



Arrangements for:
National Progression Award (NPA):
Building Services Engineering
at SCQF level 5

Group Award Code: GD23 45

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Acknowledgement

SQA acknowledges the valuable contribution that Scotland's colleges have made to the development of National Qualification Group Awards.

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1 Introduction

This is the Arrangements Document for the new National Progression Award: Building Services Engineering at SCQF level 5, which was validated in August 2011. This document includes: background information on the development of the Group Award, its aims, guidance on access, details of the Group Award structure, and guidance on delivery.

2 Rationale for the development of the Group Award

The Building Services Engineering (BSE) sector is acutely aware of the demographic issues facing Scotland whereby the working population is ageing and there are (relatively) too few young people to replace them.

It is recognised that many youngsters miss the opportunity to enter the BSE sector because they simply don't know about it at the crucial decision-making points of their lives. All young people will have an awareness of the Construction sector and many will consider it as a viable career option. However, evidence suggests that young people are not aware of the BSE sector or the many opportunities it affords for development and progression to the professional levels.

In order to address this situation the SfW qualification has been developed to make the 14–16 age group aware of the BSE sector and to allow them the opportunity to develop some basic knowledge and skills relevant to the industries and is based on National Occupational Standards (NOS). Environmental aspects are covered at the appropriate level and are likely to be attractive to the target population.

The NPA has been developed to provide a bridge between the school age group (catered for by the new Skills for Work qualification) and the full apprenticeship and is based on National Occupational Standards (NOS). It is only the full apprenticeship which confers full industrial competence on the individual. Environmental aspects, and associated technology, are covered at the appropriate level and are likely to be attractive to the target population and potential employers.

These awards are not designed to train people to full industrial competence. The SfW and the NPA are aimed at those who do not necessarily have any prior experience or knowledge of the BSE sector and are therefore classed as 'new entrants'. Candidates can then build on the skills, knowledge and employability skills gained when working towards an SVQ (which does confer full industrial competence), should they wish to do so.

More generally, the BSE sector will make a crucial contribution to the achievement of the Scottish Government 2020 Energy targets and clearly this can only happen through appropriately qualified people. Areas such as microgeneration and renewables are within the BSE footprint. It is anticipated that these areas in particular will raise the BSE sector profile over the next 10–15 years and that those working in the sector must be appropriately qualified and skilled.

3 Aims of the Group Award

The NPA award is a vocationally-related qualification at a basic but industrially meaningful level. The main purpose of the award is to make candidates aware of, and prepare for employment within any the BSE industries of Plumbing; Heating and Ventilating; Air Conditioning and Refrigeration; Electrotechnical. The NPA is, in effect, a pre-apprenticeship award. There is a strong emphasis on safety throughout the award.

3.1 Principal aims of the Group Award

- ◆ Practical and relevant skills in a safety-conscious context
- ◆ Resource management ability
- ◆ Technical skills and knowledge required across each of the BSE industries
- ◆ The BSE industries (Plumbing; Heating and Ventilating; Air Conditioning and Refrigeration; Electrotechnical) and the occupations within each industry and the BSE sector as a whole and the interface with other sectors (eg construction)
- ◆ The progression opportunities for those who achieve the NPA
- ◆ The ability to make an immediate contribution in employment in the working environment

3.2 General aims of the Group Award

- ◆ Flexibility, knowledge, skills and motivation as a basis for progression.
- ◆ Responsibility for own learning
- ◆ The Core Skills relevant to the BSE sector
- ◆ The meaning and nature of employability
- ◆ Transferable skills, eg punctuality, appropriate workplace behaviour

3.3 Target groups

The NPA at SCQF level 5 is designed to equip students with the knowledge, understanding and skills required for success in employment or further study/training within the Scottish BSE sector.

This National Progression Award is suitable for a wide range of candidates including:

- ◆ S5 and S6 candidates.
- ◆ School leavers.
- ◆ Progression candidates (eg Skills for Work).
- ◆ Adults returning to education.
- ◆ Employed candidates who wish to enhance their career prospects.
- ◆ Unemployed candidates who wish to enhance their job prospects.

3.4 Employment opportunities

The NPA ensures that candidates have the skills and knowledge to enter into employment as Apprentices in any of the BSE industries (as listed above). The award also looks in more detail at a greater range of employment opportunities in the context of 'on site' or 'off site' members of the BSE team including where on-site includes. This approach helps the candidate to appreciate the wider range of occupational roles and to be able to make informed choices about their own career path.

4 Access to Group Award

While entry is at the discretion of the centre, candidates would normally be expected to have attained Core Skills at SCQF level 4 or equivalent.

5 Group Award structure

To achieve the full award, learners must gain all 7 credits (280 hours).

5.1 Framework

SQA ref	Unit	Status	SCQF level	Credits	SCQF points
FT7X 11	Building Services Engineering: Basic Electrical Installation Operations	M	5	1	6
FT7Y 11	Building Services Engineering: Basic Plumbing Operations	M	5	1	6
FT80 11	Building Services Engineering: Basic Heating and Ventilation Operations	M	5	1	6
FT81 11	Building Services Engineering: Basic Refrigeration and Air Conditioning Operations	M	5	1	6
FT82 11	Building Services Engineering: Energy and the Environment	M	5	1	6
FT83 11	Building Services Engineering: Systems, Roles, Responsibilities and Procedures	M	5	1	6
FT84 11	Building Services Engineering: Science	M	5	1	6

5.2 Mapping information

NPA Unit	Status in NPA award	NOS (base Unit)	SummitSkills Reference
Building Services Engineering: Basic Electrical Installation Operations	M	Understand and demonstrate safe and fundamental electrical installation Operations	ACC 06
Building Services Engineering: Basic Plumbing Operations	M	Understand and demonstrate safe and fundamental plumbing operations	ACC 08
Building Services Engineering: Basic Heating and Ventilation Operations	M	Understand and demonstrate safe and fundamental heating & ventilating (H &V) Operations	ACC 07
Building Services Engineering: Basic Refrigeration and Air Conditioning Operations	M	Understand and demonstrate safe and fundamental refrigeration & air conditioning (RAC) operations	ACC 05
Building Services Engineering: Energy and the Environment	M	Environmental Awareness	BSE 03
Building Services Engineering: Systems, Roles, Responsibilities and Procedures	M	ACC 04 - Introduction to Building Services Engineering	ACC 04
Building Services Engineering: Science	M	ACC 03 - Understand fundamental scientific principles within building services engineering	ACC 03

5.3 Core Skills

Achievement of any of the following Units will give automatic certification of the following *Communications* Core Skills component Critical Thinking at SCQF level 4.

FT77 11 *Building Services Engineering: Basic Plumbing Operations*

FT7Y 11 *Building Services Engineering: Basic Plumbing Operations*

FT80 11 *Building Services Engineering: Basic Heating and Ventilation Operations*

In addition achievement of the *Building Services Engineering: Science* Unit FT84 11 will give automatic certification of the Core Skills component Using Number at SCQF level 5.

There is no other automatic certification of Core Skills or Core Skills components in this Course.

Opportunities for developing other aspects of Core Skills are highlighted in the Support Notes of the Unit specifications for this award.

5.4 Articulation, professional recognition and credit transfer

Articulation

This award has been designed as a pre-apprenticeship qualification on the BSE career pathway. The award can be a progression route from the SfW Building Services Engineering award. The award can lead directly on to the NC (at SCQF level 6) or HNC (at SCQF level 7) or allow successful candidates to apply for employment within the sector as appropriate at apprentice level.

Note that achievement of the award will also allow candidates the opportunity to move to allied occupational areas, such as engineering or Construction, should they so wish.

Professional recognition

This award, and its place in the developing BSE suite of awards, is recognised by the relevant trade associations and other relevant sector bodies in Scotland. The NPA award is at SCQF level 5 and so is below that associated with professional (chartered institute) recognition however it is anticipated that CIBSE will support the aims, objectives and strategic positioning of the NPA.

Credit transfer

There are no current National Units against which credit transfer might be considered.

6 Approaches to delivery and assessment

The award has been designed to equip candidates with the knowledge, understanding and skills required for success in employment or further study/training within the Scottish BSE sector. It is mainly aimed at those who are interested in pursuing a career in one of the BSE sector industries but would welcome the opportunity to identify which of the BSE industries is most appropriate to their own skills and career aspirations.

This award is not designed to train people to full industrial competence. Rather the award seeks to lead the candidates towards a better understanding of the knowledge and skills requirements associated with each of the BSE industries. There is an emphasis on developing the pre-vocational and employability skills normally taught to an apprentice at the very early stages of time-serving and these basic skills will be very attractive to employers. Candidates can then build on these skills when working towards achieving an SVQ relevant to their interest and capabilities.

The award is designed to allow the candidate to develop an understanding of the BSE sector, the type of work that goes on in the industries within it and the types of career opportunities presented by each of these industries. The award is also designed to underline the importance of safety, legislation, Codes of Practice and procedures in the workplace. The award also allows the candidate to understand the technical (or applied science) nature of the work that takes place within the BSE sector and develop the understanding of the concept of energy sources in terms of their carbon 'footprint'.

The programme should be delivered in the context of familiarisation with terminology, basic concepts and working practices and disciplines, including Health and Safety and Sustainability. It is intended that the new NPA at SCQF level 5 will develop a deep appreciation of topics based on accepted BSE sector practices.

Candidates may go on to apply for an Apprenticeship as an Air Conditioning Engineer; Domestic Plumber; Ductwork Installer; Gas Fitter; Heating Installer; Industrial And Commercial Plumber; Installation Electrician; Maintenance Electrician; Refrigeration Engineer; Service And Maintenance Engineer. Candidates may also go on to higher levels of education eg the NC or HNC.

Delivery

The National Progression Award is primarily, but not exclusively, designed to be delivered in a college environment. This is mainly due to the level of the award, the requirement for realistic workplaces and the level of occupational expertise that will be required of the delivery staff.

The award could be offered on a full-time, part-time, block-release, day-release or evening basis. Combination of delivery is also a possibility. Such combined study may enable candidates to complete the award within a shorter time period.

There are opportunities for integrated delivery of Units within the award. Teaching and Learning for the Energy and the Environment Unit could be integrated across the industry specific Units. The Unit specifications will identify specific opportunities for integration with other Units. Similarly there is the opportunity to integrate assessment across the industry specific Units.

It is recognised that the award focuses on the development of candidate knowledge and skills associated with the BSE industries. The Health and Safety component is built into each Unit as appropriate.

There may be opportunities for the introduction of e-learning during the teaching and delivery of the award. The learning and assessments of the knowledge-based Outcomes can be conducted either by using e-learning methods (this could also be used for teaching) or else by traditional teaching techniques. For example, formal assessments may make use of IT systems and facilities when available, or alternatively can also use the standard mode of supervising candidates during classroom paper-based assignments.

It is also recognised that health and safety considerations and the age profile of candidates may present a challenge to centres. However, in order that the quality and integrity of assessments are maintained, centres are reminded that all practical assessments should take place in a realistic working or training environment with appropriate use of simulation where health and safety considerations are key. In addition, appropriate levels of supervision should be applied at all times.

The award is also suitable for those returning to work or transferring from other sectors and could be delivered on a full-time or part-time basis. Similarly, flexible delivery of the NC and HNC ensures that both current and future BSE sector employees can be accommodated.

Assessment

The assessments should be designed to ensure an appropriate level of rigour whilst not imposing excessive demands on candidates. The design principles for the award encourage an holistic approach to assessment, and this has been adopted in each Unit specification for the award.

An integrated approach to assessment across the Outcomes in this Unit, and relevant others, is suggested. In addition, the project-based approach may be used to gather evidence of candidate achievement. Centres may also wish to develop the employability skills of the candidates through role-play techniques where appropriate.

Centres can decide the order in which Units are delivered, based on candidate recruitment patterns, mode of delivery, resource issues and logical progression dictated by topics and Unit content and level.

Throughout all Units, emphasis should be placed where appropriate on the application of Health and Safety. Safe working practices should be looked at in accordance with current safety codes of practice and regulations.

The assessments should be challenging and meaningful, but nonetheless still achievable for all candidates who are prepared to work to gain the award. They are designed to familiarise candidates with a culture of attainment where assessments will challenge them, but do not put unreasonable obstacles between them and real achievement.

For all NPA Units, assessment is based primarily on assessment of practical activities and supported by knowledge testing where appropriate. Integrated assessment is encouraged.

7 General information for centres

Disabled candidates and/or those with additional support needs

The additional support needs of individual candidates should be taken into account when planning learning experiences, selecting assessment instruments, or considering whether any reasonable adjustments may be required. Further advice can be found on our website www.sqa.org.uk/assessmentarrangements.

Internal and external verification

All instruments of assessment used within this/these Group Award(s) should be internally verified, using the appropriate policy within the centre and the guidelines set by SQA.

External verification will be carried out by SQA to ensure that internal assessment is within the national guidelines for these qualifications.

Further information on internal and external verification can be found in *SQA's Guide to Assessment* (www.sqa.org.uk).

8 General information for candidates

The award is a mainly competence -based qualification with appropriate practical exercises. You will spend the majority of your time in a training or simulated work environment, and is designed to equip you with the knowledge, understanding and skills which are required by employers in the BSE sector.

It also allows you to progress towards further qualifications, such as the NC or HNC or to apply directly for employment as an apprentice within the BSE sector. An apprenticeship in the sector will involve you undertaking the relevant SVQ which helps you to achieve full and recognised industrial competence.

You will be assessed on the knowledge and skills that you have developed in each Unit. There are several possible types of assessment, including multiple choice questions, practical tasks with checklists, and other practical activities working in teams. The practical Units will teach you the basic skills and knowledge needed to carry out practical work and to work with others. You will then be asked to complete these practical tasks yourself in order to demonstrate your range of abilities.

The Course is designed to give you an understanding of:

- ◆ flexibility, knowledge, skills and motivation as a basis for progression.
- ◆ practical and relevant skills in a safety-conscious context.
- ◆ resource management ability.
- ◆ responsibility for own learning.
- ◆ technical skills and knowledge required across each of the BSE industries.
- ◆ the BSE industries (Plumbing; Heating and Ventilating; Air Conditioning and Refrigeration; Electrical Installation) and the occupations within each industry.
- ◆ the BSE sector and the interface with other sectors (eg Construction).
- ◆ the Core Skills relevant to the BSE sector including numerical and graphical skills; oral, written and communication skills; planning, organisational and evaluation skills; problem-solving ability; ability to work with others and be flexible.
- ◆ the meaning and nature of employability.
- ◆ the progression opportunities for those who achieve the NPA.
- ◆ transferable skills, eg punctuality, appropriate workplace behavior.

Occupations are available with a variety of companies in the BSE sector. If you wish to investigate career opportunities in the building industry you can contact SummitSkills at www.summitskills.org.uk.

9 Glossary of terms

SCQF: This stands for the Scottish Credit and Qualification Framework, which is a new way of speaking about qualifications and how they inter-relate. We use SCQF terminology throughout this guide to refer to credits and levels. For further information on the SCQF visit the SCQF website at www.scqf.org.uk

SCQF credit points: One SCQF credit point equates to 10 hours of learning. NQ Units at SCQF levels 2–6 are worth 6 SCQF credit points, NQ Units at level 7 are worth 8 SCQF points.

SCQF levels: The SCQF covers 12 levels of learning. National Qualification Group Awards are available at SCQF levels 2-6 and will normally be made up of National Units which are available from SCQF levels 2–7.

Dedicated Unit to cover Core Skills: This is a non-subject Unit that is written to cover one or more particular Core Skills.

Embedded Core Skills: This is where the development of a Core Skill is incorporated into the Unit and where the Unit assessment also covers the requirements of Core Skill assessment at a particular level.

Signposted Core Skills: This refers to the opportunities to develop a particular Core Skill at a specified level that lie outwith automatic certification.

Qualification Design Team: The QDT works in conjunction with a Qualification Manager/Development Manager to steer the development of the National Certificate/National Progression Award from its inception/revision through to validation. The group is made up of key stakeholders representing the interests of centres, employers, universities and other relevant organisations.

Consortium-devised National Certificates/National Progression Awards are those developments or revisions undertaken by a group of centres in partnership with SQA.