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Top 40 Civil Engineer Interview Questions & Answers

1) What are the responsibilities of a construction manager?

The responsibilities of a construction manager are

- Cost Estimates
- Pre-purchase of selected materials
- Selection of bidders for bidding phase
- Analysis of proposals
- Construction contract negotiations
- Construction Scheduling and Monitoring
- Cost control of construction
- Construction supervision

2) List out the potential risk factors for workers on the construction site?

Potential risk factors for worker on the construction site

- Falls from heights
- Scaffold and Trench collapse
- Electric shock and arc blast
- Repetitive motion injuries
- Not using personal protective equipment correctly

3) What is OSHA compliance?

OSHA stands for Occupational Safety and Health Act; its motive is to fulfill the health and safety requirement of employees and workers. It is a standard for health and safety that is followed by every industrial segment and corporate offices throughout U.S.A.

4) Mention what are the composition of a landfill?

For secure landfill, there are four critical elements

- The bottom liner
- A leachate collection system
- A cover
- Natural hydrogeologic settings

5) For the construction project what capital cost has to be taken in consideration?

- Land acquisition (Assembly, holding and improvement)
- Planning and feasibility studies
- Construction (Material, equipment, and labor)
- Construction financing (Bank loan)
- Insurance and taxes during construction
- Owner's general office overhead
- Inspection and testing
- Equipment and furnishing not included in the construction
- Field supervision, architectural and engineering design



6) List out some of the software used in the construction sector to estimate cost and monitoring expenses?

- Tally System
- Sage
- Maxwell System
- Premier construction software
- eTakeoff
- Construction partner, etc.

7) What is reinforced concrete?

Reinforced concrete have steels bars or mesh in them, which gives extra strength to the construction.

8) What are the different types of foundation?

Three main types of foundation are

- Basement: In this a basement is prepared first on top of it building is constructed
- Crawl space: A crawl space is a raised foundation, it is built above the ground, just allowing enough space to crawl underneath
- Slab: In this foundation, concrete is directly poured into the pit made in the ground.

9) Explain what is Hybrid Foundation?

Hybrid Foundation is usually used for high rise building, it contains both soil supported mat and piles. This type of foundation is helpful in reducing the amount of the settlement.

10) What are the common ways of demolition?

- Hydro-demolition
- Pressure Bursting
- Dismantling

11) Explain what is floating slab foundation?

A floating concrete foundation is a type of mat foundation that consists of the hollow mat formed by a grid of thick reinforced concrete walls between two thick reinforced concrete slabs.

12) Explain what is flashing?

Flashing is an extended construction that is done to seal and protects joints in a building from water penetration. Flashing is installed at the intersecting roofs, walls and parapets.

13) Mention different types of roof systems?

- Slate or Stone roofs
- Wood shingle roofs
- Metal roofing systems

14) Explain what are the phases inspections are done by local authority while construction?

Various inspections during the construction includes

- Site Inspection
- Pre-construction or first construction Inspection
- Foundation inspection(before placing of concrete)
- Framing inspection (before insulating or covering frame)
- Insulation inspection (After insulation is completed)

- Final inspection (after all construction is completed, and permits are received)

15) List out some of the checking's, done at the completion of construction?

Some of the checking done on the exterior of the construction is

- Utility connections
- Drainage
- Retaining walls
- Compaction of fill material
- Caulking at opening
- Storm sewer system
- Safety provision (terraces, porches, areaways)
- Accessory buildings
- Pavement edging
- Protection against moisture penetration
- Design of dwelling structure

16) Explain what is alternate bid?

Alternate bid is the amount stated in the bid to be deducted or added from the base bid amount. Alternate bid is proposed when there is a use of alternate materials or methods of construction.

17) Explain what is change order request?

Change order request is a written document issued or given by the owner, requesting an adjustment to the contract sum or an extension of the contract time. Usually, it is issued by the architect or owners representative.

18) What does a construction cost covers and what does not?

A construction cost covers material, labor, equipment and services, contractor's overhead and profit and other direct construction costs. While, it does not cover compensation paid to the architect, consultant or engineers, cost of the land and other cost that is owner's responsibility.

19) Explain what is Critical Path Method (C.P.M)?

Critical Path Method is strategy and method of representing the respective tasks and activities involved in the construction through a symbolic diagram.

20) What is demising walls?

Demising wall is used for the boundary that separates your land or house from neighbor's house

21) What is labor and material payment bond?

It is a bond between the owner and the main contractor. Where a contractor guarantees for

payment to the owner if he fails to pay for all labor, materials, equipment's or services in accordance with the contract.

22) Explain what is progress payment?

It is a payment done by owner to the contractor; it is a difference between the completed work and material stored and a pre-determined schedule of values or unit costs.

23) Explain what is structural frames or systems?

Structural frames are a load bearing assembly of beams and columns on a foundation. Normally, the columns and beams are generally fabricated off site and assembled on site.

24) Explain what is zoning permit?

Zoning permit is a document issued by governing urban authority permitting land to be used for a particular purpose.

25) Explain what is the release of lien?

Release of lien is a written document executed by an individual or firm supplying labor, material or professional service on a project, which release his mechanic's lien against the project property.

26) What is Architect-Prepared Contract?

Architect- Prepared Contract is an agreement prepared in-house by the architect between owner and architect, and often reviewed by an attorney, before its execution. It is a legal contract, and it includes all terms and conditions including adequate legal protection for both the parties.

27) Explain what is 1/8 on the architect ruler denotes?

1/8 on the ruler is infact a scale that converts 1/8 inch on to the drawing to 1 foot. It would represent a drawing with a scale of $1/8" = 1 \text{ foot}$.

28) List out some of the software program that can be useful for architect?

- AutoCAD
- Revit
- 3DS Max
- Sketchup
- Photoshop
- Adobe creative suites
- Microsoft office
- Digital Media

29) Explain what are the skills required to become an architect?

- Conceptual understanding of designing models
- Basic knowledge of computer and architect related software programs
- Engineering ability
- Business aptitude
- Legal knowledge
- Designing 3D models

30) What things architect have to take care of before starting any project?

- Whether the owner has proper planning permission
- Whether the building has a certain listed grade approved
- Knowledge of building appliances and materials that includes the cost as well
- Need to take environmental factors into consideration

31) Explain how you can use different dimension tools in CAD? What are the different dimensions available?

If you are using CAD and want to use dimension tools, then go to CAD>Dimensions and you can have access to a wide range of dimensions like

- Manual dimensions
- Interior dimensions
- Auto exterior dimensions
- Auto interior dimensions
- End to end dimensions
- Point to point dimensions
- Angular dimensions
- Display temporary dimensions
- Moving objects using dimensions

32) Explain how you can turn off the display for dimension in CAD?

The display of your dimensions can be turned off in CAD for that you have to go under Floor Plan View and follow the following steps

- In floor plan active, select Tools - Display Options
- Scroll down to the dimensions- Automatic and Dimensions- Manual layers and remove the checkmarks from the Disp column
- When you click OK, the display of the dimensions in your plan will be turned off

33) Which are the top apps for you civil engineer?

Some of the best apps

- Evernote
- STEEL
- Dropbox
- Instagram
- Sketchbook
- Photoshop Express
- Flipboard
- Magic Plan
- Houzz
- AutoCAD Ws

34) What are wooden shingles?

Wooden shingles are rectangular in shapes, and they are like slats or sheets that are nailed to the exterior surface. Shingling is a traditional weather proofing method for building.

35) List out some of the common problems that architect have to tackle it?

- When client is not sure about what they want
- When there is a limited budget
- When customer requires custom design at standard design cost
- When architect has to work with limited space

36) How to build the floor to ceiling bookcase?

To build a floor to ceiling bookcase

- First measure the distance between the floor and ceiling
- Cut two boards of the length of that distance
- Cut two boards with the width you require
- Attach top and bottom boards to the side with 2 inch nails. Keep a gap about one or two inches between each nail
- Attach top and bottom boards to the side boards with 2 inch nail. This will create a frame of your bookcase. Add the shelves to the bookcase the way you want and then paint it.

37) What should be the standard roof height like to be?

For inhabited building, standard height for roof should be one or two storeys tall. If you don't need to make roof taller and yet you want make it look bigger from outside use a mansard roof containing multiple floors. The roof of the room can be adjusted by changing its pitch or by adding a parapet.

38) List out the types of roofs?

- Half hipped roof
- Dutch gable roof

- Skillion roof
- Gambrel roof
- Gull wind roof
- Mansard roof
- Bell cast roof
- Sawtooth roof
- Monitor roof, etc.

38) Explain what are the problems one might face while having a Cantilever balcony?

Cantilever balcony are usually unsupported and extend outwards, so the problem with Cantilever balconies are

- Excess deflection or bounce
- Weakness of the deck structure
- Rot and water damage to the interior of the house
- Unevenness inside the house
- Can't use the balcony for gardening or other purposes as it is not designed to lift excess amount of weight

39) For what building Built-on balconies are preferable? What are the advantages?

Built on balconies are mainly designed for retrofitting older buildings. This free standing balcony is supported in front of the facade on four columns. They are backed to the wall with brackets.

The advantage of built-on balconies are

- Old balconies can be dismantled, and the new ones can be erected immediately in front of the facade without disturbing the inner structure of the building
- The work takes place outside of the house, so there is no interference to the interior of the building

40) What things you need to take care of before building a kitchen island?

Before you start building a kitchen island, you need to take care of

- Design the kitchen island according to the need- if it is only for cooking purpose then use less space, but if it is also for eating then design it accordingly
- List out what appliances you need for your kitchen island
- How high the counter should be
- How much storage space should you required
- Working sides surrounding the kitchen island should have 42 inches of space as a minimum around the kitchen island. Don't plan Kitchen Island if it makes your kitchen more congested.

41) Explain what is the difference between built area and super built up area?

- Built up area: It includes your carpet area plus area covered by walls, pillars and ducts. It is usually 10% more from the carpet area
- Super built up area: It includes your built up area plus the area that you use as building amenities like passage to lift, stairs and lifts, gym, club, etc.

42) What is the ideal size of the living room ranges from small to large size?

- Very small size living room= 7x10ft (for two seater sofas on one side of the room)
- Small living room= 10x13ft (for two 2 seater sofa)
- Medium living room= 12x18 (for 3 Seater sofa)
- Large living room= 15x20 (for 4 seater or 5 seater sofa)