with views to the playing fields beyond. The character of the social space is defined by the carefully selected materials, mainly timber.

The forum seating is iroko hardwood, with walls lined in birch-faced plywood. Large hardwood timber windows, above the lockers, flood the space with natural light along with higher level windows on the opposite wall which face in a more south/east direction.Two large timber trusses with exposed steel connections define the space above with exposed timber joists, working in tandem to support the roof cladding above. An acoustic treatment of wood wool has been inserted between the joists to enhance the atmosphere of the space. A smaller truss is carefully placed on top of each concrete column along the circulation space on the first floor, continuing the language of timber throughout.

HIGHLY COMMENDED
GLOBAL BRAIN HEALTH INSTITUTE
TRINITY COLLEGE DUBLIN

Architects: McCullough Mulvin
Quantity Surveyor: Linesight
Fire engineering: Factfire
Engineering: JVT
Lighting Design: ARUP
Main Contractor: Monami Construction

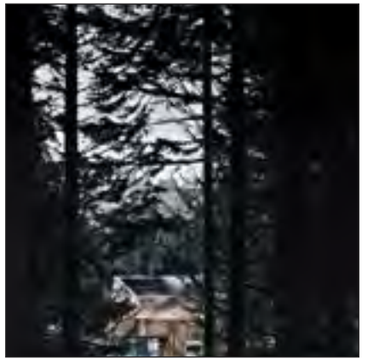
> *"McCullough Mulvin's approach to making new facilities for the Institute began with the end users gaining an understanding of the brief, their work and research into dementia and brain health..."*

OAK
Quercus robur

The Global Brain Health Institute is a remarkable initiative between Trinity College Dublin and the University of California, San Francisco. McCullough Mulvin's approach to making new facilities for the Institute began with the end users, gaining an understanding of the brief, their work and research into dementia and brain health, and developing this building to make a distinctive place to support this. What captured our imagination is the potential for the project to tell the story of the research; to mirror the operation of the brain. The design intent aimed to unite the functional zones of the office plan into a single architectural language. Externally, new large curtain walling brings natural light deep into the plan of the new facility. Internally, the regular column grid of the plan is transformed by folded timber walls which are carefully positioned to create pockets of space with the office space and circulation areas.

COMMENDED
DAVAGH DARK SKY OBSERVATORY

Architects: ARCEN
Structural and Civil Engineers: ARCEN
Interpretative Design: Tandem Design
Landscape Architects: Paul Hogarth Co.
Main Contractor: Lowry Building
Services Engineers: BR Design
QS: Hastings & Baird



Davagh Forest boasts one of the ‘darkest skies’ in Ireland and was chosen as the location for a New Visitor Centre and Dark Skies Observatory by the Mid Ulster District Council (MUDC). The site has subsequently been registered with the International Dark Skies Association (IDA). Strategically located within a small cleared valley, it opens up naturally to the southern skies.

The hub is of lightweight construction and includes a pre-fabricated steel frame, timber stud infill and western red cedar cladding on a concrete plinth perched on piles with a perimeter timber deck walkway appearing to float above the existing fern.

A sedum green roof provides habitat and food sources for a wide range of wildlife while seamlessly integrating the building into the surrounding landscape and enhancing the building's thermal properties, thus reducing energy consumption. Board on board timber cladding was used as a sympathetic and considered material response to allow the building form to sit comfortably in this sensitive site.

WESTERN RED
CEDAR
Thuja plicata

CATEGORY B

SMALL-SCALE PRIVATE BUILDINGS

WINNER
Pavilion House
Robert Bourke Architects

HIGHLY COMMENDED
House, coach house, garden
Culligan Architects

HIGHLY COMMENDED
Farm Manager’s House Meadow
Court Stud
Lawrence & Long Architects

COMMENDED
Glenavy
Donnelly Turpin Architects

WINNER
PAVILION HOUSE

Architects: Robert Bourke Architecture
Project Architects: Anna Pierce
Contractor: Principal Construction Ltd.
Project Engineer: Denis Kelly & Associates

The original brief was to renovate and improve an existing 1950s bungalow for a couple who were downsizing from a much larger Victorian house in Co. Wicklow.

The bungalow was one of a row of four identical houses on a sloping site in the south Dublin suburbs. Having presented the clients with design options for reconfiguring the original house, their preference was to replace the house with a new structure that would better suit their brief.

The new dwelling utilises a large pitched roof profile with terracotta tiles, reflecting the strongest feature of the three neighbouring houses.

DOUGLAS FIR
Pseudotsuga menziesii

BIRCH
Betula spp.

EUROPEAN OAK
Quercus robur.

The triangular site informed the decision to provide additional space to the front of the house. This is achieved by adding a smaller, pitched roof pavilion, which houses a guest bedroom. Subtle level changes within the house and gardens follow the contours of the sloping site. Exposed, board-marked concrete is used for the retaining walls of the gardens and the chimney breasts, which are structural elements that support the main roof. A mezzanine living room has a large window overlooking Dublin Bay and views over the ground floor living spaces. The exposed Douglas fir rafters of both roofs are lit by large roof lights, creating a warm and atmospheric sense of enclosure.

The pavilion is expressed as a smaller version of the main house and is connected to the dining area via a glazed corridor. Unlike the main house, with its masonry walls, the pavilion is constructed almost entirely from solid Douglas fir posts and beams. Window frames are concealed behind the posts to create the appearance of an open frame.

> *“The exposed Douglas fir rafters of both roofs are lit by large roof lights, creating a warm and atmospheric sense of enclosure.”*

HIGHLY COMMENDED
FARM MANAGER’S HOUSE MEADOW COURT STUD

Architects: Lawrence and Long Architects
Consulting Engineers: Cora
Contractor: MJ Duncan and Sons Ltd.

IRISH OAK
Quercus robur

IROKO
Milicia excelsa

The organisation of the house is an upside-down house, with the living quarters above and sleeping quarters below in a part buried floor. External terraces are provided over both levels: at upper ground floor level, the terraces afford panoramic views across the meadows of the farm, while at lower ground floor, the single linear terrace (south-facing) forms an extension of the space of the bedrooms.

The building is composed of a tectonic frame structure of steel and timber on a stereotomic base of stone. For the timber, both iroko and oak are used with oiled iroko employed externally for its durability and oak internally for its warmth of colour. The finishes applied, maintain the visibility of the wood’s natural grain.

For the design of each element specific pragmatic concerns of weathering, assembly and operation were important, but equally important was a person’s perceived sensorial engagement with them. This is perhaps most evident in the design of the front entrance to the house. The entrance is composed of two iroko doors – an outer screen door which ties in with the adjoining timber rainscreen cladding and an inner glazed picture frame door – timber lined head and jambs with recessed lighting and a limestone threshold.

HIGHLY COMMENDED
A HOUSE, COACH HOUSE, GARDEN

Architects: Culligan Architects
Structural Engineer: Tom Culligan Cora Consulting Engineers
Main Contractor: Ruby Building Timber
Engineering Contractor: Matthew O' Malley
Joiner, External Windows and Doors: Fitzpatrick & Henry

A new house and existing coach house are located within the garden of a protected structure to the rear of Prince Edward Terrace Lower, Blackrock, Co. Dublin. The approach to the site was driven by the idea of creating a series of garden spaces to the front, middle and rear of the site.

The house is entered through a timber canopy structure to the front of the house. This is made from Irish grown Douglas fir timber which has been stained black. The living room in the house has an exposed timber roof structure made again from Douglas fir structural beams, joists and T&G decking boards.

Sunlight entering the living room to the rear of the house forms dramatic shadows across the internal brick walls as its passes through the rhythmical vertical Douglas fir timber fins along the clerestory glazing.

The house both externally and internally uses a restrained material palette. The use of timber throughout the project was done to create a comfortable and warm environment within the house and use sustainable materials with low embodied energy.

MAPLE
acer platanoides

The existing coach house, a historic structure was maintained as a separate entity acknowledging its existence as a standalone building.

WESTERN RED CEDAR
Thuja plicata

An external courtyard which takes advantage of the irregular geometry of the site constraints was created between the existing coach house and the new house. The new additions to the coach house at ground floor level are clad in western red cedar which has been stained black.

DOUGLAS FIR
Pseudotsuga menziesii

The house makes the most of its orientation, accoya timber windows and glazed doors are carefully positioned to ensure that the interior spaces reflect the changing lights and seasons.

COMMENDED
GLENAVY

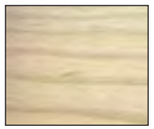
Architect: John Winslow
Donnelly Turpin Architects
Structural Engineer: Arthur Shirran
Consulting Engineer: Torque
Contractor: Kieran Doran
Doran Contracts Ltd.

Glenavy dates from 1870 and was one of the earliest villas constructed on the original Foxrock estate. A protected structure, it is best known as the family home of the artist Beatrice Elvery – Lady Glenavy. The design sought to re-establish a direct relationship between the house and surrounding gardens.

The extensive and varied use of timber evolved during the design process and blends with the adjacent diverse mature woodland. The new intervention takes the form of a simple timber box using different timbers internally and externally such as six metre tall vertical charred larch slats while internally Douglas fir is used in exposed floor joists, rafters, wall panelling and joinery.

The light timber palette extends to the bespoke steamed solid Irish ash dining table which forms the sculptural centre-piece in the new dining space while the Douglas fir slats in the kitchen and charred larch create a cohesive language throughout.

EUROPEAN LARCH
Larix decidua



ASH
Fraxinus excelsior

DOUGLAS FIR
Pseudotsuga menziesii

PINE
Pinus spp.

IRISH OAK
Quercus robur

CATEGORY C
INTERNATIONAL

Winner: Goldsmith Street, Norwich
Cygnum Building Offsite

WINNER
GOLDSMITH STREET, NORWICH BY CYGNUM BUILDING OFFSITE

Client: Norwich City Council

Timber frame company: Cygnum Building Offsite
Architect: Mikhail Riches
Contractor: RG Carter
Services Engineer: Greengauge
Passivhaus Consultants: WARM
MVHR supplier: Green Building Store

Goldsmith Street, a social housing development of 105 ultra-low-energy homes for Norwich City Council, is a highly innovative and sustainable housing scheme. It was the first social housing scheme to win the coveted Stirling Prize in 2019.

The RIBA award jury praised Goldsmith Street as: “A modest masterpiece. It is high-quality architecture in its purest most environmentally and socially-conscious form. With wood at the very heart of the project, the use of timber frame was a critical element in achieving the Passivhaus standard”.

This exemplary energy performance was achieved using a timber-based build approach, which reduced the development's embodied energy.

The project, through its development has had a positive impact on the people directly involved, and on the wider environment. Tenants enjoy the benefits of annual fuel bills of as little as £150 (€165), which helps the Council’s aspiration of tackling the issue of fuel poverty. Goldsmith Street is a development that has pushed the boundaries of design and construction; a social housing development that, through its ambitions and challenges, hopes to inspire other city councils and local authorities to follow suit.

NORWAY SPRUCE
Picea abies

CATEGORY D

RESTORATION - CONSERVATION

WINNER
Carrickfergus Castle
Roof Replacement

Winner: Kennedy Fitzgerald Architects (Lead Architect) with Alistair Coey Architects (Conservation Architects)

HIGHLY COMMENDED
Restoration of 1905 yacht 'Naneen'
Kilrush boatyard,
managed by Master Shipwright Stephen Morris

Detail of internal oak structure
Carrickfergus Castle
Coey Architects

WINNER

CARRICKFERGUS CASTLE, ROOF REPLACEMENT
COEY ARCHITECTS

Lead Architect: Kennedy Fitzgerald Architects
Conservation Architect: Alistair Coey Architects
Project Architect: Dermot MacRandal, Historic Environment Division (HED)
Main Contractor: JPM Contracts
Sub Contractor: Carpenter Oak
Project Manager: Walter Boyd, Central Procurement Directorate
Quantity Surveyor: David McDonald, Hastings & Baird
Project Sponsor: Dr. John Keefe, HED
Archaeological Inspector: Dr. Chiara Botturin, HED

“The principal trusses of the new roof are constructed from Irish oak felled by Storm Ophelia in 2017”

Carrickfergus Castle is one of the most complete Norman castles of its type in Ireland and Britain. The project, led by the Historic Environment Division, has overseen replacement of the roof to the Great Keep with an historically appropriate open oak truss design.

The works are intended to secure the integrity of the roof and allow a programme of further interpretative and conservation work within the castle complex.

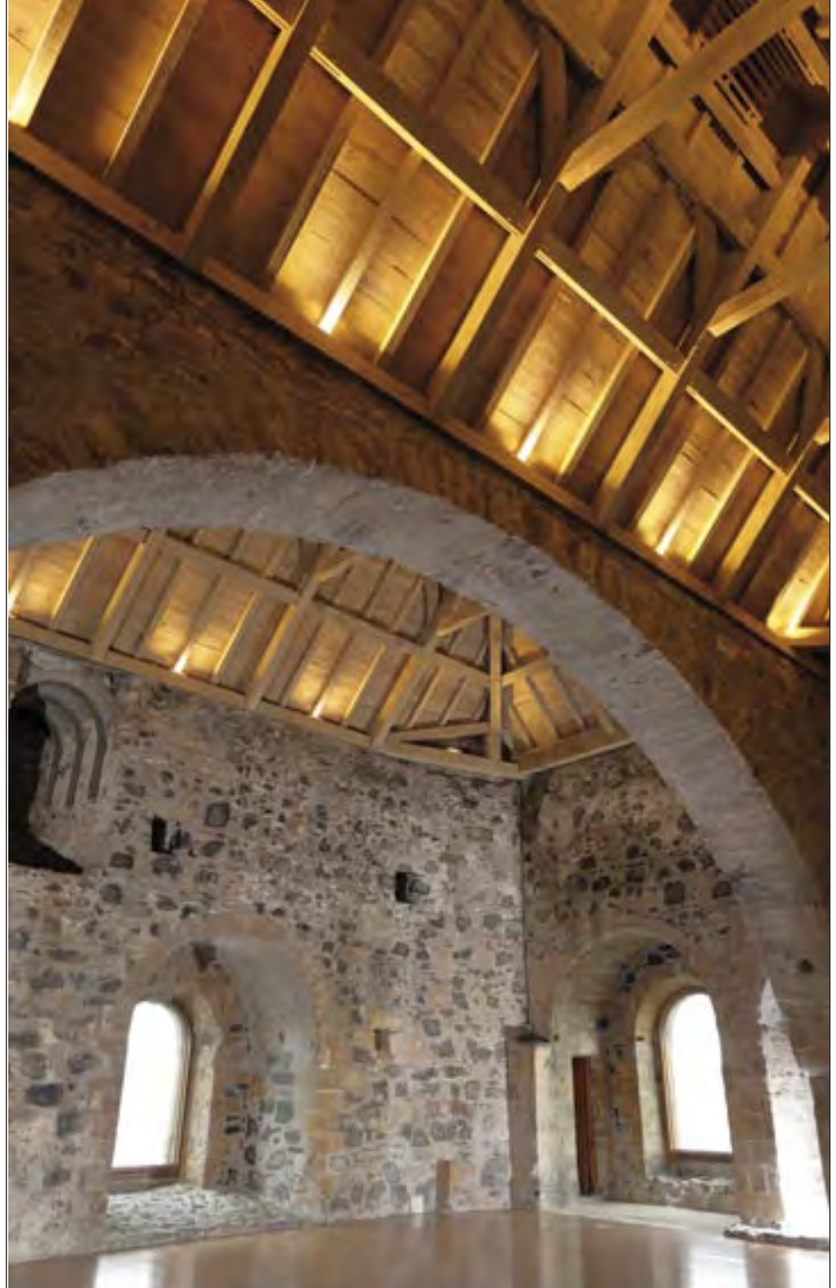
Wide engagement with the community was achieved during a symposium, hosted with the Castle Studies Group, which was held in Carrickfergus. Following this, in partnership with the local Council, a number of meetings were held with town traders, elected representatives and the public.

The principal trusses of the new roof are constructed from Irish oak felled by Storm Ophelia in 2017 which was then shaped and prepared in Devon. The timber trusses used 'green' oak-pegged without the need for nails or other metal fixings to hold them together.

The structure was clad in oak boards and finished with Cumbrian stone slate and associated lead work. The ridges of both hipped roofs are topped with louvered timber ventilation lanterns providing a passively ventilated space beneath, which mitigates the need for mechanical ventilation and its associated cost and environmental impact.

The project was delivered at a cost of just over £1m (€1.1) with the construction period running from January 2019 to February 2020.

IRISH OAK
Quercus robur



“The ridges of both hipped roofs are topped with louvered timber ventilation lanterns providing a passively ventilated space beneath…”

HIGHLY COMMENDED
RESTORATION OF 1905 YACHT 'NANEEN'

Master Shipwright: Stephen Morris
Project Manager: Fionan de Barra
Naval Architect: Paul Spooner

Restoration of the yacht 'Naneen', one of a fleet of seven classic, gaff rigged yachts built in Ireland between 1903 and 1908, has attracted international attention.

Designed by the world famous naval architect, Alfred Mylne in 1902, for members of Dublin Bay Sailing Club, the fleet raced in Dublin Bay until 1986 when major structural restoration was required. The fleet was laid up in Arklow until the present project began in 2017 with the formation of The Dublin Bay 21 Footer Classic Yacht Association and the transportation of 'Naneen' to Kilrush boatyard.

This is an authentic wooden boat restoration, using Alfred Mylne's original drawings supplemented by construction details provided by the naval architect, Paul Spooner.

The original two-ton lead ballast keel has been reused together with the original iron tiller and fittings and some greenheart and pitch pine from the original vessel.

Central to the project has been the combination of the traditional skill of the shipwright and the application of the latest technical knowledge in timber conservation and innovative wooden boat construction.

The result clearly illustrates the effectiveness of wood as a structure and as a lightweight skin, capable of withstanding the toughest of marine environments.

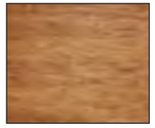
The innovative use of laminated beams and frames and epoxy resins has combined to create a stiff, water tight, low maintenance, monocoque hull, without nails or screws, which allows the use of durable two-pack polyurethane finishes. 'Naneen' is the first of the fleet to be restored.

Three more vessels are underway at Kilrush Boatyard, led by Stephen Morris, who now employs four trades people and one apprentice.

IROKO
Milicia excelsa

DOUGLAS FIR
Pseudotsuga menziesii

YELLOW CEDAR
Chamaecyparis nootkatensis



MAHOGANY
Swietenia macrophylla

PITCH PINE
Pinus rigida

GREENHEART
Chlorocardium rodiei

CATEGORY E

FURNITURE

WINNER
Vinculum Series
Alan Meredith

Opposite: Vinculum console drawer
Alan Meredith

WINNER FURNITURE
VINCULUM SERIES
ALAN MEREDITH

ASH
Fraxinus excelsior

IRISH OAK
Quercus robur

The intention of the 'Vinculum Series' body of work is to create functional surfaces that merge directly into the structure of the piece. The common thread within the series is the use of steam bent sections of wood. Through the process of reading the properties of the material and exploring its possibilities, new and original forms emerge.

The solid sections of material allow the works to be carved and shaped into more refined compositions, revealing the depth of the material and its tactile qualities. The innovative aspect of the process comes from the research and experimentation that has gone into the steam bending apparatus that allows the ambitious sections of wood to be bent into tight curves. This process involves a steam chamber, oriented strandboard (OSB) templates and a stainless steel strap and clamping mechanism which is specifically tailored to each piece.

The process of steaming consists of taking completely unseasoned wood and placing it in a steam chamber for up to three hours. It is then removed, placed in the bending apparatus and quickly bent into shape. It is left overnight and then placed on a drying rack of similar geometry for a number of weeks. The wood then naturally dries very quickly in a warm workshop due to the structural changes the steaming process has caused to the wood.

This aspect of the process is significant as it means the steaming process allows both form making and wood drying to be one and the same. The need for kiln drying and wood glue is thus reduced significantly compared with similar forms made from glulam.

Introduction:

Due to the increasing focus on the use of sustainable construction materials to meet environmental targets, related to energy use and carbon emissions, there has been a resurgence of interest in timber buildings. Developments in engineered-wood construction products, such as cross laminated timber (CLT) panels, have transformed the building landscape, due to its inherent strength and sustainability credentials. CLT is increasingly being used in commercial and residential construction as a replacement for more carbon-intensive materials including multi-storey buildings, such as the recently completed 84 m tall HoHo building in Vienna (*Figure 1*).

Currently, the only option in Ireland is importation of CLT manufactured in central Europe or Scandinavia. While this may result in a lower carbon footprint than using steel or concrete, a preferred option is to use Irish-grown timber. With forecasts predicting large increases in timber coming to the market in the coming decade due to an ambitious afforestation programme in the 1990s, a significant opportunity exists for the Irish wood products sector including the potential use of Irish timber to manufacture CLT.

Researchers at NUI Galway have developed and tested a viable CLT product from Irish-grown Sitka spruce, which meets the structural requirements of current design standards.

Figure 1: 24-storey HoHo Building in Vienna used over 14000 m² of CLT

What is CLT?

CLT is a multi-layer engineered wood product made of at least three orthogonally bonded layers of timber. In order to increase rigidity and stability each layer of boards is placed cross-wise to form a solid rectangular-shaped timber panel (*Figure 2*). This engineered wood product may be sized, cut and shaped accordingly off-site into ready-to-use wall, floor and roof components, which are assembled to form complete frameworks. This maximises efficiency on all levels improving construction and project delivery time and reducing labour costs.

CLT Panel processing parameters:

In Europe, commercial CLT is currently manufactured primarily from Grade C24 Norway spruce. As Irish Sitka spruce is graded as C16, tests were carried out at NUI Galway to identify suitable adhesives and associated pressing parameters to guarantee the integrity of the bond between the different CLT layers [1]. One component polyurethane and two component phenol resorcinol formaldehyde both produced reliable bonds when using specific pressure and press times.

Figure 3: Large scale Irish CLT floor panel being tested to EN 16351 [4]

Irish CLT floor panels:

To establish the load-bearing capacity of Irish Sitka spruce CLT panels, a programme of full-scale bending tests (*Figure 3*) was carried out for a range of panel spans and thicknesses. The stiffness and strength values exceeded the theoretical values in all cases [2,3]. Characteristic values were established for use in design.

When compared to commercial CLT panels made from C24 timber, the C16 panels required an increase in thickness of less than 12% to achieve the same performance. The testing programme has confirmed the suitability of Irish Sitka spruce as a feedstock for CLT manufacture.

Figure 4: CLT wall element being lifted into place on the Murray Grove Building, London, UK

Figure 5: Typical steel fixings for connecting CLT panels [rothoblaas.com]

Irish CLT panel connections:

Typically CLT panels are lifted into place and connected using steel brackets in combination with steel fasteners (*Figures 4 and 5*). As part of the investigation of Irish CLT, typical connections were tested with screws of varying lengths to determine their capacity and to examine their influence on the connection behaviour (*Figure 6*). An example of the results of a cyclic shear test on a bracket connection is shown in *Figure 7*. The experimental test results were compared to current design calculations available in Eurocode 5 (EC5) [4]. The results indicated that these typical brackets can be successfully used in connections between Irish Sitka spruce CLT panels [5].

Figure 6: Testing of bracket connection in tension

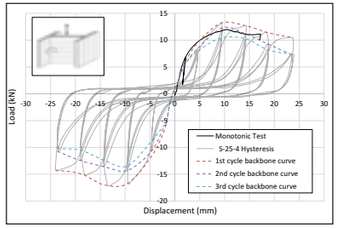


Figure 7: Hysteresis loops of shear test specimen with associated backbone curves and monotonic test curve [5]

Conclusions:

This study has established the viability of using grade C16 Irish Sitka spruce to produce structural CLT panels. Suitable adhesives and pressing parameters to achieve bond integrity have been determined. The load capacity of CLT floor systems has been established and characteristic values for design are now available. Current steel fastener technology has been shown to be suitable for connections between Irish CLT panels. Further work is required on upscaling the technology from laboratory scale to full commercial production and the inclusion of finger-joints for large scale panels.

The results of this project can provide a basis for the use of Irish-made Sitka spruce CLT panels for structural applications in buildings. The establishment of a CLT industry in Ireland has the potential to improve rural and forestry economies in addition to the environmental sustainability benefits.

Acknowledgement:

This work was carried out as part of two projects funded by the Department of Agriculture, Food and the Marine under their competitive research call: 'Innovation of Irish Timber Usage' (Project Ref 10/C/207) and 'Commercialisation of Irish CLT' (Project Ref. 15/C/694).

CATEGORY F

INNOVATION

WINNER
Irish Cross Laminated Timber (CLT)
Timber Engineering
Research Group,
National University of Ireland
Galway

HIGHLY COMMENDED
Oak Vessels
Alan Meredith

COMMENDED
Butter Knives
Chaim Factor,
Hill Picket Studios

COMMENDED
East Pavilion
OGU Architects

COMMENDED
Little Tulips of Gold
Emmet Kane

Opposite: NUIG poster explaining CLT research project.

WINNER
IRISH CROSS LAMINATED TIMBER (CLT)
TIMBER ENGINEERING RESEARCH GROUP, NATIONAL UNIVERSITY OF IRELAND GALWAY

Project team
Dr. Conan O'Ceallaigh
Prof. Annette M Harte

Timber suppliers:
Murray Timber Group
ECC Timber Products

CLT is a multi-layer panel product made of at least three orthogonally bonded layers of timber (five here). Sitka spruce is suitable for CLT which provides exceptional rigidity and dimensional stability.

Developments in engineered-wood construction products, such as CLT panels, have transformed the building landscape due to their inherent strength and sustainability credentials. CLT is a multi-layer panel product made of at least three orthogonally bonded layers of timber, which has exceptional rigidity and dimensional stability. CLT is precision manufactured offsite thereby maximising efficiency on all levels, improving construction and project delivery time and reducing labour costs.

CLT is now beginning to displace carbon-intensive steel and concrete in demanding structural applications such as multi-storey buildings. In central Europe and Scandinavia, CLT is primarily manufactured from grade C24 European spruce.

Researchers at NUI Galway have developed and tested a viable CLT product made from Irish-grown Sitka spruce, which meets the structural requirements of current design standards.

Having established adhesive type and pressing parameters compatible with Irish-grown Sitka spruce, the next phase involved the design, manufacture and testing of Irish CLT panels to European standards to establish their strength and stiffness and to establish appropriate values for design. In the final phase of the work, industry standard connection technology for joining the panels was investigated through a laboratory testing programme.

This study has established the viability of using grade C16 Irish-grown Sitka spruce to produce structural CLT panels. Suitable adhesives and pressing parameters to achieve bond integrity have been determined. The load capacity of CLT floor systems has been established and characteristic values for design are now available. When compared to commercial CLT panels made from C24 timber, the C16 panels required an increase in thickness of less than 12% to achieve the same performance. Additionally, current steel fastener technology has been shown to be suitable for connections between Irish CLT panels.

HIGHLY COMMENDED
OAK VESSELS
ALAN MEREDITH

IRISH OAK
Quercus robur

"Turned and hollowed from solid pieces of unseasoned oak, the intention is to create wholesome and strong forms that reveal the qualities and strengths of the oak..."

These sculptural wood-turned vessels are made from locally sourced Irish oak, Ireland's national tree and a material with exceptional qualities, longevity, strength and character.

Turned and hollowed from solid pieces of unseasoned oak, the intention is to create wholesome and strong forms that reveal the qualities and strengths of the oak, which has a robust character and is malleable when steamed. The works are a dialogue between hand and material, a dialogue which aims to create a distilled complexity; visually calm and are skilfully executed. Through the sympathetic manipulation of the material one hopes to explore new possibilities and original forms.

The solid oak pieces are turned on the lathe to a thickness of 3mm. This transforms the oak into a flexible and pliable material which, once steamed, can be manipulated into new and exciting forms. Once the oak dries it becomes soft again and holds its new form. Great care and skill are required to ensure an even-wall thickness and to create a balanced and lightweight work.

COMMENDED
BUTTER KNIVES
CHAIM FACTOR,
HILL PICKET STUDIOS

IRISH OAK
Quercus robur

SYCAMORE
Acer pseudoplatanus

> *“A vital consideration of the design research was to investigate the possibility of adding value to a raw material that is locally sourced…”*

A set of commonly used table utility tools for use with butter, paté, relish, jams etc. The design brief sets out to enhance the classical ‘Paddle’ butter knife and secondly to reimagine the design through the perspective of material use, sustainability and manufacturing techniques. A vital consideration of the design research was to investigate the possibility of adding value to a raw material that is locally sourced and openly accessible for low to moderate manufacturing and market requirements.

The knives are presented in white sycamore. The whiteness is achieved by early sawing and then standing the freshly sawn stock in a vertical position before the sugars in the sap can create colour in the wood grain.

The handles are presented in Irish oak. The oak components of each knife have been selected from radial sawn stock for maximum stability and were then fumed with ammonium hydroxide to enrich the colour and heighten the contrast with the white sycamore. The ammonium hydroxide reacts with the tannins in the oak and enhances the medullary rays in the quarter sawn stock.

COMMENDED
EAST PAVILION
OGU ARCHITECTS

Architect: OGU Architects
Project architects: Donald McCrory Architects
Structural engineer: OCNS Belfast
Main contractor: Farrans Construction

MONTEREY PINE
Pinus radiata

Cultural identity can be a divisive issue in Belfast's communities, and tensions are heightened in areas such as the pavilion's location, which have lost prosperity as surrounding factories have closed. It was important to find cultural common ground shared across the communities neighbouring the site. The Belfast Truss used in this pavilion design represents the area's history of manufacturing ingenuity. Many of the city's largest factories had such a roof.

Even though this project references history, it is not a nostalgic look backwards, but an opportunity to draw attention to emerging construction innovation in Northern Ireland, and contribute to the local economy. The design is an assembly of three elements, each of which is crafted in a local factory. Traditional craft skills were combined with innovative technologies in order to create bespoke building components that could be rapidly assembled on site. Joiners BPJ Group worked from the architects’ models and detailed drawings to produce 1:1 scale prototypes of the trusses and joints between elements using CNC in order to develop the design of each connection. The entire timber roof structure was assembled in the factory to test the fit of each element before being dismantled and transported to site.

The pavilion consists of an accoya structure crafted by the BPJ Group; a corten steel roof manufactured by Fabrite in Lisburn; and concrete footings cast by Moore Concrete Products in Ballymena.

COMMENDED
LITTLE TULIPS OF GOLD
EMMET KANE

Ross Lewis, Michelin star winning head chef, commissioned Emmet Kane to create sculpture pieces for each table in his Chapter One restaurant in Dublin. These pieces were to be small enough not to overpower the tables but needed to be compatible with the innovative cuisine and overall ambience, which has a minimalist design theme with contemporary paintings and sculptures.

Several sample pieces were created from oak which was ebonised and gilded with 23c gold leaf. The final form selected was a design Emmet Kane had created on a larger scale in a series of pieces entitled 'Tulip'. A number of challenges had to be overcome to create a smaller edition for the 'Little Tulips of Gold' series. They needed to be stable enough to sit on the table, yet sturdy if handled and admired, while retaining their elegance and refinement. The pieces were turned from Irish green oak and left to dry for a number of weeks. They were textured, and ebonised using the natural tannin in the oak which reacts with iron oxide. Danish oil was then mixed with graphite which gives an almost metal like finish. The inside of each piece is sanded and gilded with 23c gold leaf. To enhance stability, each piece is fitted with a rare earth magnet which sits on a 40mm steel disc. All 24 pieces are similar yet each one has its own unique characteristic.

IRISH OAK
Quercus robur

CATEGORY G

THIRD LEVEL STUDENT WOOD AWARDS

HIGHLY COMMENDED
E3 Rocking Chair
Elysia Taylor,
Technological University, Dublin

HIGHLY COMMENDED
Constructive Assembly
Eoghan Smith,
University College Dublin

COMMENDED
Shifting Sands
Nigel Wynne,
University College Dublin

COMMENDED
Dominick Street Housing
André Goyvaerts
University College Dublin

COMMENDED
Methodology for reuse:
Circular Economy
Aisling Mulligan
University College Dublin

HIGHLY COMMENDED

E3 ROCKING CHAIR

ELYSIA TAYLOR,
TECHNOLOGICAL
UNIVERSITY
DUBLIN

Inspired by Michael Thonet's rocking chair No.21, this original piece, designed and manufactured by Elysia Taylor features new methods in manufacturing and advances in woodworking technology. Thonet's chair was made pre 1950s and since then woodworking techniques have advanced significantly, so the aim was to incorporate modern techniques and use them as an inspiration to design and manufacture an innovative rocking chair.

The project involved research into prototypes, calculations of the centre of gravity, veneers versus solid timber, adhesives, material choice and formers manufactured on a computer numerical control (CNC) router. The modern technique used was to construct the chair using veneers instead of steam bending as 30 beech veneers were laminated and glued together.

CNC was used to cut out the formers for bending the components using medium density fibreboard (MDF). In relation to dimensions, a rocking chair should be a personalised piece of furniture and made for an individual. The design of this rocking chair was to create a continuous flow and ease. The long length of veneers allowed the rocker and side of the chair to be one continuous piece. By using one piece, multiple curves were incorporated within one length. The rails were then joined to both sides using traditional dovetail joints.

In addition to the traditional joints, Elysia incorporated complex angles within every joint. This allowed the chair to be tapered in both directions, creating an appealing visual effect. Using 0.5mm veneer sheets with the correct adhesive, the rocking chair was structurally achieved and also displayed its functional strength. The student also expanded her skills by studying upholstery.

BEECH
Fagus

HIGHLY COMMENDED

CONSTRUCTIVE ASSEMBLY

EOGHAN SMITH,
UNIVERSITY COLLEGE
DUBLIN SCHOOL OF
ARCHITECTURE

This thesis is interested in the emergence of different architectural languages in the city – from the spontaneous and informal on one hand, to the more formal, institutional on the other – and their capacity to foster an inclusive and participatory relationship between the city's architecture and its citizens.

Taking the Irish Citizens' Assembly as a point of departure, this thesis imagines a site in the city where public participation in the Irish democratic process is given physical and symbolic status. A new Citizens Assembly Building on the corner of Merrion Square proposes an architecture in which inclusive, deliberative dialogues in the democratic process are facilitated and celebrated.

The Assembly Room is elevated in a timber, tensile structure which draws from the language of temporary festival tents and stadiums - buildings where a clear articulation of the assembly of structure becomes representative of the assembly of people.

Each structural member, their jointing, and secondary members such as windows and gutters are given a highly expressive character in order to invite curiosity and participation. Beneath, a sunken amphitheatre is carved into the park to form a citizens' information centre – a space for dissemination which merges with the landscape of the park.

A new public plaza is proposed which claims land from the gated lawn of Leinster House, and connects the entrances of the National Gallery, the Natural History Museum and the new Assembly Building. The building's structure opens out towards the park and the new square to form stages, creating an infrastructure for performance and demonstration.

COMMENDED
SHIFTING SANDS
NIGEL WYNNE, UNIVERSITY COLLEGE DUBLIN SCHOOL OF ARCHITECTURE

DOUGLAS FIR
Pseudotsuga menziesii

EKKI
Lophira alata

GREENHEART
Chlorocardium rodiei

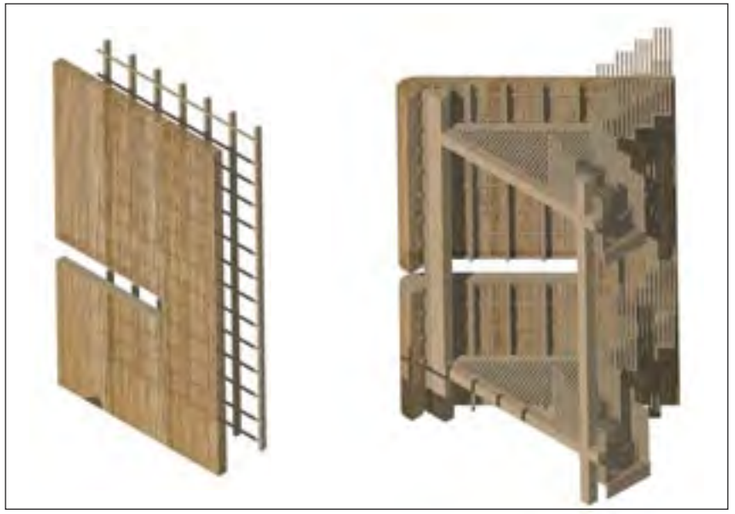
EUROPEAN OAK
Quercus robur.

The objective of this project is to create a soft infrastructure to safeguard amenity, through building with nature. ‘Shifting Sands’ seeks to understand the site context of Bull Island, Dublin Bay, its threshold between land and sea and how we can safeguard this UNESCO nature reserve amenity for future generations.

The title ‘Shifting Sands’ comes from the study of Bull Island and its formation through the initial manmade intervention of the North Bull Wall in 1825, a piece of marine infrastructure to help prevent silting within the shipping channel to Dublin port.

The sea wall through the natural process of sediment movement, called littoral drift, which is caused by the prevailing currents and winds of Dublin Bay, formed Bull Island gradually over 200 years.

The key proposal is to create 6 km of soft infrastructure between the North Bull Wall and Bull Island. This proposed infrastructure is a dune formation framework, consisting of timber slated walls and a timber walkway, to give human passage along the dunes in order to prevent tramping of existing marram grass and disturbing the ecology.



COMMENDED
DOMINICK STREET HOUSING
ANDRÉ GOYVAERTS UNIVERSITY COLLEGE DUBLIN SCHOOL OF ARCHITECTURE

NORWAY SPRUCE
Picea abies

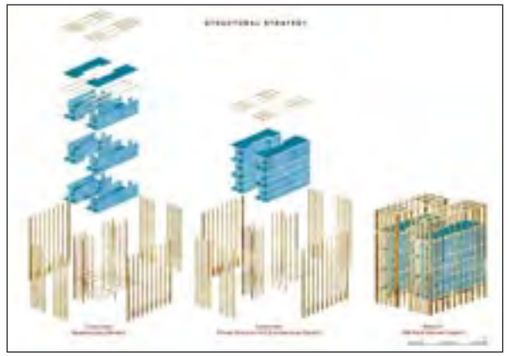
"The “Dominick Street Housing” project was the comprehensive Design Project of Semester 1 of the student's 4th Year in UCD. In this scheme, there are three residential blocks. Block A, situated at the Dominick Street front, which contains a community centre at ground level that opens onto the multi-usage square. Blocks B and C are situated facing onto Granby Lane. The three blocks comprise a total of 16 residential units, providing 16 single, double and triple bedrooms.

Structurally, he took an alternative route to his peers, and opted for a timber construction. He selected a supplier and worked from their CLT specifications (LENO® Cross Laminated Timber). He selected this company because of its commitment to sustainability and high-quality timber design. André Goyvaerts maintains climate change is a profound threat and it is becoming increasingly vital for architects to act upon the materials they use, considering factors such as embodied carbon within designs to reduce the pollution caused by industry. Wood, being the only construction material that can store CO_2, then became an attractive choice for the student and CLT is used throughout the design.

COMMENDED

METHODOLOGY FOR REUSE: CIRCULAR ECONOMY

AISLING MULLIGAN
UNIVERSITY COLLEGE DUBLIN
SCHOOL OF ARCHITECTURE



This project aims to explore a restructuring of the construction sector towards a model which embraces a circular economy. This model focuses on the use of low embodied energy materials, which can be locally-sourced and require little or no energy in their production, coupled with the reuse of construction waste.

When sustainable materials are used in conjunction with a reduction in a structure's operational energy, a huge decrease in harmful emissions is achieved.

The project focuses on several buildings in the vicinity of Tara Street, Dublin which are due to be demolished. These buildings are used as a starting point for the development of a regional inventory of materials, their constituent parts are categorised and inventorised to facilitate easy identification and reuse, thus saving them from landfill and extending their useful life.

Mass timber elements, in the form of dowel-laminated timber (DLT) panels, were used to develop a structural system based on a double skin facade.

The use of DLT panels is important as it permits the use of native Irish softwood species. The success of DLT relies on mass softwood elements held together using hardwood dowels. Once in place, the dowels absorb moisture from the softwood and expand causing friction and chemical reactions which hold the panels together, without the need for laminates or adhesives.

LONGLISTED PROJECTS

In addition to the WAI 2020 winners and commendations, the jury chose the following longlisted projects as worthy of acknowledgement.

SMALL BUILDING CATEGORY
Mariner's Mews
John McLaughlin Architects

INTERNATIONAL CATEGORY
The Sliding Chapel
Kieran Donnellan

RESTORATION-CONSERVATION CATEGORY
The Mansion House
Dublin City Architects

EXTENSION TO A PROTECTED STRUCTURE
Michael Goan and Gosia Kudyba

INNOVATION CATEGORY
Novel wood-wood connection system Timber Engineering Research Group, National University of Ireland Galway

THIRD-LEVEL STUDENT CATEGORY
Pure Line Chair
Roscoe Holt, GMIT Letterfrack

SMALL BUILDING CATEGORY
Mariner's Mews
John McLaughlin Architects

This small mews house on a corner site is located in an old part of Dún Laoghaire. The challenge was to balance strict conservation rules with the client's desire for a modern house full of daylight. The design achieves this through a generous courtyard providing sunny outdoor space with an open plan living and dining area at first floor level. The first-floor timber cladding is larch, blackened using a traditional Japanese preservation technique of charring it with fire, known as *Shou Sugi Ban*. Internally the upper-floor is framed in Scandinavian structural softwood lined with joinery made from bamboo plywood. The timber structural accoya frame gave the required flexibility to position the accoya windows so as to optimise views without overlooking adjoining properties. Features include a handcrafted oak staircase and an upper storey, which has an oak plank floor.

INTERNATIONAL CATEGORY
The Sliding Chapel
Kieran Donnellan

This project is a publicly accessible pavilion built on the grounds of an ancient citadel complex in Byblos, Lebanon. The pavilion sits on a slope above a cliff at the edge of the UNESCO World Heritage site. The pavilion is a chapel or space for contemplation. The apparent sliding effect of the external form highlights the precarious nature of the cliff-top site, as well as the instability of parts of the site which have collapsed into ruins over time. This was intended to raise awareness of the care required to maintain historical sites. The charred appearance of the wood gives the pavilion a rugged, aged appearance in line with the site and lends it a dynamic quality which resonates with that of the eccentric form. Most of the wood was sourced from disassembled waste wooden boxes.

RESTORATION-CONSERVATION CATEGORY
The Mansion House
Dublin City Architects

Built in 1710, the Mansion House is the oldest free-standing house in Dublin. It is a rare example of Queen Anne style architecture. The project is part of ongoing series of conservation, modern interventions, repair and investigation works. Conservation repairs were carried out by craft specialists to best international practice, to the structure, floorboards and to the lath and plaster ceilings. The original Baltic pine floorboards were revealed to have saw marks from an Icelandic water saw. Salvaged oak floor boards from The Red Stables in St. Anne's Park, Raheny were used to craft modern design while adding a fresh layer of history. The new four-poster bed was executed from salvaged oak using crisp Kahnesque detailing. Simple dowel jointing was used and a Danish oil finish was applied.

RESTORATION - CONSERVATION
Extension to a protected structure
Michael Goan and Gosia Kudyba

The architects received planning permission for an extension to this protected structure within the volumetric confines of a previously granted scheme. The internal layout was developed using Passive Haus principles. The hierarchy of spaces and functions internally informs the rhythmic break-up of the gently curving glazed facade externally. The use of untreated oak and corten steel on the facade is tonally and materially harmonious with the weathered local granite of the existing protected structure. Internally the use of natural materials such as charred larch and reindeer moss and the re-use of granite excavated from the site in the polished concrete floor ground this uncompromisingly modern extension in its unique historic context.

INNOVATION CATEGORY
Novel wood-wood connection system
Timber Engineering Research Group
National University of Ireland Galway

This project supports the development of mass timber building systems comprising wood throughout without recourse to non-wood materials and fixings but replacing them with wood-based alternatives. As part of the Interreg NWE-funded project 'Towards adhesive-free timber buildings', researchers at NUI Galway have developed a novel connection system that can be used for beam-beam and beam-column connections in mass timber frame structures without the use of adhesives and metallic fasteners. A unique feature of the connection system is the use of densified wood plates and dowels as connectors. Densification of softwoods by means of thermo-mechanical compression results in a modified wood with density in the range 1,300 – 1,500kg/m^3 and strength and stiffness properties more than double those of natural wood and higher than most tropical hardwoods. The densified wood has a shape memory property which results in its expansion over time, ensuring a tight fit of components while maintaining the connection's stiffness.

THIRD-LEVEL STUDENT CATEGORY
Pure Line Chair
Roscoe Holt, GMIT Letterfrack

The pure line chair explores Irish vernacular furniture and what it could be. Roscoe Holt maintains that Ireland has a rich history of vernacular furniture to draw from and shouldn't have to rely on imports. The pure line chair is an attempt to create an aesthetic that draws on the influence of our past and repackages it in a modern design. It was developed alongside a short book that documented its journey from idea to completion, while its plans are available freely online for people to create their own pieces. Each component was designed so that a small factory could reproduce the chair or it could be made by the beginner woodworker. For the prototype featured, beech was used as it is a robust and easy to work medium.

Ciaran O'Connor was appointed State Architect and Principal Architect in the Office of Public Works by the Irish Government in 2012. A Fellow of the Royal Institute of Architects of Ireland (RIAI) and President of the RIAI, 2020-2021, he is the main advisor to Government in relation to architectural matters including Green Public Procurement for Construction. In addition to 25 Irish (RIAI, AAI and CIF) annual awards he has received the All-Ireland Landscape Award twice, the RIAI Triennial Medal for Restoration (2001), the Europa Nostra Medal (1996) and the European Union Prize for Cultural Heritage (2006). Chairperson of the Wood Awards Ireland jury since 2014, he has published and co-authored a number of books and is an occasional visiting lecturer, and external examiner to schools of architecture.

Donal Magner, editor, forester and forest owner is forestry editor of the *Irish Farmers Journal*. He holds master's degrees in science (forestry) from UCD and arts from DCU. He is the author of *Stopping by Woods: A Guide to the Forests and Woodlands of Ireland* and editor of forestry and environmental publications. A recipient of the RDS-Forest Service Special Award in 2012 for his contribution to Irish forestry, he serves on a number of forestry policy bodies and has been project manager of Wood Awards Ireland since 2014.