



TRADITIONAL BUILDING SKILLS

A STRATEGY FOR SUSTAINING AND DEVELOPING
TRADITIONAL BUILDING SKILLS IN SCOTLAND.

HISTORIC
SCOTLAND



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A STRATEGY FOR SUSTAINING AND DEVELOPING
TRADITIONAL BUILDING SKILLS IN SCOTLAND.

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1 THE VISION

Scotland's historic environment is a vital part of Scotland's culture and its economy. Scotland has around 450,000 traditionally constructed buildings. Some of these are internationally iconic sites like Edinburgh Castle or the Glasgow School of Art, but the majority are the buildings we live and work in. Together this rich backdrop tells the story of who we are as a nation but also provides a strong foundation for economic growth.

The Scottish Government values the key part our heritage plays in supporting Scotland's economy and recognises the importance of traditional building skills to ensure this important sector plays its part in supporting Scotland's economy.

The Scottish Government is committed to a swift and sustainable economic recovery in Scotland. We consider that the provision of traditional skills can make an important contribution to the delivery of economic growth through employment within the construction sector and help sustain the Scottish built environment which forms the backdrop for so much economic activity.

In delivering this vision to support traditional building skills in Scotland, we will provide a strong and practical contribution to the Scottish Government's Economic Recovery Plan¹, the Energy Efficiency Action Plan² and the *Skills for Scotland Strategy*³.

Historic Scotland is in a unique position to drive this strategy forward with partner organisations. The stewardship role it has to play in protecting and enhancing our historic environment for future generations cannot be adequately achieved without the appropriate knowledge, skills and materials to conserve and maintain our traditional buildings. Historic Scotland is one of the largest UK employers in the sector, providing training and employment through its conservation teams across Scotland, from Shetland to the Borders, Western Isles to the centre of Glasgow.

Our vision is a world-leading system of traditional skills training that meets the needs of a modern, innovative and competitive construction sector to ensure that it is equipped to fulfil its role in creating and maintaining the Scottish built environment of the future, and making a significant contribution to the economic recovery.

- 1 The Scottish Economic Recovery Plan: Update February 2011, <http://www.scotland.gov.uk/Publications/2011/02/24095442/0>
- 2 Conserve and Save: Energy Efficiency Action Plan, 2010 <http://www.scotland.gov.uk/Publications/2010/10/07142301/0>
- 3 Skills for Scotland, Accelerating the Recovery and Increasing Sustainable Economic Growth, 2010, <http://www.scotland.gov.uk/Publications/2010/10/04125111/0>



2 INTRODUCTION

In this strategy, we define traditional building skills as those skills used to construct, maintain and repair traditional buildings and their constituent parts. Scotland has a long tradition of high quality and innovative use of building materials, reflecting the regional diversity of materials and geology in particular, but also reflecting socio economic changes over time.

In its *Skills for Scotland* strategy (updated in 2010) the Scottish Government makes clear its ambition for a flexible, responsive, partnership approach to addressing Scotland's skills needs and improving performance across all sectors. It recognises that skills alone do not hold the key to maximising economic performance, but a skilled and educated workforce is essential to improving productivity and sustainable economic growth.

Vocational skills are one of the areas identified in the Skills for Scotland strategy – namely those that are specific to a particular occupation or sector. The strategy also acknowledges that these form part of a wider mesh of 'hard' and 'soft' skills (such as teamwork, communication, enterprise and entrepreneurial skills).

By increasing our investment and support in this area, we can enable Scotland's traditional building skills to play a major role in delivering our vision. To achieve this, our strategy of investment and support will be focused on the following activities:

- supporting the construction sector and the public by promoting a better understanding of the value of traditional building skills and their relevance to our current building stock;
- improving the standard, consistency and availability of skills training to ensure the supply of skills, training and qualifications can meet and is responsive to what is needed for future success; and
- better understanding of and capability to demonstrate the relevance of traditional skills to our current building stock in terms of energy efficiency, sustainability and conservation gain

Section seven gives more detail on how we plan to deliver this strategy.



Historic Scotland has responsibility for protecting and enhancing the historic environment across Scotland. The Agency has developed its understanding and expertise of traditional building stock through:

- its management, under the terms of the Ancient Monuments and Archaeological Areas Act 1979, of the 345 properties in the care of Scottish Ministers;
- ongoing research into traditional materials and building traditions, how materials decay, and promoting best practice in conservation;
- provision of good practice training in relation to energy efficiency and sustainability for traditional buildings;
- the management of change and investment in the historic environment through its advisory and regulatory role and through its grant programmes; and
- extensive partnership working across Scotland and internationally.

Building on its respected scientific and technical research into traditional buildings and their materials, Historic Scotland has developed a good understanding of the skills requirement to sustain and develop Scotland's historic environment and has already taken some steps to address this.

3.1 Economic Recovery

Current projections by the construction sector show demand for repair and maintenance growing faster than new build. Growth in construction employment is starting to increase again, largely driven by the repair and maintenance sector. The housing repair and maintenance sector is identified as one of the strongest performing sectors to 2015 (ConstructionSkill, Feb 2011)⁴.

Recent projects and reports produced for Historic Scotland have shown there is a growing demand for traditional building skills to support our built heritage. They also reveal that the traditional building skills we need to service the repair and maintenance sector (which amounts to 35% of the Construction sector overall), are often not readily available, with a lack of formal vocational training and qualifications.

The Historic Environment has a critical role in terms of its economic contribution. Estimates indicate that the historic environment contributes **more than 41,000 FTE employees** in Scotland and over **£2.3 billion** to Scotland's economy each year⁵. The repair and maintenance sector can account for around 35% of construction turnover in any one year, but is often seen as a specialist activity. A key strand of this strategy will be to challenge this

4 Construction Skills Network 2011-15, http://www.cskills.org/uploads/csn20011-2015uk_tcm17-24498.pdf, p. 6

5 ECOTEC (2009), *Economic Impact of the Historic Environment in Scotland, A Final Report for the Historic Environment Advisory Council for Scotland*: www.heacs.org.uk/documents.htm

perception. The heritage construction sector was identified by a report prepared by ECOTEC in 2009 as supporting 20,000 FTE employees and generating £1 billion of GVA each year. This compares to 35,600 FTE in the electronics industry and 12,100 FTE in the chemical industry (2008).

In 2008 Visit Scotland commissioned a report into the Visitor Experience in Scotland. Visits to historic sites scored highly both for home and overseas visitors (67 and 89% respectively)⁶. Critically, the ECOTEC study suggested a less appealing historic environment could realise 33% less tourist expenditure in Scotland⁷.

The Scottish Construction Industry Plan to 2012 identifies the heritage sector, with renewable energy and maintenance as a critical area to focus on for future skills. It specifically identifies the heritage sector as requiring a sound skills base for the future. While the present economic climate makes it even more difficult to train in the private sector, we must be aware that a lack of training investment now may cause a significant skills gap for the future.

CASE STUDY

In 2005 the Scottish Stone Liaison Group, Scottish Enterprise and Glasgow City Council undertook a significant and innovative project⁸. Sampling 230 buildings in Glasgow City Centre and assessing their repair needs, in terms of materials and skills, identified that 1.4 million stonemason days would be required. Even if it is supposed that only 60% of repairs required are undertaken, 3609 masons would be required over a 20 year period to achieve this, with 903 in the first five years, or 116 recruited each year. Current intake is around 7 – 10 apprentices for Glasgow Metropolitan College per annum. The findings of this survey would transfer to most other towns and cities in Scotland.

3.2 Skills Audit

The **Scottish Traditional Building Skills Audit**, completed in Summer 2010 by Historic Scotland, ConstructionSkills and SQA (published alongside this report), sought to consider quantitative data on the range of qualifications with a traditional skills element available, and to identify where gaps lie in terms of scope and content. The findings indicate considerable variation in existing qualifications covering traditional skills. The range of qualifications covering traditional skills seen as 'core' varied widely. Some qualifications, while appearing beneficial in principle, were not

6 http://www.visitscotland.org/pdf/visitor_experience_2008-executive-summary.pdf, p. 13

7 ECOTEC Report, p. 12

8 Safeguarding Glasgow's Stone Built Heritage, <http://www.ssg.co.uk/Glasgow%20Project%20Executive%20Summary.pdf>

actually available anywhere in Scotland. Other traditional skills had no qualifications attached to them. Some qualifications scored well when optional units were considered, but often only mandatory units were delivered in practice. The depth and quality of what is delivered can be highly variable.

In terms of traditional skills the geographic spread of supply against demand across Scotland is highly varied. Traditional building skills can also be amongst the most expensive to deliver within colleges and even if there is clear demand, overhead costs are often the deciding factor in not running courses.

3.3 Climate Change

A sustainable building is one built from environmentally responsible processes, and which is resource efficient throughout the building's life cycle. There is increasing evidence from Historic Scotland research that traditionally constructed buildings can be highly sustainable, due to the use of locally sourced materials and skills for example, and that such buildings can be repaired and adapted almost indefinitely.

A well maintained building is one which is more energy efficient and creates a healthier environment for its occupants.

Many traditional materials and techniques are naturally sustainable, principally in that they encourage repair over replacement. The

Scottish Government has an international reputation in its technical research and, in particular, works in finding effective adaptive measures for existing buildings to increase thermal performance. There is now a greater need than ever, in terms of the Scottish Government's Energy Efficiency Action Plan⁹, to articulate that scientific knowledge into practical solutions and to train those who will need to undertake the work in future. There is now an opportunity to build a leadership role in this field internationally.

The adaptation of Scotland's existing building stock and ongoing maintenance over wholesale replacement are critically important to achieving our low carbon objectives.

3.4 Energy Efficiency

The residential sector accounts for 33% of carbon emissions in Scotland with the majority of that expenditure in the form of space and water heating. The focus of any action to reduce carbon emissions in Scotland therefore must focus heavily on the domestic stock. Of the domestic stock in Scotland, approximately 19% is traditionally constructed (i.e. built before 1919) and can be perceived as "hard to treat" e.g. with solid walls which are more difficult to insulate¹⁰.

⁹ Conserve and Save: Energy Efficiency Action Plan, <http://www.scotland.gov.uk/Publications/2010/10/07142301/0>

¹⁰ Saving energy in hard to treat homes, <http://www.energysavingtrust.org.uk/Home-improvements-and-products/Home-insulation-glazing>

Of the existing domestic structures we have today, 85% will still be in use by 2050 when Scottish Government targets for an 80% reduction in CO2 emissions comes into force.

Mandated by the Energy Efficiency Action Plan, Historic Scotland has researched a range of fabric upgrades for traditionally built properties which respect its cultural and physical idioms. This allows these structures to continue to play an ongoing role, both in terms of energy saved in their day to day use, but also in avoiding unnecessary construction of new housing.

While conventional insulation techniques and procedures for domestic buildings are well known, there is less knowledge on appropriate interventions for older structures available in the broader construction sector. Misapplication of products through a lack of understanding of certain fabric types may result in structural issues and problems, as well as affecting the well-being of the occupants.

If the construction sector is to deliver successfully in this area, it will need operatives who are correctly trained: to have the trust of the clients; to do the job right; and to ensure that projected carbon savings are realised. There is no training at present in appropriate insulation techniques for traditionally built structures. This exposes all sectors of the Government to risk in terms of the requirements of the Climate Change (Scotland) Act 2009.

Only 50% of the current housing stock is considered to have good standards of energy efficiency¹¹. There is therefore a clear impetus for industry to engage with this area. The refurbishment market is estimated as being worth £3.2 million in 2011, rising to £3.5 million in 2015¹². With the current downturn in new build housing many are looking for new areas of work where skills will drive demand. The refurbishment market is considerable and it is critical that this investment is evenly spread over Scotland, so all communities and business can benefit.

3.5 Wider Sustainability issues

Reducing carbon emissions is more than just energy efficiency (operational energy or in-use energy) it is about reducing the carbon used in all stage of the supply chain.

10% of UK carbon emissions are from transport of construction materials alone, a further 10% is from the construction process on site. Current materials usage in construction is characterised by centralised distribution of a wide range of manufactured products fitted by an increasingly de-skilled labour market.

Earlier supply chain models operated in an entirely different manner. Traditional materials were largely local materials and largely local labour, giving considerable local resilience and economic activity independent of the centre.

¹¹ Scottish House Condition Survey, 2009

¹² Information from ConstructionSkills, based on 2007 figures

Use of local materials and the employment created by them will have significant benefits for rural development and employment, especially if the materials are then used locally by local trades. The road miles and costs of a product to the consumer are reduced and local community cohesion and resilience is increased.

There have been over 13,000 building conversions in Scotland since 2000 (Scottish Housing Statistics)¹³. By adapting existing buildings in an appropriate manner to lower their operational energy use and by using construction products with shorter and simpler supply chains, we can reduce carbon dioxide emissions associated with all aspects of the built environment.

CASE STUDY

Ruth was awarded a Craft Fellowship by Historic Scotland in architectural woodcarving and patternmaking. She spent two years learning from Robert Pollock who, like many craftspeople, wished to pass on his knowledge and skills. A highly specialised skill with no formal training provision, Ruth developed her art and design background and craft potential into a business. The Craft Fellowship scheme has funded similar programmes in ornamental plasterwork, stained glass and heritage engineering to fill niche demands.



¹³ Housing Statistics for Scotland, 2010, <http://www.scotland.gov.uk/Topics/Statistics/Browse/Housing-Regeneration/HSfS>



4 THE NEED

There is a need for a greater focus on long term sustainability and better repair and maintenance of traditional buildings because these are the buildings we live and work in. As our building stock gets older it will require increasing levels of maintenance. Lack of maintenance, or repairs which are poorly executed, are increasingly matters of concern. Masonry falls from buildings, for example, are becoming more common. The fatality at Ryan's Bar in Edinburgh in 2000 was caused by a poorly executed repair and prompted an evaluation by the Scottish Building Standards Agency. The SCOTCROSS Report of 2008¹⁴ noted 1275 falls from buildings across Scotland over a two year period, largely masonry. It is generally accepted that this figure is low, as most falls will go unreported. Edinburgh City Council has been more pro-active in managing such incidents. Some 80% of the falls came from buildings over 80 years old and of traditional construction.

Preliminary Repair and Maintenance Skills The Research Report undertaken in 2003 identified only 30% of those working as 'tradesmen' were suitably qualified, with 33% of stonemasons qualified, 33% in training and the remainder having no training. Lack of relevant knowledge by trainers was identified by 52% of those surveyed as being a major problem for colleges.

The Historic Advisory Council Report to Scottish Ministers on traditional skills and materials in 2006¹⁵ identified particular shortages of stonemasons, plasterers, lead workers and traditionally skilled joiners. It expressed concerns about the demise of vernacular building skills and that the last cycle of tradesmen specialising in traditional buildings in the 1950s have retired without their skills being passed on, the sector having focused on 'new forms' of construction. It noted that there was no specialist conservator training available in Scotland at that time.

The repair and maintenance sector is often serviced by small firms of one or two staff. A 2002 report identified 660 of the 975 firms in Highlands and Islands were of such a size and employed a total of just over 1000 staff. Training for firms such as this is challenging.

The report in looking at the issues in detail was completed in 2007 by the National Heritage Training Group as 'Traditional Building Craft Skills – Assessing the need – Meeting the challenge'. This work identified a number of points:

¹⁴ Confidential Reporting on Structural Safety for Scottish Buildings, <http://www.scotland.gov.uk/Resource/Doc/217736/0090817.pdf>

¹⁵ Report and recommendations on the availability of adequate and appropriate traditional materials and professional and craft skills to meet the needs of the built heritage, <http://www.heacs.org.uk/documents/2006/traditionalmat.pdf>

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- There were 446,000 traditionally constructed buildings in Scotland (i.e. pre-1919), with an approximate spend on repair and maintenance of £1.2 billion per annum. This is deemed insufficient to ensure the survival of Scotland's built heritage.
 - 4740 additional workers were required between 2007 and 2010 to meet demand.
 - Skills shortages and also skills gaps were apparent in craftspeople and specifiers.
 - Only 24% of contractors operating in the sector recruited apprentices. Over 50% of contractors have recruitment difficulties, and 73% of sole traders do no training at all.
 - New build drives the college course content to the detriment of traditional building skills.
 - Manufacturers and suppliers rely heavily on their own in-house training citing the lack of relevant training available, but 65% desire additional training.
 - Clients reported difficulties in securing adequately skilled contractors, with 55% waiting over two months for contractors in the Highlands, 16% in the Central belt, and 35% in the South of Scotland.
 - Firms without traditional building expertise often rely for much of their turnover on these building types.
 - College provision was driven by new build, upskilling required more flexible forms of training provision.

Creating and managing economic demand is key. Better education of owners; development of maintenance schemes for building owners, for example with discounted insurance incentives; procurement driven training; maintenance and extension of grant funding; and increased focus on sustainable benefits of repair and maintenance are critical requirements to provide the basis for tackling these issues. The Scottish House Condition Survey has identified 75% of pre 1919 buildings are in a critical state of disrepair, 37% in a state of extensive disrepair.





5 SUMMARY OF MAIN ISSUES

- Repair and maintenance accounts for half of construction activity in Scotland, but this is not widely appreciated.
- Respectful repair and maintenance can be good conservation. The condition of our building stock is increasingly of concern, with increasing falls from buildings through lack of, or poor quality maintenance.
- Aging buildings and poor quality maintenance means a declining economic asset and increasingly risks to public safety.
- Trades-people and some of those teaching across Scotland have gaps in the knowledge and skills they need to repair and maintain traditionally constructed buildings. There are often no options within the qualifications framework to pursue traditional skills.
- An ongoing issue is the lack of understanding of the relevance of traditional building skills and the benefits they offer, both within industry and public perception.
- New build and replacement are often chosen over repair and conservation due to a lack of skills or an incomplete understanding of the benefits and economics of traditional skills, and the life costs of traditional buildings in economic and carbon terms. This is linked to a perception that traditional building skills and conservation are a luxury or not efficient in terms of energy or sustainability.
- Availability of skilled trades-people is patchy across Scotland. Some parts of the country remain relatively strong in specific trades; other parts of the country lack in-depth technical skills.
- Education of owners, managers and specifiers of works to traditional buildings is needed to be able to seek out those with the appropriate training, knowledge and expertise to effectively repair traditional buildings. This will help to stimulate demand.
- Achieving high standards of teaching in colleges is an issue. Trainers and teachers are keen to teach traditional skills but some lack the expertise and educational resources to do so effectively. There is a need for a programme of continuing professional development.
- Better understanding is required of the impact of the current economic situation on apprenticeships, construction training provision and college capacity, and the ability to influence decision makers and funding bodies.
- Tackling the issue of mainstream training of the construction sector through the college network, although small scale more specialist centres continue to have an important role, and other approaches for training can have value.

CASE STUDY

The next generation. Historic Scotland in partnership with Construction skills delivers taster sessions to primary school children in Scotland where they can get hands-on with staff to learn more about traditional skills and materials.



6 THE STRATEGY

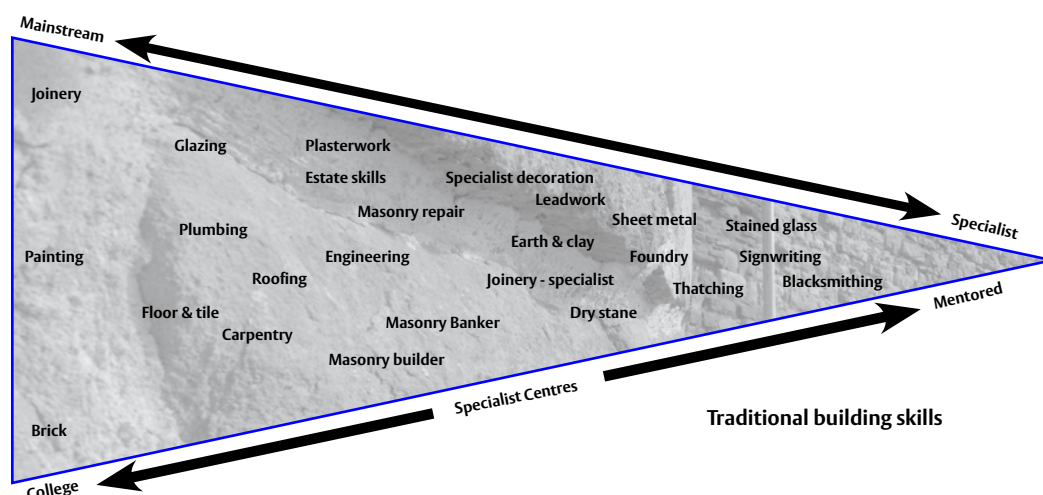
Historic Scotland champions the historic built environment through its operational and policy activity. In Historic Scotland, Scottish Government has a unique asset to drive real change in the skills sector.

However, we can only succeed with the support of our partners in the education, construction and the wider historic and built environment sector. Our collective guardianship role for the historic environment for future generations will need all of us to work together to deliver our ambition.

Historic Scotland will work in partnership with Skills Development Scotland, ConstructionSkills and other partners to identify both the labour market needs and opportunities for the specialised skills identified in this strategy. Historic Scotland will also work with partners to identify the geographical growth opportunities for these specialised skills to help ensure that skills and training contributes to sustained, productive employment for individuals and successful and growing businesses.

The conservation, repair and maintenance sector in Scotland is broad-based and requires different solutions to tackle different skills issues. The situation varies across trade areas, and in the training and qualifications available. There is not a 'one size fits all' solution.

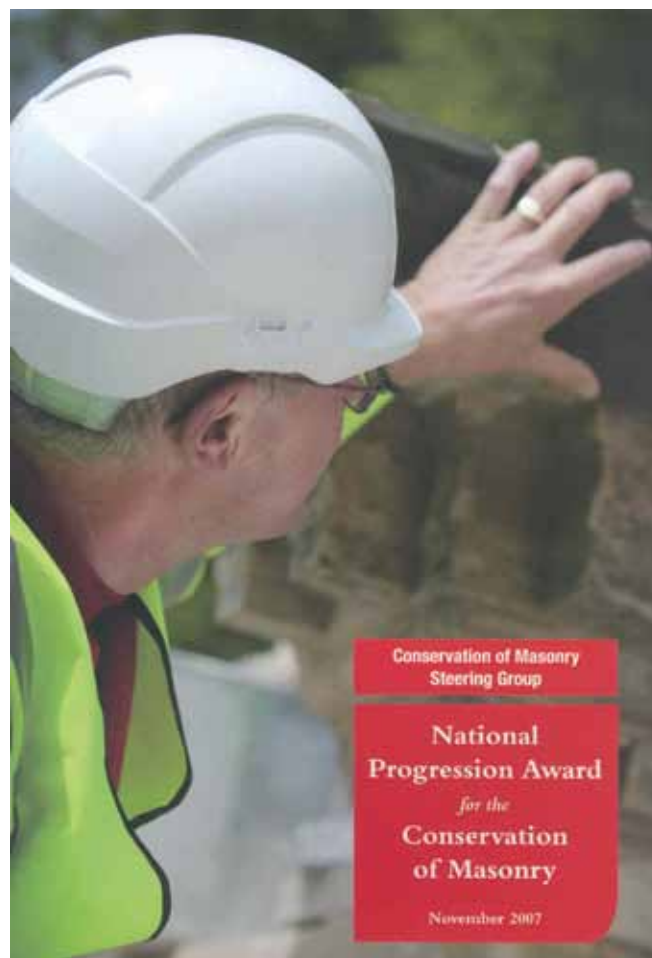
The diagram below illustrates that for the high volume skills, improving teaching, qualifications and content in the college sector is the way to maximise impact. At the highly specialist end where literally only a handful of trainees are required to sustain a skills base, we need a different approach. The mass of skills between require a combination of college based learning and more specialist short term courses delivered within the SCQF framework. This framework will be at the heart of what we do, but the sector needs to be adaptable in its approach to meet specialist training requirements.



Historic Scotland must lead by example. As a major employer in the sector, caring for some of our most important sites spread across Scotland, it has a unique role to play in sustaining traditional and more specialist conservation skills through its own workforce. Historic Scotland will therefore increase its apprentice numbers, and develop an ongoing programme of development for both our new trainees and qualified skilled staff. Our currently disparate training and specialist conservation activity will be brought together to form a National Centre for Conservation. This will focus on the highly specialist skills Scotland can offer, to provide for high quality training in partnership with the college and Historic Environment sector. The centre will be formed around the specialist technical staff of Historic Scotland but will seek to impart our specialist knowledge and skills to the broader sector and wider public.

CASE STUDY

Qualification development. Historic Scotland co-ordinated the development of the National Progression Award in Conservation of Stonemasonry. An enthusiastic team from industry, college and training bodies worked to develop a high quality qualification and teaching resources. Since 2007, this qualification is now being delivered at a number of locations across Scotland.



Front cover of the publication setting out the unit descriptors for the National Progression Award for the Conservation of Masonry.

7 DELIVERING THE VISION

A world-leading system of traditional skills training that meets the needs of a modern, innovative and competitive construction sector, to ensure that it is equipped to fulfil its role in creating and maintaining the Scottish built environment of the Future, and making a significant contribution to the economic recovery.

To deliver our vision, we will:

- 1. Encourage better repair and maintenance of the current building stock and by demonstrating the vital role traditional building skills have in the construction sector to accomplish that.**

A special summit will be convened by Historic Scotland to consider solutions to the needs of the built environment and construction sectors, and how much can already be met by better use of existing provision and indentify gaps that need to be addressed. This will be led by Historic Scotland, ConstructionSkills and Skills Development Scotland.

We will support the work of our Scottish Government colleagues to ensure the traditional skills needs of these sectors are understood and represented.

- 2. Improve the standard, consistency and availability of skills training to ensure the supply of skills, training and qualifications can meet and is responsive to what is needed for future success.**

Our responsibility for training as a major employer in the sector in Scotland, is to lead by example. We will seek to increase the numbers of apprentices employed by Historic Scotland by thirty additional employees over three years and offer them the highest standards of training. Some of these trainees will move into the private sector in time and we see this as a positive contribution.

We will continue to work closely with industry to identify and resolve gaps in qualifications for traditional skills, and support quality management by the Scottish Qualifications Authority in line with Historic Scotland's partnership agreement with ConstructionSkills and SQA which will be renewed.

We will continue to deliver the Heritage Lottery Fund / Historic Scotland / Scottish Enterprise Masonry Bursary scheme and are on target to deliver around 250 bursary training awards. This can have a significant impact on the sector. We will work with partners to deliver the HLF Future Skills Project and look to develop further programmes to initialise and support training development.

We will, with partners, run CPD courses on traditional skills and conservation practice for college lecturers as required to ensure the highest quality and most current teaching can be delivered. We will work with training providers outside the college sector where our objectives match.



3. Lead the world in achieving a better understanding of and the capability to demonstrate the relevance of traditional skills to our current building stock in terms of energy efficiency, sustainability and conservation gain.

We will work with Skills Development Scotland to quantify the potential demand for traditional building skills and work with them and industry to realise that demand and help ensure a flexible, responsive approach to the provision of related skills and training opportunities.

Our grants programmes will demonstrate to the sector good practice in using procurement to lever in high quality training opportunities and stimulate sustainable demand for training, and we will enable our Scottish Government colleagues and funding partners to ensure that their funding streams can do likewise.

We will actively promote traditional skills in our broader work, and especially to young people as an aspirational career choice.

We will actively engage with industry and partners to ensure that traditional skills are included and maintained in the National Occupational Standards (NOS) at all levels. These are the fundamental building blocks for all training delivery in the UK.

We will re-define our Sector Skills Agreement with ConstructionSkills in Scotland to collectively work with industry to achieve our aims and objectives.

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