

Inspiring Construction

An Industry Initiative 2017 – 2019

A Partnership of

CITB

Construction Scotland

Scottish Contractors Group

Developing the Young Workforce

Skills Development Scotland

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Inspiring Construction Project Summary

Inspiring Construction is an Industry led initiative to generate awareness of and appetite for careers in the construction professions and trades amongst Scotland's young people. It has received some £200,00 of grant funding from the CITB and enjoyed over £400,00 in value of tangible contribution and support from construction businesses and professional and trade bodies during its' activities over the past two years.

In that time Inspiring Construction has met, interacted with and enthused thousands of school pupils and students, hundreds of teachers and careers advisors and several local and national politicians. It has received universal positive outcomes and enjoyed genuine surprise and excitement being shown towards the prospects and attractions of employment in the industry. But, despite that positivity, the programme has only really scratched the surface of what is possible and can be achieved.

Set out to follow is a summary of how the scheme came about, what it has delivered and a picture of what it could achieve going forward with government and industry backing, a long-term brief and renewed funding.



Introduction

Our Industry

The construction Industry is the 3rd biggest employer in Scotland, currently with around 233,600 employees, making up some 10% of the whole Scottish workforce, and generating a £10 billion turnover through 31,000 businesses. Of these jobs, some 28% of the workforce reportedly will need replacing by 2027, creating up to 65,000 new jobs.

The **Scottish Contactors Group (SCG)** is the Scottish branch of Build UK, a National industry representation collective for Tier 1 construction companies and separate Trades bodies representing specialist contracting groups and SMEs.

Construction skills and employment issues

In 2015, concerned about perceived shortages of entrants into the construction industry, SCG members agreed to hold a series of events over the following 18 months to highlight both the economic importance of construction and the range of construction careers on offer to young people. These would have a dual purpose in highlighting two key themes:

- **Economic value of construction:** The events would set out the economic importance of construction to National and local decision makers. It was recognised that every £1 invested in construction generated £2.84 of economic activity and, as the industry continued to recover from the downturn of the previous recession, it had the potential to create significant work and training opportunities for local communities. The events would build on the theme of SCG's Creating Scotland's Future event (January 2014) - addressed by Nicola Sturgeon – which set out the case for investing in the construction industry.
- **Benefits of construction careers:** Member CEOs had identified tackling skills shortages as the industry rebuilds capacity as a key priority. While there would be demand from the construction sector for new skills, construction participants also needed to attract more young people to consider a career in the industry. Young people and their influencers often perceived a construction career as unattractive – the industry needed to tell a more compelling story about the range of opportunities on offer.

Over the previous year, SCG had tried to reach young people through the Build UK initiative, “Born to Build” web-site (borntobuild.org.uk), which featured over 30 young people working in construction talking about their experiences; while the Build UK / SCG Open Doors Weekend in March 2015 saw over 1,000 people book to visit construction sites to gain a better understanding of what happens on a major project.

Details of the following events were proposed:

Events would be held in 5 major cities across Scotland with the venue for each event being a major local construction project. The schedule for this was agreed and organised to include:

- **Sept 2015:** Glasgow (City of Glasgow College)
- **Jan 2016:** Edinburgh (McEwan Hall at University of Edinburgh)
- **April 2016:** Inverness (Inverness College)
- **June 2016:** Aberdeen (Marischal Square)
- **Sept 2016:** Dundee (V&A Museum of Design)

Audience: The audience would be a mixture of local decision makers, industry representatives and wider stakeholders. In addition, contact would be made with local schools and colleges to encourage them to send teachers and small groups of pupils. While there was a perceived need to attract young people to the industry, it was felt an effective outcome could be achieved by inviting teachers and, having created the right impression, providing them with the information they could pass on to pupils in their schools and colleges.

Event messages: It was proposed that the events highlight a number of key messages:

- **Importance of construction to Scottish economy/society:** Construction helps drive economic growth (£1 invested in construction creates £2.84 of economic activity), but importantly creates the environment for our daily lives – our homes, schools, transport system etc.
- **The industry is a significant employer:** Construction directly employs over 175,000 people in Scotland; while the latest CITB data shows industry will need to fill 28,500 jobs in Scotland by 2019.
- **Dispelling myths about construction careers:** Working in construction is not only about ‘lifting bags of cement’. There are a range of jobs on site or head office and the industry is at the forefront of engineering, digital design etc.
- **Pride of working in construction:** Those working in construction can look at major projects/buildings and take pride from saying ‘I helped build that’.
- **The industry offers a range of training opportunities:** Including apprenticeships, graduate entry routes and day-release training.

Event format: Morning events with presentations and areas where young people could meet and talk with company and industry representatives to learn about careers were proposed and ideally presentations would be by:

- A Scottish Government Minister
- A City council presentation on plans for local construction investment
- An SCG member/client presentation on local projects and the benefits these bring to the local area
- Presentations on industry skills needs and the many benefits of construction careers

Supporting organisations:

SCDI and Skills Development Scotland had both agreed to partner with SCG on the events. It was also seen as important that the events dovetailed with work already being undertaken by other relevant organisations and that conversations were had with ICE, CIOB and RICS, who were all being supportive.

Outcome

The five city events went ahead as planned and were extremely well received, not only by attending pupils, students and teachers, but also by other education experts, construction professionals and local and national politicians who took part or simply turned up to see what was going on. However, on reflection, the SCG organisers recognised that there had been a disconcerting amount of self-selection of attendees. It had become apparent that most were young people who were unlikely to pursue (or be able to pursue) the traditional academic career paths

and might therefore consider more manual employment which they, and importantly their parents and careers advisors, thought they would find in construction.

By late 2016 the SCG leadership was therefore increasingly concerned at the obvious pressures on sourcing appropriate personnel for the industry, particularly those better qualified young people who were apparently being drawn and directed into other professions and walks of life. In addition, the Brexit vote in 2016 was expected to further reduce available skilled construction staff.

Made aware that the CITB's resources and capabilities to promote industry recruitment and training were also coming under pressure but that some funds were nevertheless immediately available, SCG made a decision to take matters into their own hands. The subsequent SCG application to the CITB's *Structured Fund: Educational Engagement – Commissioned Approach* was entitled "**Promotion of jobs and careers in construction through schools and employers working in partnership**". This set out a five pronged coordinated approach to creating interest in and improvements to recruitment into the Construction industry in Scotland involving:

1. A Programme of **Professional Careers** events in Schools across Scotland
2. Development of **Trade Demonstrations** in Schools across Scotland
3. Development of **Trade Demonstrations** in high profile venues across Scotland
4. Development of **Educator Insight** presentations to school and career guidance teachers
5. Development of a **Construction Simulation** computer programme (to promote interest in careers in the industry)



Aims and Objectives

Following the successful award of funds for this initiative from CITB in late 2016 it was launched as the **Scottish Contractors Group and CITB Educational Outreach Programme 2017 – 2019** in which the principles of the initiative were given as to:

Encourage school children to consider a full array of roles within construction for their careers of choice. “We will coordinate these activities, and others which are identified, to maximise the positive impact on these events and increase those interested in joining the industry.”

With the guidance and direction of an overseeing voluntary SCG Steering Group the aims, tasks and targets for the separate programmes were set out and voluntary teams from within industry were identified to organise and implement these with the assistance of a professional organiser/administrator, funded by the programme. with the following directions:

1. Programme of Professional Career Events in Schools across Scotland

This team will develop a structure for the presentations to schools and identify suitable construction ambassadors to deliver these presentations, personalising them to their own route of entry to the industry, career path and projects they have worked on. The events will provide a platform across Scotland to promote the variety of professions across the construction industry and be delivered to address the professional occupations identified within the Construction SIP.

Target Audience

- School Children in the Senior Phase
- Teachers
- Careers Advisors
- Construction Careers Support Providers

Target output

- 20 events over 2 years

2. Development of traditional building skills demonstrations in Schools and High Profile places across Scotland (initially set out as two separate programmes)

Taking trade demonstrations to schools and high profile places and allowing school children to have hands on experiences of key trades outlined within the Construction SIP and the CSN Network. These will normally focus on four trades with school children (and teachers) given practical instruction and hands-on experience. It is expected that those events in public spaces will allow SCG to influence school children’s career influencers, such as parents, who might be in the area. These events will be organised locally with key stakeholders in each area and are mainly, although not exclusively, aimed at S3/S4 pupils.

Target Audience

- School Children
- Teachers
- Careers Advisors
- Career Influencers

Target output

- 15 events over 2 years

3. Development of Presentations to school and career guidance teachers during School In-Service Days

This programme will access schools and career guidance teachers to educate and alert these key influencers on the possible careers in construction. We will develop bespoke presentation sessions for delivery to school teachers as part of their in-service days. These will highlight the vast array of career options within the construction industry and demonstrate that the industry should be looked upon as a career of choice for young people.

Target Audience

- Teachers
- Careers Advisors
- Career Influencers

Target output

- 10 events over 2 years

4. Development of a computer simulation programme (and app)

This development will allow school children (throughout their schooling) to apply crystalized learning to work-based scenarios in line with Curriculum for Excellence and as part of a coordinated plan to allow school children to continue interest in construction. The programme should also run an inter-school competition based on project management, planning and problem solving.



Project Approach

SCG appointed a project officer in Linda Souter, an employment and training manager seconded from Sir Robert McAlpine Construction, and organised steering groups to direct and oversee the five separate programmes. Contact was quickly made with Developing the Young Workforce and Skills Development Scotland and buy-in was sought from SCG member organisations and industry professional bodies.

With steering groups in place, the teams reviewed their directions from SCG and the programme content agreed with CITB and set about detailing and planning their approach. It was decided to re-badge the programme under more concise titles and arrived at the **Inspiring Construction** name. The detailed programme methodologies were expanded as follows:

Through a suite of bespoke events, workshops and one to one sessions, Inspiring Construction would bring to life the multifaceted elements of the construction industry with a particular focus on school aged children. The programme would aspire to increase participation in STEM subjects, address the imminent skills gap that the construction industry faces and ultimately inspire construction as a career of choice.

Inspiring Construction was to be a unique programme being delivered during the Year of the Young Person and would address barriers to participation, and any misconceptions that Scotland's young people might have about the industry, to empower them to consider becoming the construction professionals of tomorrow.

Inspiring Construction would promote the whole of the construction industry and include trade demonstrations, career events for aspiring professionals, raising awareness of construction to teachers and career advisors, onsite visits and computer simulation.

It would work with others to deliver a programme of coordinated activities and events to promote a unified and positive image of the industry through the four parallel routes outlined in the brief and their tasks were formalised under these guidelines.

1. Inspiring Professional Careers

This programme offers a series of presentations from young ambassadors from within local/major contractors who can give career insight into their roles, entry into the sector via apprenticeships and training routes, as well as academic qualifications, and the skills young people can develop to enhance their opportunities. Each presentation can be accompanied by a variety of STEM based interactive activities to give young people a flavour of professional roles within construction.

Sessions may include supplementary interactive task features such as VR goggles; Overhang Challenge; Construction Manager game; Lego Challenge and the Straw and Golf Ball task. Sessions can be tailored from an hour up to a half day, dependent on host preferences and group sizes and involve differing numbers of ambassador presenters and interactive tasks to support the main Inspiring Professional Careers in Construction Presentation.

Inspiring Professional Careers encourages young people to think about a career in Construction by:

- Raising awareness in young people of the numerous professional careers within construction and how to access them
- Construction stereotypes "Myth-busted"
- The gender diversity of roles addressed with young people and accompanying teachers
- Informing young people and teachers of routes and pathways into construction careers including apprenticeships, academic, graduate and professional

2. Inspiring Traditional Building Skills

This programme will offer a range of traditional building skills demonstrations where pupils, and teachers, are provided with an opportunity to experience mini-masterclasses in four trades to help them in their career decisions. We recognised that many school children who enter a construction trade do so without having been given the opportunity to experience any variety of options in a meaningful, hands-on manner.

Inspiring Traditional Building Skills sessions help pupils make an informed decision on which trade career to follow and therefore maximises their chances of long-term positive destinations. We can organise these events in public areas or within schools. For those in public areas, we organise everything and all interested parties have to do is supply us with the names of those attending and accompany the pupils. For those in schools, all we require is a sufficiently large space (a gym hall is normally ideal) and the names of those attending. We do everything else.

We do encourage school teachers to participate in the activities as well as pupils but that is the host's decision (although we are confident that those who do always have an enjoyable and useful experience). We ensure a high tradesperson to pupil ratio deliberately to ensure a high quality experience for the pupils and also to manage health and safety issues. We can usually therefore accommodate 16 school children (plus teachers) at any time. In schools we can deliver the programme three times in one day and therefore provide 48 school children with a high quality mini-masterclass in four trades. We provide all relevant Personal Protection Equipment (PPE) for all participants and Risk Assessments are prepared prior to the event which will be available to view on request.

3. Educators Insight

This programme offers presentations to promote the construction industry to educators and career advisors. Our presentations highlight the vast array of career options within the industry and demonstrates that these should be looked upon as careers of choice for today's ambitious, adventurous and enthusiastic young people.

We offer a series of presentations given by young ambassadors working in the industry who provide insight into their career journey followed by question and answer sessions. These presentations are introduced by an experienced facilitator who sets out who the participants are, the aims and approach of the Inspiring Construction Programme and describes the different career options, paths and support available to those interested in learning more. Sessions will be organised to suit school hours and can be tailored to provide bespoke arrangements which fit with school or other event agendas.

A typical 40 minute format generally includes an introduction and bespoke Educators Insight presentation, one or more ambassador presentations, a short inspirational film from the CITB and time for Q&A. Value can be added with more time allocated or brief staff in-service, CPD or twilight sessions can be catered for. Like the Inspiring Professional Careers sessions, Educators Insight presentations ensure all attendees are fully aware of the variety of careers in construction, the numerous professions involved and how to access them; dispelling industry stereotypes and addressing the gender diversity of roles in the industry. Additionally, the key essential is to inform career advisors and teachers of the different routes and pathways into industry careers including apprenticeships, academic study, graduate training and professional practice.

4. Construction Managers Game Development

On mobilising a "Digital Futures" steering group to promote a construction career related computer game, the Inspiring Construction team found that a Construction Manager game had already been

developed for CITB by a games developer, Junction 18, utilising over £125,000 of CITB funding and in kind investment and had been delivered by academics and industrialists to thousands of students across Scotland. This Construction Manager game was designed to raise awareness of careers within the construction industry by putting players in the role of a small business owner seeking to grow a successful and profitable enterprise. The game focuses on ethical and sustainable investment, regular staff training, effective resource management and equality in the workplace.

The proposals drawn up by Inspiring Construction on behalf of CITB, Construction Scotland and the Scottish Contractors Group by CSIC, LDB and City of Glasgow College therefore aimed to add additional functionality that would improve gameplay and replayability and facilitate a better understanding of how players play the game. The Inspiring Construction Programme funding would therefore integrate achievements and develop metrics and analytics to better understand game usage, as well as providing the game on both an android and iOS platform. It would also prepare numerous “lesson plans” for enhanced engagement of users by teachers or other industry promoters.

Construction Scotland Involvement

Construction Scotland was set up in 2011 in response to the Scottish Government’s call for representation of the construction sector on Industry Leadership Groups. It has since evolved as the organisation recognised by Scottish Government as the voice of the industry in Scotland – allowing Construction Scotland to communicate and engage with the Scottish Government Ministers, Departments and public sector bodies in responding to and articulating the priorities and needs of the industry as a whole; and enabling the growth of a sustainable, profitable and innovative industry at the heart of Scotland’s economy.

In April 2017, Scottish Enterprise (SE) and Construction Scotland commissioned Social and Economic Research Group SQW to undertake desk-based analysis of the construction sector in Scotland. From that study, a detailed picture of employment in the Scottish Construction sector was revealed, leading directly to Construction Scotland’s recognition of the importance of Inspiring Construction and its’ adoption as the industry vehicle of choice for promotion of expanding training and employment.

Extracts from the findings of the SQW report are included at Appendix1 at the end of this report.

SQW Report Conclusions

The last few years have been reasonably buoyant for the Scottish construction sector as it recovered from the global economic recession. The range of data presented in the report shows the importance of the sector in terms of the jobs and wealth that it creates not just in the core sectors but throughout the wider economy, and in all parts of Scotland.

- The core construction sectors generally represent around six to seven per cent of Scotland’s total workforce, sales and GVA output
- Taking into account the supply chain, the sector accounts for 10% of employment and GVA output and nine per cent of total sales
- In terms of employment, there is currently nearly 180,000 jobs in the sector. Taking into account self-employment the figure could be around 240,000

Even with the anticipated slow-down in demand, construction will continue to be a major sector in Scotland and the challenge will be to ensure Scotland has a strong and innovative business base with a skilled workforce to deliver projects not just in Scotland but around the UK.

Construction Scotland Strategic Aims

Largely as a result of the report above, and further dialogue and debate within industry, Construction Scotland's Industry Strategy document for 2019 – 2022 was launched and included the following Strategic Strategy aim:

To increase the skills and diversity of the construction workforce in Scotland. Skills continues to rank within the top three priorities for the industry in every survey and industry consultation. The next three years will continue to see rising labour costs, a demand for new and more technical and project management skills alongside traditional industry skills, and the priority to encourage more people into the industry, improve the perception of construction as a positive career choice and the diversity of people entering and working in the sector, and address the age and gender imbalance across the industry. The priorities for Construction Scotland will be to:

- *To work with the Professional Institutions, Skills Development Scotland, CITB, BSE Skills and the Scottish Colleges and Higher Education Institutes to ensure that modern apprenticeship frameworks are aligned and developed to address industry needs*
- *To engage and work with the CITB to ensure greater accountability and input from industry to ensure the delivery of the correct standards and qualifications for the industry, and to ensure the training and development needs of the industry are met, including the CPD offering across the industry*
- *To seek to promote the industry as a positive career choice for individuals, working collaboratively with industry bodies and key partners such as Skills Development Scotland, the Fair Work Commission and the schools and education network, to present positive case studies, role models and examples of good practice across the industry, and in particular to work to coordinate the current industry approach to schools engagement through promotion of the **Inspiring Construction Schools Outreach Programme** as a unifying tool.*



Inspiring Construction Results and Products to date

Since getting properly underway in the summer of 2017, the Inspiring Construction programmes have now delivered as follows:

PROFESSIONAL CAREERS

- ❖ 17 events have been held to date involving over 1750 pupils
- ❖ 90% of attendees completing feedback forms thought the event was excellent or very good and 100% said they now have a better understanding of the construction industry
- ❖ 60% of attendees said they would like to be kept informed of other events and information relating to careers in construction
- ❖ See St Modans High School Case Study at Appendix 2

Professional Careers events held to date:

1. Bellbaxter HS in Fife – Dec 17
2. Forrester HS in Edinburgh – Feb 18
3. Holyrood HS in Edinburgh – Feb 18
4. Braes Academy in Falkirk - March 18
5. DYW East Dunbartonshire & Lanarkshire event at CSIC – March 18
6. St Rochs HS in Glasgow – May 18
7. Big Bang careers event in Perth - June 18
8. Kingspark HS in Glasgow – June 18
9. Mackie Academy in Stonehaven - June 18
10. Ross HS in Edinburgh - June 18
11. Carnoustie HS in Tayside - Aug 18
12. Monifieth HS in Tayside - Aug 18
13. Johnstone HS in Renfrewshire - Sept 18
14. Paisley Grammar in Paisley - Sept 18
15. Boroughmuir HS in Edinburgh - Sept 18
16. Big Bang careers event in Lanarkshire - Oct 18
17. St Modans HS in Stirling – Nov 18
18. Gracemount HS in Edinburgh – Jan 19

Dates in diary:

30 January 19 – Breadalbane HS in Aberfeldy

28 Feb 19 – Our Lady's HS in Cumbernauld

6 March 19 - DYW East Dunbartonshire & Lanarkshire event at CSIC

Dates TBC:

Liberton HS in Edinburgh

Lasswade Academy in Midlothian

Musselburgh Grammar in East Lothian

TRADITION BUILDING SKILLS

- ❖ 19 events held to date, to over 1700 pupils
- ❖ 80% of attendees said they found the demonstrations excellent or very good
- ❖ 60% of attendees would you like to know more about a career in Construction
- ❖ See Event at the Scottish Parliament Case Study at Appendix 3

Traditional Building Skills events to date:

2017 – 7 events

Falkirk
Glasgow
Edinburgh
Kirkcaldy
Paisley
Perth
Stirling

2018- 12 events

Dundee
Paisley
Falkirk
Glasgow
Edinburgh
Scottish Parliament
Paisley
Stirling
Bellbaxter HS
St Modans HS
Kilwinning HS
Maybole HS



Traditional Building Skills events booked for 2019:

March – Liberton HS
May - Edinburgh Royal Mile
May - outside Scottish Parliament
September- Perth

EDUCATORS INSIGHT

- ❖ 9 events held to date to an audience of over 200 teachers and career advisors
- ❖ All attendees said that they had learned something new about the different roles and routes into the industry
- ❖ All attendees said they would now be happy to discuss with any pupil who enquires about a career in construction

Educators Insight events to date:

1. DYW Edinburgh & Lothians careers event at Murrayfield – Nov 17
2. Linlithgow Academy in West Lothian – May 18
3. Aberdeenshire Council event – May 18
4. Ayrshire DYW – May 18
5. DYW East Dunbartonshire & Lanarkshire event at CSIC – June 18
6. East Lothian Parents – Sept 18
7. St Modans HS in Stirling – Nov 18
8. St Rochs in Glasgow – Dec 18
9. St Rochs in Glasgow – Feb 19

Educators Insight events booked for 2019:

SDS event at Govan HS in Glasgow – April 19
Dundee DYW (1st or 2nd week March)

Commitments to hold future **Educator Insight** presentations have been made with DYW teams in Perth & Kinross and Orkney and clear expressions of interest to participate have been received from the DYW teams in Inverness & Central Highlands, Dumfries and Galloway and Forth Valley.

Over the coming weeks, and with DYW and SDS's assistance, there is confidence that Inspiring Construction can also take the Educator Insight programme to, and gain commitments from, the Scottish Borders; Fife; Renfrewshire; Aberdeen and Grampian; West Dunbartonshire and Inverclyde.

Ongoing Appetite

In addition to all of the engagement and interaction which has been achieved, the Inspiring Construction team have had to turn down numerous requests made through the CITB's Marketplace website. These have included presentations at, or holding Traditional Building Skills demonstrations for, several other schools, due to unavailability of suitable presenters or clashes with other events.

We have also had repeated invitations to visit careers fairs and Primary Schools, which were not seen as part of the initial project brief and we have therefore not been able to fulfil due to lack of available people. However these too would certainly have been highly worthwhile, had resources been available.

CONSTRUCTION MANGER GAME

The funding as part of the Inspiring Construction Programme was to integrate achievements and to develop metrics and analytics to better understand game usage as well as provide the game on both an android and iOS platform.

The project commenced in January 2018 and was completed by June 2018, when it was uploaded to Apple Store and Google Play to be available for free download. The game is now accessible on both Google Play for Android and the Apple Store and there are links to both locations from the CITB's Construction Manager Game website, which is still Live. Funds have now been released and developers, Junction 18, have been paid for this element of work, closing off the technical requirements of this project.

The Construction Manager Game was officially launched by CITB at the Skills Show at the SECC in October 2018 with Government Minister John Swinney in attendance, and was featured at the International STEM Equality Congress on the 11/12th Oct. To date the game has made around 70,000 "impressions" from UK users which has outperformed all expectations.

Statistics since launch:

- ❖ Total Downloads: 788
- ❖ Games Played: 1423
- ❖ Impressions: 67,804
- ❖ See "Game Changer" Case Study at Appendix 4

Recommendations – Future Proposals for Inspiring Construction

Having spent the last two years developing and promoting the Inspiring Construction programme to increase awareness of and interest in the construction industry as a worthwhile, exciting and diverse employment sector for Scotland's young people, Construction Scotland and our industry partners are determined that this initiative should continue and thrive.

With the participation of only a fraction of construction businesses and the engagement of limited external resources, the programme has already reached 1000s of school pupils, hundreds of teachers and careers influencers and significant numbers of communities. Construction Scotland believe that, with industry's continuing and increasing promotion and participation and ongoing assistance from CITB, SDS, DYW and our public sector clients, Inspiring Construction can be taken into every secondary school in the country and reach every school girl and boy in Scotland.

Courses of action

1. Enhanced industry participation
2. Project Community Benefits commitments
3. Liaison with Developing the Young Workforce (DYW)
4. Geographical reach
5. Rolling programme
6. Recruitment and employment
7. Administration requirements and cost contributions
8. Construction Manager Game Phase 3
9. Conclusion

Enhanced industry participation

During the first phase of the Inspiring Construction initiative, industry participation has been limited to the eight Tier 1 National contractor members of the Scottish Contractors Group, a couple of other large regional Main Contractors and a few SME SCG members. The CIOB, MICE and RICS have also assisted greatly in delivering the programme.

With the much wider influence of Construction Scotland now able to be brought to bear, it is expected that all main contractors, trades bodies and other industry representative organisations should be involved in future, particularly those engaged in the delivery of Community Benefits Requirements.

Project Community Benefits commitments

Community Benefits Education and Training commitments are an almost universal requirement on public sector construction contracts of significant scale throughout Scotland and are also often provided as part of contractors' activities on larger private and commercial projects. With Construction Scotland now recognised by Government as the voice of the industry in Scotland, allowing it access to communicate and engage with Scottish Government Ministers, it is in a strong position to lobby for changes in this area.

We would propose future public sector project enquiries stipulate that community benefits education and training contributions are delivered utilising the Inspiring Construction programme. Significant results can be achieved by early engagement of Construction Scotland with the public sector construction procurement Frameworks and Hubs in order to secure their immediate adoption of the programme.

The scheme will provide contractors with readily available, tried, tested and agreed formats for presentations and hand-out collateral, as already demonstrated by Inspiring Construction, together with introductory lesson plans for the Construction Manager computer game. These will give confidence to educators that benefits being offered have already been sanctioned by the National educational community and offer an agreed high standard of information and advice.

The delivery responsibility will remain with the contractor to provide benefits to the local community, with assistance and advice available from Inspiring Construction in coordinating input from other local industry groups and representative bodies, such as SMEs and professional organisations, to contribute where required.

Liaison with Developing the Young Workforce

DYW is a 7 year strategy, currently with 3 years funding from the Scottish Government. It comprises 21 DYW Regional Forums which are at different stages of establishment and development under a National umbrella committee. DYW currently has a digital platform established, called Marketplace, which highlights specific live opportunities for school leavers in all work types/careers.

During Phase 1 of Inspiring Construction the programme has worked directly with 10 of the DYW regions and has had contact with almost all of the others. Every DYW team that Inspiring Construction has engaged with has been highly complementary and expressed a desire to repeat the exercise or continue the programme further. All others contacted have shown a keen interest in the scheme and getting it moving in their area.

With wider industry involvement and the possible expansion through client community benefits requirements, it is certain that the DYW regional teams throughout Scotland will be keen to provide additional support and Inspiring Construction will be able to enhance the service they provide to local young people.

Geographical reach

The natural focus of Inspiring Construction activity to date has been in Scotland's cities and more populous areas where more of the SCG member businesses are based and most construction work is being undertaken. This obvious drawback can, however, be readily addressed with the spreading of involvement to the whole construction community by Construction Scotland and to all sizeable public sector construction projects through client specification, as outlined above.

There are no parts of Scotland where the local Secondary Schools do not have some other public building work going on within their catchment area. All of these will have some form of community benefits being delivered currently and the only challenge is to ensure that these include the Inspiring Construction programme in their education and training elements.

Rolling programme

All Inspiring Construction sessions delivered in the last two years have been most warmly received and recipients, generally schools or groups of teachers, have always stated that they would welcome follow up presentations, repeat visits or annual programmes. The prospect of this growing appetite has sometimes seemed challenging, as often the same few organisations are being asked to put forward presenters, provide ambassadors or make valued staff available.

However, with a widening of the programme to all industry stakeholders, working on all significant projects around the country, the responsibilities and workload will be much more widely shared and the demands of the client audiences readily met.

The role of the Inspiring Construction teams involved to date will therefore be significantly modified to one of encouraging, coordinating and overseeing a rolling programme of information, motivation and training events using standard Inspiring Construction Presentations and introducing the Construction Manager Game on an annual basis, leading to new recruitment and employment opportunities in the construction sector.

Recruitment and employment

While the raising of awareness and interest in employment in the construction sector was the initial target of the Inspiring Construction initiative, Construction Scotland has always regarded the imperative tangible results required to be evidence of new recruits into industry employment. To this end, the scheme should seek in future to focus large and small construction employers alike who are involved in local projects, including the participant professional practices, on the recruitment opportunities created through the programme.

What better chance might businesses have to find future employees, best suited and more highly motivated to join and learn their trade or profession, than when the industry is being explained and promoted to young people in schools in their area through Inspiring Construction. Businesses should therefore be asked in future, not only to lead, assist with or make people available for local education and training events, but also to use such events as opportunities to make young people aware of and invite applications for actual vacancies, in what can in future become small careers fairs exclusively for construction employers.

Administration requirements and cost contributions

Administration and organisation of the Inspiring Construction programme in its' first phase has very largely been carried out by two directly engaged industry education and training professionals, with a considerable amount of assistance and advice provided by similarly skilled people from the participant organisations identified earlier. The events activities and overall progress monitoring and direction has been provided by interested parties identified and drawn from the SCG/Construction Scotland membership.

With the exception of costs incurred around the employment of the organisers and some presentation collateral, the cost of Professional Careers and Educators Insight events to promote construction in schools to pupils and teachers/careers advisors have very largely been met by industry. Trades skills demonstrations for young people, while proving very popular with pupils and educators alike, have required more organisation, supervision and resources, but to date these too have largely been found by industry.

In widening the programme across the country and to all industry groups and businesses, the administrative and coordination role could be expected to increase. However, with the responsibilities to utilise, promote and implement the scheme becoming of interest to, or a community benefits requirement for a much wider number of construction companies and organisations, other costs might be expected to be borne largely by those participants.

Construction Manager Ph3

Since the Inspiring Construction redevelopment and launch of the Construction Manager Game, a second phase of development of the game has been taken forward by CITB, in conjunction with CSIC and is nearing completion. This will see the game in its current form ported over to an Xbox Platform. The aim of this application is to further extend the reach of Construction Manager with the introduction of an Xbox port. This represents a range of benefits, including:

- Increased potential userbase

- Widening of global user base
- Reduced cost of access (hardware)
- Increased accessibility for schools
- Increased accessibility for users with additional support needs

This proposal is innovative as it will be one of very few educational games worldwide that has broken in to 'mainstream gaming' territory which will provide the opportunity to significantly leverage publicity for the game whilst engaging a whole new audience (Xbox users). Standard Xbox features will ensure that accessibility standards are improved and achievement integration will encourage users to explore various styles of gameplay; further reinforcing learning.

With regards to future work, the game would always benefit from continued development to keep it current and appropriate for the audience. There are potentially 2 ways forward. One is to fund a programme of dissemination through schools and industry to increase use of the game, or alternatively to add additional scenario based functionality.

Conclusion

Construction Scotland is convinced that through Inspiring Construction many more young people can be interested in joining the construction trades and professions. In so doing they can replace any people lost to the industry through Brexit and grow a youthful, highly qualified and motivated workforce who will drive construction forward to reliably deliver the exceptional quality of built environment Scotland will need in the future.



Testimonials

Gillian Longmuir, DYW, Ayrshire:

I thought the presentation and presenters were excellent and there was a lot of great discussion.

Alison Nimmo, DYW Programme Manager, Lanarkshire and East Dunbartonshire:

The teachers and pupils really enjoyed the format of the event with the sector overview, the presentations by the young people then talking to the employers who had information and advice all brought it to life for them.

Leanne Banks, Industry and Education Partnership Manager, DYW Edinburgh, Midlothian & East Lothian Regional Group:

I believe everyone that attended the presentation found it most interesting, informative and persuasive in encouraging a highly positive view of construction career options, prospects and attractions.

Carly Thomson, Business Education Teacher, Bell Baxter High School:

I do think that the workshops helped raise pupil awareness of construction, on the day all pupils were extremely engaged. There have been many pupils who have asked questions about the employment opportunities. As a faculty, future presentations from Inspiring Construction would be welcomed.

Rose Coyle, DYW Programme Executive, Lanarkshire & East Dunbartonshire:

The day was very informative and all of the speakers gave a great account of the industry and their own personal journey. Mark did an amazing job which I know from speaking to the pupils and students yesterday they all found this information very useful. Having the opportunity to then go around and speak with employers and training providers was just an exceptionally positive experience for all who attended.

Ryan Carter, Teacher of Design & Technology, Forrester High School, Edinburgh:

The general feedback was very positive. Young people felt more informed regarding the various routes into the construction industry and the different jobs available within this industry.

Rachael Dorman, DYW Forth Valley Programme Co-ordinator:

Collaborating with Construction Scotland on the 'Inspiring Construction' programme has been both positive and fundamental in boosting awareness of Construction pathways in Forth Valley.

Michael Lennox, Partnerships Manager at CITB Scotland, said:

Construction Manager is an innovative way to engage with young people to allow them to experience the world of construction. Through play they can experience some of the highs and lows of owning and developing a construction company. It is a way of encouraging a whole new demographic to consider construction as the wide-ranging and fulfilling career it is.

Stephen Good, Chief Executive Officer of the Construction Scotland Innovation Centre (CSIC), said:

One of the biggest threats to construction is the risk that the next generation of talent doesn't view this industry as an attractive destination of choice. If we don't offer an innovative, diverse, digitally connected proposition that inspires our future workforce and engages them around the diverse range of roles available, other industries will. Construction Manager uses gaming as a tool to do just that, changing perceptions and opening minds to a career in this rapidly transforming industry.

Appendix 1 – extracts from SQW Report 2017

Employment

Scottish employment by sub-sector, 2010-15

	2010	2011	2012	2013	2014	2015	% Change 2010-15
41 : Construction of buildings	42,000	40,000	37,000	37,000	39,000	39,000	-7%
42 : Civil engineering	23,000	20,000	22,000	20,000	17,000	19,000	-17%
43 : Specialised construction activities	70,000	80,000	67,000	80,000	88,000	79,000	13%
Total Construction	135,000	140,000	126,000	137,000	144,000	137,000	1%

Source: Business Register and Employment Survey

Modern Apprenticeships

The table below shows the number of Modern Apprentices (MAs) starting and in training in Scotland from 2012 to 2016. The construction industry has a long tradition in using apprenticeships as one of the main entry routes and method of training. Indeed, construction MAs make up a sizeable portion of the MAs funded each year, with almost a third (31%) of all MAs in training on a Construction and related framework in 2015-16.

Construction & related Modern Apprentices

	2012-13		2013-14		2014-15		2015-16	
	No of starts	In training	No of starts	In training	No of starts	In training	No of starts	In training
Construction	2,493	4,960	2,983	5,345	2,986	5,567	3,449	6,024
Engineering	1,429	3,671	1,469	4,186	1,364	4,394	1,073	4,207
Engineering construction	63	316	73	281	54	227	38	191
Plumbing	295	890	289	831	356	895	372	969
Construction – related activities	4,280	9,837	4,814	10,643	4,760	11,083	4,932	11,391
All Modern Apprenticeships	25,691	35,906	25,284	35,582	25,247	35,053	25,818	36,371

Source: Skills Development Scotland

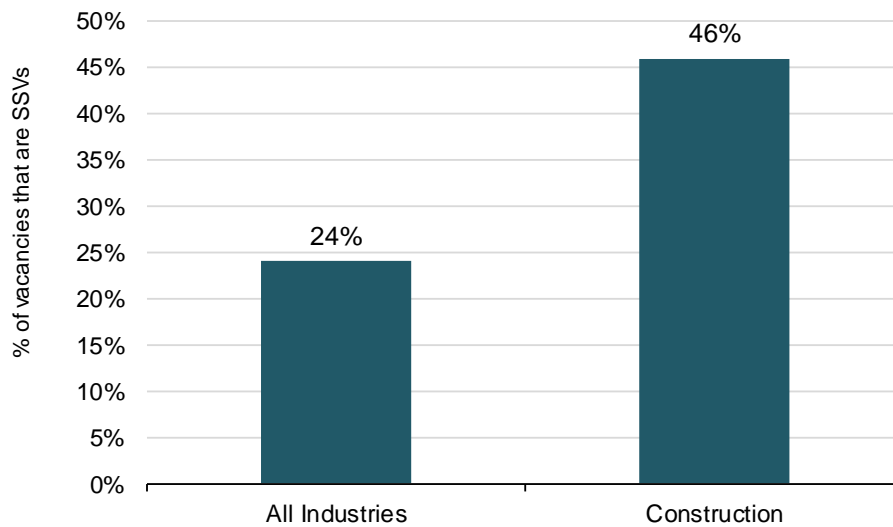
Skills issues

The UK Commission for Employment and Skills' (UKCES) undertakes a regular large-scale Employers Skills Survey across the UK to assess the key skills challenges and employers' responses in terms of investment in skills and training. Based on the 2015 results for Scotland, the construction sector has almost double the proportion of skills shortage vacancies compared to all industries. This related to 46% of construction sector vacancies compared to 24% of vacancies across all sectors (see below).

Skills shortage vacancies are those which are proving difficult to fill due to the business not being able to find applicants with the appropriate skills, qualifications or experience. These shortages

could be down to the recent high levels of demand for construction workers in Scotland linked to some major infrastructure projects.

Density of skills shortage vacancies (SSVs) - 2015

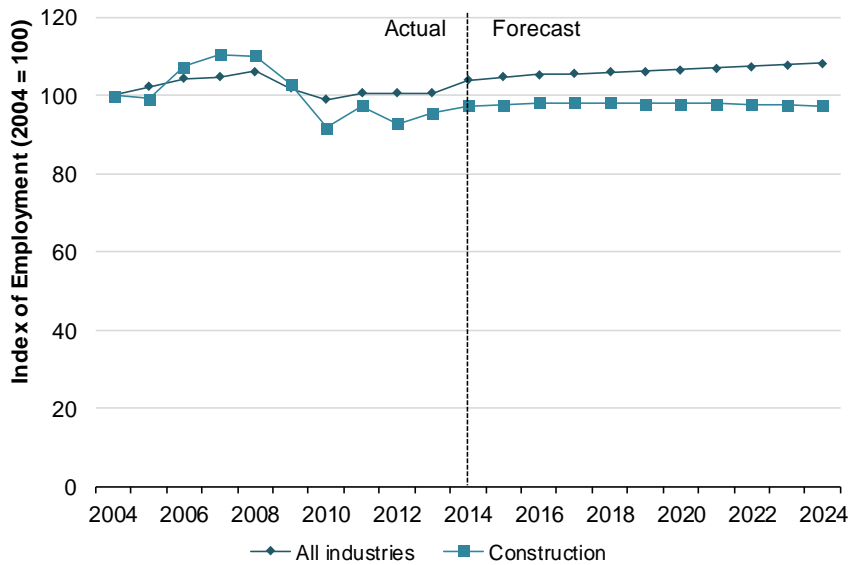


Source: UKCES – 2015 Employer Skills Survey

Projected change in employment

There are various sources of data on the future performance of the construction sector in Scotland. 'Working Futures' is the UKCES's comprehensive and detailed model of the UK labour market which includes forecasts by considering employment prospects by industry, occupation, qualification level, gender and employment status. As shown in the table below, between 2004 and 2014 construction employment grew significantly to 2008 and then fell sharply and returned back to similar levels. In 2004, there were 182,000 jobs and by 2014 there were 177,000 employed in the sector. From the 2014 to 2024 there is no growth projected (staying around 177,000 jobs) but marginal growth across all sectors in Scotland.

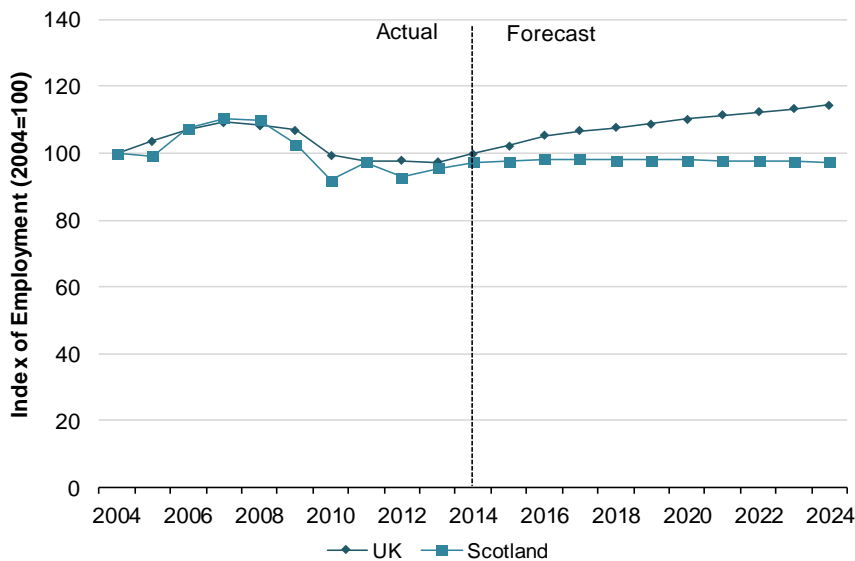
Scotland employment trends: actuals 2004-2014 and projections to 2024



Source: Working Futures

Between 2004 and 2014, growth in the Scottish construction sector was initially similar to the UK sector but then had a faster decline in 2009 and 2010 (**Error! Reference source not found.**). Looking ahead, the number of Scottish construction jobs largely stays the same whilst the UK sector is projected to grow by 14%.

Construction trends Scotland vs UK: actuals 2004-2014 and projections to 2024



Source: Working Futures

Research produced by Construction Skills Network/ CITB projects that there will be a fall of around 8,400 jobs in the Scottish construction sector between 2017 and 2021, which will be a four per cent decrease. For the UK as a whole CSN/ CITB project a net increase of nearly 86,000 jobs in the sector which will be four per cent growth by 2021.

Changes in occupations

Returning to the Working Futures data, the table below shows the expansion and replacement demand in Scotland’s construction sector by occupation. According to this

dataset, overall employment is set to increase by only 100 jobs over the period 2014-2024. However, replacement demand (replacing those who retire, change occupations or move away) will result in 60,600 job openings over this period. This is expected to be mainly in the skilled trade occupations.

Expansion/ replacement demand in Scotland's construction sector, 2014-2024

	Expansion Demand	Replacement Demand	Total Requirement to 2024	% of Total Requirement
Managers, directors & senior officials	2,600	6,200	8,800	15%
Professionals	1,900	5,200	7,100	12%
Associate professional & tech.	1,900	5,300	7,200	12%
Administrative & secretarial	-1,700	6,500	4,800	8%
Skilled trades	-3,500	27,200	23,800	39%
Caring, leisure & other service	100	200	300	0%
Sales & customer service	200	1,000	1,200	2%
Operatives	-600	5,600	5,000	8%
Elementary	-700	3,300	2,600	4%
Total	100	60,600	60,700	100%

Source: Working Futures

All figures rounded to the nearest 100 and percentage calculations have been carried out on the unrounded figures

Conclusions

The last few years have been reasonably buoyant for the Scottish construction sector as it recovered from the global economic recession. The range of data presented in the report shows the importance of the sector in terms of the jobs and wealth that it creates not just in the core sectors but throughout the wider economy, and in all parts of Scotland.

- The core construction sectors generally represent around six to seven per cent of Scotland's total workforce, sales and GVA output
- Taking into account the supply chain, the sector accounts for 10% of employment and GVA output and nine per cent of total sales
- In terms of employment, there is currently nearly 180,000 jobs in the sector. Taking into account self-employment the figure could be around 240,000

The data in this report also shows an upward trend in employment, turnover, GVA, productivity and investment in the sector from 2010. A lot of this growth has been supported by some major infrastructure projects such as the Queensferry Crossing, the Aberdeen Western Peripheral Route, major upgrade work on the M8, M73 and M74, as well as other public sector projects.

There continues to be major economic uncertainty as a result of the UK's decision to leave the EU with potential implications for the UK's overall economic performance, consumer demand for new housing, availability of construction workers and so on. However, the research indicates that there is likely to be more investment in housing and major infrastructure projects in other parts of the UK than in Scotland over the coming years.

Even with the anticipated slow-down in demand, construction will continue to be a major sector in Scotland and the challenge will be to ensure Scotland has a strong and innovative business base with a skilled workforce to deliver projects not just in Scotland but around the UK.

Appendix 2: Case Study – Inspiring Construction event at St Modan’s High School Build your Future Week in September 2018

<https://www.youtube.com/watch?v=Z6V6fPEV80k>

Working in partnership with DYW Forth Valley and CITB, St Modan’s High School Build Your Future Week was a week-long event focussed around the construction industry. It included a number of sessions from our Inspiring Construction programme including an Educators Insight presentation to teachers and careers advisors from across Forth Valley, Professional Careers presentations to S4 pupils, digital construction workshops with VR kit and robots from the Construction Scotland Innovation Centre, a construction takeover day with Traditional Building Skills demonstrations and a careers information exhibition that was attended by more than 1000 pupils from across Forth Valley.

All pupils had the chance to take part in activities throughout the week and this included demonstrations in Stonemasonry, Joinery, Painting & Decorating, Sign Writing and Slate roofing, as well as attending the careers exhibition which included information stands from several main contractors, Universities and industry bodies.

The event was also opened up to Primary 7s from local schools who enjoyed taking part in an ICE Bridges to Schools experience, learning about engineering, team work and construction. The week ended with senior pupils receiving advice and guidance on employability skills with CV writing, interview techniques and online appearance workshops provided by industry employment specialists Contract Scotland.

John Swinney with pupils, teachers and Construction Scotland at the St Modan’s event



Rachael Dorman, DYW Forth Valley Programme Co-ordinator:

“Collaborating with Construction Scotland on the ‘Inspiring Construction’ programme has been both positive and fundamental in boosting awareness of Construction pathways in Forth Valley. Young people and educators have gained exposure to professionals within various Construction and STEM sectors who have been able to demonstrate their skills, give information relating to their sectors and jobs, and directly inspire new generations to consider Construction as a viable and serious career pathway.

Schools who have taken part in the programmes offered through ‘Inspiring Construction’ have reported how valuable this insight has been both for their pupils and themselves, in upskilling them to be able to better support their young people.

Moving forward DYW Forth Valley would welcome the chance to continue collaborating with Construction Scotland to provide more young people, educators and parents access to this suite of resources. We see the benefit of these programmes both out-with school in relation to the Traditional Skills Demonstrations, but also feel that bringing these events in-school, like at St Modan’s ‘Build your Future’, will provide more young people, who perhaps had not considered Construction as a sector, nor understood the breadth of opportunities available to them, with the opportunities to make more informed decisions about where their next steps post-school will lead them.”

WHAT OUR PUPILS SAID ABOUT ‘BUILD YOUR FUTURE’ CONSTRUCTION TAKE-OVER DAY

- “The most useful thing was realising there are many pathways I could take”*
- “I enjoyed everything!”*
- “The most useful thing was learning about the skills that employers look for”*
- “I enjoyed the interactivity”*
- “I enjoyed meeting new people”*
- “I enjoyed all the activities”*
- “The most useful thing was all the different jobs that were displayed to us”*
- “I really enjoyed doing the Treasure Hunt”*
- “I enjoyed learning about all the jobs”*
- “The most useful thing was being able to talk, take part and not just observe”*
- “I enjoyed learning new things about different companies”*
- “I enjoyed talking to different people”*
- “The most useful was learning about other career options”*
- “I enjoyed learning about engineering”*
- “I enjoyed seeing other forms of career paths and being able to interact more”*
- “The most useful thing was all the different and many sources of information!”*
- “The most useful thing was having the opportunity to ask all the questions”*
- “I enjoyed talking to different companies, learning about their occupations”*



Appendix 3: Case Study - Traditional Building Skills at Scottish Parliament event in September 2018

Secondary pupils from schools in Glasgow, Stirling, Perth and Musselburgh took part in a two-day Traditional Building Skills event held at the Scottish Parliament on 11th and 12th September 2018.

The hands-on practical workshops provided 13 to 15 year-olds with the chance to discover more about traditional skills apprenticeships, and allowed them to have hands-on experience for themselves. They tried their hand at stonemasonry, roof slating, joinery and painting & decorating, expertly assisted by current Modern Apprentices in these trades.

The event was sponsored by **Gordon Lindhurst, MSP for Lothian**, who said: "Traditional Building Skills demonstrations are hugely valuable in raising the profile of the vital skills needed to maintain our unique built heritage.

Having attended workshops elsewhere, I am delighted to welcome the Scottish Traditional Building Forum and the Construction Industry Training Board to the Scottish Parliament, alongside the apprentices who can show off their skills. I hope that by raising the profile of these traditional building skills in this way we can secure the long term future of Edinburgh's World Heritage Site and Scotland's built environment more generally."



The event was organised by the Scottish Traditional Building Forum as part of the Inspiring Construction programme. It was supported by a range of partners including CITB, City of Glasgow College, West College Scotland, Dundee and Angus College, Edinburgh College and DYW Lothian.

Ian Hughes, partnerships director at CITB Scotland, said: “What better way to encourage young people to consider a career in the traditional skills side of construction than to invite them to give it a go for themselves. With the Scottish Parliament as the backdrop to this event, I hope the school children feel truly inspired to think of construction as a varied and exciting career choice.”

Ken Gillespie, chair of Construction Scotland, said: “The construction industry currently employs 233,600 people, but it’s estimated that 28% of that workforce will need replacing by 2027, creating at least 21,000 vacancies. Attracting more potential employees to our industry to address this imminent skills gap is one of Construction Scotland’s top priorities.

“These Traditional Building Skills events are part of our Inspiring Construction programme, which aims to attract more school leavers to the sector by informing young people and their parents, teachers and career advisors about the huge and diverse range of careers available in construction, and importantly, how to access them. From professions like architecture, engineering and surveying to the more traditional trades like joinery and stonemasonry, this industry has something to suit everyone.”



Appendix 4: Case Study - Game-changer: technology used to help promote careers in sector

Posted on [November, 2018](#) by [Project Scotland](#) in [News](#), [Training](#)



A downloadable game that challenges users to run their own construction company has been tipped to become a valuable tool in the battle to encourage youngsters to consider careers in the sector.

Construction Manager has been developed by academics at City of Glasgow College. The game is funded by CITB and supported by a range of partners including Construction Scotland, Construction Scotland Innovation Centre, Scottish Contractors Group, Learn Direct and Build, Junction-18 and the Scottish Institute of Innovation and Knowledge Exchange.

Gamers must start their own business from scratch and are faced with a range of decisions relating to matters such as staff training and recruitment, health and safety and the sourcing of materials. Those who fail to balance the books run the risk of bankruptcy, while the company's reputation is determined by a range of factors.

Douglas Morrison, associate director of innovation and STEM at City of Glasgow College and project sponsor for the game, spoke to Project Scotland at the recent Skills Scotland show in Glasgow, where the game was officially launched said:

“Construction Manager is an educational game designed to raise awareness of careers in construction. It’s designed to present a useful tool that industry ambassadors and educators can use to engage young people in conversations around the construction industry. In the game, users start up their own small to medium enterprise. They’ll choose to start from a variety of different craft skills; they might be a stonemason or roofer or bricklayer. The aim is to grow the company into a large, multi-skilled company, and to do so by adopting a range of positive practices around having a diverse workforce, investing in staff training and health and safety, buying ethically and sustainably-sourced materials, and being physically responsible.

- “Users will also build their own city. The city they build actually reflects their performance as a company owner. If, for example, they are the ethical company owner who looks after staff, invests in health and safety training and buys ethically-sourced materials, their city will be full of zoos and schools. If they perform in the opposite direction, they’ll be building things like swamps and prisons. This shows the wide range of influences that do have to be considered when you’re a small business owner and the consequences of making what we would deem to be negative choices in relation to running the business.”
- Douglas said “feedback on the game from both users and the industry at large has been wholly positive. Work is already underway on future iterations of the game, which is available to download for free on Windows, iOS and Android devices.”
- “People who are playing the game have, by and large, really enjoyed it,” Douglas added. “They see it as something that’s fun; they’re very quickly invested in their own company and they want it to do well. Certainly early on in the game there’s a continuous threat of bankruptcy, which really engages them.”
- “The feedback we’ve had from industry is that they’re absolutely delighted to finally have a tool they can go out and engage young people with. I think at times it can be very difficult to accurately communicate what the industry can be – the breadth and depth of it and the opportunities that exist therein. The game itself is a fantastic icebreaker where industrial ambassadors can go in, engage a group of young students or schoolchildren and then follow up with more meaningful conversations around the industry.”
- “The game is predominantly aimed at 14-16 year-olds. We’re looking to engage young people who are starting to think about where their future career may lie. We’re very keen to present the construction industry as a career of choice. We’ve also recognised the value in working with primary school children, college and university aged students and even just the general gaming community, who have been very positive about Construction Manager as an educational game that is actually fun to play.”
- Douglas is confident the game will help to highlight the growing use of technology within the sector and the fact that a wide range of potential careers are available. “The construction industry generally just now is going through a revolution,” he explained. “The rate of adoption of digital and technological solutions is faster than it’s ever been before.”