Awards 2015
Celebrating Excellence in Architectural Technology
## Contents

<table>
<thead>
<tr>
<th>Award</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Award for Outstanding Contribution to the Discipline of Architectural Technology</td>
<td>3</td>
</tr>
<tr>
<td>Honorary Membership</td>
<td>7</td>
</tr>
<tr>
<td>Gold Award</td>
<td>11</td>
</tr>
<tr>
<td>Student Award for Excellence in Architectural Technology (Report)</td>
<td>21</td>
</tr>
<tr>
<td>Student Award for Excellence in Architectural Technology (Project)</td>
<td>29</td>
</tr>
<tr>
<td>The Alan King Award</td>
<td>37</td>
</tr>
<tr>
<td>Award for Excellence in Architectural Technology</td>
<td>47</td>
</tr>
<tr>
<td>The Judges</td>
<td>55</td>
</tr>
</tbody>
</table>

Award for Outstanding Contribution to the Discipline of Architectural Technology

This special Award recognises a significant, outstanding and consistent service and dedication to the discipline, membership and the Institute.
50th Anniversary: Outstanding Contribution Award

Award for Outstanding Contribution to the Discipline of Architectural Technology

Professor Sam Allwinkle PPBIAT MCIAT

For his immeasurable selfless dedication, work and commitment over the last 40 years to the discipline and community of Architectural Technology and to the Institute and its academic standards and membership qualifying process.

The work of Professor Sam Allwinkle has made a significant and lasting impact on the lives of many who are working or studying within the discipline of Architectural Technology. Through his dedication to his professional body, the Chartered Institute of Architectural Technologists, over forty years, Sam has voluntarily given a lifetime of care and commitment which has enriched and bettered the lives of thousands worldwide. Through his knowledge base, rigorous attention to details and hard work, Sam has made an impact to the function, discipline and practise of Architectural Technology.

He is a an inspirational individual for former, current and future generations of Architectural Technology professionals. His tireless commitment, energy and passion for the discipline and profession are of immense credit to him. Through his distinct work, students and professionals from all sectors of society
have been given a ladder of opportunity for furthering their careers in the built environment.

Sam has been instrumental in the development of CIAT Accredited Honours and Masters Degree programmes and Centres of Excellence which shape the research and academic community’s evolution of Architectural Technology for the betterment of the built environment. He led the development of Accredited Honours degree programmes in Architectural Technology, of which there are now 33. As Chairman of the Education Board, his work continues on the academic development of Architectural Technology to which he has contributed and led with the development of educational standards in the UK and overseas.

His significant contribution to the academic standards and legitimacy of Architectural Technology as an academic discipline and profession provided him the opportunity to influence the establishment of the Quality Assurance Agency (QAA) Benchmark Statement for Architectural Technology in 2001 on behalf of the discipline. The QAA is the UK Quality Assurance body for all degrees and Masters degrees and all universities must comply with these standards. This accolade provided CIAT with the key platform and evidence in gaining the Royal Charter and furthermore demonstrates parity with the other built environment Chartered bodies.

He actively represents and supports the Institute enthusiastically and respectfully as a volunteer, whilst continuing to develop strong links with CIAT Accredited universities and the wider built environment sector. He does all this in his own time dedicating many hours and days of unpaid service to his professional body and the wider discipline of Architectural Technology both nationally and internationally. He is highly valued and respected by his peers, both nationally and internationally. He became a Professor in 1992, the first for CIAT (BIAT as it was then).

Sam has always been a rare combination of friendliness, enthusiasm, tireless energy and fierce advocate of educational advancement. He has been a frequent Chair and lead of numerous Committees and Groups within the Institute’s development.

Without the consistent dedication of Sam over the past five decades, the Institute would not be the respected and renowned qualifying body that it has become for Architectural Technology. Sam is the perfect individual to be recognised as he is a unique person who is irreplaceable.

Looking back to 1979, it was Brian Dickson, then Chairman, who introduced Sam as “here is a man who can help us with education” and that he has certainly done and more!
designplus architects, Soleil Du Soir.
The Alan King Award (Winner). Page 38.
Honorary Membership

Honorary Membership is an honour that the Institute can bestow on an individual for their work of distinction or outstanding service to the Institute. In the Institute’s lifetime, Honorary Membership has only been awarded to 25 recipients. The 26th recipient is:
Honorary Membership
Peter Caplehorn
For his support and contribution to the discipline of Architectural Technology

Peter Caplehorn is a good friend of CIAT. He is the Policy Director and Deputy Chief Executive of the Construction Products Association, where he leads the work to ensure that the UK and EU policy and regulatory framework – particularly for technical and sustainability issues – supports a growing and profitable UK construction products industry. He was formerly Technical Director at the award-winning design practice Scott Brownrigg.

Peter has been involved in many industry and government programmes, particularly on the technical and health and safety side of the industry. Peter is the Deputy Chair of the Building Regulations Advisory Committee (BRAC) and currently chairs CB (the British Standards Institution’s Strategic Committee for Construction). His main focus recently has been the new CDM Regulations, application of Building Information Modelling (BIM) within construction regulations and future building regulations. Peter is a Chartered Architect with 33 years’ experience and has worked largely in the commercial sector on a range of projects such as offices, housing, schools, industrial plants and airports.

An architect who values the skills of the Chartered Architectural Technologist and has actively promoted and supported CIAT over many areas. Peter is a keen advocate of Architectural Technology, Architectural Technology professionals and as a link between the relationship formed by CIAT and RIBA. Working together as a representative of the RIBA, Peter sits on the Technical Taskforce (set up in 2006) which is a collective group comprising CIAT, RIBA and BRE. As such, Peter works with Mark Kennett PPCIAT MCIAT and Diane Dale, Practice & Technical Director to develop documents, information notes and responses which affect our practising members.

Such documents include the Technical Taskforce Information notes and enable sharing of information and mutual support in the wider built environment sector. In addition, he has been working with our Vice-President Practice, and now President Elect, Gary
Mees for around eight years, firstly introduced at the CIC Health & Safety Committee. From that time he has been very supportive of CIAT and Architectural Technology as a discipline. Peter has been instrumental in his introduction to BSI committee work and has, as Chairman of CIC Health & Safety Committee, always been very supportive at meetings on the work of CIAT. He has represented CIAT and the RIBA jointly as part of our Memorandum of Understanding with RIBA with positive effect; in so much that it demonstrates publically the close working relationship the two Institutes have. Peter is one of the fellow experts at trade shows working with our Chartered Members, architects and other fellow professionals in “Ask the Expert” areas. His involvement helps the wider understanding of the two disciplines and their complementary nature.

He has also been involved in many industry and government programmes, particularly on the technical and health and safety side of the industry.
Gold Award

The Gold Award recognises Chartered Members who have demonstrated an outstanding service or commitment to the Institute, Region/Centre or industry. This year the recipients are:
Gold Award
Graham Jackson PCSAAT PPSSAAT MCIAT
For dedicated service to the Institute

In the year the Institute celebrates its 50th Anniversary, there is no better way in celebrating this momentous occasion than by nominating Graham Jackson for his enthusiasm and drive in developing and advancing the Institute.

Graham was introduced under the influence of another SAAT member, Roger Wood, becoming a probationary student member on 3 October 1966, progressing to a full student member on 11 November 1968 and becoming a Chartered Member on 26 October 1971.

Since then, Graham has always played an active part within the Institute at Regional and national levels. He became West Midlands Regional Councillor (1979-1981) and soon became Vice-Chairman (without portfolio) (1981-82). During 1982 Graham became Chairman of SAAT for the last time, as in 1983 he became the first President of SAAT (1983-84).

Graham was involved in many other issues and firsts of this time. He was involved in setting up the Hong Kong Centre and attended the first overseas Assessment Board with then, new President Paul Newman in 1985. Within his term, Graham also played a part in the introduction and engagement of the Institute’s first Chief Executive, Graham Watts. The introduction of the first Student Award and was also involved in the granting of Arms and badge, the results of which the Institute still uses today.

Along with the headline achievements, Graham worked on numerous Committees and Taskforces such as Conduct Committee, Consultative Panel, Disciplinary Panel, General Notes Group, Hardship Committee, Membership Structure Group, and Technical Committee. Graham worked with Dudley Hewson and Chris Pike in setting up the Moderation Panel. Education has always been very close to Graham’s heart and he was part of the Membership Assessors Group from the early 1980s (including in Hong Kong) right up to the early 2000s.

On a Regional level, Graham from the very early days has always been active, taking part in the Shropshire and North Staffordshire Chapter, then moving over to the West Midlands Regional Committee, as mentioned before taking on the roles of Regional Councillor and
Regional Treasurer. Always playing the ambassador for the Institute, immaculately dressed (never seen as 'scruffy') and with his distinct accent and 'ebony' voice, always commands attention with something constructive to say.

Graham has always been a person to whom his peers look up to as a perfect role model and in 1985, Paul Newman said 'Graham Jackson has been an enthusiastic and generous colleague to us all.'

Graham played a pivotal role in setting the foundations for our Institute, he reflected in the publication *The Constructive Link* and said 'We have made a real beginning and can be pleased — pleased but not complacent — and the older members have only prepared the reinforced foundation for the younger members to continue the superstructure of what will one day be a fine Institute of technology'.

Without the drive and dedication of Graham Jackson, the Institute would not be where it is today.

Thank you Graham Sydney Jackson.
Gold Award
Tony Lodge PCSAAT MCIAT
For dedicated service to the Institute

Without pivotal figures in an Institute’s history with drive, nerve and personality it is unlikely that it will succeed and survive. Reflecting on CIAT’s history, one name is monumental from the very beginning and it is without doubt that CIAT would not be where it is today without the tremendous impact that Tony Lodge has made not only in the early formation of SAAT in 1965, and before, but throughout the course of its life. He is a fountain of knowledge and a wise guru that CIAT is lucky to have and treasure as one of its founding fathers.

Tony is a meticulous and humble man who has always had the interests of the Institute at heart – whilst he may not be actively involved at the higher level anymore he lends his solid knowledge and balanced thoughts to ensure CIAT progresses, doesn’t forget what it is and that the members are best served.

As an essential foundation in the early formation of the Institute, Tony worked tirelessly, whilst holding down a day job and supporting a family, to get SAAT up and running operating as its first Honorary Secretary and Treasurer; even having to be the staff principal to cover following the unplanned departure of Dr Cooper and then hand over to the safe hands of Joan Yates. Working alongside the Institute’s other pivotal forefathers such as Alan King, George Lowe and John Newey, Tony pulled it all together and successfully led SAAT in its formative years and even turned his hand to producing the brief for the design of the Society’s distinctive logo. Tony was active within all areas of the Society and was fundamental in helping to establish the Irish Association of Architectural Technicians (IAAT).

Tony is a man of ideas, which are represented with much thought and care and presented in a clear and informed manner. This skill has added much benefit to many a Council meeting or critical decision over the years and makes him a highly respected figure and encyclopaedic knowledge of all things Institute. Over 50 years, Tony has held all three of the main offices; Chairman, Secretary and Treasurer, sat on numerous Committees and Taskforces and acted as Regional Councillor for the Greater London Region in the early 1990s.

Now unfortunately blind, Tony continues to take a very keen interest in the Institute that he helped to nurture
and develop and looks after it as any grandfather would their grandchild. He will regularly feedback on new initiatives or pass on his ideas to progress the Institute that he loves. Without such a passion, drive and determination of unsung heroes such as Tony, CIAT would not be the forward thinking and vibrant Institute it is today.

It takes a momentous anniversary to look back and admire the skill and work of Architectural Technologists that have gone before and when you do, you can see certain beacons shining out amongst the crowd and one of them will be Tony Lodge.
Gold Award
Paul Newman PPSAAT PPBIAT MCIAT
For dedicated service to the Institute

As we now celebrate 50 years, looking back to when we were turning of age at 21, the important man at the helm of the Institute was Paul Newman. Paul oversaw a number of important milestones and firsts during his time as President, with the Society turning into an Institute, the granting of the prestigious Coat of Arms and the Hong Kong Centre formation.

Since becoming a member in 1972, Paul has been an enthusiastic and highly motivational and supportive player. He began his national involvement in 1981 as Regional Councillor for the East Midlands Region before successfully becoming Vice-President (without portfolio) in 1982.

As the Institute’s President in 1984, under his leadership the Institute launched its Continuing Professional Development Scheme which has ensured that members are kept up to date within the sector and allowed them to develop themselves personally. He led the formation of the Hong Kong Centre and formed special friendships with those based out there. This was a major step forward for the Institute at that time.

Paul oversaw the name change of Society of Architectural and Associated Technicians to the British Institute of Architectural Technicians and successfully guided the Council and staff through a real development in our Institute’s history. He was the face of BIAT as it celebrated its 21st birthday and worked with others to be presented with the formal letters of patent from the Institute Coat of Arms, the process of which had been initiated by the previous President.

Paul Newman was President of SAAT in 1986 at a crucial time in the Institute’s development. Council had spent much of the previous 20 years going round in circles constantly debating procedures and Standing Orders but Paul formed a unique bond with the Chief Executive who had been appointed just prior to Paul’s Presidency and became the ‘rudder’ which steered SAAT out of the ever decreasing circles into the flow towards BIAT: overcoming many prejudices on the way. It can truthfully be said that through his selfless efforts he set us firmly on the road towards the success that we see today.
Paul even returned to Council as Honorary Secretary between 1991-92 to dedicate his time further. He was a regular contributor to the Conduct Committee bringing wise guidance and experience to the role. His involvement with assessments of members for their professional interview has been exemplary and Paul continues to be involved with Interview Boards to date.
Gold Award

Colin Orr PPCIAT MCIAT
For dedicated service to the Institute

Colin Orr joined the Institute in 1997 and became an active member of the North West Regional Committee in 2001. As an academic, he immediately took interest in promoting education and membership and became the Region’s Education Officer (2001-10).

During this time he worked tirelessly with the local universities and higher education establishments promoting the profession. His infectious nature inspired and encouraged numerous students to progress through to Chartered Membership. He raised the profile of CIAT in the Region and became very well known within the built environment sector.

Colin can have a very serious and thoughtful side where he plans both short and long term strategies in great detail and never gives up until these goals are achieved.

Along with his Regional role, Colin quickly became known in Central Office and the Institute, leading to his election in 2003 as Vice-President Education and Membership. During his term in this position he oversaw the introduction of the POP Records, which helped to establish the education and membership structure as a vital element of the Institute’s successful Chartership application.

Colin is proud to promote his profession as both a Chartered Architectural Technologist and Chartered Architect and he has used his dual membership to the benefit of CIAT during his dealings with other professions in the built environment sector.

Since becoming a Chartered Member of the Institute in 2002, Colin has used his professionalism, enthusiasm and passion to promote the discipline of Architectural Technology. He has achieved this at Regional, national and international levels as Regional Education Officer, Vice-President Education and Membership and more recently as the Institute’s President. He has played a pivotal role in the Institute’s development over a number of years leading to Chartership. Colin remains committed to the Institute and his passion and dedication are infectious as he continues to promote the discipline of Architectural Technology.
More recently, Colin served as the Institute’s President between 2011-13 where he again used his professionalism, drive and determination to promote the Institute.

Due to a change of employment, Colin recently relocated to the West Midlands although he still remains a North West Region member at heart and attends events whenever work and family commitments allow.
The Student Award for Excellence in Architectural Technology (Report) is the only accolade which recognises outstanding research achievement in Architectural Technology from a dissertation or research assignment. This year the winners are:
Winner: Joshua Slingsby


University: Sheffield Hallam University

Cross Laminated Timber construction is at the forefront of structural pre-fabricated sustainable design around the world. Continual development within this area has seen Cross Laminated Timber applications reach multi-storey levels within the UK alone, proving its structural capabilities.

Interested in the sudden demand and specification of Cross Laminated Timber, I set out to understand why it is becoming a favourable option over traditional and conventional construction and to determine the benefits, limitations and design possibilities for its use in construction today.

To do so, this report follows the design process of a medium rise healthcare facility, comprising of a circular plan form while incorporating sustainable philosophies. The ‘Health Building Note 00-01’ highlights that ‘the focus is now on delivering healthcare closer to peoples’ homes’ and so the site in question is within a residential area of Sheffield, South Yorkshire.

Designed with a focus on the surrounding community, a central iconic hub was created along the main road, Sharrow Lane, forming an urban island to centralise the location within the area.

Understanding why Cross Laminated Timber is being specified more and more, an analysis against different forms of construction was carried out, starting with the comparison of mass and framed construction against the suitability for the site in question. This analysis further developed into comparisons between different forms of framing systems and then timber framing systems as a material selection process. Each system and material
was set against core criteria of structural factors and environmental credentials, e.g. embodied energy, and cost effectiveness. With this cross analysis and the addition of case study assessments, in line with the project brief requirements, Cross Laminated Timber justifiably became the clear construction choice.

From here the main focus transitioned to investigate and research how to achieve a circular plan form with Cross Laminated Timber and high levels of airtightness, moisture control and reductions in thermal bridging within the building envelope. This was analysed through four key junctions within a typical section of the design and a typical plan wall build up following specific requirements of sustainable material choices and U-value standards.

To be able to resolve these issues, a greater understanding of what they are and how they are tested within construction was needed, leading to the understanding and background knowledge of Building Regulations (Part L2A) requirements, as well as the rapidly increasing and expected requirements of Passivhaus or similar certifications. Primary research took precedence in the analysis of the key junctions, due to typical manufacturer details and/or published details for Cross Laminated Timber construction being basic and inefficient in terms of the outlined performance criteria, while lacking in supportive material. Primary and secondary research saw sketch developments of the junction details formalised into technical solutions that met the outlined performance requirements.

On completion of the report, a holistic set of details were produced in line with a circular plan design, highlighting the benefits of specifying Cross Laminated Timber by overcoming expected limitations, creating only greater possibilities.

**Judges comments**

This report presents an outstanding overall understanding of a well-defined problem within the given context. It demonstrates a systemic approach to problem solving where a critical review of technical aspects of reviewed alternatives, using a clear structure which is easy to follow, and a flawless storyboard are combined with perfect use of drawing materials and right amount of written element. These have come together in a consolidated manner to conceive a project which best represents the profession of Architectural Technology.
Highly Commended:

Petra Schwarczova

Report:
Investigation into the Use of Prefabricated Straw Bale Panels with Glulam Structural Frame in a Public Urban Building

University:
Sheffield Hallam University

The focus of the report is on prefabricated straw bale panels in post and beam frame in an urban non-domestic building.

The report starts with an overview of the site, introducing the materials to be used and that the aim is for Passivhaus standards to be met. A brief overview of investigating the building envelope is then given and how straw bale can be used as a construction material including known methods of construction and the basic properties of straw bale.

Continuing, the report gives an introduction to prefabricated straw bale panels and the different types of panel assembly. This section then provides a detailed look into three different types of panels and their properties which would be suitable for the project, including the type of finish that can be used. A conclusion was made that one type of panel would not be suitable for the project and the investigation into the other two panels continues.

Moving on, the report looks into three different ways in which the panels can be assembled for the primary structure and how the overall floor to ceiling height will be affected by each assembly option. Here, one option is discarded as not suitable. With the two remaining options it is then shown how the difference in panel sizes would be when columns are integrated between panels and when columns are wrapped by panels.

The two options are then further investigated by looking at the main junctions of external envelope.
(foundation-wall, intermediate floor-wall, roof deck-wall and windows) and how intermediate floors will be assembled for both options using different types of external finishes. It was determined that this will result in uneven thermal properties (U-values) and different wall thicknesses, therefore, a combination of both panels was created to be used for both types of external finishes.

Next, the report looks at thermal performance of different areas of the building envelope including the difference in U-values between the main section of the panel (straw) and the outer timber frame. Calculations are made to determine that the whole external envelope meets the Passivhaus standard.

Moisture control and airtightness are also considered by showing how the moisture can get into straw bale and outlining what are some of the main preventative measures that can be taken. Suitable vapour control and breather membranes are then considered for panels and shown for all main junctions of the external envelope.

The next section shows detailed drawings and diagrams for each of the main junctions using the combination of chosen assembly method and panel type for the project. Each of the diagrams is labelled with details of each component, dimensions and further information.

Finally, the report looks at the environmental credibility of chosen materials for the project. The report then ends by reflecting back and drawing conclusions based on the information gathered and generated during the research. The conclusions are as follows:

- The final assembly option chosen was decided on because of its ease of use and it would be a more elegant solution for an irregular structural grid.
- Prefabricated straw bale panels are a quick and easy solution for construction. They are environmentally friendly, lightweight and cost effective.
- Due to the irregular structural grid required, a higher price would be incurred for this project.
- Straw does not attract rodents, does not rot, when carefully detailed and in timber frame is structurally stable. It also has a better fire resistance than timber.
- There is a difference between the thermal properties of the straw bales and timber frame which results in fragmentation of thermal continuity, thus small elements of cold bridging are present. However, British company Modcell has received a certificate for Passivhaus component (straw bale panel), so the cold bridging must be insignificant.
- Wall thicknesses for the project varies between 528-589mm which might seem a lot, but for U-value 0.11 even a ‘brick, block and insulation’ wall would need to be 533mm thick.
- There is limited information about constructing with prefabricated straw bale panels, however, wider adoption within the industry will help to promote using this natural material and construction method.

Judges comments

The complexity of this project is abundant as it sets out to investigate prefabrication, straw bale and glulam each of which is a perfect topic for a research project. The courage, proper management and methodological approach to this project is highly commended. Attention to details, strong combination of hand sketches, pictorial evidence and computer-generated drawings as well as analytical interpretation of behaviour of a less-known construction technology are some of the other points which render this entry a very outstanding one.
Commended: **Samuel Trevor**  
Report: Massive Timber Construction  
University: Sheffield Hallam University

“We are now using timber in ways our ancestors wouldn’t have dreamed of. Timber can not only be cut, carved and shaped, it can be engineered. The thing is about timber, when you process it you don’t just improve it, you radically alter its performance. There is a world of difference between an oak-framed timber building and a twenty-first century building made from engineered timber. Engineering wood breaks free the shackles of history and allows architecture to just run amock.”  
Kevin McCloud, Grand Designs 2015

The report ‘Massive Timber Construction’ underpins the technical justification and decision-making process of a proposed Passivhaus certified healthcare centre which utilises a solid wood panel primary structure. Developed in-hand with the university module, ‘Comprehensive Design Project’ as the scheme progressed through RIBA Stage 4 (Technical Design), the report’s purpose is to coordinate the systemic and material assembly appropriate to enable building construction.

The first section of the investigation concludes a desktop analysis between the suitability of two types of solid wood panel systems, Brettstapel and Cross Laminated Timber (CLT), in relation to the proposed scheme and performance criteria specifics.

Both systems analysed utilise ‘low-grade’ timber “which would otherwise be used only for paper, matches, pallets” (Halliday 2008, p.158). This allows potential use of timber species sourced within the UK, such as Sitka Spruce.

Brettstapel is currently manufactured within the UK. The low-tech construction process offers the opportunity for local sawmills and trades to manufacture these panels at very little start-up cost.

Although CLT is currently only sourced from outside of the UK, from European or Scandinavian manufacturers. ‘Woodknowledge Wales’ informs that a CLT manufacturing plant is soon expected in Scotland (Dauksta 2012, para.3).
One of the report’s observations is that although Brettstapel boasts a glueless manufacture and potential compression-strength superiority compared to Cross Laminated Timber, due to the inability to accurately determine its long-term panel dimensional stability, and therefore airtightness performance, CLT is specified in order to abide to the strict performance criteria of Passivhaus. Although there are Passivhaus precedents constructed from Brettstapel, for the purpose of formulating a complete technical solution, Brettstapel is considered unsuitable with the limited resources of this desktop investigation. This is not to say that Brettstapel is wholly incapable of achieving Passivhaus standards.

CLT provides a simplistic, single-component structural solution with the ease of junction connectivity and application of building fabric. The report addresses the integration of CLT and rigid woodfibre insulation, allowing a planar construction assembly and continuation of building enclosure functionalities, providing a thermal bridge free construction, with simplistic airtightness and weather tightness principles.

The report concludes and voices a reflection of the final technical solution and highlights areas of further study and interest.

**Judges comments**

This report is a strong and comprehensively analysed study of specification, performance and assembly issues of massive timber construction systems. It is reassuring in terms of depth of understanding of the research topic, its architectural and environmental context and wider passive design issues. Solid wood panelling technologies are investigated as a solution to a complete external envelope system, with technical justification, detailing and considerations of construction assembly and connectivity, functional and thermal performance, airtightness and moisture control. Interesting to note the potential of less known technologies in the UK, such as Brettstapel and Holz100.
Student Award for Excellence in Architectural Technology (Project)

The Student Award for Excellence in Architectural Technology (Project) is the premier accolade which recognises outstanding design achievement in Architectural Technology based upon a university/college assignment. This year the winners are:
Student Award for Excellence in Architectural Technology (Project)

Winner:
Cian Gilligan

Project:
The Glen Hotel Retrofit Project

University:
Waterford Institute of Technology

Introduction

The brief was to repurpose the Glen building in Waterford – converting it from office space to a hotel. This design had to incorporate low energy design principles and renewable energy solutions applicable to hotel accommodation.

Engineer’s drawings show the existing building is to be stripped back to the original concrete frame, floor slabs and cores. Stair cores and floor levels are to be retained. The new external envelope of the site had to demonstrate the five principles of detailing: structure, weather tightness, airtightness, insulation and thermal bridging.

Functionality

The front entrance was facing one of the busiest roads out of the city so ease of access to the car park had to be considered. Car parking is provided to the rear of the building with a slip road junction off the main road. This also provides for a more appealing front entrance.

The noise of traffic coming from the road was identified early in the design process, this has been significantly offset with a twin skin façade as a soundproofing barrier. A consistent layout was used on the upper floors of the building to ensure ease of access for occupants within the building.

Buildability

The selection and specification of appropriate materials and building systems were thoroughly researched in order to achieve a contemporary, innovative and sustainable solution to hotel design in Western Europe. Using 3D detailing in conjunction with 2D sketches aided this process.

Sustainability and Performance

In this design, sustainable performance follows functionality and buildability.

In the warmer months, the twin skin façade will act as a buffer zone on the south façade and will be linked with a mechanical heat recovery system which will help feed the heating for the northern side of the building. Solar collectors are placed just off the second floor roof terrace and south orientated.

The twin skin on the north side has seasonal controlled actuators, which allow for the façade to be opened and closed to provide air circulation. This will benefit the thermal comfort within the building and offers the most sustainable heating solution. A water collector on the roof collects rainfall that can be used by the building’s plumbing.
Innovation

The twin skin façade is the most innovative solution for the building. The glazed skin acts as a wind barrier which circumvents draughts and improves thermal comfort around the building. Large communal terraces around the building give a more social feel to the building and a top floor fruit and vegetable garden provides fresh produce.

Inclusive Design

Waterford City is a large tourist area which attracts a number of elderly people and buses from all over Europe to come visit the historic Viking triangle.

The British Standards Institute’s universal design guidelines were contemplated in the design. Accessibility, usability and user diversity were all considered. A universal design strategy was always kept in mind. There are disabled access rooms and toilets on each floor designed to accommodate wheelchair access, elderly people and those with special needs. Each entrance to the building has ramps and handrails. There are also numerous bus and wheelchair parking spots around the site.

Judges comments

This office to hotel refurbishment project puts the comfort of occupants at its heart from careful site planning and the use of twin skin façade system in order to reduce traffic noise, to consistent internal planning for ease of access.

The buildability of the project is key to its success and was aided by the use of three-dimensional detailing to enable better understanding of the application of technology. The innovation in this project centres on employing a twin skin façade system to maximise solar gains and use those solar gains throughout the building.

The project is very well detailed and presented to very high professional standards, utilising a variety of well-coordinated presentation techniques.
Highly Commended: Katherine Morrison
Project: St John’s Church
University: University of the Highlands and Islands

Introduction

The key objectives for the conversion of St John’s Church are:

- Develop a design which is sympathetic to the form of the building, enhancing the original features both internally and externally.
- Specify materials and technical details that would complement and preserve the existing structure of the building.

- Develop a design that would support the economic viability of lodge accommodation, which retains flexibility for future use.

Functionality

The church building is to be used as accommodation for those visiting local estates and is laid out to facilitate its use as a lodge. Lodge accommodation must be flexible; providing a level of service varying from self-catering to full board, dependent upon the requirements of the guests.

A second entrance opens into the drying-room where outdoor clothing and equipment can be stored, this leads directly to the corridor from which the apartments are accessed; making it a convenient point of entry. Each en-suite apartment is spacious, and the building’s features are preserved where possible. The boiler and fuel store are housed within the annex of the building, thus removing the requirement for additional buildings to be located in the grounds, minimising the visual impact and reducing the risk of damage to tree roots.

Buildability

Several factors were taken into consideration when considering
the buildability of the design specification.

- Site location is on the main trunk road between Inverness and Wick, obstruction to traffic must be minimised.
- Access to the building is limited to the existing openings.
- Site has limited space for storage of materials.
- The existing fabric of the building requires extensive renovation work.

These factors dictate that pre-fabricated methods of construction could not be utilised effectively.

The existing building requires work from experienced craftsmen in order to reinstate lime pointing and stonework to a satisfactory standard and the design aims to minimise additional loading on the stone walls.

**Innovation**

In order to achieve current thermal performance standards, a compensatory approach was taken. Consideration was given to the implications on the existing fabric of the building when improving thermal performance.

The poor thermal performance of the replicated original finish within the living area was mitigated by lining the wall with thin calcium silicate boards and the incorporation of hemp-lime plaster. The remaining elements are heavily insulated in order to achieve a target heat loss rate of 227.6 W/K.

**Sustainability**

The design specifies the use of locally sourced stone for floor and paving finishes, and a local window manufacturer that specialise in bespoke timber doors and windows, reducing delivery distances and benefitting the local economy.

Reuse of stone within the building when creating and altering openings enables the building to retain a cohesive appearance and limits the requirement for newly quarried stone.

The thermal performance of the building exceeds the requirements set out in the current building
Awards 2015

Student Award for Excellence in Architectural Technology (Project)

Judges comments

This church conversion project is elegantly presented and an excellent example of the potential versatility of the Architectural Technology specialism.

The proposal achieves a number of objectives including developing a design which is sympathetic to the original features, complementing and preserving the existing structure through considerate material selection and technical detailing, and developing a design that would support the local community.

The carbon footprint is reduced as a result of utilising an already existing building rather than new-build, the use of locally sourced material and tradesmen aids the economic sustainability of the village community and enhanced thermal insulation exceeds the requirements of the building regulations.

Inclusive Design

The ground floor of the building is fully accessible, with spacious communal areas, wide doorways, and generous sized apartments, and accessible shower. All entrances to the building are fully accessible, enabling easy access to parking areas and the surrounding gardens.

The design also incorporates the reinstatement of the public footpath between the neighbouring flats on Rutherford Terrace and the A9 which is routed through the grounds, but has been inaccessible due to the dangerous condition of the building since previous construction started in 2007 - this is of benefit to the wider community at no inconvenience to guests who make use of the accommodation.

standards - where possible natural materials are used to facilitate the breathing nature of the stone structure. The use of a biomass fuel reduces the carbon footprint of the building when in use.

When developing the design, potential future uses were considered in order to enable continued use of the building without the requirement for additional construction work. This offers the client flexibility in its use and makes it more attractive to future purchasers.

Inclusive Design

The ground floor of the building is fully accessible, with spacious communal areas, wide doorways, and generous sized apartments, and accessible shower. All entrances to the building are fully accessible, enabling easy access to parking areas and the surrounding gardens.

The design also incorporates the reinstatement of the public footpath between the neighbouring flats on Rutherford Terrace and the A9 which is routed through the grounds, but has been inaccessible due to the dangerous condition of the building since previous construction started in 2007 - this is of benefit to the wider community at no inconvenience to guests who make use of the accommodation.
Awards 2015

Student Award for Excellence in Architectural Technology (Project)

Commended: James O’Neill
Project: Harley-Davidson Centre
University: Ulster University

Introduction
The Harley-Davidson Centre integrates three core principles of architectural design – aesthetics, function and technology.

A major feature of this design is the use of an interesting shape and a curve of a Harley-Davidson bike. The Harley-Davidson ‘H’ serves as inspiration of a functional floor design.

Functionality
The ground floor facilitates a leisure and self-catering area for customers.

The façade is built of Kingspan 1000 TT Thermatile which facilitates the introduction of additional panels should the client wish to expand the building. Light entering the unique roof design is diffused in the Showroom and Merchandise Room to prevent damage to sensitive items.

Access to the site has been carefully considered. Bikes, for example, can enter through roller shutter doors.

Performance
Deep decking allows spanning between main frames, supporting Kingspan ThermaRoof Insulation, protected by Trocal DS-PE waterproofing membrane.

Indoor air quality and thermal heat is monitored and calculated from diagnostic equipment to a server in the plant room. This remotely operates the mechanical louvres to control the level of passive ventilation entering the building. It also accesses the louvre system controlling the amount of daylight entering the building. This reduces the running costs and energy load of the building.

Innovation
Cellular beams spanning across the building have a 30% reduction in weight compared to their steel counterparts with the additional benefit of allowing access and support of the mechanical and electrical services in the building.
As per the client brief, there is an industrial look that compliments the Harley-Davidson brand. This is achieved by the exposed beams and services in the roof.

The reception area is near the front entrance but also next to the Part Store and Service Dock. This allows a checking procedure of any parts through a window behind reception area - the parts are checked and sent to the Service Dock to be fitted or alternatively given to the customer.

Smaller windows are in place to the rear of the building to reduce thermal heat loss and to maximise shelter from prevailing winds. Gentle slopes on the roof increase the wind velocity generating more passive ventilation - reducing risk of sick building syndrome.

The lift shaft extends towards the roof to allow, in an event of a fire in the lift shaft, smoke to rise above head height to the top of the shaft.

Sustainability

All materials are sourced locally to reduce the carbon footprint. Energy consumption in the building is minimised by passive solar gains and also passive ventilation through the stack effect.

Planted trees and hedges reduce the impact of noise, improve the outdoor space for the community and give a sense of place with the surrounding landscape.

Surface water run-off is minimized through unique gutter design and downpipes to prevent flooding and pollution. High levels of Kingspan K8 and ThermaRoof insulation have been installed to reduce thermal heat loss through the building.

Inclusive Design

The Reception area is fully visible near the front entrance to aid any queries. Disabled toilets are situated on every floor level with some providing showering facilities and level access.

The building’s simplistic floor design eliminates unnecessary complexity; the design communicates information effectively to users with its open plan and visual aids.

Judges comments

The industrial look requested by the clients was achieved by the use of cellular beams which achieves a 30% reduction in weight compared to other steel components with the additional benefit of allowing access and support of the mechanical and electrical services in the building.

Careful material selection achieves the required waterproofing and insulation, as well as acoustics and fire protection. All materials are sourced locally while planted trees and hedges reduce the impact of noise and improve the outdoor space for the community.

The project is very well detailed and labelled and professionally presented boasting high quality visuals.
The Alan King Award

The Alan King Award, named after the Institute's first President, recognises projects valued £750k or under and have demonstrated outstanding excellence in the practice of Architectural Technology. The winners are:
The Alan King Award

Winner: designplus architects
Project: Soleil Du Soir

Introduction

Soleil Du Soir is a 1960s cavity block built bungalow set in the heart of Pontac Common which is a private road servicing ten similar buildings built on reclaimed land 2.0m from the sea wall. By virtue of its position, the building has unrivalled and unobstructed sea views and access to the beach straight from the southern terrace.

The original building provided only three small bedrooms, one bathroom, a kitchen, a living/dining area and externally a single garage, a WC and parking for one guest.

The site is complex in that it falls within one of Jersey’s highest protected areas and graded as ‘Shoreline Zone’ which has a presumption ‘against’ any form of development but is further prescriptive in that existing dwellings in the zone ‘cannot’ increase in height. Furthermore, each plot is small and landlocked leaving no opportunity to expand the footprint.

A visit to the site enabled an initial appraisal of options but also noted considerable cracking on a number of main walls, fuelling concerns that the proximity to the sea had resulted in detrimental effects on the structure. Intrusive investigation proved that a large percentage of the steel wall ties had rusted through and roof members rotted.

Functionality and Inclusive Design

The client, in his 70s, had recently had health issues so needed a solution that improved accessibility generally and provided for his older age without further conversion. He also wanted to make better use of the unique location and to find a way of allowing him and his wife, and the family when visiting, to be able to interact and share time together in family rooms. Natural light would need to be addressed as existing rooms were very dark.

Despite the planning restrictions, a design solution was developed that would provide a first floor to the building allowing more rooms to be added. The fact that parts of the structure were failing provided an opportunity to extend the brief to taking down the majority of the internal walls allowing for a much more open plan building.

The communal areas are now better suited to entertaining the family and the house is more accessible for those with disabilities. There are increased corridor widths and wider doors. A master bedroom and large ‘wet room’ are situated on the ground floor.

Innovation and Buildability

The old pitched roof has been replaced with a large curve. The centre point of the curve is eccentric to the building resulting in it retaining its appearance of a bungalow from the road, while providing an area of full headroom to the south. This space provides three additional bedrooms, including
The Alan King Award

a large master with an en-suite and a further house bathroom.

The new structure is lightweight. The form is established using bespoke curved steel clad portals fixed to a concrete ring beam which encircles and stabilizes the existing ground floor external walls.

The roof is highly insulated and has a natural pre-patinated copper roof topping. The whole building is air-sealed to ensure minimal heat and air leakage.

**Performance**

The building has reached Passivhaus standards. It requires little energy to heat and maintain a stable ambient temperature.

If cooling is required, the electric roof lights open and create a natural stacking effect. For aesthetic reasons, these were carefully detailed to be sunk below the line of the curve whilst being suitably positioned so as to still disperse any water away from the building.

The building is on the shoreline and has been robustly detailed to prevent any water penetration. The glass balconies are unobtrusive to exploit the views whilst not compromising on safety.

Powder coated aluminium doors and windows are detailed to provide robust protection against the weather whilst minimising intrusion on the views outside.

A modern look is achieved by eliminating window sills and creating simple, clean lines around openings.

**Sustainability**

In the remodelling, part of the underlying brief was to bring the whole building up to and if possible, exceed current standards and to reduce its unacceptable fuel consumption.

The oil fired central heating was replaced with a wood burner to heat the main space and low voltage electric underfloor heating, zoned to allow operation only in occupied rooms. The window sizes were increased to exploit the heat of the sun and the south facing orientation. To the north, window sizes were reduced.

Externally, the new element is clad in sustainably sourced Iroko, untreated and left to naturally weather.

**Judges comments**

An exciting project which proves what can be achieved for an extension to an existing bungalow. What sets the project apart is the overall solution that the design team created with the constraints that were presented in terms of accommodation coupled with prescriptive planning restrictions.

A highly innovative solution was developed to make use of the roof space by using a specially designed lightweight curved steel clad portal frame which has been built to last rather than being compromised by lack of quality or value engineering. Extensive internal remodelling of the existing house has resulted in a solution that has improved accessibility and provides for further adaptations without any further conversion, a standard that is aspirational in a modern house.

In addition, by designing to Passivhaus principles, the finished project requires little energy to either heat or cool and can maintain a stable ambient temperature.
The Grillagh Water House is an experimental project that was designed not only to be innovative, but help change the perceptions of the UK’s idea of rural contemporary architecture. It aims to showcase how good design can lift the mood of occupants with a limited budget.

**Introduction**

The Grillagh Water House is located next to Drumlamph Woodland and directly beside the Grillagh River, on a floodplain. The site has over five metres of vegetation. The use of the shipping containers not only provided solutions in separated. It was designed in a way that could be easily extended with minimal impact and disruption to both the house and site.

**Buildability**

The primary structure of the house was constructed out of four re-salvaged 45ft high cube shipping containers, externally cladded in natural colours, with two distinct materials zoning the private and shared spaces of the house.

A downstairs sleeping area is cladded in a rusted Corten steel with the top floor sheathed in a dark grey expanded metal mesh. Both materials provide a contemporary take on the existing cladding found on rural agricultural sheds dotted throughout the countryside.

The shipping container construction reduced the site’s natural disruption and the overall construction period.

**Sustainability**

The design of the house was not only to meet the needs of the clients brief in relation to accommodation and taking advantage of the site’s views, but was designed with an emphasis on sustainability.

Four re-salvaged shipping containers were used. Large glazed windows to the eastern, southern and western elevations take full advantage of solar gains and airtight fabric prevents heat loss. A raft of further energy saving measures were implemented.

**Performance**

Performance was essential in both design and practice. In the real world, the project delivers. The owner occupied the house from September 2014 until late January 2015 with estimated heating and electricity costs of £5.10 per week.

**Innovation**

The Grillagh Water House is located next to Drumlamph Woodland and directly beside the Grillagh River, on a floodplain. The site has over five metres of vegetation.
resolving these difficulties arising from the setting, but also met the design brief issued by the client. The exterior cladding had to be inventive, not only to meet the approval of the local planning department but also to be practical in design.

Containers were utilised in a way that hid services (e.g. downpipes) but also provided easy access for any maintenance during the lifespan of the building.

As part of the overall design, it was important that if additional accommodation was ever required, this could be constructed with minimal disruption.

**Inclusive Design**

This building has been detailed and designed to be inclusive for all, meeting the needs and requirements of all government and statutory bodies and usable by as many people as reasonably possible.

"I would stop in my tracks to admire a building like this anywhere on the planet...this is proper architecture"  
Kevin McCloud – Grand Designs, Channel 4

**Judges comments**

An outstanding project which demonstrates how the Architectural Technology discipline contributes to achieving design excellence with the use of redundant shipping containers. Whilst the project is a stunning example of architectural design, it is the detail that makes it a worthy recipient of The Alan King Award.

The choice of raw materials, combined with exceptional detailing produce a building that is not only functional but also highly energy efficient.
Introduction

The brief was to develop a design to meet the retirement needs of the clients. It placed a focus on energy efficiency through the application of renewable technologies and contemporary design. Once Architecture created a two-bedroom, single floor, timber frame, timber-clad design.

A key driver of the design was the proximity of the plot to the adjacent Grade 2 listed thatched building that dates from the 1750s.

Functionality

Given the constraints on overall size, circulation space was minimised within the design to maximise the available living area and reduce build costs. Only 10 linear feet connect the principle living spaces.

To manage budget constraints, the design concept emphasised the use of ‘off-the-shelf’ standard materials but without making any concessions to the brief’s requirements for a contemporary, efficient and sustainable dwelling. For example, exceptional energy efficiency was achieved at a modest cost simply by doubling the application of standard materials.

The brief emphasised the need for light within the building. Therefore 500mm continuous glazing was incorporated around the top of the entire external wall, which, combined with the overhanging roof, maximises the natural light
in every room while avoiding the potential risk of overheating posed by excessive direct sunlight.

**Buildability**

To create a modern contemporary interior, with buildability as a key design principle, the scheme features composite glulam beams, a readily available alternative to steel or concrete, that are exposed throughout the building.

To create the wall structures, C16 floor joists were specified, sourced from a local builders’ merchant, turned upright and sawn to length, lined with ply on the inside and with exterior cedar cladding. Two leaves of Celotex provide insulation.

**Performance**

The efficiency of the building envelope was cost-effectively achieved. By turning the C16 floor joists used to create the wall structures through 90 degrees, sufficient internal depth was created to double the standard building regulation requirement of 100mm mineral wool insulation.

Impressive energy efficiency was achieved by integrating the harvesting of natural resources within the building’s design. The continuous glazing around the entire building at the top of the external walls maximises the natural light within each living space. Similarly,
the use of solar energy to heat the hot water and underfloor heating systems means that grid energy is required only to top up these systems, generating significant cost savings.

**Innovation**

Innovation underpins the success of our practice. The design for 48 Fen Road demonstrates this:

- To avoid the possibility of excessive heat the continuous glazing might create during the summer months and to provide natural shading from the sun at its height, the sedum roof was designed to overhang the wall line by one metre.

- As a practical solution to directing rainwater to the drains at ground level, given the difficulty of accessing the walls for fixtures beneath the overhanging roof, chains were used in place of down pipes both as an aesthetic design feature and to avoiding breaking the continuity of the continuous glazing around the house.

**Sustainability**

By reducing the percentage of non-living space within the building, the design ensures that the cost of heating and lighting is focused where it is most effective.

Using a local timber specialist to construct the building and make the furniture also promoted increased sustainability during the build process and in the overall values of the finished construction.

The sedum roof is a key sustainable element of the design. It promotes water attenuation and, through the careful selection of appropriate plant species, the biodiversity of the local environment.

The design also specified cost-effective technology systems to deliver long-term sustainability.
The Alan King Award

Awards 2015

Judges comments

The project demonstrates that Architectural Technology is critical in providing a solution when faced with strict budgetary controls and a demanding client brief with energy efficiency, sustainability and contemporary design as the key drivers for the project.

In reviewing the project, the Judges felt that the submission was innovative and contemporary. The design team utilised where possible, standardised and tested building methods to ensure that the budgetary constraints were observed without compromising on the overall design.

The high thermal efficiency of the building envelope together with other key features, such as near continuous clerestory glazing and overhanging sedum roof enables excellent natural lighting whilst at the same time providing natural shade and heat control. Coupled with solar thermal panels and efficient underfloor heating, the project achieves a near Level 5 code rating.

Inclusive Design

48 Fen Road protects the setting and outlook of the adjacent Grade 2 listed building. It respects the curtilage of the neighbouring building through being subservient to it and by successfully contrasting with it.

The plant varieties used on the sedum roof were selected specifically to reflect and complement the biodiversity of the local environment and its climate. Albeit unintentionally, the strength of the growth on the roof is also visible from the road thus further enhancing the inclusivity of the design for those passing by on Fen Road.

These include south-facing solar hot water panels, installed on the flat roof and set at 55 degrees, to heat the domestic hot water system.
Award for Excellence in Architectural Technology

The Award for Excellence in Architectural Technology is the premier built environment accolade which recognises outstanding achievement in the practice of Architectural Technology. The winners are:
Background

The client brief was to design a contemporary, Southern Hemisphere inspired, beach house for their young family. The design was to maximise the outside space available and take advantage of the views whilst incorporating an outdoor pool, spa/hot-tub and separate home office space.

The site is positioned in a stunning location on the South Cornish coast. This brought with it amazing seascape views but also many design challenges. The design team included a private Quantity Surveyor and Structural Engineers, who helped Harrison Sutton Partnership prepare the detail design documents, construction details and all internal and external finishing details.

Functionality

The internal accommodation includes a large open plan living/dining/kitchen space, master suite with access to the pool, two additional double bedrooms, a family bathroom and utility space, all on the principal upper floor. There is also a large playroom with en-suite on the lower floor.

The clients wanted an ‘eco-build’ approach that would be environmentally conscious, with low running costs. The materials are sympathetic to the local context with a natural feel.

Buildability

The design required retaining walls and tanking details on the lower level, where dug into the cliff, combined with a large spanning, lightweight structural solution for the upper floor. This resulted in a hybrid masonry, steel and timber frame construction.

The lower floor was constructed using cast in situ reinforced concrete retaining walls and masonry cavity walls. Cavity drainage tanking membrane was specified to relieve the natural build up of water pressure to the back retaining walls.

The design team evaluated that the best way to construct the upper floor was to have a lightweight steel frame solution to enable the large spans required for the open plan design, the overhanging flat roof and large amounts of glazing – maximising the views to the South.

The steel frame beams were designed with pre-formed holes, which along with metal web eco-joists, allowed for the efficient routing of mechanical ventilation ductwork and other services within the roof structure zone. This minimises service voids and maximises the internal ceiling height.

Performance

Whilst sustainable performance for the house was essential, equally important was creating a pleasant environment in which to live. This was achieved in two ways; firstly
by integrating a highly insulated and airtight fabric in the building designed to minimise heat loss and maximise thermal efficiency and secondly by providing a very efficient mechanical and electrical solution to minimise the energy consumption of the house.

The fabric of the building was designed with approximately 60% above minimum Building Regulations U-values to each element. The M&E design included an air source heat pump, underfloor heating, a mechanical ventilation system with heat recovery and a 4kW solar photovoltaic array.

Together this approach gave an A rating on the SAP calculation and Energy Performance Certificate whilst providing a building environment that is easily controlled and efficient to run.

Innovation

Along with the hybrid construction of the house and the efficient M&E design, the choice of finish materials on the outside of the building and the construction of the pool also required innovative thinking.

Following research into innovative and efficient pool construction techniques, an insulated structural
Award for Excellence in Architectural Technology

Judges comments

This technically advanced project made an immediate impression on the Judges as it was clear from the submission that the design team understood the client brief and were keen to maximise the potential of a site which benefits from a stunning location but many challenges.

A low energy approach was one of the client’s key demands for the project as well as an overall scheme that is sympathetic and has a natural feel. Due to the steeply sloping topography, the design required extensive retaining walls and tanking features. This combined with a hybrid masonry, steel and timber frame construction presented unique challenges for the design team that required careful detailing and off-site manufacturing wherever possible to reduce wastage.

Taking into account the rural location of the project, the attention to detail when specifying materials, such as ensuring that the stone for the feature gabion walls was sourced locally is exceptional. The design team should be proud of the solutions which were found as a result of the land available to build having access from only one side.

Sustainability

The issue of sustainability was also considered in relation to construction material transportation. A major feature of the design is two large vertically stacked gabion stop-end walls. The stone for these was sourced from a quarry less than 10 miles away. All framing timber was sustainably sourced from a timber merchant five miles away.

Inclusive Design

Despite the steeply sloping site, the house was designed to comply with the Building Regulations Part M requirements for accessibility. The brief also included a separate home office building, to provide a live/work solution should the need arise.

panel system (SIPS) was chosen as it could be fabricated off-site before being carried through the house in parts and put together in-situ, bolted down to a pre-prepared reinforced concrete slab.

Accoya wood was chosen because it is a natural wood product which is modified through an acetylation process to give a long life in its uncoated state. Accoya is more sustainable than slow growing hardwoods and more environmentally friendly than some chemically treated products; the by-product of the acetylation process is vinegar.

Sustainability

The issue of sustainability was also considered in relation to construction material transportation. A major feature of the design is two large vertically stacked gabion stop-end walls. The stone for these was sourced from a quarry less than 10 miles away. All framing timber was sustainably sourced from a timber merchant five miles away.

Inclusive Design

Despite the steeply sloping site, the house was designed to comply with the Building Regulations Part M requirements for accessibility. The brief also included a separate home office building, to provide a live/work solution should the need arise.
Commended: 

**Eddie Caldeira MCIAT, designplus architects**

**Project:** 

La Vregie

**Functionality and Inclusive Design**

The brief from the client was generic in that there was no preconception of a building form or architectural preference, but specific in that the clients were in their mid-70s with deteriorating health so it had to be accessible and provide for easy conversion to create a self-contained carer’s unit.

Internally, the building is split into four main zones, all on one level. There is a guest suite, an entertainment area, a sleeping suite and a snug. The zones are joined by a 2m wide straight corridor, at one end providing a telescope vantage point.

All doors are a metre wide and in the two main zones, are electronically operated, sliding into the walls to avoid obstruction. Each area provides direct access to an outside space.

**Buildability, Fabric and Structures**

The unpredictable substrata meant that the position of the building was being dictated at the front edge of an escarpment. Considerable geotechnical survey work was required including ‘test’ piling under the careful supervision of ground vibration monitoring.

Results were compiled and a decision was made that the building would be based on a concrete stepped raft and retaining walls which would be tied back to the solid rock face at the north with deep angled rock anchors. It would be designed to displace the main bulk of the weight to the north towards the anchors, and cantilever the south on the plateau edge.

To reduce the quantity of materials needed and mitigate cracking, glass fibre concrete was used with steel reinforcement and waterproofed with a concrete additive. This meant that the access issues were largely overcome by craning in the pre-made formwork panels and pumping the concrete from the area at the top of the quarry.

Once the slab was in place and cured, it provided a safe and sturdy working platform for materials and the work to continue. Every detail and element of the building had to be meticulously thought through.

**Introduction**

La Vregie is a medium sized private dwelling located on an elevated site on the south eastern coast of the Island of Jersey in the Channel Islands. The property commands an unprecedented position, overlooking the historic Gouray Castle, Gorey Pier, The Royal Bay of Grouville and distant sea views towards the French Coast.

The site was formerly occupied by a 1950s cavity block built bungalow which had been unsympathetically added to throughout its life, showing clear signs of poor workmanship and substandard materials rendering it beyond economical repair.
modelled in 3D and where possible made off-site and delivered ready for installation.

**Performance, Innovation and Sustainability**

From the outset, La Vregie was designed with a strong focus on sustainability and the green agenda with the brief that the natural environment must inform the form, materials and processes.

**Use of Local and Natural Materials**

The walls are clad both internally and externally with natural Jersey granite excavated from the local quarry. 350 tonnes of granite was hand-cut and placed, with the off-cuts then used to fill large gabion boxes below.

The granite is deliberately hand-cut and stacked with deep, wide open joints that allow even small breezes to trickle through the stones, cooling the face of the walls of the building, using the principles of a ‘heat sink’. Additionally the gaps create cool natural shelters for the colonies of lizards that also inhabit the site. Both internally and externally, the building is softened by a mixture of woods obtained from sustainable sources.

La Vregie also benefits from a green ‘meadow roof’ planted with indigenous species of grasses and plants cloned from the site, supporting the biodiversity of the area.

**Heat and Cool with the Sun**

Solar panels power the underfloor heating system, while heat exchangers help provide the hot water. Carefully selected argon-filled glazing controls both solar heat gain and loss, aided by brise-soleil fitted over all south facing windows, specially designed and angled for the location.

La Vregie conforms to Passivhaus principles with a highly insulated and thick airtight structure. It is an ultra low energy building requiring little energy for space heating or cooling.

**Lighting**

The entire house is fitted with LED fittings inside, outside and in storage areas to reduce energy consumption and to eliminate the build-up of unnecessary heat. All zones are also controlled by light and movement sensors so that lights are not unnecessarily on.

---

**Judges comments**

An extremely impressive project which overcame a number of issues. The brief was to create a medium sized private dwelling located on an elevated site on the south eastern coast of the Island of Jersey.

One of the key aspects of the brief was to ensure that barrier free access was achieved throughout and coupled with extreme topographical restrictions, this resulted in a novel layout which required a fresh approach to layout design.

Technically the design excels in the use of quality materials and meticulous detailing which was thoroughly thought out, modelled in 3D and where possible made off-site and delivered ready for installation. In line with the ethos of the Practice, a fabric first approach coupled with Passivhaus principles has ensured that the finished house will be economical to run. The meticulous detailing and site supervision should ensure that the end product is built to last.
Introduction

Caledonia Depot is the latest addition to FirstGroup’s maintenance facilities to be built in the UK. The facility houses a fleet of 450 buses and 1,200 employees within the same complex for the first time.

The Facility Includes:

- Bus washes with recycling system
- Pre-fabricated maintenance pits
- Re-fuelling systems
- Rainwater harvesting
- Drive-through bus spray booth
- Pre-fabricated maintenance MOT pits
- Modern driver canteen facilities
- Renewable energy sources
- Electric bus charging facilities

Functionality

Dissected into two areas by the M74, the 10 acre site delivers spaces for the buildings that provide the necessary equipment and accommodation to keep the bus fleet operational and plenty of external yard for bus parking.

The larger area of the site is located on Cathcart Road, which houses the Service Lane and Depot Buildings that form the hub of the Glasgow Bus fleet.

These buildings provide the primary functions to enable the bus fleet to remain operational.

Due to high level of vehicle trafficking around site, the layout of the buildings is such to minimise the ‘dead mileage’ of each vehicle, at the same time as maximising the potential for bus parking whilst concentrating on one way traffic flow that allows for good pedestrian integration as safely as possible.

Buildability

Designed around the vehicle tracking of a bus, each building is either a ‘drive through’ or ‘drive in and reverse out’ type.

The only drive through building on site is the Service Lane. This is due to the process of tasks performed within this particular facility, with the buses first re-fuelling then washing within the same lane.

A portal frame design adopted throughout the buildings provides optimum internal space for maintenance, repairs, and vehicle manoeuvrability. Clad with composite wall and roof panels, this method of construction is relatively quick, providing the contractor with a dry shell of a building to store material and work in.

Performance

Relocating from the existing facility at Larkfield on Butterbiggings Road, which is a stone’s throw away from the new site of Caledonia Depot, the design of the new facility had to reach new heights in performance to eclipse the existing facility.

The Caledonia Depot exceeds all modern day building regulation requirements in the hope of providing First Glasgow with a thermally efficient, light and energy efficient building.

Constructed from a steel frame structure and clad with composite wall and roof panels, all the buildings are based on an emphasis of airtightness. Generating a building that is as airtight as possible will help other key performance factors such as, heating bills and energy usage.
Innovation

The orientation and massing of the buildings was derived from the existing site, its limitations, and proposed bus trafficking manoeuvres. It has linked the day-to-day processes of required maintenance of each bus.

Accommodating the driver and engineering facilities under one roof was fundamental to continuing and boosting the success of the client’s organisation.

Sustainability

It is looking increasingly likely that electric buses are the future of the bus transport industry and First are progressing with this. The new depot has provision for running electric buses with the inclusion of external power charging sockets.

As the internal combustion engine is yet to become obsolete, provisions for maintaining the environment were still at the forefront of the design.

The smallest fuel leak can cause a significant amount of irreversible damage to the environment.

Running 450 buses, Caledonia Depot has three 110,000 litre fuel tanks that are used to fill the bus fleet daily. The Service Lane building houses internal fuelling lanes that have designated fuel catchment areas in case of a leak when filling.

Global warming is having an increased effect on rainfall, which has increased over the past decades and has accentuated the problem of storm water entering the world’s watercourses. Therefore, the site’s inclusive design has the capacity to cope with torrential storm conditions with an underground attenuation system. The three tanks in total have the capacity to store up to 729,000 litres of water. The system collects the storm water, which exceeds the peak flow rate, and is ‘attenuated’ for the period of the storm. It is then released at the discharged rate back into the waterways.

Inclusive Design

In its entirety, Caledonia Depot has been designed to facilitate all the specific client needs to maintain an active bus fleet, along with the need to provide an accessible, useable facility for all staff and visitors.

Judges comments

A superb example of the client and design team collaborating to ensure that a public transportation facility deserves to be at the forefront of Architectural Technology. The project brief was to create a state of the art facility, built to accommodate a fleet of 450 buses and 1,200 employees on a single campus. In doing so, the project team has delivered the most advanced bus depot in the UK within budget and on time.

The construction of the building is an example of simple but quality construction, detailed and designed around the bus trafficking manoeuvres and maintenance functions. Innovative features such as rainwater harvesting for chassis and bus washes has been forecast up to 2.2 million litres of water per year. In addition, the installation of solar PV panels on the roofs of the buildings in the depot is expected to generate in excess of 175,000 Kilowatts of electricity per hour per year.
The Judges

Award for Excellence in Architectural Technology and The Alan King Award

**Kevin Crawford MCIAT, Chairman**

Kevin runs Crawford Architectural Design Services Ltd, a practice that specialises in residential and commercial design, based in the south of Glasgow. Kevin has been a Chartered Member of CIAT since 1993 and is Vice-President Technical.

**Lawrence Coussell MCIAT**

Lawrence runs a Norfolk-based practice specialising in individual 'one off' houses, renovation, alteration and remodelling of listed domestic dwellings. Lawrence is a CIAT-Accredited Conservationist and recipient of the Open Award for Technical Excellence, 1996, High Commendation 1998, Commendation 2000 and a Gold Award.

**Mark Kennett PPCIAT MCIAT**

Mark is a partner in a private practice based in Harrogate, North Yorkshire, Wilson Kennett Partnership, and has a wide knowledge and experience in the discipline of Architectural Technology, specialising in areas such as conservation and sustainability. Mark is qualified as a Chartered Environmentalist and as a CIAT—Accredited Conservationist. He is also a Fellow member of the Chartered Institute of Building. Mark has also been a consultant on several books related to the industry and has spoken at numerous seminars across the UK.
Student Award for Excellence in Architectural Technology (Project)

Robert Hill MCIAT

As Capital Works Surveyor at the University of the West of England Bristol for almost 25 years, Robert has project managed numerous new build and major refurbishment projects and is currently working on the £250m Masterplan. As Vice-President Education he is committed to bringing students into Chartered Membership and inspired by the quality of work he sees whilst judging.

Sarah Radif MCIAT

Sarah is an experienced academic and runs the Architectural Technology Programme at Southampton Solent University. She teaches design, detailing and construction technology. Before that, she practised as an architect working on high-end residential complexes and commercial developments. As a Chartered Member, Sarah’s involvement with CIAT includes membership of the Education Board, professional assessment and as a member of the South East Regional Committee.

Ann Vanner MCIAT

Ann Vanner is a Senior Lecturer in Architectural Technology and the Programme Leader for the BSc (Hons) Architectural Technology programme at the University of Central Lancashire. She engages with industry, education and various user groups to develop ‘live’ studio projects and hands-on exercises for degree students and encourages the idea of learning through practical creativity. She is extremely passionate about the profession of Architectural Technology and uses social media to spread the word.
Shane York ACIAT

Shane graduated from the BSc (Hons) Architectural Technology (Part-Time) degree programme at Sheffield Hallam University in 2014. He has worked as an Architectural Technician for nine years and worked on a wide variety of projects, ranging from bespoke residential, healthcare and predominantly commercial projects. Shane’s final year design coursework was nominated for the CIAT Student Award (Project 2014), which he was fortunate to win.

Dr Boris Ceranic MCIAT

Boris is a long standing Programme Leader of undergraduate and postgraduate architectural courses and an experienced practitioner, academic and researcher. He spent ten years on construction sites and in his own design and build practice, prior to entering academia. Since then, he has remained active in research and practice, publishing on an international level and chairing panels at international conferences, referenced in international journals, PhD supervision and examination, and engaging in externally funded research projects and consultancy, all of which are based on real build projects and case studies. Actively involved with CIAT since 1996, including numerous Accreditations and Accreditation Reviews, membership examination and Interview Panels, membership of the Research Group, International Conference on Innovation in Design and Construction, British Museum 2003, External Examiner for Accredited programmes, and as a member of Student Project/Report Awards Judging Panel.
Dr Poorang Piroozfar MCIAT

Poorang is the Architectural Technology programme leader at SET, University of Brighton where he teaches integrated design, technology and detailing as well as BIM/BEM. His special interest in theory, process and technology in design in conjunction with practice is reinvigorated by his extensive experience as an architect and an urban designer, as well as his proven track record of academic research. His involvement in CIAT includes membership of the South East Region Committee and serving on assessment and judgement panels.

Dr Jonathan Scott MCIAT

Jonathan joined Robert Gordon University in 1992, completing an HND in Architectural Technology. He went on to complete a First Class Honours degree in the same subject, graduating in 1998. Except for a short stint in industry, Jonathan has worked in research and teaching for Robert Gordon University on a variety of projects, developing his interests in the areas of environmental design, energy monitoring, life-cycle analysis and social and occupancy evaluation.

Professor Norman Wienand MCIAT

Norman Wienand is Professor of Architectural Technology and a Chartered Architectural Technologist with a strong interest in the pursuit of sustainable design through sustainable technology. He has substantial relevant commercial experience based on 15 years working in a multi-disciplinary office with design and technical responsibility for a wide range of commercial and domestic building projects. With a grounding in traditional and alternative building techniques and the various forms of earth building, his personal research moved into two broad areas: the conflict of sustainability and innovation in the risk averse world of architectural technical design and the development of a theoretical approach to Architectural Technology, examining the philosophy surrounding technical design in architecture and how this might influence the future development of the subject area as an academic discipline. His professorial title was awarded for work in support of the development of Architectural Technology as an academic discipline. Norman was appointed as a Senior Lecturer at Sheffield Hallam University in 2001 and in 2005 took on the role of Subject Group Leader for the Architecture Programme. He was appointed to Head the Department of Architecture and Planning in 2009, before taking on the Department of Natural and Built Environment in 2013. He now assumes full academic, leadership and budgetary responsibility for a department that encompasses Architecture, Construction, Environment, Geography, Housing, Planning, Real Estate and Surveying among its academic programmes.
Entries for 2016 Awards opening soon
visit www.ciat.org.uk/en/awards for details in the new year
Bringing colour alive

Smith&Watts print

Smith&Watts print are proud to support the CIAT Awards

www.smithwattsprint.co.uk