

# Level 3 Technicals in Constructing the Built Environment 6720-046 / 6720-546

part of 6720-36

November 2017 Version 1.1

**Guide to the examination**

Version and Date	Change Detail	Section
June 2019 v1.1	Amendment to number of resit opportunities	.. Details of the exam

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## Who is this document for?

This document has been produced for centres who offer **City & Guilds Level 3 Technicals in Constructing the Built Environment**. It gives all of the essential details of the qualification's external assessment (exam) arrangements and has been produced to support the preparation of candidates to take the exam/s.

The document comprises four sections:

1. **Details of the exam.** This section gives details of the structure, length and timing of the exam.
2. **Content assessed by the exam.** This section gives a summary of the content that will be covered in each exam and information of how marks are allocated to the content.
3. **Guidance.** This section gives guidance on the language of the exam, the types of questions included and examples of these, and links to further resources to support teaching and exam preparation.
4. **Further information.** This section lists other sources of information about this qualification and City & Guilds Technical Qualifications.

## 1. Details of the exam

### External assessment

City & Guilds Technical qualifications have been developed to meet national policy changes designed to raise the rigour and robustness of vocational qualifications. These changes are being made to ensure our qualifications can meet the needs of employers and Higher Education. One of these changes is for the qualifications to have an increased emphasis on external assessment. This is why you will see an external exam in each of our Technical qualifications.

An external assessment is an assessment that is set and/or marked by the awarding organisation (ie externally). All City and Guilds Technical qualifications include an externally set and marked exam. This must be taken at the same time by all candidates who are registered on a particular qualification. We produce an exam timetable each year. This specifies the date and time of the exam so you can plan your delivery, revision and room bookings/PC allocation in plenty of time.

The purpose of this exam is to provide assurance that all candidates achieving the qualification have gained sufficient knowledge and understanding from their programme of study and that they can independently recall and draw their knowledge and understanding together in an integrated way. Whilst this may not be new to you, it is essential that your learners are well prepared and that they have time to revise, reflect and prepare for these exams. We have produced a Teaching, Learning, and Assessment guide that is you should refer to alongside the present document ([Teaching, Learning and Assessment Guide](#)). If a learner does not pass the exam at their first attempt, there is only one opportunity to resit the exam, so preparation is essential.

### Exam requirements of this qualification

- **Constructing the Built Environment** – Theory exam (2 hours).

The exam is graded and a candidate must achieve at least a Pass grade in order to be awarded the qualification. (In addition to the exam, a synoptic assignment must also be completed and passed). You can find full details of the synoptic assignment in the *Qualification Handbook* and the *Synoptic Assessment Guide* – please see the link to the qualification page at the end of this document.

### When does the exam take place?

The exam is offered on two fixed dates in March or June. The exact dates will be published at the start of the academic year in the *Assessments and Exam Timetable* <http://www.cityandguilds.com/delivering-our-qualifications/exams-and-admin>.

At the start of the programme of study, in order to effectively plan teaching and exam preparation, centres should know when the exam will be taking place and allocate teaching time accordingly. Section 2 of this document gives a summary of the content that needs to be covered in order to prepare learners for the exam and full details of this are given in the Qualification Handbook.

## Form of exam

The exam for this qualification can be taken either on paper (6720-546) or online (6720-046).

## Can candidates resit the exam?

Candidates who have failed an exam or wish to retake it in an attempt to improve their grade, can do so **twice**. The third and final retake opportunity applies to Level 3 only. The best result will count towards the final qualification. If the candidate fails the exam three times then they will fail the qualification.

## How the exam is structured

Each exam has a total of 60 marks and is made up of:

- approximately 14-16 short answer questions
- 1 extended response question.

Multiple choice and short answer questions are used to confirm **breadth of knowledge and understanding**.

The extended response question is to allow candidates to demonstrate **higher level and integrated understanding** through written discussion, analysis and evaluation. This question also ensures the exam can differentiate between those learners who are 'just able' and those who are higher achieving.

More details about and examples of question types are given in Section 3 of this document.

## Assessment Objectives

The exams are based on the following set of assessment objectives (AOs). These are designed to allow the candidate's responses to be assessed across the following three categories of performance:

- **Recollection** of knowledge.
- **Understanding** of concepts, theories and processes.
- **Integrated application** of knowledge and understanding.

In full, the assessment objectives covered by the exam for this qualification are:

Assessment objective	Mark allocation (approx %)
<i>The candidate..</i>	
AO1 <b>Recalls knowledge</b> from across the breadth of the qualification	35%
AO2 <b>Demonstrates understanding</b> of concepts, theories and processes from a range of learning outcomes.	45%
AO4 <b>Applies knowledge, understanding and skills</b> from across the breadth of the qualification in an integrated and holistic way to achieve specified purposes.	20%

## **Booking and taking the exam**

All assessments for City & Guilds Technical Exams must be booked through Walled Garden. There is a deadline for booking exams, synoptic assessments and any other centre marked assessments, please refer to the time line to check these dates.

The exam must be taken under the supervision of an invigilator who is responsible for ensuring that it is conducted under controlled conditions. Full details of the conditions under which the exam must be taken can be found in the Joint Council for Qualifications (JCQ) document, [Instructions for Conducting Examinations \(ICE\)](#).

## **Special consideration**

Candidates who are unable to sit the exam owing to temporary injury, illness or other indisposition at the scheduled time may qualify for special consideration. This is a post-examination adjustment that can, in certain circumstances, be made to a candidate's final grade. The Joint Council for Qualifications' guide to the special consideration process can be found at [www.jcq.org.uk](http://www.jcq.org.uk).

To make a request for special consideration, please contact: [policy@cityandguilds.com](mailto:policy@cityandguilds.com)

## **Access arrangements**

Access arrangements are arrangements that allow candidates with particular requirements, disabilities or temporary illness to take assessments, where appropriate, using their normal way of working. The Joint Council for Qualifications document, *Access Arrangements and Reasonable Adjustments* gives full details and can be downloaded [here](#).

For further information and to apply for access arrangements please see:

[Access arrangements - When and how applications need to be made to City & Guilds](#)  
[Applying for access arrangements on the Walled Garden](#)

## 2. Content assessed by the exam

The exam assesses:

- **Unit 306: Measurement, tendering and estimating**
- **Unit 313: Property maintenance and conversion**
- **Unit 316: Building regulations (CT)**

Each exam assesses a sample of the content of these units. This means that a single exam will **not** cover 100% of the unit content. The full range of content will be assessed over a number of examination series. Details of the coverage of a particular exam paper will **not** be released in advance of the exam itself. Centres should **not** make assumptions about what will be assessed by a particular exam based on what has been covered on previous occasions. In order to be fully prepared for the exam, learners **must** be ready to answer questions on **any** of the content outlined below.

The table below provides an overview of how the qualification's Learning Outcomes are covered by each exam and the number of **marks** available per Learning Outcome (ie **not** the number of *questions* per Learning Outcome). In preparing candidates for the exam, we recommend that centres take note of the number of marks allocated to Learning Outcomes and to assign teaching and preparation time accordingly.

In preparing candidates for the exam, centres should refer to the Qualification Handbook which gives full details of each Learning Outcome.

The following is a summary of only that qualification content which is assessed by the exam and **not** a summary of the full content of the qualification.

Unit	Learning outcome	Topics	Number of marks per section
306 Measurement, tendering and estimating	LO1 Measure quantities from construction drawings	1.2 Bill production	9
	LO2 Prepare budget costs	2.1 Approximate estimating techniques	
	LO3 Understand the principles of tendering and estimating	3.1 Terminology 3.2 Comparison of different tendering routes	9

	LO4 Build up a tender figure	4.1 Produce tender figures for given scenarios 4.2 Commercial factor	
313 Property maintenance and conversion	LO1 Recognise the characteristics of maintenance and conversion	1.1 Property repair and maintenance 1.2 Property conversion and adaptation	18
	LO2 Understand the processes used to maintain the built environment	2.1 Types of maintenance 2.2 Maintenance inspections 2.3 Scale of maintenance and repair work required	
	LO3 Understand the processes used in the conversion of property	3.1 Conversion and adaptation processes 3.2 Legislative requirements for conversion and adaptation 3.3 Preparing documentation to support conversion and adaptation	
316 Building regulations (CT)	LO1 Understand the history and purpose of the Building Regulations	1.1 Historical factors 1.2 Purpose 1.3 Current practice	12
	LO2 Recognise how the Building Regulations apply in practice	2.1 Application of Approved Documents to new build 2.2 Application of Approved Documents to alternations/renovations	
		Total marks for sections:	48 marks
		Integration across units*:	12 marks
		<b>Total marks for exam:</b>	<b>60 Marks</b>



\* *Integration across units*. These marks relate to Assessment Objective 4. These marks are awarded to differentiate between levels of performance by candidates taking the exam. The marks are given for how well a candidate has applied their knowledge, understanding and skills from across the units that make up the qualification in an integrated way to meet the requirements of the exam questions.

### 3. Guidance

#### Vocabulary of the exam: use of 'command' verbs

The exam questions are written using 'command' verbs. These are used to communicate to the candidate the type of answer required. Candidates should be familiarised with these as part of their exam preparation.

The following guidance has been produced on the main command verbs used in City & Guilds Technicals exams.

A more detailed version of this table, which also includes the command verbs used in the assignments is published in *City & Guilds Technical Qualifications Teaching, Learning and Assessment* guide.

Command verb	Explanation and guidance
<b>Analyse</b>	Study or examine a complex issue, subject, event, etc in detail to explain and interpret, elements, causes, characteristics etc
<b>Calculate</b>	Work out the answer to a problem using mathematical operations
<b>Compare</b> (...and contrast) (or <b>describe</b> the similarities/differences)	Consider and describe the similarities (and differences) between two or more features, systems, ideas, etc
<b>Define</b>	Give the meaning of, technical vocabulary, terms, etc.
<b>Describe</b>	Give a detailed written account of a system, feature, etc <b>(..the effect of...on...)</b> the impact, change that has resulted from a cause, event, etc <b>(..the process..)</b> give the steps, stages, etc
<b>Differentiate</b> between	Establish and relate the characteristic differences between two or more things, concepts, etc
<b>Discuss</b>	Talk/write about a topic in detail, considering the different issues, ideas, opinions related to it
<b>Distinguish</b> between	Recognise and describe the characteristic differences between two things, or make one thing seem different from another
<b>Evaluate</b>	Analyse and describe the success, quality, benefits, value, etc (of an end product, outcome, etc )
<b>Explain</b>	Make (a situation, idea, process, etc) clear or easier to understand by giving details <b>(..how..)</b> Give the stages or steps, etc in a process, including relationships, connections, etc between these and causes and effects.

<b>Give example(s) illustrate/</b>	Use examples or images to support, clarify or demonstrate, an explanation, argument, theory, etc
<b>Give a rationale</b>	Provide a reason/reasons/basis for actions, decisions, beliefs, etc
<b>Identify</b>	Recognise a feature, usually from a document, image, etc and state what it is
<b>Justify</b>	Give reasons for, make a case for, account for, etc decisions, actions, conclusions, etc, in order to demonstrate why they suitable for or correct or meet the particular circumstances, context
<b>Label</b>	Add names or descriptions, indicating their positions, on an image, drawing, diagram, etc
<b>List</b>	Give as many answers, examples, etc as the question indicates (candidates are not required to write in full sentences)
<b>Name</b>	Give the (technical) name of something
<b>Propose</b>	Present a plan, strategy, etc (for consideration, discussion, acceptance, action, etc).
<b>Select</b>	Choose the best, most suitable, etc, by making careful decisions
<b>State</b>	Give the answer, clearly and definitely
<b>Summarise</b>	Give a brief statement of the main points (of something)

## Question types

The following explains, and gives examples of, types of questions used in City & Guilds Technical exams. In preparing candidates to take the exam, it is recommended that you familiarise them with the requirements of each question type so that they can be effective and make best use of the time available when sitting the exam.

- An effective candidate will gauge the type and length of response required from the question and the number of marks available (which is given for each question on the exam paper).
- Short answer questions may not require candidates to write in complete sentences. Extended response questions will require a more developed response.
- Candidates should read the exam paper before attempting to answer the questions and should allocate time proportionate to the number of marks available for each question or section.

Question type:	Example question	Mark scheme:
<p><b>Short answer questions (restricted response)</b></p> <p>These are questions which require candidates to give a brief and concise written response. The number of marks available will correspond to the number of pieces of information/examples and the length of response required by the question.</p>	<p>Explain how the requirements of the Party Wall etc Act are satisfied on a residential conversion project. (6 marks)</p>	<p>Marks as shown, up to a maximum of <b>six</b> marks.</p> <p>The Party Wall etc Act protects all party walls (1) structures (1) and boundaries (1). If the works on or close to any of these a Party Wall award will be required (1). No work that will impact on the structural stability of an adjacent wall, structure or boundary can be undertaken without notice being served (1). The notice is served by the building owner (1) on the adjoining owner (1) typically by a surveyor. The surveyor for both parties will agree the scope of works, the impact on the wall and issue a Party Wall Award (1). The works can then commence. On completion of the works, the wall/boundary/structure is inspected again and provided there are no issues the works are signed off (1).</p>



## Extended response questions

Extended response questions are those that require the candidate to write a longer written response using sentences and paragraphs. These usually require candidates to discuss, explain, etc. a topic in some detail. The question is often based on a short case study, scenario or other prompt. The level of detail should be gauged from the question and the number of marks available.

### Example question

A company has purchased a disused, listed, Victorian cotton mill that was constructed in 1845. The company intends to convert the mill into flats. The company want the design to be energy efficient and are keen to promote the interest of disabled people.

The dimensions of the mill are 100 m x 40 m and 28 m high, each storey has a floor-to-floor height of 4 m. On each floor, 20% of the available space is required for staircases, corridors and circulation space. Each of the proposed flats is to have a floor area of 80 m<sup>2</sup>. The approximate cost of the conversion cost of each flat is £2000 per square metre.

Discuss the alterations that need to be made to this property.

(12 marks)

This should include a consideration of approximate estimating for this work and the approved documents which need to be applied when making a building regulation application.

### Mark scheme

Internal partitions, suspended ceilings, window replacement, new floors, internal insulation, roof improvement and insulation, illumination, heating and ventilation, modern services, drainage, cold water, access improvements, fire detection and protection; approximate estimating by area, volume and element, building regulation compliance with Approved Documents L and M (Access)

#### Band 1 (0 – 4 marks)

The candidates identifies a limited number of alterations that need to be made in basic level of detail associated with the proposed works.

The candidate attempts to suggest an estimating proposal and makes limited reference to the building regulation application.

#### Example band 1 response

The age of the building means solid walls and floors, high ceilings, large windows and no thermal insulation. Each flat must be divided into separate rooms with lightweight partitions and the kitchen and bathroom should be located near to each other. The windows may be replaced with double or triple glazing to reduce heat loss. Doors and windows will need to be wider than is normal to allow for disabled wheelchair access. The external walls will

require internal thermal insulation to reduce energy costs and improve the thermal resistance of the structure. The services to be provided should include hot and cold water, space heating, electricity and drainage. The available space on each floor =  $100 \times 40 \times 80\% = 3200 \text{ m}^2$  or 40 flats. The designs should comply with Approved Document M in terms of access to and use of the building (i.e. interests of disabled people) if the designs are to gain planning approval.

### **Band 2 (5 – 8 marks)**

The candidate describes a wide range of alterations that need to be made in an acceptable level of detail associated with the proposed works.

The candidate suggests a suitable estimating proposal and makes reference to the building regulation application in association to the scenario.

#### **Example band 2 response**

The age of the building would suggest solid walls, high ceilings, large windows, a lack of thermal insulation and solid floors. The building may have listed status and parts may have to be retained. The floor to ceiling is high so there will be room within each flat for a partial mezzanine floor to increase the floor space available. Each flat will need to be divided into separate rooms with lightweight partitions and the kitchen and bathroom should be located so as to make the installation of common services practical. The large existing windows or, at the least, the window openings should be retained in their original form. The windows may be replaced with double or triple glazing to reduce heat loss. Doors and windows will need to be wider than is normal to allow for disabled wheelchair access, and all sockets and switches should be placed at an accessible height. The solid external walls, and any external roofs, will require internal thermal insulation to reduce energy costs and improve the thermal resistance of the structure. The services to be provided should include hot and cold water, space heating, electricity, drainage and, possibly, gas. Assuming seven stories, the available space of  $100 \times 40 \times 7 \times 0.8 = 22400 \text{ m}^2$  or  $22400/80 = 280$  flats. The designs should comply with Approved Document L, in terms of conservation of fuel and power (i.e. energy efficiency) and Approved Document M in terms of access to and use of the building (i.e. interests of disabled people).

### **Band 3 (9 – 12 marks)**

The candidate discusses a comprehensive range of alterations that need to be made with in-depth detail that is associated with the proposed works.

The candidate suggests a suitable estimating proposal and makes appropriate reference to the building regulation application in association to the scenario.

#### **Example band 3 response**

Decisions as to the nature of the alterations to be made depend, in large part, on the existing structure and condition of the mill. The age of the building would suggest solid walls of considerable thickness, high ceilings, large windows to provide natural light, a lack of thermal insulation and solid floors (possibly of thick concrete). The building, or certain features of the building, may have listed status and may have to be retained. If the building contains defects due to its age, then these may have to be corrected either before or during the conversion. The floor to ceiling height in modern flats is less than

2.5 m so there will be room within each flat for a partial mezzanine floor to increase the floor space available. Each flat will need to be divided into separate rooms with lightweight partitions and the kitchen and bathroom should be located so as to make the installation of common services practical. This logic should be extended to placing individual bathrooms and kitchens above each other for the same reason. The large existing windows or, at the least, the window openings should be retained in their original form. The windows may be replaced with double or triple glazing and smaller windows may be used surrounded by a solid infill to the existing window opening. Doors and windows will need to be wider than is normal to allow for disabled wheelchair access, and all sockets and switches should be placed at an accessible height. The solid external walls, and any external roofs, will require internal thermal insulation to reduce energy costs and improve the thermal resistance of the structure and this will imply some form of mechanical or electrical ventilation to remove any water vapour and prevent any interstitial condensation. The thickness and density of the external walls and the floors will make installation of the services an arduous task and consideration should be given to running all the services through dedicated ducting. The services to be provided should include hot and cold water, space heating, electricity, gas, drainage, fire detection and protection and telecommunications. Lifts, with disabled access, must be provided in adequate number and security such as CCTV and burglar alarms should be provided in common areas. There are  $28/4 = 7$  stories to the building and this implies available space of  $100 \times 40 \times 7 \times 0.8 = 22400 \text{ m}^2$  or  $22400/80 = 280$  flats. The estimated cost of conversion will therefore be  $22400 \times \text{£}2000 = \text{£}44.8$  million. The designs should comply with Approved Document L, in terms of Target CO<sub>2</sub> Emission Rates (TER) and Target Fabric Energy Efficiency (TFEE), and Approved Document M in terms of access to and use of the building, private entrances and spaces within the building and wheelchair user buildings.



## Examination technique

Candidates with a good understanding of the subject being assessed can often lose marks in exams because they lack experience or confidence in exams or awareness of how to maximise the time available to get the most out of the exam. Here is some suggested guidance for areas that could be covered in advance to help learners improve exam performance.

### Before the exam

Although candidates cannot plan the answers they will give in advance, exams for Technical qualifications do follow a common structure and format. In advance of taking the exam, candidates should:

- be familiar with the structure of the exam (ie number and type of questions).
- be aware of the amount of time they have in total to complete the exam.
- have a plan, based on the exam start and finish time for how long to spend on each question/section of the exam.
- be aware of how many marks are available for each question, how much they should expect to write for each question and allow most time for those questions which have the most marks available.

### At the start of the exam session

At the start of the exam, candidates:

- should carefully read through the instructions before answering any questions.
- may find it helpful, where possible, to mark or highlight key information such as command words and number of marks available on the question paper.
- identify questions which require an extended written answer and those questions where all or part of the question may be answered by giving bullets, lists etc rather than full sentences.

### Answering the questions

Candidates do not have to answer exam questions in any particular order. They may find it helpful to consider, for example:

- tackling first those questions which they find easiest. This should help them get into the 'flow' of the exam and help confidence by building up marks quickly and at the start of the exam.
- tackling the extended answer question at an early stage of the exam to make sure they spend sufficient time on it and do not run out of time at the end of the exam.

Candidates should avoid wasting time by repeating the question either in full or in part in their answer.

Candidates should **always** attempt every question, even questions where they may be less confident about the answer they are giving. Candidates should be discouraged however, from spending too long on any answer they are less sure about and providing answers that are longer and give more detail than should be necessary in the hope of picking up marks. This may mean they have less time to answer questions that they are better prepared to answer.

### Extended answer questions

Before writing out in full their answer to extended questions, candidates may find it helpful to identify the key requirements of the question and jot down a brief plan or outline of how they will

answer it. This will help clarify their thinking and make sure that they don't get 'bogged down' or provide too much detail for one part of the question at the expense of others.

### **Towards the end of the exam**

Candidates should always set aside time at the end of the exam to read back through and review what they have written in order to make sure this is legible, makes sense and answers the question in full.

If a candidate finds they are running out of time to finish an answer towards the end of the exam, they should attempt to complete the answer in abbreviated or note form. Provided the content is clear and relevant, examiners will consider such answers and award marks where merited.

Further guidance on preparing candidates to take the exam is given in the City & Guilds publication, [Technical Qualifications, Teaching, Learning and Assessment](#) which can be downloaded free of charge from City & Guilds website.

## 4. Further information

For further information to support delivery and exam preparation for this qualification, centres should see:

### City & Guilds

Qualification homepage: <http://www.cityandguilds.com/qualifications-and-apprenticeships/construction/construction/6720-technical-in-constructing-the-built-environment#tab=information> which includes:

- Qualification handbook
- Synoptic Assignment
- Sample assessments

*Technical Qualifications, Resources and Support:* [www.cityandguilds.com/techbac/technical-qualifications/resources-and-support](http://www.cityandguilds.com/techbac/technical-qualifications/resources-and-support)

### Joint Council for Qualifications

*Instructions for Conducting Examinations:* <http://www.jcq.org.uk/exams-office/ice---instructions-for-conducting-examinations>