

Chapter 1

1. During the ____ phase, the architect, other design consultants, and the owner mutually determine the goals and objectives of the project.

- a. pre-design
- b. CD
- c. project delivery
- d. design build

ANSWER: a

2. Construction specifications for buildings and other projects are written using the ____.

- a. Facilities Services Subgroup
- b. MasterFormat system
- c. General Conditions clause
- d. Design-Bid-Build method

ANSWER: b

3. The construction documents include a written manual called the ____.

- a. clarifications
- b. specifications
- c. CDs
- d. MasterFormat

ANSWER: b

4. In addition to the purely technical information, division ____ of the specifications outlines the guidelines for the pre-construction phase of the project.

- a. 00
- b. 01
- c. 02
- d. 03

ANSWER: a

5. Using the ____ method, the construction manager may act purely as an advisor, providing guidance and expertise throughout the design and construction of a project, and does not guarantee a budget or schedule.

- a. Construction Management for Fee
- b. Design-Build
- c. Construction Management at Risk
- d. Integrated Design Process

ANSWER: a

6. Both specialty and subcontractors are independent contractors employed by the ____ to perform specific work at a specified cost.

- a. general contractor
- b. superintendent
- c. field supervisor
- d. architect

ANSWER: a

7. ____ is the traditional method of project delivery that moves sequentially from conception of a project through its construction.

- a. Design-Build
- b. Design-Bid-Build
- c. Bid-Build
- d. Design-Bid

ANSWER: b

8. ____ drawings are substantially different from architectural drawings in style and content, including manufacturing conventions, and special fabrication instructions.

- a. Data
- b. Mock-up
- c. Shop
- d. Construction

ANSWER: c

Chapter 1

9. _____ initiated the regulation of safety standards for the construction industry.

- | | |
|---------|---------|
| a. NIBS | b. BIM |
| c. IDP | d. OSHA |

ANSWER: d

10. _____ is a relatively new design approach that attempts to bring together all the diverse participants of a project at the beginning of the design phase.

- | | |
|------------------------------------|---|
| a. A construction change directive | b. A contractor request for information |
| c. Building Information Modeling | d. Integrated Design Process |

ANSWER: d

11. Describe the types of projects that would be referred to as heavy construction. Explain what entities are usually responsible for such projects and why.

ANSWER: Heavy construction is the term used for larger infrastructure projects such as highways, bridges, canals, dams, subways, tunnels, utility piping systems, water control construction, and communications networks. Heavy construction projects are usually financed by governmental agencies and other institutions, or are incorporated into master plans (such as universities) to serve the public good.

12. Describe how the numbers and titles in MasterFormat are divided.

ANSWER: The numbers and titles in MasterFormat are divided into 50 basic groupings called divisions, 34 of which are active, with 16 reserved for future expansion. Each division has a title and identifying number. Division 1 describes the general requirements of the contract, outlining administrative methods for a construction project, such as project management procedures, and construction facilities and controls.

13. Briefly describe the basic process of both competitive bidding and invitational bidding.

ANSWER: Competitive bidding is a method of qualified construction wherein contractors are invited to bid on the project on a competitive basis with the contract often being awarded to the contractor that submits the lowest bid. A variation of this process used more on privately funded projects is called invitational bidding, wherein only preselected contractors are asked to provide bids on a project.

14. Describe the advantages of a negotiated contract and why an owner may decide to do a negotiated contract instead of seeking bids.

ANSWER: An owner may decide on a contractor with whom they have worked on previous projects without seeking other bids and agree upon a negotiated contract. A negotiated contract can have the advantage of bringing a contractor into the project in the pre-construction phase of the work, encouraging a team approach that incorporates design, construction, and budget planning with owner involvement in a cooperative and coordinated effort. This integration, which incorporates estimating and cost control throughout the design and development effort rather than at its conclusion, often facilitates the best overall solutions.

15. Describe the Design-Build contracting method.

ANSWER: In the design-build contracting method, the owner contracts with a single party that completes all portions of the work from design through construction. Rather than having multiple contracts with the architect and contractor, the design-build method assigns a single entity with full responsibility. The entity may be a construction company that has contracted with an architect or engineering firm for design services, or one that maintains design professionals as permanent members of their staff.

16. Describe the Design-Bid-Build contracting method.

Chapter 1

ANSWER: The owner contracts initially with an architect to define the project scope, perform pre-design services, and produce the construction documents. Once the documents are complete, the project is sent out for proposals to qualified contractors. The contract is usually awarded to the most-qualified bidder who submits the lowest cost estimate. The general contractor solicits bids from subcontractors using the same bidding procedure. The project responsibilities are divided among the various team members with whom the owner establishes separate contractual relationships.

17. Describe the possible duties and roles a construction manager may take on in a project.

ANSWER: The construction manager may provide input during the design phase and oversight and administration of the bidding and construction phases. The construction manager may act purely as an advisor, providing expertise throughout the planning and construction of a project. Or the construction manager may act in an advisory capacity during design and sign a contract with the owner to act as general contractor once the construction documents are complete. In both cases, the construction manager becomes a representative of the owner in overseeing the work of both the architect and the contractor. The construction manager's involvement from the onset of the project includes advising on issues of constructability during the design process.

18. Describe what a field office is and explain the purpose of establishing a field office on a construction site.

ANSWER: Field offices are often housed in self-contained mobile trailers that are fully furnished and provided with modern communication equipment. The field office provides a central command post for the day-to-day site activities, a repository for construction documents and project files, and an office for the project superintendent.

19. Describe the purpose and scope of a shop drawing.

ANSWER: A shop drawing gives precise directives for the fabrication of certain components such as structural steel work, concrete reinforcing, or pre-cast concrete components. It is drawn to explain the fabrication and sometimes installation procedures of the items to the manufacturer's production crew or contractor's installation crews. Shop drawings are substantially different from architectural drawings in style and content, including manufacturing conventions, and special fabrication instructions. They are generated by the manufacturer of the material, reviewed by the contractor, and submitted to the architect for final approval.

20. Give a brief description of Building Information Modeling.

ANSWER: Building Information Modeling (BIM) is set to revolutionize the way buildings are designed, constructed, and maintained. Architects and engineers use BIM to generate a three-dimensional model of a building with embedded links to other project information. In its current state, BIM has a range of capabilities, including drawing, construction estimating and scheduling, interdisciplinary coordination, and generating fabrication protocols.