

HKIE Structural Examination 2023 – 2024 Examiner's Report

The HKIE Structural Examination consists of two main parts, the written examination and the interview. The written examination is a seven-hour examination and has two sections: a one-hour Multiple Choice (MC) section (Section 1) and a six-hour Design Question (DQ) section (Section 2). The design question is further divided into sections A and B.

The interview part generally adopts a competence-based approach which focus on the following four pillars, applying engineering knowledge, developing technical solutions, managing engineering works and upkeeping professional acumen. The interview usually takes about an hour.

Candidates have to pass both the MC section and the DQ section, together with the interview, to be considered passing the HKIE Structural Examination.

With effect from 2023, candidates are allowed to resit **only** the Section(s) failed in the Written Examination, that is, (i) resit MC only if candidates have passed DQ, (ii) resit DQ only if candidates have passed MC; or (iii) resit both MC and DQ if candidates have failed both Sections.

Multiple Choice

- 187 candidates took part in the MC section, with 127 passing, resulting in a passing rate of 67.9%.
- Six candidates have been invited to attend the supplementary MC examination.

Design Questions

- 365 candidates took part in the DQ section, with 75 passing, resulting in a passing rate of 20.5%.
- Majority of candidates attempted design question 2, with a lesser number of candidates attempting design questions 1, 3, 4 or 5.
- Q1 Shopping Mall – The question was a three-storey shopping mall, it has a large skylight roof with floor openings on both 1/F and 2/F. Most candidates found difficulty in providing an alternative viable scheme, some provided rc scheme which did not comply with the lightweight structure requirement, and quite a few has column positioned in no column zone. Many failed to provide sufficient structural design for key members and drafting of structural plans was either not available or did not reflect the intended structural layout.
- Q2 Library Building – The question was an eight-storey multi-functional library building and was attempted by the majority of the candidates. Many were able to provide two distinct and viable schemes. Some failed to satisfy the client's requirements in locating columns in column free zone, using incorrect design loading or insufficient design to justify chosen member sizes. Quite a few did not provide the required structural layout plans.

- Q3 Community and Sport Centre – The question was a multi-level community and sport complex. Only a few candidates attempted this question. Some found difficulties in dealing with large clear span requirements and the no-column areas, most did poorly in drafting framing plans and were unable to provide details on critical elements.
- Q4 Change of Use of an Existing Building – The question was to change the usage of the top four floors of an existing eighteen-storey office building to restaurant usage, together with other alterations on the lower floors. Candidates attempted this question have to show understanding of the characteristics of the existing structural system, the load path and the load-carrying capability of various vertical structural elements. Some candidates provide two distinct and viable schemes, satisfactory in dealing with additional loading and requirements in the new structural layout. Some failed to provide comprehensible structural arrangement drawings showing the interface between the existing and the new layout.
- Q5 Footbridge – The question was a covered footbridge over an existing drainage channel connecting the government centre on one side and the local community on the other side. The majority of candidates were able to provide two distinct and viable schemes with sufficient design justification of the proposed key member sizes. Some provided two schemes with just different structures for the main span with identical load path, which were not considered as distinct schemes.

Interview

187 candidates registered for the interview between May and July 2024, 11 withdrew, and 77 passed, resulting in a passing rate of 43.75%.

- Majority of failures were related to Applying Engineering Knowledge (C2) and Developing Technical Solution (C3, C4). Main concerns on failure include: lack of design and/or site experience, lack of in-depth knowledge of the design project(s) presented, unable to discuss alternative and viable solutions, fail to demonstrate sound structural principles and behaviour.
- A significant portion of candidates were unable to demonstrate sufficient knowledge and experience in Managing Engineering Works (C5, C6, C7, C12), which could be due to insufficient project management experience and knowledge on construction contracts.
- Quite a few candidates failed to meet the competence standard relating to Upkeeping Professional Acumen (C8, C9, C10). The main concern would be in communication.

HKIE Structural Discipline Advisory Panel