A Core Assessment Strategy

for

SummitSkills Operative Level NVQs/SVQs

(NVQs/SVQs approved for use from…….)

for

Electrical and Electronic Servicing
Electrotechnical, and
Mechanical NVQs/SVQs

Levels 2 and 3

Final Version (9.1A.1)

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(Amended January 2009)

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1. Purpose and scope of the Assessment Strategy

1.1 SummitSkills as the Sector Skills Council for the Building Services Engineering sector has developed this Assessment Strategy in discussion with Awarding Bodies, employers, training providers/centres.

1.2 The scope of this Core Assessment Strategy relates to those NVQs/SVQs for the principle industries of Air Conditioning, Electrical and Electronic Servicing, Electrotechnical, Heating and Ventilation Plumbing and Refrigeration. The full list of NVQs/SVQs is provided in Appendix 1. This Assessment Strategy outlines the requirements for the assessment of competence for these specific NVQs/SVQs and includes assessment for the purposes of NVQs/SVQs or NVQ/SVQ units. Note: where the term qualification is used in this Assessment Strategy this should be interpreted to only mean **NVQ/SVQ** and **not** VRQs.

1.3 These NVQs/SVQs, approved in (**date *tbc***), are specifically set at "operative level" which has been defined as:

- those skilled individuals at level 2 or level 3 (subject to their role) with responsibilities 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 and Refrigeration, Electrotechnical, Heating and Ventilation, Plumbing and Electrical and Electronic Servicing.

1.4 These NVQs/SVQs set out the competences required for a number of job roles/occupations. The list below is **not** exhaustive, for details of these and other job roles please refer to http://www.summitskills.org.uk/careers/

- Highways Electrical Systems Installer
- Installation Electrician
- Maintenance Electrician
- Domestic Plumber or Industrial and Commercial Plumber
- Domestic Heating Engineer
- Service and Maintenance Engineer
- Refrigeration Engineer
- Ductwork Installer

1.5 The remit of this Strategy is UK-wide. Where it is necessary to take account of differences in Scotland, for instance, these have been highlighted within the document.

2. Definitions of terminology used in the Assessment Strategy

There are a few terms used in this Core Assessment Strategy that are relevant to the operative level NVQs and SVQs for the specified industries within the Building Services Engineering sector, and have been defined below.

Terms used in previous Strategies may no longer be used[1], and some definitions for terminology used in this Strategy may replace or update previous definitions – therefore please do note these terms listed below.

Terms relating to aspects of the assessment process that are used in the NVQ Code of Practice (revised 2006) or the SQA Awarding Body Criteria (2007) are not replicated here. The NVQ Code of Practice (revised 2006) and SQA Awarding Body Criteria (2007) should be read alongside this Assessment Strategy.

The terminology used here is applicable to all five industries – Air Conditioning and Refrigeration, Electrical and Electronic Servicing, Electrotechnical, Heating and Ventilation and Plumbing.

Terminology	**Explanation/Definition**
Final competence assessment (FCA)	A term specifically relating to a means of assessment of the safety critical aspects for the NVQs/SVQs that are the subject of this assessment strategy. It is an independent holistic assessment of the NVQ/SVQ candidate's **occupational competence** (skills and knowledge) via an assessment process as required by the industry and approved by the Awarding Body[2]. This final assessment is a mandatory requirement for the achievement of the full qualification. In order to undertake this final stage of the qualification's assessment procedure/requirements, evidence of a candidate's involvement, relevant experience and progressive competence development in the identified safety-critical and technically critical aspects of the qualification must be provided before the FCA.
New entrant	A "new entrant" is an NVQ/SVQ candidate who is undertaking a learning and assessment programme without prior industrial occupational experience. Evidence of their competence against the relevant NVQ/SVQ units must be demonstrated using a variety of assessment instruments.
Practising Operative	Practising operatives are individuals with prior industrial occupational experience and are working in a relevant industry. Evidence of their competence against the relevant NVQ/SVQ units must be demonstrated using a variety of assessment instruments, as appropriate, and/or formal evidence of skills/knowledge through accreditation of prior achievement – the system that recognises and accredits existing skills.
Realistic Working Environment	To enable simulation to take place the working conditions created for this purpose must replicate real life working conditions; the criteria for which relate to having up-to-date tools, realistic deadlines, and other

[1] For example: "Applied Knowledge" is a term that is no longer used in the assessment strategy.
[2] See Appendix 4 for the **Memorandum of Understanding** between organisations providing the assessment facility for the "Final Competency Assessment" and Awarding Bodies.

commercial requirements.

Safety critical	Activities with the potential to be life-threatening if undertaken incompetently. These aspects of the NVQ/SVQ units must be demonstrated in simulated conditions where safety is inherent and will also be observed in the final competence assessment process.
Technically critical	Situations that are essential areas of demonstrable skills and knowledge. These activities are critical to the occupation and to ensuring the requirements of the job role are carried out competently.

3. Principles of Assessment

3.1 Given the nature of the potentially hazardous work undertaken by operatives in the key industries of the building services engineering sector (1.2; 1.4). The industries cannot afford for the candidate to make mistakes in **key safety-critical and technically critical** aspects within the workplace. To this end the instruments/methodology of assessment must be rigorous, independent as appropriate and sufficiently holistic that on completion of the assessment programme/process the candidate has demonstrated **occupational competence** as recognised by the sector and the key industries within it.

3.2 Assessors carrying out assessment of evidence should maintain a **holistic approach.** If planned effectively a single event can provide evidence towards a number of units in a qualification. This approach of looking across the qualification can be more efficient as it avoids repetition of evidence and assessment resource. Candidates should be encouraged by Assessors and by Awarding Body documentation, to show that a piece of evidence is appropriate to as many of the Units in the NVQ/SVQ as possible. The NVQ/SVQ will contain an evidence specification setting out requirements regarding which and/or how many systems/ components/ types of equipment/enclosures, etc will demonstrate overall competence.

3.3 A **menu/variety of assessment methods**[2] should be provided for a range of circumstances appropriate to the candidate being assessed; examples include: practical activities, scenario participation, projects, assignments, written assessments and assignments tests/exams and supplementary questioning (see next section for a fuller list). This avoids over-reliance on any one form of assessment method – and gives the candidate opportunities to demonstrate to the Assessor they have met the requirements of the NVQ/SVQ. It also encourages access to fair assessment and equal opportunities.

3.4 As these NVQs/SVQs demonstrate competence in craft / operative level skills it is therefore logical to require that evidence should be **naturally occurring evidence sourced from the workplace and, as relevant, the Final Competence Assessment**. This therefore enables the evidence for the qualifications to:

- o naturally "fall out" of work practice rather than work be forced to comply and fit with the qualification and evidence process,
- o be accurate, valid and sufficient

[2] This is required for the A1 Assessor award, is referenced in paragraph 3.3 in the revised NVQ Code of Practice, and in paragraph 4 of the SQA Awarding Body Criteria, 2007

- o avoid costly repetition and over-burdensome assessment
- o avoid inappropriate over-use (ie in the context of these qualifications) of a paper-based portfolio.

3.5 As is expected[3], this (see 3.4) requires **initial discussions and assessment planning between a Candidate and Assessor,** an essential activity to identify opportunities for evidence from the workplace –gaps that need to be filled or opportunities to recognise prior achievement if the candidate is a practising operative. Where gaps are identified candidate-assessor discussions should agree on how to fill such gaps.

3.6 Competence should be demonstrated **consistently over a period of time**. However SummitSkills does not wish to stipulate what that period of time might be as this is a decision of Assessors. Based on their own professional judgement Assessors must be capable of identifying when competence has been demonstrated by the candidate.

3.7 Finally, candidates should not be put forward for assessment until they are **deemed ready to be assessed as competent**. This underpins the assumption that the candidate has sufficient technical expertise, competence and maturity to complete the requirements of the NVQ/SVQ. In order to meet the expectancies of employers, candidates must be able to demonstrate occupational competence, therefore a final activity to qualification-completion will include a "**final competence assessment** (see Definitions of Terminology, and outlines for each industry in Appendix 3).

4. Methods of Assessing Competence appropriate to these NVQs/SVQs:

4.1 Requirements of Assessment

Drawn from practical activities (requirements governing actual work or simulation are covered below) candidates are required to demonstrate their ability to match the performance objectives set out in the NVQ/SVQ units in relation to:

- the working environment in which they work, and
- the typical systems, equipment/components or installations or service or maintenance activities they undertake

Candidates are required to demonstrate they can apply the relevant technical knowledge and understanding as defined in the NVQ/SVQ units (including awareness of relevant legislation as appropriate) to their work. The main assessment methods to do this will be via a combination of methods including

- observation
- questioning
- product review/evaluation

4.2 Supporting evidence for the above can be generated via the following means:

⇒ Direct observation of performance in the workplace by a qualified assessor and/or testimony from an expert witness. This will be the primary source of evidence.

⇒ Recorded oral and written questioning

⇒ Candidate's reflective account of performance

[3] See the relevant Assessor Awards

- ⇒ Professional discussion whereby candidates identify with their assessor how their evidence meets the NVQ/SVQ Units, any gaps that result and how to fill those gaps. The discussion is recorded as part of the evidence.
- ⇒ Work plans and work based products e.g. diagrams, drawings, specifications, customer testimony, authorised & authenticated photographs/ images and audiovisual records of work completed.
- ⇒ Evidence from prior achievements that demonstrably match the requirements of the NVQ/SVQ units
- ⇒ Case studies, assignments, or projects
- ⇒ Simulation (see below)
- ⇒ In-house training which must reflect the appropriate National Occupational Standards (NOS) that form the NVQ/SVQ units and have a measurable assessment regime designed for such training
- ⇒ Witness testimony (see the criteria for this further on in this Strategy).

Evidence must be provided to show that all knowledge statements are completely met. In addition to the list above other acceptable means of knowledge evidence, for example are:

- ⇒ *Completion of question bank material using online facilities or via other means*
- ⇒ *A Vocationally Related Qualifications (VRQ) or similar, as approved by SummitSkills,*
- ⇒ *Other material developed by Awarding Bodies following discussion with SummitSkills*
- ⇒ *Recorded oral questioning*

5. Safety Critical Aspects

All of the NVQs/SVQs at the operative level contain some aspects that are **safety-critical (see Definitions of Terminology).**

Such aspects are contained within the NVQ/SVQ units. Competence of these safety critical aspects must be assessed via simulated conditions and are also included within the final competence assessment process.

Electrical and Electronic Servicing	➢ activities relating to limited scope electrical work ➢ Installation of signal reception systems and equipment
Electrotechnical	➢ inspection, testing and commissioning ➢ safe isolation ➢ risk assessments and safe working practices ➢ diagnosing and correcting faults
Heat and ventilation / Ductwork	➢ activities relating to limited scope electrical work

	➢ As relevant, the installation, connection and servicing/maintenance of fuel systems and equipment – gas; oil; solid fuel ➢ As relevant, the installation, connection and servicing/maintenance of hot/cold water systems and equipment – unvented water; backflow prevention
Plumbing	➢ activities relating to limited scope electrical work ➢ As relevant, the installation, connection and servicing/maintenance of fuel systems and equipment – gas; oil; solid fuel ➢ As relevant, the installation, connection and servicing/maintenance of hot/cold water systems and equipment – unvented water; backflow prevention
Refrigeration and Air Conditioning	➢ activities relating to F Gas installations/service and maintenance ➢ pressure testing ➢ handling of refrigerants (ODS, Ammonia, HC and CO_2) ➢ limited scope electrical work ➢ thermal pipe joining methods – welding; brazing; soldering

6. Simulation – situations where simulation is either permissible OR mandatory.

6.1 Simulation will take place in at least one but possibly two circumstances:

1. Permissible:

simulation can take place in those rare circumstances where an employer is unable to provide the candidate with a range of work circumstances and the candidate lacks evidence for completion of the NVQ/SVQ.

However, this scenario is anticipated to be extremely rare for the NVQs/SVQs identified in this strategy given the inherent greater flexibility for the candidate to be able to provide quality and valid evidence. Where simulation does take place it must be in a realistic working environment (see definitions).

2. Mandatory:

simulation **must take** place for key-safety critical aspects of the NVQ/SVQ as listed above.

The building services engineering industries cannot afford for the candidate to make mistakes within the workplace and so it is required that candidates will demonstrate competence of those **key safety critical activities** and their technical competence in simulated conditions, and under supervision, as appropriate to each of the principle industries arrangements.

The activities that will be undertaken demonstrating competence in these areas are contained within the final competence assessment process and this must NOT be undertaken before the candidate is ready and has completed all the other Units in the qualification.

7. Workplace Evidence

Other than those situations set out above all other instances require evidence sourced from the workplace.

8. The Assessment Process for the two main types of candidate:

Assessment route for NEW ENTRANTS:

Performance

⇒ assessment of performance in practical activities **in the workplace** of non-safety critical aspects and in simulated conditions for safety critical aspects. Technically-critical aspects to be assessed throughout as appropriate.

Knowledge

⇒ assessment of knowledge by any appropriate means listed in section 4.2

Finally, followed by and NOT before, this type of candidate can be put forward for a:

⇒ final assessment of competence in **performance and knowledge** of safety-critical aspects within independent industry-specific arrangements as approved by SummitSkills.

Assessment Path for PRACTISING OPERATIVES

⇒ an initial assessment to identify 1) prior achievements 2) where further assessment is required and 3) a means to address any gaps :

This type of candidate can then be put forward for a:

⇒ final assessment of competence in **performance and knowledge** of safety-critical aspects within independent industry-specific arrangements as approved by SummitSkills.

9. Key Roles involved in the Assessment Process:

Assessors and Internal Verifiers

- Assessment/Verification competence

All assessors and internal verifiers must be able to show that they possess formal recognition of achievement of the appropriate assessment and verification units of competence, or that they are working towards achieving these units of competence within specified timescales[4].

[4] usually through an action plan which shows progress on achievement

Assessors must:

Be working towards or have achieved A1 or A2[5] Standards and continue to practice to those standards;

OR
Have achieved D32 or D33 or TQFE/TQSE and possess CPD evidence of practicing to A1 or A2 Standards.

Internal verifiers must:

Be working towards or have achieved the V1 Standard and continue to practice to that standard;

OR

Have achieved D34 and possess CPD evidence of practicing to the V1 Standard.

- Assessors – occupational competence

Awarding bodies must ensure that assessors have verifiable relevant industry experience and current knowledge of industry working practices and techniques relevant to the occupational working area. This verifiable evidence must be **at or above the level being assessed** and include one or more of the following: a relevant qualification (see list in **Appendix 2**) or be registered with the appropriate industry registration body at the relevant occupational level and grade.

Assessment in industries involving the electrical, electrotechnical and mechanical services industries including refrigeration, air conditioning, domestic plumbing, industrial and commercial plumbing and heating and ventilation NVQs/SVQs, Assessors **must hold** the relevant qualification that certifies their competence in a number of key areas pertinent to the complete NVQ/SVQ or specific units thereof. **These details are all listed in Appendix 2.**

This occupational competence must include up-to-date knowledge of each industry (for which the assessment is taking place), its settings, legislative and regulatory requirements, codes of practice and guidance within the home country where assessment and internal verification is taking place.

- Assessor Continuing Professional Development

Occupational competence must be updated on a regular basis and reconfirmed via continuing professional development (CPD) via the assessment centres and quality assured via Awarding Bodies.

It is up to each assessor to identify and make use of opportunities, such as Industry conferences, access to trade journals, and SSC and Professional Body/Trade Association events, at least on an annual basis to enhance and upgrade their professional development and technical knowledge.

It is also imperative they keep records of all such CPD opportunities/occasions and that they provide evidence of cascading such technical knowledge and industry intelligence to all relevant colleagues.

[5] Assessment centres should be aware of the specific requirements of each of these awards.

- Internal Verifiers – occupational experience

SummitSkills considers the main focus of IVs to be the quality assurance of assessment procedures. The IV is also required to have a minimum of occupational experience evidenced by having a Building Services Engineering sector related qualification **or** proven experience of the sector, plus access to relevant occupational expertise to enable them to conduct their role as internal verifier appropriately. This evidence and access to "expertise" is quality assured via the EVs who must confirm that the IVs also meet all requirements for the Assessment Centre.

External Verifiers

- External verification competence

External verifiers, in addition to their Awarding Body requirements, must comply with regulatory requirements, codes of practice and must have no conflict of interest (including commercial interests) when carrying out their external verification role.

External verifiers must hold (D35 or V2), or be working towards (V2), the appropriate external verifier qualification to be achieved within specified timescales in accordance with regulatory requirements.

- EV Occupational Competence

It is expected by SummitSkills that Awarding Bodies will ensure external verifiers are in place with verifiable relevant industry experience and current knowledge of industry working practices and techniques relevant to the occupational working area. This verifiable evidence must be **at or above the level being audited** and include one or more of the following: a relevant qualification (see list in **Appendix 2**) or be registered with the appropriate industry registration body at the relevant occupational level and grade.

Where EVs operate in industries involving the electrical, electrotechnical and mechanical services industries including refrigeration, air conditioning, domestic plumbing, industrial and commercial plumbing and heating and ventilation NVQs/SVQs, they **must hold** the relevant qualification that certifies their competence in a number of key areas pertinent to the complete NVQ/SVQ or specific units thereof. **These details are all listed in Appendix 2.**

In exceptional circumstances where External Verifiers do not have such occupational competence they must have access to a technical expert with the same occupational competence described above AND have access to an occupationally competent experienced verifier

- EV Continuing Professional Development

Occupational competence must be updated on a regular basis and reconfirmed via continuing professional development (CPD) which is quality assured via Awarding Bodies.

It is up to each EV to identify and make use of opportunities, such as Industry conferences, access to trade journals, and SSC and Professional Body/Trade Association events, at least on an annual basis to enhance and upgrade their professional development and technical knowledge.

It is also imperative they keep records of all such CPD opportunities/occasions and that they provide evidence of cascading such technical knowledge and industry intelligence to all relevant colleagues.

Expert Witness

Expert witnesses can be experienced individuals (see criteria below) who can attest to the candidate's performance in the workplace. This may include line managers or other experienced colleagues from inside the organisation/company the candidate is employed by.

It is not necessary for expert witnesses to hold an assessor qualification, as a qualified assessor must assess the contribution of performance evidence drawn from an expert witness to overall evidence of competence.

Evidence from expert witnesses must meet the tests of validity, reliability and authenticity.

Expert witnesses will need to demonstrate: -

- They have a current knowledge of industry working practices and techniques relevant to the occupational working area
- They are familiar with the NVQ/SVQ structures and assessment procedures
- Evidence of working competently at or above the level for which they are attesting competence
- That they have no conflict of interest in the outcome of their evidence

Appendix 1 – NVQ/SVQ Titles

This Assessment Strategy relates to these NVQs/SVQs.

Electrotechnical

N/SVQ2: Highway Electrical Systems Installation And Maintenance (HES)

N/SVQ3: Highway Electrical Systems Installation And Maintenance (HES)

N/SVQ3: Electrical Installation

N/SVQ3: Electrical Maintenance

N/SVQ3: Audio Visual Systems Installation

N/SVQ3: Audio Systems Installation

N/SVQ3: Electrical Instrumentation

N/SVQ3: Structured Cabling Installation

N/SVQ3: Electrical Panel Building

N/SVQ3: Electrical Machine Rewind And Repair

N/SVQ 3: Building Management Systems

Electrical and Electronic Servicing

N/SVQ2: Consumer Electronics Servicing

N/SVQ2: Electrical Domestic Appliance Servicing and Installation

N/SVQ2: Installing Signal Reception Systems

N/SVQ3: Consumer Electronics Servicing

N/SVQ3: Electrical Domestic Appliance Servicing and Installation

N/SVQ3: Installing Signal Reception Networks

Heating and Ventilation

N/SVQ2: Heating And Ventilating Ductwork Installation

N/SVQ3: Heating And Ventilating Ductwork Planning And Installation

N/SVQ2: Heating And Ventilating Industrial And Commercial Installation

N/SVQ3: Heating And Ventilating Industrial And Commercial Installation

N/SVQ2: Maintain Heating & Ventilating Systems

N/SVQ3: Service And Commission Heating And Ventilating Systems

Refrigeration

N/SVQ2: Install Refrigeration Systems

N/SVQ3: Install, Test And Commission Refrigeration Systems

N/SVQ2: Maintain Refrigeration Systems

N/SVQ3: Service, Maintain And Commission Refrigeration Systems

Air Conditioning

N/SVQ2: Install Air Conditioning Systems

N/SVQ3: Install, Test And Commission Air Conditioning Systems

N/SVQ2: Maintain Air Conditioning Systems

N/SVQ3: Service, Maintain And Commission Air Conditioning Systems

Domestic Heating

N/SVQ2: Install Domestic Heating Systems

N/SVQ3: Install Domestic Heating Systems

Plumbing

NVQ2: Plumbing

NVQ3: Domestic Plumbing / SVQ3: Plumbing

NVQ3: Industrial And Commercial Plumbing

Appendix 2 – Attesting to Occupational Competence for Assessors and EVs

This Core Assessment Strategy explains that Assessors and External Verifiers (or exceptionally for EVs who must have access to a person with such verifiable evidence) must either be able to demonstrate that they are registered and up-to-date with their registration with an appropriate approved industry registration body **or** have one or more of the following qualifications to ensure that they can be regarded as occupational competent in terms of assessing or verifying complete NVQ/SVQs or specific units thereof accordingly. Also evidence of a combination of pre and post NVQ /SVQ industry recognised qualifications plus relevant CPD in terms of working practices, legislation and technical development will be given serious consideration accordingly.

Appropriate craft certificates/NVQs/SVQs at the appropriate level – dependent on the level of the qualification being assessed in the following:

Plumbing
Plumbing (Domestic) (SVQ)

Heating and Ventilating (Rectification of Systems)
Heating and Ventilating Installation (Domestic, Ductwork or Industrial & Commercial)

Refrigeration & Air Conditioning (Commercial & Industrial Air Cond. Systems)
Refrigeration & Air Conditioning (Ammonia Refrigeration Systems)
Refrigeration & Air Conditioning (Commercial & Industrial Refrigeration Systems - Non Ammonia)

Electrotechnical Services (Installation - Buildings & Structures)
Electrotechnical Services (Electrical Maintenance)
Electrotechnical Services (Installing Instrumentation & Associated Equipment)
Electrotechnical Services (Installing Highway Electrical Systems)
Electrotechnical Services (Installing Structured Cabling Systems)
Electrotechnical Panel Building
Electrical Machine Repair & Rewind

Electrical and Electronic Servicing

Other certificates in competences that have been aligned, and are supplemental, where relevant, to the above:

A relevant brazing or pipe-fitting qualification

Accredited Certification Scheme(ACS)

- CCN1: General Gas Safety
- CEN1: Installation of central heating boilers
- HTR1: Installation of gas fired heaters
- CKR1: Installation of gas cookers
- WAT1: Installation of gas water heaters

City & Guilds Level 3 NVQ in Gas Emergency Service Operations

City & Guilds Level 2 NVQ in Domestic Natural Gas Installation and Maintenance

City & Guilds Level 3 NVQ in Domestic Natural Gas Installation and Maintenance

Level 2 Vocational Award in Handling Refrigerants (City & Guilds 2078)

Level 2 Vocational Award in ODS F gases (City & Guilds 2079)

Relevant OFTEC and/or HEATAS qualifications

Qualifications recognised under DCLG Competent Person Schemes

Unvented Hot Water external assessment to Building Regulations and/or Building Standards requirements

Water Supply Regulations (1999)
Water Byelaws (2000)

"Final version approved February 2009"

Appendix 3 - Industry arrangements for the Final Competence Assessment (FCA) - Also see page 4 and Appendix 4

As explained in the Definitions of Terminology and within the document, the final competence assessment is a part of the assessment process, but it is an independent activity or activities which are conducted as a final part of the assessment process to confirm occupational competence and achievement of the NVQ/SVQ.

Each industry has its own arrangements, as follows. Details of these assessments based on an "Industry Template" will be arranged and agreed between the Awarding Bodies for the qualification and the particular industry/occupation using that qualification, with each of the qualification awarding bodies applying the same principles as identified in the template, thus ensuring a national principle of FCA for the industry/occupation. Further details will be attached to this core document as Annexes in due course.

The design, resource implications, administration and quality assurance of each of the industry/occupation FCA will be determined and agreed by the awarding bodies, the industry and SummitSkills in order that there is no disadvantage to the candidate or detriment to the industry in terms of individuals being able to demonstrate "occupational competence".

The FCA design, resources, administration and quality assurance must be implemented in a cost effective way with no additional unreasonable burden or expenditure for Awarding Bodies.

An 'independent assessment structure' as referred to in this Appendix is one that:

is different to a candidate's normal location of on/off-the-job learning, meets the criteria for assessment, as appropriate, in terms of health and safety, tools, equipment, commercial conditions, resources, documentation etc as set out by the "industry annexes" of this core assessment strategy. The structure will also facilitate assessment of the candidates' ability to apply knowledge to the practical work ('Applied Knowledge') that they are being asked to do. This will most likely be by approved forms of questioning. Therefore, the independent assessor will be assessing both the candidate's skill and knowledge.

Whilst the assessment is carried out by the independent assessor, the specification of the assessment in terms of:

- its requirements,
- the areas to be covered,
- the level of questioning,
- the marking system,

will be approved and verified in accordance with criteria set out in the "industry annexes" and endorsed by SummitSkills.

Industry	OUTLINE content for each industry's FCA
Electrical and Electronic Servicing	➢ activities relating to limited scope electrical work ➢ Installation of signal reception systems and equipment **Assessment of technical knowledge and practical performance in an independent assessment structure**
Electrotechnical	➢ inspection, testing and commissioning ➢ safe isolation ➢ risk assessments and safe working practices ➢ diagnosing and correcting faults **Assessment of technical knowledge and practical performance in an independent assessment structure**
Heat and ventilation / Ductwork	➢ activities relating to limited scope electrical work ➢ As relevant, the installation, connection and servicing/maintenance of fuel systems and equipment – gas; oil; solid fuel ➢ As relevant, the installation, connection and servicing/maintenance of hot/cold water systems and equipment – unvented water; backflow prevention **Assessment of technical knowledge and practical performance in an independent assessment structure**
Plumbing	➢ activities relating to limited scope electrical work **Level 3 Domestic Plumbing & Domestic Heating Awards** ➢ Assessment in the following competence areas must meet the minimum standards laid down by the following bodies and be capable of facilitating separate operative registration (without further assessment and training) with industry recognised bodies approved to register operatives in the listed competence area. • Water Regulations – DEFRA (WRAS) • Unvented hot water – Building Regulations/Standards • Energy efficiency – Building Regulations/Standards (Part L1 of the Building Regulations in England & Wales) • Gas – gas registration provider • Oil – OFTEC

	• Solid fuel – HETAS • Electrical – defined scope Part P electrics • Emerging technologies – MTC proposals (Competent Persons Schemes) **Level 3 Industrial/Commercial Plumbing Award** ➢ Assessment in the following competence areas must meet the minimum standards laid down by the following bodies and be capable of facilitating separate operative registration (without further assessment and training) with industry recognised bodies approved to register operatives in the listed competence area. • Water Regulations – DEFRA (WRAS) • Disinfection of water systems DEFRA (WRAS) • Unvented hot water – Building Regulations/Standards • Gas – gas registration provider **Assessment of technical knowledge and practical performance in an independent assessment structure**
<u>Refrigeration and Air Conditioning</u>	➢ activities relating to F Gas installations/service and maintenance ➢ limited scope electrical work ➢ thermal pipe joining methods – welding; brazing; soldering ➢ Assessment and certification as required by F Gas and Ozone Depleting Substances Regulations. **Assessment of technical knowledge and practical performance in an independent assessment structure**

Appendix 4 – Memorandum of Understanding (M.o.U.) between organisations providing the assessment facility for the "Final Competency Assessment" and Awarding Bodies (Also see page 4 and Appendix 3) – NVQs and SVQs

1. Introduction

1.1 The final competence assessment is a part of the assessment process/requirements for the qualification structures identified in this assessment strategy (Appendix 1), but it is an independent activity or activities which are conducted as a final part of the assessment process to confirm occupational competence and achievement of the identified NVQ/SVQ structures.

1.2 Each industry will have its own arrangements which are compatible to and reflect their particular requirements in terms of assessing occupational competence in an "independent structure" (Appendix 3). These arrangements and assessment methodology will be agreed between SummitSkills and Awarding Bodies.

1.3 The **Heating & Ventilating, Plumbing and Refrigeration & Air Conditioning** industries will maximise the facilities in approved delivery/assessment centres who will provide an independent, controlled and designated assessment environment within its learning and assessment resource for the purpose of the "Final Competence Assessment" for the identified qualification.

1.4 The **Electrical & Electronic Servicing (Consumer Electronics; Domestic Appliances; Signal Reception)** industry will maximise the facilities in approved delivery/assessment centres who will provide an independent, controlled and designated assessment environment within its learning and assessment resource for the purpose of the "Final Competence Assessment" for the identified qualification.

1.5 The **Electrotechnical Services (Electrical Installation; Electrical Maintenance; Electrical Panel Building; Electric Motor Repair & Rewind; Installing Highway Electrical Systems)** industry will use an industry prescribed "Final Competence Assessment" facilitated by organisations approved by National Electrotehnical Training (NET)[1].

NOTE 1: **NET** is an independent body which represents and coordinates particular training initiatives in the electrotrechnical industry. Its portfolio includes holding the intellectual copyright for the industry's recognised and approved "Final Competency Assessment" – **AM2** in England, Northern Ireland and Wales; **FICA** in Scotland. Therefore, has the responsibility and accountability for the quality and rigour of the industry's "Final Competence Assessment" in terms of provision, facilities, health & safety, marking regime and assessment methodology.

2. Purpose

2.1 The purpose of this memorandum of understanding is to define the roles and responsibilities of the organisations and bodies involved with facilitating, managing and administering the "Final Competence Assessment" for each industry.

2.2 This memorandum of understanding only relates to the qualifications identified in Appendix 1 of this assessment strategy or their revisions/replacements as determined by SummitSkills.

3. Roles and Responsibilities

3.1 Heating & Ventilating, Plumbing and Refrigeration & Air Conditioning (1.3) and Electrical & Electronic Servicing(1.4) qualifications:

3.1.1 The "Final Competency Assessment" requirements will be determined by SummitSkills in partnership with industry representatives and awarding bodies

3.1.2 The "Final Competency Assessment" facilities will be provided by awarding body approved centres and comply with the requirements identified in 3.1.1

3.1.3 Awarding Body Internal Verifiers (IVs) and External Verifiers (EVs) will be responsible for quality assuring the "Final Competency Assessment" facilities in compliance with the awarding body's compliance requirements.

3.1.4 Awarding body Internal Verifiers (IVs) and External Verifiers (EVs) will be responsible for quality assuring the rigour and assessment methodology associated with the "Final Competency Assessment" facilities and assessment requirements in keeping with the awarding body's compliance requirements and procedures.

3.2 Electrotechnical (1.5):

For the purpose of this memorandum organisations approved to provide the "Electrotechnical Final Competence Assessment" will be referred to as centres

3.2.1 The "Electrotechnical Final Competency Assessment" requirements will be determined and prescribed by NET

3.2.2 The "Electrotechnical Final Competence Assessment" facilities will be provided by centres approved by NET in keeping with an industry "Centre Approval Specification"

3.2.3 NET will be responsible and accountable for the quality assurance of the "Electrotechnical Final Competence Assessment" facility, assessment methodology and marking regime/criteria

3.2.4 NET will be responsible for quality assuring the rigour and assessment methodology associated with the "Electrotechnical Final Competency Assessment" facilities and assessment requirements in keeping with the NET "Centre Approval Specification" and their compliance requirements and procedures.

3.2.5 NET will provide awarding body EVs with the "Centre Approval Specification" for reference only

3.2.6 NET will provide awarding body EVs summaries of the annual monitoring visit criteria, procedures and reports, as appropriate, for centres who are approved to provide the "Electrotechnical Final Competence Assessment" facility

3.2.7 NET will provide awarding body IVs and EVs, as appropriate, a summary of the principles of the "Electrotechnical Final Competence Assessment" marking regime and criteria in terms of its integrity, robustness and consistency"

3.2.8 NET will work in partnership, as appropriate, with awarding bodies to address any candidate grievances related to the "Electrotechnical Final Competency Assessment"

4. Duration of this memorandum

It is expected that the duration of this memorandum will equate with the accreditation period of the qualifications, or units therein as relevant, identified in Appendix 1. Therefore, in partnership with the awarding bodies and approval organisations associated with this memorandum, SummitSkills will review this memorandum bi-annually or as appropriate subject to any revisions to the qualifications identified in Appendix 1.