



Material Considerations End of Year Report

-

2019 / 2020

*“You must unite behind the science.
You must take action. You must do
the impossible. Because giving up
is never an option”*

Greta Thunberg 2019

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Welcome

This is the annual report for the Materials Library, which summarises the work completed throughout 2019 / 2020. This includes CPDs, workshops and education, case studies, new materials, exhibitions, our digital library and outgoing media. As part of Architecture and Design Scotland, the Materials Library assists the organisation’s corporate strategy. Well-designed buildings and places make the very best use of our resources and create places that help people and communities to flourish.

The Scottish Government has made a commitment to reduce our Greenhouse Gas Emissions by 80% by 2050. In 2019 this was amended to reflect the current climate crisis with a new target to achieve net zero emissions of all greenhouse gases by 2045.

The built environment - in particular the construction industry remains a carbon heavy sector (above transport and food) therefore has the greatest impact to make in the mitigation of climate change. Over the next 10 years Scotland will deliver more and better housing and has the opportunity to create (or refurbish) energy efficient, healthy homes, contributing to healthy residents. If these homes can be built from low-carbon local materials, this could lead to the growth of a low carbon Scottish economy.

The Materials Library is an invaluable resource for those working and learning in this field. It offers a way to experience sustainable alternatives to commonly used building materials, provide case studies and up to date blog posts by professionals and academics on new and sustainable technologies, along with CPD and seminar / workshops to support and educate people the value and use of sustainable materials and projects both large and small scale using them.

In 2019 The Materials Library entered the second year of its three-year plan. There were some staff changes and training opportunities through the year which altered our planned outcomes, gave us challenges and allowed us to learn and reflect on the work we have done and future work we can do.

New Materials

In 2019 new materials were added to the library along with some updated versions of previous items.

The updated recycled cotton insulation is a great product used both as acoustic and thermal insulation. A new company is producing a recycled plastic panel called Ekoply which replaced the older version due to the company ceasing trading. We have a 1:1 scale wall mock-up of a new strawbale cassette (Ecococon). This provides visitors to the library a chance to see what can be achieved, using straw filled timber cassettes and natural materials for rendering both internal and external walls.

CobBAGE is a low carbon construction material made from soil and fibre materials such as hemp or straw. This is in development stage, however it is a great opportunity to highlight materials in development and we will look at other interesting materials in development too.

As the library is a small physical space, we will review our current models to see if any of the scale models have been updated and replace them or remove them as needed. Through 2019 we investigated the possibility of expanding the library into the gallery space directly outside, however this has not been completed due to other commitments. In 2020 we will look at ways to maximise our space.

Our new and updated materials include:

- Clay Plaster Panels (several different types)
- CobBAGE (several different types)
- Ecococon Strawbale Cassette
- Engineered Rim Board
- Recycled Cotton Insulation
- Brunnea Treated Redwood

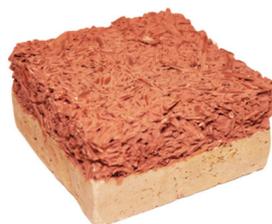
Clay Plaster



Recycled Cotton Insulation



CobBAGE

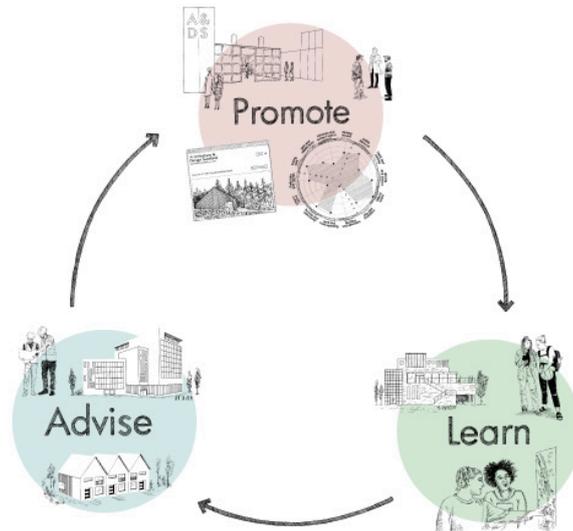


Engineered Rim Board (LSL-L)



Ecococon Strawbale Cassette





Education and Workshops

Through 2019 we met with a variety of educational facilitators from nursery workers to university lecturers with the prospect of understanding how we can deliver resources for them to use. Following these discussions we are developing a series of resources and a possible mobile version of the library which can be adapted and taken on visits to schools, colleges and conferences.

We aim to deliver a minimum of four workshops per term to schools, colleges and universities and will continue to do so throughout 2020/2021. We are receiving more requests from primary schools to deliver workshops on sustainable materials as the climate crisis has been coming up in their coursework. This is highly positive and aligns with our discussions with partner organisations that one of the best ways to encourage people to understand the impact construction materials have on the environment is to engage and educate pupils from primary school age.

City of Glasgow College - interior design, Edinburgh Napier - landscape architects, and students from the Centre for Alternative Technologies in Wales continue to visit the library and are delivering some of their own workshops. We will review and update our resources to align the library in The Lighthouse with our online resource.

This year we had visits to the library from:

- Clydebank High School
- Our Lady of the Missions Primary School
- Holyrood High School
- Perth College
- City of Glasgow College Built Environment
- Glasgow School of Art Architecture Students
- Glasgow School of Art Interior Design 4th Year and Masters
- Corpus Christie Primary School (Greenginers)



Exhibitions

In 2019/2020 The Materials Library was offered the opportunity to programme Gallery 2A at The Lighthouse, with funding of £3000 received from The Lighthouse. We decided upon a series of exhibition showcasing timber as a feature materials titled **'A Year of Timber'**. It gave us the opportunity to showcase both the work of A&DS and external groups.

The first exhibition was **'A Learner Journey'** focussing on work undertaken as part of the Tests of Change project. Starting with a successful launch event and accompanying publication, the exhibition featured small scale interventions using timber displaying that it is possible to 'hack' underutilised spaces in the learning environment and create some inspirational holistic learning zones. The exhibition focused on work undertaken at Clydebank High School, Craighbank Primary School, Newton Primary School and Our Lady of the Missions (OLM). Prior to the launch, pupils from OLM and Clydebank High School visited the library to learn about sustainable construction materials.

The second exhibition, **'Four projects: Sustainable communities pre-manufactured from wood'**, was a joint exhibition on the future of Off-Site Manufacturing curated by the Edinburgh Napier University Built Environment Exchange with original design material by the Harvard Graduate School of Design.

The third and final exhibition for the year was the RIAS/ Scottish Forestry / Wood for Good, **'Best Use of Timber Awards'**. This annual award, with exhibition curated by Architecture & Design Scotland showcases the winning timber project, along with the shortlisted projects and associated RIAS chapter winning projects, delivered a series of blogs and for the first time we held a launch event. The event was hosted by Ann Allen, the chair of A&DS, with a speeches by Helen Lucas representing RIAS and Andy Leitch from Scottish Forestry. We produced a series of videos available through social media and on our website.



Case Studies

Like other libraries, the content is reviewed regularly to ensure up to date information is provided. As all of our case studies are available on our website, the decision to remove some of the older case studies and update the remaining ones was taken. Additionally, nine new A1 'Best Use of Timber Awards' case study posters featuring projects spanning the last five years were also installed in the library. These are a slightly different format from our previous case studies. They provide exceptional examples of the use of timber technologies using some of the materials in the library.

All of the printed posters have also been linked to the materials library website with the use of QR codes. This gives visitors to the library an option to open all case studies on their mobile devices and take them away without producing unnecessary printed material.

The new 'Best Use of Timber Awards' case studies are:

- The Macallan Distillery and Visitor Experience
- Forsinard Lookout Tower
- 22 Observatory Road
- The Hawkhead Centre
- Bath Street Collective
- The Saunders Centre
- Culardoch Shieling
- The Tin House
- Blakeburn

ACHARACLE SCHOOL



Name of building: Acharacle School
Date completed: 2015
Building type: School
Location: Acharacle, Argyll and Bute
Client: Highland Council
Main contractor / Timber supplier: Highland Council
Architectural design of building: Highland Council

Background to building: The Acharacle School has been constructed within the playground of the original school on a site of an existing school building. The building was designed to be a modern school building with a focus on sustainability and timber. The building was designed to be a modern school building with a focus on sustainability and timber. The building was designed to be a modern school building with a focus on sustainability and timber.

Timber technologies: The building was constructed using a range of timber technologies including glulam, CLT and mass timber. The building was constructed using a range of timber technologies including glulam, CLT and mass timber. The building was constructed using a range of timber technologies including glulam, CLT and mass timber.

Special timber-related features: The building features a range of special timber-related features including a large timber roof structure and a timber-clad facade. The building features a range of special timber-related features including a large timber roof structure and a timber-clad facade. The building features a range of special timber-related features including a large timber roof structure and a timber-clad facade.




Photo: Alan Macdonald

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THE MACALLAN DISTILLERY AND VISITOR EXPERIENCE



Name of building: The Macallan Distillery and Visitor Experience
Date completed: 2015
Building type: Distillery
Location: Macallan, Highland
Client: The Macallan Distillery
Main contractor / Timber supplier: The Macallan Distillery

Background to building: The Macallan Distillery and Visitor Experience was designed to be a modern distillery building with a focus on sustainability and timber. The building was designed to be a modern distillery building with a focus on sustainability and timber. The building was designed to be a modern distillery building with a focus on sustainability and timber.

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Photo: Alan Macdonald

Best Use of Timber Awards

Digital Materials Library

Sessions by device:

When the online library was launched in 2018, we took the opportunity to link the library based in The Lighthouse to the digital version of the library. The printed takeaway sheets were replaced with a static panel showing some of the essential information and a QR code linking to the more detailed data hosted on the website. This task was completed in early 2020 and from our web statistics, can see this is proving a popular method of taking away data about the materials displayed.



Tablet - 3.14%
Mobile - 19.75%
Desktop - 77.11%

Website:

Average Session Duration



2018 / 2019 - 2.05 mins
2019 / 2020 - 1.31 mins

Number of Users



2018 / 2019 - 6862
2019 / 2020 - 12,823

Page Views



2018 / 2019 - 18,747
2019 / 2020 - 29,164

Average Pages Per Session



2018 / 2019 - 2.14
2019 / 2020 - 1.87

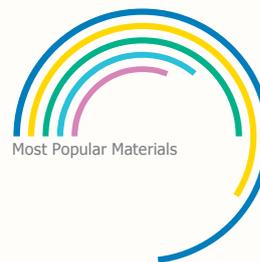
Visits from UK



2018 / 2019 - 72%
2019 / 2020 - 72%

Top fives:

The top five materials, articles and case studies accessed via the website.



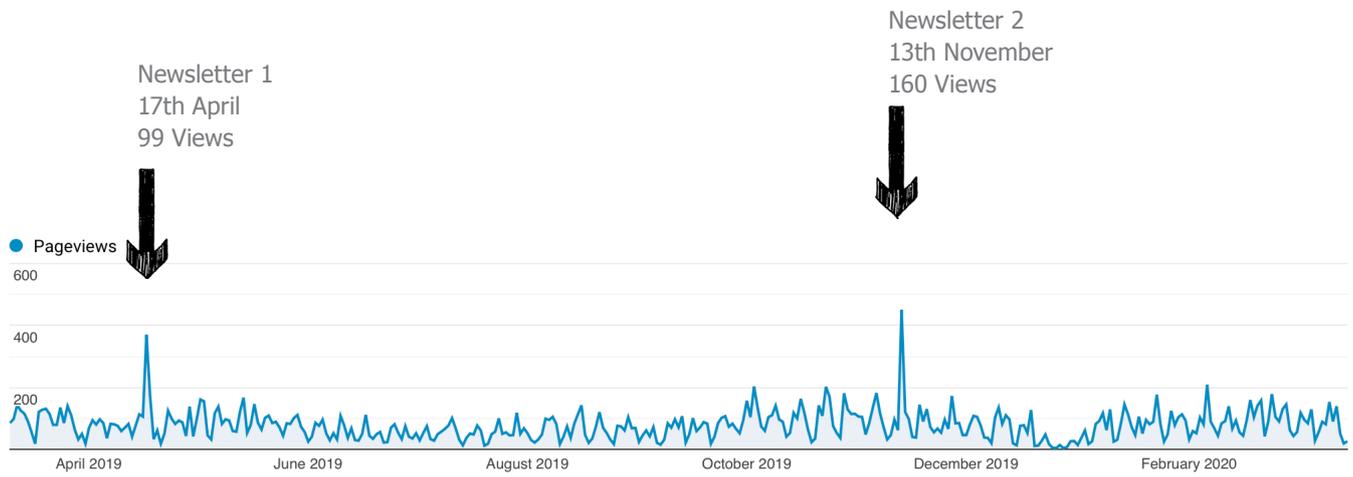
	Views
Recycled Plastic Panel	736
Compressed Paper Board	597
Recycled Cotton Insulation	508
Cross Laminated Timber	365
Recycled Glass Gravel	310



	Views
What is mass timber	915
Four Projects / from wood	522
What is volumetric timber	288
Scottish Circular Economy	243
case for life cycle assessment	203



	Views
Hazelwood School	230
Lochside House (TA)	159
The Black Shed (TA)	145
Bath Street Collective (TA)	123
BBC Pacific Quay	101



Communications

Media / Social

We worked closer with our communications team to develop a richer set of media outputs. These primarily focussed around the exhibitions we have been running through the year.

Each exhibition was accompanied by a series of blog posts by architects, designers and other professionals giving excellent insights to the working behind many of the projects in the exhibitions. Additionally, each exhibition had a launch event and a targeted audience approach, ensuring the correct people came to see and hear about the projects displayed and the library as part of that.

Newsletter

As part of our communications plan, we aim to produce four newsletters per year. However, in 2019 we only two were published as more of our work was highlighted through social media channels and promoted content heavily through the main Architecture & Design Scotland newsletter, so there was less need to produce individual newsletters throughout the year, as we would be repeating content.

Articles in the newsletter increases traffic to the website and this is shown in a dramatic spike in the days following its release. This along with the extra drive to the website through the use of QR codes in the physical library gives us more to focus on how to develop the library further, and how we communicate with everyone who has shown interest in the materials library. From this information, we are going to redevelop our resources to ensure they work fluidly with both the physical and digital library.



Events Feedback:



We ask for a feedback rating of 1 - 10 at our CPD events. Of the 600 maximum score we received 83% positive responses.



- 40% prefer 1 hour lunch CPD
- 25% prefer half day seminar
- 10% prefer Full Day event
- 25% prefer led talk and site visit



- 34% Word of mouth
- 22% A&DS promotional email
- 18% Partner organisation
- 16% A&DS Social Media
- 10% A&DS Website



- 50% Architect
- 20% Contractor
- 20% Other
- 10% In academia

Events

Traditional Construction Skills

We run an annual series of CPD events with the Scottish Traditional Building Forum (SFTB) giving Architects and trades a chance to learn more about Slate Roofing, Climate Change Adaptation in Traditional Buildings, Damp in older buildings and other topics. In addition to this, we took the opportunity to host several daily CPDs during the Edinburgh Festival, with an opening speech by Housing and Planning Minister Kevin Stewart.

Occupant Health and Wellbeing

This CPD collaborates with the Mackintosh Environmental Architectural Research Unit at Glasgow School of Art. Janice Foster and Laura Barnfield, introduced the three main steps of the process they had undertaken: Monitoring, Analysis, and Communication. Through the use of Building Performance Evaluation (BPE) existing buildings were investigated to establish whether they performed as intended.

Circular Materials for Low Carbon, Healthy Buildings

We collaborated with Alliance for Sustainable Building Products and Zero Waste Scotland on delivering a one-day workshop aimed at Scotland based SMEs exploring how circular economy principles can be incorporated into product development, procurement and building design to deliver low carbon, healthy buildings.

Mass Timber Systems

As part of Napier Universities 'Sustainable Communities' exhibition, A collaboration between A&DS, Scottish Forestry, CSIC and Napier University and was chaired by Lynne Wilson (Board member of A&DS). Professor Robert Hairstans and Wojciech Plowas of Napier University presented the case for using Scottish timber, predominantly Sitka Spruce in Glue Laminated Timber (Glulam/GLT) and Cross Laminated Timber (CLT) buildings. Wojciech summarised the existing research on mass timber and presented Napier's team

research methodology (including a trial product in a pilot project) on mass timber systems. The goal of the research is to aid commercialisation of mass timber systems in the UK. Results show that the mechanical properties and structural performance of UK grown CLT and GLT are comparable to commercially available products imported from other countries.



Coming Up

We have partnered with the Scottish Traditional Building Forum to deliver a series of CPDs lasting throughout the year, however these have been postponed due to the current COVID-19 situation. Some half day seminars and other opportunities to run events aimed at educating professionals are also being developed

On the 14th and 15th September 2020 we are planning to take the library to DCarbonise as part of the All Energy event at the Scottish Exhibition Campus (SEC) in Glasgow. This is a major event looking at carbon reduction through sectors such as energy and construction. This is a great opportunity to highlight the library and to get everyone thinking about the materials they use in construction. We also hope to make some contacts in the energy sector to bring some of these options into the library.

We are partnering with Zero Waste Scotland and RIAS at Scotland Build this year also in the SEC in Glasgow. The library has previously been hosted at this event. This year there are new organisers and with such a strong partnership, there is the ability to make a bigger impact.

As we are currently in an uncertain time due to the COVID-19 situation, we will investigate how everyone can safely access the library and its materials once the restrictions are removed. This will include finding methods of booking access to the library and how we handle materials to ensure safety.

If you want to view samples, or find out more about low carbon construction technologies you can visit:

**Material Considerations:
A Library of Sustainable Building Materials
Level 2
The Lighthouse
11 Mitchell Lane Glasgow G1 3NU**

Email or visit us online at:

**MaterialsLibrary@ads.org.uk
materials.ads.org.uk**

Architecture & Design Scotland

Ailtearachd is Dealbhadh na h-Alba

