Energy Efficiency & Retrofit of Pre-1919 Traditional Buildings

Training Specification for Learners to Work Towards Achievement of the SQA Level 3 Award for Energy Efficiency Measures For Older and Traditional Buildings (QCF)

January 2016

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Appendices

Section 1 – Introduction & IPR

This Training Specification has been developed to facilitate delivery of the programme objectives and provide information regarding the installation of energy efficiency measures to Traditional (pre-1919) Buildings.

Suitable Training Providers are invited to apply to CITB (as described in Section 3.9) to offer the training programme in the formats described in this document. The course material, Intellectual Property Rights and Copyright are the property of CITB and no part of this and the associated Course Handbook can be reproduced or used without written permission from CITB.

Training Providers who wish to deliver the Energy Efficiency & Retrofit of Traditional (pre-1919) Buildings training programme must apply to and obtain a signed and dated Service Level Agreement from CITB (as shown in section 3.1) to offer this programme.

The programme has been accredited by the Scottish Qualification Authority (SQA) for the Certification of Learners and comprises of the three Units listed below. A Key aspect of the programme also includes a requirement for an initial assessment of each learner's prior knowledge and experience in this area of construction and completion of the Level 3 SQA End Assessments or Assignments.

The course training objectives are therefore linked directly to the three Units that make up the Level 3 Award for Energy Efficiency Measure for Older and Traditional Buildings (QCF) and which are listed below:-

- **SQA Code H6MK 69 Older & Traditional Buildings: Age, Nature and Characteristics**

- **SQA Unit code H6MM 69 Older and Traditional Buildings: Assessing Options for the Introduction of Energy Efficiency Measures**

- **SQA Code H6MN 69 Older and Traditional Buildings: Making Recommendations and Giving Advice on the Introduction of Energy Efficiency Measures**

In addition, supplementary information to support learners understanding of the broader issues affecting the Energy Efficiency and Retrofit of pre 1919 Traditional Buildings is provided in the form of a course handbook that integrates and broadly covers the subject areas below:-

- Understanding the chronology, building styles, age and characteristics of Traditional (pre-1919) buildings and Understanding how the thermal performance and energy and efficiency of Traditional (pre-1919) Buildings are assessed.
- Understanding the impact of the Installation of retrofit of energy efficiency measures to Traditional (pre-1919) Buildings and Installation of Energy Efficiency Measures in relationship to Craft Occupations.
- Understanding the range of available energy efficiency systems and measures available

Intellectual Property Rights (IPR)

Section 2 - Training Aims & Objectives

2.1 Training Programme Aims

The overarching aim of the training programme is to enable people to recognise and understand the knowledge, skills and materials associated with the installation and retrofit of energy efficiency measures to traditional (pre-1919) Buildings. The programme also aims to ensure that a learner's prior knowledge and experience of this arena is established ahead of the course delivery and is therefore, designed principally for individuals with experience of working in the construction industry. Learners are subsequently required to pass meet the assessment criteria for the SQA Level 3 Award in Energy Efficiency Measure for Older and Traditional Buildings (QCF) SQA Code: GJ32 69: Qualification Code 601/2659/0 by completion of an end assessment or assignment to confirm their understanding of the subject areas

2.2 Intended Audience

This training programme is principally designed for persons who are aged 18 years of age or older and who already have a background and experience in the construction industry .however learners who are new to the installation of energy efficiency retrofit measures applied to traditional (pre-1919) buildings can be considered and their suitability assessed for the programme. The programme is also designed for learners to obtain a recognised qualification in energy efficiency.

The target audience includes the following occupational areas but the list shown is not exhaustive:

- Experienced craftspeople & general building operatives
- Proprietors of small (jobbing) building companies who have experience of working on various aspects of traditional (pre-1919) buildings, or plan to undertake this type of work
- Site managers and supervisors involved in managing contracts for the energy efficiency & retrofit of traditional (pre-1919) buildings
- Estimators, planners architects, designers
- Installers of Solid Wall Insulation systems (Internal & External Wall Insulation)
- Installers of Passive Fire Protection measures.

2.3 Training Delivery Options

As part of the approval process to offer the programme, training providers must confirm in their application, the training delivery options they wish to use from the list below and provide details of the programme structure and content:

- 2 Day programme (comprising of a minimum of 12 hours) designed for learners with some prior knowledge of energy efficiency measures and documented evidence of their experience and who wish to obtain a relevant qualification

- 3 Day programme. (18 Hours) which covers the three SQA Units in greater detail and may include a site visit to a suitable traditional (pre-1919) building to illustrate key learning issues in situ

- 5 Day Programme designed for those who have only a basic understanding of energy efficiency measures and traditional (pre-1919) buildings

- The Programme can also be completed on a part-time basis using the minimum module delivery times provided or as an e -Learning package via distance learning, webinars using assignments and on line end assessments.

2.4 CITB Grant Support

Grant support via short duration on a Company Training Plan is available for daily attendance on the programme for employers, their employees and their named Labour Only Sub-contractors (LOSC) registered with and in scope to CITB. Training providers and employers must ensure that confirmation of available grants is obtained from CITB prior to commencement of the training programme. It should not be assumed that grants at what level are available.

2.5 Details of the SQA Level 3 Award for Energy Efficiency Measure for Older and Traditional Buildings (QCF)

Qualification structure for SQA Level 3 Award for Energy Efficiency Measures for Older and Traditional Buildings (QCF)
SQA Qualification Code: GJ32 69
Ofqual Qualification Code: 601/2659/0

To attain the qualification, learners must achieve a total of 3 credits.

This comprises:

- 3 Mandatory credits

Please note: It is important that the SQA Unit codes are used in all your recording documentation and when your results are communicated to SQA.

Mandatory Units: Learners must achieve 3 credits

SQA Unit Code	Title	Ofqual Unit code	QCF Level	QCF credit value	GLH
H6MK 69	Older and Traditional Buildings: Age, Nature and Characteristics	M/505/3506	69	1	7
H6MM 69	Older and Traditional Buildings: Assessing Options for the Introduction of Energy Efficiency Measures	T/505/3507	69	1	7
H6MN 69	Older and Traditional Buildings: Making Recommendations and Giving Advice on the Introduction of Energy Efficiency Measures	R/505/3650	69	1	7

See overleaf for details of the above units.

2.6 QCF Units & Assessment Specification

Unit Title	**Older & Traditional Buildings: Age, Nature and Characteristics**
Ofqual Code	**M/505/3506**
SQA Code	**H6MK 69**
SSC Ref	**OTB1**

QCF Unit Specification

Title	**Older & Traditional Buildings: Age, Nature and Characteristics**
Level	**3**
Credit Value	**1**

Learning Outcomes **The Learner will**	**Assessment Criteria** **The learner can:**
1 Know the age and construction of older and traditional buildings.	1.1 Estimate the age of a building. 1.2 Explain the heritage values and significance of older and traditional buildings. 1.3 Identify the materials and construction methods used in older and traditional buildings with specific reference:- • roofs • walls • floors • doors and windows • chimneys and fireplaces 1.4 Explain how conservation principles are applied to older and traditional buildings. 1.5 Identify local and regional variations of traditional buildings and materials. 1.6 Clarify the circumstances where referral to a specialist or recommendation for further analysis or investigation would be appropriate.
2 Be able to identify the factors which influence how older and traditional buildings perform and the implications for the introduction of energy efficiency measures. *continued*	2.1 Identify the way older and traditional buildings perform with specific reference to: • how the performance of traditionally constructed buildings differs to modern construction • the breathability and permeability characteristics of traditional building fabric • the geographical location, aspect, orientation and the differing exposure of individual elevations *continued*

Learning Outcomes The learner will:	Assessment Criteria The learner can:
2 Be able to identify the factors which influence how older and traditional buildings perform and the implications for the introduction of energy efficiency measures.	2.2 Identify the types of heating and ventilation systems in the building 2.3 Explain the implications of common building defects for energy efficiency measures with specific reference to: • damp and causes of dampness • structural defects 2.4 Identify how alterations since the original construction affect the thermal performance of the building.

Additional information about the Unit

Unit purpose and aim(s)

This Unit is about recognising traditional buildings, in terms of their age, heritage values and significance, construction, condition and thermal performance, and the implications of these for the introduction of energy efficiency measures.

Unit expiry date 30/06/2018

Details of the relationship between the Unit and relevant national occupational standards (if appropriate)

Developed from Asset Skills National Occupational Standards energy efficiency measures for older and traditional buildings.

Details of the relationship between the Unit and other standards or curricula (if appropriate)

N/A

Assessment requirements specified by a sector or regulatory body (if appropriate)

If not specifically stated in the assessment information, **a plural statement in any Assessment Criteria means a minimum of two**.

AC 1.3 — should include reference to internal and external finishes for walls

AC 2.3 — common building defects should include reference to rain penetration, rising damp, internal moisture vapour and damaged services, and salts

Endorsement of the Unit by a sector or other appropriate body (if required)

N/A

Location of the Unit within the subject/sector classification system

N/A

Name of the organisation submitting the Unit

Asset Skills

Availability for use

Shared

QCF Assessment Specification

Assessment (evidence) Requirements
The following evidence is required to demonstrate that candidates have the appropriate level of knowledge of the age, nature and characteristics of older and traditional buildings. All Learning Outcomes and Assessment Criteria must be achieved. Written and/or recorded oral evidence is required for all Learning Outcomes.
Guidance on Methods/Instruments of Assessment
The Instrument of Assessment for all Learning Outcomes could be portfolio based, short answer written questions/oral response or through inspection reports.

2.6 QCF Unit Description & Assessment Specification *continued*

Unit title	**Older and Traditional Buildings: Assessing Options for the Introduction of Energy Efficiency Measures**
Ofqual Unit code	**T/505/3507**
SQA Unit code	**H6MM 69**
SSC Ref	**OTB2**

QCF Unit specification

Title	**Older and Traditional Buildings: Assessing Options for the Introduction of Energy Efficiency Measures**
Level	**3**
Credit Value	**1**

Learning Outcomes **The Learner will**	**Assessment Criteria** **The learner can:**
1 Understand the factors influencing the selection of appropriate energy efficiency measures and materials**.** *continued*	1.1 Assess the implications of existing building defects in relation to the choice of energy efficiency measures. 1.2 Interpret the implications of occupant behaviour on proposed energy efficiency measures. 1.3 Identify the implications of the relevant legal and regulatory requirements with particular reference to: • planning permission • listed building consent • conservation areas • local listing • scheduled monuments • national building regulations 1.4 Outline the technical risks associated with the energy efficiency measures in relation to: • thermal bridges (cold bridges) • ventilation • thermal bypass • condensation and interstitial • condensation • alterations in structure • moisture movement 1.5 Assess the impact and consequences of using unsuitable interventions or inappropriate energy performance measures. 1.6 Explain the limitations of using default U-values in RdSAP (or approved software) for older and traditional buildings and their impact on the energy rating and recommended energy efficiency measures in the EPC.

Learning Outcomes The Learner will	Assessment Criteria The Learner can:
1 Understand the factors influencing the selection of appropriate energy efficiency measures and materials.	1.7 Explain in what circumstances calculated U-values or in-situ measured U-values should be used, the issues to be aware of and appropriate sources or processes to obtain these.
2 Know energy efficiency measures and materials.	2.1 Outline a range of materials and techniques appropriate to older and traditional buildings. 2.2 Assess the effects of energy efficiency measures in combination with each other. 2.3 Identify when the energy efficiency measures need to be adapted to older and traditional buildings due to: • existing building structure • detailing • services • the heritage values and significance of the building • technical risks • cases where energy efficiency • measures cannot be recommended

Additional information about the Unit
Unit purpose and aim(s)
This Unit is about interpreting the options for the introduction of energy efficiency measures, with reference to the characteristics of the specific building, based on an accurate identification and evaluation of insulation, ventilation and building performance factors as well as establishing relevant investigative measures and an evaluation of available information on the building and its thermal performance.
Unit expiry date 30/06/2018
Details of the relationship between the Unit and relevant national occupational standards (if appropriate)
Developed from Asset Skills National Occupational Standards energy efficiency measures for older and traditional buildings.
Details of the relationship between the Unit and other standards or curricula (if appropriate)
N/A
Assessment requirements specified by a sector or regulatory body (if appropriate)
If not specifically stated in the assessment information, **a plural statement in any Assessment Criteria means a minimum of two**. AC 1.3 — national building regulations should include reference to any exemptions and special considerations for older and traditional buildings AC 2.1 — should include reference to at least: vapour permeable and hygroscopic materials & air and vapour control layers

Endorsement of the Unit by a sector or other appropriate body (if required)
N/A
Location of the Unit within the subject/sector classification system
N/A
Name of the organisation submitting the Unit
Asset Skills
Availability for use
Shared

QCF Assessment Specification

Assessment (evidence) Requirements
The following evidence is required to demonstrate that candidates have the appropriate level of knowledge of the age, nature and characteristics of older and traditional buildings. All Learning Outcomes and Assessment Criteria must be achieved. Written and/or recorded oral evidence is required for all Learning Outcomes.
Guidance on Methods/Instruments of Assessment
The Instrument of Assessment for all Learning Outcomes could be portfolio based, short answer written questions/oral response or through inspection reports.

2.6 QCF Unit & Assessment Specification *Continued*

Unit title	**Older and Traditional Buildings: Making Recommendations and Giving Advice on the Introduction of Energy Efficiency Measures**
Ofqual Unit code	**R/505/3650**
SQA Unit code	**H6MN 69**
SSC Ref	**OTB4**

QCF Unit Specification

Title	**Older and Traditional Buildings: Making Recommendations and Giving Advice on the Introduction of Energy Efficiency Measures**
Level	3
Credit Value	1

Learning Outcomes **The Learner will**	**Assessment Criteria** **The Learner can:**
1 Be able to make recommendations and give advice on the introduction of energy efficiency measures in older and traditional buildings	1.1 Review and revise measures from reports or surveys based on: • an understanding of the building the range of options available and appropriate to the building • the likely effectiveness and value for money of measures to improve energy performance • the repairs needed prior to the installation of the measures 1.2 Justify the selection of energy efficiency measures including: • when the energy efficiency performance of the proposed measure does not meet U-values prescribed in national building regulations • rationale for why energy efficiency measures may, or may not, have been selected • specific design, installation or operational features used to minimise the impact of the chosen energy efficiency measures on the building 1.3 Summarise the suitability of energy efficiency measures selected and their implications. 1.3 Explain the requirements for the delivery of the energy efficiency measures including: • The packaging and sequencing of measures • Any repairs needed to enable them • Any works needed to protect the building or its features • Any on-going maintenance

Additional information about the Unit
Unit purpose and aim(s)
This Unit is about selecting appropriate energy efficiency measures based on a full understanding of the building's current thermal performance and structure. It also involves advising on the installation of the measures and how to maximise thermal performance of the building.
Unit expiry date 30/06/2018
Details of the relationship between the Unit and relevant national occupational standards (if appropriate)
Developed from Asset Skills National Occupational Standards energy efficiency measures for older and traditional buildings.
Details of the relationship between the Unit and other standards or curricula (if appropriate)
N/A
Assessment requirements specified by a sector or regulatory body (if appropriate)
If not specifically stated in the assessment information, **a plural statement in any Assessment Criteria means a minimum of two**. AC 1.1 — this could include information from a Green Deal Advice Report, Energy Performance Certificate or other reports or surveys AC 1.2 — include reference to any exemptions and special considerations for older and traditional buildings
Endorsement of the Unit by a sector or other appropriate body (if required)
N/A
Location of the Unit within the subject/sector classification system
N/A
Name of the organisation submitting the Unit
Asset Skills
Availability for use
Shared

QCF Assessment Specification

Assessment (evidence) Requirements
The following evidence is required to demonstrate that candidates have the appropriate level of knowledge of the age, nature and characteristics of older and traditional buildings. All Learning Outcomes and Assessment Criteria must be achieved. Written and/or recorded oral evidence is required for all Learning Outcomes.
Guidance on Methods/Instruments of Assessment
The Instrument of Assessment for all Learning Outcomes could be portfolio based, short answer written questions/oral response or through inspection reports.

Section 3 Programme Delivery Requirements

3.1 Training Resources, Facilities & Venues

As a part of the approval to deliver the training programme, a CITB representative will confirm that the training facilities meet the standards required which include the following;

- Accessible good quality training rooms suitable in size for the number of learners must be provided that includes access for disabled learners
- Hearing loops
- Toilets and domestic facilities
- Break-out areas for group discussions/activities
- Power point projectors & flip charts
- Good levels of classroom Illumination, heating & flow of fresh air
- Sufficient up-to-date and approved fire-fighting equipment and high levels of fire protection
- For training programmes that include practical work or demonstration areas, the CITB Guide to Training Facilities must be used to benchmark the size of work areas and equipment required
- Approved training providers will receive relevant power point presentations and the training manual to deliver the programme, but will as required, need to develop their own training notes and training support material.

3.2 Qualifications of Trainers & Assessors

Training providers using one or more of the course delivery options described in Section 2.3 must provide suitable staff who can demonstrate their knowledge, expertise and experience in delivering the required training and in the subject matter. In addition, the trainer or lead trainer must be an accredited S/NVQ Assessor and hold the relevant up-to-date and accepted Assessor Award. The accredited trainer/assessor will be responsible for the quality assurance of the training programme and administration of the end test assessment. Suitably qualified independent S/NVQ assessors who have the necessary expertise and experience can also apply to deliver this training programme. In all cases an up-to-date CV must be provided to CITB for all trainers engaged in delivery of the training programme. Honorariums and guest speaks who can provide individual expertise to support delivery of the programme may also be used, pending approval by CITB.

3.3 Training Programmes

Training Providers will be responsible for producing training programmes in-line with the SQA Units and Training Objectives and the delivery options described in section 2.3. All Programmes must be documented in Lesson Plan style. An example of a typical two day programme is provided at **Appendix D.**

3.4 Trainer Ratios to Trainees

- The maximum number of candidates per course will be **16**
- In cases where practical training sessions are used, the number of learners in any one group must not exceed a maximum of 14 Learners per group, unless a second course tutor is involved.

3.5 Course Handbook

All Learners must be issued with the Course Handbook which IS designed to provide additional information toward understanding the SQA Units. The Handbook must be issued free of charge as an inclusive part of the course fees.

3.6 SQA Learner Registration & Certification

The Course Leader will be responsible for completing the S/VVQ Candidate Registration Forms and the accredited S/NVQ Assessors will be responsible of invigilation and completion of the End Test assessment. CITB National Construction College (NCC) [N/SVQ Accredited Centre] Internal Quality Assurance (IQA) staff will be responsible for the Internal Verification of the Assessment process and compliance with SQA procedures. Approved training organisations will be provided with these procedures and documents separately.

3.7 SQA Learner End Assessment & Assignments

CITB will provide Approved Training Providers with a bank of questions based on the programme objectives. End assessments will take the format and time frame requirements set down by the Awarding Organisation. The outcome and certification of the programme/s will be the SQA Level 3 Award for Energy Efficiency Measure for Older and Traditional Buildings (QCF) SQA Code: GJ32 69: Qualification Code 601/2659/0. The following rules shall apply to end assessments and SQA Certification:-

1 The overall pass mark in the written end assessment is 80%. Learners who achieve this mark or higher will receive the SQA level 3 Award.

2 Learners who achieve less than 80% at the first attempt must be given the opportunity to re-answer the questions they have failed while attending the course and can refer to the course handbook when answering the questions.

3 Learners who achieve a score of less than 80% after re-answering the questions they have already failed once must complete a site based assignment devised by the assessor.

4 Learners who achieve less than 20% at the first attempt are deemed to have failed the course and must be:-

A) Must repeat the course and retake the End Assessment.
or
B) Directed to complete an on-site Assignment set by the course tutor.

3.8 Process Flow Chart & SQA Awarding Body Documentation

Training providers should refer to the process flow chart that sets out the work activities associated with delivering the course and the SQA level 3 Award. Please see **Appendix C.** Training Providers are also required to ensure to the associated S/NVQ Assessment documents that have been agreed with Awarding Body (SQA) and that they are used in the conjunction with the evidence requirements relating to the following:- See example the documents in Appendix F:-

- End Test & Assignments
- Reflective Learning Log
- See Awarding Body Documents in **Appendix F**

3.9 Training Provider Applications

Potential training providers must be issued with a Service Level Agreement (SLA) by the appropriate CITB representative in order to deliver the training programme. Training providers and employers should satisfy themselves that the course and mode of delivery offered has been authorised and approved by CITB. Initially organisations who wish to offer the Energy Efficiency & Retrofit of

Traditional (pre-1919) programmes should apply to the address shown and provide their full contact details including name, address, e-mail and contact telephone number.

CITB
Specialist Projects & Development Team
Units 1 & 2 Venture House
674 Melton Road
Thurmaston
Leicester
LE4 8BB
By e-mail at: nstenquiries@cskills.org
Tel 0300 456 5557

Section 4 Learner Profiling & Initial Assessment

4.1 Knowledge & Skills Scan

Trainers/Assessor must assess learner's current levels of knowledge and experience through initial assessment in order to understand and deliver training that meets each learners needs. This means that previous knowledge and experience should be mapped against the three units in the SQA Level 3 Award. This will also enable the course leader to customise the training programme and estimate potential success rates in SQA End Assessments and identify areas where some learners will be required to complete site based Assignment work.

It is therefore a pre-requisite of the training programme that all learners are provided with the **Knowledge & Skills Scan pro-forma** and for this to be completed and returned to the Training Provider ahead of the training course start date. The document must be used to determine the learner's current level of understanding and experience of working on older buildings in relationship to the requirements of the SQA level 3 Award for Energy Efficiency Measure for Older and Traditional Buildings. Knowledge & Skills Scan must be retained by the Trainer/Assessor for the purpose of Quality Assurance checks by the Awarding Body (SQA)

See **Appendix A** for a copy of the Knowledge & Skills Scan Pro-forma

4.2 Additional Information & CVs and Accreditation of Prior Learning (APL)

Training Providers should ensure that each candidate completes a statement outlining their back ground and job role and work experience. This can be in the form of a CV that highlights experience relative to the SQA Level 3 Award.

Linked to Accreditation of Prior Learning (APL) learners are encouraged to document their work experience including that which specifically relates to Energy Efficiency and Retrofit of Traditional (pre-1919) Buildings as part of the. As such this information should be used by the Assessor when considering additional evidence which can go toward achievement of the SQA level 3 Award. All evidence collected by the trainer/assessor must be retained and made available for Internal & External Quality Assurance purposes. **See suggested pro-forma at Appendix B**

4.3 Learning Styles, Processes

Trainers are required to focus on active participation by learners along with reflective and interactive teaching styles. Interaction is also encouraged with an emphasis on use of work groups. The nature of the training programme content and learning outcomes includes work-based assignments where appropriate. Beyond these requirements, the learning experience should reflect the vocational nature of the training in content and skills provision. Wherever possible this should include application of real life situations in addition to the appropriate theoretical principles and knowledge.

Section 5 Course Training Objectives

5.1 Training Objectives Mapped to the SQA Units

SQA Unit H6MK 69 Mapped to Training Module Objectives	
SQA Unit Title Older & Traditional Buildings: Age, Nature and Characteristics	**Training Objectives**
1 Know the age and construction of older and traditional buildings.	**1. Illustrate the variations in style and construction of pre 1919 buildings including:-**
1.1 Estimate the age of a building.	**1.1** Architectural styles over time including Tudor, Georgian, Victorian and Edwardian etc. and the characteristics of these buildings:-
1.2 Explain the heritage values and significance of older and traditional buildings.	**1.2** Consideration of the chronology of building styles over time including:- • Walls, Roofs, Floors, Openings. • The changing structure of roofs including timber and metal elements Changing masonry types over time
1.3 Identify the materials and construction methods used in older and traditional buildings with specific reference to:- • roofs • walls • floors • doors and windows • chimneys and fireplaces	**1.3** Illustrate the range of materials used in traditional buildings in the following: • Different masonry types including brick, rubble and ashlar • Lime and earth mortars • Traditional renders and surface finishes • Earth construction methods • How to differentiate between solid stone and brick walls and those which are likely to be of modern, cavity construction • Internal wall linings including lath and plaster, plaster on the hard and traditional • Stone, Slate & Thatch & Metal Roofs including Lead coverings and Sarking Boards
1.4 Explain how conservation principles are applied to older and traditional buildings.	**1.4** Make reference Understand the Repair & Maintenance of Traditional Buildings (Ref QCF 546) Also outline principles governing the following:- • Conservation & Restoration • Minimal intervention • Maintenance • Authenticity& Understanding Significance
1.5 Identify local and regional variations of traditional buildings and materials. *Continued*	**1.5** Illustrate Vernacular buildings and give examples of the materials used regionally. *Continued*

SQA H6MK 69 Unit Title Older & Traditional Buildings: Age, Nature and Characteristics. *Continued*	**Training Objective** *Continued*
1.6 Clarify the circumstances where referral to a specialist or recommendation for further analysis or investigation would be appropriate.	**1.6** Explain the roles of Specialists Occupations & Organisations involved in determining the correct approaches to the installation of Energy Efficiency measures available:- • Specialist Architects & Conservation Officers • SPAB,STBA • The UK Heritage Bodies. • Specialist Researchers & Reports See **Appendix E** for Reference information
2 Be able to identify the factors which influence how older and traditional buildings perform and the implications for the introduction of energy efficiency measures. **2.1** Identify the way older and traditional buildings perform with specific reference to:- • how the performance of traditionally constructed buildings differs to modern construction • the breathability and permeability characteristics of traditional building fabric • the geographical location, aspect, orientation and the differing exposure of individual elevations **2.2** Identify the types of heating and ventilation systems in the building. **2.3** Explain the implications of common building defects for energy efficiency measures with specific reference to: • damp and causes of dampness • structural defects *Continued*	**2.1** Provide definitions of the following terms and understanding of how they relate to and in the context of the fabric of traditional buildings • Breathability • Hygroscopicity • Vapour permeability • Capillarity • Surface condensation • Interstitial condensation Also describe and illustrate the movement of moisture in and out of traditional fabric and ways in which this movement can be disrupted and the implication of this. Include illustrations that show the impact on the orientation/ location of the building and weather patterns and the environment. **2.2** Provide information on traditional heating systems such as coal act and current systems: • The range of Heating Systems e.g. unvented/vented • Ground Source Heat Pumps • Simple Ventilation and Mechanical Systems **2.3** Explain ways moisture can enter traditional fabric both externally and internally including consideration of the following: • Internal & External Wall Insulation Systems • Rain water ingress • Excess moisture from building defects • Internal moisture from habitation • Illustrate the impact and structural defects *Continued*

SQA H6MK 69 Unit Title Older & Traditional Buildings: Age, Nature and Characteristics. *Continued*	**Training Objective** *Continued*
2.4 Identify how alterations since the original construction affect the thermal performance of the building.	**2.4** Demonstrate ways in which energy efficiency improvements can affect performance of Traditional Buildings including:- • Impermeable renders and roofing felt • Vapour barriers fitted to walls, floors and roofs • Cement Renders • Modern Internal wall linings including plaster board • Roof coverings including pa • Sash and casement windows • Double Glazing Options • Traditional doors

SQA Unit H6MM 69 Mapped to Training Objectives

SQA Unit Older and Traditional Buildings: Assessing Options for the Introduction of Energy Efficiency Measures	Training Objectives
1 Understand the factors influencing the selection of appropriate energy efficiency measures and materials.	**1 Understand the role of the Building Regulations in setting energy efficiency standards for traditional pre-1919 dwellings, including**
1.1 Assess the implications of existing building defects in relation to the choice of energy efficiency measures.	**1.1** Building Regulations compliance requirements for the thermal upgrade of traditional and historic pre-1919 dwellings including the following:- • Methodologies, critical data requirements and assumptions of Standard Assessment Procedure (SAP), Reduced data Standard Assessment Procedure (RdSAP) and Energy Performance Certificates (EPCs) in relation to traditional pre-1919 dwellings • Principles of U-values, thermal bridging and thermal mass • Identify the assumed and actual U-values for certain construction elements of traditional pre-1919 dwellings • Key factors that may lead to a gap between predicted and actual energy performance
1.2 Interpret the implications of occupant behaviour on proposed energy efficiency measures.	**1.2** Illustrate the energy performance of traditional buildings in relationship to the usage by the occupants and identify the impact of behaviours.
1.3 Identify the implications of the relevant legal and regulatory requirements with particular reference to: • planning permission • listed building consent • conservation areas • local listing • scheduled monuments • national building regulations	**1.3** Provide information on the items listed opposite in relationship to the following Building Regulations documents:- • Summary of requirements for new dwellings (Approved Document L1A) • Summary of requirements for existing dwellings (Approved Document L1B) • Exemptions for listed buildings • 'Special consideration' categories • U-value standards for renovated / retained thermal elements • Approved Document L1B Appendix 1 – reference to flexibility in standards and achieving best standards possible
Continued	*Continued*

SQA Unit Older and Traditional Buildings: Assessing Options for the Introduction of Energy Efficiency Measures	Training Objectives
1.4 Outline the technical risks associated with the energy efficiency measures in relation to: • thermal bridges (cold bridges) • ventilation • thermal bypass • condensation and interstitial • alterations in structure • moisture movement	**1.4** List the potential results and possible unintended consequences of the installation of measures in relation to the following: • Moulds & Spores and the impact on the health of occupants • Unsuitable ventilation systems and potential risks • The impact of dampness on structural components such as walls, floor and roof timbers • The impact on the structure of the building by the introduction of EE measures. E.g. Solar Panels etc.
1.5 Assess the impact and consequences of using unsuitable interventions or inappropriate energy performance measures.	**1.5** Explain the impact on:- • Energy Bills/Fuel Poverty/ECO • The ascetics of the building and the environment • Financial Implications of replacement systems
1.6 Explain the limitations of using default U-values in RdSAP (or approved software) for older and traditional buildings and their impact on the energy rating and recommended energy efficiency measures in the EPC	**1.6** Explain how U Values are calculated and how RDSAP is used in the assessment of older traditional buildings leading to the issue of the EPC. Describe how the how the energy rating is determined.
1.7 Explain in what circumstances calculated U-values or in-situ measured U-values should be used, the issues to be aware of and appropriate sources or processes to obtain these.	**1.7** Utilise Case studies to illustrate and explain issues highlighted in UK Heritage Technical Papers relative to the measurement of the building energy performance.
2 Know energy efficiency measures and materials	**2. Illustrate with images and drawings the range of energy efficiency measures available in the context of pre 1919 traditional buildings.**
2.1 Outline a range of materials and techniques appropriate to older and traditional buildings.	**2.1** Illustrate examples of Solar, External and Internal Render systems available. • Illustrate the (approx.) 45No energy efficiency measures available to businesses and house holders.
2.2 Assess the effects of energy efficiency measures in combination with each other.	**2.2** Present examples of EE measures that have been installed in relationship to their compatibility: i.e. • EWI Systems and double glazing • IWI Systems and Damp Penetration • Draft Proofing and Ventilation requirements.
Continued	*Continued*

SQA Unit Older and Traditional Buildings: Assessing Options for the Introduction of Energy Efficiency Measures Continued	**Training Objectives**
2.3 Identify when the energy efficiency measures need to be adapted to older and traditional buildings due to: • existing building structure • detailing • services • the heritage values and significance of the building • technical risks • cases where energy efficiency • measures cannot be recommended	**2.3** Describe how conservation practice relates to installation of energy efficiency improvements in the context of the following and describe how they relate to one another:- • Conservation, • Restoration • Repair and maintenance Description of the following conservation principles: • Minimal intervention • Like for like materials • Conserve as found / retention of original fabric • Reversibility • Documentation • Legibility • Respect for age and patina ***Set Discussion Groups to determine what it means for a building to be listed and the additional planning requirements necessary in the case of the following making reference to specific energy measures in relationship to:-*** • Conservation areas • National Parks • Listed Buildings

SQA Unit H6MN69 Mapped to Training Objectives

SQA Unit Older & Traditional Buildings: Making Recommendations & Giving Advice on the Introduction of Energy Efficiency Measures	Training Objectives
1 Be able to make recommendations and give advice on the introduction of energy efficiency measures in older and traditional buildings	**1 Provide an overview and illustrate a range of common energy efficiency measures currently in use. Reference the following:** • The definition of Fuel Poverty • Define ECO • Outline the Green Deal and its recent demise • Present a list of all 45 EE measures available.
1.1 Review and revise measures from reports or surveys based on: • an understanding of the building the range of options available and appropriate to the building • the likely effectiveness and value for money of measures to improve energy performance • the repairs needed prior to the installation of the measures	**1.1** Outline the features of a Survey Report and the processes involved in establishing the report and projected EPC focussing on pre 19191 building to illustrate:- The impact on the fabric and appearance of the building • Cost savings versus capital expenditure • Examples showing the need for remedial work prior to the installation of EE Measures.
1.2 Justify the selection of energy efficiency measures including: • when the energy efficiency performance of the proposed measure does not meet U-values prescribed in national building regulations • rationale for why energy efficiency measures may, or may not, have been selected • specific design, installation or operational features used to minimise the impact of the chosen energy efficiency measures on the building	**1.2** Explain circumstances and provide examples where the outputs from the energy efficiency measures installed fall short of the expected performance and EPC ratings relating to:- • Consideration of the alternative measures available at the time or as a solution to a problem • Cost versus investment. • Suitability of Energy Efficiency measures in the context of the building and the environment. • Poor installation of the Energy Efficiency measures and competence of the installer/s
1.3 Summarise the suitability of energy efficiency measures selected and their implications.	**1.3** Illustrate examples of good and bad practice concerning the following in the context of pre 1919 buildings including:- • Examples of successful EE measures installed • Illustrations the demonstrate best practice
1.4 Explain the requirements for the delivery of the energy efficiency measures including:- • The packaging and sequencing of measures • Any repairs needed to enable them • Any works needed to protect the building or its features • Any on-going maintenance	**1.4** Provide information on examples of energy efficiency **on** • Preparing for the installation of measures • Access to the works and protection of the building and safety issues including risk assessments • Considerations concerning occupiers • Access for on-going maintenance and maintenance schedules • The costs of on-going servicing/ maintenance.

5.2 Training Objective Minimum Delivery Times

The table below illustrates the minimum duration for delivery of the 2 day programme which comprises of at least 6 hours of class contact time on each of the days. This excludes all breaks taken during the course. The table below shows the pattern of delivery to be followed. It is the responsibility of the training provider or course tutor to ensure that the training objectives are covered over the (12) sessions. It is expected that the final Sessions at the end of each day will be used to complete SQA end assessments.

Day One			Day Two		
Session Number	**Timing**	**Duration Hours**	**Session Number**	**Timing**	**Duration Hours**
1	**9:00 - 10:00**	**1.00**	**7**	**9:00 - 10:00**	**1.00**
Break	**10:00 - 10:15**	**-**	**Break**	**10:00 - 10:15**	**-**
2	**10:15 – 12:30**	**2.25**	**8**	**10:15 – 12:30**	**2.25**
Lunch	**12:30 – 1:30**	**-**	**Lunch**	**12:30 – 1:30**	**-**
3	**1:30 – 2:00**	**0.5**	**9**	**1:30 – 2:00**	**0.5**
4	**2:00 – 3:00**	**1:00**	**10**	**2:00 – 3:00**	**1:00**
Break	**3:00 – 3:15**	**-**	**Break**	**3:00 – 3:15**	**-**
5	**3:15 – 4:00**	**0.75**	**11**	**3:15 – 4:00**	**0.75**
6	**4:00 – 4:30**	**0.5**	**12**	**4:00 –4:30**	**0.5**
Total Class Contact Time		**6 Hours**	**Total Class Contact Time**		**6 Hours**

It is acknowledged that for 3 and 5 day courses that the above patterns will be subject to change. It is however the responsibility of the approved training provider to submit a training programme that ensures coverage of the course training objectives to the CITB staff member responsible for the programme. **Appendix D** provides an example of the 2 day programme.

5.3 SQA Units & Training Durations

SQA Unit Older & Traditional Buildings: Age, Nature and Characteristics	**Study Areas**	**Minimum Duration**
1.1 Estimate the age of a building.	Understanding the chronology, building styles, age and characteristics of Traditional (pre-1919) buildings Understanding how the thermal performance and energy and efficiency of Traditional (pre-1919) Buildings are assessed. Understanding the range of available energy efficiency systems and measures available	**4 Hours**
1.2 Explain the heritage values and significance of older and traditional buildings.		
1.3 Identify the materials and construction methods used in older and traditional buildings with specific reference to		
1.4 Explain how conservation principles are applied to older and traditional buildings		
1.5 Identify local and regional variations of traditional buildings and materials		
1.6 Clarify the circumstances where referral to a specialist or recommendation for further analysis or investigation would be appropriate.		
2.1 Identify the way older and traditional buildings perform		
2.2 Identify the types of heating and ventilation systems in the building.		
2.3 Explain the implications of common building defects for energy efficiency measures with specific reference to:		

SQA Unit Assessing Options for the Introduction of Energy Efficiency Measures	Study Areas	Minimum Duration
1.1 Assess the implications of existing building defects in relation to the choice of energy efficiency measures.	Understanding how the thermal performance and energy and efficiency of Traditional (pre-1919) Buildings are assessed. Understanding the impact of the Installation of retrofit of energy efficiency measures to Traditional (pre-1919) Buildings and Installation of Energy Efficiency Measures in relationship to Craft Occupations.	**5 Hours**
1.2 Interpret the implications of occupant behaviour on proposed energy efficiency measures.		
1.3 Identify the implications of the relevant legal and regulatory requirements with particular reference to		
1.4 Outline the technical risks associated with the energy efficiency measures in relation to:		
1.5 Assess the impact and consequences of using unsuitable interventions or inappropriate energy performance measures.		
1.6 Explain the limitations of using default U-values in RdSAP (or approved software) for older and traditional buildings and their impact on the energy rating and recommended energy efficiency measures in the EPC		
1.7 Explain in what circumstances calculated U-values or in-situ measured U-values should be used, the issues to be aware of and appropriate sources or processes to obtain these.		
2.1 Outline a range of materials and techniques appropriate to older and traditional buildings.		
2.2 Assess the effects of energy efficiency measures in combination with each other.		
2.3 Identify when the energy efficiency measures need to be adapted to older and traditional buildings		
SQA Making Recommendations & Giving Advice on the Introduction of Energy Efficiency Measures	**Study Areas**	**Minimum Duration**
Review and revise measures from reports or surveys	Understanding the range of available energy efficiency systems and measures available	**3 Hours**
Justify the selection of energy efficiency measures		
Summarise the suitability of energy efficiency measures selected and their implications		
Explain the requirements for the delivery of the energy efficiency measures		

5.4 Table showing SQA Units Cross Mapped to SQA Units

SQA Units	SQA Unit Elements	Course Training Objectives										
Unit 1 Older and Traditional Buildings: Age, Nature and Characteristics		**1.1**	**1.2**	**1.3**	**1.4**	**1.5**	**1.6**	**1.7**	**2.1**	**2.2**	**2.3**	**2.4**
1 Know the age and construction of older and traditional buildings.	**1.1**	**Y**										
	1.2		**Y**									
	1.3			**Y**								
	1.4				**Y**							
	1.5					**Y**						
	1.6						**Y**					
2 Be able to identify the factor which influence how older and traditional buildings perform a the implications for the introduction of energy efficien measures.	**2.1**								**Y**			
	2.2									**Y**		
	2.3										**Y**	
	2.4											**Y**
Unit 2 Older and traditional buildings: Assessing options for the introduction of energy efficiency measures		**Course Training Objectives**										
		1.1	**1.2**	**1.3**	**1.4**	**1.5**	**1.6**	**1.7**	**2.1**	**2.2**	**2.3**	**2.4**
1 Understand the factors influencing the selection of appropriate energy efficiency measures and materials.	**1.1**	**Y**										
	1.2		**Y**									
	1.3			**Y**								
	1.4				**Y**							
	1.5					**Y**						
	1.6						**Y**					
2 Know energy efficiency measures and materials	**2.1**							**Y**				
	2.2								**Y**			
	2.3									**Y**		

SQA Units	SQA Unit Elements	Course Training Objectives										
Unit 3 Making Recommendations and Giving Advice on the Introduction of Energy Efficiency Measures		**1.1**	**1.2**	**1.3**	**1.4**	**1.5**	**1.6**	**1.7**	**2.1**	**2.2**	**2.3**	**2.4**
3. Be able to make recommendations and give advice on the introduction of energy efficiency measures in older and traditional buildings.	**1.1**	**Y**										
	1.2		**Y**									
	1.3			**Y**								
	1.4				**Y**							

Appendix A

Energy Efficiency & Retrofit of Pre 1919 Traditional Buildings
Learner Knowledge & Skills Scan

This Knowledge & Skill Scan must be completed as part of the training & certification programme and is designed ensure the overall training provided is at a level which meets the needs of the learner. Therefore please tick the appropriate boxes to indicate your current knowledge in the subject areas listed below. The completed form should be emailed to your course tutor at least one week before commencement of the first day of training. This may result in your tutor directing you towards some pre course reading or to undertake an exercise. Where appropriate, learners may also submit details of other related knowledge on the APL Forms provided below.

Learner Occupation.....

Learner Name.....**date**.....

Please tick the appropriate boxes to indicate the areas of knowledge you currently possess. √

SQA Unit H6MK 69 **Older and Traditional Buildings: Age, Nature and Characteristics**		**yes**	**not sure**	**no**
1 Know the age and construction of older and traditional buildings.	Estimate the age of a building.			
	Explain the heritage values and significance of older and traditional buildings.			
	Identify the materials and construction methods used in older and traditional buildings with specific reference to: • roofs • walls • floors • doors and windows • chimneys and fireplaces			
	Explain how conservation principles are applied to older and traditional buildings.			
	Identify local and regional variations of traditional buildings and materials.			
	Clarify the circumstances where referral to a specialist or recommendation for further analysis or investigation would be appropriate.			
2 Be able to identify the factors which Influence how older and traditional buildings perform and the implications for the introduction of energy efficiency measures. *Continued*	Identify the way older and traditional buildings perform with specific reference to: • how the performance of traditionally constructed buildings differs to modern construction • the breathability and permeability characteristics of traditional building fabric • the geographical location, aspect, orientation and the differing exposure of individual elevations			

SQA Unit H6MK 69 Older and Traditional Buildings: Age, Nature and Characteristics *Continued*		yes	not sure	no
2 Be able to identify the factors which Influence how older and traditional buildings perform and the implications for the introduction of energy efficiency measures.	Identify the types of heating and ventilation systems in the building			
	Explain the implications of common building defects for energy efficiency measures with specific reference to: • damp and causes of dampness • structural defects			
	Identify how alterations since the original construction affect the thermal performance of the building.			
SQA Unit H6MM 69 **Older and Traditional Buildings: Assessing Options for the Introduction of Energy Efficiency Measures**		**yes**	**not sure**	**no**
1 Understand the factors influencing the selection of appropriate energy efficiency measures and materials	Assess the implications of existing building defects in relation to the choice of energy efficiency measures.			
	Interpret the implications of occupant behaviour on proposed energy efficiency measures.			
	Identify the implications of the relevant legal and regulatory requirements with particular reference to: • planning permission • listed building consent • conservation areas • local listing • scheduled monuments • national building regulations			
	Outline the technical risks associated with the energy efficiency measures in relation to: • thermal bridges (cold bridges) • ventilation • thermal bypass • condensation and interstitial condensation • alterations in structure • moisture movement			
	Assess the impact and consequences of using unsuitable interventions or inappropriate energy performance measures.			
continued	Explain the limitations of using default U-values in RdSAP (or approved software) for older and traditional buildings and their impact on the energy rating and recommended energy efficiency measures in the EPC. *continued*			

SQA Unit H6MM 69 Older and Traditional Buildings: Assessing Options for the Introduction of Energy Efficiency Measures		yes	not sure	no
1 Understand the factors influencing the selection of appropriate energy efficiency measures and materials	Explain in what circumstances calculated U-values or in-situ measured U-values should be used, the issues to be aware of and appropriate sources or processes to obtain these.			
2 Know energy efficiency measures and materials.	Outline a range of materials and techniques appropriate to older and traditional buildings.			
	Assess the effects of energy efficiency measures in combination with each other.			
	Identify when the energy efficiency measures need to be adapted to older and traditional buildings due to: • existing building structure • detailing • services • the heritage values and significance of the building • technical risks • cases where energy efficiency measures cannot be recommended			
SQA Unit H6MN 69 Older and Traditional Buildings: Making Recommendations and Giving Advice on the Introduction of Energy Efficiency Measures		**yes**	**not sure**	**no**
1 Be able to make recommendations and give advice on the introduction of energy efficiency measures in older and traditional buildings. *Continued*	Review and revise measures from reports or surveys based on: • an understanding of the building • the range of options available and appropriate to the building • the likely effectiveness and value for money of measures to improve • energy performance • the repairs needed prior to the installation of the measures			
	Justify the selection of energy efficiency measures including: • when the energy efficiency performance of the proposed measure does not meet U-values prescribed in national building regulations. • rationale for why energy efficiency measures may, or may not, have been selected			

SQA Unit H6MN 69 Older and Traditional Buildings: Making Recommendations and Giving Advice on the Introduction of Energy Efficiency Measures		yes	not sure	no
1 Be able to make recommendations and give advice on the introduction of energy efficiency measures in older and traditional buildings	• specific design, installation or operational features used to minimise the impact of the chosen energy efficiency measures on the building. • Summarise the suitability of energy efficiency measures selected and their implications.			
	Explain the requirements for the delivery of the energy efficiency measures including: • the packaging and sequencing of measures • any repairs needed to enable them • any works needed to protect the building or its features • any ongoing maintenance requirements			
Training providers notes on the responses provided				
Trainer's Remarks/Observations **Trainer's signature** **Date**				
Learners Signature **Date**				

Appendix B **APL Prior Knowledge and Understanding**

Learners can record any existing knowledge, previous experience or qualifications they have in the sections below in relationship to the Energy Efficiency of Pre 1919 Buildings as additional evidence to support the achievement of the SQA Award.

Understanding the Chronology, Building Styles, Age & Characteristics of Traditionally Constructed Pre-1919Buildings	
Understanding how the Thermal Performance & Energy Efficiency of Pre 1919 Buildings are assessed	
Understanding the Impact of the Installation of Retrofit Energy Efficiency Measures to Pre 1919 Traditional Buildings	
Understanding the Range Installation of Energy Efficient Systems to Pre-1919 buildings	
The Installation of Energy Efficiency Measures in Relationship to Craft Occupations	
Roof Slating and Tiling	
Lead Work	
Solid Wall Construction including stone, brick, block, earth etc.	
Carpentry and Joinery including structural timber	
Plastering solid or fibrous	

The Installation of Energy Efficiency Measures in Relationship to Craft Occupations
Glazing
Wall and Floor tiling

Declaration of Applicant

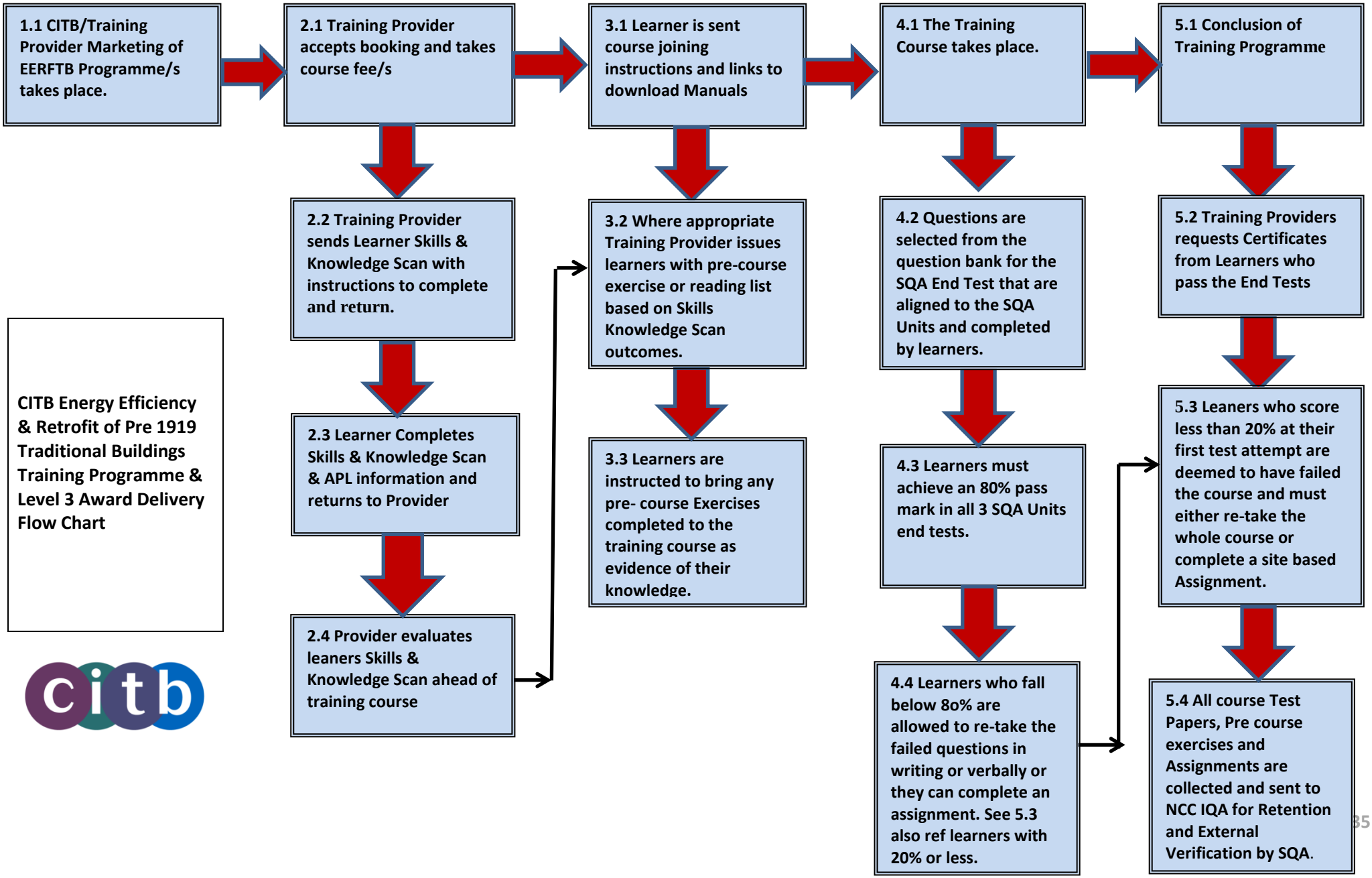
I submit this form and additional documentation as an accurate record in support of my initial assessment. I agree to accept the decision of the tutor in determining my profile and training needs.

Signature of applicant: _____
Date: _____/_____/_____

Disclosure — Data Protection Act 1984
In compliance with the Data Protection Act, we must point out that the information on this form will be kept on a database. —

Appendix C

Process Flow Chart



CITB Energy Efficiency & Retrofit of Pre 1919 Traditional Buildings Training Programme & Level 3 Award Delivery Flow Chart

Appendix D **2 Day Programme**

Day 1					
Time	**Presenter**	**Learning Objectives**	**Key Points**	**Resources**	**Delegate Activities**
9.00		Introduction & Overview to the 2 Day Programme etc. ***Explain SQA Modules & Assessments*** Overview of the current issues surrounding Energy Efficiency Retrofit Market,	• Skills & Knowledge Scan Feedback • SQA Qualification & Registration • Overview of the three SQA Units, • End Assessments, Assignments • Overview of Course manuals • The discontinuation of the Green Deal • ECO • Approved Installer Requirements(QCF, Aligned Training Programmes, Competent Worker Schemes and Manufacturer Training • Roles of others including surveyors, architects, engineers, project managers & supervisors.	Power points ***SQA Reg Forms*** ***Skill Scan Form*** ***Course Manuals***	***Completion of any SQA Paper work***
10.00		***SQA Unit H6MK 69*** Understanding the Chronology, Building Styles and Age characteristics of Traditional Buildings	• Outline Unit Requirements & Assessment Criteria • Conservation Practice & Philosophy • Basic Principals of Conservation & Appreciation of Heritage Conservation & Values	Power Points Videos ***Course Manual***	
10:00 10:15	**Break**				
10.15		Traditional Construction Methods	• Vernacular Buildings • Walls, Roofs, Floors Openings • Moisture Movement, Thermal performance, Ventilation, Maintenance,	Power Points Case Studies Videos	
12.30 1.30	**Break**				

Time	Presenter	Learning Objectives	Key Points	Resources	Delegate Activities
1.30		Understanding how the Thermal Performance & Energy Efficiency of Pre 1919 Traditional Building is assessed	• Reduce Data Standard Assessment Procedures (RdSAP) • Methods for Monitoring the Thermal Performance of Traditional Buildings	***Course Manuals*** Power Points Videos Case Studies Hand outs	
3.00 3.15	Break				
3:15		The Installation of EE measures in relationship to Craft Occupations	• Roof Slating & Tiling • Lead Work • Solid Wall Construction including, stone, brick, earth, etc. • Carpentry & Joinery including structural timber • Plastering (solid & fibrous) • Glazing • Wall & Floor Tiling	***Course Manuals*** Power Points Videos Case Studies Hand outs	
4.00		Summary of Days Topics and Questions on the issues covered:	• ***Completion of SQA Module End Assessment/Test***	Test Paper	***Completion of SQA End Tests***
4.30	**Close**				

Day 2					
Time	**Presenter**	**Learning Objectives**	**Key Points**	**Resources**	**Delegate Activities**
9..30		The Installation of EE measures in relationship to Craft Occupations	• Roof Slating & Tiling • Lead Work • Solid Wall Construction including, stone, brick, earth, etc. • Carpentry & Joinery including structural timber • Plastering (solid & fibrous) • Glazing • Wall & Floor Tiling		
11:00	**Break**				
11.15		**Understanding the impact of the Installation of Retrofit of Energy Efficiency Measure**	• Understanding the application of Insulation Systems to Solid Walls & Solid Masonry: (External and Internal Wall Insulation). • Cavity Walls/Spaces. • Historic Heavy Timber. • Earth Walls. • Solid Flooring. • Insulation Range of Types of Windows and Associated Furniture. • Draft Proofing • Ventilation Systems • Insulation of External Doors. • Suspended Timber Floor Insulation. Roofs.		
12.30	Lunch				
1.30		**Understanding the Range of Energy Efficiency Measures**	Overview of available Measures Identify and understand individual measures	Power Points Videos	
2.45	Break				

Day 2 continued					
Time	**Presenter**	**Learning Objectives**	**Key Points**	**Resources**	**Delegate Activities**
3.00		**STBA: Guidance Wheel,** **Moisture Risk Assessment** ***Overview of Risk Assessments on Older Traditional Buildings*** ***Sources of Advice and Guidance***	• Accessing and using the Guidance Wheel and Guidance Wheel Reports • **Understanding Moisture Risk Assessment** • **Planning Responsible Retrofit of Traditional Buildings**	Internet Access Power Points STBA Publications STBA Publications	Delegates may need their lap tops
4.00		**Course summary & assessment and close** **Assignment Instructions to Candidates where appropriate**	• ***Completion of Modules End Assessment*** • ***Set Assignments where appropriate***	***End Test papers & Assignments***	***Completion of SQA Module End Tests 2 & 3***
4.30	Close				

	Author	Publication / Website	Date
1	BRE	SAP 2009: The Government's Standard Assessment Procedure for Energy Rating of Dwellings – 2009 Edition (http://www.bre.co.uk/filelibrary/SAP/2009/SAP-2009_9-90.pdf)	2011
2	BRE	SAP Conventions v.5.0 (http://www.bre.co.uk/filelibrary/accreditation/sap_conventions/v5/130912_SAP_Conventions-Issuev5_0.pdf)	2013
3	BRE	Conventions for U-value Calculations: 2006 Edition (http://www.bre.co.uk/filelibrary/pdf/rpts/BR_443_(2006_Edition).pdf)	2006
5	Changeworks	Energy Heritage – A Guide to Improving Energy Efficiency in Traditional and Historic Homes (http://consultancy.changeworks.org.uk/assets/uploads/83096-EnergyHeritage_online1.pdf)	2008
6	Changeworks	Double Glazing in Listed Buildings – Project Report (http://consultancy.changeworks.org.uk/assets/uploads/Double_Glazing_In_Listed_Building_-_Project_Report_(Changeworks_2010).pdf)	2010
7	Changeworks	Solid Wall Insulation in Scotland (report & conference presentations) (http://www.changeworks.org.uk/projects/solid-wall-conference/640/)	2012
8	Changeworks	Guide to Insulating Hard-To-Treat Cavities (http://consultancy.changeworks.org.uk/technical-guides.html)	2013
10	Consumer Focus Scotland	Communal Improvements: Energy Efficiency in Tenements in Scotlandhttp://www.consumerfutures.org.uk/files/2013/05/Communal-improvements.pdf	2013

11	Edinburgh World Heritage	Historic Home Guide: Energy Efficiency (2012, http://www.ewht.org.uk/uploads/downloads/Energy%20Efficiency%20Guidebook%20Final.pdf)	2012
12	Energy Saving Trust	General advice / Technical reports & guidance (http://www.energysavingtrust.org.uk/)	
13	English Heritage	Energy Efficiency and Historic Buildings: Application of Part L of the Building Regulations to Historic and Traditionally Constructed Buildings (http://www.english-heritage.org.uk/publications/energy-efficiency-historic-buildings-ptl/eehb-partl.pdf)	2012
14	English Heritage	Energy Efficiency and Historic Buildings: Insulating Roofs at Rafter Level (http://www.english-heritage.org.uk/publications/eehb-insulating-pitched-roofs-rafter-level-warm-roofs/eehb-warm-roofs.pdf)	2012
15	English Heritage	Energy Efficiency and Historic Buildings: Insulating Roofs at Ceiling Level (http://www.english-heritage.org.uk/publications/eehb-insulating-pitched-roofs-ceiling-level-cold-roofs/eehb-cold-roofs.pdf)	2012
16	English Heritage	Energy Efficiency and Historic Buildings: Insulating Flat Roofs (http://www.english-heritage.org.uk/publications/eehb-insulating-flat-roofs/eehb-insulating-flat-roofs.pdf)	2012
17	English Heritage	Energy Efficiency and Historic Buildings: Insulating Thatched Roofs (http://www.english-heritage.org.uk/publications/eehb-insulating-thatched-roofs/eehb-insulating-thatched-roofs.pdf)	2012
18	English Heritage	Energy Efficiency and Historic Buildings: Open Fires, Chimneys and Flues (http://www.english-heritage.org.uk/publications/eehb-open-fires-chimneys-flues/eehb-chimneys-flues.pdf)	2012
19	English Heritage	Energy Efficiency and Historic Buildings: Insulating Timber-framed Walls (http://www.english-heritage.org.uk/publications/eehb-insulating-timber-framed-walls/eehb-timber-framed-walls.pdf)	2012

20	English Heritage	Energy Efficiency and Historic Buildings: Insulating Solid Walls (http://www.english-heritage.org.uk/publications/eehb-insulating-solid-walls/eehb-insulating-solid-walls.pdf)	2012
21	English Heritage	Energy Efficiency and Historic Buildings: Early Cavity Walls (http://www.english-heritage.org.uk/publications/eehb-early-cavity-walls/eehb-early-cavity-walls.pdf)	2012
22	English Heritage	Energy Efficiency and Historic Buildings: Insulating Dormer Windows (http://www.english-heritage.org.uk/publications/eehb-insulating-dormer-windows/eehb-insulating-dormers.pdf)	2012
23	English Heritage	Energy Efficiency and Historic Buildings: Draught-proofing Windows and Doors (http://www.english-heritage.org.uk/publications/eehb-draught-proofing-windows-doors/eehb-draught-proofing-windows-doors.pdf)	2012
24	English Heritage	Energy Efficiency and Historic Buildings: Secondary Glazing for Windows (http://www.english-heritage.org.uk/publications/eehb-secondary-glazing-windows/eehb-secondary-glazing-windows.pdf)	2012
25	English Heritage	Energy Efficiency and Historic Buildings: Insulation of Suspended Timber Floors (http://www.english-heritage.org.uk/publications/eehb-insulation-suspended-timber-floors/eehb-insulation-suspended-floors.pdf)	2012
26	English Heritage	Energy Efficiency and Historic Buildings: Insulating Solid Ground Floors (http://www.english-heritage.org.uk/publications/eehb-insulating-solid-ground-floors/eehb-insulating-solid-ground-floors.pdf)	2012
27	English Heritage	External Wall Insulation in Traditional Buildings: Research Report 2013	2013
28	Historic Scotland	Short Guide: Fabric Improvements for Energy Efficiency in Traditional Buildings (http://conservation.historic-scotland.gov.uk/fabric-improvements-traditional-buildings.pdf)	2012
29	Historic	Technical Paper 1: Thermal Performance of Traditional Windows – Revision (http://www.historic-	2010

	Scotland	scotland.gov.uk/thermal_performance_of_traditional_windows_2010.pdf)	
30	Historic Scotland	Technical Paper 2: In Situ U-value Measurements in Traditional Buildings – Preliminary Results (http://www.historic-scotland.gov.uk/u-value_measurements_traditional_buildings.pdf)	2008
31	Historic Scotland	Technical Paper 6: Indoor Air Quality and Energy Efficiency in Traditional Buildings (http://www.historic-scotland.gov.uk/traditional-buildings-air-quality-energy-efficiency.pdf)	2009
32	Historic Scotland	Technical Paper 7: Embodied Carbon in Natural Building Stone in Scotland (http://www.historic-scotland.gov.uk/embodied-carbon-in-natural-building-stone-in-scotland-2.pdf)	2010
33	Historic Scotland	Technical Paper 9: Slim-profile Double Glazing (http://www.historic-scotland.gov.uk/slim-profile_double_glazing_2010.pdf)	2010
34	Historic Scotland	Technical Paper 9: Slim-profile Double Glazing – Report 1 Spreadsheet (http://www.historic-scotland.gov.uk/index/heritage/technicalconservation/conservationpublications/technicalpapers.htm)	2010
5	Historic Scotland	Technical Paper 10: U-values and Traditional Buildings (http://www.historic-scotland.gov.uk/index/heritage/technicalconservation/conservationpublications/technicalpapers.htm)	2010
36	Historic Scotland	Technical Paper 11: Scottish Renaissance Interiors (http://www.historic-scotland.gov.uk/technicalpaper11.pdf)	2011
37	Historic Scotland	Technical Paper 13: Embodied Energy Considerations for Existing Buildings (http://www.historic-scotland.gov.uk/technicalpaper13.pdf)	2011
38	Historic Scotland	Technical Paper 15: Assessing Insulation Retrofits with Hygrothermal Simulations – Heat and Moisture Transfer in Insulated Solid Stone Walls (http://www.historic-scotland.gov.uk/index/heritage/technicalconservation/conservationpublications/technicalpapers.htm)	Pending

39	Historic Scotland	Technical Paper 19: Monitoring Thermal Upgrades to Ten Traditional Properties (http://www.historic-scotland.gov.uk/techpaper19.pdf)	2013
40	Historic Scotland	Technical Paper 20: Slim-profile Double Glazing in Listed Buildings – Re-measuring the Thermal Performance (http://www.historic-scotland.gov.uk/hs-technical-paper20.pdf)	2013
41	Historic Scotland	Historic Scotland Refurbishment Case Study 1: Five Edinburgh Tenement Flats – Wall and Window Upgrades (http://www.historic-scotland.gov.uk/refurb-case-study-1.pdf)	2012
42	Historic Scotland	Historic Scotland Refurbishment Case Study 2: Wells O' Wearie, Edinburgh – Thermal Upgrades to Walls, Roof, Floors and Glazing (http://www.historic-scotland.gov.uk/refurb-case-study-2.pdf)	2012
43	Historic Scotland	Historic Scotland Refurbishment Case Study 3: Wee Causeway, Culross – Insulation to Walls and Roof (http://www.historic-scotland.gov.uk/refurb-case-study-3.pdf)	2012
44	Historic Scotland	Historic Scotland Refurbishment Case Study 4: Sword Street, Glasgow – Internal Wall Insulation to Six Tenement Flats (http://www.historic-scotland.gov.uk/refurb-case-study-4.pdf)	2012
45	Historic Scotland	Historic Scotland Refurbishment Case Study 5: The Pleasance, Edinburgh – Insulation of Coom Ceiling, Attic Space and Lightwell (http://www.historic-scotland.gov.uk/index/heritage/technicalconservation/conservationpublications/refurbcasestudies.htm)	Pending
46	Historic Scotland	Historic Scotland Refurbishment Case Study 6: Kildonan, South Uist – Insulation to Walls, Roof and Windows (http://www.historic-scotland.gov.uk/refurb-case-study-6.pdf)	2012
47	Historic Scotland	Historic Scotland Refurbishment Case Study 7: Scotstarvit Tower, Cupar (http://www.historic-scotland.gov.uk/refurb-case-study-7.pdf)	2012
48	Historic Scotland	Historic Scotland Refurbishment Case Study 8: Garden Bothy, Cumnock – Upgrades to Walls, Floors, Windows and Doors (http://www.historic-scotland.gov.uk/refurb-case-study-8-garden-bothy-cumnock.pdf)	2012

49	HM Government	The Building Regulations 2010: Approved Document L1A – Conservation of Fuel and Power (New Dwellings) (http://www.planningportal.gov.uk/uploads/br/BR_PDF_AD_L1A_2010_V2.pdf)	2010
50	HM Government	The Building Regulations 2010: Approved Document L1B – Conservation of Fuel and Power (Existing Dwellings) (http://www.planningportal.gov.uk/uploads/br/BR_PDF_AD_L1B_2011.pdf)	2010
51	HM Government	The Building Regulations 2010: Amendments to the Approved Documents (http://www.planningportal.gov.uk/uploads/br/approved-documents-amends-list_2013.pdf)	2013
52	SPAB	The SPAB Research Report 1: U-value Report (http://www.spab.org.uk/downloads/SPABU-valueReport.Nov2012-v2.pdf)	2012
53	SPAB	The SPAB Research Report 2: The SPAB Building Performance Survey: 2011 Interim Report (http://www.spab.org.uk/downloads/BPS_SPABInterimReportOct2011-1.pdf)	2011
54	SPAB	The SPAB Research Report 2: The SPAB Building Performance Survey: 2012 Interim Report (http://www.spab.org.uk/downloads/SPAB%20Building%20Performace%20Survey%202012%20Report%202.pdf)	2012
55	SPAB	The SPAB Research Report 2: The SPAB Building Performance Survey: 2013 Interim Report (https://www.spab.org.uk/downloads/Courses%202014/SPAB_BPSReport%202013Final.pdf)	2013
56	SPAB	The SPAB Research Report 3: Hygrothermal Modelling: Interim Report (http://www.spab.org.uk/downloads/SPAB%20Hygrothermal%20Modelling%20Report%203.pdf)	2012
57	STBA	Responsible Retrofit of Traditional Buildings (http://www.sdfoundation.org.uk/downloads/RESPONSIBLE-RETROFIT_FINAL_20_SEPT_2012.pdf)	2012
58	STBA	Performance and Energy Efficiency of Traditional Buildings: Gap Analysis Study (http://www.sdfoundation.org.uk/downloads/STBA-Gap-Analysis-Study-Performance-and-Energy-Efficiency-of-Traditional-Buildings-Final-Version-(2).pdf)	2012
59	STBA	Moisture Guidance paper (http://stbauk.org/)	2014

60	STBA	Responsible Retrofit Guidance Wheel (http://stbauk.org/)	2013
61	Suhr, M. & Hunt, R.	Old House Eco Handbook	2013
62	Sustainable Uist	Uist Hard-To-Treat Housing Project 2011-12 Final Report – Parts 1 & 2	2012

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