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## 1. Overview

Our draft Heat in Buildings Strategy sets out our vision for decarbonising heat and reducing energy demand across all buildings in Scotland, setting out the scale of the investment opportunity and supporting our green recovery from the COVID-19 pandemic. This vision can only be achieved if there is a robust supply chain in place with the necessary skills to deliver.

Developing Scottish specific skills requirements for energy efficiency, zero emissions and low carbon heating systems, microgeneration and heat networks is important as the current skills landscape can be fragmented, open to interpretation and is often provided by non-accredited training providers. Furthermore, the development of Scottish skills requirements will help both professionalise services in the sector and provide career pathways, particularly for young people which will be vital to the sector's future.

This consultation sets out our proposals for energy efficiency, zero emissions and low carbon heating systems, microgeneration and heat network skills requirements. Whilst the primary focus is on retrofit work for homes, we believe some of these skill requirements will also be relevant for new-build housing and in certain circumstances non-domestic buildings. These requirements relate to retrofit installers, energy assessors, designers, advisors, evaluators and retrofit coordinators. Once implemented, these skills requirements will create a best practice standard for the sector, and will be a minimum requirement for Scottish Government-supported programmes. This consultation is seeking views on both the proposals and their implementation.

### Definitions

Energy efficiency skills in the context of this consultation relate to the requirements for the retrofit of homes as defined in the British Standards Institution (BSI) Publicly Available Specification (PAS) 2035/30 including: assessment of dwellings for retrofit, identification and evaluation of improvement options (specifically energy efficiency measures (EEMs) which are also defined in the PAS)), design and specification of EEMs and monitoring and evaluation of retrofit projects.

For the purposes of this consultation, microgeneration refers to micro-renewable technologies used for zero/low carbon generation of heat (up to 45kW) and electricity (up to 50kW). For anything heat related beyond the microgeneration definition then this will be referred to as zero emissions and low carbon heating systems<sup>1</sup> with the exception of heat networks which is defined as infrastructure consisting of insulated pipes and low or zero carbon heat generation which supplies heat (in the form of hot water or steam) to homes and other buildings.

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<sup>1</sup> We recognise that there may be other in-building technologies that are not 'micro-renewables' but are zero or low emissions and for which we would like to extend skills standards in future.

## 2. Introduction

### 2.1 Background

Our draft Heat in Buildings Strategy – published alongside this consultation - builds on the 2018 Energy Efficient Scotland Route Map and the 2015 Heat Policy Statement, and brings together our ambitions on energy efficiency and heat decarbonisation into a single framework. It sets out a series of policies and actions on energy efficiency and heat decarbonisation including strengthened action to deliver on our National Infrastructure Priority for Energy Efficiency. It considers whole-system energy issues and how these are to be managed over the course of the transition. The draft strategy outlines the scale of the economic opportunity presented and identifies the measures necessary to realise this and to ensure a Just Transition, one in which the benefits of the transition are shared and no one is left behind.

This can only be achieved if there is a robust supply chain in place with the capacity and capability to deliver on our vision, to improve the well-being of people living in Scotland and to create sustainable and inclusive growth. We estimate<sup>2</sup> there are around 13,000 people employed in the energy efficiency and low carbon/renewable heat sector in Scotland with the sector having an annual turnover of £2.4 billion.

Our Heat in Buildings Programme is the primary vehicle for reducing energy demand and carbon emissions from Scotland's existing buildings, and for eliminating poor energy efficiency as a driver of fuel poverty. Delivering on our targets for energy efficiency has the potential to support substantial employment opportunities and build Scotland's supply chain. It has been estimated that this will require investment of £10 billion over its lifetime and that every £100 million spent on energy efficiency improvements supports approximately 1,200 fulltime equivalent jobs<sup>3</sup> across the Scottish economy.

Given the scale of the challenge, as set out in our draft Strategy, we expect the supply chain will need to grow significantly over the coming years. To help achieve this we made the following commitments in our draft Strategy and Programme for Government 2020-21:

- Developing and implementing a supply chain action plan in partnership with our enterprise agencies by end of 2021 to support the growth and preparedness of the zero and low emissions heat supply chain.
- Providing capital investment for Scottish colleges for equipment to deliver training for energy efficiency and microgeneration.
- Ensure the supply chain can benefit from the support available from our National Transition Training Fund, the Flexible Workforce Training Fund and the Young Persons Guarantee.

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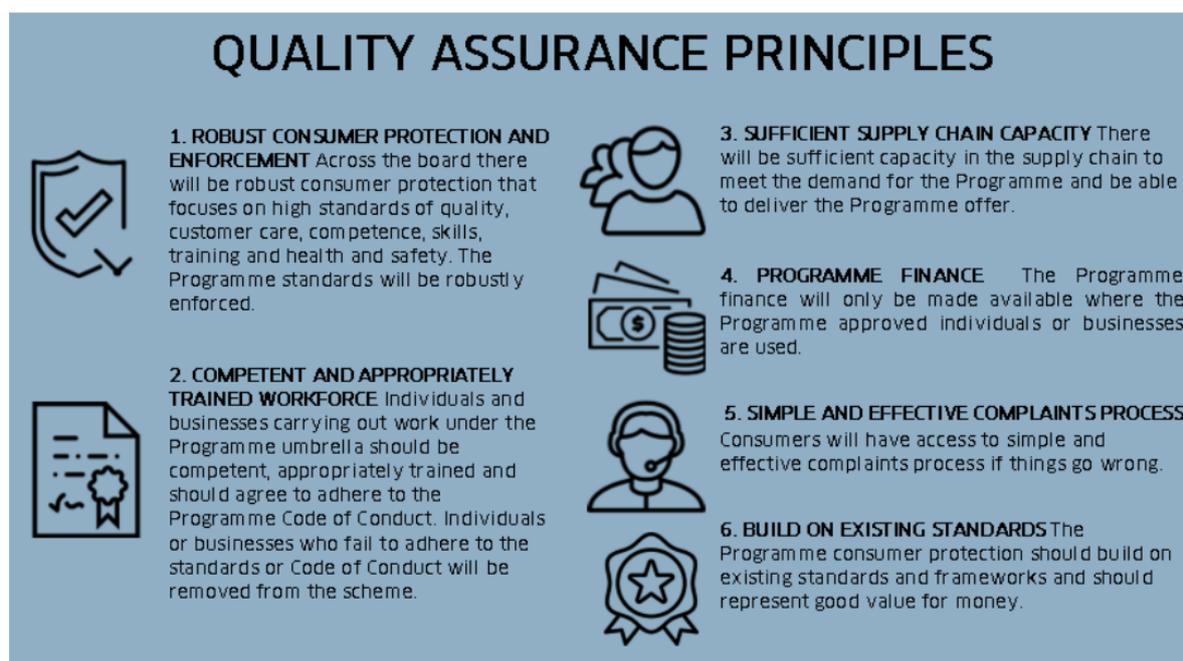
<sup>2</sup> [Low carbon and renewable energy economy, UK - Office for National Statistics \(ons.gov.uk\)](https://ons.gov.uk)

<sup>3</sup> Type 1 construction sector employment effects multiplier from the [Scottish Government input-output tables](#), applied to 2021 prices.

In addition, we have established a group of experts to help the Scottish Government explore the potential of a Heat Pump Sector Deal. Through working with this group, we aim to understand how industry and government can work together to set a clear pathway for accelerated deployment of heat pumps. The group will make recommendations to the Scottish Government by summer 2021.

## 2.2 Short Life Working Group on Quality Assurance

Scottish Ministers agreed to convene a Short Life Working Group (SLWG) in 2018 to focus on the quality, skills, supply chain and consumer protection requirements of energy efficiency and heat decarbonisation and to build upon the quality assurance principles as set out in our Energy Efficient Scotland Route Map (2018).



**Figure 1 – quality assurance principles from Energy Efficient Scotland Route Map**

This group included representatives from across industry, consumer organisations and enterprise and skills agencies. A full list of member organisations can be found in Annex A of this consultation. The role of the Scottish Government in the group was to facilitate the discussions by providing administrative and secretariat support.

### ***Recommendations of the SLWG on Quality Assurance***

In March 2019, the group published their final [report](#) with 19 recommendations for developing quality assurance for Energy Efficient Scotland (including heat) which included a number of recommendations in relation to roles and skills including:

***Recommendation 1.*** *There should be Quality Assurance criteria developed which detail the key mandatory requirements for suppliers wishing to participate in Energy Efficient Scotland.*

***Recommendation 2.*** *There should be a Quality Mark for Energy Efficient Scotland and suppliers wishing to take part in the Programme will have to*

*demonstrate that they meet all of the requirements (set out in Recommendation 1) through a robust vetting and verification process to achieve the Quality Mark. All approved suppliers should be listed on a publicly available Directory and where possible the use of operative ID cards should be considered.*

***Recommendation 5.*** *A new designer role should be considered to ensure that a whole building approach is taken and that only the most appropriate improvements are applied in practice.*

***Recommendation 7.*** *Installations under Energy Efficient Scotland must be based on skills and competencies, and a skills and qualifications matrix should be developed and clearly communicated to the supply chain to reflect this.*

***Recommendation 8.*** *The skills and competency requirements of the designer role should be determined and an analysis of current capacity within the workforce should be undertaken.*

Subsequently, all 19 of the recommendations were included in our Energy Efficient Scotland consultation which was published in May 2019. In December 2019 we published our response to this consultation.

### ***Consultation on the SLWG Recommendations – What you told us***

Respondents to our 2019 Energy Efficient Scotland consultation noted their broad agreement, or agreement in principle, with the recommendations, which were described as welcome, relevant and comprehensive. It was also suggested that more detail was needed on the recommendations and how they would be implemented.

When asked about the recommendation to have a quality mark in Scotland, respondents argued that since any Energy Company Obligation (ECO) work in Scotland has to be carried out by a business that is registered with TrustMark and has demonstrated compliance with PAS 2030 and PAS 2035, it would make sense for the supply chain in Scotland to be aligned with these requirements. Furthermore, that establishing separate standards for Scotland could make it difficult for Scottish contractors to work elsewhere in the UK, and vice versa. Rather than establish a separate scheme, it was argued there should be a single assurance process and an agreement which confers approval on one scheme that meets the core standards of another. Additional requirements could be added to address any issues identified by the Scottish Government and the SLWG.

For recommendation 7 on skills, respondents argued that the competencies required to install energy efficiency measures are already specified in the National Occupational Standard which forms the basis of vocational qualifications such as 'Insulation and Building Treatments'. Other qualifications, such as the Award in Energy Efficiency Measures for Older and Traditional Buildings should also be used to augment knowledge.

With respect to the proposed skills and qualifications matrix, respondents suggested that this should be developed in collaboration with industry and may vary depending on the energy efficiency measures being installed.

The new designer role was welcomed by respondents who commented specifically on Recommendation 5, although the retrofit co-ordinator role set out in PAS 2035 was also highlighted. Good quality consumer advice from an impartial source was suggested to be invaluable, since this may otherwise fall to competing technology specialists.

We have listened to your feedback and we believe the adoption of PAS 2035/30 for our programmes and the development of an installer skills matrix address this.

### **Building on Existing Standards – UK retrofit standards**

In December 2016, the UK Government published 'Each Home Counts' an independent review of consumer advice, protection, standards and enforcement for energy efficiency and microgeneration. In June 2019, the British Standards Institution (BSI) published a new retrofit standard for energy efficiency known as the Publicly Available Specification (PAS) 2035. This standard covers the entire energy efficiency retrofit process in homes, from initial assessment and design to installation and evaluation and incorporates the updated PAS 2030: 2019 installer standard. Together they are known as PAS 2035/30: 2019.

These standards incorporate a number of well-defined roles for retrofit work including: retrofit coordinator, assessor, designer, installer and evaluator. Competency requirements are also listed for these.

BSI are also developing retrofit standards for non-domestic buildings (referred to as PAS 2038) but these are still at an early stage of development.

For microgeneration, industry standards have been available for some time and continue to evolve. These standards are provided by the Microgeneration Certification Scheme (MCS) and are separate to the BSI PAS 2035/30 standards.

## 2.3 Developing the installer skills matrix

Energy Skills Partnership (ESP) – part of the Scottish Colleges network - was commissioned to deliver recommendation 7 for installers and set up a Skills Group<sup>4</sup> to achieve this. This group included all the sector skills bodies for construction, heating and electrical, trade bodies, Scottish colleges, skills agencies and other stakeholders. The full list can be found in Annex B.

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<sup>4</sup> Officially called the Quality and Skills Working Group

The output of this group was a skills matrix that outlines the recommended minimum qualifications, with recognition of Recognition of Prior Learning (RPL)<sup>5</sup>, for the various trades (e.g. plumbers/heating engineers) broken down by measure (e.g. air source heat pumps). Further details on this can be found in the installer requirements section of this consultation. The members of the Skills Group were very positive about the development of the skills matrix and we plan to discuss the future direction of this group as we are keen to monitor skills requirements as our programmes develop.

This skills matrix is also expected to form a key part of our broader Climate Emergency Skills Action Plan which was published alongside our Climate Change Plan update in December 2020.

## 2.4 Purpose of this consultation

The purpose of this consultation is to seek views on our proposals for energy efficiency, zero emissions and low carbon heating systems, microgeneration and heat network skills requirements. Once implemented, these skills requirements will create a best practice standard for the sector, and will be a minimum requirement for Scottish Government-supported programmes for Scottish Government programmes.

Through this consultation our key proposals are:

- The installer skills matrix developed by the sector skills bodies, industry and other key stakeholders in Scotland is adopted and fully integrated into the British Standards Institution (BSI) Publically Available Specification (PAS) 2030 installer standards and Microgeneration Certification Scheme (MCS) installer standards to reflect Scotland's skills needs.
- To adopt the BSI PAS 2035 retrofit standards for Scotland and the associated skills and competency requirements for other retrofit roles where we will work with skills agencies including the Scottish Qualifications Authority (SQA) and Skills Development Scotland (SDS) to consider the need for qualifications and/or further training in Scotland for the these roles, particularly where no qualifications currently exist in Scotland.

We are also seeking views on the impact these requirements will have on the Scottish supply chain, particularly in remote rural and island areas.

Once set these skills requirements will complement both the capital investment we are making in Scottish colleges and the skills funding announced in our recent Programme for Government.

As the retrofit standards for non-domestic are currently under development (PAS 2038), this consultation will focus primarily, though not exclusively, on retrofit skills

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<sup>5</sup> RPL is a method of assessing whether a learner's experience and achievements meet the evidence requirements of a recognised training unit which may or may not have been developed through a course of learning.

for homes though as acknowledged at the start we believe some of these skill requirements will also be relevant for new-build housing and in certain circumstances (e.g. installations) non-domestic buildings. However, we will work closely with BSI to ensure Scottish skill requirements are factored in to the non-domestic retrofit standards and all relevant stakeholders are consulted on these.

We have also produced a partial Business and Regulatory Impact Assessment that sits alongside this consultation and can be found on the same page on our website.

## 2.5 How to respond

You will find consultation questions at key points throughout this document requesting feedback on different elements of our skill proposals. We invite you to respond to these questions by **30<sup>th</sup> April 2021**. We will use the consultation responses to inform the skills requirements for our programmes in Scotland and will work with the British Standards Institution, the Microgeneration Certification Scheme and stakeholders involved with developing heat network skills to achieve this. We will also publish our response to this consultation as part of our supply chain development programme and action plan as announced in our draft Heat in Buildings Strategy.

Please respond to this consultation using the Scottish Government's consultation hub, Citizen Space: <https://consult.gov.scot/energy-and-climate-change-directorate/skill-requirements-for-energy-efficiency-homes/>

You can save and return to your responses while the consultation is still open. Please ensure that consultation responses are submitted before the closing date of **30<sup>th</sup> April 2021**.

If you are unable to respond using our consultation hub, please complete the Respondent Information Form (provided at Annex C) and send to:  
Email: [heatinbuildings@gov.scot](mailto:heatinbuildings@gov.scot)

Following the closing date, all responses will be analysed and considered along with any other available evidence. The Scottish Government will publish responses, where respondents have given permission for their response to be made public, and a report summarising responses will also be made available.

## 3. Our proposals

### 3.1 Installer skills requirement proposals

We propose to integrate the Scottish installer skills matrix developed by the Quality and Skills Working Group into the BSI PAS 2030 installer standards and the MCS standards. This would provide more clarity for the qualification annexes already in these standards as PAS 2030 states the need to hold an 'industry agreed, vocational qualification of apprenticeship' without stating what these are. Also, in the case of PAS 2030 it states an alternative requirement would be a 'certificate of competence relevant to the Energy Efficiency Measure (EEM) to be installed'. In practice this

could be manufacturer led training and whilst we see manufacturers having an important role in training, we think this should be in addition to and not instead of recognised qualifications or equivalent. We have included a question on this as part of this consultation.

The Skills Group understood that there were already a number of existing industry recognised qualifications and that it was important to bring these together into one overarching skills matrix covering construction, heating and electrical work. The development of this skills matrix is now complete with all members of the group agreeing that it should be implemented as soon as practically possible.

The full skills matrix has been developed on a measure by measure basis and can be found in Annex B. This is broken down as follows:

- Mandatory vocational career paths where applicable.
- Mandatory qualification elements as recommended by the Skills Group.

To illustrate, for insulation measures we are proposing the following mandatory career path:

- SVQ in Insulation and Building Treatments (Construction) at SCQF level 5 **OR**
- SQA Level 2 NVQ Diploma in Insulation and Building Treatments (Construction Cold/Warm Roof Insulation) **OR**
- SQA Level 2 NVQ Diploma in Insulation and Building Treatments (Construction) **OR**
- External Wall Insulation – Boarder/Finisher

In addition, if any work is to be carried out on pre-1919 buildings the following qualification will be mandatory:

- SQA Level 3 Award in Energy Efficiency Measures for Older and Traditional Buildings

So these would be referenced within PAS 2030 under competency requirements for Scotland.

As another example, for air source and ground source we are proposing the following mandatory career path:

- SVQ 3 Domestic Plumbing and Heating at SCQF Level 7 **OR**
- SVQ 3/SCQF 6 Install, Commission and Maintain Refrigeration Systems **OR**
- SVQ 3/SCQF 6 Install, Commission and Maintain Air Conditioning Systems

In addition to the following mandatory qualifications:

- NOS Mapped - Install and Commission Fuel Systems: emergent technologies
- Water Byelaws/Regulations
- Domestic Vented and Unvented Hot Water Storage

In addition – and in similar vein to insulation - if any work is to be carried out on pre-1919 buildings the SQA Level 3 Award in Energy Efficiency Measures for Older and Traditional Buildings will be required.

So these would be referenced in the MCS installer standards for heat pumps.

#### *Recognised Prior Learning*

The qualifications presented in the skills matrix can also be achieved through Recognition of Prior Learning (RPL)<sup>6</sup> which is another route to achieving these competencies. This is contingent on the current skills set of the operative and may be less time consuming compared with a full training course to achieve the necessary qualification. Local colleges can support industry to develop pathways to support installers to achieve the minimum competencies.

However, we would welcome feedback on the proposed routes to upskilling existing installers including any significant barriers.

#### *Timings*

It is our intention to integrate the skills matrix within PAS 2030 and MCS by summer 2021. It is our intention that the skills matrix, in the first instance, is initially included as a guide for achieving competency within the standards. However, we would expect the skills matrix to become mandatory within a reasonable timescale to allow installers to meet these requirements. Overall, we would welcome stakeholder views on the timings for these requirements.

**Q1a – Do you agree with our proposal to integrate the installer skills matrix into the Publically Available Specification (PAS) 2030 and Microgeneration Certification Scheme (MCS) installer standards?**

**Q1b Do you agree with our recommendation that manufacturer training should be in addition to, not instead of, these skills requirements?**

**Q1c If you disagree with these proposals, please let us know why.**

**Q2 – What are your views on the timing for integrating the installer skills matrix into the PAS 2030 and MCS installer standards? What do you think would be a reasonable timescale for the making the skills matrix mandatory in the standards?**

**Q3 – What are your views on how installers can meet these skills requirements, in particular the Recognised Prior Learning (RPL) route?**

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<sup>6</sup> RPL is a method of assessing whether a learner's experience and achievements meet the evidence requirements of a recognised training unit which may or may not have been developed through a course of learning.

### 3.2 Skills requirements proposal (PAS 2035) for other roles

As mentioned at the beginning of this consultation, PAS 2035/30 covers a number of specific roles involved with retrofit work. PAS 2030 which covers the installer requirements has been covered in the previous section and this section will focus on all the other roles. **Figure 2** summaries PAS 2035/30 in terms of the roles including the new Retrofit Coordinator which is a critical component of the new standards.

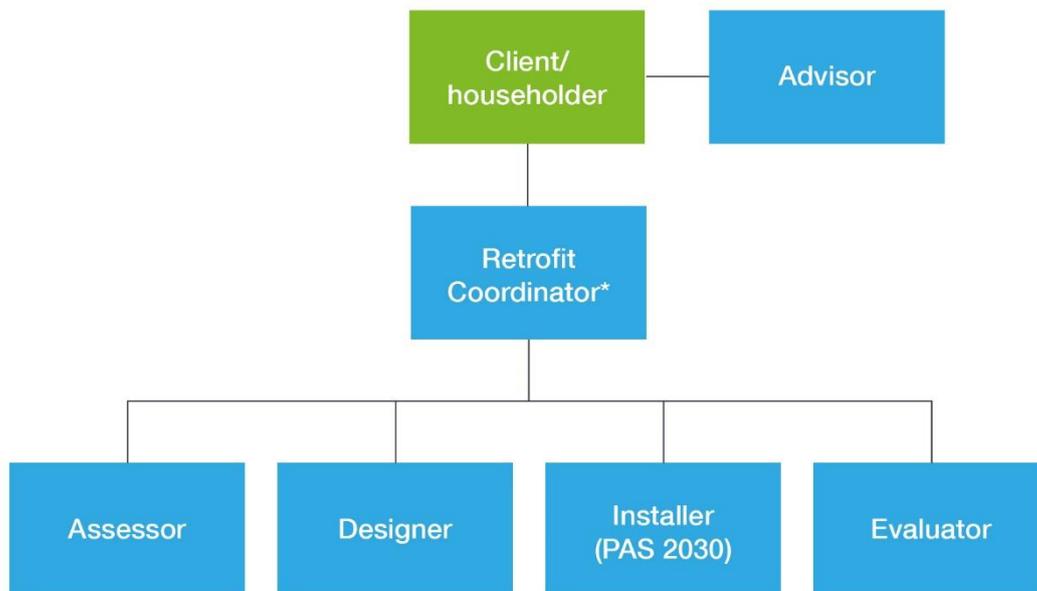


Figure 2 – PAS 2035 roles in blue (\*the Retrofit Coordinator could also be the advisor, assessor, designer and evaluator).

An overview of the roles along with competency requirements are covered below.

#### Retrofit Coordinator

The role of the Retrofit Coordinator is to protect both the Client's interest and the public interest. The Retrofit Coordinator is responsible for overseeing the project from inception to completion i.e. the risk assessment (which dictates pathways which in turn relate to competencies of designer), the dwelling assessment, the retrofit design, installation and post-completion monitoring and evaluation.

A critical element of PAS 2035 is the risk assessment carried out by the Retrofit Coordinator on the dwelling to identify the level of risk associated with the retrofit with grades given on the overall risk from A (low), B (medium) and C (high). The factors that inform the risk include: number of dwellings to be improved, the number of improvements per dwelling, technical risk of measures, the risk of combining measures and the construction type.

**The risk identified then informs the pathway required for the project which has implications on the competency of the other roles required.** For example the competency of the designer will need to be very high where high risk projects are concerned

### Mandatory competency requirements

Level 5 Diploma in Retrofit Coordination and Risk Management, or who can provide evidence of currently working towards such a qualification via a recognised RPL process or via a training course that appears on the register maintained by Ofqual/SQA.

### Retrofit Assessor

The Retrofit Assessor shall conduct assessments of the building with the required data to be captured dependent on the risk path identified by the Retrofit Coordinator. For high risk projects (path C) this shall include the principles set out in the RICS guidance note *Surveys of residential properties* at “survey level three”.

The whole-dwelling assessment including a ventilation assessment, shall be recorded and reported to the Retrofit Designer, including any Standard Assessment Procedure (SAP), Reduced Data Standards Assessment Procedure (RDSAP) or Passive House Planning Package (PHPP) data file and a photographic record of all the recorded features of the building and of any identified defects.

### Mandatory competency requirements

- Risk grade A projects – a Retrofit Coordinator or a Domestic Energy Assessor (or via recognised RPL).
- Risk grade B/C projects - a Domestic Energy Assessor (or via recognised RPL) and where the dwelling to be assessed is a protected building then the Assessor shall hold the Scottish Level 6 Award in Energy Efficiency Measures for Older and Traditional Buildings.

### Retrofit Designer

A Retrofit Designer prepares a package of information that determines the unique combination of energy efficiency measure systems, products, materials and their interrelationships, to be installed in a building in order to achieve specified energy efficiency and other outcomes for that building.

### Mandatory competency requirements

The competency requirements for designers in PAS 2035 are:

- Risk grade A projects – a specialist designer or specifier of that measure who holds a recognised qualification via a recognised RPL process or via a training course that appears on SQA website. They should also be approved by the manufacturer of that system and for gas installations hold a Gas Safe registration or for oil heating holds competent person registration. For microgeneration installations the Retrofit Designer should be MCS certified. For other projects assessed as risk grade A, a Retrofit Designer shall be either a Retrofit Coordinator or a Chartered Architectural Technologist (or working towards such registration via RPL).
- Risk grade B – require the following: a Retrofit Coordinator, a Chartered Architectural Technologist, an Architect registered by the Architects Registration

Board or a professional member of the Chartered Institute of Building or a Chartered Building Surveyor.

- Risk grade C – same as risk B but for traditionally constructed buildings can also include: the Conservation Accreditation Register for Engineers, the Register of Architects Accredited in Building Conservation, Royal Institute of British Architects, the Royal Institution of Chartered Surveyors and the Royal Incorporation of Architects in Scotland.

#### Retrofit Evaluator

A Retrofit Evaluator is a person qualified to monitor and evaluate the effectiveness of a retrofit project and provide feedback to the Client and/or the project team.

There are three levels of monitoring: basic, intermediate and advanced. All projects must have basic monitoring with intermediate and/or advanced monitoring applied if the intended outcomes have not been achieved as measured through basic monitoring. This would be based on the opinion of the Client, the Retrofit Coordinator of the Retrofit Evaluator.

#### Mandatory competency requirements

The competency of the Retrofit Coordinator is sufficient for all levels of monitoring but with the additional requirement that they must also hold the Scottish Level 6 Award in Energy Efficiency Measures for Older and Traditional Buildings. For basic monitoring the Retrofit Coordinator and the Retrofit Evaluator can be the same person unlike intermediate and/or advanced monitoring which has to be carried out by a separate Retrofit Coordinator who's role is to evaluate the project only.

#### Any person delivering retrofit advice

Retrofit advice is required to be given to a client or householder during the retrofit process about the process, the evaluation of improvement options, the selection of improvement measures, the retrofit design, the operation and maintenance of installed measures, or how to operate a home in an energy efficient way, after retrofit.

#### Mandatory competency requirements

City and Guilds Energy awareness and energy advice training and passed the associated examination and practical test, or who is working towards that qualification via a recognised training course or RPL process. Alternatively a Green Deal Advisor certified and registered by a recognised certification body or a Retrofit Coordinator. As PAS 2035 develops all retrofit advisors will need to meet all requirements including any future advice standards.

#### **Home Energy Scotland**

Home Energy Scotland is an advice service funded by the Scottish Government and managed by the Energy Saving Trust to provide free, impartial advice on energy saving, keeping warm at home, renewable energy, greener travel, cutting water waste and more. Home Energy Scotland's mission is to help people in Scotland create warmer homes, reduce their bills and help tackle climate change.

To ensure a world class advice services, all the advisors working for Home Energy Scotland have the City and Guilds Energy awareness qualification as a minimum with some advisors also having additional qualifications relating to their specialism e.g. renewables.

Our proposal for these roles

We propose adopting these requirements and working with Scottish colleges to deliver training and qualifications in line with these competency requirements.

**Q4 – What are your views on the competency requirements for the retrofit coordinator, advisor, assessor, designer and evaluator roles?**

### 3.3 Heat network skills

The Heat Networks (Scotland) Bill was introduced to the Scottish Parliament by the Scottish Government on 2 March 2020, and forms part of the Scottish Government's response to the global climate emergency.

The Bill aims to stimulate the deployment of heat networks in Scotland by introducing supportive regulation, which will increase investor, consumer and supply chain certainty and confidence.

Consequently, heat networks in Scotland are expected to create new demands on the supply chains needed to design, install, commission and maintain these networks. To understand this better we commissioned research through Energy Saving Trust to identify skills gaps and training needs within the sector. The report was complete and published on Energy Saving Trust website in May 2020<sup>7</sup>.

The research reviewed existing teaching provision of heat network skills in Scottish colleges and universities; identified the skills gaps in the Scottish heat network supply chain and compiled a list of colleges and universities with an interest and the potential to expand their curriculum content on heat networks to begin to address skills gaps which were identified as follows:

- project management of heat networks, delivery and operation (e.g. understanding of heat network design, how to procure contractors, stakeholder engagement)
- heat network design (e.g. most efficient design of pipe routes, low temperature networks, design for retrofit of networks into older buildings)
- installation and optimisations of heat networks (e.g. extrusion welding for steel pipes, ability to install heat interface units, training on understanding design principles).

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<sup>7</sup> <https://energysavingtrust.org.uk/service/supply-chain-research/>

- technical operation and maintenance (e.g. maintaining heat interface units, understanding of building energy management systems, calibrating internals with flow return requirements with different pressures).

Six institutions were recommended in the report as having potential to host courses due to their existing course content on heat networks, as well as opportunities to deliver practical teaching due to existing heat network connections on the college campus or proximity to a heat network. The institutions were Glasgow Kelvin, Edinburgh, South Lanarkshire and West Scotland colleges, and Glasgow Caledonian and Heriot-Watt Universities. Other colleges with proximity to heat networks may also offer potential and should be explored as part of the project brief.

In addition, there is ongoing work to develop technical standards for heat networks which will form a core part of the regulatory regime so that we can design out early on any inefficiencies and consumer detriment arising when networks are poorly specified. Technical standards are also expected to help develop new supply chains in Scotland and drive down costs.

In partnership with the UK Department for Business, Energy and Industrial Strategy (BEIS), the Scottish Government have commissioned the British Standards Institute (BSI) to scope out the possibility of developing a common standard that would apply across Great Britain. Our long term intention is to develop technical standards which can be certified against which will provide further opportunities for further qualifications in Scotland.

**Q5 – What are your views on our plans for developing heat network skills? For example are there any gaps in heat network skills that we haven't identified?**

### 3.4 General considerations for all skills requirements

We are also seeking views to further develop our partial Business and Regulatory Impact Assessment, in particular the impact our proposals will have on the energy efficiency, microgeneration and heat networks sector, particularly for remote rural and island areas. Relating to this we are also keen to get views on the use of digital technologies for training provision and more generally views on what support (if any) is required to support our ambitions for a highly skilled workforce. These points are summarised in the following consultation questions which apply to all the skills requirements featured in this consultation.

**Q6a – What impact do you think our skills requirements will have on the energy efficiency, microgeneration and heat networks sector in remote rural and island communities?**

**Q6b – What impact do you think our skills requirements will have on the energy efficiency, microgeneration and heat networks sector in Scotland more generally?**

**Q7 – What impact do you think our skills requirements will have on competition including training provision, quality, availability or price of any goods or services in a market?**

**Q8 – What suggestions do you have for how digital technology could be used effectively to meet our skills requirements?**

**Q9 – Are there any areas of skills we have not covered in this consultation that you think we should consider?**

**Q10 – What support you think would help the sector achieve these skills requirements?**

#### **4. Consultation questions in full**

##### Installer skills requirements

**Q1a – Do you agree with our proposal to integrate the installer skills matrix into the Publically Available Specification (PAS) 2030 and Microgeneration Certification Scheme (MCS) installer standards?**

**Q1b Do you agree with our recommendation that manufacturer training should be in addition to, not instead of, these skills requirements?**

**Q1c If you disagree with these proposals, please let us know why.**

**Q2 – What are your views on the timing for integrating the installer skills matrix into the PAS 2030 and MCS installer standards? What do you think would be a reasonable timescale for the making the skills matrix mandatory in the standards?**

**Q3 – What are your views on how installers can meet these skills requirements, in particular the Recognised Prior Learning (RPL) route?**

##### PAS 2035 requirements for other roles

**Q4 – What are your views on the competency requirements for the retrofit coordinator, advisor, assessor, designer and evaluator roles?**

Heat networks

**Q5 – What are your views on our plans for developing heat network skills? For example are there any gaps in heat network skills that we haven't identified?**

General questions

**Q6a – What impact do you think our skills requirements will have on the energy efficiency, microgeneration and heat networks sector in remote rural and island communities?**

**Q6b – What impact do you think our skills requirements will have on the energy efficiency, microgeneration and heat networks sector in Scotland more generally?**

**Q7 – What impact do you think our skills requirements will have on competition including training provision, quality, availability or price of any goods or services in a market?**

**Q8 – What suggestions do you have for how digital technology could be used effectively to meet our skills requirements?**

**Q9 – Are there any areas of skills we have not covered in this consultation that you think we should consider?**

**Q10 – What support you think would help the sector achieve these skills requirements?**

## Annex A – Quality Assurance Short Life Working Group members

The SLWG was chaired by the Energy Saving Trust and the full membership of the Group is listed below:

Citizens Advice Scotland  
Construction Scotland  
Energy Saving Trust (chair)  
Energy Skills Partnership  
Highlands and Islands Enterprise  
Historic Environment Scotland  
Skills Development Scotland  
Scottish Enterprise  
Scotland Excel  
The University of Edinburgh (ClimateXChange)  
Warmworks Scotland LLP

The following organisations also contributed to this work.

Edinburgh Napier University  
Federation of Master Builders  
Home Energy Scotland  
Insulated Render and Cladding Association  
National Insulation Association  
Police Scotland  
SCMG  
SELECT  
SNIPEF  
Superglass  
Trading Standards Scotland  
Zero Waste Scotland

## Annex B – members of the ESP Quality and Skills Working Group

The Quality and Skills Working Group was chaired by the Energy Skills Partnership and the full membership of the Group is listed below:

- BESA (Building Engineering Services Association)
- BRE (Building Research Establishment)
- CITB (Construction Industry Training Board)
- Energy Saving Trust
- EU Skills
- FMB (Federation of Master Builders)
- HES (Historic Environment Scotland)
- INCA (Insulated Render and Cladding Association)
- NIA (National Insulation Association)
- NICEIC (National Inspection Council for Electrical Installation Contracting)
- SDS (Skills Development Scotland)
- SELECT – sector skills body for electricians
- SNPEF (Scottish and Northern Ireland Plumbing Employers Federation)
- South Lanarkshire College
- Warmworks
- West College Scotland

## Annex C - installer skills matrix

Note - the Scottish Qualifications Authority (SQA) has a useful guide to the Scottish Qualifications landscape which may be useful for anyone unfamiliar with Scottish qualifications. This can be found at:

[www.sqa.org.uk/files\\_ccc/Guide\\_to\\_Scottish\\_Qualifications.pdf](http://www.sqa.org.uk/files_ccc/Guide_to_Scottish_Qualifications.pdf)

<b>Heat Battery</b>
<b>Career path:</b> <ul style="list-style-type: none"><li>• SVQ 3 Domestic Plumbing and Heating at SCQF Level 7</li></ul>
<b><u>AND</u> must complete the following qualifications:</b> <ul style="list-style-type: none"><li>• SVQ 3 Domestic Plumbing and Heating at SCQF Level 7</li><li>• Water Byelaws/Regs</li><li>• Vented/Unvented Hot water</li></ul>

<b>Solar Thermal</b>
<b>Career path:</b> <ul style="list-style-type: none"><li>• SVQ 3 Domestic Plumbing and Heating at SCQF Level 7 <b><u>OR</u></b></li><li>• SVQ 3 Heating and Ventilating: Industrial and Commercial Installation</li></ul>
<b><u>AND</u> must complete the following qualifications:</b> <ul style="list-style-type: none"><li>• NOS Mapped - Installation and Maintenance of Solar Thermal Hot Water Systems</li><li>• Water Byelaws/Regs</li><li>• Vented/Unvented Hot water</li></ul>
<b><u>AND</u> (only if working on pre-1919 buildings)</b> <ul style="list-style-type: none"><li>• SQA Level 3 Award in Energy Efficiency Measures for Older and Traditional Buildings</li></ul>

<b>Air Source &amp; Ground Source Heat Pumps</b>
<b>Career path:</b> <ul style="list-style-type: none"><li>• SVQ 3 Domestic Plumbing and Heating at SCQF Level 7 <b><u>OR</u></b></li><li>• SVQ 3/SCQF 6 Install, Commission and Maintain Refrigeration Systems <b><u>OR</u></b></li><li>• SVQ 3/SCQF 6 Install, Commission and Maintain Air Conditioning Systems</li></ul>
<b><u>AND</u> must complete the following qualifications:</b> <ul style="list-style-type: none"><li>• NOS Mapped - Install and Commission Fuel Systems: emergent technologies</li><li>• Water Byelaws/Regs</li><li>• Domestic Vented and Unvented Hot Water Storage</li></ul>
<b><u>AND</u> (only if working on pre-1919 buildings)</b>

- SQA Level 3 Award in Energy Efficiency Measures for Older and Traditional Buildings

### **Biomass**

#### **Career path:**

- SVQ 3 Domestic Plumbing and Heating at SCQF Level 7 **OR**
- SVQ 3 Heating and Ventilating: Industrial and Commercial Installation

#### **AND must complete the following qualifications:**

- Solid Fuel Installer (NOS Mapped)
- Vented/Unvented Hot water

#### **AND (only if working on pre-1919 buildings)**

- SQA Level 3 Award in Energy Efficiency Measures for Older and Traditional Buildings

### **Hydrogen Ready Boilers**

#### **Career path:**

- SVQ 3 Domestic Plumbing and Heating at SCQF Level 7 **OR**
- Level 3 Diploma in Gas Engineering **OR**
- Gas Engineering Competence Based Qualification **OR**
- Accredited Certification Scheme (ACS) gas qualification

#### **AND must complete the following qualifications:**

- Water Byelaws
- Central Heating & Water Training & Assessment (CENWAT)
- Liquid Petroleum Gas Changeover
- Domestic Vented and Unvented Hot Water Storage

#### **AND (only if working on pre-1919 buildings)**

- SQA Level 3 Award in Energy Efficiency Measures for Older and Traditional Buildings

### **Mechanical Ventilation Heat Recovery**

#### **Career path:**

- SVQ in Electrical Installation at SCQF level 7 **OR**
- SVQ 3 Domestic Plumbing and Heating at SCQF Level 7 **OR**
- Ductwork Planning and Installation at SCQF level 6

#### **AND must complete the following qualifications:**

- Domestic Ventilation Systems (MVHR)

#### **AND (only if working on pre-1919 buildings)**

- SQA Level 3 Award in Energy Efficiency Measures for Older and Traditional Buildings

### **Smart Heating Controls**

#### **Career path:**

- SVQ in Electrical Installation at SCQF level 7 **OR**
- SVQ 3 Domestic Plumbing and Heating at SCQF Level 7 **OR**
- SVQ 3 Heating and Ventilating: Industrial and Commercial Installation

### **Electric Heating - Storage Heaters, Infrared and Panel Heating**

#### **Career path:**

- SVQ in Electrical Installation at SCQF level 7

#### **AND must complete the following qualifications:**

- Up to date BS 7671 Requirements for Electrical Installations

#### **AND (only if working on pre-1919 buildings)**

- SQA Level 3 Award in Energy Efficiency Measures for Older and Traditional Buildings

### **Solar PV Electrician Pathway**

#### **Career path:**

- SVQ in Electrical Installation at SCQF level 7

#### **AND must complete the following qualifications:**

- Up to date BS 7671 Requirements for Electrical Installations
- NOS Mapped - Installation and Maintenance of Small Scale Solar Photovoltaic Systems (Level 3)

#### **AND (only if working on pre-1919 buildings)**

- SQA Level 3 Award in Energy Efficiency Measures for Older and Traditional Buildings

### **Solar PV Roofing Contractor (Limited Scope ONLY)**

#### **Career path:**

- SVQ Roofing (Construction) at SCQF level 5

#### **AND must complete the following qualifications:**

- Appreciation of Access Platforms and Equipment
- Electrical awareness TESSA

#### **AND (only if working on pre-1919 buildings)**

- SQA Level 3 Award in Energy Efficiency Measures for Older and Traditional Buildings

### **Micro Hydro**

**Career path:**

- SVQ in Electrical Installation at SCQF level 7

**AND must complete the following qualifications:**

- Up to date BS 7671 Requirements for Electrical Installations

**Lighting and Controls****Career path:**

- SVQ in Electrical Installation at SCQF level 7

**AND must complete the following qualifications:**

- Up to date BS 7671 Requirements for Electrical Installations

**Micro Wind Turbines****Career path:**

- SVQ in Electrical Installation at SCQF level 7

**AND must complete the following qualifications:**

- Up to date BS 7671 Requirements for Electrical Installations
- Connection of Generation
- Installing small wind-powered electricity generating systems

**Electrical Under Floor Heating****Career path:**

- SVQ in Electrical Installation at SCQF level 7

**AND must complete the following qualifications:**

- Up to date BS 7671 Requirements for Electrical Installations
- Electrical awareness TESA

**Battery Storage****Career path:**

- SVQ in Electrical Installation at SCQF level 7

**AND must complete the following qualifications:**

- Up to date BS 7671 Requirements for Electrical Installations
- Energy Storage Systems Course (415)

**External Wall Insulation****Internal Wall Insulation****Cavity Wall Insulation****HTT Cavity Wall Insulation (Hard to Treat)****Loft/ Rafter/Room in Roof Insulation****Under Floor Insulation**

**Low Rise Windows and Doors  
Flat, Pitched and Extension Roofs  
High Rise Windows and Doors**

**Career path:**

- SVQ in Insulation and Building Treatments (Construction) at SCQF level 5 **OR**
- SQA Level 2 NVQ Diploma in Insulation and Building Treatments (Construction Cold/Warm Roof Insulation) **OR**
- SQA Level 2 NVQ Diploma in Insulation and Building Treatments (Construction) **OR**
- External Wall Insulation – Boarder/Finisher

**AND (only if working on pre-1919 buildings)**

- SQA Level 3 Award in Energy Efficiency Measures for Older and Traditional Buildings

**Grey Water Harvesting\***

**Career path:**

- SVQ 3 Domestic Plumbing and Heating at SCQF Level 7

**AND must complete the following qualifications:**

- Water Byelaws

**AND (only if working on pre-1919 buildings)**

- SQA Level 3 Award in Energy Efficiency Measures for Older and Traditional Buildings

*\*whilst not included in PAS 2035, it was identified as an important skills requirement from the Quality and Skills Working Group.*

Annex D – Respondent Information Form

**RESPONDENT INFORMATION FORM**

**Please Note** this form **must** be completed and returned with your response.

To find out how we handle your personal data, please see our privacy policy:  
<https://www.gov.scot/privacy/>

Are you responding as an individual or an organisation?

- Individual
- Organisation

Full name or organisation's name

Phone number

Address

Postcode

Email

The Scottish Government would like your permission to publish your consultation response. Please indicate your publishing preference:

- Publish response with name
- Publish response only (without name)
- Do not publish response

**Information for organisations:**

The option 'Publish response only (without name)' is available for individual respondents only. If this option is selected, the organisation name will still be published.

If you choose the option 'Do not publish response', your organisation name may still be listed as having responded to the consultation in, for example, the analysis report.

We will share your response internally with other Scottish Government policy teams who may be addressing the issues you discuss. They may wish to contact you again

in the future, but we require your permission to do so. Are you content for Scottish Government to contact you again in relation to this consultation exercise?

Yes

No



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