

Module: Management

Question 1

Refer to your drawings and scenario.

TASK:

- A. The storage facility was initially considered a design and build project, but the client has requested information on other forms of procurement before proceeding with proposals. As an advisor to the client, prepare a report which details Design and Build, and TWO other suitable forms of contract procurement routes, with the implications for design and site production, including their advantages and disadvantages. Your report should conclude with a reasoned selected procurement route for the storage facility.

(14 Marks)

- B. For the selected procurement route in part A of the question, prepare an organisation chart for the project indicating direct, lateral, and functional relationships between all participants, including other service departments within the appointed main contractor's organisation.

(8 Marks)

- C. Explain the duties and responsibilities of participants on the organisation chart in achieving successful project delivery.

(8 Marks)

Indicative Content	
<p>Markers – Please refer to the marking descriptors.</p> <p>A) Three procurement routes considered. Other relevant routes identified by candidates equally valid.</p> <p>Design and Build Contractor responsible for design, planning and control of construction. Appointed architect prepares client's requirements in sufficient detail. Details sent to selected contractors who prepare proposals on design, including time and cost with tender sum. Client selects one which best suits requirements and enters into contract. Contractor develops design proposal and carries out construction work to completion.</p>	

Advantages

Contractor responsible for design and construction.
Single point responsibility in dealing with contractor.
Client aware of financial commitment at the outset.
Ideally suited to standard type warehouses or industrial buildings.

Disadvantages

Contractor may have limited design experience.
Client does not know if receiving value for money.
Variations from design will add to initial cost.
Risk premium may increase the capital cost

Traditional

Client appoints architect to design building, produce drawings and specification.
Appointment of quantity surveyor to prepare bills of quantities.
Contractors invited to tender on prepared information for carrying out and completion of the works.
Lowest tenderer usually appointed.

Advantages

Client and contractor understand their relative commitments.
Breakdown of tender sum available.
Unit rates in BQ basis for variations.

Disadvantages

Time in producing design and BQ.
Variations may be problematic in changes made to the original proposal.

Construction Management

A professional consultancy service for the client.
Design and construction work are provided by other companies.
The construction manager is responsible for organising and planning the works on site.
Work carried out by several contractors responsible for work package(s).
Each contractor enters into a direct contact with the client.

Advantages

Construction works more integrated into the management of the project.
Close communication between construction manager and design manager to resolve any design issues.
Work packages can be let as design details are finalised.
Direct contract between client and contractors allows for issues to be dealt with quickly.

Disadvantages

Client has the construction manager and several contractors to deal with instead of one main contractor.

Uncertainty for the client regarding financial commitment until final work package is signed off.

Candidates to consider the issues around the different contract procurement routes and select what they deem to be the most appropriate for the storage facility with reasons.

(14 Marks)

- B) Organisation chart produced for the selected route with communication relationships indicated:
Direct relationships (line management)
Lateral relationships (similar status)
Functional relationships (service based on knowledge and expertise)
Links from site management organisation structure to other departments in the main contractor's organisation
e.g. planning, buying, QS, plant management, accounts, HR, Health and safety, and environmental personnel.
Procurement route selected would determine the layout and structure of the chart.

(8 Marks)

- C) Duties and Responsibilities of personnel identified on organisation chart to be detailed.
Personnel would include:
Client
Architect
Contractor
Quantity surveyor
Engineering consultants
Design engineers
Domestic sub-contractors
Sub-contractors (including named).
Others identified.

(8 Marks)

Guide for markers

Pass grade

Shows basic understanding of contract procurement routes, including a selected route.

Basic organisation chart provided with relevant personnel identified, including general duties and responsibilities.

Merit grade

Builds on pass grade with more details on procurement routes and reasoned selection for the project. A well-structured organisation chart

<p><i>with indication of relationships shown, and detailed recognition of duties and responsibilities of personnel.</i></p>	
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Distinction grade

Additional coverage of details on the merit grade with specific reference to the project and particular issues extensively covered. Clear knowledge and understanding of procurement routes, with comprehensive organisation chart, including relationships and linkages, together with supporting narrative. Extensive coverage of duties and responsibilities of relevant personnel.

Module: Management

Question 2

Refer to your drawings and scenario.

TASK:

- A. Identify work packages for the storage facility and prepare a logic-linked construction programme for the works indicating stages of completion and project duration.

(15 Marks)

- B. While considering the construction programme, information is received on supply chain issues with the external cladding and an expected delay of five weeks for delivery. To avoid financial penalties for late project completion, examine how the construction programme can be accelerated to complete the works on time, including calculated increased costs, and evaluate the practical issues surrounding the delivery of the accelerated construction programme.

(15 Marks)

Indicative Content	
<p>Markers – Please refer to the marking descriptors.</p>	(15 Marks)
<p>A) Work packages and construction programme. Establish work packages for the construction works within the stages of sub-structure, superstructure, internal works, and services – including fire protection and security systems, external works, etc. Prepare construction programme (Gantt chart, or network) representing the work from inception to completion. Programme should indicate logic links between activities/work packages, critical path, stage completions, and overall project duration. Use of planning software for programming.</p> <p>B) Delay of external cladding by five weeks. Assess construction programme along the critical path. Identify activities/work packages affected by the delay. Consider activities/work packages that can be accelerated – reduced duration by increased resources for the work, use of different method of construction, or consideration of change in the logic, and sequencing of activities.</p>	

<p>Use of planning software to test 'what-if' situations for optimal solution. Critical path may change (or more than one may be created) during acceleration process, so additional activities may have to be considered. Calculate accelerated costs of activities – increase resources, more expensive/efficient method of construction. Total cost of acceleration determined.</p> <p>Practical issues of delivery may include: Impact of both direct labour and sub-contractors working simultaneously. Workspace requirements. Procurement of additional resource requirements – labour, plant, and equipment. Difficulty of sub-contractors meeting revised work periods owing to commitments on other projects. Quality of work. Impact on health and safety provisions. Additional risks. Additional supervision requirements. Required monitoring and control of the works. Relationships/conflicts between project participants.</p>	<p>(15 Marks)</p>
<p><u>Guide for markers</u></p> <p>Pass grade <i>Identified work packages for stages of the construction works. Preparing a construction programme for the storage facility – realistic in terms of practicality and time. Demonstrates understanding of acceleration and how to use the technique for time reduction of activities/work packages, including determination of additional costs. Consideration of practical issues associated with acceleration to achieve required project duration.</i></p> <p>Merit grade <i>Builds on pass grade requirements, through more detailed activities/work packages and practicalities to consider. A well-constructed construction programme prepared with appropriate logic and time durations of activities. Logic links and critical path indicated. Demonstrates clear understanding of acceleration on appropriate critical activities to achieve project duration, in addition to determination of addition costs. Shows good understanding of practical issues surrounding delivery of the accelerated programme with appropriate narrative.</i></p> <p>Distinction grade <i>Covers merit grade items and able to offer more in-depth knowledge of issues related to the project. Work package determination, and preparation of a well thought out construction programme with logic</i></p>	

links, critical path, annotations and comprehensive narrative. Clear demonstration of acceleration process and the achievement of project duration and costs with a comprehensive solution. Appreciation of practical issues in delivering accelerated programme and how these will be addressed.