**CM 240 – Construction Cost Estimating**

**Chapter 1: Intro to Estimating - Review Questions**

1. What information is contained in the working drawings?
   * The working drawings usually contain information relative to the design, location, dimensions, and construction of the project.
2. What information is contained in the technical specifications?

technical specifications are a written supplement to the drawings and include detailed information pertaining to materials and workmanship, as well as information about the bidding process.

1. What is the relationship between the working drawings and the technical specifications?

The two complement each other, and they often overlap in the information they convey

1. What is the difference between doing a quantity takeoff and doing a detailed estimate?

A quantity takeoff is an estimate of the amount of in place materials required for the construction of a project. A full detailed estimate is an estimate that covers everything required for the construction of the project and includes both costs and quantities for materials, labor, and equipment and subcontractor costs

1. What is the difference between a detailed estimate and a square-foot estimate?

The detailed estimate includes determination of the quantities and costs of everything required to complete the project. This includes the materials, labor, equipment, insurance, bonds, and overhead, as well as an estimate of profit. Square-foot estimates are prepared by multiplying the square footage of a building by a cost per square foot and then adjusting the price to compensate for differences in the building heights, length of the building perimeter, and other building components. Square-foot estimates require less information to prepare and are less accurate.

1. What are the contract documents, and why are they so important?

Contract documents consist of the invitation to bid, instructions to bidders, bid form, owner-contractor agreement, general conditions of the contract, supplementary general conditions, technical specifications, and the working drawings, including all addenda.

It is important because the bid submitted for any construction project is based on the contract documents

**Chapter 2: Contracts, Bonds and Insurance - Review Questions**

1. What is a single contract, and what are its principal advantages and disadvantages for the owner?

The single contract include all work required for the completion of a project and is the responsibility of a single, prime contractor.

The advantage of a single contract is that owner contracts with prime contractor, contractor assumes the cost and responsibility of the fallout of a subcontractor. The disadvantages are the less control of contracted work from the owner and higher cost of using a general contractor.

1. What are separate contracts, and what are the principal advantages and disadvantages for the owner?

Under the system of separate contracts, the owner signs separate agreements for the construction of various portions of a project. Its advantages are that an owner can choose the contractors for the various important phases of the project but will also be responsible for the completion of those phase as well

1. List and briefly define the types of agreements that may be used for the owner’s payment to the contractor.

Lump-Sum Agreement – the contractor agrees to construct the project in accordance with the contract documents, for a set price arrived at through competitive bidding or negotiation.

Unit-Price Agreement – the contractor bases the bid on estimated quantities of work and on completion of the work in accordance with the contract documents.

Cost-Plus-Fee Agreements – the contractor in reimbursed for the construction costs as defined in the agreement and profits from a percentage fee, fixed fee, fixed fee with guaranteed maximum cost, sliding scale fee, or fixed fee with a bonus and penalty.

1. What is retainage, where is the amount specified, and why is it used?

Retainage is a portion of the contract amount that is deliberately withheld from the subcontractor or the contractor until agreed upon construction obligations are met satisfactorily. The purpose of retainage is that it provides an incentive to the contractor to complete their project on time while maintaining quality, additionally it provides the owner with cushion room in case the contractor defaults

1. What is a bid bond, and how does it protect the owner?

The bid bond ensures that if a contractor is awarded the bid within the time specified, the contractor will enter into the contract and provide all other specified bonds. If they fail to do so without justification, the bond shall be forfeited to the owner. The amount forfeited shall in no case exceed the amount of the bond or the difference between the original bid and the next highest bid that the owner may, in good faith, accept.

1. What are performance bonds? Are they required on all proposals?

The performance bond guarantees the owner that, within limits, the contractor will perform all work in accordance with the contract documents, and that the owner will receive the project built in substantial agreement with the documents. It protects the owner against default on the part of the contractor up to the amount of the bond. The warranty period of one year is usually covered under the bond also. The contractor should check the documents to see if this bond is required and in what amount, and must also make the surety company aware of all requirements.

**Chapter 3: Project Manual - Review Questions**

1. What types of information are found in the project manual?
   * 1. Invitation to bid
     2. Instructions to bidders
     3. Bid forms
     4. Form of owner / contractor agreement
     5. Form of bid bond
     6. Forms of performance / payment bonds
     7. General conditions of the contract
     8. Supplementary general conditions
     9. Specifications
2. Why is it important for the estimator to review carefully the entire project manual?
3. Describe the CSI MasterFormat and how it is used.
   1. It is a standard format for organizing the specification.
   2. MasterFormat consisted 50 divisions. Each division is subdivided in to specific area.
4. What information is contained in the specifications (technical specifications) of the project manual?

Include the type of materials required, their required performance, and the method that must be used to obtain the specified result.

1. Explain what an alternate is and how it is handled during the bidding process.

In many projects, the owner requests prices for alternate methods or materials of construction.

The alternates may be either an add price or a deduct price, which means that contractors either add the price to the base bid or deduct it from the base bid.

1. Explain what an addendum is and when it is used.

Any amendments, modifications, revisions, corrections, and explanations issued by the architect/engineer during the bidding period are addenda.