

Structural Engineer interview questions

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What to expect

Interviews for Structural Engineer roles test technical grounding in load analysis and code compliance alongside judgement on live design problems, since most of the work involves trade-offs between architectural intent, cost and structural integrity. Expect a mix of hands-on technical questions, scenario-based judgement calls, and behavioural questions about working with architects and site teams.

- **Technical:** Questions on load calculations, finite-element modelling, and the specific software packages used to produce structural analysis.
- **Scenario:** Hypothetical situations testing how you'd handle design conflicts, tight deadlines or unexpected site conditions.
- **Behavioural:** Past-experience questions about collaborating with architects, engineers or contractors when views differ.
- **Safety and compliance:** Questions on how you verify designs and construction against the National Construction Code and Australian Standards.
- **Client-facing:** Questions on explaining technical structural issues to non-technical stakeholders such as clients or project managers.

Most processes start with a phone or video screen covering your qualifications, software experience and registration status, followed by a technical interview with a senior engineer or engineering manager that digs into calculations and past project work. Larger firms often add a scenario-based panel round, and some include a site visit or portfolio review of drawings and design documentation.

1. Walk me through how you'd approach load calculations and finite-element modelling for a multi-storey building frame.

Why they ask

This checks whether you understand the actual technical process, not just that you've listed the software on your resume.

How to structure your answer

Answer as a step-by-step walk-through: inputs you'd gather, the modelling approach in the software, how you'd check results, and how the output feeds into documentation.

Example answer

"I'd start by confirming the load cases from the architectural and services drawings, dead, live, wind and seismic where relevant, then build the frame geometry in ETABS with the correct material properties and support conditions. Once the model runs, I'd sanity-check the results against hand calculations for a few critical members before trusting the software output. From there I'd size the members against AS/NZS 1170 and AS 3600 or AS 4100 depending on the material, and pass the verified results through to the drafting team for the structural drawings."

2. An architect wants a design change that conflicts with your structural calculations two weeks before documentation is due. What do you do?

Why they ask

Tests judgement under time pressure and how you balance technical integrity against project deadlines and relationships.

How to structure your answer

Frame your answer around assessing the risk first, then weighing options, then how you'd communicate the decision to the architect and project manager.

Example answer

"First I'd work out exactly what the change means structurally, whether it's a minor reanalysis or a full redesign of the affected members. If it's minor I'd reprioritise to get it done within the two weeks. If it's significant, I'd go back to the architect and project manager with the trade-offs clearly laid out: what's achievable in the time frame, what the cost or program impact of the alternative is, and what happens if we don't resolve it before documentation. I'd rather have that conversation early than sign off on something I'm not confident meets code."

3. Tell me about a time you had to resolve a disagreement with an architect or another engineer over a design decision.

Why they ask

Structural engineers work in constant negotiation with other disciplines, so this probes how you handle friction without damaging the working relationship.

How to structure your answer

Use STAR: situation, task, action, result.

Example answer

"On one project the architect wanted a longer cantilever than my initial calculations supported without significant additional steel. The task was to find a solution that kept the architectural intent without blowing the budget. I proposed an alternative framing arrangement that reduced the span the cantilever needed to carry, and modelled both options so the architect could see the cost and aesthetic difference side by side. We agreed on the revised framing, which kept the look they wanted and avoided a costly steel upsize."

4. How do you make sure a structural design and its construction meet the National Construction Code and relevant Australian Standards?

Why they ask

Compliance is central to the role and to public safety, so interviewers want evidence of a systematic approach, not just a general awareness of the codes.

How to structure your answer

Answer as a compliance process: what you check at design stage, what you check during construction, and how you document sign-off.

Example answer

"At design stage I check every element against the relevant standard, AS 3600 for concrete or AS 4100 for steel, and cross-reference load assumptions against AS/NZS 1170. During construction I inspect at the key milestones, footings, frame and slab, comparing what's built against the approved drawings, and I document any deviations along with the rectification required before I sign off. Keeping a clear paper trail matters as much as the calculations themselves if the design is ever queried later."

5. How would you explain a structural defect and its rectification plan to a client or project manager without a technical background?

Why they ask

Engineers regularly need to translate technical findings for people who make cost and program decisions but don't read structural drawings.

How to structure your answer

Describe your communication approach: how you simplify the issue, what you emphasise, and how you check understanding.

Example answer

"I'd explain what the defect means in practical terms, for example the risk it poses to safety or long-term durability rather than the engineering detail behind it, then set out the rectification options with their rough cost and time impact. I'd avoid jargon and check they understand the risk of not acting before asking them to make a call, and I'd always follow up in writing so there's a clear record of what was agreed."

6. Which structural analysis and drafting software have you used, and how do you decide which tool fits a particular job?

Why they ask

Confirms hands-on familiarity with the specific packages listed in the role and whether you understand their strengths rather than just having used them once.

How to structure your answer

Answer as a comparison: name the tools, then explain the decision criteria you'd use to choose between them for a given task.

Example answer

"I've used SAP2000 and ETABS for structural analysis and AutoCAD and Revit for drafting, with MathCAD for quick hand-calculation checks. For a building with a lot of repetitive floor plates I'd lean toward ETABS because it handles that geometry efficiently, whereas SAP2000 suits more irregular or bridge-type structures. For documentation, Revit's better where the project's already in a BIM workflow with architects and services engineers, otherwise AutoCAD is faster for standalone structural drawings."