

**FRONT COVER NOTES FOR
MECHANICAL CONTRACTORS
ESTIMATOR
EXAMINATION SPECIFICATION**

This examination will be developed based on the following format:

<u>SECTION I</u>	<u>VALUE</u>
(1) 50 Multiple Choice Items	50%
(A) items - General Skills	7%
(B) items - Pre-Bid / Pre-Proposal	7%
(C) items - Quantity Take-off	14%
(D) items - Costing	10%
(E) items - Bid / Proposal	8%
(F) items - Post Bid	4%
 <u>SECTION II</u>	
(1) Working With Specs	20%
(2) Communication	10%
(3) Quantity Take-off	20%
 TOTAL VALUE	 100%

MECHANICAL CONTRACTORS - ESTIMATOR EXAMINATION SPECIFICATION

SECTION: **GENERAL SKILLS**

VALUE:7%

TASK NO. & VALUE	TASK DESCRIPTION	TASK SUPPORTING KNOWLEDGE AND SKILLS
<p>G.P.1000.01.01</p> <p style="text-align: center;">3 questions</p>	<p>Communicate clearly with own forces, owner, client, consultant, regulatory agencies and other contractors.</p>	<ul style="list-style-type: none"> (a) Ability to communicate the various types of contracts to field staff. (b) Ability to produce written correspondence and reports. (c) Ability to make oral presentations. (d) Ability to electronically communicate by phone, Internet, etc. (e) Ability to free-hand draw. (f) Ability to maintain good relations with owner, client, and consultants. (g) Knowledge of the architect's/consulting engineer's role. (h) Knowledge of the contractual responsibilities of the owner, client and consultant. (i) Knowledge of authority and legal responsibilities of government inspectors. (j) Knowledge of code requirements for specialty trades. (k) Knowledge of contract documents and progress information usually required by owner/client/consultants. (l) Ability to use computer software packages. (m) Knowledge of cost implications of legislation. (n) Ability to respect the company' policies and procedures and understand the level of authority.
<p>G.P.1000.01.23</p> <p style="text-align: center;">2 questions</p>	<p>Respond to design/build and construction requests.</p>	<ul style="list-style-type: none"> (a) Knowledge of current codes and regulatory agencies. (b) Knowledge of software packages. (c) Ability to participate as a partner in a multi-disciplinary design/build team. (d) Ability to perform elemental cost analysis. (e) Ability to interpret client' needs. (f) Ability to respond to an expression of interest request. (g) Ability to assemble pre-qualification documents. (h) Ability to identify scope of work within the design/build team. (i) Knowledge of design/build team.

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TASK NO. & VALUE	TASK DESCRIPTION	TASK SUPPORTING KNOWLEDGE AND SKILLS
G.E.1200.01.01 1 questions *	Establish a historical database of information from jobs and/or estimates completed.	<ul style="list-style-type: none"> (a) Knowledge of computer databases containing historical cost information. (b) Ability to maintain an efficient manual database. (c) Ability to maintain a historical database. (d) Knowledge of the master format (detailed) and elemental cost systems (preliminary). (e) Ability to prepare and maintain labour productivity records. (f) Ability to perform cost benefit or life cycle analysis. (g) Ability to conduct a time study of a unit cost of labour. (h) Ability to compile a list by project, on competitor's bidding practices.
G.P.1000.01.19 1 question	Ensure a list of acceptable suppliers, subcontractors, carriers and rental companies is maintained.	<ul style="list-style-type: none"> (a) Ability to assess the reliability of service. (b) Ability to evaluate the cost in comparison to reliability. (c) Ability to maintain a record of receipt and distribution of all bid documents (plans, specifications and addenda).
G.E.1200.01.03 1 question *	Ensure material data is readily available and updated.	<ul style="list-style-type: none"> (a) Knowledge of product data catalogues. (b) Knowledge of mechanical materials standards.
G.E.1200.01.02	Read the marketplace.	<ul style="list-style-type: none"> (a) Ability to effectively communicate orally and in writing. (b) Ability to make presentations. (c) Ability to use a historical database. (d) Ability to report to management on company' overall performance and estimating accuracy in the market. (e) Ability to report on competitor' bidding history.
G.P.1000.01.22 1 question *	Keep abreast with technological changes in the industry.	<ul style="list-style-type: none"> (a) Ability to maintain a supply of trade magazines. (b) Ability to maintain attend trade seminars. (c) Ability to maintain liaison with manufactures and suppliers.

* test only one of these on the examination

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SECTION: **PRE-BID/ PRE-PROPOSAL**

VALUE:7%

TASK NO. & VALUE	TASK DESCRIPTION	TASK SUPPORTING KNOWLEDGE AND SKILLS
G.E.1200.05.04 1 questions	Brief senior management on major bid risks/opportunity for a project.	<ul style="list-style-type: none"> (a) Ability to identify the risks associated with the project. (b) Ability to identify unclear documentation. (c) Ability to express a confidence factor for subcontract awards. (d) Ability to communicate the schedule. (e) Ability to communicate the resources required to complete the project.
G.E.1200.02.01 1 questions	Determine, in consultation with senior management, which jobs to tender.	<ul style="list-style-type: none"> (a) Ability to determine the information required to make decision to bid a job. (b) Ability to estimate the value of the project by unit cost or elemental cost analysis. (c) Ability to report to Company Management on main aspects of project to be tendered. (d) Knowledge of types of bid. (e) Knowledge of competitor'. (f) Ability to prepare a bid strategy. (g) Knowledge of job location. (h) Knowledge of labour availability. (i) Ability to communicate the list of competitors. (j) Ability to communicate the advantages of the project. (k) Ability to communicate the disadvantages of the project.
G.P.1000.02.03 1 questions	Interpret plans, specifications, addenda and all construction conditions set by owner/consultant.	<ul style="list-style-type: none"> (a) Ability to detect early determination of any discrepancies, ambiguities, omissions, etc. in contract documents. (b) Ability to interpret drawings, and specifications early in the job. (c) Knowledge of performance requirements (accelerated schedule, etc.) (d) Ability to be aware of any environmental conditions of the contract. (e) Ability to understand the liability of errors or omissions in drawings and noting such to management and owner/consultant. (f) Knowledge of document hierarchy.
G.P.1000.02.02 1 question	Conduct a pre-construction site inspection in conjunction with management team.	<ul style="list-style-type: none"> (a) Ability to assess existing structure, utilities, storage space, obstructions, site access, etc. (b) Ability to conduct a job site analysis (notes, pictures, reports).

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TASK NO. & VALUE	TASK DESCRIPTION	TASK SUPPORTING KNOWLEDGE AND SKILLS
G.E.1200.02.02 1 question	Compile a checklist of all trade divisions required for the scope of work.	(a) Knowledge of scope of work conditions imposed by local trade union/associations on their members. (b) Ability to research contract items which subcontractors /suppliers commonly exclude. (c) Knowledge of local bid depository rules of procedure and scope of work. (d) Ability to solicit selected trade contractor quotations through trade journals, selected mailing and telephoning.
G.E.1200.02.03 1 question	Solicit selected subcontractor quotations.	(a) Knowledge of association directory. (b) Knowledge of telephone books. (c) Knowledge of company's listing. (d) Ability to solicit bids.
G.P.1000.02.04 1 questions	Solicit competitive prices.	(a) Knowledge of availability, applications, cost effectiveness and capacities of various types of equipment. (b) Ability to negotiate considerations. (c) Knowledge of material specifications and costs.

SECTION: QUANTITY TAKE-OFF

VALUE:14%

TASK NO. & VALUE	TASK DESCRIPTION	TASK SUPPORTING KNOWLEDGE AND SKILLS
G.E.1200.03.04 2 questions	Co-ordinate and communicate with subcontractors/suppliers on scope of work.	(a) Ability to effectively communicate the scope. (b) Ability to notify the subcontractors/suppliers the availability of addenda/instructions.
G.E.1200.03.03 2 questions	Clarify with consultant all discrepancies, ambiguities, omissions, etc.	(a) Ability to accurately obtain written instruction on queries. (b) Ability to accurately record all communications. (c) Ability to accurately check and note all addenda.
G.E.1200.03.01 1 questions	Maintain standard procedures for all estimating work.	(a) Ability to use take-off and pricing sheets. (b) Ability to use computer estimating packages. (c) Ability to maintain an industry-wide standard method of measurement. (d) Ability to maintain a company method of measurement.

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TASK NO. & VALUE	TASK DESCRIPTION	TASK SUPPORTING KNOWLEDGE AND SKILLS
G.E.1200.03.02 6 questions	Measure quantities from bid documents.	<ul style="list-style-type: none"> (a) Ability to interpret civil, architectural, structural, mechanical, and electrical drawings. (b) Ability to interpret specifications. (c) Knowledge of document hierarchy. (d) Ability to interpret codes and Regulatory agencies requirements. (e) Ability to take-off quantities in the appropriate sequence. (f) Ability to summarize and verify quantities. (g) Knowledge of take-off quantities for such non-standard items as renovation, demolition, unique construction methods, specifications, etc. (h) Knowledge of construction materials and methods used in existing buildings. (i) Knowledge of new or innovative methods and materials. (i) Ability to make imperial/metric conversions.
G.E.1200.04.09 3 questions	Preparing a take-off summary.	<ul style="list-style-type: none"> (a) Ability to compile all material, labour, and equipment to determine total cost. (b) Knowledge of company format. (c) Ability to use computer software packages.

SECTION: **COSTING**

VALUE:10%

TASK NO. & VALUE	TASK DESCRIPTION	TASK SUPPORTING KNOWLEDGE AND SKILLS
G.E.1200.04.03 1 questions	Compile unit costs.	<ul style="list-style-type: none"> (a) Ability to compile all material, labour, equipment, subcontractors and general requirements to determine unit prices. (b) Ability to compile unit costs for additions and deletions.
G.P.1000.02.01 1 questions	Determine all indirect costs.	<ul style="list-style-type: none"> (a) Ability to assess requirements for supervision and indirect costs. (b) Ability to keep abreast of new cost-effective methods of construction. (c) Knowledge of all applicable project taxes. (d) Ability to locate existing services. (e) Ability to assess, in consultation with field supervision, construction methods and systems to be used in project.

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TASK NO. & VALUE	TASK DESCRIPTION	TASK SUPPORTING KNOWLEDGE AND SKILLS
G.P.1000.02.06 1 questions	Determine extra costs based on project location.	<ul style="list-style-type: none"> (a) Ability to assess local labour situations, accessibility to site, travel requirements, lodging, local bylaws, availability of material and equipment, climate, etc. (b) Ability to analyse local labour availability and productivity. (c) Ability to perform on-site analysis of work and methods.
G.E.1200.04.04 1 questions	Costs standard work.	<ul style="list-style-type: none"> (a) Ability to interpret catalogues and applicable discounts. (b) Ability to interpret supplier quotations and to ensure material conforms to specifications. (c) Knowledge of types of equipment and standard applications. (d) Ability to apply labour units.
G.E.1200.04.05 questions	Cost speciality work.	<ul style="list-style-type: none"> (a) Ability to interpret catalogues and applicable discounts. (b) Ability to interpret supplier quotations and to ensure material conforms to specifications. (c) Knowledge of types of equipment and standard applications. (d) Knowledge of rental rates for specialty equipment. (e) Ability to adjust labour for project condition.

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TASK NO. & VALUE	TASK DESCRIPTION	TASK SUPPORTING KNOWLEDGE AND SKILLS
G.E.1200.04.07 1 questions	Calculate contractor' costs.	(a) Ability to assess, in consultation with company management and project management, the cost of general requirements for: - supervision; - temporary offices and administration; - site access, protection and security; - temporary utilities; - construction facilities and service (surveys, trucking, cleanup, etc.) - hoisting; - small tools and equipment. (b) Permits.
G.E.1200.04.01 1 questions	Estimate labour unit cost.	(a) Knowledge of the factors which limit or foster labour productivity. (b) Knowledge of methods and systems used in construction operations. (c) Knowledge of regulations regarding crew composition, union regulated, or otherwise. (d) Ability to utilize the historical data base of information of jobs and/or estimates completed. (e) Knowledge of on-site analysis of work and methods. (f) Ability to analyse cost reports and other statistics. (g) Ability to assess, in consultation with field supervision, construction methods and systems. (h) Knowledge of reference sources on labour factors. (i) Ability to obtain from supervision feedback on company' tables of labour productivity. (j) Knowledge of how unit labour costs are calculated.
G.E.1200.04.06 1 questions	Analyse quotations submitted by subcontractors/suppliers.	(a) Ability to prepare spread sheets . (b) Ability to compare prices submitted by subcontractors and suppliers.
M.E.1200.01.01 (New) 2 questions	Prepare summary of costs.	(a) Ability to prepare a spreadsheet. (b) Ability to identify taxes. (c) Ability to compile summary in conformance with company's standard. (d) Ability to use computer software package.

SECTION: **BID / PROPOSAL**

VALUE:8%

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TASK NO. & VALUE	TASK DESCRIPTION	TASK SUPPORTING KNOWLEDGE AND SKILLS
G.E.1200.05.02 2 questions	Review and finalize bid submissions in consultation with management.	(a) Ability to assess overhead and profit requirements. (b) Ability to review and adjust amount for bonds and insurance (c) Knowledge of the bid strategy.
G.E.1200.05.01 5 questions	Complete tender submission.	(a) Knowledge of calculating unit prices, alternative prices, bonds and insurance and other items commonly required in tender submission. (b) Knowledge of company overhead and markup. (c) Ability to prepare tender forms.
G.E.1200.05.03 1 questions	Submit the bid/proposal.	(a) Knowledge of the methods of submitting different types of bids. (b) Ability to deliver the bid. (c) Knowledge of clarifying/qualifying bids.

SECTION: POST BID

VALUE:4%

TASK NO. & VALUE	TASK DESCRIPTION	TASK SUPPORTING KNOWLEDGE AND SKILLS
G.E.1200.06.01 1 questions	Communicate the scope of the estimate to the project management team.	(a) Ability to convey the special conditions about the project. (b) Ability to convey the estimated plan of construction. (c) Ability to participate as a team member. (d) Ability to assist in preparing the schedule.
G.P.1000.01.25 1 questions	Analysing project in detail to realize cost savings through redesign.	(a) Knowledge of design methods of constructions. (b) Knowledge of alternative methods of construction. (c) Knowledge of alternative products and materials.
G.E.1200.06.04 1 questions	Participate in post tender negotiations.	(a) Assist in negotiating changes. (b) Ability to understand your costs associated with changes. (c) Knowledge of company procedures in processing change orders.
G.S.1100.03.06	Assist in preparation of construction schedule by construction team.	(a) Knowledge of bar chart, network diagramming (CPM, PERT) and other diagrammatic methods of scheduling.

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1 question		(b) Knowledge of resource levelling throughout the project.