

External Assessment

Quantity Surveying Higher C01P 12

Practical Assignment

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1. Practical Assignment overview

This national project specification provides details of the assessment tasks and the evidence which candidates are expected to produce. It contains a degree of choice in terms of the way the Practical Assignment is taken forward by centres so that it fits available resources and candidates' interests and personal strengths.

The Practical Assignment is not concerned exclusively with practical activity, but is designed to emphasise skills relating to the application of practical skills, and related knowledge and understanding to a situation that involves task management.

Candidates are provided with a brief and are expected to demonstrate attainment relating to:

- interpreting the brief
- gathering information to clarify the brief
- deciding on a product, or activity/event, or performance to develop
- selecting and managing materials/resources
- producing the product, or organising the activity/event or delivering the performance
- evaluating the product or activity/event or performance(through feedback)

Evidence requirements are as follows:

- a plan of action
- evidence of a product or an organised activity/event or a performance
- evidence which documents the processes underpinning the practical hands-on activity
- evidence showing an extended evaluation of the Practical Assignment

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Note:

Please note that individual specifications should always be used in conjunction with the relevant *Arrangements for Project-based National Courses*. The *Arrangements* document lays down the overall requirements for project-based National Courses for the given SGA.

This specification forms part of Section F of the above *Arrangements* document.

2. Recommended entry

We strongly advise that candidates should have completed the Units in the National Course prior to embarking on the external assessment. However, there may well be candidates who, for whatever reason, choose to undertake the external assessment on a stand-alone basis. Any such candidates who have not completed or embarked upon the Units of the National Course *prior* to undertaking the external assessment should have demonstrated attainment in (and/or attained) the following qualifications:

A reasonable selection of the following Units in domestic construction technology and construction measurement or equivalent:

- Building Technology Introduction, A976 04 (85137)
- Building Services Supply, A8N4 04 (75230)
- Quantity Surveying: Billing, A97A 04 (85141)
- Construction Technology 1: Domestic Construction, D5YX 04 (4420788)
- Building Technology: Components, Finishes & External Works, A978 04 (85139)

and the following Units in mathematics or number, or equivalent:

- Core Maths 3, A9XE 04 (7180321)
- Mathematics: Construction Numeracy 2, A9GA 04 (91049)

and one of the following Units in English or communication, or equivalent:

- Communication 3, AE3T 04 (7110035)
- Writing Papers and Reports, A9J8 04 (91246)
- Using Oral Communication Skills for Everyday Business Purposes, AB2V 04 (7110761)

The following Units in law of contracts, or equivalent, would also be useful:

- Construction Contract Procedure, A988 04 (85424)
- Introduction to the Law of Contract, AF41 04 (6150026)

As a general statement it might be suitable to require a candidate to possess three Standard Grades at grade three or above, including English and Mathematics. Candidates with other suitable qualifications and/or experience should be considered at the discretion of the centre.

Candidates who achieve the external assessment will not be certificated for the Course until they have successfully completed the component Units.

3. Practical Assignment briefs

The assignment briefs from which candidates may choose are:

Brief 1

As a consultant quantity surveyor, provide cost and procurement advice to a private client contemplating an extension to his/her house. (Single or group activity.)

The client wants to add a two-storey extension to his/her dwelling house. The house is of stone-built construction with pitched slate roof. A local architect has prepared drawings for the extension for purposes of planning permission. The authorities have indicated that because the extension is to the rear of the property it need not be constructed in stone as drawn but can be in brickwork or roughcast. (An interview with the client's architect is required in order to clarify any details on drawings and specification information, which is merely outlined on the drawing notes.)

The client has friends in the building industry and he/she wants them to do all the plumbing, heating and electrical works. The client further proposes to carry out all the painting and decorating work in spare time at the weekends and in the evenings. There must be an interview with the client in order to amplify these details and draw out the brief as required.

The task includes providing an approximate estimate for the project, excluding the work the client proposes to do on a DIY basis and the work in the building services to be carried out by friends. Out of interest and as a comparison the client wants an estimate of just how much the entire project would cost if it were to be carried out by one main contractor with associated sub-trades.

Given that the preferred option is for a main contractor to complete only the main building works excluding the services and painterwork as outlined above, the client wants advice on procurement options (type of contract, form of contract etc) and tender documentation.

Phase 1 Produce a report to include the information on cost, procurement options and tender documentation asked for by the client. Ensure that legal/contractual aspects of the D-I-Y element are mentioned in the report.

Phase 2 The client has taken the costings to his/her bank. They will not lend him/her the money required because the money spent will not add sufficient value to the property to cover the loan. The client therefore requires two further exercises to be carried out.

- the first exercise requires the production of a report outlining how a 10% cost saving might be obtained whilst using the partial main contractor build
- the second exercise requires the production of a materials schedule (excluding services and painterwork) which will allow the client to investigate a complete self-build option

Brief 2

As a consultant quantity surveyor, provide cost and procurement advice to a College contemplating the construction of an experimental ‘eco-house’. (Single or group activity.)

The client is a College of Further Education. The College is putting together a bid for European Funding for research work. One of the potential projects for funding relates to environmentally friendly design for the construction industry. The College wants to obtain funding for the design and construction of an experimental ‘eco-house’ to be built within the grounds of the College.

The College requires cost information within a short timescale in order to submit their bid. The College had indicated the proposed site on a plan but has not yet thought of a suitable size or form for the proposed eco-house. The design would require incorporating the use of ‘environmentally friendly’ materials and components and promoting clean air and energy efficiency policies.

The timescale for the project proper will dictate that professional contractors would carry out most of the building works. Nevertheless, the College want as much of the work as possible that can safely and speedily be done by their craft students to be incorporated as such in the costings.

The College science department will be involved in monitoring the environment within the eco-house when it is completed. They are providing all of the necessary equipment and candidates do not have to consider this aspect of cost.

The task is to produce a report, which must include the following:

- estimated cost of all building works
- breakdown of cost of building works into elements *eg substructure, external walls, roof, etc* including ‘free’ labour student input
- outline notes on assumed specification
- graphical information on assumed form and style (sketches will suffice)
- contractual and likely cost implications of ‘free’ student labour input
- recommendations as to tendering options as well as type of contract and form of contract
- estimates for professional and local authority fees etc

As a preliminary to investigating the project the client must be interviewed in a businesslike manner in order to confirm and amplify project requirements and details. In particular the College craft student input to the construction works must be thoroughly explored in order that a clear recommendation for this aspect can be made. The proposed size and form of the eco-house would also have to be discussed at this interview.

Brief 3

As a builder's estimator, provide cost, procurement and timescale advice to a property development firm which wants your firm to design and build a terrace of four three-bedroomed dwellings for private sale. (Single or group activity.)

The client is a property development firm with whom the building company has dealt successfully in the past. The developers have acquired a serviced plot of land on the outskirts of town and want to build a terrace of four three-bedroomed dwellings for private sale. The houses will come with parking spaces and landscaping works but no garages.

The developers are not fussy regarding the specification of the houses. They must, of course, comply with building regulations, but apart from that they must be built as economically as possible. The local town planning authority has indicated that a tiled roof with white shell roughcast would be their preferred solution.

Another thing that is important to the developer is time. The quicker the houses are built, the quicker they will be sold and the sooner a return on investment will be made.

The developers have one rather unusual request. In order to improve chances of winning a round-the-world golf holiday, being offered by a national building materials supplier, they want to order and purchase the roofing tiles for the development themselves!

The task is to provide the developer with a quotation for the design and construction of the four three-bedroomed dwellings complete with parking and landscaping works.

The developers want the quotation supplied broken down into different elements (eg roof floors, walls, etc) so that they can consider the implications of any variations they may instruct.

The developers will likely purchase the roofing tiles themselves as previously mentioned. The quotation for this part of the project therefore merely includes taking delivery of the roof tiles, etc and fitting and fixing them. In order for the developers to obtain quotations for the tiles they want the builders to provide him with a materials schedule for this element of the work.

The quotation must be accompanied by an outline specification for the different elements of the terrace. Any items that cannot be detailed must be clearly highlighted and allocated a provisional sum. Given the provisional sum for landscaping works and parking, the developers want to know what sort of scheme they can expect for their money. In addition they want to be given an indication of just how long the construction phase of the project will be.

Finally, the developers acknowledge that the proposal to purchase the roofing tiles themselves may cause problems if the order is late or materials are broken on delivery. They want the building firm to provide recommendations on this aspect of the procurement for the project.

Before commencing any calculations on design and cost, the candidates must interview the client in order to obtain full detail on the site and the developers' preferences for specification of landscaping, parking and any other relevant aspects of the project.

4. Outcome coverage

Course Structure		
Unit title	Credit value	Unit number
Building Estimating	1.0	D911 12
Construction Measurement and Description	1.0	D22S 12
Building Contracts and Tendering	1.0	D22T 12

All external assessments for project-based National Courses cover a minimum of two thirds of the Outcomes from the component Units. For this project these are:

Unit: Building Estimating

1. describe the typical tender documents found in domestic construction projects
2. take off measurements of quantities from drawings for minor domestic construction projects
3. produce unit or composite rates for items of construction work and apply these to minor domestic works
4. compile schedules of materials for minor domestic construction projects^a

Unit: Building Contracts and Tendering

1. describe the basics of the law of contract in Scotland
2. describe the main types of contract and tendering options commonly in use in the building industry^b
3. prepare documentation relating to payment provisions and procedures in a standard building contract^c
4. explain how the design team carries out cost control throughout a building contract

Unit: Construction Measurement and Description

1. prepare draft bills of quantities for preliminaries for minor works
2. prepare draft bills of quantities for brickwork and blockwork items
3. prepare draft bills of quantities for carpentry and joinerywork items
4. prepare draft descriptions of works for alterations and refurbishment work^d

It is strongly advised that candidates should have completed the assessments for the individual component Units before undertaking the external assessment.

a except brief 2

b except brief 3

c brief 3 only

d brief 1 only

5. Subject/occupationally-related knowledge and skills

The Practical Assignment allows candidates to develop and apply skills in:

- decision making
- interpreting a brief
- clarifying and amplifying information by question and interview
- information gathering eg on standard building materials and components
- selecting and managing materials and resources
- time management
- working with others
- planning, monitoring and controlling a programme
- reacting to change
- effective communication
- evaluating a product
- interviewing clients regarding standard and non-standard procurement options

and develop and apply related knowledge of:

- the procurement process
- contracts
- tender documents
- commerce generally
- approximate estimating
- graphic communication
- construction technology
- building materials and their costs
- technical and financial report writing
- interpretation of straightforward building drawings
- preparing of standard cost plans or estimates and financial reports

6. Candidate evidence requirements and allocation of marks

General information

The three stages of the Practical Assignment for all project-based National Courses at Higher are:

- planning
- developing
- evaluating

Here we describe evidence requirements which apply to each of the three stages of the Practical Assignment for all project-based National Courses at Higher. Where there are any specific evidence requirements relating to this Course, these are given later in this section.

Planning

Candidates must produce a 500 word (or equivalent) plan of action. The plan should include an introduction and a main body. Centres should ensure that candidates either already have, or are taught, the necessary skills to devise their own plan before they start the project.

For the introduction of the plan, candidates should:

- provide a rationale for selecting a particular brief
- interpret the brief
- gather information to clarify the brief
- define the aims and objectives of the Practical Assignment

For the main body of the plan candidates should:

- identify information sources
- identify materials and resources
- establish timescales for completion of stages of the Practical Assignment

The plan of action should be produced in a supervised environment although candidates may carry out the preparation beforehand. Candidates may communicate with each other when producing their plans of action but each plan must be tailored to the candidate's own project and the action points should relate to the work to be carried out by the individual candidate.

The work produced should always be the candidate's own. However, teachers/lecturers are expected to provide candidates with advice, guidance and constructive criticism as necessary when they are devising their plans. It is important to note that, as the plan underpins the rest of the project, centres should ensure that no candidate proceeds to the development stage until the candidate has devised a plan that is potentially workable. The level of support that candidates need to devise a viable plan of action will of course vary from candidate to candidate. Centres should indicate the level of support needed for each candidate on the flyleaf for the project provided by the SQA. This would not inhibit centres from providing constructive comment nor the candidate from acting on their own initiative and taking on board the advice. In some cases, however, if the level of support and intervention needed is more than that which would normally be seen as reasonable, the authenticity of the candidate's work may be called into question. If the level of input needed from the teacher/lecturer is above normal (for example,

the quality of the plan is such that it would mean that the project would be unworkable if the plan was not revised) then candidates cannot score more than 20 or 40 marks allowed for the planning stage.

Developing

Candidates must provide evidence that:

- testifies to the quality of the hands-on practical activity
- documents the processes underpinning the activity

Specific evidence requirements for this Course are given later in this section.

All of the evidence should be produced in a supervised environment. Candidates may communicate with each other but should produce work which can be clearly attributed to the candidate as being his or her own.

Evaluating

Candidates must produce an extended evaluation report which should:

- provide a brief summary of what the assignment was about
- review and update the action plan in the light of experience
- assess the effectiveness of the action plan
- summarise any unforeseen events and how they were handled
- identify knowledge and skills which have been gained and/or developed
- assess the strengths, weaknesses and quality of any hands-on activity
- assess the effectiveness of the research methods used
- determine to what extent the assignment met the original brief

The extended evaluation report should be 1,000 words (or equivalent) at Higher. Candidates may carry out the preparation for the report beforehand.

Candidates at Higher should be allowed up to three hours to complete an extended evaluation (including the summary). This is a generous time allowance and some candidates may require considerably less time — two hours should generally be sufficient.

Candidates should be allowed to take one side of an A4 page of notes (maximum 200 words or equivalent) which they have prepared, into the room with them. They should not be allowed to take a draft of the evaluation report into the room with them. The centre has the responsibility for ensuring that the notes brought in are the candidate's own work.

For this activity the accommodation should be arranged to reflect centre-invigilated conditions and candidates should not be allowed to communicate with each other in any way.

Specific evidence requirements and assessment arrangements for the Practical Assignment for Quantity Surveying at Higher

Planning	
Evidence:	Plan of action 500 words <i>or</i> equivalent (40 marks)
Conditions of external assessment:	Supervised
Who assesses it?	Plan to be sent to SQA for marking

Developing	
Evidence:	For hands-on activity: Report plus attachments as required by project brief For processes underpinning the activity: Various — for full details, see later in this section (120 marks in total for this stage)
Conditions of external assessment:	Supervised
	<i>Transportable evidence:</i> All This is to be sent to SQA for marking

Evaluating	
Evidence:	Extended evaluation report — including summary 1,000 words <i>or</i> equivalent (40 marks)
Conditions of assessment:	Centre-invigilated
Who assesses it?	To be sent to SQA for marking

It is important that candidates know that they will be penalised for submitting evidence that significantly exceeds the stated word count.

Specific additional information and requirements

It is important that all the evidence produced by the project is transportable as it must be sent in to SQA for marking. This applies to both the final product (eg report, cost plan) and the development evidence (eg portfolios, log-books, notes and draft calculations).

Word counts

Please note that the word counts given are for words *or equivalent*. In some circumstances candidates may submit plans or reports that rely more on graphical, visual or aural evidence than on written evidence. For this project, candidates may wish to replace some aspects of their written plans, reports and evaluations with appropriate diagrams, flow-charts and/or even taped or videoed oral evidence.

Quantity Surveying: planning stage

It may be helpful for candidates to draw up a written plan which takes the form of a list of stages and actions. This could take the form of a Gantt chart complete with milestones and facility to monitor progress. Oral evidence could be permitted to amplify any written plan or diagram.

Candidates could use the above as a means of preparing for the formal plan of action which is to be written up in a supervised environment.

It may be suitable, as an alternative to simply employing straight written evidence, for candidates to employ a bar chart to depict the proposed planning of their project work. This would be particularly appropriate in such a Higher because so much planning in the construction industry is facilitated by such means. A bar chart may be used by candidates to record actual against proposed progress.

Should a bar chart or similar means be used in the written plan of action it would be appropriate to allocate such a device a possible 10 out of the 40 marks available for the planning stage. It is suggested that the word count for the written element of the plan be reduced to 250-300 words in the event of a bar chart or similar being preferred by any one candidate or group of candidates. The written plan would be shorter in length as a consequence of this but should carry the full balance of 30 marks.

It is not considered sensible for taped or videoed evidence to be employed at this stage due to logistics and due to a likely benefit in having a *written* plan which can be a help in monitoring progress.

Candidates may communicate with each other when producing their plans of action but each plan must be tailored to the candidate's own project and the action points should relate to the work to be carried out by them. Simply put, the plan of action should be generated in the candidate's normal environment.

Guidance on possible contents of the plan follows.

Brief 1 — House Extension

Phase 1

A plan containing perhaps three headings:

- recommend procurement details
- produce cost estimate
- recommend tender documentation

The three headings may each contain sub-sections:

Recommend procurement details	Produce cost estimate	Recommend tender documentation
<ul style="list-style-type: none">• consider peculiarities of the project• consider alternative procurement options• consider risk• balance costs and benefits• justify selection	<ul style="list-style-type: none">• describe• measure• value• check•	<ul style="list-style-type: none">• consider available information• consider options• consider risk• balance cost and benefits• justify selection

The documents produced by this phase of the assignment comprise a report with cost plan.

Phase 2

A plan should also be drawn up for the second phase of the assignment, this time with possibly two headings; **this phase of the assignment is of necessity not part of the Plan of Action as such.**

- save 10%
- produce materials schedule

These two headings may each contain sub-headings

Save 10%	Produce Materials Schedule
<ul style="list-style-type: none">• prioritise elements and materials• explore alternatives• research costs• consider balance in savings and consequences• justify selection	<ul style="list-style-type: none">• consider available information• confirm specification• research technical aspects of materials and components• include waste and cutting• consider presentation to facilitate pricing

The documents produced by this phase of the assignment comprise a brief report or letter along with a materials purchase schedule.

Brief 2 — ‘Eco-House’

A plan containing perhaps four headings:

- produce cost estimate with outline specification works
- produce elemental breakdown including ‘free labour’ element
- recommend type and form of contract
- recommend tendering options

The four headings may each contain sub-headings:

Recommend type and form of contract	Produce cost estimate with outline spec notes	Recommend tendering options	Produce elemental breakdown including ‘free labour’ element
<ul style="list-style-type: none"> • consider peculiarities of the project • consider alternative procurement options • consider risk 	<ul style="list-style-type: none"> • investigate form • investigate specification • describe 	<ul style="list-style-type: none"> • consider available information • consider alternatives • consider risk 	<ul style="list-style-type: none"> • investigate feasibility of student input • consider impact on risk/cost/procurement • research material costs and produce priced schedule
<ul style="list-style-type: none"> • balance costs and benefits 	<ul style="list-style-type: none"> • measure 	<ul style="list-style-type: none"> • balance costs and benefits 	<ul style="list-style-type: none"> • consider presentation for pricing purposes
<ul style="list-style-type: none"> • consider public accountability • justify selection 	<ul style="list-style-type: none"> • value • check 	<ul style="list-style-type: none"> • consider public accountability • justify selection 	<ul style="list-style-type: none"> • •

The documents produced by these aspects of the assignment comprise a report along with costings in elemental format.

Brief 3 – Terraced Development

A plan containing perhaps four headings:

- produce a quotation for design and build
- estimate likely duration of construction works
- include for labour only for roofing works along with materials schedule
- highlight contractual implications and procurement difficulties/risk with client – supplied materials

The four headings may each contain sub-headings:

Produce a quotation for design and build	Estimate likely duration of construction works	Include for materials schedule and labour only roofing	Highlight contractual and procurement difficulties/risk with client-supplied materials
<ul style="list-style-type: none"> • consider site 	<ul style="list-style-type: none"> • time – v – cost 	<ul style="list-style-type: none"> • measure 	<ul style="list-style-type: none"> • consider implications to sub-contractors
<ul style="list-style-type: none"> • consider dimensions for dwellings 	<ul style="list-style-type: none"> • prefabrication? 	<ul style="list-style-type: none"> • value the labour only aspect 	<ul style="list-style-type: none"> • communication with sub-contractors
<ul style="list-style-type: none"> • consider building form 	<ul style="list-style-type: none"> • weather 	<ul style="list-style-type: none"> • check 	<ul style="list-style-type: none"> • highlight potential difficulties to client
<ul style="list-style-type: none"> • prefabrication? timber kit? 	<ul style="list-style-type: none"> • co-ordination of trades 	<ul style="list-style-type: none"> • consider cost of risk and attendance 	
<ul style="list-style-type: none"> • measure 	<ul style="list-style-type: none"> • co-ordinate client input 		
<ul style="list-style-type: none"> • value 	<ul style="list-style-type: none"> • check and justify programme 		
<ul style="list-style-type: none"> • check 			
<ul style="list-style-type: none"> • cost design 			
<ul style="list-style-type: none"> • possible off-the-shelf? 			

The documents produced by these aspects of the assignment comprise a detailed quotation with accompanying detail and a letter/brief report to the client.

Quantity Surveying: developing stage

The Practical Assignment in Quantity Surveying offers candidates a selection of products to develop and allows them a degree of flexibility in developing their choice of the three briefs.

Evidence requirements can be summarised as follows:

Product evidence		
Brief 1	Brief 2	Brief 3
<ul style="list-style-type: none"> • A report with a cost plan (for Phase 1) 15 marks • A further brief report and a materials purchase schedule (for Phase 2) 15 marks 	<ul style="list-style-type: none"> • A report along with costings in elemental format 30 marks 	<ul style="list-style-type: none"> • Written quotation with elemental breakdown and accompanying letter/report 30 marks
Evidence for processes underpinning the activity		
Brief 1	Brief 2	Brief 3
<ul style="list-style-type: none"> • Personal notes from briefing meeting with client 10 marks • Personal notes on procurement and tendering option deliberations 10 marks • Draft elemental cost breakdown 10 marks • Draft cost estimate including take-off sheets and computations, including individual rates, composite rates and total estimate 25 marks • Draft notes from cost saving exercise 5 marks • Portfolio of manufacturer's literature on building materials 10 marks • Draft materials schedule 20 marks 	<ul style="list-style-type: none"> • Personal notes from briefing meeting with client 10 marks • Personal notes on procurement and tendering option deliberations 10 marks • Draft cost estimate including take-off sheets and computations, including individual rates, composite rates and total estimate 25 marks • Personal notes on possible specification options 10 marks • Portfolio of research into eco-friendly construction and design 15 marks • Draft elemental cost breakdown 10 marks • Personal notes on 'free labour' elements 10 marks 	<ul style="list-style-type: none"> • Personal notes from briefing meeting with client 10 marks • Personal notes on design and build options 10 marks • Personal notes on building project timescale including rough calculations 15 marks • Draft elemental cost breakdown including all back-up calculations 20 marks • Draft materials schedule for roofing 15 marks • Portfolio of manufacturers' literature on materials 10 marks • Personal notes on 'client-supplied materials' problem 10 marks
TOTAL 120 marks	120 marks	120 marks

Practical assignments, by definition, contain a ‘hands-on’ element. For this project the ‘hands-on’ aspect relates to the production of reports/quotations/schedules and the like. It is important that these are presented in an appropriate form and with some quality. It is therefore proper to allocate 30 out of the 120 marks available in this section to the finished products as required by the different project briefs. Nevertheless, it is also true that much of the work that permits the compilation of the product would be insufficiently rewarded were it not to be allocated marks of some significance.

The **portfolios** of manufacturers’ literature etc should not be unwieldy, as this is not a major part of the assignment. The contents should fit comfortably into a document wallet. Furthermore it may be appropriate to include copies only of front covers of literature with economy in mind. This would be particularly sensible when downloading information from the Internet.

The contents of the **logbook** should be brief and to the point. They may comprise one A4 sheet per day for the duration of the project. Candidates are not expected to compose a formal report for each day’s activities but should record in diary format any significant items as well as general comments on progress. The diary may take a ‘standard’ format similar to site diaries in the construction industry, if this is desired.

Minutes or notes from meetings should be in a readable format but do not need to take the form of standard minutes from formal meetings. Candidates should be exhorted to write up notes from meetings as soon as is possible after the meetings in order to ensure accuracy and comprehensiveness of content. The meetings are likely to be one of two types. The first type is that of mock meetings with clients and architects regarding the project brief. The second type is that which the candidate should have regularly with their teacher/lecturer.

Notes on research and sources should be readable but may require the candidate to further explain their contents to teachers/lecturers. The notes are not intended to be a polished piece of work in themselves, rather they are simply *notes* and are required to aid candidates in pulling together a comprehensive yet concise piece of work. They are, furthermore, a valuable item of evidence in authenticating any one candidate’s own work.

Draft calculations are a valuable item of evidence regarding authentication. For each of the options for the project briefs, candidates will be involved in a significant amount of measurement and calculations from drawings in order to quantify work. Calculations should also be much in evidence as candidates carry out appropriate estimates and other calculations. These draft calculations should be kept separate from the final product in order to elevate the appearance of the product proper. This in no way belittles the importance of these draft calculations.

The **final product evidence** may take the form of a report with attached calculations or similar. These reports should ideally be professional in appearance and content. Realistically, cognisance should be taken of the level of experience of candidates at Higher level. Reports should be clear and concise. They should not contain calculations directly but should perhaps include these as attachments. It is unlikely that candidates’ reports will exceed three pages in length (plus attachments). This in no way detracts from the significant amount of ‘behind the scenes’ work which should have been carried out by each candidate. It merely underscores the importance of producing a concise and readable finished document. The final reports should ideally be word-processed but this is not essential. Presentation may however have a bearing on the grading of any assignment.

The prime evidence would ultimately be the product itself, be it a report and a cost plan or whatever. It is also important to gather evidence however, on the candidates’ management of resources and materials.

With this in mind, tangible evidence such as sketches, diagrams, drawings, calculations, estimates and notes would be valuable; these should be cross-referenced and even contain annotation links to the original plan where appropriate.

Please also find below some guidance on time constraints for the different aspects of the development work:

Evidence	Indicative time allowance
Portfolios	3 hours
Logbooks	3 hours
Minutes/notes	2 hours
Notes on research/sources	6 hours
Draft calculations	6 hours
Product	15 hours

Quantity Surveying: evaluating stage

It may be helpful for the candidate to mark up a copy of the original plan with side notes and comments when preparing for the extended evaluation report. It may also be helpful to supplement this task with an interview with each candidate if required.

The above could be used as preparation for the formal extended evaluation report which is to be written up under invigilated conditions.

A videoed or tape-recorded interview with the candidate could also be used as an alternative form of evidence to the purely written evaluation. Centres may not prefer to take this option due to logistics but it should not be precluded.

If the video or taping options are followed, centres are to be very careful that interviews are not carried out in such a manner that candidates are led by interviewers but rather are merely introduced and then speak with only the aid of concise notes such as would be permitted for the more traditional write-up exercise.

It is not proposed that candidates submit a combination of written and taped evidence for the evaluation. The full mark allocated of 40 marks would go to whichever option was being followed with regard to submitting evidence for the evaluation.

7. Marking and grading

The assessment evidence for project-based National Courses is marked externally by SQA.

The total mark for the Practical Assignment is 200, (this large mark allocation makes it easier to discriminate effectively between performances of candidates across the various parts of the assessment). These marks will be allocated to assessment evidence from the three Practical Assignment stages as follows in *Table A*.

Table A

Practical Assignment Stage	Assessment Evidence	Mark Allocation
Planning	Plan of action	40
Developing	Evidence arising from the hands-on practical activity and from documenting the underpinning processes involved	120
Evaluating	Extended evaluation report	40

To underpin this assessment system there are criteria to which marks are pegged, against which the candidate evidence from each of the three Practical Assignment stages is assessed. The use of such mark categories linked to broad criteria, allows for the aggregation of the various parts of the assessment which do not necessarily have the same weighting in the overall grade. *Table B* overleaf outlines the criteria to be used to assess candidate evidence. Assessors in centres will, for each of the three parts, decide firstly on the broad category of mark which is appropriate and secondly on the precise mark to be given. (see *Estimates and appeals* later in this section).

Although it is possible for candidates to be given bands 7, 8 and 9 which are described as 'fails', no such categories will appear on candidates' certificates. This information should help centres agree estimates of candidate performance and provide feedback to candidates for remediation purposes.

All National Courses are subject to external marking. External Markers, Visiting Examiners and Moderators will be trained by SQA to apply national standards. As candidate evidence becomes available exemplars will be issued to centres as guidance.

Practical Assignment

Table B

Higher			Plan of action	Practical activity and documented process evidence	Evaluation report
Levels of performance: broad level-related criteria		Equivalence to	Mark range	Mark range	Mark range
Content and scope: Treatment:	appropriate for level excellent	Upper A 85%–100% (Band 1)	34–40	102–120	34–40
Content and scope: Treatment:	appropriate for level consistently thorough	Lower A 70–84% (Band 2)	28–33	84–101	28–33
Content and scope: Treatment:	appropriate for level thorough in parts	B 60–69% (Bands 3 & 4)	24–27	72–83	24–27
Content and scope: Treatment:	appropriate for level adequate	C 50–59% (Bands 5 & 6)	20–23	60–71	20–23
Content and scope: Treatment: OR Content and scope: Treatment:	appropriate for level adequate only in parts basic for level thorough	Fail 40–49% (Bands 7 & 8)	16–19	48–59	16–19
Content and scope: Treatment: OR Content and scope: Treatment:	appropriate for level generally poor basic for level adequate or poor	Fail Below 40% (Band 9)	<16	<48	<16

Note:

Content and scope: defined as how appropriate or otherwise the candidate interprets the level of demand for the specification

Treatment: defined as how successful or otherwise the candidate tackles the project

Estimates and appeals

Although these project-based National Courses are externally assessed by SQA, candidates will benefit from estimate grades based on accurate internal assessment of their projects, ie the grade assessors judge a candidate should be awarded, based on all the available evidence. The processes for deciding an estimate grade are similar to the processes the external assessors, eg Markers, use for the final assessment. The main benefit of an estimate to an individual candidate is that an appeal can be submitted against an external decision where the estimate given the candidate was at grade C or better. An appeal will not normally be considered for candidates for whom no estimate has been received. The SQA will provide a form for submission of estimates.

For the internal marking process for estimates, internal assessors are expected to:

- compare candidate evidence arising from each stage of the Practical Assignment to the criteria outlined in *Table B* and decide on the mark category which most accurately describes it
- decide on a particular mark for the candidate, within that broad mark category for each stage, depending on how marginal was the decision
- maintain a brief record of why a certain mark was given for each of the three Practical Assignment stages (for internal moderation purposes)
- follow the internal moderation processes within their centre (see the section on internal moderation below)
- aggregate the internally moderated marks for each candidate. That gives a total mark out of 200
- divide that total mark by two to give a percentage
- convert the overall % mark for each candidate into an estimate grade and band using *Table C*

Table C

% Mark range	Grade	Band (for estimates)
85–100	A (upper)	1
70–84	A (lower)	2
65–69	B (upper)	3
60–64	B (lower)	4
55–59	C (upper)	5
50–54	C (lower)	6
45–49	Fail (near miss)	7
40–44	Fail	8
Less than 40	Fail	9

- check the grade already given to candidates against the grade descriptions tabled below, (*Table D*). This is to ensure that candidates have effectively integrated each stage of the Practical Assignment. Please use the grade descriptions as a touchstone against which grades can be checked
- provide estimates as bands

Grade Descriptions for a Practical Assignment at Higher

Table D

A	B	C
Content and scope appropriate for Higher		
And looking at the evidence as a whole:	And looking at the evidence as a whole:	And looking at the evidence as a whole:
<p>A Practical Assignment at Grade A:</p> <ul style="list-style-type: none"> • produces high quality, clearly inter-related documented and product or process-related evidence for the three essential phases of the Practical Assignment • is an exercise to which candidates have brought an accurate and insightful interpretation of the Practical Assignment brief • is tightly structured, relevant to the content of the Units and displays a high level of subject/occupational expertise • effectively applies integrated and consolidated knowledge, understanding and skills from the Course Units to complex situations and/or design specifications 	<p>A Practical Assignment at Grade B:</p> <ul style="list-style-type: none"> • produces good quality, inter-related documented and product or process-related evidence for the three essential phases of the Practical Assignment • is an exercise to which candidates have brought an accurate interpretation of the Practical Assignment brief. • is well structured and displays a good level of subject/occupational expertise • satisfactorily applies integrated and consolidated knowledge, understanding and skills from the Course Units to situations and/or design specifications which include a degree of complexity 	<p>A Practical Assignment at Grade C:</p> <ul style="list-style-type: none"> • produces adequate, fairly well inter-related documented and product or process-related evidence, for the three essential phases of Practical Assignment • an exercise to which candidates have brought an acceptable interpretation of the Practical Assignment brief • is reasonably well structured and displays an adequate level of subject/occupational expertise • applies integrated and consolidated knowledge, understanding and skills from the Course Units with some lack of continuity and consistency

Additional guidance on grade descriptions

Content

The content of the candidates' work must be of a standard that would be expected of a reasonably competent candidate of quantity surveying at this level. Candidates producing adequate work would at the least produce work that was legible and readable, containing only minor errors if any.

Candidates producing better quality work will include supplementary information or references in order to help their audience appreciate the context and assumptions made in connection with their work. Examples of this might include base dates, specification notes, cross-references to drawings etc.

Documents produced for clients in the construction industry must inevitably incorporate technical phrases and details. Candidates' work must include correct wording and technical phrases. Such documents may ultimately constitute part of a valid and binding contract and must not avoid technical correctness simply to help those unfamiliar with such words and terms.

Presentation

The work of candidates must be in a format that one would expect of a professional office or competent contractor's firm. Letters, memos and quotations should follow a recognised format. Cost studies and cost plans should be either on a standard quantities or accounts paper or else in a tabulated or spreadsheet mode.

Even 'rough' workings-out or estimates should be presentable to the extent that the work, in all steps, should be readily understood. Candidates should be reminded at all times to empathise with others who might pick up their work and have to follow it. Evidence of such empathy would be expected in candidates' work. For example, cross-referencing in margins titles, labels, paragraphing, colour coding for positive and negative calculations (alternatively clear columns for each).

Conclusions, recommendations and final total estimates must be clearly highlighted by labels, headings and the like. Supplementary or back-up information, eg calculations, may prove no part of the final presentation to the client or will at best comprise an appendix to the main report or quotation. Candidates have a critical decision to make as to how much information to present to clients and how much to keep as 'hidden' back-up information.

Grade A may be characterised by the following detail:

- accurate and insightful interpretation of the brief
- effective application of knowledge and skills obtained from Course Units to the situations outlined in the brief eg measurement and description skills, estimating skills, research and sourcing of information on technical matters
- consistent level of harmony between the three essential phases of planning, development and evaluation
- consistent use of cross-references in margins between costings and sources (for drafts only)
- effective use of programme planning with milestones and facility for monitoring progress
- effective use of a logbook or diary with notes of timeous action
- competent use of IT and construction related software
- use of professional sources of cost information eg RICS BCIS (Building Cost Information Service)

- research into historic cost information eg cost analyses in *Architects' Journal*
- initiative shown in personal contact with industry bodies or firms relating to products, materials and pricing
- clear, concise and businesslike reports writing
- professional standard in use of graphics in reports
- thorough preparation for mock interviews
- correct application of a number of different approximate estimating techniques
- insightful use of composite items and other estimating 'shortcuts'
- expertise in applying principles to contexts as opposed to blindly following set techniques eg with respect to approximate estimating
- clear planning with marked priorities
- insightful interpretation of drawings and technical information
- clear discernment regarding realism and technical feasibilities
- clear understanding of consequences of contractual difficulties
- professional presentation of final product
- tidy and easily followed rough notes etc
- insightful use of cost sources
- effective evaluation of product which focuses on empathy with end user
- considers aspects of supplementary detail, eg VAT, planning considerations, health & safety, etc

Grade B may be characterised by the following detail:

- reasonably consistent level of harmony between the three essential phases of planning, development and evaluation
- reasonably accurate and sensible interpretation of the brief
- reasonable application of knowledge and skills obtained from Course Units to the situations outlined in the brief eg measurement and description skills, estimating skills, research and sourcing of information on technical matters
- reasonable use of cross-references in margins between costings and sources (for drafts only)
- reasonably effective use of programme planning with milestones and facility for monitoring progress
- reasonably effective use of a logbook or diary with notes of timeous action
- occasional use of IT and construction related software
- research into readily available historic cost information eg cost analyses in *Architects' Journal*
- tutor-led personal contact with industry bodies or firms relating to products, materials and pricing
- accurate and well-structured report writing
- reasonable standard in use of graphics in reports
- reasonably thorough preparation for mock interviews
- correct application of a minimum of two different approximate estimating techniques
- sensible use of composite items and other estimating 'shortcuts'
- some ability in applying principles to contexts as opposed to blindly following set techniques, eg with respect to approximate estimating techniques
- effective planning with reasonable attention to priorities
- effective interpretation of drawings and technical information
- reasonable grasp of technical feasibilities
- some understanding of consequences of contractual difficulties
- reasonably effective presentation of final product
- easily followed rough notes, etc
- effective use of cost sources
- effective evaluation of product which focuses in empathy with end user

- some consideration of aspects of supplementary detail eg VAT, planning considerations, health and safety, etc

Grade C may be characterised by the following detail:

- some elements of consistency and harmony between the three essential phases of planning, development and evaluation
- reasonable but not wholly consistent interpretation of the brief
- some, but not consistent application of knowledge and skills obtained from Course Units to the situations outlined in the brief eg measurement and description skills, estimating skills, research and sourcing of information on technical matters
- some use of cross-references in margins between costings and sources (for drafts only)
- some use of programme planning with milestones and facility for monitoring progress
- use of a logbook or diary with notes of actions taken
- use of paper-based sources and resources in preference to IT and construction related software
- use of only readily available sources of cost information eg cost analyses in *Architects' Journal*
- lack of personal contact with industry bodies or firms relating to products, materials and pricing; all work via texts and published sources
- workmanlike report writing
- acceptable standard in use of graphics in reports
- acceptable preparation for mock interviews
- correct application of only one approximate estimating technique
- occasional use of composite items and other estimating 'shortcuts'
- little ability in applying principles to contexts as opposed to blindly following set techniques eg with respect to approximate estimating techniques
- reasonably effective planning with some attention to priorities
- basic interpretation of drawings and technical information
- some grasp of technical feasibilities
- some understanding of consequences of contractual difficulties
- reasonably well structured presentation of final product
- use of rough notes etc
- reasonably effective use of cost sources
- reasonably effective evaluation of product which considers empathy with end user
- little consideration of aspects of supplementary detail, eg VAT, planning considerations, health and safety, etc

The characteristics described above for all three grades should be viewed as indicative of the standard of evidence likely to be produced by candidates deserving of a given grade allocation, rather than as a prescriptive checklist.

Internal moderation

The internal moderator oversees:

- The internal moderation process to ensure consistency of judgement or *reliability of assessment*. This process will vary according to the nature of the evidence and the number of assessors and sites. It is likely to involve agreement trials and/or Marker standardisation. The internal moderator should be a specialist in the subject. (It may be helpful in the first few years of these project-based National Courses to do a cross-subject moderation of samples of like parts such as the plans of action and evaluation reports. Such additional cross-subject internal moderation is however not mandatory.)
- A consideration of whether, in some cases, candidates with similar overall marks/bands have been fairly treated. For example, some candidates may have produced more fully integrated projects than others. This may lead to a reconsideration of marking of the individual components for some candidates.
- Finalisation of estimate grades and submission of candidate evidence. A form will be available for this purpose.

(See *Guide to Assessment and Quality Assurance for Colleges of Further Education* or *Guide to Assessment and Quality Assurance for Secondary Schools*, SQA June 1999 for further information relating to internal moderation. A guide to good practice for internal moderation is also under development.)

Submitting candidate evidence to SQA

Specific information on this part of the process will be circulated to centres. Where materials have to be sent to SQA for marking you will be provided with any necessary packaging materials.

The following must be sent to SQA for the Practical Assignment:

- plan of action
- all transportable evidence
- extended evaluation report

Note: In addition, centres will be expected to submit all notes used by candidates during write-up sessions.

8. Ensuring evidence is authentic

The following methods should be used to ensure that the evidence produced by a given candidate is all his/her own work. These methods are for use outwith any situation where the candidate's work will be produced under supervised or invigilated conditions already stipulated by the SQA (eg the plan of action and the evaluation).

Candidates are allowed access to limited resources for the plan and the extended evaluation, namely an A4 page of notes (maximum 200 words). These notes may contain prompters and notes on names, dates and sources etc. The supervisor or invigilator must be satisfied that the contents of the A4 sheet in each case contains only notes and/or prompters and not draft reports. Candidates should not be allowed to communicate with each other in any way during the write-up process for the extended evaluation.

As an aid to authentication the use of logbooks or equivalent should permit candidates to provide evidence towards their planning of work and recording of progress.

Candidates may collaborate during the development phase of the assignment. Nevertheless, the final piece of evidence produced by each candidate should be clearly identifiable as the candidate's own work. Where candidates are working on group projects they must retain evidence of their own contributions to the overall effort. Teachers/lecturers may wish to confirm authentication of individual effort by means of face-to-face questioning. Notes should be taken by teachers/lecturers at such sessions. It may be beneficial for teachers/lecturers to have previously prepared checklists/worksheets for such questioning. These should be signed and dated to formalise and verify the process.

In order to ensure the validity of all evidence it would be prudent to periodically interview candidates regarding their assignment work. Notes should be taken at such interviews and audio/video evidence may also be valuable.

Regarding the amount of time that candidates should be under supervision when undertaking the Practical Assignment it should be emphasised that a balance must be struck between supervised and unsupervised sessions. Clearly, candidates have much time outwith class or tutorials in which to carry out parts of their work. It would be unrealistic to police all sessions rigidly. Teachers/lecturers must however be satisfied that candidates are attending scheduled class times with reasonable regularity and are individually contributing to any group efforts.

9. Investigating tools

Candidates are expected to make use of the following information sources during the Practical Assignment:

Information sources

- text books eg *Contracts and Tenders* AQUA Group, *Contract Administration* AQUA Group, *Pre-Contract Price*, AQUA Group, *Building Quantities Worked Examples*, Wheeler and Clark; *Code of Estimating Practice* CIOB, *Construction 1 Management Finance Measurement* Hore, Kehoe et al; *Estimating for Builders and Quantity Surveyors* Buchan, Fleming and Kelly
- reports eg CIOB *Technical Information Paper No 131 Safety Considerations on Tendering*, NJCC *Code of Procedure for Single Stage Selective Tendering*
- manufacturers' literature and price lists eg *Jewson Price List*, *Wilcon Homes Standard House Types and Price List*
- professional/technical/trade journals and articles eg *Architects' Journal*, *Building*; *Chartered Surveyor Monthly*, *Scottish Builder*, *Project Scotland*
- internet eg websites for manufacturers and suppliers, various professional and technical journals online
- CD-ROM eg *Construction Information Service*
- software eg *Quick Brix*, *Project Commander*, *Construct IT*
- videos eg *Co-ordinated Project Information*
- teaching and lecturing staff, external speakers eg visiting architects and other professionals
- site visits
- contracting and professional firms
- building standards and regulations
- building price books eg *Laxtons*, *Spons*, *Wessex*
- building cost analyses and indices from eg *AJ*, *Building*, *BCIS*
- standard forms of building contract eg *SBCC Minor Works*
- VAT leaflets from HM Customs and Excise

Accessing information

- library and learning centre resources and staff
- PC/CD-ROM
- Internet
- telephone and Yellow Pages
- builders' merchants
- teaching and lecturing staff
- co-operation from contracting and consulting organisations in industry

Candidates should be realistic in the demands they may make on those they approach for information; guidance may be needed in this area. Centres should be aware of the need to be sensitive to the negative as well as the positive effects that telephone calls, requests for material, interviews and so on may have on organisations and individuals. The final decision on the most suitable approach lies with candidates and their teachers/lecturers.

References supplied by candidates

Please note that it is legitimate for candidates to quote from information sources such as articles (in print or stored electronically) or books. Such quotations must be placed within quotation marks followed by the reference, including the chapter and or section and page number. Texts referred to should be included in the bibliography.

The following format for references should be used:

Books

Author's surname, followed by forename or initials, title of book (in italics or underlined), place of publication, name of publisher, year of publication.

For example:

Barton, T, *Fieldwork for Geographers*, London: Edward Arnold, 1985

Articles

Author's surname, followed by forename or initials, title of the article (in inverted commas), title of the periodical (underlined or in italics), volume number, part number, year of publication, page number(s).

For example:

Sugden, DE, 'Perspectives on the Glaciation of Scotland', *SAGT Journal No. 17*, 1988, pp 4–10.

Maps and Diagrams

Sources should be given on each map and diagram and should be stated in the same format as for books and articles, as appropriate.

For example:

Microsoft Encarta 1997

Internet

If a website has been used then the address (URL) must be disclosed.

For example:

www.sqa.org.uk

It is important to note that unacknowledged copying will be penalised, usually by cancellation of the candidate entry.

10. Materials and resources

Candidates are expected to select from the following materials and resources as appropriate:

Essential

- scientific calculator with trigonometric functions
- scale rule
- building price books eg *Laxtons, Spons, Wessex*
- manufacturers' literature and price lists
- cost information and drawings/specifications from past building contracts
- standard QS paper
- teachers and lecturers' expertise

Useful

- project programme blanks
- standard forms of contract
- standard method of measurement
- drawing equipment
- PC and software
- Internet eg websites for BICS and for RICS etc
- CD-ROM eg *Construction Information Service*
- standard texts
- professional/technical/trade journals and articles, eg *Architects Journal, CSM, Building, Project Scotland etc*
- videos
- Building Standards (Scotland) Regulations and Technical Standards
- industry contacts

11. Core Skills

It is possible that successful attainment of this course would lead to the automatic certification of particular Core Skills or Core Skill components. A final statement will be provided at a later date by the Scottish Qualifications Authority once full validation procedures are complete.

It should be noted that this project, in common with other project-based Courses, follows the planning/developing/evaluating cycle. As a result of this it is likely that successful completion of the project will lead to automatic certification of the Problem Solving Core Skill at Intermediate 2. The final Core Skills statement, as above, will confirm this.

