

Summit Skills

SECTOR QUALIFICATIONS STRATEGY

SUMMITSKILL SQS

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1. EXECUTIVE SUMMARY

Executive Summary Outline

Future vision

Over the next ten years, the Qualifications Strategy aims to enhance business performance within the building services engineering sector by:

- Providing high quality entry routes, progression routes, points of achievement and recognition for individuals within the sector;
- Recognising and anticipating the development needs of large, small and micro businesses in the sector;
- Recognising the needs of mainstream and specialist businesses in the sector

The Qualifications Strategy also aims to influence the content and structure of general, further and higher education, to attract the correct people and prepare them for entry into the sector and provide opportunity for progression therein.

The strategy recognises that qualifications need to be:

- 1.1 Kept up to date in terms of technology, legislation and working practices
- 1.2 Fit for purpose (E.g. reflecting the knowledge and competencies associated with relevant job role/responsibilities in the sector)
- 1.3 Deliverable in terms of practicality, timescale for achievement, quality and cost;
- 1.4 Able to support employment frameworks and individual business needs
- 1.5 Reflect National Occupational Standards as appropriate

Solutions and recommendations to achieve the above are;

- 1.6 A suite of qualifications that compliment and supplement the "Skills Agenda" of the sector and the occupations therein
- 1.7 A career/learning progression pathway (Annex 1) with entry and exit points appropriate to an individuals employment needs, skills/knowledge development and enhancement
- 1.8 An ongoing qualification's review policy/programme to ensure that 1.1, 1.2 and 1.6 above are addressed
- 1.9 Delivery programmes are appropriate to the expected outcomes of the qualifications
- 1.10 Assessment regimes are rigorous, expedient, flexible and transparent
- 1.11 Qualification accreditation/approval procedures and the endorsement of delivery programmes are strongly influenced by SummitSkills

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The strategies, solutions and recommendations identified in 1.1 to 1.11 above are encapsulated in Section 6 of the strategy, "Realising the Future" which details the ways forward for;

The "Vision of Future Qualifications" (6.1)

Qualification design principles that reflect the features and characteristics of the sector (Section 3) in terms of,

- Types/groups of qualifications that are compatible to the needs of the learner/candidate cohorts – Pre-entry to the sector: New entry to the sector: Existing workers in the sector (6.1.1)
- Progression and enhancement of individuals – Into HE; Career Progression; Skills enhancement for existing workers; Requirements of professional bodies/institutes (6.1.2)
- Complimenting and supplementing the requirements of industry/sector bodies – Competent Person Schemes; Registration Bodies; Health and Safety Legislation (6.1.3)
- Development of new technologies and working practices (6.1.4)
- Compatibility with "Qualification and Credit Frameworks" in England, Northern Ireland, Scotland and Wales (6.1.5)
- Progression and development of first line and middle managers (6.1.6)
- "Quality Mark" awarding bodies and Registration Schemes" (6.1.7)

Future Dialogues with key networks and organisations (6.2)

- Stakeholder Engagement – Principal and secondary stakeholders/partners
- Regulatory Bodies; Delivery Network; Strategic Bodies; Professional Institutes

Practical Help and Support for Stakeholders/Partners (6.3)

- Roles and responsibilities for promoting and implementing the SQS
- Using the SQS to inform associated initiatives

Future Evolution of the SQS (6.4)

The strategy and principals for monitoring the SQS will focus on formal review procedures for qualifications and learning/assessment programmes, analysis of exam/assessment results/outcomes and ensuring the compatibility of qualifications with changes to technology and legislation.

Background and rationale to the "Vision of Future Qualifications" is given by way of the "Scope of the SQS" (Section 2), "Current Qualifications and Other Learning Provision" (Section 4) and "Other Uses of Qualifications" (Section 5)

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2. SCOPE OF SQS

2.1 Overall Scope of the SQS:

The building services sector represents the electrotechnical, heating, ventilating, air conditioning, refrigeration and plumbing and the electrical & electronic servicing industries. The businesses and employee of the sector is;

2.1.1 **60, 000 businesses in the sector:**

- Electrotechnical – 24, 000
- Heating, ventilating, air conditioning & refrigeration - 13, 000
- Plumbing - 23, 000

2.1.2 **600, 000 employees throughout the sector:**

- Electrotechnical - 365, 000
- Heating, ventilating, air conditioning and refrigeration - 100, 000
- Plumbing - 135, 000

At any one time there are circa. 18,000 apprentices training in the sector

The diversity of enterprises and organisations, in size and core business, in the sector has given rise to varied and distinct job roles/occupations at operative, senior technical and management level specific to each of it's industries, of which the key ones are;

Electrotechnical Services

- Installation Electrician – Buildings and Structures
- Maintenance Electrician
- Electrotechnical Panel Builder
- Electrical Machine Re-winder & Repairer
- Electrical Fitter
- Highway Electrical Systems Installer
- Security Systems Installer (Intruder and Fire Alarms)
- Data / Communications Systems Installer
- Audio and Visual Systems Installer

Electrical & Electronic Servicing

- Domestic Appliance Installer
- Commercial Electronic Equipment Installer
- Domestic Electronic Equipment Installer
- Signal Reception Systems Installer

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Plumbing

- Domestic Plumber
- Industrial & Commercial Plumber
- Domestic Heating Systems Installer
- General Plumber (Scotland & Northern Ireland)

Heating & Ventilation (H&V)

- Building Services Engineering – Technician
- Building Services Engineering – Service & Maintenance Engineer
- Commissioning Technician
- Compressed Air Installer
- Ductwork/Pipework Installer
- Fire Sprinkler Installer
- H&V Fitter
- H&V Welder
- H&V Maintenance Engineer

Refrigeration & Air Conditioning

- Refrigeration & Air Conditioning Technician – Service and Maintenance
- Refrigeration Systems and Equipment Installer
- Air Conditioning Systems and Equipment Installer

Added to the above there are job roles, albeit at a higher level than those identified, that have generic titles such as;

- Design Engineer
- Senior Commissioning Engineer
- Consulting Engineer
- Project Manager
- Estimator

Recently, as result of continuous dialogue with “specialised occupations” related to the sector need for competence based qualifications in “Building Management Control Systems” and the installation of internal “Caravan Services” have been identified.

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2.1.3 The UK population of "Sector Learners" can be categorised into five cohorts;

- i. Pre-Entry (14 – 16 year olds)
- ii. Apprentices (Employer/Employment-led learning and assessment programmes) – More often that young people from the 16-19 year old cohort who have left full-time education to embark on a chosen vocational career. And will have minimal work-experience specific to the sector. But may have some sector/occupational awareness as a result of being involved with a pre-entry programme.
- iii. Graduates – post degree, with minimal sector experience in the workplace.
- iv. New Entrants - Individuals entering or wanting to enter the sector with out any previous experience (This cohort does not include apprentices)
- v. Existing Workers – Individuals who through their own aspirations or employment/job role requirements need to develop/enhance their skills/knowledge base for the purpose of continuing to fulfil a job role or for progression (Career; HE; Professional Institution Membership)

2.1.4 The portfolio of learning, assessment and qualifications embraced by this strategy includes;

- i. GCSEs and vocational GCSEs
- ii. GCE AS / A-Level and Advanced VCE
- iii. Specialised 14 to 19 Diplomas
- iv. Welsh baccalaureate
- v. Scottish ordinary and higher awards
- vi. SVQs
- vii. NVQs
- viii. VRQs
- ix. HNC/HNDs
- x. Degrees
- xi. Professional qualifications that are offered by the many professional and chartered institutes
- xii. Professional Institute membership assessment
- xiii. Apprenticeships – specifically aimed at developing the skills, knowledge and career aims of people entering the industry.
- xiv. Management and Leadership qualifications – generic and sector contextualised
- xv. Product/non-Accredited training/qualification – there are many industry/employer training programmes/certificates that are offered by industry bodies which are not recognised in the National Qualifications Framework or accredited by an awarding body. These programmes cover subjects such as;
 - o Installation and operating principles of specialised equipment and instruments (Product Training/In-company Training)
 - o Water Regulations
 - o Certificate in Working at Heights (Scaffolding; Operating Mobile Elevated Platforms)
 - o Handling of and Working with Dangerous Substances
 - o Specific Health & Safety Requirements

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2.2: Priorities within the overall scope

In keeping with the features and characteristics of the sector as detailed in Section 3.1, the principle priorities for the sector in terms of qualification review, development and provision are;

- i. Appropriate pre-entry/entry qualifications are relevant and fit for purpose
- ii. Vocational qualification (N-SVQs & VRQs) titles, structures and content that reflect relevant job roles/responsibilities
- iii. Vocational qualifications that reflect relevant National Occupational Standards at appropriate levels
- iv. Assessment strategies/regimes (All qualifications) that are “user friendly” but rigorous, and where suitable give recognition to non-accredited learning and assessment accordingly
- v. Qualification structures/assessment that are compatible to the “Qualification and Credit Frameworks” in England, Northern Ireland, Scotland and Wales
- vi. Relevant qualifications that reflect the requirements of registration and competent person schemes ant operative level (Up to NQF Level 3) – e.g. Aligned N/VQs and SVQs
- vii. Qualifications, as appropriate, that are conducive to an individual gaining recognition/registration with a professional institution – IET; CIBSE; IMECHENG
- viii. Qualifications that reflect developing technologies which are having significant impact on the sector, e.g. Environmental Technologies
- ix. A qualification provision/portfolio that enables progression into Higher Education
- x. The introduction of assessment and learning programmes as appropriate for “Migrant Workers”
- xi. Progression and development of first line and middle managers: develop and promote continual professional development opportunities for operatives to technician and first line management. Pilot initiatives in business and management skills and encourage employer take-up.

The strategies and implementation activities for the sector associated with addressing the priorities identified in (i) to (xi) above will also encompass, respond to, compliment and supplement accordingly those identified by the home nations in their key reviews and reports;

ENGLAND

- 2.2.1 The Skills White Paper, 2005 – The reform of the “Skills Training Supply” to provide more opportunities for individuals to learn new skills and gain suitable qualifications in order that they can enter or re-enter the labour market
- 2.2.2 The 14-19 Education and Skills White Paper (Diploma Development), 2005 – Proposals and recommendations to enhance the existing mainstream education system to enable 14-19

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year olds to development, as appropriate, vocational and life skills prior to entry into the labour market.

- 2.2.3 Raising Skills, Improve Life Chances White Paper, March 2006 – Building on the strategies defined in the “14-19 Education and Skills White Paper (Diploma Development), 2005” establish a clear vision for the Further Education sector in terms of the employability and progression of learners. A “Pre-Entry” to the sector provision.
- 2.2.4 The Leitch Review of Skills, 2006 – Strengthening the employer voice; Increased employer engagement; Demand led qualifications and skills development; Increased participation in apprenticeship programmes
- 2.2.5 Sector Skills Agreements (England/Wales), SSDA: SSAs will be a crucial mechanism to deliver;
- A reduction of skills gaps and shortages and anticipation of future needs.
 - An improvement in productivity, business and public services performance.
 - Increased opportunities to develop and improve the productivity of everyone in the sector’s workforce, including action to address equality.
 - An improvement in the quality and relevance of public learning supply.

The key outcomes for employers and employees we envisage from SSAs are:

- employers having genuine opportunities to shape and endorse learning provision so that it delivers world-class learning that is relevant to the needs of their businesses;
- employers benefiting from a more collaborative environment within their industry sector and from the value-added their SSC can bring;
- individuals benefiting from learning opportunities that are supported, and shaped by employers and trade unions that will deliver world-class learning leading to real job opportunities.
- employees benefiting from ongoing career development that is linked to the future direction of their industry, and opportunities that fulfill their potential.

SCOTLAND

- 2.2.6 In September 2007 Scottish Government published the Skills Strategy, Skills for Scotland, A Lifelong Skills Strategy. The strategy provides a context for skills from cradle to grave and clarifies the role of SSCs in Scotland. SSCs have been charged with:
- Developing proper engagement with employers in their sector in order that they can speak with legitimacy on their behalf;
 - Delivering sectoral Labour Market Information that is trusted, well used and fits with the robust national information supplied by Futureskills Scotland;
 - Ensuring that employers have a say in the design and development of learning at all levels and in all settings, not just in vocational qualifications
 - Developing strong partnerships with other key players in their sector as well as with Government, providers and intermediary bodies.

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- 2.2.7 The “Skills Strategy, Skills for Scotland, A Lifelong Skills Strategy, 2007” also reflects the conclusions and recommendations of the “Framework for Economic Development in Scotland, 2000”, revised in 2004, which stresses the need to improve the skills cohort through lifelong learning provision in schools, colleges and universities.

NORTHERN IRELAND

- 2.2.8 Success Through a Skills Strategy, Northern Ireland (DEL), May 2007

The strategy positions a vision to achieve the government's aims in relation to the development of skills in Northern Ireland:

- To enable progress up a “Skills Ladder”
- understanding the demand for skills;
- improving the skills levels of the workforce;
- improving the quality and relevance of education and training; and
- tackling the skills barriers to employment and employability.

WALES

- 2.2.9 Promise and Performance: The Report of the Independent Review of the Mission and Purpose of Further Education in Wales in the context of The Learning Country: Vision into Action, WAG, December 2007

To meet the challenge of the recommendations of “The Learning Country: Vision into Action” the report identifies seven primary drivers in which its key messages are placed;

- i. Learner Entitlement – Measurable learning for all 14-19 year olds
- ii. Employer Influence – Increased employer engagement in 14-19 phase and paramount in post 19
- iii. Skills – Closing the “Basic Skills” gap
- iv. Quality – Excellence must be embedded in public funded learning provision
- v. Funding – Introduction of new approaches to ensure greater efficiency
- vi. Reconfiguration – Delivery of diverse and personalised learning
- vii. Governance – Enhanced governance, national and local, that drives priorities

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3. SECTOR WORKING ENVIRONMENT

The Building Services Engineering Sector embraces the industries of,

- (a) Air Conditioning & Refrigeration
- (b) Electrotechnical Services
- (c) Heating & Ventilation
- (d) Plumbing
- (e) Electrical & Electronic Servicing

The industries and occupations identifies in (a) to (d) above are responsible for the design, installation, maintenance and management of the systems, equipment and services that provide,

- climate control
- communication
- heating
- lighting
- power
- security
- water
- heating & ventilating
- air conditioning
- refrigeration
- drainage & sanitation
- fire prevention
- energy conservation

in buildings, structures and “on-site” locations of for example floodlighting, public highways, petrol stations, quarries, storage and processing plants.

The Electrical and Electronic Servicing Industry provides installation and maintenance services for;

- Domestic appliances – washing machines; freezers and fridges; DVD recorders; TVs
- Domestic & Commercial Signal Reception Systems

There are a large number of small and micro-businesses within the sector with over 90% of businesses employing fewer than 10 people. The majority of these firms are small – 59% have five employees or fewer and less than 3% have more than 50 employees.

The sector and the industries within it permeate the whole of society and industry across the UK and plays a major role in the areas of sustainable development and energy efficiency through their responsibility for the design, installation and maintenance of “Environmental Technology Systems and Equipment”.

The diversity of enterprises and organisations, in size and core business, in the sector has given rise to varied and distinct job roles/occupations at operative level specific to each of it's industries See Section 2.1).

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3.1: Special features or characteristics of/for the sector

As can be seen from the above features of the sector and the nature of the job roles within it, account has to be taken of the enumerate and varied characteristics they give rise to when determining the principles for the design, assessment and delivery of learning programmes and qualifications. To address these characteristics, existing and anticipated, consideration is and will be given to;

- 3.1.1 Mobility of workforce – can limit the assessment of “WBL” candidates in terms of providing evidence from the work place and/or the opportunity to acquire and/or develop relevant knowledge through a structured learning medium. These limitations are more often than not founded from the workforce deployment strategies of employers, with the candidate possibly working on three different “working sites” in one week. Each site could be a different working environment to another and therefore the collection of evidence is fragmented and can prove difficult to assess. Also in numerous cases the commitment by the candidate to attending learning/assessment programmes can be disrupted by this workforce movement.

Enhancement of existing operative’s competencies ^[1] - The introduction of new legislation, working practices and the development of new technologies are invariably the catalyst for Continued Professional Development (CPD). But access to relevant learning and assessment provision is limited given the mobility, and some cases isolation, of the workforce, particularly those working for small/micro-businesses. This limited access can lead to sections of the workforce remaining in “Catch-up Mode”.

To address this “mobility scenario” a review, in partnership with relevant awarding bodies, of the structures and assessment strategies of the sector’s N-SVQs will be undertaken. The aim of which will be to determine and develop;

- Smaller NOS units/qualification units that can be, by “Rules of Combination”, structured into a qualification/qualification units that reflect primary and secondary areas of competence compatible to an identified job role/responsibility in the sector. Thus allowing candidates opportunities to maintain a structured and continuous learning/assessment programme in keeping with their work commitments/responsibilities.
- Qualification design and assessment principles for competence based and knowledge based qualifications that are adaptable to the requirements/needs of the learning cohorts in England, Northern Ireland, Scotland and Wales, including facilities and procedures for flexible assessment methodology in terms of the “Accreditation of Prior Learning, Achievement and Experience.”
- Assessment methodologies and procedures that give recognition to and facilitate for the contribution of non-accredited learning (Product Training/Continuous Professional Development) to the achievement of competence and knowledge based qualifications

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- 3.1.2 Differences in perceived/interpretation of “job role/responsibilities” in England/Wales, Northern Ireland and Scotland e.g. Plumbers; Electricians. Has particular impact on the structure of NVQs and SVQs in terms of qualification unit titles. For example in Scotland and Northern Ireland a Plumber is defined as a “General Plumber” who is expected to have the competencies to carry out work on hot and cold water, heating, and drainage systems in domestic and industrial environments. Whereas in England and Wales the job responsibilities are split into two distinctive roles, “Domestic Plumber” and Industrial & Commercial Plumber”. Similar differences are evident in the electrotechnical industry.

To address this issue and ensure that individuals in the sector’s workforce can have recognition of parity in terms of competencies in England, Northern Ireland, Scotland and Wales the titles, and therefore content, of the qualification units used to structure a NVQ or SVQ will be the same albeit the qualification title and qualification size (number of qualification units used) may differ, with unit titles clearly indicating the occupational competence, and the qualification title clearly indicating the job role, e.g.

NVQ3: Domestic Plumbing

NVQ3: Industrial & Commercial Plumbing

SVQ3: General Plumbing

- 3.1.3 Changes in or the introduction of Legislation – e.g. Building Regulations 2005 (England & Wales), the Building Standards 2005 (Scotland) and the Building (Amended) Regulations NI(2005)

- 3.1.4 New Technologies – In recent years the development and demand for “Environmental Technology Systems and Equipment” has accelerated at an ever increasing pace. In response to this demand several lead organisations and government bodies have emerged to provide technical standards and support, codes of practice and initiatives for clients and consumers on the installation and use of systems and equipment such as;

- Solar Water and Heating
- Photovoltaics for Microgeneration
- Combined Heat and Power
- Micro Wind Energy
- Ground Source Heat Pumps
- Air Source Heat Pumps
- Biomass
- Bio Fuels (Liquid)
- Micro Hydro Generation Systems
- Fuel Cell Technology
- Rainwater Harvesting
- Grey Water
- Mechanical Heat Recovery Ventilation
- Low Energy Lighting
- Smart Metering (downstream consumer display technology)
- Repair and Maintenance of High Efficiency Domestic Appliances

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Examples of lead organisations and government bodies that address the requirements and demands of these new technologies for clients and customers are;

- Renewable Energy Installer Academy Northern Ireland (REIA)
- The Scottish Community and Householder Renewables Initiative (SCHRI)
- The Department for Business Enterprise and Regulatory Reform (DBERR) and the Department for Communities and Local Government (DCLG)
- Building Research Establishment Ltd
- The Welsh Assembly Government commissioned a report to assess the micro-generation requirements of the renewable energy sector in Wales. The report also aimed to determine the skills and training requirements of these evolving technologies.

3.1.5 The requirements of industry registration and competent person schemes (See Section 5) – Subject to the administering organisation, qualification and registration requirements may differ, albeit for similar levels of skill/competence recognition

The emerging issues that are arising, and will arise, from the features and characteristics identified in 3.1.3 to 3.1.5 above will be accommodated, in terms of qualification design, development, revision and implementation by;

- The amendment of existing qualifications to reflect the sector needs in relation to the demands of “Environmental Technology Systems and Equipment” in England, Northern Ireland, Scotland and Wales
- The development of new National Occupation Standards and qualifications accordingly, that are particular to the design, installation and maintenance of “Environmental Technology Systems and Equipment” in England, Northern Ireland, Scotland and Wales
- Mapping relevant competency-based and knowledge-based qualifications to the requirements of registration and competent person scheme operators

3.1.6 The industries within the sector, to a greater or lesser degree, are involved with activities that are hazardous and in some cases life threatening if carried out incorrectly in terms interpretation, implementation and action. This is particularly critical to operatives^[1] in the sector. To ensure that qualified operatives are proficient in the relevant skills to undertake the “Safety-Critical Tasks” of their occupation they are assessed in simulated conditions.

There are several sector competence-based qualifications that do not prominently indicate the need this form of assessment. Therefore, in partnership with relevant industry representative organisations and awarding bodies, a review and amendment accordingly of assessment principles and methodology for qualifications that include the assessment of competencies when carrying out a “Safety Critical Task” will be undertaken.

3.1.7 The growing need for “Multi-Disciplined” operatives in the sector and the level at which they should operate in terms of “technical competence”. The opinions and interpretation of this job role in the sector are varied and diverse, with differing views from major contractors and the small/micro businesses in the sector (90%)

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Building on the findings and recommendations of the document “Explore the Demand for Multi-Disciplined Personnel in the Building Services Engineering Sector”, April 2007.

Dialogue with the sector's key stakeholders and partners will determine an appropriate implementation strategy in terms of developing a qualification structure that reflects “Multi-Disciplined Competences/Roles”.

- 3.1.8 Higher Education (HE) - HE in the sector is limited. Although course closures are frequent they do not represent a decline in provision – courses close and others open. It is likely that the difficulties retaining sustainable provision relate to the way HE is funded and low numbers engaging in building services engineering courses. These low numbers appear to be due to lack of knowledge of the sector amongst school leaving HE entrants and employers being put off using HE for training due to issues of time, cost and a belief that HE courses won't serve their needs.
- 3.1.9 Membership of Professional Institutions – Views on professional institution membership are varied. The sector sample used for a survey into “Progression from Technical to Managerial Careers”, SummitSkills, October 2007 indicated that;
- 71% of respondents felt being a member of a professional institution was not essential in progressing through the building services industry
 - 45% of respondents believe that the membership requirements for professional institutions provide a barrier to entry
 - 79% of respondents felt that professional institution membership helps to maintain and regulate professional standards within the sector
 - 38% of respondents require consulting engineers to have professional institution membership as part of their tendering requirements

To address the issues outlined above and in the report “Progression from Technical to Managerial Careers”, SummitSkills, October 2007 SummitSkills will work closely with HE and professional institutes to ensure that relevant qualifications reflect, as appropriate, requirements for entry and progression in terms of structure, content and assessment.

- 3.1.10 There is a skill gap between operative and first line supervisory levels (SSA Stage 3: Gap Analysis and Market Testing, SummitSkills October 2007) which is not being addressed, and people on the tools being placed in supervisory positions without relevant training, which has a negative impact on staff and business performance.

Albeit there a variety of Continuous Professional Development (CPD) programmes available from trade associations and professional institutes which focus on supervisory/first line management principles, indications (SSA Stage 1:Sector Needs Analysis, SummitSkills October 2007) show that there is a need to introduce contextualised management and leadership content and assessment into qualifications as appropriate. Thus providing individuals with management and leadership skill proportionate to their job role and/or furnishing them with knowledge/competence for progression. For example in N-SV3's for operatives.

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3.1.11 Pre-Entry to the sector from “Mainstream Education” – Views of the sector stakeholders and partners are varied on this subject. Currently a general consensus in the sector is that all occupational training for operatives should be employer/employment led. However, the benefits of recruiting individuals with the relevant basic competencies are being recognised by an increasing cohort of employers.

Although the above mentioned cohort recognise the possible benefits of “Pre-Entry” competencies, their view is that the learning/assessment programmes must be fit for purpose, identify clearly the limits of the learning and be directly linked to employer-led Work-Based Learning and employment.

To ensure “Pre-Entry” learning programmes are fit for purpose, SummitSkills will work closely with delivery organisations, regulatory and awarding bodies to give guidance and endorsement that the design and delivery of pre-entry qualifications are fit for purpose and directly linked to employer-led Work-Based Learning and employment.

[1]

“Operatives” – are skilled individuals, at Level 2 or Level 3 subject to their role, who are responsible for the installation, maintenance, servicing and/or repair of the systems, services and equipment for climate control, communication, heating, lighting, power, security, water within the sector's principle industries of Air Conditioning & Refrigeration, Electrotechnical, Heating & Ventilation, Plumbing and Electrical and Electronic Servicing

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3.2: FUTURE TRENDS

Research has illustrated that in order to maintain and improve current levels of productivity and business performance in the sector, the sector will need to proactively address the skills gaps and shortages that a changing “Working Environment” will impose on it. This imposition will come from;

- i. The ever increasing development and demand for the utilization of environmental and renewables technologies across all the industries within the sector.
- ii. The continued competition from the international market, where the business acumen and management and leadership techniques are more prevalent than currently in the sector.
- iii. The increasing numbers of migrant workers into the sector from Europe, who have a skill-base that is compatible with fundamental needs of the sector, but may be limited with respect to a level of technical competence, regulation familiarity and interpretation of technical language/documents and Health & Safety legislation/directives
- iv. The changes in working practices as the skill-bases of the industries in the sector become more compatible in certain job roles/functions, will probably lead to the need for a formal recognised job role for “Multi-Disciplined” operatives and a qualification structure that reflects such a role.
- v. The acceleration of technologies in communication, information/data retrieval, interpretation and application of technical data has given rise to recognition of a skills gap in this skill area, particularly in existing workers. To ensure that the sector maintains a competitive edge qualifications or units therefore need, in terms of delivery and assessment provide this cohort of the sector’s workforce accessible opportunities to develop/enhance their IT skills.
- vi. Demographic Trends - Indications of the impact of demographic trends and qualified operative projections for the industries in the sector are shown in the table on page xx, and have been determined making allowances for retirement and natural wastages and potential productivity improvements:

The impact of the future trends identified in 3.2.i to 3.2.ii on qualifications for the sector will be centred on the fundamental characteristics of qualifications, structures, assessment strategies and assessment methodologies. This impact will be addressed through SummitSkills’ qualifications and learning/assessment frameworks review and revision policies/procedures. For example,

- the introduction a core “Environmental Technologies and Legislation” into the structures for all N-SVQs for “Operatives”

and

- the introduction of assessment methodologies, including the mapping to non-UK vocational qualifications to relevant National Occupational Standards, that are compatible to individuals who are identified as “Existing Workers” in the sector.

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UK Employment average annual requirement

UK Employment

Average Annual Requirement 2006-2010

	2006	2010	Average Annual Requirement 2006-2010
Electrotechnical	196,400	216,240	8130
Plumbers (including Gas)	82,323	90,617	2878
Heating and Ventilation	45,735	50,343	1599
Air Conditioning and Refrigeration	24,392	26,850	853
England			
Electrotechnical	160,060	176,840	6,770
Plumbers (including Gas)	65,653	72,553	3,077
Heating and Ventilation	36,474	40,298	1,356
Air Conditioning and Refrigeration.	19,453	21,499	724
Northern Ireland			
Electrotechnical	9,850	10,430	360
Plumbers (including Gas)	3613	3845	367
Heating and Ventilation	2007	2136	204
Air Conditioning and Refrigeration.	1070	1139	109
Scotland			
Electrotechnical	15,420	16,540	420
Plumbers (including Gas)	5,886	6,356	140
Heating and Ventilation	3,270	3,531	78
Air Conditioning and Refrigeration.	1,744	1,883	42
Wales			
Electrotechnical	3,850	4,310	270
Plumbers (including Gas)	3,029	3,397	130
Heating and Ventilation	1,683	1,887	72
Air Conditioning and Refrigeration.	898	1,006	38

Source: Experian/ Hammond (2006) Amended

It is not expected that the "Average Annual Requirement 2006 – 2010" will be satisfied by the recruitment of apprentices to the industries of the sector. The current successful completion rate for apprentices across the sector is circa. 52%.

Other sources of recruitment include individuals changing career, those returning to the sector and those leaving military service.

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4. CURRENT QUALIFICATIONS AND LEARNING PROVISION

4.1 Main types of qualification and other learning provision at all levels

QUALIFICATION TYPE	PURPOSE	AVAILABILITY FROM PROVIDERS
Academic (Pre-HE)		
GCSEs / A Levels	Pre-requisite levels/measures for Apprenticeships, employment and/or FE/HE	Schools and Colleges of FE
NC/NDs	Qualifications that develop an individual's technical knowledge to a level conducive with the requirements of an Advanced Apprenticeship Framework, job role and career progression. <i>National Certificate/Diploma in Building Services Engineering (Awarding Body - Edexcel)</i>	Colleges of FE <i>Approximately 25 colleges – mainly in London, the South East and the North</i>
Vocational		
NVQs & SVQs	To provide evidence of competence, at Level 2 to 4, accordingly in keeping with the requirements of Apprenticeship Frameworks, job role, career progression and "Industry Registration Schemes" <u>Examples</u> <i>NVQ 3: Electrotechnical Services (Awarding Bodies – City & Guilds; EAL; Lantra Awards)</i> <i>NVQ2/3: Plumbing</i>	<ul style="list-style-type: none"> ➤ Colleges of FE ➤ National and Local Training Providers ➤ Employers <p><i>An accumulation of the above providers indicates there are approximately 300 centres offering this qualification.</i></p> <p><i>An accumulation of the above providers indicates there are approximately 200 centres offering this qualification.</i></p>

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	<p>SVQ 3: Mechanical Engineering Services (Heating & Ventilation)</p>	<p>An accumulation of the above providers indicates there are less than 25 centres offering this qualification.</p> <p>It should be noted that data on the number of centres offering NVQs and SVQs is not always reliable. However, the data available indicates the provision nationally is satisfactory but with room for improvement in certain areas/regions such as Cornwall, Mid-Wales and the Highlands and Irelands - SummitSkills SSA Stage 2, Assessment of Current Provision, May 2007</p>
<p>VRQs</p>	<p>Qualifications that develop an individual's technical knowledge to a level conducive with the requirements of an Apprenticeship Frameworks, NVQs & SVQs, job role and career progression.</p> <p><u>Examples (All Level 3)</u></p> <ul style="list-style-type: none"> ➤ Certificate in Heating & Ventilating Industrial & Commercial Installation ➤ Certificate in Refrigeration and Air Conditioning Systems ➤ Certificate in Electrotechnical Technology ➤ Certificate in Plumbing Studies 	<ul style="list-style-type: none"> ➤ Colleges of FE ➤ National and Local independent Training Providers ➤ Employers ➤ Private/ Independent Learning Provision – “Open Learning; E-Learning – e.g. Open College Network <p>The number of centres, and hence national provision, offering VRQs for the Building Services Engineering sector is similar to that provision profile for NVQ and SVQs</p>

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Higher Education/Professional		
HNC/HNDs	<ul style="list-style-type: none"> ➤ As a measure of technical and managerial skill/knowledge for senior technical, development, design and managerial roles ➤ Criteria for membership at an appropriate status to a professional institution (Eng. Tech.; Inc. Eng.: Chartered Eng. – The requirements for professional status are determined by the Engineering Council UK) 	<ul style="list-style-type: none"> ➤ HE Institutes ➤ Universities
Degrees	<ul style="list-style-type: none"> ➤ As a measure of technical and managerial skill/knowledge for senior technical, development, design and managerial roles ➤ Criteria for membership at an appropriate status to a professional institution - (Eng. Tech.; Inc. Eng.; Chartered Eng. – The requirements for professional status are determined by the Engineering Council UK) <p><i>Example: HNC in Building Services Engineering (Heating & Ventilating)</i></p>	<ul style="list-style-type: none"> ➤ HE Institutes ➤ Universities
<p><i>The provision of HNC/HNDs and Degrees for Building Services Engineering is limited as is available accurate data. This can be attributed to the fact that some HNC/HNDs and degrees have Building Services Engineering as an optional unit or the topic is integrated into a broader qualification for the Built Environment or Construction.</i></p> <p><i>The review/report “Developing a foundation degree strategy and action plan for the Building Services Engineering Sector” indicated that UK wide there were circa. 30-35 providers offering HNC/HND and/or degree course in whole or in part relevant to the sector</i></p>		

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Non-Accredited / CPD / In-Company		
	<p>This medium for learning usually in the form of “in-company” training specific to certain technical knowledge, the use of IT(Design, development, estimating, information retrieval and distribution), working practices and/or legislative issues.</p>	<ol style="list-style-type: none"> 1. Employers – Contractors; Manufacturers 2. Trade Associations 3. Professional Institutions 4. Industry Bodies – Unions; Registration Bodies

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4.2 Current volumes

4.2.1 Vocational Qualifications

The sector's vocational qualifications are delivered through a network of in excess of 350 centres UK wide, who are approved to the delivery and assessment standards of one or more four awarding bodies. In Scotland there is a single awarding body (SQA Awards) for vocational qualifications, either as a stand alone accrediting body or partnership with other English awarding bodies or the relevant industry body such as the Scottish JIB.

The diverse provision of facilities of qualifications in the sector (4.1) engenders an equally diverse cohort of learners who will undertake associated learning and assessment programmes. This cohort can be made up of apprentices, existing workers, operatives / engineers from other industries/occupations and individuals who want to develop knowledge of a given industry/occupation. The greater majority of this cohort are however directly related to the sector in terms of skills application, job roles and career progression.

The sector's vocational qualifications have very similar uses (4.1) in England, Northern Ireland, Scotland and Wales which is reflected in their design.

The table below shows **indicative** registration and certification data for the sector's vocational qualifications, period 01/01/07 – 31/12/07. It should be noted that the number of candidates that register in a particular year are not the same candidates the certificates are issued to. The qualification type identified in this example have minimum nominal learning and assessment period of 24 months.

	ELECTROTECHNICAL		HEATING & VENTILATING		PLUMBING		REFRIGERATION & AIR CONDITIONING		ELECTRICAL & ELECTRONIC SERVICING	
	REGIST.	CERTIF.	REGIST.	CERTIF.	REGIST.	CERTIF.	REGIST.	CERTIF.	REGIST.	CERTIF.
NVQS / SVQs	2, 100	5, 875	725	1, 455	3, 600	5, 800	180	625	N/A	N/A
VRQs	7, 200	27, 400	525	2, 000	12, 350	15, 500	180	190	N/A	N/A

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4.2.2 Higher Education/Professional Qualifications (England, Northern Ireland and Wales)

HNC and HND qualifications are seen to meet the needs of most employers. Professional consultancy practices are more likely to value degrees and Chartered or Incorporated Engineer status.

Building services engineering graduates are low in number, and a number of degree programmes (good and poor) which have closed down in recent years. Therefore consultancy practices are chasing a small pool of such recruits, and increasingly looking to recruit and train graduates of other engineering or science disciplines, or those with HNDs, to fulfil their needs. Employers adapt to the low number of people entering the industry with building services engineering qualifications, and in some cases find it beneficial to have people with a mixture of backgrounds on their teams. However, this does not stop them being concerned about declining building services engineering higher educational provision and low numbers completing programmes.

At HNC level employers have seen the number of sub-discipline specialist programmes (in refrigeration, heating and ventilation etc) decline in recent years with provision having a more generic building services focus.

Progression from HNCs to HNDs and from HNCs to full degrees is low, although in one exception “On the HVAC programme over the last three years, 57 per cent have progressed to a degree, compared with hardly any students on the electrical route.” The details of QAA reports suggest that low numbers progress from HNCs and HNDs to higher qualifications because employers value HNCs and HNDs as qualifications and students do not necessarily aspire to gain degree level qualifications. Another issue is that few universities run building services engineering degree courses, and that in some regions there is not an appropriate degree programme for students to progress to. For students who wish to complete degree courses HNDs are a well respected entry qualification.

4.2.3 Higher Education in Scotland

There are a low number of higher education establishments offering building services engineering courses. Currently within Scotland there is only one provider offering graduate and post-graduate provision, and they are in the Scottish Enterprise area.

HNC/HND for a particular industry within the sector are offered at four colleges of FE.

This low number is becoming an acute problem for individuals particularly in Highlands and Islands (where there is already a dearth of professional practices) who need to gain a professional qualification alongside their work.

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4.3 Match employer needs

Qualifications in the sector are used as a vehicle not only to provide evidence that an individual has the level of knowledge and/or competence to fulfil an identified job role, but also to provide guidance on the delivery and assessment in terms of the relevant technical content of the qualification.

Invariably employers make a judgement on an individual's suitability for a particular job role by using qualifications as an indicator of their technical and general skills/knowledge ability plus evidence of experience in applying these skills.

The competent-based nature of NVQs and SVQs lends itself to being complimentary to the role of the operatives in the sector, who form the greater number of its workforce. Employers and industry organisations see the benefits of competent-based qualifications but have expressed concern in terms of delivery and assessment methodologies. These concerns appear to have risen from the differences in the interpretation of the delivery and assessment structures needed, by learning providers private, public and independent.

In principle employers support the sector's qualification portfolio, but as implied in other sections of this document, would like to see amendments/developments accordingly to ensure that the synergy between qualification content, structure and assessment continues, at all levels, to progress in its current direction of reflecting the skills/knowledge/competencies needed for the sector to remain competitive and maintain high standards in technical application, working practices and legislation.

The views and concerns of employers outlined above have been identified and given due consideration in the construction of this strategy using sources such as;

- 4.3.1 A Feasibility Study on the Development of a NOS & NVQ/SVQ for Operatives in the Building Services Engineering, SummitSkills, March 2006
- 4.3.2 A report "Exploring the Demand for Multi-Disciplined Personnel in the Building Services Engineering Sector", SummitSkills, April 2007
- 4.3.3 Strategy for Environmental Technologies in Building Services Engineering, SummitSkills, July 2007
- 4.3.4 SSA Stage 1: Sector Needs Analysis, SummitSkills, August 2007)
- 4.3.5 A report "Progression from Technical to Managerial Careers", SummitSkills, October 2007
- 4.3.6 SSA Stage 3: Gap Analysis and Market Testing, SummitSkills October 2007)

Supplementing the above documents and their associated consultation requirements has been the sector's "Stakeholder Engagement Network" (6.2.7) of,

- Board of Directors
- Management Committee
- Qualifications and Standards Advisory Group (Membership/Terms of Reference - Annex 2)
- Industry Interest Groups (Electrotechnical; Heating & Ventilation; Plumbing; Refrigeration & Air Conditioning; Manufacturers;
- Professional Bodies Group

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The collective conclusions and recommendations of the documents 4.3.1 to 4.3.6 and the “Stakeholder Engagement Network” provided a set of key issues which this strategy should not only give rise to, but provide a steer for implementation. These issues are categorised as principle (2.2.4) and secondary priorities covering broadly;

- Vocational qualifications that reflect relevant job roles/responsibilities
- Vocational qualifications that reflect relevant National Occupational Standards at appropriate levels
- Assessment strategies/regimes that are “user friendly”, rigorous and facilitate for a variety of learning and assessment methods
- Qualifications that reflect the requirements of registration and competent person schemes at operative level
- Qualifications, as appropriate, that are conducive to an individual gaining recognition/registration with a professional institution – IET; CIBSE; IMECHENG
- Qualifications that reflect developing technologies which are having significant impact on the sector, e.g. Environmental Technologies
- A qualification provision/portfolio that enables progression into Higher Education
- The introduction of assessment and learning programmes as appropriate for “Migrant Workers”
- Development and progression and of first line and middle managers

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5 OTHER SECTOR USES OF QUALIFICATIONS

5.1 Registration Schemes

The industries within the sector (see Section 3) have long been conscious of the high importance of customer/consumer confidence, particularly in terms of assuring customers/consumers that operatives (Note 1) in the industries are competent to install, service and maintain equipment, systems and components to high technical and safety standards. To this end, for many years key industry bodies such as the trade associations and industry boards have had in place registration schemes which are aligned to the grading of operatives/personnel and their working agreements and conditions. Examples of these schemes are;

- The Electrotechnical Certification Scheme (JIB Electrical – England; Northern Ireland; Wales)
- The Electrotechnical Certification Scheme – Grade Cards (Scottish JIB)
- Engineering Services SKILLcard (Heating & Ventilating Contractors Association))
- Licensed Plumbers (Scottish & Northern Ireland Plumbing Employers Federation)
- Plumbing Certification Scheme (JIB for Plumbing Mechanical Engineering Services – England and Wales)

The above schemes have always, and continue to do so, use relevant vocational qualifications as the criteria/requirements for registration. The registration categories are for specific occupations and grades in the respective industries from *apprentice to operative to technician to supervisor/manager*.

As a result of government initiatives and contract requirements/procurement there is an ever increasing emphasis on the need for individuals and companies to provide evidence of competence, not only in a specific technical area but also to a pre-determined standard of health & safety. This has given rise to the above schemes being affiliated to the Construction Skills Certification Scheme (CSCS), thus enabling registered operatives to work on sites/contracts which state that the workforce must be registered card holders.

The bench mark for demonstrating competence, and therefore a requirement for registration on the above schemes are relevant NVQs, SVQs and VRQS, with the appropriate National Occupational Standards seen as the measure to meet occupation and industry requirements

5.2 Competent Person Schemes

More recently the introduction of the Building Regulations 2005 (England & Wales), the Building Standards 2005 (Scotland) and the Building (Amended) Regulations NI (2005) has had further impact on the sector in terms of individuals and organisations demonstrating they are competent to undertake and complete work in compliance with the aforementioned regulations and standards. Therefore increasing the level of difficulty for incompetent or rogue installers to leave an installation in an unsafe condition for customer/consumer use.

To ensure a high degree of compliance with the new regulations the industries in the sector have established “Competent Person Schemes” which are particular to an identified industry/occupation. The purpose of these government approved schemes is to allow enterprises/individuals to self-certify any work they have carried out within the scope of the regulations identified above.

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As with the sector's "Registration Schemes" the "Competent Person Schemes" are using qualifications, NVQS, SVQs and VRQs, as their criteria for membership.

The trade associations and other influential sector bodies are promoting and encouraging customers, clients and consumers to ensure that an enterprise or an individual has recognition by either of the schemes above to undertake and complete the work they are contracted to do.

5.3 Professional Institution Membership

Many organisations, from contractors to specialist consultants, subscribe to the view that having individuals in key technical roles – design engineer; project engineer/manager; sales engineer – give added value their business in terms customer confidence if they are members of a professional institute. Therefore, demonstrating a level of professional competence determined by an independent body against a nationally recognised specification, the Engineering Council's UK Specification (EUCUK Spec.). Membership of a professional institute is at an individual discretion, however some organisations in the sector encourage membership or use as a measure of skills and knowledge applicable to a particular job role. To this end SummitSkills is, and will continue to be so, actively involved with three professional institutes in terms of mapping suitable qualifications and learning frameworks to the institute's membership requirements which are guided by the EUCUK Spec.

5.4 European Directives

As a consequence of the nature of the sector and the occupations within it, quiet often "European Directives" are imposed on the technical operations and specifications used in building services engineering, an example of which is the *Fluorinated Gases Regulation July 2007 [Regulation (EC) No 842/2006] states that operators of stationary equipment may use only certified personnel to carry out service and maintenance work.*

To ensure that NVQS, SVQs and VRQs are updated to reflect these directives SummitSkills has a management and committee structure that has an "Industry Interest Group" (6.2.7) for each of the principle industries (2.1). Membership of these groups includes employers and employer bodies who raise awareness of impending directives and therefore qualifications are amended accordingly.

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6. REALISING THE FUTURE

6.1: Vision of future qualifications

Given the well-established traditional base the sector has in terms of the recognition by employers and individuals alike of apprenticeships, HNC/HNDs and degrees to indicate levels of competence and knowledge appropriate to particular job roles. The vision for the future use and application of qualifications needs to be founded on a strategy of "Encouraging change whilst maintaining continuity." To this end, a "sector qualifications framework" will be determined and put in place that facilitates for needs of employers and individuals, and will be a vehicle to address the sector's skills agenda. The framework's features and characteristics, and therefore design principles will accommodate for, as appropriate;

6.1.1 Types/groups of qualifications that are compatible to the needs of the learner/candidate cohorts,

- i. Pre-entry to the sector – Albeit there are varied views among the sector's stakeholders and partners on the benefits of "Pre-Entry Qualifications" (3.1), there is growing consensus that indicates support for such learning programmes as the 14-19 Diploma Additional and Specialised Learning (ASL) Units ^[2] and "Programme Lead Apprenticeships" (PLA). Therefore, SummitSkills will work closely with delivery organisations, regulatory and awarding bodies to ensure these learning programmes are fit for purpose and are of benefit to the learner and the sector

[2] At the time of writing work continues in the development of relevant ASL units in the *Construction and Built Environment Diploma and the Engineering Diploma*

- ii. New entry to the sector – Defined as an individual/candidate who is undertaking a learning and assessment programme without prior industrial occupational experience, learning and assessment programmes such as NVQs, SVQs, VRQ and Apprenticeship Frameworks will be designed, developed and/or reviewed and amended accordingly to enable candidates to develop their competencies to meet the appropriate National Occupational Standards (NOS).

To this end SummitSkills will continue, in partnership with sector stakeholders and partners, to review and amend as appropriate NOS, N/SVQ structures and assessment strategies, and the components of apprenticeship frameworks in terms of the competence and knowledge components plus key/core skill requirements and "employer additional needs".

New entrants into the sector from HE more often than not have had some form of relevant "work experience" – project work; short secondment into industry – and usually follow an induction programme determined by their employer or prospective employer. However, SummitSkills will continue to develop its advice and guidance to employers and employer associations on the format and content of such induction programmes

- iii. Existing workers in the sector - Defined as individuals who work or have worked in the sector in an "Operative Role" ^[1], including "Migrant Workers" (3.2 iii). And although have a level of "occupational competence" have no formal recognition of their occupational competence.

To enable this cohort of candidates to gain recognition as a "competent operative" in the sector SummitSkills will develop and introduce, in consultation with appropriate organisations, assessment vehicles where evidence of their competence against the relevant NVQ/SVQ

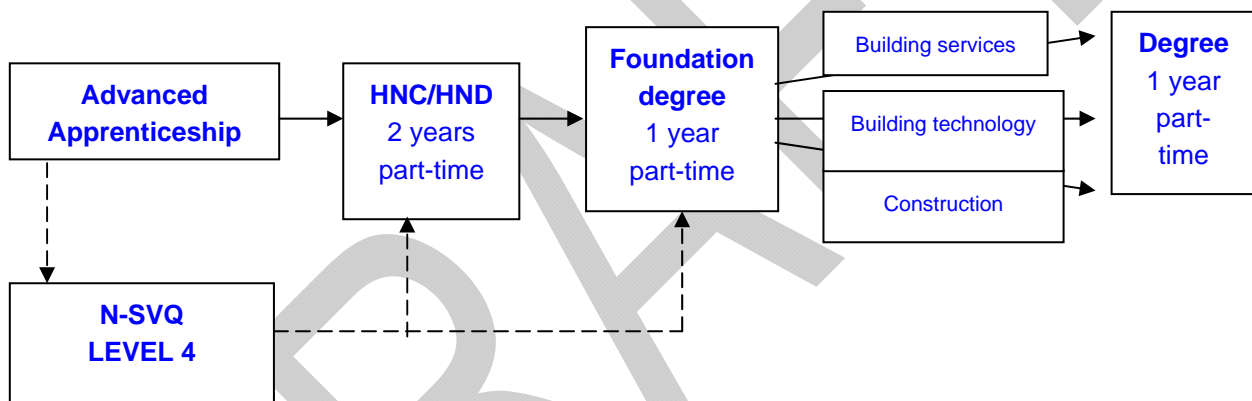
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units, and therefore the relevant NOS, can be demonstrated and assessed, with guidance given in respect of their technical competence, regulation familiarity, interpretation of technical language/documents and Health & Safety legislation/directives. This guidance will confirm that individuals from this cohort have demonstrated a level of competence to the recognised industry standard or provide recommendations for further skills/knowledge development. These procedures will include the mapping of non-UK vocational qualifications to the relevant National Occupational Standards.

[1] "Operatives" – are skilled individuals, at Level 2 or Level 3 subject to their role, who are responsible for the installation, maintenance, servicing and/or repair of the systems, services and equipment for climate control, communication, heating, lighting, power, security, water within the sector's principle industries of Air Conditioning & Refrigeration, Electrotechnical, Heating & Ventilation, Plumbing and Electrical and Electronic Servicing

6.1.2 Progression and enhancement for individuals;

i. Into Higher Education -



The report Progression from Technical to Managerial Careers, SummitSkills, October 2007 indicated that the low numbers engaging in relevant building services engineering courses appears to be due to the lack of knowledge of the sector amongst school leaving HE entrants and employers being put off using HE for training due to issues of time, cost and a belief that HE courses won't serve their needs.

To address the issues identified in the above report and encourage the implementation of the progression path illustrated above SummitSkills will work closely with HE and professional institutes to ensure that relevant qualifications reflect, as appropriate, requirements for entry and progression in terms of structure, content and assessment.

ii. Career progression (Annex 1) – e.g. "Tool Box to Technician and Beyond"

Using the "Career Map" illustrated in Annex 1, SummitSkills will promote careers in the Building Services Engineering sector through the principle mediums of;

- Designated links on the SummitSkills website

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- Publishing of bespoke careers advice and guidance material for the sector – leaflets, posters, DVDs and CDs
- Career events locally and nationally – working with Connexions, Regional Development Agencies, local and national training providers
- In put to Trade Association education and training policies and activities
- Management and promotion of skills competitions and training awards at national and local level

iii. Skills enhancement for existing workers and “Career Change Entrants” to the sector - CPD; APL

The introduction of Building Regulations (3.1.3), working practices and the development of new technologies are invariably the catalyst for the need for Continued Professional Development (CPD). To address the issues engendered by these developments SummitSkills will;

- Provide guidance to the sector in terms of the need for a formal recognised job role for “Multi-Disciplined” operatives and a qualification structure that reflects such a role following the completion of their report to “Explore the Demand for Multi-Disciplined Personnel in the Building Services Engineering Sector”, April 2007
- Develop, in partnership with relevant stakeholders and partners, a set of National Occupational Standards for the installation, servicing, maintenance and design of “Environmental Technology Systems and Equipment”
- Review and revise accordingly existing NVQs, SVQs and VRQs to reflect the NOS for the installation, servicing, maintenance and design of “Environmental Technology Systems and Equipment”
- Explore, in partnership with relevant bodies such as training providers, awarding bodies and employer associations, methods of delivery and assessment of CPD programmes that are conducive to the workforce in the sector given their mobility and at times isolation.
- Work with regulatory and awarding bodies to agree assessment principles and methodology to give recognition and contribution of non-accredited learning (Product Training/Continuous Professional Development) to the achievement of competence and knowledge based qualifications

iv. Recognition/registration requirements of professional bodies/institutes

Albeit views on professional institute membership for individuals working in the sector is varied as indicated in paragraph 3.1.9, clearly the value of this membership not only to employers but individuals themselves is worthy of developing qualifications and apprenticeship frameworks that contribute, in part or as a whole, to requirements of the institute for membership in the identified membership category – Engineering Technician; Incorporate Engineer; Chartered Engineer.

To this end SummitSkills has had an approved Advanced Apprenticeship Framework for Building Service Engineering Technicians which has been endorsed by the Institute of Engineering (IET) and Technology and the Chartered Institute of Building Service Engineers (CIBSE) as strongly contributing their requirements for recognition/membership as an Engineering Technician (Eng.Tech.). Using this model as an example SummitSkills will have dialogue with other relevant

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professional institutes, e.g. Institute of Mechanical Engineers, with a view to having their endorsement for recognition/membership.

Promotion of this “Added Value” component to the Advanced Apprenticeship Framework for Building Service Engineering Technicians will continue in relevant documentation and other media as will dialogue relating to the relationship between SummitSkills and the professional institutes through our *Professional Bodies Liaison Group*.

6.1.3 Complimenting and supplementing the requirements of industry/sector bodies

i. Competence Person Schemes registration

The introduction of the Building Regulations 2005 (England & Wales), the Building Standards 2005 (Scotland) and the Building (Amended) Regulations NI (2005) has had further impact on the sector in terms of individuals and organisations demonstrating they are competent to undertake and complete work in compliance with the aforementioned regulations and standards.

To ensure a high degree of compliance with the new regulations the industries in the sector either have established or are in the process of establishing “Competent Person Schemes” (5.2) which are particular to an identified industry/occupation and have a registration criteria determined by the industry's *“Minimum Technical Competence Document”*. The purpose of these government approved schemes is to allow enterprises/individuals to self-certify any work they have carried out within the scope of the regulations identified above.

SummitSkills is working with, and will continue to work with, the electrical and plumbing industries, to encourage and promote the use of NOS, either as a stand alone reference or as reflected in the relevant N-SVQs as the criteria outlined in their *“Minimum Technical Competence Document”*. This model can then be employed by the heating & ventilating and refrigeration & air conditioning industries.

ii. Registration Bodies – Grading of operatives; Working Agreements

For many years key industry bodies such as the trade associations and industry boards have had in place registration schemes (5.1) which are aligned to the grading of operatives/personnel and their working agreements and conditions. These schemes have always, and continue to do so, use relevant vocational qualifications as the criteria/requirements for registration. The registration categories are for specific occupations and grades in the respective industries from *apprentice to operative to technician to supervisor/manager*.

As a result of government initiatives and contract requirements/procurement there is an ever increasing emphasis on the need for individuals and companies to provide evidence of competence. The bench mark for demonstrating competence, and therefore a requirement for registration on the above schemes are relevant NVQs, SVQs and VRQs, with the appropriate National Occupational Standards seen as the measure to meet occupation and industry requirements.

SummitSkills will continue to liaise with these registration bodies to ensure that the qualification titles of existing, revised and new NVQ, SVQ and VRQs reflect the industries occupations and are compatible to the requirements of their particular registration schemes.

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iii. Health & Safety Legislation

The industries within the sector have long been conscious of the fundamental high importance of Health & Safety in the sector and not only expect the workforce to demonstrate a certain level of technical competence but equally as important a pre-determined standard of health & safety. This has given rise to the above registration schemes being affiliated to the Construction Skills Certification Scheme (CSCS), thus enabling registered operatives to work on sites/contracts which state that the workforce must be registered CSCS card holders. This card is evidence that the holder has demonstrated the required level of Health & Safety conducive to their job role.

To meet these requirements SummitSkills will continue to review, in consultation with pertinent industry bodies, the relevant NOS, N-SVQs and VRQs to confirm that the appropriate Health & Safety requirements are replicated in the evidence requirements and assessment procedures of these qualifications.

6.1.4 Developing Technologies and Working Practices

The introduction of new Building Regulations (3.1.3), developing working practices such as those associated with the "Multi-Disciplined Operative" (3.2 v) and the development of environmental technologies (3.1.4) has given rise to SummitSkills' leading on relevant initiatives to respond to the sector's identified needs;

- "Exploration of the Demand for Multi-Disciplined Personnel in the Building Services Engineering Sector", April 2007 (6.1.2iii)
- Production of a template for the development of a set of National Occupational Standards for the installation, servicing, maintenance and design of "Environmental Technology Systems and Equipment" (6.1.2iii).
- Strategic involvement in the development of the criteria for "Competent Persons Schemes" (6.1.3i)

The outcomes and recommendations from these initiatives will be introduced appropriately in terms of level and demand into the sector's qualifications and learning & assessment frameworks. For example N-SVQs that are aligned with "Competent Persons Scheme" and "Registration Schemes" requirements (5.1 & 5.2) and qualification structures that clearly indicate the inclusion and reflection, as appropriate, of the National Occupational Standards for the installation, servicing, maintenance and design of "Environmental Technology Systems and Equipment"

6.1.5 Compatibility with "Qualification and Credit Frameworks" in England, Northern Ireland, Scotland and Wales

In partnership with, and taking guidance from, the relevant regulatory bodies in England, Northern Ireland, Scotland and Wales ensure that revised and new qualifications meet the regulatory requirements and arrangements for the Qualifications & Credit Framework (England & Northern Ireland), the Scottish Credit & Qualifications Framework and the Credit & Qualifications Framework for Wales. To support the arrangements for these frameworks SummitSkills will act as a conduit between sector stakeholders and partners as appropriate in the development and approval of units of credit and qualification structures and

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Underpinning 6.1.1 to 6.1.5 above will be qualification design and assessment principles for competence based and knowledge based qualifications that are adaptable to the requirements/needs of the learning cohorts in England, Northern Ireland, Scotland and Wales, including facilities and procedures for flexible assessment methodology in terms of the "Accreditation of Prior Learning, Achievement and Experience" and assessment methodologies/procedures that give recognition to, and facilitate for, the contribution of non-accredited learning (Product Training/Continuous Professional Development) to the achievement of competence and knowledge based qualifications.

Also to underpin 6.1.1 to 6.1.5 ongoing monitoring and review of delivery and assessment programmes will take place in the form of;

- Regular review of apprenticeship frameworks
- Agreement with Awarding Bodies (ABs) for 3 year review for N-SVQS & VRQs; Annual review of "Assessment Regimes" for NVQs/SVQs/VRQs; Analysis of "On-line" exams/results
- Establish formal regular dialogue with HE and Professional Institutions
- Annual review with industry stakeholders/employers that the SQS and its Action Plan are still "Fit for Purpose" taking into account changes in legislation and technology
- Establish with awarding bodies/regulatory bodies a timescale and procedures for amending qualifications in order that they are compatible to changes in legislation and technology

SummitSkills also note that as technologies in communication, information/data retrieval, interpretation and application of technical data develops and accelerates there is a need to work with delivery and assessment organisations to ensure qualifications, or units therefore, in terms of delivery and assessment provide the sector's workforce accessible opportunities to develop/enhance their IT skills.

6.1.6 Progression and development of first line and middle managers

To address the skills gap (3.1.10) between operative and first line supervisory levels (SSA Stage 3: Gap Analysis and Market Testing, SummitSkills October 2007) contextualised management and leadership content and assessment into qualifications as appropriate. Thus providing individuals with management and leadership skill proportionate to their job role and/or furnishing them with knowledge/competence for progression. For example, in the relevant N-SV3's for operatives.

6.1.7 "Quality Mark" awarding bodies and "Registration Schemes"

Encourage operators of the above to use the principles of the strategy and qualifications identified in the action plan as measures for compatibility with their requirements.

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6.2: PAST AND FUTURE DIALOGUES

The SQS for the sector will be reviewed annually as appropriately determined by the sectors principle and secondary stakeholders through formal dialogue using mechanisms and forums as defined in the “Stakeholder Engagement Network” and informal dialogue through SummitSkill’s communication policy for embracing employers, industry bodies, the qualification delivery network and individuals at local, regional and national level. The key aspects to SQS evolution process are identified in 6.4 below, but SummitSkills recognises that with development at government and industry level these key aspects may need enhancing and/or adding to.

The “Stakeholder Engagement Network” is, has been and will be, fundamental to the development of the SQS and the implementation of the “Action Plan”. The broad remit of the network is indicated by its involvement and in put to the key reports/papers that have influenced this SQS,

- A Feasibility Study on the “Development of a NOS & NVQ/SVQ for Operatives in the Building Services Engineering”, SummitSkills, March 2006
- A report “Exploring the Demand for Multi-Disciplined Personnel in the Building Services Engineering Sector”, SummitSkills, April 2007
- Strategy for Environmental Technologies in Building Services Engineering, SummitSkills, July 2007
- SSA Stage 1: Sector Needs Analysis, SummitSkills, August 2007)
- A report “Progression from Technical to Managerial Careers”, SummitSkills, October 2007
- SSA Stage 3: Gap Analysis and Market Testing, SummitSkills October 2007)

The network, which has an effective structure of,

SummitSkills’ Governance and Management Structure: -Board of Directors; Management Committee
Qualifications and Standards Advisory Group (Membership and Terms of Reference - Annex 2);
Careers & Diversity Interest Group; Industry Interest Groups (Electrotechnical; Heating & Ventilation;
Plumbing; Refrigeration & Air Conditioning; Manufacturers); Professional Bodies Group

SummitSkills’ development projects: - Project Advisory Groups; Technical Working Groups

is used and will continue to be used accordingly for the;

- Review and development National Occupational Standards
- Review and development of qualifications – Mainstream (14-19); Work-based Learning;
Knowledge-based (VRQ; HE)
- Review and development of Apprenticeship Frameworks
- Other activities associated with the SQS’s Action Plan

SummitSkills are also represented on, membership or co-option, to internal committees and groups of the principle and secondary stakeholders (6.2.1 and 6.2.2 above). Added to these vehicles of communication SummitSkills is represented (Chair) on the Built Environment Skills Alliance (BESA), which is a cohort of Sector Skills Councils (SummitSkills, Construction Skills, Asset Skills, EUSkills, ECITB and Pro Skills). Terms of Reference for the BESA are shown in Annex 3.

SUMMITSKILL'S SQS

The organisations listed in 6.2.1 to 6.2.6 are represented accordingly in the “Stakeholder Engagement Network” and dialogue/support for these organisations is provided appropriately by SummitSkills’ Operation Managers in Northern Ireland, Scotland, Wales and the regions of England (South/South East; East & West Midlands; North East and North West; East of England; London)

6.2.1 Principal stakeholders

- Electrical Contractors Association (ECA)
- Scottish Electrical Contractors Association (SELECT)
- Heating & Ventilating Contractors Association (HVCA)
- Association of Plumbing & Heating Contractors (APHC)
- Scottish and Northern Ireland Plumbers Employer Federation (SNIPEF)

6.2.2 Secondary stakeholders/partners

- Professional Lighting & Sound Association (PLASA)
- Association of Street Lighting Electrical Contractors (ASLEC)
- Association of Mechanical & Electrical Trades (AEMT)
- Air Conditioning & Refrigeration Industry Board (ACRIB)
- Institute of Refrigeration (IoR)
- JIB (Electrical)
- JIB (Mechanical Services – Plumbing)
- British Plumbers Employer Confederation (BPEC)
- Electrical & Electronic Servicing Training Council (EESTC)

6.2.3 Awarding & Regulatory Bodies:

- QCA
- SQA
- ACCAC
- CCEA

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- City & Guilds
- SQA (Awards)
- EAL
- Lantra Awards

6.2.4 Delivery Network

- National Federation for Engineering in Colleges (NFEC)
- British Association of Construction Heads (BACHS)
- Association of Learning Providers (ALP)
- Regional and National Training Providers
- Colleges of FE
- HE Institutions

6.2.5 Strategic Bodies

- LSC (National & Local)
- RDAs
- Scottish Enterprise
- Highlands and Islands Enterprise
- DELL (N.I.)
- Welsh Assembly Government (DELLS)

6.2.6 Professional Institutions

- Institution of Engineering & Technology (IET)
- Chartered Institution of Building Services Engineers (CIBSE)
- Institute of Professional Heating Engineers (IPHE)

SUMMITSKILL'S SQS

6.3: PRACTICAL HELP

To ensure that sector stakeholders and partners are familiar with, understand and have harmony with the SQS, SummitSkills will, in terms of the "Vision of Future Qualifications" as detailed in Section 6,

- Types/groups of qualifications that are compatible to the needs of the learner/candidate cohorts (6.1.1)
- Progression and enhancement for individuals (6.1.2)
- Complimenting and supplementing the requirements of industry/sector bodies (6.1.3)
- Developing Technologies and Working Practices (6.1.4)
- Compatibility with "Qualification and Credit Frameworks" in England, Northern Ireland, Scotland and Wales (6.1.5)
- Progression and development of first line and middle managers (6.1.6)

consult and get "sign up" to the vision of future qualifications through group and individual meetings with stakeholders and partners and E-consultation.

In accordance with, and compatible to, the development and implementation of the initiatives identified above and detailed in Section 6, SummitSkills will,

6.3.1 Promote the role and identify the responsibility of SummitSkills in terms of implementing, coordinating and monitoring the SQS with sector's stakeholders, partners and individuals through our website, regional communications/activities and our "Stakeholder Engagement Network"

6.3.2 Use the SQS as an information and guidance document for;

- NOS review and development
- Establishing, in agreement with relevant stakeholders and partners, a qualifications review policy (Regulatory Bodies; Awarding Bodies; Professional Institutions; HE – England, Northern Ireland, Scotland and Wales)
- Qualifications development (NVQ; SVQ; VRQ)
- Apprenticeship framework review and development

SUMMITSKILL'S SQS

6.4: FUTURE EVOLUTION OF THE SQS

The evolution of the SQS will be monitored, reviewed and amended accordingly through the formal communication mechanisms associated with the “Stakeholder Engagement Network” (6.2) and informal dialogue through SummitSkill's communication policy for embracing employers, industry bodies, the qualification delivery network and individuals at local, regional and national level. The key monitoring principles that will influence the review and amendment of the SQS, which are effectively embedded in the “Vision of Future Qualifications” (6.1), are,

- 6.4.1 Regular review of apprenticeship frameworks
- 6.4.2 Regular review for N-SVQS & VRQs
- 6.4.3 Review of “Assessment Regimes” for NVQs/SVQs/VRQs
- 6.4.4 Analysis of “On-line” exams/results
- 6.4.5 Regular dialogue with HE and Professional Institutions
- 6.4.6 Review of the SQS and its Action Plan to confirm they are still “Fit for Purpose” taking into account changes in legislation and technology
- 6.4.7 Compatibility of qualifications to changes in legislation and technology
- 6.4.8 Dialogue with relevant bodies/organisations in England, Northern Ireland, Scotland and Wales to ensure that the government policies for each country continue to be reflected in the SQS.

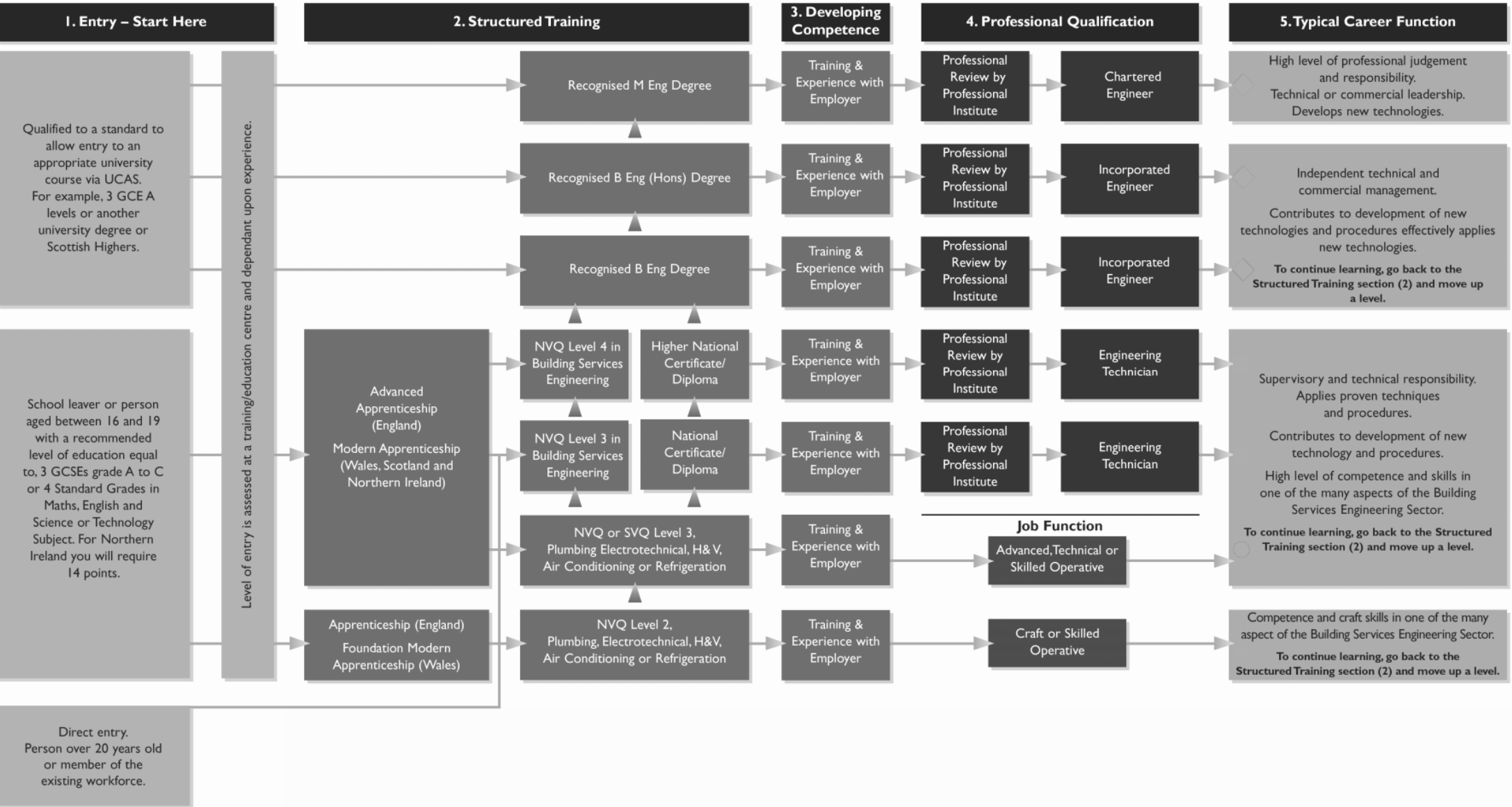
SUMMITSKILL SQS

Annex 1

The Sector Skills Council
for Building Services Engineering

Building Services Engineering Careers Map

Summit SKILLS



SUMMITSKILL SQS

Annex 2

Qualifications and Standards Advisory Group (QSAG)

Membership

Diane Johnson (Chair) – Eric Johnson (Electrical Contractor) Ltd., Northwich, Cheshire
Gerald Crittle - Clarkson Evans Ltd, Gloucester
Joe Pojunas - SIAS Building Services
Peter Hucker – Dalys (Plumbing Services) Ltd, Coventry
Gemma Bloomfield – City & Guilds
John Levit - QCA
Morna Cartoon – SQA
Alan Ross – Scottish Electrical Contractors Training Trust (SECTT)
Trevor Hill – SummitSkills
Lindsay Gillespie – SummitSkills
Keith Marshall - SummitSkills

Members representing the HE/FE sector have completed their tenure of membership and have yet to be replaced

Terms of Reference

Constitution

The Qualifications and Standards Advisory Group will comprise:

A Board Director who will Chair the group;

Employers from each Sector and Industry Interest Group;

A representative of the Devolved Administration Strategy Group;

The Chief Executive;

The Development Director;

Other internal and external representation deemed by the group to be appropriate.

Tenure

Members will normally serve a period of three years, subject to resignations and retirements and a maximum of two consecutive appointments. Other periods of appointment may be made with the agreement of the Chair of the Group and with the objective of creating a rotation of members.

SUMMITSKILL'S SQS

Chairmanship

The Chair will be appointed by the Management Committee, with the approval of the Board, for a period defined by the Management Committee and subject to the conditions of tenure for all members.

Activities

Advise the Management Committee and staff on development of the sector qualifications and standards framework - based on needs identified by sector and industry interest groups.

In conjunction with the sector and industry interest groups to review and prioritise maintenance and new development work within the sector qualification and standards framework.

Oversee adequate collaboration with other qualification and standards bodies in order to minimise duplication and to promote generic qualification and standards where appropriate.

Work in collaboration with the Devolved Administration Strategy Group to ensure that all qualification and standard activities comply with appropriate objectives and systems.

Accountability

The Management Committee

SUMMITSKILL'S SQS

Annex 3

Built Environment Skills Alliance – Terms of Reference

Purpose

The purpose of the Alliance is to help to address the skills agenda for the built environment and to develop a shared vision for a framework that will support productivity and lead to improved skills and performance across the Built Environment.

Role

The Alliance is predominantly an advisory and liaison group with a focus on development issues. The strength of the Alliance comes from sharing a common interest and maintaining a focus on common issues across the Built Environment. It will aim to work through its members and to promote and encourage joint working and a partnership approach where this is appropriate and likely to add value.

Aims

The Alliance has the following aims:

5. To promote progression and careers within the built environment.
6. To share information and to ensure consistency and co-ordination in relation to issues relating to skills, standards and qualifications development.
7. To ensure accuracy of labour market information.
8. To address emerging policy and technical issues relating to the development and implementation of standards, qualifications, specialised lines of learning and apprenticeship frameworks.
9. To discuss issues of common interest across all levels from Entry to the highest levels of achievement and sectors and to aim to share good practice, methods and knowledge.
10. To support relevant and appropriate skills related developments including initiatives such as the London Olympics 2012.
 - The Alliance has a UK wide remit.
 - A proactive approach will be adopted.
 - The Alliance will seek common ground and adopt a partnership approach to policy issues. It will, however, be for individual member organisations to decide on implementation issues.
 - The Alliance will demonstrate added value and complement the work of other groups.

SUMMITSKILL'S SQS

Accountability

Members of the Alliance will report to and be accountable to their own organisation.

Meetings of the Alliance will be minuted and minutes will be circulated to members and will be normally freely available.

The Alliance has been established through the consent of key partners and will provide advice to them.

Members would be sufficiently senior to be able to make decisions and represent the views of their organisation without referral.

There will be collective accountability

Chair

A chairperson and vice-chair will be appointed by members and over time these positions will be rotated amongst the standards setting bodies. The appointments will be reviewed annually.

Membership

In the first instance the membership will be drawn from senior officers of the following organisations:

Asset Skills
CIC
CITB Construction Skills
CITB NI
ECITB
Energy & Utility Skills
Pro Skills
Summit Skills

Other relevant standards setting bodies with an interest in the built environment (including for example SEMTA, Lantra, Cogent and the rail sector) should receive regular updates. They may attend meetings and contribute to the work and may also, if appropriate, wish to consider membership in due course.

Regulators, awarding bodies, providers and others including representatives of the Construction Skills Certification Scheme may attend by invitation.

11. Frequency of meetings

Regular meetings (normally quarterly) will be held to ensure that issues are effectively discussed. The focus will be on policy issues of concern to employers.



The UK Commission aims to raise UK prosperity and opportunity by improving employment and skills. Our ambition is to benefit employers, individuals and government by advising how improved employment and skills systems can help the UK become a worldclass leader in productivity, in employment and in having a fair and inclusive society: all this in the context of a fast-changing global economy.

Because employers, whether in private business or the public sector, have prime responsibility for the achievement of greater productivity, the UK Commission will strengthen the employer voice and provide greater employer influence over the employment and skills systems.

Having developed a view of what's needed, the UK Commission will provide independent advice to the highest levels in government to help achieve those improvements through strategic policy development, evidence-based analysis and the exchange of good practice.

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