



As of 1 August 2022, the English and maths requirements for on-programme and new apprentices undertaking level 2 apprenticeships have changed and are detailed as part of the [apprenticeship funding rules](#). These requirements supersede the current wording in this apprenticeship standard and EPA plan.

# End-point assessment plan for Fenestration Installer apprenticeship standard

Apprenticeship standard reference number	Level of this end point assessment (EPA)	Integrated
ST0743	2	No

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## Introduction and overview

This document sets out the requirements for end-point assessment (EPA) for the Fenestration Installer apprenticeship standard. It is for end-point assessment organisations (EPAOs) who need to know how EPA for this apprenticeship must operate. It will also be of interest to Fenestration Installer apprentices, their employers and training providers.

Full time apprentices will typically spend 18 months on-programme (before the gateway) working towards the occupational standard, with a minimum of 20% off-the-job training. All apprentices must spend a minimum of 12 months on-programme.

The EPA period should only start, and the EPA be arranged, once all of the pre-requisite gateway requirements for EPA have been met and they can be evidenced/available to an EPAO. The employer must be satisfied that the apprentice is consistently working at or above the level set out in the occupational standard. Apprentices must have compiled a portfolio of evidence, which underpins the EPA interview. For level 2 apprenticeships, apprentices without English and mathematics at level 2 must achieve level 1 English and mathematics and take the tests for level 2 prior to taking their EPA.

The EPA will be completed within an EPA period typically lasting 3 months, after the apprentice has met the EPA gateway requirements.

EPA must be conducted by an organisation approved to offer services against this apprenticeship standard, as selected by the employer, from the Education & Skills Funding Agency's Register of End-point assessment Organisations (RoEPAO).

The EPA consists of three discrete assessment methods.

The individual assessment methods will have the following grades:

### **Assessment method 1:** Observation with Questioning

- Fail
- Pass
- Distinction

### **Assessment method 2:** Interview, underpinned by portfolio of evidence

- Fail
- Pass
- Distinction

### **Assessment method 3:** Multiple-choice test

- Fail
- Pass

Performance in the EPA will determine the overall apprenticeship standard and grade of:

- Fail
- Pass
- Distinction

## EPA summary table

<b>On-programme</b> (typically 18 months)	<p>Training to develop the occupation standard's knowledge, skills and behaviours.</p> <p>Training towards English and mathematics level 1 and 2, if required</p> <p>Compilation of a portfolio of evidence</p>
<b>End-point Assessment Gateway</b>	<p>Employer is satisfied the apprentice is consistently working at, or above, the level of the occupational standard.</p> <p>Apprentice has achieved English and mathematics at Level 1 and taken the tests for level 2</p> <p>Apprentice compiled a portfolio of evidence, to underpin the EPA interview</p>
<b>End Point Assessment</b> (typically 3 months)	<p>Assessment Method 1: Observation with Questioning, graded fail, pass, distinction</p> <p>Assessment Method 2: Interview, underpinned by portfolio of evidence; graded fail, pass, distinction</p> <p>Assessment Method 3: Multiple-choice test; graded fail, pass</p>

## Length of end-point assessment period:

The EPA (including all assessment methods) will typically be completed within three-months of the gateway.

## Order of assessment methods

The assessment methods can be delivered in any order. The result of one assessment method does not have to be known before an apprentice starts the next one.

## Gateway

The EPA period should only start once the employer is satisfied that the apprentice is consistently working at or above the level set out in the occupational standard, that is to say they are deemed to have achieved occupational competence. In making this decision, the employer may take advice from the apprentice's training provider(s), but the decision must ultimately be made solely by the employer.

In addition to the employer's confirmation that the apprentice is working at or above the level in the occupational standard, the apprentice must have completed the following gateway requirements prior to beginning EPA:

Apprentices without English and mathematics at level 2 must achieve level 1 English and mathematics and take the tests for level 2 prior to taking their EPA.

For those with an education, health and care plan or a legacy statement the apprenticeships English and mathematics minimum requirement is Entry Level 3 and British Sign Language qualification are an alternative to English qualifications for whom this is their primary language.

For the interview, the apprentice must have completed and submitted a portfolio of evidence— see requirements below

Portfolio of evidence requirements:

- apprentices must compile a portfolio of evidence during the on-programme period of the apprenticeship
- it must contain sufficient evidence to demonstrate the KSBs that will be assessed by the interview, underpinned by portfolio
- It should typically contain 10 discrete pieces of evidence
- evidence must be mapped against the KSBs
- evidence may be used to demonstrate more than one KSB; a qualitative as opposed to quantitative approach is required
- evidence sources may include:
  - workplace documentation, for example job cards/job sheets, check sheets/quality check records, accident records, equipment check/maintenance records

- annotated specifications, for example drawings, cutting lists, work instructions
- annotated photographs
- video clips (maximum duration in total 10-minutes)

This is not a definitive list, other evidence sources are allowable

- it should not include any methods of self-assessment
- any employer contributions should focus on direct observation of evidence (for example witness statements) of competence rather than opinions
- the evidence provided must be valid and attributable to the apprentice; the portfolio of evidence must contain a statement from the employer confirming this
- the portfolio of evidence must be submitted to the EPAO at the gateway point
- the portfolio of evidence itself is not assessed, it is used to inform the questioning for the interview

# Assessment methods

## Assessment Method 1: Observation with Questioning

### Overview

This assessment method has two components: observation and questioning.

Apprentices must be observed by an independent assessor completing work in their normal workplace, in which they will demonstrate the KSBs assigned to this assessment method. The EPAO will arrange for the observation to take place, in consultation with the employer.

One assessor may observe up to a maximum of one apprentice at any one time, to allow for quality and rigour.

The rationale for this assessment method is:

- this is a practical role, best demonstrated through observation
- observation allows the assessment of work tasks in the apprentice's normal place of work, using tools and equipment with which they are familiar, which is likely to enable the apprentice to perform at their best
- observation is a cost effective assessment method, as it makes use of the employer's premises and resources
- the tasks chosen reflect something that would be completed by fenestration installers in every company on a daily basis; tasks not necessarily completed on a daily basis or not best suited to direct observation are assessed via the other assessment methods
- questioning component enables the checking of underpinning knowledge

### Delivery

The observation must take seven hours. The observation may be split into discrete sections held over a maximum of two working days. The length of a working day is typically considered to be 7.5 hours. The assessor has the discretion to increase the time of the observation by up to 10% to allow the apprentice to complete a task at the end of this component of the EPA. The independent assessor must be unobtrusive whilst conducting the observation.

In advance of the observation, apprentices must be provided with information on the format of the observation, including timescales.

The following activities **MUST** be observed during the observation:

- Installation of a Door
- Installation of a Window

The activities must require the apprentice to select and use of a range of machinery, equipment and/or tools.

Observation specifications must be of equal complexity, so as to require a competent person seven hours to complete.

Questions must be asked after the observation of each activity is complete. Time for questions is in addition to the time allocated to the observation. The independent assessor will ask a minimum of 5 open questions in total. They may ask follow up questions where clarification is required. The purpose

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of the questioning is to assess underpinning knowledge and behaviours mapped to this assessment method and give all apprentices opportunity to demonstrate any relevant distinction criteria. The independent assessor can develop their own questions pertinent to the observation. Questions must be asked within a time period not exceeding 45-minutes.

KSBs observed, and answers to questions, must be documented by the independent assessor.

The independent assessor will make all grading decisions.

EPAOs must ensure that apprentices have a different observation specification and set of questions in the case of re-sits/re-takes.

### Other relevant information

There may be breaks during the observation to allow the apprentice to move from one location to another as required and meal/comfort breaks; such breaks will not contribute to the assessment time. The apprentice must not communicate with anyone else during any breaks.

### Venue

The observation must take place in the apprentice's employer's premises, under normal working conditions or a workplace other than the employer's own premises (e.g. premises of a client). The EPAO must ensure the necessary materials and equipment/tools are available to the apprentice.

### Support material

EPAOs will produce the following material to support this assessment method:

- observation specifications. The 'specification bank,' must be of sufficient size to prevent predictability and reviewed regularly (at least once per year) to ensure they are fit for purpose.
- open questions to assess related underpinning KSBs. The 'question bank' must be of sufficient size to prevent predictability and reviewed regularly (and at least once a year) to ensure that it, and its content, are fit for purpose.
- assessment recording documentation
- guidance for apprentices and employers

It is recommended that questions are developed in consultation with employers of this occupation. EPAOs must maintain the security and confidentiality of their questions when consulting employers.

## Assessment Method 2: Interview, underpinned by portfolio

### Overview

This method has one component: Interview.

The rationale for this assessment method is:

- it allows the apprentice to be assessed against KSBs that may not occur naturally on a daily basis, would take too long to observe or do not lend themselves to direct observation
- the interview is underpinned by a portfolio of evidence, enabling the apprentice to demonstrate the application of skill and behaviours as well as knowledge
- allows for testing of responses where there are a number of potential answers that couldn't be tested through the multiple-choice test
- it is a cost effective, as it makes use of the employer's premises and does not require additional resources

## Delivery

The interview must be appropriately structured to draw out the best of the apprentice's competence. Apprentices must be assessed against the KSBs assigned to this assessment method – as shown in mapping of KSBs.

EPAOs must make arrangements for this assessment method with the apprentice's employer.

Independent assessors must conduct and assess the interview on a one-to-one basis.

The interview must last for 45 minutes. The independent assessor has the discretion to increase the time of the interview by up to 10% to allow the apprentice to complete their last answer. Further time may be granted for apprentices with appropriate needs, in-line with the EPAOs Reasonable Adjustments policy.

The independent assessor must ask a minimum of 15 open, competence-based questions from their EPAO question bank; follow up questions devised by the independent assessor are allowed to seek clarification. The independent assessor should consider the level of English that the apprentice is working at and pitch questions using appropriate language to ensure inclusivity. Apprentices are expected to understand and use relevant occupational language.

The questions will focus on coverage of the themes detailed below. Apprentices should refer to and illustrate their answers with evidence from their portfolio of evidence however the portfolio evidence is not directly assessed.

Questions must cover the following themes (at least one question per theme):

- fenestration systems and specification, interpretation of documentation
- developing good working relationships with other functions that installers interact with and communication
- techniques for measuring, marking and drilling
- post installation activities handover ensuring structural stability
- types of errors, making good damaged areas and rectifying work
- limits of autonomy, reporting problems and adjustability
- internal and external finishing's
- time management

The independent assessor must use the assessment tools and procedures that are set by the EPAO to record the interview.

Evidence from questioning must be assessed holistically using the grading criteria for this assessment method. The independent assessor will make all grading decisions.

EPAOs must ensure that apprentices have a different set of questions in the case of re-sits/re-takes.

Independent assessors must be developed and trained by the EPAO in the conduct of interviews and reaching consistent judgement.

## Venue

The interview should take place in a quiet room, free from distractions and influence.

The interview, can take place in any of the following:



- employer's premises
- a suitable venue selected by the EPAO, for example a training provider's premises

Video conferencing can be used to conduct the interview, but the EPAO must have processes in place to verify the identity of the apprentice and ensure the apprentice is not being aided in some way.

### Other relevant information

A question bank must be developed by EPAOs. The 'question bank' must be of sufficient size to prevent predictability and review it regularly (and at least once a year) to ensure that it, and its content, are fit for purpose. Questions relating to the underpinning knowledge, skills and behaviours, must be varied yet allow assessment of the relevant KSBs.

### Supporting Material

EPAOs will produce the following material to support this assessment method:

- set questions, a question bank must be developed by EPAOs. The 'question bank' must be of sufficient size to prevent predictability and reviewed regularly (and at least once a year) to ensure that it, and its content, are fit for purpose.
- assessment recording documentation
- guidance for apprentices and employers

## Assessment Method 3: Multiple-Choice Test

### Overview

This assessment method has one component: multiple choice test.

The rationale for this assessment method is:

- allows for the efficient testing of knowledge where there is a right or wrong answer
- does not require independent assessor time, reducing cost
- allows for flexibility in terms of when it is taken

### Test Format

Apprentices must be assessed against the knowledge assigned to this assessment method – as shown in mapping of KSBs.

The test can be:

- computer based
- paper based

It will consist of 40 questions.

These questions will consist of:

- Closed response questions (e.g. multiple-choice questions)
- Questions based on a scenario / case study
- Five questions must relate to health and safety (K6) and five questions must relate to legislation (K5).
- The test should include six scenario based questions as follows K5 (2), K8 (1), K10 (1), K14 (1), K17 (1)

- Apprentices must choose one correct answer from a choice of four.
- Each question answered correctly will be awarded one mark. Any incorrect or missing answers will be assigned nil marks.

### Test administration

Apprentices must have 60 minutes to complete the test.

The test is closed book which means that the apprentice cannot refer to reference books or materials.

Apprentices must take the test in a suitably controlled environment that is a quiet space, free of distractions and influence, in the presence of an invigilator. The invigilator may be the independent assessor or another independent external person employed by the EPAO or specialised (proctor) software, if the test can be taken on-line. The EPAO is required to have an invigilation policy that will set out how the test/examination is to be carried out. This will include specifying the most appropriate ratio of apprentices to invigilators to best take into account the setting and security required in administering the test/examination.

The EPAO is responsible for ensuring the security of testing they administer to ensure the test remains valid and reliable (this includes any arrangements made using online tools). The EPAO is responsible for verifying the validity of the identity of the person taking the test.

The EPAO must verify the suitability of the venue for taking the test and the identity of the person taking the test.

### Marking

Tests must be marked by independent assessors or markers employed by the EPAO following a marking guide produced by the EPAO. Alternatively, marking by computer is permissible where questions types allow this, to improve marking reliability.

Any incorrect or missing answers must be assigned 0 marks.

The following grade boundaries apply to the test:

Grade	Minimum Score	Maximum Score
Pass	30	40
Fail	0	29

### Question and resources development

Questions must be written by EPAOs and must be relevant to the occupation and employer settings. It is recommended that this be done in consultation with employers of this occupation. EPAOs should also maintain the security and confidentiality of their questions when consulting employers. EPAOs must develop a 'test specification' and 'question banks' of sufficient size to prevent predictability and review them regularly (and at least once a year) to ensure they, and the test specification and the questions they contain, are fit for purpose.

### Required supporting material

As a minimum EPAOs will produce the following material to support this method:

- A test specification
- sample tests and mark schemes

- live tests and mark schemes
- analysis reports which show areas of weakness for completed tests/exams and an invigilation policy.

## Reasonable adjustments

The EPAO must have in place clear and fair arrangements for making Reasonable Adjustments for this standard. This should include how an apprentice qualifies for Reasonable Adjustment and what Reasonable Adjustments will be made. The adjustments must maintain the validity, reliability and integrity of the assessment methods outlined in this assessment plan.

## Weighting of assessment methods

All assessment methods are weighted equally in their contribution to the overall EPA pass grade. The observation and questioning and interview underpinned by portfolio assessment methods determine whether a distinction grade is awarded.

## Overall EPA grading

All EPA methods must be passed for the EPA to be passed overall.

Performance in the EPA will determine the apprenticeship grade of fail, pass or distinction. Independent assessors must individually grade each assessment method, according to the requirements set out in this plan.

EPAOs must combine the individual assessment method grades to determine the overall EPA grade.

Apprentices who fail one or more assessment method will be awarded an EPA 'fail.'

In order to achieve an overall 'pass' apprentices must achieve a pass in all three assessment methods. In order to achieve an overall 'distinction' apprentices must achieve a distinction in the observation with questioning and interview underpinned by portfolio, and a pass in the multiple-choice test.

There are no restrictions on grading where apprentices re-sit/re-take an assessment method – see the re-sit/re-take section.

Grades from individual assessment methods should be combined in the following way to determine the grade of the EPA as a whole:

Assessment method 1 – observation with questioning	Assessment method 2 – interview underpinned by portfolio	Assessment method 3 – multiple choice test	Overall grading
Fail	Any grade	Any grade	Fail
Any grade	Fail	Any grade	Fail
Any grade	Any grade	Fail	Fail
Pass	Pass	Pass	Pass
Distinction	Pass	Pass	Pass
Pass	Distinction	Pass	Pass
Distinction	Distinction	Pass	Distinction

## Re-sits and re-takes

Apprentices who fail one or more assessment method will be offered the opportunity to take a re-sit or a re-take. A re-sit does not require further learning, whereas a re-take does.

Apprentices should have a supportive action plan to prepare for the re-sit or a re-take. The apprentice's employer will need to agree that either a re-sit or re-take is an appropriate course of action.

An apprentice who fails an assessment method, and therefore the EPA in the first instance, will be required to re-sit any failed assessment methods only. Re-sits/re-takes must be taken and passed within six-months of the fail notification, otherwise the entire EPA must be re-taken.

Re-sits and re-takes are not offered to apprentices wishing to move from pass to distinction.

Where any assessment method has to be re-sat or re-taken, the apprentice can be awarded fail, pass or distinction.

## Roles and responsibilities

Role	Responsibility
Apprentice	<ul style="list-style-type: none"> <li>• complete the on-programme element of the apprenticeship</li> <li>• prepare for and complete the EPA</li> </ul>
Employer	<ul style="list-style-type: none"> <li>• identify when the apprentice is ready to pass the gateway and undertake their EPA</li> <li>• notify the EPAO that the apprentice has passed the gateway</li> </ul>
EPAO	<p>As a minimum EPAOs should:</p> <ul style="list-style-type: none"> <li>• appoint administrators/invigilators and markers to administer/invigilate and mark the EPA</li> <li>• provide training and CPD to the independent assessors they employ to undertake the EPA</li> <li>• have no direct connection with the apprentice, their employer or training provider i.e. there must be no conflict of interest</li> <li>• have processes in place to conduct internal quality assurance and do this on a regular basis</li> <li>• organise standardisation events and activities in accordance with this plan's IQA section</li> <li>• organise and conduct moderation of independent assessors' marking in accordance with this plan</li> <li>• have, and operate, an appeals process</li> </ul>
Independent assessor	<p>As a minimum an Independent assessor should:</p> <ul style="list-style-type: none"> <li>• be independent of the apprentice, their employer and training provider(s) i.e. there must be no conflict of interest</li> <li>• meet the experience and qualification requirements in accordance with this plan and have had training from their EPAO in terms of good assessment practice, operating the assessment tools and grading</li> <li>• attend the required number of EPAOs standardisation and training events per year (as defined in the IQA section)</li> </ul>
Training provider	<p>As a minimum the training provider should:</p> <ul style="list-style-type: none"> <li>• work with the employer to ensure that the apprentice is given the opportunities to develop the KSBs outlined in the standard and monitor their progress during the on-programme period</li> <li>• advise the employer, upon request, on the apprentice's readiness for EPA prior to the gateway</li> <li>• Plays no part in the EPA itself</li> </ul>

## Internal Quality Assurance (IQA)

Internal quality assurance refers to the requirements that EPA organisations must have in place to ensure consistent (reliable) and accurate (valid) assessment decisions. EPA organisations for this EPA must:

appoint independent assessors who have knowledge of the following occupational areas:

- comprehensive experience of fenestration installation i.e. five years or more experience in the sector
- recent relevant experience of the occupation/sector i.e. worked in the sector in the last three years or can demonstrate current knowledge and skills developed through continued professional development
- hold or be working towards an independent assessor qualification, for example TAQA (Training and Quality Assessment)
- provide training for independent assessors in terms of good assessment practice, operating the assessment tools and grading
- have robust quality assurance systems and procedures that support fair, reliable and consistent assessment across the organisation and over time.
- operate induction training and standardisation events for independent assessors when they begin working for the EPAO on this standard and before they deliver an updated assessment method for the first time
- conduct mandatory annual standardisation activities for all independent assessors.

## Affordability

Affordability of the EPA will be aided by using at least some of the following practice:

- online assessment
- using an employer's premises and resources
- using an employer's premises, equipment and resources for the observation

# Mapping of knowledge, skills and behaviours (KSBs)

## Assessment method 1: Observation with questioning

Knowledge
K9 Safe handling/movement of product. Authority/licenses required to use moving and handling equipment such as cranes, forklift trucks and manipulators. Problems or damage that can occur and avoidance methods. Techniques for loading and unloading of vehicles.
K11 Who they need to communicate with and when, and communication techniques; verbal, written and digital. Documentation requirements.
K16 Techniques for measuring, marking and drilling materials, accurately, safely and economically.
K18 Internal Finishing's: the various methods of finishing internally between the window and the opening reveals, the purpose of internal finishing and how this is linked to post installation complaints.
K19 External Finishing's: the requirements of external finishing in relation to reduce cold bridging around the opening and prevent water penetration through the window/building junction; the various methods of external finishing; how to finish the joint below the sill between it and the structure; scribing techniques.

Skills
S1 Select the correct type and quantity of materials, components and equipment for each task in line with specifications/instructions.
S2 Read and interpret specifications, diagrams and work instructions including BIM; follow instructions.
S3 Plan work and carry out checks to ensure the products are the right size to fit the aperture/meet the specifications
S4 Prepare the work area effectively, make the site safe and ensure all parties are considered (occupiers, children, pets, the general public and other trades people)
S5 Complete tools and equipment checks and adjustments. Use tools and equipment safely.
S6 Select and use manual methods and equipment to install products to specification.
S7 Install products and fixings, ensure level, plumb, compliance with regulations, manufacturer's instructions and specifications.
S8 Measure, cut and fix trims.
S9 Apply external wet sealants and appropriate associated products such as foam rods as backing material etc; scribing.
S10 Remove Windows and Doors and/or prepare apertures for installation activities

S12 Handle, load, unload and store products safely to minimise damage.
S13 Install ancillary, glazing, weatherproofing items to products in accordance with work instructions/manufacturers guidelines.
S14 Follow health & safety and environmental policy and procedures.
S15 Identify risks and hazards in the workplace and control measures.
S16 Check and inspect work – interim and final.
S18 Re-use, re-cycle and dispose of material, waste and scrap from the work area, as appropriate.
S19 Communicate with colleagues/customers; use common industry terminology appropriately and accurately.
S20 Complete workplace documentation
<b>Behaviours</b>
B1 Has a health & safety first attitude, for example, resists pressures to follow unsafe working practices.
B3 Takes responsibility, for example, completes own work to required quality standards.
B4 Applies logical thinking, for example, uses clear and valid reasoning when making decisions related to undertaking the work instructions.
B5 Works effectively, for example, undertakes work in a reliable, tidy and productive manner.

## Assessment method 2: interview underpinned by portfolio

<b>Knowledge</b>
K2 Other functions that installers interact with, for example surveying, fabrication, despatch, installation, service engineers; their purpose and interdependencies. Interaction with other Energy Efficiency Measures in particular Cavity wall, External wall insulation or internal wall insulation. Internal and external customers.
K12 Limits of autonomy; reporting channels.
K13 Fenestration system (manufacturers manuals) and specifications - what they are and how to interpret them; what to do if suspect the specification is wrong or have any queries about the specification.
K20 Repair and make good any damaged plasterwork and external finishes
K22 Types of errors that occur, investigation and rectification techniques, such as manual or mechanical adjustment.
K24 Processes for handover to other functions/customers.
<b>Skills</b>
S11 Ensure structural stability including temporary support when removing products.



S17 Identify and rectify any work that is incorrect or incomplete.
S21 Report work outcomes and problems.
S22 Post Installation Activities such as interaction with customer or site manager, completion of paperwork, demonstration, handover of booklet or manuals.
<b>Behaviours</b>
B2 Professional, for example, develops good working relationships recognising dependencies, uses co-operative approaches to optimise workflow and productivity with limited supervision, shows respect for colleagues.
B6 Applies time management, for example uses their time effectively to complete work to schedule and always arrives at, and ready to work on time.
B7 Adjustable when required, for example adapts to changes to work instructions or variations in workplace contexts and environments

### Assessment method 3: multiple-choice test

<b>Knowledge</b>
K1 The role of installation in the fenestration industry. Key markets for fenestration products - domestic, commercial, public sector and their requirements. Different types of products and their purpose, including specialist products for enhanced performance, safety, security and fire rating. Understand window and doorset U-values, Window and Doorset Energy Ratings and how these relate to Building regulation requirements in Approved Document L.
K3 Materials used in fenestration installation - aluminium, steel, timber, composites or PVC-U; their mechanical properties, uses and design limitations. Ancillary items - for example fixings and fastening, handles, hinges, locks, ventilators and louvers; their purpose and how/where they should interact. Weatherproofing products and systems - for example, gaskets, DPCs, membranes, sealants, weather seals and drainage systems; their purpose, compatibility, conditions for storage and use (shelf-life).
K4 Glazing: how an Insulating Glass Unit (IGU) is constructed how the inclusion of various components improve thermal performance such as low-e glass, warm-edge spacer bars, gas filling etc. U-values, Window Energy Ratings and Doorset Energy Ratings, how to identify where safety glazing must be fitted and how to identify safety glazing in an IGU, the principles of various glazing systems such as drained and ventilated and solid bedded systems, how to correctly pack between the IGU and the frame rebate and why 'toeing and heeling' is vitally important when glazing windows and particularly doorsets; the various types of opaque infill panels and how to identify them.
K5 Legislation, regulations and industry standards, including window energy rating standards, CE marking, Secured by Design, Building Regulations such as Approved Documents Parts A-J, K-N, P, Q and Regulation 7
K6 Health and safety, including: Health & Safety at Work Act, Reporting of Injuries, Diseases and Dangerous Occurrences Regulations (RIDDOR), personal protective equipment (PPE), manual handling, Working at Height, Control of Substances Hazardous to Health (COSHH), Provision and Use of Work Equipment Regulations (PUWER), Hand Arm Vibration System (HAVS), Local Exhaust

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Ventilation (LEV), site safety (CSCS), asbestos handling, site fire and evacuation procedures, PAT testing, RCD protection; how they must be applied in the workplace. Risk assessments and dynamic risk assessments.
K7 Buildings: how to identify whether the correct structural support is incorporated in the building and if not, know what to do. Various building methods and how windows and doorsets interact with them such as cavity wall, timber frame, steel frame etc. The structural requirements when installing bay windows, sliding patio and bi-fold doors. Vertical Damp-Proof Course: its function and how to repair/replace if damaged or missing.
K8 Removal of existing components: types of temporary structural supports available and how to use them, methods of removing windows and doorsets manufactured from various materials, how to minimise damage to the surrounding building structure such as brickwork, rendering etc.
K10 Environmental considerations: safe disposal of waste, minimising waste (re-use and re-cycle), waste contractors permit, energy efficiency.
K14 Tools, equipment and plant used in fenestration installation, including saws, electrical/hand drills, screwdrivers, raised platforms. What they are used for, correct safe use and storage. How to conduct machinery and equipment checks and adjustments. Start-up and shut-down procedures including emergency stops.
K15 Preparation techniques – planning work, checking the work area and making safe, safety checks.
K17 Product installation methods to comply with BS8213-4, including how to pack the window/door in the opening to ensure it is correctly supported and is plumb, level and square, compliance with requirements such as enhanced security (PAS 24) with particular relation to doorsets, different methods of fixing (plug and screw, brick-screws, lugs etc.) and the limitation on using them ; order of processes.
K21 Interim and final inspection requirements– what needs checking (size, shape, components) and why.
K23 How to stack and store products and materials safely, effectively and securely. Problems or damage that can occur with stored resources and how to overcome them.
K25 Contractual arrangements, for example penalty clauses. Consumer rights – ‘satisfactory quality, fit for purpose and as described.’ How the role contributes to commercial operations.
K26 Employment rights and responsibilities, including Working Time Directive, Employment Rights Act 1996.
K27 Equality & Diversity in the workplace.

## Grading descriptors

### Assessment method 1: Observation with questioning

KSB	Pass - apprentices must demonstrate all of the following	Distinction - apprentices must fully demonstrate all Pass criteria and 8 or more of the following 13 completed boxes
S1 Select the correct type and quantity of materials, components and equipment for each task in line with specifications/instructions.	Has the correct materials, components and equipment according to the specification to start the job	Can explain the consequences on the job and wider stakeholders of using both correct and incorrect material, components and equipment
S2 Read and interpret specifications, diagrams and work instructions including BIM; follow instructions.	Interprets specifications and diagrams correctly.	Can suggest alternative methods of installation whilst still meeting specification e.g. efficiency, cost
S3 Plan work, carry out checks to ensure the products are the right size to fit the aperture/meet the specifications  B4 Applies logical thinking, for example, uses clear and valid reasoning when making decisions related to undertaking the work instructions.	Identifies a logical installation order, conducts checks and identifies any issues.	All products fit the apertures first time and the correct types and quantities of ancillary materials are to hand to ensure an efficient installation.
S4 Prepare the work area effectively, make the site safe and ensure all parties are considered (occupiers, children, pets, the general public and other trades people)  B5 Works effectively, for example, undertakes work in a reliable, tidy and productive manner.	Makes area safe and the requirements of all parties are considered  Work area is kept clean and tidy at all times	
S5 Complete tools and equipment checks and adjustments. Use tools and equipment safely.	Tool & equipment checks completed; any adjustments required are made	Suggests alternative tools and equipment that would achieve the same outcome

<p>B3 Takes responsibility, for example, completes own work to required quality standards.</p>	<p>Uses tools appropriate for the task and used in line with manufacturer's instructions, specifications and method statements</p>	
<p>S6 Select and use manual methods and equipment to install products to specification.</p> <p>B3 Takes responsibility, for example, completes own work to required quality standards.</p>	<p>Selected manual method and equipment are appropriate to the method of installation and work is completed according to specification, instruction and method statements</p>	<p>Can justify the selected manual method and equipment chosen</p>
<p>S7 Install products and fixings, ensure level, plumb, compliance with regulations, manufacturer's instructions and specifications.</p> <p>B3 Takes responsibility, for example, completes own work to required quality standards.</p> <p>B5 Works effectively, for example, undertakes work in a reliable, tidy and productive manner.</p>	<p>Installation meets specification, regulations and manufacturer's instructions.</p> <p>Work is completed on time, with no correction needed.</p>	<p>Work is completed right first time and ahead of the expected duration of the task,</p>
<p>S8 Measure, cut and fix trims.</p> <p>K18 Internal Finishing's: the various methods of finishing internally between the window and the opening reveals, the purpose of internal finishing and how this is linked to post installation complaints.</p> <p>K16 Techniques for measuring, marking and drilling materials, accurately, safely and economically.</p> <p>B3 Takes responsibility, for example, completes own work to required quality standards.</p>	<p>Uses the appropriate technique for the type of finish, minimising wastage where possible. Trim is fitted to specification and customer requirements.</p>	<p>Work is planned to minimise material wastage and attempts to optimise the use of the materials</p> <p>Trim is fixed right first time without the need for correction.</p> <p>Explains the typical issues that can be caused by incorrect finishing</p>
<p>S10 Remove Windows and Doors and/or Prepare Apertures for Installation Activities</p>	<p>Prepares the aperture correctly according to specification and drawings.</p>	<p>Checks size of aperture against product to be installed before starting work.</p>

<p>S9 Apply external wet sealants and appropriate associated products such as foam rods as backing material etc; scribing.</p> <p>K19 External Finishing's: the requirements of external finishing in relation to reduce cold bridging around the opening and prevent water penetration through the window/building junction; the various methods of external finishing; how to finish the joint below the sill between it and the structure; scribing techniques.</p> <p>B3 Takes responsibility, for example, completes own work to required quality standards.</p>	<p>External wet sealants and associated products fitted to specification.</p> <p>Checks the finished product for water tightness and cold bridging.</p> <p>Joint below the sill is completed according to specification</p>	<p>Material wastage is minimised and attempts to optimise the use of the materials</p> <p>Compares and contrasts different methods of external finishing and why the method selected was the most appropriate.</p> <p>Can describe the differences between 3 different scribing techniques</p>
<p>S12 Handle, load, unload and store products safely to minimise damage.</p> <p>K9 Safe handling/movement of product. Authority/licenses required to use moving and handling equipment such as cranes, forklift trucks and manipulators. Problems or damage that can occur and avoidance methods. Techniques for loading and unloading of vehicles.</p> <p>B3 Takes responsibility, for example, completes own work to required quality standards.</p>	<p>Correct manual handling procedures followed.</p> <p>Any damage does not exceed specification tolerances</p> <p>Uses correct loading, unloading and storage techniques to minimise damage</p>	<p>Can explain the different types of damage that can occur due to poor handling, loading and storage and the effect on the organisation and customer.</p>
<p>S13 Install ancillary, glazing, weatherproofing items to products in accordance with work instructions/manufacturers guidelines.</p> <p>B3 Takes responsibility, for example, completes own work to required quality standards.</p>	<p>Installation meets work instructions, regulations and manufacturers guidelines.</p>	<p>Evidences planning of work to reduce both their own and company expected wastage of materials and resources</p>
<p>S14 Follow health &amp; safety and environmental policy and procedures.</p>	<p>Works in a way that does not endanger themselves or others</p>	

B1 Has a health & safety first attitude, for example, resists pressures to follow unsafe working practices.		
S15 Identify risks and hazards in the workplace and control measures.	Follows risk assessment, carries out dynamic risk assessment and applies correct control measures	Can explain the difference between hazard and risk. Provides examples of each.
S16 Check and inspect work – interim and final. B3 Takes responsibility, for example, completes own work to required quality standards.	Carries out interim and final inspections of work, identifying any incomplete or incorrect work where appropriate e.g. snags against specification	Provides a completed inspection report to e.g. superior or line manager
S18 Re-use, re-cycle and dispose of material, waste and scrap from the work area, as appropriate. B5 Works effectively, for example, undertakes work in a reliable, tidy and productive manner.	Separates waste and recycling according to company procedures.	
S19 Communicate with colleagues/customers; using common industry terminology appropriately and accurately. K11i Who they need to communicate with and when, and communication techniques; verbal, written and digital.	Correct information appropriate to the task communicated clearly, concisely and tailored to the audience.	
S20 Complete workplace documentation K11ii Documentation requirements	Completes documentation required for the task accurately, legibly and in full.	
<b>Fail – apprentices will fail the assessment method where they do not demonstrate all of the pass criteria</b>		

## Assessment method 2: Interview, underpinned by portfolio

KSB	Pass - apprentices must demonstrate all of the following	Distinction - apprentices must fully demonstrate all Pass criteria and 3 or more of the following 5 boxes
<p>Organisation</p> <p>K2 Other functions that installers interact with, for example surveying, fabrication, despatch, installation, service engineers; their purpose and interdependencies. Interaction with other Energy Efficiency Measures in particular Cavity wall, External wall insulation or internal wall insulation. Internal and external customers.</p> <p>K12 Limits of autonomy; reporting channels.</p> <p>B2 Professional, for example, develops good working relationships recognising dependencies, uses co-operative approaches to optimise workflow and productivity with limited supervision, shows respect for colleagues.</p> <p>B6 Applies time management, for example uses their time effectively to complete work to schedule and always arrives at, and ready to work on time.</p>	<p>Describes their role as part of the wider organisation and explains how they interact with other functions and customers.</p> <p>Describes how fenestration products interact with other energy efficiency measures.</p> <p>Describes their own limits of autonomy and when to escalate tasks and issues.</p> <p>Explains how they worked with others to achieve improved workflow or productivity</p> <p>Describes how good working relationships are achieved and provides evidence of respectful relationships being achieved.</p> <p>Demonstrates effective time management both in terms of personal punctuality and completion of work.</p>	<p>Can explain how these interactions improve the efficiency of the business and customer experience.</p> <p>Explains the consequences of carrying out work beyond the limitations of responsibility.</p> <p>Can explain the importance of effective time management in terms of self, customer and organisation</p>
<p>Structural Stability</p> <p>S11 Ensure structural stability including temporary support when removing products.</p>	<p>Explains how they utilise different structural supports in projects</p>	<p>Can describe what the issue was and why the</p>

		supports used were the most appropriate
<p>Specifications</p> <p>K13 Fenestration system (manufacturers manuals) and specifications - what they are and how to interpret them; what to do if suspect the specification is wrong or have any queries about the specification.</p>	<p>Can explain the process to follow should they suspect there is something wrong with the specification</p> <p>Can list the key features of specifications and manufacturers manuals.</p>	<p>Can describe the interrelations between different work instructions i.e. manufacturers manuals, method statements, specifications and the purpose of each</p>
<p>Problems</p> <p>K20 Repair and make good any damaged plasterwork and external finishes</p> <p>K22 Types of errors that occur, investigation and rectification techniques, such as manual or mechanical adjustment.</p> <p>S17 Identify and rectify any work that is incorrect or incomplete.</p> <p>B7 Adjustable when required, for example adapts to changes to work instructions or variations in workplace contexts and environments</p>	<p>Can describe the typical errors that occur in plasterwork and external finishes and how they can be rectified</p> <p>Can identify damaged, incorrect or incomplete work and describe the steps taken to rectify it.</p> <p>Explains how they adapt to variations or changes.</p>	<p>Can describe the cause of the damage and ways that it could have been prevented.</p> <p>Can explain the consequences to the customer and business of needing to carry out repairs</p> <p>Can describe the consequences of the variation both to themselves and stakeholders (e.g. customer, company).</p>
<p>Communication</p> <p>K24 Processes for handover to other functions/customers.</p> <p>S22 Post Installation Activities such as interaction with customer or site manager, completion of paperwork, demonstration, handover of booklet or manuals.</p> <p>S21 Report work outcomes and problems.</p>	<p>Can list the key steps in the handover process and explain how they interact with customer or site manager, complete paperwork, carry out a demonstration and handover of booklet or manuals</p>	<p>Can explain the consequences of inadequate handover, both to customers and other functions.</p> <p>Can explain the importance of effective reporting.</p>



	Can describe the company procedure of reporting work outcomes and problems, an example of where they have reported a problem and the outcome.	
<b>Fail – apprentices will fail the assessment method where they do not demonstrate all of the pass criteria</b>		

### Assessment method 3: Multiple Choice Test

The following grade boundaries apply to the test:

Grade	Minimum Score	Maximum Score
<b>Pass</b>	30	40
<b>Fail</b>	0	29