ADEILADU ARBENIGRWYDD YNG NGHYMRU G4C CONSTRUCTING EXCELLENCE IN WALES

G4C Wales

Climate Skills in the Construction Sector
Members Response

ADEILADU ARBENIGRWYDD YNG NGHYMRU CONSTRUCTING EXCELLENCE IN WALES

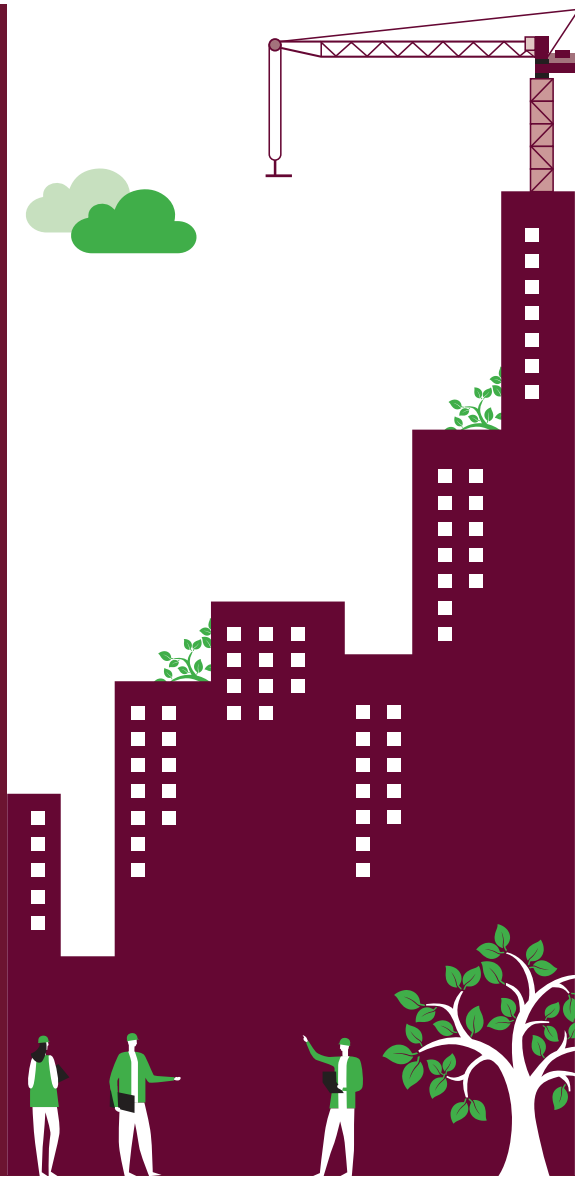
G4C Wales (Generation for Change) is the next generation professional voice of the UK built environment industry, the single organisation charged with driving the change agenda.

Urgent climate action within the built environment and construction industry is no longer a choice. The sector accounts for 38% of carbon emissions and globally we build the equivalent of a city the size of Paris every week.*

This requires a major shift in skillsets at pace. Climate skills across the sector are now mandatory to transition to a value-led, sustainable future. It calls for long-term sustainability considerations embedded within current professions/ clients, upskilling and the creation of new regenerative areas of focus.

In response, this document compiles the collective voice of multi-discplinary industry professionals and provides brief insight into climate skills within the sector. In doing so, it also highlights opportunity areas for industry change.

*Reference Link



Foreword

By Jo Charles

(National Head of Sustainability Operations, Willmott Dixon)

“Construction…But Not As We Know It.

The stark climate picture, the political uncertainty across the globe, soaring energy prices, increased rigor around regulation compliance and lack of skills are no longer “future challenges,” they are right here right now.

You could be forgiven for thinking that we should all just give up now and accept the demise of construction as we know it. In fact, the picture is quite the opposite.

These factors gift the sector the much needed “reset button” to shape the future of society, planet and economic picture in the UK. The mind set shift to see those challenges as opportunities to do something different, learn, and to improve require both the future and existing generations within the sector to show leadership.

The interdependencies and complexity of societal needs, economics and environmental protection and enhancement cannot be underestimated. In order to plan, fund, design, deliver and operate sustainable buildings requires significant investment in green skills.

Changes to what was traditionally seen as “costs” and moves to “value” for society, health and longer term benefits is needed in the financial sector. The ability to reinvigorate our existing stock and build new to meet the current and future demands of society and climate requires a blend of improved existing skills and new entrepreneurial solutions to challenges. Low carbon, high performing buildings require rigorous quality control and attention to detailing, areas that traditionally haven’t been well executed.

In order to tackle these challenges head on, we need collaboration not just across the construction sector value chain, but wider partners, financial institutions, education providers and government bodies. I am filled with hope and belief that these challenges can be overcome, with collaboration through CEWales and G4C Wales members the future of construction is very much in our gift to shape...”

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01. G4C Wales Multi-Disciplinary Members

Our Collaborative Voice

The issue of Climate change is complex and interlinked. It overlaps all industries and therefore connects all professions. Finding solutions and transitioning to a more regenerative world requires the combined voices of all sectors. This is an immense challenge that needs a pro-active approach to communicate openly, share ideas transparently and work in a trust based environment.

Such mindsets can be adopted at pace within the construction sector where there is plenty of opportunity for integrated climate action. Especially as the sector contributes significantly to the economic potential of a nation and the well-being of its people. Yet, challenges within the sector have prevented a speedy transition. Change has been slow and highlighted a need for greater climate awareness with more efficient, multi-disciplinary collaboration across all stages of design and delivery.

With this in mind, the G4C Wales set a shared goal of collaboratively presenting a unified understanding of the construction sector climate skills. Through this, the hope is to not only to present a snippet of insight for the next generation but also challenge the industry and its key partners to quickly transition existing roles, create new focussed roles and bridge the climate skills shortage at pace.

'Every job is now a Climate job'. Reference Link

Grace Day
Infrastructure & Construction Solicitor

Marié Nevin
Architect

Natalie Taylor
Construction Senior Solicitor

Tom Cotter
Senior Surveyor

Rhys Cresswell
Senior site Manager

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Social Value Manager

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Director

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Project Manager

Owain Morgan
Senior Sustainability Consultant

Jia Afsar
Designer & Sustainability Consultant

Elise O'Brien
Quantity Surveyor

02. Context

*"How does our profession contribute towards positive climate action?"

Aware of the significant shortage of climate skills in UK and the lack of direct action in not only translating existing professions towards climate focussed solutions but also in creating new ones, G4C Wales decided to reflect within our multi-disciplinary scope and ask ourselves *this important question.

The over-arching aim was three-fold. First, to provide an understanding of how varied roles come together to address complex climate issues within their respective professions. Second, to showcase how these professions collaborate together. Third, to provide opportunity areas within the industry for fast-paced change.

In discussing this question, key opportunity areas were identified:

- More professional awareness/understanding around climate change & sustainability required across all sectors & levels
- Greater ability to create change if not in a position of direct leadership/work-winning - less hierarchy in sustainable decision-making, more use of technology & evidence based approaches
- More client awareness of climate based long-term (socio-economic, environmental, cultural) value
- More open collaboration with no-blame lessons learned & more cross-industry partnerships at earlier project stages
- Faster shift in mindsets around the full, interdependent understanding of climate impact on the industry
- Enhanced financial assistance from government & public sector enablers
- Greater integration of localised, community needs within earlier stage brief/vision setting

Infrastructure & Construction Solicitor

Associate

Construction Senior Solicitor

Solicitor

Trainee Solicitor Construction, Energy, New projects

Senior Site Manager

Architect
UX Designer

Director/Engineer
Interior Designer

Director

Project Manager

Senior Sustainability Consultant

Social Value Manager

Quantity Surveyor

03. Architects/Designers/Masterplanners

Adriana Jul Camargo
Jia Afsar
Marie Nevin

“Climate crisis, migration crisis, unsustainable cities and polluted oceans. These phenomena didn’t just happen — they are results of choices.’ Designers, Architects, Interiors, Masterplanners can utilise systems based design-thinking and ‘play a central role in mitigating the negative consequences of such problems. They can also position the broad trajectory of culture in new and more desirable directions’.Reference Link

Such is the important role of Design-Based Professions. We help create sustainable, interdisciplinary city-wide visions, influence decision making from conception to completion and over the whole asset-life. From wider strategy scale to people scales, we work hard to involve communities and end users in the design process to ensure a localised needs based approach. This creates inclusive environments that are comfortable, controllable and life-enriching. The process of design also includes other sustainability-based decisions which involve in-depth cross-team collaboration, such as:

- Outlining client’s sustainability goals at the start – if they don’t have a target, we recommend a realistic goal aligned to the project budget and time-frame. In this process, Quantity Surveyors are involved as part of cost based optioneering.
- Selecting sub-consultants with similar sustainability aspirations and coordinating throughout the project with regular client meetings.
- Using environmental modelling software from early in the design process to determine the most appropriate orientation, density, building form and layout.
- Adopting a Fabric first approach to optimise energy efficiency and to reduce heat loss and waste at the first instance before applying renewables or expensive add-ons. Technical project staff are well-embedded in this phase and often overlap other engineering design disciplines.
- Specifying products with low carbon footprints and recyclable where possible. This includes an understanding of sustainability metrics and the wider supply chain. Carbon kitemarks can help select more efficient material choices that are local to the area and easy to maintain.
- Providing options to retrofit existing buildings and infrastructure rather than build new and work together to share lessons learned. This includes reusing existing furniture or recycling if unused and adopting a circular economy model where possible.

Making such decisions and undertaking these processes requires expert collaborative abilities and wide variety of skills and expertise gained from an extensive education process. While the barriers to entry are reducing, current professional skillsets can be further enhanced through accreditations such as the RIBA Conservation Course, Passivhaus Certified Designer Course and WELL AP.

04. Social Value Practitioners

Harriet Wade

The climate crisis is an interdependent issue that 'severely impacts people, economies and the environment at global, national and local levels.' Reference Link Capturing the full scale of this impact and understanding its interlinked value is key to sustainable decision-making and finding climate solutions.

In setting such Social Value commitments, practitioners are targeting climate change by introducing new green skill job initiatives as well as working with supply chains to upskill their understanding of the impacts they can make through items such as packaging, recycling reuse. Practitioners also work with students and the community to expand on their knowledge and to demonstrate the positive small impacts can have on being more sustainable.

This is undertaken through community support regarding material donations and expert advice on items such as waste recycling, circular economy, carbon measurement. Practitioners also educate schools on their understanding of climate change within the construction industry and advise on ways to tackle these issues by solar panels, air heat pumps. One educational initiative has been providing wood plaque QR code to schools to highlight the effects of climate change and showcase how the school has been designed and built to minimise impact on the environment.

05. Sustainability Practitioners

Owain Morgan

'Within the ongoing climate crisis, increasing demand on sustainability has led to the emergence of Sustainability Professionals in the construction industry who challenge traditional practices and ways of reasoning within the organisation.' Reference Link Such practitioners are involved in driving change and work collaboratively with other construction industry experts in finding solutions that not only mitigate negative climate impact but go beyond into regenerative practices.

Within the sector, in recent years, a major change has led to the focus on energy efficiency and sustainable design, both from a 'top down' government policy approach and from 'grass roots' enthusiasm from the public for high-quality buildings standards. This has been exacerbated by the cost of living crisis, housing crisis and impact from coronavirus where limited movement pushed on the need for '15 minute neighbourhood' strategies.

Sustainability Consultants now have a key role to play in such issues including the transition to low carbon design and are actively involved with a variety of projects such as decarbonisation strategies, daylight and thermal comfort analysis and embodied carbon assessments – all of which are aimed at positively influencing the design of buildings/places to provide efficient, low carbon and healthy spaces for people. This is closely tied to their overall well-being and provides a unique skillset that can accommodate a variety of skills directly influencing climate action.

06. Lawyers/Solicitors

Grace Day
Natalie Taylor
Sophie Latham

'Change the precedent, change the world.' Reference Link Climate change has prompted lawyers to consider how the law should operate in the face of the climate crisis, where the responsibility for inaction should lie and what role the actors within our legal institutions should play in responding to climate change.

The legal implementation of net zero targets ranges from treaties, legislation and litigation to the broader legal frameworks governing land use, construction, finance and politics.

The courts can play a pivotal role in combating climate change and some firms are getting directly involved with designing and adapting climate change law by bringing test cases; for example, the UK Court of Appeal held that plans to extend Heathrow Airport were unlawful because they failed to take the Paris Climate Agreement into account.

However, Construction Lawyers do not have to wait for legislation or the courts, climate-aligned contracting can also be used to reach our net zero goals. Lawyers are amending contracts to incorporate aspirational climate change targets, advising clients on and implementing climate friendly contract clauses such as the NEC X29 Climate Change clause or incorporating the Chancery Lane Project clauses into existing precedents to help deliver climate solutions. These clauses aim to encourage project teams to adopt a more climate friendly way of thinking and to implement climate change initiatives from the top down.

On a more day-to-day level, construction lawyers are advising on a range of environmental issues, from the new EPC rating requirements imposed on landlords, compliance with the Wellbeing of Future Generations Act, advising companies on their emissions reporting obligations or on how they must act in their company's best interests by considering the impact of their investments and by trading in carbon.

We are seeing local authority and housing association clients putting in place retrofit social housing schemes to reduce their emissions, installing new infrastructure such as electric vehicle charging points and addressing their net-zero targets when designing new projects and applying for planning permission. There is an increased focus on modern methods of construction and on using Building Information Modelling to improve the life cycle of a building through design, reducing the possibility of defects down the line. All of these projects are facilitated by lawyers.

The way that law firms are run is also changing. The Law Society now provides guidance to lawyers on how to manage their businesses in a manner which is consistent with a transition to net zero. Many law firms have now moved to a paperless system and are guiding their clients through the electronic execution of contracts, stopping needless printing and paper waste.

07. Engineers

Andrew Saralis

With rising temperatures leading to devastating consequences, climate mitigation and adaptation has become central to today's engineering processes.'Carbon (reduction) joins quality, cost and time as core considerations'. Reference Link Engineers now have a significant role to play in climate action. They have professional responsibilities for providing sustainable design solutions which can include:

- Efficiency in choices and minimising material waste (i.e. use of precast concrete or offsite manufacturing) is embedded into the design process. Recycled aggregates and cement replacement products are used where possible. Carbon calculator tools are utilised to assess the embodied carbon within alternative solutions, allowing clients to consider this alongside traditional metrics such as cost and programme.

- Using Building Information Modelling (BIM) which improves multi-disciplinary collaboration and coordination during the design process, along with whole life costing and asset management. It is also important to design buildings to be adaptable and consider decommissioning in line with the principles for a circular economy (i.e. specifying steel members with bolted connections so they can be dismantled and re-used).

- Adapting and renovating existing buildings to dramatically reduce the carbon footprint of a new development. This often requires structural assessments and innovative design solutions but can extend the lifespan of existing buildings, avoiding the need to demolish and rebuild.

08. Site Based Practitioners

Rhys Cresswell

'The building materials and construction sector is confronted with two major challenges; First, the sector contributes to climate change through GHG* emissions and is exposed to carbon taxes. Second, stakeholders are more exposed to significant climate risks from the physical environment.' Reference Link *Greenhouse Gas

It is therefore imperative for site based professionals to reduce waste, energy consumption and protect the natural environment around the site. For site practitioners working on projects such as refurbishment schemes, the focus is around reuse and recycle. Where it is not possible to reuse a material in its original form, they have committed to re-purposing material instead of sending it to landfill. For example, crushing bricks as fill material and recycling un-used timber.

As well as efforts to reduce the amount of construction material sent to landfill, practitioners also take many positive measures to reduce energy/water consumption. They harvest rainwater for cleaning the main access roads and deploy energy efficient site cabins. They train and upskill workforce to recognise sustainable construction approaches and provide focus on sustainability based training packages and inclusive awareness building.

09. Surveyors/Cost Consultants

Elise O'Brien
Tom Cotter

'The built environment provides the homes, workplaces, amenities and infrastructure to support everyday activity, and is a key contributor to economic growth and employment, but also to emissions and resource use. Construction, land and property surveyors/cost consultants are engaged throughout the project lifecycle and therefore, are uniquely positioned to lead and accelerate the transformational change required to ensure a sustainable built environment.' Reference Link

This can be in many ways, both direct and indirect. For example, through the use of sustainable, locally sourced materials, and effective waste management procedures. Other methods can include value engineering workshops which encourage projects to think of sustainable approaches without decreasing the overall function of buildings and to consider re-allocating finances to areas of need. For example, taking collective decisions to substitute regular materials for sustainable materials. Life-cycle costing can also facilitate sustainable choices in its assessment of both the whole building and detailed component options. For example the use of LCC calculations to assess sustainability through environmental, social, and economic impacts of boiler systems. Methods like

10. Project Managers

Alexander Jones

'Over the last 10 years climate change has become increasingly accepted as a critical challenge to our world and to us, its passengers. The project management profession, as the major discipline for managing change, plays a major part in reducing the causes and consequences of climate change however often this is undertaken indirectly. Reference Link

Project Managers can find it difficult to gauge how much influence their specific function has in contributing to positive climate action as tackling such issues and adopting sustainable approaches is ultimately dictated by clients and earlier stage decision makers. While project managers can best advise towards innovative approaches to dealing with the crisis, suggest time-lines based on sustainable processes, this may not guarantee action.

Subtler approaches to develop knowledge via CPD's, educational courses or from lessons learned can allow Project Managers to best equip themselves for positive change in the industry. Partner that with government-level enforcement of change, of which Project Managers can utilise their management skills to ensure policies and legislation is followed to the letter, can lead to progressive movement. This can be enhanced by awareness building of wider industry stakeholders to create sustainable programmes and ensure the inclusion of climate risk.

Afterword

By Robert Chapman

(Director, Strategic Property Advisor & Regeneration Practitioner, RC² -Robert Chapman & Company Ltd)

"Everything Everywhere All At Once - António Guterres

The construction sector needs to act and it needs to act fast on all fronts. As the IPCC makes clear, 'the world must peak GHG emissions before 2025 at the very latest, nearly halve GHG emissions by 2030 and reach net-zero CO^2 emissions around mid-century, while also ensuring a just and equitable transition. Reference Link This is no longer just an environmental issue - the social and economic scale of impact is immense and so is the financial opportunity. As the world seeks to reduce emissions, the International Finance Corporation forecast $25 trillion in the green buildings sector in the coming years.

To stay on track, 350,000 new roles will need to be created in the construction industry and the UK's retrofit industry must grow by ten times. A key finding of 'Building Skills for Net Zero' suggests that these roles will be found through a combination of new skilled jobs, greater efficiencies in existing roles and innovation in the way the built environment decarbonises. Urgent questions must now be asked to address the role of education/ institutions in facilitating this at scale, to discuss inclusive methods of attracting and retaining next generations, and to better position sustainability and zero carbon as a career of choice.

This cannot be done in isolation and will require a whole-industry approach including significant sustainability investment through debt finance, project finance and asset finance. In similar fashion to the 'Coalition for the Energy Efficiency of Buildings', key players of inter-linked sectors will need to work together to formulate pathways that are achievable within current targets. This needs governmental support across UK.

In Wales, the policy landscape is favourable to such conditions. The Well-Being of Future Generations Act has already established sustainability into written law. This combined with the recent plan launch for a new long-term vision to upskill net zero jobs puts the right steps in the right direction. But more needs to be done.

G4C Wales, as voices of the next generation, calls for the issue of climate change to be understood as an integrated systemic problem which requires cohesive thinking across sectors such as health and education. While the built environment faces challenges of decarbonising one of the most emissions-intensive sectors, it must also protect and improve the well-being of people that use and own buildings especially during a cost-of-living crisis. A unified approach is now necessary and it is the hope of the next generation of professionals that current decisions are made inclusive of their long-term needs."

G4C (Generation for Change) is the next generation professional voice of the UK built environment industry, the single organisation charged with driving the change agenda in construction.

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