

THE FUTURE OF GREEN SKILLS IN THE CONSTRUCTION SECTOR

FOREWORD

The idea of "green jobs" in construction is a misnomer – everyone who works or enters work in housing, construction and infrastructure needs to be skilled in decarbonising our built environment, whatever their role.

The HCI Skills Gateway, launched in 2019, is a £6m investment from the Edinburgh & South East Scotland City Region Deal, tasked with building inclusive and sustainable construction careers for all across the region.

Post-Covid, and with increasing momentum to tackle the climate crisis, we now live in a very different world to that of when we started. To reflect this, HCI commissioned Circular Edinburgh to work with a wide range of industry partners to discover what support before 2025 would most benefit the construction sector as Scotland transitions to net zero.

150 companies were contacted over a fourmonth period to assess their current activities in upskilling, how they are building green skills within their workforce and – crucially – to identify skills gaps. Their contributions have provided valuable insights and a more detailed understanding of the training needs for on-the-ground delivery across the region to help our nation achieve its net zero ambitions.

According to the Construction Industry Training Board's 2021 Building Skills for Net Zero report, it is expected that the Scottish construction industry needs 22,500 new roles by 2028. These will be a mix of new, skilled jobs, increased efficiencies in existing roles, and innovation in how the industry decarbonises the built environment.

As a result of this research, HCI is committing to deliver five key actions:

- 1. Increase access to **retrofit** training, starting with free courses for the region's housing professionals delivered via the BE–ST (Built Environment Smarter Transformation – formally Construction Scotland Innovation Centre).
- 2. Deliver courses in **new building techniques** and **emerging technologies** across the region's further education colleges.
- 3. Map current **sustainability accreditations** and identify gaps and new training required.
- Translate offsetting and audit academic.
 research into practical carbon accounting tools relevant to industry in South East Scotland.
- 5. **Inspire more young people** into sustainable construction careers by funding partnerships like Daydream Believers and the Edinburgh Science Festival.

Heartfelt thanks to Mayan Grace, Lauren Ridgley and all who contributed to the report for their time and effort, which allows us to build a stronger vision for the future of green skills in the Scottish construction sector.



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THE FUTURE OF GREEN SKILLS IN THE CONSTRUCTION SECTOR

Achieving net zero needs major changes in how Scotland builds. The UK's building and construction sector generated 36% of final energy use and 39% of energy and process-related carbon dioxide (CO2) emissions in 2018, 11% of which resulted from manufacturing building materials and products like steel, cement, and glass. In 2018, 50% of all waste in Scotland was from the Construction and Demolition sector.

The Scottish construction sector employs 143,000 people and contributes £7.8 billion in Gross Value Added (GVA) to the Scottish economy (figures taken from Scottish Construction Leadership Forum Recovery Plan). Construction needs to rapidly adopt sustainable methods and materials to achieve the Scottish Government's target of net zero by 2045. The industry will also need 22,500* new roles by 2028 to hit net zero (*Building Skills for Net Zero, Construction Industry Training Board (CITB)). These roles will be a mix of new skilled jobs, increased efficiencies in existing roles, and innovation in how the industry decarbonises our built environment.

The move to cleaner, greener construction presents huge opportunities to make the Scottish construction industry more attractive to new recruits and upskill our existing workforce. The Housing, Construction & Infrastructure (HCI) Skills Gateway, based at Edinburgh Napier University, delivers clear, integrated, and inclusive progression routes into construction careers across the Edinburgh and South East Scotland city region. With £6 million in funding from the UK and Scottish Governments, HCI encompasses six local authorities across the Edinburgh & South East Scotland City Region Deal, namely City of Edinburgh, West and East Lothian, Midlothian, Fife, and the Scottish Borders

HCI Skills Gateway commissioned Edinburgh Chamber of Commerce (ECC) to compile this report through business engagement and research focusing on green skills and upskilling within the region's construction and infrastructure sectors, gaining valuable data on the challenges and opportunities facing businesses in these sectors as they transition to net zero. This research provides valuable insights, developing a more detailed understanding of skills gaps and short course training needs in our post-Covid-19 world, supporting on-the-ground delivery to achieve net zero.

METHODOLOGY

Edinburgh Chamber of Commerce's research aim is to engage with businesses in the construction and infrastructure sectors within the Edinburgh & South East Scotland City Region area to develop a better, more detailed understanding of the green skills gaps and potential short course training requirements to support the region's construction industry to reach net zero. This builds upon the earlier, pre-Covid goals of HCI Skills Gateway's initial project proposition, and ensures continuing value to the taxpayer of HCI's investments by responding to major changes, especially in online learning, necessitated by the pandemic experience.

Adopting a qualitative approach, due to the nature of the research questions (see appendix 1), allowed businesses to share detail about current activity to address green skills and upskilling needs within their workforce, identify where skills gaps arise, and explore specific support they seek. A qualitative approach also enabled companies to provide detailed information specific to their organisation.

When selecting firms to take part in the research, businesses located in the Edinburgh and South East Scotland City Region Deal area (Fife, Edinburgh, East Lothian, Midlothian, West Lothian, and Scottish Borders) were chosen. Criteria also included that the chosen businesses needed to be part of the Construction and Infrastructure sectors or work closely to support these organisations. HCI Skills Gateway vetted all the companies prior to outreach.

A total number of 150 businesses were contacted to take part in the research, over a 4-month period between 1st December 2021 – 31st March 2022. All businesses were initially contacted by email, which highlighted the research questions. Businesses were asked to either provide information by email or were invited to a meeting to discuss the research questions further. All meetings were conducted via Zoom or Teams and were recorded. Companies were provided with a copy of Microsoft notes of their recording to fact check. A list of the companies who took part in the report is highlighted in appendix 2.

During the 4-month research period, Edinburgh Chamber of Commerce also held an in-person event focusing on green skills within the construction and infrastructure sectors, with feedback from an additional six organisations during the event. Further delegates who attended the event had already provided feedback as part of this project.



GREEN SKILLS EVENT

The Green Skills Event, hosted in March, welcomed a panel of speakers, including:

- Angela Pllu, Environment and Sustainability Manager, Balfour Beatty
- Kenny McAllister, Director, Community Trade Hub
- Ali Ridha, WSP Construction Innovation Scholar, Edinburgh Napier University
- Rebecca McLean, Head of Sustainability, Advisory & Planning, Sweco UK

Speakers highlighted the important role that green skills and upskilling will play within the construction industry going forward to support the net zero agenda. They also highlighted what their respective companies' actions were to prepare and upskill their workforce.

For example, Kenny McAllister, Director at the Community Trade Hub, provided an overview of the Hub and how it provides alternative options for young people who are unable to take part in apprenticeships. He also updated the audience on the ways they have created a learning environment for the local community in Fife.

There were several discussions and issues raised during the event:

WHAT SUPPORT IS NEEDED FOR BUSINESSES TO INCREASE UPSKILLING AND THE DEVELOPMENT OF GREEN SKILLS WITHIN THEIR COMPANY?



THERE IS A RISE IN DEMAND FOR SUSTAINABILITY TRAINING, SO HOW DO WE ENSURE THAT COMPANIES ARE EQUIPPED WITH THE PROPER SKILLS?

WHAT SUPPORT IS NEEDED FOR BUSINESSES TO INCREASE UPSKILLING AND THE DEVELOPMENT OF GREEN SKILLS WITHIN THEIR COMPANY?

- Industry recognised training that focuses on sustainability is critical. Businesses could use this to demonstrate and translate training standards across providers. Training could be academic or CPD focused; not necessarily a full-time course but some additional upskilling to complement employees' existing qualifications.
- A greater commitment to supporting employees in their personal development journey within a company. This is essential to deliver sustainable upskilling.

THERE IS A RISE IN DEMAND FOR SUSTAINABILITY TRAINING, SO HOW DO WE ENSURE THAT COMPANIES ARE EQUIPPED WITH THE PROPER SKILLS?

- We need to think in new ways about who provides standards and training, beyond the old paradigms and gatekeepers. For example, trade associations could lead on standards and work with local providers, as it is becoming increasingly required in new project tenders for several companies in the supply chain to have sustainability credentials. These accreditations need to demonstrate value.
- Companies need to understand that accreditation helps to increase their competitive edge.
- There are some current accreditations such as BREEAM and EPCs, but there needs to be more information and data to support companies in the decision-making process for choosing sustainability courses.
- Better awareness of available sustainable materials will help firms to make informed choices and reduce the carbon footprint of their projects.

SUMMARY OF ADDITIONAL POINTS RAISED DURING THE EVENT:

- Retrofitting is key in driving forward the net zero agenda and there is a desperate need to upskill in order to retrofit buildings but how do we do this?
- There is a great emphasis on social value and the sense of place in buildings; customers today do not always value existing stock, which often holds social value in the community. How do we understand the social value and how do we measure it?
- Companies know what is required to reduce our carbon footprint and move forward with net zero, but where do the risks lie, and who provides the guarantees?
- Architects need to be more confident in telling clients what is suitable and unsuitable for existing buildings, as well as highlighting to the client that demolition is not always required. However, there are concerns with insurance. Who is taking the risk when, for example, reusing materials in projects?
- Collaboration is critical; the right people must be around the table, everyone needs to be able to see the bigger picture and see how existing buildings do have social value

 as they are often at the heart of the community.

INDUSTRY FINDINGS

Current green skills training activities varied from business to business taking part in the research. Some organisations are starting to draft net zero upskilling plans, with several focusing on internal upskilling across their experienced members of staff.

Statistical Basis for Responses

Thirty-two companies (21.33% of companies contacted via email) provided feedback. 50% of the feedback was received via email and 50% of the feedback was via recorded interviews with companies. Six companies provided feedback during the Green Skills event. In total, 38 of the 156 companies which attended the event or were contacted by email contributed to this report (24.4%).

EMERGING THEMES:

The current industry workforce is insufficiently trained to meet net zero demands.

Yann Grandgirard, Project Manager, Edinburgh World Heritage:

"Overall, there is high probability of not having a workforce that has been sufficiently trained, specifically when it comes to the retrofit of traditional pre-1919 buildings that require robust technical knowledge and sensitive interventions. Therefore, we risk ending up with a gap between experts that have a robust knowledge and a majority that may work as usual or with a slight increase of knowledge - at different levels of the supply chain and primarily concerning installers and contractors."

Working with schools and partners to increase engagement on potential career pathways for school leavers.

Angela Pllu, Environment & Sustainability Manager, Balfour Beatty:

"We need to develop a series of engagement events with schools and universities which showcase the green skills available in construction. Young people will not know the broad range available. We also need to influence and help education establishments to run more relevant modules to the industry and to perhaps offer courses and sessions to upskill current staff on key environmental issues. Within the industry, I am currently developing a matrix of existing skills vs where the upskilling gaps are for green skills – so for example we still need joiners, but they now need Passivhaus training and M&E designers now need to look at CO2 as a proxy for internal air quality."

Early engagement with training partners would be beneficial.

Seonaid Gow, Recruitment and Employability Officer, Edinburgh Airport:

"We work in partnership with colleges, universities, schools and Developing the Young Workforce (DYW) across our key localities (Edinburgh, West Lothian and Fife in particular as this is where the majority of our workforce comes from). We are actively speaking to all of these currently."

Need to show the benefits of net zero upskilling and the long-term investment.

Karyn Watt, Partner, Anderson Strathern:

"There also needs to be greater showcasing of the benefits of green skills, and upskilling within businesses, as this will help show businesses that there are long term benefits – for example initial upfront cost but there will be long term savings."

Financial incentives are important to train and upskill, especially for small businesses.

Aythan Lewes, EALA Impacts:

"Funding for training: sustainable and provable market demand. Often clients state a desire for more 'green' credentials, only for this to fall away when they see the additional cost."

Recommendations on what training courses to take and what accreditations are required.

Alastair Raitt, Managing Director, H.M.Raitt & Sons:

"A key concern is a lack of uniformed accreditation for the industry. Until there is a uniformed approach there is little incentive to upskill the workforce because upskilling does not drive demand from clients."

Agreement on what accreditation is required as well as the need for uniform accreditation.

Paul Cantwell, Knowledge Exchange Fellow, Scottish Institute for Remanufacturing:

"There is also concern about the volume of training courses and content out there, and none of them being held to a certain accreditation and certification body so you can be inundated with lots of courses from multiple organisations but there is no one to verify standard practice and approach."

Deliberate effort is needed to create a green skills workforce. Anjana Raj, Social Value Lead – Northern, Sir Robert McAlpine:

"To a certain extent the staff we need with the "green skills" don't exist – which is why we need to focus on upskilling, until these new roles are defined and structured training is in place."

THE COURSES WHICH ORGANISATIONS ARE PARTICULARITY INTERESTED IN ARE:



Figure 1: Percentage of interest from companies by course topic.

Courses focusing on carbon literacy and benchmarking were also highlighted.

Ian Liddell, Managing Director for Strategic Advisory, WSP:

"WSP is investing in growing and diversifying our skill sets to support high demand for our advice on decarbonising development and infrastructure in the UK. We are particularly focussed on recruitment and upskilling to grow our expertise in: Carbon benchmarking across defined lifecycle stages; Carbon reduction hierarchies (including culture, behaviour, and physical carbon reduction opportunities) across a broad range of sectors; natural capital and offsetting."

Consultation with membership bodies representing different construction sectors were also involved in the research, including Select, a trade association for the electrical contracting industry in Scotland with 1,250 members. Feedback was received from 54 electricians from a survey conducted by Select, and they highlighted that the following training topics were of most interest to them and their industry:

- Electrical vehicles charging points
- Battery storage units
- Solar PV panels
- Ground source heat pumps

The Scottish arm of the Federation of Master Builders' (FMB) were also consulted. The FMB is the largest trade association in the UK construction industry representing the interests of small and medium-sized building companies.

Gordon Nelson, Scotland Director, FMB:

"While local building firms across Scotland employ and train skilled tradespeople, if we are to deliver the appropriate green upgrades to our homes then we will need to have sufficient numbers of competent designers and surveyors. Specifying the right blend of energy retrofit measures to reduce the heat demand from our homes and buildings is essential. The majority of FMB members are building contractors who are best placed to project manage the delivery and installation of energy efficiency improvements and renewable heating systems. They will also need to be able to access any relevant upskilling, be that on management skills or for their operatives."

Feedback from construction organisations highlighted the importance of all members of staff having a basic knowledge and understanding of sustainability and the net zero agenda.

Rebecca McLean, Head of Sustainability, Advisory & Planning, Sweco UK:

"Our company's consideration is how do we provide everyone with a toolkit of questions to make sure sustainability is always part of the conversation. We are also considering basic sustainability training for all employees, to ensure everyone is starting from the same point."

Jim Johnstone, Head of Communities and Social Impact, Morrison Construction:

"In regards to recruiting future staff, companies need to have an understanding of the net zero agenda. This is very high up on the agenda for most businesses." A number of construction organisations and architecture firms were interested in increasing Passivhaus training.

Graeme Hannah, Head of Sustainability, Robertson Group:

"Through our extensive public and private sector engagement, there is an increasing focus on both operational energy and embodied or whole life carbon outcomes. As the level of complexity increases, in developing a business case, design approach, performance assessment, construction delivery and then operation, we need to ensure that our customers, our own team and our supply chain have the knowledge and skill set to deliver. There is no one size fits all solution, but we are seeing more formalised structure and consistency around the processes, through documents like the Scottish Futures Trust Net Zero Public Sector Building Standard for example. This poses the industry with a significant challenge to fully embrace, upskill, optimise, and deliver, and a great platform to ultimately help Scotland reach net zero."

Rab Bennetts, Founder, Bennetts Associates:

"All of our architects are expected to be knowledgeable about sustainability in general but there is a key group of highly committed individuals who form our sustainability team. It is their job to collate the results of research, design or construction and disseminate it to the office. The green skills gaps that exist tend to relate to new building types we have not designed yet, where research into best practice would precede starting design. In the last year we have sent two of our architects on the Passivhaus course to get accreditation which is one of the courses of interest to our industry."

Specific courses for career paths are also critical.

David Shaw, Director, Torridon:

"There are many training courses for the construction sector, which are more general and overarching, but there are not many that focus on quantity surveyors specifically. For example more specific training courses that focus on sustainability but in the context of quantity surveyors would be beneficial."



CONCLUSION AND RECOMMENDATIONS

This report provides an industry snapshot into the real need for construction upskilling. This will ensure the Edinburgh & South East Scotland workforce has the necessary green skills to contribute to Scotland's net zero target.

There are challenges in anticipating future green skills needs and predicting gaps in the market that will require specific training. There is a high chance that the construction industry will have a workforce that is not yet sufficiently trained.

Financial incentives and formal accreditations are important. Requirements from clients are changing at such pace that the skills, and therefore the associated training will evolve over the short to medium term. There is a need to demonstrate the benefits of upskilling, and the long-term investment to counteract short-term cost pressures.

Businesses appreciate early engagement and dialogue with training providers to help shape the courses required. Developing partnerships with other membership organisations and companies in their specific sector would be of benefit.

As highlighted in this report, industry's priority upskilling and training needs encompass the following areas:

- Foundational understanding of sustainability and the environment.
- New building techniques, especially Passivhaus.
- Retrofit, energy efficiency skills.
- Supply chain engagement.
- Carbon auditing, carbon foot printing and offsetting.
- Emerging technologies such as EV charging installation and battery storage.
- Digital skills.
- Carbon literacy and benchmarking.

All of the above should be delivered in short and online formats rather than traditional full-day in-person courses.

Some of the above topics are already underway thanks to HCI Skills Gateway funding. This research, plus continuing dialogue with participating and interested businesses, will create and tailor further bespoke courses, to support the Edinburgh & South East Scotland construction industry as it transitions to net zero.

APPENDIX 1 - RESEARCH QUESTIONS

- What are you currently doing in regards to upskilling and green skills for your workforce?
- What are your key concerns and where do you see gaps for green skills/upskilling within your company and recruiting future staff?
- How do you see the company addressing these skills gaps and what support are you looking for to help your employees upskill and get training?

APPENDIX 2 - RESPONDING COMPANIES

- 1. Anderson Strathern
- 2. Balfour Beatty
- 3. BANN Group
- 4. Bennetts Associates
- 5. Clyde & Co.
- 6. Collective Architecture
- 7. Developing the Young Workforce, Edinburgh, Midlothian & East Lothian
- 8. EALA Impacts
- 9. Edinburgh Airport
- 10. Edinburgh College
- 11. Edinburgh World Heritage
- 12. Federation of Master Builders
- 13. H.M. Raitt & Sons
- 14. Hillcrest Enterprises
- 15. Historic Environment Scotland
- 16.Jacobs
- 17. Mclaughlin & Harvey
- 18. Melville Housing Association Ltd
- 19. Morrison Construction
- 20. Mott Macdonald
- 21. Move On
- 22. National Trust for Scotland
- 23. Parabola
- 24. Robertson Group
- 25. Royal Botanic Garden Edinburgh
- 26. Royal Institute for Chartered Surveyors
- 27. Scott Coppola Electrical Distributors
- 28. Scottish and Northern Ireland Plumbing Employers' Federation (SNIPEF)
- 29. Scottish Institute for Remanufacturing
- 30. Scottish Veteran's Residences
- 31. Select
- 32. Sir Robert McAlpine
- 33. Sisaltech
- 34. Sweco
- 35. Torridon
- 36.WSP













Inspiring Connections



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